

# USB Remote Controller for VXI

## NI VXI-USB

- VXIbus 3.0 features including A64 addressing and 2eVME protocol
- 32 MB/s sustained throughput across USB and VXI
- Word-serial accelerator
- USB 2.0-compatible, including “hot plug-in” capability
- Direct trigger and interrupt control
- External VXI CLK10 synchronization
- Slot 0 capability, including Resource Manager, slot identification, and bus management responsibilities
- VXIplug&play compliance
- Support for register-based communication
- Direct access to VXI memory space
- Bidirectional VXI transfers
- High-performance DMA transfers using the MITE ASIC

### Operating Systems

- Windows Vista/XP/2000

### Recommended Software

- LabVIEW
- LabWindows™/CVI
- Measurement Studio

### Driver Software (included)

- NI-VXI/NI-VISA



## Overview

The NI VXI-USB interface kit links any desktop or notebook computer to the VXIbus using the Universal Serial Bus (USB). With the single-slot, C-sized controller, your external computer performs as if it were plugged directly into the VXI backplane, giving it the capability of an embedded controller. Taking advantage of USB 2.0 technology, the VXI-USB achieves superior throughput for block transfers and word-serial (message-based) communication in comparison to IEEE 1394-to-VXI and GPIB-to-VXI interfaces. You can use the VXI-USB kit in any computer running Windows Vista/XP/2000. You gain flexibility, performance, and value by using a desktop or notebook computer for controlling your VXI system.

## Hardware

The USB 2.0-compatible VXI-USB capitalizes on the higher data transfer rate and offers hot plug-in capability so that you can easily add USB devices to your PC and configure them without needing to power down your system. In addition, the VXI-USB features a word-serial accelerator to improve the speed of data transfers using word-serial protocol commands. For register-based communication, VXI-USB performance is comparable to the 1394-to-VXI and GPIB-to-VXI interfaces. Combining USB technology with a MITE ASIC, the VXI-USB interface features high-speed DMA and direct interrupt and trigger control, providing a low-cost, easy-to-use, and powerful VXI control solution. The VXI-USB Slot 0 module connects to the computer using a thin, very flexible USB cable for easy rack-mount system installation and configuration.

## Software

The VXI-USB comes with NI-VXI/NI-VISA software, making it completely compliant with VXIplug&play Systems Alliance specifications. You can run the latest VXIplug&play software, including executable soft front panels, with which you can operate the instrument immediately, and standardized LabVIEW and LabWindows/CVI instrument drivers to simplify your programming tasks. NI-VXI/NI-VISA comes with a VXIbus interface library that works with several popular programming environments and compilers, including LabVIEW, Measurement Studio, Microsoft Visual C++, Borland C++, and Microsoft Visual Basic. Application software developed using the VXI-USB and NI-VXI/NI-VISA software is compatible with many other VXI controller platforms, including embedded controllers and computers equipped with IEEE 1394-to-VXI, GPIB-to-VXI, and MXI-2 interfaces. NI-VXI/NI-VISA I/O software compatibility across platforms protects your software investment in the future. You can easily port VXI software to other platforms as your controller requirements change or expand in the future.

## Performance

Designed for high-speed streaming, USB 2.0 transfers data at rates up to 480 Mbits/s across the USB link. Using this technology, the VXI-USB is optimized for word-serial communication and achieves a faster block throughput rate than either the IEEE 1394-to-VXI or GPIB-to-VXI remote interfaces. The VXI-USB achieves a data transfer rate of up to 32 MB/s sustained throughput between the local computer memory and the VXIbus. It provides you with a high-throughput solution for remote control of VXI systems using large block transfers and word-serial protocol.

# USB Remote Controller for VXI

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## VXI Slot 0 Functionality

The single-slot, C-sized VXI-USB module must be installed in Slot 0 in your VXI mainframe. It provides all Slot 0 capabilities including slot identification and bus management responsibilities.

## VXI Triggers and Interrupts

With the VXI-USB controller, your computer can detect and service all VXIbus interrupt lines and VXI triggers in any or all VXI mainframes to which it is connected.

### Ordering Information

NI VXI-USB .....779163-01

### BUY NOW

For complete product specifications, pricing, and accessory information, call 800 813 3693 (U.S.) or go to [ni.com/vxi](http://ni.com/vxi).

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## Specifications

### Performance

Address access .....	A64, A32, A24, A16
Transfer width (master).....	2eVME, D64, D32, D16, D08 (EO)
Transfer width (slave).....	D32, D16, D08 (EO)
Maximum throughput (peak).....	32 MB/s
Maximum throughput (sustained).....	32 MB/s
Read, modify, write cycles .....	Yes
VME block cycles .....	Yes

### Physical

Slot 0 detection.....	Yes
Software configurable.....	Yes
Dimensions.....	23.3 by 34.0 cm (9.2 by 13.4 in.)
Size .....	C-size, C-1
Weight.....	1.14 kg (2.5 lb)
I/O connectors	
Host connector: USB Series B.....	1
Device connectors: USB Series A.....	2
Trigger connectors: SMB.....	3

### Operating Environment

Temperature .....	0 to 55 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2)
Relative humidity .....	10 to 90%, noncondensing (tested in accordance with IEC-60068-2-56)

### Storage Environment

Temperature .....	-20 to 70 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2)
Relative humidity .....	5 to 95% noncondensing (tested in accordance with IEC-60068-2-56)

### Power Requirements

VDC	Typical	Maximum
+5.0	2 A	4 A
-2.0	100 mA	250 mA
-5.2	200 mA	500 mA

### Shock and Vibration

Functional shock.....	30 g peak, half-sine, 11 ms pulse (tested in accordance with IEC-60068-2-27; test profile developed in accordance with MIL-PRF-28800F)
Random vibration	
Operational .....	5 to 500 Hz, 0.3 g <sub>rms</sub>
Nonoperational.....	5 to 500 Hz, 2.4 g <sub>rms</sub> (tested in accordance with IEC-60068-2-64; nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3)

### Safety and Compliance

#### Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1

**Note:** For UL and other safety certifications, refer to the product label or visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

#### Electromagnetic Compatibility

This product is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A

**Note:** For EMC compliance, operate this device according to product documentation.

#### CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

**Note:** Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

#### Waste Electrical and Electronic Equipment (WEEE)

**EU Customers:** At the end of their life cycle, all products must be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit [ni.com/environment/weee.htm](http://ni.com/environment/weee.htm).

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## Hardware Services

### System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box. When you configure your system with the NI Standard System Assurance Program, you can select from available NI system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at [ni.com/advisor](http://ni.com/advisor) to find a system assurance program to meet your needs.

### Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit [ni.com/calibration](http://ni.com/calibration).

### Repair and Extended Warranty

NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit [ni.com/services](http://ni.com/services).