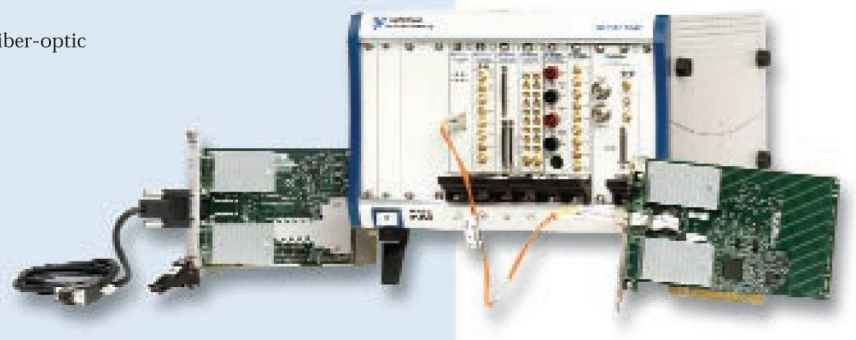
PC Control of PXI (MXI-4)

NI PXI-PCI8331, NI PCI-8331, NI PXI-8331
NI PXI-PCI8336, NI PCI-8336, NI PXI-8336

- Multichassis configurations for PXI and CompactPCI
- MXI-4 link performance
  - 132 Mbytes/s peak
  - 78 Mbytes/s sustained
- Fiber-optic or copper cabling
  - Low cost with copper
  - Electrical isolation and long-range with fiber-optic
- Rugged connectivity
- Error checking and retransmission
- Support for 5 V and 3.3 V PCI



Overview

The National Instruments PXI-PCI833x interface kits give PCs direct control of PXI systems using MXI-4 technology. You can also use NI PXI-8331 and NI PXI-8336 modules for linking multiple PXI chassis. MXI-4 is a high-bandwidth link that is transparent to software applications and drivers, therefore providing the ability to use high performance desktop computers or servers to control PXI systems.

Hardware

PC Control of PXI

With a MXI-4 link, you can transparently control a PXI system from any PCI slot, so high-performance desktop computers or servers can control PXI systems. Because PXI is based on the industry-standard PCI bus, MXI-4 provides a transparent link where all PXI modules appear to the user as if they were PCI boards within the computer itself. However, you benefit from the increased number of slots, power and cooling per slot, module selection, and synchronization features provided by PXI. Additionally, with fiber-optic MXI-4 you can electrically isolate your PXI measurement hardware from the PC with extended length cabling up to 200 m.

The MXI-4 link consists of a PCI-8331 (copper) or PCI-8336 (fiber-optic) board in the PC, connected via the appropriate cable to a PXI-8331 (copper) or PXI-8336 (fiber-optic) module in slot 1 of a PXI chassis. For convenience, you can purchase either a complete MXI-4 kit with all necessary components, or purchase the PCI board, PXI module, and cable separately.

Multichassis PXI Systems

MXI-4 can be used to connect multiple PXI chassis in a star or daisy-chain configuration within a single system. To connect two PXI chassis together with MXI-4, install a PXI-8331 (copper) or PXI-8336 (fiber-optic) module into any peripheral slot of the master chassis. Connect with the appropriate cable to a second PXI-8331 or PXI-8336 in slot 1 of the slave chassis. For more information on the possible star and daisy-chain topologies, please see the *MXI-4 User Manual.*

MXI-4 Technology

MXI-4 operates as a PCI-to-PCI bridge that achieves software and hardware transparency and high performance. MXI-4 builds on the standard PCI-to-PCI bridge architecture by splitting the bridge into two halves connected by a 1.5 Gb/s serial link. Additionally, you can create multiple-chassis PXI systems using multiple MXI-4 links. The PCI specification allows up to 255 buses to be connected in a system via PCI-PCI bridges such as MXI-4.

MXI-4 is an evolution of MXI-3. MXI-4 improves on MXI-3 by supporting both 3.3 V and 5 V PCI signaling environments, error checking and retransmission on the serial link for greater reliability in electrically noisy or harsh environments, and industrially rugged connectors.

PC Control of PXI (MXI-4)

Ordering Information

For online configuration of a complete PXI system, including chassis, modules, and all accessories, visit ni.com/pxiadvisor.

MXI-4 Kits for PXI/CompactPCI

NI PXI-PCI8331 with 3 m copper cable.....778640-03
NI PXI-PCI8336 with 10 m fiber-optic cable (isolated).....778641-10
(Kit includes one PCI MXI-4 board (PCI-833x), one PXI MXI-4 module (PXI-833x) module, and one cable).

PXI MXI-4 Interface Modules

NI PXI-8331 (copper).....778955-01
NI PXI-8336 (fiber-optic).....778957-01

PCI MXI-4 Interface Boards

NI PCI-8331 (copper).....778956-01
NI PCI-8336 (fiber-optic).....778958-01

MXI-4 Cables

Copper
- 3 m.....190957-03
- 5 m.....190957-05
- 10 m.....190957-10

Fiber-optic
- 10 m.....778959-10
- 30 m.....778959-30
- 200 m.....778959-200

Specifications

Power Requirements

Volts	Current (ADC)			
	Typical PCI-8331, PXI-8331	Maximum PCI-8331, PXI-8331	Typical PCI-8336, PXI-8336	Maximum PCI-8336, PXI-8336
+3.3	0.25	0.30	0.35	0.4
+5	1.5	1.7	1.5	1.7

Physical

Dimensions
- PCI-8331/6 ..... 10.7 by 17.5 cm (4.2 by 6.9 in.)
- PXI-8331/6 ..... 3U-size module, 10.0 by 16.0 cm (3.9 by 6.3 in.)

Slot requirements ..... One 3U PXI system controller slot or peripheral slot

Maximum cable lengths
- 8331 (copper) ..... 10 m
- 8336 (fiber) ..... 200 m

Compatibility ..... Fully compatible with PXI Hardware
..... Specification 2.1, and the PCI
..... Specification 2.2

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% (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.)

Shock and Vibration

Operational 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

Operating ..... 5 to 500 Hz, 0.3 g_{rms}

Nonoperating ..... 5 to 500 Hz, 2.4 g_{rms}

(Tested in accordance with IEC-60068-2-64. Nonoperating profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

*Specifications subject to change without notice

Note: For full EMC compliance, you must operate this device with shielded cabling. In addition, all covers and filler panels must be installed. Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, click Declaration of Conformity at ***ni.com/hardref.nsf/***. This Web site lists the DoCs by product family. Select the appropriate product family, followed by your product, and a link to the DoC appears in Adobe Acrobat format. Click the Acrobat icon to download or read the DoC.