

# PCI Express Control of PXI Express (MXI-Express x4 for PXI Express)

## NI PXIe-PCle8371, NI PXIe-PCle8372, NI PCle-8371, NI PCle-8372, NI PXIe-8370 *Higher Throughput!*

- PCI Express control of PXI Express/CompactPCI Express
- Control of two PXI Express/CompactPCI Express chassis from a single PCI Express board (NI PCle-8372)
- Sustained throughput
  - 832 MB/s (2 chassis combined, NI PXIe-PCle8372)
  - 798 MB/s (1 chassis, NI PXIe-PCle837x)
- Cabled PCI Express spec compliant
- Software transparent link that requires no programming
- Cabling up to 7 m
- Rugged connectivity



## Overview

With National Instruments MXI-Express x4 (“by four”) for PXI Express interface kits, PC users with x4 or higher PCI Express slots can exercise direct control of PXI Express systems using cabled PCI Express technology. NI MXI-Express x4 for PXI Express, a high-bandwidth serial link transparent to software applications and drivers provides the ability to use high-performance desktop computers, servers, and workstations to control PXI Express systems.

## PCI Express Control of PXI Express

With a MXI-Express x4 for PXI Express link, you can transparently control a PXI Express system from a x4 or higher PCI Express slot, so you can use desktop computers, servers, and workstations to control PXI Express systems. MXI-Express x4 for PXI Express features a fully transparent high bandwidth cabled PCI Express link where all PXI and PXI Express modules appear as 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. The MXI-Express x4 for PXI Express link consists of an NI PCle-8371 or NI PCle-8372 board in the PC that is connected via a x4 MXI-Express cable to an NI PXIe-8370 module in slot 1 of a PXI Express chassis. The NI PCle-8371 board provides one cabled PCI Express link, which you can cable to an NI PXIe-8370 module in a PXI Express chassis. The NI PCle-8372 board provides two cabled PCI Express links, each of which you can cable to individual NI PXIe-8370 modules in separate PXI Express chassis. Thus, you can use a single NI PCle-8372 board and two NI PXIe-8370 modules to simultaneously control two PXI Express systems. For your convenience, you can purchase a complete MXI-Express x4 for PXI Express kit with all necessary components or the PCI Express board, PXI Express module, and cable separately.

## Cabled PCI Express Technology

The NI PCle-8371 and NI PCle-8372 boards provide one and two cabled PCI Express links, respectively. The links have x4 (a link comprised of four x1 PCI Express lanes) lane widths. The NI PXIe-8370 module connects these PCI Express links to the PCI Express bus used in the PXI Express chassis backplane. Thus, all PXI and PXI Express modules appear as PCI boards within the computer itself.

## PCI Software Compatibility

PCI Express features software compatibility with PCI. Without making any modifications to your software, you can use a MXI-Express x4 for PXI Express link with an application written for a PXI system controlled via a PCI or PCI Express remote controller, such as MXI-3, MXI-4, or MXI-Express.

## Multichassis PXI Systems

You can use a single NI PCle-8372 board to simultaneously control two PXI Express systems. You also can incorporate multiple NI PCle-8371 or NI PCle-8372 boards in a PC with multiple x4 or higher PCI Express slots to add PXI Express chassis to a system. You cannot use an NI PXIe-8370 module to daisy chain multiple PXI Express chassis. However, using MXI-4, you can connect a PXI Express chassis to PXI chassis in a star or daisy-chain configuration within a single system. To connect a PXI Express chassis together with a PXI chassis with MXI-4, install a National Instruments PXI-8331 (copper) or PXI-8336 (fiber-optic) module into any PXI peripheral slot of the master PXI Express chassis, and connect it with the appropriate cable to a second PXI-8331 or PXI-8336 in slot 1 of the slave PXI chassis.

## PCI Express Control of PXI Express (MXI-Express x4 for PXI Express)

---

### Ordering Information

For online configuration of a complete PXI system, including chassis, modules, and all accessories, visit [ni.com/pxiadvisor](http://ni.com/pxiadvisor).

#### MXI-Express x4 for PXI Express/CompactPCI Express Kit

NI PXIe-PCle8372 .....779722-03

Kit includes one PCI Express board (NI PCle-8372), one PXI Express module (PXIe-8370), and one 3 m cable.

NI PXIe-PCle8371 .....779721-03

Kit includes one PCI Express board (NI PCle-8371), one PXI Express module (PXIe-8370), and one 3 m cable.

#### PXI Express Interface Module

NI PXIe-8370 .....779720-01

#### PCI Express MXI-Express Interface Board

NI PCle-8372 .....779724-01

NI PCle-8371 .....779723-01

#### x4 MXI-Express Cable

3 m .....779725-03

7 m .....779725-07

### **BUY NOW!**

For complete product specifications, pricing, and accessory information, call (866) 265 9891 (U.S. only) or go to [ni.com/pxiadvisor](http://ni.com/pxiadvisor).

# PCI Express Control of PXI Express (MXI-Express x4 for PXI Express)

## Specifications

Specifications are subject to change without notice.

### NI PCIe-8371/72

#### Bus Interface

Form factor ..... x4 PCI Express  
Slot compatibility ..... x4, x8, and x16<sup>1</sup> PCI Express slots

<sup>1</sup>Some motherboard manufacturers intend the x16 slot for graphics use. They may preinstall a graphics board or limit the link to x1. Check with the motherboard manufacturer if using the x16 slot for a nongraphics board.

### NI PCIe-8371 and NI PCIe-8372

Power Rail	Typical Current	Maximum Current
+3.3 V	2.5 A	3.000 A
+3.3 V Aux	1 mA	10 mA
+12 V	0 A	0 A

#### Physical

Board dimensions ..... 10.7 by 17.5 cm (4.4 by 6.9 in.)  
Slot requirement ..... One PCI Express x4 slot  
Maximum cable length ..... 7 m  
Compatibility ..... Fully compatible with the *PCI Express Specification 1.0a*

#### Operating Environment

Ambient temperature range ..... 0 to 40 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2)  
Operating relative humidity ..... 10 to 90%, noncondensing (tested in accordance with IEC-60068-2-56)

#### Storage Environment

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

### NI PXIe-8370

#### Power Requirements

Power Rail	Typical Current	Maximum Current
+3.3 V	2.2 A	2.8 A
+5 V	1 mA	3 mA
+12 V	1 mA	2 mA
+5 V Aux	0.3 A	0.4 A

#### Physical

Board dimensions ..... 10.0 by 16.0 cm (3.9 by 6.3 in.)  
Slot requirements ..... One 3U PXI Express system controller slot  
Maximum cable length ..... 7 m  
Compatibility ..... Fully compatible with the *PXI Express Hardware Specification 1.0*

#### Environment

Maximum altitude ..... 2,000 m (800 mbar) (at 25 °C ambient temperature)  
Pollution degree ..... 2  
Indoor use only

#### Operating Environment

Ambient temperature range ..... 0 to 55 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2; meets MIL-PRF-28800F Class 3 low temperature limit and MIL-PRF-28800F Class 2 high temperature limit)  
Relative humidity range ..... 10 to 90%, noncondensing (tested in accordance with IEC-60068-2-56)

## PCI Express Control of PXI Express (MXI-Express x4 for PXI Express)

---

### Storage Environment

Ambient temperature range .....	-40 to 71 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2; meets MIL-PRF-28800F Class 3 limits)
Relative humidity range.....	5 to 95%, noncondensing (tested in accordance with IEC-60068-2-56)

### Shock

Operating shock .....	30 g peak, half-sine, 11 ms pulse (tested in accordance with IEC-60068-2-27; meets MIL-PRF-28800F Class 2 limits)
-----------------------	---

### Vibration

Random Vibration

Operating .....	5 to 500 Hz, 0.3 g <sub>rms</sub>
Nonoperating .....	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)

**Note:** For full EMC compliance, 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, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## 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, CAN/CSA-C22.2 No. 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:

- 73/23/EEC; Low-Voltage Directive (safety)
- 89/336/EEC; 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).

# NI Services and Support



NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit [ni.com/services](http://ni.com/services).

## Training and Certification

NI training is the fastest, most certain route to productivity with our products. NI training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We schedule instructor-led courses in cities worldwide, or we can hold a course at your facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using NI products. Visit [ni.com/training](http://ni.com/training).

## Professional Services

Our Professional Services Team is composed of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and

integrators. Services range from start-up assistance to turnkey system integration.

Visit [ni.com/alliance](http://ni.com/alliance).



## OEM Support

We offer design-in consulting and product integration assistance if you want to use our products for OEM applications. For information about special pricing and services for OEM customers, visit [ni.com/oem](http://ni.com/oem).

## Local Sales and Technical Support

In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. NI delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to 14,000 measurement and automation professionals within NI Developer Exchange forums. Find immediate answers to your questions at [ni.com/support](http://ni.com/support).

We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit [ni.com/ssp](http://ni.com/ssp).

## Hardware Services

### NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with [ni.com/pxiadvisor](http://ni.com/pxiadvisor).

### 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).



[ni.com](http://ni.com) • (800) 813 3693

National Instruments • [info@ni.com](mailto:info@ni.com)

