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Requirements and Compatibility | Ordering Information | Detailed Specifications
For user manuals and dimensional drawings, visit the product page resources tab on ni.com.

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VME MXI-2 Interface Kits for PXI/CompactPCI

NI VME-PXI8015

- VXIplug&play compliance
- Complete interface to VXI or VME from PXI or CompactPCI
- Uses standard MXIbus with high-performance MXI-2 connectors and cables
- VXI Slot 0 capability including Resource Manager
- Word serial (message-based) communication
- Register-based communication
- High-speed DMA block transfers from VXIbus memory to PXI controller memory
- Direct VXI trigger and interrupt control
- Direct access to VXI and VME memory space
- Maximum throughput across MXIbus 33 MB/s burst and 23 MB/s sustained

Overview

The NI VME-PXI8015 links any PXI or CompactPCI system directly to the VMEbus using a high-speed MXI-2 link. With a PXI or CompactPCI chassis to control VME, you can build systems that take advantage of all of the best features of each bus architecture. The VME-PXI8015 kit includes all you need for interfacing PXI or CompactPCI to VME. It features an NI PXI-8320 plug-in circuit board, an NI VME-MXI-2 interface board, a 2 m MXI-2 cable, and software for Windows. The PXI-8320 is also available as a board-only kit for which you need to purchase a VME-MXI-2 interface separately.

Back to Top

Requirements and Compatibility

OS Information

- Windows

Driver Information

- NI-VISA
- NI-VXI

Back to Top

Ordering Information

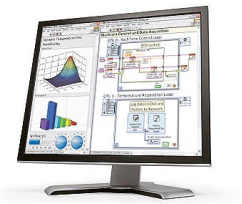
For a complete list of accessories, visit the product page on ni.com.

Products	Part Number	Recommended Accessories	Part Number
VME-PXI8015			
PXI-8320, MXI-2 System Extender, Board Only Kit	777573-01	No accessories required.	
VME-PXI8015, XP/2000/NT/Me/98, PXI-8320, VME-MXI-2, MXI-2 Cable	777590-02	No accessories required.	

Back to Top

Software Recommendations

NI LabVIEW Base Development System for Windows



- Fully integrated graphical system design software
- Support for a wide range of measurement hardware, I/O, and buses
- Custom, event-driven user interfaces for measurement and control
- Advanced compiler to ensure high-performance execution and code optimization
- Includes SSP for professional technical support, online training, and software upgrades

NI LabWindows™/CVI for Windows

- Real-time advanced 2D graphs and charts
- Complete hardware compatibility with IVI, VISA, DAQ, GPIB, and serial
- Analysis tools for array manipulation, signal processing statistics, and curve fitting
- Simplified cross-platform communication with network variables
- Measurement Studio .NET tools (included in LabWindows/CVI Full only)
- The mark LabWindows is used under a license from Microsoft Corporation.

Back to Top

Support and Services

Technical Support

Get answers to your technical questions using the following National Instruments resources.

- **Support** - Visit ni.com/support to access the NI KnowledgeBase, example programs, and tutorials or to contact our applications engineers who are located in NI sales offices around the world and speak the local language.
- **Discussion Forums** - Visit forums.ni.com for a diverse set of discussion boards on topics you care about.
- **Online Community** - Visit community.ni.com to find, contribute, or collaborate on customer-contributed technical content with users like you.

Repair

While you may never need your hardware repaired, NI understands that unexpected events may lead to necessary repairs. NI offers repair services performed by highly trained technicians who quickly return your device with the guarantee that it will perform to factory specifications. For more information, visit ni.com/repair.

Training and Certifications

The NI training and certification program delivers the fastest, most certain route to increased proficiency and productivity using NI software and hardware. Training builds the skills to more efficiently develop robust, maintainable applications, while certification validates your knowledge and ability.

- **Classroom training in cities worldwide** - the most comprehensive hands-on training taught by engineers.
- **On-site training at your facility** - an excellent option to train multiple employees at the same time.
- **Online instructor-led training** - lower-cost, remote training if classroom or on-site courses are not possible.
- **Course kits** - lowest-cost, self-paced training that you can use as reference guides.
- **Training memberships** and training credits - to buy now and schedule training later.

Visit ni.com/training for more information.

Extended Warranty

NI offers options for extending the standard product warranty to meet the life-cycle requirements of your project. In addition, because NI understands that your requirements may change, the extended warranty is flexible in length and easily renewed. For more information, visit ni.com/warranty.

OEM

NI offers design-in consulting and product integration assistance if you need NI products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Alliance

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 700 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit ni.com/alliance.

Back to Top

Detailed Specifications

This appendix lists various module specifications of the PCI-MXI-2, PCI-MXI-2 Universal, PXI-8320, VXI-MXI-2 (C-size and B-size), and VME-MXI-2, such as physical dimensions and power requirements.

PCI-MXI-2

This section lists the specifications for the PCI-MXI-2 module.

MXIbus Capability Descriptions

- Master-mode A32, A24, and A16 addressing
- Master-mode block transfers and synchronous block transfers
- Slave-mode A32, A24, and A16 addressing

Slave-mode block transfers and synchronous block transfers

- Master-mode D32, D16, and D08 data sizes
- Slave-mode D32, D16, and D08 data sizes
- Optional MXIbus System Controller
- Can be a fair MXIbus requester
- Can lock the MXIbus for indivisible transfers
- Can terminate the MXIbus
- MXIbus master retry support
- MXIbus slave retry support
- Interrupt handler for levels 7 to 1
- Interrupt requester for levels 7 to 1
- MXIbus D32, D16, D08(O) interrupt handler
- MXIbus D32, D16, D08(O) interrupter
- Release on Acknowledge or Register Access interrupter
- MXIbus bus timer (programmable limit)
- Automatic MXIbus System Controller detection

PCI Functionality	
PCI initiator (master) capability	supported
PCI target (slave) capability	supported
Data path	32 bits
Card voltage/type	5 V only; 32-bit half-size card
Parity generation/checking, error reporting	supported
Target decode speed	medium (one clock)
Target fast-back-to-back capability	supported
Resource locking	supported as a master and slave
PCI interrupts	interrupts passed on INTA# signal
Base address registers	BAR 0 dedicated to local registers, BAR 1–3 size configurable from 256 B to 4 GB
Expansion ROM	8 KB
PCI master performance (ideal maximum)	132 Mbytes/s (16 Dwords maximum)
PCI slave performance (ideal maximum)	33 Mbytes/s (to local registers)
Environmental	
Temperature	0 to 55 °C operating; –40 to 85 °C storage
Relative humidity	0 to 95% noncondensing, operating; 0 to 95% noncondensing, storage
EMI	FCC Class A verified
Requirements	
Memory space	32 KB minimum, programmable
Physical	
Board dimensions	174.63 by 106.68 mm (6.875 by 4.2 in.)
Connectors	single fully implemented MXI-2 connector
Slot requirements	single PCI slot
MTBF	157,172 hours
Weight	0.18 Kg (0.4 lb) typical (no DRAM installed)
Electrical	
+5 VDC source	2.2 A typical, 3.5 A maximum
Performance	
Peak MXI transfer rate	33 Mbytes/s
Sustained MXI transfer rate	23 Mbytes/s

PCI-MXI-2 Universal

This section lists the specifications for the PCI-MXI-2 Universal module.

MXIbus Capability Descriptions

- Master-mode A32, A24, and A16 addressing
- Master-mode block transfers and synchronous block transfers
- Slave-mode A32, A24, and A16 addressing
- Slave-mode block transfers and synchronous block transfers
- Master-mode D32, D16, and D08 data sizes
- Slave-mode D32, D16, and D08 data sizes
- Optional MXIbus System Controller
- Can be a fair MXIbus requester
- Can lock the MXIbus for indivisible transfers
- Can terminate the MXIbus
- MXIbus master retry support
- MXIbus slave retry support
- Interrupt handler for levels 7 to 1
- Interrupt requester for levels 7 to 1
- MXIbus D32, D16, D08(O) interrupt handler
- MXIbus D32, D16, D08(O) interrupter
- Release on Acknowledge or Register Access interrupter
- MXIbus bus timer (programmable limit)
- Automatic MXIbus System Controller detection

PCI Functionality	
PCI initiator (master) capability	supported
PCI target (slave) capability	supported
Data path	32 bits
Card voltage/type	3.3 or 5 V; 32-bit half-size card
Parity generation/checking error reporting	supported
Target decode speed	medium (one clock)
Target fast-back-to-back capability	supported
Resource locking	supported as a master and slave
PCI interrupts	interrupts passed on INTA# signal
Base address registers	BAR 0 dedicated to local registers, BAR 1–3 size configurable from 256 B to 4 GB
Expansion ROM	8 KB
PCI master performance (ideal maximum)	132 Mbytes/s (16 Dwords maximum)
PCI slave performance (ideal maximum)	33 Mbytes/s (to local registers)
Environmental	
Temperature	0 to 55 °C operating; –20 to 70 °C storage
Relative humidity	10 to 90% noncondensing, operating; 5 to 95% noncondensing, storage
Requirements	
Memory Space	32 KB minimum, programmable
Physical	
Board dimensions	174.63 by 106.68 mm (6.875 by 4.2 in.)
Connectors	single fully implemented MXI-2 connector
Slot requirements	single PCI slot
MTBF	contact factory
Weight	0.18 Kg (0.4 lb) typical (no DRAM installed)
Electrical	
	50 mA typical, 80 mA maximum

+3.3 VDC source	
+5 VDC source	2.2 A typical, 3.5 A maximum
Performance	
Peak MXI transfer rate	33 Mbytes/s
Sustained MXI transfer rate	23 Mbytes/s

PXI-8320

This section lists the specifications for the PXI-8320 module.

MXIbus Capability Descriptions

- Master-mode A32, A24, and A16 addressing
- Master-mode block transfers and synchronous block transfers
- Slave-mode A32, A24, and A16 addressing
- Slave-mode block transfers and synchronous block transfers
- Master-mode D32, D16, and D08 data sizes
- Slave-mode D32, D16, and D08 data sizes
- Optional MXIbus System Controller
- Can be a fair MXIbus requester
- Can lock the MXIbus for indivisible transfers
- Can terminate the MXIbus
- MXIbus master retry support
- MXIbus slave retry support
- Interrupt handler for levels 7 to 1
- Interrupt requester for levels 7 to 1
- MXIbus D32, D16, D08(O) interrupt handler
- MXIbus D32, D16, D08(O) interrupter
- Release on Acknowledge or Register Access interrupter
- MXIbus bus timer (programmable limit)
- Automatic MXIbus System Controller detection

PCI Functionality	
PCI initiator (master) capability	supported
PCI target (slave) capability	supported
Data path	32 bits
Card voltage/type	5 V only; 32-bit 3U-size card
Parity generation/checking error reporting	supported
Target decode speed	medium (one clock)
Target fast-back-to-back capability	supported
Resource locking	supported as a master and slave
PCI interrupts	interrupts passed on INTA# signal
Base address registers	BAR 0 dedicated to local registers, BAR 1–3 size configurable from 256 B to 4 GB
Expansion ROM	8 KB
PCI master performance (ideal maximum)	132 Mbytes/s (16 Dwords maximum)
PCI slave performance (ideal maximum)	33 Mbytes/s (to local registers)
Environmental	
Temperature	0 to 55 °C operating; –40 to 85 °C storage
Relative humidity	0 to 95% noncondensing, operating; 0 to 95% noncondensing, storage
EMI	FCC Class A verified
Requirements	
Memory space	32 KB minimum, programmable
Physical	
Board dimensions	160 mm by 100 mm (6.3 by 3.94 in.)

Connectors	single fully implemented MXI-2 connector
Slot requirements	single CompactPCI/PXI Peripheral Slot
MTBF	290,596 hours
Weight	0.18 Kg (0.4 lb) typical (no DRAM installed)
Electrical	
+5 VDC source	2.2 A typical, 3.5 A maximum
Performance	
Peak MXI transfer rate	33 Mbytes/s
Sustained MXI transfer rate	23 Mbytes/s

VXI-MXI-2

This section lists the specifications for the VXI-MXI-2 module. These specifications apply equally to the VXI-MXI-2/B unless otherwise noted.

MXIbus Capability Descriptions

- Master-mode A32, A24, and A16 addressing
- Master-mode block transfers and synchronous block transfers
- Slave-mode A32, A24, and A16 addressing
- Slave-mode block transfers and synchronous block transfers
- Master-mode D32, D16, and D08 data sizes
- Slave-mode D32, D16, and D08 data sizes
- Optional MXIbus System Controller
- Can be a fair MXIbus requester
- Can lock the MXIbus for indivisible transfers
- Can terminate the MXIbus
- MXIbus master retry support
- MXIbus slave retry support
- Interrupt handler for levels 7 to 1
- Interrupt requester for levels 7 to 1
- MXIbus D32, D16, D08(O) interrupt handler
- MXIbus D32, D16, D08(O) interrupter
- Release on Acknowledge or Register Access interrupter
- MXIbus bus timer (programmable limit)
- Automatic MXIbus System Controller detection
- Automatic MXIbus termination detection

VMEbus Capability Codes

Capability Code	Description
A32, A24, A16 (master)	VMEbus master A32, A24, and A16 addressing
A32, A24, A16 (slave)	VMEbus slave A32, A24, and A16 addressing
D32, D16, D08(EO) (master)	VMEbus master D32, D16, and D08 data sizes
D32, D16, D08(EO) (slave)	VMEbus slave D32, D16, and D08 data sizes
BLT, MBLT (master)	VMEbus master block and D64 transfers
BLT, MBLT (slave)	VMEbus slave block and D64 transfers
RMW (master)	VMEbus master read/modify/write transfers
RMW (slave)	VMEbus slave read/modify/write transfers
RETRY (master)	VMEbus master retry support
RETRY (slave)	VMEbus slave retry support
FSD	First slot detector
SCON	VMEbus System Controller
PRI, RRS	Prioritized or Round Robin Select arbiter
ROR, FAIR	Release on Request and FAIR bus requester
IH(7–1)	Interrupt handler for levels 7 to 1
I(7–1)	Interrupt requester for levels 7 to 1
D32, D16, D08(O) (Interrupt Handler)	VMEbus D32, D16, D08(O) interrupt handler
D32, D16, D08(O) (Interrupter)	VMEbus D32, D16, D08(O) interrupter
ROAK, RORA	Release on Acknowledge or Register Access interrupter

Capability Code	Description
BTO(*x*)	VMEbus bus timer (programmable limit)

Requirements	
VXIbus configuration space	64 B
A24 or A32 space	16 KB minimum (programmable)
Environmental	
Temperature	0 to 55 °C operating; –40 to 85 °C storage
Relative humidity	0 to 95% noncondensing, operating; 0 to 95% noncondensing, storage
EMI	FCC Class A verified
Physical	
C-Size VXI-MXI-2	
Board dimensions	fully enclosed, shielded VXI C-size board, 233.35 by 340 mm (9.187 by 13.386 in.)
Connectors	single fully implemented MXI-2 bus connector and three SMB connectors
Slot requirements	single VXI C-size slot
Compatibility	fully compatible with VXI specification
VXI keying class	class 1 TTL
MTBF	contact factory
Weight	1.027 Kg (2.26 lb) typical (no DRAM installed)
B-Size VXI-MXI-2/B	
Board dimensions	VXI B-size board, 233.35 by 160 mm (9.187 by 6.2999 in.)
Connectors	single fully implemented MXI-2 bus connector and three SMB connectors
Slot requirements	single VXI B-size slot
Compatibility	fully compatible with VXI specification
VXI keying class	class 1 TTL
MTBF	contact factory
Weight	0.36 Kg (0.79 lb) typical (no DRAM installed)
Electrical	
+5 VDC source	2.5 A typical, 3.5 A maximum
–5.2 VDC source	180 mA typical, 225 mA maximum
–2 VDC source	80 mA typical, 100 mA maximum
Performance	
Peak VME transfer rate	33 Mbytes/s
Sustained VME transfer rate	23 Mbytes/s

VME-MXI-2

This section lists the specifications for the VME-MXI-2 module.

MXIbus Capability Descriptions

- Master-mode A32, A24 and A16 addressing
- Master-mode block transfers and synchronous block transfers
- Slave-mode A32, A24, and A16 addressing
- Slave-mode block transfers and synchronous block transfers
- Master-mode D32, D16, and D08 data sizes
- Slave-mode D32, D16, and D08 data sizes
- Optional MXIbus System Controller
- Can be a fair MXIbus requester
- Can lock the MXIbus for indivisible transfers

Can terminate the MXIbus
- MXIbus master retry support
- MXIbus slave retry support
- Interrupt handler for levels 7 to 1
- Interrupt requester for levels 7 to 1
- MXIbus D32, D16, D08(O) interrupt handler
- MXIbus D32, D16, D08(O) interrupter
- Release on Acknowledge or Register Access interrupter
- MXIbus bus timer (programmable limit)
- Automatic MXIbus System Controller detection
- Automatic MXIbus termination detection

VMEbus Capability Codes

Capability Code	Description
A32, A24, A16 (master)	VMEbus master A32, A24, and A16 addressing
A32, A24, A16 (slave)	VMEbus slave A32, A24, and A16 addressing
D32, D16, D08(EO) (master)	VMEbus master D32, D16, and D08 data sizes
D32, D16, D08(EO) (slave)	VMEbus slave D32, D16, and D08 data sizes
BLT, MBLT (master)	VMEbus master block and D64 transfers
BLT, MBLT (slave)	VMEbus slave block and D64 transfers
RMW (master)	VMEbus master read/modify/write transfers
RMW (slave)	VMEbus slave read/modify/write transfers
RETRY (master)	VMEbus master retry support
RETRY (slave)	VMEbus slave retry support
FSD	First slot detector
SCON	VMEbus System Controller
PRI, RRS	Prioritized or Round Robin Select arbiter
ROR, FAIR	Release on Request and FAIR bus requester
IH(7–1)	Interrupt handler for levels 7 to 1
I(7–1)	Interrupt requester for levels 7 to 1
D32, D16, D08(O) (Interrupt Handler)	VMEbus D32, D16, D08(O) interrupt handler
D32, D16, D08(O) (Interrupter)	VMEbus D32, D16, D08(O) interrupter
ROAK, RORA	Release on Acknowledge or Register Access interrupter
BTO(*x*)	VMEbus bus timer (programmable limit)

Requirements	
A16 space	64 B
A24 or A32 space	16 KB minimum (programmable)
Environmental	
Temperature	0 to 55 °C operating; –40 to 85 °C storage
Relative humidity	0 to 95% noncondensing, operating; 0 to 95% noncondensing, storage
EMI	FCC Class A verified
Physical	
Board dimensions	VMEbus double-height board, 233.36 by 160 mm (9.187 by 6.2999 in.)
Connectors	single fully implemented MXI-2 bus connector
Slot requirements	single VMEbus double-height slot
Compatibility	fully compatible with VMEbus specification
MTBF	184,366 hours
Weight	0.33 Kg (0.73 lb) typical (no DRAM installed)
Electrical	
+5 VDC source	2.2 A typical, 3.2 A maximum
Performance	

Peak VME transfer rate	33 Mbytes/s
Sustained VME transfer rate	23 Mbytes/s

Back to Top