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PXI Express Chassis With Integrated MXI-Express Remote Controller

NI PXIe-1073



- Controlled from either a PCI Express desktop host or an ExpressCard laptop host
- 3 hybrid slots and 2 PXI Express slots
- MXI-Express remote controller achieves up to 215MB/s sustained throughput
- Up to 250 MB/s per-slot dedicated bandwidth (x1 PCI Express), 250 MB/s total system bandwidth
- Acoustic noise as low as 43.3 dBA
- Accepts 3U PXI Express and CompactPCI Express modules in every slot and CompactPCI modules in designated slots
- Low-jitter 10 MHz and 100 MHz reference clocks with 25 ppm stability
- No system timing slot
- 150 W from 0 to 50 °C
- Optional rack-mount kit
- Optional handle and feet kit
- Optional slot blockers for directing air flow inside the chassis

Overview

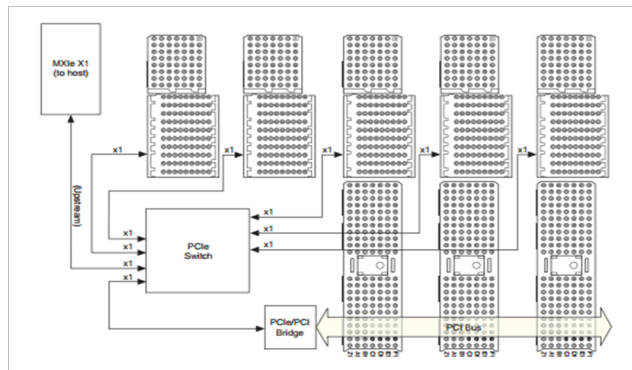
NI PXIe-1073 chassis kits consist of a high-value chassis featuring an integrated controller for remote control applications, either a host PCI Express board for desktops or a host ExpressCard for laptops, and a cable. These kits can help you create the highest-value PXI Express systems on the market today. With an integrated MXI-Express controller in the chassis, the NI PXIe-1073 provides a transparent, remote link with up to 208 MB/s sustained throughput to the host computer. It features five peripheral slots for I/O modules; compact, rugged packaging; and quiet operation, so it is ideal for portable, desktop, and industrial control applications.

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Application and Technology

High-Value PXI/PXI Express System

With an integrated MXI-Express remote controller, the NI PXIe-1073 offers the most attractive price per slot for a PXI system. The chassis has five module slots, three of which can accept either PXI Express or standard PXI hybrid-compatible modules. This makes the chassis a logical choice for engineers requiring only PXI slots but needing the flexibility to add PXI Express modules in the future.



NI PXIe-1073 Backplane Architecture

PXI Timing and Synchronization

For PXI modules, the NI PXIe-1073 backplane is fully compliant with PCI timing and synchronization standards. The chassis includes a 10 MHz reference clock with an accuracy of ± 25 parts per million (ppm), less than 5 ps jitter, and a maximum slot-to-slot skew of 250 ps. For triggering and handshaking needs, the NI PXIe-1073 offers the PXI trigger bus.

For PXI Express modules, in addition to PXI timing and synchronization features, the NI PXIe-1073 backplane delivers a differential 100 MHz reference clock with an accuracy of ± 25 ppm, less than 3 ps jitter, and a maximum slot-to-slot skew of 100 ps.

The NI PXIe-1073 does not offer a system timing slot, which provides the ability to import/export the 10 MHz clock and PXI triggers. It also does not provide a star trigger. For more advanced timing and synchronization, consider one of the high-performance NI PXI Express chassis.

Compact and Quiet Portable System

The compact, rugged, and portable NI PXIe-1073 weighs less than 12 lb, making it ideal for portable applications. It features an AUTO/HIGH fan-speed selector that provides a HIGH fan-speed setting to maximize cooling and AUTO fan setting to minimize acoustic emissions. When set to AUTO, the NI PXIe-1073 chassis monitors air intake temperature and adjusts the fan speed accordingly. When set to AUTO in an environment with an ambient temperature of 25 °C, the sound pressure level measured at the operator interface is only 43.3 dBA.

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Ordering Information

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

Products	Part Number	Recommended Accessories	Part Number
NI PXIe-1073			
NI PXIe-1073: Power Cord, 240V, 10A, North American	763068-01	No accessories required.	
PXI-103x and PXIe-107x Side handle and rubber feet kit	781482-01	No accessories required.	
NI PXIe-1073: Power Cord, AC, U.S., 120 VAC	763000-01	No accessories required.	
PXI-103x and PXIe-107x Rack Mount Kit	778948-01	No accessories required.	

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Software Recommendations

NI LabVIEW for Test Automation and Validation



- Reduce development time with intuitive graphical programming
- Communicate with thousands of instruments using free instrument drivers
- Take advantage of high-performance technologies such as FPGAs and multicore processors
- Incorporate low-cost USB instruments to get started on your test applications

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Support and 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 to find a system assurance program to meet your needs.

Calibration

NI measurement hardware is calibrated to ensure measurement accuracy and verify that the device meets its published specifications. To ensure the ongoing accuracy of your measurement hardware, NI offers basic or detailed recalibration service that provides ongoing ISO 9001 audit compliance and confidence in your measurements. To learn more about NI calibration services or to locate a qualified service center near you, contact your local sales office or visit ni.com/calibration.

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.

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Detailed Specifications



Caution If the NI PXIe-1073 chassis is used in a manner inconsistent with the instructions or specifications listed by National Instruments, the protective features of the chassis may be impaired.



Note Specifications are subject to change without notice.

This appendix contains specifications for the NI PXIe-1073 chassis.

Electrical

AC Input

Input voltage range	100–240 VAC
Operating voltage range ¹	90–264 VAC
Input frequency	50/60 Hz
Operating frequency range ¹	47–63 Hz
Input current rating	4–2 A
Efficiency	>70% at full load, normal input voltage
Power disconnect	The AC power cable provides main power disconnect. The front-panel power switch controls the internal chassis power supply that provides DC power to the CompactPCI/PXI backplane.

DC Output

DC current capacity (I_{MP})	
Voltage	Maximum Current
+3.3 V	15 A
+5 V	7.5 A
+5 V _{AUX}	1.0 A
+12 V	15 A
–12 V	0.75 A



Note The maximum total power is 150 W. This represents 30 W per slot for each of the five slots of the chassis.

Over-current protection

All outputs protected from short circuit

Over-voltage protection		
Over-voltage at	Active Range	
	Minimum	Maximum
+3.3 V	3.76 V	4.3 V
+5 V	5.74 V	7.0 V
+12 V	13.4 V	15.6 V

Chassis Cooling

Per slot cooling capacity	38.25 W
Slot airflow direction	Bottom of module to top of module
Module cooling	
System	Forced air circulation (positive pressurization) through a High Flow fan with HIGH/AUTO speed selector
Intake	Bottom of chassis
Exhaust	Along rear, right side, and top of chassis
Power supply cooling	
System	Forced air circulation through integrated fan
Intake	Front side of chassis
Exhaust	Rear side of chassis

Environmental

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient)
Measurement Category	II
Pollution Degree	2

For indoor use only.

Operating Environment

Ambient temperature range	0 to 50 °C (Tested in accordance with IEC-60068-2-1 and IEC-60068-2-2. Meets MIL-PRF-28800F Class 3 low temperature limit and high temperature limit.)
Relative humidity range	20 to 80%, noncondensing (Tested in accordance with IEC-60068-2-56.)

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	10 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. Meets MIL-PRF-28800F Class 2 limits.)
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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 test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Acoustic Emissions

Sound Pressure Level (at Operator Position)

(Tested in accordance with ISO 7779. Meets MIL-PRF-28800F requirements.)

NI PXIe-1073


Auto fan (at 25 °C ambient)	43.3 dBA
High fan	58.3 dBA

Sound Power

(Tested in accordance with ISO 7779.)

NI PXIe-1073


Auto fan (at 25 °C ambient)	51.3 dBA
High fan	64.6 dBA

 **Note** Specifications are subject to change without notice.

Safety Standards

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 the *Online Product Certification* section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

 **Note** For the standards applied to assess the EMC of this product, refer to the *Online Product Certification* section.

 **Note** For EMC compliance, operate this device with shielded cables.

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)

Online Product Certification


Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit ni.com/certification, search by module number or product line, and click the appropriate link in the Certification column.

Environmental Management

National Instruments is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial not only to the environment but also to NI customers.

For additional environmental information, refer to the *NI and the Environment* Web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

 **EU Customers** At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment, visit ni.com/environment/weee.htm.





电子信息产品污染控制管理办法（中国 RoHS）

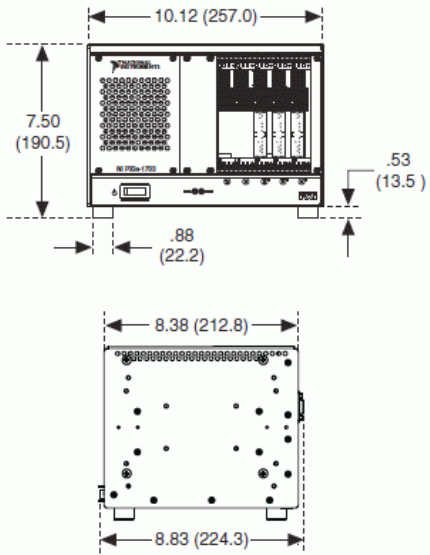


中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

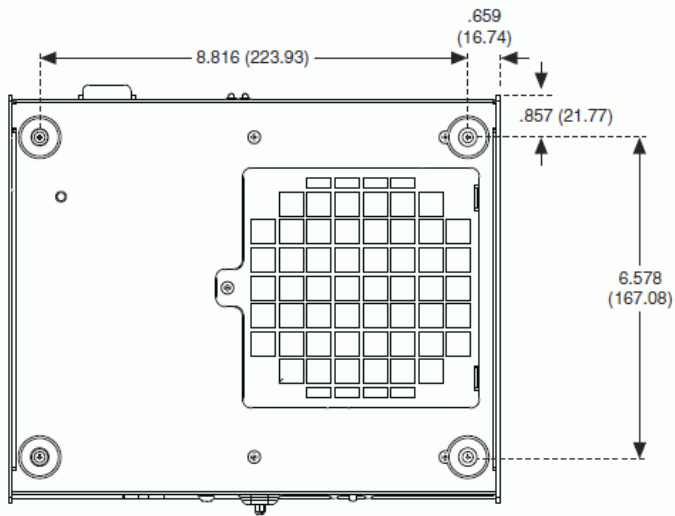
Backplane

Size	3U-sized; integrated controller and 5 peripheral slots. Compliant with IEEE 1101.10 mechanical packaging. PXI Express Specification compliant. Accepts both PXI Express and CompactPCI (PICMG 2.0 R3.0) 3U modules.
V(I/O) ²	+5 V
	UL 94 V-0 recognized

Backplane bare-board material	
Backplane connectors	Conform to IEC 917 and IEC 1076-4-101, and are UL 94 V-0 rated
System Synchronization Clocks (PXI_CLK10, PXIe_CLK100, PXIe_SYNC100)	
10 MHz System Reference Clock: PXI_CLK10	
Maximum slot-to-slot skew	250 ps
Accuracy	±25 ppm max. (guaranteed over the operating temperature range)
 Note The 10 MHz system reference clock does not require calibration.	
Maximum jitter	5 ps RMS phase-jitter (10 Hz–1 MHz range)
Duty-factor	45%–55%
Unloaded signal swing	3.3 V ±0.3 V
 Note For other specifications refer to the <i>PXI-1 Hardware Specification</i> .	
100 MHz System Reference Clock: PXIe_CLK100 and PXIe_SYNC100	
Maximum slot-to-slot skew	100 ps
Accuracy	±25 ppm max. (guaranteed over the operating temperature range)
Maximum jitter	3 ps RMS phase-jitter (10 Hz–12 kHz range)
	2 ps RMS phase-jitter (12 kHz–20 MHz range)
Duty-factor for PXIe_CLK100	45%–55%
Absolute single-ended voltage swing (When each line in the differential pair has 50 Ω termination to 1.30 V or Thévenin equivalent)	400–1000 mV
 Note For other specifications refer to the <i>PXI-5 PXI Express Hardware Specification</i> .	
Mechanical	
Overall dimensions (standard chassis)	
Height	177 mm (6.97 in.)
 Note 12.7 mm (0.50 in.) is added to height when feet are installed.	
Width	257.1 mm (10.12 in.)
Depth	212.8 mm (8.38 in.)
Weight	5 kg (11.0 lbs)
Chassis materials	Sheet Aluminum, Extruded Aluminum, Cold Rolled Steel, Nylon
Finish	Clear Chromate Conversion Coat on Aluminum, Electrodeposited Nickel Plate Plate on Cold Rolled Steel, Polyester Urethane Powder Paint
The following two figures show the PXIe-1073 dimensions. The holes shown are for the installation of the optional rack-mount kits as shown in the third figure. Notice that the front and rear rack mounting holes (size M4) are symmetrical.	
NI PXIe-1073 Chassis Dimensions (Front and Side) in Inches (mm)	

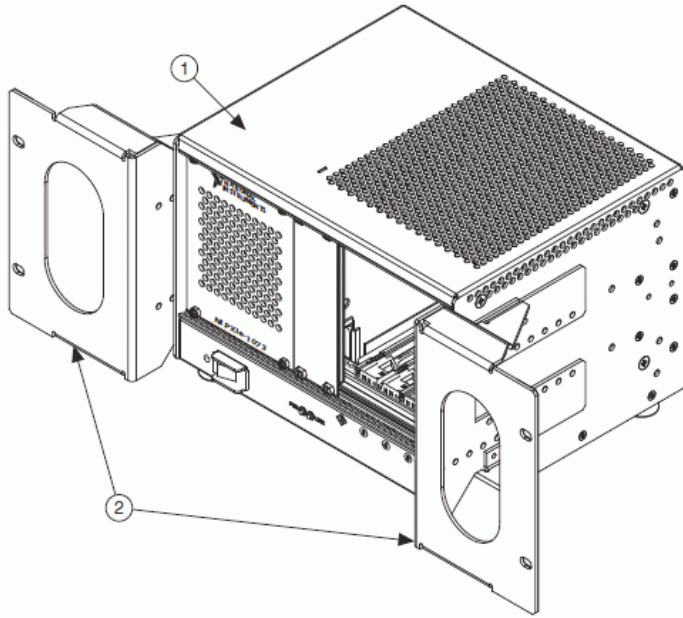


NI PXIe-1073 Chassis Dimensions (Bottom) in Inches (mm)



The following figure shows the PXIe-1073 rack mount kit components.

NI PXIe-1073 Chassis Rack Mount Kit Components



1 NI PXIe-1073 Chassis 2 Rack Mount Kit



Note Refer to the *NI PXIe-1073 Rack Mount Installation Guide* included with your rack mount kit for more information on rack mounting the NI PXIe-1073 chassis.

¹ The operating range is guaranteed by design.

² V(I/O) is connected to the +5 V DC power plane, so the same specifications apply to V(I/O) and +5 V.

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