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PXI Chassis With Integrated MXI-Express Remote Controller

NI PXI-1033



- Acoustic noise as low as 38 dBA
- Operating temperature range from 0 to 50 °C
- Accepts 3U PXI and CompactPCI modules
- Optional rack-mount kit
- Rugged, compact chassis accepts up to 5 peripheral modules
- High-value chassis for remote control applications
- Controlled from either a PCI Express desktop host or an ExpressCard laptop host
- MXI-Express remote controller achieves up to 110 MB/s sustained throughput
- Optional handle and feet kit

Overview

The NI PXI-1033 chassis kits consist of a high-value chassis designed with an integrated controller for remote control applications, either a host PCI Express board for desktops or a host ExpressCard for laptops, and a cable. The PXI-1033 provides a transparent remote link with up to 110 MB/s sustained throughput. It offers five peripheral slots for I/O modules and features compact, rugged packaging as well as quiet operation, which makes it ideal for both portable and desktop ATE systems.

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Application and Technology

Lightweight and Quiet Portable System

The PXI-1033 compact, rugged, and portable chassis weighs less than 12 lb, making it ideal for portable applications. It features an AUTO/HIGH fan-speed selector that provides a HIGH fan setting to maximize cooling and AUTO fan setting to minimize acoustic emissions. When set to AUTO, the PXI-1033 chassis monitors air intake temperature and adjusts fan speed accordingly. When set to AUTO in an environment with ambient temperatures of 25 °C, the sound pressure level measured at the operator interface is only 37.4 dBA.

PXI Timing and Synchronization

The PXI-1033 includes a 10 MHz reference clock supplied independently to each peripheral slot with a maximum slot-to-slot skew of 250 ps. For triggering and handshaking needs, the PXI-1033 offers the PXI trigger bus.

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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-PXI 1033 | | | |
| PXI-103x and PXIe-107x Side handle and rubber feet kit | 781482-01 | No accessories required. | |
| PXI-103x and PXIe-107x Rack Mount Kit | 778948-01 | No accessories required. | |

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.

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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.

Detailed Specifications



Caution If the PXI-1033 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 PXI-1033 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 | 0–50 °C |
| +3.3 V | 10 A |
| +5 V | 15 A |
| +12 V | 2.5 A |
| –12 V | 0.8 A |

| | |
|-------------------------|--|
| 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 | 25 W |
| Slot airflow direction | P1 to P2, 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 85 °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 | 20 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC-60068-2-27. Meets MIL-PRF-28800F Class 2 limits.) |
| 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.) | |
| PXI-1033 | |
| Auto fan (at 25 °C ambient) | 37.4 dBA |
| High fan | 51.5 dBA |
| Sound Power | |
| (Tested in accordance with ISO 7779.) | |
| PXI-1033 | |
| Auto fan (at 25 °C ambient) | 43.8 dBA |
| High fan | 60.9 dBA |
| 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: | |
| <ul style="list-style-type: none"> 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 , 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: | |
| <ul style="list-style-type: none"> 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 printed documentation. |
| CE Compliance | |
| This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows: | |
| Low-Voltage Directive (safety) | 73/23/EEC |
| Electromagnetic Compatibility Directive (EMC) | 89/336/EEC |
|  | 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 , 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 the product life cycle, all products <i>must</i> 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 . |
| Backplane | |
| Size | 3U-sized; integrated controller and 5 peripheral slots. Compliant with IEEE 1101.10 mechanical packaging. <i>PXI Hardware Specification, Revision 2.2</i> |

| | |
|-------------------------------|--|
| | compliant. Accepts both PXI and CompactPCI 3U modules. |
| V(I/O) ² | +5 V |
| Backplane bare-board material | UL 94 V-0 recognized |
| Backplane connectors | Conform to IEC 917 and IEC 1076-4-101, and are UL 94 V-0 rated |

10 MHz System Reference Clock (10 MHz REF)

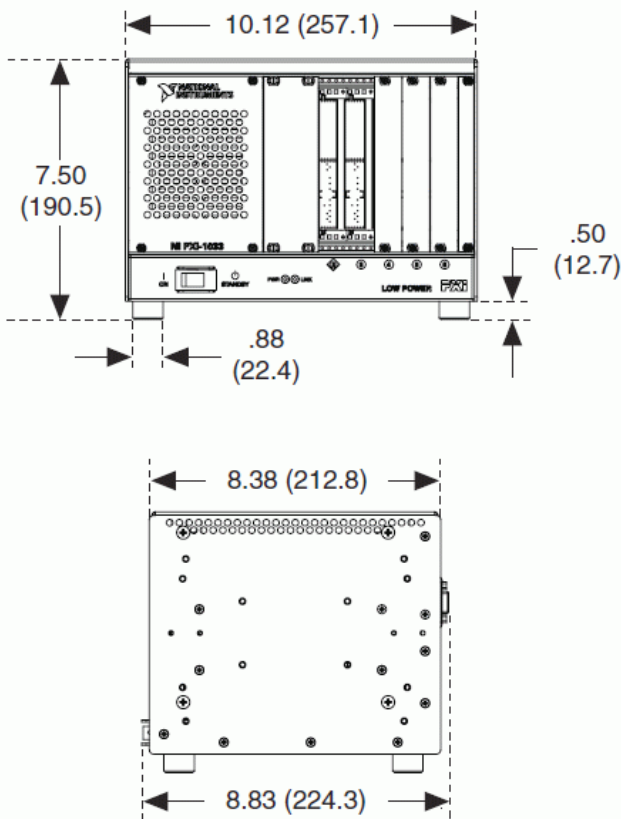
| | |
|----------------------------------|---|
| Maximum clock skew between slots | 250 ps |
| Built-in 10 MHz clock | |
| Accuracy | ±25 ppm (guaranteed over the operating temperature range) |

Mechanical

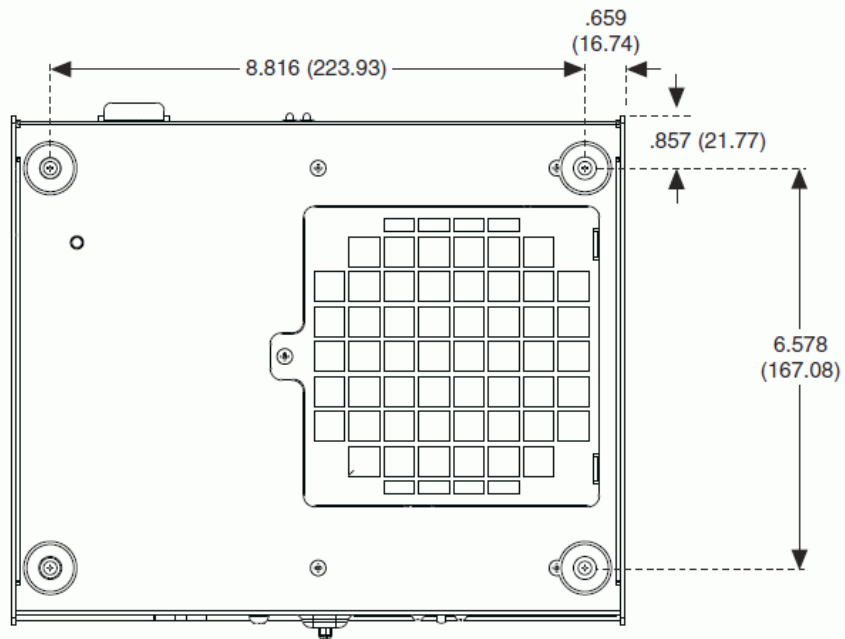
| | |
|--|---|
| Overall dimensions (standard chassis) | |
| Height | 177 mm (6.97 in.) |
|  Note 12.7 mm (0.50 in.) is added to height when feet are installed. | |
| Width | 257.1 mm (10.12 in.) |
| Depth | 212.8 mm (8.38 in.) |
| Weight | 5 kg (11.0 lbs) |
| Chassis materials | Sheet Aluminum, Extruded 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 PXI-1033 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.

PXI-1033 Dimensions (Front and Side) in Inches (mm)

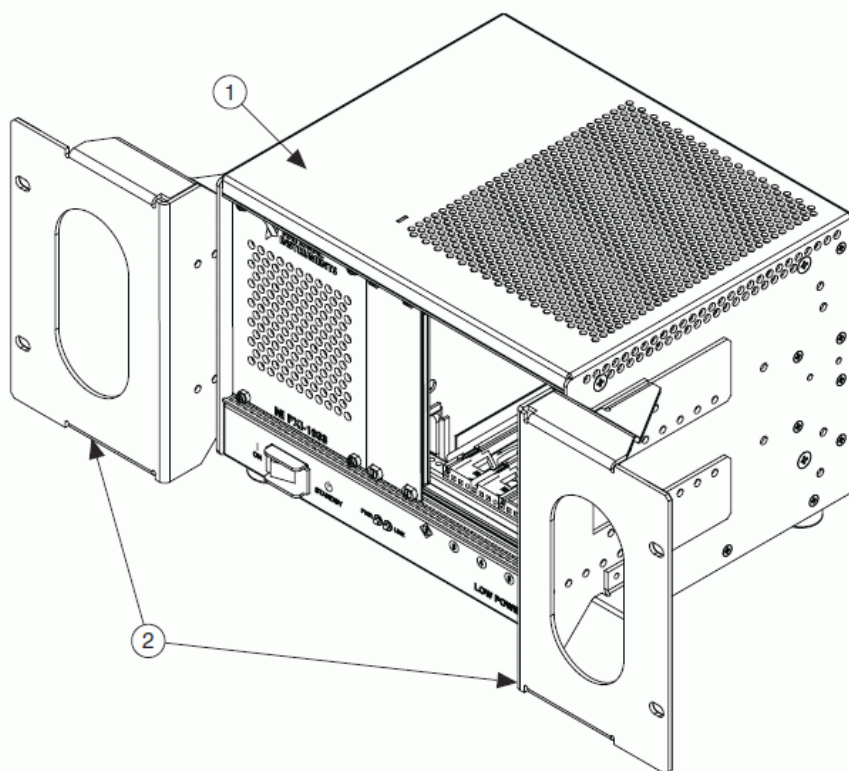


PXI-1033 Dimensions (Bottom) in Inches (mm)



The following figure shows the PXI-1033 rack mount kit components.

PXI-1033 Rack Mount Kit Components



| | |
|--------------------|------------------|
| 1 PXI-1033 Chassis | 2 Rack Mount Kit |
|--------------------|------------------|

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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