

COMPREHENSIVE SERVICES

We offer competitive repair and calibration services, as well as easily accessible documentation and free downloadable resources.

SELL YOUR SURPLUS

We buy new, used, decommissioned, and surplus parts from every NI series. We work out the best solution to suit your individual needs.

 Sell For Cash  Get Credit  Receive a Trade-In Deal

OBSOLETE NI HARDWARE IN STOCK & READY TO SHIP

We stock **New**, **New Surplus**, **Refurbished**, and **Reconditioned** NI Hardware.



Bridging the gap between the manufacturer and your legacy test system.

 1-800-915-6216

 www.apexwaves.com

 sales@apexwaves.com

All trademarks, brands, and brand names are the property of their respective owners.

Request a Quote

 **CLICK HERE**

PXI-1031DC

PXI

PXI-1036/PXI-1036DC User Manual

Worldwide Technical Support and Product Information

ni.com

Worldwide Offices

Visit ni.com/niglobal to access the branch office websites, which provide up-to-date contact information, support phone numbers, email addresses, and current events.

National Instruments Corporate Headquarters

11500 North Mopac Expressway Austin, Texas 78759-3504 USA Tel: 512 683 0100

For further support information, refer to the [NI Services](#) appendix. To comment on NI documentation, refer to the NI website at ni.com/info and enter the Info Code `feedback`.

Compliance

Electromagnetic Compatibility Information

This hardware has been tested and found to comply with the applicable regulatory requirements and limits for electromagnetic compatibility (EMC) as indicated in the hardware's Declaration of Conformity (DoC)¹. These requirements and limits are designed to provide reasonable protection against harmful interference when the hardware is operated in the intended electromagnetic environment. In special cases, for example when either highly sensitive or noisy hardware is being used in close proximity, additional mitigation measures may have to be employed to minimize the potential for electromagnetic interference.

While this hardware is compliant with the applicable regulatory EMC requirements, there is no guarantee that interference will not occur in a particular installation. To minimize the potential for the hardware to cause interference to radio and television reception or to experience unacceptable performance degradation, install and use this hardware in strict accordance with the instructions in the hardware documentation and the DoC¹.

If this hardware does cause interference with licensed radio communications services or other nearby electronics, which can be determined by turning the hardware off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the antenna of the receiver (the device suffering interference).
- Relocate the transmitter (the device generating interference) with respect to the receiver.
- Plug the transmitter into a different outlet so that the transmitter and the receiver are on different branch circuits.

Some hardware may require the use of a metal, shielded enclosure (windowless version) to meet the EMC requirements for special EMC environments such as, for marine use or in heavy industrial areas. Refer to the hardware's user documentation and the DoC¹ for product installation requirements.

When the hardware is connected to a test object or to test leads, the system may become more sensitive to disturbances or may cause interference in the local electromagnetic environment.

Operation of this hardware in a residential area is likely to cause harmful interference. Users are required to correct the interference at their own expense or cease operation of the hardware.

Changes or modifications not expressly approved by National Instruments could void the user's right to operate the hardware under the local regulatory rules.

¹ The Declaration of Conformity (DoC) contains important EMC compliance information and instructions for the user or installer. 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.

Legal Information

Limited Warranty

This document is provided 'as is' and is subject to being changed, without notice, in future editions. For the latest version, refer to ni.com/manuals. NI reviews this document carefully for technical accuracy; however, NI MAKES NO EXPRESS OR IMPLIED WARRANTIES AS TO THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL NOT BE LIABLE FOR ANY ERRORS.

NI warrants that its hardware products will be free of defects in materials and workmanship that cause the product to fail to substantially conform to the applicable NI published specifications for one (1) year from the date of invoice.

For a period of ninety (90) days from the date of invoice, NI warrants that (i) its software products will perform substantially in accordance with the applicable documentation provided with the software and (ii) the software media will be free from defects in materials and workmanship.

If NI receives notice of a defect or non-conformance during the applicable warranty period, NI will, in its discretion: (i) repair or replace the affected product, or (ii) refund the fees paid for the affected product. Repaired or replaced Hardware will be warranted for the remainder of the original warranty period or ninety (90) days, whichever is longer. If NI elects to repair or replace the product, NI may use new or refurbished parts or products that are equivalent to new in performance and reliability and are at least functionally equivalent to the original part or product.

You must obtain an RMA number from NI before returning any product to NI. NI reserves the right to charge a fee for examining and testing Hardware not covered by the Limited Warranty.

This Limited Warranty does not apply if the defect of the product resulted from improper or inadequate maintenance, installation, repair, or calibration (performed by a party other than NI); unauthorized modification; improper environment; use of an improper hardware or software key; improper use or operation outside of the specification for the product; improper voltages; accident, abuse, or neglect; or a hazard such as lightning, flood, or other act of nature.

THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND THE CUSTOMER'S SOLE REMEDIES, AND SHALL APPLY EVEN IF SUCH REMEDIES FAIL OF THEIR ESSENTIAL PURPOSE.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, PRODUCTS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND AND NI DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT, AND ANY WARRANTIES THAT MAY ARISE FROM USAGE OF TRADE OR COURSE OF DEALING. NI DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE OF OR THE RESULTS OF THE USE OF THE PRODUCTS IN TERMS OF CORRECTNESS, ACCURACY, RELIABILITY, OR OTHERWISE. NI DOES NOT WARRANT THAT THE OPERATION OF THE PRODUCTS WILL BE UNINTERRUPTED OR ERROR FREE.

In the event that you and NI have a separate signed written agreement with warranty terms covering the products, then the warranty terms in the separate agreement shall control.

Copyright

Under the copyright laws, this publication may not be reproduced or transmitted in any form, electronic or mechanical, including photocopying, recording, storing in an information retrieval system, or translating, in whole or in part, without the prior written consent of National Instruments Corporation.

National Instruments respects the intellectual property of others, and we ask our users to do the same. NI software is protected by copyright and other intellectual property laws. Where NI software may be used to reproduce software or other materials belonging to others, you may use NI software only to reproduce materials that you may reproduce in accordance with the terms of any applicable license or other legal restriction.

End-User License Agreements and Third-Party Legal Notices

You can find end-user license agreements (EULAs) and third-party legal notices in the following locations:

- Notices are located in the <National Instruments>_Legal Information and <National Instruments> directories.
- EULAs are located in the <National Instruments>\Shared\MDF\Legal\license directory.
- Review <National Instruments>_Legal Information.txt for information on including legal information in installers built with NI products.

U.S. Government Restricted Rights

If you are an agency, department, or other entity of the United States Government ("Government"), the use, duplication, reproduction, release, modification, disclosure or transfer of the technical data included in this manual is governed by the Restricted Rights provisions under Federal Acquisition Regulation 52.227-14 for civilian agencies and Defense Federal Acquisition Regulation Supplement Section 252.227-7014 and 252.227-7015 for military agencies.

Trademarks

Refer to the *NI Trademarks and Logo Guidelines* at ni.com/trademarks for more information on NI trademarks.

ARM, Keil, and μ Vision are trademarks or registered of ARM Ltd or its subsidiaries.

LEGO, the LEGO logo, WEDO, and MINDSTORMS are trademarks of the LEGO Group.

TETRIX by Pitsco is a trademark of Pitsco, Inc.

FIELDBUS FOUNDATION™ and FOUNDATION™ are trademarks of the Fieldbus Foundation.

EtherCAT® is a registered trademark of and licensed by Beckhoff Automation GmbH.

CANopen® is a registered Community Trademark of CAN in Automation e.V.

DeviceNet™ and EtherNet/IP™ are trademarks of ODVA.

Go!, SensorDAQ, and Vernier are registered trademarks of Vernier Software & Technology. Vernier Software & Technology and vernier.com are trademarks or trade dress.

Xilinx is the registered trademark of Xilinx, Inc.

Taptite and Trilobular are registered trademarks of Research Engineering & Manufacturing Inc.

FireWire® is the registered trademark of Apple Inc.

Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

Handle Graphics®, MATLAB®, Simulink®, Stateflow®, and xPC TargetBox® are registered trademarks, and Simulink Coder™, TargetBox™, and Target Language Compiler™ are trademarks of The MathWorks, Inc.

Tektronix®, Tek, and Tektronix, Enabling Technology are registered trademarks of Tektronix, Inc.

The Bluetooth® word mark is a registered trademark owned by the Bluetooth SIG, Inc.

The ExpressCard™ word mark and logos are owned by PCMCIA and any use of such marks by National Instruments is under license.

The mark LabWindows is used under a license from Microsoft Corporation. Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Other product and company names mentioned herein are trademarks or trade names of their respective companies.

Members of the National Instruments Alliance Partner Program are business entities independent from NI and have no agency, partnership, or joint-venture relationship with NI.

Patents

For patents covering NI products/technology, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your media, or the *National Instruments Patent Notice* at ni.com/patents.

Export Compliance Information

Refer to the *Export Compliance Information* at ni.com/legal/export-compliance for the NI global trade compliance policy and how to obtain relevant HTS codes, ECCNs, and other import/export data.

WARNING REGARDING USE OF NATIONAL INSTRUMENTS PRODUCTS

YOU ARE ULTIMATELY RESPONSIBLE FOR VERIFYING AND VALIDATING THE SUITABILITY AND RELIABILITY OF THE PRODUCTS WHENEVER THE PRODUCTS ARE INCORPORATED IN YOUR SYSTEM OR APPLICATION, INCLUDING THE APPROPRIATE DESIGN, PROCESS, AND SAFETY LEVEL OF SUCH SYSTEM OR APPLICATION.

PRODUCTS ARE NOT DESIGNED, MANUFACTURED, OR TESTED FOR USE IN LIFE OR SAFETY CRITICAL SYSTEMS, HAZARDOUS ENVIRONMENTS OR ANY OTHER ENVIRONMENTS REQUIRING FAIL-SAFE PERFORMANCE, INCLUDING IN THE OPERATION OF NUCLEAR FACILITIES; AIRCRAFT NAVIGATION; AIR TRAFFIC CONTROL SYSTEMS; LIFE SAVING OR LIFE SUSTAINING SYSTEMS OR SUCH OTHER MEDICAL DEVICES; OR ANY OTHER APPLICATION IN WHICH THE FAILURE OF THE PRODUCT OR SERVICE COULD LEAD TO DEATH, PERSONAL INJURY, SEVERE PROPERTY DAMAGE OR ENVIRONMENTAL HARM (COLLECTIVELY, "HIGH-RISK USES"). FURTHER, PRUDENT STEPS MUST BE TAKEN TO PROTECT AGAINST FAILURES, INCLUDING PROVIDING BACK-UP AND SHUT-DOWN MECHANISMS. NI EXPRESSLY DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY OF FITNESS OF THE PRODUCTS OR SERVICES FOR HIGH-RISK USES.

Contents

About This Manual

Related Documentation	ix
-----------------------------	----

Chapter 1

Getting Started

Unpacking.....	1-1
What You Need to Get Started	1-1
Key Features	1-2
Chassis Description	1-3
Optional Equipment.....	1-5
EMC Filler Panels	1-5
Rack Mount Kits.....	1-5
Handle/Feet Kit.....	1-5
DC Power Cable (PXI-1036DC Only)	1-6
PXI-1036/PXI-1036DC Backplane Overview	1-6
Interoperability with CompactPCI.....	1-6
System Controller Slot.....	1-6
Star Trigger Slot	1-7
Peripheral Slots.....	1-7
Local Bus	1-7
Trigger Bus	1-8
System Reference Clock.....	1-8

Chapter 2

Installation and Configuration

Safety Information	2-1
Chassis Cooling Considerations	2-2
Providing Adequate Clearance	2-2
Setting Fan Speed	2-3
Installing Filler Panels	2-3
Rack Mounting	2-3
Connecting Safety Ground	2-3
Connecting to Power Source	2-4
Connecting to an AC Power Source	2-4
Connecting to a DC Power Source (PXI-1036DC Only)	2-4
DC Connector	2-5
Installing a PXI Controller	2-6
Installing PXI Modules.....	2-8

PXI System Configuration with MAX 2-9

 Basic PXI System Configuration 2-9

 Trigger Configuration in MAX..... 2-10

Using System Configuration and Initialization Files..... 2-10

Chapter 3

Maintenance

DC Fuse Replacement (PXI-1036DC Only) 3-1

Service Interval 3-1

Preparation 3-1

Cleaning 3-2

 Interior Cleaning 3-2

 Exterior Cleaning 3-2

Appendix A

Pinouts

Appendix B

NI Services

Index

About This Manual

The *PXI-1036/PXI-1036DC User Manual* contains information about installing, configuring, using, and maintaining the PXI-1036 and PXI-1036DC chassis.



Note For PXI-1036/PXI-1036DC specifications, refer to the *PXI-1036/PXI-1036DC Specifications* on ni.com.

Related Documentation

The following documents contain information that you might find helpful as you read this manual:

- *PXI-1031DC/1036DC DC Cable Kit Installation Guide*
- *CompactPCI Specification PICMG 2.0 R 3.0*
- *PXI Hardware Specification*
- *PXI Software Specification*
- IEEE 1101.1-1991, *IEEE Standard for Mechanical Core Specifications for Microcomputers Using IEC 603-2 Connectors*
- IEEE 1101.10, *IEEE Standard for Additional Mechanical Specifications for Microcomputers Using IEEE 1101.1 Equipment Practice*

Getting Started

This chapter describes the key features of the PXI-1036 and PXI-1036DC chassis, and lists the kit contents and optional equipment you can order from National Instruments.

Unpacking

Carefully inspect the shipping container and the chassis for damage. Check for visible damage to the metal work. Check to make sure all handles, hardware, and switches are undamaged. Inspect the inner chassis for any possible damage, debris, or detached components. If damage appears to have been caused during shipment, file a claim with the carrier. Retain the packing material for possible inspection and/or reshipment.

What You Need to Get Started

- PXI-1036 or PXI-1036DC chassis
- Filler panels
- Power cable, either:
 - AC power cable—refer to Table 1-1 for AC power cables
 - DC power cable (PXI-1036DC only)
- *PXI-1036/PXI-1036DC User Manual*
- *Read Me First: Safety and Electromagnetic Compatibility*
- Driver CD-ROM containing NI PXI chassis software
- Chassis number labels

Table 1-1. AC Power Cables

Power Cable	Reference Standards
Standard 120 V (USA)	NEMA 5-15
Switzerland 220 V	SEV
Australia 240 V	AS C112
Universal Euro 230 V	CEE (7), II, IV, VII IEC83
North America 240 V	NEMA 6-15
United Kingdom 230 V	BS 1363/IEC83
Japan 100 V	JIS C8303

If you are missing any of the items listed in Table 1-1, or if you have the incorrect AC power cable, contact National Instruments.

You have the option of powering the PXI-1036DC chassis with a DC power cable through the DC input connector on the rear panel of the chassis. Refer to Figure 1-3 for the location of the DC connector.

Key Features

The PXI-1036/PXI-1036DC combines a 6-slot PXI backplane with a structural design that has been optimized for maximum usability in a wide range of applications.

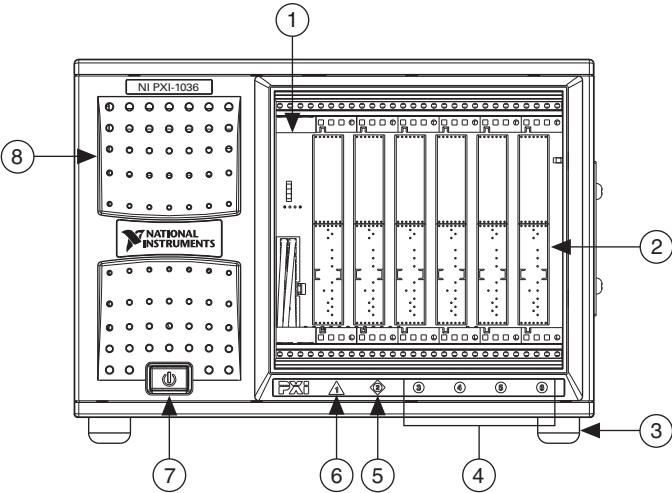
The key features of the chassis include the following:

- Accepts 3U PXI and CompactPCI (PICMG 2.0 R 3.0) modules
- 6-slot chassis with universal AC input, and automatic voltage/frequency ranging
- DC power input (PXI-1036DC only)
- On/Off (Standby) power switch on the front panel for easy access
- AUTO/HIGH temperature-controlled fan speed based on air-intake temperature to minimize audible noise
- (Optional) Carrying handle for portability
- Rack mountable

Chassis Description

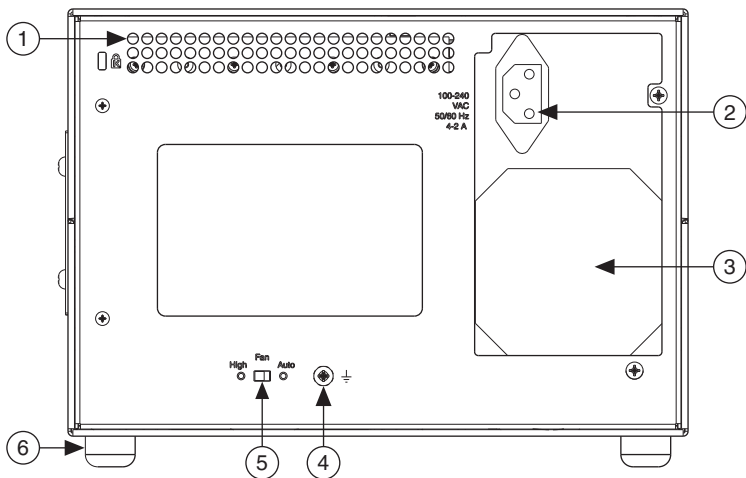
Figure 1-1, Figure 1-2, and Figure 1-3 show the key features of the PXI-1036/PXI-1036DC chassis front and rear panels. Figure 1-1 shows the front view of the PXI-1036 (the PXI-1036DC front panel is identical except for the chassis name stenciled on the face plate). Figure 1-2 shows the rear view of the PXI-1036. Figure 1-3 shows the rear panel of the PXI-1036DC. Figure 1-4 shows the bottom of the chassis (both types of chassis will be identical on the bottom).

Figure 1-1. Front View of the PXI-1036 Chassis



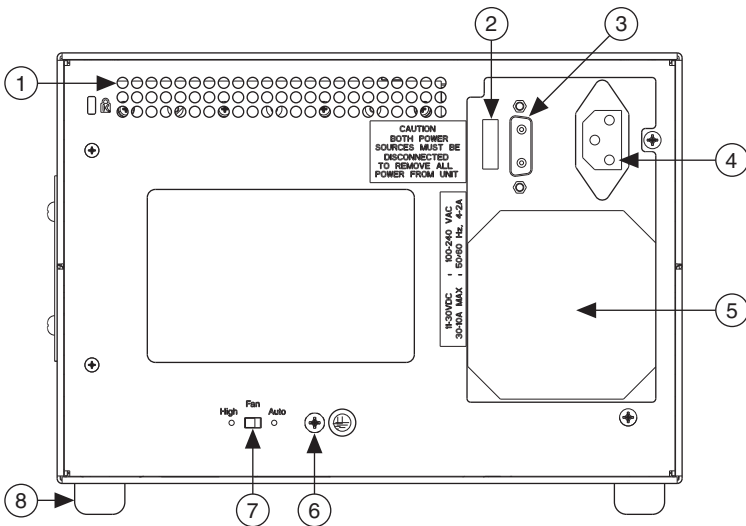
- | | | | |
|---|---------------------------|---|-----------------------------------|
| 1 | Controller Expansion Slot | 5 | Star Trigger/Peripheral Slot |
| 2 | PXI Backplane | 6 | System Controller Slot |
| 3 | Rubber Foot | 7 | Power Switch (Standby) |
| 4 | Generic Peripheral Slots | 8 | Power Supply Airflow Intake Vents |

Figure 1-2. Rear View of the PXI-1036 Chassis

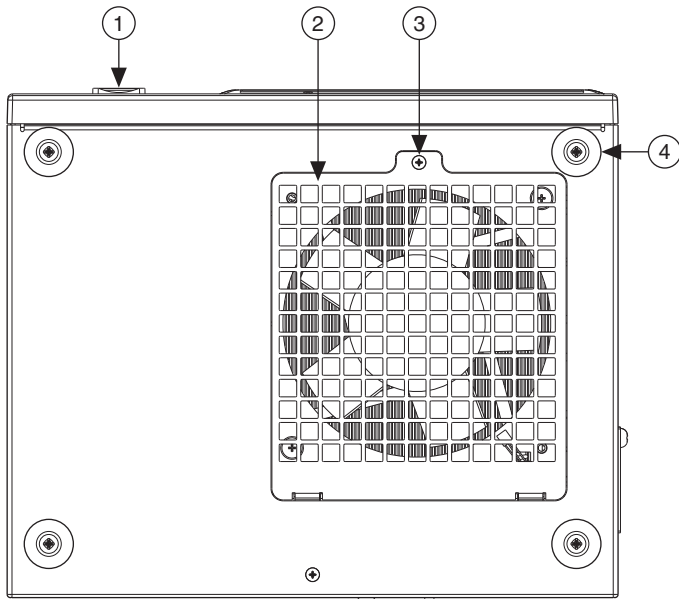


- | | | | |
|---|--------------------------|---|-------------------------------------|
| 1 | Rear Exhaust Vents | 4 | Chassis Ground Screw |
| 2 | AC Input | 5 | AUTO/HIGH Fan Speed Selector Switch |
| 3 | Power Supply Fan Exhaust | 6 | Rubber Foot |

Figure 1-3. Rear View of the PXI-1036DC Chassis



- | | | | |
|---|--------------------|---|-------------------------------------|
| 1 | Rear Exhaust Vents | 5 | Power Supply Fan Exhaust |
| 2 | DC Fuse Socket | 6 | Chassis Ground Screw |
| 3 | DC Input | 7 | AUTO/HIGH Fan Speed Selector Switch |
| 4 | AC Input | 8 | Rubber Foot |

Figure 1-4. Bottom View of PXI-1036/PXI-1036DC Chassis


- 1 Power Switch (Standby)
2 Fan Cover

- 3 Fan Cover Screw
4 Rubber Foot

Optional Equipment

Contact National Instruments to order the following options for the PXI-1036/PXI-1036DC chassis.

EMC Filler Panels

Optional EMC filler panel kits are available from National Instruments.

Rack Mount Kits

A rack mount kit option is available for mounting the PXI-1036 or PXI-1036DC chassis into a 19 in. instrument cabinet.

Handle/Feet Kit

An optional side handle and rubber feet kit is available from National Instruments to provide a handle for portability.

DC Power Cable (PXI-1036DC Only)

An optional DC power cable is available from National Instruments to provide power through the DC input connector on the rear panel of the chassis.

The DC power cable uses an F30A 500 VDC/600 VAC, 1.5 in. × .41 in. (10 mm × 38 mm) Midget fast-acting fuse on the positive (+) wire of the cable. For more information on fuses used, including recommendations for custom cabling, refer to the [DC Fuse Replacement \(PXI-1036DC Only\)](#) section of Chapter 3, [Maintenance](#).

PXI-1036/PXI-1036DC Backplane Overview

Interoperability with CompactPCI

The PXI-1036/PXI-1036DC backplane is interoperable with 5 V and universal PXI-compatible products and standard CompactPCI products. This is an important feature, because some PXI systems may require components that do not implement PXI-specific features. For example, you may want to use a standard CompactPCI network interface card in a PXI chassis.

The signals on the backplane P1 connectors meet the requirements of the CompactPCI specification for both peripheral and system modules. Refer to Appendix A, [Pinouts](#), for pinout information.

The PXI-specific signals are on the backplane P2 connectors and are found only on those signal lines reserved or not used in the CompactPCI 64-bit specification. Therefore, all modules that meet the requirements of the CompactPCI 64-bit specification will function in the PXI-1036/PXI-1036DC. Refer to Appendix A, [Pinouts](#), for pinout information.



Note The PXI-1036/PXI-1036DC backplane is 32-bit PCI. 64-bit CompactPCI cards will operate in 32-bit mode in this chassis.

The chassis backplane has +5 V V(I/O). Refer to the *CompactPCI Specification PICMG 2.0 R 3.0* for details regarding V(I/O).

System Controller Slot

The system controller slot is slot 1 of the chassis as defined by the PXI specification. It has one controller expansion slot for system controller modules that are wider than one slot. As defined in the PXI specification, these slots allow the controller to expand to the left to prevent the controller from using peripheral slots.

Star Trigger Slot

The star trigger (ST) slot is slot 2. This slot has dedicated equal-length trigger lines between slot 2 and peripheral slots 3 through 6 (refer to Figure 1-5). Slot 2 is intended for modules with ST functionality that can provide individual triggers to all other peripheral modules. However, if you do not require advanced trigger functionality, you can install any standard peripheral module in this slot.

The star trigger slot can also be used to provide a PXI_CLK10 signal to the backplane. For more information regarding PXI_CLK10, refer to the [System Reference Clock](#) section.

Peripheral Slots

There are five peripheral slots, including the star trigger slot.

Local Bus

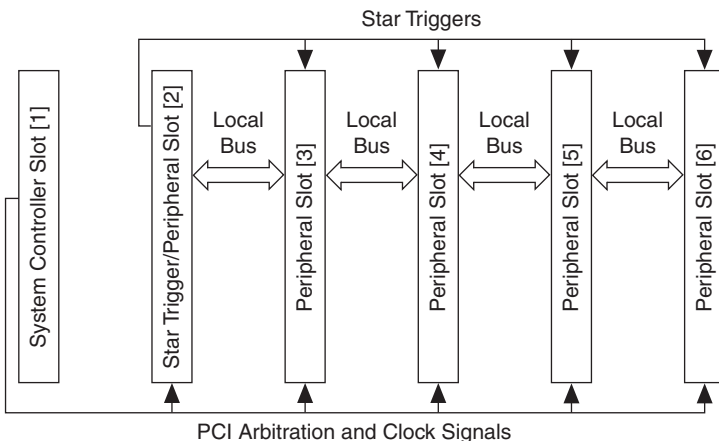
The PXI backplane local bus is a daisy-chained bus that connects each peripheral slot with adjacent peripheral slots to the left and right (refer to Figure 1-5). For example, the right local bus of slot 2 connects to the left local bus of slot 3, and so on.

The left local bus signal lines on slot 2 are used for star trigger and do not connect to slot 1. The right local bus signal lines on slot 6 are not routed anywhere.

Each local bus is 13 lines wide and can pass analog signals up to 42 V between cards or provide a high-speed TTL side-band digital communication path that does not reduce the PXI bus bandwidth.

Initialization software uses the configuration information specific to adjacent peripheral modules to evaluate local bus compatibility.

Figure 1-5. PXI Star Trigger and Local Bus Routing



Trigger Bus

All slots share eight PXI trigger lines. You can use these trigger lines in a variety of ways. For example, you can use triggers to synchronize the operation of several different PXI peripheral modules. In other applications, one module located in slot 2 can control carefully timed sequences of operations performed on other modules in the system. Modules can pass triggers to one another, allowing precisely timed responses to asynchronous external events the system is monitoring or controlling.

System Reference Clock

The PXI-1036/PXI-1036DC supplies the PXI 10 MHz system clock signal (PXI_CLK10) independently to each peripheral slot. An independent buffer (having a source impedance matched to the backplane and a skew of less than 250 ps between slots) drives the clock signal to each peripheral slot. You can use this common reference clock signal to synchronize multiple modules in a measurement or control system. You can drive PXI_CLK10 from an external source through the PXI_CLK10_IN pin on the P2 connector of the star trigger slot. Refer to Table A-4, *P2 (J2) Connector Pinout for the Star Trigger Slot*. You must manually switch S1 on the chassis backplane to enable or disable routing an external clock to peripheral slots.

Installation and Configuration

This chapter describes how to install, configure, and use the PXI-1036 and PXI-1036DC chassis.

Before connecting the chassis to a power source, read this chapter and the *Read Me First: Safety and Electromagnetic Compatibility* document included with your chassis.

Safety Information



Caution Before undertaking any troubleshooting, maintenance, or exploratory procedure, carefully read the following caution notices.

This equipment contains voltage hazardous to human life and safety, and is capable of inflicting personal injury.

- **Chassis Grounding**—The chassis requires a connection from the premise wire safety ground to the chassis ground. The earth safety ground must be connected during use of this equipment to minimize shock hazards. Refer to the [Connecting Safety Ground](#) section for instructions on connecting safety ground.
- **Live Circuits**—Operating personnel and service personnel *must not* remove protective covers when operating or servicing the chassis. Adjustments and service to internal components must be undertaken by qualified service technicians. During service of this product, the mains connector to the premise wiring must be disconnected. Dangerous voltages may be present under certain conditions; use extreme caution.
- **Explosive Atmosphere**—Do *not* operate the chassis in conditions where flammable gases are present. Under such conditions, this equipment is unsafe and may ignite the gases or gas fumes.
- **Part Replacement**—Only service this equipment with parts that are exact replacements, both electrically and mechanically. Contact National Instruments for replacement part information. Installation of parts with those that are not direct replacements may cause harm to personnel operating the chassis. Furthermore, damage or fire may occur if replacement parts are unsuitable.
- **Modification**—Do *not* modify any part of the chassis from its original condition. Unsuitable modifications may result in safety hazards.

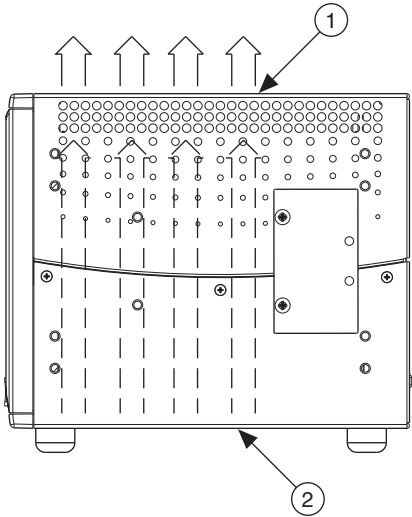
Chassis Cooling Considerations

The chassis is designed to operate on a bench or in an instrument rack. Determine how you want to use the chassis and follow the appropriate installation instructions.

Providing Adequate Clearance

Apertures in the top, bottom, front, rear, and along the right and left sides of the chassis facilitate power supply and module cooling. Air enters through the fan inlet in the bottom of the chassis for module cooling. It then exits through the upper sections at the right side, back, and through the top, as shown in Figure 2-1. Air cooling the power supply enters the front and left side of the chassis, which is shown in Figure 1-1, *Front View of the PXI-1036 Chassis*, then exits through the rear of the chassis, which is shown in Figure 1-2, *Rear View of the PXI-1036 Chassis*, and Figure 1-3, *Rear View of the PXI-1036DC Chassis*. Place the chassis on a bench top or in an instrument rack so that the fans (air inlets) and the air outlet apertures along the right and left sides, the top, and the back of the chassis have adequate ventilation. Provide at least 44.5 mm (1.75 in.) clearance above, behind, and on the sides of the unit for adequate venting. High-power applications may require additional clearance.

Figure 2-1. PXI-1036/PXI-1036DC Module Cooling Airflow Side View



1 Air Outlets

2 Air Intake

Install the chassis so that you can easily access the bottom panel.

Setting Fan Speed

The AUTO/HIGH fan-speed selector switch is on the rear panel of the PXI-1036 and PXI-1036DC. Refer to Figure 1-2, *Rear View of the PXI-1036 Chassis*, or Figure 1-3, *Rear View of the PXI-1036DC Chassis*, to locate the fan-speed selector switch. Select HIGH for maximum cooling performance (recommended) or AUTO for quieter operation. The fan speed is determined by chassis intake air temperature when set to AUTO.

Installing Filler Panels

To improve module cooling performance, install filler panels (provided with the chassis) in unused or empty slots. Secure with the captive mounting screws provided.

Rack Mounting

Rack mount applications require the optional rack mount kits available from National Instruments. Refer to the *PXI-1036/PXI-1036DC Specifications* on ni.com and the instructions supplied with the rack mount kits to install your chassis in an instrument rack.



Note You may want to remove the feet from the chassis when rack mounting. To do so, remove the screws holding the feet in place.

Connecting Safety Ground



Caution The PXI-1036/PXI-1036DC chassis is designed with a three-position inlet that connects the cord set ground line to the chassis ground. To minimize shock hazard, make sure the electrical power outlet you use to power the chassis has an appropriate earth safety ground.

For DC powered applications, or if your power outlet does not have an appropriate ground connection, you must connect the premise safety ground to the chassis grounding screw located on the rear panel. Refer to Figure 1-2, *Rear View of the PXI-1036 Chassis*, or Figure 1-3, *Rear View of the PXI-1036DC Chassis*, to locate the chassis grounding screw. Complete the following steps to connect the safety ground.

1. Connect a 10 AWG (2.6 mm) wire to the chassis grounding screw using a grounding lug. The wire must have green insulation with a yellow stripe or must be noninsulated (bare).
2. Attach the opposite end of the wire to permanent earth ground using toothed washers or a toothed lug.

Connecting to Power Source



Cautions Do *not* install modules prior to performing the following power-on test.

To completely remove power, you *must* disconnect the AC power cable (and DC power, if applicable).

If both AC and DC power cables are connected, the chassis will draw power from both sources.

Connecting to an AC Power Source

Attach input power through the rear AC inlet using the appropriate AC power cable supplied. Refer to Figure 1-2, [Rear View of the PXI-1036 Chassis](#), or to Figure 1-3, [Rear View of the PXI-1036DC Chassis](#), to locate the AC inlet.

The power switch allows you to power on the chassis or place it in standby mode. Press the power switch to the On position (if not already on). Observe that all fans become operational.

Connecting to a DC Power Source (PXI-1036DC Only)

Table 2-1. DC Power Requirements

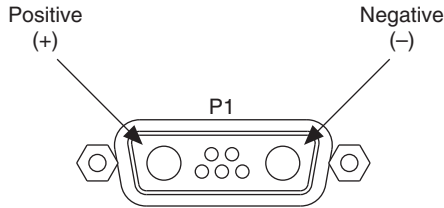
Electrical Element	Requirement
Voltage	18–30 VDC
DC Input Current	30–10 A

For full chassis power, the DC source must be capable of providing a minimum of 300 watts of continuous power per feed pair to the P1 connector on the PXI-1036DC power supply.

DC Connector

Figure 2-2 shows the DC connector (P1) that appears on the rear panel of the PXI-1036DC power supply.

Figure 2-2. P1 DC Input Connector



To build a custom DC cable, be sure to note the positive (+) and negative (–) terminals shown in Figure 2-2. Use the following components or their equivalents to mate to the P1 port:

- Positronic connector, part number CBD7W2F0000
- Positronic hood, part number D15000GE0
- Two Positronic contacts, part number FS4008D (choice of solder cup or crimp terminals)
- Use of UL listed AWG #10 wire is recommended (maximum length: 216 in.)

Install an F30A 500 VDC/600 VAC, 1.5 in. × .41 in. (10 mm × 38 mm) Midget fast-acting fuse on the positive (+) wire of the custom cable as close to the power source as practical.

- A Ferraz-Shawmut FEB-81-81 fuse holder, with Ferraz-Shawmut FSB1 insulating boots, and an ATM30 fuse is recommended.

Refer to the *PXI-1036DC DC Cable Kit Installation Guide* for information on fuse installation.



Note You can purchase an optional DC cable from National Instruments that incorporates an in-line fuse and the mating connector for the P1 port.

Installing a PXI Controller

This section contains general instructions for installing a PXI controller in the chassis. Refer to your PXI controller user manual for specific instructions and cautions. Complete the following steps to install a controller.

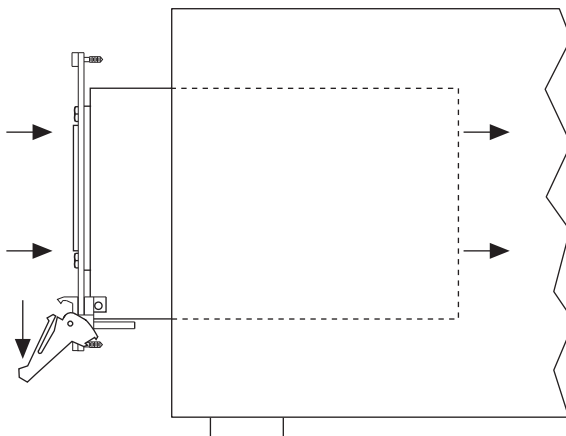
1. Connect the AC or DC power source to the PXI chassis before installing the controller. The AC power cord grounds the chassis and protects it from electrical damage while you install the controller. For DC powered applications, make sure the chassis is properly grounded through the chassis ground screw. Make sure the chassis power switch is in the Off (Standby) position.



Caution To protect both yourself and the chassis from electrical hazards, leave the chassis off until you finish installing the controller.

2. Install the controller into the system controller slot (slot 1, indicated by the red card guides) by first placing the controller edges into the front controller guides (top and bottom). Slide the controller to the rear of the chassis, making sure that the injector/ejector handle is pushed down as shown in Figure 2-3.

Figure 2-3. Injector/Ejector Handle Position during Controller or Peripheral Module Insertion

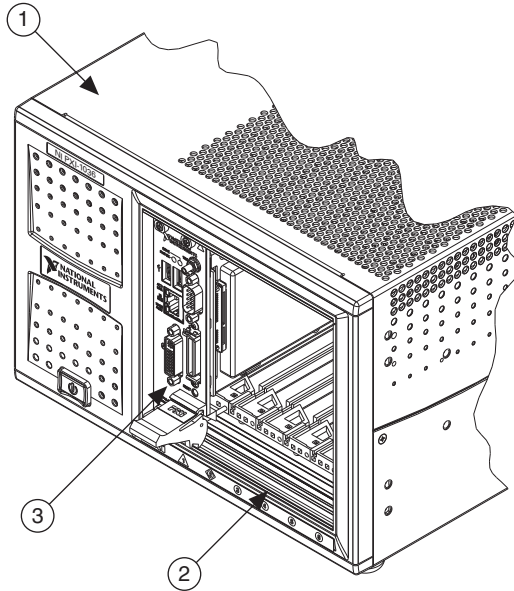


3. When you begin to feel resistance, push up on the injector/ejector handle to inject the controller fully into the chassis frame. Secure the controller front panel to the chassis using the controller front-panel mounting screws.

4. Connect the keyboard, mouse, and monitor to the appropriate connectors. Connect devices to ports as required by your system configuration.
5. Power on the chassis. Verify that the controller boots. If the controller does not boot, refer to your controller user manual.

Figure 2-4 shows a PXI controller installed in the system controller slot of a PXI-1036/PXI-1036DC chassis. You can place CompactPCI or PXI modules in any other slot.

Figure 2-4. NI PXI Controller Installed in a PXI-1036/PXI-1036DC Chassis



- 1 PXI-1036/PXI-1036DC Chassis
- 2 Injector/Ejector Rail

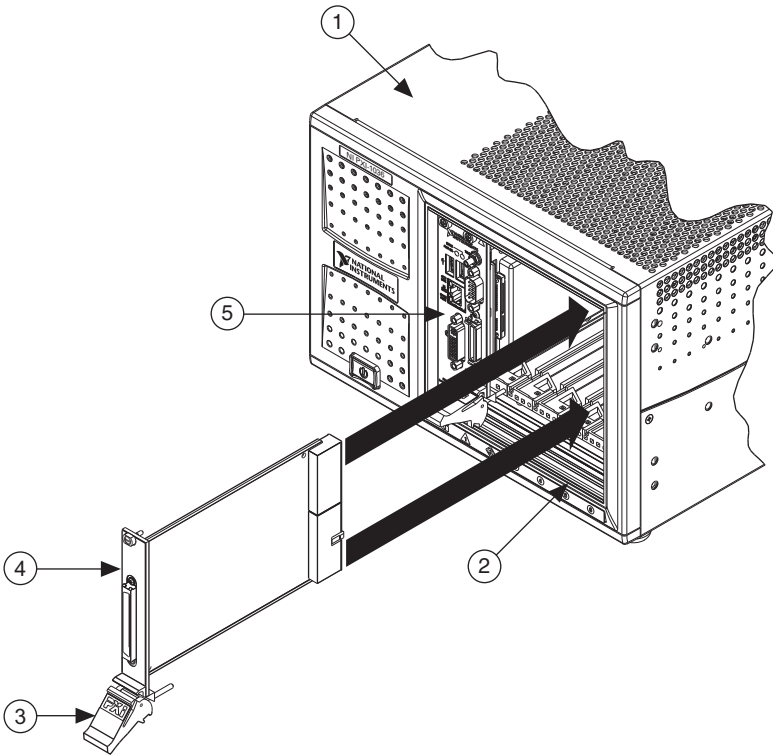
- 3 NI PXI Controller

Installing PXI Modules

Complete the following steps to install a module.

1. Make sure the power switch is in the Off (Standby) position.
2. Install a module into a chassis slot by first placing the module card edges into the front module guides (top and bottom), as shown in Figure 2-5. Slide the module to the rear of the chassis, making sure that the injector/ejector handle is pushed down as shown in Figure 2-3.
3. When you begin to feel resistance, push up on the injector/ejector handle to fully inject the module into the chassis frame. Secure the module front panel to the chassis using the module front-panel mounting screws.

Figure 2-5. Installing PXI or CompactPCI Modules



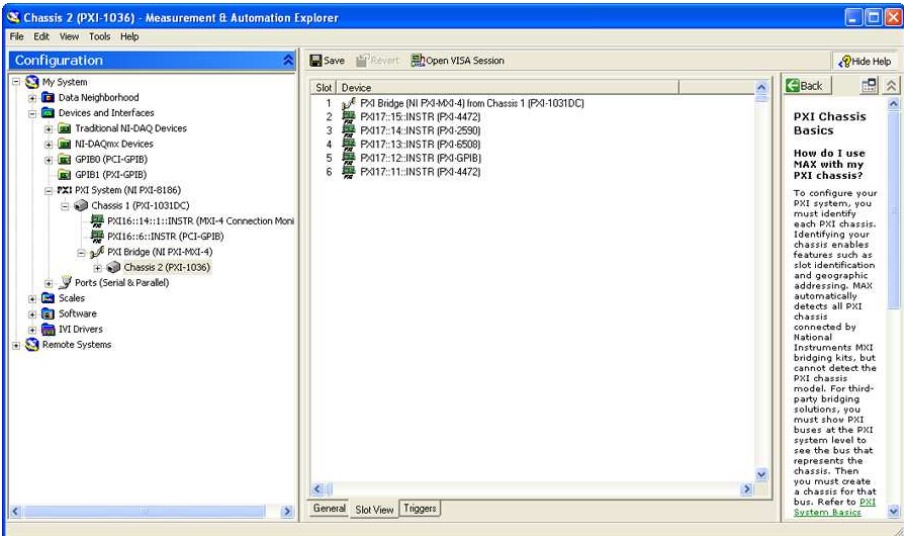
- | | |
|---|-----------------------------|
| 1 | PXI-1036/PXI-1036DC Chassis |
| 2 | Injector/Ejector Rail |
| 3 | Injector/Ejector Handle |

- | | |
|---|-------------------|
| 4 | PXI Module |
| 5 | NI PXI Controller |

PXI System Configuration with MAX

Configuration of the PXI system is handled through Measurement & Automation Explorer (MAX), included on the NI Driver CD-ROM packaged with your kit. MAX creates the `pxisys.ini` file that defines the layout and parameters of your PXI system. After installing the software on the NI Driver CD-ROM, the MAX icon will be present on the desktop. The configuration steps for single or multiple chassis systems are the same.

Figure 2-6. Chassis Configuration in MAX



Basic PXI System Configuration

Refer to Figure 2-6 while completing the following steps:

1. Launch MAX.
2. In the **Configuration** tree, click the **Devices and Interfaces** branch to expand it.
3. If the PXI system controller has not yet been configured, it will be labeled **PXI System (Unidentified)**. Right-click this entry to display the context menu and then select the appropriate controller model from the **Identify As** submenu.
4. Click the **PXI System** controller, and the chassis (or multiple chassis, in a multi-chassis configuration) will be listed below it. Identify each chassis by right-clicking its entry and then selecting the appropriate chassis model through the **Identify As** submenu. Further expanding the **PXI System** branch will show all of the devices in the system that can be recognized by NI-VISA. After your controller and all of your chassis have been identified, the required `pxisys.ini` file will be complete.
5. Apply the chassis number labels (shown in Figure 2-7) included with your kit to each chassis in your PXI system, and write in the chassis number accordingly in the white space.

Figure 2-7. Chassis Number Label



Trigger Configuration in MAX

Each chassis has one or more trigger buses, each with eight lines numbered 0 through 7 that can be reserved and routed statically or dynamically. Static reservation “pre-allocates” a trigger line to prevent its configuration by a user program. Dynamic reservation/routing/deallocation is performed *on the fly* within a user program based upon National Instruments APIs such as NI-DAQmx. Static reservation of trigger lines can be implemented by the user in MAX through the **Triggers** tab. Reserved trigger lines will not be used by PXI modules dynamically configured by programs such as NI-DAQmx. This prevents the instruments from double-driving the trigger lines, possibly damaging devices in the chassis.

Complete the following steps to reserve these trigger lines in MAX.

1. In the **Configuration** tree, click the PXI chassis branch you want to configure.
2. Click the **Triggers** tab at the bottom of the right-hand pane.
3. Select which trigger lines you want to statically reserve.
4. Click the **Apply** button.

Using System Configuration and Initialization Files

The PXI specification allows many combinations of PXI chassis and system modules. To assist system integrators, the manufacturers of PXI chassis and system modules must document the capabilities of their products. The minimum documentation requirements are contained in `.ini` files, which consist of ASCII text. System integrators, configuration utilities, and device drivers can use these `.ini` files.

The capability documentation for the PXI-1036/PXI-1036DC chassis is contained in the `chassis.ini` file on the software media that comes with the chassis. The information in this file is combined with information about the system controller to create a single system initialization file called `pxisys.ini` (PXI System Initialization). The system controller manufacturer either provides a `pxisys.ini` file for the particular chassis model that contains the system controller or provides a utility that can read an arbitrary `chassis.ini` file and generate the corresponding `pxisys.ini` file. System controllers from National Instruments use MAX to generate the `pxisys.ini` file from the `chassis.ini` file.

Device drivers and other utility software read the `pxisys.ini` file to obtain system information. Device drivers should have no need to directly read the `chassis.ini` file. For detailed information regarding initialization files, refer to the PXI specification at www.pxisa.org.

Maintenance

This chapter describes basic maintenance procedures you can perform on the PXI-1036 and PXI-1036DC chassis.



Caution Disconnect the power cables prior to servicing the chassis.

DC Fuse Replacement (PXI-1036DC Only)

The PXI-1036DC is protected against over-current by a 30 A fuse on the rear of the chassis, as shown in Figure 1-3, [Rear View of the PXI-1036DC Chassis](#). The fuse should only be replaced with a Wickmann 162.6385.530, Littlefuse 257 030, or equivalent. To remove the fuse, pull *straight out* from the chassis.

Service Interval

Clean dust from the chassis exterior (and interior) as needed, based on the operating environment. Periodic cleaning increases reliability.

Preparation

The information in this chapter is designed for use by qualified service personnel. Read the *Read Me First: Safety and Electromagnetic Compatibility* document included with your kit before attempting any procedures in this chapter.



Caution Many components within the chassis are susceptible to static discharge damage. Service the chassis only in a static-free environment. Observe standard handling precautions for static-sensitive devices while servicing the chassis. Always wear a grounded wrist strap or equivalent while servicing the chassis.

Cleaning



Caution *Always* disconnect the AC power cable (and the DC power cable, if you are working with a PXI-1036DC chassis) before cleaning or servicing the chassis.

Cleaning procedures consist of exterior and interior cleaning of the chassis. Refer to your module user documentation for information on cleaning individual CompactPCI or PXI modules.

Interior Cleaning

Use a dry, low-velocity stream of air to clean the interior of the chassis. Use a soft-bristle brush for cleaning around components.

Exterior Cleaning



Cautions Avoid getting moisture inside the chassis during exterior cleaning, especially through the top vents. Use just enough moisture to dampen the cloth.

Do not wash the front- or rear-panel connectors or switches. Cover these components while cleaning the chassis.

Do not use harsh chemical cleaning agents; they may damage the chassis. Avoid chemicals that contain benzene, toluene, xylene, acetone, or similar solvents.

Clean the exterior surfaces of the chassis with a dry lint-free cloth or a soft-bristle brush. If any dirt remains, wipe with a cloth moistened in a mild soap solution. Remove any soap residue by wiping with a cloth moistened with clear water. *Do not* use abrasive compounds on any part of the chassis.

Pinouts

This appendix describes the P1 and P2 connector pinouts for the PXI-1036/PXI-1036DC backplane.

Table A-1 shows the P1 (J1) connector pinout for the System Controller slot.

Table A-2 shows the P2 (J2) connector pinout for the System Controller slot.

Table A-3 shows the P1 (J1) connector pinout for the star trigger slot.

Table A-4 shows the P2 (J2) connector pinout for the star trigger slot.

Table A-5 shows the P1 (J1) connector pinout for the peripheral slots.

Table A-6 shows the P2 (J2) connector pinout for the peripheral slots.



Note PXI signals are shown in bold.

Table A-1. P1 (J1) Connector Pinout for the System Controller Slot

Pin	Z	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD[1]	5 V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3 V	AD[4]	AD[3]	5 V	AD[2]	GND
22	GND	AD[7]	GND	3.3 V	AD[6]	AD[5]	GND
21	GND	3.3 V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3 V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE[1]#	GND
17	GND	3.3 V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY#	GND	TRDY#	GND
12–14	Key Area						
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3 V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	GND	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ0#	GND	3.3 V	CLK0	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT0#	GND
4	GND	IPMB_PWR	HEALTHY#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	–12 V	TRST#	+12 V	5 V	GND

Table A-2. P2 (J2) Connector Pinout for the System Controller Slot

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	CLK6	GND	RSV	RSV	RSV	GND
20	GND	CLK5	GND	RSV	GND	RSV	GND
19	GND	GND	GND	SMB_SDA	SMB_SCL	SMB_ALERT#	GND
18	GND	PXI_TRIG3	PXI_TRIG4	PXI_TRIG5	GND	PXI_TRIG6	GND
17	GND	PXI_TRIG2	GND	PRST#	REQ6#	GNT6#	GND
16	GND	PXI_TRIG1	PXI_TRIG0	DEG#	GND	PXI_TRIG7	GND
15	GND	PXI_BRSVA15	GND	FAL#	REQ5#	GNT5#	GND
14	GND	BP(I/O)	BP(I/O)	BP(I/O)	GND	BP(I/O)	GND
13	GND	BP(I/O)	GND	V(I/O)	BP(I/O)	BP(I/O)	GND
12	GND	BP(I/O)	BP(I/O)	BP(I/O)	GND	BP(I/O)	GND
11	GND	BP(I/O)	GND	V(I/O)	BP(I/O)	BP(I/O)	GND
10	GND	BP(I/O)	BP(I/O)	BP(I/O)	GND	BP(I/O)	GND
9	GND	BP(I/O)	GND	V(I/O)	BP(I/O)	BP(I/O)	GND
8	GND	BP(I/O)	BP(I/O)	BP(I/O)	GND	BP(I/O)	GND
7	GND	BP(I/O)	GND	V(I/O)	BP(I/O)	BP(I/O)	GND
6	GND	BP(I/O)	BP(I/O)	BP(I/O)	GND	BP(I/O)	GND
5	GND	BP(I/O)	64EN#	V(I/O)	BP(I/O)	BP(I/O)	GND
4	GND	V(I/O)	PXI_BRSVB4	BP(I/O)	GND	BP(I/O)	GND
3	GND	CLK4	GND	GNT3#	REQ4#	GNT4#	GND
2	GND	CLK2	CLK3	SYSEN#	GNT2#	REQ3#	GND
1	GND	CLK1	GND	REQ1#	GNT1#	REQ2#	GND

Table A-3. P1 (J1) Connector Pinout for the Star Trigger Slot

Pin	Z	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD[1]	5 V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3 V	AD[4]	AD[3]	5 V	AD[2]	GND
22	GND	AD[7]	GND	3.3 V	AD[6]	AD[5]	GND
21	GND	3.3 V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3 V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE[1]#	GND
17	GND	3.3 V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY#	BD_SEL#	TRDY#	GND
12–14	Key Area						
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3 V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ#	GND	3.3 V	CLK	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	IPMB_PWR	HEALTHY#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	–12 V	TRST#	+12 V	5 V	GND

Table A-4. P2 (J2) Connector Pinout for the Star Trigger Slot

Pi n	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	PXI_LBR0	RSV	PXI_LBR1	PXI_LBR2	PXI_LBR3	GND
20	GND	PXI_LBR4	PXI_LBR5	PXI_STAR0	GND	PXI_STAR1	GND
19	GND	PXI_STAR2	RSV	PXI_STAR3	PXI_STAR4	PXI_STAR5	GND
18	GND	PXI_TRIG3	PXI_TRIG4	PXI_TRIG5	GND	PXI_TRIG6	GND
17	GND	PXI_TRIG2	GND	RSV	PXI_CLK10_IN	PXI_CLK10	GND
16	GND	PXI_TRIG1	PXI_TRIG0	RSV	GND	PXI_TRIG7	GND
15	GND	PXI_BRSA15	GND	RSV	PXI_STAR6	PXI_LBR6	GND
14	GND	RSV	RSV	RSV	GND	RSV	GND
13	GND	RSV	GND	V(I/O)	RSV	RSV	GND
12	GND	RSV	RSV	RSV	GND	RSV	GND
11	GND	RSV	GND	V(I/O)	RSV	RSV	GND
10	GND	RSV	RSV	RSV	GND	RSV	GND
9	GND	RSV	GND	V(I/O)	RSV	RSV	GND
8	GND	RSV	RSV	RSV	GND	RSV	GND
7	GND	RSV	GND	V(I/O)	RSV	RSV	GND
6	GND	RSV	RSV	RSV	GND	RSV	GND
5	GND	RSV	GND	V(I/O)	RSV	RSV	GND
4	GND	V(I/O)	PXI_BRSVB4	RSV	GND	RSV	GND
3	GND	PXI_LBR7	GND	PXI_LBR8	PXI_LBR9	PXI_LBR10	GND
2	GND	PXI_LBR11	PXI_LBR12	UNC	PXI_STAR7	PXI_STAR8	GND
1	GND	PXI_STAR9	GND	PXI_STAR10	PXI_STAR11	PXI_STAR12	GND

Table A-5. P1 (J1) Connector Pinout for the Generic Peripheral Slot

Pin	Z	A	B	C	D	E	F
25	GND	5 V	REQ64#	ENUM#	3.3 V	5 V	GND
24	GND	AD[1]	5 V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3 V	AD[4]	AD[3]	5 V	AD[2]	GND
22	GND	AD[7]	GND	3.3 V	AD[6]	AD[5]	GND
21	GND	3.3 V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3 V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3 V	PAR	C/BE[1]#	GND
17	GND	3.3 V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3 V	FRAME#	IRDY#	BD_SEL#	TRDY#	GND
12–14	Key Area						
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3 V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ#	GND	3.3 V	CLK	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	IPMB_PWR	HEALTHY#	V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5 V 5 V	INTD#	GND
2	GND	TCK	5 V	TMS	TDO	TDI	GND
1	GND	5 V	–12 V	TRST#	+12 V	5 V	GND

Table A-6. P2 (J2) Connector Pinout for the Generic Peripheral Slot

Pin	Z	A	B	C	D	E	F
22	GND	GA4	GA3	GA2	GA1	GA0	GND
21	GND	PXI_LBR0	RSV	PXI_LBR1	PXI_LBR2	PXI_LBR3	GND
20	GND	PXI_LBR4	PXI_LBR5	PXI_LBL0	GND	PXI_LBL1	GND
19	GND	PXI_LBL2	RSV	PXI_LBL3	PXI_LBL4	PXI_LBL5	GND
18	GND	PXI_TRIG3	PXI_TRIG4	PXI_TRIG5	GND	PXI_TRIG6	GND
17	GND	PXI_TRIG2	GND	RSV	PXI_STAR	PXI_CLK10	GND
16	GND	PXI_TRIG1	PXI_TRIG0	RSV	GND	PXI_TRIG7	GND
15	GND	PXI_BRSVA15	GND	RSV	PXI_LBL6	PXI_LBR6	GND
14	GND	RSV	RSV	RSV	GND	RSV	GND
13	GND	RSV	GND	V(I/O)	RSV	RSV	GND
12	GND	RSV	RSV	RSV	GND	RSV	GND
11	GND	RSV	GND	V(I/O)	RSV	RSV	GND
10	GND	RSV	RSV	RSV	GND	RSV	GND
9	GND	RSV	GND	V(I/O)	RSV	RSV	GND
8	GND	RSV	RSV	RSV	GND	RSV	GND
7	GND	RSV	GND	V(I/O)	RSV	RSV	GND
6	GND	RSV	RSV	RSV	GND	RSV	GND
5	GND	RSV	GND	V(I/O)	RSV	RSV	GND
4	GND	V(I/O)	64EN#	RSV	GND	RSV	GND
3	GND	PXI_LBR7	GND	PXI_LBR8	PXI_LBR9	PXI_LBR10	GND
2	GND	PXI_LBR11	PXI_LBR12	UNC	PXI_LBL7	PXI_LBL8	GND
1	GND	PXI_LBL9	GND	PXI_LBL10	PXI_LBL11	PXI_LBL12	GND

NI Services

NI provides global services and support as part of our commitment to your success. Take advantage of product services in addition to training and certification programs that meet your needs during each phase of the application life cycle; from planning and development through deployment and ongoing maintenance.

To get started, register your product at ni.com/myproducts.

As a registered NI product user, you are entitled to the following benefits:

- Access to applicable product services.
- Easier product management with an online account.
- Receive critical part notifications, software updates, and service expirations.

Log in to your MyNI user profile to get personalized access to your services.

Services and Resources

- **Maintenance and Hardware Services**—NI helps you identify your systems' accuracy and reliability requirements and provides warranty, sparing, and calibration services to help you maintain accuracy and minimize downtime over the life of your system. Visit ni.com/services for more information.
 - **Warranty and Repair**—All NI hardware features a one-year standard warranty that is extendable up to five years. NI offers repair services performed in a timely manner by highly trained factory technicians using only original parts at an NI service center.
 - **Calibration**—Through regular calibration, you can quantify and improve the measurement performance of an instrument. NI provides state-of-the-art calibration services. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.
- **System Integration**—If you have time constraints, limited in-house technical resources, or other project challenges, National Instruments Alliance Partner members can help. To learn more, call your local NI office or visit ni.com/alliance.

- **Training and Certification**—The NI training and certification program is the most effective way to increase application development proficiency and productivity. Visit ni.com/training for more information.
 - The Skills Guide assists you in identifying the proficiency requirements of your current application and gives you options for obtaining those skills consistent with your time and budget constraints and personal learning preferences. Visit ni.com/skills-guide to see these custom paths.
 - NI offers courses in several languages and formats including instructor-led classes at facilities worldwide, courses on-site at your facility, and online courses to serve your individual needs.
- **Technical Support**—Support at ni.com/support includes the following resources:
 - **Self-Help Technical Resources**—Visit ni.com/support for software drivers and updates, a searchable KnowledgeBase, product manuals, step-by-step troubleshooting wizards, thousands of example programs, tutorials, application notes, instrument drivers, and so on. Registered users also receive access to the NI Discussion Forums at ni.com/forums. NI Applications Engineers make sure every question submitted online receives an answer.
 - **Software Support Service Membership**—The Standard Service Program (SSP) is a renewable one-year subscription included with almost every NI software product, including NI Developer Suite. This program entitles members to direct access to NI Applications Engineers through phone and email for one-to-one technical support, as well as exclusive access to online training modules at ni.com/self-paced-training. NI also offers flexible extended contract options that guarantee your SSP benefits are available without interruption for as long as you need them. Visit ni.com/ssp for more information.
- **Declaration of Conformity (DoC)**—A DoC is our claim of compliance with the Council of the European Communities using the manufacturer’s declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification.

For information about other technical support options in your area, visit ni.com/services, or contact your local office at ni.com/contact.

You also can visit the Worldwide Offices section of ni.com/niglobal to access the branch office websites, which provide up-to-date contact information, support phone numbers, email addresses, and current events.

Index

Symbols

(figure), 2-4

A

AC power cables (table), 1-2

B

backplane

- interoperability with CompactPCI, 1-6

- local bus, 1-7

- overview, 1-6

- peripheral slots, 1-7

- star trigger (ST) slot, 1-6

- system reference clock, 1-8

- trigger bus, 1-7

C

cables, power (table), 1-2

chassis initialization file, 2-9

chassis number label (figure), 2-8

CompactPCI

- installing modules (figure), 2-7

- interoperability with PXI-1036

 - backplane, 1-6

- interoperability with PXI-1036DC

 - backplane, 1-6

configuration. *See* installation, configuration, and operation

conventions used in the manual, *ix*

cooling

- air cooling of PXI-1036, 2-2

- air cooling of PXI-1036DC, 2-2

- air intake (figure), 2-2

- filler panel installation, 2-3

- setting fan speed, 2-2

D

DC

- power cable, 1-6

- power up, testing, 2-4

documentation

- conventions used in manual, *ix*

- related documentation, *x*

E

EMC filler panel kit, 1-5

F

fan, setting speed, 2-2

filler panel installation, 2-3

G

ground, connecting, 2-3

H

handle/feet kit, 1-5

I

installation, configuration, and operation

- chassis initialization file, 2-9

- configuration in MAX (figure), 2-8

- connecting safety ground, 2-3

- filler panel installation, 2-3

- installing a PXI controller, 2-5

- module installation, 2-5, 2-6

 - CompactPCI or PXI modules (figure), 2-7

- PXI configuration in MAX, 2-7

 - trigger configuration, 2-9

- PXI controller installed in a PXI-1036

 - chassis (figure), 2-6

- PXI controller installed in a

 - PXI-1036DC chassis (figure), 2-6

- rack mounting, 2-3

- setting fan speed, 2-2

- site considerations, 2-1

- testing power up, 2-3

 - DC, 2-4

- unpacking
 - PXI-1036, 1-1
 - PXI-1036DC, 1-1
- interoperability with CompactPCI, 1-6

K

- key features, 1-2

L

- local bus
 - routing, 1-7
 - star trigger and local bus routing (figure), 1-7

M

- maintenance of PXI-1036
 - cleaning
 - exterior cleaning, 3-2
 - interior cleaning, 3-2
 - preparation, 3-1
 - service interval, 3-1
 - static discharge damage (caution), 3-1
- maintenance of PXI-1036DC
 - cleaning
 - exterior cleaning, 3-2
 - interior cleaning, 3-2
 - preparation, 3-1
 - service interval, 3-1
 - static discharge damage (caution), 3-1

O

- optional equipment, 1-5

P

- P1 (J1) connector
 - peripheral slot (table), A-6
 - star trigger slot (table), A-4
 - system controller slot (table), A-2
- P2 (J2) connector
 - peripheral slot (table), A-7
 - star trigger slot (table), A-5
 - system controller slot (table), A-3

- peripheral slots
 - overview, 1-7
 - P1 (J1) connector pinouts (table), A-6
 - P2 (J2) connector pinouts (table), A-7
- pinouts, A-1
 - P1 (J1) connector
 - peripheral slot (table), A-6
 - star trigger slot (table), A-4
 - system controller slot (table), A-2
 - P2 (J2) connector
 - peripheral slot (table), A-7
 - star trigger slot (table), A-5
 - system controller slot (table), A-3
- power cables (table), 1-2
- power supply
 - connecting to, 2-3
 - connecting to DC, 2-4
- power switch, 2-4
- power up, testing, 2-3
- PXI controller, 2-5
 - installing in a PXI-1036DC chassis (figure), 2-6
- PXI subsystem
 - star trigger and local bus routing (figure), 1-7
- PXI_CLK10, 1-8
- PXI_CLK10_IN pin, 1-8
- PXI-1036
 - backplane
 - interoperability with CompactPCI, 1-6
 - local bus, 1-7
 - overview, 1-6
 - peripheral slots, 1-7
 - star trigger (ST) slot, 1-6
 - system reference clock, 1-8
 - trigger bus, 1-7
 - bottom view of chassis, 1-5
 - EMC filler panel kit, 1-5
 - fan speed, setting, 2-2
 - front view (figure), 1-3
 - handle/feet kit, 1-5
 - installation. *See* installation, configuration, and operation
 - key features, 1-2

- maintenance. *See* maintenance of PXI-1036
- module cooling air intake (figure), 2-2
- optional equipment, 1-5
- rack mount kits, 1-5
- rack mounting, 2-3
- rear view of chassis, 1-4
- safety ground, connecting, 2-3
- system controller slot
 - description, 1-6

PXI-1036DC

- backplane
 - interoperability with CompactPCI, 1-6
 - local bus, 1-7
 - overview, 1-6
 - peripheral slots, 1-7
 - star trigger (ST) slot, 1-6
 - system reference clock, 1-8
 - trigger bus, 1-7
- fan speed, setting, 2-2
- key features, 1-2
- optional equipment, 1-5
- P1 DC input connector (figure), 2-4
- rack mount kits, 1-5
- rack mounting, 2-3
- rear view of chassis, 1-4
- safety ground, connecting, 2-3

R

- rack mount kits, 1-5
- rack mounting, 2-3
- related documentation, *x*

S

- safety
 - and caution notices, 2-1
 - ground, connecting, 2-3
- service interval, 3-1
- setting fan speed, 2-2
- Slot, A-5
- star trigger (ST) slot
 - description, 1-6
 - P1 (J1) connector pinouts (table), A-4

- P2 (J2) connector pinouts (table), A-5
- star trigger and local bus routing (figure), 1-7
- system controller slot
 - description, 1-6
 - P1 (J1) connector pinouts (table), A-2
 - P2 (J2) connector pinouts (table), A-3
- system reference clock, 1-8

T

- testing power up, 2-3
 - DC, 2-4
- trigger bus, 1-7

U

- unpacking
 - PXI-1036, 1-1
 - PXI-1036DC, 1-1