PXIe-1095 User Manual

2022-07-06

Contents

PXI Express Chassis Manual

This manual contains the functional overview and specifications for your PXI Express chassis.

Getting Started

This section describes the key features of the PXIe-1095 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 the chassis was damaged during shipment, file a claim with the carrier. Retain the packing material for possible inspection and/or reshipment.

What You Need to Get Started

The PXIe-1095 chassis kit contains the following items:

- PXIe-1095 chassis
- Filler panel
- Software media with **PXI Platform Services 20.5** or newer
- Chassis number labels

Note You also will need an AC power cable, sold separately. Refer to the following table for more information about AC power cables.

Power Cable	Reference Standards
Standard 120 V (USA)	ANSI C73.11/NEMA 5-15-P

Power Cable	Reference Standards
Switzerland 220 V	SEV 6534-2
Australia 240 V	AS C112
Universal Euro 230 V	CEE (7), II, IV, VII
United Kingdom 230 V	BS 1363
Japan 100 V	JIS 8303

Table 1. AC Power Cables

If you are missing any of the items or have the incorrect AC power cable, contact NI.

Key Features

The PXIe-1095 chassis combines a high-performance 9-slot PXI Express backplane with a high-output power supply and a structural design that has been optimized for maximum usability in a wide range of applications. The chassis' modular design ensures a high level of maintainability, resulting in a very low mean time to repair (MTTR). The PXIe-1095 chassis fully complies with the **PXI-5 PXI Express Hardware Specification**, offering advanced timing and synchronization features.
An optional timing and synchronization upgrade provides inter-chassis trigger routing capability, higher accuracy CLK10 and CLK100, connectors for 10 MHz reference clock input and output, and remote chassis monitoring and inhibit control.
The key features of the PXIe-1095 chassis include the following:

High Performance for Instrumentation Requirements

- Up to 8 GB/s (single direction) per PXI Express slot dedicated bandwidth (x8 Gen-3 PCI Express).
- 58 W per slot cooling from 0 °C to 55 °C, and 82 W per slot cooling from 0 °C to 40 °C, meets increased PXI Express cooling requirements
- Low-jitter internal 10 MHz reference clock for PXI/PXI Express slots with ± 25 ppm stability
- Low-jitter internal 100 MHz reference clock for PXI Express slots with ± 25 ppm stability
- Quiet operation for 0 to 30 °C at 35.9 dBA
- Variable speed fan controller optimizes cooling and acoustic emissions

- Complies with PXI and CompactPCI Specifications

High Reliability

- 0 to 55 °C extended temperature range
- Power supply, temperature, and fan monitoring
- Field replaceable fans
- Field replaceable power supply

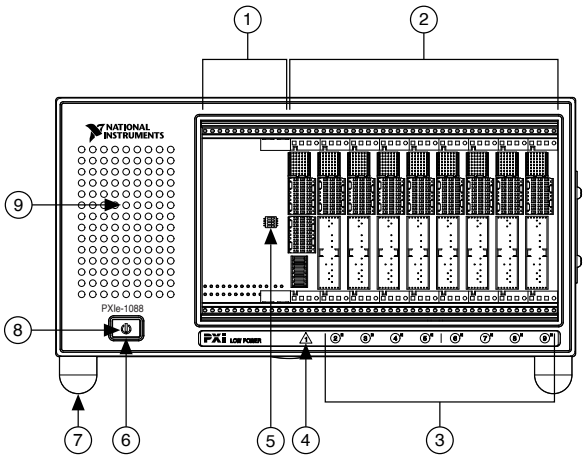
Multi-Chassis Support

- PXI Express System Timing Slot for tight synchronization across multiple chassis
- Switchless CLK10 routing

Chassis Components

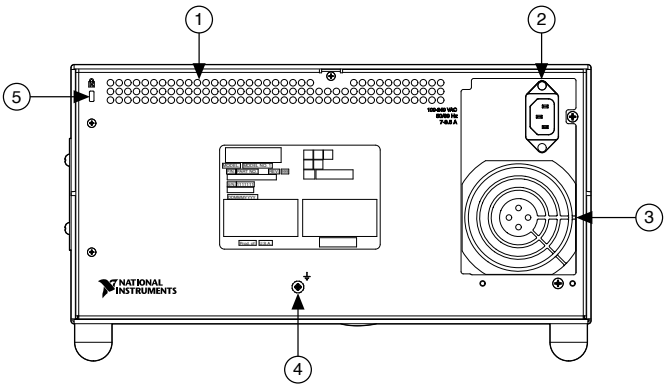
The following figures show key features of the PXIe-1095 chassis front and back panels.

Figure 10. Front View of the PXIe-1095



1. System Controller Expansion Slot
2. Backplane Connectors
3. PXI Express Hybrid Peripheral Slots (8x)
4. PXI Express System Controller Slot
5. Dip Switch
6. Power Inhibit Switch
7. Removable Feet
8. Status LED
9. Power Supply Airflow Intake Vents

Figure 9. Rear View of the PXIe-1095



1. Rear Exhaust Vent
2. Universal AC Input
3. Power Supply Fan Exhaust
4. Chassis Protective Earth Terminal
5. Kensington Slot

Optional Equipment

Contact NI to order the following options for the PXIe-1095 chassis.

EMC Filler Panels

EMC filler panel kits are available from NI.

Rack Mount Kits

Rack mounting kits are available from NI that can accommodate a variety of rack depths.

Slot Blockers

PXI Slot Blocker kits are available from NI for improved thermal performance when all slots are not used.

Replacement Power Supply

Replacement power supply kits are available from NI.

Replacement Fan Kit

A fan kit available from NI includes both side and PXI module fan assemblies.

Interoperability with CompactPCI

The design of the PXIe-1095 provides you the flexibility to use the following devices in a single PXI Express chassis:

- PXI Express compatible products
- CompactPCI Express compatible system controller products
- CompactPCI Express compatible Type-2 peripheral products
- PXI peripheral products modified to fit in a hybrid slot
- Standard CompactPCI peripheral products modified to fit in a hybrid slot

System Controller Slot

The system controller slot is slot 1 of the chassis and is a 2-Link configuration system slot as defined by the CompactPCI Express and PXI Express specifications. The chassis includes three system controller expansion slots for system controller modules that are wider than one slot. These slots allow the system controller to expand to the left to prevent the system controller from using peripheral slots.

The backplane connects the system slot to a PCI Express switch using a Gen-3 x8 and a Gen-3 x16 PCI Express link. The PCIe switch is divided into 2 logical PCIe switches to distribute PCIe connections to the peripheral slots and to 2 PCIe-to-PCI bridges to provide PCI busses to the hybrid peripheral slots.

System slot link 1 is a Gen-3 x8 PCI Express link to the primary PCI Express switch, providing a nominal bandwidth of 8 GB/s (single direction) between the system controller and logical PCI Express switch 1. PXI Express peripheral slots 2-4 are connected to logical PCI Express switch 1 with Gen-3 x8 PCI Express links and are downstream of system slot link 1.

System slot link 2 is a Gen-3 x16 PCI Express link to the primary PCI Express switch, providing a nominal bandwidth of 16 GB/s (single direction) between the system controller slot and logical PCI Express switch 2. PXI Express peripheral slots 5-9 are connected to logical PCI Express switch 2 with Gen-3 x8 PCI Express links and are downstream of system slot link 2.

The PCI Express-to-PCI bridges are connected to PCI Express switch 2 and provide a 32-bit, 33 MHz PCI bus for hybrid peripheral slots 2, 3, 4, 5, 7, 8, and 9.

The system controller slot also has connectivity to some PXI features such as: PXI_CLK10, PXI Star, PXI Trigger Bus, and PXI Local Bus 6. By default, the system controller controls the power supply with the PS_ON# signals. A logic low on this line powers on the power supply.

Note The chassis Inhibit Mode must be set to Default mode for the system controller to control the power supply. Refer to the **Inhibit Mode** section for details about configuring Inhibit Mode.

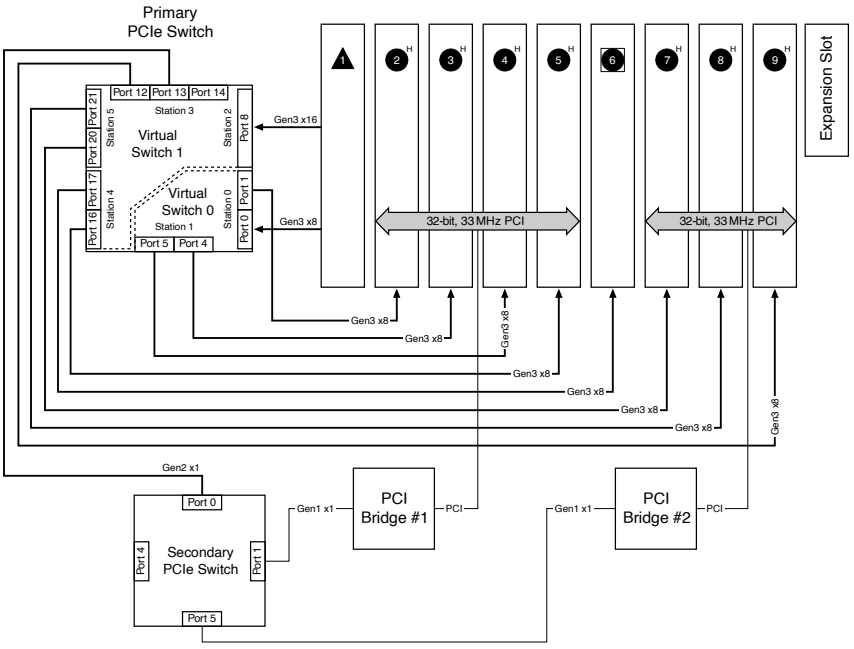
Hybrid Peripheral Slots

The chassis provides seven (7) hybrid peripheral slots as defined by the **PXI-5 PXI Express Hardware Specification**: slots 2, 3, 4, 5, 7, 8, and 9. A hybrid peripheral slot can accept the following peripheral modules:

- A PXI Express peripheral with x8, x4, or x1 PCI Express link through a switch to the system slot. Each PXI Express peripheral slot can link up to a Gen-3 x8 PCI Express, providing a maximum nominal single-direction bandwidth of 8 GB/s.
- A CompactPCI Express Type-2 Peripheral with x8, x4, or x1 PCI Express link through a PCI Express switch to the system slot.
- A hybrid-compatible PXI Peripheral module modified by replacing the J2 connector with an XJ4 connector installed in the upper eight rows of J2. Refer to the **PXI Express Specification** for details. The PXI peripheral communicates through the backplane's 32-bit PCI bus.
- A CompactPCI 32-bit peripheral on the backplane's 32-bit PCI bus.

The hybrid peripheral slots provide full PXI Express functionality and 32-bit PXI functionality except for PXI Local Bus. The hybrid peripheral slot only connects to PXI Local Bus 6 left and right.

Figure 3. PXIe-1095 PCI Express Backplane Diagram



PXI Express Peripheral Slots

There are eleven (11) PXI Express peripheral slots: slots 2 to 6 and 13 to 18. PXI Express peripheral slots can accept the following modules:

- A PXI Express Peripheral with x8, x4, or x1 PCI Express link to the system slot or through a PCI Express switch.
- A CompactPCI Express Type-2 Peripheral with x8, x4, or x1 PCI Express link to the system slot or through a PCI Express switch.

System Timing Slot

The system timing slot is slot 6. The system timing slot accepts the following peripheral modules:

- A PXI Express System Timing Module with x8, x4, or x1 PCI Express link to the system slot through a PCI Express switch. Each PXI Express peripheral or

hybrid peripheral slot can link up to a Gen-3 x8 PCI Express, providing a maximum nominal single-direction bandwidth of 8 GB/s.

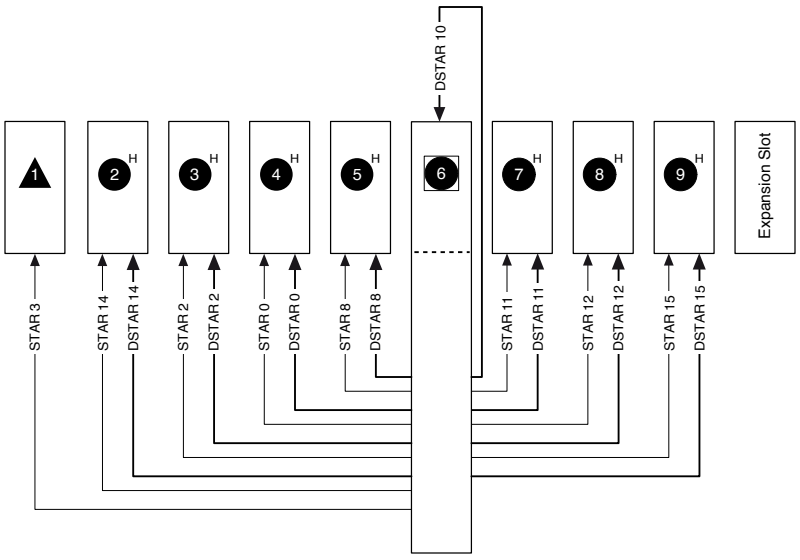
- A PXI Express Peripheral with x8, x4, or x1 PCI Express link to the system slot through a PCI Express switch.
- A CompactPCI Express Type-2 Peripheral with x8, x4, or x1 PCI Express link to the system slot through a PCI Express switch.

The system timing slot has three (3) dedicated differential pairs (PXIe_DSTAR) connected from the TP1 and TP2 connectors to the XP3 connector for each PXI Express hybrid peripheral slot, as well as routed back to the XP3 connector of the system timing slot, as shown in the following figure. You can use the PXIe_DSTAR pairs for high-speed triggering, synchronization, and clocking. Refer to the **PXI Express Specification** for details.

The system timing slot also has a single-ended (PXI Star) trigger connected to every slot. Refer to the following figure for more details.

The system timing slot has a pin (PXI_CLK10_IN) through which a system timing module may source a 10 MHz clock to which the backplane phase-locks.

Figure 4. PXIe_DSTAR and PXI Star Connectivity Diagram



PXI 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.

The backplane routes PXI Local Bus 6 between all slots. The left local bus 6 from slot 1 is not routed anywhere, and the right local bus 6 from slot 9 is not routed anywhere.

Local bus signals may range from high-speed TTL signals to analog signals as high as 42 V.

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

PXI Trigger Bus

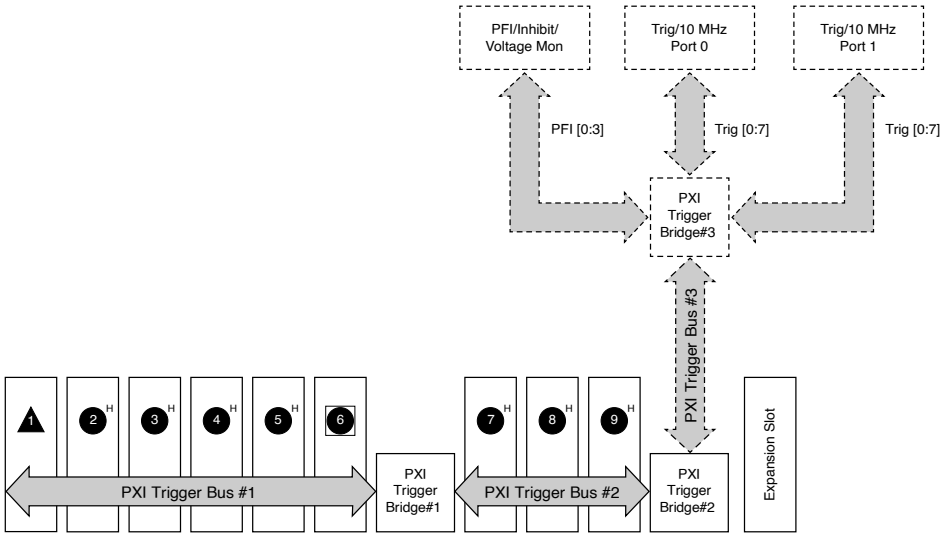
All slots on the same PXI bus segment share eight PXI trigger lines. You can use these trigger lines in a variety of ways. For example, you can use triggers to synchronize the operation of several different PXI peripheral modules. In other applications, one module located in the system timing slot can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

The PXI trigger lines from adjacent PXI trigger bus segments can be routed in either direction across the PXI trigger bridges through buffers. This allows you to send trigger signals to, and receive trigger signals from, every slot in the chassis. Static trigger routing (user-specified line and directional assignments) can be configured through Measurement & Automation Explorer (MAX). Dynamic routing of triggers (automatic line assignments) is supported through certain NI drivers like NI-DAQmx.

Note Although any trigger line may be routed in either direction, it cannot be routed in more than one direction at a time.

With the Timing and Synchronization upgrade, PXI trigger lines can also be routed to I/O ports on the rear of the chassis. This allows you to send trigger signals to, and receive trigger signals from, devices in other chassis. NI drivers such as NI-DAQmx must be used to route triggers between chassis dynamically; routing triggers between chassis using static routes defined in MAX is not supported.

Figure 5. PXI Trigger Bus Connectivity Diagram

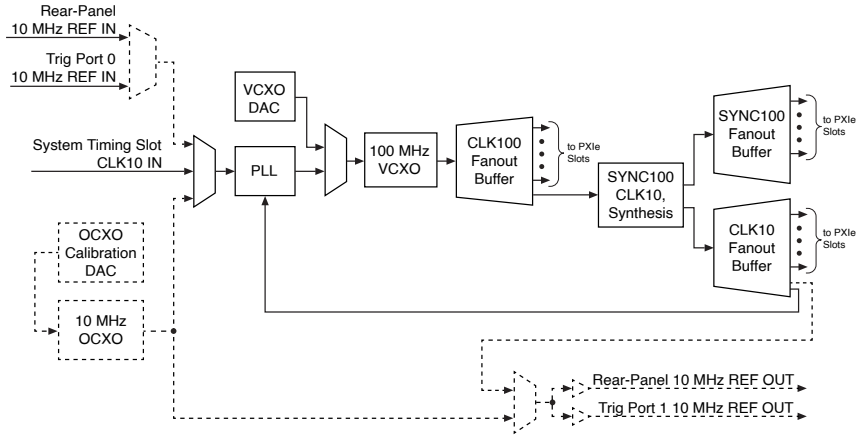


Note Dotted line connections are available only with the Timing and Synchronization upgrade.

System Reference Clock

The PXIe-1095 chassis supplies PXI_CLK10, PXIe_CLK100 and PXIe_SYNC100 to every peripheral slot with an independent driver for each signal. The following figure shows the chassis reference clock architecture.

Figure 6. Chassis Reference Clock Architecture



Note Dotted line connections are available only with the Timing and Synchronization upgrade.

An independent buffer (having a source impedance matched to the backplane and a skew of less than 250 ps between slots) drives PXI_CLK10 to each slot. You can use this common reference clock signal to synchronize multiple modules in a measurement or control system.

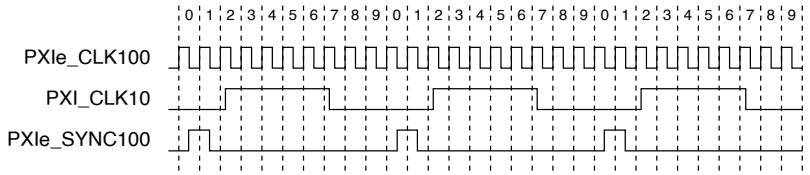
An independent buffer drives PXIe_CLK100 to each peripheral slot. These clocks are matched in skew to less than 100 ps. The differential pair must be terminated on the peripheral with LVPECL termination for the buffer to drive PXIe_CLK100 so that when there is no peripheral or a peripheral that does not connect to PXIe_CLK100, there is no clock being driven on the pair to that slot. Refer to the following figure for a termination example.

An independent buffer drives PXIe_SYNC100 to each peripheral slot. The differential pair must be terminated on the peripheral with LVPECL termination for the buffer to drive PXIe_SYNC100 so that when there is no peripheral or a peripheral that does not connect to PXIe_SYNC100, there is no SYNC100 signal being driven on the pair to that slot.

In summary, PXI_CLK10 is driven to every slot. PXIe_CLK100 and PXIe_SYNC100 are driven to every peripheral slot.

PXI_CLK10, PXIe_CLK100 and PXIe_SYNC100 have the default timing relationship described in the following figure.

Figure 7. System Reference Clock Default Behavior



To synchronize the system to an external clock, you can drive PXI_CLK10 from an external source through the PXI_CLK10_IN pin on the System Timing Slot, or from an external SMA connector on the rear of the chassis (Timing and Synchronization upgrade). When an external clock is detected, the backplane automatically phase-locks the PXI_CLK10, PXIe_CLK100, and PXIe_SYNC100 signals to this external clock and distributes these signals to the slots. Refer to the **PXIe-1095 Specifications**

section for the specification information for an external clock provided on the PXI_CLK10_IN pin of the System Timing Slot or rear panel SMA.

Safety Information

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

Caution Protection may be impaired if equipment is not used in the manner specified.

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

- Protective Earth—The facility installation must provide a means for connection to protective earth.
- Protective Earth Terminal Wiring—Qualified personnel must install a protective earthing conductor from the chassis protective earth terminal (using an #8-32 SEMS screw) on the rear to the protective earth wire in the facility.

Grounding wire	2.1 mm^2 (14 AWG)
Ring lug	#8
Protective earth terminal torque	1.13 N · m (10 lb · in.)

- 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 NI 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

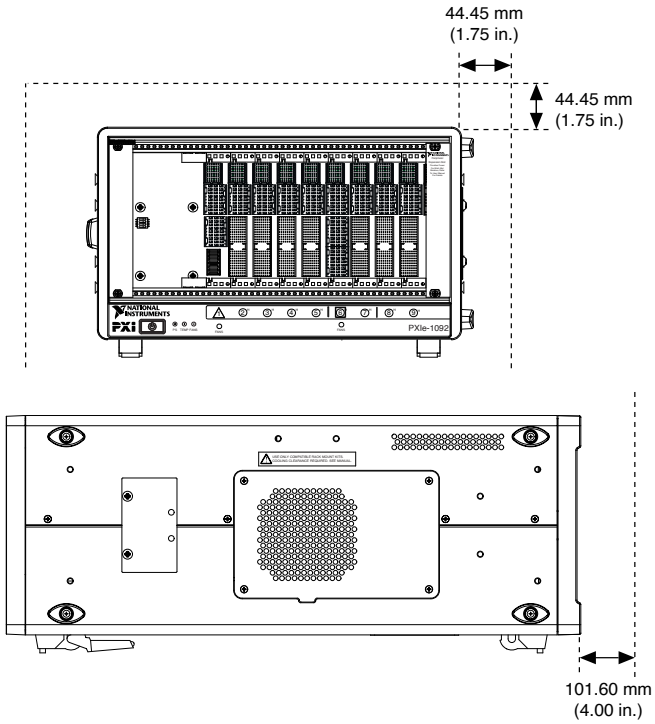
The PXIe-1095 chassis is designed to operate on a bench or in an instrument rack. You must adhere to the cooling clearances as outlined in the following section.

Providing Adequate Clearance

The module and power supply exhaust vents for the PXIe-1095 are on the top of the chassis. The module intake vents are on the rear of the chassis. There are also intake and exhaust vents located along the sides of the chassis.

Adequate clearance between the chassis and surrounding equipment, heat generating devices, and air flow blockages must be maintained to ensure proper cooling. Minimum cooling clearances are shown in the following figure. For rack mount applications adequate forced air ventilation is required. For benchtop applications additional cooling clearances may be required for optimal air flow and reduced hot air recirculation to the air inlet fans.

Figure 8. PXIe-1095 Cooling Clearances



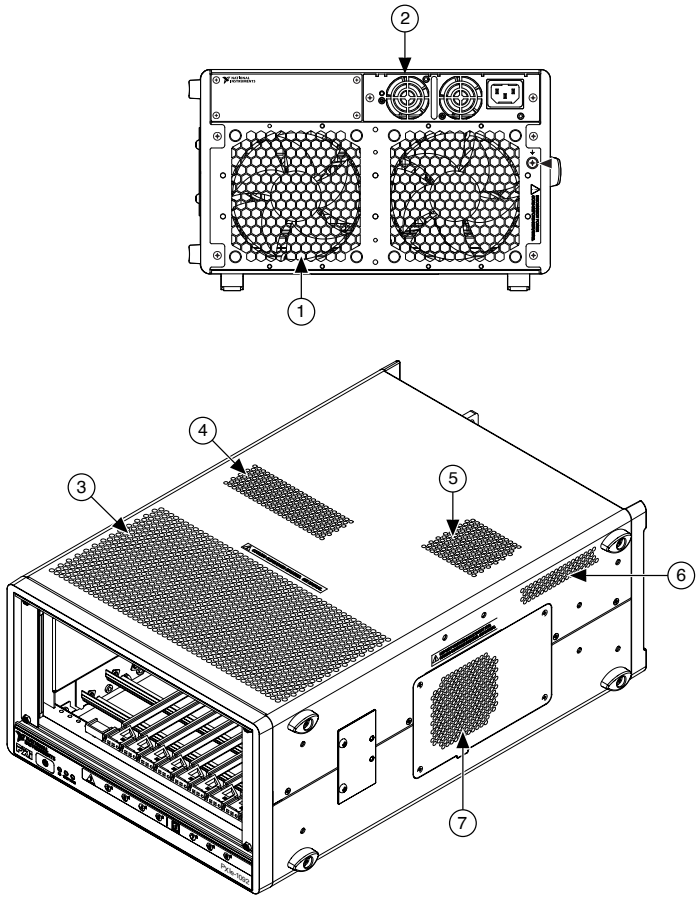
Caution Failure to provide these clearances may result in undesired thermal-related issues with the chassis or modules.

To aid in thermal health monitoring for either rack or benchtop use you can monitor the chassis intake temperatures in Measurement & Automation Explorer (MAX) to ensure the temperatures do not exceed the ratings in the **Operating Environment** section of the **PXIe-1095 Specifications**.

Additionally, many PXI modules provide temperature values you can monitor to ensure critical temperatures are not exceeded. Increasing chassis clearances, ventilation, reducing external ambient temperatures, and removing nearby heat sources are all options for improving overall chassis thermal performance.

The vent locations are shown in the following figure.

Figure 9. PXIe-1095 Vents



1. PXI Module Air Intake (2x)
2. Power Supply Intake
3. PXI Module Air Exhaust Vent
4. Power Supply Air Exhaust Vent
5. Timing and Synchronization Upgrade Air Exhaust Vent
6. Timing and Synchronization Upgrade Air Intake
7. Side Air Intake Vent (Right)/Side Air Exhaust Vent (Left)

Note The side exhaust vent (not shown) is located on the left side of the chassis.

Chassis Ambient Temperature Definition

The chassis fan control system uses ambient intake air temperatures for controlling fan speeds when in Auto mode. These temperatures may be higher than ambient room temperature depending on surrounding equipment and/or airflow blockages. Ensure ambient intake temperatures do not exceed the ratings in the **Operating Environment** section of the **PXIe-1095 Specifications**. You can monitor the module ambient intake temperatures in NI Measurement & Automation Explorer (MAX).

Installing Filler Panels

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

Installing Slot Blockers

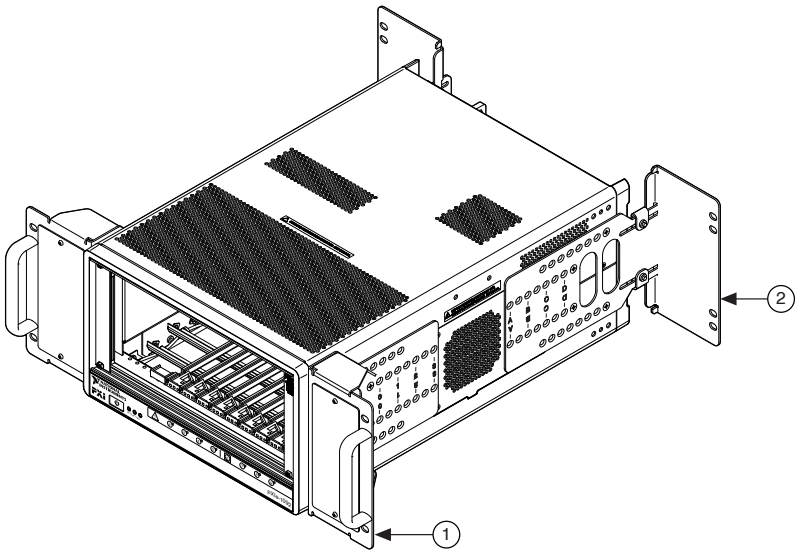
You can improve the cooling performance of the chassis by installing optional slot blockers. Refer to the NI website at ni.com/info and enter the Info Code slotblocker for more information about slot blockers.

Rack Mounting

Rack mount applications require optional rack mount kits available from NI. Refer to the instructions supplied with the rack mount kits to install your PXIe-1095 chassis in an instrument rack.

Note You must remove the feet and carry handle from the PXIe-1095 chassis when rack mounting.

Figure 10. PXIe-1095 Rack Mount Kit Components



1. Front Rack Mount
2. Rear Rack Mount

Connecting the Safety Ground

> **Caution** The PXIe-1095 chassis are designed with a three-position IEC 60320 C14 inlet for the U.S. that connects the ground line to the chassis ground. For proper grounding, a suitable cordset must be used to connect this inlet to an appropriate earth safety ground.

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. To connect the safety ground, complete the following steps:

1. Connect a 16 AWG (1.3 mm) wire to the chassis grounding screw (#8-32 SEMS) 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 a Power Source

Caution Do not install modules prior to performing the following power-on test. To completely remove power, you must disconnect the AC power cable.

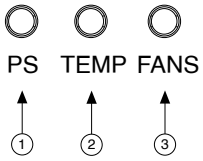
Attach input power through the rear AC inlet using the appropriate AC power cable supplied.

The Power Inhibit switch allows you to power on the chassis or place it in standby mode. With an empty chassis in Default Mode, press down the Power Inhibit switch and hold it down for four seconds. Observe that all fans become operational a steady green. Pressing and holding the Power Inhibit switch again for four seconds will return the chassis to standby.

LED Indicators

The following figure shows the front panel LEDs. The following table describes the LED states.

Figure 11. Front Panel LEDs



1. Power Supply LED
2. Temperature LED
3. Fan LED

LED	State	Description
Power Supply LED	Off	Chassis is powered off.
	Steady green	Chassis power supply or supplies are active, and operating normally.
	Steady red	The chassis power supply has failed.
Temperature LED	Off	Chassis is powered off.

LED	State	Description
	Steady green	Intake or exhaust temperature is within chassis operating range.
	Steady red	Intake or exhaust temperature is outside of chassis operating range.
Fan LED	Off	Chassis is powered off.
	Steady green	All chassis fans are enabled and operating normally.
	Steady red	One or more chassis fans have failed.
All LEDs	Blinking red	An internal chassis fault has occurred.

Table 2. Front Panel LED States

The chassis power supply has a single LED that indicates the health of that supply. The following table describes the rear panel LED states. Refer to Figure 2, **Rear View of the PXIe-1092**, for LED location.

State	Description
Off	Power supply is unplugged or in standby.
Steady green	Main power is active and supply is operating normally.
Blinking red	Power supply is operating outside of specification.
Steady red	Power supply has failed.

Table 3. Rear Power Supply LED States

Remote Voltage Monitoring and Control

The PXIe-1095 chassis supports remote voltage monitoring and inhibiting through a female 8-pin connector on the rear panel. The following table shows the pinout of the 8-pin connector.

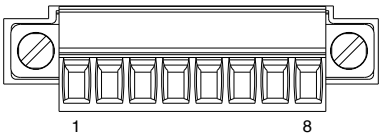
Note The PXIe-1095 accessory kit includes one 8-pin connector. To order additional connectors, use Phoenix Contact part number MC 1.5/8-STF-3.5-BK or 1847181.

Pin	Signal
1	Inhibit (Active Low)
2	Fault (Active High)
3	Logic Ground

Pin	Signal
4	+5 VDC
5	+3.3 VDC
6	+12 VDC
7	-12 VDC
8	Logic Ground

Table 4. Remote Inhibit and Voltage Monitoring Connector Pinout

Figure 12. Remote Inhibit and Voltage Monitoring Connector



Caution When connecting digital voltmeter probes to the rear 8-pin connector, be careful not to short the probe leads together.

You can use a digital voltmeter to ensure all voltage levels in the PXIe-1095 chassis are within the allowable limits. Referring to the following table, connect one lead of the voltmeter to a supply pin on the 8-pin remote voltage monitoring connector on the rear panel. Refer to the previous table for a pinout diagram of the remote voltage monitoring connector. Connect the reference lead of the voltmeter to one of the ground pins. Compare each voltage reading to the values listed in the following table.

Note Use the rear-panel 8-pin connector to check voltages only. Do not use the connector to supply power to external devices.

Pin	Supply	Acceptable Voltage Range
4	+5 V	4.75 to 5.25 V
5	+3.3 V	3.135 to 3.465 V
6	+12 V	11.4 to 12.6 V
7	-12 V	-12.6 to -11.4 V
3, 8	Logic Ground	0 V

Table 5. Power Supply Voltages at Voltage Monitoring Connector

If the voltages fall within the specified ranges, the chassis complies with the CompactPCI voltage-limit specifications.

PXI Express System Configuration with MAX

The PXI Platform Services software included with your chassis automatically identifies your PXI Express system components to generate a pxiesys.ini file. You can configure your entire PXI system and identify PXI-1 chassis through Measurement & Automation Explorer (MAX), included with your system controller. PXI Platform Services creates the pxiesys.ini and pxisys.ini file, which define your PXI system parameters.

Note The configuration steps for single or multiple-chassis systems are the same.

MAX provides the following chassis information:

- Asset information, such as serial number or part number
- Chassis number
- Voltages, temperatures, and fan speed
- Fan and cooling settings
- Slot details
- Chassis self-test
- Firmware update

Note Information available through MAX may vary based on your chassis variant or firmware and platform services version.

Using System Configuration and Initialization Files

The PXI Express specification allows many combinations of PXI Express chassis and system modules. To assist system integrators, the manufacturers of PXI Express 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 PXIe-1095 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 NI provide the pxisys.ini file for the PXIe-1095 chassis, so you should not need to use the chassis.ini file. Refer to the documentation provided with the system controller or to ni.com/support for more information on pxisys.ini and chassis.ini files.

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

Maintenance

This section describes basic maintenance procedures you can perform on the PXIe-1095 chassis.

> **Caution** Disconnect the power cable prior to servicing your PXIe-1095 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 section 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 section.

Note 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

Cleaning procedures consist of exterior and interior cleaning of the chassis and cleaning the fan filters. Refer to your module's user documentation for information about cleaning individual CompactPCI or PXI Express modules.

Caution Always disconnect the power cable prior to servicing the chassis.

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

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.

Caution 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.

Replacing the Power Supply

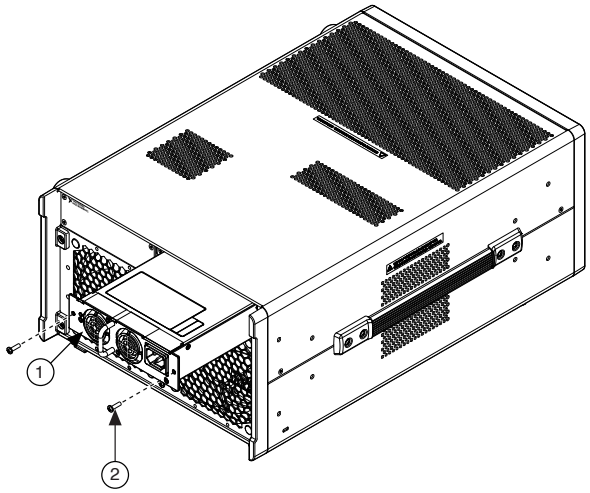
This section describes how to remove, configure, and install the AC power supply in the PXIe-1095 chassis.

Caution Disconnect the power cable prior to replacing the power supply.

Before connecting the power supply shuttle to a power source, read this section and the **Read Me First: Safety and Electromagnetic Compatibility** document included with the kit.

Removal

The PXIe-1095 power supply is a replacement part for the PXIe-1095 chassis. Before attempting to replace the power supply, verify there is adequate clearance behind the chassis. Disconnect the power cable from the power supply on the back of the chassis. Identify the two mounting screws for the PXIe-1095 that attach the power supply to the chassis. Refer to the **Rear View of the PXIe-1095 Chassis** figure, for the screw locations. Using a Phillips screwdriver, remove the screws. Pull on the rear of the power supply to remove it from the back of the chassis.



1. Power Supply
2. Power Supply Screws (2x)

Installation

Note The power supply should be disconnected from AC power for at least 30 seconds before it is installed in the chassis.

Ensure that there is no visible damage to the new power supply. Verify that the housing and connector on the new power supply assembly have no foreign material inside. Install the new power supply into the chassis in the reverse order of removal. Replace and tighten two #6-32 screws with a Phillips screwdriver. Connect the AC inlet power cable.

To meet the Shock and Vibration specifications listed in the **PXIe-1092 Specifications**, tighten screws to 1.3 N · m (11.5 in · lb) of torque.

Configuration

The fan-speed selector switch is on the rear panel of the power supply shuttle. Select High for maximum cooling performance (recommended) or Auto for quieter operation. Set the Inhibit Mode switch to the Default position.

Connecting the Safety Ground

Caution The PXIe-1095 chassis are designed with a three-position IEC 60320 C14 inlet for the U.S. that connects the ground line to the chassis ground. For proper grounding, a suitable cordset must be used to connect this inlet to an appropriate earth safety ground.

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. To connect the safety ground, complete the following steps:

1. Connect a 16 AWG (1.3 mm) wire to the chassis grounding screw (#8-32 SEMS) 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 a Power Source

> **Caution** Do not install modules prior to performing the following power-on test. To completely remove power, you must disconnect the AC power cable.

Attach input power through the rear AC inlet using the appropriate AC power cable supplied.

The Power Inhibit switch allows you to power on the chassis or place it in standby mode. With an empty chassis in Default Mode, press down the Power Inhibit switch and hold it down for four seconds. Observe that all fans become operational a steady green. Pressing and holding the Power Inhibit switch again for four seconds will return the chassis to standby.

Installing a New Fan Module

Follow these steps to install a new fan module:

1. Insert the tab that projects from the bottom of the fan module into the slot on the back of the chassis. Be sure the tab catches on the bottom of the slot.
2. Rotate the fan module upwards.
3. Pinch both snaps at the top of the fan module, rotate the module until it is flush with the chassis, and release the snaps.