PXES-2314T

Compact 4-slot Thunderbolt™ 3
PXI Express Chassis

Manual Rev.:	Rev. 1.0
Revision Date:	November 3, 2020
Part No:	50-1Z315-1000

Leading **EDGE COMPUTING**

Revision History

Revision	Release Date	Description of Change(s)
1.0	2020-11-03	Initial release

Preface

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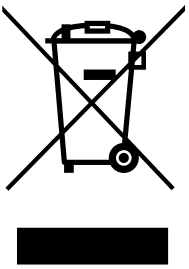

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Battery Labels (for products with battery)

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WARNING: This product can expose you to chemicals including acrylamide, arsenic, benzene, cadmium, Tris(1,3-dichloro-2-propyl)phosphate (TDCPP), 1,4-Dioxane, formaldehyde, lead, DEHP, styrene, DINP, BBP, PVC, and vinyl materials, which are known to the State of California to cause cancer, and acrylamide, benzene, cadmium, lead, mercury, phthalates, toluene, DEHP, DIDP, DnHP, DBP, BBP, PVC, and vinyl materials, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov**.**

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Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.

NOTE: Additional information, aids, and tips that help users perform tasks.

CAUTION: Information to prevent ***minor*** physical injury, component damage, data loss, and/or program corruption when trying to complete a task.

WARNING Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

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1 Introduction

The ADLINK PXES-2314T is a compact 4-slots PXI Express chassis equipped with high-performance PXI Express backplane and Thunderbolt 3 ports for uplink to a host PC or notebook computer. The chassis' modular design ensures easy maintenance and a high level of flexibility for a variety of applications using PXI systems. The PXES-2314T chassis fully complies with the PXI™-5 PXI Express Hardware Specification, offering advanced timing and synchronization features of PXI Express instrumentation signals.

Utilizing Thunderbolt 3 and PCI Express 3.0 technology, the PXES-2314T features 40Gbps bidirectional bandwidth (maximum 22Gbps bidirectional data bandwidth) for high-throughput data transfer applications.

The PXES-2314T offers USB Power Delivery functionality through Thunderbolt 3 ports, supporting up to 60W power supply for connected Thunderbolt 3/USB PD compatible devices such as a notebook computer, flash drive, or other storage device. The maximum power supply capability of the chassis is 160W total, with 58W of power cooling capacity per slot and a smart system monitoring controller for chassis status including fan speed, system voltages, and internal temperature.

1.1 Features

- Dual Thunderbolt™ 3 ports for host PC connection
- Thunderbolt™ 3 daisy chain
- Thunderbolt™ 3 bidirectional data bandwidth transfers up to 40 Gb/s.
- USB Power Delivery up to 60W
- Four PXI Express Hybrid slots
- Programmable Trigger I/O port
- Smart fan and chassis status monitoring

1.2 Specifications

- PXI-5 PXI Express hardware specification Rev.1.0 compliant
- Dual Thunderbolt™ 3 ports (USB Type-C connectors, support USB PD 5V, 9V, 15V and 20V up to 60W/15W and daisy-chain capability)
- Thunderbolt™ 3 bidirectional data bandwidth transfers up to 40 Gb/s.
- 1 Trigger I/O port programmable from/to backplane PXI Trigger Bus
- Smart fan & temperature, voltage, fan monitor
- Backplane PXI Signals
  - PXI 10MHz sync signals
  - PXIe 100MHz sync signals
  - PXI Trigger Bus
  - Local Bus(PXI_LBL6 and PXI_LBR6)
- DC Power Output up to 160W (combined total of slots 2/3/4/5 and USB power delivery)
- Wide range DC 9 to 32V input, up to 160W
- Dimensions: 207.9 x 148.4 x 220.5mm (8.19" x 5.84" x 8.68")

DC Power Input

Rated Input 9-32 VDC

DC Power output

Operation Ambient Temperature		Maximum Total DC Output	
0°C to 50°C (32°F to 122°F)		160W (DC input 16V-32V) 120W (DC input 9-12V)	
Voltage Rail	**Maximum Total Current**	**Load Regulation**	**Maximum Ripple Noise**
+12V	15A	±5%	120mV
+3.3V	12A	±5%	50mV
+5V	12A	±5%	50mV
-12V	1A	±5%	120mV
+5Vaux	1A	±5%	50mV

Table 1-1: DC Power Output Specifications

Backplane Slot DC Power Current Capacity

Slot Type	Slot Number	+5V	+3.3V	+12V	-12V	+5Vaux
PXIe Hybrid Peripheral Slot	2/3/4/5	6A	9A	6A	1A	1A

Table 1-2: Backplane Slot DC Power Current

PXI 10 MHz System Reference Clock (PXI_CLK10)

Item	Detail
Maximum slot-to-slot skew	280 ps
Accuracy	±1 ppm max, 0°C to 55°C (32°F to 131°F)
Maximum jitter	0.44 ps RMS phase-jitter (12k Hz–20 MHz)
Duty-factor for PXI_CLK10	45% to 55%
Unloaded signal swing	3.3V ± 5% (±0.165V)

Table 1-3: PXI 10 MHz Reference Clock

PXIe 100 MHz System Reference Clock (PXIe_CLK100)

Item	Description
Maximum slot-to-slot skew	100 ps
Accuracy	±1 ppm max, 0°C to 55°C (32°F to 131°F)
Maximum jitter	2.41 ps RMS phase-jitter (12kHz–20MHz)
Duty-factor for PXIe_CLK100	45% to 55%
Absolute differential voltage (when terminated with a 50Ω load to 1.30 V or Thévenin equivalent)	400 to 900 mV
PXIe_SYNC100	Implemented as default behavior. PXIe_SYNC_CTRL is disabled by connecting a 10kΩ pull-down resistor to ground.

Table 1-4: PXI Express 100 MHz System Reference Clock

Backplane Slots & Functionality

Type of Slot	Qty	Slot Number	Bus
PXI Express Hybrid Peripheral Slot	4	2,3,4,5	Slots 2 and 3 support PCIe x1 Gen2 link, and PCI 32-bit (33MHz 5VIO). Slots 4 and 5 support PCIe x4 Gen3 link, and PCI 32-bit (33MHz 5VIO).

Table 1-5: Backplane Slots & Functionality

Backplane PCI Express Bus Topology

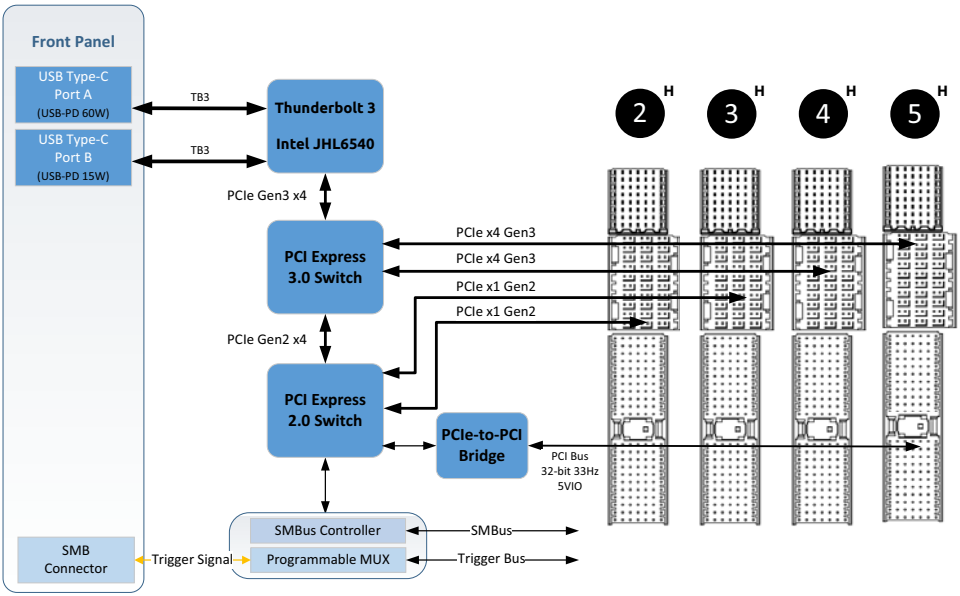


Figure 1-1: Backplane PCI Express Bus Topology

Operating Temperature

Peripheral Module Power Consumption	Operating Temperature	Environment
When all installed peripheral modules require less than 38W cooling capacity.	0°C to 50°C (32°F to 122°F)	Indoor use only
When any peripheral module requires more than 38W and less than 58W cooling capacity.	0°C to 40°C (32°F to 104°F)	

Table 1-6: Operating Temperature


NOTE:

To optimize cooling, optional Wind Block Modules must be installed on all unpopulated slots.

Cooling

Item	Detail
Chassis Rear Fans (for peripheral modules)	Forced air circulation through one 136 CFM fan
Module slot airflow direction	From bottom to top of module
Module airflow intake	Left side of chassis (when facing chassis)
Module airflow exhaust	Right side of chassis (when facing chassis)
Peripheral Module Slot cooling capacity	Maximum 58W per slot
Minimum chassis cooling clearances	Both sides of chassis: 101.60 mm (4.00 in.)

Table 1-7: Cooling

Place chassis horizontally and do not block ventilation holes. Ensure sufficient cooling clearance on both sides of chassis.

Mechanical Dimensions and Weight

Item	Detail
Height	148.4mm / 5.84"
Width	207.9mm / 8.19"
Depth	220.5 mm / 8.68"
Net Weight	3.8KG, 8.38 lbs
Gross Weight (with package, power cable, and filler panels)	5.5KG, 12.13 lbs

Table 1-8: Mechanical Dimensions and Weight

(All dimensions in millimeters)

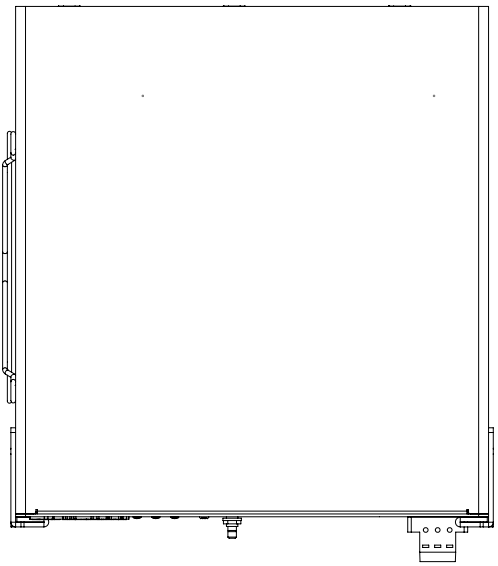


Figure 1-2: Top View

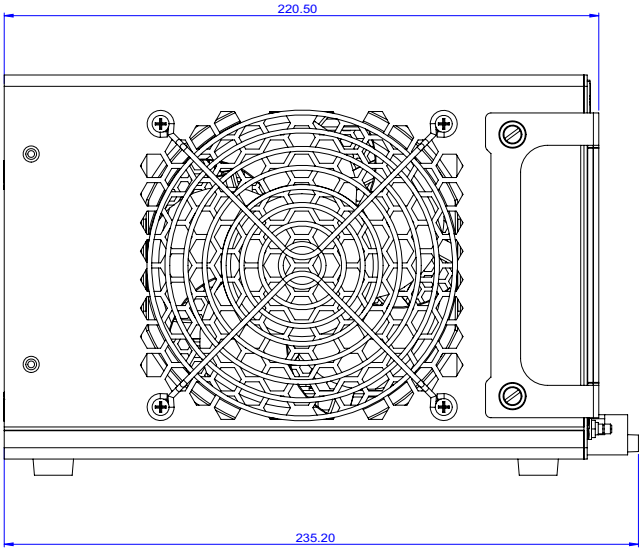


Figure 1-3: Left View

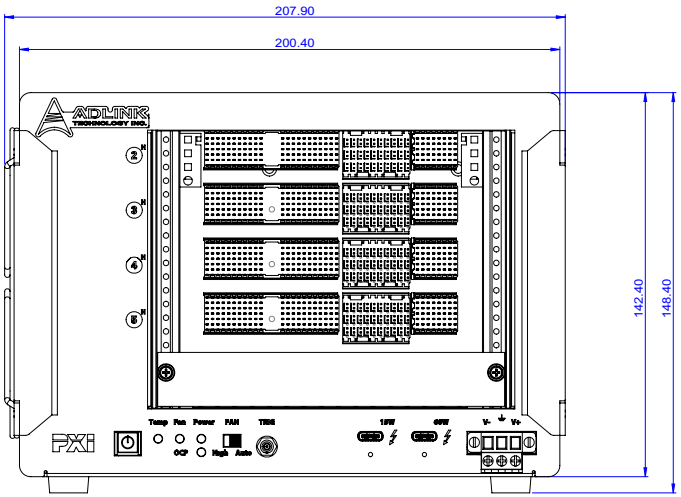


Figure 1-4: Front View

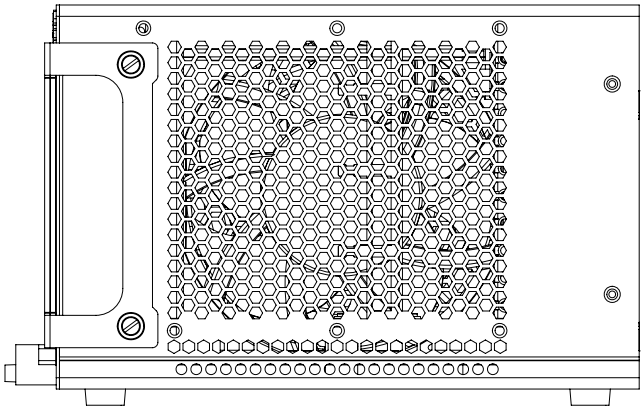


Figure 1-5: RightView

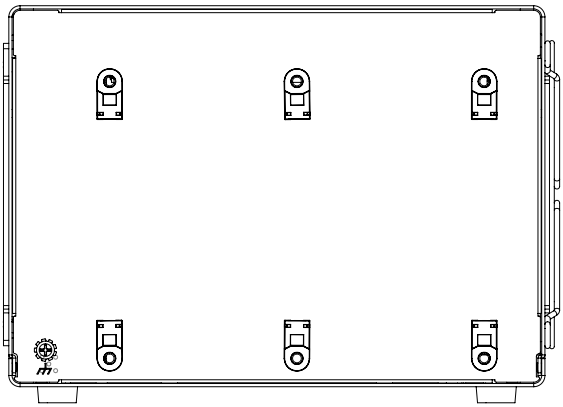


Figure 1-6: Rear View

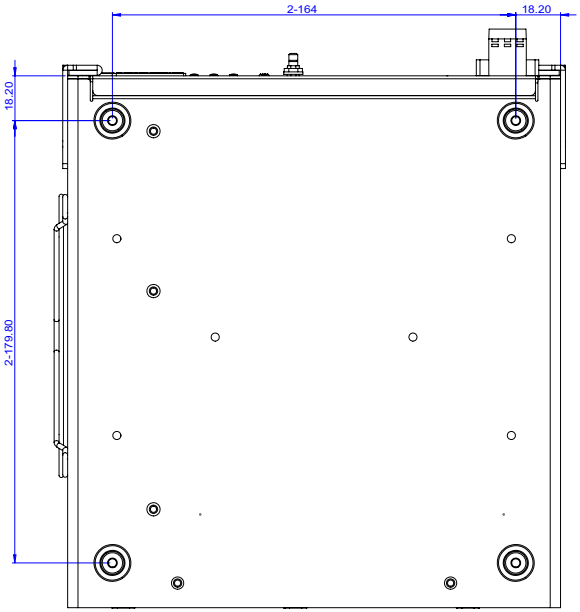


Figure 1-7: Bottom View

Pin Definitions

Slot Type	Pin Definition
PXI Express Hybrid Peripheral Slot	Comply with PXISA PXI-5 Hardware Specification: PXI Express Hybrid Peripheral Slot Pin Assignments

Table 1-9: PXI Express Slot Pin Definitions

Software and Utilities

The PXES-2314T complies with PXI-6 PXI Express Software Specification Revision 1.2. Related software resources are available in following software packages.

ADLINK PXI Software Service

A software package that provides PXI-2/PXI-6/PXI-9 software services, drivers, sample programs, and utilities for ADLINK PXI Express/PXI system modules and chassis. Please refer to the ADLINK PXI Platform Service user manual for more information.

Measurement Automation and Platform Service (MAPS)

A software package including ADLINK DAQ drivers and ADLINK PXI Software Service. Please refer to the MAPS user manual for more information.

Environmental Specifications

Item	Detail
Storage	Ambient temperature: -40°C to 71°C (-40°F to 159.8°F) Relative humidity: 10 to 90%, noncondensing
Operating	Ambient temperature: 0°C to 50°C (32°F to 122°F) Relative humidity10 to 90%, noncondensing
Functional shock	30 G, half-sine, 11 ms pulse duration
Random Vibration	Operating: 5 to 500 Hz, 0.3 Grms, 3 axes Nonoperating: 5 to 500 Hz, 2.46 Grms, 3 axes
Fan Speed*	**Acoustic Emissions**
Auto	35.7 dB
High	52.8 dB

*Fan Mode and Fan Speed are set by switches at the front of the chassis.

Table 1-10: Environmental Specifications

Electromagnetic Compatibility

- EN 61326-1 (IEC 61326-1): Class B emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class B emissions
- FCC 47 CFR Part 15 Subpart A (Class B)
- ICES-001 Class B
- ICES-003 Issue 6-2016
- AS/NZS CISPR 11: Group 1, Class B emissions

1.3 Connectors, I/O and Controls

1.3.1 Front Panel

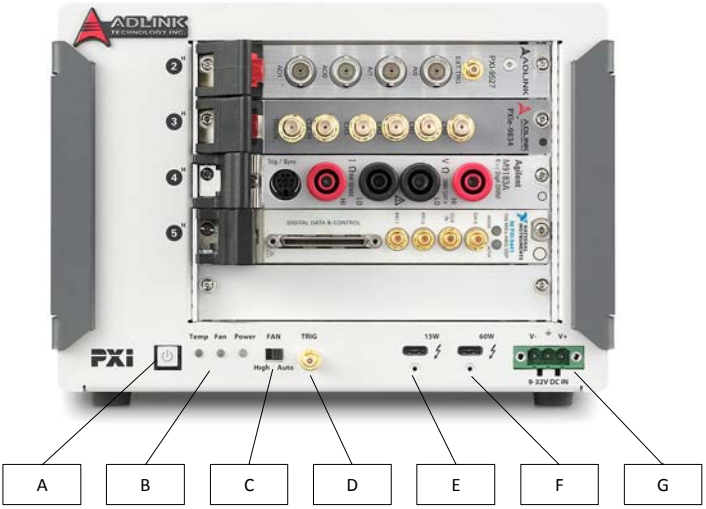
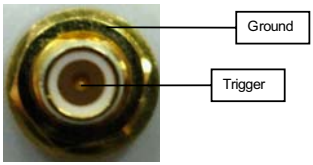


Figure 1-8: PXES-2314T Front Panel

Front Panel Power & Status

Item	Feature	Description
A	Power Button	Powers the chassis on/off. In order to avoid abnormal disconnection, the power button is locked when host PC is connected and powered on. Power off host PC and disconnect Thunderbolt 3 connection to unlock power button. There is a reserved 2-pin power button connector located on the bottom side of the PXES-2314T, inside a cover. It can be used to connect an external power button or circuit for remote power on/off operation.
B	Chassis Status	Temperature, Fan, Power
C	Fan Speed Switch	**High:** Disables Smart Fan function. Sets fan speeds of rear 3 fans to max. RPM. **Auto:** Enables Smart Fan function. Auto fan speed based on temperature detected by thermal sensors of PXES-2314T.
D	PXI Trigger I/O	The PXI trigger connector is an SMB jack, used to route external trigger signals to or from the PXI backplane. Trigger signals are TTL-compatible and edge sensitive. There are four trigger routing modes from/to the PXI trigger connector to synchronize PXI modules, including • From a selected trigger bus line to PXI trigger connector • From the PXI trigger connector to a selected trigger bus line • From software trigger to a selected trigger bus line • From software trigger to PXI trigger connector All trigger modes are programmable by the provided driver. 

Item	Feature	Description
E	Thunderbolt 3 Port	Thunderbolt 3 compliant with USB power 5V up to 15W
F	Thunderbolt 3 Port	Thunderbolt 3 compliant with USB PD 5V, 9V, 15V and 20V up to 60W
G	DC Input	Wide range 9-32V DC input, maximum 160W. Number of positions: 3, pitch: 5.08 mm Reference connector models: • DECA MC311#50803 • Phoenix Contact FRONT-MSTB 2,5/ 3-STF-5,08 - 1777811

Table 1-11: Front Panel Power & Status

Power button is disabled when Thunderbolt 3 port is connected to a power-on host PC. Power button function restores when host-PC is power-off or Thunderbolt 3 ports are unconnected.

Chassis Status LEDs

Status	Temperature	Fan	Power
On	N/A	Normal operation	Normal operation
Off (when power button LED is on)	Normal operation	N/A	N/A
Blinking	One or more temperature sensors exceeds threshold temperature (default 70°C)	One or more fans falls below threshold speed (default is 800RPM)	One or more power rails exceeds threshold settings (defaults are ±5% for 5V, 3.3V, +12V, and -12V)

Table 1-12: Front Panel Indicators

1.3.2 Rear Panel

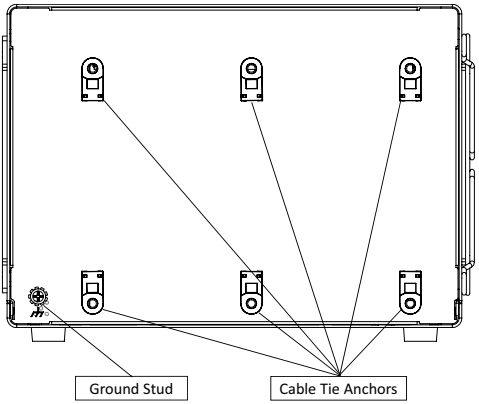


Figure 1-9: PXES-2314T Rear Panel

1.3.3 Positions of Backplane Thermal Sensors

Positions of thermal sensors.

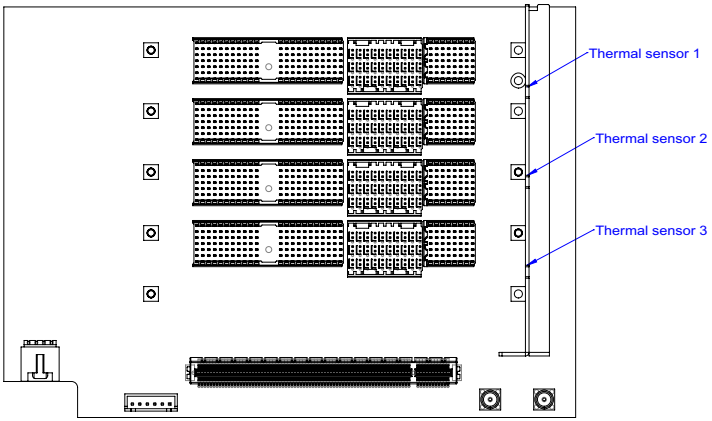


Figure 1-10: PXES-2314T Backplane Thermal Sensor Positions

NOTE:

For details about chassis temperature detection, please see “Chassis Status Monitor” on page 30.

1.3.4 PCI Express

PCI Express Link Capability

The PXES-2314T backplane provides a PCIe Gen3 switch fabric, allowing PCI Express bus data streams between the Thunderbolt 3 ports and all peripheral slots.


NOTE:

Connector pin assignments of the PXI Express Hybrid Peripheral Slots, comply with the default pin assignments as defined in PXI-5 PXI Express hardware specification Rev.1.1.

PXI Express Hybrid Peripheral Slots

Four PXI Express hybrid peripheral slots are provided on the PXES-2314T. Slots 2 and 3 are connected by a PCIe Gen2 x1 link. Slots 4 and 5 are connected by a PCIe Gen3 x4 link. All slots share the same PCIe uplink to the host PCIe controller via Thunderbolt 3 port. Each slot can accommodate either a 3U PXI Express module(Figure 1-11), a CompactPCI Express module, a hybrid slot compatible PXI-1 module (Figure 1-12), or a Compact-PCI peripheral module.

Figure 1-11: 3U PXI Express Peripheral Module

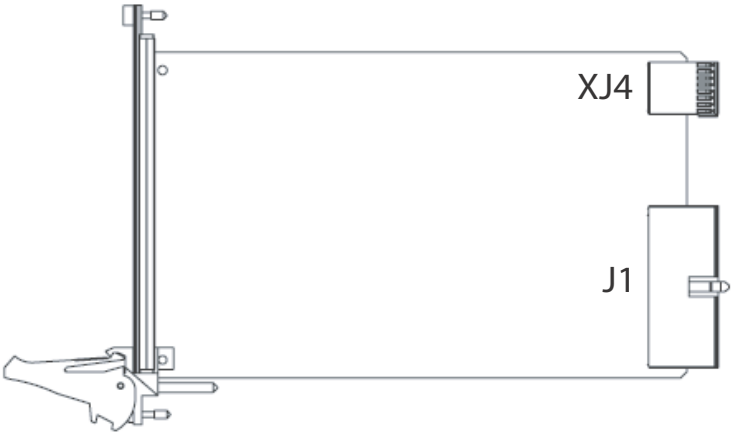


Figure 1-12: 3U Hybrid Slot Compatible PXI-1 Peripheral Module

Local Bus

The local bus on a PXI backplane is a daisy-chained bus that connects each peripheral slot with adjacent peripheral slots to the left and right. The quantity of local bus lines is decreased from thirteen to one (PXI_LBL6 and PXI_LBR6) on a PXI Express backplane. The remaining local bus lines can transmit analog or digital signals between modules.

Trigger Bus

There is one trigger bus segment on the PXES-2314T backplane with each trigger bus segment containing 8 trigger lines connecting all slots on the same segment, providing inter-module synchronization. PXI and PXI Express modules can exchange trigger or clock signals through the trigger bus, allowing precisely timed response to asynchronous external events.

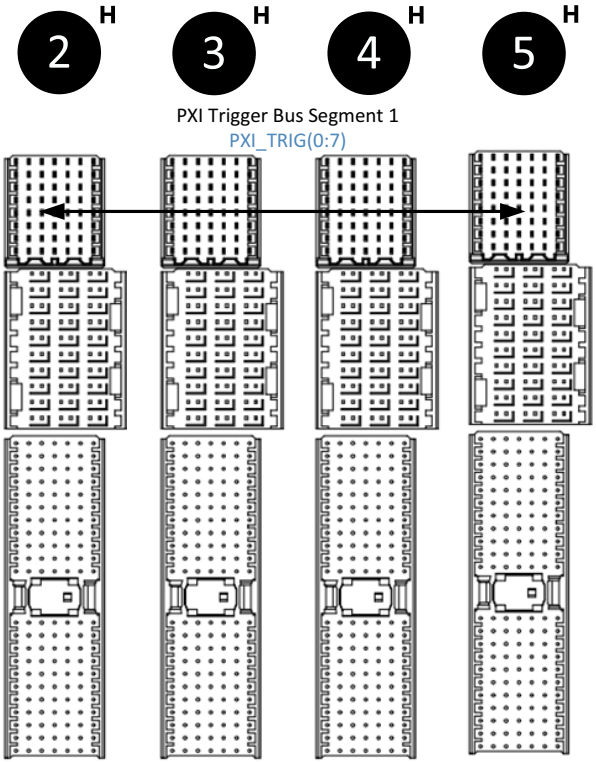


Figure 1-13: Trigger Bus and Bus Bridges

Reference Clock

The PXES-2314T backplane supplies a single-ended 10MHz reference clock (PXI_CLK10) and differential 100MHz clock (PXIe_CLK100) to each peripheral slot for inter-module synchronization. The independent buffers drive the clock signal to each peripheral slot.

These common reference clock signals can synchronize multiple modules in a PXI Express chassis. PXI modules with phase-lock loop circuits can lock reference clocks to generate an in-phase timebase.

The PXI_CLK10 and PXIe_CLK100 clocks are in-phase according to the PXI-5 specification.

2 Getting Started

This chapter describes procedures for installing the PXES-2314T and making preparations for its operation. Please contact ADLINK or authorized dealer if there are any problems during the installation.

Diagrams and illustrated equipment are for reference only. Actual system configuration and specifications may vary.

2.1 Package Contents

Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Retain the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to ADLINK.

Please ensure that the following items are included in the package.

- PXES-2314T chassis
- DC input connector DECA MC311#50803

The following accessories are available in the PXES-2314T Kit (ordered separately).

- Thunderbolt 3 certified cable (0.7m)
- 160W AC-DC power adapter
- Power cord (for US/EU, China, or AU/NZ areas)
- Cable ties

If any of these items are missing or damaged, contact the dealer from whom you purchased the product. Save the shipping materials and carton in case you want to ship or store the product in the future.

Do not install or apply power to equipment that is damaged or missing components. Retain the shipping carton and packing materials for inspection. Please contact your ADLINK dealer/ vendor immediately for assistance and obtain authorization before returning any product.

2.2 Power Supply Budget Considerations

Please review the power consumption of all modules and devices connected to the Thunderbolt 3 ports on the PXES-2314T (e.g. notebook, USB devices). The total maximum consumed power shall not exceed 80% of the rated power output of the DC power supply connected to the PXES-2314T.

2.3 Cooling Considerations

Place the chassis horizontally when in use. Minimum chassis cooling clearances are both sides of chassis is 101.60 mm (4.00 in.). The airflow direction is from left to right (as viewed facing the front of the chassis).


NOTE:

To maintain required air flow, always install filler panels on all unpopulated slots. For optimized cooling, install optional Wind Block Modules in all unpopulated slots.

2.4 Configure Settings for Cooling

Heat ventilation is related to the installation location, environmental temperature, and total heat generated by peripheral modules. The PXES-2314T features a smart fan function to provide sufficient ventilation and minimize noise emission. There is a fan speed switch located on the front of the chassis to configure the smart fan operation settings to "enabled" (Auto) or "maximum fan speed" (High).

2.5 Installation

1. Install the PXIe/PXI peripheral modules into the PXES-2314T.
2. Follow the “Operation - Power on sequence” below.
3. Download and install the required drivers for each installed peripheral modules on the host PC/notebook.
4. Download ADLINK PXI Platform Services from the PXES-2314T product web page. Install the software package on the host PC/notebook by running setup.exe and following the on screen instructions.
5. Follow the “Operation - Power off sequence” below.
6. Attach the front handles can be set with a Philips screw driver.

7. Attach accessories such as the AC-DC power adapter using the included cable ties to the rear side of the chassis as shown.

2.5.1 Operation - Power on sequence

1. Connect the PXES-2314T to a host PC/notebook using a Thunderbolt 3 cable (the PXES-2314T 60W port supports USB Power Delivery for charging).
2. Connect Thunderbolt 3 peripheral devices to the other port of the PXES-2314T if required.
3. Connect the AC-DC power adapter.
4. Power on the PXES-2314T by pressing the power button on the front panel.
5. Power on the host PC/notebook and boot into Windows 10.
6. Launch Thunderbolt utility of host PC/notebook. Set PXES-2314T as a valid device to always connect.

In order to make sure essential system and OS resource are reserved for Thunderbolt controllers, the PXES-2314T must be the first device connected to the Thunderbolt 3 port of the host PC.

Do not hot swap, replace, disconnect or connect any components (including cards and cabling) on chassis while the system is powered up. Doing so may result in system damage and/or data loss, and physical injury (due to possible shock hazard).

2.5.2 Operation - Power off sequence

1. Power off the host PC/notebook.
2. Disconnect the Thunderbolt 3 cable from the PXES-2314T and the host PC/notebook.
3. Press the power button on the PXES-2314T front panel to power off the chassis.

Not following the correct power on and power off sequences may result in events that cannot be properly handled by the host PC/notebook, BIOS, operating system, and/or installed drivers. These unexpected events may cause abnormalities such as unexpected functionality or OS kernel crash (BSOD). It is highly recommend to follow the power on and power off sequences described above to prevent abnormal system behavior.

2.6 PXES-2314T Software Resources

The following software resources are available for various application requirements.

2.6.1 ADLINK PXI Platform Services (APPS)

ADLINK PXI Platform Services is a software kit consisting of a utility and a group of software services and drivers.

- **ADLINK ChassisWatch**

  A GUI application utility providing chassis status monitoring and configuration functions that are exclusive for ADLINK PXI Express chassis (PXES-2314T, PXES-2785, PXES-2780, PXES-2590, PXES-2301).

- **PXI Express Chassis Software Services**

  API services and drivers for the PXES-2314T defined in the PXISA PXI-6 Software Specification.

- **PXI Resource Manager**

  A Windows background service following the PXI-2 and PXI-6 Software Specification to scan PXI/PXIe controllers, chassis, and peripheral modules. PXI Resource Manager also generate PXI system description files accordingly.

- **PXI Trigger Management Software Services**

  API services and Trigger Manager defined in PXISA PXI-9 PXI and PXI Express Trigger Management Specification.

Please refer to the ADLINK PXI Platform Services user manual for more information.

2.6.2 MAPS Core

ADLINK's MAPS Core (Measurement Automation and Platform Services) software package includes ADLINK DAQ drivers, device management utility (ACE), and PXI configuration settings utility. Please refer to the MAPS Core user manual for more information.

3 System Management & Configuration

The PXES-2314T chassis provides advanced system monitoring and controlling. Chassis conditions, including internal temperature, fan speed, and DC voltage can all be monitored via ADLINK ChassisWatch — a Windows based utility for ADLINK PXIe chassis monitoring and configuration.

Communication with the chassis monitoring control unit is available by using the ChassisWatch utility running on the host PC/ notebook connected via the Thunderbolt 3 port.

3.1 ChassisWatch

The PXES-2314T chassis provides advanced system monitoring and controlling via the ADLINK ChassisWatch utility. Related functions such as status monitoring, configurable PXI trigger bus bridges, and Smart Fan are introduced in the following sections. For more information about ChassisWatch, please refer to the ADLINK PXI Platform Services user manual.

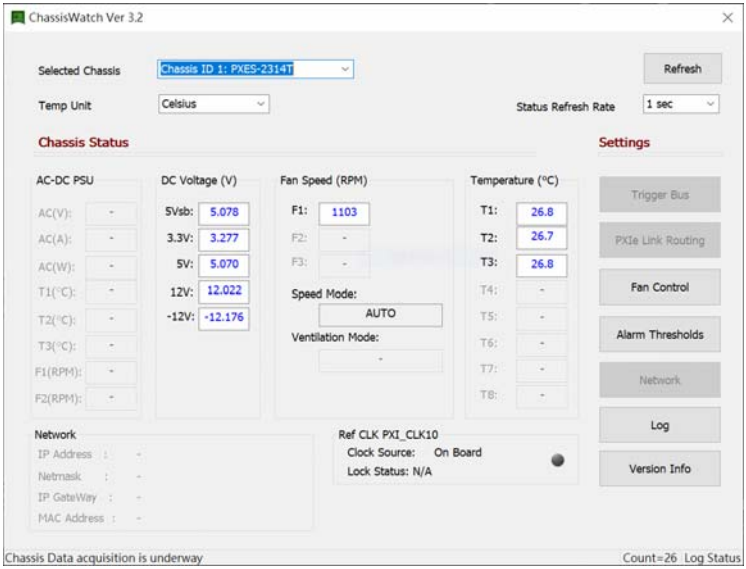


Figure 3-1: Chassis ChassisWatch Utility

3.1.1 Chassis Status Monitor

Chassis conditions, including internal temperature, fan speed, and DC voltage can all be monitored by ChassisWatch.

3.1.2 Smart Fan

When the fan switch on the rear panel is set to AUTO, fans run at different speeds based on the measured temperature.

Target Temperature indicates the temperature at which fans run at 100%. Using the default 50°C as an example, fans run at 40% when all temperature readings are less than 25°C, and begin ramp-up when any reading exceeds 25°C.

Fans run at 100% speed if any temperature reading exceeds 50°C (e.g., Target Temperature).

Setting parameters are as shown.

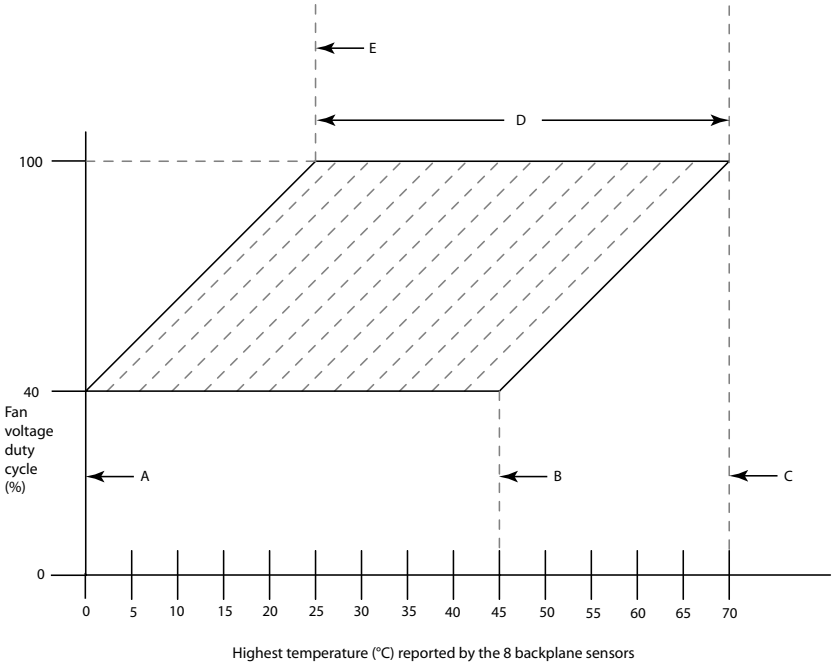


Figure 3-2: Target Temperature Parameters

Mark	Temperature	Event
A	0°C / 32°F	Lowest chassis temperature at which fan speeds commence ramping up for final 25° temperature mark (see E)
B	45°C / 113°F	Highest chassis temperature at which fan speeds commence ramping up for final 70° temperature mark (see C)
C	70°C / 158°F	Highest chassis temperature at which fan speeds reach maximum speed
D	25°C to 70°C / 77°F to 158°F (temperature range)	Range over which maximum chassis temperature (at which fan speeds reach maximum speed) can be set
E	25°C / 77°F	Lowest chassis temperature at which fan speeds reach maximum speed

Table 3-1: Target Temperature Parameters Legend

Appendix A - Maintenance

This Appendix describes basic maintenance and troubleshooting instructions for the PXES-2314T chassis.

A.1 Installation Problems

Inability to start the system frequently results from incorrect installation of the peripheral modules, and other components. Before starting the system, please ensure that:

- The host PC/notebook is properly connected via a certificated Thunderbolt 3 cable.
- All peripheral modules are properly seated on the slots.
- All cables are properly connected to the system controller and peripheral modules.
- All installed peripheral modules are compatible for use in the chassis.
- The power cord is securely plugged into the chassis power connector and power outlet/wall socket/power strip.

If the system fails to start when all installation conditions are met, remove all installed peripheral modules and try again. If the system starts normally, install one peripheral module at a time followed by powering up. You may also try installing the modules into different slots until the desired result is obtained.

A.2 FAQ

Q: What devices are required for setting up a completed PXI Express system using the PXES-2314T?

A:•A PC or notebook (minimum one Thunderbolt 3 port and Windows 10).

•A PXES-2314T with peripheral modules required for desired application.

•A DC input connector (in-box accessory, DECA MC311#50803).

•A certificated Thunderbolt 3 cable (kit accessory, Type-C).

• An AC-DC power adapter or DC power source (kit accessory). 24V DC, 160W recommended.

Q: Where can I find a Thunderbolt 3 host PC/notebook and cables?

A: A list of Thunderbolt 3 PCs/notebooks/cables can be found in Thunderbolt 3 official website:
https://thunderbolttechnology.net/products

Q: How do I identify a Thunderbolt 3 port on a PC/notebook? How do I identify a certified Thunderbolt 3 cable?

A: The Thunderbolt 3 logo can be used to identify certified Thunderbolt 3 ports and cables.

Q: Can I use generic USB Type-C cables with a Thunderbolt 3 connection on the PXES-2314T?

A: No, generic USB Type-C cables are not compatible with Thunderbolt 3 high speed protocols. Thunderbolt 3 certified cables listed on the Thunderbolt 3 official website are required for Thunderbolt 3 connections between host PC/ notebook and the PXES-2314T.

Q: Instead of the standard power on/off procedure used with generic PXIe chassis, can I hot-plug to the Thunderbolt 3 port on the PXES-2314T?

A: Such operation is not recommended. When one of the drivers (e.g. for installed PXI peripheral modules) or BIOS on the host PC/notebook does not support hot-plugging or dynamic resource allocation is not handled properly in Windows 10, the driver may cause a resource conflict that cause a system freeze or crash of the Windows kernel (BSOD). Please follow the power on and power off sequences described above to prevent abnormal system behavior.

Q: Can existing PXIe/PXI/cPCI peripheral modules and drivers be used with a Thunderbolt 3 PXIe chassis such as the PXES-2314T? Are there any required modifications?

A: The existing drivers based on PCI/PCI Express software framework are natively supported by Thunderbolt 3 host PCs and PXIe chassis. However, when any installed peripheral module driver does not support hot-plugging, especially any peripheral modules using legacy IO address system resources, please use the standard power on/off procedures described in the Installation section.

Q: How to identify the cause of a Windows BSOD?

A: This can happen easily when hot-plugging a Thunderbolt 3 connection when any driver installed on the host PC does not support dynamic resource allocation properly.

Steps for technical troubleshooting:

1) Configure the Windows 10 BSOD dump file settings.

2) Reproduce the BSOD issue to generate the BSOD dump file

3) Analyze the dump file with WinDbg tools in the Windows SDK.

4) Find the driver or procedure that triggered the BSOD.

NOTE:

The results found here may be not the actual root cause, and may only indicate the point where Windows BSOD occured. The root cause could be something else. Troubleshooting to identify and determine the actual root cause depends on conditions. Please refer to this Microsoft article: Blue Screen Data - Windows drivers | Microsoft Docs.
https://docs.microsoft.com/en-us/windows-hardware/drivers/debugger/blue-screen-data

A.3 Basic Troubleshooting

Problem	Ensure that:
System fails to power up	▶ The power cord is securely plugged into the chassis power connector and wall socket/power strip ▶ The wall socket/power strip is live ▶ The power button on the chassis front panel is activated
When system is powered on, it does not power off after pressing the power button.	▶ To avoid abnormal disconnection, the power button is locked when the host PC is connected and the system is powered on. Power off the host PC and disconnect Thunderbolt 3 connection to unlock the power button.
Power LED (blue) is blinking	▶ There is no short circuit by removing all PXI modules (PXI controller and peripheral modules) ▶ Over threshold event of voltage is triggered. If the signal persists, contact your dealer for further assistance
Fan LED (green) is blinking	▶ The fan is unobstructed ▶ Over threshold event of fan speed is triggered. If the signal persists, contact your dealer for further assistance.

Problem	Ensure that:
Temperature LED (amber) is blinking	▶ Airflow from the outlet apertures is unobstructed and steady; if not, ensure that adequate clearance for the intake apertures is provided ▶ Over threshold event of temperature is triggered. If the temperature of exhausted air is normal (70°C is the default threshold setting) but the temperature LED is still blinking, contact your dealer for further assistance.

A.4 Maintenance

A.4.1 Handling the Chassis

The PXES-2314T is designed for bench top use. When transporting or carrying the chassis, it is recommended that the handle be used, being designed to support the weight of the chassis for superior portability and balance.

The PXES-2314T weights 3.6 kg (7.9 pounds). Please be careful when moving the chassis to avoid any possible injury.

A.4.2 Cleaning the Exterior

Make sure that the system is turned off before cleaning the chassis exterior. Wipe the exterior with a clean cloth starting from areas that easily accumulate dust or dirt such as the area in and around the chassis air intake apertures.

A.4.3 Power Requirements

Make sure that the power cord and DC power input connector are in good condition before plugging it into the system. It is important to check the reliability of the power source. The PXES-2314T power supply is capable of delivering 9 to 32V DC. Do not connect the PXES-2314T to an already overloaded circuit.

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Important Safety Instructions

For user safety, please read and follow all instructions, Warnings, Cautions, and Notes marked in this manual and on the associated device before handling/operating the device, to avoid injury or damage.

S'il vous plaît prêter attention stricte à tous les avertissements et mises en garde figurant sur l'appareil , pour éviter des blessures ou des dommages.

- Read these safety instructions carefully.
- Keep the User's Manual for future reference.
- Read the Specifications section of this manual for detailed information on the recommended operating environment.
- The device can be operated at an ambient temperature of 55ºC.
- When installing/mounting or uninstalling/removing device, or when removal of a chassis cover is required for user servicing (See "Getting Started" on page 23.):
  - Turn off power and unplug any power cords/cables.
  - Reinstall all chassis covers before restoring power.
- To avoid electrical shock and/or damage to device:
  - Keep device away from water or liquid sources.
  - Keep device away from high heat or humidity.
  - Keep device properly ventilated (do not block or cover ventilation openings).
  - Always use recommended voltage and power source settings.
  - Always install and operate device near an easily accessible electrical outlet.
  - Secure the power cord (do not place any object on/over the power cord).
  - Only install/attach and operate device on stable surfaces and/or recommended mountings.
- If the device will not be used for long periods of time, turn off and unplug it from its power source
- Never attempt to repair the device, which should only be serviced by qualified technical personnel using suitable tools

- A Lithium-type battery may be provided for uninterrupted backup or emergency power.

Risk of explosion if battery is replaced with one of an incorrect type; please dispose of used batteries appropriately.
Risque d'explosion si la pile est remplacée par une autre de type incorrect. Veuillez jeter les piles usagées de façon appropriée.

- The device must be serviced by authorized technicians when:
  - The power cord or plug is damaged.
  - Liquid has entered the device interior.
  - The device has been exposed to high humidity and/or moisture.
  - The device is not functioning or does not function according to the User's Manual.
  - The device has been dropped and/or damaged and/or shows obvious signs of breakage.
- Disconnect the power supply cord before loosening the thumbscrews and always fasten the thumbscrews with a screwdriver before starting the system up.
- It is recommended that the device be installed only in a server room or computer room where access is:
  - Restricted to qualified service personnel or users familiar with restrictions applied to the location, reasons therefor, and any precautions required.
  - Only afforded by the use of a tool or lock and key, or other means of security, and controlled by the authority responsible for the location.

	**BURN HAZARD** Touching this surface could result in bodily injury. To reduce risk, allow the surface to cool before touching. ***RISQUE DE BRÛLURES*** *Ne touchez pas cette surface, cela pourrait entraîner des blessures.* *Pour éviter tout danger, laissez la surface refroidir avant de la toucher.*

Getting Service

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