FEATURES

- PXI-Express Chassis
- 18-Slots (3U)
  - 10 Hybrid (Fit Both PXIe and PXI Hybrid Modules)
  - 6 PXIe
  - 1 System Timing (Fits Any PXIe Module or System Timing Controller)
  - 1 System (Fits Internal or Remote Controller)
- Up to 8 GB/s System Bandwidth
- Up to 4 GB/s Peripheral Slot Bandwidth
- Configurable PCIe Switch Fabric – Can Be Configured as Two-Link (x8) or Four-Link (x4) Backplane
- PXI™-5 PXI Express HW Specification Rev 1.0 Compliant
- 38.2W Per Slot Cooling Capacity
- 840 W Usable Power
- 0°C to 55°C Extended Operating Temperature Range
- 10 MHz In/Out BNC Connectors
- Intelligent Chassis Management
  - Automatic Fan Speed Control
  - Chassis Status Monitoring and Reporting
  - Remote Chassis Power On/Off Control
- Power, Temperature, and Fan Monitoring LEDs

PXI-Express Standard

PXI and PXI-Express (PXIe) are industry standards. Any hybrid PXI, PXIe, Compact PCI (cPCI), or Compact PCI Express (cPCIe) module from any manufacturer will work properly in the 10 hybrid slots of this chassis. The 6 PXIe slots accept PXIe or cPCIe modules, and the System Timing Slot accepts PXIe or cPCIe modules or a System Timing Controller.

Slot 1 is for a System Controller (computer) which can be up to 4 slots wide, or you can install a remote controller module which connects through a cable to an external PC or laptop, such as the PXIe-8301 from National Instruments.

High Bandwidth

The PXES-2780 is a 4-link PXIe chassis with 8 GB/s total system bandwidth, and up to 4 GB/s slot bandwidth for dedicated peripheral slots (see the switch fabric diagrams below).

Power and Cooling

Equipped with an industrial grade AC power supply, the PXES-2780 still provides 840W (110V), or 1120W (240V) under 55°C and delivers superior cooling capacity, from three 120 mm cooling fans on the rear of the chassis.
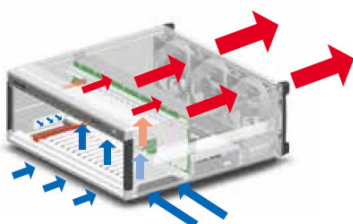
PXES-2780 Chassis

Optional Accessories

- Rackmount Kit

Advanced Features

This chassis includes the advanced features in the PXIe standard such as a System Timing Slot which provides advanced clocking and triggering support. The System Timing Slot allows a PXIe module to drive the system clocks in the backplane so that the whole system is synchronized to the same clock. The NK732 Counter /TIA and the NK420 Microwave Synthesizer from Carmel Instruments can drive the backplane clocks.

You can supply an external 10 MHz reference for the system clock on a 10 MHz input BNC and you can get the internal 10 MHz clock on an output BNC for chaining to other systems.

The PXES-2780 features an innovative heat dissipation solution. Three 185.9CFM cooling fans in the rear section of the chassis draw cool air through lower apertures, which is then exhausted through the back. This design generates uniform airflow for each PXI slot, delivering exceptional cooling.

When installed in a rack, the cooling design minimizes intake of hot air from the rear side, separating airflow for modules and power supplies, while isolating noise source (fan) from modules and maintaining a steady internal temperature.

System Monitoring

The PXES-2780 is implemented with a smart system monitoring controller, reporting full chassis status, including fan speed, system voltages, and internal temperature. You can also remotely turn the system on and off.

Configurable PCIe Switch Fabric

The switch fabric of the PXES-2780 is configurable as either two-link x8 or four-link x4 PXI express system, allowing users to fully utilize the PCIe gen2 bandwidth for high-bandwidth applications.

PXES-2780 Backplane PXIe Switch Fabric - 2 Link x8

PXES-2780 Backplane PXIe Switch Fabric - 4 Link x4
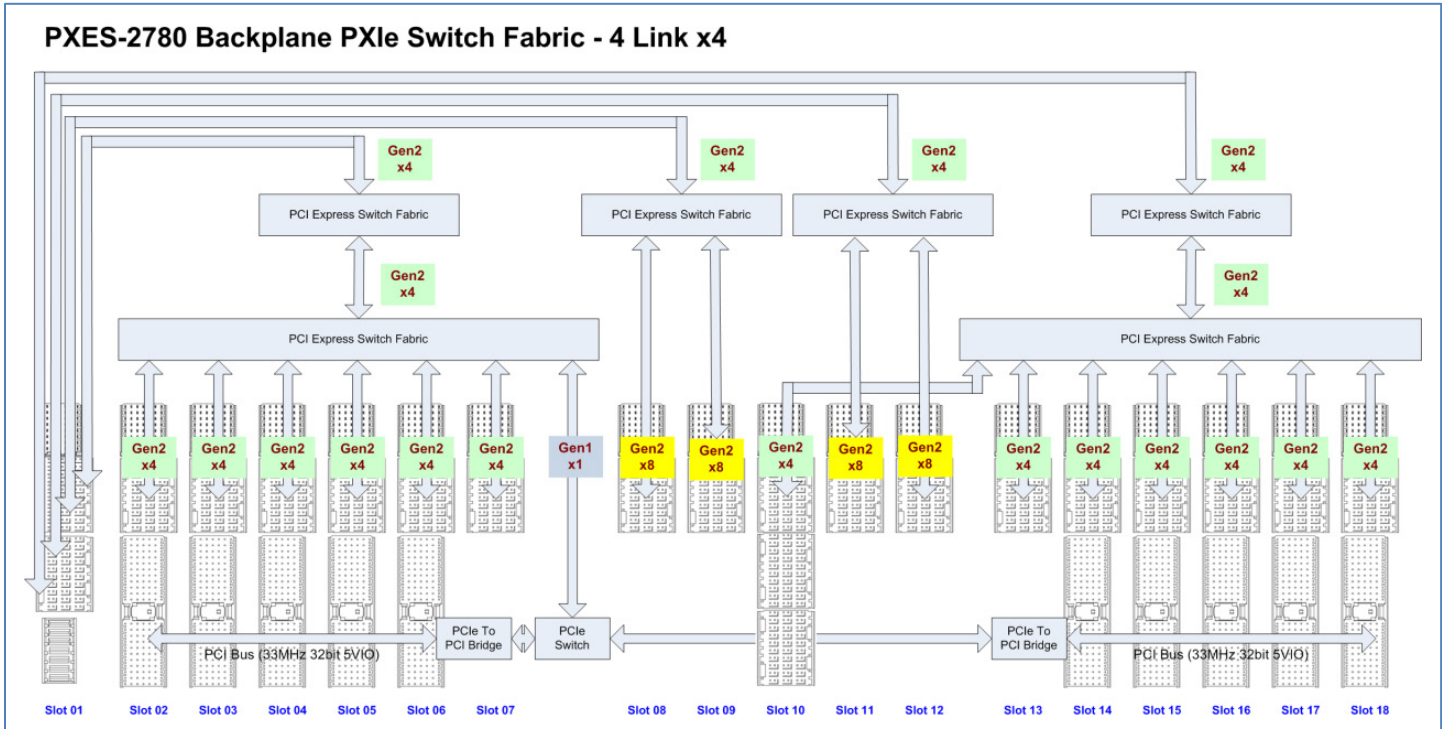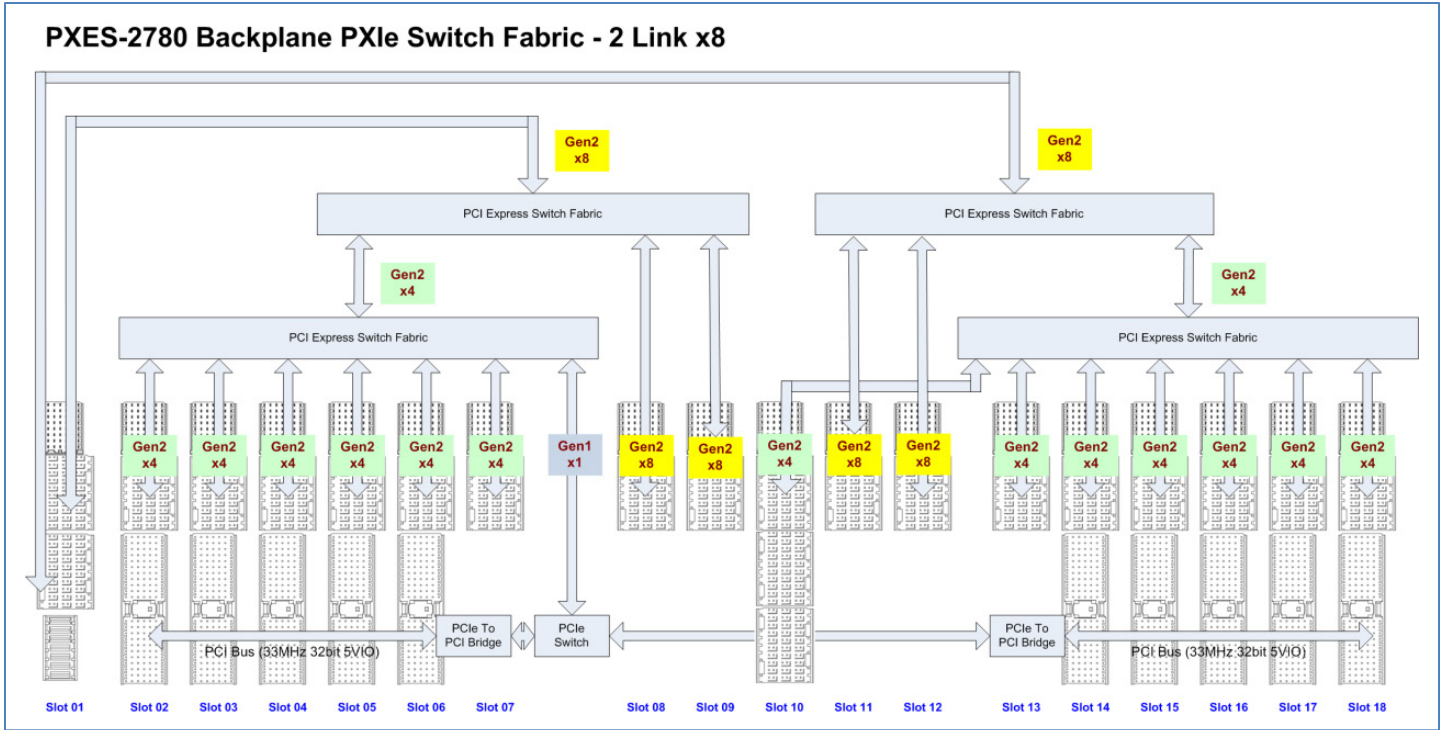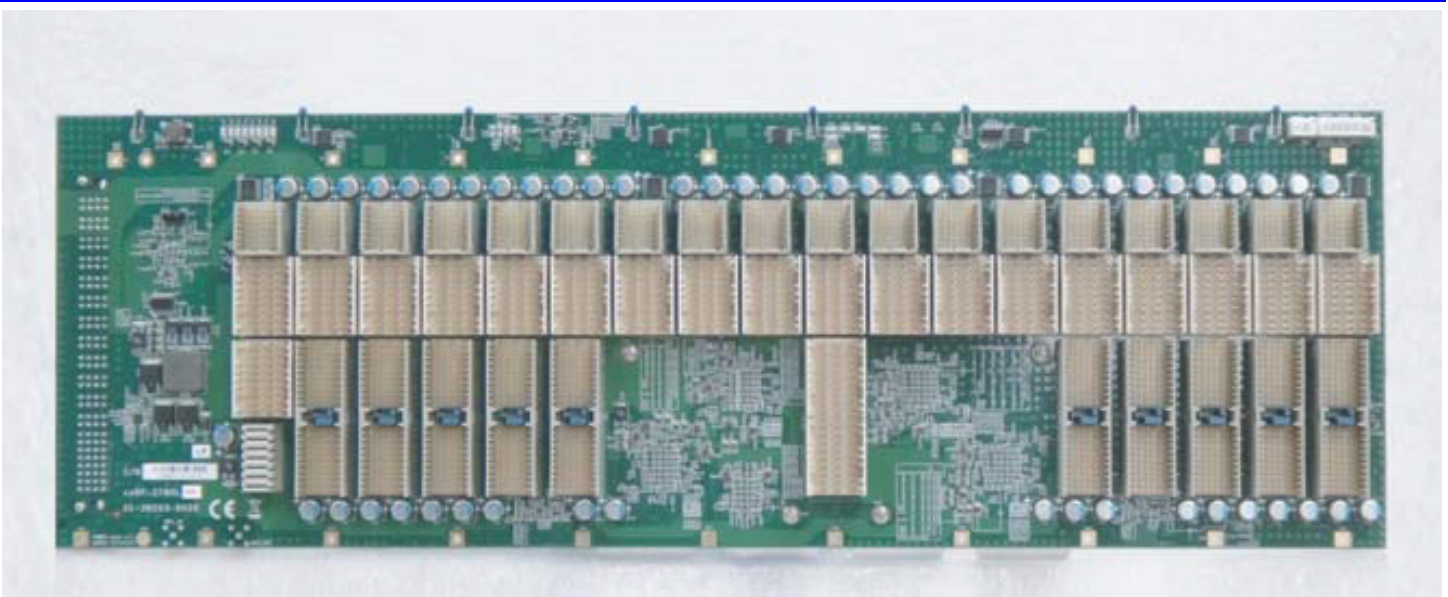
SPECIFICATIONS

General

- Warranty: 1 year
- Complies with PXI™-5 PXI Express HW Specification Rev 1.0 and accepts all modules compliant with the PXI™-5, Compact and PICMG 2.0 specification.

Power Supply

- AC Input
  - Input voltage range: 100 to 240 VAC
  - Operating voltage range: 85 to 264 VAC
  - Input voltage frequency: 50 to 60 Hz
  - Operating voltage frequency 47 to 63 Hz
  - Input current rating:
    - 115 VAC: 13A
    - 230 VAC: 10A
- DC Output
  - Maximum total usable power:
    - 1120 W with 240 VAC
    - 840 W with 110 VAC

Voltage	Max Current	Load Regulation	Max Ripple and Noise
+5V	29 A	±3%	50 mV
+12V	45 A	±3%	50 mV
+3.3V	60 A	±3%	50 mV
-12V	2.5 A	±3%	50 mV

Switch Fabric (See Diagrams)

- System Controller Slot:
  - 2-Link Configuration: Two Gen2 x8 PCIe links (4 GB/s each)
  - 4-Link Configuration: Four Gen2 x4 PCIe links (2 GB/s each)

System Clocks

- 10 MHz system clock (PXI_CLK10)
  - Frequency accuracy: ±25 ppm
  - Slot to slot skew: 300 ps max
  - Rear BNC output:
    - Square wave, 1 Vpk-pk ±20% into 50 ohm, 2 Vpk-pk unloaded
    - Output impedance: 50 ohm ±5 ohm
- External 10 MHz input:
  - Frequency deviation: ±100 ppm max
  - Input signal: 100 mVpk-pk to 5 Vpk-pk (square or sine)
  - Input impedance: 50 ohm ±5 ohm
- PXI_CLK10_IN input to the backplane on System Timing Slot (Slot 5): 5 V or 3.3 V TTL signal
- PXIe_CLK100 on backplane:
  - Frequency: 100 MHz ±25 ppm
  - Slot to slot skew: 100 ps max

Cooling

- Three 185 CFM fans, filtered
- Per-slot cooling capacity: 38.2 W (verified by 55°C chamber test)

Rear Panel I/O and Switches

- 10 MHz system clock input: BNC
- 10 MHz system clock output: BNC
- Fan control switch: Auto or High
- Two DB9 connectors:
  - Inhibit, voltage monitoring and power on/off control
  - Serial interface
- Inhibit switch: Enables power on/off control through DB9 connector

Physical

- Slots: 18
  - 1 System slot for controller (computer)
  - 1 System Timing slot (also accepts PXIe modules)
  - 10 Hybrid peripheral slots (both PXI and PXIe modules)
  - 6 PXIe peripheral slots
- Dimensions (W x H x D):
  - 464.3 x 191.4 x 465.3 mm
  - 18.1 x 7.5 x 18 in
- Weight: 11.9 kg (26.2 lb.)

Environmental

- Storage:
  - Temperature: -20°C to 70°C
  - Humidity: 10% to 90% noncondensing
- Operating:
  - Temperature: 0°C to 55°C
  - Humidity: 10% to 90% noncondensing
- Functional shock: 30 G, half sine, 11 ms pulse duration
- Random vibration:
  - Operating: 5 to 500 Hz, 0.31 Grms, 3 axes
  - Non-operating: 5 to 500 Hz, 2.46 Grms, 3 axes

Certification

- Safety: EN 61010-1
- Electromagnetic compatibility:
  - Emissions: EN 55011 Class A
  - Immunity: EN 61326-1
  - FCC class A
- CE compliance:
  - Meets essential requirements of applicable European Directives, as amended for CE Marking:
    - Low-Voltage Directive (safety): 73/23/EEC
    - Electromagnetic Compatibility Directive (EMC): 9/336/EEC

Ordering Information

PN	Description
PXES-2780	18-slot PXIe chassis
Rackmount Kit	Optional