PXIe-6592 Specifications

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This document lists specifications for the PXIe-6592. Specifications are subject to change without notice.

Nominal and *Characteristic* specifications describe basic functions and attributes of the device established by design. *Nominal* and *Characteristic* values are not covered by warranty.

> **Caution** The protection provided by the PXIe-6592 can be impaired if it is used in a manner not described in this document.

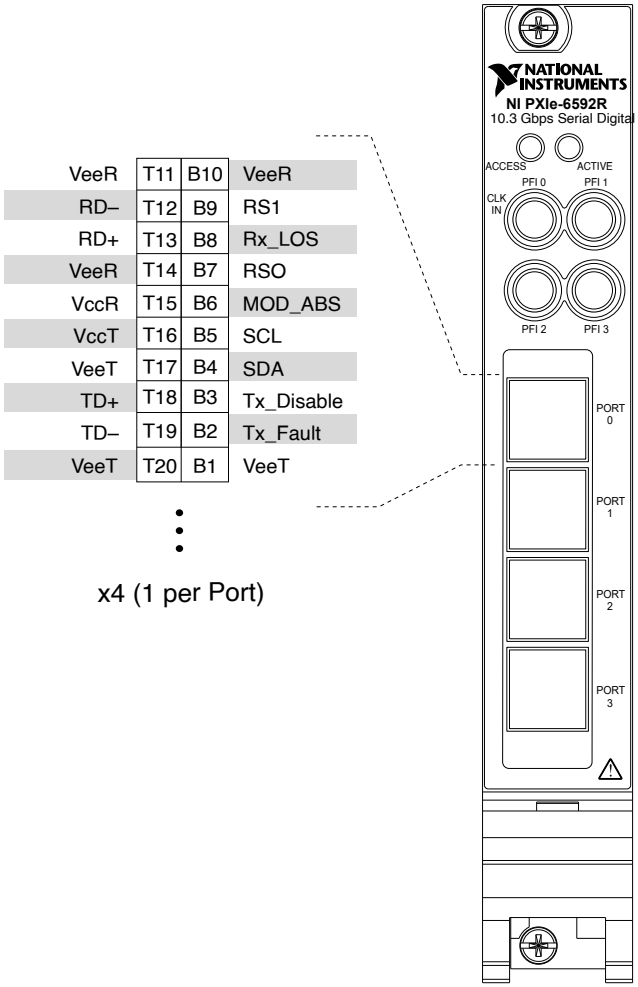
Related information:

- PXIe-6592 Getting Started
- NI High-Speed Serial Instruments User Manual

PXIe-6592 Pinout

Use the pinout to connect to terminals on the PXIe-6592.

Figure 1. PXIe-6592 Pinout



Front Panel Connectors

Port 0, Port 1, Port 2, Port 3

Data rate	500 Mb/s to 8 Gb/s and 9.8 Gb/s to 10.3125 Gb/s, characteristic
Connectors	SFP+
Number of TX channels	4 (1 per port)

Number of RX channels	4 (1 per port)
Supported high speed cable type	Electrical/optical
Optical cable power	3.3 V ± 5%, 500 mA per port, characteristic

For detailed FPGA and High Speed Serial Link specifications, refer to Xilinx documentation.

TX Channel

Minimum differential generation peak-to-peak voltage[1]	1,000 mV into 100 Ω, characteristic

RX Channel

Differential peak-to-peak input voltage range	
≤6.6 Gb/s	150 mV to 2,000 mV, nominal
>6.6 Gb/s	150 mV to 1,250 mV, nominal
Differential input resistance	100 Ω, nominal

PFI 0, PFI 1, PFI 2, PFI 3

Connector	SMB

1. When transmitter output swing is set to the maximum setting.

Number of channels	4
Signal type	Single-ended
Tristate control	Per channel, dynamic
Supported voltage families	3.3 V, 2.5 V, 1.8 V, 1.5 V, 1.2 V
Input impedance	
PFI 0	10 kΩ, nominal
PFI 1, PFI 2, PFI 3	25 kΩ, nominal
Input protection	-1 V to 5 V
Output impedance	50 Ω, nominal
Output protection	The device can indefinitely sustain a short to any voltage between 0 V and 5 V.
Maximum data rate	100 Mb/s, characteristic
Coupling	DC

CLK OUT

Note The CLK OUT connectors are shared with the PFI 0, PFI 1, PFI 2, and PFI 3 connectors.

Connector	SMB
Number of channels	4
Maximum output frequency	156.25 MHz, characteristic
Supported output amplitude (into high impedance)	3.3 V, 2.5 V, 1.8 V, 1.5 V, 1.2 V
Output impedance	50 Ω, nominal
Coupling	AC

CLK IN

Note The CLK IN connector is shared with the PFI 0 connector

Connector	SMB
Coupling	AC
Input protection	6 V_{pp}

Input impedance	50 Ω, nominal
Input frequency range	10 MHz to 500 MHz, characteristic
Input frequency tolerance	±100 ppm
Input amplitude	
Square wave	0.7 V_{pp} to 5 V_{pp} into 50 Ω, characteristic
Sine wave	1.4 V_{pp} to 5 V_{pp} into 50 Ω, characteristic

Multi-Gigabit Transceiver Reference Clock Generator

Reference crystal oscillator	156.25 MHz[2]
Reference Clock Generator	
Frequency range	60 MHz to 670 MHz, characteristic
Locking resources	PXIe_CLK100[3], PXIe_DStarA, CLK IN, 10 MHz TCXO[4]

Reconfigurable FPGA

FPGA	Xilinx Kintex-7 XC7K410T

2. Frequency accuracy is ±20 ppm, characteristic.
3. Frequency accuracy is ±25 ppm, characteristic.
4. Frequency accuracy is ±3.5 ppm, characteristic.

Package	FFG900
LUTs	254,200
Flip-flops	508,400
DSP48 slices (25 × 18 multiplier)	1,540
Embedded block RAM (kbits)	28,620
Data transfers	DMA, interrupts, programmed I/O
DMA interrupts	32 interrupt channels numbered 0-31

Onboard DRAM

Memory size	2 GB, single bank
Theoretical maximum data rate	10.5 GB/s

Bus Interface

Form factor	Gen 2×8 PXI Express, specification v1.0 compliant
Slot compatibility	×1, ×4, ×8, and ×16 PXI Express or PXI Express hybrid slots

Maximum Power Requirements

Note Power requirements are dependent on the adapter module and contents of the LabVIEW FPGA VI used in your application. Use a maximum total of 38.25 W from the backplane. Exceeding this amount may cause the FPGA to overheat and force the device into a power/thermal shutdown state.

+3.3 V	3 A
+12 V	3 A

Physical

Dimensions (not including connectors)	18.3 cm × 13.0 cm × 2.0 cm (7.4 in. × 5.1 in. × 0.8 in.)
Weight	397 g (14.0 oz)

Environment

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Ambient temperature range	0 °C to 45 °C
Relative humidity range	10% to 90%, noncondensing

Storage Environment

Ambient temperature range	-40 °C to 71 °C
Relative humidity range	5% to 95%, noncondensing

Shock and Vibration

Operating shock	30 g peak, half-sine, 11 ms pulse
Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g RMS
Nonoperating	5 Hz to 500 Hz, 2.4 g RMS

Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note For safety certifications, refer to the product label or the Product Certifications and Declarations section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.

Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

Note For EMC declarations, certifications, and additional information, refer to *Product Certifications and Declarations*.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Engineering a Healthy Planet* web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

EU and UK Customers

- **Waste Electrical and Electronic Equipment (WEEE)**—At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国RoHS）

- **中国RoHS**— NI符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于NI中国RoHS合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

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