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# PXle-7903

# Specifications

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# PXIe-7903 Specifications

## PXIe-7903 Specifications

These specifications apply to the PXIe-7903.

### Revision History

Version	Date changed	Description
378975D-01	February 2026	Corrected the output impedance specification.
378975C-01	April 2025	Clarified Mini-HDMI cable usage.
378975B-01	December 2024	Added the product pinout.
378975A-01	June 2023	Initial release.

### Looking For Something Else?

For information not found in the specifications for your product, such as operating instructions, browse *Related Information*.

#### Related information:

- [PXIe-7903 Getting Started](#)
- [Download FlexRIO](#)
- [PXIe-7903 Dimensional Drawings](#)
- [Product Certifications](#)
- [Letter of Volatility](#)
- [Discussion Forums](#)
- [NI Learning Center](#)

### Definitions

*Warranted* specifications describe the performance of a model under stated operating

conditions and are covered by the model warranty.

*Characteristics* describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the performance met by a majority of models.
- *Nominal* specifications describe an attribute that is based on design, conformance testing, or supplemental testing.
- *Measured* specifications describe the measured performance of a representative model.

Specifications are *Typical* unless otherwise noted.

## Conditions

Specifications are valid under the following conditions unless otherwise noted.

- Ambient temperature of 0 °C to 40 °C .
- Installed in chassis with slot cooling capacity  $\geq 82$  W.

## PXle-7903 Pinout

Figure 1. Port 0–7 and Port 8–11 Mini-SAS HD Connector Pinout

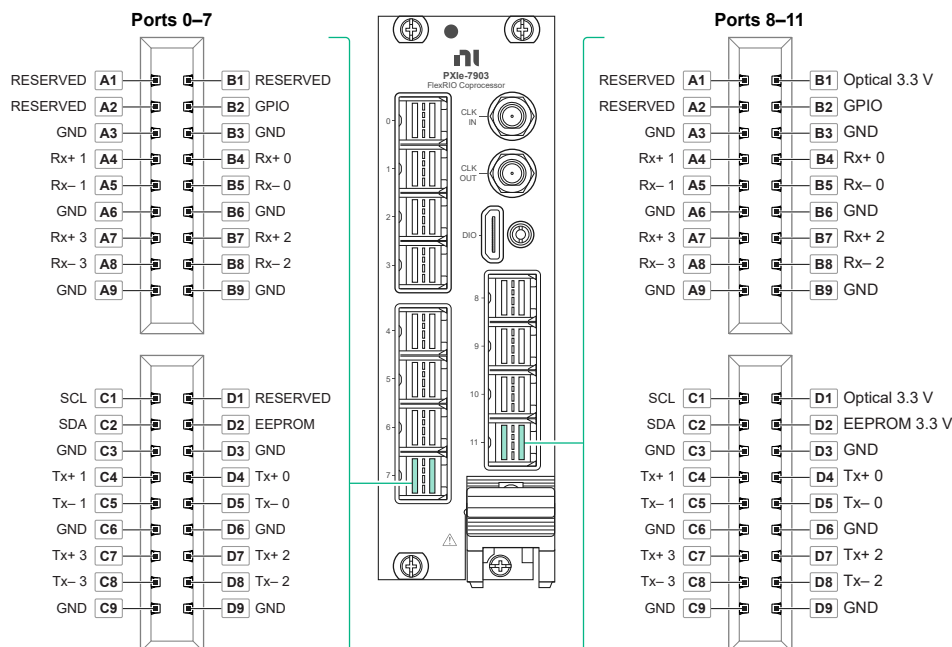


Figure 2. Mini-HDMI DIO Port Pinout

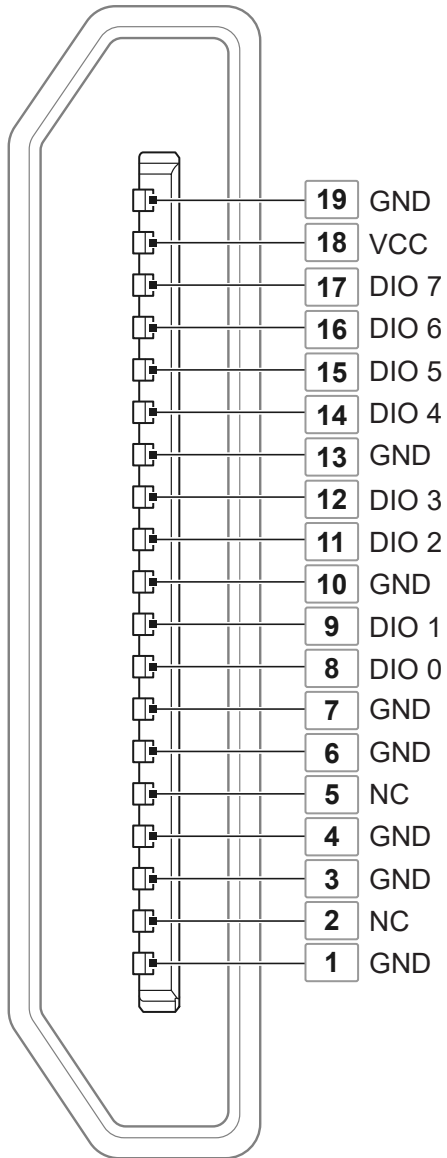


Table 1. Mini-HDMI DIO Port Signal Descriptions

Pin Number	Signal Type	Signal Description
1	Ground	Ground reference for signals
2	NC	No connection
3	Ground	Ground reference for signals
4	Ground	Ground reference for signals
5	NC	No connection
6	Ground	Ground reference for signals

Pin Number	Signal Type	Signal Description
7	Ground	Ground reference for signals
8	Digital	Digital signal
9	Digital	Digital signal
10	Ground	Ground reference for signals
11	Digital	Digital signal
12	Digital	Digital signal
13	Ground	Ground reference for signals
14	Digital	Digital signal
15	Digital	Digital signal
16	Digital	Digital signal
17	Digital	Digital signal
18	Power	Power provided by PXI module
19	Ground	Ground reference for signals



**Notice** The DIO port is not an HDMI interface. Do not connect the DIO port on the PXIe-7903 to the HDMI interface of another device. NI is not liable for any damage resulting from such signal connections.



**Notice** Do not connect a commercial HDMI cable to the PXIe-7903. To connect the PXIe-7903 to DIO ports on other devices, refer to the recommended cable specified in the *What You Need to Get Started* section of the *PXIe-7903 Getting Started*.

#### Related information:

- [PXIe-7903 Getting Started](#)

# Front Panel Ports

## Ports 0 – 11

Table 2. Ports 0 – 11

Connector	Mini-SAS HD
Data rate	500 Mb/s to 28.2 Gb/s
Supported high-speed cable type	Ports 0–7: Passive, copper cables only. Ports 8–11: Passive cables and powered optical cables. <sup>1</sup>

Table 3. Multi-gigabit transceivers (MGTs)

Total number of MGTs	48 (4 per connector)
I/O AC coupling capacitor	100 nF

## CLK OUT

Table 4. CLK OUT

Connector	SMA
Coupling	AC
Output impedance	50 $\Omega$ , nominal
Frequency range	2.344 MHz to 385.714 MHz 400.000 MHz to 450.000 MHz 480.000 MHz to 675.000 MHz 685.714 MHz to 771.428 MHz

- Ports 8–11 can provide power at 3.3 V  $\pm$ 5%, 1 A for active optical cables but NI has not validated these cables across the range of data rates and protocols. NI strongly recommends that the system designer specifies and validates appropriate active optical cables for the intended application.

	800.000 MHz to 900.000 MHz 960.000 MHz to 1000.000 MHz
Output voltage range	0.61 V peak-to-peak to 1.04 V peak-to-peak

## CLK IN

Table 5. CLK IN

Connector	SMA
Input coupling	AC
Input impedance	50 $\Omega$
Frequency range	10 MHz to 300 MHz
Input voltage range	0.3 V peak-to-peak to 4 V peak-to-peak
Absolute maximum voltage	5 V peak-to-peak AC
Duty cycle	45% to 55%

## Digital I/O (DIO)

Table 6. Digital I/O (DIO)

Connector	Mini-HDMI
Number of channels	8
Signal type	Single-ended
Voltage families	3.3 V, 2.5 V, 1.8 V
Input impedance	100 k $\Omega$ , nominal
Output impedance	50 $\Omega$ , nominal
Signal direction control	Per channel
Minimum latency required for direction change	200 ns
Maximum frequency	60 MHz
5.0 V Power	$\pm$ 5%, 50 mA maximum, nominal



**Notice** The DIO port is not an HDMI interface. Do not connect the DIO port on the PXIe-7903 to the HDMI interface of another device. NI is not liable for any damage resulting from such signal connections.

## Reconfigurable FPGA

The PXIe-7903 provides a XCVU11P FPGA with characteristics shown in the following table.

Table 7. XCVU11P FPGA Characteristics

Characteristics	XCVU11P
System Logic Cells	2,835 K
DSP slices (27 × 18 multiplier)	9,216
Embedded Block RAM	341.0 Mb
Timebase reference sources	PXI Express 100 MHz (PXIe_CLK100)
Data transfers	DMA, interrupts, programmed I/O, multi-gigabit transceivers
Number of DMA channels	60



**Note** The list above depicts the total number of FPGA resources available on the part. The number of resources available to the user is slightly lower, as some FPGA resources are consumed by board-interfacing IP for PCI Express, device configuration, and various board I/O. For more information, contact NI Support.

## Onboard DRAM

Table 8. Onboard DRAM

Memory size	20 GB (2 banks of 10 GB)
DRAM clock rate	1333 MHz
Physical bus width	80 bit
LabVIEW FPGA DRAM clock rate	333 MHz

LabVIEW FPGA DRAM bus width	640 bits per bank
Maximum theoretical data rate	53.2 GB/s (26.6 GB/s per bank)

## Bus Interface

Table 9. Bus Interface

Form factor	PCI Express Gen-3 x8
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## Maximum Power Requirements



**Note** Power requirements are dependent on the contents of the LabVIEW FPGA VI used in your application.

Table 10. Maximum Current

+3.3 V	6 A
+12 V	12 A
Maximum total power	164 W

Power consumption is from both PXI Express backplane power connectors.

## Physical Characteristics

Table 11. Physical Characteristics

Dimensions (not including connectors)	3U, two-slot PXI Express module, 21.6 cm × 4.1 cm × 13.0 cm (8.5 in. × 1.6 in. × 5.1 in.) For more information, visit <a href="http://ni.com/dimensions">ni.com/dimensions</a> and search by module number.
Weight	1134 g (40.0 oz)

## Environmental Guidelines



**Notice** Use this product indoors only.

## Environmental Characteristics

Table 12. Temperature

Operating <sup>2</sup>	0 °C to 40°C
Storage	-40 °C to 71°C

Table 13. Humidity

Operating	10% to 90%, noncondensing
Storage	5% to 95%, noncondensing

Table 14. Pollution Degree

Pollution degree	2
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Table 15. Maximum Altitude

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
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Table 16. Shock and Vibration

Operating vibration	5 Hz to 500 Hz, 0.3 g RMS
Non-operating vibration	5 Hz to 500 Hz, 2.4 g RMS
Operating shock	30 g, half-sine, 11 ms pulse



**Note** In operational environments that could subject the device to shock impulses, use ample strain relief on all cable assemblies near the front panel connection points, and also support the mass of cables further away from the device.

- The PXIe-7903 requires a chassis with 82 W slot cooling capacity. Refer to chassis specifications to determine the ambient temperature ranges your chassis can achieve.