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**PXIe-1487**

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# PXle-1487 Specifications

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# Contents

PXIe-1487 Specifications..... 3

# PXIe-1487 Specifications

## PXIe-1487 Specifications

This document lists the specifications for the following variants of the PXIe-1487:

- PXIe-1487 FlexRIO GMSL2 Interface Module, 8 In, MAX9296A Deserializers
- PXIe-1487 FlexRIO GMSL2 Interface Module, 8 Out, MAX9295A Serializers
- PXIe-1487 FlexRIO GMSL2 Interface Module, 4 In 4 Out, MAX9295A/  
MAX9296A SerDes
- PXIe-1487 FlexRIO GMSL2 Interface Module, 8 In, MAX96716A Deserializers
- PXIe-1487 FlexRIO GMSL2 Interface Module, 8 Out, MAX96717 Serializers
- PXIe-1487 FlexRIO GMSL2 Interface Module, 4 In 4 Out, MAX96717/  
MAX96716A SerDes



**Note** If you purchased the PXIe-1487 as part of an NI system, refer to your system documentation for application-specific specifications.

## 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 23 °C ±5 °C
- Installed in chassis with slot cooling capacity ≥58 W<sup>[1]</sup>

## Serial Device Compatibility

Refer to the following information to verify that the PXIe-1487 module chip set is compatible with your serial device or camera.

Chip set brand	Maxim Integrated
Module deserializer	MAX9296A
Module serializer	MAX9295A



**Note** Contact the manufacturer of your serial device or camera for details on compatibility with the PXIe-1487 module.

## PXIe-1487 Variant Mode Support

Refer to the following to verify whether your PXIe-1487 variant supports Pixel or Tunneling Mode.

**Table 1.** PXIe-1487 Variants

PXIe-1487 Variant	Serializer	Deserializer	Mode Supported
GMSL2 Interface Module, 8	N/A	MAX96716A	Tunneling and Pixel

PXle-1487 Variant	Serializer	Deserializer	Mode Supported
In, MAX96716A Deserializers			
GMSL2 Interface Module, 8 Out, MAX96717 Serializers	MAX96717	N/A	Tunneling and Pixel
GMSL2 Interface Module, 4 In 4 Out, MAX96717/MAX96716A SerDes	MAX96717	MAX96716A	Tunneling and Pixel
GMSL2 Interface Module, 8 In, MAX9296A Deserializers	N/A	MAX9296A	Pixel
GMSL2 Interface Module, 8 Out, MAX9295A Serializers	MAX9295A	N/A	Pixel
GMSL2 Interface Module, 4 In 4 Out, MAX9295A/MAX9296A SerDes	MAX9295A	MAX9296A	Pixel

## Bus Interface

Form factor	PCI Express Gen-3 x8
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## Reconfigurable FPGA

The following table lists the specifications for the PXle-1487 FPGA.

FPGA	KU11P
LUTs	298,560
DSP48 slices (25 × 18 multiplier)	2,928

Embedded Block RAM	21 Mb
Timebase reference sources	PXI Express 100 MHz (PXIe_CLK100)
Data transfers	DMA, interrupts, programmed I/O
Embedded UltraRAM™	22 Mb
Number of DMA channels	60



**Note** These values reflect 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

Memory size	4 GB (2 banks of 2 GB)
DRAM clock rate	1064 MHz
Physical bus width	32 bit
LabVIEW FPGA DRAM clock rate	267 MHz
LabVIEW FPGA DRAM bus width	256 bit per bank
Maximum theoretical data rate	17 GB/s (8.5 GB/s per bank)

## Serial I/O Characteristics

### Input Channels

Connector label	SI
Connector type	FAKRA Male Code Z, coaxial
PoC output range, AUX power maximum	9 V to 30 V, 800 mA per channel
<b>PoC output range, internal power supply</b>	
Nominal voltage	12 V
Maximum current	400 mA per channel, 2 A total
I/O standard	GMSL2 with power over coax (PoC)
Maximum data rate	6 Gb/s

### Output Channels

Connector label	SO
Connector type	FAKRA Male Code Z, coaxial
<b>PoC input range</b>	
Nominal voltage	9 V to 30 V
Maximum current	800 mA per channel
I/O standard	GMSL2 with power over coax (PoC)



Maximum data rate	6 Gb/s
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## AUX Power Channels

Power sink or source maximum voltage	9 V to 30 V
Power sink or source maximum current	800 mA per channel
Power connector type	Conn Terminal Block, Weidmuller part number 2439690000
<b>Power connector wiring</b>	
Gauge	0.08 mm <sup>2</sup> to 0.5 mm <sup>2</sup> (28 AWG to 20 AWG)
Wire strip length	8 mm
Terminal connection type	Tension clamp
Retention	External strain relief of AUX power connections recommended

## PXIe-1487 Deserializer

Input channels	8
Communication	I2C Configuration, I2C Backchannel, GPIO Communication, CSI-2
CSI-2 interface	4 lane, 1,200 Mbps per lane, no lane swaps or inversions

## PXIe-1487 Serializer

Output channels	8
Communication	I2C Configuration, I2C Backchannel, GPIO Communication, CSI-2
CSI-2 interface	4 lane, 1,200 Mbps per lane, no lane swaps or inversions

## PXIe-1487 SerDes

Input channels	4
Output channels	4
Maximum Tap pairs per module	4
Communication	I2C Configuration, I2C Backchannel, GPIO Communication, CSI-2
CSI-2 interface	4 lane, 1,200 Mbps per lane, no lane swaps or inversions

## Power Requirements



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



**Note** Do not position product so that it is difficult to disconnect power.



**Note** If you are powering the PXIe-1487 using your PXIe chassis backplane, refer to the chassis specifications for detailed information about your internal power supply.

## Backplane Power Source

Table 2. Backplane Power

Voltage (V)	Maximum Current (A)
3.3	3.0
12	6.0
Total power	82 W, maximum

## Power over Coax (PoC) Source

<b>External power supply</b>	
Voltage range	9 V to 30 V
Maximum current	800 mA per channel, up to 8 channels
<b>Internal power supply</b>	
Nominal voltage	12 V
Maximum current	400 mA per channel, up to 2 A total
<b>Diagnostic PoC measurement</b>	
Current measurement range	50 mA to 800 mA
<b>Current measurement accuracy</b>	
50 mA to 100 mA	±20%

100 mA to 800 mA	±15%
Voltage measurement range	9 V to 30 V
Voltage measurement accuracy <sup>[2]</sup>	±5%

## Environmental Characteristics

<b>Temperature</b>	
Operating	0 °C to 55 °C <sup>[3]</sup>
Storage	-40 °C to 71 °C
<b>Humidity</b>	
Operating	10% to 90%, noncondensing
Storage	5% to 95%, noncondensing
Pollution Degree	2
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
<b>Shock and Vibration</b>	
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

## Physical

Dimensions	3U, two-slot PXI Express module, 21.6 cm × 4.1 cm × 13.0 cm (8.5 in. × 1.6 in. × 5.1 in.)
Weight	692 g (24.38 oz)

## Timing and Synchronization

Timebase	100 MHz, shared by all ports, disciplined by PXI_Clk100
Trigger I/O source	PXI_Trig <0:7>

<sup>1</sup> The PXIe-1487 SerDes module can operate in a chassis with a slot cooling capacity of <58 W in a restricted user mode.

<sup>2</sup> Due to resistive (IR drop) losses in the circuit, actual voltage measurement accuracy depends on the load of the PoC circuit.

<sup>3</sup> The PXIe-1487 requires a chassis with slot cooling capacity  $\geq 58$  W. Not all chassis with slot cooling capacity  $\geq 58$  W can achieve this ambient temperature range. Refer to PXI chassis specifications on [ni.com/docs](https://ni.com/docs) to determine the ambient temperature ranges your chassis can achieve.