
PXle-1081

Specifications

2025-12-11



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These specifications apply to the PXIe-1081.

Revision History

Version	Date changed	Description
379257A-01	October 2025	Initial release.

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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**—describes the performance met by a majority of models.
- **Nominal**—describes an attribute that is based on design, conformance testing, or supplemental testing.

Values are **Typical** unless otherwise noted.

Conditions

Specifications are valid under the following conditions unless otherwise noted.

- Indoor use only
- The product is operated within the Environmental limits described in this document, including:
 - Altitude and pollution degree as specified in **Environmental Characteristics**
 - Ambient temperature and relative humidity as specified in **Operating Environment** (per-slot power profiles apply)

PXle-1081 Pinouts

Use the pinouts to connect to terminals on the PXle-1081 backplane.

System Controller Slot XP1 Connector Pinout

Pins	Signals
A	GND
B	12V
C	12V
D	GND
E	5V
F	3.3V
G	GND

System Controller Slot XP2 Connector Pinout

Pin	A	B	ab	C	D	cd	E	F	ef
1	2PETp1	2PETn1	GND	2PERp1	2PERn1	GND	2PETp2	2PETn2	GND
2	2PETp3	2PETn3	GND	2PERp3	2PERn3	GND	2PERp2	2PERn2	GND
3	2PETp4	2PETn4	GND	2PERp4	2PERn4	GND	2PETp5	2PETn5	GND
4	2PETp6	2PETn6	GND	2PERp6	2PERn6	GND	2PERp5	2PERn5	GND
5	2PETp7	2PETn7	GND	2PERp7	2PERn7	GND	2PETp8	2PETn8	GND
6	2PETp9	2PETn9	GND	2PERp9	2PERn9	GND	2PERp8	2PERn8	GND
7	2PETp10	2PETn10	GND	2PERp10	2PERn10	GND	2PETp11	2PETn11	GND
8	2PETp12	2PETn12	GND	2PERp12	2PERn12	GND	2PERp11	2PERn11	GND
9	2PETp13	2PETn13	GND	2PERp13	2PERn13	GND	2PETp14	2PETn14	GND
10	2PETp15	2PETn15	GND	2PERp15	2PERn15	GND	2PERp14	2PERn14	GND

System Controller Slot XP3 Connector Pinout

Pin	A	B	ab	C	D	cd	E	F	ef
1	RSV	RSV	GND	RSV	RSV	GND	RSV	RSV	GND
2	RSV	RSV	GND	PWR_OK	PS_ON#	GND	LINKCAP	PWRBTN#	GND
3	SMBDAT	SMBCLK	GND	RSVD	RSVD	GND	RSVD	RSVD	GND
4	RSV	PERST#	GND	2RefClk+	2RefClk-	GND	1RefClk+	1RefClk-	GND
5	1PETp0	1PETn0	GND	1PERp0	1PERn0	GND	1PETp1	1PETn1	GND
6	1PETp2	1PETn2	GND	1PERp2	1PERn2	GND	1PERp1	1PERn1	GND
7	1PETp3	1PETn3	GND	1PERp3	1PERn3	GND	1PETp4	1PETn4	GND
8	1PETp5	1PETn5	GND	1PERp5	1PERn5	GND	1PERp4	1PERn4	GND
9	1PETp6	1PETn6	GND	1PERp6	1PERn6	GND	1PETp7	1PETn7	GND
10	2PETp0	2PETn0	GND	2PERp0	2PERn0	GND	1PERp7	1PERn7	GND

System Controller Slot XP4 Connector Pinout

Pin	Z	A	B	C	D	E	F
1	GND	GA4	GA3	GA2	GA1	GA0	GND
2	GND	5Vaux	GND	SYSEN#	WAKE#	ALERT#	GND
3	GND	RSV	RSV	RSV	RSV	RSV	GND
4	GND	RSV	RSV	RSV	RSV	RSV	GND
5	GND	PXI_TRIG3	PXI_TRIG4	PXI_TRIG5	GND	PXI_TRIG6	GND
6	GND	PXI_TRIG2	GND	RSV	PXI_STAR	PXI_CLK10	GND

Pin	Z	A	B	C	D	E	F
7	GND	PXI_TRIG1	PXI_TRIG0	RSV	GND	PXI_TRIG7	GND
8	GND	RSV	GND	RSV	RSV	PXI_LBR6	GND

Hybrid Slot P1 Connector Pinout

Pin	Z	A	B	C	D	E	F
25	GND	5V	REQ64#	ENUM#	3.3V	5V	GND
24	GND	AD[1]	5V	V(I/O)	AD[0]	ACK64#	GND
23	GND	3.3V	AD[4]	AD[3]	5V	AD[2]	GND
22	GND	AD[7]	GND	3.3V	AD[6]	AD[5]	GND
21	GND	3.3V	AD[9]	AD[8]	M66EN	C/BE[0]#	GND
20	GND	AD[12]	GND	V(I/O)	AD[11]	AD[10]	GND
19	GND	3.3V	AD[15]	AD[14]	GND	AD[13]	GND
18	GND	SERR#	GND	3.3V	PAR	C/BE[1]#	GND
17	GND	3.3V	IPMB_SCL	IPMB_SDA	GND	PERR#	GND
16	GND	DEVSEL#	GND	V(I/O)	STOP#	LOCK#	GND
15	GND	3.3V	FRAME#	IRDY#	BD_SEL#	TRDY#	GND
12 to 14	Key Area						
11	GND	AD[18]	AD[17]	AD[16]	GND	C/BE[2]#	GND
10	GND	AD[21]	GND	3.3V	AD[20]	AD[19]	GND
9	GND	C/BE[3]#	IDSEL	AD[23]	GND	AD[22]	GND
8	GND	AD[26]	GND	V(I/O)	AD[25]	AD[24]	GND
7	GND	AD[30]	AD[29]	AD[28]	GND	AD[27]	GND
6	GND	REQ#	GND	3.3V	CLK	AD[31]	GND
5	GND	BRSVP1A5	BRSVP1B5	RST#	GND	GNT#	GND
4	GND	IPMB_PWR	HEALTHY#	# V(I/O)	INTP	INTS	GND
3	GND	INTA#	INTB#	INTC#	5V	INTD#	GND
2	GND	TCK	5V	TMS	TDO	TDI	GND

Pin	Z	A	B	C	D	E	F
1	GND	5V	-12V	TRST#	+12V	5V	GND

Hybrid Slot XP3 Connector Pinout

Pin	A	B	ab	C	D	cd	E	F	ef
1	PXle_	PXle_	GND	PXle_	PXle_	GND	PXle_	PXle_	GND
	CLK100+	CLK100-		SYNC100+	SYNC100-		DSTARC+	DSTARC-	
2	PRSENT#	PWREN#	GND	PXle_	PXle_	GND	PXle_	PXle_	GND
				DSTARB+	DSTARB-		DSTARA+	DSTARA-	
3	SMBDAT	SMBCLK	GND	RSV	RSV	GND	RSV	RSV	GND
4	MPWRGD*	PERST#	GND	RSV	RSV	GND	1RefClk+	1RefClk-	GND
5	1PETp0	1PETn0	GND	1PERp0	1PERn0	GND	1PETp1	1PETn1	GND
6	1PETp2	1PETn2	GND	1PERp2	1PERn2	GND	1PERp1	1PERn1	GND
7	1PETp3	1PETn3	GND	1PERp3	1PERn3	GND	1PETp4	1PETn4	GND
8	1PETp5	1PETn5	GND	1PERp5	1PERn5	GND	1PERp4	1PERn4	GND
9	1PETp6	1PETn6	GND	1PERp6	1PERn6	GND	1PETp7	1PETn7	GND
10	RSV	RSV	GND	RSV	RSV	GND	1PERp7	1PERn7	GND

Hybrid Slot XP4 Connector Pinout

Pin	Z	A	B	C	D	E	F
1	GND	GA4	GA3	GA2	GA1	GA0	GND
2	GND	5Vaux	GND	SYSEN#	WAKE#	ALERT#	GND
3	GND	12V	12V	GND	GND	GND	GND
4	GND	GND	GND	3.3V	3.3V	3.3V	GND
5	GND	PXI_	PXI_	PXI_	GND	PXI_	GND
		TRIG3	TRIG4	TRIG5		TRIG6	
6	GND	PXI_	GND	ATNLED	PXI_	PXI_	GND

Pin	Z	A	B	C	D	E	F
		TRIG2			STAR	CLK10	
7	GND	PXI_ TRIG1	PXI_ TRIG0	ATNSW#	GND	PXI_ TRIG7	GND
8	GND	RSV	GND	RSV	PXI_ LBL6	PXI_ LBR6	GND

Physical Characteristics

Table 1. Physical Characteristics

Dimensions	3U, 21-slot-wide, PXI Express chassis 177.1 mm × 445.5 mm × 463.6 mm (6.97 in. × 17.54 in. × 18.25 in.) For more information, visit ni.com/dimensions and search by module number.
Weight	13.5 kg (29.8 lb)
Chassis materials	Sheet Aluminum (5052-H32, 5754-H22), Extruded Aluminum (6063-T5, 6060-T6), Plate Aluminum (6063-T5, 6061-T6), Cold Rolled Steel, Cold Rolled Stainless Steel, Sheet Copper (C110), Santoprene, Urethane Foam, PC-ABS, Nylon, Polycarbonate, Delrin, Polyethylene, Polyamide (FR-106), Neodymium Magnet
Chassis finish	Conductive Clear Iridite on Aluminum, Electroplated Nickel on Cold Rolled Steel, Electroplated Zinc on Cold Rolled Steel, Electroplated Nickel on Copper

Environmental Guidelines



Notice Failure to follow the mounting instructions in the product documentation can cause temperature derating.



Notice This product is intended for use in indoor applications only.



Notice Cover all empty slots using filler panels.

Environmental Characteristics

Table 2. Operating Environment

Ambient temperature range when all modules require ≤ 38 W cooling capacity per slot	0 °C to 50 °C
Ambient temperature range when any module requires >38 W cooling capacity per slot (up to 58 W)	0 °C to 40 °C
Relative humidity range	10% to 90%, noncondensing

Table 3. Storage Environment

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

Table 4. Pollution Degree

Pollution degree	2
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Table 5. Maximum Altitude

Maximum altitude	2,000 m (6,560 ft.), 800 mbar (at 25 °C ambient, high fan mode)
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Table 6. Shock and Vibration

Operating shock	30 g peak, half-sine, 11 ms pulse
Operational random vibration	5 to 500 Hz, 0.3 g _{rms}
Non-operating vibration	5 to 500 Hz, 2.4 g _{rms}

Table 7. Acoustic Emissions

Profile	Fan Mode	Sound Pressure Level (at Operator Position)	Sound Power Level
38 W	Auto (≤ 30 °C)	34.4 dBA	47.5 dBA
38 W	High	55.0 dBA	66.3 dBA
58 W	Auto (≤ 30 °C)	52.1 dBA	63.7 dBA

Profile	Fan Mode	Sound Pressure Level (at Operator Position)	Sound Power Level
58 W	High	66.3 dBA	77.4 dBA

 **Note** This product meets the requirements of the environmental standards for electrical equipment for measurement, control, and laboratory use.

 **Note** Acoustic emissions testing was conducted per ISO 7779. The results meet the compliance criteria outlined in MIL-PRF-28800F.

 **Caution** The protection provided by the PXle-1081 can be impaired if it is used in a manner not described in this document.

Electrical

The following section provides information about the PXle-1081 AC input and DC output.

AC Input

Table 8. AC Input Characteristics

Input rating	100 to 240 VAC, 50/60 Hz, 10 to 5 A, 100 to 120 VAC, 400 Hz, 10 A
Operating voltage range	90 to 264 VAC
Nominal input frequency	50 Hz/60 Hz/400 Hz
Operating frequency range	47 to 440 Hz
Efficiency	85%, typical
Over-current protection	Internal fuse in line
Main power disconnect	The AC power cable provides main power disconnect. Do not position the equipment so that it is difficult to disconnect the power cord. The front-panel power switch causes the internal chassis power supply to provide DC power to the

PXI Express backplane.

**Caution** Disconnect power cord to completely remove power.**Note** The operating range is guaranteed by design, with the exception that 400 Hz operation is only supported from 100 to 120 VAC.

DC Output

Table 9. DC Output Characteristics by Voltage Rail

Voltage Rail	Maximum Current	Load Regulation	Maximum Ripple and Noise (20 MHz BW)
+5V_AUX	4.1 A	±5%	50 mVpp
+12 V	54.1 A	±5%	100 mVpp
+5 V	51.1 A	±5%	50 mVpp
+3.3 V	60 A	±5%	50 mVpp
-12 V	4.25 A	±5%	50 mVpp

**Note** Maximum usable power for the PXIe-1081 is 650 W.

Table 10. Backplane Slot Current Capacity

Slot	+5 V	V (I/O)	+3.3 V	+12 V	-12 V	5 V _{AUX}
PXI Express System Controller Slot	9 A	-	9 A	20 A	-	2 A
Hybrid Peripheral Slot with PXI-5 Peripheral	-	-	6 A	6 A	-	1 A
Hybrid Peripheral	6 A	5 A	6 A	1 A	1 A	-

Slot	+5 V	V (I/O)	+3.3 V	+12 V	-12 V	5 V _{AUX}
Slot with PXI-1 Peripheral						



Note Total System Controller Slot current must not exceed 40 A.



Note PCI V (I/O) pins in Hybrid Peripheral Slots are connected to +5 V.



Note The maximum power dissipated in the System Controller Slot must not exceed 140 W.



Note The maximum power dissipated in a peripheral slot must not exceed 58 W. Refer to ***Operating Environment*** for ambient temperature considerations at 58 W.

Table 11. Power Supply Protection and Serviceability

Feature	Description
Overcurrent protection	All outputs protected from short circuit and overload with automatic recovery.
Overvoltage protection	+ 12 V, +5 V, and +3.3 V clamped at 20 to 30% above nominal output voltage.
Serviceability	Fan replacement supported.

Backplane

Table 12. Backplane Characteristics

Size	3U-sized; one system slot (with three system expansion slots) and 17 peripheral slots. Compliant with IEEE 1101.10 mechanical packaging. PXI Express Specification compliant. Accepts both PXI Express and CompactPCI (PICMG 2.0 R 3.0) 3U modules.
Backplane bare-board material	UL 94 V-0 Recognized

Backplane connectors	Conforms to IEC 917 and IEC 1076-4-101, UL 94 V-0 rated
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Chassis Cooling

Table 13. Module Cooling

Cooling method	Forced air circulation (positive pressurization) through three 210 CFM fans with High/Auto speed selector
Airflow direction	Bottom of module to top of module
Intake	Bottom rear of chassis
Exhaust	Top of chassis
Slot cooling capacity	58 W

Table 14. Secondary Cooling

Cooling method	Forced air circulation (positive pressurization) through one 70 CFM fan
Intake	Right side of chassis
Exhaust	Left side of chassis

Table 15. Power Supply Cooling

Cooling method	Forced air circulation through two integrated fans
Intake	Top rear of chassis
Exhaust	Top of chassis

Table 16. Minimum Cooling Clearances

Location	Clearance
Above	44.45 mm (1.75 in.)
Rear	101.60 mm (4.00 in.)
Sides	44.45 mm (1.75 in.)

10 MHz System Reference Clock: PXI_CLK10

Table 17. 10 MHz System Reference Clock: PXI_CLK10

Maximum slot-to-slot skew	250 ps
Accuracy	±25 ppm maximum (guaranteed over the operating temperature range)
Maximum jitter	5 ps RMS phase-jitter (10 Hz–1 MHz range)
Duty-factor	45% to 55%
Unloaded signal swing	3.3 V ±0.3 V



Note For other specifications, refer to the latest version of the ***PXI Express Hardware Specification***.

100 MHz System Reference Clock: PXIe_CLK100 and PXIe_SYNC100

Table 18. 100 MHz System Reference Clock: PXIe_CLK100 and PXIe_SYNC100

Maximum slot-to-slot skew	100 ps
Accuracy	±25 ppm maximum (guaranteed over the operating temperature range)
Maximum jitter	• 10 Hz to 12 kHz range: 3 ps RMS phase-jitter • 12 kHz to 20 MHz range: 2 ps RMS phase-jitter
Duty-factor for PXIe_CLK100	45% to 55%
Absolute differential voltage (When terminated with a 50 Ω load to 1.30 V or Thévenin equivalent)	400 mV to 1,000 mV



Note For other specifications, refer to the latest version of the ***PXI Express Hardware Specification***.