

SPECIFICATIONS

PXIe-1084

This document contains specifications for the PXIe-1084 chassis.



Caution Specifications are subject to change without notice.

Electrical

The following section provides information about the PXIe-1084 AC input and DC output.

AC Input

| | |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input rating | 100 to 240 VAC, 50/60 Hz, 10 to 5 A, 100 to 120 VAC, 400 Hz, 10 A |
| Operating voltage range ¹ | 90 to 264 VAC |
| Nominal input frequency | 50 Hz/60 Hz/400 Hz ² |
| Operating frequency range ¹ | 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. With the Timing and Synchronization upgrade, you can use the rear-panel 15-pin connector and inhibit mode switch to control the internal chassis power supply. |



Caution Disconnect power cord to completely remove power.

¹ The operating range is guaranteed by design.

² 400 Hz operation only supported from 100 to 120 VAC.

DC Output

DC output characteristics of the PXIe-1084.

| 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 |

Maximum total available power for the PXIe-1084 is 650 W.

Table 1. 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 Slot with PXI-1 Peripheral | 6 A | 5 A | 6 A | 1 A | 1 A | - |



Note Total System Controller Slot current should 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 should not exceed 140 W.



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

Over-current protection

All outputs protected from short circuit and overload with automatic recovery

Over-voltage protection

+12 V, +5 V, and +3.3 V clamped at 20 to 30% above nominal output voltage

Chassis Cooling

| | |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Module cooling | Forced air circulation (positive pressurization) through three 210 CFM fans with High/Auto speed selector |
| Module slot airflow direction | Bottom of module to top of module |
| Module intake | Bottom rear of chassis |
| Module exhaust | Top of chassis |
| Slot cooling capacity | 58 W |
| Secondary cooling | Forced air circulation (positive pressurization) through one 70 CFM fan |
| Side intake | Right side of chassis |
| Side exhaust | Left side of chassis |
| Power supply cooling | Forced air circulation through two integrated fans |
| Power supply intake | Top rear of chassis |
| Power supply exhaust | Top of chassis |
| Timing and Synchronization upgrade intake | Right side of chassis |
| Timing and Synchronization upgrade exhaust | Top of chassis |
| Minimum chassis cooling clearances | |
| Above | 44.45 mm (1.75 in.) |
| Rear | 101.60 mm (4.00 in.) |
| Sides | 44.45 mm (1.75 in.) |

Environmental

| | |
|------------------|--------------------------------------------------|
| Maximum altitude | 2,000 m (6,560 ft.), 800 mbar (at 25 °C ambient) |
| Pollution Degree | 2 |
| Indoor use only. | |

Operating Environment

Ambient temperature range

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Up to 38 W per peripheral slot | 0 °C to 50 °C (IEC 60068-2-1 and IEC 60068-2-2.) ³ Meets MIL-PRF-28800F Class 3 low temperature limit and high temperature limit. |
| Up to 58 W per peripheral slot | 0 °C to 40 °C (IEC 60068-2-1 and IEC 60068-2-2.) ³ Meets MIL-PRF-28800F Class 3 low temperature limit and MIL-PRF-28800F Class 4 high temperature limit. |
| Relative humidity range | 10% to 90%, noncondensing (IEC 60068-2-78.) ³ |

Storage Environment

| | |
|---------------------------|------------------------------------------------------------------------------------------------------|
| Ambient temperature range | -40 °C to 71 °C (IEC-60068-2-1 and IEC-60068-2-2.) ³ Meets MIL-PRF-28800F Class 3 limits. |
| Relative humidity range | 5% to 95%, noncondensing (IEC-60068-2-78.) ³ |

Shock and Vibration

| | |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational shock | 30 g peak, half-sine, 11 ms pulse (IEC-60068-2-27.) ³ Meets MIL-PRF-28800F Class 2 limits. |
| Operational random vibration | 5 to 500 Hz, 0.3 g _{rms} |
| Non-operating vibration | 5 to 500 Hz, 2.4 g _{rms} (IEC 60068-2-64.) ³ Non-operating test profile exceeds the requirements of MIL-PRF-28800F, Class 3. |

³ This product meets the requirements of the environmental standards for electrical equipment for measurement, control, and laboratory use.

Acoustic Emissions

Sound Pressure Level (at Operator Position)

(Tested in accordance with ISO 7779. Meets MIL-PRF-28800F requirements.)

38 W Profile

| | |
|--------------------------------|----------|
| Auto fan (up to 30 °C ambient) | 34.4 dBA |
| High fan | 55.0 dBA |

58 W Profile

| | |
|--------------------------------|----------|
| Auto fan (up to 30 °C ambient) | 52.1 dBA |
| High fan | 66.3 dBA |

Sound Power Level

38 W Profile

| | |
|--------------------------------|----------|
| Auto fan (up to 30 °C ambient) | 47.5 dBA |
| High fan | 66.3 dBA |

58 W Profile

| | |
|--------------------------------|----------|
| Auto fan (up to 30 °C ambient) | 63.7 dBA |
| High fan | 77.4 dBA |



Note The protection provided by the PXIe-1084 can be impaired if it is used in a manner not described in this document.

Safety

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 61010-1



Note For UL and other safety certifications, refer to the product label or the [Online Product Certification](#) 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 and certifications, and additional information, refer to the [Online Product Certification](#) section.

CE Compliance

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

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 *Minimize Our Environmental Impact* 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.

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EU Customers 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.

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Backplane

| | |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |

System Synchronization Clocks

10 MHz System Reference Clock: PXI_CLK10

| | |
|---------------------------|---------------------------------------------------------------|
| Maximum slot-to-slot skew | 250 ps |
| Accuracy | ±25 ppm max (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 \pm 0.3 V |



Note For other specifications, refer to the *PXI-1 Hardware Specification*.

100 MHz System Reference Clock: PXIe_CLK100 and PXIe_SYNC100

| | |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Maximum slot-to-slot skew | 100 ps |
| Accuracy | \pm 25 ppm max (guaranteed over the operating temperature range) |
| Maximum jitter | 3 ps RMS phase-jitter (10 Hz to 12 kHz range), 2 ps RMS phase-jitter (12 kHz to 20 MHz range) |
| 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 to 1000 mV |



Note For other specifications, refer to the *PXI-5 PXI Express Hardware Specification*

External 10 MHz Reference Out (Timing and Synchronization Option)

| | |
|------------------|------------------------------------------------------------------------------------------|
| Accuracy | \pm 25 ppm max (guaranteed over the operating temperature range) |
| Maximum jitter | 5 ps RMS phase-jitter (10 Hz–1 MHz range) |
| Output amplitude | 1 V _{pp} \pm 20% square-wave into 50 Ω , 2 V _{pp} unloaded |
| Output impedance | 50 Ω \pm 5 Ω |

External 10 MHz Reference In (Timing and Synchronization Option)

| | |
|----------------------------------------|--------------------------------------------------------------------|
| Frequency | 10 MHz \pm 25 ppm |
| Input amplitude | 100 mV _{pp} to 5 V _{pp} square-wave or sine-wave |
| Maximum jitter introduced by backplane | 1 ps RMS phase-jitter (10 Hz to 1 MHz range) |
| Rear panel SMA input impedance | 50 Ω \pm 5 Ω |

Remote Inhibit and Chassis Monitoring Connector (Timing and Synchronization Option)

Inhibit input signal

| | |
|----------|-----------|
| V_{IH} | 2.0 V min |
| V_{IL} | 0.8 V max |



Note Internal 10 k Ω pull-up to an internal +3.3V_AUX rail.

Fault output signal

| | |
|----------|------------------------------------|
| V_{OH} | 2.4 V ($I_{OH} = -4$ to -16 mA) |
| V_{OL} | 0.4 V ($I_{OL} = 4$ to 16 mA) |

PFI lines

| | |
|----------|------------------------------------|
| V_{IH} | 2.0 V min |
| V_{IL} | 0.8 V max |
| V_{OH} | 2.4 V ($I_{OH} = -4$ to -16 mA) |
| V_{OL} | 0.4 V ($I_{OL} = 4$ to 16 mA) |

Mechanical

Standard chassis dimensions

| | |
|--------|----------------------|
| Height | 177.1 mm (6.97 in.) |
| Width | 445.5 mm (17.54 in.) |
| Depth | 463.6 mm (18.25 in.) |

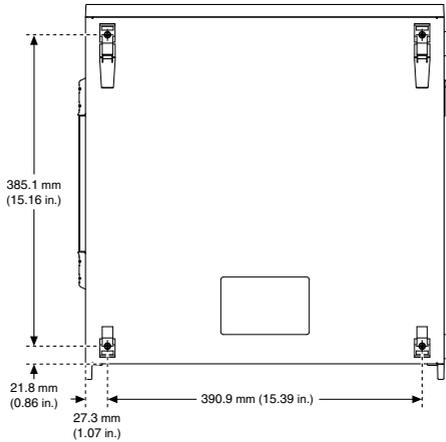
| | |
|--------|-------------------|
| Weight | 13.5 kg (29.8 lb) |
|--------|-------------------|

| | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Finish | Conductive Clear Iridite on Aluminum, Electroplated Nickel on Cold Rolled Steel, Electroplated Zinc on Cold Rolled Steel, Electroplated Nickel on Copper |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

The following figures show the PXIe-1084 chassis dimensions. The holes shown are for the installation of the optional rack mount kits. You can install those kits on the front or rear of the chassis, depending on which end of the chassis you want to face toward the front of the instrument cabinet. Notice that the front and rear chassis mounting holes (size M4) are symmetrical.

Figure 2. PXIe-1084 Chassis Dimensions (Bottom)



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