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# cRIO-9064

# Specifications

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Ihr NI-Partner:



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Integration  
Partner

SYSTEM INTEGRATOR

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# cRIO-9064 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.

Specifications are *Typical* unless otherwise noted.

## Conditions

Specifications are valid for -20 °C to 55 °C unless otherwise noted.

## Processor

|              |                                                |
|--------------|------------------------------------------------|
| Type         | Xilinx Zynq-7000, XC7Z020 All Programmable SoC |
| Architecture | ARM Cotex-A9                                   |
| Speed        | 667 MHz                                        |
| Cores        | 2                                              |

|                                     |                |
|-------------------------------------|----------------|
| Flash reboot endurance <sup>1</sup> | 100,000 cycles |
|-------------------------------------|----------------|

## Operating System



**Note** For minimum software support information, visit [ni.com/info](http://ni.com/info) and enter the Info Code `swsupport`.

|                              |                                                                                                                           |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Supported operating system   | NI Linux Real-Time (32-bit)                                                                                               |
| <b>Software requirements</b> |                                                                                                                           |
| <b>Application software</b>  |                                                                                                                           |
| LabVIEW                      | LabVIEW 2014 SP1 or later, LabVIEW Real-Time Module 2014 SP1 or later, LabVIEW FPGA Module 2014 SP1 or later <sup>2</sup> |
| Driver software              | NI-RIO Device Drivers 14.5 or later                                                                                       |

## Memory

|                                 |        |
|---------------------------------|--------|
| Nonvolatile memory <sup>3</sup> | 1 GB   |
| Volatile memory (DRAM)          | 512 MB |

1. You can increase the flash reboot endurance value by performing field maintenance on the device. If you expect that your application may exceed the maximum cycle count listed in this document, contact NI support for information about how to increase the reboot endurance value.
2. LabVIEW FPGA Module is not required when using Scan Interface mode. To program the user-accessible FPGA on the cRIO-9064, LabVIEW FPGA Module is required.
3. Formatted capacity of nonvolatile memory may be slightly less than this value.

## Network

|                          |                                                                 |
|--------------------------|-----------------------------------------------------------------|
| Network interface        | 10Base-T, 100Base-T, 1000Base-T Ethernet                        |
| Compatibility            | IEEE 802.3                                                      |
| Communication rates      | 10 Mb/s, 100 Mb/s, 1,000 Mb/s auto-negotiated, half/full-duplex |
| Maximum cabling distance | 100 m/segment                                                   |

## Internal Real-Time Clock

|          |       |
|----------|-------|
| Accuracy | 5 ppm |
|----------|-------|

## USB Ports

|                        |                                             |
|------------------------|---------------------------------------------|
| <b>USB device port</b> |                                             |
| Type                   | USB 2.0 Hi-Speed, with standard B connector |
| Maximum data rate      | 480 Mb/s                                    |
| <b>USB host port</b>   |                                             |
| Type                   | USB 2.0 Hi-Speed, with standard A connector |
| Maximum data rate      | 480 Mb/s                                    |

## Reconfigurable FPGA

|                                            |                                                |
|--------------------------------------------|------------------------------------------------|
| Type                                       | Xilinx Zynq-7000, XC7Z020 All Programmable SoC |
| Number of logic cells                      | 85,000                                         |
| Number of flip-flops                       | 106,400                                        |
| Number of 6-input LUTs                     | 53,200                                         |
| Number of DSP slices (18 × 25 multipliers) | 220                                            |
| Available block RAM                        | 4,480 kbits                                    |
| Number of DMA channels                     | 16                                             |
| Number of logical interrupts               | 32                                             |

## Battery



**Note** The battery is not user-replaceable. Refer to the *cRIO-9064 Safety, Environmental, and Regulatory Information* document for information about replacing the battery.



**Note** Battery life may drop dramatically in extreme temperatures.

|                                                            |          |
|------------------------------------------------------------|----------|
| Typical battery life with power applied to power connector | 10 years |
| Typical battery life in storage at 55 °C                   | 5 years  |

## Power Requirements

|                                                 |                   |
|-------------------------------------------------|-------------------|
| Voltage input range                             | 9 V DC to 30 V DC |
| Reverse-voltage protection                      | 30 V DC maximum   |
| Maximum power input, with four C Series modules | 18 W              |
| Maximum power input, without C Series modules   | 14 W              |

## Physical Characteristics

### Dimensions and Weight

|            |                                                                  |
|------------|------------------------------------------------------------------|
| Dimensions | 178.1 mm × 87.3 mm × 64.3 mm<br>(7.01 in. × 3.44 in. × 2.63 in.) |
| Weight     | 692 g (24.39 oz)                                                 |

## Screw Terminal Wiring

|                             |                                                                                     |  |
|-----------------------------|-------------------------------------------------------------------------------------|--|
| Gauge                       | 0.2 mm <sup>2</sup> to 2.1 mm <sup>2</sup> (24 AWG to 14 AWG) copper conductor wire |  |
| Wire strip length           | 6 mm (0.24 in.) of insulation stripped from the end                                 |  |
| Temperature rating          | 85 °C                                                                               |  |
| Torque for screw terminals  | 0.20 N · m to 0.25 N · m<br>(1.8 lb · in. to 2.2 lb · in.)                          |  |
| Wires per terminal          | One wire per screw terminal                                                         |  |
| <b>Connector securement</b> |                                                                                     |  |
| Securement type             | Screw flanges provided                                                              |  |
| Torque for screw flanges    | 0.3 N · m to 0.4 N · m<br>(2.7 lb · in. to 3.5 lb · in.)                            |  |

## Safety Voltages

Connect only voltages that are within the following limits:

|                          |                                         |
|--------------------------|-----------------------------------------|
| V terminal to C terminal | 30 V DC maximum, Measurement Category I |
|--------------------------|-----------------------------------------|

## Measurement Category



**Caution** Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.



**Attention** Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.



**Warning** Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINS circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.



**Mise en garde** Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous peine d'endommager et de compromettre l'isolation. Le produit peut tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as *MAINS* voltage. *MAINS* is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.



**Note** Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the *MAINS* building installations of Measurement Categories CAT II, CAT III, or CAT IV.

## Environmental

| Temperature        |                                 |
|--------------------|---------------------------------|
| Operating          | -20 °C to 55 °C                 |
| Storage            | -40 °C to 85 °C                 |
| Humidity           |                                 |
| Operating          | 10% RH to 90% RH, noncondensing |
| Storage            | 5% RH to 95% RH, noncondensing  |
| Ingress protection | IP40                            |
| Pollution Degree   | 2                               |
| Maximum altitude   | 5,000 m                         |

| Shock and Vibration |                                                                          |
|---------------------|--------------------------------------------------------------------------|
| Operating vibration |                                                                          |
| Random              | 5 g RMS, 10 Hz to 500 Hz                                                 |
| Sinusoidal          | 5 g, 10 Hz to 500 Hz                                                     |
| Operating shock     | 30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations |



**Notice** Use NI-9917 and NI-9918 industrial enclosures to protect the cRIO-9064 in harsh, dirty, or wet environments

To meet the shock and vibration specifications, you must mount the cRIO-9064 system directly on a flat, rigid surface as described in the user manual, affix ferrules to the ends of the terminal wires, install an SD card cover (SD Door Kit, 783660-01), and use retention accessories for the USB host ports (NI Industrial USB Extender Cable, 152166-xx), USB device port (NI Locking USB Cable, 157788-01), and mini DisplayPort connector (NI Retention Accessory for Mini DisplayPort, 156866-01). All cabling should be strain-relieved near input connectors. Take care to not directionally bias cable connectors within input connectors when applying strain relief.

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