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PCI-8252

Getting Started with the NI PCI-8252

The NI PCI-8252 (NI 8252) is an IEEE 1394a interface device for PCI. This document describes how to install and configure the necessary hardware and software components to begin using the NI 8252.

What You Need to Get Started

You need the following items to set up and use the NI 8252:

- NI 8252 device
- IEEE 1394 camera
- IEEE 1394a cable
- Computer running Microsoft Windows Vista/XP/2000 with at least one available PCI slot



Note Visit ni.com/info and enter `rdvisionvista` for more information about National Instruments image acquisition device compatibility with Windows Vista.

- NI Vision Acquisition Software 8.2.1 or later, which includes the NI-IMAQdx driver software
- Optional software for developing applications:
 - NI Vision Builder for Automated Inspection
 - NI Vision Development Module
 - LabVIEW
 - LabWindows™/CVI™
 - Microsoft Visual Basic

Related Documentation

The following documents contain additional information that you may find helpful:

- *NI Vision Acquisition Software Release Notes*—Contains information about new functionality, minimum system requirements, and installation instructions for the NI-IMAQdx driver software.
- *Measurement & Automation Explorer Help for NI-IMAQdx*—Describes how to configure the NI-IMAQdx driver software, NI image acquisition devices, and cameras using Measurement & Automation Explorer (MAX).
- *NI-IMAQdx User Manual*—Contains fundamental programming concepts for the NI-IMAQdx driver software and terminology for using NI image acquisition devices.

Safety Information



Caution The following paragraphs contain important safety information you *must* follow when installing and operating the device.

Do *not* operate the device in a manner not specified in the documentation. Misuse of the device may result in a hazard and may compromise the safety protection built into the device. If the device is damaged, turn it off and do *not* use it until service-trained personnel can check its safety. If necessary, return the device to National Instruments for repair.

Keep away from live circuits. Do *not* remove equipment covers or shields unless you are trained to do so. If signal wires are connected to the device, hazardous voltages can exist even when the equipment is turned off. To avoid a shock hazard, do *not* perform procedures involving cover or shield removal unless you are qualified to do so. Disconnect all field power prior to removing covers or shields.

If the device is rated for use with hazardous voltages ($>30 V_{\text{rms}}$, $42.4 V_{\text{pk}}$, or $60 V_{\text{dc}}$), it may require a safety earth-ground connection wire. Refer to the device specifications for maximum voltage ratings.

Because of the danger of introducing additional hazards, do *not* install unauthorized parts or modify the device. Use the device only with the chassis, modules, accessories, and cables specified in the installation instructions. All covers and filler panels *must* be installed while operating the device.

Do *not* operate the device in an explosive atmosphere or where flammable gases or fumes may be present. Operate the device only at or below the pollution degree stated in the specifications. Pollution consists of any foreign matter—solid, liquid, or gas—that may reduce dielectric strength or surface resistivity. The following is a description of pollution degrees.

- Pollution Degree 1—No pollution or only dry, nonconductive pollution occurs. The pollution has no effect.
- Pollution Degree 2—Normally only nonconductive pollution occurs. Occasionally, nonconductive pollution becomes conductive because of condensation.
- Pollution Degree 3—Conductive pollution or dry, nonconductive pollution occurs. Nonconductive pollution becomes conductive because of condensation.

Clean the device and accessories by brushing off light dust with a soft, nonmetallic brush. Remove other contaminants with a stiff, nonmetallic brush. The unit *must* be completely dry and free from contaminants before returning it to service.

You *must* insulate signal connections for the maximum voltage for which the device is rated. Do *not* exceed the maximum ratings for the device. Remove power from signal lines before connection to or disconnection from the device.



Caution National Instruments measurement products may be classified as either Measurement Category I or II. Operate products at or below the Measurement Category level specified in the hardware specifications.

Measurement Category¹: Measurement circuits are subjected to working voltages² and transient stresses (overvoltage) from the circuit to which they are connected during measurement or test. Measurement Category establishes standardized impulse withstand voltage levels that commonly occur in electrical distribution systems. The following is a description of Measurement (Installation)³ Categories:

- Measurement Category I is for measurements performed on circuits *not* directly connected to the electrical distribution system referred to as MAINS⁴ voltage. 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.

¹ Measurement Categories as defined in electrical safety standard IEC 61010-1.

² Working voltage is the highest rms value of an AC or DC voltage that can occur across any particular insulation.

³ Measurement Category is also referred to as Installation Category.

⁴ MAINS is defined as the (hazardous live) electrical supply system to which equipment is designed to be connected for the purpose of powering the equipment. Suitably rated measuring circuits may be connected to the MAINS for measuring purposes.

- Measurement Category II is for measurements performed on circuits directly connected to the electrical distribution system. This category refers to local-level electrical distribution, such as that provided by a standard wall outlet (e.g., 115 V for U.S. or 230 V for Europe). Examples of Measurement Category II are measurements performed on household appliances, portable tools, and similar products.
- Measurement Category III is for measurements performed in the building installation at the distribution level. This category refers to measurements on hard-wired equipment such as equipment in fixed installations, distribution boards, and circuit breakers. Other examples are wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, and stationary motors with permanent connections to fixed installations.

Unpacking

The NI 8252 ships in an antistatic package to prevent electrostatic discharge from damaging device components. To avoid such damage in handling your device, take the following precautions:

1. Ground yourself using a grounding strap or by touching a grounded object, such as the computer chassis.
2. Touch the antistatic package to a metal part of the computer chassis before removing the device from the package.



Caution *Never* touch the exposed pins of connectors.

3. Remove the device from the package and inspect it for loose components or any other signs of damage. Notify National Instruments if the device appears damaged in any way. Do *not* install a damaged device in the computer.

Store the NI 8252 in the antistatic package when not in use.

Installation

The following instructions are for general installation. Refer to the documentation provided by your computer manufacturer for specific instructions and warnings. Refer to the [Specifications](#) section for typical power requirements for the NI 8252.

1. Install the NI Vision Acquisition Software before installing the NI 8252. Refer to the *NI Vision Acquisition Software Release Notes* for specific installation instructions.
2. Power off and unplug the computer.



Caution To protect yourself and the computer from electrical hazards, the computer *must* remain unplugged until the installation is complete.

3. Remove the computer cover to expose the expansion slots.
4. Touch a metal part of the computer to discharge any static electricity that might be on your clothes or body. Static electricity can damage the device.
5. Choose an unused PCI slot, and remove the corresponding expansion slot cover on the back panel of the computer.
6. Remove the NI 8252 device from the antistatic package and gently rock the device into the slot. The connection may be tight, but do *not* force the device into place.



Note Check that the bracket of your device aligns with the hole in the back panel rail of the computer chassis.

7. Secure the device mounting bracket to the back panel rail of the computer.

8. Replace the computer cover.
9. Connect the IEEE 1394a cable to the camera. Refer to your camera manufacturer documentation for specific instructions about how to connect the cable to your camera.
10. Connect the IEEE 1394a cable to the IEEE 1394 connector on the NI 8252 front panel.
11. Plug in and power on the computer.

The NI 8252 is now installed and the camera is connected.

Configuring the NI 8252

After you have installed the NI 8252 and powered on the computer, the computer will recognize the device and assign resources to it. Use Measurement & Automation Explorer (MAX), the National Instruments configuration utility, to configure the NI 8252 for acquisition. Refer to the *Measurement & Automation Explorer Help for NI-IMAQdx* for additional information about configuring the NI 8252.



Note Before configuring the device in MAX, ensure that you installed the NI-IMAQdx driver software.

Specifications

The following specifications apply to the NI PCI-8252 image acquisition device. These specifications are typical at 25 °C unless otherwise specified.

Physical Characteristics

Dimensions 6.40 cm × 12.16 cm
(2.52 in × 4.79 in.)

Connector

1394 6-pin, female

Number of 1394 connectors 3

PCI 32-bit, Universal

Signaling

1394 IEEE 1394a-1995 S100, S200, S400 transfer rates, OHCI v1.1 software interface. Actual 1394 transfer rates are system dependent.

PCI Universal, 33 MHz

Power Consumption

Typical 0 mA at 5 V = 0 mW
0 mA at 3.3 V = 0 mW
40 mA at 12 V = 480 mW (max)

Bus Power

1394 12 V ±10%, 12 W total, up to 9.6 W/port with ATX power connected

Operating Environment

The NI 8252 device is intended for indoor use only.

Ambient temperature range 0 °C to 55 °C

Operating relative humidity20% to 80%, noncondensing

Pollution Degree2

Measurement CategoryI



Caution Do not use the NI 8252 for connection to signals within Measurement Categories II, III, or IV.

Approved at altitudes up to 2,000 m.

Storage Environment

Ambient temperature range-20 °C to 60 °C

Relative humidity20% to 95%, noncondensing

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment 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 visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

Electromagnetic Compatibility

This product is designed to meet the requirements of the following standards of EMC for electrical equipment for measurement, control, and laboratory use:

- EN 61326 EMC requirements; Minimum Immunity
- EN 55011 Emissions; Group 1, Class A
- CE, C-Tick, ICES, and FCC Part 15 Emissions; Class A



Note For EMC compliance, operate this device according to product documentation.

CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 73/23/EEC; Low-Voltage Directive (safety)
- 89/336/EEC; Electromagnetic Compatibility Directive (EMC)



Note Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain 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.

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