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Find the *National Instruments PXI-8104* at our website: *Click HERE*

1.86 GHz Celeron M 440 Embedded Controllers for PXI

NI PXI-8104 *NEW!*

- Intel Celeron M 440 processor (1.86 GHz single core)
- 512 MB (1 x 512 MB DIMM) dual-channel, 533 MHz DDR2 RAM standard, 2 GB (2 x 1 GB DIMMs) maximum
- Integrated hard drive
- Internal PXI trigger bus routing
- Watchdog timer
- Integrated I/O
- 10/100/1000BASE-TX Ethernet
- 4 Hi-Speed USB ports
- DVI-I video connector
- RS232 serial port
- IEEE 1284 ECP/EPP parallel port

Software

- OS and drivers already installed
- Hard-drive-based recovery image

PXI System Configuration

- Complete PXI system configuration at **ni.com/pxiadvisor**



Overview

The National Instruments PXI-8104 is an Intel Celeron M 440-based embedded controller for PXI and CompactPCI systems. With its 1.86 GHz processor and dual-channel 533 MHz DDR2 memory, the NI PXI-8104 offers an ideal balance of performance and value. Combine a PXI-8104 embedded controller with a PXI-compatible chassis, such as the NI PXI-1042, to create a PC-based platform for industrial control, data acquisition, and test and measurement applications.

CPU	1.86 GHz Intel Celeron M 440
Front-side bus	533 MHz
L2 cache	1024 KB
Dual-channel 533 MHz DDR2 RAM, standard	512 MB (1 x 512 MB)
Dual-channel 533 MHz DDR2 RAM, maximum	2 GB (2 x 1 GB)
Hard drive, minimum	60 GB SATA
Video port	DVI-I
10/100/1000BASE-TX (gigabit) Ethernet	✓
Serial port (RS232)	✓
Parallel port	✓
Hi-Speed USB ports	4
Watchdog/trigger SMB	✓
Installed OS	Windows XP Professional[1]

1Contact National Instruments or visit ni.com/pxiadvisor for information on other available operating systems.

Table 1. NI PXI-8104 Features

Hardware

With state-of-the-art packaging, the PXI-8104 embedded controller integrates a Celeron M processor and all standard and extended PC peripherals into a single unit. By integrating many peripherals on the controller, all active slots in the PXI chassis remain available for measurement modules. This rugged one-piece controller design minimizes integration issues and eliminates the need for complex cabling to peripheral daughter boards. The PXI-8104 uses the Mobile Intel 945GME Express chipset to deliver maximum performance, flexibility, and stability. A block diagram of the PXI-8104 is shown in Figure 2.

SYSmark 2004 Overall Performance

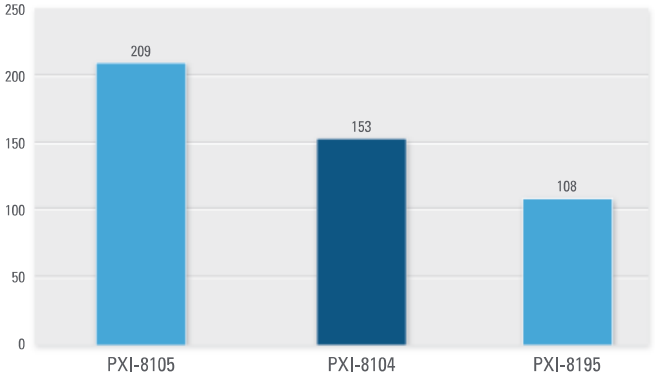


Figure 1. Embedded Controller Benchmarks

Peripheral I/O

The PXI-8104 includes high-performance peripheral I/O such as 10/100/1000BASE-TX (gigabit) Ethernet and four Hi-Speed USB ports for connection to a keyboard, mouse, CD-ROM/DVD-ROM drive for software installation, or other standard PC peripherals such as speakers, printers, or memory sticks. Use the IEEE 1284 ECP/EPP parallel port to connect to a wide variety of devices, including tape backup drives, printers, and scanners. The PXI-8104 also features an RS232 port for connecting to serial devices.

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Video

The PXI-8104 features an integrated Intel Extreme Graphics controller, which delivers intense, realistic 3D graphics with sharp images, fast rendering, smooth motion, and high detail without the need for an additional video card. This unique architecture provides balanced memory usage between graphics and the system for optimal performance. The controller includes a DVI-I video connector, compatible with digital (DVI) and analog (VGA) monitors. A DVI-I to VGA adapter is included with the controller for use with VGA monitors.

Memory

The PXI-8104 uses dual-channel 533 MHz DDR2 SDRAM, which makes the controller ideal for data-intensive applications requiring significant analysis. It has two SO-DIMM sockets for the DDR2 SDRAM. 512 MB (1 x 512 MB DIMM) of RAM is standard with upgrade options to either 1 or 2 GB.

Software

The PXI-8104 comes with the following minimum set of software already installed:

- Microsoft Windows XP Professional OS (contact National Instruments or visit **ni.com/pxiadvisor** for localized versions of Windows XP and for other available operating systems)
- Hard-drive-based recovery image
- NI-VISA and NI-488.2 drivers
- Drivers for all built-in I/O ports (Table 1)

With NI Factory Installation Services (FIS) added to a PXI system order, your embedded controller is shipped already configured with all software and drivers applicable for your system. For example, assume you order a PXI system that includes NI LabVIEW and NI TestStand software, as well as data acquisition modules, a digitizer, an arbitrary waveform generator, and a digital multimeter (DMM). With FIS, NI not only assembles and tests your system but also fully configures the embedded controller with the appropriate NI-DAQmx, NI-SCOPE, NI-FGEN, and NI-DMM drivers, as well as LabVIEW and NI TestStand. Additionally, your embedded controller is configured with a customized hard-drive-based recovery image, so you can restore your controller to the as-shipped configuration at any time. This combination of software configuration and recovery tools provides both a productive and reliable development experience with your PXI system out of the box. To configure a complete PXI system with FIS, contact National Instruments or visit **ni.com/pxiadvisor**.

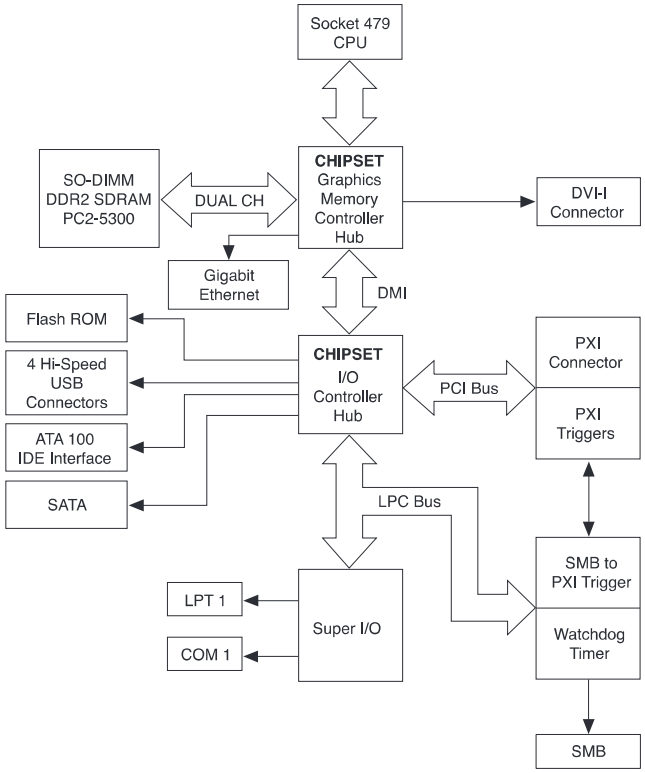


Figure 2. PXI-8104 Block Diagram

USB Peripherals

National Instruments offers a USB-to-dual-PS/2 keyboard/mouse adapter cable to connect a legacy PS/2 keyboard and mouse to a single USB port on your embedded controller. Additionally, NI provides external USB CD-ROM/DVD-ROM and USB floppy drives for use with your embedded controller. Connect these drives to your embedded controller for easy software installation and upgrades. Both are completely powered through the USB ports, so no external power connections are required. Additional USB peripherals, such as USB speakers to add audio or USB memory sticks to add easily removable memory, are widely available from PC peripheral manufacturers.

Additional Peripheral I/O

National Instruments offers numerous plug-in modules to add more peripheral I/O to your PXI system. With the wide variety of peripheral I/O modules available, you can choose modules that add communication with serial, IEEE 1394, and SCSI. You also can obtain modules for controlling other PXI or VXI/VME systems. Visit **ni.com/pxiadvisor** to configure a system with additional peripheral I/O modules.

Ordering Information

For online configuration of a complete PXI system, including Factory Installation Services, visit **ni.com/pxiadvisor**.

Step 1. Controller Model – select one of the following.

NI PXI-8104 .....779916-xx

Step 2. Replace "xx" to select installed OS.

01.....Windows XP Professional (English)

00.....Localized Windows XP or Other OS[1]

[1]Contact National Instruments or visit **ni.com/pxiadvisor** for the latest operating systems.

Step 3. Memory upgrades – select the amount of upgrade memory.

Standard:

512 MB (1 x 512 MB DIMM)

Recommended upgraded memory configurations:

1 GB (1 x 512 MB DIMM must be purchased)

2 GB (2 x 1 GB DIMMs must be purchased)

512 MB DDR2 RAM 779302-512

1 GB DDR2 RAM.....779302-1024

Step 4. Accessories[2]

60 GB (or greater) 2.5 in. SATA blank HDD spare/replacement.....779175-03

USB-to-dual-PS/2 keyboard/mouse adapter cable 778713-02

External USB CD-ROM/DVD-ROM drive 778492-01

External USB floppy drive.....778492-02

USB English keyboard and optical mouse 779660-01

Parallel port adapter cable (6 in.).....777169-01

NI MKD-1117 (rack-mount 1U LCD monitor, keyboard, mouse drawer).....779872-01

NI FPM-1017 (17 in. flat panel monitor) 779559-01

NI FPT-1015 (flat panel touch screen with VGA interface and USB) 779560-01

[2]For additional peripheral I/O modules, including serial, IEEE 1394, and SCSI, visit **ni.com/pxiadvisor**.

BUY NOW!

For complete product specifications, pricing, and accessory information, call 800 813 3693 (U.S.) or go to **ni.com/pxi**.

Specifications

Specifications subject to change without notice.

Features

Processor	Intel 1.86 GHz Celeron M 440
Chipset	Mobile Intel 945GME Express chipset
Front-side bus	533 MHz
System memory (RAM)	512 MB dual-channel DDR2 RAM PC2 5300 (Standard) 2 GB dual-channel DDR2 RAM PC2 5300 (Maximum)
Ethernet	10/100/1000BASE-TX, RJ45 connector
Hard drive	60 GB minimum, internal 2.5 in., 9.5 mm Serial ATA 1.0 interface
Video	Intel Extreme Graphics controller
Serial	1 (RS232)
Parallel	IEEE 1284 Type C miniature connector (adapter cable not included)
Hi-Speed USB	4

Power Requirements

Voltage (V)	Current (A)	
	Typical	Maximum
+3.3 V	2.5 A	3.25 A
+5 V	3.5 A	5.5 A
+12 V	5 mA	5 mA
-12 V	0.0 A	0.0A

Physical

Board dimensions	4-wide 3U PXI Express module
Slot requirements	1 system slot plus 3 controller expansion slots
Compatibility	Fully compatible with PXI specification
Weight	0.94 kg (2.1 lb) typical

Environment

Maximum altitude	2,000 m (800 mbar) at 25 °C ambient temperature
Pollution degree	2

Indoor use only

Operating Environment

Ambient temperature range	5 to 50 °C in an NI PXI-1042 chassis (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2)
Relative humidity range	10 to 90%, noncondensing (tested in accordance with IEC-60068-2-56)

Storage Environment

Ambient temperature range	-40 to 65 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2)
Relative humidity range	5 to 95% noncondensing (tested in accordance with IEC-60068-2-56)

Shock and Vibration

Operating shock	30 g peak, half-sine, 11 ms pulse (tested in accordance with IEC-60068-2-27; test profile developed in accordance with MIL-PRF-28800F)
Random vibration	
Operating	5 to 500 Hz, 0.3 g_{rms} (with solid-state hard drive)
Nonoperating	5 to 500 Hz, 2.4 g_{rms} (tested in accordance with IEC-60068-2-64; nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3)

Safety and Compliance

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:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; 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.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers: At the end of their life cycle, all products must be sent to a WEEE recycling center. For more information about WEEE recycling centers and National Instruments WEEE initiatives, visit **ni.com/environment/weee.htm**.

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We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit **ni.com/ssp**.

Hardware Services

NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with **ni.com/pxiadvisor**.

Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit **ni.com/calibration**.

Repair and Extended Warranty

NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit **ni.com/services**.

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351554A-01 2007-9218-501-101-D

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