

Celeron-based Embedded Controllers for PXI

New

NI PXI-8184, NI PXI-8185

- 1.2 GHz Celeron processor, maximum
- 512 MB SDRAM, maximum
- Internal PXI trigger bus routing
- Watchdog Timer
- Integrated peripheral I/O
 - 100 BaseTX Fast Ethernet
 - Integrated Hard Drive
 - USB
 - RS-232 Serial
 - IEEE 1284 ECP/EPP Parallel Port

Software

- Operating system and drivers pre-installed
- Hard-drive based recovery image

PXI System Configuration

- Complete PXI system configuration at ni.com/pxiadvisor



Overview

The National Instruments PXI-8184 and PXI-8185 are Celeron-based embedded controllers for use in any PXI or CompactPCI system. Either controller in a PXI chassis offers a compact, high-performance PC platform for modular instrumentation, useful in a wide range of applications. With its rugged, industrial packaging, PXI is ideally suited for deployment in harsh environments. Additionally, with the low cost of the NI PXI-8184 and NI PXI-8185, they are ideal for deployment of multiple run-time PXI systems.

	PXI-8185	PXI-8184
CPU	1.2 GHz Intel Celeron	850 MHz Intel Celeron
On-die cache	256 KB	128 KB
RAM, standard	256 MB	128 MB
RAM, maximum	512 MB	512 MB
Hard drive	30 GB, minimum	30 GB, minimum
10/100BaseTX Ethernet	√ ¹	√ ¹
GPiB (IEEE 488.2) interface ¹	-	-
Serial ports	2	1
Parallel port	√	√
USB ports	2 (USB 1.1)	2 (USB 1.1)
PS/2 Keyboard/mouse connector	√	√
PXI trigger bus input/output	√	√
Operating system	Windows XP/2000 ²	Windows XP/2000 ²

¹Add Gigabit Ethernet and GPiB with the NI PXI-8232 combination Gigabit Ethernet and GPiB module ²Contact National Instruments or visit ni.com/pxiadvisor for information on other operating systems

Table 1. NI PXI-8184/5 Embedded Controller Features

Hardware

With state-of-the-art packaging, the PXI-8184/5 embedded controllers integrate Celeron processors and many standard and extended PC peripherals into a single unit, preserving active PXI slots for measurement modules. This rugged one-piece controller design minimizes integration issues and eliminates the need for complex cabling to peripheral daughter-boards. Figure 1 is a block diagram of the PXI-8184/5 embedded controllers.

Standard and Extended I/O

In addition to standard I/O including 10/100BaseTX Ethernet, keyboard, video, and mouse, PXI-8184/5 controllers include extensive extended I/O for easy connectivity to instruments or other peripherals. Use the two USB ports for connection to a CD drive for easy software installation, or other standard PC peripherals such as USB speakers, printers, or memory sticks. Use the IEEE 1284 ECP/EPP parallel port to connect to a wide variety of devices, such as tape backup drives, printers, and scanners. RS-232 ports are available for connecting to serial devices.

Trigger Input/Output and Watchdog

The PXI-8184 and PXI-8185 include an external SMB connection for use as a trigger input, output, or watchdog timer. Use the external SMB to pass trigger and timing signals into and out of the PXI trigger bus in your PXI system.

Video

PXI-8184/5 controllers use Intel's Dynamic Memory Video Technology (DMVT). Using DMVT, you can achieve optimum graphics and memory performance through Direct AGP and highly efficient memory. This Super VGA delivers up to 11 MB of SDRAM when used with polygon intensive applications, and offers resolutions of 1280 by 1024 at 24-bit color and 1600 by 1200 at 256 colors.

Memory

The PXI-8184 and PXI-8185 each have a single socket for SDRAM. The PXI-8184 comes with 128 MB of SDRAM, providing a low-cost controller ideal for deployment for run-time systems. The PXI-8185 controller comes with 256 MB SDRAM. Both the PXI-8184 and PXI-8185 are upgradable to 512 MB SDRAM.

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Software

PXI-8184/5 controllers come with the following minimum set of software already installed:

- Microsoft Windows XP Professional operating system (contact National Instruments or visit ni.com/pxiadvisor for other operating system availability)
- Integrated hard-drive based recovery tools
- NI-DAQ, NI-VISA, and NI-488 drivers
- Drivers for all built-in peripherals (Table 1)

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

USB Peripherals

National Instruments offers external USB CD and USB floppy drives for use with your PXI embedded controller (see Figure 3). Using the USB interface, connect these drives to your embedded controller for easy software installation and upgrades. Both are completely powered through the USB port, 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 Ports

National Instruments offers numerous plug-in modules to add additional peripherals and ports to your PXI system. With the wide variety of PXI peripheral devices available, you can choose modules that add communication with Gigabit Ethernet, SCSI, and Serial ports. Modules are also available for controlling other PXI or VXI/VME systems.

For additional peripheral modules, please visit ni.com/pxiadvisor

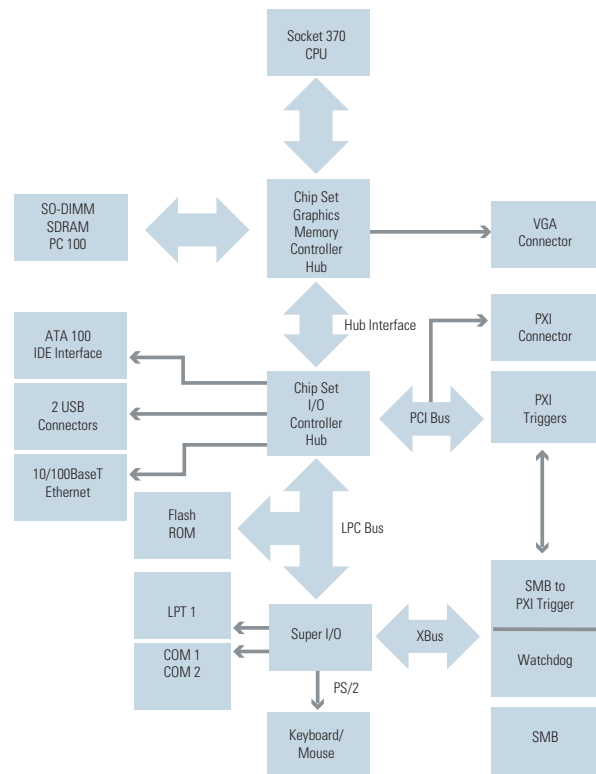


Figure 1. PXI-8184 and PXI-8185 Block Diagram

Ordering Information

For complete options for configuring your PXI controller and/or complete PXI system online, visit ni.com/pxiadvisor. For system configurations including installed software, chassis, modules,

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

NI PXI-8185 1.2 GHz Celeron with	
Windows XP (English)	778825-01
Windows 2000 (English)	778825-02
Localized Operating System*	778825-00
NI PXI-8174 850 MHz Celeron with	
Windows XP (English)	778824-01
Windows 2000 (English)	778824-02
Localized Operating System*	778824-00

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

Step 2. Memory Upgrades – select the amount of upgrade memory.

512 MB SDRAM for PXI-8184, PXI-8185	778469-512
256 MB SDRAM for PXI-8184	778469-256

Step 3. Accessories²

USB CD drive	778492-01
USB floppy drive	778492-02
Spare PS2 to keyboard/mouse adapter cable	778713-01
Parallel port adapter cable (6 in.)	777169-01
PXI-8232 GPIB/Gigabit Ethernet interface module	778658-01

²Contact National Instruments or visit ni.com/pxiadvisor for additional accessories and modules.

BUY ONLINE!

Visit ni.com/info and enter ni8185, ni8184.

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Specifications (Continued)

Complies with PXI Specification and CompactPCI, PICMG 2.0. Supports bus-mastering in all PXI/CompactPCI slots

Processor

PXI-8185 1.2 GHz Intel Celeron
 PXI-8184 850 MHz Intel Celeron

Physical

Number of slots required

PXI-8185 1 system slot, 3 controller expansion slots (to the left of the system slot)
 PXI-8184 1 system slot, 2 controller expansion slots (to the left of the system slot)

Dimensions

PXI-8185 8.1 x 13 x 21.6 cm (3.2 x 5.1 x 8.5 in.), 3U
 PXI-8184 6.1 x 13 x 21.6 cm (2.4 x 5.1 x 8.5 in.), 3U

Weight

PXI-8185 1.02 kg (2.26 lb)
 PXI-8184 0.64 kg (1.14 lb)

Peripherals

Ethernet 10/100BaseTX, RJ-45 connector
 Video SuperVGA, 11 MB DRAM, maximum (Dynamic Video Memory Technology. Handles resolutions of 1280 by 1024 at 24-bit color and 1600 by 1200 at 256 colors)

Serial Ports
 PXI-8185 2 RS-232
 PXI-8184 1 RS-232

Parallel port IEEE 1284, Type C Connector
 USB 2 x USB 1.1
 Keyboard/mouse 1 PS/2 connector
 2 port PS/2 adapter cable included

Hard drive 30 GB minimum, internal 2.5 in., 9.5 mm, Fast Ultra ATA100 Interface

RAM
 PXI-8184 128 MB standard, 512 MB maximum, 7.5 ns SDRAM, 1 SO-DIMM socket
 PXI-8185 256 MB standard, 512 MB maximum, 7.5 ns SDRAM, 1 SO-DIMM socket

Voltage (V)	Current (A)			
	PXI-8185		PXI-8184	
	Typical	Maximum	Typical	Maximum
3.3	3.0	4.0	3.0	4.0
5	3.5	5.0	4.5	6.0
12	0.01	0.04	0.01	0.04
-12	0	0	0	0

Mean Time Between Failures (MTBF)

PXI-8185 180,000 h
 PXI-8184 226,000 h

Operating Environment

Ambient Temperature

Chassis	NI PXI-8184	NI PXI-8185
PXI-1000B	5 to 50 °C	5 to 50 °C
PXI-1002	5 to 40 °C	5 to 40 °C
PXI-1006	5 to 50 °C	5 to 50 °C
PXI-1010	5 to 35 °C	5 to 35 °C
PXI-1011	5 to 50 °C	5 to 50 °C
PXI-1042	5 to 50 °C	5 to 50 °C
PXI-1045	5 to 55 °C	5 to 55 °C

Meets IEC-60068-2-1 and IEC-60082-2-2

Relative humidity 10 to 90%, noncondensing (Meets IEC-60068-2-56)
 Altitude 2000 m (at 25 °C ambient temperature)

Storage Environment

Temperature -20 to 65 °C (Meets IEC-60068-2-1 and IEC-60068-2-2)
 Relative humidity 5 to 95% noncondensing (Meets IEC-60068-2-56)

Shock and Vibration

Operational 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 grms (with solid-state hard drive)
 Nonoperating 5 to 500 Hz, 2.4 grms (Tested in accordance with IEC-60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Safety Compliance

EN 61010-1, IEC 61010-1

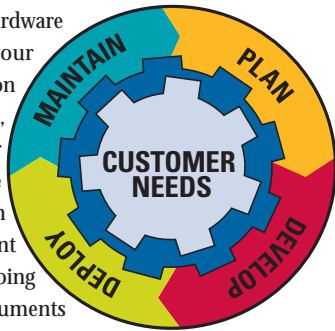
Note: For full EMC compliance, you must operate this device with shielded cabling. In addition, all covers and filler panels must be installed. Refer to the Declaration of Conformity (DoC) for this product for additional regulatory compliance information. To obtain the DoC for this product, click Declaration of Conformity at ni.com/hardref.nsf/. This web site lists the DoCs by product family. Select the appropriate product family, followed by your product, and a link to the DoC appears in Adobe Acrobat format. Click on the Acrobat icon to download or read the DoC.

*specifications subject to change without notice.

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