Rack-Mount 1U 2.4 GHz Dual-/Quad-Core Controllers for PXI and PXI Express

NI 8352, NI 8353 *NEW!*

- Intel Core 2 Duo processor (2.4 GHz dual-core) for NI 8352 and Intel Core 2 Quad processor (2.4 GHz quad-core) for NI 8353
- 1 GB (2 x 512 MB SDRAM) dual-channel 667 MHz DDR2 RAM standard, 4 GB (4 x 1 GB SDRAMs) maximum
- Standard RAID 0 hard-drive configuration for Windows-based controllers
- High-performance server architecture
- Unpopulated expansion slots
- Dual onboard gigabit Ethernet
- Optimized for installation in 1U height in a 19 in. rack
- Universal AC power supply

Software

- OS and drivers already installed
- Hard-drive-based recovery image for Windows-based systems

PXI System Configuration

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

Overview

The NI 8352 and NI 8353 are high-performance, Intel Core 2 Duo/Core 2 Quad processor-based, server-class controllers for use in PXI or PXI Express systems. In addition to high computing performance, these controllers provide high sustainable I/O bandwidth when bundled with an NI MXI-Express kit. With standard RAID 0 configured hard drives for Windows-based systems, these controllers are ideal for high-end test and measurement applications.

Features	NI 8352	NI 8353	NI 8353 RT
Processor	Intel Core 2 Duo (2.4 GHz)	Intel Core 2 Quad (2.4 GHz)	
CPU cores	2	4	
Front-side bus	1066 MHz	1066 MHz	
L2 cache	4 MB	8 MB	
Memory			
Standard	1 GB (2 x 512 MB), DDR2 SDRAM, 667 MHz	1 GB (2 x 512 MB), DDR2 SDRAM, 667 MHz	
Maximum	4 GB (4 x 1 GB), DDR2 SDRAM, 667 MHz	4 GB (4 x 1 GB), DDR2 SDRAM, 667 MHz	
Hard drive			
Standard	2 x 250 GB SATA II (RAID 0)	4 x 250 GB SATA II (RAID 0)	250 GB SATA II (No RAID)
Maximum	4 x 250 GB SATA II (RAID 0)	4 x 250 GB SATA II (RAID 0)	250 GB SATA II (No RAID)
Gigabit Ethernet ports	2	2	
Hi-Speed USB ports	4	4	
PS/2 ports	2	2	
Disk drive	DVD-ROM	DVD-ROM	
Video	VGA, ATI ES 1000, 16	VGA, ATI ES 1000, 16	
Expansion slot[1]	1 (configured as x8 PCI Express or PCI 32-bit)	1 (configured as x8 PCI Express or PCI 32-bit)	
Rack-mount rails	✓	✓	
Installed OS[2]	Windows XP	Windows XP	LabVIEW Real-Time

[1]Risers for x8 PCI Express and 32-bit PCI are included with the controller. You can use only one of them at a time to connect a MXI-Express or MXI-4 remote control card.
[2]Contact National Instruments or visit **ni.com/pxiadvisor** for information on other available operating systems.

NI 8352 and NI 8353 Features

NI 8352 Shipping Components

- NI 8352 controller
- All peripherals listed in table
- Two risers for x8 PCI Express and 32-bit PCI expansion cards (no MXI remote control boards installed)
- 19 in. rack-mount slide rails

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Multicore Processor

NI 8352 and NI 8353 rack-mount controllers include the dual-core Intel Core 2 Duo and quad-core Intel Core 2 Quad processors, respectively. Multicore processors contain two or more cores, or computing engines, in one physical package. These processors can simultaneously execute multiple computing tasks, which is advantageous in multitasking environments such as Windows XP, where several applications run simultaneously. Two applications, such as NI LabVIEW and Microsoft Excel, can each execute on a separate core at the same time, which improves the overall system performance. Multithreaded applications, such as LabVIEW, take full advantage of multicore processors as they automatically separate their tasks into independent threads. A multicore processor can simultaneously execute these threads.

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Deterministic Performance with Real-Time OS and NI 8353 RT

National Instruments offers a version of the NI 8353 rack-mount controller, called the NI 8353 RT, that works with the LabVIEW Real-Time operating system. With this development platform, you can build real-time measurement and control applications with high determinism. You develop your LabVIEW application with the LabVIEW Real-Time Module on Windows and download the program to your NI 8353 RT real-time controller via Ethernet. The embedded code executes on a real-time OS, so you can use powerful and flexible LabVIEW development tools to build reliable, real-time solutions.

RAID Configurations

Redundant array of independent disk (RAID) data storage schemes divide and/or replicate data among multiple hard drives. They are used to provide increased data reliability and/or increased I/O performance. The NI 8352 and NI 8353 (Windows version) support both RAID 0 (stripped) and RAID 1 (mirrored) configurations with multiple SATA II hard drives. A RAID 0 configuration increases the rate at which a computer can write data to and read data from disk by evenly distributing data among multiple hard drives. This is beneficial in applications that require high-speed data streaming to/from disk. The NI 8352 and NI 8353 are available with factory-configured RAID 0 configurations. Refer to the table for information on hard-drive configurations for these controllers.

Connectivity to PXI or PXI Express Systems

The NI 8352 and NI 8353 have an empty expansion slot that can be configured either as a x8 PCI Express slot or a 32-bit PCI slot. You can populate this slot with a MXI-Express or MXI-4 card to create a software-transparent link, which requires no programming, to a PXI or PXI Express chassis. Refer to the PXI advisor for all possible configurations at **ni.com/pxiadvisor**.

Applications and Acoustic Noise

The NI 8352 and NI 8353 are designed to maximize performance in automated and manufacturing test applications. They are optimized purely for performance, and, like other server-class computers, use high-speed cooling fans, which are relatively noisy.

Memory Options

The NI 8352 and NI 8353 have four DIMM sockets (dual-channel) for high-bandwidth DDR2 SDRAM. The following memory options are available for both of these controllers:

- 1 GB standard (2 x 512 MB DIMMs, two sockets empty)
- 2 GB upgrade – 3 GB total (2 x 512 MB and 2 x 1 GB DIMMs)
- 4 GB upgrade – 4 GB total (4 x 1 GB DIMMs)

Ordering Information

Step 1: Select Controller

NI 8352 (dual-core)
- Standard (2 x 250 GB SATA II RAID 0) 780061-01
- Optional (4 x 250 GB SATA II RAID 0) 780061-02

NI 8353 (quad-core)
- Standard (4 x 250 GB SATA II RAID 0) 780062-02

NI 8353 RT (real-time)
- Standard (250 GB SATA II) 780062-33

Step 2: Select Optional Memory Upgrade

2 GB upgrade – 3 GB total (2 x 512 MB, 2 x 1 GB) 780061-2048
4 GB upgrade – 4 GB total (4 x 1 GB) 780061-4096

Step 3: Select Control of PXI/PXI Express Systems[1]

MXI-Express for PXI Express
- x4, 832 MB/s BW, 2 ports 779722-03
- x4, 798 MB/s BW, 1 port 779721-03
- x1, 208 MB/s BW, 2 ports 779702-03
- x1, 192 MB/s BW, 1 port 779701-03

MXI-Express for PXI
- 110 MB/s BW, 2 ports 779503-03
- 110 MB/s BW, 1 port 779505-03

MXI-4 for PXI
- 78 MB/s BW, copper 778640-03
- 78 MB/s BW, fiber 778641-10

Step 4. Select Additional Power Cords[2]

North American 240 VAC 763068-01
Japanese 100 VAC 763634-01
United Kingdom 240 VAC 763064-01
Swiss 220 VAC 763065-01
Australian 240 VAC 763066-01
Universal Euro 240 VAC 763067-01

Step 4. Select Additional Accessories

USB English Keyboard and Optical Mouse 779660-01
Flat Panel Monitor with VGA Input 779559-01
Flat Panel Touch Screen with VGA Input and USB 779560-01
NI GPIB-USB-HS IEEE 488 Controller 778927-01

[1]For additional configuration options, including MXI-Express cable length and other available operating systems, contact National Instruments or visit **ni.com/pxiadvisor**.

[2]U.S. 120 VAC power cord included.

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.

Electrical

AC Input

Input voltage range	100 to 240 VAC
Operating voltage range	90 to 264 VAC
Input frequency	50/60 Hz
Operating frequency range	47 to 63 Hz
Input current rating	5 A max
Power disconnect	The AC power cable provides main power disconnect. Depressing the front panel power switch enables or inhibits the internal power supply.

Mainboard

Socket	LGA 775
Chipset	Intel 3000 chipset, supports 533/800/1066 MHz FSB, 8 GB dual-channel DDR2 memory
Memory slots	4 240-pin DIMM slots, 2 per channel
PCI/PCI Express	1 PCI Express x8 slot or 1 PCI 32-bit slot (both risers included)
SATA	4 (compliant with the Serial ATA 2.0 specification; maximum data rate of 300 MB/s)
IDE	1 primary connector and 1 CompactFlash card connector (if the CompactFlash card connector is populated, the primary connector is available for 1 device only; otherwise, the primary connector can connect multiple devices)
Hi-Speed USB	4 ports
Keyboard	1 PS/2 port
Mouse	1 PS/2 port
Video	1 VGA port, onboard ATI ES 1000 with 16 MB SDRAM
Serial	1 (RS232) port
LAN	2 RJ45 jacks
Onboard LAN	1 Intel 82573V/L gigabit Ethernet controller

CPU

CPU	Intel Core 2 Duo (NI 8352)/ Core 2 Quad (NI 8353)
Clock speed	2.40 GHz
Front side bus speed	1066 MHz
L2 cache	4/8 MB

Hard Disk Drive

Capacity	250 GB in 1-, 2-, or 4-drive configurations for maximum capacity of 1 TB
Interface	Serial ATA

Memory

Standard	2 x 512 MB (32 M x 64 bits), DDR2 SDRAM, ECC 667 MHz, unbuffered, 240-pin DIMMs
2 GB upgrade	Standard memory plus 2 x 1 GB (128 M x 64 bits), DDR2 SDRAM, ECC 533 MHz, unbuffered, 240-pin DIMMs
4 GB upgrade	4 x 1 GB (128 M x 64 bits), DDR2 SDRAM, ECC 667 MHz, unbuffered, 240-pin DIMMs

Mechanical

Overall dimensions (standard chassis)	
Height	43 mm (1.70 in.)
Width	437 mm (17.2 in.)
Depth	503 mm (19.8 in.)
Weight	8.6 kg (19.0 lb)

Environmental

Operating temperature	
NI 8352	5 to 40 °C
NI 8353	5 to 35 °C
Storage temperature	-10 to 60 °C
Relative humidity	
Operating	10 to 90% noncondensing
Nonoperating (storage)	5 to 95% nonconducting
Operating location	Indoor use
Altitude	2,000 m
Installation category	II
Pollution degree	2

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**.

NI Services and Support

NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit **ni.com/services**.

Training and Certification

NI training is the fastest, most certain route to productivity with our products. NI training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We schedule instructor-led courses in cities worldwide, or we can hold a course at your facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using NI products. Visit **ni.com/training**.

Professional Services

Our NI Professional Services team is composed of NI applications and systems engineers and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and integrators. Services range from start-up assistance to turnkey system integration. Visit **ni.com/alliance**.

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OEM Support

We offer design-in consulting and product integration assistance if you want to use our products for OEM applications. For information about special pricing and services for OEM customers, visit **ni.com/oem**.

Local Sales and Technical Support

In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. NI delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to 14,000 measurement and automation professionals within NI Developer Exchange forums. Find immediate answers to your questions at **ni.com/support**.

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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