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Find the *National Instruments NI 8260* at our website: ***Click HERE***

PXI Express In-Chassis Data Streaming Module

NI 8260 *NEW!*

- 3-slot 3U PXI Express module
- x4 PCI Express interface
- Solid-state drive option available

Hard-Disk Drive

- Four 250 GB 2.5 in. SATA II hard drives
- 1 TB total storage
- 200 MB/s read and write (sustainable for 800 GB)

Supported Configurations

- Software RAID-0
- JBOD

Operating Systems

- Windows Vista/XP



Overview

The NI 8260 is a x4 PXI Express/CompactPCI high-speed data storage module for use in PXI Express systems. It contains four 2.5 in. SATA drives and offers the option between hard-disk drives (HDDs) for extended storage space or solid-state drives (SSDs) for increased ruggedness.

The module provides a compact and portable data storage option that suits a variety of applications such as the following:

- Signal record and playback
- Field data acquisition
- Extended data storage

Hardware

The NI 8260 is a compact, 3U, PXI Express/CompactPCI data storage module that uses only three slots of the PXI Express chassis. This module requires a PXI Express peripheral slot and two consecutive slots. The NI 8260 in this small form factor consists of four 2.5 in. laptop serial ATA (SATA) II drives. With the HDD option, it contains four 250 GB drives featuring a total of 1 TB of data storage space. It is capable of sustaining read and write rates at 200 MB/s for up to 800 GB of the total storage space. Because of these features, the module provides high-speed data storage for applications that require a portable high-speed data streaming solution.

Software

The NI 8260 offers two options for configuration, software RAID-0 and JBOD (Just a Bunch of Disks). RAID-0, also referred to as striped, distributes the data across the four disks without redundancy, providing high data throughput and maximum storage capacity. RAID-0 delivers the highest performance for streaming data to and from disk as it distributes data evenly across a set of hard drives. Because this configuration does not implement redundancy, it is not tolerant to drive failure. JBOD, often referred to as spanned, links all four drives together to create one disk space. In this configuration, the data fills the first drive and continues through each consecutive drive. JBOD also does not implement redundancy and is not tolerant to drive failure. These configurations for the NI 8260 are implemented through the Windows OS.



A PXI Express Chassis with an NI 8260 High-Speed Data Storage Module

Theory of Operation

After installing the provided driver software, you can configure the NI 8260 hard drive in either JBOD or RAID-0 using the Windows Disk Management utility. With this utility, you assign the NI 8260 a logical drive letter that you can easily access from the application software. Once you have configured the NI 8260, you have access similar to a standard hard drive in Windows – you can programmatically access the module using standard file I/O application programming interfaces (APIs) in development environments.

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Streaming Performance

RAID-0 provides the highest standard Redundant Array of Independent Disks (RAID) performance for streaming data to and from disk because data is evenly distributed among all of the hard drives in the array. However, the streaming performance of an HDD array is not consistent across the entire storage capacity because of its mechanical components. The performance is highest at the outer rim of the drives and decreases as the drive heads approach the inner rims. Thus, using standard RAID configurations, the same level of streaming performance is not possible across the entire RAID volume. The NI 8260, configured as RAID-0, can sustain reading and writing at 200 MB/s for 800 GB when using HDDs.

When using the SSD option, you achieve a better deterministic and constant performance across the entire disk due to the lack of mechanical parts. In many cases, you also see an improved data transfer rate. It is important to consider which drive is the most appropriate for the streaming application based on factors such as data transfer rates, the frequency of writing to disk, and the environment that you are storing data to and from disk.

Important Facts When Considering the Solid-State Option

With the SSD, it is important to consider the different types of solid-state device designs that are commonly available. These are the single-level cell (SLC) and the multilevel cell (MLC) designs. Consider a cell as a low-level electronic storage component. An SLC-based SSD stores one bit of data in each cell, leading to faster transfer speeds, lower power consumption, and higher cell endurance. An MLC-based SSD stores three or more bits in each cell. By storing more bits per cell, this type of SSD exhibits slower transfer speeds, higher power consumption, and lower cell endurance than an SLC device but offers higher capacity. SLC-based SSDs also offer longer life compared to MLC-based SSDs.

When determining whether SSD is the appropriate data storage option, keep in mind that there is a limited number of program/erase cycles for a logic cell. A logic cell used in an MLC drive wears out after approximately 5,000 program/write cycles, whereas a logic cell used in an SLC drive wears out after approximately 100,000 program/write cycles. National Instruments provides the SLC-based SSD option to ensure the reliability and life span of the drive for customer applications. For high-speed data streaming applications, it is important to know the amount of data and how frequently it is written to disk when choosing the appropriate storage solution.

Ordering Information

NI 8260, 4-drive, 1 TB HDD (4 x 250 GB HDD)
high-speed data storage module.....780980-01
250 GB 2.5 in. SATA spare hard drive.....781070-01

BUY NOW

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

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Specifications

Specifications subject to change without prior notice.

Features

SATA chipset	Marvel 88SX7042
Hard-disk drive capacity	250 GB in four-drive configurations
Hard-disk drive interface	Serial ATA
Supported configurations	Software RAID-0 and JBOD

Physical

Board dimensions	3-slot 3U PXI Express module, 6 by 13 by 21.6 cm (2.4 by 5.1 by 8.5 in.)
Slot requirements	1 PXI Express module slot plus 2 module expansion slots
Compatibility	CompactPCI Express spec component
Weight	
250 GB × 4 HDDs	770 g
32 GB × 4 SSDs	601 g

Environment

Maximum altitude	2,000 m (800 mbar)
Pollution degree	2

Indoor use only.

Operating Environment

Ambient temperature range	5 to 50 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2; meets MIL-PRF-28800F Class 3 high temperature limit)
Relative humidity range	10 to 90% noncondensing (tested in accordance with IEC-60068-2-56)

Storage Environment

Ambient temperature range	-40 to 71 °C (tested in accordance with IEC-60068-2-1 and IEC-60068-2-2; meets MIL-PRF-28800F Class 3 limits)
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 Compliance

- IEC 61010-1, EN 61010-1
- UL 61010-01, CSA 61010-1

Electromagnetic Compatibility

- EN 61326 (IEC 61326): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

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

CE Compliance

This product meets the essential requirements of applicable European Directives 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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Hardware Services

System Assurance Programs

NI system assurance programs are designed to make it even easier for you to own an NI system. These programs include configuration and deployment services for your NI PXI, CompactRIO, or Compact FieldPoint system. The NI Basic System Assurance Program provides a simple integration test and ensures that your system is delivered completely assembled in one box. When you configure your system with the NI Standard System Assurance Program, you can select from available NI system driver sets and application development environments to create customized, reorderable software configurations. Your system arrives fully assembled and tested in one box with your software preinstalled. When you order your system with the standard program, you also receive system-specific documentation including a bill of materials, an integration test report, a recommended maintenance plan, and frequently asked question documents. Finally, the standard program reduces the total cost of owning an NI system by providing three years of warranty coverage and calibration service. Use the online product advisors at **ni.com/advisor** to find a system assurance program to meet your needs.

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

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