



NDS-3160



New SAS 2.0 based SBB implemented 3U x 16 HDD enclosure features blazing performance for demanding storage technology environments.

Robust Cost-effective Storage Head/Expansion

Data storage capacity continues to expand. Today's business environment requires simple, easy ways to grow capacity without sacrificing performance and scalability. The Newisys® NDS-3160 SAS/SATA 3.5" hard disk drive (HDD) Storage Head/Expansion array enables scalable capacity and performance, with linkage via standard serial attached SCSI (SAS 2.0) protocol for intense data streaming applications.

The NDS-3160 Storage Expansion offers best-in-class performance supporting 6Gb/sec SAS 2.0 host and SAS/SATA HDD connections, "green" energy efficiency and 24x7 high-availability redundancies of key components. The Newisys NDS-3160 is a perfect JBOD expansion companion for other products such as the Newisys NDS-8250 Storage Server Appliance and Newisys NDS-3160 ABOD/RBOD storage head with Original Equipment Manufacturer (OEM) Storage Bridge Bay (SBB) implemented ABOD/RBOD controllers, or any other SAS-compliant host/expansion port.

Partner with Newisys

Partnering with Newisys not only means accelerated time-to-market for storage products, but also the proven strength of our reliability and performance. Customers are backed by an industry-leading design team and a world-class Electronics Manufacturing Services (EMS) organization. Newisys supports Storage Bridge Bay Working Group (SBBWG) specifications in addition to our own Flexible Storage Architecture (FSA). All of this provides block-based modular designs with configuration flexibility that can become the foundation of your storage solutions and accelerate your time-to-market.



NDS-3160-JD Back Panel



Product Highlights

- Full-featured robust 6Gb/sec high-performance SAS 2.0 and SBB implemented storage enclosure
- Operation with either single I/O controller or dual I/O controller for redundant failover
- Multiple Drive partitioning/split-bus zoning modes
- Sold with Newisys JBOD SAS 2.0 I/O controllers or as an Open Bay model to support OEM ABOD/RBOD controllers in an SBB implemented canister
- Hot-pluggable I/O controller(s) and dual redundant high efficiency advanced power/cooling (APC) modules
- Redundant system cooling blowers per APC that are powered by either APC module
- Two SFF-8088 6Gb/sec SAS 2.0 host and expansion connections support up to 2,400MB/sec bandwidth each
- Flexibility to choose SAS or SATA drives to achieve the right performance, reliability and price
- Modular design increases product configuration flexibility
- Standard chassis customization and branding available
- SAS Point-to-point connectivity isolates drive failures, increasing reliability and fault tolerance, and improving performance
- SAS daisy-chain expansion to additional NDS-3160 storage arrays and other SFF-8088 SAS compliant host/expansion ports

I/O Controller Models & Features

- NDS-3160-JS Model:
 - Single 6Gb/sec SAS JBOD I/O controller module with support for storage expansion enclosures
- NDS-3160-JD Model:
 - Dual active, redundant 6Gb/sec SAS 2.0 JBOD I/O modules, each with support for storage expansion enclosures
- NDS-3160-RX Model:
 - Open bay for support of single or dual redundant 6Gbps SBB 2.0 compliant OEM ABOD/RBOD controller modules for our SBB implementation
- Auto-negotiate data path speeds
- In-band management
- Redundant cable support
- Two 6Gb/s SAS 2.0 host and expansion (SFF-8088) connects support up to 2,400 MB/sec bandwidth each

Host Expansion/Interfaces

- One or two Newisys SAS 2.0 JBOD I/O controller modules per system, with each I/O module supporting two 6Gb/sec SAS 2.0 SFF-8088 connections
 - 6Gb/sec SAS 2.0 SFF-8088 connections can be used for host connections or as a combination of host connection and expansion and support up to 2,400MB/sec bandwidth
 - Up to 7 systems can be daisy chained together, for up to 224TB (using 2TB SAS/SATA HDDs)

Performance

- Up to 2,400 MB/s (sustained reads) using 6Gbps disk drives/SFF-8088 host connections
- Up to 1,200 MB/s (sustained reads) using 3Gbps disk drives/SFF-8088 host connections

Capacity

- Up to 16 drives or 32TB capacity per 3U enclosure (using 2TB HDDs)

Firmware

- SCSI Enclosure Services (SES) 2.0 based firmware

I/O Controller Module Canister

- JBOD/RBOD/ABOD SBB design-partner design-in guide available

Quality Standards

- Manufactured under an ISO 9002 registered quality system

About Newisys

Newisys, founded in 2000, provides leading-edge data center products including disk-based RAID storage/server appliance platforms and JBOD expansion enclosures, racks and other full solution items targeted for the robust data center environment. Newisys solutions are tailored for integration into Original Equipment Manufacturer (OEM), System Integrator and Internet Data Center partners' products. A Newisys partnership provides the highest-level quality design and products synchronized with one of the world's most advanced and comprehensive manufacturing infrastructures and supply chains. For more information, visit <http://www.newisys.com>.

Drive Partitioning/Split-Bus Zoning

- Single Newisys SAS 2.0 JBOD I/O controller module can be zoned as 1x16 or 2x8 via F/W control
- Dual Newisys SAS 2.0 JBOD I/O controller modules can be zoned as 1x16, 2x8 or 4x4 via F/W control
 - 1x16 and 2x8 can be redundant, 4x4 zoning option with dual I/O controller modules preclude any additional enclosure expansion daisy chaining

3U Rackmount Enclosure

- Dimensions: 5.2 in. H x 17.6 in. W x 19.9 in. D (13.1 cm H x 44.7 cm W x 50.4 cm D)
- Weight with drives: 70.4 lbs (31.9 kg) max
- Standard Rackmount Rail Kit Adjustable Depth: 23.0 in. to 32.5 in. (58.4 cm to 82.6 cm)

Disk Drives

- 16 independent 600MB/s point-to-point connections to each SAS or SATA disk drive with dual-port access and failover by each I/O controller to each drive (SATA drive requires optional 2:1 Active MUX)
- Common universal drive carrier/blank (dual-purpose) assembly for NDS-3160 and NDS-8250
- Form factor: 3.5" SAS and SATA drives
- Rotational speed: 7200 RPM, 10K RPM and 15K RPM
- Interface: 6Gb/3Gb SAS; 6Gb/3Gb/1.5Gb SATA

AC Power

- Input voltage: Auto ranging, 88-264V AC
- Input frequency: 47-63Hz
- Power factor correction: Per EN61000-3-2
- Input current
 - JS, JD & UX Models: 2.50 Amps max @ 240VAC
- Maximum system continuous DC output power rating
 - JS, JD and UX Models: 550W

Redundant Hot-swappable Components

- Up to two SAS 2.0 JBOD or OEM ABOD/RBOD I/O controller modules
- Two advanced power and cooling modules (APC)
- Two independent AC power inlets
- Up to 16 drives

Maximum External Cable Lengths (customer supplied)

- 6Gb/sec or 3Gb/sec SAS: up to 6m

Operating Environment

- Temperature: 5° to 35°C
- Temperature gradient: 20°C per hour
- Relative humidity: 10 to 80 percent (non-condensing)
- Humidity gradient: 10% per hour
- Altitude: -200 to 10,000 ft.
- Shock: 5G at 11ms, 1/2 sine wave pulse
- Vibration: 0.15G at 5Hz to 500Hz
- Acoustics: 6.5 Bels at normal operation tested to ISO7779

Non-Operating Environment

- Temperature: -40° to 70°C
- Relative humidity: 5% to 95% (non-condensing)
- Altitude: -200 to 40,000 ft.
- Shock: 10G at 11ms, 1/2 sine wave pulse
- Vibration: 0.5G at 5Hz to 500Hz

Electromagnetic Emissions and Immunity Standards

- CE Mark, EN55022/EN61000 Class A
- FCC Class A, Canadian ICES-003
- VCCI Class A

Safety Standards

- UL 60950, CSA 22.2-950
- IEC 60950, EN 60950

Environmental Protection

- RoHS and WEEE compliant

Failure Notifications

- SCSI Enclosure Services (SES-2) over in-band interface and via LEDs

Monitoring

- Monitoring for temperature, advanced power and cooling modules including blower speed control, disk drives and I/O module(s), as well as error rates and quality of service
- In-band reporting of all serial number, part number and revisions of each FRU and chassis



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