



PRODUCT BRIEF | High Density 12 Gb/s LFF HDD Storage Server

# NSS-4602

## Performance-oriented Enterprise Class High Density Storage Enclosure

Data storage capacity continues to expand, increasing the need for enterprise class high density storage enclosures. Today's business environment requires simple, easy ways to grow capacity as well as providing performance and scalability on demand. The Viking Enterprise Solutions (VES) NSS-4602 High Density Storage Enclosure enables 3.5" or 2.5" SAS/SATA hard disk drive (HDD) and solid state disk (SSD) device connections in a mixed environment. Target device communication and management is enabled via standard serial attached SCSI (SAS 3.0) protocol with enclosure services linked via SES firmware. The enclosure can be configured as a JBOD or NAS.

The VES NSS-4602 Storage Enclosure offers best-in-class performance and capacity, space-saving density, "green" energy efficiency and 24x7 high-availability redundancy of key components.

The NSS-4602 fits into an industry standard 19" rack / 1 meter rack. Its flexible configuration allows it to be deployed in a variety of applications.

## FEATURES

- ▶ Full-featured robust 12Gb/sec high-performance SAS 3.0 storage enclosure
- ▶ Operation with either single I/O controller or dual I/O controllers for redundant failover
- ▶ Multiple Drive partitioning/split-bus zoning modes
- ▶ Hot-pluggable I/O controller(s) & dual redundant high efficiency advanced supplies
- ▶ SFF-8644 12Gb/sec SAS 3.0 host & expansion ports or expansion of up to 100Gb/s network interface
- ▶ Flexibility to choose SAS or SATA drives to achieve the right performance, reliability & price
- ▶ Modular design increases product configuration flexibility
- ▶ Standard chassis customization & branding available
- ▶ SAS point-to-point connectivity isolates drive failures, increasing reliability & fault tolerance & improving performance
- ▶ SAS daisy-chain expansion to additional storage arrays & other SFF-8644 SAS compliant host/expansion ports or add-on PCIe 3.0 HBA

## VES Portfolio of Storage and Storage Server Solutions

VES offers a broad portfolio of product offerings, including:

- ▶ Leading edge performance & high availability solutions
- ▶ Leading edge cold storage & object storage solutions
- ▶ Purpose built compute & storage platforms

Working with VES provides you with an accelerated time-to-market for your server and storage product needs, and allows you to leverage our portfolio of proven product designs.

Customers are backed by an industry leading design team and a world-class Electronics Manufacturing Services organization.

Very High Density SAS 3.0 Connected Enclosure supports 60 Hard Drives in 4U. Provides exceptional performance and scalability for today's high density storage environments.



# NDS-4602

## Host/Expansion Interfaces

- ▶ One or two VES SAS 3.0 I/O controller modules per system, with each I/O module supporting 5x 12Gb/sec SAS 3.0 SFF-8644 ports
- ▶ One or two Haswell Server up to 3 PCIe 3.0 per server controller
  - ▶ 2x x8 PCIe 3.0
  - ▶ 1x x16 PCIe 3.0

## Capacity

- ▶ 60 drive capacity per 4U enclosure

## Firmware

- ▶ SCSI Enclosure Services (SES) 3.0 based firmware
- ▶ IPMI 2.0 Baseboard Management Controller

## I/O Controller Models

- ▶ NSS-4602-JS Model:
  - ▶ Single Controller 12Gb/sec SAS 3.0 JBOD I/O controller module with support for storage expansion enclosures
- ▶ NSS-4602-JD Model:
  - ▶ Dual redundant 12Gb/sec SAS 3.0 JBOD I/O modules, each with support for storage expansion enclosures
- ▶ NSS-HW2EA:
  - ▶ Dual socket E5-2600v3 with 3 PCIe expansion slot
- ▶ NSS-HW1EA:
  - ▶ Single socket E5-2600v3 with 2 PCIe expansion slot

## 4U Rackmount Enclosure

- ▶ Dimensions: 7.0 in. H x 16.6 in. W x 34 in. D (17.7 cm H x 40.1 cm W x 86.4 cm D)
- ▶ Weight with drives: 220 lbs (100 kg) max
- ▶ Standard Rackmount Rail Kit with integrated cable management

## Drive Partitioning/Split-Bus Zoning

- ▶ Controller module can be zoned in four pre-defined zoning schemes
- ▶ Additional zoning schemes can be developed upon request

## Redundant Hot-Swappable Components

- ▶ Up to two SAS 3.0 JBOD I/O controller modules or Haswell Servers
- ▶ Two AC power supplies
- ▶ Two Regulator modules to provide hard drive power
- ▶ Two independent AC power inlets
- ▶ Up to 60 Drives
- ▶ Two Supercap/Battery modules

## Failure Notifications

- ▶ SCSI Enclosure Services (SES-3.0) over in-band interface and via LEDs

## Disk Drives

- ▶ 60 independent point-to-point connections to each SAS or SATA disk drive with dual-port access & failover by each controller to each drive
- ▶ Form factor: 3.5" & 2.5" SAS, SATA & SSD drives
- ▶ Rotational speeds up to 15K RPM
- ▶ Interface: 12Gb/6Gb/3Gb SAS; 6Gb/3Gb SATA

## AC Power

- ▶ Input voltage: 180-264V AC
- ▶ Input frequency: 47-63Hz
- ▶ Input current: 20.0 Amps max @ 230VAC
- ▶ Maximum system continuous DC output power rating: 2900 Watts – Reduced power at low line voltages

## Monitoring and Reporting

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

## Performance

- ▶ Up to 48 GB/s (sustained reads) using 12 Gb/s SSD drives
- ▶ Up to 38 GB/s (sustained reads) using 6 Gb/s SSD drives & EDFB

## Operating Environment

- ▶ Temperature: 5° to 35°C
- ▶ Relative humidity: 20% to 80% (non-condensing)
- ▶ Altitude: -200 to 10,000 feet
- ▶ Shock: 5G at 11ms, 1/2 sine wave pulse
- ▶ Vibration: 0.10G at 5Hz to 500Hz
- ▶ Acoustics: TBD Bels at normal operation tested to ISO7779

## Non-Operating Environment

- ▶ Temperature: -40° to 60°C
- ▶ Relative humidity: 10% to 90% (non-condensing)
- ▶ Altitude: -200 to 40,000 feet
- ▶ Shock: 10G at 11ms, 1/2 sine wave pulse
- ▶ Vibration: 0.5G at 5Hz to 500Hz

## Electromagnetic Emissions & Immunity Standards

- ▶ CE Mark
- ▶ EN55022/EN61000 Class A
- ▶ FCC Class A
- ▶ Canadian IECs-003

## Safety Standards

- ▶ UL 60950
- ▶ CSA 22.2-950
- ▶ IEC/EN/UL/CSA 60950-1, 2<sup>nd</sup> Edition

## Quality Standards

- ▶ Manufactured under an ISO 9002 registered quality system

## Environment Protection

- ▶ RoHS & WEEE compliant

