Turnkey VDS41022
Solutions Brief

The Future of Storage Expansion

Viking Enterprise Solutions' VDS41022 JBOD enclosure is a high- density SAS-4 data storage solution that packages 102, 3.5-inch HDDs running at 12 Gb/s SAS with two active 24 Gb/s I/O modules. Providing leading-edge density, capacity and $/TB, the VDS41022 offers a reduced footprint for the largest of today's most demanding data centers.

♦ Enabler for Petabytes storage expansion
♦ SAS-4 24Gb/s, high bandwidth, high IOPS with low latency for performance demanding applications
♦ Turnkey expansion storage solutions with options for half and fully populated, 16TB, 18TB, 20TB and higher capacity HDD's
♦ The ultra, high density, 4U, 102-bay expansion storage solution, can be housed in a standard data center rack/cabinet (<1 meter)
♦ SAS-4 host connectivity expansion storage solution with 102 drives in 4U form factor
♦ 5-Year support and warranty included

Target Applications
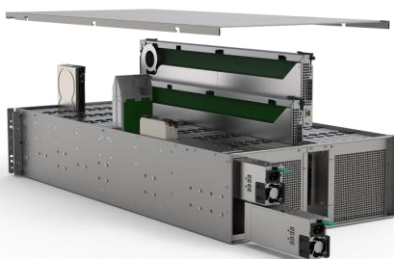
Genomic	Analytical	Enterprise IT	Video Surveillance	AI & ML	Media & Entertainment

The VDS41022 expansion enclosure was designed to enable vertical scaling of storage capacity in order to match the needs of a wide range of enterprise-grade storage applications requiring full redundancy. The VDS41022 enables the expansion of external storage in file, block and object storage format through a standard SAS-4 24Gb/s interface between the JBOD and any standard storage server. The VDS41022 provides leading-edge density, capacity, aggressively priced, and offers a reduced footprint for even the largest of today's most demanding data centers.

VDS41022 Highlights

- High availability – dual, 24Gb/s SAS-4 I/O modules for failover, fully operational even with a single I/O module
- Multiple drive partitioning/split-bus zoning modes, hot-pluggable I/O controllers, drives, regulators and fan modules
- Redundant and high efficiency advanced SFF-8674, 24 Gb/s SAS-4 expansion ports
- Modular design increases product configuration flexibility
- SAS point-to-point connectivity isolates drive failures, increasing reliability & fault tolerance, while improving performance
- SAS daisy-chain expansion to additional storage arrays & other SFF-8674 SAS compliant host/expansion ports
- Single SAS-4 I/O module configuration is available, featuring four 4-wide, 24 Gb/s mini SAS HD ports with support for 12 Gb/s-6 Gb/s SAS and 6 Gb/s SATA drives
- High density expansion enclosure fits in standard 1 meter data center rack and/or cabinet including CMA (cable management arm)
- Turnkey expansion storage solutions with options for 16TB and higher capacity HDD fully integrated
- Includes 5-year support/warranty

Expansion Storage Workloads

- Backup and Archive Plus DR
- Software Defined Storage Environments
- Big Data
- Data Farm
- Data Analytics for ML and AI
- Private Cloud Infrastructures

Expansion Storage Offerings

P/N	Description
VDS41022-CH-10	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **816TB** SAS RAW capacity
VDS41022-CH-11	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **918TB** SAS RAW capacity
VDS41022-CH-12	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **1020TB** SAS RAW capacity
VDS41022-CH-05	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **1632TB** SAS RAW capacity
VDS41022-CH-06	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **1836TB** SAS RAW capacity
VDS41022-CH-07	VES VDS41022 High Density JBOD - 4U-102/bay with Dual 24Gb/s SAS IOM and **2040TB** SAS RAW capacity

AC Power

- Input voltage 200-240V AC
- Input frequency: 50-60 Hz
- Power supplies: 2 (n+1)
- Input current: 9.4 amps max @ 200V AC per power supply
- Maximum system
- continuous DC output power rating: 1600W

Hot-swappable Components

- Two JBOD IO modules
- Two AC to DC power modules
  - Two 1600W power supplies
  - Two +5V regulators per enclosure/system provide hard drive power
- Two independent AC power inputs
- Up to 102 drives in the main bay

Firmware

- SCSI enclosure services (SES) 3.0-based firmware

Drive Partitioning/ Split Bus Zoning

- Drive array can be zoned in four pre-defined zoning configurations supported by the I/O modules

Capacity

- 102-drive capacity per 4U enclosure
  - 102 drive slots compatible with LFF or SFF drives
  - 12Gb/s supported on all drive slots

Failure Notifications

- SCSI enclosure services (SES-3.0) over in-band interface and via system status and FRU LEDs

Host Expansion Interfaces

- Two SAS-4 JBOD I/O modules, each with 4-wide, SFF-8674, 24 Gb/s mini SAS HD expansion ports

Operating Environment

- Temperature: 5° to 35°C
- Relative humidity: 20% to 80% (non-condensing)
- Altitude: -200 ft to 10,000 ft
- Shock: 3.5G at 11ms, half sine wave pulse
- Vibration: 0.10G at 5 Hz to 500 Hz
- Acoustics (declared sound power): 92 dB with I/O modules; at idle/active operation tested to ISO 7779

Non-operating Environment

- Temperature: 5°C to 45°C
- Relative humidity: 10% to 90% (non-condensing)
- Altitude: -200 ft to 10,000 ft
- Shock: 7G at 11ms, 1/2 sine wave pulse
- Vibration: 3G at 5 Hz to 500 Hz

Disk Drives

- Form factor: 3.5-inch HDDs
- Interface: 12Gb/6Gb SAS; 6Gb SATA
- Power: 10W per drive

Safety Standards

- UL 60950
- CSA 22.2-950

Quality Standards

- Manufactured under an ISO 9002 quality system

Environment Protection

- RoHS & WEEE compliant

4U Rackmount Enclosure

- Dimensions: 6.9 in. H X 17.2 in. W X 39.4 in. D (17.2 cm H X 43.8 cm W X 100.0 cm D)
- Weight with drives: 275.0 lbs. (124.7 kg) max
- Standard rackmount rail kit with optional cable management system

Electromagnetic Emissions & Immunity Standards

- CE Mark
- EN55022: 2010
- EN61000 3-2:2014
- EN61000 3-2:2013
- FCC Class A
- Canadian IECS-003

Monitoring & Reporting

- Monitors temperature, power, cooling (including fan speed control), disk drives, and I/O modules
- In-band reporting of all FRU and chassis serial numbers, part numbers and revisions

ABOUT VIKING ENTERPRISE SOLUTIONS

Viking Enterprise Solutions, a product division of Sanmina Corporation (NASDAQ: SANM), provides advanced data center products including solid-state memory and disk-based storage server appliances, JBOD storage systems and other products for a variety of data center and storage applications. Viking Enterprise Solutions award-winning products are tailored for integration into OEM, system integrator and data center products, reducing development and operating costs while improving time-to-market. More information is available at www.vikingenterprisesolutions.com.