dataON
DataONSTORAGE

Better Storage | Agile Solution

DNS-1640

2U 24 Bays 6Gb/s SAS JBOD
Dual-path, Dual I/O

User Manual

Version QS0002

Copyright

Trademarks

All product names used in this manual are the properties of their respective owners and are acknowledged.

Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaim any implied warranties of merchantability or fitness for any particular purpose. Furthermore, the manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow these guidelines to avoid damage to the DNS 1640 or injury to yourself.

- Always disconnect power when carrying out work inside the unit.
- If possible, wear a grounded wrist strap when carrying out work inside the unit. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging until you are ready to install the component.

Equipment Location

This equipment should only be accessed by SERVICE PERSONNEL or by USERS who have been instructed about the reasons for the restrictions applied to the location. Access is through the use of a TOOL or lock and key, or other means of security, and is controlled by the authority responsible for the location.

About this Guide

This guide describes how to setup and power on the DNS 1640 6Gb/s SAS JBOD system. This guide is intended for trained personnel only.

Package content

The DNS-1640 box contains the following items:

- DNS-1640 Storage unit (1)
- Power cord (2)
- CD with user manual and drivers (1)
- Universal Rail Kit for DNS-1640 (1)
- HDD Screws(96)

System requirements

- Servers with supported HBA/Raid adapter, refer to DNS-1640 support matrix reference for complete listing of supported adapters.
- SFF-8088 to SFF-8088 SAS cable(s).

Model

Model#	DNS-1640SM	DNS-1640DM	DNS-1640S	DNS-1640D
Hard Drive Type	SATA/SSD	SATA/SSD	SAS/SSD	SAS/SSD
SAS I/O Module	1	2	1	2
DNS-BJMB 2.5" Interposer	12	12	0	0

Technical Support

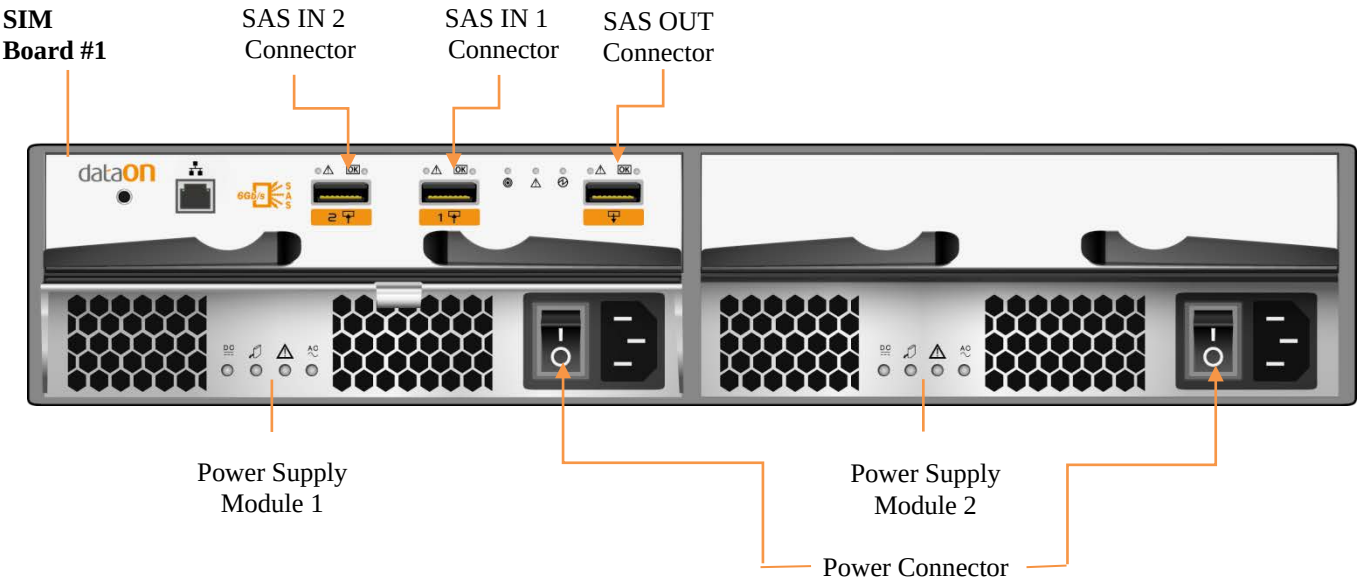
Contact your system supplier.

DNS-1640 Overview

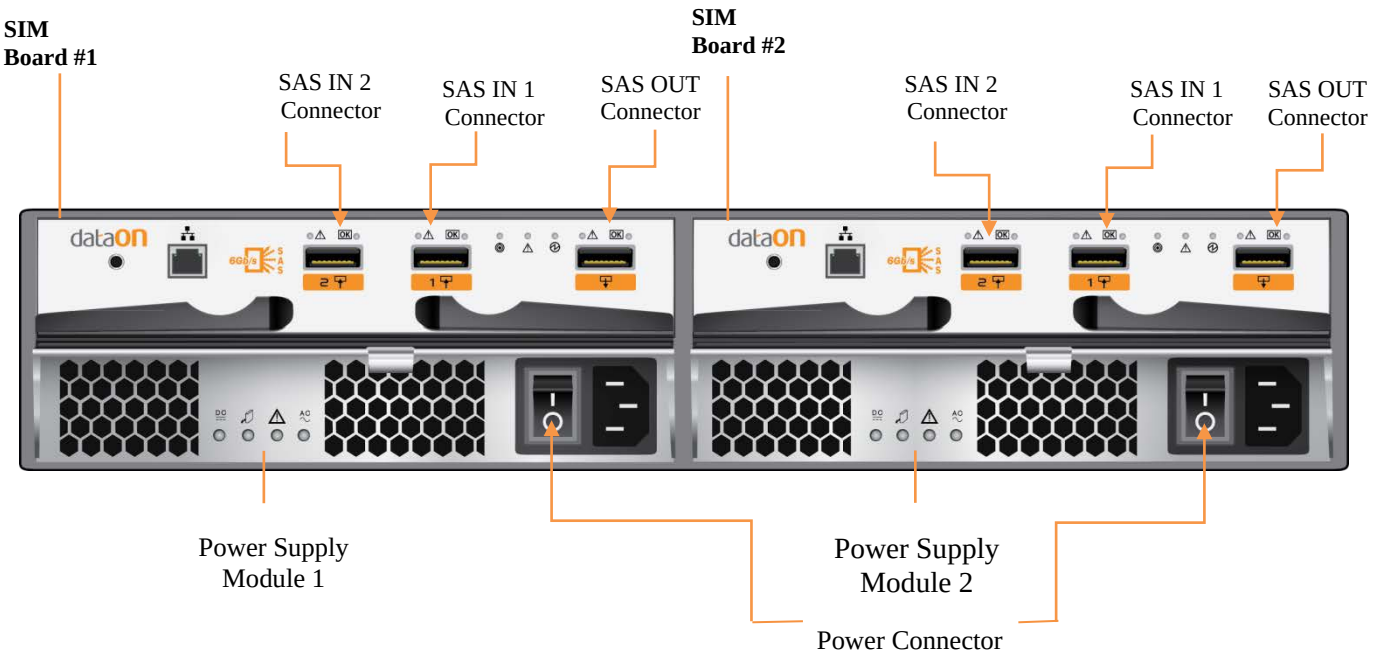
LEDs on the Storage Enclosure

No	Component	Color	Lights On	Lights Off
1	Fault LED	Amber	A component within the storage enclosure needs attention.	Normal
2	Locate LED	Flashing Blue	Identifies a storage enclosure	Normal
3	Power	Green	Power On	Power Off

DNS-1640 (Single SIM) Rear View

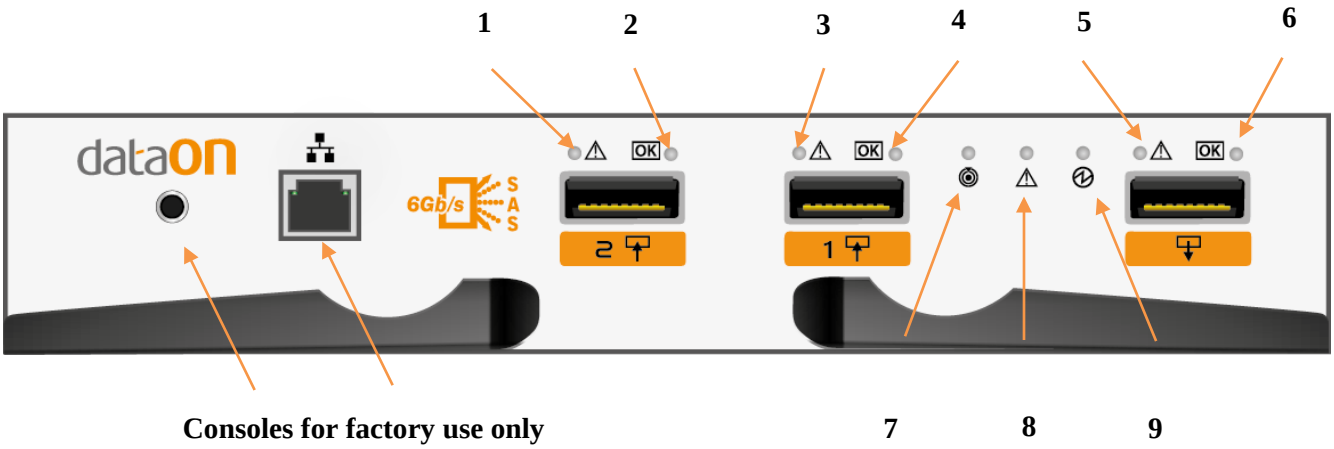


DNS-1640 (Dual SIM) Rear View



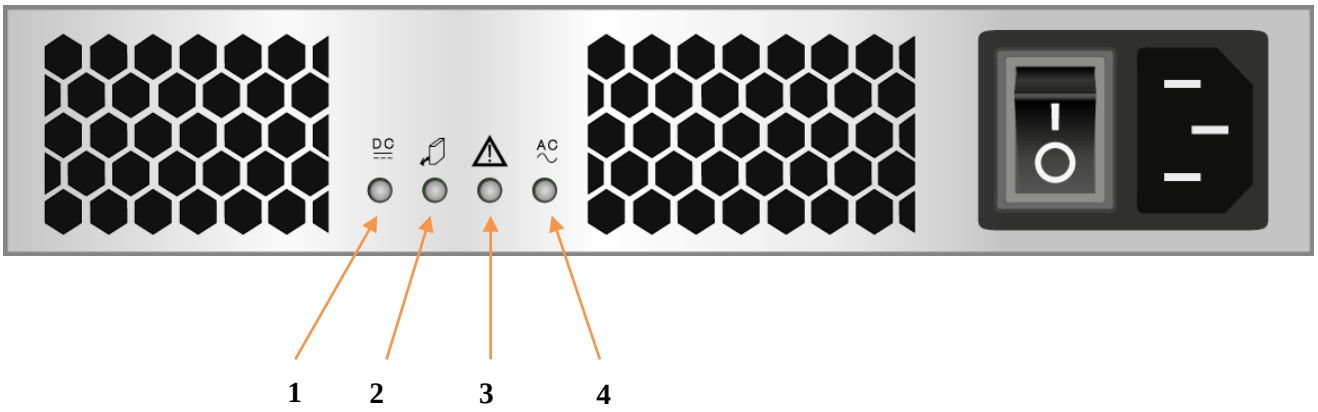
Important:	Note the direction of the power supply unit. Insert the power supply with the right direction. All SAS IN & OUT connectors are SFF-8088

DNS-1640 SIM Board LED Description



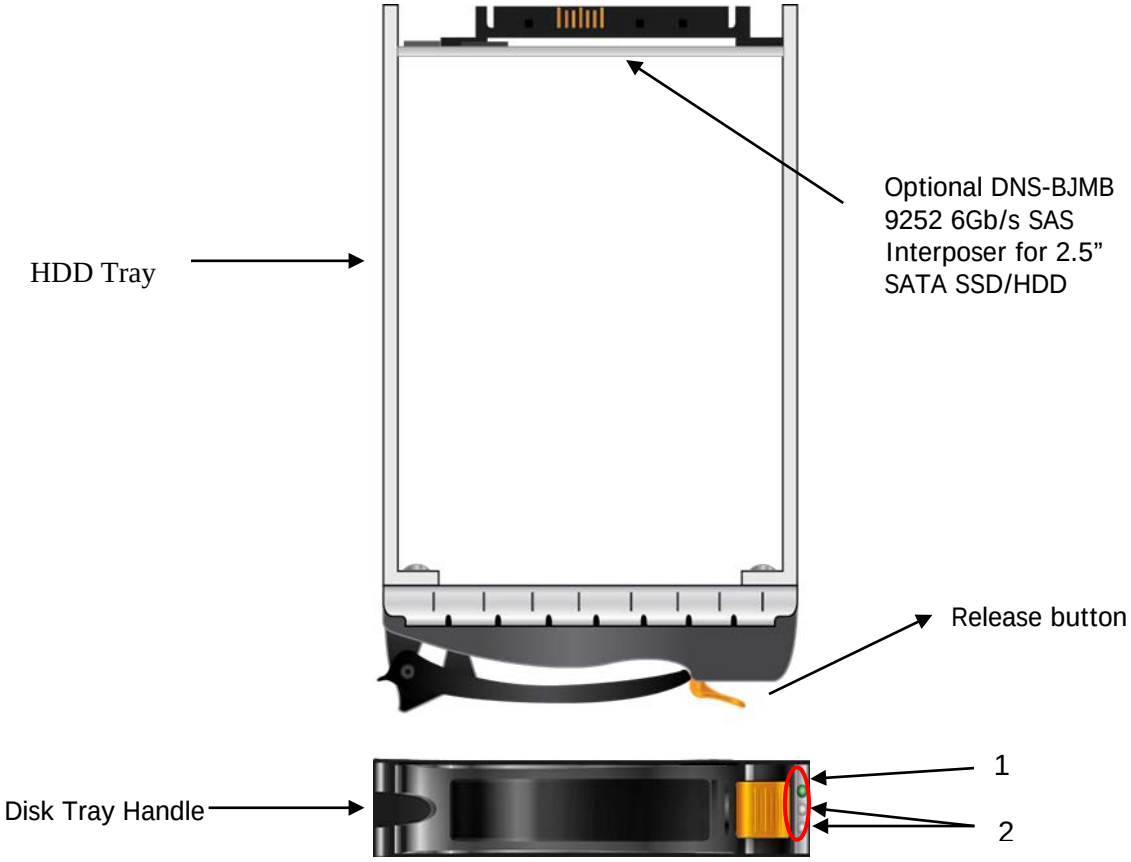
No	Component	Color	Lights On	Lights Off
1	SAS IN 2 Fault	Amber	PHY connection cannot established correctly	No error had occurred
2	SAS IN 2 Active	Green	PHY connection established correctly	No connection
3	SAS IN 1 Fault	Amber	PHY connection cannot established correctly	No error had occurred
4	SAS IN 1 Active	Green	PHY connection established correctly	No connection
5	SAS Out Fault	Amber	PHY connection cannot established correctly	No error had occurred
6	SAS Out Active	Green	PHY connection established correctly	No connection
7	Locate LED	Flashing Blue	Identifies SIM	Normal
8	SIM Fault	Amber	Fault exist	Normal
9	SIM Power	Green	Power On	Power Off

DNS-1640 PSM Board LED Description



No	Component	Color	Lights On	Lights Off
1	DC Power	Green	DC Power On	No DC Power
2	Locate LED	Blue	Identifies Power Module	Normal
3	PSM Fault	Amber	Fault exist	Normal
4	AC Power	Green	AC Power On	No AC Power

Disk Drives Front LED and Tray



No	Component	Color	Description
1	HDD Activity LED	Solid Green	SAS HDD is ready (SATA will be blank)
		Blinking Green	Spin up /Accessing
2	HDD status	Blank	HDD Ok
		Blinking Blue	Identify HDD
		Solid Orange	HDD fault
		Blinking Or-ange & Blue	RAID Rebuilt
		Blinking Blue	HDD is ready to remove (HDD Activity LED will be blank)

Install / Replace HDD

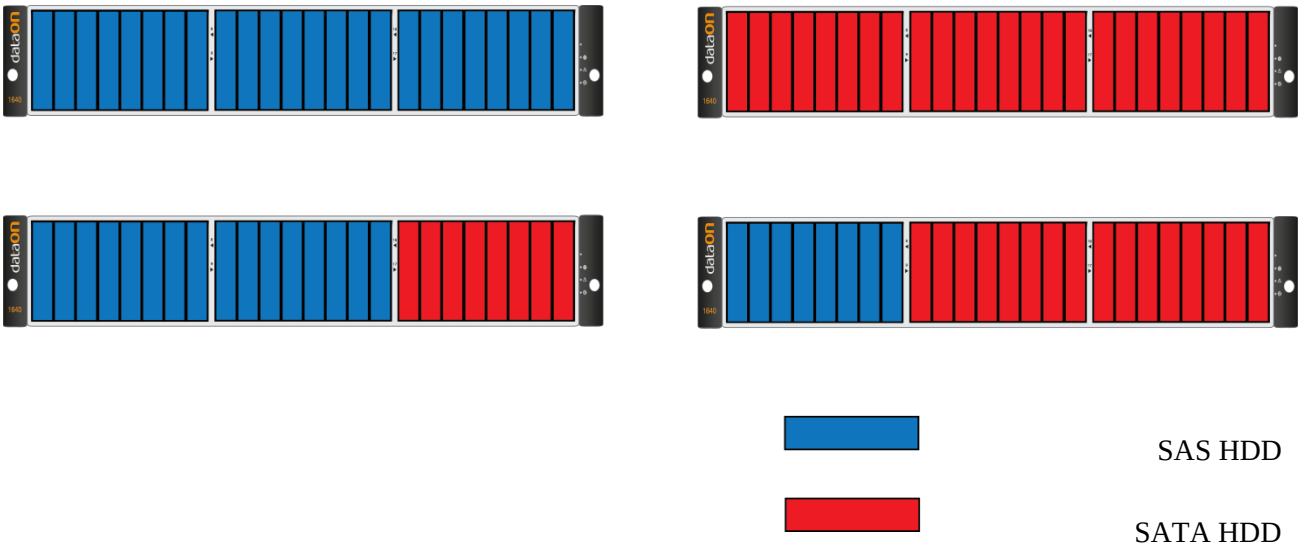
Before You Begin

It is not recommend mixing different RPM SAS and SATA HDD in the same DNS-1640 system. If you have to, please use the following figures below to plan where you will be placing the disk drives.

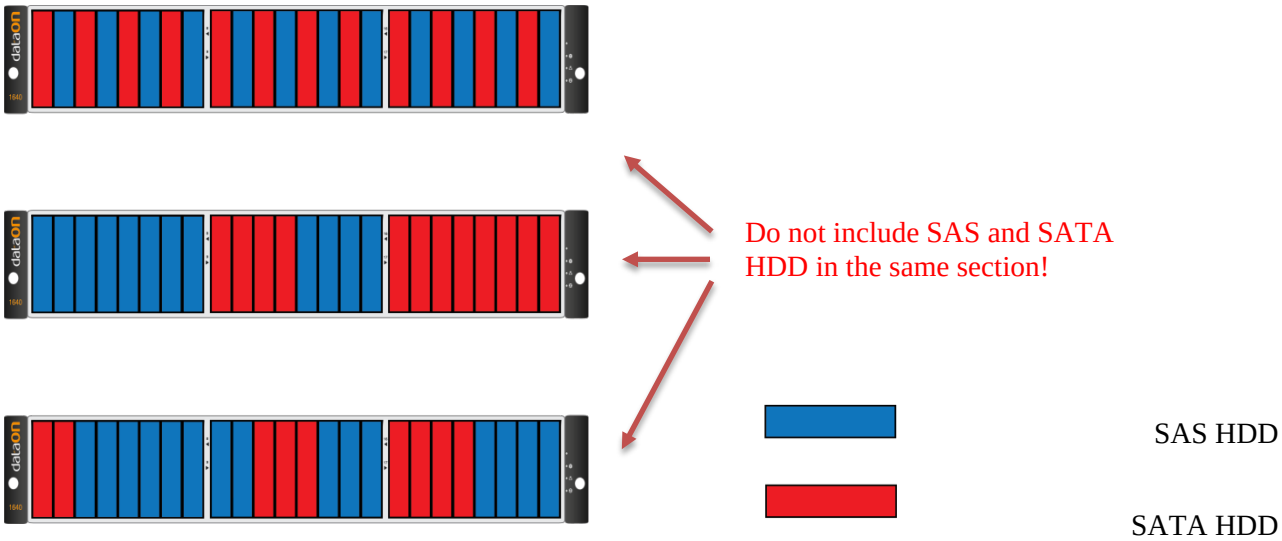
These figures represent fully-loaded DNS-1640 system with HDD.

However, the same guidelines apply even if you are filling some of the HDD slots with blank disk trays in the mixing HDD setting.

Recommended Mixing SAS & SATA HDD Configurations



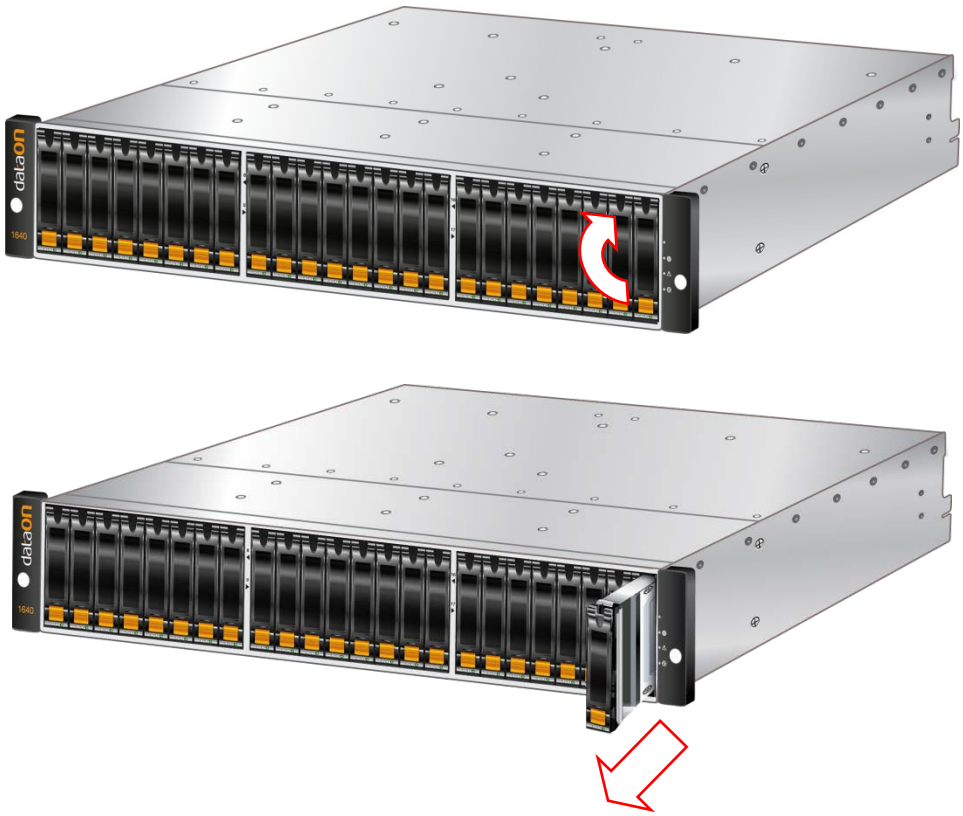
Unsupported SAS & SATA HDD Combinations



Follow these steps below to Install/Replace HDD in the disk tray.

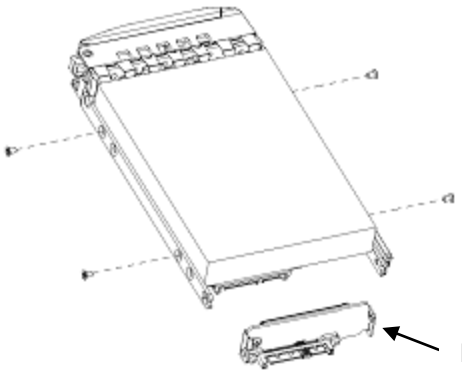
Step 1

a) Press the release button and open the disk tray handle.
b) Remove HDD carrier by pulling the disk tray handle out.



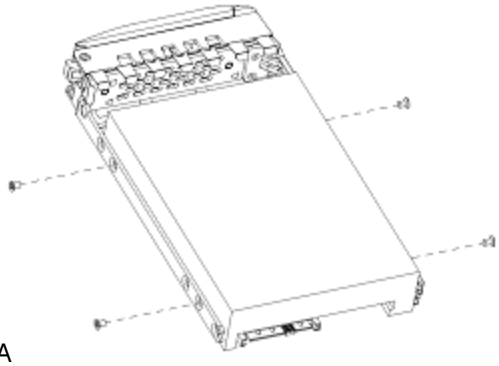
Step 2 Insert the HDD inside the tray and tighten the four 6/4 screws on the SATA/SAS disks.

SATA disk



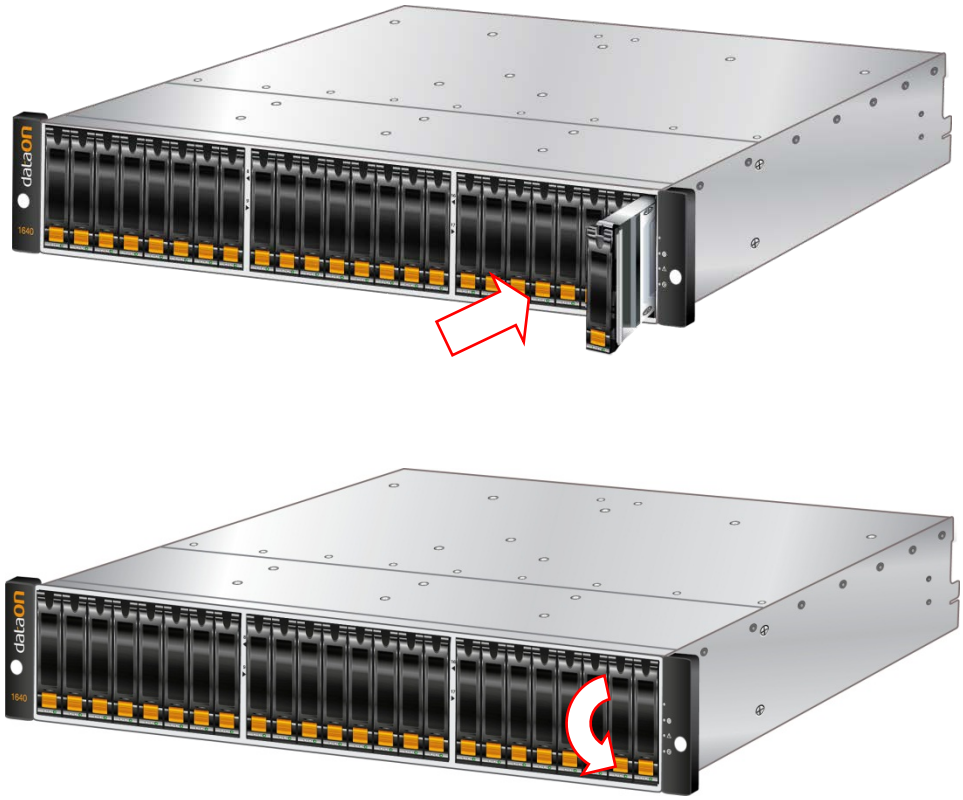
Interposer for SATA

SAS disk



Important:	If using SATA HDD, please make sure having DNS-BJMB Interposer card installed on the back of HDD

Step 3 Slide in the HD tray back in the disk slot and close the disk tray handle.



Step 4 Repeat Step 1 through 3 if you wish to install more HDD into the DNS-1640 storage.

Before You Begin

Important: Before you set up the DNS 1640 system, be sure your facility meets the following conditions.

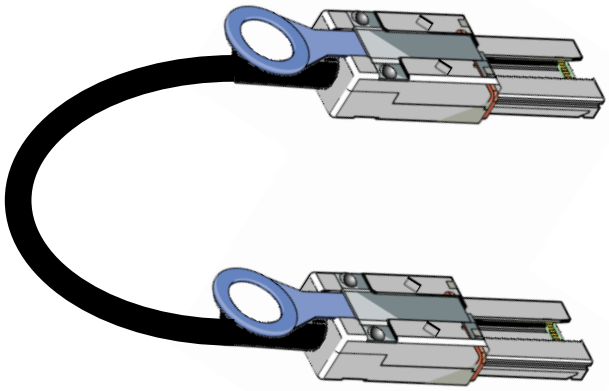
Confirm that there is adequate power at your facility to support the high-availability features of the system. It is recommended to connect each power connector to separate power circuit.

If necessary refer to the documentations shipped with the 6Gb/s SAS HBA/RAID card for hardware and driver installation instructions

There are different types of SAS Cables in the market, make sure you order the right one for DNS-1640.

For DNS-1640, it all uses SFF-8088 to SFF-8088 SAS Cable when connecting DNS-1640 to host and when daisy chain to another DNS-1640.

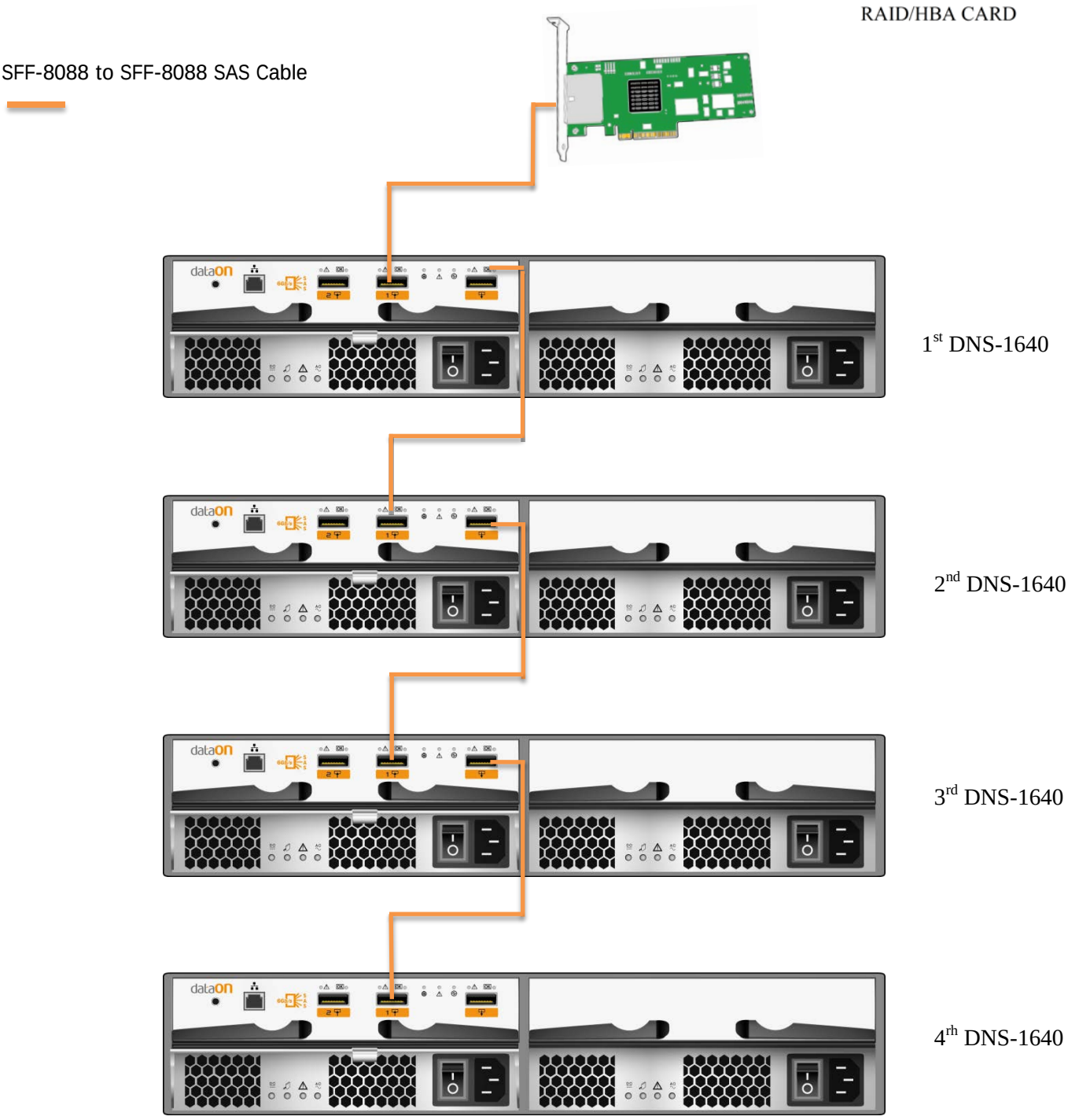
SFF-8088 to SFF-8088 SAS Cable



Setting up DNS-1640 System

Connection type 1(Single SIM)

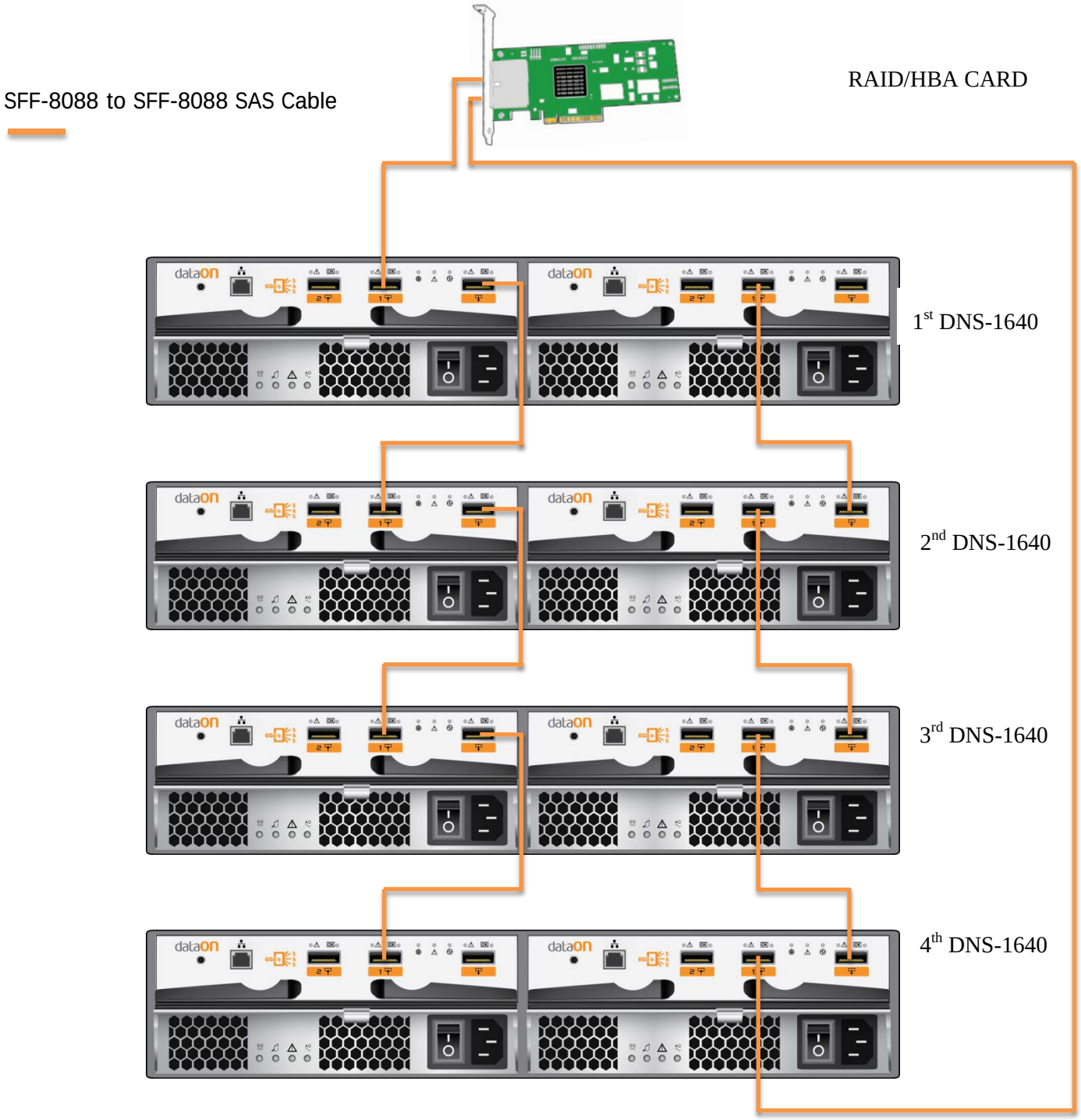
This illustration shows one host with a HBA/RAID card connected to four DNS-1640 with single SIM.



Connection type 2(Dual SIM)

This illustration shows one host with a HBA/RAID card connected to four DNS-1640 with dual SIM.

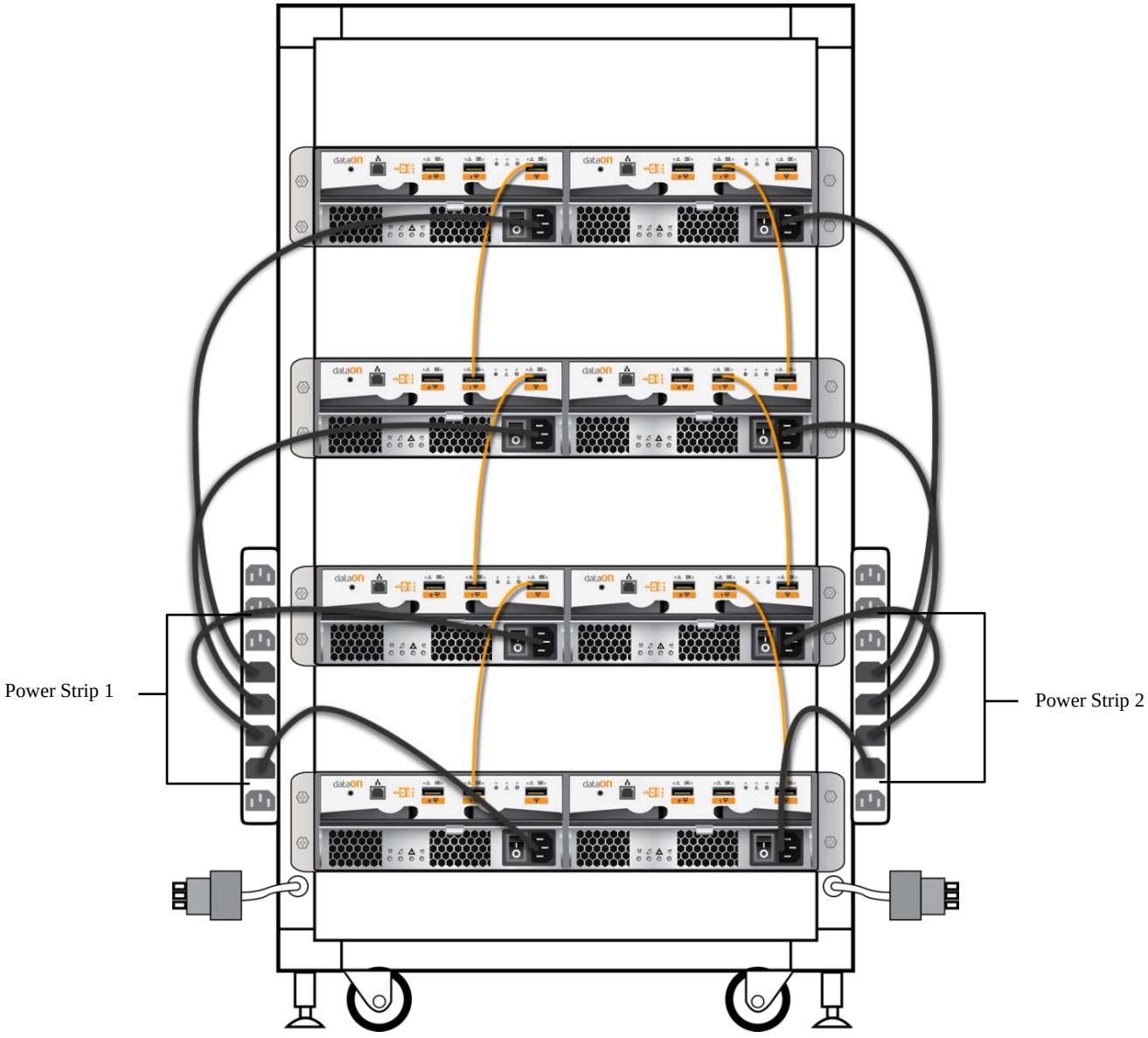
Important: Not All HBA/RAID card support this type of connection please refers to DNS-1640 support matrix reference for complete listing of supported dual port HBA/RAID cards.



Connecting Power to DNS-1640

Important: DNS-1640 is recommended to be installed in Dual power strip cabinets.

1. Ensure the cabinet circuit breakers are in OFF position.
2. Connect the two provided power cables from the DNS-1640 to cabinet power strips.
3. Lock down the two power cord latch.



4. Connect the power cables from the cabinet to separate power circuits in your facility.

   Note: Cabinet is not included in the package. Only the universal rails kit for the cabinet are provided.

Power on the DNS-1640

1. Verify that all connections are correct.
2. Turn on both circuit breakers on cabinet.
3. Make sure that power-on LED on all DNS-1640 are steady blue.
4. Power on the host lastly.

Important: Please make sure power on all DNS-1640 first before the server

Features and Specifications

DNS 1640 is a high-availability, cost-effective 2U SAS (Serial Attached SCSI) to SAS (Serial Attached SCSI) JBOD, which provides 24 pcs 2.5" hard drive carriers to support various types of hard drive, including 6Gb/s SAS hard drive, and 6Gb/s SATA III hard drive with interposer card. In addition to 24 pcs hard drive carriers, DNS-1640 system supports two 550W Full Redundant Power Supplies and two SIM modules.

High Reliability: Redundant SIM modules, power supplies modules design secure "No Single-Point Failure". Active-Active Dual 6Gb/s SAS I/O Module Architecture, hot-swappable hard disk, and dual SAS and SATA II paths with Interposer Card ensure that DNS-1640 has high reliability and achieves 24x7 availability.

High Scalability: Each DNS-1640 system supports a maximum of 24 6Gb/s SAS/SATAIII hard disks per system, and up to 96 drives by daisy-chaining JBOD.

High Flexibility: DNS-1640 system supports both SAS and SATA disks depending on customer's needs. This feature provides the most cost-effective storage pools for different kinds of data and provides a better management for ILM (Information Life Cycle Management) applications.

High Performance: The Active-Active Dual 6Gb/s SAS I/O Module Architecture ensures high system performance.

Features:

Redundant SIM Modules and Power Supplies

Active-Active Dual 6GB/s SAS I/O Module Architecture

Support full path fail-over function which provides data redundancy

Support Drive Auto Detection and Hot Swap

Integrated RAID card management tool via SES2

Connectivity Features:

Two 6Gb/s SAS-IN ports in each SIM module provides host connectivity

Support up to 96 drives by daisy-chaining JBODs.

Connected and managed by RAID controller

Connect to 6Gb/s SAS Expander

Support Direct Attach

Support daisy-chain of JBODs

Host Interface:

- *Two 6Gb/s SAS-In ports on each SIM module*
- *One 6Gb/s SAS-Out ports on each SIM module*

Hard Disk Interface:

- *24 x dual ported SAS (6Gb/s) or SATAII hard disks with DNS-BJMB 9252 6Gb/s SAS interposer (6Gb/s)*
- *Up to a maximum of 24 disks per JBOD.*
- *By daisy-chaining JBODs, up to 96 disk drives supported*

Redundant, Hot Swappable Components:

- *2 SIM Modules*
- *2 Power Supply Modules*
- *up to 24 SAS/SATAII hard disks*

Form Factor:

- *Internal Bays: 24 2.5" Hard Disks*
- *Rack Mount: 18.5 inch (D)*

Dimensions: The chassis dimensions measured at 17.5" (W) X 6.875" (H) X 18.5" (D) (Sheet metal case only, not including bezel and rear module handle).

Management Features:

- *Intergated with RAID Card management tool via SES2*
- *LED Indicators for SM Modules, Hard Drives, Power Supplies and FAN Status.*

AC Power:

- *Input Voltage: 100-240 V AC*
- *Input Frequency: 50-60Hz*
- *Output Power: 550W*

Operating Environment:

- *Operating Temperature: 0 to 35 degree Celsius*
- *Operating Humidity: 20% to 95% (non-condensing)*
- *Altitude: -50 to 10,000 feet*
- *Shock: 31G @ 2.6ms, ½ sine wave pulse*
- *Vibration: 0.25G @ 3Hz to 200Hz*

Electromagnetic Emissions Standards:

FCC- class A under 3dB

CE- Specifically requirements in effect July 1, 2001

Safety Standards:

UL/CUL: for U.S. with Canada