XCubeSAN Series Application Note

Connect to Seagate® Exos™ E 4U106 JBOD Building Block Guide

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www.QSAN.com

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Notices

This XCubeSAN series white paper is applicable to the following XCubeSAN models:

XCubeSAN Storage System 4U 19” Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224D	Dual Controller	LFF 24-disk 4U Chassis
XS3224S	Single Controller	LFF 24-disk 4U Chassis
XS1224D	Dual Controller	LFF 24-disk 4U Chassis
XS1224S	Single Controller	LFF 24-disk 4U Chassis

XCubeSAN Storage System 3U 19” Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216D	Dual Controller	LFF 16-disk 3U Chassis
XS3216S	Single Controller	LFF 16-disk 3U Chassis
XS1216D	Dual Controller	LFF 16-disk 3U Chassis
XS1216S	Single Controller	LFF 16-disk 3U Chassis

XCubeSAN Storage System 2U 19” Rack Mount Models

Model Name	Controller Type	Form Factor, Bay Count, and Rack Unit
XS5212D	Dual Controller	LFF 12-disk 2U Chassis
XS5212S	Single Controller	LFF 12-disk 2U Chassis
XS3212D	Dual Controller	LFF 12-disk 2U Chassis
XS3212S	Single Controller	LFF 12-disk 2U Chassis
XS1212D	Dual Controller	LFF 12-disk 2U Chassis
XS1212S	Single Controller	LFF 12-disk 2U Chassis
XS5226D	Dual Controller	SFF 26-disk 2U Chassis
XS5226S	Single Controller	SFF 26-disk 2U Chassis
XS3226D	Dual Controller	SFF 26-disk 2U Chassis
XS3226S	Single Controller	SFF 26-disk 2U Chassis
XS1226D	Dual Controller	SFF 26-disk 2U Chassis

XS1226S	Single Controller	SFF 26-disk 2U Chassis

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Connect to Seagate Exos E 4U106 Guide

Executive Summary

This application note provides technical guidance for connecting to Seagate Exos E 4U106 JBOD building block, which is a fully redundant 4U JBOD disk enclosure, as expansion solutions of QSAN XCubeSAN series storage. The new expansion solutions expand the capacity of QSAN storage with high density.

Audience

This document is applicable for QSAN customers and partners who are interested in purchasing Seagate Exos E 4U106 as the expansion unit of XCubeSAN series. It assumes the reader is familiar with QSAN products and has general IT experience, including knowledge as a system or network administrator. If there is any question, please refer to the user manuals of products, or contact QSAN support for further assistance.

Overview

In response to the arrival of the 5G era, data will grow very rapidly. Our partnership with long-standing partner Seagate enables our joint enterprise customers to provide high density storage platforms with unprecedented low TCO. Seagate Exos E 4U106 is the datasphere's largest building block delivering industry-first capacity and density without sacrificing data access speed. Increase the amount of data that fits in a 4U rack by leveraging up to 106 of our high-capacity hard drives in a single enclosure that holds up to an unprecedented 1.7PB of business intelligence. With an overall maximum bandwidth of 36GB/s, you can access mission-critical and archival data with lightning speed.

Guidelines

Seagate Exos E 4U106 Installation Guide

Please refer to the Seagate Exos E 4U106 installation and maintenance guide which provides information about initial hardware installation and setup, as well as removal and installation of customer-replaceable units (FRUs) for the Seagate Exos E 4U106 enclosure.

INFORMATION:
Seagate Exos E 4U106 Hardware Installation and Maintenance Guide, please refer to https://www.seagate.com/files/dothill-content/support/raid-systems/exos-e-exos-ap/_shared/files/83-00007495-01-01-A_Exos%20E%204U106_HIMG.pdf

Expansion Topology and Deployment

The following images illustrate some examples of deployment types for dual controller XCubeSAN series plus Seagate Exos E 4U106 expansion units. MPIO (MultiPath I/O) configurations are designed to provide HA (High Availability) data connections to ensure data consistency in the rare event of a failure in the host connectivity from a single path.

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One XCubeSAN / One Seagate Exos E 4U106 / Dual Path

The following figure shows an example of an XCubeSAN series connected to a Seagate Exos E 4U106 using mini SAS HD to mini SAS HD cable (SAS 12G expansion cable, SFF-8644 to SFF-8644).

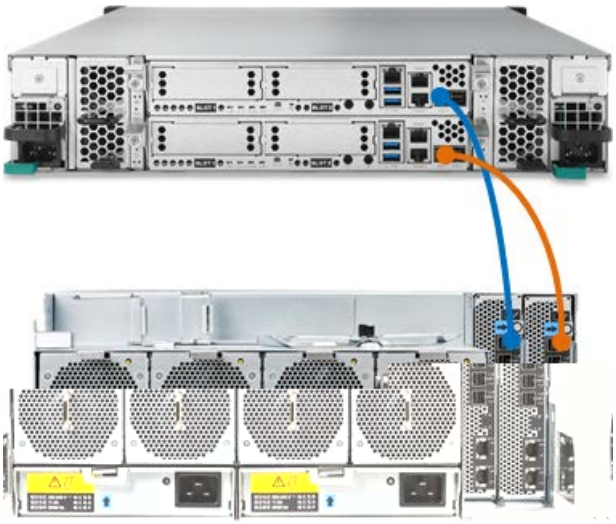

Figure 1 One XCubeSAN / One Seagate Exos E 4U106 / Dual Path

CAUTION:
Seagate Exos E 4U106 does not support SAS 12G expansion cable with Wake-on-SAS.

One XCubeSAN / One XCubeDAS / One Seagate Exos E 4U106 / Dual Path

The following figure shows an example of an XCubeSAN series connected to an XCubeDAS XD5300 series which is in turn connected to the second Seagate Exos E 4U106 using mini SAS HD to mini SAS HD cable (SAS 12G expansion cable, SFF-8644 to SFF-8644).

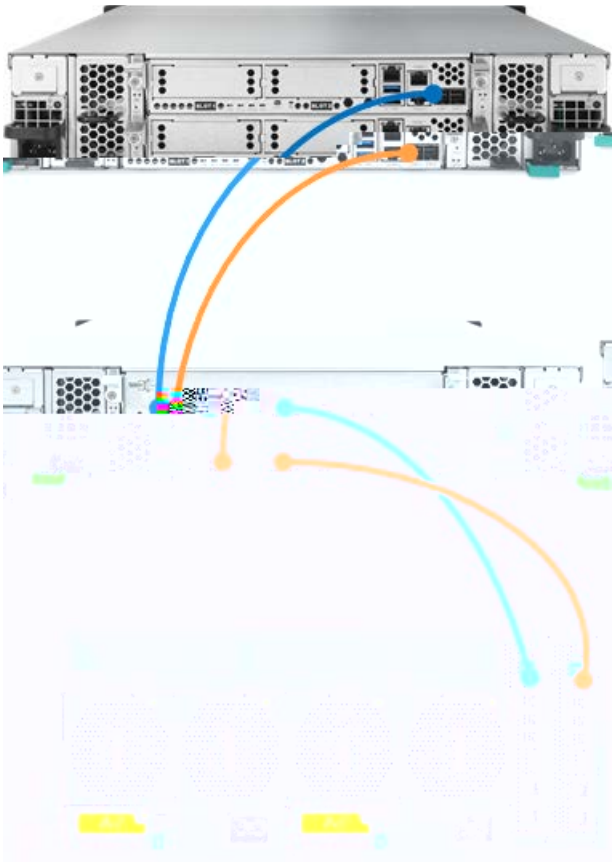

Figure 3 One XCubeSAN / One XCubeDAS / One Seagate Exos E 4U106 / Dual Path

TIP:
If you have multiple XCubeDAS and Seagate Exos E 4U106 as the expansion units of XCubeSAN series, connect XCbueDAS series models before Seagate Exos E 4U106.

Cautions and Limitations

List the following cautions and limitations. You should be aware of the purchase and installation of Seagate Exos E 4U106.

1. XCbueSAN SANOS does not support firmware update for Seagate Exos E 4U106.
2. Seagate Exos E 4U106 does not support SAS 12G expansion cable with Wake-on-SAS.
3. If you have multiple XCubeDAS and Seagate Exos E 4U106 as the expansion units of XCubeSAN series, connect XCbueDAS series models before Seagate Exos E 4U106.
4. If you are experiencing poor performance when connecting to Seagate Exos E 4U106, you can try shorter length cables, such as 1.5M.

Known Issues

List the following known issues. You should be aware of the purchase and installation of Seagate Exos E 4U106.

1. Seagate Exos E 4U106 system has 2 power supplies, but hardware monitor reports 4. The installed 2 power supplies shows Good, the other 2 shows Failed.

System Components

Type	Item	Value	Low Critical	Low Warning	High Warning	High Critical	Status
Power Supply	TP=A4	N/A					Good
Power Supply	Power supply 1	N/A					Failed
Power Supply	TP=A4	N/A					Good
Power Supply	Power supply 3	N/A					Failed
Fan Module	TP=00	7110 RPM					Good
Fan Module	TP=00	7590 RPM					Good
Fan Module	TP=00	7110 RPM					Good
Fan Module	TP=00	7590 RPM					Good
Fan Module	TP=00	7080 RPM					Good
Fan Module	TP=00	7560 RPM					Good
Fan Module	TP=00	7110 RPM					Good
Fan Module	TP=00	7560 RPM					Good
Fan Module	TP=00	2910 RPM					Good
Fan Module	TP=00	2910 RPM					Good

Figure 4 Seagate Exos E 4U106 Power Supplies

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2. Under normal conditions, voltage sensors 2, 3, 6, 7 reports Failed.

System

<< first < prev 1 2 3 next > last >>

Type	Item	Value	Low Critical	Low Warning	High Warning	High Critical	Status
Voltage	NM=PCM0:0 12.19V	+12.34 V					Good
Voltage	NM=PCM0:1 input V	+226.48 V					Good
Voltage	Voltage sensor 2	N/A					Failed
Voltage	Voltage sensor 3	N/A					Failed
Voltage	NM=PCM2:0 12.19V	+12.34 V					Good
Voltage	NM=PCM2:1 input V	+225.46 V					Good
Voltage	Voltage sensor 6	N/A					Failed
Voltage	Voltage sensor 7	N/A					Failed
Temperature	NM=Midplane	32.0°C / 89.6°F					Good
Temperature	NM=Midplane	39.0°C / 102.2°F					Good
Temperature	NM=Drive Tray	27.0°C / 80.6°F					Good
Temperature	NM=Drive Tray	30.0°C / 86.0°F					Good
Temperature	NM=Drive Tray	30.0°C / 86.0°F					Good
Temperature	NM=Drive Tray	33.0°C / 91.4°F					Good
Temperature	NM=Drive Tray	33.0°C / 91.4°F					Good
Temperature	NM=Drive Tray	35.0°C / 95.0°F					Good
Temperature	NM=Drive Tray	35.0°C / 95.0°F					Good
Temperature	NM=Drive Tray	36.0°C / 96.8°F					Good
Temperature	NM=Drive Tray	36.0°C / 96.8°F					Good
Temperature	NM=Sideplane Electr.	59.0°C / 138.2°F					Good

Figure 5 Seagate Exos E 4U106 Voltage Sensors

3. Under normal conditions, temperature sensors 22, 23, 24, 28, 29, 30 reports Failed.

System

<< first < prev 1 2 3 next > last >>

Type	Item	Value	Low Critical	Low Warning	High Warning	High Critical	Status
Temperature	NM=Sideplane Electr.	61.0°C / 141.8°F					Good
Temperature	NM=Sideplane Electr.	63.0°C / 145.4°F					Good
Temperature	NM=Sideplane Electr.	62.0°C / 143.6°F					Good
Temperature	NM=Sideplane Electr.	62.0°C / 143.6°F					Good
Temperature	NM=Sideplane Electr.	63.0°C / 145.4°F					Good
Temperature	NM=Sideplane Electr.	62.0°C / 143.6°F					Good
Temperature	NM=Sideplane Electr.	62.0°C / 143.6°F					Good
Temperature	NM=PCM 1 hotspot	46.0°C / 114.8°F					Good
Temperature	NM=PCM 1 inlet	26.0°C / 78.8°F					Good
Temperature	NM=PCM 1 exhaust	29.0°C / 84.2°F					Good
Temperature	Temperature sensor 22	N/A					Failed
Temperature	Temperature sensor 23	N/A					Failed
Temperature	Temperature sensor 24	N/A					Failed
Temperature	NM=PCM 3 hotspot	53.0°C / 127.4°F					Good
Temperature	NM=PCM 3 inlet	36.0°C / 96.8°F					Good
Temperature	NM=PCM 3 exhaust	38.0°C / 100.4°F					Good
Temperature	Temperature sensor 28	N/A					Failed
Temperature	Temperature sensor 29	N/A					Failed
Temperature	Temperature sensor 30	N/A					Failed
Temperature	NM=Can 0	56.0°C / 132.8°F					Good

Figure 6 Seagate Exos E 4U106 Temperature Sensors

4. The power supplies, voltage, temperature reports Failed causes system health Failed.

Figure 7 Seagate Exos E 4U106 System Health

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Apply To

- XCubeSAN XS5200 / XS3200 / XS1200 FW version: 1.4.3 to support Seagate Exos E 4U106
- Seagate Exos E 4U106
  - FW version: 524A

References

Seagate Exos E 4U106

- Seagate Exos E 4U106 Datasheet
- Seagate Exos E 4U106 Hardware Installation and Maintenance Guide

Appendix

Related Documents

There are related documents which can be downloaded from the website.

- All XCubeSAN Documents
- XCubeSAN QIG (Quick Installation Guide)
- XCubeSAN Hardware Manual
- XCubeSAN Configuration Worksheet
- XCubeSAN SANOS 4.0 Software Manual
- Compatibility Matrix
- White Papers
- Application Notes

Technical Support

Do you have any questions or need help trouble-shooting a problem? Please contact QSAN Support, we will reply to you as soon as possible.

- Via the Web: https://www.qsan.com/technical_support
- Via Telephone: +886-2-77206355
  (Service hours: 09:30 - 18:00, Monday - Friday, UTC+8)
- Via Skype Chat, Skype ID: qsan.support
  (Service hours: 09:30 - 02:00, Monday - Friday, UTC+8, Summer time: 09:30 - 01:00)
- Via Email: support@qsan.com

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