



## SAS Performance

As opposed to classical SATA RAID systems, ES-6600S SAS RAID also supports Serial Attached SCSI (SAS) disks.

These high performant disks with up to 15,000 rpm offer the quality and speed of the fastest Fibre Channel disks, the only difference being their interface.

This makes ES-6600S SAS RAID a perfect RAID system for databases and other I/O critical applications.

To offer still higher redundancy these systems can also be offered with two redundant controllers.

## Mixing SAS und SATA

On the other hand in this RAID system RAID sets consisting of SAS disks can be combined with RAID sets of SATA disks – in the same enclosure.

This allows assigning capacity to different applications according to their special needs. Software that requires mostly i/o throughput will store data on the most performant SAS RAID set. Other applications that just need high capacity can use inexpensive SATA disks.

## RAID6

A special feature of ES-6600 RAID is the support of RAID level 6 which allows, that two disks may fail in a RAID set without loss of data. This means a higher level of data security compared to RAID 5, as for a certain time, until parity information is completely reconstructed on the hot spare disk, data will not be redundant on a RAID 5. RAID 6 avoids this, and is able to repair also single block errors during a rebuild time.

## Mixed RAID Level

As in all ES-6600 RAID systems, within the same RAID set several partitions can be defined with different RAID levels. This allows for a more efficient use of existing disk capacity.

ES-6600SAS RAID can be shipped either with 4 Gbit (optional 8 Gbit) Fibre Channel Interface (for SAN environments) or with 4x 3 Gbit SAS Interface (as direct attached storage systems). Like all systems with Fibre Channel or SAS interface they require a host adapter on the server. For dual controller systems local MPIO of the operating system is required to handle controller fail over.

## ES-6600 SAS:

- **16 or 24 SAS or SATA-II** disks, expandable via SAS port to **up to 122 disks (max. 244 TB)**
- disks up to **2 TB SATA or 600 GB SAS**
- **single or dual controller**
- host connection: **2 x 4 Gbit FC port (optional 2 x 8 Gbit FC)** or **2 x SAS port (4x3 Gbit)**
- OS independent
- 512 MB cache standard (optional up to 4 GByte)
- optional: battery cache backup up to 72 h
- RAID level 0, 1, 0+1, 3, 5, 6, 30, 50, 60, JBOD
- **RAID 6 on ASIC**
- volumes with different RAID levels in the same RAID set
- hot-spare disks
- redundant PSUs and fans
- monitoring of fan rotation, temperature and voltage
- easy RAID management over integrated web server (Ethernet port)

## Service:

- **3 years warranty**
- **free support via telephone or email**
- **optional: 3 years Advance Replacement Service**
- **optional: 3 years On Site Service**
- **optional: Installation**

Model	ES-6600S 16 Disk		ES-6600S 24 Disk	
Single Controller	ES-6616SS	ES-6616SF	ES-6624SS	ES-6624SF
Dual Controller	ES-6616SRS	ES-6616SRF	ES-6624SRS	ES-6624SRF
Number of Disks	16		24	
Max. disks	122 with expansion enclosures			
Rackmount 19"	3 U		4 U	
RAID Architecture	<ul style="list-style-type: none"> <li>• Intel 64 bit processor</li> <li>• single or dual active/active controller (can be upgraded)</li> <li>• proprietary ASICs for RAID 6 support with extremely high performance</li> <li>• up to 4 GB on one DIMM socket with ECC protection</li> <li>• 64-bit PCI Bus technology</li> </ul>			
RAID Features	<ul style="list-style-type: none"> <li>• RAID level 0, 1, 0+1, 3, 5, 6, 30, 50, 60, JBOD</li> <li>• multiple RAID selection</li> <li>• online RAID level / stripe size modification</li> <li>• online capacity expansion with RAID Level migration</li> <li>• direct availability of capacity – background initialization</li> <li>• hot spare disks</li> <li>• automatic disk integration and automatic rebuild</li> </ul>			
Host Interface (per controller)	2 x SAS (4x3 Gbit each)	2 x 4 Gbit (2 x 8 Gbit optional) Fibre Channel (SFP/LC)	2 x SAS (4x3 Gbit each)	2 x 4 Gbit (2 x 8 Gbit optional) Fibre Channel (SFP/LC)
Disk Interface	<ul style="list-style-type: none"> <li>• SATA-II and 3 Gbit SAS mixable</li> <li>• 1 SAS expansion port (4x 3 Gbit)</li> </ul>			
Battery Backup	optional up to 72 h			
RAID Management	<ul style="list-style-type: none"> <li>• integrated web browser based RAID manager over 10/100 Mbit port</li> <li>• integrated manager over serial RS-232 port</li> <li>• integrated manager over LCD display</li> <li>• firmware upgradeable in flash ROM</li> </ul>			
Monitoring	<ul style="list-style-type: none"> <li>• over integrated web browser based RAID manager</li> <li>• system Status over LCD, LED and acoustic</li> <li>• all system events can be sent via email</li> <li>• SNMP agent for remote management over LAN</li> </ul>			
OS	OS independent (MPIO required for dual controller configuration)			
PSU	2x 460 Watt with PFC, cable less design, redundant		2x 460 Watt with PFC, cable less design, redundant	
Electrical	110-230 V AC, 50-60 Hz			
Temperature	operating: 5 – 35° C, non-operating: -40° – +60° C			
Rel. Humidity	20% - 80% non condensing			
Size	W: 446mm H: 3U D: 545mm		W: 446mm H: 4U D: 545mm	