



## Saving Space

ES-6600 Toploader RAID series offers highest density of disk storage capacity based on 3.5" hard disk drives. With up to 64 disks in a 4 U enclosure it allows to keep more than 640 disks in one single 19" rack (40 U). 10 special fans ensure a permanent cooling of the system.

## SAS Performance

ES-6600 Toploader RAID supports Serial Attached SCSI (SAS) disks. These high performance disks with up to 15,000 rpm offer the quality, reliability and speed of the fastest Fibre Channel disks. This makes ES-6600 Toploader RAID a perfect storage system for databases and other i/o critical applications.

Like in all RAID systems of the ES-6600 series RAID sets consisting of SAS disks can be combined with RAID sets of SATA disks – within 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 all ES-6600 RAID systems 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 the RAID is still able to repair single block errors during a rebuild time of a failed disk.

## 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.

## Flexible Interface

ES-6600 RAID can be shipped either with 8 Gbit Fibre Channel Interface (for SAN environments) or with 2x 6 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, which can be offered with the product.

## ES-6600 Toploader RAID6:

- **42 or 64 SAS or SATA-II** disks, expandable via SAS port to max. 84 disks
- 3.5" disks up to **4 TB SATA** or **600 GB SAS**
- host connection: **4 x 8 Gbit FC port** or **2 x SAS port** (4 x 6 Gbit each)
- **single or dual controller** (active/active redundant)
- RAID level 0, 1, 0+1, 3, 5, 6, 30, 50, 60, JBOD
- **RAID 6 on ASIC**
- OS independent
- 1 GB cache standard (optional up to 4 GByte per controller)
- optional: battery cache backup up to 72 h
- 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-6642 FC/SAS ES-6664 FC/SAS	ES-6642 SAS/SAS ES-6664 SAS/SAS
Model No. Single Controller	ES-6642BF8 ES-6664SF	ES-6642BS ES-6664SS
Model No. Dual Controller	ES-6642BRF8 ES-6664SRF	ES-6642BRS ES-6664SRS
Number of Disks	42/64, accessible from top of enclosure	
Max. disks	84/128 with 1 SAS expansion enclosure	
Rackmount 19"	4 U	
RAID Architecture	<ul style="list-style-type: none"> <li>• Intel 64 bit processor</li> <li>• single or dual active/active controller (automat. failover)</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>• RAID sets with up to 32 disks / multiple RAID selection</li> <li>• volumes with different RAID levels within the same RAID set</li> <li>• up to 128 Volumes (LUNs)</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 / automatic disk integration and automatic rebuild</li> </ul>	
Host Interface (per controller)	4 x 8 Gbit Fibre Channel (SFP/LC)	2 x SAS (4 x 6 Gbit each)
Disk Interface	SATA-II and 3 Gbit SAS mixable 1 SAS expansion port (4x 6 Gbit)	
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>	
PSU	2x 1100 Watt with PFC, redundant, 110-230 V AC, 50-60 Hz	
FANs	42 bay: 10 fans in redundant configuration 64 bay: 15 fans in redundant configuration	
Temperature	operating: 10 – 40° C	
Rel. Humidity	10% - 85% non condensing	
Size 42-bay	W: 446 mm (482.6 with handles) H: 176 mm (4U) D: 810 mm (42 bay), 900 mm (64 bay)	

