

Expect a Perfect Fit

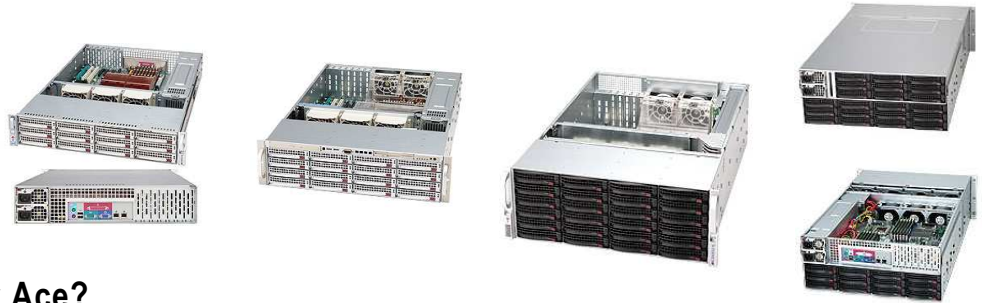


PowerWorks™ Storage

Fibre Channel Family



Ace FC Disk Arrays Grow with You!



Why Ace?

Ace offers tremendous density and big value. The PowerWorks Storage family features SES-2 enclosure management, SAS & SAS2 expander backplanes, and investment protection through cascading chassis' for maximum growth and expandability. Ace offers both Qlogic and Emulex Fibre Channel HBA's. Disk Array controllers from LSI are the standard. Open-E Data Storage Software V6 (DSS V6) is a unified file and block storage management operating system (OS) that provides Network Attached Storage (NAS), iSCSI, InfiniBand and Fibre Channel Storage Area Network (SAN) functionality. **Now offering 250TB in 12U of Space!**

Key System Features (All)

1. 28-Port 3Gb/s SAS Expander with Enclosure Management (Optional Dual for HA) (Optional 6Gb/s SAS 2)
2. 800W HS RPS (2U/3U), 900W HS RPS (4U), 1200W/1400W HS RPS (4U Option)
3. 6 Full-Length Expansion Slots (2U – LP, 3U/4U – Full Height)
4. Can be configured as either Primary or JBOD/Cascaded unit

Other 2U Features

1. 12 x 3.5" Hot-swap SAS / SATA Drive Bays.
2. 3 x 80mm 6300 RPM Fans

Other 3U Features

1. 16 x 3.5" Hot-swap SAS / SATA Drive Bays.
2. 3 x 80mm Hot-swap Fans
3. Slimline DVD-ROM

Other 4U Features

1. 24/36/45 x 3.5" Hot-swap SAS / SATA Drive Bays.
2. 5x (24) Hot-swap Fans
3. 7x (36/45) Hot-swap Fans
4. Slimline DVD-ROM (24 Drives)

Featured Storage Server Capabilities

- Supports both Enterprise SAS/SAS2 and Enterprise SATA Drives
- Optional Automatic Failover configurations are available (Additional RAID Controller(s) and Enterprise SAS/SAS2 Drives are required to implement)
- LSI SAS MegaRAID 8 Port (512MB) is included with every system (SAS/SATA or SAS2/SATA), with Optional BBWC available
- Primary units are available in 2U, 3U, or 4U (24 & 36 Drive) Configurations
- JBOD Expander Units offer 45 Drives in 4U
- Primary units include Dual Port 4Gbps Fibre Channel Adapter, and are upgradeable to support 2x Quad Port 8Gbps Fibre Channel Adapters (requires 3U or larger chassis)
- All Chassis' include **Hot-swap Redundant Power Supplies (HS RPS)**
- Primary units include **Open-E DSS V6 with a 4TB License** (extensions available)
- 3 Year Standard Warranty

[Certain enhanced features of the selected system may require optional equipment or additional software licensing beyond the initial out-of-the-box capability. For more information please contact your Ace Computers' Account Executive]

Typical Configuration Data:

Recommended Fibre Channel HBA's (QLogic)

Model*	I/O Data Rate	Ports	Bus Type	Bus Width**
QLE2560	8Gbps	Single	PCI-E	x4 / x8
QLE2562	8Gbps	Dual	PCI-E	x4 / x8
QLE2564	8Gbps	Quad	PCI-E	x8 / x8
QLE2460	4Gbps	Single	PCI-E	x4
QLE2462	4Gbps	Dual	PCI-E	x4
QLE2464	4Gbps	Quad	PCI-E	x8

* Quad Port Cards require Full Height Expansion Slot

** Bus Width is "Gen 2 / Gen 1" when multiple numbers are listed

Disk Array Configurations (Primary Unit - Typical)

Chassis Size	Disk Type	Maximum Total Storage*	Standard FC** / RAID Configuration
2U	2TB	24TB	1x QLE2462 LSI SAS MegaRAID
3U	2TB	32TB	1x QLE2462 LSI SAS MegaRAID
4U-24	2TB	48TB	1x QLE2464 LSI SAS MegaRAID
4U-36	2TB	72TB	1x QLE2464 LSI SAS MegaRAID
4U-45	2TB	90TB	JBOD Expander

* Maximum is RAW, without adjusting for RAID configuration or expected useable storage.

** All systems support a minimum of 2x FC HBA's utilizing PCI-E 2.0 (x8) expansion slots (2U Chassis does NOT support Full Height Quad Port HBA's).



Contact ACE Today:
877-ace-comp (223-2667)



Detailed Tech Specs:

Environmental / Test / Certification

- USA - UL listed, FCC
- Canada - CUL listed
- Germany - TUV Certified
- Europe/CE Mark
- EN 60950/IEC 60950-Compliant
- CCC



System Management

Open-E DSS V6 with a 4TB License
Super Doctor III

Primary System Standard Features

- Single or Dual Intel® 5500 series Xeon® Quad/Dual-Core, with QPI up to 6.4 GT/s
- Intel® 5500 (Tylersburg) Chipset
- Max 48GB DDR3 1333/1066/800MHz ECC RDIMM
- Dual Intel® 82574L Gigabit Ethernet Controller
- LSI SAS MegaRAID 8-Port SAS Controller; RAID 0, 1, 5, 6, 10, 50, 60, 512MB
- 6x SATA2 (3 Gbps) Ports via ICH10R Controller
- 2 (x8) PCI-E 2.0 (1 in x16 slot), 1 (x4) PCI-E 2.0 (in x8 slot), 1 (x4) PCI-E (in x8 slot), 2x PCI 33MHz slots
- Integrated Matrox G200eW Graphics

For more information please contact your

Ace Computers' Account Executive

or visit any of the following websites:

www.qlogic.com

www.supermicro.com

www.emulex.com

www.open-e.com

www.lsi.com

Ace Computers recommends
Microsoft® Windows® Server 2008™

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Part Numbers and Configurations:

PSFC25525AS

2U Primary System w/Intel Xeon E5504 2GHz, 2GB DDR3 1066MHz, 1x QLE2462, DSS V6 4TB License
12 Hot-swap Drive Bays, LSI SAS MegaRAID, and LSI SAS 28 Drive Expander Backplane

PSFC35525AS

3U Primary System w/Intel Xeon E5504 2GHz, 2GB DDR3 1066MHz, 1x QLE2462, DSS V6 4TB License
16 Hot-swap Drive Bays, LSI SAS MegaRAID, and LSI SAS 28 Drive Expander Backplane

PSFC45525AS9

4U Primary System w/Intel Xeon E5504 2GHz, 2GB DDR3 1066MHz, 1x QLE2462, DSS V6 4TB License
24 Hot-swap Drive Bays, LSI SAS MegaRAID, and LSI SAS 28 Drive Expander Backplane
900W Redundant Hot-swap Power Supplies

PSFC45525AS12

4U Primary System w/Intel Xeon E5504 2GHz, 2GB DDR3 1066MHz, 1x QLE2462, DSS V6 4TB License
24 Hot-swap Drive Bays, LSI SAS MegaRAID, and LSI SAS 28 Drive Expander Backplane
1200W Redundant Hot-swap Power Supplies

PSFC45525AS14

4U Primary System w/Intel Xeon E5504 2GHz, 2GB DDR3 1066MHz, 1x QLE2462, DSS V6 4TB License
36 Hot-swap Drive Bays, LSI SAS MegaRAID, and LSI SAS 28 Drive Expander Backplane
1400W Redundant Hot-swap Power Supplies

PSFC2AS 2U Additional Chassis, includes Cascade Power Control/Cable, 12 HS Drive Bays, 800W HS RPS

PSFC3AS 3U Additional Chassis, includes Cascade Power Control/Cable, 16 HS Drive Bays, 800W HS RPS

PSFC4AS9 4U Additional Chassis, includes Cascade Power Control/Cable, 24 HS Drive Bays, 900W HS RPS

PSFC4AS12 4U Additional Chassis, includes Cascade Power Control/Cable, 24 HS Drive Bays, 1200W HS RPS

PSFC4AS14 4U Additional Chassis, includes Cascade Power Control/Cable, 45 HS Drive Bays, 1400W HS RPS

Standard Suffix Part Numbers (Partial):

-6 Upgrade to an LSI SAS2 28 Drive Expander Backplane (6Gb/s)

-HA Upgrade to a Dual LSI SAS 28 Drive Expander Backplane (3Gb/s)

-HA6 Upgrade to a Dual LSI SAS2 28 Drive Expander Backplane (6Gb/s)

-Q24 Includes a 2nd QLE2462 (for a total of 4x 4Gbps FC Ports)

-Q44 Replaces QLE2462 with a QLE2464 (for a total of 4x 4Gbps FC Ports, not valid with 2U Primary System)

-Q84 Replaces QLE2462 with 2x QLE2464 (for a total of 8x 4Gbps FC Ports, not valid with 2U Primary System)

-Q28 Replaces QLE2462 with a QLE2562 (for a total of 2x 8Gbps FC Ports)

-Q48 Replaces QLE2462 with a QLE2564 (for a total of 4x 8Gbps FC Ports, not valid with 2U Primary System)

-Q88 Replaces QLE2462 with 2x QLE2564 (for a total of 8x 8Gbps FC Ports, not valid with 2U Primary System)

-24TBT Includes 12x 2TB Enterprise SATA Hard Drives – 7200RPM

-24TBS Includes 12x 2TB Enterprise SAS2 Hard Drives – 7200RPM

-32TBT Includes 16x 2TB Enterprise SATA Hard Drives – 7200RPM

-32TBS Includes 16x 2TB Enterprise SAS2 Hard Drives – 7200RPM

-48TBT Includes 24x 2TB Enterprise SATA Hard Drives – 7200RPM

-48TBS Includes 24x 2TB Enterprise SAS2 Hard Drives – 7200RPM

-72TBT Includes 36x 2TB Enterprise SATA Hard Drives – 7200RPM

-72TBS Includes 36x 2TB Enterprise SAS2 Hard Drives – 7200RPM

-90TBT Includes 45x 2TB Enterprise SATA Hard Drives – 7200RPM

-90TBS Includes 45x 2TB Enterprise SAS2 Hard Drives – 7200RPM



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Standard Suffix Part Numbers (Partial - Continued):

-DSS8TB	Upgrade the Base DSS V6 License from 4TB to 8TB
-DSS16TB	Upgrade the Base DSS V6 License from 4TB to 16TB
-DSS24TB	Upgrade the Base DSS V6 License from 4TB to 24TB
-DSS32TB	Upgrade the Base DSS V6 License from 4TB to 32TB
-DSSUTB	Upgrade the Base DSS V6 License from 4TB to 48TB / Unlimited
-L8888	Include an LSI Logic MegaRAID SAS/SATA 8888ELP 8 Port Controller
-L9240	Include an LSI Logic MegaRAID SAS2/SATA 9240-8i 8 Port Controller (No BBWC Option)
-L9260	Include an LSI Logic MegaRAID SAS2/SATA 9260-8i 8 Port Controller
-L9280	Include an LSI Logic MegaRAID SAS2/SATA 9280-4i4e 8 Port Controller
-L9280E	Include an LSI Logic MegaRAID SAS2/SATA 9280-8e 8 Port Controller
-L84016	Include an LSI Logic MegaRAID SAS/SATA 84016E 16 Port Controller (Not valid with 2U Primary System)
-L8704	Include an LSI Logic MegaRAID SAS/SATA 8704ELP 4 Port Controller
-L8708	Include an LSI Logic MegaRAID SAS/SATA 8708ELP 8 Port Controller
-LBBWC	Include an LSI Battery Backed Write Cache (BBWC), if available

Open-E DSS V6 Storage Extension - Notes:

License Key – 4TB – All systems ship with a 4TB License. Additional License Keys may be purchased in combinations of 2TB, 4TB, 8TB, 16TB, or 32TB extensions as needed. Licenses can be deferred until the storage is actually being managed/utilized by DSS V6.

License Key - Unlimited - Offers unlimited storage capacity to any customer who licenses DSS V6 for 48 TB of storage. Once the customer reaches 48 TB in purchased storage, the last product key provided by Open-E will allow for unlimited storage.

Certified Enterprise Hard Drives - Notes:

Seagate

The Seagate® Barracuda® ES.2 is a 3.5" drive with SAS or SATA interfaces and provides high-capacity, 7200-RPM nearline storage for situations where dollars per GB and GB per watt are primary metrics. Seagate® Constellation™ ES includes 3.5" high-capacity hard drives with up to 2 TB of storage for data-hungry applications. Constellation drives offer the best combination of nearline performance, enterprise-class reliability, low power consumption and high capacity, as well as a data security option.

Western Digital

WD RE4 enterprise SATA hard drives offer up to 2TB, combined with 64 MB cache, SATA 3 Gb/s transfer rate and dual stage actuation for lightning-fast performance in demanding server and storage applications. Technologically advanced acoustics minimize noise. Cool drive operation and enhanced reliability features help protect the drive and the data stored on it. WD RE3 drives offer up to 1TB, combined with up to 32 MB cache and SATA 3 Gb/s transfer rate for lightning-fast performance in demanding server and storage applications. Technologically advanced acoustics minimize noise. Cool drive operation and enhanced reliability features help protect the drive and the data stored on it. The new generation of WD RE4-GP 2TB drives deliver a faster, greener solution for large-scale data centers.

Hitachi

The latest addition to the Hitachi portfolio combines ultimate performance with high capacity in the same drive. The Ultrastar™ 15K600 can store up to 600GB of data while spinning at 15,000 RPM. That amounts to a capacity growth of 33% over its predecessor to keep pace with digital data growth and improve space efficiency in today's data centers. At the same time, sequential performance increased by 23% compared to prior generation to keep data moving faster. The 64MB cache buffer is the largest in the industry in its class and the 15K600 is designed for Hitachi reliability. 6Gb/s Serial Attached SCSI (SAS) and 4Gb/s Fibre Channel Arbitrated Loop (FCAL) available.

Toshiba

Toshiba 3.5-inch 15,000 RPM enterprise hard disk drives feature a host of innovations. The 300GB*, 4-platter configuration provides low power consumption, high reliability, and faster internal data rates. Interface options include 3 Gb/sec SAS and 4 Gb/sec Fibre Channel. These qualities make Toshiba hard disk drives ideal for today's most demanding Enterprise environments. Industry leading performance provide systems engineers with flexibility when designing rack and tower servers, storage arrays, RAID systems and digital video systems.



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