

# Sun StorageTek™ Dual 4 Gb Fibre Channel Dual GbE ExpressModule Host Bus Adapter

Multiprotocol network HBA for Sun Blade servers



## Highlights

- Enterprise-class high density I/O connectivity ideal for mixed SAN and LAN environments
- Dual port 4 Gb/s Fibre Channel link speeds and dual port Gigabit Ethernet connectivity
- Heterogeneous OS support — Solaris™, Windows, Linux, and VMWare
- Hot-pluggable to eliminate disruption to on-going blade activities during insertion/removal
- HBAware® for centralized management, providing efficient, scalable administration of enterprise-class SAN connectivity
- Features the award-winning LightPulse® Fibre Channel architecture from Emulex® and Gigabit Ethernet architecture from Intel

> The Sun StorageTek™ Dual 4 Gb Fibre Channel Dual GbE ExpressModule Host Bus Adapter (ExpressModule HBA), is ideal for Sun Blade™ 8000 and 6000 customers who require enterprise-level 4 Gb Fibre Channel connectivity and high bandwidth Gigabit Ethernet performance in a compact, cost-effect design. This ExpressModule HBA addresses server virtualization and provides the flexible functionality and high performance required for today's storage area networks (SANs) and traditional networking (LANs) implementations.

The ExpressModule HBA provides a converged network connectivity solution for enterprise-class SANs and LANs, delivering unsurpassed performance and flexibility for your most demanding storage networking applications.

### Innovative form factor

The ExpressModule HBA form factor provides a method of deploying remote I/O that allows tool-less installation or removal of the Fibre Channel ExpressModule and packs more performance and functionality in a smaller space while delivering higher I/O throughput. This solution provides efficient use of datacenter real estate.

### Modular architecture provides scalability and investment protection

Most traditional rackmount servers require a box-swap in order to take advantage of each new release of CPU and I/O technology. This problem

is solved with the Sun Blade family's modular architecture design. Everything, including the I/O, is modular and hot-pluggable.

### Advanced ExpressModule RAS features

This ExpressModule HBA provides the customer with key advantages including high availability, serviceability, reliability, and lower TCO in a industry standard form factor.

- **High levels of availability and serviceability** – The ExpressModule HBA's enclosed chassis provides the highest availability and customer serviceable through hot plug and hot insertion requiring no Blade server downtime.
- **Increased reliability and lower TCO** – The ExpressModule HBA ports are available for use without any additional hardware providing higher reliability and lower TCO. By eliminating the need for additional pass thru modules

or switches the ExpressModule HBA provides the customer with reduced cost and reduced complexity.

- **Industry standard form factor** – The ExpressModule HBA is an industry standard form factor and therefore non proprietary. Customers can use the ExpressModule wherever an ExpressModule slot is available on the blade server.

### Proven design, architecture and interface

The award-winning LightPulse Fibre Channel architecture from Emulex raises the bar in performance I/O computing. This design minimizes onboard components, while advanced error-checking methods assure robust data integrity.

Jumbo Frame support, a function of GbE technology from Intel, reduces the overhead associated with handling Ethernet packets. The number of packets is reduced by sending and receiving large packets versus standard Ethernet packets, resulting in a throughput increase and a reduction in CPU utilization.

### Powerful centralized management suite

HBAware® is a powerful centralized management suite, providing efficient, scalable administration of enterprise-class SAN connectivity.

### Flexibility

A robust feature set, combined with comprehensive testing and support helps

### Learn More

For additional information on this product, go to [sun.com/storagetek/networking](http://sun.com/storagetek/networking)

ensure that the Sun StorageTek Dual 4 Gb Fibre Channel Dual GbE ExpressModule provides the flexibility and interoperability needed for complex, highly scalable heterogeneous SANs and LANs.

## Sun StorageTek™ Dual 4 Gb Fibre Channel Dual GbE ExpressModule Host Bus Adapter

### Supported operating systems

- Solaris™ 10 SPARC® (boot from SAN)
- Solaris 10 x86/x64 (boot from SAN)
- Red Hat RHEL 4.0/5.0 (64-bit)
- SUSE SLES 9/10 (64-bit)
- Windows Server 2003 (32-bit and 64-bit)
- VMware ESX Server 3.0.1

### Supported storage platforms

- Sun StorageTek 2540
- Sun StorageTek 3510/3511
- Sun StorageTek 6320/6020/6120
- Sun StorageTek 6130
- Sun StorageTek 6140
- Sun StorageTek 6540
- Sun StorageTek 9990V, 9990, 9985, 9985V, 9980, 9970, 99960, 9910
- Sun StorageTek L25/L100 tape libraries (with FC420 FC-SCSI bridge)
- Sun StorageTek L500 tape library
- Sun StorageTek L180, L700 tape libraries (Fibre Channel only)
- Sun StorageTek L5500, L6000, L8500 tape libraries (Fibre Channel only)
- Sun StorageTek C4 tape library with FC1202 FC-SCSI bridge

### Supported server platforms

- Sun Blade™ 8000 Modular System
- Sun Blade 6000 Modular System

### Key applications

- Virtualization and consolidation
- High-performance computing
- Demanding data management

### Fibre Channel specifications

- 4/2/1 Gb/s auto-negotiation (4.2480/2.1240/1.0625 Gb/s)
- Point-to-point (N\_Port), arbitrated loop (NL\_Port) and switched fabric (N\_Port)
- Connector: SFF, LC-style small form factor fixed multimode optic
- ANSI Fibre Channel: SCSI-FCP, FCPH, FC-PH-2, FC-PH-3, FC-AL-2, FCFLA, FC-PLDA, FC-TAPE, FCP-2, FCGS-3, FC-FS

### Ethernet specifications

- Intel® 82571EB Gigabit Ethernet Controller
- 10/100/1000 Mb/s autosensing Ethernet ports
- Connector: External RJ-45 connect or for CAT 5 and higher
- IEEE 802.1Q VLAN/802.1P and 802.1D Priority Tagging and Quality of Service

IEEE 802.3 compliant

Jumbo Frames support for enhanced throughput

Hardware assist for TCP/UDP checksums as well as packet parsing and interrupt coalescing

### Environment

Volts	• +12 VDC
Power consumption (typical/max)	• Typical 14.4 Watts/Max 17.3 Watts
Operating temperature	• 0° to 55°C (32° to 131°F)
Airflow required	• 5.0 CFM
Storage temperature	• Operating: 0° to +40°C, non-condensing • Non-operating: -40°C to +70°C, non-condensing
Relative humidity	• 5% to 93% non-condensing

### Agency approvals

- Class 1 Laser Product per DHHS 21CFR (I) and EN60825-1
- UL recognized to UL 60950-1 :2003
- CUR recognized to CSA22.2, No. 60950-1-03
- TUV certified to EN60950-1
- FCC rules, Part 15, Class A
- ICES-003, Class A
- EMC Directive 2004/108/EEC (CE)
  - EN55022, Class A and EN55024
- Australian EMC Framework (C-Tick)
  - AS/NZS CISPR22:2002; Class A
- VCCI, Class A (Japan)
- BSMI Class A (Taiwan)
- MIC Class A approval (Korea)
- RoHS Compliant (Directive 2002/95/EC)
- China RoHS Compliant

### Part numbers

- Xoption – SG-XPCIE2FCGBE-E-Z
- Factory configured – SG-PCIE2FCGBE-E-Z