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Product Brief

Faster Flash. Better Virtualization. Lossless Networking.

Emulex® Gen 6 (16/32Gb)
Fibre Channel HBAs for Fujitsu

Faster Flash

• Completes data warehousing transactions in 1/2 of the time[1]

• Meet the massive bandwidth requirements of flash storage arrays with up to 32GFC throughput

• Maximize the performance of flash-based systems by prioritizing mission-critical traffic in congested networks with the exclusive ExpressLane™ feature

Better Virtualization

• Near limitless scalability to support maximum VM density with 2X more on-chip resources & bandwidth

• Improved VDI experience with low latency HBAs providing noticeable improvements during boot storms

• Simplified management & installation with OneCommand® Manager plug-in for VMware vCenter server

Lossless, Reliable Networking

• Near zero downtime— FC's lossless design ensures no dropped packets and maximum uptime

• Industry Leader for Reliability— Emulex HBAs can provide up to 1,141 years of uninterrupted service![2]

The Emulex Gen 6 LPe31000/LPe32000-series Fibre Channel (FC) Host Bus Adapters (HBAs) by Broadcom are designed to address the demanding performance, reliability and management requirements of modern networked storage systems that utilize high performance and low latency solid state storage drives.

Fibre Channel is known as the gold standard for network storage connectivity in enterprise and cloud deployments. The latest Emulex LPe31000/LPe32000-series FC HBAs offer higher performance, lower latency, enhanced diagnostics and manageability. Emulex LPe31000/LPe32000-series HBAs are available with single or dual 16GFC optics.

Unique to Fibre Channel technology is its deep ecosystem support making it ideal for large scale, easy to manage storage deployments. Users can count on a complete suite of management software, in-box drivers for mainstream server operating systems, software defined storage APIs and tools, and the strength to support high service level agreement (SLA) applications.

Accelerate

The unique Emulex Dynamic Multi-core Architecture delivers unparalleled performance and more efficient port utilization than other HBAs with the ability to apply all ASIC resources to any port that needs it.

Compared to the previous generation, Emulex Gen 6 HBAs deliver up to 2x greater bandwidth, less than half the latency, and support an industry-leading 1.6 million IOPS on a single port, ensuring SLAs are met. Emulex HBAs are an excellent choice for database applications with recent TPC-H testing in a data warehousing environment demonstrating up to 50% faster completion times vs. the previous generations of HBAs[1]. To enable the highest Virtual Machine density, Gen 6 HBAs provide support for up to 255 virtual functions, 1,024 Message Signaled Interrupts and expansive on-board context for exchanges and logins.

1 Demartek TPC-H testing performed with Emulex LPe31000/32000 FC HBAs in a Microsoft SQL Server environment vs. the previous generations of HBAs

2 Based on published FIELD MTBF of 10 million hours for the Emulex family of FC HBAs.

Emulex LPe31000/LPe32000 16/32Gb Fibre Channel HBA

Protect

Deliver enhanced security via the new secure firmware update feature which protects and ensures the authenticity of device firmware.

Forward Error Correction (FEC) which provides enhanced data reliability and performance by automatically detecting and recovering from bit errors.

End-to-end data protection with hardware parity, CRC, ECC and other advanced error checking and correcting algorithms ensure data is safe from corruption.

Enhanced silent data corruption protection provided by T10-PI with high-performance offload.

Emulex HBAs are renowned for reliability, ensuring maximum SAN uptime. Their "It Just Works" reputation is based on 17 million installed ports with proven industry-leading reliability of 10 million hours field Mean Time Between Failures (MTBF).

Manage and Deploy

The Emulex OneCommand Manager enterprise-class management application features a multiprotocol, cross-platform architecture that provides centralized management of all adapters provided by Emulex.

Enables centralized discovery, monitoring, reporting, and administration of HBAs provided by Emulex on local and remote hosts. Powerful automation capabilities facilitate remote driver parameter, firmware and boot code upgrades.

Universal boot capability allows the appropriate boot environment to be automatically selected for any given hardware. Boot from SAN capability reduces system management costs and increases uptime.

Detailed, real-time event logging and tracing enables quick diagnosis of SAN problems. Beaconing feature flashes the HBA LEDs, simplifying their identification within server racks.

Environmental monitoring feature helps optimize SAN availability.

Added Performance Features

- Doubling the maximum FC link rate from 8GFC to 16GFC and enhanced virtualization capabilities help support IT "green" initiatives.

- Frame-level multiplexing increases link efficiency and maximizes HBA performance.

- Accelerates network access to SSDs with NVMe over Fibre Channel ready feature- supports the upcoming NVMe over FC T11 standard

Standards

General Specifications

• The LPe31000/LPe32000 series FC HBAs are powered by the XE501 controller and utilizes an eight-lane (x8) PCIe 3.0 bus (backward compatibility to PCIe 2.0 supported)—the architecture enables all resources to be applied to any port that needs it, delivering

Industry Standards

• Current ANSI/IETF Standards: FC-PI-4; FC-PI-5; FC-PI-6; FC-FS-3; FC-LS-2; FCGS- 6; FC-DA; FC-DA-2; FCP-4; SPC-4; SBC-3; SSC-4

• Legacy ANSI/IETF standards: FC-PH; FC-PH-2; FC-PH-3; FC-PI; FC-PI-2; FC-PI-3; FC-FS; FC-GS-2/3/4/5; FCP-2/3; FC-HBA; FC-TAPE; FC-MI; SPC-3; SBC-2; SSC-2; SSC-3

• PCIe base spec 3.0

• PCIe card electromechanical spec 3.0

• Fibre Channel Class 3

• PHP hot plug-hot swap

Architecture

Single-port LPe31000/ dual-port LPe31002

• Supports 16GFC, 8GFC and 4GFC link speeds, automatically negotiated

• Supports up to 2 FC ports at 16GFC max (dual-port model)

Single-port LPe32000/ dual-port LPe32002

• Supports 32GFC, 16GFC, and 8GFC link speeds, automatically negotiated

• Supports up to 2 FC ports at 32GFC max (dual-port model)

Environments

• Fujitsu Primergy Servers

Optical

• Data rates: 28.05 Gb/s (32GFC); 14.025 Gb/s (16GFC); 8.5 Gb/s (8GFC); 4.25 Gb/s (4GFC) automatically negotiated

• Optics: Short wave lasers with LC type connector

• Cable: Operating at 16Gb

- 15m at 16Gb on 62.5/125 μm OM1 MMF

- 35m at 16Gb on 50/125 μm OM2 MMF

- 100m at 16Gb on 50/125 μm OM3 MMF

- 125m at 16Gb on 50/125 μm OM4 MMF

• Cable: Operating at 32Gb

- 20m at 32Gb on 50/125 μm OM2 MMF

- 70m at 32Gb on 50/125 μm OM3 MMF

- 100m at 32Gb on 50/125 μm OM4 MMF

Physical Dimensions

• Short, low profile PCIe card

• 167.64mm x 68.91mm (6.60" x 2.71")

• Full height and low profile bracket options available

Environmental Requirements

• Operating temperature: 0° to 55°C (32° to 131°F); 150 LFM required

• Storage temperature: -20° to 85°C (-4° to 185°F)

• Relative humidity: 5% to 95% non-condensing

• 23°C wet bulb

Agency and Safety Approvals

North America

• FCC/ICES Class A

• UL/CSA Recognized

Europe

• CE Mark

• EU RoHS compliant

• TUV Bauart Certified

Australia

• RCM

Japan

• VCCI Class A

Taiwan

• BSMI Class A

Korea

• MSIP (formerly KCC/MIC) Class A

China

• China RoHS Compliant

Ordering Information

Fujitsu Gen 6 HBAs are available to order from Fujitsu, using the following part numbers and model numbers

Order code	Throughput	Product Model	Height of bracket	Number of ports	Related product
S26361-F5596-E1	16GFC	LPe31000-M6-F	Full Height (FH)	1	PRIMERGY Server
S26361-F5596-E201	16GFC	LPe31000-M6-F	Low Profile (LP)	1	PRIMERGY Server
S26361-F5596-E202	16GFC	LPe31002-M6-F	Low Profile (LP)	2	PRIMERGY Server
S26361-F5596-E2	16GFC	LPe31002-M6-F	Full Height (FH)	2	PRIMERGY Server
S26361-F5596-L501	16GFC	LPe31000-M6-F	Full Height (FH)/ Low Profile (LP)	1	PRIMERGY Server
S26361-F5596-L502	16GFC	LPe31002-M6-F	Full Height (FH) / Low Profile (LP)	2	PRIMERGY Server
S26361- F4044-E1	32GFC	LPe32000-M2-F	Full Height (FH)	1	PRIMERGY Server
S26361- F4044-E201	32GFC	LPe32000-M2-F	Low Profile (LP)	1	PRIMERGY Server
S26361- F4044-E2	32GFC	LPe32002-M2-F	Full Height (FH)	2	PRIMERGY Server
S26361- F4044-E202	32GFC	LPe32002-M2-F	Low Profile (LP)	2	PRIMERGY Server
S26361- F4044-L501	32GFC	LPe32000-M2-F	Full Height (FH)/ Low Profile (LP)	1	PRIMERGY Server
S26361- F4044-L502	32GFC	LPe32002-M2-F	Full Height (FH) / Low Profile (LP)	2	PRIMERGY Server

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