EMULEX®
We network storage

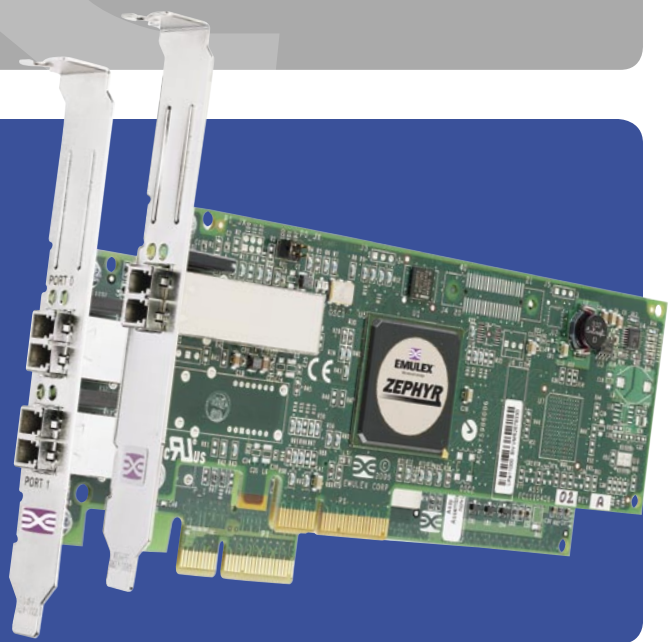
Family of 4Gb/s Fibre Channel

LightPulse® LPe11000

PCI Express Host Bus Adapters

MAJOR FEATURES

- 4Gb/s Fibre Channel link speed support
  - including automatic speed negotiation with existing 1Gb/s and 2Gb/s Fibre Channel SANs
- native PCI Express 1.0a host interface
  - x4 PCI Express connector
  - 4-lane negotiation (2.5Gb/s per lane per direction)
- superior performance
  - each channel is capable of sustaining up to 100,000 I/Os per second
- single- and dual-channel models
- full fabric support with automatic topology and speed adaptation
- common HBA API support (FC-MI) enables simplified SAN management
- onboard hardware context cache for superior fabric support and high transaction performance
- support for use of multiple concurrent protocols (SCSI & IP)
- FC service class 2 and 3 support
- FC-Tape (FCP-2) device support
- Universal Boot: simultaneous on-card support for remote boot in x86, Itanium (BootBIOS and EFI), and OpenBoot in Unix environments
- Emulex BlockGuard™ provides end-to-end data protection
- largest standard on-card data buffer in the industry
- firmware upgradeable architecture: update HBA features & functionality, preserve investment value
- hardware independent drivers ease management & allow driver upgrade independently of HBA firmware



The LightPulse® LPe11000 family is a high performance 4Gb/s PCI Express x4 host bus adapter solution. The LPe11000 balances the advanced bus speeds and efficiency of PCI Express with exceptional 4Gb/s Fibre Channel performance. With unsurpassed robustness, reliability and performance, the LPe11000 provides the optimum I/O connectivity solution for a wide spectrum of server, storage and system area networks (SANs).

As the successor to the enduring PCI interface, PCI Express is a new, much-anticipated bus architecture. As a host serial bus, PCI Express eliminates many of the inefficiencies of parallel PCI and PCI-X architectures. With lower pin counts and lower power consumption requirements, PCI Express host bus adapters also reduce system level power requirements. Most importantly though, PCI Express is backward compatible with PCI and PCI-X addressing, which allows all existing applications and Operating Systems to function unchanged.

Ideal for large or mixed-OS SAN environments, the LPe11000 HBA family uses the same drivers and management tools as the LP11000 and LP10000/1050 HBAs for PCI, PCI-X, and PCI Express systems. Emulex's unique Service Level Interface (SLI) driver architecture, which enables the independence of the operating systems device driver from the underlying HBA platform, will allow OEMs and end users to migrate to this new system architecture seamlessly (without having to change or rewrite driver utilities and other management tools). Emulex's firmware-based architecture, which allows for new features and other upgrades without costly changes to the adapter hardware, provides the kind of technical flexibility and investment protection that is critical when working with new and evolving technology.

The Emulex LPe11000 family of PCIe HBAs is supported by Emulex's centralized HBA management suite, HBAnyware. HBAnyware is a driver-based technology that enables discovery and complete management of HBAs within the SAN, reducing total cost of ownership and planned downtime while enabling sophisticated management capabilities such as remote firmware upgrades from a single console anywhere in a SAN.

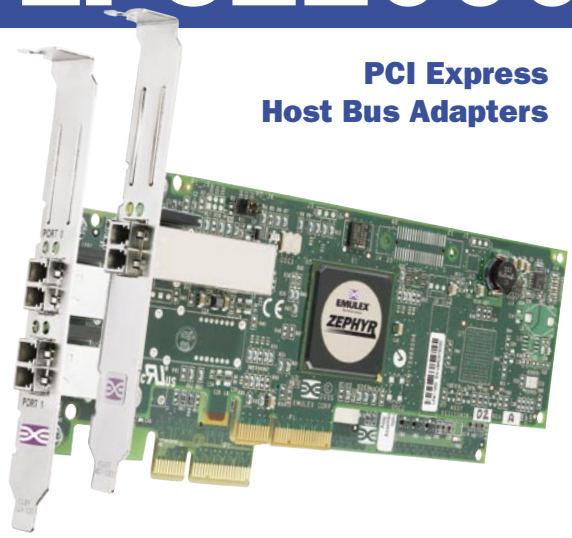
A wide range of operating system drivers, including Windows, Linux and NetWare, as well as a variety of OEM-developed operating system drivers, support Emulex HBAs. Emulex drivers support an open standards-based management application programming interface (API), which allows OEM customers and partners to seamlessly integrate support for Emulex's HBAs, enabling the development and implementation of advanced storage area network management services.

SPECIFICATIONS

Family of 4Gb/s Fibre Channel

LightPulse® LPe11000

PCI Express Host Bus Adapters



STANDARDS

ANSI Fibre Channel: FC-PH-3, FC-PI-2, FC-FS, FC-AL-2, FC-GS-4, FC-FLA, FC-PLDA, FC-TAPE, FCP-2, and RFC 2625 (IP over FC)

PCI Express base spec 1.0a

PCI Express card electromechanical spec 1.0a

Fibre Channel class 2 and 3

PHP hot plug—hot swap

ARCHITECTURE

Emulex LightPulse® technology

4Gb/s, 2Gb/s or 1Gb/s FC Link speeds automatically detected

2.5Gb/s PCIe lane negotiation automatically performed

Integrated data buffer & code space memory

100+ buffer-to-buffer credits supported (per channel)

2K contexts cached onboard (per channel)

DRIVER SUPPORT

Windows Server 2003

Windows 2000

NetWare

Linux

OEM custom drivers

HARDWARE ENVIRONMENTS

x86, x64 and Intel® Itanium® 64-bit processor family

OPTICAL

data rates: 1.0625, 2.125 & 4.25Gb/s (auto-detected)

optics: short wave lasers with LC type connector

cable: 50/125µm, up to 150 meters at 4Gb/s
62.5/125µm, up to 100 meters at 4Gb/s

":smart" digital diagnostics interface supported

PHYSICAL DIMENSIONS

Short, low profile MD2 form factor card

167.64mm x 64.42mm (6.60" x 2.54")

standard bracket (low profile available)

POWER AND ENVIRONMENTAL REQUIREMENTS

volts: +3.3 and +12 VDC

operating temperature:
0° to 45°C (32° to 113°F)

airflow required: 100 lf/m

storage temperature:
-40° to 70°C (-40° to 158°F)

relative humidity:
-5% to 95% non-condensing

AGENCY APPROVALS

Class 1 Laser Product per DHHS 21CFR (J) & EN60825

UL recognized to UL 60950-1

CUR recognized to CSA22.2, No. 60950-1-03

TUV certified to EN60950

FCC rules, Part 15, Class A

ICES-003, Class A

EMC Directive 2004/108/EEC (CE Mark)
-EN55022, Class A
-EN55024

Australian EMC Framework (C-Tick Mark)
-AS/NZS CISPR22, Class A

VCCI, Class A

MIC (Korea), Class A

BSMI (Taiwan), Class A

SOFTWARE FEATURES

A rich suite of software complements the LPe11000 family of enterprise and midrange-class Fibre Channel HBAs. Some examples of the features included are, LUN Masking, LUN Mapping, Persistent Binding, I/O Coalescing. All drivers are also fully compatible with the Emulex LP11000, LP10000, LP9802, LP9002L and LP8000 host bus adapters. Windows, Linux and NetWare drivers are also compatible with the LP1050, LP982, LP952L and LP850. HBAnyware support is included in the driver packages and provides in-band remote management over FC SAN.

ORDERING INORMATION

LPe11000-M4
Single-channel, embedded multi-mode optic interface

LPe11002-M4
Dual-channel, embedded multi-mode optic interface

06-130 10/05

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