

# LightPulse® LP1050Ex

## MAJOR FEATURES

- 2Gb/s Fibre Channel link with auto speed negotiation with 1Gb/s Fibre Channel SANs
- Single Fibre Channel port
- PCI Express x4
- Superior Performance
  - Full duplex 2Gb/s bandwidth per port
  - Capable of sustaining up to 70,000 I/Os per second
  - Frame level multiplexing and out of order frame reassembly
  - On-board hardware context cache for superior fabric support and high transaction performance
- End-to-end data protection with hardware parity and CRC support
- HBAnyware™ provides centralized, in-depth management of HBAs anywhere in the SAN
- Enterprise AutoPilot Installer™ simplifies and accelerates the HBA installation process
- Firmware-based architecture enables HBAs to be updated with new features & functionality, maintaining investment value
- Hardware independent drivers ease management & allow driver upgrade independently of HBA firmware
- SMI-S and common HBA API support enable seamless upward integration into enterprise storage and server management solutions
- Universal boot provides multi-platform support for remote SAN boot, offering enhanced server management and reduced system costs
- Detailed, real-time event logging and tracing enables quick diagnosis of SAN problems
- RoHS Compliant (Directive 2002/95/EC)

## PCI Express Host Bus Adapter

The Emulex® LightPulse® LP1050Ex delivers on Emulex's history of excellence in performance, reliability, and manageability. The LP1050Ex is a high performance, single-channel PCI Express Fibre Channel HBA that's ideally suited for large or mixed operating system Storage Area Network (SAN) environments. With renowned driver support for popular operating systems, the LightPulse LP1050Ex can be effectively applied within a broad range of storage networking solutions.

Emulex is the most trusted name in storage networking connectivity. That's because each and every Emulex LightPulse HBA leverages five generations of advanced, field-proven technologies to deliver a distinctive set of benefits that the world's largest enterprises have come to rely on. From their unique firmware upgradeable architecture, to their common driver model, Emulex HBAs are simply "Generations Ahead" of competing solutions.

**SUPERIOR QUALITY AND RELIABILITY**— Emulex HBAs deliver industry-leading reliability levels by utilizing a field-proven design that minimizes components. Emulex HBAs also use a combination of parity, CRC, ECC and other advanced error checking methods to verify the integrity of data blocks, which are passed from the host interface through the HBA.

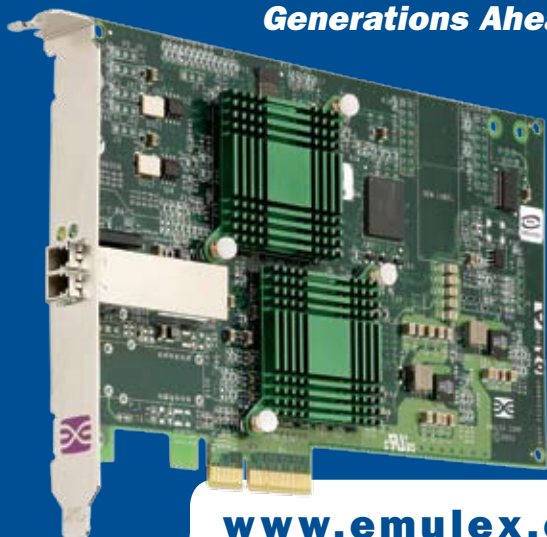
**THE MOST EFFICIENT INSTALLATION AND MANAGEMENT**— Emulex management tools automate installation and provide local and remote HBA configuration and management. Emulex's unique Service Level Interface (SLI) architecture allows complete independence of device drivers from HBA hardware and firmware. That means no reboots during most configuration changes and no need for OS specific firmware. A single driver model simplifies management across multiple generations of HBAs. In addition, Emulex HBAs have a firmware-based architecture that enables feature and performance upgrades without costly hardware changes, for long-term investment protection and seamless backward compatibility.

**MAXIMUM SAN PERFORMANCE** – Emulex HBAs deliver maximum performance levels in real-world application environments, with superior full-duplex data throughput and I/Os per second. And Emulex's exclusive Dynamic Frame Multiplexing ensures consistently superior performance in mixed load environments such as disk and tape back-up applications.

**THE FASTEST DIAGNOSIS AND RECOVERY**— Comprehensive diagnostic functions, coupled with detailed event logging and tracing, provide for fast, efficient SAN troubleshooting.

**THE BROADEST ENTERPRISE DEPLOYMENT**— With the largest installed base of any Fibre Channel HBA supplier, Emulex is trusted by the world's largest, mission critical enterprises. Long-standing partnerships with leading storage vendors ensure unparalleled compatibility levels.

## EMULEX HBAs Generations Ahead



[www.emulex.com](http://www.emulex.com)

# LightPulse® LP1050Ex

## PCI Express Host Bus Adapter

### STANDARDS

ANSI Fibre Channel:  
FC-FS, FC-PH, FC-PI, FCP, FCP-2, FC-AL,  
FC-PLDA, FC-MI, FC-FLA, IETF IP over FC

PCI Express Base Spec 1.0a  
PCI Express CEM Spec 1.0a  
PCI Express to PCI/PCI-X  
Bridge Spec 1.0

Fibre Channel Class 2 and 3

PHP hot plug—hot swap

### ARCHITECTURE

Emulex LightPulse® technology

2Gb/s or 1Gb/s FC Link

Quad Data Rate (QDR) SRAM Unified Data  
Buffer and Code Space memory

16 Buffer-to-Buffer Credits supported

1K+ Contexts Cached Onboard

### DRIVER SUPPORT

Windows Server 2003

Windows 2000

NetWare

Linux (open build and open source)

### HARDWARE ENVIRONMENTS

x86 and Intel® Itanium® processor family

PCIe 1.0a compliant @ 2.5 Gb/s

### OPTICAL

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

optics: short wave lasers with LC  
type connector

cable:  
50/125µm, up to 300 meters at 2Gb/s  
62.5/125µm, up to 150 meters at 2Gb/s

### PHYSICAL DIMENSIONS

standard height, half length x4 lane card  
111.15mm x 167.65mm (4.376" x 6.600")  
standard bracket

### POWER & ENVIRONMENTAL REQUIREMENTS

volts: +3.3 and 12 VDC

power:  
x4 lane link 15.7/22.3 watts (typical/max)

airflow required: 100 lf/m

storage temperature:  
-40° - 70°C (-40° - 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 89/336/EEC (CE Mark)

- EN55022, Class A

- EN55024

Australian EMC Framework (C-Tick Mark)

- AS/NZS 3548, Class A

VCCI, Class A

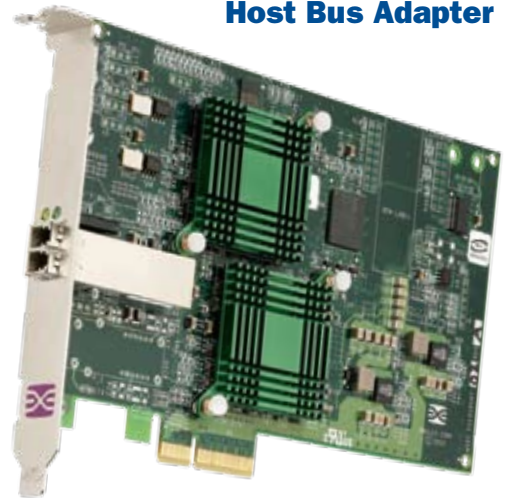
MIC (Korea), Class A

BSMI (Taiwan), Class A

### ORDERING INFORMATION

#### LP1050Ex-F2

Single channel, embedded multi-mode  
optic interface



### SOFTWARE FEATURES

A rich suite of software complements the LightPulse LP10000 family of enterprise and midrange-class Fibre Channel HBAs. Setup programs like Enterprise AutoPilot Installer streamline the installation of HBA drivers and management applications to a few simple commands, and provide customizable scripting capabilities for both interactive and automated installations. As a centralized management suite, HBAnyware incorporates agent technology that provides discovery, reporting and management of local and remote HBAs with both in-band Fibre Channel and out-of-band IP support, enabling sophisticated management capabilities such as remote firmware upgrades and advanced diagnostics from a single console anywhere in the SAN.

All Emulex device drivers are fully compatible with previous generations of Emulex host bus adapters. A single driver binary supports all Emulex HBAs on a given host platform, streamlining the management of device drivers in environments with multiple generations and versions of HBAs, simplifying the upgrade process, and providing investment protection.

This document refers to various companies and products by their trade names. In most, if not all cases, their respective companies claim these designations as trademarks or registered trademarks. This information is provided for reference only. Although this information is believed to be accurate and reliable at the time of publication, Emulex assumes no responsibility for errors or omissions. Emulex reserves the right to make changes or corrections without notice.



06-379 3/06

**www.emulex.com**