Hardware Announcement
October 3, 2006

Emulex 4 Gb Single and Dual Port PCI-X and PCI-E Adapters for IBM System x servers deliver robustness, ease of management, and high performance for server, storage, and networking environments

Overview

The Emulex 4 Gb Single-Port and Dual-Port, PCI-X and PCI-Express HBAs for IBM System x™ servers are part of a family of high-performance 4 Gb host bus adapter (HBA) solutions. The HBAs deliver exceptional performance with unsurpassed robustness, reliability, and performance for a wide spectrum of server, storage, and storage area networks (SANs). These adapters broaden the IBM 4 Gb HBA portfolio for System x servers by offering four new HBAs. This addition to the portfolio includes a Single-Port PCI-X, a Single-Port PCI-Express, a Dual-Port PCI-X, and a Dual-Port PCI-Express HBA. The following HBAs are included:

- Emulex 4 Gb FC Single-Port PCI-X HBA for IBM System x
- Emulex 4 Gb FC Dual-Port PCI-X HBA for IBM System x
- Emulex 4 Gb FC Single-Port PCI-E HBA for IBM System x
- Emulex 4 Gb FC Dual-Port PCI-E HBA for IBM System x

Major features:

- Auto speed negotiation allows seamless integration into existing 1 Gb/s and 2 Gb/s Fibre Channel SANs
- PCI-Express HBAs feature native PCI Express 1.0a host interface via an x4 PCI Express connector and 4-lane negotiation (2.5 Gb per lane per direction)
- PCI-X HBAs feature compatibility with PCI 33/66 and PCI-X 66/100/133 MHz
- Independent drivers ease management and allow driver upgrade independent of HBA firmware
- Upgradeable architecture: update HBA features and functionality while preserving investment value

With rigorous testing by IBM through the ServerProven® program, you can maintain a high degree of confidence that your System x server storage subsystem is compatible and will function reliably.

Key prerequisites

A supported System x server with an available PCI-Express expansion slot or an available PCI-X slot

- PCI 32/64-bit data and 33/66-MHz clock frequency, 3.3-V signaling
- PCI-X Mode 1 64-bit data and 66/100/133-MHz clock frequency
- PCI-X Mode 2 64-bit data and 266-MHz (133-MHz clock frequency, double data rate)
- 3.3-V and 5-V PCI power required for operation

Planned availability date

October 10, 2006

At a glance

Emulex 4 Gb Single-Port and Dual-Port, PCI-X, and PCI-Express HBAs for IBM System x servers:

- Enable end-to-end SAN Solutions using 4 Gb Fibre Channel technology for System x servers
- Provide the ability to build high-performance, highly available storage area networks (SANs)
- Are easy to set up and integrate into existing SAN configurations

For technical support:

- Call the IBM Support Center at 800-IBM-SERV (426-7378)

  or

- Request technical information via the Web site at **http://www.ibm.com/pc/support**

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Description

The Emulex 4 Gb 1- or 2-port Fibre Channel adapter cards are the latest Fibre Channel adapter card options for the IBM System x servers.

Each server can be installed with one or more adapter cards to provide redundant connections within System x servers. The adapter card provides support for 4 Gb data rates.

Additional information: All offers are subject to availability. IBM reserves the right to alter product offerings and specifications at any time without notice. IBM is not responsible for photographic or typographic errors.

IBM makes no representation or warranty regarding third-party products or services.

One-Day System x Lab Services Consultation — 40M3693

One day of STG Lab Services for System x (LSx) consulting. This unit-based fee covers one-day or eight-hours of LSx consulting, including travel and expenses. Example engagement include the following:

- BladeCenter®
- High-End x3850/x3950
- Systems Management - IBM Director, IBM RDM, and Altiris
- VMware Virtual Infrastructure and P2V
- Clustering with Microsoft™ Datacenter
- Imaging pre-load configuration
- DS4000 Storage
- Server Consolidation and Server Migration

Users can select the required number of units of consulting needed for each engagement based on LSx supplied sizing per the customer′s requirements.

Terms and Conditions items:

- Minimum quantity: 3
- Before ordering, contact an LSx Opportunity Manager for sizing
- Once ordered, provide LSx Opportunity Manager with order number
- A signed Statement of Work and IBM agreement for services or IBM customer agreement for services required before services are performed
- Customer billed for services within 30-days of order
- For non-delivery of services, customer can request refund within six-months of order

Product positioning

The Emulex 4 Gb 1- or 2-port Fibre Channel adapters are the latest Fibre Channel adapter card options for the IBM System x servers.

The FC HBA adapters provide an ideal solution for all servers and workstations needing high speed and FC data transfer connectivity for storage and mission critical applications.

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IBM United States Announcement Supplemental Information

October 3, 2006

Product name

- Emulex 4Gb FC Single-Port PCI-E HBA for IBM System x™ (42C2069)
- Emulex 4Gb FC Dual-Port PCI-E HBA for IBM System x (42C2071)
- Emulex 4Gb FC Single-Port PCI-X HBA for IBM System x (42D0405)
- Emulex 4Gb FC Dual-Port PCI-X HBA for IBM System x (42D0407)

Product name

- One-Day System x Lab Services Consultation (40M3693)
- 2.8m, 10A/120V, C13 to NEMA 5-15P (U.S.) Line Cord
- 1.8m, 10A/120V, C13 to NEMA 5-15P (U.S.) Line Cord
- 4.3m, 10A/120V, C13 to NEMA 5-15P (U.S.) Line Cord

Product specific overview: The Emulex 4 Gb Single-Port and Dual-Port, PCI-X and PCI-Express HBAs for System x servers are part of a family of a high-performance 4 Gb host bus adapter (HBA) solutions. The HBAs deliver exceptional performance with unsurpassed robustness, reliability, and performance for a wide spectrum of server, storage, and system area networks (SANs). These adapters broaden the IBM 4 Gb HBA portfolio for System x servers by offering four new HBAs. This addition to the portfolio includes a Single-Port PCI-X, a Single-Port PCI-Express, a Dual-Port PCI-X, and a Dual-Port PCI-Express HBA.

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At a glance — Product specific

Emulex 4 Gb Single-Port and Dual-Port, PCI-X, and PCI-Express HBAs for IBM System x servers

- Enable end-to-end SAN Solutions using 4 Gb Fibre Channel technology for System x servers
- Provide the ability to build high-performance, highly available storage area networks (SANs)
- Are easy to set up and integrate into existing SAN configurations

Technical information

Performance specifications

- Functions as a 4 Gbps FC network adapter
- PCI-E or PCI-X design
- Single-port or dual-port adapter
- Supports major operating systems (refer to ServerProven® for list of individual operating systems)

4 Gbps FC Host Bus Adapters are designed to comply with the PCI 2.2 Specifications.

Physical specifications

- Approximate height: 64.52 mm (2.54 in)
- Approximate width: 167.64 mm (6.60 in)
- Approximate weight: .025kg (0.5 lb)

Operating environment

- Temperature:
  - 0° to 45°C (32° to 113°F) at 0 to 914 m (0 to 3,000 feet) operating
  - -40° to 70°C (-40° to 158°F) at 914 m to 2,133 (3,000 to 7,000 feet) storage
  - Relative humidity: 5% to 95% (non-condensing)

Agency approvals

- Class 1 Laser Product per DHHS 21CFR (J) & EN60825-1
- UL recognized to UL60950-1:2003
- CUR recognized to CSA 22.2, No. 60950-1-03
- Baurt-certified by TUV to 60950-1
- FCC Rules, Part 15, Class A
- Industry Canada, ICES-003, Class A
- EMC Directives 89/336/EEC and 2004/108/EC (CE Mark) EN55022, Class A EN55024
- Australian EMC Framework (C-Tick Mark)
- AS/NZS CISPR22:2002 Class A

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- Japan VCCI, Class A
- Taiwan BSMI, Class A
- Korea MIC, Class A

ENERGY STAR-compliant: No

Hardware requirements: The 4 Gb FC Host Bus Adapters are supported on the following IBM platforms.

Note: Refer to IBM ServerProven for a complete list of individual systems and Operating Systems interoperability. Refer to the IBM Interoperability Matrices of DS4000, DS6000, and DS8000 for storage interoperability guidance.

System name	Machine type
System x3950	8872
System x3455	7984
System x3500	7977
System x3550	7978
System x3650	7979
System x260	8685

Software requirements

Table 1. Software

- Microsoft
  - Windows™ 2000 Server and Advanced Server
  - Windows Server 2003 Standard, Enterprise , Web
  - Windows 2003 SP1® 64-bit (x64)
- Linux™
  - RHEL 3 AS, ES
  - RHEL 4 AS, ES
  - RHEL 3 AS, ES 64-bit
  - RHEL 4 AS, ES 64-bit
  - RHEL 3 for Power
  - RHEL 4 for Power
  - SUSE Linux ES 8 (SLES 8)
  - SUSE Linux ES 8 64-bit (SLES 8)
  - SUSE Linux ES 9 (SLES 9)
  - SUSE Linux ES 9 64-bit (SLES 9)
  - SUSE Linux ES 8 for Power
  - SUSE Linux ES 9 for Power
- Other
  - Netware 6.5
  - VmWare ESX 3.0

Compatibility

- Hardware Environments PCI-E and PCI-X Mode 1 and 2 compliant systems

For latest compatibility information, visit

http://www.ibm.com/servers/eserver/serverproven/compat/us/

Note: Some configurations may not be compatible.

Limitations: None

Planning information

Additional cable orders required: No

Packaging: One box

Shipment Group

- Emulex 4 Gb FC HBA adapter
- Quick install guide
- Documentation CD
- 2U bracket

Security, auditability, and control

Security and auditability features of this product are:

- This product uses the security and auditability features of the host hardware, software, and application software.

Terms and conditions

Field-installable	Yes
Customer setup	Yes
Warranty period(1)	1-year
Service type (CCE/CCR/CRU)	CRU
Maintenance agreement	No
Optional upgrade	No
Licensed programs	No

(1) To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or call IBM.

In the United States, call 800-426-7378, or write to:
Warranty Information
P.O. Box 12195
Research Triangle Park, NC 27709
Attn: Dept UF2A/B2O3

Note: Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the feature or option.

All other terms and conditions are the same as those applicable to the IBM machine type in which the feature is installed.

Help and service information — Features and options

During the warranty period, support for a warranty related issue can be obtained by accessing IBM's online services (requires internet access account, not included) or calling the IBM Support Center at 800-426-7378, 24 hours a day, 7 days a week, to answer any questions regarding your new IBM option. Response time will vary depending on the number and nature of calls received. If you need warranty service, return or exchange is available. In addition, if your IBM option is installed in an IBM computer, you may be entitled to service at your location. For general questions related to the use of your options, fee-based support is available. Your technical support representative can help you determine the best alternative.

Accessing IBM online services

http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Prices

Options SEOs

Description	SEO number	List price(2)
Emulex 4 Gb FC HBA PCI-E Adapter Single Port for IBM System x	42C2069	$1,225
Emulex 4 Gb FC HBA PCI-E Adapter	42C2071	1,899

Dual Port for IBM System x Emulex 4 Gb FC HBA PCI-X Adapter	42D0405	1,225
Single Port for IBM System x Emulex 4 Gb FC HBA PCI-X Adapter	42D0407	1,899
Dual Port for IBM System x		
One-Day System x Lab Services Consultation	40M3693	2,799

(2) List price does not include tax or shipping and is subject to change without notice. Reseller prices may vary.

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