

10GbE Virtual Fabric Adapters for IBM System x

Integrated Virtual Fabric Adapter II for select IBM System x models
Option Virtual Fabric Adapter II: IBM Part Numbers 49Y7950¹, 49Y4274²

SIMPLIFIED NETWORKING, TRUSTED SAN INTEROPERABILITY AND INCREASED BUSINESS AGILITY

Optimized Network Connectivity

The Emulex Virtual Fabric Adapter II for IBM System x is a high-performance, dual-port network adapter for 10Gb Ethernet (10GbE) networks. It's available as an optional 10GbE adapter, or as integrated 10GbE technology for select IBM System x models. The Emulex 10GbE Virtual Fabric Adapter II offers the benefits and flexibility of I/O convergence with a single end-to-end solution. An upgrade option (49Y4274) can be used to add support for storage networks using iSCSI³ or Fibre Channel over Ethernet (FCoE) with full protocol offload.

Superior 10Gb/s performance

The Emulex 10GbE Virtual Fabric Adapter II for IBM System x achieves line rate 10Gb/s performance with support for TCP/IP stateless offloads and TCP Chimney Offload. TCP Chimney Offload reduces system processor utilization, provides increased system performance and reduces overall system power requirements.

Network convergence

The Virtual Fabric Adapter II for IBM System x provides the option to support FCoE, seamlessly converging Fibre Channel and Ethernet I/O while leveraging ten generations of proven Emulex Fibre Channel technology. By using a common infrastructure for Ethernet and storage networks, data centers can reduce capital expense (CapEx) with savings of up to 30% for adapters and switches, and up to 80% for cables. Network convergence also reduces operational expense (OpEx) for power and cooling by up to 40%. FCoE is fully compatible with existing Fibre Channel infrastructures to fully protect investments in storage, switches, management applications and administrative expertise.

Optimized for virtualization

The Emulex 10GbE integrated and option for Virtual Fabric Adapter II for IBM System x offer the benefits and flexibility of an exclusive enhanced virtual NIC (vNIC) function, which enables dynamic bidirectional bandwidth allocation and I/O convergence in a single end-to-end solution. Each port on the 10GbE Virtual Fabric Adapter II card can support up to four vNIC functions per physical port. For adapters with FCoE capability, each physical port supports three vNIC functions and one FCoE function.

Key Features

Flexible Ethernet connectivity

- Supports 10Gb/s, Virtual NIC, iSCSI³ and FCoE Hardware Offload
- Supports up to 8 virtual ports

Superior performance

- Line rate 10Gb/s performance
- TCP/IP stateless offloads
- TCP Chimney Offload

One platform for network and storage connection

- Based on OneConnect technology, includes FCoE and iSCSI³ support as a feature entitlement upgrade
- Simplifies I/O hardware choices for IT managers
- Available as an integrated 10GbE technology or as a 10GbE adapter option

Energy-efficient design

- Industry-leading performance per watt with 20% improvement in power efficiency over previous generation
- Complements data center "green" initiatives

Easy to deploy and manage with OneCommand™ Manager application

- One management console for network and storage
- Integrated management of Emulex UCNAs and Host Bus Adapters (HBAs)

Key Benefits

Optimized for virtualization

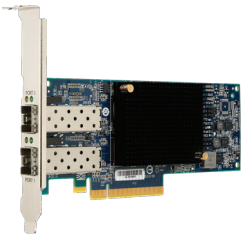
- Enhanced vNIC function for I/O virtualization flexibility
- Emulex vEngine technology enables more VMs per server with multiple protocol offloads
- SR-IOV for optimized I/O performance on supported operating systems

Optimized for convergence

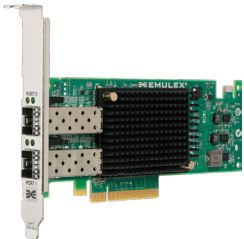
- Maximizes I/O consolidation with high-performance 10GbE ports
- One network infrastructure reduces CapEx
- One management console reduces OpEx
- Leverages existing IT investments

Enterprise-ready

- Hardware parity, CRC, ECC and other advanced error checking
- Backed by field-proven Emulex reliability and support



10GbE Integrated Virtual Fabric Adapter II for IBM System x



10GbE (Option) Virtual Fabric Adapter II for IBM System x
IBM Part Number 49Y7950



OneConnect™



OneCommand™

¹ NIC only ² iSCSI or FCoE storage support ³ iSCSI upgrade available Q1/2012



10GbE Virtual Fabric Adapters for IBM System x

Integrated Virtual Fabric Adapter II for select IBM System x models
Option Virtual Fabric Adapter II: IBM Part Numbers 49Y7950, 49Y4274



SPECIFICATIONS

Integration of Emulex and IBM technology

The Emulex 10GbE Virtual Fabric Adapter II for IBM System x is available as an option adapter (IBM Part Number 49Y7950) or as an integrated 10GbE technology. Emulex is delivering integrated 10GbE connectivity across a broad spectrum of IBM servers, signifying comprehensive integration between Emulex and IBM for its next-generation of x86 and blade servers. The benefits of Emulex technology are as simple as selecting the right IBM server model.

Greener data centers

The Emulex OneConnect UCNA platform delivers industry-leading performance and scalability per watt, reducing requirements for power and cooling. Protocol offload enables efficient use of computing resources, supports more VMs per CPU, and reduces the number of servers required to support data center demands.

Advanced error checking

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

Simplified Management

OneCommand Manager application

The OneCommand Manager application enables centralized management of Emulex OneConnect UCNAs and HBAs throughout the data center from a centralized management console. The OneCommand Manager application provides a graphical user interface (GUI) and a scriptable command line user interface (CLI), which drive administration efficiency and business agility.

Network boot and installation

Support for Preboot eXecution Environment (PXE) makes the Emulex 10GbE Virtual Fabric Adapter II for IBM System x an ideal solution for diskless deployments.

Controller

- BladeEngine™ 3 (BE3)

Standards

- ANSI INCITS T11 FC-BB-5 2.0, FC-PI-2, FC-GS-4, FC-TAPE, and FCP-3
- PCI Express base spec 2.0, PCI Bus Power Management Interface, rev. 1.2
- Advanced Error Reporting (AER)
- IEEE 802.3ae (10GBASE Ethernet)
- IEEE 802.1q (Virtual LAN)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- IEEE 802.1p (QoS/CoS)
- IEEE 802.1Qaz (ETS and Congestion Management)
- IEEE 802.1Qbb (Priority Flow Control)
- IEEE 802.1ab (PFC and LLDP)
- PHP hot plug-hot swap

Architecture

- Dual-channel, 10Gb/s Ethernet Link speed
- PCIe Express 2.0 (x8, 5GT/s), MSI-X support
- Integrated data buffer and code space memory

FCoE Features

- Common driver for UCNAs and HBAs
- 64 N_Port ID Virtualization (NPIV) interfaces (total for adapter)
- Support for FIP and FCoE Ether Types
- Fabric Provided MAC Addressing (FPMA) support
- 1024 concurrent port logins (RPIs) per port
- 1024 active exchanges (XRIs) per port

iSCSI Features*

- Target discovery methods
- Authentication mode
- INT 13 Boot

Ethernet Features

- IPv4/IPv6 TCP, UDP checksum offload; Large Send Offload (LSO); Large Receive Offload; Receive Side Scaling (RSS); TCP Segmentation Offload (TSO); IPv4 TCP Chimney Offload
- VLAN insertion and extraction
- Jumbo frames up to 9000 Bytes
- Preboot eXecution Environment (PXE) 2.0 network boot support
- Interrupt coalescing
- Load balancing and failover support including adapter fault tolerance (AFT), switch fault tolerance (SFT), adaptive load balancing (ALB), teaming support, VMware NetQueue v2 and IEEE 802.3ad, VT-d / IOMMU support

* iSCSI upgrade available Q1/2012

Comprehensive OS Support

- Windows Server
- VMware ESX
- Red Hat Enterprise Linux Server
- Novell SUSE(R) Linux Enterprise Server

Hardware Environments

- x86, x64 processor family

Interconnect

- Copper
 - SFP+ Direct Attached Twin-Ax Copper interface
 - Standards compliant passive and active copper cables supported up to 5m
- Optical
 - Optics: 10GBASE-SR short wave lasers with LC type connector

Physical Dimensions

- Short, low-profile form factor card
- 167.64mm x 68.91mm (6.60" x 2.71")
- Standard bracket (low profile available)

Environmental Requirements

- Operating temperature: 0° to 55° C (32° to 131° F)
- Storage temperature: -40° to 70° C (-40° to 158° F)
- Relative humidity: 5% to 95% non-condensing

Agency Approvals

- UL recognized to UL 60950-1 2nd edition
- CUR recognized to CSA22.2, No. 60950-1-07
- Bauart-certified to EN60950-1 2nd edition
- 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 (Japan), Class A
- KCC (Korea), Class A
- BSMI (Taiwan), Class A
- EU RoHS Compliant (Directive 2002/95/EC)
- China RoHS Compliant

Ordering Information

Virtual Fabric Adapter II: IBM Part Number **49Y7950**
iSCSI* or FCoE Upgrade: IBM Part Number **49Y4274**

Visit www.ibm.com/servers/systems/x



World Headquarters 3333 Susan Street, Costa Mesa, CA 92626 +1 714 662 5600
Wokingham, UK +44 (0) 118 977 2929 | **Munich, Germany** +49 (0) 89 97007 177
Paris, France +33 (0) 158 580 022 | **Beijing, China** +86 10 68499547
Tokyo, Japan +81 3 5325 3261 | **Bangalore, India** +91 80 40156789

Connect with Emulex

twitter.com/emulex [friendfeed.com/emulex](https://www.facebook.com/emulex) [bit.ly/emulexlinks](https://www.linkedin.com/company/emulex) [bit.ly/emulexfb](https://www.youtube.com/emulex)



www.emulex.com

©2011 Emulex, Inc. All rights reserved. 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. This report is the property of Emulex and may not be duplicated without permission from the Company.