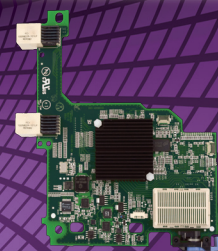




# Virtual Fabric Adapter (CFFh) for IBM BladeCenter

IBM Part No. 49Y4235



Delivering new levels of performance, scalability and investment protection

## Overview

The Emulex Virtual Fabric Adapter (CFFh) for IBM BladeCenter offers the benefits and flexibility of both virtual NIC and I/O convergence on a single end-to-end solution. The Virtual Fabric Adapter provides two physical Ethernet ports, supporting 1Gb/s and 10Gb/s traffic. Each physical 10Gb/s port can be divided into four virtual ports with bandwidth allocation in 100Mb/s increments to the maximum 10Gb/s per physical port. Based on the Emulex OneConnect™ technology, the adapter offers the fastest 10Gb/s performance in the industry. License upgrades can enhance adapter functionality with FCoE and iSCSI protocol support, delivering the industry's first Universal Converged Network Adapter and a future-proof connectivity solution for IBM BladeCenter.

### One Adapter to Manage All Workloads: 1Gb, 10Gb, Virtual NIC, IO Convergence

The Emulex Virtual Fabric Adapter for IBM BladeCenter is based on the Emulex OneConnect™ Universal Converged Network Adapter (UCNA) platform and supports hardware offload and acceleration on a single chip for all major protocols.<sup>1</sup> By using a common infrastructure for Ethernet and storage networks, data centers can reduce capital expense (CapEx) for adapters, switches and cables, and operating expense (OpEx) for power, cooling and IT administration.

The two port 10Gb adapter supports multiple virtual NIC (vNIC) functions:

- Each vNIC appears as an individual adapter to the operating system.
- Each vNIC can allocate bandwidth at increments of 100Mb.
- The adapter can connect to either 1Gb or 10Gb data center infrastructure.

### Virtual Fabric for IBM BladeCenter for a Future-proof Data Center

IT managers can combine HS22 Blades, Emulex Virtual Fabric Adapter, and the BNT Convergence Ready Switch to enable the Virtual Fabric Solution for IBM BladeCenter and achieve a new level of data center consolidation, efficiency, flexibility and scalability. Data centers can leverage up to 10 Ethernet NIC and two Fibre Channel ports when they combine the Emulex Virtual Fabric Adapter with the Ethernet ports on-board and Emulex's LightPulse® 8Gb/s Fibre Channel CIOv Expansion Card in the optional slot, making it an ideal blade solution for VMware virtualized server environments, in which it is recommended to use multiple NICs for different traffic types. The BNT 10-port 10Gb Ethernet Switch Module recognizes the Virtual Network Adaptor and assigns bandwidth in increments of 100MB. The Switch Module is CEE/FCoE-enabled for upgradeability to converged infrastructures.

## Key Features

### Flexible Ethernet connectivity

- Supports 1Gb/s, 10Gb/s, and Virtual NIC
  - 1Gb and 10Gb auto-negotiation
  - Virtual port bandwidth allocation in 100Mb/s increments
- Supports up to 8 virtual ports

### One platform for network & storage connection

- Simplifies I/O hardware choices for IT managers
- Based on OneConnect technology and includes FCoE and iSCSI support as a future software license upgrade

### Superior performance

- TCP/IP stateless offloads
- TCP Offload Engine (TOE) support
- Line rate throughput

### Energy efficient design

- Industry-leading performance per watt
- Complements data center "green" initiatives

### Easy to deploy and manage

- One management console for network and storage
- Serial over LAN and cKVM support for enhanced BladeCenter management
- Integrated management with Emulex OneCommand™ Manager

## Key Benefits

### Optimized for convergence

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

### Enterprise-ready

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

<sup>1</sup> TCP/IP and TOE will be available at launch; iSCSI and Fibre Channel over Ethernet (FCoE) will be available via software license upgrade in the future.

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## SPECIFICATIONS

### Greener Data Centers

The Emulex Virtual Fabric Adapter for IBM Blade Center 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.

### Streamlined Installation

A single installation of drivers and applications for Windows servers eliminates multiple reboots and ensures that each component is installed correctly and Emulex Virtual Fabric Adapters are ready to use.

### 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.

### 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, IBM Blade Server Base Specification for I/O cards, PCI Bus Power Management Interface, rev. 1.2, Advanced Error Reporting (AER)
- IEEE 802.3ae (10Gb/s Ethernet), 802.1q(VLAN), 802.1p(QoS/CoS), 802.3ad (Link Aggregation), 802.3x (Flow Control), 802.3ak(10GBase-CX4),
- Enhanced Ethernet (draft)
  - Enhanced Transmission Selection, ETS(P802.1Qaz)
  - Priority-based Flow Control, PFC (P802.1Qbb)
  - Data Center Bridging Capabilities eXchange Protocol, CIN-DCBX and CEE-DCBX (P802.1Qaz)

### Architecture

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

### Ethernet Features

- IPv4/IPv6 TCP, UDP checksum offload
  - Large Send Offload (LSO)
  - Large Receive Offload
  - Receive Side Scaling (RSS)
  - IPV4 TCP Chimney Offload
- VLAN insertion and extraction
- Jumbo frames up to 9000 Bytes
- Interrupt coalescing
- Load balancing and failover support including adapter fault tolerance (AFT), switch fault tolerance (SFT), adaptive load balancing (ALB), teaming support and IEEE 802.3ad

### Comprehensive OS Support

- Windows Server 2008, Windows Server 2003
- Red Hat Enterprise Linux Server
- Novell SUSE® Linux Enterprise Server
- VMware ESX

### Hardware Environments

- IBM HS22 Blade Server
- x86, x64 processor family

### 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

The following approvals will be obtained prior to production shipment

- UL recognized to UL 60950-1
- CUR recognized to CSA22.2, No. 60950-1-03
- Baurt-certified to EN60950-1
- 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
- MIC (Korea), Class A
- BSMI (Taiwan), Class A
- EU RoHS Compliant (Directive 2002/95/EC)
- China RoHS Compliant

### Ordering Information

- The Emulex Virtual Fabric Adapter (CFFh) for IBM BladeCenter will be available from IBM in October 2009. To order, use IBM Part Number 49Y4235.

Visit [www.ibm.com/bladecenter](http://www.ibm.com/bladecenter)

**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 5322 1348 | **Bangalore, India** +91 80 40156789

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