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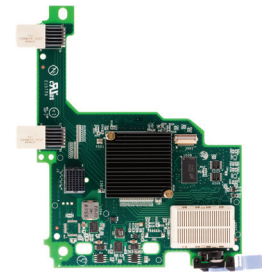
DATA SHEET

CONNECT

Emulex 10GbE Virtual Fabric Adapter II (CFFh) for IBM BladeCenter HS23 Servers

IBM Part No. 81Y3120,¹ 90Y9332,² 90Y9350

Delivering New Levels of Performance, Scalability and Investment Protection



Emulex VFA II for IBM BladeCenter HS23 Servers

Overview

The Emulex 10GbE Virtual Fabric Adapter (VFA) II (CFFh) for IBM BladeCenter HS23 Servers adds two 10 Gigabit Ethernet (10GbE) ports to IBM BladeCenter HS23 servers. The dual-port Emulex VFA II combines with the Emulex dual-port 10GbE LAN-on-motherboard (LOM) integrated into HS23 servers to provide a total of four high performance 10GbE ports. The integrated LOM also provides two 1 Gigabit Ethernet (1GbE) ports. This is a unique solution for HS23 servers that leverages the existing LOM to provide four 10GbE ports with a single driver stack and management application.

Each physical 10GbE port can be divided into four virtual ports with bandwidth allocation in 100Mbps increments to the maximum 10Gbps per physical port. The VFA II (81Y3120) is a network interface card (NIC) and the VFA Advanced II (90Y9332) supports connectivity for iSCSI or Fibre Channel over Ethernet (FCoE) storage with full protocol offload. A Feature on Demand (FOD) upgrade option (90Y9350) adds storage protocol support to the VFA II. An FOD option (90Y9310) can also be used to add iSCSI or FCoE to the integrated LOM.

Scalable virtual server deployments

Data centers can scale virtual server deployments by combining eight vNIC functions from the dual-port Emulex VFA II adapters with six vNIC functions from the dual-port integrated LOM. The integrated LOM also provides two 1GbE ports. Two Fibre Channel ports can also be added with the Emulex LightPulse® 8Gbps Fibre Channel CIOv Host Bus Adapter (HBA). The end result is an ideal blade solution for VMware environments that supports networked storage and complies with the best practice recommendation to use multiple NICs for different traffic types.

End-to-end virtualization with IBM Virtual Fabric Switch Modules

IT managers can combine an IBM BladeCenter HS23 server with the Emulex VFA II and the IBM Virtual Fabric 10Gb Switch Module for IBM BladeCenter to enable an end-to-end virtualization solution. The IBM Virtual Fabric Switch Module recognizes the VFA II and supports vNIC bandwidth assignment in increments of 100MB. Bandwidth allocations affect both inbound and outbound I/O and take effect immediately. The IBM Virtual Fabric Switch Module also supports Data Center Bridging (DCB) standards that enable network convergence with FCoE.



OneConnect™



OneCommand™



Key Features

Flexible Ethernet connectivity

- Supports 1Gbps, 10Gbps, Virtual NIC, iSCSI and FCoE Hardware Offload
 - 1Gb and 10Gb auto-negotiation
 - Virtual port bandwidth allocation in 100Mb/s increments
- Combines with HS23 LOM to provide four 10GbE physical ports
- Supports up to four virtual ports per physical port

One platform for network & storage connection

- Upgradeable to iSCSI or FCoE Hardware Offload

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 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 and IBM reliability and support

¹ NIC Only

² Advanced VFA (iSCSI or FCoE support)

Emulex 10GbE Virtual Fabric Adapter II (CFFh) for IBM BladeCenter HS23 Servers

Switch independent vNIC support

The Emulex VFA II also provides vNIC capabilities with any 10GbE switch that is supported for IBM BladeCenter HS23 servers. There are four vNIC functions for each port on the VFA II and three vNIC functions for each port on the integrated LOM. Bandwidth allocation is done using management software that runs at boot time. Bandwidth allocations affect I/O traffic that is outbound from the server.

Single Root I/O Virtualization (SR-IOV)

With OneConnect support for SR-IOV, virtual machines (VMs) can share adapter ports to optimize performance with up to 32 virtual functions per port. VM-to-VM communication is enabled with a Layer 2 switch that is embedded in the OneConnect adapter. OneConnect adapters are PCI-SIG compliant and will support SR-IOV as available with hypervisors.

Protocol offload for network storage

Network storage is supported with the Emulex VFA Advanced II (90Y9332) or a FOD upgrade option (90Y9350) for the Emulex VFA II (81Y3120). iSCSI is supported with hardware acceleration that offloads iSCSI protocol processing to the adapter and saves server CPU resources for applications workloads. Emulex Lab tests showed iSCSI protocol offload can support I/O for 50% more VMs than a NIC and software initiator. FCoE is also supported with full protocol offload.

Greener data centers

The Emulex VFA II for IBM BladeCenter delivers industry-leading performance and scalability per watt, reducing requirements for power and cooling.

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.

Controller

- BladeEngine™ 3 (BE3)

Standards

- PCI Express base spec 2.0
- PCI Bus Power Management Interface, rev. 1.2
- IBM Blade Server Base Specification for I/O cards
- IEEE 802.3ae (10GBASE Ethernet Ports)
- IEEE 802.1q (Virtual LANs)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- IEEE 802.1p (Quality/Class of Service)
- IEEE 802.1Qaz (Enhanced Transmission Selection)
- IEEE 802.1Qaz (Data Center Bridging Capabilities Exchange)
- IEEE 802.1Qbb (Priority-based Flow Control)
- IEEE 802.1ab (Link Layer Discovery Protocol)

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

I/O Virtualization

- PCI-SIG SR-IOV compliant
- On-chip VM-to-VM switching
- Quality of Service (QoS) across each virtual and physical function

iSCSI Features

- Target discovery methods
- Authentication modes
- INT 13 Boot

FCoE Features

- Common driver for VFAs 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

Comprehensive OS Support

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

Hardware Environments

- IBM BladeCenter HS23 Server

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
- KCC (Korea), Class A
- BSMI (Taiwan), Class A
- EU RoHS Compliant (Directive 2002/95/EC)
- China RoHS Compliant

Ordering Information

- VFA II: 81Y3120
- VFA Advanced II (iSCSI or FCoE support): 90Y9332
- Virtual Fabric Advanced Software Upgrade (VFA II): 90Y9350
- Virtual Fabric Advanced Software Upgrade (LOM): 90Y9310

Visit www.ibm.com/bladecenter



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