



DATASHEET

CONNECTIVITY

10GbE, Virtual Fabric and SAN Connectivity Products

For IBM System x, Power and BladeCenter Systems

SIMPLIFIED NETWORKING, TRUSTED SAN INTEROPERABILITY AND INCREASED BUSINESS AGILITY

IBM-branded Emulex adapters optimize IBM system performance. With powerful management tools and broad platform support, the Emulex family of Host Bus Adapters (HBAs), 10Gbps Ethernet (10GbE) network interface cards (NICs), and Universal Converged Network Adapters (UCNAs) deliver maximum performance in the broadest range of applications and storage area network (SAN) and converged network environments.

Benefits of Emulex with IBM

Investment protection—Emulex's unique driver and firmware-independent architecture allows customers to leverage new features and performance enhancements without migrating to a whole new hardware platform. Pay-as-you-go upgrades for Emulex 10GbE Virtual Fabric Adapters (VFAs) can add Fibre Channel over Ethernet (FCoE) or iSCSI functionality, delivering a future-proof connectivity solution for IBM System x and BladeCenter using IBM's Feature on Demand (FoD) licensing.

Higher reliability and availability—Emulex 8Gbps Fibre Channel (8GFC) controllers operate up to 22% cooler than other 8Gb/s adapters, delivering 166% better Mean Time Between Failures (MTBF).

End-to-end virtualization—Emulex VFAs for IBM BladeCenter and System x divide physical ports into up to 8 virtual NICs (vNICs) per adapter with bandwidth allocation in 100Mb increments. Each vNIC appears as an individual adapter to the OS. Emulex Fibre Channel adapters support up to 3x the number of virtual machines (VMs) than the nearest competitor.

Higher performance—Superior dual-channel scaling and CPU utilization efficiency are just two of the ways that Emulex addresses peak performance. IBM customers achieve greater total IOPS (+37%), superior second-channel scalability (+127%), and higher throughput (+78%) with MSI-X for all 8Gb products. Additionally, the Emulex 10GbE Virtual Fabric Adapters deliver near line rate performance and enable optimum system performance and flexibility with virtualized servers and servers that require managed I/O for individual applications.

Lower total cost of ownership (TCO)—Emulex products are simpler to manage and help minimize OpEx costs. The OneCommand Manager application, combined with our firmware-based architecture, results in faster system configurations and updates. Additionally, Emulex products enable data centers to consume less power with superior CPU utilization efficiency.

Technology: Features

Driver architecture

- To simplify management and configuration, Emulex OneConnect Ethernet and LightPulse Fibre Channel adapters support one driver for each operating system and protocol (Fibre Channel/FC, iSCSI, Ethernet and iSCSI) regardless of system bus architectures (PCI, PCI-X or PCIe), form factor and generation.

Simplified management

- Emulex OneCommand® Manager provides in-depth management and diagnostic capabilities for IBM-branded 8 and 4GFC HBAs, blade expansion cards, and 10GbE Virtual Fabric Adapters for System x and BladeCenter.

Hardware-bound parameter settings

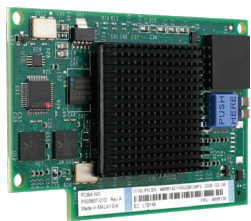
- Adapter parameters and settings are saved on the boot device versus the server. This is particularly beneficial in boot-from-SAN environments.

N_Port ID Virtualization (NPIV) support (virtual HBA)

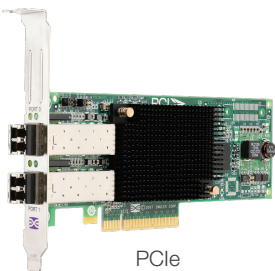
- Emulex technology generates virtual World Wide Names (WWNs) in VMware, Microsoft Hyper-V and Citrix XenServer environments. IBM customers can implement SAN best practices in virtualized server environments.

Passive cooling devices

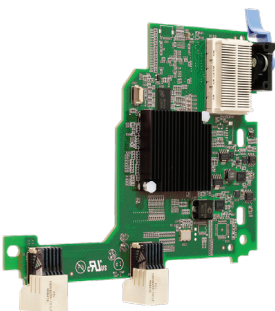
- Passive cooling devices with no moving parts prevent excessive and sustained heat build-up on I/O controllers and are included on Emulex 8GFC HBAs, CNAs and expansion card products.



CIOv



PCIe



CFFh



IBM-branded 10GbE VFAs for System x and BladeCenter

IBM Systems	NIC Support		vNIC Support		FCoE Support		iSCSI Hardware Acceleration Support	
	10GbE Integrated ² VFA	10GbE VFA Option	Virtual Fabric vNIC	Switch Independent vNIC	Pre-enabled "Advanced" VFA	FCoE Upgrade	Pre-Enabled "Advanced" VFA	iSCSI Upgrade
x3550 M3, x3650 M3	CTO (FCA 148)	49Y7950	49Y7950	49Y7950 ⁴	N/A	FCA 148 + 49Y4274 or 49Y7950 + 49Y4274	N/A	49Y7950 + fee-based future entitlement ¹
x3690, x3850 X5, x3950 X5	MTMs ²							
x3200 M3, x3250 M3, x3350, x3400 M2, x3400 M3, x3500 M3, x3500 M2, x3550 M2, x3650 M2, x3620 M3, x3630 M3, x3690 X5, x3755 M3, x3850 M2, x3950 M2	N/A							
HS22, HS22V, HX5	MTMs ^{2,3}	90Y3550	90Y3550	90Y3550	90Y3566	90Y3550 + 49Y4265	90Y3566	90Y3550 + 49Y4265
x3500 M4	CTO	95Y3768	95Y3768	95Y3768	N/A	95Y3768 ⁸	N/A	95Y3768 ⁸
x3550 M4, x3650 M4	N/A	90Y6456	90Y6456	90Y6456	N/A	90Y6456 ⁸	N/A	90Y6456 ⁸
x3500 M4, x3650 M4	N/A	95Y3762	95Y3762	95Y3762	N/A	95Y3762 ⁸	N/A	95Y3762 ⁸
HS23	N/A	81Y3120	81Y3120	81Y3120	90Y9332	81Y3120 + 90Y9350	90Y9332	81Y3120 + 90Y9350
Flex System x240	N/A	90Y3554	90Y3554	90Y3554	N/A	90Y3554 + 90Y3558	N/A	90Y3554 + 90Y3558

IBM-branded 10GbE Adapters for Power Systems

IBM Part Number	Description	Controller	Speed	Physical Ports	Virtual Ports	Offloads ⁶	Form Factor	Operating Systems ⁷
Feature Code 1762	PCIe 10Gb Ethernet Adapter for IBM Flex System p260 and p460	BE3	10Gbps	4	N/A	N/A	Low Profile PCIe for IBM Power	AIX, Linux, IBM i6.1/i7.1
Feature Code 5284 (SR)	PCIe 2.0 10GbE Network Adapter for IBM Power 710, 720, 730 and 740	BE3	10Gbps	2	N/A	N/A	Low Profile PCIe 2.0 for IBM Power	AIX, Linux, IBM i5 OS
Feature Code 5286 (SFP+ Copper)	Express Servers and 770, 780 and 795 Enterprise Servers							
Feature Code 5287 (SR)	PCIe 2.0 10GbE Network Adapter for IBM Power 710, 720, 730 and 740	BE3	10Gbps	2	N/A	N/A	Full Height PCIe 2.0 for IBM Power	AIX, Linux, IBM i5 OS
Feature Code 5288 (SFP+ Copper)	Express Servers and 770, 780 and 795 Enterprise Servers							
Base Ethernet Adapter	IBM 10GbE Network Adapter for IBM Power 770 and 780 Enterprise Servers	BE3	10Gbps	2 (10GbE) / 2 (1GbE)	N/A	N/A	Integrated card for IBM Power	AIX, Linux, IBM i5 OS

IBM-branded 4GFC and 8GFC Host Bus Adapters

IBM Systems	System Bus	Fibre Channel Speed	Number of Channels	IBM Part Number	Operating Systems ⁷
x3850 X5, x3950 X5, x3690 X5, x3650 M3, x3630 M3, x3620 M3, x3550 M3, x3500 M3, x3400 M3,	PCIe	4Gbps	Single-channel	42C2069	Windows, Linux, Solaris, NetWare, VMware ESX / ESXi
			Dual-channel	42C2071	
x3850 X5, x3950 X5, x3690 X5, x3650 M3, x3630 M3, x3620 M3, x3550 M3, x3500 M3, x3400 M3, x3250 M4, x3100 M4, x3755 M3, x3250 M3, x3200 M3	PCIe	8Gbps	Single-channel	42D0485	
			Dual-channel	42D0494	
IBM BladeCenter CFFv Expansion Card HS12, HS21 (8853/7995), HS21XM, LS22, LS42, JS12 (7998-60X), JS22 (7998)	PCIe	8Gbps	Dual-channel	43W6859	Windows, Linux, NetWare, AIX (JS23/43/22/12), VMware, Solaris
IBM BladeCenter ClOv Expansion Card HS22 (7870), HS22V, HX5, JS23 (7778), JS43 (7778), PS700, PS701, PS702, PS703, PS704	PCIe	8Gbps	Dual-channel	46M6140	
IBM Power IBM Power 770 and 780 Enterprise Servers	PCIe	4Gbps	Dual-channel	5774	AIX, Linux, IBM i5 OS
			Single-channel	5773	
	PCI-X		Dual-channel	5759	
			Single-channel	5758	
IBM Power System IBM Power	PCIe	8Gbps	Dual-channel	5735	AIX, Linux
	PCI-X	4Gbps	Dual-channel	5749	
IBM Power	PCIe	8Gbps	Quad-channel	5729	AIX, Linux

¹ iSCSI upgrade is a future feature entitlement.

² Model-dependent. Visit IBM website for specific MTMs.

³ Integrated and option VFAs for BladeCenter occupy the same CFFh slot. Only one VFA can be installed per blade.

⁴ Feature available early FY12. No fee feature.

⁵ Integrated is included with server model (IBM calls this MTM: Machine Type Model).

⁶ FCoE and iSCSI.

⁷ Emulex recommends checking the IBM Server Products site for the latest information on operating system support.

⁸ FOD licensing upgrade to FCoE/iSCSI will be provided mid-2012.

These products may not be available in the U.S.
Please contact your supplier for more information.

Additional Information

IBM URL Links

HBA interoperability search tool:
www-03.ibm.com/servers/storage/support/config/hba/index.wss

Configurator tools:
www-03.ibm.com/servers/eserver/xseries/library/configtools.html

Server-proven, shared storage adapters:
www-03.ibm.com/servers/eserver/serverproven/compat/us/xseries/sharedstorage/samatrix.html

Server-proven, LAN adapters:
www-03.ibm.com/systems/info/x86servers/serverproven/compat/us/xseries/lan/matrix.html

Emulex URL Link www.emulex.com/ibm



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