



Emulex Introduces Next Generation 8Gb/s Fibre Channel Host Bus Adapters (HBAs) and Mezzanine Cards for Dell

Emulex stands at the forefront of technological evolution in providing transforming trends in blade server emergence, data center virtualization, and intelligent multi-protocol unified networks. Emulex LightPulse® family of products offers customers an interoperable, reliable, unified multi-protocol networking platform - It Just Works!

- ▶ www.emulex.com/products/hba/standard.jsp
- ▶ www.emulex.com/dell/dell.pdf

Emulex Features & Benefits

- ▶ **Flexible firmware-based architecture for better availability**
 - ◇ Investment protection with future upgrades - since 1995, the ability to mix generations of Adapters
- ▶ **Integrated into all Dell Server and EMC Storage Platforms**
 - ◇ Emulex is available across all EMC platforms and all form factors
- ▶ **Leader in Virtualization**
 - ◇ NPIV enabled drivers included with VMware ESX and Windows Server 2008
 - ◇ Management tool to simplify creation and migration of virtual machines in Microsoft Virtual Server environments
 - ◇ Boot from SAN support for virtual environments
- ▶ **Simple to deploy**
 - ◇ Support for Windows®, Linux and VMware® ESX
 - ◇ Dell branded Emulex Adapter drivers are tested, shipped and supported as an integral part of the EMC Support Matrix (ESM)
- ▶ **Environmentally friendly**
 - ◇ Emulex has best in class environmental footprint
 - ◇ Emulex Adapters enhance server CPU efficiency by up to 33%
 - ◇ Emulex Adapters improve data center power efficiency by up to 24%
 - ◇ All Emulex Adapters are RoHS* compliant

Drivers, Datasheets and White Papers

Emulex URL links

- ▶ Technical support and driver/software downloads
 - ◇ Support Resources for Dell Server and Storage Platforms: www.emulex.com/emc/support
 - ◇ HBAAnyware® for Windows and Linux (choose adapter): www.emulex.com/support
- ▶ White papers, news, articles and data sheets
 - ◇ OEM Site: www.emulex.com/dell
 - ◇ OEM Site: www.emulex-dell.com
 - ◇ Dell HBAs Datasheet: www.emulex.com/dell/dell.pdf
 - ◇ Whitepapers: www.emulex.com/white

Emulex Advantages

Superior HBA performance

- ▶ 37% better transaction rates
- ▶ 33% more effective CPU utilization
- ▶ 127% greater second channel I/O transaction performance
- ▶ Better multi-port scalability
 - ◇ www.emulex.com/white/hba/excellence.pdf

Streamline management

- ▶ Secure and centralized management of Emulex Fibre Channel HBAs
- ▶ Broad OS support ensures seamless integration into enterprise SAN environments
- ▶ Emulex standards-based software and management tools provide ease of deployment

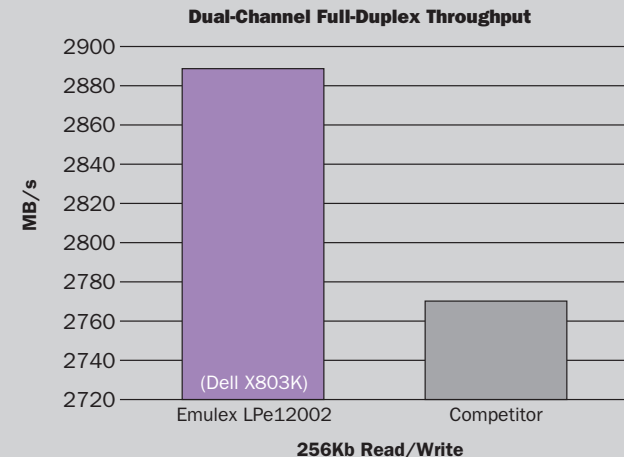
Higher availability

- ▶ Industry's most reliable HBA based on actual field return data
- ▶ 30% higher reliability over nearest competitor
- ▶ More than 10 million hours MTBF
 - ◇ www.emulex.com/pdfs/mtbf.pdf

Need More Reasons?

www.emulex.com/white/hba/fact.pdf







Dual Port Throughput



Emulex Standard HBA Product Matrix

Features	Description	PCI Express 2.0		PCI Express				PCI-X 2.0 HBAs			PCI-X / PCI HBAs		
		LPe12000	LPe12002	LPe11000	LPe11002	LPe1150	LPe111	LP11000	LP11002	LP1150	LP10000	LP1050	LP101
Link speed	2Gb/s	•	•	•	•	•	•	•	•	•	•	•	
	4Gb/s	•	•	•	•	•	•	•	•	•			
	8Gb/s	•	•										
Dual ports	Two FC ports on one card		•		•				•				
PCIe support	2.5Gb/s - Lane	•	•	•	•	•	•						
PCI-X support	PCI-X compliance	•	•					2.0	2.0	2.0	1.0a	1.0a	1.0a
PCI support	PCI compliance	•	•					3.0	3.0	3.0	2.3	2.3	2.3
Common driver by OS	Windows	•	•	•	•	•	•	•	•	•	•	•	•
	Linux	•	•	•	•	•	•	•	•	•	•	•	•
	VMware	•	•	•	•	•			•	•	•	•	
	Solaris / HP-UX / custom	•	•	•	•				•		•		
Fibre Channel Fabric Boot	x86 BootBIOS	•	•	•	•	•	•	•	•	•	•	•	•
	EFIBoot	•	•	•	•	•			•	•	•	•	
	OpenBoot	•	•	•	•				•		•		

Dell Qualified Adapters

Model #	System Bus	Operating System Support			Qualifications	Additional Features
 LPe12000-E	8Gb/S FC to PCI Express 2.0	Windows	Linux	VMware	AX4-5, AX150, CX200, CX300, CX400, CX500, CX600, CX700, FC 4700, FC4500, CX3-10, CX3-20, CX3-40, CX3-80 Dell PowerEdge, Dell/EMC Array	Single-channel, Low-profile, NPIV, MSIX support
 LPe12002-E						Dual-channel, Low-profile, NPIV, MSIX Support
 LPe1205-M						Dual-channel, Mezzanine HBA, NPIV / HBA Virtualization
 LPe1150-E	4Gb/S FC to PCI Express 1.0a	Windows	Linux	VMware	Dell PowerEdge Dell/EMC Array CX300, CX500, CX700 FC 4700, FC 4500 CX3-10, CX3-20, CX3-40, CX3-80 AX150	Single-channel, Low-profile, NPIV / HBA Virtualization
 LPe11002-E						Dual-channel, Low-profile, NPIV / HBA Virtualization
 LPe1105-M4						Dual-channel, Mezzanine HBA, NPIV / HBA Virtualization

Additional models available through DELL S&P: LP9802-E, LP9802DC-E, LP982-E, LP9002L-E, LP9002S-E, LPe111-E, LP101-E. For additional compatibility information, please refer to www.emulex.com/interop

Emulex Advantage: User Benefits

- ▶ **Ease and flexibility of Adapter deployment**
 - ◇ “Common Driver” for all Emulex Adapters
 - ◇ Lower total cost of ownership by simplifying SAN management and maintenance
 - ◇ Better scalability by enabling seamless transition to next generation 8Gb/s Fibre Channel technology
- ▶ **Independent firmware and drive components allows seamless upgrades without reboot**
 - ◇ Higher SAN availability with NO server re-boot required for driver updates
 - ◇ Ease of use with only 7 mouse clicks and less than 50 seconds to install all Emulex HBAs
- ▶ **Greater CPU efficiency**
 - ◇ Higher performance with 33% greater efficiency in Windows and Linux OS environments, improving CPU utilization
 - ◇ Enables data center consolidation
 - ◇ Increases asset utilization with VPorts
- ▶ **Leadership in HBA Virtualization**
 - ◇ Complements server virtualization efforts
 - ◇ Enables greater asset utilization
 - ◇ Supports green data center initiatives
 - ◇ 3+ years of industry interoperability and real field implementation experience

Did You Know?

- ▶ Emulex HBAs were the 1st to provide HBA Virtualization capability based on the industry standard NPIV technology
- ▶ Large enterprise data centers use Emulex Adapters in their SANs
- ▶ Emulex supports Oracle VM
- ▶ Emulex Fibre Channel Adapters are available as a Factory Install or a Customer Kit
- ▶ Emulex Adapters are qualified by all the leading Hypervisor vendors to ensure interoperability within a broad range of virtual server environments

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