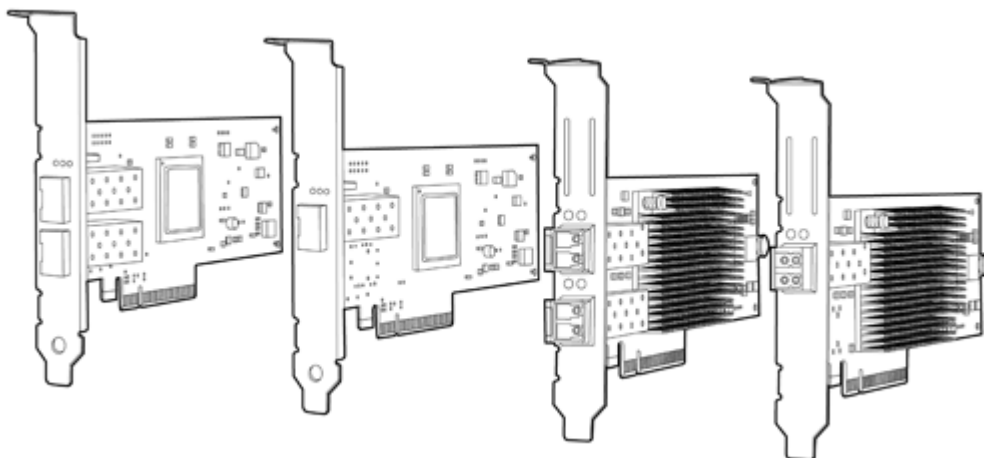


### Overview



### Models

	Description	Part Number
HP 81Q PCIe FC HBA Single Port	8Gb, PCIe to Fibre Channel Host Bus Adapter for OpenVMS and Linux (Qlogic QLE2560)	AH400A
HP 82Q PCIe FC HBA Dual Port	8Gb, Dual Channel PCIe to Fibre Channel Host Bus Adapter for OpenVMS and Linux. (Qlogic QLE2562)	AH401A
HP 81E PCIe FC HBA Single Port	8Gb, PCIe to Fibre Channel Host Bus Adapter for OpenVMS and Linux. (Emulex LPe12000)	AH402A
HP 82E PCIe FC HBA Dual Port	8Gb, PCIe to Fibre Channel Host Bus Adapter for OpenVMS and Linux. (Emulex LPe12002)	AH403A

### Product Description

The introduction of the HP 8Gb PCIe Fibre Channel Host Bus Adapters brings datacenter infrastructure components to a higher level of performance and efficiency. The HP 8Gb PCIe FC Host Bus Adapters are priced only slightly higher than equivalent 4 Gb HBAs, yet, they have the ability to deliver twice the I/O performance. In addition, an 8 Gb FC HBA purchased today will protect your investment longer than if you were to purchase an equivalent 4 Gb HBA. If you are using storage intensive applications, such as rich media, the increased performance of the 8 Gb infrastructure allows you to store and retrieve critical information faster.

The virtualization of servers has become an important capability for most datacenters. The ability to improve overall server utilization, resulting in significant cost savings, has made server virtualization a "must-have" for most enterprises. By having an HBA that supports and maximizes your server virtualization efforts, you are protecting your significant investments in virtualization technology.

Since most of today's datacenters are required to be available 24 X 7, it is critical that infrastructure components have failover capabilities. By installing redundant HBAs into your servers, you can feel confident that your servers will remain connected to mission-critical stored data.

Finally, today's enterprises are becoming more and more sensitive to the power consumption within the datacenter. The 8 Gb PCIe FC Host Bus Adapters provide a number of features that work together to reduce power consumption, thus delivering a "green" benefit within the server.

### Features and Benefits

#### Key Features

**First step into the 8 Gb future**

- Better performance at a competitive price
- Well positioned for the future with 8 Gb technology
- Enhanced for storage intensive applications

**Redundant HBAs for high availability**

- Failover of HBAs to prevent single point of failure
- Two single port cards are more reliable than one dual port card

**Reduced power consumption**

- Latest generation technology saves power
- Reduced number of components on each FC HBA reduces overall power consumption
- Lower power consumption means HBA requires lower airflow

**Automatic host bus sensing and automatic speed negotiation provide investment protection**

- With automatic host bus sensing, all 8Gb HP HBAs will operate in either PCIe Gen2 (x4 lanes) or PCIe Gen1 (x8 lanes) speed, providing ample bandwidth to support one or two 8 Gb Fibre Channel ports per HBA.
- Automatic Fibre Channel speed negotiation to 2, 4 or 8 Gb per second provides compatibility with and investment protection for older equipment.

**Advanced embedded support for virtualized environments**

- HP 8Gb HBAs support leading edge HBA virtualization, Node Port Identification Virtualization (NPIV) which virtualizes the HBA ports in the SAN in support of Virtual Operating Systems.
  - Allows unique virtual port names to be assigned on a per virtual machine basis.
  - Supports best zoning practice of a single HBA port per zone.
  - Supports Selective Storage Presentation for all virtual machines within a server.
  - Support for QoS and improved diagnosability through association of virtual port names and virtual machines.

**Support for Boot-from-SAN provides high reliability**

- Multipath Boot from SAN (BFS) capability is fully supported across all platforms. Even if a path to storage fails, servers can still boot using an alternate path.

**MSI-X support for increased efficiency**

- Message Signal Interrupt eXtended (MSI-X) support improves processor utilization and interrupt handling efficiency.

**Data path protection**

- Internal end-to-end data path protection using hardware parity, CRC and ECC.

**MSI-X support improves processor utilization and interrupt handling efficiency.**

- Message Signal Interrupt eXtended (MSI-X) support improves processor utilization and interrupt handling efficiency.

## Features and Benefits

### Benefits At a Glance

- Get better performance at a competitive price** The 8 Gb series of fibre channel host bus adapters are priced only slightly higher than equivalent 4 Gb HBAs, yet they have the ability to deliver twice the I/O performance.
- Be well positioned for the future with 8 Gb technology** Since 4 Gb technology will be considered "old" soon, customers have the opportunity to move to 8 Gb technology, which is backward compatible with 4 Gb and 2 Gb and will serve them for a much longer period than 4 Gb technology.
- Enhanced for storage intensive applications** When using storage intensive applications like backup/restore, database transactions, and rich media, the improved I/O performance allows you to store and retrieve data much faster
- Supports virtualized servers for overall effective server utilization** Today, the average server operates at approximately 25% of its capacity and IT administrators are being challenged to increase server utilization and reduce operational costs. The 8Gb HBA support for virtualized servers will assist IT administrators in their adoption of server virtualization.
- Evolving HBA technology keeps pace with the effective bandwidth of server busses.** The new 8Gb Fibre Channel technology is a natural complement to the PCIe 2.0 bus architecture and will provide servers with ample bandwidth and throughput performance.
- Redundant HBAs for high availability** Failover of HBAs to prevent single point of failure. Two single port cards have higher data availability than one dual port card.
- Latest generation technology saves power** Eliminating unnecessary internal activity results in reduced power consumption and waste.

### Service and Support, HP Care Pack and Warranty Information

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#### Warranty

3-0-0 Three-year parts exchange warranty. Additional Warranty protection can be purchased.

HP Global Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers toll-free 7 x 24 hardware technical phone support for the duration of the warranty. In addition, available service offerings include a full range of HP Care Pack packaged hardware and software services.

**NOTE:** Certain restrictions and exclusions apply. Consult the [HP Customer Support Center](#) for details.

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**Software Product Services** Stand-alone telephone support  
Rights to new license version  
Media and documentation updates

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**Hardware Product Services** Installation services  
On-site maintenance (includes warranty support)  
Response time upgrades during the warranty period  
Post-warranty coverage  
RAID setup and performance consulting via statement of work  
For additional hardware installation and maintenance information, please refer to the URL listed below:  
<http://www.hp.com/hps/hardware/>.

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**Warranty Upgrade Options** Response - Upgrade on-site response from next business day to same day 4 hours  
Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours  
Duration - Select duration of coverage for a period of 1, 3, or 5 years  
Additional Warranty protection and/or HP Installation packages can be purchased.

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**HP Care Pack Information** Sample part numbers:

3 years, uplift to 5 x 9, Next Day Response	FM-**XHW-36
3 years, uplift to 5 x 9, 4-hour Response	FM-**4HR-36
3 years, uplift to 7 x 24, 4-hour Response	FM-**724-36
Hardware Installation	FM-**INS-IN

\*\* Represents a two-digit, product-specific code

HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

HP Care Pack is not available for less than the product's warranty duration.

HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

HP Care Pack services are prepaid.

If ordering this HBA for a non-HP server, manually add package band 8D4 and Installation HA113A1 band 527. If ordering this HBA as an add-on to an existing HP server, manually add Installation HA113A1 band 527.

## *Service and Support, HP Care Pack and Warranty Information*

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL: <http://www.hp.com/hps/carepack/>

**NOTE:** Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

### Technical Specifications

	81E PCIe	82E PCIe Dual Port	81Q PCIe	82Q PCIe Dual Port
Number of channels	Single	Dual	Single	Dual
Port Speed	8 Gb	8 Gb	8 Gb	8 Gb
Slot type supported	PCIe backplane	PCIe backplane	PCIe backplane	PCIe backplane
OS Supported	OpenVMS, Linux	OpenVMS, Linux	OpenVMS, Linux	OpenVMS, Linux
Servers Supported	All Integrity servers	All Integrity servers	All Integrity servers	All Integrity servers
Array Platforms Supported	XP2000, EVA8000, EVA6000, EVA4000, MSA1500cs, MSA1000	XP2000, EVA8000, EVA6000, EVA4000, MSA1500cs, MSA1000	XP2000, EVA8000, EVA6000, EVA4000, MSA1500cs, MSA1000	XP2000, EVA8000, EVA6000, EVA4000, MSA1500cs, MSA1000
What's Included in the Box?	8 Gb HBA with standard bracket, one 8 Gb SFP, low-profile bracket, Quick-Install Guide	8 Gb HBA with standard bracket, one 8 Gb SFP, low-profile bracket, Quick-Install Guide	8 Gb HBA with standard bracket, one 8 Gb SFP, low-profile bracket, Quick-Install Guide	8 Gb HBA with standard bracket, one 8 Gb SFP, low-profile bracket, Quick-Install Guide
Environmental - Operating Temperature	32° to 131° F (0° to 55° C)	32° to 131° F (0° to 55° C)	32° to 131° F (0° to 55° C)	32° to 131° F (0° to 55° C)
Environmental - Storage Temperature	-20° to 158° F (-40° to 70° C)	-20° to 158° F (-40° to 70° C)	-20° to 158° F (-40° to 70° C)	-20° to 158° F (-40° to 70° C)
Environmental - Relative Humidity - Operating	5% to 95% non-condensing	5% to 95% non-condensing	10% to 90% non-condensing	10% to 90% non-condensing
Product Dimensions (HxW)	6.60 x 2.71 in (167.64mm x 2.71 mm)	6.60 x 2.71 in (167.64mm x 2.71 mm)	6.60 x 2.54 in (167.64 mm x 64.4 mm)	6.60 x 2.54 in (167.64 mm x 64.4 mm)
Media	Multi-mode Optic (SFP+)	Multi-mode Optic (SFP+)	Multi-mode Optic (SFP+)	Multi-mode Optic (SFP+)
Connector	Short wave laser with LC type connector	Short wave laser with LC type connector	Short wave laser with LC type connector	Short wave laser with LC type connector
PCIe Connector	PCIe x8 Max x4 lanes Gen2 Max x8 lanes Gen1	PCIe x8 Max x4 lanes Gen2 Max x8 lanes Gen1	PCIe x8 Max x4 lanes Gen2 Max x8 lanes Gen1	PCIe x8 Max x4 lanes Gen2 Max x8 lanes Gen1
Auto-negotiation	8 Gb/4 Gb/2 Gb	8 Gb/4 Gb/2 Gb	8 Gb/4 Gb/2 Gb	8 Gb/4 Gb/2 Gb
Brackets	Shipped with both ½ height and full-height brackets	Shipped with both ½ height and full-height brackets	Shipped with both ½ height and full-height brackets	Shipped with both ½ height and full-height brackets

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