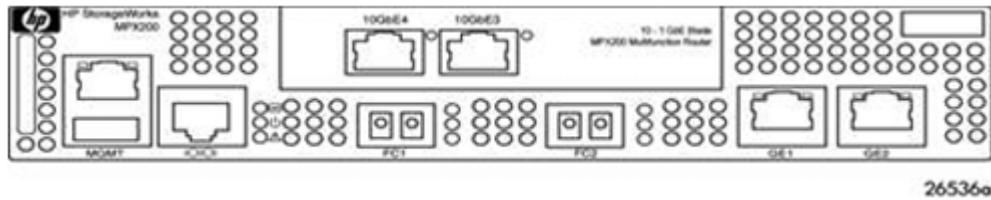


### Overview



As mid-range and enterprise businesses grow and deploy physical/virtual servers and storage arrays, the amount of information required to manage, share, and protect continues to grow. The HP StorageWorks MPX200 Multifunction Router extends the Fibre Channel (FC) SAN and HP StorageWorks Enterprise Virtual Array (EVA) investment with integrated multi-protocol support, allowing customers to incorporate iSCSI without requiring separate iSCSI storage arrays or additional management costs. The MPX200 offers simultaneous iSCSI and Fibre Channel over IP (FCIP) support or iSCSI and offline data migration support with 10 GbE (iSCSI only), 1 GbE (iSCSI and FCIP) and 8Gb/s FC technology, providing modular multi-protocol SAN designs with increased scalability, stability, ROI and simpler to manage, secure storage solutions for virtualized server environments. MPX 200's enterprise-class high-availability design provides dual hot-plug power supplies and router blades for no single point of failure. MPX200, integrated in same rack, allows customers to connect up to 4 EVA's to a single MPX200, reducing the complexity and cost of iSCSI connectivity to EVA storage arrays. Modular multi-protocol SAN designs using MPX200 increase scalability, stability, and ROI on storage infrastructure.

The MPX200 Multifunction Router enables organizations to integrate low-cost Ethernet connected servers with an EVA storage system by bridging the iSCSI protocol to the Fibre Channel protocol. This capability allows iSCSI servers to leverage shared SAN resources, improving asset utilization and enabling new applications. This integration greatly reduces the cost of connecting servers to centrally managed storage and helps provide a cost-effective solution to introduce utility computing into the enterprise.

An EVA with multi-protocol support also provides network storage at reduced infrastructure costs. Small and medium businesses now have a lower entry point to take advantage of SAN benefits. Large enterprises may also deploy multi-protocol SANs in departments and remote offices.

#### Key Benefits:

- Delivering SAN-like benefits over the Ethernet IP network, the HP StorageWorks MPX200 Multifunction Router enables access to block storage across up to 4 EVA storage systems from an Ethernet IP network.
- Provides customers a flexible and cost effective way to connect stranded servers to existing Fibre Channel storage, increasing return on investment.
- Enterprise-class high availability design provides dual hot-plug power supplies and router blades for no single point of failure.
- Modular software and hardware design enables easy upgrades to enable additional protocols or to add more ports.
- Unmatched performance: 8 Gb/s Fibre Channel, 1 GbE and 10 GbE iSCSI ports deliver best in class performance.
- Advanced installation and configuration wizards allow set up in less than 25 minutes.
- Power efficient: typically dissipates 200W for a dual blade configuration.
- Extend access to FC SANs across Ethernet networks with the virtues of an FC SAN including:
  - Consolidated storage
  - Improved disk utilization
  - Improved IT efficiency
- FCIP for SAN over WAN: MPX200 now includes Fibre Channel over IP (FCIP) functionality enabling customers to do low cost remote data replication over IP networks. Customers can deploy MPX200 to provide iSCSI and FCIP connectivity simultaneously.
- Data Migration: MPX200 can now enable customers to migrate their data between heterogeneous storage arrays (offline) at a very high performance using a very user friendly data migration GUI.

### Overview

#### Key Features

- Supports four Ethernet and two Fibre Channel ports
- Increase the flexibility of EVAs by adding integrated iSCSI support
- Delivers the benefits of SAN storage at a significant discount to FC SAN storage
- Concurrent FC and IP traffic is managed with high throughput enabling access for 300-600 iSCSI servers and 4096 LUNS per MPX200 chassis
- Fully integrated EVA and MPX management with Command View EVA
- iSCSI ready for the following operating systems:
  - Microsoft Windows
  - VMware
  - Linux Red Hat
  - Linux SUSE
  - Apple Mac OS X (via iSCSI Initiator from ATTO Technology)
  - Sun Solaris
- Supports High Availability Multi-path Options for Linux, Microsoft Windows, Sun Solaris, and VMware

#### Fibre Channel over IP (FCIP for SAN over WAN connectivity)

- Supports FCIP for SAN over WAN remote data replication using HP Storage Works Continuous Access EVA software
- 1GbE FCIP routes. Only 1GbE ports can be configured for FCIP routes, even on a 10GbE blade. (10 GbE FCIP future)
- Up to 4 FCIP Routes per MPX200 Chassis
  - High Performance FCIP SAN Extension
  - Software Compression to maximize IP link utilization
- Throttle Bandwidth on FCIP Routes
- Consolidate iSCSI and SAN Extension capabilities into single chassis
  - Save 50% on cables, SFP's and rack space with only one piece of hardware to manage
- Ability to connect to an HP StorageWorks IP Distance Gateway remotely for lower overall cost of the solution
- Support Continuous Access for EVA only with XP support coming in the future
- CLI support only (Command View integration coming soon).

#### Heterogeneous Data Migration

- Easy to use data migration GUI with intuitive wizards to simplify use
- Supports offline heterogeneous data migration at very high performance
- Configure 255, 8 simultaneous priority based LUNs migrations
- Application performance preservation: Array Bandwidth Throttling capability
- CLI-based tool for powerful scripted use
- Destination Arrays: All MPX200 supported EVA models, MSA and XP arrays
- Source Arrays: All MPX200 supported EVA models, MSA, XP arrays; IBM - DS4300, DS4700; EMC CX3-20, CX3-40, AX4-5, CX500, CX4; HDS - AMS Family, WMS Family

### Models

#### HP StorageWorks MPX200 Multifunction Router

#### Hardware SKU's and Enablement Options

HP StorageWorks MPX200 Multifunction Router 1 GbE Base Chassis  
Includes:

AP771A

- (1) chassis,
- (1) 1 GbE blade,
- rail kit,
- accessory kit and
- documentation
- Includes redundant power supplies.

HP Storage Works MPX200 Multifunction Router 1 GbE Upgrade Blade.

AP772A

Includes:

- (1) 1 GbE blade
- accessory kit
- documentation

For multi-path (redundant blade for high availability) order both part numbers. The second hardware blade installs into the chassis that is included with AP771A or AP773A.

**NOTE:** HP recommends use of the same blade option type (1 GbE or 10 - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration.

HP StorageWorks MPX200 Multifunction Router 10 - 1 GbE Base Chassis

AP773A

Includes:

- (1) chassis
- (1) 10 - 1 GbE blade
- rail kit
- accessory kit
- documentation
- Includes redundant power supplies.

HP Storage Works MPX200 Multifunction Router 10 - 1 GbE Upgrade Blade.

AP774A

Includes:

- (1) 10 - 1 GbE blade
- accessory kit
- documentation

For multi-path (redundant blade for high availability) order both part numbers. The second hardware blade installs into the chassis that is included with AP773A or AP771A.

**NOTE:** HP recommends use of the same blade option type (1 GbE or 10 - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration.

### Models

HP Storage Works MPX200 Half Chassis FCIP License TA766A  
Includes:

- License to enable FCIP functionality in one out of two bays (slots) in a MPX200 Chassis

HP Storage Works MPX200 Full Chassis FCIP License TA767A  
includes:

- License to enable FCIP functionality for both bays (slots) in a MPX200 Chassis

**NOTE:** For multi-path (redundant blade for high availability) order full chassis license TA767A.

### Data Migration Software SKU's

HP Storage Works MPX200 1TB Full Chassis Data Migration License TA762A  
Includes:

- License to migrate 1 TB of data using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

HP Storage Works MPX200 5TB Full Chassis Data Migration License TA763A  
Includes:

- License to migrate 5 TB of data using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

HP Storage Works MPX200 Full Chassis 1 Array Data Migration License TA764A  
Includes:

- License to migrate data from or to a single array using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

**NOTE:** The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays.

HP Storage Works MPX200 Full Chassis 3 Array Data Migration License TA765A  
Includes:

- License to migrate data from or to a single array, on three unique migration

### Models

- jobs using a MPX200 Chassis
  - 1 License Entitlement Certificate
  - 1 License Key Request Form
- Includes one year of HP software support 9x5 (software technical support and software product and documentation updates)

**NOTE:** The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays, three times. i.e. This license can enable three different migration jobs using the same MPX200 Chassis at different times.

### Product Highlights

**Configuration Support** The MPX200 Multifunction Router is fully compatible with the HP B-Series and C-Series FC switches. For complete interoperability information please check:

- <http://www.hp.com/go/SANdesign>
- <http://www.hp.com/go/SANdesignguide>

Up to 4 EVA's can be connected to the same MPX200 Router in a single blade configuration or dual blade high availability configuration.

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**Manageability** • Command View EVA

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**Scalability** Initial support: Refer to the guidelines described in the product user guide available on the Storage Networking product page and the HP StorageWorks SAN Design Reference Guide available at: <http://www.hp.com/go/SANdesignguide>

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### Software Components, Standard

**Command View** HP StorageWorks Command View EVA provides the capability to manage the EVA storage system(s) and is installed on an existing Storage Management Appliance, a management server or a NAS server. This powerful tool provides an easy mechanism to manage EVA storage systems in a SAN configuration. Command View EVA is purchased separately from EVA XCS media kit.

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

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**Warranty** (1-1-1) Hardware Warranty - One-year on-site warranty, 8x5, next business day response, installation not included.  
**NOTE:** The hardware warranty covers firmware and embedded non-saleable software.

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**HP Service & Warranty Support** HP Service & Warranty Support  
Additional Warranty protection or Installation packages can be purchased.  
**NOTE:** Certain restrictions and exclusions apply. Consult the Customer Support Center for details. HP provides a one-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers.

#### **For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage**

These days, you need to get the most out of your storage investment-you can't afford not to. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

#### **Protect your business beyond the warranty**

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts-but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime- but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

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**Extending warranties with HP Care Pack Services** For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Storage assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

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

**HP Care Pack Services recommended for optimal satisfaction of all deployments of your product.**

**3-Year HP Support Plus 24** For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24X7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how across their entire infrastructure.

#### Benefits

- Improve uptime with responsive hardware and software services
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP software at a predictable cost
- Increase customer satisfaction-with no interoperability gaps

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

**HP Enhanced Implementation Service for SAN's**

For customers who are building a new SAN or expanding their existing one, we offer the HP Enhanced Implementation Service for SANs. This provides complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS and iSCSI SAN connectivity components. Covering all major SAN connectivity technologies including virtual as well as physical hosts, no competitor offers a more complete end to end SAN design and implementation service, ensuring comprehensive optimal SAN connectivity tailored to your specific environment.

#### Benefits

- Ensures optimal SAN connectivity tailored to your specific environment.
- Allows your IT resources to stay focused on their core tasks and priorities
- Reduces implementation time, impact and risk to your storage environment
- Helps ensure a successful implementation for complex deployments by providing HP project management

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5981-8527EN.pdf>

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#### Additional Services

**Additional Services that will enhance the user experience in many product deployments.**

**3-Year HP Proactive 24 for SANs** As an alternative to our recommended support level, for customers who want enhanced operational effectiveness and proactive problem identification.

HP Proactive 24 Service (P24) integrates hardware and software support to help you improve the stability and operational effectiveness of your IT

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

environment. An HP Account Manager acts as your primary point of contact to ensure that HP meets your support needs effectively.

P24 provides the maximum value when multiple technologies in the environment (e.g. servers, storage, SAN and the network), are all covered. It provides an environment-wide view and consistent support of all of these components which affect stability of your key applications.

Choose P24 when you want to:

- enhance operational effectiveness with proactive problem identification and recommendations from HP
- partner with technical experts who help coordinate support, provide hands-on assistance, and share knowledge with your staff
- rapidly access support and expertise spanning your environment
- obtain personalized services tailored to your business environment and critical success factors
- anticipate necessary change - and execute it correctly the first time
- efficiently manage infrastructure resources to meet your performance objectives

<http://h20219.www2.hp.com/services/cache/11157-0-0-225-121.html>

HP Assessment Service for SANs For customers interested in improving availability of their SAN and decreasing potential for unplanned downtime:

The HP Assessment Service for SANs offers customized technical and operational guidance to customers employing HP storage subsystems and the interconnecting storage area network (SAN) infrastructure. In a typical engagement, HP or one of our authorized business partners will perform a detailed discovery using HP's proprietary toolset to gain an understanding of the configuration of your storage devices and SAN topology.

The findings from this process will be compared to HP best practices and industry standards as defined by IT Service Management (ITSM) disciplines. The results of the evaluation will be quickly and efficiently processed into information you can leverage. This information, in the form of a comprehensive HP SAN Assessment report, will be summarized by HP or one of our authorized business partners with recommendations that are intended to improve availability levels and ongoing management of your storage and SAN environment.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-2941ENW.pdf>

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

#### HP eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

#### Remote Support Technology (RST)-HP Remote Support Pack

Taking a more proactive approach to IT support, the HP Remote Support pack plug-in module easily integrates with HP Systems Insight Manager to provide a powerful, unified "single pane of glass" solution for onsite and remote management.

HP Remote Support Pack enhances HP Systems Insight Manager with intelligent event diagnosis plus the automatic submission of hardware event notifications securely to HP support, including acknowledgment and status returns. It adds remote configuration collections to allow the delivery of assessment and proactive services for your SAN storage and HP-UX environments.

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#### Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. [www.hp.com/learn/storage](http://www.hp.com/learn/storage)

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#### HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit: <http://h20129.www2.hp.com/services/cache/77318-0-0-225-121.html>.

### Configuration Information

#### Step 1 - Base Configuration and FCIP enablement Option

Select one:

Model	Model Description	Part Number
StorageWorks MPX200 Multifunction Router 1 GbE Base Chassis	Includes one chassis, one 1 GbE blade, redundant power and cooling modules, rail kit, accessory kit and documentation <b>NOTE:</b> Requires optical FC transceivers and cables listed below.	AP771A
StorageWorks MPX200 Multifunction Router 1 GbE Upgrade Blade	Includes one 1 GbE blade to mount in existing chassis, accessory kit, and documentation <b>NOTE:</b> For multi-path (redundant blade) support order both part numbers. AP772A installs into the chassis that is included with AP771A or AP773A. HP recommends use of the same blade option type (1 GbE or 10 - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration. <b>NOTE:</b> Requires optical FC transceivers and cables listed below.	AP772A
StorageWorks MPX200 Multifunction Router 10 - 1 GbE Base Chassis	Includes (1) chassis, (1) 10 - 1 GbE blade, redundant power and cooling modules, rail kit, accessory kit, and documentation. <b>NOTE:</b> Requires optical FC and 10GbE SFP+ transceivers and cables listed below.	AP773A
StorageWorks MPX200 Multifunction Router 10 - 1 GbE Upgrade Blade	Includes (1) 10 - 1 GbE blade to mount in existing chassis, accessory kit, and documentation. <b>NOTE:</b> For multi-path (redundant blade) support order both part numbers. AP774A installs into the chassis that is included with AP773A or AP771A. HP recommends use of the same blade option type (1 GbE or 10 - 1GbE) in a common chassis to ensure balanced performance in a redundant configuration <b>NOTE:</b> Requires optical FC and 10GbE SFP+ transceivers and cables listed below.	AP774A
HP Storage Works MPX200 Half Chassis FCIP License	Includes (1) license to enable FCIP functionality in one out of two bays (slots) in a MPX200 Chassis. License comes in the form of an entitlement certificate and 1 license key request form.	TA766A
StorageWorks MPX200 Multifunction Router Full Chassis FCIP License	Includes (1) license to enable FCIP functionality for both bays (slots) in a MPX200 Chassis. License comes in the form of an entitlement certificate and 1 license key request form. <b>NOTE:</b> For multi-path (redundant blade for high availability) order this full chassis license.	TA767A

### Configuration Information

#### Step 2 - Additional Software Options

StorageWorks MPX200 Multifunction Router 1 TB Data Migration License	Includes (1) license to migrate 1 TB of data using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form	TA762A
StorageWorks MPX200 Multifunction Router 5 TB Data Migration License	Includes (1) license to migrate 5 TB of data using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form	TA763A
StorageWorks MPX200 Multifunction Router 1 Array Data Migration License	Includes (1) license to migrate data from or to a single storage array using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form <b>NOTE:</b> The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays.	TA764A
StorageWorks MPX200 Multifunction Router 3 Array Data Migration License	Includes (1) license to migrate data from or to three storage array using a MPX200 chassis. License comes in the form of an entitlement certificate and 1 license key request form. Using this license, you can perform three unique migration jobs. <b>NOTE:</b> The MPX200 data migration has a unique fan-in/fan-out licensing model. Using this particular license, data can be migrated from multiple arrays to a single array or from a single array to multiple arrays, three times. i.e. This license can enable three different migration jobs using the same MPX200 Chassis at different times.	TA765A
Supported Direct Attach Copper 10GbE SFP+ Ethernet cables	HP ProCurve 10-GbE SFP+ 1m Direct Attach Cable HP ProCurve 10-GbE SFP+ 3m Direct Attach Cable HP ProCurve 10-GbE SFP+ 7m Direct Attach Cable HP ISS 10-GbE SFP+ 0.5m Direct Attach Cable HP ISS 10-GbE SFP+ 1m Direct Attach Cable HP ISS 10-GbE SFP+ 3m Direct Attach Cable HP ISS 10-GbE SFP+ 7m Direct Attach Cable Cisco 10-GbE SFP+ 3m Direct Attach Cable SFP-H10GB-CU3M Cisco 10-GbE SFP+ 5m Direct Attach Cable SFP-H10GB-CU5M Brocade 10-GbE SFP+ 1m Direct Attach Cable XBR-TWX-0101 Brocade 10-GbE SFP+ 3m Direct Attach Cable XBR-TWX-0301 Brocade 10-GbE SFP+ 5m Direct Attach Cable XBR-TWX-0501	J9281B J9283B J9285B 487649-B21 487652-B21 487655-B21 487658-B21 AP784A AP785A AP818A AP819A AP820A

#### Step 3 - Additional Hardware Options

Optical FC SFP + Transceivers	8 Gbps Short Range 4 Gbps Short Range	AJ718A A7446B
Optical 10GbE SFP+ Ethernet Transceivers	10GbE Short Range Ethernet 10GBase-SR	455883-B21
EVA Loopback Connector	The loopback connector is used when an available EVA host port is not used. <b>NOTE:</b> All EVA host ports must be filled with either a cable or loopback connector.	AJ706A

### Configuration Information

#### Optical cables

Distance using short-wave 10GbE at 10GbE or 8 Gbps FC optical transceivers at 2 Gbps, 4 Gbps, and 8 Gbps connection speed:		
10GbE:	OM3 fiber:	300m
	OM2 fiber:	50m
8 Gbps FC:	OM3 fiber:	150 m
	OM2 fiber:	50 m
4 Gbps FC:	OM3 fiber:	380 m
	OM2 fiber:	150 m
2 Gbps FC:	OM3 fiber:	500 m
	OM2 fiber:	300 m

Distance using short-wave 10GbE at 10GbE or 8 Gbps FC optical transceivers at 2 Gbps, 4 Gbps, and 8 Gbps connection speed:		
4 Gbps FC:	OM3 fiber:	380 m
	OM2 fiber:	150 m
2 Gbps FC:	OM3 fiber:	500 m
	OM2 fiber:	300 m

#### OM3 LC-LC type cables

0.5 m LC-LC Multi-Mode Cable	AJ833A
1 m LC-LC Multi-Mode Cable	AJ834A
2 m LC-LC Multi-Mode Cable	AJ835A
5 m LC-LC Multi-Mode Cable	AJ836A
15 m LC-LC Multi-Mode Cable	AJ837A
30 m LC-LC Multi-Mode Cable	AJ838A
50 m LC-LC Multi-Mode Cable	AJ839A

#### OM2 LC-LC type cables

2 m LC-LC Multi-Mode Cable	221692-B21
5 m LC-LC Multi-Mode Cable	221692-B22
15 m LC-LC Multi-Mode Cable	221692-B23
30 m LC-LC Multi-Mode Cable	221692-B26
50 m LC-LC Multi-Mode Cable	221692-B27

#### OM2 LC-SC for between MPX20010GbE and a 10GbE switch

2 m LC-SC Multi-Mode Fibre Channel Cable	221691-B21
5 m LC-SC Multi-Mode Fibre Channel Cable	221691-B22
15 m LC-SC Multi-Mode Fibre Channel Cable	221691-B23
30 m LC-SC Multi-Mode Fibre Channel Cable	221691-B26
50 m LC-SC Multi-Mode Fibre Channel Cable	221691-B27

#### RJ45 Copper Cables for 1 GbE iSCSI and MGMT ports

#### CAT 5e for 1 GbE iSCSI or MGMT ports

CAT 5e cable, RJ45 to RJ45, M/M 1.2m (4ft)	C7533A
CAT 5e cable, RJ45 to RJ45, M/M 2.1m (7ft)	C7535A
CAT 5e cable, RJ45 to RJ45, M/M 4.3m (14ft)	C7536A
CAT 5e cable, RJ45 to RJ45, M/M 7.6m (25ft)	C7537A
CAT 5e cable, RJ45 to RJ45, M/M 15.2m (50ft)	C7542A



### Technical Specifications

TCP/IP Offload Engine Support (TOE)	<ul style="list-style-type: none"> <li>HP NC522SFP; NC524SFP; NC510x; NC512m/i; NC532m/i; NC3xxT/m/i/F; QM4062</li> <li>Qlogic QLA4052c, QLE4062c iSCSI HBA</li> </ul>								
IP Security	<p><b>NOTE:</b> Support is operating system dependent.</p> <ul style="list-style-type: none"> <li>CHAP User name and password authentication.</li> <li>Password encryption of saved configuration file.</li> </ul>								
iSCSI Boot	Linux, Windows, VMware								
Multi-Path support	<table border="0"> <tr> <td>Windows</td> <td>Microsoft MPIO</td> </tr> <tr> <td>Linux</td> <td>Device Mapper</td> </tr> <tr> <td>Sun</td> <td>MPxIO</td> </tr> <tr> <td>VMware</td> <td>Native software MPxIO</td> </tr> </table>	Windows	Microsoft MPIO	Linux	Device Mapper	Sun	MPxIO	VMware	Native software MPxIO
Windows	Microsoft MPIO								
Linux	Device Mapper								
Sun	MPxIO								
VMware	Native software MPxIO								
Max. Pending Commands	Default value of 256								
Host Interface	<p>1 GbE ports use standard TCP/IP connection, RJ45 connector</p> <p>10 GbE ports use 10GbE SFP+ LC optical cables</p>								
Distance	<p>1 GbE Copper CAT-5e or CAT-6 twisted pair 100meter maximum</p> <p>10 GbE Optical SR transceivers up to 300m with OM3 fiber cable; up to 50m with OM2 fiber cable</p>								
Host Platform Support	Any 32-bit or 64-bit servers running the supported OS								
iSCSI Performance	<table border="0"> <tr> <td>half duplex (1 GbE blade)</td> <td> <p>100,000 read IOPs</p> <p>92,000 write IOPs</p> <p>380 MB/sec read bandwidth</p> <p>340 MB/sec write bandwidth</p> </td> </tr> <tr> <td>full duplex (1 GbE blade)</td> <td> <p>97,000 IOPs</p> <p>415 MB/sec bandwidth</p> </td> </tr> <tr> <td>half duplex (10 -1 GbE blade)</td> <td> <p>120,000 read IOPs</p> <p>96,000 write IOPs</p> <p>1200 MB/sec read bandwidth</p> <p>450MB/sec no jumbo write bandwidth</p> <p>800MB/sec jumbo write bandwidth</p> </td> </tr> <tr> <td>full duplex (10 -1 GbE blade)</td> <td> <p>120,000 IOPs</p> <p>1000 MB/sec bandwidth</p> </td> </tr> </table>	half duplex (1 GbE blade)	<p>100,000 read IOPs</p> <p>92,000 write IOPs</p> <p>380 MB/sec read bandwidth</p> <p>340 MB/sec write bandwidth</p>	full duplex (1 GbE blade)	<p>97,000 IOPs</p> <p>415 MB/sec bandwidth</p>	half duplex (10 -1 GbE blade)	<p>120,000 read IOPs</p> <p>96,000 write IOPs</p> <p>1200 MB/sec read bandwidth</p> <p>450MB/sec no jumbo write bandwidth</p> <p>800MB/sec jumbo write bandwidth</p>	full duplex (10 -1 GbE blade)	<p>120,000 IOPs</p> <p>1000 MB/sec bandwidth</p>
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Maximum Host Connection Design Limits for iSCSI*	<p>Architectural Limits: 1024 connections, 1024 iSCSI sessions, 64 targets, 1024 LUNs per target maximum and 4096 total LUNs per blade.</p> <p>* Please see the product user guide available on the Storage Networking product page and the SAN Design Guide for latest tested and supported configurations located at: <a href="http://www.hp.com/go/sandesignguide">http://www.hp.com/go/sandesignguide</a>.</p>								

### Installation Environmental Specifications

User installable, but recommended field service install

Optional 1U rack mount kit

Non-cable-side to cable-side airflow; power from cable-side; 1U, 19-in. EIA rack-compliant

Cooling: Three variable speed fans per PCM with back-to-front airflow.

	Condition	
Environment	Operating <sup>1</sup>	Non Operation <sup>2</sup>
Temperature	5° to 40° C (41° to 104° F)	-25°C to 70° C (-40° to 158° F)
Humidity <sup>3</sup>	5 to 90%, non-condensing	5 to 93%, non-condensing
Altitude	3 km	15 km

### Technical Specifications

Shock	IEC 68-2, 4g, 11ms, 20 repetitions	IEC 68-3, 30g, 292 ips, 3 repetitions, 3 axis
Vibration <sup>4</sup>	IEC 68-2, 5-500Hz, random, 0.21G rms, 10 minutes	IEC 68-2, 5-500Hz, random, 2.09G rms, 10 minutes
Power AC input maximum	2.5A@100-125 VAC; 1.25A@200-240 VAC	
Frequency Range	47 to 63 Hz	
Nominal Frequency Range	50 Hz to 60 Hz	
Power Dissipation	275W maximum (optics included)	

<sup>1</sup> Environmental specification for operating condition should be satisfied before the iSCSI Connectivity Option subsystem is powered on. Maximum temperature of 40°C should be strictly satisfied at air inlet portion.

<sup>2</sup> Non-operating conditions include both packing and unpacking conditions unless otherwise specified.

<sup>3</sup> No condensation in and around the iSCSI Connectivity Option should be observed under any conditions.

<sup>4</sup> The above specifications of vibration are applied to all three axes.

For shipping or storage conditions, this product shall be packed with factory packing.

Physical Size	Height	1U (1.72 in/4.37 cm)
	Width	17 in (43.18 cm)
	Depth	24.9 in (63.25 cm)
	Weight	20 lb (9.07 kg)

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