Overview

The HP 2-port 8Gb FC and 2-port 1/10GbE adapter is a four port multi-function adapter that provides Ethernet and Fibre Channel (FC) connectivity in single card. By consolidating Ethernet and Fibre Channel functionality onto a single adapter, HP Integrity Multi-function Adapters increase the number connectivity ports and overall bandwidth that can be availed from a fixed quantity of IO card slots on the server. This allows customers to support more partitions and VMs with dedicated IO connectivity.

What's New
- HP Integrity 2-port 8Gb FC and 2-port 1/10GbE Adapter
- Support for HP Integrity Superdome 2 and HP Integrity rx2800 i2 servers with HP-UX 11iv3

Key Features and Benefits

Reliability

Always-on Resiliency - HP provides a proven operating environment delivering the industry's most resilient UNIX platform that ensures your mission critical applications are always-on and secure without compromise. HP Integrity Servers are loaded with high availability and fault tolerance features, which extend themselves to encompass PCIe bus and IO adapters.

ServiceGuard support - HP Serviceguard Solutions are built from the ground up to be integrated with our full suite of infrastructure management software for HP Integrity, delivering precise control and broad-sweeping manageability over your entire environment, not just bits and parts. ServiceGuard can monitor the system for IO failures and instigate recovery measures.

PCIe Error Recovery - The PCI Error Recovery (PCI ER) feature (unique to HP-UX) enables the detection of PCI bus parity errors, isolation of the failed I/O path, and recovery of cards from errors. Enabling the PCI ER feature avoids system crash, decreases system downtime, and supports single system high availability. **NOTE:** PCIe ER is not supported in current release.

Auto-Port Aggregation LAN Monitor Support - Support for the creation of failover groups, providing a failover capability for links. In the event of a link failure, LAN Monitor automatically migrates traffic to a standby link. **NOTE:** Link Aggregation is not supported in current release.

Native Multi-pathing - Multi-pathing is native to HP-UX 11i v3. It is built in to the mass storage subsystem and is available to applications without any special configuration. Native multi-pathing offers the following features: Optimal distribution of I/O traffic across lunpaths to LUNs, Dynamic discovery of lunpaths and LUNs, Automatic monitoring of lunpaths, Automatic lunpath failover and recovery, Intelligent I/O retry algorithms to deal with failed lunpaths and Lunpath authentication to avoid data corruption **NOTE:** OL* is not supported in current release.

Performance

Dual Port 10GbE Adapter - The 20,000 Mbps full duplex Ethernet transfer rate per port (40 Gbps aggregate full duplex) delivers outstanding network performance that improves response time and removes bottlenecks required for the next generation data center. Ten Gigabit Ethernet bandwidth is ideal for high performance computing, database clusters, storage backups, grid systems, virtualization, server and I/O consolidation, fabric consolidation, and more.

Overview

Dual Port 8Gb FC Adapter - Increased performance of 8Gb infrastructure enables more rapid storage and retrieval of critical information, especially in storage intensive applications, such as backup/restore, database transactions, virtualization, and rich media.

TCP Stateless Offloads - TCP/IP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter. Large send offload (LSO), also known as TCP segmentation offload (TSO), allows TCP segmentation to be handled by the adapter rather than the CPU.
NOTE: TOE is not supported.

Jumbo Frames - Support for jumbo frames (also known as extended frames) permits up to a 9K byte(KB) transmission unit (MTU) when running Ethernet, which is over five times the size of standard 1500 byte Ethernet frame.The use of jumbo frames is a way to achieve higher throughput and better CPU utilization.

Interrupt Coalescing - Interrupt coalescing (interrupt moderation) groups multiple packets, thereby reducing the number of interrupts sent to the host. This process optimizes host efficiency, leaving the CPU available for other duties.

802.1Q VLAN Tagging - IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of the adapter to be separated into multiple virtual NICs for added network segmentation and enhanced security and performance. VLANs increase security by isolating traffic between users. Limiting the broadcast traffic to within the same VLAN domain also improves performance.

802.1p QoS Tagging - IEEE quality of service (QoS) 802.1p tagging allows the adapter to mark or tag frames with a priority level across a QoS-aware network for improved traffic flow.

Virtualization

nPARs support - nPartitions (nPars) are hard partition technology that enable you to configure a single server complex as one large server or as multiple smaller servers. Each nPartition has one or more cells (containing processors and memory) that are assigned to the partition for its exclusive use. Each nPartition has its own processor, memory and I/O resources consisting of the resources of the cells allocated to the nPartition. Any I/O chassis that is attached to a cell, belonging to a partition, is also assigned to that partition.

vPARS support (Superdome 2 only) - Virtual partitions allow you to create partitions to the granularity of the hardware (CPU, I/O card) with each partition running its own version of an operating system. This is a good approach when applications can utilize resources at the hardware granularity and the applications should be isolated from one another for reliability or version compatibility of the software stack.

HP Integrity Virtual Machine 4.3 support - The HP Integrity Virtual Machines product is a robust soft partitioning and virtualization technology that provides operating systems isolation, with sub-CPU allocation granularity and shared I/O. A single HP Integrity server running Integrity VM can support multiple virtual machines, each with its own separate "guest" operating system. As a result, each virtual machine (VM) can host its own applications in a fully isolated environment. The physical resources of the Integrity server are shared amongst any of the virtual machines it hosts. You can define virtual machines as single-CPU or SMP servers with the flexibility to host many virtual CPUs on a single physical processor. The same is true for I/O - a single I/O card can be shared by multiple virtual machines.
NOTE: SR-IOV and NPIV is not supported.

Boot Support   Supports Boot from LAN and Boot, Swap and Dump from SAN

Overview

Max IO configs	HP Integrity rx2800 i2 (4 per system) HP Integrity Superdome 2 (Supports upto 140 Network ports per system)
Switch Support	All switches supporting 8Gb FC protocol.
Transceivers and Cables	Choose between 10GbE SFP+ SR (optical), 1GbE RJ-45 SFP, 8Gb SW FC SFP+ Opt or Direct attach Copper cable connectivity allowing maximum flexibility in connecting to 1GbE/10GbE or 8Gb FC switches. **NOTE:** Cables and SFPs have to be purchased separately.

Storage compatibility

Mass Storage Arrays

HP P2000 G3 Modular Smart Array Systems
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13551_div/13551_div.html

Enterprise Virtual Arrays

HP P6000 Enterprise Virtual Arrays
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13904_div/13904_div.html

HP 4400 Enterprise Virtual Arrays
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/12893_div/12893_div.html

HP 6100 Enterprise Virtual Arrays
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13463_div/13463_div.html

HP 6400/8400 Enterprise Virtual Arrays
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13206_div/13206_div.html

XP Disk Arrays

HP 9000 Disk Array
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13206_div/13206_div.html

HP XP-24000/XP-20000 Disk Array
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/12711_div/12711_div.html

3PAR Storage

HP 3PAR F-class storage systems
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13884_div/13884_div.html

Overview

HP 3PAR T-class storage systems
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/13883_div/13883_div.html

HP P10000 3PAR storage systemss
For more details, please visit product QuickSpecs:
http://h18004.www1.hp.com/products/quickspecs/14103_div/14103_div.html

Tape Compatibility

Tape Autoloader

HP 1/8 G2 LTO-5 Ultrium 3000 Fibre Channel Tape Autoloader
http://h18004.www1.hp.com/products/quickspecs/12630_div/12630_div.html

MSL Tape Libraries

HP MSL (2024/4048/8048/8096)

- HP LTO-5 Ultrium 3280 and 3000 FC Tape Drive
- HP LTO-4 Ultrium 1840/1760 Fibre Channel tape drive

http://h18004.www1.hp.com/products/quickspecs/13258_div/13258_div.html

EML Tape Libraries

HP EML E-series (71e, 442e, 505e), ESL (712e, 322e) and ESL G3 Tape Libraries

- HP LTO-5 Ultrium 3280 Fibre Channel tape drives
- HP LTO-4 Ultrium 1840 Fibre Channel tape drive

http://h18004.www1.hp.com/products/quickspecs/12238_div/12238_div.html

Models

Description	Part Number
HP PCIe 2P 8Gb FC & 2P 1/10GbE Adapter	AT094A

Transceivers and Cables

Description	Part Number
HP BLc 10Gb SR SFP+ Opt	AT139A
HP BLc VC 1Gb RJ-45 SFP Opt Kit	AT140A
HP 8Gb Short Wave FC SFP+ 1 Pack	AT141A

NOTE: SFPs and Cables are not bundled in the base product number. They have to be purchased separately.

Service and Support, HP Care Pack and Warranty Information

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.

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI
When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty
When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively
HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement. Depending on a customer's individual support needs, customers' can choose from three conveniently structured support solutions. The support recommendations listed below generally apply to the server and the complete system. Options should be covered at the same service level as the associated installed system.

Choose the right level of support, deployment and professional integration services for your requirements and expectations:
Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at
  http://www.hp.com/go/lookuptool

Recommended HP Care Pack Services for optimal satisfaction with your HP product.
Optimized CareFor Integrity Servers

Service and Support, HP Care Pack and Warranty Information

3-Year HP Critical Service:

HP Critical Service (CS) provides a complete support solution designed for businesses that run essential mission-critical applications, which cannot tolerate downtime without a significant business impact. This 3-year, comprehensive service provides the right combination of proactive and reactive support designed to improve availability and performance across your IT infrastructure. With fewer interruptions and less downtime, you will lower costs and gain competitive advantages in the marketplace. HP Critical Service provides highly-trained professionals with world-class skills and a commitment to understand both your enterprise technology requirements and your business objectives. In today's new era of business technology, technology must produce thousands of business outcomes. Today's HP Technology Services portfolio helps customers manage their technology in action-because when technology works, business works.

- Boost business productivity through increased availability and decrease business losses caused by IT downtime
- Reduce risk and improve efficiency by proactively managing changes across the environment with no interoperability gaps
- Resolve complex problems quickly through direct access to HP Services expertise and support from a team familiar with business and technology infrastructure
- Free IT staff to focus on strategic business issues and increase customer satisfaction

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1613EEE

Optimized CareFor rx2800 Servers

3-Year HP Proactive 24

HP Integrity Multi-function Adapters take on the support level of the HP server in which it is installed. HP Proactive 24 Service (P24) integrates hardware and software support to help you improve the stability and operational effectiveness of your IT 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://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1614ENN.pdf

Standard Care

3-Year HP Support Plus 24

HP Integrity Multi-function Adapters take on the support level of the HP server in which it is installed.
3-Year HP Support Plus 24 recommended for HBAs and CNAs installed outside of an HP environment.
For a higher return on your server and 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 -

Service and Support, HP Care Pack and Warranty Information

customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- 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

Basic Care

3-Year HP Support Plus 24

HP Integrity Multi-function Adapters take on the support level of the HP server in which it is installed.
3-Year HP Support Plus 24 recommended for HBAs and CNAs installed outside of an HP environment.
For a higher return on your server and 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 to work across their entire infrastructure.

- 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 Installation Service	Installation is included with the HP Server install if purchased together. If HBA or CNA is ordered as an add-on to an existing HP Server or for installation into a non-HP Server, HP Installation Service is recommended.

- Allows your IT resources to stay focused on their core tasks and priorities
- Reduces implementation time, impact and risk to your storage environment

http://h71028.www7.hp.com/ERC/downloads/5981-9356EN.pdf

Service and Support, HP Care Pack and Warranty Information

eSupport

Insight Remote Support

HP Insight Remote Support software delivers secure remote monitoring and support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur. Available as part of HP Warranty, Care Pack and Service Contract offers.

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

Customer Technical Training

HP Education Services

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

HP Services Awards

HP Technology 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.

Additional Services Information

To learn more on HP ProLiant servers, HP BladeSystem servers and HP storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit www.hp.com/services/proliant or www.hp.com/services/bladesystem or http://www.hp.com/services/storage

Technical Specifications

Number of ports	Two Ethernet ports + Two FibreChannel ports
Port Speed	Ethernet: 10Gbps; FibreChannel: 8Gbps
Slot type supported	PCI Express Gen 2.0
OSes Supported	HP-UX 11iv3
Servers Supported	HP Integrity rx2800 i2 HP Integrity Superdome 2
Array Platforms Supported	P2000, EVA, XP, 3PAR, Tape, EMC Storage Please refer to SPOCK for more information.
Ethernet and FC Switches Supported	Please refer to SPOCK for switch support information.
Protocols Supported	FC, Ethernet
What's Included in the Box?	Combo PCA, full-height bracket
Compliance	IEEE802.1qau, IEEE802.3x, IEEE802.1p, IEEE802.1q, IEEE802.3ae, IEEE802.3ap
Environmental - Operating Temperature	32°F to 131°F (0° to 55°C), 150 LFM
Environmental - Storage Temperature	-40º F to 158º F (-40° to 70° C), Storage
Environmental - Relative Humidity - Operating	5% to 95% (storage), non condensing, 22° C wet bulb 10% to 90% (operating), non condensing, 22° C wet bulb
Product Dimensions (W x D x H)	6.6 x 4.2in (168 x 107mm)
Power Specifications	19.8 Watts (typical) 25 Watts (maximum)
Media	10Gb SFP+ Ethernet Optical Modules (SR) 1GbE RJ-45 SFP Opt Kit 8Gb SW FC SFP+ Opt SFP+ direct attach active and passive copper cable
PCIe Connector	PCIe x8 Gen 2
Brackets	Shipped with full-height brackets