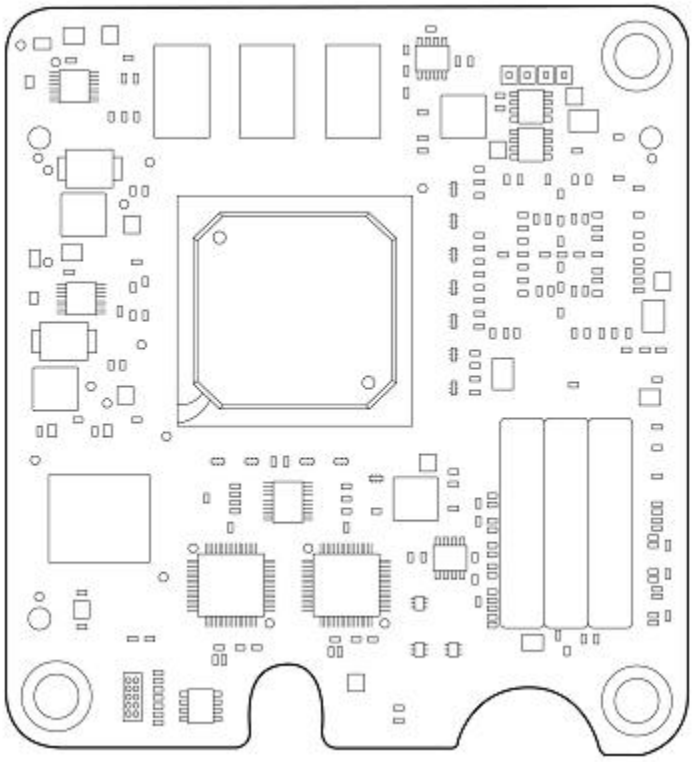
Overview

The QMH4062 is a dual port fully integrated Gigabit Ethernet iSCSI initiator mezzanine option optimized for iSCSI traffic from an HP BladeSystem c-Class ProLiant server. This iSCSI initiator is an alternative to less integrated Ethernet iSCSI offerings and often more costly non TCP/IP implementations. It is supported on HP ProLiant c-Class servers, all mezzanine slots; multiple adapters per sever.

Designed for ultimate performance, the QMH4062 provides offloading of iSCSI and TCP/IP traffic. The QMH4062 supports VMware allowing users the flexibility of ESX 4.0 and ESXi 4.0 host booting from an iSCSI SAN for both Microsoft Windows and Linux. The QMH4062 iSCSI initiator is IPv6 compliant card and can provide a c-Class end-to-end IPv6 solution when using either the Cisco Catalyst Blade Switch 3120 with IPv6 upgrade option or the Ethernet Pass-Thru.



QLogic QMH4062 1GbE iSCSI Adapter for HP BladeSystem c-Class

What's New

- Support for QMH4062 1GbE iSCSI 2-Port Adapter with Virtual Connect Kit
- Support for Virtual Connect Ethernet Modules

Overview

At A Glance

- High performance, full software and hardware integrated iSCSI initiator
- Dual Gigabit Ethernet ports
- Offloading of iSCSI and TCP/IP traffic
- Single step iSCSI SAN boot for both Microsoft Windows and Linux
- iSCSI boot certified for VMware Server ESX 4.0 and ESXi 4.0
- IPv6 compliant providing an end-to-end IPv6 solution when using either the Cisco Catalyst Blade Switch 3120 with IPv6 upgrade option or the Ethernet Pass-Thru
- Pre-certified iSCSI targets including the ProLiant Storage Server family, and All-in One (AiO) products, the HP EVA iSCSI Connectivity Option, and many 3rd party storage solutions listed in the iSCSI Target Pre-certification section
- Consistent web based and CLI management interfaces across all supported operating systems
- IEEE standard support including VLANs, link aggregation, flow control, and QoS
- 9kB jumbo frames
- Supported on ProLiant c-Class servers, in all mezzanine slots, multiple cards per server
- Supported on all HP Ethernet interconnects, including Virtual Connect Ethernet modules

Models

HP BLc QLogic iSCSI Dual Port Adapter with Virtual Connect Kit	488074-B22
QLogic QMH4062 1GbE iSCSI Adapter for HP BladeSystem c-Class	488074-B21

Kit Contents

- HP BLc QMH4062 1GbE iSCSI 2-Port Adapter w/ VC Kit
- Product warranty statement
- Drivers, user guide, and utilities via: http://www.hp.com

Standard Features

Server Support

- HP ProLiant BL685c G6
- HP ProLiant BL685c G5
- HP ProLiant BL680c G5
- HP ProLiant BL495c G5
- HP ProLiant BL490c G6
- HP ProLiant BL465c G5
- HP ProLiant BL460c G6
- HP ProLiant BL460c G5
- HP ProLiant BL460c
- HP ProLiant BL280c G6
- HP ProLiant BL260c G5
- HP ProLiant BL2x220c G5

Performance

Dual Gigabit Ethernet Throughput	An aggregate transfer rate of 4,000 Mbps full duplex (2,000 Mbps full duplex per port) delivers outstanding network performance that improves response time and removes bottlenecks across the entire network. **NOTE:** Each port transmits data from the server at 2,000 Mbps full duplex only.
TCP/IP and iSCSI Offloading	Designed for ultimate performance, the QMH4062 iSCSI initiator provides offloading of iSCSI and TCP/IP traffic. The adapter removes the processing, interrupts, and bus accesses required to support protocols in the host software. The QMH4062 virtually eliminates the host CPU system processing required for iSCSI and TCP/IP, often delivering performance equivalent to direct attached storage (DAS) and Fibre Channel (FC) SANs.
iSCSI Boot	The iSCSI feature boot allows the c-Class ProLiant server to boot from a remote operating system image located on an Ethernet-based storage network. The QMH4062 appears as a SCSI device to an operating system making the remote disk drive appear as a local, bootable C: drive. The server can be configured to connect to and boot from the iSCSI target disk on the network and download the OS image from the iSCSI target disk. To enable iSCSI boot, the adapter must be able to attached to the target LUNs and present those LUNs to the host server during the server's initial power-up. Due to the QMH4062's fully integrated iSCSI implementation, the iSCSI boot initialization can directly boot from a LUN on the storage device in a single step eliminating the need for an additional boot server. In contrast, software-based network adapter iSCSI initiator implementations often require a multi-step process utilizing an additional server to perform the iSCSI boot.
iSCSI Boot VMware Certification	The QMH4062 iSCSI boot is certificated on VMware Server ESX 4.0 and ESXi 4.0. The certification is supported in both a Microsoft Windows and Linux operating system environment.
IPv6 Compliance	The QMH4062 is IPv6 compliant, offloading and processing IPv6 packet traffic from the c-Class enclosure when using either a Cisco Catalyst Blade Switch 3120 with the IPv6 software option or the Ethernet Pass-Thru interconnect connected to an IPv6 compliant network. IPv6 is the next generation IP protocol. As compared to IPv4, IPv6 advantages include additional network addressing from 32 bits to 128 bits, increase security, improved management, and more.
iSCSI Target Pre-certification	iSCSI is a standardized method for transferring blocked-based data across Ethernet. Any iSCSI target adhering to this standard would be compatible. However, to ensure best-in-class operation, the QMH4062 pre-certification program provides extensive SAN interoperability and compatibility testing on HP and third-party iSCSI targets, along with multiple software applications. The QMH4062 has a comprehensive list of pre-certified iSCSI targets including: • HP StorageWorks MSA200i product line • HP StorageWorks All-in One (AiO) product line • HP EVA iSCSI Connectivity Option • HP ProLiant Storage Server family • Many 3rd party storage including NetApp, EMC, IBM, Dell, Lefthand, LSI, Sun/Storagetek, Promise, Compellent, Quantum, AC&NC, SpectraLogic, StoneFly, iQstor, iStor, DNF, JetStor, Quantum, and Engenio For more information, please see the QLogic SAN interoperability Guide at: www.qlogic.com.

Performance

Consistent Management	The management of iSCSI solutions based on initiator software can vary widely between the various operating systems. However, the QMH4062 approach provides consistent graphical and command line management interfaces across all supported operating systems simplifying the SAN administrator's tasks.
802.1Q VLANs with 802.1p QoS Tagging	The QMH4062 provides the IEEE 802.1Q virtual local area network (VLAN) protocol for Linux. 802.1Q allows each physical port of the QMH4062 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. 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.
Jumbo Frame Support	The QMH4062 support for Jumbo frames (also known as extended frames) permit an industry standard 9K byte transmission unit (MTU), which is six times the size of standard 1500 byte Ethernet frame. The use of jumbo frames are a way to achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers and tape backups.

High Availability

Dual port	The two ports on the QMH4062 provide port redundancy that can be routed to separate enclosure interconnects for additional availability.
Redundant adapters	With multiple dual port adapters supported per server connected to up to two redundant pairs of interconnect modules per enclosure, a very wide variety of high availability I/O configurations are possible.
Linux IEEE 802.3ad Link Aggregation	Link aggregation allows multiple physical ports to be bonded together to form a single logical ink. This increases the network throughput of a single link and provides redundancy in case of a physical port failure. In case of a port failure, the surviving ports in the logical link (or team) continue to operate. The QMH4062 supports 802.3ad link aggregation within a Linux environment.

Mezzanine Slot and Interconnect Compatibility

Server	Mezz Slot	c7000 Interconnect Bays		c3000 Interconnect Bays		Maximum QMH4062 1GbE Ports/Server	Supported Interconnect Modules[2]
		QMH4062 Port 1[1]	QMH4062 Port 2[1]	QMH4062 Port 1[1]	QMH4062 Port 2[1]		
BL2x220c G5	M1	5	6	3	4	Four (4)	• HP Virtual Connect Flex-10 10GB Ethernet Module • HP 1/10Gb-F Virtual Connect Ethernet Module • HP 1/10Gb Virtual Connect Ethernet Module • 1:10Gb Ethernet BL-c Switch • Cisco Catalyst 3120G Blade Switch for HP • Cisco Catalyst 3120X Blade Switch for HP • Cisco Catalyst 3020 Blade Switch • HP GbE2c Layer 2/3 Ethernet Blade Switch • HP 1Gb Ethernet Pass-Thru Module
	M2	7	8	3	4		
BL260c G5	M1	5	6	3	4	Two (2)	
BL280c G6 **BL460c** **BL460c G5** **BL460c G6** **BL465c G5** **BL490c G6** **BL495c G5**	M1	3	4	2	2	Four (4)	
	M2	5	6	3	4		
BL480c **BL680c G6** **BL685c G5** **BL685c G5**	M1	3	4	2	2	Six (6)	
	M2	5	6	3	4		
	M3	7	8	3	4		

[1] Port numerations can vary by operating system.

[2] For purchase of the Interconnect Modules referenced above; please see the related options section of this QuickSpecs.

NOTE: Some servers listed above may be discontinued.

Service and Support, HP Care Pack, and Warranty Information

Warranty

HP branded hardware options qualified for BladeSystem c-Class and p-Class servers are covered by a global limited warranty and supported by HP Services and a worldwide network of Authorized HP Channel Partners. The HP branded hardware option diagnostic support and repair is available for one year from date of purchase, or the length of the server they are attached to, whichever is greater. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Support Services

The HP Care Pack service for ProLiant BL c-Class and p-Class server blades cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server. HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalize on the capabilities of your HP BladeSystem servers, a service partner is required who thoroughly understands your server technology and systems environment. HP Services, an industry leader in the provisioning of multi vender support solutions, provides a range of support services designed to meet the varying needs of today's businesses. Whether an SMB or large global corporation, HP has a BladeSystem server support offer to help you rapidly deploy and maximize system uptime.

Recommended Service - Simplify BladeSystem solution implementation, maintenance, and management.

- Support - 3 year 4 hour response 24x7 same business day coverage.
- Deployment Service - Installation and start up for HP BladeSystem Infrastructure.

Enhanced Service - Optimum service level to increase IT performance and availability.

- Support - 1 year HP Proactive BladeSystem Service.
- Deployment Service - Enhanced Network Installation and start up for HP BladeSystem Switches.

Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

For a complete listing of service offerings and information visit:
http://www.hp.com/services/bladesystemservices
http://www.hp.com/go/proliant/carepack

Related Options

Supported c-Class BladeSystem Interconnect Modules	HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem	455880-B21
	HP 1/10Gb-F Virtual Connect Ethernet Module for c-Class BladeSystem	447047-B21
	HP 1/10Gb Virtual Connect Ethernet Module for c-Class BladeSystem	399593-B22
	HP 1:10 Gb Ethernet BL-c Switch	438031-B21
	Cisco Catalyst 3020 Blade Switch	410916-B21
	HP GbE2c Layer2/3 Ethernet Blade Switch for c-Class BladeSystem	438030-B21
	Cisco Catalyst Blade Switch 3120G for HP	451438-B21
	Cisco Catalyst Blade Switch 3120X for HP	451439-B21
	Ethernet Pass-Through Module for HP BladeSystem	406740-B21

Technical Specifications

General Specifications	**Network Processor**		QLogic ISP4032
	Data rate		Two ports, each at 2 Gbps (full duplex, theoretical maximum). **NOTE:** The QMH4062 adapter transmits from the server at 2 Gbps full duplex per port only.
	Bus type		x4 PCI Express
	Form factor		Mezzanine card compatible with all ProLiant c-Class server mezzanine slots
	IEEE Compliance		802.1p (QoS), 802.1Q (VLANs) (Linux only), 802.3 (Ethernet), 802.3ad Link aggregation) (Linux only), and 802.3x (Flow control)
	iSCSI RFC Compliance		RFC3720 (iSCSI), RFC1994 (CHAP), RFC4171 (iSNS)
	TCP/IP RFC Compliance		RFC791 (IPv4), RFC793 (TCP), RFC1122 (Requirements for internet hosts), RFC1323 (TCP Extensions for high performance), RFC2460 (IPv6), RFC2581 (TCP Congestion control)
	iSCSI Target Pre-certification		**HP:** StorageWorks MSA200i product line, StorageWorks All-in One (AiO) product line, HP EVA iSCSI Connectivity Option, and the HP ProLiant Storage Server family **3rd party:** NetApp, EMC, IBM, Dell, Lefthand, LSI, Sun/Storagetek, Promise, Compellent, Quantum, AC&NC, SpectraLogic, StoneFly, iQstor, iStor, DNF, JetStor, Quantum, and Engenio
Power and Environmental Specifications	**Operating**	**Temperature**	50° to 95° F (10° to 35° C)
		Humidity	10% to 90% non-condensing
	Non-operating	**Temperature**	0° to 158° F (-40° to 70° C)
		Humidity	10% to 90% non-condensing
	Power requirement		10.3 Watts typical, 12.0 Watts maximum
	Emissions classification		FCC Class A
	Agency approvals	**USA**	FCC (CFR 47 part 15)
		Canada	ICES-003 and CSA60950
		Japan	VCCI
		Korea	EMC Registration
		Australia	ACA, AS/NZS3548/EN55022:1998, EN55024:1998
		European Union	CE Mark, EN55022:1998 (CISPR 22), EN55024:1998, and IEC60950:1999 (EN60950:2000)
	RoHS Compliance		6 of 6
	Safety		UL Mark (USA and Canada) EN 60590

Operating System Support

- Microsoft Windows 2003 and 2008 (32-bit and 64-bit)
- Red Hat Enterprise Linux
- SUSE Linux Enterprise Server
- VMware ESX Server 4.0 and ESXi 4.0

NOTE: For more operating system support & certification information, please visit http://h10018.www1.hp.com/wwsolutions/index.html.

Technical Specifications

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.