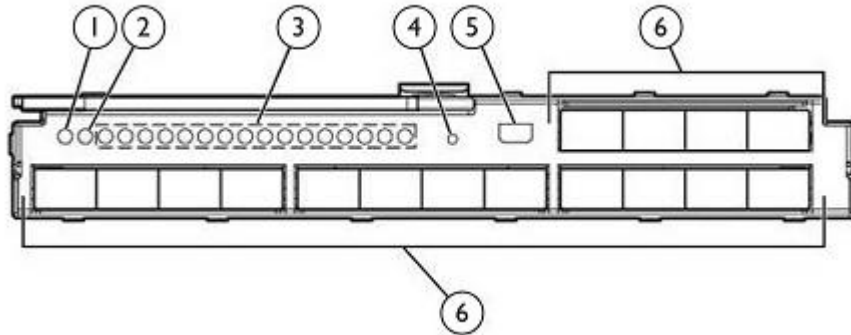


### Overview

The HP 10GbE Pass-Thru Module is designed for c-Class BladeSystem and HP Integrity Superdome 2 customers requiring a non-blocking, one-to-one connection between each server and the network. The pass-thru module provides 16 uplink ports that accept both SFP and SFP+ connectors.

The HP 10GbE Pass-Thru Module can support 1Gb and 10Gb connections on a port by port basis. Optical as well as Direct Attach Copper (DAC) cables are also supported. Both standard Ethernet as well as Converged Enhanced Ethernet (CEE) traffic to an FCoE capable switch is possible when using the appropriate NIC or adapter module.



HP 10GbE Pass-Thru Module

1. UID LED
2. Health LED
3. Ethernet port link status and speed LEDs
4. Reset Button
5. Mini USB RS-232 management port
6. Uplinks ports that accept SFP and SFP+ transceiver modules and Direct Attach Cables (DAC)

### What's New

- Support for HP ProLiant G7 servers
- Support for Converged Network Adapters

### At A Glance

#### Performance:

- 16 direct server to network connections
- Auto-sense 1Gb or 10Gb operation on a port by port basis
- Supports standard Ethernet as well as Converged Enhanced Ethernet
- Supports all NICs and mezzanine adapters including Flex Adapters

#### Management:

- No management required
- Module performance monitored by the On-Board Administrator
- Front panel or OA access for service and test and firmware updates



## *Models and Options*

### Models

HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem

538113-B21

HP Integrity 10GbE Pass-Thru Module

AT084A



### Compatibility

#### HP ProLiant Servers

- HP ProLiant BL2x220c G7
- HP ProLiant BL2x220c G5
- HP ProLiant BL260c G5
- HP ProLiant BL280c G6
- HP ProLiant BL460c
- HP ProLiant BL460c G5
- HP ProLiant BL460c G6
- HP ProLiant BL460c G7
- HP ProLiant BL460c Gen8
- HP ProLiant BL465c
- HP ProLiant BL465 G5
- HP ProLiant BL465 G6
- HP ProLiant BL465 G7
- HP ProLiant BL480c
- HP ProLiant BL490c G7
- HP ProLiant BL490c G6
- HP ProLiant BL495c G5
- HP ProLiant BL495c G6
- HP ProLiant BL620c G7
- HP ProLiant BL680c
- HP ProLiant BL680c G7
- HP ProLiant BL685c
- HP ProLiant BL685 G5
- HP ProLiant BL685 G6
- HP ProLiant BL685 G7

**NOTE:** Some servers listed above may be discontinued.

#### HP Integrity Servers

- HP Integrity BL860c
- HP Integrity BL860c i2
- HP Integrity BL870c
- HP Integrity BL870c i2
- HP Integrity BL890c i2

#### HP Superdome Servers

- HP Superdome 2 - 8s Server
- HP Superdome 2 - 8s Promotional Server
- HP Superdome 2 - 16s Server

#### ProLiant BL c-Class Server Blade Enclosures HP c-Class Mezzanine Adapters

- HP BladeSystem c3000 Enclosure
- HP BladeSystem c7000 Enclosure
- HP NC325m PCI Express Quad Port 1Gb Server Adapter
- HP NC326m PCI Express Dual Port 1Gb Server Adapter
- HP NC360m Dual Port 1GbE BL-c Adapter
- HP NC364m Quad Port 1GbE BL-c Adapter
- HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter
- HP NC382m PCI Express Dual Port Multifunction Gigabit Server Adapter
- HP NC522m Dual Port Flex-10 10GbE Multifunction BLc Adapter
- HP NC530m HP Flex-10 10Gb 2-port 530M Adapter
- HP NC532m Dual Port Flex-10 10GbE Multifunction BLc Adapter
- HP NC542m Dual Port Flex-10 10GbE Multifunction BLc Adapter
- HP NC550m Dual Port Flex-10 10GbE Multifunction BLc Adapter
- HP NC552m Dual Port Flex-10 10GbE Multifunction BLc Adapter
- HP NC551m Dual Port FlexFabric 10Gb Network Adapter



### Compatibility

- HP NC544m HP InfiniBand QDR/Ethernet 10Gb 2P 544M Adapter
- HP NC554m HP FlexFabric 10Gb 2-port 554M Adapter
- QLogic QMH4062 1GbE iSCSI Adapter for HP BladeSystem c-Class

**NOTE:** Some adapters listed above may be discontinued.

### Cabling and Transceivers SFP+ Direct attached cables:

- HP 1m SFP+ 10GbE Copper Cable
- HP 3m SFP+ 10GbE Copper Cable
- HP 5m SFP+ 10GbE Copper Cable
- HP 7m SFP+ 10GbE Copper Cable
- HP 10-GbE SFP+-SFP+ 1m Direct Attach Cable
- HP 10-GbE SFP+-SFP+ 3m Direct Attach Cable
- HP 10-GbE SFP+-SFP+ 7m Direct Attach Cable

**NOTE:** The above cables have been tested and verified to work with the HP 10GbE Pass-Thru Module. However, the module will accept cables from any vendor. HP does not guarantee the performance of non HP cables and users may receive a warning message via the CLI when a non verified cable has been inserted.

### Transceivers:

- HP BladeSystem 10Gb SR SFP+
- HP BladeSystem 10Gb LR SFP+
- HP BladeSystem 10Gb LRM SFP+
- HP BladeSystem 1Gb SX SFP Opt Kit
- HP BladeSystem 1Gb RJ-45 SFP Opt Kit

**NOTE:** Only HP transceivers listed above may be used in the HP 10GbE Pass-Thru Module.



### Compatibility Matrix

Downlink Server LOM or Mezzanine port	Installed uplink port transceiver or cable	Supported port speed
NC522m NC530m NC532m NC532i NC542m NC544m NC550m NC552m	10Gb SR SFP+ 10Gb LR SFP+ 10Gb LRM SFP+ HP 1m SFP+ 10GbE Copper Cable HP 3m SFP+ 10GbE Copper Cable HP 5m SFP+ 10GbE Copper Cable HP 7m SFP+ 10GbE Copper Cable	10Gb
NC551m NC551i NC553i NC554m	10Gb SR SFP+ 10Gb LR SFP+ 10Gb LRM SFP+ HP 1m SFP+ 10GbE Copper Cable HP 3m SFP+ 10GbE Copper Cable HP 5m SFP+ 10GbE Copper Cable HP 7m SFP+ 10GbE Copper Cable	10Gb Ethernet  10Gb Converged Fabric
NC522m NC530m NC532m NC532i NC542m NC550m NC552m NC551m/i NC553i NC325m NC326m NC360m NC364m NC373m NC382m QLogic QMH4062 All HP ProLiant Generation 5 (G5) and earlier servers	1Gb SX SFP Opt Kit 1Gb RJ-45 SFP Opt Kit	1Gb
NC325m NC326m NC360m NC364m NC373m NC382m QLogic QMH4062, All HP ProLiant Generation 5 (G5) and earlier servers (except HP ProLiant BL495c G5)	10Gb SR SFP+ 10Gb LR SFP+ 10Gb LRM SFP+ HP 1m SFP+ 10GbE Copper Cable HP 3m SFP+ 10GbE Copper Cable HP 5m SFP+ 10GbE Copper Cable HP 7m SFP+ 10GbE Copper Cable	Not supported

**NOTE:** Some options listed above may be discontinued.



### Service and Support

#### Service and Support

#### HP Technology Services

HP Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime.

Protect your business beyond warranty with HP Care Pack Services

- When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

#### Recommended Services

#### Recommended HP Care Pack Services for optimal satisfaction with your HP product

##### 3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE>

##### HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN>

#### Related Services

#### Related HP Care Pack Services to enhance your HP product experience

##### 3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service

Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf>

##### HP Proactive Select Service

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN>

#### Insight Remote Support

Delivers secure remote monitoring and support for HP servers and storage, 24x7 at no additional cost. Available as part of HP Warranty, Care Pack and Service Contract offers.

#### Parts and materials

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating



### Service and Support

manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.

#### Service limitation

##### **Limitations to the defective media retention service feature option**

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

#### For more information

To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit:

<http://www.hp.com/services/proliant> or [www.hp.com/services/bladesystem](http://www.hp.com/services/bladesystem)



### Related Options

#### Cabling and Transceivers SFP+ Direct attached cables

HP BladeSystem c-Class Small Form-Factor Pluggable 1m 10GbE Copper Cable	487652-B21
HP BladeSystem c-Class Small Form-Factor Pluggable 3m 10GbE Copper Cable	487655-B21
HP BladeSystem c-Class Small Form-Factor Pluggable 5m 10GbE Copper Cable	537963-B21
HP BladeSystem c-Class Small Form-Factor Pluggable 7m 10GbE Copper Cable	487658-B21

#### Transceivers

HP BladeSystem c-Class 10Gb Short Range Small Form-Factor Pluggable Option	455883-B21
HP BladeSystem c-Class 10Gb Long Range Small Form-Factor Pluggable Option	455886-B21
HP BladeSystem c-Class 10Gb Long Range Mode Small Form-Factor Pluggable Option	455889-B21
HP BLc Virtual Connect 1Gb SX Small Form Factor Pluggable Option Kit	453151-B21
HP BLc Virtual Connect 1Gb RJ-45 Small Form Factor Pluggable Option Kit	453154-B21

#### Service and Support Offerings

(HP Care Pack Services)

**NOTE:** HP Care Pack services for the c7000 and c3000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP supported c-Class enclosure devices including pass thru, Ethernet interconnect and virtual connect modules are also covered by the c7000 and c3000 enclosure Care Pack services.

**NOTE:** SAN/Fabric switches for the HP c-Class BladeSystem are not covered under the c7000 and c3000 enclosure Care Packs, SAN/Fabric switches carry separate Care Packs. SAN/Fabric Switch Care Pack service level support should always be uplifted to match existing storage or server service level.

#### Hardware Support Services On-site Service

HP 3 year Next business day c7000 Enclosure Hardware Support	UE477E
<b>NOTE:</b> Uplifts the Ethernet devices to the same level of warranty as the c-class enclosure.	
HP 3 year 4 hour 13x5 c7000 Enclosure Hardware Support	UE478E
HP 3 year 4 hour 24x7 c7000 Enclosure Hardware Support	UE479E
HP 3 year 6 hour 24x7 Call to Repair c7000 Enclosure Hardware Support	UE480E

#### Installation & Start-up Services

HP Startup Blade System c-Class Infrastructure Service	UE602E
HP Startup Blade System c-Class Enhanced Network Service	UE603E
HP Install c-Class Server Blade Service	UE493E
HP Install c-Class Enclosure & ServerBlade Service	UE494E

**NOTE:** For more information, customer/resellers can contact:

<http://www.hp.com/services/bladessystemservices>



### Technical Specifications

Shipping Dimensions	Length	11.42 in (290 mm)
	Width	14.49 in (368 mm)
	Height	2.36 in. (60 mm)
Shipping Weight		2.1 kg (4.6 lbs)
Product Specifications Hardware	Performance	320 Gbps external port bandwidth per module Measured latency under 536nS per port @ 10Gb Line rate 10Gb full-wire speed performance Auto-negotiation and auto-sensing with full-duplex support
	Connectors and Cabling	Uplink Ports 16 SFP/SFP+ Modules Management Mini-USB Management
Network Transfer Rate		1 Gbps Port (2,000 Mbps full duplex) 10 Gbps port (20,000 Mbps full duplex)
LED Indicators	UID LED	Blue light on module is activated. Blue light off module is deactivated.
	Health LED	Off: The pass-thru module is powered off. Green: The pass-thru module is powered up, and all ports match. Amber: An issue exists, such as a port mismatch.
	Ethernet port	Green Link is 10G Flashing green 10G link activity is detected Amber Link is 1G Flashing amber 1G link activity is detected. Flashing alternately green and amber A link mismatch condition exists.
Product Dimensions	Length	10.5 in (267.7 mm)
	Width	7.5 in (192.79 mm)
	Height	1.1 in (27.94mm)
Product Weight		1.6 kg (3.97 lbs)
Environmental Ranges	Operating Temperature	50° to 95° F (10° to 35° C)
	Non-operating Temperature	-40° to 158° F (-40° to 70° C)
	Relative Humidity (non-condensing)	Operating 5% to 95%
Power Specification		Power Requirements 12VDC: 6.3A, 68W maximum
Safety and Compliance		TUV to UL 60950-1, and CAN/CSA C22.2 No. 60950-1 and to EN 60950-1
Safety Certifications		CE Marking RoHS 6/6 compliant
	Electromagnetic Emissions	FCC Part 15 Class A
Certifications FCC Part 15 Class A		EN 55022: 1998 (CISPR22)
		EN 55024: 1998 (CISPR24)
		VCCI Class A
		AS/NZS 3548 Class A CE
		CNS 13438 Class A MIC MIC



### 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.

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