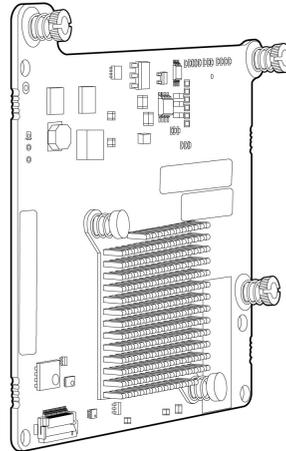


### Overview

The HP FlexFabric 10Gb 2-port 554M adapter supports Virtual Connect Flex-10 that allows each 10Gb port to be divided into four physical NICs to optimize bandwidth management for virtualized servers. When connected to a Data Center Bridging (DCB) capable switch, Fibre Channel over Ethernet (FCoE) and Ethernet I/O are separated and routed to the corresponding network. For iSCSI storage, the HP 554M supports full protocol offload to provide better CPU efficiency when compared to software initiators, thus enabling the server to handle increased virtualization workloads and compute-intensive applications. This combination of high-performance network and storage connectivity reduces cost and complexity and provides the flexibility and scalability to fully optimize Gen8 BladeSystem servers. The HP 554M delivers the performance benefits and cost savings of converged network connectivity for HP BladeSystem servers. The dual-port HP 554M optimizes network and storage traffic with hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE), Fibre Channel over Ethernet (FCoE) and iSCSI.



HP FlexFabric 10Gb 2-port 554M Adapter

### Models

HP FlexFabric 10Gb 2-port 554M Adapter

647590-B21

**NOTE:** The HP 554M on each server blade connects to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 2-4 (HP BladeSystem c3000 Enclosure).

**NOTE:** The HP 554M adapter requires a minimum of 2 GB of server memory.

**NOTE:** The HP 554M adapter supports linking at 1Gbps or 10Gbps when not connected to a Flex-10 device. The HP 554M adapter will only support 1Gbps when connected to a 1Gb Ethernet interconnect.

### Kit Contents

- HP FlexFabric 10Gb 2-port 554M Adapter
- Quick install card
- Product warranty statement
- Drivers, user guide, and utilities via: <http://www.hp.com>

### Compatibility

#### HP ProLiant Server Support

- HP ProLiant BL420c Gen8
  - HP ProLiant BL460c Gen8
  - HP ProLiant BL465c Gen8
  - BL ProLiant BL660c Gen8
- 

#### Supported Interconnect Modules

- HP Virtual Connect Flex-10 Ethernet Module
- HP Virtual Connect FlexFabric 10Gb/24-port Module
- HP 1/10Gb Virtual Connect Ethernet Module
- HP 1/10Gb-F Virtual Connect Ethernet Module HP
- HP 6120XG Blade Switch
- HP 6120G/XG Blade Switch
- HP 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
- Cisco Fabric Extender B22HP for HP
- HP GbE2c Layer 2/3 Ethernet Blade Switch
- HP 10GbE Pass-Thru Module
- HP 1GbE Pass Thru Module

**NOTE:** Except for the HP Virtual Connect Flex-10 Ethernet Module, HP Virtual Connect Flex Fabric Module, HP 6120XG, HP 10GbE Pass-Thru Module and the Cisco B22 Fabric Extender, all other supported interconnects are limited to 1Gb per port connection.

---

#### Tape Drive Support (Nearline Tape Products)

- D2D
- VLS
- ESL libraries
- EML libraries
- ESL G3 library
- MSL G3 libraries (2024, 4048, 8096)

### Standard Features

#### Performance

##### Product Features

- Industry-leading throughput and latency performance
- Supports Gen8 c-Class ProLiant BladeSystem servers
- Type A Mezzanine Adapter
- Dual 10Gb ports provide up to 40Gb full duplex per adapter
- Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE), Fibre Channel over Ethernet (FCoE) and iSCSI
- 802.1p, 802.1q, 802.1qau, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4) and 802.3x
- Jumbo frames support
- Supports HP's FlexFabric and Flex-10 technologies that allow setting any bandwidth from 100Mb to 10Gb on up to four physical function NICs or Flex NICs per port when combined with the 10Gb Flex-10 Virtual Connect module. One of the Flex NICs can be configured to support FCoE or accelerated iSCSI.
- Each FlexNIC and FlexHBA is recognized by the server as a PCIe physical function device with adjustable speeds from 1Gb to 10Gb in 100Mb increments
- Supports receive-side scaling (RSS) for efficient distribution of network receive processing across multiple CPUs in multiprocessor systems.
- Includes 128 MB of onboard memory.
- Supports the Preboot eXecution Environment (PXE)

---

##### Dual-port 10 Gigabit Ethernet Throughput (theoretical bandwidth)

The 20 Gbps full duplex Ethernet transfer rate per port (40 Gbps aggregate full duplex) delivers outstanding network performance that improves response time and removes bottlenecks.

---

##### Fibre Channel over Ethernet (FCoE)

Combines the functionality of an industry-standard NIC with a proven Fibre Channel software stack to seamlessly converge network and storage traffic over a shared lossless Ethernet network based on IEEE DCB standards.

---

##### HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem

Evolve 10Gb at your own speed! When paired with the HP Virtual Connect Flex-10 10Gb Ethernet Modules, take advantage of four Flex NICs, which are PCI Physical Function devices that are OS/ Hypervisor independent.

Server ROM recognizes them as individual NICs

Speeds can be set per NIC from 100Mb to 10Gbs in 100Mb increments

Three fold increase in number of network connections per port.

Up to four physical function NICs per port.

Ideal for virtualized server environment, especially for dedicated bandwidth application like virtual machine migration from one physical server to another physical server.

---

##### Jumbo Frames

The HP 554M adapter supports jumbo frames (also known as extended frames) with a maximum transmission unit (MTU) of up to 9K bytes when running Ethernet and/or iSCSI I/O, which is over five times the size of standard 1500-byte Ethernet frame. Eight KB jumbo frames are supported when running Ethernet and FCoE I/O concurrently. Jumbo frames can help achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers and tape backups.

### Standard Features

---

<b>802.1p QoS Tagging</b>	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.
<b>802.1Q VLANs</b>	The HP 554M adapter supports the IEEE 802.1Q virtual local area network (VLAN) protocol that allows each physical port or FlexNIC to be assigned to a VLAN 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.
<b>Network Adapter Teaming</b>	The HP 554M adapter support for NIC teaming helps IT administrators increase network fault tolerance and improve workload balance. These capabilities optimize availability, improve performance and help reduce costs.
<b>TCP/IP Stateless Offloading</b>	For overall improved system response, the HP 554M adapter supports standard TCP/IP stateless offloading techniques including: <ul style="list-style-type: none"><li>• TCP/IP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter.</li><li>• Large send offload (LSO), also known as TCP segmentation offload (TSO), allows TCP segmentation to be handled by the adapter rather than the CPU.</li></ul>
<b>TOE</b>	TCP/IP Offload Engine (TOE) moves the processing of data in the TCP protocol stack from the server CPU to the network card, freeing CPU cycles for other duties.
<b>RDMA</b>	Not Supported
<b>iSCSI</b>	The HP 554M adapter supports accelerated iSCSI and iSCSI INT 13 Boot.
<b>Warranty</b>	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 HP Authorized 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>

### 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.

HP Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, HP can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

---

#### 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.pdf>

**OR**

##### 3-Year HP 24x7 4 hour Response, HP Collaborative Support

Offers customers a single point of contact for server problem diagnosis, hardware problem resolution, and basic software problem diagnosis, fault isolation, and resolution if available to HP. If the problem is with HP HW, the representative 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. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf.

##### 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.pdf>

---

### Service and Support

#### Related Services

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

##### **3-Year HP 24x7 4 hour Response, Proactive Care or Critical Advantage**

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-2140ENW.pdf>

**OR**

##### **3-Year HP 6-hour Onsite Call-to-Repair, HP Collaborative Support**

Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HP Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HP. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf.

##### **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.pdf>

---

#### **Insight Remote Support**

Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more <http://www.hp.com/go/insightremotesupport>

---

#### **HP Support Center**

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more <http://www.hp.com/go/hpsc>

HP's Support Center Mobile App\* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

\*HP' Support Center Mobile App is subject to local availability.

---

### Service and Support

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

---

**Warranty / Service Coverage**

For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

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

#### **Additional c-Class BladeSystem Adapters**

#### **FlexibleLOM Adapters**

HP FlexFabric 10Gb 2-port 554FLB Adapter	647586-B21
HP Flex-10 10Gb 2-port 530FLB Adapter	656590-B21

#### **Mezzanine Adapters**

HP Flex-10 10Gb 2-port 530M Adapter	631884-B21
HP Flex-10 10Gb 2-port 552M Adapter	674764-B21

---

#### **HP 10Gb interconnects**

HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
HP 6120XG Blade Switch	516733-B21
HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21

### Technical Specifications

<b>General Specifications</b>	<b>Network processor</b>	Emulex BE3		
	<b>Data rate</b>	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth.		
	<b>Onboard memory</b>	128MB		
	<b>Bus type</b>	PCI Express v2.0 (Gen 2) x8		
	<b>Form factor</b>	Type A Mezzanine Card		
	<b>IEEE Compliance</b>	802.1p, 802.1q, 802.1qau, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4) and 802.3x		
<b>Power and Environmental Specifications</b>	<b>Operating</b>	<b>Temperature</b>	0°C to 55°C / 32°F to 131°F	
		<b>Humidity</b>	10% to 90% non-condensing	
	<b>Power requirement</b>	8.6W idle and 10W maximum		
	<b>Emissions classification</b>	FCC Class A		
	<b>Agency approvals</b>	USA	FCC (CFR 47 part 15) and UL 60950	
		Canada	ICES-003 and CSA60950	
		Japan	VCCI	
		Korea	MIC (RRL), EMC Registration	
		Australia	ACA, AS/NZS3548/EN55022:1998, EN55024:1998	
	European Union	EN55022:1998 (CISPR 22), EN55024:1998, and IEC60950:1999 (EN60950:2000)		
<b>RoHS Compliance</b>	6 of 6			
<b>Safety</b>	UL Mark (USA and Canada)			
	CE Mark			
	EN 60590			
<b>Operating System Support</b>	<b>Microsoft:</b>	Microsoft Windows Server 2008 SP2, R2 (x86 and x64) Microsoft Windows Hyper-V, R2 SP1		
	<b>Linux:</b>	RHEL 5, 6 SLES 10, 11		
	<b>Solaris:</b>	Solaris 10 (x86 and x64)		
	<b>Virtualization:</b>	VMware ESX/ESXi 4.1 and ESXi 5.0		
		<b>NOTE:</b>	For more operating system support & certification information, please visit: <a href="http://h10018.www1.hp.com/wwsolutions/index.html">http://h10018.www1.hp.com/wwsolutions/index.html</a> .	

### 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.

---

© Copyright 2012 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Windows is a US registered trademark of Microsoft Corporation.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.