Overview

HPE FlexFabric 10Gb 2-port 554FLB Adapter

The HPE FlexFabric 10Gb 2-port 554FLB 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 HPE 554FLB supports full protocol offload providing 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 HPE 554FLB delivers the performance benefits and cost savings of converged network connectivity for HPE BladeSystem servers. The dual-port HPE 554FLB 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.

HPE FlexFabric 10Gb 2-port 554FLB Adapter

Platform Information

Models

HPE FlexFabric 10Gb 2-port 554FLB Adapter   647586-B21
HP FlexFabric 10Gb 2-port 554FLB FIO Adapter   684212-B21
NOTE: This adapter on each server blade connects to a 10 Gb interconnect in bays 1-2 (HPE BladeSystem c7000 Enclosure) or bay 1 (HPE BladeSystem c3000 Enclosure).
NOTE: This adapter requires a minimum of 2 GB of server memory.
NOTE: This adapter supports linking at 1000 Mbps or 10000 Mbps when not connected to a Flex-10 device.
NOTE: This adapter will only support 1000 Mbps when connected to a 1 Gb Ethernet interconnect.

Kit Contents	HPE FlexFabric 10Gb 2-port 554FLB Adapter Quick install card Product warranty statement
Compatibility - **Supported Servers**	HPE ProLiant BL460c Gen8 HPE ProLiant BL420c Gen8 HPE ProLiant BL465c Gen8 HPE ProLiant BL660c Gen8 HPE ProLiant WS460c Gen8 **NOTE:** This is a list of supported servers. Some may be discontinued.
Compatibility **- Supported** **Interconnect Modules**	HPE Virtual Connect Flex-10 Ethernet Module HPE Virtual Connect FlexFabric 10Gb/24-port Module HPE 1/10Gb Virtual Connect Ethernet Module HPE 1/10Gb-F Virtual Connect Ethernet Module HPE HPE 6120XG Blade Switch HPE 6120G/XG Blade Switch HPE 6125G/XG Ethernet Blade Switch HPE 6125XLG Ethernet Blade Switch HPE 6127XLG Ethernet Blade Switch HPE 1:10Gb Ethernet BL-c Switch Cisco Catalyst 3120G Blade Switch for HPE Cisco Catalyst 3120X Blade Switch for HPE Cisco Catalyst 3020 Blade Switch Cisco Fabric Extender B22HP for HPE HPE GbE2c Layer 2/3 Ethernet Blade Switch HPE 10GbE Pass-Thru Module HPE 1GbE Pass Thru Module **NOTE:** Except for the HPE Virtual Connect Flex-10 Ethernet Module, HPE Virtual Connect Flex Fabric Module, HPE 6120XG, HPE 10GbE Pass-Thru Module and the Cisco B22 Fabric Extender, all other supported interconnects are limited to 1Gb per port connection.

Standard Features

At a Glance Features

- Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE), Fibre Channel over Ethernet (FCoE) and iSCSI
- Industry-leading throughput and latency performance
- Dual 10Gb ports provide up to 40Gb full duplex per adapter
- Supports Preboot eXecution Environment (PXE)
- Supports Gen8 c-Class ProLiant BladeSystem servers in the designated FlexibleLOM slots
- FlexibleLOM adapter that provides the flexibililty to choose the type of LOM to meet growing infrastructure needs
- IEEE 802.1p QoS 802.3x flow control, and 802.3ap 10GBase-KR
- Jumbo frames support
- Supports the HPE Flex-10 and FlexFabric technologies that allow setting any bandwidth from 100 Mb to 10 Gb on up to four physical function NICs or Flex NICs per port when combined with the 10 Gb 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 PCI-e physical function device with adjustable speeds from 1Gb to 10Gb in 100Mb increments
- Supports receive-side scaling (RSS) for the efficient distribution of network receive processing across multiple CPUs in multiprocessor systems.
- Includes 128 MB of onboard memory.
- Supports Wake-on-LAN (WoL)
- Supports SR-IOV

Virtual Connect Flex-10

Evolve 10 Gb at your own speed when paired with the HPE Virtual Connect Flex-10 10 Gb 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 100 Mb to 10 Gbs in 100 Mb 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 applications like virtual machine migration from one physical server to another physical server.

Throughput- Theoretical Bandwidth

This adapter delivers 20 Gb/s bi-directional Ethernet transfer rate per port (40 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.

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.

802.1Q VLANs

IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port of this adapter to be separated into multiple virtual NICs for added network segmentation and enhanced security and performance.

Standard Features

	VLANs increase security by isolating traffic between users. Limiting the broadcast traffic to within the same VLAN domain also improves performance.
Fibre Channel over Ethernet (FCoE)	Combines the functionality of an industry-standard NIC with an industry-proven Fibre Channel to seamlessly converge the traffic over a shared lossless Ethernet network.
Jumbo Frames	This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,000 byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over five times the size of a standard 1500-byte Ethernet frame. With Jumbo Frames, networks can achieve higher throughput performance and greater CPU utilization. These attributes are particularly useful for database transfer and tape backup operations.
Network Adapter Teaming	This adapter support for NIC teaming helps IT administrators increase network fault tolerance and increased network bandwidth, the team of adapters can work together as a single virtual adapter, providing support for several different types of teaming enabling IT administrators to optimize availability, improve performance and help reduce costs.
Single-Root I/O Virtualization	Single-Root I/O Virtualization (SR-IOV) provides a mechanism to bypass the host system hypervisor in virtual environments providing near metal performance and server efficiency. SR-IOV provides mechanism to create multiple Virtual Functions (VFs) to share single PCIe resources. The device is capable of SR-IOV, and requires Server BIOS support, controller firmware, and OS support.
TCP/UDP/IP	For overall improved system response, this adapter supports standard TCP/IP offloading techniques including: TCP/IP, UDP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter. Large send offload (LSO) or TCP segmentation offload (TSO) allows the TCP segmentation to be handled by the adapter rather than the CPU.
TOE	TCP/IP Offload Engine (TOE) shifts the processing of data in the TCP protocol stack from the server CPU to the adapter's processor, freeing server CPU cycles for other operations.
Wake-on-LAN	This adapter provides Wake-on-LAN (WoL) support through the PCI Express bus. A system that supports Wake-on-LAN can remain available to the systems administrator during its normal downtime. Once the machine is awakened, the systems administrator can remotely control, audit, debug, or manage the machine.
Warranty	Maximum: The remaining warranty of the HPE product in which it is installed (to a maximum three-year, limited warranty). Minimum: One year limited warranty. **NOTE:** Additional information regarding worldwide limited warranty and technical support is available at: **http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/index.aspx#.V4e3tPkrJhE**

Service & Support

Service and Support	**NOTE: This adapter is covered under HPE Support Services/ Service Contract applied to the HPE ProLiant Server or enclosure. No separate HPE Support Services# need to be purchased.** Most HPE branded options sourced from HPE that are compatible with your product will be covered under your main product support at the same level of coverage, allowing you to upgrade freely. Additional support is required on select workload accelerators, switches, racks and UPS options 12KVA and over. Coverage of the UPS battery is not included under HPE support services; standard warranty terms and conditions apply.
Warranty and Support Services	Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS options 12KVA and over. Coverage of the UPS battery is not included under TS support services; standard warranty terms and conditions apply.
Protect your business beyond warranty with HPE Support Services	HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HPE to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support you need for your IT and business. Protect your product, beyond warranty.
Parts and Materials	Hewlett Packard Enterprise will provide HPE-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. Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.
For more information	Visit the Hewlett Packard Enterprise Service and Support **website**.

Technical Specifications

General Specifications	Network Processor	Emulex BE3
	Data Rate	Two ports, each at 20 Gb/s bi-directional; 40 Gb/s aggregate bi-directional theoretical bandwidth.
	Onboard Memory	128 MB
	Bus type	PCI Express 2.0 (Gen 2) x8
	Form Factor	FlexibleLOM
	IEEE Compliance	802.1p, 802.1q, 802.1qau, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4), and 802.3x

Power and Environmental Specifications	Power	8.6W idle and 10W maximum
	Temperature - Operating	0° to 55°C (32° to 131°F)
	Humidity - Operating	10% to 90% non-condensing
	Emissions Classification	FCC Class A
	Agency Approvals	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)
	RoHS Compliance	6 of 6
	Safety	UL Mark (USA and Canada)
		CE Mark
		EN 60590

Operating System and Virtualization Support

- Microsoft Windows Server 2008 SP2, R2 w/SP1 (x86 and x64)
- Microsoft Windows Hyper-V, R2 w/SP1
- Red Hat Enterprise Linux (RHEL) 5.7, 6.1 (x86, EM64T/AMD64)
- SUSE Linux Enterprise Server (SLES) 10 SP4, 11 SP1 (x86, EM64T/AMD64)
- Solaris 10
- VMware ESX/ESXi 4.1 ESXi 5.0
- Citrix XenServer 6.0

NOTE: For more operating system support and certification information, please visit: **http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/ redhat_linux.aspx#.V4e8tPkrJD8**

Environment-friendly Products and Approach - End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE Directive (2012/19/EU) 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 Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
27-Mar-2017	From Version 13 to 14	Changed	Related Options was updated.
17-Dec-2015	From Version 12 to 13	Changed	Compatibility section was updated.
		Changed	Obsolete SKUs were deleted: 455880-B21
18-Apr-2014	From Version 11 to 12	Changed	Service and Support and Recommended Services were revised.
07-Dec-2013	From Version 10 to 11	Changed	Changes made in the Standard Features Section - Product Features.
		Added	Added new node under Standard Features - Single- Root I / O Virtualization.
11-Oct-2013	From Version 9 to 10	Changed	Updated the following Sections: Compatibility Related Options
29-Mar-2013	From Version 8 to 9	Changed	Compatibility: Updated HPE ProLiant Server Support section.
09-Nov-2012	From Version 7 to 8	Changed	Changes were made in Overview.
		Added	Added new node Network Adaptor Teaming in Standard Features section.
24-Aug-2012	From Version 6 to 7	Changed	Changes were made within the Compatibility section.
22-Jun-2012	From Version 5 to 6	Changed	Changes were made within the Compatibility section.
11-Jun-2012	From Version 4 to 5	Changed	Changes were made within the Compatibility section.
21-May-2012	From Version 3 to 4	Changed	Changes were made within the Technical Specifications section.
30-Mar-2012	From Version 2 to 3	Changed	Changes were made within the Standard Features section.
09-Mar-2012	From Version 1 to 2	Changed	Changes were made within the Standard Features section.

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