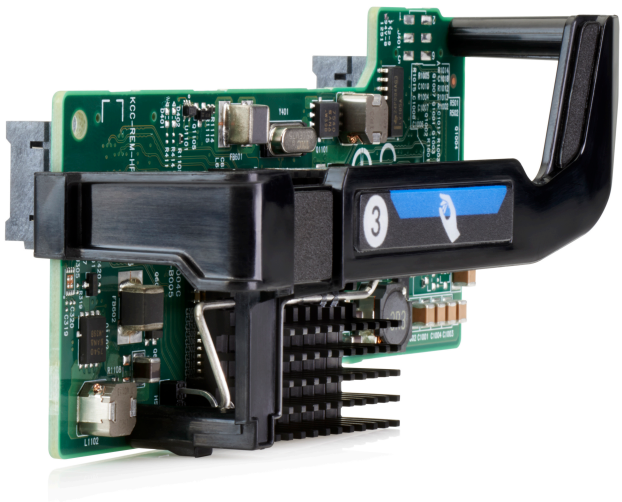
Overview

HPE FlexFabric 10Gb 2-port 534FLB Adapter

The HPE FlexFabric 10Gb 2-port 534FLB adapter features the next generation of 10Gb Ethernet offering in a single chip solution on a FlexibleLOM form factor, further reducing power requirements for 2 ports of 10Gb Ethernet. It is designed for use with HPE BladeSystem c-Class Gen8 servers.

It provides full duplex high performance Ethernet connectivity with support for HPE Virtual Connect FlexFabric blade interconnect technology. This allows each 10GbE port to be divided into four physical NICs and optimize bandwidth management for virtualized servers. This adapter also supports full hardware offload for iSCSI and FCoE storage connectivity.# The HPE 534FLB FlexFabric network adapter, in conjunction with HPE Virtual Connect FlexFabric technology, helps to extend the benefits of virtualization beyond the server and into the rest of the infrastructure.

The HPE 530FLB supports enterprise class features such as VLAN tagging, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), tunnel offloads (NVGRE, VXLAN), TCP/IP Stateless Offloads, Receive Side Scaling (RSS), jumbo frames and PXE boot. It also supports virtualization features such as SR-IOV (Windows, Linux, VMWare), VMware NetQueue and Microsoft VMQ.



HPE FlexFabric 10Gb 2-port 534FLB Adapter

Platform Information

Models

HP FlexFabric 10Gb 2-port 534FLB Adapter	700741-B21
HP FlexFabric 10Gb 2-port 534FLB FIO Adapter	700742-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 534FLB Adapter
Quick install card
Product warranty statement

Compatibility - Supported Servers

HPE Server Support
HPE ProLiant BL420c Gen8
HPE ProLiant BL460c Gen8
HPE ProLiant BL465c Gen8
HPE ProLiant BL660c Gen8

NOTE: This is a list of supported servers. Some may be discontinued.

Compatibility - Supported Interconnect Modules

HPE Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem
HPE Virtual Connect FlexFabric-20/40 F8 Module for c-Class BladeSystem with TAA
HPE Virtual Connect FlexFabric 10Gb/24-port Module for c-Class BladeSystem
HPE Virtual Connect FlexFabric 10/24 Enterprise Edition BLc7000 Option
HPE Virtual Connect Flex-10/10D Module for c-Class BladeSystem
HPE Virtual Connect Flex-10/10D Module Enterprise Edition for BLc7000 Option
HPE Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem
HPE Virtual Connect Flex-10 Ethernet Module Enterprise Edition for BLc7000 Option
HPE 6120XG Blade Switch
HPE 6120G/XG Blade Switch
HPE 6125XLG Ethernet Blade Switch
HPE 6125XLG Ethernet Blade Switch with TAA
HPE 6125G/XG Ethernet Blade Switch
HPE 6125G/XG Ethernet Blade Switch with TAA
HPE 6125G Ethernet Blade Switch
HPE 6125G Ethernet Blade Switch with TAA
HPE 6127XLG Ethernet Blade Switch
Cisco Catalyst 3120G Blade Switch for HPE
Cisco Catalyst 3120X Blade Switch for HPE
Cisco Catalyst 3020 Blade Switch
Cisco Fabric Extener B22HP for HPE
HPE 10GbE Pass Thru Module
HPE 1GbE Pass Thru Module

NOTE: 10GbE converged connectivity is supported in all HPE Virtual Connect Flex-10 Ethernet, HPE Virtual Connect FlexFabric modules, HPE 6120XG, HPE 6125XG series switches, Cicso B22

Platform Information

Fabric Extender and HPE 10GbE Pass-Thru modules. All other supported interconnects and switches are limited to 1GbE per connection for Ethernet-ony traffic.

Standard Features

At a Glance Features

- Full featured Layer 2 (L2) NIC functionality with industry leading 10GbE throughput performance
- Full hardware offload of iSCSI and FCoE storage protocol processing for highest performance converged Ethernet data and storage networks.
- Dual-port 10GbE Flex-10 FlexibleLOM network adapter that provides the flexibility to choose the type of LOM to meet growing infrastructure needs
- Tunnel Offload support for NVGRE and VxLAN
- Optimized for virtual server environments with support for HPE Flex-10 Technology, Network Partitioning (NPAR) and Single-Root I/O Virtualization (SR-IOV). User configurable bandwidth settings when combined with the 10 Gb Flex-10 Virtual Connect module. From 100 Mb/s to10 Gb/s on up to four "Physical Function" NICs per port, in increments of 100 Mb/s for NIC. The combined bandwidth of NICs cannot exceed port bandwidth i.e. 10 Gb.
- Up to 40 Gb/s bi-directional near line rate throughput
- Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE)
- Improved small packet performance
- Support for Preboot eXecution Environment (PXE)
- Integrated PHY and MAC
- Note: DPDK and Virtual Connect can't be used at the same time

Virtual Connect FlexFabric 10 Gb Ethernet Module for the c-Class BladeSystem

Evolve 10 Gb at your own speed! When paired with the HPE Virtual Connect FlexFabric 10 Gb Ethernet Modules, take advantage of four Flex Nics, which are PCI Physical Function devices that are OS/ Hypervisor independent. In addition take advantage of iSCSI and FCoE storage offload capability making it a full-Converged Network Adapter (CNA).
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. VLANs increase security by isolating traffic between users. Limiting the broadcast traffic to within the same VLAN domain also improves performance.

Standard Features

DPDK	This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.
HPE Sea Of Sensors	Support for the HPE Sea of Sensors which is a collection of 32 sensors that automatically track thermal activity - heat - across the server. When temperatures get too high, sensors can kick on fans and make other adjustments to reduce energy usage. What makes it better is the upgrade from all six fans kicking on at one time to a new system where only one kicks on - the one in proximity of the area that started heating up - thus reducing the amount of energy used for cooling.
iSCSI/FCoE	This adapter supports accelerated iSCSI or iSCSI boot and FCoE.
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.
Management Support	This adapter ships with agents that can be managed from HPE Systems Insight Manager or other management application that support SNMP.
Message Signaled Interrupt (Extended) (MSI-X)	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores.
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.
Network Partitioning (NPAR)	This adapter supports Network Partitioning (NPAR) allowing administrators to configure a 10 Gb port as four separate partitions or physical functions. Each PCI function is associated with a different virtual NIC. To the OS and the network, each physical function appears as a separate NIC port.
Optimized for Virtualization	I/O Virtualization support for VMware NetQueue and Microsoft VMQ helps meet the performance demands of consolidated virtual workloads.
Preboot eXecution Environment (PXE)	Support for PXE enables automatic deployment of computing resources remotely from anywhere. It allows a new or existing server to boot over the network and download software, including the operating system, from a management/ deployment server at another location on the network.Additionally, PXE enables decentralized software distribution and remote troubleshooting and repairs.
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

Standard Features

	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.
Tunnel Offload	Minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN and NVGRE. By offloading packet processing to adapters, customers can use overlay networking to increase VM migration flexibility and virtualized overlay networks with minimal impact to performance. HPE Tunnel Offloading increases I/O throughput, reduces CPU utilization, and lowers power consumption. Tunnel Offload supports VMware's VXLAN and Microsoft's NVGRE solutions.
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**	QLogic 57810S with integrated MAC/PHY
	Data Rate	Two ports, each at 20 Gb/s bi-directional; 40 Gb/s aggregate bi-directional theoretical bandwidth.
	Onboard Memory	PCI Express 2.0 (Gen 2) x8
	Form Factor	FlexibleLOM
	IEEE Compliance	802.3, 802.1ab, 802.3x, 802.3ad, 802.3p, 802.1q, 802.3ae, 802.1Qau, 802.3ap
Power and Environmental Specifications	**Power**	<12W
	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 Part 15 Class A Canada: ICES-003, Issue 4 Japan: VCCI V3 (2010.04) Class A International: EN55022:2006 + A1:2007 Class A, EN55024:1998+A1:2011+A2; EN61000-3-2:2006, EN61000-3-3:2008 Taiwan: BSMI, CNS13438 (2006) Class A Australia/New Zealand (AS/NZS): EN55022:2006+A12007 class A Korea: KN22 Class A, KN24
	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 and R2 w/SP1 (x86 and x64)
- Microsoft Windows Server 2012, 2012 R2
- Microsoft Windows Hypver-V 2008 R2 w/SP1, 2012, 2012 R2
- SUSE Linux Enterprise Server (SLES) 11, 12
- VMware ESXi 5.x and 6.x
- VMware vSphere 5.5
- Citrix XenServer 6.x

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**

NOTE: Minimum Linux versions for FCoE support include RHEL 6.4 and SLES 11 SP3

NOTE: vSphere 5.5 is the minimum version of VMware for SRIOV support

NOTE: Boot from SAN via the iSCSI offload path is not supported for Vmware

NOTE: Networking only support for Solaris and Citrix XenServer

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

Technical Specifications

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 9 to 10	Changed	Standard Features was updated
21-Oct-2016	From Version 8 to 9	Changed	Add DPDK support and update servers
23-Sep-2016	From Version 7 to 8	Changed	Overview, Standard Features, Related Options and Technical Specifications sections were updated.
		Removed	Obsolete SKUs were deleted: 655639-B21, 647586-B21, 656590-B21, 652500-B21, 665246-B21, 647590-B21, 631884-B21, 615729-B21
15-Jul-2016	From Version 6 to 7	Changed	QuickSpecs was updated.
19-Jun-2015	From Version 5 to 6	Changed	Overview, Compatibility, Standard Features, and Technical Specifications sections were updated.
28-Nov-2014	From Version 4 to 5	Changed	Standard Features, Related options and Technical Specifications sections were updated.
		Added	SKUs Added on HPE 10Gb interconnects: 691367-B21, 691367-B22, 571956-B21, 605865-B21, 638526-B21, 662048-B21.
		Removed	Obsolete SKUs deleted: 455880-B21
18-Apr-2014	From Version 2 to 3	Changed	Service and Support and Recommended Services were revised.
11-Oct-2013	From Version 1 to 2	Changed	Revised the following Sections Overview, Compatibility, Standard Features, and Related Options

Sign up for updates

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