

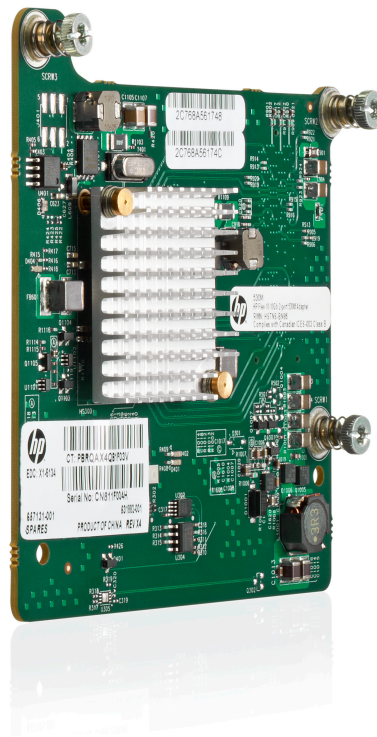
Overview

HPE FlexFabric 10Gb 2-port 534M Adapter

Extended SKU - This adapter is part of an extended catalog of products tailored for customers in specific markets or with specific workloads, requiring the utmost in performance or value, but typically have a longer lead-time.

The HPE FlexFabric 534M is a 2-port 10GbE Mezzanine adapter, featuring the next generation of 10Gb Ethernet offering in a single chip solution on a mezzanine form factor that further reduces power requirements for 2 ports of 10 Gb Ethernet. It is designed for use with HPE BladeSystem c-Class Gen9 blade server platform's type A and Type B mezzanine slots.

It provides full duplex high performance Ethernet connectivity with support for HPE Virtual Connect Flex-10 blade interconnect technology, allowing each 10GbE port to be divided into four physical NICs and optimize bandwidth management for virtualized servers. The HPE FlexFabric 534M adapter, has iSCSI and FCoE storage I/O functionality making it a full-Converged Network Adapter (CNA). The HPE 534M supports enterprise class features such as VLAN tagging, TCP/IP Stateless Offloads, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Receive Side Scaling (RSS), jumbo frames and PXE boot. It also supports virtualization features such as Network Partitioning (NPAR), SR-IOV (Windows, Linux, VMware), Tunnel Offloads (NVGRE, VXLAN), VMware NetQueue and Microsoft VMQ.



HPE FlexFabric 10Gb 2-port 534M Adapter

Platform Information

Models	
HPE FlexFabric 10Gb 2-port 534M Adapter	700748-B21
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 2P 534M Adapter Quick install card Product warranty statement
Compatibility - Supported Servers	HPE ProLiant BL460c Gen9 Server Blade HPE ProLiant BL660c Gen9 Server Blade HPE ProLiant WS460c Gen9 Server Blade HPE ProLiant BL460c Gen10 Server Blade NOTE: This is a list of supported servers. Some may be discontinued.
Compatibility - Supported Interconnect Modules	HPE FlexFabric 10Gb/24-port Module HPE Virtual Connect Flex-10/10D Module for BladeSystem c-Class HPE 6120XG Blade Switch HPE 6120G/XG Blade Switch HPE 6125XLG Ethernet Blade Switch HPE 6127XLG Ethernet Blade Switch HPE 1:10Gb Ethernet BL-c Switch HPE GbE2c Layer 2/3 Ethernet Blade 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

Standard Features

At a Glance Features

- Full hardware offload of iSCSI and FCoE storage protocol processing for highest performance converged Ethernet data and storage networks.
- Industry-leading throughput and latency performance
- Up to 40 Gb/s bi-directional near-line rate throughput
- User configurable bandwidth settings when combined with the 10 Gb Flex-10 Virtual Connect module. From 100 Mb/s to 10 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.
- Improved small packet performance
- Tunnel offload support (NVGRE, VxLAN)
- Integrated PHY and MAC
- This adapter is a Type A mezzanine adapter and works in Type A and Type B mezzanine slots for HPE BladeSystem c-Class Gen8 Blade Servers.
- Support for Preboot eXecution Environment (PXE)
- Supports SR-IOV (requires server FW, SW and OS support)
- Supports HPE Flex-10 blade interconnect technology as well as switch-independent Network Partitioning (NPAR)
- Data Plane Development Kit (DPDK)
- IEEE 1588 Precision Time Protocol (PTP)
- Active Health Systems Support
- Jumbo Frame
- Checksum & Segmentation Offload
- IPv6 Acceleration
- Receive-Side Scaling (RSS)
- HPE Sea of Sensors 3D
- Note : DPDK and Virtual Connect can't be used at the same time

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.

Standard Features

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.
DPDK	This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.
HPE Sea Of Sensors 3D	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 initiate fans and make other adjustments to reduce energy usage. A significant improvement lies in the ability to apply fan speed increases only to the portion of the system that is rising in temperature, rather than all six fans in unison, which reduces the amount of energy used for cooling.
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.

Standard Features

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 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.
Checksum & Segmentation Offload	Normally the TCP Checksum is computed by the protocol stack. Segmentation Offload is technique for increasing outbound throughput of high-bandwidth network connections by reducing CPU overhead. The technique is also called TCP segmentation offload (TSO) when applied to TCP, or generic segmentation offload (GSO).
IPv6	IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing.
Precision Time Protocol (IEEE 1588 PTP)	Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.
Receive Side Scaling (RSS)	RSS resolves the single-processor bottleneck by allowing the receive side network load from a network adapter to be shared across multiple processors. RSS enables packet receive-processing to scale with the number of available processors.

Standard Features

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 and Support

Service and Support	<p>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.</p> <p>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.</p>
Warranty and Support Services	<p>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.</p>
Protect your business beyond warranty with HPE Support Services	<p>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.</p> <p>Protect your product, beyond warranty.</p>
Parts and Materials	<p>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 Hewlett Packard Enterprise due to malfunction.</p>
For more information	<p>Visit the Hewlett Packard Enterprise Service and Support website.</p>

Technical Specifications

General Specifications	Network Processor	Cavium 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	This adapter is a Type A mezzanine adapter (works in Type A and Type B mezzanine slots).
	IEEE Compliance	802.3, 802.3ab, 802.3u, 802.3x, 802.3ad, 802.3p, 802.1q, 802.3ae, 802.3ap
Power and Environmental Specifications	Power	<12 W maximum
	Temperature - Operating	0° to 55°C (32° to 131°F)
	Temperature - Non-Operating	-40° to 70° C (-40° to 158° 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	<ul style="list-style-type: none"> • Microsoft Windows Server 2012 • Microsoft Windows Server 2008 and 2008 R2 • Red Hat Enterprise Linux (RHEL) 5.7, 6.1 • SUSE Linux Enterprise Server (SLES) 10 SP4, 11 SP1 • Solaris 10 • Microsoft Virtual Server support on Windows 2008 • VMware vSphere 4.1, 5.0 <p>NOTE: For more operating system support and certification information, please visit: http://h17007.www1.hp.com/us/en/enterprise/servers/supportmatrix/redhat_linux.aspx#.V4e8tPkrJD8</p>	
Environment-friendly Products and Approach - End-of-life Management and Recycling	<p>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.</p> <p>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</p>	

Technical Specifications

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
05-Mar-2018	Version 11	Changed	General Specifications section was updated
05-Feb-2018	Version 10	Changed	Overview section was updated
11-Jul-2017	Version 9	Changed	Compatibility section was updated.
27-Mar-2017	Version 8	Changed	Overview and Standard Features were updated.
21-Oct-2016	Version 7	Changed	Add DPDK support and update servers
23-Sep-2016	Version 6	Changed	Sections in QuickSpecs were updated.
		Removed	Obsolete SKUs were deleted: 656590-B21, 652500-B21, 665246-B21, 647590-B21, 631884-B21, 615729-B21.
19-Jun-2015	Version 5	Changed	Compatibility section#was updated.
		Removed	Obsolete SKU removed: 455880-B21
09-May-2014	Version 4	Added	Network Partitioning was added to Standard Features.
18-Apr-2014	Version 3	Changed	Service and Support and Recommended Services were revised.
11-Oct-2013	Version 2	Changed	Revised the Overview, Compatibility, Standard Features and Technical Specifications Sections.
10-Sep-2013	Version 1	New	Initial version



Sign up for updates



**Hewlett Packard
Enterprise**

© Copyright 2018 Hewlett Packard Enterprise Development LP. The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise 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. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

c04111368 - 14619 - Worldwide - V11-05-March-2018