Overview

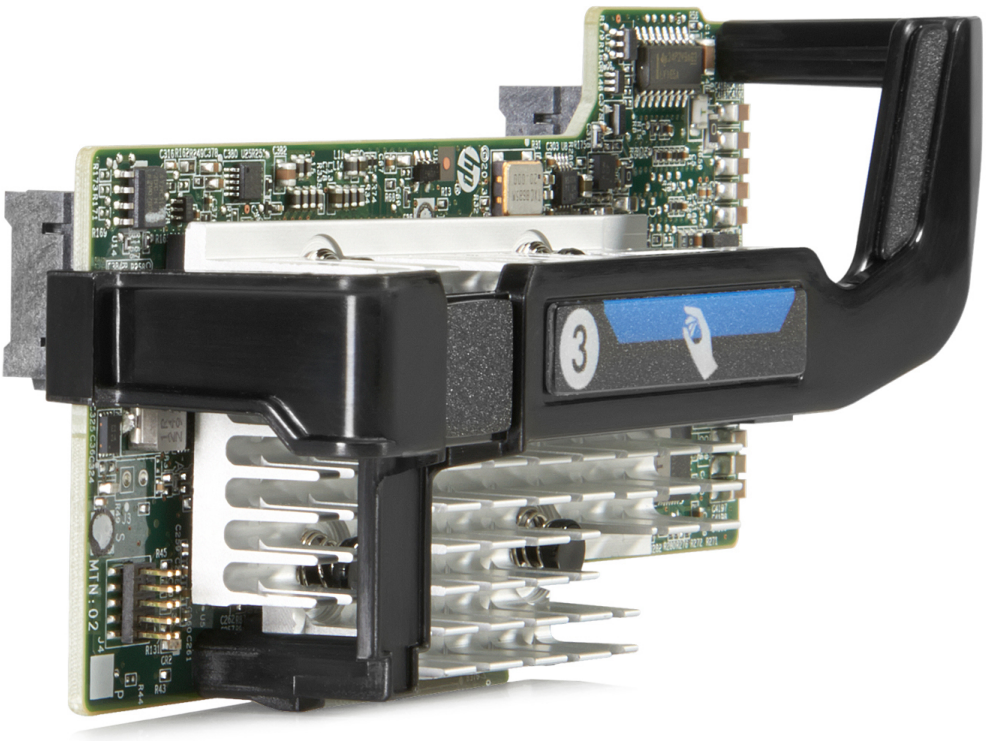
HPE FlexFabric 20Gb 2-port 630FLB Adapter

Recommended SKU - This adapter is a recommended option that has been selected by HPE experts to provide the right technology for a range of workloads and market segments offering the best combination of performance, value and availability.

The HPE FlexFabric 20Gb 2-port 630FLB adapter features the first generation of 20Gb Ethernet offering in a single chip solution on a FlexibleLOM form factor, further reducing power requirements for 2 ports of 20Gb Ethernet. It is designed for use with HPE BladeSystem c-Class servers.

It provides full duplex high performance Ethernet connectivity with support for HPE Virtual Connect FlexFabric blade interconnect and Network Partitioning (NPAR) #technology, allowing each 20GbE port to be divided into four physical NICs and optimize bandwidth management for virtualized servers. The HPE 630FLB 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 630FLB supports enterprise class features such as VLAN tagging, adaptive interrupt coalescing, MSI-X, NIC teaming (bonding), Tunneling Offloads (NVGRE, VxLAN),# Receive Side Scaling (RSS), jumbo frames and PXE boot. It also supports virtualization features such as SR-IOV, Network Partitioning (NPAR), , VMware NetQueue and Microsoft VMQ.



HPE FlexFabric 20Gb 2-port 630FLB Adapter

Platform Information

Models

HPE FlexFabric 20Gb 2-port 630FLB Adapter	700065-B21
HPE FlexFabric 20Gb 2-port 630FLB FIO Adapter	700066-B21

NOTE: This adapter on each server blade connects to a 20 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 10 Gb/s when not connected to a Flex-20 device.

Kit Contents

HPE FlexFabric 20Gb 2-port 630FLB Adapter
Quick install card
Product warranty statement

Compatibility - Supported Servers

HPE ProLiant BL460c Gen9 Server
HPE ProLiant BL460c Gen10 Server
HPE ProLiant BL660c Gen9 Server
HPE ProLiant WS460c Gen9 Server

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 6127XLG Ethernet Blade Switch
HPE 6127XLG Ethernet Blade Switch with TAA
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

NOTE: Supported features with VC modules and Ethernet switches.

Feature	VC FF20/40 F8	VC FF 10/24	VC Flex-10/10D	VC Flex-10	HPE 6125	HPE 6127
20G	**X**	**-**	**-**	**-**	**-**	**X**
10G	**X**	**X**	**X**	**X**	**X**	**X**
FCoE	**X**	**X**	**X**	**-**	**X**	**X**

This adapter also supports 1 Gb or 10 Gb connections with the following modules:
HPE 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem
HPE 1Gb Ethernet Pass-Thru Module for c-Class BladeSystem

Platform Information

HPE Cisco B22HP Fabric Extender with 16 FET for BladeSystem c-Class

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.
- Dual-port 20GbE Flex-20 FlexibleLOM network adapter that provides the flexibility to choose the type of LOM to meet growing infrastructure needs
- Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE)
- Industry-leading throughput and latency performance
- Up to 40Gb/s bi-directional near line rate throughput
- User configurable bandwidth settings when combined with the 20 Gb Flex-20 Virtual Connect module or using NPAR. From 100 Mb/s to 20 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
- Support for Tunnel Offload (NVGRE, VxLAN)
- Integrated PHY and MAC
- Support for Preboot eXecution Environment (PXE)
- Optimized for virtual server environments with support for HPE Flex-20 Technology, Network Partitioning (NPAR) and Single-Root I/O Virtualization (SR-IOV)
- Supports Wake-on-LAN (WoL)
- 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
- * Storage personality must be disabled on NIC intended for DPDK workload. DPDK and Storage modes cannot be used concurrently on current generation CNA NICs. HPE Recommends using 2 separate NICS for Storage (Control Plane), and DPDK (Data Plane) workloads for the optimal high availability configuration.

Virtual Connect FlexFabric 20 Gb Ethernet Module for the c-Class BladeSystem

Evolve 20 Gb at your own speed! When paired with the HPE Virtual Connect FlexFabric 20 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 new storage I/O functionality making it a full-Converged Network Adapter (CNA).
Server ROM recognizes them as individual NICs
Speeds can be set per NIC from 100 Mb/s to 20 Gb/s in 100 Mb/s increments
Three fold increase in number of network connections per port and up to four physical function NICs per port.
Ideal for virtualized server environments, especially for dedicated bandwidth applications like virtual machine migration from one physical server to another physical server.

Standard Features

Throughput-Theoretical Bandwidth	This adapter delivers 40 Gb/s bi-directional Ethernet transfer rate per port (80 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.
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.
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.

Standard Features

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 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.
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.

Standard Features

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.
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	**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 Hewlett Packard Enterprise due to malfunction.
For more information	Visit the Hewlett Packard Enterprise Service and Support **website**.

Technical Specifications

General Specifications	**Network Processor**	Cavium 57840S with integrated MAC/PHY
	Data Rate	Two ports, each at 40 Gb/s bi-directional; 80 Gb/s aggregate bi-directional theoretical bandwidth.
	Onboard Memory	PCI Express 3.0 (Gen 3) 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
	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 International: 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

Operating System and Virtualization Support

- Microsoft Windows Server 2008 SP2, R2 w/SP1 (x86 and x64)
- Microsoft Windows Server 2012 and 2012 R2
- Red Hat Enterprise Linux (RHEL) 5.9, 5.10, 6.4, 6.5, 6.7, 7.0 (x86, x64)
- Red Hat Enterprise Linux (RHEL) 7.1, 7.2 (x64)
- SUSE Linux Enterprise Server (SLES) 11, SP2, SP3 (x86, x64)
- SUSE Linux Enterprise Server (SLES) 11 SP4 (x64)
- SUSE Linux Enterprise Server (SLES) 12, SP1 (x64)
- Solaris 10 U10
- Solaris 11 x64
- VMware ESXi 5.0 U3, 5.1 U2
- VMware vSphere 5.5, 6.0

NOTE:

1. For more operating system support and certification information, please visit: **http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/redhat_linux.aspx#.V4e8tPkrJD8**
2. Minimum Linux versions for FCoE support include RHEL 6.4 and SLES 11 SP3.
3. For RHEL 7.x, RHEL 7.2 is the minimum version for FCoE Boot from SAN support.
4. vSphere 5.5 is the minimum version of VMware for 20 Gb support and SRIOV support.
5. vSphere 6.0 is the minimum version of VMware for UEFI FCoE Boot from SAN support.
6. Boot from SAN via the iSCSI offload path is not supported for VMware.
7. Networking only support for Solaris and Citrix XenServer.
8. FCoE is not supported on XenServer.

Technical Specifications

9. **UEFI is not supported for 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 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
05-Mar-2018	Version 15	Changed	General Specifications section was updated
05-Feb-2018	Version 14	Changed	Overview section was updated
04-Dec-2017	Version 13	Changed	Standard Features-At a Glance Features section was updated
11-Jul-2017	Version 12	Changed	Compatibility section was updated.
27-Mar-2017	Version 11	Changed	Standard Features section was updated
21-Oct-2016	Version 10	Changed	DPDK support added in Standard Features, and supported servers sections were updated.
26-Aug-2016	Version 9	Changed	Standard Features section was updated.
22-Jul-2016	Version 8	Changed	QuickSpecs sections were updated.
29-Apr-2016	Version 7	Changed	Rebranding applied to document, Compatibility, Related Options, and Technical Specifications sections were updated.
		Added	SKUs Added on HPE 10/20Gb interconnects: 737230-B21, 737226-B21, 658247-B21, 737220-B21.
19-Jun-2015	Version 6	Changed	Overview, Standard Features, and Technical Specifications sections were updated.
26-May-2015	Version 5	Changed	Upgrade version per changes in Product Bulletin.
28-Nov-2014	Version 4	Changed	Compatibility, Related Options and Technical Specifications sections were updated.
		Added	SKUs Added on HPE 10/20Gb interconnects: 737230-B21, 737226-B21, 658247-B21, 737220-B21..
17-Oct-2014	Version 3	Changed	Overview, Compatibility, Product features, Standard features, Technical Specifications sections were updated.
11-Jul-2014	Version 2	Added	SKUs added on Related Options: 691367-B21, 691367-B22, 571956-B21, 605865-B21, 638526-B21, 662048-B21, 711307-B21, 658250-B21, 516733-B21, 538113-B21, 406740-B21, 657787-B21.
		Changed	Compatibility, Product features, Virtual Connect FlexFabric 20Gb Ethernet Modules for the c-Class BladeSystem, and Network processor were revised.
10-Jun-2014	Version 1	New	Initial version.

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