

### Overview

#### HPE FlexFabric 20Gb 2-port 630FLB Adapter

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 Gen8 and Gen9 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**

Compatibility

### Compatibility

#### 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.

<b>Kit Contents</b>	HPE FlexFabric 20Gb 2-port 630FLB Adapter Quick install card Product warranty statement
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<b>Compatibility - Supported Servers</b>	HPE ProLiant BL460c Gen9 HPE ProLiant BL660c Gen9 HPE ProLiant WS460c Gen9 HPE ProLiant BL460c Gen8 HPE ProLiant BL465c Gen8 HPE ProLiant BL660c Gen8
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**NOTE:** This is a list of supported servers. Some may be discontinued.

<b>Compatibility - Supported Interconnect Modules</b>	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
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**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	✓	-	-	-	-	✓
10G	✓	✓	✓	✓	✓	✓
FCoE	✓	✓	✓	-	✓	✓

This adapter also supports 1 Gb or 10 Gb connections with the following modules:

### Compatibility

HPE 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem

HPE 1Gb Ethernet Pass-Thru Module for c-Class BladeSystem

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

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#### 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.

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#### 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.

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#### 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.

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### Standard Features

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<b>802.1Q VLANs</b>	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.
<b>HPE Sea Of Sensors</b>	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.
<b>iSCSI/FCoE</b>	This adapter supports accelerated iSCSI or iSCSI boot and FCoE.
<b>Jumbo Frames</b>	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.
<b>Management Support</b>	This adapter ships with agents that can be managed from HPE Systems Insight Manager or other management application that support SNMP.
<b>Message Signaled Interrupt (Extended) (MSI-X)</b>	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores.
<b>Network Adapter Teaming</b>	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.
<b>Network Partitioning (NPAR)</b>	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.
<b>Optimized for Virtualization</b>	I/O Virtualization support for VMware NetQueue and Microsoft VMQ helps meet the performance demands of consolidated virtual workloads.

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### Standard Features

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<b>Preboot eXecution Environment (PXE)</b>	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.
<b>Single-Root I/O Virtualization</b>	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.
<b>TCP/UDP/IP</b>	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.
<b>TOE</b>	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.
<b>Tunnel Offload</b>	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.
<b>Wake-on-LAN</b>	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.
<b>Tunnel Offload</b>	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.
<b>Checksum &amp; Segmentation Offload</b>	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).

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### Standard Features

**IPv6** IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing.

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**Time Sync Implementatations (PTP)** Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.

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**Receive Side Scalng (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.

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**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

<b>General Specifications</b>	<b>Network Processor</b>	QLogic BCM 57840S with integrated MAC/PHY
	<b>Data Rate</b>	Two ports, each at 40 Gb/s bi-directional; 80 Gb/s aggregate bi-directional theoretical bandwidth.
	<b>Onboard Memory</b>	PCI Express 3.0 (Gen 3) x8
	<b>Form Factor</b>	FlexibleLOM
	<b>IEEE Compliance</b>	802.3, 802.1ab, 802.3x, 802.3ad, 802.3p, 802.1q, 802.3ae, 802.1Qau, 802.3ap

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<b>Power and Environmental Specifications</b>	<b>Power</b>	<12W m
	<b>Temperature - Operating</b>	0° to 55°C (32° to 131°F)
	<b>Humidity - Operating</b>	10% to 90% non-condensing
	<b>Agency approvals</b>	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
<b>RoHS Compliance</b>	6 of 6	

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### 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:** For more operating system support & certification information, please visit: [http://h17007.www1.hpe.com/us/en/enterprise/servers/supportmatrix/redhat\\_linux.aspx#.V4e8tPkrJD8](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.

### Technical Specifications

- 8.FCoE is not supported on XenServer.
- 9.UEFI is not supported for Xenserver.

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#### 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 10 to 11	Changed	Standard Features updated.
26-Aug-2016	From Version 8 to 9	Changed	Standard Features section was updated.
22-July-2016	From Version 7 to 8	Changed	QuickSpecs sections were updated.
29-April-2016	From Version 6 to 7	Changed	Rebranding applied to document. Compatibility, Related Options, and Technical Specifications sections were updated.
		Added	SKUs were added in Related Options section: 787635-B21, 787635-B22.
19-Jun-2015	From Version 5 to 6	Changed	Overview, Standard Features, and Technical Specifications sections were updated.
26-May-2015	From Version 4 to 5	Changed	Upgrade version per changes in Product Bulletin.
28-Nov-2014	From Version 3 to 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	From Version 2 to 3	Changed	Overview, Compatibility, Product features, Standard features, Technical Specifications sections were updated
		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.
11-Jul-2014	From Version 1 to 2	Changed	Compatibility, Product features, Virtual Connect FlexFabric 20Gb Ethernet Modules for the c-Class BladeSystem, and Network processor were revised.



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