

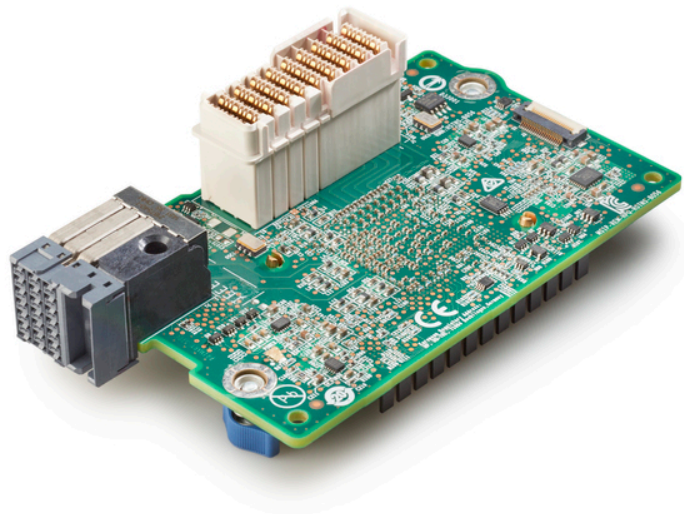
Overview

HPE Synergy 6810C 25/50Gb Ethernet Adapter

Recommended SKU - This adapter is a recommended option that has been selected by Hewlett Packard Enterprise 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 Synergy 6810C 25/50Gb Ethernet Adapter is designed to provide ideal performance for sale up workloads for Telco/NFV, service providers, cloud with security.

The networking acceleration on this adapter alleviates CPU utilization, increases the number of virtual machines (VMs) placed on each server, and improves the cloud scale efficiency. 100% compatible with the Hewlett Packard Enterprise Synergy high-density 50G Ethernet switching solution, this adapter provides high throughput, low latency and increased scalability.



HPE Synergy 6810C 25/50Gb Ethernet Adapter

Platform Information

Models

HPE Synergy 6810C 25/50Gb Ethernet Adapter (Recommended)

867322-B21

Kit Contents

HPE Synergy 6810C 25/50Gb Ethernet Adapter
 Quick install card
 Product warranty statement

Compatibility - Synergy Compute Module Support

HPE Synergy 480 Gen9 Configure-to-order Compute Module
 HPE Synergy 480 Gen9 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 480 Gen9 Configure-to-order Expanded Storage Compute Module
 HPE Synergy 620 Gen9 Configure-to-order Compute Module
 HPE Synergy 620 Gen9 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 620 Gen9 Configure-to-order Expanded Storage Compute Module
 HPE Synergy 660 Gen9 Configure-to-order Compute Module
 HPE Synergy 660 Gen9 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 660 Gen9 Configure-to-order Expanded Storage Compute Module
 HPE Synergy 680 Gen9 Configure-to-order Compute Module
 HPE Synergy 680 Gen9 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 680 Gen9 Configure-to-order Expanded Storage Compute Module
 HPE Synergy 480 Gen10 Configure-to-order Compute Module
 HPE Synergy 480 Gen10 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 480 Gen10 Configure-to-order Expanded Storage Compute Module
 HPE Synergy 660 Gen10 Configure-to-order Compute Module
 HPE Synergy 660 Gen10 Configure-to-order w/o Drive Bays Compute Module
 HPE Synergy 660 Gen10 Configure-to-order Expanded Storage Compute Module

Compatibility - Supported Synergy Interconnect Modules

Mellanox SH2200 TAA-compliant Switch Module for HPE Synergy

Standard Features

At a Glance Features	<p>Up to 200 Gb/s of bi-directional Ethernet bandwidth</p> <p>Jumbo Frames</p> <p>Type C mezzanine form factor</p> <p>HPE Sea of Sensors 3D</p> <p>Tunnel Offload(NVGRE and VXLAN)</p> <p>RDMA over Converged Ethernet (RoCE v2, RoCE v1)</p> <p>Single-root input/output virtualization (SR-IOV)</p> <p>IPv6 Acceleration</p> <p>Preboot eXecution Environment (PXE)</p> <p>Wake on Lan (WOL)</p> <p>Checksum & Segmentation Offload</p> <p>VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)</p> <p>Data Plane Development Kit (DPDK)</p> <p>Precision Time Protocol (PTP)</p> <p>Receive-Side Scaling (RSS)</p> <p>Receive-Side Coalescing (RSC)</p> <p>iSCSI Extensions over RDMA (iSER)</p> <p>Active Health Systems support</p> <p>Authentication of digitally signed firmware</p> <p>Additional Security features include: UEFI Secure Boot, Sanitization, Audit Logs and Device-level Firewall</p> <p>NOTE: DPDK not supported with HPE Virtual Connect SE 40Gb F8 Module. 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. No DPDK with storage mode. No DPDK with VC interconnects.</p>
iWARP	<p>Delivers RDMA on top of the pervasive TCP/IP protocol. iWARP RDMA runs over standard network and transport layers and works with all Ethernet network infrastructure. TCP provides flow control and congestion management and does not require a lossless Ethernet network. iWARP is a highly routable and scalable RDMA implementation.</p>
Throughput-Theoretical Bandwidth	<p>This adapter delivers 50/100 Gb/s bi-directional Ethernet transfer rate per port (100/200 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.</p>
Audit Logs	<p>Audit Logs are a forensics capability that provides traceability into authenticated firmware updates by capturing changes in standard system logs.</p>
Authenticated Updates	<p>Authenticated Updates brings cryptographic keys onto the NIC (for HW Authentication) to protect user and configuration data from unauthorized access and verify digitally signed firmware.</p>
Checksum & Segmentation Offload	<p>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).</p>
Device-level Firewall	<p>Device-level Firewall blocks any unmanaged access to memory or storage. This ensures that on-device firmware and configuration data can only be accessed by authorized agents.</p>

Standard Features

DPDK	This adapter supports DPDK with benefit for packet processing acceleration and use in NFV deployments.
Form Factor	This adapter is a Type C mezzanine.
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.
IPv6	IPv6 uses 128-bit addressing allowing for more devices and users on the internet. IPv4 supported 32-bit addressing.
Jumbo Frames	This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,600 byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over six 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	Provisioning and updating this adapter are quick and consistent using the HPE Synergy template-driven server profiles. Orchestrates reliable adapter firmware updates with an entire HPE Synergy infrastructure from a single tool, HPE Synergy Composer.
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.
Sanitization	Sanitization (Secure User Data Erase) renders User and configuration data on the NIC irretrievable so that NICs can be safely repurposed or disposed.
Secure Boot	Secure Boot safeguards the system and ensures no rogue drivers are being executed on start-up.
RDMA	This adapter supports RoCE v1 and v2. RoCE v2, also sometimes called "Routable RoCE" which adds Concurrent RoCE v1 and v2 support, SR-IOV support, QoS with hierarchical TX scheduling, ECN-based congestion control for RoCE v2. RoCE is an accelerated I/O delivery mechanism that allows data to be transferred directly from the user memory of the source server to the user memory of the destination server bypassing the operating system (OS) kernel. Because the RDMA data transfer is performed by the DMA engine on the adapter's network processor, the CPU is not used for the data movement, freeing it to perform other tasks such as hosting more virtual workloads (increased VM density). RDMA also bypasses the host's TCP/IP stack, in favor of upper layer InfiniBand protocols implemented in the adapter's network processor. The bypass of the TCP/IP stack and the removal of a data copy step reduce overall latency to deliver accelerated performance for applications such as Microsoft Hyper-V Live Migration, Microsoft SQL and Microsoft SharePoint with SMB Direct.
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.
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.

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.

Tunnel Offload Minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN, NVGRE and GENEVE. 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, Microsoft's NVGRE solutions and Generic Network Virtualization Encapsulation (GENEVE) solutions.

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 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 QL45604
	Data Rate	Two ports, each at 50/100 Gbps bi-directional; 100/200 bi-directional theoretical bandwidth.
	Bus type	PCIe 3.0 x 16 NOTE: Adapter is only supported in PCIe 3.0 x16 Expansion Slots
	Form Factor	Type C mezzanine
	IEEE Compliance	802.1p, 802.1Qaz, 802.1Qbb, 802.1AS, 802.3ad, 802.3by, 1588, 802.3-2012, 802.3by-2016, 802.1q

Power and Environmental Specifications	Temperature Operating	- 0Â°C to 55Â°C / 32Â°F to 131Â°F
	Humidity - Operating	10% to 80% non-condensing
	RoHS Compliance	6 of 6

Operating System and Virtualization Support The Operating Systems supported by this adapter are based on the server OS support. Please refer to the OS Support Matrix at <https://www.hpe.com/us/en/servers/server-operating-systems.html>.

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
07-May-2018	Version 6	Changed	At Glance Features section was updated
05-Mar-2018	Version 5	Changed	At Glance Features section was updated
05-Feb-2018	Version 4	Changed	Overview section was updated
16-Oct-2017	Version 3	Changed	Overview, Standard Features - Theoretical Bandwidth were updated
04-Sep-2017	Version 2	Changed	Compatibility - Supported Synergy Interconnect Modules was updated
11-Jul-2017	Version 1	New	Initial version



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