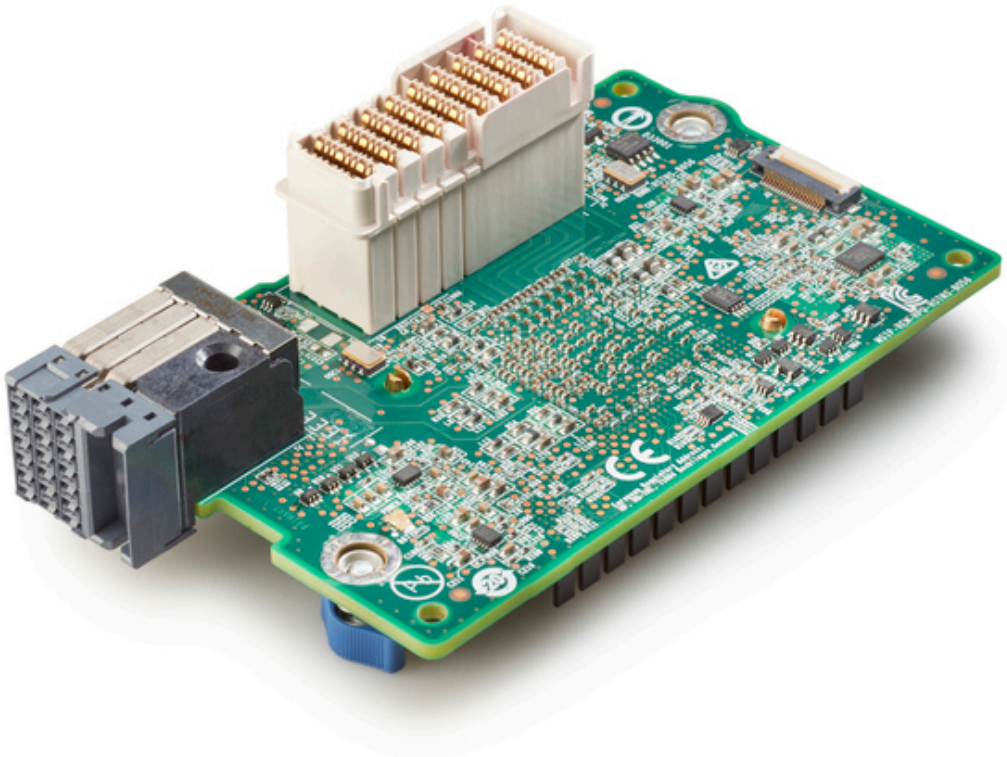
## Overview

### HPE Synergy 3820C 10/20Gb Converged Network 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 Synergy 3820C 10/20Gb Converged Network Adapter is a key element in HPE composable fabric connecting pools of compute resources to networks with reliable, high-performing converged 10Gb or 20Gb Ethernet connectivity. With Flex-20 Technology, the Synergy 3820C converges Ethernet and FCoE onto a single connection simplifying hardware and reducing Costs. Each port replaces a 10/20Gb NIC and 8Gb Fibre Channel HBA simplifying I/O hardware by 50% and reducing costs up to 60%. The Synergy 3820C is an ideal choice for any virtualized or converged data center.
Provisioning and updating Synergy 3820C are simple, reliable and fast using HPE Synergy's software-defined template-driven, frictionless operation. The HPE Synergy Composer automatically delivers proper firmware and driver coordination including staging updates for execution to avoid workload disruption.



**HPE Synergy 3820C 10/20Gb Converged Network Adapter**

## Platform Information

### Models

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|---|---|
| HPE Synergy 3820C 10/20Gb Converged Network Adapter | 777430-B21 |

**NOTE: The HPE 3820C requires a minimum of 2 GB of server memory.**
**NOTE: The HPE 3820C supports linking at 10000Mbps when not connected to a Flex-20 device.**

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| **Kit Contents** | HPE Synergy 3820C 10/20Gb Converged Network Adapter<br>Quick install card<br>Product warranty statement |
| **Compatibility - Synergy Compute Module Support** | HPE Synergy 480 Gen9 Configure-to-order Compute Module<br>HPE Synergy 480 Gen9 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 480 Gen9 Configure-to-order Expanded Storage Compute Module<br>HPE Synergy 480 Gen10 Configure-to-order Compute Module<br>HPE Synergy 480 Gen10 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 480 Gen10 Configure-to-order Expanded Storage Compute Module<br>HPE Synergy 620 Gen9 Configure-to-order Compute Module<br>HPE Synergy 620 Gen9 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 620 Gen9 Configure-to-order Expanded Storage Compute Module<br>HPE Synergy 660 Gen9 Configure-to-order Compute Module<br>HPE Synergy 660 Gen9 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 660 Gen9 Configure-to-order Expanded Storage Compute Module<br>HPE Synergy 660 Gen10 Configure-to-order Compute Module<br>HPE Synergy 660 Gen10 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 660 Gen10 Configure-to-order Expanded Storage Compute Module<br>HPE Synergy 680 Gen9 Configure-to-order Compute Module<br>HPE Synergy 680 Gen9 Configure-to-order w/o Drive Bays Compute Module<br>HPE Synergy 680 Gen9 Configure-to-order Expanded Storage Compute Module |
| **Compatibility - Supported Synergy Interconnect Modules** | HPE Virtual Connect SE 40Gb F8 Module for HPE Synergy<br>HPE Synergy 40Gb F8 Switch Module<br>HPE Synergy 20Gb Interconnect Link Module<br>HPE Synergy 10Gb Interconnect Link Module<br>HPE Synergy 10 Gb Pass-Thru Module |

## Standard Features

**At a Glance Features**

- Delivers flexibility to compose multiple network flows including Ethernet, and FCoE.
- Full hardware offload of FCoE for highest performance converged Ethernet data and storage networks.
- Flex-20 Technology allows you to fine tune bandwidth for up to four partitioned FlexNIC's and FlexHBA's to optimize connectivity for different application needs. From 100Mb/s to 20Gb/s on up to four "Physical Function" NICs per port, in increments of 100Mb/s for NIC. The combined bandwidth of NICs cannot exceed port bandwidth i.e. 20 Gb.
- A single Type C mezzanine form factor provides flexible network and storage I/O for any HPE Synergy Compute Module.
- Provides up to 80 Gb/s of converged bi-directional Ethernet bandwidth.
- Industry-leading throughput and latency performance.
- Supports Tunnel Offload with NVGRE and VxLAN.
- Hardware acceleration and offloads for stateless TCP/IP, TCP Offload Engine (TOE).
- Orchestrates reliable adapter firmware updates with an entire HPE Synergy infrastructure from a single tool, HPE Synergy Composer.
- Integrated PHY and MAC.
- Support for Preboot eXecution Environment (PXE).
- Support for SR-IOV (Windows, Linux, VMware).
- Support WOL (Wake-on-Lan)
- Data Plane Development Kit (DPDK)

**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**

**Throughput-Theoretical Bandwidth**

This adapter delivers 40,000 Mbps full duplex Ethernet transfer rate per port (80 Gbps aggregate full duplex), providing the network performance needed to improve response times and alleviate bottlenecks that impact performance of next generation data centers. 20Gb Ethernet bandwidth is ideal for high performance computing, database clusters and virtualization.

**20G Ethernet Module for HPE Synergy Composable Fabric**

Evolve 20Gb at your own speed! When paired with the HPE Virtual Connect SE 40Gb F8 Module for HPE Synergy, take advantage of four Flex NICs, which are PCI Physical Function devices that are OS/ Hypervisor independent. Each physical function is recognized as an individual NIC and speeds can be set for each NIC from 100Mb to 20Gb in increments of 100Mb. Storage offload functionality allows the 2nd function of either port to be configured as a FCoE adapter.
Ideal for virtualized server environment, especially for dedicated bandwidth application like virtual machine migration from one physical server to another physical server.

**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.

## Standard Features

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| **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. |
| **Converged Network Utility (CNU)** | This adapter supports Converged Network Utility (CNU) a manageability application to configure converged network adapters (CNAs) and Ethernet adapters on HPE servers. This host based utility supports for both GUI and Command Line Interface (scriptable), and can be used to configure Ethernet, FCoE, iSCSI and NPAR related features/functionality on multiple OS platforms including Windows and Linux. CNU is able to configure multiple HPE adapters from various network controllers at the same time. Users can benefit easier setup steps, shorter re-boot time, and one-stop solution for multiple adapters via CNU. |
| **Compatible with Type C and D Mezzanine Slots** | This adapter is compatible with Type C and D mezzanine slots for greater deployment versatility. |
| **Fibre Channel over Ethernet (FCoE)** | Combines the functionality of an industry-standard NIC with an industry-proven Fibre Channel to seamlessly converge the traffic over a shared lossless Ethernet network. |
| **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** | 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. |
| **Message Signaled Interrupt (Extended) (MSI-X)** | Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores. |

## Standard Features

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| **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. |
| **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. |
| **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).<br>Minimum: One year limited warranty.<br>**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

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| **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.**<br>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.<br>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

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| **General Specifications** | **Network Processor** | QLogic BCM 57840S with integrated MAC/PHY |
| | **Data Rate** | Two ports, each at 40 Gbps full duplex; 80 Gbps aggregate full duplex theoretical bandwidth. |
| | **Onboard Memory** | 900MB (distributed memory) |
| | **Bus type** | PCI Express v3.0 (Gen 3) x8 |
| | **Form Factor** | The HPE 3820C is a Type C mezzanine adapter |
| | **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** | max<9W |
| | **Temperature - Operating** | 0°C to 55°C / 32°F to 131°F |
| | **Humidity - Operating** | 10% to 90% non-condensing |
| | **Emissions Classification** | FCC Class A |
| | **Agency Approvals** | USA: FCC Part 15 Class A<br>Canada: ICES=--3, Issue 4<br>Japan: VCCI V3 (2010.04) Class A<br>International: EN55022:2006 + A1:2007 Class A<br>International: EN55024:1998+A1:2011+A2; EN61000-3-2:2006, EN61000-3-3:2008<br>Taiwan: BSMI, CNS13438 (2006) Class A<br>Australia/New Zealand (AS/NZS): EN55022:2006+A12007 class A<br>Korea: KN22 Class A, KN24 |
| | **RoHS Compliance** | 6 of 6 |
| | **Safety** | UL Mark (USA and Canada)<br>CE Mark<br>EN 60590 |
| **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.<br>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-Feb-2018 | Version 11 | Changed | Overview section added |
| 04-Dec-2017 | Version 10 | Changed | Standard Features- At a Glance Features section was updated. |
| 06-Nov-2017 | Version 9 | Changed | Standard Features- At a Glance Features section was updated. |
| 07-Aug-2017 | Version 8 | Changed | Standard Features- At a Glance Features section was updated. |
| 11-Jul-2017 | Version 7 | Changed | Compatibility section was updated. |
| 13-Jan-2017 | Version 6 | Changed | Overview, Compatibility, Standard Features, Technical Specifications, and Service and Support sections were updated. |
| 18-Nov-2016 | Version 5 | Changed | Service and Support section was updated. |
| 07-Oct-2016 | Version 4 | Changed | Remove NPAR support. |
| 31-Mar-2016 | Version 3 | Changed | Overview, Compatibility, Standard Features, and Technical Specifications sections were updated. |
| | | Added | SKU added in Overview section:<br>777430-B21 |
| 17-Dec-2015 | Version 2 | Changed | Sections were updated. |
| 1-Dec-2015 | Version 1 | Changed | New QuickSpecs |

**Sign up for updates**



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