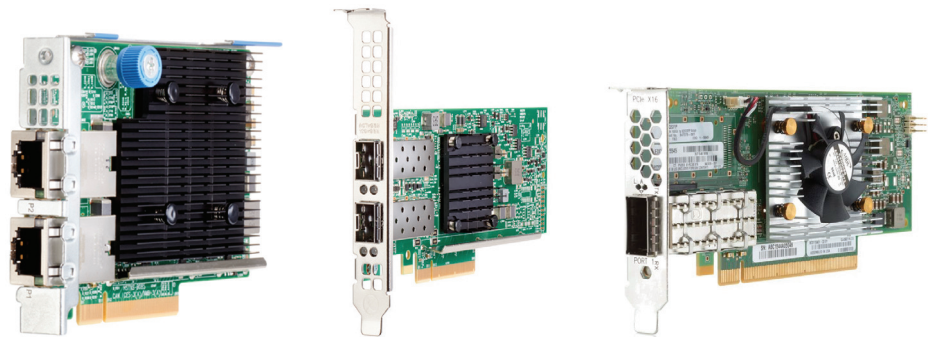


HPE Server Networking Options



Networking flexibility at the speed of compute

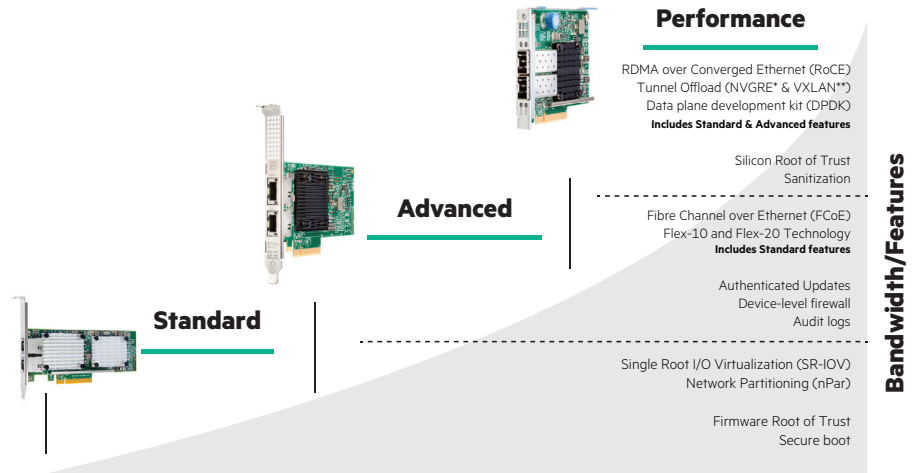
Driven by **hybrid cloud** services, mobile data and streaming video, IT professionals are constantly challenged to deliver reliable, raw networking performance at an affordable price. For any given workload, the right mix of performance and cost with reliability and security are paramount. With three network adapter product series to choose from: Standard, Advanced, and Performance, HPE has your **data center infrastructure** covered. In addition, Hewlett Packard Enterprise offers transceivers and cables to complete the data and storage fabric with HPE Networking or third-party Top of Rack Switches.

Whether purchasing a new **ProLiant server** platform, or upgrading your existing infrastructure with the latest server networking configuration, HPE's ecosystem provides a seamless solution from the switch to the Network Adapter.

The Standard series enables a cost-effective Ethernet solution for your current server workload needs. The economic scalability of these adapters contains functionality such as Single Root I/O Virtualization (SR-IOV) for increased performance via direct access to hardware from a virtual environment.

- **Ethernet:** All our HPE adapters meet the IEEE 802.3 standard for local area networks (LANs)
- **Efficiency:** Meets price performance goals for 1GbE and 10GbE core enterprise workloads
- **Virtualization:** SR-IOV feature enables basic virtualization for expanding network fabric
- **Network Partitioning (nPar):** Allows the user to design right size datapaths for better efficiency
- **Authenticated updates:** Protects user and configuration data from unauthorized access and validates digitally signed firmware
- **Secure boot:** Safeguards the system and ensures no rogue drivers are being executed on startup





* NVGRE is Network Virtualization using Generic Routing Encapsulation
 ** VXLAN is Virtual Extensible LAN

As the simplest, most flexible way to connect virtualized server blades to data or storage networks, **HPE Virtual Connect FlexFabric 20/40 F8 Modules** eliminate up to 95% of network sprawl at the server edge—using one device that converges traffic inside enclosures and directly connects to external LANs and SANs. Utilizing Flex-20 technology with Fibre Channel over Ethernet (FCoE) and accelerated iSCSI, these modules converge traffic over the industry’s first high-speed 20 Gb connections to servers with HPE Advanced Adapters (HPE FlexFabric 20 Gb 2-port 630 FLB/650 FLB and 630 M/650 M Adapters). Advanced adapters when coupled with Virtual Connect can support up to four physical functions—supporting simultaneous Ethernet, FCoE, and iSCSI virtual streams on the same physical channel.

HPE transceivers and cables are the critical fabrics that bond the data center infrastructure together. Tested for 100% compatibility with HPE adapter cards and switches, Hewlett Packard Enterprise provides ProLiant Server interoperability. These cost-effective transceiver and cable solutions are tuned to match various speed, form factors, distances, and signal transduction media.

Network with confidence: Trust your server traffic with unsurpassed cables and transceivers from HPE **Server Networking**.

The Advanced series of adapters helps simplify the network and storage topology to build the new hybrid server infrastructure using converged network adapters (CNAs). HPE’s FlexFabric architecture leads the industry with the configurable flexibility needed from basic Ethernet functionality, iSCSI hardware offload and offload for Fibre Channel over Ethernet (FCoE).

- **Converged network adapter (CNA):** Carries both Ethernet and Storage traffic on a single adapter. This reduces costs by requiring fewer adapters, transceivers, cables, switch ports, and PCIe slots.
- **FCoE:** Reduces the number of network interface cards required to connect to disparate storage and IP networks, reducing the number of cables and **switches** and reducing power and cooling costs.
- **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.
- **Audit logs:** Provides traceability into authenticated firmware updates by capturing changes in standard system logs.

The Performance series delivers even higher bandwidth at a lower latency, with several choices for boosting I/O bandwidth for your most demanding application workloads. These expressly fast adapters can minimize the impact of overlay networking on host performance with tunnel offload support for VXLAN and NVGRE. The 25GbE adapters are tuned to work with the

latest 25/50/100 Ethernet standards and with HPE Networking Top of Rack (ToR) switches.

- **Multispeed 10/25/50/100 Gbps:** The 25GbE adapters enable optimal PCIe slots usage to reduce the total number required to build a 40/50 or 100G infrastructure.
- **RDMA over Converged Ethernet (RoCE):** Network-intensive applications like networked storage or cluster computing need a network infrastructure with a high bandwidth and low latency. The advantages of RoCE over other strategies are lower latency, lower CPU load, and higher bandwidth.
- **DPDK:** Allows software-based customization and optimization of network performance by using polling instead of traditional interrupt-driven network processing with benefit for small packet acceleration and use in NFV deployments.
- **Root of Trust:** Enables a chain of trust for authenticating updates to firmware. This blocks installation of rogue or corrupted firmware and ensures that the executing firmware is trusted.
- **Sanitization:** Renders User and configuration data on the NIC irretrievable so that NICs can be safely repurposed or disposed.

Transceivers and cables play an important role in data center infrastructure management. HPE-branded transceivers and cables are the critical interconnect for the server and are 100% tested and tuned for HPE ProLiant, Apollo, and **Synergy platforms**.



Choose by server series and features

Standard 1GbE adapters for ProLiant and Apollo

Description	HPE Ethernet 1 Gb 4-port 331FLR adapter	HPE Ethernet 1 Gb 4-port 331T adapter	HPE Ethernet 1 Gb 2-port 332T adapter	HPE Ethernet 1 Gb 2-port 361T adapter	HPE Ethernet 1 Gb 4-port 366FLR adapter	HPE Ethernet 1 Gb 4-port 366T adapter
Part number	629135-B22	647594-B21	615732-B21	652497-B21	665240-B21	811546-B21
Form factor	FlexibleLOM	Standup*	Standup*	Standup*	FlexibleLOM	Standup*
Datapath/Bus	x4 PCIe v2.0	x4 PCIe v2.0	x1 PCIe v2.0	x4 PCIe v2.1	x4 PCIe v2.1	x4 PCIe v2.1
Power (Max)	5W	5W	2W	4.2W	5.5W	5.5W

Firmware features

Ethernet	X	X	X	X	X	X
Secure boot	X	X	X	X	X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.

Standard 10GbE adapters for ProLiant and Apollo

Description	HPE Ethernet 10 Gb 2-port 560FLR-SFP+ adapter	HPE Ethernet 10 Gb 2-port 560SFP+ adapter	HPE Ethernet 10 Gb 2-port 562FLR-SFP+ adapter	HPE Ethernet 10 Gb 2-port 562SFP+ adapter
Part number	665243-B21	665249-B21	789005-B21	784305-B21
Form factor	FlexibleLOM	Standup*	FlexibleLOM	Standup*
Datapath/Bus	x8 PCIe v2.0	x8 PCIe v2.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	12W	10.8W	6.1W	5.8W

Firmware features

Ethernet	X	X	X	X
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot			X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.



Standard 10GbE adapters for ProLiant and Apollo (continued)

Description	HPE Ethernet 10 Gb 2-port 530T adapter	HPE Ethernet 10 Gb 2-port 530SFP+ adapter	HPE Ethernet 10 Gb 2-port 535FLR-T adapter	HPE Ethernet 10 Gb 2-port 535T adapter
Part number	656596-B21	652503-B21	817721-B21	813661-B21
Form factor	Standup*	Standup*	FlexibleLOM	Standup*
Datapath/Bus	x8 PCIe v2.0	x8 PCIe v2.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	9W	8W	19.6W	19.6W

Firmware features

Ethernet	X	X	X	X
Network Partitioning (nPar)		X		
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot	X	X	X	X
Authenticated updates			X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.



Advanced 10GbE adapters for ProLiant and Apollo

Description	HPE FlexFabric 10 Gb 2-port 533FLR-T adapter	HPE FlexFabric 10 Gb 2-port 534FLR-SFP+	HPE FlexFabric 10 Gb 4-port 536FLR-T adapter	HPE FlexFabric 10 Gb 2-port 556FLR-T adapter
Part number	700759-B21	700751-B21	764302-B21	794524-B21
Form factor	FlexibleLOM	FlexibleLOM	FlexibleLOM	FlexibleLOM
Datapath/Bus	x8 PCIe v2.0	x8 PCIe v2.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	9W	8W	9W	9.7W

Firmware features

Ethernet	X	X	X	X
Network Partitioning (nPar)	X		X	
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot	X		X	
Fibre Channel over Ethernet (FCoE)	X	X	X	
Audit logs	X		X	

Refer to [QuickSpecs](#) for additional feature support information.

Advanced 10GbE adapters for ProLiant and Apollo

Description	HPE Ethernet 10 Gb 2-port 521T adapter	HPE Ethernet 10 Gb 2-port 562FLR-T adapter	HPE Ethernet 10 Gb 2-port 562T adapter
Part number	867707-B21	817745-B21	817738-B21
Form factor	Standup*	FlexibleLOM	Standup*
Datapath/Bus	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	9.7W	12W	12.7W

Firmware features

Ethernet	X	X	X
Firmware Root of Trust	X	X	X
Device-level firewall	X	X	X
Audit logs	X	X	X
Single Root I/O Virtualization (SR-IOV)	X	X	X
Authenticated updates	X		
Secure boot	X	X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.



Performance 10/25GbE adapters for ProLiant and Apollo

Description	HPE Ethernet 10/25 Gb 2-port 631FLR-SFP28 adapter	HPE Ethernet 10/25 Gb 2-port 631SFP28 adapter	HPE Ethernet 10/25 Gb 2-port 640FLR-SFP28 adapter	HPE Ethernet 10/25 Gb 2-port 640SFP28 adapter
Part number	817709-B21	817718-B21	817749-B21	817753-B21
Form factor	FlexibleLOM	Standup*	FlexibleLOM	Standup*
Datapath/Bus	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	14W	14W	9.7W	9.7W

Firmware features

Ethernet	X	X	X	X
Network Partitioning (nPar)	X	X		
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot	X	X	X	X
Authenticated updates	X	X	X	X
Audit logs	X	X	X	X
Device-level firewall	X	X	X	X
Firmware Root of Trust	X	X	X	X
Data plane development kit (DPDK)	X	X	X	X
Tunnel offload (NVGRE/VXLAN)	X	X	X	X
RDMA over Converged Ethernet (RoCE)	X	X	X	X
Sanitization	X	X	X	X
Silicon Root of Trust	X	X		

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.

Performance 10/25GbE adapters for ProLiant and Apollo

Description	HPE Ethernet 10/25 Gb 2-port 621SFP28 adapter	HPE Ethernet 10/25 Gb 2-port 622FLR-SFP28 Converged Network Adapter
Part number	867328-B21	867334-B21
Form factor	Standup*	FlexibleLOM
Datapath/Bus	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	9.7W	9.7W

Firmware features

Ethernet	X	X
RDMA over Converged Ethernet (RoCE)	X	X
Data plane development kit (DPDK)	X	X
Tunnel offload (NVGRE/VXLAN)	X	X
Sanitization	X	X
Firmware Root of Trust	X	X
Device-level firewall	X	X
Audit logs	X	X
Single Root I/O Virtualization (SR-IOV)	X	X
Authenticated updates	X	X
Secure boot	X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Standup low profile: Full-height and half-height brackets included.



Standard 1 GbE and 10GbE and advanced 10GbE Series for Blades

Description	HPE FlexFabric 10 Gb 2-port 534 M adapter	HPE FlexFabric 10 Gb 2-port 536 FLB adapter	HPE Ethernet 10 Gb 2-port 560 FLB adapter	HPE Ethernet 10 Gb 2-port 560 M adapter
Part number	700748-B21	766490-B21	655639-B21	665246-B21
Form factor	Type A Mezzanine	FlexibleLOM	FlexibleLOM	Type A Mezzanine
Datapath/Bus	x8 PCIe v2.0	x8 PCIe v3.0	x8 PCIe v2.0	x8 PCIe v2.0
Power (Max)	12W	12W	10W	6.5W

Firmware features

Ethernet	X	X	X	X
Network Partitioning (nPar)		X		
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot	X	X	X	X
Flex-10/Flex-20	Flex-10	Flex-10	Flex-10	Flex-10
Audit logs	X	X	X	X

Refer to [QuickSpecs](#) for additional feature support information.

Advanced and Performance 10/20GbE and 20GbE adapters for Blades

Description	HPE FlexFabric 20 Gb 2-port 630 FLB adapter	HPE FlexFabric 20 Gb 2-port 630 M adapter	HPE FlexFabric 20 Gb 2-port 650 FLB adapter	HPE FlexFabric 20 Gb 2-port 650 M adapter
Part number	700066-B21	700076-B21	700762-B21	700766-B21
Form factor	FlexibleLOM	Type A Mezzanine	FlexibleLOM	Mezzanine
Datapath/Bus	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	12W	12W	11W	11W

Firmware features

Ethernet	X	X	X	X
Network Partitioning (nPar)	X	X	X	X
Single Root I/O Virtualization (SR-IOV)	X	X	X	X
Secure boot	X	X	X	X
Authenticated updates			X	X
Flex-10/Flex-20	Flex-20	Flex-20	Flex-20	Flex-20
Fibre Channel over Ethernet (FCoE)	X	X	X	X
Audit logs	X	X		
Data plane development kit (DPDK)	X*	X*	X*	X*
Tunnel offload (NVGRE/VXLAN)	X	X	X	X

Refer to [QuickSpecs](#) for additional feature support information.

* Planned



Family data sheet

Advanced and Performance 10GbE and 20GbE adapters for Synergy

Description	HPE Synergy 2820C 10 Gb Converged Network Adapter	HPE Synergy 3820C 10/20 Gb Converged Network Adapter	HPE Synergy 6810C 25/50 Gb Ethernet Adapter
Part number	794538-B21	777430-B21	867322-B21
Form factor	Type C Mezzanine	Type C Mezzanine	Type C Mezzanine
Datapath/Bus	x8 PCIe v3.0	x8 PCIe v3.0	x8 PCIe v3.0
Power (Max)	9W	9W	15.1W

Firmware features

Ethernet	X	X	X
Network Partitioning (nPar)			X
Single Root I/O Virtualization (SR-IOV)	X	X	X
Secure boot	X	X	
Authenticated updates			X
Flex-10/Flex-20	Flex-10	Flex-20	
Audit logs	X	X	X
Device-level firewall			X
Firmware Root of Trust	X	X	X
Data plane development kit (DPDK)	X*	X*	X
Tunnel offload (NVGRE/VXLAN)	X	X	X
RDMA over Converged Ethernet (RoCE)			X
Sanitization			X

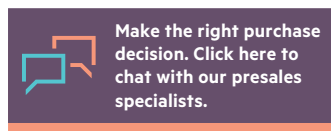
Refer to [QuickSpecs](#) for additional feature support information.

* Planned

Networking with confidence

Tested and proven to meet the demanding standards of Hewlett Packard Enterprise, our adapters undergo an extensive level of HPE ProLiant server compatibility and systems interoperability testing. We validate the adapters over a wide variety of both 32-bit and 64-bit operating systems. This approach provides a robust and reliable networking solution while providing IT administrators with a single point of contact for both their servers and server network adapters.

Learn more at
hpe.com/info/serversnetworking



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4AA0-6064ENW, March 2019, Rev. 20

