

Overview

HPE Gen10 Plus Ethernet Adapters

HPE ProLiant DL, ML and Apollo

Driven by hybrid cloud services, mobile data and streaming video applications, IT professionals are constantly challenged to deliver secure and reliable network bandwidth that cost-effectively scales to demands of the networking traffic. For any given workload, the right mix of performance, efficiency, reliability and security are paramount.

HPE has your data center infrastructure covered with the latest networking adapters, switches, transceivers and cables for a complete end-to-end solution to support your various workload needs.

With Gen10 Plus ProLiant Servers, HPE is offering the industry's most secure server platform. Through its Root of Trust server design down to the Network Interface Card (NIC), these security features are built-in so you can deploy with confidence. HPE Gen10 Plus servers will help prevent, detect and recover from cyberattacks such as denial of service and malware-infected firmware. Protecting applications, data and infrastructure from security breaches through storage and networking security technologies is first priority for HPE Gen10 Plus Servers.



HPE Gen10 Plus Ethernet Adapters

Overview

Models

Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P26259-B21
Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P26256-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21
Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE	P21106-B21
Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	P08449-B21
Intel X710-DA2 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P28787-B21
Intel X710-DA2 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P28778-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P08443-B21
Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21
Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P08458-B21
Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21
Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	P22767-B21
Marvell QL41132HLRJ Ethernet 10Gb 2-port BASE-T Adapter for HPE	P08437-B21
Marvell QL41132HQRJ Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10103-B21
Marvell QL41132HLCU Ethernet 10Gb 2-port SFP+ Adapter for HPE	P21933-B21
Marvell QL41132HQCU Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P08452-B21
Marvell QL41134HLCU Ethernet 10Gb 4-port SFP+ Adapter for HPE	P10094-B21
Marvell QL41232HLCU Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P22702-B21
Marvell QL41232HQCU Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10118-B21
Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P13188-B21
Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10112-B21
HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	P21927-B21
Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21
Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE	P10180-B21
Xilinx X2522-25G Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P24437-B21
Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P21109-B21

Notes: Please go to Technical Specifications Section to visit the hyperlinks.

XXXXXX-**X21** is SKU designation formed by a common six digit part number and a **-X21** suffix that identifies a SKU that is available across multiple server family lines. Refer to the table below to find the SKU suffix that applies to the specific server product line this option can be ordered with.

-B21	-H21	-K21
COMPUTE Server Line	SPECIALIZED COMPUTE Server Line	STORAGE Line
HPE Cloudline CL2100/CL2200/CL2800/CL3100/ CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE ProLiant BL460c/BL660c Servers HPE ProLiant DL20/DL160/DL180 Servers HPE ProLiant DL325/DL360/DL380/ DL385/DL560/DL580 Servers HPE ProLiant DX360/DX380 Servers	HPE Apollo 35/40/70 Systems HPE Apollo 2000/6000 Servers HPE XL170r/XL190r/XL270d (Apollo 6500) Gen10 Server for BlueData Software HPE Converged System 300/500/700/750 HPE Edgeline Systems and Servers HPE Integrity BL860c i6/BL870c i6/BL890c i6 Server Blades HPE Integrity MC990 X Server HPE Integrity rx2800 i6 Server HPE Integrity Superdome	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D2220sb/D2500sb Storage Blade HPE D3000/D6020/D8000 Disk Enclosures HPE Scalable Object Storage with Scality RING HPE SimpliVity 2600 HPE SimpliVity 325/380 Gen10 HPE Storage File Controllers

Overview

HPE ProLiant MicroServer
HPE ProLiant for Microsoft Azure Stack
HPE ProLiant ML30/ML110/ML350 Servers
HPE Synergy 480/660 Systems
HPE ProLiant DX170r/DX190r, DX2000 Servers
HPE ProLiant DX560 Gen10 server
HPE ProLiant DX4200 Gen10 server

HPE SGI 8600 System
HPE Solutions for SAP HANA (TDI)

HPE StoreEasy
1460/1560/1650/1660/1860

Disclaimer: This may not be a complete listing of applicable servers

Standard Features

Table 1				
SKU	P26256-B21	P26259-B21	P10097-B21	P26253-B21
Description	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up	OCP 3.0	Stand up
ASIC/Chip	Broadcom BCM57412	Broadcom BCM57412	Broadcom BCM57416	Broadcom BCM57416
PCIe Version	PCIe 3.0 x8	PCIe 3.0 x16	PCIe 3.0 x8	PCIe 3.0 x8
Power Requirement	Typical: 11.6 W	Typical: 7.9 W Max: 9.1 W	Typical: 14.6 W Max: 16.1 W	Typical: 16.4 W Max: 16.1 W
UEFI PXE Boot	✓	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	✓	✓
Wake-on-LAN (WOL)	✓			
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓	✓
Auto Negotiation	1Gb, 10Gb	1Gb, 10Gb	1Gb, 10Gb	1Gb, 10Gb
iSCSI Remote Boot	UEFI	UEFI	UEFI	UEFI
Tunnel Offload	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE
RDMA¹	RoCEv1, RoCEv2	RoCEv1, RoCEv2	RoCEv1, RoCEv2	RoCEv1, RoCEv2
Receive Side Scaling (RSS)	✓	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓	✓	✓
NPAR	8PFs or 16PFs	8PFs or 16PFs	8PFs or 16PFs	8PFs or 16PFs
Single Root I/O Virtualization (SR-IOV)	128VF(total per chip)	128VF(total per chip)	128VF(total per chip)	128VF(total per chip)
Data Plane Development Kit (DPDK)	✓	✓	✓	✓
Root of Trust	Firmware	Firmware	Firmware	Firmware
Authenticated Updates	✓	✓	✓	✓
Secure Boot	✓	✓	✓	✓
Audit Log	✓	✓	✓	✓
Sanitization	✓	✓	✓	✓
Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue				

Standard Features

Table 2		
SKU	P10115-B21	P26262-B21
Description	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up
ASIC/Chip	Broadcom BCM57414	Broadcom BCM57414
PCIe Version	PCIe 3.0 x8	PCIe 3.0 x16
Power Requirement	Typical: 11.6 W	Typical: 9.1 W Max: 9.9 W
UEFI PXE Boot	✓	✓
Legacy BIOS PXE Boot	✓	✓
Wake-on-LAN (WOL)	✓	
Internet Protocol (IP) IPv4, IPv6	✓	✓
Auto Negotiation	1Gb, 10Gb, 25Gb	1Gb, 10Gb, 25Gb,
iSCSI Remote Boot	UEFI	UEFI
Tunnel Offload	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE
RDMA ¹	RoCEv1, RoCEv2	RoCEv1, RoCEv2
Receive Side Scaling (RSS)	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓
NPAR	8PFs or 16PFs	8PFs or 16PFs
Single Root I/O Virtualization (SR-IOV)	128VF(total per chip)	128VF(total per chip)
Data Plane Development Kit (DPDK)	✓	✓
Root of Trust	Firmware	Firmware
Authenticated Updates	✓	✓
Secure Boot	✓	✓
Audit Log	✓	✓
Sanitization	✓	✓

Notes:

- ¹HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue.
- 50G can be supported as either 2x25G NRZ or 1x50G PAM4 when using QSFP56. 100G can be supported as either 4x25G NRZ or 2x50G PAM4 when using QSFP56.
- For BCM57414, mismatched link speed (10Gb/25Gb) between ports on a 2-port 25Gb device is not supported.

Standard Features

Table 3				
SKU	P08449-B21	P21106-B21	P28787-B21	P28778-B21
Description	Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE	Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE	Intel X710-DA2 Ethernet 10Gb 2-port SFP+ Adapter for HPE	Intel X710-DA2 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up	Stand up	OCP 3.0
ASIC/Chip	Intel® Ethernet Controller I350-AM4	Intel® Ethernet Controller I350-AM4	Intel® Ethernet Controller X710-BM2	Intel® Ethernet Controller X710-BM2
PCIe Version	PCIe 2.1 x4	PCIe 2.1 x4	PCIe 3.0 x8	PCIe 3.0 x8
Power Requirement	Typical: 4.6W Max: 5.2W	Typical: 5W Max: 6W	Typical: 3.3 W Max: 3.7 W	Typical: 2.9 W Max: 4.6 W
UEFI PXE Boot	✓	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	?	?
Wake-on-LAN (WOL)	✓			✓
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓	✓
Auto Negotiation	✓	✓	✓	✓
iSCSI Remote Boot	UEFI	UEFI	UEFI	UEFI
Tunnel Offload	VXLAN, NVGRE	VXLAN, NVGRE	VXLAN, GENEVE, NVGRE	VXLAN, GENEVE, NVGRE
RDMA^[1]				
Receive Side Scaling (RSS)	✓	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓	✓	✓
NPAR				
Single Root I/O Virtualization (SR-IOV)	32VF's total	32VF's total	128 VF's total	128 VF's total
Data Plane Development Kit (DPDK)	✓	✓	✓	✓
Root of Trust				
Authenticated Updates	✓	✓	✓	✓
Secure Boot	✓	✓		
Audit Log				
Sanitization	✓	✓	✓	✓

Notes:

^[1]HPE recommends using Identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Standard Features

SKU	P21933-B21	P10094-B21
Description	Marvell QL41132HLCU Ethernet 10Gb 2-port SFP+ Adapter for HPE	Marvell QL41134HLCU Ethernet 10Gb 4-port SFP+ Adapter for HPE
Card Type/Profile	Stand up	Stand up
ASIC/Chip	Marvell QL41102-A2G	Marvell QL41104-A2G
PCIe Version	PCIe 3.0 x8	PCIe 3.0 x8
Power Requirement	Typical: 11.3 W Max: 13.1 W	Typical: 11.5 W Max: 13.6 W
UEFI PXE Boot	✓	✓
Legacy BIOS PXE Boot	?	?
Wake-on-LAN (WOL)		
Internet Protocol (IP) IPv4, IPv6	✓	✓
Auto Negotiation		
iSCSI Remote Boot	UEFI	UEFI
Tunnel Offload	NVGRE, VXLAN, GRE, GENEVE	NVGRE, VXLAN, GRE, GENEVE
RDMA¹	RoCEv1, RoCEv2, iWARP	RoCEv1, RoCEv2, iWARP
Receive Side Scaling (RSS)	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓
NPAR	✓	✓
Single Root I/O Virtualization (SR-IOV)	192 VF's total	192 VF's total
Data Plane Development Kit (DPDK)	✓	✓
Root of Trust	Firmware	Firmware
Authenticated Updates	✓	✓
Secure Boot	✓	✓
Audit Log	✓	✓
Sanitization	✓	✓

Notes: ^[1]HPE recommends using Identical network adapters on both ends of the RoCE connection to avoid interoperability issue

SKU	P08452-B21	P08437-B21	P10103-B21
Description	Marvell QL41132HQCU Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	Marvell QL41132HLRJ Ethernet 10Gb 2-port BASE-T Adapter for HPE	Marvell QL41132HQRJ Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up	OCP 3.0
ASIC/Chip	Marvell QL41102-A2G	Marvell QL41102-A2G	Marvell QL41102-A2G
PCIe Version	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Power Requirement	Typical: 11.6 W Max: 13.5 W	Typical: 21 W Max: 23 W	Typical: 20.1 W Max: 25 W
UEFI PXE Boot	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	✓
Wake-on-LAN (WOL)	✓		✓
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓
Auto Negotiation		1Gb, 10Gb	1Gb, 10Gb
iSCSI Remote Boot	UEFI	UEFI	UEFI

Standard Features

Tunnel Offload	NVGRE, VXLAN, GRE, GENEVE	NVGRE, VXLAN, GRE, GENEVE	NVGRE, VXLAN, GRE, GENEVE
RDMA¹	RoCEv1, RoCEv2, iWARP	RoCEv1, RoCEv2, iWARP	RoCEv1, RoCEv2, iWARP
Receive Side Scaling (RSS)	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓	✓
NPAR	?	✓	✓
Single Root I/O Virtualization (SR-IOV)	192 VF's total	192 VF's total	192 VF's total
Data Plane Development Kit (DPDK)	✓	✓	✓
Root of Trust	Firmware	Firmware	Firmware
Authenticated Updates	✓	✓	✓
Secure Boot	✓	✓	✓
Audit Log	✓	✓	✓
Sanitization	✓	✓	✓

Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Table 6

SKU	P10118-B21	P22702-B21	P13188-B21	P10112-B21
Description	Marvell QL41232HQCUC Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	Marvell QL41232HLCCUC Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up	Stand up	OCP 3.0
ASIC/Chip	Marvell QL41202-A2G	Marvell QL41202-A2G	Mellanox MCX512F-ACHT	Mellanox MCX562A-ACAI
PCIe Version	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x16	PCIe 3.0 x16
Power Requirement	Typical: 11.6 W Max: 13.5 W	Typical: 11.6 W Max: 13.5 W	Typical: 8W Max: 10W	Typical: 6.3W Max: 8.9W
UEFI PXE Boot	✓	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	✓	✓
Wake-on-LAN (WOL)	✓			✓
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓	✓
Auto Negotiation	10Gb, 25Gb	10Gb, 25Gb	10Gb, 25Gb	10Gb, 25Gb
iSCSI Remote Boot	UEFI	UEFI	UEFI	UEFI
Tunnel Offload	NVGRE, VXLAN, GRE, GENEVE	NVGRE, VXLAN, GRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE
RDMA¹	RoCEv1, RoCEv2, iWARP	RoCEv1, RoCEv2, iWARP	RoCEv1, RoCEv2	RoCEv1, RoCEv2
Receive Side Scaling (RSS)	✓	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓	✓	✓
NPAR	✓	✓		

Standard Features

Single Root I/O Virtualization (SR-IOV)	192 VF's total	192 VF's total	512 VF's total	512 VF's total
Data Plane Development Kit (DPDK)	✓	✓	✓	✓
Root of Trust	Firmware	Firmware	Firmware	Firmware
Authenticated Updates	✓	✓	✓	✓
Secure Boot	✓	✓	✓	✓
Audit Log	✓	✓	✓	✓
Sanitization	✓	✓	✓	✓

Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Table 7

SKU	P21927-B21	P21109-B21	P24437-B21	P25960-B21
Description	HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter	Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	Xilinx X2522-25G Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
Card Type/Profile	Stand up	Stand up	Stand up	Stand up
ASIC/Chip	Mellanox MCX516A -CCHT	Solarflare X2522-25G-PLUS	Solarflare X2522-25G	Mellanox MCX623106AS-CDAT
PCIe Version	PCIe 3.0 x16	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 4x16
Power Requirement	Typical: 6.3W Max: 8.9W	Typical: 14W Max: 17.5W	Typical: 14W Max: 17.5W	Typical: 13W Max: 18.4W
UEFI PXE Boot	✓	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	✓	✓
Wake-on-LAN (WOL)				
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓	✓
Auto Negotiation	1Gb,10Gb,25Gb, 40Gb,50Gb,100Gb	10Gb, 25Gb	10Gb, 25Gb	1/10/25/40/50/100 Gb
iSCSI Remote Boot	UEFI	UEFI	UEFI	UEFI
Tunnel Offload	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE	VXLAN, NVGRE, GENEVE
RDMA¹	RoCEv1, RoCEv2	RoCEv1, RoCEv2	RoCEv1, RoCEv2	RoCEv1, RoCEv2
Receive Side Scaling (RSS)	✓	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓	✓	✓
NPAP				
Single Root I/O Virtualization (SR-IOV)	512 VF's total	240 VF's total	240 VF's total	512 total, variable per port
Data Plane Development Kit (DPDK)	✓	✓	✓	✓
Root of Trust	Firmware	Firmware	Firmware	Hardware
Authenticated Updates	✓	✓	✓	✓
Secure Boot	✓	✓	✓	✓
Audit Log	✓	✓	✓	✓

Standard Features

Sanitization



Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Table 8

SKU	P08443-B21	P10106-B21	P08458-B21	P21112-B21
Description	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
Card Type/Profile	Stand up	OCP 3.0	Stand up	Stand up
ASIC/Chip	Intel® E810-XXVAM2	Intel® E810-XXVAM2	Intel® Ethernet Controller E810-CAM1	Intel® Ethernet Controller E810-CAM2
PCIe Version	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x16	PCIe 4.0 x16
Power Requirement	Typical: 8.9 W Maximum: 9.7 W	Typical: 8.9 W Maximum: 10.1 W	Typical: 14.2 W Maximum: 16.7W	Typical: 16.9W Maximum: 19.2W
UEFI PXE Boot	✓	✓	✓	✓
Legacy BIOS PXE Boot	✓	✓	✓	✓
Wake-on-LAN (WOL)				
Internet Protocol (IP) IPv4, IPv6	✓	✓	✓	✓
Auto Negotiation	✓	✓	✓	✓
iSCSI Remote Boot	iSCSI boot supported (UEFI), iSCSI acceleration only supported with TCP acceleration	iSCSI boot supported (UEFI), iSCSI acceleration only supported with TCP acceleration	iSCSI boot supported (UEFI), iSCSI acceleration only supported with TCP acceleration	iSCSI boot supported (UEFI), iSCSI acceleration only supported with TCP acceleration
Tunnel Offload	VXLAN, GENEVE, and NVGRE	VXLAN, GENEVE, and NVGRE	VXLAN, GENEVE, and NVGRE	VXLAN, GENEVE, and NVGRE
RDMA¹	(iWARP & RoCEv2)	(iWARP & RoCEv2)	(iWARP & RoCEv2)	(iWARP & RoCEv2)
Receive Side Scaling (RSS)	✓	✓	✓	✓
VMware NetQueue and Microsoft Virtual Machine	✓	✓	✓	✓

Standard Features

Queue (VMQ)				
NPAR				
Single Root I/O Virtualization (SR-IOV)	256VFs/port, 2k Total	256VFs/port, 2k Total	256VFs/port, 2k Total	256VFs/port, 2k Total
Data Plane Development Kit (DPDK)	✓	✓	✓	✓
Root of Trust	Hardware	Hardware	Hardware	Hardware
Authenticated Updates	✓	✓	✓	✓
Secure Boot	✓	✓	✓	✓
Audit Log				
Sanitization	✓	✓	✓	✓

Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Table 9

SKU	P22767-B21	P10180-B21
Description	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE
Card Type/Profile	OCP 3.0	Stand up
ASIC/Chip	Intel® Ethernet Controller E810-CAM2	Mellanox MCX623105AS-VDAT
PCIe Version	PCIe 4.0 x16	PCIe 4x16
Power Requirement	Typical:15.9W Maximum: 18.9W	Typical: 13W Max: 18.4W
UEFI PXE Boot	✓	✓
Legacy BIOS PXE Boot	✓	✓
Wake-on-LAN (WOL)		
Internet Protocol (IP) IPv4, IPv6	✓	✓
Auto Negotiation	✓	1/10/25/40/50/100/200 Gb ²
iSCSI Remote Boot	iSCSI boot supported (UEFI), iSCSI acceleration only supported with TCP acceleration	UEFI
Tunnel Offload	VXLAN, GENEVE, and NVGRE	VXLAN, NVGRE, GENEVE
RDMA¹	(iWARP & RoCEv2)	RoCEv1, RoCEv2
Receive Side Scaling (RSS)	✓	✓
VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)	✓	✓
NPAR		
Single Root I/O Virtualization (SR-IOV)	256VFs/port, 2k Total	512 total, variable per port
Data Plane Development Kit (DPDK)	✓	✓
Root of Trust	Hardware	Hardware

Standard Features

Authenticated Updates	✓	✓
Secure Boot	✓	✓
Audit Log		✓
Sanitization	✓	

Notes: ¹ HPE recommends using identical network adapters on both ends of the RoCE connection to avoid interoperability issue

Audit Logs

Audit Logs are a forensics capability that provides traceability into authenticated firmware updates by capturing changes in standard system logs.

Authenticated Updates

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.

Auto-negotiation

Automatically senses the speed of the device to which it is attached. It also automatically configures for half or full duplex, depending on the duplex mode of the switch, hub, or router connected to the adapter.

DPDK

DPDK with benefit for packet processing acceleration and use in NFV deployments.

IPv6

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

iWARP RDMA

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.

Network Partitioning (NPAR)

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.

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.

Root of Trust

Root of Trust enables a chain of trust for Authenticating updates to firmware via signature validation. This blocks installation of rogue or corrupted firmware and ensures that the executing firmware is trusted.

Standard Features

RDMA

Remote Direct memory Access (RDMA) 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 protocols include RoCEv1, RoCEv2 and iWARP. All of these protocols 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.

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.

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

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

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

Standard Features

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.

VMware NetQueue and Microsoft Virtual Machine Queue (VMQ)

VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network adapters in virtualized environments. Windows Hyper-V VMQ (VMQ) is a feature available on servers running Windows Server 2008 R2 with VMQ-enabled Ethernet adapters. VMQ uses hardware packet filtering to deliver packet data from an external virtual machine network directly to virtual machines, which reduces the overhead of routing packets and copying them from the management operating system to the virtual machine.

Wake-on-LAN

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.

Notes: Additional information regarding worldwide limited warranty and technical support is available at:

<http://h17007.www1.hp.com/us/en/enterprise/servers/warranty/index.aspx#.V4e3tPkrJhE>

Server support

HPE Proliant DL325/345/360/365/380/385 & Apollo2000/6500 Gen10 Plus Server are supported on SKUs below

- Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE
 - Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE
 - Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE
 - Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
 - Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
 - Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
 - Intel I350-T4 Ethernet 1Gb 4-port BASE-T Adapter for HPE
 - Intel I350-T4 Ethernet 1Gb 4-port BASE-T OCP3 Adapter for HPE
 - Intel X710-DA2 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
 - Intel X710-DA2 Ethernet 10Gb 2-port SFP+ Adapter for HPE
 - Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
 - Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
 - Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE
 - Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE
 - Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE
 - Marvell QL41132HLRJ Ethernet 10Gb 2-port BASE-T Adapter for HPE
 - Marvell QL41132HQRJ Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE
 - Marvell QL41132HLCU Ethernet 10Gb 2-port SFP+ Adapter for HPE
 - Marvell QL41132HQCU Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE
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Standard Features

- Marvell QL41134HLCU Ethernet 10Gb 4-port SFP+ Adapter for HPE
 - Marvell QL41232HLCU Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
 - Marvell QL41232HQCU Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
 - Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
 - Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE
 - HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter(**Only DL325/385/Apollo 2000 Gen10 Plus**)
 - Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE
 - Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE
 - Xilinx X2522-25G Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
 - Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE
-

Service and Support

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.

Notes: 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

Notes: This adapter is covered under HPE Operational Support Services/ Service Contract applied to the HPE ProLiant Server or enclosure. No separate HPE Operational 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 Operational 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 Operational Support Services

HPE Pointnext Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HPE to help prevent problems and solve issues faster. HPE Operational 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 QuickSpecs, 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 Operational Support Services [website](#).

Technical Specifications

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>

Drivers and Software Download (Please use hyperlinks below)

- [Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE](#)
- [Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE](#)
- [Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE](#)
- [Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE](#)
- [Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)
- [Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE](#)
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- [Intel X710-DA2 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE](#)
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- [Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE](#)
- [Marvell QL41132HLRJ Ethernet 10Gb 2-port BASE-T Adapter for HPE](#)
- [Marvell QL41132HQRJ Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE](#)
- [Marvell QL41132HLCU Ethernet 10Gb 2-port SFP+ Adapter for HPE](#)
- [Marvell QL41132HVCU Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE](#)
- [Marvell QL41134HLCU Ethernet 10Gb 4-port SFP+ Adapter for HPE](#)
- [Marvell QL41232HLCU Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)
- [Marvell QL41232HVCU Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE](#)
- [Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)
- [Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE](#)
- [HPE Ethernet 100Gb 2-port QSFP28 MCX516A-CCHT Adapter](#)
- [Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE](#)
- [Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE](#)
- [Xilinx X2522-25G Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)
- [Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)

Technical Specifications

To access Vendor Technical Specifications, please visit the following hyperlinks:

- [Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE](#)
- [Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE](#)
- [Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE](#)
- [Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE](#)
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- [Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE](#)
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- [Marvell QL41132HVCU Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE](#)
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- [Mellanox MCX623105AS-VDAT Ethernet 200Gb 1-port QSFP56 Adapter for HPE](#)
- [Xilinx X2522-25G Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)
- [Xilinx X2522-25G-PLUS Ethernet 10/25Gb 2-port SFP28 Adapter for HPE](#)

Transceiver and Cable Options

Please refer to matrix: <https://psnow.ext.hpe.com/doc/a00002507enw>

HPE Supported Cables	
Description	Adapter Type
HPE BLc 10G SFP+ SFP+ 3m DAC Cable	SFP+ and SFP28
HPE BLc 10G SFP+ SFP+ 5m DAC Cable	SFP+ and SFP28
HPE X240 10G SFP+ SFP+ 3m DAC Cable	SFP+ and SFP28
HPE 25GbE SFP28 to SFP28 3m Direct Attach Copper Cable	SFP28
HPE 25GbE SFP28 to SFP28 5m Direct Attach Copper Cable	SFP28
HPE 50GbE SFP56 to SFP56 0.65m Direct Attach Copper Cable	SFP56
HPE 50GbE SFP56 to SFP56 3m Direct Attach Copper Cable	SFP56
HPE 100Gb QSFP28 to QSFP28 5m Direct Attach Copper Cable	QSFP28
HPE 100G QSFP28 to 4x25G SFP28 3m Direct Attach Copper Cable	SFP28, QSFP28
HPE 25GbE SFP28 to SFP28 7m Active Optical Cable	SFP28
HPE 25GbE SFP28 to SFP28 15m Active Optical Cable	SFP28

Technical Specifications

HPE QSFP28 to 4x25G SFP28 7m Active Optical Cable	SFP28, QSFP28
HPE QSFP28 to 4x25G SFP28 15m Active Optical Cable	SFP28, QSFP28
HPE 100Gb QSFP28 to QSFP28 7m Active Optical Cable	QSFP28
HPE 100Gb QSFP28 to QSFP28 15m Active Optical Cable	QSFP28
HPE CAT6A 4ft Cbl	10GBaseT
HPE CAT6A 10ft Cbl	10GBaseT
HPE CAT6A 21ft Cbl	10GBaseT

HPE Supported Transceivers

Description	Adapter Type
HPE BLc VC 1G SFP SX Transceiver	SFP+
HPE BLc 10G SFP+ SR Transceiver	SFP+ and SFP28
HPE BLc 10G SFP+ LR Transceiver	SFP+ and SFP28
HPE 25Gb SFP28 SR 100m Transceiver	SFP28
HPE 100Gb QSFP28 MPO SR4 100m Transceiver	QSFP28
HPE 100Gb QSFP28 Bidirectional Transceiver	QSFP28

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-Jun-2021	Version 9	Changed	Added NPAR and Legacy BIOS PXE Boot features to selected NICs
17-May-2021	Version 8	Changed	Overview Section and Models were updated
06-Apr-2021	Version 7	Changed	Models and Standard Features Sections were updated
05-Oct-2020	Version 6	Changed	Overview and Standard Features Sections were updated
01-Jun-2020	Version 5	Changed	Standard Features Section was updated, added feature definition
20-Apr-2020	Version 4	Changed	Standard Features Section was updated
06-Apr-2020	Version 3	Changed	Added tables for feature, add X2522-25G
16-Dec-2019	Version 2	Changed	Overview and Technical Specifications sections were updated
02-Dec-2019	Version 1	New	New QuickSpecs

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