QuickSpecs

Overview

HPE EDR InfiniBand/100GbE Adapters

HPE EDR InfiniBand/100GbE Adapters are dual-function InfiniBand and Ethernet adapters for HPE ProLiant XL and DL Servers that are designed for customers who need low latency and high bandwidth interconnector in their high performance computing (HPC) systems.

Based on Mellanox ConnectX®-4 technology for scalability and fabric flexibility, the dual ported card can function as a dual ported EDR InfiniBand card, a dual ported 100GbE card, or a mixed function card; the single ported card can function as a single port EDR InfiniBand card, or a single port 100GbE card.

Combined with EDR InfiniBand Switches or 100GbE Switches, they deliver low latency and up to 100Gbps bandwidth, ideal for performance driven server and storage clustering applications in HPC and enterprise data centers.

Models

HPE IB EDR/EN 100Gb 1P 840QSFP28 Adapter	825110-B21
HPE IB EDR/EN 100Gb 2P 840QSFP28 Adapter	825111-B21

Kit Contents
- HPE IB EDR/EN 100Gb 1P or 2P 840QSFP28 Adapter
- Low profile PCIe bracket on the adapter; Full height PCIe bracket in the box
- Quick install card
- Product warranty statement

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Compatibility

Servers supported   **HPE ProLiant XL Servers:**
- HPE ProLiant XL170r Gen9 for Apollo 2000
- HPE ProLiant XL190r Gen9 for Apollo 2000
- HPE ProLiant XL230a Gen9 for Apollo 6000
- HPE ProLiant XL250a Gen9 for Apollo 6000
- HPE ProLiant XL250a Gen9 for Apollo 6500

HPE ProLiant DL Servers:
- HPE ProLiant DL360 Gen9
- HPE ProLiant DL380 Gen9
- HPE ProLiant DL580 Gen9

Standard Features

Product Features
- EDR InfiniBand or 100G Ethernet per port
- InfiniBand feature highlights

  – Hardware-based reliable transport
  – Collective operations offload
  – Hardware-based reliable multicast
  – Extended Reliable Connected transport (XRC)
  – Dynamically Connected transport (DCT)
  – Enhanced Atomic operations
  – Advanced memory mapping support, allowing user mode registration and remapping of memory (UMR)
  – On demand paging (ODP) – registration free RDMA memory access

- Ethernet feature highlights

  – 100G Ethernet
  – RoCE (RDMA over Converged Ethernet)
  – Data Center Bridging (DCB)
  – Stateless offloads for overlay networks and tunneling protocols
  – SR-IOV: up to 256 Virtual Functions
  – SR-IOV: up to 16 Physical Functions per port

- Improved thermal control with HPE ProLiant XL and DL servers
- Supports UEFI and legacy boot options
- PXE boot over InfiniBand or Ethernet
- Port personality configuration via UEFI
- Linux and Windows server operating system support
- Low profile PCIe Gen3 x16
- HPE Standard warranty, support, services

EDR InfiniBand or 100G Ethernet Throughput
The HPE 840QSFP28 adapters deliver up to 100Gbps EDR InfiniBand or 100G Ethernet speed, providing the network performance needed to improve response times and alleviate bottlenecks that impact performance of customers' applications. The HPE 840QSFP28 adapters are ideal for high performance computing clusters and datacenter servers that require low latency and high bandwidth networking.

InfiniBand Standards Compliant to IBTA 1.3 standard

Congestion Control Hardware-based congestion control

Offloads Collective operation offloads

Transport Hardware-based reliable transport
Extended Reliable Connected transport (XRC)
Dynamically Connected transport (DCT)

Atomic Operation Enhanced Atomic operations

IEEE Standards The HPE 840QSFP28 Adapters provide support for the following IEEE Standards:

Standard Features

	IEEE 802.3bj, 802.3bm 100 Gigabit Ethernet IEEE 802.3ba 40 Gigabit Ethernet IEEE 802.3ad, 802.1AX Link Aggregation IEEE 802.1Q, 802.1P VLAN tags and priority IEEE 802.1Qau (QCN) – Congestion Notification IEEE 802.1Qaz (ETS) IEEE 802.1Qbb (PFC) IEEE 802.1Qbg IEEE 1588v2
Jumbo Frames	The HPE 840QSFP28 adapters support jumbo frames (also known as extended frames), permitting up to a 9.6K byte (KB) transmission unit (MTU).
CPU Offload	RDMA over Converged Ethernet (RoCE) TCP/UDP/IP stateless offload LSO, LRO, checksum offload RSS (can be done on encapsulated packet),TSS, HDS, VLAN Insertion/stripping, Receive flow steering Hardware offload of encapsulation and de-capsulation of NVGRE and VXLAN overlay networks
MSI and MSI-X	Message Signaled Interrupt (Extended) provides performance benefits for multi-core servers by load balancing interrupts between CPUs/cores. The HPE 840QSFP28 Adapters support MSI and MSI-X.
Single-Root I/O Virtualization	SR-IOV: up to 256 Virtual Functions SR-IOV: up to 16 Physical Functions per port Configurable via UEFI.
IPv4 and IPv6	Supported.
Time synchronization implementations (PTP)	Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems. The HPE 840QSFP28 Adapters c support Precision Time Protocol IEEE 1588v2
Network Adapter Teaming	Support NIC teaming on Linux and on Windows with tools from the Operating Systems.

Standard Features

Network Management

Management Support	The HPE 840QSFP28 adapters can be administered from HPE Systems Insight Manager (SIM).
Server Integration	The HPE 840QSFP28 adapters are validated, tested, and qualified server options for the supported HPE ProLiant XL and DL servers.
	This approach provides a more robust and reliable networking solution than offerings from other venders and provides users with a single point of contact for both their servers and their network adapters.
Configuration Utilities	HPE 840QSFP28 adapters are configurable through UEFI.
LED Indicators	The colored LED on each port of the HPE 840QSFP28 adapters indicate link status and link activity.
HPE Sea of Sensors 3D	Support for HPE's Sea of Sensors technology for improved thermal control and energy efficiency.
Warranty	1 year warranty, parts exchange.

Service and Support

For more information   To learn more on services for HPE Options, please contact your Hewlett Packard Enterprise sales
representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit:
http://www.hpe.com/services/proliant

Related Options

Direct Attach Cable (Passive Copper cables)	HPE 0.5M IB EDR QSFP Copper cable	834973-B21
	HPE 1M IB EDR QSFP Copper cable	834973-B22
	HPE 1.5M IB EDR QSFP Copper cable	834973-B23
	HPE 2M IB EDR QSFP Copper cable	834973-B24
	HPE 3M IB EDR QSFP Copper cable	834973-B25
	NOTE: Direct Attach Cable must be purchased separately for copper environments.	
Active Optic Cables (AOCs)	HPE 3M IB EDR QSFP Optical Cable	834973-B21
	HPE 5M IB EDR QSFP Optical Cable	834972-B22
	HPE 7M IB EDR QSFP Optical Cable	834972-B23
	HPE 10M IB EDR QSFP Optical Cable	834972-B24
	HPE 12M IB EDR QSFP Optical Cable	834972-B25
	HPE 15M IB EDR QSFP Optical Cable	834972-B26
	HPE 20M IB EDR QSFP Optical Cable	834972-B27
	HPE 30M IB EDR QSFP Optical Cable	834972-B28
	NOTE: Active Optical Cable must be purchased separately for fiber-optic environments.	
Additional Supported Cables	For qualified cables for 100GbE, please refer to the release notes of the Adapters.	

Related Options

General Specifications	**Network Processor**	Mellanox ConnectX-4	
	Data Rate	100Gbps	
	Bus Type	PCIe Gen3 x16	
	Form Factor	Low profile adapter compliant with the PCIe Gen3 standard	
Power and Environmental Specifications	**Operating**	Temperature	32° to 131° F (0° to 55° C)
		Humidity	5% to 95% non-condensing
	Power	1P Adapter with Passive cables: 13.91W (typical), 15.70W (max); with Active Optical cables: 19.59W.	
		2P Adapter with Passive cables: 16.12W (typical), 18.04W (max); with Active Optical cables: 24.80W.	
	EMC (Emissions)	FCC Part 15 (CFR 47) ,Class A ICES-003 ,Class A EN55022 ,Class A CISPR22 ,Class A AS/NZS CISPR 22, Class A (RCM mark) VCCI Class A EN55024 KC (Korea)	
	RoHS Compliance	6 of 6	
	Safety	UL 60950-1 CAN/CSA-C22.2 No. 60950-1 EN 60950-1 IEC 60950-1	
	Environmental	EU: IEC 60068-2-64: Random Vibration EU: IEC 60068-2-29: Shocks, Type I / II EU: IEC 60068-2-32: Fall Test	

Operating System Support

HPE 840QSFP28 adapters configured as IB only mode, Ethernet only mode, or Port 1 IB and Port 2 Ethernet mode are supported on MLNX_OFED 3.2 on the following Linux operating systems:
- RHEL: 6.6, 6.7; 7.1, 7.2
- CentOS: 6.6, 6.7; 7.1, 7.2
- SLES: 11 SP3, 11 SP4; 12, 12 SP1
- OEL: 6.6, 6.7; 7.1, 7.2
- Ubuntu: 14.04, 14.10; 15.04

HPE 840QSFP28 adapters configured as Ethernet only mode are supported on WinOF2 version 1.35 on the following Windows operating systems:
- Windows Server 2012 R2 (x64 only)
- Windows Server 2012 (x64 only)

HPE 840QSFP28 adapters configured as Ethernet only mode are also supported in the following virtualized environments:

Related Options

- ESXI 6.x (VMware 4.15.3.1008)
- ESX 5.5 (VMware 4.5.1.1008)

Please refer to the firmware/software download page of the device for the latest update.

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: **http://www.hpe.com/go/green**. To recycle your product, please go to: **http://www.hpe.com/go/green** or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.
		The EU WEEE directive (2002/95/EC) 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 at: **http://www.hpe.com/go/green**. 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
31-Mar-2016	Version 1	Created	Initial Version of the QuickSpecs of HPE EDR InfiniBand/100GbE Adapters

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