

Overview

HPE Storage Networking NVMe-oF Offload Adapters

The HPE Storage Networking NVMe-oF adapter is a secure and advanced network interface card with NVMe, RDMA, and cryptographic offload capabilities to secure and accelerate mission-critical data-center applications such as database operations, server virtualization, big data analysis, machine learning operations, and anything else that requires high-performance NVMe-based storage. It provides up to two ports of 100Gb/s Ethernet connectivity paired with best-in-class cryptographic capabilities that accelerate and secure cloud and data center workloads.

Storage accelerating offloads like NVMe for RDMA over Converged Ethernet (RoCE) and for TCP are built into the NVMe-oF Adapters, enabling seamless upgrade paths from existing storage paradigms to next-generation NVMe and persistent memory semantics.

In an era where data privacy is key, the NVMe-oF adapter provides built-in inline encryption and decryption, stateful packet filtering, and other capabilities that bring advanced security down to every node with unprecedented performance and scalability.



HPE Storage Networking NVMe-oF Adapter

Models

Description	SKU
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NV60100M	
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HPE NV60100M 100Gb 2-port Storage Offload Adapter	R8M41A
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What's New

- 100Gb NIC with Cryptographic and NVMe offload features optimized for HPE Storage

Standard Features

Key Features and Benefits

Performance

Up to two ports of 100Gb/s Ethernet connectivity and delivers the highest return on investment (ROI) of any smart network interface card. Auto negotiates to 10/25/40/50/100 Gb. NV60100M supports a choice of single-root I/O virtualization (SR-IOV) and VirtIO in hardware, enabling customers to best address their application needs. By offloading cloud networking workloads, NV60100M frees up CPU cores for business applications while reducing total cost-of-ownership.

Host Interface

16 lanes of PCIe Gen4 (PCIe 4.0 x16).

Solutions

NV60100M is the most ideal adapter for the following solutions

- Cloud-native
 - web 2.0, hyperscale
 - Enterprise data centers
 - Cybersecurity
 - Big data analytics
 - Scale-out compute and storage infrastructure
 - Telco and network function virtualization (NFV)
 - Cloud storage
 - Machine learning and AI
 - Media and entertainment
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RDMA over Converged Ethernet (RoCE)

NV60100M delivers several innovations including programmable congestion control and selective repeat and zero-touch RoCE, enabling scalable, robust and easy-to-deploy RoCE solutions. The NV60100m supports RoCE v2.

Data Center Security

NV60100M brings security to every end-point with its purpose-built inline acceleration engines that offload IPsec and TLS data-in-motion and XTS-AES data-at-rest cryptographic operations. Supports,

- Inline hardware IPsec encryption and decryption
 - AES-GCM 128/256-bit key
 - RoCE over IPsec
 - Inline hardware TLS encryption and decryption
 - AES-GCM 128/256-bit key
 - Secure Boot
 - Hardware root-of-trust
 - Secure firmware update
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Standard Features

Storage Offloads

NV60100M supports:

- Block-level encryption: XTS-AES 256/512-bit key (future release)
 - NVMe over Fabrics offloads for HPE Storage
 - T10 DIF signature handover operation at wire speed, for ingress and egress traffic
 - Storage protocols: NFS RDMA, SMB Direct, iSCSI, NVMe over RoCE V2
 - Supports booting from iSCSI arrays using the HPE UEFI ROM iSCSI Initiator
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Virtualization/Cloud Native

NV60100M delivers innovative SR-IOV and VirtIO acceleration, offloading Open vSwitch data path forwarding from the host's CPU to the adapter's ASIC, and enabling extreme performance and scalability.

- SR-IOV and VirtIO acceleration
 - Up to 512 virtual functions, variable per port
 - Supported with ESXi, Windows Hyper-V, and KVM in Linux
 - Support for tunneling
 - Encapsulation and de-capsulation of VXLAN, NVGRE, and GENEVE protocols, Stateless offloads for overlay tunnels
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DPDK

The NV60100M supports the Data Plane Development Kit (DPDK), which can accelerate packet processing in Software Defined Networking (SDN), Network Function Virtualization (NFV), IPsec tunneling, and other high-performance networking deployments, .

IPv4/IPv6

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

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.

Service and Support

HPE Pointnext - Service and Support

Get the most from your HPE Products. Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services**, focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

Recommended Services

Support for this adapter is at the level of server it is a part of. Please check the QuickSpecs of the server.

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.

HPE Support Center - AI Powered and Digitally Enabled Support

Achieve faster time to resolution with access to product-specific resources and expertise through a brand-new digital and data driven customer experience. Sign-in to the all-new customer engagement platform, featuring reimagined digital case management- simplified for easy case creation and management with inline knowledge recommendations. A personalized task panel shows cases awaiting action, expiring support and more. New virtual agent - powerful AI-driven troubleshooting with seamless transition to live agent with conversation history included and the ability to verify contract, warranty, and case status. And Enhanced, intelligent search - Machine Learning tailors content easily and instantly as it's used.

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To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" <https://www.hpe.com/us/en/contact-hpe.html>

HPE Support Services are sold by HPE and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
 - Customers purchasing from a commercial reseller can find HPE Support Services at
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Service and Support

<https://ssc.hpe.com/portal/site/ssc/>

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>

Technical Specifications

Family Information

SKU	R8M41A
Number of channels	Dual
Port Speed	100Gb
Auto-negotiation	10/25/40/50/100 Gb
PCIe Connector	PCIe 4.0 x16
IC	ConnectX®-6DX
OS Supported	Windows 2019 and later RHEL 8.4 and later SLES 15 SP3 and later ESXi 7.0 U2 and later Notes: Always refer to the HPE Single Point of Connectivity Knowledge for HPE Storage Products at: http://www.hpe.com/storage/spock for specific product support information and specific OS versions supported.
Servers Supported	Select HPE ProLiant and Apollo Gen10 servers Notes: Refer to server Quick Specs for details regarding supported options.
Array Platforms Supported	Refer to http://www.hpe.com/storage/spock for specific product support information
What's Included in the Box?	100Gb card with standard bracket, spare tall bracket, documentation
Optics Supported	100Gb PSM4, SR4. Qualified with Q8J73A - HPE Mseries 100GbE QSFP28 PSM4 500m XCVR and Q2F19A - HPE M-series 100GbE QSFP28 SR4 100m XCVR Supports NRZ and PAM4
Environmental Operating Temperature	32°F to 158°F (0°C to 70°C)
Environmental Storage Temperature	-4°F to 185°F (-40°C to 85°C)
Environmental Relative Humidity Operating	5% to 85%, noncondensing
Product Dimensions (W x L x H)	297x287x205 (11.7x11.3x8.1 in)
Product Net weight Kg	0.124 (0.27 lbs)

Summary of Changes

Date	Version History	Action	Description of Change
02-May-2022	Version 1	New	New QuickSpecs

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