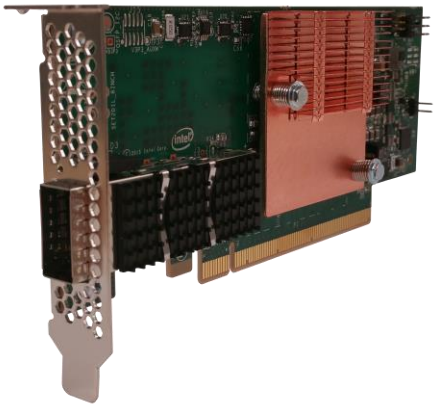
PRODUCT BRIEF

Intel® Omni-Path Host Fabric Adapter 100 Series

100 Gbps per port



Introduction

High Performance Computing (HPC) solutions require the highest levels of performance, scalability, and availability to power complex application workloads. Designed specifically for HPC, Intel® Omni-Path Host Fabric Interface (HFI) adapters, an element of the Intel® Scalable System Framework, use an advanced "on-load" design that automatically scales fabric performance with rising server core counts, making these adapters ideal for today's increasingly demanding workloads.

Advanced Quality of Service (QoS)

Intel® Omni-Path Host Fabric Interface adapters provide the foundation for powerful and efficient traffic control. Data is segmented into 65-bit Flow Control Digits (FLITs), which are assembled into much larger Link Transfer Packets (LTPs) for efficient wire transfer. By managing traffic at the FLIT level, Dell Networking H-Series edge and director switches based on Intel® Omni-Path Architecture (Intel® OPA) are able to make extremely granular switching decisions to optimize latency, throughput, and resiliency more effectively for all traffic types.

High Reliability and Resilience

With their on-load design, Intel® Omni-Path Host Fabric Interface adapters eliminate the need for data path firmware and external memory, while maintaining all connection state information in host memory. This reduces the potential for data errors and makes the fabric inherently more resilient to adapter and fabric failures. Additional protection against errors and downtime is provided by ECC protection on all internal SRAMs and parity checking on all internal buses.

Investment Protection

Great care was taken to ease the transition from previous-generation fabric solutions to Intel OPA. The proven Open Fabrics Alliance* (OFA) software stack "just works" with the vast majority of existing HPC applications and provides an ideal foundation for future development. The on-load architecture also delivers increasing value over time by allowing fabric performance to scale automatically with ongoing advances in Intel® Xeon® processors and Intel® Xeon Phi™ coprocessors.

The Right Fabric for HPC

Benefits

- End-to-end fabric optimization
- Scalable, low latency MPI (less than 1µs end-to-end)
- High MPI message rates (160 million messages/second)
- Efficient storage communications with new 8K and 10K MTUs
- Congestion control and QoS with deterministic latency)
- Low power consumption
- Scalable to tens-of-thousands of nodes
- Open Fabrics Alliance* (OFA) software

Key Features

- 100Gbp/s link speed
- x16 Version (supports full data rate)
- MSI-X interrupt handling for high performance on multi-core hosts

HFI SPECIFICATIONS

Bus interface

- PCI Express* Gen3 x16

Device type

- End point

Advanced interrupts

- MSI-X
- INTx

HFI Specifications and Interfaces

ASIC

- Single Intel® OPA HFI ASIC

Max Data Rate

- 100 Gbps– PCIe x16

Virtual Lanes

- Configurable from one to eight VLs plus one management VL

MTU

- Configurable MTU size of 2 KB, 4 KB, 8 KB, or 10KB

Interfaces

- Supports QSFP28 quad small form factor pluggable passive copper, optical transceivers, and active optical cables

Physical Specifications

Port

- One Intel® OPA 4X Host Fabric Interface QSFP28

LED

- Link status indicator (Green).

Software Operating Systems

- Red Hat* Enterprise Linux*
- SUSE* Enterprise Linux* Server
- CentOS*
- Scientific Linux*

Contact your representative for others

FEATURE	
Total Adapter Bandwidth (bi-directional)	25GB/s (100Gb Link Speed)
Dimensions (w x h) Card Standard Profile Low Profile	2.713" x 6.6" 0.725" × 4.725" 0.725" × 3.118"
Connector	QSFP28
Power (Typ./Max) - Watts DC - Copper - Optical (Class 4 Optics- 3 Watts Max)	 7.4/9.8 W 10.6/13.0 W
Weight	.19kg

DELL PART#	DELL SKU	DESCRIPTION
1VCRR	540-BBQS	Intel® Omni-Path Host Fabric Interface Adapter 100 Series Single Port PCIe x16 Standard Profile
N64D3	540-BBQV	Intel® Omni-Path Host Fabric Interface Adapter 100 Series Single Port PCIe x16 Low Profile

Environmental Specifications

Temperature

- Operating: 0° to 40° C
- Storage: -40° to 70° C

Humidity

- Operating: 5% to 85% non-condensing
- Storage: 5% to 95% non-condensing

Altitude

- Operating: 0 – 10,000 feet (Temperature Derating 1C/575M above 2953ft)
- Storage: 0 – 40,000 feet

Shock

- Unpackaged: Trapezoidal, 50 g, 170 inches/sec
- Packaged: 36" in free fall drop

Vibration

- Unpackaged: 5-500 Hz, 3.13 G RMS random, 30 min total
- Packaged: 5-500 Hz, 1.09 G RMS random, 3hr total

Airflow - Requirements

- 200 LFM at 55°C local ambient

Compliance

US/Canada

- FCC Part 15, Subpart B, Class A
- CAN ICES-3 (A)

Europe

- CISPR22
- CISPR32/EN55032
- EN55024
- EN61000-3-2
- EN61000-3-3

Japan

- VCCI, Class A

New Zealand/Australia

- AS/NZS CISPR 22, Class A

Agency Approvals – Safety

US/Canada

- TUV NRTL: UL 60950-1, CSA 22.1.No. 60950-1

Europe

- TUV SUD EN60950-1

International

- CB Scheme: IEC 60950-1

RoHS/REACH

- Complies with RoHS II Directive 2011/65/EU of the European Parliament
- Complies with REACH Regulation (EC) No 1907/2006