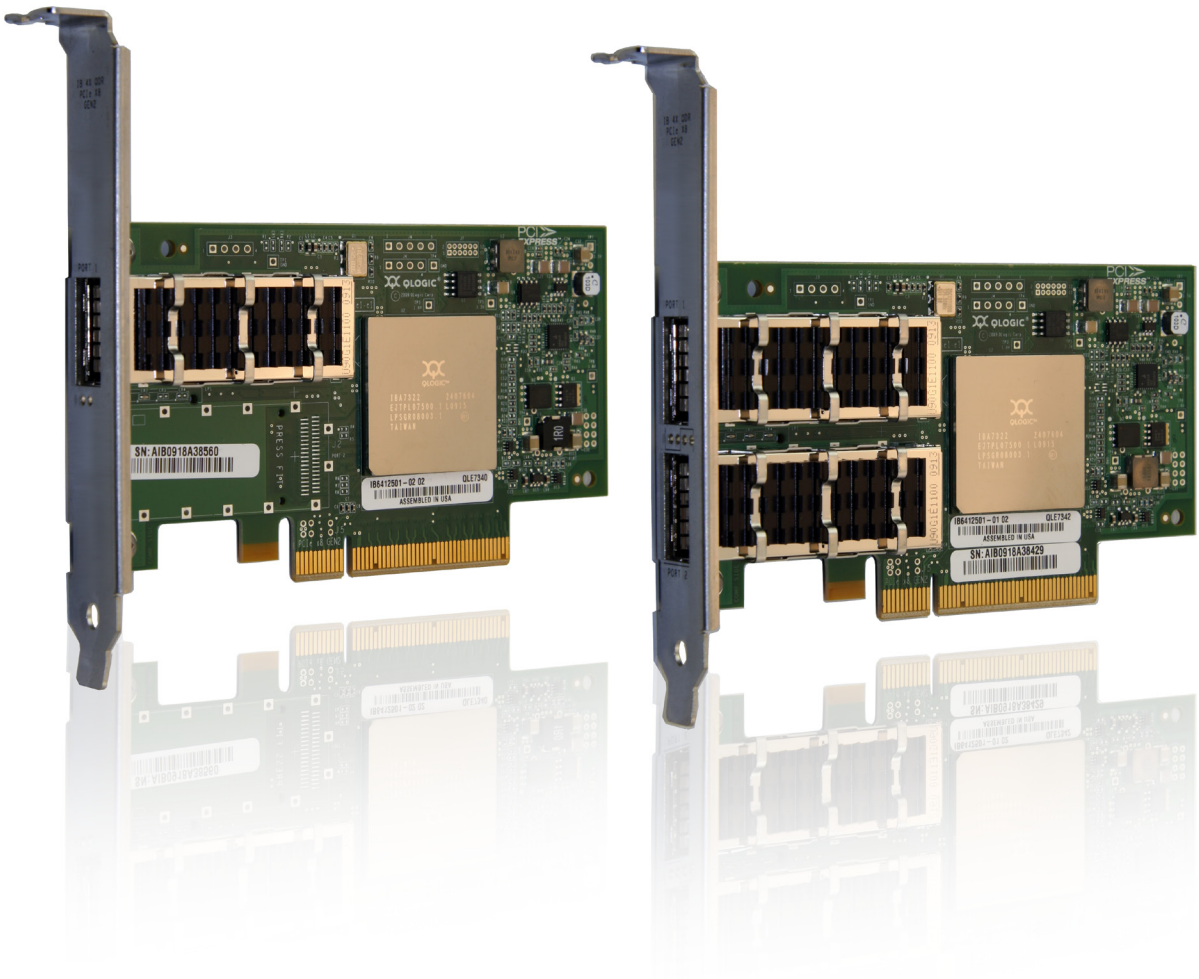
QLE7300 Series

Single-Port/Dual-Port 40Gbps (QDR) Intel® TrueScale InfiniBand* to PCI Express* Adapter

Overview

High Performance Computing (HPC) solutions require the highest levels of performance, scalability, and availability to power today's complex application workloads. Today's HPC clusters run demanding HPC applications faster when using Intel TrueScale host channel adapters (HCAs).

Designed specifically for HPC, the Intel TrueScale QLE7300 series of Intel TrueScale InfiniBand host channel adapters use an advanced "host onload" design that delivers the performance that scales with core count, making them the ideal choice for most demanding applications.



Highlights

- 10Gbps, 20Gbps, or 40Gbps per port
- 3400MBps unidirectional throughput
- 28M non-coalesced messages per second
- 1.0 microsecond latency that remains low as the fabric is scaled
- Multiple virtual lanes (VLs) for unique Quality of Service (QoS) levels per lane over the same physical port
- Intel TrueScale architecture, with MSI-X interrupt handling, is optimized for multi-core compute nodes
- Operates without external memory
- Optional data scrambling in Intel TrueScale InfiniBand link
- RoHS 6 compliant
- Complies with Intel TrueScale InfiniBand Trade Association* (IBTA*) v1.2.1 standard
- Supports OpenFabrics™ Alliance software distributions

High Performance

Quad data rate (QDR) Intel TrueScale InfiniBand delivers 40Gbps per port (4 × 10Gbps), providing the necessary bandwidth for high-throughput applications.

Intel TrueScale HCA's provide extremely high message rate and latency performance, which means superior performance for demanding HPC applications.

Superior Scalability

Intel TrueScale architecture is designed to deliver near linear application scalability. As additional compute resources are added to a cluster, latency remains low and the message rate scales with the size of the fabric, resulting in maximum utilization of compute resources.

Enhanced Reliability

The QLE7300 series' advanced design does not need onboard firmware or external memory, which enhances not only its performance, but also reliability. The ASIC has ECC protection on all internal SRAMs and parity checking on all internal buses. Equally important, the stateless design is inherently more resilient to adapter and fabric failures as it minimizes its reliance on the connection state. Optional data scrambling provides a mechanism to optimize data patterns, which in turn minimizes the bit-error rate.

Investment Protection

This fourth generation product is compliant with the Intel TrueScale InfiniBand Trade Association* (IBTA*) version 1.2.1 specification, ensuring interoperability with all other IBTA* compliant devices. In addition, support for OpenFabrics Enterprise Distribution™ (OFED™) releases ensures rapid adoption by major operating system vendors, system integrators, and independent hardware (IHV) and software (ISV) vendors.

Power Optimized

Maximum performance is delivered at the lowest power—5.2W typical (QLE7340) and 6.2W typical (QLE7342)—of any QDR-capable, dual-port adapter.

Environmentally Friendly

Each QLE7300 series adapter is RoHS 6 compliant as well as antimony free and halogen free.

Host Bus Interface Specifications

Bus Interface
- PCI Express* Gen2 x8

Device Type
- End point

Advanced interrupts
- MSI-X
- INTx

Compliance
- IBTA* Specification 1.2.1 compliant
- PCI Hot Plug Specification revision 1.0, PCI
- Bus Power Management Interface Specification revision 1.2

Intel TrueScale InfiniBand Interfaces and Specifications

Data Rate
- 40/20/10Gbps

Virtual Lanes
- Configurable for one, two, four, or eight VLs

- 2KB MTU or

- 4KB MTU (single Intel TrueScale InfiniBand port))

MTU
- All standard Intel TrueScale InfiniBand MTUs including 4KB

Interfaces
- Supports quad small form factor pluggable (QSFP) optical and copper cable specifications; CX4/microGigaCN specifications

Physical Specifications

PCI Express Card
- Low profile (4.83in x 2.71in)
- Brackets

- Standard: 1.84cm x 12.08cm (.73in x 4.76in)

- Low profile: 1.84cm x 8.01cm (.73in x 3.15in)
- Link status LED indicators

Ports
- QLE7340: One QDR 4X Intel TrueScale InfiniBand
- QLE7342: Two QDR 4X Intel TrueScale InfiniBand

Environment and Equipment Specifications

Power Consumption
- QLE7340: Typical 5.2W
- QLE7342: Typical 6.2W

Temperature
- Operating: 10–55° C (estimated)
- Storage: -40–70° C (estimated)

Humidity
- 10%–95% (operating, non-condensing) (estimated)
- 5%–100% (non-operating, non-condensing) (estimated)

Heatsink
- None

RoHS Compliance
- RoHS 6 and green packaging (antimony free and halogen free)

Agency Approvals—EMI and EMC

US/Canada
- FCC Part 15, Subpart B, Class A; ICES-003, Class A

Europe
- EN55022:1994+A1+A2; EN55024:1998+A1+A2; EN61000-3-2:2000 (Harmonic Current); EN61000-3-3:1995+A1 (Voltage Fluctuation and Flicker)

Japan
- VCCI V-3/2004.4, Class A

New Zealand/Australia
- AN/NZS CISPR 22:2002, Class A

Korea
- MIC (KN22, KN24), Class A

Taiwan
- BSMI (CSN 13438), Class A

Agency Approvals—Safety

US/Canada
- UL; CSA/UL 60590-1; CB Scheme: IEC 60950-1

Europe
- TUV: EN60950:2001+A11

Tools and Utilities

Host driver/upper level protocol (ULP) support
- OpenFabrics Enterprise Distribution (OFED™)
- Performance Scaled Messaging library for accelerated MPI application performance
- SHMEM
- Intel FastFabric toolset

MPI support
- MVAPICH2, MVAPICH, Open MPI, Platform MPI, Intel MPI

Operating systems
- Red Hat® Enterprise Linux*
- SUSE Enterprise Linux* Server
- CentOS
- Scientific Linux®

Ordering Information

QLE7340-CK, QLE7342-CK

Ships in an individually packed box with a standard size bracket, a spare low-profile bracket, and Quick Start Guide