PRODUCT BRIEF
Intel® True Scale Fabric
QLE7300 Series

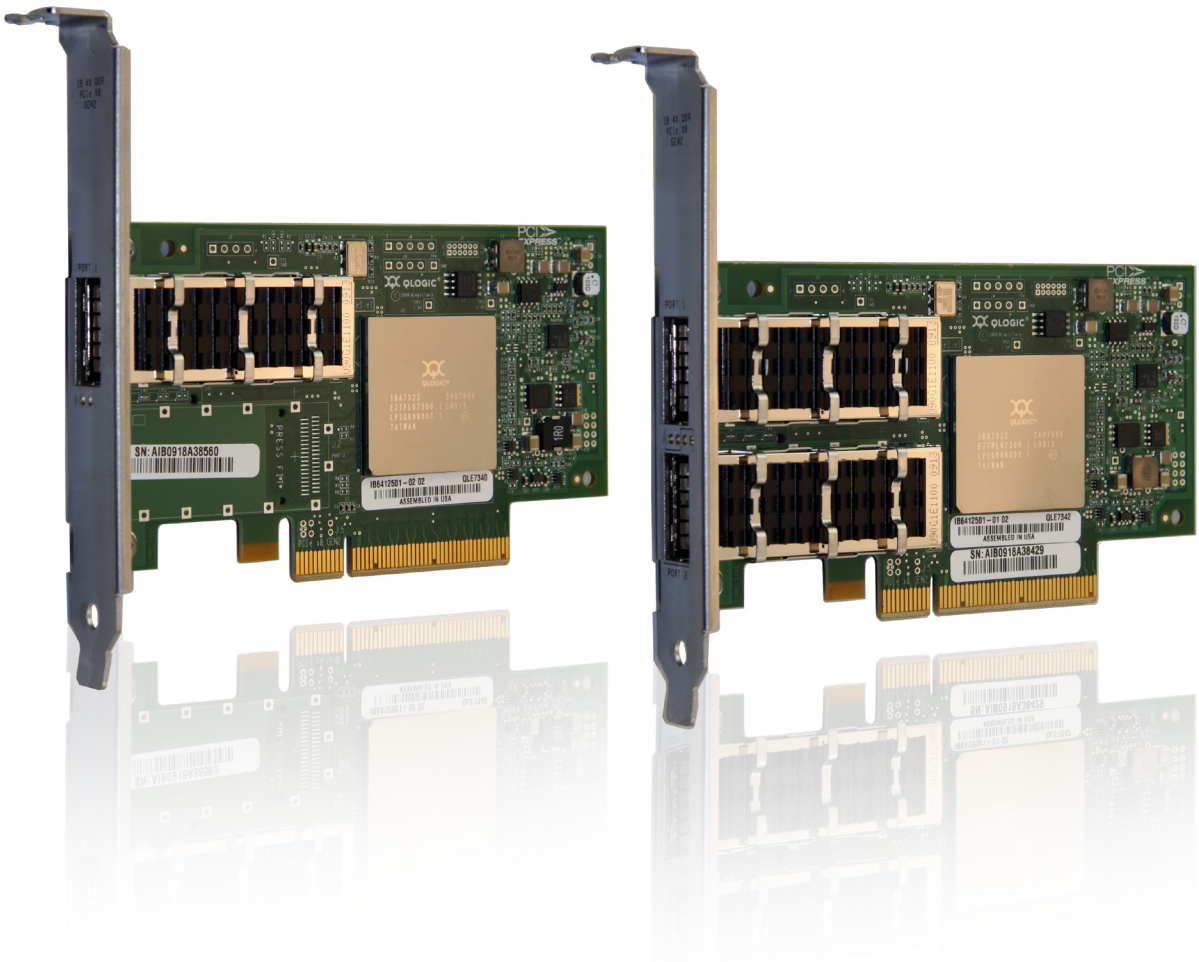
QLE7300 Series

Single-Port/Dual-Port 40Gbps (QDR) Intel® True Scale Fabric supporting 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® True Scale Fabric host channel adapters (HCAs).

Designed specifically for HPC, the Intel® True Scale Fabric QLE7300 series of 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
- Up to 60M 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® True Scale Architecture, with MSI-X interrupt handling, is optimized for multi-core compute nodes
- Operates without external memory
- Optional data scrambling in Intel® True Scale Fabric based InfiniBand* link
- RoHS 6 compliant
- Complies with InfiniBand Trade Association* (IBTA*) v1.2.1 standard
- Supports OpenFabrics™ Alliance software distributions

High Performance

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

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

Superior Scalability

Intel® True Scale 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 Intel® True Scale Fabric solution is compliant with the 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® True Scale Fabric 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 True Scale Fabric port)

MTU
- Intel® True Scale Fabric supports all standard 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® True Scale Fabric
- QLE7342: Two QDR 4X Intel® True Scale Fabric

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 Library

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

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