Mellanox Technologies
Maximize World-Class Cluster Performance

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Powerful Trends Driving Large Markets

Connectivity Requirements
- Industry Standard

Performance
- Price

Power
- Reliable

Efficient
- Scalable

Ease

Clustering & Blades
- Virtualization
- Multi-Core CPUs

Standardization & Open Source
- Low Latency
- Consolidation

Mellanox Confidential
ConnectX: Leading IB and 10GigE Adapters

- **Server and Storage Interconnect**
  - Highest InfiniBand and 10GigE performance

- **Single chip or slot optimizes cost, power, footprint, reliability**

- **One device for 40Gb/s IB, FCoIB, 10GigE, CEE, FCoE**
  - One SW stack for offload, virtualization, RDMA, storage

10/20/40 Gb/s IB Adapter

- 10/20/40 Gb/s
- PCIe Gen 1/2
- Dual Port
- Hardware IOV

10GigE Adapter

- Dual Port
- PCIe Gen 1/2
- Hardware IOV
- FCoE, CEE
ConnectX Multi-core MPI Scalability

- Scalability to 64+ cores per node, to 20K+ nodes per cluster
- Guarantees same low latency regardless of the number of cores
- Guarantees linear scalability for real applications
ConnectX InfiniBand FLUENT Benchmarks

Fluent Turbo_500k Benchmark Results

![Graph showing benchmark results for different number of servers.

Scalability Mandates Bandwidth

4-node InfiniBand cluster demonstrates higher performance versus any cluster size with GigE

Fluent Message Size Profiling

- IB
- GigE
- % Diff

- Total data send (Byte)
- Message size (Byte)

- 2 Servers
- 7 Servers
InfiniBand Address the Needs for Petascale Computing

- **Balanced random network streaming**
  - “One to One” random streaming
  - Solution: Dynamic routing (InfiniScale IV)

- **Balanced known network streaming**
  - “One to One” known streaming
  - Solution: Static routing (Now)

- **Un-balanced network streaming**
  - “Many to one” streaming
  - Solution: Congestion control (Now)

- **Faster network streaming propagation**
  - Network speed capabilities
  - Solution: InfiniBand QDR (InfiniScale IV)
    - 40/80/120Gb/s

IB designed to handle all communications in HW
InfiniBand roadmap outpaces all other I/O technologies in both pure performance and price/performance.
Thank You

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