Enter The World of Scalable Performance
The Never Ending Race for Higher Performance

InfiniBand is the Most Used Interconnect Technology for High-Performance Computing

Total Performance of the TOP500

InfiniBand Accelerated Petaflop Capable Systems
Mellanox Accelerated World-Leading HPC Systems

Connecting Half of the World’s Petascale Systems  (examples)
20,000 InfiniBand nodes, x86 CPUs
Mellanox end-to-end 56G FDR and 40G QDR InfiniBand
Supports variety of scientific and engineering projects
  • Coupled atmosphere-ocean models
  • Future space vehicle design
  • Large-scale dark matter halos and galaxy evolution

Asian Monsoon Water Cycle

High-Resolution Climate Simulations
Software and Hardware Leadership

Applications

Mellanox HPC-X™
Comprehensive Communication Library

Mellanox OFED®
PeerDirect™, Core-Direct™, GPUDirect® RDMA

Compute and Storage Platforms (x86, GPU, OpenPOWER, ARM)

Mellanox Ethernet (RoCE)
Mellanox InfiniBand

Performance, Flexibility, Scalability, Proven, Large Eco-System
InfiniBand’s Unsurpassed System Efficiency (TOP500 Systems)

Average Efficiency
- InfiniBand: 87%
- Cray: 79%
- 10GbE: 67%
- GigE: 40%

Mellanox InfiniBand Enables System Efficiency of 99%
Mellanox Delivers Highest Application Performance

**ANSYS Fluent 15.0.7 Performance**
(Benchmark: eddy_417k)

- **World Record Performance!**
- **Higher Performance With 1/3 of The Compute Infrastructure**
Technology Roadmap – One-Generation Lead Over the Competition

Mellanox → 20Gb/s → 40Gb/s → 56Gb/s → 100Gb/s → 200Gb/s

Terascale

3rd
TOP500 2003
Virginia Tech (Apple)

Petascale

1st
“Roadrunner”
Mellanox Connected

Exascale

Mega Supercomputers


© 2014 Mellanox Technologies
End-to-End Interconnect Solutions for All Platforms

Highest Performance and Scalability for
X86, ARM, Power and GPU-based Compute and Storage Platforms

Smart Interconnect to Unleash The Power of All Compute Architectures
Accelerating GPU-Based Applications with GPUDirect Technology

2010
GPUDirect 1.0

2012
GPUDirect 2.0

2014
GPUDirect RDMA

2015-2016
GPUDirect Next Generation

2X Data Center Performance

5X Higher Throughput

5X Lower Latency

© 2014 Mellanox Technologies
Accelerating OpenPOWER-Based Platforms

- Native PCIe Gen3 Support
  - Direct processor integration
  - Replaces proprietary GX/Bridge
  - Low latency
  - Gen3 x16

IBM POWER Systems and Mellanox accelerate NoSQL workloads
Faster responsiveness to customers!
Accelerating ARM-Based Platforms

HP ProLiant m400

Networking
Mellanox ConnectX-3 Dual 10Gbe NIC per CPU. Supports RDMA over Converged Ethernet (RoCE)
PCIe 4.0 Accelerating CPU / Memory - Interconnect Performance

New Capabilities

- Higher Bandwidth (16 to 25Gb/s per lane)
- Cache Coherency
- Atomic Operations
- Advanced Power Management
- Memory Management…

© 2014 Mellanox Technologies
Mellanox Solutions Interconnect Your Future

- Mellanox provides the most efficient server and storage interconnect solutions
- Highest performance, standard, proven, flexible, and backwards and future compatible
- Complete InfiniBand and Ethernet end-to-end 40 and 56Gb/s solutions
- Highest application performance – highest return on investment
- Maintaining a one-generation lead over the competition

Stay Tuned to Hear Mellanox Announcements

The Future Depends On Fast / Smart Interconnect, The Future Depends on Mellanox
Get Ready!

To Enter the Word of Scalable Performance

At the Speed of 100Gb/s!