



ConnectX[®]-3

Dual-Port QDR and FDR InfiniBand I/O Mezzanine Cards for Dell[®] PowerEdge[®] Servers

ConnectX-3 InfiniBand Host Channel Adapter cards provide the highest performing and most flexible interconnect solution for PCI Express Gen3 servers used in Enterprise Data Centers and High-Performance Computing environments.

Clustered data bases, parallel processing, transactional services and high-performance I/O applications will achieve significant performance improvements resulting in reduced completion time and lower cost per operation.

World-Class Performance

InfiniBand — ConnectX-3 delivers low latency, high bandwidth, and computing efficiency for performance-driven server and storage clustering applications. Efficient computing is achieved by offloading from the CPU protocol processing and data movement overhead such as RDMA and Send/Receive semantics allowing more processor power for the application. CORE-Direct™ brings the next level of performance improvement by offloading application overhead such as data broadcasting and gathering as well as global synchronization communication routines. ConnectX-3 advanced acceleration technology enables higher cluster efficiency and large scalability to tens of thousands of nodes.

Sockets Acceleration — Applications utilizing TCP/UDP/IP transport can achieve industry-leading throughput over InfiniBand. The hardware-based stateless offload engines in ConnectX-3 reduce the CPU overhead of IP packet transport. Sockets acceleration software further increases performance for latency sensitive applications.

I/O Virtualization — ConnectX-3 with virtualization provides dedicated adapter resources and guaranteed isolation and protection for virtual

machines (VM) within the server. I/O virtualization with ConnectX-3 gives data center managers better server utilization while reducing cost, power, and cable complexity.

Storage Accelerated — A consolidated compute and storage network achieves significant cost-performance advantages over multi-fabric networks. Standard block and file access protocols can leverage InfiniBand RDMA for high-performance storage access.

Software Support

All Mellanox adapter cards are supported by Windows, Linux distributions and VMware. ConnectX-3 VPI adapters support OpenFabrics-based RDMA protocols and software and are compatible with configuration and management tools from OEMs and operating system vendors. Mellanox OpenFabrics Enterprise Distribution drivers (MLNX_OFED) are available from mellanox.com.

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HIGHLIGHTS

BENEFITS

- World-class cluster, network, and storage performance
- Guaranteed bandwidth and low-latency services
- I/O consolidation
- Virtualization acceleration
- Power efficient
- Scales to tens-of-thousands of nodes

KEY FEATURES

- Dual port I/O mezzanine card
- Up to 56Gb/s InfiniBand
- 1us MPI ping latency
- PCI Express 3.0 (up to 8GT/s)
- CPU offload of transport operations
- Application offload
- End-to-end QoS and congestion control
- Hardware-based I/O virtualization
- RoHS-R6



FEATURE SUMMARY

INFINIBAND

- IBTA Specification 1.2.1 compliant
- Hardware-based congestion control
- 16 million I/O channels
- 256 to 4Kbyte MTU, 1Gbyte messages

ENHANCED INFINIBAND

- Hardware-based reliable transport
- Collective operations offloads
- Hardware-based reliable multicast
- Extended Reliable Connected transport
- Enhanced Atomic operations

HARDWARE-BASED I/O VIRTUALIZATION

- Address translation and protection
- Dedicated adapter resources
- Multiple queues per virtual machine
- Enhanced QoS for vNICs
- VMware NetQueue support

ADDITIONAL CPU OFFLOADS

- RDMA over Converged Ethernet
- TCP/UDP/IP stateless offload
- Intelligent interrupt coalescence

FLEXBOOT™ TECHNOLOGY

- Remote boot over InfiniBand

PROTOCOL SUPPORT

- Open MPI, OSU MMAPICH, Intel MPI, MS
- MPI, Platform MPI
- TCP/UDP, IPoIB, SDP, RDS
- SRP, iSER, NFS RDMA
- uDAPL

COMPATIBILITY

PCI EXPRESS INTERFACE

- PCIe Base 3.0 compliant, 1.1 and 2.0 compatible
- 2.5, 5.0, or 8.0GT/s link rate x8
- Auto-negotiates to x8, x4, x2, or x1
- Support for MSI/MSI-X mechanisms

CONNECTIVITY

- Interoperable with M3600 and M4000 series InfiniBand switches

OPERATING SYSTEMS/DISTRIBUTIONS

- Novell SLES, Red Hat Enterprise Linux (RHEL), and other Linux distributions
- Microsoft Windows Server 2008/CCS 2003, HPC Server 2008
- OpenFabrics Enterprise Distribution (OFED)
- OpenFabrics Windows Distribution (WinOF)
- VMware ESX Server 3.5, vSphere 4.0/4.1

Ordering Part Number	Description	Servers
430-4669	Dual port FDR InfiniBand I/O mezzanine card	M420, M620
430-4670	Dual port QDR InfiniBand I/O mezzanine card	M420, M520, M620, M910, M915



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