Mellanox TECHNOLOGIES

ConnectX®–3 EN

Single and Dual Port 10 and 40 Gigabit Ethernet Adapters with PCI Express 3.0

ConnectX®3

Mellanox ConnectX-3 EN 10 and 40 Gigabit Ethernet Network Interface Cards (NIC) with PCI Express 3.0 deliver high-bandwidth and industry-leading Ethernet connectivity for performance-driven server and storage applications in Enterprise Data Centers, High-Performance Computing, and Embedded environments.

Clustered databases, web infrastructure, and high frequency trading are just a few applications that will achieve significant throughput and latency improvements resulting in faster access, real-time response and more users per server. ConnectX-3 EN improves network performance by increasing available bandwidth while decreasing the associated transport load on the CPU especially in virtualized server environments.

World-Class Ethernet Performance

RDMA over Converged Ethernet – ConnectX-3 utilizing IBTA RoCE technology provides efficient RDMA services, delivering low-latency and high-performance to bandwidth and latency sensitive applications. With link-level interoperability in existing Ethernet infrastructure, Network Administrators can leverage existing data center fabric management solutions.

Sockets Acceleration – Applications utilizing TCP/UDP/IP transport can achieve industry-leading throughput over 10 or 40GbE. The hardware-based stateless offload and flow steering engines in ConnectX-3 reduce the CPU overhead of IP packet transport, freeing more processor cycles to work on the application. Sockets acceleration software further increases performance for latency sensitive applications.

I/O Virtualization - ConnectX-3 EN provides dedicated adapter resources and guaranteed isolation and protection for virtual machines

(VM) within the server. ConnectX-3 EN gives data center managers better server utilization and LAN and SAN unification while reducing costs, power, and complexity.

Precision Data Centers – ConnectX-3 EN IEEE 1588 precision time protocol circuitry synchronizes the host clock to the data center master clock for accurate data delivery time stamping and data center SLA measurements. The hardware-based mechanisms ensure high accuracy and low jitter.

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

Quality of Service – Resource allocation per application or per VM is provided and protected by the advanced QoS supported by ConnectX-3 EN. Service levels for multiple traffic types can be based on IETF DiffServ or IEEE 802.1p/Q allowing system administrators to prioritize traffic by application, virtual machine, or protocol. This powerful combination of QoS and prioritization provides the ultimate fine-grained control of traffic – ensuring that applications run smoothly in today's complex environments.

HIGHLIGHTS

BENEFITS
– 10 or 40Gb/s connectivity for servers and storage
– Industry-leading throughput and latency performance
– I/O consolidation
– Virtualization acceleration
– Software compatible with standard
– TCP/UDP/IP and iSCSI stacks

KEY FEATURES
– Single and Dual 10 or 40 Gigabit Ethernet ports
– PCI Express 3.0 (up to 8GT/s)
– Low Latency RDMA over Ethernet
– Data Center Bridging support
– TCP/IP stateless offload in hardware
– Traffic steering across multiple cores
– Hardware-based I/O virtualization
– Intelligent interrupt coalescence
– Advanced Quality of Service
– RoHS-R6

Software Support

ConnectX-3 EN is supported by a full suite of software drivers for Microsoft Windows, Linux distributions, VMware and Citrix XENServer. ConnectX-3 EN supports stateless offload and is fully interoperable with standard TCP/UDP/IP stacks. ConnectX-3 EN supports various management interfaces and has a rich set of configuring and management tools across operating systems.

FEATURE SUMMARY*

ETHERNET
– IEEE 802.3ae 10 Gigabit Ethernet
– IEEE 802.3ba 40 Gigabit Ethernet
– IEEE 802.3ad Link Aggregation and Failover
– IEEE 802.3az Energy Efficient Ethernet
– IEEE 802.1Q, .1p VLAN tags and priority
– IEEE 802.1Qau Congestion Notification
– IEEE P802.1Qbb D1.0 Priority-based Flow Control
– IEEE 1588 Precision Clock Synchronization
– Jumbo frame support (10KB)
– 128 MAC/VLAN addresses per port

HARDWARE-BASED I/O VIRTUALIZATION
– Single Root IOV
– 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 Ethernet
– Remote boot over iSCSI

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 10/40GbE switches
– QSFP or SFP+ connectors
– Passive copper cable
– Powered connectors for optical and active cable support
– QSFP to SFP+ connectivity through QSA module

MANAGEMENT AND TOOLS
– MIB, MIB-II, MIB-II Extensions, RMON, RMON 2
– Configuration and diagnostic tools

OPERATING SYSTEMS/DISTRIBUTIONS
– Novell SLES, Red Hat Enterprise Linux (RHEL), Fedora, 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	Ethernet Ports	Dimensions w/o Brackets
MCX311A-XCAT	Single 10GbE SFP+	10.2cm x 5.4cm
MCX312A-XCBT	Dual 10GbE SFP+	14.2cm x 6.9cm
MCX313A-BCBT	Single 40GbE QSFP	14.2cm x 5.2cm
MCX314A-BCBT	Dual 40GbE QSFP	14.2cm x 6.9cm

*This product brief describes all of the hardware features and capabilities. Please refer to the driver release notes on www.mellanox.com for feature availability.

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