ConnectX®–3 Pro EN for Open Compute Project (OCP)

Single/Dual-Port 10 Gigabit Ethernet Adapters with PCI Express 3.0

Mellanox ConnectX-3 Pro EN 10 Gigabit Ethernet Network Interface Card (NIC) with PCI Express 3.0 delivers high-bandwidth, low latency and industry-leading Ethernet connectivity for Open Compute Project (OCP) server and storage applications in Web 2.0, Enterprise Data Centers and Cloud infrastructure.

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 virtual machines hosted per server. ConnectX-3 Pro 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 Pro EN utilizing IBTA RoCE technology provides efficient RDMA and RoCEv2 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 10GbE. The hardware-based stateless offload and flow steering engines in ConnectX-3 Pro EN 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 Pro EN with Single Root Input Output Virtualization (SR-IOV) technology provides dedicated adapter resources and guaranteed isolation and protection for virtual machines (VM) within the server. ConnectX-3 Pro EN gives data center managers better server utilization and LAN and SAN unification while reducing costs, power, and complexity.

Quality of Service – Resource allocation per application or per VM is provided and protected by the advanced QoS supported by ConnectX-3 Pro 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.

Software Support

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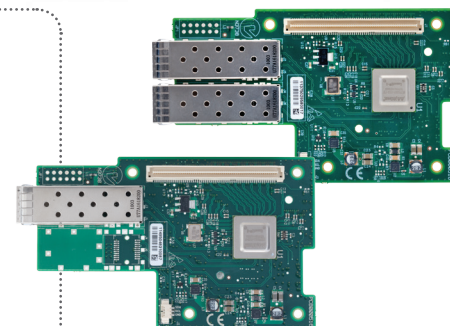
HIGHLIGHTS

BENEFITS

– 10Gb/s connectivity for servers and storage
– Open Compute Project Form Factor
– Industry-leading throughput and latency performance
– Cutting edge performance in virtualized overlay networks (VXLAN and NVGRE)
– I/O consolidation
– Virtualization acceleration
– Software compatible with standard TCP/UDP/IP and iSCSI stacks

KEY FEATURES*

– Single and Dual 10 Gigabit Ethernet ports
– PCI Express 3.0 (up to 8GT/s)
– OCP specification 0.5
– 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
– End-to-end QoS and congestion control
– Virtualization
– Intelligent interrupt coalescence
– Advanced Quality of Service
– RoHS-R6

FEATURE SUMMARY*

ETHERNET
– IEEE 802.3ae 10 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 P802.1Qaz D0.2 ETS
– IEEE P802.1Qbb D1.0 Priority-based Flow Control
– Jumbo frame support (9KB)
– 128 MAC/VLAN addresses per port

OVERLAY NETWORKS
– VXLAN and NVGRE - Framework for overlaying virtualized Layer 2 networks over Layer 3 networks
– Network Virtualization
– hardware offload engines

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 (RoCE and RoCEv2)
– TCP/UDP/IP stateless offload
– Intelligent interrupt coalescence

FLEXBOOT™ TECHNOLOGY
– Remote boot over Ethernet
– Remote boot over iSCSI

MANAGEMENT AND CONTROL INTERFACES
– NC-SI, MCTP over SMBus - Baseboard Management Controller interface

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 10GigE switches
– SFP+ connectors

– Passive copper cable and Optical Modules support
– Powered connectors for optical and active cable support

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, CentOS and other Linux distributions.
– Microsoft Windows Server
– VMware ESX Server
– OpenFabrics Enterprise Distribution (OFED)
– OpenFabrics Windows Distribution (WinOF)

Ordering Part Number	Ethernet Ports	Comments
MCX341A-XCPN	Single 10GbE SFP+	With Combined UEFI/Legacy ROM
MCX341A-XCQN	Single 10GbE SFP+ , with NC-SI host management protocol enabled	With NC-SI host management protocol enabled
MCX342A-XCPN	Dual 10GbE SFP+	With Combined UEFI/Legacy ROM
MCX342A-XCQN	Dual 10GbE SFP+ , with NC-SI host management protocol enabled	With NC-SI host management protocol enabled

*This product brief describes hardware features and capabilities. Please refer to the driver release notes on mellanox.com for feature availability or contact your local sales representative.

**Product images may not include heat sync assembly; actual product may differ.

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