

Flexible I/O for the Dynamic Data Center

Mellanox Dual Port 10 and 40 Gigabit Ethernet Adapters
with PCI Express 3.0 for Dell® Servers



Connect. Accelerate. Outperform.™

Mellanox continues its leadership
in providing high-performance networking technologies
by delivering superior productivity and scaling in
10/40 Gigabit Ethernet Adapters,
enabling data centers to do more with less.

VALUE PROPOSITIONS

- Data centers deploying virtualized servers are seeing higher demands on their I/O infrastructure. Supporting 10/40 Gb/s and up to 8 virtual functions Mellanox Ethernet Adapters satisfy the bandwidth and latency demands of a virtualized environment. Providing backwards compatibility the 10GbE Mezzanine cards can be deployed in 1/10GbE fabrics giving IT managers a manageable migration path to 40GbE.
- Web 2.0 and cloud service providers require high bandwidth, flexibility and CPU offloading in order to provide the highest productivity and performance from their infrastructure. Mellanox Ethernet Adapters support 10/40GbE connectivity, CPU stateless offloads and RDMA over Converged Ethernet (RoCE) enabling data center efficiency and scalability.
- To guarantee maximum usage of expensive server and storage investments, Financial Service Institutions (FSI) Data Centers must deploy I/O and networking solutions that scale to support any level of performance with the highest available bandwidth and lowest latency. Mellanox Ethernet Adapters bring low latency sockets (PCIe 3.0) and RDMA solutions for the ultimate in performance by leveraging the most advanced technologies while enabling data centers the efficiency and performance required for server and storage networking.

Mellanox 10/40 Gigabit Ethernet Network Interface Cards (NIC)

deliver high bandwidth and industry-leading connectivity for performance-driven server and storage applications in Enterprise Data Centers, Web 2.0, High-Performance Computing, and Embedded environments. Clustered databases, web infrastructure, and high frequency trading are just a few example applications that will achieve significant throughput and latency improvements resulting in faster access, real-time response and increased number of users per server.

World-Class Ethernet Price/Performance

Utilizing RoCE technology Mellanox Ethernet Adapters provide efficient RDMA services, deliver high performance and bandwidth to latency sensitive applications. With link-level interoperability within Ethernet infrastructures Network Administrators can leverage existing data center fabric management solutions.

Applications utilizing TCP/UDP/IP transport can achieve industry-leading throughput over 10/40GbE. The hardware-based stateless offload and flow steering engines in Mellanox Ethernet Adapters reduce the CPU overhead of IP packet transport, freeing more processor cycles required for the application.

I/O Virtualization

Mellanox Ethernet Adapters provide dedicated adapter resources that guarantee isolation and protection for virtual machines (VM) within the server. By enabling a single NIC to appear as multiple virtual NIC's Mellanox Ethernet Adapters give data center managers better server utilization for LAN and SAN unification while reducing capital expenditures, power and cable complexity.

Overlay Networks

New large-scale cloud environments require the implementation of overlay network protocols to overcome the issues of security, isolation and VLAN limitations within the cloud. Mellanox Ethernet Adapters bring a unique value to cloud providers by enabling them to reduce their CPU overhead and consequently reduce their OPEX and CAPEX by supporting more cloud tenants over the same infrastructure.

Software Support

All Mellanox Ethernet Adapters are supported by a full suite of software drivers for Microsoft Windows, Linux distributions, VMware and Citrix XenServer. Stateless offload which is fully interoperable with standard TCP/UDP/IP stacks are supported within the adapters. Various management interfaces and a rich set of configuration and management tools are supported across multiple operating systems.

BENEFITS

- *Improved productivity and efficiency*
- *Industry-leading throughput and latency performance*
- *Enabling I/O consolidation by supporting TCP/IP, Storage and RDMA over Converged Ethernet (RoCE) transport protocols on a single adapter*
- *Supports industry-standard SR-IO Virtualization technology and delivers VM protection to all levels of QoS for applications*
- *High-availability and high-performance for data center networking*
- *High level silicon integration and no external memory design provides low power, low cost and high reliability*

TARGET APPLICATIONS

- *Web 2.0 data centers and cloud computing*
- *Data center virtualization*
- *Low latency financial services*
- *I/O consolidation (single unified wire for networking, storage and clustering)*
- *Video streaming*
- *Enterprise data center applications*
- *Accelerating back-up and restore operations*



Ports	2 x 10GbE	2 x 40GbE	2 x 10GbE
Connector	SFP+	QSFP	KR
Cabling Type*	Direct Attached Copper and SR Fiber Optic		N/A
Host Bus	PCIe 3.0		
Features	Stateless Offload, RDMA, SR-IOV, RoCE, iSER, PXE Boot.		
OS Support	Windows 2008 SP2 and 2008 R2, Windows 2012 and 2012 R2 (vNext), Linux Distributions** SLES11 SP2 / SP3, VMWare ESX/ESXi 5.5, XenServer 6.1 / 6.2		
Ordering Number	540-BBEF (FH) & 540-BBEL (LP)***	540-BBEG (FH) & 540-BBEM (LP)***	407-BBOG
Customer Kit	540-BBEN (FH) & 540-BBEO (LP)***	540-BBEJ (FH) & 540-BBEP (LP)***	540-BBEI

*Please visit Mellanox's web site for more cable information, best usage practice and availability.

**Please visit Dell's web site for approved Linux Distributions.

***(FH) Full Height (LP) Low Profile

FEATURE SUMMARY

ETHERNET

- IEEE Std 802.3ae 10 Gigabit Ethernet
- IEEE Std 802.3ba 40 Gigabit Ethernet
- IEEE Std 802.3ad Link Aggregation and Failover
- IEEE 802.1Q, .1p VLAN tags and priority
- IEEE Std 802.3Qau Congestion Notification
- IEEE P802.1Qbb D1.0 Priority-based Flow Control
- Multicast
- Jumbo frame support
- 128 MAC/VLAN addresses per port

TCP/UDP/IP STATELESS OFFLOAD

- TCP/UDP/IP checksum offload (CSO)
- TCP Large Send (< 64KB) or Giant Send (64KB-16MB) Offload for segmentation (LSO)
- Receive Side Scaling (RSS) up to 32 queues
- Line rate packet filtering

ADDITIONAL CPU OFFLOADS

- RDMA over Converged Ethernet (RoCE)
- Traffic steering across multiple cores
- Intelligent interrupt coalescence

HARDWARE-BASED I/O VIRTUALIZATION

- Single Root IOV
- Address translation and protection
- Dedicated adapter resources
- Multiple queues per virtual machine
- VMware NetQueue support

COMPLIANCE

SAFETY

- USA/Canada: cTUVus UL
- EU: IEC60950
- Germany: TUV/GS
- International: CB Scheme

EMC (EMISSIONS)

- USA: FCC, Class A
- Canada: ICES, Class A
- EU: EN55022, Class A
- EU: EN55024, Class A
- EU: EN61000-3-2, Class A
- EU: EN61000-3-3, Class A
- Japan: VCCI, Class A
- Australia: C-Tick
- Korea: KCC

ENVIRONMENTAL

- EU: IEC 60068-2-64: Random Vibration
- EU: IEC 60068-2-29: Shocks, Type I / II
- EU: IEC 60068-2-32: Fall Test

COMPATIBILITY

PCI EXPRESS INTERFACE

- PCIe Base 3.0 compliant, 1.1, 2.0 compatible
- Fits x8 or x16 slots
- Support for MSI/MSI-X mechanisms

OPERATING SYSTEMS/DISTRIBUTIONS

- Windows 2008 SP2 and 2008 R2
- Windows 2012 and 2012 R2 (vNext)
- Linux Distributions**
- SLES11 SP2 / SP3
- VMWare ESX/ESXi 5.5
- XenServer 6.1 / 6.2

MANAGEMENT

- Open Manage, iDRAC, Lifecycle Controller
- Configuration and diagnostic

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

**Please visit Dell's web site for approved Linux Distributions.

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