Corporate Style and Branding Guide

December 2009

Corporate Logo Usage

CORPORATE LOGO/SIGNATURE

The Mellanox Technologies signature is used to represent the organization in all its activities. This signature is the foundation to our identity and exists on a wide variety of media and marketing materials.

The Signature consists of two elements:

1. the symbol
2. the logotype

Because the signature is a registered trademark, the relationship between theese elements should never be altered. This ensure legal protectability, builds recognition and reinforces our positioning.

CORPORATE 2-COLOR LOGO/SIGNATURE

GRAYSCALE LOGO

LOGO VARIATIONS

These accepatable variations of the corporate logo should only be used when space or application dicatate its use.

The hroizontal version is used as an EXCEPTION.

CMYK CONVERSION

COLOR	CYAN	MAGENTA	YELLOW	BLACK
Blue	100	100	0	28
Gray	0	0	0	60

RGB CONVERSION

COLOR	RED	GREEN	BLUE
Blue	14	0	89
Gray	102	102	102

WEB CONVERSION

COLOR	RED	GREEN	BLUE
Blue	0E	00	59
Gray	66	66	66

Logo Clear Space and Size

LOGO CLEAR SPACE

The signature should always be surrounded by an adequate amount of clear space in order to set it off from other elements.

The gray area (see illustration at left) indicates the minimum amount of clear space that must surround the signature in all applications. No other elements should infringe in the clear space.

Exceptions require approval prior to use.

Minimuim clear space is specified in units of "X." X equals the height of the "x" in Mellanox.

LOGO MINIMUM SIZE

No smaller than 1"

Stacked Logo

Horizontal Logo

Logo Usage

LOGO USAGE GUIDELINES

This is the official corporate logo.

The Logo should be used as a single unit. The logotype should never be used alone, but should always have the the logomark (bridge).

The signature or logotype should NEVER by used separately.

Do not rearrange or stack the logomark and logotype.

Do not change the colors of the logo or logotype.

Logo Usage

LOGO USAGE GUIDELINES

Do not tilt or skew logo.

Do not enlarge or shrink the logo or the logotype separately.

Do not place logo on a background or backgrounds with conflicting colors.

White is the recommended background.

Secondary and Product Logos

Mellanox product or secondary logos should also be used with the same requirements as the corporate logo.

- They should always be surrounded by an adequate amount of clear space in order to set it off from other elements.
- The Logo should be used as a single unit.
- Do not rearrange or stack the logomark and logotype.
- Do not change the colors of the logo or logotype.
- Do not tilt or skew logo.
- Do not enlarge or shrink the logo or the logotype separately.
- Do not place logo on a background or backgrounds with conflicting colors.
- White is the recommended background.

Typography

FONTS

Univers LT (True Type Version) is the primary fonts used on all corporate materials.
Arial or Helvetica may be substituted for Univers for online applications and Powerpoint

Univers LT 39 Thin Ultra Condensed
Univers LT 45 Light
Univers LT 45 Light Oblique
Univers LT 47 Condensed Light
Univers LT 47 Condensed Light Oblique
Univer LT 53 Extended
Univers LT 53 Extended Oblique
Univers LT 55 Roman
Univers LT 55 Oblique
Univers LT 57 Condensed
Univers LT 57 Condensed Oblique
Univers LT 59 Ultra Condensed

Univers LT 63 Bold Extended
Univers LT 63 Bold Extended Oblique
Univers LT 65 Bold
Univers LT 65 Bold Oblique
Univers LT 67 Bold Condensed
Univers LT 67 Bold Condensed Oblique
Univers LT 73 Black Extended
Univers LT 73 Black Extended Oblique
Univers LT 75 Black
Univers LT 75 Black Oblique
Univer LT 85 Extra Black
Univers LT 85 Extra Black Oblique
Univers LT 93 Extra Black Extended
Univers LT 95 Extra Black Extended Oblique

BANK GOTHIC BT LIGHT
BANK GOTHIC BT MEDIUM

BANK GOTHIC BT LIGHT
BANK GOTHIC BT MEDIUM

BANK GOTHIC BT LIGHT
BANK GOTHIC BT MEDIUM

BANK GOTHIC BT LIGHT
BANK GOTHIC BT MEDIUM

Bank Gothic BT typeface is primarily used for Speciality Headlines and Subheads larger than 11 pt.

Bank Gothic should not be used for body copy or type smaller than 12 pt

It can be used in different colors, screened or reversed out of a background

Color Palette

SECONDARY CORPORATE COLORS

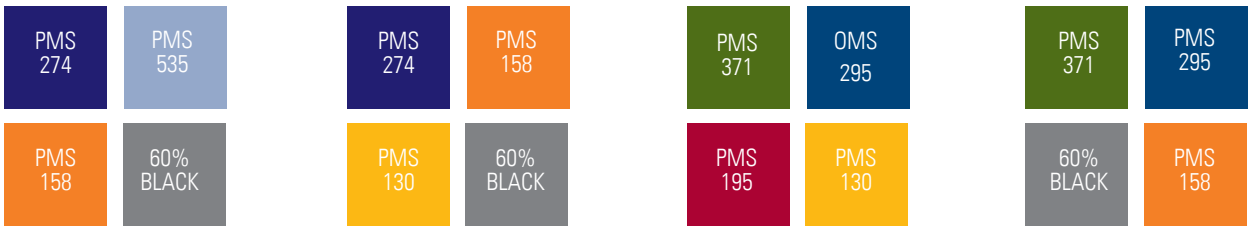
COLOR	CYAN	MAGENTA	YELLOW	BLACK
PMS 158 ORANGE	0	61	97	0
PMS 130 GOLD	0	30	100	0
30% BLACK	0	0	0	30

OTHER COLORS

COLOR	CYAN	MAGENTA	YELLOW	BLACK
PMS 295 BLUE	100	57	0	40
PMS 535 BLUE	42	27	7	0
PMS 371 GREEN	43	0	100	56
PMS 384 GREEN	18	0	100	31
PMS 194 RED	0	100	64	33

COLOR	RED	GREEN	BLUE
PMS 295 BLUE	0	69	124
PMS 535 BLUE	149	169	202
PMS 371 GREEN	79	111	25
PMS 384 GREEN	159	166	23
PMS 194 RED	171	6	53

SUGGESTED COLOR COMBINATIONS



Trademarks, Registered Trademarks and Copyrights

A trademark is a word, phrase, logo, symbol or design, or a combination of these elements, used to identify or distinguish the goods and services of one company or individual from others.

Using the trademark ***properly*** is necessary in order to demonstrate that a mark is used in commerce, which is a fundamental requirement for trademark ownership in the United States.

MELLANOX TRADEMARKS

BridgeX

CORE-*Direct*

FabricIT

PhyX

Virtual Protocol Interconnect

MELLANOX REGISTERED TRADEMARKS

Mellanox

ConnectX

InfiniBlast

InfiniBridge

InfiniHost

InfiniRISC

InfiniScale

InfiniPCI

Always use the mark as an adjective

It is very important to always use the marks as adjectives and always with the generic terms which they modify. A trademark should never be use it as a noun or a verb.

INCORRECT:
ConnectX® is the best adapter on the market..

CORRECT USE:
ConnectX® adapters are the best on the market.

Avoid plural or possessive forms of the mark

Never use a mark in the plural form or the possessive form.

Never hyphenate trademarks

INCORRECT:
ConnectX®-compatible adapters are the best on the market.

CORRECT USE:
"ConnectX® compatible adapters are the best on the market.

Appropriate placement of trademarks within text

Generally, the mark must be used with the first or most prominent appearance of a trademark in a publication or document, but need not be used with each subsequent appearance. As a safeguard, use additional markings rather than fewer within a document.

Trademark Attribution Statement

For publications containing third party trademarks, it is typical practice to provide a trademark attribution statement in small print at the end of the specific article. For example:

ConnectX is a registered trademark of Mellanox Corporation. All other trademarks are the property of their respective owners.

Copyright Notice

The notice should always contain:

1. The symbol © (the letter C in a circle), or the word "Copyright";
2. The year of first publication of the work; and
3. The name of the owner of copyright in the work.

EXAMPLE: © 2009 Mellanox Technologies.

Sample Documents

PRODUCT BRIEFS

Always use corporate fonts and document style sheet settings.

Mellanox TECHNOLOGIES

ADAPTER CARDS

ConnectX®-2 VPI

Single/Dual-Port Adapters with *Virtual Protocol Interconnect*™

ConnectX-2 adapter cards with *Virtual Protocol Interconnect* (VPI) supporting InfiniBand and Ethernet connectivity provide the highest performing and most flexible interconnect solution for Enterprise Data Centers, High-Performance Computing, and Embedded environments. Clustered data bases, parallelized applications, transactional services and high-performance embedded I/O applications will achieve significant performance improvements resulting in reduced completion time and lower cost per operation. ConnectX-2 with VPI also simplifies network deployment by consolidating cables and enhancing performance in virtualized server environments.

ConnectX-2 VPI Adapter Cards

ConnectX®-2

Virtual Protocol Interconnect

VPI-enabled adapters make it possible for any standard networking, clustering, storage, and management protocol to seamlessly operate over any converged network leveraging a consolidated software stack. With auto-sense capability, each ConnectX-2 port can identify and operate on InfiniBand, Ethernet, or Data Center Bridging (DCB) fabrics. ConnectX-2 with VPI simplifies I/O system design and makes it easier for IT managers to deploy infrastructure that meets the challenges of a dynamic data center.

World-Class Performance

InfiniBand — ConnectX-2 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 routine activities which allows more processor power for the application. Network protocol processing and data movement overhead such as InfiniBand RDMA and Send/Receive semantics are completed in the adaptor without CPU intervention. Application overhead, such as data broadcasting and gathering and global synchronization communication routines (e.g. MPI collectives operations) executed in hardware brings the next level of performance improvements. ConnectX-2 advanced offloading technology enables higher cluster efficiency and large scalability to tens of thousands of nodes.

Data Center Bridging — ConnectX-2 delivers similar low-latency and high-bandwidth performance leveraging Ethernet with DCB support. Low Latency Ethernet (LLE) provides efficient RDMA transport over Layer 2 Ethernet utilizing DCB's enhancements to IEEE 802.1 bridging. The LLE software stack maintains existing and future compatibility for bandwidth and latency sensitive clustering applications. With link-level interoperability in existing Ethernet infrastructure, Network Administrators can leverage existing data center fabric management solutions.

TCP/UDP/IP Acceleration — Applications utilizing TCP/UDP/IP transport can achieve industry-leading throughput over InfiniBand or 10GigE. The hardware-based stateless offload engines in ConnectX-2 reduce the CPU overhead of IP packet transport, freeing more processor cycles to work on the application.

I/O Virtualization — ConnectX-2 support for hardware-based I/O virtualization provides dedicated adaptor resources and guaranteed isolation and protection for virtual machines (VM) within the server. I/O virtualization with ConnectX-2 gives data center managers better server utilization and LAN and SAN unification 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 leveraging InfiniBand RDMA result in high-performance storage access. Fibre Channel frame encapsulation (FCoIB or FCoE) and hardware offloads enable simple connectivity to Fibre Channel SANs.

Software Support

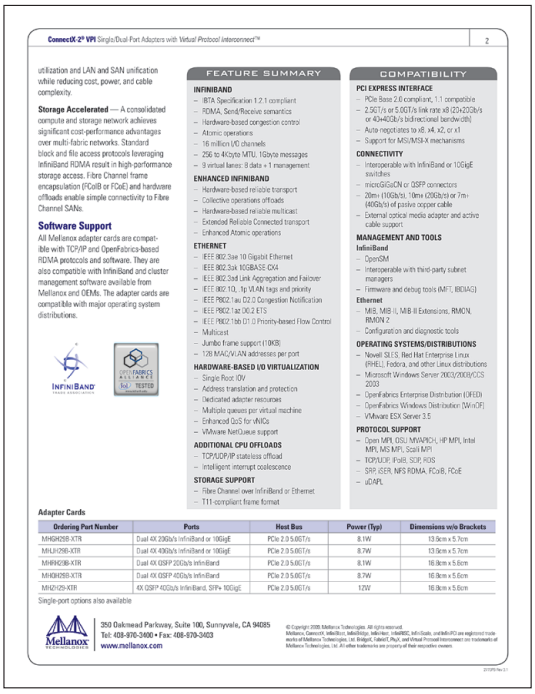
All Mellanox adapter cards are compatible with TCP/IP and OpenFabrics-based RDMA protocols and software. They are also compatible with InfiniBand and cluster management software available from Mellanox and OEMs. The adapter cards are compatible with major operating system distributions.

BENEFITS

- One adapter for InfiniBand, 10 Gigabit Ethernet or Data Center Bridging fabrics
- World-class cluster performance
- High performance networking and storage access
- Guaranteed bandwidth and low-latency services
- Reliable transport
- I/O consolidation
- Virtualization acceleration
- Scales to tens-of-thousands of nodes

KEY FEATURES

- Virtual Protocol Interconnect
- 1us MPI ping latency
- Selectable 10, 20, or 40Gb/s InfiniBand or 10 Gigabit Ethernet per port
- Single- and Dual-Port options available
- PCI Express 2.0 (up to 5GT/s)
- CPU offload of transport operations
- Collective operations offloads
- End-to-end QoS and congestion control
- Hardware-based I/O virtualization
- TCP/UDP/IP stateless offload
- Fibre Channel encapsulation (FCoIB or FCoE)
- RoHS-R6



ConnectX®-2 VPI Single/Dual-Port Adapters with *Virtual Protocol Interconnect*™ 2

FEATURE SUMMARY

INFINIBAND
- IBTA Specification 1.2.1 compliant
- RDMA, Send/Receive semantics
- Hardware-based congestion control
- Atomic operations
- 16 million I/O channels
- 256 to 4Kbyte MTU, 1Gbyte messages
- 9 virtual lanes: 8 data + 1 management

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

ETHERNET
- IEEE 802.3ae 10 Gigabit Ethernet
- IEEE 802.3ak 10GBASE-CX4
- IEEE 802.3ad Link Aggregation and Failover
- IEEE 802.1Q, 1p VLAN tags and priority
- IEEE P802.1au D2.0 Congestion Notification
- IEEE P802.1az D0.2 ETS
- IEEE P802.1bb D1.0 Priority-based Flow Control
- Multicast
- Jumbo Frame support (10KB)
- 128 MAC/VLAN addresses per port

HARDWARE-BASED I/O VIRTUALIZATION
- Single Root IOV
- Address translation and protection
- Dedicated adaptor resources
- Multiple queues per virtual machine
- Enhanced QoS for vNICs
- VMware NetQueue support

ADDITIONAL CPU OFFLOADS
- TCP/UDP/IP stateless offload
- Intelligent interrupt coalescence

STORAGE SUPPORT
- Fibre Channel over InfiniBand or Ethernet
- T11-compliant frame format

COMPATIBILITY

PCI EXPRESS INTERFACE
- PCIe Base 2.0 compliant, 1.1 compatible
- 2.5GT/s or 5.0GT/s link rate x8 (20+20Gb/s or 40+40Gb/s bidirectional bandwidth)
- Auto-negotiates to x8, x4, x2, or x1
- Support for MSI/MSI-X mechanisms

CONNECTIVITY
- Interoperable with InfiniBand or 10GigE switches
- micro GiGaCN or QSFP connectors
- 20m+ (10Gb/s), 10m+ (20Gb/s) or 7m+ (40Gb/s) of passive copper cable
- External optical media adapter and active cable support

MANAGEMENT AND TOOLS

InfiniBand
- OpenSM
- Interoperable with third-party subnet managers
- Firmware and debug tools (MFT, IBDIAG)

Ethernet
- 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 2003/2008/CCS 2003
- OpenFabrics Enterprise Distribution (OFED)
- OpenFabrics Windows Distribution (WinOF)
- VMware ESX Server 3.5

PROTOCOL SUPPORT
- Open MPI, OSU MVAPICH, HP MPI, Intel MPI, MS MPI, Scali MPI
- TCP/UDP, IPoIB, SDP, RDS
- SRP, iSER, NFS RDMA, FCoIB, FCoE
- uDAPL

Adapter Cards

Ordering Part Number	Ports	Host Bus	Power (Typ)	Dimensions w/o Brackets
MHGH28B-XTR	Dual 4X 20Gb/s InfiniBand or 10GigE	PCIe 2.0 5.0GT/s	8.1W	13.9cm x 5.7cm
MHJH29B-XTR	Dual 4X 40Gb/s InfiniBand or 10GigE	PCIe 2.0 5.0GT/s	8.7W	13.9cm x 5.7cm
MHRH19B-XTR	Dual 4X QSFP 20Gb/s InfiniBand	PCIe 2.0 5.0GT/s	8.1W	16.9cm x 5.6cm
MHRH29B-XTR	Dual 4X QSFP 40Gb/s InfiniBand	PCIe 2.0 5.0GT/s	8.7W	16.9cm x 5.6cm
MHJH29-XTR	4X QSFP 40Gb/s InfiniBand, SFP+ 10GigE	PCIe 2.0 5.0GT/s	12W	16.9cm x 5.8cm

Single-port options also available

Mellanox TECHNOLOGIES

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www.mellanox.com

CASE STUDIES

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Mellanox TECHNOLOGIES

CASE STUDY

InfiniBand Technology to Speed up Dawning 5000A High-Performance Computing System

Introduction

Mellanox ConnectX, the leading InfiniBand technology in high-performance computing environments, has been selected as the interconnect of choice for the Dawning 5000A, China's fastest supercomputer. ConnectX technology was the best choice because of its ability to meet the most stringent I/O performance and reliability requirements while keeping multi-core CPU overhead and energy requirements to a minimum.

The Challenge of Scale

High-performance computing clusters are widely used in information security, oil exploration, weather forecasting, bio-pharmaceutical, engineering simulation, scientific computing, business computing and other fields. Countries all over the world have invested huge amounts of manpower and resources to build compute clusters capable of carrying out this research.

There are several challenges involved in building a supercomputer system capable of 100TFlops or higher performance. The operating system, software compilers, systems and applications must be optimized to function in a parallel computing environment that supports 10,000 or more CPUs. There are also huge network interconnection issues, because the network needed to connect such a massive system must be highly efficient in order to minimize delays in the transfer of information. At the same time, the network must be reliable and energy-efficient.

Scalability Issues

Gigabit Ethernet, 10 Gigabit Ethernet, and InfiniBand can all be used as the basic technology for interconnecting servers in a supercomputer network. In a fat-tree topology, the peak theoretical speed of the system is 230T Flops. The Dawning 5000A uses ConnectX DDR InfiniBand interconnect to achieve a

Linpack test result of 180.6 TFlops, or more than 77 percent efficiency. At present, the Dawning 5000A is the fastest high-performance computer system in China.

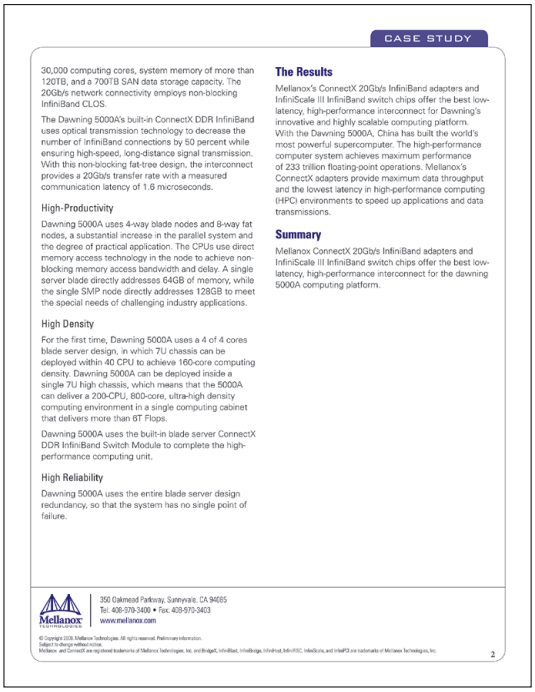
Reliability issues

A 100T Flops supercomputer system will have many CPUs as well as hundreds of TB of memory. With so many CPUs working on large-scale problems, it is vital to protect the reliability of the system hardware and system software. The interconnect must be designed with built-in fault isolation and recovery mechanisms so as to effectively reduce the system MTBF from the current level without relying on servers to perform such error-handling.

Solution

High-Performance

The Dawning 5000A's high-performance computers use AMD's latest low-power, quad-core Barcelona processor. Based on the structure of the blade architecture, the system incorporates a total of about



CASE STUDY

30,000 computing cores, system memory of more than 120TB, and a 700TB SAN data storage capacity. The 20Gb/s network connectivity employs non-blocking InfiniBand CLOS.

The Dawning 5000A's built-in ConnectX DDR InfiniBand uses optical transmission technology to decrease the number of InfiniBand connections by 50 percent while ensuring high-speed, long-distance signal transmission. With this non-blocking fat-tree design, the interconnect provides a 20Gb/s transfer rate with a measured communication latency of 1.6 microseconds.

High-Productivity

Dawning 5000A uses 4-way blade nodes and 8-way fat nodes, a substantial increase in the parallel system and the degree of practical application. The CPUs use direct memory access technology in the node to achieve non-blocking memory access bandwidth and delay. A single server blade directly addresses 64GB of memory, while the single SMP node directly addresses 128GB to meet the special needs of challenging industry applications.

High Density

For the first time, Dawning 5000A uses a 4 of 4 cores blade server design, in which 7U chassis can be deployed within 40 CPU to achieve 160-core computing density. Dawning 5000A can be deployed inside a single 7U high chassis, which means that the 5000A can deliver a 200-CPU, 800-core, ultra-high density computing environment in a single computing cabinet that delivers more than 6T Flops.

Dawning 5000A uses the built-in blade server ConnectX DDR InfiniBand Switch Module to complete the high-performance computing unit.

High Reliability

Dawning 5000A uses the entire blade server design redundancy, so that the system has no single point of failure.

The Results

Mellanox's ConnectX 20Gb/s InfiniBand adapters and InfiniScale III InfiniBand switch chips offer the best low-latency, high-performance interconnect for Dawning's innovative and highly scalable computing platform. With the Dawning 5000A, China has built the world's most powerful supercomputer. The high-performance computer system achieves maximum performance of 233 trillion floating-point operations. Mellanox's ConnectX adapters provide maximum data throughput and the lowest latency in high-performance computing (HPC) environments to speed up applications and data transmissions.

Summary

Mellanox ConnectX 20Gb/s InfiniBand adapters and InfiniScale III InfiniBand switch chips offer the best low-latency, high-performance interconnect for the dawning 5000A computing platform.

Mellanox TECHNOLOGIES

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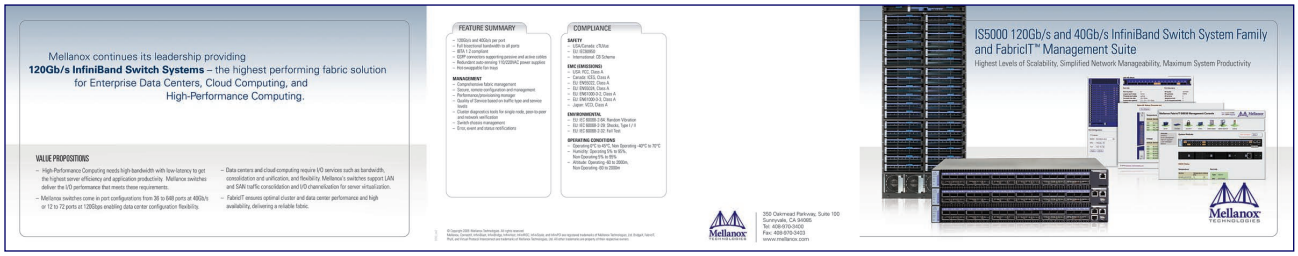
Sample Documents

PRODUCT BROCHURES

Always use corporate fonts and document style sheet settings.

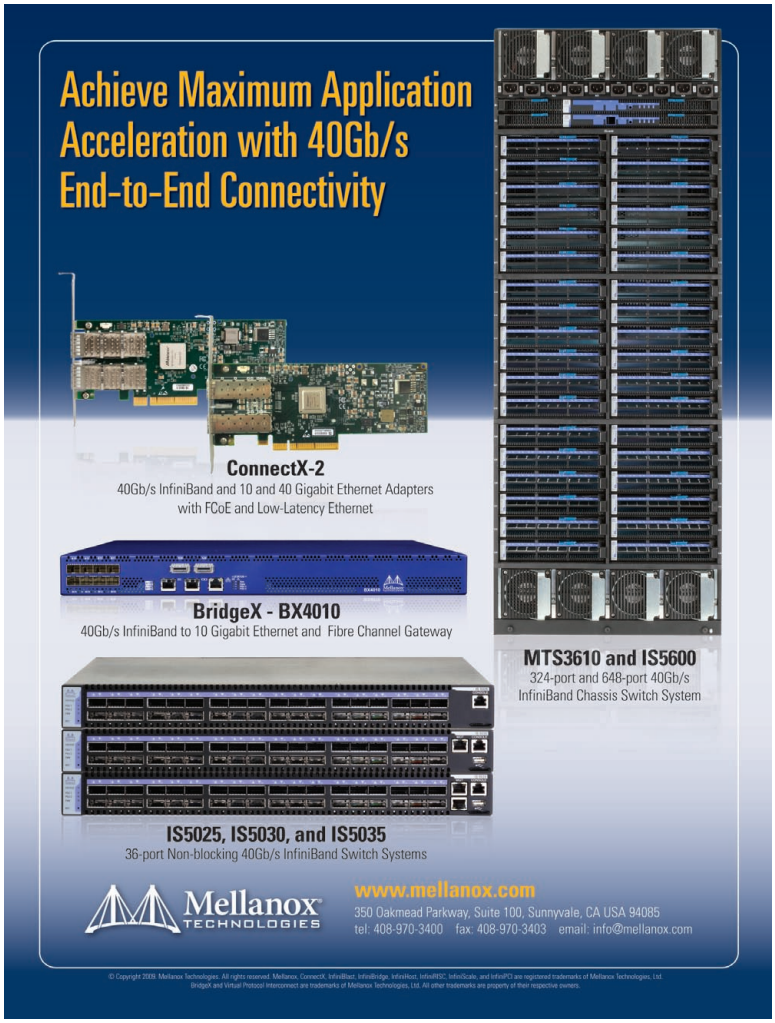


ONLINE eNEWSLETTERS and BANNER ADS

Always use corporate fonts and colors.

CORPROATE AND PRODUCT ADS

Always use corporate fonts and colors.



For more information on Mellanox Branding standrads or questions on typefaces and style considerations for a particular application, contact:

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