



Mellanox Technologies Delivers The First InfiniBand Server Blade Reference Design

Complete InfiniBand Reference Design Provides a “Data Center in a Box”

SANTA CLARA, CALIFORNIA and YOKNEAM, ISRAEL, Jan 21, 2002 - Mellanox Technologies, Ltd. announced the immediate availability of its Nitro InfiniBandSM technology based blade server and I/O chassis reference platform. The Nitro platform marks the first ever InfiniBand Architecture based server blade design and provides a framework that delivers the full benefits of server blades. Only InfiniBand Architecture based designs enable switch, server and I/O blades all in a single 7” tall (4U) chassis. The Nitro platform consists of Mellanox switch blades, diskless server blades, and InfiniBand architecture passive backplane and chassis.

"The Nitro reference design has been developed to accelerate the time-to-market of production worthy OEM InfiniBand Architecture based blades using Mellanox's industry leading silicon," said Eyal Waldman, CEO at Mellanox. "The Nitro reference design provides much more than just a change in form factor for servers, it demonstrates the major advancements that the InfiniBand Architecture's attributes, features and benefits bring to blade computing."

Combined, these blades implement a “Data Center in a Box,” offering the following InfiniBand Architecture benefits to the IT manager:

- Switches, Server and I/O blades in a single box
- Greater bandwidth: 2.5 Gb/s between blades and 10Gb/s uplinks

- Higher performance and lower latencies through hardware transport
- I/O sharing as InfiniBand technology allows all servers to share all I/O
- High availability through full redundancy, automatic fail over, and fault tolerance
- Flexible QoS enables multi-protocol fabrics on the same physical links
- Scale-Out through InfiniBand clustering capabilities
- Up to 128 servers or I/O blades in a single rack
- Higher application performance by removing TCP/IP overhead
- Lower cost as I/O cards are eliminated
- Diskless servers blades enable remote storage, quick reconfiguration of servers and improved provisioning
- Easier fabric and data center management

All of these benefits combined provide unprecedented levels of integration, ease of use, performance, and management that are designed to result in lower TCO costs for enterprise and Internet data centers.

"As the provider of the industry's leading intelligent platform for networking storage, Brocade is pleased to work with the IBTA and companies such as Mellanox to further the development of InfiniBand technologies," said Jay Kidd, Brocade Vice President of Product Marketing. "As server performance continues to increase, InfiniBand technologies promise to enable companies to deploy larger, more scalable, and highly optimized computing environments that will support new applications such as server clustering. The powerful combination of InfiniBand-based server environments with today's high performance storage area networks will enable new levels of availability, security, scalability, and manageability in the data center."

"InfiniBand I/O is a powerful new technology for high performance and high reliability computing platforms," said Dr. Tom Bradicich, Director of Architecture & Technology, IBM eServer* xSeries**. "The Nitro platform demonstrates the intersection of two very complementary technologies: InfiniBand I/O and blade servers -- an innovative combination well suited for future dense server architectures."

"As a leading driver of the InfiniBand architecture specifications, Intel foresaw the benefits that the InfiniBand architecture would deliver to blade computing," said Jim Pappas director of initiative marketing for Intel's Enterprise Platform Group. "Blade server reference platforms like Mell-

anox's Nitro blades offer a first look at the tremendous value that InfiniBand architecture brings to blade computing."

In addition to providing a high performance data center computing platform, the reference design serves as a software development platform for OEM products, as well as, the PICMG 3.2 initiative (targeted to be finalized in mid-2002), which defines InfiniBand as the standard interconnect for the next generation of telecom and data center systems.

Nitro InfiniBand Architecture Server Blades

The Nitro server blades are based on an Intel*** 1.26 GHz Pentium*** III processor and ServerWorks LE 3.0 chipset. The server blades support up to 3GB of memory and are both diskless and headless (no video monitor required). InfiniBand architecture's hardware transport overcomes the latency and bandwidth penalties of LAN based remote storage. Furthermore by removing the disk and video controller, critical power and area resources are freed up for CPU and memory. This allows Nitro server blades to support higher speed processors that are able to apply the bulk of their compute cycles to the application, as the InfiniBand hardware transport eliminates the heavy CPU load of the TCP stack. Therefore, not only does the IT manager experience better performance from higher clock speeds and more usable memory, but also gains as much as 50% more usable cycles when utilizing low latency, low overhead RDMA InfiniBand protocols. Together, these components implement a fully scalable server blade system with performance that rivals and can even exceed the performance of large-scale multi-way systems.

Mellanox 16+4 InfiniBand Architecture Switch

The fully managed, non-blocking 20 port or 16+4 switch blade offers a total throughput of over 160 Gb/sec. The switch aggregates sixteen 2.5Gb/sec (1X) ports from the backplane to four 10 Gb/sec (4X) uplink ports on the front of the chassis. The four 10Gb/sec ports can be used to connect multiple chassis's together to create large clusters of server, I/O or storage blades.

InfiniBand Architecture Backplane and Chassis

The passive backplane utilizes a dual star configuration to redundantly link 16 server or I/O slots through redundant InfiniBand fabric switches. The InfiniBand fabric also provides dedicated

management lanes for chassis and baseboard management and support for keyboard, mouse, power and management traffic, thus greatly reducing the number of cables required for server clusters.

Complete Product Development Kit

Mellanox is offering customers a complete Product Development Kits (PDK) for the Nitro platform. The PDKs include a 16 + 4 port Nitrex switch, Nitro Server Blade, and complete chassis system with integrated backplane, power supply and fans. All PDKs includes schematics, layout, bill of materials, and a software development kit (SDK). The SDK contains driver development code, InfiniBand Architecture Verbs implementation, application examples, and debug/development tools, enabling customers to develop InfiniBand systems based on the reference software. The PDK is also supported by software management and I/O solutions from 3rd party developers, including JNI, Lane 15 Software, OmegaBand, Vieo and Voltaire.

Pricing and Availability

The Nitro InfiniBand architecture reference chassis platform is available today. In single piece quantities the Nitrex 16+4 switch is priced at \$15,000, the Nitro InfiniBand architecture server blade is \$5000, and the InfiniBand passive backplane and chassis is \$7,500.

To see the Nitro platform in action please visit Mellanox January 21 – 22 at the Bus and Board Conference in Long Beach, CA and at the Intel Developers Forum, February 25-28 in San Francisco, CA.

About Mellanox Technologies

Mellanox is the leading supplier of InfiniBand semiconductors, providing Switches, Host Channel Adapters, and Target Channel Adapters to the server, communications, and data storage markets. In January 2001, Mellanox Technologies delivered the InfiniBridge MT21108, the first 1X/4X InfiniBand device to market, and is now shipping second-generation InfiniScale silicon. The company has raised more than \$33 million to date and has strong corporate and venture backing from Intel Capital, Raza Venture Management, Sequoia Capital, and US Venture Partners. In May 2001, Mellanox was selected by the Red Herring Magazine as one of the 50 most important pri-

vate companies in the world and to Computerworld Magazine Top 100 Emerging Companies for 2002. Mellanox currently has more than 200 employees in multiple sites worldwide. The company's business operations, sales, marketing, and customer support are headquartered in Santa Clara, CA; with the design, engineering, software, system validation, and quality and reliability operations based in Israel. For more information on Mellanox, visit www.mellanox.com.

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