Mellanox TECHNOLOGIES

KIT FEATURES

- Hot Swappable Fan Tray with Redundant Fans
- Subnet Management Software
- Embedded Chassis Management with Linux OS with Ethernet and secure shell access
- Ultra-Low Latency < 180ns
- InfiniBand v1.2 Compliant
- Dual Redundant auto-sensing 110/220VAC power supplied

MTPDK24

- 1U InfiniBand 24-4X or 4-12X, 12-4X Port Switch (SDR or DDR)
- 480Gb/s (SDR) or 960Gb/s (DDR) switching capacity
- 19" Rackmount

MTPDK144

- 10U 12-Slot Modular Chassis supports 4X or 12X Leaf Boards
- 2.88Tb/s (SDR) or 5.76Tb/s (DDR) switching capacity
- Supports up to 144 4X ports or 48 12X ports (or any combination)
- Two Vertical Spine boards include Chassis Management CPU and Full CBB Topology
- 19" Rackmount

PRODUCTION KIT

- Comprehensive Production-Tested Manufacturing Kit
- Schematics and Layout Databases
- Mechanical Design Files
- Includes 4X and 12X daughter card design (MTPDK24)
- Includes 4X and 12X leaf and spine board designs (MTPDK144)
- Open Source Management Software

MTPDK24 and MTPDK144 InfiniBand Switch Production Development Kits

Overview

The MTPDK24 and MTPDK144 Production Development Kits (PDK) are complete sets of files that enable OEMs to rapidly manufacture and deliver high-performance InfiniBand switches with a number of different configurations, including support for single-data-rate (SDR) and double-data-rate (DDR) InfiniBand ports.

MTPDK24

At the heart of the switch design specified in the MTPDK24 is a single Mellanox InfiniScale III integrated switch IC that delivers nearly a Terabit of switching performance (DDR version) along with ultra low latency 4X and 12X InfiniBand ports. All firmware and EEPROM contents are included for basic InfiniBand management operation.

The platform is enclosed in a 1U, 19" rackmount chassis with InfiniBand ports and optional redundant auto-sensing 110/220VAC connections on the rear of the enclosure. The front of the chassis includes the option for dual hot swap power supply modules, a hot swap fan tray, and an optional management interface.

MTPDK144

The modular switch design specified in the MTPDK144 is based on multiple InfiniScale III switch ICs and a mid-plane chassis design with two spine boards and up to twelve leaf boards.

The 10U chassis design can be mounted in the back of a 19" rack with the InfiniBand ports facing outward. Twelve switch leaf boards (either 12-port 4X or 4-port 12X) plug into the chassis for InfiniBand fabric connectivity. Air flow enters from the spine board/fan tray side and exits through the I/O ports. The chassis includes integrated fan modules and dual -48VDC power feeds from two hot swap 1+1 redundant power supplies (optional).

The MTPDK144 also includes design information necessary to build any configuration of 4X or 12X leaf boards which connect to either a 4X or 12X spine. The 4X spine boards provide switching between multiple 4X leaf boards for 12, 24, 36...144 4X port switch configurations. The 12X spine boards provide switching between multiple 12X leaf boards for 4, 8, 12...48 12X port switch configurations. The 12X spine boards are also capable of supporting 4X leaf boards. The backplane passively connects them all together in a Full Bi-Sectional Bandwidth topology.

With the ability to deliver 5.76Tb/s switching performance (DDR), the MTPDK144 is ideal for vendors looking to build an InfiniBand switch for small size clusters (up to 144 nodes) and offers enormous scalability to greater than 10,000 nodes using a two-stage, fat-tree topology. For example, a 10,368-node CBB cluster can be built out of 144 tier-1 and 72 tier-2 switches.

MTPDK24 and MTPDK144 InfiniBand Switch Production Development Kits

APPLICATIONS

- Virtualized data centers that require a high-bandwidth, low-latency interconnect for server and storage grids
- High performance parallelized computing leveraging Message Passing Interface (MPI) based applications such as molecular modeling, oil and gas exploration, car crash simulations, etc.
- Clustered database applications, parallel RDBMS queries, high-throughput data warehousing
- Performance storage applications such as backup, restore, mirroring, etc.
- High-bandwidth streaming content such as video on-demand and HDTV
- Electronic Design Automation (EDA)

INFINIBAND BENEFITS

- Industry-standard technology
- Unified computing, storage and management
- High-Bandwidth, low-latency
- Performance roadmap to 120Gb/s
- Highly-efficient clustering
- Ultimate reliability and scalability
- Multi-platform support
- Congestion management and QoS
- Virtualized I/O fabric
- World-class price/performance

Management Functions

The management functions available on the MTPDK24 and MTPDK144 are compatible with any standard InfiniBand-compliant Subnet Management software running internally or externally to the switch. Once connected to an InfiniBand fabric, the InfiniScale III firmware can be updated and managed from remote InfiniBand hosts. Internal temperature, voltages, and the health of each power and fan module can also be monitored remotely over the InfiniBand fabric that require a high bandwidth, low-latency interconnect for server and storage grids.

MTPDK24 and MTPDK144 Production Kit Contents

General Documentation

- Product Brief
- User's Manual

Test Documentation

- Functional test User's Manual
- Functional test setup
- Functional test code
- BSDL file

Embedded Software/Firmware and Diagnostics

- Embedded Software /Firmware Installation User's Manual
- Software/Firmware installation package
- Diagnostics Software tools

Product Quality and Regulatory Documentations

- DVT (Design Validation Test) Reports
- MTBF Prediction Report
- Regulatory Certifications and Reports

Design Documentation for Backplane, Spine Boards, and Leaf Boards

- Schematics
- Bill of Materials
- Verilog CPLD Equations
- PCB layout database
- Printed boards manufacturing files (gerbers, solder, paste and silk masks, drill drawing, neutral file, aperture file, stack-up)
- Mechanical e-drawings
- Assembly instructions
- Assembly drawings
- Special manufacturing tools
- Mechanical manufacturing drawings

MTPDK24/MTPDK144 Kit

Part Number	Available Set Configuration (Standard configuration is with a single power supply)	InfiniBand Port Speed	Switch Design Size
MTPDK24	24-port 4X w/ Media adapter support 24-port 4X w/ Media adapter support, Managed 12-port 4X w/ Media adapter support, 4-port 12X copper only 12-port 4X w/ Media adapter Support, 4-port 12X copper only, managed Redundant Power Supply, Power Supply Bank, and redundant fan module available	10Gb/s (SDR 4X) 20Gb/s (DDR 4X) 30Gb/s (SDR 12X) 60Gb/s (DDR 12X)	1U Fixed
MTPDK144	144-port 4X InfiniBand (Copper connectors), managed 48-port 12X InfiniBand (Copper connectors), managed Blank Leaf Board and redundant power supply available	10Gb/s (SDR 4X) 20Gb/s (DDR 4X) 30Gb/s (SDR 12X) 60Gb/s (DDR 12X)	10U Modular

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