



PRODUCT OVERVIEW

The Marvell® Discovery™ III MV64460 system controller is the industry's most powerful architecture for PowerPC® CPU-based systems. Building upon Marvell's industry-standard Discovery platform, the Discovery III devices incorporate an innovative crossbar architecture, advanced communications peripherals and performance-tuned interfaces, setting new technology benchmarks for performance and integration. The Discovery III MV64460 system controller's high-performance crossbar switch architecture with any-to-any connectivity, allows system designers to develop high-performance, scalable systems. The Discovery III MV64460 device is the only system controller to support Symmetrical Multi-Processing (SMP) in both 60x and MPX bus modes and offers an integrated SRAM block on the processor interface for low latency data storage. Additionally, the Discovery III integrates two on-chip XOR engines to accelerate RAID applications. The Marvell Discovery III devices are optimally designed for a broad range of applications, from sophisticated routers, switches and wireless base stations to high-volume cost-effective storage and laser printer applications.

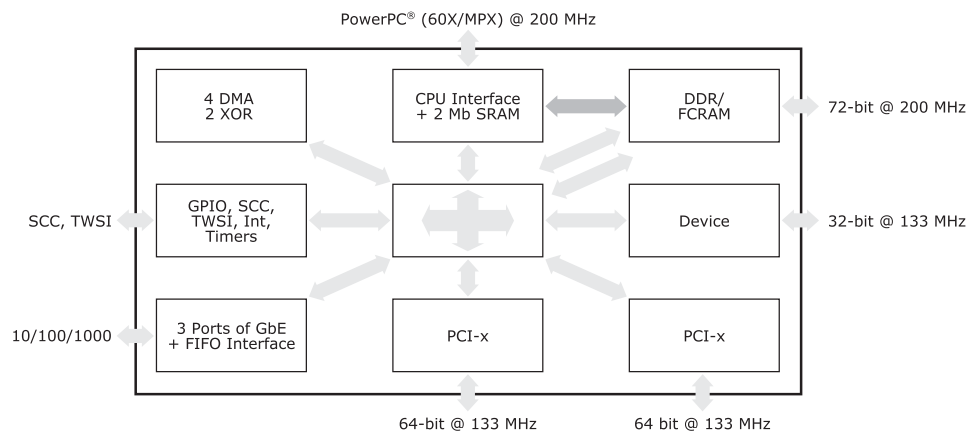


Fig 1. Discovery III (MV64460) PowerPC System Controller Block Diagram

FEATURES

- PowerPC CPU interface with up to 200 MHz CPU bus frequency
- Dual CPU SMP support — both 60x and MPX modes
- Crossbar switch architecture with up to 100 Gbps aggregate throughput
- On-board ECC protected cache coherent 2 MB SRAM block
- Two on-board XOR engines
- Dual 64-bit PCI/PCI-X interfaces with 66 MHz/133 MHz operation offering complete PCI-to-PCI (P2P) bridging for memory, I/O and configuration cycle
- Three Gigabit Ethernet (GbE) Media Access Controllers (MACs) with MII, RGMII, GMII and TBI support
- 72-bit DDR SDRAM controller at a clock rate of 200 MHz (400 Mbps data rate)

BENEFITS

- Supports all leading 64-bit PowerPC CPUs including IBM 750 FX, 750GX and Motorola® MPC74xx CPUs
- Only system controller to support SMP in both 60x and MPX bus modes. Enables the highest performing PowerPC subsystems
- Provide wire-speed performance between controller blocks to enable concurrent, non-blocking connectivity
- Low latency descriptor and packet header storage for CPU and all peripherals
- Offloads CPU to accelerate RAID applications
- Preserve legacy PCI investment and provide easy migration to future PCI-X based platforms, more than 16 Gbps aggregate throughput
- Enable greater data throughput
- Supports cost-effective, high bandwidth DDR SDRAM memory with full ECC protection, cache coherent



FEATURES

- 32-bit high-speed device controller — up to 133 MHz clock rate
- Data integrity support between all interfaces
- Integrated system and communications peripherals
- Development platforms with widely used MIPS CPUs featuring Wind River® VxWorks® and Linux board support packages
- Software compatible with leading Marvell system controllers

BENEFITS

- Enables high-throughput connectivity to boot FLASH, SyncBurst SRAMs ASICs and other system peripherals
- Provides ECC support on DDR SDRAM and internal SRAM, parity support on CPU, PCI and device bus to ensure reliable data transfers
- Reduce system chip counts, lower cost and provide optimized performance
- Speed hardware and software development time, out-of-the-box operability
- Protects software investment, speeds time-to-market and reduces development risk

APPLICATIONS

The Marvell Discovery III system controller is ideal for PowerPC CPU-based subsystems in a broad range of applications. Its superior integration and flexibility allows system designers to build scalable networking, storage and laser printer systems at varying price/performance points.

The high-performance I/O capabilities of the Discovery III device include dual PCI/PCI-X, three GbE MACs and dual multi-protocol serial controllers (MPSC) to support a wide range of applications. The dual PCI-X interfaces can be used to connect to GbE NICs, iSCSI adapters, Fiber Channel adapters, etc. Its multiple GbE ports are ideal for redundant backplane connectivity and remote management.

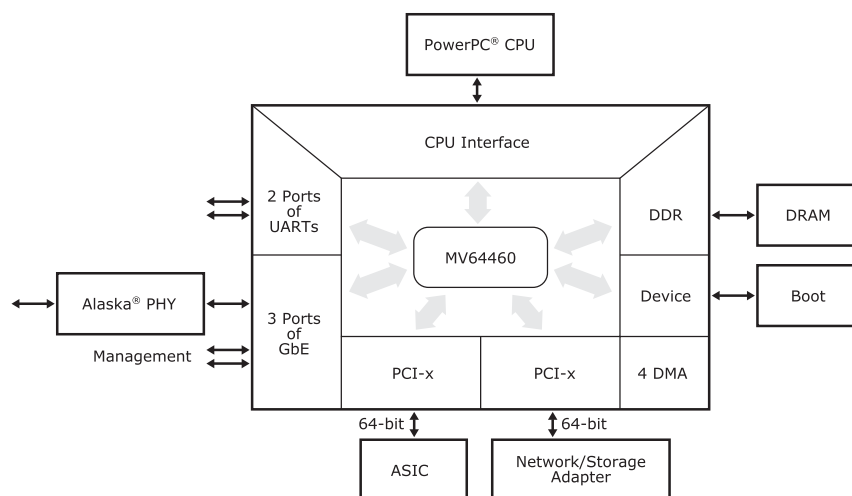


Fig 2. Discovery III (MV64460) PowerPC System Solution

THE MARVELL ADVANTAGE: The Marvell Discovery III MV64460 system controller comes with a complete set of hardware and software development tools to assist network hardware engineers with product evaluation. Marvell's worldwide field applications engineers collaborate closely with network equipment vendors to develop and deliver new competitive products to market on time. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low cost total solutions.

For more information, visit our website at www.marvell.com.



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