



PRODUCT OVERVIEW

The Marvell® Discovery™ LT MV64420 system controller is the industry’s most powerful and cost-effective architecture for MIPS® CPU-based systems. Building upon Marvell’s industry-standard Discovery platform, the Discovery LT devices incorporate an innovative crossbar architecture, advanced communications peripherals and performance-tuned interfaces, setting new technology benchmarks for performance and integration. The Discovery LT MV64420 system controller’s high-performance crossbar switch architecture with any-to-any connectivity, allows system designers to develop high-performance, scalable systems. The Discovery LT MV64420 device supports both the traditional SysAD and the extended PMC-Sierra® MIPS RM7000x bus protocols. Additionally, the Discovery LT product integrates two on-chip XOR engines to accelerate RAID applications. The Marvell Discovery LT system controllers are optimally designed for a broad range of applications, from sophisticated routers, switches and wireless base stations to high-volume, cost-sensitive storage and laser printer applications.

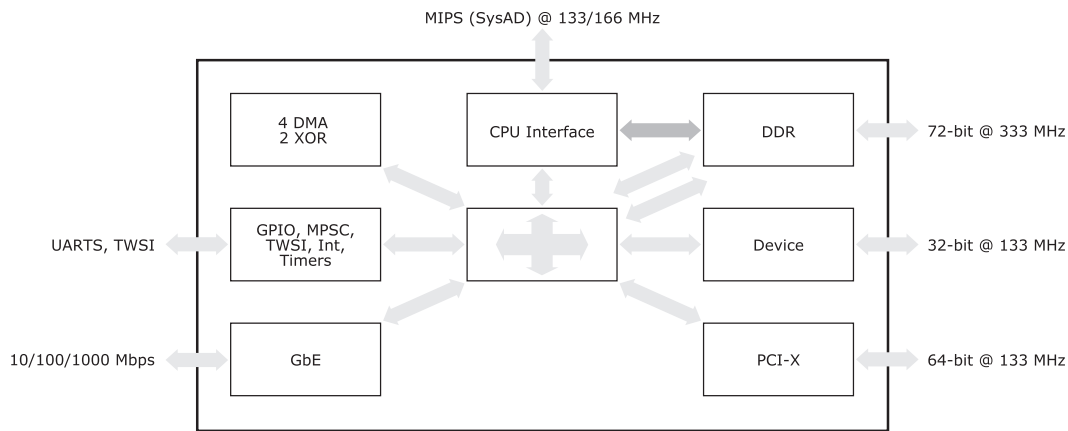


Fig 1. Discovery LT MIPS System Controller (MV64420) Block Diagram

FEATURES

- MIPS CPU interface with up to 166 MHz CPU bus frequency
- Supports traditional SysAD and the extended PMC-Sierra MIPS RM7000x bus protocols
- Crossbar switch architecture with up to 100 Gbps aggregate throughput
- Two on-board XOR engines
- 64-bit PCI/PCI-X interface with 66 MHz/133 MHz operation offering complete host PCI bridging
- Gigabit Ethernet (GbE) Media Access Controller (MAC) with MII, RGMII, GMII support
- 72-bit DDR SDRAM controller at a clock rate of 166 MHz (333 Mbps data rate)
- 32-bit high-speed device controller—up to 133 MHz clock rate

BENEFITS

- Supports all leading 64-bit MIPS CPUs including PMC-Sierra RM7000C and RM79xx
- Enable the highest performing MIPS subsystems
- Provide wire-speed performance between controller blocks to enable concurrent, non-blocking connectivity
- 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
- Connectivity to boot FLASH as well as high throughput peripherals as SyncBurst SRAM or custom ASICs



FEATURES

- Data integrity support between all interfaces, ECC error counters and single-bit error correction
- Integrated system and communications peripherals
- Development platforms with widely used MIPS CPUs featuring Wind River® VxWorks® and Linux board support packages
- Software compatible with industry-leading Marvell Discovery system controllers

BENEFITS

- Enables highly reliable system designs
- 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 Discovery LT system controller is ideal for MIPS CPU-based subsystems in a broad range of applications. Its superior integration and flexibility allows system designers to build scalable networking and communications systems such as routers and switches at varying price/performance points.

The high-performance input and output (I/O) capabilities of the Discovery LT device include PCI/PCI-X, GbE MAC and dual multi-protocol serial controllers (MPSC) to support a wide range of applications. The PCI-X interfaces can be used to connect to Network adapters, Storage adapters or custom ASICs.

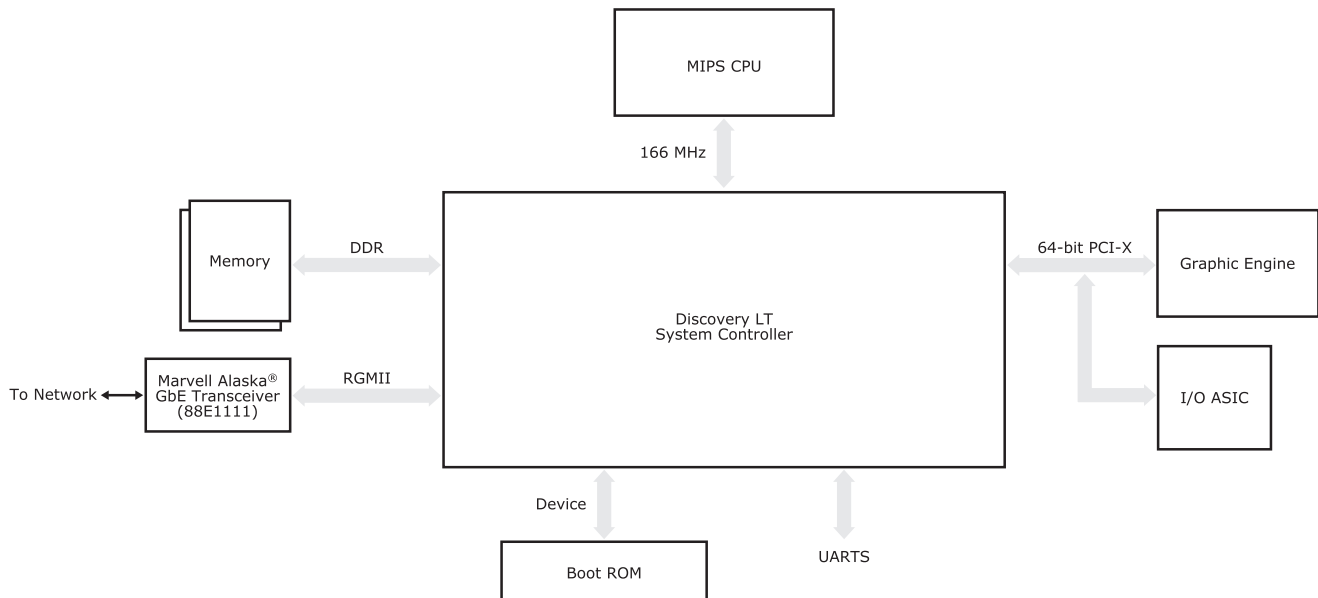


Fig 2. Discovery LT MIPS System Controller (MV64420) Application Diagram—Laser Printer

THE MARVELL ADVANTAGE: The Marvell Discovery LT MIPS 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.



Marvell Semiconductor, Inc.

700 First Avenue
Sunnyvale, CA 94089

Phone 408.222.2500

www.marvell.com

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