

Marvell 88SE1495

PCIe 3.0 to 16-port 12Gb/s SAS/SATA I/O Host Controller

Enterprise Class
Host Storage Controllers

PRODUCT OVERVIEW

Marvell® is a leading provider of Serial Attached SCSI (SAS) and Serial ATA (SATA) host controller silicon and software solutions for desktops, workstations, servers, external and cold/cloud storage systems. As a latest addition to its full range of flexible storage solutions, the Marvell 88SE1495 chip delivers an eight-lane PCIe 3.0 to 16-port 12Gb/s SAS/SATA I/O controller with exceptional performance and industry-leading features. Marvell's advanced proprietary chip design enables the Marvell 88SE1495 to achieve the industry's best jitter performance and lowest per-port power consumption. The 16 high-performance SAS/SATA PHYs on Marvell 88SE1495 are capable of 1.5 Gbps, 3.0 Gbps, 6.0 Gbps and 12.0 Gbps SAS/SATA link rates, offering the best flexibility and protection of prior investment for entry to mid-range servers. The Marvell 88SE1495 controller supports both the ANSI SAS 3.0 protocol through native SAS connection and the Serial ATA protocol through tunneled connection. It includes two independent XOR engines enabling hardware-assisted RAID 5 and RAID 6 with I/O acceleration and CPU utilization reduction for enterprise-level usage. The device is also equipped with Marvell Windows/Linux non-RAID binary drivers for ease-of-use and fast product development.

BLOCK DIAGRAM

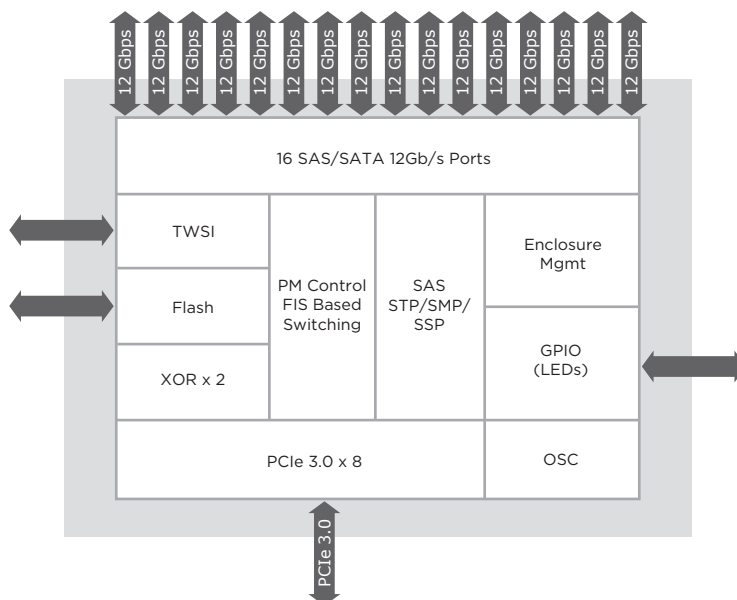


Fig 1. Marvell 88SE1495 PCIe 3.0 to 16-port 12 Gb/s SAS/SATA I/O Controller

KEY FEATURES AND BENEFITS

SPECIAL FEATURES	BENEFITS
High port count – 16 SAS/SATA ports	- Enables maximum connectivity and scalability - Lower number of I/O controller chips per system for easier integration - Highest port count PCIe 3.0 SAS 12Gb/s I/O controller in the market - Cost effectiveness with lower cost-per-port
Two independent XOR engines for hardware-assisted RAID 5 and RAID 6 applications	- Powerful RAID capability - Higher level of RAID provides higher level of reliability and performance - Dedicated 2 independent XOR engines enable hardware-assisted RAID 5 and RAID 6 for I/O acceleration and CPU utilization reduction
~9.5 W power consumption with full feature set in 21x21mm package	- Small footprint, low sustaining cost solution - Small packaging size leaves small footprint - Lowest power consumption per port available today - Enables system-wide sustaining cost saving

KEY FEATURES AND BENEFITS continued

SPECIAL FEATURES	BENEFITS
• Low BOM cost	• Money and board real-estate savings - Small number of components required - 3 voltage rails - No DDR
• PCIe 3.0 Interface - Supports x1, x4, and x8 lanes PCIe 3.0 interface at 8.0 Gbps per lane - Supports MSI/MSI-X interrupts - Backward compatible with PCIe 2.0 and PCIe 1.0 - Supports lane and polarity reversal - Supports PCI Express hot plug	• Full benefits empowered by the PCIe 3.0 standard - Higher data transfer speed at 8.0 Gbps per lane - Enhanced encoding scheme to 128b/130b reducing data transfer overhead - Interface infrastructure improvement including enhanced data integrity, optimal performance, etc.
• SAS 3.0 and SATA 3.0-compliant and backward compatible - Supports 12/6/3/1.5 Gbps SAS and 6/3/1.5 Gbps SATA link rates - Supports SSP initiator/target, STP host, SMP initiator and native SATA modes - Supports Spread Spectrum Clocking (SSC) with independent control for each PHY - T-10 information protection model - Supports up to 8 wide SAS ports	• High performance with system integration flexibility - Auto link rate negotiation enables support for past generation SAS and SATA devices - Maximum prior investment protection - Minimum conversion cost

APPLICATION EXAMPLES

The Marvell 88SE1495 chip delivers optimal I/O control performance for 16-port SAS/SATA connectivity with hardware-assisted RAID 5 and RAID 6 accelerators, which makes it suitable for both enterprise and entry to mid-level applications in storage server, enclosure system, workstation, cold/cloud storage, and HBA applications. The flexible built-in support of various SATA link rates and SATA Port Multipliers with FIS-based switching enables better performance with highest cost-effectiveness for high-capacity SATA JBOD applications, such as DAS, NAS, DVR and NVR.

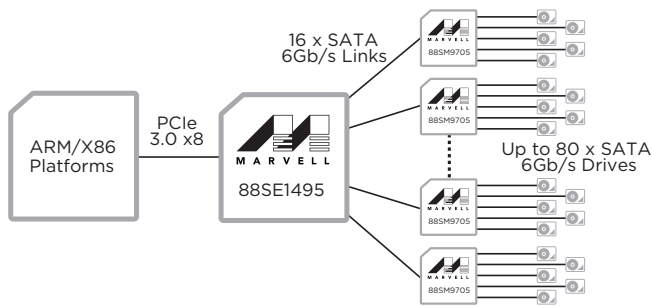


Fig 2. High Density Cold/Cloud Storage Applications



Fig 3. Marvell 88SE1495 I/O Controller (not actual size)

THE MARVELL ADVANTAGE: Marvell chipsets come with complete reference designs which include board layout designs, software, manufacturing diagnostic tools, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field application engineers collaborate closely with end customers to develop and deliver new leading-edge products for quick time-to-market. Marvell utilizes world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost total solutions.

ABOUT MARVELL: Marvell (NASDAQ: MRVL) is a global leader in providing complete silicon solutions and Kinoma® software enabling the “Smart Life and Smart Lifestyle.” From mobile communications to storage, Internet of Things (IoT), cloud infrastructure, digital entertainment and in-home content delivery, Marvell’s diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. At the core of the world’s most powerful consumer, network and enterprise systems, Marvell empowers partners and their customers to always stand at the forefront of innovation, performance and mass appeal. By providing people around the world with mobility and ease of access to services adding value to their social, private and work lives, Marvell is committed to enhancing the human experience. As used herein, the term “Marvell” refers to Marvell Technology Group Ltd. and its subsidiaries.

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