

Marvell 88SE9128/9120/9125/9111/9110

SATA 6Gb/s RAID Controllers



PRODUCT OVERVIEW

The Marvell® 88SE91xx host controllers offer cost-effective solutions for connecting Serial ATA (SATA) or Parallel ATA (PATA) peripherals to a PCI Express (PCIe) 2.0 host. Each host controller supports one or more 6 Gb/s SATA and one 133 MB/s PATA peripheral interface ports and a one-lane PCIe 2.0 host interface. In addition, it features advanced hardware encryption to protect user data on the fly and hardware RAID to offload the host CPU. A complete suite of RAID 0/1 software is provided, including the OS device driver, BIOS/FW, and a management utility. RAID 5/10 is also available as an option when the 88SE91xx is connected with a SATA port multiplier.

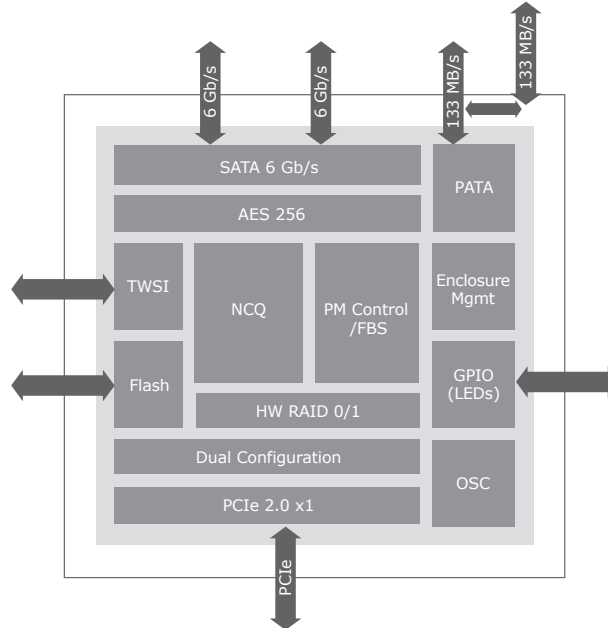


Fig 1. Block Diagram

MODEL	88SE9128	88SE9120	88SE9125	88SE9111/9110
• Marvell RAID Software	Yes	Non-RAID	N/A*	Non-RAID
• 6 Gb/s SATA Ports	2	2	2	1
• One 133 MBps PATA Port	Enhanced mode with ATAPI protocol support			
• SATA 3.0 Compliant	6 Gb/s SATA PHY with speed negotiation to backward support 3 and 1.5 Gb/s			
• PCIe 2.0 Compliant	Support 1x PCI Express 2.0 interface (5.0 GT/s)			
• Native Command Queuing	32 outstanding commands per port for high performance			
• eSATA Support	Flexible SATA ports support internal or external (up to 5m) SATA links			
• Hardware RAID	Yes	No	Yes	No
• Hardware Encryption	128/256-bit AES	No	Yes	Yes/No
• Enclosure Management	I2C support			
• Two-Wire Serial Interface (TWSI)	Interface for external EEPROM containing configuration information			
• GPIO Support	LEDs status monitoring			
• SPI Flash Interface	External flash containing configuration data and/or boot code			
• Port Multiplier Support	RAID support through Marvell RAID utility (MRU) and driver			
• FIS-Based Switching	Better performance with simultaneous commands			
• On-Chip Oscillator	Low-cost crystal support			
• Power	1W	0.9W	1W	0.6W
• Package Size/Type	9mm×9mm / 76-pin QFN			

*support customer's own RAID software

▶ APPLICATIONS

The Marvell 88SE91xx SATA RAID controllers are ideal solutions for RAID on motherboards (ROMB) and cost-effective host bus adapters (HBA). It allows PCIe-based host systems to control up to two SATA 6Gb/s drives and one PATA device. Embedded with a Marvell Sheeva, ARM instruction set compliant CPU, this product is a hardware RAID controller and enables inbox driver support without additional driver installation. The included Marvell RAID Utility (MRU) provides a user-friendly interface to end users while the Marvell RAID driver allows the drives to be used in RAID 5 or 10 configurations with SATA port multiplier for increased system performance, high data integrity and capacity.

For embedded applications, the Marvell 88SE9125 is available with a complete software development kit, including a programming specification and an open source Linux driver.

Fully programmable on-chip transceivers support SATA, eSATA, and xSATA at 6 Gb/s and are backward compatible to 1.5 and 3 Gb/s. Built-in support for SATA Port Multipliers with FIS-based switching ensures maximum performance.

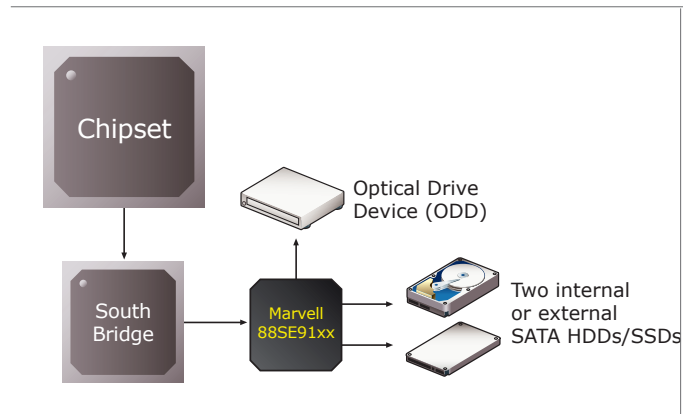


Fig 2. RAID-On-Motherboard Application

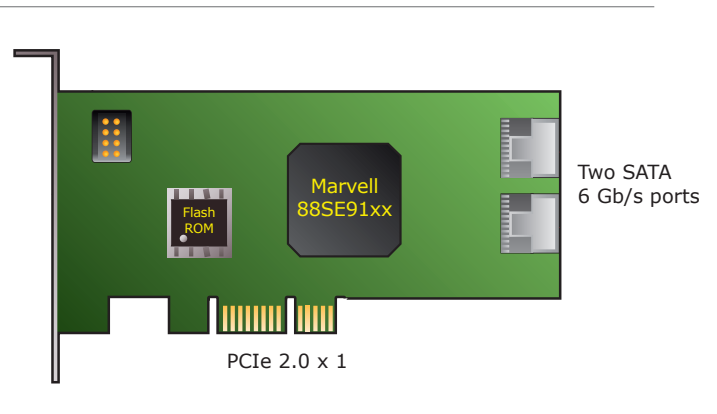


Fig 3. SATA RAID HBA Application

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 is a leader in storage, communications, and consumer silicon solutions. Marvell’s diverse product portfolio includes switching, transceiver, communications controller, processor, wireless, power management, and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our Web site at www.marvell.com.



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