

Marvell® 88SE9130

SATA 6 Gb/s Host Controller

Overview

The Marvell® 88SE9130 host controller offer cost-effective solution of connecting Serial ATA (SATA) to a PCI Express (PCIe) 2.0 host. This host controller supports two 6 Gb/s SATA peripheral interface ports and a one-lane 5.0 Gb/s PCIe host interface. In addition, it features hardware RAID to offload host CPU, Marvell proprietary

HyperDuo technology for automated SSD/HHD tiering, and AHCI interface for inbox driver support. A complete suite of RAID 0/1 and HyperDuo software is provided, including the OS device driver, BIOS/FW, and a management utility.

Block Diagram

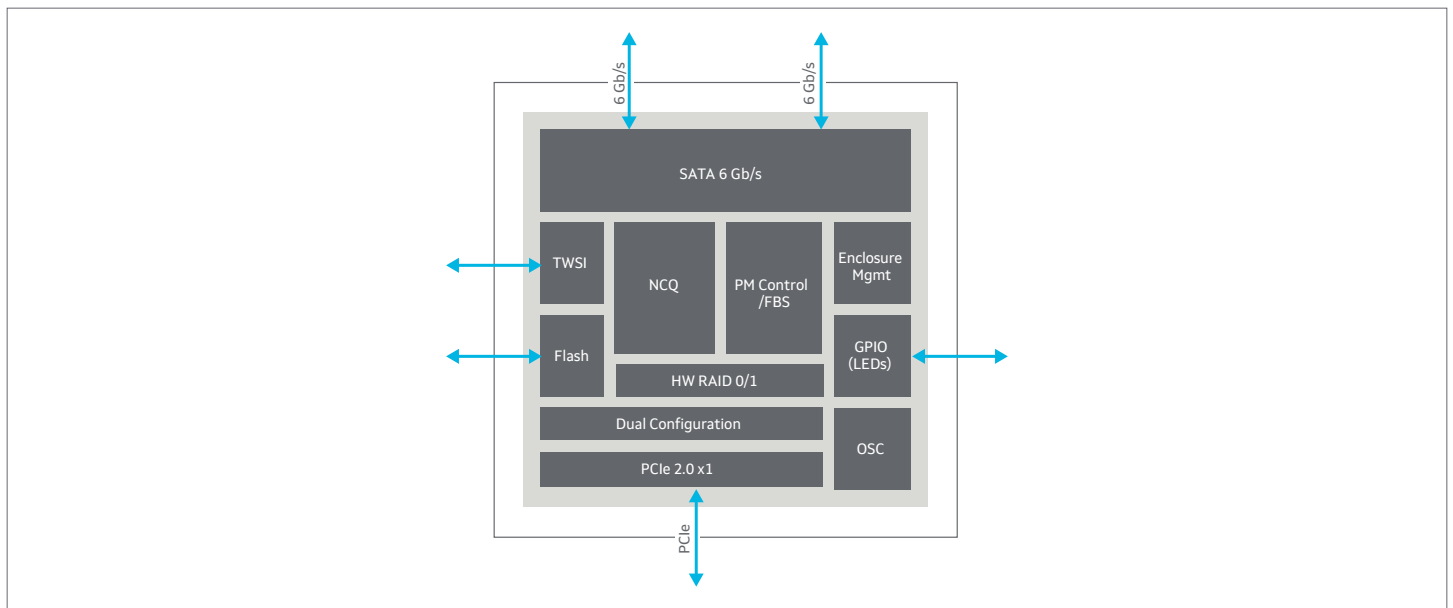


Figure 1. Block Diagram

Key Features

MODEL	88RC9548
• Marvell RAID	Yes, RAID 0/1
• Marvell HyperDuo Technology	Yes, please refer to HyperDuo product brief
• 6 Gb/s SATA Ports	2
• 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 Gb/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

(Continued)

MODEL	88RC9548
• AHCI Inbox Driver Support	Yes
• 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 Storage Utility (MSU) and driver
• FIS-Based Switching	Better performance with simultaneous commands
• On-Chip Oscillator	Low-cost crystal support
• Power	1W
• Package Size/Type	9mm×9mm / 76-pin QFN

*support customer's own RAID software

Target Applications

The Marvell 88SE9130 SATA host controller is ideal solution for RAID on motherboard (ROMB) and cost-effective host bus adapter (HBA). It allows PCIe-based host systems to control up to two SATA 6Gb/s drives and enables the Marvell proprietary HyperDuo technology. Embedded with ARM-based CPU makes this product a pure hardware RAID controller and enables inbox driver support without additional driver installation. The included Marvell Storage Utility (MSU) provides a user-friendly interface to end users while the Marvell RAID driver allows the drives to be used with SATA port multiplier for increased system performance and capacity.

Marvell HyperDuo offers a break-through embedded technology for new generation 6Gb/s SATA controllers, starting with the Marvell 88SE9130. Based on years of research and patent-pending software and hardware, HyperDuo enables 80%

of the performance of a solid state drive (SSD) at less than half the cost. Configured with one hard drive and one SSD, HyperDuo uses intelligent algorithms to automatically migrate hot data to SSD while enabling all data to be safely stored on a larger capacity SATA hard disk drive (HDD).

Fully programmable on-chip transceivers support SATA, eSATA, and xSATA at 6 Gb/s and backward compatible to 1.5 and 3 Gb/s. Built-in support for SATA Port Multipliers with FIS-based switching ensures maximum performance. The small footprint of the device and the very few required external components take up a minimal amount of board space, easing system design and reducing cost. In addition, embedded enclosure management via I2C protocol further reduces system cost.

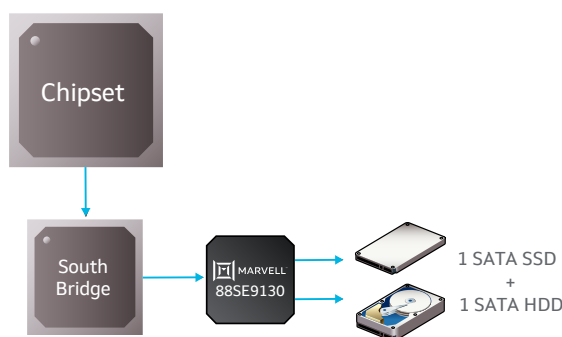


Figure 2. RAID-On-Motherboard Application

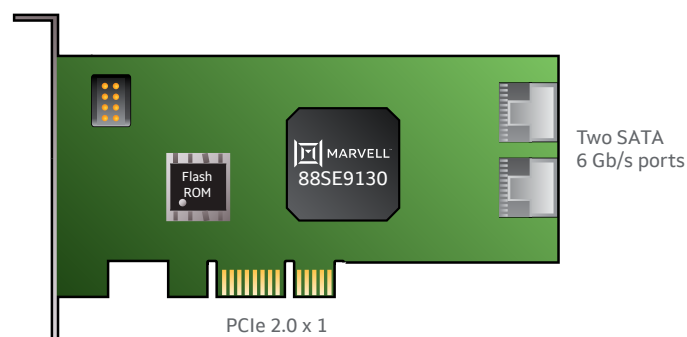


Figure 3. SATA RAID HBA Application



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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