

Marvell® 88SE9128/9120/9125

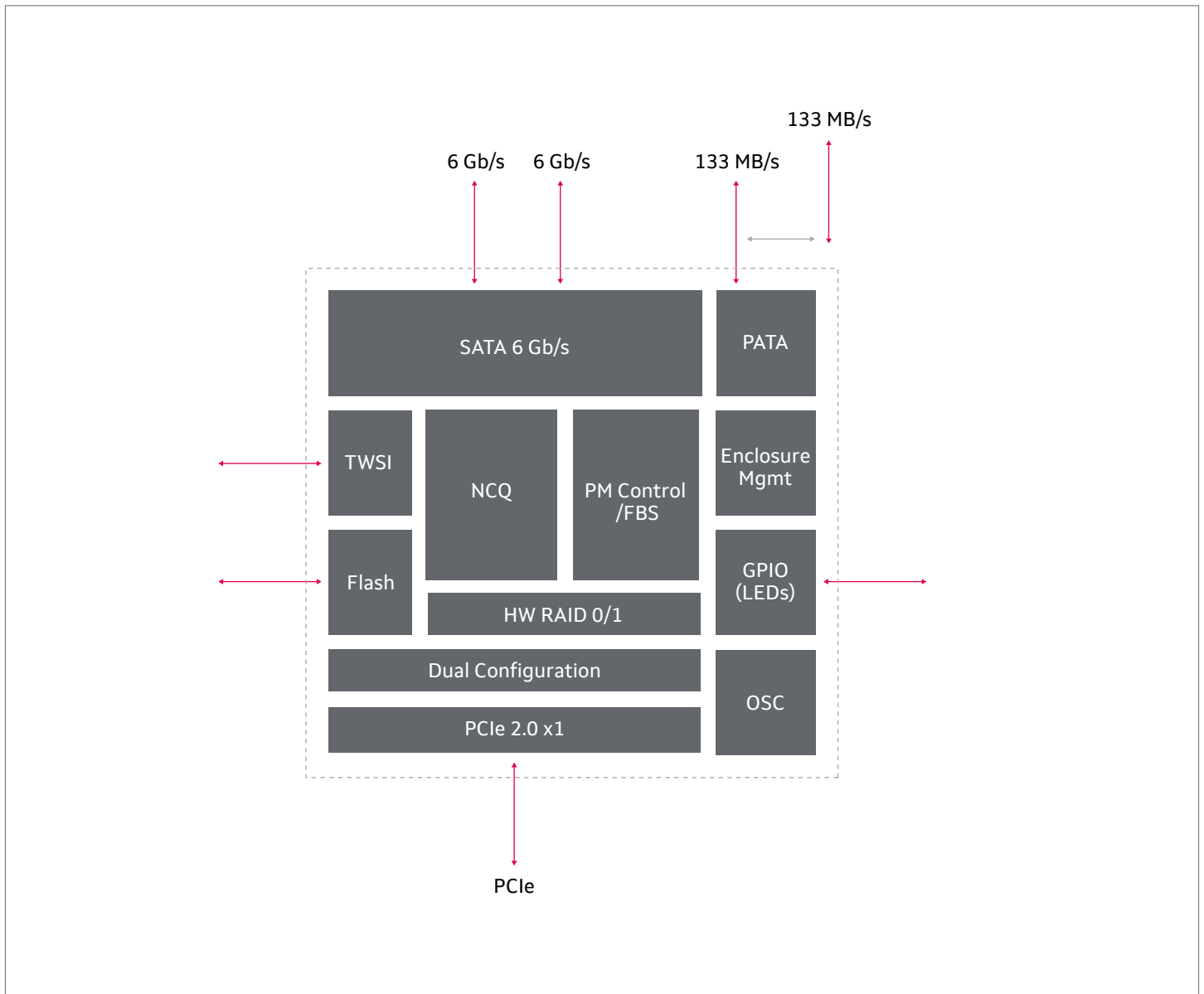
SATA 6Gb/s Host Controllers

Overview

The Marvell® 88SE91xx host controllers offer cost-effective solution of 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 5.0 Gb/s PCIe host

interface. In addition, it features hardware RAID to offload host CPU and AHCI interface for inbox driver support. A complete suite of RAID 0/1 software is provided, including the OS device driver, BIOS/FW, and a management utility.

Block Diagram



Key Features

Model	88SE9128	88SE9120	88SE9125
Marvell RAID Software	Yes	Non-RAID	N/A*
6 Gb/s SATA Ports	2	2	2
One 133 MBps PATA Port	Enhanced mode with ATAPI protocol support		No
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	No	Yes*
AHCI Inbox Driver Support	Yes	Yes	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 RAID utility (MRU) and driver	Yes	Yes
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

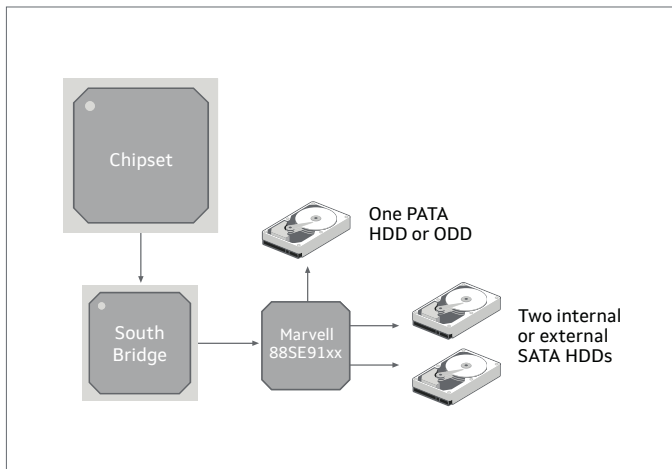
The Marvell 88SE91xx SATA/PATA host controllers are ideal solution for RAID on motherboard (ROMB) and cost-effective host bus adapter (HBA). It allows PCIe-based host systems to control up to two SATA 6Gb/s hard drives and/or one PATA hard drive. Embedded with ARM-based CPU makes this product a pure hardware RAID controller and enables inbox driver support without additional driver installation. The included Marvell RAID Utility (MRU) 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.

For embedded platforms, home NAS/DVR/set-top boxes, or HBA vendors to develop their own RAID software or use OS inbox drivers, the Marvell 88SE9125 is available to fit such applications.

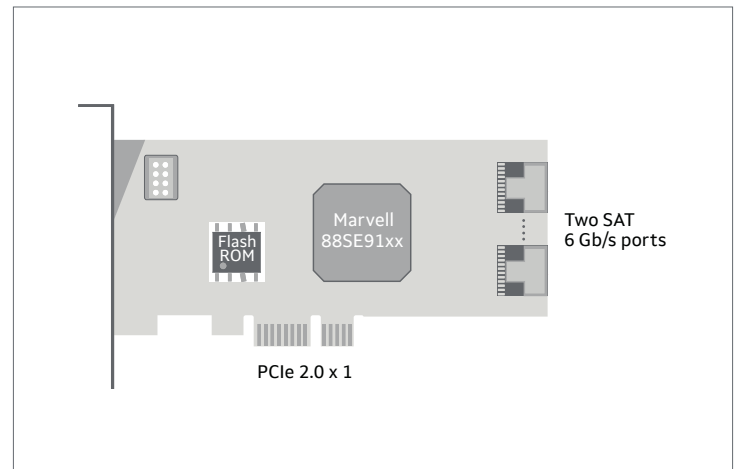
Fully programmable on-chip transceivers support SATA, eSATA, and xSATA at 6 Gb/s and backward compatible to 1.5 and 3 Gb/s. Built-in support for SATA Port Multipliers with FIS-based switching ensures maximum performance.

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.

RAID-On-Motherboard Application



SATA RAID HBA Application



Marvell first revolutionized the digital storage industry by moving information at speeds never thought possible. Today, that same breakthrough innovation remains at the heart of the company's storage, networking and connectivity solutions. With leading intellectual property and deep system-level knowledge, Marvell semiconductor solutions continue to transform the enterprise, cloud, automotive, industrial, and consumer markets. For more information, visit www.marvell.com.

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