

Marvell 88SS9187

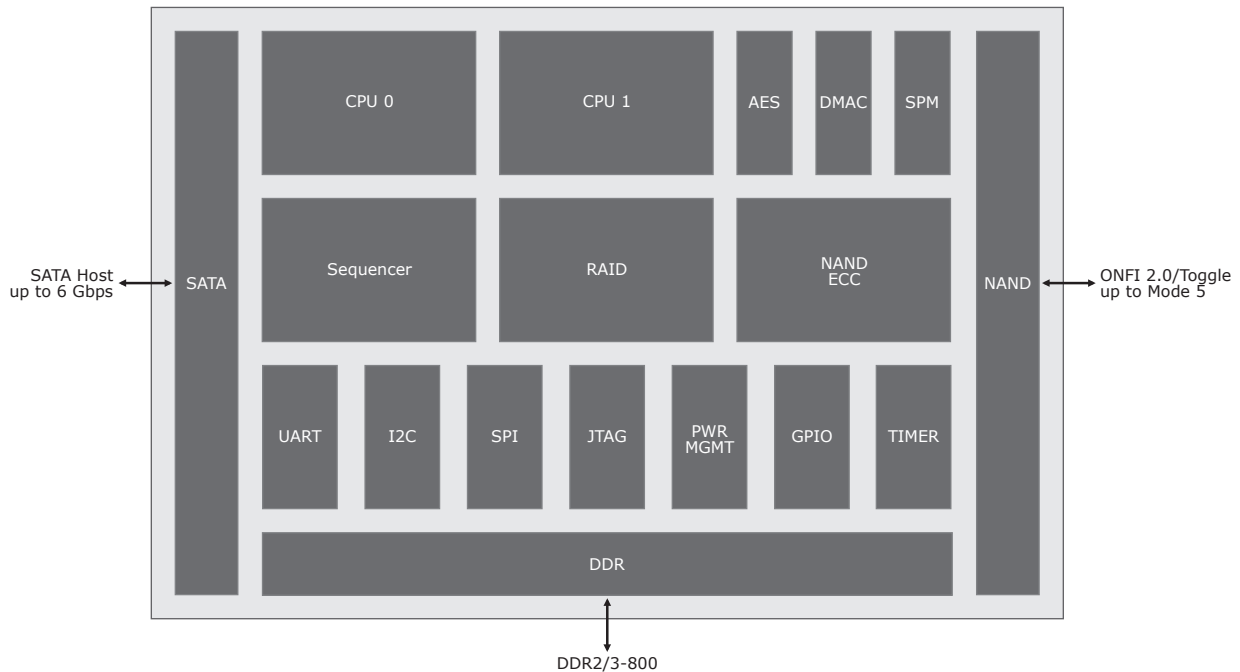
SSD 6 Gb/s SATA Controller



▶ PRODUCT OVERVIEW

The Marvell® 88SS9187 6 Gb/s SATA controller features an open, world-class architecture that supports industry standard, high-speed NAND flash interfaces up to 200 MB/s per channel. The 88SS9187 integrates a dual-core Marvell 88FR102 V5 CPU with shared DTCM and ITCM SRAM. The 88SS9187 also includes a high-performance ECC engine with adaptive read and write scheme. The on-chip RAID functionality supports the latest generation of NAND flash devices in the fast-growing solid state drive (SSD) markets. In addition to its breakthrough performance, the 88SS9187 features the industry's lowest active and stand-by power consumption at this performance level, meeting the requirements of the most demanding high-growth Ultrabook computer market. Leveraging Marvell's expertise in delivering high-performance, low cost and low power silicon solutions, the 88SS9187 brings leading-edge SSD acceleration technology to high-end computing devices for enterprise, mobile, and mainstream consumer markets.

▶ BLOCK DIAGRAM



Marvell 88SS9187

▶ KEY FEATURES AND BENEFITS

SPECIAL FEATURES	BENEFITS
<ul style="list-style-type: none">• Industry leading technologies	<ul style="list-style-type: none">• On-chip RAID technology for NAND devices with flexible customer firmware based algorithms for retiring defective NAND blocks, plane, die, or device• Provides the maximum sequential read performance for a SATA 6 Gb/s device• ~500 MBps of sequential write performance, even at dirty drive conditions• Includes best in-class random read and write IOPS
<ul style="list-style-type: none">• Flash Channel	<ul style="list-style-type: none">• Supports up to eight NAND flash channels• Hardware support offloads firmware from low-level NAND to reduce interrupt handling.• Supports programmable drive strengths of IOs for different NAND flash devices and application dependent configurations• Allows programming of T1-T7 to support different NAND flash devices
<ul style="list-style-type: none">• Native Embedded SATA (ESAT)	<ul style="list-style-type: none">• Supports ATA-7 commands• Supports EPP and T10 CRC checks• Hot plug capability• Supports spread spectrum clocking• Transport layer supports native command queuing and first party DMA• Built-in queued command SRAM (128 x 32), accessible from both CPU0 and CPU1
<ul style="list-style-type: none">• Buffer Manager	<ul style="list-style-type: none">• Supports DDR2-800 and DDR3-800• Allows up to 1 GB memory, allowing performance optimized mapping algorithms• 32-bit internal buffer data bus for higher bandwidth at a lower clock rate• Programmable DLL for DQS• Unlimited Link List• Supports hardware data streaming
<ul style="list-style-type: none">• Trusted Computing Group (TCG) Standards	<ul style="list-style-type: none">• OTP (One-Time Programmable) for secure drive configuration• AES (Advanced Encryption Standard) encryption hardware• Media re-encryption hardware support

▶ APPLICATIONS

The 88SS9187 delivers optimal solutions for a broad range of solid state drive (SSD) applications in the mobile and enterprise segments.

- Notebook and ultra-portable computing
- mSATA full-size and half-size applications
- Custom form factors for low-profile applications
- Cost-effective enterprise applications such as caching solutions

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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