Marvell 88i9422 Soleil SATA HDD Controller

6Gb/s SATA, Dual ARM On-Chip Processors, Encryption

PRODUCT OVERVIEW

The Marvell® 88i9422 is a high performance, low power HDD controller that is highly flexible, enabling optimization for a wide variety of storage environments. Advanced read/write channel technology with low density parity check (LDPC) makes Soleil the best choice for high density drives.

Two integrated ARM Cortex-R4 processors allow independent management of host and servo functions, enhancing overall HDD performance. A third dedicated secure processor supports AES encryption, protecting user data from unauthorized access.

The 6Gb/s SATA host interface supports Native Command Queuing, T10 CRC checking, and the ATA-8 command set, ensuring high performance, data integrity, and full compatibility with SATA hosts.
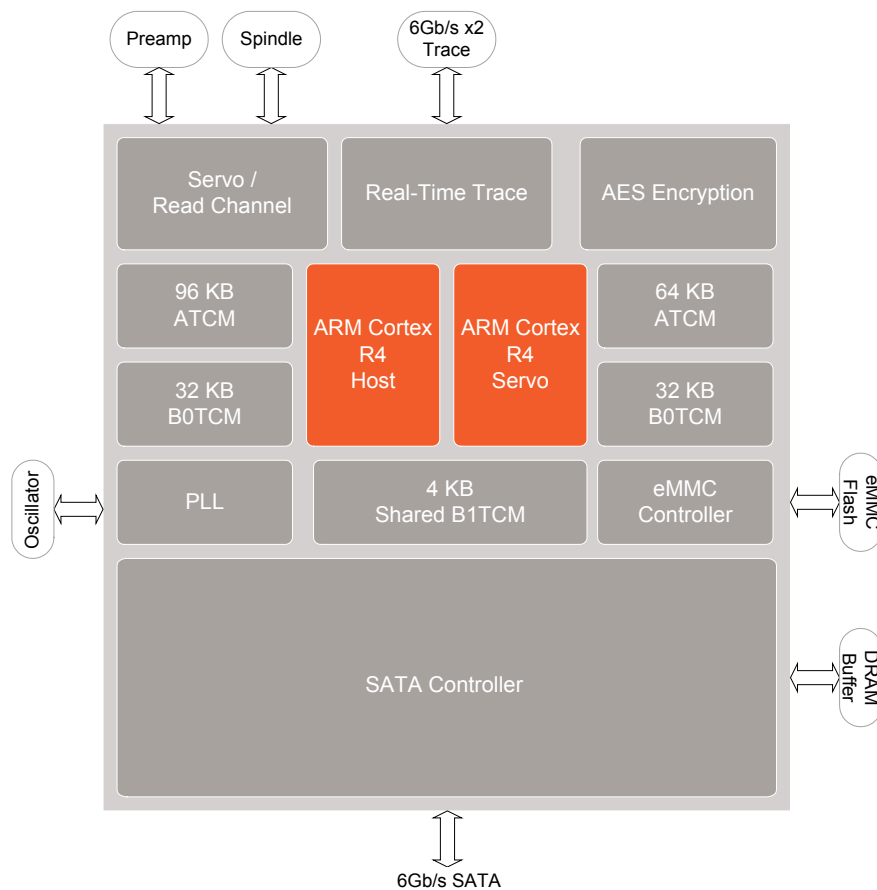
BLOCK DIAGRAM

Fig 1. Marvell 88i9422 HDD Controller

BENEFITS AND FEATURES

KEY BENEFITS	KEY FEATURES
• CPU	• Dual ARM Cortex R4 at 600MHZ • Separate DTCM and ITCM caches
• Host Interface	• 6Gb/s SATA interface • Native Command Queuing enhances performance • ATA-8 command support ensures compatibility • T10 CRC check provides data integrity
• Read/Write Channel	• Low-density parity check (LDPC) for high-density HDDs • RS-ECC-less iterative decoder with programmable noise predictive non-linear Viterbi detector for wide range of densities
• Data Protection	• 256 bit AES encryption of user data • Trusted Computing Group (TCG) compliant
• Package	• 231-ball 8x10mm BGA

TARGET APPLICATIONS

• Hard disk drives

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Marvell Semiconductor, Inc.

5488 Marvell Lane
Santa Clara, CA 95054

Phone 408.222.2500
www.marvell.com