Marvell® 88i9422 Soleil SATA HDD Controller

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

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

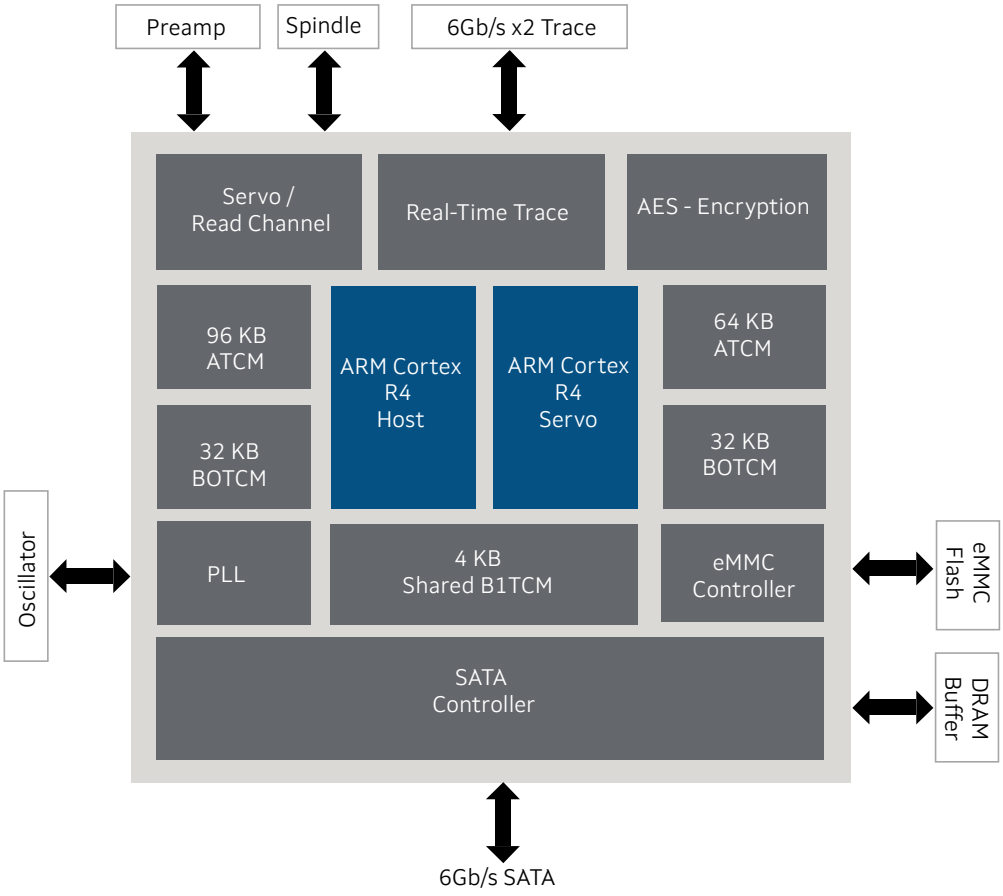

Fig 1. Marvell 88i9422 HDD Controller

Key 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

MARVELL

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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