Product Brief

Marvell® 88SE9485/9445

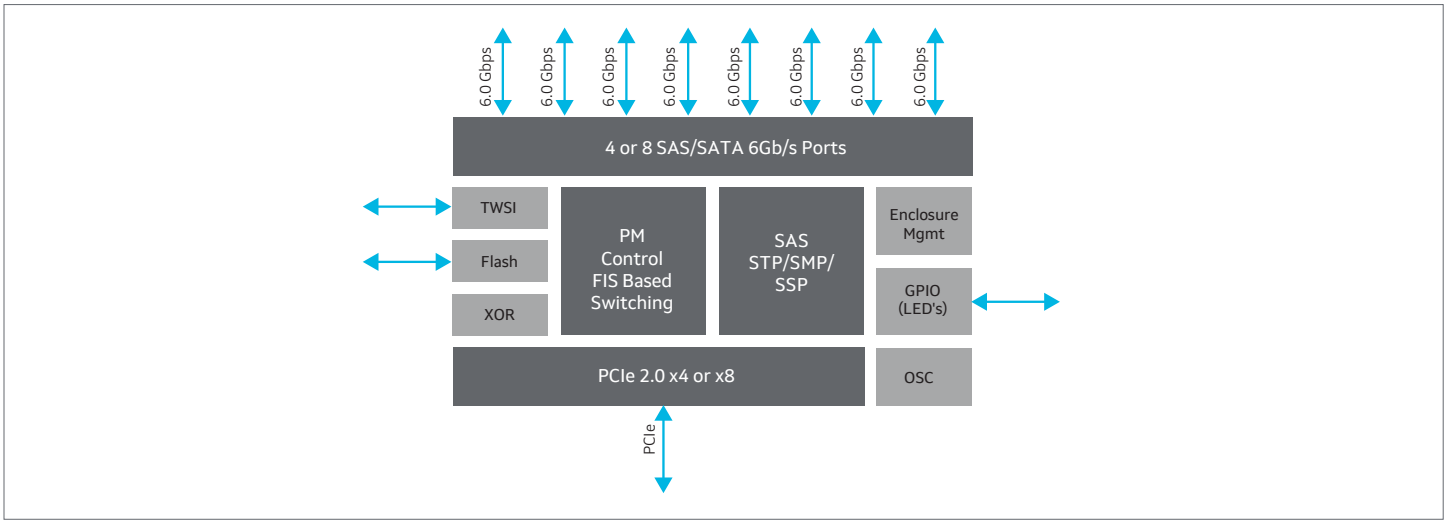
6Gb/s SAS/SATA IO Controllers

Overview

Marvell® offers a range of Serial Attached SCSI (SAS) host controller silicon and software solutions for desktops, workstations, servers and external storage systems. The controller silicon incorporates Marvell industry-leading 6 Gb/s SAS/Serial ATA (SATA) PHY technology and 5 GT/s PCI Express 2.0 (PCIe) PHY cores, which combine the best jitter performance and lowest per-port power consumption available today. Additionally, Marvell has invested heavily in the development of a full suite of high-performance, highly scalable, fault-tolerant RAID and storage management software.

The Marvell SAS 6Gb/s host controllers support four or eight SAS/SATA ports, including native 6Gb/s SATA interface support, and as many as eight lanes of PCIe 2.0 connectivity, delivering up to 4GB/s bandwidth to the host system for high-performance demanding applications. It incorporates a RAID offload engine to reduce CPU utilization when running at RAID configurations, thereby increasing overall system performance. The devices are offered with Windows/Linux non-RAID binary drivers and Linux open source driver for ease-of-use and fast product development.

Block Diagram



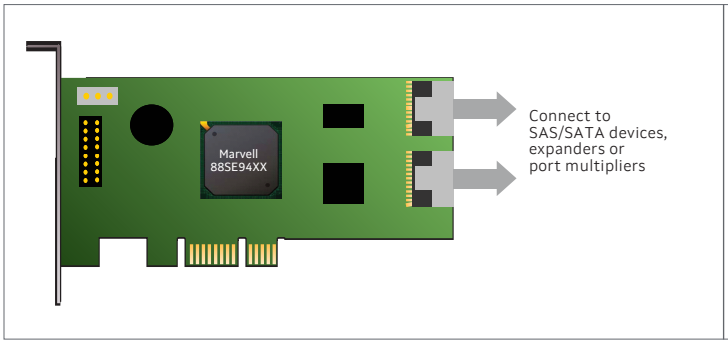


Figure 2. HBA (Host Bus Adapter) Application

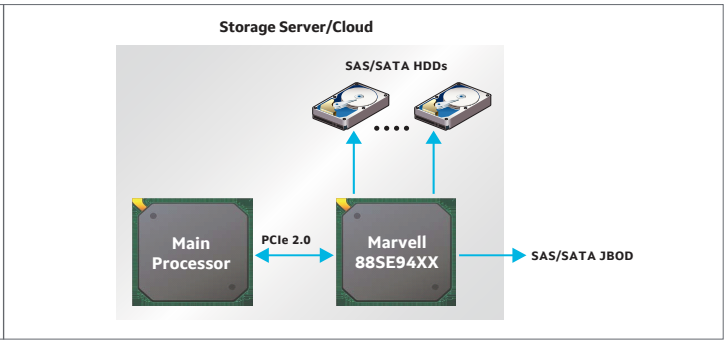


Figure 3. Storage Server/Cloud Storage Applications

Key Features

Model	88SE9485	88SE9445
6Gb/s SAS/SATA Ports	· 8	· 4
PCIe 2.0 Compliant (5 GT/s)	· X8	· X4
SATA 6Gb/s Compliant	· 6Gb/s SATA PHY with speed negotiation to backward support 1.5Gb/s and 3Gb/s	
Concurrent IOs per Chip	· 4096	· 2048
Native Command Queuing	· 32 outstanding commands per port for high performance	
eSATA Support	· Flexible SATA ports support internal or external SATA links	
Programmable Signaling Levels	· Gen1x, Gen2i, Gen2x and Gen 3i	
SAS 2.0 Compliant	· Support SSP, SMP, STP and wide port	
T10 End-to-End Data Protection	· Complete data path protection between host and HDD	
Enclosure Management	· SGPIO and SES-2 over I2C support	
Two-Wire Serial Interface (TWSI)	· Interface for external EEPROM containing configuration information	
GPIO Support	· Up to 34 GPIO pins	
SPI Flash Interface	· External Flash containing configuration data and/or boot code	
FIS-Based Switching	· Better performance with simultaneous connection	
Power Consumption	· 5.5W	· 3.8W
Package Size	· 23mm × 23mm	· 19mm x 19mm
Package Type	· 484-Ball HSBGA	· 481-Ball TFBGA

Target Applications

The Marvell SAS/SATA RAID controllers are flexible and powerful solutions for data storage. Fully programmable on-chip transceivers support SATA, eSATA, and xSATA at 1.5Gb/s, 3Gb/s and 6Gb/s, as well as SAS at 3Gb/s and 6Gb/s. Native SATA ports allow mixing of SAS and SATA drives and offer superior SATA compatibility as pure SATA controllers. Wide (4x to 8x) SAS ports provide a high-performance interconnect to SAS storage systems. Built-in support for SATA Port Multipliers with FIS-based switching ensures simultaneous connections with SATA drives to deliver better performance and creates a cost-effective solution for high-capacity SATA JBOD applications, like DAS, NAS, DVR, and NVR.

The small footprint of the device and the very few required external components takes up a minimal amount of board space, easing system design and reducing cost. Embedded enclosure management further reduces system cost. The lowest power consumption of any SAS 6Gb/s controllers in the world makes this device a perfect fit for electricity-sensitive data center deployment for cloud computing applications.

The Marvell 88SE9485/9445 is targeted for storage server, enclosure system, cloud computing and HBA applications. The device is available with a complete software development kit, including a programming register specification and open source Linux driver. It provides the flexibility for customers to develop their own RAID drivers or use with Marvell Non-RAID software packages to meet various market requirements.

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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Marvell_88SE9485/9445_PB Revised: 11/20