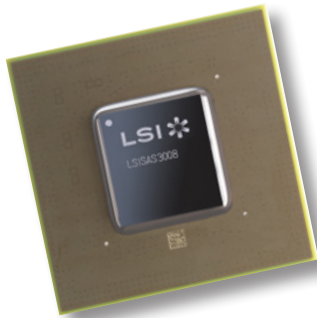


LSI SAS 3008

PCI Express® to 8-Port 12Gb/s SAS+SATA Controller



LSI SAS 3008

Extending Its RAID and SAS Technology Leadership, LSI Introduces Its Fourth Generation of SAS+SATA Controllers

LSI is a storage market leader in SAS, Enterprise RAID, and Application Acceleration, enabling the entire storage ecosystem. LSI offers the broadest SAS product portfolio in the industry including SAS ROCs, IO controllers, expanders, host bus adapters, RAID controller cards, switches, advanced software options, and application acceleration solutions. LSI solutions can provide the performance, connectivity, scalability, and manageability required for today's enterprise storage environments. LSI's proven SAS core has completed extensive stress and interoperability testing resulting in the industry's most robust, interoperable solution.

Overview

The LSI® SAS 3008 is the fourth generation of Serial Attached SCSI (SAS) controllers based on the industry-leading Fusion-MPT™ (Message Passing Technology) architecture. The LSI SAS 3008 integrates the latest enhancements in SAS and PCI Express technology.

The LSI SAS 3008 supports 8 PCIe® lanes and complies with the PCI Express 3.0 specification that extends the PCIe data rates up to 8.0 GT/s per lane, and is backwards compatible to the 5.0/2.5 GT/s data rate supported by PCIe 2.x., 1.x. It also incorporates enhancements such as Single Root I/O Virtualization (SR-IOV) with 16 virtual functions, End-to-End CRC (ECRC) with Advanced Error Reporting (AER) and the latest advancements in lane and polarity reversal, power management, hot plug support, and MSI/ MSI-X and legacy interrupt generation.

The eight-port controller device provides SAS data transfer rates of 12, 6, and 3Gb/s per lane, and SATA at 6 and 3Gb/s data transfer rates per lane. The device automatically negotiates between the speeds. Enhanced features are supported such as T-10 Data Protection Model for early detection of and recovery from data corruption, and Spread Spectrum Clocking (SSC) for EMI reduction. Additional features include LSI DataBolt™ Technology allowing users to take advantage of 12Gb/s speeds while utilizing existing 6Gb/s drives and backplanes.

The LSI SAS 3008 is ideal for the host or drive side connect for external storage controllers requiring a SAS/SATA interface. The LSI SAS 3008 can support up to 1,000 devices and 10,000 outstanding IOs without external RAM and can achieve over 1 million IOs per second.

The LSI SAS 3008 offered with LSI's Integrated RAID (IR) feature is a low cost, high performance RAID solution designed for blade, entry and mid-range servers that require redundancy and high availability but where a full featured RAID implementation is cost prohibitive or not desired. LSI's advanced Integrated RAID options include Integrated Mirroring (IM), which is RAID 1, Integrated Mirroring Enhanced (IME), known as RAID 1E, Integrated Striping (IS), which is RAID 0, and Integrated Mirroring and Striping (IMS) which is RAID 10. By simplifying the RAID

Applications

- Direct Attached SAS+SATA controller solutions for entry to mid-range servers
- Blade Servers
- External storage controllers requiring SAS+SATA interface for the host or drive side connect

Features

- Integrated RAID – RAID Levels 0, 1, 1E, and 10
 - Integrated MegaRAID® support available upon request
- High Performance IOP
- 12Gb/s SAS Interface
 - 8 port SAS+SATA controller
 - Supports 12, 6, and 3Gb/s SAS and 6, 3Gb/s SATA data transfer rates
 - Spread spectrum clocking
 - Supports SSP, SMP, STP and SATA protocols
 - SAS+SATA device support
 - Supports narrow and wide ports
 - T-10 data protection model
 - T-10 Optical Support
 - DataBolt Technology
 - Supports up to 1,000 devices
- PCI Express 3.0 Interface
 - Supports x8, x4, x2, x1 PCIe lanes at a transfer rate up to 8.0 GT/s per lane, full duplex
 - Lane and polarity reversal
 - SR-IOV (16 virtual functions)
 - Supports End-to-End CRC (ECRC) and Advanced Error Reporting (AER)
 - PCI Express hot plug support

Features (Continued)

- Advanced Power Management support
 - Variable PCIe bandwidth negotiation
- External memory interface support
 - Flash ROM
 - NVSRAM for Integrated Mirroring
- Communication Interfaces
 - I2C interfaces for enclosure management services
 - UART and Ethernet interface for debug
- SFF-8485 Compliant, SGPIO
- JTAG support

configuration options, Integrated RAID is easy to install and configure and meets the needs of most internal RAID requirements.

LSI provides a complete suite of industry standard operating system drivers. LSI also supports Virtual Operating Systems with device emulation and para-virtualization in support of the emerging SR-IOV technology.

Fusion-MPT Architecture Overview

Fusion-MPT architecture marks the next generation of I/O architecture designed to deliver the highest performance available today while reducing time to market, integration, and certification time. Fusion-MPT devices are high performance, cost-effective protocol controllers that represent the newest system-level integration technology in intelligent I/O processors from LSI.

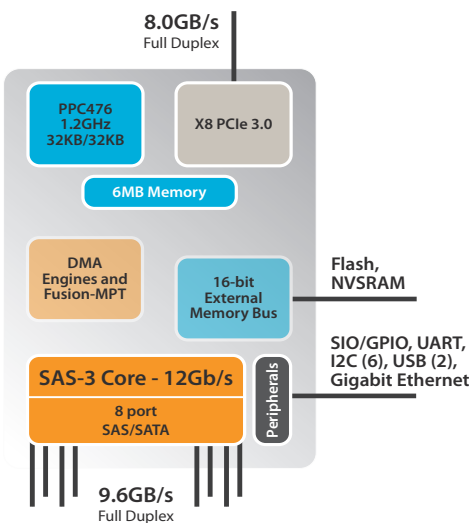


Figure 1: LSI SAS3008 Block Diagram

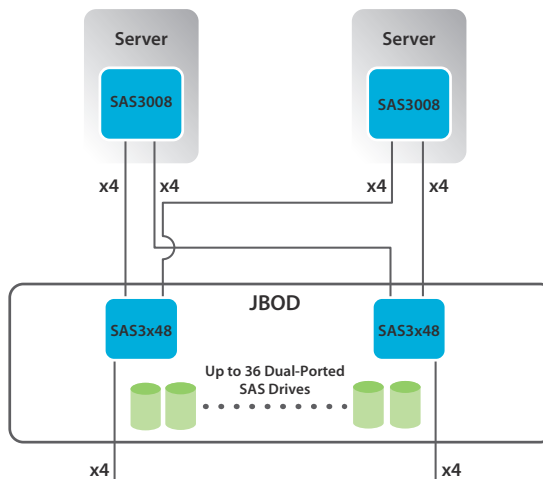


Figure 2: LSI SAS3008 Topology Diagram



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