LSI™

LSI SAS1078

Eight-Port PCI Express to 3Gb/s SAS ROC

Extending Its Industry SAS Leadership and Building on 20 years of SCSI and RAID Technology Experience, the LSI SAS1078 is LSI's 3rd Generation ROC

Overview

The LSI SAS1078 is the industry's first PCI Express to 3Gb/s SAS RAID-On-a-Chip (ROC) controller. The LSI SAS1078 integrates several industry-leading technologies, Fusion-MPT™ (Message Passing Technology), MegaRAID®, PCI Express, SAS, PowerPC, and advanced RAID assist. The eight-port ROC provides Serial Attached SCSI (SAS) and SATA data rates of 1.5 and 3Gb/s per port and is based on a LSI patented ROC architecture. The LSI SAS1078 integrates a high speed 64-bit, ECC protected DDR SDRAM interface, a hardware RAID assist engine for parity calculations, and supports an I^{2}O message unit, resulting in unsurpassed performance. It is powered by a state-of-the art PowerPC 440 RISC processor, which includes both instruction and data cache for additional performance boost. It is ideal for today's enterprise servers, leveraging existing SCSI infrastructure for investment protection and ease of migration and implementation. The LSI SAS1078 also is an ideal platform for entry-level external storage using SAS and/or SATA drives. You can implement a very capable, low-cost external SAS-to-SAS/SATA RAID controller 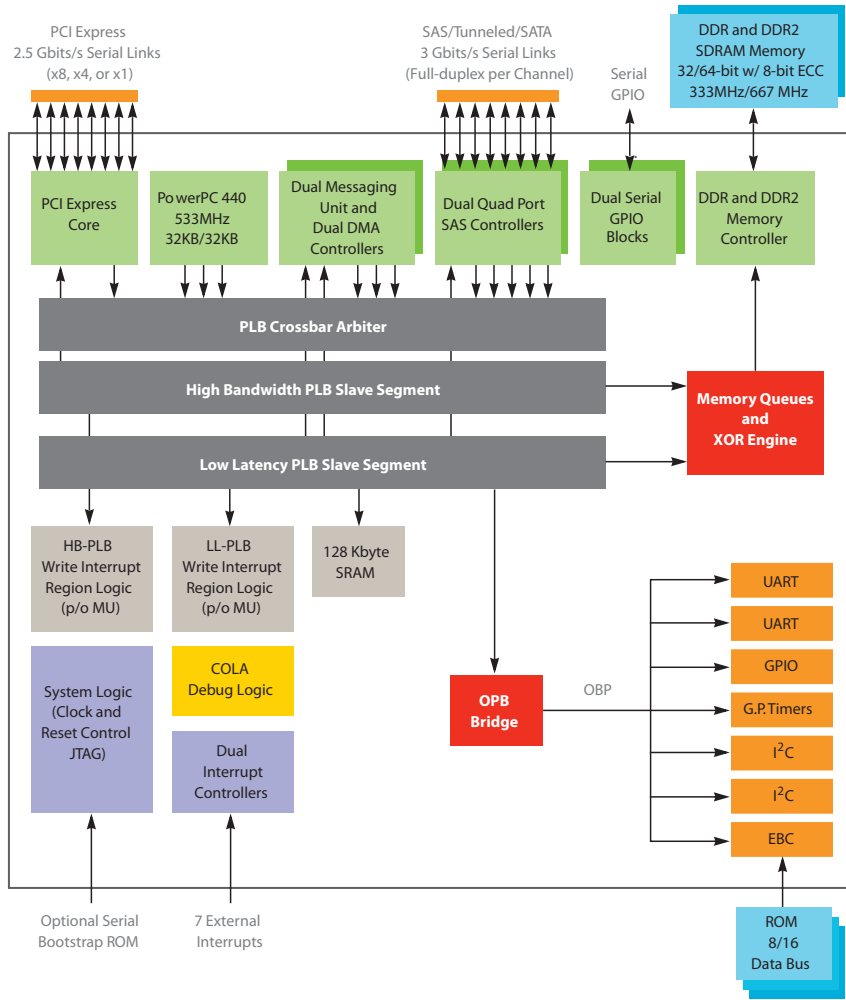in a single chip. With one additional chip you can implement a Fibre Channel RAID controller, an iSCSI RAID controller, or even a NAS controller.

The LSI SAS1078 complies with the PCI Express 1.0a specification and supports 8 PCI Express lanes at 2.5Gb/s, full duplex, for an aggregate bandwidth of up to 4GB/sec. The PCI Express architecture is an industry standard high-performance, general-purpose serial I/O interconnect utilizing a cost-effective, low-pin count interface offering high bandwidth per pin. For investment protection and ease of development migration, it retains PCI compatibility by using the established PCI software programming models, thus facilitating a smooth transition to new hardware while allowing software to evolve to take advantage of PCI Express features.

Fusion-MPT Architecture

LSI's Fusion-MPT architecture provides unparalleled performance, binary compatibility of host software with LSI's Ultra320 SCSI, Serial Attached SCSI, and Fibre Channel products, and significantly reduces software development time. With advanced architecture, the LSI product family can be quickly adapted to respond to emerging I/O interfaces.

Figure 1. LSI SAS1078 Controller Block Diagram