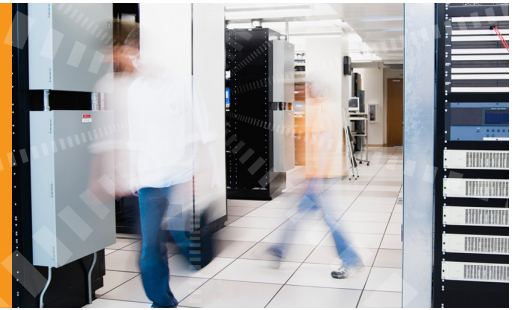![LSI logo](Storage. Networking. Accelerated.)

LSISAS1064E

PCI Express to 4-Port 3Gb/s SAS Controller

Extends 20 Years of SCSI Technology to Next Generation Product Platforms for High Performance, Scalability, Flexibility and RAID Capability.

Overview

The LSISAS1064E is a 4-port 3.0Gb/s Serial Attached SCSI (SAS) controller that is based on the Fusion-MPT (Message Passing Technology) architecture and provides an eight-lane PCI Express interface. The LSISAS1064E integrated controller provides 1.5 and 3.0Gb/s SAS and SATA data transfer rates per port and enables Integrated RAID solutions in storage environments including servers, workstations and blade servers. The LSISAS1064E is ideal for today's data centers and leverages existing SCSI infrastructure for investment protection.

Applications

- **Entry-level servers**
  - — 1U/2U rack mount servers
  - — Blade servers
- **Mid-range, high-end servers**
- **Workstations**
- **Storage subsystems**

Features

- **Supports 8 PCI Express lanes at a transfer rate up to 2.5Gb/s per lane, full duplex**
- **Automatically negotiates PCI Express link widths**
  - — **Supports x8, x4, x1 link widths**
- **Supports PCI Express hot plug**
- **Power management support**
- **PCI Express software is compatible with PCI and PCI-X software**
- **4-port SAS/SATA controller**
- **Supports 2, 3, or 4 PHY wide SAS port configurations**
- **Supports 1.5 and 3.0Gb/s SAS and SATA data transfer rates**
- **Port independent auto-negotiation**
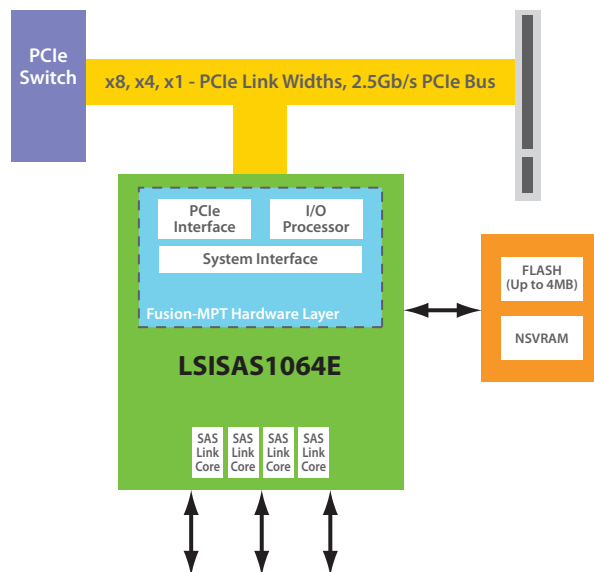- **Compatible with SATA target devices**

Figure 1. SAS Controller Block Diagram

The LSISAS1064E 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/s. The LSISAS1064E can be configured as a PCI Express x8, x4, or x1 device, supporting auto-negotiation among those link widths. For example, if the LSISAS1064E is configured for 8 lanes and is plugged into a x8 connector that is wired as a x4, the LSISAS1064E will automatically negotiate to a x4 link width. 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.
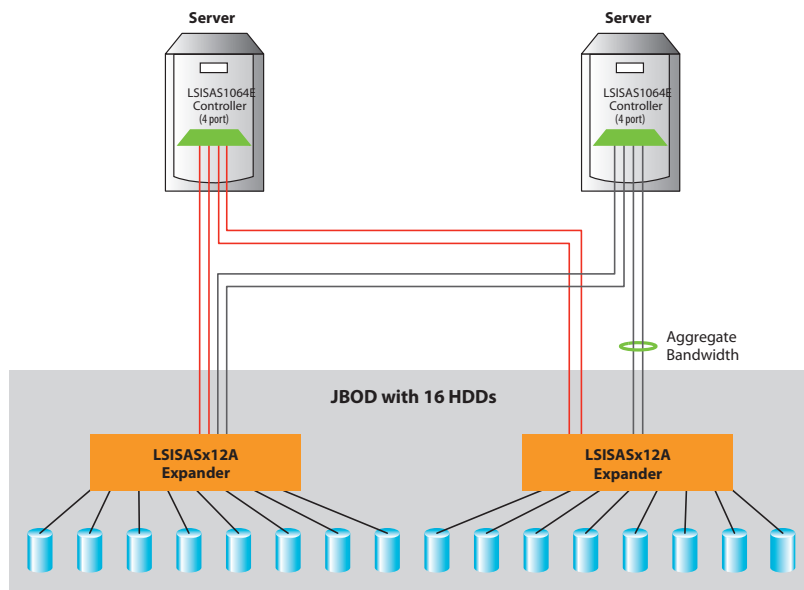
Figure 2. SAS Topology Offers Flexible Link Configuration and Redundancy

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.

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