



SteelVine™ Storage Processor

SATA to Dual eSATA Storage Processor

The SteelVine SiI5723 storage processor is a low-cost, single chip solution designed to be built into DVRs, PC motherboards and consumer electronics devices. It features a 3Gbps SATA host interface and two eSATA capable device ports. The SiI5723 features Silicon Image's proprietary eSATA based capacity expansion, which allows users to grow the capacity of an existing SteelVine enabled device by adding additional drives that appear to the host system as additional space in the existing SteelVine volume.

The SteelVine SiI5723 storage processor extends the capabilities of consumer electronics and DVR devices as well as PC motherboards by adding eSATA, capacity expansion, drive locking, single-button backup support and other advanced storage features on a single chip that easily integrates with existing designs via a SATA connection.

Drive locking helps protect users' data by allowing them to password 'lock' directly attached and cascaded drives. If a locked drive is detached from its assigned computer or cascade, the data on the drive will be inaccessible until it is reconnected and unlocked with the user supplied password.

SiI5723 storage processors support JBOD and the following RAID modes: FAST (RAID 0), SAFE (RAID 1) and BIG (Concatenation) as well as two

new multi-RAID modes, SAFE33, and SAFE50. Multi-RAID modes automatically create two virtual volumes, one SAFE and the other BIG, and are designed to balance the benefits of capacity and protection with only two drives. SAFE50 divides the physical space on each drive equally to create each virtual volume. In SAFE33, two-thirds of the available physical space is used to create the BIG partition, and the remaining one-third is used for the SAFE partition.

When adding two drives to the SiI5723, BIG, FAST, SAFE, SAFE33, SAFE50 and JBOD are supported. When drives are cascaded, BIG, SAFE, SAFE33 and SAFE50 are available. RAID mode configuration can be accomplished through a GUI, strap pins, or I²C for true software-free implementations.

SiI5723

Applications

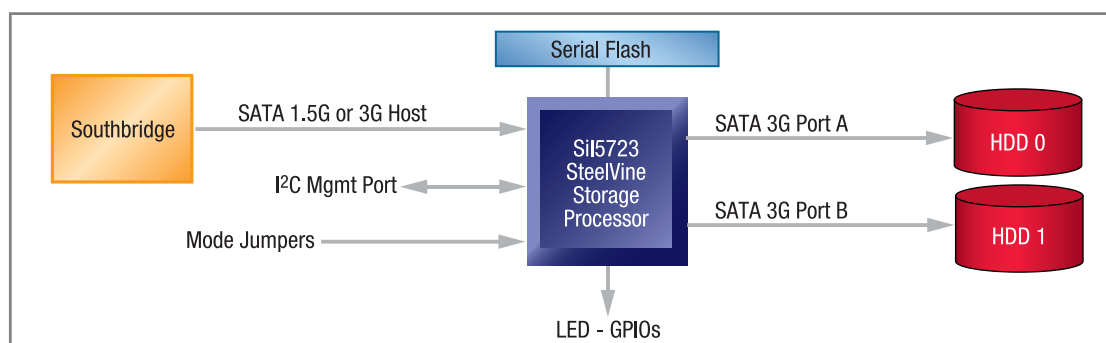
- DVR motherboards
- PC motherboards
- CE devices

Key Features

- eSATA capable device ports
- eSATA capacity expansion
- Drive locking
- Backup button
- RAID modes:
FAST (RAID 0),
SAFE (RAID 1),
SAFE33, SAFE50
BIG (Concatenation)



SiI5723 System Diagram



SiI5723 Features

eSATA-Based Capacity Expansion

With eSATA-based Capacity Expansion, the capacity of a SiI5723 enabled motherboard or appliance can be easily expanded either by adding additional drives directly to the processor, or by adding additional SteelVine enabled devices in a cascaded topology. When in BIG mode, these additional drives or devices will dynamically appear to the host system as increased storage capacity in an existing SteelVine volume.

Serial ATA Host Interface Features

- Serial ATA Gen2m compliance
- eSATA and 2-meter cable support
- 3 Gbps (auto-negotiates to 1.5 Gbps)
- Compatible with PM aware and non-PM aware hosts
- Allows multiple drives to be accessed by non-PM aware drive hosts
- Supports NCQ

Device Interface Features

- Serial ATA Gen2m compliance
- eSATA and 2-meter cable support
- 3 Gbps (auto-negotiates to 1.5 Gbps)
- Independent 8 KB FIFO / Port
- Power management capabilities
- Supports hot plug
- Supports ATAPI & asynchronous notification

Electrical Specifications

- GPIO pins: 9 GPI, 6 GPO
- 3.3V IO supply, 1.8V core supply
- 1.02 watts (typical)

Environmental

- Operating temperature: 0°C to 70°C
- Operating relative humidity: 5% to 80%
- Non-operating relative humidity: 5% to 95%

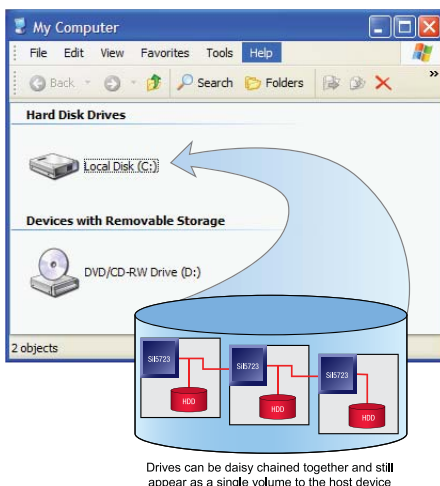
Physical Specifications

- 88-pin QFN
- 10mm x 10mm

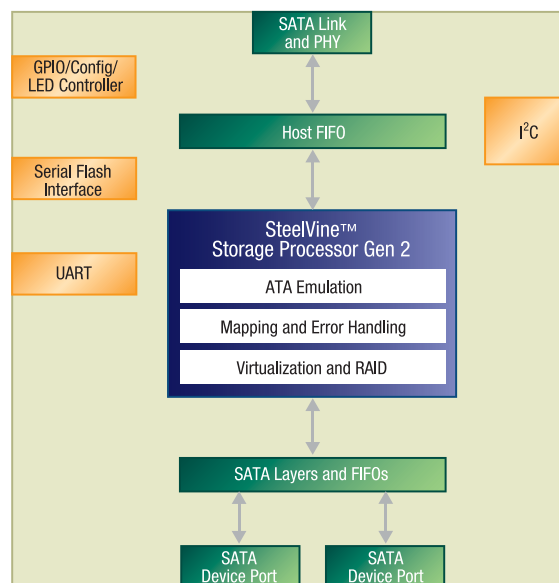
Additional SteelVine features

- No driver, BIOS or software required
- User API interface through I²C
- No drive reformatting on RAID change
- Email notification
- Optional XML API
- RAID 1 drive racing
- Optional SteelVine Manager GUI
- Mandatory SMART commands available
- SAFE later

Capacity Expansion Diagram



Block Diagram



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