



SiI 4723 SATA to 2-Port 3Gb/s SATA SteelVine Storage Processor



Applications

- External Storage Enclosures
- Backup Systems
- Embedded CE Applications
- Video Editing Systems
- Nearline DAS Storage
- Protected SOHO/SMB Storage

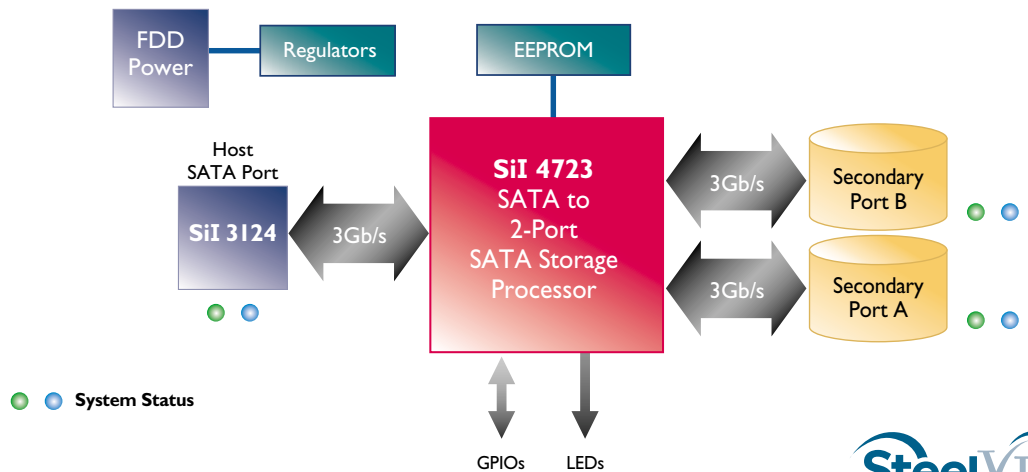


Building on the proven SteelVine™ Storage Architecture, the SiI 4723™ provides a new level of affordable storage. The SiI 4723 provides 3Gb/s SATA performance over the single host SATA link as well as the dual device SATA links, and can be configured for internal or external (eSATA) applications. Until now, transfer rates of 3Gb/s and hardware RAID features were only available to enterprise class applications. SiI 4723 allows OEMs and system integrators to offer high-end features for price-sensitive mass market applications.

Users of the SiI 4723 eliminate CPU loading by using the embedded RISC SteelVine storage processor. This innovative new technology provides approximately 6 times performance of USB 2.0 and approximately two times the performance of 1394b. The SiI 4723 embedded RISC storage processor was developed by Silicon Image and tuned for the needs of storage applications. This storage processor completely frees up the main CPU and provides the enhanced RAID mode completely from hardware. The device can be strapped in a single mode configuration to provide reliable data mirroring, data performance striping, or just plain capacity expansion.

The SiI 4723 modes are: 1) SAFE or Data Mirroring (RAID 1) – allows device to automatically copy primary hard drive without any CPU loading. The SiI 4723 provides automatic rebuild on device replacement and auto-failover, to eliminate any workflow interruptions. 2) FAST or Data Striping (RAID 0) – allows the device to performance stripe the drives, to provide maximum throughput to the direct attached PC/Server. 3) BIG or Drive Spanning – allows the device to make any two drives (same or different sizes) appear as one large drive to the host, for extra capacity (also called concatenation). 4) JBOD or Port Multiplier—this allows the direct attached PC/Server to see each drive as single drives (PM mode requires a host that is PM-aware.)

The SiI 4723 works with any Serial ATA compliant host port, although more functionality is supported when it is connected to a Port Multiplier Aware host controller such as SiI 3124™ or SiI 3132™. For more details, please contact your local Silicon Image sales representative.





SiI 4723 Features

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Host Port Features

- Supports one SATA host port, 3Gb/s
- Hot-plug support
- Tunneling mode for HDD firmware download
- Supports Asynchronous Notification
- SATA Port Multiplier spec. compliant
- Supports PM-aware host and non-PM aware
- Four detailed system/host status LEDs
- eSATA signal level support (1m and 2m PHY compliant)

Device Port Features

- Two SATA device ports, 3Gb/s
- Complete SATA Port Multiplier function
- Hot Plug support
- Compatible with SATA NCQ drives
- Two LEDs for detailed status per port
- eSATA signal level support (1m and 2m PHY compliant)

Data Protection Features

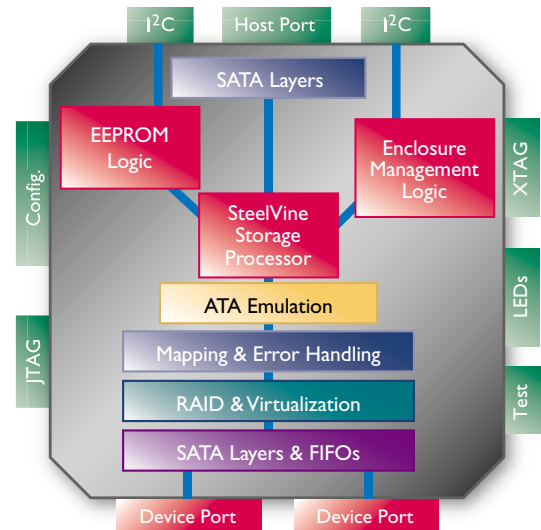
- Automatic-Mirroring (RAID 1 mode)
- Self-healing data storage (Auto-Rebuild)
- Power-failure resume (Auto-Rebuild-Resume)
- Double protection (Auto-Rebuild-Verify)
- Minimizes Down Time (Automatic-Failover)
- 0% host CPU loading during rebuild
- Fast rebuild of 100GB/hour
- Automatic Configuration

RAID Level Modes

- FAST/RAID 0
- SAFE/RAID 1
- BIG/Spanning
- JBOD/Port Multiplier

System Features

- Works without GUI (LEDs and Jumpers)
- Works without driver or agent running
- Works without BIOS updates
- System/host status LEDs (four)



- Drive-failure alarm status pin
- Configuration pins for RAID mode changes
- Enclosure management bus (I²C bus)
- Drive Performance Aggregation (RAID 0)
- Supports automatic bad sector remapping
- OS-agnostic operation
- Maximum of 4 hard drives*
- Bootable array and stagger spin-ups
- Mandatory SMART commands support
- ATAPI device support in PM mode
- Max. performance greater than 110MBps (RAID 0)
- Spread spectrum clocking w/SSC clock
- Event logging from GUI
- Remote monitoring and management
- Email notification**
- Manage multiple devices via GUI
- Field-upgradeable firmware
- Drive roaming on device ports
- 16 programmable GPIOs
- JTAG boundary scan and BIST support

Added Features with PM-Aware Host

When the SiI 4723 is used with a PM-aware host it can support the following additional features:

- JBOD/Port Multiplier requires PM-aware host
- Multi-Arrays per drive with PM-aware host
- Drive splitting with PM-aware hosts
- Mirror splitting or Multi-RAID partitions
- Maximum of 4 hard drives*

Power and Package

- 364 HSBGA
- 1.5 Watts (typical)
- CMOS 0.18um

Hardware and OS Support

- SiI 4723 reference design board (PB4723)
- Windows XP, 2000, 2003, and Mac OS X 10.4, and Linux RedHat, Fedora, SuSE

later (see website for more updated OS su

Documentation and Software Development Kit (CP4723001)

- SiI 4723 data sheet
- PB 4723 functional specification
- PB 4723 reference board schematics and design files
- Mgmt Graphical User Interface (GUI)
- API programmers guide for custom developers
- DOS HDD firmware download utility
- SiI 4723 firmware download utility
- Example XML configuration scripts

* Requires three SiI 4723 devices, and each device must be in a virtual mode.

**Coming soon