

LSI53C860E SCSI CONTROLLER

The Communications Company™

PCI-ULTRA SCSI CONTROLLER



OVERVIEW

The LSI53C860E controller supports Ultra SCSI transfers, enabling the chip to transfer SCSI data at up to 20 MBps across an 8-bit SCSI bus. Ultra SCSI doubles the synchronous transfer rates of Fast SCSI. The advantage of LSI Logic's Ultra SCSI is that it significantly improves SCSI bandwidth, while preserving existing hardware and software investments. The LSI53C860E provides full SCSI-2 capabilities, including command queuing, and features TolerANT® SCSI driver and receiver technology, for reliable operation in all cabling environments. It is designed to connect to the Peripheral Component Interconnect (PCI) bus, performing burst transfers on the bus in excess of 110 MBps.

The LSI53C860E controller and Storage Device Management System (SDMS™) software, provide a total Ultra SCSI solution in PC and workstation environments. LSI Logic's SDMS software package supports the entire LSI53C8XX family of PCI to SCSI controllers, plus a wide range of SCSI peripheral devices.

PCI performance enhancements on the LSI53C860E include the SCRIPTS (the LSI Logic developed SCSI programming language) instruction prefetch, which when enabled, permits fetching four or eight double words of instructions or instruction operands. By pre-fetching instructions, the LSI53C860E makes more efficient use of the PCI system bus by reducing the PCI bus overhead requirements. In addition, the part supports the PCI Cache Line Size Register with programmable alignment logic and automatic burst sizing, allowing system architects to maximize their cache-based system performance

BENEFITS

- Ultra SCSI technology doubles the I/O bandwidth to 20 MBps
- Builds upon proven technology — A pin-for-pin replacement for the industry standard LSI53C810 and LSI53C810AE
- Easy migration minimizes schedule and design risk
- Provides new features for enhanced PCI performance and flexibility

FEATURES

- Performs high-speed single-ended SCSI bus transfers up to:
 - 20 MBps synchronous Ultra SCSI transfers
 - 7 MBps asynchronous transfers
- SCRIPTS™ Instruction Prefetch
- Load and Store instruction
- Support for PCI Cache Line Size Register
- Functions as full 32-bit PCI DMA bus master
- Bursts 2, 4, 8, or 16 dwords of data across PCI bus using 80-byte DMA FIFO

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through efficient use of PCI Memory Read Line, Memory Read Multiple, and Memory Write and Invalidate access cycles. Other selectable features that can be activated include:

- IRQ disable, allowing users to better control the times when their system can receive interrupts.
- SCSI Selected as ID register, improving SCRIPTS coding and system tracking.
- Load and Store instruction allows the programmer a new, efficient instruction option to load data directly to/from memory and from/to an internal register, reducing the number of I/O instructions to implement a SCRIPTS task.

EASE-OF-USE FEATURES

- Pin-for-pin replacement for LSI53C810 and LSI53C810AE devices
- Minimal software and hardware modification required for Ultra SCSI
- Compact 100-pin PQFP reduces board space requirements
- Direct PCI to SCSI connection
- Compiler-compatible with existing LSI53C7XX and LSI53C8XX SCRIPTS
- Fully supported by SDMS software for complete PC-based operating system support

FLEXIBILITY FEATURES

- Selectable IRQ disable
- SCSI Selected as ID register
- Support for both 3.3 volt and 5 volt PCI interfaces
- High-level programming interface (SCSI SCRIPTS)
- Allows tailored SCSI sequences to be executed from main memory
- Accommodates changes in the logical I/O interface definition
- Low-level access to all registers and all SCSI bus signals

COMPATIBILITY FEATURES

- Full complement of LSI Logic SCSI SCRIPTS PCI development tools available
- BIOS and driver support for hard disk, tape, CD-ROM, and removable media peripherals for all of the major operating systems, including:
 - Windows® NT® 4.0
 - Windows® 95/98
 - DOS
 - Linux®
 - NetWare®
 - SCO UnixWare™
 - OS/2 Warp
 - Solaris®

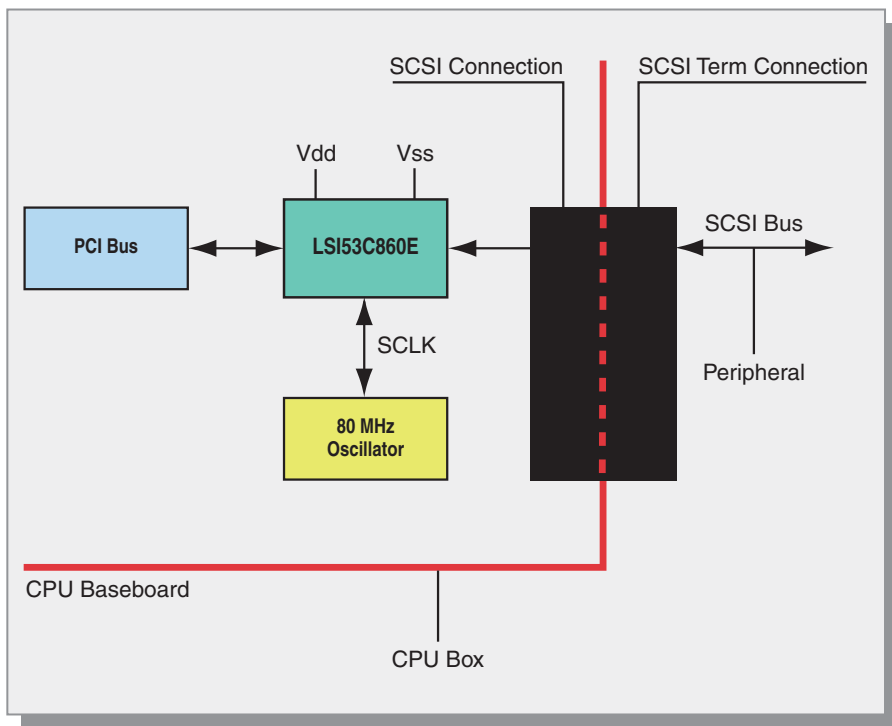


Figure 1: LSI53C860E system diagram

LSI53C860E SCSI Controller

For more information please visit
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<http://storageio.lsilogic.com>

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Order No. S20034
2/01-500 – Printed in USA

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