

LSI53C875E SCSI CONTROLLER

The Communications Company™

PCI-ULTRA SCSI CONTROLLER



OVERVIEW

The LSI53C875E controller supports Ultra SCSI transfers, enabling the chip to transfer SCSI data at up to 40 MBps across a 16-bit bus. Ultra SCSI is an extension of the SCSI-3 standard that expands the bandwidth of the SCSI bus and allows faster synchronous SCSI transfer rates—approximately double the synchronous transfer rates of fast SCSI-2. The LSI53C875E provides full SCSI-2 capabilities and reduces the requirements for system BIOS support with a local memory interface. It also features LSI Logic TolerANT® SCSI driver and receiver technology, for reliable operation in all cabling environments. It is designed to connect gluelessly to the Peripheral Component Interconnect (PCI) bus, and supports PCI extended access cycles, enabling the system architect to take advantage of PCI's performance potential.

The LSI53C875E and 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.

Included in the performance-enhancing features on the LSI53C875E is a 4 KB static RAM for SCRIPTS (the LSI Logic developed SCSI programming language) instruction storage, which allows tailored SCSI sequences to be executed locally. A 536-byte DMA FIFO increases system performance by allowing burst lengths of up to 128 transfers. Other features include:

- SCRIPTS instruction prefetch which permits fetching four or eight double words of instructions or instruction operands.
- Support for PCI extended access cycles: Memory Read Multiple, Memory Read Line, and Memory Write and Invalidate.

BENEFITS

- Pin-for-pin replacement for LSI53C825 and LSI53C825AE devices
- Minimal software and hardware modifications required for Ultra SCSI support
- Compact 160-pin PQFP reduces board space requirements (LSI53C875E, LSI53C875JE)
- Alternative 169 BGA package (LSI53C875JBE)
- Direct PCI to SCSI connection
- Fully supported by SDMS software for complete PC-based operating system support

FEATURES

- Performs wide high-speed SCSI bus transfers in single-ended and differential mode up to:
 - 40 MBps synchronous (Ultra)
 - 14 MBps asynchronous
- SCRIPTS™ Instruction Prefetch
- 536-byte buffer allows burst length of up to 128 transfers
- Load and store instruction
- 4 KB static RAM for SCRIPTS instruction storage
- 32 additional scratchpad registers for user-defined functions

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LSI53C875E SCSI Controller

- Selectable IRQ disable, allowing system designers to customize their system interface.
- SCSI Selected as ID register, improving SCRIPTS coding and system tracking.
- Load and Store instruction allows the programmer an 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.

FLEXIBILITY FEATURES

- Supports single-ended and differential modes
- 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

- Compiler-compatible with existing LSI53C7XX and LSI53C8XX SCRIPTS
- Full complement of LSI Logic SCSI SCRIPTS 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®

RELATED LSI53C875E PRODUCTS

- LSI53C875JE — the LSI53C875E with JTAG availability and a 160-pin PQFP package
- LSI53C875JBE — the LSI53C875E with a 169 BGA package
- LSI8751SPE host adapter
- LSI8751D host adapter

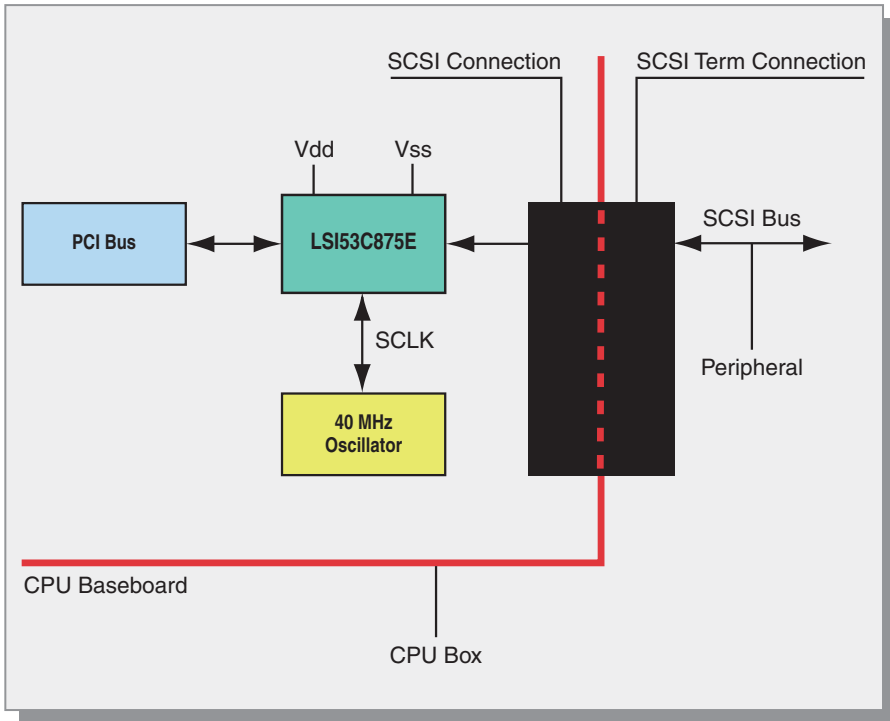


Figure 1: LSI53C875E system diagram

LSI53C875E SCSI Controller

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

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