LSI53C895A
ULTRA2 SCSI CONTROLLER

PCI-ULTRA2 SCSI CONTROLLER OVERVIEW

The LSI53C895A PCI-Ultra2 SCSI Controller is designed to meet the demand for higher performance and integration in the server and workstation market. A drop-in replacement for the industry-standard LSI53C895 PCI-Ultra2 SCSI Controller, the LSI53C895A adds many features and benefits, including increased performance.

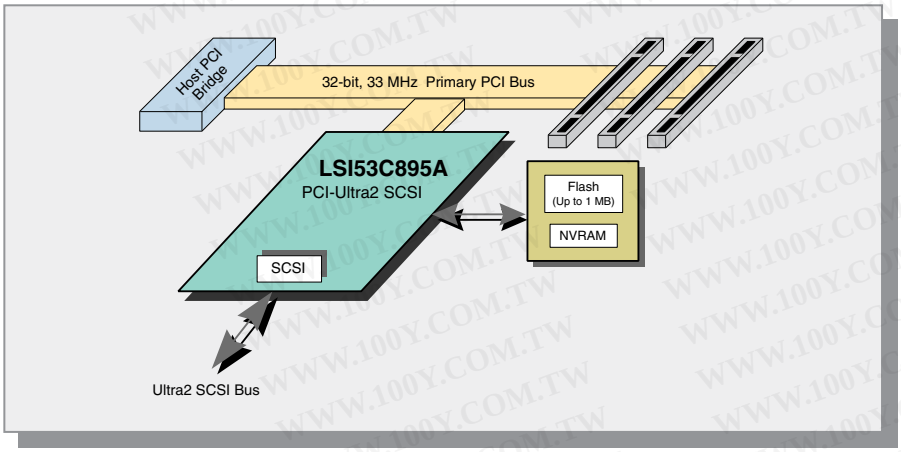

Figure 1. SCSI on the motherboard

APPLICATIONS

- *Servers* – Internet/Intranet network, video, e-mail, printing, database management, etc.
- *Workstations* – CAD/CAM, industrial simulation, etc.
- *Host attach for RAID and JBOD mass storage subsystems* – Anywhere high speed data access is required

BENEFITS

- Reduces CPU utilization by handling data phase mismatches on the SCSI bus
- Supports third-party RAID controllers via SCSI Interrupt Steering Logic (SISL) alternate interrupt routing
- Minimizes risk for Microsoft® system certification
- Enhances migration from LSI53C895

LSI LOGIC®

The Communications Company™

LSI53C895A Ultra2 SCSI Controller

KEY FEATURES

- Pin compatible replacement for LSI53C895
  - Op code (software) compatible
- 32-bit, 33 MHz PCI interface
  - 64-bit addressing DAC supported
  - Compliant with PCI 2.2, PCI Hot Plug, PCI Power Management 1.1 and PC99
- Wide Ultra2 SCSI supports up to 80 MBps transfer rate
- Integrated LVDlink™ universal transceivers
- Wide range of signaling environments
  - Low Voltage Differential (LVD)
  - High Voltage Differential (HVD)
  - Single-ended (SE)
- 8 KB internal SCRIPTS™ RAM
- 944-byte DMA FIFO for efficient PCI bursts
- 40 MHz SCSI clock
- IEEE 1149.1 JTAG boundary scan
- SCSI Interrupt Steering Logic (SISL) provides alternate interrupt routing for RAID applications

HARDWARE/SOFTWARE FEATURES

Compatibility with LSI53C895 Controller

The LSI53C895A is pin compatible with the LSI53C895 PCI-Ultra2 SCSI controller, which is the proven, industry standard in the Ultra2 SCSI market today. With minor changes to pull-up resistor options, the LSI53C895A can be dropped into an existing LSI53C895 board, providing enhanced features while minimizing risk.

PCI Interface

The host PCI interface complies with PCI Local Bus Specification Revision 2.1, and implements a 32-bit/33 MHz PCI bus. Additionally, support for 64-bit addressing is provided through DAC.

The LSI53C895A complies with PCI Power Management Interface Specification, Revision 1.1 and PC99, supporting power states DO, DI, D2, D3hot, and D3cold, power management capabilities registers in PCI configuration space, and programmable values for PCI Subsystem Vendor ID and Subsystem ID. Extended access cycles (Memory Read Line, Memory Read Multiple, and Memory Write and Invalidate) are also supported.

SCSI Processor

The LSI53C895A SCSI controller supports wide Ultra2 SCSI synchronous transfer rates up to 80 MBps on a LVD SCSI bus. Integrated LVDlink transceivers support both LVD and single-ended signals with no external transceivers required, alternatively, HVD signaling is supported with external transceivers. Fast SCSI, Ultra SCSI, and Ultra2 SCSI are all supported by the LSI53C895A, providing maximum flexibility.

An on-chip SCSI clock quadrupler allows the chip to achieve Ultra2 SCSI transfer rates with an input frequency of 40 MHz.

8 KB of internal RAM for SCRIPTS instruction storage allow accesses to remain internal, reducing the time spent on the PCI bus. A 944-byte DMA FIFO allows the device to efficiently burst up to 512 bytes across the PCI bus. SCSI bus phase mismatches are handled in SCRIPTS, reducing CPU utilization.

MEMORY INTERFACES

The LSI53C895A supports up to I MB of external expansion ROM through a parallel interface, for add-in card designs. For ease of software development and field upgrades of the ROM, the interface supports local programming of FLASH memory. A serial 2-wire interface provides a connection to an external serial EEPROM for storing Subsystem Vendor ID and Subsystem ID.

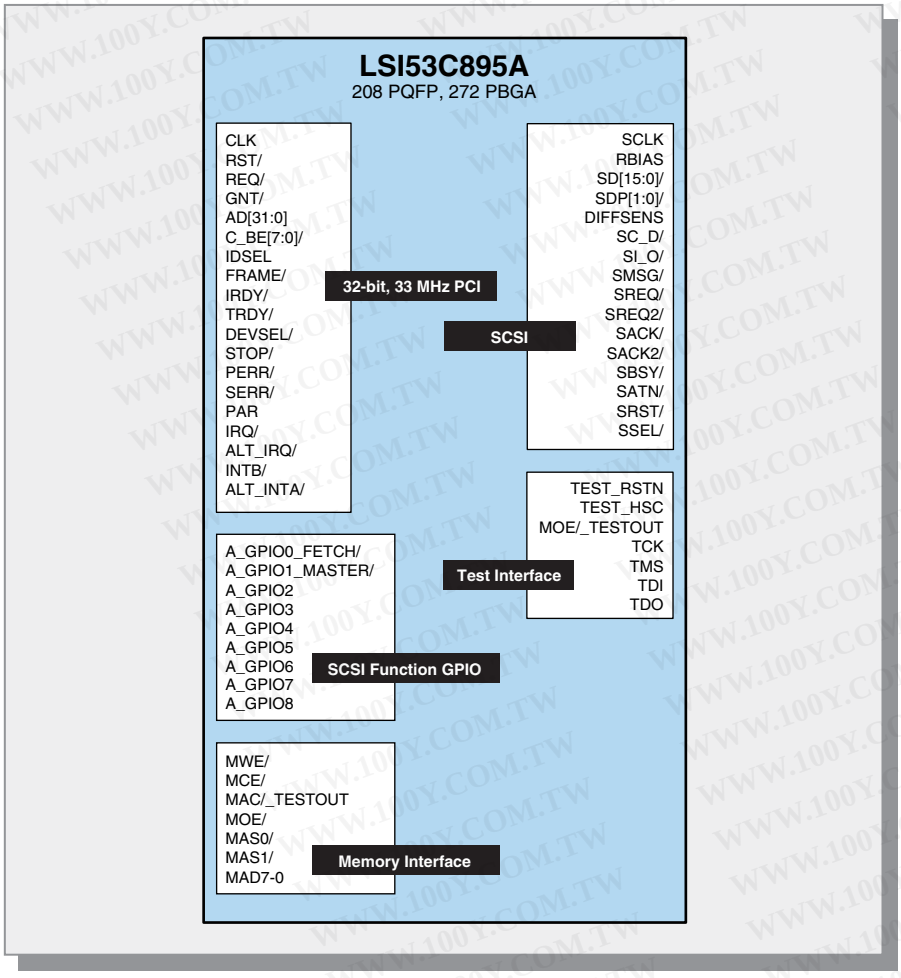

Figure 2. LSI53C895A functional signal grouping

KEY FEATURES (Continued)

- Supports LSI Logic's Nextreme™ RAID
- Flash and local memory interface
- Packaged in a 208 PQFP or 272 PBGA
- Supported in Storage Device Management System (SDMS) release 4.6
  - Full operating system support:
    - Windows® NT® 4.0, 95/98 and 2000
    - Linux™
    - Solaris™
    - UnixWare™
    - Novell® NetWare®
    - OS/2
- DMI 2.0 Server Management support for Windows NT, NetWare and UnixWare

SOFTWARE

SDMS software was designed using a modular approach for quick development, validation and support for new OS versions as well as the LSI53C895A. To round out the SDMS solution, LSI Logic also provides installation and configuration utilities, user documentation for each OS, plus timely and knowledgeable technical support. For performance, SDMS software takes advantage of the I/O processing capabilities of the LSI53C895A to support target disconnect/reselect, synchronous and wide SCSI operation and multiple host adapters. Under Windows NT, Solaris and NetWare, SDMS software supports one processor interrupt per I/O.

Server Management support is DMI 2.0-based for Windows NT, NetWare and UnixWare, with management application support through a snap-in Java™ based browser.

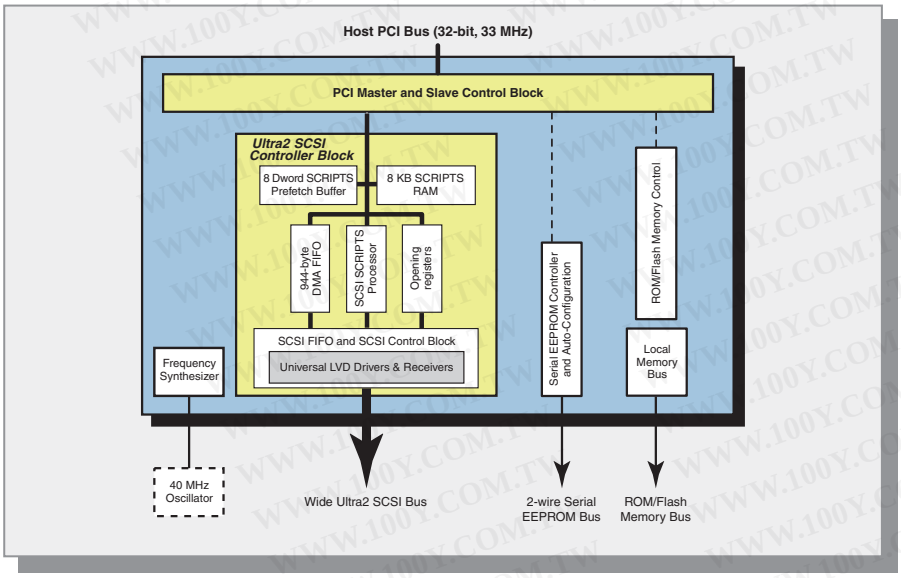

Figure 3. LSI53C895A functional block diagram

For more information please visit the LSI Logic web site at:
http://storageio.lsilogic.com

LSI Logic Corporation
North American Headquarters
Milpitas, CA
Tel: 866 574 5741

LSI Logic Europe Ltd.
European Headquarters
United Kingdom
Tel: 44 1344 426544
Fax: 44 1344 481039

LSI Logic KK Headquarters
Tokyo, Japan
Tel: 81 3 5463 7165
Fax 81 3 5463 7820

ISO 9000 Certified

Order No. S20011
4/01-1M – Printed in USA

LSI LOGIC®
The Communications Company™