LSI21040
SCSI Host Adapter

KEY 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 data access is the bottleneck

PCI INTERFACE

- 64-bit, 33 MHz PCI Interface, 264 MBps zero wait state transfer rate
- 64-bit addressing (DAC) support
- PCI 2.2, PCI Power Management 1.1, and PC99 compliant
- Supports PCI Hot Plug electrical specification
- Vital Product Data Option

PCI Bus:
64-bit, 33 MHz

SCSI Bus:
16-bit LVD or SE

SCSI Performance:
Ultra160

SCSI Connector Config:
Internal: (2) 68-pin HD, (1) 50-pin
External: (1) 68-pin HD

Max No of SCSI Devices:
30

INTRODUCING THE LSI21040 HOST ADAPTER

Dual-Channel Ultra160 SCSI Host Adapter Designed for Entry to Mid-level Servers

The LSI21040 is a dual-channel Ultra160 SCSI host adapter built with the LSI53C1010 controller. It supports the Ultra160 initiative with support for double transition clocking, Cyclical Redundancy Check (CRC), and enhanced domain validation. Domain validation determines whether or not the system is adequate for Ultra160 data transfers ensuring robust system operation.

The LSI21040 has one Ultra160 SCSI channel for maximum performance and one single-ended for legacy SCSI devices. The LSI21040 provides a seamless migration path to Ultra160 SCSI from the LSI22910 dual-channel Ultra2 SCSI host adapter board.

OVERVIEW

Figure 1 below shows the major components on the LSI21040 host adapter.

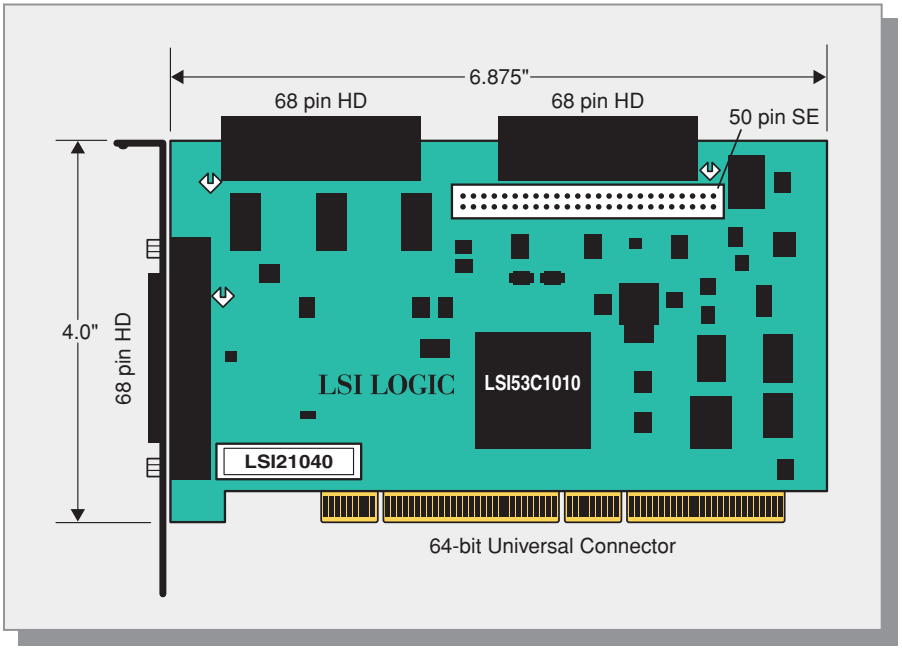

Figure 1: LSI21040 host adapter

LSI21040 ORDERING INFORMATION

LSI21040	Supports Intel platforms

LSI LOGIC
HOST ADAPTERS

LSI21040 SCSI Host Adapter

SCSI INTERFACE

- One independent wide Ultra160 SCSI channel
- One single-ended Ultra SCSI channel
- Supports Ultra160 MBps SCSI on channel A
  - Double transition clocking for 160 MBps throughput on channel A
  - CRC (Cyclical Redundancy Check), complete end-to-end protection of SCSI I/O
  - SureLINK™ Enhanced Domain Validation
- Connectivity
  - Fast, Ultra, Ultra2, & Ultra160 SCSI data transfer capability
  - Channel A- 68-bit HD internal, 68-pin HD external
  - Channel B- 68-pin HD internal, 50-pin single-ended

BOARD CHARACTERISTICS

- Universal, 64-bit PCI edge connector
- Board Size: 6.875 " x 4.0 "
- Bracket: ISA/EISA Style

SCSI TERMINATION

- Automatic or manual termination
- Cable connection sensing

LSI53C1010

The LSI53C1010 dual channel Ultra160 controller contains the PCI and SCSI functionality for the LSI21040 host adapter board.

PCI Interface

The LSI21040 host adapter has a 64-bit PCI interface which is backward compatible with 32-bit/33 MHZ PCI. A true multifunction device, the LSI21040 host adapter presents only one electrical load to the PCI bus, thus preserving valuable PCI slots. In addition, Dual Address Cycle (DAC) support allows for increased addressability. The LSI21040 host adapter board is PCI 2.2 compliant and provides support for PCI power management, Subsystem Vendor ID, Vital Product Data (VPD), and Extended access cycles (MRL,MRM,MWI).

SCSI Interface

The SCSI functionality of the LSI21040 is contained within the LSI53C1010 PCI Ultra160 SCSI controller chip. The LSI21040 supports the Ultra160 initiative including double-transition clocking, CRC (Cyclic Redundancy Check), and domain validation. Double transition clocking refers to transferring data on both polarity edges of the clock signal. It is used in the data phases to perform data transfers on both edges of the REQ or ACK. CRC is a 32-bit error correction scheme to ensure robust error from data transfers at Ultra160 speeds. The second channel is configured single-ended to support legacy SCSI devices.

SureLINK Domain Validation

During the introduction of our Ultra160 SCSI products, SureLINK domain validation made its debut. Available exclusively from LSI Logic, this advanced technology detects the configuration of the SCSI bus and automatically tests and detects marginal cable environments and adjusts the SCSI transfer rate to ensure system reliability. SureLINK technology exceeds Ultra160 by providing not only Basic (Level 1) and Enhanced (Level 2) domain validation, but adds Margining (Level 3) domain validation. This enhancement margins LVD drive strength and clock signal timing characteristics to test for and identify marginal Ultra160 systems.

Flash Memory

The LSI21040 board provides up to 128K x 8 flash memory device for storing the SCSI BIOS.

Serial EEPROM

The LSI21040 has a 16K x 1bit serial EEPROM memory device for storing the configuration information for each channel. The SDMS™ software will utilize this device automatically.

Termination

Active termination is provided on the LSI21040. Termination can be automatically enabled or disabled for each SCSI channel via an auto-termination circuit feature. Cable sensing is implemented on the LSI21040 provides for automatic termination.

ENVIRONMENTAL SPECIFICATIONS

Operation

- Temperature range: 0° to 55°C (dry bulb)
- 5% to 90% non-condensing relative humidity
- 32°C maximum dew point

Storage and Transit

- Temperature range: -45°C to 105°C (dry bulb)
- 5% to 90% non-condensing relative humidity

SCSI TERMINATION (Continued)

- Universal (SE/LVD) termination on Channel A
- GPIO software disable termination feature
- Single-ended termination on Channel B

VISUAL INDICATORS

- SCSI bus active 4-pin header for off-board Channel A & B LEDs

SOFTWARE SUPPORT

- Fully supported in SDMS Release 4.6
- Microsoft Windows 98, NT 4.0, Windows 2000, and Windows Me
- NetWare® 4.11 & 5.0
- Solaris™ 2.6, 2.7 - X86
- Server management support for DMI 2.0
  - NT 4.0, NetWare 4.11, UnixWare 2.12
  - Snap-in Java Browser
- UnixWare® 2.12 & Gemini

UTILITIES

- Install and BIOS upgrade utility
- SCSI format
- Configuration utility
- SureLINK validation utilities

WARRANTY

For more than 15 years, LSI Logic host adapters have been providing high-performance SCSI solutions to leading server, disk array and computer systems worldwide. Each host adapter carries a powerful chip built in LSI Logic's ISO 9001-certified fabrication facilities. Using only the highest quality components, LSI Logic host adapters are assembled and tested in world-class facilities to assure superior product reliability and performance. Because of stringent quality management programs, our host adapters carry a five-year limited warranty.

ABOUT LSI LOGIC

LSI Logic Corporation (NYSE: LSI) is a leading designer and manufacturer of communications and storage semiconductors for applications that access, interconnect and store data, voice and video. In addition, the company supplies storage network solutions for the enterprise. LSI Logic is headquartered at 1551 McCarthy Boulevard, Milpitas, CA 95035, 408-433-8000, ***http://www.lsilogic.com***.

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