Symbios Host Adapter Product Guide

Adapter, repeater, expander and kit solutions for moving information.

LSI LOGIC ®

Total Solutions for Moving Information

Whether you're an original equipment manufacturer (OEM), value-added reseller (VAR) or systems integrator, you'll find that host adapter board (HAB) solutions from LSI Logic® are superior for linking desktops, workstations, servers and peripherals. That's because we practically invented SCSI. And the Symbios® brand name is virtually synonymous with the SCSI interface. As worldwide SCSI leaders, we've been providing high-performance SCSI solutions directly to leading server, disk array and computer systems corporations for more than 15 years. So you can be confident that the SCSI solution you select from us will be leading edge, reliable and dependable.

Other companies talk about their leadership in SCSI technology, but they can't say that they've been first to market with PCI-SCSI, Ultra SCSI, Ultra2 LVD SCSI or dual-channel SCSI. We can. Other companies claim that their SCSI products are reliable and high-quality, but they don't offer a five-year limited warranty on their SCSI cards' performance. We do. Other companies state that they have outstanding customer service, but they never say they'll work with your design team to provide a customized solution. We can and we do.

Symbios host adapter boards are simply the best choice for meeting today's high-performance data transfer needs. At the heart of each HAB is an LSI Logic controller built in our own ISO9001-certified fab. Each board is assembled and tested in world-class ISO9001 facilities to ensure that it performs to rigid specifications and conforms to our highest standards. And behind every SCSI HAB is a powerful team of designers, engineers and technicians dedicated to providing you with the performance, reliability and compatibility you require, at a price you can afford.

Introducing Ultra3 SCSI Portfolio: Next-Generation Desktop, Workstation and Server Solutions
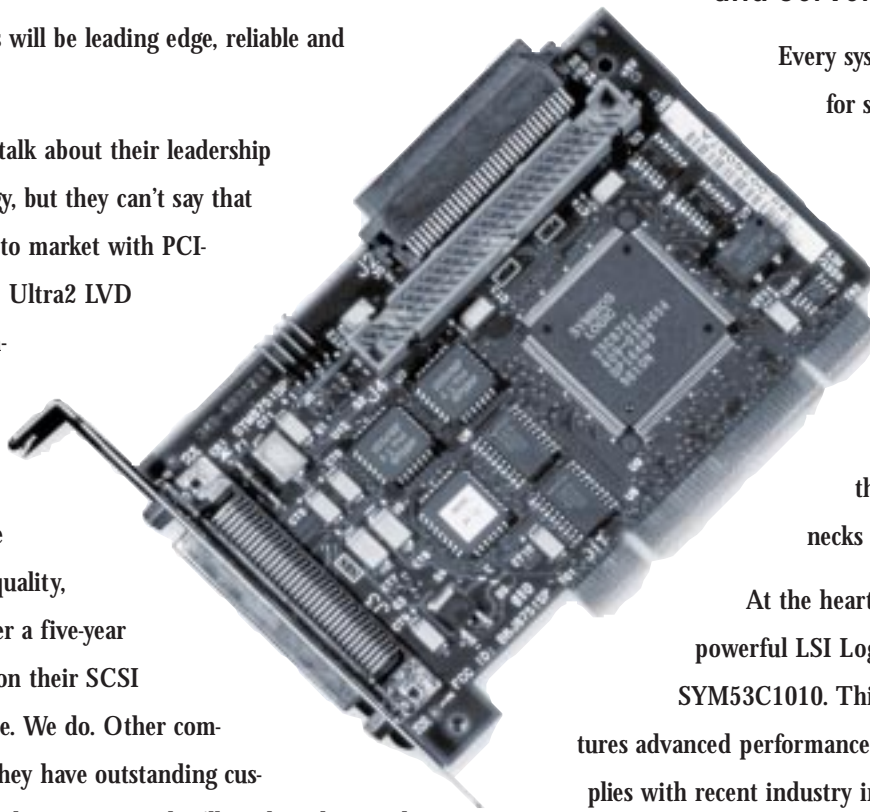
Every system has a growing appetite for speed, bandwidth and interoperability. Our design engineers have responded by creating a banquet of Ultra3 SCSI products: controllers and host adapter boards that eliminate the bottlenecks of high-speed data transfer.

At the heart of every Ultra3 HAB is a powerful LSI Logic controller, the SYM53C1010. This integrated circuit features advanced performance enhancements and complies with recent industry initiatives and certifications, like Ultra160 or PC99. Take a closer look at our two new Ultra3 SCSI HABs (SYM22915 and SYM8955U) to discover how you can incorporate this faster, more reliable, less restrictive technology into your products.

SureLINK, LVDlink and TolerANT: The Symbios Advantage

During the introduction of our Ultra3 SCSI products, SureLINK™ domain validation made its debut. Available exclusively from LSI Logic, this advanced technology maximizes a system's bus performance by varying the LVD drive strength and testing for marginal Ultra3 SCSI systems.

LVDlink™ technology is found in all our Ultra2 and Ultra3 SCSI offerings. This unique LSI Logic technology frees you from the constraints of short cables and delivers high-signal integrity for greater compatibility among servers, systems, subsystems and peripherals.

TolerANT™ technology elevates your confidence level in data integrity during power-up and power-down activities. That's because TolerANT technology eliminates opportunities for data corruption in unreliable cabling environments by ignoring signal noise and compensating for unbalanced duty cycles. Like SureLINK and LVDlink technologies, TolerANT technology is available exclusively with Symbios HABs produced by LSI Logic.

SDMS Software: Maximum OS Support

Because you want a total solution, we also provide SCSI device management system (SDMS) software with a full complement of operating system (OS) drivers and configurations utilities. That means your HAB will operate in virtually any system. Effortless to install and configure, SDMS drivers are based on industry standards. To incorporate new OS features and upgrades, SDMS software is continually updated, maximizing your system's performance and reliability.

Kits Available as Board or Custom OEM Configuration

To speed design and system expansion activities, you can obtain most host adapters boxed with cables, software and documentation or custom configured for original equipment manufacturers. See page 15 for details.

Choose the host adapter board that fits your application

Host bus	Dual channel	Single channel	SCSI bus	SCSI bus width	Connector configuration	SCSI performance	See Page
Ultra3 SCSI							
PCI (new)	SYM22915		LVDlink™ or single-ended	(2) 16-bit	(2) 68-pin internal (2) 68-pin VHDCI external	Ultra3, (2) at 160 MBps	Page 5
PCI (new)		SYM8955U	LVDlink™ or single-ended	16-bit	68-pin internal 68-pin external	Ultra3, 160 MBps; Ultra2 80 MBps; Ultra, 40 MBps	Page 6
Ultra2 SCSI							
PCI (new)	SYM22910		LVDlink™ or single-ended	(2) 16-bit	(2) 68-pin internal (2) 68-pin VHDCI external	Ultra2, (2) at 80 MBps	Page 6
PCI (new)	SYM21002		LVDlink™ or single-ended	(1) 8/16-bit SE; (1) 16-bit LVD/SE	50-pin internal 50-pin external (2) 68-pin internal	Ultra2, 80 MBps or Ultra SE, 40 MBps;	Page 7
PCI (new)		SYM8953U	LVDlink™ or single-ended	16-bit	68-pin internal 68-pin external	Ultra2, 80 MBps or Ultra, 40 MBps	Page 7
PCI		SYM8952U	LVDlink™ or single-ended	16-bit	68-pin internal 68-pin external	Ultra2, 80 MBps or Ultra, 40 MBps	Page 8
PCI		SYM8951U	LVDlink™ or single-ended	16-bit	68-pin internal 68-pin VHDCI external	Ultra2, 80 MBps or Ultra, 40 MBps	Page 8
Ultra SCSI							
PCI	SYM22802		Differential	(2) 16-bit	(2) 68-pin internal (2) 68-pin VHDCI VHDCI external	Ultra2 at 40 MBps	Page 9
PCI	SYM22801		Single-ended	(2) 8-bit	(2) 68-pin VHDCI external (2) 68-pin internal (2) 50-pin internal	Ultra2 at 40 MBps	Page 9
PCI		SYM8751SPE	Single-ended	8/16-bit	68-pin external 68-pin internal 50-pin internal	Ultra, 40 MBps	Page 10
PCI		SYM8750SP	Single-ended	8-bit	50-pin internal 50-pin external	Ultra, 20 MBps	Page 10
PCI		SYM20860	Single-ended	8-bit	50-pin internal 50-pin external	Ultra, 20 MBps	Page 11
Fast SCSI							
PCI		SYM20811	Single-ended	8-bit	50-pin external	Fast, 10 MBps	Page 11
PCI		SYM20810	Single-ended	8-bit	50-pin internal 50-pin external	Fast, 10 MBps	Page 12
Bus repeaters and converters							
SCSI Bus Expander		SYM20101	Single-ended to/from single-ended	16-bit	(2) 68-pin internal	Ultra, 40 MBps; Fast, 20 MBps	Page 12
SCSI Bus Converter		SYM20102	Single-ended to/from HV Differential	16-bit	(2) 68-pin internal	Ultra, 40 MBps; Fast, 20 MBps	Page 13
Fibre Channel							
Fibre Channel (new)		SYM40909/G	Fibre Channel PCI		HSSDC GBIC	1 Gbit/sec	Page 14

SYM22915

64-Bit PCI to Ultra3 SCSI Dual Channel Host Adapter

Host Bus
64-bit 66 MHz PCI

SCSI Bus
LVDlink™
(Low Voltage Differential)

SCSI Performance
Ultra3 (320 MBps)
Dual Channels @ 160 MBps

SCSI I/O Processor
SYM53C1010

SCSI Connector Configuration
Internal: (2) 68-pin HD
External: (2) 68-pin VHDCI connectors

Maximum Number of SCSI Devices
30

Designed to Logo Level
PC99

Target Applications
Servers Clustered Environments

LSI Logic's flagship product, the SYM22915 Ultra3 SCSI Dual Channel Host Adapter is true high performance bringing an aggregate 320 MBps data transfer rate to server and workstation applications. Based on the SYM53C1010, the SYM22915 is 100 percent compatible with the Ultra160 initiative with support for double transition clocking. Cyclical Redundancy Check (CRC) and SureLINK enhanced domain validation ensure link integrity at Ultra3 transfer speeds.

- Supports Ultra160 with additional features to ensure robust Ultra3 system operation.

- True multifunction PCI device increases connectivity with dual channels that require only one PCI Load.

- Features 32-bit DAC, or 64-bit, 66 MHz, bus master with zero wait states.

- Incorporates exclusive SureLINK, LVDlink and TolerANT technologies.

- Enables bootability, configuration, and field upgrades with Symbios' on-board BIOS Flash ROM.

- SCSI bus mode and activity LEDs indicate bus status with connectors for external indicators.

- On-board NVRAM with built in configuration utility.
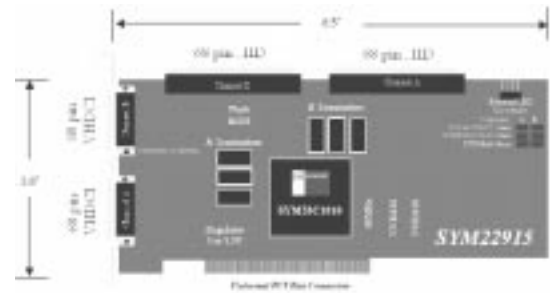
SYM8955U

Host Bus	
64-bit PCI (33 MHz PCI)	
SCSI Bus	
LVDlink™ (Low Voltage Differential)	
SCSI Performance	
Ultra3 (160 MBps)	
SCSI I/O Processor	
SYM53C1010-33 / 66	
SCSI Connector Configuration	
Internal: (1) 68-pin HD	
External: (1) 68-pin HD	
Number of SCSI Devices	
15	
Designed to Logo Level	
PC99	
Target Applications	
High-end workstations	

64-Bit PCI to Ultra3 SCSI Single Channel Host Adapter

When a Single Channel Ultra3 is needed, the SYM8955U Ultra3 SCSI Host Adapter is a perfect fit. As a high performance, low cost alternative for workstations, high-end desktop and server applications, the SYM8955U Ultra3 SCSI Host Adapter supports the Ultra160 initiative with double transition clocking. The Cyclical Redundancy Check (CRC) and enhanced domain validation ensure reliable SCSI operation.
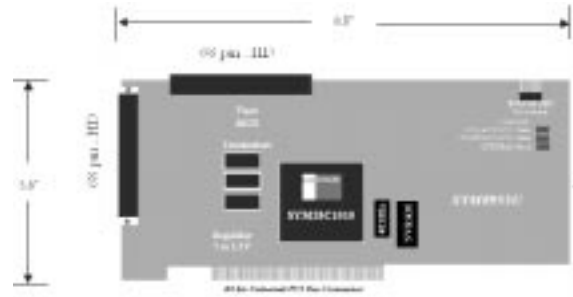
- 68-pin high-density wide connectors internally and externally.
- Ideal for connecting up to 15 Ultra3 hard drives or Raid Enclosures.
- SureLINK Domain validation to ensure link integrity at Ultra3 Transfer rates.
- Offers up to 160-MBps bandwidth plus transfer rates at the PCI system bus speed.
- Based on the SYM53C1010 chip featuring LVDlink technology and SureLINK domain validation.
- Supports Ultra2/Ultra SE/Fast SE SCSI.
- TolerANT signaling technology provides greater signal integrity when in single ended mode.
- On-board NVRAM with built in configuration utility.

SYM22910

|	
Host Bus	
64-bit 33MHZ PCI	
SCSI Bus	
LVDlink™ (Low Voltage Differential)	
SCSI Performance	
Ultra2 (160 MBps) Dual Channels @ 80MBps	
SCSI I/O Processor	
SYM53C896	
SCSI Connector Configuration	
Internal: (2) 68-pin HD	
External: (2) 68-pin VHDCI connectors	
Maximum Number of SCSI Devices	
30	
Designed to Logo Level	
PC99	
Target Applications	
Servers Clustered applications	

64-Bit PCI to Ultra2 SCSI Dual Channel Host Adapter

For today's clustering servers, the SYM22910 Ultra2 SCSI Dual Channel Host Adapter provides high performance with maximum SCSI connectivity. Based on the industry's first and market leader SYM53C896 Dual Channel Ultra2 SCSI I/O controller, the SYM22910 provides servers and high-end workstations an idea solution. The universal board supports single-ended Fast/Ultra Devices, or Ultra2 LVD devices.
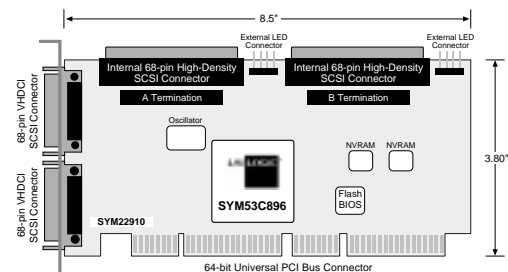
- True multifunction PCI device allows up to 30 Ultra2 Devices to be connected to one 64-bit 33MHz PCI slot.
- Dual external VHDCI connectors for maximum connectivity to RAID adapters or Ultra2 Devices.
- LVDlink transceivers provide connectivity to legacy SCSI devices such as tape drives or other legacy storage devices to protect your investment.
- Built in configuration utility simplifies installation, and allows for performance tuning devices.
- TolerANT signaling technology provides greater signal integrity when in single ended mode.
- On-board NVRAM with built in configuration utility.

SYM21002

32-Bit PCI to Ultra2 SCSI Dual Channel Host Adapter

Host Bus
32-bit 33MHz PCI

SCSI Bus
LVDLink
(Low Voltage Differential)

SCSI Performance
Ultra3 (320 MBps)
Dual Channel@160 MBps

SCSI I/O Processor
SYM53C896

SCSI Connector Configuration
Internal: (2) 68-pin HD
(1) 50-pin HD
External: (1) 50-pin HD
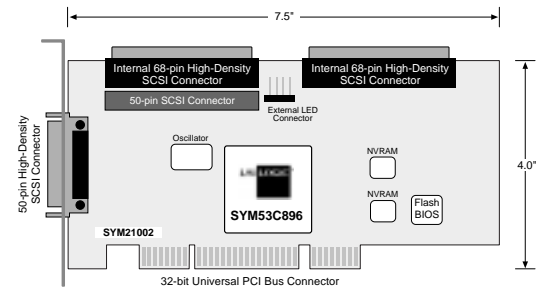
Maximum Number of SCSI Devices
30

Designed to Logo Level
PC99

Target Applications
High performance Workstations

The Ultra2 workstation SCSI host adapter was engineered for applications where high performance disk access is necessary but desktop and legacy SCSI connections are required. With two complete and separate SCSI channels, the SYM 21002 Ultra2 SCSI Dual Channel Host Adapter can dedicate one channel to high-performance devices and the other to legacy SCSI devices without sacrificing performance.

- 68-pin high-density internal connector and 50-pin high density (Desktop SCSI) external connector for connecting scanners, tape drives removable storage, CD-ROMs, CD-Recorders, and CD-RW.

- Built in configuration utility simplifies installation, and allows for performance tuning devices.

- LVDlink transceivers ensure the best noise immunity and signal integrity for Ultra2 transfer speeds on longer cable lengths.

- TolerANT signaling technology provides greater signal integrity when in single ended mode.

- On-board NVRAM with built in configuration utility.

- 32-bit PCI to Ultra2 SCSI Dual Channel Host Adapter.

SYM8953U

32-Bit PCI to Ultra2 SCSI Host Adapter

Host Bus
32-bit 33MHz PCI

SCSI Bus
LVDlink™
(Low Voltage Differential)

SCSI Performance
Ultra2 (80 MBps)

SCSI I/O Processor
SYM53C895A

SCSI Connector Configuration
Internal: (1) 68-pin HD
External: (1) 68-pin HD

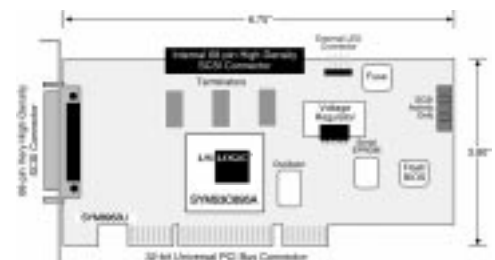**Maximum Number of SCSI Devices**
15

Designed to Logo Level
PC99

Target Applications
NT Workstations

The new standard for Ultra2 SCSI applications, the SYM8953U Ultra2 Fast SCSI Host Adapter is an ideal solution for NT workstations. This single channel adapter is the latest in a family of host adapters based on the industry's first Ultra2 SCSI I/O processor. This enhanced host adapter supports Power Management v2.1 and is PC99 compliant.

- LVDlink transceivers ensure the best noise immunity and signal integrity for Ultra2 transfer speeds on longer cable lengths.

- 68-pin HD connectors internal and external for up to 15 Ultra2 SCSI Devices.

- TolerANT signaling technology provides greater signal integrity when in single ended mode.

- Four-pin SCSI activity LED connector.

- On-board BIOS Flash ROM allows future field updating and bootability.

SYM8952U

Host Bus	
32-bit 33MHz PCI	
SCSI Bus	
LVDlink™ (Low Voltage Differential)	
SCSI Performance	
Ultra2 (80 MBps)	
SCSI I/O Processor	
SYM53C895	
SCSI Connector Configuration	
Internal: (1) 68-pin HD	
External: (1) 68-pin HD	
Maximum Number of SCSI Devices	
15	
Designed to Logo Level	
PC98	
Target Applications	
Workstations	

32-Bit PCI to Ultra2 SCSI Host Adapter

For workstation and server applications, the SYM8952U Ultra2 SCSI Host Adapter is an ideal solution. This single channel adapter is the latest in a family of host adapters based on the industry's first Ultra2 SCSI I/O processor, the SYM53C895.
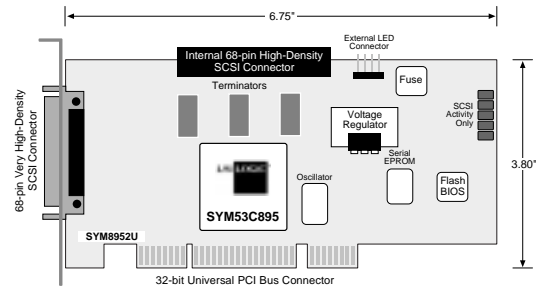
- Same functionality as the SYM8951U, except offers additional configuration flexibility with the external 68-pin, high-density connector versus the SYM8951U's VHDCI external connector.

- LVDlink and TolerANT technologies provide the best noise immunity and signal integrity on longer cable link.

- Four-pin SCSI activity LED connector.

- 68-pin HD connectors internal and external for up to 15 Ultra2 SCSI Devices.

- On-board BIOS Flash ROM allows future field updating and bootability.

SYM8951U

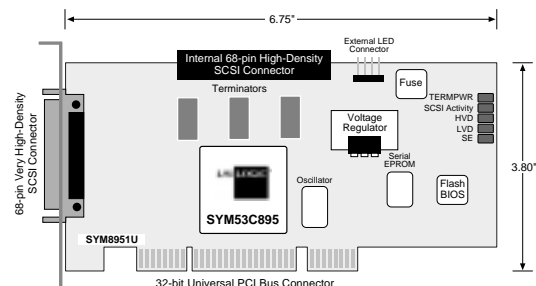|	
Host Bus	
32-bit 33MHz PCI	
SCSI Bus	
LVDLink (Low Voltage Differential)	
SCSI Performance	
Ultra2 (80 MBps)	
SCSI I/O Processor	
SYM53C895	
SCSI Connector Configuration	
Internal: (1) 68-pin HD	
External: (1) 68-pin VHDCI Connectors	
Maximum Number of SCSI Devices	
15	
Designed to Logo Level	
PC98	
Target Applications	
Servers	

32-Bit PCI to Ultra2 SCSI Host Adapter

The industry's first PCI to Ultra2 SCSI adapter based on the SYM53C895 Ultra2 SCSI Host bus adapter. This adapter offers the same functionality as the SYM8952U but is configured with a VHDCI connector for high-end applications found in enterprise environments and storage subsystems.

- SCSI Activity LED connector.

- LVDlink transceivers ensure the best noise immunity and signal integrity for Ultra2 transfer speeds on longer cable lengths.

- 68-pin HD connectors internal and external for up to 15 Ultra2 SCSI Devices

- TolerANT signaling technology provides greater signal integrity when in single ended mode.

- On-board BIOS Flash ROM allows future field updating and bootability.

SYM22802

Host Bus
32-bit 33MHz PCI

SCSI Bus
HV Differential

SCSI Performance
Ultra (80 MBps)
Dual Channel @ 40 MBps

SCSI I/O Processor
SYM53C876

SCSI Connector Configuration
Internal: (2) 68-pin HD
External: (2) 68-pin
VHDCI connectors
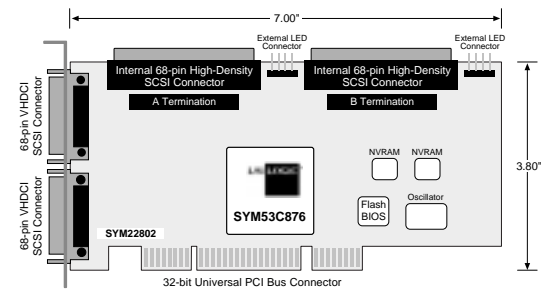
Number of SCSI Devices
30

Designed to Logo Level
PC98

Target Applications
Servers
Clustered Environments

32-Bit PCI to Ultra SCSI HVD Dual Channel Host Adapter

The SYM22802 Ultra SCSI HVD Dual Channel Host Adapter offers dual channel, high voltage differential SCSI functionality without a bridge chip. This adapter is ideal for connecting to today's HVD storage subsystems and clustering environments. This adapter protects existing investments in expensive storage subsystems that rely on ultra differential signaling technology. For cable length and signal integrity, it also provides an expansion path for PCI slot limited servers. This adapter is popular in clustered environments where one channel is dedicated to the shared storage resource, and the other channel for that node's private storage.

- Two 68-pin HD connectors internally and two 68-pin VHDCI connectors externally.
- Built in configuration utility allows for easy LUN selection common in large storage subsystem configurations.
- Two SCSI activity LEDs.
- On-board NVRAM with built in configuration utility.

SYM22801

Host Bus
32-bit PCI

SCSI Bus
Single Ended

SCSI Performance
Ultra (80 MBps)
Dual Channel @ 40 MBps

SCSI I/O Processor
SYM53C876

SCSI Connector Configuration
Internal: (2) 68-pin
HD connectors
(2) 50-pin
External: (2) 68-pin
VHDCI connectors

Maximum Number of SCSI Devices
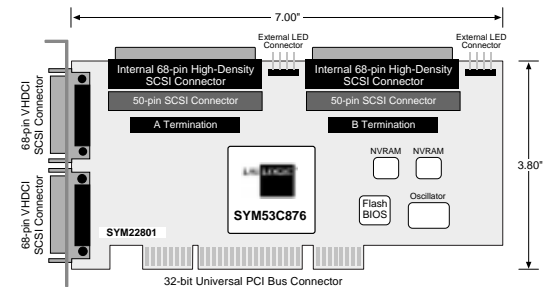30

Designed to Logo Level
PC98

Target Applications
Workstations

32-Bit PCI to Ultra SCSI Dual Channel Host Adapter

Based on the SYM53C876, the industry's first true multifunction PCI to Ultra SCSI I/O controller, the SYM22801 Ultra SCSI Dual Channel Host Adapter uniquely provides the industry's first dual channel Ultra SCSI Host Adapters maximizes Ultra SCSI Connectivity at the expense of only one PCI Slot.

- TolerANT signaling technology ensures greater data integrity.
- Dual Ultra Channels with connectors internally and externally allow users to separate devices based on performance.
- Built-in configuration utility ensures easy installation and device configuration.
- Two SCSI activity LEDs.
- On-board NVRAM with built in configuration utility.

SYM8751SPE

32-Bit PCI to Ultra SCSI Host Adapter

Host Bus
32-bit 33Mhz PCI

SCSI Bus
Single Ended

SCSI Performance
Ultra (40MBps)

SCSI I/O Processor
SYM53C875

SCSI Connector Configuration
Internal: (1) 68-pin HD, (1) 50-pin Flat Cable
External: (1) 68-pin HD

Number of SCSI Devices
15

Designed to Logo Level
PC98

Target Applications
Workstations

The standard Ultra SCSI Host adapter, the SYM8751SPE Host Adapter is a very high performance wide Ultra SCSI option. Primarily targeted for disk drives, the added internal 8-bit connector also supports narrow devices such as CD-ROMs, tape storage devices as well as the popular high capacity, removable media devices (Iomega™ and Syquest™), and MO devices.
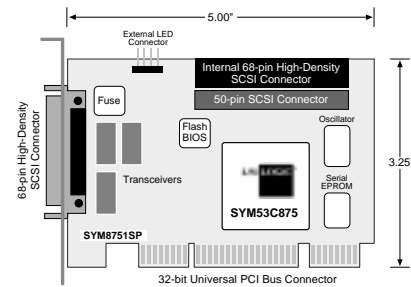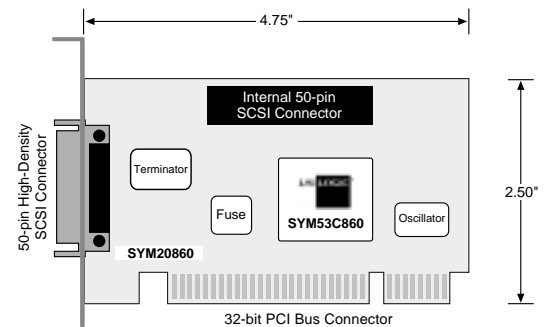
- On-board BIOS Flash ROM allows for bootability and future field updating.
- SCSI activity LED connector.
- TolerANT signaling technology ensures greater data integrity.
- Also supports Fast SCSI data transfers.

SYM8750SP

32-Bit PCI to Ultra SCSI Host Adapter

Host Bus
32-bit 33 MHz PCI

SCSI Bus
Single Ended

SCSI Performance
Ultra (20 MBps)

SCSI I/O Processor
SYM53C875

SCSI Connector Configuration
Internal: (1) 50-pin Flat Cable
External: (1) 50-pin HD

Number of SCSI Devices
8

Option ROM
Bootable

Target Applications
Desktop SCSI
Legacy Peripheral
Connect, Tape, CD-ROM

This high performance desktop SYM8750SP Ultra SCSI Host adapter has the bandwidth to support all desktop SCSI devices and a 50-pin connector internally for FAST and Ultra devices such as internal hard disks and CD-ROMs. The SYM8750SP also has an external 50-pin HD connector (Desktop SCSI) for narrow devices such as CD-ROMs, tape storage devices as well as the popular high capacity, removable media devices (Iomega™ and Syquest™), and MO devices.
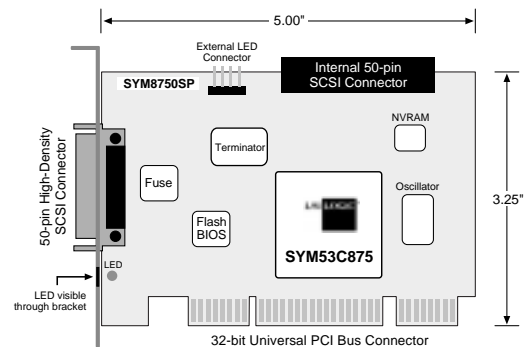
- On-board BIOS Flash ROM allows for bootability and future field updating.
- SCSI activity LED connector.
- TolerANT signaling technology ensures greater data integrity.
- Also supports Ultra Fast SCSI data transfers.

SYM20860

Host Bus
32-bit 33 MHz PCI

SCSI Bus
Single Ended

SCSI Performance
Ultra (20 MBps)

SCSI I/O Processor
SYM53C860

SCSI Connector Configuration
Internal: (1) 50-pin Flat Cable
External: (1) 50-pin HD

Maximum Number of SCSI Devices
7

Option ROM
None

Target Applications
Desktop SCSI Peripheral Connect

32-Bit PCI to Ultra SCSI Host Adapter

The SYM20860 Ultra SCSI Host Adapter is ideal for legacy peripheral desktop SCSI connectivity applications. It has an 8-bit Ultra SCSI Host Adapter with a 32-bit bus master (DMA) PCI host interface. A low cost, high-performance solution easily attaches desktop PCs to peripherals such as non-booting SCSI hard drives and other SCSI devices.

- Supports CD-ROMs, tape storage devices as well as the popular high capacity, removable media devices (Iomega™ and Syquest™), and MO devices.
- SCAM (SCSI Configured AutoMatically) and auto-termination support for SCSI-1 and SCSI-2 devices ensures easy installation.
- On-board BIOS Flash ROM allows for bootability and future field updating.
- SCSI activity LED connector.
- TolerANT signaling technology ensures greater data integrity.
- Allowing intermixing of Ultra and Fast devices on SCSI bus.

SYM20811

Host Bus
32-bit 33 MHz PCI

SCSI Bus
Single Ended

SCSI Performance
Fast (10MBps)

SCSI I/O Processor
SYM53C810A

SCSI Connector Configuration
External: (1) 50-pin HD

Maximum Number of SCSI Devices
7

Option ROM
None

Target Applications
Desktop SCSI Peripheral Connect

32-Bit PCI to Fast SCSI Host Adapter

Specifically designed for desktop SCSI and peripheral connectivity applications, the SYM20811 Fast SCSI Host Adapter is an ideal solution. The 8-bit Fast SCSI Host Adapter with 32-bit bus master (DMA) PCI host interface attaches desktop PCs to peripherals such as non-booting SCSI hard drives and other SCSI devices.
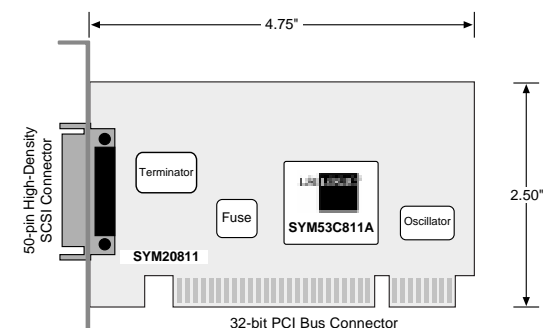
- Supports CD-ROMs, CD-Rs, scanners, high-capacity removable media devices (Iomega™ and Syquest™), MO devices and hard drives.
- Includes external 50-pin, high density, 8-bit SCSI connector.
- TolerANT technology on SCSI signal lines provides a high level of data integrity.

SYM20810

Host Bus
32-bit 33 MHz PCI

SCSI Bus
Single Ended

SCSI Performance
Fast (10 MBps)

SCSI I/O Processor
SYM53C810A

SCSI Connector Configuration
Internal: (1) 50-pin Flat Cable
External: (1) 50-pin HD

Maximum Number of SCSI Devices
7

Option ROM
None

Target Applications
Desktop SCSI Peripheral Connect

32-Bit PCI to Fast SCSI Host Adapter

For desktop SCSI connectivity system requirements, the SYM20810 Fast SCSI Host Adapter is a low cost solution for high-performance applications.

With a 50-pin connector internally for FAST and devices, and a 50-pin HD connector externally for scanners, the 8-bit Fast SCSI Host Adapter with 32-bit bus master (DMA) PCI host interface is ideal for desktop SCSI peripheral connection.

- Attaching desktop PCs to peripherals such as non-booting SCSI hard drives and other SCSI devices.

- Supports CD-ROMs, CD-Rs, scanners, high-capacity removable media devices (Iomega™ and Syquest™), MO devices and hard drives.

- Supports SCSI-1 and SCSI –2 devices.

- TolerANT technology on SCSI signal lines provides a high level of data integrity.
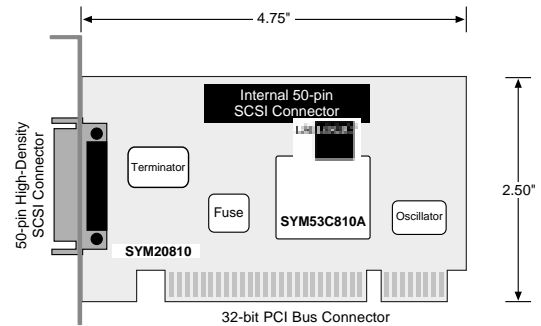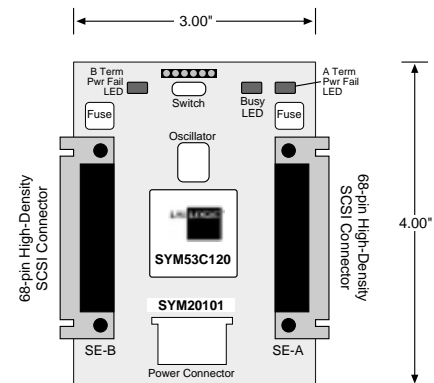
SYM20101

Expander
Single Ended to/from Single Ended

SCSI Performance
Ultra (20 MBps)

SCSI Bus Width
Wide (16-bit)

SCSI Connector Configuration
Internal: (2) 68-pin HD

Target Applications
Servers
High-end workstations

Ultra SCSI Bus Expander

For peripheral flexibility and greater system performance, a wide (16-bit) single-ended to single-ended SCSI bus repeater allows for extended cable lengths and greater distance between SCSI devices.

- Allows cascading up to two SYM20101 repeater boards together for three times the maximum SCSI cable length.

- Passes synchronous or asynchronous data and parity through the repeater with signal filtering and retiming at each bus interface to maintain proper signal skew limits.

- Electrically isolates each SCSI bus from the other.

- TolerANT technology provides improved signal reliability.

- Supports SCSI hosts.

- Does not require software drivers.

SYM20102

Single Ended to Differential SCSI Converter

Host Bus
Single Ended to/from
HV Differential

SCSI Performance
Ultra (Fast 20)

### SCSI Bus Width
Wide (16-bit)

SCSI Connector Configuration
Internal: (2) 68-pin HD

Target Applications
Clustered Environments

For peripheral flexibility and greater system performance, a wide (16-bit) single-ended to differential SYM20102 SCSI Bus Converter allows for extended cable lengths and greater distance between SCSI devices. Ideal for cluster configurations for availability and scalability applications.
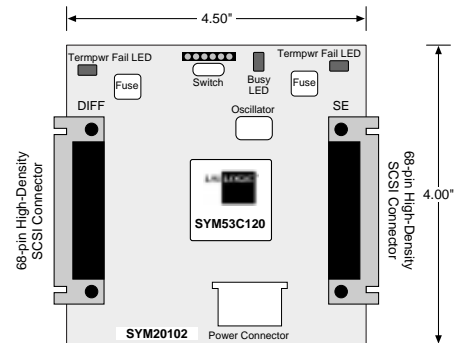
- 68-pin high density single ended to 68-pin high density differential
- SCSI activity LEDs
- Passes synchronous or asynchronous data and parity through the repeater with signal filtering and retiming at each bus interface to maintain proper signal skew limits.
- Electrically isolates each SCSI bus from the other.
- TolerANT technology provides improved signal reliability.
- Supports SCSI hosts.
- Does not require software drivers.

SYM40909

64-bit PCI, 66 MHz

200 MBps
Full Duplex
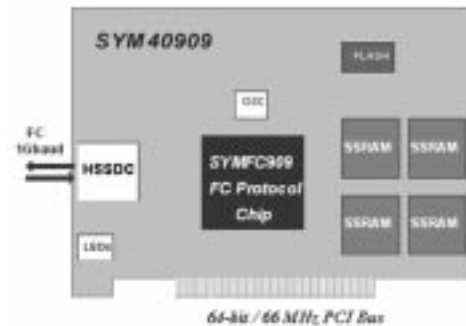
GBIC
SW laser up to 500m
LW laser up to 10 Km
HSSDC & DB-9 up to 30m

Servers
High-end workstations
RAID
SAN

SYM40909 Fibre Channel Host Adapter

For today's Fibre Channel solutions, the SYM40909 Fibre Channel Host Adapter is a high-performance, cost-effective host adapter supporting server, RAID and workstation environments with both optical and economical copper interfaces.

The SYM40909 implements a HSSDC type connector for copper connections up to 30 meters while the SYM40909G supports the GBIC interface module providing maximum flexibility for both optical and copper interfaces. Both host adapters are based on the SAN architected SYMFC909 PCI-FC protocol controller. The SYMFC909 SAN architected controller provides optimal performance in Fibre Channel switched networked topologies and conventional arbitrated loop designs.

- SAN architected single-chip FC protocol controller SYMFC909

- 1 MB synchronous SRAM external memory interface

- SYM40909G- GBIC interface supports:

  - SW laser up to 500m

  - LW laser up to 10 Km

  - HSSDC & DB-9 up to 30 m

- SYM40909- HSSDC copper I∕F supports up to 30 m

- PC99 compliant

- "Link Check" integrated diagnostic link test

PCI Features

- 64-bit, 66 MHz host PCI bus

- PCI 2.2 compliant

- Dual Address Cycle (DAC)

- Extended access cycles (MRL, MRM, MWI)

- Half Card PCI form factor

Software Features

- Full target and initiator operations

- LAN support with IP

- RAID embedded applications

SDMS Software Ensures High-Performance

Support for Virtually All Operating Systems

As part of its complete solution, LSI Logic includes powerful utilities and drivers with each host adapter. Developed in-house and certified by major OS vendors, SDMS software is based on industry standards and makes host adapter configuration tasks fast and easy. SDMS drivers, approved through the Microsoft WHQL, Novell Labs, SCO, Sun and Solaris certification processes, are compatible with all major OS platforms:

• NetWare NWPA®
• Windows NT®
• Linux®
• DOS®
• Windows®
• Windows for Workgroups®
• Windows 95/98®
• UnixWare®
• SCO Unix OpenServer®
• OS/2®
• Solaris®

Drivers and are supplied with each host adapter on a compact disk. Because SDMS software is continually updated, you can download the most recent versions from our web site at www.lsilogic.com.

Repeaters and Converters Eliminate Software Need

The SYM20101 SCSI bus repeater and the SYM20102 SCSI bus expander boards do not require any software support due to innovative Symbios design and engineering. Just insert the boards and boot up your system – additional functionality is available to you immediately.

Convenient Kits Provide Everything You Need

Most host adapters are available as individual boards or in boxed kits containing everything you need to install a SCSI board in your system. The Ultra boards include a true, high-quality Ultra cable which meets the special requirements of the SCSI-3/SPI-2 specification. Ultra2 boards include a special Ultra2 cable with SE/LVD auto termination.

Consumer kits include a host adapter board shipped in anti-static bag, SDMS software on compact disk, host adapter users guide, SDMS users guide and appropriate internal ribbon cable for the board. To find a listing of available kits, refer to the table on the inside front cover.

Getting more information

You can obtain product briefs, data sheets and user's guides on many of the host adapter boards described here by visiting our Web site at www.lsilogic. com. To have literature mailed to you, please contact your local LSI Logic sales office or distributor.

LSI Logic also has a broad range of storage system solutions. To find out more about our MetaStor Storage System Division call 1-888-METASTOR or visit www.metastor.com.

Symbios Host Adapter Boards

From a World Leader in Innovative SCSI I/O Solutions for More than 15 Years

- New Ultra3 SCSI solutions feature SureLink domain validation technology
- Complete SCSI solutions for desktop, workstation and server applications
- Effortless installation and configuration with robust drivers and utilities
- Outstanding performance at an affordable price
- Five-year limited warranty on all adapter board products

About LSI Logic

LSI Logic is dedicated to helping customers bring their trendsetting solutions to market in record time. As a leader in the innovation design, production and sale of advanced semi-custom integrated circuits, standard products and ASIC, LSI Logic creates and distributes cores, storage I/O components, host adapter boards and storage systems. These products are targeted to the networking, telecommunication, wireless, consumer, computer, storage components and storage subsystem markets.

LSI Logic offers I/O technologies including SCSI, Fibre Channel and PCI-RAID. The company has been active for decades in the support of industry standards groups and has been intimately involved in the development and proliferation of these I/O technologies throughout the world. With its standards leadership, system architecture expertise, world class libraries, design tools and process technologies, LSI Logic is well equipped to provide customers with complete solutions.

LSI LOGIC ®