

Symbios I/O Controller Product Guide



SCSI and Fibre Channel Solutions for Moving Information

Total Solutions for Moving Information

When looking for high-performance I/O, you'll find that LSI Logic's Symbios® product line of I/O controllers are superior for servers, workstations, desktops and peripherals. That's because we practically invented SCSI. And the Symbios brand name is virtually synonymous with the SCSI interface. As a worldwide SCSI leader, 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.

Continuing its leadership in storage I/O technology, LSI Logic now offers high-performance, cost-effective Fibre Channel solutions designed to support server, RAID, workstation and SAN environments. With the SAN-architected controller, you'll meet today's market demands and be confident of easy migration to next generation I/O technologies.

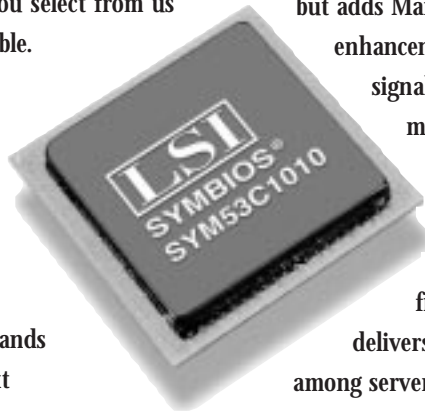
Symbios controllers are simply the best choice for meeting today's high-performance data transfer needs. Each controller is built in our own ISO 9001-certified fab. Each chip is assembled and tested in world-class ISO 9001 facilities to ensure that it performs to rigid specifications and conforms to our highest standards. And behind every controller is a powerful team of designers, engineers and technicians dedicated to providing you with the performance, reliability and compatibility you require.

New 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 Ultra3 controllers that are 100 percent compatible with the Ultra160 initiative and provide additional features that ensure robust Ultra3 system operation. Take a closer at the SYM53C1010 controller and the SYM53C180 bus expander, you'll discover how you can incorporate this faster, more reliable 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 detects the configuration of the SCSI bus and automatically tests and adjusts the SCSI transfer rate to optimize interoperability. 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 identify marginal Ultra3 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 controllers produced by LSI Logic.

SDMS Software: Maximum OS Support

Because you want a total solution, we also provide Storage Device Management System (SDMS™) software with a full complement of operating system (OS) drivers and configuration utilities. That means your controller 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, the SDMS software is continually updated to maximize your system's performance and reliability.

LSI Logic SCSI Quick Reference Product Offering

| Product Name | Packages | Transfer Rates Synchronous (MBps) | On-Chip Transceivers | High Voltage Diff. Support | Data Buffering | On-Chip Intelligence | SCSI Max. Clock Frequency | SCSI BUS Margining | Page |
|---|---------------------|-----------------------------------|----------------------|----------------------------|----------------|-----------------------------------|---------------------------|--------------------|---------|
| SYM53C1010 PCI-Dual Channel Ultra3 SCSI Controller | 329 BGA | (2) 160 (wide) | Yes SE, LVD | No | 944-byte | Enhanced SCRIPTS™ Processor | 40 MHz | Yes | Page 5 |
| SYM53C896 PCI-Dual Channel Ultra2 SCSI Controller | 329 BGA | (2) 80 (wide) | Yes SE, LVD | Yes | 944-byte | Enhanced SCRIPTS Processor | 40 MHz | No | Page 6 |
| SYM53C895A PCI-Ultra2 SCSI Controller | 208 PQFP 272 BGA | 80 (wide) | Yes SE, LVD | Yes | 944-byte | Enhanced SCRIPTS Processor | 40 MHz | No | Page 7 |
| SYM53C895 PCI-Ultra2 SCSI Controller | 208 PQFP 272 BGA | 80 (wide) | Yes SE, LVD | Yes | 816-byte | Enhanced SCRIPTS Processor | 40 MHz | No | Page 7 |
| SYM53C876E PCI-Dual Channel Ultra SCSI Controller | 208 PQFP 256 BGA | (2) 40 (wide) | Yes SE | Yes | 536-byte | Enhanced SCRIPTS Processor | 40 MHz | No | Page 8 |
| SYM53C875E PCI-Ultra SCSI Controller | 160 PQFP 169 BGA | 40 (wide) | Yes SE | Yes | 536-byte | Enhanced SCRIPTS Processor | 80 MHz | No | Page 9 |
| SYM53C860E PCI-Ultra SCSI Controller | 100 PQFP | 20 (narrow) | Yes SE | No | 80-byte | Enhanced SCRIPTS Processor | 80 MHz | No | Page 9 |
| SYM53C825AE PCI-Fast SCSI Controller | 160 PQFP | 20 (wide) | Yes SE | Yes | 536-byte | Enhanced SCRIPTS Processor | 75 MHz | No | Page 10 |
| SYM53C810AE PCI-Fast SCSI Controller | 100 PQFP | 10 (narrow) | Yes SE | No | 80-byte | Enhanced SCRIPTS Processor | 40 MHz | No | Page 10 |
| SYM53C770 Ultra SCSI Controller | 208 PQFP | 40 (wide) | Yes SE | Yes | 96-byte | Enhanced SCRIPTS Processor | 66 MHz | No | Page 11 |
| SYM53C416 ISA SCSI Controller | 100 PQFP | 10 (narrow) | Yes SE | No | 128-byte | Sequencer | 40 MHz | No | Page 12 |

SE = Single-ended

HVD = Support for external high voltage differential transceivers

LVD = Low voltage differential

LSI Logic SCSI Quick Reference Product Offering

| Product Name | Packages | Transfer Rates Synchronous (MBps) | On-Chip Transceivers | High Voltage Diff. Support | Data Buffering | On-Chip Intelligence | SCSI Max. Clock Frequency | SCSI BUS Margining | Page |
|---|----------------------|-----------------------------------|----------------------|----------------------------|----------------|----------------------|---------------------------|--------------------|---------|
| SYM53C180 Ultra3 SCSI Bus Expander | 192 PBGA | 160 (wide) | Yes SE, LVD | No | N/A | N/A | 40 MHz | Yes | Page 13 |
| SYM53C140 LVD SCSI Bus Expander | 160 PQFP 192 PBGA | 80 (wide) | Yes SE, LVD | Yes | N/A | N/A | 40 MHz | No | Page 13 |
| SYM53C141 LVD SCSI Bus Expander, SE Converter | 128 PQFP | 40 (wide) | Yes SE, LVD | N/A | N/A | N/A | 40 MHz | No | Page 14 |
| SYM53C120 SCSI Bus Expander, Differential Converter | 128 PQFP | 40 (wide) | Yes SE | Yes | N/A | N/A | 40 MHz | No | Page 14 |

LSI Logic Fibre Channel Quick Reference Product Offering

| Product Name | Package | Transfer Rate | Integrated Transceiver | PCI | Page |
|--|----------|---------------|------------------------|------------------|---------|
| SYMFC909 PCI to FC Protocol Controller | 329 PBGA | 1 Gbaud | Yes | 64-bit 66 MHz | Page 15 |

SE = Single-ended

HVD = Support for external high voltage differential transceivers

LVD = Low voltage differential

SYM53C1010**Bus Interface**

64-bit/66 MHz PCI (-66)
64-bit/33MHz PCI (-33)

SCSI Performance

320 MBps aggregate
160 MBps/ch

SCSI Bus

SE, LVD

Scripts RAM

8 KB/ch

Bus Width

8/16-bit wide

Clock Frequency

33/66 MHz-PCI
40 MHz-SCSI

Number of Devices

30

Package

329 BGA

PCI-Dual Channel Ultra3 SCSI Controller

The highly integrated SYM53C1010 PCI-Dual Channel Ultra3 SCSI controller supports the Ultra160 SCSI initiative and provides additional features necessary to ensure robust Ultra3 system operation. To lower the risk of getting to market and to make the transition from Ultra2 SCSI to Ultra3 SCSI as seamless as possible, the SYM53C1010 is both software and pin compatible (using the SYM53C1010 pinout) with the industry leading SYM53C896 Ultra2 SCSI device.



- Extremely high performance, multifunction device with 320 MBps aggregate Ultra3 SCSI throughput and a 64-bit/66 MHz PCI interface.
- Asynchronous Information Protection provides complete end-to-end protection of the SCSI I/O by protecting all non-data phases, which augments the cyclic redundancy check (CRC) feature of Ultra160.
- SureLINK domain validation enhances manageability by intelligently testing the network to identify marginal Ultra3 SCSI systems. Offers Level 1 (Basic), Level 2 (Enhanced) and Level 3 (Margining) domain validation.
- LVDlink SCSI signaling technology now offers reduced skew on the receiver side, higher output levels on the driver side, and improved input capacitance in the pad layout, which provides for more signal margin for the cable plant, backplane and board.
- 528 MBps bandwidth to the host.
- 944-byte data buffering per channel.
- PCI 2.2 , PCI Power Management 1.1 and Microsoft® PC99 compliant.
- System Interrupt Steering Logic (SISL) alternate interrupt routing for RAID applications.

SYM53C896

Bus Interface

32/64-bit PCI

SCSI Performance

160 MBps aggregate
80 MBps/ch

SCSI Bus

SE, LVD, HVD

Scripts RAM

8 KB/ch

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI
40 MHz-SCSI

Number of Devices

30

Package

329 BGA

PCI-Dual Channel Ultra2 SCSI Multifunction Controller

Highly integrated single-chip solution is designed for compute and data intensive design. Use this full-featured SCSI solution for embedding on the motherboard or as a host adapter.

- Extremely high performance with 160 MBps aggregate Ultra2 SCSI throughput and a 64-bit PCI interface.
- Multi-mode operation provides application flexibility across a wide range of platforms.

For instance, one channel can be used for high-performance LVD, which is capable of connecting to Ultra2 SCSI hard drives, and the other can be used for legacy single-ended (SE) Ultra SCSI peripherals.

- LVDlink transceivers provide the data reliability and cable distances expected from differential signaling
- Servers – Internet/Intranet, network, video, e-mail, printing, database management, etc.
- CAD/CAM, industrial simulation, etc.
- Host attach for RAID and JBOD mass storage subsystems – anywhere data access is the bottleneck.
- PCI 2.1, PCI Power Management 1.1 and Microsoft PC99 compliant.
- SISL alternate interrupt routing for RAID applications.



SYM53C895A**Bus Interface**

32-bit PCI

SCSI Performance

80 MBps sync

SCSI Bus

SE, LVD, HVD

Scripts RAM

4 KB

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI

40 MHz-SCSI

Number of Devices

15

Package

208 PQFP

272 BGA

PCI-Ultra2 SCSI Controller

The SYM53C895A 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 SYM53C895 PCI-Ultra2 SCSI controller, the SYM53C895A provides several enhanced system features.



- PC 99 and PCI Power Management 1.1 compliance optimizes the customer's experience when using Microsoft Windows® 98 and Windows 2000.
- 64-bit addressing with dual-address cycle feature offers a more flexible device when used in systems with large amounts of memory.
- RAID-ready alternative interrupt signaling, which enables an optional RAID plug-in card to gain control over the SYM53C895A.
- LVDlink transceivers provide the data reliability and increased cable lengths while ensuring single-ended compatibility without additional circuitry.
- Designers can quickly upgrade servers and workstations used for demanding web, network, video, e-mail, printing, database management, CAD/CAM, storage subsystems, and industrial simulation applications.
- SISL alternate interrupt routing for RAID applications.

SYM53C895**Bus Interface**

32-bit PCI

SCSI Performance

80 MBps sync

SCSI Bus

SE, LVD, HVD

Scripts RAM

4 KB

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI

40 MHz-SCSI

Number of Devices

15

Package

208 PQFP

272 BGA

PCI-Ultra2 SCSI Controller

The SYM53C895 provides twice the performance of Ultra SCSI and allows four times the cable length and number of connected devices. Whether you are moving from Ultra SCSI or Fast SCSI, Ultra2 SCSI provides a high performance I/O migration path and preserves your existing PCI-SCSI software investment.



- Performs SCSI data transfers up to 80 MBps, synchronous operation on a wide LVD SCSI bus.
- Transfers SCSI data synchronously up to Ultra SCSI speeds in single-ended mode.
- Allows total SCSI cable lengths up to 12 meters (longer cables may be possible in point-to-point solutions).
- Allows up to 15 LVD SCSI devices on the wide bus.
- Supports up to 512-byte bursts across the PCI bus.
- Provides reliability and distance of differential SCSI without the cost of external differential transceivers.
- Complies with PCI 2.1 specifications.
- Microsoft PC 98 compliant.
- SISL alternate interrupt routing for RAID applications.

SYM53C876E

Bus Interface

32-bit PCI

SCSI Performance

80 MBps aggregate
40 MBps/ch

SCSI Bus

SE, HVD

Scripts RAM

4 KB/ch

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI
40 MHz-SCSI

Number of Devices

30

Package

208 PQFP
256 BGA

PCI-Dual Channel Ultra SCSI Multifunction Controller

This single-chip multifunction device connects directly to the PCI bus, presents one electrical load, and functions as a single 32-bit PCI DMA bus master. It contains two wide Ultra SCSI interfaces for maximum performance and flexibility.



- True PCI multifunction device provides direct connection from the PCI bus to two independent bus mastering SCSI channels.
- One device replaces two, reducing the number of PCI bus loads and bus masters in the system.
- Connects directly to the PCI bus without external logic.
- Supports PCI extended access cycles: memory read multiple, memory read line, memory write and invalidate.
- Up to 40 MBps synchronous transfer rate per channel.
- Microsoft PC 99 compliant.
- SISL alternate interrupt routing for RAID applications.

SYM53C875E**Bus Interface**

32-bit PCI

SCSI Performance

40 MBps sync

SCSI Bus

SE, HVD

Scripts RAM

4 KB

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI

80 MHz-SCSI

Number of Devices

15

Package

160 PQFP

169 BGA

Single-Chip PCI-Ultra SCSI Controller

The SYM53C875E incorporates all of the features and functionality of the SYM53C825AE with added support for Ultra SCSI transfers, which enables the chip to transfer SCSI data at up to 40 MBps across a 16-bit bus. The SYM53C875E provides full SCSI-2 capabilities and reduces the requirements for system BIOS support with a local memory interface.



- Ultra SCSI technology doubles the synchronous transfer rate to 40 MBps.
- Designed to provide a smooth migration path from existing Fast SCSI designs.
- Builds upon proven SCSI technology – a pin-for-pin replacement for the wide SCSI industry standard SYM53C825 and SYM53C825AE.
- Support for PCI extended access cycles: memory read multiple, memory read line, memory write and invalidate.
- Direct PCI-to-SCSI connection.
- Supports single-ended and differential modes.
- SISL alternate interrupt routing for RAID applications.

SYM53C860E**Bus Interface**

32-bit PCI

SCSI Performance

20 MBps sync

SCSI Bus

SE

Scripts RAM

No

Bus Width

8-bit narrow

Clock Frequency

33 MHz-PCI

80 MHz-SCSI

Number of Devices

7

Package

100 PQFP

Single-Chip PCI-Ultra SCSI Controller

The SYM53C860E includes all the features of the SYM53C810AE with added support for Ultra SCSI transfers, which enables the chip to transfer SCSI data at up to 20 MBps across an 8-bit SCSI bus. The advantage of Ultra SCSI is that it significantly improves SCSI bandwidth and preserves existing hardware and software investments.



- Ultra SCSI technology doubles the I/O bandwidth to 20 MBps.
- Builds upon proven technology – a pin-for-pin replacement for the industry standard SYM53C810 and SYM53C810AE.
- Easy migration minimizes schedule and design risk.
- IRQ disable allows users to better control the times when their systems can receive interrupts.
- Performs high-speed, single-ended SCSI bus transfers up to 20 MBps synchronous Ultra SCSI transfers and 7 MBps asynchronous transfers.
- Functions as full 32-bit PCI DMA bus master.
- Direct PCI-to-SCSI connection.

Single-Chip PCI-Fast SCSI Controller

SYM53C825AE

Bus Interface

32-bit PCI

SCSI Performance

20 MBps sync

SCSI Bus

SE, HVD

Scripts RAM

4 KB

Bus Width

8/16-bit wide

Clock Frequency

33 MHz-PCI

75 MHz-SCSI

Number of Devices

15

Package

160 PQFP

Single-Chip PCI-SCSI Controller

The SYM53C825AE PCI-SCSI controller is a high-performance I/O solution for host adapter, workstation, and server designs. A drop-in replacement for the SYM53C825, the SYM53C825AE features performance upgrades and performs fast and wide SCSI synchronous data transfers up to a 20 MBps in single-ended or differential modes.



- Pin-for-pin replacement for the SYM53C825.
- Direct PCI-to-SCSI connection.
- Supports single-ended and differential modes.
- Selectable IRQ disable.
- SCSI selected as ID register.
- High-level programming interface (SCSI SCRIPTS).
- BIOS and driver support for hard disk, tape, CD-ROM and removable media peripherals for all of the major operating systems.

SYM53C810AE

Bus Interface

32-bit PCI

SCSI Performance

10 MBps sync

SCSI Bus

SE

Scripts RAM

No

Bus Width

8-bit narrow

Clock Frequency

33 MHz-PCI

40 MHz-SCSI

Number of Devices

7

Package

100 PQFP

Single-Chip PCI-SCSI Controller

The SYM53C810AE PCI-SCSI Controller is a single-chip, high-performance Fast SCSI I/O processor. A drop-in replacement for the industry standard SYM53C810, the SYM53C810AE transfers 8-bit SCSI data at speeds as high as 7 MBps asynchronous and 10 MBps synchronous. The SYM53C810AE provides a total SCSI solution in PC and workstation environments.



- SCRIPTS instruction prefetch.
- Drop-in replacement for SYM53C810 device.
- Direct PCI-to-SCSI connection.
- Selectable IRQ disable.
- SCSI selected as ID register.
- High-level programming interface (SCSI SCRIPTS).
- BIOS and driver support for hard disk, tape, CD-ROM, and removable media peripherals for all of the major operating systems.

SYM53C770**Bus Interface**

32-bit

SCSI Performance

40 MBps sync

SCSI Bus

SE, HVD

Scripts RAM

4 KB

Bus Width

8/16-bit wide

Clock Frequency33 (25) MHz-Bus
66 MHz-SCSI**Number of Devices**

15

Package

208 PQFP

Single-Chip Ultra SCSI Controller

The SYM53C770 includes all of the features of the SYM53C720 with added support for Ultra SCSI transfers, which enables the chip to transfer SCSI data at up to 20 MBps on an 8-bit bus and up to 40 MBps on a 16-bit bus.

- Functions as full 32-bit DMA bus transfer.
- Additional 4 KB SCRIPTS internal RAM.
- 32 additional scratchpad registers for user-defined functions.
- Pin-for-pin replacement for SYM53C720.
- Internal SCSI clock doubler allows use of a 40/50 MHz oscillator with Ultra SCSI transfer modes.
- SCSI selected as ID Register.
- High-level programming interface (SCSI SCRIPTS).



SYM53C416

Bus Interface

16-bit ISA

SCSI Performance

10 MBps sync

SCSI Bus

SE

Scripts RAM

No

Bus Width

8-bit narrow

Clock Frequency

40 MHz

Number of Devices

7

Package

100 PQFP

ISA-to-SCSI Plug-and-Play Controller

The SYM53C416 is a single-chip ISA Plug-and-Play to a SCSI Plug-and-Play controller. It provides a highly integrated connection between the SCSI bus and the ISA bus.

- Conforms to ISA Plug-and-Play specifications, version 1.0a.
- Single-chip requiring minimal external components for a complete two-layer board ISA SCSI host adapter solution.
- SCSI-2 compatible.
- 16-bit, high-performance PIO (does not require DMA channel).
- Low power mode for Green PC environments.
- On chip 48 mA TolerANT single-pin, single-ended drivers ISA bus.
- Low power CMOS.



| SYM53C180 | |
|-------------------------|---|
| SCSI Performance | Up to Ultra3 SCSI speeds |
| Repeater | LVD to LVD (Ultra2/3 SCSI), SE to SE (Ultra SCSI) |
| Converter | LVD to SE (Ultra SCSI), SE to LVD |
| Bus Width | 8/16-bit wide |
| Clock Frequency | 40 MHz |
| Package | 192 PBGA |

Ultra3 SCSI Bus Expander

To expand total SCSI device connectivity, the new SYM53C180 bus expander controller enables designers to extend SCSI cable lengths without impact to SCSI protocol or software, while providing electrical isolation between separate SCSI buses. This makes the SYM53C180 the perfect solution for today's SANs, especially high-availability server clusters.



- Incorporates all features of the SYM53C120, SYM53C140 and SYM53C141 bus expanders.
- Automatic self-calibration helps designers take full advantage of Ultra3 SCSI's performance and distance capabilities.
- Accepts any asynchronous or synchronous transfer speed up to Ultra3 SCSI (for LVD to LVD mode only).
- Can cascade up to four SYM53C180s.
- Pin compatible with the SYM53C140 BGA (using the SYM53C180 pinout).
- Supports SCSI bus margining.

| SYM53C140 | |
|-------------------------|---|
| SCSI Performance | Up to Ultra2 SCSI speeds |
| Repeater | LVD to LVD (Ultra2 SCSI), HVD to HVD (Ultra SCSI), SE to SE (Ultra SCSI), or any combination for repeater |
| Converter | LVD to HVD* (Ultra SCSI), LVD to SE (Ultra SCSI), HVD* to SE (Ultra SCSI), or any combination for converter |
| Bus Width | 8/16-bit wide |
| Clock Frequency | 40 MHz |
| Package | 160 PQFP 192 PBGA |

LVD SCSI Bus Expander

A SCSI bus expander couples bus segments together without any impact to the SCSI protocol, software, or firmware. The SYM53C140 SCSI bus expander connects single-ended Ultra, LVD Ultra2 or HVD peripherals together in any combination.



- Operates as a SCSI bus converter or repeater.
- Self-calibration mode supports variations in voltage, temperatures and silicon process.
- On-chip multi-mode LVDlink transceivers.
- Cascades up to four SYM53C140s.
- Pin compatible with the SYM53180.

* All HVD requires external differential transceivers and terminations.

SYM53C141

SCSI Performance

Up to Ultra SCSI speeds

Repeater

SE to SE

Converter

SE to LVD

Bus Width

8/16-bit wide

Clock Frequency

40 MHz

Package

128 PQFP

LVD SCSI Bus Expander

A SCSI bus expander couples bus segments together without any impact to the SCSI protocol, software or firmware. The SYM53C141 SCSI bus expander attaches single-ended SCSI peripherals to the LVD signaling bus used by Ultra2 SCSI.



- Attaches single-ended SCSI devices to a LVD SCSI bus.
- Operates as a SCSI bus converter or repeater.
- Provides SCSI bus isolation for high availability and scalable server clustering technologies.
- Self-calibration mode supports variations in voltage, temperature and silicon process.
- Accepts any asynchronous or synchronous transfer speed up to Ultra SCSI.
- On-chip multi-mode LVLink transceivers.
- Cascades up to three SYM53C141s.
- Server clustering environments.

SYM53C120

SCSI Performance

Up to Ultra SCSI speeds

Repeater

SE to SE

Converter

SE to HVD

Bus Width

8/16-bit wide

Clock Frequency

40 MHz

Package

128 PQFP

HVD Bus Expander

The SYM53C120 is a single-chip solution, which allows the extension of device connectivity and/or cable length limits of the SCSI bus. The SYM53C120 operates on a SCSI bus repeater when multiple single-ended to single-ended buses are connected together and as a converter when attaching a single-ended bus to a differential bus.



- Expands device connectivity and cable distances.
- Allows for large disk configurations.
- Accepts any asynchronous or synchronous data transfer rates up to Ultra SCSI.
- Does not consume a SCSI ID.
- Connects two wide/narrow SCSI buses.

SYMFC909

Bus Interface

64-bit/66 MHz PCI

Number of Devices

2000 concurrent host commands

Package

329 PBGA

PCI to Fibre Channel Protocol Controller

The SYMFC909 controller offers today's Fibre Channel market a high-performance, cost-effective solution. The SYMFC909 supports server, RAID and workstation environments with a high-performance 64-bit/66 MHz PCI host interface. The controller also supports the Fibre Channel serial link with an integrated one Gbaud transceiver or with an optional external transceiver.



- SAN-architected design and message transport architecture provides optimal performance in Fibre Channel switched networked topologies and conventional arbitrated loop designs.
- SAN architecture will provide easy migration into future serial-based I/O technologies.
- Targeted applications include server clustering environments, embedded RAID, low-cost PCI/FC host adapters, host motherboards.
- Custom ARM based RISC processor.
- SRAM external memory interface.
- Integrated BER Link diagnostic.
- Integrated 1 Gbaud transceiver.
- Intelligent, high-performance context manager.
- FC-PH, FC-AL2, FC-FCP, FC-PLDA, FC-FLA, FCA-IP, IETF-IPFC, PC99 and PCI 2.2 compliant.

Symbios I/O Controllers

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.

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.

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