

Symbios SYM22801 Data Sheet

Symbios SYM22801

PCI-Dual Channel Multi-function Single-ended Ultra SCSI Solution

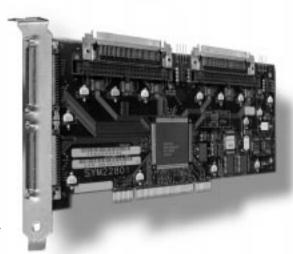
The SYM22801 host adapter is a multi-function board providing two independent single-ended Ultra SCSI channels. Both SCSI channels are identical, offering increased connectivity without utilizing additional PCI slots. A single board provides a powerful dual channel, multitasking interface for Ultra SCSI peripherals such as disk, tape, CD-ROM, and other SCSI devices.

The SYM22801 leverages the SYM53C876 PCI dual channel SCSI multi-function controller capable of connecting directly to the PCI bus, presenting one electrical load, while functioning as a single 32-bit PCI DMA bus master.

The SYM22801 includes an on-board configuration utility allowing viewing and changing of default configuration settings for the host adapter and connected SCSI peripherals.

The device also provides advanced features for ease of use by modifying the on-board terminators depending on cable configuration and LEDs to help with termination power (TERMPWR) monitoring.

The SYM22801 has advanced features which makes it the right choice for applications requiring up to 30 connected peripherals, or for isolating peripheral classes (e.g. CD-ROMs and tape drives on one channel and high performance disk drives on the other).



Benefits

- Increased peripheral connectivity up to 30 devices
- Complete host adapter solution for quick time-to-market
- True multi-function device provides better performance than PCI-to-PCI bridge solutions
- Up to 80 MBps combined synchronous transfer rate for two 16-bit Ultra SCSI channels
- Improved reliability with a single chip solution
- Automatic termination determined by cabling environment (ease of use for OEMs and end users)
- Complete software support with BIOS and drivers
- Termination power supplied through selfresetting current limiting device
- Allows custom driver development with Symbios SCSI SCRIPTSTM
- Connectors for off-board SCSI active LEDs
- Any drive in a disk array can be used as the boot device
- On-board BIOS supports disk drives with greater than 8-Gbyte capacity

PCI Features

- True multi-function device (per PCI 2.1 Specification)
 uses only one PCI slot
- Functions as one 32-bit PCI DMA bus master
- Two independent DMA channels with internal programmable arbitration
- 33 MHz PCI bus zero wait state operation
- Maximum burst transfer rate of 132 MBps
- Supports PCI Write and Invalidate, Read Line, and Read Multiple commands
- Universal 3.3V and 5V PCI

SCSI Features

- 16-bit Ultra SCSI design based on the popular SYM53C875 for maximum performance
- Local memory bus for FLASH memory BIOS storage
- Symbios SCSI TolerANT[™] active negation SCSI driver and receiver technology
- SCAM (SCSI Configured AutoMatically) Level 1 functionality for SCSI plug and play support
- External VHDCI SCSI connector per channel

Software Features

- Support for DOS, Windows 95, Novell NetWare, Windows NT, UnixWare, and SCO Open Server, OS/2, ASPI
- Software drivers and SCRIPTS compatible with SYM53C825A and SYM53C875
- Tagged command queuing for peak performance in multitasking environments

- Shared interrupts and shared memory allow multiple PCI devices in a single-interrupt system
- Software support for CD-ROM, tape backup, hard disk, and removable media support
- Utilities:
 - Install utility
 - Flash utility
- Configuration utility
- Multiple host adapter support
- Multiple LUNs per SCSI ID for RAID and media changer capability

Technical Description

The SYM22801 uses the SYM53C876 PCI dual channel SCSI multi-function controller. This single-chip multi-function device connects directly to the PCI bus.

Termination Control

For each channel the adapter will automatically determine when cables are attached to which connector and properly enable or disable the SCSI terminators. The table below shows which cable combinations are allowed.

Four jumpers included to manually force the different cable configurations.

Termination Power

One LED per channel is included to indicate the status of termination power (TERMPWR).

8-bit Internal	16-bit Internal	8-bit External	16-bit External
✓			
	√		
		√	
			1
✓		✓	
✓			✓
	✓	✓	
	1		√
/	1		

Cable Combinations -

legal cable combinations allowed by the SYM22801 utilizing the two internal and two external SCSI connectors.

Setting	Default	Global/Device
SCAM Support	On	Global
Parity Checking	Enabled	Global
Host Adapter SCSI ID	7	Global
Scan Order	Low to high (0-Max)	Global
Synchronous Transfer Rate	40 MB (Ultra)	Device
Data Width	16	Device
Disconnect	On	Device
I/O Time-out (secs)	10	Device
Scan for device at boot	Yes	Device
Scan for SCSI Luns	Yes	Device
Queue Tags	Enabled	Device

Configuration Settings -

configuration settings which can be changed on the SYM22801.

Configuration Utility

The resident menu-driven BIOS configuration utility allows the viewing and changing of the default settings for the host adapter and SCSI devices. The following table lists the configuration settings which can be changed. The global settings affect the host adapter and all SCSI devices connected to it.

The host adapter boot order can be changed if more than one SCSI host adapter solution is implemented.

Interrupts

The host adapter includes a jumper to select separate interrupts (channel A routed to INTA# pin and channel B routed to INTB# pin) or shared interrupts (channel A and channel B routed to INTA#/ pin).

Subsystem ID

Subsystem ID and Subsystem Vendor ID support enables users to develop custom software while still using a standard board configuration.

Hardware Specifications

Host Bus

PCI 2.1 Compliant

On-board, field upgradable, 64K bytes Flash ROM for BIOS

On-board serial NVRAM for enhanced SCSI Plug and Play (SCAM) support

Internal connectors per channel

68-pin, right angle, high density latching SCSI bus 50-pin, vertical, low-density SCSI bus

4-pin, for off-board SCSI Active LED

External connector per channel

68-pin, VHDCI high density shielded, with screw jacks

Processor

High performance SCSI RISC core

Termination

Automatic, Active

Termination power

Self-resetting

Form Factor

Approx. 7.5" x 4.2" board size, PCI 2.1 Universal Board PCI connector

Bracket

ISA/EISA style

Electrical

5V +/- 5% (3.0 A max) 12V +/- 5% (50 mA max)

PCI max power dissipation

15 Watts

PRSNT1# - open

PRSNT2# - ground

Environmental

5° to 55° C (operating) 5% to 90% relative humidity(non-condensing)

MTBF

> 500,000 hours

Agency certification

FCC Class B CISPR B

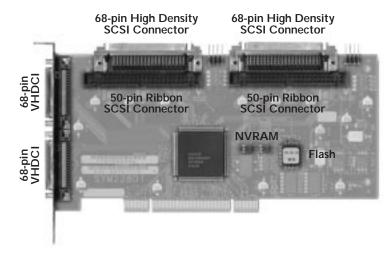
VCCI Class 2

CE Mark

UL 94V0 rated

Board Layout -

graphical representation of the SYM22801 PCI-Dual Channel Multi-function Single-ended Ultra SCSI Host Adapter.



LSI Logic Sales Locations

North American Sales Locations

Western Sales Area

1551 McCarthy Blvd. Milpitas, CA 95035 (408) 443-8000

2 Park Plaza, Suite 1000 Irvine, CA 92614 (949) 553-5600

Eastern Sales Area

230 Third Ave Waltham, MA 02451 (781) 890-0180

8300 Norman Center Drive, Suite 730 Bloomington, MN 55437 (612) 921-8300

12377 Merit Drive, Suite 400 Dallas, TX 75251 (972) 503-3205

30 Mansell Court, Suite 220 Roswell, GA 30076 (770) 641-8001

International Sales Locations

European Sales Headquarters

Westendstrasse 193/II 80686 Munich Germany 011-49-89-547470-0

Asia/Pacific Sales Headquarters

1 Claymore Drive #08-10 Orchard Towers, (Rear Block) Singapore 229594 011-65-8355 040

Japan

Kijimon Building 4F 6-26-9 Haramachida, Machida Tokyo 194 Japan +81-427-32-0250

Taiwan

10F.156, Min Sheng East Road, Sec 3 Taipei, Taiwan, R.O.C. +886-2-2718-7828

LSI Logic logo design, ATMized, ATMizer, BitBuster, CASCADE, CoreWare and CoreWare logo design, FlexCore, G10 and G10 logo design, HYDRA, It Takes Two To Make One Of A Kind, LSI Links, MiniRISC, MiniSIM, SeriaLink, The System on a Chip Company and VISC are registered trademarks, and Cablestream, Cafe, C-MDE, Compacted Array, Cream, DCAM, DiscRISC, DiskRISK, Espresso, First-Time-Right, FlexStream and FlexStream logo design, G11 and G11 logo design, G12 and G12 logo design, GigaBlaze, Grounds, Hyper-LVDS, HyperPHY, Integra, Internet on a Chip, Logically Speaking, Merlin, Mint, Mint Technology, Mint logo design, Mocha, Netcore, Planet LSI, PowerPlay, Right-First-Time, Scenario, SerialICE, Sugar, Symbios, Taking Cameras Digital, TinyRISC, TinySIM, WINS, TolerANT, LVDlink, and SCRIPTS are trademarks of LSI Logic Corporation. ARM is a registered trademark of Advanced RISC Machines Limited, used under license; OakDSPCore is a registered trademark of DSP Group Inc., used under license; SparKIT is a trademark of SPARC International, Inc. and is exclusively licensed to LSI Logic Corporation. All other brand and product names may be trademarks of their respective companies.

LSI Logic Corporation reserves the right to make changes to any products and services herein at any time without notice. LSI Logic does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by LSI Logic; nor does the purchase, lease, or use of a product or service from LSI Logic convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual property rights of LSI Logic or of third parties.

©1999 by LSI Logic Corporation. All rights reserved. An ISO 9000 Registered Company

Printed in the U.S.A.

T119721 0199

1-800-856-3093 www.lsilogic.com

.A. 99 1.5M

