

Symbios[®] SYM20810 PCI to SCSI Host Adapter

User's Guide

Version 1.1



Order Number S14037



Electromagnetic Compatibility Notices

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded cables for SCSI connection external to the cabinet are used in the compliance testing of this Product. LSI Logic is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by LSI Logic. The correction of interferences caused by such unauthorized modification, substitution, or attachment will be the responsibility of the user.

The LSI Logic Symbios[®] SYM20810 is tested to comply with FCC standards for home or office use.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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This document describes Version 1.1 of LSI Logic Corporation's SYM20810 PCI to SCSI Host Adapter and will remain the official reference source for all revisions/releases of this product until rescinded by an update.

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Preface

This book is the primary reference and User's Guide for the LSI Logic Symbios[®] SYM20810 PCI to SCSI Host Adapter. It contains a complete functional description for the SYM20810 and includes complete physical and electrical specifications for the SYM20810.

Audience

This document assumes that you have some familiarity with microprocessors and related support devices. The people who benefit from this book are:

- Engineers and managers who are evaluating the processor for possible use in a system
 - Engineers who are designing the processor into a system
-

Related Publications

Symbios[®] PCI SCSI Device Management System SDMS 4.0 User's Guide, LSI Logic Corporation, Order Number S14007

Revision Record

Revision	Date	Remarks
1.0	9/97	First official release.
1.1	12/99	Miscellaneous cosmetic/format changes from Symbios to LSI Logic.

Chapter 1

What is Covered in this Guide

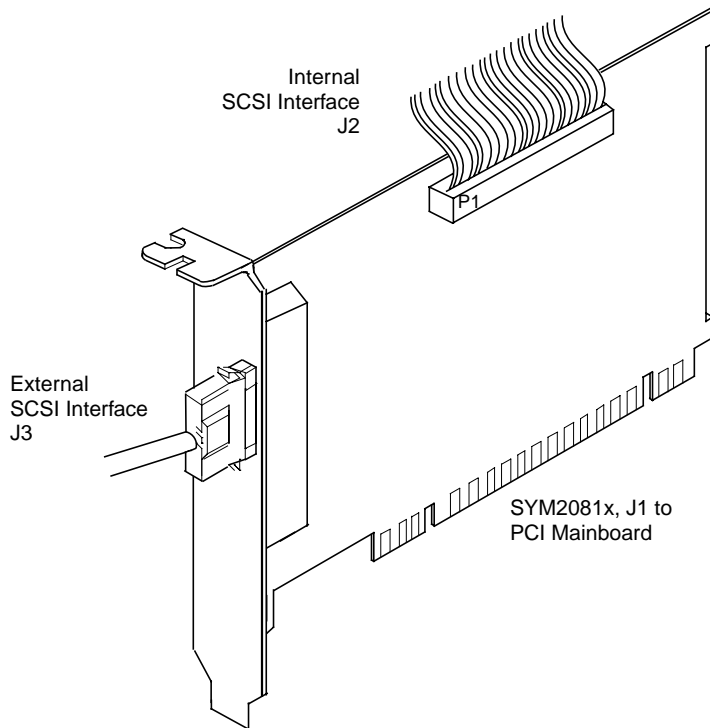
This installation guide provides instructions and illustrations to help you install a Symbios® SYM20810 PCI to SCSI host adapter. It covers the following topics:

- Section 1.1, "Installation"
- Section 1.2, "Connecting Internal SCSI Devices"
- Section 1.3, "Installing the Host Adapter Device Driver Software"
- Section 1.4, "Troubleshooting"

The SYM20810 provides a low-cost SCSI solution for attaching SCSI devices (disk drives, scanners, CD-ROM drives, tape drives, removable media drives, etc.) to PCI computer systems with an ISA/EISA bracket type. Figure 1.1 shows the major components and connections of the SYM20810 host adapter.

The Symbios SCSI Device Management System (SDMS™) software includes drivers and utilities for operating this host adapter in computers running DOS/Windows, Windows 95, Windows NT, and OS/2.

Figure 1.1 SYM20810 Board Outline



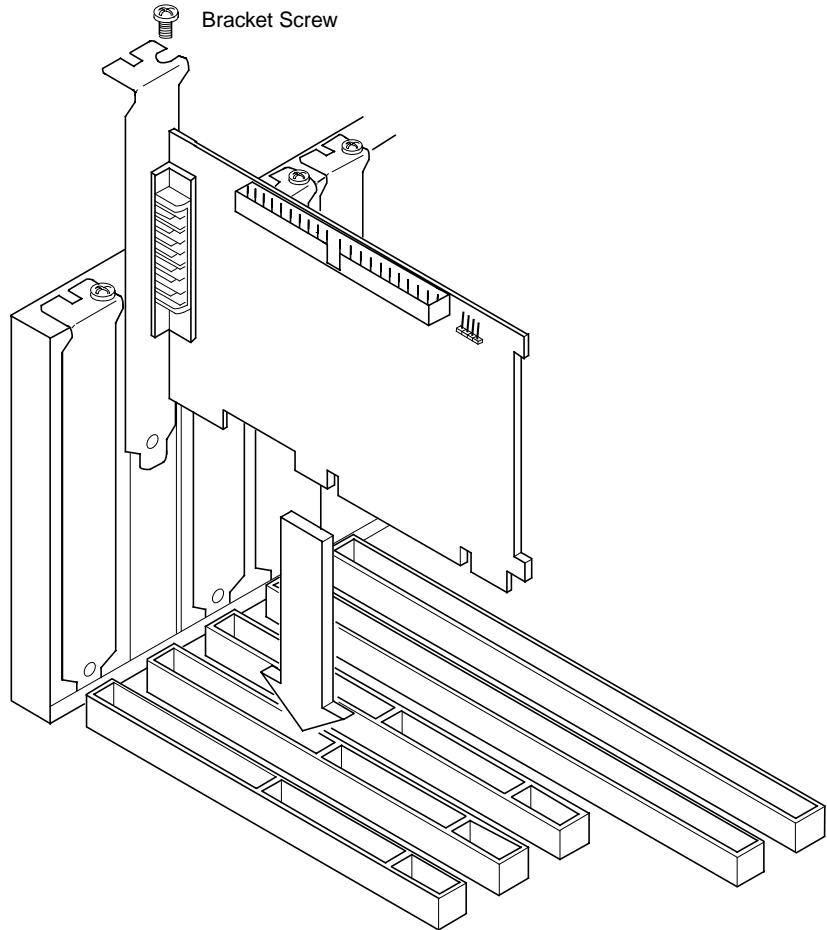
1.1 Installation

- Step 1. Before you begin the installation, switch off the power to the computer and any peripheral devices and disconnect all power cords.

Caution: Before handling the SYM20810 board, ground yourself using a ground strap attached to the computer metal frame. Static charges on your body can damage electronic components. Handle plug-in boards by the edge; do not touch board components or gold connector contacts.

- Step 2. Remove the cover on your computer to access the PCI slots. Refer to your computer documentation if necessary.
- Step 3. Locate an unused expansion slot for installing the PCI to SCSI host adapter. Refer to your computer documentation if necessary to locate the expansion slots.
- Step 4. Remove the blank bracket panel on the back of the computer that covers the slot you intend to use. Save the bracket screw.
- Step 5. Remove the SYM20810 host adapter board from the antistatic bag and insert the edge connector into the PCI slot, as pictured in Figure 1.2. Make sure the edge connector is properly aligned before pressing the board into place. Apply even pressure to both ends of the board while inserting it.

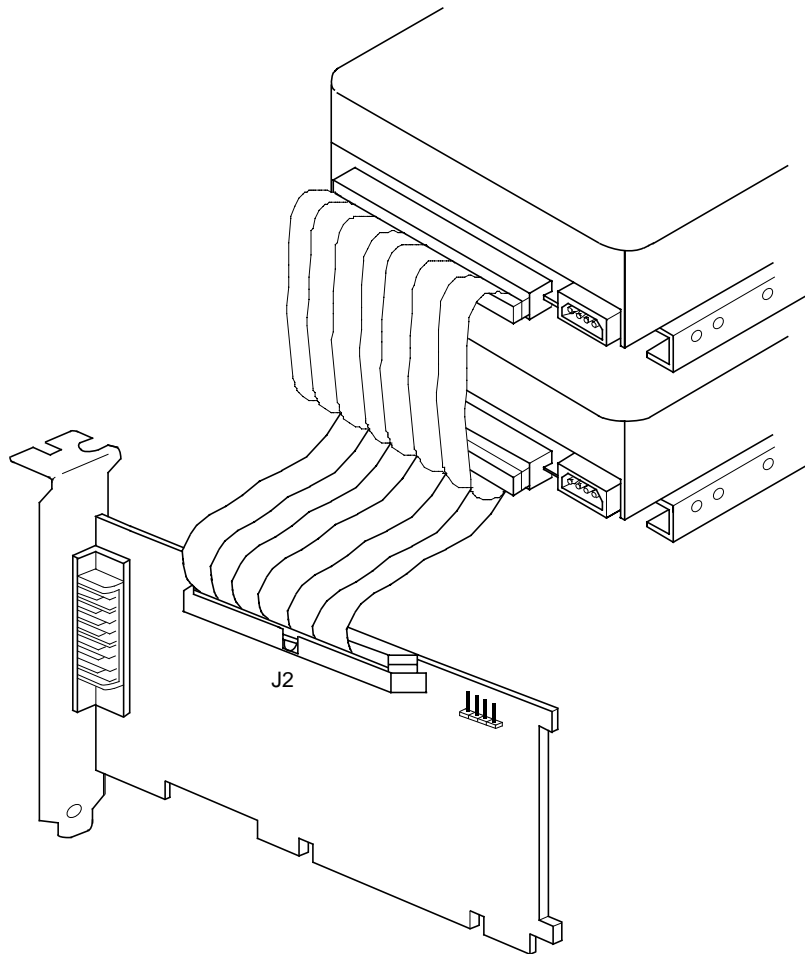
Figure 1.2 Inserting the Host Adapter



1.2 Connecting Internal SCSI Devices

- Step 1. If you are connecting an internal SCSI device, plug the 50-pin connector cable on one end of the internal SCSI ribbon cable into the connector J2 (see Figure 1.3). The ribbon cable included in your SYM20810 host adapter kit is keyed to assure that it can be easily connected.
- Step 2. Plug the 50-pin connector on the other end of the ribbon cable into the SCSI connector on your internal SCSI device.
- Step 3. To attach more than one internal device, use a SCSI ribbon cable with the required number of 50-pin connectors attached along its length. Plug the cable connectors into the internal SCSI device connectors, as illustrated in Figure 1.3.
- Step 4. Terminate the SCSI bus as described in the Section 1.2.3, "SCSI Bus Termination," page 1-9.
- Step 5. Make any required power connections to your internal SCSI device(s).

Figure 1.3 Internal SCSI Devices Chained Together



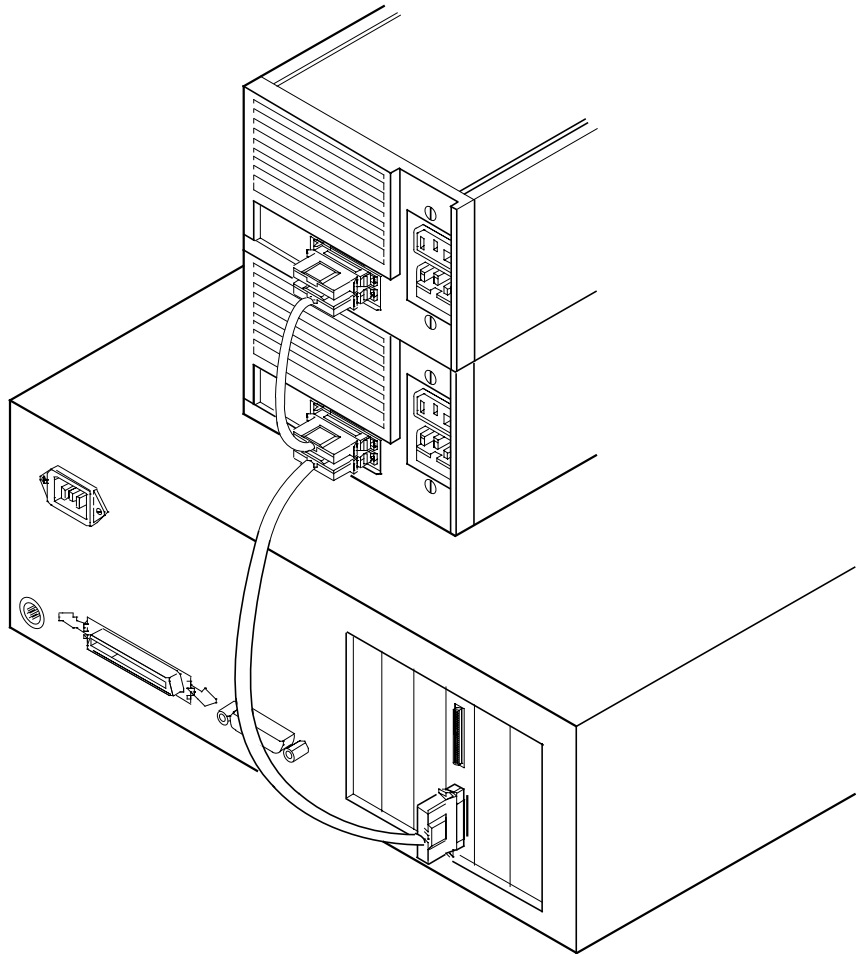
1.2.1 Completing the Installation

- Step 1. The bracket around the end connector (J3) should fit where the blank bracket panel was removed. Secure the bracket with the bracket screw.
- Step 2. Replace the cover as described in your computer documentation.

1.2.2 Connecting External SCSI Devices

- Step 1. If you need to connect external SCSI devices to the SYM20810 host adapter, plug the 50-pin connector on one end of a shielded external SCSI cable into the host adapter SCSI connector J3. This connector is now bracketed to the back panel of your computer. Figure 1.4 shows how this connection is made.
- Step 2. Plug the 50-pin connector on the other end of the SCSI cable into the SCSI connector on the peripheral device. This connection is shown in Figure 1.4.
- Step 3. If you wish to connect more than one device to the host adapter, use shielded cables to chain them together as illustrated in Figure 1.4.
- Step 4. Terminate the SCSI bus as described in the section Section 1.2.3, "SCSI Bus Termination," page 1-9.

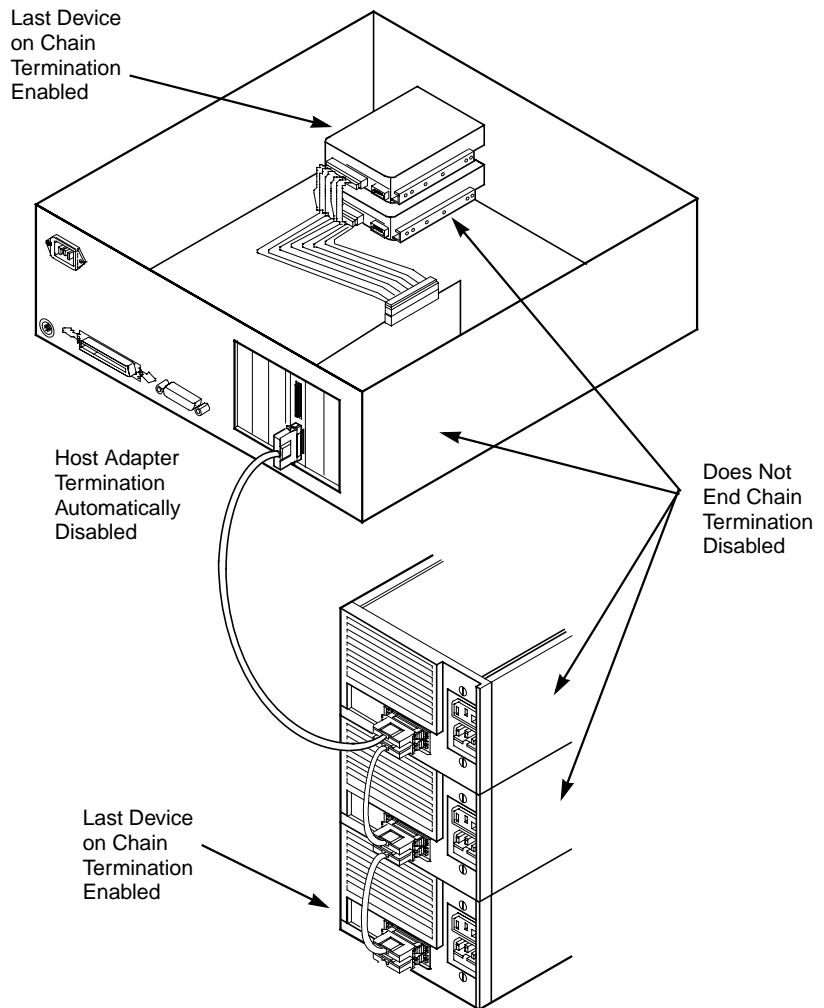
Figure 1.4 Multiple External Devices Chained Together



1.2.3 SCSI Bus Termination

All SCSI devices have a set of resistors called terminators to assure reliable operation of the SCSI bus. The first and last physical devices on the SCSI bus must have these terminators enabled; all other SCSI devices on the bus must have their terminators removed or disabled. Termination on the SYM20810 host adapter is automatically enabled when it is connected to the end of the bus. Refer to the SCSI device documentation for information on how to identify and change the terminator setting on each SCSI peripheral device.

Figure 1.5 SCSI Bus Termination



1.2.4 Setting SCSI IDs

Each device on the SCSI bus, including the host adapter, must have a unique SCSI ID from 0 through 7. Refer to your peripheral device documentation for instructions on how to determine and change the ID of each peripheral device. The SCSI ID on the SYM20810 is 7.

Caution: The SYM20810 host adapter supports only Single-Ended (SE) SCSI devices. Differential SCSI devices may be damaged if you connect them to this host adapter. Refer to your SCSI device documentation to make sure you are connecting a SE device.

1.3 Installing the Host Adapter Device Driver Software

The SYM20810 is supported by Symbios SDMS drivers for DOS/Windows 3.x, Windows 95, Windows NT, and OS/2. Consult the software documentation for complete installation instructions. The Symbios SDMS driver/utility software and documentation for your operating system can be downloaded from the LSI Logic web site (www.lsillogic.com).

1.3.1 DOS/Windows

The Symbios SDMS driver for DOS runs under DOS 5.0 and above and all versions of Windows 3.x. Consult the software documentation (`dos.txt`) for specific installation instructions and descriptions of the DOS/Windows 3.x drivers and utilities. Symbios SDMS software also includes the following DOS/Windows utilities:

- DOS Installation Utility
- SCSI Low Level Format Utility
- Verify Utility
- SCSI Configuration Utility

1.3.2 Windows 95/Windows NT

Windows 95 and Windows NT (versions 3.51 and newer) have embedded support for the SYM20810, so the driver is installed automatically during setup. To add the SYM20810 to an existing system, install the board according to the instructions in this guide, then restart the computer. The operating system will automatically launch the “Add New Hardware” wizard to install the driver. Follow these steps to make sure that the driver software has been properly installed:

- Step 1. From the Windows 95 Start menu, select Settings, then Control Panel.
- Step 2. From the Control Panel window, click the System icon. The System Properties menu displays.
- Step 3. Select the Device Manager.
- Step 4. Click on the SCSI Controllers icon.

- Step 5. The name of the driver for the SYM20810 is "Symbios 8100ASP, 2081x PCI SCSI Adapter; 53C810A Device." If this driver is not listed, follow the instructions in the Symbios SDMS Windows 95 or Windows NT driver documentation. This documentation can be found on the LSI Logic web site at www.lsillogic.com.
- Step 6. If there are no red X's or yellow question mark icons next to the listing for the SYM20810, the driver is loaded and ready to use. Please keep in mind that Windows NT only displays the driver information, not every controller found by the driver.

For information on how to change the Symbios driver in your system or to add a driver to a Windows 95 or Windows NT system that is set up with a different SCSI driver, refer to the LSI Logic *Symbios PCI SCSI Device Management System SDMS 4.0 User's Guide* or the software documentation that accompanies the driver on your diskette or on the LSI Logic web site. The file names are `95.txt` for Windows 95 and `8xmnt.txt` for Windows NT.

1.3.3 OS/2

The Symbios SYM8XX.ADD device driver complies with the IBM OS/2 Adapter Device Driver specification, and works with third party applications that comply with the same specification. For complete installation instructions, refer to the `OS2.txt` file supplied with your Symbios OS/2 SCSI driver software. The latest version of this driver and the text file may also be found on the LSI Logic web site at www.lsillogic.com.

1.4 Troubleshooting

During installation, no SCSI devices are found:

- Check the cable connections and the host bus adapter installation.
- Ensure that all devices are powered on and terminated correctly.
- Check that no devices have duplicate SCSI IDs.
- Make sure INT A is assigned for the PCI slot(s) where your SCSI host adapter(s) are installed.
- Make sure the SCSI device driver is installed properly.

The computer hangs or locks up when booting and the SCSI devices attached are not seen by the computer system:

- Make sure that all the SCSI devices are configured at different ID numbers (the boot drive should have the lowest ID).
- Make sure both ends, but only the ends, of the SCSI bus are terminated.
- (DOS, OS/2) Make sure the device driver is listed in `CONFIG.SYS` (and loaded when booting).

The device driver does not see one of the SCSI devices:

- Reboot the computer.
- Make sure the SCSI devices have different ID numbers (the boot drive should have the lowest ID).
- Make sure both ends, but only the ends, of the SCSI bus are terminated.
- Check the cable and power connections.

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W. E. Tel: 801.974.9953

Direct Sales Representatives by State (Component and HAB)

E. A. Earle Associates
E. L. Electrodyne - UT
GRP Group 2000
I. S. Infinity Sales, Inc.
ION ION Associates, Inc.
R. A. Rathsburg Associates, Inc.
SGY Synergy Associates, Inc.

Arizona

Tempe
E. A. Tel: 480.921.3305

California

Calabasas
I. S. Tel: 818.880.6480
Irvine
I. S. Tel: 714.833.0300
San Diego
E. A. Tel: 619.278.5441

Illinois

Elmhurst
R. A. Tel: 630.516.8400

Indiana

Cicero
R. A. Tel: 317.984.8608
Ligonier
R. A. Tel: 219.894.3184
Plainfield
R. A. Tel: 317.838.0360

Massachusetts

Burlington
SGY Tel: 781.238.0870

Michigan

Byron Center
R. A. Tel: 616.554.1460
Good Rich
R. A. Tel: 810.636.6060
Novi
R. A. Tel: 810.615.4000

North Carolina

Cary
GRP Tel: 919.481.1530

Ohio

Columbus
R. A. Tel: 614.457.2242
Dayton
R. A. Tel: 513.291.4001
Independence
R. A. Tel: 216.447.8825

Pennsylvania

Somerset
R. A. Tel: 814.445.6976

Texas

Austin
ION Tel: 512.794.9006
Arlington
ION Tel: 817.695.8000
Houston
ION Tel: 281.376.2000

Utah

Salt Lake City
E. L. Tel: 801.264.8050

Wisconsin

Muskego
R. A. Tel: 414.679.8250
Saukville
R. A. Tel: 414.268.1152

Sales Offices and Design Resource Centers

LSI Logic Corporation
Corporate Headquarters
Tel: 408.433.8000
Fax: 408.433.8989

NORTH AMERICA

California
Costa Mesa - Mint Technology
Tel: 949.752.6468
Fax: 949.752.6868

Irvine
◆ Tel: 949.809.4600
Fax: 949.809.4444

Pleasanton Design Center
Tel: 925.730.8800
Fax: 925.730.8700

San Diego
Tel: 858.467.6981
Fax: 858.496.0548

Silicon Valley
◆ Tel: 408.433.8000
Fax: 408.954.3353

Wireless Design Center
Tel: 858.350.5560
Fax: 858.350.0171

Colorado
Boulder
◆ Tel: 303.447.3800
Fax: 303.541.0641

Colorado Springs
Tel: 719.533.7000
Fax: 719.533.7020

Fort Collins
Tel: 970.223.5100
Fax: 970.206.5549

Florida
Boca Raton
Tel: 561.989.3236
Fax: 561.989.3237

Georgia
Alpharetta
Tel: 770.753.6146
Fax: 770.753.6147

Illinois
Oakbrook Terrace
Tel: 630.954.2234
Fax: 630.954.2235

Kentucky
Bowling Green
Tel: 270.793.0010
Fax: 270.793.0040

Maryland
Bethesda
Tel: 301.897.5800
Fax: 301.897.8389

Massachusetts
Waltham
◆ Tel: 781.890.0180
Fax: 781.890.6158

Burlington - Mint Technology
Tel: 781.685.3800
Fax: 781.685.3801

Minnesota
Minneapolis
◆ Tel: 612.921.8300
Fax: 612.921.8399

New Jersey
Red Bank
Tel: 732.933.2656
Fax: 732.933.2643

Cherry Hill - Mint Technology
Tel: 609.489.5530
Fax: 609.489.5531

New York
Fairport
Tel: 716.218.0020
Fax: 716.218.9010

North Carolina
Raleigh
Tel: 919.785.4520
Fax: 919.783.8909

Oregon
Beaverton
Tel: 503.645.0589
Fax: 503.645.6612

Texas
Austin
Tel: 512.388.7294
Fax: 512.388.4171

Plano
◆ Tel: 972.244.5000
Fax: 972.244.5001

Houston
Tel: 281.379.7800
Fax: 281.379.7818

Canada
Ontario
Ottawa
◆ Tel: 613.592.1263
Fax: 613.592.3253

INTERNATIONAL

France
Paris
◆ **LSI Logic S.A.**
Immeuble Europa
Tel: 33.1.34.63.13.13
Fax: 33.1.34.63.13.19

Germany
Munich
◆ **LSI Logic GmbH**
Tel: 49.89.4.58.33.0
Fax: 49.89.4.58.33.108

Stuttgart
Tel: 49.711.13.96.90
Fax: 49.711.86.61.428

Italy
Milano
◆ **LSI Logic S.P.A.**
Tel: 39.039.687371
Fax: 39.039.6057867

Japan
Tokyo
◆ **LSI Logic K.K.**
Tel: 81.3.5463.7821
Fax: 81.3.5463.7820

Osaka
◆ Tel: 81.6.947.5281
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Korea
Seoul
◆ **LSI Logic Corporation of Korea Ltd**
Tel: 82.2.528.3400
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The Netherlands
Eindhoven
◆ **LSI Logic Europe Ltd**
Tel: 31.40.265.3580
Fax: 31.40.296.2109

Singapore
Singapore
◆ **LSI Logic Pte Ltd**
Tel: 65.334.9061
Fax: 65.334.4749

Tel: 65.835.5040
Fax: 65.732.5047

Sweden
Stockholm
◆ **LSI Logic AB**
Tel: 46.8.444.15.00
Fax: 46.8.750.66.47

Taiwan
Taipei
◆ **LSI Logic Asia, Inc.**
Taiwan Branch
Tel: 886.2.2718.7828
Fax: 886.2.2718.8869

United Kingdom
Bracknell
◆ **LSI Logic Europe Ltd**
Tel: 44.1344.426544
Fax: 44.1344.481039

◆ Sales Offices with
Design Resource Centers

International Distributors

Australia

New South Wales
◆ **Reptechnic Pty Ltd**
Tel: 612.9953.9844
Fax: 612.9953.9683

Belgium

Acal nv/sa
Tel: 32.2.7205983
Fax: 32.2.7251014

China

Beijing
LSI Logic International Services Inc.
Tel: 86.10.6804.2534
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France

Rungis Cedex
Azzurri Technology France
Tel: 33.1.41806310
Fax: 33.1.41730340

Germany

Haar
EBV Elektronik
Tel: 49.89.4600980
Fax: 49.89.46009840

Munich

Avnet Emg GmbH
Tel: 49.89.45110102
Fax: 49.89.42.27.75

Wuennenberg-Haaren

Peacock AG
Tel: 49.2957.79.1692
Fax: 49.2957.79.9341

Hong Kong

Hong Kong
AVT Industrial Ltd
Tel: 852.2428.0008
Fax: 852.2401.2105

EastEle

Tel: 852.2798.8860
Fax: 852.2305.0640

India

Bangalore
Spike Technologies India Private Ltd
◆ Tel: 91.80.664.5530
Fax: 91.80.664.9748

Israel

Tel Aviv
Eastronics Ltd
Tel: 972.3.6458777
Fax: 972.3.6458666

Japan

Tokyo
Global Electronics Corporation
Tel: 81.3.3260.1411
Fax: 81.3.3260.7100
Technical Center
Tel: 81.471.43.8200

Yokohama-City

Macnica Corporation
Tel: 81.45.939.6140
Fax: 81.45.939.6141

The Netherlands

Eindhoven
Acal Nederland b.v.
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Brugg
LSI Logic Sulzer AG
Tel: 41.32.3743232
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Taiwan

Taipei
Avnet-Mercuries Corporation, Ltd
Tel: 886.2.2516.7303
Fax: 886.2.2505.7391

Lumax International

Corporation, Ltd
Tel: 886.2.2788.3656
Fax: 886.2.2788.3568

Prospect Technology

Corporation, Ltd
Tel: 886.2.2721.9533
Fax: 886.2.2773.3756

Serial Semiconductor

Corporation, Ltd
Tel: 886.2.2579.5858
Fax: 886.2.2570.3123

United Kingdom

Maidenhead
Azzurri Technology Ltd
Tel: 44.1628.826826
Fax: 44.1628.829730

Swindon

EBV Elektronik
Tel: 44.1793.849933
Fax: 44.1793.859555

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