

USER'S GUIDE

ITI3280UDCH-S CompactPCI Dual Channel Ultra Wide Differential SCSI Host Adapter

October 2001

Version 1.0



LSI LOGIC®

DB15-000226-00

Electromagnetic Compatibility Notices

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial 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. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

LSI Logic Corporation 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 Corporation. It is the user's responsibility to correct interference caused by such unauthorized modification, substitution, or attachment.

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

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

この装置は、第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

警告使用者： 這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

LSI Logic Corporation
North American Headquarters
Milpitas, CA
408.433.8000

This document contains proprietary information of LSI Logic Corporation. The information contained herein is not to be used by or disclosed to third parties without the express written permission of an officer of LSI Logic Corporation.

LSI Logic products are not intended for use in life-support appliances, devices, or systems. Use of any LSI Logic product in such applications without written consent of the appropriate LSI Logic officer is prohibited.

Document DB15-000226-00, First Edition (October 2001). This document describes the LSI Logic ITI3280UDCH-S CompactPCI Dual Channel Ultra Wide Differential SCSI Host Adapter and will remain the official reference source for all revisions/releases of this product until rescinded by an update.

To receive product literature, visit us at <http://www.lsillogic.com>.

LSI Logic Corporation reserves the right to make changes to any products 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 described herein, except as expressly agreed to in writing by LSI Logic; nor does the purchase or use of a product 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 third parties.

Copyright © 2001 by LSI Logic Corporation. All rights reserved.

TRADEMARK ACKNOWLEDGMENT

The LSI Logic logo design is a registered trademark of LSI Logic Corporation. Solaris and the Solaris logo are trademarks or registered trademarks of Sun Microsystems, Inc. in the US and other countries and are used under license. All other brand and product names may be trademarks of their respective companies.

Preface

This book is the user's guide for the LSI Logic ITI3280UDCH-S CompactPCI Dual Channel Ultra Wide Differential SCSI Host Adapter. It includes instructions for installing this adapter with regard to cold and hot installations and provides this adapter's specifications.

Audience

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

- Engineers and managers who are evaluating or designing the host adapter board for possible use in a system
 - End users who are installing the host adapter board into their computer
-

Organization

This document has the following sections:

- [Section 1, "General Description"](#)
- [Section 2, "Operating Environment"](#)
- [Section 3, "Preparing your System for Adapter Installation"](#)
- [Section 4, "Installing the ITI3280UDCH-S"](#)
- [Section 5, "Attaching the ITI3280UDCH-S to the System"](#)
- [Section 6, "Extracting the ITI3280UDCH-S"](#)
- [Section 7, "Using the ITI3280UDCH-S"](#)

Conventions Used in This Manual

Notation	Example	Meaning and Use
courier typeface	# cfagdm	Names of commands and the output from the commands are shown in courier type face and enclosed in a box.
italic underscore	<i>attachment_point</i>	When an underscore appears in an italicized string next to a command, enter a user-supplied item of the type called for with no spaces.

Revision Record

Revision	Date	Remarks
1.0	10/01	First release.

Contents

1	General Description	1-2
1.1	Features	1-2
1.2	Hardware and Software Requirements	1-2
1.3	SCSI Cable Assemblies Required	1-3
1.4	Sun Microsystems Storage Systems Supported	1-3
2	Operating Environment	1-3
2.1	IT13280UDCH-S Specifications	1-4
2.2	Physical Characteristics	1-4
2.3	Power Requirements	1-4
2.4	Board Design	1-5
3	Preparing your System for Adapter Installation	1-6
3.1	Cold Installation Preparation	1-6
3.2	Hot-Swap Installation Preparation	1-6
4	Installing the IT13280UDCH-S	1-7
5	Attaching the IT13280UDCH-S to the System	1-8
5.1	Cold Environment Attachment	1-8
5.2	Hot-Swap Environment Attachment	1-9
6	Extracting the IT13280UDCH-S	1-10
6.1	Cold Environment Extraction	1-10
6.2	Hot Environment Extraction	1-11
7	Using the IT13280UDCH-S	1-12
7.1	Device Driver Software Requirements	1-12
7.2	Verifying the Installation	1-12

Figures

1	ITI3280UDCH-S CompactPCI Host Adapter	5
---	---------------------------------------	---

Tables

1	Hardware and Software Requirements	2
2	Specifications	4
3	Dimensions	4
4	Power Requirements	4

Using the ITI3280UDCH-S CompactPCI Adapter

This document contains instructions and illustrations to help you install an LSI Logic ITI3280UDCH-S CompactPCI Dual Channel Ultra Wide Differential SCSI Host Adapter into a CompactPCI computer system. This document provides the features, hardware and software requirements, and performance specifications for the ITI3280UDCH-S. Instructions for inserting the ITI3280UDCH-S into your computer in both cold and hot installations and information about removing and reinstalling the ITI3280UDCH-S are also included. This information is located in these sections:

- [Section 1, “General Description,” page 2](#)
- [Section 2, “Operating Environment,” page 3](#)
- [Section 3, “Preparing your System for Adapter Installation,” page 6](#)
- [Section 4, “Installing the ITI3280UDCH-S,” page 7](#)
- [Section 5, “Attaching the ITI3280UDCH-S to the System,” page 8](#)
- [Section 6, “Extracting the ITI3280UDCH-S,” page 10](#)
- [Section 7, “Using the ITI3280UDCH-S,” page 12](#)

1 General Description

The ITI3280UDCH-S is a CompactPCI Dual Ultra Wide Differential SCSI host adapter. The following sections describe the features and requirements of the ITI32080UDCH-S.

1.1 Features

The ITI3280UDCH-S supports these features:

- Hot-swap CompactPCI installation and removal
- Asynchronous and synchronous transfers
- Wide and Ultra SCSI (40 Mbytes/s)
- Ultra SCSI Narrow (20 Mbytes/s)
- Wide and Fast SCSI (20 Mbytes/s)
- Fast SCSI Narrow (10 Mbytes/s)
- Synchronous SCSI data transfer rates (5 Mbytes/s)
- High Voltage Differential (HVD) transceivers

1.2 Hardware and Software Requirements

Before you use the ITI32080UDCH-S, make sure your system meets the specific hardware and software requirements as shown in [Table 1](#).

Table 1 Hardware and Software Requirements

Component	Requirements
Hardware	Any Sun Microsystems computer with an available CompactPCI slot
Software	The Solaris 8 operating environment
Firmware	OpenBoot PROM version 3.0.
Peripherals attached to PCI adapter	All SCSI-2 High Voltage Differential devices

1.3 SCSI Cable Assemblies Required

You will use one of two types of SCSI cable assemblies based on your system.

- Offset VHDCI to offset VHDCI
or
- Offset VHDCI to HD68

Each cable assembly must have a maximum cable length of 12 meters.

1.4 Sun Microsystems Storage Systems Supported

The ITI3280UDCH-S supports the following Sun storage systems:

- Sun StorEdge A1000 Disk Array
- Sun StorEdge D1000 Disk Array
- Sun StorEdge L9 Tape Library
- Sun StorEdge L20 Tape Library
- Sun StorEdge L180 Tape Library
- Sun StorEdge L1000 Tape Library

2 Operating Environment

This section presents the ITI3280UDCH-S specifications, physical characteristics, and power requirements.

2.1 ITI3280UDCH-S Specifications

Table 2 lists the performance specifications for the ITI3280UDCH-S.

Table 2 Specifications

Feature	Specification
cPCI clock	33 MHz max
cPCI data burst transfer rate	132 Mbytes/s
SCSI synchronous transfer rate	40 Mbytes/s
SCSI interface	High Voltage Differential (HVD)
SCSI bus parity	Yes
SCSI 8-bit bus devices	Yes
SCSI 16-bit bus devices	Yes

2.2 Physical Characteristics

Table 3 provides the ITI3280UDCH-S dimensions.

Table 3 Dimensions

Dimension	Measurement
Length	160 mm
Width	100 mm

2.3 Power Requirements

Table 4 provides the power requirements for the ITI3280UDCH-S.

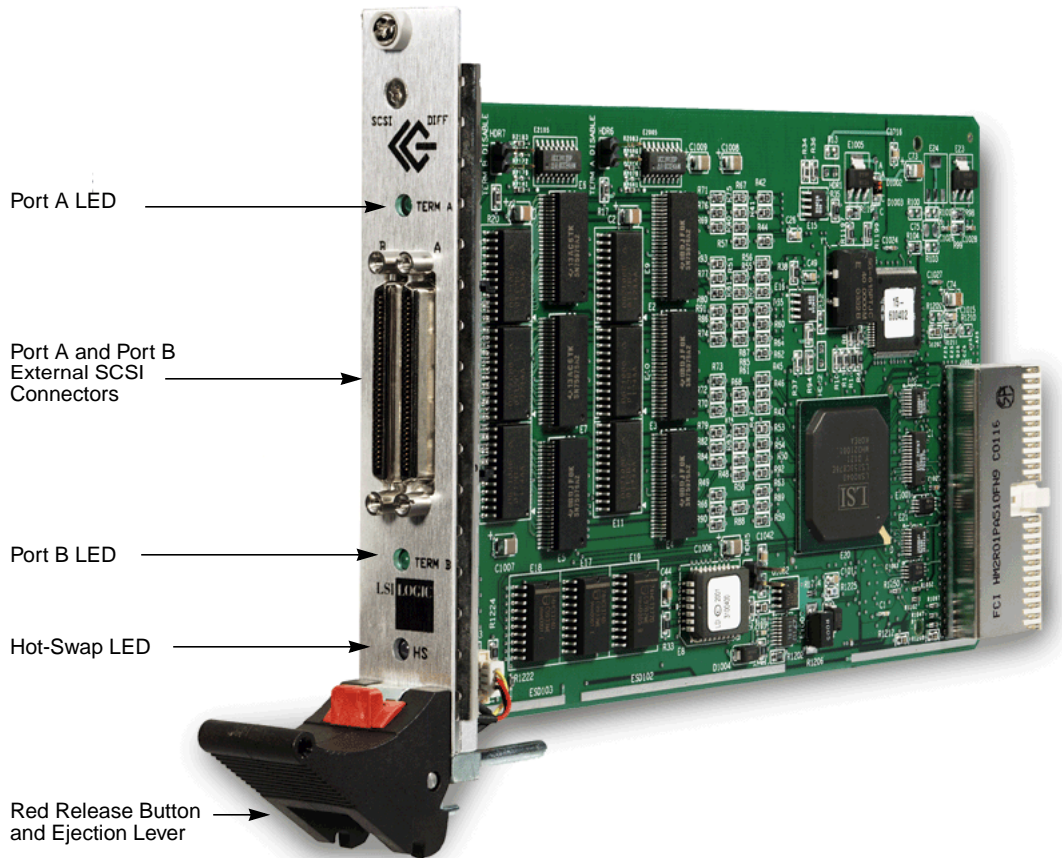
Table 4 Power Requirements

Specification	Measurement
Maximum power consumption	7.0 watts
5v (+5/-3%) supply current	0.65 A typical

2.4 Board Design

Figure 1 illustrates the ITI3280UDCH-S.

Figure 1 ITI3280UDCH-S CompactPCI Host Adapter



3 Preparing your System for Adapter Installation

This section provides a general overview of the tasks needed to perform either a hot or cold installation. For the exact procedures required for your system, refer to the documentation that shipped with your system.

3.1 Cold Installation Preparation

Before shutting down the operating environment and halting the system, ensure that all significant application activity on the server has stopped. To prepare the system for a cold installation, follow these steps.

- Step 1. Follow the appropriate procedures, as documented in the system's service manual, to shut down and halt the system.
- Step 2. Refer to the system's documentation for the complete power down procedure and location of the power switch.
- Step 3. Press the power switch on the system's status panel to power down the system.
- Step 4. Verify that the system's power LED is OFF, which indicates that the system is completely powered off.

After the system has been shut down and powered off, you can safely install the card.

3.2 Hot-Swap Installation Preparation

Review your system's documentation for the complete hot-swap instructions before performing these steps.

- Step 1. Type the following command:

```
# cfgadm
```

- Step 2. Confirm that the intended slot can be identified as unconfigured on the list that appears after issuing this command.

4 Installing the ITI3280UDCH-S

To install the ITI3280UDCH-S into your system, follow these steps:

- Step 1. Identify the slot number where you want to insert the adapter.
- Step 2. Refer to the system's documentation for instructions on how to remove the filler panel.
- Step 3. Remove the filler panel from the slot you selected.
- Step 4. Push on the red release button and open the ITI3280UDCH-S card's ejection lever before installing the card in the system.
- Step 5. Pull back the ejection lever and slide the card into the CompactPCI slot.
- Step 6. Apply even pressure at both corners of the card and push the card until it is firmly seated in the slot.
- Step 7. Push the ejection lever over the sprocket toward the card and into the locked position.

This locks the card into the slot.
- Step 8. Use a Phillips screwdriver to tighten the captive screws inside the card's ejection lever.

Note: In a hot-swap installation, the Solaris operating system automatically configures the storage devices.

- Step 9. Attach the SCSI cable to either Port A or Port B of the ITI3280UDCH-S. This completes the hardware installation.

Important: Check your system's documentation for any additional actions that may be required to configure the system software for the newly inserted card.

For example, in some systems you must type the following command:

```
# cfgadm -c configure attachment_point
```

This command turns off the blue LED and initiates the software, which responds by configuring the system software for the newly inserted card.

5 Attaching the ITI3280UDCH-S to the System

After you install your ITI3280UDCH-S, you must make the system recognize the new adapter. The correct attachment of your adapter into your system depends upon whether you installed the adapter in a cold or hot-swap environment.

5.1 Cold Environment Attachment

Before powering on the system, make sure that you have connected all the cables and have powered on all the peripheral devices. To power on the system after a cold installation, follow the appropriate procedures as documented in your system's hardware installation manual.

After powering on the system, follow these steps.

Step 1. Check the hot-swap LED on the adapter.

If the blue LED is OFF, you have installed the adapter correctly. At this point, you have verified the installation.

or

If the hot-swap LED remains ON, you did not install the adapter correctly. At this point, follow the instructions in the remaining steps.

Step 2. Remove and reinstall the adapter to make sure it is seated correctly in the slot. See [Section 4, "Installing the ITI3280UDCH-S," page 7](#) for the installation instructions.

If you have to reinstall the card, you must also follow the instructions outlined in your system's service manual for the removal and replacement of I/O adapter cards. Also refer to the troubleshooting section of your system's documentation for additional reinstallation instructions.

Step 3. Verify that the system's power LED is ON, which indicates that the system has completely powered on.

5.2 Hot-Swap Environment Attachment

To attach your ITI3280UDCH-S in a hot-swap environment, follow the hot-swap procedures for I/O card attachments in your system's server or hardware installation manual. The system software should automatically reconfigure the newly swapped card. To activate the ITI3280UDCH-S, follow these steps:

Step 1. Type this command at the system console:

```
# cfgadm -c connect ap_id
```

Where *ap_id* represents the attachment point ID.

Step 2. Verify the configured status of the appropriate slots.

Step 3. Check the hot-swap LED on the adapter.

If the blue LED is OFF, you have installed the adapter correctly. At this point, you have verified the installation.

or

If the hot-swap LED remains ON, you did not install the adapter correctly. At this point, follow the instructions in the remaining steps.

Step 4. Remove and reinstall the ITI3280UDCH-S to make sure it is seated correctly in the slot. See [Section 4, "Installing the ITI3280UDCH-S," page 7](#) for the installation instructions.

If you have to reinstall the card, you must also follow the instructions outlined in your system's service manual for the removal and replacement of I/O cards. Refer to the troubleshooting section of your system's documentation for additional reinstallation instructions.

6 Extracting the ITI3280UDCH-S

The ITI3280UDCH-S is a component that you can extract from a hot-swap-compliant system without interrupting the operation of the system. You can also extract the adapter if you installed it in a cold environment after you power down the system.

You must determine whether you want to perform a cold extraction of the adapter or a hot extraction. In a cold extraction, you must shut down the system's operating system and power down the system before extracting the adapter. In a hot-swap extraction, you may be required to enter software commands before and after the extraction to detach the adapter from the system correctly.

Note : The following procedures provide a general overview of the tasks needed to prepare for either a hot or cold extraction. For the specific procedures required for your system, refer to the documentation that shipped with your system.

6.1 Cold Environment Extraction

Before extracting your adapter, ensure that all significant application activity on the server has stopped. To extract the ITI3280UDCH-S, follow these steps.

- Step 1. Refer to the system's documentation for the complete power down procedure and location of the power switch.
- Step 2. Press the power switch on the system's status panel to power down the system.
- Step 3. Verify that the system's power LED is OFF, which indicates that the system is completely powered off.
- Step 4. Extract the ITI3280UDCH-S after the system has been shut down and powered off.

6.2 Hot Environment Extraction

To extract the adapter from a hot environment, follow these steps.

- Step 1. As superuser, identify the cPCI card to be removed. You must know the slot number (attachment point ID). To identify the slot number, type:

```
# cfgadm pci
Ap_Id                Type                Receptacle  Occupant      Condition
pcisch10:sg8slot3*** mult/fhs            connected   configured    ok
pcisch11:sg8slot1    unknown             empty       unconfigured  unknown
pcisch8:sg8slot2     stpcipci/fhs       connected   configured    ok
```

Note: I/O assemblies are indicated by "..sg--..". The attachment points (board slots) displayed are numbered starting with 0 at the system board side of the cPCI I/O assembly. In the example above, the ITI3280UDCH-S is indicated by asterisks (***) .

- Step 2. Type this command to detach (unconfigure) the ITI3280UDCH-S:

```
# cfgadm -c unconfigure attachment_point
```

Where *attachment_point* is *pcischxxx*, for example, in the example used in Step 1, *pcisch10* is the attachment point for the ITI3280UDCH-S. The following example is based on information from Step 1.

```
# cfgadm -c unconfigure attachment_point
Sep 14 12:22:00 r84 sghsc: sghsc_control: board 8, slot 3 unconfigured.
```

- Step 3. Type this command to confirm the board detachment:

```
# cfgadm pci
Ap_Id                Type                Receptacle  Occupant      Condition
pcisch10:sg8slot3*** unknown            disconnected  unconfigured  unknown
pcisch11:sg8slot1    unknown             empty       unconfigured  unknown
pcisch8:sg8slot2     stpcipci/fhs       connected   configured    ok
```

- Step 4. Check that the blue LED is ON.
- Step 5. Push on the red release button and pull back on the adapter card's ejection lever.
- Step 6. Slide the card out of the CompactPCI slot.

7 Using the ITI3280UDCH-S

This section provides driver requirements and methods to verify the proper installation of the ITI3280UDCH-S.

7.1 Device Driver Software Requirements

To support the device drivers for the ITI3280UDCH-S, you must have the Solaris 8 4/01 operating environment installed in your system.

After they are installed, the boards have device paths similar to this example:

```
/ssm@0,0/pci@18,700000/pci@2/scsi@5 (scsi)
```

Under these nodes, one instance of the device driver that has device nodes is evident:

```
/ssm@0,0/pci@18,700000/pci@2/scsi@5/st (byte)  
/ssm@0,0/pci@18,700000/pci@2/scsi@5/sd (block)
```

7.2 Verifying the Installation

To verify the proper installation of the ITI3280UDCH-S before booting the operating system, follow one of these two methods.

7.2.1 Method 1 – Using the `show-devs` Command

Step 1. Access the `ok` prompt.

Type the `show-devs` command:

Step 2. The system would display output similar to this:

```
ok show-devs
/ (gptwo)
/ssm@0, 0 (gptwo)
/ssm@0, 0/pci@19,600000 (pci)
/ssm@0, 0/pci@19,600000/pci@1 (pci)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@5 (scsi-fcp)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@5/fp@0,0 (fp)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@5/fp@0,0/disk (block)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@4 (scsi-fcp)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@4/fp@0,0 (fp)
/ssm@0, 0/pci@19,600000/pci@1/SUNW,qlc@4/fp@0,0/disk (block)
/ssm@0, 0/pci@19,700000 (pci)
/ssm@0, 0/sghsc@18,700000 (sghsc)
/ssm@0, 0/pci@18,600000 (pci)
/ssm@0, 0/pci@18,600000/pci@1/SUNW,isptwo@4 (scsi)
/ssm@0, 0/pci@18,600000/pci@1/SUNW,isptwo@4/st (byte)
/ssm@0, 0/pci@18,600000/pci@1/SUNW,isptwo@4/sd (block)
/ssm@0, 0/pci@18,600000/pci@1/SUNW,hme0,1 (network)
/ssm@0, 0/pci@18,600000/pci@1/pci08e.1000@0
/ssm@0, 0/pci@18,700000 (pci)
/ssm@0, 0/pci@18,700000/pci@2 (pci)
/ssm@0, 0/pci@18,700000/pci@2/scsi@5 (scsi) 1
/ssm@0, 0/pci@18,700000/pci@2/scsi@5/st (byte)
/ssm@0, 0/pci@18,700000/pci@2/scsi@5/sd (block)
/ssm@0, 0/pci@18,700000/pci@2/scsi@5,1 (scsi) 2
/ssm@0, 0/pci@18,700000/pci@2/scsi@5,1/st (byte)
/ssm@0, 0/pci@18,700000/pci@2/scsi@5,1/sd (block)
/ssm@0, 0/pci@18,700000/bootbus-controller@4
/ssm@0, 0/memory-controller@3,400000 (memory-controller)
```

Device paths with `scsi@5` indicate the use of ITI3280UDCH-S Port A.
Device paths with `scsi@5,1` indicate the use of ITI3280UDCH-S Port B.

7.2.2 Method 2 - Using the `probe-scsi-all` Command

Step 1. Access the `ok` prompt.

Type the `probe-scsi-all` command:

Step 2. The system then displays output similar to this:

```
ok probe-scsi-all
/pci@1f,2000/scsi@2
Target 8
    Unit 0  Disk  SEAGATE ST34371W  SUN4.2G8254
/pci@1f,2000/scsi@2,1
Target 1
    Unit 0  Disk  SEAGATE ST34371W  SUN4.2G8254
```

In this example, the first SCSI port (`scsi@2`) has one disk drive connected (target 8). The second SCSI port (`scsi@2,1`) also has one disk drive connected (target 1).

Customer Feedback

We would appreciate your feedback on this document. Please copy the following page, add your comments, and fax it to us at the number shown.

If appropriate, please also fax copies of any marked-up pages from this document.

Important: Please include your name, phone number, fax number, and company address so that we may contact you directly for clarification or additional information.

Thank you for your help in improving the quality of our documents.

Reader's Comments

Fax your comments to: LSI Logic Corporation
Technical Publications
M/S E-198
Fax: 408.433.4333

Please tell us how you rate this document: *IT13280UDCH-S CompactPCI Dual Channel Ultra Wide Differential SCSI Host Adapter User's Guide*.
Place a check mark in the appropriate blank for each category.

	Excellent	Good	Average	Fair	Poor
Completeness of information	_____	_____	_____	_____	_____
Clarity of information	_____	_____	_____	_____	_____
Ease of finding information	_____	_____	_____	_____	_____
Technical content	_____	_____	_____	_____	_____
Usefulness of examples and illustrations	_____	_____	_____	_____	_____
Overall manual	_____	_____	_____	_____	_____

What could we do to improve this document?

If you found errors in this document, please specify the error and page number. If appropriate, please fax a marked-up copy of the page(s).

Please complete the information below so that we may contact you directly for clarification or additional information.

Name _____ Date _____

Telephone _____ Fax _____

Title _____

Department _____ Mail Stop _____

Company Name _____

Street _____

City, State, Zip _____

You can find a current list of our U.S. distributors, international distributors, and sales offices and design resource centers on our web site at

http://www.lsilogic.com/contacts/na_salesoffices.html

