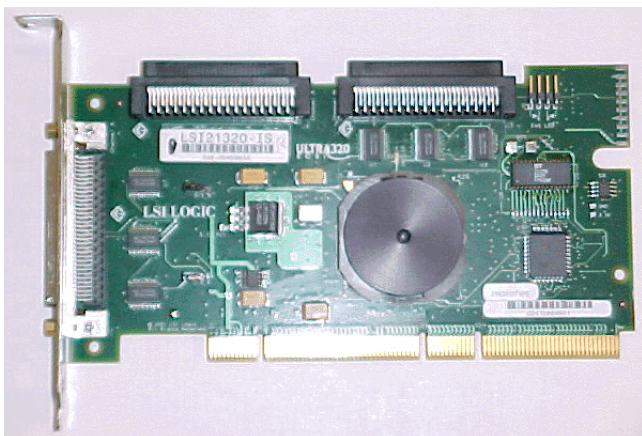


## LSI Logic LSI21320-R Host Bus Adapter



Thank you for purchasing the LSI21320-R Host Bus Adapter (HBA). Please take a few minutes to read this *Quick Hardware Setup Guide* before you install the LSI21320-R. If you need more information about any topic covered in this guide, please refer to the other documents on the accompanying LSI Logic Host Bus Adapter compact disk (CD).

### Contents of the LSI Logic Host Bus Adapter CD

The LSI Logic Host Bus Adapter CD contains utility programs, device drivers for various operating systems, and the following documentation:

- LSI Logic Ultra320 SCSI to PCI-X Storage Adapter User's Guide
- LSI Logic Device Management User's Guide
- LSI Logic Host Bus Adapter technical product briefs
- Information on SCSI cables

### Technical Support

For assistance installing, configuring, or running the LSI21320-R, contact LSI Logic Technical Support:

**Phone Support:** 1-800-633-4545

**Web Site:** <http://www.lsillogic.com>

### Storage Adapter Installation

**Caution:** Make a backup of your data before changing your system configuration.

These steps install the LSI21320-R. The following text provides an explanation of each step.

Step	Action
1	Unpack the LSI21320-R.
2	Turn off the computer, remove the power cord, and remove the cover.
3	Install the LSI21320-R in a PCI or PCI-X slot.
4	Connect the SCSI devices to the LSI21320-R.
5	Set the target IDs for the SCSI devices.
6	Set the SCSI termination.
7	Replace the computer cover and turn the power on.
8	Run the LSI Logic BIOS Configuration Utility.
9	Install the operating system device driver.

### Step 1: Unpack Storage Adapter

Unpack the LSI21320-R in a static-free environment. Remove the LSI21320-R from the antistatic bag and inspect it for damage. If it appears to be damaged, or if the LSI Logic Host Bus Adapter CD is missing, contact LSI Logic or your OEM support representative.

### Step 2: Prepare Computer

Turn off the computer and remove the power cord from the back of the power supply. Remove the cover from the chassis. *Be certain to disconnect the computer from the power and from any networks before installing the controller card.*

### Step 3: Install LSI21320-R

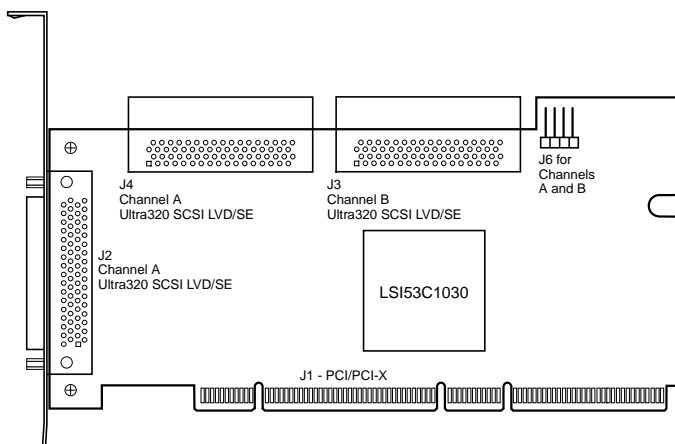
Install the LSI21320-R in a 3.3 V or 5 V PCI slot, as shown in [Figure 2](#). Press down gently, but firmly, to seat the card properly the slot. The bottom edge of the controller card must be flush with the slot. Then attach the LSI21320-R to the computer chassis with the bracket screw. The *LSI Logic Ultra320 SCSI to PCI-X Storage Adapter User's Guide* provides detailed instructions for installing and configuring the LSI21320-R.

### Step 4: Connect the SCSI Devices to the LSI21320-R

Connect SCSI devices to the internal high-density 68-pin SCSI connectors and/or the external high-density 68-pin SCSI connectors. To achieve maximum data throughput, use only Ultra320 SCSI devices. The LSI21320-R supports up to 15 Ultra320 SCSI devices per channel and a maximum SCSI bus cable length of 12 m.

Disable SCSI termination on all the devices that are not located at the end of the SCSI bus. Use only high-quality ribbon SCSI cables for internal devices and high-quality round SCSI cables for external devices. If you are connecting both SCSI disk drives and other kinds of SCSI devices, LSI Logic recommends that you connect the disk drives on one SCSI channel and the other devices on the other channel. [Figure 1](#) and the following table provide the location and definition of the connectors on the LSI21320-R.

**Figure 1 LSI21320-R Host Bus Adapter Board Drawing**



Connector	Definition
J1	PCI/PCI-X Connector
J2	External SCSI Channel A Connector
J3	Internal SCSI Channel B Connector

# Quick Hardware Setup Guide

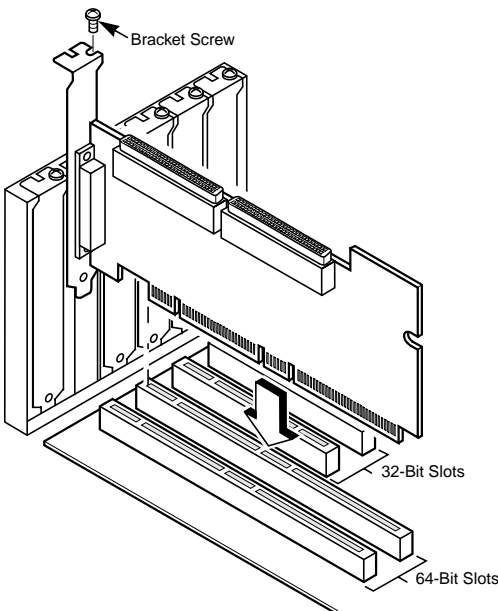
Connector	Definition
J4	Internal SCSI Channel A Connector
J6	LED for SCSI Channel A and SCSI Channel B <sup>1</sup>

1. If the LED does not light during SCSI bus activity, disconnect the LED cable, rotate it 180 degrees, and re-connect the LED cable to J6.

## Step 5: Set Target IDs for SCSI Devices

Each connected SCSI device must have a unique Target ID (TID), ranging from 0 to 15 for 16-bit devices. The LSI21320-R uses TID 7, which is the highest priority TID. Verify that no two SCSI devices on the same channel use the same TID; change the TIDs as needed. See the SCSI device documentation for instructions concerning changing the SCSI device's TID.

**Figure 2** Inserting the Host Bus Adapter Board

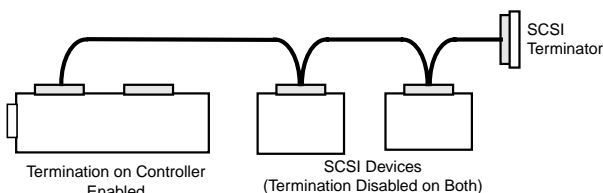


## Step 6: Set SCSI Termination

The SCSI bus, which consists of the SCSI bus cables and SCSI devices, is an electrical transmission line that must be terminated properly to minimize signal reflections and prevent data loss.

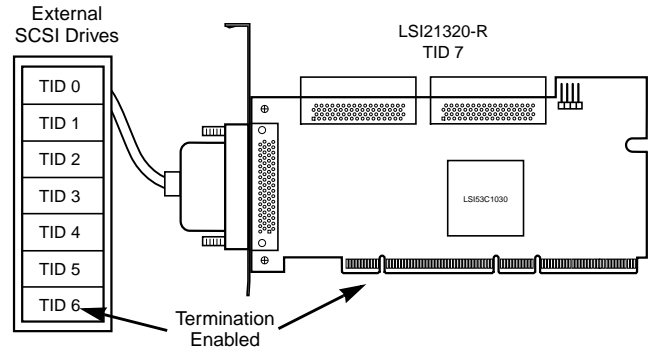
Enable SCSI termination at each end of each SCSI bus (channel) and only at the ends of the SCSI bus. In [Figure 3](#), internal SCSI devices connect to one channel. The LSI21320-R automatically terminates its end of the SCSI bus if only internal devices or only external devices connect to that channel. The LSI21320-R automatically disables termination if both internal and external devices connect to that channel, because the LSI21320-R is then in the "middle" of the SCSI bus.

**Figure 3** SCSI Termination for Internal SCSI Devices



For a disk array, set the SCSI bus termination so that removing or adding a SCSI device does not disturb termination. To do this, connect the LSI21320-R to one end of the SCSI cable and connect a SCSI terminator module at the other end of the cable. Attach SCSI devices to the connectors between the two ends and disable termination on them. [Figure 4](#) shows an external drive enclosure with seven SCSI drives. Termination is enabled at the end of the cable nearest the "last" SCSI drive, which is assigned TID 6.

**Figure 4** SCSI Termination in a SCSI Disk Array



Some disk enclosures handle termination for the SCSI devices within the enclosure. Refer to the enclosure documentation for more information.

## Step 7: Power Up the Computer

Replace the computer cover and connect the power cords. Turn on the power to all the devices. Be sure the SCSI devices power up before or at the same time as the computer. Otherwise, the computer might not recognize the SCSI devices.

## Step 8: Run the BIOS Configuration Utility

During boot, the following message appears:

Press <Ctrl-C> to start the LSI Logic Configuration Utility

When this message appears, press <Ctrl-C> to run the LSI Logic BIOS Configuration Utility. The *Fusion-MPT Device Management User's Guide* provides instructions for using the LSI Logic BIOS Configuration Utility.

## Step 9: Install the Operating System Driver

LSI Logic provides device drivers for the following operating systems:

- MS-DOS version 6.xx or later
- Microsoft Windows NT 4.0, Windows 2000, Windows XP, and Windows Server 2003
- Novell NetWare 5.1 and 6.0
- Red Hat Linux 7.2 and 7.3

## Integrated RAID

The LSI21320-R supports integrated RAID, which includes Integrated Mirroring™ (IM) and Integrated Striping™ (IS). IM enables mirroring of two to six drives in a disk array. IS enables data striping across up to six drives.