USER'S REFERENCE

Ultra 160 SCSI

ADAPTEC SCSI CARD 29160LP
ULTRA160 SCSI CONTROLLER

Adaptec

Adaptec SCSI Card 29160LP

Ultra160 SCSI Controller

User's Reference

Ultra
160 SCSI

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Overview

Ultra160 SCSI on the Adaptec SCSI Card 29160LP

The Adaptec SCSI Card 29160LP supports Ultra160 SCSI devices. Ultra160 is a new generation of SCSI technology that expands SCSI performance.

This *User's Reference* provides information about troubleshooting, SCSI termination, and other important topics. It also explains how to use the built-in SCSI*Select* utility if you need to change the Adaptec SCSI Card 29160LP settings.

> **Note:** Read the *Adaptec SCSI Card 29160LP Installation Guide* if you need instructions on installing the SCSI Card, or connecting SCSI devices to it.

The Adaptec SCSI Card 29160LP was designed for Low Profile systems (cases); however Adaptec provides an additional bracket that can be installed for use with standard system cases.

Understanding SCSI

SCSI (pronounced "scuzzy") stands for Small Computer Systems Interface. SCSI is an industry standard computer interface for connecting SCSI devices to a common SCSI bus.

A SCSI bus is an electrical pathway that consists of a SCSI adapter card (such as the Adaptec SCSI Card 29160LP) installed in a

computer and one or more SCSI devices. SCSI cables are used to connect the devices to the SCSI adapter card.

For the SCSI bus to function properly, a unique SCSI ID must be assigned to the SCSI card and each SCSI device connected to it, and the SCSI bus must be properly terminated.

SCSI IDs

Each device attached to the Adaptec SCSI Card 29160LP, as well as the Adaptec SCSI Card 29160LP itself, must be assigned a unique SCSI ID number from 0 to 15. A SCSI ID uniquely identifies each SCSI device on the SCSI bus and determines priority when two or more devices are trying to use the SCSI bus at the same time.

Refer to the device's documentation to set the SCSI ID. Here are some general guidelines for SCSI IDs:

- For internal SCSI devices, the SCSI ID usually is set by configuring a jumper on the device.

- For external SCSI devices, the SCSI ID usually is set with a switch on the back of the device.

- SCSI ID numbers don't have to be sequential, as long as the Adaptec SCSI Card 29160LP and each device has a different number. For example, you can have an internal SCSI device with ID 0, and an external SCSI device with ID 6.

- SCSI ID 7 has the highest priority on the SCSI bus. The priority of the remaining IDs, in descending order, is 6 to 0, 15 to 8.

- The Adaptec SCSI Card 29160LP is preset to SCSI ID 7 and should not be changed. This gives it the highest priority on the SCSI bus.

- Most internal SCSI hard disk drives come from the factory preset to SCSI ID 0.

- If you have 8-bit (or Narrow) SCSI devices, they must use SCSI IDs 0, 1, 2, 3, 4, 5, or 6. SCSI ID 0 is recommended for the first SCSI hard disk drive.

■ If you are booting your computer from a SCSI hard disk drive connected to the Adaptec SCSI Card 29160LP, the Boot Target ID setting in the SCSI*Select* utility must correspond to the SCSI ID of the device from which you are booting. By default, the Boot Target ID is set to *0*. We recommend that you do not change this setting.

■ In Windows® 95/98, you can use the Device Manager to determine which SCSI ID is assigned to each installed SCSI device.

Terminating the SCSI Bus

To ensure reliable communication on the SCSI bus, the ends of the SCSI bus must be properly terminated. This is accomplished when the device at the end of each cable, or the end of the cable itself, has a terminator installed (or enabled). Terminators must be removed, or termination must be disabled, on devices between the ends of each cable.

Since the method for terminating a SCSI device can vary widely, refer to the device's documentation for instructions on how to enable or disable termination. Here are some general guidelines for termination:

■ Internal Ultra160 and Ultra2 SCSI devices come from the factory with termination disabled and cannot be changed. Proper termination for internal Ultra160 and Ultra2 SCSI devices is provided by a 68-pin Internal LVD SCSI cable, which has a built-in terminator at its end.

■ Termination on non-Ultra160 and Ultra2 internal SCSI devices usually is controlled by manually setting a jumper or a switch on the device, or by physically removing or installing one or more resistor modules on the device.

■ Termination on external SCSI devices usually is controlled by installing or removing a SCSI terminator. However, termination on some external devices is enabled or disabled by setting a switch on the back of the SCSI device.

■ By default, termination on the Adaptec SCSI Card 29160LP itself is set to *Automatic* (the preferred method). We recommend that you do not change this default setting.

Troubleshooting

Most problems can be resolved by following the recommendations in the Troubleshooting Checklist below. If you still experience problems after following the recommendations, continue with the rest of this section.

Troubleshooting Checklist

Most problems with using the Adaptec SCSI Card 29160LP result from errors in preparing and connecting devices on the SCSI bus. If you have problems, check these items first:

- Are all SCSI devices turned on?

- Are all SCSI cables and power cables properly connected?

- Is the Adaptec SCSI Card 29160LP firmly seated and secured in the PCI expansion slot?

- Is the PCI expansion slot compliant with PCI Rev. 2.1 or higher, and does it support Bus Mastering?

- Are all SCSI devices and the Adaptec SCSI Card 29160LP assigned unique SCSI IDs?

- Are all SCSI devices terminated properly?

Note: If you have problems with a specific SCSI device when other connected SCSI devices are working correctly, please contact the manufacturer of the problem device for trouble-shooting information.

Troubleshooting in Windows 95/98

When I start Windows 95/98, the system locks up when the Windows logo is displayed. How can I get the system to start so that I can verify that the SCSI card is functioning normally?

1   Start or restart your computer.

2   (*For Windows 95:*) When the message "Starting Windows 95" appears, press and release the **F8** function key while the text is on your screen.
    (*For Windows 98:*) When the message "Starting Windows 98" appears, press and release the **Ctrl** key while the text is on your screen.)

3   From the menu that is displayed, select **Safe Mode.** (It may take several minutes for Windows 95/98 to load.)

4   If the system completes the boot to the desktop, the core software is functional; resources, software conflicts, and/or hardware need to be checked.

5   If the system still fails to boot, and the boot drive is connected to an EIDE controller, shut down the system, remove the Adaptec SCSI Card 29160LP, and restart the computer.

6   Verify that an IRQ is available by viewing resources in System Properties.

7   Right click on the **My Computer** icon on the Windows desktop.

8   Select **Properties** from the menu.

9   Click the **Performance** tab.

10 Verify that your system is configured for optimal performance. (Make sure you are not in Safe Mode.)

How can I tell if the Adaptec SCSI Card 29160LP driver is loading properly?

1   Right click on the **My Computer** icon on the Windows desktop.

2   Select **Properties** from the menu.

3   Click the **Device Manager** tab.

4   Double-click the **SCSI Controller** icon. The software driver for the Adaptec SCSI Card 29160LP is listed as 29160, 29160N, and Ultra160 PCI SCSI Controller.

   ■   If the driver is listed, the Adaptec SCSI Card 29160LP driver is loading properly.

   ■   If the driver is listed but has an exclamation mark inside a yellow circle the software driver may conflict with other hardware using the same resources. Double-click the icon to see the device status and possible solutions.

   ■   If the driver is listed but has an "X" inside a red circle, the Adaptec SCSI Card 29160LP software driver is disabled and isn't loading.

   ■   If the SCSI Controller icon or the Adaptec SCSI Card 29160LP software driver is not listed, reinstall the driver.

An "X" inside a red circle appears with the Adaptec SCSI Card 29160LP software driver in Device Manager. What does this mean?

It means that the Adaptec SCSI Card 29160LP software driver is disabled and isn't loading.

To enable the driver

1   Double-click the Adaptec SCSI Card 29160LP software driver in Device Manager.

2   Under the General tab, click the **Original Configuration** (current) box.

What if there is no SCSI Controller icon under Device Manager, or the software driver for the Adaptec SCSI Card 29160LP does not appear under Device Manager?

If the SCSI Controller icon or the software driver do not appear

1 Double-click the **Add New Hardware** icon in Control Panel.

2 Click **Next** to begin installing your new hardware.

3 Select the **Yes (recommended)**, and **Next** to have Windows search for the Adaptec SCSI Card 29160LP.

4 Follow the on-screen instructions.

If Windows 95/98 does not detect the Adaptec SCSI Card 29160LP, obtain the driver from the computer manufacturer and run the Add New Hardware Wizard again:

1 Double-click the **Add New Hardware** icon in Control Panel.

2 Select **Next** to begin installing your new hardware.

3 Select **No**, and click **Next** to select the type of hardware you want to install.

4 Select **SCSI controllers** from the Hardware types, and click **Next**.

> **Note:** .The 29160LP will not appear on the Models list when Adaptec is selected from the Manufacturers list.

5 Click **Have Disk…** and follow the instructions that appear on the screen.

6 Select **29160, 29160N, or Ultra160 PCI SCSI Controller**.

How can I check the status of a resource such as IRQ, Memory, or I/O?

1 Right click on **My Computer**.

2 Select **Properties** from the menu.

3 Click the **Device Manager** tab.

4 Double-click the **Computer** icon.

5 On the View Resources tab, click the option button for the type of resource you want to check:

- Interrupt Request (IRQ)

- Input/Output Address (I/O)

- Direct Memory Access (DMA)

- Memory

6 The setting, and the hardware using the setting, are displayed.

- If a specific resource is not listed, the resource is not used by a device.

- If a resource is listed more than once, the resource is used by more than one device.

- If a resource is used by an unknown device, the resource is used but the device using the resource cannot be detected. (This condition is most common.)

7 Click **Cancel** to close the windows, then close Control Panel.

How do I use the Hardware Conflict Troubleshooter in Windows 95/98?

1 Click the **Start** button, then click **Help**.

2 From the Contents tab, double-click **Troubleshooting**. (In Windows 98, click **Troubleshooting** and then click **Windows 98 Troubleshooting**.)

3 Double-click **if you have a hardware conflict**.

4 Follow the step-by-step instructions in Windows Help.

Common Error Messages

Here is what you should do if the following messages appear at bootup:

"Device connected, but not ready"
The host received no answer when it requested data from an installed SCSI device.

1   Run SCSI*Select*® and set the Send Start Unit Command to **Yes** for the particular SCSI device ID. See *Starting SCSISelect* on page 16.

2   Ensure that the device is set to spin up when the power is switched on. The spin up option is typically set by a jumper. (See the documentation for the device.)

"Start unit request failed"
The SCSI card BIOS was unable to send a Start Unit Command to the device. Verify all cables are properly connected. If the error still occurs, the SCSI device may be defective.

"Time-out failure during..."
An unexpected time-out occurred.

1   Verify that the SCSI bus is properly terminated.

2   Verify that all cables are properly connected.

Try disconnecting the SCSI device cables from the SCSI card and then starting the computer. If the computer successfully restarts, one of the SCSI devices may be defective.

Using the Adaptec SCSI Card 29160LP and SCSI Devices

This section provides useful information on using the Adaptec SCSI Card 29160LP and your SCSI devices. For information about a specific device, refer to the documentation for that device.

Using SCSI Devices

SCSI Hard Disk Drives

■ If you connect a SCSI hard disk drive to the Adaptec SCSI Card 29160LP that was previously connected to a different SCSI card, you may need to low-level format the drive before you can use it. This is due to the fact that different SCSI cards sometimes use dissimilar methods of calculating drive capacity. Back up the data on the drive before you move it! (See *Using SCSI Disk Utilities* on page 21 for information on using the SCSI*Select* format utility.)

> **Caution:** A low-level format destroys all data on the drive. Be sure to back up the data before performing a low-level format.

■ Every SCSI hard disk drive must be physically low-level formatted, partitioned, and logically formatted before it can be used to store data. Most SCSI drives are pre-formatted at the factory. If your SCSI hard disk drive has *not* been pre-formatted at the factory, and if your computer is running under DOS, Windows 3.x, or Windows 95/98, you can format the disk with the DOS FDISK and FORMAT commands. (See the DOS and Windows documentation for more information.) To format SCSI hard disk drives running under other operating systems, see the operating system documentation.

Ultra160 Hard Disk Drives

■ We recommend keeping your Ultra160 and Ultra2 SCSI
  devices separate from your single embeded devices. If you
  connect a legacy SCSI hard disk drive to the Adaptec SCSI
  Card 29160LP LVD/SE connectors, the Ultra160 SCSI hard disk
  drives will slow to Ultra SCSI performance levels (40 MBytes/
  sec).

68-pin Internal
LVD/SE Connector

68-pin External
VHDCI condensed
LVD/ SE Connector
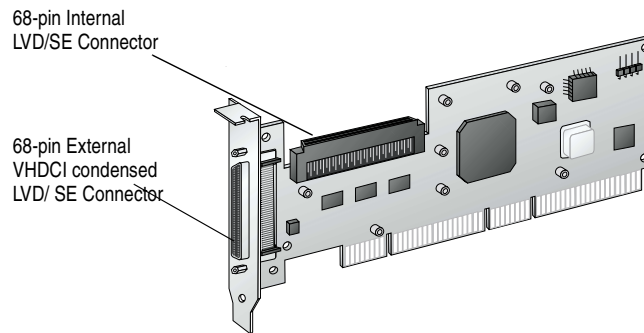
■ Internal Ultra160 SCSI devices come from the factory with ter-
  mination disabled and cannot be changed. Proper termination
  is provided by the terminator at the end of the internal
  Ultra160 SCSI cable.

Combining SCSI and Non-SCSI Devices

You can install the Adaptec SCSI Card 29160LP in a computer that already has a non-SCSI controller, such as an EIDE controller. However, you cannot cross-connect the disk drives and other devices: SCSI devices must be connected to the Adaptec SCSI Card 29160LP, EIDE devices must be connected to the EIDE controller, and so on.

When you install the Adaptec SCSI Card 29160LP and SCSI hard disk drives in a computer that boots from a non-SCSI hard disk drive, the computer will continue to boot from the non-SCSI hard disk drive unless you change the computer's CMOS configuration. You do not need to change the configuration if you just want to use the SCSI drives for additional file storage space.

If your computer's motherboard BIOS supports the BIOS Boot Specification (BBS) feature, you can select a different boot device without much difficulty. (To determine if the motherboard BIOS supports BBS, read the computer documentation or contact your motherboard manufacturer.)

The following table shows what to do, after you physically install the SCSI card and SCSI devices, to use different kinds of disk drives in the same computer:

| Does computer BIOS support BBS?	Want computer to boot from SCSI drive?	Then do this:
No	No	No action required. SCSI drives and non-SCSI drives can be used together.
No	Yes	Run CMOS Setup program. Change primary Hard Disk setting to **None** or **No Drives Installed** (see computer documentation). *You will not be able to use the non-SCSI drive(s) at all* when you boot from the SCSI drive.
Yes	No	No action required. SCSI drives and non-SCSI drives can be used together.
Yes	Yes	Run CMOS Setup program and select SCSI drive as boot device. SCSI drives and non-SCSI drives can be used together.

Installing Multiple SCSI Cards

■ You can install multiple SCSI cards in your computer; you are limited only by the available system resources (for example, IRQ settings, I/O port addresses, BIOS addresses, and so forth).

■ Each SCSI card you install forms a separate SCSI bus with a different set of SCSI devices. SCSI IDs can be reused as long as the ID is assigned to a device on a different SCSI card (for example, each SCSI card can have a device with SCSI ID 2).

■ If you have two or more SCSI cards and your computer boots from a SCSI hard disk drive, leave the host adapter BIOS enabled on the SCSI card to which the boot disk drive is connected. Use SCSI*Select* to disable the host adapter BIOS on the other SCSI cards. See *Starting SCSISelect* on page 16.

Connecting the LED Connector

(*Optional feature*) Most computers have an LED disk activity light on the front panel of the system case. If you choose to disconnect the cable from the LED connector on the motherboard and connect it to the LED connector on the SCSI card as shown in the diagram below, the LED on the front panel of the computer will light whenever there is activity on the SCSI bus.

Note: If you connect the LED cable to the SCSI card, the LED activity light will no longer indicate disk activity on the non-SCSI disk drive.
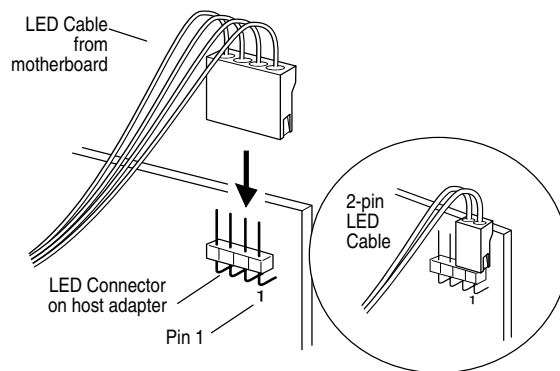
Configuring the Adaptec SCSI Card 29160LP with SCSI*Select*

SCSI*Select,* included with the Adaptec SCSI Card 29160LP, enables you to change SCSI settings without opening the computer or handling the card. SCSI*Select* also enables you to low-level format or verify the disk media of your SCSI hard disk drives. The following table lists the available and default settings for each SCSI*Select* option.

> **Note:** The default settings are appropriate for most systems. Run SCSI*Select* if you need to change or view current settings, or if you would like to run the SCSI disk utilities. See the descriptions of each option starting on page 16.

SCSI*Select* Options	Available Settings	Default Setting
SCSI Bus Interface Definitions:		
Host Adapter SCSI ID	0-15	7
SCSI Parity Checking	Enabled, Disabled	Enabled
Host Adapter SCSI Termination		
LVD/SE Connectors	Automatic, Enabled, Disabled	Automatic
Boot Device Options:		
Boot SCSI ID	0-15	0
Boot LUN Number[1]	0-7	0
SCSI Device Configuration:		
Sync Transfer Rate (MBytes/sec)	160, 80.0, 53.4, 40.0, 32.0, 26.8, 20.0, 16.0, 13.4, 10.0, ASYN	160
Initiate Wide Negotiation	Yes, No	Yes (Enabled)
Enable Disconnection	Yes, No	Yes (Enabled)
Send Start Unit Command	Yes, No	Yes (Enabled)
Enable Write Back Cache [2]	N/C (No Change) Yes, No	N/C (No Change)

SCSI*Select* Options	Available Settings	Default Setting
BIOS Multiple LUN Support [2]	Yes, No	No (Disabled)
Include in BIOS Scan [2]	Yes, No	Yes (Enabled)
Advanced Configuration Options:		
Reset SCSI Bus at IC Initialization	Enabled, Disabled	Enabled
Display <Ctrl> <A> Messages during BIOS Initialization	Enabled, Disabled	Enabled
Extended BIOS Translation for DOS Drives > 1 GByte	Enabled, Disabled	Enabled
Verbose/Silent Mode	Verbose, Silent	Verbose
Host Adapter BIOS	Enabled Disabled: Not Scan Disabled: Scan Bus	Enabled
Domain Validation [2]	Enabled, Disabled	Enabled
Support Removable Disks Under BIOS as Fixed Disks [2]	Disabled, Boot Only, All Disks	Disabled
BIOS Support for Bootable CD-ROM [2]	Enabled, Disabled	Enabled
BIOS Support for Int 13 Extensions [2]	Enabled, Disabled	Enabled

[1] Setting is valid only if Multiple LUN Support is enabled.
[2] Settings are valid only if host adapter BIOS is enabled.

Starting SCSI*Select*

Follow these steps to start SCSI*Select*:

1   Turn on or restart your system.

   During the startup process, pay careful attention to the messages that appear on your screen.

2   When the following message appears on your screen, press the **Ctrl-A** keys simultaneously (this message appears for only a few seconds):

   Press <Ctrl><A> for SCSISelect (TM) Utility!

3   From the menu that appears, use the arrow keys to move the cursor to the option you want to select, then press **Enter**.

> **Note:** If you have difficulty viewing the display, press **F5** to toggle between color and monochrome modes. (This feature may not work on some monitors.)

Exiting SCSI*Select*

Follow these steps to exit SCSI*Select*:

1   Press **Esc** until a message prompts you to exit (if you changed any settings, you are prompted to save the changes before you exit).

2   At the prompt, select **Yes** to exit, then press any key to reboot the computer. Any changes made in SCSI*Select* will take effect the next time the computer is booted.

Using SCSI*Select* Settings

To select an option, use the arrow keys to move the cursor to the option, then press **Enter**.

In some cases, selecting an option displays another menu. You can return to the previous menu at any time by pressing **Esc**.

To restore the original SCSI*Select* default values, press **F6** from the main SCSI*Select* screen.

SCSI Bus Interface Definitions

■ **Host Adapter SCSI ID**—(Default: *7*) Sets the SCSI ID for the SCSI card. The Adaptec SCSI Card 29160LP is set at **7**, which gives it the highest priority on the SCSI bus. We recommend that you do not change this setting.

■ **SCSI Parity Checking**—(Default: *Enabled*) When set to **Enabled**, verifies the accuracy of data transfer on the SCSI bus. Leave this setting enabled unless any SCSI device connected to the Adaptec SCSI Card 29160LP does not support SCSI parity.

■ **Host Adapter SCSI Termination**—(Default: *Automatic*) Determines the termination setting for the SCSI card. The default setting for the LVD/SE connectors is *Automatic*, which allows the SCSI card to adjust the termination as needed depending on the configuration of the connected SCSI devices. We recommend that you do not change this setting.

Boot Device Options

■ **Boot SCSI ID**—(Default: *0*) Specifies the SCSI ID of your boot device. We recommend that you do not change the default setting.

■ **Boot LUN Number**—(Default: *0*) Specifies which LUN (Logical Unit Number) to boot from on your boot device. This setting is not valid unless Multiple LUN Support is enabled.

SCSI Device Configuration

SCSI Device Configuration options can be set individually for each connected SCSI device.

> **Note:** To configure settings for a SCSI device, you must know its SCSI ID (see *Using SCSI Disk Utilities* on page 21).

■ **Sync Transfer Rate**—(Default: *160*) Determines the maximum synchronous data transfer rate that the SCSI card supports. Use the maximum value of 160 MBytes/sec. If a device is not Ultra160, select the transfer rate of the device (80, 53, 40, ...).

- **Initiate Wide Negotiation**—(Default: *Yes*) When set to **Yes**, the SCSI card attempts 16-bit data transfer (wide negotiation). When set to **No**, the SCSI card uses 8-bit data transfer unless the SCSI device requests wide negotiation.

> **Note:** Set Initiate Wide Negotiation to **No** if you are using an 8-bit SCSI device that hangs or exhibits other performance problems with 16-bit data transfer rate enabled.

- **Enable Disconnection**—(Default: *Yes*) When set to **Yes**, allows the SCSI device to disconnect from the SCSI bus. Leave the setting at **Yes** if two or more SCSI devices are connected to the SCSI card. If only one SCSI device is connected, changing the setting to **No** results in slightly better performance.

- **Send Start Unit Command**—(Default: *Yes*) When set to **Yes**, the Start Unit Command is sent to the SCSI device at bootup.

The following three options have no effect when the SCSI Card BIOS is disabled. (The SCSI Card BIOS is normally enabled by default.)

- **Enable Write Back Cache**—(Default: *N/C*) Can be used to enable or disable the write-back cache on SCSI disk drives connected to the host adapter. Leave this option at its default setting of N/C (no change), which usually allows for optimum drive performance.

- **BIOS Multiple LUN Support**—(Default: *No*) Leave this setting at **No** if the device does not have multiple Logical Unit Numbers (LUNs). When set to **Yes**, the SCSI card BIOS provides boot support for a SCSI device with multiple LUNs (for example, a CD "juke box" device in which multiple CDs can be accessed simultaneously).

- **Include in BIOS Scan**—(Default: *Yes*) When set to **Yes**, the SCSI card BIOS includes the device as part of its BIOS scan at bootup.

Advanced Configuration Options

Note: *Do not* change the Advanced Configuration Options unless absolutely necessary.

- **Reset SCSI Bus at IC Initialization**—(Default: *Enabled*) When set to **Enabled**, the SCSI card generates a SCSI bus reset during its power-on initialization and after a hard reset.

- **Display <Ctrl> <A> Messages during BIOS Initialization**— (Default: *Enabled*) When set to **Enabled**, the SCSI card BIOS displays the Press <Ctrl> <A> for SCSISelect (TM) Utility! message on your screen during system bootup. If this setting is disabled, you can still invoke the SCSI*Select* utility by pressing **<Ctrl> <A>** after the SCSI card BIOS banner appears.

- **Extended BIOS Translation for DOS Drives > 1 GByte**— (Default: *Enabled*) When set to **Enabled**, provides an extended translation scheme for SCSI hard disks with capacities greater than 1 GByte. This setting is necessary only for MS-DOS 5.0 or above; it is not required for other operating systems, such as NetWare or UNIX.

Caution: Changing the translation scheme destroys all data on the drive. Be sure to back up the data before changing the translation scheme.

Use the MS-DOS Fdisk command to partition a disk larger than 1 GByte controlled by the SCSI card BIOS, when using DOS, Windows 3.1.x, or Windows 95/98.

- **Verbose/Silent Mode**—(Default: *Verbose)* When set **Verbose**, the SCSI card BIOS displays the host adapter model on the screen during system bootup. When set to **Silent**, the message will not be displayed during bootup.

- **Host Adapter BIOS (Configuration Utility Reserves BIOS Space)**—(Default: *Enabled*) Enables or disables the SCSI card BIOS.

  - Leave this option set to **Enabled** to allow the SCSI card BIOS to scan and initialize all SCSI devices.

  - Set to **Disabled: Not scan** if the devices on the SCSI bus (for example, CD-ROM drives) are controlled by software drivers and do not need the BIOS, and you do not want the BIOS to scan the SCSI bus.

  - Set to **Disabled: Scan Bus** if you do not need the BIOS, but you want it to scan the SCSI devices on the bus.

The following four options have no effect when the SCSI Card BIOS is disabled. (The SCSI Card BIOS is normally enabled by default.)

- **Domain Validation**—(Default: *Enabled*) Determines the kinds of SCSI devices connected and reduces data transfer speed when legacy SCSI devices are detected. Displays the resulting data transfer rate.

- **Support Removable Disks Under BIOS as Fixed Disks**—(Default: *Disabled*) Determines which removable-media drives are supported by the SCSI card BIOS. Options are as follows:

  - **Disabled**— No removable-media drives are treated as hard disk drives. Software drivers are required because the drives are not controlled by the BIOS.

  Caution: *You may lose data* if you remove a removable-media cartridge from a SCSI drive controlled by the SCSI card BIOS while the drive is on. If you want to be able to remove the media while the drive is on, install the removable-media software driver and set Support Removable Disks Under BIOS as Fixed Disks to **Disabled**.

  - **Boot Only**—Only the removable-media drive designated as the boot device is treated as a hard disk drive.

  - **All Disks**—All removable-media drives supported by the BIOS are treated as hard disk drives.

■ **BIOS Support for Bootable CD-ROMs**—(Default: *Enabled*)
When set to **Enabled**, the SCSI card BIOS allows the computer
to boot from a CD-ROM drive.

■ **BIOS Support for Int 13h Extensions**—(Default: *Enabled*)
When set to **Enabled**, the SCSI card BIOS supports Int 13h
extensions as required by Plug-and-Play. The setting can be
either enabled or disabled if your system is not Plug-and-Play.

Using SCSI Disk Utilities

To access the SCSI disk utilities, follow these steps:

1 Select the **SCSI Disk Utilities** option from the menu that
appears after starting SCSI*Select*. SCSI*Select* scans the SCSI bus
(to determine the devices installed) and displays a list of all
SCSI IDs and the devices assigned to each ID.

2 Use the arrow keys to move the cursor to a specific ID and
device, then press **Enter**.

3 A small menu appears, displaying the options Format Disk
and Verify Disk Media.

■ **Format Disk**—Allows you to perform a low-level format
on a hard disk drive. *Most SCSI disk devices are preformatted
at the factory and do not need to be formatted again.*

> ⚠ **Caution:** A low-level format destroys all data on the drive.
> Be sure to back up your data before performing this opera-
> tion. You *cannot* abort a low-level format once it has started.

■ **Verify Disk Media**—Allows you to scan the media of a
hard disk drive for defects. If the utility finds bad blocks on
the media, it prompts you to reassign them; if you select
yes, those blocks are no longer used. Pressing **Esc** at any
time aborts the utility.
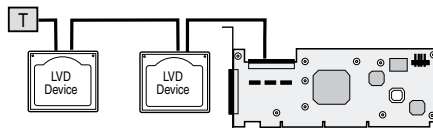
Connecting SCSI Devices

Here are some examples of how you can connect internal and external SCSI devices to the Adaptec SCSI Card 29160LP.

To achieve maximum performance, attach the first device to the end connector (furthest from the SCSI card); attach other devices to the connectors that are closer to the SCSI card.
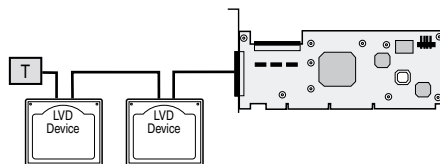
The following example shows SCSI devices connected to both internal and external connectors.
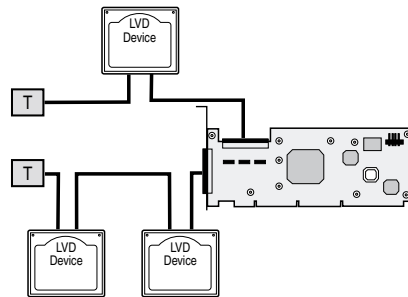
The following example shows SCSI devices connected to the internal connector.

The following example shows SCSI devices connected to the external connector.

Maximum Cable Lengths

The total length of cabling (internal and external) on the SCSI bus cannot exceed the maximum lengths listed in the following table:

Maximum Cable Length	Data Transfer Rate	Maximum Devices Supported
25 m (82 ft)	Ultra160 SCSI (160 MBytes/sec) Ultra2 SCSI (80 MByte/sec)	1
12 m (39.4 ft)	Ultra160 SCSI (160 MBytes/sec)[1] Ultra2 SCSI (80 MByte/sec)	15
3 m (9.8 ft)	Fast SCSI (10 MBytes/sec)	7
3 m (9.8 ft)	Ultra SCSI (40 MBytes/sec for 16-bit, 20 MBytes/sec for 8-bit)	4
1.5 m (4.9 ft)	Ultra SCSI (40 MBytes/sec for 16-bit, 20 MBytes/sec for 8-bit)	5-7[2]

[1] Mixing Fast/Ultra devices with Ultra160 SCSI devices causes the entire SCSI bus to default to Ultra SCSI speeds and cable requirements.

[2] Ultra SCSI data transfer rates do not currently support more than eight devices.

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Adaptec Customer Support

If you have questions about installing or using your Adaptec product, check this user's guide first—you will find answers to most of your questions here. If you need further assistance, use the support options listed below.

Technical Support Identification (TSID) Number

- The 12-digit TSID can be found on the white barcode-type label included inside the box with your product. The TSID helps us provide more efficient service by accurately identifying your product and support status. The TSID is required when contacting Technical Support.

- Affix your TSID label here:

Support Options

- Search the Adaptec Support Knowledgebase (ASK) at http://ask.adaptec.com for articles, troubleshooting tips, and frequently asked questions for your product.

- For support via Email, submit your question to Adaptec's Technical Support Specialists at http://ask.adaptec.com.

North America

- Visit our Web site at http://www.adaptec.com.

- For information about Adaptec's support options, call +1 408-945-2550, 24 hours per day, 7 days per week.

- Connect to the File Transfer Protocol (FTP) server at ftp://ftp.adaptec.com.

- To speak with a Technical Support Specialist, call +1 408-934-7283, Monday–Friday, 6:00 A.M. to 5:00 P.M., Pacific Time. To expedite your service, have your computer in front of you.

- To order Adaptec products, including software and SCSI cables, call +1 800-442-7274 or +1 408-957-7274.

Europe

- Visit our Web site at http://www.adaptec-europe.com.

- Connect to the File Transfer Protocol (FTP) server at ftp://ftp.adaptec-europe.com.

To speak with a Technical Support Specialist, call +32 2 352 3490, Monday–Thursday, 10:00 to 12:30 and 13:30 to 17:30; Friday, 10:30 to 12:30 and 13:30 to 16:30, Central European Time. To expedite your service, have your computer in front of you.

- To order Adaptec software and SCSI cables:
  - **UK**: +0800 96 65 26 or fax +0800 731 02 95

- **Other European countries**: +32 11 300 379 or fax +32 11 300 375

Australia and New Zealand

- Visit our Web site at http://www.adaptec.com.au.

- To speak with a Technical Support Specialist, call +612 9416 0698, Monday–Friday 10:00 A.M. to 4:30 P.M., Eastern Australia Time. To expedite your service, have your computer in front of you.

Hong Kong and China

- Visit our Web site at http://www.adaptec.com.

- To speak with a Technical Support Specialist, call +852 2869 7200, Monday–Friday, 10:00 to 17:00.

- Fax Technical Support at +852 2869 7100.

Regulatory Compliance Statements

Federal Communications Commission Radio Frequency Interference Statement

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, 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 or her own expense.

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.

European Union Compliance Statement

This Information Technology Equipment has been tested and found to comply with the following European directives:

EMC Directive 89/336/EEC

EN 50081-1 (1992)
EN55022 (1994) Class A
EN 50082-1 (1992)
EN61000-4-2 (1998)
EN61000-4-3 (1998)
EN61000-4-4 (1995)

Australian/New Zealand Compliance Statement

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Spectrum Management Agency.

Canadian Compliance Statement

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

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

Japanese Compliance (Voluntary Control Council Initiative)

This is a class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective action.