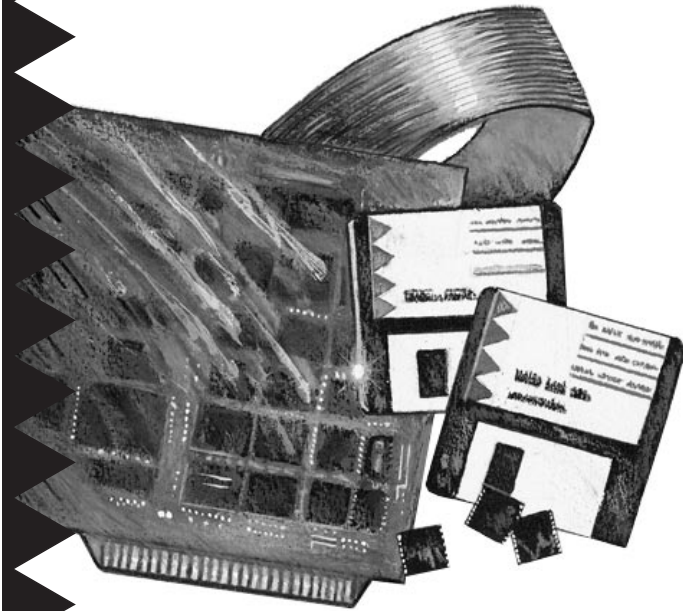


Installation Guide



AHA-2910/2910A

Plug and Play PCI-to-Fast SCSI Host Adapter
with SCSI*Select* Utility

 adaptec®

AHA-2910/2910A Installation Guide
Part Number: 510874-00, Rev. A
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1 Getting Started

This document explains how to install and configure AHA[®]-2910 and AHA-2910A Plug and Play PCI-to-Fast SCSI host adapters. The AHA-2910/2910A is designed for computers with 5-volt bus mastering PCI (Peripheral Component Interconnect) slots. The computer in which you install the host adapter *must* be PCI Rev 2.0 compliant.

AHA-2910/2910A host adapters are configured automatically in computers that have a Plug and Play BIOS and/or a Plug and Play operating system. These host adapters are also fully functional in non-Plug and Play computers.

Host Adapter Features

AHA-2910/2910A host adapters provide a powerful multitasking interface between your computer's PCI bus and the installed disk drives, CD-ROM drives, and other SCSI devices. These host adapters support the SCAM (SCSI Configured AutoMatically) protocol, which assigns SCSI IDs automatically to devices that recognize SCAM software commands.

Adaptec's SCSISelect[™] configuration utility, which is included with the host adapter, makes it easy to change the host adapter configuration without opening the computer case or setting switches.

Supported Operating Systems

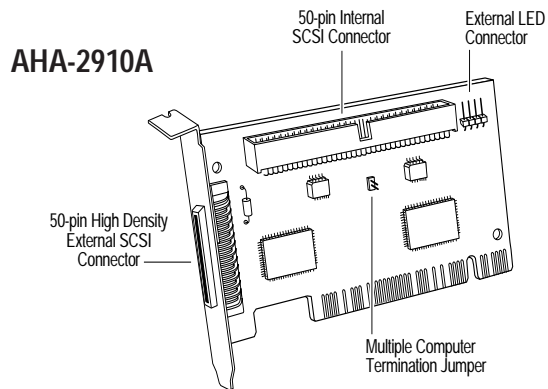
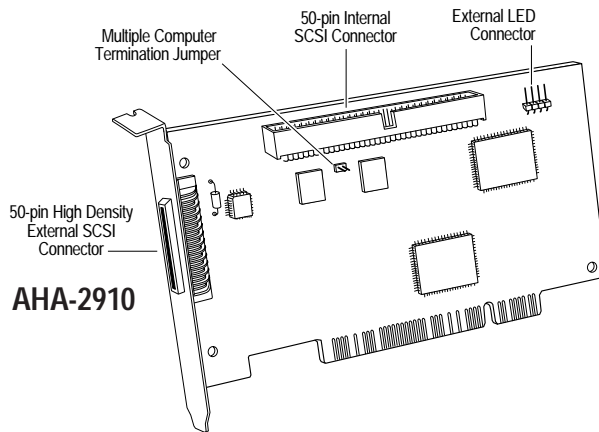
Adaptec's software drivers enable you to use AHA-2910/2910A host adapters in computers running DOS/Windows, OS/2, Windows 95, Windows NT, UNIX, and NetWare.

Software Requirements

You must install software drivers in order to use the AHA-2910/2910A host adapter and to support SCSI disk drives and other devices. Adaptec EZ-SCSI[™] software provides this software support for DOS and Windows. Adaptec EZ-SCSI also includes DOS and Windows utilities and applications that allow you to get the most use out of your SCSI devices. For more information about EZ-SCSI software, call Adaptec.

2 Host Adapter Layout

The following diagrams show the main components of the AHA-2910 and the AHA-2910A:



Note: AHA-2910i and AHA-2910Ai host adapters support only internal SCSI devices and therefore have no external SCSI connector.

3 Installing the Host Adapter



WARNING: Turn OFF and disconnect the power to your computer and peripheral devices before you begin installation.

- 1 Remove the computer chassis cover to expose the expansion slots and external access covers.
- 2 Locate an unused, unobstructed PCI bus expansion slot that supports bus mastering. (PCI bus slots are usually white or ivory.) See your computer documentation to determine if the PCI slot supports bus mastering.

Many PCI computers have one pair of ISA and PCI slots very close to each other. This saves space and allows you to install either an ISA card or a PCI card in the slot pair.

- 3 Remove the corresponding expansion slot cover from the computer chassis.
- 4 Align the bus connector on the bottom of the host adapter with the PCI bus slot. If the computer has a card guide for aligning cards, be sure the end of the host adapter is inserted in the card guide.
- 5 Carefully press the host adapter into the slot.
- 6 Secure the host adapter bracket to the computer chassis with the screw from the removed expansion slot cover.

Connecting the SCSI Bus LED

Most computers have an LED on the front panel that lights when the hard disk is active. Follow these steps if you want the LED to indicate activity on the SCSI bus instead of non-SCSI disk activity.



Note: If you change the LED function the LED will no longer light when your non-SCSI disk drive is active.

- 1 Find the LED cable and unplug it from the LED connector in your computer.
- 2 Connect the LED cable to the external LED connector on the top edge of the host adapter. (See the diagrams on page 2.) If the computer has a two-position LED cable, connect it to pins 1 and 2 of the connector.

Do not replace the computer chassis cover or reconnect the power yet.

4 Connecting SCSI Devices



Caution: AHA-2910/2910A host adapters support only *single-ended SCSI* devices. *Differential SCSI* devices may be damaged if you connect them to the host adapter. Most SCSI devices are single-ended. Read the device documentation.

Connecting Internal SCSI Devices

Use the internal SCSI cable included with your host adapter to connect up to two internal SCSI devices. If you need to connect more than two devices, you must get a 50-pin internal SCSI cable with enough connectors for all devices. See *Terminating the SCSI Bus* on page 6 for more information.

- 1 Grasp one end of the ribbon cable and insert it in the host adapter's internal SCSI connector. Align pin 1 on the ribbon cable with pin 1 on the connector.

Pin 1 on the ribbon cable is usually marked with a contrasting color on one edge of the cable; pin 1 on the connector is usually marked with a small triangle or '1'.

- 2 Insert the next SCSI connector on the cable in the SCSI connector on the first SCSI device. Maintain correct pin-1 orientation.
- 3 Attach the other internal SCSI devices, if any, to the other connector(s) on the ribbon cable. Maintain correct pin-1 orientation.

- 4 If the internal SCSI cable has a built-in terminator on one end, disable termination on *all* internal SCSI devices. If the cable has no built-in terminator, enable termination on the device at the end of the cable farthest from the host adapter and disable termination on other internal devices. See the SCSI device documentation for details.

Connecting External SCSI Devices



Note: AHA-2910i and AHA-2910Ai host adapters support only internal SCSI devices and therefore have no external SCSI connector.

- 1 Insert one end of the external SCSI cable in the host adapter's external SCSI connector.
- 2 Attach the other end of the external SCSI cable to one of the SCSI connectors on the first external SCSI device.
- 3 Connect other external SCSI devices, if any, by daisy-chaining each device to the previous device with a separate SCSI cable. Cables must run sequentially from one device to the next, with no branching.
- 4 Insert an active standard or active pass-through terminator plug in the second SCSI connector on the *last* external SCSI device. See the device documentation for more information.

Assigning SCSI IDs

Be sure that each SCSI device, including the host adapter, has a unique SCSI ID. See the device documentation for information on SCSI ID settings.

If your SCSI devices are *SCAM-capable* and you are using an operating system that supports SCAM (SCSI Configured AutoMatically) commands, SCSI IDs for the host adapter and other devices will be assigned automatically. (First be sure that the "Plug and Play" SCAM Support option is enabled in *SCSISelect*. See *Configuring the Host Adapter* on page 7.) If your SCSI devices are *SCAM-tolerant*, SCAM can read their SCSI IDs, which are set with jumpers

or switches, but cannot change the IDs with software commands.

If you have older SCSI devices that are *not* SCAM-tolerant your computer may hang if SCAM is enabled. This is because SCAM cannot read the SCSI IDs that are set on the devices with jumpers or switches. In this case, you must disable SCAM in *SCSISelect*.

SCSI IDs 0 through 6 are available for your SCSI devices. (SCSI ID 7 is assigned to the host adapter by default.) Usually, you assign IDs 0 and 1 to the first two SCSI hard drives.

Terminating the SCSI Bus

Devices at each end of the SCSI bus must be terminated so data can be transmitted accurately. Termination will be correct if you followed the instructions for connecting internal and external SCSI devices. Never terminate more than two devices on the SCSI bus. The AHA-2910/2910A detects installed SCSI devices on the bus and sets its own termination automatically, if Host Adapter Termination is set to **Auto-Term** in the *SCSISelect* utility (this is the default).

Providing Termination in Multiple PC Configurations

You can share external SCSI devices between the AHA-2910/2910A and a host adapter in another computer. One host adapter can access the devices when the other computer is powered OFF.

To do this, place a jumper shunt on the host adapter's multiple computer termination jumper, as shown in the diagram on page 2. (This provides active termination when the computer containing the AHA-2910/2910A is powered OFF.) Then connect the external SCSI devices in a single SCSI bus running between the external SCSI connectors on the two host adapters.

5 Restarting the Computer

- 1 Be sure all SCSI cables are connected securely.
- 2 Put the chassis cover back on the computer, following the instructions in the documentation.
- 3 Be sure all power switches are OFF, then reconnect the computer power cables.
- 4 Turn ON the external SCSI device(s), and then turn ON the computer.
- 5 If your system CMOS setup requires you to enable PCI bus parameters, do so now.



Note: The PCI bus usually assigns IRQs and port addresses automatically. However, in some cases you may need to manually edit the PCI bus parameters in your CMOS setup. See your computer documentation.

In most cases your computer, host adapter, and SCSI devices are now ready to use.

6 Configuring the Host Adapter

AHA-2910/2910A default settings work correctly in most computers with PCI bus slots. The following table lists the default settings:

Settings for Host Adapter and All SCSI Devices	Default Value
Host Adapter SCSI ID	7
SCSI Parity Checking	Enabled
Host Adapter SCSI Termination	AutoTerm
"Plug and Play" SCAM Support	Enabled
Settings for Individual SCSI Device	Default Value
Initiate Sync Negotiation	Yes
Maximum Sync Transfer Rate	10 MBytes/sec
Enable Disconnection	Yes

You can change these settings with *SCSISelect*, a menu-driven configuration utility that is included with the host adapter. The *SCSISelect* utility lets you change configuration settings without opening the computer case or setting switches.

Changing the SCSISelect Settings

Follow these steps to change the host adapter default settings with the SCSISelect configuration utility.

- 1 If you have not yet installed the host adapter, do so now by following the instructions in Sections 3, 4, and 5.
- 2 Insert the SCSISelect diskette in your computer's floppy disk drive.
- 3 Reboot the computer.
- 4 When the SCSISelect screen appears, select **Configure/View Host Adapter Settings**. The Configuration menu appears.



Note: To select an item in SCSISelect, move the cursor to the item with the ↑ and ↓ keys, then press **Enter**.

- 5 Change the settings of the options listed on this menu, or select **SCSI Device Configuration** or **Advanced Configuration Options** to access the settings on these sub-menus.
- 6 When you have finished making configuration changes, press **Esc** one or more times until you see a message prompting you to save the changes. Select **Yes** to save the changes, or select **No** to abandon them.
- 7 Press **Esc** until you see a message asking you if you want to exit SCSISelect, then select **Yes**.
- 8 Remove the SCSISelect diskette and reboot the computer so the configuration changes can take effect.

7 Troubleshooting Checklist

Answer these questions first if you have problems installing or using your AHA-2910/2910A host adapter:

- Is your computer PCI Rev 2.0 compliant?
- Did you install the host adapter in a 5-volt *bus master* PCI slot? Refer to your computer documentation or try a different PCI slot.
- Are all SCSI devices turned ON?
- Are all SCSI bus cables and power cables properly connected? Is pin-1 orientation correct?
- Do all devices on the SCSI bus, including the host adapter, have unique SCSI IDs?
- Are all SCSI devices terminated properly?
- If SCAM is enabled, are all your SCSI devices SCAM-capable or SCAM-tolerant? (See *Assigning SCSI IDs* on page 5.)

FCC Compliance Statement

NOTE: 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 residential installations. 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 interference to radio or television equipment 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:

- Reorient or relocate the receiving antenna
- Move the equipment away from the receiver
- Plug the equipment into an outlet on a circuit different from that to which the receiver is powered
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions

CAUTION: Only equipment certified to comply with Class B (computer input/output devices, terminals, printers, etc.) should be attached to this equipment, and must have shielded interface cables.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the user's authority to operate such equipment.

Each host adapter is equipped with an FCC compliance label that shows only the FCC identification number. The full text of the associated label follows:

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 Community Mark

CE mark is rated for the adapter as follows:

- CISPR 22 Radiated Emissions (EN 550022)
- EN50082-1 Generic immunity standard for the following:
 - 801-2 ESD Immunity
 - 801-3 Radiated Immunity
 - 801-4 Fast Burst Immunity

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