arad

Adaptec 7770 SCSI host adapter driver

Description

arad is the device driver for Adaptec 274x and 284x (7770 chip) SCSI host adapter cards. It directly supports these host adapters:

EISA bus

AHA-2740/2742	(Single channel)
AHA-2740/2742 A	(Single channel)
AHA-2740/2742 T	(Twin channel)
AHA-2740/2742 A-T	(Twin channel)
AHA-2740/2742 W	(Wide channel)

VL bus

AHA-2840/2842VL	(VL Bus)

This driver also supports the AIC-7770 chip on SCO Certified System platforms. Refer to the *SCO Hardware Compatibility Handbook* to determine the support status of your host adapter, or contact your system supplier.

Configuring the arad driver

You can configure the **arad** driver using entries in */etc/conf/cf.d/mdevice* and */etc/conf/sdevice.d/arad*. See *mdevice*(F) and *sdevice*(F). Changes to these files take effect once you relink the kernel using **link_unix**(ADM) and reboot the system.

Configure **arad** driver-specific characteristics by editing the */etc/conf/pack.d/arad/space.c* file, which controls parameters such as the SCSI ID, the SCB handling mode, parity checking, and timeouts.

Boot time configuration of SCSI

Use the **bootstring**(HW) parameters to override the default hardware configuration information. Of special interest are the **adapter=** parameter that specifies information for the host adapter card that plugs into or is part of the motherboard, and the ***periph=*** parameter that specifies information about the host adapter being used by one of the generic peripheral interfaces (**Sdsk**, **Srom**, or **Stp**).

Configuring twin channel adapters

If the adapter supports more than one SCSI bus (that is, you have one of the twin channel adapters), you must ensure that all installation devices are on the primary bus.

To use the secondary bus channel after installation, it must be configured as an additional SCSI host adapter.

Note that there are only two channels (A and B) on the Adaptec 2740/2742T and 2740/2742AT cards.

BIOS notes

These notes apply to the Adaptec host adapter BIOS:

- If multiple 2740T host adapters are being used, under certain conditions, disable all BIOSs except the boot host adapter.
- If the BIOS of the 2740T/2742T or the 2740A/A-T/2742/A/A-T is disabled, the driver will use the default setting configuration.

Adaptec 274x configuration utility notes

These notes apply to the Adaptec 274x configuration utility:

- Save the configuration information before using the configuration utility.
- When termination on Channel B is not set up properly or if the 2740T/2740A-T/2742A-T is not seated properly in the EISA slot, the configuration utility might falsely detect those adapters as 2740/42 or 2740W/2742W host adapters.

The following general notes apply.

- The AHA-2740T/2742T and the 2740A/A-T/2742A/A-T do not support a synchronous rate lower than 3.6MB/s.
- The system might display a warning message if you try to perform a fresh install of the driver at IRQ 10; this is because of the possibility of an interrupt collision. Do not use IRQ 10 for a fresh installation. The IRQ can be changed to 10 for a previously installed driver.
- When adding a host adapter, the lowest BIOS address must correspond to the lowest EISA slot.
- Some hard disk drives which initiate synchronous negotiation will not be installed during BIOS scan when synchronous negotiation is disabled on the host adapter. It is recommended that synchronous negotiation be left enabled (default) for hard disks.

ioctl commands

The **arad** driver supports all standard SCSI ioctls that are defined in the <*sys/scsicmd.h*> header file and documented on the **scsi**(HW) manual page.

Diagnostics

These error messages associated with **arad** may display on the console. See **messages**(M) for general information about kernel error messages, including a list of generic device driver errors.

`WARNING: arad: Adapter diagnostic failure 0x%x: bus 0`

: **arad** was unable to initialize the hardware that it found. This often indicates a hardware error.

`WARNING: arad: Cannot initialize drive ID:0`

: **arad** was unable to perform SCSI commands on the boot drive to determine its drive geometry. This might indicate that not enough memory was available to perform the operation.

`WARNING: arad: CONFLICT-Disconnection must be enabled in order for tag-queuing to work`

: By definition, tag queuing requires that disconnection be enabled. If tag queuing is enabled but disconnect is disabled, then this message appears. The solution is to either enable disconnection or disable tag queuing in the driver's *space.c* file.

`WARNING: arad: spurious interrupt arad_name.`

: An interrupt occurred but there was no pending command. The source could be another driver, such as a video driver, that is sharing the same interrupt. From the standpoint of the host adapter driver, this message can be ignored.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0`
`Command Aborted by Host Adapter`
No response required.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Selection Timeout`
Device is not ready, malfunctioned, or is no longer connected to the SCSI bus. Make sure that the device is connected. Also, check the cabling and power connector.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0`
`Data Overrun or Underrun occurred`
For CD-ROM devices, no response is required. For other devices, check the hardware and software for the error condition.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Unexpected Bus Free Occurred`
Almost anything can cause this message, including device firmware, the SCSI driver, and bus resets. Usually no user response is possible.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Target Bus Phase Sequence Error`
An error occurred in the SCSI phase. Anything can cause this message, including device firmware, the SCSI driver, and bus resets. Usually no user response is possible, although you may want to avoid issuing the commands that resulted in this error.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Invalid SCSI Linking Operation`
No response required.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Auto-Request Sense Failed`
When a check condition occurs, the host adapter automatically performs a check condition to obtain the sense key. If that process also fails, this message is displayed. No user response required.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Tagged Queuing Rejected by Target`
Target rejected a tagged command. The solution is to disable tagged queuing.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Host Adapter Hardware Error`
Check the adapter and cabling. Be sure that the host adapter is firmly seated in the slot. The host adapter might be malfunctioning; contact the host adapter manufacturer for assistance.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`Target Didn't Respond to ATN (RESET)`
If no other error is visible, no user response is required. Otherwise, contact the device manufacturer.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`SCSI bus reset by host adapter`
If no other error is visible, no user response is required.

`WARNING: arad: adapter 0 Error: arad (ha=0 bus=0 id=0 lun=0)`
`SCSI bus reset by other device`
If no other error is visible, no user response is required.

Files

/usr/include/sys/scsicmd.h
SCSI interface header files

See also

boot(HW), **link_unix**(ADM), **mdevice**(F), **mkdev**(ADM), **sconf**(ADM), **scsi**(HW), **sdevice**(F).

Chapter 16, "Adding SCSI host adapters and peripherals" in the *SCO OpenServer Handbook*
SCO OpenServer *System Administration Guide*