ad

Adaptec 154x, 154x emulation, 164x SCSI host adapter device

Description

ad is the device driver for Adaptec 154x, 154x emulation, and 164x SCSI host adapter cards. It directly supports these host adapters:

ISA bus	AHA-1540 AHA-1540A AHA-1540B AHA-1540C AHA-1540CF AHA-1540CP AHA-1542B AHA-1542C AHA-1542CF AHA-1542CP.	
MCA bus	AHA-1640	
EISA bus	AHA-1740 AHA-1742	(in standard mode) (in standard mode)

Please refer to the *SCO Hardware Compatibility Handbook* to determine the support status of your host adapter, or contact your system supplier.

Adaptec 154x (ISA) notes

The **ad** driver and the associated Adaptec hardware have been tested with many computer systems. If you are unable to get the host adapter to function, or you experience file corruption, use the adapter's BIOS maintenance and debugging routines to see if an incompatibility exists. Refer to your Adaptec documentation for further details.

If the interface test routine displays a failure message, or no message at all, this indicates a hardware incompatibility. Your computer may have trouble loading and running the SCO OpenServer system. Since this is a hardware-level inconsistency, there is no software patch available; you must contact the hardware manufacturer.

You must reset the jumpers on a second Adaptec AHA-154x board to configure start address 0x230, IRQ 12, and DMA channel 6. The BIOS must also be disabled on the second adapter. (For more information, refer to your Adaptec documentation.)

Adaptec 164x (MCA) notes

When the root disk is on an ESDI controller, you must make these settings on the AHA-1640 card:

Start I/O address (BIOS disabled)	0x330
Start I/O address (BIOS enabled)	0x330, 0x230, or 0x130
Interrupt (IRQ)	15

When the root disk is a SCSI disk connected to a primary IBM SCSI host adapter, you must make these settings on the AHA-1640 card:

Start I/O address (BIOS enabled or disabled)	0x330, 0x230, or 0x130
Start I/O address (BIOS disabled)	0x334, 0x234, or 0x134
Interrupt (IRQ)	15

Disable the adapter's BIOS because the root disk is on the ESDI controller or on a different SCSI bus.

Configuring the ad driver

You can configure the **ad** driver using entries in */etc/conf/cf.d/mdevice* and */etc/conf/sdevice.d/ad*. See *mdevice*(F) and *sdevice*(F). Changes to these files will only take effect if the kernel is relinked using **link_unix**(ADM) and the machine rebooted.

Configure **ad** driver-specific characteristics by editing the */etc/conf/pack.d/ad/space.c* file, which controls parameters such as bus-on and bus-off times, DMA transfer speed, and reporting on mailbox warnings.

Each parameter line represents a configurable parameter for one host adapter. The first number indicates whether the parameter should be changed from the default; if it is 0, the parameter will be set to the default for that adapter. The second number is the value for the parameter.

Bus-on time

If not modified, the default value in `aha_buson_default` will be used.

```
aha_change aha_buson[ha_number] ={1, value};
```

Bus-off time

If not modified, the default value in `aha_busoff_default` will be used.

```
aha_change aha_busoff[ha_number] ={1, value};
```

DMA transfer speed

```
aha_change aha_aha_xfer[ha_number] = {1, XFER_5_0};
```

Possible values are:

XFER_5_0	5.0 Mb per second
XFER_6_7	6.7 Mb per second
XFER_8_0	8.0 Mb per second
XFER_10	10.0 Mb per second

If no value is set in `aha_change`, the value set in `aha_xfer_default` will be used. If no value is set in `aha_xfer_default`, the value on the adapter's jumpers will be used. Because there are problems with faster transfer speeds on some hardware platforms, `aha_xfer_default` is set to 5MB per second.

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**).

ioctl commands

The **ad** 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 **ad** may display on the console if either the Adaptec AHA-1540 or AHA-1640 host adapter is installed. See **messages**(M) for general information about kernel error messages, including a list of generic device driver errors.

```
WARNING: aha: Adapter m detected SCSI reset, status=0xn, intr=0xvector
```

An unexpected host adapter reset was detected.

```
WARNING: aha: Adapter m unexpected MBI status 0xn
          AHA-1X40   cmd : o
          AHA-1X40 sense : p
```

The incoming mailbox is in an unexpected state after an interrupt.

```
WARNING: aha: Port 0xm failed to go idle, status=0xn, cmd=0xo
```

Register ***m*** on the host adapter indicated that a command had still not been completed after **R_LIMIT** cycles in a spin loop.

```
WARNING: aha: Port 0xm internal failure 0xn
```

The host adapter failed to be recognized on initialization.

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

ad was unable to initialize the hardware that it found. This often indicates a hardware error; contact Adaptec Technical Support for assistance.

Files

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

See also

boot(HW), **eiad**(AHS), **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*