

**NAME**

**ae** - Attansic/Atheros L2 FastEthernet controller driver

**SYNOPSIS**

To compile this driver into the kernel, place the following lines in your kernel configuration file:

```
device miibus
device ae
```

Alternatively, to load the driver as a module at boot time, place the following line in loader.conf(5):

```
if_ae_load="YES"
```

**DESCRIPTION**

The **ae** device driver provides support for Attansic/Atheros L2 PCIe FastEthernet controllers.

The controller supports hardware Ethernet checksum processing, hardware VLAN tag stripping/insertion and an interrupt moderation mechanism. Attansic L2 also features a 64-bit multicast hash filter.

The **ae** driver supports the following media types:

**autoselect** Enable autoselection of the media type and options. The user can manually override the autoselected mode by adding media options to rc.conf(5).

**10baseT/UTP** Select 10Mbps operation.

**100baseTX** Set 100Mbps (FastEthernet) operation.

The **ae** driver provides support for the following media options:

**full-duplex** Force full duplex operation.

**half-duplex**  
Force half duplex operation.

For more information on configuring this device, see ifconfig(8).

**HARDWARE**

The **ae** driver supports Attansic/Atheros L2 PCIe FastEthernet controllers, and is known to support the following hardware:

- ASUS EeePC 701
- ASUS EeePC 900

Other hardware may or may not work with this driver.

## LOADER TUNABLES

Tunables can be set at the loader(8) prompt before booting the kernel or stored in loader.conf(5).

*hw.ae.msi\_disable*

This tunable disables MSI support on the Ethernet hardware. The default value is 0.

## SYSCTL VARIABLES

The **ae** driver collects a number of useful MAC counter during the work. The statistics is available via the *dev.ae.%d.stats* sysctl(8) tree, where %d corresponds to the controller number.

## DIAGNOSTICS

**ae%d: watchdog timeout.** The device has stopped responding to the network, or there is a problem with the network connection (cable).

**ae%d: reset timeout.** The card reset operation has been timed out.

**ae%d: Generating random ethernet address.** No valid Ethernet address was found in the controller NVRAM and registers. Random locally administered address with ASUS OUI identifier will be used instead.

## SEE ALSO

altq(4), arp(4), miibus(4), netintro(4), ng\_ether(4), vlan(4), ifconfig(8)

## HISTORY

The **ae** driver and this manual page was written by Stanislav Sedov <stas@FreeBSD.org>. It first appeared in FreeBSD 7.1.

## BUGS

The Attansic L2 FastEthernet controller supports DMA but does not use a descriptor based transfer mechanism via scatter-gather DMA. Thus the data should be copied to/from the controller memory on each transmit/receive. Furthermore, a lot of data alignment restrictions apply. This may introduce a high CPU load on systems with heavy network activity. Luckily enough this should not be a problem on modern hardware as L2 does not support speeds faster than 100Mbps.