

**NAME**

**ale** - Atheros AR8121/AR8113/AR8114 Gigabit/Fast Ethernet driver

**SYNOPSIS**

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

```
device miibus  
device ale
```

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

```
if_ale_load="YES"
```

**DESCRIPTION**

The **ale** device driver provides support for Atheros AR8121 PCI Express Gigabit Ethernet controllers and Atheros AR8113/AR8114 PCI Express Fast Ethernet controllers.

All LOMs supported by the **ale** driver have TCP/UDP/IP checksum offload for both receive and transmit, TCP segmentation offload (TSO), hardware VLAN tag stripping/insertion features, Wake On Lan (WOL) and an interrupt coalescing/moderation mechanism as well as a 64-bit multicast hash filter.

The AR8121 also supports Jumbo Frames (up to 8132 bytes), which can be configured via the interface MTU setting. Selecting an MTU larger than 1500 bytes with the ifconfig(8) utility configures the adapter to receive and transmit Jumbo Frames.

The **ale** 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** Set 10Mbps operation.

**100baseTX** Set 100Mbps (Fast Ethernet) operation.

**1000baseTX** Set 1000baseTX operation over twisted pair.

The **ale** driver supports 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 **ale** device driver provides support for the following Ethernet controllers:

- Atheros AR8113 PCI Express Fast Ethernet controller
- Atheros AR8114 PCI Express Fast Ethernet controller
- Atheros AR8121 PCI Express Gigabit Ethernet controller

**LOADER TUNABLES**

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

*hw.ale.msi\_disable*

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

*hw.ale.msix\_disable*

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

**SYSCTL VARIABLES**

The following variables are available as both `sysctl(8)` variables and `loader(8)` tunables:

*dev.ale.%d.int\_rx\_mod*

Maximum amount of time to delay receive interrupt processing in units of 1us. The accepted range is 0 to 130000, the default is 30(30us). Value 0 completely disables the interrupt moderation.

*dev.ale.%d.int\_tx\_mod*

Maximum amount of time to delay transmit interrupt processing in units of 1us. The accepted range is 0 to 130000, the default is 1000(1ms). Value 0 completely disables the interrupt moderation.

*dev.ale.%d.process\_limit*

Maximum amount of Rx frames to be processed in the event loop before rescheduling a taskqueue. The accepted range is 32 to 255, the default value is 128 events. The interface does not need to be brought down and up again before a change takes effect.

**SEE ALSO**

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

## HISTORY

The **ale** driver was written by Pyun YongHyeon <yongari@FreeBSD.org>. It first appeared in FreeBSD 7.1.