

**NAME**

**axe** - ASIX Electronics AX88x7x/760 USB Ethernet driver

**SYNOPSIS**

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

```
device ehci  
device uhci  
device ohci  
device usb  
device miibus  
device uether  
device axe
```

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

```
if_axe_load="YES"
```

**DESCRIPTION**

The **axe** driver provides support for USB Ethernet adapters based on the ASIX Electronics AX88172, AX88178, AX88772, AX88772A, AX88772B and AX88760 USB 2.0 chipsets.

The AX88172, AX88772, AX88772A, AX88772B and AX88760 contain a 10/100 Ethernet MAC with MII interface and are designed to work with both Ethernet and HomePNA transceivers. The AX88178 has a 10/100/1000 Ethernet MAC with GMII/RGMII interface for interfacing with Gigabit Ethernet PHY.

These devices will operate with both USB 1.x and USB 2.0 controllers, however performance with 1.x controllers will be limited since the USB 1.x standard specifies a maximum transfer speed of 12Mbps. Users with USB 1.x controllers should therefore not expect to actually achieve 100Mbps speeds with these devices.

All chipsets support a 64-bit multicast hash table, single perfect filter entry for the station address, all-multicast mode and promiscuous mode. Packets are received and transmitted over separate USB bulk transfer endpoints.

The **axe** 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. The `ifconfig(8)` **mediaopt** option can also be used to select either **full-duplex** or **half-duplex** modes.

**100baseTX** Set 100Mbps (Fast Ethernet) operation. The `ifconfig(8)` **mediaopt** option can also be used to select either **full-duplex** or **half-duplex** modes.

**1000baseT** Set 1000Mbps (Gigabit Ethernet) operation (AX88178 only). The `ifconfig(8)` **mediaopt** option can also be used to select either **full-duplex** or **half-duplex** modes.

The **axe** 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 **axe** driver supports ASIX Electronics AX88172/AX88178/AX88772/AX88772A/AX88772B/AX88760 based USB Ethernet adapters including:

AX88172:

- ⊕ AboCom UF200
- ⊕ Acer Communications EP1427X2
- ⊕ ASIX AX88172
- ⊕ ATen UC210T
- ⊕ Billionton SnapPort
- ⊕ Billionton USB2AR
- ⊕ Buffalo (Melco Inc.) LUA-U2-KTX
- ⊕ Corega USB2\_TX
- ⊕ D-Link DUBE100
- ⊕ Goodway GWUSB2E
- ⊕ JVC MP\_PRX1
- ⊕ LinkSys USB200M
- ⊕ Netgear FA120
- ⊕ Sitecom LN-029
- ⊕ System TALKS Inc. SGC-X2UL

**AX88178:**

- ⊕ ASIX AX88178
- ⊕ Belkin F5D5055
- ⊕ Logitech LAN-GTJ/U2A
- ⊕ Buffalo (Melco Inc.) LUA3-U2-AGT
- ⊕ Planex Communications GU1000T
- ⊕ Sitecom Europe LN-028

**AX88772:**

- ⊕ ASIX AX88772
- ⊕ Buffalo (Melco Inc.) LUA3-U2-ATX
- ⊕ D-Link DUBE100B1
- ⊕ Planex UE-200TX-G
- ⊕ Planex UE-200TX-G2

**AX88772A:**

- ⊕ ASIX AX88772A
- ⊕ Cisco-Linksys USB200Mv2

**AX88772B:**

- ⊕ ASIX AX88772B
- ⊕ Lenovo USB 2.0 Ethernet

**AX88760:**

- ⊕ ASIX AX88760

**DIAGNOSTICS**

**axe%d: watchdog timeout** A packet was queued for transmission and a transmit command was issued, however the device failed to acknowledge the transmission before a timeout expired.

**axe%d: no memory for rx list** The driver failed to allocate an mbuf for the receiver ring.

**SEE ALSO**

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

*ASIX AX88x7x and AX88760 data sheets*, <http://www.asix.com.tw>.

**HISTORY**

The **axe** device driver first appeared in FreeBSD 5.0.

**AUTHORS**

The **axe** driver was written by Bill Paul <*wpaul@windriver.com*>.