NAME

jme - JMicron Gigabit/Fast Ethernet driver

SYNOPSIS

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

```
device miibus
device jme
```

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

```
if_jme_load="YES"
```

DESCRIPTION

The **jme** device driver provides support for JMicron JMC25x PCI Express Gigabit Ethernet controllers and JMicron JMC26x PCI Express Fast Ethernet controllers.

All LOMs supported by the **jme** driver have TCP/UDP/IP checksum offload for both transmit and receive, 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 JMC25x also supports Jumbo Frames (up to 9216 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 **jme** 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 **jme** 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 **jme** device driver provides support for the following Ethernet controllers:

- JMicron JMC250 PCI Express Gigabit Ethernet controller
- JMicron JMC251 PCI Express Gigabit Ethernet with Card Read Host controller
- JMicron JMC260 PCI Express Fast Ethernet controller
- JMicron JMC261 PCI Express Gigabit Ethernet with Card Read Host controller

LOADER TUNABLES

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

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

hw.jme.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.jme.%d.tx_coal_to
This variable sets the maximum amount of time to delay before sending a Tx completion interrupt, in microseconds. The accepted range is 1 to 65535; the default is 100 (100us).

dev.jme.%d.tx_coal_pkt
This variable sets the maximum number of outgoing packets which may be coalesced together into a single Tx completion interrupt. The accepted range is 1 to 255; the default is 8.

dev.jme.%d.rx_coal_to
This variable sets the maximum amount of time to wait for additional packets to arrive (for possible packet coalescing) before firing an Rx completion interrupt, in microseconds. The accepted range is 1 to 65535; the default is 100 (100us).

dev.jme.%d.rx_coal_pkt
This variable sets the maximum number of incoming packets which may be coalesced into a

single Rx completion interrupt. The accepted range is 1 to 255; the default is 2.

dev.jme.%d.process_limit

This variable sets the maximum number of events that will be processed in a single batch before the handler is requeued into a taskqueue. The accepted range is 10 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 **jme** driver was written by Pyun YongHyeon <*yongari@FreeBSD.org*>. It first appeared in FreeBSD 7.1.

CAVEATS

The **jme** driver tries to avoid unnecessary station address reprogramming for controllers that use eFuse to store station address. The number of times that eFuse can be safely reprogrammed is 16 at most. In addition, there is no way to restore the factory default station address once the station address has been reprogrammed via eFuse. It is highly recommended not to reprogram the station address and it is the responsibility of the administrator to store the original station address in a safe place when station address is changed.

There are two known 1000baseT link establishment issues with JMC25x. If the full mask revision number of JMC25x controller is less than or equal to 4 and the link partner enabled the IEEE 802.3az Energy Efficient Ethernet feature, the controller will not be able to establish a 1000baseT link. Also, if the length of the cable is longer than 120 meters, the controller can not establish a 1000baseT link. The known workaround for these issues is to force manual link configuration with 100baseTX instead of relying on auto-negotiation. The full mask revision number of controller can be checked with the verbose kernel boot option. Use the lower nibble of the chip revision number to get the full mask revision of the controller.