NAME

vmx - VMware VMXNET3 Virtual Interface Controller device

SYNOPSIS

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

device iflib
device vmx

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

if_vmx_load="YES"

DESCRIPTION

The **vmx** driver provides support for the VMXNET3 virtual NIC available in virtual machines by VMware. It appears as a simple Ethernet device but is actually a virtual network interface to the underlying host operating system.

This driver supports the **VMXNET3** driver protocol, as an alternative to the emulated le(4), em(4) interfaces also available in the VMware environment. The **vmx** driver is optimized for the virtual machine, it can provide advanced capabilities depending on the underlying host operating system and the physical network interface controller of the host. The **vmx** driver supports features like multiqueue support, IPv6 checksum offloading, MSI/MSI-X support and hardware VLAN tagging in VMware's VLAN Guest Tagging (VGT) mode.

The **vmx** driver supports VMXNET3 VMware virtual NICs provided by the virtual machine hardware version 7 or newer, as provided by the following products:

- VMware ESX/ESXi 4.0 and newer
- VMware Server 2.0 and newer
- VMware Workstation 6.5 and newer
- VMware Fusion 2.0 and newer

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

MULTIPLE QUEUES

The **vmx** driver supports multiple transmit and receive queues. Multiple queues are only supported by certain VMware products, such as ESXi. The number of queues allocated depends on the presence of MSI-X, the number of configured CPUs, and the tunables listed below. FreeBSD does not enable MSI-X support on VMware by default. The *hw.pci.honor_msi_blacklist* tunable must be disabled to enable

MSI-X support.

LOADER TUNABLES

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

hw.vmx.txnqueue

hw.vmx.X.txnqueue
> Maximum number of transmit queues allocated by default by the driver. The default value is 8. The maximum supported by the VMXNET3 virtual NIC is 8.

hw.vmx.rxnqueue

hw.vmx.X.rxnqueue
> Maximum number of receive queues allocated by default by the driver. The default value is 8. The maximum supported by the VMXNET3 virtual NIC is 16.

hw.vmx.txndesc

hw.vmx.X.txndesc

> Number of transmit descriptors allocated by the driver. The default value is 512. The value must be a multiple of 32, and the maximum is 4096.

hw.vmx.rxndesc

hw.vmx.X.rxndesc

> Number of receive descriptors per ring allocated by the driver. The default value is 256. The value must be a multiple of 32, and the maximum is 2048. There are two rings so the actual usage is doubled.

EXAMPLES

The following entry must be added to the VMware configuration file to provide the **vmx** device:

    ethernet0.virtualDev = "vmxnet3"

SEE ALSO

altq(4), arp(4), em(4), iflib(4), le(4), netintro(4), ng_ether(4), vlan(4), ifconfig(8)

AUTHORS

The **vmx** driver was ported from OpenBSD and significantly rewritten by Bryan Venteicher *<bryanv@freebsd.org>*. The OpenBSD driver was written by Tsubai Masanari.