

sys_attrs_bcm(5)

NAME

sys_attrs_bcm – bcm subsystem attributes

DESCRIPTION

This reference page lists and describes attributes for the bcm (bcm) kernel subsystem. This subsystem is used by the DEGXA Gigabit Ethernet Network Interface Cards (NICs). The hardware and firmware for these adapters support coalescing, a threshold that causes the driver to send an interrupt to the kernel. This threshold can be defined in terms of a timer or the number of packets sent or received. The *_coal_frames and *_coal_ticks attributes in the following list support performance tuning related to coalescing.

Refer to `sys_attrs(5)` for an introduction to the topic of kernel subsystem attributes.

DriverTimeStamp

The date and time when the driver was last built. For example, May 24 2002 09:22:47. This is a read-only attribute and cannot be changed.

DriverVersion

The version number of the bcm driver. This is a read-only attribute, and cannot be changed.

minimal_isr

A value that enables (1) or disables (0) the awakening of separate threads by the driver's interrupt service routine to handle completion of transmit and receive operations. When separate worker threads are enabled, the system load of the DEGXA Gigabit Ethernet driver can be spread over multiple CPUs. When separate worker threads are disabled, the master system CPU (or the master CPU in each RAD of a NUMA system) services all the transmit and receive operations for the system's Gigabit Ethernet cards.

Default: 1 (multiple threads enabled)

A 0 setting improves the performance of the driver software itself. However, overall system performance is likely to suffer during times of high network load because kernel applications other than the driver can have difficulty accessing the master CPU. Furthermore, the

sys_attrs_bcm(5)

likelihood of overall system performance degradation goes up with each additional DEGXA Gigabit Ethernet card supported by the system. For this reason, the default setting (1) is recommended for most systems and applications.

This attribute can be modified at run time.

jumbo_max

The maximum number of jumbo (9000 byte) receive buffers to allocate if jumbo frames are enabled.

Default: 255 (buffers)

Minimum: 1

Maximum: 255

This attribute can be modified at run time.

* rx_coal_frames

The number of packets that are received before an interrupt is generated (assuming that the rx_coal_ticks timer does not expire first).

Default: 10 (packets)

Minimum: 0

Maximum: 1023

This attribute can be modified at run time.

* rx_coal_frames_int

The number of packets that are received before a new status block is sent to the host through a direct memory access (DMA) transfer while the driver is servicing an interrupt (assuming that the rx_coal_ticks_int timer does not expire first).

Default: 4 (packets)

Minimum: 0

Maximum: 1023

This attribute can be modified at run time.

sys_attrs_bcm(5)

* rx_coal_ticks

The number of microseconds (usec) that elapse after receipt of the last packet before an interrupt is generated (assuming that the rx_coal_frames threshold is not reached first).

Default: 150 (usec)

Minimum: 0

Maximum: INT_MAX, or 2 billion

This attribute can be modified at run time.

* rx_coal_ticks_int

The number of microseconds (usec) that elapse after receipt of the last packet before a new status block is sent to the host through a direct memory access (DMA) transfer while the driver is servicing an interrupt (assuming that the rx_coal_frames_int threshold is not reached first).

Default: 50 (usec)

Minimum: 0

Maximum: INT_MAX, or 2 billion

This attribute can be modified at run time.

standard_max

The maximum number of standard (1500 byte) receive buffers to allocate.

Default: 511 (buffers)

Minimum: 1

Maximum: 511

This attribute can be modified at run time.

stats_coal_ticks

The number of microseconds (usec) that elapse between statistics updates from the adapter to the host.

Default: 1000000 (usec), or 1 second

Minimum: 0

Maximum: INT_MAX, or 2 billion

sys_attrs_bcm(5)

This attribute can be modified at run time.

* tx_coal_frames

The number of packets that are sent before an interrupt is generated (assuming that the tx_coal_ticks timer does not expire first).

Default: 10 (packets)

Minimum: 0

Maximum: 511

This attribute can be modified at run time.

* tx_coal_frames_int

The number of packets that are sent before an interrupt is generated (assuming that the tx_coal_ticks_int timer does not expire first).

Default: 4 (packets)

Minimum: 0

Maximum: 511

This attribute can be modified at run time.

* tx_coal_ticks

The number of microseconds (usec) that elapse after transmission of the last packet before an interrupt is generated (assuming that the tx_coal_frames threshold is not reached first).

Default: 150 (usec)

Minimum: 0

Maximum: INT_MAX, or 2 billion

This attribute can be modified at run time.

* tx_coal_ticks_int

The number of microseconds (usec) that elapse after transmission of the last packet before an interrupt is generated (assuming that the tx_coal_frames_int threshold is not reached first).

Default: 50 (usec)

Minimum: 0

Maximum: INT_MAX, or 2 billion

sys_attrs_bcm(5)

This attribute can be modified at run time.

`use_tx_thread`

The value that defines how to use the transmit thread to process transmissions.

Default: 1

Minimum: 0

Maximum: 3

This attribute can be modified at run time.

Permitted values and their meaning are as follows:

- 0 Do not awaken the transmit thread. Transmits are started in line by the thread calling the `bcm_start` routine. Transmit completions will occur in the same thread as receive completions.
- 1 Awakens the transmit thread to start transmits. This allows a quick return from the `bcm_start` routine.
- 2 Awakens the transmit thread to complete transmits concurrently with receive completions.
- 3 Awakens the transmit thread according values 1 and 2.

SEE ALSO

`sys_attrs(5)`