

## Advanced Driver Options

Alacritech supports a number of advanced driver options which are described below

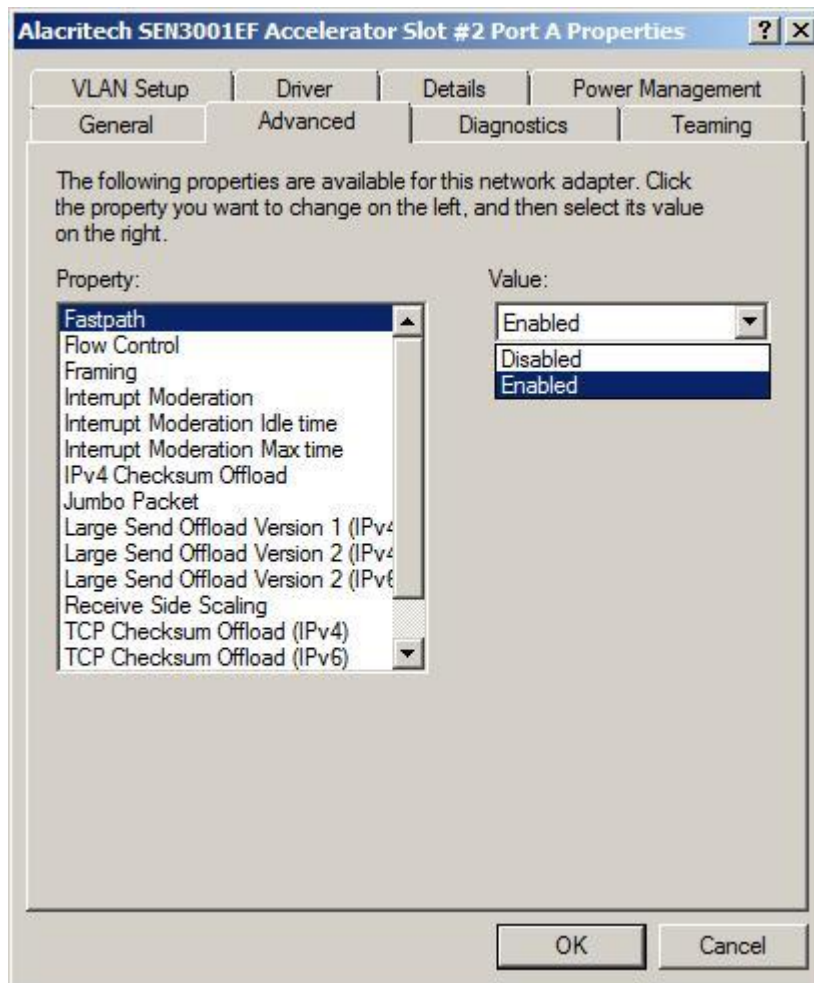
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## Release 10 Driver Advanced Options

### Fastpath



**Option:** Fastpath

**Registry Variable:** Fastpath

**Applies to:** Release 10  
SEN3000 series, SEN2X00  
series

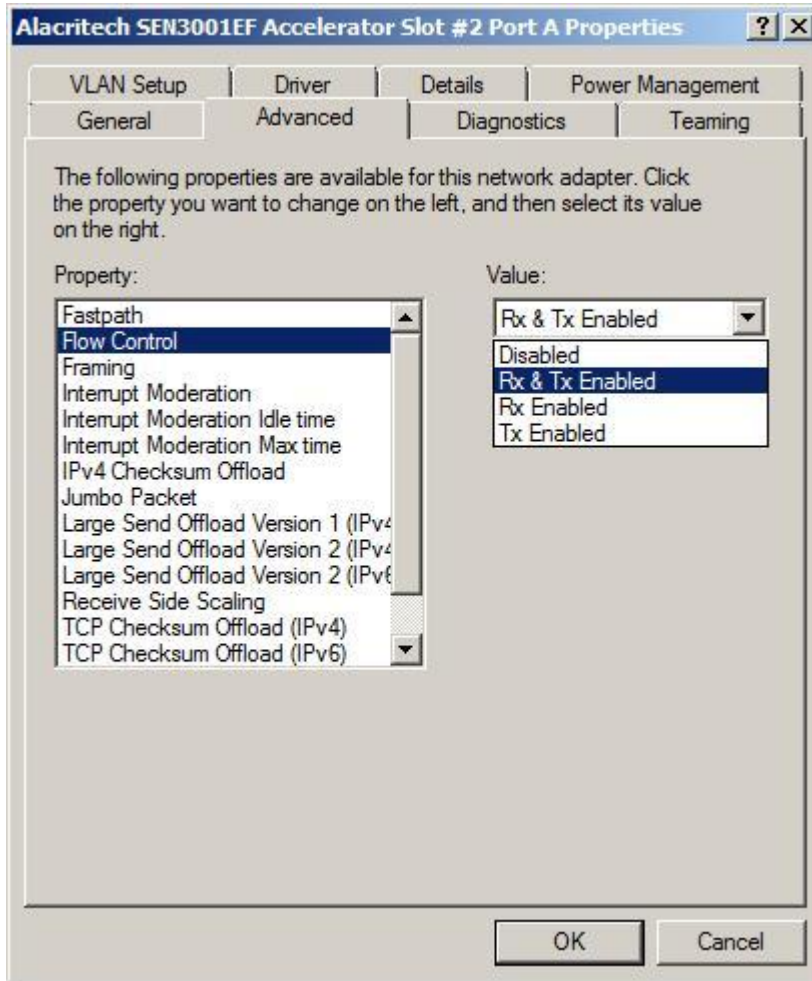
**Applies When:** TCP  
connection is offloaded

**Default Value:** Enabled

**Allowed Values:** Disabled,  
Enabled

**Description:** This is a diagnostic setting that should always be enabled for normal operation. In normal operation, connections that are accepted for offload from chimney are sent to the hardware. If fastpath is disabled then the connections are not sent to the hardware, but handled by the Alacritech miniport driver. Disabling offload will hinder performance, and should only be done for diagnostic purposes at the behest of Alacritech Support.

## Flow Control



**Option:** 802.3x Flow Control

**Registry Variable:**

\*FlowControl

**Applies to:** Release 10  
SEN3000 series

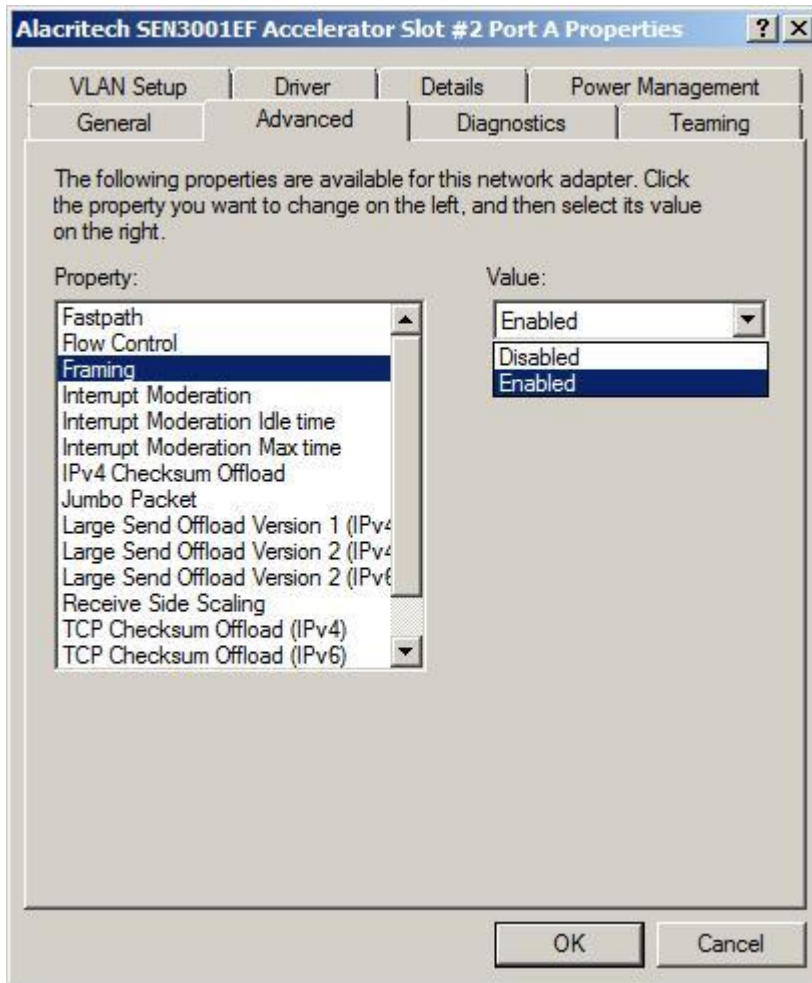
**Applies When:** Always

**Default Value:** RX & TX  
Enabled

**Allowed Values:** Disabled, RX  
& TX Enabled, RX Enabled, TX  
Enabled

**Description:** This setting  
activates and deactivates  
802.3x flow control. The  
Alacritech SEN3000 series 10  
gigabit Network Accelerator  
has relatively less buffer  
memory when compared to  
Alacritech 1 gigabit cards,  
therefore it is strongly  
recommended that flow control  
is enabled on the SEN3000, as  
well as on any intervening  
network hardware. In the  
absence of flow control,  
packets may be dropped as  
throughput approaches  
maximum bandwidth.

## Framing



**Option:** Framing

**Registry Variable:** Framing

**Applies to:** Release 10  
SEN3000 series

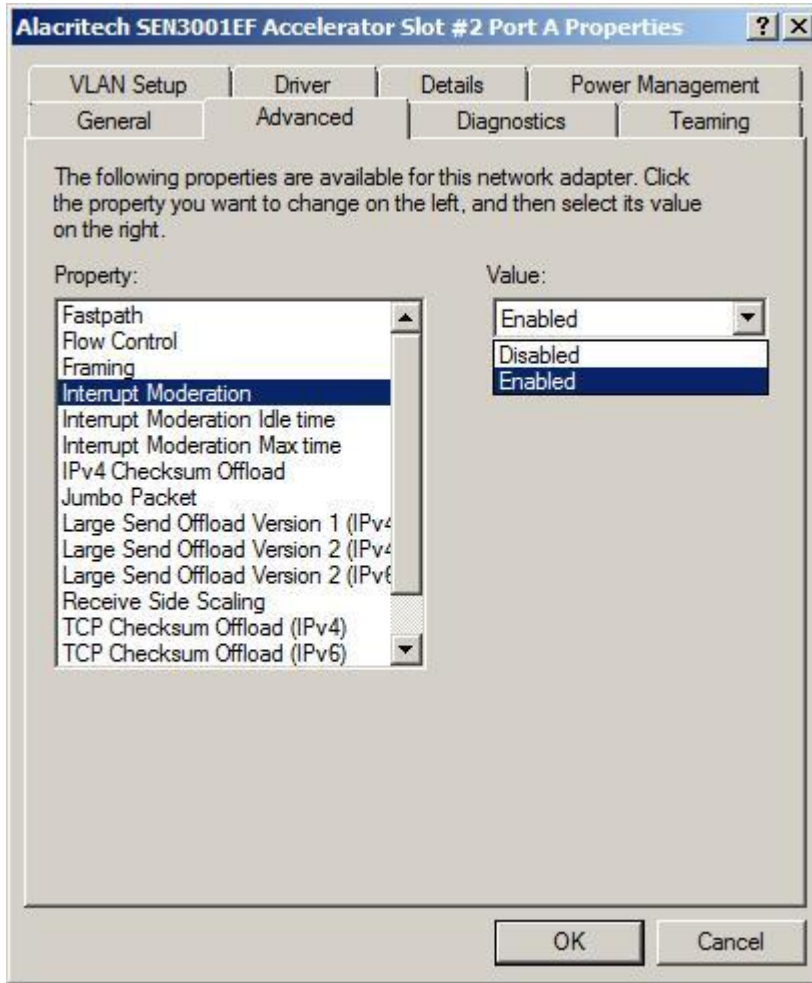
**Applies When:** TCP  
connection is offloaded

**Default Value:** Enabled

**Allowed Values:** Disabled,  
Enabled

**Description:** This setting controls how the SEN3000 Series handles some well behaved protocols such as CIFS. It should always be enabled during normal operations. It should only be changed at the behest of Alacritech Support.

## Interrupt Moderation



**Option:** Interrupt Moderation

**Registry Variable:**

\*InterruptModeration

**Applies to:** Release 10  
SEN3000 series

**Applies When:** Always

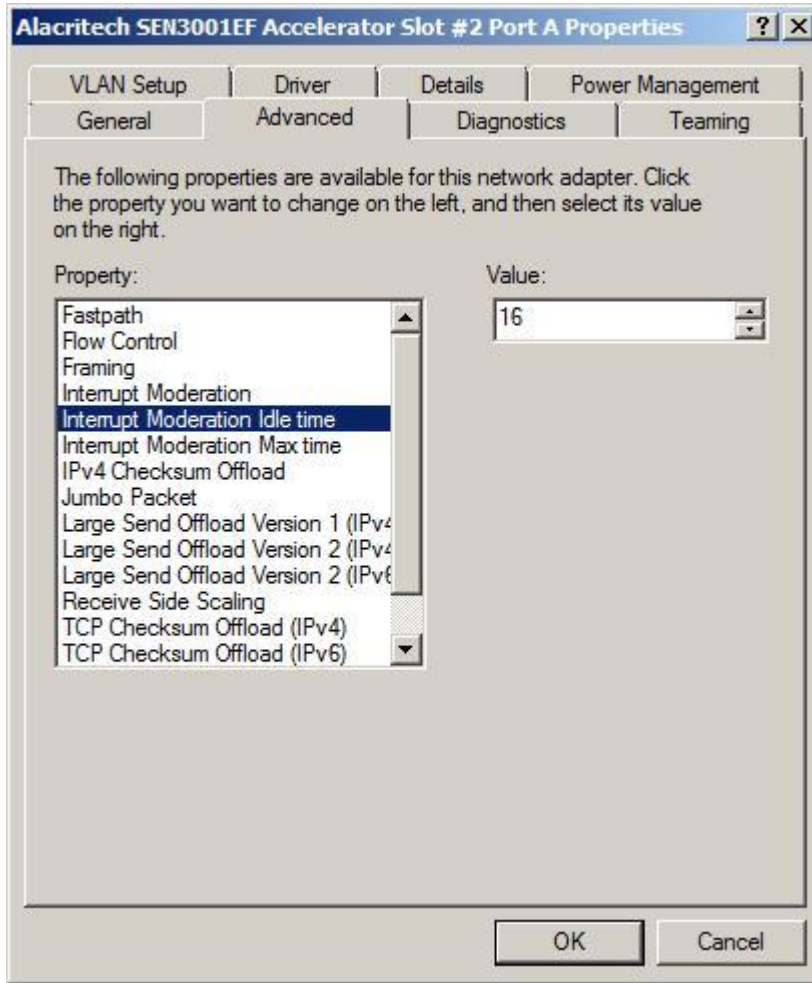
**Default Value:** Enabled

**Allowed Values:** Disabled,  
Enabled

**Description:** Interrupt moderation is a method by which multiple packets are buffered and then sent or received with a single interrupt. Interrupt moderation is most useful when sending or receiving small packets. Alacritech has chosen timer default values that we believe provide the maximum benefit for most scenarios. Unlike some other network drivers, Alacritech uses the same timer for both send and receive.

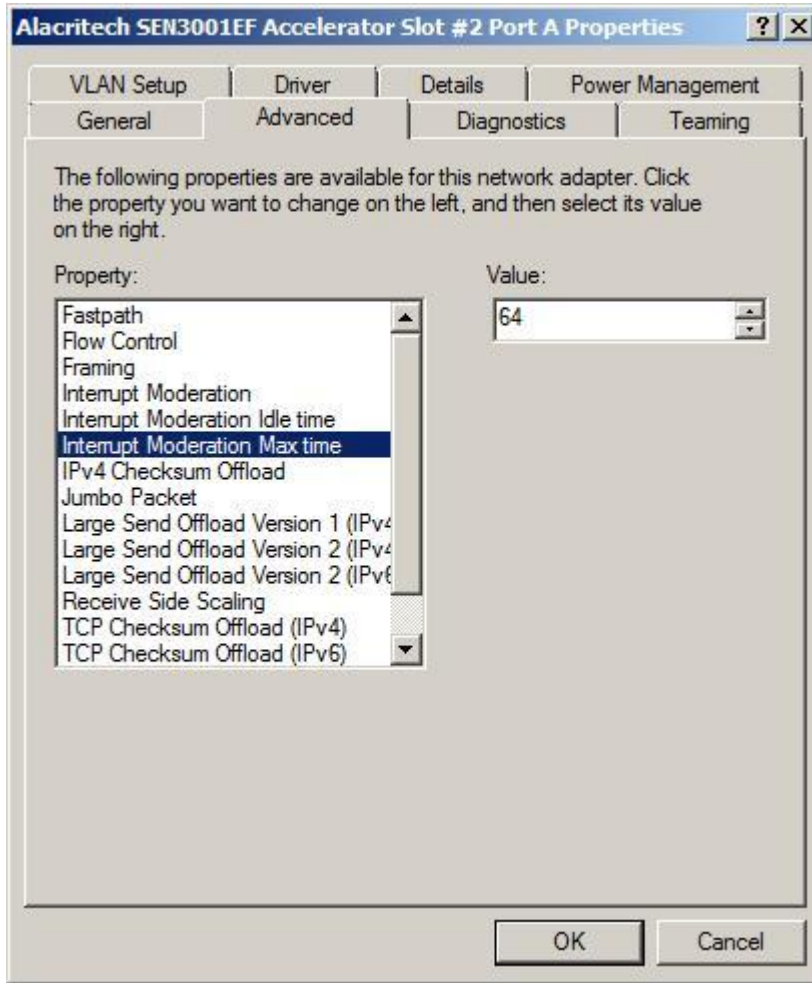
It is recommended that the timer settings not be changed except by persons with a high level of networking expertise who have a thorough understanding of interrupt moderation.

## Interrupt Moderation Idle Time



**Option:** Interrupt Moderation Idle Timeout  
**Registry Variable:** MinModeration  
**Applies to:** Release 10 SEN3000 series  
**Applies When:** Always  
**Default Value:** 16  
**Allowed Values:** 0 - 64  
**Description:** The maximum network idle time in microseconds that the driver will wait with data pending and no new data is received before generating an interrupt. Each new data request will reset this timer. This value should be less than the Interrupt Moderation Maximum Timeout.

### Interrupt Moderation Max Time



**Option:** Interrupt Moderation Maximum Timeout

**Registry Variable:**

MaxModeration

**Applies to:** Release 10 SEN3000 series

**Applies When:** Always

**Default Value:** 64

**Allowed Values:** 0 - 255

**Description:** The absolute maximum time in microseconds between interrupts with data pending. This value should be greater than the Interrupt Moderation Idle Timeout.

## IPv4 Checksum Offload



**Option:** IPv4 Checksum Offload

**Registry Variable:**

\*IPChecksumOffloadIPv4

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

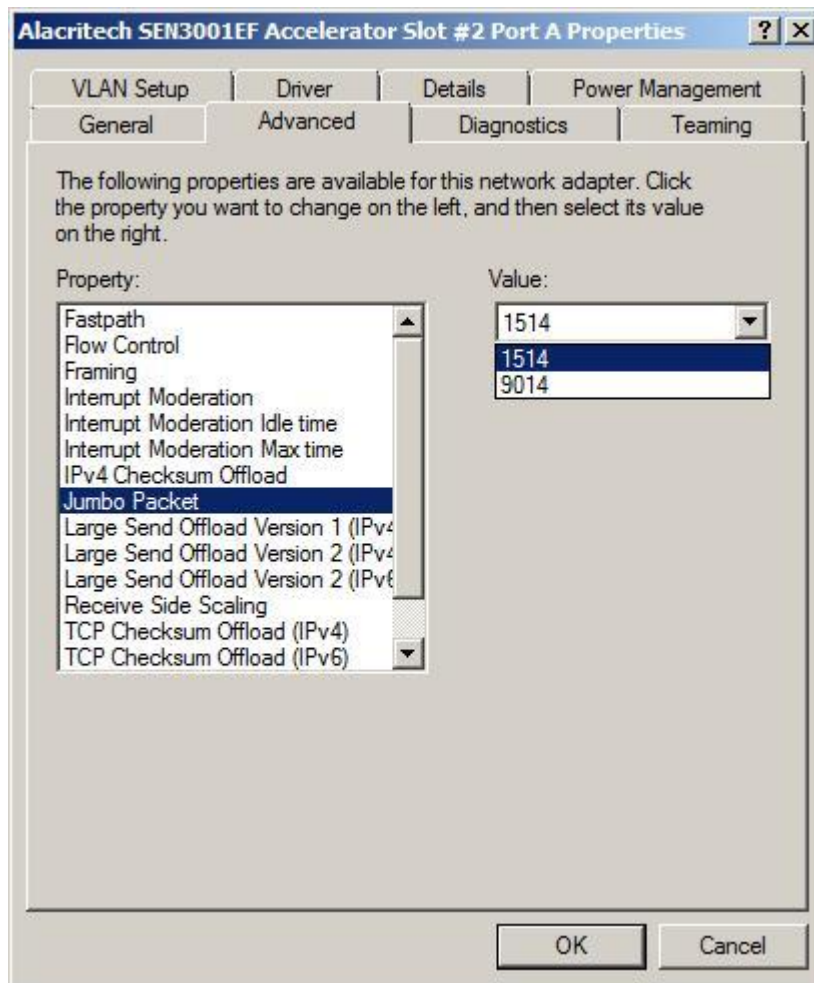
**Applies When:** Connection is in host

**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Enables stateless offload of IPv4 checksum. This setting has no effect if the entire connection is offloaded.

## Jumbo Packet



**Option:** Jumbo Packet

**Registry Variable:**

\*JumboPacket

**Applies to:** Release 10  
SEN3000 series, SEN2X00  
series

**Applies When:** Always

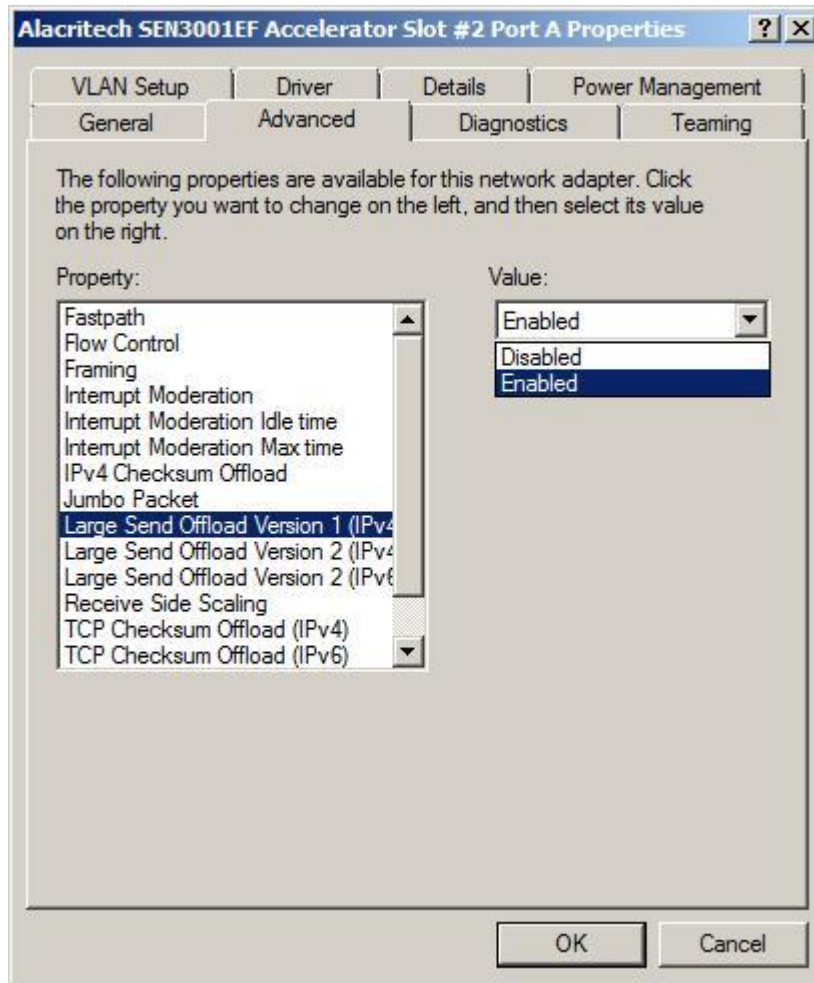
**Default Value:** 1514

**Allowed Values:** 1514, 9014

**Description:** Alacritech jumbo packet size references include the default ethernet header plus the MTU, but not the CRC. Technically, we should just state the MTU, as the ethernet header size is not fixed if tagged frames are supported. We should just state the MTU values as 1500 and 9000. Rest assured that our "jumbo packet" size of 9014 really means an MTU of 9000.

Before enabling this option, make sure that jumbo frames are enabled on all switches between this host and the target host(s).

## Large Send Offload Version 1 (IPv4)



**Option:** Large Send Offload v1 (IPv4)

**Registry Variable:**

\*LsoV1IPv4

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

**Applies When:** TCP connection is in host

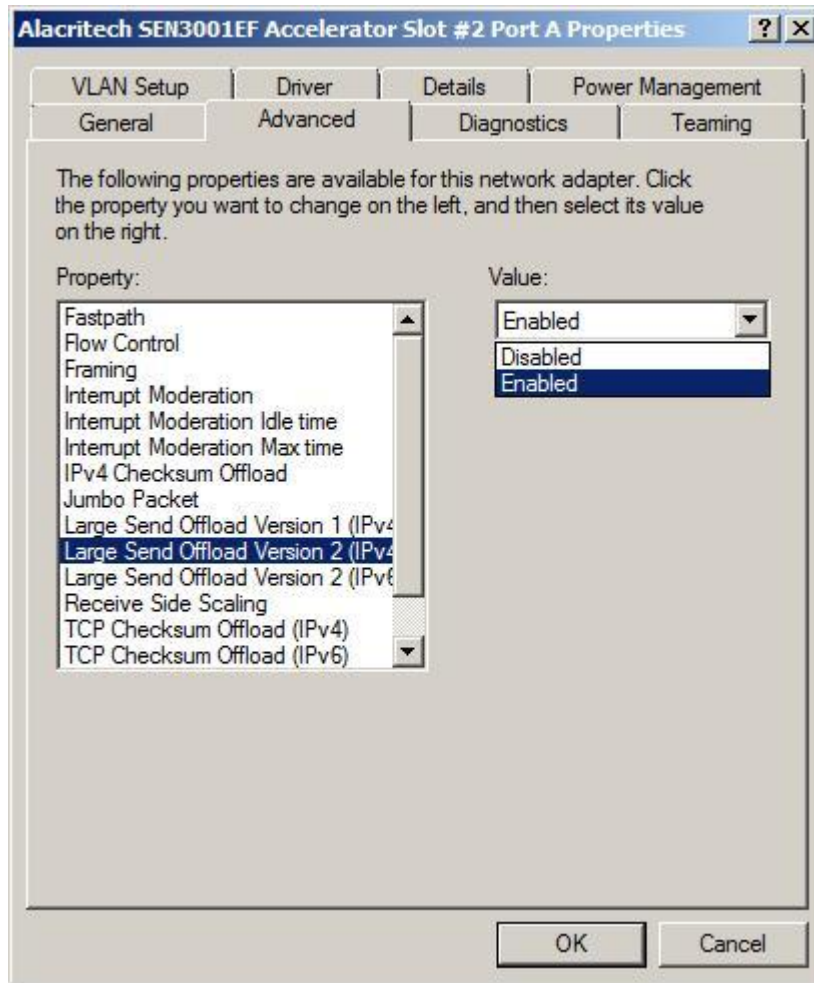
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows IPv4 TCP sends to be offloaded to the network card. LSO v1 supports a maximum segment offload size of 64kb. LSO v1 is supported for IPv4 only. If LSOv1 and LSOv2 are both enabled, LSOv2 will be used.

This setting only applies if the connection is in host. If the connection is offloaded, all TCP is offloaded.

## Large Send Offload Version 2 (IPv4)



**Option:** Large Send Offload v2 (IPv4)

**Registry Variable:**

\*LsoV2IPv4

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

**Applies When:** TCP connection is in host

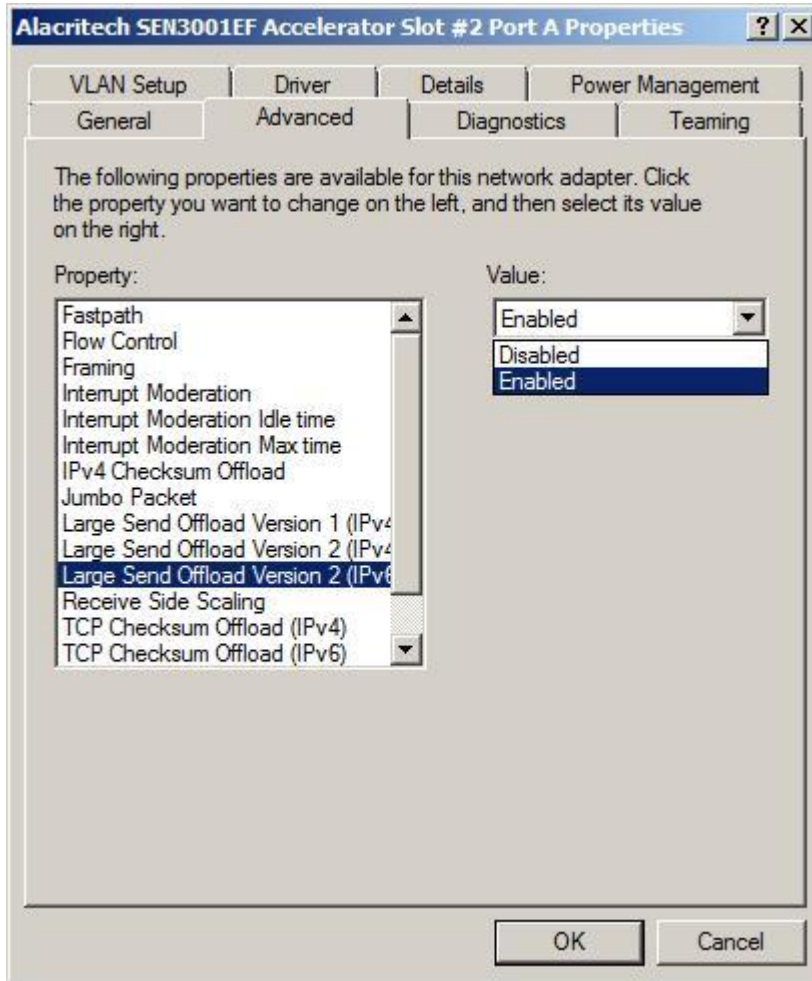
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows IPv4 TCP sends to be offloaded to the network card. LSO v2 supports a maximum segment offload size of 256kb. If LSOv1 and LSOv2 are both enabled, LSOv2 will be used.

This setting only applies if the connection is in host. If the connection is offloaded, all TCP is offloaded.

## Large Send Offload Version 2 (IPv6)



**Option:** Large Send Offload v2 (IPv6)

**Registry Variable:**

\*LsoV2IPv6

**Applies to:** Release 10  
SEN3000 series

**Applies When:** TCP  
connection is in host

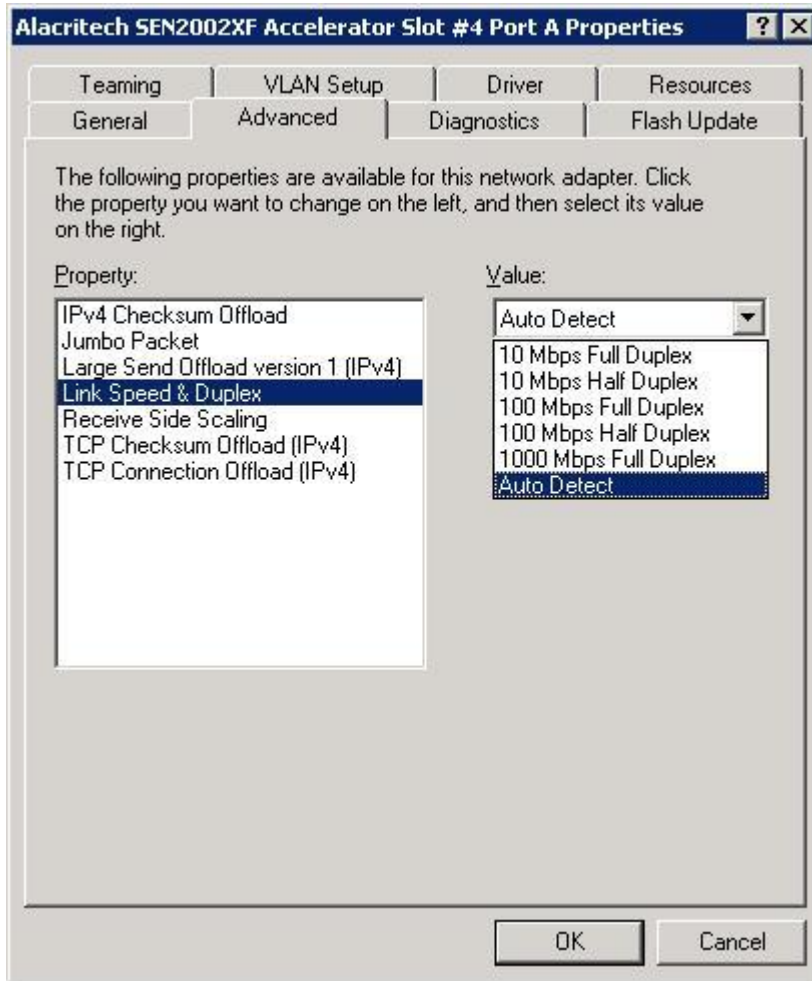
**Default Value:** Enabled

**Allowed Values:** Disabled,  
Enabled

**Description:** Allows IPv6 TCP  
sends to be offloaded to the  
network card. LSO v2 supports  
a maximum segment offload  
size of 256kb.

This setting only applies if the  
connection is in host. If the  
connection is offloaded, all  
TCP is offloaded.

## Link Speed & Duplex



**Option:** Link Speed and Duplex

**Registry Variable:**

\*SpeedDuplex

**Applies to:** Release 10  
SEN2X00 series

**Default Value:** Auto

**Applies When:** Always

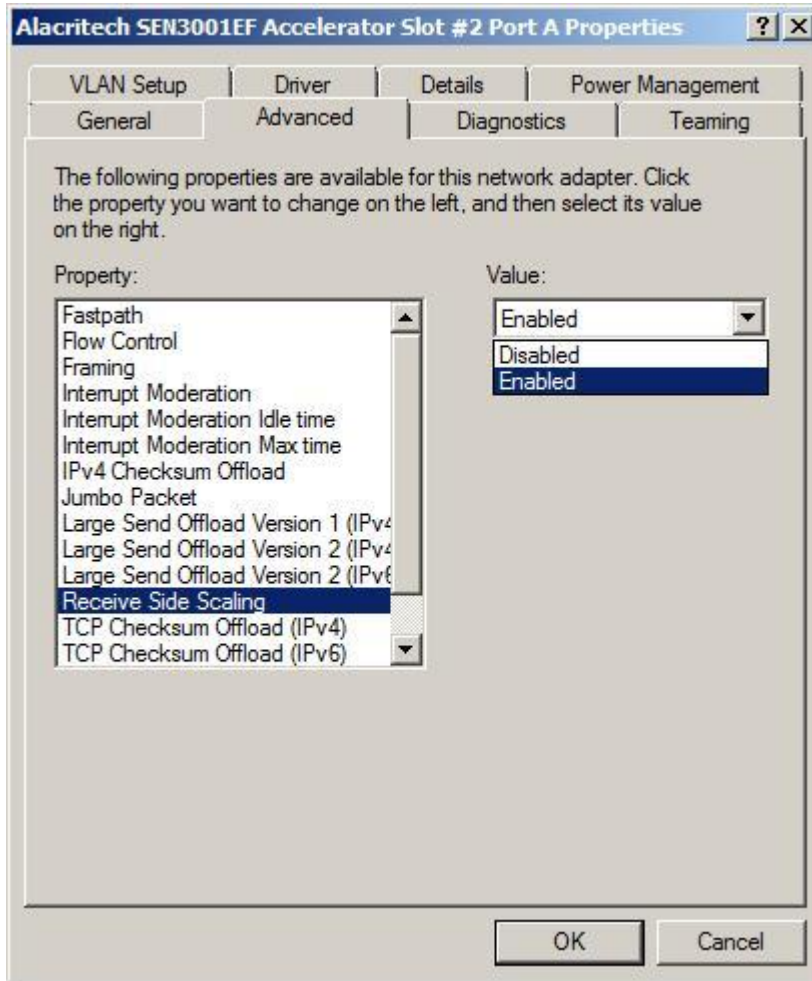
**Allowed Values:**

**Gig Copper:** Auto, 1000 Full, 100 Full, 100 Half, 10 Full, 10 Half

**Gig Fiber:** Auto, 1000 Full

**Description:** Alacritech strongly recommends that you leave your switch ports set to **auto** but if your switch is not set to auto, you **must** change the Alacritech port's link speed and duplex to match the switch setting.

## Receive Side Scaling



**Option:** Receive Side Scaling (RSS)

**Registry Variable:** \*RSS

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

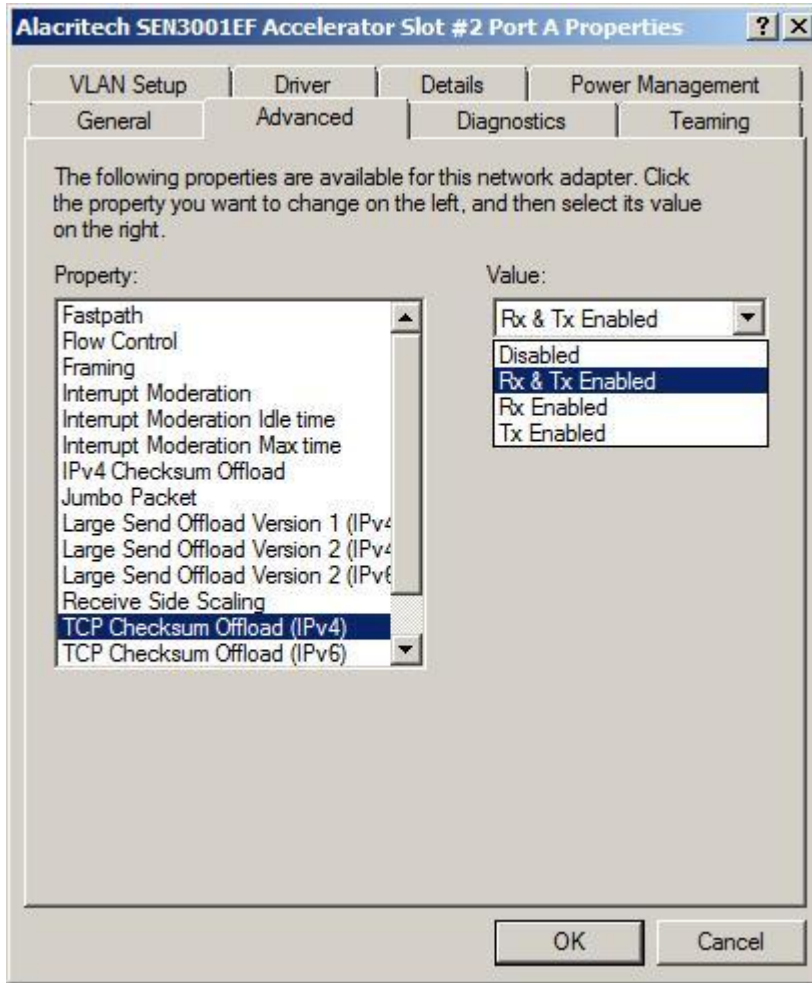
**Applies When:** RSS is globally enabled

**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Enables or disables Receive Side Scaling on a per port basis. In the traditional Windows network stack, all network interrupts are processed by a single CPU. RSS allows network interrupts to be distributed across multiple CPUs. Whether or not this improves performance or not on Server 2003 is debatable, but on NDIS 6.0 (Vista, Server 2008), RSS definitely helps.

## TCP Checksum Offload (IPv4)



**Option:** TCP Checksum Offload (IPv4)

**Registry Variable:**

\*TCPChecksumOffloadIPv4

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

**Applies When:** TCP connection is in host.

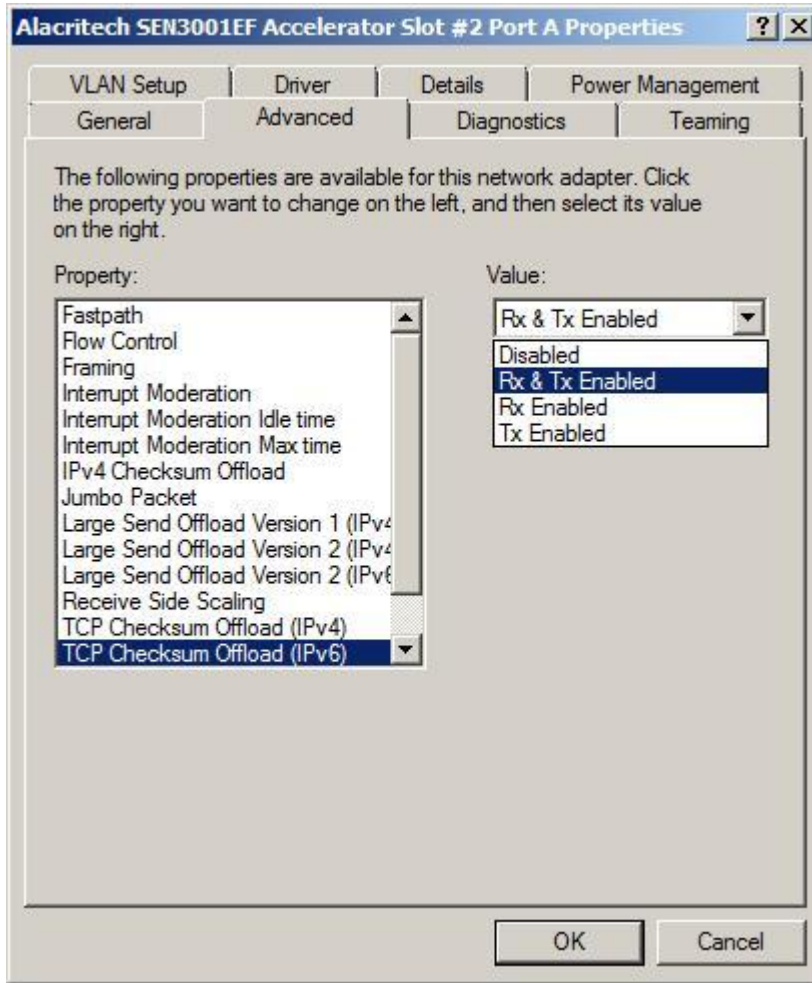
**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows IPv4 TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, TCP checksums are also offloaded.

### TCP Checksum Offload (IPv6)



**Option:** TCP Checksum Offload (IPv6)

**Registry Variable:**

\*TCPChecksumOffloadIPv6

**Applies to:** Release 10  
SEN3000 series

**Applies When:** TCP connection is in host.

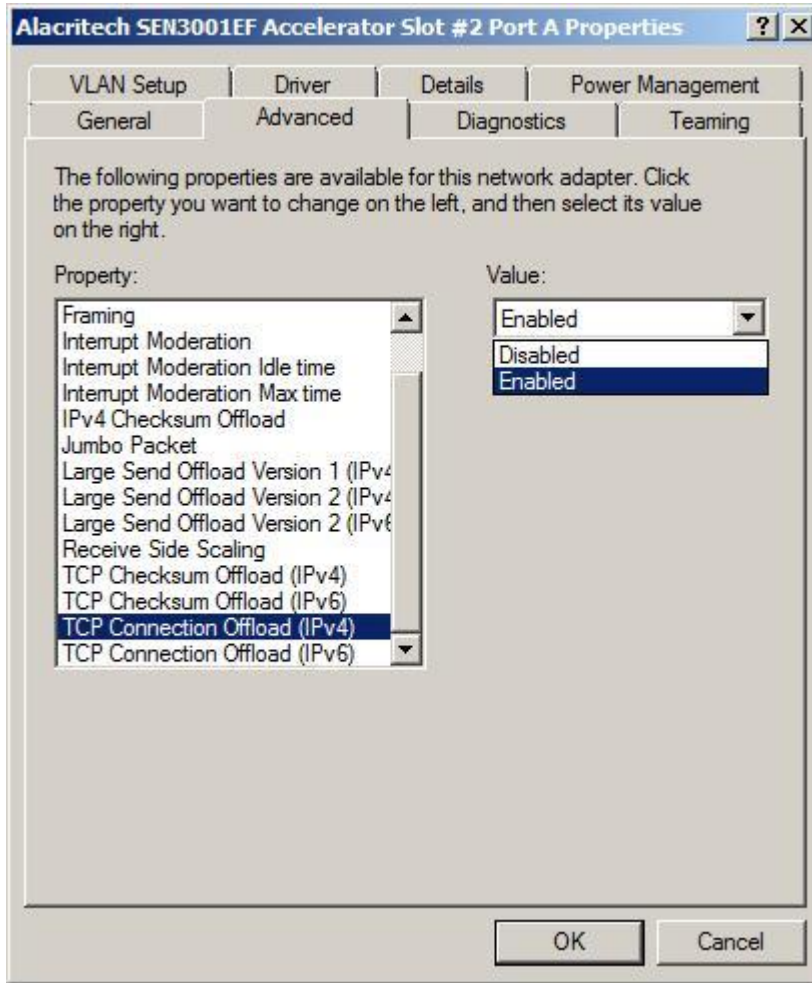
**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows IPv6 TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, TCP checksums are also offloaded.

### TCP Connection Offload (IPv4)



**Option:** TCP Connection Offload (IPv4)

**Registry Variable:**

\*TCPConnectionOffloadIPv4

**Applies to:** Release 10 SEN3000 series, SEN2X00 series

**Applies When:** TCP Chimney is globally enabled

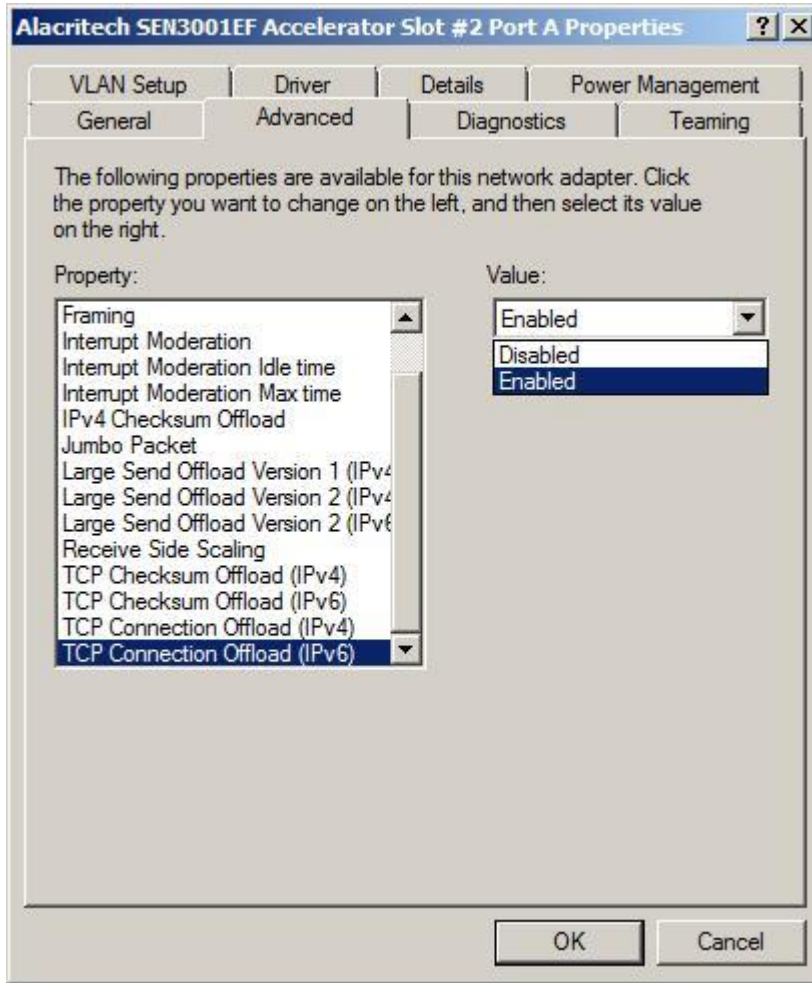
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows IPv4 TCP connection offload to be enabled or disabled on a per port basis.

This setting will have no effect if TCP Chimney is globally disabled.

### TCP Connection Offload (IPv6)



**Option:** TCP Connection Offload (IPv6)

**Registry Variable:**

\*TCPConnectionOffloadIPv6

**Applies to:** Release 10 SEN3000 series

**Applies When:** TCP Chimney is globally enabled

**Default Value:** Enabled

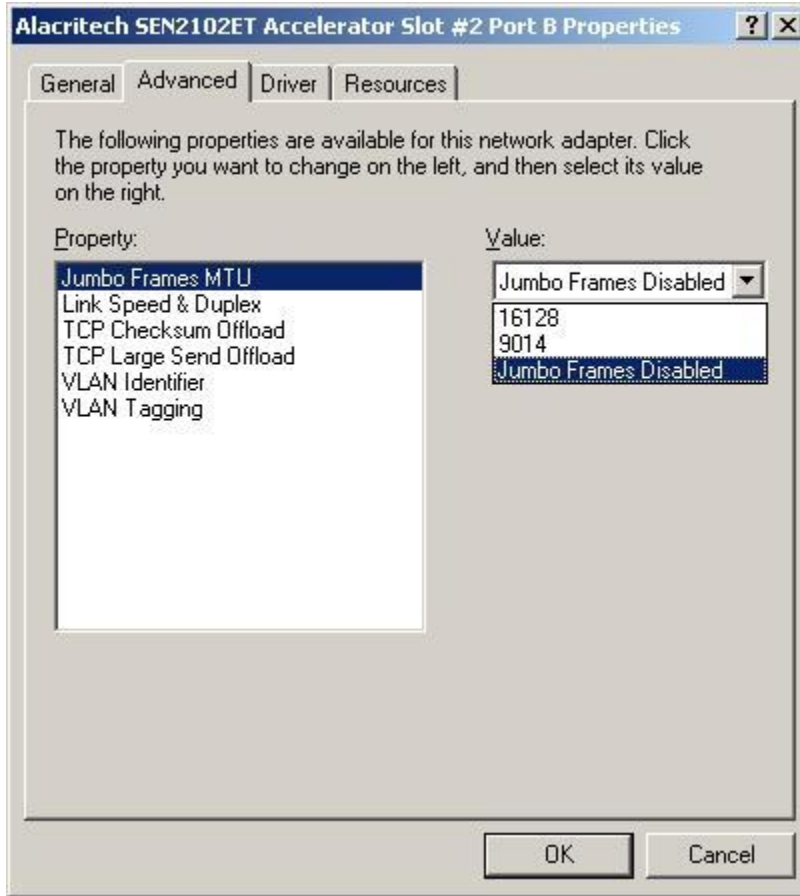
**Allowed Values:** Disabled, Enabled

**Description:** Allows IPv6 TCP connection offload to be enabled or disabled on a per port basis.

This setting will have no effect if TCP Chimney is globally disabled.

## Release 7 Driver Advanced Options

### Jumbo Frames



**Option:** Jumbo Frame Size

**Applies to:** Release 7

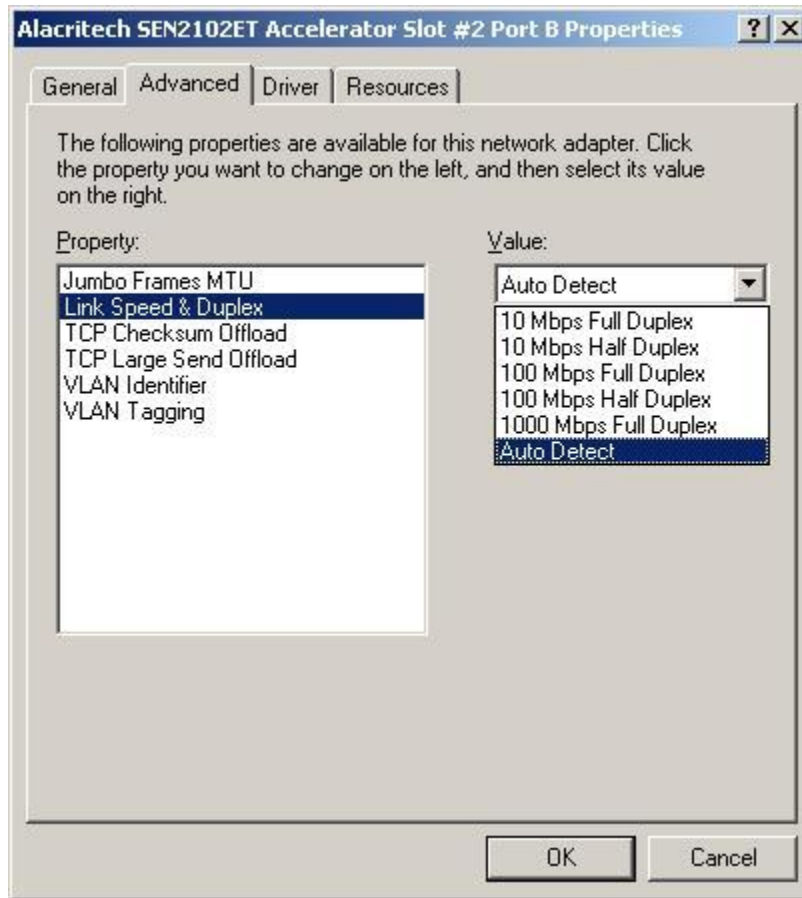
**Default Value:** Disabled

**Allowed Values:** Disabled  
(1514), 9014, 16128

**Description:** Alacritech Ethernet frame size references refer to the ethernet header plus the MTU, but not the CRC. Technically, the actual frame size should include the CRC, so we should have the values listed as (1518), 9018, and 16132, or do like most other vendors and refer to the MTU sizes (1500), 9000, 16114. ...but we don't. Rest assured that our 9014 means an MTU of 9000.

Before enabling this option, make sure that jumbo frames are enabled on all switches between this host and the target host(s). Very few vendors support an MTU of > 9000, so this is the recommended setting if you enable jumbo frames.

## Link Speed & Duplex



**Option:** Link Speed and Duplex

**Applies to:** Release 7

**Default Value:** Auto

**Allowed Values:**

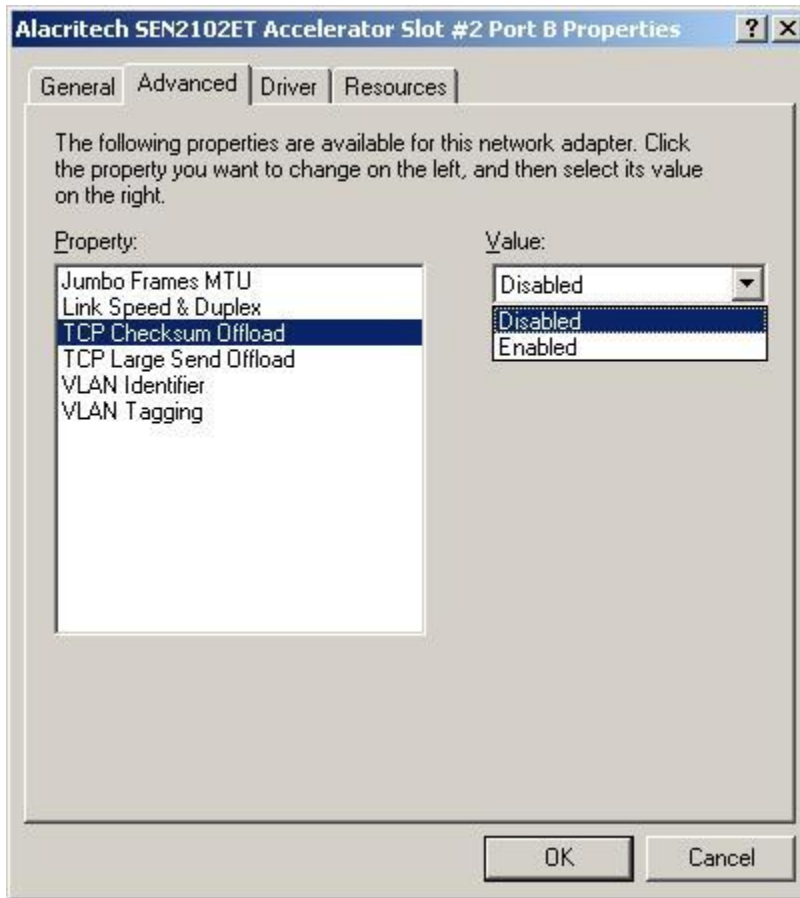
**Gig Copper:** Auto, 1000 Full, 100 Full, 100 Half, 10 Full, 10 Half

**Gig Fiber:** Auto, 1000 Full

**100MB Copper:** Auto, 100 Full, 100 Half, 10 Full, 10 Half

**Description:** Alacritech strongly recommends that you leave your switch ports set to **auto** but if your switch is not set to **auto**, you **must** change the Alacritech port's link speed and duplex to match the switch setting.

## TCP Checksum Offload



**Option:** TCP Checksum Offload

**Applies to:** Release 7

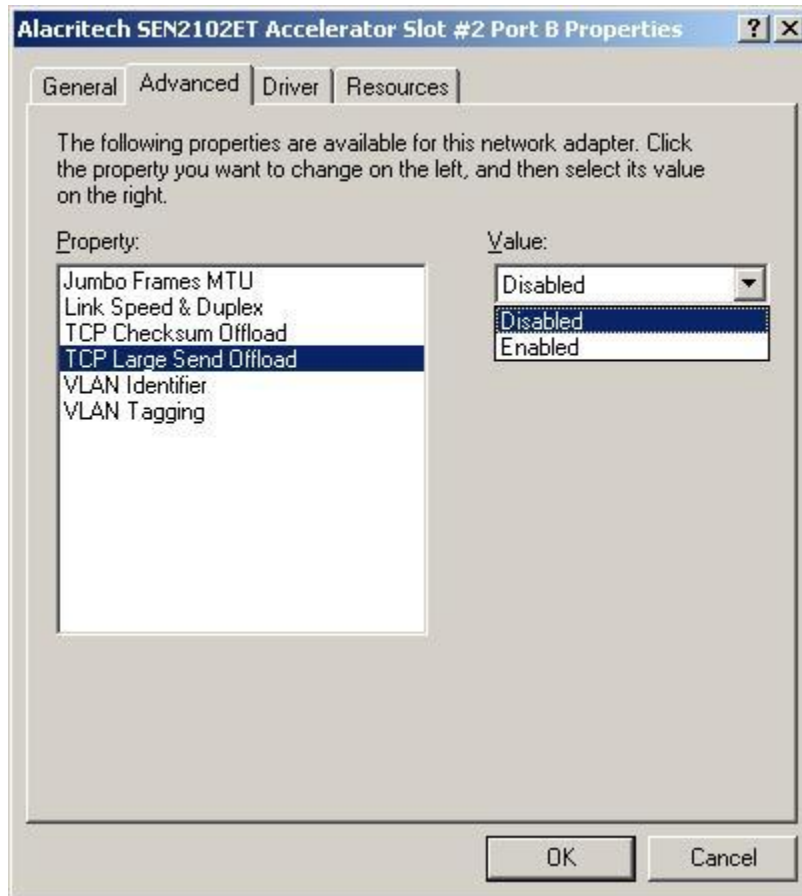
**Default Value:** Disabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies to what we refer to as *Dumb NIC* mode. This means that the Alacritech TCP Offload (Fast-Path) driver (atcp.sys) is either not installed, or is disabled on this interface. If you are running in dumb NIC mode, you may get better performance by enabling checksum offload. With TCP Offload enabled, this setting is ignored.

## TCP Large Send Offload



**Option:** Large Send Offload

**Applies to:** Release 7

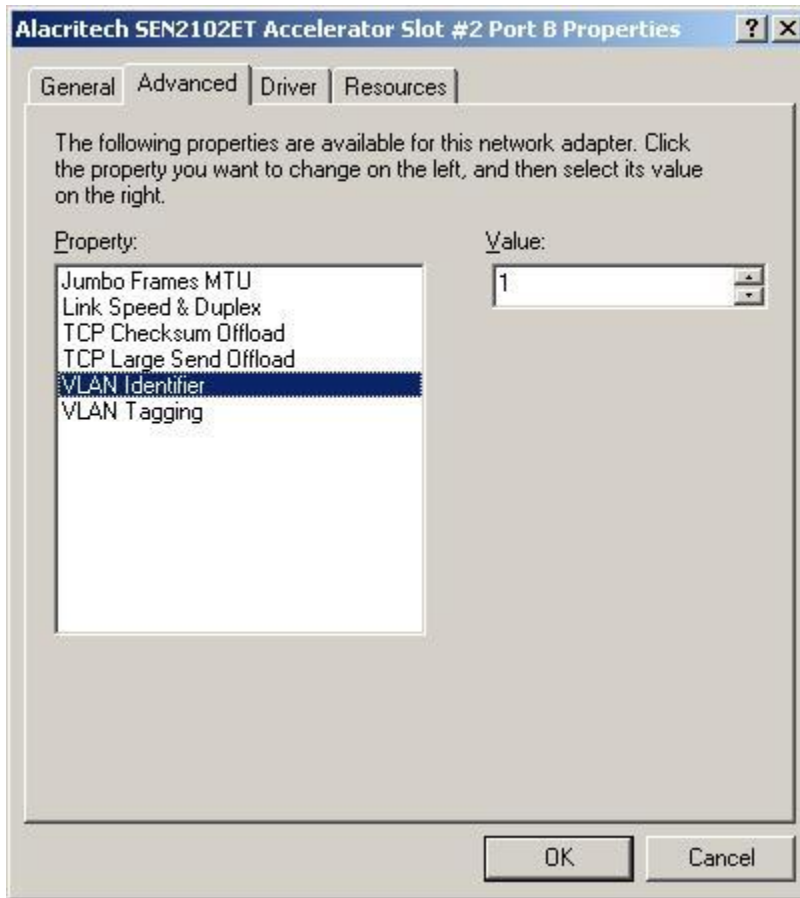
**Default Value:** Disabled

**Allowed Values:** Disabled, Enabled

**Description:** Also known as segmentation offload, this option allows the host to pass an entire send buffers worth of data to the card even it is larger than the current MTU. The card will then handle splitting it into TCP segments.

This setting only applies to what we refer to as *Dumb NIC* mode. This means that the Alacritech TCP Offload (Fast-Path) driver (atcp.sys) is either not installed, or is disabled on this interface. If you are running in dumb NIC mode, you may get better performance by enabling large send offload. With TCP Offload enabled, this setting is ignored.

## VLAN Identifier



**Option:** Tagged VLAN Identifier

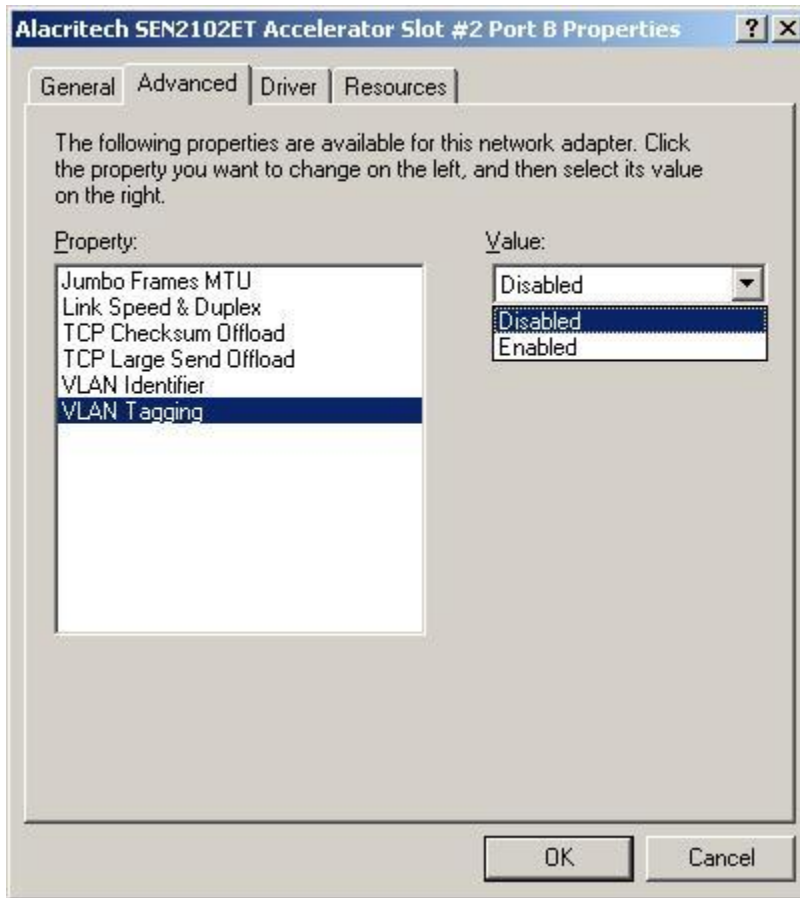
**Applies to:** Release 7

**Default Value:** 1

**Allowed Values:** 1 - 4094

**Description:** Alacritech only supports membership in a single tagged VLAN. This value is the identifier for that VLAN.

## VLAN Tagging



**Option:** VLAN Tagging

**Applies to:** Release 7

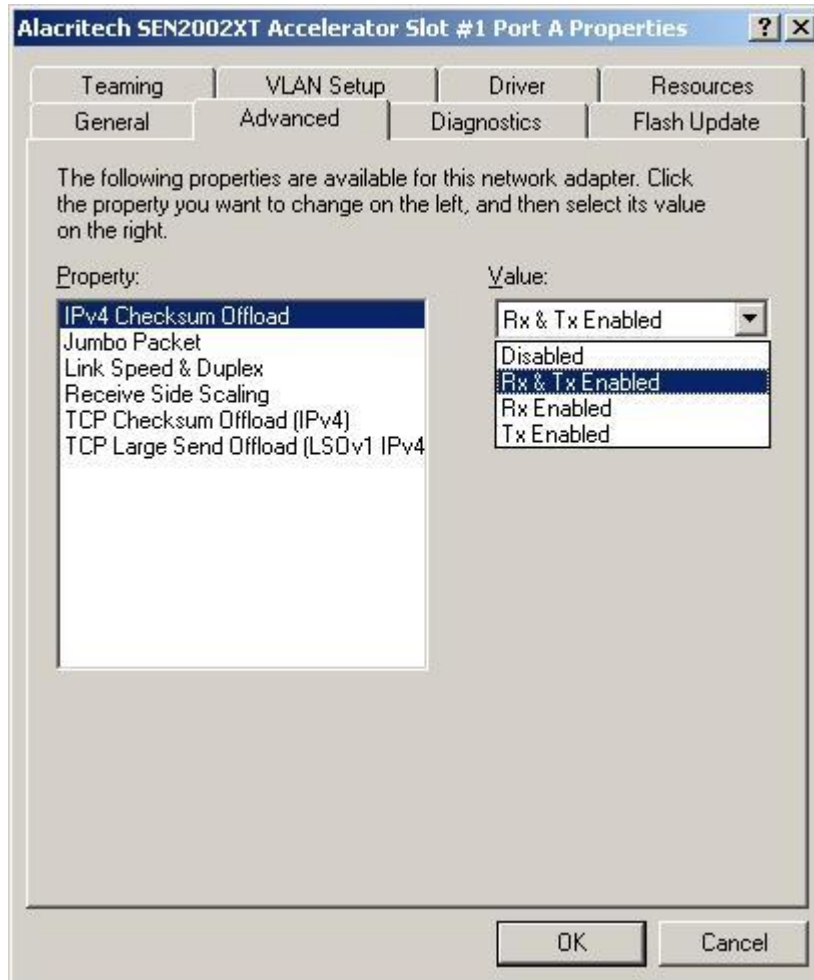
**Default Value:** Disabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows membership in a single tagged VLAN.

## Release 9.2.x.x Driver Advanced Options

### IPv4 Checksum Offload



**Option:** IPv4 Checksum Offload

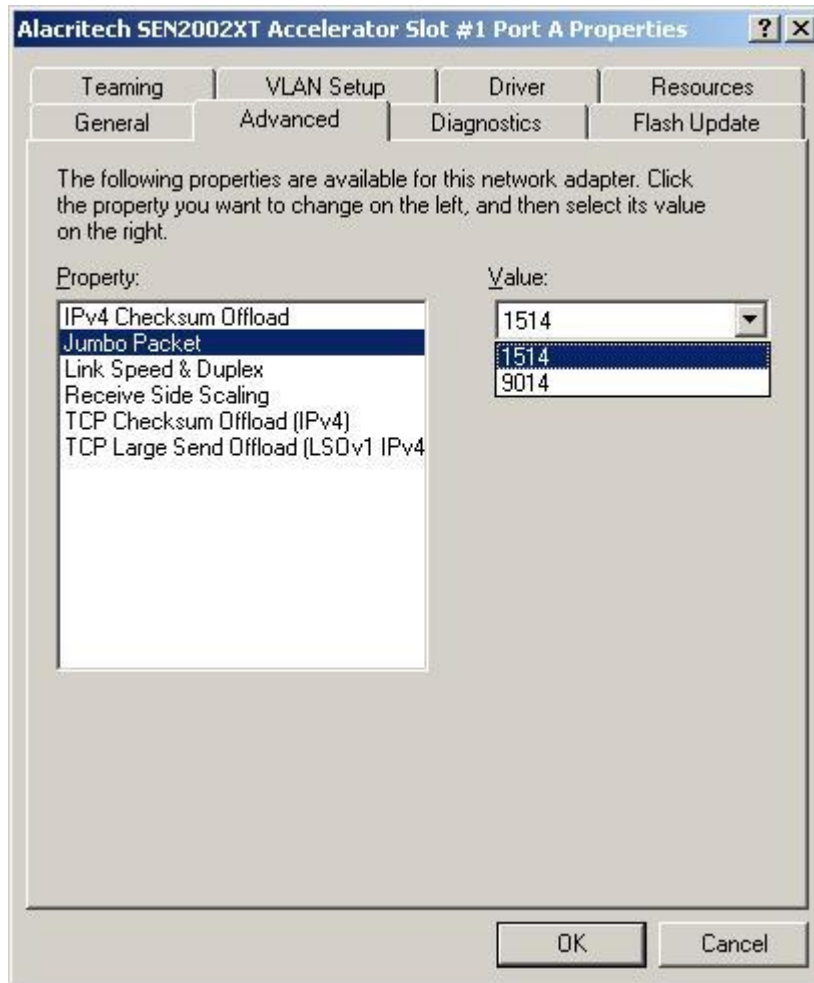
**Applies to:** Release 9  
**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows IPv4 checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, IPv4 checksums are also offloaded.

## Jumbo Packet



**Option:** Jumbo Packet Size  
**Applies to:** Release 9.1 and later

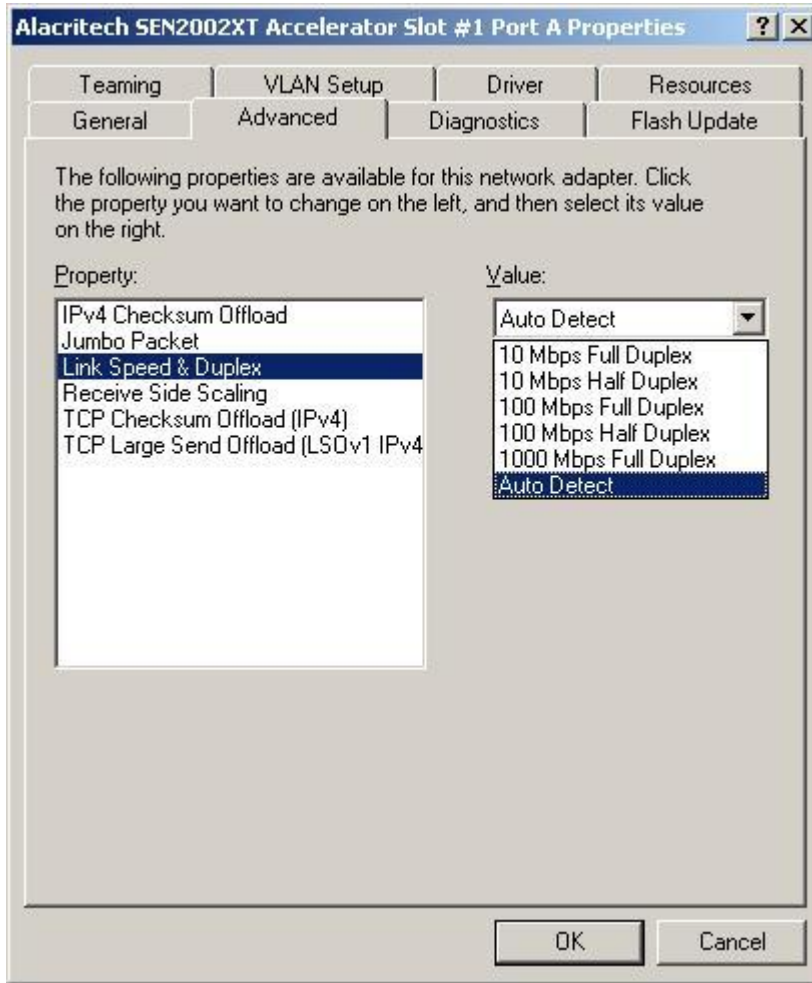
**Default Value:** 1514

**Allowed Values:** 1514, 9014

**Description:** Alacritech jumbo packet size references include the default ethernet header plus the MTU, but not the CRC. Technically, we should just state the MTU, as the ethernet header size is not fixed if tagged frames are supported. We should just state the MTU values as 1500 and 9000. ...but we don't. Rest assured that our "jumbo packet" size of 9014 really means an MTU of 9000.

Before enabling this option, make sure that jumbo frames are enabled on all switches between this host and the target host(s).

## Link Speed & Duplex



**Option:** Link Speed and Duplex

**Applies to:** Release 9

**Default Value:** Auto

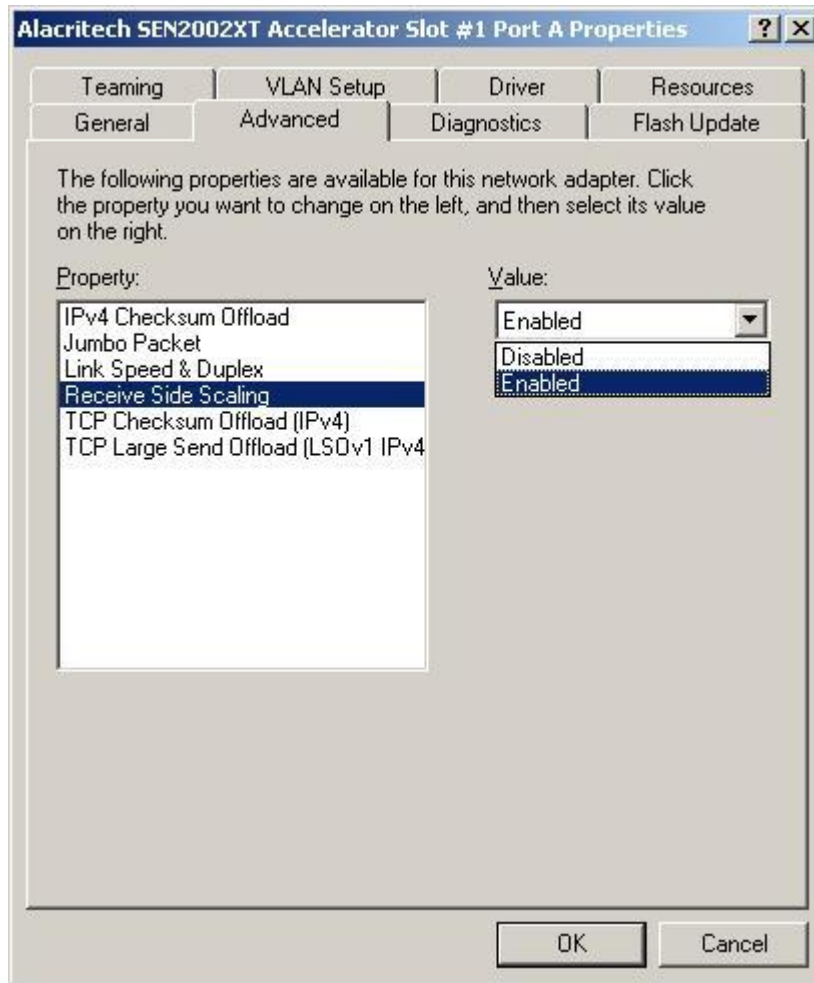
**Allowed Values:**

**Gig Copper:** Auto, 1000 Full, 100 Full, 100 Half, 10 Full, 10 Half

**Gig Fiber:** Auto, 1000 Full

**Description:** Alacritech strongly recommends that you leave your switch ports set to **auto** but if your switch is not set to auto, you **must** change the Alacritech port's link speed and duplex to match the switch setting.

## Receive Side Scaling



**Option:** Receive Side Scaling

**Applies to:** Release 9.2

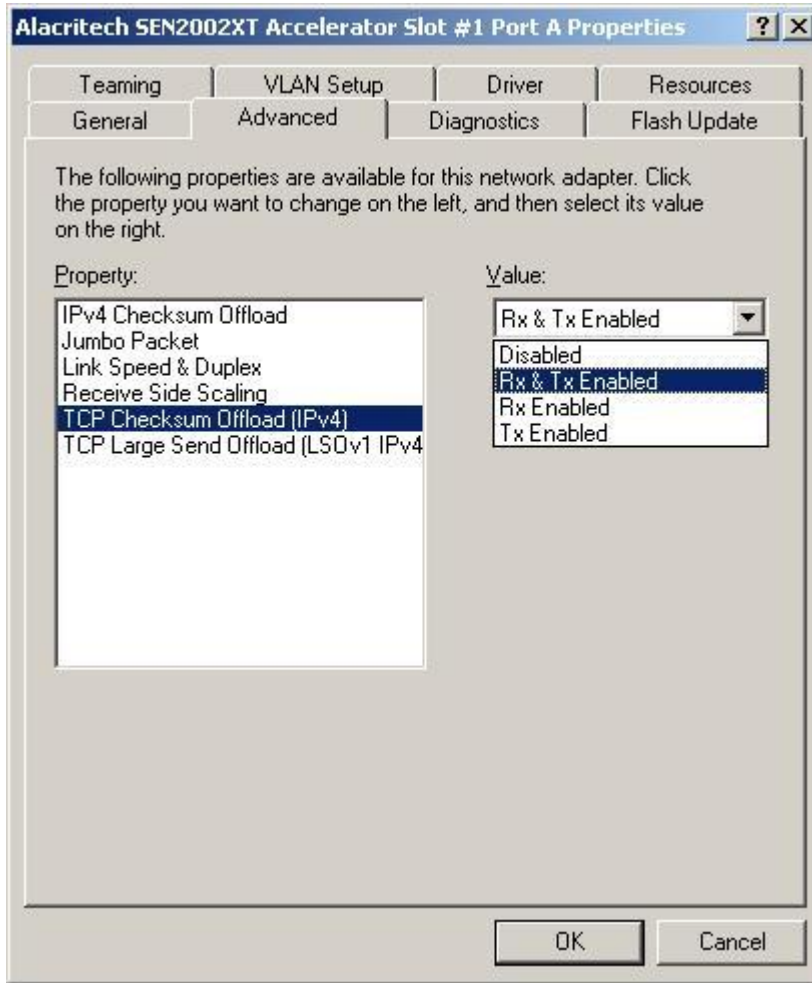
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Enables or disables Receive Side Scaling

In the traditional Windows network stack, all network interrupts are processed by a single CPU. RSS allows network interrupts to be distributed across multiple CPUs. Whether or not this improves performance or not on Server 2003 is debatable.

## TCP Checksum Offload



**Option:** TCP Checksum Offload (IPv4)

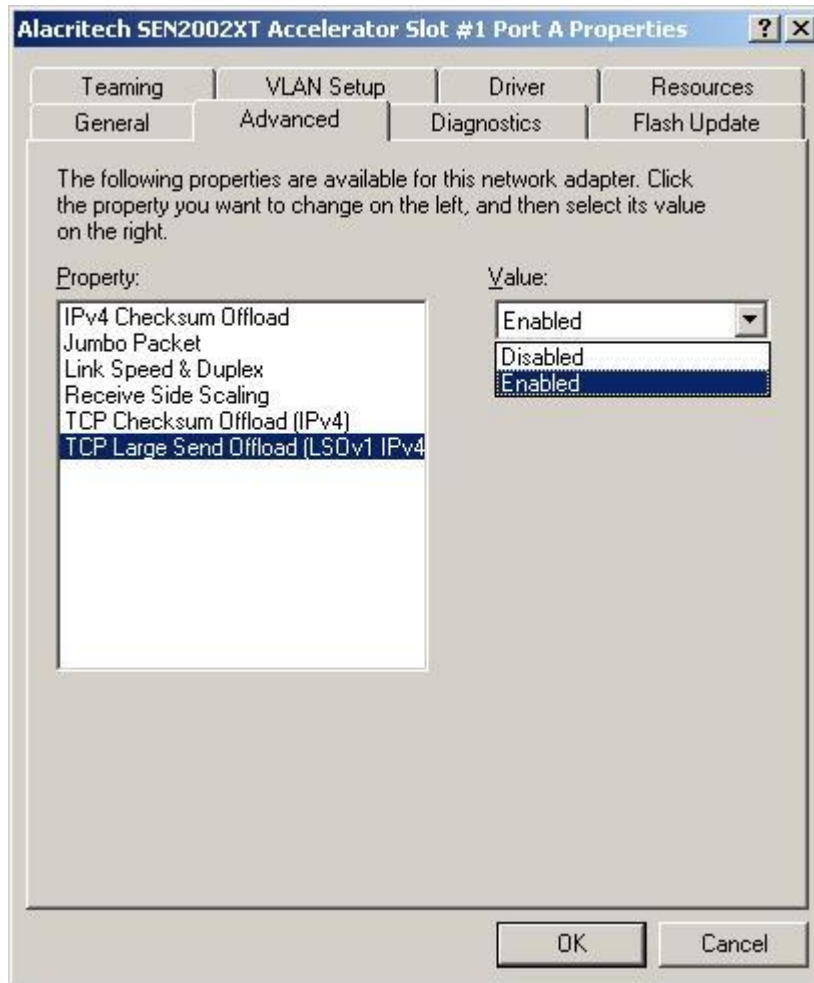
**Applies to:** Release 9  
**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, TCP checksums are also offloaded.

## TCP Large Send Offload (v1)



**Option:** TCP Large Send Offload (v1)

**Applies to:** Release 9.2

**Default Value:** Enabled

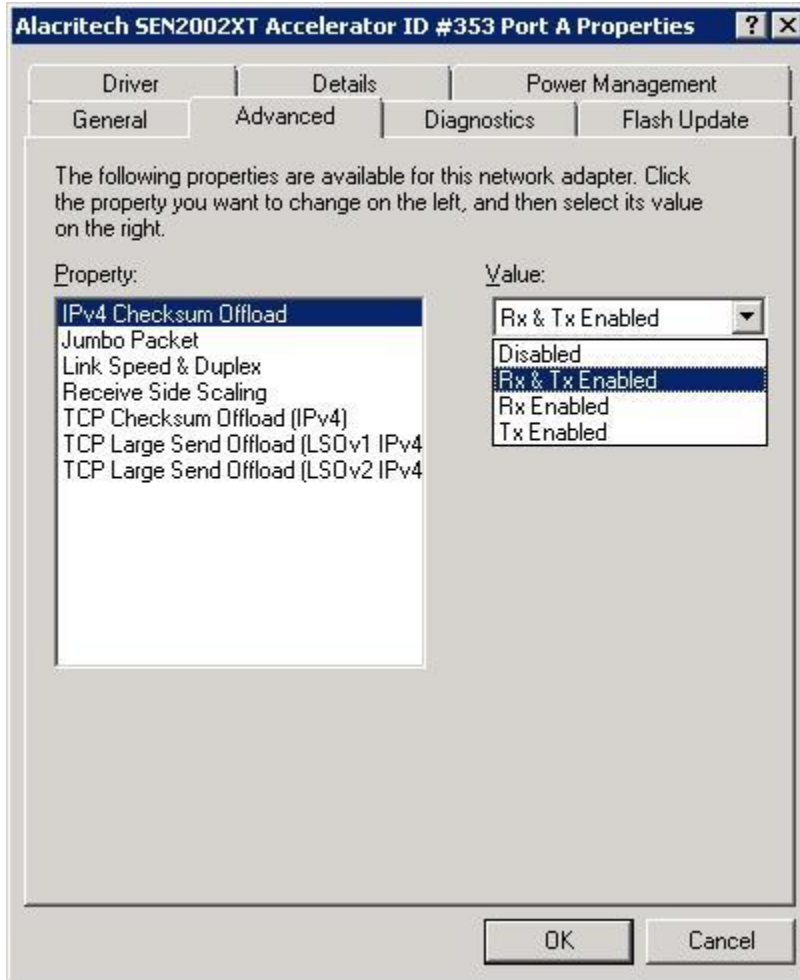
**Allowed Values:** Disabled, Enabled

**Description:** Allows large TCP sends to be offloaded to the network card.

This setting only applies if the connection is in host. If the connection is offloaded, all TCP is offloaded.

## 9.3.x.x Driver Advanced Options

### IPv4 Checksum Offload



**Option:** IPv4 Checksum Offload

**Applies to:** Release 9

**Default Value:** RX & TX

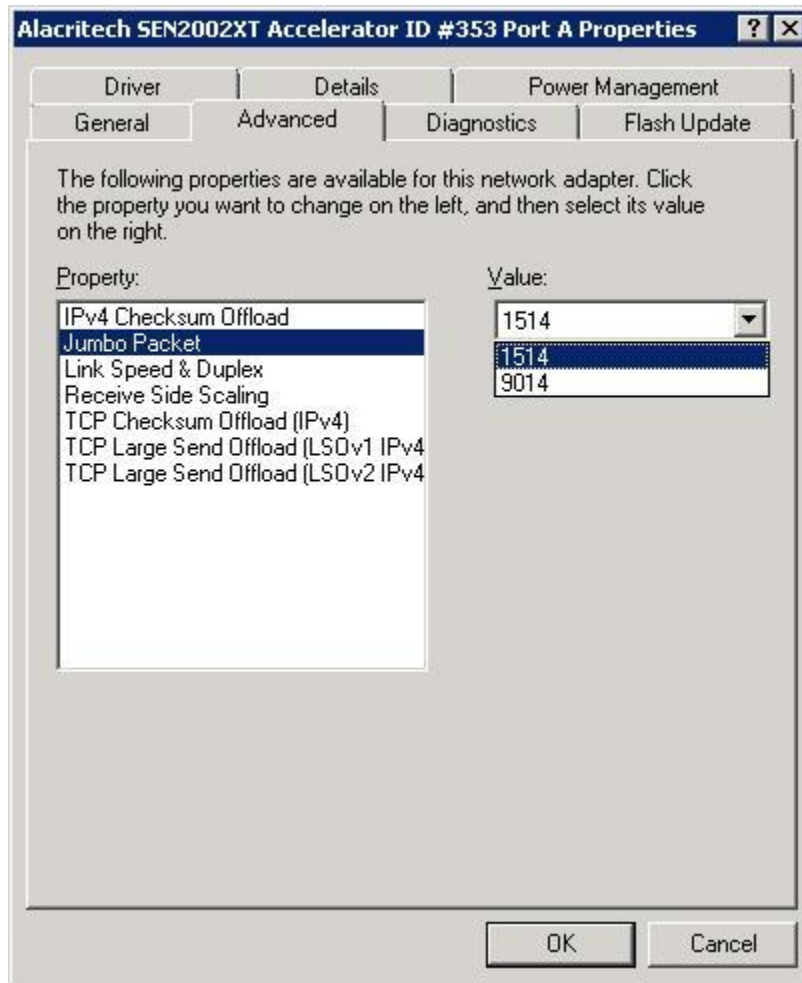
Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows IPv4 checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, IPv4 checksums are also offloaded.

## Jumbo Packet



**Option:** Jumbo Packet Size  
**Applies to:** Release 9.1 and later

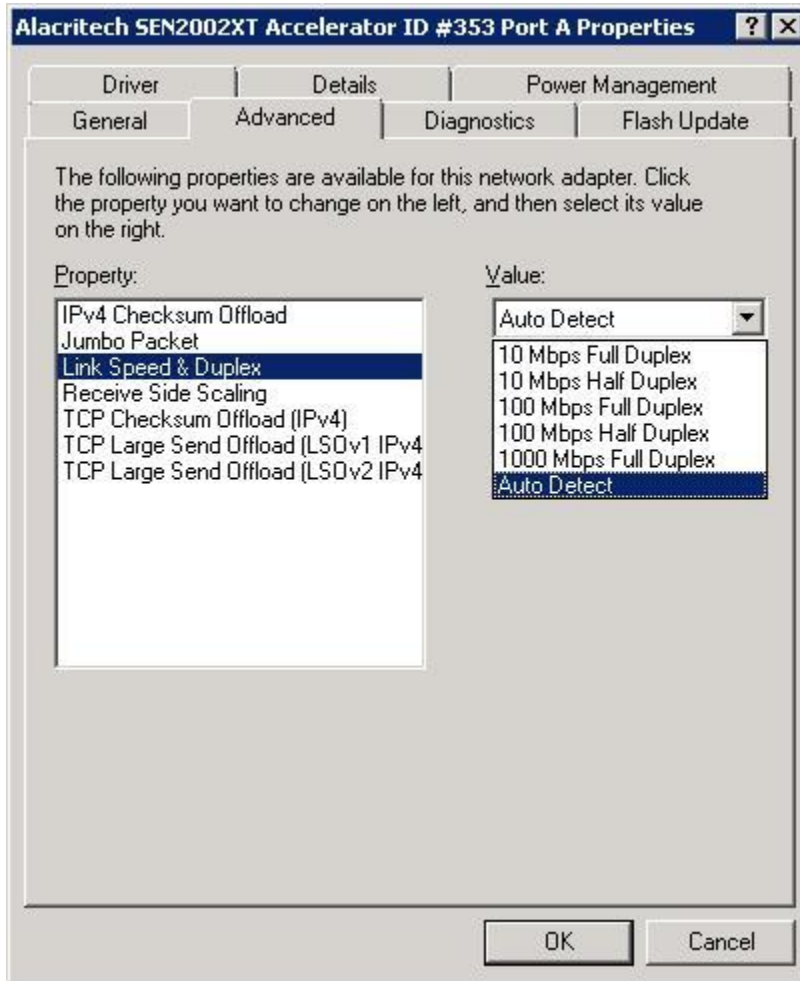
**Default Value:** 1514

**Allowed Values:** 1514, 9014

**Description:** Alacritech jumbo packet size references include the default ethernet header plus the MTU, but not the CRC. Technically, we should just state the MTU, as the ethernet header size is not fixed if tagged frames are supported. We should just state the MTU values as 1500 and 9000. Rest assured that our "jumbo packet" size of 9014 really means an MTU of 9000.

Before enabling this option, make sure that jumbo frames are enabled on all switches between this host and the target host(s).

## Link Speed & Duplex



**Option:** Link Speed and Duplex

**Applies to:** Release 9

**Default Value:** Auto

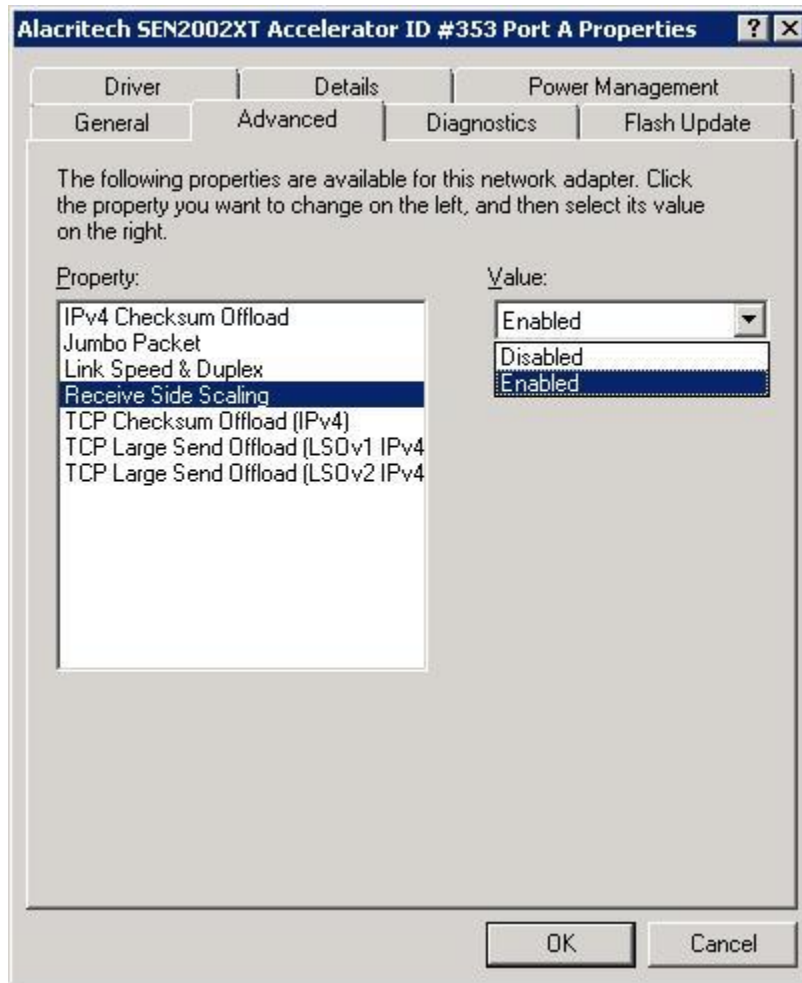
**Allowed Values:**

**Gig Copper:** Auto, 1000 Full, 100 Full, 100 Half, 10 Full, 10 Half

**Gig Fiber:** Auto, 1000 Full

**Description:** Alacritech strongly recommends that you leave your switch ports set to **auto** but if your switch is not set to auto, you **must** change the Alacritech port's link speed and duplex to match the switch setting.

## Receive Side Scaling



**Option:** Receive Side Scaling  
**Applies to:** Release 9.2 and later

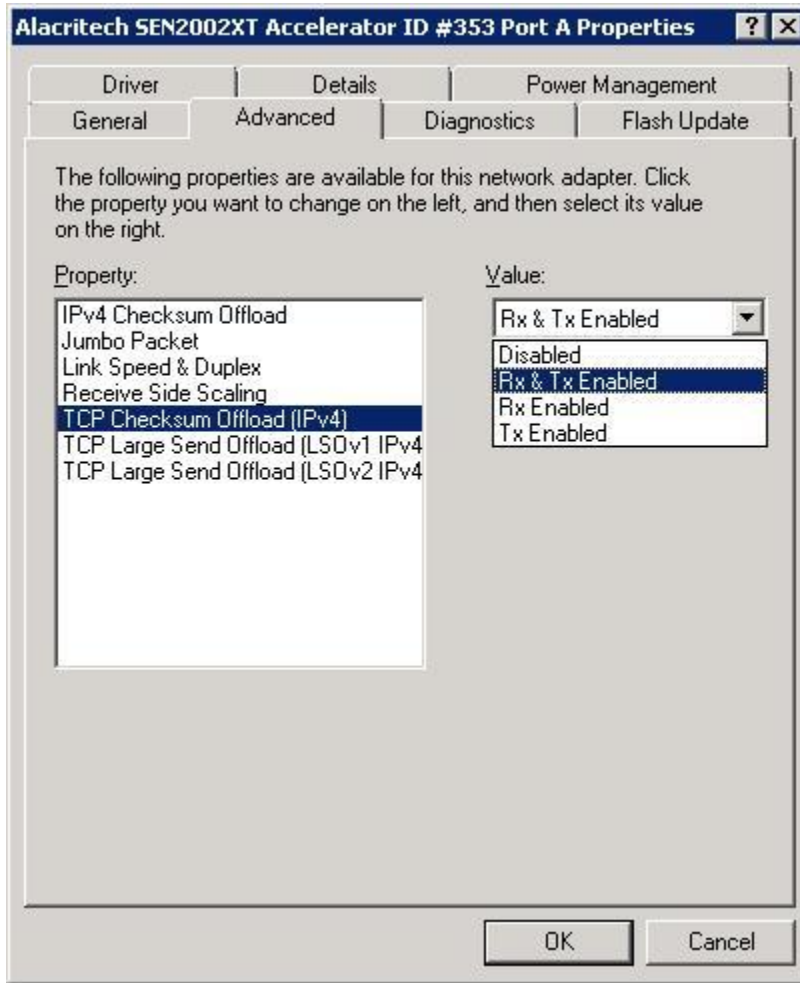
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Enables or disables Receive Side Scaling

In the traditional Windows network stack, all network interrupts are processed by a single CPU. RSS allows network interrupts to be distributed across multiple CPUs. Whether or not this improves performance or not on Server 2003 is debatable.

## TCP Checksum Offload



**Option:** TCP Checksum Offload (IPv4)

**Applies to:** Release 9

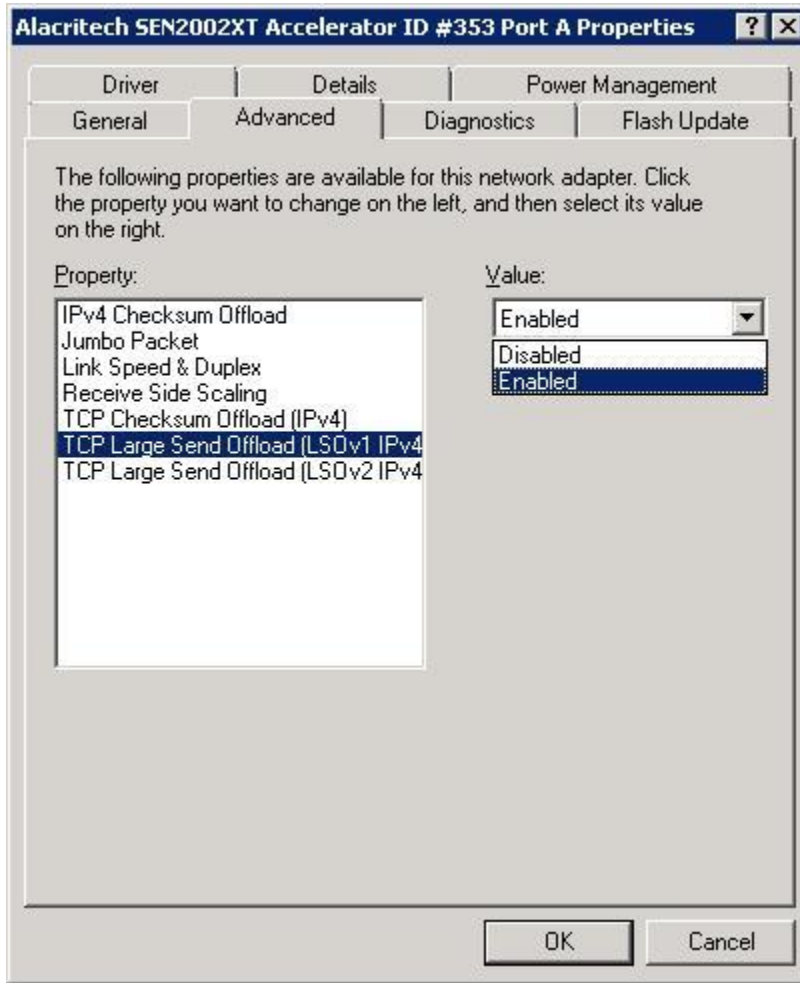
**Default Value:** RX & TX Enabled

**Allowed Values:** Disabled, RX & TX Enabled, RX Enabled, TX Enabled

**Description:** Allows TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, TCP checksums are also offloaded.

**TCP Large Send Offload (v1)**



**Option:** TCP Large Send Offload (v1)

**Applies to:** Release 9.2 and later

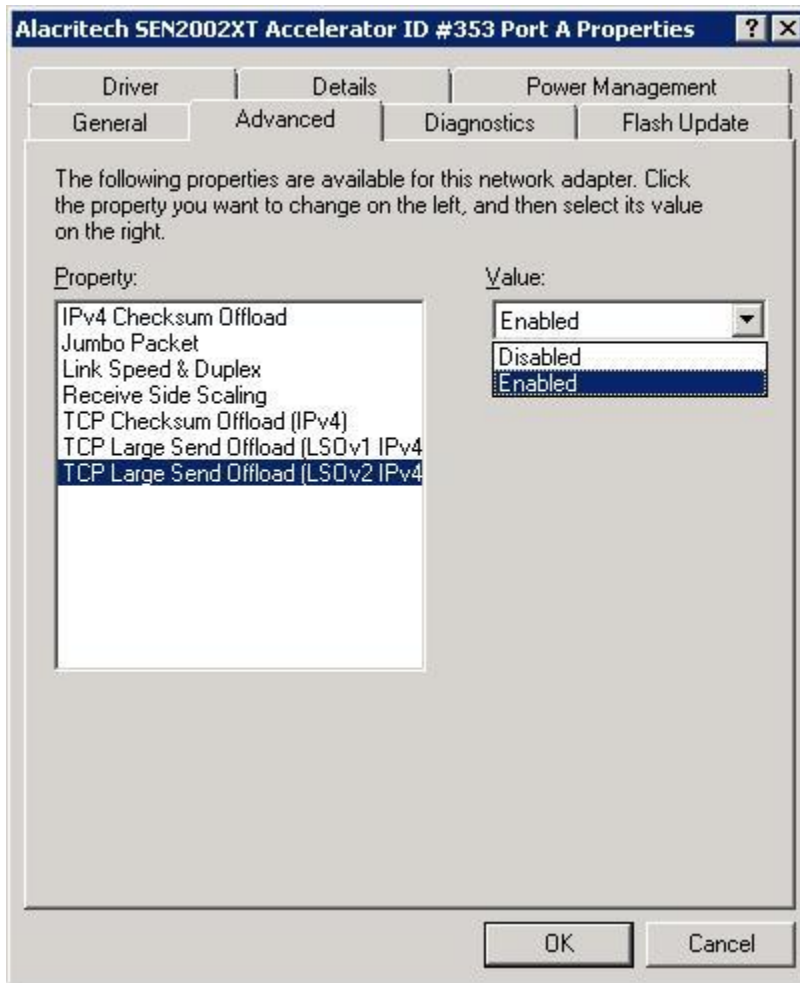
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows large TCP sends to be offloaded to the network card. LSO v1 supports a maximum segment offload size of 64kb

LSO v1 is supported for IPv4 only. This setting only applies if the connection is in host. If the connection is offloaded, all TCP is offloaded.

## TCP Large Send Offload (v2)



**Option:** TCP Large Send Offload (v2)

**Applies to:** Release 9.3

**Default Value:** Enabled

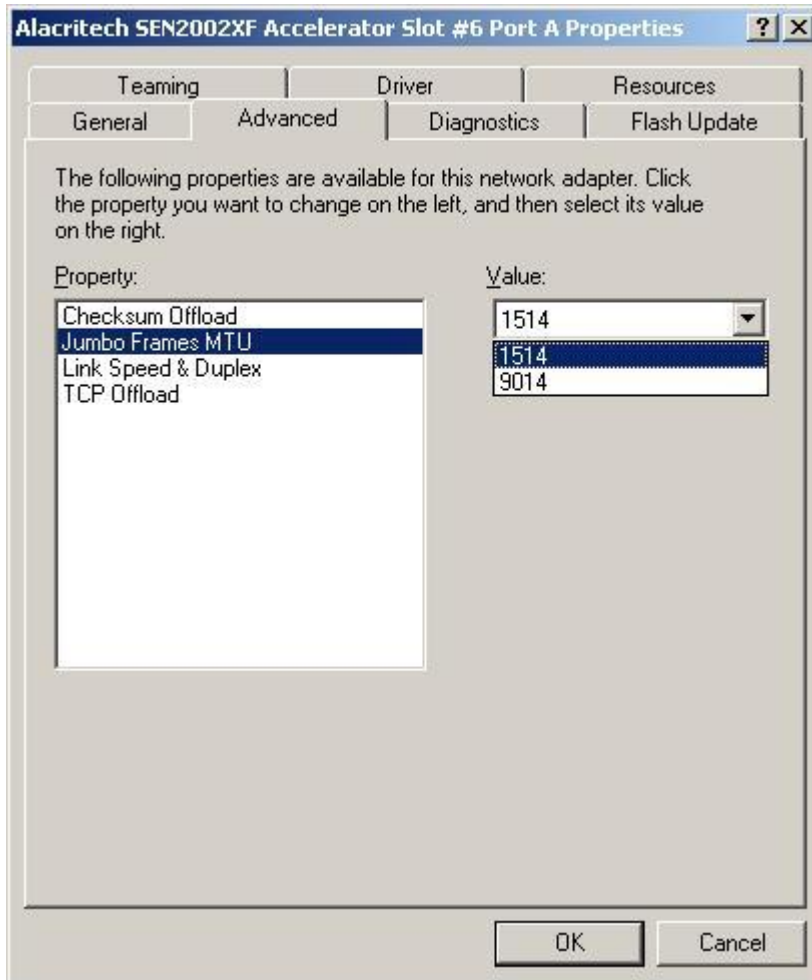
**Allowed Values:** Disabled, Enabled

**Description:** Allows large TCP sends to be offloaded to the network card. LSO v2 supports a maximum segment offload size of 256kb.

LSO v2 is supported for IPv4 only. This setting only applies if the connection is in host. If the connection is offloaded, all TCP is offloaded.

## Release 9.1.x.x Driver Advanced Options

### Jumbo Frames



**Option:** Jumbo Frame Size

**Applies to:** Release 9.1 and later

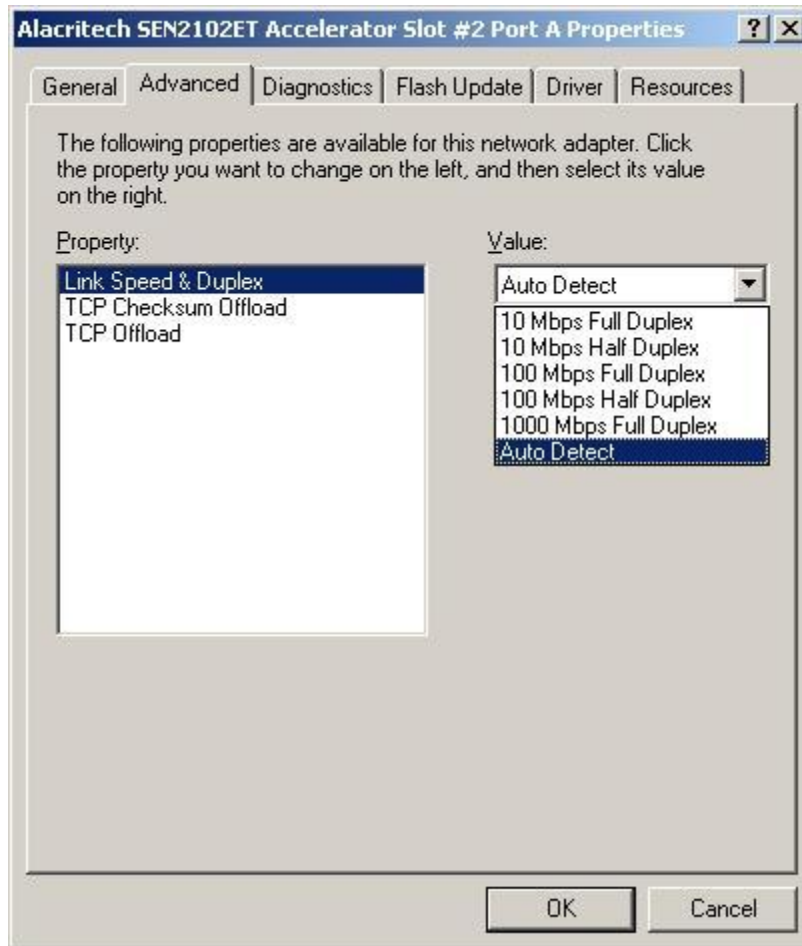
**Default Value:** 1514

**Allowed Values:** 1514, 9014

**Description:** Alacritech jumbo packet size references include the default ethernet header plus the MTU, but not the CRC. Technically, we should just state the MTU, as the ethernet header size is not fixed if tagged frames are supported. We should just state the MTU values as 1500 and 9000. ...but we don't. Rest assured that our "jumbo packet" size of 9014 really means an MTU of 9000.

Before enabling this option, make sure that jumbo frames are enabled on all switches between this host and the target host(s).

## Link Speed & Duplex



**Option:** Link Speed and Duplex

**Applies to:** Release 9

**Default Value:** Auto

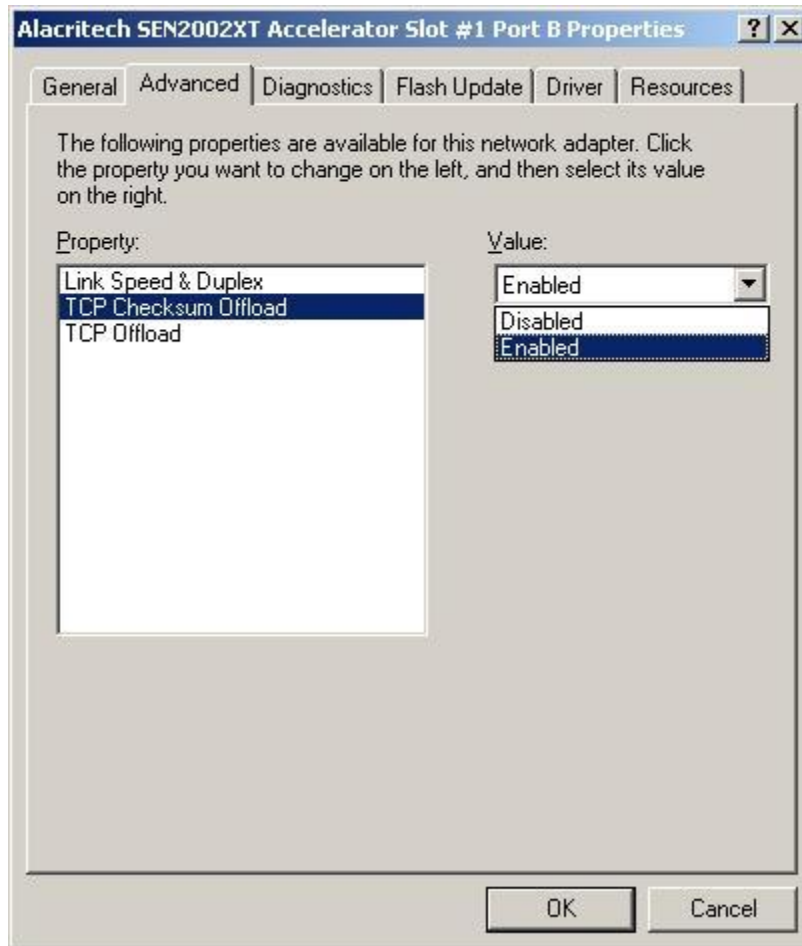
**Allowed Values:**

**Gig Copper:** Auto, 1000 Full, 100 Full, 100 Half, 10 Full, 10 Half

**Gig Fiber:** Auto, 1000 Full

**Description:** Alacritech strongly recommends that you leave your switch ports set to **auto** but if your switch is not set to auto, you **must** change the Alacritech port's link speed and duplex to match the switch setting.

## TCP Checksum Offload



**Option:** TCP Checksum Offload

**Applies to:** Release 9

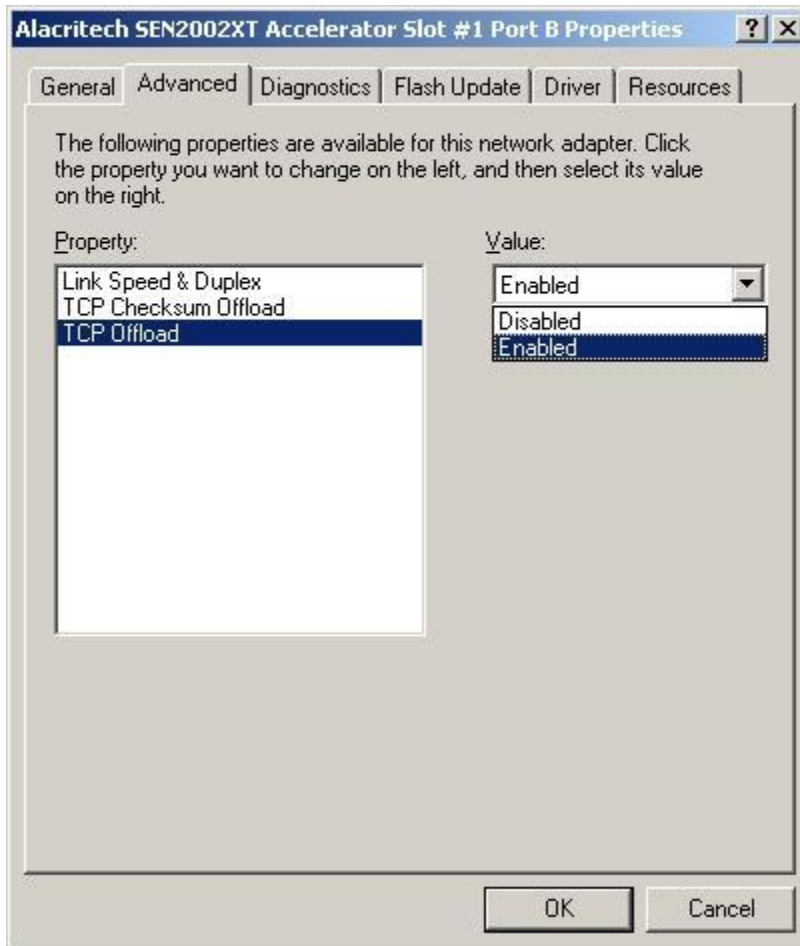
**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows TCP checksums to be computed in hardware rather than by the host stack.

This setting only applies if the connection is in host. If the connection is offloaded, TCP checksums are also offloaded.

## TCP Offload



**Option:** TCP Offload

**Applies to:** Release 9

**Default Value:** Enabled

**Allowed Values:** Disabled, Enabled

**Description:** Allows TCP traffic to be offloaded to hardware. This setting should only be disabled for diagnostic purposes. This setting replaces the "Alacritech TCP fastpath driver" setting in the network interface properties pane on the older non-SNP aware Alacritech drivers.