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10 Gigabit Network Interface Cards

ANCI0Sa/2

ANCI0T/2



Installation and User's Guide

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This product meets the following standards.

Federal Communications Commission Interference Statement

Declaration of Conformity

Manufacturer Name: Allied Telesis, Inc.

Declares that the product: ANC10Sa/2 and ANC10T/2 Adapters

Model Numbers: ANC10Sa/2 and ANC10T/2

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device must not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment

This Allied Telesis RoHS-compliant product conforms to the European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment. Allied Telesis ensures RoHS conformance by requiring supplier Declarations of Conformity, monitoring incoming materials, and maintaining manufacturing process controls.

RFI Emissions FCC Part 15, EN55032 Class B, VCCI Class B, ICES-003

Immunity EN55035, EN 61000-3-2, EN 61000-3-3

Electrical Safety EN62368-1 (TUV), UL 62368-1 (_CUL_US), CSA C22.2 No. 62368-1

Environmental RoHS



Laser Safety EN60825

Important: Safety statements that have the *G* symbol are translated into multiple languages in the *Translated Safety Statements* document at **www.alliedtelesis.com/library**.

Remarque: Les consignes de sécurité portant le symbole *Arrow* sont traduites dans plusieurs langues dans le document *Translated Safety Statements,* disponible à l'adresse **www.alliedtelesis.com/ library**.

Contents

Preface	
Safety Symbols Used in this Document	
Contacting Allied Telesis	15
Chapter 1: Introduction	17
Functional Description	18
ANC10Sa/2 Network Interface Card SEP+ Ports	19
ANC10T/2 Network Interface Card Twisted Pair Conner Ports	22
Features	24
Software	25
Chanter 2: Installing the Hardware	27
Reviewing Safety Precautions	28
Pre-Installation Checklist	
Installing the Standard Bracket on the Network Interface Card	31
Installing the Network Interface Card	
Installing SEP+ Transceivers in the ANC10Sa/2 Network Interface Card	
Connecting Twisted Pair Conner Cables to the ANC10T/2 Network Interface Card	
Chapter 3: Installing the Windows Driver Software	
Overview	
Guidelines	
Installing the Driver Using the Device Manager	
Installing the Driver Using the Silent Installation Method	
Downloading the Driver Software	
Accessing the Windows Device Manager	43
Installing the Driver Software	45
Updating the Driver Software	48
Performing the Silent Installation	49
Installing the Driver Silently	49
Viewing Supported DPInst Options	50
Chapter 4: Modifying Advanced Properties	
Overview	
Guidelines	
Accessing Advanced Properties	
Encapsulated Task Offload	56
Encapsulation Overhead	57
Energy-Efficient Ethernet	58
Flow Control	60
Forward Error Correction	62
Interrunt Moderation	
Interrupt Moderation Configuration	04 65
lumbo Dockot	
Juilibu Faukel	00
Large Send Offlood v2 (IFV4)	
Large Sena Umioad V2 (IPV6)	
Locally Administered Address	
Maximum Number of MSI-X Messages	72

	70
Maximum Number of RSS Processors	
Maximum Number of RSS Queues	
Maximum RSS Processor Number	
Network Direct Functionality	
Network Direct Technology	
Preterred NUMA Node	
Priority & VLAN	
PTP Hardware Timestamp	
Quality of Service	
Receive Buffers (U=Auto)	
Recv Segment Coalescing (IPv4)	
Recv Segment Coalescing (IPv6)	
Roce MIU	
RSS Base Processor Group	
RSS Base Processor Number	
RSS Load Balancing Profile	
RSS Max Processor Group	
Software Timestamp	
Speed & Duplex	
TCP/UDP Checksum Offload (IPv4)	
TCP/UDP Checksum Offload (IPv6)	
I ransmit Buffers (0=Auto)	
UDP Segmentation Offload (IPv4)	
UDP Segmentation Offload (IPv6)	
VF Spooting Protection	
Virtual Machine Queues	
Virtual Switch RSS	
VXLAN Encapsulated Task Offload	113
Chapter 5: Uninstalling the Driver Software	
Överview	116
Guidelines	116
Uninstalling the Driver Software Using Device Manager	117
Uninstalling the Driver Software Silently	119
Appendix A: Technical Specifications	
Physical Specifications	
Environmental Specifications	
Power Specifications	
Performance Specification	
Compliance Requirements	123

Figures

Figure 1: ANC10Sa/2 Network Interface Card	
Figure 2: ANC10Sa/2 Network Interface Card Faceplate	
Figure 3: ANC10T/2 Network Interface Card	
Figure 4: ANC10T/2 Network Interface Card Faceplate	
Figure 5: Removing the Low-profile Bracket	
Figure 6: Installing the Standard Bracket	
Figure 7: Software Downloads Window	39
Figure 8: Login Window	39
Figure 9: Support Window	
Figure 10: Support Portal Window	
Figure 11: Register for an Account Window	41
Figure 12: Select a Destination and Extract	
Figure 13: Windows Menu	
Figure 14: Device Manager Window	
Figure 15: Searching for Device Manager	
Figure 16: Update Drivers Window	
Figure 17: Selecting the Network Adapter in the Device Manager	
Figure 18: Update Driver Software Window	
Figure 19: Browse for Drivers on Your Computer	
Figure 20: Device Manager Window	
Figure 21: Device Manager Window - Network Adapters	
Figure 22: Advanced Properties Window	
Figure 23: Encapsulated Task Offload Window	
Figure 24: Encapsulation Overhead Window	
Figure 25: Energy-Efficient Ethernet Window	
Figure 26: Flow Control Window	
Figure 27: Forward Error Correction Window	
Figure 28: Interrupt Moderation Window	
Figure 29: Interrupt Moderation Configuration Window	
Figure 30: Jumbo Packet Window	
Figure 31: Large Send Offload v2 (IPv4) Window	
Figure 32: Large Send Offload (IPv6) Window	
Figure 33: Locally Administered Address Window	
Figure 34: Maximum Number of MSI-X Messages Event Window	
Figure 35: Maximum Number of RSS Processors Window	
Figure 36: Maximum Number of RSS Queues Window	
Figure 37: Maximum RSS Processor Number Window	
Figure 38: Network Direct Functionality Window	
Figure 39: Network Direct Technology Window	
Figure 40: NVGRE Encapsulated Task Offload Window	
Figure 41: Packet Direct Window	
Figure 42: Preferred NUMA Node Window	
Figure 43: Priority & VLAN Window	
Figure 44: PTP Hardware Timestamp Window	
Figure 45: Quality of Service Window	84
Figure 46: Receive Buffers Window	
Figure 47: Receive Side Scaling Window	
Figure 48: Receive Segment Coalescing (IPv4) Window	87
Figure 49: Receive Segment Coalescing (IPv6) Window	89
······································	

Figure 50: RoCE MTU Window	
Figure 51: RSS Base Processor Group Window	92
Figure 52: RSS Base Processor Number Window	93
Figure 53: RSS Load Balancing Profile Window	
Figure 54: RSS Max Processor Group Window	
Figure 55: Software Timestamp Window	
Figure 56: Speed & Duplex Window	
Figure 57: SR-IOV Window	101
Figure 58: TCP/UDP Checksum Offload (IPv4) Window	102
Figure 59: TCP/UDP Checksum Offload (IPv6) Window	104
Figure 60: Transmit Buffers Window	106
Figure 61: UDP Segmentation Offload (IPv4) Window	107
Figure 62: UDP Segmentation Offload (IPv6) Window	108
Figure 63: VF Spoofing Protection Window	109
Figure 64: Virtual Machine Queues Window	110
Figure 65: Virtual Switch RSS Window	111
Figure 66: VLAN ID Window	112
Figure 67: VXLAN Encapsulated Task Offload Window	113
Figure 68: Device Manager Shortcut Menu	117
Figure 69: Deleting the Driver Software	118

Tables

Table 1. ANC10 Network Interface Card Series	
Table 2. ANC10Sa/2 LED Status	21
Table 3. ANC10T/2 Link and Activity LEDs	23
Table 4. Physical Specifications	
Table 5. Environmental Specifications	
Table 6. Operating Voltages and Maximum Power Consumption	
Table 7. Compliance Requirements	

List of Tables

Preface

This guide contains instructions on how to install and configure the ANC10 Network Interface Card Series.

The Preface discusses the following topics:

- □ "Safety Symbols Used in this Document" on page 14
- □ "Contacting Allied Telesis" on page 15

This guide contains the installation instructions for the following dual 10G port Network Interface Cards (NICs):

- □ ANC10Sa/2
- □ ANC10T/2

Safety Symbols Used in this Document

This document uses the following conventions:

Note

Notes provide additional information.



Caution

Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.



Warning

Warnings inform you that performing or omitting a specific action may result in bodily injury.



Warning

Laser warnings inform you that an eye or skin hazard exists due to the presence of a Class 1 laser device.

Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Services & Support section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- Helpdesk (Support Portal) Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.
- Software Downloads Download the latest software releases for your product.
- Licensing Register and obtain your License key to activate your product.
- Product Documents View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- Warranty View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.
- □ Allied Telesis Helpdesk Contact a support representative.

To contact a sales representative or find Allied Telesis office locations, go to **www.alliedtelesis.com/contact**.

Preface

Chapter 1 Introduction

This chapter provides an introduction to the ANC10 Series network interface card and discusses the following topics:

- "Functional Description" on page 18
- □ "ANC10Sa/2 Network Interface Card SFP+ Ports" on page 19
- "ANC10T/2 Network Interface Card Twisted Pair Copper Ports" on page 22
- □ "Features" on page 24

Functional Description

The ANC10 Network Interface Card Series features Ethernet with dual 1/10Gbps ports and x8 PCI-Express 3.0-compliant buses. The network interface cards provide standard Ethernet functionality along with features designed for virtualization environments, including VMware Direct Path and SR-IOV. The basic characteristics of the network interface cards are listed in Table 1.

Adapter	Ports	Speed	Cable Type	Maximum Distance	Bus Connector
ANC10Sa/2	2 SFP+	10G/1G	Varies by SFP+ transceiver	Varies by SFP+ transceiver	PCle x8 (Gen 3)
		10G	CAT6A or better		PCle x8
ANC10T/2	2 RJ45	1G	CAT5e or CAT6A or better	100m	(Gen 3)

Table 1. ANC10 Network Interface Card Serie	Table 1.	ANC10 Ne	etwork Interfa	ace Card	Series
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Note

The maximum operating distance of the SFP+ ports on the ANC10Sa/2 network interface card depends on the transceivers. Refer to the product's data sheet on the Allied Telesis web site for a list of supported transceivers.

ANC10Sa/2 Network Interface Card SFP+ Ports

The ANC10Sa/2 network interface card has two SFP+ ports for 1Gbps or 10Gbps SFP+ transceivers. The network interface card can set the speeds of the ports automatically or you can set them manually with Advanced Properties. Each SFP+ port has two LEDs that display link and activity states.

The maximum operating distance of an SFP+ port will vary depending on the SFP+ transceiver and type of fiber optic cabling.

The ports support the following types of transceivers:

Note

See the Allied Telesis website for supported SFP+ models.

- IGbps short and long distance SFP transceivers using multi-mode or single mode fiber optic cable.
- 10Gbps short and long distance SFP+ transceivers using multimode or single mode fiber optic cable.
- □ 10Gbps series of direct connect twinax cables.
- □ 10Gbps copper-based SFP+ with RJ-45 connector.

Note

ANC10Sa/2 does not support the use of two copper-based SFP+ modules at the same time. Customers who want dual RJ-45 ports should use the ANC10T/2 network interface card.

Note

The ANC10Sa/2 network interface card does not support the 7 meter SP10TW7 direct connect twinax cable.

Guidelines for the ports are listed here:

- □ They do not support 100Mbps-FX transceivers.
- □ They support full-duplex mode only.
- The network interface card can set the speed automatically with Auto-Negotiation or you can set it manually with Advanced Properties. The default is Auto-Negotiation.

The ANC10Sa/2 network interface card has a PCIe x8 motherboard bus interface as shown in Figure 1.



Figure 1. ANC10Sa/2 Network Interface Card

Note

SFP+ transceivers must be purchased separately. For a list of supported transceivers, refer to the product's data sheet on the Allied Telesis web site.

The ANC10Sa/2 network interface card faceplate is shown in Figure 2.





Table 2 describes the LED states.

Table 2.	ANC10Sa/2	LED Status
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Ports	Port LED	LED State	Description
SFP+	ACT	Flashing Green	The port is receiving or transmitting network packets.
		Off	The port is not receiving or transmitting any packets.
	LNK/SPD	Green Steady On	The transceiver has established a 10Gbps link to a remote device.
		Amber Steady On	The transceiver has established a 1Gbps link to a remote device.
		Off	The port has not established a link.

ANC10T/2 Network Interface Card Twisted Pair Copper Ports

The ANC10T/2 network interface card has two 1/10Gbps copper ports. The card uses Auto-Negotiation to automatically set port speed and supports full-duplex mode only. Each port has two status LEDs.

The network interface card has a PCIe x8 motherboard bus connector as shown in Figure 3.



Figure 3. ANC10T/2 Network Interface Card

The ANC10T/2 network interface card front panel is shown in Figure 4.



Figure 4. ANC10T/2 Network Interface Card Faceplate

The minimum cable requirements are listed here:

- 1Gbps Standard TIA/EIA 568-B-compliant Category 5e twisted pair cabling
- 10Gbps Standard TIA/EIA 568-C-compliant Category 6A twisted pair cabling

The port has a maximum operating distance of 100 meters (328 feet).

The LEDs for the twisted pair ports are described in Table 3.

Ports	Port LEDs	LED State	Network State	
Copper Port 1 &	ACT	Green Blinking	The port is transmitting or receiving network traffic.	
Port 2		Off	The port is not receiving or transmitting any packets.	
	LNK	Green Steady On	The port has established a 10Gbps link to a remote device.	
			Amber Steady On	The port has established a 1Gbps link to a remote device.
		Off	The port has not established a link.	

Table 3. ANC10T/2 Link and Activity LEDs

Features

The following features apply to the ANC10 Network Interface Card Series:

- Encapsulated Task Offload
- Encapsulation Overhead
- Energy Efficient Ethernet
- Flow Control
- Forward Error Correction
- Interrupt Moderation (low/medium/high)
- Jumbo Frames (9174 bytes)
- □ Large Send Offload V2 (IPv4 and IPv6)
- Configurable Locally Administered Address
- □ MSI-X Messages (16 511)
- Receive Side Scaling
- Network Direct (RDMA) with RoCEv2
- NVGRE Encapsulated Task Offload
- Packet Direct
- NUMA Scaling (closest processor, closest processor static, conservative scaling, NUMA Scaling, NUMA Scaling Static)
- Priority and VLAN
- PTP Hardware Timestamp
- Quality of Service
- □ Receive buffers (up to 15000)
- Receive Segment Coalescing (IPv4 and IPv6)
- RoCE MTU up to 4096 Bytes
- □ Software Timestamp
- Speed and Duplex options (Auto/1.0 Gig Full Duplex/10.0 Gig Full Duplex)
- □ SR-IOV (up to 128 Virtual Functions)
- □ TCP/UDP Checksum Offload (IPv6 and IPv6)
- □ Transmit Buffers (Auto configured or up to 5000)
- □ UDP Segmentation Offload (IPv4 and IPv6)
- □ VF Spoofing Protection
- Virtual Machine Queues
- Virtual Switch Receive Side Scaling
- VLAN ID tagging

- VXLAN Encapsulated Task Offload
- Data Center Bridging
- □ PXE Boot (EFI and Legacy)
- □ iSCSI Boot (Legacy only)
- □ NIC Partitioning (up to 8 partitions per port)
- □ RDMA (remote direct memory access)
- **Software** The ANC10 Network Interface Card Series supports the following operating systems:
 - □ Linux®
 - RHEL7.x, RHEL6.x, OLE6.x UEK, SLES12, SLES11SP1 and newer
 - Most 3.x/4.x kernels and some 2.6 kernels starting from 2.6.32
 - □ VMware®
 - ESX 6.0
 - ESX 6.5
 - ESX 6.7
 - ESX 7.0
 - □ Windows®
 - Windows 2019
 - Windows 10

Chapter 1: Introduction

Chapter 2 Installing the Hardware

This chapter describes how to install the ANC10 Network Interface Card Series in a computer and discusses the following topics:

- □ "Reviewing Safety Precautions" on page 28
- □ "Pre-Installation Checklist" on page 30
- "Installing the Standard Bracket on the Network Interface Card" on page 31
- □ "Installing the Network Interface Card" on page 33
- "Installing SFP+ Transceivers in the ANC10Sa/2 Network Interface Card" on page 35

Reviewing Safety Precautions

Important: Safety statements that have the *cor* symbol are translated into multiple languages in the *Translated Safety Statements* document at **www.alliedtelesis.com/library**.

Remarque: Les consignes de sécurité portant le symbole *&* sont traduites dans plusieurs langues dans le document *Translated Safety Statements*, disponible à l'adresse **www.alliedtelesis.com/library**.



Warning

This is a Class 1 Laser product. & L1



Warning

The fiber optic ports contain a Class 1 Laser device. When the ports are disconnected, always cover them with the provided plug. Exposed ports may cause skin or eye damage. & L4



Warning

Do not stare into the laser beam. Ger L2



Warning

Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. Ger L6



Warning

Do not work on this equipment or cables during periods of lightning activity. Ger E2



Warning

Operating Temperature: This product is designed for a maximum ambient temperature of 35 degrees C. α E7

Note

All Countries: Install this product in accordance with local and National Electric Codes. \mathscr{A} E8



Warning

The network interface card is being installed in a system that operates with voltages that can be lethal. Before you remove the cover of your system, you must observe the following precautions to protect yourself and to prevent damage to the system components.

- Remove any metallic objects or jewelry from your hands and wrists.
- Make sure to use only insulated or nonconducting tools.
- Verify that the system is powered OFF and unplugged before accessing internal components.
- Installation or removal of modules must be performed in a staticfree environment. The use of a properly grounded wrist strap or other personal antistatic devices and an antistatic mat is strongly recommended. & E39



Caution

Do not use excessive force when seating the card, as the force may damage the system or the adapter card. If the card resists seating, remove it from the system, realign it, and try again. \approx **E47**

Pre-Installation Checklist

Before installing the network interface card, perform the following procedure:

- 1. Check that your computer has an appropriate open PCIe slot.
- 2. Verify that your system is using the latest BIOS.
- 3. When you download the driver software from the Allied Telesis website, record the path to where the driver file resides on your system.
- 4. If your system is active, shut it down.
- 5. When the system shutdown is complete, unplug the power cord.
- 6. Holding the network interface card by the edges, remove it from its shipping package and place it on an antistatic surface.
- 7. Check the network interface card for visible signs of damage, particularly on the card's edge connector.

Note

Do not attempt to install a damaged network interface card. If the card is damaged, report it to Allied Telesis. See "Contacting Allied Telesis" on page 15.

Installing the Standard Bracket on the Network Interface Card

The network interface card is shipped with the low-profile bracket already installed. A standard bracket is included with the network interface card. Depending on your system, you may need to replace the bracket attached to your card.

The following procedure describes how to remove the low-profile bracket from the card and replace it with the standard bracket. You can also use this procedure to remove the standard bracket and replace it with the lowprofile bracket.

To replace the low-profile bracket with the standard bracket, perform the following procedure:

1. Remove the two screws that attach the bracket to the network interface card. See Figure 5.



Figure 5. Removing the Low-profile Bracket

2. Align the tabs of the standard bracket with the holes on the network interface card and fasten the screws onto the card. See Figure 6 on page 32.



Figure 6. Installing the Standard Bracket

Installing the Network Interface Card

The following installation instructions apply to most systems. For details about performing the tasks on your particular system, refer to the manuals that were supplied with your system.

Note

The ANC10 Network Interface Card Series requires a system with an available PCIe x8 slot.



Warning

The network interface card is being installed in a system that operates with voltages that can be lethal. Before you remove the cover of your system, you must observe the following precautions to protect yourself and to prevent damage to the system components.

- Remove any metallic objects or jewelry from your hands and wrists.
- Make sure to use only insulated or nonconducting tools.
- Verify that the system is powered OFF and unplugged before accessing internal components.
- Installation or removal of modules must be performed in a staticfree environment. The use of a properly grounded wrist strap or other personal antistatic devices and an antistatic mat is strongly recommended. Ar E39

To install the network interface card, do the following:

1. Review the "Pre-Installation Checklist" on page 30 and "Reviewing Safety Precautions" on page 28.

Before installing the network interface card, verify that the computer is powered OFF and that the power cord is unplugged from the power outlet. You should also be sure to follow all proper electrical grounding procedures.

- 2. Remove the system cover.
- 3. Select an empty, non-shared PCIe port and remove the faceplate.

Keep the faceplate in a safe place. You may need it for future use.

Note

If you cannot locate or do not know how to find an appropriate PCIe port, refer to the documentation that came with your system.

- 4. Remove the network interface card from the shipping package and store the packaging material in a safe location.
- 5. Applying even pressure at both corners of the card, push the network interface card until it is firmly seated in the appropriate PCIe port. Make sure the card is securely seated.



Caution

Do not use excessive force when seating the card, because this may damage the system or adapter. If the card resists seating, remove it from the system, realign it, and try again. 6 E47

- 6. Secure the network interface card to the chassis with a Phillips-head screw (not provided) or the system's built-in latching mechanism.
- 7. Replace the system's cover.
- 8. Go to "Installing SFP+ Transceivers in the ANC10Sa/2 Network Interface Card" on page 35 or "Connecting Twisted-Pair Copper Cables to the ANC10T/2 Network Interface Card" on page 36.
- 9. Power on the system.

Download the driver from the Allied Telesis web site. For instructions on how to install the driver on Linux or VMware systems, refer to the README file included with the driver. For instructions on loading the driver on a Microsoft Windows system, refer to Chapter 3, "Installing the Windows Driver Software" on page 37

Installing SFP+ Transceivers in the ANC10Sa/2 Network Interface Card

Here are the guidelines to installing and cabling SFP+ transceivers in the ANC10Sa/2 network interface card:

- SFP+ transceivers can be hot-swapped while the network interface card is powered on. However, you should always disconnect the fiber optic cables first before removing a transceiver.
- You should install a transceiver in the network interface card before connecting the fiber optic cable.
- Fiber optic transceivers are dust sensitive. Always keep the plug in the optical bores when a fiber optic cable is not installed, or when you store the transceiver. When you do remove the plug, keep it for future use.
- Unnecessary removal and insertion of a transceiver can lead to premature failure.
- The connector on the fiber topic cable should fit snugly into the port on the network interface card, and the tab should lock the connector into place.
- Do not remove the dust cover from a fiber optic port until you are ready to connect a fiber optic cable. Dust contamination can adversely affect the operation of a fiber optic port.



Warning

A transceiver can be damaged by static electricity. Be sure to observe all standard electrostatic discharge (ESD) precautions, such as wearing an antistatic wrist strap, to avoid damaging the device. \approx E86



Warning

The fiber optic ports contain a Class 1 laser device. When the ports are disconnected, always cover them with the provided plug. Exposed ports may cause skin or eye damage. & L4

Note

The cable specifications for the SFP+ transceivers are found in the installation guides that ship with the devices.

Connecting Twisted-Pair Copper Cables to the ANC10T/2 Network Interface Card

The ANC10T/2 network interface card has two copper RJ45 ports. To connect the network interface card to the network, you must have a cable with the appropriate connector.

To connect a copper network cable to the network interface card, perform the following procedure.

- 1. Prepare a twisted-pair copper cable.
- 2. Connect one end of the cable to the network interface card.
- 3. Connect the other end of the cable to the appropriate port on a remote network device.
- 4. Repeat steps 1 through 3 with the second cable and port.

Download the driver from the Allied Telesis web site. For instructions on how to install the driver on Linux or VMware systems, refer to the README file included with the driver. For instructions on loading the driver on a Microsoft Windows system, refer to Chapter 3, "Installing the Windows Driver Software" on page 37
Chapter 3 Installing the Windows Driver Software

This chapter describes how to install driver software for the ANC10 Network Interface Card Series onto your Windows operating system. It contains the following topics:

- □ "Overview" on page 38
- □ "Downloading the Driver Software" on page 39
- □ "Accessing the Windows Device Manager" on page 43
- □ "Installing the Driver Software" on page 45
- □ "Updating the Driver Software" on page 48
- □ "Performing the Silent Installation" on page 49

Note

For instructions on how to install the driver on Linux or VMware systems, refer to the README file included with the driver.

Overview

	After you install the ANC10Sa/2 or ANC10T/2 network interface card i your computer, your next step is to install the driver software onto you Windows operating system. You can install the driver software using t Device Manager or the silent installation method.						
	When you install the driver software using the Device Manager, the observed boxes guide you through the installation process. Otherwise, using the silent installation method, you can install software without constant interactions by suppressing dialog boxes.						
Guidelines	es Here are the guidelines for installing and updating the driver softw your operating system:						
	 To install or update the driver software, you must have administrative privileges. 						
		If your computer installs a default driver for the network interface card, you must update it. See "Installing the Driver Using the Device Manager", or "Installing the Driver Using the Silent Installation Method".					
Installing the Driver Using the	To ins the ste	tall or update the driver software using the Device Manager, follow eps below:					
Device Manager		"Downloading the Driver Software" on page 39					
		"Accessing the Windows Device Manager" on page 43					
		"Installing the Driver Software" on page 45					
	Or						
		"Updating the Driver Software" on page 48					
Installing the Driver Using the	To ins the ste	tall or update the driver software using the silent installation, follow eps below:					
Silent Installation		"Downloading the Driver Software" on page 39					
Method		"Performing the Silent Installation" on page 49					

Downloading the Driver Software

The driver software for the network interface card s is available on the Allied Telesis website. The driver is the same for both network interface cards ANC10 Series.

To download the software:

1. Open a web browser, such as Internet Explorer or FireFox, on your computer and enter the following:

http://www.alliedtelesis.com/support/software

The Allied Telesis Software Download window is displayed as shown in Figure 7.



Figure 7. Software Downloads Window

2. Click Download Center.

The Login window appears.

	Î
	Į
Local languages for Russian, Japanese, Italian, French, Spanish and German are now available;	
Login ID	l
Password	
Revenue my password until logout	
If you have forgotten your login ID, password, or are not sure whether you have an account use our Password Finder. For other assistance, contact Support.	

Figure 8. Login Window

3. Enter your Login ID and Password and click Login.

4. If you have not established a Login ID and Password, click **Support**.

The support window appears.



Figure 9. Support Window

5. Click Allied Telesis Support Portal.

The Support Portal window appears.



Figure 10. Support Portal Window

6. Click Sign Up.

The Register for an Account Window appears.

Register for an Account *All the fields are required.							
Users Details							
First Name *							
Last Name *							
Company Name *							
Street *							
City *							
State/Province *							
Zip/Postal Code *							
Country *	- Select One	~					
Website *							
Nickname *							
Phone *	+_()						
Email *							
Time Zone *	- Select One	~					
		Submit Back					

Figure 11. Register for an Account Window

- 7. Complete the form to gain access to the Download Center.
- 8. Check your email for the access Login ID and password. Allow up to 24 business hours.
- 9. Go back to the **Download Center**.
- 10. Select the driver for the ANC10 Series network interface card and your operating system.
- 11. Save the zip folder onto your system.
- 12. Right-click the zip folder and select Extract All.

A window appears and prompts you to specify the location of a folder where you want to place the unzipped files.

	×
😡 🚹 Extract Compressed (Zipped) Folders	
Select a Destination and Extract Files	
C:\Users\Test\Desktop\driver	Browse
☑ Show extracted files when complete	
	Extract Cancel

Figure 12. Select a Destination and Extract

- 13. Specify the location of the folder and click Extract.
- 14. Record the location of the folder.

Accessing the Windows Device Manager

When you install or update the driver software for the ANC10 Network Interface Card Series on a Windows system, you must first access the Device Manager. The procedures for accessing the Device Manager are slightly different among Windows operating systems. To access the Device Manager on your operating system, follow one of the procedures below:

Option 1

To access the Device Manager on a Windows platform, do the following:

1. Right-click the start button at the bottom left corner.

The Windows menu appears.



Figure 13. Windows Menu

2. Select **Device Manager** in the search box.



The Device Manager window appears.

Figure 14. Device Manager Window

Option 2

Another option to accessing the Device Manager is:

1. Type **Device Manager** in the search field at the bottom left corner.

The following screen appears.



Figure 15. Searching for Device Manager

2. Click on the **Device Manager**.

The Device Manager window appears as shown in Figure 14.

Installing the Driver Software

Once you physically install the ANC10 Series network card, the system detects the new hardware and creates an entry in the Device Manager when the Windows operating system boots up. Shortly after you log in, you need to install the driver software for your network interface card.

Note To install the driver software, you must have administrative privileges.

To install the driver software, do the following:

- 1. Access the Device Manager, see "Accessing the Windows Device Manager" on page 43.
- 2. In the Device Manager window, double-click **Network Adapters** to expand the field.
- 3. **Option 1** To have Windows search the computer for the driver, do the following:
 - a. Right-click on AT- ANC10Sa/2 (or AT-ANC10T/2) 10G Dual Port 10BASE-T Adapter.
 - b. Select Update Driver.

The Update Drivers window appears. See Figure 16 as an example.



Figure 16. Update Drivers Window

c. Select Search automatically for updated drivers.

Windows will search the computer for the driver. It displays a confirmation prompt after installing the driver.

Option 2 - To manually identify the driver yourself, do the following:

a. Right-click on AT- ANC10Sa/2 (or AT-ANC10T/2) 10G Dual Port 10BASE-T Adapter.

Note

The Device Manager may identify the new network interface card as an Ethernet Controller, Broadcom device, or Allied Telesis device.

The shortcut menu appears. See Figure 17 as an example.



Figure 17. Selecting the Network Adapter in the Device Manager

b. Select Update Driver.

The Update Driver window appears. See Figure 18 on page 47 as an example.

🔶 📱 Update Drivers - Ethernet Controller

How do you want to search for drivers?



Figure 18. Update Driver Software Window

c. Select Browse my computer for driver software.

The Browse for Drivers on Your Computer window prompts you to enter the location of the driver folder. See Figure 19 as an example.

		×
÷	Update Drivers - AT-ANC10T/2 10G Dual Port 10GBASE-T Adapter	
	Browse for drivers on your computer	
	Search for drivers in this location:	
	C:\Drivers\Release_Win10\MSFT Signed V Browse	
	✓ Include subfolders	
	→ Let me pick from a list of available drivers on my computer This list will show available drivers compatible with the device, and all drivers in the same category as the device.	
	<u>N</u> ext Cance	ł

Figure 19. Browse for Drivers on Your Computer

- 4. Specify the folder where you stored the driver after downloading it from the Allied Telesis web site. See "Downloading the Driver Software" on page 39 for details.
- 5. Click Next.

A confirmation message appears when the driver software is successfully installed.

6. Click Close.

Updating the Driver Software

Allied Telesis may periodically post updates to the driver software for network interface cards on its web site. To obtain the latest version of the ANC10 Network Interface Card Series driver, see "Downloading the Driver Software" on page 39.

To update the driver software, you use the same procedure for installing the driver software for the first time. The only difference between updating and installing the driver software is the name of your network interface card that the Device Manager detects and lists.

The Device Manager lists your network interface card entry as *AT*-*ANC10Sa/2 (or AT*-ANC10T/2) *10G Dual Port 10BASE-T Adapter* once you installed the driver software. Before you installed the driver software, the Device Manager may list your network interface card entry as an Ethernet Controller, Broadcom device, or Allied Telesis device.

To update the driver software for your network interface card, see "Installing the Driver Software" on page 45.

Performing the Silent Installation

	To simplify the driver installation process, you may perform a silent installation of the driver software for the network interface card. The silent installation is a method of installing software in the silent mode without constant interactions by suppressing dialog boxes.						
	Note You can apply the silent installation method only to Microsoft certified drivers. The drivers that Allied Telesis provides for the network interface cards are all Microsoft certified.						
	Use a command line utility called Driver Package Installer (DPInst) for the silent installation. DPInst is included in the Windows Developer Kit (WDK) provided by Microsoft. You can obtain the latest DPInst by downloading and installing the latest WDK from the Microsoft website.						
Installing the Driver Silently	To install the driver silently, perform the following instructions:						
	1. Create a folder in your Windows system.						
	2. Download the driver software for the network interface card.						
	See "Downloading the Driver Software" on page 39.						
	 Place the driver files that you downloaded into the folder that you created in step 1. 						
	The folder should include the following driver files:						
	o.sys						
	o .inf						
	□ .cat						
	4. Download the latest WDK to obtain the dpinst utility.						
	Consult Microsoft websites to download WDK.						
	5. Place the dpinst.exe and its supporting files in the same folder where you placed the driver files.						
	You must place the 64-bit dpinst utility if your operating system is the 64-bit version. Place the 32-bit for dpinst utility for the 32-bit						

6. Open a command prompt window with administrator privileges.

version operating system.

- 7. Change the directory to the folder where the dpinst utility and the driver files reside.
- 8. Install the driver in the silent mode by entering the following command:
 - > dpinst /S

Note

Adding the /S switch to the dpinst command suppresses the display of wizard pages, user dialog boxes, and other user intervention requests.

The driver is installed silently.

Viewing
SupportedYou can display help information about the dpinst command-line
options.DPInst OptionsView all supported dpinst options by executing the following command:

- 1. Open a command prompt window with administrator privileges.
- 2. Change the directory to the folder where the dpinst utility and the driver files reside.
 - > dpinst /?

The command displays the help text.

Chapter 4 Modifying Advanced Properties

This chapter includes the following topics:

- □ "Overview" on page 53
- □ "Accessing Advanced Properties" on page 54
- □ "Encapsulated Task Offload" on page 56
- "Encapsulation Overhead" on page 57
- "Energy-Efficient Ethernet" on page 58
- □ "Flow Control" on page 60
- □ "Forward Error Correction" on page 62
- Interrupt Moderation" on page 64
- "Interrupt Moderation Configuration" on page 65
- □ "Jumbo Packet" on page 66
- □ "Large Send Offload v2 (IPv4)" on page 67
- □ "Large Send Offload v2 (IPv6)" on page 68
- □ "Locally Administered Address" on page 70
- □ "Maximum Number of MSI-X Messages" on page 72
- "Maximum Number of RSS Processors" on page 73
- "Maximum Number of RSS Queues" on page 74
- "Maximum RSS Processor Number" on page 75
- "Network Direct Functionality" on page 76
- "Network Direct Technology" on page 77
- "NVGRE Encapsulated Task Offload" on page 78
- "Packet Direct" on page 79
- □ "Preferred NUMA Node" on page 80
- □ "Priority & VLAN" on page 81
- □ "PTP Hardware Timestamp" on page 83
- □ "Quality of Service" on page 84
- □ "Receive Buffers (0=Auto)" on page 85
- □ "Receive Side Scaling" on page 86
- □ "Recv Segment Coalescing (IPv4)" on page 87
- □ "Recv Segment Coalescing (IPv6)" on page 89

- □ "RoCE MTU" on page 91
- □ "RSS Base Processor Group" on page 92
- □ "RSS Base Processor Number" on page 93
- □ "RSS Load Balancing Profile" on page 94
- □ "RSS Max Processor Group" on page 96
- □ "Software Timestamp" on page 97
- □ "Speed & Duplex" on page 99
- □ "SR-IOV" on page 101
- □ "TCP/UDP Checksum Offload (IPv4)" on page 102
- □ "TCP/UDP Checksum Offload (IPv6)" on page 104
- □ "Transmit Buffers (0=Auto)" on page 106
- □ "UDP Segmentation Offload (IPv4)" on page 107
- □ "UDP Segmentation Offload (IPv6)" on page 108
- □ "VF Spoofing Protection" on page 109
- □ "Virtual Machine Queues" on page 110
- □ "Virtual Switch RSS" on page 111
- □ "VLAN ID" on page 112
- □ "VXLAN Encapsulated Task Offload" on page 113

Overview

The ANC10 Series of network interface cards allow you to modify advanced properties to meet your requirements. To access the advanced properties, access Device Manager, then go to each advanced property window.

Guidelines Here are the guidelines to modifying the advanced properties:

- To change the advanced property settings, you must have Administrator privileges.
- When you upgrade the driver software, the settings of the advanced properties may change. Verify the settings after upgrading the driver software.

Accessing Advanced Properties

To modify advanced properties, first access Device Manager, open the properties of your network interface card, and select a feature.

- 1. Access the Device Manager. See "Accessing the Windows Device Manager" on page 43.
- 2. In the Device Manager window, click **Network Adapters**. Refer to Figure 20.

🗄 Device	e Manager	_	×
File Act	ion View Help		
(⇒ ⇒)	• 🗎 🕅 🛛 🖬 💆		
	Audio inputs and outputs		^
> 💻	Computer		
> 	Disk drives		
> 🗔	Display adapters		
> 🔐	DVD/CD-ROM drives		
> 🎽	Firmware		
> 🗛	Human Interface Devices		
> -12	Imaging devices		
>	Keyboards		
> 🕕	Mice and other pointing devices		
> 🛄	Monitors		
> 🖵	Network adapters		
> 🗒	Ports (COM & LPT)		
> 🖻	Print queues		
> 🖻	Printers		~

Figure 20. Device Manager Window

3. Double-click AT-ANC10Sa/2 (or AT-ANC10T/2) 10G Dual Port Adapter. Refer to Figure 21.



Figure 21. Device Manager Window - Network Adapters

The properties window pops up.

4. Click the **Advanced** tab.

The Advanced Properties window opens as shown in Figure 22.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBAS	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r	owing propert perty you wan right.	ies are a t to char	wailable fo	orthis net e left, and	work adapter then select i	r. Click ts value	
Propert	y:			Va	alue:		
Encap	sulated Task	Offload	^	E	Enabled	-	·
Encap	sulation Over /-Efficient Eth	nead emet			Disabled		
Flow C	Control				nabled		
Interru	pt Moderation	tion	- 1				
Interru	pt Moderation	Configu	ration				
Large	Send Offload	V2 (IPv4	4)				
Large	Send Offload	V2 (IPv6	5)				
Maxim	um Number of	FMSI-X I	Messai				
Maxim	um Number o um Number o	FRSS Pr FRSS Q	ocessi				
Junaani		1100 0					
					ОК	Cancel	
							_

Figure 22. Advanced Properties Window

Encapsulated Task Offload

The Encapsulated Task Offload property allows the network adapter to perform offload operations such as large send offload (LSO) and virtual machine queue (VMQ) on the inner header for encapsulated packets. Network performance may be degraded by running this cmdlet.

To view the Encapsulated Task Offload feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Encapsulated Task Offload in the Property box.

The Encapsulated Task Offload window is displayed as shown inFigure 23.

Allied Tel	esis AT-ANC	:10T/2 Du	ial Port	10GBASE	-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r	owing propert perty you wan ight.	ies are av t to chan <u>c</u>	ailable fo ge on the	or this net left, and	work adapter then select it	. Click s value	
Property	<i>r</i> :			Va	lue:		
Encap: Encry Energy Flow C Forwar Interrup Jumbo Large : Locally Maximu Maximu	sulated Task sulation Over -Efficient Eth ontrol d Error Correct t Moderation t Moderation Packet Send Offload Send Offload Administered um Number of m Number of	Officiad head emet configura (Configura (Configura (Configura V2 (IPv4) V2 (IPv6) d Address f MSI-X M f RSS Pro f RSS Que	ation essa cess eues		inabled Isabled inabled		
					ОК	Cancel	

Figure 23. Encapsulated Task Offload Window

- 3. Select one of the following options:
 - **Disabled** This setting disables the Encapsulated Task Offload.
 - Enabled This setting enables Encapsulated Task Offload. This setting is the default.
- 4. Click OK.

Encapsulation Overhead

The Encapsulation Overhead property defines the amount of overhead required in Ethernet frames due to virtual network overlay encapsulation such as VXLAN and NVGRE.

To view the Encapsulation Overhead feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Encapsulation Overhead in the Property box.

The Encapsulation Overhead window is displayed as shown in Figure 24.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBASE	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the projon the r Property Encap Encap Energy Row C Forwar Interruj Jumbo Large Locally Maxim Maxim	owing propert perty you wan ight. y: sulated Task sulation Over -Efficient Eth control d Error Correct pt Moderation Packet Send Offload send Offload / Administerect um Number of um Number of um Number of	ies are a t to char Offload head emet stion Configui V2 (IPv6 Address f MSI-X I f RSS Pu f RSS Qu	vailable for age on the ration () () () () () () () () () () () () ()	or this net e left, and ⊻a	work adapter then select it lue:	: Click is value	
					ОК	Cance	el

Figure 24. Encapsulation Overhead Window

- 3. Select a value. Valid range is 0 through 256 with step of 32. For example 0, 32, 64, 96, 128, etc. are valid values.
- 4. Click OK.

Energy-Efficient Ethernet

The Energy-Efficient Ethernet property allows you to optimize the energy usage of the interface over Ethernet.

Note

This feature is valid only for the copper ports on the ANC10T/2 network interface card.

To view the Energy-Efficient Ethernet feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Energy-Efficient Ethernet in the Property box.

The Energy-Efficient Ethernet window is displayed as shown in Figure 25.

The fol the pro on the	lowing propert perty you wan	ies are availat	ole for this	network	adapter Cl	ick
Droport	right.	i to change of	n the left,	and then	select its v	alue
Encap Encap Flow C Forwa Interru Jumbo Large Large Locally Maxim Maxim	sulated Task sulation Over -Efficient Eth Control rd Error Correc pt Moderation pt Moderation Packet Send Offload Send Offload Send Offload um Number of um Number of um Number of	Offload head emet ttion V2 (IPv4) V2 (IPv6) I Address f MSI-X Messa f RSS Process f RSS Queues	*	Enabl Disabl Enabl	ed ed ed	Ľ

Figure 25. Energy-Efficient Ethernet Window

- 3. Select one of the following options:
 - Disabled This setting disables Energy-Efficient Ethernet on the ports of the ANC10T/2 network interface card.
 - □ **Enabled** This setting enables Energy-Efficient Ethernet on the ports of the ANC10T/2 network interface card.
- 4. Click OK.

Flow Control

The Flow Control property allows you to control the flow between the ANC10 network interface card port and its link partner. You can enable or disable the network interface card port to process received PAUSE frames and transmit PAUSE frames.

To specify or change the Flow Control feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Flow Control in the Property box.

The Flow Control window is displayed as shown in Figure 26.

Allied Telesis AT-ANC10T/2 Dual Po	ort 10GBASE-T Adapter Properties X
	in toopase traduct topenes . A
General Advanced Driver Detai	ils Events Resources
The following properties are available the property you want to change on on the right.	le for this network adapter. Click the left, and then select its value
Property:	<u>V</u> alue:
Encapsulated Task Offload Encapsulation Overhead Encapy-Efficient Ethemet How Control Forward Error Correction Interrupt Moderation Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Maximum Number of MSLX Messa Maximum Number of RSS Process Maximum Number of RSS Queues	Disabled Auto Negotiation Disabled Rx & Tx Enabled Rx Enabled Tx Enabled Tx Enabled
	OK Cancel

Figure 26. Flow Control Window

- 3. Select one of the following options if available:
 - Auto Negotiation The network interface card uses flow control if it receives PAUSE frames on its ports from its link partner. Otherwise, the network interface card does not use flow control. This is the default.
 - **Disabled** The network interface card ignores PAUSE frames.
 - □ **Tx & Rx Enabled** The network interface card processes ingress PAUSE frames and transmits PAUSE frames.

- □ **Rx Enabled** The network interface card processes ingress PAUSE frames, but does not transmit PAUSE frames.
- □ **Tx Enabled** The network interface card transmits PAUSE frames, but ignores ingress PAUSE frames.
- 4. Click OK.

Forward Error Correction

The Forward Error Correction property allows for errors in the received packet to be corrected without the need for a packet re-transmission.

To specify or change the Forward Error Correction feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Forward Error Correction in the Property box.

The Forward Error Correction window is displayed as shown in Figure 27.



Figure 27. Forward Error Correction Window

- 3. Select one of the following options:
 - □ **Disabled** This is the default.
 - □ CL91 with Force Mode
 - □ RS272 1xn with Force Mode
 - □ RS272 IEEE with Force Mode
 - □ RS544 1xn with Force Mode
 - □ RS544 IEEE with Force Mode

4. Click OK.

Interrupt Moderation

The Interrupt Moderation property allows you to limit the rate of interrupts to the CPU during packet transmission and packet reception. When this feature is enabled, interrupts are handled as a group so that the CPU utilization decreases; however, the latency may increase.

To enable or disable the Interrupt Moderation feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Interrupt Moderation in the Property box.

The Interrupt Moderation window is displayed as shown in Figure 28.

General Advanced Driver Details Events Resources The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: Property: Value: Encapsulated Task Offload A Encryp-Efficient Ethemet Row Control Forward Eror Correction Nabled Disabled Interrupt Moderation Interrupt Moderation Configuration Jumbo Packet Value: Encapsulation Overhead Provember 2010 Interrupt Moderation Configuration Jumbo Packet Nabled Enabled Enabled Maximum Number of RSS Processi Maximum Number of RSS Processi Maximum Number of RSS Processi Nable	Allied Telesis AT	-ANC10	T/2 Dual F	ort	10GBAS	E-T Adapter	Properties	×
The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: Encapsulated Task Offload Encapsulation Overhead Encyve: Enabled Proward Error Correction Interrupt Moderation Interrupt Moderation Jumbo Packet Large Send Offload V2 (IPv6) Locally Administered Address Maximum Number of RSS Process Maximum Number of RSS Process	General Advar	nced Dr	iver Det	ails	Events	Resources		
Locally Administered Address Maximum Number of MSI-X Messa Maximum Number of RSS Process Maximum Number of RSS Queues	The following p the property yo on the right. Property: Encapsulated Encapsulation Energy-Efficie Flow Control Forward Error Interrupt Mode Jumbo Packe Large Send O Large Send O	Task Off overhea overhea nt Ethem Correction eration cat ffload V2 ffload V2	are availad o change o load ad et nn (IPv4) (IPv4)	ole fo	ventas pr this ne e left, and <u>V</u>	twork adapter I then select it alue: Enabled Disabled Enabled	Click s value	
	Locally Admini Maximum Nun Maximum Nun Maximum Nun	istered Ad nber of M nber of R nber of R	ldress SI-X Messa SS Proces SS Queues					

Figure 28. Interrupt Moderation Window

- 3. Select one of the following options:
 - Disabled The Interrupt Moderation feature is disabled. The network interface card generates one interrupt for every packet transmission and packet reception.
 - Enabled The Interrupt Moderation feature is enabled. This is the default setting.
- 4. Click OK.

Interrupt Moderation Configuration

The Interrupt Moderation Configuration property sets the level of interrupt moderation.

To specify or change the Interrupt Moderation Configuration feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Interrupt Moderation Configuration in the Property box.

The Interrupt Moderation Rate window is displayed as shown in Figure 29.

neral Advance	ced Driver Deta	ils Events	Resources	
ne following prop e property you v the right. operty: incapsulation O incapsulation O incapsulation O incapsulation O incapsulation O incapsulation O incerupt Moderal umbo Packet arge Send Offlo ocally Administe Maximum Numbe Maximum Numbe	roperties are availab u want to change or Task Offload Overhead nt Ethernet Correction ration fiload V2 (IPv4) fiload V2 (IPv4) fiload V2 (IPv6) stered Address iber of RSS Process iber of RSS Process iber of RSS Queues	le for this net the left, and N H H U	work adapter then select it Ilue: Aedium Iigh ow Aedium	: Click is value

Figure 29. Interrupt Moderation Configuration Window

- 3. To set the level of interrupt moderation, select one of the following options:
 - □ High
 - □ Low
 - **Medium** This is the default setting.
- 4. Click OK.

Jumbo Packet

The Jumbo Packet property enables the network interface card to transmit and receive oversized Ethernet frames that are greater than 1500 bytes, but less than or equal to 9336 bytes in length. To increase the maximum frame size, choose one of the values from the drop-down list.

To change the Jumbo Packet setting, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Jumbo Packet in the Property box.

The Jumbo Packet window is displayed as shown in Figure 30.

ving propert rty you wan ht.	ies are avail t to change	able fo on the	or this net eleft, and	work adapter	Click	
			Va	then select it	s value	
lated Task lation Overf fficient Ethen throl Error Correc Moderation Moderation (acket end Offload end Offload end Offload didministered n Number of n Number of	Offload head ttion Configuratio V2 (IPv4) V2 (IPv6) I Address MSI-X Mes RSS Proce RSS Proce	sai ssi es v	1	514		
	lated Task lation Over fificient Eth- trol Error Correc Moderation Moderation acket and Offload diministered Number of Number of Number of	lated Task Offload lation Overhead fifcient Ethemet itrol Error Correction Moderation Configuratic acket and Offload V2 (IPv4) and Offload V2 (IPv6) dministered Address n Number of MSI-X Mes Number of RSS Proce Number of RSS Queue	lated Task Offload lation Overhead fifcient Ethernet ttrol Error Correction Moderation Configuration acket and Offload V2 (IPv4) and Offload V2 (IPv6) and Offload V2 (IPv6) an	lated Task Offload lation Overhead fficient Ethemet itrol Error Correction Moderation Configuration acket and Offload V2 (IPv4) and Offload V2 (IPv6) dministered Address n Number of MSI-X Messai Number of RSS Processi Number of RSS Queues ✓	lated Task Offload lation Overhead fficient Ethemet ttrol Error Correction Moderation Configuration acket and Offload V2 (IPv4) and Offload V2 (IPv4) and Offload V2 (IPv6) dministered Address n Number of MSI-X Messar n Number of RSS Processi n Number of RSS Queues ♥	lated Task Offload ∧ Iation Overhead fficient Ethemet titrol Error Correction Moderation Configuration acket and Offload V2 (IPv4) ind Offload V2 (IPv4) ind Offload V2 (IPv6) idministered Address 1 Number of MSI-X Messa; 1 Number of RSS Processi 1 Number of RSS Queues ∨

Figure 30. Jumbo Packet Window

- 3. Select the desired jumbo frame size from the list. The options are:
 - □ 1514 bytes. This is the default setting.
 - □ 4088 bytes.
 - □ 9014 bytes.
 - □ 9336 bytes.
- 4. Click OK.

Large Send Offload v2 (IPv4)

Normally, the TCP segmentation is done by the protocol stack. When you enable the Large Send Offload property, the TCP segmentation can be done by the network interface card. The default setting for this property is Enabled.

To enable or disable the Large Send Offload v2 (IPv4) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Large Send Offload v2 (IPv4) in the Property box.

The Large Send Offload v2 (IPv4) window is displayed as shown in Figure 31.

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Encapsulated Task Offload Encapsulation Overhead Encapsulation Overhead Encapsulation Overhead Encapsulation Overhead Encapsulation Configuration Interrupt Moderation Interrupt Moderation Configuration Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Maximum Number of MSI-X Messa; Maximum Number of MSI-X Messa;
Maximum Number of RSS Queues ¥

Figure 31. Large Send Offload v2 (IPv4) Window

- 3. Select one of the following options:
 - **Disabled** The feature is disabled.
 - Enabled The network interface card port segments large packets up to 256Kb for IPv4 traffic before sending them out. This is the default setting.
- 4. Click OK.

Large Send Offload v2 (IPv6)

The Large Send Offload v2 (IPv6) property allows you to control the load of sending out large packets. When this feature is enabled, the network interface card port segments large packets for IPv6 traffic and reduces the CPU load.

To enable or disable the Large Send Offload v2 (IPv6) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Large Send Offload v2 (IPv6) in the Property box.

The Large Send Offload v2 (IPv6) window is displayed as shown in Figure 32.

Figure 32. Large Send Offload (IPv6) Window

- 3. Select one of the following options:
 - Disabled The network interface card does not segment packets for IPv6 traffic.
 - Enabled The network interface card port segments large packets up to 256Kb for IPv6 traffic before sending them out. This is the default setting.

4. Click OK.

Locally Administered Address

The Locally Administered Address property is a user-defined MAC address that is used in place of the MAC address originally assigned to the network interface card. Every network interface card in the network must have its own unique MAC address. This locally administered address consists of a 12-digit hexadecimal number.

To specify or change the Locally Administered Address, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Locally Administered Address in the Property box.

The Locally Administered Address window is displayed as shown in Figure 33.

aneral Advanced	Driver Details	Evente	Resources	
The following properts he property you war in the right. Property: Encapsulated Task Encapsulation Ove Energy-Efficient Eth Flow Control Forward Error Corre Interrupt Moderation Interrupt Moderation Interrupt Moderation Jumbo Packet Large Send Offload Large Send Offload Large Send Offload Large Send Offload Coally Administere Maximum Number of Maximum Number of	Offload tito change on the head emet Configuration V2 (IPv4) V2 (IPv6) 7 Address f MSI-X Messar f RSS Process f RSS Queues	for this network the left, and	vork adapter. then select its lue:	Click value

Figure 33. Locally Administered Address Window

- 3. Select one of the following options:
 - □ Value Used to manually assign a MAC address to the network interface card.
 - □ **Not Present** Uses the factory-assigned address on the network interface card. This is the default.

Note

The appropriate assigned ranges and exceptions for the locally administered address include the following:

The range is 00:00:00:00:00:01 to FF:FF:FF:FF:FD.

Do not use a multicast address (least significant bit of the high byte = 1).

Do not use all 0s or all Fs.

4. Click OK.

Maximum Number of MSI-X Messages

Message-signaled interrupts provide an in-band method of signaling interrupts to the host processor which can be used as an alternative to traditional out of band methods.

To enable or disable the Maximum Number of MSI-X Messages feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Maximum Number of MSI-X Messages in the Property box.

The Maximum Number of MSI-X Messages window is displayed as shown in Figure 34.

Lycina	Resources	Pov	ver Management
General	Advanced	Driver	Details
he following prop ne property you w n the right. roperty:	perties are available fo vant to change on the	r this network a left, and then s Value:	adapter. Click select its value
Enable PME on s Energy-Efficient I forward Error Co nterrupt Moderat humbo Packet Jumbo Packet Jumbo Packet Jumbo Packet Jumbo Packet Jumbo Packet Jumbo Packet Maximum Numbe Maximum Numbe Maximum RSS Pr	hutdown themet rection ion Configuration ad V2 (IPv4) ad V2 (IPv6) red Address rof MSI-X Messa rof RSS Process rof RSS Queues rocessor Number	C Not Pres	sent

Figure 34. Maximum Number of MSI-X Messages Event Window

- 3. Select one of the following options:
 - Value Sets the number of interrupts that can be allocated (up to 2048).
 - D Not Present This is the default.
- 4. Click OK.
Maximum Number of RSS Processors

The Maximum Number of RSS Processors property sets the maximum number of processors that will be available for use with Receive Side Scaling.

To specify or change the Maximum Number of RSS Processors feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Maximum Number of RSS Processors in the Property box.

The Maximum Number of RSS Processors window is displayed as shown in Figure 34.

eneral	Advanced	Driver	Details	Events	Resources	
The foll the prop on the r Property Locally Maximu Maxima Maximu Maximu Maxima Maximu Maximu Maximu Maximu Maximu Maximu	owing propert entry you wan ight. /: Administered um Number of um Number of um RSS Proc rk Direct Func KDirect Tech E Encapsulat t Direct ed NUMA no & VLAN ardware Time of Service re Buffers (0=	ties are a tit to char d Address f MSI-X I f RSS Pr f RSS	vailable finge on the second second s	or this net e left, and <u>V</u> a	work adapter then select it alue: 16	r. Click ts value

Figure 35. Maximum Number of RSS Processors Window

- 3. Select one of the following options:
 - **Value** Sets the number of processors allocated for use.
 - D Not Present This is the default.
- 4. Click OK.

Maximum Number of RSS Queues

The Maximum Number of RSS Queues property assigns data to queues associated with physical CPU cores. You can specify the maximum number of RSS queues that the network interface card assigns receiving data to.

To specify or change the maximum number of RSS Queues, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Maximum Number of RSS Queues in the Property box.

The Maximum Number of RSS Queues window is displayed as shown in Figure 36.

The folk the prop on the ri <u>P</u> roperty Locally Maximu Maximu	owing propert perty you wan ight. /: Administered	ies are a t to char	wailable f	or this net e left, and Va	work adapter. then select it:	. Click s value
Locally Maximu Maximu	Administered				alue:	
Maximu Metwor Networ NVGRI Packet Preferm Priority PTP H Quality Receiv	am Number of am Number of am RSS Proc k Direct Func k Direct Tech E Encapsulat : Direct ed NUMA no & VLAN ardware Time of Service re Buffers (0=	I Address MSI-X I RSS Pr RSS Q essor Nu tionality nology ed Task de estamp Auto)	s Messai ocessi umber Offloa	1	6	

Figure 36. Maximum Number of RSS Queues Window

- 3. Select one of the following options:
 - □ Value The system allocates up to 16 RSS queues.
- 4. Click OK.

Maximum RSS Processor Number

The Maximum RSS Processor Number property sets the highest processor number that will available for use with Receive Side Scaling (RSS).

To specify or change the Maximum RSS Processor Number feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Maximum RSS Processor Number in the Property box.

The Maximum RSS Processor Number window is displayed as shown in Figure 37.

	Advanced	Driver	Details	Events	Resources	
The fol the pro- on the I Propert Locally Maxim Maxim Maxim Maxim Maxim Netwo Netwo NVGR Prefen Priority PTP H Quality Receiv	lowing propert perty you war right. y Administered ium Number o ium N	d Address f MSI-X I f RSS Pr f RSS Qu essor NU tionality mology ed Task de estamp Auto)	vailable fr age on the Messa Jeues Imber Offloa		work adapter then select it alue: ot Present	. Click s value

Figure 37. Maximum RSS Processor Number Window

- 3. Select one of the following options:
 - □ **Value** The processor number of the highest processor to be made available.
 - □ Not Present This is the default setting.
- 4. Click OK.

Network Direct Functionality

The Network Direct Functionality property enables or disables the Remote Direct Memory Access (RDMA) feature.

To enable or disable the Network Direct Functionality feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Network Direct Functionality in the Property box.

The Maximum Network Direct Functionality window is displayed as shown in Figure 38.

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: Locally Administered Address Image: Click the property is the prop
Priority & VLAN PTP Hardware Timestamp Quality of Service Receive Buffers (0=Auto)

Figure 38. Network Direct Functionality Window

- 3. Select one of the following options:
 - **Enabled** Enables the RDMA feature.
 - Disabled Disables the RDMA feature. This is the default setting.
- 4. Click OK.

Network Direct Technology

The Network Direct Technology property sets the RDMA type that will be used (RDMA over Converged Ethernet or RDMA over Converged Ethernet Version 2).

To specify or change the Network Direct Technology feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Network Direct Technology in the Property box.

The Network Direct Technology window is displayed as shown in Figure 39.

General	Advanced	Driver	Details	Events	Resources	
The foll the projon the in Propert. Locally Maxim Maxim Maxim Netwo NVGR Packe Preferr Priority PTP H	owing propert perty you wan ight. y: / Administered um Number of um Number of um Number of um Number of um RSS Proc rkDirect Tech Encapsulat t Direct ed NUMA noo & VLAN ardware Time	ies are a t to char f MSI-X I f RSS Pr f RSS Qu essor Nu tionality inology ed Task de estamp	vailable fr nge on the Messar ocessi ueues imber Offloa	or this net e left, and <u>V</u> a [i	work adapter then select it alue: RoCEv2 RoCEv2	: Click is value
Trecen	/e burrers (U=	ALITO)	Ţ			

Figure 39. Network Direct Technology Window

- 3. Select one of the following options:
 - **RoCE** Uses RDMA over Converged Ethernet.
 - **RoCEv2** Uses RDMA over Converged Ethernet Version 2.
- 4. Click OK.

NVGRE Encapsulated Task Offload

The NVGRE Encapsulated Task Offload property enables/disables task offloads for NVGRE encapsulated packets.

To specify or change the NVGRE Encapsulated Task Offload feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select NVGRE Encapsulated Task Offload in the Property box.

The NVGRE Encapsulated Task Offload window is displayed as shown in Figure 40.

The following pro the property you on the right. Property:	operties are availab want to change or	le for this the left,	s network a , and then s	dapter. Click elect its value
Locally Administr Maximum Numb- Maximum Numb- Maximum Nsrs F Network Direct T NVGRE Encaps Packet Direct Preferred NUMA Piority & VLAN PTP Hardware ⁻ Quality of Servic Receive Buffers	ered Address er of MSI-X Messa er of RSS Processor Number functionality fechnology sulated Task Offloa A node Timestamp se ; (0=Auto)	~	Value: Enablec Disablec Enablec	3 3

Figure 40. NVGRE Encapsulated Task Offload Window

- 3. Select one of the following options:
 - Disabled This setting disables task offloads for NVGRE encapsulated packets.
 - Enabled This setting enables task offloads for NVGRE encapsulated packets. This setting is the default.
- 4. Click OK.

Packet Direct

The Packet Direct property enables a low-latency data path between the NIC and packet direct enabled virtual switch.

To specify or change the Packet Direct feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **Packet Direct** in the Property box.

The Packet Direct window is displayed as shown in Figure 41.

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Large Send Offload V2 (IPv6) Locally Administered Address Maximum Number of RSS Processor Maximum Number of RSS Queues Maximum RSS Processor Number Network Direct Technology NVGRE Encapsulated Task Offloa Packet Direct Prefered NUMA node Priorty & VLAN PTP Hardware Timestamp Outlik of Senice
Identity of our vice

Figure 41. Packet Direct Window

- 3. Select one of the following options:
 - **Disabled** This setting disables Packet Direct.
 - Enabled This setting enables Packet Direct. This setting is the default.
- 4. Click OK.

Preferred NUMA Node

The Preferred NUMA Node property sets the processor bus number that will be used for the NIC to access host memory.

To specify or change the Preferred NUMA Node feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Preferred NUMA Node in the Property box.

The Preferred NUMA Node window is displayed as shown in Figure 43.

Figure 42. Preferred NUMA Node Window

- 3. Select one of the following options:
 - □ Value Host bus number.
 - □ Not Present This is the default setting.
- 4. Click OK.

Priority & VLAN

The Priority & VLAN property allows you to control sending and receiving tagged frames of QoS and VLAN.

When the property is set to Priority & VLAN Enabled, the network interface card sends and receives QoS and VLAN tagged frames; with Priority Enabled, the network interface card sends and receives QoS tagged frames; with VLAN Enabled, the network interface card sends and receives VLAN tagged frames. To assign a VLAN ID to the network interface card, see "VLAN ID" on page 112.

To enable or disable the Priority & VLAN feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **Priority & VLAN** in the Property box.

The Priority & VLAN window is displayed as shown in Figure 43.

Allied Tel	esis AT-ANC	10T/2 D	ual Port	10GBASE	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r Property NVGR Packet Prefer Profity Receiv Recev Recev Recev Recev RoCE RSS B RSS Io	owing propert berty you wan ight. y: E Encapsulat t Direct ed NUMA nor & VLAN ardware Time of Service we Buffers (0= we Buffer	ies are a t to char ed Task de stamp Auto) 19 escing (I or Group profile	Offloa A IPv4) Pv6)	or this net e left, and F F V V	work adapter then select it lue: Priority & VLAN triority & VLAN triority & VLAN triority & VLAN triority enabled	Click s value	
					ОК	Cancel	

Figure 43. Priority & VLAN Window

- 3. Select one of the following options:
 - Priority & VLAN Disabled Prevents packet prioritization and VLAN tagging.

- □ **Priority & VLAN Enabled** Allows for packet prioritization and VLAN tagging. This is the default setting.
- **Packet Enabled** Allows packet prioritization only.
- **VLAN Enabled** Allows VLAN tagging only.
- 4. Click OK.

PTP Hardware Timestamp

The PTP Hardware Timestamp property generates timestamps using the network interface card's own hardware clock. This feature is used in particular by the Precision Time Protocol (PTP), which is a time synchronization protocol. Those calculations can then be used by PTP to improve the accuracy of time synchronization.

To specify or change the PTP Hardware Timestamp feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **PTP Hardware Timestamp** in the Property box.

The PTP Hardware Timestamp window is displayed as shown in Figure 44.

The following propertie he property you want	e are available fo		
on the nght. Property: NVGRE Encapsulate Packet Direct Packet Direct Preferred NUMA nod- Priority & VLAN PTP Hardware Times Quality of Service Receive Buffers (0=A Receive Side Scaling Recv Segment Coale Recv Segment Coale RecV Segment Coale ReCV Segment Coale RoCE MTU RSS Base Processor RSS Base Processor RSS Base Processor	d Task Offloa	r this network adapter left, and then select i <u>V</u> alue: Disabled Disabled Enabled	r. Click ts value

Figure 44. PTP Hardware Timestamp Window

- 3. Select one of the following options:
 - Disabled This setting disables PTP hardware generation. This setting is the default.
 - **Enabled** This setting enables PTP hardware generation.
- 4. Click OK.

Quality of Service

The Quality of Service property enables the processing of QoS-enabled frames.

To enable or disable the Quality of Service feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Quality of Service in the Property box.

The Quality of Service window is displayed as shown in Figure 43.

Allied Tele	esis AT-ANC	10T/2 Du	ual Port	10GBAS	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the ri Property NVGRI Packet Preferm Profity Receiv Recev S RoCE I RSS B RSS Io	owing propert verty you war ight. E Encapsulat E Encapsulat E Encapsulat of NUMA no & VLAN ardware Time of Service e Buffers (0= re Buffer	ies are av t to chang ed Task (de stamp Auto) ig escing (IF escing (IF escing (IF r Group r Number profile	Pyrailable for ge on the Dffloa ∧ Dffloa ∧ Dffloa ∧ V(6)	or this net e left, and [E	work adapter then select it inabled Disabled inabled	Click s value	
					ОК	Cancel	

Figure 45. Quality of Service Window

- 3. Select one of the following options:
 - **Enabled** Enables QoS processing. This is the default setting.
 - **Disabled** Disables QoS processing.
- 4. Click OK.

Receive Buffers (0=Auto)

The Receive Buffers are data segments that allow the network interface card to allocate receive packets to memory.

To specify or change the Receive Buffers feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **Receive Buffers** in the Property box.

The Receive Buffers window is displayed as shown in Figure 46.

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: INVGRE Encapsulated Task Offloa 0 Packet Direct Preferred NUMA node Protenty & VLAN PTP Hardware Timestamp Quality of Service Receive Buffers (IP-Auto) Receive Buffers (ID-Auto) Receive Side Scaling Recv Segment Coalescing (IPv4) RoCE MTU RSS Base Processor Group RSS Base Processor Number RSS load balancing profile v	General	Advanced	Driver	Details	Events	Resources		
RoCE MTU RoCE MTU RSS Base Processor Group RSS Base Processor Number RSS load balancing profile	The foll the prop on the r Property NVGR Packe Preferr Priority PTP H Quality Receiv	owing propert perty you wan ight. y: E Encapsulat t Direct ed NUMA nou & VLAN ardware Time of Service ve Buffers (0= ve Side Scalin Segment Coal	ies are a t to char ed Task de estamp Auto) ng escing ([Vailable fr nge on the Offloa	or this net e left, and <u>V</u> a	work adapter then select it alue:)	Click is value	
	RoCE RSS B RSS B RSS Id	MTU lase Processo lase Processo bad balancing	or Group or Numbe profile	er 🗸				

Figure 46. Receive Buffers Window

3. Specify the buffer size in the Value box.

The range of valid receive buffers is 0 (auto) to 15000 in increments of 500 with 500 receive buffers as the default value.

4. Click **OK**.

Receive Side Scaling

The Receive Side Scaling (RSS) property allows the network interface card to efficiently distribute receive processing across multiple CPU's so as to prevent overloading a single CPU. To make this feature effective, the computer must have multiple CPU's in a multiprocessor system.

To enable or disable the Receive Side Scaling feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Receive Side Scaling in the Property box.

The Receive Side Scaling window is displayed as shown in Figure 47.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBA	SE-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the projon the re- propert Proof Packee Profer Priority Receiv Receiv Receiv Receiv RoCE RSS E RSS E RSS E	owing propert perty you wan right. y: E Encapsulat t Direct ed NUMA no & VLAN lardware Time of Service ve Buffers (0= ve Side <u>Scalir</u> Segment Coal MTU lase Processo lase Processo bad balancing	ies are a t to char ed Task de estamp Auto) ig lescing (l escing (l or Group pr Numbe profile	vailable fr ige on the Offloa ∧ Pv4) Pv6) sr ↓	orthisne left, an	twork adapter d then select if (alue: Enabled Disabled Enabled	: Click Is value	T
					ОК	Cance	el

Figure 47. Receive Side Scaling Window

- 3. Select one of the following options:
 - Enabled Processes receiving data by multiple CPUs. This is the default setting.
 - Disabled Processes receiving data by a single CPU.
- 4. Click OK.

Recv Segment Coalescing (IPv4)

When receiving data, the miniport driver, NDIS, and TCP/IP must all look at each segment's header information separately. When large amounts of data are being received, this creates a large amount of overhead. Receive segment coalescing (RSC) reduces this overhead by coalescing a sequence of received segments and passing them to the host TCP/IP stack in one operation, so that NDIS and TCP/IP need only look at one header for the entire sequence.

To enable or disable the Receive Segment Coalescing (IPv4) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Receive Segment Coalescing (IPv4) in the Property box.

The Receive Segment Coalescing (IPv4) window is displayed as shown in Figure 48.

	Advanced	Driver	Details	Events	Resources		
The fol the pro on the <u>Propert</u> NVGF Packe Prefen Priority PTP H Quality Recei Recei Recei Rece RoCE	owing propert perty you war right. y: E Encapsulat t Direct ed NUMA no & VLAN lardware Time ve Suffers (0= ve Side Scalin Segment Coa MTU lase Processo bad balancing	ties are a tit to char ed Task de estamp (astamp lescing (pr Group pr Numbe profile	Offloa A IPv4) IPv6) ar	or this net e left, and	work adapter then select it slue: Enabled Disabled Enabled	. Click s value	•

Figure 48. Receive Segment Coalescing (IPv4) Window

- 3. Select one of the following options:
 - **Enabled** RSC is enabled.
 - **Disabled** RSC is disabled. This is the default setting.

4. Click OK.

Recv Segment Coalescing (IPv6)

When receiving data, the miniport driver, NDIS, and TCP/IP must all look at each segment's header information separately. When large amounts of data are being received, this creates a large amount of overhead. Receive segment coalescing (RSC) reduces this overhead by coalescing a sequence of received segments and passing them to the host TCP/IP stack in one operation, so that NDIS and TCP/IP need only look at one header for the entire sequence.

To enable or disable the Receive Segment Coalescing (IPv6) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Receive Segment Coalescing (IPv6) in the Property box.

The Receive Segment Coalescing (IPv6) window is displayed as shown in Figure 49.

eneral Advanced	Driver Details	Events	Resources	
he following propert re property you wan n the right. Yoperty: NVGRE Encapsulat Packet Direct Preferred NUMA no PTP Hardware Time Quality of Service Quality of Service Receive Buffers (0= Receive Side Scalin Recv Segment Coal Recv Segment Coal Rec Segment Coal RoCE MTU RSS Base Processo RSS Base Processo RSS Ioad balancing	es are available to change on t ad Task Offloa , de stamp Auto) g escing (IPv4) escing (IPv5) r Group r Group r Number	for this net re left, and E	work adapter; then select it alue: Enabled Disabled Enabled	. Click s value

Figure 49. Receive Segment Coalescing (IPv6) Window

- 3. Select one of the following options:
 - **Enabled** RSC is enabled.
 - **Disabled** RSC is disabled. This is the default setting.

4. Click OK.

RoCE MTU

The RDMA over Converged Ethernet (RoCE) Maximum Transmission Unit (MTU) property sets the maximum packet size for RDMA packets.

To specify or change the RoCE MTU feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **RoCE MTU** in the Property box.

The RoCE MTU window is displayed as shown in Figure 50.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBAS	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r Property NVGR Packet Prefer Prointy Receiv Recev Re	owing propert erty you wan ight. /: E Encapsulat t Direct ed NUMA nou & VLAN ardware Time of Service ve Buffers (0= ve Buffers	ies are a t to char ed Task de estamp Auto) ig escing (I escing (I or Group profile	vailable fr ge on the Offloa ∧ Pv4) Pv6) r	or this ne left, and U	twork adapter i then select if alue: 1024 2048 256 4096 512	r. Click Is value	
					OK	Cance	I

Figure 50. RoCE MTU Window

- 3. Select one of the following options:
 - **1024** This is the default setting.
 - **□** 2048
 - □ 256
 - **4096**
 - **□** 512
- 4. Click OK.

RSS Base Processor Group

The RSS Base Processor Group property defines the base processor group for the RSS queues on the network adapter.

To specify or change the RSS Base Processor Group feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select RSS Base Processor Group in the Property box.

The RSS Base Processor Group window is displayed as shown in Figure 51.



Figure 51. RSS Base Processor Group Window

- 3. Select one of the following options:
 - □ Value Base processor group number.
 - D Not Present This is the default setting.
- 4. Click OK.

RSS Base Processor Number

The RSS Base Processor Number property may be set to explicitly define the CPU affinity for the RSS queues of this device. It is the CPU number of the lowest RSS queue for this device.

To specify or change the RSS Base Processor Number feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select RSS Base Processor Number in the Property box.

The RSS Base Processor Number window is displayed as shown in Figure 52.

The foll the prop on the r Propert NVGR Packe	lowing propert perty you wan right.	ties are a It to char	available fo	orthis net	work adapter	Click
Preferr Priority PTP H Quality Receiv Receiv Recv Recv RoCE RSS E RSS Id	2 RE Encapsulat t Direct red NUMA no & VLAN lardware Time y of Service ve Side Scalir Segment Coa Segment Coa Se	ed Task de estamp Auto) 19 lescing (lescing (pr Group pr Numbe profile	Offloa A IPv4) IPv6)		then select it	s value

Figure 52. RSS Base Processor Number Window

- 3. Select one of the following options:
 - □ Value The base processor number.
 - D Not Present This is the default setting.
- 4. Click OK.

RSS Load Balancing Profile

The RSS Load Balancing Profile property sets the profile that RSS will use to determine how to scale receive functions across CPUs.

To specify or change the RSS Load Balancing Profile feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select RSS Load Balancing Profile in the Property box.

The RSS Load Balancing Profile window is displayed as shown in Figure 53.



Figure 53. RSS Load Balancing Profile Window

- 3. Select one of the following options:
 - □ Value
 - NUMA scaling static: RSS processor selection is the same as for NUMA scalability without dynamic load balancing.
 - Closest processor: Behavior is consistent with the behavior of Windows Server® 2008 R2.

- Closest processor static: No dynamic load balancing, such as distributing but not load balancing at runtime.
- Conservative scaling: RSS uses as few processors as possible to sustain the load. This option helps reduce the number of interrupts.
- NUMA scaling: Assigns RSS processors in a round robin basis across every NUMA node to enable applications that are running on NUMA servers to scale well.
- **Not Present** This is the default setting.
- 4. Click OK.

RSS Max Processor Group

The RSS Max Processor Group property value defines the maximum number of processor groups for the RSS CPUs in use.

To specify or change the RSS Max Processor Group feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **RSS Max Processor Group** in the Property box.

The RSS Max Processor Group window is displayed as shown in Figure 54.



Figure 54. RSS Max Processor Group Window

- 3. Select one of the following options:
 - □ Value The maximum processor group.
 - □ Not Present This is the default setting.
- 4. Click OK.

Software Timestamp

The Software Timestamp property allow for the generation of network timestamps to be done at the software level.

To specify or change the Software Timestamp feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **Software Timestamp** in the Property box.

The Software Timestamp window is displayed as shown in Figure 55.

General	Advanced	Driver	Details	Events	Resources		
The fol the projon the i Propert RSS E RSS I RSS I RSS I Softwar Speed SR-IO TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U VF Sp Virtual	lowing propert perty you war right. Jase Processo and balancing As Processo are Timestamp & Duplex V JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Segmentation Segmentation Machine Que Switch RSS	ties are a at to char or Numbe or Group officat m Officat (Officad (Officad (Officad (d (IPvi d (IPvi d (IPvi lPv6)	or this net e left, and [[[[[[]]]	work adapter. then select it: Disabled Disabled XAII & Tagget XAII & Tagged Tx XAII & TxAII Tagged Tx XAII	Click s value	-

Figure 55. Software Timestamp Window

- 3. Select one of the following options:
 - Disabled This setting disables software timestamping. This setting is the default.
 - **Rx All** Enables all Rx timestamping.
 - Rx All and Tagged Tx Enables all Rx and tagged Tx timestamping.
 - **Rx All and Tx All** Enables all Rx and all Tx timestamping.
 - **Tagged Tx** Enables tagged Tx timestamping.
 - **Tx All** Enables all Tx timestamping.

Click OK.

Speed & Duplex

The Speed & Duplex property sets the connection speed and mode to that of the network. Note that Full-Duplex mode allows the network interface card to transmit and receive network data simultaneously.

To specify or change the Speed & Duplex feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **Speed & Duplex** in the Property box.

The Speed & Duplex window is displayed as shown in Figure 56.



Figure 56. Speed & Duplex Window

- 3. Select one of the following options:
 - 1.0Gbps Full Duplex Use this setting when connecting to a gigabit link partner that is configured for 1000 Mbps Full Duplex operation. ANC10 Network Interface Card Series will only connect to a 1Gbps link partner.
 - 10Gbps Full Duplex Use this setting when connecting to a 10 gigabit link partner that is configured for 10000 Mbps Full Duplex operation. ANC10 Network Interface Card Series will only connect to a 10Gbps link partner.

- Auto Negotiation Use this setting when connecting to a 1 or 10 Gbps link partner that is configured for Auto-Negotiation. ANC10 Network Interface Card Series will attempt to detect the maximum speed supported by the installed SFP module, and will set the port speed to match. This is the default setting.
- 4. Click OK.

The Single Root I/O Visualization (SR-IOV) property allows guest operating systems in a virtualized environment direct access to the NICs PCIe bus and physical functions as opposed to being virtualized by the hypervisor.

To specify or change the SR-IOV feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **SR-IOV** in the Property box.

The SR-IOV window is displayed as shown in Figure 57.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBASI	-T Adapter	Properties	>
General	Advanced	Driver	Details	Events	Resources		
The folk the prop on the r Property RSS B RSS IO Softwa Softwa Speed SPeed TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U	wing propert verty you wan ight.	ies are a t to char profile c Group m Offload Muto) Offload (offload (ion aues	d (IPv) d (IPv) d (IPv) v	or this net e left, and	work adapter then select it ilue: Enabled Disabled Enabled	. Click s value	
					ОК	Cance	el

Figure 57. SR-IOV Window

- 3. Select one of the following options:
 - Enabled Enables SR-IOV. NIC physical function access is available to guest operating systems. This is the default setting.
 - Disabled Disables SR-IOV. No physical function access is available.
- 4. Click OK.

TCP/UDP Checksum Offload (IPv4)

The TCP/UDP Checksum Offload (IPv4) property enables the network interface card port to compute the checksum of transmitting IPv4 packets and verify the checksum of receiving IPv4 packets, taking load off from the CPU.

To modify the TCP/UDP Checksum Offload (IPv4) setting, do the following:

1. Access the Device Manager on your operating system.

See "Accessing Advanced Properties" on page 54.

2. Select TCP/UDP Checksum Offload (IPv4) in the Property box.

The TCP/UDP Checksum Offload (IPv4) window is displayed as shown in Figure 58.

actional	navancea	Driver	Details	Events	Resources	
The fold the proof on the proof on the Propert RSS Is RSS Is RSS Is RSS Is Softwith Speece SR-100 TCP/1 Transit UDP 1 UDP 1 UDP 1 VFtual Virtual	lowing propert perty you wan right. y: Base Processo ad balancing Max Processo are Timestamp I & Duplex V UP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Segmentation Segmentatio	ies are a t to char profile Group MOffload Auto) Offload (Offload (ion aues	d (IPv d (IPv d (IPv l IPv 6) v	or this net e left, and F F	work adapter. I then select its alue: Rx & Tx Enable Disabled Rx Enabled Rx Enabled Ix Enabled	Click value d

Figure 58. TCP/UDP Checksum Offload (IPv4) Window

- 3. Select one of the following options:
 - Rx & Tx Enabled Enables the TCP/UDP Checksum Offload (IPv4) function for both receiving and transmitting IPv4 packets. This is the default setting.
 - Disabled Disables the TCP/UDP Checksum Offload (IPv4) function for both receiving and transmitting.

- □ **Rx Enabled** Enables the TCP/UDP Checksum Offload (IPv4) function only for receiving IPv4 packets.
- □ **Tx Enabled** Enables the TCP/UDP Checksum Offload (IPv4) function only for transmitting IPv4 packets.
- 4. Click OK.

TCP/UDP Checksum Offload (IPv6)

The TCP/UDP Checksum Offload (IPv6) property enables the network interface card port to compute the checksum of transmitting IPv6 packets and verify the checksum of receiving IPv6 packets, taking load off from the CPU.

To enable or disable the TCP/UDP Checksum Offload (IPv6) feature, do the following:

1. Access the Device Manager on your operating system.

See "Accessing Advanced Properties" on page 54.

2. Select TCP/UDP Checksum Offload (IPv6) in the Property box.

The TCP/UDP Checksum Offload (IPv6) window is displayed as shown in Figure 59.

General	Advanced	Driver	Details	Events	Resources		
The fol the projon the i Propert RSS E RSS I RSS I RSS I Softwa Speed SR-IO TCP/U Transr UDP S UDP S VF Sp Virtual Virtual	lowing propert perty you wan right. y: Base Processo and balancing Max Processo are Timestamp Max Processo are Timestamp JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Segmentation oofing Protect Machine Que Switch RSS	ies are a to char to char profile Group m Offloa Auto) Offload (Offload (Join aues	d (IPv d (IPv d (IPv lPv4) IPv6)	or this net e left, and F E E	work adapter then select if alue: Ax & Tx Enab Disabled Ax Enabled Ax Enabled X Enabled X Enabled	: Click Is value	-

Figure 59. TCP/UDP Checksum Offload (IPv6) Window

- 3. Select one of the following options:
 - Rx & Tx Enabled Enables the TCP/UDP Checksum Offload (IPv6) function for both receiving and transmitting IPv6 packets. This is the default setting.
 - Disabled Disables the TCP/UDP Checksum Offload (IPv6) function for both receiving and transmitting.

- □ **Rx Enabled** Enables the TCP/UDP Checksum Offload (IPv6) function only for receiving IPv6 packets.
- □ **Tx Enabled** Enables the TCP/UDP Checksum Offload (IPv6) function only for transmitting IPv6 packets.
- 4. Click OK.

Transmit Buffers (0=Auto)

The Transmit Buffers property value is the number of transmit buffers allowed. Transmit buffers are segments of system memory allocated to processing transmit packets.

To specify or change the Transmit Buffers feature, do the following:

1. Access the Device Manager on your operating system.

See "Accessing Advanced Properties" on page 54.

2. Select Transmit Buffers in the Property box.

The Transmit Buffers window is displayed as shown in Figure 60.

The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right. Property: Value: RSS Base Processor Number RSS Base Processor Number RSS Max Processor Group Software Timestamp Speed & Duplex SR-IOV TCP/UDP Checksum Offload (IPvi TCP/UDP Checksum Offload (IPvi TCP/UDP Checksum Offload (IPvi) Transmit Buffers (0=Auto) UDP Segmentation Offload (IPv6) VF Spoofing Protection Virtual Switch RSS Virtual Switch RSS 	ieneral	Advanced	Driver	Details	Events	Resources		
Implementation Offiload (IPv4) UDP Segmentation Offiload (IPv4) UDP Segmentation Offiload (IPv4) UDP Segmentation Offiload (IPv4) UDP Segmentation Offiload (IPv6) VF Spoofing Protection Virtual Switch RSS	The foll the prop on the r	owing propert perty you wan ight.	ies are a t to char	vailable fo nge on the	or this net e left, and	work adapter then select it	. Click s value	
	RSS B RSSI RSS IN Softwa Speed SR-IO' TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L UDP S UDP S VF Spo Virtual	ase Processo avad balancing Max Processor are Timestamp & Duplex V JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Mit Buffers (0= Segmentation oofing Protect Machine Que Switch RSS	m Offloa m Offloa m Offloa Auto) Offload (Offload (ion sues	d (IPv4 d (IPv4) IPv4) IPv6))		

Figure 60. Transmit Buffers Window

- 3. Specify the buffer size in the Value box. The valid range is 0 to 5000 in increments of 50. The default value is 0.
- 4. Click OK.

UDP Segmentation Offload (IPv4)

The UDP Segmentation Offload (USO) property allows the NIC to perform the segmentation of UDP datagrams that are larger than the maximum transmission unit (MTU) of the network medium. By doing so, Windows reduces CPU utilization associated with per-packet TCP/IP processing.

To specify or change the UDP Segmentation Offload (IPv4) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **UDP Segmentation Offload (IPv4)** in the Property box.

The UDP Segmentation Offload (IPv4) window is displayed as shown in Figure 61.

neral Advanced Driv	er Details	Events Resources	
he following properties a le property you want to o n the right. roperty: 3SS Base Processor Nu 3SS Max Processor Grou 3oftware Timestamp 3peed & Duplex 3R-IOV TCP/UDP Checksum Off Transmit Buffers (0=Auto JDP Segmentation Offlo JP Spoofing Protection /fr Spoofing Protection /frual Machine Queues /irtual Switch RSS	re available fo thange on the mber ^ le up fload (IPv4 load (IPv4) ad (IPv6) v	this network adapter left, and then select i <u>V</u> alue: Enabled Disabled Enabled	r. Click ts value

Figure 61. UDP Segmentation Offload (IPv4) Window

- 3. Select one of the following options:
 - Enabled Enables UDP Segmentation Offload (IPv4). This is the default setting.
 - Disabled Disables UDP Segmentation Offload (IPv4).
- 4. Click OK.

UDP Segmentation Offload (IPv6)

O) property allows the NIC to perform the segmentation of UDP datagrams that are larger than the maximum transmission unit (MTU) of the network medium. By doing so, Windows reduces CPU utilization associated with per-packet TCP/IP processing.

To specify or change the UDP Segmentation Offload (IPv6) feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select UDP Segmentation Offload (IPv6) in the Property box.

The UDP Segmentation Offload (IPv6) window is displayed as shown in Figure 62.

Jenerar	Advanced	Driver	Details	Events	Resources	
The fol the pro on the in- Propert RSS Is RSS Is Softwa So	lowing propert perty you war right. y: Base Processo and balancing Aax Processo are Timestamp & Duplex V JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Segmentation Commentation Confing Protect Switch RSS	ties are a tt to char profile r Group o m Offloa Auto) Offload (Offload (Offload)	d (IPvi d (IPvi d (IPvi (IPv6)	or this net e left, and <u>Va</u> [E	work adapter then select it alue: Enabled Disabled Enabled	. Click s value

Figure 62. UDP Segmentation Offload (IPv6) Window

- 3. Select one of the following options:
 - Enabled Enables UDP Segmentation Offload (IPv6). This is the default setting.
 - Disabled Disables UDP Segmentation Offload (IPv6).
- 4. Click OK.
VF Spoofing Protection

The Virtual Function (VF) Spoofing Protection property prevents malicious intent under the guise of legitimate behavior.

To specify or change the VF Spoofing Protection feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select **VF Spoofing Protection** in the Property box.

The VF Spoofing Protection window is displayed as shown in Figure 63.

Allied Tel	esis AT-ANC	:10T/2 D	ual Port	10GBAS	E-T Adapter	Properties	×
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r	The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right.						
Propert	y:			<u>V</u> a	alue:		
Property: Value: RSS Max Processor Group Software Timestamp Speed & Duplex SR-IOV Image: Comparison of the state of							
				C	OK	Cance	I

Figure 63. VF Spoofing Protection Window

- 3. Select one of the following options:
 - Enabled Enables VF Spoofing Protection. This is the default setting.
 - **Disabled** Disables VF Spoofing Protection.
- 4. Click OK.

Virtual Machine Queues

The Virtual Machine Queues property allows the NIC to cache external network traffic to dedicated storage areas on the NIC to be accessed by individual virtual machines.

To enable or disable the Virtual Machine Queues feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Virtual Machine Queues in the Property box.

The Virtual Machine Queues window is displayed as shown in Figure 64.

The following properties are available for he property you want to change on the li		
In the right. Property: RSS Max Processor Group Software Timestamp Speed & Duplex SR-IOV TCP/UDP Checksum Offload (IPv1 TCP/UDP Checksum Offload (IPv1 TCP/UDP Checksum Offload (IPv1 UDP Segmentation Offload (IPv6) VF Spoofing Protection Virtual Machine Queues Virtual Switch RSS VLAN ID VXLAN Encapsulated Task Offloac ¥	this network adapter. eft, and then select its <u>V</u> alue: Enabled Disabled Enabled	Click value

Figure 64. Virtual Machine Queues Window

- 3. Select one of the following options:
 - Enabled Enables virtual machine queues. This is the default setting.
 - **Disabled** Disables virtual machine queues.
- 4. Click OK.

Virtual Switch RSS

The Virtual Switch RSS property enables network traffic processing to be scaled over multiple host CPUs for virtual machines.

To specify or change the Virtual Switch RSS feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select Virtual Switch RSS in the Property box.

The Virtual Switch RSS window is displayed as shown in Figure 57.

General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r Property RSS M Softwa Speed SR-IO' TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L VITUAI VLAN VITUAI	owing propert perty you wan ight. /: lax Processor & Duplex / DP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu it Buffers (0= iegmentation i oofing Protect Machine Que Switch RSS ID ID ID Encapsulate	ies are a t to char Group m Offloau m Offload (Offload (Offload (Offload (an ues	vailable fr nge on the d (IPvi d (IPvi IPv6) Dffloac ✓	or this net left, and U	twork adapter I then select if alue: Enabled Disabled Enabled	: Click is value	

Figure 65. Virtual Switch RSS Window

- 3. Select one of the following options:
 - **Enabled** Enables Virtual Switch RSS. This is the default setting.
 - **Disabled** Disables Virtual Switch RSS.
- 4. Click OK.

VLAN ID

The VLAN ID property allows you to specify a VLAN ID on your network to the network interface card port. The network interface card port adds the value of the VLAN ID to a frame in the VLAN tag before transmitting the frame.

To change the VLAN ID value, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select VLAN ID in the Property box.

The VLAN ID window is displayed as shown in Figure 66.

Allied Telesis AT-ANC10T/2 Dual Port 10GBASE-T Adapter Properties $$ $ imes$							
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r Property RSS M Softwa SR-100 TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L TCP/L VITUAI	owing propert overty you wan ight. y: Max Processor are Timestamp & Duplex V JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu JDP Checksu Switch RSS ID Nachine Que Switch RSS ID	Group M Offloa M Offloa M Offloa M Offloa Offload (Offload (Offload (Sues	d (IPvi d (IPvi lPv4) Dffloac Y	or this net left, and <u>V</u> a	work adapter then select it lue:	. Click s value	
				C	OK	Cancel	

Figure 66. VLAN ID Window

3. Specify a VLAN ID in the Value box.

The range of the value is from 0 to 4094. The default value is 0. Leaving the VLAN ID set to 0 will result in no VLAN tag being added to egress packets, even if VLAN is enabled. This field must be set to the desired VLAN ID if VLAN headers are desired.

4. Click OK.

VXLAN Encapsulated Task Offload

The VXLAN Encapsulated Task Offload property allows for the use of Encapsulated Task offload functions in a VXLAN environment

To specify or change the VXLAN Encapsulated Task Offload feature, do the following:

1. Access the Advanced Properties.

See "Accessing Advanced Properties" on page 54.

2. Select VXLAN Encapsulated Task Offload in the Property box.

The VXLAN Encapsulated Task Offload window is displayed as shown in Figure 67.

Allied Telesis AT-ANC10T/2 Dual Port 10GBASE-T Adapter Properties $$ $ imes$							
General	Advanced	Driver	Details	Events	Resources		
The foll the prop on the r Property RSS M Softwa Speed SR-IO TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U TCP/U	owing propert berty you wan ight. / lax Processor re Timestamp & Duplex / IDP Checksu IDP Checksu IDP Checksu IDP Checksu DP Checksu DP Checksu it Buffers (0= egmentation f oofing Protect Machine Que Switch RSS ID Encapsulate	es are a t to char Group m Offload m Offload (offload (Offload (Offload (Offload (Offload (an ues	vailable f ige on the d (IPvi d (IPvi IPv4) IPv6) Offloat ✓	or this nee e left, and	twork adapter d then select i alue: Enabled Disabled Enabled	: Click ts value	•
					ОК	Cance	el

Figure 67. VXLAN Encapsulated Task Offload Window

- 3. Select one of the following options:
 - Enabled Enables VXLAN Encapsulated Task Offload. This is the default setting.
 - Disabled Disables VXLAN Encapsulated Task Offload.
- 4. Click OK.

Chapter 4: Modifying Advanced Properties

Chapter 5 Uninstalling the Driver Software

This chapter describes how to uninstall driver software for the ANC10 Network Interface Card Series onto your Windows operating system. It contains the following topics:

- □ "Overview" on page 116
- □ "Uninstalling the Driver Software Using Device Manager" on page 117
- □ "Uninstalling the Driver Software Silently" on page 119

Overview

When you no longer use the ANC10Sa/2 or ANC10T/2 for your computer, you can uninstall the driver software from your operating system.

As you can install driver software for the network interface card using Device Manager or the silent installation method, you can also uninstall driver software in two ways:

- □ "Uninstalling the Driver Software Using Device Manager" on page 117
- □ "Uninstalling the Driver Software Silently" on page 119
- **Guidelines** Here are the guidelines for uninstalling the driver software from your system:
 - You must have Administrator privileges to remove the driver software.
 - Before uninstalling the network interface card, capture all of the Advanced Property settings for later use. The properties are lost during the uninstall process.

Uninstalling the Driver Software Using Device Manager

To uninstall the driver software from your operating system, do the following:

- 1. Start your Windows operating system and log in.
- 2. Access the Device Manager.

See "Accessing the Windows Device Manager" on page 43.

- 3. In the Device Manager window, expand the Network Adapters folder.
- 4. Right-click the Allied Telesis AT-ANC10Sa/2 (or AT-ANC10T/2) 10G Dual Port Adapter.

The shortcut menu appears as shown in Figure 68.



Figure 68. Device Manager Shortcut Menu

5. Select Uninstall device.

The Confirm Device Uninstall window pops up.



Figure 69. Deleting the Driver Software

- 6. Check the check box if you want to remove the driver software for your network interface card.
- 7. Click **Uninstall** to complete the uninstall.

Uninstalling the Driver Software Silently

You can apply the silent installation method to uninstall the driver.

To uninstall the driver without user-intervention, perform the following steps:

- 1. Open a command prompt window with administrator privileges.
- 2. Change the directory to the folder where the dpinst utility and the driver files reside.
- 3. Uninstall the driver silently by executing the following command:

```
> dpinst /U inf_file_name.inf /S
```

Note Replace *inf_file_name* with the name of .inf file.

The driver is uninstalled without user-intervention.

Chapter 5: Uninstalling the Driver Software

This appendix contains the following sections:

- □ "Physical Specifications" on page 121
- □ "Environmental Specifications" on page 122
- □ "Power Specifications" on page 122
- □ "Performance Specification" on page 122
- □ "Compliance Requirements" on page 123

Physical Specifications

Table 4 contains the dimensions and weight of the network interface card.

Network Interface Card	Dimensions (L X W)	Weight
ANC10Sa/2	160.0 mm (6.3 in) x 68.9 mm (2.7 in)	79.37 grams
ANC10T/2	160.0 mm (6.3 in) x 68.9 mm (2.7 in)	90.71 grams

Table 4. Physical Specifications

Environmental Specifications

Table 5 contains the environmental specifications of the network interface card.

Environmental Specification	Value
Operating Temperature	0° C to 35° C (32° F to 95° F)
Storage Temperature	-30° C to 70° C (-22° F to 158° F)
Operating Humidity	5% to 95% non-condensing
Storage Humidity	5% to 95% non-condensing
Maximum Operating Altitude	Up to 3,048 m (10,000 ft)
Maximum Storage Altitude	Up to 3,048 m (10,000 ft)

Table 5. Environmental Specifications

Power Specifications

Table 6 contains the power specifications of the network interface card.

Operating Voltage	12V	
Maximum Power	ANC10Sa/2	15W @ 35° C (95° F)
Consumption	ANC10T/2	25W @ 35° C (95° F)
Typical Power	ANC10Sa/2	8W ^a
	ANC10T/2	12W

Table 6. Operating Voltages and Maximum Power Consumption

a. Power consumption with two AT-SP10SR SFP+ modules installed. Refer to the SFP data sheet for power figures.

Performance Specification

The network interface card is x8 PCIe 3.0 compliant.

Compliance Requirements

Table 7 contains the specifications of the compliance requirements.

ltem	Specification
Safety	UL62368-1 (_C UL _U S)
	CSA C22.2 No. 62368-1
	EN62368-1 (TUV)
Emissions (EMI)	FCC Part 15
	EN55032 Class B
	VCCI, Class B
	ICES-003
Immunity	EN55035
	EN 61000-3-2
	EN 61000-3-3
Environmental	RoHS

Table 7. Compliance Requirements

Appendix A: Technical Specifications