NetVanta 3000 Series Routers
Hardware Installation Guide

1700600L2	NetVanta 3120 Unit
1700610L2	NetVanta 3130 Unit
1202860L1	NetVanta 3200 Unit
1202870L1	NetVanta 3205 Unit (AC Version)
1202980L1	NetVanta 3205 Unit (DC Version)
1202880L1	NetVanta 3305 Unit
1200820E1	NetVanta 3430 Unit
4200820E2	NetVanta 3430 with Enhanced Feature Pack Software (VPN Bundle)
1200821E1	NetVanta 3448 Unit
4200821E2	NetVanta 3448 with Enhanced Feature Pack Software (VPN Bundle)
1200861L1	NetVanta 56K/64K Network Interface Module
1202862L1	NetVanta T1/FT1 Network Interface Module
1200862L2#NEBS	NetVanta T1/FT1 NEBS Network Interface Module
1202863L1	NetVanta T1/FT1 + DSX-1 Network Interface Module
1200872L1	NetVanta Dual T1 Network Interface Module
1200868E1/L1	NetVanta E1/FE1 Network Interface Module
1200878E1/L1	NetVanta E1/FE1 + G.703 Network Interface Module
1200866E1/L1	NetVanta Serial Network Interface Module
1200867L1	NetVanta SHDSL Network Interface Module
1200869E1/L1	NetVanta ADSL Network Interface Module, Annex A
1200889E1/L1	NetVanta ADSL Network Interface Module, Annex B
1200864L1	NetVanta Analog Modem Dial Backup Interface Module
1200865L1	NetVanta ISDN BRI Dial Backup Interface Module
1200875L1	NetVanta ISDN S/T Dial Backup Interface Module
1200886L1	NetVanta Serial Dial Backup Interface Module
1950860L2	Enhanced Feature Pack Software for IPSec VPN for NetVanta 3200/3205/3305
4200368L1	Hardware and software (Enhanced Feature Pack) for IPSec VPN for NetVanta 3305
1200813E1, 814E1, 815E1	SODIMM, 256, 512, and 1024 MB, respectively (NetVanta 3430/3448 only)
1200816E1, 817E1, 818E1, 819E1	CompactFlash®, 128, 256, 512, and 1024 MB, respectively (NetVanta 3430/3448 only)
1200827E1	NetVanta 3430/3448 Rackmount kit

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July 2006

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To the Holder of the Manual

The contents of this manual are current as of the date of publication. ADTRAN reserves the right to change the contents without prior notice.

In no event will ADTRAN be liable for any special, incidental, or consequential damages or for commercial losses even if ADTRAN has been advised thereof as a result of issue of this publication.

Software Licensing Agreement

Each ADTRAN product contains a single license for ADTRAN supplied software. Pursuant to the Licensing Agreement, you may: (a) use the software on the purchased ADTRAN device only and (b) keep a copy of the software for backup purposes. This Agreement covers all software installed on the system as well as any software available on the ADTRAN website. In addition, certain ADTRAN systems may contain additional conditions for obtaining software upgrades.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

901 Explorer Boulevard
P.O. Box 140000
Huntsville, AL 35814-4000
Phone: (256) 963-8000

Conventions

Notes provide additional useful information.

Cautions signify information that could prevent service interruption or damage to equipment.

WARNING

Warnings provide information that could prevent injury or endangerment to human life.

Safety Instructions

When using your telephone equipment, please follow these basic safety precautions to reduce the risk of fire, electrical shock, or personal injury:

1. Do not use this product near water, such as a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless-type) during an electrical storm. There is a remote risk of shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord, power supply, and/or batteries indicated in the manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for special disposal instructions.
5. The socket-outlet shall be installed near the equipment and shall be easily accessible.

This equipment incorporates double pole/neutral fusing. If the neutral fuse opens and line fuse does not open, voltage could still be present in the unit.

Save These Important Safety Instructions

FCC-Required Information

FCC regulations require that the following information be provided in this manual:

1. This equipment complies with Part 68 of FCC rules and requirements adopted by ACTA. Each registered interface has a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, provide this information to the telephone company.
2. If this equipment causes harm to the telephone network, the telephone company may temporarily discontinue service. If possible, advance notification is given; otherwise, notification is given as soon as possible. The telephone company will advise the customer of the right to file a complaint with the FCC.
3. The telephone company may make changes in its facilities, equipment, operations, or procedures that could effect the proper operation of this equipment. Advance notification and the opportunity to maintain uninterrupted service are given.
4. If experiencing difficulty with this equipment, please contact ADTRAN for repair and warranty information. The telephone company may require this equipment to be disconnected from the network until the problem is corrected or it is certain the equipment is not malfunctioning.
5. This unit contains no user-serviceable parts.
6. This equipment is designed to connect to the telephone network or premises wiring using an FCC-compatible modular jack, which is compliant with Part 68 and requirements adopted by ACTA.
7. The following information may be required when applying to the local telephone company for leased line facilities:

Part Number	Registration Number	Service Type	REN/SOC	FIC	USOC
1200861L1	US:HDCDENAN1200861L1	56 Kbps Digital Interface 64 Kbps Digital Interface	6.0F	04DU5-56 04DU5-64	RJ-48S
1202862L1	US: HDCDENAN1202863L1	1.544 Mbps - SF 1.544 Mbps - SF and B8ZS 1.544 Mbps - ESF 1.544 Mbps - ESF and B8ZS	6.0N	04DU9-BN 04DU9-DN 04DU9-1KN 04DU9-1SN	RJ-48C
1202863L1					
1200872L1	US: HDCDENAN1200872L1				
1200864L1	US: HDCMM04A1200864L1	Analog Loop Start	0.4A/9.0Y	02LS2	RJ-11C
1200865L1	US: HDCDENAN1200865L1	Basic Rate ISDN	6.0F	02IS5	RJ-49C
1200869E1/L1	US: HDCDL01A1200869L1	ADSL, ADSL2, ADSL2+ Modem	0.1A	Metallic	RJ-11C
1700600L2	US: HDCMM01A1700600L2	Analog Loop Start	0.1A/9.0Y	02LS2	RJ-11C
1700610L2	US: HDCDL01A1700610L2	ADSL, ADSL2, ADSL2+ Modem	0.1A	Metallic	RJ-11C

8. The REN is useful in determining the quantity of devices you may connect to your telephone line and still have all of those devices ring when your number is called. In most areas, the sum of the RENs of all devices should not exceed five. To be certain of the number of devices you may connect to your line as determined by the REN, call your telephone company to determine the maximum REN for your calling area.
9. This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.

FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio frequencies. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Electromagnetic Compatibility (EMC) Table

NetVanta Module P/N and Name		NetVanta 3200 (1202860L1)	NetVanta 3430 (1200820E1) NetVanta 3448 (1200821E1) NetVanta 3205 AC (1202870L1) NetVanta 3205 DC (1202980L1)	NetVanta 3305 (1202880L1)
1200861L1	56K/64K NIM	FCC Part 15 Class A EN 55022 Class A	FCC Part 15 Class A EN 55022 Class A	FCC Part 15 Class A EN 55022 Class A
1202862L1	T1/FT1 NIM	FCC Part 15 Class B EN 55022 Class B	FCC Part 15 Class A EN 55022 Class A	FCC Part 15 Class A EN 55022 Class A
1200862L2#NEBS	T1/FT1 NEBS NIM	N/A	NetVanta 3205 AC: N/A NetVanta 3205 DC: FCC Part 15 Class A, EN 55022 Class A, GR-1089-CORE Sec. 2 and 3	N/A
1202863L1	T1/FT1 + DSX-1 NIM	FCC Part 15 Class B EN 55022 Class B	FCC Part 15 Class A EN 55022 Class A	FCC Part 15 Class A EN 55022 Class A
1200872L1	Dual T1 NIM	FCC Part 15 Class B EN 55022 Class B	FCC Part 15 Class A EN55022 Class A	FCC Part 15 Class A EN 55022 Class A
1200868E1/L1	E1/FE1 NIM	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200878E1/L1	E1/FE1 + G.703	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200866E1/L1	Serial NIM	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200867L1	SHDSL NIM	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200869E1/L1	ADSL NIM, Annex A	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200889E1/L1	ADSL NIM, Annex B	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1200864L1 1200865L1 1200875L1 1200886L1	Analog Modem DIM ISDN BRI DIM ISDN S/T DIM Serial DIM	FCC Part 15 Class B EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3
1202368L1	VPN Accelerator Card	N/A	N/A	FCC Part 15 Class A EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3

NOTE: *The NetVanta 3210 and NetVanta 3130 are FCC Part 15 Class A compliant only.*

Industry Canada Compliance Information

Notice: The Industry Canada label applied to the product (identified by the Industry Canada logo or the “IC:” in front of the certification/registration number) signifies that the Industry Canada technical specifications were met.

Notice: The Ringer Equivalence Number (REN) for this terminal equipment is supplied in the documentation or on the product labeling/markings. The REN assigned to each terminal device indicates the maximum number of terminals that can be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices should not exceed five (5).

Canadian Emissions Requirements

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioelectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le materiel brouilleur: “Appareils Numériques,” NMB-003 edictee par le ministre des Communications.

Warranty

ADTRAN will repair and return this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found in the *Support* section of the ADTRAN website at http://www.adtran.com.

Product Registration

Registering your product helps ensure complete customer satisfaction. Please take time to register your products in the *Support* section of the ADTRAN website at http://www.adtran.com

Product Support Information

A return material authorization (RMA) is required prior to returning equipment to ADTRAN. For service, RMA requests, training, or more information, use the contact information shown below.

Repair and Return

If you determine that a repair is needed, please contact our Customer and Product Service (CaPS) department to have an RMA number issued. CaPS should also be contacted to obtain information regarding equipment currently in house or possible fees associated with repair.

CaPS Department (256) 963-8722

Identify the RMA number clearly on the package (below the address), and return to the following address:

ADTRAN Customer and Product Service
901 Explorer Blvd. (East Tower)
Huntsville, Alabama 35806

RMA # _____

Pre-Sale Inquiries and Applications Support

Your reseller should serve as the first point of contact for support. If additional pre-sales support is needed, the ADTRAN Support website provides a variety of support services such as a searchable knowledge base, the latest product documentation, application briefs, case studies, and a link to submit a question to an Applications Engineer. All of this, and more, is available in the *Support* section of the ADTRAN website at http://www.adtran.com.

When needed, further pre-sales assistance is available by calling our Applications Engineering Department.

Applications Engineering (800) 615-1176

Post-Sale Support

Your reseller should serve as the first point of contact for support. If additional support is needed, the ADTRAN website provides a variety of support services such as a searchable knowledge base, updated firmware releases, latest product documentation, service request ticket generation and trouble-shooting tools. All of this, and more, is available in the *Support* section of the ADTRAN website at http://www.adtran.com.

When needed, further post-sales assistance is available by calling our Technical Support Center. Please have your unit serial number available when you call.

Technical Support	(888) 4ADTRAN
International Technical Support	1-256-963-8716

Installation and Maintenance Support

The ADTRAN Custom Extended Services (ACES) program offers multiple types and levels of installation and maintenance services which allow you to choose the kind of assistance you need. This support is available at:

http://www.adtran.com/aces

For questions, call the ACES Help Desk.

ACES Help Desk	(888) 874-ACES (2237)

Training

The Enterprise Network (EN) Technical Training Department offers training on our most popular products. These courses include overviews on product features and functions while covering applications of ADTRAN's product lines. ADTRAN provides a variety of training options, including customized training and courses taught at our facilities or at your site. For more information about training, please contact your Territory Manager or the Enterprise Training Coordinator.

Training Phone	(800) 615-1176, ext. 7500
Training Fax	(256) 963-6700
Training Email	training@adtran.com

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1. OVERVIEW

The NetVanta 3000 Series includes the NetVanta 3120, NetVanta 3130, NetVanta 3200, NetVanta 3205 (AC or DC powered), NetVanta 3305, NetVanta 3430, and NetVanta 3448.

This hardware installation guide describes these units, details basic functionality, gives installation instructions, and lists unit specifications. For more information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide*, also on the CD.

In this document, the term "NetVanta 3000" means all of the units collectively. If a statement only applies to one particular router, the text refers to the router individually.

NetVanta 3120

The NetVanta 3120 is a stand-alone Ethernet access router in a plastic housing and includes an integrated 10/100BaseT 4-port Ethernet Layer 2 IEEE 802.1q (VLAN) compatible switch with IP router and bridging capabilities. The unit offers a 10/100BaseT WAN/LAN port (**ETH 0/1**) which can connect to either a cable modem or an external ADSL modem in order to provide cable or ADSL services, respectively, out the 4-port switch. It also has an integrated analog modem for dial backup and management. The NetVanta 3120 includes IPSec VPN support (without further software upgrades). The unit is powered by a 12 VDC power supply (AC to DC power adapter included).

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For additional information, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3120 Features and Specifications

The NetVanta 3120 offers the following features:

- Fixed-port Ethernet router with integral 4-port Ethernet switch
- IP access router for DSL and cable networks
- Integrated analog modem for dial backup or remote management
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based eBGP/iBGP, OSPF, RIP, static routing and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attacks
- Includes IPSec VPN supporting DES/3DES/AES encryption
- Compatible with IPSec VPN-equipped devices

- Quality of Service (QoS) with low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing, and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT), 1:1 NAT port translation, and NAT Traversal version 2
- NAT-compliant SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- Flash memory supports dual images of AOS
- Remotely configurable and field upgradeable using TFTP or FTP
- Telnet, HTTP, SSH, or SNMP management options
- 1.63-inch H x 9.00-inch W x 6.38-inch D
- DC power (12 VDC, 800 mA, 7.5 W)

NetVanta 3120 Shipping Contents

Each NetVanta 3120 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Shipments of the NetVanta 3120 include the following items:

- NetVanta 3120 Base Unit
- *ADTRAN OS System Documentation* CD
- Quick Start Guide
- Warranty card
- External 12 VDC power supply
- Two 7-foot CAT5E cables

NetVanta 3120 Front Panel Design

The NetVanta 3120 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42.

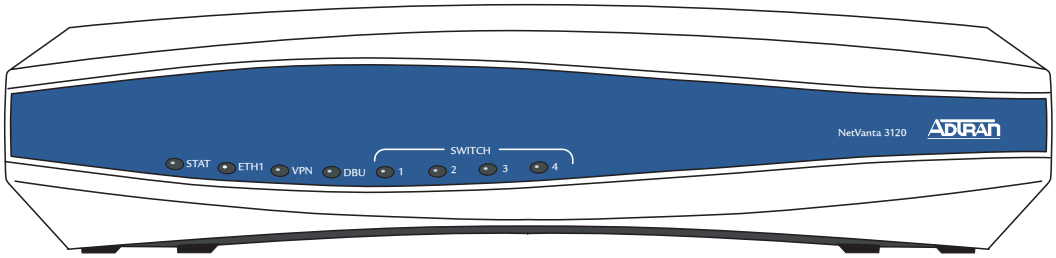

Figure 1. NetVanta 3120 Front Panel Layout

NetVanta 3120 Rear Panel Design

The NetVanta 3120 rear panel is shown below. Appendix A, on page 75, provides pinouts.

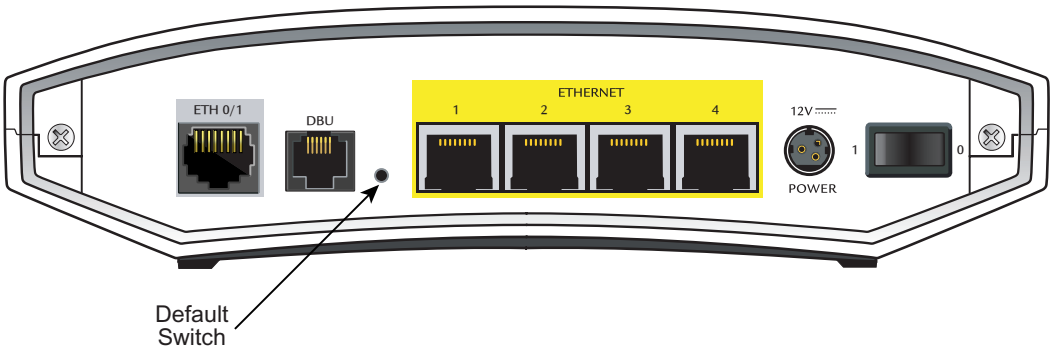

Figure 2. NetVanta 3120 Rear Panel Layout

NetVanta 3120 Rear Panel Interfaces

10/100BaseT Ethernet Interface

The Ethernet port (**ETH 0/1**) is an RJ-45 connector. See *Table A-1 on page 75* for the Ethernet port pinouts. The Ethernet port provides the following:

- 10BaseT or 100BaseT with a single connector
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility

DBU Interface

The NetVanta 3120 has a **DBU** port on the rear panel to provide analog, V.90 dial backup.

Factory Default Switch

The NetVanta 3120 has a factory default switch (labeled in Figure 2) on the rear of the unit. If the factory default switch is pressed during bootup, the unit will stay in bootstrap mode. Since the unit has no serial port, Telnet has been built into the boot code. The default IP address is 10.10.10.1.

> NOTE
> *The default switch must be pressed WHILE the **STAT** light is flashing green. Do not press the default switch BEFORE the **STAT** light is flashing green, as this will cause boot to be missed.*

If the factory default switch is pressed and held for 5 seconds after boot, the switch ports on the NetVanta 3120 will default to 10.10.10.1 and all access policies will be removed from those interfaces. If the factory default switch is pressed for 30 seconds, a default configuration will overwrite your existing configuration and reboot the unit.

4 Switch Port Interfaces

Ports 1 through 4 are RJ-45 connectors used to access the 10/100BaseT Ethernet switch.

Power Connection

The rear panel has a **12V** input for the DC power supply included in the shipment. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3130

The NetVanta 3130 is a single network port multi-service ADSL router targeted at branch office IP routing applications over ATM. It is a stand-alone unit in a plastic housing and includes an integrated 10/100BaseT 4-port Ethernet Layer 2 IEEE 802.1q (VLAN) compatible switch with IP router and bridging capabilities. The unit is powered by a 12 VDC power supply (AC to DC power adapter included). This router uses the most advanced DSL technology, ADSL2+, to provide more bandwidth and greater reach than ADSL or ADSL2. This unit also includes an integrated analog modem for dial backup. IPSec VPN support is included without further software upgrade.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For additional information, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3130 Features and Specifications

The NetVanta 3130 offers the following features:

- Fixed-port Ethernet router with integral 4-port Ethernet switch
- IP access router for ADSL, ADSL2, ADSL2+ networks
- One ADSL interface supporting ADSL2+ line rates up to 25 Mbps
- Supports ATM, PPP over ATM, and PPPoE over ATM
- Integrated analog modem for dial backup or remote management
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based eBGP/iBGP, OSPF, RIP, static routing and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attacks
- Includes IPSec VPN supporting DES/3DES/AES encryption
- Compatible with IPSec VPN-equipped devices
- Quality of Service (QoS) with low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing, and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT), 1:1 NAT port translation, and NAT Traversal version 2
- NAT-compliant SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- Flash memory supports multiple images of AOS
- Remotely configurable and field upgradeable using TFTP or FTP
- Telnet, HTTP, SSH, or SNMP management options
- 1.63-inch H x 9.00-inch W x 6.38-inch D
- DC power (12 VDC, 800 mA, 7.5 W)

NetVanta 3130 Shipping Contents

Each NetVanta 3130 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Shipments of the NetVanta 3130 include the following items:

- NetVanta 3130 Base Unit
- *ADTRAN OS System Documentation* CD
- Quick Start Guide
- Warranty card
- External 12 VDC power supply
- One 7-foot CAT5E cable
- One 7-foot phone cable

NetVanta 3130 Front Panel Design

The NetVanta 3130 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42.

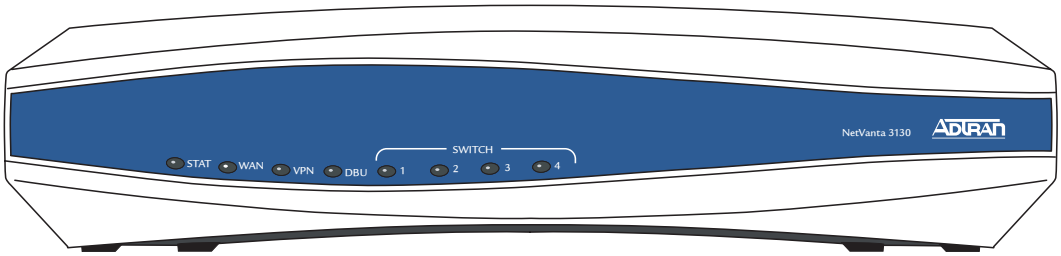

Figure 3. NetVanta 3130 Front Panel Layout

NetVanta 3130 Rear Panel Design

The NetVanta 3130 rear panel is shown below. Appendix A, on page 75, provides pinouts.

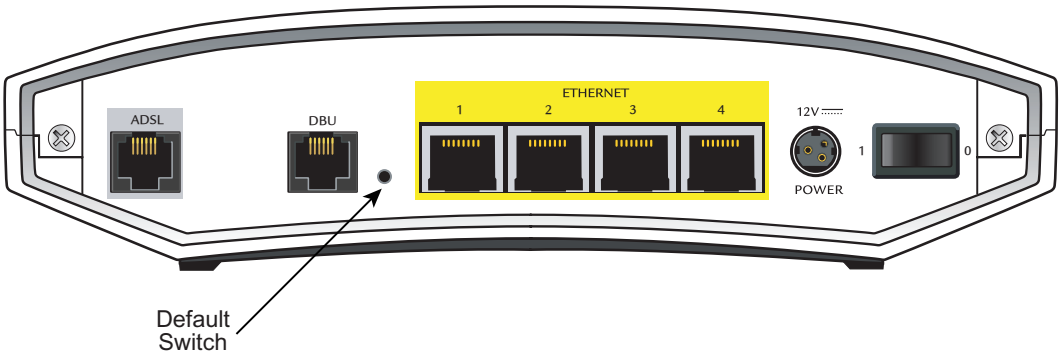

Figure 4. NetVanta 3130 Rear Panel Layout

NetVanta 3130 Rear Panel Interfaces

ADSL Interface

The NetVanta 3130 rear panel has an **ADSL** port to connect directly to ADSL, ADSL2, or ADSL2+ service.

DBU Interface

The NetVanta 3130 has a **DBU** port on the rear panel to provide analog, V.90 dial backup.

Factory Default Switch

The NetVanta 3130 has a factory default switch (labeled in Figure 4) on the rear of the unit. If the factory default switch is pressed during bootup, the unit will stay in bootstrap mode. Since the unit has no serial port, Telnet has been built into the boot code. The default IP address is 10.10.10.1.

> NOTE *The default switch must be pressed WHILE the **STAT** light is flashing green. Do not press the default switch BEFORE the **STAT** light is flashing green, as this will cause boot to be missed.*

If the factory default switch is pressed and held for 5 seconds after boot, the switch ports on the NetVanta 3130 will default to 10.10.10.1 and all access policies will be removed from those interfaces.

If the factory default switch is pressed for 30 seconds, a default configuration will overwrite your existing configuration and reboot the unit.

4 Switch Port Interfaces

Ports 1 through 4 are RJ-45 connectors used to access the 10/100BaseT Ethernet switch.

Power Connection

The rear panel has a **12V** input for the DC power supply included in the shipment. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3200

The NetVanta 3200 is a modular access router designed for cost-effective branch office connectivity over MPLS, Frame Relay, multilink Frame Relay, point-to-point (PPP), multilink PPP, or Ethernet networks.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For hardware installation topics such as mounting the unit and installing option cards, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3200 Features and Specifications

- Modular Network Interface: 56K/64K, T1/FT1, T1/FT1 NEBS, T1/FT1 + DSX-1, Dual T1, E1/FE1, E1/FE1 + G.703, serial, SHDSL, or ADSL interface
- One integrated 10/100BaseT Ethernet port (RJ-45)
- Modular IP access router for MPLS, Frame Relay, Multilink Frame Relay, PPP, Multilink PPP, PPPoE, ATM and HDLC networks
- Integrated IP router with bridging
- Optional IPSec VPN supporting DES/3DES/AES encryption
- Compatible with IPSec VPN-equipped devices
- IP encapsulation over Frame Relay (RFC1490)
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based eBGP/iBGP, OSPF, RIP, static routing and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attacks
- Quality of Service (QoS) with low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing, and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT), 1:1 NAT port translation, and NAT Traversal version 2
- NAT-compliant SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- Flash memory supports multiple images of AOS
- Remotely configurable and field upgradeable using TFTP or FTP
- Telnet, HTTP, SSH, or SNMP management options
- SNMP management
- n-Command network management
- Integrated EIA-232 DCE configuration port (DB-9)
- Optional dial backup (ISDN BRI DIM, ISDN S/T DIM, or analog modem DIM)
- Front panel LEDs
- Size: 9.3-inch W x 2.1-inch H x 6.1-inch D
- AC Power Requirements: 6 W max, 60 mA (regardless of configuration)

Network Interface Modules and Dial Backup Interface Modules Supported

The NetVanta 3200 supports a variety of interchangeable network interface modules (NIMs) and dial backup interface modules (DIMs). The NIMs available for the NetVanta 3200 provide a variety of WAN connectivity options including the following:

- 56K/64K (DDS)
- T1/FT1
- T1/FT1 + DSX-1
- Dual T1

- T1/FT1 NEBS
- E1/FE1
- E1/FE1 + G.703
- Serial (V.35/X.21/EIA 530)
- SHDSL
- ADSL, Annex A and Annex B

If needed, an analog modem, ISDN BRI (U and S/T) DIM, or Serial DIM can plug onto the NIM, providing dial backup capability. Refer to *Installing Dial Backup and Network Interface Modules* on page 68 for more details.

NetVanta 3200 Shipping Contents

Each NetVanta 3200 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Shipments of the NetVanta 3200 include the following items:

- NetVanta 3200 Base Unit
- *ADTRAN OS System Documentation* CD
- Quick Start Guide
- Warranty card
- AC power supply

System bundles are shipped with a base unit, a network interface module, and other appropriate contents based on the system-level solution ordered.

*Option module shipping contents are given in **Option Module Shipping Contents** on page 44.*

NetVanta 3200 Front Panel Design

The NetVanta 3200 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42.

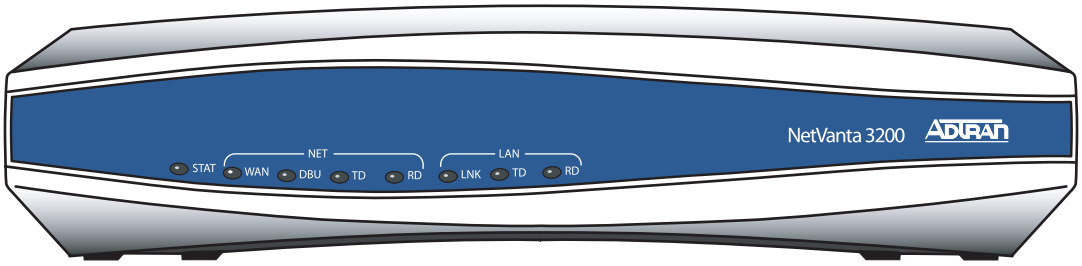

Figure 5. NetVanta 3200 Front Panel Layout

NetVanta 3200 Rear Panel Design

The NetVanta 3200 rear panel is shown below. Appendix A, on page 75, provides pinouts.

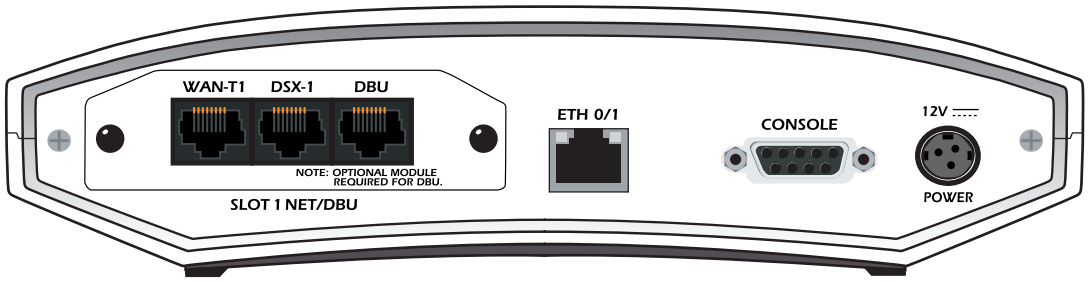

Figure 6. NetVanta 3200 Rear Panel Layout

NetVanta 3200 Rear Panel Interfaces and LEDs

SLOT 1 NET/DBU Option Slot

The **SLOT 1 NET/DBU** option slot supports various plug-in Network Interface Modules (NIMs). These option modules are described in the section *Option Modules* on page 43.

10/100BaseT Ethernet Interface and Activity LEDs

The Ethernet port (**ETH 0/1**) is an RJ-45 connector with LEDs. The amber activity LED flashes when data traffic is being sent or received on the Ethernet port. The green link LED is on when the router has a good connection to the LAN. The Ethernet port provides the following:

- 10BaseT or 100BaseT with a single connector
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector).

NOTE *Connection directly to an external modem requires a cross-over cable.*

Power Connection

The rear panel has a **12V** input for the power supply included in the shipment. Please refer to *Supplying Power to the Unit* on page 66.

NetVanta 3205

The NetVanta 3205 (AC or DC powered) is a modular access router designed for cost-effective branch office connectivity over MPLS, Frame Relay, multilink Frame Relay, point-to-point (PPP), multilink PPP, or Ethernet networks.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For hardware installation topics such as mounting the unit and installing option cards, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3205 Features and Specifications

- Modular Network Interface: 56K/64K, T1/FT1, T1/FT1 NEBS, T1/FT1 + DSX-1, Dual T1, E1/FE1, E1/FE1 + G.703, serial, SHDSL, or ADSL interface
- One integrated 10/100BaseT Ethernet port (RJ-45)
- Modular IP access routers for MPLS, Frame Relay, Multilink Frame Relay, PPP, Multilink PPP, PPPoE, ATM and HDLC networks
- Integrated IP router with bridging
- Optional IPSec VPN supporting DES/3DES/AES encryption
- IP encapsulation over Frame Relay (RFC1490)
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based eBGP/iBGP, OSPF, RIP, static routing and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attacks
- Quality of Service (QoS) with low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing, and DiffServ marking
- Built-in alert and logging mechanisms

- Network Address Translation (NAT/NAPT), 1:1 NAT port translation, and NAT Traversal version 2
- NAT-compliant SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- Flash memory supports multiple images of AOS
- Remotely configurable and field upgradeable using TFTP or FTP
- Telnet, HTTP, SSH, or SNMP management options
- SNMP management
- n-Command network management
- Integrated EIA-232 DCE configuration port (DB-9)
- Optional dial backup (ISDN BRI DIM, ISDN S/T DIM, or analog modem DIM)
- Front panel LEDs
- Size: 17.25-inch W x 1.26-inch H x 7.75-inch D
- AC Power Requirements: 6 W max, 60 mA (regardless of configuration)
- DC Power Requirements: 6 W max; +21 to +28.3 VDC (+24 VDC nominal); -40.5 to -64 VDC (-48 VDC nominal)

Network Interface Modules and Dial Backup Interface Modules Supported

The NetVanta 3205 supports a variety of interchangeable network interface modules (NIMs) and dial backup interface modules (DIMs). The NIMs available for the NetVanta 3205 (AC or DC powered) provide a variety of WAN connectivity options including the following:

- 56K/64K (DDS)
- T1/FT1
- T1/FT1 + DSX-1
- Dual T1
- T1/FT1 NEBS
- E1/FE1
- E1/FE1 + G.703
- Serial (V.35/X.21/EIA 530)
- SHDSL
- ADSL, Annex A and Annex B

If needed, an analog modem, ISDN BRI (U and S/T) DIM, or Serial DIM can plug onto the NIM, providing dial backup capability. Refer to *Installing Dial Backup and Network Interface Modules* on page 68 for more details.

NetVanta 3205 Shipping Contents

Each NetVanta 3205 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

NetVanta 3205 (AC version)
Shipments of the NetVanta 3205 (AC) include the following items:

- NetVanta 3205 (AC) base unit with attached mounting ears/screws
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card
- Detachable AC power cord

NetVanta 3205 (DC version)
Shipments of the NetVanta 3205 (DC) include the following items:

- NetVanta 3205 (DC) base unit with attached mounting ears
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card

> NOTE *System bundles are shipped with a base unit, a network interface module, and other appropriate contents based on the system-level solution ordered.*

> NOTE *Option module shipping contents are given in* ***Option Module Shipping Contents*** *on page 44.*

NetVanta 3205 Front Panel Design

The NetVanta 3205 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42.

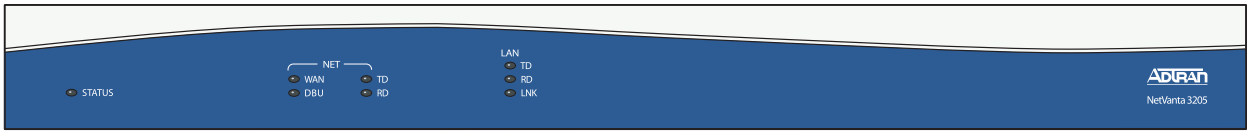

Figure 7. NetVanta 3205 Front Panel Layout

NetVanta 3205 Rear Panel Design

The NetVanta 3205 AC and DC version rear panels are shown below with a module installed. Appendix A, on page 75, provides pinouts.

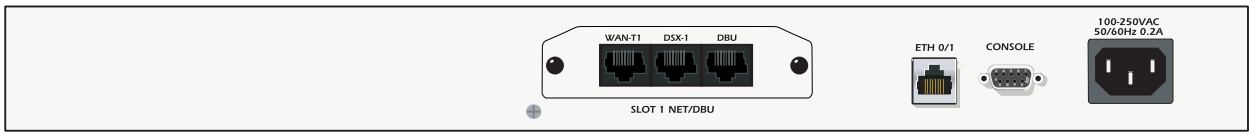

Figure 8. NetVanta 3205 (AC version) Rear Panel Layout

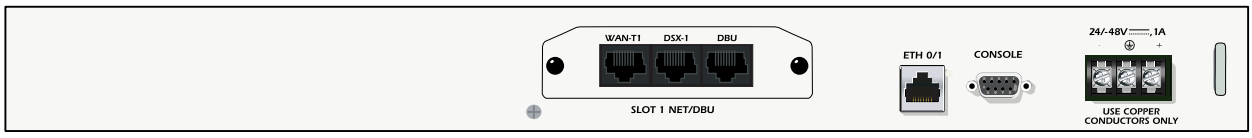

Figure 9. NetVanta 3205 (DC version) Rear Panel Layout

NetVanta 3205 Rear Panel Interfaces and LEDs

SLOT 1 NET/DBU Option Slot

The **SLOT 1 NET/DBU** option slot supports various NIM plug-in option modules. These option modules are described in the section *Option Modules* on page 43.

10/100BaseT Ethernet Interface and Activity LEDs

The Ethernet port (**ETH 0/1**) is an RJ-45 connector with LEDs. The amber activity LED flashes when data traffic is being sent or received on the Ethernet port. The green link LED is on when the router has a good connection to the LAN. The Ethernet port provides the following:

- 10BaseT or 100BaseT with a single connector
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector).

NOTE *Connection directly to an external modem requires a cross-over cable.*

Power Connection

The rear panel has a power input for connection to the power supply. Power supplies are shipped with final destinations in mind. For example, domestic routers are shipped with a wallmount supply and international routers are shipped with a universal input lump-in-line supply with the appropriate cables. All of the 1U-high products have universal power supplies and are shipped with the appropriate cable. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3305

The NetVanta 3305 is a modular access router designed for cost-effective branch office connectivity over MPLS, Frame Relay, multilink Frame Relay, point-to-point (PPP), multilink PPP, or Ethernet networks.

For VPN applications using the NetVanta 3305, the optional NetVanta VPN Accelerator Card provides encryption/decryption and security acceleration services. Refer to *Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)* on page 70.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For hardware installation topics such as mounting the unit and installing option cards, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68
- *Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)* on page 70

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3305 Features and Specifications

- Modular Network Interface: 56K/64K, T1/FT1, T1/FT1 NEBS, T1/FT1 + DSX-1, Dual T1, E1/FE1, E1/FE1 + G.703, serial, SHDSL, or ADSL interface
- Optional VPN Accelerator Card provides encryption/decryption and security acceleration services
- Two integrated 10/100BaseT Ethernet ports (RJ-45)
- Modular IP access routers for MPLS, Frame Relay, Multilink Frame Relay, PPP, Multilink PPP, PPPoE, ATM and HDLC networks
- Integrated IP router with bridging
- IP encapsulation over Frame Relay (RFC1490)
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based eBGP/iBGP, OSPF, RIP, static routing and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attacks
- Quality of Service (QoS) with low latency queuing (LLQ), weighted fair queuing (WFQ), class-based weighted fair queuing, and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT), 1:1 NAT port translation, and NAT Traversal version 2
- NAT-compliant SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- Flash memory supports multiple images of AOS
- Remotely configurable and field upgradeable using TFTP or FTP
- Telnet, HTTP, SSH, or SNMP management options

- SNMP management
- n-Command network management
- Integrated EIA-232 DCE configuration port (DB-9)
- Optional dial backup (ISDN BRI DIM, ISDN S/T DIM, or analog modem DIM)
- Front panel LEDs
- Size: 17.25-inch W x 1.26-inch H x 7.75-inch D
- AC Power Requirements: 6 W max, 60 mA (regardless of configuration)

Network Interface Modules and Dial Backup Interface Modules Supported

The NetVanta 3305 supports a variety of interchangeable network interface modules (NIMs) and dial backup interface modules (DIMs). The NIMs available for the NetVanta 3305 provide a variety of WAN connectivity options including the following:

- 56K/64K (DDS)
- T1/FT1
- T1/FT1 + DSX-1
- Dual T1
- T1/FT1 NEBS
- E1/FE1
- E1/FE1 + G.703
- Serial (V.35/X.21/EIA 530)
- SHDSL
- ADSL, Annex A and Annex B

If needed, an analog modem, ISDN BRI (U and S/T) DIM, or Serial DIM can plug onto the NIM, providing dial backup capability. Refer to *Installing Dial Backup and Network Interface Modules* on page 68 for more details.

NetVanta 3305 Shipping Contents

Each NetVanta 3305 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Shipments of the NetVanta 3305 include the following items:

- NetVanta 3305 base unit with attached mounting ears/screws
- *ADTRAN OS System Documentation* CD
- Quick Start Guide
- Warranty card
- Detachable AC power cord

> **NOTE** *System bundles are shipped with a base unit, a network interface module, and other appropriate contents based on the system-level solution ordered.*

> **NOTE** *Option module shipping contents are given in **Option Module Shipping Contents** on page 44.*

NetVanta 3305 Front Panel Design

The NetVanta 3305 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42.

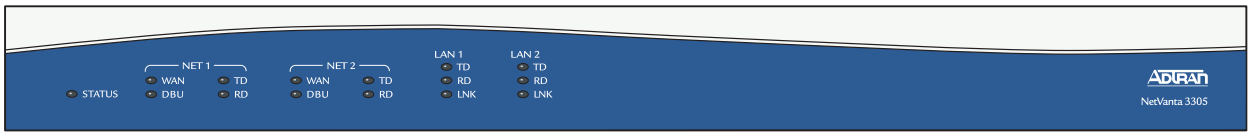

Figure 10. NetVanta 3305 Front Panel Layout

NetVanta 3305 Rear Panel Design

The NetVanta 3305 rear panel is shown below with modules installed. Appendix A, on page 75, provides pinouts.

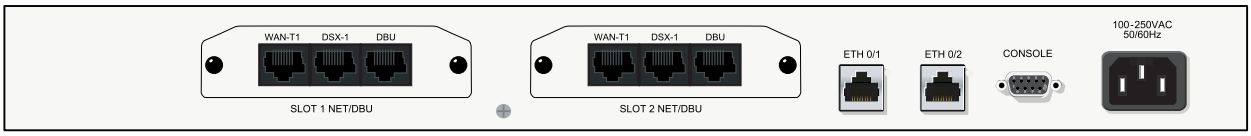

Figure 11. NetVanta 3305 Rear Panel Layout

NetVanta 3305 Rear Panel Interfaces and LEDs

NET/DBU Option Slots

The **SLOT x NET/DBU** option slots support various NIM plug-in option modules. These option modules are described in the section *Option Modules* on page 43.

10/100BaseT Ethernet Interface and Activity LEDs

The Ethernet ports (**ETH 0/1** and **ETH 0/2**) are RJ-45 connectors with LEDs. The amber activity LED flashes when data traffic is being sent or received on the Ethernet port. The green link LED is on when the router has a good connection to the LAN. The Ethernet port provides the following:

- 10BaseT or 100BaseT with a single connector
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector).

Connection directly to an external modem requires a cross-over cable.

Power Connection

The rear panel has a power input for connection to the power supply. Power supplies are shipped with final destinations in mind. For example, domestic routers are shipped with a wallmount supply and international routers are shipped with a universal input lump-in-line supply with the appropriate cables. All of the 1U-high products have universal power supplies and are shipped with the appropriate cable. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3430

The NetVanta 3430 is a high-performance, modular IP access router designed for cost-effective branch office connectivity over MPLS, Frame Relay, multilink Frame Relay, point-to-point (PPP), multilink PPP, or Ethernet networks.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For hardware installation topics such as mounting the unit, installing option cards, and installing the optional SODIMM, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68
- *Installing a SODIMM for Expandable Memory* on page 71

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3430 Features and Specifications

- Single-slot, dual-Ethernet modular IP router
- Modular IP access routers for MPLS, Frame Relay, Multilink Frame Relay, PPP, Multilink PPP, PPPoE, ATM and HDLC networks
- High performance processor
- Hardware encryption engine embedded
- On-board Flash memory
- Expandable DDR SDRAM via Small Outline Dual Inline Memory Module (SODIMM) (1 GB max.)
- Expandable Flash memory storage via a CompactFlash® (CF) card slot on the front panel
- Two integrated 10/100 BaseT WAN/LAN ports
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Standards-based BGP, OSPF, RIP, static routing, and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attempts
- Flash memory supports multiple images of AOS
- Interchangeable Network Interface Modules (NIMs)
- Modular Network Interface: 56k/64k DDS, T1/FT1, T1/FT1 + DSX-1, Dual T1, E1/FE1, E1/FE1 + G.703, or ADSL (Annex A or Annex B), SHDSL, or serial interface
- Dial backup to any PPP-compliant device
- Analog modem, ISDN BRI (U or S/T), or serial Dial Backup Interface Modules (DIMs) available
- 500 IPSec VPN tunnels (software optional) with DES, 3DES, and AES encryption
- Compatible with IPSec VPN-equipped devices
- Quality of Service (QoS) with class-based weighted fair queuing (CBWFQ), low latency queuing (LLQ), weighted fair queuing (WFQ), and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT) and NAT Traversal version 2
- NAT-compatible SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- TFTP, FTP, XMODEM for firmware upgrades and maintenance updates
- Telnet, HTTP, SSH, SSL, Syslog, craft/console port, or SNMP management options
- Field-upgradable and remotely configurable
- Supports up to two T1s of bandwidth
- 1U-high desktop or rackmountable metal enclosure (requires rackmount kit P/N 1200827E1, which must be ordered separately, for rack mounting)
- Size: 1.7-inch H x 11.7-inch W x 7.5-inch D
- AC Power Requirements: Auto-ranging power, 100 to 250 VAC, 50/60 Hz, 0.4A max
- RoHS compliant (Telecommunications exemption)

Network Interface Modules and Dial Backup Interface Modules Supported

The NetVanta 3430 supports a variety of interchangeable network interface modules (NIMs) and dial backup interface modules (DIMs). The NIMs available for the NetVanta 3430 provide a variety of WAN connectivity options including the following:

- 56K/64K (DDS)
- T1/FT1
- T1/FT1 + DSX-1
- Dual T1
- T1/FT1 NEBS
- E1/FE1
- E1/FE1 + G.703
- Serial (V.35/X.21/EIA 530)
- SHDSL
- ADSL, Annex A and Annex B

If needed, an analog modem, ISDN BRI (U and S/T) DIM, or Serial DIM can plug onto the NIM, providing dial backup capability. Refer to *Installing Dial Backup and Network Interface Modules* on page 68 for more details.

NetVanta 3430 Shipping Contents

Each NetVanta 3430 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Domestic Shipping Contents

Shipments of the NetVanta 3430 domestic units include the following items:

- NetVanta 3430 base unit
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card
- NetVanta 3000 Series support card
- 4 rubber mounting feet
- Power cord

International Shipping Contents

Shipments of the NetVanta 3430 international units include the following items:

- NetVanta 3430 base unit
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card
- 4 rubber mounting feet
- All necessary power cords

NOTE *Option module shipping contents are given in* ***Option Module Shipping Contents*** *on page 44.*

NOTE *A SODIMM can be ordered (P/N 1200813E1, 1200814E1, or 1200815E1 for 256, 512, or 1024 MB of memory, respectively), if desired.*

NetVanta 3430 Front Panel Design

The NetVanta 3430 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42. In addition to the LEDs, this front panel contains a **Compact Flash** slot for non-volatile configuration storage and compressed code storage. ADTRAN supports only ADTRAN-provided compact flash (16 MB to 1 GB) (see list of part numbers on front cover). See *Installing a CompactFlash Card* on page 73.

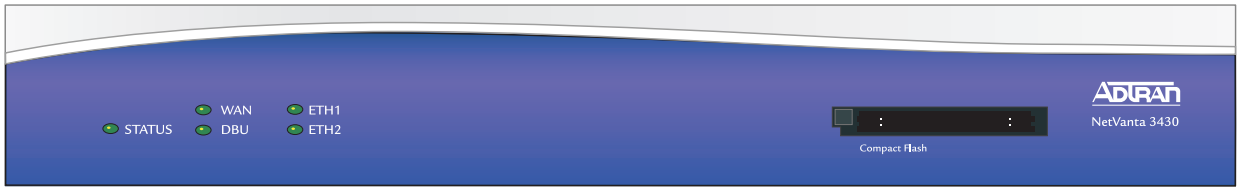

Figure 12. NetVanta 3430 Front Panel Layout

NetVanta 3430 Rear Panel Design

The NetVanta 3430 rear panel is shown below with a module installed. Appendix A, on page 75, provides pinouts.

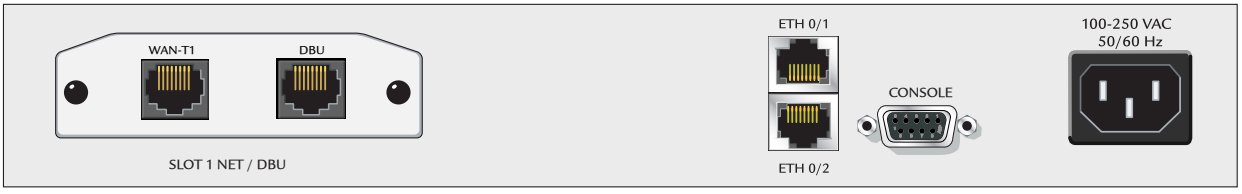

Figure 13. NetVanta 3430 Rear Panel Layout

NetVanta 3430 Rear Panel Interfaces

SLOT 1 NET/DBU Option Slot

The **SLOT 1 NET/DBU** option slot supports various NIM plug-in option modules. These option modules are described in the section *Option Modules* on page 43.

10/100BaseT Ethernet Interfaces

The Ethernet ports (**ETH 0/1** and **ETH0/2**) are RJ-45 connectors. These ports provide the following:

- 10BaseT or 100BaseT with a single connector
- Auto-negotiation
- CSMA/CD
- IEEE 802.3 compatibility

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector).

Connection directly to an external modem requires a cross-over cable.

Power Connection

All of the 1U-high products have universal power supplies and are shipped with the appropriate cable. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3448

The NetVanta 3448 is a high-performance modular access router designed for cost-effective branch office connectivity over MPLS, Frame Relay, multilink Frame Relay, point-to-point (PPP), multilink PPP, or Ethernet networks. It offers an integrated 8-port fully-managed Ethernet switch. The switch ports can optionally be equipped to provide (802.3af/Legacy) Power Over Ethernet capability.

This section includes a list of features, a list of shipping contents, and a description of the unit's front and rear panel designs. For hardware installation topics such as mounting the unit, installing option cards, and installing the optional SODIMM, refer to the following sections:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68
- *Installing a SODIMM for Expandable Memory* on page 71

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

NetVanta 3448 Features and Specifications

- Single-slot, dual-Ethernet modular IP router
- Modular Network Interface: 56k/64k DDS, T1/FT1, T1/FT1 + DSX-1, Dual T1, E1/FE1, E1/FE1 + G.703, or ADSL (Annex A or Annex B), SHDSL, or serial interface
- High performance processor
- Hardware encryption engine embedded
- On-board flash memory (32 MB)
- Expandable DDR SDRAM via Small Outline Dual Inline Memory Module (SODIMM) (1 GB max.)
- Expandable flash memory storage via a CompactFlash® (CF) card slot on the front panel
- Two integrated 10/100 BaseT WAN/LAN ports
- Integrated 8-port fully-managed Ethernet switch
- Switch ports can optionally be equipped to provide (802.3af/Legacy) Power Over Ethernet capability
- ADTRAN Operating System (AOS) Command Line Interface (CLI)
- User-friendly, web-based Graphical User Interface (GUI)
- Modular IP access routers for MPLS, Frame Relay, Multilink Frame Relay, PPP, Multilink PPP, PPPoE, ATM and HDLC networks
- Standards-based BGP, OSPF, RIP, static routing, and bridging protocols
- Integral stateful inspection firewall protects against Denial of Service (DoS) attempts
- Flash memory supports multiple images of AOS
- Interchangeable Network Interface Modules (NIMs)
- Dial backup to any PPP-compliant device
- Analog modem, ISDN BRI (U or S/T), or serial Dial Backup Interface Modules (DIMs) available
- 500 IPSec VPN tunnels (optional) with DES, 3DES, and AES encryption
- Compatible wit h IPSec VPN-equipped devices
- Quality of Service (QoS) with class-based weighted fair queuing (CBWFQ), low latency queuing (LLQ), weighted fair queuing (WFQ), and DiffServ marking
- Built-in alert and logging mechanisms
- Network Address Translation (NAT/NAPT) and NAT Traversal version 2
- NAT-compatible SIP ALG
- DHCP client, server, and relay
- XAUTH including RADIUS, RSA SecurID, and TACACS+
- TFTP, FTP, XMODEM for firmware upgrades and maintenance updates
- Telnet, HTTP, SSH, SSL, Syslog, craft/console port, or SNMP management options
- Field-upgradable and remotely configurable
- Supports up to two T1s of bandwidth
- 1U-high desktop or rackmountable metal enclosure (requires rackmount kit P/N 1200827E1, which must be ordered separately, for rack mounting)
- Size: 1.7-inch H x 11.7-inch W x 7.5-inch D
- AC Power Requirements: Auto-ranging power, 100 to 250 VAC, 50/60 Hz, 0.4A max
- RoHS compliant (Telecommunications exemption)

Network Interface Modules and Dial Backup Interface Modules Supported

The NetVanta 3448 supports a variety of interchangeable network interface modules (NIMs) and dial backup interface modules (DIMs). The NIMs available for the NetVanta 3448 provide a variety of WAN connectivity options including the following:

- 56K/64K (DDS)
- T1/FT1
- T1/FT1 + DSX-1
- Dual T1
- T1/FT1 NEBS
- E1/FE1
- E1/FE1 + G.703
- Serial (V.35/X.21/EIA 530)
- SHDSL
- ADSL, Annex A and Annex B

If needed, an analog modem, ISDN BRI (U and S/T) DIM, or Serial DIM can plug onto the NIM, providing dial backup capability. Refer to *Installing Dial Backup and Network Interface Modules* on page 68 for more details.

NetVanta 3448 Shipping Contents

Each NetVanta 3448 unit is shipped in its own cardboard shipping carton. Open each carton carefully, and avoid deep penetration into the carton with sharp objects.

After unpacking the unit, inspect it for possible shipping damage. If the equipment has been damaged in transit, immediately file a claim with the carrier and contact ADTRAN Customer Service (refer to *Repair and Return* on page 9).

Domestic Shipping Contents

Shipments of the NetVanta 3448 domestic units include the following items:

- NetVanta 3448 base unit
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card
- NetVanta 3000 Series support card
- 4 rubber mounting feet
- Power cord

International Shipping Contents

Shipments of the NetVanta 3448 international units include the following items:

- NetVanta 3448 base unit
- *ADTRAN OS System Documentation CD*
- *Quick Start Guide*
- Warranty card
- 4 rubber mounting feet
- All necessary power cords

> NOTE *Option module shipping contents are given in* ***Option Module Shipping Contents*** *on page 44.*

> NOTE *A SODIMM can be ordered (P/N 1200813E1, 1200814E1, or 1200815E1 for 256, 512, or 1024 MB of memory, respectively), if desired.*

NetVanta 3448 Front Panel Design

The NetVanta 3448 front panel is shown below. Front panel LED descriptions are given in Table 1 on page 42. In addition to the LEDs, this front panel contains a **Compact Flash** slot for non-volatile configuration storage and compressed code storage. ADTRAN supports only ADTRAN-provided compact flash (16 MB to 1 GB) (see list of part numbers on front cover). See *Installing a CompactFlash Card* on page 73.

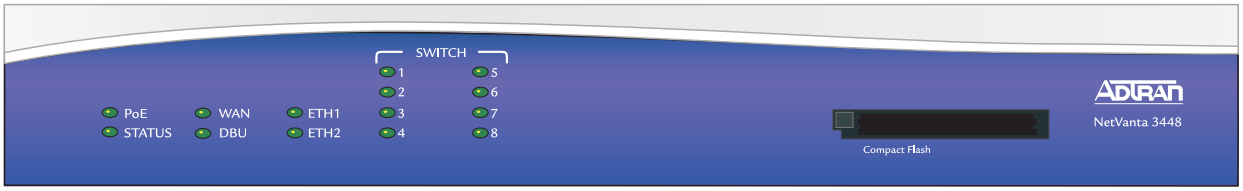

Figure 14. NetVanta 3448 Front Panel Layout

NetVanta 3448 Rear Panel Design

The NetVanta 3448 rear panel is shown below with a module installed. Appendix A, on page 75, provides pinouts.

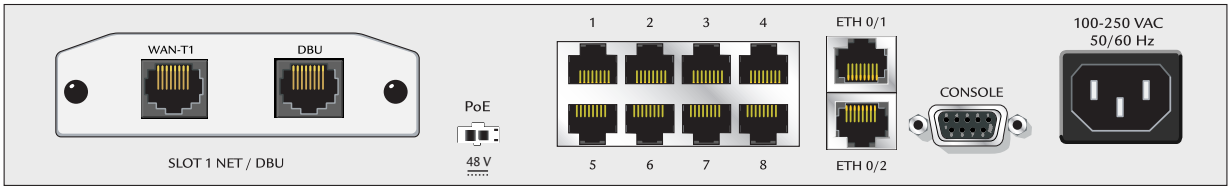

Figure 15. NetVanta 3448 Rear Panel Layout

NetVanta 3448 Rear Panel Interfaces

SLOT 1 NET/DBU Option Slot

The **SLOT 1 NET/DBU** option slot supports various NIM plug-in option modules. These option modules are described in the section *Option Modules* on page 43.

PoE (available Q4 2006)

The NetVanta 3448 has a 48 VDC port on the rear panel to provide the voltage required for Power over Ethernet (PoE) applications. Note that the NetVanta 3448 itself cannot be powered by this port.

8 Switch Port Interfaces

Ports 1 through 8 are RJ-45 connectors used to access the fully managed 10/100BaseT Ethernet switch.

10/100BaseT Ethernet Interfaces

The Ethernet ports (**ETH 0/1** and **ETH 0/2**) are RJ-45 connectors.

CONSOLE Interface

The **CONSOLE** interface is an EIA-232 serial port (DCE) which provides for local management and configuration (via a DB-9 female connector).

Connection directly to an external modem requires a cross-over cable.

Power Connection

All of the 1U-high products have universal power supplies and are shipped with the appropriate cable. Please refer to *Supplying Power to the Unit* on page 66 for connection details.

NetVanta 3000 Series Front Panel LEDs

Table 1 describes the front panel LEDs.

Table 1. NetVanta 3000 Series Front Panel LEDs

LED	Color	Indication
STATUS (STAT)	Green (flashing)	The unit is powering up. On power-up the **STAT** LED flashes rapidly for five seconds, during which time the user may escape to boot mode from the console port. (For the 3120 and 3130, you must press the factory default switch on the back of the unit while the **STAT** LED is flashing green to escape to boot mode. See *Factory Default Switch* on page 22 for more information.)
	Green (solid)	The power is on and self-test passed.
	Red (solid)	The power is on, but the self-test failed or the boot mode (if applicable) code could not be booted.
WAN	Off	No NIM is installed, or interface is administratively down.
	Green (solid)	The link is up and everything is operational.
	Green (flashing)	The port has activity. (3430/3448 only)
	Red (solid)	An alarm condition is occurring on the WAN interface, or there is a self-test failure.
	Amber (solid)	The unit is in test.
DBU	Off	No DIM is installed.
	Green (solid)	The DIM is ready. For the ISDN BRI DIM, green solid indicates that the negotiation with the switch is complete.
	Green (flashing)	The unit is in dial backup.
	Red (solid)	An alarm condition is occurring on the DBU interface, or there is a self-test failure.
	Amber (solid)	The unit is in test.
NET TD/RD (not present on all units)	Green (flashing)	There is activity on the WAN or DBU port.
	Off	There is no activity on the WAN or DBU port.
LAN TD/RD (not present on all units)	Green (flashing)	There is activity on the Ethernet port.
	Off	There is no activity on the Ethernet port.
LNK (not present on all units)	Green (solid)	The 10BaseT Ethernet link is up.
	Amber (solid)	The 100BaseT Ethernet link is up.
POE (3448 only)	Off	PoE card not installed, or no attached devices are being powered.
	Green (solid)	PoE card is actively powering an attached device.
	Red (solid)	PoE card has detected a fault condition on an attached device.
ETH1/ETH2 (not present on all units)	Off	The port is administratively disabled or does not have link.
	Green (solid)	The port is enabled and the link is up.
	Amber (flashing)	The port has activity (transmit or receive).
SWITCH (3120/ 3130/3448 only)	Off	The port is administratively disabled or does not have link.
	Green (solid)	The port is enabled and the link is up.
	Amber (flashing)	The port has activity (transmit or receive).
VPN (3120/3130 only)	Off	No encrypted traffic.
	On	Encrypted traffic present.

2. OPTION MODULES

The NetVanta 3000 Series (with the exception of the 3120 and 3130) accepts several option modules designed to meet a variety of networking requirements. The option modules are of two types: plug-in network interface modules (NIMs) and plug-on dial backup interface modules (DIMs).

NIMs are cards which plug directly into the option module slots (labeled **SLOT 1 NET/DBU** or **SLOT 2 NET/DBU**), located on the rear of the base unit. These cards provide the following types of interfaces:

- *NetVanta 56K/64K NIM (P/N 1200861L1)* on page 47
- *NetVanta T1/FT1 NIM (P/N 1202862L1)* on page 48
- *NetVanta T1/FT1 NEBS NIM (P/N 1200862L2#NEBS)* on page 49
- *NetVanta T1/FT1 + DSX-1 NIM (P/N 1202863L1)* on page 50
- *NetVanta Dual T1 NIM (P/N 1200872L1)* on page 51
- *NetVanta E1/FE1 NIM (P/N 1200868E1/L1)* on page 52
- *NetVanta E1/FE1 + G.703 NIM (P/N 1200878E1/L1)* on page 53
- *NetVanta Serial NIM (P/N 1200866E1/L1)* on page 54
- *NetVanta SHDSL NIM (P/N 1200867L1)* on page 55
- *NetVanta ADSL NIM, Annex A (P/N 1200869E1/L1)* on page 56
- *NetVanta ADSL NIM, Annex B (P/N 1200889E1/L1)* on page 57

DIMs are plug-on cards which plug directly on to the NIM prior to installation into the base unit. A DIM must be plugged on to a NIM in order for the **DBU** port on the NIM to be active. The NetVanta 3000 Series supports three DIMs (only one DIM per slot may be installed):

- *NetVanta Analog Modem DIM (P/N 1200864L1)* on page 58
- *NetVanta ISDN BRI DIM (P/N 1200865L1)* on page 59
- *NetVanta ISDN S/T DIM (P/N 1200875L1)* on page 60
- *NetVanta Serial DIM (P/N 1200886L1)* on page 61

This section describes each module, providing individual card shipping contents, specifications, and features. Refer to *Connector Pin Definitions* on page 75 for pinout information. *Installing Dial Backup and Network Interface Modules* on page 68 provides information on installating the modules.

Option Module Shipping Contents

NetVanta 56K/64K NIM (1200861L1)
Shipments of the 56K/64K NIM include the following items:

- 56K/64K Network Interface Module
- *Quick Start Guide*
- 6-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3127004)

NetVanta T1/FT1 NIM (61202862L1)
Shipments of the T1/FT1 NIM include the following items:

- T1/FT1 Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta T1/FT1 NEBS NIM (1200862L2#NEBS)
Shipments of the T1/FT1 NEBS NIM include the following items:

- T1/FT1 NEBS Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta T1/FT1 + DSX-1 NIM (61202863L1)
Shipments of the T1/FT1 + DSX-1 NIM include the following items:

- T1/FT1 + DSX-1 Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta Dual T1 NIM (1200872L1)
Shipments of the Dual T1 NIM include the following items:

- Dual T1 Network Interface Module
- *Quick Start Guide*
- Two 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta E1/FE1 NIM (1200868E1/L1)
Shipments of the E1/FE1 NIM include the following items:

- E1/FE1 Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta E1/FE1 + G.703 NIM (1200878E1/L1)
Shipments of the E1/FE1 + G.703 NIM include the following items:

- E1/FE1 + G.703 Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta Serial NIM (1200866E1/L1)
Shipments of the Serial NIM include the following items:

- Serial Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta SHDSL NIM (1200867L1)
Shipments of the SHDSL NIM include the following items:

- SHDSL Network Interface Module
- *Quick Start Guide*
- 15-foot RJ-45 to RJ-45 cable (ADTRAN P/N 3125M008@A)

NetVanta ADSL NIM, Annex A (1200869E1/L1)
Shipments of the ADSL NIM, Annex A, include the following items:

- ADSL Network Interface Module
- *Quick Start Guide*
- 7-foot RJ-11 to RJ-11 cable (ADTRAN P/N 3127014)

NetVanta ADSL NIM, Annex B (1200889E1/L1)
Shipments of the ADSL NIM, Annex B, include the following items:

- ADSL Network Interface Module
- *Quick Start Guide*
- 7-foot RJ-11 to RJ-11 cable (ADTRAN P/N 3127014)

NetVanta Analog Modem DIM (1200864L1)
Shipments of the Analog Modem DIM include the following items:

- Analog Modem Dial Backup Interface Module
- *Quick Start Guide*
- 7-foot RJ-45 to RJ-11 cable (ADTRAN P/N 3125M007@A)

NetVanta ISDN BRI DIM (1200865L1)
Shipments of the ISDN BRI DIM include the following items:

- ISDN BRI Dial Backup Interface Module
- *Quick Start Guide*
- 7-foot RJ-45 to RJ-11 cable (ADTRAN P/N 3125M007@A)

NetVanta ISDN S/T DIM (1200875L1)
Shipments of the ISDN S/T DIM include the following items:

- ISDN S/T Dial Backup Interface Module
- *Quick Start Guide*
- 7-foot RJ-45 to RJ-11 cable (ADTRAN P/N 3125M007@A)

NetVanta Serial DIM (1200886L1)

Shipments of the Serial DIM include the following items:

- Serial Dial Backup Interface Module
- *Quick Start Guide*
- 7-foot RJ-45 to RJ-11 cable (ADTRAN P/N 3125M007@A)

Option modules are intended to be serviced by qualified service personnel only.

System bundles are shipped with a base unit, a network interface module, and other appropriate contents based on the system-level solution ordered.

Network Interface Modules

NetVanta 56K/64K NIM (P/N 1200861L1)

The 56K/64K NIM (shown in Figure 16) provides a DDS WAN interface for the NetVanta 3000 Series. This module provides a single 56K or 64K DDS network interface. See Table A-6 on page 77 for the WAN-DDS connector pinouts, and see Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

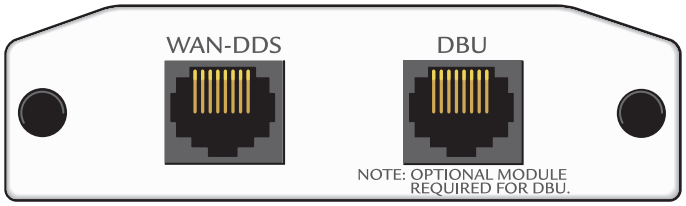

Figure 16. NetVanta 56K/64K NIM

Features and Specifications

Operating Modes
- Dedicated DDS (leased line)

DDS Interface
- Supported Standards: AT&T TR 62310
- 4-wire, full-duplex
- Receiver Sensitivity: -45 dB, all rates
- Data Rates: 56K, 64K, and auto
- Connector: RJ-48C

Clock Source
- Network
- Internal

Diagnostics
- CSU and DSU Loopbacks

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta T1/FT1 NIM (P/N 1202862L1)

The T1/FT1 NIM (shown in Figure 17) provides a T1 (full or fractional) WAN interface for the NetVanta 3000 Series. See Table A-7 on page 77 for the WAN-T1 connector pinouts, and Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

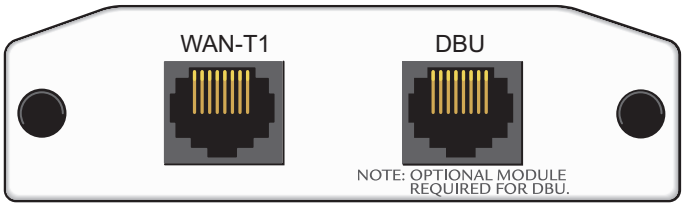

Figure 17. NetVanta T1/FT1 NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

T1/FT1 Interface
- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps ±75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

Clock Source
- Network
- Internal

Diagnostics
- Test Pattern Generation and Detection: 511, QRSS, all ones, all zeros
- Network loopbacks (local and remote); responds to both inband and FDL loop codes
- Alarm generation and detection
- Network and user sets of performance data (15 minutes and 24 hours)

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta T1/FT1 NEBS NIM (P/N 1200862L2#NEBS)

The T1/FT1 NEBS NIM (see Figure 18) provides a T1 (full or fractional) WAN interface for the NetVanta 3205 DC. The T1 NEBS NIM provides a full T1 or fractional T1 network interface. See Table A-7 on page 77 for the WAN-T1 connector pinouts.

> NOTE *The 1200862L2#NEBS is intended for use only with the Netvanta 3205 DC (P/N 1202980L1).*

Figure 18. NetVanta T1 NEBS NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

T1/FT1 Interface
- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps $\pm$ 75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

Clock Source
- Network
- Internal

Diagnostics
- Test Pattern Generation and Detection: QRSS, 511, 2^{15} - 1, 2^{20} - 1, all ones, all zeros
- Network loopbacks (local and remote); responds to inband and FDL loop codes
- Alarm generation and detection
- Network and user sets of performance data (15 minutes and 24 hours)

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- NEBS Level 3
- GR-63-CORE
- GR-1089-CORE
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta T1/FT1 + DSX-1 NIM (P/N 1202863L1)

The T1/FT1 + DSX-1 NIM (see Figure 19) provides a full T1 or fractional T1 network interface and a DSX-1 interface. See Table A-7 on page 77 for the WAN-T1 connector pinouts, Table A-9 on page 78 for the DSX-1 connector pinouts, and Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

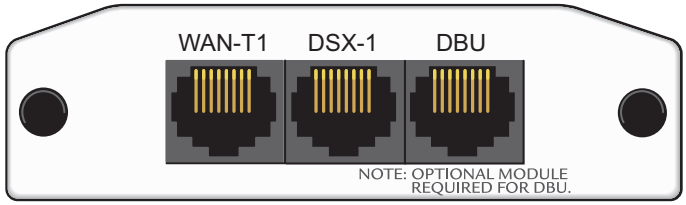

Figure 19. NetVanta T1/FT1 + DSX-1 NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

T1/FT1 Interface
- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps ±75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 56/64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

DSX-1 Interface
- Line Interface: DSX-1 per ANSI T1.102
- DSX Receiver Input Range: -10 dBdsx to +6 dBdsx
- Line Rate: 1.544 Mbps
- Capacity: 1 to 24 DS0s
- Line Codes: AMI, B8ZS
- DSX-1 Interface to PBX
- Framing: D4 (SF) or ESF
- Line Length: 0 to 655 feet and -7.5 dB
- Connector: RJ-48C

Clock Source
- Network
- Internal
- Through

Diagnostics
- Test Pattern Generation and Detection: 511, QRSS, all ones, all zeros
- Network loopbacks (local and remote); responds to inband and FDL loop codes (T1 interface only)
- Alarm generation and detection
- Network and user sets of performance data (15 minutes and 24 hours)

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta Dual T1 NIM (P/N 1200872L1)

The NetVanta Dual T1 NIM (see Figure 20) provides two WAN T1 interfaces for the NetVanta 3000 Series. The module provides up to 2.048 Mbps on each network interface. See Table A-7 on page 77 for the pinouts. See Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

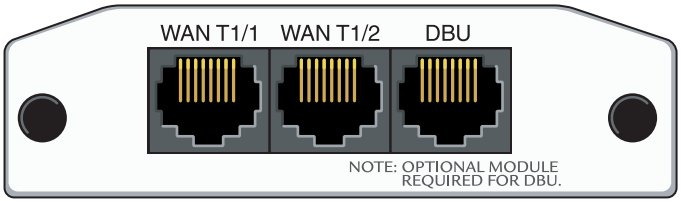

Figure 20. NetVanta Dual T1 NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

T1 Interface
- Supported Standards: AT&T TR 62411, AT&T TR 65016, ANSI T1.403, Bellcore TR 194
- Line Rate: 1.544 Mbps ±75 bps
- Line Code: AMI or B8ZS
- Framing: D4 (SF) or ESF
- FT1 Line Rate: DS0 channelized (multiples of 64 kbps)
- Input Signal: 0 to -36 dB (DS1)
- Line Build-Out: 0, -7.5, -15, -22.5 dB (long), 0 to 655 ft (short)
- DS0 Assignment: Programmable
- Connector: RJ-48C

Clock Source
- Network
- Internal
- Through

Diagnostics
- Test Pattern Generation and Detection: QRSS, 511, 2^{15} - 1, 2^{20} - 1, all ones, all zeros
- Network loopbacks (local and remote); responds to both inband and FDL loop codes
- Alarm generation detection
- Network performance data (15 minutes and 24 hours)

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta E1/FE1 NIM (P/N 1200868E1/L1)

The NetVanta E1/FE1 NIM (see Figure 21) provides a WAN-E1 interface for the NetVanta 3000 Series meeting the requirements of ITU-T G.703/G.704. The module provides a single 2.048 Mbps network interface. See Table A-8 on page 77 for the pinouts. See Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

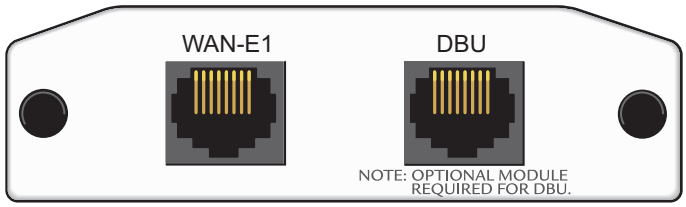

Figure 21. NetVanta E1/FE1 NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

WAN-E1 Interface
- Supported Standards: ITU G.703, ITU-T G.704 (CRC-4), ITU-T G.823, ITU-T G.797
- Line Rate: 2.048 Mbps ±50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- FE1 Line Rate: Channelized timeslot (in multiples of 64 kbps)
- Receiver Sensitivity: -30 dB
- Connector: RJ-48C

Clock Source
- Network
- Internal

Diagnostics
- Test Pattern Generation and Detection: QRSS, 511, all ones, all zeros
- Network loopbacks
- Network performance data (15 minutes and 24 hours)
- Alarm generation and detection

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- AS/ACIF S016
- ETSI TBR 12/TBR 13
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (1200868E1 only) (Telecommunications exemption)

Environmental
- Operating temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta E1/FE1 + G.703 NIM (P/N 1200878E1/L1)

The NetVanta E1/FE1 + G.703 NIM (see Figure 22) provides a single WAN-E1 interface (2.043 Mbps) with user-selectable TS0 assignment and a G.703 drop port which may be used to drop and insert traffic to an E1 PBX. See Table A-7 on page 49 for the WAN-E1 pinouts. See Table A-10 on page 78 for the G.703 pinouts. See Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

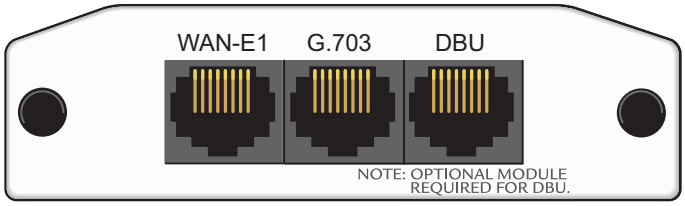

Figure 22. NetVanta E1/FE1 + G.703 NIM

Features and Specifications

Operating Modes
- Frame Relay, Multilink Frame Relay
- PPP, Multilink PPP
- HDLC

WAN-E1 Interface
- Supported Standards: ITU G.703, ITU-T G.704 (CRC-4), ITU-T G.823, ITU-T G.797
- Line Rate: 2.048 Mbps ±50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- FE1 Line Rate: Channelized timeslot (in multiples of 64 kbps)
- Receiver Sensitivity: -30 dB
- Connector: RJ-48C

G.703 Interface
- Receiver Sensitivity: -30 dB
- Line Rate: 2.048 Mbps ±50 PPM
- Line Code: AMI or HDB3
- Framing: FAS with optional CRC-4
- Capacity: 1 to 31 timeslots
- Connector: RJ-48C

Clock Source
- Network
- Internal
- Through

Diagnostics
- Test Pattern Generation and Detection: QRSS, 511, all ones, all zeros
- Network loopbacks
- Network performance data (15 minutes and 24 hours)
- Alarm generation and detection

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- AS/ACIF S016
- ETSI TBR 12/TBR 13
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (1200878E1 only) (Telecommunications exemption)

Environmental
- Operating temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta Serial NIM (P/N 1200866E1/L1)

The NetVanta Serial NIM (shown in Figure 23) can be configured by the user as a V.35, X.21 (V.11), or EIA 530 interface. This module supports rates up to a maximum of 10 Mbps. An additional V.35 (ADTRAN P/N 1200873L1), X.21 (ADTRAN P/N 1200874L1), or EIA 530 (ADTRAN P/N 1200883L1) cable is required (see *Caution*, below). See Table A-13 on page 79 for the **SERIAL** connector pinouts, and Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

CAUTION

Cable length for the Serial NIM should not exceed 25 feet.

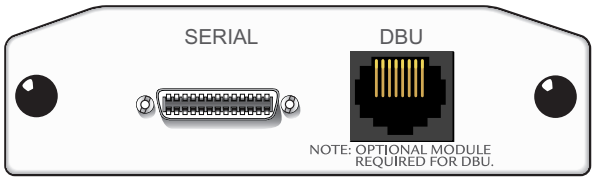

Figure 23. NetVanta Serial NIM

Features and Specifications

Operating Mode
- DTE only

Serial Interface
- Supported Standards: ISO 4903 (X.21), CCITT V.35 Synchronous (V.35), EIA 530 Synchronous
- Provides V.35, X.21 (V.11), or EIA 530 electrical interface
- Connector: 26-pin smart serial (DTE)

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ETSI TBR1
- ETSI TBR2
- EN 60950
- IEC 60950
- UL/CUL 60950
- AS/NZS 60950
- RoHS compliant (1200866E1 only) (Telecommunications exemption)

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta SHDSL NIM (P/N 1200867L1)

The NetVanta SHDSL NIM (shown in Figure 24) provides a WAN SHDSL interface for the NetVanta. See Table A-11 on page 78 for the SHDSL connector pinouts. See Table A-14 on page 80 for the DBU connector pinouts. An optional DIM is required for dial backup applications.

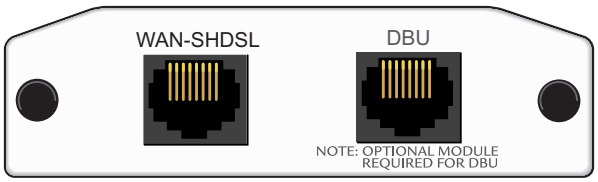

Figure 24. NetVanta SHDSL NIM

Features and Specifications

Operating Mode
- Line termination (CO)
- Network termination (CPE)

SHDSL Interface
- Supported Standards: ITU-T G.991.2 SHDSL
- Line Rate: 200 to 2312 kbps in 64k increments
- Line Code: TC-PAM
- Connector: RJ-45

Clock Source
- CPE Operating Mode: Network
- CO Operating Mode: Internal

Diagnostics
- Test Pattern Generation and Detection: $2^{15} - 1$
- Network loopbacks (local and remote)
- Alarm generation and detection
- Programmable alarm threshold setting for loop attenuation and signal-to-noise ratio

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7
- AS/ACIF S043
- EN 60950
- AS/NZS 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta ADSL NIM, Annex A (P/N 1200869E1/L1)

The NetVanta ADSL NIM, Annex A, (see Figure 25) adds ADSL capability to the NetVanta 3000 Series. The module provides a single ADSL, ADSL2, or ADSL2+ network interface to support rates up to 25 Mbps. See Table A-12 on page 79 for the pinouts. The ADSL NIM supports an optional DIM for dial backup applications. See Table A-14 on page 80 for the DBU connector pinouts.

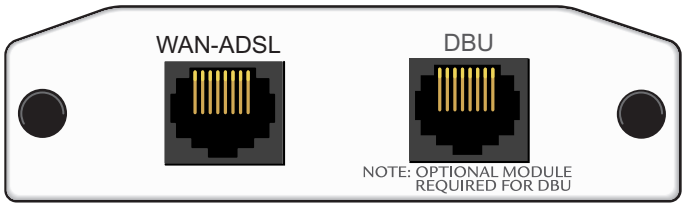

Figure 25. NetVanta ADSL NIM, Annex A

Features and Specifications

ADSL Interface
- ADSL over POTS, Annex A
- Supported Standards:
  - ITU G.992.1 (G.dmt)
  - ITU G.992.2 (G.lite)
  - ITU G.992.3 ADSL2 (G.dmt.bis)
  - ITU G.992.5 ADSL2+
  - ANSI T1.413 Issue 2
  - Reach Extended ADSL (READSL2)
- Connector: RJ-1C (6-pin jack, inner pair)

ATM
- Multiple Protocol over AAL5 (RFC2684)
- PPP over ATM (RFC2364)
- PPP over Ethernet (RFC2516)
- ATM Forum UNI 3.1/4.0 PVC
- ATM Class of Service (UBR)
- ATM F5 OAM
- Up to 16 Virtual Circuits

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7
- ACTA/FCC Part 68
- AS/ACIF S043
- AS/ACIF S002
- IC CS-03
- EN 60950
- IEC 60950
- UL/CUL 60950
- AS/NZS 60950
- RoHS compliant (1200869E1 only) (Telecommunications exemption)

Environmental
- Operating temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

NetVanta ADSL NIM, Annex B (P/N 1200889E1/L1)

The NetVanta ADSL NIM, Annex B, (see Figure 25) adds ADSL capability to the NetVanta 3000 Series. See Table A-12 on page 79 for the pinouts. The ADSL NIM supports an optional DIM for dial backup applications. See Table A-14 on page 80 for the DBU connector pinouts.

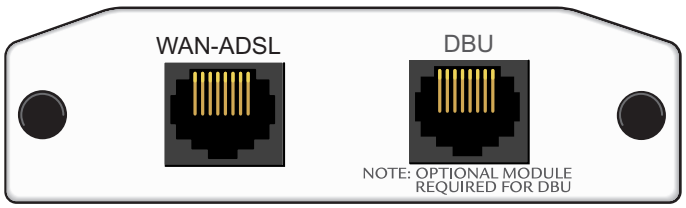

Figure 26. NetVanta ADSL NIM, Annex B

Features and Specifications

ADSL Interface
- ADSL over ISDN, Annex B
- Supported Standards: ITU G.992.1 (G.dmt)
- Connector: RJ-11C (6-pin jack, inner pair)

ATM
- Multiple Protocol over AAL5 (RFC2684)
- PPP over ATM (RFC2364)
- PPP over Ethernet (RFC2516)
- ATM Forum UNI 3.1/4.0 PVC
- ATM Class of Service (UBR)
- ATM F5 OAM
- Up to 16 virtual circuits

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7
- AS/ACIF S043
- EN 60950
- IEC 60950
- AS/NZS 60950
- RoHS compliant (1200889E1 only) (Telecommunications exemption)

Environmental
- Operating temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.75-inch W x 4.25-inch D

Dial Backup Interface Modules

NetVanta Analog Modem DIM (P/N 1200864L1)

The Analog Modem DIM provides a modem with data rates up to 33.6 kbps for the NetVanta 3000 Series. This DIM is a plug-on card that connects to the NIM. For installation instructions, refer to *Installing Dial Backup and Network Interface Modules* on page 68.

Features and Specifications

Features
- ITU V.90 compliant
- Async

Standards
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.5-inch W x 3.75-inch D

The Analog Modem DIM can be used in two different modes:
1. Backup interface for a primary connection.
2. CONSOLE port for remote dial-in access.

NetVanta ISDN BRI DIM (P/N 1200865L1)

The NetVanta ISDN BRI DIM provides dial backup access to the public switched telephone network (PSTN) via Basic Rate ISDN for the NetVanta 3000 Series. This DIM is a plug-on module that connects to the NIM. For installation instructions, refer to *Installing Dial Backup and Network Interface Modules* on page 68.

Features and Specifications

Features
- Clear Channel and bonding mode 1 call protocols
- Network support for 64 kbps (1 B-channel) or 128 kbps (2 B-channels)
- D-channel switch compatibility with AT&T 5ESS, Northern Telecom DMS-100, and National ISDN-1
- V.54 network loopback support

Standards
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- ACTA/FCC Part 68
- IC CS-03
- UL/CUL 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.5-inch W x 3.75-inch D

NetVanta ISDN S/T DIM (P/N 1200875L1)

The NetVanta ISDN S/T DIM provides dial backup access to the public switched telephone network (PSTN) via Basic Rate ISDN for the NetVanta 3000 Series. This DIM is a plug-on module that connects to the NIM. For installation instructions, see *Installing Dial Backup and Network Interface Modules* on page 68.

Features and Specifications

Features
- Clear channel and bonding mode 1 call protocols
- Network support for 64 kbps (1 B-channel) or 128 kbps (2 B-channels)
- D-channel switch compatibility with AT&T 5ESS, Northern Telecom DMS-100, National ISDN-1, and Euro-ISDN
- V.54 network loopback support

Standards
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- AS/ACIF S031
- ETSI TBR 3
- EN 60950
- IEC 60950
- AS/NZS 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.5-inch W x 3.75-inch D

NetVanta Serial DIM (P/N 1200886L1)

The NetVanta Serial DIM provides NetVanta products with the ability to interface with external devices (e.g., Code Division Multiple Access (CDMA) devices and wireless modems), allowing for dial backup access to the public switched telephone network (PSTN). This DIM is a plug-on module that connects to the NIM. For installation instructions, see *Installing Dial Backup and Network Interface Modules* on page 68.

> NOTE *An RJ-45 to DB-9 adapter cable (P/N 1200887L1) is required to conect to the external modem.*

Features and Specifications

Features
- 5-pin RS-232 interface vial host RJ-45 DBU connector
- Modem flow control support via CTS
- Communications with external model via AT commands

Compliance
- EMC - see *Electromagnetic Compatibility (EMC) Table* on page 7.
- IEC 60950
- EN 60950
- UL/CL 60950
- AS/NZS 60950

Environmental
- Operating Temperature: 0°C to 50°C
- Storage Temperature: -20°C to 70°C
- Relative Humidity: Up to 95 percent, noncondensing

Physical
- Dimensions: 2.3-inch W x 2.75-inch D

3. UNIT INSTALLATION

The instructions and guidelines provided in this section cover hardware installation topics such as wall mounting/rack mounting the unit and installing option cards. These instructions are presented as follows:

- *Mounting Options* on page 63
- *Supplying Power to the Unit* on page 66
- *Installing Dial Backup and Network Interface Modules* on page 68
- *Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)* on page 70
- *Installing a SODIMM for Expandable Memory* on page 71

For information on router configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

WARNING *To prevent electrical shock, do not install equipment in a wet location or during a lightning storm.*

CAUTION *Electronic modules can be damaged by static electrical discharge. Before handling modules, wear an antistatic discharge wrist strap to prevent damage to electrical components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.*

Tools Required

The customer-provided tools required for the hardware installation of the NetVanta 3000 Series are:

- Ethernet cable
- Network cable (module dependent)
- DSX-1 cable (T1/FT1 + DSX-1 module only)
- DBU cable (dial backup functions require an optional DIM)
- Phillips-head screwdriver (rack mounting applications only)

NOTE *To access the command line interface (CLI) of the NetVanta 3000 Series, you will also need a VT100 terminal or PC with terminal emulation software and a console port cable. Instructions on how to access the CLI are given in the* ***AOS Command Reference Guide*** *(provided on the* ***ADTRAN OS System Documentation CD****).*

NOTE *The rackmount kit for the NetVanta 3430 and NetVanta 3448 is not included in shipments of these products. You must order the rackmount kit separately:*

NetVanta 3430/3448 Series Rackmount Kit, part number 1200827E1

Mounting Options

The NetVanta 3120, NetVanta 3130, and NetVanta 3200 can be installed in a wallmount or tabletop configuration. The NetVanta 3205 and NetVanta 3305 can be installed in a tabletop, wallmount, or 19-inch rackmount configuration. The NetVanta 3430 and NetVanta 3448 can be installed in a tabletop or rackmount configuration.

For tabletop mounting, you can attach rubber mounting feet to the bottom of the unit if desired. The following sections provide step-by-step instructions for rack mounting and wall mounting.

If you have purchased P/N 4200368L1, which includes the VPN Accelerator Card with the NetVanta 3305, install the card before mounting the unit. See ***Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)*** *on page 70.*

Rack Mounting NetVanta 3000 Series

The NetVanta 3205, NetVanta 3305, NetVanta 3430, and NetVanta 3448 are 1U-high, rack-mountable units which can be installed into 19-inch equipment racks. Follow these steps to mount the NetVanta 3000 Series unit into a rack:

Instructions for Rack Mounting NetVanta	
Step	**Action**
1	To allow proper grounding, scrape the paint from the rack around the mounting holes where the NetVanta 3000 Series will be positioned.
2	Position the NetVanta 3000 Series in a stationary equipment rack. This unit occupies 1U of space.
3	Have an assistant hold the unit in position as you install two mounting bolts through the unit's brackets and into the equipment rack using a #2 phillips-head screwdriver.
4	Proceed to the steps given in *Supplying Power to the Unit* on page 66.

Be careful not to compromise the stability of the equipment mounting rack when installing this product.

The rackmount kit for the NetVanta 3430 and NetVanta 3448 is not included in shipments of these products. You must order the rackmount kit separately:

NetVanta 3430/3448 Series Rackmount Kit, part number 1200827E1

Wall Mounting NetVanta 3000 Series

NetVanta 3120, NetVanta 3130, and NetVanta 3200

Instructions for Wall Mounting NetVanta 3120/NetVanta 3130/NetVanta 3200	
Step	**Action**
1	Decide on a location for the unit. Keep in mind that the unit needs to be mounted at or below eye level so that the LEDs are viewable.
2	Prepare the mounting surface by attaching a board (typically plywood, 3/ 4-inch to 1-inch thick) to a wall stud. ***Important!*** *Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.*
3	Install two #8 PAN headscrews (1 1/ 2-inch or greater in length) wood screws into the mounted board, following these guidelines and referring to Figure 27. • Screws should be spaced horizontally, approximately 5 inches apart. Find exact positioning by using the location of the two keyed insets on the bottom of the unit as a guide. A mounting template that can be used as a guide is provided on the *ADTRAN OS System Documentation* CD. • Screws should be horizontally level with each other. • Leave approximately 1/4-inch of the screws protruding from the board to allow the heads of the screws to slide into place in the unit's keyed insets.
4	Slide the keyed insets on the bottom of the unit's chassis securely onto the screws.
5	Proceed to the steps given in *Supplying Power to the Unit* on page 66.

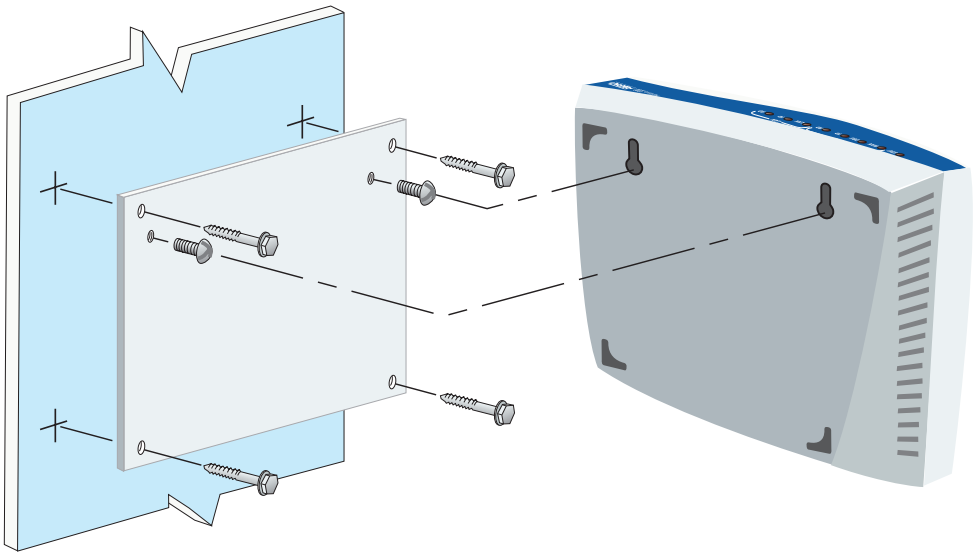

Figure 27. Wall Mounting the NetVanta 3120/3130/3200

NetVanta 3205 and NetVanta 3305

Instructions for Wall Mounting NetVanta 3205/NetVanta 3305	
Step	**Action**
1	Remove the mounting ears. Rotate them 90^{o} so that the portion of the bracket with the mounting holes is flush with the bottom of the chassis, and reattach them to the chassis (see Figure 28).
2	Decide on a location for the unit. Keep in mind that the unit needs to be mounted at or below eye level so that the LEDs are viewable. ***Important!*** *Mount the chassis with LEDs facing to the side as shown in* Figure 28 *(not facing up or down).*
3	Prepare the mounting surface by attaching a board (typically plywood, 3/ 4-inch to 1-inch thick) to a wall stud. ***Important!*** *Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.*
4	Have an assistant hold the unit in position as you install two #6 to #10 (1 1/ 2-inch or greater in length) wood screws through the unit's brackets and into the mounted board. See Figure 28.
5	Proceed to the steps given in *Supplying Power to the Unit* on page 66.

CAUTION

To avoid damaging unit, use only the screws included in shipment when attaching mounting ears to the chassis.

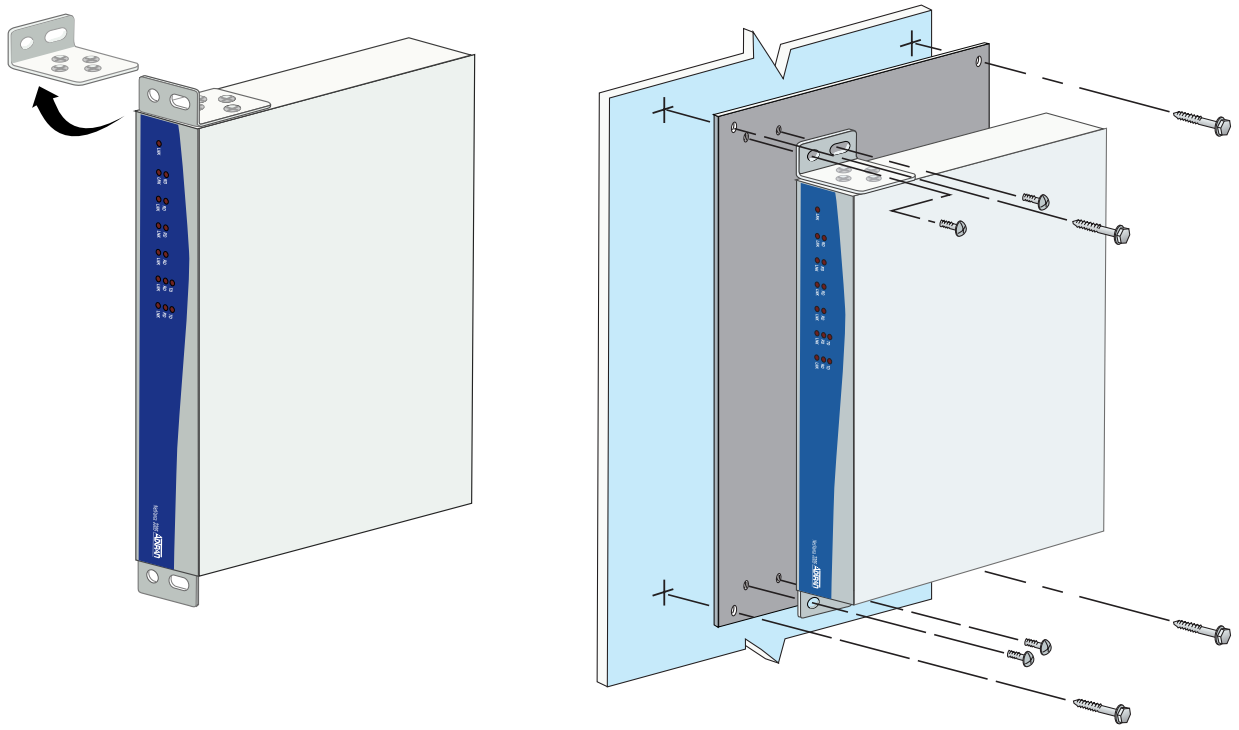

Figure 28. Repositioning the Mounting Bracket for Wall Mounting the NetVanta 3205/NetVanta 3305

Supplying Power to the Unit

As shipped, each NetVanta 3000 Series is set to factory default conditions. After installing the base unit and any option modules, the NetVanta 3000 Series is ready to be powered up. To power the unit, ensure that the unit is properly connected to an appropriate power source (as outlined in the sections which follow).

NetVanta 3120 and NetVanta 3130

The NetVanta 3120 and NetVanta 3130 come equipped with a 12 VDC power supply for connecting to the proper power receptacles.

NetVanta 3200

The AC-powered NetVanta 3200 comes equipped with the appropriate power supply for connecting to the proper power receptacles.

- *This unit shall be installed in accordance with Articles 300 and 400 of NEC NFPA 70.*
- *Maximum recommended ambient operating temperature is 50°C.*

NetVanta 3205 (AC), NetVanta 3305, NetVanta 3430, and NetVanta 3448

The AC-powered NetVanta 3205, NetVanta 3305, NetVanta 3430, and NetVanta 3448 come equipped with an auto-sensing 100 to 240 VAC, 50/60 Hz power supply for connecting to the proper power receptacle. A grounded, three-plug detachable cable is included with the shipment.

- *This unit shall be installed in accordance with Articles 300 and 400 of NEC NFPA 70.*
- *Power to the AC system must be from a grounded 100 to 250 VAC, 50/60 Hz source.*
- *Maximum recommended ambient operating temperature is 50°C.*

NetVanta 3205 (DC)

The DC-powered NetVanta 3205 connects to a centralized DC power source via the three-position terminal block on the rear of the chassis (see Figure 9 on page 29). Power and ground connections require copper conductors and ring lugs.

Instructions for Connecting DC Power Source to the NetVanta 3205	
Step	**Action**
For +24 VDC operation:	
1	Connect the negative terminal to ground.
2	Connect the positive terminal to the +24 VDC power source.
For -48 VDC operation:	
1	Connect the positive terminal to ground.
2	Connect the negative terminal to the -48 VDC power source.

- *Power to the NetVanta 3205 DC System must be from a reliably grounded +24 or -48 VDC source which is electrically isolated from the AC source.*
- *Use only copper conductors when making power connections.*
- *Install unit in accordance with Article 400 and 364.8 of NEC NFPA 70.*
- *The branch circuit overcurrent protection shall be a fuse or circuit breaker rated minimum 60 VDC, maximum 10 A.*
- *A readily accessible disconnect device, that is suitably approved and rated, shall be incorporated in the field wiring.*
- *Maximum recommended ambient operating temperature is 50°C.*

*The 10/100BaseT Ethernet interface **MUST NOT** be metallically connected to interfaces which connect to the Outside Plant or its wiring. This interface is designed for use as an intra-building interface only. The addition of primary protectors is not sufficient protection in order to connect this interface metallically to OSP wiring.*

*To comply with GR-1089-CORE, Issue 3, this equipment **MUST** only be installed in a DC-C (common) bonding and grounding environment. It may not be utilized in a DC-I (isolated) bonding and grounding environment.*

Installing Dial Backup and Network Interface Modules

The DIMs plug on to the NIMs. The NIMs are then installed in the rear panel option module slot. The following tables list the installation steps. Also see Figure 29 below and Figure 30 on page 69.

WARNING *For NetVanta modules with outside plant connections, ensure that all cables are removed from the module before installing or removing it from the NetVanta chassis.*

CAUTION *Always remove power from the unit prior to removing or installing a module.*

CAUTION *Improper installation may result in damage to the modules.*

Instructions for Installing the DIMs	
Step	**Action**
1	Remove power from the unit.
2	If the NIM is already in the NetVanta chassis, remove all cables, release the pins at both edges of the NIM front panel and slide the module out of the chassis.
3	Carefully align the P1 connector on the NIM with the J1 connector on the DIM. *Using only fingertip pressure* so that neither circuit board bends or flexes, ensure that the connectors are firmly seated. Secure the DIM to the NIM using the screws and standoff posts supplied. See Figure 29.
4	Slide the NIM with the DIM attached into the NetVanta chassis, continuing with the normal NIM installation (refer to *Instructions for Installing the NIMs* on page 69).

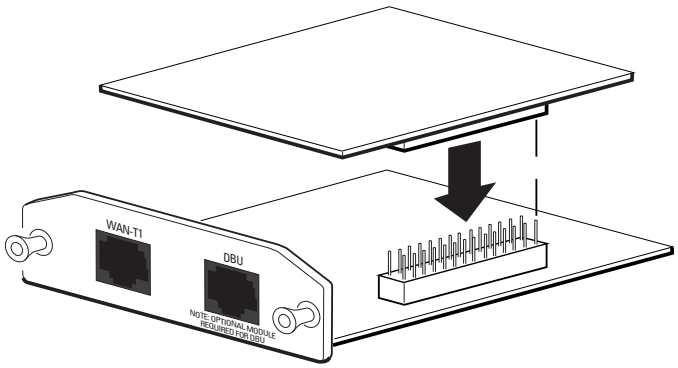

Figure 29. Installing DIMs

Instructions for Installing the NIMs	
Step	**Action**
1	Remove power from the unit.
2	Slide the option module into the option slot until the module is firmly seated against the chassis.
3	Secure the pins at both edges of the module.
4	Connect the cables to the associated device(s).
5	Restore power to the unit.

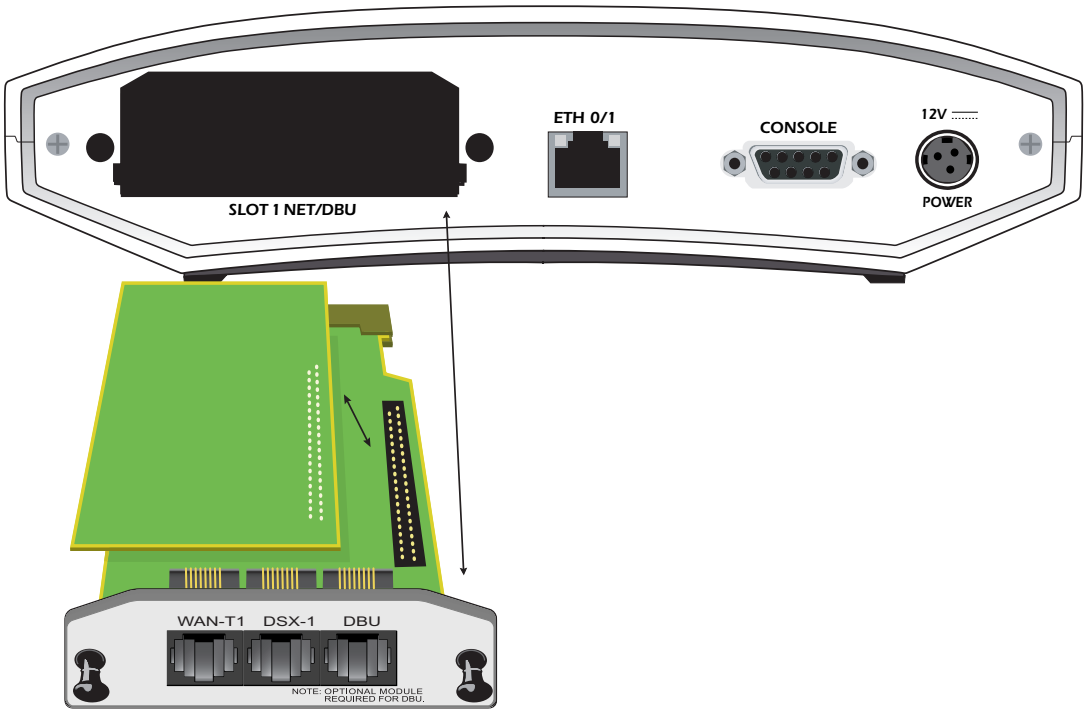

Figure 30. NIM and DIM Installation

Installing the NetVanta VPN Accelerator Card (included in P/N 4200368L1)

The optional VPN Accelerator Card plugs into a 32-bit PCI slot and is designed to be used in the NetVanta 3305 to provide encryption/decryption and security acceleration services. The card provides the following security services to the host processor: DES, triple-DES (3DES), AES, SHA-1, MD5, and random number generation. Performance metrics include 528 Mbps (DES), 176 Mbps (3DES), and 422 Mbps (AES). The power consumption of the card does not exceed 2 watts.

CAUTION

The Accelerator Card is intended to be installed only by qualified personnel.

Instructions for Installing the VPN Accelerator Card	
Step	**Action**
1	Remove power from the unit.
2	Remove the nine screws and, if necessary, two mounting brackets (see Figure 31).
3	Using a 3/16-inch hex driver, remove the two jack screws located on either side of the DB-9 port.
4	Carefully lift and remove the unit's cover to expose the circuit board.
5	Gently slide the accelerator card into the PC card slot as shown. The card is keyed to fit into the slot only one way. To avoid damaging the card pins, do not use excessive force.
6	Replace the unit cover, screws, and mounting brackets.
7	Restore power to the unit.

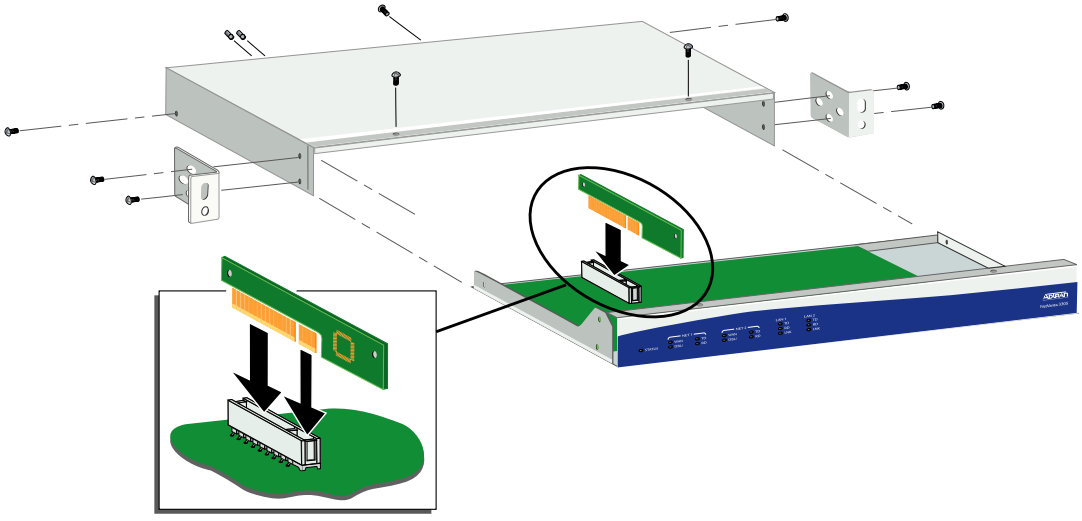

Figure 31. NetVanta VPN Card Installation

Installing a SODIMM for Expandable Memory

The SODIMM plugs into the memory slot and is designed to be used in the NetVanta 3430 and NetVanta 3448 to provide a maximum of 1 GB of DDR memory.

CAUTION *The SODIMM is intended to be installed only by qualified personnel.*

NOTE *Before touching electronic components, make sure you are properly grounded. By wearing a wrist strap (or using some other type of static control device), you can prevent static electricity stored on your body or clothing from damaging your installation.*

Instructions for Installing a SODIMM	
Step	**Action**
1	Remove power from the unit.
2	Remove the three screws holding the base unit and the cover together, and, if necessary, the two mounting brackets.
3	Using a 3/16-inch hex driver, remove the two jack screws located on either side of the DB-9 port.
4	Carefully lift and remove the unit's cover to expose the circuit board.
5	Once you have discharged your static electricity, pick up the SODIMM by its top or sides. Do not touch the gold contacts at the bottom.
6	Gently insert the module into the memory slot at a slight angle (approximately 30 degrees) as shown in Figure 32 on page 72. Note that the socket and module are both keyed, which means the module can be installed one way only.
7	To avoid damage, do not use excessive force. To seat the module into the socket, apply firm, even pressure to each end of the module (see the arrows in Figure 33 on page 72) until you feel it slip down into the socket. If you are having problems getting the module to seat properly, try rocking the module up and down slightly, while continuing to apply pressure. When properly seated, the contact fingers on the edge of the module will almost completely disappear inside the socket.
8	With the module properly seated in the socket, rotate the module downward, as indicated in Figure 34 on page 72. Continue pressing downward until the clips at each end of the socket lock into position. With most sockets, you will hear a distinctive CLICK, indicating the module is correctly locked into position.
9	Replace the unit cover, screws, and mounting brackets.
10	Restore power to the unit.

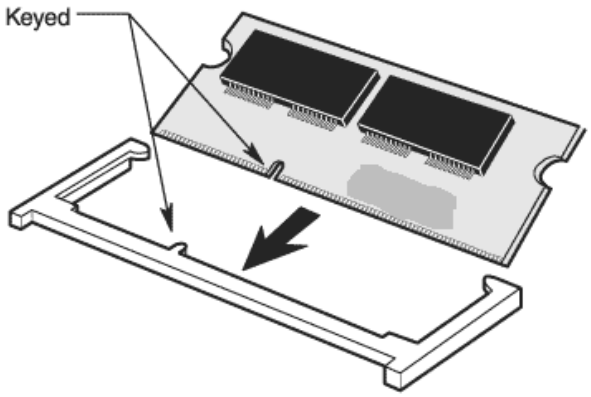

Figure 32. SODIMM Installation – Keyed Slots

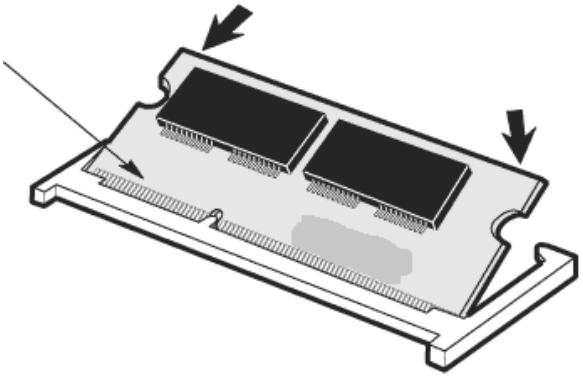

Figure 33. SODIMM Installation – Applying Pressure

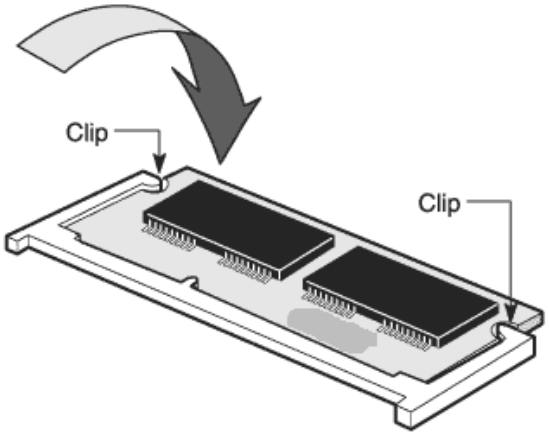

Figure 34. SODIMM Installation – Rotating the Module Downward

Installing a CompactFlash Card

The **Compact Flash** slot supports CompactFlash® cards (16 MB to 1 GB). ADTRAN supports only ADTRAN-provided compact flash (16 MB to 1GB) (see list of part numbers on front cover). Follow these instructions when installing a card.

The CompactFlash card is hot-swappable and can be inserted or removed while power is applied to the unit.

Instructions for Installing a CompactFlash Card	
Step	**Action**
1	Slide the module into the compact flash slot until the card is firmly seated against the chassis.
2	The compact flash options will now be available in the GUI and the AOS CLI.

For More Information

Your NetVanta 3000 Series is now ready to be configured and connected to the network. For more information on configuration for a specific application, refer to the quick configuration documents provided on your *ADTRAN OS System Documentation* CD. For details on the command line interface, refer to the *AOS Command Reference Guide* (also included on your CD).

APPENDIX A. CONNECTOR PIN DEFINITIONS

The following tables provide the pin assignments for the base units, network interface modules (NIMs), and dial backup interface modules (DIMs).

Base Unit Pinouts

Table A-1. 10/100BaseT Ethernet Port Pinouts

Pin	Name	Description
1	TX1	Transmit Positive (PoE negative rail, switch ports only)
2	TX2	Transmit Negative (PoE negative rail, switch ports only)
3	RX1	Receive Positive (PoE negative rail, switch ports only)
4, 5	—	Unused
6	RX2	Receive Negative (PoE negative rail, switch ports only)
7, 8	—	Unused

Table A-2. CONSOLE Port (DCE) Pinouts for NetVanta 3200, 3205, 3430, and 3448

Pin	Name	Description
1	DCD	Data Carrier Detect (output)
2	RD	Receive Data (output)
3	TD	Transmit Data (input)
4	DTR	Data Terminal Ready (input)
5	SG	Signal Ground
6	DSR	Data Set Ready (output) **Tied to pin 1**
7	—	Unused
8	CTS	Clear to Send (output) **Tied to pin 1**
9	—	Unused

Table A-3. CONSOLE Port (DCE) Pinouts, for NetVanta 3305

Pin	Name	Description
1	DCD	Data Carrier Detect (output)
2	RD	Receive Data (output)
3	TD	Transmit Data (input)
4	DTR	Data Terminal Ready (input)
5	SG	Signal Ground
6	DSR	Data Set Ready (output) **Tied to pin 1**
7	RTS	Request to Send (input)
8	CTS	Clear to Send (output) **Tied to pin 1**
9	RI	Ring Indicate (output)

NOTE *Connection directly to an external modem requires a cross-over cable.*

Table A-4. DC Power Supply Connection (NetVanta 3205 DC Version Only)

Pin	Name	+24 VDC Source	-48 VDC Source
1	+	+24 VDC	Ground (GND)
2	-	Ground (GND)	-48 VDC

Table A-5. ADSL Connector Pinouts

Pin	Name	Description
1,2	—	Unused
3	T	ADSL Tip
4	RT	ADSL Ring
5,6	—	Unused

Network Interface Module Pinouts

Table A-6. WAN-DDS Connector Pinouts

Pin	Name	Description
1	R1	Transmit data to the network–Ring 1
2	T1	Transmit data to the network–Tip 1
3-6	—	Unused
7	T	Receive data from the network–Tip
8	R	Receive data from the network–Ring

Table A-7. WAN-T1 Connector Pinouts

Pin	Name	Description
1	R1	Receive data from the network–Ring 1
2	T1	Receive data from the network–Tip 1
3	—	Unused
4	R	Transmit data toward the network–Ring
5	T	Transmit data toward the network–Tip
6-8	—	Unused

Table A-8. WAN-E1 Connector Pinouts

Pin	Name	Description
1	R1	Receive data from the network–Ring 1
2	T1	Receive data from the network–Tip 1
3	—	Unused
4	R	Transmit data toward the network–Ring
5	T	Transmit data toward the network–Tip
6-8	—	Unused

Table A-9. DSX-1 Connector Pinouts

Pin	Name	Description
1	R	Transmit data toward the DTE–Ring
2	T	Transmit data toward the DTE–Tip
3	—	Unused
4	R1	Receive data from the DTE–Ring 1
5	T1	Receive data from the DTE–Tip 1
6-8	—	Unused

Table A-10. G.703 Connector Pinouts

Pin	Name	Description
1	R	Transmit data toward the DTE–Ring
2	T	Transmit data toward the DTE–Tip
3	—	Unused
4	R1	Receive data from the DTE–Ring 1
5	T1	Receive data from the DTE–Tip 1
6-8	—	Unused

Table A-11. WAN-SHDSL Connector Pinouts

Pin	Name	Description
1-3	—	Unused
4	T	Transmit data toward the network–Tip
5	R	Transmit data toward the network–Ring
6-8	—	Unused

Table A-12. WAN-ADSL Connector Pinouts

Pin	Name	Description
1, 2	—	Unused
3	R	ADSL Ring
4	T	ADSL Tip
5, 6	—	Unused

Table A-13. Serial to Cable Connector Pinouts

Serial Pin	V.35 Pin	X.21 Pin	EIA 530 Pin	Name
1	P	2	2	TD_A
2	U	N/A	24	ETC_A
3	Y	N/A	15	TCLK_A
4	V	6	17	RCLK_A
5	R	4	3	RD_A
6	F	N/A	8	DCD_A
7	H	N/A	20	DTR_A
8	C	3	4	RTS_A
9	N/A	10	19	RTS_B (V.11 only)
10	N/A	12	13	CTS_B (V.11 only)
11	D	5	5	CTS_A
12	E	N/A	6	DSR_A
13	K	N/A	25	TM_A
14	S	9	14	TD_B
15	W	N/A	11	ETC_B
16	AA	N/A	12	TCLK_B
17	X	13	9	RCLK_B
18	T	11	16	RD_B
19-25	N/A	N/A	N/A	Unused
26	B	8	7	Ground

Dial Backup Interface Module Pinouts (DBU Connector)

NOTE *An optional DIM is required for dial backup applications.*

Table A-14. Analog Modem and ISDN BRI DBU Connector Pinouts

Pin	Name	Description
1-3	—	Unused
4	R	Network–Ring
5	T	Network–Tip
6-8	—	Unused

Table A-15. ISDN S/T DBU Connector Pinouts

Pin	Name	Description
1, 2	—	Unused
3	R1	Network Receive–Ring 1
4	R	Network Transmit–Ring
5	T	Network Transmit–Tip
6	T1	Network Transmit–Tip 1
7, 8	—	Unused

Table A-16. Serial DBU Connector Pinouts

Pin	Description
1, 2	Unused
3	CTS
4	TXD
5	RXD
6	GND
7	DCD
8	Unused

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