



## NetVanta 1500 Series Hardware Installation Guide

1700590G1	NetVanta 1534
1700591G1	NetVanta 1534 PoE
1700544G1	NetVanta 1544
1700545G1	NetVanta 1544P
1700546G1	NetVanta 1544F
1200480E1	1000Base-SX Multi-Mode SFP Module
1200481E1	1000Base-LX Single-Mode SFP Module
1200482G1	2.5 Gbps Multi-Mode SFP Module
1200483G1	2.5 Gbps Single-Mode SFP Module
1200484G1	1-meter SFP Stacking Cable
1200484G3	3-meter SFP Stacking Cable
1200485G1	1000Base-T RJ-45 SFP Module
1200816E1, 817E1, 818E1, 819E1	CompactFlash®, 128, 256, 512, and 1024 MB, respectively

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*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

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## Conventions

**NOTE**

*Notes provide additional useful information.*

**CAUTION**

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

If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your qualified service personnel:

1. The power cable, extension cable, or plug is damaged.
2. An object has fallen into the product.
3. The product has been exposed to water.
4. The product has been dropped or damaged.
5. The product does not operate correctly when you follow the operating instructions.



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



*These units contain no user-serviceable parts. They should only be serviced by qualified service personnel.*



*Additional safety guidelines, such as Waste Electrical and Electronic Equipment (WEEE), are given in the **NetVanta Safety and Regulatory Information** document on the **AOS Documentation CD**.*

## Save These Important Safety Instructions

## **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.

## **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 radioélectriques applicables aux appareils numériques de Class A prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par le ministre des Communications.

## **Service and Warranty**

For information on the service and warranty of ADTRAN products, visit the ADTRAN website at <http://www.adtran.com/support>.



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## 1. INTRODUCTION

The NetVanta 1500 Series Gigabit Switches include the NetVanta 1534, the NetVanta 1534 Power over Ethernet (PoE), the NetVanta 1544, the NetVanta 1544P, and the NetVanta 1544F.

This hardware installation guide lists the NetVanta 1500 Series units' specifications, describes the physical characteristics of the units, introduces basic functionality, and provides installation instructions.



*In this document, the term NetVanta 1500 means all of the units collectively. If a statement only applies to one particular switch, the text refers to that switch individually.*

## 2. PHYSICAL DESCRIPTIONS

### NetVanta 1534 Series

The NetVanta 1534 is a Layer 2 managed switch housed in a 1U-high rack-mountable metal enclosure that includes a universal AC power supply. The front panel contains 24 10/100/1000Base-T Ethernet interfaces that are accessed via standard RJ-45 connectors. Two industry standard small form-factor pluggable (SFP) slots (supporting industry standard SFP modules) are available for high-speed uplink via fiber or copper. The NetVanta 1534 Series has expandable memory via CompactFlash® and SODIMM slots. All NetVanta 1534 Series units run the ADTRAN Operating System (AOS), and are managed through an EIA-232 **CONSOLE** port (DB-9) located on the front panel, Telnet session, or Web-based graphical user interface (GUI). The NetVanta 1534 is RoHS compliant (telecommunications exemption).

### Power over Ethernet

The NetVanta 1534 PoE device provides the same basic functionality as the NetVanta 1534 product. PoE provides the ability to detect attached powered devices (PDs), and deliver 48 VDC to the PD via Ethernet cabling. The NetVanta 1534 PoE is fully compliant with the IEEE 802.3af PoE standard. By default, the PoE switch discovers and provides power to IEEE-compliant PDs. The NetVanta 1534 PoE also supports legacy PDs.

### SFP Module Slots

The NetVanta 1534 Series devices support two SFP slots that accept a number of industry standard SFP modules. The SFP modules provide Gigabit Ethernet fiber connectivity for high-speed uplinks or switch stacking. The following modules and cables are available for purchase:

- 1200480E1            1000Base-SX Multi-Mode SFP Module
- 1200481E1            1000Base-LX Single-Mode SFP Module
- 1200484G1            1-meter SFP Stacking Cable
- 1200484G3            3-meter SFP Stacking Cable
- 1200485G1            1000Base-T RJ-45 SFP Module

### **CompactFlash**

The NetVanta 1534's CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

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, supplying power to the unit, upgrading the SODIMM, and CompactFlash refer to the following sections:

- *Product Specifications* on page 24
- *Mounting Options* on page 26
- *Supplying Power to the Unit* on page 28
- *Upgrading the SODIMM for Expandable Memory* on page 29
- *Installing a CompactFlash Card* on page 31

For information on switch configuration for a specific application, refer to the configuration guides provided on the *AOS Documentation* CD shipped with your base unit. For details on the command line interface (CLI), refer to the *AOS Command Reference Guide* (also included on your CD).

### **NetVanta 1534 Shipping Contents**

Each NetVanta 1534 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 the *Repair and Replacement* section of the *Support* page on the ADTRAN website at <http://www.adtran.com/support>).

Domestic shipments of the NetVanta 1534 include the following items:

- NetVanta 1534 base unit
- A detachable power cable with a grounded, three-prong plug
- AOS documentation bundle

International shipments of the NetVanta 1534 include the following items:

- NetVanta 1534 base unit
- All necessary power cords
- AOS documentation bundle

## NetVanta 1534 Front Panel Design

The NetVanta 1534 front panel is shown below. *Table 1* on page 23 describes all of the LEDs, and *Appendix A* on page 33 shows the connector pinouts.

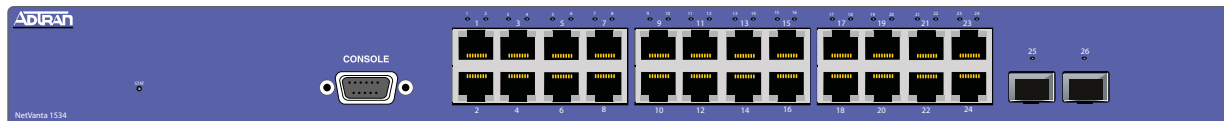


Figure 1. NetVanta 1534 Front Panel Layout

### NetVanta 1534 Front Panel Features

#### Status LED

The **STAT** LED is located on the left side of the unit and indicates the unit's status.

#### CONSOLE Interface

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



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

#### 10/100/1000Base-T Ethernet Interfaces

The NetVanta 1534 front panel contains 24 10/100/1000Base-T Ethernet interfaces (RJ-45). These interfaces are arranged in stacked pairs, with the numbers **1** through **24** screened from left to right directly above or below the corresponding port. Status LEDs for each stacked pair of interfaces are located directly over the interfaces.

#### SFP Slots

The NetVanta 1534 front panel contains two standard SFP slots for fiber connectivity. These interfaces are numbered **25** and **26** and their status LEDs are located directly under these numbers.

## NetVanta 1534 Rear Panel Design

The NetVanta 1534 rear panel is shown below.



Figure 2. NetVanta 1534 Rear Panel Layout

### NetVanta 1534 Rear Panel Interfaces

#### CompactFlash

The CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

### Power Connection

The rear panel has a power input to the AC universal power supply. Please refer to *Supplying Power to the Unit* on page 28 for connection details.

### NetVanta 1534 PoE Front Panel Design

The NetVanta 1534 PoE front panel is shown below. *Table 1* on page 23 describes all of the LEDs, and *Appendix A* on page 33 shows the connector pinouts.

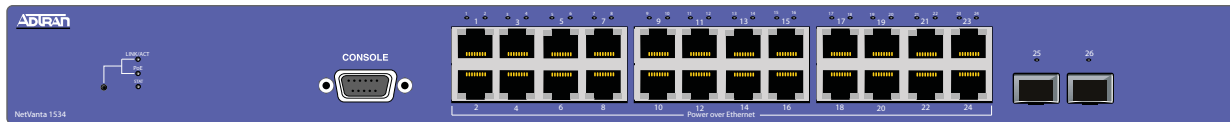


Figure 3. NetVanta 1534 PoE Front Panel Layout

### NetVanta 1534 PoE Front Panel Features

#### Status LED

The **STAT** LED is located on the left side of the unit and indicates the unit's status.

#### Mode Selector Button

The mode selector button is used to select the type of activity displayed on the LEDs labeled **1** through **24**. If **LINK/ACT** is selected, the LEDs display the link status/activity of the ports (ports **25** and **26** are always in link status/activity mode). If **PoE** is selected, the LEDs display the status of PDs connected to the ports.

#### CONSOLE Interface

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



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

#### 10/100/1000Base-T Ethernet Interfaces

The NetVanta 1534 PoE front panel contains 24 10/100/1000Base-T Ethernet interfaces (RJ-45). These interfaces are arranged in stacked pairs, with the numbers **1** through **24** screened from left to right directly above or below the corresponding port. Status LEDs for each stacked pair of interfaces are located directly over the interfaces.

#### SFP Slots

The NetVanta 1534 PoE front panel contains two standard SFP slots for fiber connectivity. These interfaces are numbered **25** and **26** and their status LEDs are located directly under these numbers.



## NetVanta 1534 PoE Rear Panel Design

The NetVanta 1534 PoE rear panel is shown below.

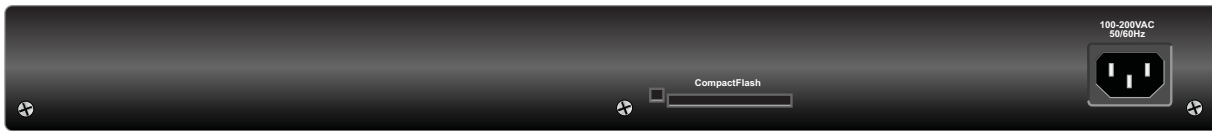


Figure 4. NetVanta 1534 PoE Rear Panel Layout

### NetVanta 1534 PoE Rear Panel Interfaces

#### CompactFlash

The CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

#### Power Connection

The rear panel has a power input to the AC universal power supply. Please refer to *Supplying Power to the Unit* on page 28 for connection details.

## NetVanta 1544 Series

The NetVanta 1544 Series are Layer 3 managed switches housed in a 1U-high rack-mountable metal enclosures that includes a universal AC power supply. The NetVanta 1544 and NetVanta 1544P front panels contain 10/100/1000Base-T Ethernet interfaces that are accessed via standard RJ-45 connectors. The NetVanta 1544F front panel contains 24 100/1000Base-X SFP interfaces that are accessed via fiber or copper using industry standard SFP modules. Four industry standard 1000/2500Base-X SFP slots (also supporting industry standard SFP modules) are available for high-speed uplink via fiber or copper. The NetVanta 1544 Series has expandable memory via CompactFlash and SODIMM slots. All NetVanta 1544 Series units run AOS, and are managed through an EIA-232 **CONSOLE** port (DB-9) located on the front panel, Telnet session, or GUI. The NetVanta 1544 is RoHS compliant (telecommunications exemption).

### Power over Ethernet

The NetVanta 1544P is a PoE device that provides the same basic functionality as the NetVanta 1544 product. PoE provides the ability to detect attached PDs, and deliver 48 VDC to the PD via Ethernet cabling. The NetVanta 1544P is fully compliant with the IEEE 802.3af PoE standard. By default, the PoE switch discovers and provides power to IEEE-compliant PDs. The NetVanta 1544P also supports legacy PDs.

### SFP Module Slots

The NetVanta 1544 Series have four 1000/2500Base-X SFP slots that accept a number of industry standard SFP modules. The NetVanta 1544F device supports 24 100/1000Base-X SFP interfaces. The SFP modules provide Gigabit or 2.5 Gbps Ethernet fiber connectivity for high-speed uplinks or switch stacking. The following modules and cables are available for purchase:

- 1200480E1      1000Base-SX Multi-Mode SFP Module
- 1200481E1      1000Base-LX Single-Mode SFP Module
- 1200482G1      2.5 Gbps Multi-Mode SFP Module
- 1200483G1      2.5 Gbps Single-Mode SFP Module
- 1200484G1      1-meter SFP Stacking Cable

- 1200484G3 3-meter SFP Stacking Cable
- 1200485G1 1000Base-T RJ-45 SFP Module

### **CompactFlash**

The NetVanta 1544's CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

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, supplying power to the unit, upgrading the SODIMM, and CompactFlash refer to the following sections:

- *Product Specifications* on page 24
- *Mounting Options* on page 26
- *Supplying Power to the Unit* on page 28
- *Upgrading the SODIMM for Expandable Memory* on page 29
- *Installing a CompactFlash Card* on page 31

For information on switch configuration for a specific application, refer to the configuration guides provided on the *AOS Documentation CD* shipped with your base unit. For details on the CLI, refer to the *AOS Command Reference Guide* (also included on your CD).

### **NetVanta 1544 Shipping Contents**

Each NetVanta 1544 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 the *Repair and Replacement* section of the *Support* page on the ADTRAN website at <http://www.adtran.com/support>).

Domestic shipments of the NetVanta 1544 include the following items:

- NetVanta 1544 base unit
- A detachable power cable with a grounded, three-prong plug
- AOS documentation bundle

International shipments of the NetVanta 1544 include the following items:

- NetVanta 1544 base unit
- All necessary power cords
- AOS documentation bundle

## NetVanta 1544 Front Panel Design

The NetVanta 1544 front panel is shown below. *Table 1* on page 23 describes all of the LEDs, and *Appendix A* on page 33 shows the connector pinouts.

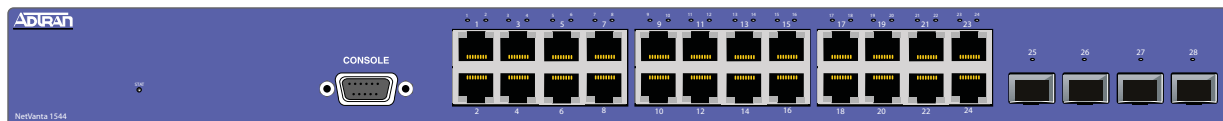


Figure 5. NetVanta 1544 Front Panel Layout

### NetVanta 1544 Front Panel Features

#### Status LED

The **STAT** LED is located on the left side of the unit and indicates the unit's status.

#### CONSOLE Interface

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



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

#### 10/100/1000Base-T Ethernet Interfaces

The NetVanta 1544 front panel contains 24 10/100/1000Base-T Ethernet interfaces (RJ-45). These interfaces are arranged in stacked pairs, with the numbers **1** through **24** screened from left to right directly above or below the corresponding port. Status LEDs for each stacked pair of interfaces are located directly over the interfaces.

#### SFP Slots

The NetVanta 1544 front panel contains four standard SFP slots for fiber connectivity. These interfaces are numbered **25** through **28** and their status LEDs are located directly under these numbers.

## NetVanta 1544 Rear Panel Design

The NetVanta 1544 rear panel is shown below.



Figure 6. NetVanta 1544 Rear Panel Layout

### NetVanta 1544 Rear Panel Interfaces

#### CompactFlash

The CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

## Power Connection

The rear panel has a power input to the AC universal power supply. Please refer to *Supplying Power to the Unit* on page 28 for connection details.

## NetVanta 1544P Front Panel Design

The NetVanta 1544P front panel is shown below. *Table 1* on page 23 describes all of the LEDs, and *Appendix A* on page 33 shows the connector pinouts.

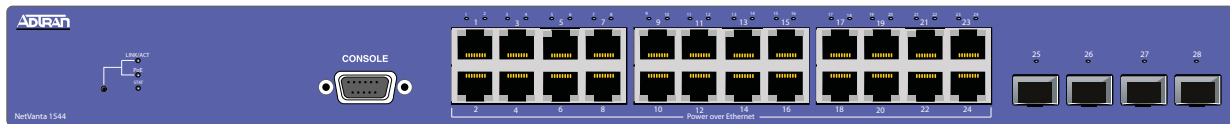


Figure 7. NetVanta 1544P Front Panel Layout

## NetVanta 1544P Front Panel Features

### Status LED

The **STAT** LED is located on the left side of the unit and indicates the unit's status.

### Mode Selector Button

The mode selector button is used to select the type of activity displayed on the LEDs labeled **1** through **24**. If **LINK/ACT** is selected, the LEDs display the link status/activity of the ports (ports **28** are always in link status/activity mode). If **PoE** is selected, the LEDs display the status of PDs connected to the ports.

### CONSOLE Interface

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



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

### 10/100/1000Base-T Ethernet Interfaces

The NetVanta 1544P front panel contains 24 10/100/1000Base-T Ethernet interfaces (RJ-45). These interfaces are arranged in stacked pairs, with the numbers **1** through **24** screened from left to right directly above or below the corresponding port. Status LEDs for each stacked pair of interfaces are located directly over the interfaces.

### SFP Slots

The NetVanta 1544P front panel contains four standard SFP slots for fiber connectivity. These interfaces are numbered **25** through **28** and their status LEDs are located directly under these numbers.

## NetVanta 1544P Rear Panel Design

The NetVanta 1544P rear panel is shown below.

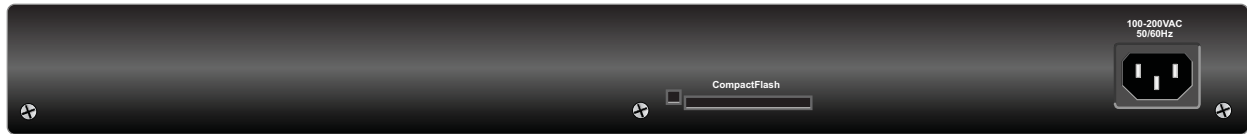


Figure 8. NetVanta 1544P Rear Panel Layout

### NetVanta 1544P Rear Panel Interfaces

#### CompactFlash

The CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

#### Power Connection

The rear panel has a power input to the AC universal power supply. Please refer to *Supplying Power to the Unit* on page 28 for connection details.

## NetVanta 1544F Front Panel Design

The NetVanta 1544F front panel is shown below. *Table 1* on page 23 describes all of the LEDs, and *Appendix A* on page 33 shows the connector pinouts.

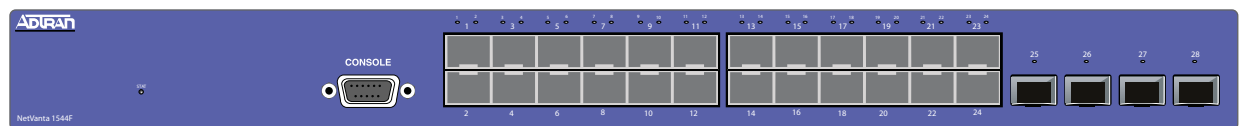


Figure 9. NetVanta 1544F Front Panel Layout

### NetVanta 1544F Front Panel Features

#### Status LED

The **STAT** LED is located on the left side of the unit and indicates the unit's status.

#### CONSOLE Interface

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



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

#### 100/1000Base-X SFP Interfaces

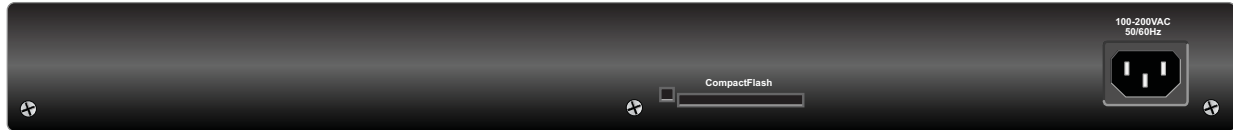
The NetVanta 1544F front panel contains 24 100/1000Base-X SFP interfaces. These interfaces are arranged in stacked pairs, with the numbers **1** through **24** screened from left to right directly above or below the corresponding port. Status LEDs for each stacked pair of interfaces are located directly over the interfaces.

**1000/2500Base-X SFP Slots**

The NetVanta 1544F front panel contains four 1000/2500Base-X SFP interfaces. These interfaces are numbered **25** through **28** and their status LEDs are located directly under these numbers.

**NetVanta 1544F Rear Panel Design**

The NetVanta 1544F rear panel is shown below.



**Figure 10. NetVanta 1544F Rear Panel Layout**

**NetVanta 1544F Rear Panel Interfaces****CompactFlash**

The CompactFlash slot allows nonvolatile memory expansion with supported densities ranging from 64 MB to 1 GB.

**Power Connection**

The rear panel has a power input to the AC universal power supply. Please refer to *Supplying Power to the Unit* on page 28 for connection details.

**Table 1. Front Panel LED Descriptions**

LED	Color	Indication
<b>STAT</b>	Off	Unit is not receiving power.
	Green (flashing)	On power up, the <b>STAT</b> LED flashes rapidly for five seconds, during which time the user may escape to boot mode from the <b>CONSOLE</b> port.
	Green (solid)	Power is on and self-test passed.
	Red (solid)	Power is on, but the self-test failed or the application code could not be booted.
<b>LINK/ACT</b> (PoE unit only)	Off	Link status/activity is not being displayed.
	Green (solid)	Link status/activity is being displayed.
<b>PoE</b> (PoE unit only)	Off	PoE status is not being displayed.
	Green (solid)	PoE status is being displayed.
Port LED in Link/Activity Mode (1 - 28)	Off	The port is not connected.
	Green (solid)	The link is up and the port is enabled.
	Amber (flashing)	There is activity on the port.
Port LED in PoE Mode (1 - 24 PoE unit only)	Off	The port is not delivering power.
	Green (solid)	The port is delivering power.
	Red (solid)	The port has detected a PoE fault.

**NOTE**

*Ports 25 through 28 are always in LINK/ACT mode.*

### 3. PRODUCT SPECIFICATIONS

#### Physical Interface

##### *Ethernet Ports*

- 24 10/100/1000Base-T Ethernet interfaces (NetVanta 1534, NetVanta 1544, NetVanta 1544P)
- 24 100/1000Base-X SFP interfaces (NetVanta 1544F)
- 2 SFP (NetVanta 1534 Series) or 4 SFP (NetVanta 1544 Series)
- Autorate/duplex/MDI/MDI-X

##### *Console Port*

- DB-9, RS-232

#### Switching

- Layer 2 switching capability
- Layer 3 switching capability (NetVanta 1544 Series only)
- Nonblocking
- 8 k (NetVanta 1534 Series) or 16 k (NetVanta 1544 Series) media access control (MAC) addresses

##### *Maximum Forwarding Bandwidth*

- NetVanta 1534: 52 Gbps
- NetVanta 1544: 68 Gbps

#### Diagnostics

- Port mirroring
- Link Layer Discovery Protocol (LLDP) (802.1AB)
- LLDP-Media Endpoint Discovery (LLDP-MED)
- Ping
- Cable diagnostics

##### *Front Panel Status LEDs*

- Power status
- LAN: link, activity

#### Port Statistics

- Number of TX/RX frames
- Number of collisions
- Number of errors

#### Spanning Tree Support

- 802.1D spanning tree
- 802.1w rapid spanning tree

#### Link Aggregation

- 802.3ad link aggregation
- Support for six trunk groups, 16 ports per group



**Quality of Service**

- 802.1p and DiffServ
- Four output queues per egress port
- Weighted round robin (WRR) and strict priority

**VLAN Support**

- Port-based virtual local area networks (VLANs)
- 802.1Q tagged trunked VLANs
- Support for up to 255 active VLANs

**Storm Control**

- Broadcast, unicast, and multicast

**Administration**

- Familiar CLI
- GUI
- n-Command® support
- SNMP v3
- SYSLOG logging
- Email alerts (Simple Mail Transfer Protocol (SMTP))
- Tool command language (Tcl) scripting

**Network Access Control**

- Port authentication (802.1x)

**Wi-Fi Controller**

- Controls up to 24 NetVanta wireless access points (APs)

**Environment**

- Operating Temperature: 0°C to 50°C (32°F to 122°F)
- Storage Temperature: -20°C to 70°C (-4°F to 158°F)
- Relative Humidity: Up to 95 percent, noncondensing

**Physical**

- Chassis: 1U, 19-inch rack-mountable metal enclosure
- Dimensions (non-PoE models): 1.7-inch H x 17.2-inch W x 9.2-inch D  
Dimensions (PoE models): 1.7-inch H x 17.2-inch W x 12.7-inch D
- AC power: 100 to 250 VAC, 50/60 Hz, 60 W maximum (non-PoE models), 500 W maximum (PoE models)

**Compliance**

- FCC Part 15 Class A
- UL/CUL 60950
- CE Mark
- C-tick

## 4. UNIT INSTALLATION

The instructions and guidelines provided in this section cover hardware installation topics, such as mounting options and supplying power to the unit. These instructions are presented as follows:

- *Mounting Options* below
- *Supplying Power to the Unit* on page 28

For information on configuring a specific application, refer to the configuration guides provided on the *AOS Documentation CD*, or 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.*

### Tools Required

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

- Ethernet cables
- Phillips-head screwdriver (rack-mounted applications only)




*To access the CLI of the NetVanta, 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 available in the quick start guide shipped with your unit (also provided on the *AOS Documentation CD*) or online at [www.adtran.com](http://www.adtran.com).*

### Mounting Options

The unit may be installed in rackmount, wallmount, or tabletop configurations. The following sections provide step-by-step instructions for rack mounting and wall mounting.

#### ***Rack Mounting the NetVanta***


The NetVanta is a 1U-high, rack-mountable unit that can be installed into a 19-inch equipment rack. The following steps guide you in mounting the NetVanta into a rack.

 <p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>• <i>If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.</i></li> <li>• <i>Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.</i></li> <li>• <i>Be careful not to compromise the stability of the equipment mounting rack when installing this product.</i></li> <li>• <i>Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading the circuit might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.</i></li> <li>• <i>Reliable grounding of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).</i></li> </ul>
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<b>Instructions for Rack Mounting the NetVanta</b>	
<b>Step</b>	<b>Action</b>
1	To allow proper grounding, scrape the paint from the rack around the mounting holes where the NetVanta will be positioned.
2	Position the NetVanta 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	Apply power to the unit (refer to <i>Supplying Power to the Unit</i> on page 28).

**Wall Mounting the NetVanta**

By following these instructions exactly, the NetVanta can be safely mounted to the wall.

 <p><b>CAUTION</b></p>	<ul style="list-style-type: none"> <li>• <i>NetVanta units are to be installed only by qualified service personnel.</i></li> <li>• <i>To avoid damaging the unit, use only the screws included in the shipment when attaching mounting ears to the chassis.</i></li> <li>• <i>When wall mounting the NetVanta, care must be taken not to damage the power cord. Do not attach the power cord to the building surface or run it through walls, ceilings, floors, or openings in the building structure.</i></li> <li>• <i>The socket-outlet must be installed near the equipment and must be easily accessible.</i></li> </ul>
---	---

Instructions for Wall Mounting the NetVanta	
Step	Action
1	Remove the mounting ears. Rotate them 90 degrees so that the portion of the bracket with the mounting holes is flush with the bottom of the chassis. Reattach the mounting ears to the chassis (see Figure 11).
2	Decide on a location for the NetVanta. All NetVanta 1500 Series units are mounted with the front panel facing down (see Figure 11). Keep in mind that the unit needs to be mounted at or above eye-level so that the LEDs are viewable.
3	Prepare the mounting surface by attaching a board (typically plywood, 3/4-inch to 1-inch thick) to a wall stud.  <i><b>Important!</b> Mounting to a stud ensures stability. Using sheetrock anchors may not provide sufficient long-term stability.</i>
4	Have an assistant hold the unit in position as you install two #6 to #10 (1 1/2 inches or greater in length) wood screws through the unit's brackets and into the mounted board (see Figure 11).
5	Proceed to the steps given in <i>Supplying Power to the Unit</i> on page 28.

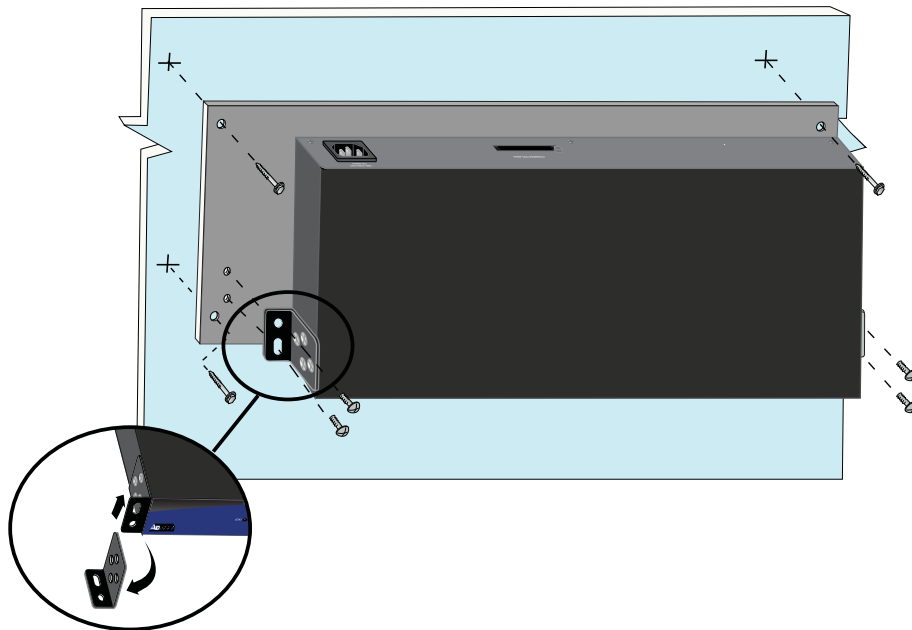


Figure 11. Wallmount Installation

### Supplying Power to the Unit

The NetVanta 1500 Series units come equipped with an auto-sensing 100 to 250 VAC, 50/60 Hz power supply for connecting to a properly grounded power receptacle. (A detachable power cable with a grounded, three-prong plug comes with the shipment.) To power these units, connect the power cable to an appropriate AC power source.

## Upgrading the SODIMM for Expandable Memory

The NetVanta 1500 Series units ship with a 128 MB SODIMM installed. They can be upgraded to provide a maximum of 512 MB of SODIMM memory.



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



*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 Upgrading the SODIMM	
Step	Action
1	Remove power from the unit.
2	Remove the 12 screws holding the base unit and the cover together.
3	Carefully lift and remove the unit's cover to expose the circuit board.
4	Remove the old SODIMM module.
5	Once you have discharged your static electricity, pick up the new 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 <i>Figure 12</i> on page 30. 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 <i>Figure 13</i> on page 30) 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 <i>Figure 14</i> on page 30. 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 and screws.
10	Restore power to the unit.

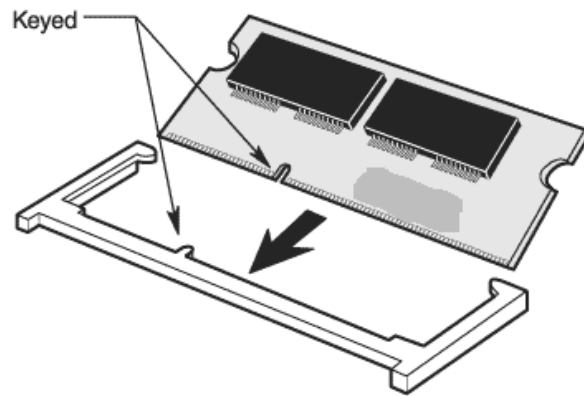


Figure 12. SODIMM Installation – Keyed Slots

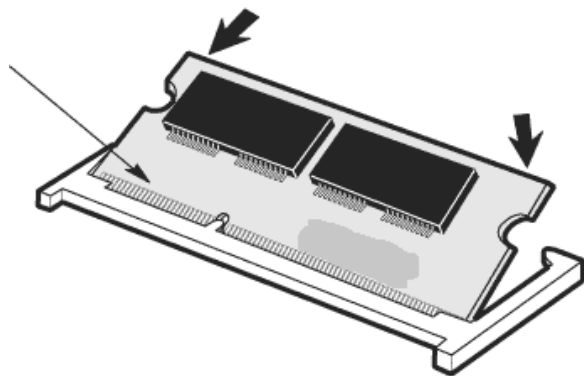


Figure 13. SODIMM Installation – Applying Pressure

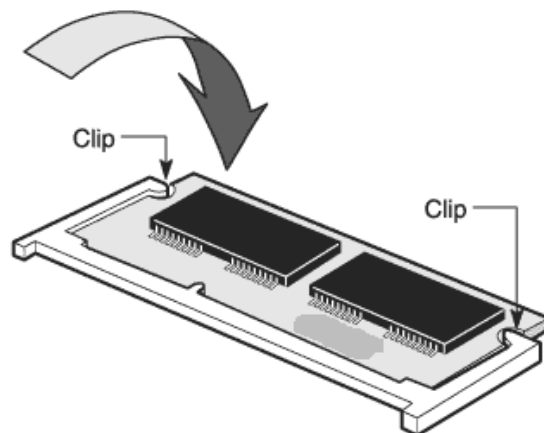


Figure 14. SODIMM Installation – Rotating the Module Downward

## Installing a CompactFlash Card

The **CompactFlash** slot on the NetVanta 1500 Series supports CompactFlash densities from 64 to 1024 MB. 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 CompactFlash slot until the card is firmly seated against the chassis.
2	The CompactFlash options will now be available in the GUI and the AOS CLI.



**Figure 15. CompactFlash Card Installation**

Your NetVanta 1500 Series unit is now ready to be configured and connected to the network. For more information on configuration for a specific application, refer to the configuration guides provided on the *AOS Documentation CD*. For details on the CLI, refer to the quick start guide shipped with your product (also included on the *AOS Documentation CD*).





## APPENDIX A. CONNECTOR PIN DEFINITIONS

The following tables provide the pin assignments for the base unit.

### Base Unit Pinouts

Table A-1. CONSOLE Port Pinouts

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 <b>Tied to pin 1</b> (output)
7	—	Unused
8	CTS	Clear to Send <b>Tied to pin 1</b> (output)
9	—	Unused

Table A-2. 1000Base-T Gigabit Ethernet Port Pinouts

Pin	Name	Description
1	TRD0+	Transmit/Receive Positive
2	TRD0-	Transmit/Receive Negative
3	TRD1+	Transmit/Receive Positive
4	TRD2+	Transmit/Receive Positive
5	TRD2-	Transmit/Receive Negative
6	TRD1-	Transmit/Receive Negative
7	TRD3+	Transmit/Receive Positive
8	TRD3-	Transmit/Receive Negative

**Table A-3. SFP Slot Pinouts**

<b>Pin</b>	<b>Name</b>	<b>Pin</b>	<b>Name</b>
1	GND	11	GND
2	TX_FAULT	12	RX_DAT-
3	TX_DISABLE	13	RX_DAT+
4	I2C_SDA	14	GND
5	I2C_SCL	15	VddR
6	MOD_DEF(0)	16	VddT
7	RATESEL	17	GND
8	RX_LOS	18	TX_DAT+
9	GND	19	TX_DAT-
10	GND	20	GND

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