



AT-9448Ts/XP

48-Port 10/100/1000T Managed Layer 3 Switch with 2 10GbE XFP Bays and a Stacking Module Expansion Bay with 48Gbps Stack Backplane

AT-9448Ts/XP-xx

Layer 3 stackable switch with 48-port 10/100/1000Base-T plus 2 XFPs bays (unpopulated) and memory flash card slot

Product Overview

The 9448Ts/XP is a Layer 3 gigabit Ethernet (10/100/1000) switch with built in 10GbE front-side XFP bays for 10Gbps backbone connectivity. It is the ideal 10GbE backbone gateway at the edge and aggregation tiers of the network. It comes in a 1 RU form factor and provides rich QoS and IGMP capabilities for voice and video enabled networks.

The relative affordability of the 9448Ts/XP makes 10GbE backbones a reality for small to medium enterprises. It offers an extensive set of standards based features to ensure ease of management and integration into existing networks.

Built-in 10GbE Bays

The 9448Ts/XP switch is designed to meet the growing bandwidth needs that advanced applications and connectivity options are requiring of networks. It features two built in bays for 10 Gigabit Ethernet connectivity to provide a well balanced uplink subscription ratio (2.4 to 1 using both bays). No additional module is required to house the XFP transceivers. It provides an extraordinary amount of bandwidth capacity making it an ideal investment for organizations that seek 7 to 10 years of service or more from their switches.

Network QoS and IGMP for Video and Voice over IP

A rich offering of voice and video networking features is incorporated to ensure support for demanding multimedia networking applications in the enterprise. Converged networking is enhanced with QoS/Cos including 8 priority queues for 802.1p/ToS/Diffserv traffic.

The high performance hardware platform makes latency a non-issue. The IGMP implementation on the 9448Ts/XP is capable of transmitting broadcast quality video throughout the enterprise network.

Network Security

To address the concern of network attacks in the form of *Denial of Service* (DoS), the 9448Ts/XP, using L2-L4 intelligence, can be deployed to complement WAN firewalls and PC anti-virus protections to further fortify the network against malicious attacks. The AT-9448Ts/XP comes pre-programmed to detect six well known DOS attacks and supports security features such as 802.1x (Port-Based Network Access Control) and Radius/TACACS+.

Long-term Relevance

The 9448Ts/XP is the ideal choice for organizations seeking a long-term switching solution. In addition to the extensive Layer 2 feature set this switch features 10GbE support and Layer 3 switching for the future flexibility and the capacity required to meet emerging needs. Optional redundant power supplies are also available to further increase the service life of this switch.

Key Features

10 Gigabit Ethernet Support

- Two integrated XFP bays for 10GbE transceiver modules

Layer 3 Support

- RIPv2
- Static Routing
- ECMP

Performance

- Throughput 144Mpps
- Switch Fabric 184Gbps
- Stacking Bandwidth 48Gbps
- 4K VLANs (Static and Dynamic)
- 256 static Layer 2 multicast groups
- 255 dynamic Layer 2 multicast groups
- 9K Jumbo Frame Support

L2-L4 Intelligence

- Packet Inspection and Classification at MAC, IPTCP/UDP layers
- Set QoS, ACL, Mirroring, and Rate-limiting using traffic classes

Security

- DoS attack protection
- Radius/TACACS+
- Port Security
- SSH
- SSL
- 802.1x
- Access Control Lists

Advanced Services

- Rate Limiting (Ingress and Egress)
- 8 QoS Service Levels
- 802.1p for MAC-based QoS
- DSCP for IP-based QoS

Resiliency

- 802.1s Multiple STP
- 802.3ad Link Aggregation
- 802.1D Spanning Tree
- 802.1w Rapid STP
- Temperature Threshold Alert

Management

- Telnet
- Web GUI
- CLI
- Dedicated Management Port
- Compact Flash Slot

AT-9448Ts/XP | 48-Port 10/100/1000T Managed Layer 3 Switch

Hardware Specifications

Physical Characteristics

Dimensions (H x W x D) 4.4cm x 43.8cm x 30.4cm
(1.75in x 17.3in x 12in)
Weight 5.09Kg
(11.2lbs.)

System Capacity

64 RAM
16MB Flash Memory
200MHz PowerPC CPU
4096 VLANs
16000 MAC Addresses

Performance

Wire-speed switching on all Ethernet ports
14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet

Ethernet Throughput 136.896Mpps
Switch Fabric 184Gbps

Stacking with AT-STACKXG stacking module
up to eight switches
Two 12Gbps full duplex stacking port per module
Resilient bidirectional ring architecture

Power Characteristics

Voltage: 100-240v AC
Current: 4.0/2.0A
Frequency: 50-60Hz
Max Power Consumption: 128 watts

Environmental Specifications

Operating Temperature: 0°C to 40°C
(32°F to 104°F)
Storage Temperature: -25°C to 70°C
(-13°F to 158°F)
Operating Humidity: 5% to 90% non-condensing
Storage Humidity: 5% to 90% non-condensing
Max Operating Altitude: 3,048m (10,000 ft)

Recommended ventilation on all sides: 10cm (4.0 in.)

MTBF 250,000 hrs.

Electrical/Mechanical Approvals

Safety UL 60950-1, CSA C22.2 No. 60950-1-03,
EN60950-1, EN60825-2 (TUV)
EMI FCC Part 15 Class A, EN55022 Class A, EN55024
Immunity, VCCI Class A, C-TICK, EN61000-3-2,
EN61000-3-3, AS/NZS 3548 (Australia/New Zealand)
Immunity EN55024

Country of Origin

Singapore

Software Specifications

Layer 3 Support

RIPv1
RIPv2
ECMP
Static IPv4 Routing (1024 routes)

Interface Standards

802.3 10Base-T & 10Base-FL
802.3u 100Base-TX & 100Base-FX
802.3z 1000Base-SX
802.3ab 1000Base-T
802.3ae 10000Base-X

General Standards

802.1d Bridging
802.3ac VLAN Tag Frame Extension
802.3x BackPressure/ Flow control
Head of Line Blocking
Eight Egress Queues per Port

Redundancy

Static and dynamic port trunking (with 6 trunk
groups and up to 8 ports per trunk)
802.3ad LACP Link Aggregation
802.1D Spanning Tree Protocol
802.1w Rapid Spanning Tree
802.1s Multiple Spanning Tree
Router Redundancy Protocol (RRP) snooping
Dual Software Images, Dual Configuration Files

Traffic Management and Quality of Services (QoS)

Layer 2, 3 and 4 criteria
Flow Groups, Traffic Classes and Policies
DSCP Replacement
802.1q Priority Replacement
Type of Service Replacement
Type of Service to 802.1q Priority Replacement
802.1q Priority to Type of Service Replacement
Maximum bandwidth Control
Burst Size Control
Ingress Rate Limiting
Head of Line Blocking Prevention
Support for Ingress and Egress ports
Eight Egress Queues per Port
IEEE 802.1p Class of Service with Strict and Weighted
Round Robin Scheduling

Multicast

RFC 1112 IGMP Snooping (v1)
RFC 2236 IGMP Snooping (v2)
RFC 3376 IGMP Snooping (v3)
RFC 2710 Multicast Listener Discovery
(MLD) snooping (v1)
RFC 3810 Multicast Listener Discovery
(MLD) snooping (v2)

Management and Monitoring

RFC 1157 SNMPv1
RFC 1901 SNMPv2
RFC 3411 SNMPv3
RFC 1213 MIB-II
RFC 1215 TRAP MIB
RFC 1493 Bridge MIB
RFC 2863 Interfaces Group MIB
RFC 1643 Ethernet-like MIB
RFC 1757 RMON 4 groups: Stats,
History, Alarms & Events
RFC 2674 802.1Q MIB
RFC 1866 HTML
RFC 2068 HTTP
RFC 2616 HTTPS
RFC 854 Telnet Server
RFC 1350 TFTP Client
AlliedTelesis Private MIB

IP address allocation:
RFC 951 / RFC1542 BOOTP Client
RFC 2131 DHCP Client Manual
RFC 2030 SNMP, Simple Network
Time Protocol

Syslog client
Two event logs:
4,000 event capacity in temporary memory
2,000 event capacity in permanent memory

Management Access Methods

Single IP address for management
Out of Band Management (Serial Port)
In-Band Management (over the network) using Telnet,
web browser or SNMP

Management Interfaces

Menus
Command Line
Web Browser
SNMP v1/ v2/ v3

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Security

RFC 1492	TACACS+
RFC 2865	RADIUS Client
RFC 2866	RADIUS Accounting
IEEE 802.1x	Port-Based Network Access Control with Multiple Supplicants per Port
	Ingress and Egress Control of Broadcast, Multicast and Unknown Unicast Traffic

MAC Address Security/Lockdown
Layer 2/3/4/ Access Control Lists (ACLs)

64 ACL profiles

256 rules per ACL profile

ACLs based on:

- Ethernet frame type
- MAC address/VLAN ID/802.1P
- L2/3 Protocol
- IP subnet/address/TOS/DSCP
- UDP/TCP port/flag

SSHv2 for Telnet mgmt

SSLv3 for Web mgmt

DoS Attack Protection

Smurf

SYN Flood

Teardrop

Land

IP Option

Ping of Death

SNMP Attack

Fault Protection

Bad Cable Detection

Broadcast Storm Control

Ordering Information

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Where xx	= 10 for U.S. power cord
	= 20 for no power cord
	= 30 for U.K. power cord
	= 40 for Australia power cord
	= 50 for Europe power cord
	= 80 for -48vDC version

Accessories

Stacking Accessories

AT-StackXG-00*

Stacking module for the AT-9448Ts/XP switch
One AT-StackXG/0.5-00 cable included.

AT-StackXG/0.5-00*

0.5 meter cable for stacking

AT-StackXG/1-00*

1 meter cable for stacking

*Available March 2007

Redundant Power Supply

AT-RPS3204

Chassis for up to 4 redundant power supplies
(Chassis includes one power supply and one cable)

AT-PWR3202

Additional 200w redundant power supply with cable

10Gbps Small Form Pluggables (XFPs)

AT-XPSR

Multi-mode Fiber, 850 nm

AT-XPLR

Single-mode Fiber, 10km, 1310nm

AT-XPER40

Single-Mode Fiber, 40km, 1550nm

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