Rapier Series, Managed Layer 3 Fast Ethernet Switches

Rapier 16f, 16 port 100FX (SC or MT-RJ) Fast Ethernet Layer 3 switch with 2 slots for optional 1000Mbps uplinks and WAN Access Bay

Rapier 24, 24 port 10/100TX Fast Ethernet Layer 3 switch with 2 slots for optional 1000Mbps uplinks and WAN Access Bay

Rapier 48, 48 port 10/100TX Fast Ethernet Layer 3 switch with 2 slots for optional 1000Mbps uplinks

KEY FEATURES

2 slots for optional 1000Mbps uplinks

High performance 200MHz RISC-based processor

Non-blocking Layer 2/3 switching performance

IEEE 802.1Q VLAN tagging

IEEE 802.1p CoS (4 priority queues)

IP RIPv1/v2, OSPF

VRRP

RADIUS authentication

Console, Telnet, Web-browser, SNMP and RMON management

Stateful Inspection firewall option

SSH 2.0

Universal 100-240vAC, 50/60HZ power supply

-48vDC power supply available (factory installed)

Redundant power supply support

19" rackmountable chassis

AppleTalk, IPX routing option

IGMP/DVMRP Multicast option

PIM-DM/SM Multicast option

PERFORMANCE

Allied Telesyn's Rapier family of 10/100Mbps Layer 3 switches deliver an unprecedented level of integration and switching performance, at affordable prices. With wire-speed Layer 2 switching and wire-speed Layer 3 IP routing on all ports, these switches are designed for high-performance desktop connectivity, workgroup and server farm aggregation or backbone applications.

FLEXIBILITY AND SCALABILITY

All Rapier Layer 3 switches feature two Gigabit Ethernet uplink slots. Each uplink slot can be configured with either a 1000SX, 1000LX or 1000T interface module. This flexibility provides high-speed connectivity in the wiring closet, server farm or campus with fiber and copper cabling. The two gigabit uplink ports can be configured as redundant links for greater bandwidth and load sharing. The Rapier 24 and Rapier 16f models support an optional Network Services Module (NSM) with various Port Interface Cards (PICs) to provide wide area network connectivity for E1, T1, PRI ISDN, BRI ISDN, Asynchronous, and Synchronous communications.

RICH FEATURE SET

All Rapier Layer 3 switches include a suite of advanced Layer 2 switching features such as IEEE 802.1Q VLAN Tagging, 802.1p Traffic Prioritization and IGMP Snooping to optimize network performance. All switches include Layer 3 IP Static Routing, RIP, RIPv2, VRRP and OSPFv2 routing protocols. An optional software upgrade is available to enable a set of additional routing protocols such as IPX, AppleTalk, DVMRP, PIM-DM/SM and RSVP for more advanced networking applications.

REDUNDANCY

The Rapier family of Layer 3 switches provide redundant operation with an optional Redundant Power Supply (RPS). If the internal power supply fails, the external RPS will provide power to the switch. The Spanning Tree Protocol, port trunking and multiple WAN interfaces provide redundant links for failure protection. The Virtual Router Redundancy Protocol (VRRP) eliminates single point of failures.

MANAGEMENT

Although the Rapier family of Layer 3 switches are easy to install and configure; an extensive range of management support is provided. Switch management support includes Web-browser, SNMP, RMON, Telnet and a Command Line Interface, allowing the switches to be controlled by a variety of methods. Switch configuration stored in NVRAM allows device to be restored to normal operation without operator intervention in the event of a power failure.

FEATURE SUMMARY

	16f	24	48
Hardware (Standard)			
Gigabit Uplink Slots	2	2	2
WAN Access Bay	Y	Y	–
Hardware (Options)			
1000SX (SC) Uplink Module	Y	Y	Y
1000LX (SC) Uplink Module	Y	Y	Y
1000T (RJ-45) Uplink Module	Y	Y	Y
WAN Access – NSM	Y	Y	–
WAN PIC:			
BRI ISDN (U or S)	Y	Y	–
T1/E1/PRI ISDN w/ CSU/DSU	Y	Y	–
Async to 115kbps	4 ports	4 ports	–
Sync to 2Mbps	Y	Y	-
-48vDC Power Supply (option)	Y	Y	Y
External Redundant Power Supply	Y	Y	Y
Layer 2 Switching			
L2 Wire-speed Switching	Y	Y	Y
Switch Fabric Bandwidth	9.6Gbps	9.6Gbps	19.2Gbps
Forwarding/Filtering/Route Rate	5.4Mpps	6.6Mpps	10.1Mpps
IEEE 802.1D Spanning Tree	Y	Y	Y
IEEE 802.1Q VLAN Tagging	Y	Y	Y
IEEE 802.1p Traffic Prioritization	Y	Y	Y
QoS Priority Queues (egress)	4	4	4
IGMP Snooping	Y	Y	Y
Port Trunking	Y	Y	Y
Management			
Port Mirroring	Y	Y	Y
Port Security (Intrusion Protection)	Y	Y	Y
Console CLI	Y	Y	Y
Telnet CLI	Y	Y	Y
Web-browser	Y	Y	Y
SNMP	Y	Y	Y
RMON (1-3, 9)	Y	Y	Y
Basic Layer 3			
L3 IP Wire-speed Routing	Y	Y	Y
IP TOS QoS	Y	Y	Y
IP Static Routes	Y	Y	Y
IP RIP, RIPv2	Y	Y	Y
OSPFv2, VRRP	Y	Y	Y
L3 IP filtering	Y	Y	Y
Full Layer 3 Upgrade (Optional)			
IPX RIP Routing (software)	Y	Y	Y
AppleTalk Routing (software)	Y	Y	Y
IGMP/DVMRP Multicast	Y	Y	Y
PIM-DM/PIM-SM Multicast	Y	Y	Y
RSVP QoS	Y	Y	Y
IPv6 (License)	Y	Y	Y
Stateful Inspection firewall (License)	Y	Y	Y

Rapier Series, Managed Layer 3 Fast Ethernet Switches

STATUS INDICATORS

System LEDs:

Power	Green On	Power
Fault	Red On	Fault
RPS	Green On	RPS

Per Port LEDs:

Link/Activity	Green On	100Mbps Link
	Green Flashing	100Mbps Activity
	Amber On	10Mbps Link
	Amber Flashing	10Mbps Activity
Duplex/Collision	Green On	Full Duplex
	Amber On	Half Duplex
	Amber Flashing	Collision

NETWORK MANAGEMENT

RS232 Console CLI
Telnet CLI
Web-browser support (HTTP)
SNMP
RMON (1-3, 9 groups)
MIB II (RFC 1213)
802.3 MAU MIB (RFC 2239)
Ethernet MIB (RFC 1643)
Bridge MIB (RFC 1493)
Extended Interface MIB (RFC 1573)
RIP v2 MIB (RFC 1724)
Proprietary MIB Extensions

OPERATIONAL CHARACTERISTICS

Rapier 16f	9.6Gbps non-blocking bandwidth 5.4Mpps Route/Filter/Forward
Rapier 24	9.6Gbps non-blocking bandwidth 6.6Mpps Route/Filter/Forward
Rapier 48	9.6Gbps x 2 = 19.2Gbps switching fabric, 10.1Mpps forwarding rate
Forwarding/Filtering Rates	14,880pps for Ethernet 148,800pps for Fast Ethernet 1,488,000pps for Gigabit Ethernet
Layer 2 Addresses (MAC)	8k
VLANs (802.1Q)	63
Switching Mode	Store and Forward
Buffer Memory	4MB global
Layer 3 IP Addresses	2k
Next Router Hops	16

INTERFACE CONNECTIONS

10/100TX	Shielded RJ-45 connector
100FX	Multi-mode Fiber SC or MT-RJ connector
1000SX	Multi-mode Fiber SC connector
1000LX	Single-mode Fiber SC connector
1000T	Shielded RJ-45 connector

POWER CHARACTERISTICS

AC: (-10, -20, -30, -40, -50 models)

Voltage	100-120/200-240vAC
Frequency	50/60Hz
Power Consumption	95W max.

DC: (-80 models)

Input Voltage	-48vDC
Power Consumption	95W max.
Output Voltage	3.3vDC, 13A
	5vDC, 8A
	12vDC, 1A

ENVIRONMENTAL SPECIFICATIONS

Operating Temp.	0°C to 40°C (32°F to 104°F)
Non-operating Temp.	-25°C to 70°C (-13°F to 158°F)
Realtive Humidity	95% max. noncondensing

PHYSICAL CHARACTERISTICS

Dimensions (W/D/H)	440mm x 356mm x 66mm (17.3" x 14" x 2.6"), 1.5RU
Weight	5.5kg (12lbs)
Mounting	19" Rackmount, hardware included

STANDARDS AND PROTOCOLS

IEEE 802.3	10T
IEEE 802.3u	100TX
IEEE 802.3z	1000X
IEEE 802.3ab	1000T
IEEE 802.1D-1998	Spanning Tree Protocol
IEEE 802.1p	Traffic Priority
IEEE 802.1Q	VLAN Tagging
IEEE 802.3x	Flow Control, Full Duplex
RFC 1757	RMON
RFC 1112	IGMP Snooping
RFC 951/1542	BootP
RFC 2131	DHCP
RFC 1350	TFTP v2
RFC 1058	RIP
RFC 1723	RIP v2
RFC 2236	
RFC 2178	OSPF
RFC 1812	IP router requirement
RFC 854	Telnet
RFC 768	UDP
RFC 791	IP
DVMRP v3	
PIM-Dense Mode v2	
PIM-Sparse Mode	
RSVP	
RFC 792	ICMP
RFC 793	TCP
RFC 826	ARP
RFC 2068	HTTP
RFC 2131	BootP/DHCP relay
RFC 2138	RADIUS
RFC 2338	VRRP

ELECTRICAL/MECHANICAL APPROVALS

UL 1950 3rd Edition, CSA 22.2 No. 950, EN60950 (TUV), VCCI Class 1, FCC Part 15 Class A, EN55022 Class A, EN50082-1

ORDERING INFORMATION

AT-RP16fSC-xx

16 port 100FX (SC) Layer 3 Switch
+ 2 Gigabit Uplink Slots + WAN Access Bay

AT-RP16fMT-xx

16 port 100FX (MT-RJ) Layer 3 Switch
+ 2 Gigabit Uplink Slots + WAN Access Bay

AT-RP24-xx

24 port 10/100TX Layer 3 Switch
+ 2 Gigabit Uplink Slots + WAN Access Bay

AT-RP48-xx

48 port 10/100TX Layer 3 Switch
+ 2 Gigabit Uplink Slots

Where xx =
10 for US power cord
20 for no power cord
30 for UK power cord
40 for Australian power cord
50 for European power cord
80 for -48vDC power supply

Uplink Modules

AT-A35SX/SC	1 x 1000SX (SC) Gigabit Fiber
AT-A35LX/SC	1 x 1000LX (SC) Gigabit Fiber
AT-A39/T	1 x 100/1000T Gigabit Copper

Software Upgrade Options

AT-ARRFLUPGRD
Rapier Full Layer 3 Upgrade

AT-RPADVL3UPGRD
Rapier Series Advanced Layer 3 Upgrade

AT-RPSecPK
Rapier Security Pack Upgrade

AT-AR3DES
3DES Encryption option (requires AR061)

WAN Access Options

AT-AR020	1 x T1/E1 Primary Rate ISDN*
AT-AR021U	1 x Basic Rate ISDN (U)
AT-AR021S	1 x Basic Rate ISDN (S)
AT-AR023	1 x Synchronous to 2Mbps
AT-AR024	4 x Asynchronous to 115kbps
AT-AR040	Network Service Module, 4 slot
AT-AR041	Network Service Module, 8 slot BRI, ISDN (S)
AT-AR061	ECPAC - PCI-based DES encryption/compression card

(Refer to the AT-AR740 Router datasheet for detailed WAN access descriptions.)

* Only two AT-AR020 allwed in AT-AR040

Redundant Power Supplies

AT-RPS8000-xx
4 slot Redundant Power Supply Chassis, includes 1 Power Module

AT-PWR8000
Redundant Power Supply Module

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