

# Rapier Layer 3 Switch Family

RP24i and RP16fi Unique L3 switch and WAN Router

# Layer 3 Switching



- Layer 3 switches perform forwarding (whether Layer 2 or Layer 3 unicast, multicast, broadcast) in hardware
- Think of a Layer 3 switch as an incredibly fast (wire speed) router
- Hardware provides the ultimate flexibility not only in performance, but in parallel processing as well
- Parallel processing allows to perform more operation on packets than previously imagined, especially with respect to the application of policy

# Rapier Family

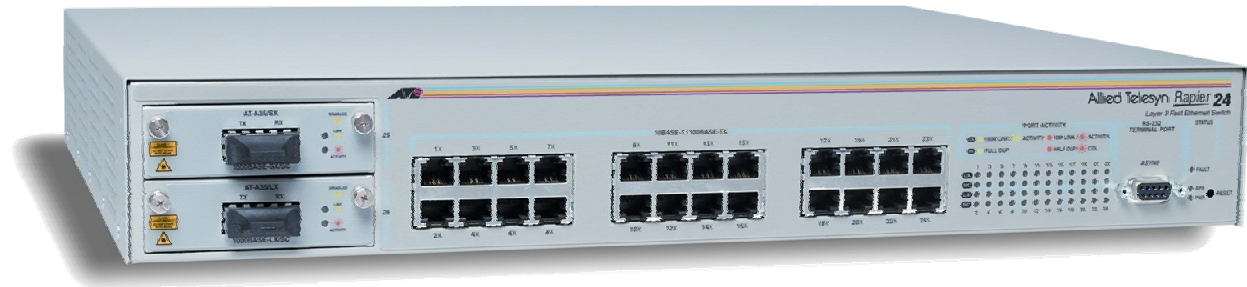
- All models offer wire-speed Layer 3 IP routing and Layer 2 switching
  - 24i - 24 x 10/100TX ports, 2 Gigabit Uplinks, NSM bay
  - 16fi - 16 x 100FX ports, 2 Gigabit Uplinks, NSM bay
  - 48i - 48 x 10/100TX ports, 2 Gigabit Uplinks
  - G6 - 6 x 10/100/1000TX ports, 2 Gigabit Uplinks
  - G6fSX - 6 x 1000X ports, 2 Gigabit Uplinks, SC or MT
  - G6fLX - 6 x 1000X ports, 2 Gigabit Uplinks, SC
- Multiple optional Uplink interfaces including 1000X MMF & SMF, 1000T, 100FX MMF & SMF, and GBIC.
- Optional WAN interfaces including E1 (RP24 and RP16f models only)
- AC power supply 100-120/200-240Vac
- DC power option -48Vdc
- 1.5 RU chassis

# Hardware - Rapier Family

## Processing Core

- 200 MHz RISC Processor (250 MHz for Rapier 24i models)
- 32 MBytes Synchronous DRAM
- 6 MBytes flash memory (16 MBytes for Rapier i models)
- 128 KBytes Non-volatile Storage (battery backed SRAM)Switch on a chip ASIC
  - RP24/RP16 ASIC -
    - 24 10/100 ports and 2 Gig ports on the chip
    - Non Blocking Switch Fabric (>8.8 Gbps)
    - Rapier 16fi 9.6Gbps switching fabric, 5.4Mpps forwarding rate
    - Rapier 24i 9.6Gbps switching fabric, 6.6Mpps forwarding rate
    - Rapier 48i 9.6 x 2 = 19.2Gbps switching fabric, 10.1Mpps forwarding rate
  - RPG6 ASIC -
    - 8 Gig ports on the chip
    - Non Blocking Switch Fabric (>16 Gbps)
    - Switch fabric bandwidth 35Gbps Forwarding/filtering/route rate 11.9Mpps

# Rapier 24i Layer 3 Switch (AT-RP24i)



- 24 x 10/100Base-TX Ports
- 2 Uplink Slots
- 1 x Network Services Module (NSM) Bay
- Wire-speed switching performance; 9,6Gbps switch fabric, 6.6Mpps throughput.
- ASIC based wire speed IP routing
- 1.5U, 19" rack mount chassis
- 110/220 AC or -48VDC PSU versions
- Redundant Power Supply option

## Rapier 100BaseFX Layer 3 Switches (AT-RP16Fi)



- 16 x 100Base-FX Ports, SC or MTRJ connectors
- 2 Uplink Slots
- 1 x Network Services Module (NSM) Bay
- Wire-speed switching performance; 9.6Gbps switch fabric, 5.4Mpps throughput.
- ASIC based wire speed IP routing
- 1.5U, 19" rack mount chassis
- 110/220 AC or -48VDC PSU versions
- Redundant Power Supply option

# RP24i & RP16fi

## Rear Panel

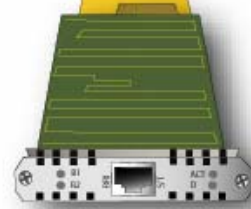


Pwr Input  
AC or DC

Redundant PSU Input

Network Services Module bay  
with 4 interface bays

# Network Services Module (NSM)



**1 NSM module slides in  
at the back of the switch**

**4 x PIC NSM Module (AR040)  
supports up to 4 PIC cards**

**PIC card**

- The AT-AR040 or NSM is supported by both the RP24i and RP16i Switches as well as the AT-AR740 Router
- Hot Swappable

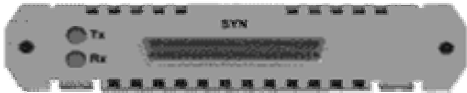
# WAN - Port Interface Cards (PICs)



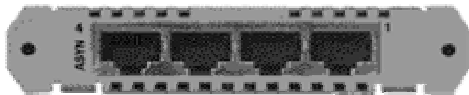
- AT-AR020: 1 x T1 Clear Channel or Channelized or PRI ISDN - includes integrated CSU/DSU



- AT-AR021: 1 x BRI (U) ISDN



- AT-AR023: 1 x Sync to 2Mbps V.35, X.21, RS232



- AT-AR024: 4 x Async Serial to 115Kbps

- Any of the above cards can be installed in the NSM in any configuration with the following restriction
  - A maximum of two AR020 (Integrated CSU/DSU Cards) --one in the top and one in the bottom.

# Rapier 48i



- 48 x 10/100Base-TX Ports
- 2 Uplink Slots
- Wire-speed switching performance; 9.6Gbps x 2 (19.2Gbps) switch fabric, 10.1Mpps throughput
- ASIC based wire speed IP routing
- 1.5U, 19" rack mount chassis
- 110/220 AC or -48VDC PSU versions
- Redundant Power Supply option

# Rapier G6 Series Gigabit Switches

## Rapier G6 6-port 10/100/1000BaseT



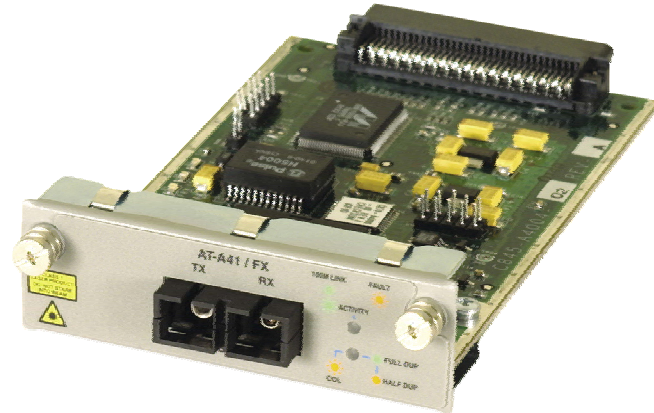
## Rapier G6FSX 6-port 1000BaseSX



## Rapier G6FLX 6-port 1000BaseLX

- 6 x 10/100/1000Base-T Ports
- 2 Uplink Slots
- Wire-speed switching performance; 35Gbps switch fabric, 11.9Mpps throughput
- ASIC based wire speed IP routing
- 1.5U, 19" rack mount chassis
- 110/220 AC or -48VDC PSU versions
- Redundant Power Supply option

# Expansion Module Options



**AT-A39 Gigabit Copper Module**

**AT-A35 SX and LX Gigabit Fiber Modules - SC**

**AT-A40 100BaseFX Multi-Mode Fiber Modules – SC and MT**

**AT-A41 100BaseFX Single-Mode Fiber Modules – SC and MT**

**AT-A42 GBIC bay Module**

# Rapier i Series Features

- 255 VLANs
- Overlapping VLANs
- L3 IP filtering
- Packet Classifier and QoS
  - Traffic Classification (Access Control Lists)
    - Up to 1024 Flow Groups
    - Up to 512 Traffic Classes
  - Up to 255 QoS Policies
  - DiffServe (DSCP) QoS
  - Max Queue Length and Latency Control
  - Bandwidth Limiting per Port
    - Ingress to 64kbps
    - Egress of 1Mbps

# Features in Basic OS

- **AlliedWare™ Basic L3 features :**
- Generic VLAN Registration protocol (GVRP)
- Packet Classifier
- Quality of Service (QoS)
- PPP, PPPoE, ISDN, X.25
- VLAN, STP, RSTP
- IP protocol, TCP Protocol
- RIP, OSPF
- Generic Routing Encapsulation (GRE)
- L2 Tunneling Protocol (L2TP)
- IP Security (IPSec)
- Internet Group Management Protocol (IGMP)
- Dynamic Host Configuration Protocol (DHCP)
- Secure Shell (SSH)
- Virtual Router Redundancy Protocol (VRRP)

# License Upgrades

- **AlliedWare™ Full L3 features :**

- IPX Poutin
- Apple Talk
- RSVP
- DVMRP
- PIM DM
- PIM SM

- **AlliedWare™ Advanced L3 features:**

- IPv6
- BGP4
- Loadbalancing

**Security features :**

- Firewall
- SMTP Proxy
- HTTP Proxy