

High Density GEPON OLT Solution

AP9000 Series



- **Carrier Class modular GEPON OLT for FTTx**
- **L2/L3/L4 Aggregation Switch/Router**
- **802.3ah Compliant**
- **Advanced QoS, Multicast and Security**
- **352Gb/s Backplane Capacity**
- **Supports up to 3584 ONUs (AP9009)**
- **IPTV and Video Overlay Supported**
- **4x 10Gb/s uplink**

ACT AP9009 GEPON OLT series Platform is a high density, high performance L2/L3/L4 switch which provides Network Operators and Services Providers with the powerful aggregation layer for the 802.3ah Gigabit Ethernet Passive Optical Network (GEPON) services in Fiber to The Home/Business (FTTH & FTTB) networks.

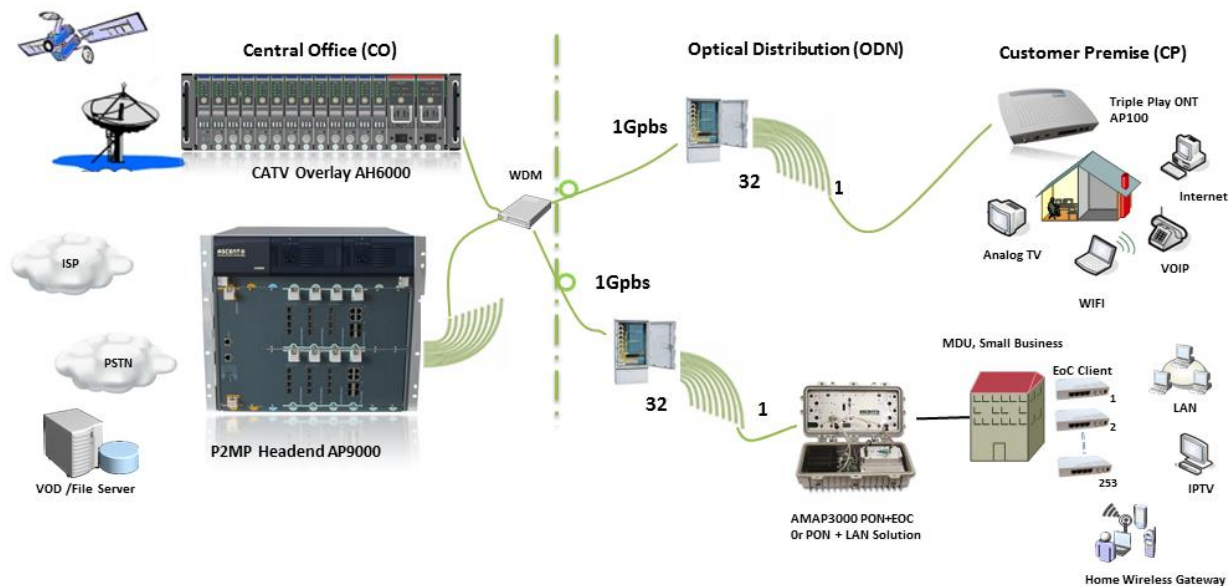
AP9000 series includes two base models: AP9002, AP9009. With the modular design, these series of platforms fit into the standard 19 inch rack with 2 and 9RU height. AP9009 models support two console panel slots for switching and management, "1+1" redundant power supply to achieve highest performance and reliability. The platform provides high density ports with flexible configuration options through user friendly interface to allow operators to expand the existing networks and services quickly. Each OLT modules supports 4 GEPON ports and the AP9009 supports up to 56 EPON ports.

AP9000 series offers robust switching and routing capabilities, and seamless cooperate with ACT routing and switching products. Combined with ACT Video Overlay package, the AP9000 can provide perfect end-to-end FTTX solution in offering advanced Video, Voice, and Data services.

Key Features

- High density Gigabit Ethernet PON platform supports up to 3584 subscribers per chassis
- High performance L2/L3/L4 switching with IPv6 supported* (IPv6 future feature)
- Passive backplane supporting 352 Gbps switching fabric
- Up to 4 x 10 Gbps uplinks with XFP ports with link aggregation
- High-level security supporting extended ACL, DAP, RADIUS, and Intelligent ARP defence
- Strict QoS with 802.1p, Diffserv, and L2-L4 flow classification
- Support uplink/downlink encryption
- Dual hot-swappable redundant switching and controller cards
- Dual hot-swappable power supplies for redundancy
- Shelf management for monitoring and control via network. CLI and SNMP access
- Upgrading single or multiple ONUs at the same time
- Supporting backbone optical-fiber protection, "1+1" protection, switchover delay of less than 50ms
- RADIUS-based broadband management and customer SLA control
- Low Power consumption to save maintenance and services cost

Application Diagram



Specifications

AP900x Gigabit Ethernet PON Platform - 19" 2RU and 9RU

PON Wavelength	Downlink 1490nm; Uplink 1310nm
Data Rate	Symmetric uplink and downlink: 1.25G
PON TX Power	+2dbm to +7dbm
PON RX level (Low)	-30dBm
Max PON Coupling Ratio	1: 64
EMS Manager	SNMP (Simple Network Management Protocol), CLI (Command Line Interface) Standard OAM and expanded OAM management
Power Supply	AC 90-240Vac, 50/60 Hz or DC -48VDC
Operating Temperature	0 to 50 °C optimal performance 15 to 35 °C
Relative Humidity	10% to 90% no condensation
Dimensions (W x D x H)	315×397×482 mm
Weight	Empty chassis: 30 kg ; With all card slots occupied: 64 kg
Ship Weight	82 kg

	AP9002	AP9009
Height (RU)	2	9
Total slot quantity (incl. Control Unit)	5	16
PON OLT (1G) slot quantity	4 (2 PON card)	12 (4-PON card)
Enhanced (10G) slot quantity	0	2
Console panel quantity	1	2 (Redundancy)
Backplane bandwidth	20Gbps	352Gbps
Maximum # of 10G ports	0	4
Maximum # of 1G ports	16 (8 Uplink)	56 (incl. 10G Slots)
Maximum # of PON ports	8	56 (incl. 10G Slots)
Max Power consumption	80W	300W

Switching & Routing Features

EPON Standard	IEEE 802.3ah EPON Standards, Supporting technical requirements of YD-T 1475-2006 access network, YD-T 1771-2008 access network
IEEE Standard	IEEE 802.1D IEEE 802.3 IEEE 802.3u IEEE802.3ad IEEE802.3x IEEE 802.3z IEEE802.1Q IEEE 802.1p IEEE 802.1w IEEE 802.1x
Access control	Subscriber port filters by MAC, VLAN, IP
AAA (Authentication, Authorization, Accounting)	Radius, TACACS+, IEEE802.1x
VLAN	Supported for port-based VLAN, pass-through VLAN, GVRP, Super VLAN Stacking (QinQ)
Quality of Service	IEEE802.1p, ToS, Application port control, DiffServ, WRR, SP, SWRR
Link aggregation	Similar ports can be aggregated into one logical link with LACP
Routing protocols	RIP, OSPF, BGP, NAT
DHCP	Integrated DHCP server, Supports Client, Relay, Server
Multicast routing	IGMP V1/2/3, PIM-DM, PIM-SM, IGMP snooping
STP	802.1D(STP), 802.1w(RSTP), 802.1s (MSTP)
MPLS	Support Multiprotocol Label Switching, MPLS VPN, MPLS TE
IPv6	Supported
ACL	Standard and Extended ACL, support IP based, Source/destination IP, L3 IP protocol, TCP/UDP port, IP priority, and time ranger ACL
MAC Control	Supports port/MAC binding, MAC ACL
Flow Control	HOL blocking prevention, Half-duplex: Back pressure Full-duplex: IEEE 802.3x
ARP	Supported
Port Aggregation	Supports 802.3ad, loading balance
Customer Access	Supports 802.1x
Port Mirroring	Supported
Broadcast Control	Supported
Security	Supports MSU redundancy, hot swapped, VRRP
Console Interface	CLI, Web
Console Port	RS-232
Telnet	Supported
SNMP (MIB)	v1 / v2 / v3
SysLog	Supported
RMON	1, 2, 3, 9

*L3/L4 features are only supported in AP9009

Ordering Information

AP9000 Series Switch GEAPON

Chassis

AP9002-Chassis

Description

AP9002 Modular Switch chassis 2RU (5 slots, including 1 Control slot with 8G uplink, 4 OLT PON slots supporting 2 or 4 PON cards, support dual PS)

AP9009-Chassis

AP9009 Modular Switch chassis 6RU (16 slots, including 2 MSU slot, 12 Gbps PON, 2 10G uplink slots, dual PS)

AP9000 Series Power Supply

AP9002-PWR-AC-080

AP9002 OLT AC power supply 100 -240V

AP9002-PWR-DC-080

AP9002 OLT DC power supply -48V

AP9009-PWR-AC-300

AP9009 OLT AC power supply 100 -240V

AP9009-PWR-DC-300

AP9009 OLT DC power supply -48V

AP9000 Switching Control

AP9002-SC-02

AP9002 Switching Control Unit - for AP9002, 8 SFP Uplink Interface

AP9009-SC-09

AP9009 Switching Control Unit - for AP9009

AP9000 Series Modules

AP9002-PON-2GE-SF

AP9002 2-port OLT EPON interface Module, SFP interface

AP9009-PON-4GE-S

AP9009 4-port OLT EPON interface board, SFP interface

AP9009-PON-4GE-SE

AP9009 4-port gigabit uplink board (optical-electric-multiplexed interface)

AP9009-1TE-SFP+

AP9009 1-port 10G uplink board, SFP+ interface

AP9009-2TE-SFP+

AP9009 2-port 10G uplink board, SFP+ interface

AP9000 Series SFP Modules

SFP-PG-SP-4931-C

AP9002 SFP Plug-in, GEAPON OLT 1.25Gbps, 1: 32 distance 20Km, 1: 64 distance 10Km, SC, TX1490nm, RX1310nm

SFP-PG-SP-4931

AP9009 SFP Plug-in, GEAPON OLT 1.25Gbps, 1: 32 distance 20Km, 1: 64 distance 10Km, SC, TX1490nm, RX1310nm

SFP-AG-SP-4931

AP9009/AP9002 Uplink SFP Plug-in, 1Gbps, 20km, BIDI, TX=1490nm, RX=1310nm, SC/PC Blue

SFPP-AT-LP-31-10

AP9009 SFP+ Plug-in, 10Gbps, 10km, TX=1310/RX wide, on two single mode fibers, LC/PC Blue

AP9000 Management EMS

AP9002-NMS

AP9002/AP9001 Modular Switch chassis Network Management System

AP9009-NMS

AP9009 Modular Switch chassis Network Management System

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