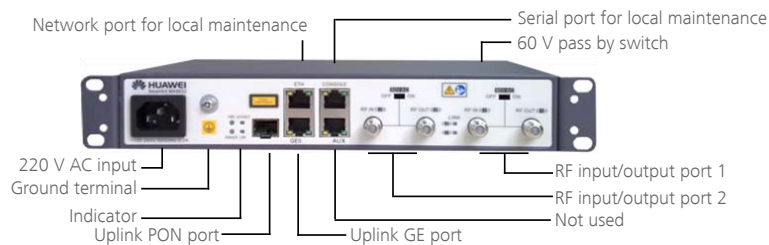# SmartAX MA5632

The SmartAX MA5632 (MA5632 for short) is an Ethernet over Coax (EoC) head end product launched by Huawei and used in Cable bidirectional network restructuring solutions. The MA5632 uses the mainstream low-frequency HomePlug AV modulation technology and support IEEE P1901. Integrating the functions of ONU, EOC head end, and mixer, MA5632 provides features as small and easy installation, low nose and fan free, suitable for installed in poky space like corridor and basement.
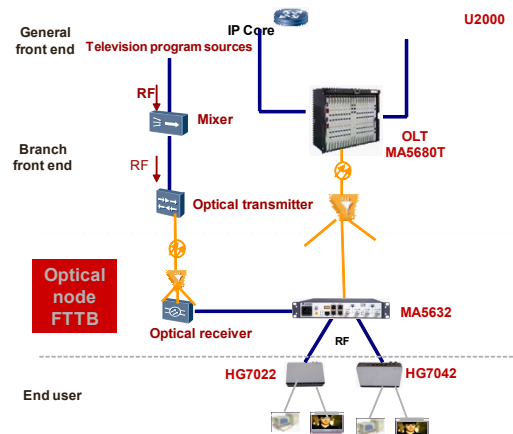
MA5632 adopt AR7410 (from Qualcomm Inc.) chipset, one EOC module can provide 300Mbps bandwidth. MA5632 providing a bidirectional transmission path for television services and quality Internet access, meeting operators' requirements for deploying multiple services.

Appearance

Network port for local maintenance
Serial port for local maintenance
60 V pass by switch

220 V AC input
Ground terminal
Indicator
Uplink PON port
Uplink GE port
RF input/output port 1
RF input/output port 2
Not used

Usage Scenario

The MA5632 and HG7042/HG7022 (EOC terminal) are used in the convergence of three networks (telecommunications, broadcast TV and Internet). MA5632 connects to the OLT through a PON uplink port, connects to the optical transceiver through a radio frequency (RF) port, and modulates broadband and TV signals over a coaxial cable. EoC terminals (the HG7042 and HG7022) are installed in users' homes. They extract broadband and TV signals from the cable, connect to TV sets through the TV output ports, and connect to PCs through FE ports.

General front end
Television program sources
IP Core
U2000
RF
Mixer
Branch front end
RF
OLT
MA5680T
Optical transmitter
Optical node FTTB
Optical receiver
MA5632
RF
HG7022
HG7042
End user

Highlights

- First product integrating the functions of the ONU, EoC, and mixer in the industry, reducing network elements and IP resources and facilitating management, operation, and maintenance.
- Flexible uplink configuration support GPON/EPON/GE, support two EOC modules configuration and supports a maximum of 128 users. Support two RF signals in and out.
- Support Class C+ optical module, extend coverage to max 60Km or expand splitter ratio to max 1:128.
- Have the capability to support IPV6 and multicast, ready for future network evolution.
- Small size and weight for easy installation and maintenamce.
- MA5632 adopt AR7410 chipset and supports 300Mbit/s bandwidth for a single channel, meets high-bandwidth requirements for multi service.

HUAWEI

- Strong compatibility with terminals: MA5632 is compatible with EoC terminals that use AR6400 and AR7400 chips.
- Automatic adaptation to GPON and GE modes: The MA5631 provides two uplink ports using the small form-factor pluggable (SFP) optical modules, meeting different site requirements.
- High reliability: nature heat exhaust without fan, 6KV lighting proof capability, support 60V and 220V two mode power supplies.
- Strong adaptability to environment: With the operating temperature of −40℃ to 55℃, MA5632 can be installed in various scenarios.
- Universal PON+EoC network management: The MA5632 supports ONU and EoC as a single network element, and its service provision can be finished one time. And MA5632 also supports batch deployment and remote upgrade of EoC head ends and terminals, meeting the end-to-end operation and maintenance requirements of network deployment, service provisioning, and fault diagnosis, and reducing operation expenditure (OPEX).

Features

GPON	ITU G.984-compliance
	32 T-CONTs
	1024 GEM ports
Broadband	4096 VLANs, supporting QinQ and stacking VLANs
	4096 MAC addresses
	802.1p, supporting PQ and WRR flow control, and ACL
EoC key specifications	Modulation technology: HomePlug AV
	Physical layer rate: 500 Mbit/s; MAC layer rate: 300 Mbit/s
	Frequency band range: 7.5 MHz to 65 MHz
	Modulation modes: OFDM, 1024/256/64/16QAM, QPSK, and BPSK
	Working modes: CSMA/CA and TDMA
RF port	Maximum output level: 120 dBuv
	Input and output impedance: 75 ohms
	Echo loss: ≥19dB
	Receive sensitivity: -65dBm
	Channel isolation: ≥45dBat 7.5 MHz ~862MHz)
	Maximum current passed along the cable: 3 A
Security	128-bit AES encryption
	PPPoE+ and DHCP option82
	Static and dynamic MAC address binding
	Anti-MAC and anti-IP spoofing; source MAC address and IP address filtering
	Anti-DoS attack and firewall
Maintenance and management	SNMPv1, SNMPv2, and SNMPv3
	Telnet and SSHv2
	Remote and batch pre-deployment
	Remote upgrade and monitoring

Specifications

Dimensions (W x D x H)	250mm × 180mm × 44mm
Network-side port	1 * GPON/EPON/GE; 1*GE electrical port
User-side port	2*RF in and out
Operating temperature	−40℃ to 55℃
Humidity	5% to 95% (non-condensing)
Heat dissipation mode	Not providing fans; passive cooling
Power supply	220 V/110 V/60 V AC
Weight	< 6.8 kg
Typical power consumption	15.2W