MA5800

Product Description

V100R017C10

Product Overview

◆ The MA5800 is the industry's first smart aggregation OLT with a distributed architecture. It is positioned as the next-generation OLT for NG-PON. The product is designed to help carriers build networks with larger bandwidths, higher speeds, and smarter connectivity to deliver better service experience.

◆ Providing GPON, 10G GPON, P2P GE, and 10GE access, the MA5800 supports deployment on FTTH, FTTD, FTTB, FTTC, and distributed converged cable access platform (D-CCAP) networks. This makes it applicable to home access, enterprise access, mobile backhaul, and Wi-Fi hotspot backhaul scenarios to aggregate all services on one fiber network.

◆ The MA5800 functions as a large-capacity aggregation device on the network to aggregate the traffic from ONTs, MDUs, and campus switches, thereby simplifying the network architecture and reducing the OPEX.
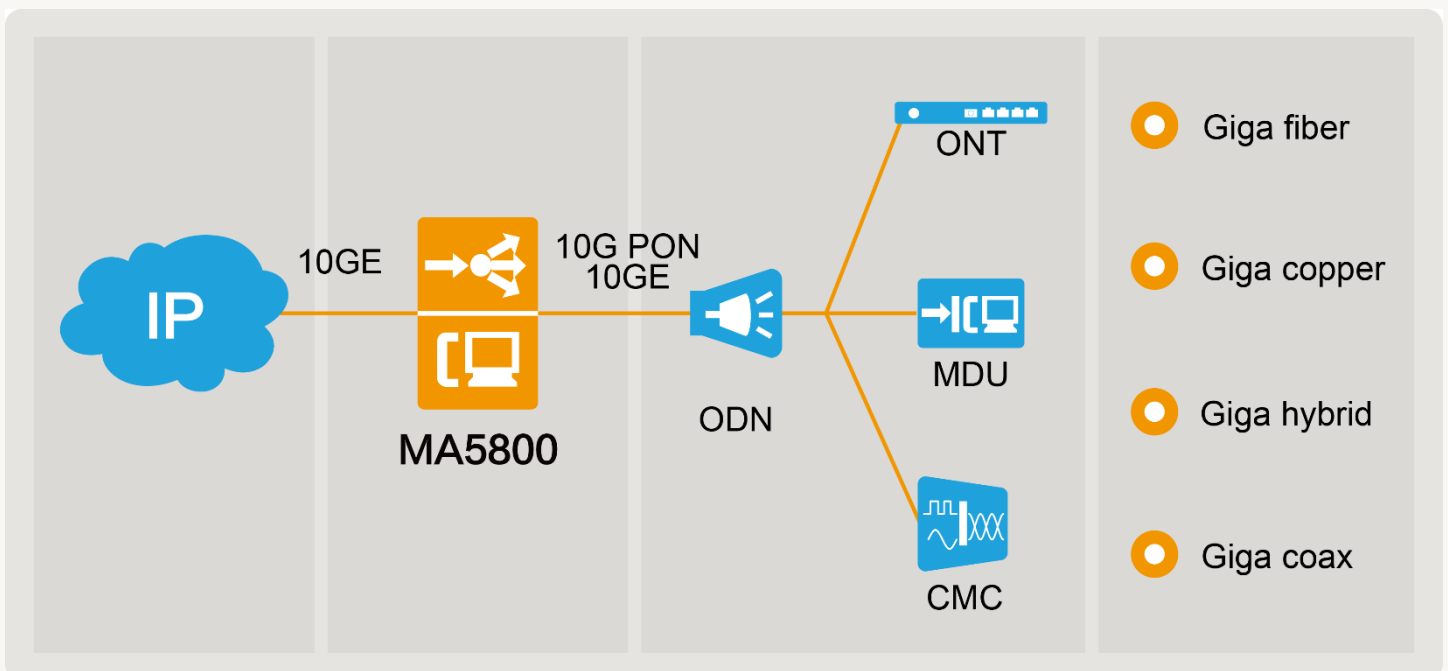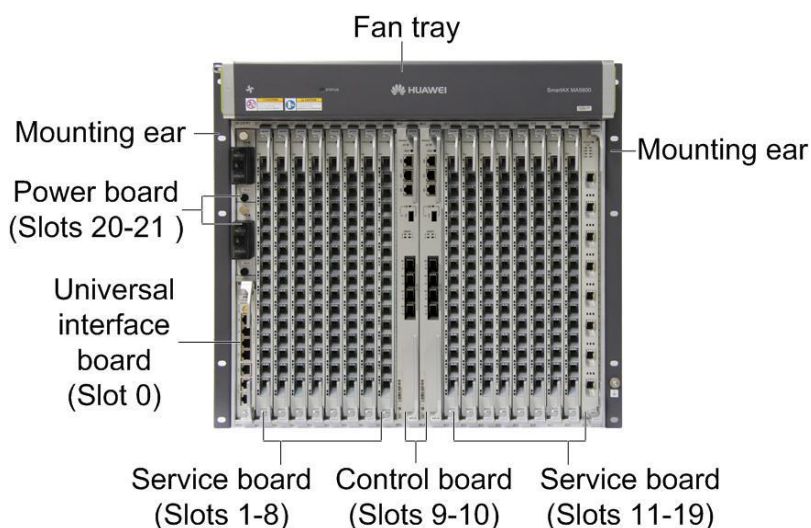
Product Appearance

The MA5800 supports four types of subracks. The only difference between these subracks relies on the service slot quantity (they have the same functions and network positions).

MA5800-X17 (large-capacity, ETSI)

MA5800-X17 supports 17 service slots and backplane H901BPLB.

11 U high and 21 inch wide
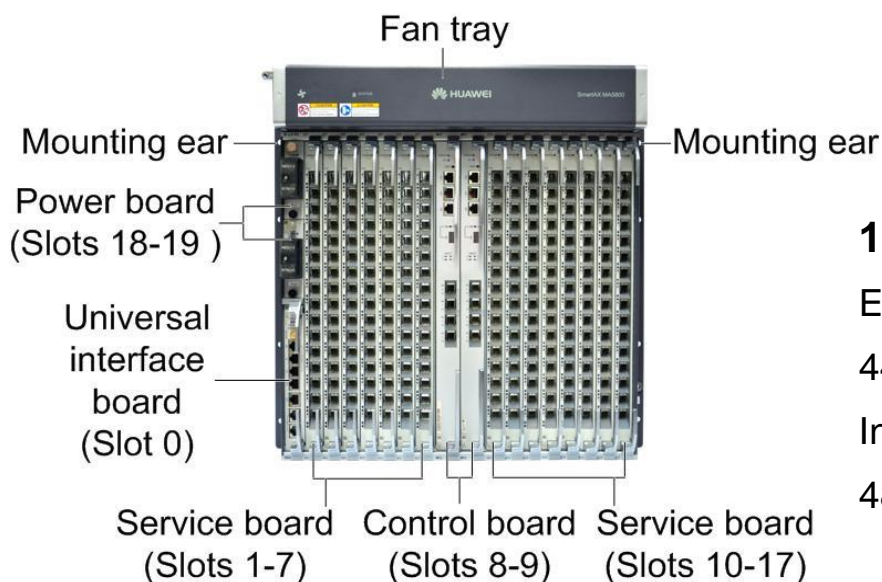
Excluding mounting brackets:
493 mm x 287 mm x 486 mm
Including mounting brackets:
535 mm x 287 mm x 486 mm

MA5800-X15 (large-capacity, IEC)

MA5800-X15 supports 15 service slots and backplane H901BPIB.

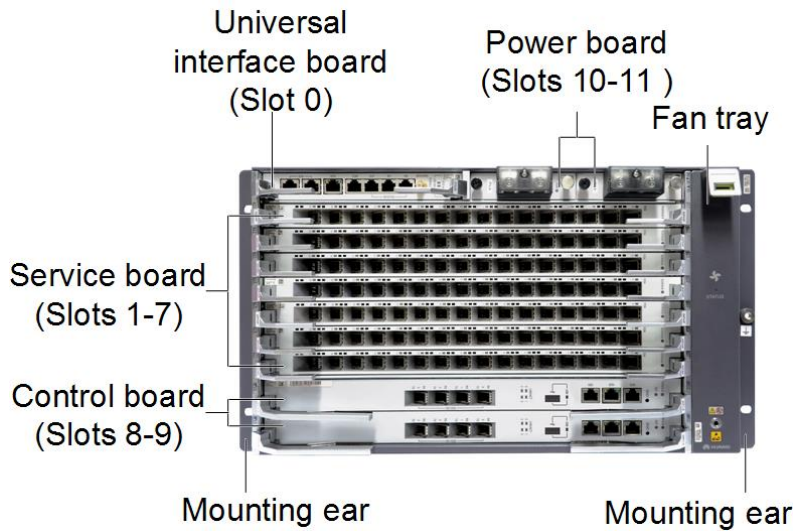**11 U high and 19 inch wide**

Excluding mounting brackets:
442 mm x 287 mm x 486 mm
Including mounting brackets:
482.6 mm x 287 mm x 486 mm

MA5800-X7 (medium-capacity)

MA5800-X7 supports 7 service slots and backplane H901BPMB.

Universal interface board (Slot 0)
Power board (Slots 10-11)
Fan tray
Service board (Slots 1-7)
Control board (Slots 8-9)
Mounting ear
Mounting ear

6 U high and 19 inch wide

Excluding mounting brackets:

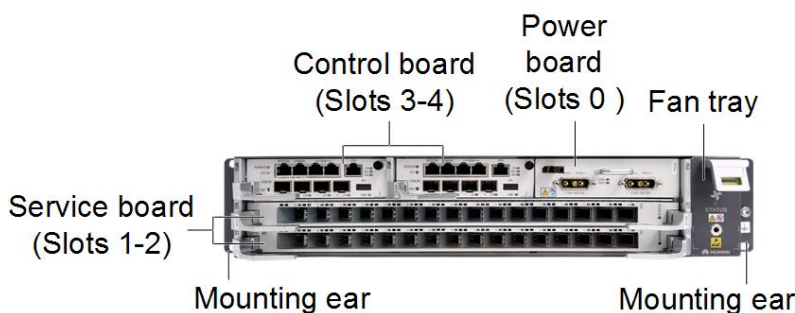442 mm x 268.7 mm x 263.9 mm

Including IEC mounting brackets:

482.6 mm x 268.7 mm x 263.9 mm

Including ETSI mounting brackets:

535 mm x 268.7 mm x 263.9 mm

MA5800-X2 (small-capacity)

MA5800-X2 supports 2 service slots and backplane H901BPSB.

Control board (Slots 3-4)
Power board (Slots 0)
Fan tray
Service board (Slots 1-2)
Mounting ear
Mounting ear

2 U high and 19 inch wide

Excluding mounting brackets:

442 mm x 268.7 mm x 88.1 mm

Including IEC mounting brackets:

482.6 mm x 268.7 mm x 88.1 mm

Including ETSI mounting brackets:

535 mm x 268.7 mm x 88.1 mm

Distributed architecture

The MA5800 uses the distributed architecture (the same as the router). Under such an architecture, service processing on the control board is distributed to every service board, improving system switching capacity and performance, and reliability.

◆ **Centralized:** switching and service processing are implemented on the control board (for low traffic scenarios)
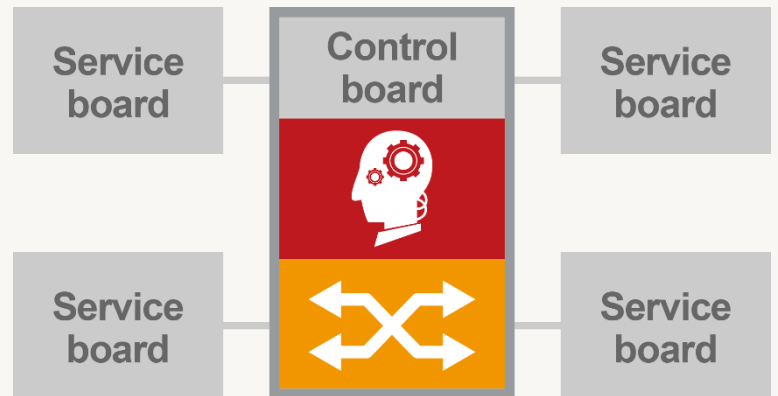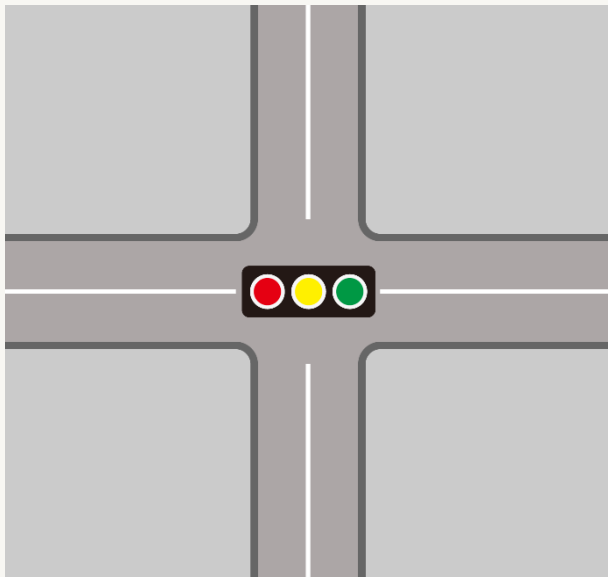
Centralized scheduling
Centralized forwarding table lookup and scheduling limits service throughput and expansion

◆ **Distributed:** switching is implemented on the control board and service processing is implemented on service boards (for heavy traffic scenarios)
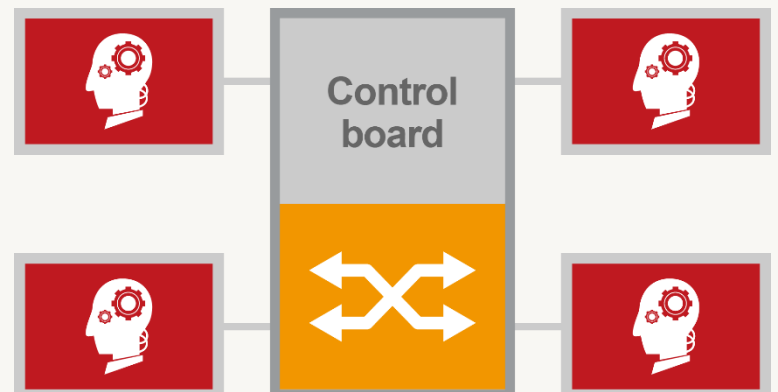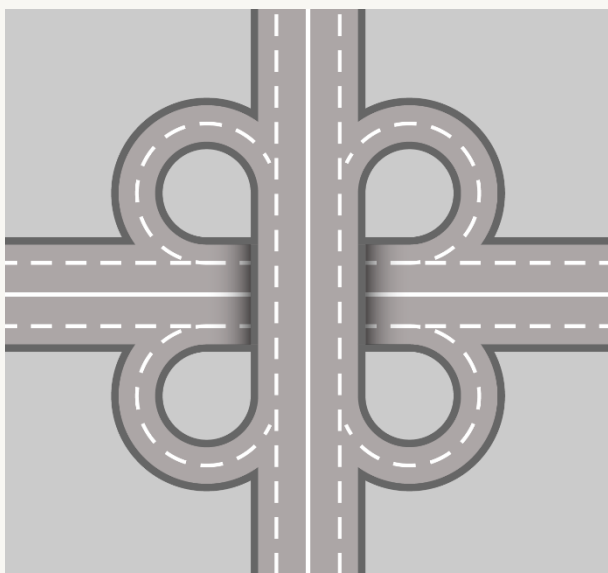
Distributed scheduling
Switching, high service throughput, easy expansion

Optimum video experience

◆ The MA5800 supports cache in the distributed architecture for fast 4K/8K video start or channel zapping.

Previous-generation OLT → New-generation OLT
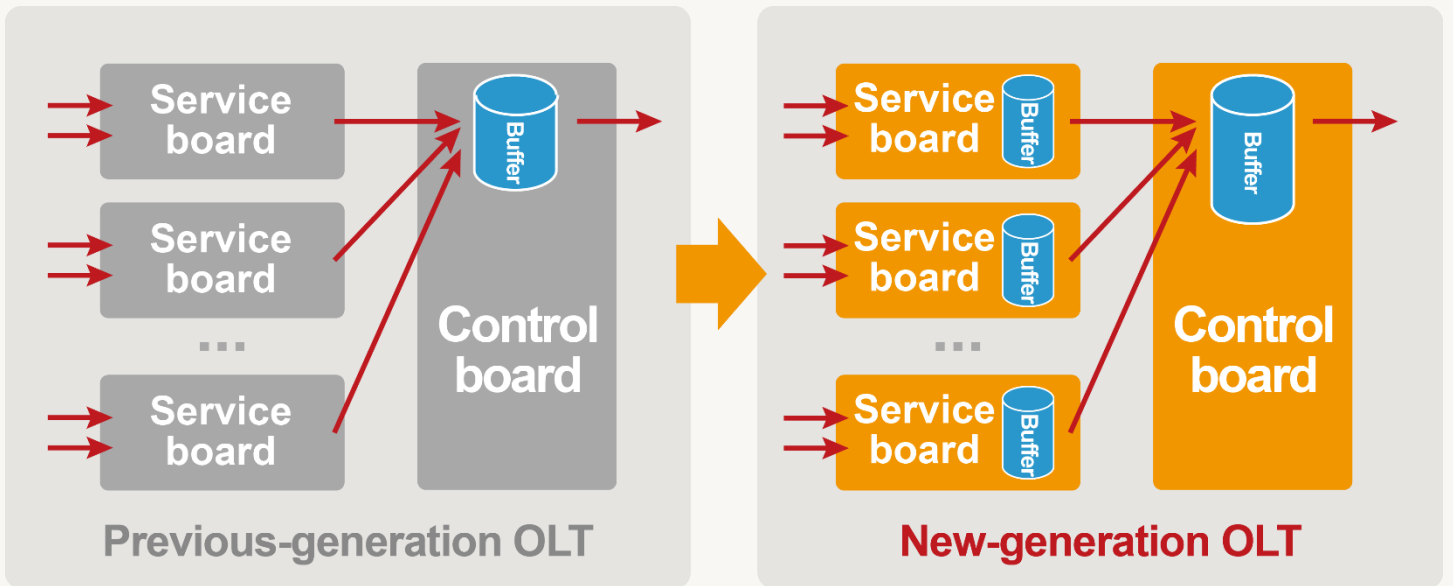
◆ Supports U-vMOS video quality monitoring. Built-in probes on boards are used to collect video indicators and the NMS is used for remote monitoring and monitoring result query, improving video O&M experience.

IPTV

U2000

OLT MA5800

Upstream port · Switching · PON · ONT

+ U-vMOS probe
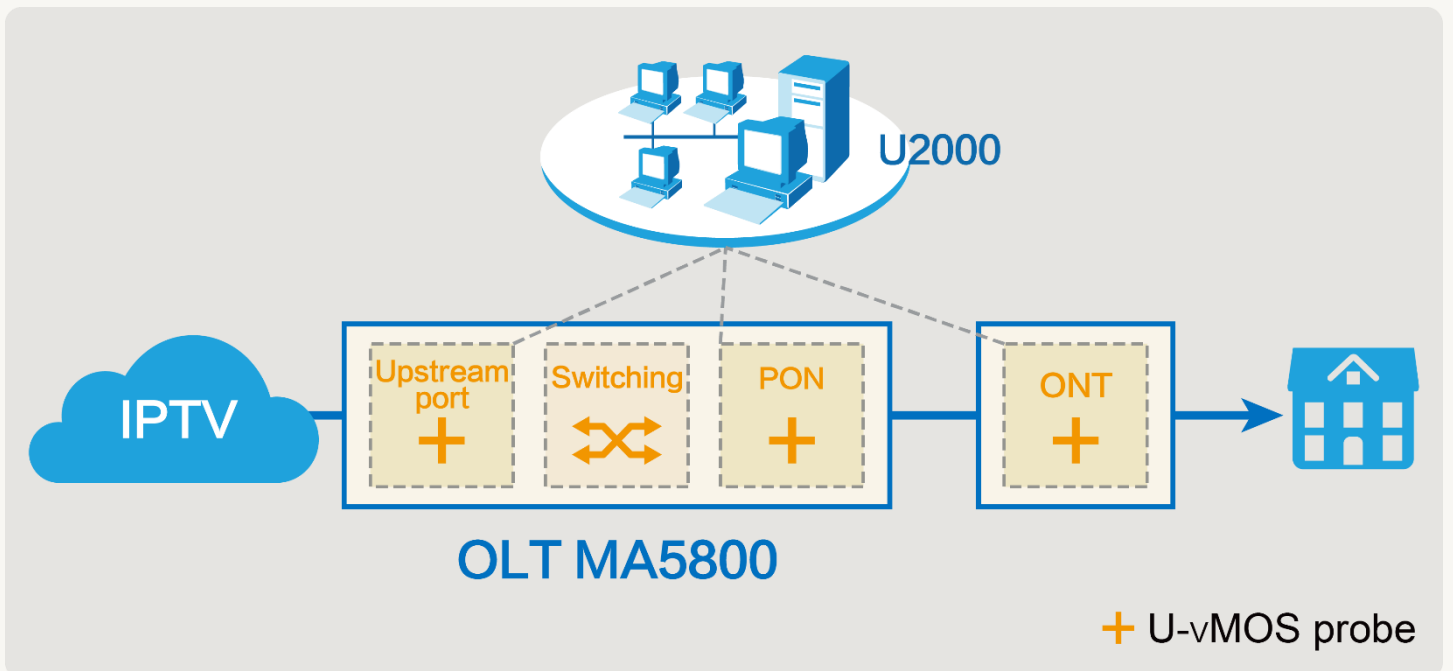
◆ Video service is not interrupted during an OLT upgrade, enhancing user experience.
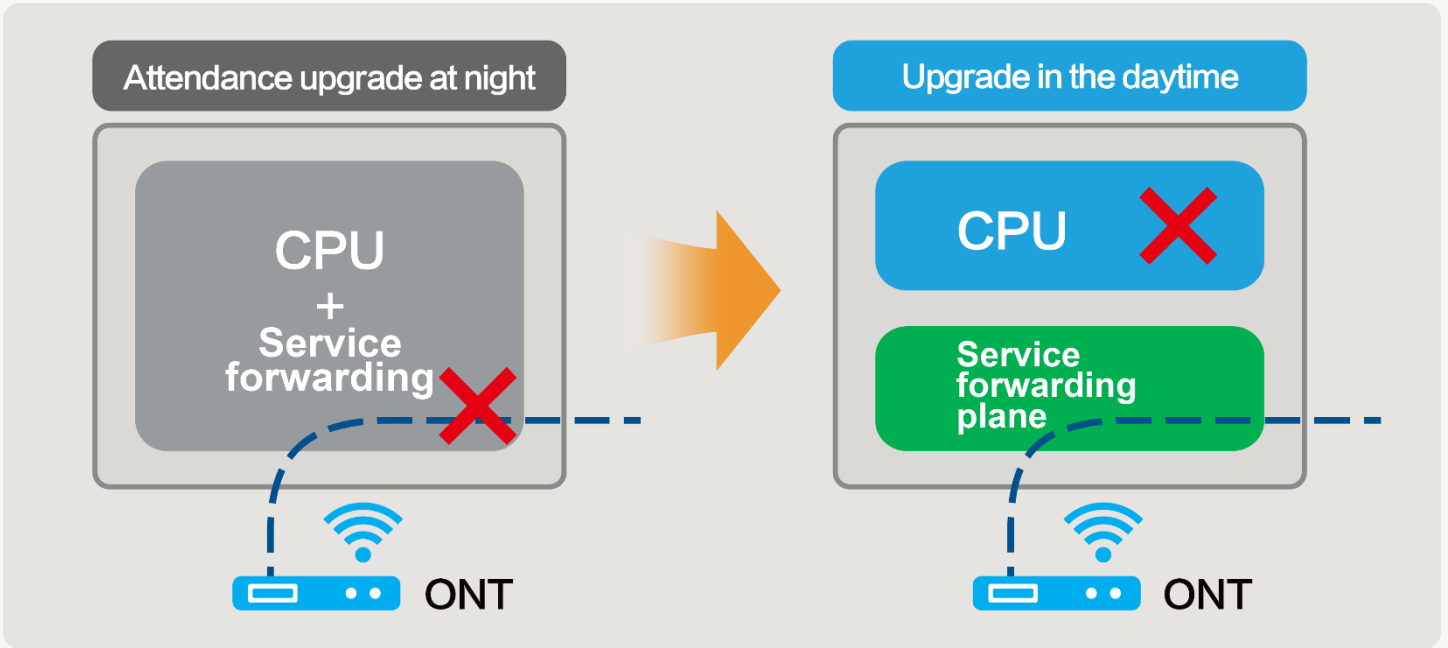
Smooth evolution to 40G/100G

The maximum bandwidth per service slot reaches 200 Gbit/s at the most, which supports the non-convergence access of 10G PON ports and supports 40G/100G PON boards in the future. The MA5800 can smoothly evolve to 40G/100G PON without replacing subracks, which protects carriers' investments.
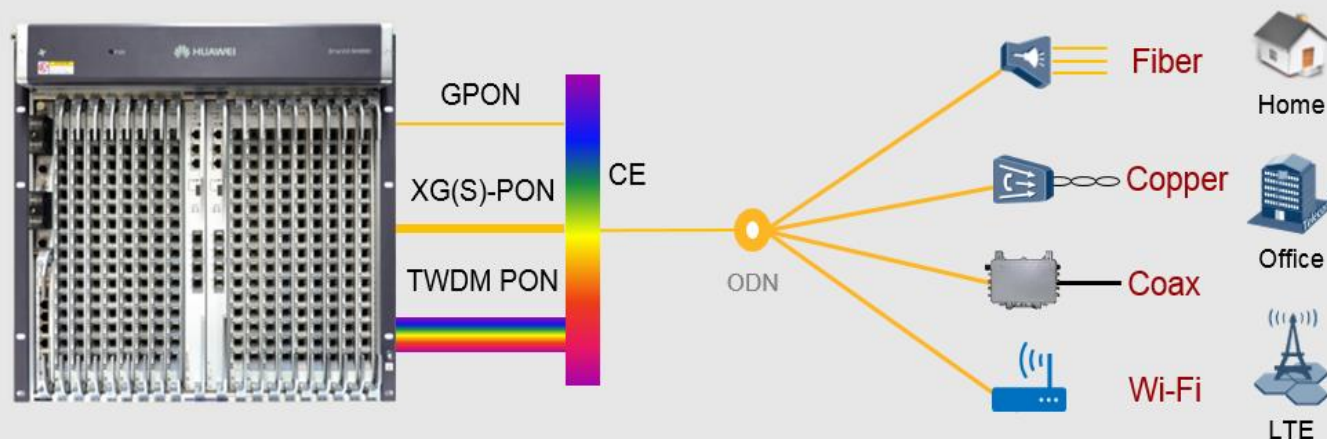
- PON access: GPON, 10G PON
- Upstream port: 2 x 100GE or 20 x 10GE/GE

Multi-service virtualized platform

One physical OLT is virtualized to multiple OLTs. All these virtualized OLTs can be separately configured and managed so that multiple services are carried over the same network.

◆ Multiple OLTs are combined into one, saving CO equipment room space.

◆ Software and hardware resources are isolated, assuring security and reliability.

◆ Domain-based management, making easy maintenance.

Hardware Configuration

Control Board		MA5800-X17/X15	MA5800-X7	MA5800-X2
H901MPLB	Provides four GE/10GE upstream transmission ports and supports load sharing. By default, the MA5800 connects to the upstream network through the control board.	Supported	Supported	Not supported
H901MPLA		Supported	Supported	Not supported
H901MPSC		Not supported	Not supported	Supported
Daughter Board		**MA5800-X17/X15**	**MA5800-X7**	**MA5800-X2**
H901CKUA	Provides the stratum-3 clock by working with the control board. Implements the 1588v2 and 1588ACR.	Supported	Supported	Not supported
H901CKUB	Provides the stratum-3 clock by working with the control board. Implements the 1588v2.	Supported	Supported	Not supported

Upstream Interface Board		MA5800-X17/X15	MA5800-X7	MA5800-X2
H901NXED	Enhanced 8-port 10GE upstream interface board, supporting 10GE/GE Ethernet upstream transmission. NXED is used when the upstream ports currently provided in the MA5800 are not enough.	Supported	Supported	Supported
Universal Interface Board		**MA5800-X17/X15**	**MA5800-X7**	**MA5800-X2**
H901CIUA	Provides the input and output clock source for the system and supports functions such as input and output of alarm digital parameters.	Supported	Supported	Not supported
Fan Monitoring Board		**MA5800-X17/X15**	**MA5800-X7**	**MA5800-X2**
H901FMLA	Supplies power to fans; controls and monitors the fans.	Supported	Not supported	Not supported
H901FMMA		Not supported	Supported	Not supported
H901FMSA		Not supported	Not supported	Supported

Service Board		MA5800-X17/X15	MA5800-X7	MA5800-X2
H901GPHF	Provides 16 GPON ports for access services.	Supported	Supported	Supported
H901GPSF	Provides 16 GPON ports for access services.	Supported	Supported	Supported
H901XGHD	Provides 8 asymmetric 10G GPON ports for access services.	Supported	Supported	Supported
H901XSED	Provides 8 symmetric 10G GPON ports for access services.	Supported	Supported	Supported
H901CGCD	Provides 8 asymmetric 10G GPON and 8 GPON ports for access services.	Supported	Supported	Supported
H901TWED	Provides 8 symmetric 10G GPON ports for access services.	Supported	Supported	Supported
H901EDSH	32-channel E1 upstream board, supporting native TDM mode.	Supported	Supported	Supported
H901OGHK	48-port aggregated GE/FE optical interface board, supporting up to 48 channels of GE/FE.	Supported	Supported	Supported
H901OXHD	8-port aggregated 10GE optical interface board, supporting GE/10GE Ethernet aggregation.	Supported	Supported	Supported
H901CVEC	Works together with the downstream CMC for DVB service processing.	Supported	Supported	Not supported
Power Board		MA5800-X17/X15	MA5800-X7	MA5800-X2
H901PILA	Provides -48 V DC input.	Supported	Supported	Not supported
H901PISA	Provides -48 V DC input.	Not supported	Not supported	Supported
H901PISB	Provides one AC power input and supports battery for power backup.	Not supported	Not supported	Supported

Technical Specifications

Physical Specifications

Item	MA5800-X17	MA5800-X15	MA5800-X7	MA5800-X2
Supported cabinet	N63E-22, configured with one or two MA5800-X17 subracks.	No cabinet supports MA5800-X15 subrack.	N63E-22 and N66E-22, configured with one MA5800-X7 subrack.	N63E-22, configured with one or two MA5800-X2 subracks.
Maximum weight (including mounting brackets)	45 kg	35 kg	26 kg	9.4 kg
Maximum input current	60 A	60 A	40 A	DC power supply: 20 A AC power supply: 8 A
Power supply mode	DC power support (dual for backup)			DC power support (dual for backup) AC power supply + battery for backup
Working voltage range	-38.4 V DC to -72 V DC			DC power supply: -38.4 V to -72 V AC power supply: 100 V to 240 V
Rated voltage	-48V/-60V			DC power supply: -48 V/-60 V AC power supply: 110 V/220 V

Physical Specifications

Ambient temperature	-40°C to +65°C* * The MA5800 can start up at a lowest temperature of −25°C and run at −40°C. The 65°C temperature refers to the highest temperature measured at the air intake vent.
Ambient humidity	5% RH to 95% RH
Atmospheric pressure	70 kPa to 106 kPa
Altitude	< 4000m** **The air density varies with the altitude and will affect the heat dissipation of a device. Therefore, the working environment temperature of the MA5800 varies with the altitude.

Maximum Number of Ports in a Subrack

Item	MA5800-X17	MA5800-X15	MA5800-X7	MA5800-X2
GPON ports	272	240	112	32
10G GPON ports	136	120	56	16
GE/FE ports	816	720	336	32
10GE ports	136	120	56	16
E1 ports	544	480	224	64

System Specifications

Item	MA5800-X17	MA5800-X15	MA5800-X7	MA5800-X2
Switching capacity of the control board	H901MPLA/H901MPLB: 7 Tbit/s			H901MPSC: 480 Gbit/s
Maximum bandwidth per service slot (load sharing mode)	H901MPLA: 100 Gbit/s H901MPLB: 200 Gbit/s			H901MPSC: 80 Gbit/s
Maximum number of concurrent 4K video users	16000		8000	2000
Maximum number of MAC address	262143			
Maximum number of ARP/routing entries	65536			
Switching/Forwarding delay	Small forwarding delay: The 100 Mbit/s Ethernet port sends 64-byte Ethernet packets at a delay shorter than 20 µs.			
Bit error rate (BER) in full load	A BER smaller than 10 e-7 for a port that transmits data in full load			

System Specifications

System reliability specifications	System availability for the typical configuration: > 99.999% Mean time between failures (MTBF): about 45 years. * *Due to different network environments and different boards used by devices, the preceding MTBF (45 years) of the MA5800 is only for reference. The average repair time for field replaceable units (FRUs) is about 2 hours. The preceding values are only for reference. For details, contact the related Huawei engineers.

Primary Features

Layer 2 features

- VLAN+MAC forwarding
- SVLAN+CVLAN forwarding
- PPPoE+
- DHCP option82

Layer 3 features

- Static route
- RIP/RIPng
- OSPF/OSPFv3
- IS-IS
- BGP/BGP4+
- ARP
- DHCP relay
- VRF

Multicast

- IGMP v2/v3
- IGMP proxy/snooping
- MLD v1/v2
- MLD Proxy/Snooping
- VLAN-based IPTV multicast

QoS

- Traffic classification
- Priority processing
- trTCM-based traffic policing
- WRED
- Traffic shaping
- HQoS
- PQ/WRR/PQ+WRR
- ACL

D-CCAP

- DOCSIS 3.1
- RF access
- CM management
- Centralized management
- PacketCable
- DOCSIS multicast
- EQAM
- Admission control
- Built-in optical transceiver
- SAV
- PNM
- RF switch

MPLS&PWE3

- MPLS LDP
- MPLS RSVP-TE
- MPLS OAM
- MPLS BGP IP VPN
- Tunnel protection switching
- TDM/ETH PWE3
- PW protection switching

IPv6

- IPv4/IPv6 dual stack
- IPv6 L2 and L3 forwarding
- DHCPv6 relay

System reliability

- GPON type B/type C protection
- 10G GPON type B protection
- BFD
- ERPS (G.8032)
- MSTP
- Intra-board and inter-board LAG
- In-service software upgrade (ISSU) of the control board
- 2 control boards and 2 power boards for redundancy protection
- In-service board fault detection and rectification
- Service overload control

Eco-friendly and energy-saving

- In compliance with the Code of Conduct v5 released by the European Commission

VAN

- vOLT multi-service isolation and separate management

Standards Compliance

EMC standards

IEC 61000-4-2	ETSI ES 201 468 V1.4.1
IEC 61000-4-3	ETSI EN 300 386 V 1.6.1
IEC 61000-4-4	ETSI EN 300 132-2
IEC 61000-4-5	VCCI V-3
IEC 61000-4-6	EN 55022
IEC 61000-4-8	EN 55024
IEC 61000-4-11	EN 55032
IEC 61000-4-6	ITU-T K.20
IEC 61000-4-8	CISPR 22
IEC 61000-4-11	CISPR 24
IEC 61000-4-29	CISPR 32
EN 61000-4-29	ITU-T K.11
EN 61000-4-2	ITU-T K.20
EN 61000-4-3	ITU-T K.27
EN 61000-4-4	ITU-T K.32
EN 61000-4-5	ITU-T K.41
EN 61000-4-6	ITU-T K.44
	ITU-T K.45
	FCC part 15
	ICES-003

Environment standards

IEC 60529

ETS 300 019 1-1

ETS 300 019 1-2

ETS 300 019 1-3

ETS 300 019 2-1

ETS 300 019 2-2

IEC 60721-3-3

GR-63-CORE

Security standards

EN 60950-1

EN 60825-1

EN 60825-2

IEC 60825-1

IEC 60825-2

IEC 60950-1

UL 60950-1

PON interface standards

ITU-T G.984.1

ITU-T G.984.2

ITU-T G.984.3

ITU-T G.984.4

ITU-T G.987.1

ITU-T G.987.2

ITU-T G.987.3

ITU-T G.988

Reliability standards

MIL-HDBK-217F

BELLCORE TR-332/SR-332

Documentation Dept.AN

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