

# MA5616

Series DSLAM



## Overview

The MA5616 series DSLAM has 32/64/96/128 ports subscriber line interface with built-in POTS splitter features 2U height space saving design. Each MA5616 includes unique bandwidth management, flow prioritization and data flow security control key feature. The MA5616 provides QoS (Quality of Service) capability to meet triple play (voice, data, video) requirement, supports ADSL /ADSL2/ADSL2+/VDSL2/ G.SHDSL/VOIP interface. With top of the line features, leading edge performance, and affordable cost, MA5616 is the best choice for NSP (network service provider)

## Features

### Product Features

- Plug-and-Play Service Provisioning
- Superior Maintainability and Manageability
- High-Density Subscriber Access
- Flexible Configuration of Multiple Service Boards
- Carrier-Class Reliability Design
- Energy Saving and Noise Reduction
- High and Guaranteed QoS
- Strict Security
- Operable IPTV Service
- Perfect Voice Features

## Product Description Positioning and Features

- Provides protection from lightning and anti-interference functions.
- Starts up at -25°C.
- Endures high temperatures and it can normally work for a long time at 65°C (the maximum working temperature).
- The temperature detection function sets off alarm when the temperature exceeds the threshold.
- Supports protection of the subscriber port:
  - DSL port: enhanced K20, common mode 4 kV
  - POTS port: common mode and differential mode, 4 kV
- Supports the power protection (2 kV in differential mode and 4 kV in common mode).
- In the AC + backup power configuration mode, the battery can be used as the backup power. When the AC power supply fails, the battery supplies power to the system. In this case, the broadband services are shut off, and the narrowband services remain normal.
- Supports the intelligent speed adjustment of the fan. The system can automatically adjust the fan rotating speed according to the working temperature, which positively affects the reliability of energy saving and noise reduction features.
- Supports replacing the fan tray independently.
- Derating design for the electronic components improves reliability.
- Corrosion-proof design reduces the cable routing on the board surface. The heat dissipation layout is reasonable and prevents the condensation from forming because of the temperature difference.
- Supports the MGCP/H248/SIP dual homing. When the MGCP/H.248/SIP protocol is used, the MDU can be configured with up to two MGCs. When the MGC is switched over or the MDU detects the fault of the primary uplink, the system automatically switches over to the other MGC.
- Supports emergency standalone. When the MDU upstream port is interrupted, the system automatically starts the emergency standalone function. Then, the subscribers of the same MDU can call and communicate with each other.
- Supports virtual noise. The system uses the virtual noise mechanism to decrease the line rate (the system adjusts the line rate according to the SNR), which improves the anti-interference capability of the system.

## Perfect Voice Features

The MA5616 has built-in access gateways (AGs) and inherits the platform capability and Intercommunication capability of Huawei large-capacity AGs:

- Supports changing the configuration of the signaling IP address, media IP address, and management IP address to be the same or different.
- Provides multiple voice service configuration profiles, which facilitates the configuration process.
- Supports the configuration and delivery of the voice service.
- Supports H.248/MGCP/SIP.
- Supports the POTS basic service and supplementary service defined in the AG device standards.
- Complies with ITU-T/IETF standards.
- Supports dynamic jitter buffer and static jitter buffer.
- Supports the media IP address and signaling IP address management.
- Delivers signal tones to local and remote subscribers.
- Supports H.248/MGCP/SIP dual homing.
- Supports the H.248 performance statistics and call statistics.
- Supports service performance requirements such as long duration calls.
- Supports the fax/modem service in the VBD mode.
- Supports T.38 fax.
- Supports flexible configuration of narrowband and broadband services.
- Supports the loop line test, circuit test, and call emulation test.
- Supports the remote packet capture.
- Supports the emergency standalone service.
- Supports the enhanced fax/modem service.
- Supports obtaining the IP address through DHCP.
- Supports the global digitmap configuration.
- Supports the flexible configuration of signaling transfer protocols.
- Supports the local announcement (ring back tone).

# High and Guaranteed QoS

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The MA5616 has a high and guaranteed QoS, which lays the foundation for service management.

- Traffic-stream-based priority marking
- ACL-based priority marking
- Three scheduling modes, namely priority queuing (PQ), weighted round robin (WRR), and PQ+WRR
- DBA-based bandwidth management of the GPON port
- Mapping upstream/downstream services to different priority queues for scheduling based on the priority
- ACL-based access control
- Two rate three color marker (trTCM)-based IP traffic profile, and rate limitation on a subscriber port
- TCONT-based priority service in the upstream GPON transmission direction of the MDU.

# System Security

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- **Filters the packets by:**
  - specified IP address, port, and protocol type.
  - the source MAC address and destination MAC address of the packets.
  - the source route options.
- **Supports :**
  - ACL-based (allow/deny) access control.
  - Static binding of the MAC addresses.
  - Suppression of broadcast, multicast, and unknown unicast packets of the GPON port Ethernet port.
  - SNMPv3 on the basis of SNMPv1 and SNMPv2c. Provides three key services, namely, authentication, encryption, and access control, considering the security defect in SNMPv1 and SNMPv2c. (Note: The device on the CO side must also support SNMPV3.)
  - Changing the password for the Root user.
  - GEM port-based encryption through the PLOAM messages in the downstream direction, by using the Advanced Encryption Standard (AES) 128 encryption algorithm.
  - Dynamic key switching based on ITU-T G.984 through the PLOAM messages.
  - Dual GE port (backup for each other) upstream transmission.
  - The virtual MAC (VMAC).
  - Anti-ICMP/IP attacks.

# Subscriber Security

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- Supports L2 isolation and controlled mutual access of the subscribers.
- Supports the global Policy Information Transfer Protocol (PITP) and the PITP controlled by VLANs. Supports global DHCP Option82 and the DHCP Option82 controlled by VLANs.
- Supports DHCP Option82 so that the information about the physical location of a subscriber is contained in the authentication packet, thus enhancing the DHCP security.
- Supports global-level dynamic anti-MAC address spoofing. After the subscriber passes the authentication, the MAC address of the subscriber is bound with the service stream dynamically.
- Supports the global and VLAN-level anti-MAC address spoofing and anti-IP address spoofing based on the DHCP protocol.
- Supports the anti-MAC address spoofing function for the subscriber who uses the PPPoE protocol.
- Supports the management of the operation rights of the maintenance and management personnel according to different right levels.

# Multicast

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## Multicast Protocol

- Internet Group Management Protocol (IGMP) V2 and IGMP V3
- IGMP proxy and IGMP snooping

## Multicast Service

- Up to 32 multicast VLANs and 1024 programs for each multicast VLAN
- 1024 multicast groups
- Up to 16 multicast groups that the subscribers under each service port can join concurrently
- Delay shorter than 50 ms for joining or leaving the multicast group
- Flexible and easy channel control
- IGMP packet statistics
- High performance processing of IGMP packets, which enables the broadband TV (BTV) service
- Multicast VLAN, program, and subscriber management
- Setting and querying the quick-leave function through the NMS or the CLI
- Global-level switching of IGMP modes
- Filtering downstream multicast packets (The downstream multicast traffic that is not contained in the multicast filtering table is discarded)
- Statically joining a multicast program: adding, modifying, and deleting programs in batches