

MSG3600 Unified Communication Series

The unified communication solution, designed for enterprise communication markets, is implemented through the Unified Communication System (UCS) series (MSG3xxx), Private Branch Exchange (PBX) series (MSG2300E-XXX), Integrated Access Device (IAD) series (MSG3xx), and soft terminal APP. The MSG3600-12 and MSG3600-6 which belong to the UCS series, is a device used in the core aggregation layer of the enterprise network. It can not only solve the problems of multiple networks and terminals within the enterprise but also provides abundant application services, which greatly reduces the cost on network establishment and maintenance, and improves the enterprise communication efficiency.

Introduction

The MSG3600-12 and MSG3600-6, designed for government bodies and enterprises, are enterprise unified communication products in chassis shape, applicable to enterprises with the number of staff between 300 and 1000. Adopting a card plug-in design, it integrates voice, data, routing, and security. The MSG3600-12 and MSG3600-6 can share a card, but the main difference between the shared cards is the capacity of analog extensions. The MSG3600-12 is a 6 U chassis supporting up to 528 FXS interfaces. the MSG3600-6 is a 3 U chassis supporting up to 144 FXS interfaces. The service cards on the chassis support hybrid insertion and all cards support hot swapping.

This document takes the MSG3600-12 for example (for detailed parameters about the MSG3600-6, see specifications), with the appearance as below:



MSG3600-12



MSG3600-6

Features

Moderate density

- The MSG3600-12 is 6 U high, small in volume, and high in capacity.
- The entire device provides 15 slots which can be inserted with 2 power planes, 1 MCC, 1 IMPA, and 11 service cards.
- It supports up to 3000 extensions (among which up to 528 analog extensions) and up to 500 concurrent calls.

Carrier-grade reliability

- It supports 1+1 redundant protection and all cards support hot swapping.
- The service channel and management channel are independent physically while the voice service and the data service are independent logically, thus ensuring the QoS of all services.
- The fan can automatically adjust its speed with the change of the temperature, thus extending its life span, reducing noise, and saving energy.

Abundant interfaces and flexible networking

- Support configuring the E1 and FXO to be connected uplink to the PSTN or downlink to the PBX.
- Support connecting the EPON, GPON, and GE interfaces uplink to the carrier Internet, IMS, and NGN.
- Support the high-density FXS and FXO analog voice interfaces and support the Combo interface and USB interface.
- Support multiple interconnection protocols, such as IMS-SIP, SIP, H.248, SS7 (ISUP)/PRI, and MGCP.
- Support interconnecting multiple branches.

Unified system platform with high performance

- It adopts the high-performance X86 CPU to be the processor for main services.
- It is a RCIOS open system software platform with independent intellectual property right developed based on the Linux. It can integrate or load various enterprise applications, provide an open API, and interconnects the third-party applications.
- With high switching capacity, it is suitable for data and voice integration services of high bandwidth.

Abundant enterprise communication functions

- Support short codes, fax, and abbreviated dialing.
- Support multimedia communication.
- Support call transfer, three-way calling, call waiting, call hold, pickup, co-vibrating group, and sequential vibrating group.
- Support virtual Centrex.
- 分流保号;
- Support centralized conference, instant conference, and reserved conference.
- Support business contacts, CTD, representation, PTT cluster, and IM (implemented by the clients APP).

Data and gateway features

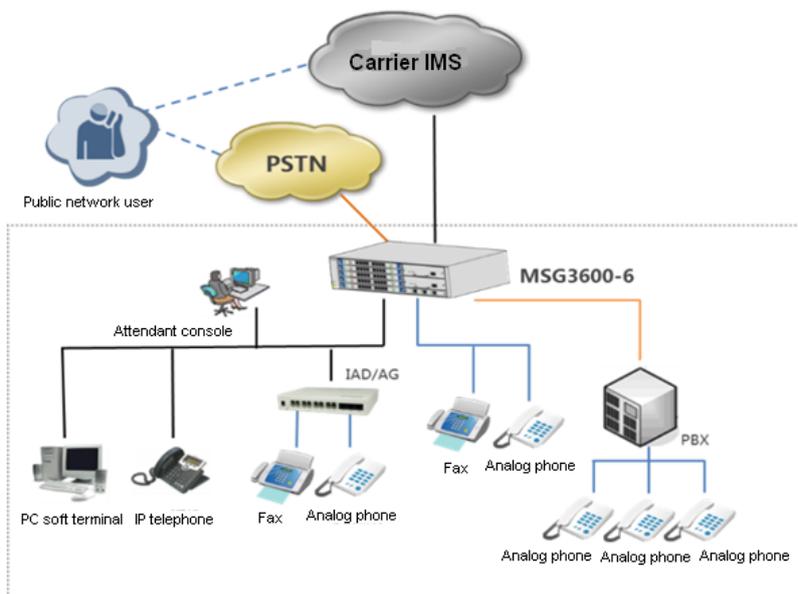
- Support layer 2 wire-speed forwarding and various Layer 2 data services, such as VLAN, ACL, and QoS.
- Support NAT, routing, VPN, firewall, and online behavior management.

Convenient maintenance mode

- Support multiple maintenance modes, such as SNMP, Web, and CLI.

Networking

Typical networking of single enterprise



■ Applicable scenarios

It is applicable to enterprises with the number of staff ranging from 300 to 1000 (the amount of voice extensions are calculated by estimating that each person has one computer, one PC, and one phone), which need to fully utilize the original analog telephones and data network, and have requirements on expanding new data and voice services.

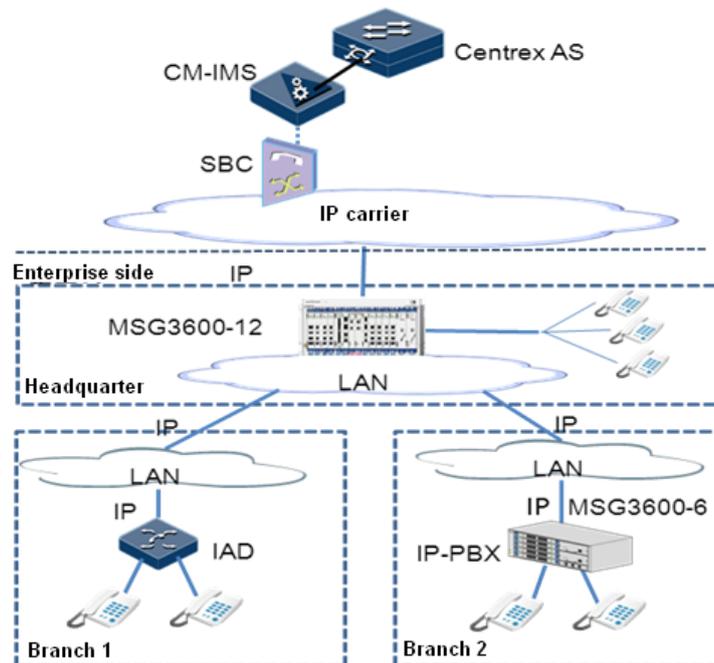
■ Application schemes

- For the established analog telephone network: connect the MSG3600 downlink to the original PBX through the E1 cable or directly transform the analog voice in the PBX to the MSG3600 to utilize the original network, thus saving the cost in maintaining the traditional PBX.
- For new employees: connect the switch or IAD downlink to the Ethernet or PON to implement the aggregation of the PC and analog/VoIP voice terminals and network integration.
- Unified network management: the MSG3600 is connected to the downlink Raisecom switches, OLT/ONU, gateway, IAD, and AP, to be managed uniformly, thus reducing the maintenance cost.
- Support AC.

■ Service applications

- Support data interconnection, VPN, conference, business contacts, CTD, Centrex, IVR, PTT cluster, and instant messaging, to interwork with the original data and voice network and share services.

Enterprise branch networking



■ Application scenarios

It is applicable to the enterprise with multiple branches which access the headquarter through the VPN, and can meet the requirements of internal sessions and data transmission between the headquarter and the branches, and the branches and branches.

■ Application schemes

- Deploy one UCS device to the headquarter to provide unified service, such as data and voice. Deploy small UCS, PBX, or IAD to the branch according to the access volumes of the staff and access the headquarter UCS through the VPN to implement internal communication.
- Integrate the analog telephone network and data network in the whole enterprise to solve the problem of the separation of the office desktop, phone desktop, and computer desktop.
- Implement uniform service application across regions.
- Support being managed uniformly, thus saving maintenance cost.

■ Service applications

- Support data interconnection, VPN, conference, business contacts, CTD, Centrex, IVR, PTT cluster, and instant messaging, to interwork with the original data and voice network and share services.

Specifications

Hardware specification

Model	MSG3600-12	MSG3600-6
-------	------------	-----------

Dimensions (Length × Width × Height)	440 × 248 × 266 (6U)	440 × 248 × 133 (3U)
Number of slots	15	8
Number of service card slots	12 (the IMPA must be configured)	5 (the IMPA must be configured)
Number of MCC	1 (the MCC must be configured)	1 (the MCC must be configured)
Number of power planes	2	2
Full weight	16.18 Kg	10.28 Kg
Power supply	AC power <ul style="list-style-type: none"> • 220 VAC (ranging from 90 VAC to 264 VAC) • 50Hz/60Hz DC power <ul style="list-style-type: none"> • -48 VDC (ranging from -38.4 VDC to -57.6 VDC) Support 1+1 power hot backup.	
Maximum power consumption	350 W	150 W
Lightning protection grade	AC power supply <ul style="list-style-type: none"> • Differential mode: 6 kV • Common mode: 6 kV DC power supply <ul style="list-style-type: none"> • Differential mode: 1 kV • Common mode: 2 kV 	
Working temperature	Environment temperature: 0 °C to 55 °C	
Storage temperature	-25 °C to 60 °C	
Storage humidity	Environment humidity: 5% to 95% RH, non-condensing	
Dustproof level	IP20	
GE electrical interface	<ul style="list-style-type: none"> • Interface type: RJ45 • Support IEEE 802.3 10/100/1000BASE-TX. • Transmission rate: 10/100/1000 Mbit/s auto-negotiation • Working mode: full duplex/half duplex auto-negotiation 	
GE optical interface	<ul style="list-style-type: none"> • Interface type: LC • Support IEEE 802.3 1000BASE-LX/SX/CX • Transmission rate: 1000 Mbit/s 	
EPON uplink interface	<ul style="list-style-type: none"> • Interface type: EPON optical interface • Standard: comply with IEEE 802.3ah 1000BASE-PX20+-D • Average optical power: 2 to 7 dBm • Working wavelength: 1310/1490nm • Rx sensitivity: ≤ -30 dBm • Overload optical power: ≥ -6 dBm 	
GPON uplink interface	<ul style="list-style-type: none"> • Interface type: EPON/GPON adaptive optical interface • Standard: comply with ITUT G.984-1~4 and 1244/2488Mbps-PX60-D • Average optical power: 1.5 to 5 dBm • Working wavelength: 1310/1490nm • Rx sensitivity: ≤ -28 dBm 	

		<ul style="list-style-type: none"> • Overload optical power: ≥ -8 dBm
Functions		
Service type	Feature	MSG3600-12/MSG3600-6
Voice service	Basic function	<ul style="list-style-type: none"> • Support accessing IMS network. • Support standard SIP, IMS-SIP, H.248, and MGCP.
		Support Intranet and Extranet SIP ALG to implement voice service NAT traversing.
		<ul style="list-style-type: none"> • Support voice and video call. • Support fax/Modem services.
		Call signaling: SIP, PRI, and SS7 (ISUP)
		Voice CODEC: G.711A, G.711U, G.723.1, and G.729
		Video CODEC: H.263 and H.264/AVC
		Fax standard: T.30 and T.38
		Media protocol: RTP/RTCP
		<ul style="list-style-type: none"> • Support multi-mode DTMF and call event processing. • Support various CID services.
	Support performance statistics and signaling tracing.	
	Supplementary services	Support forwarding services and service of number replacement on the same phone, such as CFU, CFB, CFNR, and unregistered forwarding.
		Support call transfer, call hold, call waiting, and three-way calling.
		Support abbreviated dialing (10 per user), designated pickup, and group pickup.
		Support sequential ringing (5 users/group), co-vibrating ((5 users/group), and sequential vibrating (5 users/group)
		Support Do not Disturb (DND), incoming and outgoing call barring (20 calls per user respectively), password-based call barring, and whitelist and blacklist (20 items per user).
	Enhanced function	Support virtual group services; support configuring multiple virtual and small PBXs within the PBX to implement short code dialing and other virtual group services.
		<ul style="list-style-type: none"> • Support built-in meetings. • Support 12 groups of concurrent meetings with 20 persons talking in each meeting.
		Support Interactive Voice Response (IVR), namely it plays information according to the contents inputted by the user.
		Support color ring service.
Support manual attendant console, break-in, and forced release.		
Extended function	Support calling for meetings through the attendant console.	
	Support initiating or accessing the meeting through fixed phones, mobile phones, and PC clients.	
Sever	Business contacts and clients	

	function	<p>Call center server</p> <p>Voice mail server which storages and manages voice messages uniformly Users can listen to the messages at any time and any places through intra-office or inter-office phones.</p> <p>Third-party service access capability</p>
Data service	Access capability	<ul style="list-style-type: none"> • The MCC has a 128G switching capability and provide four 1000 Mbit/s LAN interfaces which connect the OLT, ONU, and switch in the downlink direction, thus expanding the access interfaces. • The MSG3600-12 supports up to 3000 registered extensions and 528 FXS interfaces. • The MSG3600-6 supports up to 1000 extensions and 144 FXS interfaces. • Both two models support up to 500 concurrent voices and support layer 2 and layer 3 data forwarding.
	VLAN	Support 4K 802.1Q VLANs.
	QoS guarantee	<ul style="list-style-type: none"> • Support 802.1P, DSCP, and IP TOS. • Support traffic classification and QoS based on the MAC address, IP address, and service.
	Service priority	<ul style="list-style-type: none"> • Each interface supports 8 priority output queues. • Support SP, WRR, and DRR.
	Rate limiting	Support rate limiting based on the interface, MAC address, IP address, VLAN ID, protocols, and application combinations, with a granularity up to 64Kbps.
	Route	<ul style="list-style-type: none"> • Support accessing IPv4 and IPv6 concurrently and support route forwarding. • Support automatically starting the protocol stack according to different applications.
	VPN	<ul style="list-style-type: none"> • Support IPsec (250 tunnels), L2TP (150 tunnels), and SSL VPN. • Support point-to-point and point-to-multipoint secure VPN connection.
	Security	<ul style="list-style-type: none"> • Support preventing network attacks, such as DoS and ARP, to ensure the network security. • Support preventing attacks on anomalous packets, such as IP deformity packets, IP spoofing, and TCP invasion. • Support access control based on the source/destination IP address, source/destination interface number, IP, and time period. • Support ACL packets filtering. • Support standard and extended ACL.
	Online behavior management	<ul style="list-style-type: none"> • Support the realtime collection of network traffic, graphical monitoring, refined analysis, visualized inspection on the network working status. • Support the permit and deny feature based on the source IP address, destination IP address, time, protocol, and application, which can precisely identify 160 protocols, such as P2P application, IM, stock software, and streaming media. • Support controlling the bandwidth management policy based on the group objects.
	Network audit	<ul style="list-style-type: none"> • Support auditing the whitelist and blacklist. • Support auditing HTTP, including auditing the web page browsing, access address of the forum or social network work, and the posted text content. • Support auditing the mails, including the subject, sender, receiver, and contents. • Support auditing the IP address used by the user to access the FTP, login user name, directory traversal, uploaded or downloaded file names. • Support auditing chat tools, such as recording the accounts of the user QQ or MSN and the user behavior. • Support auditing logs, including the flow log, egress NAT log, URL log, device log, and attack log.

Performance	<ul style="list-style-type: none"> • Enabled application control, enabled auditing, and refined URL • New establishment: 3050 • Throughput: 51.7 Mbps • Concurrent calls: 36700
	<ul style="list-style-type: none"> • Without application control, disabled auditing, and default URL • New establishment: 4100 • Throughput: 124.8Mbps • Concurrent calls: 46200

Configuration

Model	Description	
Chassis	MSG3600-12	MSG3600-6
Fan	FANS360	FANS325
Power	RPA1701-ST-220D1250	RPA1201-220S12
	RPD1701-48D1248	RPD1201-48S12
Card (universal)	MSG3600-SMCA (MCC, compulsory)	
	MSG3600-IMPA (voice processing card, compulsory)	
	MSG3600-GWA (gateway card, optional)	
	MSG3600-48FXS (analog voice access, support up to 11 cards, optional)	MSG3600-48FXS (analog voice access, support up to 3 cards, optional)
	MSG3600-8FXO (AT0 card, optional)	
	MSG3600-2VE1 (E1 card, optional)	