HUAWEI VP9630
V600R006C10

Product Description

Issue 06

Date 2018-08-10

Huawei Technologies Co., Ltd.

Contents

1 Product Positioning and Features

1.1 Product Positioning

The HUAWEI VP9630 Multipoint Control Unit (VP9630 for short) is a new generation of Multipoint Control Units (MCUs) with support for dynamic port allocation, smooth expansion, and 4K30 universal transcoding.

The VP9630 can be used for small and medium sized enterprises: The VP9630 can function as the central processing device.

1.2 Product Features

Powerful Capability for Ultimate Conference Experience

- 4K 30 fps full encoding and decoding

  The VP9630 supports independent encoding and decoding for each video channel. With the H.265 4K video encoding and decoding technology, the VP9660 supports 4K 30 fps full HD. The VP9630 supports 4K 30 fps full encoding and decoding for up to 4 video channels.

- Continuous presence per port

  The VP9630 provides continuous presence per port. This allows endpoints to join the same conference at any protocol and bandwidth, and each endpoint user can have the best possible experience for their endpoint capability and bandwidth. Participants in a conference can have different continuous presence views.

- AAC-LD three-channel audio technology

  The VP9630 supports the latest Advanced Audio Coding-Low Delay (AAC-LD/LC) protocol, contributing to CD-quality audio for voice communication. With three-channel of AAC-LD audio technology, the VP9630 achieves sound localization.

- Transcoding for presentation sharing

  The VP9630 provides transcoding for presentation sharing, allowing endpoints with various presentation receiving capabilities to join the same conference and view the conference presentation. Thanks to transcoding for presentation sharing, functions of displaying presentations in continuous presence and dynamic management of

presentation bandwidth are available, enabling all participants to view the presentation and helping ensure the optimal conference experience.

- Resource-free presentation transcoding

   The VP9630 is able to provide transcoding for presentation sharing without use of any port resources, saving customers' port investment.

- Dynamic port allocation

   The VP9630 provides dynamic allocation of port resources, which improves resource usage efficiency and return on investment (ROI). Resource occupied by endpoints at different resolutions:

   - H.264: 1-channel 1080p 60 fps = 2-channel 1080p 30 fps = 2-channel 720p 60 fps = 4-channel 720p 30 fps

   - H.265: 1-channel 4K 30 fps = 1-channel 1080p 60 fps = 2-channel 1080p 30 fps = 2-channel 720p 60 fps = 4-channel 720p 30 fps

      An H.265 port can be used as an H.264 port.

Open, Convergent, and Easy to Use

- Endpoints at any protocols

   The VP9630 allows network connections from endpoints at H.323 and SIP .

- Multiple integration solutions

   The VP9630 is interoperable with Huawei telepresence, traditional HD and SD videoconferencing, mobile, and audio-only endpoints, Huawei videoconferencing and surveillance convergence solution, and the RSE6500, and connects to Huawei Home Presence terminals.

- Easy to use

   The VP9630 provides a graphical built-in web interface to simplify O&M, and supports multiple conference joining modes and conference control functions.

Secure and Reliable

- Powerful network adaptability

   The VP9630 uses Huawei's proprietary super error concealment (SEC) 3.0 to ensure uninterrupted video delivery even if the packet loss rate reaches 20%. The VP9630 supports audio jitter buffer (AJB) technology to implement dynamic adjustment based on jitter information, ensuring the best audio-visual experience.

- Advanced encryption technology

   The VP9630 supports multiple media, signaling, and management encryption protocols, including:

   - H.235 (AES)

   - Secure Real-time Transport Protocol (SRTP)

   - Transport Layer Security (TLS)

   - Hypertext Transfer Protocol Secure (HTTPS)

   - Secure Shell (SSH)

   - Simple Network Management Protocol (SNMP) V3

      The VP9630 also provides identity authentication and encrypted communication. This helps to prevent account forgery and protect against the interception of

conference messages during transmission, ensuring conference information security to the highest level.

- Multiple backup technologies

  The VP9630 adopts backup for the entire system, network port, power supply, and chipset, which ensures the smoothness of a video conference.

2 Application Scenario

The VP9630 provide multi-level cascading with which enterprise users or industrial users can set up their videoconferencing systems in phases.

2.1 Cascaded Network

Cascaded networks are gaining in popularity as videoconferencing technology is advancing and users demand increasingly larger system capacity. Cascading technology breaks the capacity limits of a single MCU and enables MCUs to be distributed in different areas and large-scale videoconferencing networks across regions to be set up.

Figure 2-1 shows a cascaded network.

Figure 2-1 Cascaded network
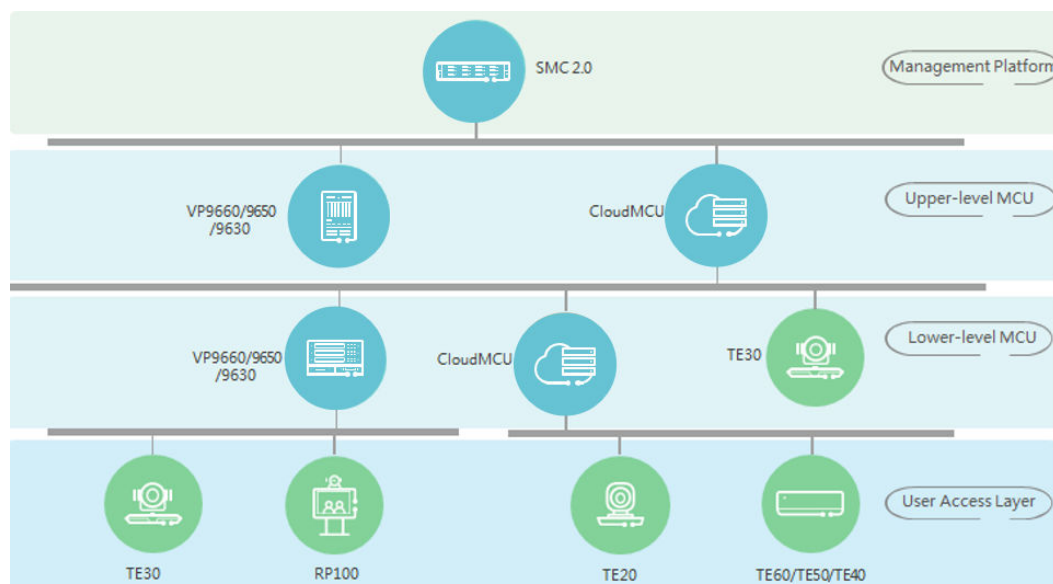
On a cascaded network, MCUs are cascaded. A multi-layer dedicated network is a large-scale network consisting of country, state, and city levels or state, city, and town levels.

● Cascading between VP9000 series MCUs and CloudMCUs and cascading between VP9000 series MCUs and ViewPoint 8000 MCUs are supported.

- All levels of MCUs are managed by the SMC2.0.
- Multiple channels can be set up between the upper- and lower-level MCUs, and multiple media streams can be transmitted simultaneously. Therefore, the participants can view video from any other site.
- High-bandwidth services are available with transrating capability.
- Recording servers can be deployed for conference recording, live broadcasting, and on-demand playback.

2.2 On-Premises Network

Huawei's videoconferencing solution is a comprehensive video conference solution that supports immersive remote conferences, desktop and mobile video access, and enterprise streaming media applications. The solution is developed to serve customers from governments, enterprises of all sizes, and a variety of industries, including transportation, public safety, and finance.

Figure 2-2 shows the on-premises network.

Figure 2-2 On-premises network
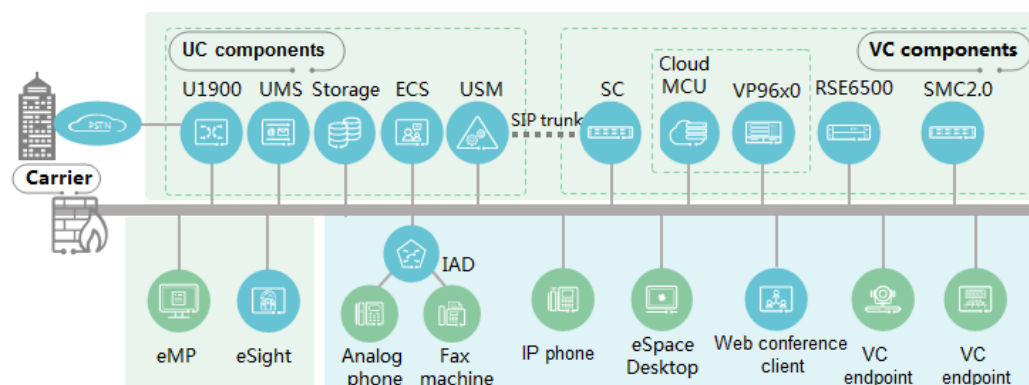
Figure 2-3 shows the enterprise on-premises conference-only network.

Figure 2-3 On-premises network (conference-only)
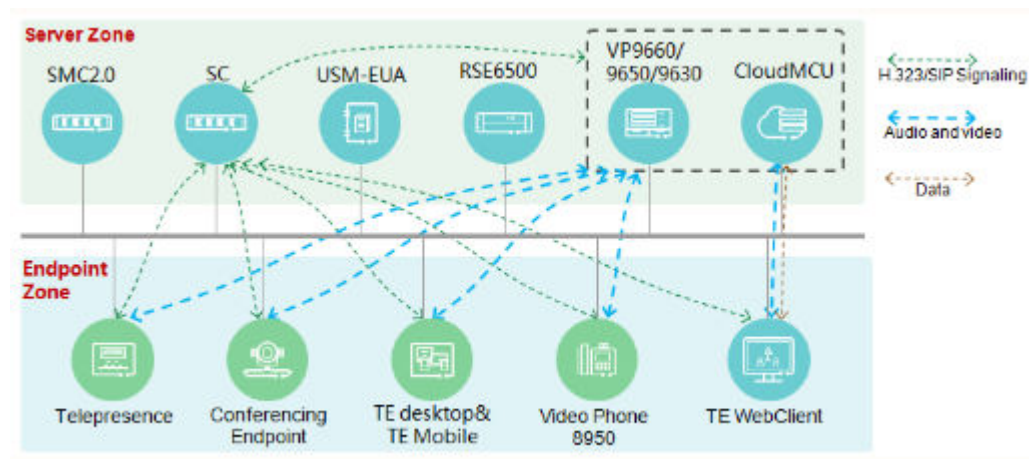
On an on-premises network, the SMC2.0, MCU (VP9600 series MCU or CloudMCU), videoconferencing endpoints, and IP network are deployed. The MCU functions as the media switching platform in the system.

- The VP9600 series MCUs can be deployed independently or together with CloudMCU.
- The VP9600 series MCUs locate in the media switching layer to allow access from a variety types of terminals in the lower layer and is managed by the SMC2.0.

3 Product Structure

The VP9630 is a box-like MCU. It incorporates the chassis, power module, and fan assembly.

Over Structure

The VP9630 provides 1+1 AC power modules, but does not support hardware capacity expansion. **Figure 3-1** shows the VP9630.

Figure 3-1 VP9630

Figure 3-2 shows the front panel, and Figure 3 shows the rear panel of the VP9630.

Figure 3-2 VP9630 front panel

1 FE (maintenance network port)	2 GE1 port	3 Optical ports: SFP1 (upper) and SFP0 (lower)
4 ACT indicator	5 RUN indicator	6 ALM indicator
7 RST button	8 GE0 port	9 RS-232 serial port

Table 3-1 lists the button and ports in the front panel.

Table 3-1 Button and ports in the front panel

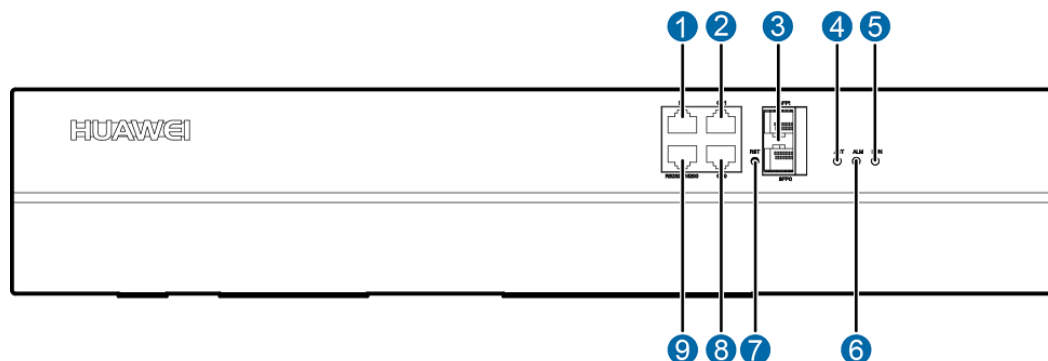| Component	Description
FE maintenance port	● This port is used for internal debugging. The IP addresses of the FE port and the GE0 or GE1 port must be in different network segments. ● If you fail to use the GE0 port to log in to the MCU command-line interface (CLI), use the FE port.
GE0 port	This is a service network port used for signaling and media stream communications.
GE1 port	The GE0 and GE1 ports are backups for each other. If a network cable is removed from either of the ports, the MCU automatically switches the service on that port to another.
Optical port	● This port supports the access of an optical fiber, and it functions like a GE port. ● Do not connect cables to both the GE and optical ports. If that happens, the optical port takes precedence.
RS-232 serial port	This port is used to execute serial port commands and internal debugging.
RST button	This button is used to reset the board.

⚠ **CAUTION**

For service provision, connect the GE0 or GE1 network port to a gigabit switch.

Table 3-2 describes the indicators in the VP9630 front panel.

Table 3-2 VP9630 front panel indicators

Indicator	Status	Description
ACT	Steady green	The board is the active board.
ALM	Off	The board is operating correctly.
	Steady red	The board is malfunctioning.
RUN	Steady green	The board is powered on but is malfunctioning.
	Off	The board is not powered on or the board fails to start.
	Slow blinking (about 0.5 Hz, once every 2 seconds)	The board is operating correctly according to the configuration.
	Quick blinking (about 4 Hz, four times per second)	The board is loading programs.
GE/FE	Steady green	The network port connection is normal.
	Green off	No connection is established on the network port or the connection is faulty.
	Blinking orange	Data is being received or sent through the network port.
	Orange off	No data is being received or sent through the network port.

Figure 3-3 VP9630 rear panel
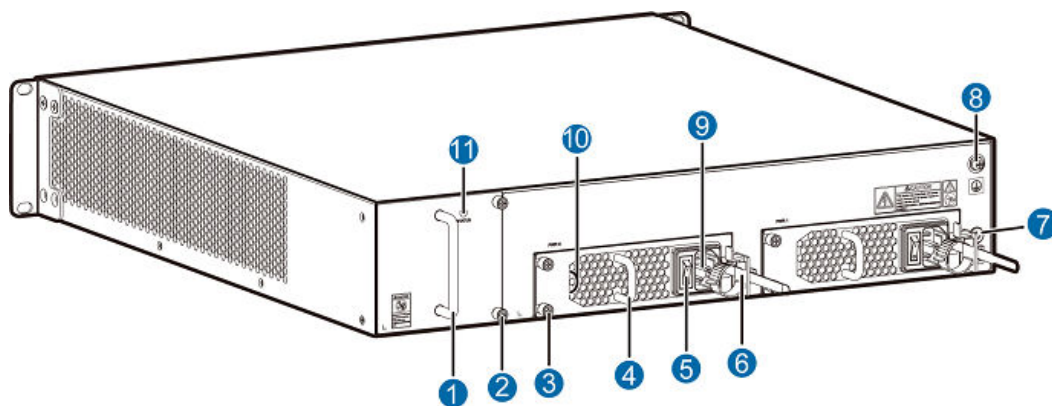
1 Fan assembly handle	2 Fan assembly captive screw	3 Power module captive screw
4 Power module handle	5 Power switch	6 Cable tie support
7 ESD hole	8 Ground screw	9 Power module socket
10 Power module indicators	11 Fan indicator	-

Power Module

- Location and appearance

  An AC power module provides a power socket in the lower left corner of the module's front panel. The power socket uses an IEC C14 inlet and has a power plug lock. The dust filter is in the center of the front panel. The fan supplied with the power module is installed inside the power module shielded by a dust filter fixed outside. **Figure 3-4** shows the power module.

Figure 3-4 Power module
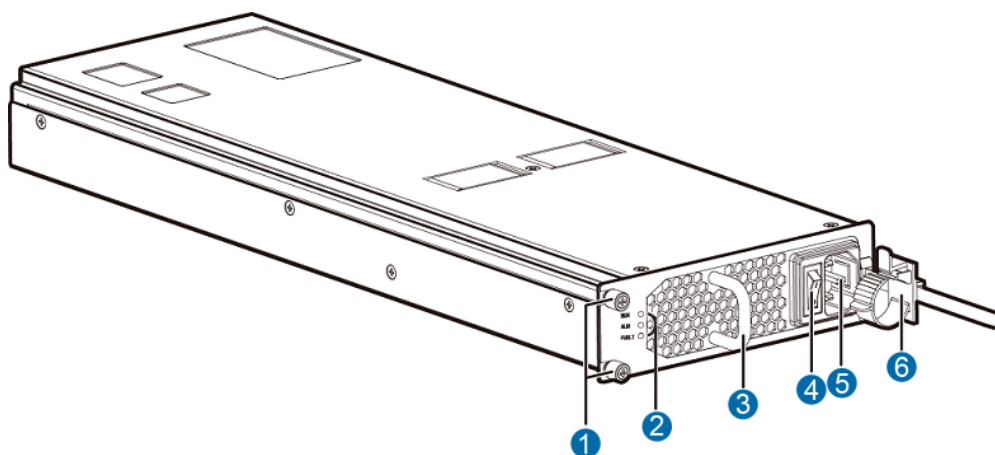
1 Captive screw	2 Indicator	3 Power module handle
4 Power switch	5 Power module socket	6 Cable tie support

The two power modules back up each other.

- Indicators

  Table 3-3 describes the indicators in the power module. The real time status of the power module can be ascertained by viewing these indicators.

Table 3-3 Power module indicators

Indicator	Status	Description
RUN	Steady green	The power module is operating correctly.
	Off	● The power module is powered off. ● The power module is powered on, but not operating correctly.
ALM	Steady yellow	You must power off the switches of power modules for power protection. Wait 10 minutes and power on the switches of power modules. If the ALM indicator is still steady yellow after you power on and power off the switches of power modules for three times, replace the power module or contact the technical support.
	Off	The power module is operating correctly.
FAULT	Steady red	The power module fails.
	Off	The power module is operating correctly.

Heat Dissipation System

The VP9630 heat dissipation system incorporates the following:

● Fan assembly: dissipates the heat of the board inside the chassis.

● Fan supplied with the power module: dissipates the heat of the power module.

The VP9630 fan assembly is located on the right part of the chassis. The fan assembly provides a fan monitoring board, which can generate alarms when faults occur in the fan.

As shown in **Figure 3-5**, the fan assembly provides one indicator and no power switch.

Figure 3-5 VP9630 fan assembly
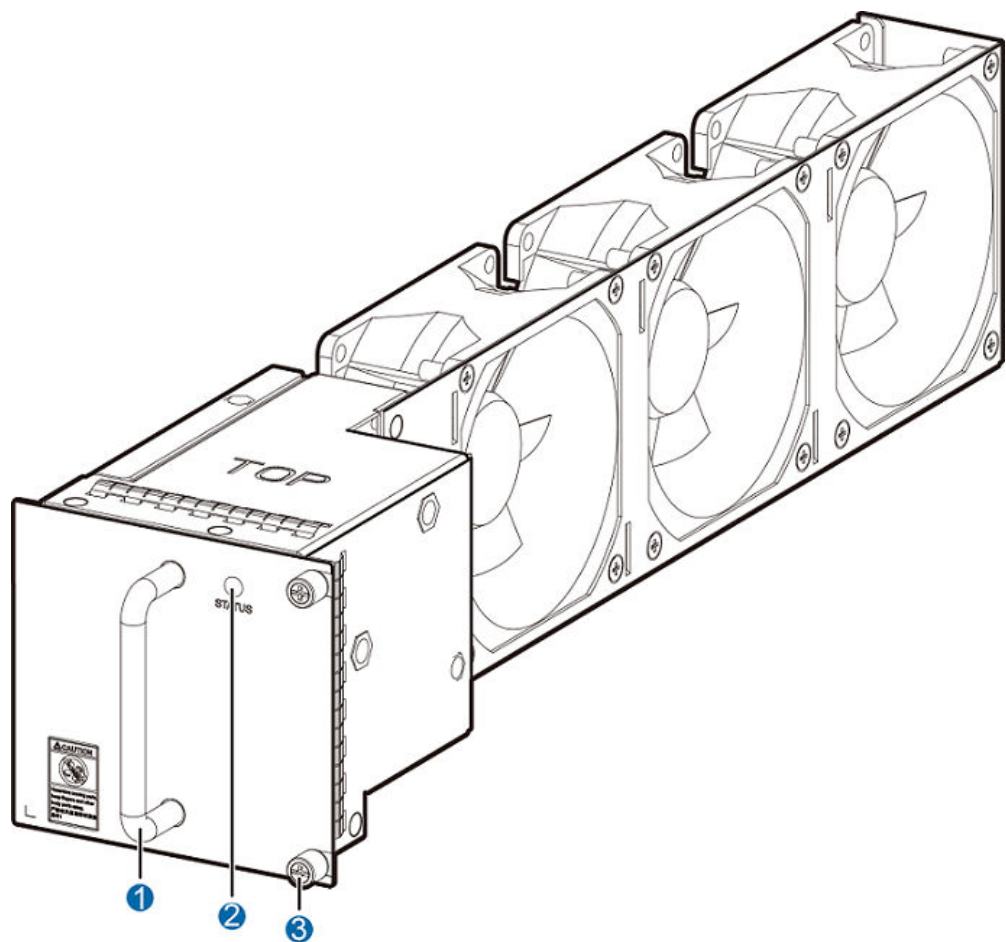
1 Fan assembly handle	2 Indicator	3 Captive screw

Table 3-4 describes the fan assembly indicator.

Table 3-4 Fan assembly indicator

Indicator	Status	Description
STATUS	Steady green	The fan is operating correctly.
	Steady red	The fan is malfunctioning.
	Off	The fan is powered off.

4 Features and Benefits

4.1 Universal Transcoding

The VP9630 provides the universal transcoding capability. With this capability, endpoints can join the same conference at any protocol and bandwidth, and each endpoint user can have the best possible experience available for their endpoint capability and bandwidth.

4K 30 fps Full Encoding and Decoding

The VP9630 supports independent encoding and decoding for each video channel. With the H.265 4K video encoding and decoding technology, the VP9660 supports 4K 30 fps full HD. The VP9630 supports 4K 30 fps full encoding and decoding for up to 4 video channels.

Transcoding for Presentation Sharing

The VP9630 provides transcoding for presentation sharing, allowing endpoints with various presentation receiving capabilities to join the same conference and view the conference presentation.

- The VP9630 allows endpoints using H.323, and SIP to join the same conference.
- For single-stream sites that do not support presentations, the VP9630 implements transcoding to enable the presentation to be displayed as the video.
- Thanks to transcoding for presentation sharing, functions of displaying presentations in continuous presence and dynamic management of presentation bandwidth are available, enabling all participants to view the presentation and helping ensure the optimal conference experience.

4.2 Large Capacity

The VP9630 provides multiple ports, which can be cascaded to increase the MCU capacity.

Multiple Ports

You can expand the capacity.

- The VP9630 supports smooth expansion through the purchase of port licenses or adding function extension modules. After expansion, it provides up to 4 4K 30 fps ports that support universal transcoding.
- The number of VoIP audio ports is the same as that of 1080p 30 fps video ports.

Common Multi-channel Cascading

Huawei leads the industry in introducing the multi-channel cascading technology. With multi-channel cascading adopted, all screen videos of a three-screen telepresence participant can be displayed to another telepresence participant, ensuring immersive experience. Participants on an upper-level MCU are able to view multiple participants on lower-level MCUs in the continuous presence. Additionally, participants on an upper-level MCU are able to view participants on any lower-level MCUs, enriching conference experience.

Flexible Multi-Channel Cascading

Flexible multi-channel cascading is supported for cascading between the VP9630 and the CloudMCU and VP9660/VP9650/VP9630. In this case, one cascading channel can be used to view participants on upper-level and lower-level MCUs in the continuous presence. The flexible multi-channel is one channel in essence. When channel resources need to be added, channel resources are dynamically applied for in the conference and are added to the existing channel. If they are not required, channel resources are dynamically released.

4.3 Open and Convergent

The VP9630 adopts multiple network traversal technologies, allows endpoints to join the same conference at different protocols, and integrates with the recording server, delivering an enriched conference experience.

Different Protocols for the Same Conference

- The VP9630 is compatible with H.323, and SIP allowing various endpoints complying with different protocols to join the same conference and achieving convergence of the Huawei telepresence, HD, SD, WebRTC client, mobile, and audio-only participants.
- The VP9630 can interwork with Huawei eSpace, Huawei Home Presence terminals, surveillance converged solution, and RSE6500, improving communication efficiency.

Network Recording Solution

The recording server RSE6500 can exchange media streams with the MCU to can record conferences so that users can log in to the recording server and access the web page to view an ongoing live conference or a historical conference.

Huawei's network recording solution applies to the following scenarios:

- HD dual stream conferences

  When browsing dynamic computer screens and viewing HD images are required to help make decisions, for example, courseware used for online teaching, evidence presented to a remote court, X-ray images used for care at a distance, and meteorological pictures used in the weather consultation system. With Huawei's solution, users can view live video and read supporting materials at the same time.

● Telepresence conferences

When tri-screen telepresence sites participate in a conference. With Huawei's solution, the images on the three screens can be incorporated into continuous presence, ensuring the image integrity and solving the problem that only the center screen can be recorded.

The recording server administrator can control user access to conference video on the recording server so that a given user can view only specified videos.

4.4 Ease of Use

The VP9630 provides an intuitive web interface to simplify conferencing operations and improve user experience.

Web Interface

● A computer that has a browser installed is all you need to manage the MCU.
● The VP9630 provides a built-in web server. You can configure the VP9660 as you would on a network management system.

SMC2.0-based Conference Control

The VP9630 can be managed by the SMC2.0. In this way, the VP9630 can be used in the enterprise on-premises solution to provide multipoint conferencing functions.

Connection to eSight

The VP9630 can connect to eSight through the SNMP V3 protocol. Using eSight, the administrator uniformly manages NEs, for example, viewing basic information about the MCU and managing its alarms.

Easy-to-Use Services

● Multiple conference joining modes and conference control functions

- Huawei proposes an unattended MCU so that all conference operations can be performed from an endpoint. A user can initiate a multipoint conference using their video terminal's address book without the need for conference predefinition or interference by maintenance personnel.
- VP9630 operations can be performed on the SMC2.0, which allows for centralized management of conferences.
- The VP9630 supports various conference joining modes, including:
- Ad hoc conference
- Special service number
- One click to join conference
- A videoconferencing endpoint can also dial the H.323 ID, email address, or URL address, in addition to the IP address, to create or join a conference.

● Automatic continuous presence

After a conference starts, the VP9630 automatically enables continuous presence if you have not set continuous presence parameters. If a site joins or exits a conference, the VP9630 automatically adjusts the continuous presence video feeds and changes the layout to maintain the best effect.

- DTMF conference control on endpoints

  VP9630 supports DTMF conference control performed with the number 2, 4, 6, 8 and arrow keys for far end camera control (FECC). From the videoconferencing endpoint, users can press the number 4 key to view the video of the other sites in the conference and press 6 to view the conference presentation. By pressing 2 and 8, users can switch between continuous presence layouts.

  All the videoconferencing endpoints that have available number keys can perform conference control operations conveniently and flexibly, such as viewing a site.

- Audio-visual IVR

  VP9630 supports interactive voice response (IVR) access numbers. A videoconferencing endpoint can dial the IVR access number and follow the instructions from the audio-visual IVR of the system to create or join a conference.

- T.140 caption

  When a T.140 caption, banner, or instant message is set for a conference, the VP9630 will send the caption, banner, or instant message to all participants in the conference. When a participant is given the floor, broadcast, or viewed, the VP9630 will send a notification message to that participant.

Connection to SessionInsight

VP9630 can save the recorded users' key information and status and generate Call History Records (CHRs). The media CHRs generated by the MCU can be collected, parsed, and stored to the database for visualized analysis of the media quality. The SessionInsight obtains CHRs from the MCU and analyzes them to assist in signaling and media fault locating and improving the locating efficiency.

4.5 High Network Adaptability and Reliability

The VP9630 has passed tests for network adaptability and operational reliability, to ensure the long-term stability of the device under different environments.

Outstanding Network Adaptability

- Automatic speed adjustment

  The VP9630 uses Huawei Media Engine (HME) to constantly monitor the network status and automatically adjust the speed based on the network delay, packet loss rate, and jitter to ensure the best audiovisual experience.

- Enormous Packet Loss Concealment Capability

  The VP9630 uses Huawei's proprietary super error concealment (SEC) 3.0 to ensure uninterrupted video delivery even if the packet loss rate reaches 20%.

- Jitter tolerance capability

  The VP9630 supports AJB to implement dynamic adjustment based on jitter information, ensuring the best audio-visual experience.

High Reliability

The VP9630 adopts multi-level backup mechanisms to achieve high reliability and ensure the smoothness of a video conference.

- Network port backup

  The GE0 and GE1 ports in the VP9630 can back each other up. If communication through the working network port is interrupted, the VP9660VP9650VP9630 automatically switches the communication service to the backup network port.

- Power supply backup

  Two power modules can be inserted into the VP9630 to share the power load. The power modules work in backup mode, and twoone can meet power demands of the VP9630 at full load.

- Chipset backup

  The chipsets in the VP9630 can back each other up. When one chipset is faulty, theVP9630 assigns an idle chipset to take over the workload without affecting the audio-visual quality. This ensures consistent video and audio quality for the video conference.

4.6 Unparalleled Security

The VP9630 was designed to protect conference information security to the highest level.

The VP9630 supports dual encryption, which helps to prevent account forgery and protect against the monitoring of conference messages during transmission.

- Signaling encryption: The implements authentication and encryption for all calls initiated from it. If you fail to pass the authentication, you will be denied of conferencing services.

- Media stream encryption: Advanced Encryption Standard (AES) is used to encrypt media streams.

5 Operation and Maintenance

5.1 Using theBuilt-in Web Interface

The VP9630 allows you to log in to the built-in web interface for operation and management anytime, as shown in **Figure 5-1**.

Using the built-in web interface, you can view resource statistics, set conference and system parameters, view abnormal status alarms, export logs, manage user accounts and passwords, and debug, maintain, and upgrade the system.

Figure 5-1 Built-in web interface
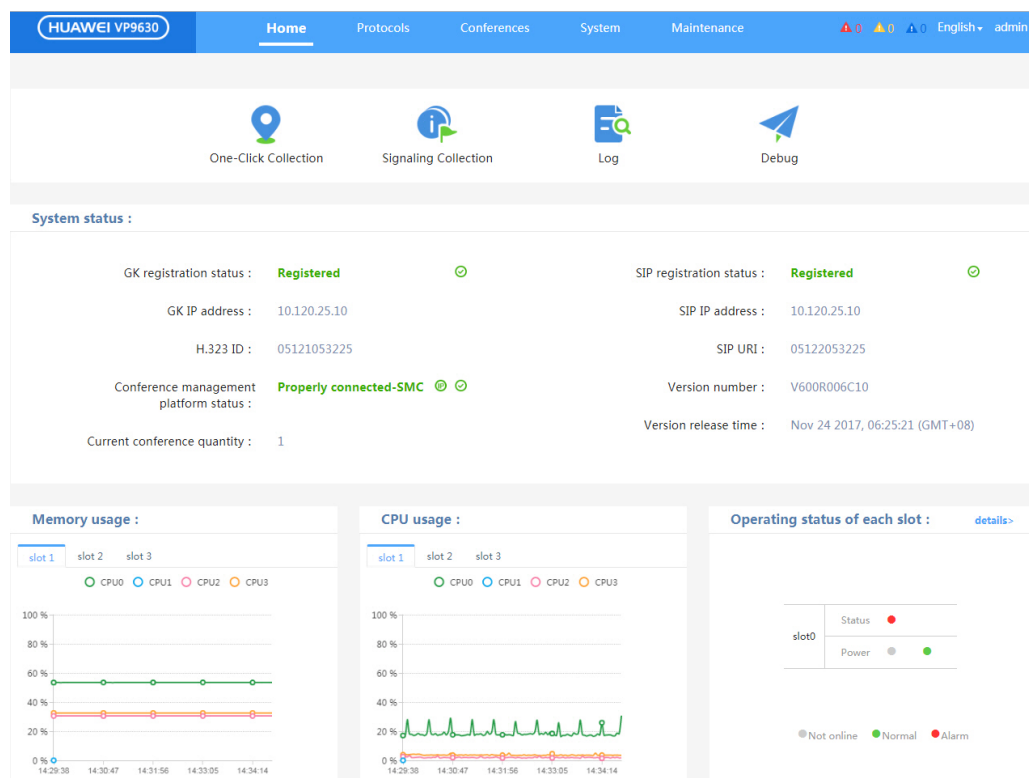
One-Click Information Collection

The MCU supports one-click information collection on the built-in web interface. You can obtain the configuration, black box, alarm, and log information required for troubleshooting with one-click, enabling quick fault locating.

You can view alarms on the web interface, including alarm details and alarm handling procedures.

You can also view and export logs on the web interface and change the log level to generate debug information as required. Logs include operation, run, debug, and security logs.

Fault Self-Diagnosis

The MCU supports fault self-diagnosis on the built-in web interface. You can start system status self-check with one click and view MCU status information, including the key process status, software and hardware resources, OS and application versions, and network configurations.

Preventive Maintenance Inspection

The MCU supports preventive maintenance inspection (PMI) using the VTS. You can inspect the MCU periodically to detect potential risks and process them in advance.

Upgrade

The MCU supports the following upgrade modes:

- Upgrade using the built-in web interface
- Upgrade using the CLI
- Automatic upgrade with the SMC2.0

Before the upgrade, you need to upload the version file to the SMC2.0.

5.2 Using the CLI

The MCU supports Telnet and SSH login. Telnet is an insecure protocol and disabled by default. SSH is a cybersecurity protocol for remote access in an insecure network environment using the encryption and certification mechanism. When you use SSH to log in to the MCU, all transmitted data are encrypted. For security purposes, SSH login is recommended.

After logging in to the MCU using the SSH, you can configure and debug the MCU in CLI mode. The following table describes the SSH management functions.

Table 5-1 SSH management functions

Management Function	Description	Sub-Function
Configuration management	Remote login, configuration, debugging, maintenance, and upgrades	• Remotely log in to the MCU to view system status and set parameters. • View alarms. • Remotely upgrade the host software.

6 Technical Specifications

6.1 Physical Parameters

Table 6-1 lists the VP9630 physical parameters.

Table 6-1 VP9630 physical parameters

Category	Item	Specifications
Physical specifications	Dimensions (H x W x D)	Device dimensions: ● Height: 86.1 mm (3.39 in.) ● Width: 442 mm (17.40 in.) ● Depth: 450 mm (17.72 in.) Package dimensions: ● Height: 260 mm (10.24 in.) ● Width: 780 mm (30.71 in.) ● Depth: 580 mm (22.83 in.)
	Weight	New weight: <20 kg (44.09 lb) Gross weight: 22 kg (48.51 lb)
Environment adaptability	Ambient temperature range	0°C to 45°C
	Relative humidity range	5% to 90% (non-condensing)
	Atmospheric pressure range	63 kPa to 106 kPa

Category	Item	Specifications
Electricity supply requirements	Rated Operating voltage	AC input: 100 V to 240 V 50/60 Hz
	Power consumption	400 W
	Electromagnetic Comatablity	Class A
	Grounding	<2.5v/2 lrating

NOTE

If the device is used 1800 meters to 5000 meters above the sea level, the upper limit of the temperature must be decreased by 1°C for every 220 meters.

6.2 Performance and Capacity

Table 6-2 describes the VP9630's performance and capacity specifications.

Table 6-2 VP9630's performance and capacity specifications

Item	Specification
Video	Maximum video resolution in universal transcoding mode: ● H.265: 4-channel 4K30 = 4-channel 1080p60 = 8-channel 1080p30 = 8-channel 720p60 = 16-channel 720p30 ● H.264: 16-channel 1080p60 = 32-channel 1080p30 = 64-channel 720p30
Audio	● Mixed wideband audio ● 1/2/3-channel audio for sound localization ● The number of VoIP audio ports is the same as that of 1080p30 video ports. ● Audio and video lip synchronization in universal transcoding mode
Video frame rate	25 fps, 30 fps, 60 fps
Video resolution	QCIF, CIF, , 288p, 360p, 720p, 1080, 4K
HD performance	● 8 Mbit/s H.264 HP 1080p60 ● 3Mbit/s H.265 4K30 (smooth mode)
Maximum number of participants	H.264-only: A maximum of 64 participants are supported. The 64 participants can be all SIP participants, all H.323 participants, or SIP+H.323 participants. H.265-only: A maximum of 16 participants are supported. The 16 participants can be all H.265 participants.

6.3 Ports and Protocols

Table 6-3 lists the ports provided and protocols used by the .

Table 6-3 ports and protocols

Item	Specifications
GE network port	● Physical port: RJ45 port ● Bearer signal: 10/100/1000 Base-T ● Bearer protocol: IEEE 802.3
Optical port	● Physical port: multi-mode optical port ● Bearer signal: 1000 Base-SX ● Bearer protocol: IEEE 802.3
Primary Rate Interface (PRI)	● Physical port: sub-miniature B (SMB) ● Bearer signal: HDB3 code ● Bearer protocol: G.703
FE network port	● Physical port: RJ45 port ● Bearer signal: 10/100 Base-T ● Bearer protocol: IEEE 802.3
Serial port	RJ45–RS-232 port (universal router cable)

Table 6-4 lists the ports provided and protocols used by the VP9630.

Table 6-4 VP9630 ports and protocols

Item	Specifications
GE network port	● Physical port: RJ45 port ● Bearer signal: 10/100/1000 Base-T ● Bearer protocol: IEEE 802.3
Optical port	● Physical port: multi-mode optical port ● Bearer signal: 1000 Base-SX ● Bearer protocol: IEEE 802.3
FE network port	● Physical port: RJ45 port ● Bearer signal: 10/100 Base-T ● Bearer protocol: IEEE 802.3
Serial port	RJ45–RS-232 port (universal router cable)

6.4 Standards Compliance

The VP9630 complies with the standards listed in **Table 6-5**.

Table 6-5 Standards compliance of the VP9630

Item	Specifications
Communication framework protocol	ITU-T H.323, SIP
Video protocol	ITU-T H.265, H.264, H.264 HP, H.263, H.263+, H.263++
Audio protocol	AAC-LD, AAC-LC, G.722.1, G.722.1C, G.711a/u, G.722, G.728, G.729A, G.729AB, G.719, iLBC, Opus
Dual stream protocol	H.239, BFCP
Transmission protocol	IPv4, TCP/IP, FTPS, RTP, RTCP, HTTP/HTTPS, SNMP V3, TELNET, SSH, DNS/DDNS
Encryption protocol	H.235, AES, and TLS/SRTP

7 Acronyms and Abbreviations

Acronym or Abbreviation	Full Name
AJB	Audio Jitter Buffer
AES	Advanced Encryption Standard
BFCP	Binary Floor Control Protocol
DTMF	Dual Tone Multiple Frequency
FE	Fast Ethernet
FTPS	File Transfer Protocol over SSL
GE	Gigabit Ethernet
GK	GateKeeper
HEVC	High Efficiency Video Coding
IP	Internet Protocol
ITU-T	International Telecommunications Union-Telecommunication
IVR	Interactive Voice Response
MCU	Multipoint Control Unit
NAT	Network Address Translation
RSE	Recording Streaming Engine
RTCP	Real-time Transfer Control Protocol
RTP	Real-time Transfer Protocol
SEC	Super Error Concealment
SIP	Session Initiation Protocol
SMC	Service Management Center

Acronym or Abbreviation	Full Name
SNMP	Simple Network Manager Protocol
SRTP	Security Real Time Protocol
SSH	Secure SHell
TLS	Transport Layer Security
URL	Uniform Resource Locator