

# Network Audio and Video Decoding Matrix

SG-JMQ020408



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## I. Equipment Introduction

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The VMEET SG-JMQ020408 Network Audio and Video Decoding Matrix, also known as a digital matrix, is a network audio and video decoder specially designed for network video surveillance systems. It is based on professional encoding and decoding chips and uses a Linux operating system, ensuring excellent device stability and superior encoding and decoding performance.

Supports H.265/H.264/MPEG-4 decoding; Supports H.265/H.264 encoding; Compatible with multiple network protocols and various streaming transmission methods, providing strong support for network audio and video decoding output, large TV wall decoding, splicing, and segmentation.

This device can achieve ultra-high-definition decoding, splicing, segmentation, and windowing in large and ultra-large digital security surveillance systems. It provides a one-stop solution for decoding, multi-signal input encoding, and video wall applications in big data digital surveillance systems.

### **Digital Decoding Server:**

Compatible with standard ONVIF network cameras for decoding and mainstream NVR/DVR

preview and playback from brands such as Hikvision, Dahua, Uniview, and Xiongmai. The device includes HDMI input to display or splice content from an external computer, providing greater compatibility and flexibility. Widely used in supermarkets, shops, office buildings, residential communities, schools, hotels, factories, etc., offering video surveillance switching and computer management via video walls.

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## II. Device Structure:

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### Various Chassis Specifications

The standard rack-mounted design includes 1U, 5U, 8U, 12U, and 16U chassis sizes to meet various surveillance, splicing, and control needs.

#### ●Modular Design

The modular, pluggable design allows flexible expansion with up to 256 modules. Multiple devices can be cascaded into a single unit, enabling users to adjust the number and position of output modules according to the actual needs of the display screens, ensuring optimal cable layout for easier maintenance.

#### ●4K Input and Output

Input: Supports up to 3840x2160@30fps; Output: Supports up to 4096x2160@60fps.

#### ●System Stability and Reliability

The system supports hot-swappable modules and uses a LINUX operating system to ensure stability for continuous 24/7 operation, meeting the demands of various engineering projects.

#### ●High-Speed Backplane Design

The built-in high-speed, non-blocking backplane meets the high-capacity video data exchange requirements.

#### ●Signal Compatibility

Supports network and digital audio/video signal inputs and output switching.

#### ●Flexible Control

Supports network access, network keyboard control, and PC software client control.

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## III. Single Module Mainboard Functionality

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### 3.1 Card Output Parameters

- ◆ Supports H.265+/H.265 Main Profile Level 5.1, H.264 Baseline/Main/High Profile Level 5.0, MPEG4 SP L0-L3/ASP L0-L5, MJPEG/JPEG Baseline decoding.
- ◆ The maximum single card supports 2 HDMI outputs with up to 128 splits, with HDMI to DVI-I conversion.
- ◆ Single card can decode two 64-split streams simultaneously and support decoding of 128 IPC streams to the wall.
- ◆ HDMI interface supports one input and two outputs, supporting 1x 4K@60HZ input and 2x 4K@60HZ outputs.
- ◆ Decoding performance: 1 stream = 3200W; 8 streams = 1200W/4K (800W pixel); 18 streams = 400W; 32 streams = 1080P; 64 streams = 720P; 128 streams = D1 video decoding.
- ◆ Decoding pixels: support 3200W, 2400W, 1200W, 4K (800W), 600W, 500W, 400W, 300W, 200W, 130W, 100W and other standard video decoding;

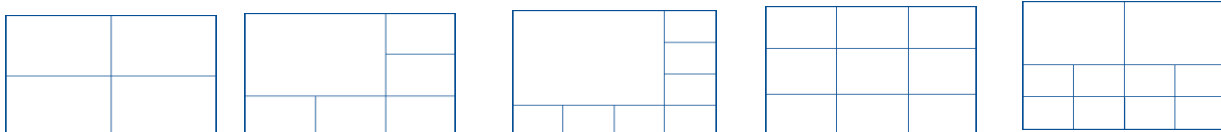
- ◆ Supports PAL/NTSL and other standard formats.
- ◆ Supports GB28181 national standard, ONVIF, RTSP, and DDNS for camera stream decoding. The decoder software platform can automatically identify mainstream camera brands like Hikvision, Dahua, Uniview, Huawei, Samsung, Xiongmai, Tiandy, Hanbang, and more. (Private protocol support for certain brands).
- ◆ Supports OSD name overlay for region name and IP address decoding channels.
- ◆ Supports HDMI input cards for external devices, such as NVR/DVR, conference cameras, set-top boxes, and mouse control.
- ◆ Automatic real-time network disconnection detection.
- ◆ Supports GB28181 disk arrays and server storage for Hikvision, Dahua, Uniview, Xiongmai, Tiandy, and others, for NVR/DVR/XVR preview decoding and video wall playback.
- ◆ Supports B/S architecture for real-time decoding (8-20) and synchronous video display with the monitoring system, compatible with the Kylin OS.
- ◆ Supports police network, traffic network, and other GB28181 national standards, compatible with Huawei, Hikvision, Dahua, and GB28181 platforms for NVR and IPC integration.
- ◆ Supports RTSP, RTP, TS protocols for network decoding preview, SDK platform integration.
- ◆ Supports on-screen scrolling subtitles (such as welcome messages) with customizable font size and color.

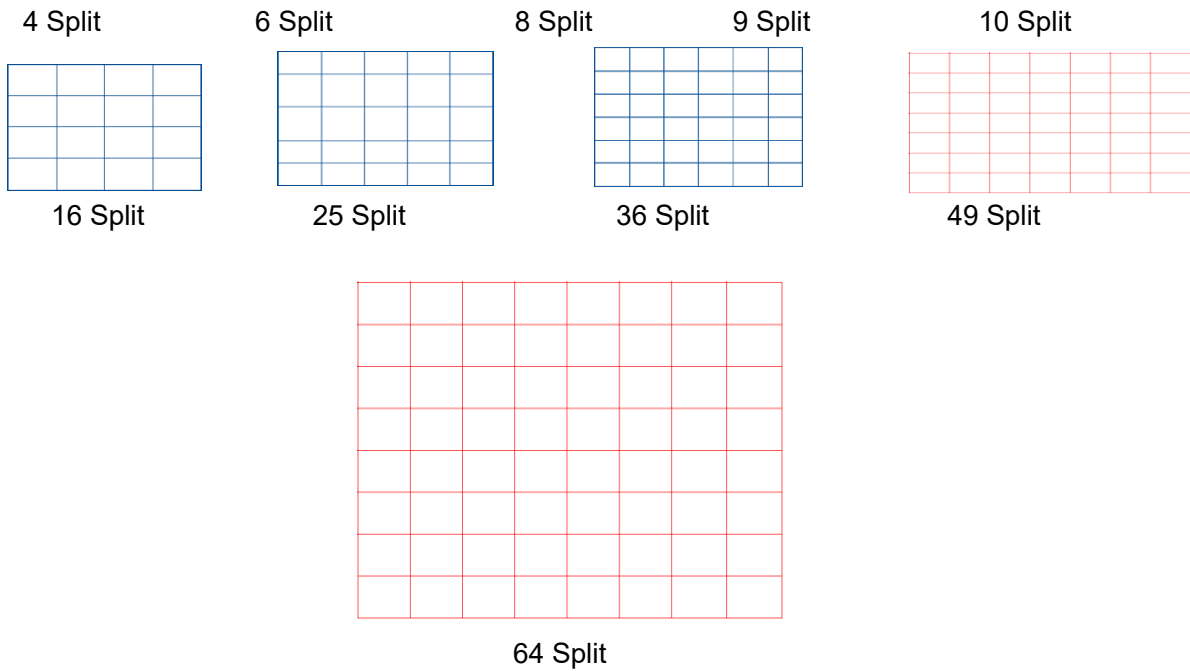
### 3.2 Input Parameters

- ◆ Supports 4K@30Hz (3840x2160@30Hz) and lower HDMI signal input.
- ◆ Supports input signals encoded in H.265+/H.265/H.264 Baseline/Main/High Profile Level 5.1 standards.
- ◆ Supports external input sources with both primary and secondary streams encoded for wall display in resolutions such as 4K (3840x2160@30Hz), 1080P@60Hz, 1366x768@60Hz, 720P@60Hz.
- ◆ Supports automatic reconnection and power-off memory functions for encoding.
- ◆ Supports encryption of video streams after encoding, requiring password verification for external stream access to ensure security.
- ◆ Includes 1 audio input and 1 audio output.
- ◆ Supports audio formats like G.711A, AAC, G.722, G.726, G.711U for encoding and decoding, with bidirectional intercom capabilities.
- ◆ Supports 32bit/32bit audio input and output.
- ◆ The single card supports 100/1000Mbps adaptive network ports with optional optical ports (100base-FX/1000base-X) for electrical-optical adaptability.

### 3.3 Dual-Port 4K@60Hz Output:

- ◆ Supports 2 HDMI 2.0 outputs with 4K@60Hz (3840x2160@60Hz) output; backward compatible with HDMI 1.3 and earlier versions.
- ◆ Each port supports 1, 4, 6, 8, 9, 10, 16, 25, 36, 49, 64 arbitrary and irregular split-switching.





#### IV. Software Features

- ◆ **Screen Splitting and Merging**  
Supports up to 64-screen split display, with the ability to split and merge video images freely.
- ◆ **Scrolling Text**  
Supports LED subtitle functionality, with built-in scrolling text and fixed display subtitles.
- ◆ **Visual Operation**  
The computer interface can display the content on the large screen in real-time, allowing for video source preview and enabling visual deployment of the monitoring wall.
- ◆ **User Permissions**  
Personalized management features, with separate permissions for regular users and administrator users.
- ◆ **Data Import and Export**  
Built-in database; the decoding platform software can export the streaming address, parameters, usernames, passwords, and names of a large number of network cameras (IPCs) in a table format to the local computer or import this information back into the decoder's internal database in bulk.
- ◆ **Splicing Function**  
The decoding platform software supports intelligent searching of lists, allowing keyword-based search for camera names, making it easier to manage large numbers of cameras for splicing.
- ◆ **Scenes and Auto Rotation**  
Supports scene, multi-screen, and single-screen automatic patrol.
- ◆ **IP Address Assignment**  
Supports one-click IP address modification.
- ◆ **One-Click Allocation Function**  
Supports the one-click camera call-up function.

### Custom Function Services

The system can be customized to meet various special needs for different occasions. These custom-produced processors have different features and prices compared to the standard products.

Common customer requests for customization include:

- 1、 Logo Customization (e.g., background, login screen, etc.)
- 2、 Platform (SDK, RTSP) Integration
- 3、 Watermark Character Overlay
- 4、 Custom Single-Screen Window Count

### V. Network Video Decoder Server Model Selection List

Number of (HDMI 2.0) Output Interfaces	Decoding Capacity (4K@30fps)	Decoding Capacity (1080P@30fps)	Decoding Capacity (720P@30fps)	Decoding Capacity (D1@30fps)	Chassis Specification
2	8 x 4K	32 x 1080P	64 x 720P	128 x D1	1U
4	16 x 4K	64 x 1080P	128 x 720P	256 x D1	1U
8	32 x 4K	128 x 1080P	256 x 720P	512 x D1	5U
12	48 x 4K	192 x 1080P	384 x 720P	768 x D1	5U
16	64 x 4K	256 x 1080P	512 x 720P	1024 x D1	5U
18	72 x 4K	288 x 1080P	576 x 720P	1152 x D1	5U
20	80 x 4K	320 x 1080P	640 x 720P	1280 x D1	5U
24	96 x 4K	384 x 1080P	768 x 720P	1536 x D1	5U
32	128 x 4K	512 x 1080P	1024 x 720P	2048 x D1	8U
40	160 x 4K	640 x 1080P	1280 x 720P	2560 x D1	8U
48	192 x 4K	768 x 1080P	1536 x 720P	3072 x D1	8U
64	256 x 4K	1024 x 1080P	2048 x 720P	4096 x D1	12U
72	288 x 4K	1152 x 1080P	2304 x 720P	4608 x D1	12U
80	320 x 4K	1280 x 1080P	2560 x 720P	5120 x D1	16U
96	384 x 4K	1536 x 1080P	3072 x 720P	3072 x D1	16U

**Note:**

The output specifications refer to the number of HDMI output ports, e.g., "20 screens" refers to 20 HDMI outputs.

Encoding refers to the highest 4K encoding capability of HDMI inputs based on H.265/H.264 standards (optional).

Single unit decoding refers to the maximum number of video sources that can be decoded. If the resolution of the split display area exceeds D1 format resolution, the system automatically adopts the main stream decoding mode. In this case, the maximum decoding capacity refers to the values provided in the previous table. When the resolution of the display area is equal to or below D1 format, the system automatically switches to sub-stream decoding.

The chassis uses standard rack-mounted specifications such as 1U, 5U, 8U, and 12U.

Splicing refers to the maximum number of displays that can be spliced together, which can be any number of screens up to the output capacity.

## VI. Product Parameters

Device Model	1U	5U	8U	12U
<b>Chassis</b>	1U Standard Chassis	2U Standard Chassis	8U Standard Chassis	12U Standard Chassis
<b>Number of Modules Supported</b>	2 ↑	6 ↑	24 ↑	36 ↑
<b>Power Supply</b>	<40W DC12V 3A	<100W AC220V,50Hz	<400W AC220V 50Hz	<600W AC220V,50Hz
<b>Dimensions Length*Width*Height Including mounting ears and feet</b>	431*250*43mm	487*260*206mm	487*260*412mm	487*328*618mm
<b>Outer Packaging Dimensions (LWH)</b>	547*310*105mm	547*340*270mm	608*375*485mm	608*556*690mm
<b>Weight</b>	5Kg (approximate weight of fully loaded modules)	16Kg (approximate weight of fully loaded modules)	28Kg (approximate weight of fully loaded modules)	42Kg (approximate weight of fully loaded modules)