

MAX08A24H40XT series audio and video splicing processor

Technical Specifications

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Product Description

MAX08A24H40XT series audio and video splicing processor is a professional multi-functional image splicing product developed for the field of LCD splicing display. It adopts a large-scale ARM +FPGA array and DSP high-speed processing combination architecture, and combines video processing algorithms with independent intellectual property rights. Without any internal software and operating system, it is safe and stable. Can meet the needs of a large number of pictures and video processing, audio and video switching seamless link, simple control, support a variety of platforms.

The system adopts pure hardware bus exchange technology, the equipment can realize seamless switching of pictures or audio and video when the video is switched, combined with the diversity of audio and video display, bringing unprecedented impact to the vision, like immersive feeling.



Set ultra-high bandwidth audio and video signal acquisition, real-time high-resolution digital image processing, two-dimensional high order digital filtering and other high-end technologies in one, with powerful functions. At the same time, the multi-bus parallel processing mechanism is adopted to fundamentally ensure the real-time synchronous processing of all the input signals, and the display screen does not have any delay, frame loss, image loss and other phenomena.

The MAX08A24H40XT has a variety of board module types, can support any plug and expansion mode, support multi-signal access, including: VGA, DVI, HDMI, Ypbpr (transfer), CVBS (transfer), SDI, BNC, etc. The product integrates 4K ultra-high score acquisition, single screen 36 screen segmentation (control punctuation), wireless distributed screen projection (control punctuation), built-in Dante's Dante audio dual channel input/output switching (control punctuation), A variety of image display processing, multi-user management, pre-monitoring visualization management and other functions in one, with powerful functions, to meet the needs of a variety of industry applications.

MAX08A24H40XT supports a variety of control modes, RS232 serial port, network, etc. Support third party central control, etc., to meet the user's various control needs.

Technical features

- Control system host, can be adopted 3U,6U,12U,24U host box, the maximum support 144 in 144 out, the use of card design, easy to expand the system safe upgrade structure.
- Using pure hardware FPGA array and DSP high-speed signal processing base plate calculation exchange technology, FPGA image high-fidelity interpolation algorithm, do not need any operating system support, intelligent scaling technology, image scaling using intelligent multi-phase filtering algorithm, according to the characteristics of the image automatically select the optimal filtering coefficient, image close to the magnitude of loss; Infinite scaling effect, to ensure more details, edge non-jagged and very good sharpness.
- Power-on can work, start fast, high stability, will not crash, black screen phenomenon, start time < 5S.
- Adopting modular structure, the input module, output module and control module of the system support hot swap.
- A single signal can be spliced on any M×N(>0) display units.
- Support input signal arbitrary splicing, window opening, picture in picture, superposition, roaming, scaling, cross-screen, etc., single screen support 2 layers.
- Can configure computer multi-screen graphics card, connected to the processor's 2K/4K input card to achieve no stretch, no deformation vector level image splicing.
- Support full 4K input and output, input support 3840X2160@30HZ input compatible 1920x1080@60HZ, output support 3840X2160@30HZ output compatible 1920x1080@60HZ, high image restoration, stronger visual impact, bring immersive experience, no lag, no frame loss, Visually, it can achieve perfect fluency. Combined with 4K physical screen, it can achieve the ultimate visual effect of 16K (optional control point).
- Support VGA, DVI, HDMI, SDI, BNC, IPC, Ypbpr (transfer), DP (transfer), miniDP (transfer), CVBS (transfer) and other interface input.
- Support built-in Dante's Dante audio dual channel audio access and separate output, input self-holding built-in HDMI audio, output support external 3.5MM audio interface, high-fidelity dual channel surround sound (control punctuation).
- Support DVI, HDMI, VGA(switching,)BNC(switching), DP (switching), pre-monitoring output.
- Support network camera access function, the device can access IP decoding card, support 4K, 500W,300W, 1080P, 720P, D1 pixel network camera decoding, support Haikang, Dahua, Yusee, Xiongmai, Tiandweiyue, mid-dimensional century, Hanbang High-tech, Keda, Huawei and other mainstream brand standard onvif protocol of the network camera real-time decoding, signal window can be arbitrarily stretched, compressed, splicing, picture in picture, superposition, roaming and other functions (control punctuation).
- A single IP card comes with two input nodes, the maximum support for 36 segmentation, and support for 1/4/6/8/9/10/16/25/36 split screen, a single card supports decoding 72 rounds of images, a single IP card, direct decoding 2 4K, 8 500W\400W\300W,18 1080P, 32 720P, 72 way D1(control point).
And support onvif protocol and GB28181 protocol IPC and NVR access decoding on the wall (control point).
- IP decoding card can be multi-access system expansion multi-channel IPC decoding, to achieve large-scale audio and video decoding, and support the division of Mi Ling cloud cross-region, WAN network camera on the wall decoding (control point).

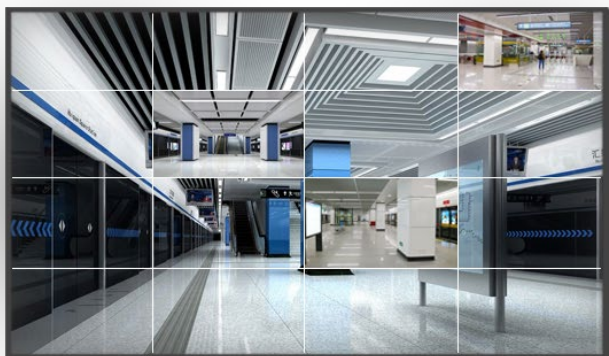
- IPC decoding business card supports decoding mainstream brands such as Haikang, Dahua, Xiongmai, Yu Vision NVR,DVR real-time video decoding and video playback (control punctua).
- Support wireless screen projection business card built-in functions, but for a key computer wireless screen projection, mobile phone (Andriod\ios system) and tablet mixed projection and other functions, while supporting computer and mobile phone 2 split screen mixed projection (control punctuation).
- Input and output images support seamless switching (control punctuation).
- With visual pre-monitoring echo function (control punctuation).
- The splicing processor supports the output port mapping function, and the output of the processor can be customized to set the screen position of the output according to the user's mixed line sequence (control point).
- Support mobile phone APP but change control and support mobile phone speech semantic recognition control system plan (control punctuation).
- Support equal ratio 4K input card access, and support resolution EDID penetration, can support up to 7680X1080 resolution input, and can achieve point-to-point does not stretch without deformation visual effect (control punctuation).
- The main control comes with hot wifi function, tablet computer or mobile phone APP can search the hot spot connection direct control, (optional control punctuation).
- Support KVM keyboard and mouse automatic switching screen function, single-board KVM board at the same time to support 4 mouse screen sliding, can add the motherboard, support multiple KVM automatic switching screen sliding function (control punctuation).
- Support the mobile APP but change control and support the mobile voice semantic recognition control system plan (control punctuation).
- Support virtual LED rolling captions, ultra high count point vector captions, support dynamic captions and static captions, you can edit the display content, font, color and other parameters, set welcome words (control punctuation).
- Support multiple scene plan function, can save up to 128 scene modes, support automatic rotation, can customize the rotation time.
- Support C/S control structure, based on TCP/IP network and serial port multi-user real-time operation, can achieve a variety of signal source definition, scheduling and management.
- Support a variety of control methods, support RS232 serial port, network, tablet computer, provide SDK docking and other control methods.
- The system works normally at a temperature of $-15\pm 0.5^{\circ}\text{C}$, $35\pm 0.5^{\circ}\text{C}$ and humidity of $75\pm 2\%$.
- Multi-platform client unified management, automatic detection of input and output signals.
- Support power recovery function and scene memory function.
- Support hardware one-click reset.
- The average trouble-free time is not less than 50,000 hours.
- Maximum distance from wall 200ft (60m)

Detailed description of the feature functions

(1) IP decoding business card (optional)

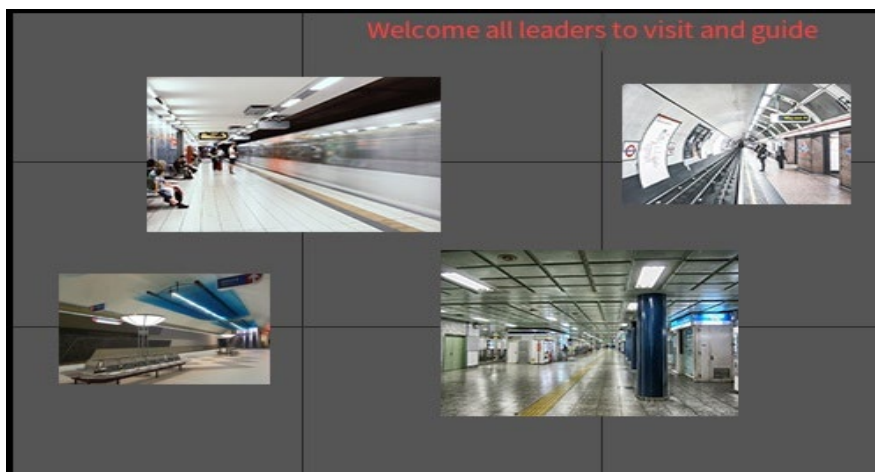
If there is a network camera on the scene, you can expand the IP decoding service card, a single network port supports a maximum of 36 divisions, a maximum of 72 channels of audio and video

decoding, and can decode 2 channels of 4K, 8 channels of 500W\400W\300W,18 channels of 1080P, 32



channels of 720P, 72 channels of D1, And the audio and video of each camera can be transferred to the screen above any window position display.

The above is the actual effect diagram of IP decoding service card decoding 1080P, drag and drop the camera to other display units; The following is the actual effect of any drag and drop of the image of a single IPC decoding (control point) :

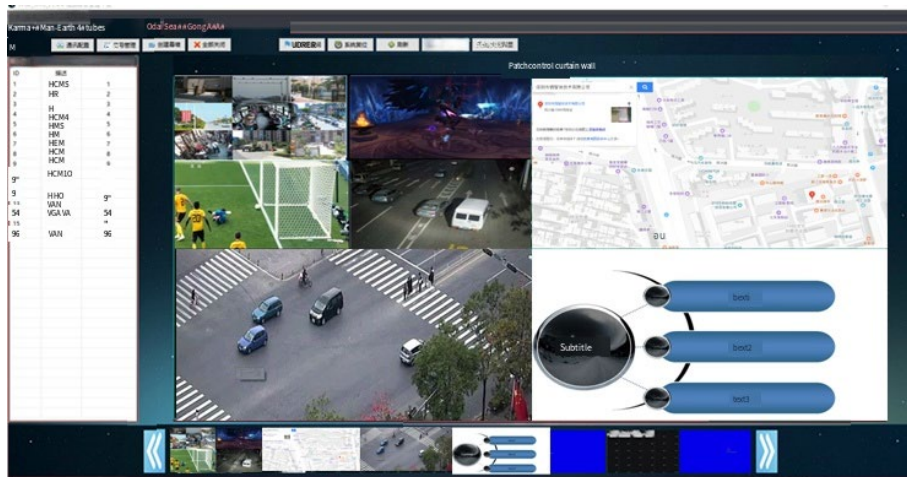


MAX08A24H40XT series IP decoding service card renderings

Through the above functions, combined with the video unlimited scaling, sensitive video can be real-time monitoring, there are special circumstances can be timely through the specific display area. It is very convenient for the commander to master the situation on the scene.

(2) Pre-monitoring echo business card (optional)

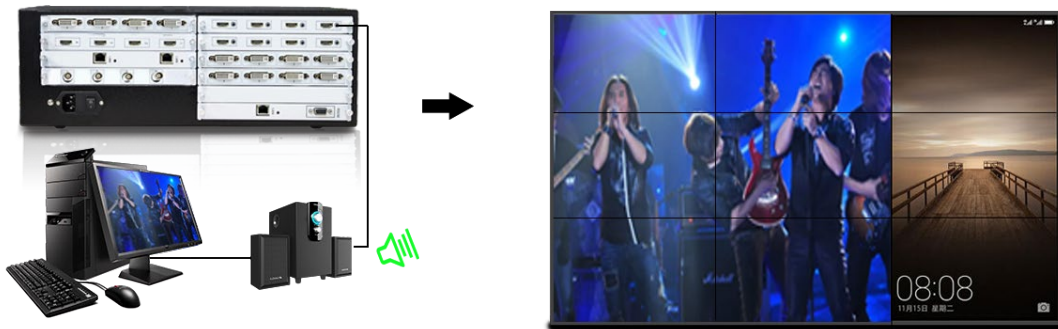
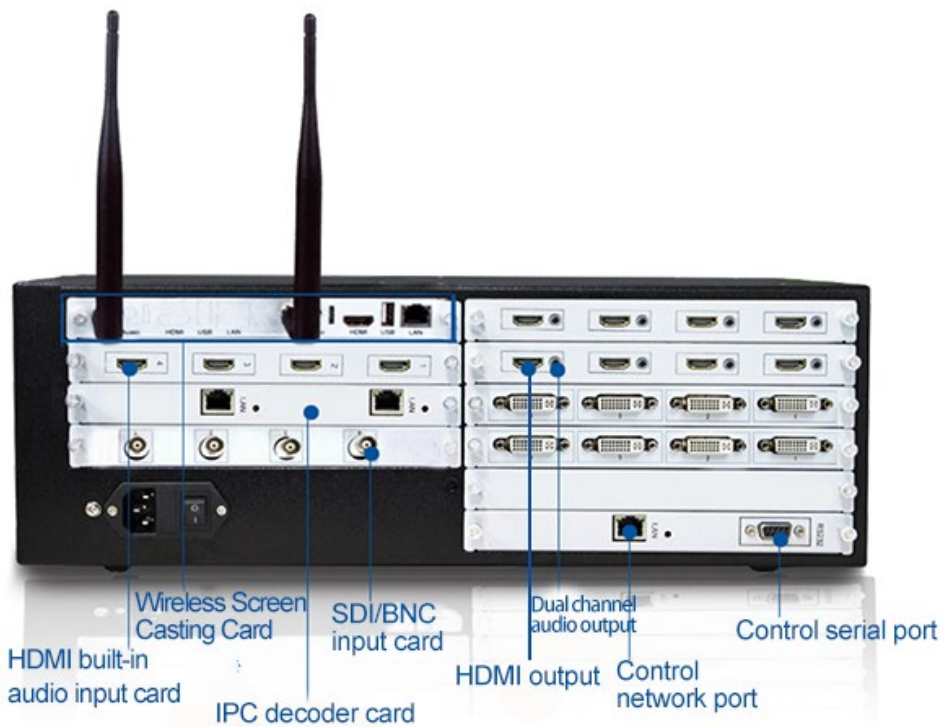
The scene needs to use the control console to view the input video image, control the input video source at any time, and expand the pre-monitoring echo business card can meet the needs. A business card supports 8 channels of video pre-monitoring at the same time, and can be switched according to demand, switch to the next 8 channels of echo pre-monitoring.



The platform software enables the pre-monitoring echo function actual effect picture

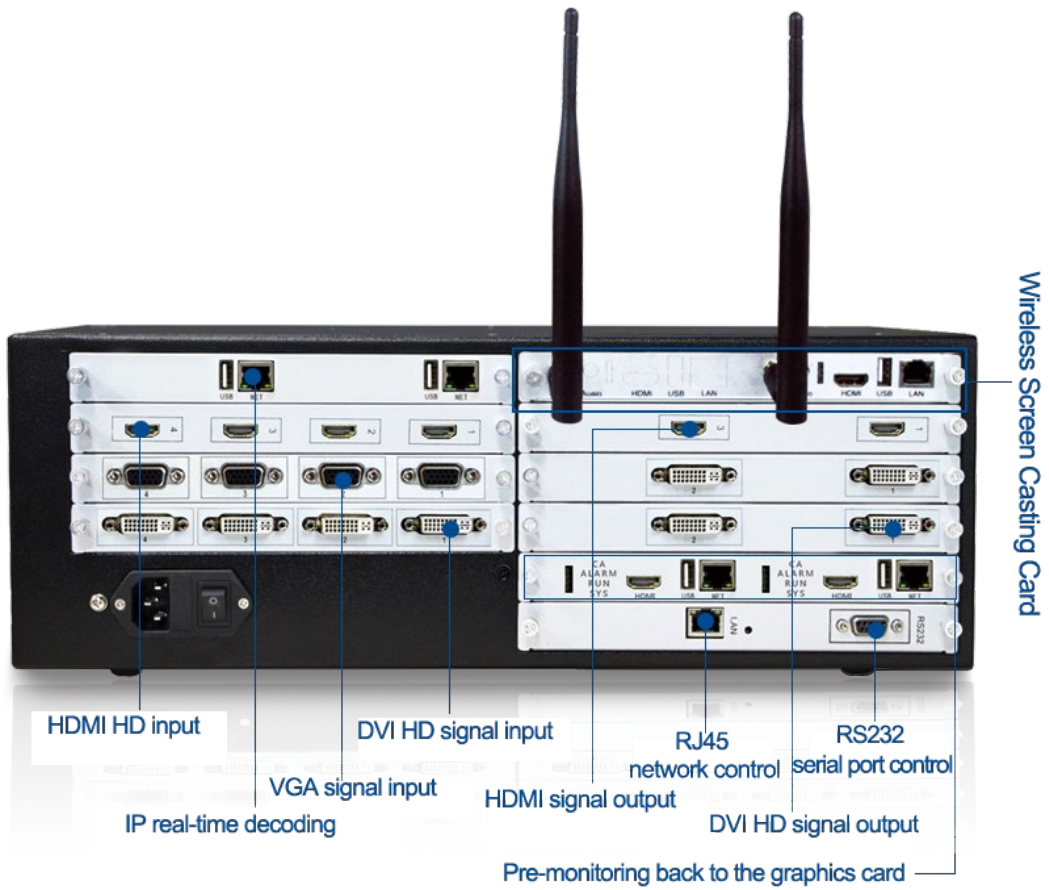
(3) Dual channel audio switching service card (optional)

In the application scenario of the command center or conference room, it is necessary to switch the laptop or mobile phone or external audio playback device along with the audio and video to achieve the synchronous feeling of visual and auditory for the actual application users. This requires the audio switching input and output cards to support Dante's dual-channel audio surround sound. Which greatly guarantees the quality of audio transmission.

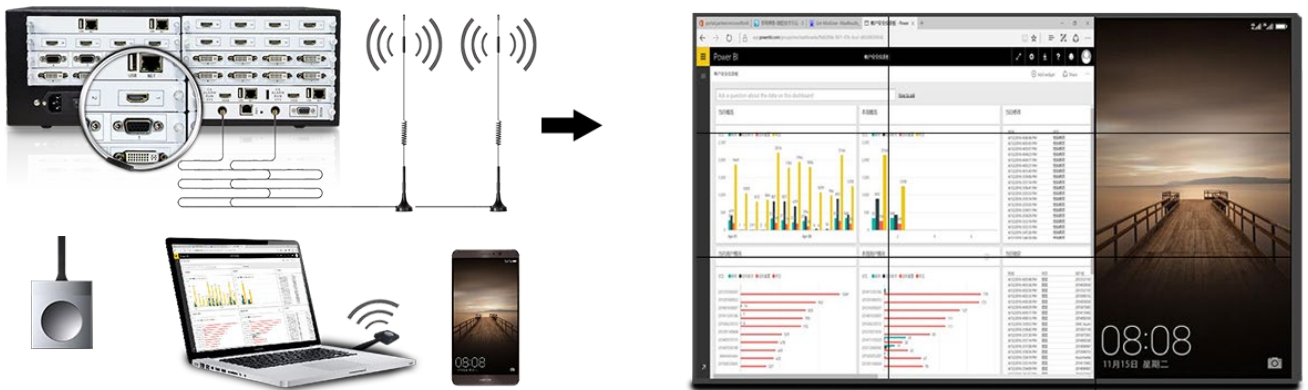


(4) Wireless projection Card (optional)

It is more common to use in the meeting, and it is necessary to put the laptop computer or mobile phone or tablet computer on the wireless screen to the splicing screen quickly and easily to solve the meeting data projection screen viewing. Just need the tablet or computer to connect directly to the dual WiFi hotspot of the wireless screen projection business card, and directly realize the mobile phone and computer to be mixed into the splicing wall in the way of split screen.



Wireless projection screen appearance



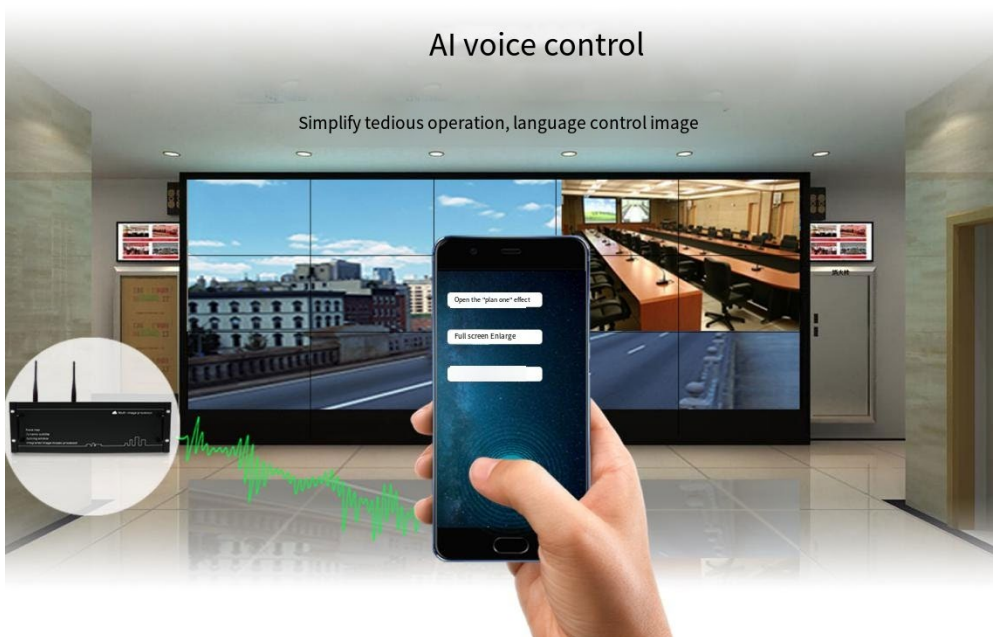
The actual effect of the external antenna of the cabinet



Application scenario of meeting room and command center

(5) Mobile APP support voice semantic understanding voice control (optional control punctuation)

It is more common to use in meetings, and it is necessary to control the laptop or tablet interface, and the position is the mobile APP. It supports voice semantic control input to control the plan on the curtain wall, window amplification, LED welcome word control, window adjustment position movement and other operations (control punctuation).



AI voice control

(6) Multi-window information release card (optional control point)

Through the multi-window information release software, use a computer to grab the WEB browser, local software, local video, local pictures, PPT push to the splicing screen, convenient for the Internet of things, software and other big data display, can replace the function of a multi-graphics card computer.



MS one computer multi-window information release topology



(7) Equal ratio 4K input card support EDID penetration, to achieve large resolution support no stretch, no deformation of visual effects function (optional)

1) A computer a 4K output scheme: using a N card 4K output computer, access to the splicing processor's equal ratio 4K input card, equal ratio 4K input card so as to achieve large resolution no deformation, no stretch vector level image splicing scheme.

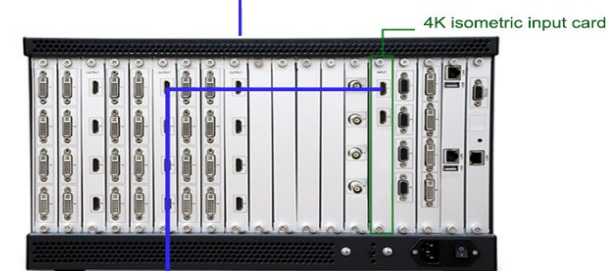


Application scenarios

A 4K computer plugged into a processor to achieve isometric unstretched, undistorted image visuals.



DID LCD/LED small pitch



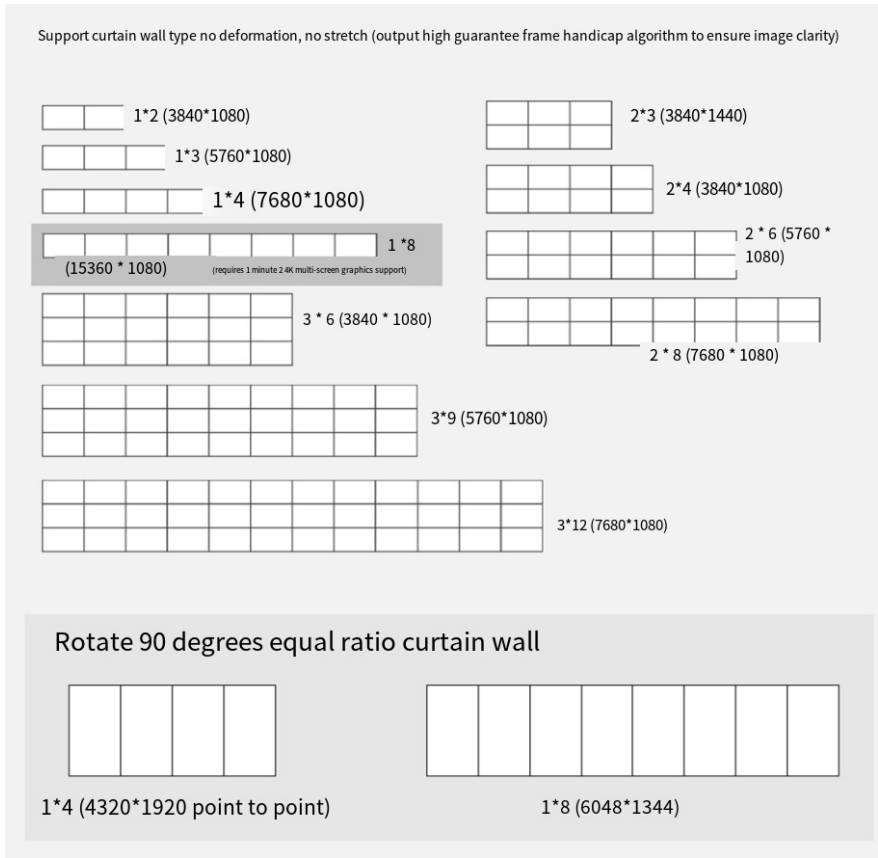
4K isometric input card

HDMI 2.0 or DP cable



4K output

Supports up to 7680*1080 resolution and DEID pass-through

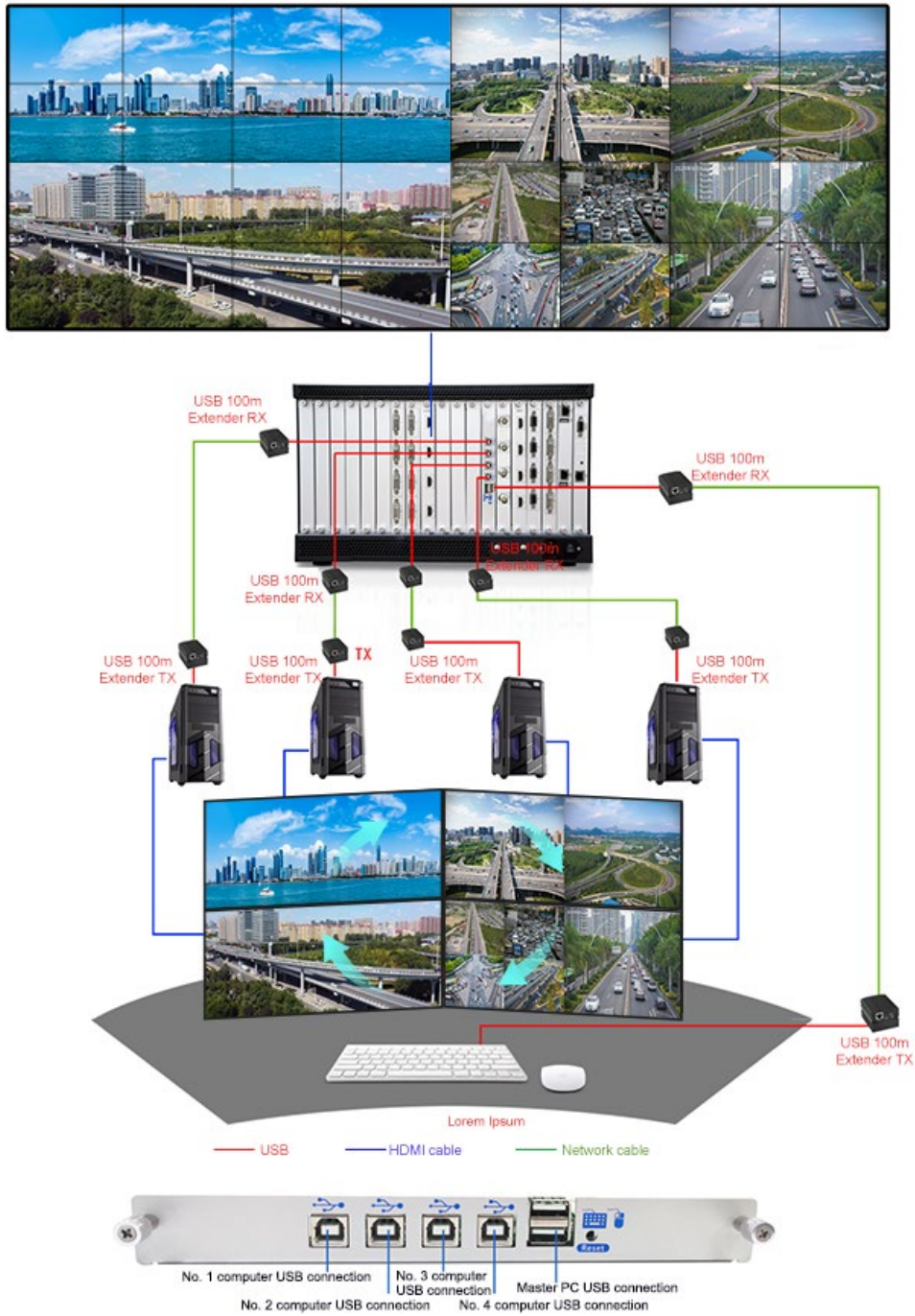


2) Multi-screen graphics card cascade scheme Technical scheme parameter table:

Special computer multi-screen graphics card cascade port number	Processor input card type	Support for non-stretching curtain wall types	Point-to-point splicing type
2	4K input card	2x4, 4x2, 3x6, 6x3,4x8, 8x4,5x10	2x4, 4x2
3	4K input card	2x6, 3x9, 4x12	2x6, 6x2
4	4K input card	2x8,3x12,4x16, 4x4	2x8, 4x4
5	4K input card	2x10, 3x15, 4 x20	2X10
6	4K input card	2x12, 3x18, 4x24, 4 x6, 4x 8	2x12, 4x8

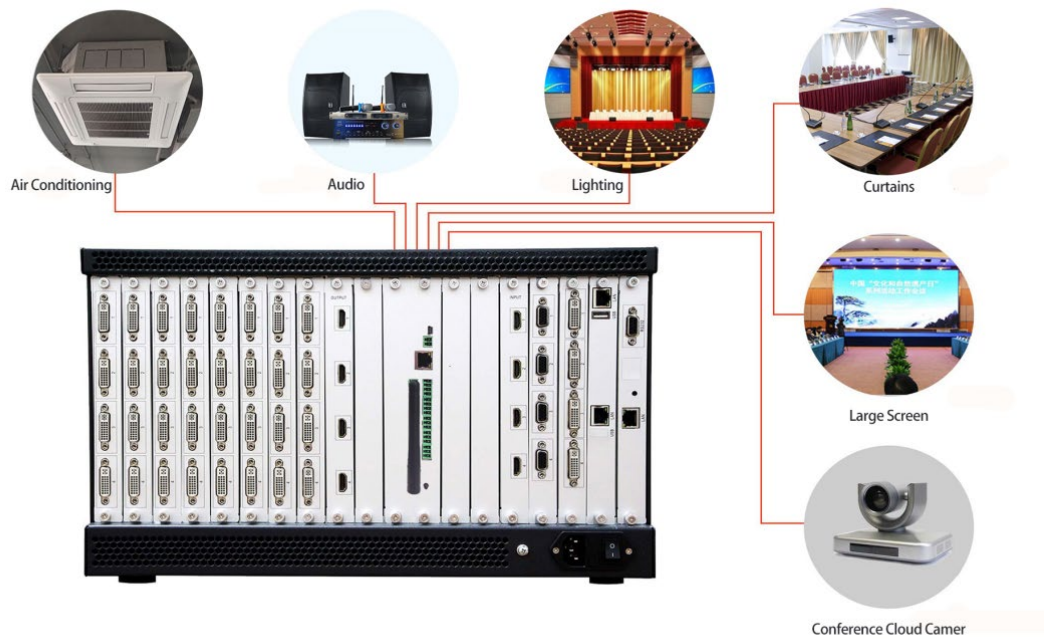
(8) Support KVM seat switch automatic screen function (optional)

Computer input source USB access processor inside the KVM board, the main control USB keyboard and mouse access, through the main chip of the motherboard to calculate the edge value of each mouse, smooth transition, you can achieve a set of keyboard and mouse sliding screen control 4 computers. To achieve a set of multi-purpose functions of the keyboard and mouse.



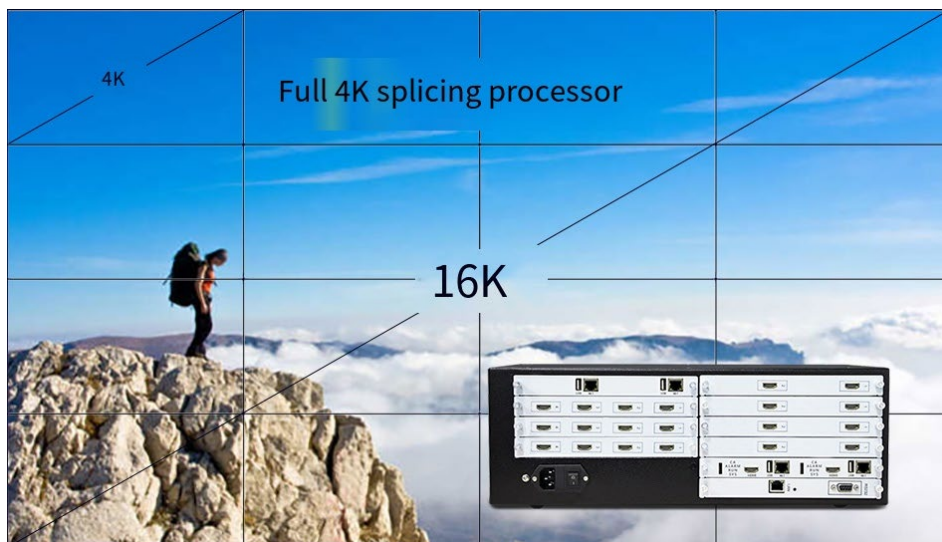
(9) Support built-in professional central control system (optional)

The communication protocols support wifi, zigbee, network port, 485, 23. 2 Built-in central control system, which can control curtains, lighting, large screen, air conditioning, conference camera, audio, etc., convenient integrated management of meeting rooms.

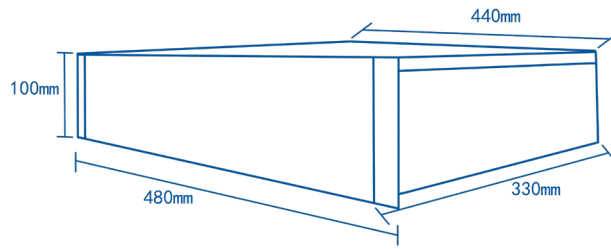


(10) Full 4K splicing processor, input and output fully support 4K, has achieved the ultimate visual effect (optional control point)

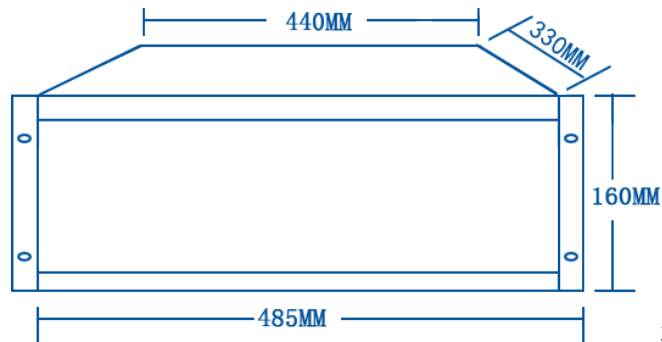
Support full 4K input and output, input support 3840X2160@30HZ in, output support 3840X2160@30HZ output, high image restoration, stronger visual impact, bring immersive experience, no stuck, no frame loss, visual can achieve perfect fluency, combined 4K physical screen, can achieve 16K extreme visual effects.



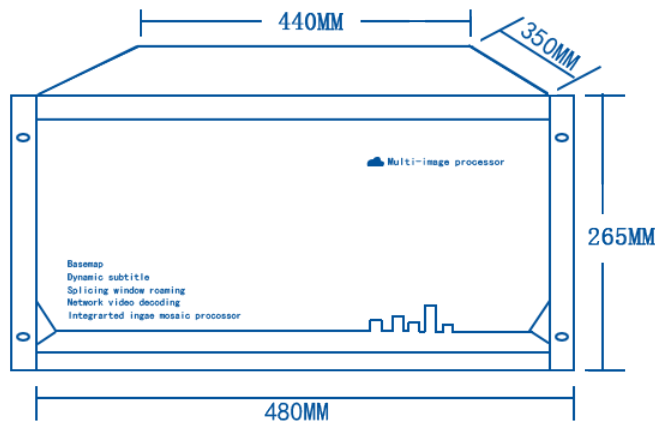
Chassis size



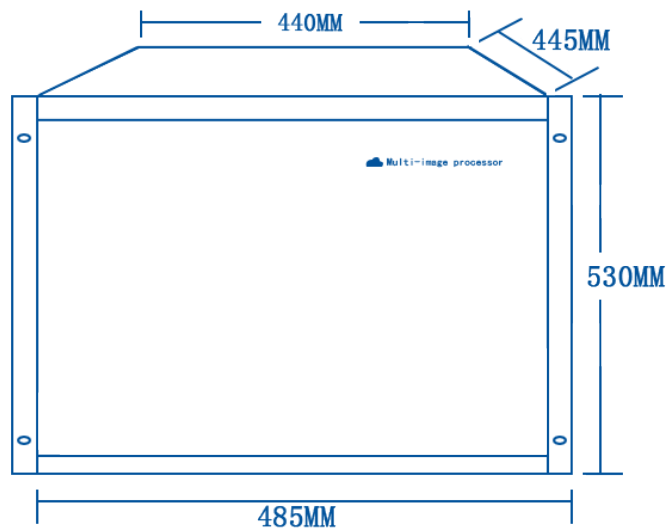
2U



3U

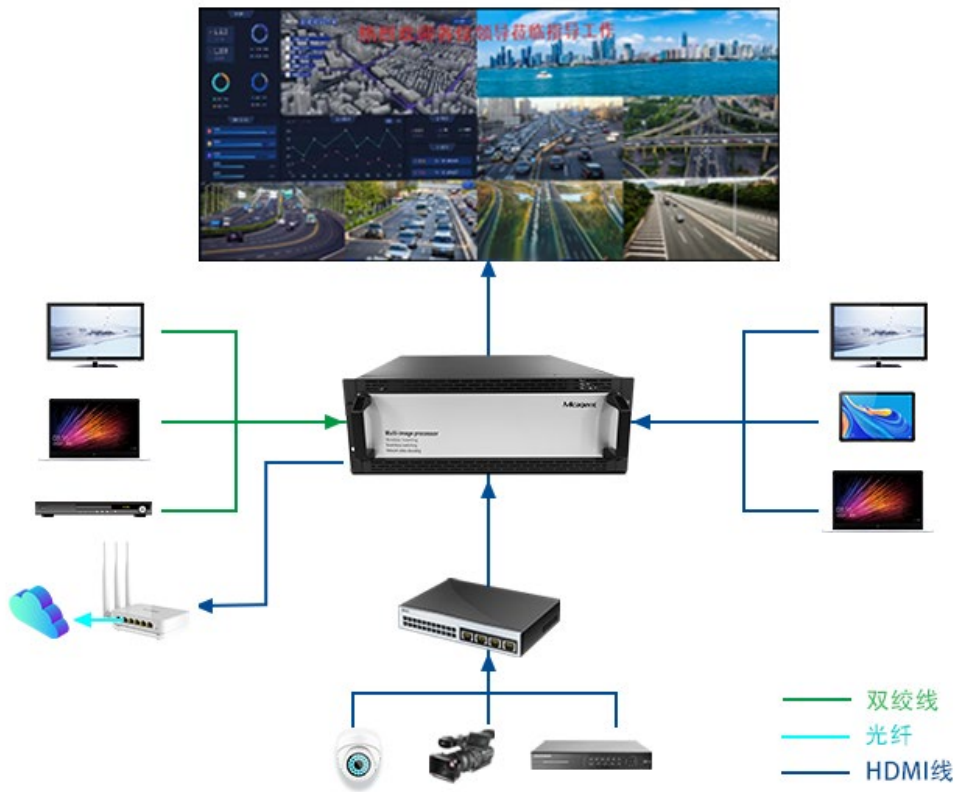


6U



12U

System application topology


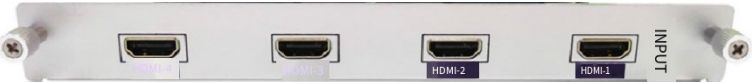


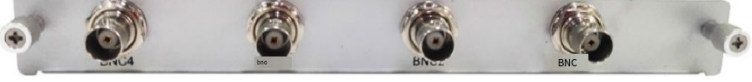








Technical specifications

Case height	2U	3U	6U	12U	24U
Input slot	2	4	9	18	36
Output slots	3	5	9	18	36
Master slot	1	1	1	1	1
Maximum input and output	8 in 12 out	16 In 20 out	36 in 36 out	72 in 72 out	144 in 144 out
Enter the board card	Signal type	VGA/DVI/HDMI/SDI/BNC/ (DP/miniDP/Ypbpr/CVBS/ Support switching)			
	Max resolution	1920X1080@60HZ 4K (3840X2160@30HZ) (optional)			
Output board card	Signal type	DVI/HDMI/ (VGA/DP/miniDP/BNC/Ypbpr supports switching)			
	Maximum resolution	1920 x 1080@60Hz 4K (3840X2160@30HZ) (optional)			
Product type		Pure hardware architecture			
Processing technology		FPGA real-time processing technology			
Start-up speed		< 5S			
Type of board		Modular hot swappable construction			
Safety Features		No virus or crash occurs			
Display mode		Arbitrary splicing/window opening/picture-in-picture/roaming/overlay/scaling/cross-screen, etc., support 2 layers overlay.			
IPC Decoder card (optional)		Hikang/Dahua/Yu vision/Xiongmai and other mainstream manufacturers such as standard onvif protocol and national standard GB28181 IPC decoding, and support Hikang/Dahua/Yu vision/Xiongmai and other NVR/DVR decoding and video playback; (control punctuation), and support the division of Mi Lingyun cross-region, WAN network camera wall decoding (control punctuation)			
Decoding performance		Single network audio and video decoding IP card maximum support 36 segmentation, maximum support for decoding 72 channels of audio and video decoding, can decode 2 channels 4K, 8 channels 500W/400W/300W, 18 channels 1080P, 32 channels 720P, 72 channels D1 (control point), and IP card can be multiple access system expansion of multi-channel IPC decoding, Achieve large-scale video on the wall;			
Dante's audio and video switching		Input: HDMI support Built-in audio input/Output: Support external 3.5MM audio interface. Baseplate supports cross-Dante's high quality channel audio.			
Premonitorback graphics card (optional)		Hard premonitor/echo			

Multi-window info release card	Grab the WEB browser with a computer through the multi-window information release software, and push the local software, local videos, local pictures and PPT to the splicing screen (control punctuation).	
Input and output board automatic detection	Real-time detection of all inserted boards in the current processor.	
Automatic detection of input signals	Real-time detection of each input signal access, input board and client software have status indication;	
Wireless screen projection card (optional)	Support mobile phone (Android ios) and computer one-click wireless screen projection function, while supporting computer and mobile phone 2 split screen mixed projection (control punctuation)	
Virtual LED scrolling captions	Ultra high count point vector captions, support dynamic captions and static captions, you can edit the display content, font, color and other parameters. Set to welcome words	
Network control	Control protocol	TCP/IP
	Control interface	RJ45
	Wifi control	Tablet or phone connection, AI voice recognition control (punctuation control)
Serial port control	Control interface	RS232 x 1, 9-pin type D public interface
	Baud rate	115200
Environment of use	Operating temperature (C)	-15-60 degrees Celsius
	Operating humidity (RH)	10-90% non-condensing
Appliance Characteristics	Output voltage	100-220V,AC
	Frequency	50-60HZ
	Size	Width x depth x Height (mm) 480x440x100
	Weight	<=20KG(full size)
	Redundant power supply (optional)	Support for optional redundant power supply chassis
Mean time without failure (MTBF)	> 50,000 hours	

Type of signal

Input board card	MA_In_4xVGA	VGA	<p>VGA input card</p>  <p>Physical interface: VGA, support 4 PC signal input, signal type: VGA;</p>
	MA_In_4xHDMI	HDMI	<p>HDMI input card</p>  <p>Physical interface: HDMI Type A, support 4 HDMI HD digital, support 4 internal audio input;</p>
	MA_4xDVI	DVI-D	<p>DVI input card</p>  <p>Physical interface: DVI-D, support 4 Duallink digital signal input;</p>
	MA_In_4xSDI	SDI	<p>SDI input card</p>  <p>Physical interface: SDI, four SDI signals, signal type: SD-SDI/HD-SDI/3G-SDI serial digital signal input;</p>
	MA_In_4xBNC	BNC	<p>BNC input card</p>  <p>Physical interface: BNC, support 4 BNC composite video signal input;</p>
	MA_In_1xIPV	RJ45	<p>IPV decoder card</p>  <p>Physical interface: RJ45, support IPV network video signal input, decoding capacity: 4k*2, 1080P*18,720P*36,72 *D1;</p>
	MA_In_1xTP	wifi	<p>Wireless projection screen input card</p>  <p>Physical interface output: HDMI, while supporting computer and mobile phone 2 split screen mixed projection;</p>

Output board	MA_Out_2xHDMI	HDMI	<p>HDMI output card</p>  <p>Physical interface: HDMI Type A, support 4 HDMI HD digital signal output; Support 4 external 3.5mm audio interface, support Dante's stereo surround sound output.</p>
	MA_Out_2xDVI	DVI-I	<p>Multifunction output card</p>  <p>Physical interface: DVI-I, support 2 PC class signal output, signal type: DVI;</p>
	MA_Out_2xMirView	HDMI	<p>Hardware back to the graphics card</p>  <p>Physical interface: HDMI, support 8 pre-monitoring signal output:</p>
	MA_Out_2xHDMI 4KOutput	4 k_hd mi2.0	 <p>Physical interface: HDMI2.0 supports 2 channels 4K (3840X2160@30HZ) compatible 2K (1920X1080@60HZ) output</p>

Application Cases

Foshan Metro Line 2



Surveillance command center of a public Security bureau



Fujian TV Station



Inner Mongolia Power display system 60

