Modular Video Wall Controller

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INTRODUCTION

Video wall controller is a technology that deals with video and graphics Processing, control and display in the audio-visual environment. It is becoming the world's leading pioneer in the area of visualization and audio-visual resource management. Our item family of Video Wall Controller gives very expandable and adaptable answers for video show dividers, especially for substantial scale multi-screen frameworks. Equipped for incorporating any sort of video and information source on any showcase divider design, video wall controllers are generally utilized for achieving professional excellence in the following mentioned fields of digital media industry.

video conferencing rooms	Energy Management Rooms	Board Rooms
Security and Surveillance Systems	Intelligent Traffic Management Centers	Network Operation Centers
Process Control Rooms	Public Utility Control Centers	Financial Management Control Rooms
Call Centers	Military Command and Control Centers	Residential Markets
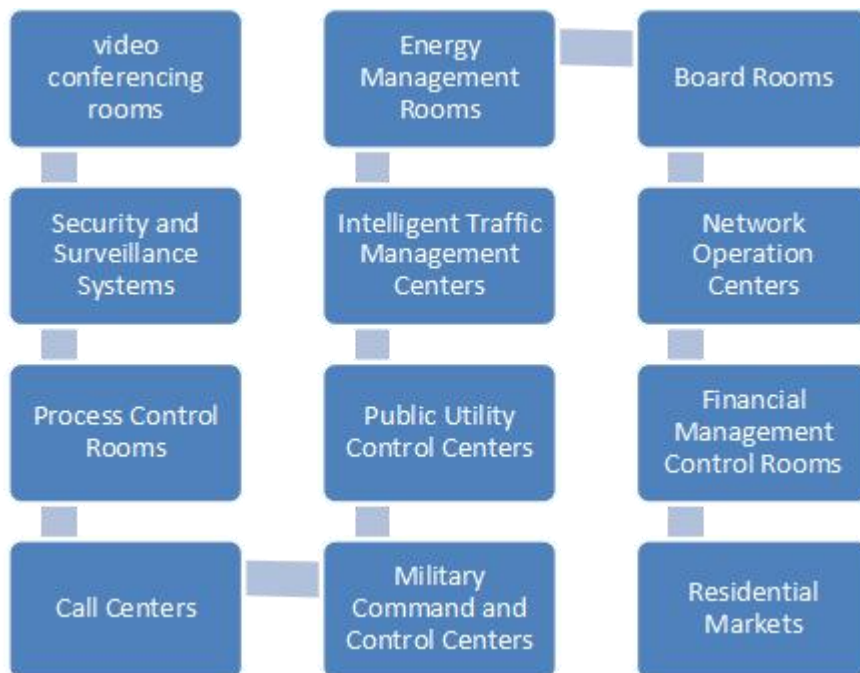
Performance

Our Video Wall Controller adopts FPGA (Field Programmable Gate Array) hardware graphics parallel processing and digital signal processing (DSP) technology to construct distributed and modularized hardware architecture. Its purpose-built hardware and embedded operating system are uniquely optimized for both mission-critical reliability and ultra-high-performance. Thanks to its implementation of cutting-edge, parallel processing hardware systems, video wall controllers offer an astonishing 25Gbps of bandwidth per slot. Regardless of configuration requirement size, it provides fully real-time DVI/HDMI/VGA/SDI frame rates because of its truly none-blocking communication architecture.

· Up to 80x input slots and 80x output slots
· Up to 320x DVI, HDMI, HDBase-T, VGA or SDI inputs simultaneously
  (High-Definition video or WUXGA graphics)
· Up to 320-screen video wall
· Input resolution up to 3840×2160@30Hz
· Output resolution up to 3840×2160@30Hz

Flexibility

Our video wall controller provides great flexibility with six different chassis sizes.

Chassis	4U	8U	16U	16UA	16UB	28U	32U(Double)
Input Slots	4	9	20	29	15	40	80
Output Slots	4	8	20	15	29	40	80

Availability and Reliability

Our Video Wall Controller has been designed, developed and optimized for continuous 24/7 Operation. It features a variety of redundant components, including hot-swappable N+1(up to 4 PSU, and 1x default PSU) redundant power supplies, hot-swappable chassis cooling fans, and hot-swappable input and output cards.

In the industry most competitors adopted industrial PC chassis architecture which operates in Microsoft Windows Operating System (MS Windows), Our video wall controller operates in an embedded operating system which is specifically designed for video wall controller for greater performance and reliability.

Robustness

Our video wall controller has several advantages mentioned below which increases its efficiency of our products as compared to our competitors in industry:

- video wall controller has its own embedded operating system that's why its booting time is very fast. Booting time is approximately <15 seconds.
- No fear of crash due to lack of bugs and vulnerabilities that has greater chances to occur in Microsoft Windows Operating System and other third party software.
- No computer Virus
- Saves maintenance cost of operating system and hard drive.

Easy Expansion

Our video wall controller provides flexibility in expanding the video wall systems, it contains an element of custom design where if user wishes to further integrate or expand his system, or if cards are damaged or disabled, they can be easily pull out damaged/not-working card and replace with new one in matter of seconds. In this way our video wall controller are able to get market attention and convincing users to use this unique and premium quality product.

Powerful Video and Image Processing

All input card employ our proprietary technology, ensuring that each card can transmit and display input signals at full frame rate (no dropped frames) regardless of output windows size with maximum performance. In addition, each data or video source can be simultaneously placed into four separately positioned and scaled windows. Videos and images can be displayed anywhere, at any size, within or across screens, in correct ratio or stretched to fit, in whole or zoomed to emphasize details. These features include：

| Support roaming | PIP | Zooming in/out |
| Stretching | | Scene switch |
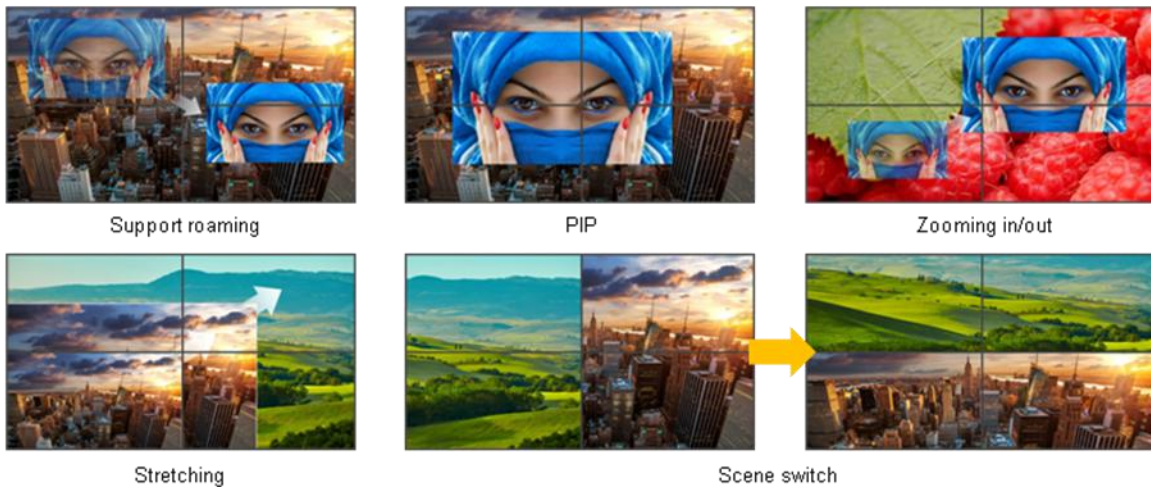
## 4K Ultra HD Support

Video wall controller support 4K resolution input and output, which means user can capture 4K HDMI source and connect a 4K HDMI output card to an ultra-High definition TV (UHDTV) or a 4K projector. Four 1080p windows or 16 standard video windows can be easily opened on a UHDTV. Both input and output cards support HDMI 1.4, producing a max resolution of up to 3840 X 2160 @ 30Hz.

Dual IP streaming Decoder Card

Our Dual IP streaming decoder card provides support for the display of both high definition and standard definition IP video streams in H.264 and H.265 formats and supports RTSP protocols.
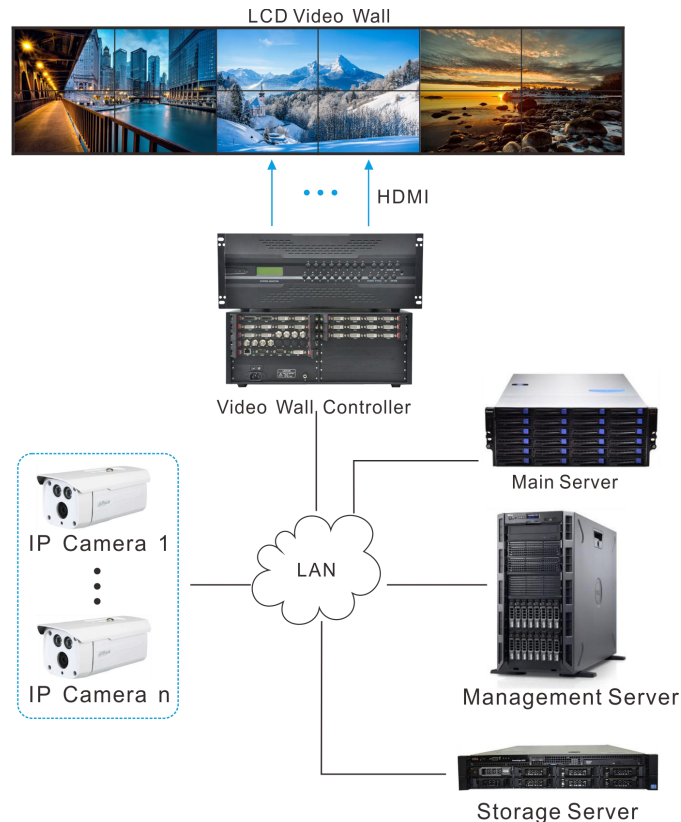
Frame Synchronization and Double-Buffering Techniques

It utilizes the most advanced FPGA and DSP technologies, capable of driving four displays at up to 1920x1200 pixels. With 25GB bandwidth per slot and 1GB of GDDR3 memory per card, we can simultaneously render complex application data while displaying multiple video or computer inputs.

Frame tearing occurs when a video feed to different display devices in a video wall are not in sync with the display's refresh. During video motion, screen tearing creates a torn look as edges of objects (such as an image of a wall or a tree) fail to line up. Frame Tearing can occur with most common display technologies and video cards is most noticeable in horizontally-moving visuals, such as in slow camera pans in a movie, or classic side-scrolling in video games. it employs original Frame Synchronization and Double-Buffering Techniques, so all outputs are synchronized to eliminate "frame tearing" between displays.

Video Wall Controller Software

Video wall controller has its own embedded operating system which increases its reliability, consistency and efficiency. Our video wall controller's operating system has user friendly graphical user interface for best user experience. It is a complete, integrated and intuitive software package for the control and management of video wall controller.(For more details please refer to our software user manual). Operating system also supports IOS and Windows Applications.
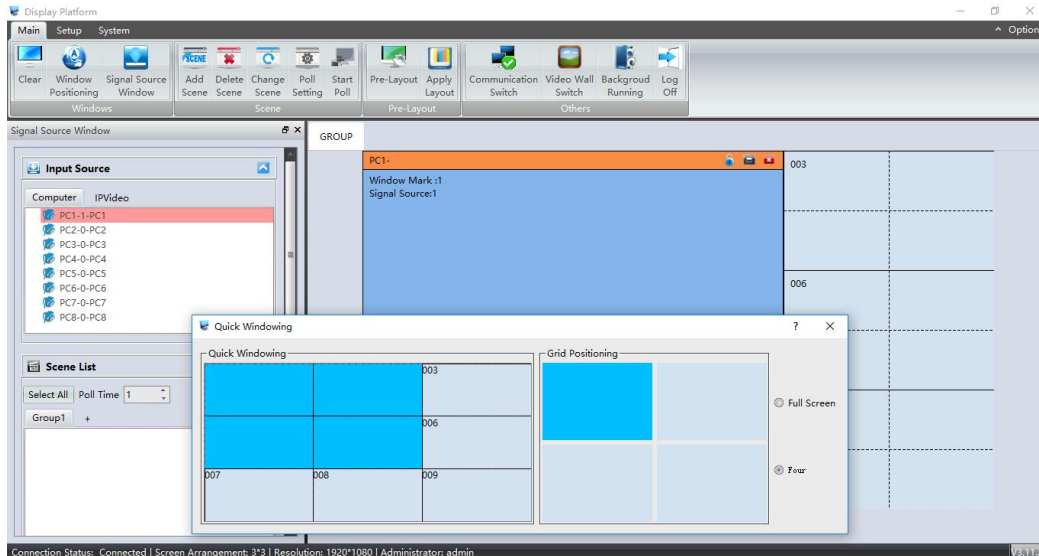
SPECIFICATIONS OF INPUT AND OUTPUT CARDS

INPUT CARD	
CVBS	8-channel CVBS input card
DVI	Dual-channel DL-DVI input card
DVI	Quad-channel DVI input card
VGA	Quad-channel VGA input card
HDMI	Dual-channel 4K HDMI input card
HDMI	Quad-channel HDMI input card
HDBaseT	Quad-channel HDBaseT input card
IP Decoder	Dual-channel IP streaming Decoder input card
Fiber	Quad-channel Fiber input card
SDI	Quad-channel SDI input card
DP	Dual-channel 4K DP input card
DP	Quad-channel DP input card

OUTPUT CARD	
CVBS	Quad-channel CVBS output card
VGA	Quad-channel VGA output card
DVI	Quad-channel DVI output card
HDMI	Quad-channel HDMI output card
HDMI	Dual channel 4K HDMI output card
Fiber	Quad-channel Fiber output card
SDI	Quad-channel SDI output card
HDBaseT	Quad-channel HDBaseT output card

8-Channel CVBS Input Card

The 8-Channel CVBS Input Card is capable of capturing PAL and NTSC format signals.

Type	Description	
Connector	8-Channel BNC	
Specification	Input Signal	PAL, PAL-M, PAL-N, PAL-60, NTSC, NTSC-443, SECAM
	Level	CVBS: 1.0Vp-p
	Impedance	75 Ohm
	Power waste	<25W
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	N.W	≈426g
	Dimension-WHD	252 mm x 177 mm x 20mm

Quad-Channel VGA Input Card

The Quad-Channel VGA Input Card is able to convert PC VGA signals to digital signals. It Supports up to 1920 x 1200 resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

Type	Description	
Connector	15 Pin D-sub, Male	
Specification	Input Signal	RGBHV
	Level	0.7Vp-p
	Power waste	<22W
	Impedance	75 Ohm
	Resolutions	1920 x 1200@60 Hz 1440 x900@60Hz CVT 1920 x1080@60Hz CVT 640 x 480@60Hz DMT 1024 x786@60Hz CVT 1400 x1050@60Hz CVT 1920 x 1080@60Hz Red 1920 x1200@60Hz CVT 1025 x768@75Hz CVT 800 x 600@60Hz DMT 1440 x900@60Hz CVT 1152 x864@75Hz CVT 1280 x 800@60Hz CVT 1600 x1200@60Hz CVT 640 x480@75Hz CVT 1280 x 720@60Hz DMT 1280 x960@60Hz CVT 1280 x1024@75Hz CVT 1280 x 800@60Hz DMT 1400 x1050@60Hz CVT 800 x600@75Hz CVT 1280 x 768@60Hz CVT 1280 x1024@60Hz CVT
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 240mm x 177mm x 20mm

Dual-Channel DL-DVI input card

The Dual channel Dual Link DVI Input Card is able to convert PC DVI signals to digital signals. It Supports up to 4088 x 4088 (4K) resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

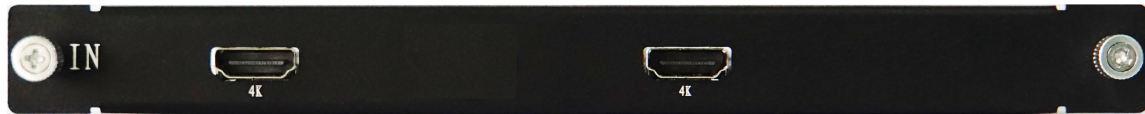| Type	Description	
Connector	24+5 Pin DVI-I, Male (DVI-D)	
Specification	Input Signal	DVI 2.0
	Resolutions	Up to 4088 x 4088 (4K)
	Level	T.M.D.S 2.9~ 3.3V
	Impedance	75 Ohm
	Power waste	<22W
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	240 mm x 177 mm x 20mm

Quad-Channel DVI input card

The Quad-Channel DVI Input Card is able to convert PC DVI signals to digital signals. Due to self-adaption technology, it can capture Ypbpr/VGA/HDMI as well. It Supports up to 1920 x 1200 resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

Type	Description	
Connector	24+5 Pin DVI-I, Male (DVI-I)	
Specification	Input Signal	YPbPr/VGA/HDMI/DVI
	Bandwidth	148MHz
	Power waste	<22W
	Level	T.M.D.S 2.9V~3.3V
	Resolutions	1920 x 1200@60Hz 1920 x 1080@60Hz 1680 x 1050@60Hz 1600 x 900@60Hz 1440 x 900@60Hz 1400 x 1050@60Hz 1280 x 1024@60Hz 1280 x 960@60Hz 1280 x 720@60Hz 1024 x 768@60Hz 800 x 600@60Hz
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 240 mm x 177 mm x 20mm

Dual-Channel 4K HDMI Input Card

The Quad-Channel HDMI Input Card is able to convert Blue-ray DVD HDMI signals to digital signals. It Support up to 3820 x 2160 resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

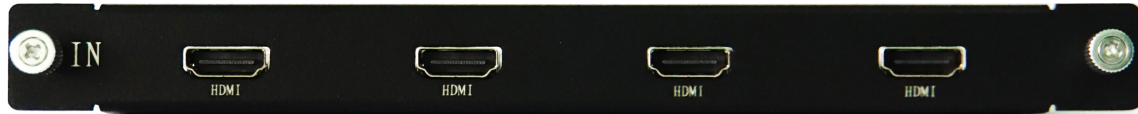| Type	Description	
Connector	HDMI Type A, Male	
Specification	Input Signal	HDMI 1.4, DHCP 2.0
	Impedance	75 Ohm
	Resolutions	3840 x 2160@30 Hz 1920 x 1200@60 Hz 1080p@24/25/50/60Hz 720p@50/60 Hz 576p@50 Hz or 480p@60Hz
	Power waste	<22W
	Level	T.M.D.S 2.9~ 3.3V
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 236 mm x 177mm x 20mm

Quad-Channel HDMI Input Card

The Quad-Channel HDMI Input Card is able to convert Blue-ray DVD HDMI signals to digital signals. It Support up to 1920 x 1200 resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

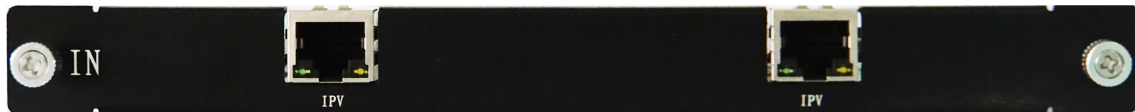| Type	Description	
Connector	HDMI Type A, Male	
Specification	Input Signal	HDMI 1.3, HDCP 2.0
	Impedance	50 Ohm
	Resolutions	1920 x 1200@60 Hz 1080p@24/25/50/60Hz 720p@50/60Hz 576p@50Hz or 480p@60Hz
	Consumption	<22W
	Level	T.M.D.S 2.9~ 3.3V
Environmental	Operating Temp. Operating Humidity	0-70C° <80°
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 236 mm x 177mm x 20mm

Quad-Channel HDBaseT Input Card

The Quad-Channel HDBaseT Input Card is capable of transmitting DVI signals up to 100 meters (330 ft.) via Cat6 (category6) cable. This card is embedded with an HDBaseT receiver chip, and can be combined with other devices embedded with transmitter/sender chips.

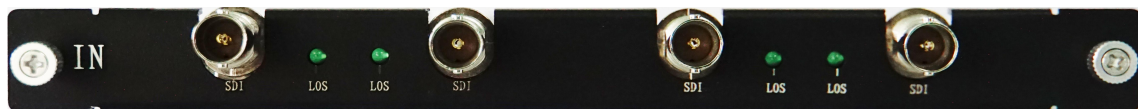| Type	Description	
Connector	4x RJ45	
Specification	RJ45 sequence	568A or 568B
	Distance	100 meters
	Resolutions	1920 x 1200@60Hz
		1920 x 1080@60Hz
		1680 x 1050@60Hz
		1600 x 900@60Hz
		1440 x 900@60Hz
		1400 x 1050@60Hz
		1280 x 1024@60Hz
		1280 x 960@60Hz
		1280 x 720@60Hz
		1024 x 768@60Hz
		800 x 600@60Hz
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80°
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	236 mm x 177 mm x 20mm

Dual-Channel IP Streaming Decoder input card

Traditional security system applications require the use of a PC with a DVI capture card. This requirement has become obsolete because it results in system instability and vulnerability, leaving the entire system susceptible to viruses and blue screens. We bypass the need for a PC with the development of its Dual Chanel IP Streaming Decoder Card. With this card, users are able to route any RTSP video source protocol-supported IP cameras to the displays.

Type	Description	Note
Connector	Dual-Channel RJ45	10M/100M Self-Adaptive
Specification	Single Port	Support up-to 16X 1080P@30hz, 32X 720P , 64X D1 or 128X CIF signals
	Video	RTSP: H.264/H.265
	Boot-Up Time	<20 Sec
	Impedance	75 Ohm
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 236 mm x 177 mm x 20mm

Quad-Channel SDI input card

The Quad-Channel SDI Input Card is able to capture SDI signals. Commonly used in Broadcast TV, the types of SDI signals can be divided into SD-SDI and HD-SDI. This card supports SD-SDI and HD-SDI capturing. Adopting double buffering technology to avoid asynchronous situations, this card also supports real-time auto-sensing of input resources. This card supports a maximum transmitting distance of 70 meters with HD-SDI and 120 meters with SD-SDI.

Type	Description	Note
Connector	4x BNC	
Specification	Resolution	SD-SDI: 480i@60, 576i@50, 408p@60, 576p@50 HD-SDI: 720p@50, 720p@60, 1080p@30, 1080p@24, 1080p@25, 1080i@50, 1080i@60
	Level	2.0Vp-p
	Impedance	75 Ohm
Environmental	Operating Temp. Operating Humidity	0-70C° <80°
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 252 mm x 177 mm x 20mm

Quad-Channel DP Input card

The Quad-Channel DP Input card is able to capture DP signals. It Supports up to 1920x1200@60 Hz resolution.

Type	Description	
Connector	4xDisplay Port	
Specification	Input Signal	Display Port 1.1
	Impedance	75 Ohm
	Resolutions	Up to 1920 x 1200@60Hz
	Power waste	<22W
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	236 mm x 177 mm x 20mm

Dual-Channel DP Input card

The Quad-Channel DP Input card is able to capture DP signals. It Support 3840x2160@30Hz resolution.

Type	Description	
Connector	2xDisplayPort	
Specification	Input Signal	Display Port 1.2
	Impedance	75 Ohm
	Resolutions	3840x2160@30Hz
	Power waste	<22W
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	236 mm x 177 mm x 20mm

Quad-Channel Fiber Input card

The Quad-Channel Fiber Input card is able to capture Fiber signals. It Supports up to 1920 x 1200/ 60 Hz resolution.

Type	Description	Note
Connector	4x LC	
Specification	Distance	SMF:10KM MMF:550M
	Resolution	1920 x 1200@60Hz 1920 x 1080@60Hz 1680 x 1050@60Hz 1600 x 900@60Hz 1440 x 900@60Hz 1400 x 1050@60Hz 1280 x 1024@60Hz 1280 x 960@60Hz 1280 x 720@60Hz 1024 x 768@60Hz 800 x 600@60Hz
	Level	2.0Vp-p
	Impedance	75 Ohm
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 240 mm x 177 mm x 20mm

Quad-Channel DVI output card

The Quad-Channel DVI Output Card is able to convert digital signals to DVI-I signals. It Supports up to 1920 x 1200@60 Hz resolution and up to 4 screen layouts for each channel. It is also able to output VGA signals via DVI to VGA adaptor.

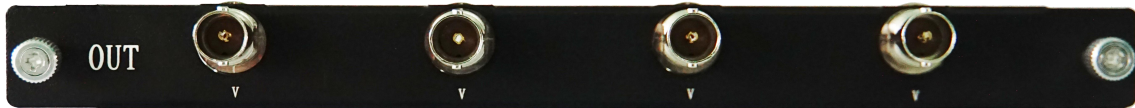| Type	Description	Note
Connector	24+5 Pin DVI-I, Male (DVI-D)	
Specification	Input Signal	DVI 1.0
	Level	T.M.D.S 2.9~ 3.3V (DVI);
	Resolutions	Up to 1920 x 1200@60Hz
	Power waste	<20W
	Bandwidth	148MHz
	Impedance	75 Ohm (DVI);
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	240 mm x 177 mm x 20mm

Quad-Channel VGA Output Card

The Quad-Channel VGA Output Card is able to convert PC VGA signals to digital signals. It Supports up to 1920 x 1200 resolution, while auto-sensing the dynamic switching of different resolutions and optimizing their quality.

Type	Description	
Connector	15 Pin D-sub, Male	
Specification	Input Signal	RGBHV
	Level	0.7Vp-p
	Power waste	<20W
	Impedance	75 Ohm
	Resolutions	Up to 1920 x 1200@60 Hz
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 240mm x 177mm x 20mm

Quad -Channel CVBS Output Card

The Quad -Channel CVBS Output Card is capable of capturing PAL and NTSC format signals.

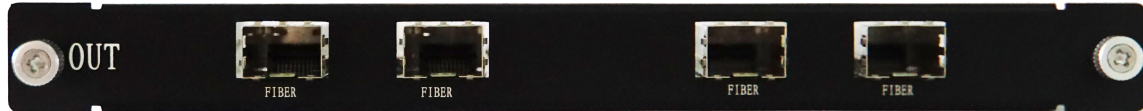| Type	Description	
Connector	4-Channel BNC	
Specification	Output Signal	PAL and NTSC
	Level	CVBS: 1.0Vp-p
	Impedance	75 Ohm
	Power waste	<19W
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	252 mm x 177 mm x 20mm

Quad-Channel SDI Output card

The Quad-Channel SDI Output Card is able to capture SDI signals. Commonly used in Broadcast TV, the types of SDI signals can be divided into SD-SDI and HD-SDI. This card supports SD-SDI and HD-SDI capturing. Adopting double buffering technology to avoid asynchronous situations. This card supports a maximum transmitting distance of 70 meters with HD-SDI and 120 meters with SD-SDI.
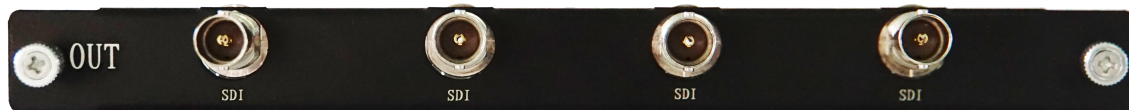
Type	Description	Note
Connector	4x BNC	
Specification	Resolution	HD-SDI: 720p@50, 720p@60, 1080p@30
	Level	2.0Vp-p
	Power waste	<20W
	Impedance	75 Ohm
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 252 mm x 177 mm x 20mm

Dual-Channel Fiber output card

The Quad-Channel Fiber output card is able to capture Fiber signals. It Supports up to 1920 x 1200/ 60 Hz resolution and up to 4 screen layouts for each channel. Fiber receiving box needs to be matched at the receiving end.

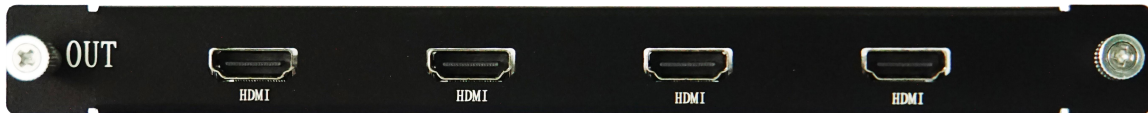| Type	Description	Note
Connector	4x LC	
Specification	Distance	SMF:10KM MMF:550M
	Resolution	1920 x 1200@60Hz 1920 x 1080@60Hz 1680 x 1050@60Hz 1600 x 900@60Hz 1440 x 900@60Hz 1400 x 1050@60Hz 1280 x 1024@60Hz 1280 x 960@60Hz 1280 x 720@60Hz 1024 x 768@60Hz 800 x 600@60Hz
	Level	2.0Vp-p
	Impedance	75 Ohm
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 240 mm x 177 mm x 20mm

Dual-Channel 4K HDMI output card

The Single Channel 4K HDMI Output Card supports 3840 x 2160@30Hz (4K) resolution, and supports HDCP 2.0.

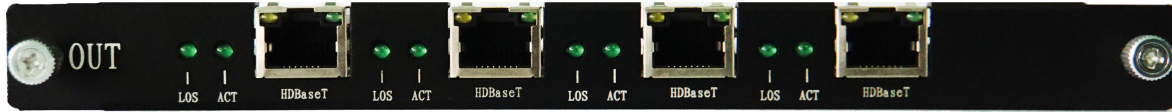| Type	Description	Note
Connector	HDMI Type A	
Specification	Output Signal	HDMI 1.4, HDCP 2.0
	Level	T.M.D.S 2.9~ 3.3V
	Resolutions	3840x2160@30hz
	Bandwidth	297MHz
	Impedance	50 Ohm
Environmental	Operating Temp.	0-70C°
	Operating Humidity	<80°
Physical	Type	Blade
	Net Weight	≈ 340g
	Dimension-WHD	236 mm x 177 mm x 20mm

Quad-Channel HDMI output card

The Quad-Channel HDMI Output Card supports standard HDMI resolutions: 1920 x 1080@60/50/30/25/24 Hz,1280 x 720 @60/50 Hz, 720 x 576@50 Hz and 720 x 483@ 60 Hz, etc.; it supports up to 4 screen layouts for each.

Type	Description	
Connector	4xHDMI Type A, Male	
Specification	Input Signal	HDMI 1.3, HDCP 2.0
	Impedance	75 Ohm
	Resolutions	HDTV 1920 x 1080@60 Hz 1920 x 1200@60 Hz 1080p@24/25/50/60 720p@50/60 576p@50 or 480p@60
	Power waste	<22W
	Level	T.M.D.S 2.9~ 3.3V
	Output slots	2
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 236 mm x 177 mm x 20mm

Quad-Channel HDBaseT output card

The Quad-Channel HDBaseT Output Card is capable of transmitting DVI signals up to 100 meters (330 ft.) via Cat6 cable. This card is embedded with an HDBaseT receiver chip.

Type	Description	
Connector	4x RJ45	
Specification	RJ45 sequence	568A or 568B
	Distance	100 meters
	Resolutions	1920 x 1200@60Hz 1920 x 1080@60Hz 1680 x 1050@60Hz 1600 x 900@60Hz 1440 x 900@60Hz 1400 x 1050@60Hz 1280 x 1024@60Hz 1280 x 960@60Hz 1280 x 720@60Hz 1024 x 768@60Hz 800 x 600@60Hz
Environmental	Operating Temp. Operating Humidity	0-70C° <80%
Physical	Type Net Weight Dimension-WHD	Blade ≈ 340g 236 mm x 177 mm x 20mm

Specifications

Input/Output Card	Input Card	Signal Type	Duallink DVI/VGA/DVI/HDMI/HDMI1.4/Ypbpr/CVBS /SDI/IPV/HDBaseT/Fiber
		Qty Port	2/4/8 channel
		Max Resolution	3840x2160@30Hz
	Output Card	Signal Type	VGA/DVI/HDMI/HDMI1.4/ CVBS/SDI/HDBaseT/Fiber
		Qty Port	2/4 channel
		Max Resolution	3840*2160@30HZ
Hardware Information	Product Type		Pure hardware FPGA architecture
	Processing Technology		FPGA real-time processing technology
	Start Up		＜15S
	Card Type		Pure hardware pluggable, hot-swappable structure
	Power supply configuration		N+1
	Safety characteristics		No virus & crash
Image Processing Techniques	Display		Image combing, windowing, moving,PIP, zooming in/out, roaming, display monitoring, signal previewing, etc..
	Switching Response Time		Millisecond switch
	Max Group		16
	Number of Signal Copy		≥8
	Dual-Screen Windows		8
	IP Decoding		Compatible with most IPC and mainstream providers
	User Manager		Multi user and multilevel permissions partition settings
	Preview and Echo		Support
	Mobile Control		IPAD visualization management
	EDID Editor		Input EDID self-adaption, output EDID edit and load
	Image		Subtitle superposition and image cropping
Control	Network Control		TCP/IP
			RJ45
			10M/100M
	Serial Port Control		RS232 DB9
			Baud Rate 115200
	Third Party Control		Infrared remote control, serial port, keyboard, network, central control, mobile terminal
Working Environment	Temperature		-15-60℃
	Humidity		10-90％without condensation
	Voltage		100-240VAC 50/60Hz
	（MTBF）		＞50000h

SOLUTION DIAGRAM