

DS-C60S Video Wall Controller

Introduction

The video wall controller is mainly used for screen splicing control system, and is the core control device of the system. As a new-generation FPGA-based pure hardware image processing device, it adopts the structure of main control board and service boards. It supports the video input and video output via various ports. It supports the network encoding and real-time preview of signal sources. It supports the decoding and output of various network signal sources. It supports the high-definition (HD) video splicing and fusion. It supports the window splicing, roaming window, and other operations. It supports the management on users, network, operation, alarm and logs.

Features

Hardware Structure

- Adopts 2 U standard rack design and supports the mixed installation of input boards and output boards in some slots of the chassis.
- Adopts a 3.33-inch non-touch screen panel to allow you to view the device status information at any time.
- Adopts 1 fan, left air duct, and right air duct for ventilation.
- Adopts the plug-in modular design and hot swappable service boards to allow the flexible device extension and easy device maintenance.

Video Input

- Supports video input signal sources such as computers, video conference terminals, and ultra high definition servers. Supports DVI, HDMI, 4K HDMI, and 4K DP signal input, and custom resolution input.
- Supports composite audio input and independent audio input. The audio input supports 16 bit and 32 KHz or 48 KHz sampling, and dual channel.
- Adopts RGB 888 image collection and output without image quality loss.
- Supports ultra-high resolution fusion and up to eight 4K ultra-HD signal access.
- Supports OSD on the input.
- Supports input image clipping to cut the black edge of the input image.

Video Output

- Supports DVI, HDMI, and 4K HDMI video signal output and the video signal output via network ports.
- The 2K board supports 4 channels of 1080p@60 Hz output, and the 4K board supports 2 channels of 4K output. Supports LCD output, LED output, and custom output resolution.
- Supports composite audio output.
- Adopts frame synchronization technology to ensure that the images of all output ports are completely synchronized, with complete picture and smooth playback, and without lag, frame loss, tearing, or splicing.
- Supports both mini loading and standard loading modes via an LED controller board. The standard loading mode requires compatible screen support.

Video Decoding

- Supports using the installed decoding board to decode the signal sources of network cameras and NVRs.

Video Wall Function

- Supports any large screen splicing of 16 screens when the device is fully installed with input and output boards.
- Supports window opening and floating windows. A single port supports window opening of any layer.
- Supports 1/4/6/8/9/16 window division.
- Supports using the installed preview board in the chassis to display the image of a video wall on the connected screen(s) or to preview the image of a video wall on a client.
- Supports 3 background images. The resolution of each background image is 1080p.
- Supports 3 video walls. Each video wall allows one background image.
- Supports up to 128 scenes. You can customize the video wall layout and save it as a scene.
- Supports the auto-switching of up to 64 signal source groups. Supports a auto-switching on a single window, on some windows, and on all windows. You can save all a auto-switch resources in the scenes and customize the location, scene, and time in each plan.
- Supports double-clicking the sub-window to enlarge its window size and double-clicking the sub-window again to restore its original window size.

Device Access and Control

- Supports using the network keyboard or serial port keyboard to control the device, and to realize sub-window changing, group operation and scene changing.
- Supports using the software to control LCD screens, including screen switch, screen signal source changing, and the adjustment on brightness, contrast, color, sharpness, picture horizontal position, and picture vertical position.
- Supports using the ONVIF protocol to access the network source devices for decoding.

Maintenance and Management

- Supports the access and operation via the control client and web client. The web browser should be Chrome 45 and higher version.
- Supports the access and operation via the mobile client (Android or iOS).
- Supports obtaining and configuring parameters remotely, importing parameters remotely, and exporting parameters remotely.
- Supports obtaining system running status and system logs remotely.
- Supports restarting the device remotely, restoring the default settings, and upgrading the device.
- Supports auto detection and alarm for failures and the device exception alarm function when the boards are online, including network disconnection, IP conflict, invalid access, temperature threshold exceeding, and fan exception.
- Supports user permission management. Different users are assigned with different permissions to use the specified resources and operate the specified video wall modules.
- Supports manual time sync or NTP time sync.

Available Model

Chassis (Standard)		
Name	Model	Description
Chassis	DS-C60S-S6	6-slot chassis integrated with 1 power supply, 2 input slots for input boards, 2 output slots for output boards, 2 mixed slots for input and output boards, 1 power supply, 1 main control board
Main control board	DS-C60S-MCU	1 debug serial port, 1 RS-485 serial port, 1 RS-232 serial port, 2 audio input ports, 4 audio output ports, one 10/100/1000 Mbps self-adaptive Ethernet port (RJ-45)
Service Board (Optional)		
Name	Model	Description
HDMI input board	DS-C60S-04HI	4 HDMI input ports
DVI input board	DS-C60S-04DI	4 DVI input ports
4K HDMI input board	DS-C60S-02HI/4K	2 HDMI UHD input ports
4K DP input board	DS-C60S-02DPI/4K	2 DP UHD input ports
HDMI output board	DS-C60S-04HO	4 HDMI output ports
DVI output board	DS-C60S-04DO	4 DVI output ports
4K HDMI output board	DS-C60S-02HO/4K	2 HDMI UHD output ports
Preview board	DS-C60S-PRE	1 HDMI output port
Decoding board	DS-C60S-DEC	
Electrical LED controller board	DS-C60S-20NO	20 network ports
Optical LED controller board	DS-C60S-16NO/2FO	16 Gigabit Ethernet ports + two 10 Gbps optical ports

Specification

DS-C60S Series Video Wall Controller		
Model		DS-C60S-S6
Device	Power Interface	100 VAC to 240 VAC, 50/60 Hz
	Dimensions (W × H × D)	Chassis: 442 mm × 88.1 mm × 385 mm (17.40 inch × 3.47 inch × 15.16 inch) Board: 192 mm × 20.1 mm × 223.5 mm (7.56 inch × 0.79 inch × 8.80 inch)
	Chassis Height	2 U
	Main Control Board Slot	1
	Installed Main Control Boards	1
	Installed Power Supplies	1
	Power Consumption	≤ 150 W (full configuration)
Chassis	Bus Type	High speed bus
	Main Control Board Slot	1
	Service Board Slot	6
	Net Weight	≤ 7.6 kg (16.76 lb.) Full configuration, chassis net weight: 5.21 kg (11.49 lb.), net weight for each board: 0.46 kg (1.01 lb.)
Environment	Working Temperature	0 °C to 50 °C
	Working Humidity	10% to 90%
Main Control Board (DS-C60S-MCU)	Serial Interface	1 × debug serial port + 1 × RS-485 port (Phoenix contact, baud rate: 115200; valid data bit: 8 bits) + 1 × RS-232 port (Phoenix contact, baud rate: 115200; valid data bit: 8 bits)
	Audio Input Interfaces	2 × 3.5 mm input ports
	Audio Output Interfaces	4 × 3.5 mm output ports
	Control Network Port	1 × 10/100/1000 Mbps self-adaptive Ethernet port (RJ-45)
HDMI Input Board (DS-C60S-04HI)	Occupied Slot	Input slot
	Audio Input Interfaces	4
	Audio Input Interface Type	HDMI composite audio
	Audio Sampling Rate	32K / 48K sampling rate
	Audio Channel	Dual channels
	Video Input Interface Type	HDMI 1.4
	Video Input Interfaces	4
	Video Input Resolution	1024 × 768@60 Hz, 1280 × 1024@60 Hz, 1366 × 768@60 Hz, 1440 × 900@60 Hz, 1680 × 1050@60 Hz, 1280 × 960@60 Hz, 1600 × 1200@60 Hz, 1280 × 720p@50 Hz, 1280 × 720p@60 Hz, 1920 × 1080p@50 Hz, 1920 × 1080p@60 Hz, 1920 × 1200@60 Hz Custom resolution: width ranges from 800 to 2560, height ranges from 600 to 2560. Width must be a multiple of 4 and height must be a multiple of 2. Frame rate is 30 Hz or 60 Hz. When configuring 30 Hz frame rate, the resolution ranges from 1280 × 720 to 2048 × 1152. When configuring 60 Hz frame rate, the resolution ranges from 800 × 600 to 2048 × 1152.
	Max. Video Input Resolution	1080p

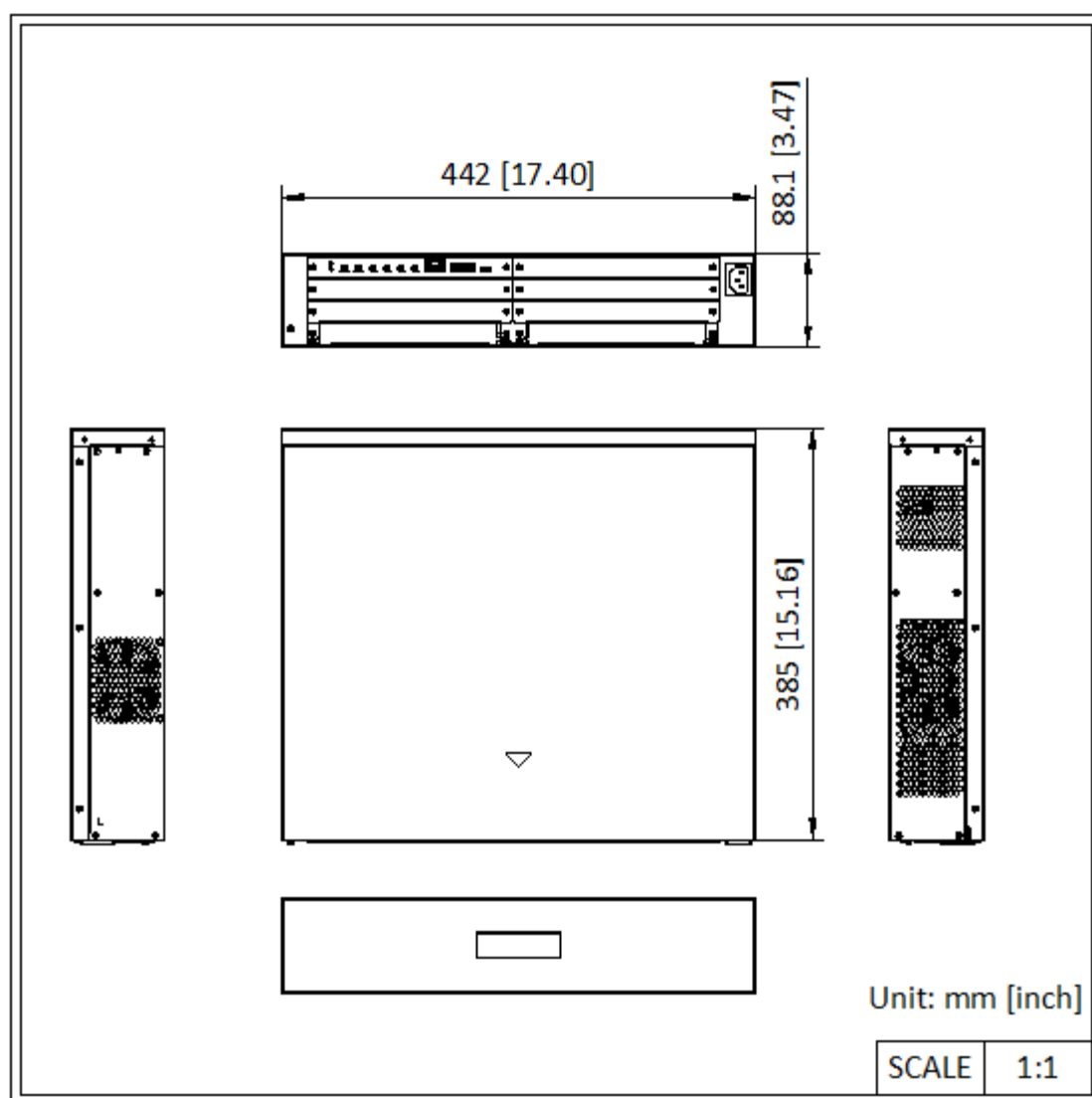
DVI Input Board (DS-C60S-04DI)	Occupied Slot	Input slot
	Video Input Interface Type	DVI-D
	Video Input Interfaces	4
	Video Input Resolution	1024 × 768@60 Hz, 1280 × 1024@60 Hz, 1366 × 768@60 Hz, 1440 × 900@60 Hz, 1680 × 1050@60 Hz, 1280 × 960@60 Hz, 1600 × 1200@60 Hz, 1280 × 720p@50 Hz, 1280 × 720p@60 Hz, 1920 × 1080p@50 Hz, 1920 × 1080p@60 Hz, 1920 × 1200@60 Hz Custom resolution: width ranges from 800 to 2560, height ranges from 600 to 2560. Width must be a multiple of 4 and height must be a multiple of 2. Frame rate is 30 Hz or 60 Hz. When configuring 30 Hz frame rate, the resolution ranges from 1280 × 720 to 2048 × 1152. When configuring 60 Hz frame rate, the resolution ranges from 800 × 600 to 2048 × 1152.
	Max. Video Input Resolution	1080p
4K HDMI Input Board (DS-C60S-02HI/4K)	Occupied Slot	Input slot
	Audio Input Interfaces	2
	Audio Input Interface Type	HDMI composite audio
	Audio Sampling Rate	32K / 48K sampling rate
	Audio Channel	Dual channel
	Video Input Interface Type	HDMI 2.0
	Video Input Interfaces	2
	Video Input Resolution	4096 × 2160@60 Hz, 4096 × 2160@30 Hz, 3840 × 2160@60 Hz, 3840 × 2160@30 Hz, 1920 × 1200@60 Hz, 1920 × 1080p@60 Custom resolution: width ranges from 800 to 8192, height ranges from 600 to 8192. Width must be a multiple of 4 and height must be a multiple of 2. Frame rate is 30 Hz or 60 Hz. When configuring 30 Hz frame rate, the resolution ranges from 1920 × 1080 to 4096 × 2160. When configuring 60 Hz frame rate, the resolution ranges from 800 × 600 to 4096 × 2160.
	Max. Video Input Resolution	4K

4K DP Input Board (DS-C60S-02DPI/4K)	Occupied Slot	Input slot
	Audio Input Interfaces	2
	Audio Input Interface Type	DP composite audio
	Audio Sampling Rate	48K sampling rate
	Audio Channel	Dual channel
	Video Input Interface Type	DP 1.2
	Video Input Interfaces	2
	Video Input Resolution	4096 × 2160@60 Hz, 4096 × 2160@30 Hz, 3840 × 2160@60 Hz, 3840 × 2160@30 Hz, 1920 × 1200@60 Hz, 1920 × 1080p@60 Hz Custom resolution: width ranges from 800 to 8192, height ranges from 600 to 8192. Width must be a multiple of 4 and height must be a multiple of 2. Frame rate is 30 Hz or 60 Hz. When configuring 30 Hz frame rate, the resolution ranges from 1920 × 1080 to 4096 × 2160. When configuring 60 Hz frame rate, the resolution ranges from 800 × 600 to 4096 × 2160.
	Max. Video Input Resolution	4K
HDMI Output Board (DS-C60S-04HO)	Occupied Slot	Output slot
	Layers	16 layers per port (2K/4K)
	Audio Output Interfaces	4
	Audio Output Interface Type	HDMI composite audio
	Video Output Interface Type	HDMI 1.4
	Video Output Interfaces	4
	Video Output Resolution	1920 × 1200@60 Hz, 1600 × 1200@60 Hz, 1920 × 1080@60 Hz, 1680 × 1050@60 Hz, 1280 × 720@60 Hz, 1280 × 1024@60 Hz, 1024 × 768@60 Hz Supports LED screen, custom resolution output, 60 Hz loading output, and 2.6 MP loading with width ranging from 144 to 4096 and height ranging from 144 to 2160.
	Max. Video Output Resolution	1080p
	Loading Capacity for Video Output to LED	2.6 MP loading per port, width in the range of 144 to 4096, height in the range of 144 to 2160.

DVI Output Board (DS-C60S-04DO)	Occupied Slot	Output slot
	Layers	16 layers per port (2K/4K)
	Video Output Interface Type	DVI-D
	Video Output Interfaces	4
	Video Output Resolution	1920 × 1200@60 Hz, 1600 × 1200@60 Hz, 1920 × 1080@60 Hz, 1680 × 1050@60 Hz, 1280 × 720@60 Hz, 1280 × 1024@60 Hz, 1024 × 768@60 Hz Supports LED screen, custom resolution output, 60 Hz loading output, and 2.6 MP loading with width ranging from 144 to 4096 and height ranging from 144 to 2160.
	Max. Video Output Resolution	1080p
	Loading Capacity for Video Output to LED	2.6 MP loading per port, width in the range of 144 to 4096, height in the range of 144 to 2160.
4K HDMI Output Board (DS-C60S-02HO/4K)	Occupied Slot	Output slot
	Layers	16 layers per port (2K/4K)
	Audio Output Interfaces	2
	Audio Output Interface Type	HDMI composite audio
	Video Output Interface Type	HDMI 2.0
	Video Output Interfaces	2
	Video Output Resolution	4096 × 2160@60 Hz, 3840 × 2160@60 Hz, 4096 × 2160@30 Hz, 3840 × 2160@30 Hz, 2560 × 1600@60 Hz, 2560 × 1440@60 Hz, 1920 × 1200@60 Hz, 1920 × 1080@60 Hz Supports LED screen, custom resolution output, 60 Hz loading output, and 8.84 MP loading with width ranging from 144 to 8192 and height ranging from 144 to 4320.
	Max. Video Output Resolution	4K
	Loading Capacity for Video Output to LED	8.84 MP loading per port, width in the range of 144 to 8192, height in the range of 144 to 4320.
Preview board (DS-C60S-PRE)	Occupied Slot	Output slot
	Display Video Wall Image	Output resolution for displaying video wall image on the connected screen: 1080p@60 Hz
	Preview Channels	Maximum number of different source preview channels: 16 Maximum number of preview channels: 80 Number of video walls can be displayed on the screen or previewed on the client: 1
	Video Encoding Format	H.264
	Video Encoding Resolution	Encoding resolution for displaying video wall image: 1080p30 Encoding resolution for input live view: D1

Decoding board (DS-C60S-DEC)	Occupied Slot	Input slot
	Video Decoding Format	H.264, H.265, Smart264, Smart265, MJPEG
	Video Decoding Channels	48
	Video Decoding Capability	Smart H.265/Smart H.264/H.264/H.265: 24 channels of 1080p@30 fps or 48 channels of 720p@30 fps MJPEG: 4 channels of 1080p@30 fps Supports decoding a maximum of 1 channel of 32 MP@30 fps data or 2 channels of 16 MP@30 fps data.
	Video Decoding Resolution	≤ 3200 W
	Audio Decoding Format	G711-A, G711-U, G722.1, G726-16/U, MPEG, AAC-LC
Electrical LED controller board (DS-C60S-20NO)	Occupied Slot	Output slot
	Layers	16 layers per board (2K/4K)
	Video Output Interface Type	RJ-45
	Video Output Interfaces	20
	Video Output Resolution	Loading resolution must be smaller than 10.4 MP. Width: 64 to 16384 Height: 64 to 8192 The width must be a multiple of 4.
	Max. Video Output Resolution	4K
	Loading Capacity for Video Output to LED	Loading resolution must be smaller than 10.4 MP. Width: 64 to 16384 Height: 64 to 8192
	Loading Mode	Mini loading: 0.65 MP per port; Standard loading: 2.72 MP per port
Optical LED controller board (DS-C60S-16NO/2FO)	Occupied Slot	Output slot
	Layers	16 layers per board (2K/4K)
	Video Output Interface Type	RJ-45/SFP+
	Video Output Interfaces	16 (RJ-45)/2 (SFP+)
	Video Output Resolution	Loading resolution must be smaller than 10.4 MP. Width: 64 to 16384 Height: 64 to 8192 The width must be a multiple of 4.
	Max. Video Output Resolution	4K
	Loading Capacity for Video Output to LED	Loading resolution must be smaller than 10.4 MP. Width: 64 to 16384 Height: 64 to 8192
	Loading Mode	Mini loading: 0.65 MP per port; Standard loading: 2.72 MP per port

Dimension



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