Product Specification

Multi-picture Video
Splicing Processor

HD-VP8000M

V 1.2

Contents

1. Introduction

The image splicing processor is a hybrid card-type intelligent image splicing processor, which can display multiple dynamic images on multiple screens to realize the function of multi-window splicing. This product can automatically detect and identify the board type, support DVI, HDMI and other splicing boards, plug and play, and support video splicing, control third-party devices and other functions.

The control methods of device include: RS232 control and LAN client software control, and supports serial port control of remote third-party devices. Using the client control software, you can set up a variety of output screen splicing display, input signal OSD settings, scene saving, scene polling, etc.

The image stitching processor can be widely used in urban security monitoring, intelligent traffic management, video conferencing, large conference centers, large commercial plazas, military command centers, government agencies and other occasions.

2. Connection Diagram
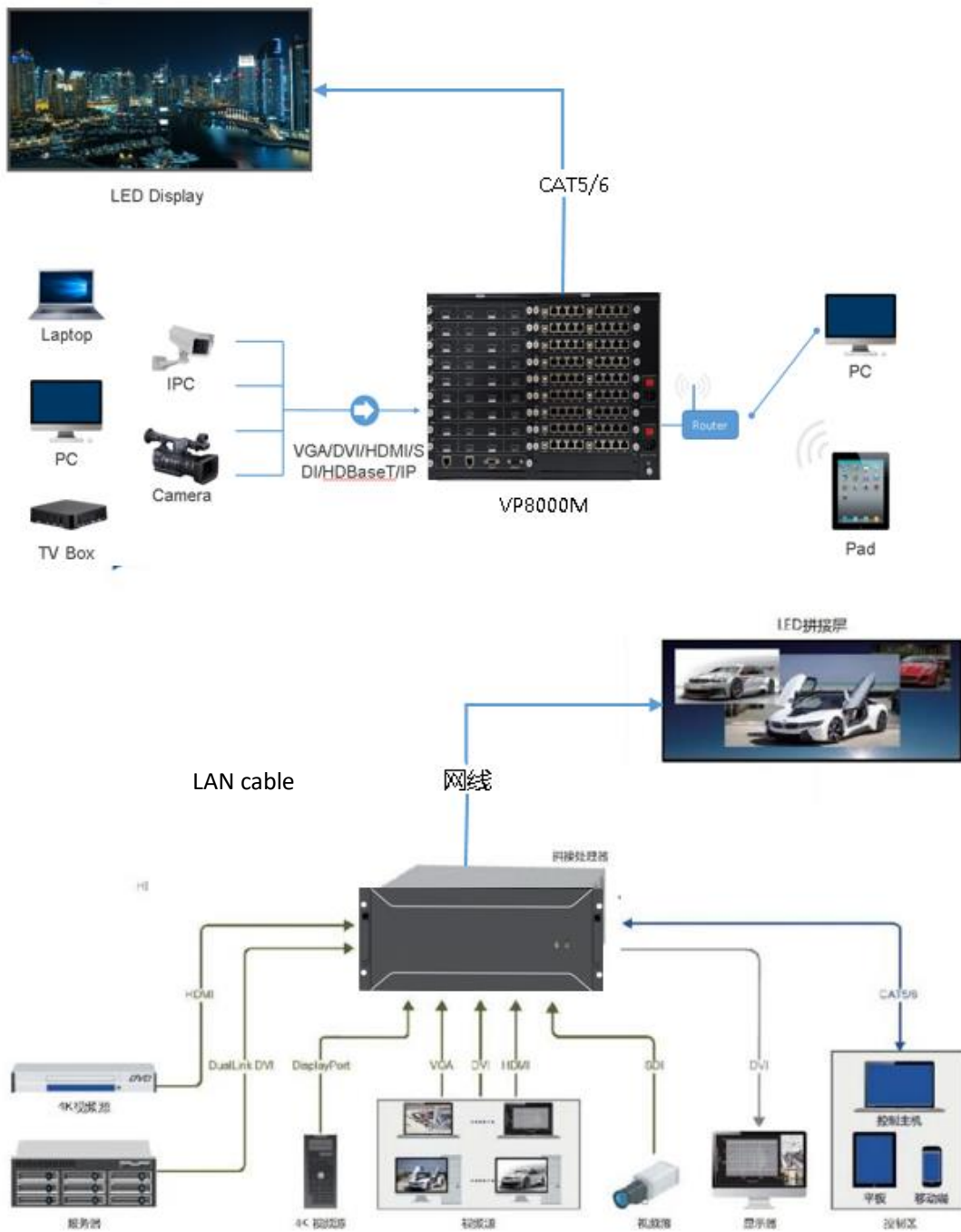
3. Features

1. Input board type (one card four channels)：2K HDMI/DVI/VGA/SDI/CVBS

2. Input board type (one card two channels)：4k HDMI 30Hz

3. Input board type (one card two channels)：One channel 4k HDMI 60Hz, one channel 4K DP 60Hz, pick one of two;

4. Output board type（One card with 8 network ports, 4 layers）：RJ45

5. Modular design, plug-in structure

6. Using FPGA architecture, no embedded operating system, internal self-built core computing mechanism, excellent image processing performance

7. Support any resolution output, the highest supported output resolution is 1920x1200 @60Hz; single-channel load 2.35 million pixels, the maximum width is 2560, and the maximum is 1920

8. Support LED large screen splicing display

9. The output picture can realize any splicing display

10. Control mode: RS232 serial port and LAN network port

11. Through the client software, signal switching, signal detection, splicing settings, scene calling, scene saving, scene preview, resolution setting, restoring to factory settings, etc.

12. Support input signal source OSD custom character display function, you can set character font, size, color, transparency, position, etc.

13. Supports arbitrary windowing, overlaying, roaming, zooming, stretching and other operations on the screen

14. Support picture-in-picture display, image overlay display, multi-screen single-screen display, single-screen multi-screen display splicing functions

15. The layer order and attribute setting of the overlay window can be realized through the client software

16. A single output display supports up to 4 window displays

17. A single input source supports arbitrary windowing

18. Set up to 4 groups of independent display output screens through the client, and the resolution of each group of output screens can be customized

19. With power-off memory function

20. Input and output boards support hot swap

4. Appearance Description

1.1 4.1 front panel

Figure 4-1 front panel

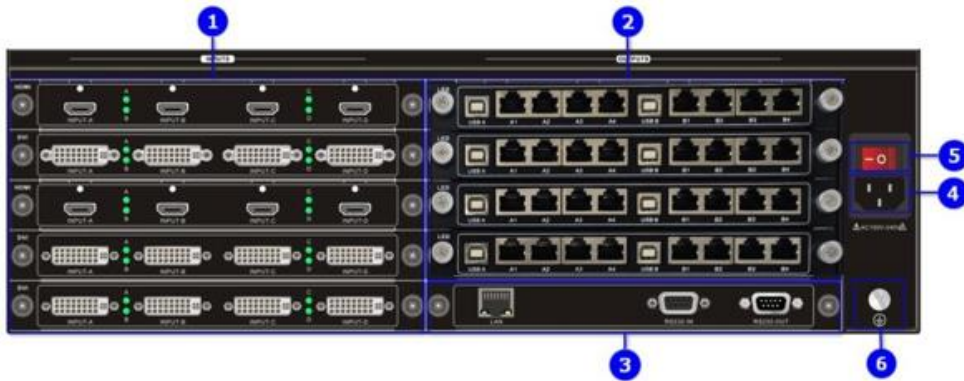| Serial number	Name	Describe
①	ACT indicator	Normal working status: green light flashes Abnormal working status: the indicator light is off or always on.
②	Power Indicator	The normal state of the host is powered on: always on Abnormal state when the host is powered on: the indicator light is off.

1.2 4.2 Rear panel

Figure 4-2 Rear panel

Serial number	Name	Describe
①	Input channel	1. 08x24 hybrid processor: 8 fixed input board channels, up to 2 single-card 4-way splicing input boards can be configured 2. 20x32 hybrid processor: 20 fixed input board channels, up to 5 single-card four-way splicing input boards can be configured 3. 36x72 hybrid processor: 36 fixed input board channels, up to 9 single-card four-way splicing input boards can be configured
②	Output channel	1. 08x24 hybrid processor: 24 RJ45 fixed output board channels, up to 3 single-card 8 RJ45 output boards can be configured 2. 20x32 hybrid processor: 32 RJ45 fixed output board channels, up to 4 single card 8 RJ45 output boards can be configured 3. 36x72 hybrid processor: 72 RJ45 fixed output board channels, up to 9 single-card 8 RJ45 splicing output boards can be configured

③	Control module	**Control board：** 1．LAN：1 network port, control the machine, connect with the control device (such as PC), can control the machine through the client software 2．RS232 IN：1 serial port input, control the machine, connect with the control device, and control the machine by sending commands from the control device； 3．RS232 OUT：1 serial port output, control third-party devices, connect with third-party devices, and support remote third-party devices through control devices
④	Power port	Connect 100-240V AC power
⑤	Power switch button	Power on/off
⑥	Ground connection	Connect the ground wire

Illustrate:

The cards inserted in the rear panel are for reference only

Product pictures are for reference only, please refer to the actual product.

5. Introduction of Signal Card

This machine is compatible with input and output boards of various signal formats such as HDMI, DVI, etc. The boards support hot swapping, plug and play, and can be matched with different boards according to the needs of the system. The following is a summary of the supported boards：

Signal card：

Board type	Board model	Board signal port
Single-card four-way input board	DVI IN	4 DVI input
	HDMI IN	4 HDMI input
	SDI IN	4 SDI input，4 SDI loop out
	VGA IN	4 VGA input
	CVBS IN	4 CVBS input
Single card two-way input board	4K@30Hz HDMI IN	2 4K HDMI input
	4K@30Hz DP IN	2 4K DP input
	4K@60Hz HDMI/DP IN	1 HDMI input，1 DP input（pick one of two）
Single-card two-way output board	RJ45 OUT	8 network ports output

Other bpard：

Board type	Control port
Control card	TCP/IP、RS232

1.3 5.1 Single card four input signal card

1.3.1 5.1.1 DVI input signal card

1.   Ports: 4 DVI input ports

2.   A, B, C, D Green working status indicators: respectively represent the working status of the four DVI ports, the indicator is always on when the signal source is connected normally and working normally

3.   Support HDMI1.3, compatible with HDCP;

4.   Maximum input resolution 1920 x 1200 @60Hz

5.   Support HDMI, DVI-D signal format

6.   Automatically recognize the input signal format, no need to manually set

7.   A single input signal supports arbitrary windowing

8.   Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations

9.   It has embedded EDID management technology, supports DDC control

10.   It has a power-off save function
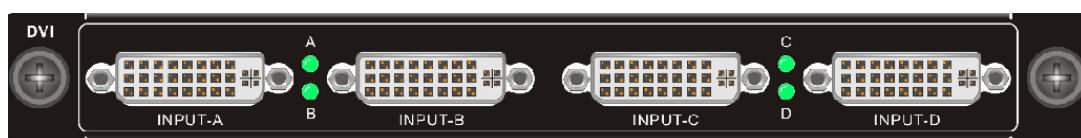
Figure 5-1 DVI IN

DVI-I Female Port Pinout：
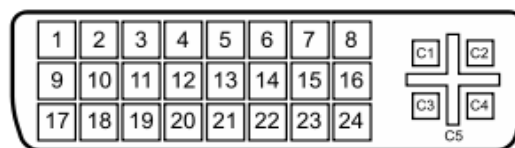
PIN	Function	PIN	Function
1	T.M.D.S.Data2-	13	T.M.D.S.Data3+
2	T.M.D.S.Data2+	14	+5V Power
3	T.M.D.S. Data 2/4 Shield	15	Ground (for +5V)
4	T.M.D.S. Data 4-	16	Hot Plug Detect
5	T.M.D.S. Data 4+	17	T.M.D.S. Data 0－
6	DDC Clock	18	T.M.D.S. Data 0+
7	DDC Data	19	T.M.D.S. Data 0/5 Shield
8	No Connect	20	T.M.D.S.Data5-
9	T.M.D.S.Data1-	21	T.M.D.S.Data5+
10	T.M.D.S.Data1+	22	T.M.D.S. Clock Shield
11	T.M.D.S.Data1/3 Shield	23	T.M.D. S. Clock+
12	T.M.D.S.Data3-	24	T.M.D.S .Clock-

1.3.2 5.1.2 HDMI input signal card

1． Ports: 4 HDMI input ports

2． A, B, C, D Green working status indicator: respectively represent the working status of the four HDMI ports, the indicator is always on when the signal source is connected normally and working normally

3． Support HDMI, DVI-D signal format

4． Support HDMI standard, compatible with HDCP

5.   Maximum input resolution 1920x1200 @60Hz

6.   A single input signal supports arbitrary windowing

7.   Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations

8.   It has embedded EDID management technology, supports DDC control
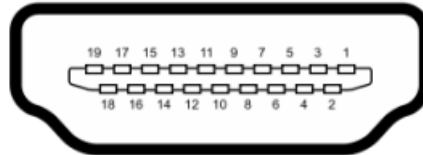
9.   It has a power-off save function.

Figure 5-2 HDMI IN

Type A female Connector Pin Description：

PIN	Signal name	PIN	Signal name
1	TMDS Data 2+	11	TMDS Clock Shield
2	TMDS Data 2 Shield	12	TMDS Clock-
3	TMDS Data 2-	13	CEC
4	TMDS Data 1+	14	N.C.
5	TMDS Data 1 Shield	15	SCL

6	TMDS Data 1-	16	SDA
7	TMDS Data 0+	17	DDC/CEC Ground
8	TMDS Data 0 Shield	18	+5V Power
9	TMDS Data 0-	19	Hot Plug Detect
10	TMDS Clock+		

1.3.3 5.1.3 SDI input signal card

1. Ports: 4 SDI input ports, each input has one SDI loop out

2. SDI input supports loop-out, supports local signal monitoring

3. Support SDI signal format

4. Maximum input resolution 1920x1080P @60Hz

5. The maximum distance of input and output signal transmission is 100m

6. A single input signal supports arbitrary windowing

7. Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations
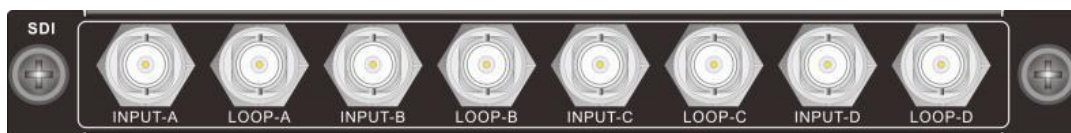
8. With power-off save function

Figure 5-3 SDI IN

1.3.4 5.1.4 CVBS input signal card

1. Ports: 4 CVBS input ports

2. A, B, C, D Green working status indicators: respectively represent the working status of the four CVBS ports.

3. Support CVBS signal format

4. Adaptive PAL and NTSC formats

5. Support resolution PAL：720x576I，NTSC：720x480I

6. A single input signal supports arbitrary windowing

7. Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations

8. It has a power-off save function

Figure 5-4 CVBS IN

1.3.5 5.1.5 VGA input signal card

1. Ports: 4 VGA input ports

2. A, B, C, D Green working status indicators: respectively represent the working status of the four-way SDI port, the indicator is always on after the signal source is connected normally and working normally

3. Support VGA signal format

4. Maximum input resolution 1920x1080P @60Hz；

5. A single input signal supports arbitrary windowing

6. Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations
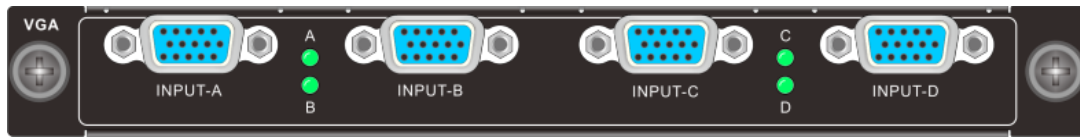
7. With power-off save function

Figure 5-5 VGA IN

1.3.6 5.1.6 4K HDMI input signal card

1. Port: 2 HDMI input ports (B, D port reserved function)

2. A, C green working status indicator: respectively represent the working status of the two HDMI ports, the indicator light is always on after the signal source is connected normally and working normally

3. Support HDMI, DVI-D signal format

4. Support HDMI standard, compatible with HDCP

5. Maximum input resolution 3840x2160 @30Hz

6. A single input signal supports arbitrary windowing

7. Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations

8. With embedded EDID management technology, support DDC control

9. With power-off save function

Figure 5-6 HDMI IN

1.3.7 5.1.7 4K DP input signal card

1. Port: 2-way DP input port

2. A, C green working status indicator: respectively represent the working status of the two DP ports, the indicator light is always on after the signal source is connected normally and working normally

3. Support DP1.1, compatible with HDCP

4. Maximum input resolution 3840x2160 @30Hz

5. A single input signal supports arbitrary windowing

6. Support input signal character superposition function, you can change the character related attributes through the client software, please refer to the operation instructions of the client software for related operations

7. It has embedded EDID management technology and supports DDC control

8. With power-off save function
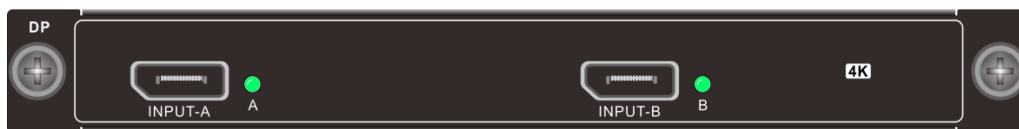
Figure 5-7 DP IN

1.4 5.2 8 Single card RJ45 output signal card

1.4.1 5.2.1 RJ45 output signal card

1. Output 8 RJ45 output ports, directly connected to the receiving card of the LED screen through a network cable

2. A1, A2, A3, A4, B1, B2, B3, B4 are the output network ports of the large transmission 1 and the large transmission 2 respectively, USB A and USB B are the debugging interfaces of the large transmission 1 and the large transmission 2 respectively

3. Large send 1 (A1~A4) and large send 2 (B1~B4) respectively support the highest output resolution of 1920x1200 @60Hz, and support custom output resolution

4. The output screen supports splicing, splitting, overlaying, scaling, stretching, cutting, picture-in-picture, roaming and other formats

5. Output 4 RJ45 external single display supports up to 4 windows display

6. With power-off memory function

Figure 5-6 RJ45 OUT

1.4.2 5.2.2 Normal control card

1. 1 LAN port, 2 RS232 ports

2. Support client software control and serial RS232 command control

3. Support control of third-party devices via RS232 OUT port

4. Factory default device IP: 192.168.0.178; port number: 4001

5. Baud rate：115200

Figure 5-8 control card

1.4.3 5.2.3 Advanced Control Card

1. 2 LAN ports, 2 RS232 ports

2. Support client software control and serial RS232 command control

3. Support control of third-party devices via RS232 OUT port

4. Support high-definition base map display, dynamic subtitle function settings

5. Support input source signal preview, large screen image echo function

6. Factory default device IP: 192.168.0.178; port number: 4001

7. Baud rate：115200
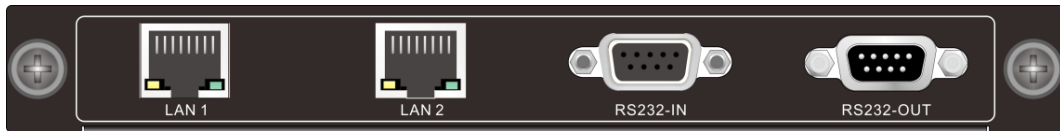
Figure 5-9 Advanced control card

6. Specifications

1.5 6.1 Host parameters

Control	
RS232 control	DB9
TCP/IP control	RJ45，compliant with TCP/IP protocol
Conventional	
Chassis structure	08x24 hybrid processor: card slot for 2 input channels; card slot for 3 output channels 20x32 hybrid processor: card slot for 5 input channels; card slot for 4 output channels 36x72 hybrid processor: card slot for 9 input channels; card slot for 9 output channels
Power supply	100V～240V AC,50/60Hz
	08x24 Hybrid Processor: 6.6W

No-load power	20x32 Hybrid Processor: 7.1W
	36x72 Hybrid Processor: 34.2W
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Chassis size (excluding mounting ears)	08x24 Hybrid Processor: W436.6mm x H88.0m x D320mm
	20x32 Hybrid Processor: W436.6mm x H136.0mm x D320mm
	36x72 Hybrid Processor: W436.6mm x H269.0mm x D320mm
Weight (kg) (excluding boards)	08x24 Hybrid Processor: 5.8kg
	20x32 Hybrid Processor: 6.7kg
	36x72 hybrid processor: 11.27kg
Chassis material	iron bending

Note: The size and weight of the chassis are approximate, please refer to the actual product.

1.6 6.2 Input signal card parameters

1.6.1 6.2.1 DVI input signal card

DVI input card	
Signal	4 DVI input signal
Connector	DVI-I female port
Normal working power consumption	7.8W
Weight (g)	286g
conventional	

Video signal format	DVI compatible HDMI
Standard	HDCP standard
Input resolution	Support up to 1920x1200 @60Hz
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Powered by the host

1.6.2 6.2.2 HDMI input signal card

HDMI input card	
Signal	4 HDMI input signal
Connector	Type A 19-pin female
Normal working power consumption	7.8W
Weight(g)	260g
Conventional	
Video signal format	Compatible with HDMI, DVI-D
Standard	Support HDMI1.3, compatible with HDCP
Input resolution	Support up to 1920x1200 @60Hz
Operating temperature	0℃～+50℃

Relative humidity	10%～90%
Power supply	Powered by the host

1.6.3 6.2.3 SDI input signal card

SDI input card	
Signal	4 SDI input signal，4 SDI loop-out signal
Connector	BNC connector
Normal working power consumption	6.5W
Weight(g)	390g
Conventional	
Video signal format	SDI
Working distance	1080P≤100 meters (please use high quality wire)
Input resolution	Support up to 1920x1080P @60Hz
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Powered by the host

1.6.4 6.2.4 CVBS input signal card

CVBS input card	
Signal	4 CVBS input signal

Connector	BNC connector
Normal working power consumption	9.5W
Weight(g)	320g
Conventional	
Video signal format	CVBS
Input resolution	PAL：720x576I，NTSC：720x480I
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Host power supply

1.6.5 6.2.5 VGA input signal card

VGA input card	
Signal	4 VGA input signal
Connector	15-pin HD female port
Normal working power consumption	7.1W
Weight(g)	270g
Conventional	
Video signal format	VGA

Input and output resolution	Support up to 1920x1080P @60Hz
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Host power supply

1.6.6 6.2.6 4K HDMI input signal card

4K HDMI input card	
Signal	2 HDMI input signal
Connector	Type A 19-pin female
Normal working power consumption	7.8W
Weight(g)	260g
Conventional	
Video signal format	HDMI
标准	Support HDMI1.4 Compatible with HDCP
Input resolution	Support up to 3840x2160 @30Hz
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Host power supply

1.6.7 6.2.7 4K DP input signal card

4K DP input card	
Signal	2 DP input signal
Connector	Display Port
Normal working power consumption	5W
Weight(g)	240g
Conventional	
Standard	Support DP1.1
Video signal format	Support up to 3840x2160 @30Hz
Operating temperature	0℃～+50℃
Relative humidity	10%～90%
Power supply	Host power supply

1.7 6.3 Single card 8 RJ45 output signal card parameters

RJ45 output card	
Signal	8 RJ45 output signal
Connector	RJ45

Normal working power consumption	10.2W
Weight(g)	370g
Output resolution	4 RJ45 combined supports up to 1920x1200@60Hz
Operating temperature	0℃～+45℃
Relative humidity	10%～90%
Power supply	Host power supply

7. Dimensions

08x24 Hybrid Processor: W436.6mm x H88.0mm x D320mm：

20x32 Hybrid Processor: W436.6mm x H136.0mm x D320mm:

36x72 Hybrid Processor: W436.6mm x H269.0mm x D320.0mm: