Colorlight

Z8t

LED Video Controller

Specification V2.0

Overview

Z8t is a professional LED display controller for high-end applications offering real-time scaling, ultra-low latency, HDR, multi-window display and deep color formats, featuring excellent image quality, precision color reproduction and powerful video processing. Z8t supports a loading capacity of up to 17.69 million pixels, with a maximum width up to 16384 pixels. Equipped with 5G Ethernet ports and 10G optical fiber outputs, Z8t can reduce dramatically the cable quantity and simplify hardware connection on site. It meets the on-site configuration requirements for ultra-long, ultra-high and ultra-large screens.

With swappable card design, Z8t allows for various hardware configuration according to actual field requirements.

Features

Input

- Three types of 4K inputs: 2x HDMI2.0, 2x DP1.2, 2x 12G-SDI.
- Single port supports up to 4096x2160@60Hz.
- Input frame rate from 23.98Hz to 240Hz.
- 8bit / 10bit / 12bit color depth.
- HDCP1.3/HDCP2.3 high-bandwidth digital content protection technology.

Output

- Up to 17.69 million pixels, maximum 16384 pixels in width and 8192 pixels in height.
- 5G Ethernet output board and 10G optical fiber output board.
- Single-device or multi-device loop redundancy

Video processing

- Video sources cropping, broadcasting scaling and splicing.
- Up to 2 layers display.
- HDR 10 and HLG.
- Frame multiplexing for multi-camera shooting of virtual background, support fusion output of multiple video signals.
- Frame rate multiplication with automatic multiplication and custom multiplication up to 10x.
- Better grayscale performance at low brightness.

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- SHUTTERLOCK supports flexible camera angle and frame rate adaptation.
- Genlock function.

Color adjustment

- Color curve can independently adjust the RGB saturation and overall brightness at different grayscales.
- Color magic with multi-color adjustment based on HSV color model to realize color transformation.
- 3D-LUT for cinematic color adjustment, with color adjustment strength setting.
- Picture adjustment for hue, saturation, contrast, and brightness compensation.
- Gamut adjustment, support Gamut adjustment per receiving card.
- Brightness adjustment, support brightness adjustment per receiving card.
- Precise color temperature adjustment per receiving card.
- Shadow-highlight adjustment.

Control

- LAN port for TCP/IP control and star connection.
- RS232 port.
- Multi-scene presets saving and recalling.

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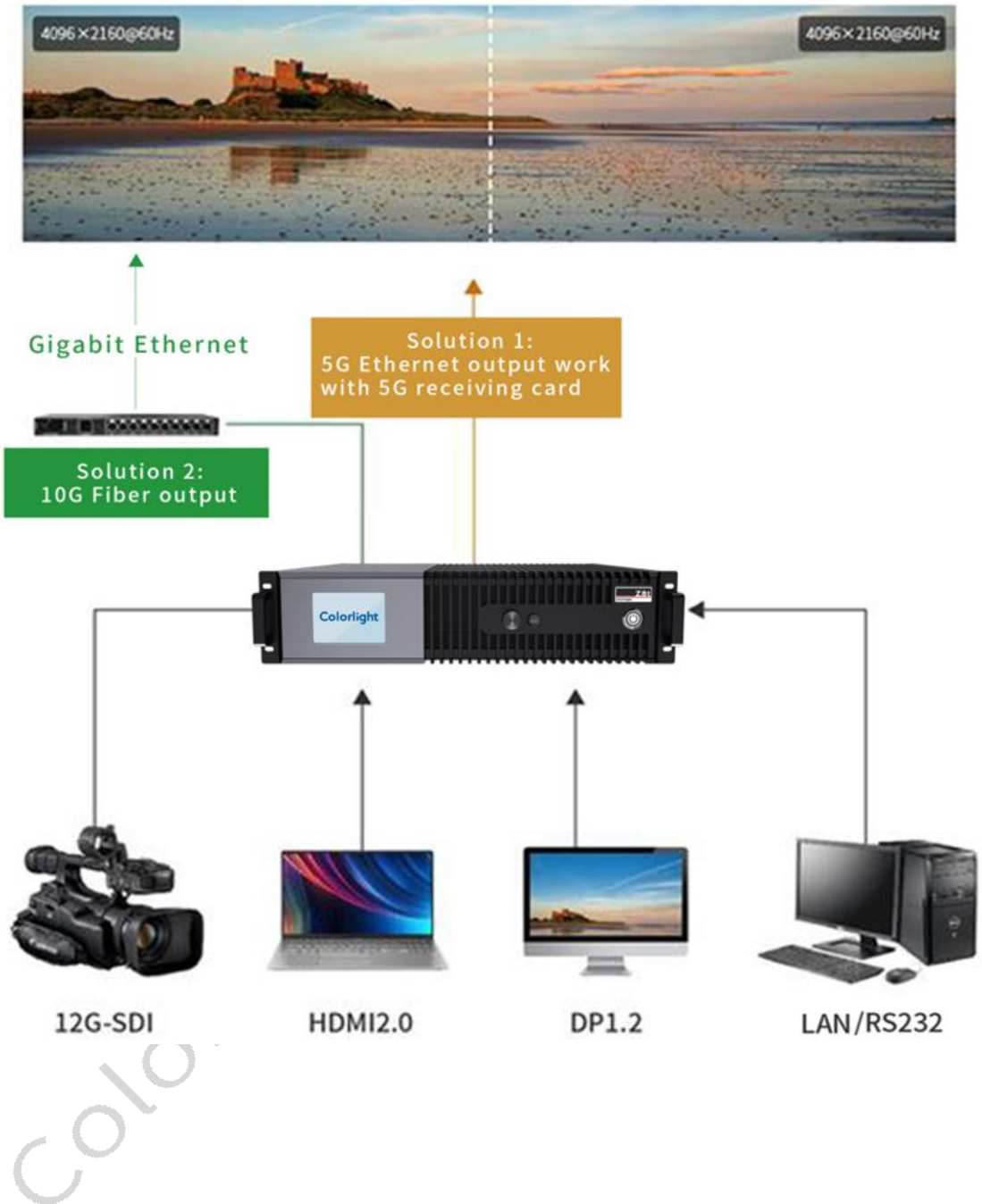
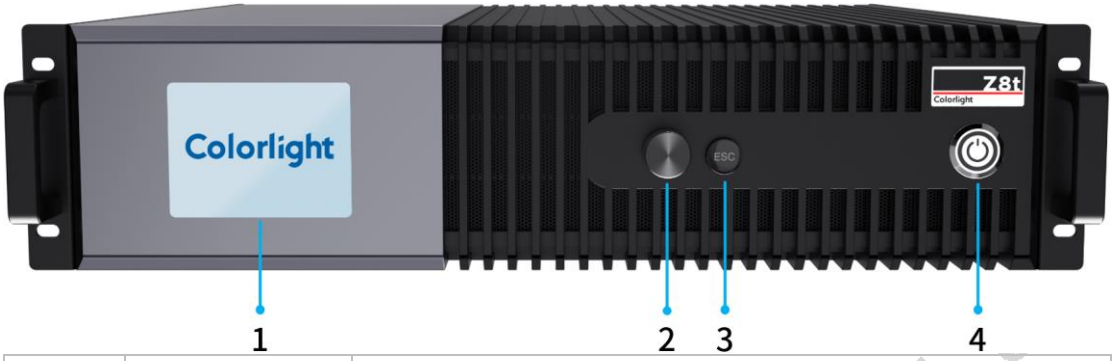
Applications



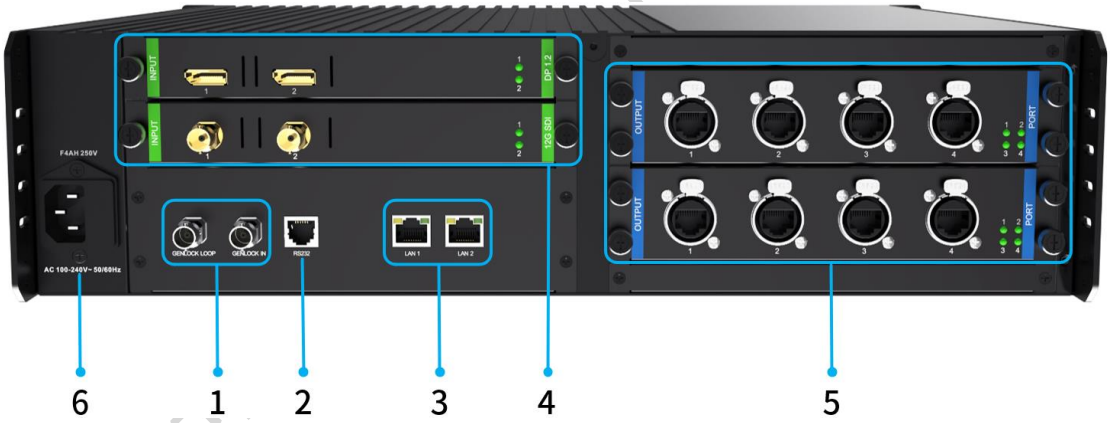
Hardware

Front panel



No.	Item	Function
1	LCD screen	Display the operation menu and system information.
2	Knob	Select an item or adjust the parameter, press the knob to confirm your selection or adjustment.
3	ESC	Exit the current operation or back to previous menu.
4	Button	Power button.

Rear panel



Control		
1	GENLOCK	• 1x BNC connector, connect to an external synchronization source. • Support Bi-level and Tri-level sync, frame rates from 23.98 to 60Hz.
	GENLOCK LOOP	• 1x BNC connector, male. • Loop out genlock signal.
2	RS232	* 1x RJ11 port(6p6c), 115200 baud rate, used to connect third-party devices or other devices.
3	LAN1, LAN2	• 2x RJ45 port. • LAN1 is used to connect a computer, or connect to a switch for accessing local area network via TCP/IP. • LAN2 Reserved.
Input		

4	Input card	• Maximum 2 swappable cards, up to 2 inputs of 4096x2160@60Hz each card. • Optional card: - 2x HDMI2.0. - 2x DP1.2. - 2x 12G-SDI.
Output		
5	Output card	• Maximum 2 swappable cards, only boards of the same type can be installed. • Optional card: - 4x 5G Ethernet ports. - 2x 10G Optical fiber ports. - 2x 10G Primary + 2x 10G Backup Optical fiber ports.
Power		
6	Power switch	AC100-240V, 50 / 60Hz, built-in fuse.

* The equipment shown in the picture is for reference only. Due to the difference of boards assembled, the appearance of the equipment may be different from the picture. Please refer to the actual product.

Card specification

Input card	
2x HDMI2.0 Input card with 2x HDMI2.0 ports.	 • 2x HDMI2.0 port, up to 4096x2160@60Hz per port. • Up to two 4K inputs at the same time, each signal support independent color adjustment. • Each input supports customized resolutions and EDID setting. • Each input supports cropping and scaling. • Maximum width per input: 8192 pixels (8192x1024@60Hz). • Maximum height per input: 8192 pixels (1024x8192@60Hz). • Indicator status: Always on (power supply is normal), Flash (Signal input is normal).
2x DP1.2 Input card with 2x DP1.2 ports.	 • 2x DP1.2 port, up to 4096x2160@60Hz per port. • Up to two 4K inputs at the same time, each signal supports independent color adjustment. • Each input supports customized resolutions and EDID setting. • Each input supports cropping and scaling. • Maximum width per input: 8192 pixels (8192x1160@60Hz). • Maximum height per input: 8192 pixels (1024x8192@60Hz).

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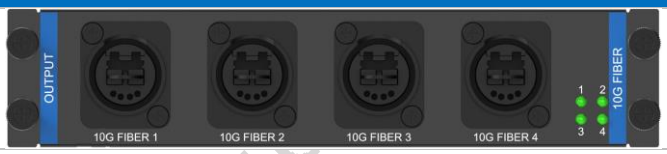
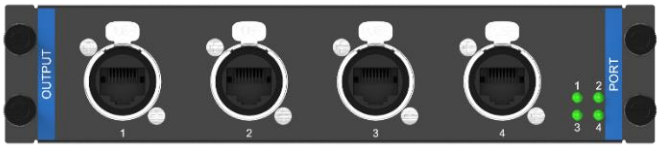
	• Indicator status: Always on (power supply is normal), Flash (Signal input is normal).
2x 12G-SDI Input card with 2x 12G-SDI ports.	 • 2x BNC port, up to 4096x2160@60Hz per port. • Up to two 4K signal inputs at the same time, each signal supports independent color adjustment. • Each input supports different resolutions, independent cropping and scaling. • Each input supports 12G-SDI standard, downward compatible with HD-SDI, 3G-SDI and 6G-SDI. • Deinterlaced display and not support EDID settings. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal).
Output card	
2x 10G Fiber Primary +2x 10G Fiber Backup Output card with 2x 10G Primary and 2x 10G Backup optical fiber ports.	 • 2x Neutrik optical fiber ports, 2x Neutrik Backup optical fiber ports, using single-mode duplex LC fiber, transmission rate per port: 10 Gb/s. • Equipped with single-mode optical fiber module, allowing for cable runs up to 2 km. • Each card supports a loading capacity of up to 12.60 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 6.30 million pixels. • Loading capacity of each output (10bit, 60Hz): up to 4.72 million pixels. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal). • Recommend single-mode fiber cable with PC or UPC plug, 9/125μm diameter.
4x 5G Ethernet Output card with 4x 5G Ethernet ports.	 • 4x Neutrik Ethernet ports, transmission rate per port: 5 Gb/s, connecting with 5G receiving cards. • Each card supports a loading capacity of up to 11.20 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 2.80 million

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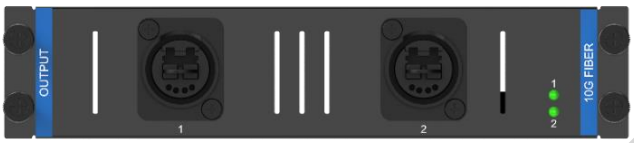
	pixels. • Loading capacity of each output (10bit, 60Hz): up to 2.10 million pixels. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal). • Recommended CAT6 and above network cable.
2x 10G Fiber Output card with 2x 10G optical fiber ports.	
	• 2x Neutrik optical fiber ports, using single-mode duplex LC fiber, up to 10 Gb/s per port over single-mode fiber. • Equipped with single-mode optical fiber module, allowing for cable runs up to 2 km. • Each card supports a loading capacity of up to 12.6 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 6.3 million pixels. • Loading capacity of each output (10bit, 60Hz): up to 4.72 million pixels. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal). • Recommend single-mode fiber cable with PC or UPC plug, 9/125μm diameter.

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Signal format

HDMI2.0					
Input	Resolution	Color space	Sampling	Color depth	Frame rate
4K	4096x2160	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
	3840x2160	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
2K	2048x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	1920x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	2048x1080	YCbCr	4:2:2	8bit	100,120
		YCbCr/RGB	4:4:4	8bit	
	1920x1080	YCbCr	4:2:2	8bit	100,120,240
		YCbCr/RGB	4:4:4	8bit	
The above only shows a part of conventional resolutions.					
DP1.2					
Input	Resolution	Color space	Sampling	Color depth	Frame rate
4K	4096x2160	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
	3840x2160	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
2K	2048x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	1920x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50,59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	2048x1080	YCbCr	4:2:2	8bit	100,120
		YCbCr/RGB	4:4:4	8bit	
	1920x1080	YCbCr	4:2:2	8bit	100,120,240
		YCbCr/RGB	4:4:4	8bit	

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The above only shows a part of conventional resolutions.					
12G-SDI					
Input	**Resolution**	**Color space**	**Sampling**	**Color depth**	**Frame rate**
12G	4096x2160p	YCbCr	4:2:2	10bit	50,59.94,60
	3840x2160p	YCbCr	4:2:2	10bit	50,59.94,60
6G	4096x2160p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	3840x2160p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
3G Level A/B	2048x1080p	YCbCr	4:2:2	10bit	50,59.94,60
	1920x1080p	YCbCr	4:2:2	10bit	50,59.94,60
HD	2048x1080p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	1920x1080p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	1920x1080i	YCbCr	4:2:2	10bit	50,59.94,60
	1280x720p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30,50,59.94,60

Parameters

Dimensions (W×H×D)	
Unboxed	482.6mm (19.0")×112.0mm(4.4")×480.0mm (18.9"), 2.5U chassis (no foot pads)
Boxed	580.0mm (22.8")×191.0mm (7.5")×540.0mm (21.3")
Weight	
Net weight	12.70kg (27.00lbs)
Total weight	16.08kg (35.45lbs)
Electrical specification	
Power input	AC100-240V~, 16.7A, 50 / 60Hz
Rated power	130W (With all cards installed)
Operating environment	
Temperature	-10°C~60°C / 14°F~158°F
Humidity	0%RH~80%RH, non-condensing
Storage environment	
Temperature	-30°C~80°C / -22°F~176°F
Humidity	0%RH~90%RH, non-condensing
Certification	
CE, FCC, IC, CB, cTUVus. * If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact Colorlight to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or Colorlight has the right to claim compensation.	

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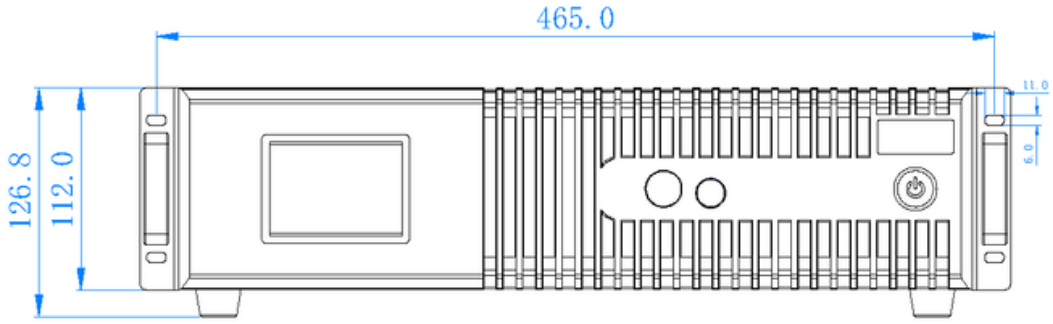
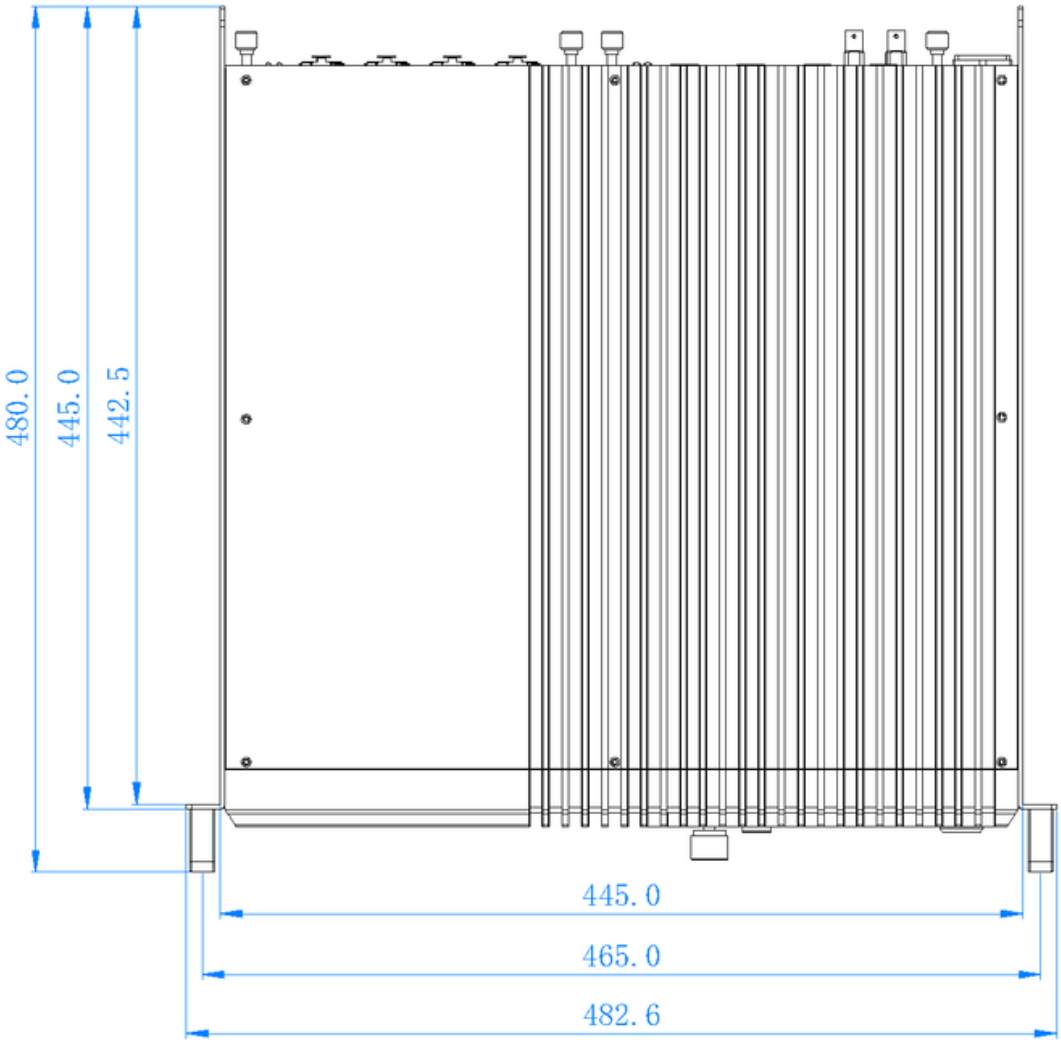
Reference dimensions

Unit: mm





Statement

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