



PRODUCT SPECIFICATION

Smart Multimedia Controller

HD-H20

V1.0

Update history:

Release version	Release time	Update Notes
V 1.0	Jul. 28, 2026	First release

1. Overview

HD-H20 is a 20-port synchronous and asynchronous dual-mode LED media player that integrates media playback, video processing, third-party apps, local programme production, Android applications and transmission functions into a single unit. It can replace a computer, enabling programme production and playback directly on the terminal device. It offers powerful interactive and playback control capabilities, supporting remote control of LED screens via a remote control, as well as optional wireless screen mirroring from devices running Windows, iOS, Android and other platforms. It supports the connection of peripheral devices such as central control units, cameras, loudspeakers and sensors, and features a wide range of hardware interfaces and flexible playback and control functions. It is widely used in various application scenarios, including meeting rooms, exhibition halls, broadcast studios, educational spaces and hotel lobbies.

2. Features

Inputs:

1. One Gigabit Ethernet port connects to the network and communicates with the outside world via TCP/UDP.
2. Two HDMI 2.0 inputs, two HDMI 1.3 inputs, supports LOOP video output and picture-in-picture functions.
3. Three USB ports (two USB 2.0 and one USB 3.0), for playing content from USB flash drive, firmware updates or storage expansion, etc.;
4. One Type-C port (default OTG mode, for screen mirroring);
5. Two sensor ports for connecting external environmental monitoring sensors, GPS units, etc.;
6. One RS232 and one RS485 port (for integration with central control systems), configurable as UART;
7. One RELAY relay interface.
8. Three GPIO ports, serving as general-purpose digital input/output ports;

Outputs:

1. Twenty-way Gigabit Ethernet output, cascaded HD receiving card display.
2. One HDMI 2.0 LOOP signal output for video backup;
3. One preview interface (HDMI 1.4 OUT), with a fixed output of 1920x1080 at 60Hz, for video preview;
4. One 3.5mm TRRS interface, supporting Audio OUT and MIC IN;
5. One optical digital audio output interface;
6. Three 10G SFP fibre-optic ports, supporting cascaded display replication;

Features:

1. Supports multiple modes, including synchronous and asynchronous, and support third-party APP.
2. Supports multi-window display, supports local program editing, production and playback.
3. Supports dual 4K@60Hz, Supports 13 million pixels point-to-point display, the widest is 65,536 pixels or the highest is 8192 pixels.
4. Optical port replication, supporting long-distance fibre-optic transmission;
5. Multiple cascade modes, HDMI cascade, optical port cascade, support optical fiber long-distance transmission.

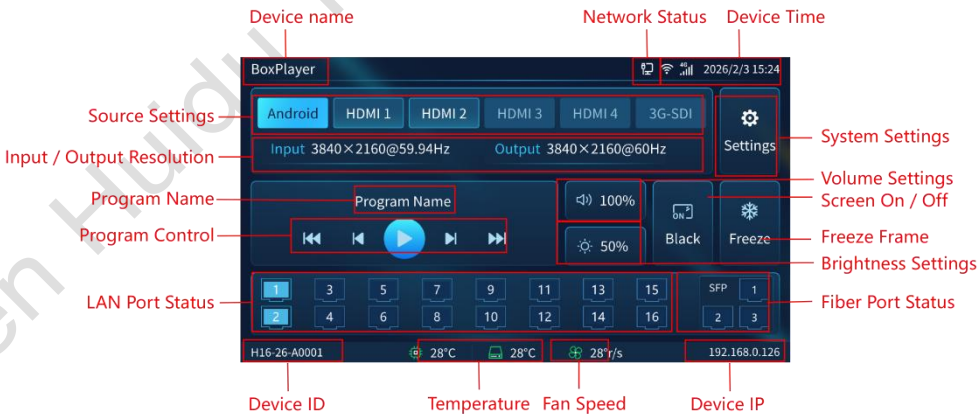
6. Dual Wi-Fi chips, Wi-Fi 6 compatible, with high-resolution, low-latency screen casting and support for simultaneous Wi-Fi hotspot and Wi-Fi connectivity..
7. Dual Wi-Fi chips, Supports Wi-Fi 6 bands, support high-resolution, low-latency screen projection, and support simultaneous opening of Wi-Fi hotspots and wireless Internet access.
8. Video playback performance: 1-channel 8K or 4-channel 4K or 10-channel 1080P or 16-channel 720P or 32-channel 360P.
9. Supports Bluetooth voice control, and supports connections to common peripherals such as Bluetooth speakers, keyboards, and mice.
10. Supports infrared standby wake-up, enters low power consumption mode in standby mode, and the standby power consumption is less than 0.5W.
11. One RS232 or one RS485 central control connection.
12. Supports 8K@30fps video encoding;
13. Supports up to 8K@60fps video decoding and 8K@30fps video encoding, as well as independent multi-screen display.

3. Appearance Description

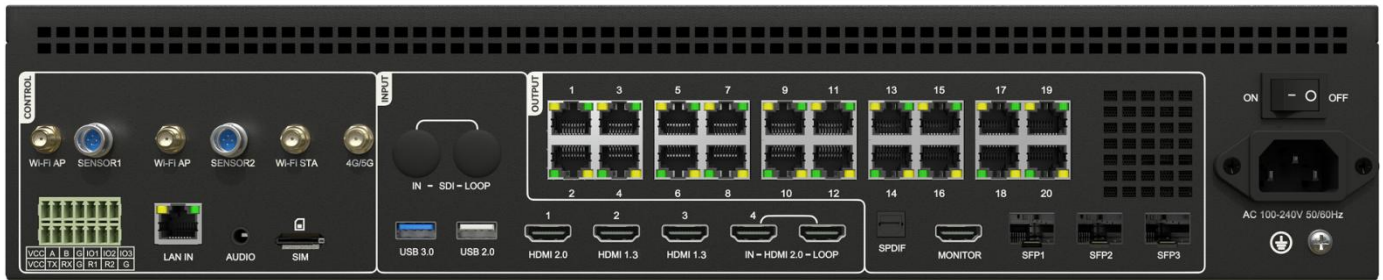
Front Panel:



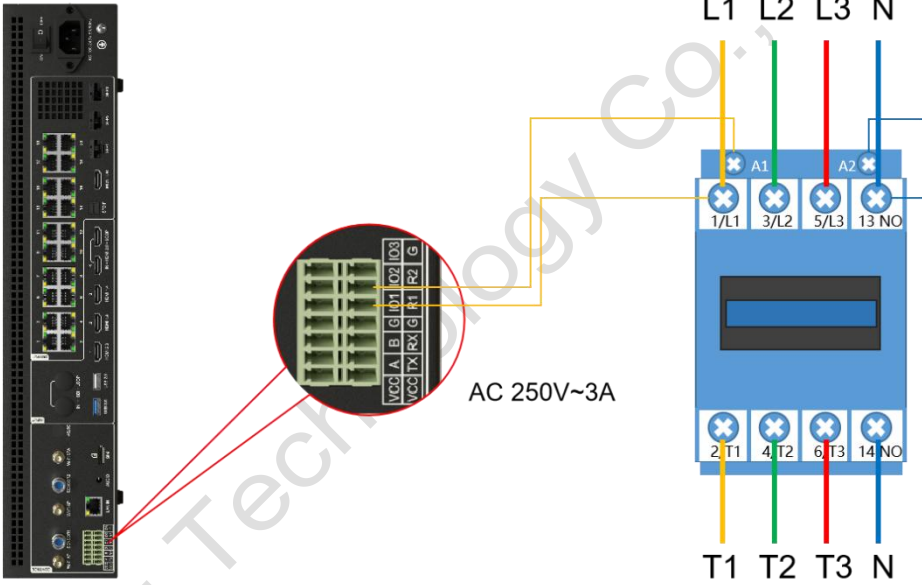
Name	Interface	Illustrate
RUN	Operating system indicator light	Light is off: No power supply Red light flashing: Shutting down Red light steady: Powered off Green light flashing: Powering up Green light steady: Powered on Blue light steady: Standby mode

ON/OFF	Power switch button	Short press: Turn screen on/off/power on Long press: Power off
IR	IR signal receiving head	Infrared remote control signal reception, no infrared indicator light, recommended operation within 10 meters
Type-C	Type-C interface	Default OTG mode, which can be used for screen adjustment
USB 3.0	U disk interface	Material storage , program update , firmware upgrade or capacity expansion Supports connection of common USB devices such as mice, keyboards and speakers
LCD touch screen	LCD touchscreen display	Displays the current status of the device; supports touch-based parameter adjustment and switching between signal sources 

Rear Panel:



Name	Interface	Illustrate
Wi-Fi AP	Antenna interface x2	For connecting Wi-Fi/Bluetooth antenna
SENSOR 1	Sensor interface	TTL level interface, connect external sensor accessories, such as environmental monitoring, multi-function sensor or GPS, etc.
SENSOR 2	Sensor interface	TTL level interface, connect external sensor accessories, such as environmental monitoring, multi-function sensor or GPS, etc.
Wi-Fi STA	Antenna interface x1	For connecting Wi-Fi antenna
4G/5G	Antenna interface x1	For connecting 4G/5G antenna
RS485	RS485 interface	4PIN Phoenix terminal, supports central control protocol V: 3.3V positive A: 485 A positive terminal B: 485 B negative terminal G: GND power negative pole
IO 1~3	GPIO interface	IO 1: Two states: high and low; default is high IO 2: Two states: high and low; default is high IO 3: Two states: high and low; default is high G: GND (negative terminal of the power supply)

RS232	RS232 interface	4PIN Phoenix terminal, supports central control protocol V: 3.3V positive TX: Send data RX: Receive data G: GND power negative pole
R1~2	Relay interface	2-pin Phoenix connector, with a reserved relay interface; R1, R2: relay switch signals;  AC 250V~3A
LAN IN	Input network port	Gigabit network port, communicate with the outside world via TCP/UDP
AUDIO	Audio Interface	3.5mm TRRS US standard dual-channel audio output port
RECOVERY	Factory reset button	The button is inside the audio port. When the device is powered on, use a thin object (toothpick) to pass through the AUDIO port and press the RECOVERY button inside for 20 seconds and then release it to enter the factory reset.
SIM	SIM card slot	Installing the Micro SIM Card
USB3.0	USB interface	Material storage, program update, firmware upgrade or capacity expansion

		Supports connection of common USB devices such as mice, keyboards and speakers
USB2.0	USB interface	Material storage, program update, firmware upgrade or capacity expansion Supports connection of common USB devices such as mice, keyboards and speakers
HDMI 1	Signal source input interface	HDMI 2.0 input port Connector type: HDMI-A Signal standard: HDMI 2.0 (backwards compatible) Resolution: VESA standard, $\geq 800 \times 600 @ 60\text{Hz}$, $\leq 4096 \times 2160 @ 60\text{Hz}$ Supports HDCP 1.4 and HDCP 2.2 Supported maximum width: 7680; maximum height: 7680
HDMI 2	Signal source input interface	HDMI 1.3 Input Port Connector type: HDMI-A Signal standard: HDMI 1.3 (backwards compatible) Resolution: VESA standard, $\geq 800 \times 600 @ 60\text{Hz}$, $\leq 2048 \times 1152 @ 30\text{Hz}$ Supported maximum width: 4096; maximum height: 4096 Custom resolution is not supported.
HDMI 3	Signal source input interface	HDMI 1.3 Input Port Connector type: HDMI-A Signal standard: HDMI 1.3 (backwards compatible) Resolution: VESA standard, $\geq 800 \times 600 @ 60\text{Hz}$, $\leq 2048 \times 1152 @ 30\text{Hz}$

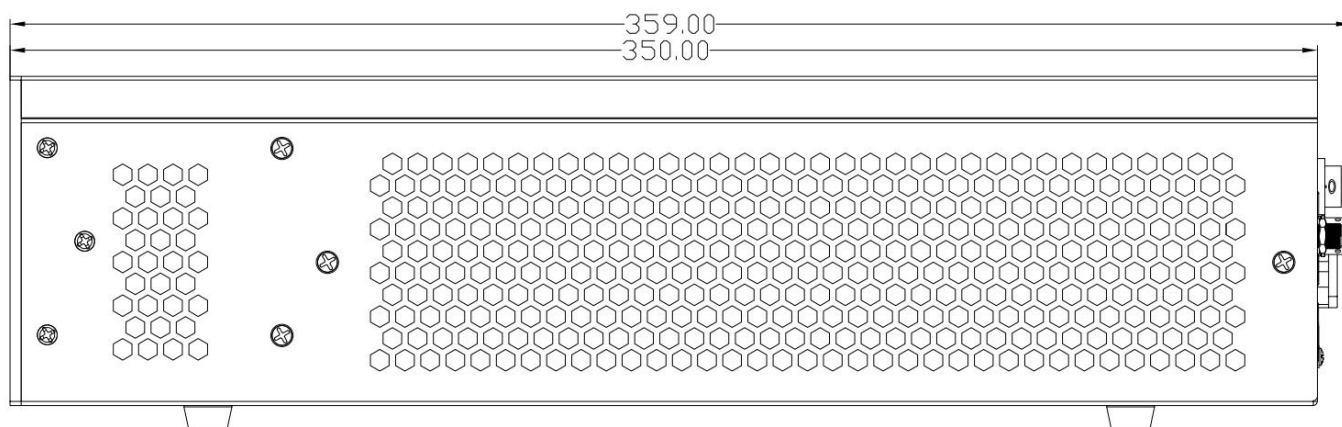
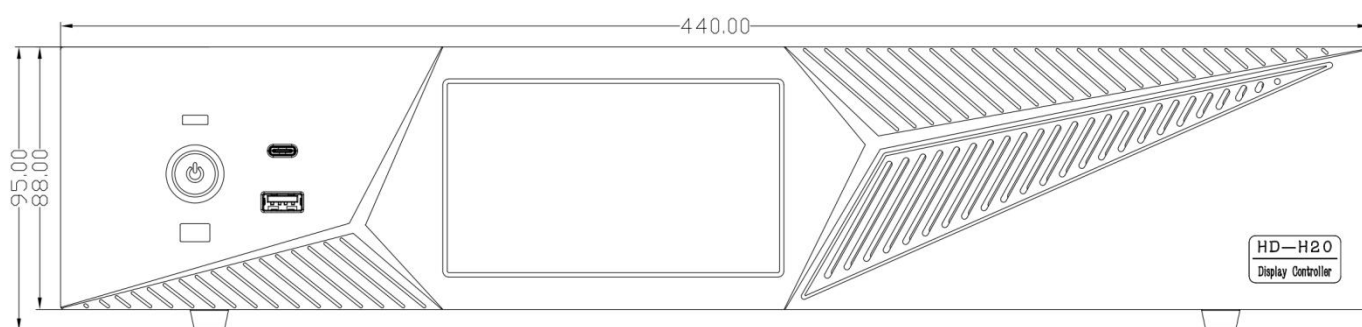
		Supported maximum width: 4096; maximum height: 4096 Custom resolution is not supported.
HDMI 4	Signal Source	HDMI 2.0 input port
	Input Interface	Connector type: HDMI-A Signal standard: HDMI 2.0 (backwards compatible) Resolution: VESA standard, $\geq 800 \times 600 @ 60\text{Hz}$, $\leq 4096 \times 2160 @ 60\text{Hz}$ HDCP 1.4 and HDCP 2.2 Supported maximum width: 8192; maximum height: 8192
	HDMI LOOP	HDMI 4 signal loop-out port
Network1~16	Output network port	16-way RJ45 output network port, cascaded HD receiving card display
SPDIF	Audio optical port	Optical digital audio output interface
HDMI MONITER	Pre-monitoring interface	HDMI 1.4 OUT port, for video monitoring
SFP 1~2	Optical module interfaces	10G fibre optic interfaces: Each fibre port supports a resolution of 5.24 million pixels SFP1 transmits data from ports 1 to 8, SFP2 transmits data from ports 9 to 16, and SFP3 transmits data from ports 17 to 20. Compatible with single-mode fibre modules: transmission distance ≤ 10 km using single-mode dual-fibre modules
ON/OFF	Power switch	Control the power to the media player: 'ON' means the power is switched on, and 'OFF' means the power is switched off.

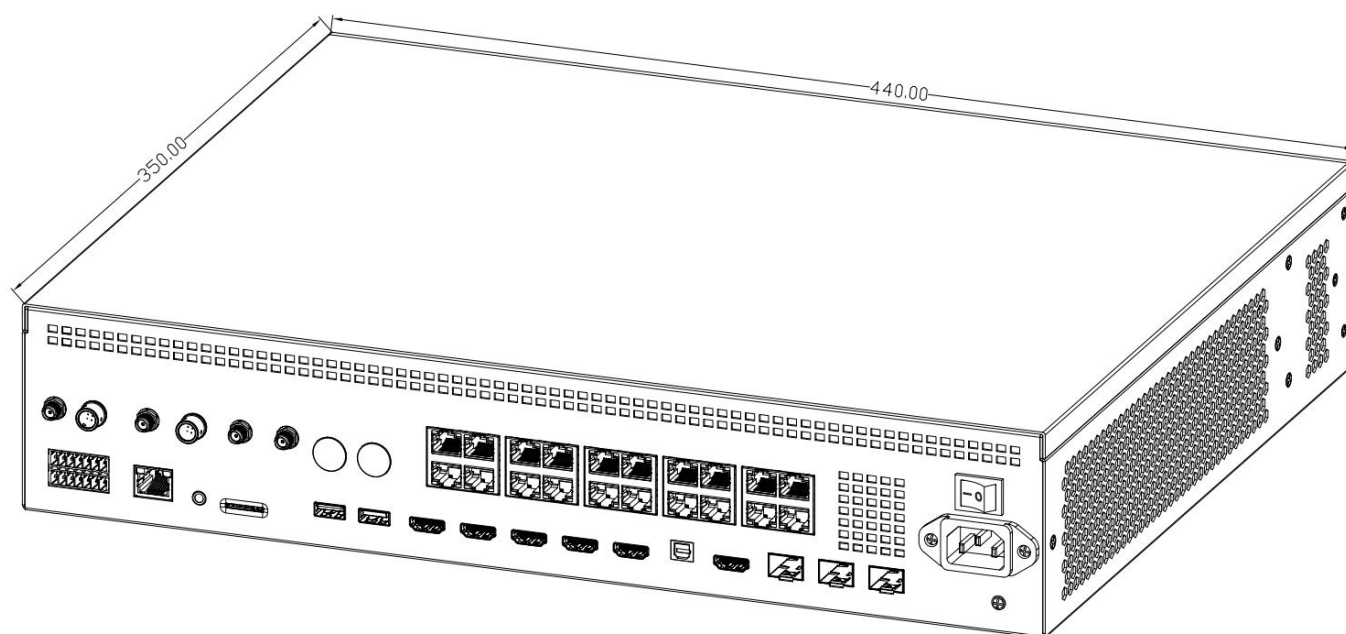
AC 100~240V 50/60Hz	Power interface	AC 100~240V 50/60Hz
⏏	Earthing connection	Prevents static electricity and electrical leakage, ensuring personal safety and the proper operation of equipment

4. Dimensions

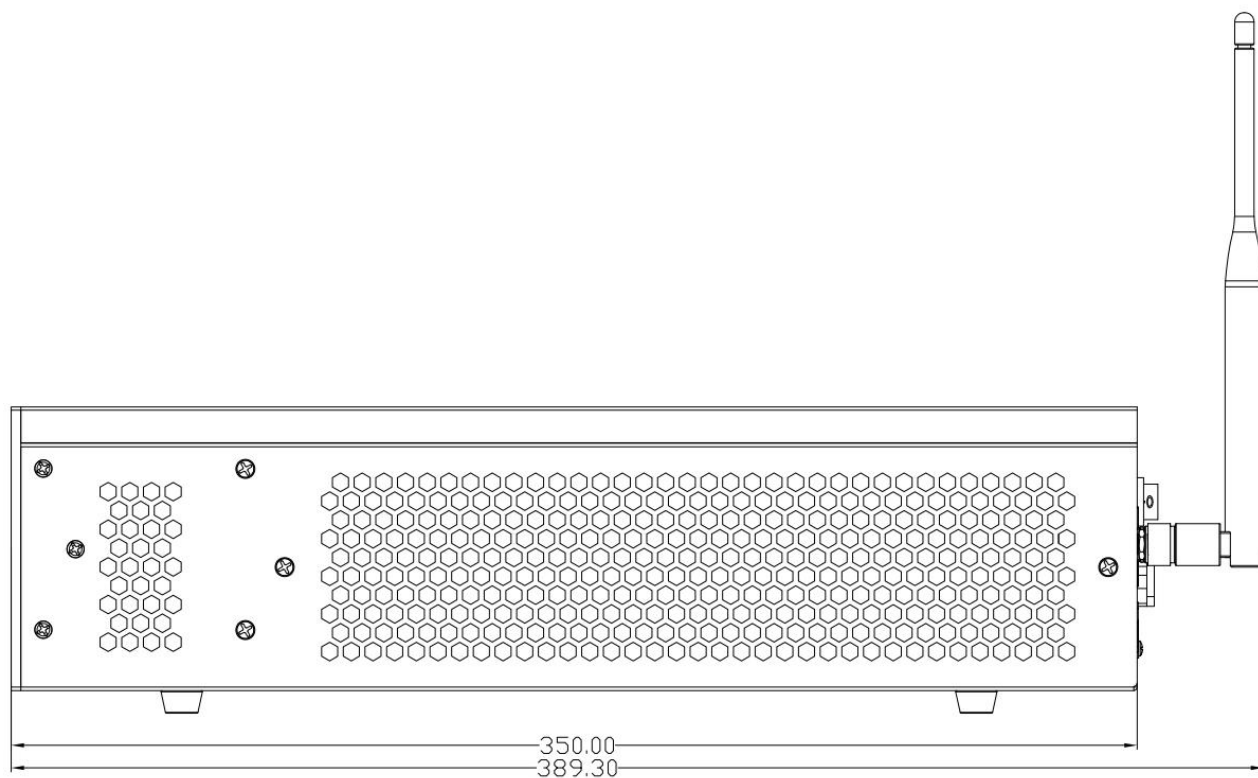
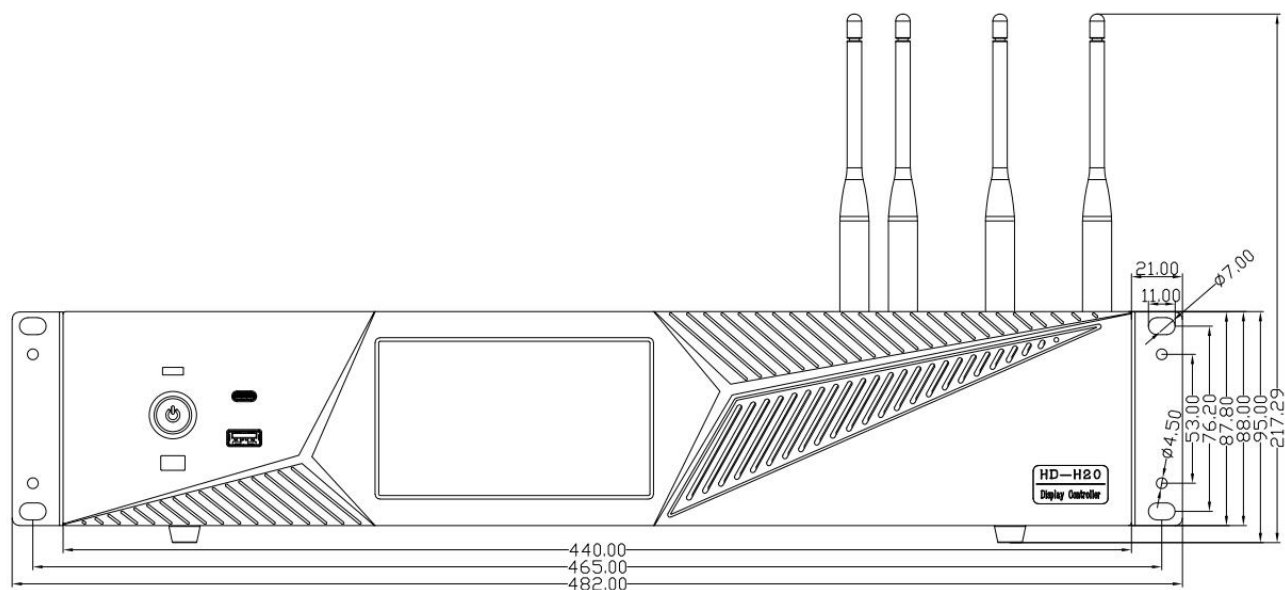
Unit: mm

Single device:





With mounting ears and antenna:



Tolerance: ± 0.3 Unit: mm

Specifications:

Electrical parameters	Input Power	DC 5V-12V (5V 6A, 12V 3A)
	Maximum power consumption	50W
Storage Space	Running Memory	8GB
	Internal Storage	128GB
Storage Environment	temperature	-40℃ ~ 80℃
	humidity	0%RH ~ 80%RH (no condensation)
Work Environment	temperature	-40℃ ~ 70℃
	humidity	0%RH ~ 80%RH (no condensation)
size	482mm×359mm×95mm (including mounting ears)	
net weight	5.25KG	
Protection level	IP20 Please note that it is waterproof, such as preventing water from dripping into the product, and do not wet or rinse the product	
System Software	Android14.0 operating system software Android terminal application software FPGA software FPGA software	
Main control parameters	octa-core CPU: 4×Cortex-A76 (up to 2.4GHz) + 4×Cortex-A55 (up to 1.8GHz) GPU: ARM Mali-G610 MC4, with dedicated 2D acceleration	

	NPU: 6 TOPS @ INT8, tripe-core architecture
Packaging Information	Packing List: 1×H20 1 × Power Adapter 1 × 4K HDMI cable 1 x Type-C cable 3×Wi-Fi antenna 1×14-pin Phoenix connector 1×Bluetooth remote control 1×certificate of conformity

Optional list:

Fiber Optic Module	SFP optical module, used for optical port cascading splicing
Fiber Optic Cable	Optical fiber lines, used for long-distance signal transmission
Wireless screen projection code	Screen projection authorization code, used after the screen projection function is activated
USB screen projector	Wireless screen projection device, plug and play, you need to activate the device before use
4G/5G Module	Optional 4G/5G modules according to different regions, used with 4G/5G antennas
SSD	Available in 128GB, 256GB, 512GB and 1TB capacities

Media decoding specifications:

Picture format:

Category	Decoding	Size	Format	Remark
JPEG	JFIF file format 1.02	48×48pixels to 65536×65536 pixels	JPG, JPEG, MJPEG	Support YUV400 / YUV411 / YUV420 / YUV422 / YUV440 / YUV444
BMP	BMP	No restrictions	BMP	NA
GIF	GIF	No restrictions	GIF	NA
PNG	PNG	No restrictions	PNG	NA
WEBP	WEBP	No restrictions	WEBP	NA

Video format:

Category	Decoding	Resolution	Maximum frame rate	Format	Remark
MPEG-1/2	MPEG-1/2	48×48 pixels to 1920×1088 pixels	1080p@60fps	DAT、MPG、VOB、TS	Support Field Coding
MPEG-4	MPEG4	48×48 pixels to 1920×1088	1080p@60fps	AVI、MKV、MP4、MOV、3GP	Not supported MS、MPEG4

		pixels			v1/v2/v3、GMC
H.264/AVC	H.264	16×16 pixels to 7680×4320pixels	8K@30fps	AVI、MKV、MP4、 MOV、3GP、TS、 FLV	Main10 L6.0; Support Field Coding、MBAFF
MVC	H.264 MVC	16×16 pixels to 7680×4320pixels	8K@30fps	MKV 、TS	Supports only Stereo High Profile
H.265/HEVC	H.265/HEVC	64×64 pixels to 7680×4320pixels	8K@60fps	MKV 、MP4、 MOV 、TS	Main10 L6.1; Supports Tile、 Slice
AVS2	AVS2	7680×4320	8K@60fps	MKV, TS	Profile0/2 L10.2.6
AV1	AV1	3840×2160	4K@60fps	MKV, MP4, WEBM	Main Profile 8/10bit L5.3
GOOGLE VP8	VP8	48×48 pixels to 1920×1088 pixels	1080p@60fps	WEBM 、MKV	Version 2
GOOGLE VP9	VP9	64×64 pixels to 7680×4320pixels	8K@60fps	WEBM 、MKV	Profile0/2 L6.1
H.263	H.263	SQCIF(128×96) QCIF(176×144) CIF(352×288) 4CIF(704×576)	30fps	3GP、MOV、MP4	Not supported H.263+

VC-1	VC-1	48×48 pixels to 1920×1088 pixels	1080p@60fps	WMV、ASF、TS、 MKV、AVI	Support until AP level 3
MOTION JPEG	MJPEG	48×48 pixels to 1920×1088 pixels	60fps	AVI	NA

5. Application Scenarios



Illustrate:

1. For details of the H20 synchronous/asynchronous dual-mode LED player product package shown in the application scenario diagram, please refer to the packing list.
2. Optional equipment not included in the scene diagram needs to be ordered separately. If you have any questions, please contact our business colleagues.

6. Product Appearance



Illustrate:

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