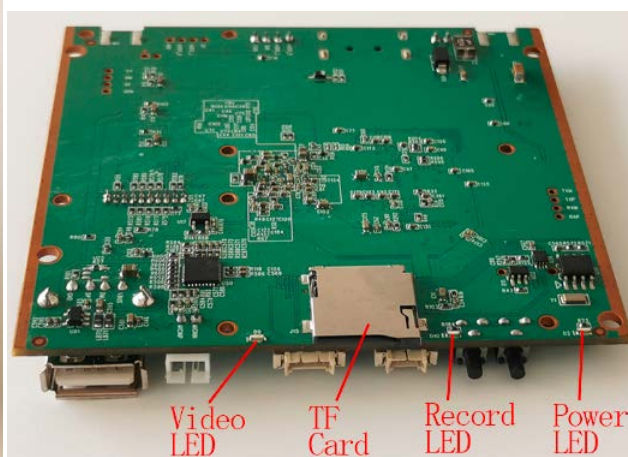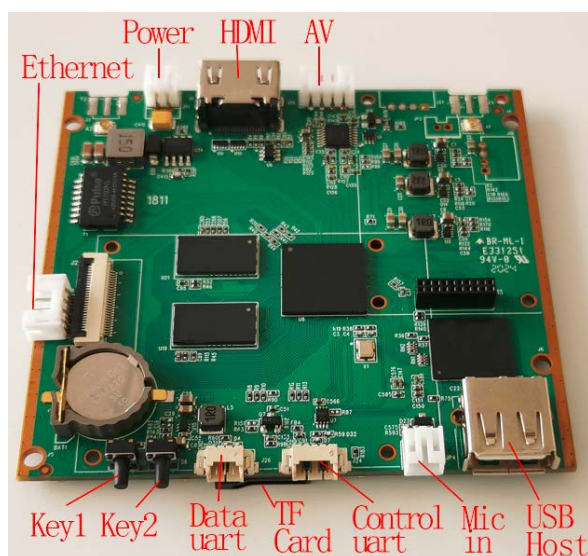# SHD5 video decoder board

-- H.265/H.264 video decoder, ultra-high definition output up to 4K(3840*2160)

-- Ethernet input, HDMI+AV output

-- Audio codec with audio input and output

-- Video record with Micro SD card or USB disk

-- Web UI or uart for management

-- Optional: up to 4-ch 1080P video decoding and synchronous display

SHD5 video decoder board implements H.265/H.264 video decoding and audio codec, the video stream input via Ethernet is decoded and sent to display via HDMI and AV interface. The SHD5 decoder board features a range of comprehensive signal outputs including HD video at 4K/1080P/720P, down-converted HD CVBS monitor video, and two analog audios is supported. SHD5 baord also supports decoding maximum 4 channel 1080P videos at the same time and display via split screen mode(option). SHD5 baord includes DVR record functionality with Micro SD card or USB disk using record switch controls. Additionally, the SHD5 board supports a built-in RTSP sever that enables video streaming over Ethernet for remote software or hardware decoders(option). This board is in compact size and suitable for embedded application and real time live video monitor via wireless link or Ethernet.

Specification:

IO

HD video output	HDMI type A connector
Composite video output	4PIN PH2.0mm connector
Audio output	Embedded HDMI and 4PIN PH2.0mm connector
Power in	2PIN PH2.0mm connector
USB Host	Type A connector
Key1	Switch key for OSD-display Or switch key for 4-ch video display
Key2	Switch key for video recording
3.3V TTL data uart	3PIN PH1.25mm connector
3.3V TTL control uart	4PIN PH1.25mm connector
TF-Card	TF-Card slot
Mic in	2PIN PH2.0mm connector
Ethernet	4PIN PH2.0mm connector

Video and Audio

Video output	HDMI and CVBS
Video formats	4K or 1080P or 720P 720*480 60I(NTSC), 720*576 50I(PAL) Optional: split screen for 4-ch 1080P videos and switch between videos
Video Decoding	H.264/H.265
Audio output	Embedded HDMI and AV audio
Audio Decoding	AAC
Decryption	AES256
Storage	USB disk or micro SD card
Ethernet stream protocol	Support UDP TS stream decoding, RTSP client decoding, RTSP server forward

Monitoring and control

Web UI or control uart.

Temperature range

Full specification: 0° to +70°C Ambient (Optional: -40° to +85°C)
Storage: –40° to +85°C

Physical Characteristics

Dimensions: 85.6*79.6mm(not including connectors out of the board)
PCB thickness: 1.6mm, maximum height of up components less than 7mm, maximum height of bottom less than 2.5mm.
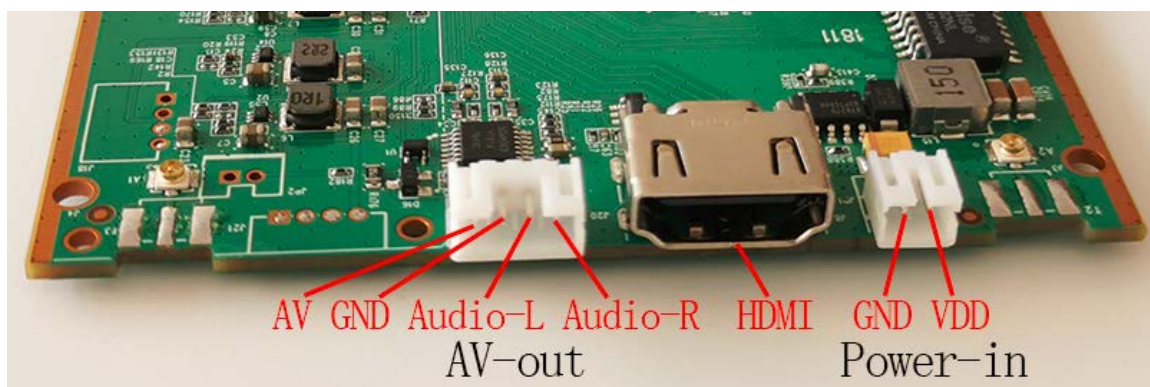
Power requirements

Input range: 9~30VDC
Power consumption: <250mA@12V

I/O signals:

Power in and AV out

The power input interface is a 2PIN PH2.0mm connector. AV output interface is a 4PIN PH2.0mm connector.


Data-uart, control-uart and Mic in

Data uart: 3PIN PH1.25mm connector, TTL 3.3V. When SHD5 board works paired with Sihid video encoder module (SUE1, SUE2, SUE3, SUE5, SUE5SA, etc.) and Ethernet linker (wireless or wire), the uart data of the encoder module will be transferred to this uart.

Control uart: 4PIN PH1.25mm connector, TTL 3.3V. The SHD5 board system can be set-up via this control uart with AT command.

Sihid Technology Limited   Email:sale@sihid.com

Mic in: 2PIN PH2.0mm connector. When SHD5 board works paired with Sihid video encoder module (SUE5, SUE5SA, etc.) and Ethernet linker (wireless or wire), The input microphone audio of SHD5 board can be encoded and sent to the remote Sihid video encoder board and output to its' speaker interface.
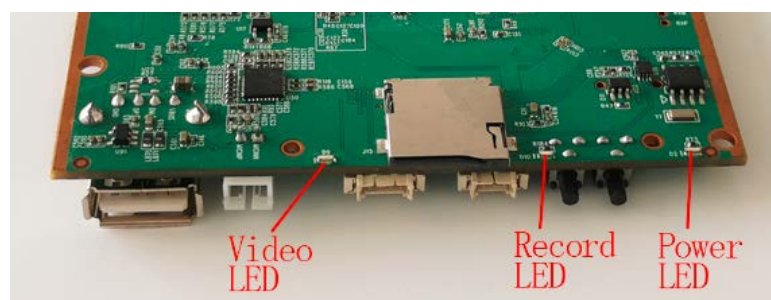

GND Rx Tx   5V GND Rx Tx   GND Mic
Data-uart   Control-uart   Mic-in
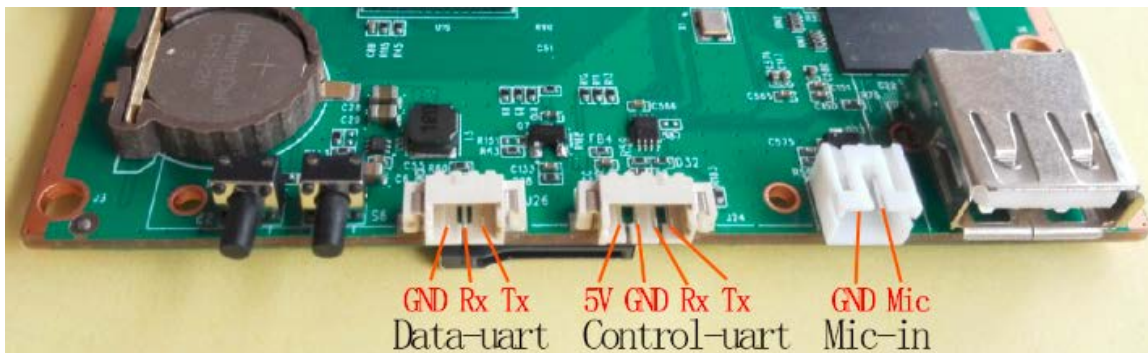
Ethernet

4PIN PH2.0mm connector, 100M ethernet port. SHD5 baord supports UDP TS video stream decoding, RTSP client decoding, and also RTSP server forward(option)

Txn Txp Rxn Rxp

LEDs and Keys
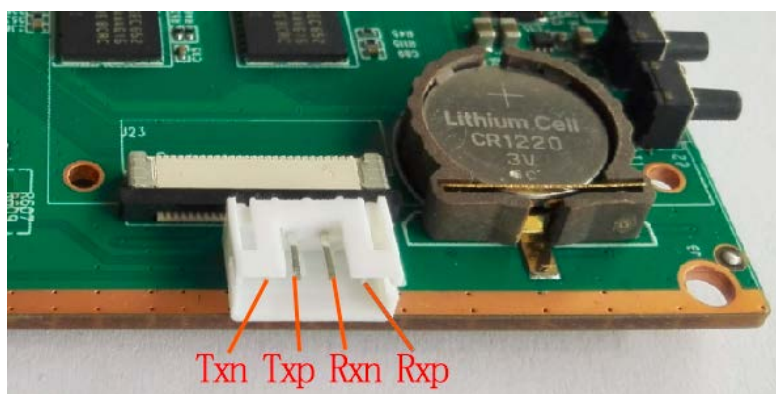
Video LED   Record LED   Power LED

LED	Description	Color
Power-LED	Light on when SHD5 board is normal powered	Red
Video-LED	Blinks when video stream is normal received and decoding	Green
Record-LED	Light on when video is being recorded with USB disk or TF card	Green

Key1 Key2

Key1

OSD key: turn on/off the status of the OSD displaying, long press it to switch(more than 1s). the status will be kept after reboot. When the OSD status is on without any OSD data input from the data uart, the system will display video information (video bitrates, etc.) on the video screen. When the OSD status is on with data input from the data uart, the system will display text information of the uart data on the video screen.

When SHD5 board is shipped out with specified firmware to decode up to 4-ch 1080P video and synchronous display, the Key1 is used for video display switch (split screen mode / full size of single-ch).

Key2

Record key: switch button for video recording, short press to change its' status. The system will automatically check the storage device(TF card or USB disk, priority TF card) after power on and start to record video when the storage device is inserted. Just press the button to stop or record again.