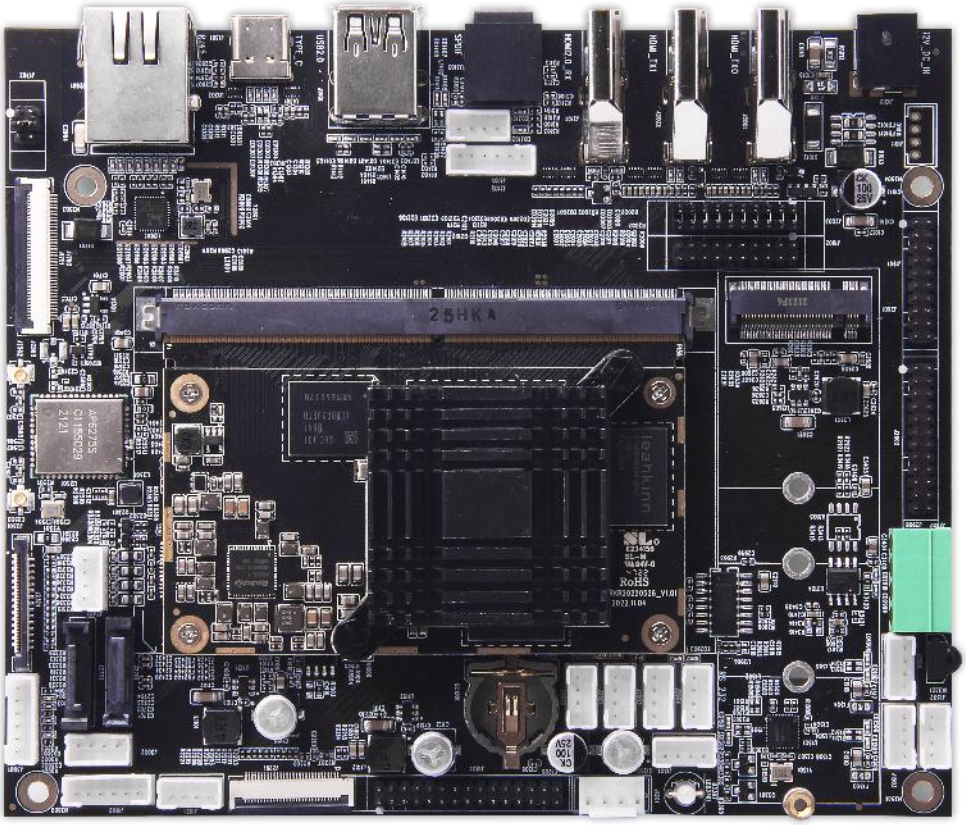
SPECIFICATION

MODEL: DB3588-V2



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CONTENT

Revision History

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
A01	22/8/11	RCB211018	11	Specification	YYJ
V1.01	23/01/09	RKR20220526_V1.0+CBD_SOM3588_V1.01	11	Update hardware	

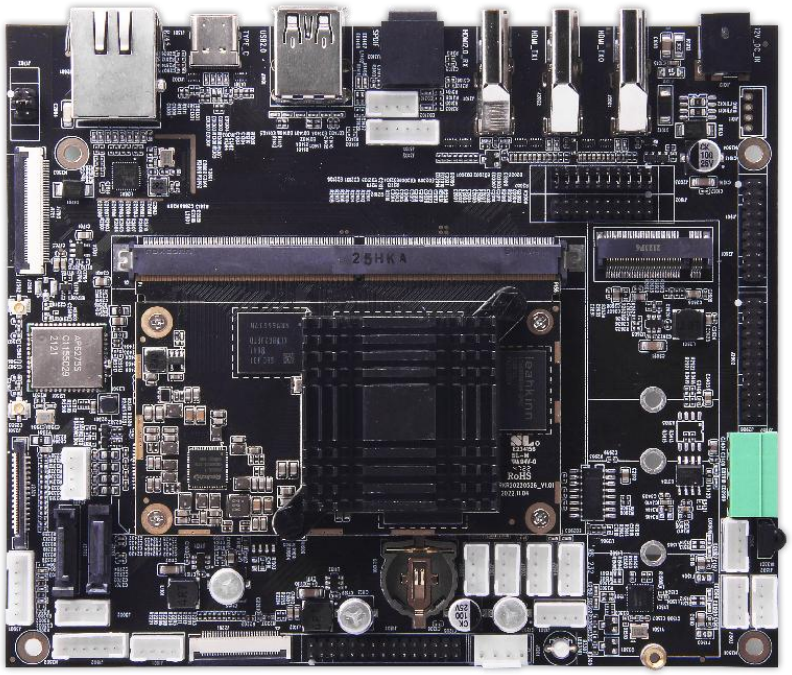
1. General Description

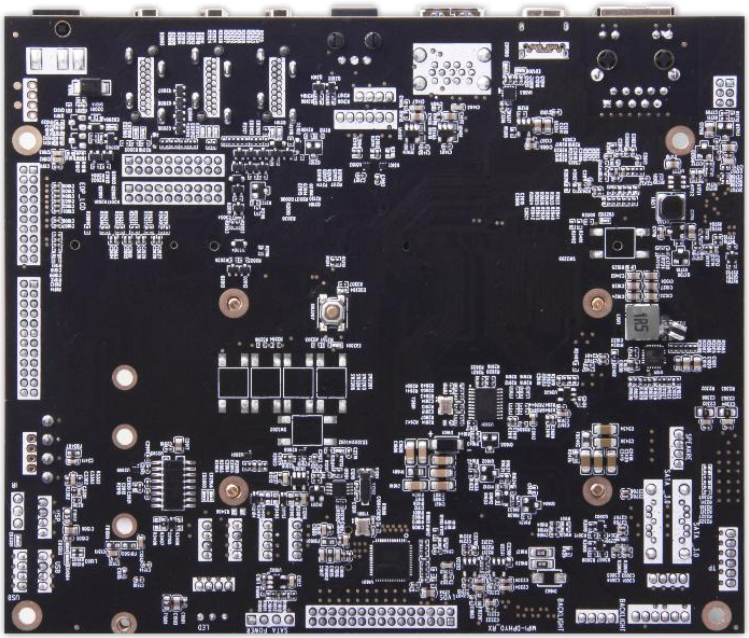
The DB3588-V2 motherboard is composed of the SOM3588 core board and the CBD_SOM3588 carrier board. Based on Rockchip RK3588 scheme, it is equipped with quad-core Cortex-A76 and quad-core Cortex-A55 with main frequency up to 2.4GHz, integrated ARM Mali-G610 MP4 quad-core GPU and built-in AI accelerator NPU, which can provide 6TOPs computing power. It supports Bluetooth, Wi-Fi, audio and video, camera and other functions, and it has a variety of video input and output interfaces. It is suitable for intelligent NVR, cloud terminal, industrial control, information release terminal, multimedia advertising machine and other scenarios.

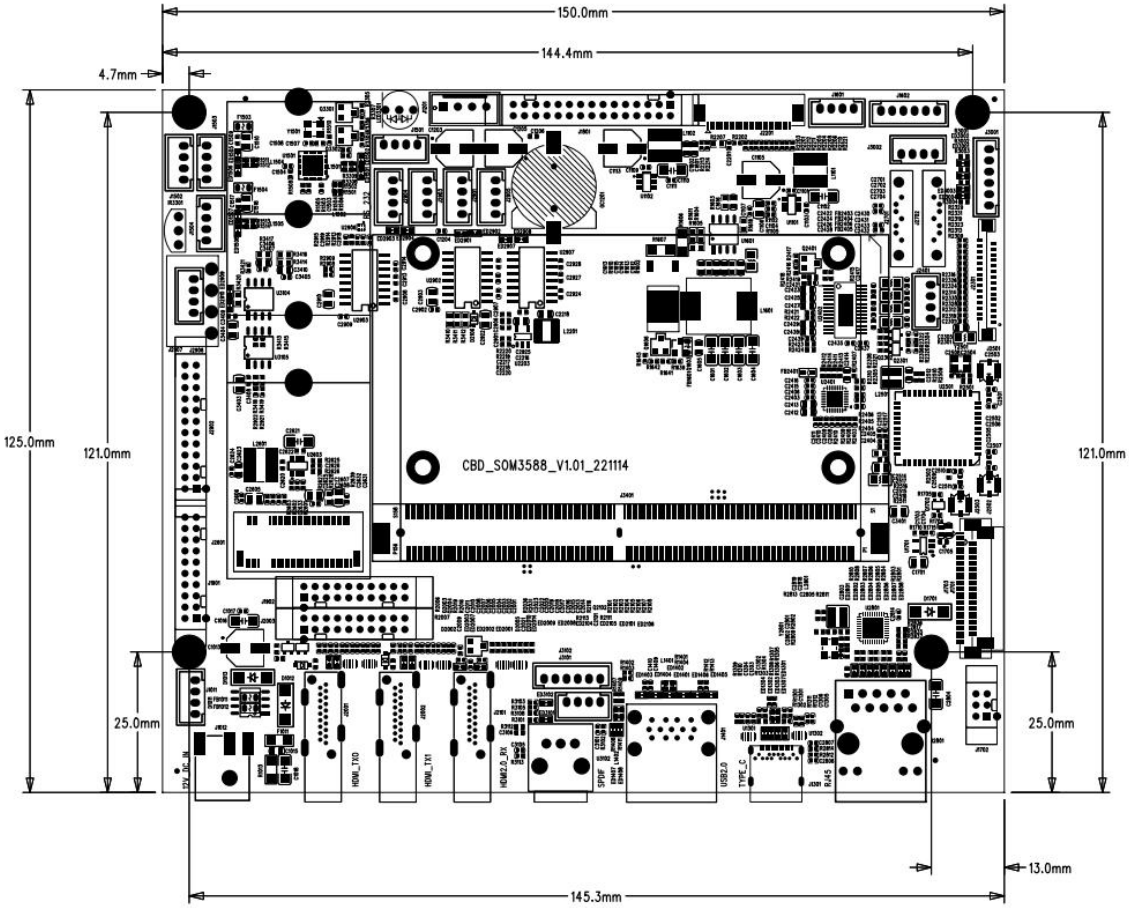
The following are the main features of the DB3588-V2:

- Supports 32 channels 1080P 30FPS, supports 8K video compilation and solution.
- Supports the LPDDR up to 32GB, and extends the EMMC up to 512GB.
- Supports for HDMI IN video input, as well as MIPI and USB multiple camera combination way.
- With a variety of video output interfaces, it can be used with LVDS / EDP / HDMI / MIPI and other interfaces for the display screen.
- Supports a variety of M.2/SATA3.0/SPDIF/PDM/USB3.0/USB2.0 peripheral interfaces.
- Supports gigabit cable network port, and supports 2.4G / 5G dual-frequency wifi and Bluetooth.
- Supports multiple operating systems: Android12 & Debian11 & Buildroot.
- Supports for GPIO / UART / SPI / I2C / RS232 and other extended interfaces.
- Built-in watchdog and RTC battery, it can support 7 * 24 hours of stable work.

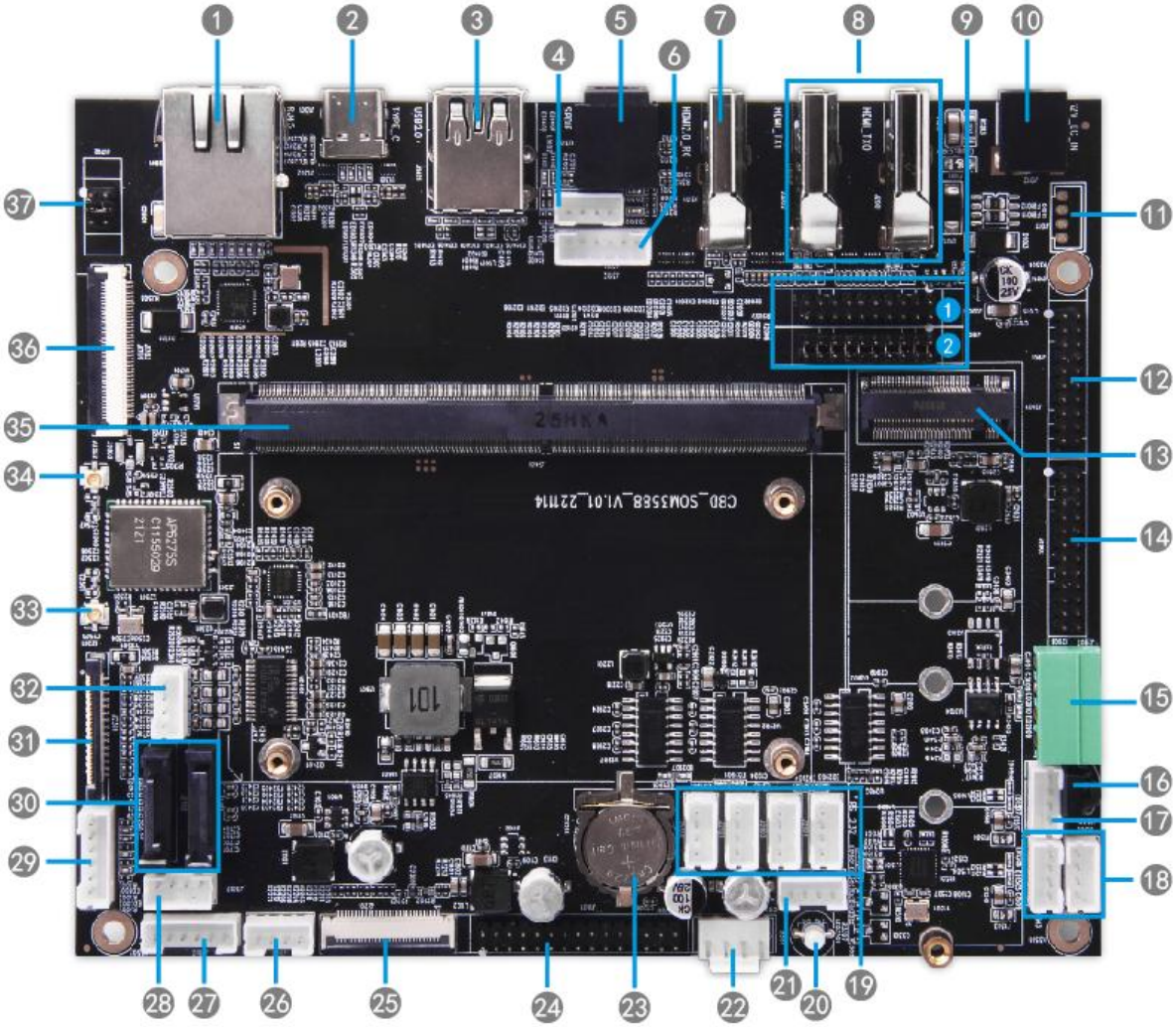
2. Product Pictures

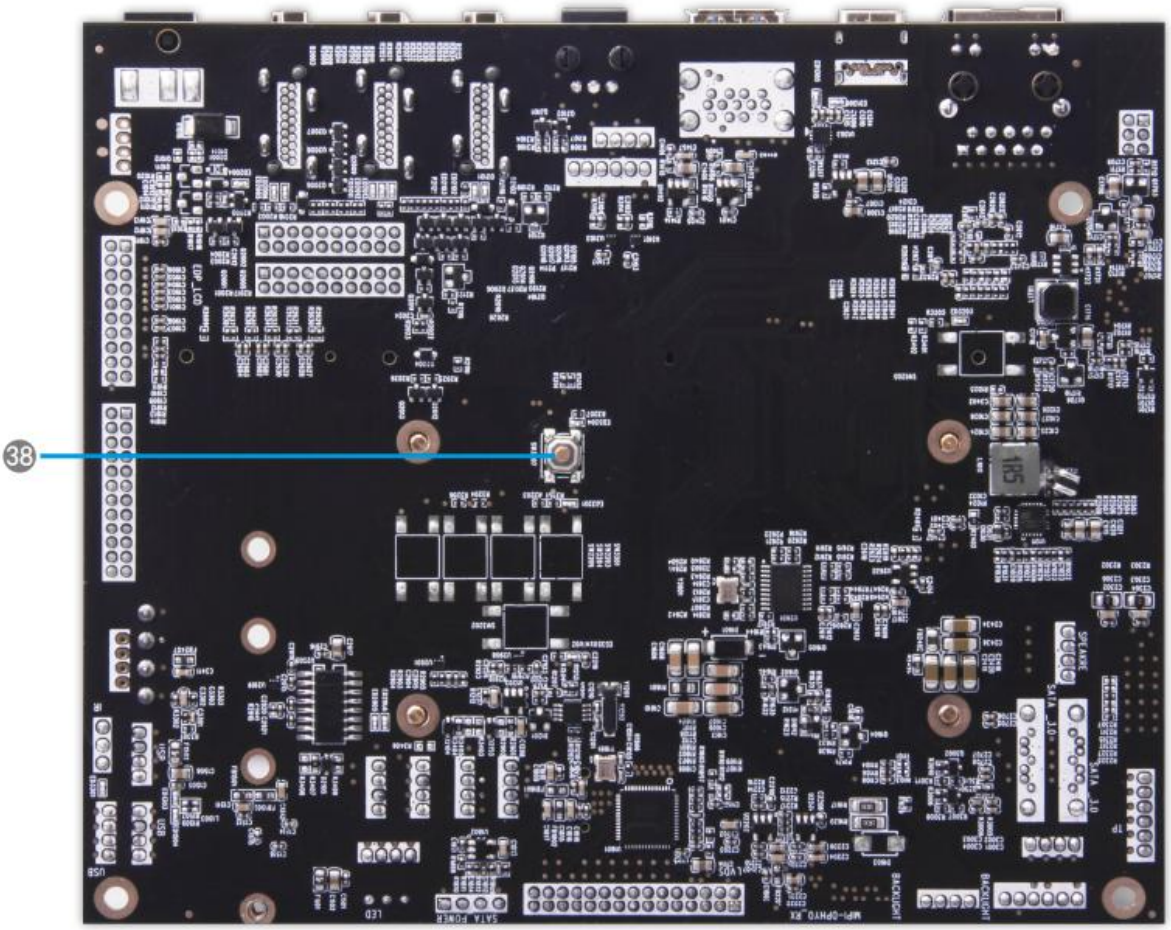





150.0mm
144.4mm
4.7mm
125.0mm
121.0mm
121.0mm
CBD_SOM3588_V1.01_221114
25.0mm
25.0mm
13.0mm
145.3mm

3. Product Interface

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Label	Function	Note
1	LAN	100M/1000M Ethernet
2	Type-C	*1
3	USB 2.0 Type A/USB 3.0 Type A	USB2.0*1 (top), USB3.0*1 (Buttom)
4	DEBUG	1 * 4P Header , pitch 2.0mm
5	SPDIF	*1
6	SPI	1 * 6P Header, pitch 2.0mm
7	HDMI IN	*1
8	HDMI OUT (1,2)	*2 (HDMI 2a)
9	EDP/HDMI OUT Select	2-way 2 * 10P,2.0mm spacing (① is HDMI OUT1, ② is EDP OUT)
10	DC Jack connector	12V/2A
11	POWER SOCKET	1 * 4P Header, pitch 2.0mm
12	EDP Screen Connector	2 *10P header, pitch 2.0mm
13	M.2 Key-M	NGFF 75Pin
14	GPIO	2* 20P header, pitch 2.00mm (GPIO/UART/SPI/I2C)
15	CAN(1,2)	1 * 4P 3.81mm phoenix terminal
16	IR	*1
17	USB2.0(4)	1 * 4P Header, pitch 2.0mm
18	USB2.0(2,3)	1 * 4P Header, pitch 2.0mm
19	RS232(1-4)	1 * 4P Header, pitch 2.0mm
20	LED LIGHT	*1
21	USB2.0(1)	1 * 4P Header, pitch 2.0mm
22	SATA_POWER	1 * 4P Header, pitch 2.54mm
23	RTC Battery socket	*1
24	LVDS Screen Connector	2* 15P header, pitch 2.0mm
25	MIPI CSI Connector	1 * 30P FPC, pitch 0.5mm
26	Backlight1	1 * 4P Header, pitch 2.0mm
27	Backlight2	1 * 6P Header, pitch 2.0mm 12V Power
28	I2C	1 * 4P Header, pitch 2.0mm
29	I2C TP	1 * 6P Header, pitch 2.0mm
30	SATA3.0	*2
31	AUDIO interface	1*30P, FPC pitch 0.5mm (Mic array)
32	Speaker	1 * 4P Header, pitch 2.0mm
33	WiFi/BT Antenna interface 1	1*IPEX
34	WiFi/BT Antenna interface 2	1*IPEX
35	SODIMM SOCKET	MXM 314P 0.5mm H7.8 SMD
36	MIPI_LCM	1*40P, FPC pitch 0.5mm (MIPI DSI)
37	LCM-POWER	2*3PHeader, pitch 2.0mm (3.3V/5V/12V optional)
38	Update Button	*1

4. Product Parameter

Chip	Rockchip RK3588	
Market	Global	
System Language	English/Chinese(Support multiple languages)	
Configure	Operating System	Android12 / Debian11/buildroot
	CPU	Quad-core Cortex-A76 and Quad-core Cortex-A55
	GPU	Mali-G610 MP4 (4x256KB L2 Cache)
	DDR	4GB(8/16/32G optional)
	Storage	32GB(64G/128G/256G optional)
Network	Ethernet LAN	100M/1000M Ethernet
	WiFi	2.4G/5.8G WiFi6
	Bluetooth	BT5.0
Display	HDMI Out	*2
	LVDS	*1
	MIPI DSI	*1
	EDP	*1
Video Input	HDMI In	*1
	MIPI CSI	*1
I/O extension interface	I2C	*2
	RS232	*4
	Extension I/O	2* 20P pitch 2.0mm GPIO/UART/SPI/I2C
Audio I/O	Speaker	Left and right stereo sound
	Audio interface	1*30P , pitch 0.5mm(microphone array)
	SPDIF	*1
SATA	*2	
USB	1 x USB Host2.0 , 1 x USB Host3.0 , 1 x USB OTG 2.0 (Type C)， 2 x USB Host2.0（4P pitch 2.0mm）	
M.2	Key.M NGFF 75Pin	
Other interface	SPI、Debug、RTC、Infrared remote control reception,Backlight power supply,Upgrade button, Light	
Size	150*125mm（No heat sink）	
Power Pack	DC 12V/2A	

5. Supported Formats

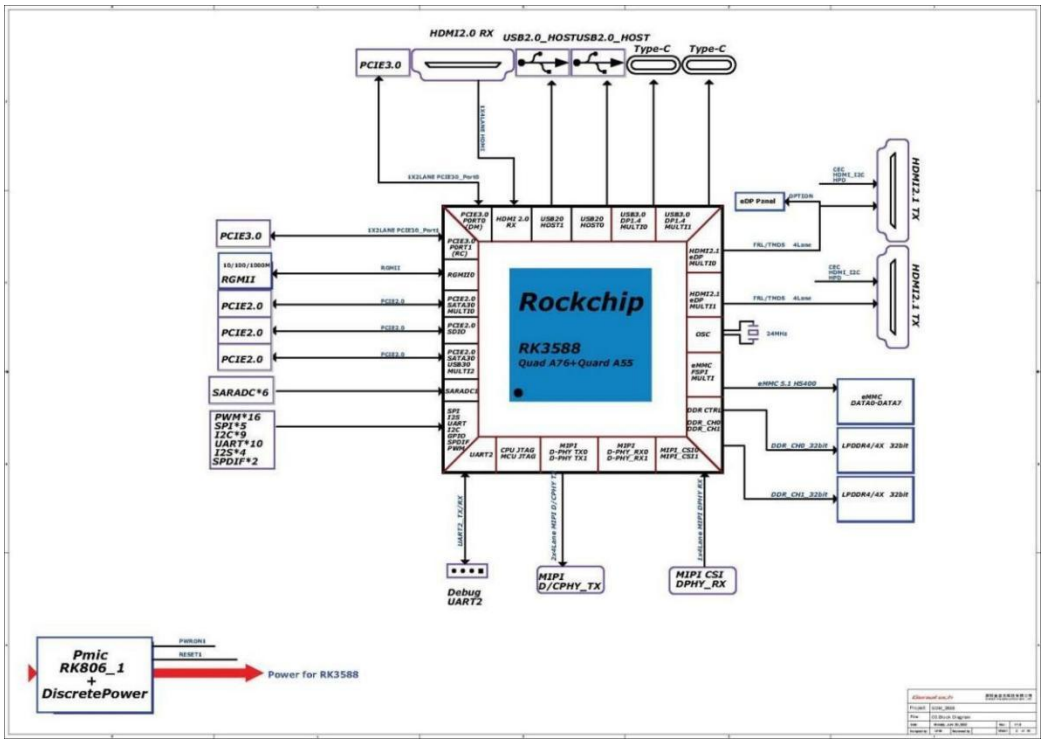
Video Decoder

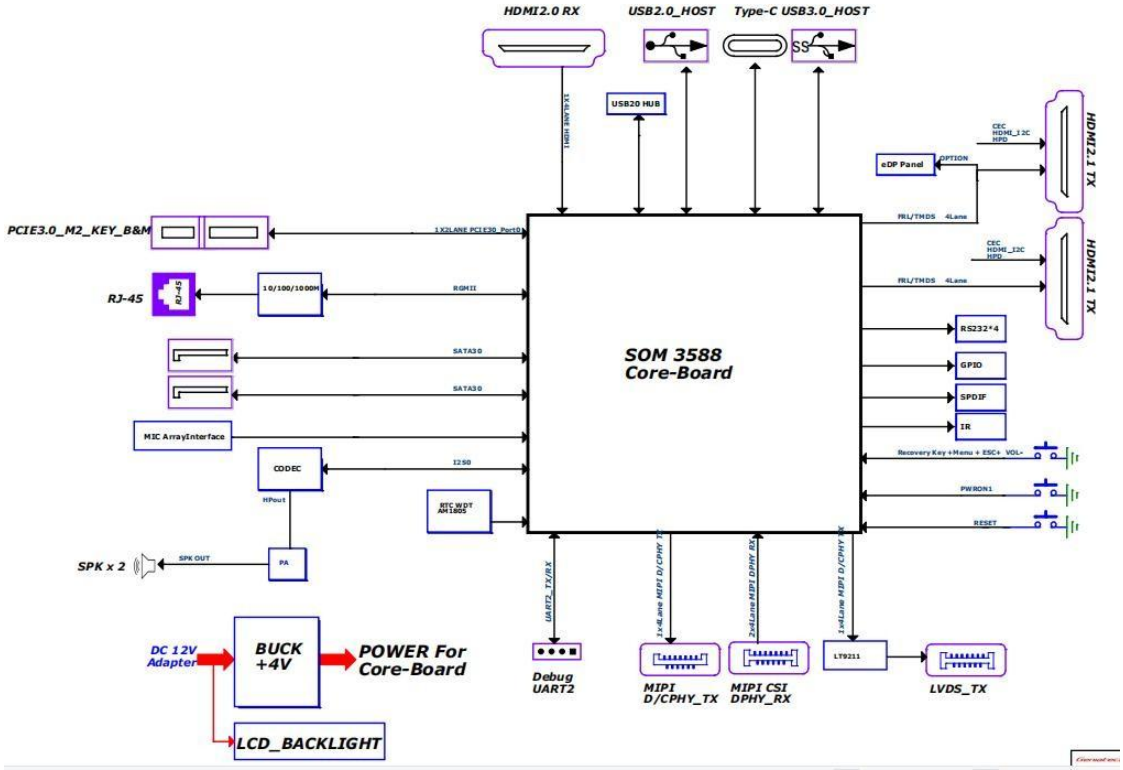
- Real-time video decoder of MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP9, VP8, MVC, AV1
- MMU Embedded
- Multi-channel decoder in parallel for less resolution
- H.264 AVC/MVC Main10 L6.0 :8K@30fps (7680x4320)
- VP9 Profile0/2 L6.1 :8K@60fps (7680x4320)
- H.265 HEVC/MVC Main10 L6.1 :8K@60fps (7680x4320)
- AVS2 Profile0/2 L10.2.6 :8K@60fps (7680x4320)
- AV1 Main Profile 8/10bit L5.3 :4K@60fps (3840x2160)
- MPEG-2 up to MP :1080p@60fps (1920x1088)
- MPEG-1 up to MP :1080p@60fps (1920x1088)
- VC-1 up to AP level 3 :1080p@60fps (1920x1088)
- VP8 version2 :1080p@60fps (1920x1088)

Video Encoder

- Real-time H.265/H.264 video encoding
- Support up to 8K@30fps
- Multi-channel encoder in parallel for less resolution

6. System Block Diagram





7. Precautions For Use

1. Relative humidity: 10% ~ 90%
2.Storage temperature: -40~105℃
3.Operation temperature: Commercial field (0~80℃); Industrial field (-40~85℃)
4.Do not squeeze, distort or disassemble the board.
5.Keep the board away from static electricity.
6.Keep the board away from water and other liquid.
7.Clean the board with soft and clean dry cloth when it's dirty.
8.Don't use long connect wires which may affect performance and image quality.