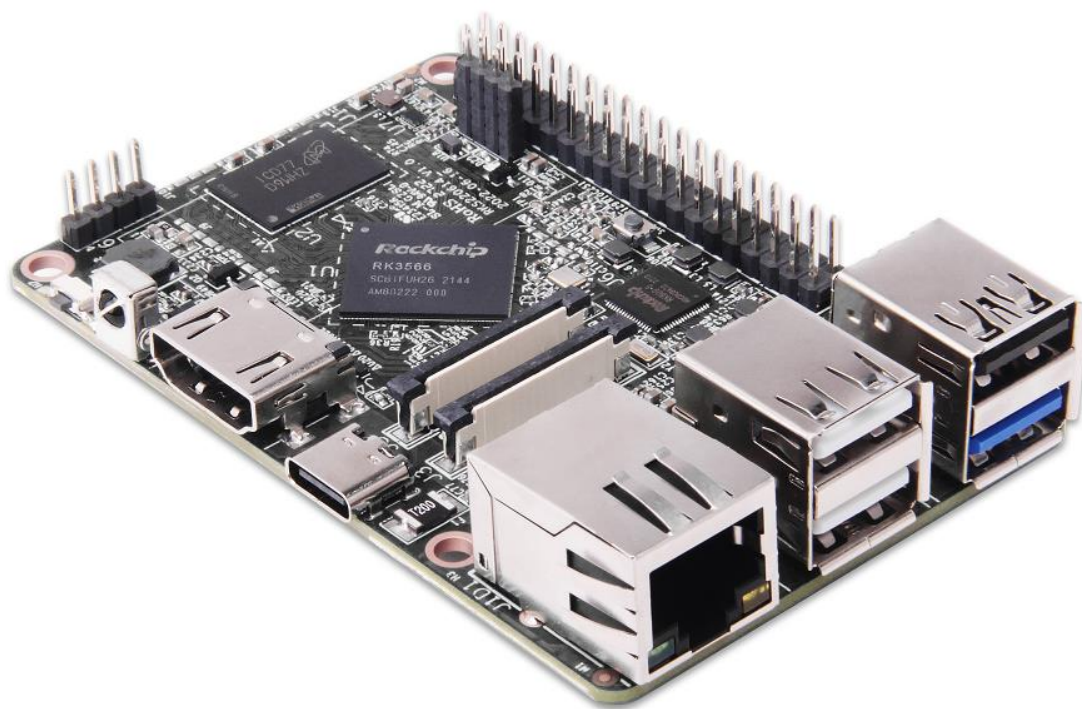


深圳金亚太科技有限公司

Shenzhen Geniatech Co.,Ltd.

SPECIFICATION

MODEL:XPI-3566



Confirmation

APPROVED BY GENIATECH		
PREPARED BY 编写	CHECKED BY 审核	APPROVED BY 批准

Please return the original copy after approved by your company with seal and signature.
请在贵公司盖章并签字后寄回正本一份。

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Revision History

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V1.0	20220708			Initial Version	
V1.3	20231027			Update PIN definition	

1. GENERAL DESCRIPTION

The XPI-3566 is a microcomputer product of Raspberry Pi form factor developed by Geniatech based on the Rock-Chip 3566 platform. According to the definition of Raspberry Pi, this is suitable for the field of programming education for teenagers.

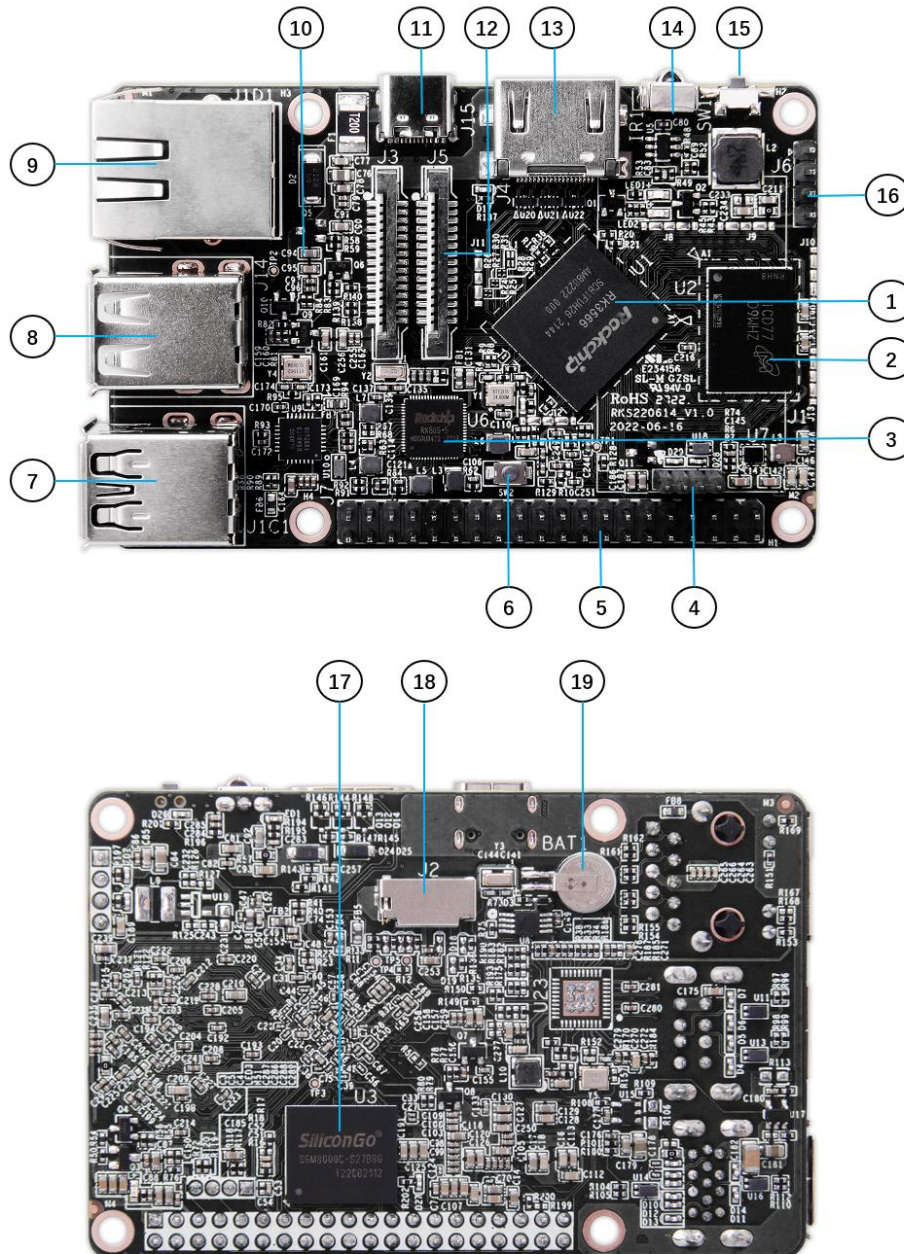
This product's key features including a Rock-Chip high-performance and low power quad-core application 64-bit quad-core processor, HDMI display support at resolutions up to 4KP60, hardware video decode at up to 4KP60, hardware video encode at up to 1080P60, up to 8GB of RAM, dual-band 2.4/5.0 GHz wireless LAN, Bluetooth 4.0, Gigabit Ethernet, USB 3.0 and USB 2.0.

Below is the detailed specification

- (I) 85mm*56mm, Only the size of a bank card
- (II) Rockchip RK3566 with Quad-core Cortex-A55 up to 1.8GHz
- (III) 2G RAM, 16GB eMMC flash
- (IV) USB HOST 3.0 * 1, USB Host 2.0*2, USB OTG 2.0*1, 1*HDMI Out, 1*Type-C, 1*UART, 1* Extension GPIO interface
- (V) Support Android 11.0 or Linux (Debian 10/ Raspbian OS emulation)
- (VI) Wi-Fi and 1000M LAN interface
- (VII) Micro SD card (TF card: Max64G)

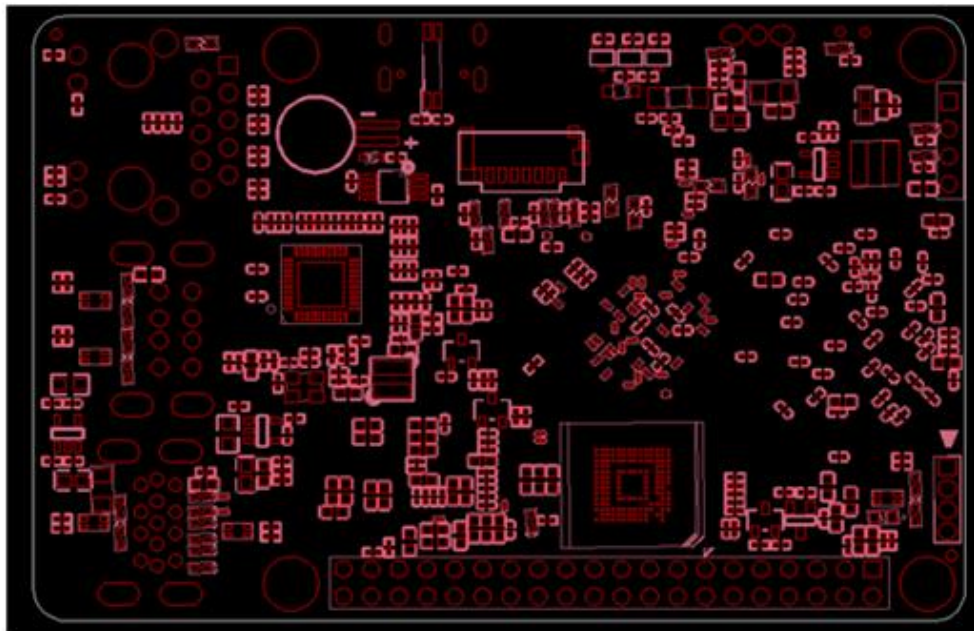
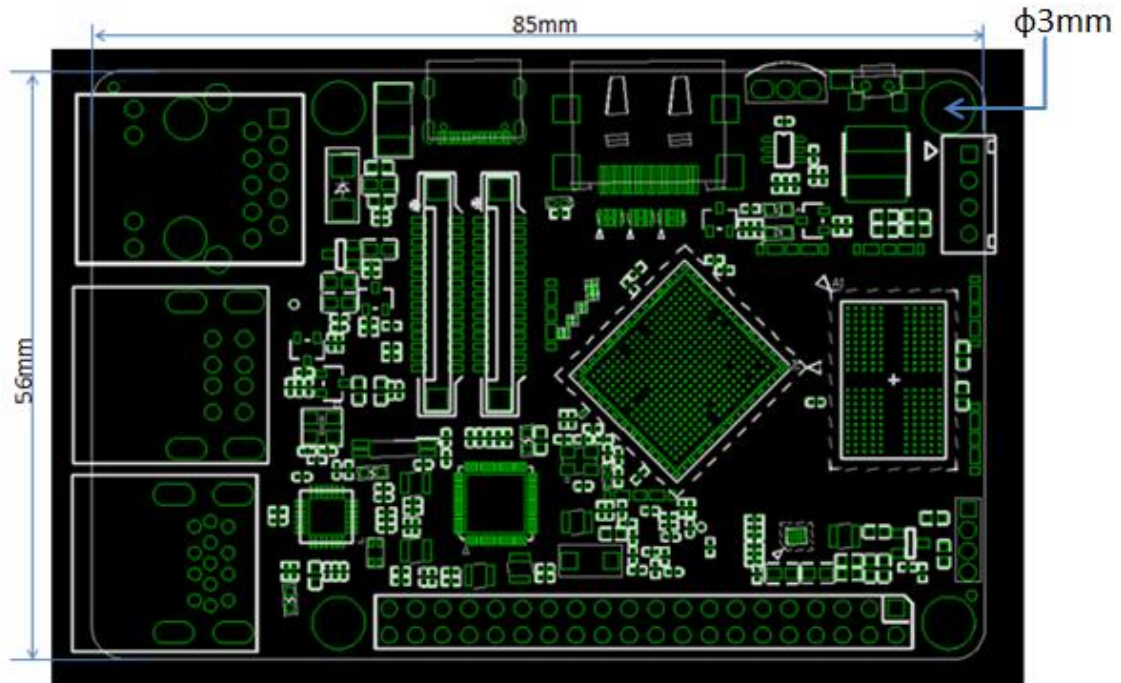
2. PRODUCT OVERVIEW

Below picture is for reference only, please prevail in kind.



No.	Name	Description
1	RK3566 SOC	*1
2	LPDDR4	*1
3	PMIC	*1
4	USB Connector	*1(It can be used for Wi-Fi/BT port)
5	40 Pin GPIO header	*1
6	SW2	*1(Power on key)
7	USB double layer connector	*1(The upper interface of J1C1 supports OTG function, the bottom interface of J1C1 supports USB 3.0 function)
8	USB2.0 double layer connector	*1
9	RJ45	*1(10/100/1000Mbps)
10	MIPI CSI Connector	*1
11	DC IN	*1(5V/3A USB Type-C)
12	MIPI DSI Connector	*1
13	HDMI Connector	*1(up to 4KP60)
14	IR	*1
15	SW1	*1(Recovery Key)
16	A55 Core debug console	*1
17	eMMC Flash	*1
18	Micro SD card Slot	*1
19	RTC Battery	*1

3. BOARD DXF VIEW

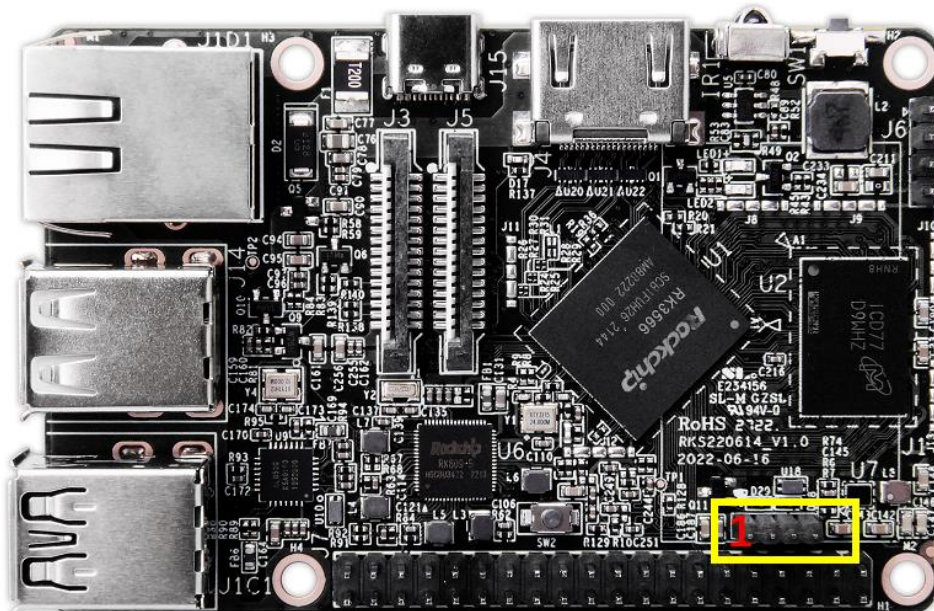


4. FEATURES

CHIPSET	RK 3566	
MARKET AREA	Global	
Processor	OS	Android 11/Debian 10 /Raspbian OS emulation
	CPU	Quad-core ARM Cortex-A55 CPU up to 1.8GHz
	GPU	ARM G52 2EE GPU; Supports OpenGL ES 1.1/2.0/3.2. OpenCL 2.0. Vulkan 1.1 Embedded high-performance 2D acceleration hardware
	NPU	Integrated RKNN NPU AI accelerator, 1Tops@INT8 Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
	LPDDR4	2GB (1G/4G/8G optional)
	EMMC FLASH	8GB eMMC5.1(8-128GB Optional)
NETWORK	Ethernet	RJ45, 10/100/1000M
	WiFi	WIFI Module 2.4G/5.8G (optional)
	Bluetooth	BT4.0(integrated in the WiFi module)
Interface	HDMI Out	*1
	USB 3.0	*1
	USB 2.0	*3(USB Host 2.0*2, USB OTG 2.0*1)
	MIPI-CSI	*1
	MIPI-DSI	*1
	Micro SD slot	*1
	IR	*1
	DC IN	*1 (USB Type-C)
Connectivity	1x Standard 40-pin GPIO header • Can be expanded to UART, SPI, I2C, PWM function 1x4 pin USB-Wifi connector • Support USB-WiFi Module 1x MIPI DSI • 2-lane MIPI DSI display port 1x MIPI CSI • 2-lane MIPI CSI camera port	
Adapter	DC 5V / 3A	
Dimensions	85*56mm	

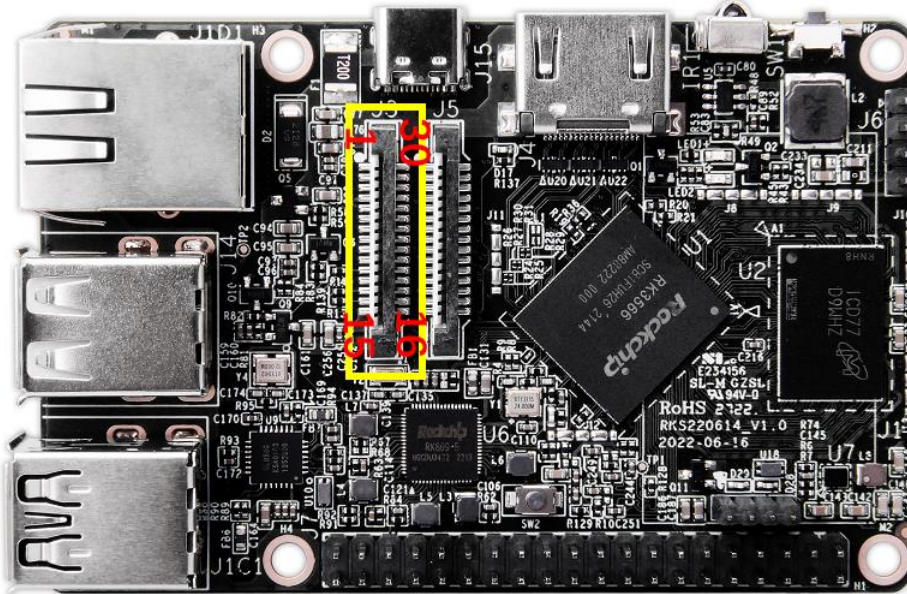
5. Connectors Definition

5.1 USB Connector for Wi-Fi(J1)



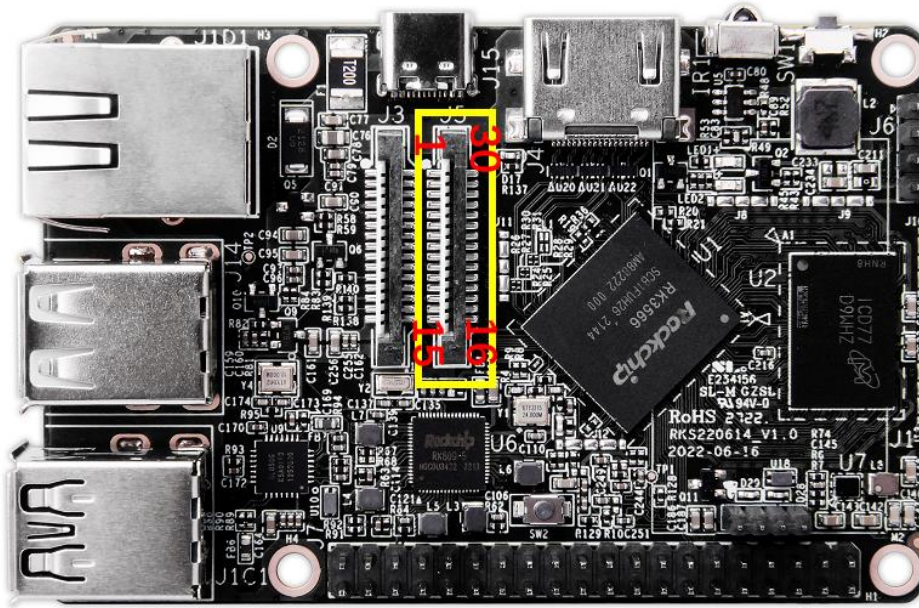
Pin	Definition	Pin	Definition
1	5V_WIFI	3	USB2_HOST3_DP
2	USB2_HOST3_DM	4	GND

5.2 MIPI CSI Connector (J3)



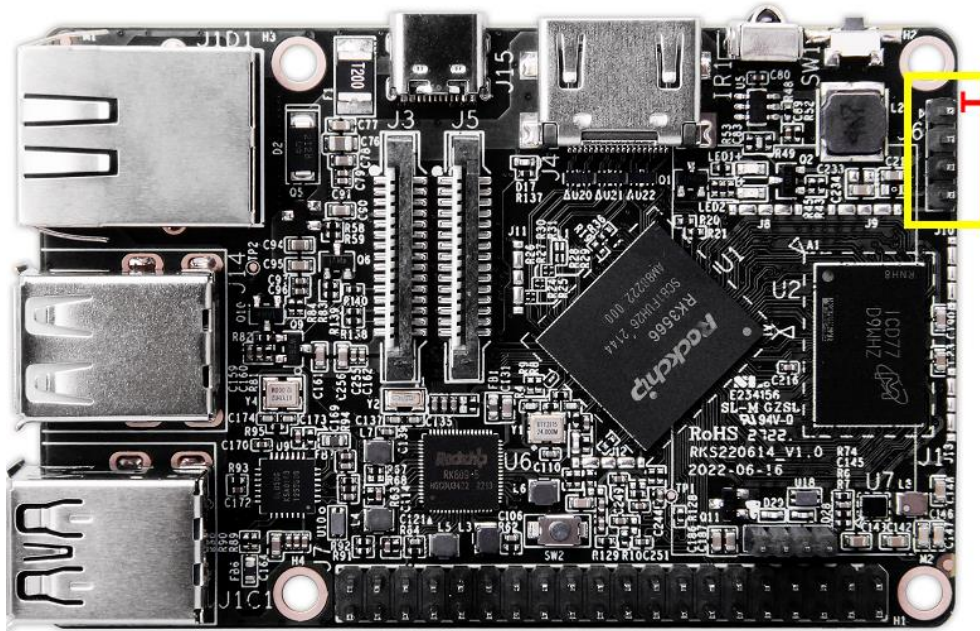
Pin	Definition	Pin	Definition
1	GND	9	MIPI_CSI_RX_CLK0P
2	MIPI_CSI_RX_D0N	10	GND
3	MIPI_CSI_RX_D0P	11	TS_CLK/GPIO
4	GND	12	NC
5	MIPI_CSI_RX_D1N	13	I2C2_SCL_CAMERA
6	MIPI_CSI_RX_D1P	14	I2C2_SDA_CAMERA
7	GND	15	VCC3V3_CAMERA
8	MIPI_CSI_RX_CLK0N	16~30	NC

5.3 MIPI DSI Connector(J5)



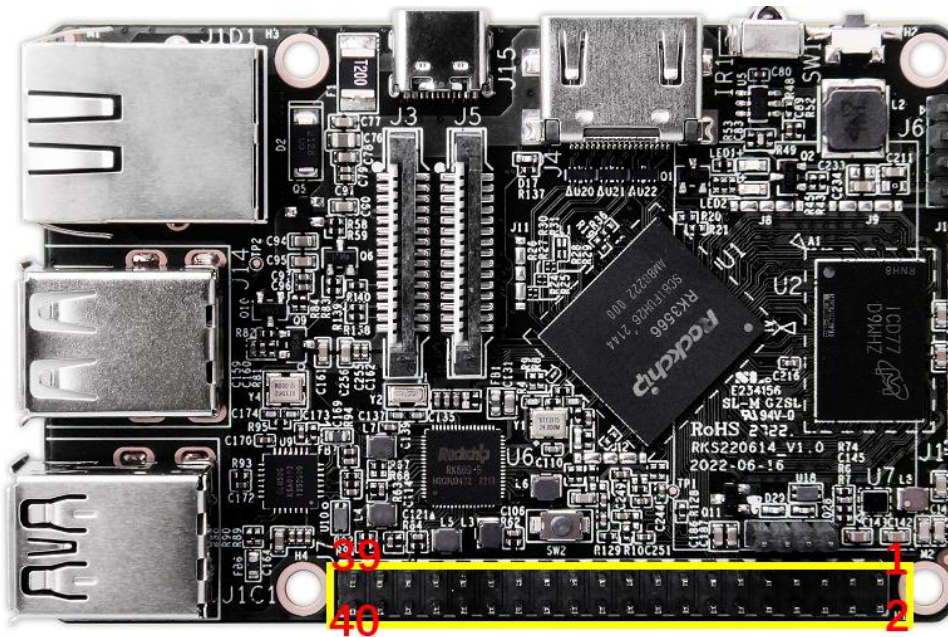
Pin	Definition	Pin	Definition
1	GND	9	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P
2	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	10	GND
3	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	11	I2C2_SCL_LCD
4	GND	12	I2C2_SDA_LCD
5	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	13	GND
6	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	14	VCC_LCD
7	GND	15	VCC_LCD
8	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	16~30	NC

5.4 Cortex Debug UART Connector (J6)



Pin	Definition	Pin	Definition
1	VCC3V3_IO	3	UART2_RX_M0_DEBUG/ GPIO0_D0_u
2	UART2_TX_M0_DEBUG /GPIO0_D1_u	4	GND

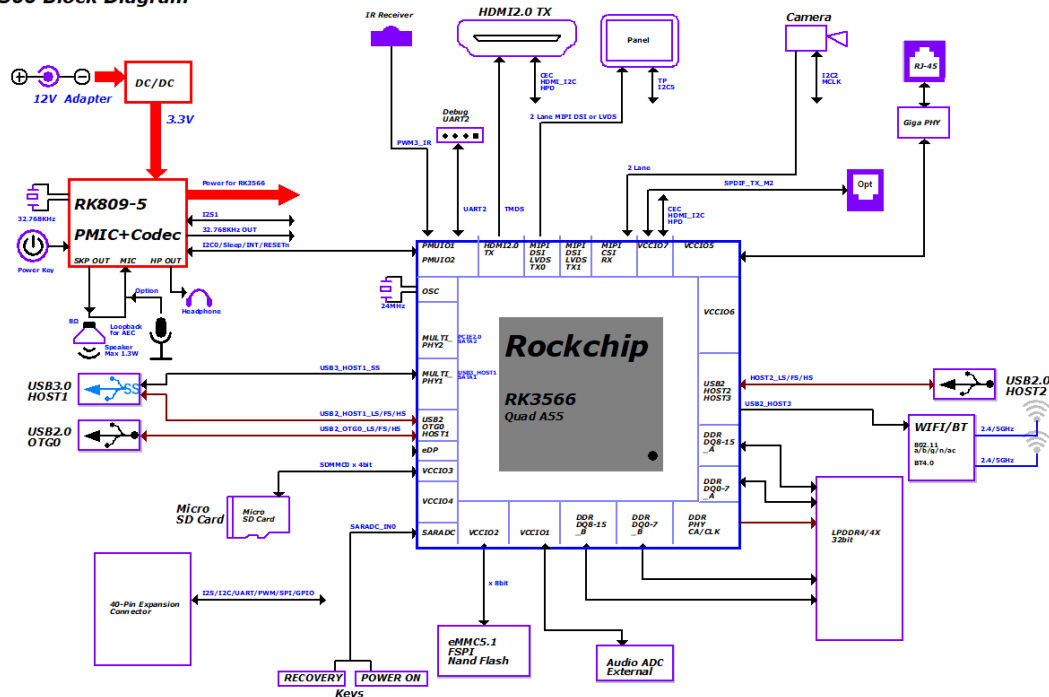
5.5 40 Pin GPIO header (J7)



Pin	Definition	Pin	Definition
1	VCC3V3_IO	2	VCC5V0_SYS
3	I2C4_SDA_M1 / GPIO2_B1_d	4	VCC5V0_SYS
5	I2C4_SCL_M1 / GPIO2_B2_u	6	GND
7	REFCLK_OUT / GPIO0_A0_d	8	UART1_TX_M0 / GPIO2_B4_u
9	GND	10	UART1_RX_M0 / GPIO2_B3_u
11	UART4_CTSn_M0 / GPIO1_A7_d	12	I2S2_SCLK_TX_M0 / GPIO2_C2_d
13	UART4_TX_M0 / GPIO1_A6_d	14	GND
15	UART4_RX_M0 / GPIO1_A4_d	16	UART1_CTSn_M0 / GPIO2_B6_u
17	VCC3V3_IO	18	UART1_RTSn_M0 / GPIO2_B5_u
19	SPI3_MOSI_M0 / GPIO4_B2_d	20	GND
21	SPI3_MISO_M0 / GPIO4_B0_d	22	GPIO4_C4 / GPIO4_C4_d
23	SPI3_CLK_M0 / GPIO4_B3_d	24	SPI3_CS0_M0 / GPIO4_A6_d
25	GND	26	SPI3_CS1_M0 / GPIO4_A7_d
27	I2C3_SDA_M0 / GPIO1_A0_u	28	I2C3_SCL_M0 / GPIO1_A1_u
29	UART4_RTSn_M0 / GPIO1_A5_d	30	GND
31	SPI0_CS1_M0 / GPIO0_C4_d	32	UART9_TX_M1-PWM12_M1 / GPIO4_C5_d
33	UART9_RX_M1-PWM13_M1 / GPIO4_C6_d	34	GND
35	I2S2_LRCK_TX_M0 / GPIO2_C3_d	36	UART7_RX_M2 / GPIO4_A3_d
37	UART7_TX_M2 / GPIO4_A2_d	38	I2S2_SDI_M0 / GPIO2_C5_d
39	GND	40	I2S2_SDO_M0 / GPIO2_C4_d

6.HARDWARE BLOCK

XPI-3566 Block Diagram



7.SUPPORT FORMATS

Audio

- I2S0 with 8 channels
 - Up to 8 channels TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz
 - Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Only for HDMI inside
- I2S1 with 8 channels
 - Up to 8 channels TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz
 - Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Support 4 PCM formats (early, late1, late2, late3)
 - I2S and PCM mode cannot be used at the same time
- I2S2/I2S3 with 2 channels
 - Up to 2 channels TX and 2 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz
 - Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Support 4 PCM formats (early, late1, late2, late3)
 - I2S and PCM mode cannot be used at the same time
- PDM
 - Up to 8 channels
 - Audio resolution from 16bits to 24bits
 - Sample rate up to 192KHz
 - Support PDM master receive mode
- TDM
 - supports up to 8 channels for TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz v Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Support 4 PCM formats (early, late1, late2, late3)
- Voice Activity Detection (VAD)
 - Support read voice data from I2S/PDM
 - Support voice amplitude detection v Support Multi-Mic array data storing

- Support a level combined interrupt

Video Codec

- Video Decoder
 - H.265 HEVC/MVC Main10 Profile yuv420@L5.1 up to 4096x2304@60fps
 - H.264 AVC/MVC Main10 Profile yuv400/yuv420/yuv422/@L5.1 up to 4096x2304@60fps
 - VP9 Profile0/2 yuv420@L5.1 up to 4096x2304@60fps
 - VP8 version2, up to 1920x1088@60fps
 - VC1 Simple Profile@low, medium, high levels, Main Profile@low, medium, high levels, Advanced Profile@level0~3, up to 1920x1088@60fps
 - MPEG-4 Simple Profile@L0~6, Advanced Simple Profile@L0~5, up to 1920x1088@60fps
 - MPEG-2 Main Profile, low, medium and high levels, up to 1920x1088@60fps
 - MPEG-1 Main Profile, low, medium and high levels, up to 1920x1088@60fps
 - H.263 Profile0, levels 10-70, up to 720x576@60fps
- Video Encoder
 - H.264/AVC BP/MP/HP@level4.2, up to 1920x1080@60fps
 - H.265/HEVC MP@level4.1, up to 1920x1080@100fps (4096x4096@10fps with TILE)
 - Support YUV/RGB video source with rotation and mirror

JPEG CODEC

- JPEG decoder
 - Decoder size is from 48x48 to 65536x65536
 - Support YUV400/YUV411/YUV420/YUV422/YUV440/YUV444
 - Support 1920x1080@120fps
 - Support MJPEG
- JPEG encoder
 - Baseline Non-progressive
 - up to 8192x8192 v up to 90 million pixels per second

8. PRECAUTIONS FOR USE

1. Relative humidity: 10% ~ 90%.
2. Storage temperature: -10 ~ 125℃
3. Operation temperature: commercial (0℃ ~ 60℃)
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.