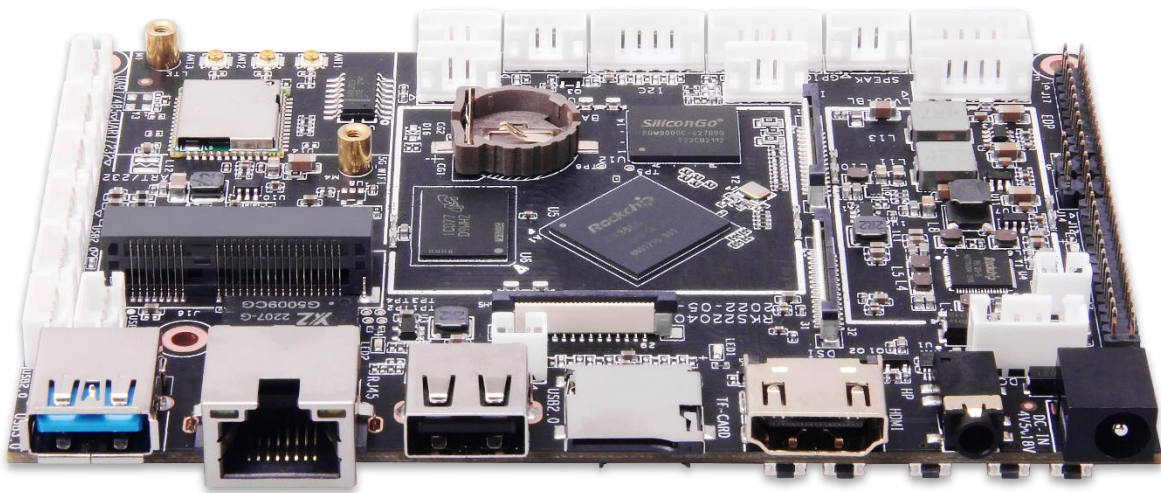


DS3566

Hardware UserGuide



Powered by:

Geniatech

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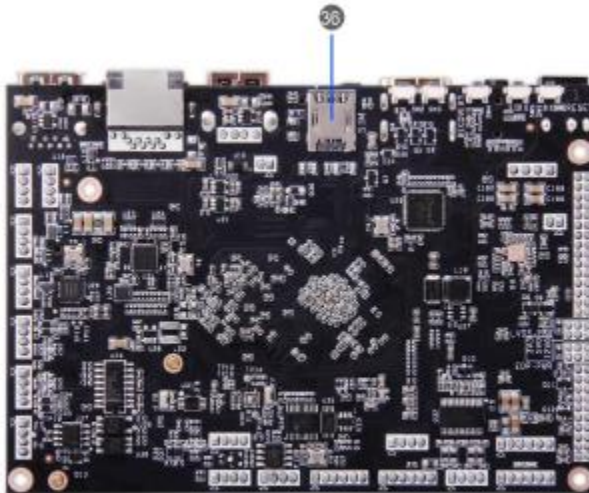
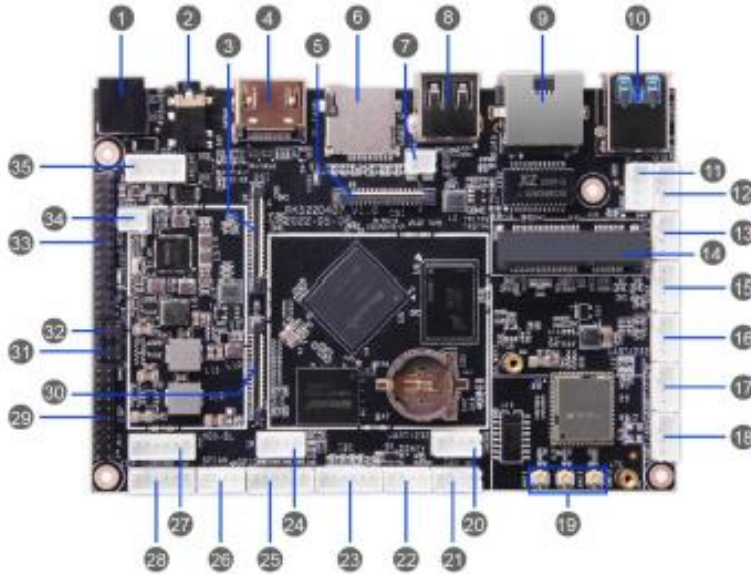
 4.3 System Block Diagram17

1 Introduction

DS3566 is an Android Customized Board with following new features:

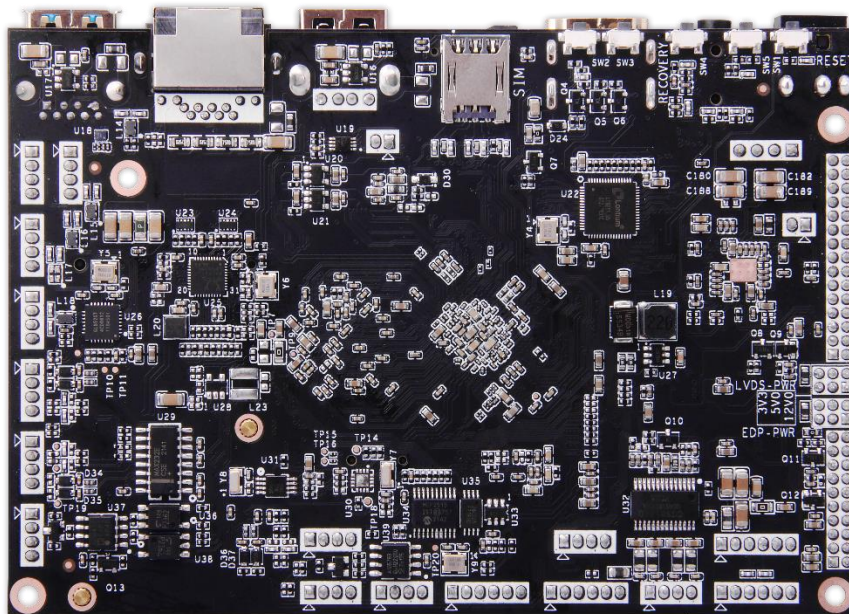
- (I) Quad core ARM Cortex-A55 CPU up to @ 1.8GHz
- (II) ARM Mali-G52 GPU, Support OpenGL ES1.1/2.0/3.2, OpenCL2.0 and Vulkan 1.1
- (III) NPU: Neural network acceleration engine with processing performance up to 0.8 TOPS
- (IV) Support Android 11.0 / Linux Debian
- (V) Support 2GB/4GB/8GB LPDDR4, 8~128GB eMMC, External expansion TF/SATA3.0/USB storage
- (VI) Peripheral interface: USB2.0 * 1, USB3.0 * 1, RJ45 * 1, Headphone * 1, TF Card Slot * 1, SIM Card Slot * 1, DC IN * 1
- (VII) Display interface: HDMI OUT * 1, LVDS * 1, eDP * 1
- (VIII) Build-in: MIPI CSI * 1, MIPI DSI * 1, Mini PCIe * 1, USB2.0 * 4, Speaker * 1, MIC * 1, PDM * 1, I2C * 1, CAN * 1, UART * 4, GPIO * 8
- (IX) Network: WIFI5(2.4G+5.8G), BT4.0, GIGA Ethernet * 1 Support hardware WDT & RTC + 1*SATA3.0 + 1*Speaker (Max: 2*5W8Ω)
- (X) Support wide voltage 9~24V power input, standard EMC and ESD protection design
- (XI) Specially designed for smart express cabinet, smart commercial display, smart vending machine, digital signage, smart home, etc.

1.1 Board Overview



No.	Name	Description
1	DC IN	4.5V~18V input
2	3.5mm Slot	Headphone * 1
3	FPC Slot	MIPI DSI *1
4	HDMI OUT	*1
5	FPC Slot	MIPI CSI*1
6	TF Card Slot	*1
7	PH2.0 Slot	2 Pin, GPIO * 2
8	USB2.0 Slot	*1
9	RJ45	*1 (1000M Ethernet)
10	USB3.0 Slot	*1
11	PH2.0 Slot	4 Pin, USB2.0 *3
12	PH2.0 Slot	
13	PH2.0 Slot	
14	Mini PCIe	*1, for 4G LTE
15	PH2.0 Slot	4 Pin, USB2.0 * 1
16	PH2.0 Slot	4 Pin, UART/RS-232*1
17	PH2.0 Slot	4 Pin, UART/RS-232*1
18	PH2.0 Slot	4 Pin, UART/RS-485*1
19	IPEX	*3, WIFI&BT Antenna
20	PH2.0 Slot	4 Pin, UART/RS-232*1
21	PH2.0 Slot	4 Pin, CAN*1
22	PH2.0 Slot	4 Pin, External button board
23	PH2.0 Slot	4 Pin, I2C*1
24	PH2.0 Slot	4 Pin, External IR board
25	PH2.0 Slot	6 Pin, GPIO*6
26	PH2.0 Slot	4 Pin, Speaker*1(Max to 2*10W)
27	PH2.0 Slot	6 Pin, LVDS Panel backlight
28	PH2.0 Slot	6 Pin, eDP Panel backlight
29	eDP Panel Slot	*1
30	FPC Slot	PDM*1
31	eDP Panel voltage switch	3.3V/5V/12V
32	LVDS Panel voltage switch	3.3V/5V/12V
33	LVDS Panel Slot	*1
34	PH2.0 Slot	2 Pin, MIC IN * 1
35	PH2.0 Slot	4 Pin, DC IN*1(4.5V~18V input)
36	SIM Card Slot	*1

The Developer Board contains one DS3566.



3 Getting started

3.1 Prerequisites

Before you power up your DS3566 for the first time you will need the following:

- DS3566 board
- A DS3566 board compliant power supply (sold separately by Geniatech).
- A DS3566 board compliant IR remote (sold separately by Geniatech).
- A LVDS or eDP LCD Monitor that supports a resolution of Max to 2560x1600@60Hz.
- LVDS-LVDS cable or eDP-eDP cable to connect the board to the LCD.
- A computer keyboard/mouse with USB interface.

3.2 Starting the board for the first time

To start the board, follow these simple steps:

- step 1. Connect the LVDS / eDP cable to the DS3566 connector (marked) and to the LCD Monitor.
- step 2. Connect the keyboard to the boards USB connector marked or connect the mouse to the USB connector marked. (It doesn't matter which order you connect it in. You can also connect via an external USB Hub.)
- step 3. Connect the power supply to power connector marked.

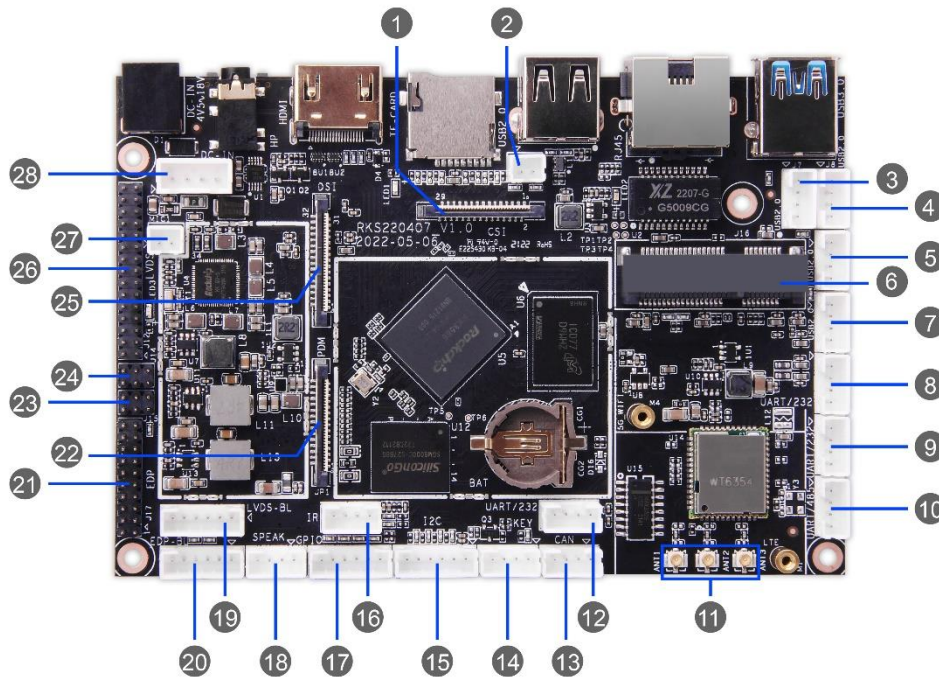
Power on (Plug power adapter), toggle the power switch, then the board will boot up and you will see the boot up logo with Android.

Please note that the first boot takes several minutes due to Androids initialization. Subsequent boot times should be faster.

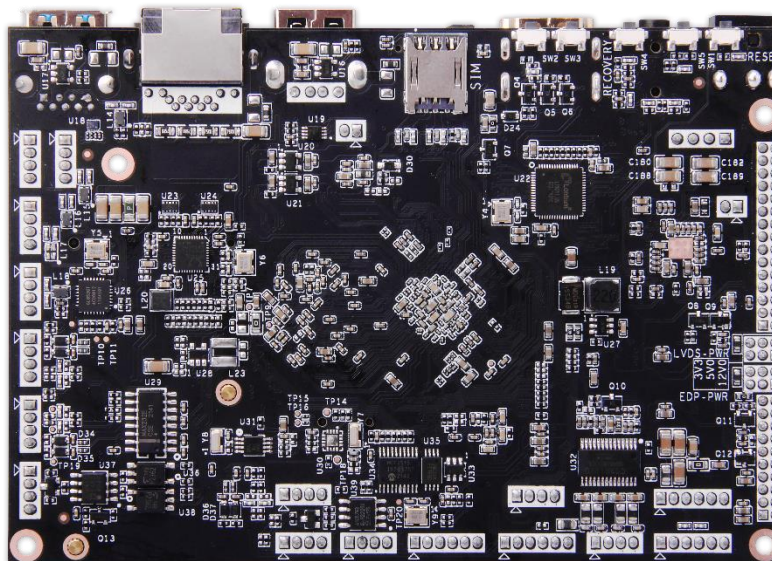
4. DS3566 Overview

4.1 Product Diagram

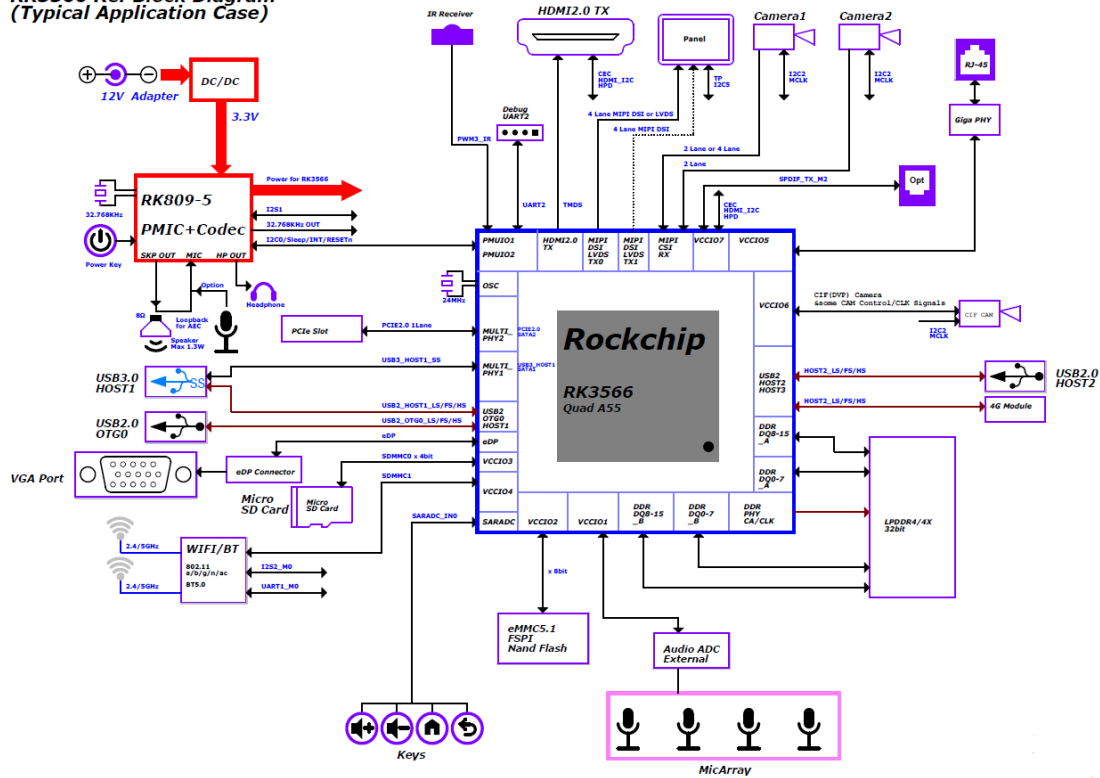
TOP View:



Bottom View:



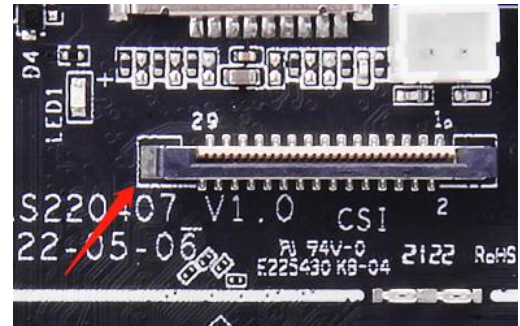
Block Diagram:

RK3566 Ref Block Diagram
(Typical Application Case)

4.2 Internal Connectors, Headers & Jumpers

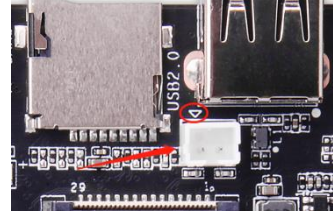
CSI(J9)

No.	Function	Property	Description
1	NC		
2	VCC2V8	Power	Output (2.8V)
3	VDD1V2	Power	Output (1.2V)
4	VCC1V8	Power	Output (1.8V)
5	NC		
6	GND	Ground	
7	VCC2V8	Power	Output (2.8V)
8	GND		
9	SDA	Input/Output	I2C Data Signal
10	SCL	Input/Output	I2C Clock Signal
11	RESET	Output	Reset Signal
12	PDN	Output	Power down control signal
13	GND	Ground	
14	MCLK	Output	Main Clock Signal
15	GND	Ground	
16	DP3	Input/Output	mipi data channel3 +
17	DN3	Input/Output	mipi data channel3 -
18	GND	Ground	
19	DP2	Input/Output	mipi data channel2 +
20	DN2	Input/Output	mipi data channel2 -
21	GND	Ground	
22	DP1	Input/Output	mipi data channel1 +
23	DN1	Input/Output	mipi data channel1 -
24	GND	Ground	
25	CLKP	Input/Output	mipi clock signal +
26	CLKN	Input/Output	mipi clock signal -
27	GND	Ground	
28	DPO	Input/Output	mipi data channel0 +
29	DNO	Input/Output	mipi data channel0 -
30	GND	Ground	

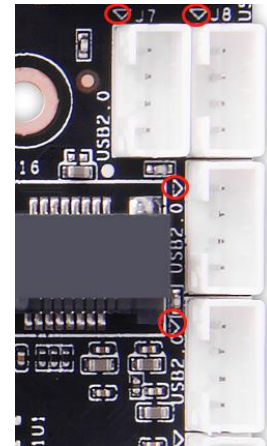


2J1

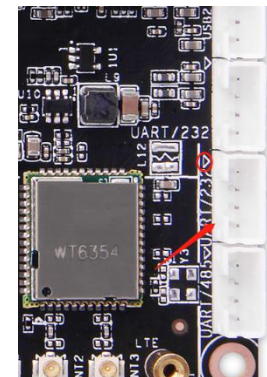
No.	Function	Property	Description
1	GPI01	Input	Cashbox check
2	GPI02	Output	Cashbox Control

**USB Slot (J7/J8/J11/J13)**

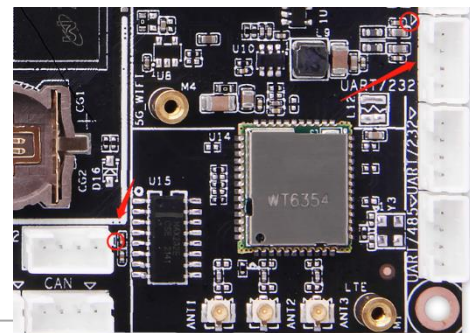
No.	Function	Property	Description
1	VCC	POWER	Output 5V
2	DM	Input/Output	USB2.0 data -
3	DP	Input/Output	USB2.0 data +
4	GND	Ground	

**Debug(2J4)**

No.	Function	Property	Description
1	VCC	POWER	Output 5V or 3.3V
2	TX	Output	UART TX
3	RX	Input	UART RX
4	GND	Ground	

**UART Or RS-232(2J3/2J6)**

No.	Function	Property	Description
1	VCC	POWER	Output 5V or 3.3V
2	TX	Output	TX
3	RX	Input	RX
4	GND	Ground	

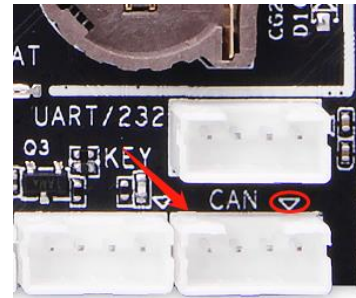


RS-485(2J5)

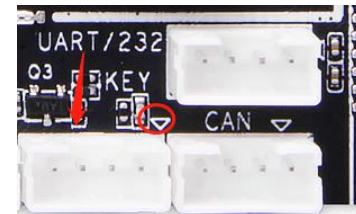
No.	Function	Property	Description
1	VCC	POWER	Output 5V or 3.3V
2	RS-485A	Input/Output	Data signal
3	RS-485B	Input/Output	Data signal
4	GND	Ground	

**CAN Bus(2J8)**

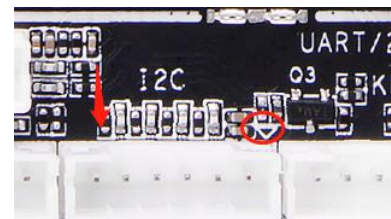
No.	Function	Property	Description
1	VCC	POWER	Output 5V or 3.3V
2	TX	Output	CAN TX
3	RX	Input	CAN RX
4	GND	Ground	

**KeyPad(J22)**

No.	Function	Property	Description
1	KEY_PWR	Input	Control the power
2	GND	Ground	
3	LED	Output	Control LED
4	GND	Ground	

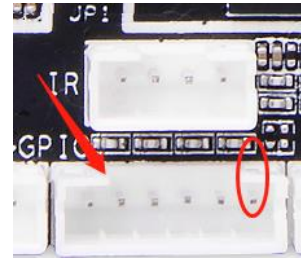
**I2C for TP(J21)**

No.	Function	Property	Description
1	VCC	Power	Output 3.3V
2	RESET	Input/Output	Reset
3	INT	Input/Output	Interrupt
4	SDA	Input/Output	I2C Data Signal
5	SCL	Input/Output	I2C Clock Signal
6	GND	Ground	

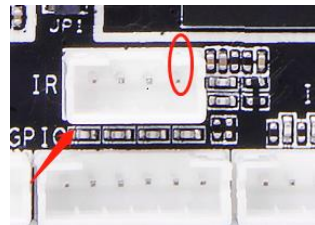


GPIO(J20)

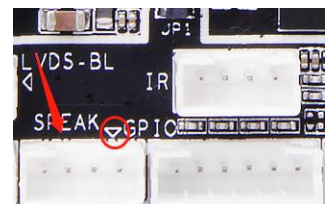
No.	Function	Property	Description
1	VCC	Power	Output 5V/3.3V
2	GPIO1	Input/Output	
3	GPIO2	Input/Output	
4	GPIO3	Input/Output	
5	GPIO4	Input/Output	
6	GND	Ground	

**IR RX(2J7)**

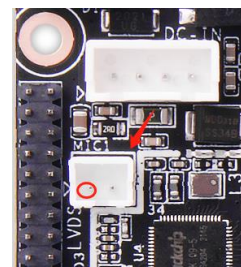
No.	Function	Property	Description
1	VCC	Power	Output 3.3V
2	IR-IN	Input	IR Receive
3	RST	Input/Output	Reset signal
4	GND	Ground	

**SPEAKER(JSPK1)**

No.	Function	Property	Description
1	AL+	Output	Audio left channel+
2	AL-	Output	Audio left channel-
3	AR-	Output	Audio right channel-
4	AR+	Output	Audio right channel+

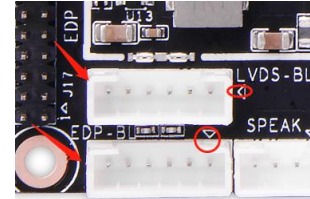
**MIC(MIC1)**

No.	Function	Property	Description
1	MIC_IN	Input	Microphone input
2	GND	Ground	

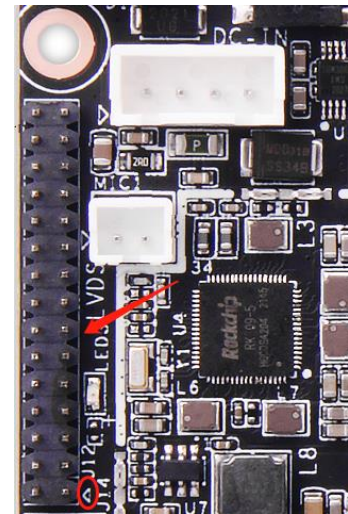


BACKLIGHT(J18/J19)

No.	Function	Property	Description
1	VCC	Power	Output 12V
2	VCC	Power	Output 12V
3	EN	Output	Back light Control ON/OFF
4	ADJ	Output	Back light adjust brightness
5	GND	Ground	
6	GND	Ground	

**LVDS(J12)**

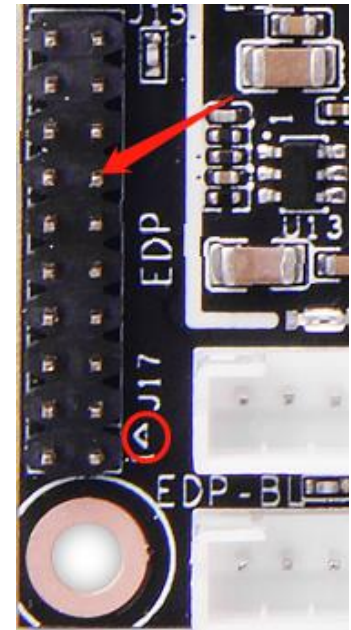
No.	Function	Property	Description
1	VDD	POWER	Output 12V/5V/3.3V
2	VDD		
3	VDD		
4	GND	Ground	
5	GND		
6	GND		
7	LVDS0_DN0	Output	Channel 0 D0 data signal
8	LVDS0_DP0	Output	
9	LVDS0_DN1	Output	Channel 0 D1 data signal
10	LVDS0_DP1	Output	
11	LVDS0_DN2	Output	Channel 0 D2 data signal
12	LVDS0_DP2	Output	
13	GND	Ground	
14	GND	Ground	
15	LVDS0_CLKN	Output	Channel 0 Clock data signal
16	LVDS0_CLKP	Output	
17	LVDS0_DN3	Output	Channel 0 D3 data signal
18	LVDS0_DP3	Output	
19	LVDS1_DN0	Output	Channel 1 D0 data signal
20	LVDS1_DP0	Output	
21	LVDS1_DN1	Output	Channel 1 D1 data signal
22	LVDS1_DP1	Output	
23	LVDS1_DN2	Output	Channel 1 D2 data signal
24	LVDS1_DP2	Output	
25	GND	Ground	
26	GND	Ground	



27	LVDS1_CLKN	Output	Channel 1 Clock data signal
28	LVDS1_CLKP	Output	
29	LVDS1_DN3	Output	Channel 1 D3 data signal
30	LVDS1_DP3	Output	

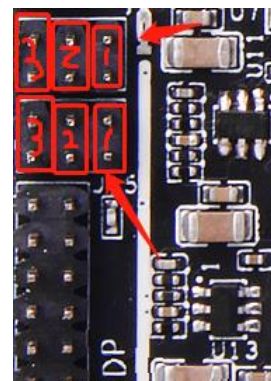
eDP(J17)

No.	Function	Property	Description
1	VDD	POWER	Output 12V/5V/3.3V
2	VDD		
3	GND	Ground	
4	GND		
5	D0-	Output	Lane0 data signal
6	D0+	Output	
7	D1-	Output	Lane1 data signal
8	D1+	Output	
9	D2-	Output	Lane2 data signal
10	D2+	Output	
11	D3-	Output	Lane3 data signal
12	D3+	Output	
13	GND	Ground	
14	GND	Ground	
15	AUX-	Output	AUX Channel signal
16	AUX+	Output	
17	GND	Ground	
18	GND	Ground	
19	HPD	Output	Hotplug
20	VCC	POWER	Output 3.3V



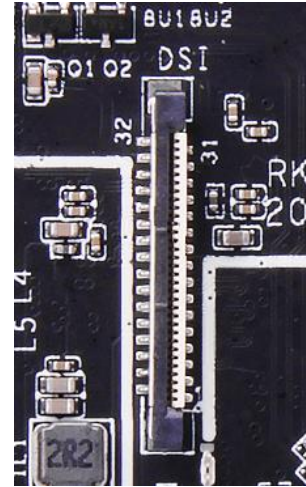
PANEL POWER()

No.	Function	Property	Description
1	VCC1	POWER	Output 3.3V
2	VCC2	POWER	Output 5V
3	VCC3	POWER	Output 12V

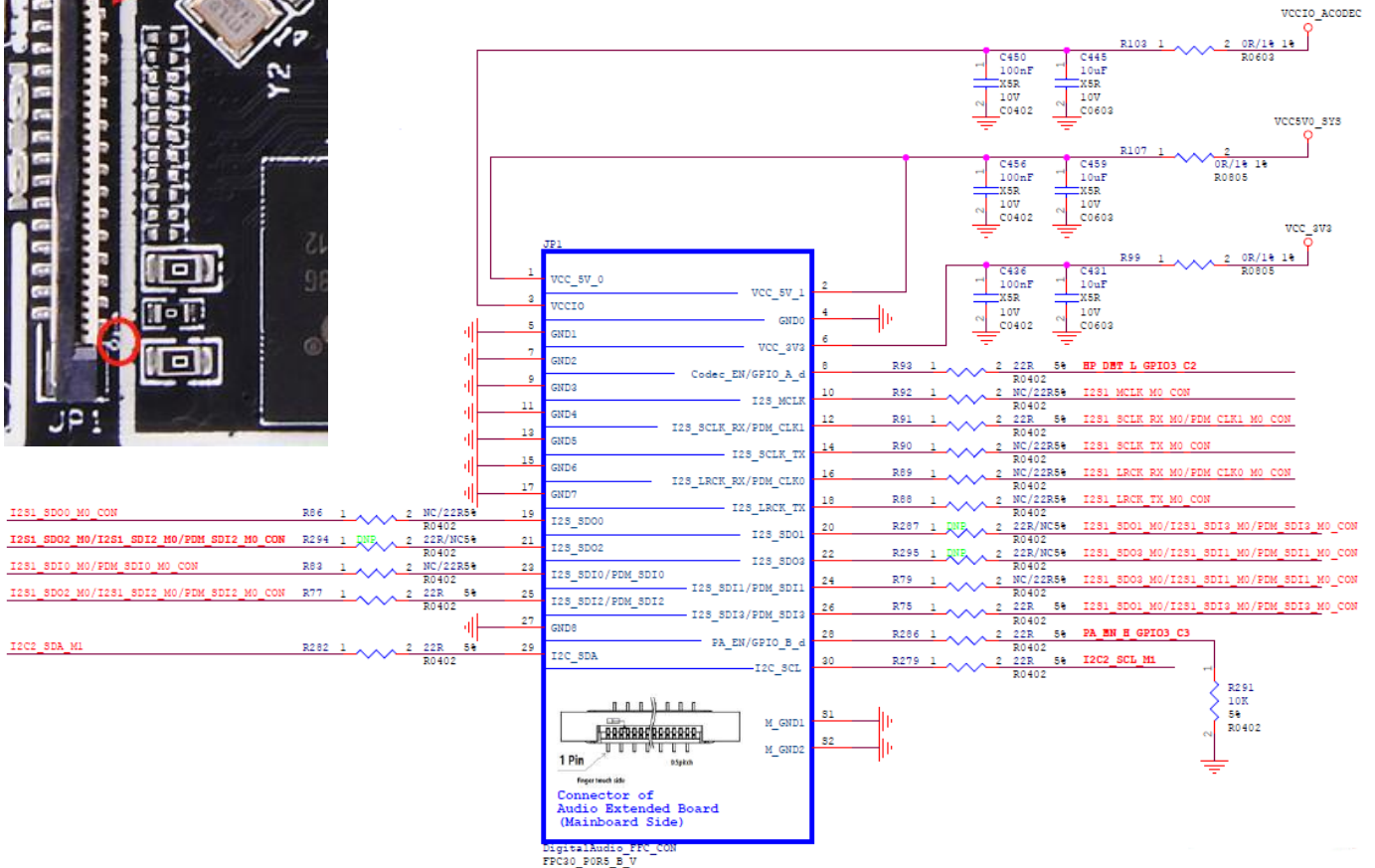


MIPI DSI(J10)

No.	Function	Property	Description
1	VDD+	POWER	Output +5V
2	VDD+	POWER	
3	VDD+	POWER	
4	NC		
5	VDD-	POWER	Output -5V
6	VDD-	POWER	
7	VDD-	POWER	
8	VDD-	POWER	
9	GND	Ground	
10	GND	Ground	
11	DP2	Output	MIPI Lane 2 Signal
12	DN2	Output	
13	GND	Ground	
14	DP1	Output	MIPI Lane 1 Signal
15	DN1	Output	
16	GND	Ground	
17	CLKP	Output	MIPI Clock Signal
18	CLKN	Output	
19	GND	Ground	
20	DPO	Output	MIPI Lane 0 Signal
21	DNO	Output	
22	GND	Ground	
23	DP3	Output	MIPI Lane 3 Signal
24	DN3	Output	
25	GND	Ground	
26	ID	Output	
27	RST	Output	Reset
28	NC		
29	VCC1	POWER	Output 1.8V
30	VCC2	POWER	Output 3.3V
31	VCC2	POWER	
32	NC		



A close-up photograph of a circuit board. On the left, a vertical connector is labeled 'PDM'. To its right, a red arrow points to a small component on the board. Below the arrow, a red circle highlights a component labeled '60'. The board also features other components, including a large square chip labeled 'Y2' and several smaller rectangular components.



4.3 System Block Diagram

