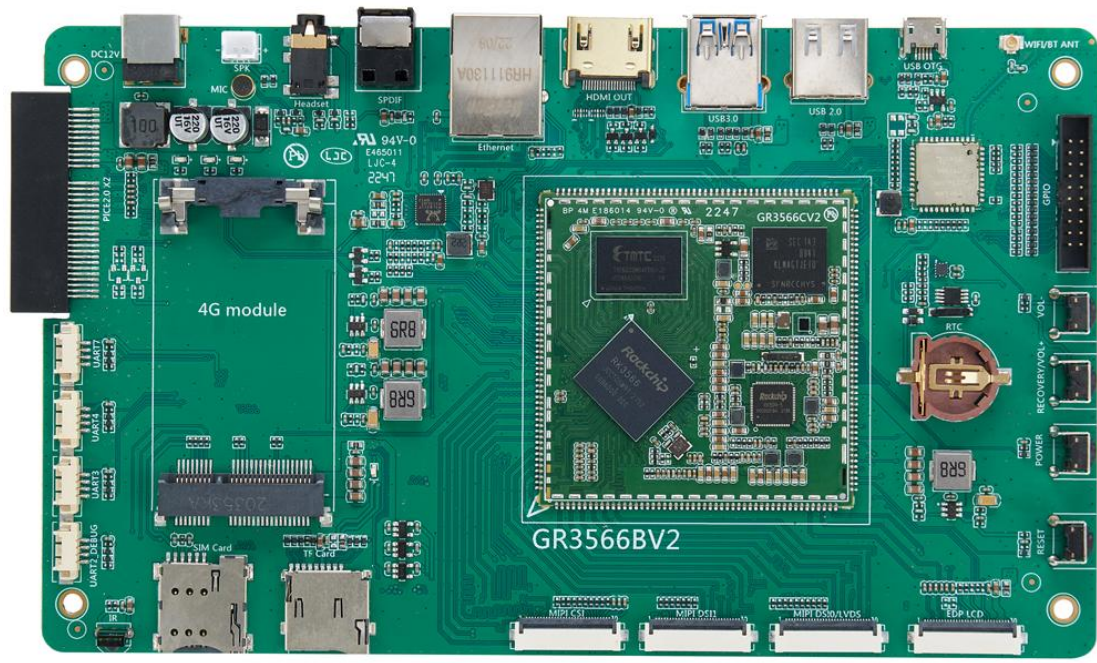


# G3566Development Board Hardware Manual



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## New Version

Hardware Version	Updating Date	Author	Description
v1.0	2022-8-28	RXS	Revision

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# Catalogue

New Version .....	2
Introduction .....	4
Hardware Parameters .....	5
G3566 Development Board Size .....	7
Interfaces Details .....	8
Interface Definition .....	10
Company Introduction .....	16

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## Introduction

### G3566 Stamp Hole Development Board

G3566 stamp hole development board take Rockchip Rk3566 quad core CPU, integrated dual core architecture GPU and high-performance NPU, and it support max 8GB RAM, PCIe2.1 interface, WIFI, 4G module, gigabit Ethernet, 4K HDMI display, and many expansion interfaces, which could be used in industry, MEC, and face identification and so on.



#### Quad-Core 64bits Cortex-A55

##### RK3566

Main Frequency 1.8GHz

22nm



#### Max 8GB DDR

Meet Large Memory Requirement

128GB EMMC



#### Built-in GPU、VPU、NPU

Mali-G52 2EE GPU

VPU 4K 60fps H.265/VP9 Video  
Decoding

1TOPS NPU



#### Multiple Display Input and Output

MIPI-CSI、MIPI-DSI、EDP、HDMI2.0

HDMI 4K Output

Built-in 8M ISP



#### PCIe2.1

Extensible SSD/HDD

Other PCIe Interface Peripherals



#### Many Expansion Interfaces

UART、I2C、ADC、PWM、GPIO、  
USB2.0、USB3.0、HDMI、EDP、  
MIPI CSI、MIPI DSI、I2S and so on



#### Multiple Operating System

Android、Ubuntu、Debian、  
Buildroot+QT OS



#### Develop Efficiency

Provide technology supports and sch  
design reference ,

## Hardware Parameters

### Basic Parameters

<b>SOC</b>	RockChip RK3566
<b>CPU</b>	Quad-core 64 bits Cortex-A55 CPU, 22nm, main frequency up to 1.8GHz
<b>GPU</b>	ARM G52 2EE GPU, support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, integrate high-performance 2D hardware engine
<b>NPU</b>	Integrate RKNN NPU AI acceleration engine, 1Tops processing performance Support deep learning frameworks : Caffe/TensorFlow/TF-Lite/ONNX/MXNet/PyTorch/Keras/Darknet
<b>CODEC</b>	4K 60fps H.265/H.264/VP9 video decoder 1080P 100fps H.265, 60fps H.264 video encoder
<b>DDR</b>	2GB/4GB/8GB LPDDR4/LPDDR4X
<b>EMMC</b>	8GB/16GB/32GB/64GB/128GB eMMC

### Hardware Parameters

<b>Power</b>	DC 12V
<b>Ethernet</b>	Built-in GMAC Ethernet controller, support 1000Mbps (RJ45)
<b>WIFI</b>	Expandable SDIO WiFi+bluetooth two-in-one module : - support 2.4GHz / 5GHz dual frequency WiFi, 802.11a/b/g/n/ac - support Bluetooth5.0 - support expandable 4G LTE/3G WIFI
<b>Display</b>	1 x HDMI2.0, max 4K@60Hz 2 x MIPI DSI, single channel support 1920x1080@60fps, dual channels support 2560x1440@60fps 1 x EDP1.3, max 2560x1600@60fps

<b>Camera</b>	1 x MIPI-CSI (Single channel 4 LAN or dual channels 2 LAN )
<b>Audio</b>	1 x HDMI audio output 1 x Phone earphone output (No MIC recording) 1 x Mic MIC audio input 1 x Speaker output 1 x SPDIF audio output
<b>USB</b>	1 x USB2.0、 1 x USB3.0、 1 x OTG
<b>PCIE</b>	1 x PCIE 2.1 (2Lane PCIE 2.1 support 2242 / 2280 NVMe SSD)
<b>TF Card</b>	1 x TF card slot, max 128GB TF card
<b>Others</b>	4 x UART 1 x Debug UART 1 x ADC 5 x PWM 1 x I2C 1 x IR 1 x RTC 1 x SIM card slot

### System Software

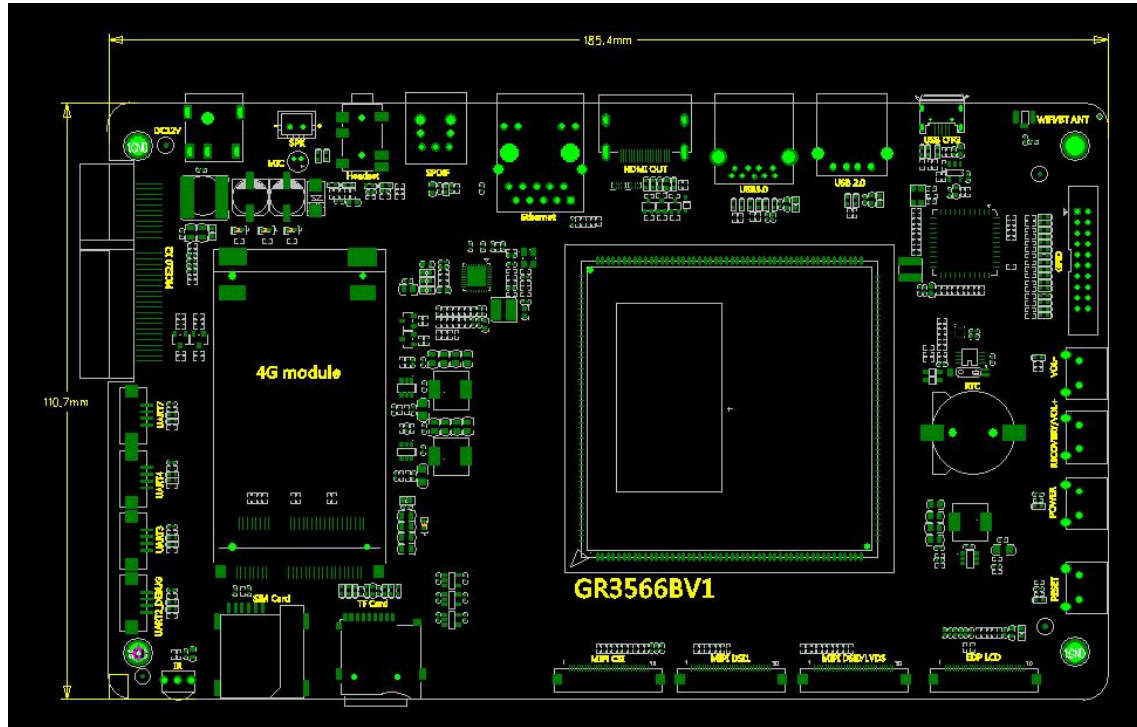
<b>System</b>	Support Android12、 Ubuntu、 Buildroot+QT、 Debian OS
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### Other Parameters

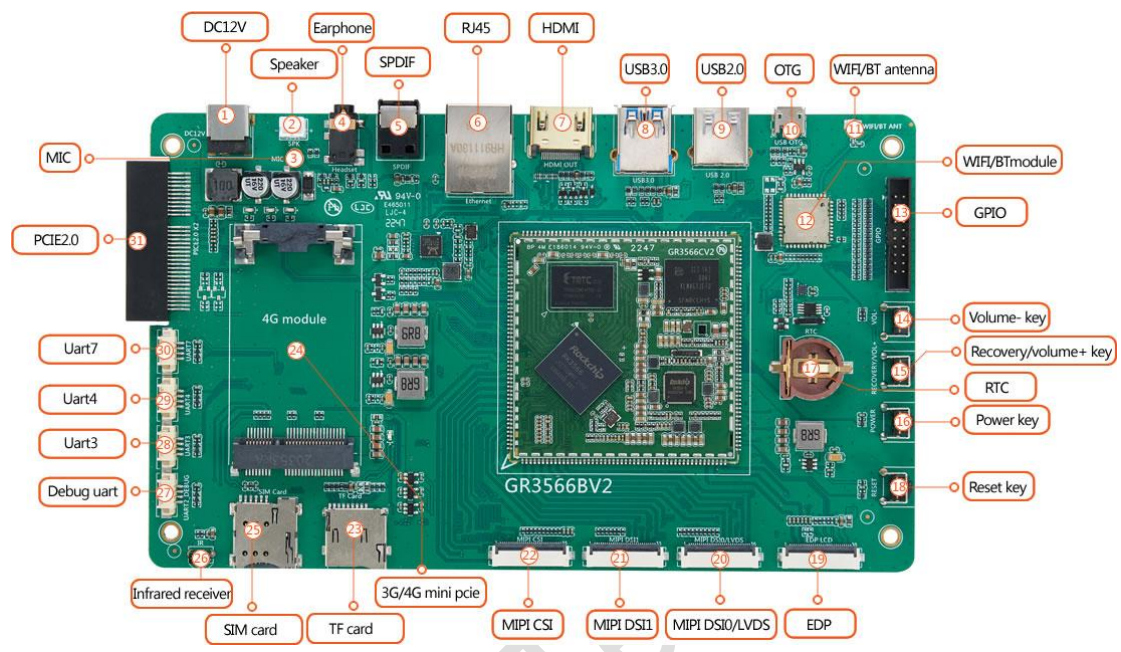
<b>Size</b>	185mm x 110mm
<b>Environment</b>	Working Temperature: -20℃- 80℃ Storage Temperature: -30℃- 80℃ Storage Humidity: 10%~80 %



## G3566 Development Board Size



# Interfaces Details



Carrier Board Hardware Introduction		
No.	Name	Station
【1】	DC-12V	DC12V power supply
【2】	Speaker	Speaker interface
【3】	Mic	Audio MIC
【4】	Earphone	Earphone audio output
【5】	SPDIF	SPDIF audio output
【6】	RJ45	RJ45 gigabit Ethernet
【7】	HDMI	HDMI TYPE-A output
【8】	USB3.0	USB3.0 HOST
【9】	USB2.0	USB2.0 HOST
【10】	OTG	USB2.0 OTG
【11】	WIFI/BT antenna	WIFI, BT antenna interface
【12】	WIFI/BT module	WIFI, BT module
【13】	GPIO expansion	GPIO

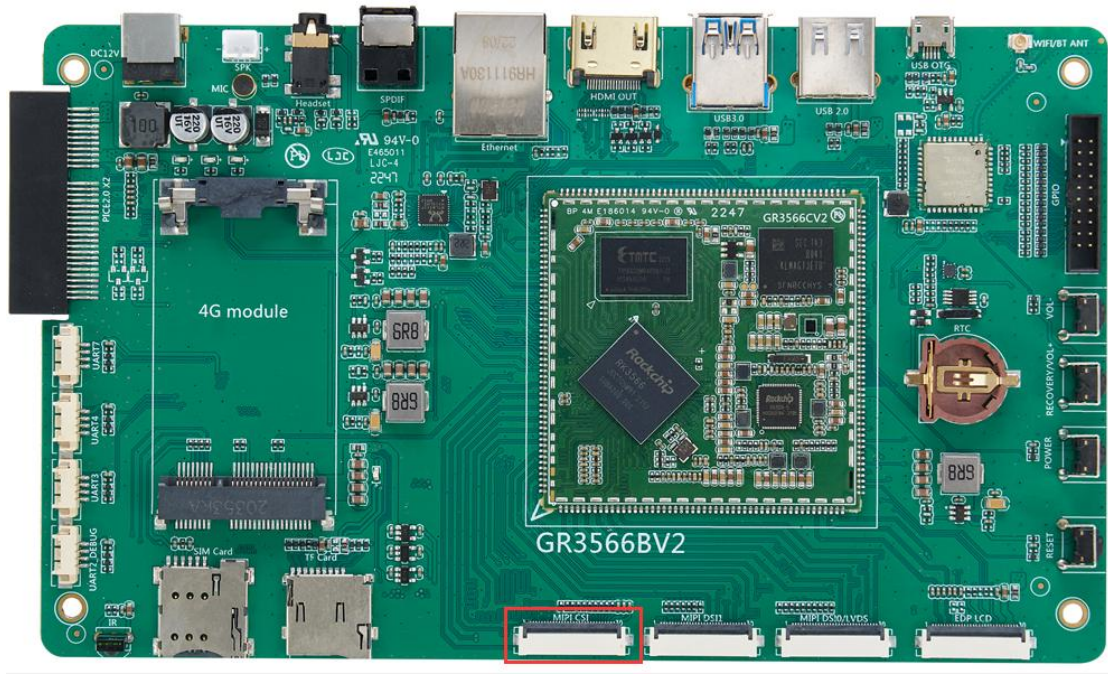


<b>【14】</b>	Volume- key	Volume -
<b>【15】</b>	Recovery/volume+ key	Recovery/volume+ key
<b>【16】</b>	Power key	Power key
<b>【17】</b>	RTC	RTC Battery slot
<b>【18】</b>	Reset key	Reset key
<b>【19】</b>	EDP	EDP display interface
<b>【20】</b>	MIPI DSI0/LVDS	MIPI DSI0/LVDS display interface
<b>【21】</b>	MIPI DSI1	MIPI DSI1 display interface
<b>【22】</b>	MIPI CSI	MIPI cam interface
<b>【23】</b>	TF card	TF card slot
<b>【24】</b>	3G/4G mini pcie	4G module connecting socket
<b>【25】</b>	SIM card	SIM card slot
<b>【26】</b>	Infrared receiver	Infrared receiver connector
<b>【27】</b>	Debug uart	Debug Uart
<b>【28】</b>	Uart3	Uart3
<b>【29】</b>	Uart4	Uart4
<b>【30】</b>	Uart7	Uart7
<b>【31】</b>	PCIE2.0	PCIE2.0

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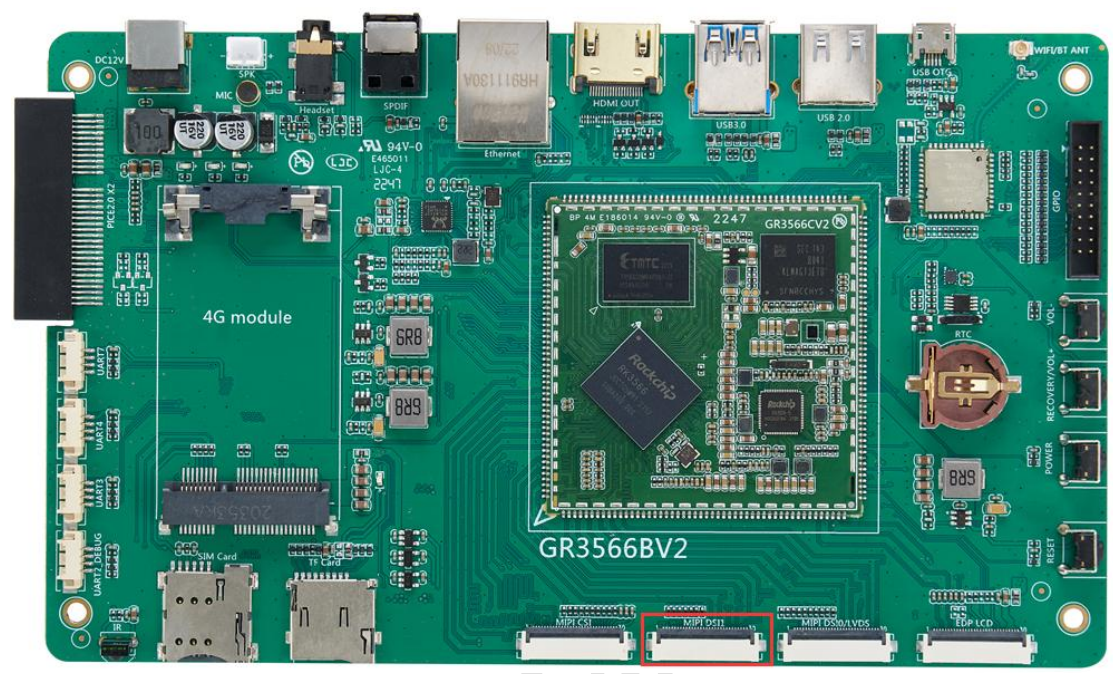
# Interface Definition

## 1、MIPI CSI Interface, 30 PIN 0.5mm Pitch



No.	Definition	Voltage	No.	Definition	Voltage
1	GND		16	GND	
2	MIPI_CSI_RX_CLKOP	1.8V	17	MIPI_CSI_RX_CLK1P	1.8V
3	MIPI_CSI_RX_CLKON	1.8V	18	MIPI_CSI_RX_CLK1N	1.8V
4	GND		19	GND	
5	MIPI_CSI_RX_D0P	1.8V	20	I2C2_SCL (Pulled up 2K resistance)	1.8V
6	MIPI_CSI_RX_D0N	1.8V	21	I2C2_SDA (Pulled up 2K resistance)	1.8V
7	GND		22	CIF_CLKOUT	1.8V
8	MIPI_CSI_RX_D1P	1.8V	23	REFCLK_OUT_CAM	3.3V
9	MIPI_CSI_RX_D1N	1.8V	24	GPIO3_D0	1.8V
10	GND		25	GPIO3_D1	1.8V
11	MIPI_CSI_RX_D2P	1.8V	26	GPIO3_C6	1.8V
12	MIPI_CSI_RX_D2N	1.8V	27	GPIO3_C7	1.8V
13	GND		28	MIPI_1V8	1.8V
14	MIPI_CSI_RX_D3P	1.8V	29	MIPI_2V8	2.8V
15	MIPI_CSI_RX_D3N	1.8V	30	MIPI_1V2	1.2V

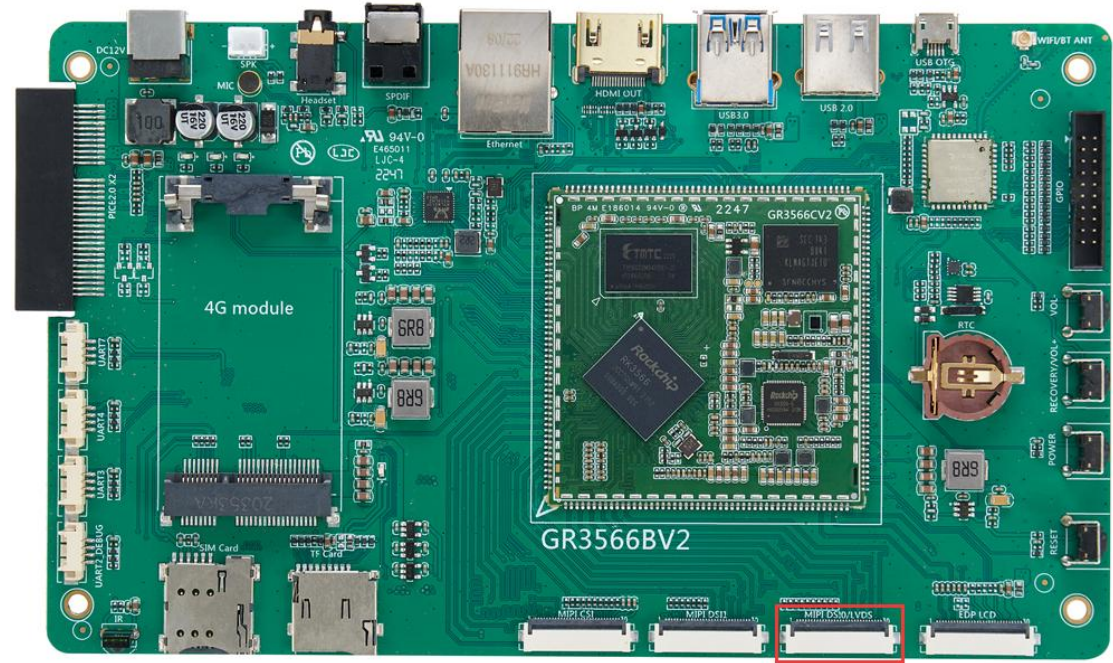
2、MIPI DSI1 Interface, 30PIN 0.5mm Pitch



No.	Definition	Voltage	No.	Definition	Voltage
1	VCC5V0_SYS	5V	16	GND	
2	VCC5V0_SYS	5V	17	MIPI_DSI_TX1_D3N	1.8V
3	VCC5V0_SYS	5V	18	MIPI_DSI_TX1_D3P	1.8V
4	VCC3.3V_S	3.3V	19	GND	
5	VCC3.3V_S	3.3V	20	MIPI_DSI_TX1_D2N	1.8V
6	I2C5_SCL (Pulled up 2K resistance)	3.3V	21	MIPI_DSI_TX1_D2P	1.8V
7	I2C5_SDA(Pulled up 2K resistance)	3.3V	22	GND	
8	GPIO3_B0	3.3V	23	MIPI_DSI_TX1_CLKN	1.8V
9	GPIO3_A7	3.3V	24	MIPI_DSI_TX1_CLKP	1.8V
10	VCC3.3V_S	3.3V	25	GND	
11	VCC3.3V_S	3.3V	26	MIPI_DSI_TX1_D1N	1.8V
12	LCD_PWM2	3.3V	27	MIPI_DSI_TX1_D1P	1.8V
13	GPIO3_C1	3.3V	28	GND	
14	NC		29	MIPI_DSI_TX1_D0N	1.8V
15	GPIO3_A4	3.3V	30	MIPI_DSI_TX1_D0P	1.8V



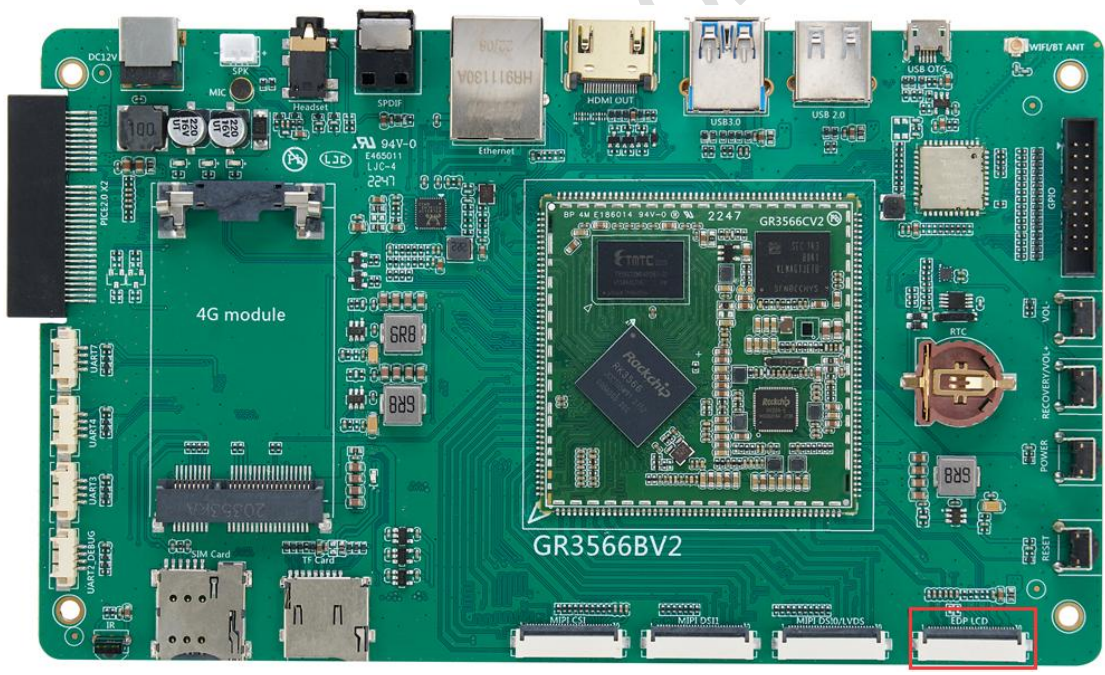
### 3、MIPI DSI0/LVDS Interface, 30PIN Pitch



No.	Definition	Voltage	No.	Definition	Voltage
1	VCC5V0_SYS	5V	16	GND	
2	VCC5V0_SYS	5V	17	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	1.8V
3	VCC5V0_SYS	5V	18	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	1.8V
4	VCC3.3V_S	3.3V	19	GND	
5	VCC3.3V_S	3.3V	20	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	1.8V
6	I2C1_SCL_TP (Pulled up 2K resistance)	3.3V	21	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	1.8V
7	I2C1_SDA_TP (Pulled up 2K resistance)	3.3V	22	GND	
8	GPIO0_B5 (Pulled up 10K resistance)resi	3.3V	23	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	1.8V

	stance				
9	GPIO3_A3	3.3V	24	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	1.8V
10	VCC3.3V_S	3.3V	25	GND	
11	VCC3.3V_S	3.3V	26	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	1.8V
12	LCD_PWM4	3.3V	27	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	1.8V
13	GPIO3_B5	3.3V	28	GND	
14	NC		29	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	1.8V
15	GPIO4_C2	3.3V	30	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	1.8V

4、EDPLCD Interface, 30PIN 0.5MM Pitch

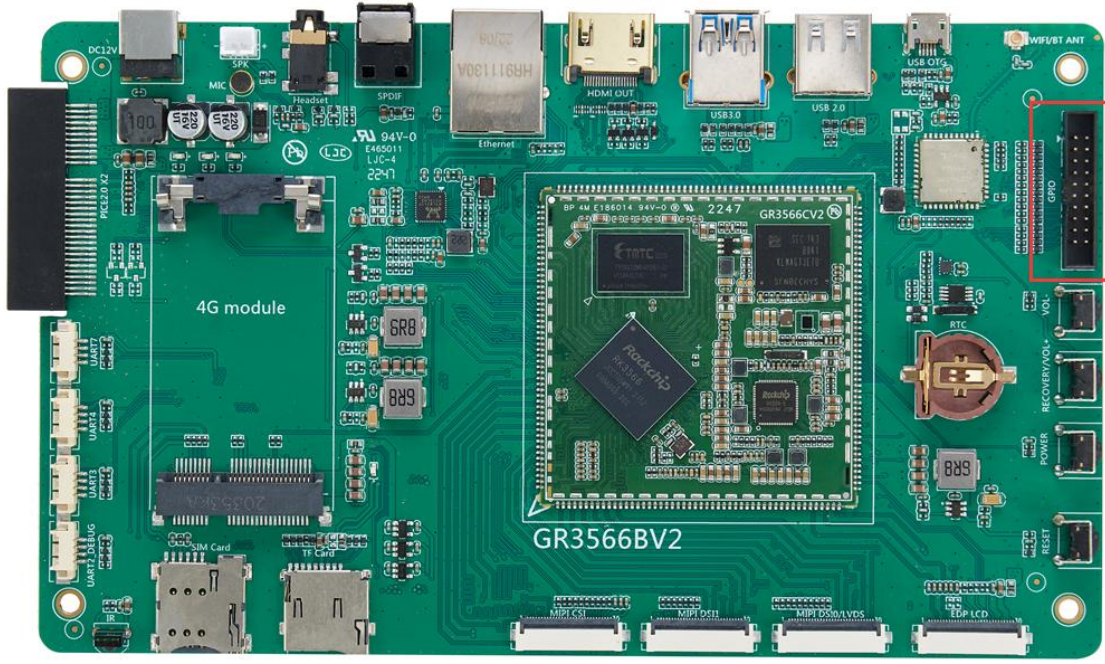


NO.	Definition	Voltage	No.	Definition	Voltage
1	NC		16	GND	
2	GND		17	VCC3.3V_S	3.3V
3	EDP_TX_D1N	1.8V	18	GND	
4	EDP_TX_D1P	1.8V	19	GND	
5	GND		20	GND	
6	EDP_TX_D0N	1.8V	21	GND	



7	EDP_TX_D0P	1.8V	22	GPIO_C4	3.3V
8	GND		23	GPIO0_C7_PWM0_M1	3.3V
9	EDP_TX_AUXP	1.8V	24	NC	
10	EDP_TX_AUXN	1.8V	25	NC	
11	GND		26	VCC12V	12V
12	VCC3.3V_S	3.3V	27	VCC12V	12V
13	VCC3.3V_S	3.3V	28	VCC12V	12V
14	NC		29	VCC12V	12V
15	GND	3.3V	30	NC	

5、GPIO Expansion Interface, 20 PIN 2.0mm Pitch



NO.	Definition	Voltage	No.	Definition	Voltage
1	VCC3.3V_S	3.3V	11	GPIO3_D5	1.8V
2	VCC5V0_SYS	5V	12	GPIO0_A6	3.3V
3	GND		13	GPIO0_C5	3.3V
4	GND		14	GPIO3_A5	3.3V
5	GPIO3_D2	1.8V	15	GPIO0_C6	3.3V
6	GPIO4_C5	3.3V	16	GPIO3_A6	3.3V
7	GPIO3_D3	1.8V	17	GPIO2_C6	1.8V



8	GPIO4_C6	3.3V	18	ADC1	1.8V
9	GPIO3_D4	1.8V	19	I2C3_SDA_GPIO1_A0	3.3V
10	GPIO3_B6	3.3V	20	I2C3_SCL_GPIO1_A1	3.3V

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## Company Introduction

Graperaim is a solution company dedicated to ARM platform development. 80% of our employees are senior engineers with bachelor degree or above, who have been engaged in embedded technology development for many years. Based on the 64-bit ARM processor, which is widely used in the embedded industry, we have streamlined the circuit design and strictly controlled the hardware cost, combined with the popular Linux, Ubuntu, Android and other operating systems. Graperaim launched a series of solutions to provide system on modules + hardware customization + software development + OEM/ODM services to provide quality support services for manufacturers and R&D institutions.

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