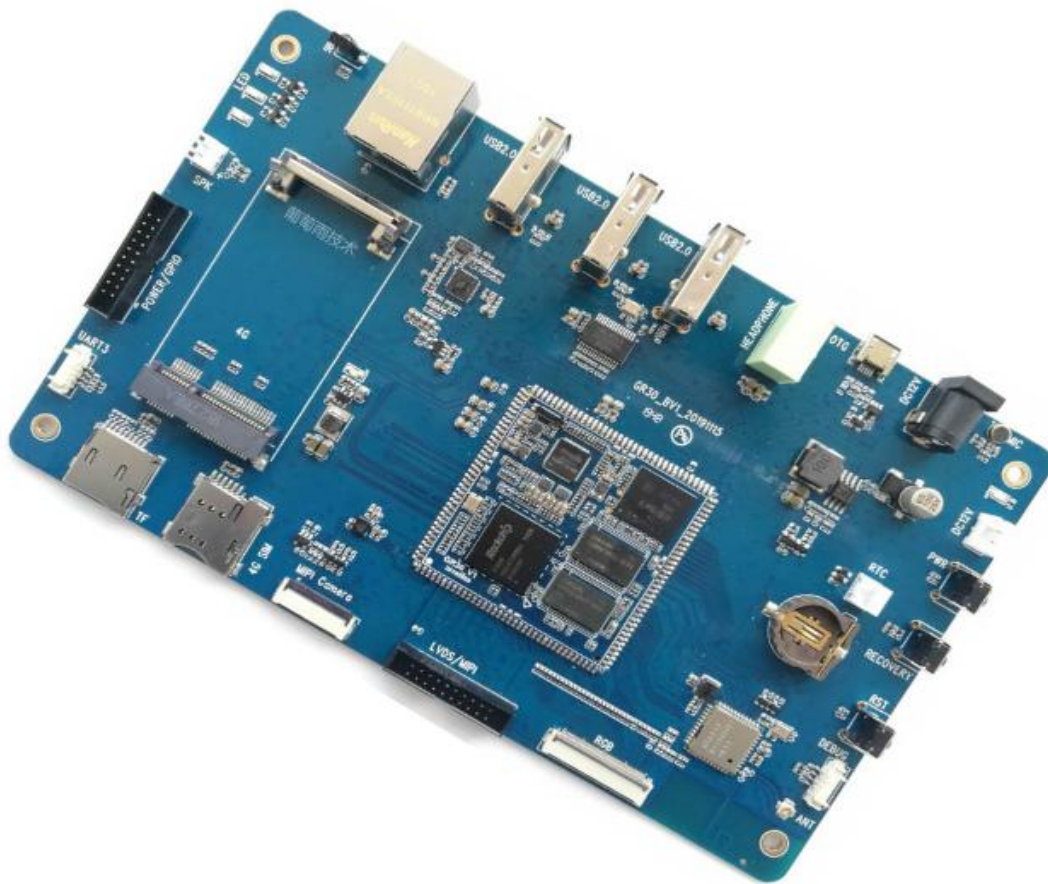


## GR30 Development Board Brief Introduction



Shenzhen Graperain Technology Co., Ltd.  
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**Release Notes**

Version	Release Date	Author	Description
Rev.01	2019-11-30	David	Revision

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## Chapter 1 GR30 Development Board Brief Introduction

### 1.1 Brief Introduction

GR30 development board is based on Rockchip PX30(64bit quad core A35) platform, which is designed by Shenzhen Graperain Technology Co., Ltd..

GR30 development board consists of GR30 stamp hole SOM and carrier board.

GR30 system on module is based on Rockchip PX30 64 bit quad-core A35 processor. The frequency is up to 1.3GHz. Integrated with ARM Mali-G31 graphics processor, supports OpenGL ES3.2, Vulkan 1.0, OpenCL2.0, 1080p 60fps, H.264 and H.265 video decoding. It is designed with 1GB/2GB DDR, 8GB/16GB/32GB eMMC,

GR30 carrier board Interfaces: 4G LTE, OTG, USB2.0, 100M Ethernet, WIFI, bluetooth, audio/video input/output , G-Sensor, RGB, LVDS, MIPI, MIPI camera, TF card slot, extended GPIO.

It supports Android, Linux and Debian. Source code are open.

Applications: high-definition display with advertising machine, vending machines, teaching terminals, automatic identification, robotics, security monitoring, financial POS, vehicle control terminals, VR, etc.. With the development board to test, it will accelerate product develop time.

#### **GR30 development board features**

- Size: 186.5mm\*115.6mm, can be used in final product.
- Powerful functions, rich interfaces, wide applications.
- Supports Android8.1, Linux, Debian. Source code open, accelerate develop time.
- Stable and reliable board.

### 1.2 Specifications

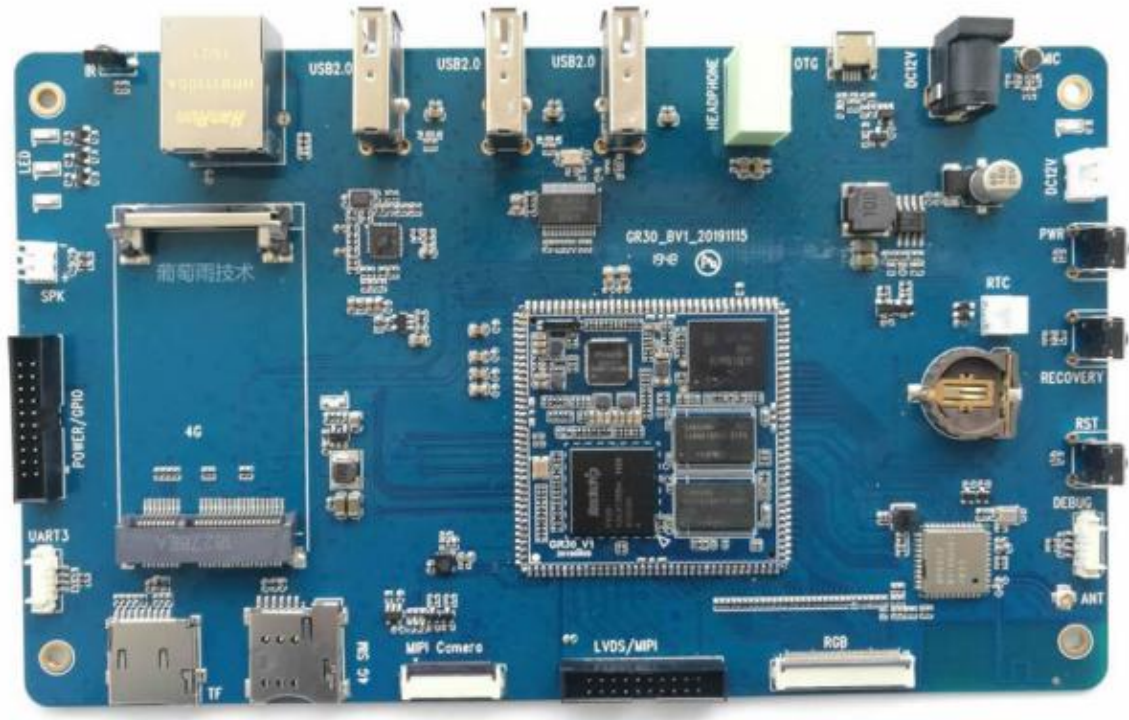
Parameters	
Appearance	Stamp hole SOM + carrier board
Size	186.5mm*115.6mm
Layer	SOM 8-layer/carrier board 4-layer

Interfaces parameters	
Display	RGB, LVDS, MIPI
Touch	Capacitive touch, can use USB or UART to extend resistive touch
Audio	AC97/IIS, support record and play
SD	1 channel SDIO
eMMC	On board eMMC
Ethernet	100M
USB HOST	3 channel HOST2.0
USB OTG	1 channel OTG2.0
UART	2 channel uart, support flow control uart
PWM	2 channel PWM output
IIC	4 channel IIC output
SPI	1 channel SPI output
ADC	2 channel ADC
Camera	1 channel MIPI CSI
MIPI	1 channel MIPI TX (LVDS multiplexing)
LVDS	1 channel lvds (MIPI TX multiplexing)

Electrical characteristics	
Input Voltage	12V/2A
Output Voltage	12V/5V/3.3V
Storage temperature	-30~80 degree
Working temperature	-20~70 degree



### 1.3 Development Board Appearance



Dev board front side

### 1.4 SOM Appearance

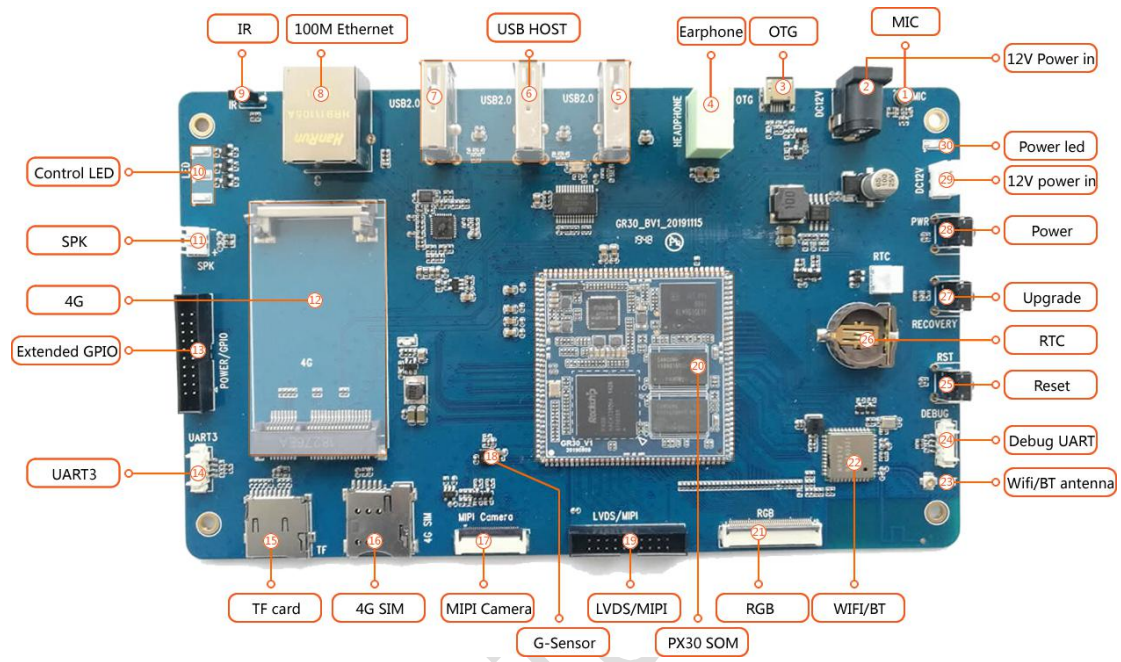


Please refer to *GR30 Stamp Hole System on Module Introduction.pdf*.



## Chapter 2 Development Board Hardware Manual

### 2.1 Hardware Interfaces Description



Interfaces details		
Number	Name	Description
【1】	MIC	Audio input
【2】	12V Power in	12V Power in
【3】	OTG	OTG Micro USB
【4】	Earphone	Audio earphone output
【5】	USB host	USB2.0 host
【6】	USB host	USB2.0 host
【7】	USB host	USB2.0 host
【8】	100M Ethernet	RJ45
【9】	IR	IR receive
【10】	Control LED	Gpio control led on/off
【11】	SPK	speaker output
【12】	4G	PCIE 4G module
【13】	Extended GPIO	POWER/GPIO expansion
【14】	UART3	Uart3, ttl level
【15】	TF card	TF card slot
【16】	4G SIM	4G sim card slot

<b>【17】</b>	MIPI Camera	MIPI Camera
<b>【18】</b>	G-Sensor	G-Sensor
<b>【19】</b>	LVDS/MIPI	LVDS/MIPI lcd
<b>【20】</b>	PX30 SOM	PX30 SOM GR30
<b>【21】</b>	RGB	RGB
<b>【22】</b>	WIFI/BT	WIFI/BT module AP6212
<b>【23】</b>	Wifi/BT antenna	Wifi/BT antenna, including onboard and socket
<b>【24】</b>	Debug UART	Debug UART
<b>【25】</b>	Reset	Reset
<b>【26】</b>	RTC	RTC
<b>【27】</b>	Upgrade	upgrade
<b>【28】</b>	Power	Power
<b>【29】</b>	12V power in	12V power in, 2pin connector
<b>【30】</b>	Power led	Power led

## 2.2 System on Module Pin Definitions

Pin Definitions			
Pin No.	Signal	Pin No.	Signal
1	I2C1 SDA	19	LCDC VSYNC
2	TP RST	20	LCDC DEN
3	IR IN	21	LCDC D0
4	SENSOR INT	22	LCDC D1
5	PWM1	23	LCDC D2
6	VCC3V3 LCD	24	LCDC D3
7	LVDS TX0N	25	LCDC D4
8	LVDS TX0P	26	LCDC D5
9	LVDS TX1N	27	LCDC D6
10	LVDS TX1P	28	LCDC D7
11	LVDS CLKN	29	LCDC D8
12	LVDS CLKP	30	LCDC D9
13	LVDS TX2N	31	LCDC D10
14	LVDS TX2P	32	LCDC D11
15	LVDS TX3N	33	LCDC D12
16	LVDS TX3P	34	LCDC D13
17	LCDC CLK	35	LCDC D14
18	LCDC HSYNC	36	LCDC D15

Pin Definitions			
Pin No.	Signal	Pin No.	Signal
37	LCDC D16	55	SDIO CLK
38	LCDC D17	56	SDIO CMD
39	LCDC D18	57	SDIO D3
40	LCDC D19	58	SDIO D2
41	LCDC D20	59	BT WAKE HOST
42	LCDC D21	60	WIFI WAKE HOST
43	LCDC D22	61	HOST WAKE BT
44	LCDC D23	62	BT REG ON
45	GPIO0 B5	63	WIFI REG ON
46	GPIO2 B4	64	I2C0 SCL PMIC
47	GPIO A4	65	I2C0 SDA PMIC
48	UART1 CTS	66	PDM CLK0
49	UART1 RXD	67	I2S1 SDI
50	UART1TXD	68	I2S1 SCLK
51	UART1 RTS	69	I2S1 MCLK
52	CLKOUT 32K	70	I2S1 SDO
53	SDIO D1	71	I2S1 LRCK
54	SDIO D0	72	GND

Pin Definitions			
Pin No.	Signal	Pin No.	Signal
73	MIC1_IN	91	CIF_PDNO
74	MIC2_IN	92	I2C2 SDA
75	SPKP_OUT	93	I2C2 SCL
76	SPKN_OUT	94	MIPI CLKO
77	HPL	95	VCC2V8 DVP
78	HP SNS	96	VCC1V8 DVP
79	HPR	97	MAC MDC
80	GND	98	RMII RST
81	MIPI CSI D3N	99	RMII CLK
82	MIPI CSI D3P	100	RMII MDIO
83	MIPI CSI D2N	101	RMII RXDV
84	MIPI CSI D2P	102	RMII RXER
85	MIPI CSI CLKN	103	RMII RXD1
86	MIPI CSI CLKP	104	RMII TXD1
87	MIPI CSI D1P	105	RMII RXD0
88	MIPI CSI D1N	106	RMII TXD0
89	MIPI CSI D0P	107	RMII TXEN
90	MIPI CSI D0N	108	RMII GND

Pin Definitions			
Pin No.	Signal	Pin No.	Signal
109	GND	127	VCC SD
110	GND	128	SDMMC0 CMD
111	VCC5V0 SYS	129	SDMMC0 CLK
112	VCC5V0 SYS	130	SDMMC0 D0
113	EXT EN	131	SDMMC0 D1
114	VCC5V0 HOST	132	SDMMC0 DET
115	VCC RTC	133	FLASH CS0
116	VCC3V3 SYS	134	FLASH CLE
117	VCC3V0 PMU	135	FLASH WRN
118	VCC 1V8	136	FLASH CS1
119	OTG DP	137	FLASH RDN
120	OTG DM	138	RESET KEY
121	USB ID	139	POWER KEY
122	USB DET	140	ADC2
123	USB HOST DM	141	ADC1
124	USB HOST DP	142	ADC0
125	SDMMC0 D2	143	TP INT
126	SDMMC0 D3	144	I2C1 SCL

Note: more details of GR30 SOM, please refer to *GR30 System on Module Introduction.pdf*.

## Chapter 3 Hardware Design

### 3.1 Design Reference

If use GR30 platform for product design and development, related to power supply, USB, MIPI, LVDS, audio, network (Ethernet, WIFI, Bluetooth), camera etc., can refer to our carrier board design. The circuit and layout of those parts are open to customers.

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## Chapter 4 Product Portfolio

### 4.1 System on Module Series

G4418 SOM( Samsung S5P4418)  
G6818 SOM( Samsung S5P6818)  
G3288 SOM(Rockchip RK3288, stamp hole)  
G3399 SOM(Rockchip RK3399, stamp hole)  
GR30 SOM(Rockchip PX30, stamp hole)  
GR3288 SOM (Rockchip RK3288 Immersion Gold MXM)  
GR3128 SOM(Rockchip RK3128 Immersion Gold MXM)  
GR3399 SOM(Rockchip RK3399 Immersion Gold MXM)

### 4.2 Development Board Series

G4418 development board ( Samsung S5P4418 )  
G6818 development board ( Samsung S5P6818 )  
G3288 development board ( Rockchip RK3288 stamp hole)  
G3399 development board ( Rockchip RK3399 stamp hole)  
GR30 development board ( Rockchip PX30 stamp hole)  
GR3288 development board ( Rockchip RK3288 Immersion Gold MXM )  
GR3399 development board ( Rockchip RK3399 Immersion Gold MXM)

### 4.3 Single Board Computer (SBC) Series

G4418 single board computer ( Samsung S5P4418 )  
G6818 single board computer ( Samsung S5P6818 )  
G3128 single board computer ( Rockchip RK3128 )  
G3288 single board computer ( Rockchip RK3288 )  
G3399 single board computer ( Rockchip RK3399 )

Instructions: More information and other products, please pay attention to website or contact us directly.

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