Main Board Datasheet

Quad-Core RK3288

Model：R303G

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Chapter 1 - Product Overview

1.1 Overview

R303G is using the Rockchip® quad-core RK3288 solution, the main frequency is 1.8GHz.

Included WIFI, Ethernet data communication, support commonly used external devices, rich interface, stable performance. Suitable for intelligent remote network control: class industry, large advertising machine, education video terminal, self-service all-in-one machine and other equipment.

1.2 Application

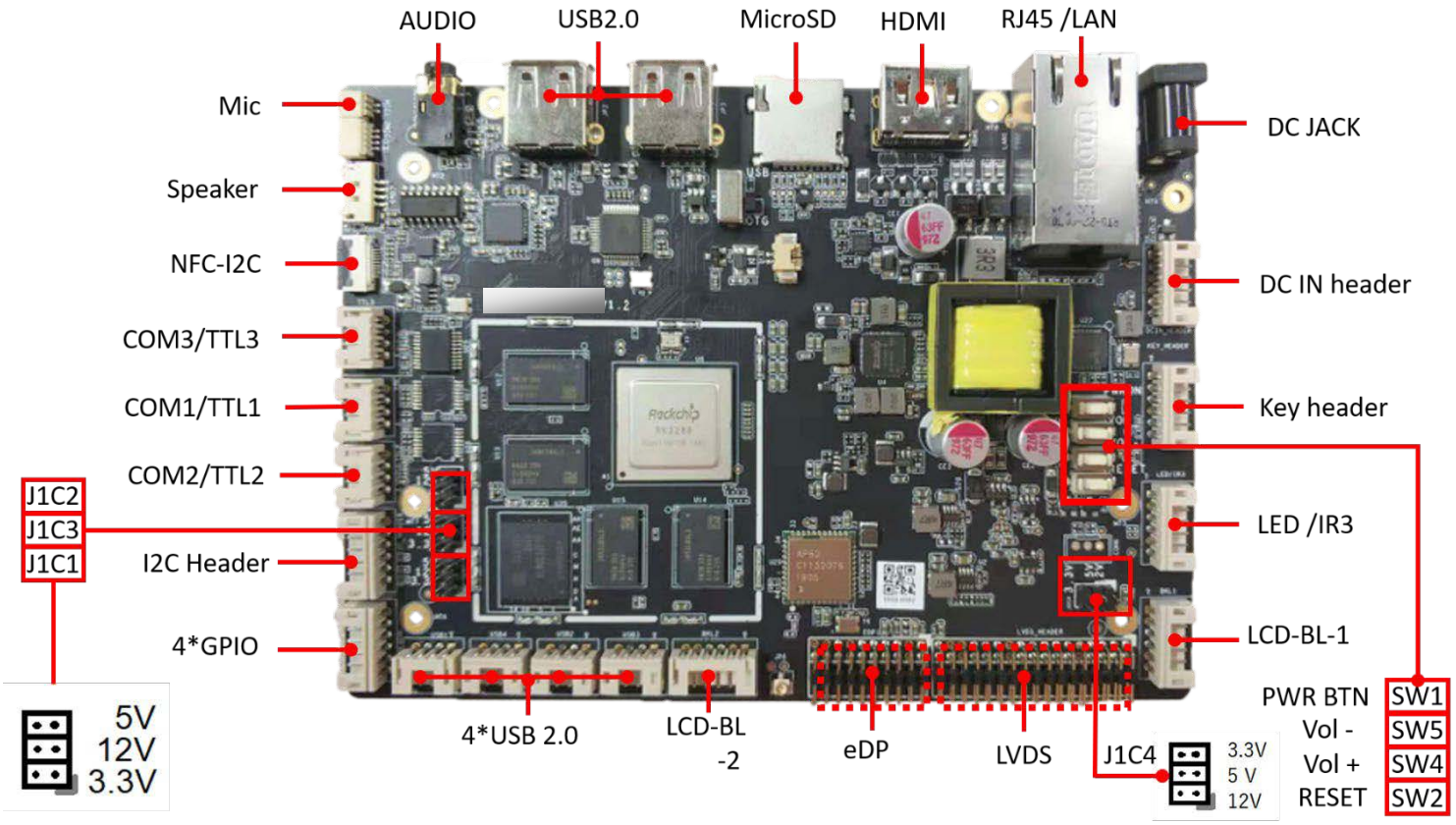
- Commercial Advertising Machine
- Industry control systems
- Education video terminal
- Self-service all-in-one
- Self-service vending machines

1.3 Characteristics

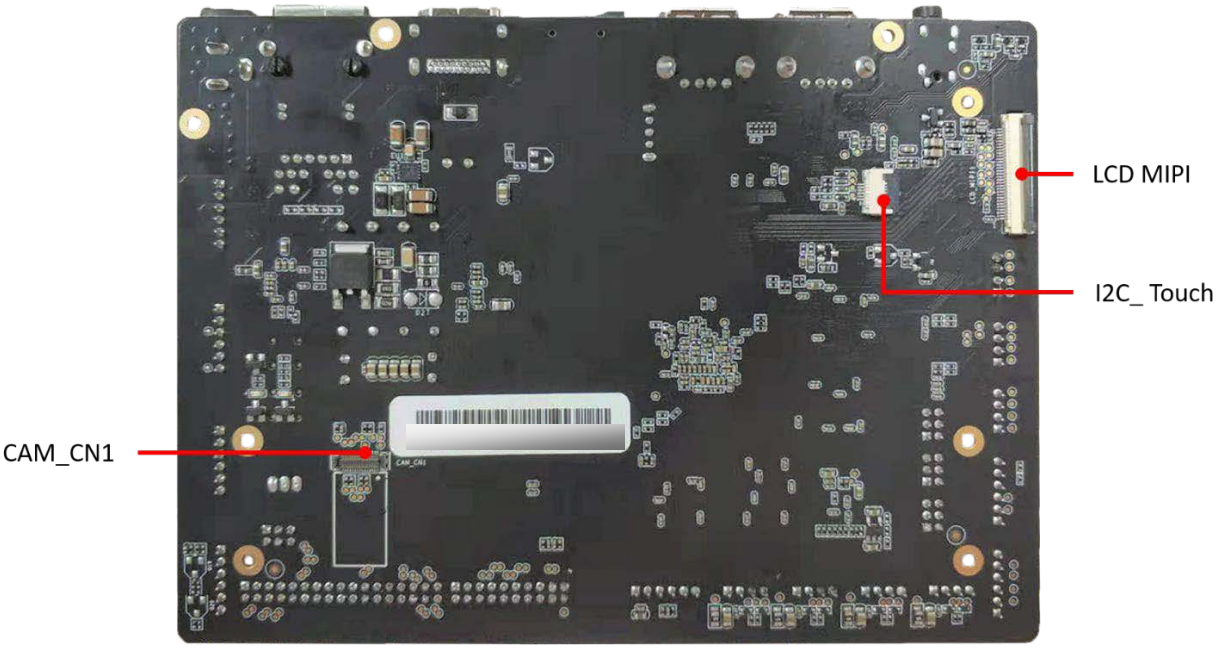
- Multiple display interfaces: The board supports a variety of display output interfaces, LVDS, eDP, MIPI and HDMI.
- Support Dual-screen Synchronous display / dual-screen Different display.
- Rich extension interface：6 * USB2.0 ， 3*UART, 4 *GPIO Interface.
- I2C interface to meet the requirements of various peripherals on the market.
- Multiple network interfaces: Ethernet, Wireless Lan, Bluetooth.
- High definition: support scant code playback, cross-screen playback, video split screen.
- PoE (Power over Ethernet), support IEEE802.3af (PoE) /IEEE802.3at (PoE+) standard.
- Allow data import via USB port。

1.4 Outlook

Top



Bottom ：



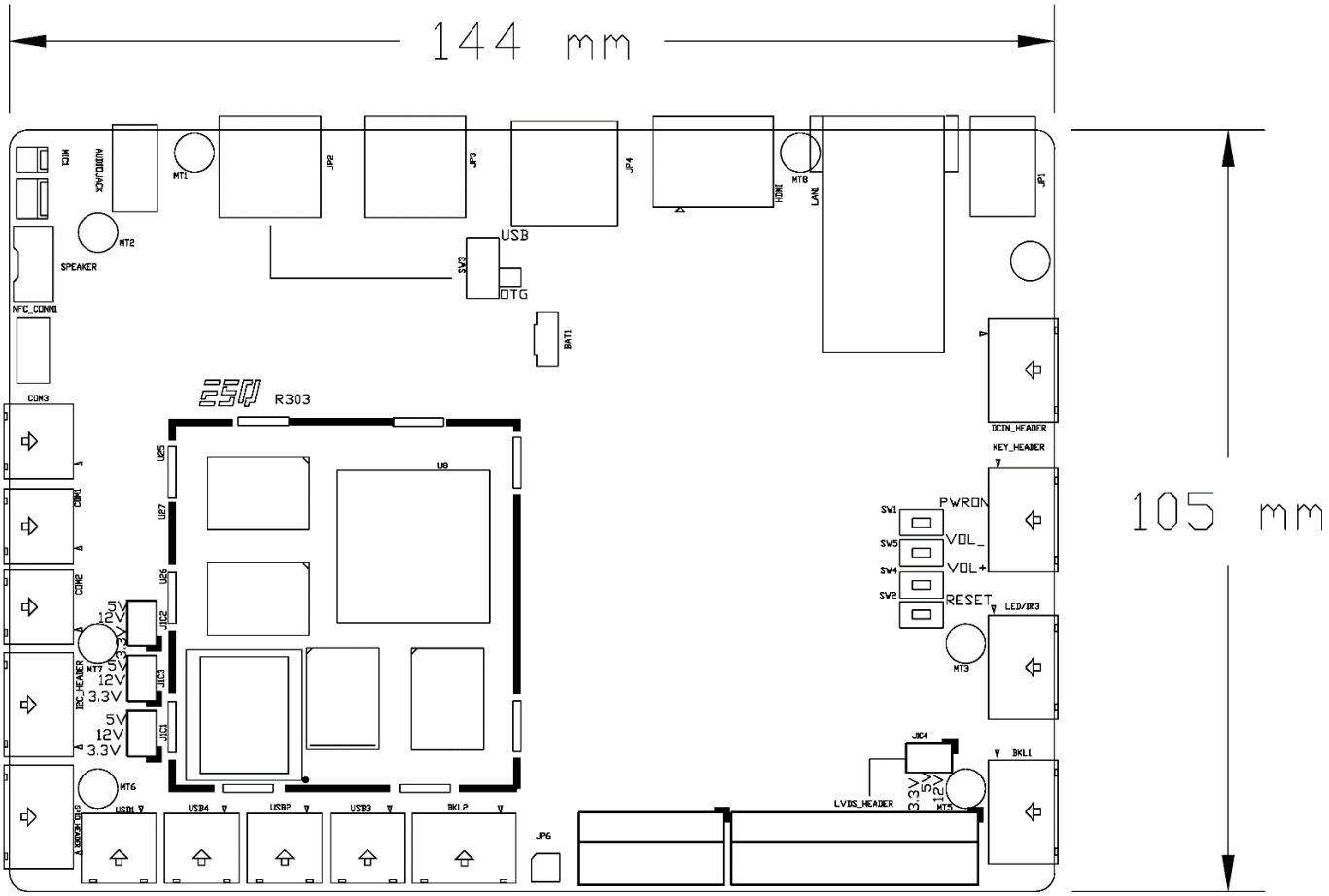
Chapter 2 -- Product Specifications

R303G Mainboard Specifications	
CPU	Rockchip RK3288 , Quad-core A17， 1.8GHz
System memory	DDR3 2 GB (MAX 8GB)
Storage	eMMC 8 GB (MAX 256GB)
display	Support 1080P、4K、H.265 hardware decoder
Operation System	Android 7.1 (Kernel 4.4)
Network	RJ45 , Ethernet, 10/100/1000Mb, Power over Ethernet
	Wi-Fi 802.11b/g/n 2.4GHz (AP6236)
	Bluetooth 4.2 BLE (AP6236)
Sensor	G-sensor
playback	wmv、avi、flv、rm、rmvb、mpeg 、ts、mp4 .
graphics	BMP、JPEG、PNG、GIF .
USB	6x USB 2.0 (4 internal + 2 external USB, (1x ex-USB support OTG)
Serial port	3 x serial port for RS232 or TTL .
TP interface	I2C Interface.
GPIO interface	4 x GPIO
Camera	1 x MIPI Camera interface,
Ex-Memory card	MicroSD / TF card， support 128GB,
MIPI LCD out	1x MIPI LCD interface
LVDS out	1 x LVDS，support single /dual LVDS
EDP out	1 x EDP ， support 4K / 1080P .
HDMI out	1 x HDMI 4K /1080P output, Support HDM I .4 / HDMI 2.0
Audio out	Speake out via pin header or audio jack.,
MIC in	Mic in via pin header or audio jack.
RTC clock	RTC clock battery conn (Coin Battery is Option parts)
Power input	DC JACK input： DC12V (support Ø5.5 / 2.5 mm plug) DC Header input: DC12V + 5V RJ45 input： DC44V~57V (PoE/PoE+) , (Cable CAT-5e)

Chapter 3 PCB Size and Interface PCB Layout

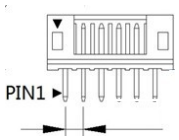
3.1 Board dimension

PCB：thickness 1.6mm
Dimension： 144*105mm*13mm (Limit: top =9mm, bottom =3.5mm)
Screw hole：Ø = 2.3 mm

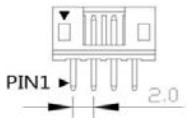


3.2 Interface parameter PIN define description

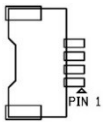
– DC-IN (PH socket，1*6pin，2.0mm)

No.	define	Attribute	Description	
1	DCIN	Input	12V +	
2	DCIN	Input	12V +	
3	GND	Ground	Ground	
4	GND	Ground	Ground	
5	DCIN	Input	5V+	
6	POWER EN		POWER_EN	

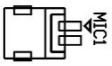
– USB*4 (PH socket，1*4pin，2.0mm)

No.	define	Attribute	Description	
1	5V	VCC	5V Output	
2	DM	Input/ output	DM	
3	DP	Input/output	DP	
4	GND	Ground	Ground	

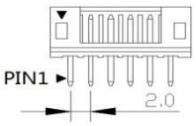
– SPEAKER (PH socket，1*4pin，1.25mm)

No.	define	Attribute	Description	
1	SPK-R+	Output	Output R+	
2	SPK-R-	Output	Output R-	
3	SPK-L-	Output	Output L-	
4	SPK-L+	Output	Output L+	

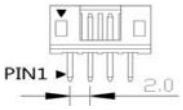
– MIC (PH socket，1*2pin，1.0mm)

No.	define	Attribute	Description	
1	MIC+	Input	Input+	
2	MIC-	Input	Input -	

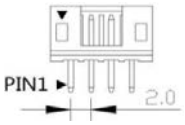
– GPIO (PH socket，1*6pin，2.0mm) Voltage ADJ -[J1C1] 1-2 =3.3V, 3-4 = 12V , 5-6= 5V

No.	define	Attribute	Description	
1	VDD	VCC	3.3V /5V /12 , Default 3.3V	
2	GPIO8_A0	I/O	Input Output 0	
3	GPIO8_A1	I/O	Input Output 1	
4	GPIO8_A7	I/O	Input Output 2	
5	GPIO8_B0	I/O	Input Output 3	
6	GND	Ground	Ground	

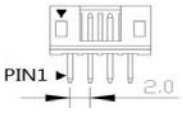
– COM2 / TTL2 (PH socket · 1*4pin · 2.0mm)

No.	define	Attribute	Description	
1	VDD	Output	VCC	
2	TX	Output	Data transmit	
3	RX	Input	Data Recive	
4	GND	Ground	Ground	

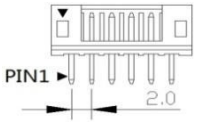
– COM1 / TTL 1 （ PH socket · 1*4pin · 2.0mm ）Voltage ADJ -[J1C3] 1-2 =3.3V, 3-4 = 12V , 5-6= 5V

No.	define	Attribute	Description	
1	VDD	Output	3V/5V/12V Voltage ADJ	
2	TX	Output	Data transmit	
3	RX	Input	Data Recive	
4	GND	Ground	Ground	

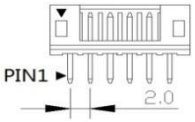
– COM3 / TTL 3 （ PH socket · 1*4pin · 2.0mm ）Voltage ADJ -[J1C2] 1-2 =3.3V, 3-4 = 12V , 5-6= 5V

No.	define	Attribute	Description	
1	VDD	Output	3V/5V/12V Voltage ADJ	
2	TX	Output	Data transmit	
3	RX	Input	Data Recive	
4	GND	Ground	Ground	

– KEY （ PH socket · 1*6pin · 2.0mm ） ADC extend function.

No.	define	Attribute	Description	
1	PWR	Input	Power On/off	
2	RES	Input	Reset	
3	AIN0	Input	ADC0 Interface	
4	GND	Ground	Ground	
5	AIN1	Input	ADC1 Interface	
6	AIN2	Input	ADC2 Interface	

– LCD-BL*2 (PH socket · 1*6pin · 2.0mm)

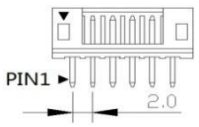
No.	define	Attribute	Description	
1	DC-12V	VCC	LCD B/L Output 12V	
2	DC-12V	VCC	LCD B/LOutput 12V	
3	EN	Output	LCD B/L Enable	
4	ADJ	Output	LCD B/L ADJ signal	
5	GND	Ground	Ground	
6	GND	Ground	Ground	

- **LVDS （2*17pin，2.0mm）**

  -Voltage ADJ -[J1C4] 1-2 =12V, 3-4 = 5V , 5-6= 3.3

No.	define	Attribute	Description
1	D4P	Output	DATA
2	D4N	Output	DATA
3	D9P	Output	DATA
4	D9N	Output	DATA
5	D8P	Output	DATA
6	D8N	Output	DATA
7	CLK1P	Output	CLOCK
8	CLK1N	Output	CLOCK
9	GND	Ground	GROUND
10	GND	Ground	GROUND
11	D7P	Output	DATA
12	D7N	Output	DATA
13	D6P	Output	DATA
14	D6N	Output	DATA
15	D5P	Output	DATA
16	D5N	Output	DATA
17	D3P	Output	DATA
18	D3N	Output	DATA
19	CLK0P	Output	CLOCK
20	CLK0N	Output	CLOCK
21	GND	Ground	GROUND
22	GND	Ground	GROUND
23	D2P	Output	DATA
24	D2N	Output	DATA
25	D1P	Output	DATA
26	D1N	Output	DATA
27	D0P	Output	DATA
28	D0N	Output	DATA
29	GND	Ground	GROUND
30	GND	Ground	GROUND
31	GND	Ground	GROUND
32	VCC	Output	3.3V / 5V /12 V , default 3.3V
33	VCC	Output	3.3V / 5V /12 V default 3.3V
34	VCC	Output	3.3V / 5V /12 V default 3.3V

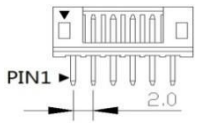
- **LED / IR 3（PH socket，1*6pin，2.0mm）**

No.	define	Attribute	Description	
1	LED RED	VCC	Power_LED_Red	
2	GND	Ground	Ground	
3	LED GREEN	VCC	Activity_LED_Green	
4	UART / IR-RX	RX	UART / IR- Recive	
5	GND	Ground	Ground	
6	UART / IR-TX	TX	UART / IR- transmit	

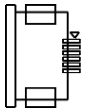
– EDP（ 2*10pin，2.0mm）

No.	define	Attribute	Description
1	VDDA	VCCOutput	VCC Output
2	VDDA	VCCOutput	
3	GND	Output	Ground
4	GND	Output	
5	EDP-TX0N	Output	EDP TX channel 0 negative
6	EDP-TX0P	Output	EDP TX channel 0 positive
7	EDP-TX1N	Output	EDP TX channel 1 negative
8	EDP-TX1P	Output	EDP TX channel 1 positive
9	EDP-TX2N	Output	EDP TX channel 2 negative
10	EDP-TX2P	Output	EDP TX channel 2 positive
11	EDP-TX3N	Output	EDP TX channel 3 negative
12	EDP-TX3P	Output	EDP TX channel 3 positive
13	GND	Ground	Ground
14	GND	Ground	
15	EDP-AXUN	Output	EDP AUX CH negative
16	EDP-AXUP	Output	EDP AUX CH positive
17	GND	Ground	Ground
18	GND	Ground	Ground
19	GND	Ground	Ground
20	HDP	Output	Hot pulg detect

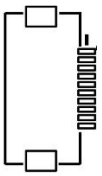
– I2C Header *1（PH socket，1*6pin，2.0mm）

No.	define	Attribute	Description	
1	VCC	VCC	3.3V VCC	
2	RST	O	Reset	
3	INT	I	Interrupt	
4	SDA	I/O	I2C data	
5	SCL	O	I2C clock	
6	GND	Ground	Ground	

– I2C_TP *1（FPC socket，1*6pin，0.5mm）

No.	define	Attribute	Description	
1	VCC	VCC	3.3V VCC	
2	GND	Ground	Ground	
3	SCL	O	I2C Clcok	
4	SDA	I/O	I2C Data	
5	INT	I	Interrupt	
6	RST	O	Reset	

– NFC- CONN1（FPC 10 pin 0.5mm ）

No.	define	Attribute	描 述	
1	RST	O	Reset	
2	INT	I	Interrupt	
3	SDA	I/O	I2C DATA	
4	SCL	O	I2C CLOCK	
5	GND	Ground	Ground	
6	3.3V	VCC	3.3V	
7	3.3V	VCC	3.3V	
8	1.8V	VCC	1.8V	
9	1.8V	VCC	1.8V	
10	GND	Ground	Ground	

– CAM_CN1

No.	define	Attribute	Description
1	AGND	Ground	Ground
2	PWDN	Output	MIPI Camera DN
3	AF_VCC2.8V	AFPower	MIPI Camera AF Power
4	SDA	Data	MIPI Camera I2C Data
5	AF_GND	Ground	Ground
6	SCL	clock	MIPI Camera I2C Clock
7	AVDD2.8V	Power	MIPI Camera Power 2.8V
8	STORBE	NC	N/A
9	DGND1	Ground	Ground
10	DOVDD1.8V	Power	MIPI Camera 1.8V Power
11	MDP2(NC)	Input	MIPI TX D2 positive
12	DGND	Ground	Ground
13	MDN2(NC)	Input	MIPI TX D2 negative
14	MCLK	clock	MIPI CLK
15	DGND2	Ground	Ground
16	DGND3	Ground	Ground
17	MCP	Clock	MIPI CLK positive
18	MDP0	Input	MIPI TX D0 positive
19	MCN	Clock	MIPI CLK negative
20	MDN0	Input	MIPI TX D0 negative
21	DGND4	Ground	Ground
22	DGND5	Ground	Ground
23	MDP3(NC)	Input	MIPI TX D3 positive
24	MDP1	Input	MIPI TX D1 positive
25	MDN3(NC)	Input	MIPI TX D3 negative
26	MDN1	Input	MIPI TX D1 negative
27	DVDD1.2V	Power	MIPI Camera Power 1.2V
28	DGND6	Ground	Ground
29	DVDD1.2V	Power	MIPI Camera Power 1.2V
30	RESET	Reset	RESET