CM580-67T

Product Introduction

CM580-67T is a low-power, high-performance **Industrial Motherboard**, independently developed by Xiamen Caimore Communication Technology Co., Ltd. It adopts Rockchip RK3288 series CPU. The ARM-based processor combined with the Android operating system provides a very broad and free App operating environment; excellent computing and graphics performance, especially suitable for harsh or demanding industrial occasions and public space applications, It supports wide temperature operation, and expands a rich peripheral function interface.

Applicable Scene:

- ✧ Industrial field control acquisition

- ✧ Financial POS machine, vehicle control terminal

- ✧ Intelligent terminal in unattended environment

- ✧ Security/surveillance/police and IoT fields

- ✧ Human-computer interaction, intelligent retail

Model No.

Model No.	CPU	System Version	Dual screen different display	Screen Interface	Wi-Fi
CM580-67T	RK3288	Android7.1.2/Linux	Support	LVDS, HDMI, 4.3 inch LCD RGB interface	Optional

Product Features

Main Features of Rockchip RK3288 series CPU

- ✧ Super quad-core Cortex-A17, frequency up to 1.6GHz

- ✧ GPU uses Mali-T764 GPU, supports TE, ASTC, AFBC memory compression technology

- ✧ Support 4K VP9 and 4K 10bits H265/H264 video decoding, up to 60fps

- ✧ Built-in multiple high-performance hardware processing engines, capable of supporting multiple formats of video decoding, such as: H.264/H.265/VP9 of 4K*2K@60fps , also supports H.264/MVC/VP8 of 1080P@30fps and High-quality JPEG codec and image front and rear processors

GPU Advantages

- ✧ ARM frame buffer compression technology

- ✧ Adaptive scalable texture compression technology

- ✧ TE Smart Elimination Technology

- ✧ Original stereo 3D game driver

- ✧ Original star search entertainment engine

Codec

Rockchip RK3288 is a chip that supports 4Kx2K and hard-decode H.265 video, bringing users a clear visual enjoyment as a more efficient high-definition compression format. Compared with H.264, H.265 uses variable-size coding units and more advanced intra-frame prediction modes. With the same image quality, H.265 video can save half of the bandwidth compared to H.264. Rockchip RK3288 is the industry's first ARM core chip that supports 4K H.265 real-time hardware decoding. It has played its accumulated advantages in the audio and video fields in video support, and truly supports 4K video output and playback.

Technical Parameters

Device Interface Diagram

CM580-67T Accessories: None

Industrial Design

Item	Description
Hardware Design	It has the characteristics of high seismic resistance, dustproof, low calorific value and so on, suitable for harsh industrial environment applications.
Reinforced Circuit Board	PCB follows the principle of 20H and 3W, and the PCB is produced with Shengyi material to ensure the stability and reliability of the board.
Industrial Grade Components	The components of the whole machine are manufactured by strictly screened industrial-grade components.

Performance Parameter

| Item	Description
CPU	RK3288 SoC Cortex-A17 Quad Core @ 1.6GHz Max
Memory	DDR3 default 2GB (expandable)
Storage	EMMC default 8GB (expandable)

Function Interface

Item	Interface Description
LED	1 running indicator light, SMD0805 , green.
RESET	1 vertical reset key, click to reset the system
Power	1 vertical VH3.96mm 2P terminal socket, 12V DC, 4A. It has lightning protection function, over-voltage and over-current protection, and anti-reverse connection protection.
Speaker	1 PH2.0 4P speaker interface, 2-channel amplifier speaker output, dual 10W
GPIO	1 XHD2.54 2x5P double row fenced straight pin white socket, GPIO1-4 is high level 3.3V GPIO, GPIO5-6 is high level 1.8V GPIO, see pin definition for details
Serial Port	3-channel RS232 serial ports, PH2.0x4P white socket
	1channel RS485 serial port, PH2.0x3P white socket
USB	6-channel USB ports, 2 of which are USB dual-layer type A female sockets, and the other 4 are PH2.0x4P black sockets. Output current is 500mA, 1 channel OTG. All comply with USB 2.0 specification and have over-current protection function. 4 socket-type USB interfaces, which are required to support 3 cameras to open the video at the same time, and the 3 cameras support a minimum of 640*480 video format.
Network	Adopt 4G network module, which must adopt PCIE Interface, equipped with FPC soft antenna with adhesive IPEX interface; SIM card slot adopts clamshell card slot.
RJ45 (Reserved)	1 channel 10M/100M/1000M bps, with indicator light
Wi-Fi/Bluetooth (Reserved)	1 on-board 5G/2.4G Wi-Fi with hotspot function, 802.11b/G/ n, BT4.0
Electric control lock interface	3 XH2.54 4P white sockets
RGB light control interface	1 XH2.54 2P white power input socket, 1 XH2.54 3P white light control socket
Infrared emission	1 PH2.0 2P black socket

tube interface	
Infrared receiver tube interface	1 PH2.0 3P black socket
Human body induction sensor interface	1 PH2.0 3P red socket
Program Download interface	With ADB function
Dimension	146mm (L)*105mm (W)

Item	Interface Description	Reserved
HDIM	Standard HDMI interface	Only one type of screen is connected at the same time, the motherboard automatically recognizes and lights up the screen of the corresponding interface.
LVDS	PHD2.0 2x15P white double row socket with fence	
Backlight interface	PH2.0 6P white socket	
4.3 inch LCD RGB interface	1 channel 40 PIN RGB interface, 0.5mm pitch, see interface definition for details, backlight can be adjusted	
Image Engine	Support OPENGL ES1.1/2.0/3.0, OPEN VG1.1, OPENCL, Directx1 Support 4K,H.265 hard decoding	
RTC	Real Time Clock, Onboard RTC battery, support timing switch	
WatchDog	Support software watchdog, system exception, automatic restart	

Environment Parameter

Item	Description
Operating Temperature	-20 ºC ~+70ºC
Storage Temperature	-40 ºC ~+80ºC
Operating Humidity	95% no condensation
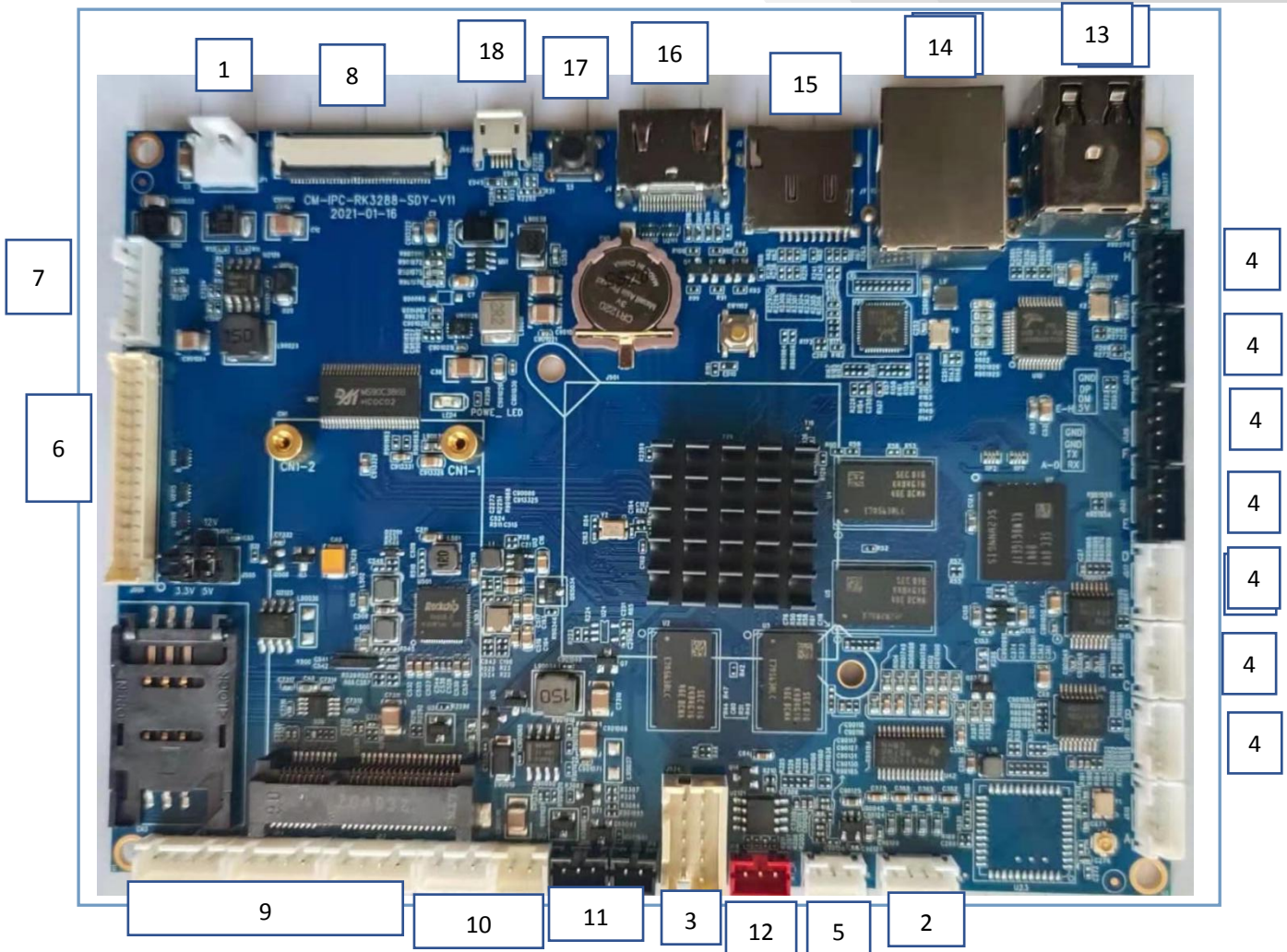
1. 2PIN power socket

2. Speaker socket

3.GPIO socket

4. RS232 and 4PIN USB female socket

5. RS485

6.LVDS socket

7. Backlight socket

8.40PIN RGB screen flat socket

9. Electric control lock interface

10. RGB light control interface

11. Infrared interface

12. Human body induction sensor interface

13. Dual-layer USB socket

14.100/1000M Ethernet port

15. TF card slot

16.HDMI interface

17. Reset key

18.OTG debugging port

Peripheral board interface pin definition
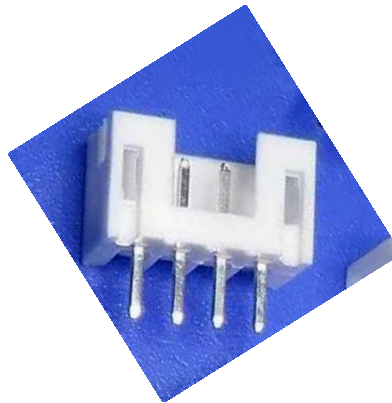
1. Power interface

Vertical VH3.96mm 2P white socket, interface definition is as follows:

Interface definition (from left to right)	
VCC_12V	GND

2. Speaker interface

1 channel vertical PH2.0 4P white socket, interface definition is as follows:

Interface definition (from left to right)			
L+	L-	R-	R+

3. GPIO interface

1 XHD2.54 2x5P double-row fenced straight pin white socket, interface is defined as follows:

Interface definition (from left to right)				
GPIO1(3.3V)	GPIO3(3.3V)	GPIO5(1.8V)	VCC_3.3V	GND
GPIO2(3.3V)	GPIO4(3.3V)	GPIO6(1.8V)	VCC_3.3V	GND

4. RS232 and USB

7 PH2.0x4P white sockets, interface definition is as follows:

Interface sequence from left to right 1-4

	1	2	3	4
A	RS232_RXD1	RS232_TXD1	GND	GND
B	RS232_RXD2	RS232_TXD2	GND	GND
C	RS232_RXD3	RS232_TXD3	GND	GND
D	RS232_RXD4	RS232_TXD4	GND	GND
E	5V（Max current 500mA）	DM3	DP3	GND
F	5V（Max current 500mA）	DM4	DP4	GND
G	5V（Max current 500mA）	DM5	DP5	GND
H	5V（Max current 500mA）	DM6	DP6	GND

5. RS485

1 PH2.0x3P white socket, interface is defined as follows:
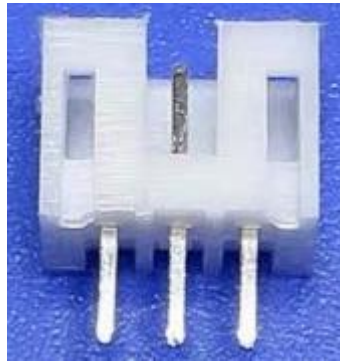
Interface definition (from left to right)		
485A	485B	GND

6 . LVDS

1 PHD2.0 2x15P white double-row fenced socket, interface is defined as follows:
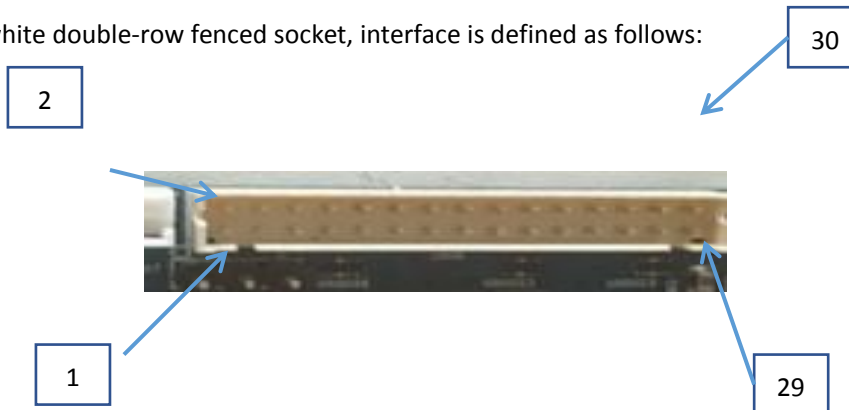
PHD2.0: (dual/single eight-channel LVDS)

Pin definition		Pin definition		Pin definition	
1	5V/12V	11	LVDS_D2N	21	LVDS_D6N
2	5V/12V	12	LVDS_D2P	22	LVDS_D6P
3	5V/12V	13	GND	23	LVDS_D7N
4	GND	14	GND	24	LVDS_D7P
5	GND	15	LVDS_CLK0N	25	GND
6	GND	16	LVDS_CLK0P	26	GND
7	LVDS_D0N	17	LVDS_D3N	27	LVDS_CLK1N
8	LVDS_D0P	18	LVDS_D3P	28	LVDS_CLK1P
9	LVDS_D1N	19	LVDS_D5N	29	LVDS_D8N
10	LVDS_D1P	20	LVDS_D5P	30	LVDS_D8P

7. Backlight board interface

1 PH2.0 6P white socket, interface is defined as follows:

Interface sequence from left to right (LVDS/EDP power board interface sequencer)					
12V	12V	EN	PWM	GND	GND

8. 4.3 inch LCD screen interface

1 RBG 40 PIN interface, the interface design is as shown in the figure below:

The interface definition is as follows:

No.	Definition	Attribute
1	LEDK	LED BACKLIGHT(CATHODE)
2	LEDA	LED BACKLIGHT(ANODE)
3	GND	GND
4	VCC	POWER SUPPLY(DIGITAL 3.0V)
5	R0	RED DATA
6	R1	RED DATA
7	R2	RED DATA
8	R3	RED DATA
9	R4	RED DATA
10	R5	RED DATA
11	R6	RED DATA
12	R7	RED DATA
13	G0	GREEN DATA
14	G1	GREEN DATA
15	G2	GREEN DATA
16	G3	GREEN DATA
17	G4	GREEN DATA
18	G5	GREEN DATA
19	G6	GREEN DATA
20	G7	GREEN DATA
21	B0	BLUE DATA
22	B1	BLUE DATA
23	B2	BLUE DATA
24	B3	BLUE DATA
25	B4	BLUE DATA
26	B5	BLUE DATA
27	B6	BLUE DATA

28	B7	BLUE DATA
29	GND	GND
30	CLK	CLOCK SIGNAL
31	DISP	DISPLAY ON/OFF
32	HSYNC	HORIZONTAL SYNC INPUT IN RGB MODE
33	VSYNC	VERTICAL SYNC INPUT IN RGB MODE
34	DEN	DATA ENABLE
35	NC	NC
36	GND	GND
37	XR	TOUCH PLANE PIN
38	YD	TOUCH PLANE PIN
39	XL	TOUCH PLANE PIN
40	YU	TOUCH PLANE PIN

9. Electric control lock interface

3 vertical XH2.54 4P white sockets, interface definition is as follows:
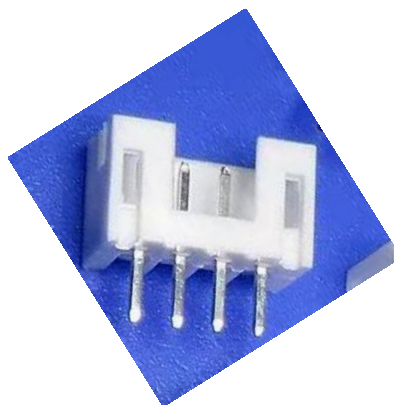
| Interface definition (from left to right)			
GND	STATE	D-	D+
GND	Lock status detection port	Lock power negative pole	Lock power negative pole

10. RGB light control interface

1 vertical XH2.54 2P white socket, interface is defined as follows:
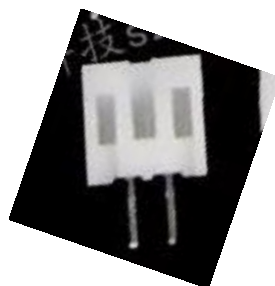
| GND	VCC_LED
Power supply negative input	Light strip power supply positive input

1 vertical XH2.54 3P white socket, interface is defined as follows:
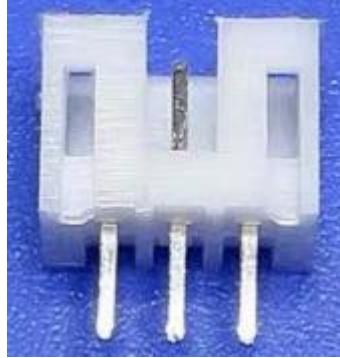
GND	Din	L+
Power supply negative	Data line (use GPIO port that can output PWM wave)	Power supply positive

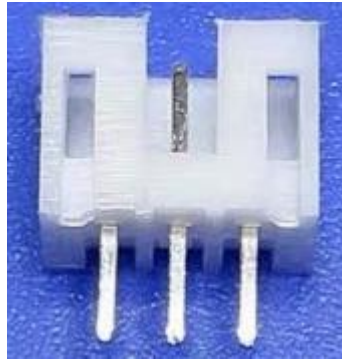## 11. Infrared interface：

1 vertical PH2.0 2P black socket (infrared emission interface), interface is defined as follows:
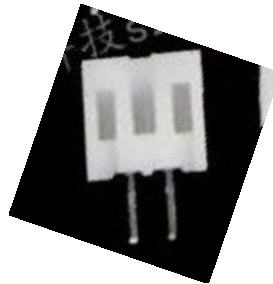
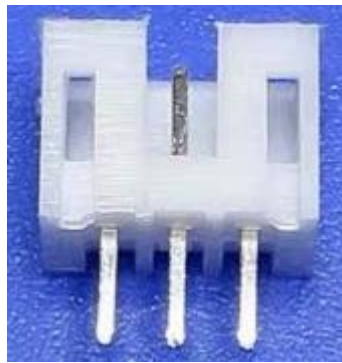| GND	HW_5V
Power supply negative	Power supply positive

1 vertical PH2.0 3P black socket (infrared receiving interface), the interface is defined as follows:

GND	HW_IN	HW_5V
Power supply negative	Receive tube input	Power supply positive

12. Human sensor interface

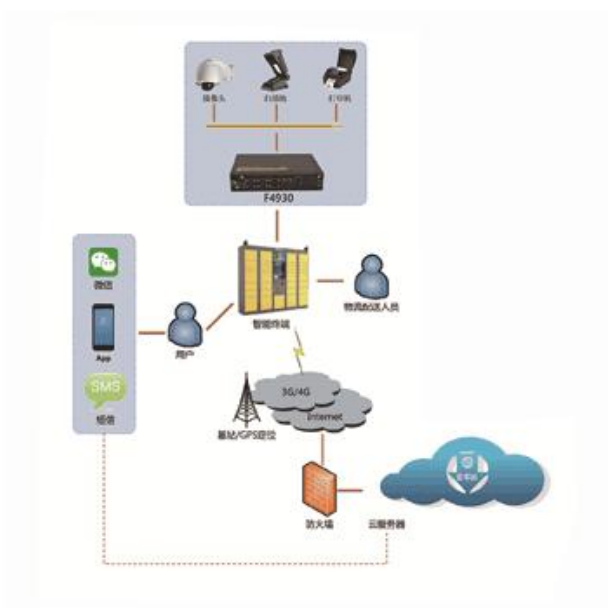1 vertical PH2.0 3P red socket, interface is defined as follows:

GND	IN	VCC_5V
Power supply negative	Sensor input	Power supply positive

Installation Dimension

Product Application

1. Express cabinet

2.Topology Diagram of Caimore industrial PC

2、快递员取件

Typical Application

Corporate Qualification

Item	Content
Corporate Honor	2011, it was rated as "the best supplier for customer satisfaction in China's industrial control industry"; the company's GPRS DTU product was rated as "innovative product award".
	2012, the company became a member of "China Quality Travel".
	2013, the company became a member of the "Technical Innovation Strategic Alliance of Intelligent Power Transmission and Distribution Equipment Industry".
	2014, it was rated as an innovative pilot enterprise .
	2014, the company's Zhanjiang Wi-Fi coverage project was awarded the "Sample Engineering Award" by the 13th China Automation Annual Conference.
	2015, its video products were rated as "Top Ten Video Transmission Enterprises" by China's industrial control industry.
	2015, the noise monitoring project was awarded the "Sample Project Award" by the 14th China Automation Annual Conference.
	2015, its video products were rated as "Top Ten Video Transmission Enterprises" by Huaqiang Security Network.
	2016, the video products was rated by Huaqiang Security Network as "2015-2016 High-quality Supplier in China's Security Industry".
	2016, it was rated as the "best supplier of charging equipment parts" by charging pile communication equipment.
	2016, won the " Product Gold Award of 2016 7th Guangzhou International New Energy Automobile Industry Exhibition ".
	2016, The 3rd China Good Wi-Fi Organizing Committee awarded Caimore "2016 Best Wi-Fi

	Industry Application Solution Provider". 2018, the company's industrial router was rated as "China's Top Ten Industrial Router Brands", and DTU was rated as "China's DTU Top Ten Brands" 2018, it was rated as a key listed reserve enterprise in Xiamen City. 2019, it was rated as a key listed reserve enterprise in Xiamen City. 2019, it was rated as a key listed reserve enterprise in Fujian Province. 2019, Shortlisted for China Telecom Corporation Limited, DICT solution partner of Shanghai branch 2020, Selected as a key listed reserve company in Xiamen
High-tech Enterprise	2009, it was recognized as a high-tech enterprise by the country
Double-soft Enterprise	2010, it was recognized as a double-soft enterprise by the country
Occupational Health and Safety Management System Certification	ISO9001:2015 quality management system conforms to the standard ISO14001:2015 environmental management system conforms to the standard ISO45001:2018 occupational health and safety management system conforms to the standard
Copyright	The company has 7 patented technology certificates to maintain equipment stability and 31 software copyright certificates.
Offices	Nine regional offices have been established nationwide to provide customers with close and considerate services.
Registered Capital	The company has a registered capital of 20.58 million; it is a key high-tech enterprise supported by Xiamen City.
Historical Accumulation	18 years of industry R&D accumulation and industry application test.