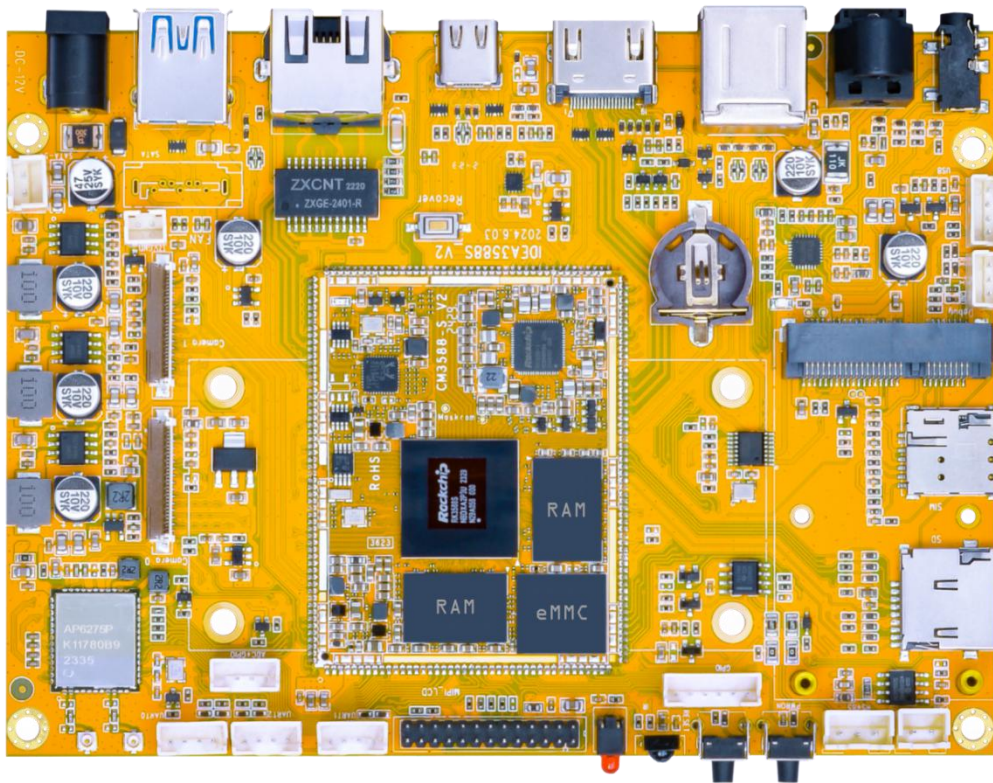


IDEA3588S Hardware Manual

V2.20241008



Boardcon Embedded Design

www.boardcon.com

1. Introduction

1.1. About this Manual

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2. Feedback and Update to this Manual

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website (www.boardcon.com , www.armdesigner.com).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence. If you have questions, comments, or concerns about your product or project, please no hesitate to contact us at support@armdesigner.com.

1.3. Limited Warranty

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lightning or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.

Repairs made after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.

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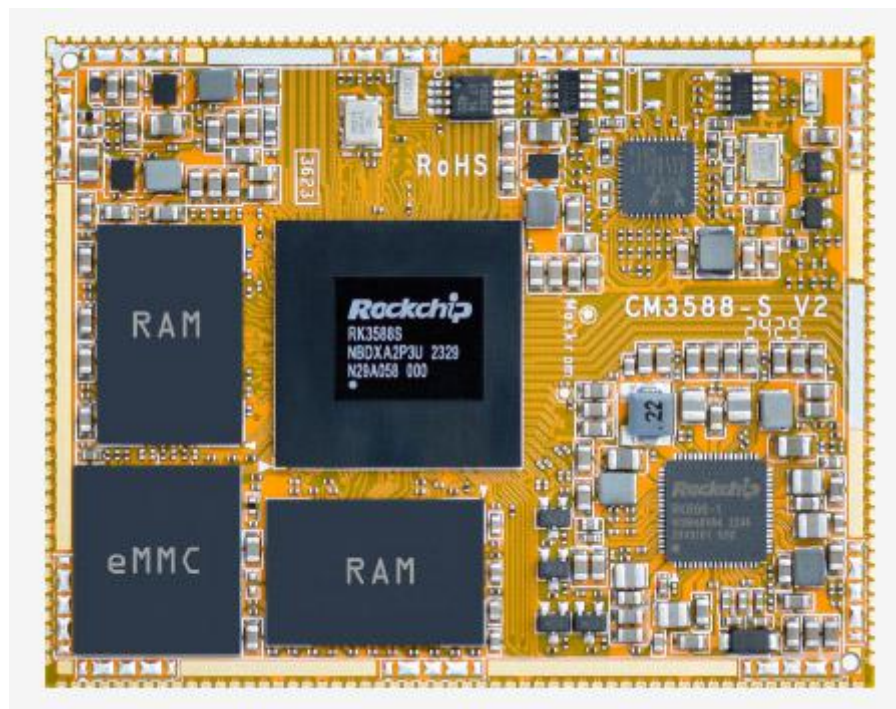
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1 CM3588S Introduction

1.1 Summary

The CM3588S adopts RK3588S chip, quad-core ARM Cortex-A76 MPCore processor and a quad-core ARM Cortex-A55 MPCore Processor , both are high-performance, low-power and cached application processor.

It is designed specifically for the high performance quad channel external memory interface and high performance devices such as ARM-based PC and Edge Computing device, personal mobile internet device and other digital multimedia applications.



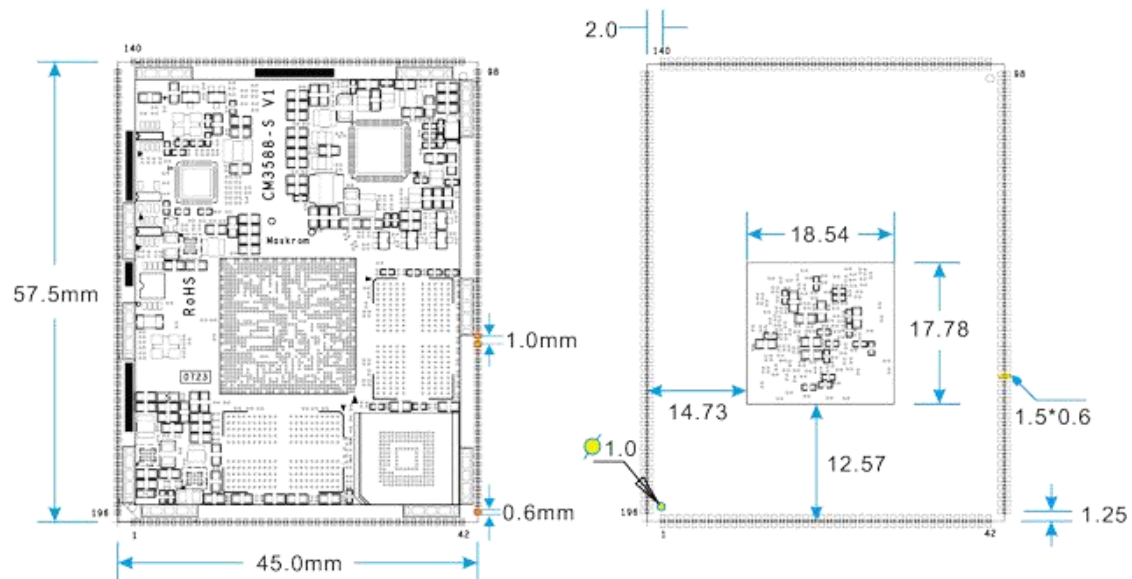
1.1 Features

Specification	
CPU	Rochchip RK3588S, Quad-core Cortex-A72 and quad-core Cortex-A55
GPU	ARM Mali-G610 MP4 OpenGL ES 1.1/2.0/3.2, OpenCL 2.2, Vulkan 1.2
NPU	Up to 6 TOPS
VPU	Supports 8K H.265, 8K VP9, 8K AVS2 video decoding, up to 60fps Supports 8K H.264 video decoding, up to 30fps Supports 4K AV1 video decoding, up to 60fps 1080P multi-format video decoding(VP8,MPEG-1/2,VC-1) Supports real-time 8K H.265/H.264 video encoding, up to 30fps Multi-channel encoder in parallel for less resolution



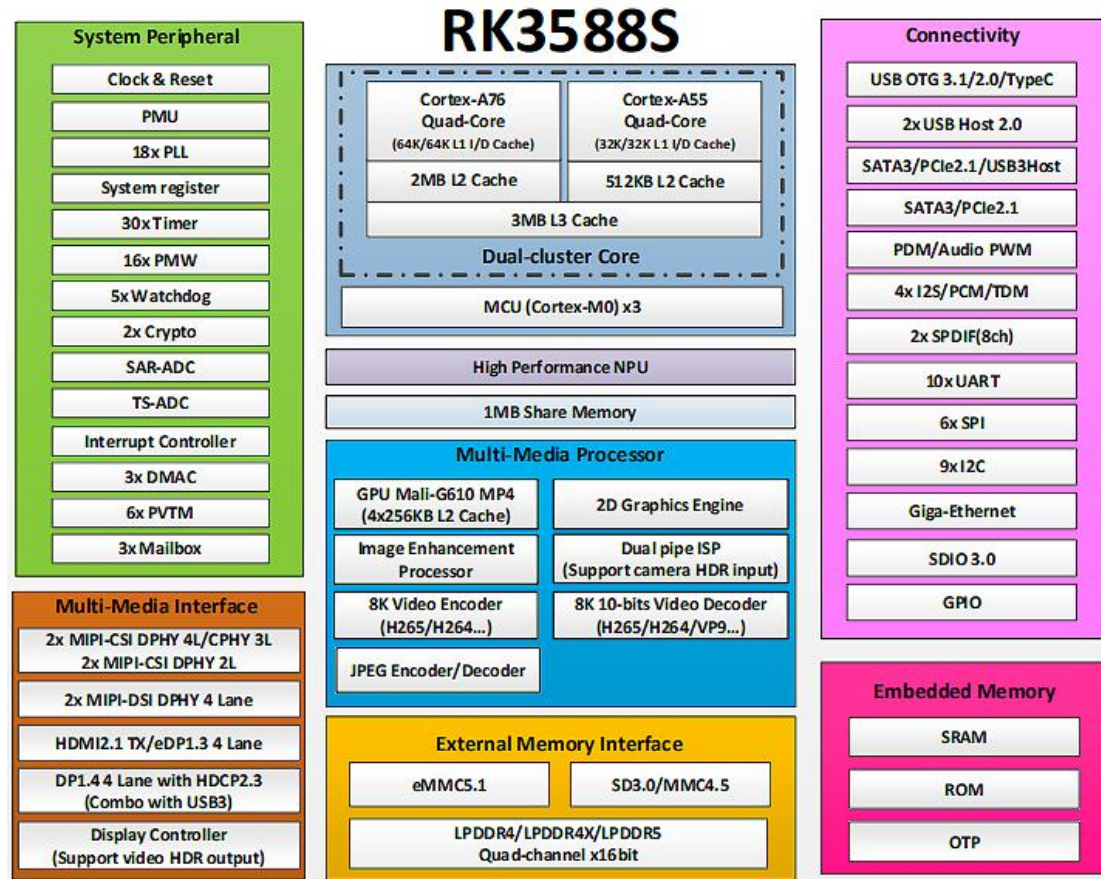
RAM	Onboard 4GB LPDDR4 (up to 16GB)
Storage	Onboard 8GB eMMC flash (up to 256GB)
Dimension	57.5 x 45mm

1.2 CPU module PCB Dimension



1.3 Block Diagram

The following diagram shows the basic block diagram.



1.4 Pin Definition

Pin	Signal	Description or functions	GPIO serial	IO Voltage
1	VCC_SYS	System Power Input		3.4V-4.5V
2	VCC_SYS	System Power Input		3.4V-4.5V
3	VCC_SYS	System Power Input		3.4V-4.5V
4	GND	Ground		0V
5	PWM7_IR_M0_1V8	I2C6_SCL_M0/PDM0_SDI1_M1	GPIO0_D0_d	1.8V
6	BT_REG_ON_H_1V8	I2C1_SCL_M2/PDM0_SDI2_M1/CAN2_RX_M1/PWM3_IR	GPIO0_D4_u/SATA_CPDET/HDMI_SDA	1.8V
7	BT_WAKE_HOST_H_1V8	I2C4_SCL_M2/UART0_TX_M0 /PWM4_M0	GPIO0_C5_u	1.8V
8	HOST_WAKE_BT_H_1V8	UART0_RTSn_M0 /PWM5_M1/SATA_CP_POD	GPIO0_C6_u	1.8V
9	WIFI_WAKE_HOST_H_1V8	REFCLK_OUT	GPIO0_A0_d	1.8V
10	WIFI_REG_ON_H_1V8	I2C6_SDA_M0/PDM0_SDI0_M1/PWM6_M0	GPIO0_C7_d	1.8V
11	GND	Ground		0V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
12	PDM0_CLK0_1V8	I2C4_SDA_M4/PDM0_CLK0_M0/PWM15_IR_M2	GPIO1_C6_d	1.8V
13	PDM0_CLK1_1V8	I2C2_SDA_M3/PDM0_CLK1_M0/PWM11_IR_M2/SPI4_CS1_M0	GPIO1_C4_d	1.8V
14	PDM0_SDI0_1V8	PDM0_SDI0_M0/SPI1_CS1_M2	GPIO1_D5_d	1.8V
15	GND	Ground		0V
16	UART6_TX_M1_1V8	PCIE20x1_1_WAKE_M2/I2C2_SCL_M4/SPI4_MOSI_M2	GPIO1_A1_d	1.8V
17	UART6_RX_M1_1V8	PCIE20x1_1_CLKREQ_M2/I2C2_SDA_M4/SPI4_MISO_M2/DP0_HPDIN_M2	GPIO1_A0_d	1.8V
18	UART6_RTSn_M1_1V8	I2C4_SDA_M3/PWM0_M2/SPI4_CLK_M2/VOP_POST_EMPTY	GPIO1_A2_d	1.8V
19	UART6_CTSn_M1_1V8	I2C4_SCL_M3/PWM1_M2/SPI4_CS0_M2	GPIO1_A3_d	1.8V
20	GPIO1_A7_u_1V8	PCIE20x1_1_PERSTN_M2/PDM1_SDI0_M1/PWM3_M3	GPIO1_A7_u	1.8V
21	GPIO1_B0_u_1V8	PDM1_SDI1_M1	GPIO1_B0_u	1.8V
22	GPIO1_A4_d_1V8		GPIO1_A4_d	1.8V
23	GPIO1_A5_d_1V8	HDMI_TX0_HPD_M0	GPIO1_A5_d	1.8V
24	GPIO1_A6_d_1V8		GPIO1_A6_d	1.8V
25	GND	Ground		0V
26	MIPI_CAM4_CLK_M0_1V8	UART1_CTS_M1/I2C8_SDA_M2/PWM15_IR_M3	GPIO1_D7_u	1.8V
27	GND	Ground		0V
28	SPI0_CS1_M2_1V8	UART7_TX_M2	GPIO1_B5_u	1.8V
29	SPI0_CS0_M2_1V8	UART7_RX_M2/PDM1_CLK0_M1	GPIO1_B4_u	1.8V
30	SPI0_MISO_M2_1V8	PDM1_SDI2_M1	GPIO1_B1_d	1.8V
31	SPI0_MOSI_M2_1V8	UART4_RX_M2/ PDM1_SDI3_M1	GPIO1_B2_d	1.8V
32	SPI0_CLK_M2_1V8	UART4_TX_M2/ PDM1_CLK1_M1//SATA0_ACT_LED_M1	GPIO1_B3_d	0V
33	GND	Ground		0V
34	MIPI_CAM3_CLK_M0_1V8	UART1_RTS_M1/I2C8_SCL_M2/PWM14_M2	GPIO1_D6_u	1.8V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
35	GND	Ground		0V
36	GPIO3_B7_d	I2C3_SCL_M1 /SPI1_MOSI_M1	GPIO2_B7_d	3.3V
37	UART7_TX_M1	I2C3_SDA_M1 /SPI1_MISO_M1	GPIO3_C0_d	3.3V
38	UART7_RX_M1	SPI1_CLK_M1	GPIO3_C1_d	3.3V
39	CAN2_TX_M0	UART5_RX_M1/SPI3_CS1 _M3/CIF_D9/FSPI_CS1N_ M2	GPIO3_C5_u	3.3V
40	CAN2_RX_M0	UART5_TX_M1/SPI3_CS0 _M3/CIF_D8/FSPI_CS0N_ M2	GPIO3_C4_u	3.3V
41	PWM11_IR_M3	UART9_TX_M2/SPI0_CS1 _M3/MCU_JTAG_TMS_M1	GPIO3_D5_d	3.3V
42	PWM13_M1	I2C5_SCL_M1/SPI3_MOSI _M1/BT1120_D12/SATA0_ ACT_LED_M0	GPIO4_B6_d	3.3V
43	GPIO3_C6_u	SPI3_MISO_M3/CIF_D10	GPIO3_C6_u	3.3V
44	UART9_TX_M1	DP0_HPDIN_M0/I2S1_SD O3_M0/SPDIF0_TX_M1/CI F_CLKOUT/BT1120_D10	GPIO4_B4_u /PWM11_IR_M1	3.3V
45	UART9_RX_M1	SPI3_MISO_M1/PWM12_ M1/BT1120_D11	GPIO4_B5_d	3.3V
46	UART8_TX_M0	SPI2_CS1_M1/I2C6_SDA_ M3/I2S1_SDI3_M0/BT1120 _CLKOUT/CIF_CLKIN	GPIO4_B0_d	3.3V
47	UART8_RX_M0	SPI0_CS1_M1/I2C6_SCL_ M3/I2S1_SDO0_M0/SPDIF 1_TX_M1/CAM0_CLK_M0	GPIO4_B1_u	3.3V
48	UART8_CTSN_M0	I2C7_SDA_M3/I2S1_SDO2 _M0/CAN1_TX_M1/CIF_V SYNC/BT1120_D9/PWM15 _IR_M1	GPIO4_B3_u	3.3V
49	UART8_RTSN_M0	SPI0_CS0_M1/I2C7_SCL_ M3/I2S1_SDO1_M0/CAN1 _RX_M1/CIF_HREF/BT112 0_D8/PWM14_M1	GPIO4_B2_u	3.3V
50	UART3_TX_M2	SPI2_MOSI_M1/I2C3_SDA _M2/I2S1_SDI0_M0/CIF_D 5/BT1120_D5	GPIO4_A5_d	3.3V
51	UART3_RX_M2	SPI2_CLK_M1/I2C5_SCL_ M2/I2S1_SDI1_M0/CIF_D6 /BT1120_D6	GPIO4_A6_d	3.3V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
52	GPIO4_A7_d	SPI2_CS0_M1/I2C5_SDA_M2/I2S1_SDI2_M0/CIF_D7/BT1120_D7	GPIO4_A7_d	3.3V
53	PCIE20x1_1_PERSTn_M1	SPI0_CLK_M1/I2S1_LRCK_M0/CIF_D2/BT1120_D2	GPIO4_A2_d	3.3V
54	PCIE20x1_1_CLKREQn_M1	SPI0_MISO_M1/I2S1_MCLK_M0/UART9_RTSM1/CIF_D0/BT1120_D0	GPIO4_A0_d	3.3V
55	PCIE20x1_1_WAKEn_M1	SPI0_MOSI_M1/I2S1_SCLK_M0/UART9_CTSN_M1/CIF_D1/BT1120_D1	GPIO4_A1_d	3.3V
56	UART0_TX_M2	CIF_D3/BT1120_D3	GPIO4_A3_d	3.3V
57	UART0_RX_M2	SPI2_MISO_M1/I2C3_SCL_M2/ CIF_D4/BT1120_D4	GPIO4_A4_d	3.3V
58	GND	Ground		0V
59	TYPEC0_OTG_ID_1V8	USB20 OTG ID input		1.8V
60	TYPEC0_OTG_VBUS_DET	USB OTG VBUS detect input		3.3V
61	GND	Ground		0V
62	USB20_HOST0_DM			1.8V
63	USB20_HOST0_DP			1.8V
64	USB20_HOST1_DM			1.8V
65	USB20_HOST1_DP			1.8V
66	TYPEC0_OTG_DM			1.8V
67	TYPEC0_OTG_DP			1.8V
68	GND	Ground		0V
69	SDMMC0_CLK	CAN0_RX_M1/UART5_TX_M0/PDM1_CLK0_M0	GPIO4_D5_d	3.3V
70	SDMMC0_CMD	CAN0_TX_M1/UART5_RX_M0/PDM1_CLK1_M0	GPIO4_D4_u /PWM7_IR_M1	3.3V
71	SDMMC0_D3	UART5_RTS_M0/PDM1_SDI0_M0/I2C8_SDA_M0	GPIO4_D3_u /PWM10_M1	3.3V
72	SDMMC0_D2	UART5_CTS_M0/PDM1_SDI1_M0/I2C8_SCL_M0	GPIO4_D2_u	3.3V
73	SDMMC0_D1	UART2_RX_M1/PDM1_SDI2_M0/I2C3_SDA_M4	GPIO4_D1_u /PWM9_M1	3.3V
74	SDMMC0_D0	UART2_TX_M1/PDM1_SDI3_M0/I2C3_SCL_M4	GPIO4_D0_u /PWM8_M1	3.3V
75	GND	Ground		0V
76	HDMI0_TX_SBDN/eDP0_TX_AUXN	HDMI0_TX_eARC-/eDP0_TX_AUXN	(Default HDMI)	0.5V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
77	HDMI0_TX_SBDP/eD P0_TX_AUXP	HDMI0_TX_eARC+ /eDP0_TX_AUXP	(Default HDMI)	0.5V
78	HDMI0_TX3N	HDMI0TX_CLKN/eDP0TX3 N	(Default HDMI)	0.5V
79	HDMI0_TX3P	HDMI0TX_CLKP/eDP0TX3 P	(Default HDMI)	0.5V
80	HDMI0_TX0N	HDMI0_TX /eDP0_TX0N	(Default HDMI)	0.5V
81	HDMI0_TX0P	HDMI0_TX /eDP0_TX0P	(Default HDMI)	0.5V
82	HDMI0_TX1N	HDMI0_TX /eDP0_TX1N	(Default HDMI)	0.5V
83	HDMI0_TX1P	HDMI0_TX /eDP0_TX1P	(Default HDMI)	0.5V
84	HDMI0_TX2N	HDMI0_TX /eDP0_TX2N	(Default HDMI)	0.5V
85	HDMI0_TX2P	HDMI0_TX /eDP0_TX2P	(Default HDMI)	0.5V
86	GND	Ground		0V
87	HDMI_TX0_SCL_M0	SPI3_CLK_M1/I2C5_SDA_ M1/BT1120_D13	GPIO4_B7_u	3.3V
88	HDMI_TX0_SDA_M0	SPI3_CS0_M1/I2C8_SCL_ M3/BT1120_D14	GPIO4_C0_u	3.3V
89	HDMI_TX0_CEC_M0	SPI3_CS1_M1/I2C8SDA_ M3/SPDIF1TX_M2/BT1120 _D15	GPIO4_C1_d	3.3V
90	HDMI_TX0_HPDM1	SPI0_CS0_M3/UART9_RX _M2/MCU_JTAG_TCK_M1	GPIO3_D4_d	3.3V
91	PCIE20x1_2_CLKRE Qn_M0	SPI3_MOSI_M3/I2C5_SCL _M0/HDMI_TX0_SCL_M2/ CIF_D11	GPIO3_C7_u	3.3V
92	PCIE20x1_2_PERST n_M0	SPI0_MISO_M3/UART4_T X_M1/PWM9_M2/CIF_D13	GPIO3_D1_d	3.3V
93	PCIE20x1_2_WAKEn _M0	SPI3_CLK_M3/UART4_RX _M1/I2C5_SDA_M0/HDMI_ TX0_SDA_M2/CIF_D12	GPIO3_D0_u /PWM8_M2	3.3V
94	UART2_RX_M0	I2C1_SDA_M0/JATG_TMS _M2/PCIE20X1_1_WAKE_ M0	GPIO0_B6_d (Debug UART) (PU10K)	3.3V
95	UART2_TX_M0	I2C1_SCL_M0/JATG_TCK_ M2/PCIE20X1_CLKREQ_M 0	GPIO0_B5_d (Debug UART) (PU10K)	3.3V
96	I2C7_SDA_M2	SPI0_CLK_M3/UART9_CT SN_M2/PWM10_M2/CIF_D 15	GPIO3_D3_d (PU2.2K)	3.3V
97	I2C7_SCL_M2	SPI0_MOSI_M3/UART9_R TSN_M2 /CIF_D14	GPIO3_D2_d (PU2.2K)	3.3V
98	GND	Ground		0V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
99	SDMMC_DET_1V8	SD Card DET(Need pull up)	GPIO0_A4_u	1.8V
100	PWRON_L	Power Key input	(PU)	3.4~4.5V
101	RESET_L	System Reset (to RST_KEY)	(PU10K)	1.8V
102	VCC_1V8	1.8V IO power output (PMU_Buck10)	(Max:500mA)	1.8V
103	GND	Ground		0V
104	TYPEC0_SBU1/DP_A UXN	TYPEC0_SBU2/DP0_AUX N	(Default TYPE-C)	0.5V
105	TYPEC0_SBU1/DP_A UXP	TYPEC0_SBU1/DP0_AUX P	(Default TYPE-C)	0.5V
106	TYPEC0_SSRX1N	TYPEC0_RX1N/DP0_TX0 N	(Default TYPE-C)	0.5V
107	TYPEC0_SSRX1P	TYPEC0_RX1P/DP0_TX0P	(Default TYPE-C)	0.5V
108	TYPEC0_SSTX1P	TYPEC0_TX1P/DP0_TX1P	(Default TYPE-C)	0.5V
109	TYPEC0_SSTX1N	TYPEC0_TX1N/DP0_TX1N	(Default TYPE-C)	0.5V
110	TYPEC0_SSRX2N	TYPEC0_RX2N/DP0_TX2 N	(Default TYPE-C)	0.5V
111	TYPEC0_SSRX2P	TYPEC0_RX2P/DP0_TX2P	(Default TYPE-C)	0.5V
112	TYPEC0_SSTX2P	TYPEC0_TX2P/DP0_TX3P	(Default TYPE-C)	0.5V
113	TYPEC0_SSTX2N	TYPEC0_TX2N/DP0_TX3N	(Default TYPE-C)	0.5V
114	GND	Ground		0V
115	MIPI_DPHY1_TX_D0 N			0.5V
116	MIPI_DPHY1_TX_D0 P			0.5V
117	MIPI_DPHY1_TX_D1 N			0.5V
118	MIPI_DPHY1_TX_D1 P			0.5V
119	MIPI_DPHY1_TX_CL KN			0.5V
120	MIPI_DPHY1_TX_CL KP			0.5V
121	MIPI_DPHY1_TX_D2 N			0.5V
122	MIPI_DPHY1_TX_D2 P			0.5V
123	MIPI_DPHY1_TX_D3 N			0.5V
124	MIPI_DPHY1_TX_D3 P			0.5V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
125	GND	Ground		0V
126	RECOVERY_SARADC_VIN1	Program need short to GND when power on.	(PU 10K)	1.8V
127	SARADC_VIN2			1.8V
128	SARADC_VIN5			1.8V
129	GND	Ground		0V
130	MIPI_DPHY1_RX_D0N			0.5V
131	MIPI_DPHY1_RX_D0P			0.5V
132	MIPI_DPHY1_RX_D1N			0.5V
133	MIPI_DPHY1_RX_D1P			0.5V
134	MIPI_DPHY1_RX_CLKN			0.5V
135	MIPI_DPHY1_RX_CLKP			0.5V
136	MIPI_DPHY1_RX_D2N			0.5V
137	MIPI_DPHY1_RX_D2P			0.5V
138	MIPI_DPHY1_RX_D3N			0.5V
139	MIPI_DPHY1_RX_D3P			0.5V
140	VCC_3V3_S0	3.3V power out (Sleep OFF)	(Max:500mA)	3.3V
141	PHY1_LED2/CFG_LD_O1	Ethernet Speed LED	(PD 10K)	3.3V
142	PHY1_LED1/CFG_LD_O0	Ethernet Link LED	(PD 10K)	3.3V
143	VCC_RTC	RTC button Cell power input		1.8~3.3V
144	RTC_32KCLK_1V8	32.768kHz output	(GPIO0_B2)(PU 10K)	1.8V
145	DP0_HPDIN_M1_1V8	UART0_RX_M0/I2C4_SDA_M2/PDM0_CLK_M1/PWM2_M0	GPIO0_C4_d	1.8V
146	GPIO0_D5_u_1V8	I2C1_SDA_M2/CAN2_TX_M1/SATA_MP_SWITCH/HD MI_SCL_M1	GPIO0_D5_u	1.8V
147	GND	Ground		0V
148	PHY1_MDIO+			0.5V



Pin	Signal	Description or functions	GPIO serial	IO Voltage
149	PHY1_MDI0-			0.5V
150	PHY1_MDI1+			0.5V
151	PHY1_MDI1-			0.5V
152	PHY1_MDI2+			0.5V
153	PHY1_MDI2-			0.5V
154	PHY1_MDI3+			0.5V
155	PHY1_MDI3-			0.5V
156	GND	Ground		0V
157	MIPI_CSI0_RX_CLK0 N	CSI0_RX0_CLKN		0.5V
158	MIPI_CSI0_RX_CLK0 P	CSI0_RX0_CLK ^P		0.5V
159	MIPI_CSI0_RX_D0N	CSI0_RX0_D0N		0.5V
160	MIPI_CSI0_RX_D0P	CSI0_RX0_D0 ^P		0.5V
161	MIPI_CSI0_RX_D1N	CSI0_RX0_D1N		0.5V
162	MIPI_CSI0_RX_D1P	CSI0_RX0_D1 ^P		0.5V
163	MIPI_CSI0_RX_CLK1 N	CSI0_RX1_CLKN		0.5V
164	MIPI_CSI0_RX_CLK1 P	CSI0_RX1_CLK ^P		0.5V
165	MIPI_CSI0_RX_D2N	CSI0_RX0_D2N / RX1_D0N		0.5V
166	MIPI_CSI0_RX_D2P	CSI0_RX0_D2P / RX1_D0 ^P		0.5V
167	MIPI_CSI0_RX_D3N	CSI0_RX0_D3N / RX1_D1N		0.5V
168	MIPI_CSI0_RX_D3P	CSI0_RX0_D3P / RX1_D1 ^P		0.5V
169	GND	Ground		0V
170	I2S0_SDO2/SDI3_1V8	SPI1_MOSI_M2/I2C7_SDA _M0/PDM0_SDI1_M0/UAR T6_RX_M2	GPIO1_D1_d	1.8V
171	I2S0_SDO1_1V8	SPI1_MISO_M2/I2C7_SCL _M0/UART6_TX_M2	GPIO1_D0_d	1.8V
172	I2S0_SDO0_1V8	I2C4_SCL_M4/UART4_CT SN_M0	GPIO1_C7_d	1.8V
173	I2S0_LRCK_TX_1V8	I2C2_SCL_M3/UART4_RT SN_M0	GPIO1_C5_d	1.8V
174	GND	Ground		0V
175	PCIE20_0_REFCLKN			0.5V
176	PCIE20_0_REFCLKP			0.5V
177	PCIE20_0_RXN/SATA 30_0_RXN	PCIE or SATA interface		0.5V
178	PCIE20_0_RXP/SATA	PCIE or SATA interface		0.5V

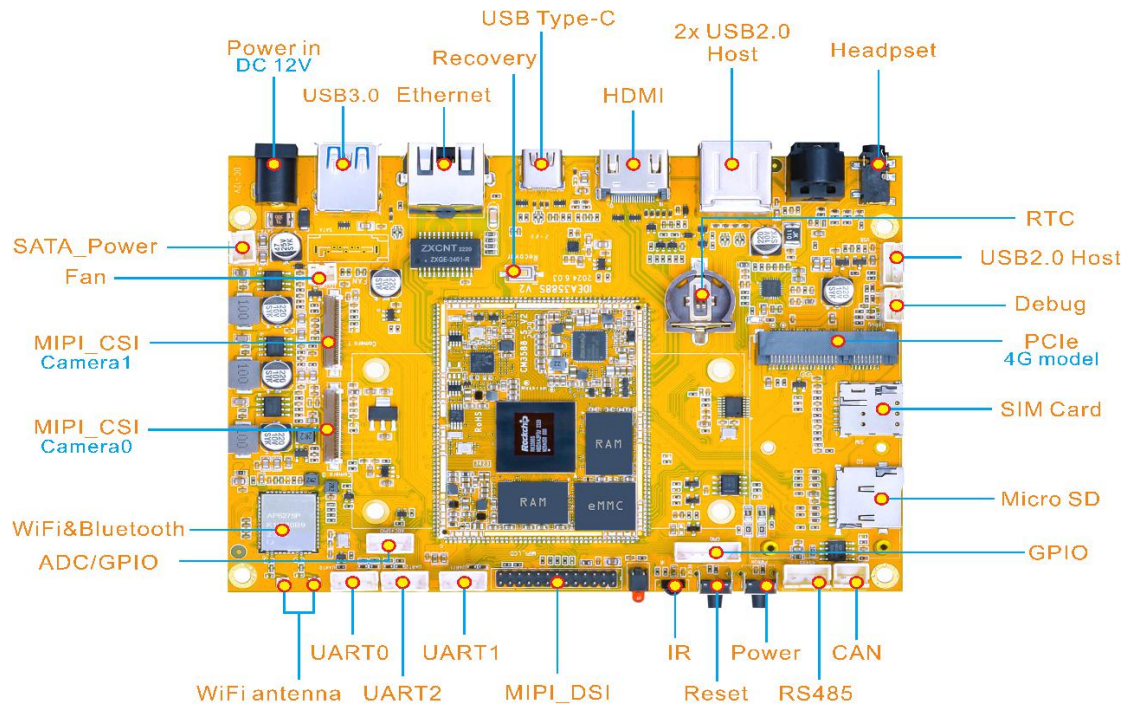


Pin	Signal	Description or functions	GPIO serial	IO Voltage
	30_0_RXP			
179	PCIE20_0_TXN/SATA 30_0_TXN	PCIE or SATA interface		0.5V
180	PCIE20_0_TXP/SATA 30_0_TXP	PCIE or SATA interface		0.5V
181	PCIE20_2_REFCLKP			0.5V
182	PCIE20_2_REFCLKN			0.5V
183	PCIE20_2_TXP/SATA 30_2/USB3_2_TXP	PCIE or SATA interface		0.5V
184	PCIE20_2_TXN/SATA 30_2/USB3_2_TXN	PCIE or SATA interface		0.5V
185	PCIE20_2_RXP/SATA 30_2/USB3_2_RXP	PCIE or SATA interface		0.5V
186	PCIE20_2_RXN/SATA 30_2/USB3_2_RXN	PCIE or SATA interface		0.5V
187	GND	Ground		0V
188	I2S0_SDO3/SDI2_1V8	SPI1_CLK_M2/I2C1_SCL_M4/PDM0_SDI2_M0/UART4_TX_M0/PWM0_M1	GPIO1_D2_d	1.8V
189	I2S0_SDI1_1V8	SPI1_CS0_M2/I2C1_SDA_M4/PDM0_SDI3_M0/UART4_RX_M0/PWM1_M1	GPIO1_D3_d	1.8V
190	I2S0_SDI0_1V8		GPIO1_D4_d	1.8V
191	I2S0_SCLK_TX_1V8	SPI4_CS0_M0/I2C6_SCL_M1/UART3_CTSN_M0	GPIO1_C3_d /PWM7_IR_M2	1.8V
192	I2S0_MCLK_1V8	SPI4_CLK_M0/I2C6_SDA_M1/UART3_RTSN_M0	GPIO1_C2_d /PWM3_IR_M2	1.8V
193	I2C3_SDA_M0_1V8	SPI4_MISO_M0/UART3_RX_M0	GPIO1_C0_z (PU2.2K)	1.8V
194	I2C3_SCL_M0_1V8	SPI4_MOSI_M0/UART3_TX_M0	GPIO1_C1_z (PU2.2K)	1.8V
195	I2C5_SDA_M3_1V8	UART1_RX_M1/SPDIF1_TX_M0/CAMERA2_CLK_M0 / SATA2_ACT_LED_M1	GPIO1_B7_u /PWM13_M2 (PU2.2K)	1.8V
196	I2C5_SCL_M3_1V8	UART1_TX_M1/SPDIF0_TX_M0/CAMERA1_CLK_M0	GPIO1_B6_u (PU2.2K)	1.8V

2 IDE3588S Introduction

1.1 Summary

IDE3588S SBC is comprised of a CM3588S module with 4GB (up to 16GB) RAM and 8GB (up to 256GB) eMMC flash and carrier board, supports HDMI and MIPI DSI video interface, MIPI CSI for 4K camera module, Gigabit Ethernet, SDIO3.0, USB 3.1 Type-C, USB 2.0 Host, WiFi 6, Bluetooth 5.1, as well as optional 4G cellular connectivity, and PCIe slots.



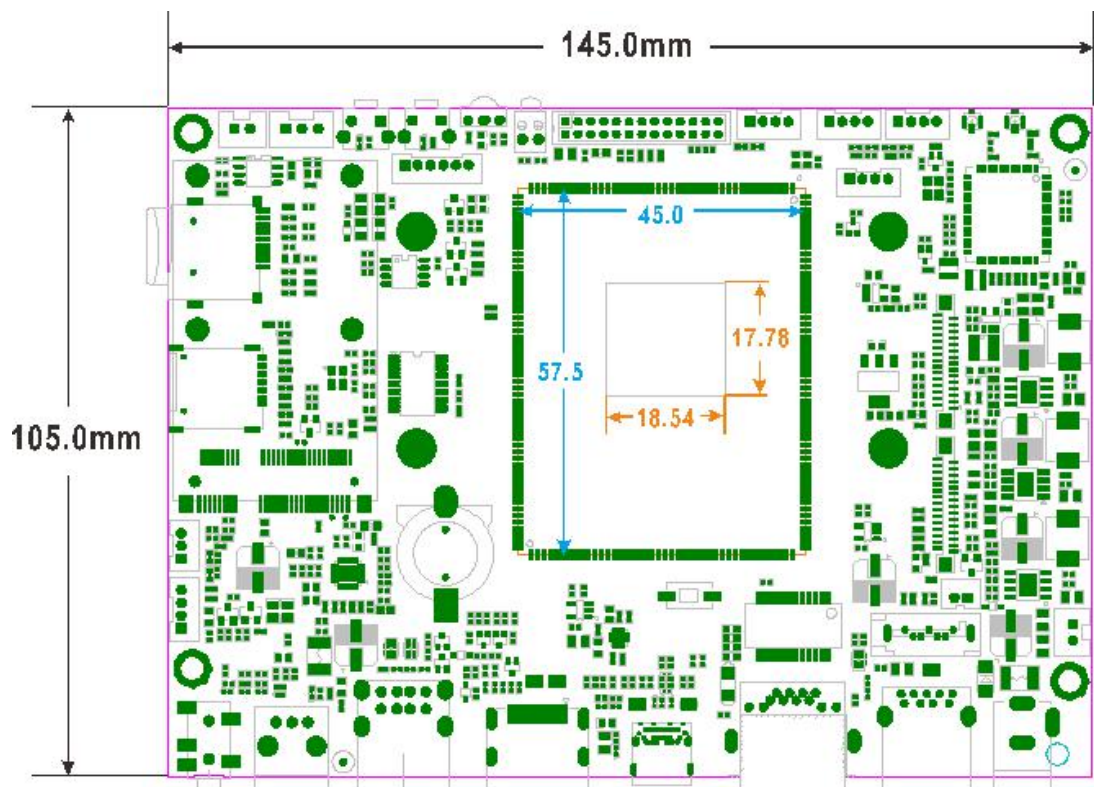
1.2 Features

Specification	
Power Supply	12V/3A DC input jack
USB	1x USB3.1 Type-C 3x USB2.0 Host 2.0 (1x Dual-USB AF connector, 1x 4pin connector) 1x USB3.0 Host
Connectivity	Gigabit Ethernet RJ45 port via Realtek RTL8211F-CG controller 2.4G/5G 2T2R WiFi 6 (802.11a/b/g/n/ac/ax) with Bluetooth5.1(AP6275P) Mini PCIe socket with Nano SIM card port to support 4G LTE Modem
Serial	1x Serial port for debug, 3-pin connector 3x UART, 4-pin connectors 1x RS485
Video	Output HDMI2.1 TX support up to 7680x4320@60Hz MIPI DSI support up to 4K@60Hz (26-pin header) DP1.4 TX support up to 7680x4320@30Hz(TYPEC to DP)

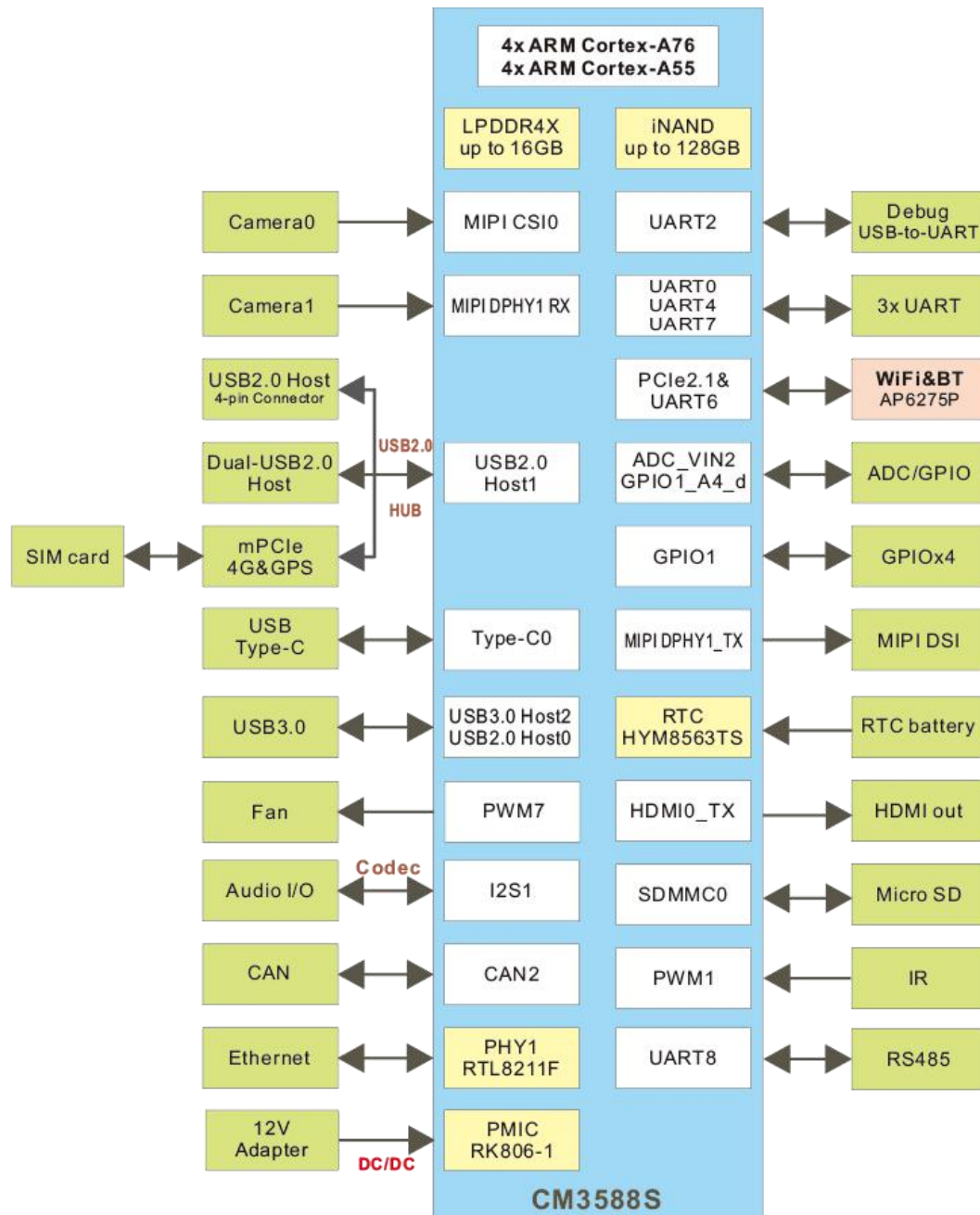


Audio	3.5mm audio I/O jack 8-channel audio via HDMI
Storage	Support 1x MicroSD card
Camera	2x Cameras (Multiplexed with I2C, default camera0), 30-pin FPC connector
Keys	Recover, Reset, Power
Other features	RTC with battery connector; IR receiver, CAN, Fan, ADC, GPIO
Dimension	Based board - 145 x 105 mm

1.3 Based board PCB Dimension



1.4 Block Diagram



1.5 Peripherals Introduction

1.5.1 Power(P1)

The DC JACK is 5.5 x 2.1mm, 3-pin plug Type. Typical 12V/3A DC adapter.



Pin	Signal	Description	Pin	Signal	Description
1	VDD12V	Main power supply, DC voltage 12V input.	2	GND	Ground
3	GND	Ground			

1.5.2 HDMI2.1 TX (J11)

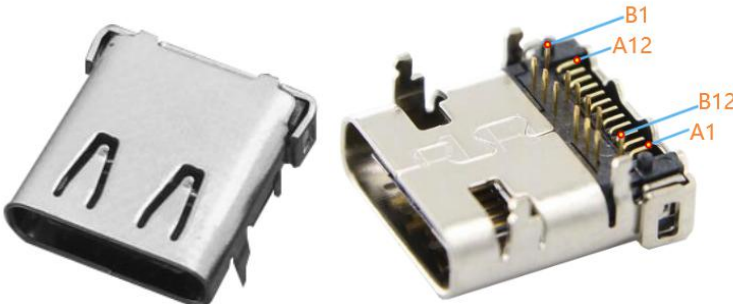
HDMI TX mode: the maximum resolution supports 8K@60Hz, and supports RGB/YUV(Up to 10bit) format.



Pin	Signal	Description	Pin	Signal	Description
1	HDMI0_TX2P	TMDS channel 2+	2	GND	TMDS channel 2 Ground
3	HDMI0_TX2N	TMDS channel 2-	4	HDMI0_TX1P	TMDS channel 1+
5	GND	TMDS channel 1 Ground	6	HDMI0_TX1N	TMDS channel 1-
7	HDMI0_TX0P	TMDS channel 0+	8	GND	TMDS channel 0 Ground
9	HDMI0_TX0N	TMDS channel 0-	10	HDMI0_TX3P	TMDS Clock+
11	GND	TMDS Clock Ground	12	HDMI0_TX3N	TMDS Clock-
13	HDMI0_TX_CEC_PORT	HDMI CEC signal	14	HDMI0_eARC+	ARC channel
15	HDMI0_TX_SCL_PORT	HDMI serial Clock (DDC)	16	HDMI0_TX_SDA_PORT	HDMI serial data line (DDC)
17	GND	DDC /CEC Ground	18	VCC5V_HDMI_TX0	5V power supply
19	HDMI0_TX_HPD_PORT	HDMI Hot plug detection			

1.5.3 USB Type-C(J10)

The USB Type-C interface supports download mode, supports transfer between USB and DP display (multiplexed with DP TX support RGB/YUV (Up to 10bit) format, the maximum output resolution can reach 8K@30Hz), and supports ADB mode.



Pin	Signal	Description	Pin	Signal	Description
A1	GND	Ground	A2	TYPEC0_TX1P	Transmitter serial data +
A3	TYPEC0_TX1N	Transmitter serial data -	A4	VBUS5V0_TYPEC0	5V power supply
A5	TYPEC0_CC1	Configuration channel	A6	TYPEC0_DP	USB data DP
A7	TYPEC0_DM	USB data DM	A8	TYPEC0_SBU1	Sideband use (SBU)
A9	VBUS5V0_TYPEC0	5V power supply	A10	TYPEC0_RX2N	Receiver serial data -
A11	TYPEC0_RX2P	Receiver serial data +	A12	GND	Ground
B1	GND	Ground	B2	TYPEC0_TX2P	Transmitter serial data +
B3	TYPEC0_TX2N	Transmitter serial data -	B4	VBUS5V0_TYPEC0	5V power supply
B5	TYPEC0_CC2	Configuration channel	B6	TYPEC0_DP	USB data DP
B7	TYPEC0_DM	USB data DM	B8	TYPEC0_SBU2	Sideband use (SBU)
B9	VBUS5V0_TYPEC0	5V power supply	B10	TYPEC0_RX1N	Receiver serial data -
B11	TYPEC0_RX1P	Receiver serial data +	B12	GND	Ground

1.5.4 Ethernet (JP1)

The IDEA3588S adopts RTL8211F as the Ethernet chip, RJ45 connector. Supports 10/100/1000 Mbps data transfer rates.





Pin	Signal	Description	Pin	Signal	Description
1	DA+	Bi-directional transmit/receive pair A	2	DA-	Bi-directional transmit/receive pair A
3	DB+	Bi-directional transmit/receive pair B	4	DC+	Bi-directional transmit/receive pair C
5	DC-	Bi-directional transmit/receive pair C	6	DB-	Bi-directional transmit/receive pair B
7	DD+	Bi-directional transmit/receive pair D	8	DD-	Bi-directional transmit/receive pair D
9	GND	Ground	10	GND	Ground
11	VDD3V3	3V3 power supply	12	PHY1_LE D2/CFG_ LDO1	LED2 indicator(Speed)
13	PHY1_LED1/CFG _LDO0	LED1 indicator(Link)	14	GND	Ground

1.5.5 USB3.0 HOST(J5)

The USB3.0 up to 5Gbps data rate.

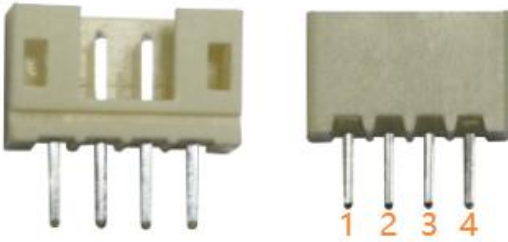


Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_USB30_	5V power supply	2	USB20_HOST0D	Data output for USB

	HOST			M	HS/FS/LS mode
3	USB20_HOST0DP	Data input for USB HS/FS/LS mode	4	GND	Ground
5	USB3_2_RXN	Data input for USB SS mode	6	USB3_2_RXP	Data input for USB SS mode
7	GND	Ground	8	USB3_2_TXN	Data output in USB SS mode
9	USB3_2_TXP	Data output in USB SS mode	10	GND	Ground
11	GND	Ground	12	GND	Ground
13	GND	Ground			

1.5.6 USB2.0 HOST(P3,J17)

The IDEA3588S provides 3x USB2.0 - 1x Dual-USB AF connector, 1x 4pin connector. The 4-ch USB HOST interfaces are extended by CH334R which is a fully compliant with the USB 2.0 hub specification and is designed to work with USB host as a high-speed hub. It is used to connect USB mouse, U disk, and other USB devices. Support hot-plug.

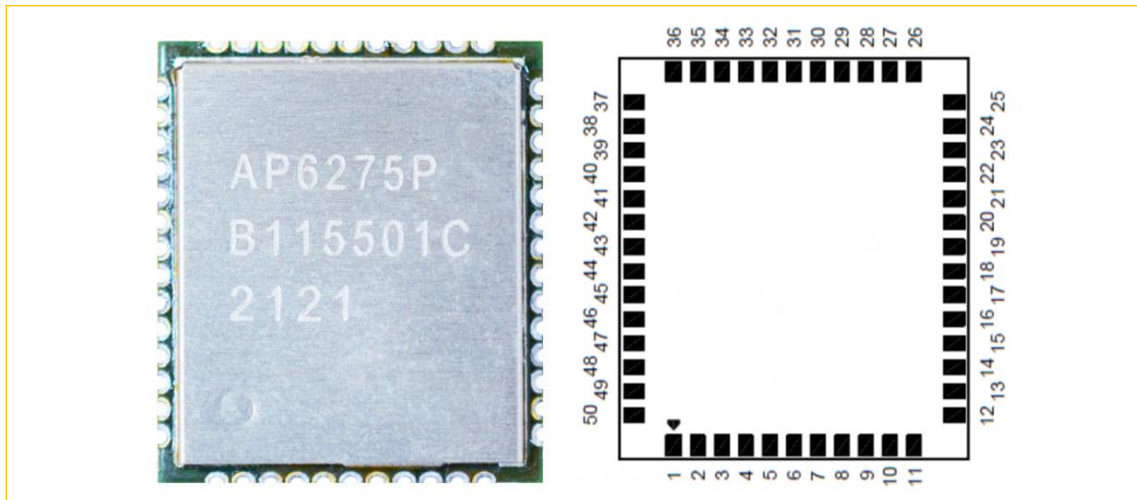
					
P3					
Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_USB20_HOST	5V power supply	2	USB_DM2_J	Data output for USB HS/FS/LS mode
3	USB_DP2_J	Data input for USB HS/FS/LS mode	4	GND	Ground
5	VCC5V0_USB20_HOST	5V power supply	6	USB_DM1_J	Data output in USB HS/FS/LS mode
7	USB_DP1_J	Data input for USB HS/FS/LS mode	8	GND	Ground
					
J17					
Pin	Signal	Description	Pin	Signal	Description



1	VCC5V0_USB20_HOST	5V power supply	2	USB_DM3	Data output in USB HS/FS/LS mode
3	USB_DP3	Data input for USB HS/FS/LS mode	4	GND	Ground

1.5.7 WiFi&Bluetooth(U9)

The AP6276P is a fully Wi-Fi and Bluetooth functionalities module with seamless roaming capabilities and advance security, also it could interact with different vendors' 802.11a/b/g/n/ac/ax 2x2 Access Points with MIMO standard and can accomplish up to speed of 1200Mbps with dual stream in 802.11ax to connect the wireless LAN.

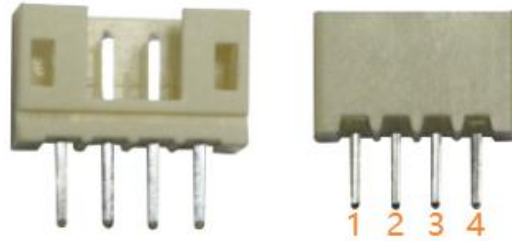


Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	A1	RF(BT&WIFI) I/O port0(Connect to IPEX)
3	GND	Ground	4	GND	Ground
5	GND	Ground	6	GND	Ground
7	GND	Ground	8	GND	Ground
9	A2	RF(WIFI) I/O port1(Connect to IPEX)	10	GND	Ground
11	GND	Ground	12	PCIE20_PERST_n_1V8	PCIe host indication to reset the device
13	XIN_WIFI	Xtal oscillator input	14	XOUT-WIFI	Xtal oscillator output
15	WIFI_REG_ON_H_1V8	Low asserting reset for WiFi core	16	WIFI_WAKE_HOST_H_1V8	WLAN to wake-up HOST
17	NC	Floating (Don' t connected to ground)	18	NC	Floating (Don' t connected to ground)
19	I2S0_SDI0_1V8	PCM Data output	20	I2S0_SDO0_1V8	PCM data input
21	I2S0_LRCK_TX_1	PCM sync signal	22	I2S0_SCLK_TX_	PCM clock

	V8			1V8	
23	GND	Ground	24	PCIE20_WAKEn_1V8	PCI power management event output
25	CBUCK_0P9	Internal Buck voltage generation pin	26	CSR_VLX	Internal Buck voltage generation pin
27	GND	Ground	28	ASR_VLX	Internal Analog Buck voltage generation pin
29	ABUCK_1P12	Internal Analog Buck voltage generation pin	30	GND	Ground
31	RTC_32KCLK_1V8	External Low Power Clock input (32.768KHz)	32	GND	Ground
33	PCIE_REFCLKN	PCI Express differential clock input-Negative	34	VCCIO_WL	I/O Voltage supply input
35	PCIE_REFCLKP	PCI Express differential clock input-Positive	36	VCC3V3_PCIEWL_VBAT	Main power voltage source input
37	PCIE20_CLKREQn_1V8	PCIe clock request	38	BT_REG_ON_H_1V8	Low asserting reset for Bluetooth core
39	GND	Ground	40	UART6_RX_M1_1V8	Bluetooth UART serial data output
41	UART6_TX_M1_1V8	Bluetooth UART serial data input	42	UART6_CTSn_M1_1V8	Bluetooth UART request to send
43	UART6_RTSn_M1_1V8	Bluetooth UART clear to send	44	PCIE_RDN	PCI Express receive data-Negative
45	PCIE_RDP	PCI Express receive data-Positive	46	PCIE_TDN	PCI Express transmit data-Negative
47	PCIE_TDP	PCI Express transmit data-Positive	48	NC	Floating (Don't connected to ground)
49	HOST_WAKE_BT_H_1V8	HOST wake-up Bluetooth device	50	BT_WAKE_HOST_H_1V8	Bluetooth device to wake-up HOST

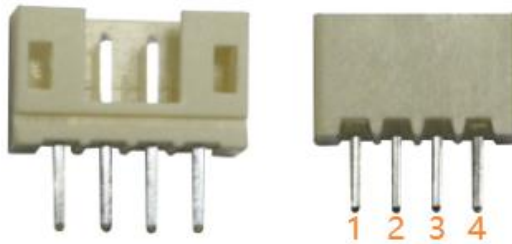
1.5.8 UART0/1/2(J2/J13/J1)

The IDEA3588S UART interface support 5bit, 6bit, 7bit, 8bit serial data transmit or receive, support different input clock for UART operation to get up to 4Mbps baud rate, support auto flow control mode for all UART, and standard asynchronous communication bits such as start, stop and parity.



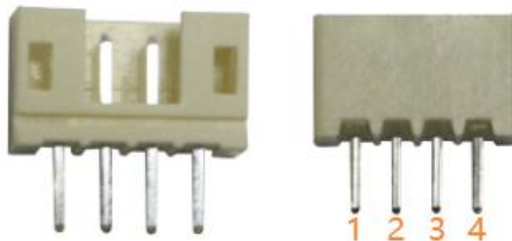
J2(UART0)

Pin	Signal	Description	Pin	Signal	Description
1	VDD3V3	3V3 power supply	2	UART0_RX	UART0 data input
3	UART0_TX	UART0 data output	4	GND	Ground



J13(UART1)

Pin	Signal	Description	Pin	Signal	Description
1	VDD3V3	3V3 power supply	2	UART7_RX	UART7 data input
3	UART7_TX	UART7 data output	4	GND	Ground

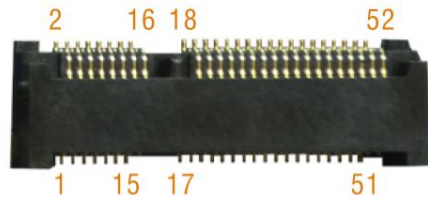


J1(UART2)

Pin	Signal	Description	Pin	Signal	Description
1	VDD3V3	3V3 power supply	2	UART4_RX_1V8	UART4 data input
3	UART4_TX_1V8	UART4 data output	4	GND	Ground

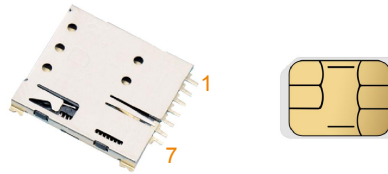
1.5.9 4G Module(J8700, P5)

The MiniPCIe2.0 Slot for 4G module. It delivers 50Mbps-up and 100Mbps-down data rates on 4G FDD networks and can also be fully backward compatible with existing UMTS and GSM/GPRS networks.



Pin	Signal	Description	Pin	Signal	Description
1	LOUT1/ROUT1	Line output	2	VCC3V3_MINIP CIE	3V3 power supply
3	LOUT1/ROUT1	Line output/COEX1	4	GND	Ground
5	MICP	MIC +	6	NC	Not connect
7	MICN	MIC -	8	SIM_VCC	SIM power
9	GND	Ground	10	SIM_DATA	SIM data
11	NC	Not connect	12	SIM_CLK	SIM Clock
13	NC	Not connect	14	SIM_RST	SIM Reset
15	GND	Ground	16	NC	Not connect
17	NC	Not connect	18	GND	Ground
19	NC	Not connect	20	NC	Not connect
21	GND	Ground	22	GPIO1_A6_d_1V8	GPIO
23	NC	Not connect	24	VCC3V3_MINIP CIE	3V3 power supply
25	NC	Not connect	26	GND	Ground
27	GND	Ground	28	NC	Not connect
29	GND	Ground	30	TP8700	TP8700 TP_0.7
31	NC	Not connect	32	TP8701	TP8701 TP_0.7
33	NC	Not connect	34	GND	Ground
35	GND	Ground	36	MINIPCIE_USB_DM	USB Host data DM
37	GND	Ground	38	MINIPCIE_USB_DP	USB Host data DP
39	VCC3V3_MINIPCIE	3V3 power supply	40	GND	Ground
41	VCC3V3_MINIPCIE	3V3 power supply	42	LED_BLUE	LED indicator
43	GND	Ground	44	NC	Not connect
45	TP8702	TP8702 TP_0.7	46	NC	Not connect
47	TP8703	TP8703 TP_0.7	48	NC	Not connect
49	NC	Not connect	50	GND	Ground
51	NC	Not connect	52	VCC3V3_MINIP CIE	3V3 power supply

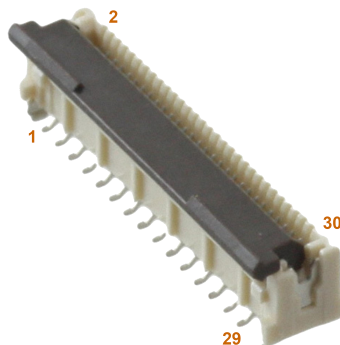
P5 is an auto pop-up SIM card slot which is compatible to the standard SIM Card and can be used for wireless transmission with a 3G/4G module.



SIM Card slot (P5)					
Pin	Signal	Description	Pin	Signal	Description
1	SIM_CLK	Clock	2	SIM_DATA	send/receiver data I/O control
3	SIM_RST	Reset	4	SIM_VCC	SIM power supply
5	SIM_VCC	SIM power supply	6	GND	Ground
7	NC	Not connect			

1.5.10 CAMERA(CON2/4)

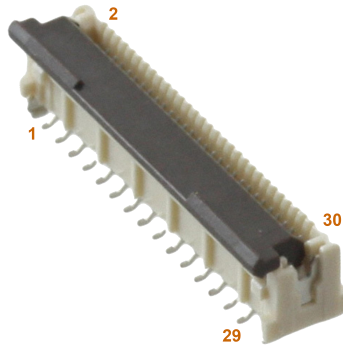
The IDEA3588S provides two 30-pin MIPI connectors, both using the camera DC-IM415-1214V1, support up to 3840(H) x 2160(V) output. Multiplexed with I2C can't use at the same time, default camera0.



CON2(camera0)					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	AF_2V8	AF 2V8 power supply
3	DVDD1V2	1V2 power supply	4	VCC1V8_DVP	1V8 power supply
5	NC	Not connect	6	GND	Ground
7	AVDD2V8_DVP	2V8 power supply	8	GND	Ground
9	I2C3_SDA_M0_1V8	I2C3 data line	10	I2C3_SCL_M0_1V8	I2C3 clock line
11	CAMERA_RST_0	Camera0 reset	12	MIPI_CSI_PWD_N0	enable pin
13	GND	Ground	14	MIPI_CLK0	MIPI clock
15	GND	Ground	16	MIPI_CSI0_RX_D3P	MIPI CSI0 data Lane3 input
17	MIPI_CSI0_RX_D	MIPI CSI0 data	18	GND	Ground



	3N	Lane3 input			
19	MIPI_CSI0_RX_D2P	MIPI CSI0 data Lane2 input	20	MIPI_CSI0_RX_D2N	MIPI CSI0 data Lane2 input
21	GND	Ground	22	MIPI_CSI0_RX_D1P	MIPI CSI0 data Lane1 input
23	MIPI_CSI0_RX_D1N	MIPI CSI0 data Lane1 input	24	GND	Ground
25	MIPI_CSI0_RX_CLK0P	MIPI CSI0 clock 0 input	26	MIPI_CSI0_RX_CLK0N	MIPI CSI0 clock 0 input
27	GND	Ground	28	MIPI_CSI0_RX_D0P	MIPI CSI0 data Lane0 input
29	MIPI_CSI0_RX_D0N	MIPI CSI0 data Lane0 input	30	GND	Ground



CON4(camera1)

Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	AF_2V8	AF 2V8 power supply
3	DVDD1V2	1V2 power supply	4	VCC1V8_DVP	1V8 power supply
5	NC	Not connect	6	GND	Ground
7	AVDD2V8_DVP	2V8 power supply	8	GND	Ground
9	I2C3_SDA_M0_1V8	I2C3 data line	10	I2C3_SCL_M0_1V8	I2C3 clock line
11	CAMERA_RST_1	Camera1 reset	12	MIPI_CSI_PWD_N1	enable pin
13	GND	Ground	14	MIPI_CLK1	MIPI clock
15	GND	Ground	16	MIPI_DPHY1_RX_D3P	MIPI DPHY1 data Lane3 input
17	MIPI_DPHY1_RX_D3N	MIPI DPHY1 data Lane3 input	18	GND	Ground
19	MIPI_DPHY1_RX_D2P	MIPI DPHY1 data Lane2 input	20	MIPI_DPHY1_RX_D2N	MIPI DPHY1 data Lane2 input
21	GND	Ground	22	MIPI_DPHY1_RX_D1P	MIPI DPHY1 data Lane1 input



23	MIPI_DPHY1_RX_D1N	MIPI DPHY1 data Lane1 input	24	GND	Ground
25	MIPI_DPHY1_RX_CLKP	MIPI DPHY1 clock 0 input	26	MIPI_DPHY1_RX_CLKN	MIPI DPHY1 clock 0 input
27	GND	Ground	28	MIPI_DPHY1_RX_D0P	MIPI DPHY1 data Lane0 input
29	MIPI_DPHY1_RX_D0N	MIPI DPHY1 data Lane0 input	30	GND	Ground

1.5.11 RTC Power(BT1)

The backup battery (3V) is used to ensure the RTC (frequency 32.768KHz) is still able to work after power off. Lithium cell model: CR1220.

					
Pin	Signal	Description	Pin	Signal	Description
1	VCC_RTC	battery positive	2	GND	Ground

1.5.12 POWER LED(D4)

					
D4(Power LED)					
Pin	Signal	Description	Pin	Signal	Description
1	VCC_3V3_S0	3V3 supply input	2	GND	Ground

1.5.13 EARPHONE(J9 3.5mm jack)

The IDEA3588S adopts audio codec ES8388 to provide stereo audio output/input.

Feature

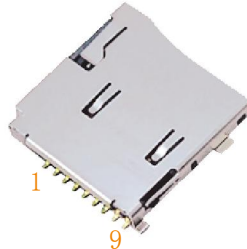
- Low power
- Integrated ADC and DAC
- IIS transfer audio data
- Stereo output, support recording



Pin	Signal	Description	Pin	Signal	Description
1	HP_GND	Ground	2	ROUT2	Headphone amplifier output _Right channel
3	LOUT2	Headphone amplifier output _Left channel	4	HP_DET_L	Headphone Detect
5	INP_PHONE_MIC	Single-end input for microphone			

1.5.14 Micro SD(J8)

The Micro SD card is used as an external storage device. The MMC controller interface supports up to 4-bit transfer modes. MMC is always accessible through the carrier board interface.



Pin	Signal	Description	Pin	Signal	Description
1	SDMMC0_D2	SD/MMC data2	2	SDMMC0_D3	SD/MMC data3
3	SDMMC0_CMD	SD/MMC command signal	4	VCCIO_SD	3.3V
5	SDMMC0_CLK	SD/MMC clock	6	GND	Ground
7	SDMMC0_D0	SD/MMC data0	8	SDMMC0_D1	SD/MMC data1
9	SDMMC_DET_1V8	SD/MMC detect signal			

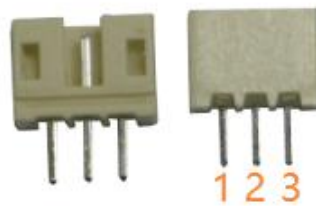
1.5.15 IR(U2)



Pin	Signal	Description	Pin	Signal	Description
1	PWM11_IR_M3	IR reception	2	GND	Ground
3	VCC_3V3_S0	3V3 power supply			

1.5.16 DEBUG(J3)

Debug serial connector, baud rate is 1500000.



Pin	Signal	Description	Pin	Signal	Description
1	UART2_RX_M0	UART2 data input	2	UART2_TX_M0	UART2 data output
3	GND	Ground			

1.5.17 RS485(J7)

SN75176B Differential bus transceiver.

- Bidirectional Transceivers
- $\pm 200\text{mV}$ Receiver Input Sensitivity
- 50mV Type Receiver Input Hysteresis



Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	RS485_A	RS-485 Data Line
3	RS485_B	RS-485 Data Line			

1.5.18 CAN(J16)

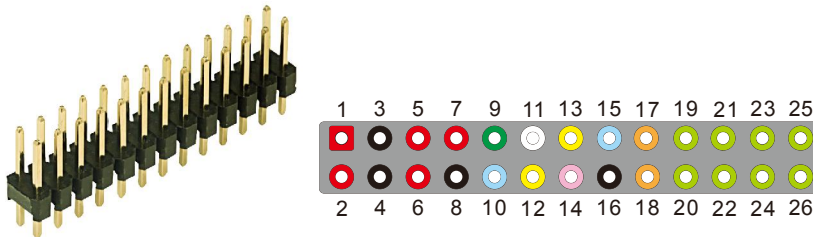
The IDEA3588S CAN bus support CAN 2.0B protocol and support 1Mbps, 8Mbps. support transmit or receive CAN standard frame and extended frame, and support transmit or receive data frame, remote frame, overload frame, error frame and frame interval.



Pin	Signal	Description	Pin	Signal	Description
1	CAN1H	CAN High-Level Voltage I/O	2	CAN1L	CAN Low-Level Voltage I/O

1.5.19 MIPI_LCD(CON3)

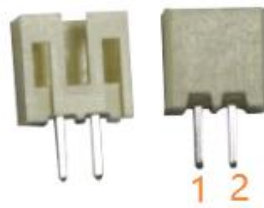
MIPI TX mode: maximum resolution supports 4K@60Hz, support RGB (Up to 10bit) format.



Pin	Signal	Description	Pin	Signal	Description
1	VDD5V	5V5 power supply	2	VDD5V	5V5 power supply
3	GND	Ground	4	GND	Ground
5	VCC3V3_LCD	3V3 power supply	6	VCC3V3_LCD	3V3 power supply
7	VCC_1V8	1V8 power supply	8	GND	Ground
9	LCD_BL_PWM	LCD Backlight PWM output	10	GPIO1_A5_d_1V8	GPIO control LCD Power enable
11	PDM0_SDI0_1V8/NC	1V8 power supply/NC(default NC)	12	I2C5_SCL_M3_1V8	TOUCH_SCL(TP I2C serial clock line)
13	I2C5_SDA_M3_1V8	TOUCH_SDA(TP I2C data line)	14	I2S0_SDO3/SDI2_1V8	TOUCH_RST(Touch screen reset)
15	I2S0_SDI1_1V8	TOUCH_INT(Touch screen Interrupt)	16	GND	Ground
17	MIPI_DPHY1_TX_D0N	MIPI data0 lane negative output	18	MIPI_DPHY1_TX_D0P	MIPI data0 lane positive output
19	MIPI_DPHY1_TX_D1N	MIPI data1 lane negative output	20	MIPI_DPHY1_TX_D1P	MIPI data1 lane positive output

21	MIPI_DPHY1_TX_CLKN	MIPI clock negative	22	MIPI_DPHY1_TX_CLKP	MIPI clock positive
23	MIPI_DPHY1_TX_D2N	MIPI data2 lane negative output	24	MIPI_DPHY1_TX_D2P	MIPI data2 lane positive output
25	MIPI_DPHY1_TX_D3N	MIPI data3 lane negative output	26	MIPI_DPHY1_TX_D3P	MIPI data3 lane positive output

1.5.20 FAN(J4)



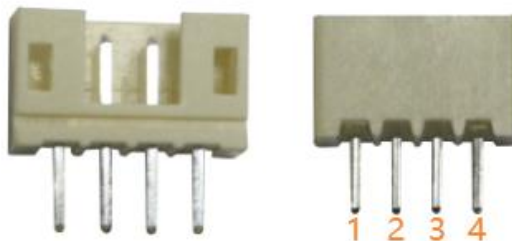
Pin	Signal	Description	Pin	Signal	Description
1	PWM7_IR_M0_1V8	GPIO control set to low voltage(GND)	2	VDD12V	12V power supply

1.5.21 GPIO/ADC(J12/J6)



J12

Pin	Signal	Description	Pin	Signal	Description
1	VDD3V3	3V3 power supply	2	SPI0_MISO_M2_1V8	GPIO
3	SPI0_CS1_M2_1V8	GPIO	4	SPI0_CS0_M2_1V8	GPIO
5	I2S0_MCLK_1V8	GPIO	6	GND	Ground



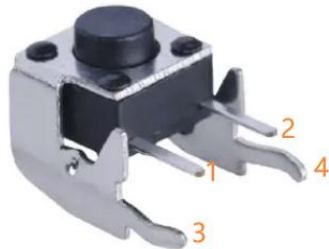
J6

Pin	Signal	Description	Pin	Signal	Description
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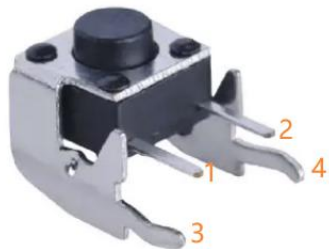
1	VDD3V3	3V3 power supply	2	SARADC_VIN2	ADC input
3	GPIO1_A4_d_1V8	GPIO	4	GND	Ground

1.5.22 KEY(K1/2/3)



K1(POWER KEY)

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	PWRON_L	POWER
3	GND	Ground	4	GND	Ground



K3(RESET KEY)

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	RESET_L	RESET
3	GND	Ground	4	GND	Ground



K2(RECOVERY KEY)

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	RECOVERY_SA RADC_VIN1	RECOVERY

3 Product Configurations

3.1 Standard Contents

NO.	Item	Qty. (PCS)	Description
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1	IDEA3588S board	1	Standard Content (4GB RAM, 8GB eMMC) with WIFI and BT
2	U-DISK/ CD-ROM	1	Android/Debian/Buildroot BSP, Documents, tools, Schematic Drawing, datasheets
3	Ethernet cable	1	1.5m Crossover cable
4	Serial Cable	1	CH9102X
5	USB Cable	1	USB Type_C
6	Power adaptor	1	12V/3A DC
7	WIFI antenna	1	WIFI&Bluetooth antenna

3.2 Optional Parts

- MIPI camera Module (DC-IM415-1214V1)
- LCD Module (10.1-inch MIPI panel)
- 4G Module