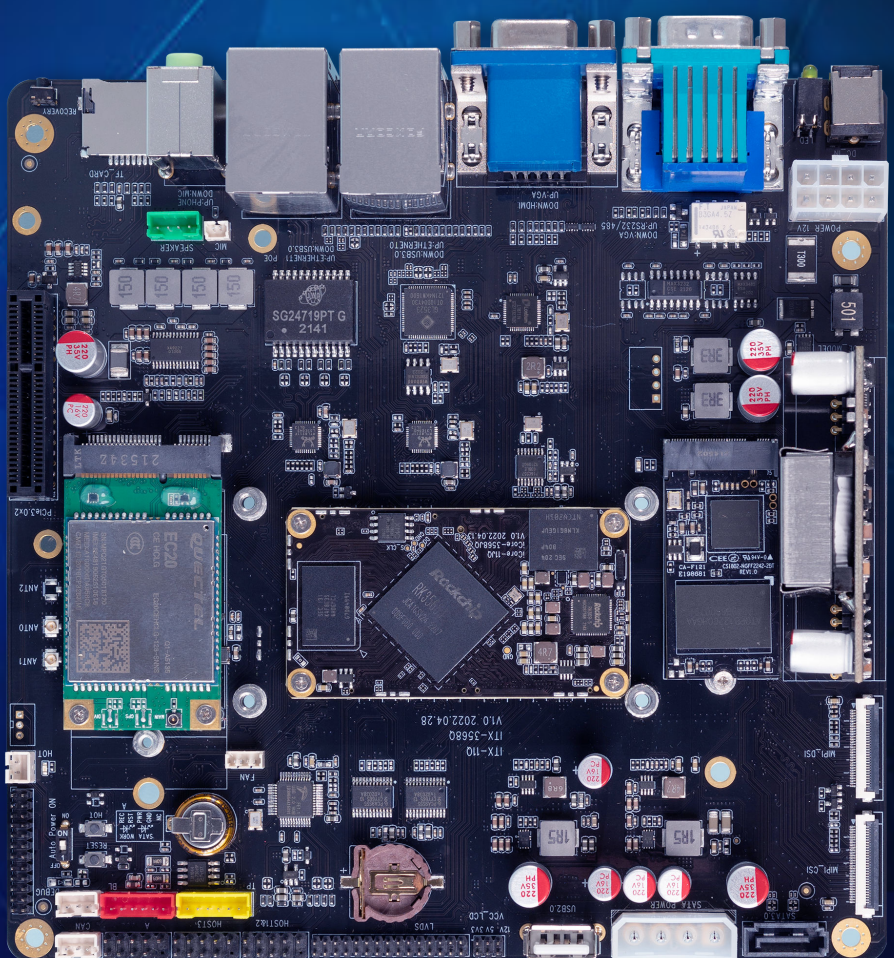
ITX-3568JQ

Quad Core ITX Standard Mainboard

V1.0



T-CHIP INTELLIGENCE TECHNOLOGY CO.,LTD.

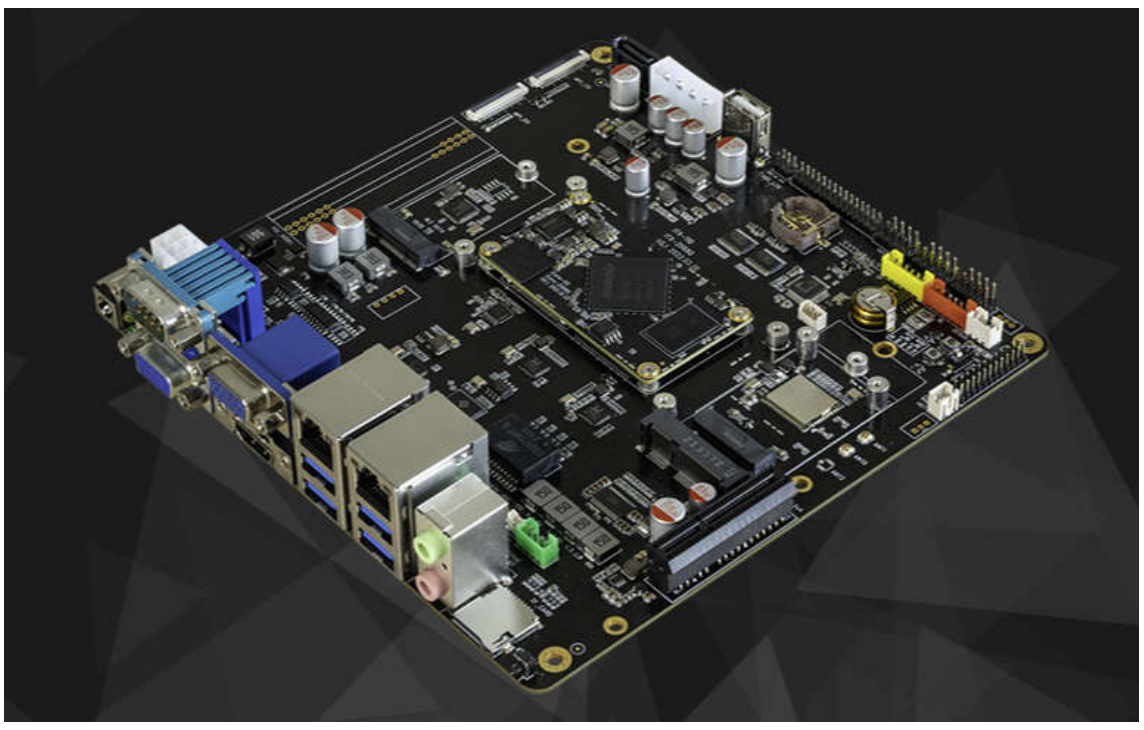
www.t-firefly.com

Update history

Version	Date	Details
V0.1	2022-02-28	initial version
V1.0	2022-6-13	Interface definition update

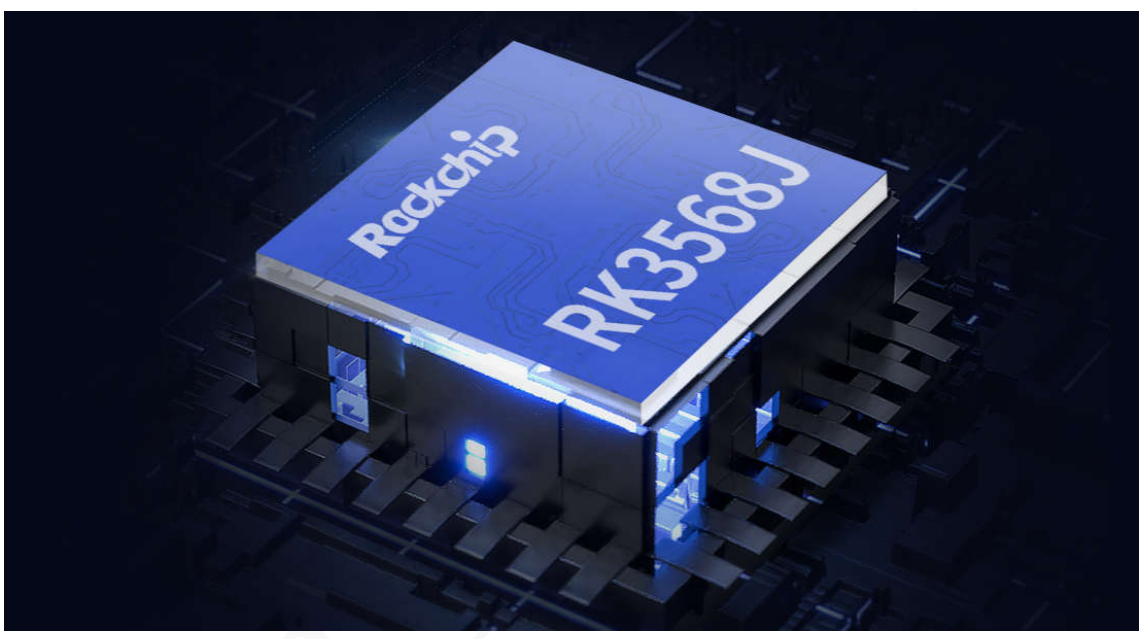
Overview

Equipped with RK3568J quad-core 64-bit industrial-grade processor , the core board supports up to 8GB RAM. It supports WiFi 6, 5G/4G and other high-speed wireless network communications, and BTB port provides more powerful transmission. With industrial-grade stability, it delivers long and stable operation between -40°C and 85°C. Backplane reference design and other open resources are provided for users to make further customization.



RK3568J industrial-grade processor

The quad-core 64-bit Cortex-A55 processor, with 22nm lithography process, has frequency up to 2.0GHz, delivering efficient and stable performance for data processing of back-end equipment. There are a variety of storage options, allowing customers to quickly implement the research and production of products.

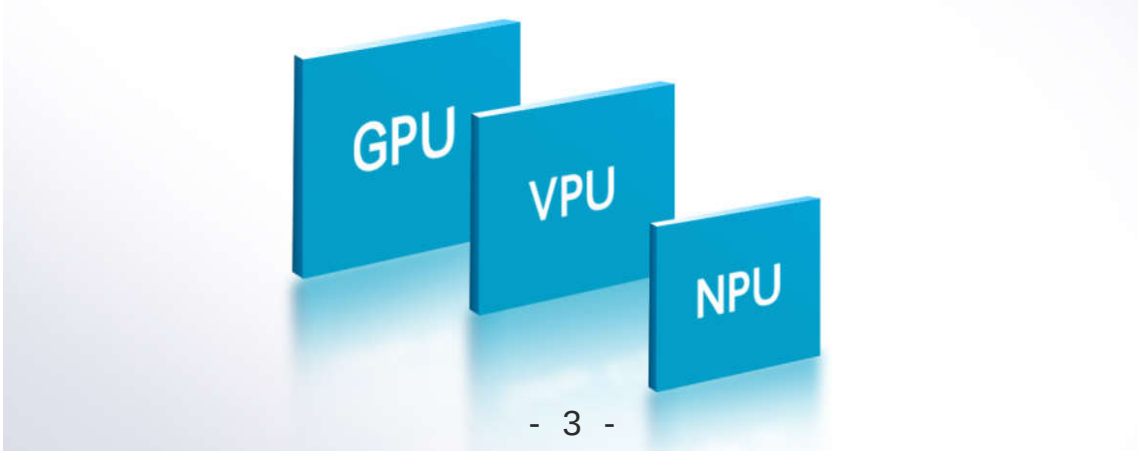


8GB large RAM, all-data-link ECC

It supports up to 8GB RAM, with up to 32Bit width and frequency up to 1600MHz. It supports all-data-link ECC, making data safer and more reliable, and meeting the requirements of running large-memory products.

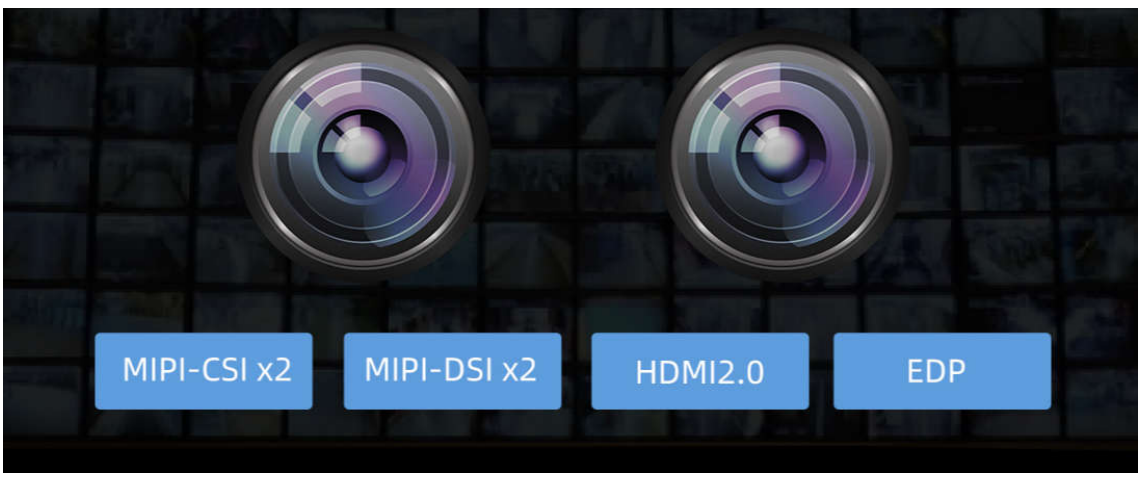
Integrated co-processors — GPU, VPU, NPU

It is integrated with dual-core GPU, high-performance VPU and high-efficiency NPU. The GPU supports OpenGL ES3.2/2.0/1.1, Vulkan1.1. The VPU can achieve 4K 60fps H.265/H.264/VP9 video decoding and 1920x1080@60fps H.265/ H.264 video encoding. The NPU supports one-click switching of mainstream frameworks like Caffe/TensorFlow.



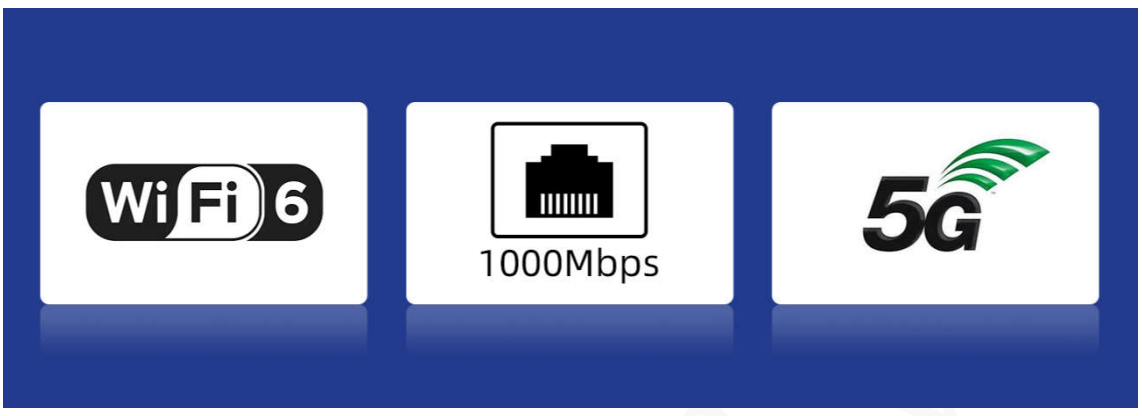
Various display interfaces, dual cameras supported

With MIPI-CSI x2, MIPI-DSI x2, HDMI2.0 and EDP video interface, it can support up to three screen output with different display. The built-in 8M ISP supports dual cameras and HDR. Video input interface can be connected to an external camera or multiple cameras. The board can be used in NVR, intelligent terminal, multimedia advertising player, etc.



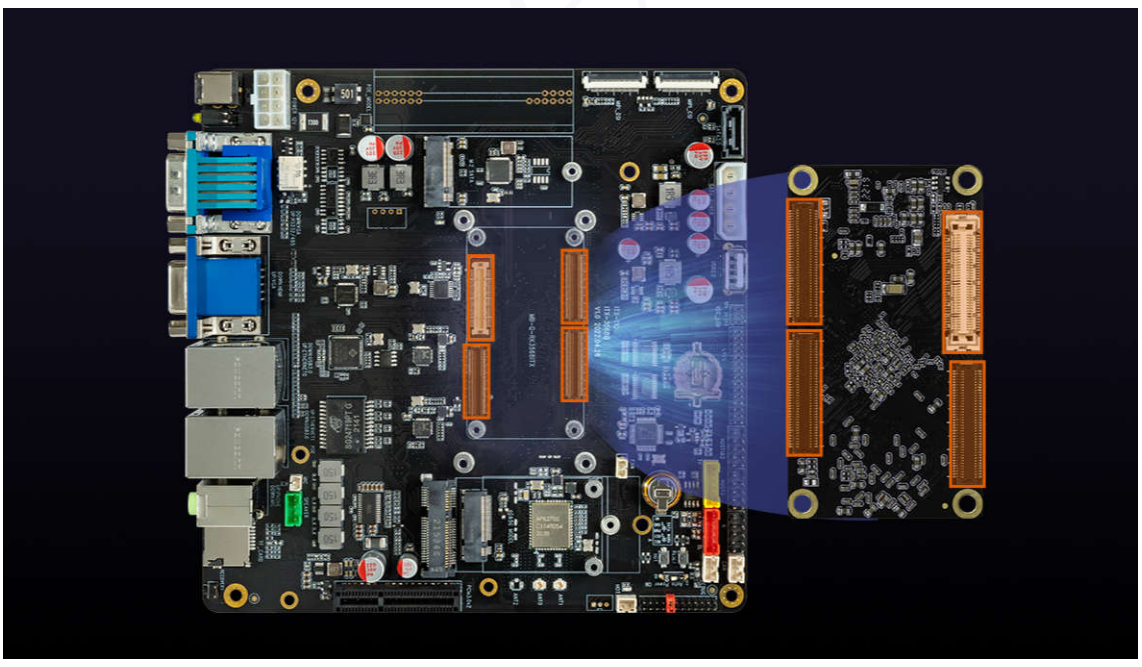
Powerful network communication

It is integrated with PCIe3.0, GMAC Ethernet controller, SDIO3.0 interface, and can be extended to multi-channel Gigabit Ethernet,WiFi 6/Bluetooth, 5G/4G LTE, enabling higher-rate communication.



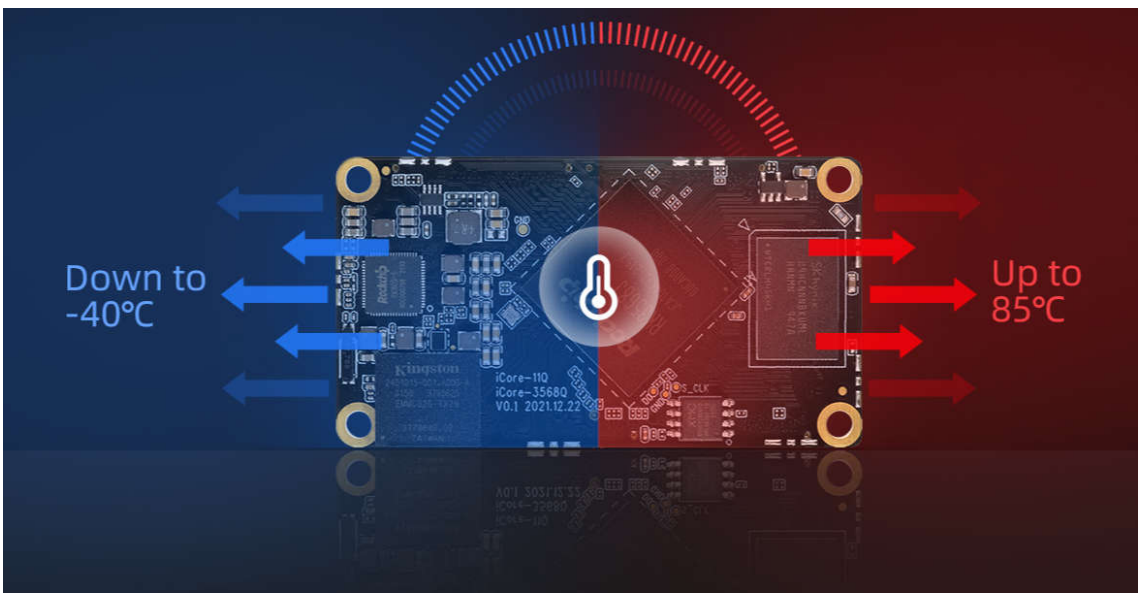
Firm and tight BTB port

The core board is equipped with BTB port, which is smaller in size, enabling more convenient to connect to the backplane; and the connection is tight and firm, which is convenient for the design and mass production of industrial products.



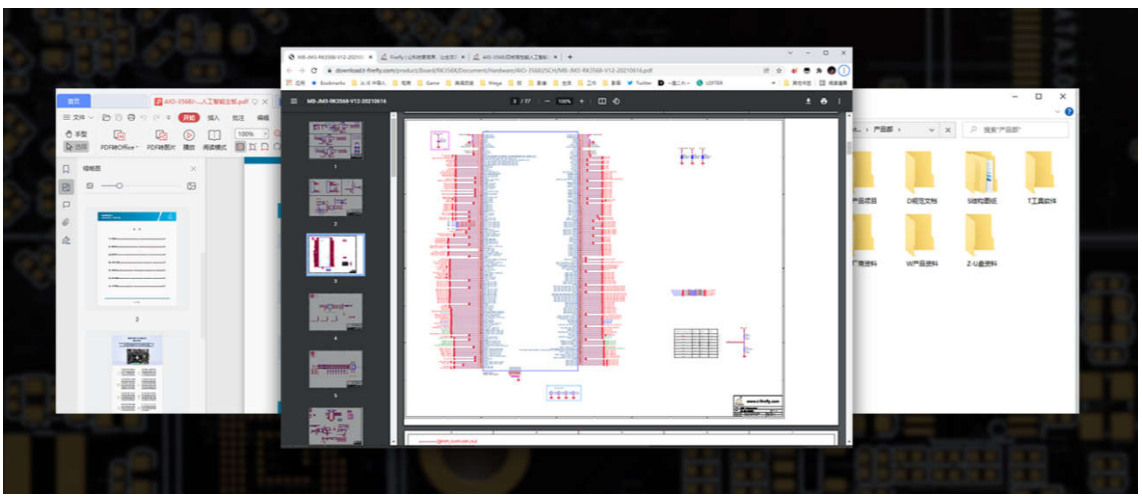
Wide-temperature stable operation

It is made of strictly selected industrial-grade processor and components, so it can provide 7x24h continuous and stable operation in harsh operating environments regardless of it is as low as -40°C or as high as 85°C, satisfying the industrial-grade needs.



Backplane reference design is provided

Backplane reference design and complete technical information are provided, so users can efficiently proceed secondary development to quickly create independent and controllable products.



Android and Linux are supported

Android 11.0, Ubuntu Desktop version and Server version are supported. And it also supports RTLinux, delivering excellent real-time performance. The stable and reliable operation provides a safe and stable system environment for product research and production.

Abundant resources

SDK, tutorials, tech docs and dev tools are provided, making development simpler and more convenient.

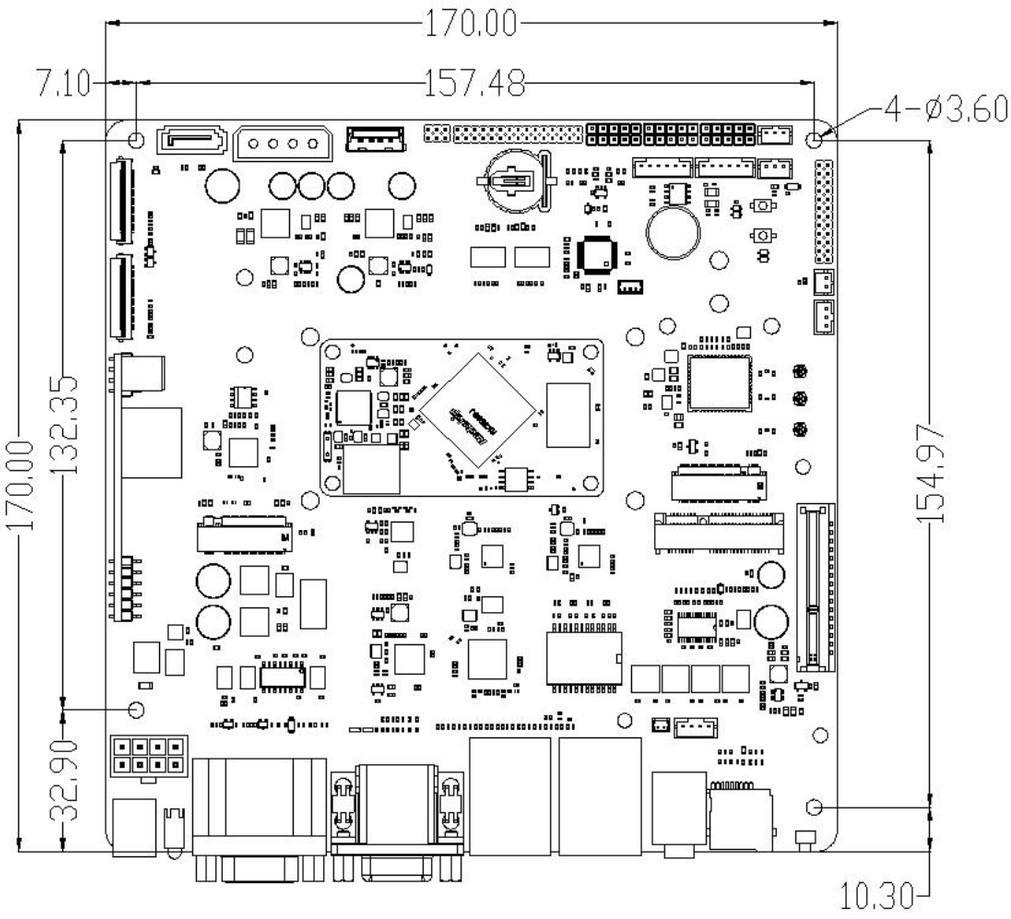
A wide range of applications

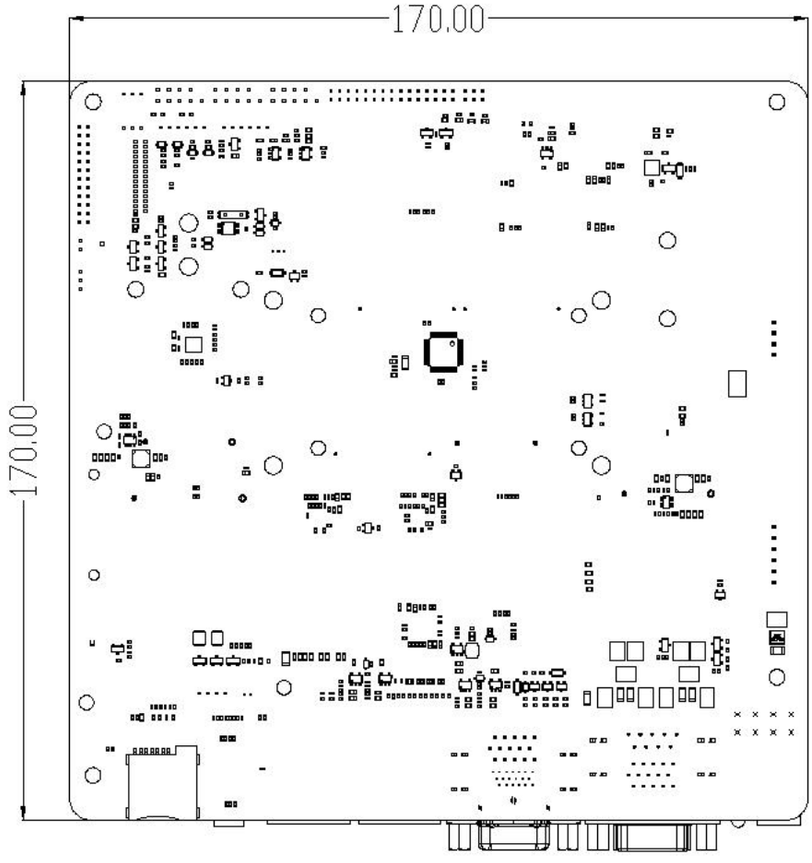
This core board can be widely used in smart NVR, cloud terminal, IoT gateway, industrial control, edge computing,face recognition gate, NAS, vehicle center console, etc.

Specification

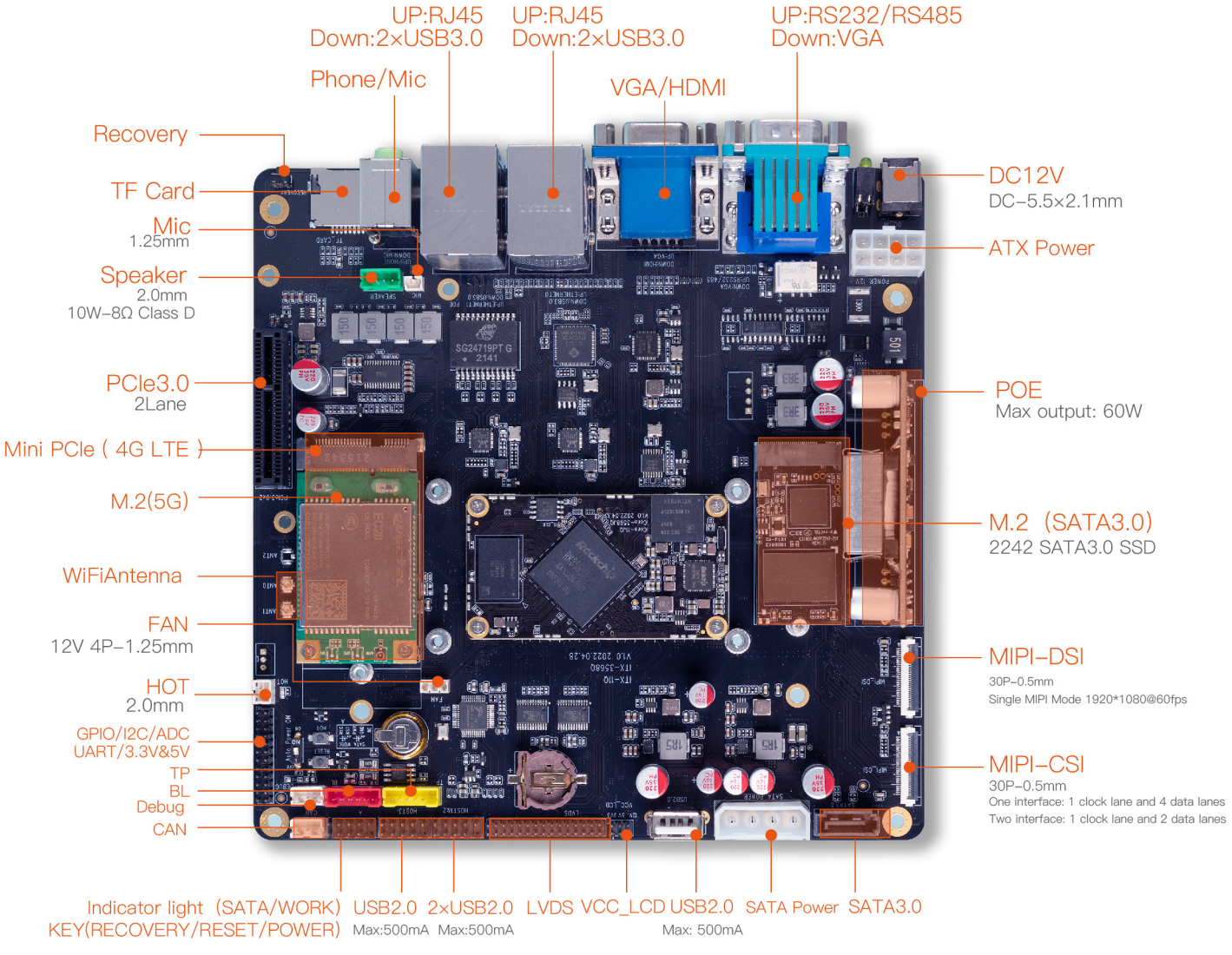
Basic	
SOC	RockChip RK3568J
CPU	Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, clock speed up to 2.0GHz
GPU	ARM G52 2EE Support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1 Embedded high-performance 2D acceleration hardware
NPU	Integrated high-performance AI accelerator RKNN NPU, 1.0Tops@INT8 Support one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
VPU	Support 4K 60fps H.265/H.264/VP9 video decoding Support 1080P 60fps H.265/H.264 video encoding Support 8M ISP, HDR
RAM	1GB/2GB/4GB/8GB LPDDR4
Storage	8GB/16GB/32GB/64GB/128GB eMMC 16 MB SPI Flash
Hardware	
Ethernet	2×1000Mbps dual Gigabit Ethernet (RJ45), support POE (output power 60W)
Wireless	Support 2.4GHz / 5GHz dual-band WiFi, WiFi6, 802.11a/b/g/n/ac/ax protocol Support Bluetooth 5.0 Support extended 5G / 4G LTE wireless communication
Display Interfaces	1 × HDMI2.0, support 4K@60 Hz 1 × MIPI DSI, support single-channel 1920 * 1080@60fps 1 × LVDS display interface (connected to pin header) 2 × VGA (1080P) * Up to three-screen output with different displays is supported.
Camera	1 × MIPI CSI camera interface (single channel (4Lane) or dual channel (2Lane))
Audio Jack	1 × HDMI audio output 1 × 3.5mm earphone audio output 1 × Speaker output (10W-8Ω Class D)
PCIE	1 × PCIe 3.0 (2Lane), expanded with standard PCIe3.0 device
SATA	1 × SATA 3.0 1 × M.2 SATA3.0 (expanded with 2242 SATA SSD)
USB	4 × USB3.0 (current limit:1A) 3 × USB2.0 (two of them are connected to pin header) (current limit:500mA)
Other Interfaces	RS485, RS232, I2C, CAN, UART, ADC, GPIO, Debug, FAN, MIC
Power	Various power supply ways: DC12V voltage input (DC5.5×2.1mm, above 12V/1.5A recommended) Computer case power 12V input (standard ATX power interface) POE 48V power input (up to 60W)
Software	
OS	Support Android 11.0, Ubuntu 18.04, Ubuntu 20.04 and RTLinux
General	
Size	17cm×17cm (standard Mini-ITX), for general ITX computer cases
Weight	≈400g (no peripheral devices)
Heat Dissipation	JM3 cooling fan
Power Consumption	Typical: 6W (12V/0.5A) Max: 12W (12V/1A)
Environment	Operating Temperature: -40℃ ~ 85℃ Storage Humidity: 10%～80 %

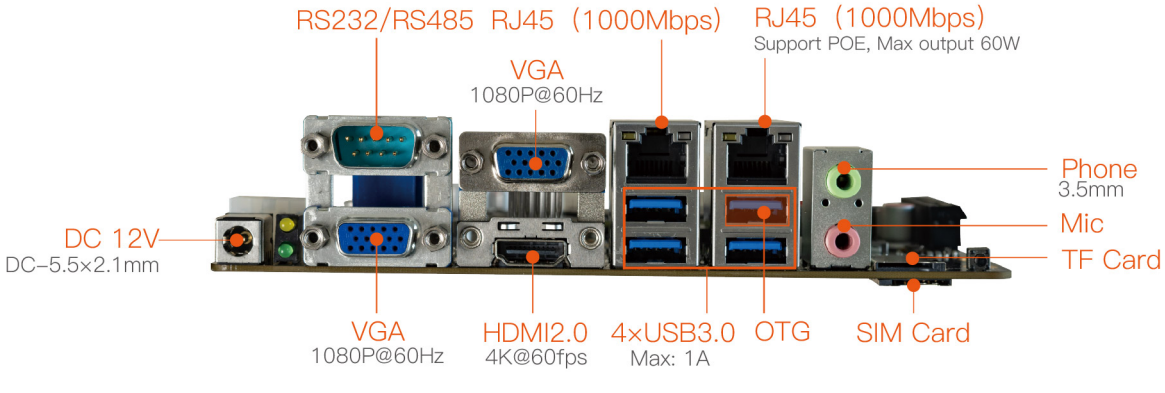
Dimension


170.00
7.10
157.48
4-Ø3.60
170.00
132.35
154.97
32.90
10.30


170.00
170.00

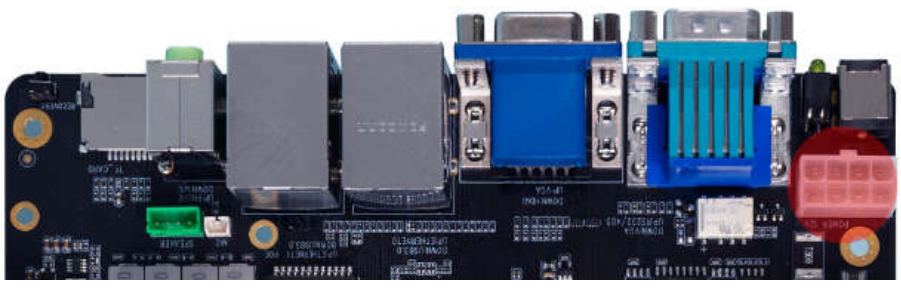
Interface


UP:RJ45
Down:2×USB3.0
UP:RJ45
Down:2×USB3.0
UP:RS232/RS485
Down:VGA
Phone/Mic
VGA/HDMI
Recovery
TF Card
Mic
1.25mm
Speaker
2.0mm
10W-8Ω Class D
PCIe3.0
2Lane
Mini PCIe (4G LTE)
M.2(5G)
WiFiAntenna
FAN
12V 4P-1.25mm
HOT
2.0mm
GPIO/I2C/ADC
UART/3.3V&5V
TP
BL
Debug
CAN
DC12V
DC-5.5×2.1mm
ATX Power
POE
Max output: 60W
M.2 (SATA3.0)
2242 SATA3.0 SSD
MIPI-DSI
30P-0.5mm
Single MIPI Mode 1920*1080@60fps
MIPI-CSI
30P-0.5mm
One interface: 1 clock lane and 4 data lanes
Two interface: 1 clock lane and 2 data lanes
Indicator light (SATA/WORK)
KEY(RECOVERY/RESET/POWER)
USB2.0
Max:500mA
2×USB2.0
Max:500mA
LVDS
VCC_LCD
USB2.0
Max: 500mA
SATA Power
SATA3.0


RS232/RS485
RJ45 (1000Mbps)
VGA
1080P@60Hz
RJ45 (1000Mbps)
Support POE, Max output 60W
Phone
3.5mm
Mic
TF Card
DC 12V
DC-5.5×2.1mm
VGA
1080P@60Hz
HDMI2.0
4K@60fps
4×USB3.0
Max: 1A
OTG
SIM Card

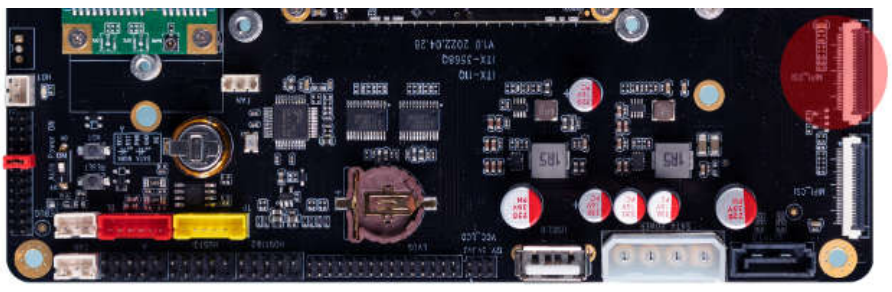
Interface Definition

1. (J10) POWER 8 PIN 4.2mm Pitch



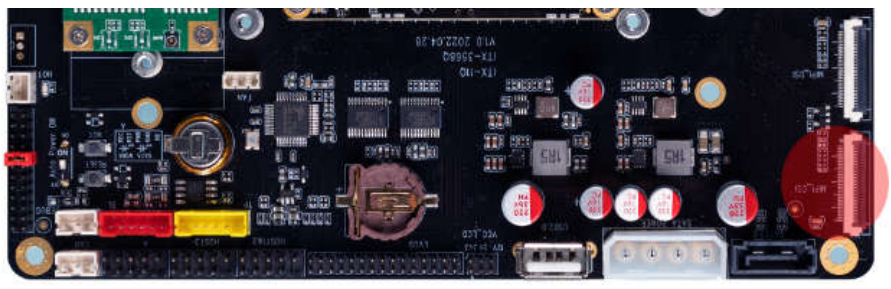
NO.	Definition	Level/V	NO.	Definition	Level/V
1	DC_IN (12V Input)	12V	2	GND	
3	DC_IN (12V Input)	12V	4	GND	
5	DC_IN (12V Input)	12V	6	GND	
7	DC_IN (12V Input)	12V	8	GND	

2. (J20) MIPI_Display_Interface 30 PIN



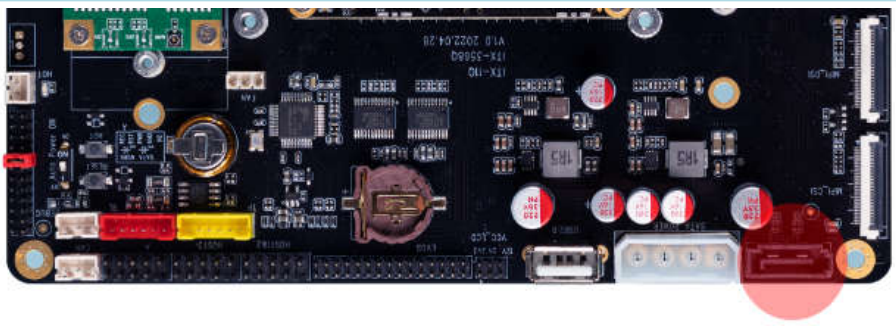
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_SYS (5V Output)	5V	16	MIPI_DSI_TX1_D0P	1.8V
2	VCC5V0_SYS (5V Output)	5V	17	MIPI_DSI_TX1_D0N	1.8V
3	VCC5V0_SYS (5V Output)	5V	18	GND	
4	GND		19	MIPI_DSI_TX1_D1P	1.8V
5	I2C_ID (pull down resistance 10K)	3.3V	20	MIPI_DSI_TX1_D1N	1.8V
6	VCC3V3_SYS (3.3V Output)	3.3V	21	GND	
7	I2C4_SDA_M0_TP (pull up resistance 2.2K)	3.3V	22	MIPI_DSI_TX1_CLKP	1.8V
8	I2C4_SCL_M0_TP (pull up resistance 2.2K)	3.3V	23	MIPI_DSI_TX1_CLKN	1.8V
9	LCD_VCC_EN【from PCA9555】	3.3V	24	GND	
10	MIPI_TP_INT【GPIO0_C4】 (pull up resistance 2.2K)	3.3V	25	MIPI_DSI_TX1_D2P	1.8V
11	MIPI_BL_EN 【from PCA9555】	3.3V	26	MIPI_DSI_TX1_D2N	1.8V
12	MIPI_BL_PWM【GPIO0_C3】	3.3V	27	GND	0V
13	LCD1_RST【GPIO0_B0】	3.3V	28	MIPI_DSI_TX1_D3P	1.8V
14	MIPI_TP_RESET【from PCA9555】	3.3V	29	MIPI_DSI_TX1_D3N	1.8V
15	GND		30	GND	

3. (J14) MIPI CAMERA 30 PIN



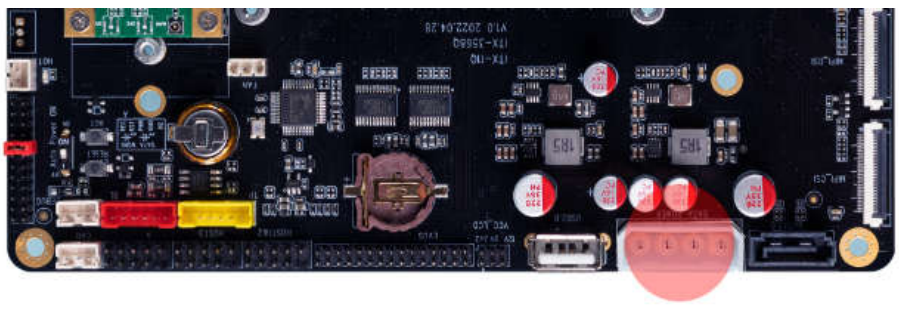
NO.	Definition	Level/V	NO.	Definition	Level/V
1	I2C4_SDA_M0 (Core board Pull up resistance 2.2K)	1.8V	17	MIPI_CSI_RX_CLK0P	1.8V
2	I2C4_SCL_M0 (Core board Pull up resistance 2.2K)	1.8V	18	MIPI_CSI_RX_CLK0N	1.8V
3	MIPI_PDN0CAM【from PCA9555】	1.8V	19	GND	
4	RESET0_CAM【from PCA9555】	1.8V	20	MIPI_CSI_RX_D2P	1.8V
5	GND		21	MIPI_CSI_RX_D2N	1.8V
6	MIPI_MCLK0 (Clock0 Output)	1.8V	22	GND	
7	MIPI_PDN1CAM【from PCA9555】	1.8V	23	MIPI_CSI_RX_D3P	1.8V
8	RESET1_CAM【from PCA9555】	1.8V	24	MIPI_CSI_RX_D3N	1.8V
9	MIPI_MCLK1 (Clock1 Output)	1.8V	25	GND	
10	GND		26	MIPI_CSI_RX_CLK1P	1.8V
11	MIPI_CSI_RX_D0P	1.8V	27	MIPI_CSI_RX_CLK1N	1.8V
12	MIPI_CSI_RX_D0N	1.8V	28	GND	
13	GND		29	VCC5V0_SYS (5V Output)	5.0V
14	MIPI_CSI_RX_D1P	1.8V	30	VCC5V0_SYS (5V Output)	5.0V
15	MIPI_CSI_RX_D1N	1.8V			
16	GND				

4. (SATA1) SATA 3.0 Socket



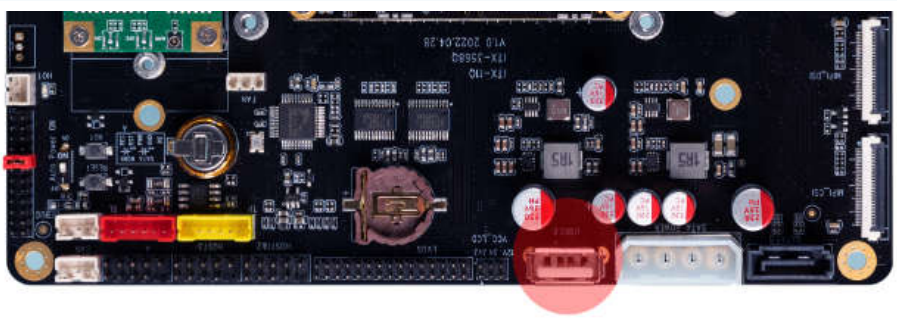
NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		6	SATA_A_RXP	1.8V
2	SATA_A_TXP	1.8V	7	GND	
3	SATA_A_TXN	1.8V			
4	GND				
5	SATA_A_RXN	1.8V			

5. (J8) SATA POWER 4 PIN 5.0mm Pitch



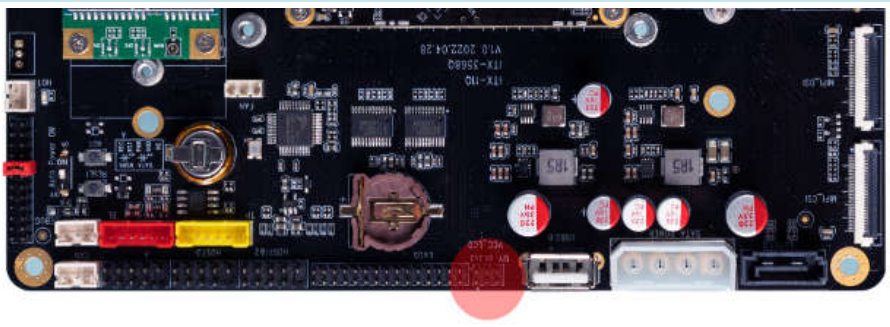
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC12V0_SATA (12V Output)	12V	3	GND	
2	GND		4	VCC5V0_SATA (5V Output)	5V

6. (USB1) USB2.0 Socket



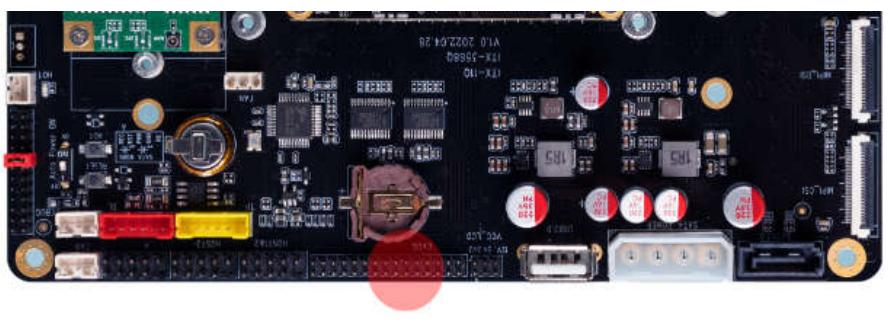
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_USB20_HOST3 (5V Output)	5V	3	USB2_HOST3_DP	3.3V
2	USB2_HOST3_DM	3.3V	4	GND	

7. (J24) VCC_LCD Power select jumper 6PIN 2.0mm Pitch



NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC_LCD_S	3.3/5/12V	2	VCC3V3_SYS	3.3V
3	VCC_LCD_S	3.3/5/12V	4	VCC5V0_SYS	5V
5	VCC_LCD_S	3.3/5/12V	6	VCC_12V_EXT	12V

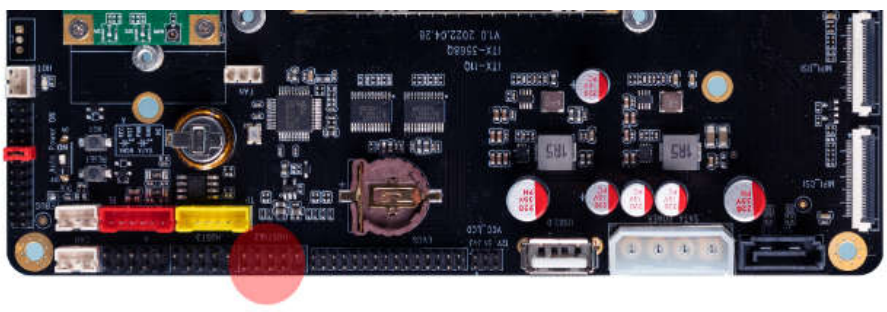
8. (CON1)LVDS 15X2 PIN 2.0mm Pitch



NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC_LCD (LCD power Output)	3.3/5/12V	16	LVDS_CLKP	1.8V
2	VCC_LCD (LCD power Output)	3.3/5/12V	17	LVDS_TX3N	1.8V
3	VCC_LCD (LCD power Output)	3.3/5/12V	18	LVDS_TX3P	1.8V
4	GND		19	NC	
5	GND		20	NC	
6	GND		21	NC	
7	LVDS_TX0N	1.8V	22	NC	
8	LVDS_TX0P	1.8V	23	NC	
9	LVDS_TX1N	1.8V	24	NC	
10	LVDS_TX1P	1.8V	25	NC	
11	LVDS_TX2N	1.8V	26	NC	
12	LVDS_TX2P	1.8V	27	NC	

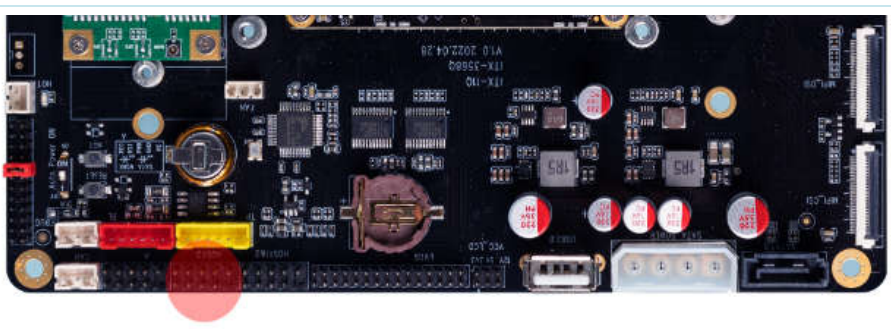
13	GND		28	NC	
14	GND		29	NC	
15	LVDS_CLKN	1.8V	30	NC	

9. (JUSB1)HOST1&2 9 PIN 2.54mm Pitch



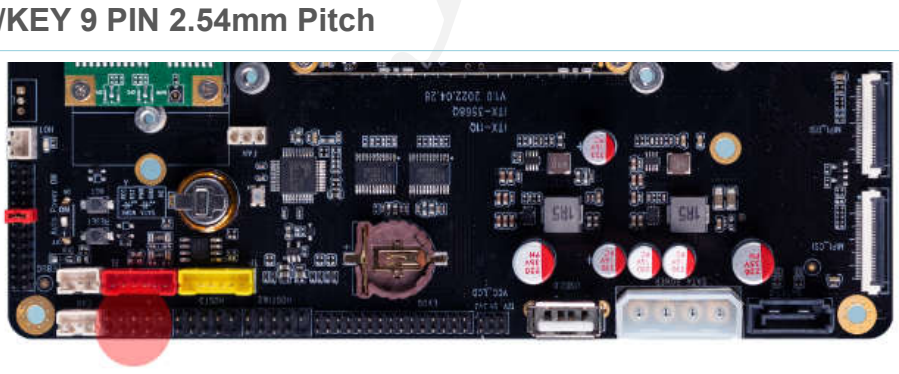
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_USB20_HOST2 (5V Output)	5V	2	VCC5V0_USB20_HOST2 (5V Output)	5V
3	DM1	3.3V	4	DM2	3.3V
5	DP1	3.3V	6	DP2	3.3V
7	GND		8	GND	
			10	NC	

10. (JUSB2)HOST3 9PIN 2.54mm Pitch



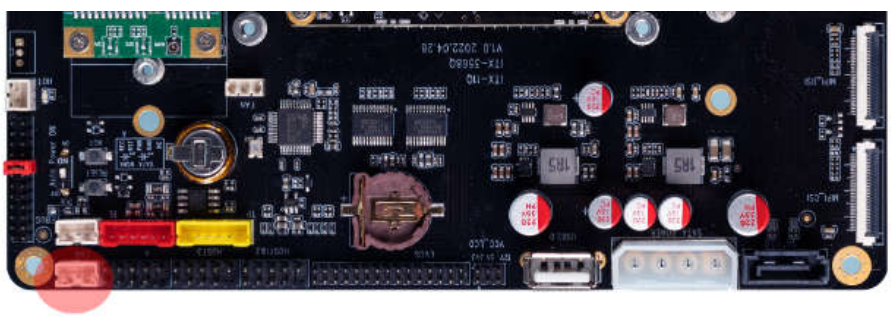
NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		2	VCC5V0_USB20_HOST1 (5V Output)	5V
3	NC		4	DM3	3.3V
5	NC		6	DP3	3.3V
7	NC		8	GND	
			10	NC	

11. (JUSB6) LED/KEY 9 PIN 2.54mm Pitch



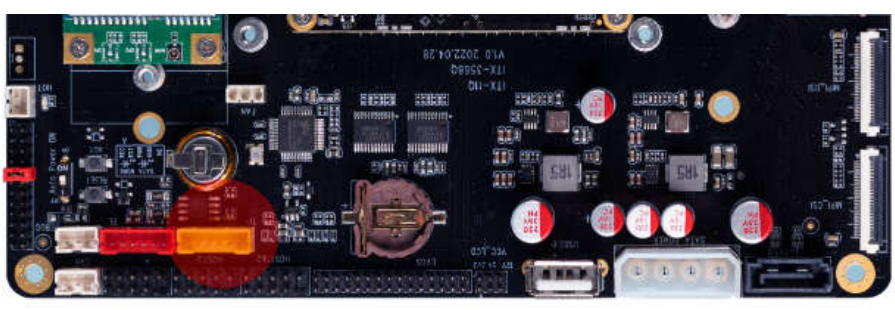
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC3V3_SYS (3.3V Output)	3.3V	2	RECOVERY_KEY (Active L) (Core board Pull up resistance 10K)	1.8V
3	LED_WORK (Work LED- Active L)	3.3V	4	RESET_KEY (Active L) (Core board Pull up resistance 10K)	3.3V
5	VCC3V3_SYS (3.3V Output)	3.3V	6	PWRON_KEY (Active L) (series resistance 100R)	3.3V
7	SATA_LED (SATA LED- Active L)	3.3V	8	GND	
			10	NC	

12. (J4)CAN 3PIN 2.0mm Pitch wafer (WHITE)



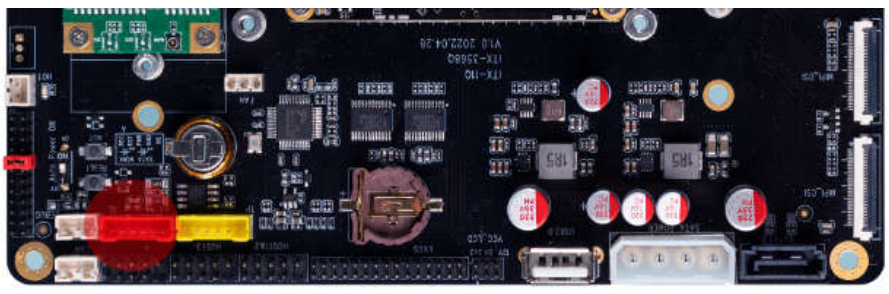
NO.	Definition	Level/V	NO.	Definition	Level/V
1	CANH_2	3.3V	3	CANL_2	3.3V
2	CAN_VSS_2 (GND)				

13. (J12)TP 6PIN 2.0mm Pitch wafer (YELLOW)



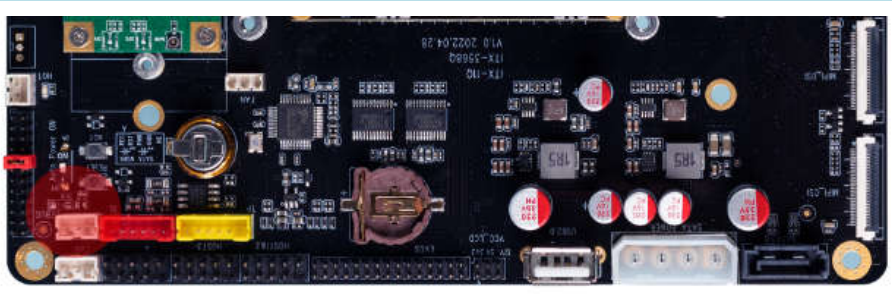
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC3V3_TP (3.3V Output)	3.3V	4	I2C1_SCL_TP [Pull up resistance 2.2K]	3.3V
2	TP_INT (GPIO0_C7_d) (Pull up resistance 10K)	3.3V	5	I2C1_SDA_TP [Pull up resistance 2.2K]	3.3V
3	TP_RESET(Pull up resistance 10K)	3.3V	6	GND	

14. (J11)BL 6 PIN 2.0mm Pitch wafer (RED)



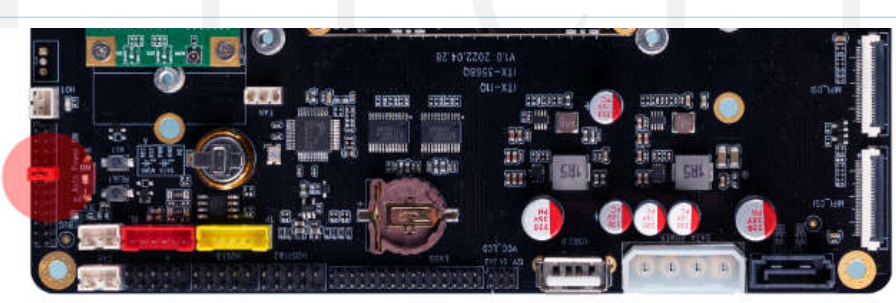
NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		4	BL_EN (from PCA9555) (Pull down resistance 10K) [series resistance 100R]	3.3V
2	GND		5	VCC_12V_EXT (12V Output)	12V
3	BL_PWM15 (Pull down resistance 10K) [series resistance 100R]	3.3V	6	VCC_12V_EXT (12V Output)	12V

15. (J7)DEBUG 3 PIN 2.0mm Pitch wafer (WHITE)



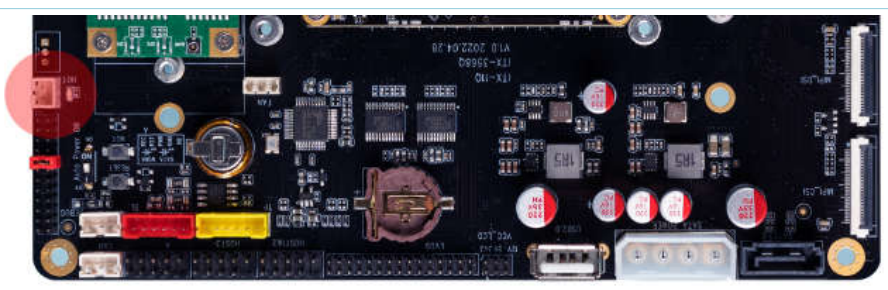
NO.	Definition	Level/V	NO.	Definition	Level/V
1	UART2_RX_M0 (GPIO0_D0_u)	3.3V	3	GND	
2	UART2_TX_M0 (GPIO0_D1_u)	3.3V			

16. (J15) EXT Connector 12X2 PIN 2.0mm Pitch



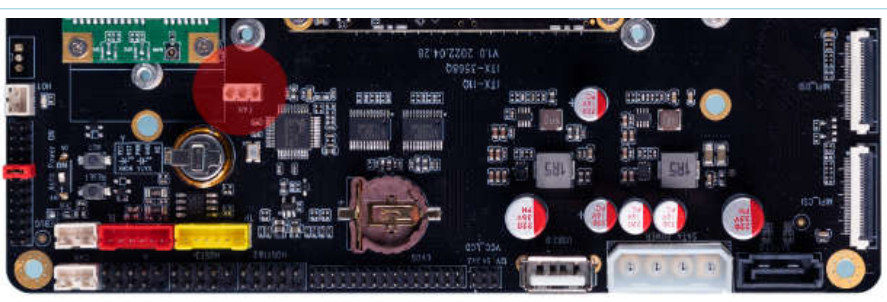
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_SYS (5V Output)	5V	2	VCC5V0_SYS (5V Output)	5V
3	GND		4	GND	
5	VCC3V3_SYS (3.3V Output)	3.3V	6	VCC3V3_SYS (3.3V Output)	3.3V
7	GND		8	GND	
9	UART9_RX_M1 (GPIO4_C6_d)	3.3V	10	UART9_TX_M1 (GPIO4_C5_d)	3.3V
11	NC	3.3V	12	NC	3.3V
13	ADC2 (ADC2 Input)	1.8V	14	ADC5 (ADC5 Input)	1.8V
15	ADC6 (ADC6 Input)	1.8V	16	ADC7 (ADC7 Input)	1.8V
17	I2C4_SCL_M0 (GPIO4_B3_d) (Pull up resistance 2.2K)	1.8V	18	I2C4_SDA_M0 (GPIO4_B2_d) (Pull up resistance 2.2K)	1.8V
19	I2C1_SCL (GPIO0_B3_u) [Pull up resistance 2.2K]	3.3V	20	I2C4_SDA (GPIO0_B4_u) (Pull up resistance 2.2K)	3.3V
21	PCA9555_IO02 (from PCA9555) (Pull down resistance 10K)	3.3V	22	PCA9555_IO03 (from PCA9555) (Pull down resistance 10K)	3.3V
23	GPIO4_D2_D(GPIO4_D2_d)	3.3V	24	PCA9555_IO07 (from PCA9555) (Pull down resistance 10K)	3.3V

17. (J29)HOT 2 PIN 2.0mm Pitch wafer (WHITE)



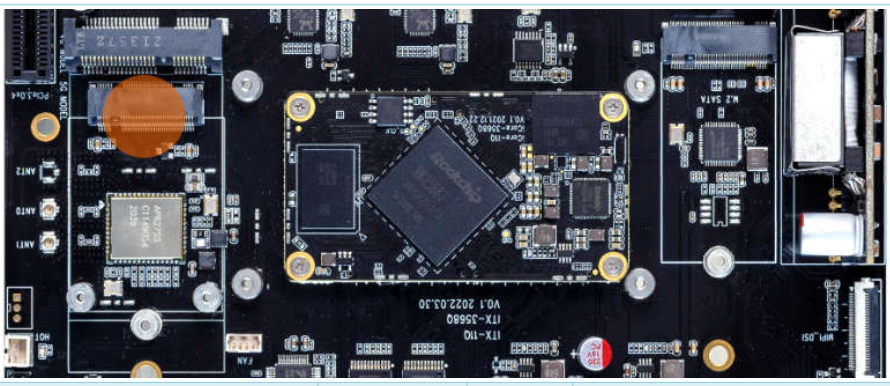
NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		2	VCC_12_EXT (12V Output)	12V

18. (J19)FAN 4 PIN 1.25mm Pitch wafer (WHITE)



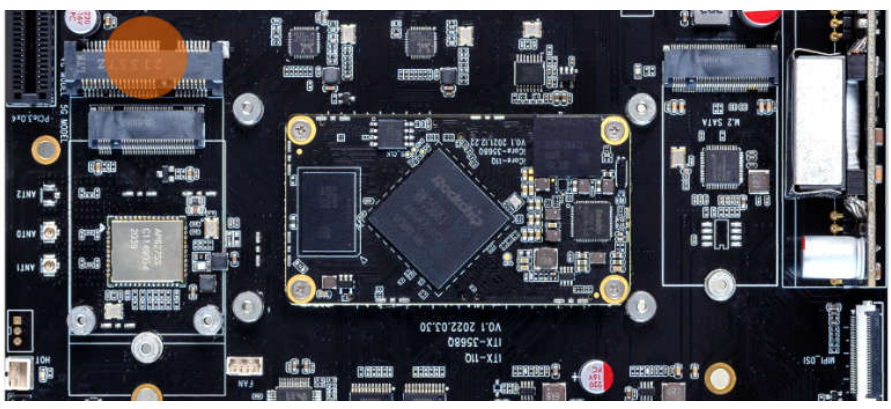
NO.	Definition	Level/V	NO.	Definition	Level/V
1	FAN_PWM_CTL(PWM14_M0)	12V	3	VCC_FAN+	12V
2	FAN_FG (ADC2 Input)	3.3V	4	VCC_FAN-	12V

19. (U30) 5G MODEL (PCIE M.2 NGFF B-Key Socket)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		2	VCC3V8_4G (3.8V Output)	3.8V
3	GND		4	VCC3V8_4G (3.8V Output)	3.8V
5	GND		6	Power Off# (Pull up resistance 10K)	3.8V
7	HUB_USB4_DP	3.3V	8	NC	
9	HUB_USB4_DM	3.3V	10	NC	
11	GND		20	NC	
21	NC		22	NC	
23	NC		24	NC	
25	NC		26	NC	
27	GND		28	NC	
29	USB3RXN (MB series capacitor 0.1uF)	1.8V	30	UIM_RST	1.8/3.0V
31	USB3RXP (MB series capacitor 0.1uF)	1.8V	32	UIM_CLK	1.8/3.0V
33	GND		34	UIM_DAT	1.8/3.0V
35	USB3TXN (MB series capacitor 0.1uF)	1.8V	36	UIM_PWR	1.8/3.0V
37	USB3TXP (MB series capacitor 0.1uF)	1.8V	38	NC	
39	GND		40	NC	
41	NC		42	NC	
43	NC		44	NC	
45	GND		46	NC	
47	NC		48	NC	
49	NC		50	NC	
51	GND		52	NC	
53	NC		54	NC	
55	NC		56	NC	
57	GND		58	NC	
59	NC		60	NC	
61	NC		62	NC	
63	NC		64	NC	
65	NC		66	SIM_DET	1.8V
67	4G_RESET	1.8V	68	NC	
69	NC		70	VCC3V8_4G (3.8V Output)	3.8V
71	GND		72	VCC3V8_4G (3.8V Output)	3.8V
73	GND		74	VCC3V8_4G (3.8V Output)	3.8V
75	NC				

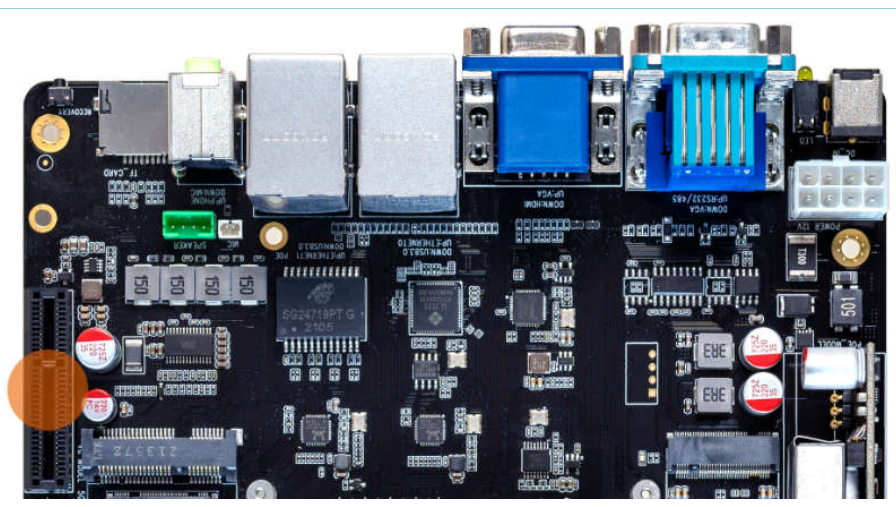
20. (U13) 4G MODEL (Mini PCI)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		2	VCC3V8_4G (3.8V Output)	3.8V
3	NC		4	GND	
5	NC		6	NC	
7	NC		8	UIM_PWR	1.8/3.0V
9	GND		10	UIM_DAT	1.8/3.0V
11	NC		12	UIM_CLK	1.8/3.0V
13	NC		14	UIM_RST	1.8/3.0V
15	GND		16	NC	
17	NC		18	GND	
19	NC		20	NC	
21	GND		22	4G_RESET	1.8V
23	NC		24	NC	
25	NC		26	GND	
27	GND		28	NC	
29	GND		30	NC	
31	NC		32	NC	
33	NC		34	GND	

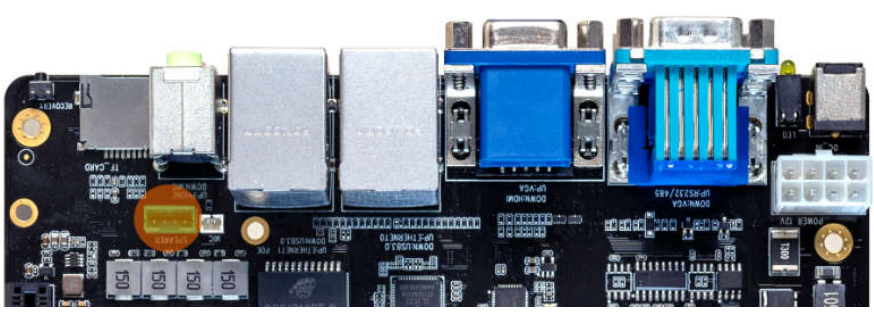
35	GND		36	HUB_HOST20_DM4	3.3V
37	GND		38	HUB_HOST20_DP4	3.3V
39	VCC3V8_4G (3.8V Output)	3.8V	40	GND	
41	VCC3V8_4G (3.8V Output)	3.8V	42	NC	
43	GND		44	SIM_DET	1.8V
45	NC		46	NC	
47	NC		48	NC	
49	NC		50	GND	
51	NC		52	VCC3V8_4G (3.8V Output)	3.8V

21. (J51)PCIe3.0x2 Socket 64 PIN



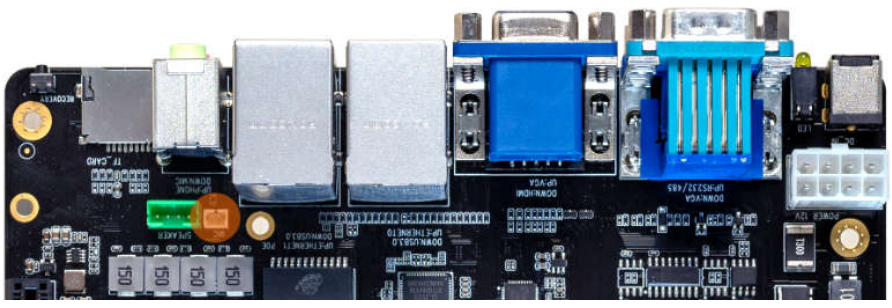
NO.	Definition	Level/V	NO.	Definition	Level/V
A1	GND		B1	VCC12V_PCIE30 (12V Output)	12V
A2	VCC12V_PCIE30 (12V Output)	12V	B2	VCC12V_PCIE30 (12V Output)	12V
A3	VCC12V_PCIE30 (12V Output)	12V	B3	VCC12V_PCIE30 (12V Output)	12V
A4	GND		B4	GND	
A5	NC		B5	NC	
A6	NC		B6	NC	
A7	NC		B7	GND	
A8	NC		B8	VCC3V3_PCIE30 (3.3V Output)	3.3V
A9	VCC3V3_PCIE30 (3.3V Output)	3.3V	B9	NC	
A10	VCC3V3_PCIE30 (3.3V Output)	3.3V	B10	VCC3V3_PCIE30 (3.3V Output)	3.3V
A11	PCIE30X2_PERSTn_L(GPIO0_C6_d)	3.3V	B11	PCIE30X2_WAKEn_L(GPIO0_C5_d)	3.3V
A12	GND		B12	PCIE30X2_CLKREQn_L (GPIO0_A6_d)	3.3V
A13	PCIE30_REFCLKP_CON	1.8V	B13	GND	
A14	PCIE30_REFCLKN_CON	1.8V	B14	PCIE30_TX0_P (MB series capacitor 0.1uF)	1.8V
A15	GND		B15	PCIE30_TX0_N (MB series capacitor 0.1uF)	1.8V
A16	PCIE30_RX0P	1.8V	B16	GND	
A17	PCIE30_RX0N	1.8V	B17	PCIE30X2_PRSNT_L(GPIO0_B5_u)	3.3V
A18	GND		B18	GND	
A19	NC		B19	PCIE30_TX1_P (MB series capacitor 0.1uF)	1.8V
A20	GND		B20	PCIE30_TX1_N (MB series capacitor 0.1uF)	1.8V
A21	PCIE30_RX1P	1.8V	B21	GND	
A22	PCIE30_RX1N	1.8V	B22	GND	
A23	GND		B23	NC	
A24	GND		B24	NC	
A25	NC		B25	GND	
A26	NC		B26	GND	
A27	GND		B27	NC	
A28	GND		B28	NC	
A29	NC		B29	GND	
A30	NC		B30	NC	
A31	GND		B31	PCIE30X2_PRSNT_L(GPIO0_B5_u)	3.3V
A32	NC		B32	GND	

22. (J6)SPEAKER 4 PIN 2.0mm Pitch wafer (GREEN)



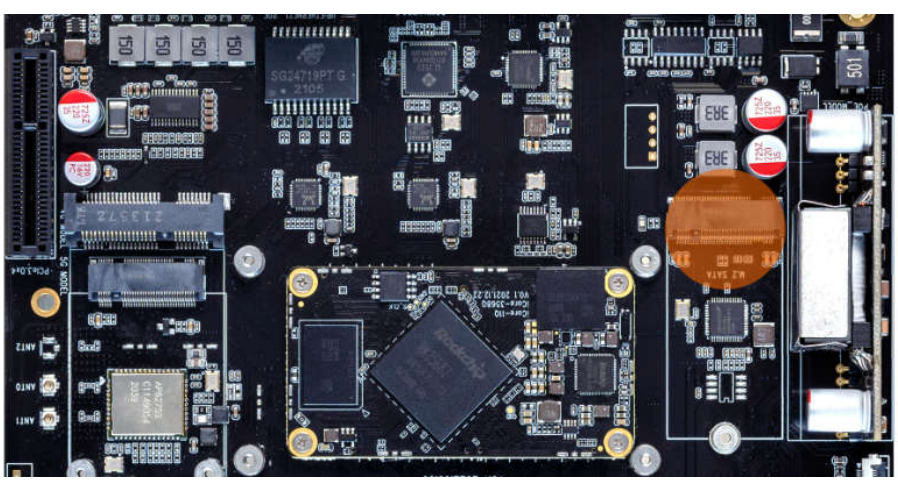
NO.	Definition	Level/V	NO.	Definition	Level/V
1	SPK_RP	12V	3	SKP_LP	12V
2	SPK_RN	12V	4	SKP_LN	12V

23. (J28)MIC 2 PIN 1.25mm Pitch wafer (WHITE)



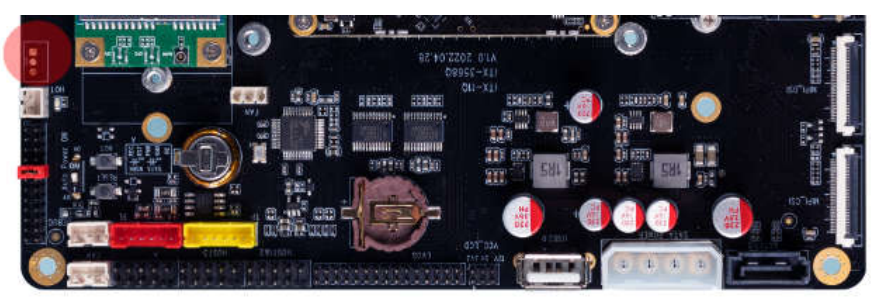
NO.	Definition	Level/V	NO.	Definition	Level/V
1	MIC1_INN	3.3V	2	MIC1_INP	*3.3V*

24. (U1)M.2 SATA (PCIE M.2 NGFF B-Key Socket)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		2	VCC3V3_SATA (3.3V Output)	3.3V
3	GND		4	VCC3V3_SATA (3.3V Output)	3.3V
5	NC		6	NC	
7	NC		8	NC	
9	GND		10	DAS/DSS	3.3V
11	NC		20	NC	
21	GND		22	NC	
23	NC		24	NC	
25	NC		26	NC	
27	GND		28	NC	
29	NC		30	NC	
31	NC		32	NC	
33	GND		34	NC	
35	NC		36	NC	
37	NC		38	SATA Sleep (Pull up resistance 10K)	3.3V
39	GND		40	NC	
41	SATA_B_RXP (MB series capacitor 0.1uF)	1.8V	42	NC	
43	SATA_B_RXN (MB series capacitor 0.1uF)	1.8V	44	NC	
45	GND		46	NC	
47	SATA_B_TXN	1.8V	48	NC	
49	SATA_B_TXP	1.8V	50	NC	
51	GND		52	NC	
53	NC		54	NC	
55	NC		56	NC	
57	GND		58	NC	
67	NC		68	NC	
69	GND		70	VCC3V3_SATA (3.3V Output)	3.3V
71	GND		72	VCC3V3_SATA (3.3V Output)	3.3V
73	GND		74	VCC3V3_SATA (3.3V Output)	3.3V
75	GND				

25. (J17--NC) I2C4 3 PIN 2.0mm Pitch



NO.	Definition	Level/V	NO.	Definition	Level/V
1	I2C4_SDA_M0 (Pull up resistance 4.7K)	3.3V	3	GND	
2	I2C4_SDA_M0 (Pull up resistance 4.7K)	3.3V			

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Create Value for Customers
Pursue Sustainable Development

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Firefly is an open source brand in 2014. “Make technology more simple, Make life more intelligent” is its philosophy. We promote intelligent upgrades in the industries of new technology, intelligent hardware, AI, AIOT, and digital audio product, and build a more open and professional platform for intelligent hardware technology

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