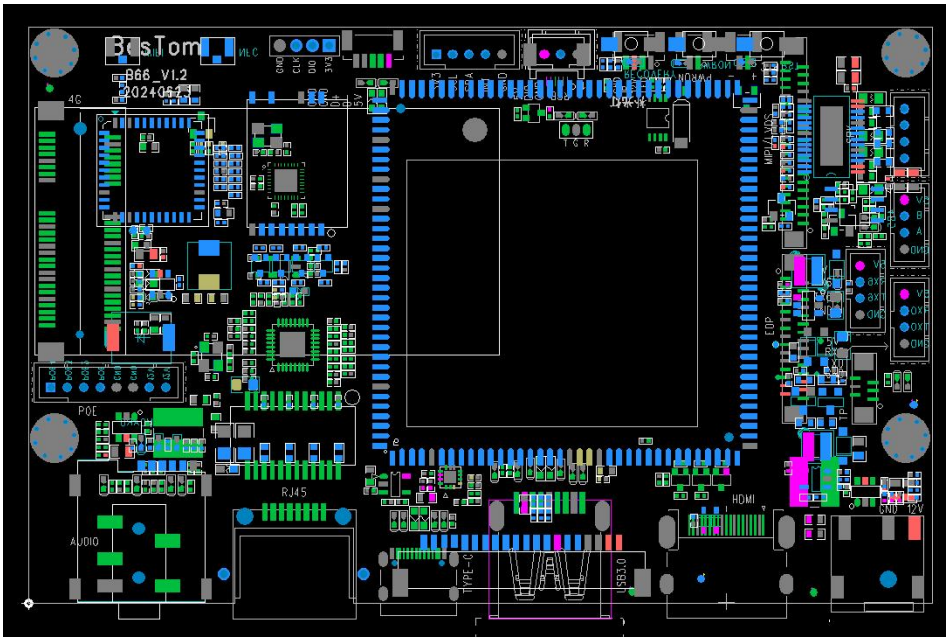


Document No.	Types	Version information	Release date	Secret level	
BST20240626		V1.2	2024-06-26	public	

64-bit Commercial Grade Motherboard

B66_V1.2

V1.2



Version	Updated	Update Content
V1.0	2024-04-09	V1.0
V1.0.1	2024-04-10	Add POWER INTERFACE、POE interface definition
V1.2	2024-06-26	V1.2

Contents

1. Product introduction	4
2. Specifications	6
3. Interface Definition	8
4. System software	13
5. Application	14
6. Contact us	15

Company Profile

Shenzhen BesTom Electronics Co., Ltd. was founded in 2008, focusing on the research and development of smart terminal devices, smart homes, etc. With "smart" as the core, it has formed a focus on different industries, different scales, and different applications such as governments, enterprises, and media. The series of products and targeted solutions are the most influential smart technology provider in China.



"Innovation, transforming new technology into productivity" is the core competitiveness of BesTom Electronics Co., Ltd. With a deep understanding of the software and Internet industry, BesTom Electronics Co., Ltd. combines software technology with Internet applications, combines industry-leading product concepts and rich product development experience to provide users with simplicity, convenience, safety and practicality. Collaborative application software products and solutions help customers achieve low-cost, low-risk, fast-start, and high-efficiency informatization goals. The cordial, open, and rigorous company culture and scientific and standardized management gather a large number of outstanding talents. BesTom Electronics Co., Ltd. has a management team composed of outstanding professional managers and a technical team composed of senior IT experts. Tacit cooperation in product development, promotion and maintenance, a deep understanding of the meaning of "customer-centric", "service" runs through every detail of the company's operation and management, and wins extensive trust and support from customers.

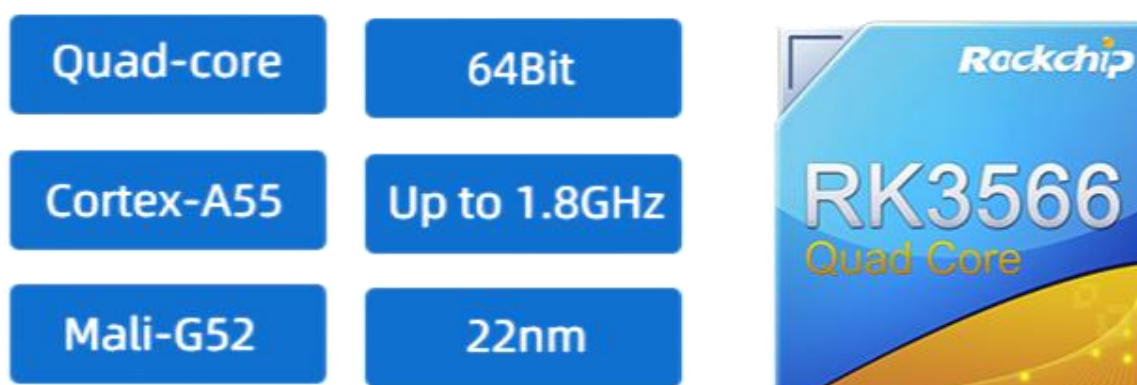
"Create Better" is the philosophy of the BesTom team. We hope that through BesTom's high-quality technical services, the research and development of various technological products can become more efficient and simple, and creative products can be integrated into life more smoothly.

1. Product introduction

1.1 Overview

The B66 uses a high-performance low-power processor RK3566, with a quad-core 64-bit ARM Cortex-A55 CPU and 1TOPS NPU, the main frequency is up to 1.8GHz, and the efficiency is greatly improved; It adopts 22nm advanced technology and has the characteristics of low power consumption and high performance. It can be equipped with a memory capacity of up to 8GB, up to 32Bit wide; Supports full-link ECC, making data safer and more reliable, and meeting the requirements of large memory product application scenarios.

The core board adopts 2-layer wiring technology and immersion gold technology, with stable and reliable performance, suitable for different application environments.



1.2 RK3566 quad-core 64-bit processor

The RK3566 configured with a quad-core 64-bit Cortex-A55 processor, with 22nm lithography process, has frequency up to 1.8GHz, low power consumption and high performance delivering efficient and stable performance for data processing of back-end equipment.

1.3 Integrated co-processors — GPU, VPU, NPU

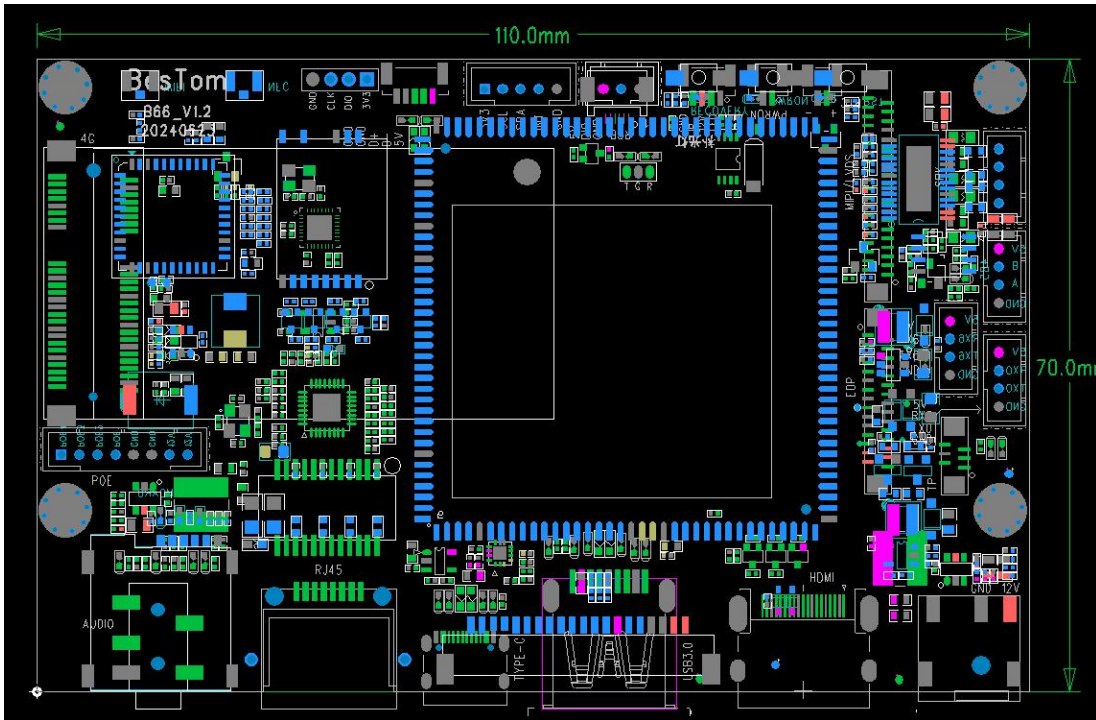
It is integrated with dual-core GPU, high-performance VPU and high-efficiency NPU. The GPU supports OpenGL ES3.2/2.0/1.1, Vulkan1.1. The VPU can achieve 4K@60fps H.265/H.264/VP9 video decoding and 1080P@100fps H.265/H.264 video encoding. The NPU up to 1TOPS computing power, supports one-click switching of mainstream frameworks like Caffe / TensorFlow, etc.

1.4 Various display interfaces

Support UART, POE, OTG, USB3.0, HDMI, EDP, MIPI LCD, SPEAK, MIC,TP and other interfaces, it can be directly applied to external device control and expansion.

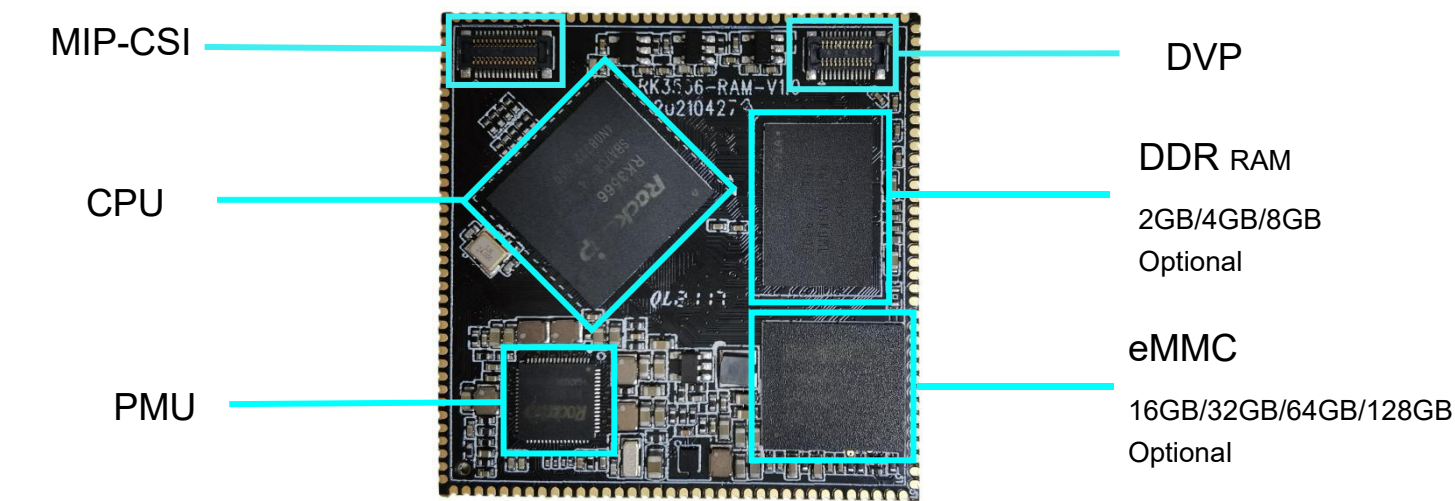
2. Specifications

Parameters	
Master chip	Rockchip RK3566
Processor	Quad-core 64-bit ARM Cortex-A55 processor, the main frequency is up to 1.8GHz
Graphics processor	Support ARM G52 2EE. Support for OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1 High performance dedicated 2D processor
NPU	1Tops@INT8 performance, integrated efficient AI Accelerator RKNN NPU Support the one-click transformation of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet mainstream architecture models
Video processor	Support 4k@60fps (H.265 / H.264 / VP9) decoder Support 1080P@60fps H.265/H.264 encoder Support 8M ISP
RAM	2GB/ 4GB/ 8GB LPDDR4 32Bit bandwidth, which supports the full-link ECC
Storage	16GB/32GB/64GB/128GB eMMC.
Hardware features	
Webcam	1 × MIPI CSI camera interface 1 × DVP Camera interface
Wireless Network	Support for WiFi 6 (802.11 a/b/g/n/ac/ax) BT2.1+EDR/4.2/5.0 with BLE
RJ45	1 × RJ45(100Mbps)
Audio	1 × Headphone 1 × SPK
Display	1 × EDP 1 × LVDS 1 × HDMI2.0
USB	1 × USB 1 × USB 3.0 1 × TYPE C
LED	1 × LED/IR
4G	1 × MINI PCIE 1 × SIM CARD slot
RTC	1 × RTC
RS485	1 × RS485
UART	2 × UART

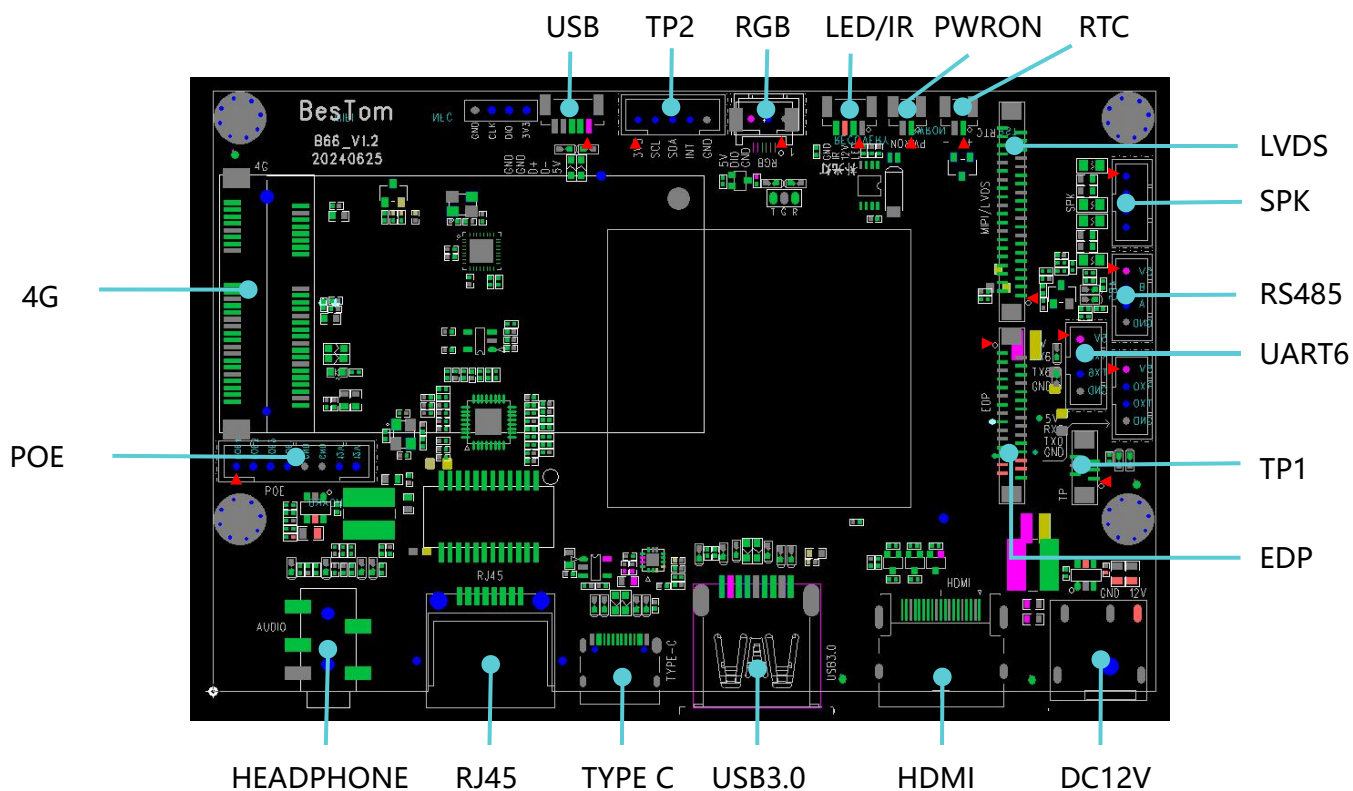
NFC	1 × NFC
KEY	POWER、RECOVERY、RESET
Extension ports	1 × POE、1 × DEBUG、1 × POWER INTERFACE
System Software	
OS	Android 11
Appearance specifications	
Size	
Core board size	70mm*110mm
Power Supply	12V
Temperature	Operating Temperature : -20°C ~ 60°C Storage Temperature: -20°C~70°C Storage Humidity :10% ~ 80 %
PCB specifications	4-layer base board design + 8-layer core board design

3. Interface Definition

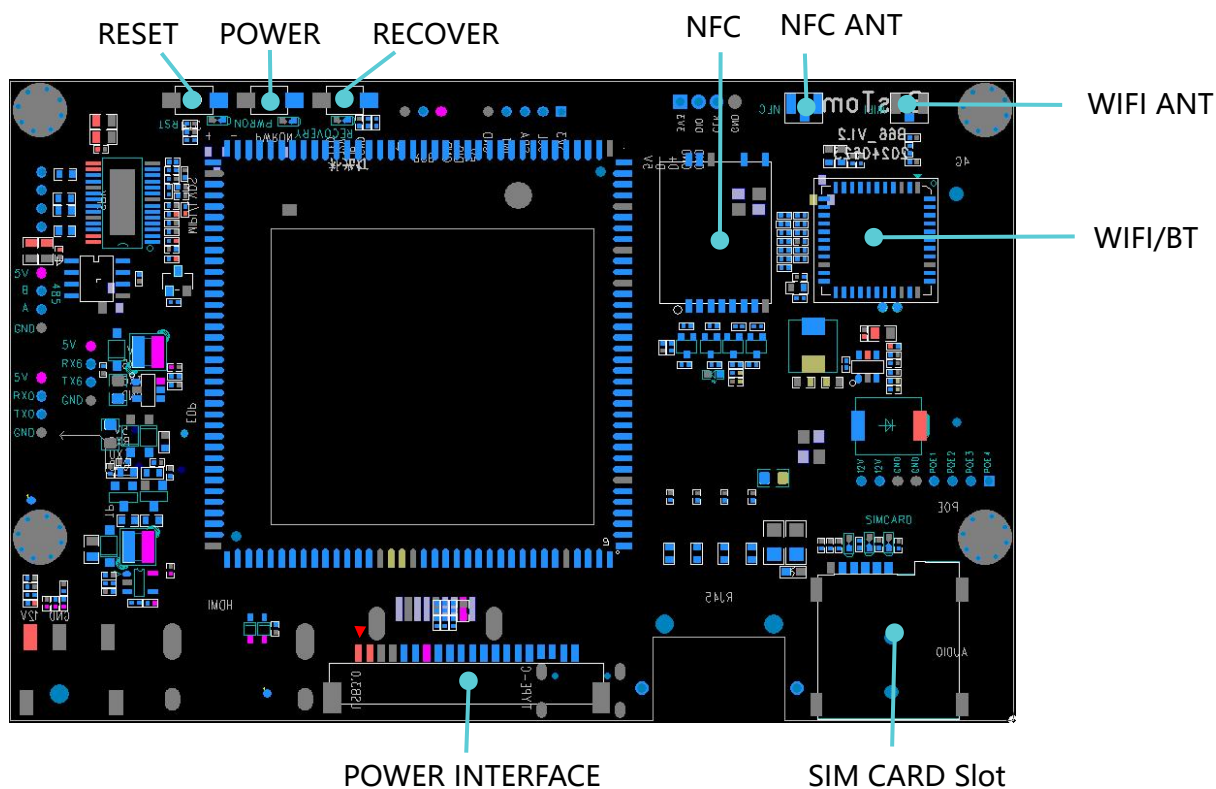
The B66 core board leads to all the pins of the chip, and the performance of data transmission and expansion is maximized. The pins of the immersion gold process are corrosion-resistant, firm and reliable.



Picture 3-1 CPU



Picture 3-2 TOP



Picture 3-3 BOTTOM

Note: ▲ for 1 pin.

SPK 4PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	SPK_RN		SPK_RN
2	SPK_RP		SPK_RP
3	SPK_LN		SPK_LN
4	SPK_LP		SPK_LP

USB 5PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC5V0_USB	5V	VCC5V0_USB
2	HUB_USB_D-		HUB_USB_D-
3	HUB_USB_D+		HUB_USB_D+
4	GND		GND
5	GND		GND

● Display

LVDS 40PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC_LEDA		VCC_LEDA
2	VCC_LEDA		VCC_LEDA
3	MIPI_VGH		MIPI_VGH
4	MIPI_VGL		MIPI_VGL
5	UPDN		UPDN
6	SHLR		SHLR
7	VCC_LEDK		VCC_LEDK
8	VCC_LEDK		VCC_LEDK
9	MIPI_AVDD		MIPI_AVDD
10			
11			
12			
13			
14			
15	GND		GND
16	GND		GND
17	LVDS/MIPI_DSI_TX0_D0P		LVDS/MIPI_DSI_TX0_D0P
18	LVDS/MIPI_DSI_TX0_D0N		LVDS/MIPI_DSI_TX0_D0N
19	GND		GND
20	LVDS/MIPI_DSI_TX0_D1P		LVDS/MIPI_DSI_TX0_D1P
21	LVDS/MIPI_DSI_TX0_D1N		LVDS/MIPI_DSI_TX0_D1N
22	GND		GND
23	LVDS/MIPI_DSI_TX0_D2P		LVDS/MIPI_DSI_TX0_D2P
24	LVDS/MIPI_DSI_TX0_D2N		LVDS/MIPI_DSI_TX0_D2N
25	GND		GND
26	LVDS/MIPI_DSI_TX0_D3P		LVDS/MIPI_DSI_TX0_D3P
27	LVDS/MIPI_DSI_TX0_D3N		LVDS/MIPI_DSI_TX0_D3N
28	GND		GND
29	LVDS/MIPI_DSI_TX0_CLKP		LVDS/MIPI_DSI_TX0_CLKP
30	LVDS/MIPI_DSI_TX0_CLKN		LVDS/MIPI_DSI_TX0_CLKN
31	GND		GND
32	GND		GND
33	GND		GND
34	VCC_1V8	1.8V	VCC_1V8
35	MIPI_STBYB		MIPI_STBYB
36	LCD1_RST_1V8		LCD1_RST_1V8
37	VCC_3V3	3.3V	VCC_3V3
38	VCC_3V3	3.3V	VCC_3V3
39	VCC_1V8	1.8V	VCC_1V8
40	MIPI_VCOM		MIPI_VCOM

EDP 30PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	NC		NC
2	GND		GND
3	EDP_TX_D1P		EDP_TX_D1P
4	EDP_TX_D1N		EDP_TX_D1N
5	GND		GND
6	EDP_TX_D0P		EDP_TX_D0P
7	EDP_TX_D0N		EDP_TX_D0N
8	GND		GND
9	EDP_TX_AUXP		EDP_TX_AUXP
10	EDP_TX_AUXN		EDP_TX_AUXN
11	GND		GND
12	VCC_3V3	3.3V	VCC_3V3
13	VCC_3V3	3.3V	VCC_3V3
14	NC		NC
15	GND		GND
16	GND		GND
17	HPD		HPD
18	LED_GND		LED_GND
19	LED_GND		LED_GND
20	LED_GND		LED_GND
21	LED_GND		LED_GND
22	LCD0_EN		LCD0_EN
23	LCD0_BL_PWM4		LCD0_BL_PWM4
24	NC		NC
25	NC		NC
26	VCC12V_DCIN		VCC12V_DCIN
27	VCC12V_DCIN		VCC12V_DCIN
28	VCC12V_DCIN		VCC12V_DCIN
29	VCC12V_DCIN		VCC12V_DCIN
30	NC		NC

TP1 6PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	I2C5_SCL_M1		I2C5_SCL_M1
2	I2C5_SDA_M1		I2C5_SDA_M1
3	TP_INT_3V3	3.3V	TP_INT_3V3
4	GND		GND
5	VCC_3V3	3.3V	VCC_3V3
6	TP_RST_3V3	3.3V	TP_RST_3V3

TP2 5PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC_3V3	3.3V	VCC_3V3
2	I2C5_SCL_M1		I2C5_SCL_M1
3	I2C5_SDA_M1		I2C5_SDA_M1
4	TP_INT_3V3	3.3V	TP_INT_3V3
5	GND		GND

UART6 4PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC5V0_SYS	5V	VCC5V0_SYS
2	UART_RX		UART_RX
3	USRT_TX		USRT_TX
4	GND		GND

RS485 4PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC5V0_SYS	5V	VCC5V0_SYS
2	RS485_B_D-		RS485_B_D-
3	RS485_A_D+		RS485_A_D+
4	GND		GND

LED/IR 4PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	LED_PWM5		
2	VCC12V_DCIN		
3	IR_PWM12		
4	GND		

PWRON 2PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	POWER_KEY		POWER_KEY
2	GND-		GND-

RTC 2PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC+		VCC+
2	GND-		GND-

POWER INTERFACE 20PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	VCC12V_DCIN	12V	VCC12V_DCIN
2	VCC12V_DCIN	12V	VCC12V_DCIN
3	GND		GND
4	GND		GND
5	USB3_HOST1DP		USB3_HOST1DP
6	USB3_HOST1DM		USB3_HOST1DM
7	VCC5V0_SYS		VCC5V0_SYS
8	RS485_B_D-		RS485_B_D-
9	RS485_A_D+		RS485_A_D+
10	IO1		IO1
11	IO2		IO2
12	IO3		IO3
13	DA+		DA+
14	DA-		DA-
15	DB+		DB+
16	DC+		DC+
17	DC-		DC-
18	DB-		DB-
19	DD+		DD+
20	DD-		DD-

POE 8PIN

PIN	Core board pin definition	IO Power domain	Pin Name
1	POE2		POE2
2	POE5		POE5
3	POE6		POE6
4	POE8		POE8
5	GND		GND
6	GND		GND
7	VCC12V_DCIN	12V	VCC12V_DCIN
8	VCC12V_DCIN	12V	VCC12V_DCIN

4. System software

Types	Description
OS	Android 11
Start method	Can support TF card, EMMC, U disk boot, making the system boot more convenient and fast

5. Application



Picture 5-1 Application

Application areas		
Smart NVRs	Cloud terminals	Vehicle center consoles
Industrial control	AI Edge computing	Face recognition gates

6. Contact us

	COMPANY	Shenzhen BesTom Electronics Co., Ltd.
	ADDRESS	Room 718 Building B1, Huayuan innovation park, No.168 BaoYuan Road, XiXianning Street, Shenzhen
	TEL	0755-27216756
	EMAIL	tomyao@bestom.net
	WEBISTE	www.bestom.net