onbon 仰邦科技

BX-982A Android Motherboard

Specification

Version No.: V1.3 Release Date: 2025.1.6

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Brief

Thank you for purchasing our LCD commercial display motherboard. We hope you will enjoy experiencing the excellent performance of this product. The motherboard is designed to meet international and industry standards, but may still cause personal injury and property damage if not operated properly. In order to avoid possible dangers and to benefit as much as possible from your equipment, please follow the relevant instructions in this manual when installing and operating the product.

About the software

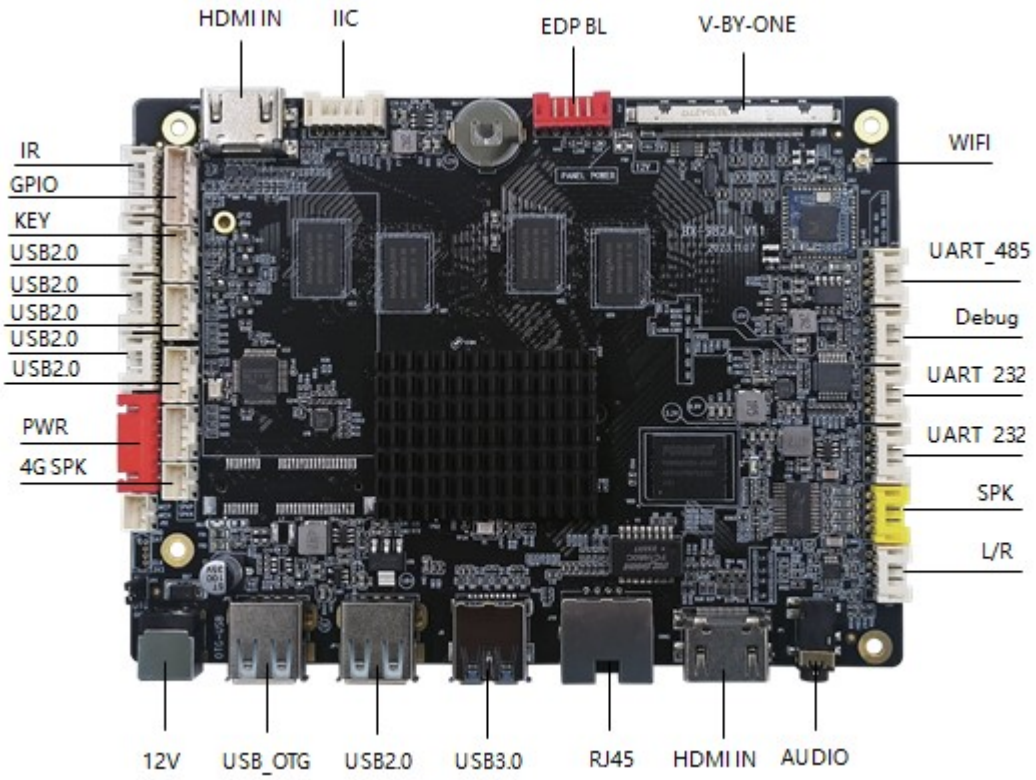
You may not alter, decompile, disassemble, decrypt, or reverse engineer the software installed on this product, and any of the above actions are illegal.

Function

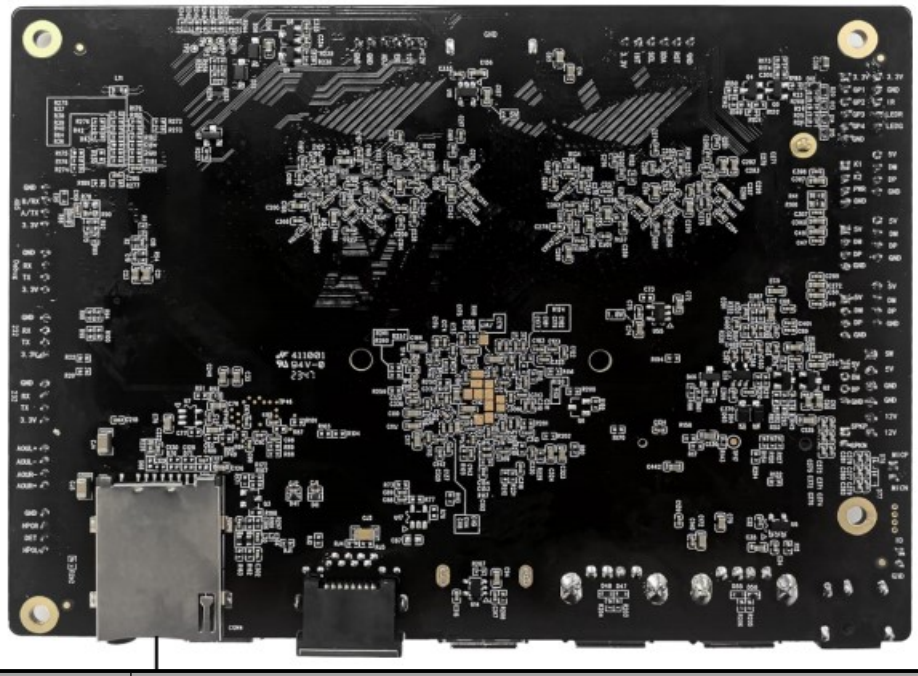
The BX-982A is a quad-core Cortex-A55 advanced application processor. It integrates a powerful CPU/GPU subsystem, best-in-class HDR image processing, a powerful NPU (Neural Network Processing Unit), an 8K video codec engine, and in addition, the Cortex-A55 CPU includes the NEON SIMD co-processor for improved software media processing. the NPU also supports INT8 inference for all popular deep learning frameworks. The ARM Mali-G52 MP2 (2EE) GPU handles all OpenGL ES 3.2, Vulkan 1.1, and OpenCL 2.0 graphics programs, and video/graphics outputs include optional, HDR10 +, HDR10, HLG. bt.2020/bt.2100 processing, MEMC.

Interface definition

The front and back interfaces of the board are shown below:



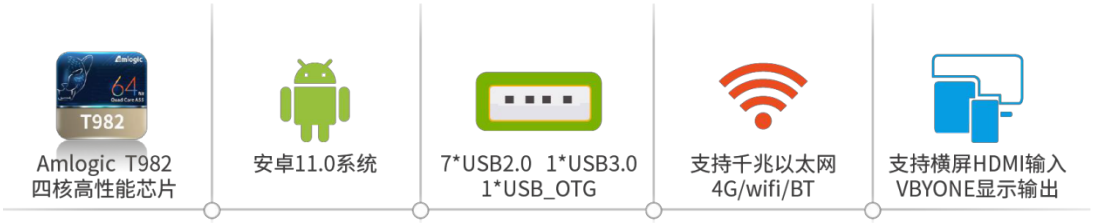
serial number	connector	clarification
1	headphone holder	Standard 3.5mm, 4-section headphone headset holder, CTIA (American Standard) standard
2	HDMI/IN2	Standard HDMI Type-A interface, HDMI input display, maximum support 2160P@60Hz input
3	RJ45	1000/100M Ethernet interface
4	USB3.0	Standard USB3.0 Type-A interface, fixed Host mode
5	USB2.0	Standard USB2.0 Type-A interface, fixed Host mode
6	USB-OTG	Standard USB2.0 Type-A interface, default Host mode, you can switch Device/Host mode in system settings-USB
7	DC+12V	5.5mm OD, 2.0mm ID DC holder, 12V/2A DC input recommended
8	SIM Card Holder	mini SIM card holder with card drag, can access different carriers mini SIM card, at the same time access to 4G module, antenna to realize 4G function



serial number	connector	clarification
9	Power connector	6Pin*2.54mm pitch wafer connector, support power board STB power supply and control
10	4G-Speaker	2Pin*2.0mm Pitch wafer connector, 4G voice call output
11	USB	4Ppin*2.0mm pitch wafer connector, fixed Host mode, USB current limit 1.5A
12	USB	
13	USB	
14	Remote Control Interface	5Pin*2.0mm Pitch wafer connector, can be connected to two LED lights (LED lights common negative), an infrared receiver, with the remote control on the motherboard for remote control testing
15	USB	4Pin*2.0mm pitch wafer connector, fixed Host mode, USB current limit 1.5A
16	USB	
17	USB	
18	GPIO port	6Pin*2.0mm pitch wafer connector, reserved GPIO interface, configurable IN/OUT, power domain 3.3V
19	keypad interface	4Pin*2.0mm pitch wafer connector, default function: PWR on/off/K1 volume +/K2 volume - (K1/K2 function is configurable)
20	IIC interface	6Pin*2.0mm pitch wafer connector, reserved IIC interface, support interrupt/reset, power domain 3.3V
21	Backlight Interface	6Pin*2.0mm pitch wafer connector to connect VBYOEN screen backlighting
22	VBYONE	51Pin*0.5mm pitch PFC connector for VBYONE screen signals
23	232/UART	4Pin*2.0mm pitch wafer connector, default 232 serial port (default bluetooth function, serial port and bluetooth either one)

serial number	connector	clarification
24	Debug	4Pin*2.0mm pitch wafer connector, default TTL serial port, default Debug mode, for debugging, log printing, can be configured as a general-purpose TTL serial port to connect to peripheral use
25	232/UART	4Pin*2.0mm pitch wafer connector, 232 serial port by default, TTL serial port optional
26	485/UART	4Pin*2.0mm Pitch wafer connector, default 485 serial port, optional TTL serial port available
27	speaker connector	4Pin*2.0mm pitch wafer connector, amplifier output connector, dual-channel, maximum output 5W@8Ω
28	audio interface	4Pin*2.0mm pitch wafer connector, analog audio output connector, supports plug detection

Product Detailed Parameters



***UART factory default TTL, can be optional 232 or 485 devices**

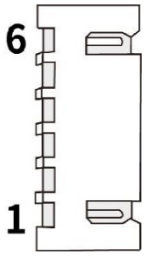
Basic Information	microchip	Amlogic T982	**Serial/GPIO**	IIC interface	be in favor of
	build	Cortex-A55		serial port (computing)	4 serial ports: 1 TTL Debug 1 channel TTL/RS485, 1 channel TTL/RS232
				GPIO port	4-way IO input/output control Key scanning control
	GPUs	Mali G52-MP2	**audio frequency**	Bluetooth speaker	be in favor of
	core number	quad-core (computing)		MIC input	be in favor of
	CPU frequency	1.92 GHz		headphone jack	be in favor of
	NPU	2.6 Tops		Amplifier Interface	8Ω6W Dual Audio Amplifier Outputs
	systems	Android 11	**Storage**	USB port	8-channel USB interface: 1-channel USB3.0 1-channel USB_OTG, 6-channel USB2.0
	hard disk drive	Support 8K 30fps, 4K 60fps H.265/H.264/VP9 video decoding			
	random access memory (RAM)	4 GB standard, 8 GB optional		Extended Storage	Self-ejecting TF card socket Support 128GB storage capacity
	stockpile	32 GB standard, 64 GB, 128 GB optional			
display interface	dimorphic	single display	**Others**	watchdog function	Hardware watchdog support
	VBYONE Output	Supports 4K@60Hz			

	HDMI Input	2 channels support 4K@60Hz		infrared remote	be in favor of
network function	Ethernet	1 rj45: 1000m/100m/10m Ethernet Adaptive		timer switching on/off	be in favor of
	WIFI	be in favor of		multilingual	be in favor of
	4G	Built-in PCIE 4G module		secondary development	Support: Provide API interface documentation
	bluetooth	be in favor of			

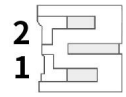
- Wet, salt spray environments and outdoor applications can be added with a triple-proof coating process.

Interface definition

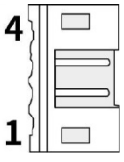
J19 (6PIN/2.54) +12V power input connector

exterior condition	footnote	define	descriptive
	1	STB	Power Supply Board Control Pin
	2	S5V	Normally supplied 5V
	3	GND	ground
	4	GND	ground
	5	+12V	12V supply
	6	+12V	12V supply

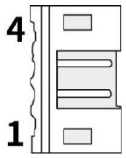
J35 (2PIN/2.0) 4G_MIC Interface

exterior condition	footnote	define	descriptive
	1	MICP	anodal
	2	MICN	mike negative

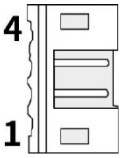
J24 (4PIN/2.0) Built-in USB Connector (Bend Plug)

exterior condition	footnote	define	descriptive
	1	+5V	electricity supply
	2	D-	DM
	3	D+	DP
	4	GND	ground

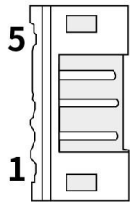
J17 (4PIN/2.0) Built-in USB connector (curved plug)

exterior condition	footnote	define	descriptive
	1	+5V	electricity supply
	2	D-	DM
	3	D+	DP
	4	GND	ground

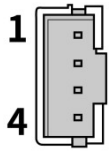
J30 (4PIN/2.0) Built-in USB connector (curved plug)

exterior condition	footnote	define	descriptive
	1	+5V	electricity supply
	2	D-	DM
	3	D+	DP
	4	GND	ground

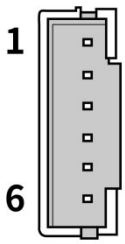
J21 (5PIN/2.0) Remote Control Connector (Bend Plug)

exterior condition	footnote	define	descriptive
	1	VCC	+5V supply
	2	GND	ground
	3	IR	telecontrol
	4	RED	red indicator light
	5	GED	green indicator

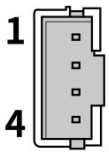
J30 (4PIN/2.0) Keypad Connector (Inline)

exterior condition	footnote	define	descriptive
	1	K1	Reserved key K1
	2	K2	Reserved key K2
	3	PWR	Power off/on
	4	GND	ground

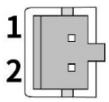
J5 (6PIN/2.0) GPIO Interface (Inline)

exterior condition	footnote	define	descriptive
	1	3.3V	electricity supply
	2	IO1	IO Interface 1
	3	IO2	IO Interface 2
	4	IO3	IO Interface 3
	5	IO4	IO Interface 4
	6	GND	ground

J8, J9, J12 (4PIN/2.0) Built-in USB connector (direct plug)

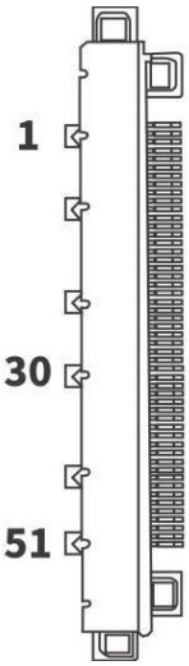
exterior condition	footnote	define	descriptive
	1	+5V	electricity supply
	2	D-	DM
	3	D+	DP
	4	GND	ground

J4 (2PIN/2.0) 4G Speaker Connector (Inline)

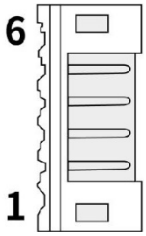
exterior condition	footnote	define	descriptive
	1	SPKP	speaker positive (electronics)
	2	SPKN	Horn Negative

J16 VBYONE connector (51PIN/0.5mm)

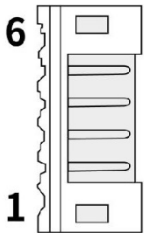
exterior condition	footnote	define	descriptive
	1	GND	ground
	2	VBX1_7P	VBYONE signal
	3	VBX1_7N	VBYONE signal
	4	GND	ground
	5	VBX1_6P	VBYONE signal
	6	VBX1_6N	VBYONE signal
	7	GND	ground
	8	VBX1_5P	VBYONE signal
	9	VBX1_5N	VBYONE signal
	10	GND	ground
	11	VBX1_4P	VBYONE signal
	12	VBX1_4N	VBYONE signal

	13	GND	ground
	14	VBX1_3P	VBYONE signal
	15	VBX1_3N	VBYONE signal
	16	GND	ground
	17	VBX1_2P	VBYONE signal
	18	VBX1_2N	VBYONE signal
	19	GND	ground
	20	VBX1_1P	VBYONE signal
	21	VBX1_1N	VBYONE signal
	22	GND	ground
	23	VBX1_0P	VBYONE signal
	24	VBX1_0N	VBYONE signal
	25	GND	ground
	26	LOCKN-OUT	control signal
	27	HTPDN	control signal
	28	SEL-LVDS	control signal
	29	AGP	control signal
	30	SCN-EN	control signal
	31	Bit-SEL1	control signal
	32	LD-EN2	control signal
	33	BOE-SCL	IIC signal
	34	BOE-SDA	IIC signal
	35	2D/3D	control signal
	36	L/R-IN	control signal
	37	L/R-OUT	control signal
	38	NC	empty-handed
	39	GND	ground
	40	GND	ground
	41	GND	ground
	42	GND	ground
	43	NC	empty-handed
	44-50	VCC	12V power supply
	51	VCC-VX1	12V power supply

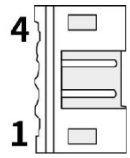
J1 (6PIN/2.0) backlight power connector (curved plug)

exterior condition	footnote	define	descriptive
	1	GND	ground
	2	GND	ground
	3	ADJ	Backlight Brightness Adjustment
	4	EN	Backlight on/off control
	5	+12V	Screen Backlight Power Supply
	6	+12V	Screen Backlight Power Supply

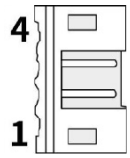
J20 (6PIN/2.0) IIC Connector (Bend Plug)

exterior condition	footnote	define	descriptive
	1	3.3V	electricity supply
	2	INT	Interrupt Data
	3	SCL	12C data
	4	SDA	12C Clock
	5	RST	reset data
	6	GND	ground

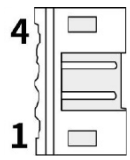
J14 (4PIN/2.0) Serial 1 Interface (Bend Plug) (Optional TTL Default 485)

exterior condition	footnote	define	descriptive
	1	3.3V	3.3V
	2	A/TX	dispatch
	3	B/RX	reception (of transmitted signal)
	4	GND	ground

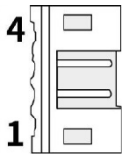
J13 (4PIN/2.0) TTL Serial 0 connector (bent plug) (debug serial)

exterior condition	footnote	define	descriptive
	1	VCC	3.3V
	2	TX	receive
	3	RX	shuttle (transport service)
	4	GND	structural particle: used before a verb or adjective, linking it preceding the verb or adjective

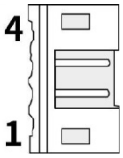
J26 (4PIN/2.0) TTL Serial 2 Interface (Bend Plug) (Default RS232)

exterior condition	footnote	define	descriptive
	1	VCC	3.3V
	2	TX	receive
	3	RX	shuttle (transport service)
	4	GND	ground

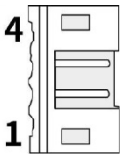
J3 (4PIN/2.0) TTL Serial 3 Connector (Bend Plug) (Default RS232)

exterior condition	footnote	define	descriptive
	1	VCC	3.3V
	2	TX	receive
	3	RX	shuttle (transport service)
	4	GND	ground

J10 (4PIN/2.0) speaker connector (curved plug)

exterior condition	footnote	define	descriptive
	1	RPK+	Right channel +
	2	RPK-	Right channel-
	3	LPK-	Left channel -
	4	LPK+	Left channel +

J34 (4PIN/2.0) audio connector (curved plug)

exterior condition	footnote	define	descriptive
	1	HPOL	Left channel
	2	HDET	detector foot
	3	HPOR	right channel
	4	HGND	ground

Electrical Performance

Standard Power Supply

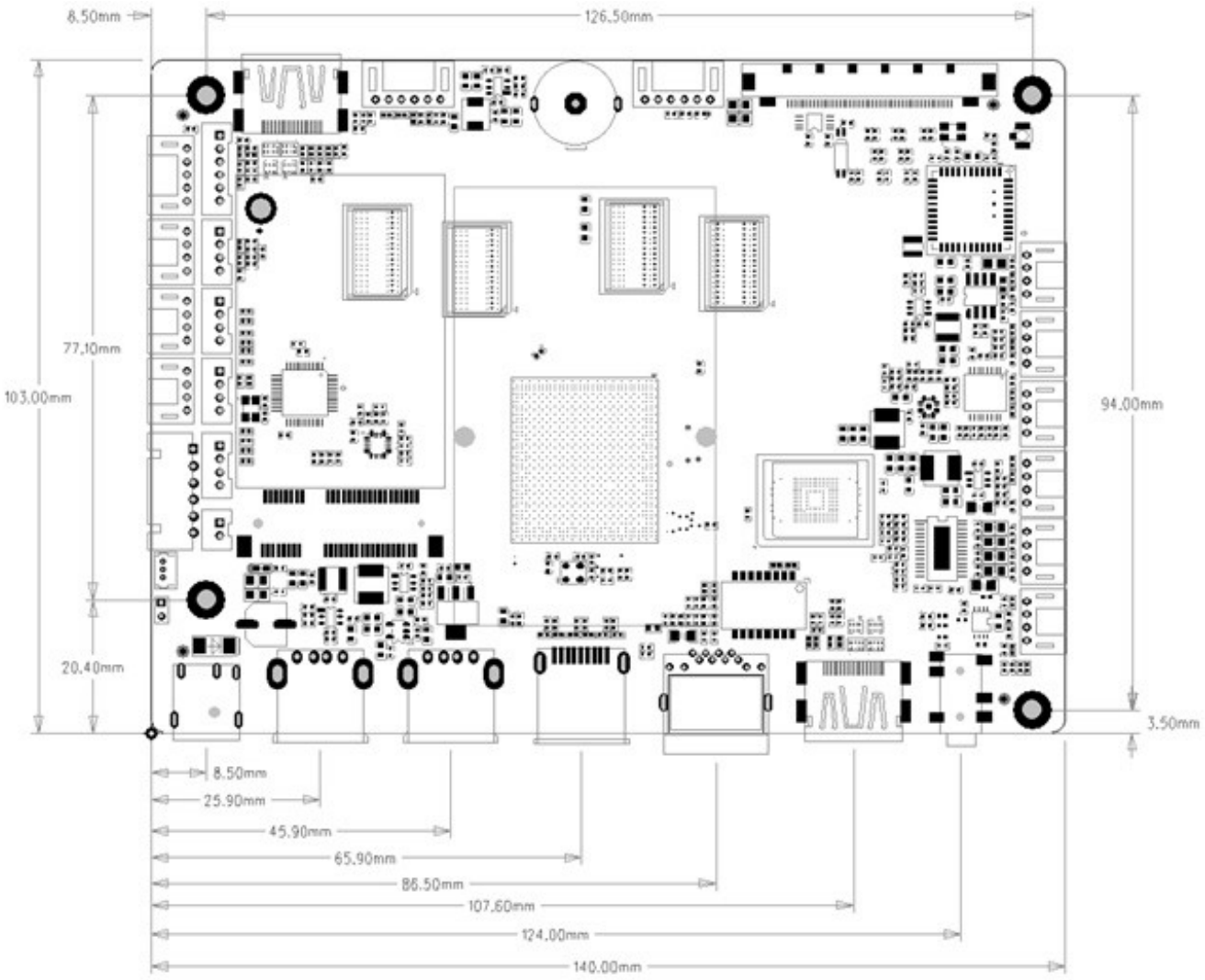
form		minimal	typical case	greatest
Standard power supply parameters	input voltage	11V	12V	13.5V
	ripple	/	/	±3%
	amps	2A	3A	/

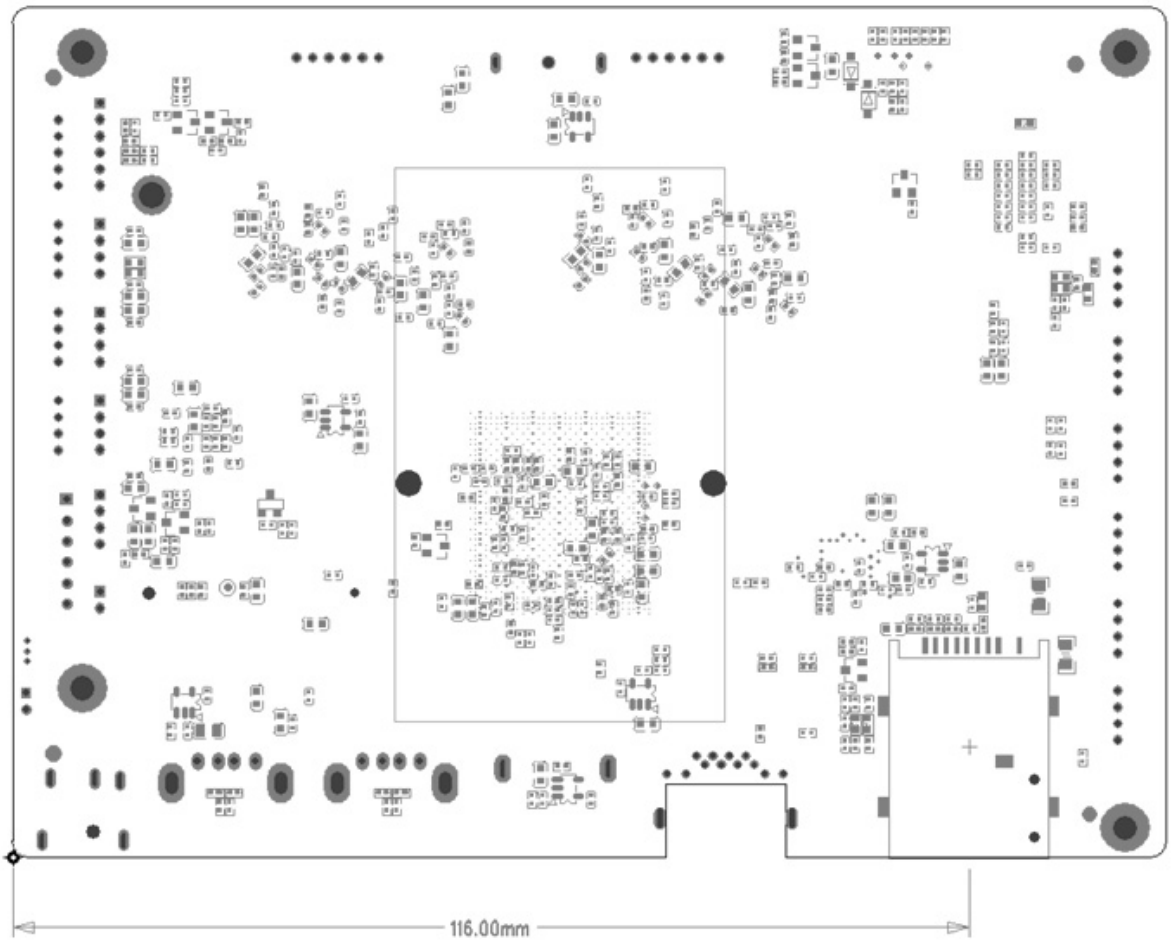
USB power supply

USB interface	input voltage	Typical Current	Maximum current
OTG_USB	5V	500mA	1.5A
HOST_USB	5V	500mA	1.5A

Note: It is recommended that the total current of the USB peripherals does not exceed 3000mA, otherwise the machine will not function properly.

Board Size


8.50mm
126.50mm
77.10mm
103.00mm
94.00mm
20.40mm
3.50mm
8.50mm
25.90mm
45.90mm
65.90mm
86.50mm
107.60mm
124.00mm
140.00mm



1. Relative humidity ≤85%

2. Storage temperature: -30℃ to +70℃.

3. Operating temperature: -20℃ to +60℃ (-20℃ to +60℃)

4. Pay attention to anti-static treatment during assembly and transportation of the whole machine.

5. When assembling the whole machine, it can be mounted underneath or on the side, but don't deform or twist the board and don't subject it to heavy pressure.

6. Retain a suitable distance between the wiring positions of each terminal so that installation does not result in squeezing the terminals.

7. The connecting wire between this board and the matching module board should not be too long, otherwise it may affect the image quality.

8. The internal wiring of the whole machine should be reasonable, and the connecting wires should not be traversed directly from the PCB board as far as possible.

9. In order to achieve better EMC effect for the whole machine, it is recommended that the screen cable between the motherboard and the screen use shielded cable.

Shanghai ONBON Technology Co.,ltd (Headquarters)

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