

Digital Signage Dual Core Board M0

Datasheet

Revision History

Version	Remark	Date
1.0	Created	2015.06.20

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审核:

批准:

Product Introduction

Digital Signage android board M0 is based on Allwinner A20 dual core CPU and two ARM Mali-400MP GPU are integrated in, which is with powerful video processing capacity. ARM Mali-400MP is compatible with most of video format and video decoding.

With Android 4.2 operation system, 1GB RAM and 4GB ROM, M0 can directly drive 15-55 inches LCD screen and supports large-size infrared touch-screen. Featuring with 2USB interface and 6UART extensions, M3 can meet the needs of different customers and RJ45/WiFi/3G three-in-one module is helpful for multi web environment application. Moreover, it is integrated with abundant external interfaces, such as infrared human body induction and timer switch. All interfaces of M0 are horizontal socket, which make M0 meet the needs of ultra-thin on products. M3 is the most competitive one among the products based on Allwinner A20 processor.(M0 is perfectly compatible with the screws holes of M1 and M3)

Product Specification

Hardware Index	
CPU	Allwinner A20, Cortex-A7, 1.2GHz
Memory	DDR3 1G
Storage	EMMC FLASH 4G
Storage Extension	Up to 32GB TF card extension
WiFi	Built-in USB WIF WIFI/BT Module (optional) , 802.11b/g/n
System	
Operation System	Android 4.2
Language	Simplified Chinese, Traditional Chinese, English, French, German, Italian, Japanese, Korean, Russian, Spanish, Polish, Czech, etc.
Internet Function	
Browser	UCWeb, Google.etc
Online Entertainment	Supports online video, TV, movie, music and radio
Office Software	WORD,EXCEL,POWERPOINT,PDF,TXT
Game	Internal 3D speed up, supports 3D game
Expansibility	More 20,000 app in Google market for free downloading
Video Playback	
Format	Supports AVI (H.264、DIVX、DIVX、XVID) ,rm, rmvb, MKV (H.264、DIVX、DIVX、XVID) , WMV, MOV, MP4 (.H.264、MPEG、DIVX、XVID) , DAT (VCD format) , VOB (DVD format) , PMP,MPEG, .MPG, , FLV (H.263, H.264) , ASF , TS, TP, 3GP, MPG, etc
Decoding Resolution	Up to 3840*2160
Video	Maximum supports HDMI 1080P full HD output
Audio Playback	

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Format	Support MP3,WMA,MP2,OGG,AAC,M4A,MA4,FLAC,APE,3GP,WAV,etc , supports play list of songs
Record Function	Supports MP3,WMA recording
Other Function	
Image Browsing	Supports JPG, BMP,PNG and GIF image browsing, image rotators and PicaSlide Lite; Resolution is up to 4096*4096
Text Reading	Support TXT,PDF,HTML,HTM,CHM,UMD
Basic Interface	
USB2.0 Interface	2 USB HOST (1 external and 1 internal)
UART Extension	6 (3TTL, 2*RS232 or TTL (optional, default TTL) , 1 TTL+fluid control)
LVDS Output	1, Can directly drive 1080P LVDS LCD screen or transfer drive small size screen
LCD Backlight Interface	1, Standard 6pin socket ((12V/5V optional)
HDMI Output	1 HDMI A-type interface
Headphone/Mic	1 built-in headphone audio output and CVBS output socket
Speaker Output	1 internal socket, maximum supports 2*3W/4Ω speaker
TF Card	standard TF card slot
LAN	1 RJ45 standard interface
IR human body induction	1 (can be weld on master board or use with an extension cord)
RTC Real-Time Clock	1 clock battery holder
Power Supply	1 external socket and an internal 6P socket, DC 12V input
Bi-Color LED light	1 internal bi-color LED light(can be weld on board or used with an extension cord)
Infrared Remote	1 internal infrared remote receiver socket(can be welded on PCB or connected by extension cord according to structure)
Button	1 internal 5 PIN socket (connected via extension cable)
I/O Socket1	1 built-in 5P socket (supports GPIO*4)
Other Function	
Touch Screen	upports USB capacitive/ infrared touch
Other Input Devices	Supports USB keyboard /mouse / IR remote
Video Function	Supports USB camera
Featured Function	Watch-dog, power on & off by alarm

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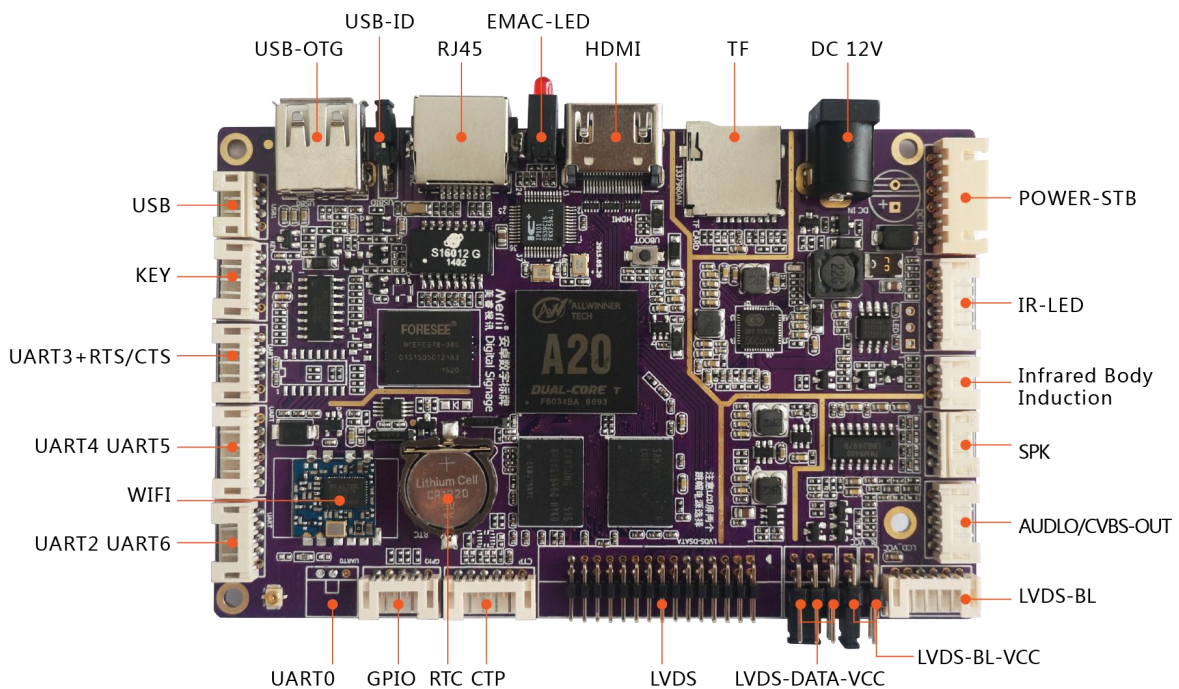
3G	USB 3G module
Electrical Specifications	
Power-In	Power supply (12V)
Consumption	$\leq 2.5W$, not connecting to speaker/LCD/backlight inverters/USB devices
Working Environment	
Working Temperature	$-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$. $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$ recommended
Working Humidity	10%~90%, without condensation
Storage Temperature	$-40^{\circ}\text{C} \sim 70^{\circ}\text{C}$,

About the hardware configuration such as functional requirements will be subject to our default configuration.

If the customer needs to customize specific functions, please inform us in advance to negotiate business.

■ Product Appearance

■ Front View

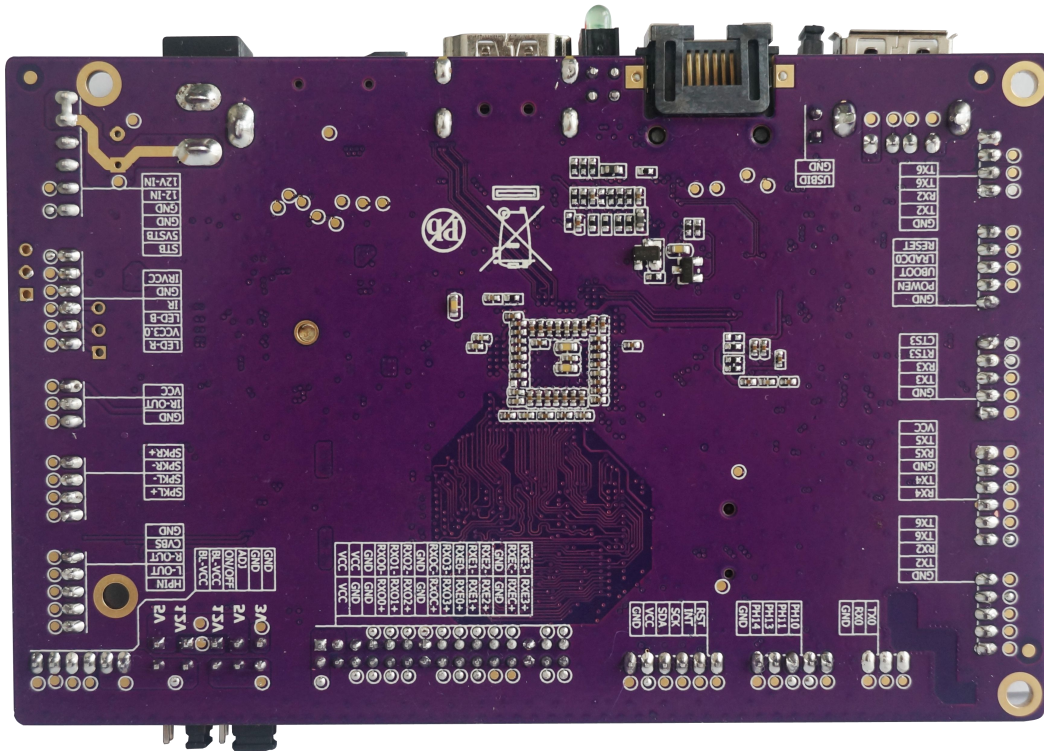


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■ Rear View



Interface Definition

▼ Built-in Interface

◆ J51 UART0-TTL Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	UART0_TX	Output	UART0_TX
2	UART0_RX	input	UART0_RX
3	GND	GND	GND

◆ J22 UART-TTL Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	UART6_RX	input	Data Input
2	UART6_TX	Output	Data Output
3	UART2_RX	input	Data Input
4	UART2_TX	Output	Data Output
5	GND	GND	GND

◆ J25 UART-TTL / RS232 Interface (default TTL, 2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	VCC-3V	Power Output	VCC-3V

制作:

审核:

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2	UART5_TX	Output	Data Output
3	UART5_RX	input	Data Input
4	GND	GND	GND
5	UART4_TX	Output	Data Output
6	UART4_RX	input	Data Input

◆ J21 UART-TTL Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	UART3_CTS	input	Data Input
2	UART3_RTS	Output	Data Output
3	UART3_RX	input	Data Input
4	UART3_TX	Output	Data Output
5	GND	GND	GND

◆ CON13 SPK-OUT Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	LOUTN	L Output“-”	LOUTN
2	LOUTP	L Output“+”	LOUTP
3	ROUTP	R Output“+”	ROUTN
4	ROUTN	R Output“-”	ROUTN

This is a double loudspeaker connection, when using single horn, please note that pin1 and pin2 is as a group. And pin3 and pin4 is as a group.

If use the speaker, please make sure that the speaker is connected before turn on the machine. Note: Avoid of hot-line work.

◆ CON7 LVDS_LOGIC Power Input Select Socket (2.54MM Horizontal Socket)

No.	Definition	Attribute	Description
1	12V_IN	Input	LVDS_LOGIC Power Input
2	5V_IN	Input	LVDS_LOGIC Power Input
3	3V_IN	Input	LVDS_LOGIC Power Input
4	LVDS_VCC	Output	LVDS_LOGIC Power Output
5	LVDS_VCC	Output	LVDS_LOGIC Power Output
6	LVDS_VCC	Output	LVDS_LOGIC Power Output

When choosing the switching power supply, it is important to note what voltage that backlight display needs, and then select the corresponding voltage. Otherwise it is easy to burn off the display circuit.

制作:

审核:

批准:

◆ J1 LVDS Signal Output (Dual Row 2.0MM Horizontal Socket)

No.	Definition	Attribute	Description
1	LCDVCC	Power Output	LCD Power Output, +3.3V /+5V/ +12V Optional via CON7
2			
3			
4	GND	GND	GND
5			
6			
7	RXO0-	Output	Pixel0 Negative Data (Odd)
8	RXO0+	Output	Pixel0 Positive Data (Odd)
9	RXO1-	Output	Pixel1 Negative Data (Odd)
10	RXO1+	Output	Pixel1 Positive Data (Odd)
11	RXO2-	Output	Pixel2 Negative Data (Odd)
12	RXO2+	Output	Pixel2 Positive Data (Odd)
13	GND	GND	GND
14	GND	GND	GND
15	RXOC-	Output	Negative Sampling Clock (Odd)
16	RXOC+	Output	Positive Sampling Clock (Odd)
17	RXO3-	Output	Pixel3 Negative Data (Odd)
18	RXO3+	Output	Pixel3 Positive Data (Odd)
19	RXE0-	Output	Pixel0 Negative Data (Even)
20	RXE0+	Output	Pixel0 Positive Data (Even)
21	RXE1-	Output	Pixel1 Negative Data (Even)
22	RXE1+	Output	Pixel1 Positive Data (Even)
23	RXE2-	Output	Pixel2 Negative Data (Even)
24	RXE2+	Output	Pixel2 Positive Data (Even)
25	GND	GND	GND
26	GND	GND	GND
27	RXEC-	Output	Negative Sampling Clock (Even)
28	RXEC+	Output	Positive Sampling Clock (Even)
29	RXE3-	Output	Pixel3 Negative Data (Even)
30	RXE3+	Output	Pixel3 Positive Data (Even)

* VESA or JEIDA an LVDS data formats (Configurable) * EVEN/ODD pixel data exchange (Configurable)

◆ J49 Backlight Inverter Power Input Select Socket (2.54MM Horizontal Socket)

No.	Definition	Attribute	Description
1	12V_IN	input	LVDS_LOGIC Power Input

制作:

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2	BL_VCC-SE L	Output	Backlight Inverter power output
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When choosing the switching power supply, it is important to note what voltage that the backlight display needs, and then select the corresponding voltage . About the display voltage, please consult the corresponding supplier of back plate.

◆ J50 Backlight Inverter Power Input Select Socket (2.54MM Horizontal Socket)

No.	Definition	Attribute	Description
1	5V_IN	input	LVDS_LOGIC Power Input
2	BL_VCC-SE L	Output	Backlight Inverter power output

When choosing the switching power supply, it is important to note what voltage that the backlight display needs, and then select the corresponding voltage . About the display voltage, please consult the corresponding supplier of back plate.

◆ J16 Backlight Inverter Control Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	BL_IN	Output	Backlight Power Output (Power Output can be 12V or 5V) , 12V power directly connect external adapter, current depends on the size of the adapter's current. 5V power connects the internal DCDC conversion, current can be up to 2 A.
2	BL_IN	Output	
3	ON/OFF	Output	backlight signals switch, 5V level, high and low level can be configured
4	ADJ	Output	Backlight Unit DIMMING Control
5	GND	GND	GND
6	GND	GND	GND

◆ CON15 USB-HOST Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	VCC-5V	Power Output	VCC-5V
2	DM1	Data “-”	DM
3	DP1	Data “+”	DP
4	GND	GND	GND

◆ J45 USB OTG Function Select Socket (2.54MM Horizontal Socket)

No.	Definition	Attribute	Description
1	GND	GND	USB function low potential input (HSOT function, select this feature by default)
2	OTG-SEL	Output	USB function select output

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After the jump cap connecting, the USB0 is with USB-HOST function, if not connect, it's USB-DRV function.

◆ **J5 Power-DC12V-IN Interface (2.54MM Horizontal Socket)**

No.	Definition	Attribute	Description
1	+12V	Power Input	+12V
2	+12V	Power Input	+12V
3	GND	GND	GND
4	GND	GND	GND
5	5VSTB	input	STB Power Input
6	STB	Output	STB Signal Output

◆ **J18 Bi-Color LED and infrared IR interface (2.54MM Horizontal Socket)**

No.	Definition	Attribute	Description
1	VCC-3V3	Output	Power 3.3V Output
2	GND	GND	GND
3	IR	input	IR Signal Input
4	LED_ BLUE	Output	LED Light negative Indicator system operating status
5	LED+	input	LED Light positive
6	LED_ RED	Output	LED Light negative Power Supply Indicator Light

(Remark: J18 socket can be welded with a 6pin socket according to the requirement, and it can be external connection.)

◆ **J17 GPIO Socket Interface (2.00MM Horizontal Socket)**

No.	Definition	Attribute	Description
1	GPIO1	input/Output	GPIO1 input/Output PH10
2	GPIO2	input/Output	GPIO2 input/Output PH11
3	GPIO3	input/Output	GPIO3 input/Output PH13
4	GPIO4	input/Output	GPIO4 input/Output PH14
5	GND	GND	GND

◆ **J24 KEY external socket interface (2.00MM Horizontal Socket)**

No.	Definition	Attribute	Description
1	RESET	input	Reset signal interface
2	KEY	input	KEY extension interface
3	UBOOT	input	System upgrade button

制作:

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批准:

4	POWEN	input	System boot button
5	GND	GND	GND

Key configuration can be adjusted

◆ J19 Capacitive Touch Screen Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	GND	GND	GND
2	VCC_3.3V	Power Output	3.3V Power
3	I2C_SDA	input/Output	Capacitive Touch Screen I2C_SDA
4	I2C_SCK	input/Output	Capacitive Touch Screen I2C_SCK
5	TP_INT	input/Output	Capacitive Touch Screen Interrupt
6	TP_WAKEUP	input/Output	Capacitive Touch Screen Wake Up

J26 Audio / video external socket interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	HPIN	Output	External earphone detection interface
2	L-OUT	Output	L Channel output interface
3	R-OUT	Output	R Channel output interface
4	CVBS-OUT	Output	CVBS Complex signal output interface
5	GND	GND	GND

◆ J46 Human Body Induction Interface (2.00MM Horizontal Socket)

No.	Definition	Attribute	Description
1	VCC	input	human body induction power supply
2	IR-DET	Output	human body induction signal output
3	GND	GND	GND

This interface can be used as a high voltage GPIO input (this interface already isolated)

▼ External socket interface definitions are as follows

- ◆ J2 Standard 12V round pin, 6.4MM diameter, 2.5MM internal nail, with positive inside, positive outside
- ◆ J15 Standard TF card Interface definition
- ◆ J8 Standard A type HDMI socket definition
- ◆ J6 Standard 100M RJ45 socket definition (without light)
- ◆ J12 Standard USB2.0 interface socket definition

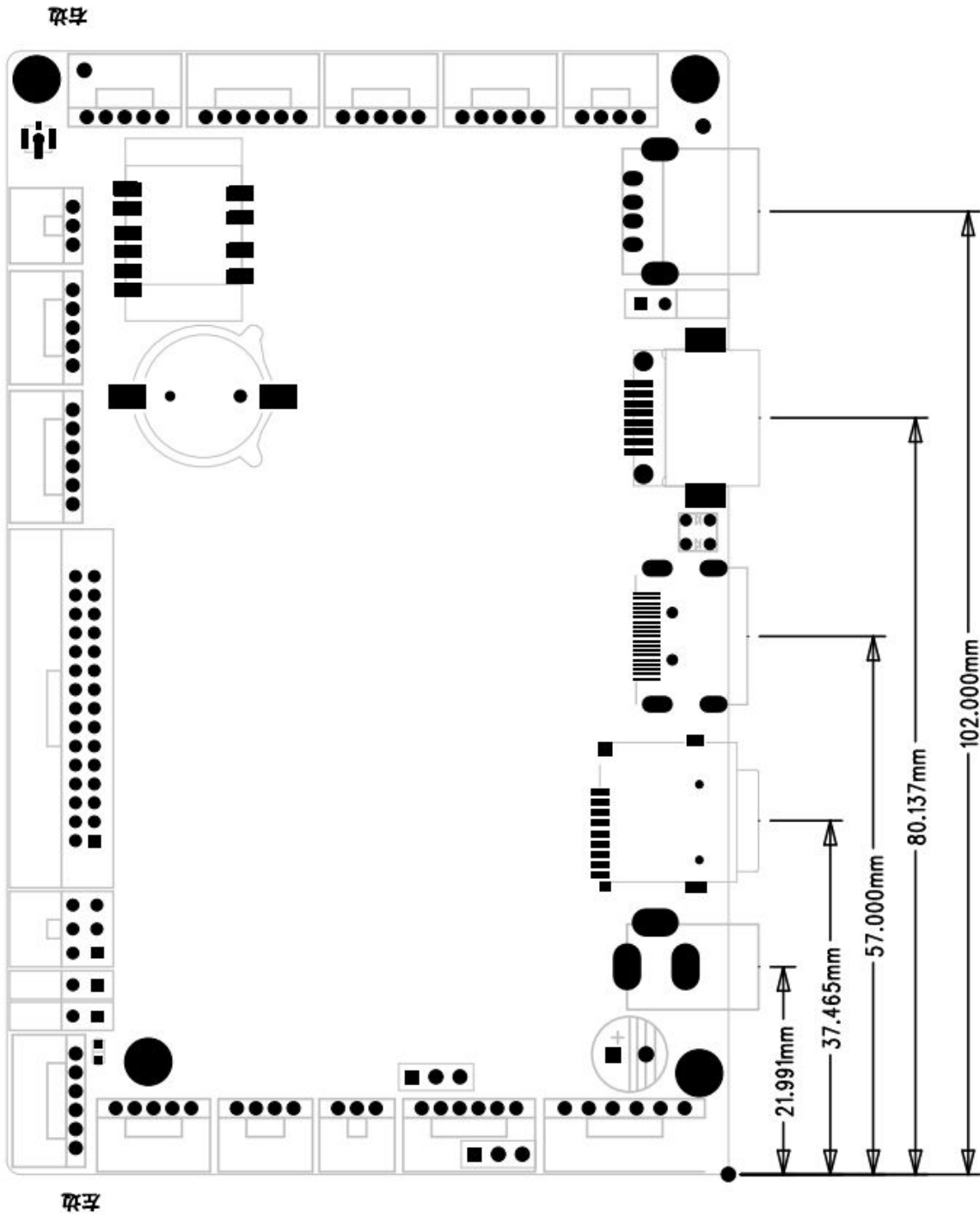
Note: No charging and make ESD protection while assembling

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Dimensions and Device Distribution Graph
M0 V1.0 FrontView.pdf



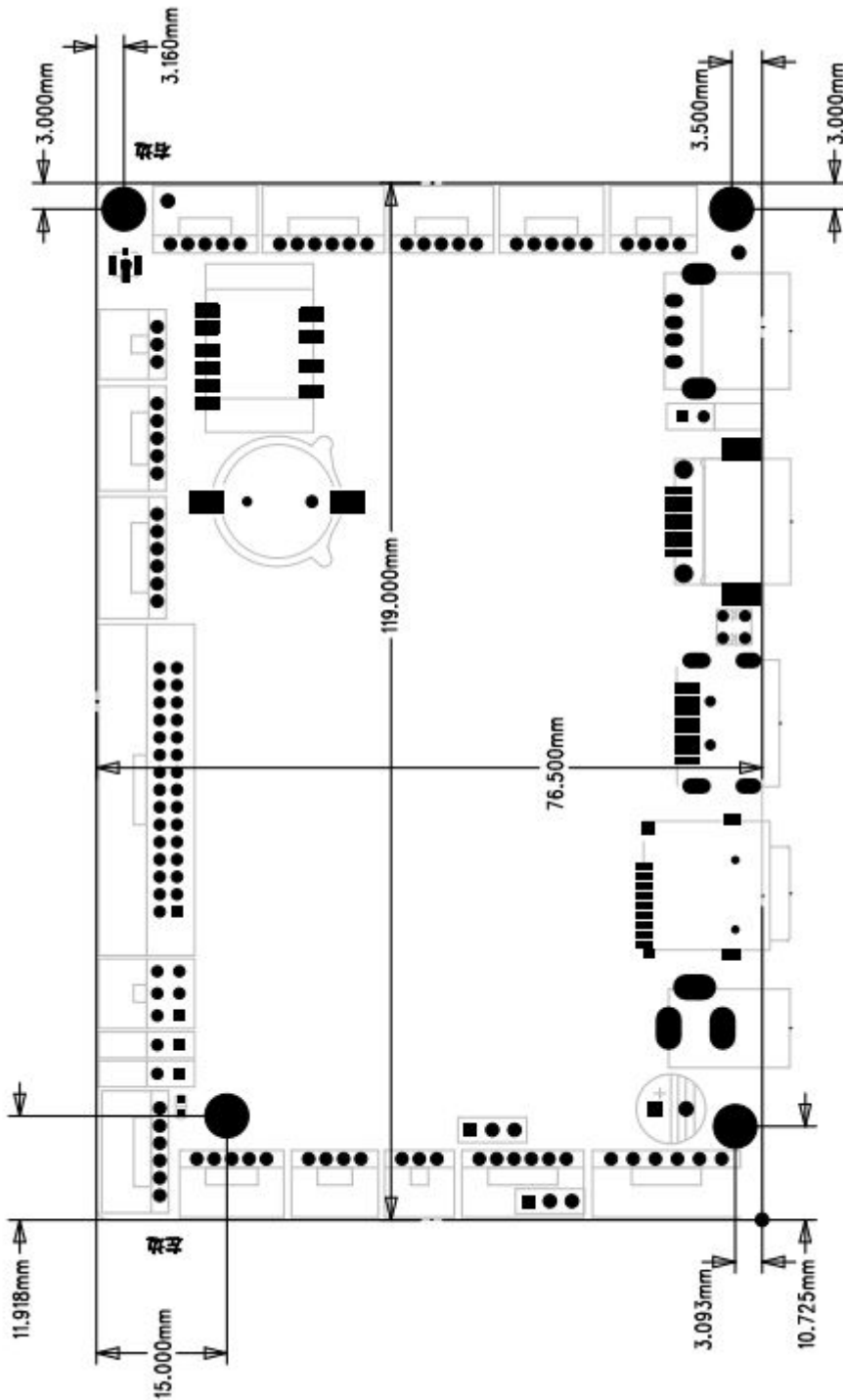
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批准:

Dimensions and Screw Distribution Graph:

M0-V1.0 Screw Distribution Graph.pdf



制作:

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◆ Hardware support list (Touch screen, camera, 3G module)

◆ Infrared touch screen

No.	Brand
1	Oscar
2	Fltouch
3	CJTouch
4	

◆ Camera

No.	Brand
1	USB camera without driver

◆ 3G module

No.	Brand	SIM card type	Internet type
1	USB Module without driver		

制作:

审核:

批准: