Product Specification For Android board

Model Name	XMB-3566Z37
Customer	
Note	

■Preliminary Specification

□Final Specification

□CUSTOMER'S APPROVAL
BY: **DATE:**

Comment	PRESENTED BY

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1. Overview

1.1 Product Overview

The XMB-3566Z37 board uses Rockchip's RK3566 high-performance, low-power quad-core application processor. With Android 11.0 system, main frequency is up to 1.8GHz. Embedded 3D GPU enables RK3566 with OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.1 are fully compatible. Special 2D hardware engine will maximize

Dramatically improves display performance and provides very smooth operation. Built-in NPU supports 0.8T and INT8/INT16 mixed operation, supports almost all formats of H.264 decoder 4K@60fps, H.265 decoder 4K@60fps, also supports H.264/H.265 encoder 1080p@60fps, high-quality JPEG encoder/decoder. Integrate multi-channel LCD driver, Ethernet, WIFI, and BT4.1 power amplifier into one, support decoding of most popular video and picture formats, dual 6/8-bit LVDS, eDP /MIPI, support 2K-level output, compatible with driving various TFTs LCD display simplifies the overall system design.

1.2 Features

1) High integration. XMB-3566Z37 Android all-in-one board integrates single and double LVDS, MIPI, 100M Ethernet, wifi, Bluetooth, 5W*2 power amplifier, TF card expansion, infrared remote control, serial port/IO expansion, MIPI camera, HDMI output, MIC, gravity sensor, backlight Functions such as power supply greatly simplify the overall machine design. The ultra-thin motherboard design can make the whole machine more beautiful.
2) High stability. XMB-3566Z37 Android all-in-one board adds its own unique technology to the hardware and software to ensure the stability of the product, making the final product unattended 7*24 hours.
3) High performance. The 3566 chip uses a quad-core Cortex-A55 solution and is currently the most powerful quad-core chip monster on the market. The 3566 motherboard solution using this chip has a qualitative leap in performance compared to the common single-core, dual-core, and quad-core solutions on the market, and can play High-definition video in various formats, capable of handling complex interactive operations.
4) High definition. Supports 1080P/H.265 (4K2K) video decoding and various LVDS/eDP signal LCD displays.
5) Comes with built-in power amplifier. Supports dual-channel 8R/5W power amplifier.
6) Rich interfaces. Supports USB (1 channel USB3.0)/serial port/GPIO/ADC interface expansion, which can meet the mainstream peripherals on the market.
7) Full-featured. Supports horizontal and vertical screen playback, video split screen, rolling subtitles, timer switch, USB data import and other functions.
8) Convenient management: Humanized playlist creation software facilitates advertising playback management and control. Playback log makes it easy to understand the playback status.

2. General Specifications

2.1 Basic Hardware List

CPU	Rockchip RK3566 super powerful quad-core 64-bit Cortex-A55 1.8G
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
DDR	LPDDR4/4X default 2G (up to 8G supported)
Storage	eMMC FLASH default 8GB (optional 16G/32G/64G)
Display Interface	LVDS I/F (single/dual channel, 6-bit/8-bit), support 1920 x 1080 resolution
	eDP I/F, Supports 1920 x 1200 resolution
	MIPI I/F, Supports 1920 x 1200 resolution
TP	Provide I2C interface (can support multi-point capacitive touch) Support for USB multi-point infrared touch, multi-point acoustic touch, multi-point optical touch
Network	Equipped with RJ45 interface, supports Ethernet, supports 100M network
	Equipped with wifi&BT module, supporting Wi-Fi 802.11b/g/n protocol
	Support BT4.0, support 5G-WIFI
Picture orientation	Support 0,90,180,270 manual/automatic rotation ; Support gravity sensing function
Real-time clock	Built-in real-time clock and powered battery
Extended interface	Support USB camera
	6 USB HOST, 1 USB OTGTTL to 485 serial ports; public default TTL.
	2 sets of serial ports, supporting TTL optional RS232 serial port. 1 set of RS485. Supports external serial device modules (3G module, NFC module, printer, card reader, etc.)
	1 set of I2C port
	TF card, support maximum 128GB
	Dclass extra large built-in speaker, 5W/8Ω *2
	Support microphone
Audio format	MP3,WMA,WAV,APE,FLAC,AAC,OGG,M4A,3GPP format
Video format	Support H.264, H.256, VP8, RV, WMV, AVS, H.263, 4K/2K decoding of video formats such as MPEG4, YouTube, etc. Online video, up to 4096P, HTML5 video playback, Flash10.1 play
Picture format	Supports browsing and supporting various image formats such as JPG,

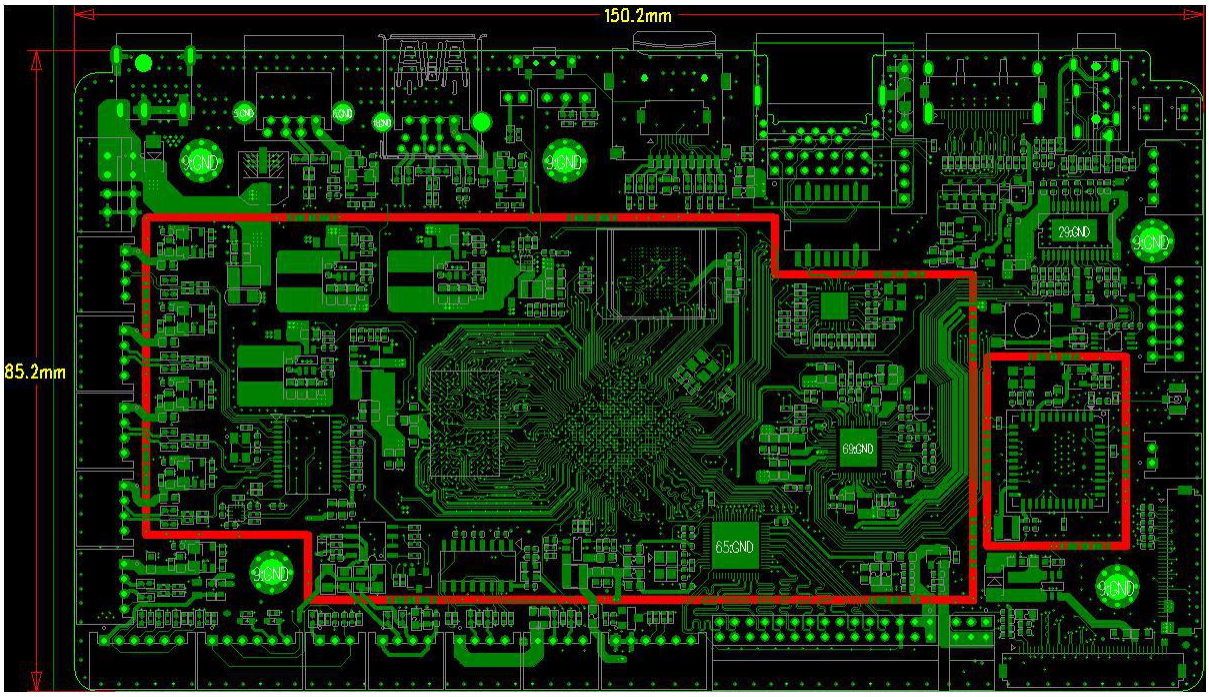
	BMP, PNG, etc. Support rotation/slideshow/picture zoom function.
Power adapter	Input: AC100-240V.50-60HZ, output: DC12V/4A (define the current size based on actual equipment conditions)

2.2 Basic Software List

Operating system (OS)	Google Android 11
Basic software features	Web browsing, network chat, e-mail, e-book, resource manager
Sound effect mode	Clock, alarm clock, calculator, sound recording
Linguistic support	Multinational language
Sound recording	Support MP3 and WMA format recording
Tool	Calendar
	Alarm Clock
	Calculator
	Note paper
	Weather + clock
	sound recording
Text processing	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
Electronic book	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Programme	Calendar
Typewriting	Standard Android keyboard, optional third-party input methods (Chinese, Korean, Japanese, etc.)
Network	Browser -ChromeLite
	GOOGLE Market
	Email
	Gmail
	Google talk
System management	APK installer
	The original Android system, with open root permissions, can be customized for product development
	Real-time remote monitoring, system crash self-recovery, 7 * 24 hours unattended
	System setting
	Google Maps

	Global time
	Support OTA remote upgrade
	Support U disk upgrade

2.3 Outline measurement

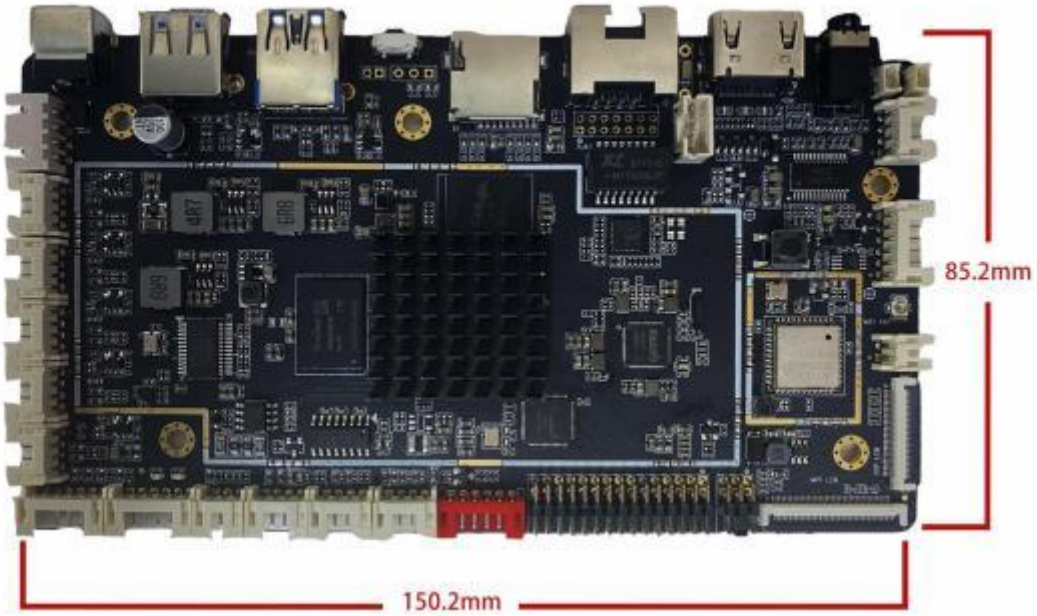


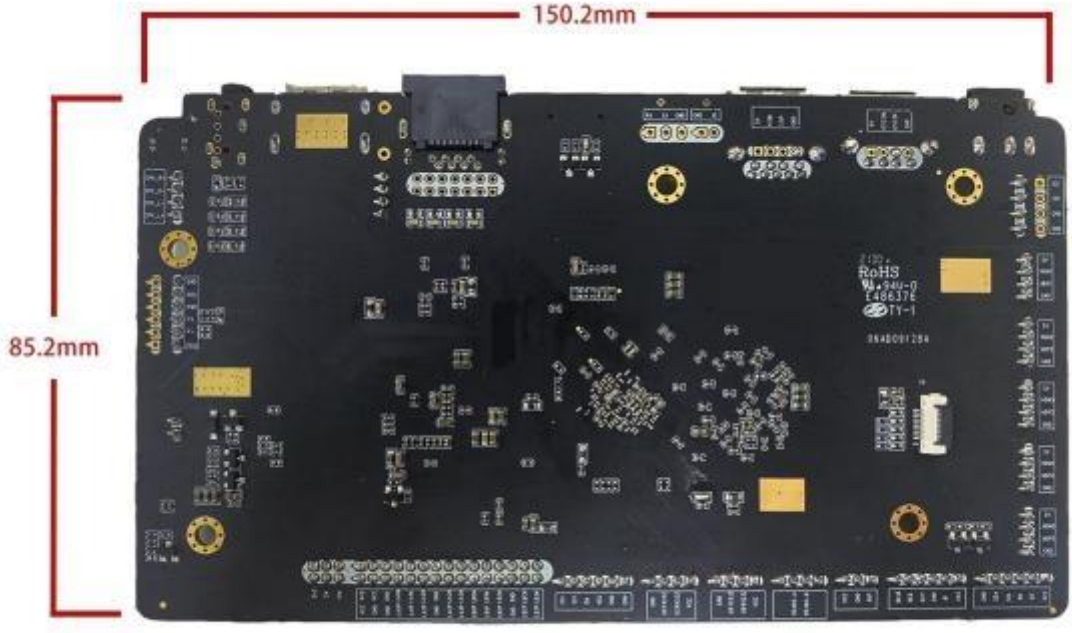
PCB: 6-layer board

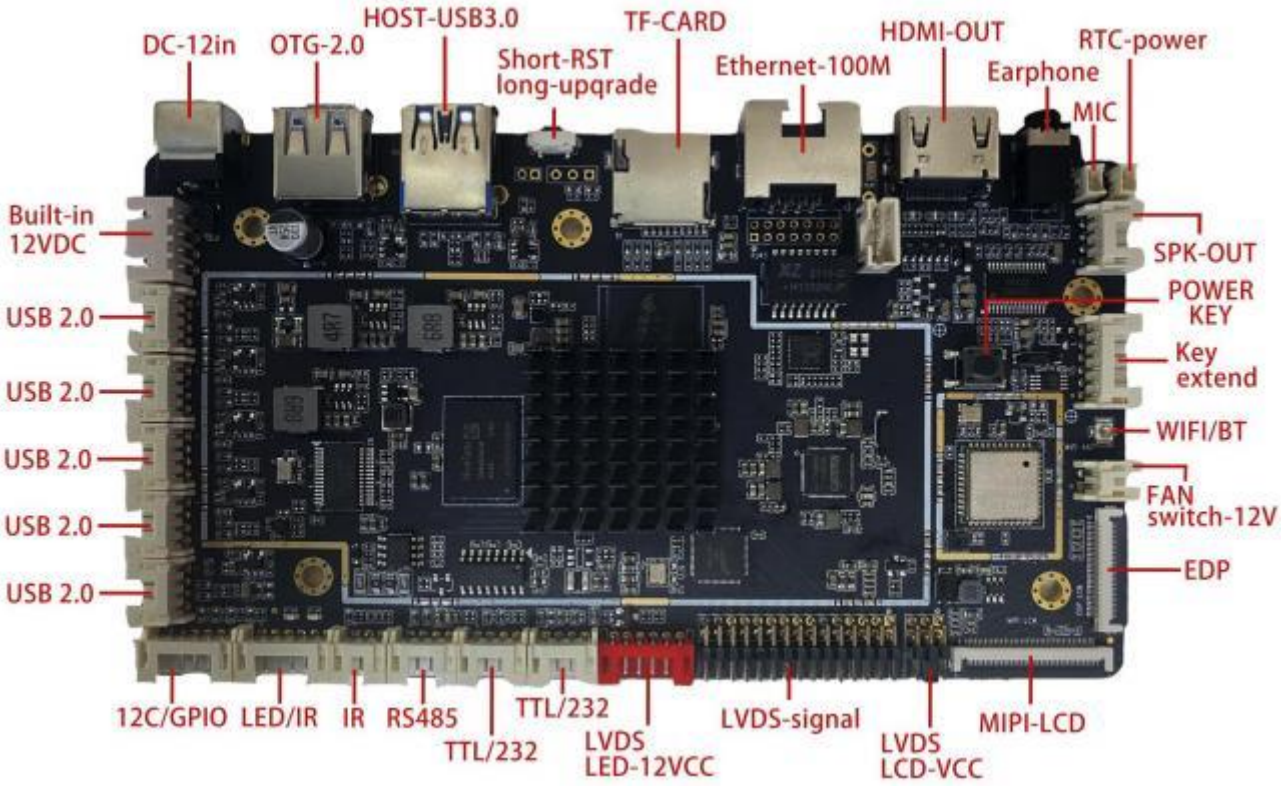
Size: 150*85*1.2mm

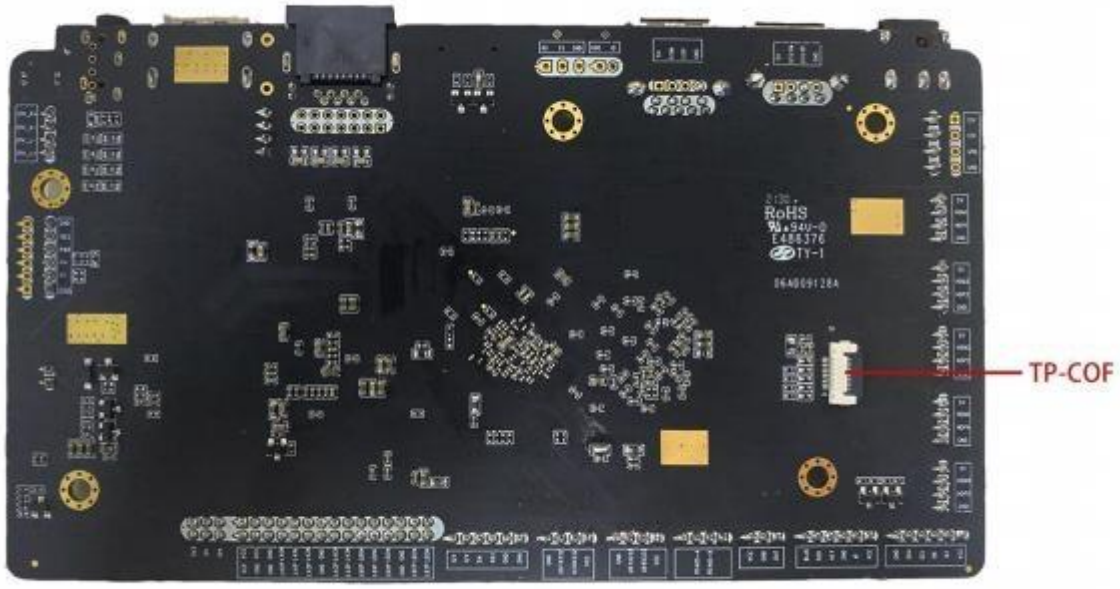
Screw hole specifications: § 3.5mm x 4

2.4 Product Picture






DC-12in
OTG-2.0
HOST-USB3.0
Short-RST
long-upqrade
TF-CARD
Ethernet-100M
HDMI-OUT
Earphone
MIC
RTC-power
Built-in
12VDC
USB 2.0
USB 2.0
USB 2.0
USB 2.0
USB 2.0
SPK-OUT
POWER
KEY
Key
extend
WIFI/BT
FAN
switch-12V
EDP
12C/GPIO
LED/IR
IR
RS485
TTL/232
TTL/232
LVDS
LED-12VCC
LVDS-signal
LVDS
LCD-VCC
MIPI-LCD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2.5 Pin Definitions

- BAT1 RTC battery interface (bit number J2-2pin/1.25mm pitch)

Order number	Definition	Attribute	Description
1	RTC	Input	3.3V input
2	GND	Ground wire	Ground wire

- LED+IR working indicator light remote control (bit number CON4-6P/2.0mm pitch)

Order number	Definition	Attribute	Description
1	IR-VCC	IR-VCC	IR-VCC
2	IR	IR signal	IR signal reception
3	GND	Ground wire	Ground wire
4	KEY	Key	Key extension
5	LED-R	Red light	Power shutdown indication
6	LED-G	Green light	Power turn on indication

- Touch screen interface (number JP22-10P/0.5mm pitch)

Serial number	Definition	Attribute	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	RST	Input/Output	Reset
4	INT	Input/Output	Interrupt
5	GND	Ground wire	Ground wire
6	SCL	Clock	Clock
7	SDA	Data	Data
8	VCC	Power	V3.3 Power
9	GND	Ground wire	Ground wire
10	GND	Ground wire	Ground wire

- Serial socket interface x2 (Bit number J27, J25-4pin/2.0mm pitch) RS232/TTL level optional

Order number	Definition	Attribute	Description
1	VCC-3.3V/5V	Output	3.3V/5V output (voltage optional)
2	UART-RX	Input/Output	Data input/output
3	UART-TX	Input/Output	Data input/output
4	GND	Ground wire	Ground wire

- Serial socket interface (number J28-4pin/2.0mm pitch) RS485

Order number	Definition	Attribute	Description
1	GND	Ground wire	Ground wire
2	RS485_B_D-	Input/Output	Data input/output
3	RS485_A_D+	Input/Output	Data input/output
4	GND	Ground wire	Ground wire

- Speaker socket interface (bit number CON1-4pin/2.0mm pitch)

Order number	Definition	Attribute	Description
1	OUTL+	Output	Audio output left +
2	OUTL-	Output	Audio output left -
3	OUTR-	Output	Audio output right-
4	OUTR+	Output	Audio output right+

- MIC interface (bit number MIC1-2pin/1.25mm pitch)

Order number	Definition	Attribute	Description
1	MCIN	Input	MIC negative
2	GND	Ground wire	Ground wire

- Backlight control interface (bit number J17-6PIN/2.0mm pitch)

Order number	Definition	Attribute	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	BL-ADJ	Output	Backlight Brightness Adjustment
4	BL-EN	Output	Backlight Enable Adjustment
5	VCC	Power	12V Output
6	VCC	Power	12V Output

- I/O control interface/II2C interface (bit number J23-6P-1.25mm pitch)

Order number	Definition	Attribute	Description
1	VCC3.3/5V	Power	3.3V/5V Optional Output
2	GPIO/RST	Input/Output	GPIO-1/Reset
3	GPIO/INT	Input/Output	GPIO-2/ Interrupt
4	GPIO/SCL	Input/Output/Clock	GPIO-3/Clock
5	GPIO/SDA	Input/Output/Data	GPIO-4/Data
6	GND	Ground wire	Ground wire

- Remote control interface 3P-1.25 (bit number IR1-3PIN/2.0mm pitch)

Order number	Definition	Attribute	Description
1	IR-VCC	Power	3.3V Power
2	GND	Ground wire	Ground wire
3	IR	Data	IR code value reception

- 12V control (fan) (J24-2pin/2.0mm pitch)

Order number	Definition	Attribute	Description
1	12V	Power	Power Output
2	GND	Ground wire	Ground wire

- USB external interface expansion (number J9, J10, J11, J12, J13-4PIN/2.0mm pitch)

Order number	Definition	Attribute	Description
1	USB-5V	Output	5V Output
2	DM	Input/Output	GPIO-1/Reset
3	DP	Input/Output	GPIO-2/ Interrupt
4	GND	Ground wire	Ground wire

- LVDS interface (number J16-30PIN/2.0mm pitch)

Order number	Definition	Attribute	Description
1	PVCC	Power Output	LCD power output, +3.3V/+5V/+12V optional, selected through CN
2			
3			
4	GND	Ground wire	Ground wire
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	Ground wire	Ground wire
14	GND	Ground wire	Ground wire
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	Ground wire	Ground wire
26	GND	Ground wire	Ground wire

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)

- MIPI screen signal (bit number J18-40PIN/0.5mm pitch)

Order number	Definition	Description
1	NC	No connection
2	VDD	Power supply VDDIN=3.3V
3	VDDIO	LCD DATE IO=3.3V/1.8V
4	GND	Groud
5	RESET	Global reset signal(3.3/1.8V)
6	NC	No connection
7	GND	Groud
8	D0N	0- MIPI Differential data
9	D0P	0+MIPI Differential data
10	GND	Groud
11	D1N	1- MIPI Differential data
12	D1P	1+MIPI Differential data
13	GND	Groud
14	CLKN	-MIPI Differential clock data
15	CLKP	+MIPI Differential clock data
16	GND	Groud
17	D2N	2- MIPI Differential data
18	D2P	2+MIPI Differential data
19	GND	Groud
20	D3N	3- MIPI Differential data
21	D3P	3+MIPI Differential data
22	GND	Groud
23	NC	No connection
24	NC	No connection
25	GND	Groud
26	NC	No connection
27	NC	No connection
28	NC	No connection

29	NC	No connection
30	GND	Groud
31	LED-	LED Cathode
32	LED-	LED Cathode
33	NC	No connection
34	NC	No connection
35	NC	No connection
36	GND	Groud
37	GND	Groud
38	NC	No connection
39	LED+	LED Anode
40	LED+	LED Anode

- EDP interface (number J19-30PIN/0.5mm pitch)

Order number	Definition	Attribute	Description
1	NC	NC	NC
2	GND	Ground wire	Ground wire
3	EDP_TX1N	Output	Data
4	EDP_TX1P	Output	Data
5	GND	Ground wire	Ground wire
6	EDP_TX0N	Output	Data
7	EDP_TX0P	Output	Data
8	GND	Ground wire	Ground wire
9	EDP_TXUP	Output	Data
10	EDP_TXUN	Output	Data
11	GND	Ground wire	Ground wire
12	VCC_LCD	Power	3.3V
13	VCC_LCD	Power	3.3V
14	NC	NC	NC
15	GND	Ground wire	Ground wire
16	GND	Ground wire	Ground wire
17	EDP_HPD	Output	Data
18	LED-	Power	Power
19	LED-	Power	Power
20	LED-	Power	Power

21	LED-	Power	Power
22	BL_EN	Output	Data
23	BL_PWM	Output	Data
24	NC	NC	NC
25	NC	NC	NC
26	LED+	Power	Power
27	LED+	Power	Power
28	LED+	Power	Power
29	LED+	Power	Power
30	NC	NC	NC

- Other standard interfaces and functions:

Storage Interface	TF Card	Data storage, maximum support 128G
	USB*2	HOST interface, supports data storage, data import, USB mouse and keyboard, camera, touch screen, etc.
Ethernet interface	RJ45 Interface	Support wired network
HDMI interface	Standard Interface	Support HDMI data output, up to 4K

3. Reminder:

1. Pay special attention to the power supply used by the motherboard. The power supply voltage requirement of our motherboard is DC 12V, the operating voltage range is 12V, and the ripple is less than 100mV. When selecting the power supply, pay attention to the power supply surge voltage P-P value not exceeding 12V. Once the power supply voltage or power supply surge voltage exceeds the range of 12V that the motherboard voltage can withstand, the motherboard will be permanently burned out or open circuited. The power supply ripple is greater than 100mV, which is easy to interfere with the motherboard or cause unstable operation, especially for sensor components and touch screens, which are easy to cause interference and phenomenon of jump points, we recommend using a power supply of 12V/4A, if the current requirement of a single device is less than 100mA.
2. When using LVDS screen, pay attention to the screen voltage selection, optional are 3.3V/5V/12V.
3. Before powering on the motherboard, make sure that the power supply voltage is within the required range, the power wiring is correct, the screen cables, voltage jumpers of the display, the connections and pins of each socket are correct. Only when the power supply voltage and socket wiring are completely correct can the power be turned on.

4. Terms of Warranty

1. Applicable warranty period:

The period is within thirteen months since the date of shipping out under normal using and Storage conditions.

2. Unaccepted responsibility:

This product has been manufactured to your company's specification as a part for use in your company's general electronic products. It is guaranteed to perform according to delivery specifications. For any other use apart from general electronic equipment, we cannot take responsibility if the product is used in aerospace, unclear power control equipment, fire and security systems or any other applications in which there is a direct risk to human life and where extremely high levels of reliability are required.

5. Product Handling and Application

In the process of assembly and use, please pay attention to the following (and not limited to) problems:

1. Short circuit between the Android board and peripherals.
2. During the installation and fixing process, avoid the deformation of the Android board to fixing reasons.
3. When installing the eDP/LVDS screen, pay attention to whether the screen voltage and current match. Pay attention to the direction of the first pin of the screen connector.
4. When installing the eDP/LVDS screen, pay attention to whether the screen backlight voltage and current match. The power of the screen backlight is less than 20W, If it is on, whether to use other power boards for power supply.
5. When installing peripherals (USB, IO), pay attention to peripheral IO levels and current output issues.
6. When installing the serial port, pay attention to whether 232,485 devices are directly connected. Whether the TX, RX connection is correct.
7. Whether the input power is connected to the power input interface, according to the overall peripheral evaluation, whether the input power voltage and current meet the requirements. Prevent access to power input power from the backlight socket for convenient operation.
8. Before using the product, be sure to read the product specification carefully.
9. For boards that are not ready to be installed, they should be stored in an anti-static protective bag.
10. When holding the board, you need to wear an anti-static wristband or protective gloves, and you should develop the habit of touching only the edges.
11. When connecting the motherboard to the power supply, please confirm the power supply voltage.
12. To avoid damage to the product, you must turn off the power or unplug the power cord from the power socket every time you unplug or reconfigure the motherboard or board.
13. When you need to connect or unplug any equipment, make sure that all power cords have been unplugged in advance.
14. In order to avoid unnecessary damage to the product caused by frequent switching on and off, after shutting down, wait at least 30 seconds before turning on again.

6. Material List of Components for ROHS

XinSun Display Integration Ltd. hereby declares that our company does not intentionally contain any of the substances listed in applicable EU directives and regulations and all our products will conform to content requirement of 6 substances (Pb, Cd, Hg, Cr^{6+}, PBB, PBDE) of RoHS directive, and we will not use these 6 substances in the manufacturing process, and guarantee that the content of these substances in our products won't exceed the limit value of RoHS as followings:

Hazardous Substance	Limit value of RoHS (ppm, mg/kg)
Lead and its compounds (Pb)	＜1000
Cadmium and its compounds (Cd)	＜100
Mercury and its compounds (Hg)	＜1000
Chromium VI and its compounds (Cr^{6+})	＜1000
Polybrominated Biphenyls (PBB)	＜1000
Polybromodiphenyl Ether (PBDE)	＜1000
Packaging: PB + Cd+Hg+Cr^{6+}	＜100

Remarks:

(1) In addition to the basic restricted items in the above list, if any individual customers have any other special item requirement, please specify, so that we can specially try to conform.

(2)If any individual customers really need to have RoHS compliant earlier than the above schedule, please specify on Purchase Order so that we can specially try to conform.