UNIWIN-M329 Android Smart Motherboard Specification

Built-in Ultra-Thin Version

Document modification history

	Remarks	Date
1	Created	2019-05-09

1 Overview

The UNIWIN-M329 motherboard is a face recognition access control motherboard developed based on the RK3288 chip. Its design utilizes Rockchip's multimedia SoC as the core component. The main control IC features a quad-core ARM Cortex-A17 architecture, a 28nm process, excellent performance, and a wide array of interfaces. It is suitable for a wide range of applications, including community access control, barrier gate channels, and office buildings.

The UNIWIN-M329 embedded motherboard and embedded barebone system solutions offer excellent industrial-grade performance. With a focus on external interfaces, data processing capabilities, stability, and energy efficiency, they are well-regarded in the face recognition access control market.

Based on the actual needs of customers, the UNIWIN-M329 motherboard incorporates functional modules with excellent face recognition capabilities, leveraging industrial-grade advantages to create highly stable and low-power product solutions. Seamless integration with real-world application scenarios is achieved through the expansion of network interfaces, display interfaces, and related peripheral interfaces. Key applications include: dynamic face recognition equipment for turnstiles, electronic class cards for schools, attendance access control systems, and visitor management systems with ID card and face verification. Our products are diverse, feature-rich, and aesthetically pleasing. Common form factors include small to medium-sized all-in-one devices, wall-mounted units, column-mounted units, and desktop units.

2 Specifications

2.1 Hardware Specifications:

CPU	Rockchip RK3288, Quad-core ARM Cortex A17 1.8 GHz
GPU	Quad-core ARM Mali-T764 MP
Memory	DDR3 Standard 2GB, 1GB~4GB (Optional)
Built-in Storage	EMMC_FLASH Standard 8GB, 8GB/16GB/32GB Optional
Display Interface	1-channel LVDS Interface (Single channel, 6 or 8 bit). Supports maximum resolution 1366x768, 5"-21" display 1-channel EDP Interface (2 LINE). Supports maximum resolution 1920x1080, 10"-21" display 1-channel MIPI Interface (4 LINE). Supports maximum resolution 1920x1080, 5"-13" display
Display power supply voltage	LVDS, MIPI screen voltage 3.3V, onboard backlight driver EDP screen voltage 3.3V, backlight power 12V
External	Features a 100M 1.25mm pitch socket interface supporting Ethernet.

Interfaces	Features an integrated Bluetooth + Wi-Fi module supporting Wi-Fi 802.11b/g/n protocols. Supports Bluetooth 4.0 protocol.
	Four serial ports: two TTL-compatible 232 serial communication interfaces, one DEBUG serial port (configurable for TTL communication), and one 485 interface (configurable as TTL).
	One 2-PIN, 12V LED fill light power supply; one IO control LED fill light switch for connecting an external white light fill light.
	1-channel 2PIN, infrared illuminator power supply interface for connecting an external infrared illuminator; switch controllable.
	1-way 2PIN, 3V clock power supply interface
	1-way 2PIN, Microphone interface
	1-way 3PIN, Human body induction interface, for external microwave modules, etc.
	Supports 26/34 Bits Wiegand input and output
	1-way 4PIN speaker interface, 2W 8Ω/3W 4Ω
	Supports relay control
	5-way 4PIN, USB HOST, 1-way USB OTG
	1-way 6PIN, IIC interface, for external light sensor modules and other I2C devices
	1-way 8PIN, GPIO*7 interface

Real-time clock	External clock power supply battery, supports timed power on/off and ultra-long time preservation (1 year or more)
System watchdog	Supports software watchdog function
Touch Screen	1-way 6PIN, I2C
Power Supply	Input: 12V power supply via 4PIN/1.25 socket

2.2 Basic Software Specifications:

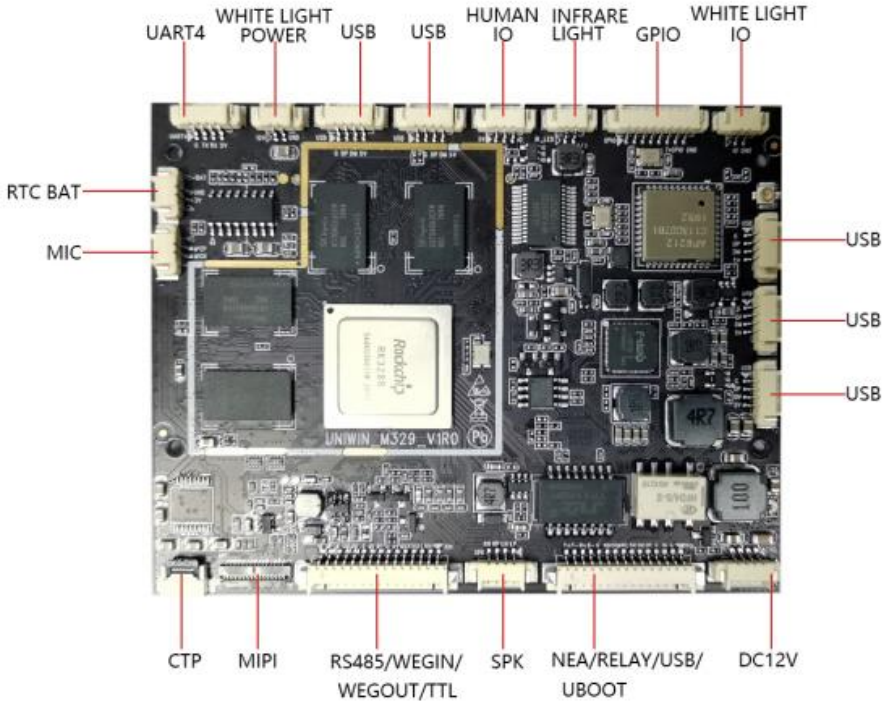
Operating System	Google Android 7.1 system
Video	Supports 4K 10-bit VP9/H265/H264 video decoding, up to 60fps, 1080P multi-format video decoding (VC-1, MPEG-1/2/4, CP8), 1080P video encoding, supports H.264, VP8 formats Video post-processor: de-interlacing, denoising, edge/detail/color optimization
Audio	MP3, WMA, WAV, APE, FLAC, AAC, OGG, M4A, 3GP formats
Recording	Supports MP3 and WMA format recording
Image	Supports browsing of JPG, BMP, PNG, and various other image formats, including rotation, slideshow playback, and image enlargement functions

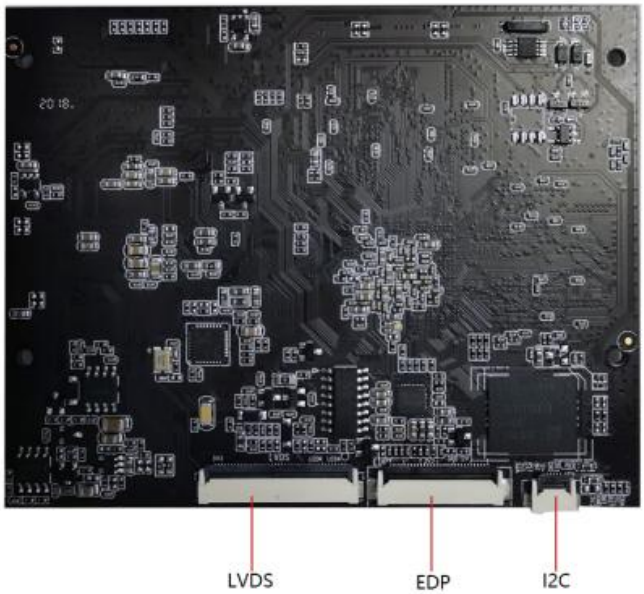
Image Rotation	Supports 0, 90, 180, and 270-degree manual rotation.
Sound Effect	Clock, Alarm, Calculator, Recording
Basic Software	Camera, Web browsing, Web chat, Email, E-book, File Manager
Language	Multi-language
Tools	Calendar
	Alarm Clock
	Calculator
	Sticky Notes
	Weather + Clock
Word Processing	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
E-book	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Input Method	Standard Android keyboard, with optional third-party input methods (Chinese, Korean, Japanese, etc.)
Network	Browser -ChromeLite
	GOOGLE Market
	Email
	Gmail

	Google talk
System Management	APK Installer
	Native Android system with open root permissions, allowing for product customization and development.
	System setting
	Google Maps
	Global time
	Supports OTA remote upgrades and incremental upgrades.

3 Main Interfaces

3.1 Interface Distribution Diagram:

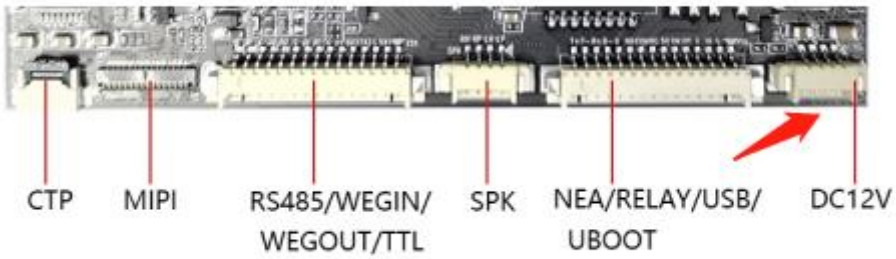




3.2 **Main Interface PIN Definition Diagram:**

1． DC12V Power Socket (The triangular orientation indicates Pin 1, 4PIN/1.25)

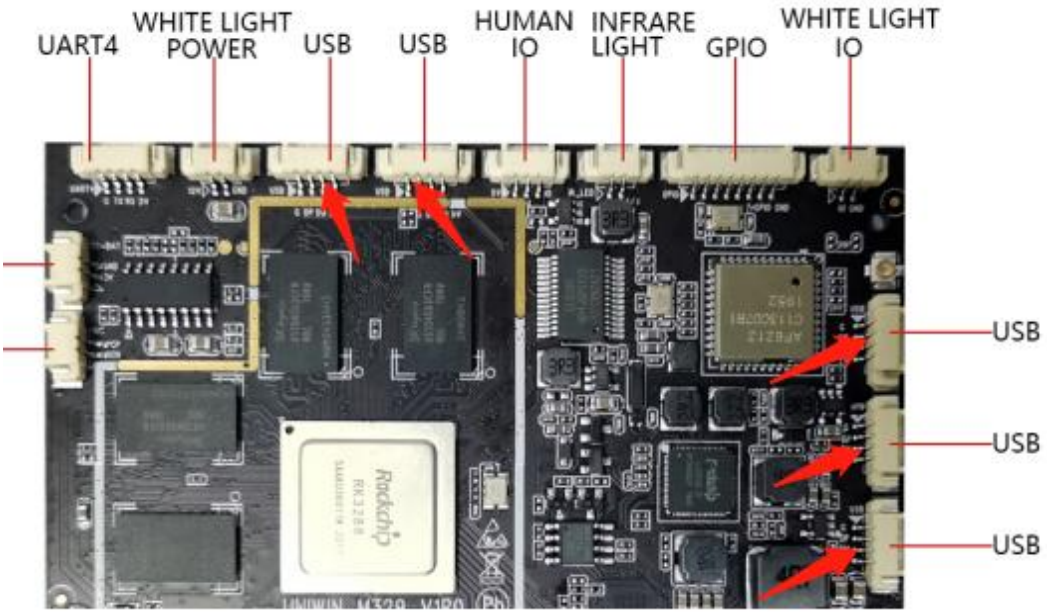
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	GND	Ground	Power negative terminal
2	GND	Ground	Power negative terminal
3	12V	Power Input	+12V Power Input
4	12V	Power Input	+12V Power Input

2. USB Interface*5 (The triangular orientation indicates Pin 1, 4PIN/1.25)

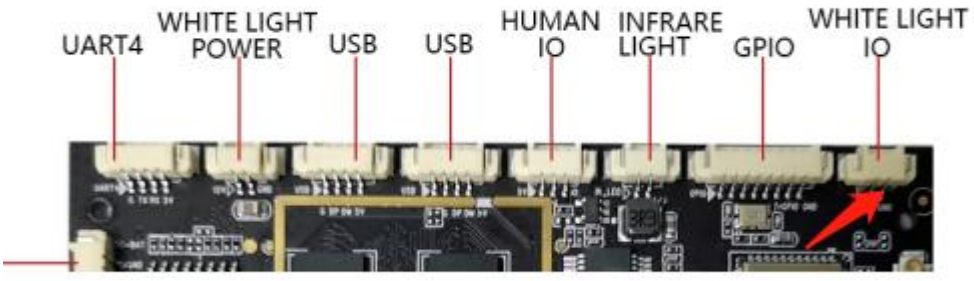
The figure below shows the direction of the 5 USB ports indicated by the arrows.



No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	DP	Input\Output	D+ signal line
3	DM	Input\Output	D- signal line
4	5V	Output	Power output

3. WHITE LIGHT IO Interface (The triangular orientation indicates Pin 1, 2PIN/1.25)

As indicated by the arrow direction in the figure below.

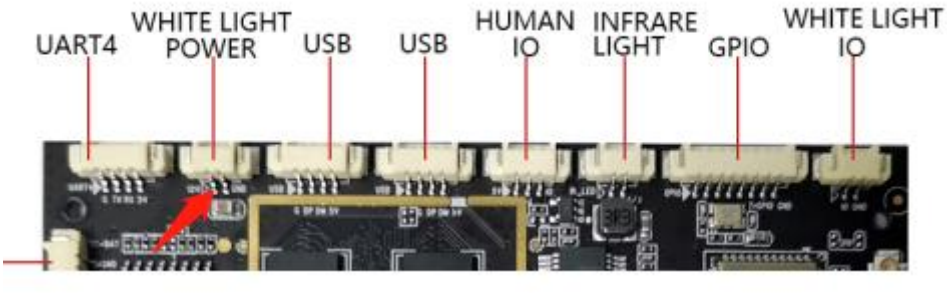


No.	Definition	Attribute	Description
1	IO	Output	Enable LED switch
2	GND	Ground	Ground

4. WHITE LIGHT POWER Interface (The triangular orientation indicates

Pin 1, 2PIN/1.25)

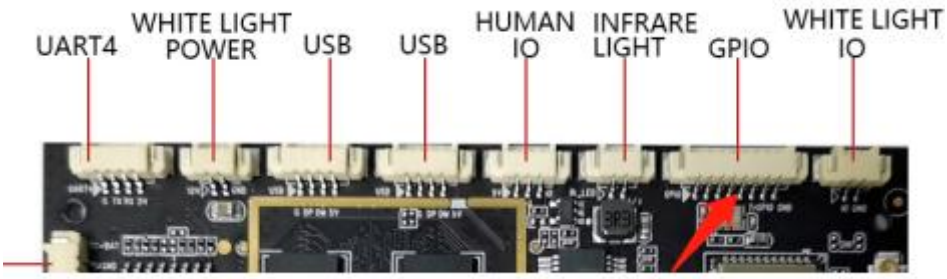
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	12V	Power Supply	12V Power output
2	GND	Ground	Ground

5. GPIO Interface (The triangular orientation indicates Pin 1, 8PIN/1.25)

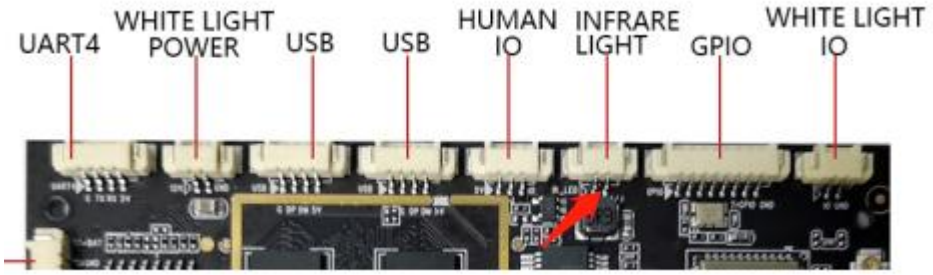
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	IO	Output	IO 3V3 Default pull-down
2	IO	Output	IO 3V3 Default pull-down
3	IO	Output	IO 3V3 Default pull-down
4	IO	Output	IO 3V3 Default pull-up
5	IO	Output	IO 3V3 Default pull-up
6	IO	Output	IO 3V3 Default pull-down
7	IO	Output	IO 3V3 Default pull-up
8	GND	Ground	Ground

6. INFRARED LIGHT Interface (The triangular orientation indicates Pin 1, 2PIN/1.25)

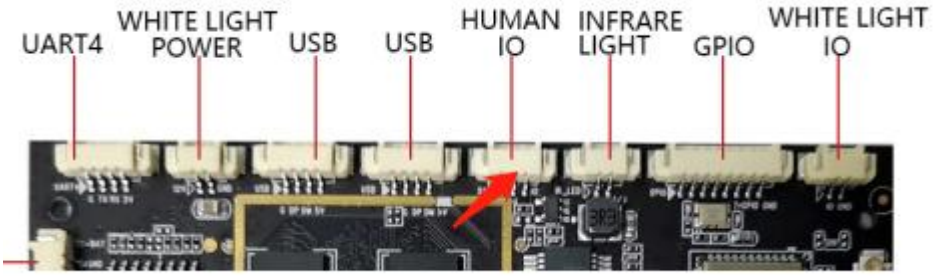
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	3V3	Power Supply	3V3 Power output

7. HUMAN IO (The triangular orientation indicates Pin 1, 3PIN/1.25)

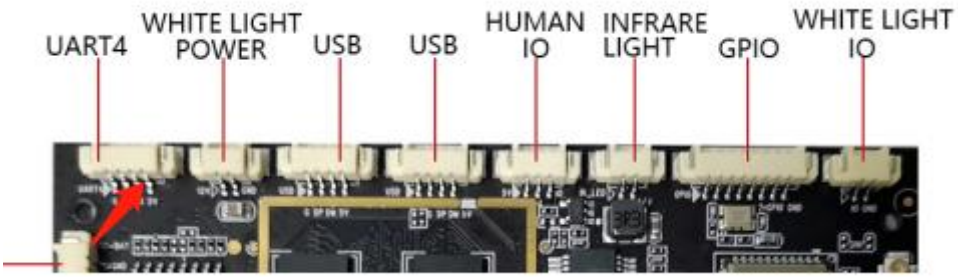
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	5V	Power Supply	5V power output
2	GND	Ground	Ground
3	IO	Input	Human Presence Sensor Input

8. UART4 Interface (The triangular orientation indicates Pin 1, 4-PIN/1.25)

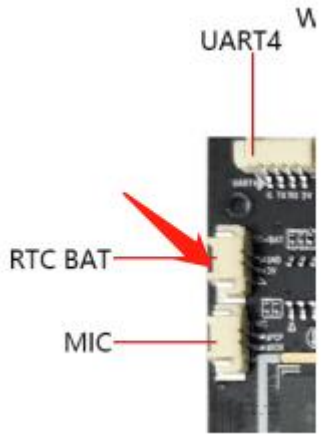
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	TX	Transmit	Signal transmit TTL level (232 optional)
3	RX	Receive	Signal receive TTL level (232 optional)
4	5V	Output	Power output

9. RTC BAT Interface (The triangular orientation indicates Pin 1, 2-PIN/1.25)

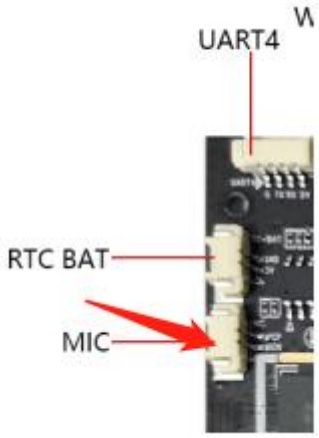
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	3V	Power Supply	3V clock power input
2	GND	Ground	Ground

10. MIC Interface (The triangular orientation indicates Pin 1, 2-PIN/1.25)

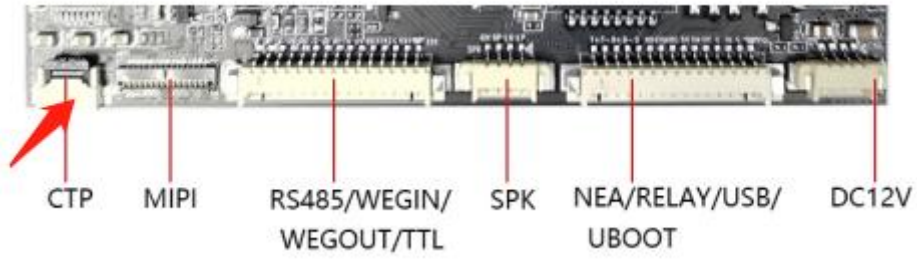
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	MIC-	Audio input	Audio input -
2	MIC+	Audio input	Audio input +

11. CTP Interface (The triangular orientation indicates Pin 1, 6-PIN/0.5mm)

As indicated by the arrow direction in the figure below.

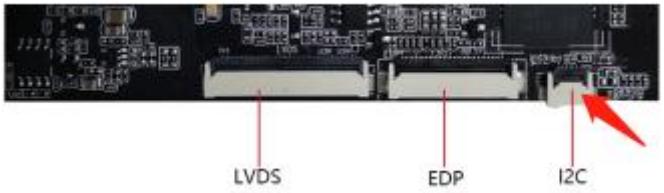


No.	Definition	Attribute	Description
1	SDA	Input\Output	Data signal
2	SCL	Output	Clock signal

3	RST	Output	Touch reset signal
4	INT	Input	Touch interrupt signal
5	GND	Ground	Ground
6	VCC	Power Supply	3V power output

12. I2C Interface (The triangular orientation indicates Pin 1, 6PIN/0.5mm)

As indicated by the arrow direction in the figure below.

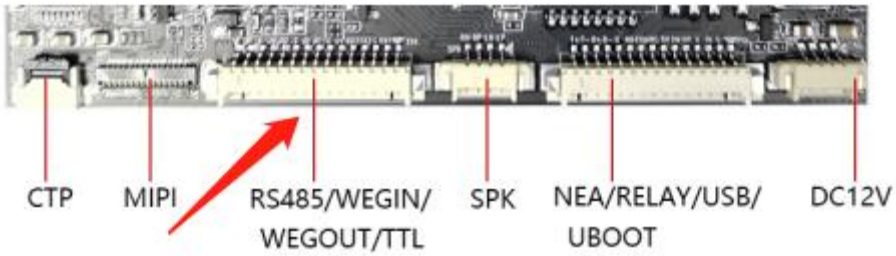


No.	Definition	Attribute	Description
1	SDA	Input\Output	Data signal
2	SCL	Output	Clock signal
3	RST	Output	Button reset signal
4	INT	Input	Button interrupt signal
5	GND	Ground	Ground
6	VCC	Power Supply	3V power output

13. RS485/WEGIN/WEGOUT/TTL up Interface (The triangular orientation indicates Pin 1,

15PIN/1.25)

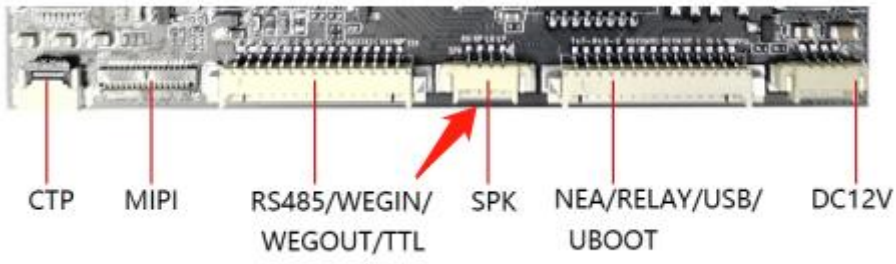
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	TX	Transmit	DEBUG signal transmit (configurable TTL)
2	RX	Receive	DEBUG signal receive (configurable TTL)
3	GND	Ground	Ground
4	TX	Transmit	Signal transmit TTL level (232 optional)
5	RX	Receive	Signal receive TTL level (232 optional)
6	VCC	Power Supply	5V power output
7	GND	Ground	Ground
8	IN_D1	Input	Wiegand signal input
9	IN_D0	Input	Wiegand signal input
10	GND	Ground	Ground
11	OUT_D1	Output	Wiegand signal output
12	OUT_D0	Output	Wiegand signal output
13	GND	Ground	Ground
14	RX/B	Receive	485 signal B (TTL optional)
15	TX/A	Transmit	485 signal A (TTL optional)

14. SPK Interface (The triangular orientation indicates Pin 1, 4PIN/1.25)

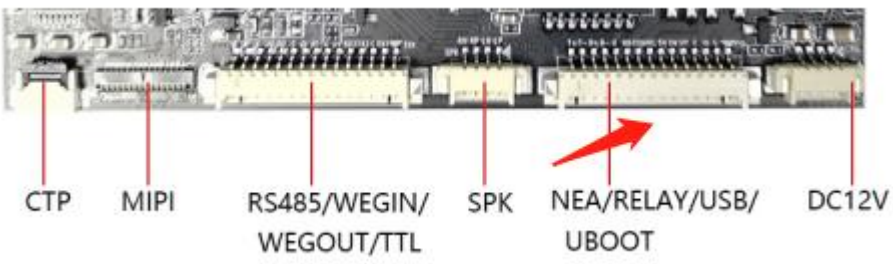
As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	L+	Output	Left Channel Speaker Signal Positive Output
2	L-	Output	Left Channel Speaker Signal Negative Output
3	R+	Output	Right Channel Speaker Signal Positive Output
4	R-	Output	Right Channel Speaker Signal Negative Output

15. NEA/PELAR/USB/UBOOT Interface (The triangular orientation indicates Pin 1, 15PIN/1.25)

As indicated by the arrow direction in the figure below.

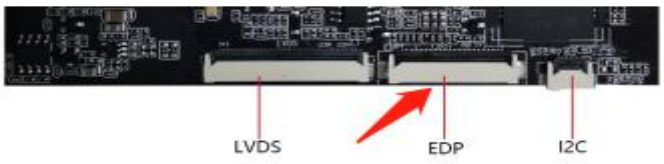


No.	Definition	Attribute	Description

1	POL	Detection	Power on after grounding to enter upgrade mode
2	GND	Ground	Ground
3	BIESHU_IO	Input	Villa Button Status Detection
4	GND	Ground	Ground
5	DP	Input/Output	USB Signal D+
6	DM	Input/Output	USB Signal D-
7	VCC	Power Supply	USB Power 5V
8	NC	Output	Relay Normally Closed
9	COM	Input	Relay Common Point
10	NO	Output	Relay Normally Open
11	GND	Ground	Ground
12	RX-	Receive	100M Ethernet Receive Signal Negative
13	RX+	Receive	100M Ethernet Receive Signal Positive
14	TX+	Transmit	100M Ethernet Transmit Signal Positive
15	TX-	Transmit	100M Ethernet transmit signal negative

16. EDP display (The triangular orientation indicates Pin 1, 30PIN/0.5mm)

As indicated by the arrow direction in the figure below.



1	NC	NC
2	Ground	Ground
3	Output	EDP 1 Negative Data
4	Output	EDP 1 Positive Data
5	Ground	Ground
6	Output	EDP 0 Negative Data
7	Output	EDP 0 Positive Data
8	Ground	Ground
9	Output	Positive Sampling Clock
10	Output	Negative Sampling Clock
11	Ground	Ground
12	Output	Power output 3.3V
13	Output	Power output 3.3V
14	NC	NC
15	Ground	Ground
16	Ground	Ground
17	NC	NC
18	Ground	Ground
19	Ground	Ground
20	Ground	Ground
21	Ground	Ground
22	Output	BL_EN
23	Output	BL_PWM
24	NC	NC
25	NC	NC
26	Output	12V Power output
27	Output	12V Power output
28	Output	12V Power output
29	Output	12V Power output
30	NC	NC

17. LVDS signal output (The triangular orientation indicates Pin 1, 40PIN/0.5mm)

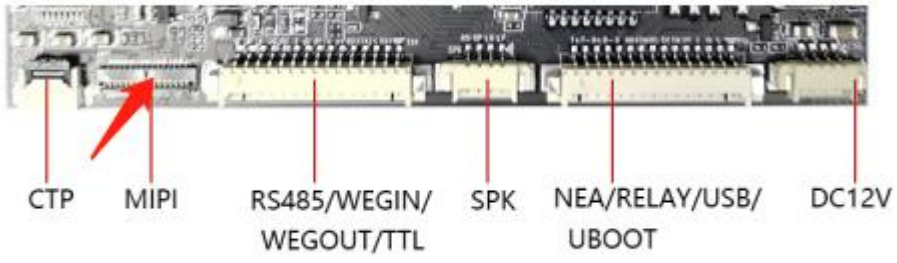
As indicated by the arrow direction in the figure below.

No.	Definition	Attribute	Description
1	LEDA	Output	Backlight driver voltage adaptive output (supports up to 7 series 8 parallel)
2	LEDA	Output	Backlight driver voltage adaptive output (supports up to 7 series 8 parallel)
3	VGH	Output	Power output +20V
4	NC		
5	NC		
6	VGL	Output	Power output -6.8V
7	TRUDL	Output/Input	Resistor pull-down to ground
8	TCLRL	Output/Input	Resistor pull-up 3.3V
9	LEDK	Input	Backlight driver negative terminal input
10	LEDK	Input	Backlight driver negative terminal input
11	GND	Ground	Power ground
12	AVDD	Output	Power output 11.5V
13	SELB	Output/Input	Resistor pull-down to ground
14	NC		
15	NC		
16	GND	Ground	Power ground
17	NC		
18	NC		
19	GND	Ground	Power ground
20	D3P	Output	Pixel3 Positive Data

21	D3N	Output	Pixel3 Negative Data
22	GND	Ground	Power ground
23	CLK0P	Output	Positive Sampling Clock
24	CLK0N	Output	Negative Sampling Clock
25	GND	Ground	Power ground
26	D2P	Output	Pixel2 Positive Data
27	D2N	Output	Pixel2 Negative Data
28	GND	Ground	Power ground
29	D1P	Output	Pixel1 Positive Data
30	D1N	Output	Pixel1 Negative Data
31	GND	Ground	Power ground
32	D0P	Output	Pixel0 Positive Data
33	D0N	Output	Pixe0 Negative Data
34	GND	Ground	Power ground
35	STBYB	Output/Input	Resistor pull-up 3.3V
36	RESET	Output	Low-level reset
37	NC		
38	VCC_LCD	Output	Power output 3.3V
39	VCC_LCD	Output	Power output 3.3V
40	VCOM	Output	Power output 4.35V

22. MIPI DSI (The triangular orientation indicates Pin 1, 31PIN/0.3mm)

As indicated by the arrow direction in the figure below.



No.	Definition	Attribute	Description
1	3.3V	Power Supply	LCD_VCC
2	3.3V	Power Supply	LCD_VCC

3	1.8V	Power Supply	LCD_VDD
4	GND	Ground	Ground
5	RESET	Reset	Display Reset
6	1.8V	Power Supply	LCD_VDD
7	GND	Ground	Ground
8	D3N	Signal Input	MIPI DATA
9	D3P	Signal Input	MIPI DATA
10	GND	Ground	Ground
11	D0N	Signal Input	MIPI DATA
12	D0P	Signal Input	MIPI DATA
13	GND	Ground	Ground
14	CLKN	Signal Input	MIPI DATA
15	CLKP	Signal Input	MIPI DATA
16	GND	Ground	Ground
17	D1N	Signal Input	MIPI DATA
18	D1P	Signal Input	MIPI DATA
19	GND	Ground	Ground
20	D2N	Signal Input	MIPI DATA
21	D2P	Signal Input	MIPI DATA
22	GND	Ground	Ground
23	GND	Ground	Ground
24	LED-	Power Supply	Backlight Power Negative Terminal
25	LED-	Power Supply	Backlight Power Negative Terminal
26	LED-	Power Supply	Backlight Power Negative Terminal
27	LED-	Power Supply	Backlight Power Negative Terminal
28	NC	NC	NC
29	LED+	Power Supply	Backlight Power Positive Terminal
30	LED+	Power Supply	Backlight Power Positive Terminal
31	LED+	Power Supply	Backlight Power Positive Terminal

4 Dimensions

4.1 Board Dimensions

PCB length 95.4mm, width 76.1mm, total board height approximately 9mm, hole diameter 2mm. For more details structural diagrams Please consult our sales representatives.