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| Security | Authorization |
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## UW-E830-HY-V-V1.0.1 Face Attendance Machine Motherboard Technical Specification

### Document Revision History

|   | Remark   | Date    |
|---|----------|---------|
| 1 | Creation | 2025-09 |
|   |          |         |

# 1 Product Overview

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UW-E830-HY-V-V1.0.1 is a face attendance machine motherboard developed based on the Eeasytech SV830D main control chip. This motherboard is equipped with built-in 1 Gb memory, onboard 8 GB eMMC or 1 Gb SPI NAND optional (default 1 Gb SPI NAND), and supports MIPI display, dual MIPI cameras, and other functions.

SV830D is a professional AI SoC with a neural network acceleration engine, used in video security, community access control, barrier gate access, building intercom, smart lockers, and other products. The integrated neural network processor supports up to 0.5 TOPS deep neural network computing capability. Its typical applications include face recognition with liveness detection, gesture detection, palm vein recognition, and people counting. SV830D integrates a 32-bit RISC processor and supports FPU, providing rich general-purpose computing capability for developing customized applications. Integrated H.264 video encoding and decoding ensure real-time encoding and decoding, achieving high-resolution, high-frame-rate, high-quality images. The integrated high-performance ISP supports 3D noise reduction, ensuring excellent performance in low-illumination scenes. It can simultaneously process 2 digital camera interfaces. The display processing unit supports hardware mouse layer, graphics layer, and video layer overlay, and can accelerate GUI and video composition.

## **Main Features:**

- 32-bit RISC CPU integrated FPU@1.0G, NPU@0.5 TOPS
- Supports MIPI display, resolution up to 1920\*1200@60HZ
- Dual 1MP/2MP cameras, integrated high-performance ISP, supports 3D noise reduction

- Supports 2.4G WIFI/BT, Ethernet
- 3 TTL serial ports (one multiplexed as RS485), relay, Wiegand IN, Wiegand OUT, fill light, GPIO, and other rich expansion interfaces

## 2 Product Specifications

### Basic Hardware Specifications:

|                           |                                                                        |
|---------------------------|------------------------------------------------------------------------|
| CPU                       | 32-bit RISC CPU integrated FPU, 1.0 GHz                                |
| NPU                       | Built-in convolutional neural network accelerator NPU, 0.5TOPS         |
| Memory                    | Built-in DDR2 512Mb 16-bit                                             |
| Built-in storage capacity | SPI NAND or eMMC 8GB/16G/32G optional (default populated 1Gb SPI NAND) |
| Display interface         | MIPI interface, supporting a maximum resolution of 1920×1200@60Hz      |
| Internet                  | 100-Megabit Ethernet interface                                         |
|                           | 2.4G USB Wi-Fi module, supporting Wi-Fi 802.11b/g/n protocol           |
| Real-time clock           | Built-in real-time clock power supply battery                          |

|                  |                                                                                                                                                                                                                                                               |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interface device | Supports dual MIPI camera                                                                                                                                                                                                                                     |
|                  | 1 USB port (with USB OTG functionality)                                                                                                                                                                                                                       |
|                  | 3 TTL ports (one of which is RS485 compatible), one Wiegand IN/OUT with flexible configuration, onboard relay, GPIO, and a variety of peripheral interfaces, allowing connection to various locks, card readers, barcode scanners, ID card modules, and more. |
|                  | Built-in amplifier, supports 2W 8-ohm speaker                                                                                                                                                                                                                 |
| Audio input      | Supports MIC, one microphone jack                                                                                                                                                                                                                             |
| Touch screen     | Supports capacitive touch screen                                                                                                                                                                                                                              |
| Fill light       | Supports white light and infrared illumination                                                                                                                                                                                                                |

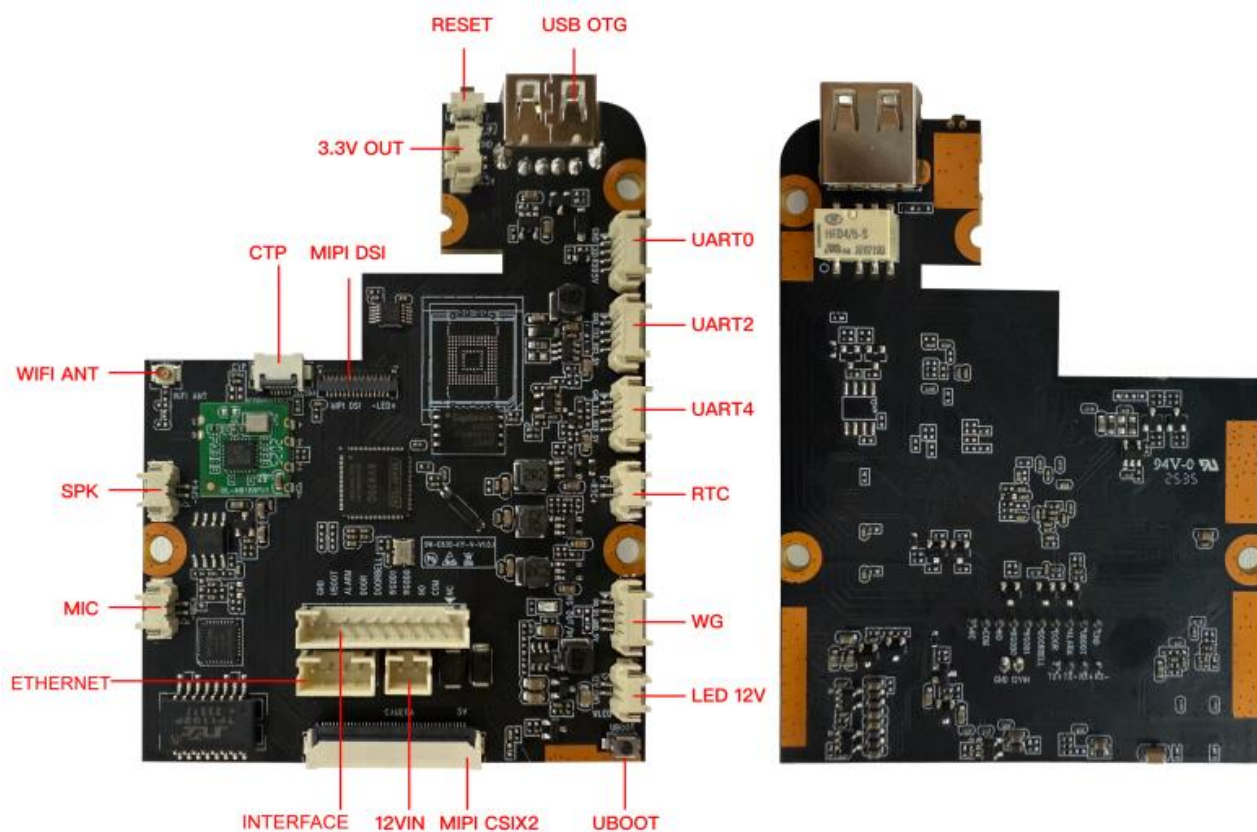
#### Basic software specifications:

|                            |                                                                                                                                                                                                                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating System           | Linux system                                                                                                                                                                                                                                                                                                        |
| Face recognition algorithm | <p>Dynamic face detection and tracking based on video streams, with 1:N recognition algorithm;</p> <p>Dynamic dual-camera anti-counterfeiting, completely eliminating fraud through photos and videos on various media;</p> <p>Supports a facial photo database of 5,000 images and 20,000 recognition records;</p> |
| Application software       | <p>Support saving on-site images when facial recognition or stranger detection is enabled;</p> <p>Public cloud deployment method for the management system backend;</p> <p>Supports basic functions such as local facial registration, facial database import,</p>                                                  |

|               |                                                                                     |
|---------------|-------------------------------------------------------------------------------------|
|               | network configuration, and liveness detection switch settings.                      |
| API interface | <p>The framework layer provides C/C++ APIs;</p> <p>Supports online API (HTTPS);</p> |

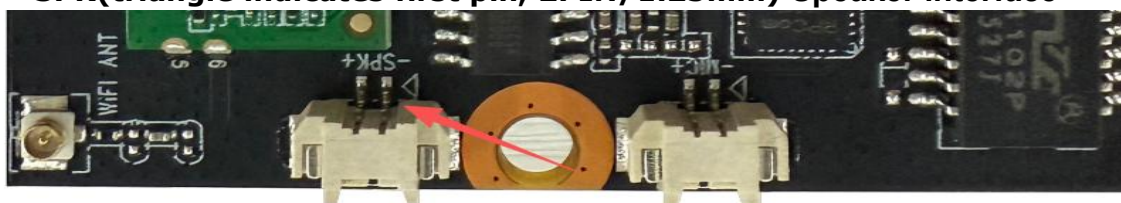
# 3 Main interface

## 3.1 Interface Distribution Diagram



## 3.2 Main Interface Introduction

### ◆ SPK(triangle indicates first pin, 2PIN/1.25mm) Speaker interface

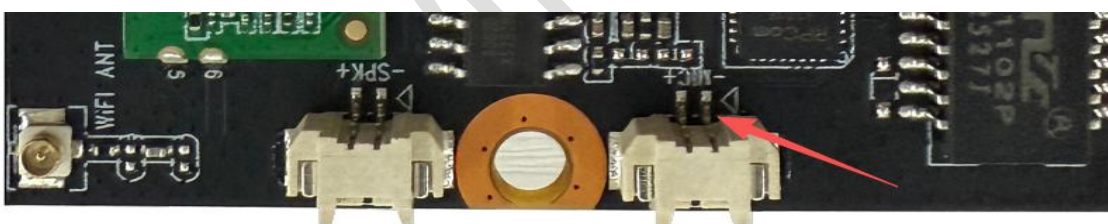


| Serial Number | Definition | Attributes | Description                |
|---------------|------------|------------|----------------------------|
| 1             | OUTN       | Output     | Audio signal (to speaker-) |
| 2             | OUTP       | Output     | Audio + Signal (Speaker +) |

#### Note:

1. The speaker must be properly connected before turning on the power; plugging or unplugging while powered on is not allowed.
2. The default output power of the speaker interface is 8Ω/2W; please pay attention to the rated power of the speaker when selecting a model.

### ◆ MIC (triangle direction indicates pin 1, 2PIN/1.25) MIC microphone interface

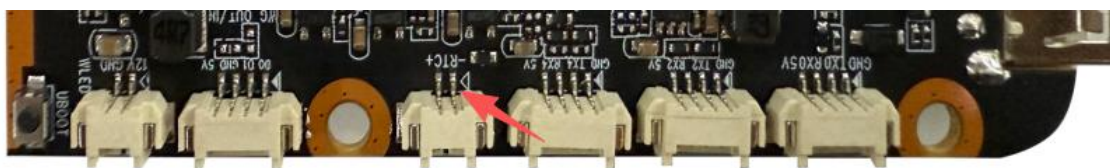


| Serial Number | Definition | Attributes  | Description                   |
|---------------|------------|-------------|-------------------------------|
| 1             | MIC-       | Audio input | Audio input negative terminal |
| 2             | MIC+       | Audio input | Audio input positive terminal |

#### Note:

1. Are the positive and negative poles of the microphone correctly matched with those of the motherboard?
2. It is recommended to select a microphone sensitivity of around -37 dB.

### ◆ RTC BAT (triangle indicates first pin, 2PIN/1.25mm) RTC battery interface

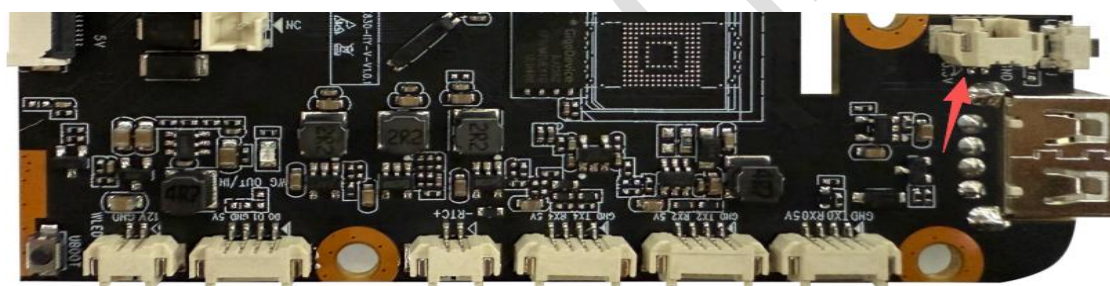


| Serial Number | Definition                        | Attributes   | Description                       |
|---------------|-----------------------------------|--------------|-----------------------------------|
| 1             | Negative terminal of a 3V battery | Power supply | Negative terminal of a 3V battery |
| 2             | Positive terminal of a 3V battery | Power supply | Positive terminal of a 3V battery |

### Note:

1. When using the RTC battery, ensure that the positive and negative terminals are correctly connected; reverse polarity may cause a short circuit, posing risks of fire or explosion.
2. If you find the RTC time inaccurate during use, please replace the RTC battery promptly with the correct 3V CR2032 coin cell battery with a lead wire. For specific model and specifications, contact FAE for assistance.

### ◆ 3.3V OUT(triangle indicates the first pin, 2-pin/1.25mm) provides power to an external 3.3V module

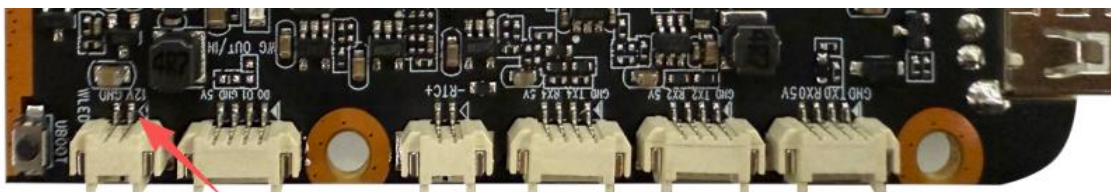


| Serial Number | Definition | Attributes   | Description                     |
|---------------|------------|--------------|---------------------------------|
| 1             | 3.3V       | Power output | 3.3V power output (up to 500mA) |
| 2             | GND        | Ground wire  | Ground wire                     |

### Note:

1. When connecting the wires, ensure that the power and ground connections match the correct pin sequence on the motherboard.

### ◆ Fill light power supply (triangle indicates first pin, 2PIN/1.25mm)

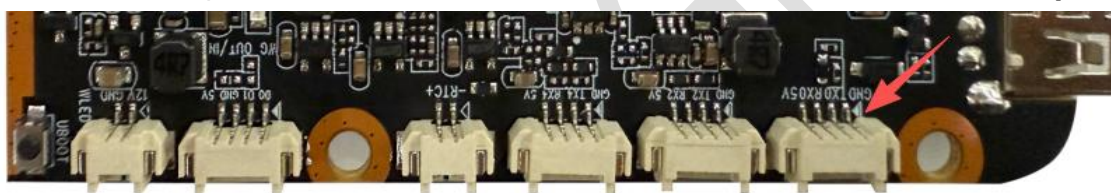


| Serial Number | Definition | Attributes   | Description                                                         |
|---------------|------------|--------------|---------------------------------------------------------------------|
| 1             | 12V        | Power supply | 12V controllable power output for external white light illumination |
| 2             | GND        | Ground wire  | GND                                                                 |

### Note:

When connecting the wires, ensure that the power and ground connections of the light board match the corresponding pins on the mainboard. Incorrect wiring may damage either the mainboard or the light board.

### ◆ UART0(triangle direction indicates the first pin, 3-pin/2.0mm) DEBUG serial port

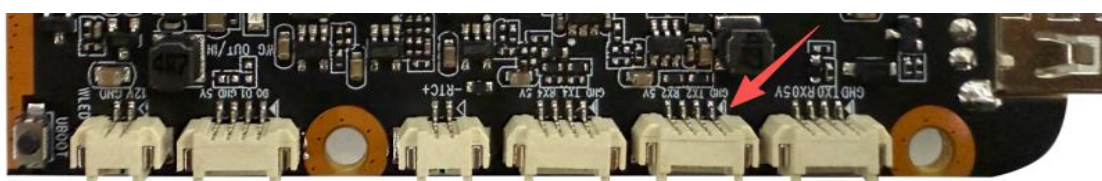


| Serial Number | Definition | Attributes    | Description                   |
|---------------|------------|---------------|-------------------------------|
| 1             | GND        | Ground wire   | GND                           |
| 2             | TX0        | Signal output | Default DEBUG serial port TX0 |
| 3             | RX0        | Signal input  | Default DEBUG serial port RX0 |
| 4             | 5V         | Power supply  | 5V power supply               |

### Note:

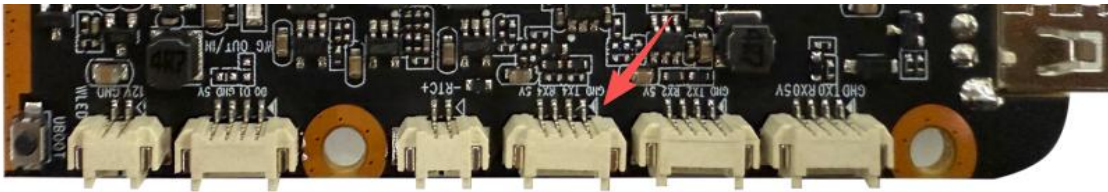
1. This serial port is typically used for engineering debugging. If you need to connect external devices, please contact the FAE.
2. This serial port uses TTL 3.3V level; be sure not to connect it to an RS232 or 5V serial debug adapter during debugging.

### ◆ UART2 (triangle indicates pin 1, 4-pin/1.25mm) TTL serial port



| Serial Number | Definition | Attributes    | Description       |
|---------------|------------|---------------|-------------------|
| 1             | GND        | Ground wire   | Ground wire       |
| 2             | TX2        | Signal output | TTL Serial Port 2 |
| 3             | RX2        | Signal input  | TTL Serial Port 2 |
| 4             | 5V         | Power supply  | 5V power supply   |

◆ **UART4(triangle indicates first pin, 4-pin/1.25mm) TTL serial port, configurable to RS-485**

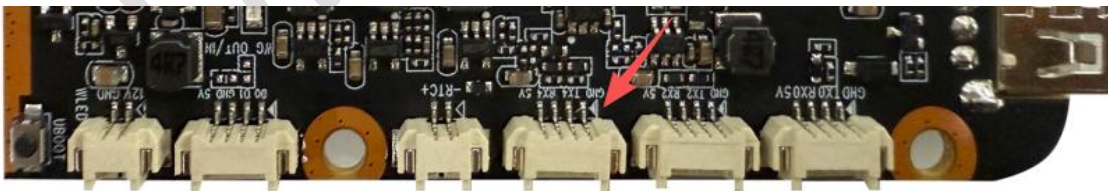


| Serial Number | Definition | Attributes    | Description                             |
|---------------|------------|---------------|-----------------------------------------|
| 1             | GND        | Ground wire   | Ground wire                             |
| 2             | TX4        | Signal output | TTL Serial Port 4 (configurable to 485) |
| 3             | RX4        | Signal input  | TTL Serial Port 4 (configurable to 485) |
| 4             | 5V         | Power supply  | 5V power supply                         |

**TTL and RS485 Serial Port Usage Notes:**

1. Confirm that the serial port levels are matched; configured for TTL level, requiring connection to a 3.3V TTL device.
2. When configured as an RS485 device, connect only RS485 devices; do not mistakenly connect TTL or RS232 devices.
3. Do not reverse the TX and RX pins of the serial port; when configured as RS485, TX corresponds to RS485 A and RX corresponds to RS485 B.
4. The serial port access nodes are corresponding, with Serial Port 1 corresponding to TTYS1.

◆ **Wiegand(triangle direction indicates first pin, 4PIN/1.25mm) Wiegand output**

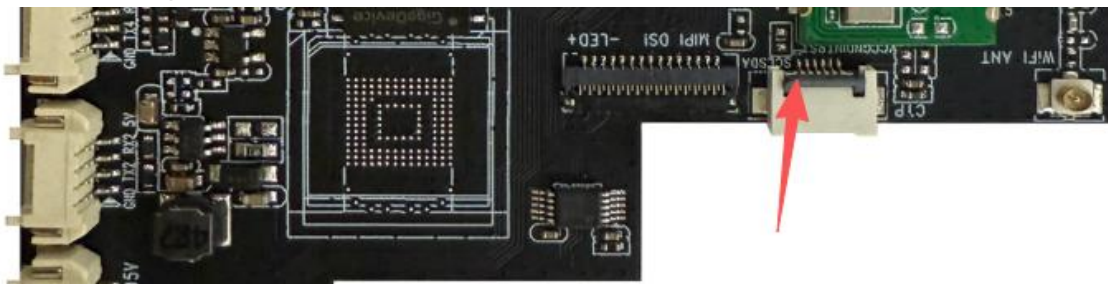


| Serial Number | Definition | Attributes   | Description     |
|---------------|------------|--------------|-----------------|
| 1             | WGOD0      | Data cable   | Wigan output D0 |
| 2             | WGOD1      | Data cable   | Wigan output D1 |
| 3             | GND        | Ground wire  | Ground wire     |
| 4             | 5V         | Power supply | 5V power supply |

### Note:

- When connecting wires, ensure that the pin sequence of the external module matches that of the motherboard. The two Wiegand interfaces on the board share the same set of I/O pins.

#### ◆ CTP(triangle direction indicates first pin, 6-pin/0.5mm) CTP touchscreen interface

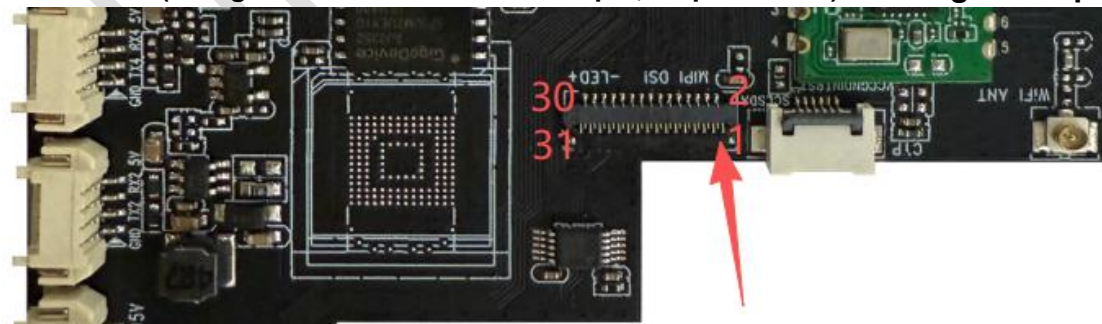


| Serial Number | Definition | Attributes   | Description  |
|---------------|------------|--------------|--------------|
| 1             | SDA        | Input/Output | I2C data     |
| 2             | SCK        | Output       | Clock signal |
| 3             | REST       | Output       | Reset        |
| 4             | INT        | Input        | Interrupt    |
| 5             | GND        | Ground wire  | Ground wire  |
| 6             | 3.3V       | Output       | 3.3V output  |

### Note:

- Connect the board to a TP display with an I2C interface; before connecting, please confirm that the touchscreen interface is I2C.
- The I2C interface and the RST, INT pins operate at 3.3V; if connecting a touchscreen with 1.8V logic levels, proper level shifting is required.
- Before connecting, ensure that the electrical definitions of the wire sequence match. Connect the touch screen first before powering on, and do not plug or unplug while powered.

#### ◆ MIPI LCD(triangle direction indicates first pin, 31-pin/0.3mm) MIPI signal output



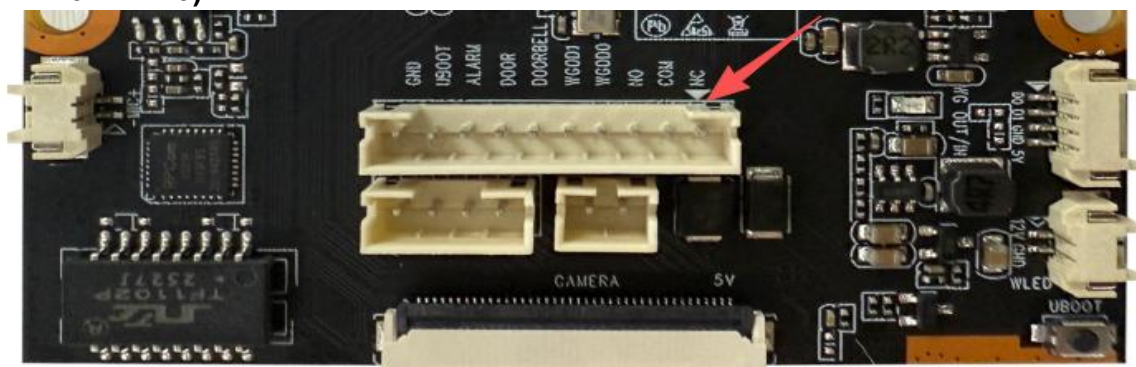
| Serial Number | Definition | Attributes   | Description       |
|---------------|------------|--------------|-------------------|
| 1-2           | AVCC       | Power supply | 3.3V power supply |
| 3             | DVCC       | Power supply | 1.8V power supply |

|          |          |              |                                   |
|----------|----------|--------------|-----------------------------------|
| 4        | GND      | Ground wire  | Ground wire                       |
| 5        | RESET    | Signal input | Reset pin                         |
| 6        | DVCC     | Power supply | 1.8V power supply                 |
| 7        | GND      | Ground wire  | Ground wire                       |
| 8        | DSI-D3N  | Output       | MIPI DATA                         |
| 9        | DSI-D3P  | Signal input | MIPI DATA                         |
| 10       | GND      | Ground wire  | Ground wire                       |
| 11       | DSI-D0N  | Output       | MIPI DATA                         |
| 12       | DSI-D0P  | Signal input | MIPI DATA                         |
| 13       | GND      | Ground wire  | Ground wire                       |
| 14       | DSI-CLKN | Output       | MIPI CLK                          |
| 15       | DSI-CLKP | Signal input | MIPI CLK                          |
| 16       | GND      | Ground wire  | Ground wire                       |
| 17       | DSI-D1N  | Output       | MIPI DATA                         |
| 18       | DSI-D1P  | Signal input | MIPI DATA                         |
| 19       | GND      | Ground wire  | Ground wire                       |
| 20       | DSI-D2N  | Output       | MIPI DATA                         |
| 21       | DSI-D2P  | Signal input | MIPI DATA                         |
| 22-23    | GND      | Ground wire  | Ground wire                       |
| 24 to 27 | LED-     | Power supply | Backlight power negative terminal |
| 28       | NC       | NC           | NC                                |
| 29~31    | LED+     | Power supply | Backlight power positive          |

### Note:

1. Please verify that the screen's specification sheet parameters, such as supply voltage and current, match those of the board. The default backlight drive current for the board is 42mA. If this does not meet the current requirements of your selected screen, please contact our FAE for support.
2. Confirm that the pinout and electrical definitions of the screen interface and the board interface are consistent, and ensure the correct FPC screen cable is selected.
3. The signal levels of signals such as RST in the interface are 1.8V; if a module with a 3.3V level is connected, level conversion must be properly implemented.

◆ **MUTI INTERFACE interface (triangle direction indicates the first pin, 10PIN/2.0)**

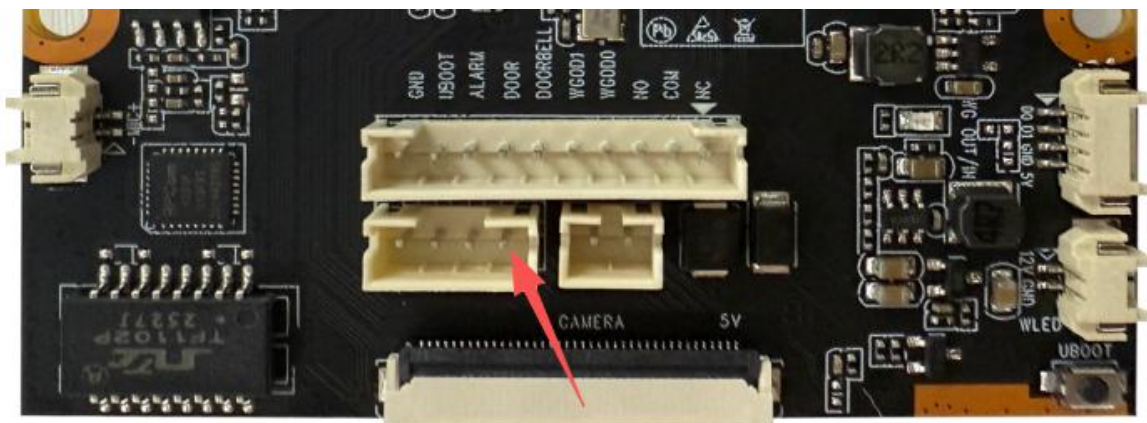


| Serial Number | Definition | Attributes   | Description                                         |
|---------------|------------|--------------|-----------------------------------------------------|
| 1             | NC         | Control line | Relay normally closed                               |
| 2             | COM        | Control line | Relay common terminal                               |
| 3             | NO         | Control line | Normally open relay                                 |
| 4             | WGOD0      | Data cable   | Wigan output D0                                     |
| 5             | WGOD1      | Data cable   | Wigan output D1                                     |
| 6             | DOOR BELL  | Data cable   | Input interface, can connect doorbell               |
| 7             | door       | Data cable   | Input interface, can connect to door opening button |
| 8             | ALARM      | Data cable   | Input interface, can connect door magnetic alarm    |
| 9             | UBOOT      | Data cable   | Forced upgrade input                                |
| 10            | GND        | Ground wire  | Ground wire                                         |

**Note:**

1. When connecting the wires, ensure that the pin sequence matches that of the motherboard.
2. The two Wiegand interfaces on the board share the same set of I/O pins through multiplexing.

◆ Ethernet interface (triangle indicates pin 1, 4-pin/2.0)

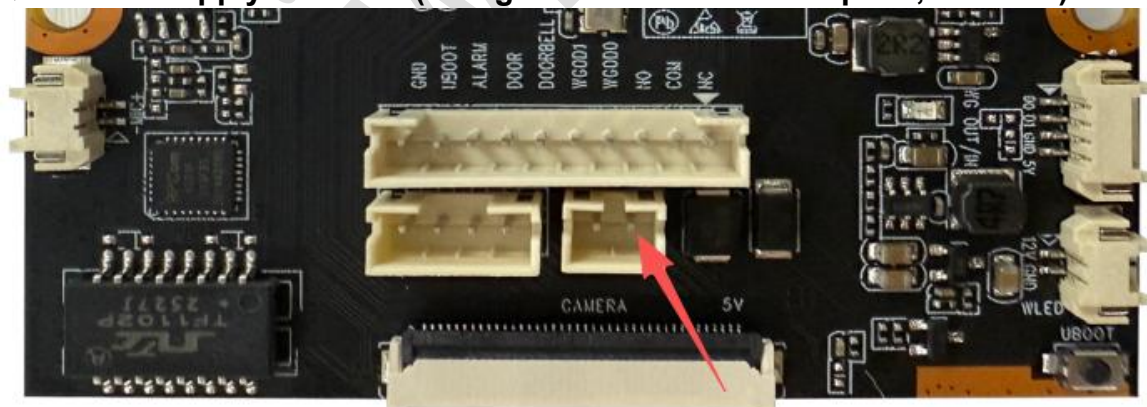


| Serial Number | Definition | Attributes      | Description         |
|---------------|------------|-----------------|---------------------|
| 1             | TX+        | Ethernet signal | Ethernet signal TX+ |
| 2             | TX-        | Ethernet signal | Ethernet signal TX- |
| 3             | RX+        | Ethernet signal | Ethernet signal RX+ |
| 4             | RX-        | Ethernet signal | Ethernet signal RX- |

**Note:**

1. Differential signals must be transmitted using twisted-pair cables to prevent data loss; Ethernet signals: TX-TX+/RX-RX+
2. Pay special attention to whether the wire sequence definition correctly matches the motherboard's wire sequence definition.

◆ Power supply interface (triangle direction indicates pin 1, 4PIN/2.0)



| Serial Number | Definition | Attributes   | Description |
|---------------|------------|--------------|-------------|
| 1             | GND        | Ground wire  | Ground wire |
| 2             | 12V DCIN   | Power supply | Power input |

## Note:

1. It is recommended to use a power supply or adapter that complies with the 3C standard. The selected adapter should have a rated output power sufficient to support both the motherboard and peripherals operating simultaneously, with a 30%–50% margin. For example, when the total current reaches 1.5A, a 2.5A–3A specification should be chosen.
2. Pay special attention to the correct polarity of the power supply wires and ensure they are not connected incorrectly.

### ◆ MIPI CSIX2 (triangle indicates first pin, 40-pin/0.5mm) dual-camera MIPI interface (for stereo or mono camera)



| Serial Number | Definition    | Attributes   | Description                           |
|---------------|---------------|--------------|---------------------------------------|
| 1             | VDD2V8        | Power supply | 2.8V output                           |
| 2             | VDD3V3        | Power supply | 3.3V output                           |
| 3             | IR-PWDN       | Output       | IR Camera power-off control signal    |
| 4             | IR-RST        | Output       | IR_Camera reset signal                |
| 5             | SCL           | Output       | SCL signal                            |
| 6             | SDA           | Input/Output | SDA signal                            |
| 7             | GND           | Ground wire  | Ground wire                           |
| 8             | IR-XCLK       | Output       | IR_Camera main clock                  |
| 9             | GND           | Ground wire  | Ground wire                           |
| 10            | MIPI-CSI1-MCP | Input/Output | Camera's MIPI clock lane positive     |
| 11            | MIPI-CSI1-MCN | Input/Output | Camera's MIPI clock channel negative  |
| 12            | GND           | Ground wire  | Ground wire                           |
| 13            | MIPI-CSI1-D0P | Input/Output | Camera's MIPI data channel 0 positive |
| 14            | MIPI-CSI1-D0N | Input/Output | Camera's MIPI data channel 0 negative |
| 15            | GND           | Ground wire  | Ground wire                           |
| 16            | NC            | /            | NC                                    |
| 17            | NC            | /            | NC                                    |
| 18            | GND           | Ground wire  | Ground wire                           |
| 19            | DOVDD1V8      | Power supply | 1.8V output                           |

|    |               |              |                                       |
|----|---------------|--------------|---------------------------------------|
| 20 | NC            | /            | NC                                    |
| 21 | NC            | /            | NC                                    |
| 22 | IR-DVDD1V2    | Power supply | 1.2V output                           |
| 23 | RGB-DVDD1V2   | Power supply | 1.2V output                           |
| 24 | RGB-PWDN      | Output       | RGB Camera power-off control signal   |
| 25 | RGB-RST       | Output       | RGB Camera reset signal               |
| 26 | GND           | Ground wire  | Ground wire                           |
| 27 | RGB-XCLK      | Output       | RGB_Camera main clock                 |
| 28 | GND           | Ground wire  | Ground wire                           |
| 29 | MIPI-CSIO-MCP | Input/Output | Camera's MIPI clock lane positive     |
| 30 | MIPI-CSIO-MCN | Input/Output | Camera's MIPI clock channel negative  |
| 31 | GND           | Ground wire  | Ground wire                           |
| 32 | MIPI-CSIO-D0P | Input/Output | Camera's MIPI data channel 0 positive |
| 33 | MIPI-CSIO-D0N | Input/Output | Camera's MIPI data channel 0 negative |
| 34 | GND           | Ground wire  | Ground wire                           |
| 35 | NC            | /            | NC                                    |
| 36 | NC            | /            | NC                                    |
| 37 | GND           | Ground wire  | Ground wire                           |
| 38 | 5V            | Power supply | Power supply                          |
| 39 | 5V            | Power supply | Power supply                          |
| 40 | 5V            | Power supply | Power supply                          |

### Note:

1. Pay special attention to the pinout definition and orientation of the motherboard and camera cable, then verify whether the connector is inserted on the same side or opposite side, ensuring that the pin sequences between the motherboard and camera cable match correctly; otherwise, the motherboard and camera may be damaged.

# 4 Electrical Performance

| Project                                                         |                       | Minimum | Typical | Maximum |
|-----------------------------------------------------------------|-----------------------|---------|---------|---------|
| Power supply parameters                                         | Voltage               | --      | 12V     | --      |
|                                                                 | Ripple                | --      | --      | 50mV    |
|                                                                 | Electric current      | --      | --      | 2A      |
| Power supply current (without connecting any other peripherals) | Operating current     |         | 90mA    | 130mA   |
|                                                                 | Standby current       |         | 10mA    | 30mA    |
| Power supply current (with MIPI)                                | Operating current     |         | 200mA   | 1000mA  |
| Total output                                                    | Electric current      | --      | --      | 2A      |
| Environment                                                     | Relative humidity     | --      | --      | 80%     |
|                                                                 | Operating temperature | 0°C     | --      | 60°C    |
|                                                                 | Storage temperature   | -20°C   | --      | 70°C    |

Note 1: When connecting an MIPI display, the board's total operating current and standby current depend on the specific display used; these values are not listed individually in the table above.

# 5 Minimum test items for the complete unit

Note:

| Minimum test items for overall system stability and reliability |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Serial Number                                                   | Test Item                                   | Test Detailed Description                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1                                                               | Basic Functionality and Performance Testing | Test the main functional performance of the device, including Wi-Fi, Bluetooth, Ethernet, USB, serial port, and video playback.                                                                                                                                                                                                                                                                                                  |
| 2                                                               | Software Upgrade Function Testing           | Verify the upgraded functionality of the complete product by separately testing the line 刷 (factory flash), USB drive upgrade, and remote network upgrade functions to ensure they operate normally.                                                                                                                                                                                                                             |
| 3                                                               | High-temperature aging test                 | Test the device's resistance to high temperatures by playing an aging video in a 60°C environment for three days, ensuring normal operation without any electrical malfunctions such as system crashes, screen distortion, or black screens.                                                                                                                                                                                     |
| 4                                                               | Low-temperature power loss test             | Test the device's low-temperature resistance by playing aging test videos at 0°C for three days, ensuring normal operation without any electrical malfunctions such as system crashes, screen artifacts, or black screens.                                                                                                                                                                                                       |
| 5                                                               | Electrostatic Discharge (ESD) Test          | The simulation test evaluates the product's ability to withstand electrostatic discharge, in accordance with IEC 61000-4-2 test standard. The product must be subjected to contact discharges of $\pm 4$ kV and air discharges of $\pm 8$ kV. The product is considered acceptable only if it meets the A-level or B-level criteria; C-level and D-level results are deemed non-compliant.                                       |
| 6                                                               | Sweep Vibration Test                        | The product's resistance to vibration is tested by simulating transportation conditions and evaluating the strength of solder joints and components on the board to prevent potential issues. A vibration tester is used to conduct the test. If, after testing, the structure of the unit shows no loosening or detachment, operates normally without electrical malfunctions such as freezing, display abnormalities, or black |

|   |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                |
|---|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                    | screens, and exhibits no structural or cosmetic damage, it is deemed OK.                                                                                                                                                                                                                                                                                                                                       |
| 7 | Free fall test                                     | Simulate the product's ability to withstand drops during transportation and handling, used to evaluate the machine's structural strength and prevent potential issues, for design and process improvement. After testing, if the test item operates normally without electrical malfunctions such as freezing, display abnormalities, black screens, or structural and appearance damage, it is considered OK. |
| 8 | Short-term power outage impact at room temperature | This test evaluates the product's ability to withstand power on/off cycles.                                                                                                                                                                                                                                                                                                                                    |

## 6 Configurable Parameter Table (Differences)

| Type           | Standard |                                     | Medium configuration |                          | High-end configuration |                                     |
|----------------|----------|-------------------------------------|----------------------|--------------------------|------------------------|-------------------------------------|
| SPI_NAND_FLASH | 64MB     | <input type="checkbox"/>            | 256MB                | <input type="checkbox"/> | 512MB                  | <input type="checkbox"/>            |
|                | 128MB    | <input type="checkbox"/>            | 512MB                | <input type="checkbox"/> | 1G                     | <input checked="" type="checkbox"/> |
| EMMC           | 8G       | <input type="checkbox"/>            | 16G                  | <input type="checkbox"/> | 16G                    | <input type="checkbox"/>            |
|                | 32G      | <input type="checkbox"/>            | 32G                  | <input type="checkbox"/> | 32G                    | <input type="checkbox"/>            |
|                | 64G      | <input type="checkbox"/>            | 64G                  | <input type="checkbox"/> | 64G                    | <input type="checkbox"/>            |
| WIFI+BT        | 2. 4G    | <input checked="" type="checkbox"/> | 2. 4G+BT             | <input type="checkbox"/> | 2. 4G+BT               | <input type="checkbox"/>            |
|                | 5G+BT    | <input type="checkbox"/>            | 5G+BT                | <input type="checkbox"/> | 5G+BT                  | <input type="checkbox"/>            |

|            |                                     |                          |                          |
|------------|-------------------------------------|--------------------------|--------------------------|
| ETH/RJ45   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| MIPI CSI*2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| MIPI DSI   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| USB*OTG    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| TTL*3      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| RS485*1    | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

# 7 Usage Notes

Please pay attention to the following (and not limited to) issues during assembly and use.



01

Please ensure that you do not install or assemble peripheral devices while the board is powered on. When installing, be sure to wear anti-static wrist straps and other anti-static tools.



02

When connecting external devices with wires, make sure that the pin definitions of each device correspond to the sockets on the motherboard to avoid short circuits caused by incorrect wiring order.



03

When fixing the motherboard with screws, be sure to ensure that the board card is evenly stressed to avoid the PCB opening up due to deformation of the board card.



04

When installing the interface for selectable screen voltage (such as LVDS, eDP, etc.), please ensure that the selected voltage is consistent with the specifications of the screen.



05

When installing the peripheral devices (USB, UART, IO, etc.), pay attention to the 10-volt level and current output capabilities of the peripherals.



06

When installing the serial port, pay special attention to the matching of voltage levels and the corresponding connections of TX, RX, 485-A, and 485-B.



07

The selection of the input power supply needs to be evaluated based on the total peripherals to determine whether the input power voltage and total current can meet the requirements.



08

When designing the complete machine product, it is necessary to consider the height limit and heat dissipation issues of the boards.

# 8 Dimensions

## 8.1 Board dimensions

PCB dimensions: 92.8 mm in length, 69.5 mm in width, hole diameter: 3.5 mm, overall board height approximately 10 mm. For detailed structural drawings, please consult your sales representative to receive the DXF file.

