

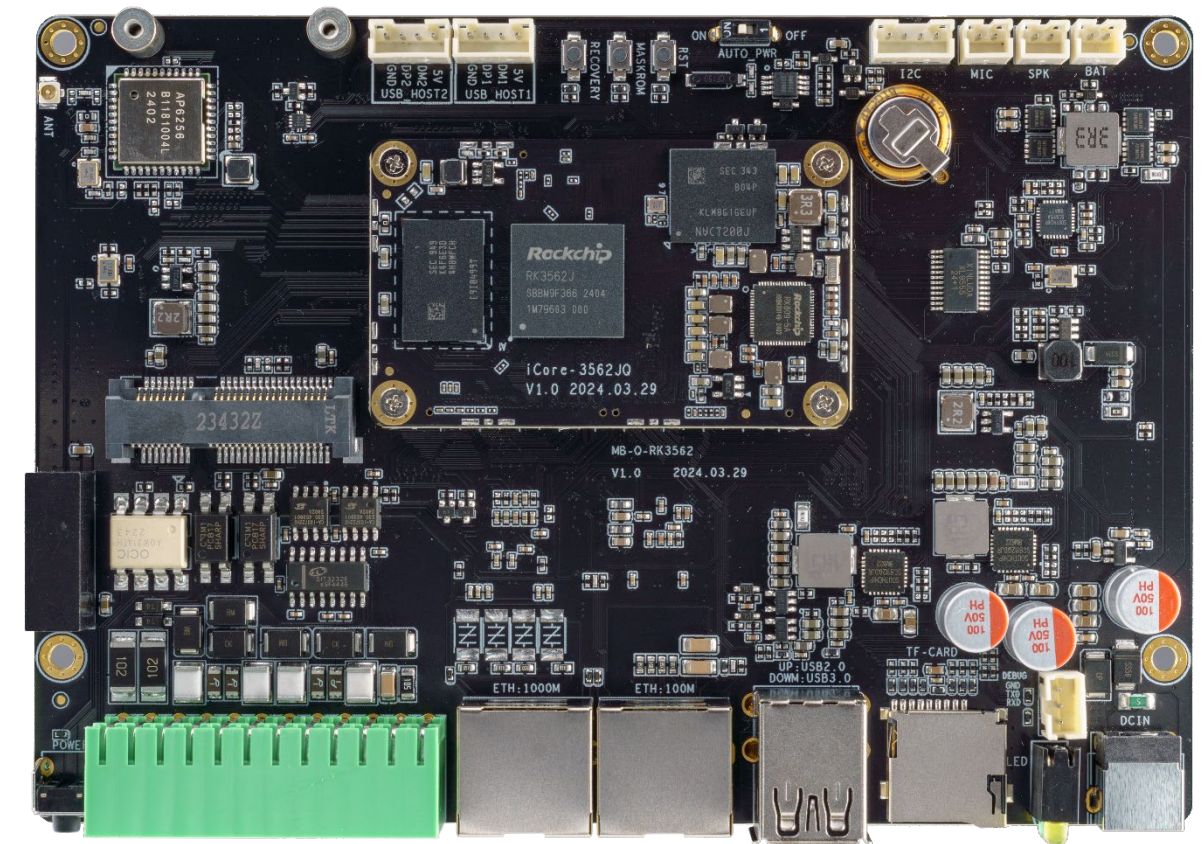


# AIO-3562JQ

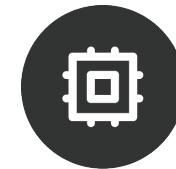
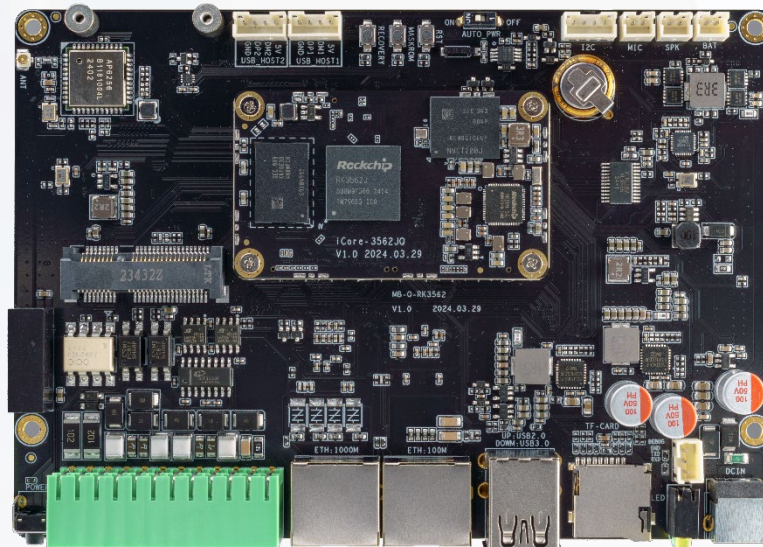
High-performance industrial Mainboard

V1.0 2024-11-21

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# Product features



## Quad-core industrial-grade high-performance processor

It is RK3562J with quad-core 64-bit Cortex-A53 industrial-grade high-performance processor, normal mode main frequency 1.2GHz, overdrive mode main frequency 1.8GHz.



## Powerful image processing capabilities

Built-in Mali-G52 GPU, support 4K@30fps H.265/VP9 and 1080P@60fps H.264 video decoding, support 1080P@60fps H.264 video encoding.



## Strong network communication capabilities

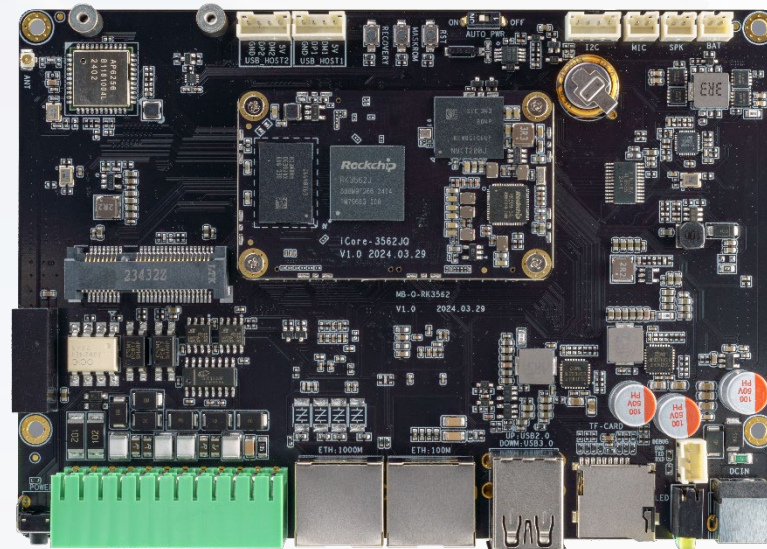
Integrated PCIe/GMAC/SDIO3.0/USB3.0, support Gigabit Ethernet, dual-band WiFi, Bluetooth 5.0, expandable 4G LTE, network communication has a higher speed.



## Multiple camera inputs

It supports single-channel MIPI-DSI, 2048×1080@60fps, has a 13M ISP image signal processor, and can support dual cameras and HDR functions.

# Product features



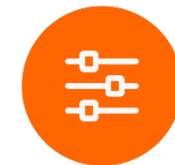
## Supports multiple operating systems

Support Linux OS (Ubuntu, Debian), the system is safe and stable, and meets different needs.



## The product is independent and controllable

The technology is completely independent and controllable, industrial-grade product quality, and stable supply cycle to meet the needs of various industries.



## Abundant expansion interfaces

Support a variety of peripheral interfaces: MIPI-CSI, MIPI-DSI, USB3.0, USB2.0, I2C, BAT, DIN, DOUT, RS485, RS232, CAN, UART.



## Wide range of application scenarios

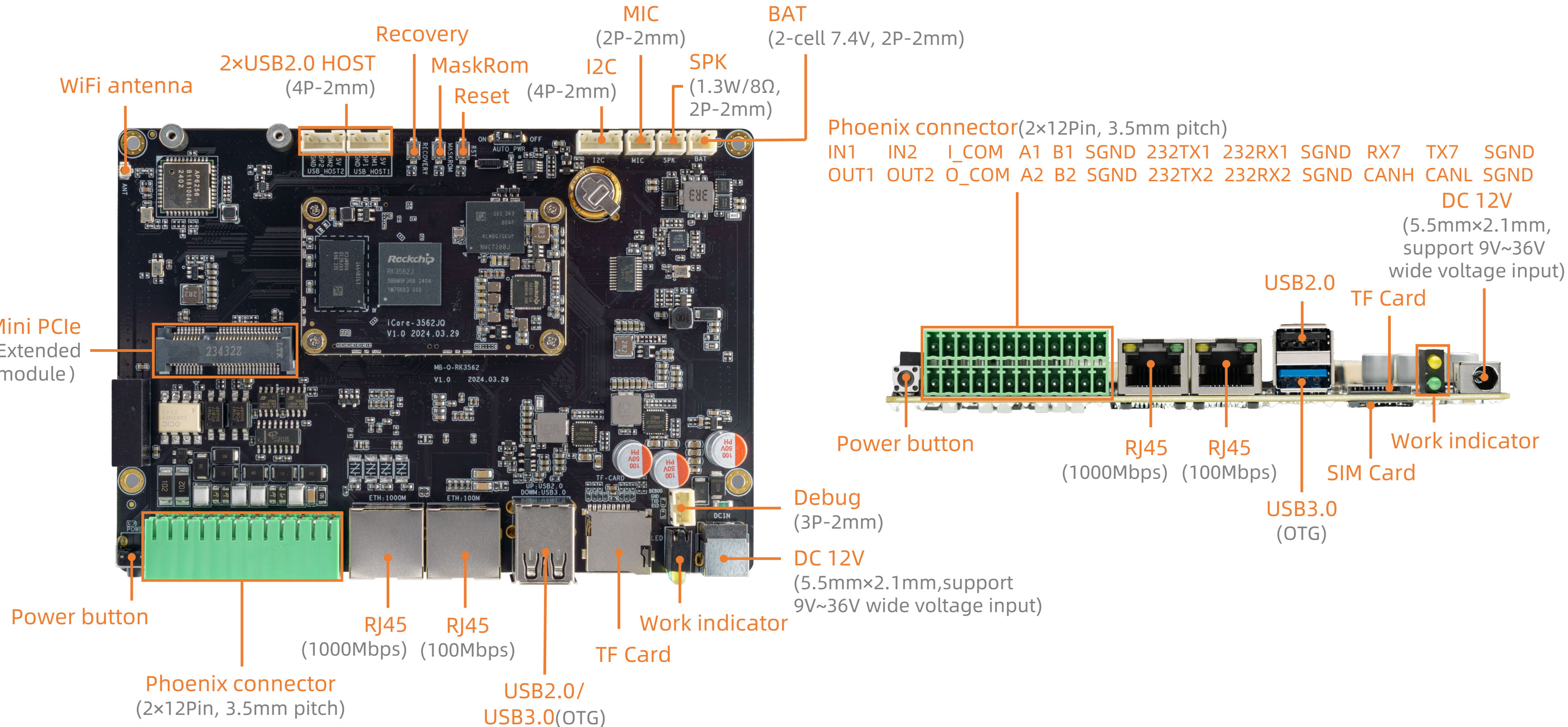
It is widely used in smart commercial displays, tablets, video conferences, dictionary pens, sweepers, image recognition, medical equipment, industrial HMI, PLC, edge computing, power distribution and other fields.



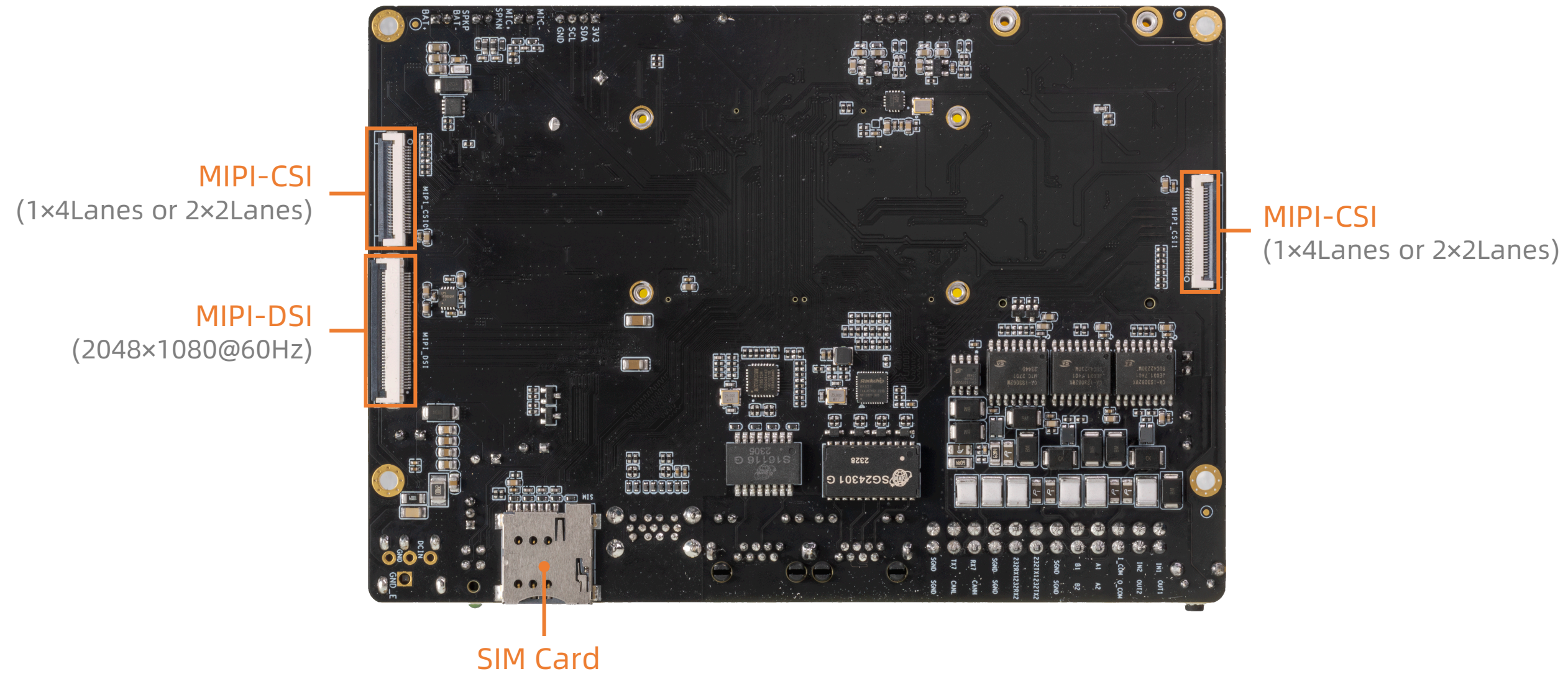
# Specifications

| Specification            |                     |                                                                                                                                                                                                                              |
|--------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Specifications     | SOC                 | Rockchip RK3562J                                                                                                                                                                                                             |
|                          | CPU                 | Quad-core 64-bit Cortex-A53 processor, normal mode main frequency 1.2GHz, overdrive mode main frequency 1.8GHz                                                                                                               |
|                          | NPU                 | The computing power can reach 1TOPS (INT8), supporting INT8/INT16/FP16/BFLOAT16/TF32 neural network operations, TensorFlow/PyTorch/TF-lite/Caffe/ONNX/MXNet/Keras/Darknet deep learning frameworks                           |
|                          | GPU                 | ARM G52 2EE, support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, embedded with high-performance 2D acceleration hardware                                                                                                  |
|                          | VPU                 | Video decoding: 4K@30fps H.265/VP9, 1080P@60fps H.264<br>Video encoding: 1080P@60fps H.264                                                                                                                                   |
|                          | ISP                 | Supports 13M ISP and HDR                                                                                                                                                                                                     |
|                          | RAM                 | LPDDR4/LPDDR4x (2GB/4GB/8GB optional)                                                                                                                                                                                        |
|                          | Storage             | eMMC (16GB/32GB/64GB optional), 1 × TF Card                                                                                                                                                                                  |
|                          | Power               | DC 12V (5.5mm × 2.1mm, support 9V~36V wide voltage input)                                                                                                                                                                    |
|                          | Power consumption   | Normal: 2.04W(12V/0.17A), Max: 4.8W(12V/400mA), Min: 0.06W(12V/5mA)                                                                                                                                                          |
|                          | OS                  | Ubuntu, Debian, Buildroot+QT                                                                                                                                                                                                 |
|                          | Size                | 146.0mm × 102.0mm × 21.5mm                                                                                                                                                                                                   |
|                          | Weight              | ≈120g                                                                                                                                                                                                                        |
|                          | Environment         | Operating Temperature: -40℃ ~ 85℃    Storage Humidity: 10% ~ 90%RH(non-condensing)                                                                                                                                           |
| Interface Specifications | Internet            | 1 × Gigabit Ethernet (1000Mbps), 1 × 100M Ethernet (100Mbps), 2.4GHz/5GHz dual-band WiFi (802.11a/b/g/n/ac), Bluetooth 5.0, expandable 4G LTE (Mini PCIe)                                                                    |
|                          | Video input         | 2 × MIPI-CSI (1×4 Lanes or 2×2 Lanes)                                                                                                                                                                                        |
|                          | Video output        | 1 × MIPI-DSI (2048×1080@60Hz)                                                                                                                                                                                                |
|                          | Audio               | 1 × MIC (2P-2mm) , 1 × SPK (1.3W/8Ω, 2P-2mm )                                                                                                                                                                                |
|                          | USB                 | 1 × USB3.0 (OTG) , 1 × USB2.0, 2 × USB2.0 HOST (Wafer)                                                                                                                                                                       |
|                          | Extended interfaces | 1 × I2C (4P-2mm) , 1 × BAT (2-cell 7.4V, 2P-2mm) ,<br>1 × 24P Phoenix connector (2 × Opto-Coupling Isolation DIN, 2 × Relay Isolation DOUT, 2 × RS485 Isolation, 2 × RS232 Isolation, 1 × CAN Isolation, 1 × UART Isolation) |

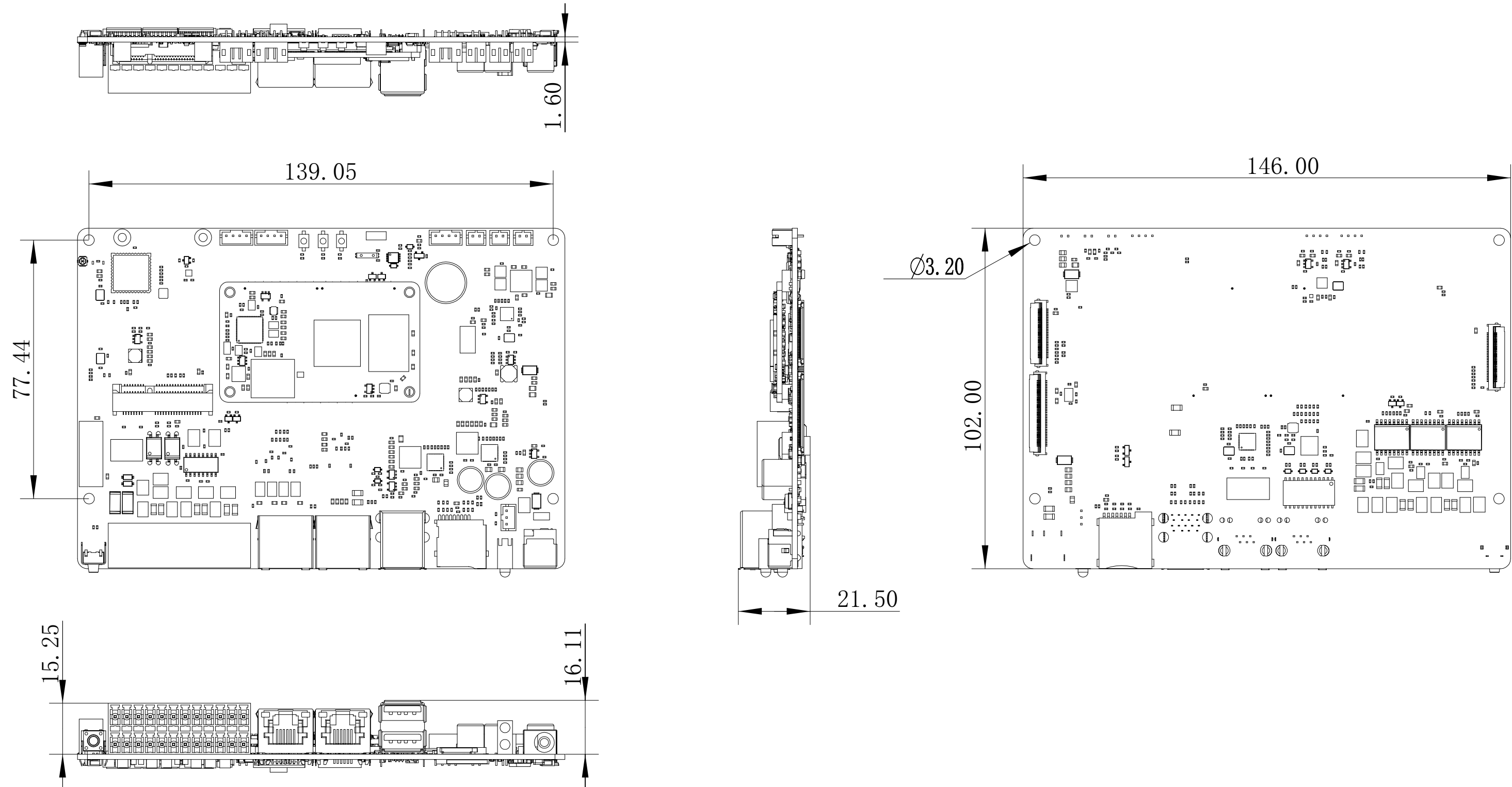
# Interface description



# Interface description

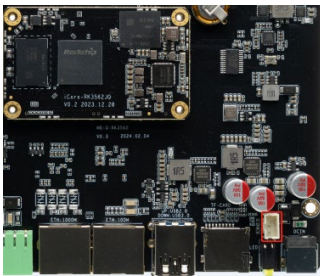


# Dimension



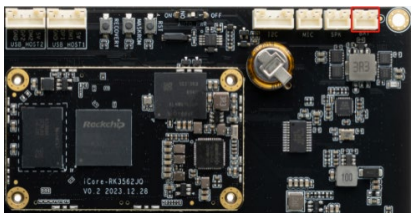
# Interface definition

## 1. (J9101)DEBUG 3PIN 2.0mm pitch wafer (WHITE)



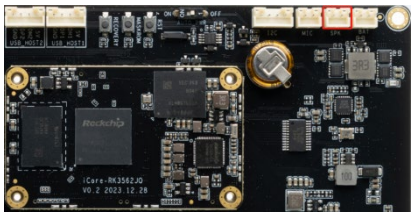
| NO. | Definition                                 | Power/V | NO. | Definition | Power/V |
|-----|--------------------------------------------|---------|-----|------------|---------|
| 1   | UART0_RX_M0_DEBUG_C 【pull up resistor 10K】 | 3.3     | 3   | GND        |         |
| 2   | UART0_TX_M0_DEBUG_C 【pull up resistor 10K】 | 3.3     |     |            |         |

## 2. (J9916)BAT 2 PIN 2.0mm pitch wafer (WHITE)



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|------------|---------|-----|------------|---------|
| 1   | VBAT       | 4.2     | 2   | GND        |         |

## 3. (J7001)SPEAKER 2PIN 2.0mm pitch wafer (WHITE)

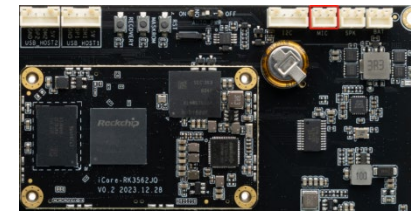


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|------------|---------|-----|------------|---------|
| 1   | SPKP_OUT   | 12      | 2   | SPKN_OUT   | 12      |

# Interface definition

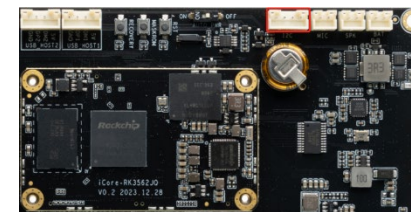


## 4. (J9915)MIC 2PIN 2.0mm pitch wafer (WHITE)



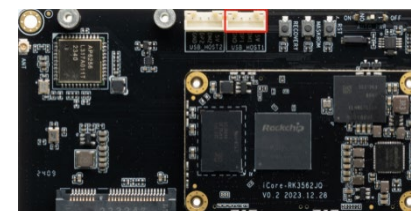
| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|------------|---------|-----|------------|---------|
| 1   | MIC1_IN    | 3.3     | 2   | MIC2_IN    | 3.3     |

## 5. (J5)I2C 4PIN 2.0mm pitch wafer (WHITE)



| NO. | Definition              | Power/V | NO. | Definition | Power/V |
|-----|-------------------------|---------|-----|------------|---------|
| 1   | VCC3V3_SYS(3.3V Output) | 3.3     | 3   | I2C1_SCL   | 3.3     |
| 2   | I2C1_SDA                | 3.3     | 4   | GND        |         |

## 6. (J9)USB\_HOST1 4PIN 2.0mm pitch

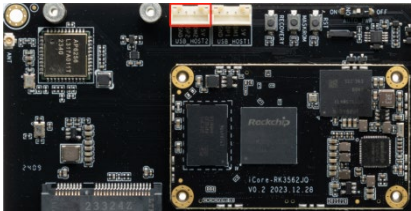


| NO. | Definition     | Power/V | NO. | Definition                  | Power/V |
|-----|----------------|---------|-----|-----------------------------|---------|
| 1   | GND            |         | 3   | HUB_HOST20_DM2              | -       |
| 2   | HUB_HOST20_DP2 | -       | 4   | VCC5V0_USB_HOST1(5V Output) | 5.0     |

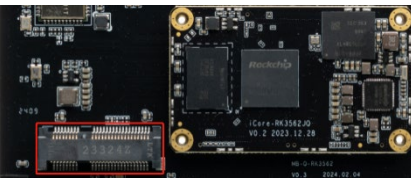
# Interface definition



## 7. (J8)USB\_HOST2 4PIN 2.0mm pitch

|  |                |         |     |                             |         |
|-------------------------------------------------------------------------------------|----------------|---------|-----|-----------------------------|---------|
| NO.                                                                                 | Definition     | Power/V | NO. | Definition                  | Power/V |
| 1                                                                                   | GND            |         | 3   | HUB_HOST20_DM3              | -       |
| 2                                                                                   | HUB_HOST20_DP3 | -       | 4   | VCC5V0_USB_HOST2(5V Output) | 5.0     |

## 8. (U16) MINI\_PCIE\_52P\_9H (4G MOUDEL) 52PIN

|  |            |         |     |                               |         |
|--------------------------------------------------------------------------------------|------------|---------|-----|-------------------------------|---------|
| NO.                                                                                  | Definition | Power/V | NO. | Definition                    | Power/V |
| 1                                                                                    | NC         |         | 2   | VCC3V8_4G                     | 3.8     |
| 3                                                                                    | NC         |         | 4   | GND                           |         |
| 5                                                                                    | NC         |         | 6   | NC                            |         |
| 7                                                                                    | NC         |         | 8   | UIM_PWR                       | 1.8/3.0 |
| 9                                                                                    | GND        |         | 10  | UIM_DAT                       | 1.8/3.0 |
| 11                                                                                   | NC         |         | 12  | UIM_CLK                       | 1.8/3.0 |
| 13                                                                                   | NC         |         | 14  | UIM_RST                       | 1.8/3.0 |
| 15                                                                                   | GND        |         | 16  | NC                            |         |
| 17                                                                                   | NC         |         | 18  | GND                           |         |
| 19                                                                                   | NC         |         | 20  | NC                            |         |
| 21                                                                                   | GND        |         | 22  | 4G_RESET[pull up resistor10K] | 3.8     |
| 23                                                                                   | NC         |         | 24  | NC                            |         |
| 25                                                                                   | NC         |         | 26  | GND                           |         |



# Interface definition

|    |           |     |    |                |     |
|----|-----------|-----|----|----------------|-----|
| 27 | GND       |     | 28 | NC             |     |
| 29 | GND       |     | 30 | NC             |     |
| 31 | NC        |     | 32 | NC             |     |
| 33 | NC        |     | 34 | GND            |     |
| 35 | GND       |     | 36 | HUB_HOST20_DM4 | -   |
| 37 | GND       |     | 38 | HUB_HOST20_DP4 | -   |
| 39 | VCC3V8_4G | 3.8 | 40 | GND            |     |
| 41 | VCC3V8_4G | 3.8 | 42 | NC             |     |
| 43 | GND       |     | 44 | SIM_DET        | 1.8 |
| 45 | NC        |     | 46 | NC             |     |
| 47 | NC        |     | 48 | NC             |     |
| 49 | NC        |     | 50 | GND            |     |
| 51 | NC        |     | 52 | VCC3V8_4G      | 3.8 |

# Interface definition



## 9. (J7) MIPI\_CSI0 30 PIN



| NO. | Definition                          | Power/V | NO. | Definition             | Power/V |
|-----|-------------------------------------|---------|-----|------------------------|---------|
| 1   | I2C2_SDA_TP [pull up resistor 2.2K] | 1.8     | 16  | GND                    |         |
| 2   | I2C2_SCL_TP [pull up resistor 2.2K] | 1.8     | 17  | MIPI_CSI0_RX_CLK0P     | -       |
| 3   | MIPI_PDN0_CAM                       | 3.3     | 18  | MIPI_CSI0_RX_CLK0N     | -       |
| 4   | MIPI_RESET0_CAM                     | 3.3     | 19  | GND                    |         |
| 5   | GND                                 |         | 20  | MIPI_CSI0_RX_D2P       | -       |
| 6   | MIPI_MCLK0                          | 1.8     | 21  | MIPI_CSI0_RX_D2N       | -       |
| 7   | MIPI_PDN1_CAM                       | 1.8     | 22  | GND                    |         |
| 8   | MIPI_RESET1_CAM                     | 3.3     | 23  | MIPI_CSI0_RX_D3P       | -       |
| 9   | MIPI_MCLK1                          | 1.8     | 24  | MIPI_CSI0_RX_D3N       | -       |
| 10  | GND                                 |         | 25  | GND                    |         |
| 11  | MIPI_CSI0_RX_D0P                    | -       | 26  | MIPI_CSI0_RX_CLK1P     | -       |
| 12  | MIPI_CSI0_RX_D0N                    | -       | 27  | MIPI_CSI0_RX_CLK1N     | -       |
| 13  | GND                                 |         | 28  | GND                    |         |
| 14  | MIPI_CSI0_RX_D1P                    | -       | 29  | VCC5V0_SYS (5V Output) | 5.0     |
| 15  | MIPI_CSI0_RX_D1N                    | -       | 30  | VCC5V0_SYS (5V Output) | 5.0     |

# Interface definition



## 10. (J9910) MIPI\_DSI1 40 PIN

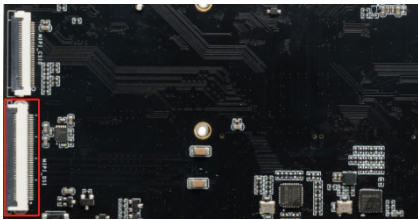


| NO. | Definition                          | Power/V | NO. | Definition                  | Power/V |
|-----|-------------------------------------|---------|-----|-----------------------------|---------|
| 1   | VCC3V3_TP(3.3V Output)              | 3.3     | 21  | MIPI_DSI_TX_D3P/LVDS_TX_D3P | -       |
| 2   | NC                                  |         | 22  | GND                         |         |
| 3   | TP_RST_L [pull up resistor 2.2K]    | 1.8     | 23  | NC                          |         |
| 4   | TP_INT_L [pull up resistor 2.2K]    | 1.8     | 24  | NC                          | 1.8     |
| 5   | I2C2_SDA_TP [pull up resistor 2.2K] | 1.8     | 25  | LCD0_RST                    | 1.8     |
| 6   | I2C2_SCL_TP [pull up resistor 2.2K] | 1.8     | 26  | NC                          |         |
| 7   | GND                                 |         | 27  | NC                          |         |
| 8   | MIPI_DSI_TX_D0N/LVDS_TX_D0N         | -       | 28  | VCC_LCD1V8                  | 1.8     |
| 9   | MIPI_DSI_TX_D0P/LVDS_TX_D0P         | -       | 29  | NC                          |         |
| 10  | GND                                 |         | 30  | AVEE_5V5                    | -5.0    |
| 11  | MIPI_DSI_TX_D1N/LVDS_TX_D1N         | -       | 31  | AVEE_5V5                    | -5.0    |
| 12  | MIPI_DSI_TX_D1P/LVDS_TX_D1P         | -       | 32  | NC                          |         |
| 13  | GND                                 |         | 33  | AVDD_5V5(5V Output)         | +5.5    |
| 14  | MIPI_DSI_TX_CLKN/LVDS_TX_CLKN       | -       | 34  | AVDD_5V5(5V Output)         | +5.5    |
| 15  | MIPI_DSI_TX_CLKP/LVDS_TX_CLKP       | -       | 35  | VCC_LEDK(5V Output)         | 5.0     |
| 16  | GND                                 |         | 36  | VCC_LEDK(5V Output)         | 5.0     |
| 17  | MIPI_DSI_TX_D2N/LVDS_TX_D2N         | -       | 37  | VCC_LEDK(5V Output)         | 5.0     |
| 18  | MIPI_DSI_TX_D2P/LVDS_TX_D2P         | -       | 38  | VCC_LEDA(5V Output)         | 5.0     |
| 19  | GND                                 |         | 39  | VCC_LEDA(5V Output)         | 5.0     |
| 20  | MIPI_DSI_TX_D3N/LVDS_TX_D3N         | -       | 40  | VCC_LEDA(5V Output)         | 5.0     |

# Interface definition



## 11.(J10) MIPI\_CSI1 30 PIN



| NO. | Definition                         | Power/V | NO. | Definition             | Power/V |
|-----|------------------------------------|---------|-----|------------------------|---------|
| 1   | I2C1_SDA_M1[pull up resistor 2.2K] | 1.8     | 16  | GND                    |         |
| 2   | I2C1_SCL_M1[pull up resistor 2.5K] | 1.8     | 17  | MIPI_CSI_RX1_CLK0P     | -       |
| 3   | MIPI_PDN2_CAM                      | 3.3     | 18  | MIPI_CSI_RX1_CLK0N     | -       |
| 4   | MIPI_RESET2_CAM                    | 3.3     | 19  | GND                    |         |
| 5   | GND                                |         | 20  | MIPI_CSI_RX1_D2P       | -       |
| 6   | MIPI_MCLK2                         | 3.3     | 21  | MIPI_CSI_RX1_D2N       | -       |
| 7   | MIPI_PDN3_CAM                      | 3.3     | 22  | GND                    |         |
| 8   | MIPI_RESET3_CAM                    | 3.3     | 23  | MIPI_CSI_RX1_D3P       | -       |
| 9   | MIPI_MCLK3                         | 1.8     | 24  | MIPI_CSI_RX1_D3N       | -       |
| 10  | GND                                |         | 25  | GND                    |         |
| 11  | MIPI_CSI_RX1_D0P                   | -       | 26  | MIPI_CSI_RX1_CLK1P     | -       |
| 12  | MIPI_CSI_RX1_D0N                   | -       | 27  | MIPI_CSI_RX1_CLK1N     | -       |
| 13  | GND                                |         | 28  | GND                    |         |
| 14  | MIPI_CSI_RX1_D1P                   | -       | 29  | VCC5V0_SYS (5V Output) | 5.0     |
| 15  | MIPI_CSI_RX1_D1N                   | -       | 30  | VCC5V0_SYS (5V Output) | 5.0     |



## T-CHIP INTELLIGENCE TECHNOLOGY

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