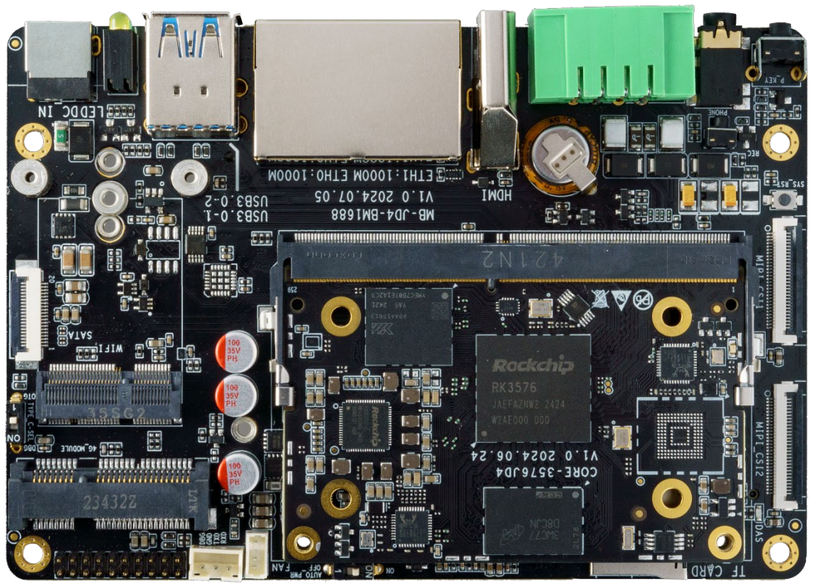
# AIO-3576JD4

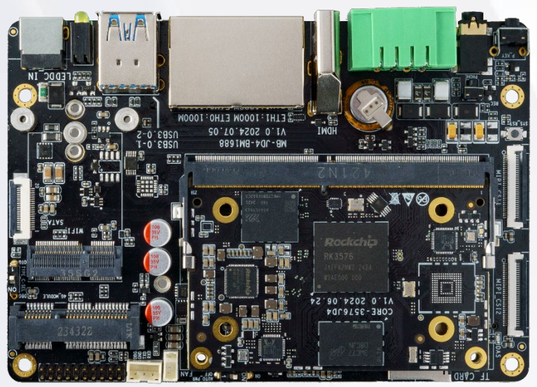
## Low-power Large-model Mainboard




V1.0 2024-9-9

T-CHIP INTELLIGENCE TECHNOLOGY

# Product features



## High-performance Octa-core 64-bit AIOT processor, RK3576

RK3576, the new octa-core 64-bit AIOT processor, features a big.LITTLE architecture (4×A72 +4×A53), an advanced lithography process, and a frequency of up to 2.2 GHz. It ensures strong support for high-performance computing and multitasking.

## 4K@120fps high frame rate video decoding

It supports 4K@120fps decoding (H.265/HEVC, VP9, AVS2, and AV1), 4K@60fps decoding (H.264/AVC), and 4K@60fps encoding (H.265/HEVC and H.264/AVC).

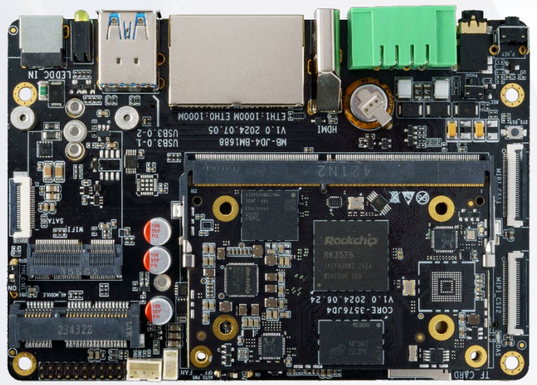
## Powerful ISP image processing performance

Built-in 16 million pixel ISP, support low-light noise reduction, support RGB-IR sensor, support up to 120dB HDR, AI-ISP to improve low-noise image effect. Support 3 MIPI-CSI D-PHY inputs (1*4Lanes or 2*2Lanes).

## The private deployment of large language models

Support the private deployment of ultra-large-scale parameter models under the Transformer architecture, including large language models such as Gemma-2B, LlaMa2-7B, Qwen1.5-1.8B. Support Docker container management technology.

# Product features



## Multiple deep learning frameworks

Support traditional network architectures such as CNN, RNN, and LSTM;
a variety of deep learning frameworks, including TensorFlow, PyTorch, MXNet, PaddlePaddle, and ONNX, as well as custom operator development.

## Various operating systems and abundant resources

Support Android 14, Linux OS, and Buildroot. These provide safe and stable systems for product research and production. We offer SDKs, tutorials, technical documentation, and development tools to streamline and improve the development process.

## Abundant expansion interfaces

It provides a rich array of expansion interfaces such as MIPI-CSI, USB 3.0, USB 2.0, HDMI2.1, Mini PCIe, M.2, Type-C, RS485, RS232, CAN, TF Card and SIM Card to meet peripheral expansion needs for various applications.

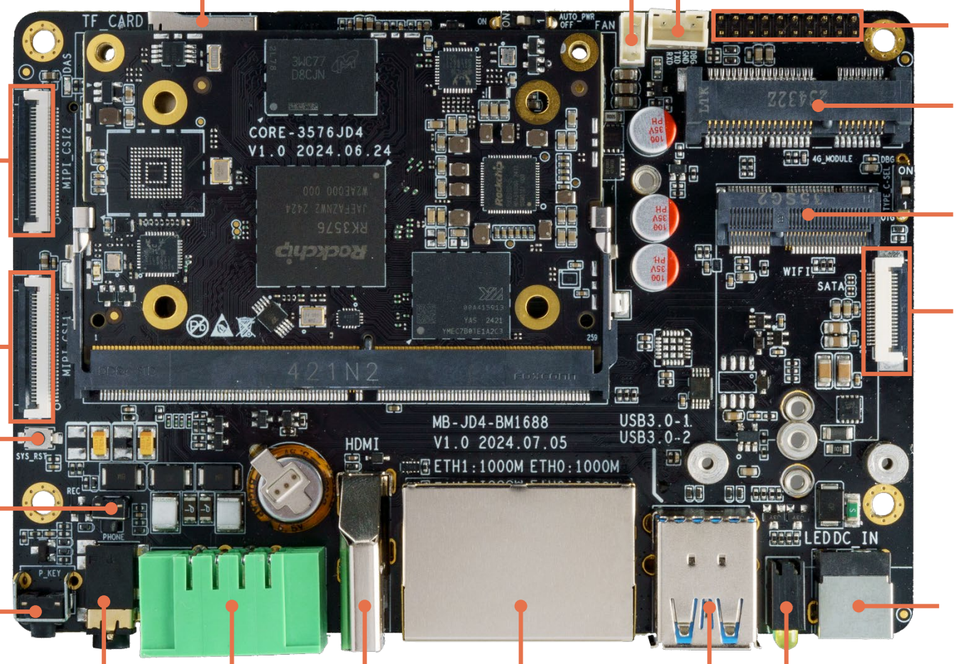
## Wide range of application scenarios

It is widely used in edge computing, local deployment of large models, intelligent digital signage, cloud terminal products, industrial PCs, automotive electronics, and more.

# Specifications

| Specifications | | |
|---|---|---|
| Basic Specifications | SOC | Rockchip RK3576 |
| | CPU | Octa-core 64-bit processor (4×A72 + 4×A53) with a maximum frequency of 2.2GHz |
| | GPU | G52 MC3@1GHz, support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1, embedded with high-performance 2D acceleration hardware |
| | NPU | 6 TOPS NPU, support mixed operations of INT4/8/16/FP16/BF16/TF32 |
| | ISP | Built-in 16 million pixel ISP, support low-light noise reduction, support RGB-IR sensor, support up to 120dB HDR, AI-ISP to improve low-noise image effect. |
| | Decoding/ Encoding | Decoding: 4K@120fps (H.265/HEVC, VP9, AVS2, AV1), 4K@60fps (H.264/AVC)<br>Encoding: 4K@60fps (H.265/HEVC, H.264/AVC) |
| | RAM | LPDDR4/LPDDR4x (4GB/8GB optional) |
| | Storage | eMMC (16GB/32GB/64GB/128GB/256GB optional), UFS2.0 (Optional) |
| | Power | DC 12V (5.5mm × 2.1mm, support 12V~24V wide voltage input) |
| | Power consumption | Max: 7.8W(12V/650mAh)  Normal: 1.92W(12V/150mAh)  Min: 0.54W(12V/45mAh) |
| | OS | Android14, Linux OS, Buildroot |
| | Software Support | · The private deployment of ultra-large-scale parameter models under the Transformer architecture, including large language models such as Gemma-2B、LlaMa2-7B、ChatGLM3-6B、Qwen1.5-1.8B.<br>· Traditional network architectures such as CNN, RNN, and LSTM; a variety of deep learning frameworks, including TensorFlow, PyTorch, MXNet, PaddlePaddle, and ONNX, as well as custom operator development.<br>· Docker container management technology |
| | Size | 122.89mm × 85.04mm × 22.7mm |
| | Weight | ≈120g |
| | Environment | Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH (non-condensing) |
| Interface Specifications | Internet | Ethernet: 2 × RJ45(1000Mbps)<br>WiFi: Extend WiFi/BT module through M.2 E-KEY (2230), supporting 2.4GHz/5GHz dual band WiFi 6 (802.11a/b/g/n/ac/ax) and BT5.2<br>4G: Expanding 4G LTE through Mini PCIe (multiplexing with 5G)<br>5G: Expanding 5G through M.2 interface (multiplexing with 4G) |
| | Video input | 2 × MIPI CSI DPHY (1×4 Lanes or 2×2 Lanes)<br>1 × MIPI CSI D/C PHY (MIPI DPHY (1×4 Lanes) or MIPI CPHY (3 Lanes)) |
| | Video output | 1 × HDMI2.1(4K@120fps) |
| | Audio output | 1 × 3.5mm Audio jack (supports MIC recording, American standard CTIA) |
| | Watchdog | External watchdogs |
| | USB | 2 × USB3.0, 2 × USB2.0 |
| | Other interfaces | 1 × Type-C (OTG/flash), 1 × FAN (4Pin-1.25mm), 1 × SIM Card<br>1 × Double-row pin headers (2×10-20PIN-2.0mm): USB2.0, SPI, 2 × I2C, Line in, Line out, GPIO<br>1 × Phoenix connector (2×4Pin, 3.5mm pitch): 1 × RS485, 1 × RS232, 1 × CAN 2.0 |

# Interface description




TF Card

FAN (4Pin-1.25mm)

Debug (3Pin-2.0mm)

Double-row pin headers
(2*10-20PIN-2.0mm)

Mini PCIe
(4G/3G LTE)

M.2 E-KEY
(Extended WiFi Module)

Non-functional

MIPI CSI D/C PHY
(DPHY(1*4 Lanes) or CPHY(3 Lanes), 30Pin-0.5mm)

MIPI CSI DPHY
(1*4 lanes/2*2 lanes, 30Pin-0.5mm)

Reset

MaskRom

Power button

DC 12V
(5.5mm*2.1mm,
support 12V~24V wide voltage input)

3.5mm Audio jack
(Support Mic recording, CTIA)

Phoenix connector
(2*4Pin, 3.5mm Pitch)

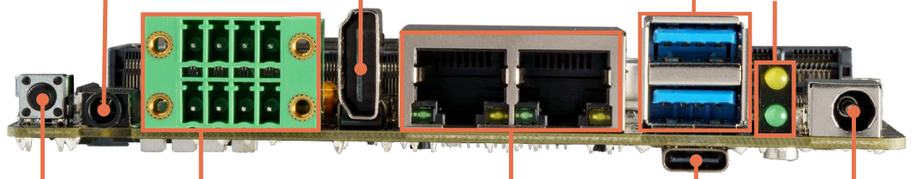
HDMI2.1
(4K@120fps)

2*RJ45 Ethernet port
(1000Mbps)

2*USB 3.0

Work indicator

# Interface description



3.5mm Audio jack
(Support Mic recording, CTIA)

HDMI2.1
(4K@120fps)

2*USB 3.0

Work indicator

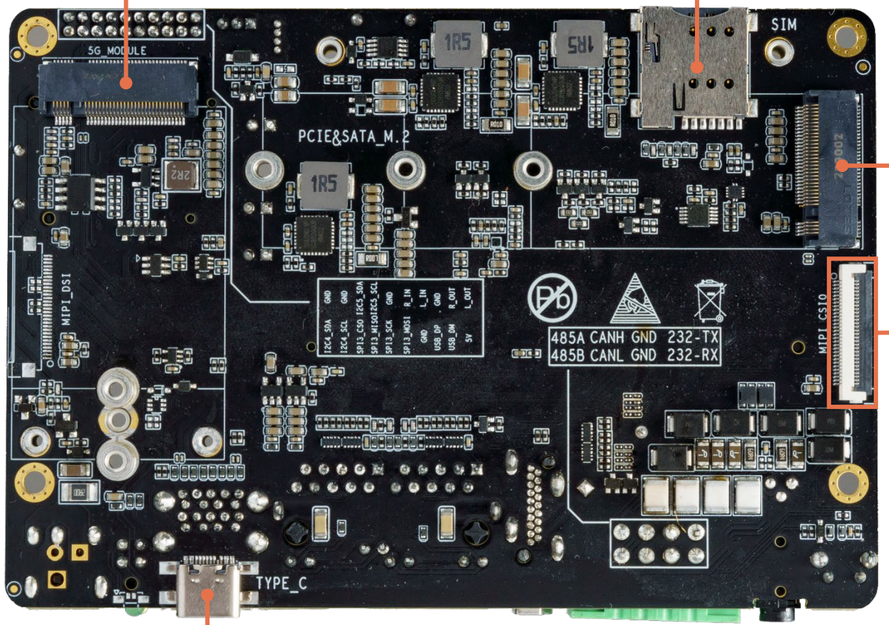
Power button

2*RJ45 Ethernet port
(1000Mbps)

Type-C
(OTG/flash)

DC 12V
(5.5mm*2.1mm,
support 12V~24V
wide voltage input)

Phoenix connector(2*4Pin, 3.5mm Pitch)
232-TX GND CANH 485A
232-RX GND CANL 485B




M.2
(5G Module)

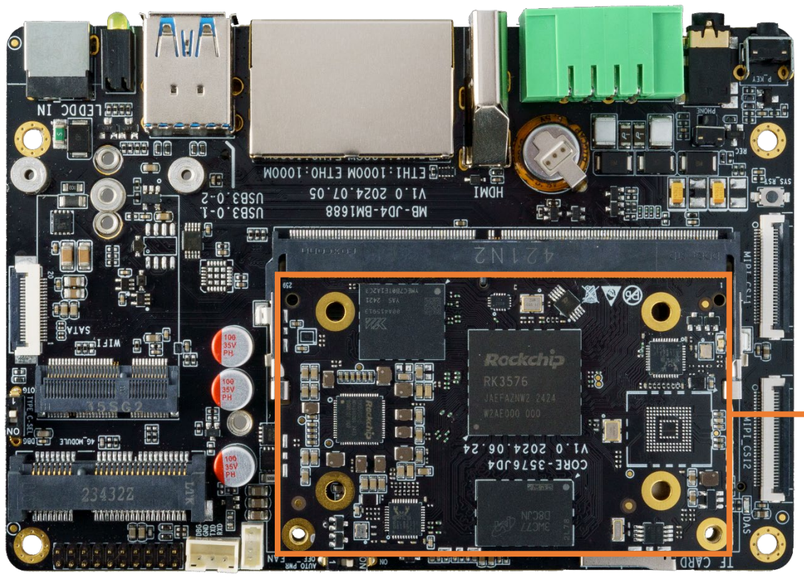
SIM Card

Non-functional

MIPI CSI DPHY
(1*4 lanes/2*2 lanes,
30Pin-0.5mm)

Type-C
(OTG/flash)

# Interface description

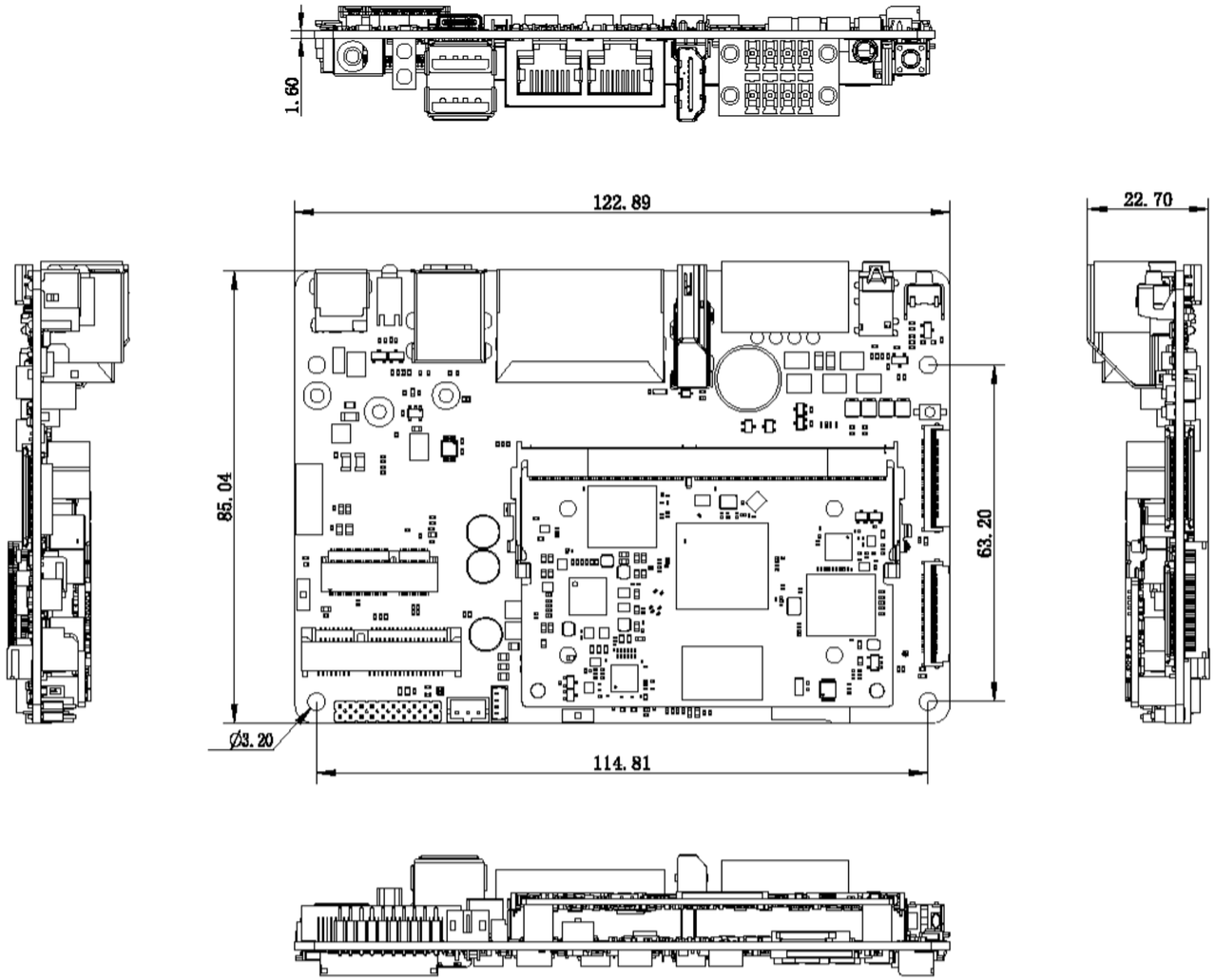



## ● Compatible with Mainstream Edge Computing Modules

The mainstream edge computing module's interface standard (260-pin standard SODIMM) ensures compatibility with the following product series for flexible combination and replacement. This meets the needs for customization and is suitable for various edge computing deployment scenarios.

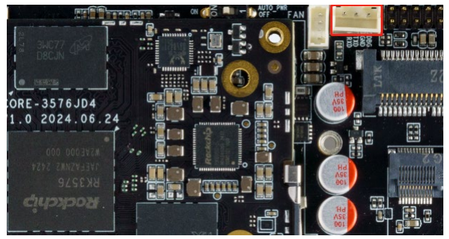
| Core Board (Module) | AI Performance | Manufacturer |
|---|---|---|
| Core-1688JD4 | 16 TOPS | Firefly |
| Core-3576JD4 | 6 TOPS | Firefly |
| Core-3588JD4 | 6 TOPS | Firefly |
| NVIDIA Jetson Orin Nano | 20~40 TOPS | NVIDIA |
| NVIDIA Jetson Orin NX | 70~100 TOPS | NVIDIA |

# Dimension



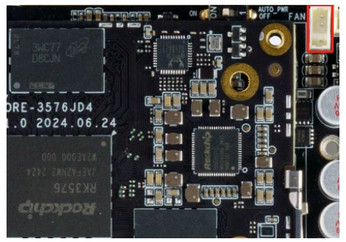
# Interface definition

## 1. (J19) DEBUG: 3PIN 2.0mm Pitch wafer Seat



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | UART0_RXD_Debug | 3.3 | 3 | GND | |
| 2 | UART0_TXD_Debug | 3.3 | | | |

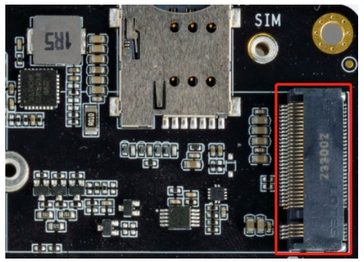
## 2. (J6)FAN: 4PIN 1.25mm Pitch wafer Seat



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | FAN+ (5V Output) | 5 |
| 3 | FG Input 【PWR_GPIO1】 | 3.3 | 4 | PWM1 Output 【GPIO1_C2】 | 3.3 |

# Interface definition

### 3. (U4)M.2 PCIE/SATA M-KEY--- (GPIO0_D1 :L) (optional),Default NC



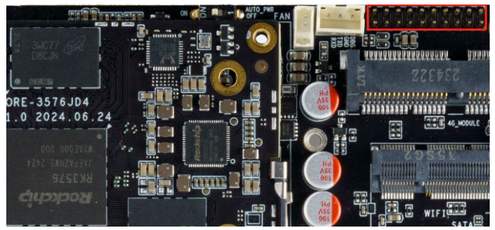

| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 3 | GND | | 4 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 8 | NC | |
| 9 | GND | | 10 | DAS/DSS<br>[pull up resistor10K] | 3.3 |
| 11 | NC | | 12 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 13 | NC | | 14 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 15 | NC | | 16 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 17 | NC | | 18 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 19 | NC | | 20 | NC | |
| 21 | GND | | 22 | NC | |
| 23 | NC | | 24 | NC | |
| 25 | NC | | 26 | NC | |
| 27 | GND | | 28 | NC | |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 29 | NC | | 30 | NC | |
| 31 | NC | | 32 | NC | |
| 33 | GND | | 34 | NC | |
| 35 | NC | | 36 | NC | |
| 37 | NC | | 38 | DEVSLP<br>[pull up resistor10K] | 3.3 |
| 39 | GND | | 40 | NC | |
| 41 | PCIE1_RXP/SATA1_RXP | - | 42 | NC | |
| 43 | PCIE1_RXN/SATA1_RXN | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE1_TXN/SATA1_TXN (Series capacitor 100nF) | - | 48 | NC | |
| 49 | PCIE1_TXP/SATA1_TXP (Series capacitor 100nF) | - | 50 | PCIE0_RST* (GPIO4_B2) | 3.3 |
| 51 | GND | | 52 | PCIE0_CLKREQ* (GPIO4_A5) | 3.3 |
| 53 | PCIE1_REFCLKN | - | 54 | PCIE_WAKE* (GPIO4_A3/GPIO4_B4) | 3.3 |
| 55 | PCIE1_REFCLKP | - | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 71 | GND | | 72 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 73 | GND | | 74 | VCC3V3_PCIE (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# Interface definition

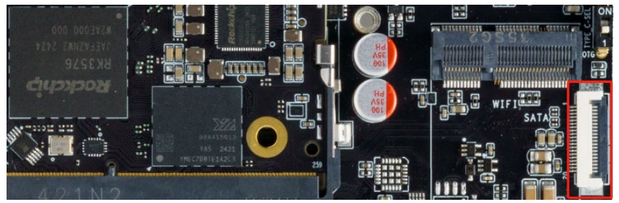
### 4. (J15) Double-row needles EXTENSION INTERFACE 2*10PIN



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | VCC5V0_SYS (5.0V OUTPUT) | 5.0<br>(MAX:500mA) | 2 | Left output 2<br>(40mW from ES8388) | 3.3 |
| 3 | USB_HOST0_DM | - | 4 | Right output 2<br>(40mW from ES8388) | 3.3 |
| 5 | USB_HOST0_DP | - | 6 | GND | |
| 7 | GND | | 8 | Right channel input 1 (to ES8388) | 3.3 |
| 9 | SPI4_MOSI /(GPIO2_B4_d) | 1.8 | 10 | Left channel input 1 (to ES8388) | 3.3 |
| 11 | SPI4_SCK /(GPIO2_B3_d) | 1.8 | 12 | GND | |
| 13 | SPI4_MISO /(GPIO2_B5_d) | 1.8 | 14 | I2C0_SCL /(GPIO0_B0_z)<br>(Pull-up resistor 2.2K) | 3.3 |
| 15 | SPI4_CS0 /(GPIO2_B2_d) | 1.8 | 16 | I2C0_SDA /(GPIO0_B1_z)<br>(Pull-up resistor 2.2K) | 3.3 |
| 17 | I2C3_SCL (GPIO4_C4_d)<br>(Pull-up resistor 2.2K) | 3.3 | 18 | GND | |
| 19 | I2C3_SDA (GPIO4_C5_d)<br>(Pull-up resistor 2.2K) | 3.3 | 20 | GND | |

# Interface definition

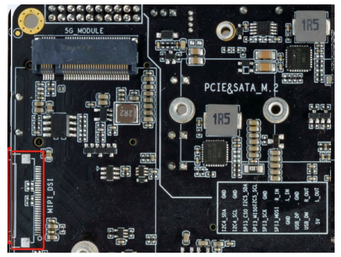
### 5. (J12)SATA 20PIN 0.5mm Pitch **(CORE-3576JD4 NO USE!)**




| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 11 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 2 | SATA_TX1_P (Series capacitor 10nF) | - | 12 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 3 | SATA_TX1_N (Series capacitor 10nF) | - | 13 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 4 | GND | | 14 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 5 | SATA_RX1_N (Series capacitor 10nF) | - | 15 | GND | |
| 6 | SATA_RX1_P (Series capacitor 10nF) | - | 16 | GND | |
| 7 | GND | | 17 | GND | |
| 8 | SATA_LED (GPIO112) | 3.3 | 18 | VSYS_12V (12.0V OUTPUT) | 12.0 |
| 9 | GND | | 19 | VSYS_12V (12.0V OUTPUT) | 12.0 |
| 10 | GND | | 20 | VSYS_12V (12.0V OUTPUT) | 12.0 |

# Interface definition

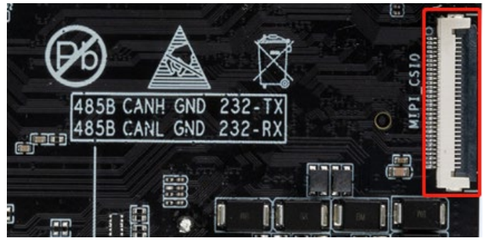
## 6. (J11) MIPI DSI 30PIN 0.5mm Pitch **(CORE-3576JD4 NO USE!)**




| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 | 16 | DSI_D0_P | - |
| 2 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 | 17 | DSI_D0_N | - |
| 3 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 | 18 | GND | |
| 4 | GND | | 19 | DSI_D1_P | - |
| 5 | NC | | 20 | DSI_D1_N | - |
| 6 | VCC3V3_SYS (3.3V OUTPUT) | 3.3 | 21 | GND | |
| 7 | I2C4_SDA【GPIO62】<br>Pull-up resistor 10K | 3.3 | 22 | DSI_CLK_P | - |
| 8 | I2C4_SCL 【GPIO63】<br>Pull-up resistor 10K | 3.3 | 23 | DSI_CLK_N | - |
| 9 | LCD_EN【Extended IO】 | 3.3 | 24 | GND | |
| 10 | TP_INT【GPIO75】 | 3.3 | 25 | DSI_D2_P | - |
| 11 | BL_EN【GPIO68】 | 3.3 | 26 | DSI_D2_N | - |
| 12 | BL_PWM1【GPIO76】 | 3.3 | 27 | GND | |
| 13 | LCD_RESET【Extended IO】 | 3.3 | 28 | DSI_D3_P | - |
| 14 | TP_RESET【Extended IO】 | 3.3 | 29 | DSI_D3_N | - |
| 15 | GND | | 30 | GND | |

# Interface definition

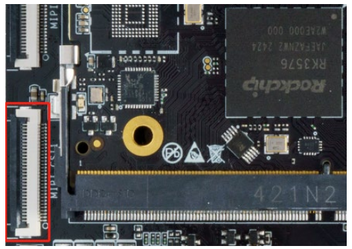
### 7. (J7) MIPI CSI0 30PIN 0.5mm Pitch




| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | I2C6_SDA_M3 【GPIO4_C7_d】<br>Pull-up resistor 2.2K (switch: GPIO1_D4_d->H) | 1.8 | 16 | GND | |
| 2 | I2C6_SCL_M3 【GPIO4_C6_d】<br>Pull-up resistor 2.2K (switch: GPIO1_D4_d->H) | 1.8 | 17 | CSI0_CLK_P | - |
| 3 | CAM0_PWDN【GPIO3_D5_d】 | 1.8 | 18 | CSI0_CLK_N | - |
| 4 | CAM0_RESET_H【Extended IO】 | 1.8 | 19 | GND | |
| 5 | GND | | 20 | CSI1_D0_P | - |
| 6 | CAM0_MCLK【GPIO3_D7_d】 | 1.8 | 21 | CSI1_D0_N | - |
| 7 | CAM3_PWDN 【GPIO2_A6_d】 | 1.8 | 22 | GND | |
| 8 | CAM0_RESET_H【Extended IO】 | 1.8 | 23 | CSI1_D1_P | - |
| 9 | CAM0_MCLK【GPIO3_D7_d】 | 1.8 | 24 | CSI1_D1_N | - |
| 10 | GND | | 25 | GND | |
| 11 | CSI0_D0_P | - | 26 | CSI1_CLK_P | - |
| 12 | CSI0_D0_N | - | 27 | CSI1_CLK_N | - |
| 13 | GND | | 28 | GND | |
| 14 | CSI0_D1_P | - | 29 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 15 | CSI0_D1_N | - | 30 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |

# Interface definition

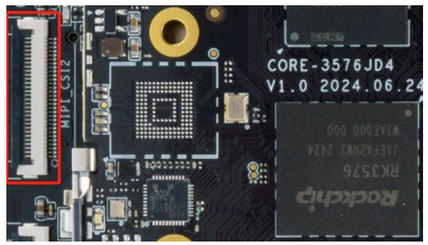
## 8. (J13) MIPI CSI1 30PIN 0.5mm Pitch



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | I2C6_SDA_M3 【GPIO4_C7_d】<br>Pull-up resistor 2.2K (switch: GPIO1_D4_d->L) | 1.8 | 16 | GND | |
| 2 | I2C6_SCL_M3 【GPIO4_C6_d】<br>Pull-up resistor 2.2K (switch: GPIO1_D4_d->L) | 1.8 | 17 | CSI2_CLK_P | - |
| 3 | CAM1_PWDN【GPIO3_D6_d】 | 1.8 | 18 | CSI2_CLK_N | - |
| 4 | CAM1_RESET_H【Extended IO】 | 1.8 | 19 | GND | |
| 5 | GND | | 20 | CSI3_D0_P | - |
| 6 | CAM1_MCLK【GPIO4_A0_d】 | 1.8 | 21 | CSI3_D0_N | - |
| 7 | CAM4_PWDN 【PWR_GPIO4】 | 1.8 | 22 | GND | |
| 8 | CAM1_RESET_H【Extended IO】 | 1.8 | 23 | CSI3_D1_P | - |
| 9 | CAM1_MCLK【GPIO4_A0_d】 | 1.8 | 24 | CSI3_D1_N | - |
| 10 | GND | | 25 | GND | |
| 11 | CSI2_D0_P | - | 26 | CSI3_CLK_P | - |
| 12 | CSI2_D0_N | - | 27 | CSI3_CLK_N | - |
| 13 | GND | | 28 | GND | |
| 14 | CSI2_D1_P | - | 29 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 15 | CSI2_D1_N | - | 30 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |

# Interface definition

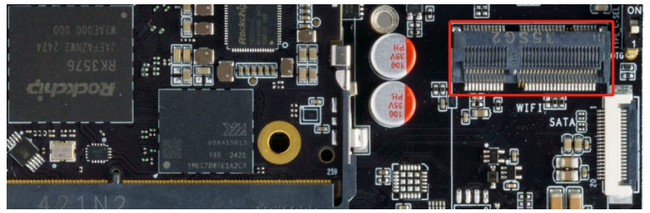
### 9. (J16) MIPI CSI2 30PIN 0.5mm Pitch




| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | I2C3_SDA_M3【GPIO4_C5_d】<br>Pull-up resistor 2.2K | 1.8 | 16 | GND | |
| 2 | I2C3_SCL_M3 【GPIO4_C4_d】<br>Pull-up resistor 2.2K | 1.8 | 17 | CSI4_CLK_P | - |
| 3 | CAM2_PWDN【GPIO2_B0_d】 | 1.8 | 18 | CSI4_CLK_N | - |
| 4 | CAM2_RESET_H【Extended IO】 | 1.8 | 19 | GND | |
| 5 | GND | | 20 | CSI4_D2_P | - |
| 6 | CAM2_MCLK【GPIO4_A1_d】 | 1.8 | 21 | CSI4_D2_N | - |
| 7 | CAM5_PWDN【GPIO2_D7_d】 | 1.8 | 22 | GND | |
| 8 | CAM2_RESET_H【Extended IO】 | 1.8 | 23 | CSI4_D3_P | - |
| 9 | CAM2_MCLK【GPIO4_A1_d】 | 1.8 | 24 | CSI4_D3_N | - |
| 10 | GND | | 25 | GND | |
| 11 | CSI4_D0_P | - | 26 | NC | - |
| 12 | CSI4_D0_N | - | 27 | NC | - |
| 13 | GND | | 28 | GND | |
| 14 | CSI4_D1_P | - | 29 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |
| 15 | CSI4_D1_N | - | 30 | VCC5V0_SYS (5.0V OUTPUT) | 5.0 |

# Interface definition

## 10. (U16) M.2 Module E-KEY



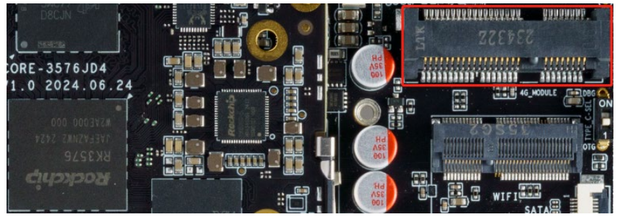

| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | WIFI_3V3 (3.3V Output) | 3.3 |
| 3 | HUB_HOST20_DP3 | - | 4 | WIFI_3V3 (3.3V Output) | 3.3 |
| 5 | HUB_HOST20_DM3 | - | 6 | NC | |
| 7 | GND | | 8 | NC | |
| 9 | NC | | 10 | NC | |
| 11 | NC | | 12 | NC | |
| 13 | NC | | 14 | NC | |
| 15 | NC | | 16 | NC | |
| 17 | NC | | 18 | GND | |
| 19 | NC | | 20 | BT_M2_WAKE_AP (GPIO1_C3_u) | 3.3 |
| 21 | NC | | 22 | NC | |
| 23 | NC | | 32 | NC | |
| 33 | GND | | 34 | NC | |
| 35 | PCIE0_TXP/SATA0_TXP (Series capacitor 100nF) | - | 36 | NC | |
| 37 | PCIE0_TXN/SATA0_TXN (Series capacitor 100nF) | - | 38 | AP_M2_WAKE_BT (Extended IO) | 3.3 |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 39 | GND | | 40 | NC | |
| 41 | PCIE0_RXP / SATA0_RXP | - | 42 | NC | |
| 43 | PCIE0_RXN /SATA0_RXN | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE0_REFCLKP | - | 48 | NC | |
| 49 | PCIE0_REFCLKN | - | 50 | 32KOUT_WIFI (GPIO1_D5_d) | 1.8 |
| 51 | GND | | 52 | PCIE0_RST* (GPIO4_B3_d) | 3.3 |
| 53 | PCIE0_CLKREQN (GPIO4_B5_d) | 3.3 | 54 | BT_DISABLE_L (GPIO1_C4_d) | 3.3 |
| 55 | PCIE_WAKE* (GPIO4_B4_d) | 3.3 | 56 | WIFI_DISABLE_L (GPIO1_C5_d) | 3.3 |
| 57 | GND | | 58 | NC | |
| 59 | NC | | 60 | NC | |
| 61 | NC | | 62 | NC | |
| 63 | GND | | 64 | NC | |
| 65 | NC | | 66 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | NC | |
| 71 | NC | | 72 | WIFI_3V3 (3.3V Output) | 3.3 |
| 73 | NC | | 74 | WIFI_3V3 (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# Interface definition

## 11. (U21)MINI PCIE 4G



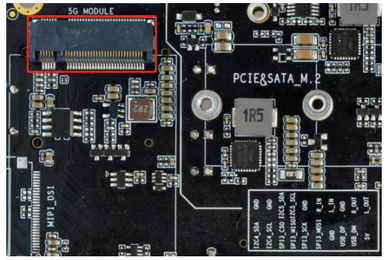

| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | NC | | 2 | VCC3V8_4G (3.5V Output) | 3.5 |
| 3 | NC | | 4 | GND | |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 8 | UIM_PWR | 1.8 |
| 9 | GND | | 10 | UIM_DAT | 1.8 |
| 11 | NC | | 12 | UIM_CLK | 1.8 |
| 13 | NC | | 14 | UIM_RST | 1.8 |
| 15 | GND | | 16 | NC | |
| 17 | NC | | 18 | GND | |
| 19 | NC | | 20 | NC | |
| 21 | GND | | 22 | 4G_RESET | 3.5 |
| 23 | NC | | 24 | NC | |
| 25 | NC | | 26 | GND | |
| 27 | GND | | 28 | NC | |
| 29 | GND | | 30 | NC | |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 31 | NC | | 32 | NC | |
| 33 | NC | | 34 | GND | |
| 35 | GND | | 36 | 4G_HOST20_DM3 | - |
| 37 | GND | | 38 | 4G_HOST20_DP3 | - |
| 39 | VCC3V8_4G (3.5V Output) | 3.5 | 40 | GND | |
| 41 | VCC3V8_4G (3.5V Output) | 3.5 | 42 | NC | |
| 43 | GND | | 44 | SIM_DET | 1.8 |
| 45 | NC | | 46 | NC | |
| 47 | NC | | 48 | NC | |
| 49 | GND | | 50 | GND | |
| 51 | NC | | 52 | VCC3V8_4G (3.5V Output) | 3.5 |

# Interface definition

## 12. (U26)5G NGFF-M.2-B-KEY



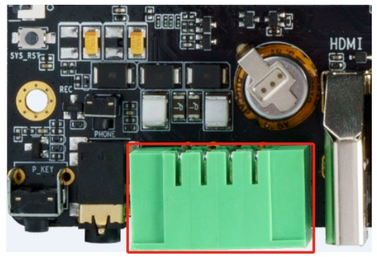

| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | NC | | 2 | VCC3V8_4G (3.5V Output) | 3.5 |
| 3 | GND | | 4 | VCC3V8_4G (3.5V Output) | 3.5 |
| 5 | GND | | 6 | FUL_CARD_POWER_OFF# | 3.5 |
| 7 | 5G_HOST20_DP3 | - | 8 | NC | |
| 9 | 5G_HOST20_DM3 | - | 10 | NC | |
| 11 | GND | | 20 | NC | |
| 21 | NC | | 22 | NC | |
| 23 | NC | | 24 | NC | |
| 25 | NC | | 26 | NC | |
| 27 | GND | | 28 | NC | |
| 29 | 5G_USB30_RX_N | - | 30 | UIM_RST | 1.8 |
| 31 | 5G_USB30_RX_P | - | 32 | UIM_CLK | 1.8 |
| 33 | GND | | 34 | UIM_DAT | 1.8 |
| 35 | 5G_USB30_TX_N (Series capacitor 100nF) | - | 36 | UIM_PWR | 1.8 |
| 37 | 5G_USB30_TX_P (Series capacitor 100nF) | - | 38 | NC | |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 39 | GND | | 40 | NC | |
| 41 | NC | | 42 | NC | |
| 43 | NC | | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | NC | | 48 | NC | |
| 49 | NC | | 50 | NC | |
| 51 | GND | | 52 | NC | |
| 53 | NC | | 54 | NC | |
| 55 | NC | | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 59 | NC | | 60 | NC | |
| 61 | NC | | 62 | NC | |
| 63 | GND | | 64 | NC | |
| 65 | NC | | 66 | SIM_DET | 1.8 |
| 67 | 4G_RESET | 3.5 | 68 | NC | |
| 69 | NC | | 70 | VCC3V8_4G (3.5V Output) | 3.5 |
| 71 | GND | | 72 | VCC3V8_4G (3.5V Output) | 3.5 |
| 73 | GND | | 74 | VCC3V8_4G (3.5V Output) | 3.5 |
| 75 | NC | | | | |

# Interface definition

### 13. (J3)RS485/RS232/CAN  2*4PIN 3.5mm Pitch Seat  (GREEN)




| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | RS485_A | | 2 | RS485_B | 5.0 |
| 3 | CAN_H | - | 4 | CAN_L | - |
| 5 | GND | | 6 | GND | |
| 7 | RS232_TX (from UART8) | - | 8 | RS232_RX (from UART8) | - |

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