# RK182X Development Kit

# Product features



## Dual-core heterogeneous design

Adopting the dual-core heterogeneous architecture of RK3588 and RK182X, interconnected at high speed via the PCIe interface to achieve efficient collaboration: RK3588 coordinates task scheduling and data preprocessing, while RK182X focuses on core AI inference computing power output, supporting model parallelism and multi-task collaboration capabilities.

## 3D RAM stacked architecture, edge AI acceleration

Adopting a 3D RAM stacked architecture, the RK182X breaks through data transmission bottlenecks via ultra-high DRAM bandwidth. It enables smooth operation of large models with 3B/7B parameters, significantly optimizing response latency for large model scenarios such as LLMs (Large Language Models) and VLMs (Vision-Language Models).

## 8K codec and multi-channel 4K video stream parallel processing

The RK3588 not only supports 8K video decoding and encoding but also enables image scaling and cropping via hardware acceleration, easily handling parallel processing of multi-channel 4K video streams. Combined with the AI computing power collaboration of the RK182X coprocessor, it can efficiently complete real-time AI analysis of video streams.

## Integrated high-bandwidth on-chip DRAM

Equipped with integrated high-bandwidth embedded on-chip DRAM (2.5GB/5GB versions), it delivers an edge-side generation rate exceeding 100 tokens/s and an end-to-end latency as low as 0.1s, providing efficient support for local intelligent computing.

# Product features



## Edge computing with low latency, millisecond-level response

Local AI processing reduces network dependency, enabling millisecond-level response and data privacy protection. Combined with the scheduling capability of the RK3588, the RK182X's dedicated NPU maintains real-time decision-making in weak network environments, enhancing overall system reliability and security.

## Multiple gigabit PoE ports for multi-device interconnection

Equipped with 10 Gigabit Ethernet ports, 9 of which support Power over Ethernet (PSE) functionality, high-throughput data transmission, and multi-device interconnection. Boasting strong compatibility, it works with network cameras from numerous mainstream manufacturers compliant with ONVIF and RTSP standards.

## Onboard SATA/PCIe interfaces for ultra-large storage expansion

Equipped with an onboard SATA3.0, it supports expansion of 3.5-inch/2.5-inch SSDs/HDDs. The M.2 PCIe interface enables expansion of PCIe NVMe SSDs, allowing storage capacity to scale up to terabyte-level. Combined with the high-performance RK182X coprocessor, it can efficiently process AI datasets or video logs, eliminating cloud transmission risks.

## Rich expansion interfaces

Offering diverse interfaces including USB3.0, HDMI, VGA, RS485, IO, and UART, it facilitates hardware expansion and integration of sensors or modules, enabling multi-modal input to further enhance product adaptability and scalability.

# Specifications

| Specifications | | |
|---|---|---|
| **Basic Specifications** | Main mod | RK3588 module(Core-3588JD4): LPDDR4/LPDDR4x (4/8/16/32GB) + eMMC (32/64/128/256GB), 6T (INT8) computing power |
| | Sub mod | Optional RK1820/RK1828 module<br>RK1820 module: 2.5GB on-chip DRAM, 20TOPS (INT8) computing power, which can smoothly run large models within 3B<br>RK1828 module: 5GB on-chip DRAM, 20TOPS (INT8) computing power, which can smoothly run large models within 7B |
| | Video encoding | Main mod: 8K@30fps H.265/H.264 |
| | Video decoding | Main mod: 8K@60fps H.265/VP9/AVS2, 8K@30fps H.264 AVC/MVC, 4K@60fps AV1, 1080P@60fps MPEG-2/-1/VC-1/VP8 |
| | Storage expansion | 1 × TF Card |
| | Power | Mainboard power supply (dual options):<br>1) DC 24V/5A (5.5 × 2.1mm)<br>2) 12V ATX connector power supply<br><br>48V ATX connector:<br>-- After connecting an external 48V power supply to the ATX connector, it can provide PoE power (PSE) to terminal devices.<br><br>* For 12V ATX and 48V ATX connectors, power supply can adopt: 280W AC Power Supply (Input: 100V AC ~ 240V AC, 50Hz~60Hz, 6A; Output 1: 12V DC, 5A; Output 2: 52V DC, 4.6A; Hot-swap not supported) |
| | OS | Linux |
| | Size | 231.27mm × 164.13mm × 33.57mm |
| | Weight | ≈350g |
| | Environment | Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH (non-condensing) |
| **Interface Specifications** | Network | 8 × Gigabit Ethernet (RJ45): Supports PSE functionality. After connecting an external 48V ATX power supply, it can provide PoE power to terminal devices<br>2 × LAN (RJ45, 1000Mbps): Upper LAN ports support PSE functionality. After connecting an external 48V ATX power supply, it can provide PoE power to terminal devices<br>Supports 2.4GHz/5GHz dual-band WiFi (expanded via M.2 E-KEY, shared with SATA0; M.2 E-KEY not populated by default) |
| | Video output | 1 × VGA (Maximum resolution 1080P), 1 × HDMI2.0 (Default support for 1080P) |
| | Audio | 1 × Audio input, 1 × Audio output |
| | SATA/PCIe | ① 1 × SATA3.0 (SATA2)<br>② Three optional functions (select one):<br>　　1 × SATA3.0 (SATA0, shared with PCIe; default function)<br>　　1 × M.2 (shared with SATA0, M-KEY; supports PCIe NVMe 2280 SSD expansion; not populated by default)<br>　　1 × M.2 (shared with SATA0, E-KEY; supports dual-band WiFi expansion; not populated by default) |
| | USB | 2 × USB3.0, 1 × USB3.0 (20Pin-1.25mm wafer) |
| | Button | 1 × Power, 1 × MaskRom, 1 × Reset |
| | DIP switch | 1 × Automatic power-on DIP switch (ON: Automatically turn on after powering; Off: Press the power button to manually power on after powering on)<br>1 × USB mode toggle switch (ON: USB HOST; Off: USB Device) |
| | Other interfaces | 1 × RS485&IO (10Pin-1.25mm), 1 × SATA_PWR (4Pin-3.96mm), 1 × UART (10Pin-1.25mm), 2 × FAN (4Pin-1.25mm), 1 × SYS_FAN (4Pin-2.54mm), 1 × Debug (3Pin-2mm), 1 × 12V ATX connector (6Pin-4.2mm), 1 × 48V ATX connector (4Pin-4.2mm) |

# Local deployment of large models

The RK182X features an NPU architecture specifically designed for AI. Via its high-speed PCIe interface, it works collaboratively with the main SOC. Equipped with built-in high-bandwidth DRAM, it facilitates the local deployment and efficient operation of large models.

### RK182X LLM Running Performance

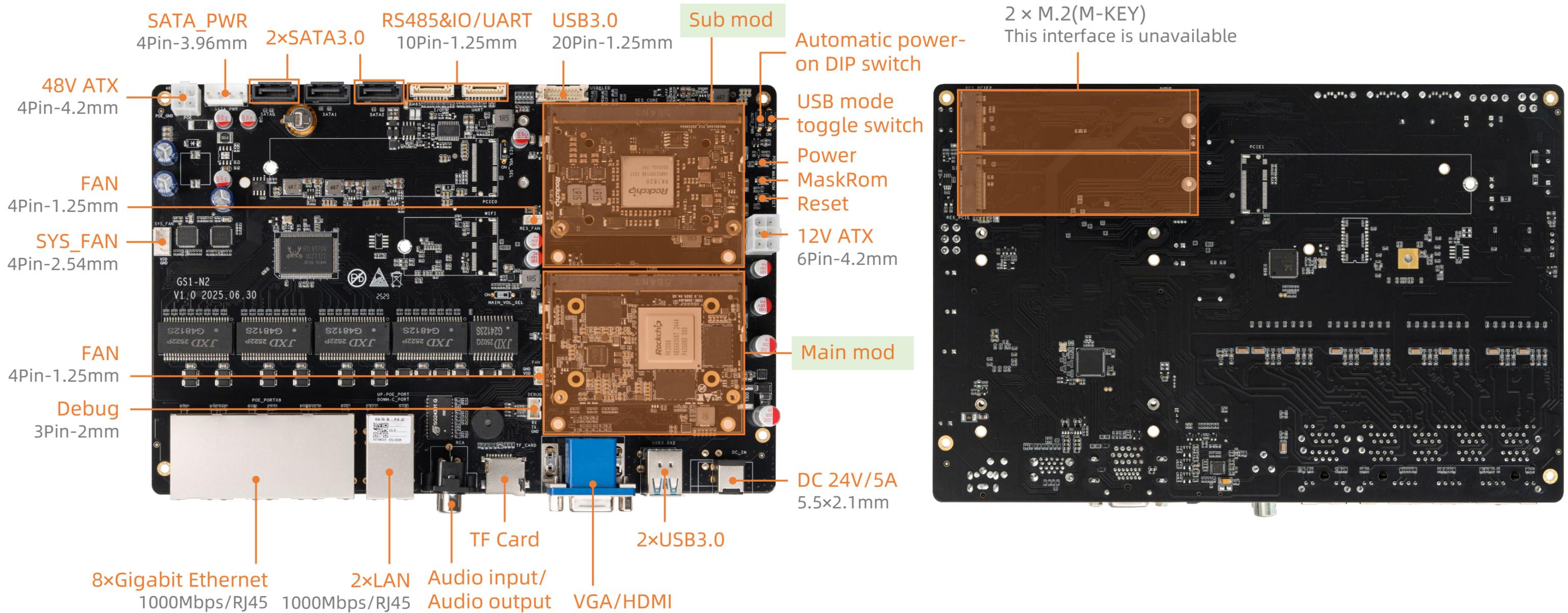| Platform | Model Name | TTFT (ms) | TPS (tokens/s) |
|---|---|---|---|
| RK182X | Qwen2.5-0.5B | 23.50 | 180.77 |
| RK182X | Qwen2.5-3B | 84.30 | 87.65 |
| RK1828 | Qwen2.5-7B | 161 | 59.09 |
| RK1828 | Qwen3-4B | 111.44 | 64.96 |

* Data based on RKNN3 SDK; all models use w4a16 quantization, with LLM input set to 128.

### RK182X VLM Running Performance

| Platform | Model Name | TTFT (ms) | TPS (tokens/s) |
|---|---|---|---|
| RK182X | fastvlm-1.5B-stage3 | 49.21 | 124.72 |
| RK182X | InternVL3-2B | 48.76 | 127.01 |
| RK1820 | Qwen2.5-VL-3B | 114.96 | 46.45 |
| RK1828 | Qwen2.5-VL-3B | 87.08 | 85.98 |
| RK1828 | Qwen2.5-VL-7B | 161.12 | 58.94 |
| RK1828 | InternVL3.5-4B | 109.54 | 64.20 |

* Data based on RKNN3 SDK; all models use w4a16 quantization, with the LLM component of VL having an input of 128.

# Interface description



SATA_PWR
4Pin-3.96mm

2×SATA3.0

RS485&IO/UART
10Pin-1.25mm

USB3.0
20Pin-1.25mm

Sub mod

Automatic power-on DIP switch

USB mode toggle switch

Power

MaskRom

Reset

2 × M.2(M-KEY)
This interface is unavailable

48V ATX
4Pin-4.2mm

FAN
4Pin-1.25mm

SYS_FAN
4Pin-2.54mm

FAN
4Pin-1.25mm

Debug
3Pin-2mm

12V ATX
6Pin-4.2mm

Main mod

DC 24V/5A
5.5×2.1mm

TF Card

2×USB3.0

8×Gigabit Ethernet
1000Mbps/RJ45

2×LAN
1000Mbps/RJ45

Audio input/
Audio output

VGA/HDMI

# Interface description



LAN
1000Mbps/RJ45
Supports PSE when the 48V ATX is powered

Audio input

TF Card

VGA
1080P

DC 24V/5A
5.5×2.1mm

8×Gigabit Ethernet
1000Mbps/RJ45
Supports PSE when the 48V ATX is powered

LAN management
network port
1000Mbps/RJ45

Audio output

HDMI2.0
1080P

2×USB3.0
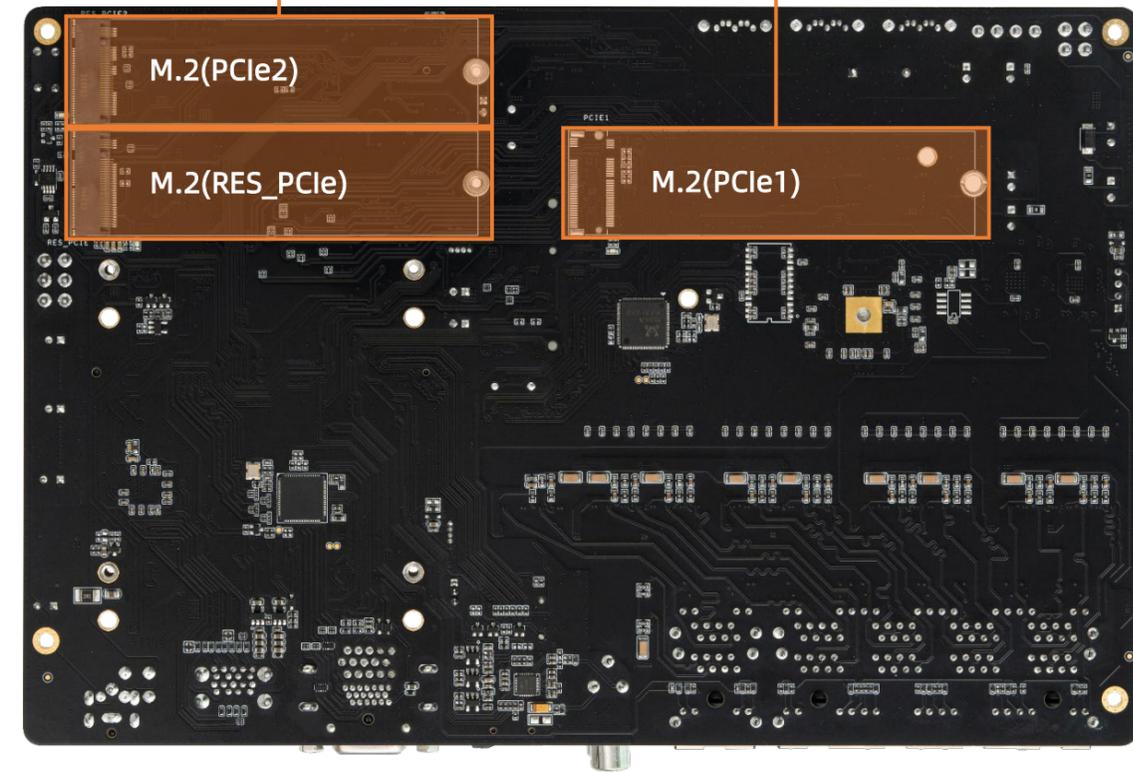
# Interface description

SATA1
This interface is unavailable

SATA0

SATA2

Choose one of three interface functions, and when using one of the interfaces, the other two interfaces are not available

PCIe0 and PCIe WiFi not populated by default

M.2(PCIe0)

M.2 (PCIe WiFi)

3 × M.2(M-KEY)
This interface is unavailable

M.2(PCIe2)

M.2(RES_PCIe)

M.2(PCIe1)

| Main mod | Sub mod | Availability |
|---|---|---|
| RK3588 module (Core-3588JD4) | RK1820 module | 1) SATA0, PCIe0, PCIe WiFi(M.2) : Choose one of three<br>2) SATA2 is available<br>3) Other PCIe/SATA are not available |
| | RK1828 module | |

# Dimension



164.13mm

231.27mm

33.57mm
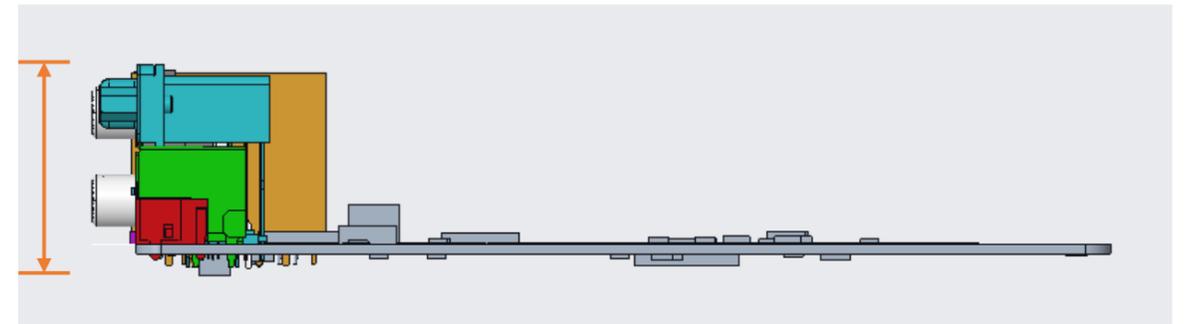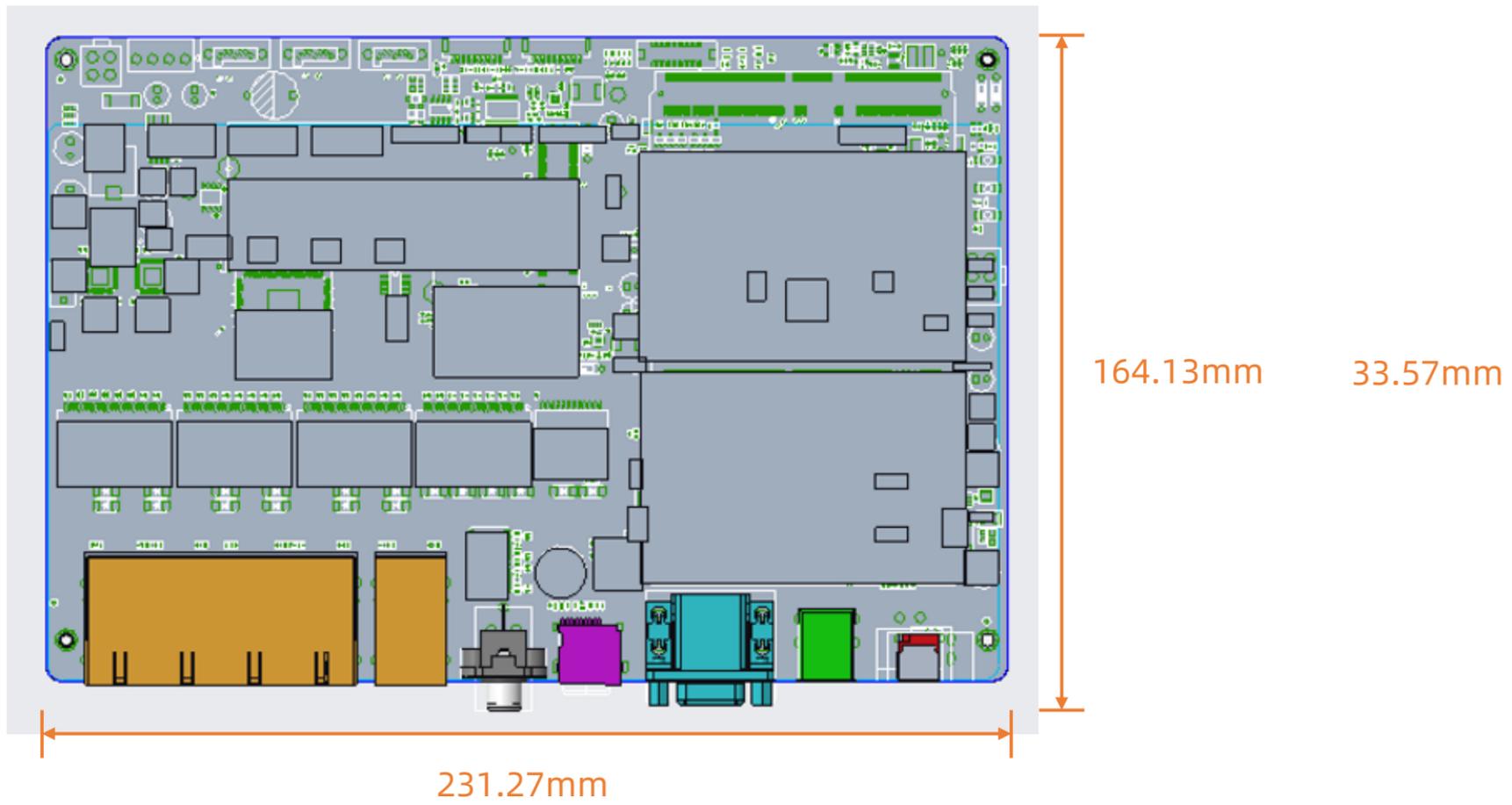
# Interface definition

**1.(J23) FAN: 4PIN 2.54mm pitch**
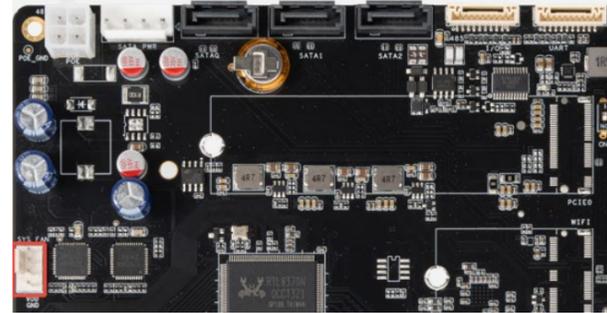


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 3 | FAN TACH Input | 3.3 |
| 2 | VSYS_12V (12V Output) | 12 | 4 | FAN_PWM  Output | 3.3 |

**2.(J6) FAN: 4PIN 1.25mm pitch wafer socket**
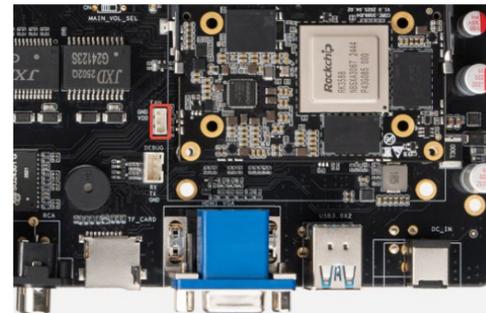


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 3 | FG Input | 3.3 |
| 2 | FAN+(5V Output) | 5 | 4 | FAN_PWM Output | 5 |

# Interface definition

### 3.(J15) POE Power Input: 4PIN 4.2mm pitch (WHITE)
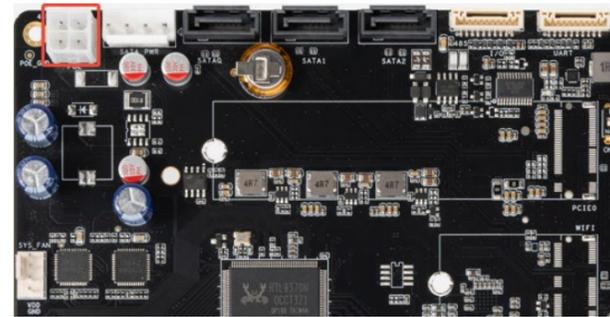


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 3 | POE_48V(48V~53V Intput) | 48~53 |
| 2 | GND | | 4 | POE_48V(48V~53V Intput) | 48~53 |

### 4.(J7) SATA_POWER Output: 4PIN 3.96mm pitch (WHITE)
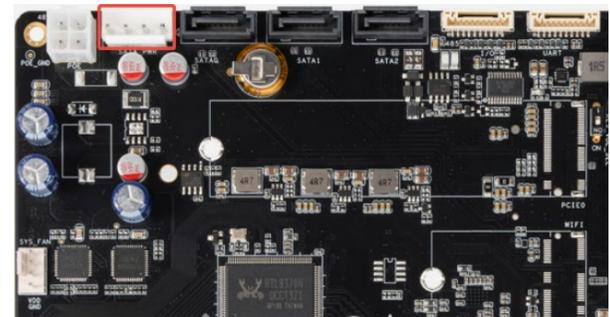


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | VSYS_12V(12V Output) | 12 | 3 | GND | |
| 2 | GND | | 4 | VCC5V0_SYS(5V Output) | 5 |

# Interface definition

**5.(J21) I/O PORT: 10PIN 1.25mm pitch**
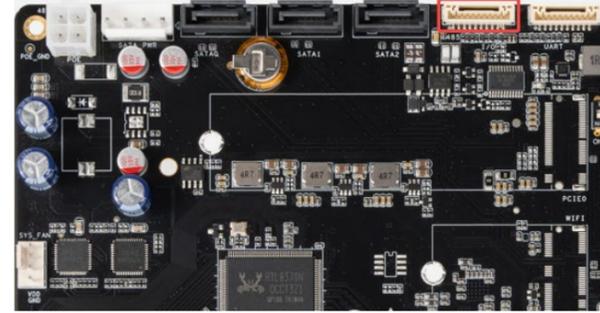


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|-----------|---------|-----|-----------|---------|
| 1 | VSYS_12V(12V Output) | 12 | 6 | IO4 | 1.8 |
| 2 | RS485_B | 3.3 | 7 | IO3 | 1.8 |
| 3 | RS485_A | 3.3 | 8 | IO2 | 1.8 |
| 4 | GND | | 9 | IO1 | 1.8 |
| 5 | IO5 | 1.8 | 10 | VCC5V0_SYS(5V Output) | 5 |

**6.(J19) DEBUG_UART: 3PIN 2.0mm pitch wafer socket**



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|-----------|---------|-----|-----------|---------|
| 1 | UART0_RXD | 3.3 | 3 | GND | |
| 2 | UART0_TXD | 3.3 | | | |

# Interface definition

**7.(J16) UART PORT: 10PIN 1.25mm pitch**
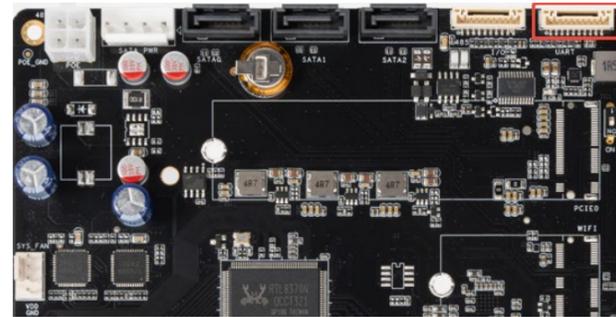


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|-----------|---------|-----|-----------|---------|
| 1 | UART4_TX | 1.8 | 6 | UART0_RXD | 3.3 |
| 2 | UART4_RX | 1.8 | 7 | VCC5V0_SYS(5V Output) | 5 |
| 3 | UART7_TX | 1.8 | 8 | VCC5V0_SYS(5V Output) | 5 |
| 4 | UART7_RX | 1.8 | 9 | GND | |
| 5 | UART0_TXD | 3.3 | 10 | GND | |

# Interface definition

**8.(J13) USB&LED: 20PIN(10*2) 1.25mm pitch**
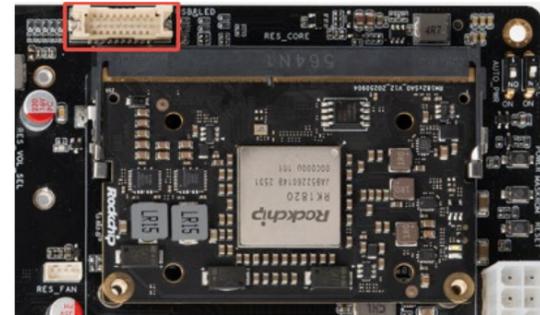


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|-----------|---------|-----|-----------|---------|
| 1 | VCC5V0_USB_HOST2 | 5 | 2 | HUB_USB1_SSTX_N | - |
| 3 | VCC5V0_USB_HOST2 | 5 | 4 | HUB_USB1_SSTX_P | - |
| 5 | USB20_DM | - | 6 | GND | |
| 7 | USB20_DP | - | 8 | HUB30_USB1_SSRX_N | - |
| 9 | PWR_LED | 1.8 | 10 | HUB30_USB1_SSRX_P | - |
| 11 | SATA_LED | 1.8 | 12 | GND | |
| 13 | NET_LED | 1.8 | 14 | POWER_KEY_IN (POWER_KEY Input) | 5 |
| 15 | WARN_LED | 1.8 | 16 | POWER_KEY_OUT(POWER_KEY Output) | 5 |
| 17 | RES_LED | 1.8 | 18 | VCC5V0_SYS (5.0V Output) | 5 |
| 19 | GND | | 20 | GND | |

# Interface definition

**9.(J11) 12V_IN: 6PIN 4.2mm pitch (WHITE)**
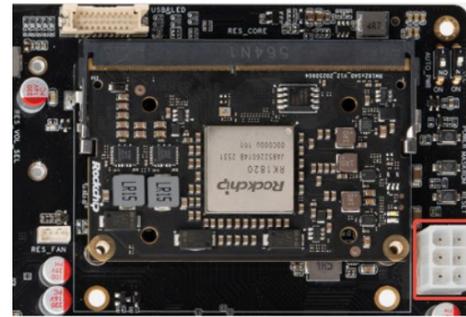


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | DC_IN(12V Intput) | 12 | 4 | GND | |
| 2 | DC_IN(12V Intput) | 12 | 5 | GND | |
| 3 | DC_IN(12V Intput) | 12 | 6 | GND | |

**10.(J24) RES_FAN: 4PIN 1.25mm pitch wafer socket**



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 3 | RES_FAN_TACH Input | 5 |
| 2 | RES_FAN+ | 5 | 4 | RES_PWM Output | 5 |

# Interface definition

**11.(U16) PCIE M.2 NGFF M-KEY SOCKET (Defult:NC)**
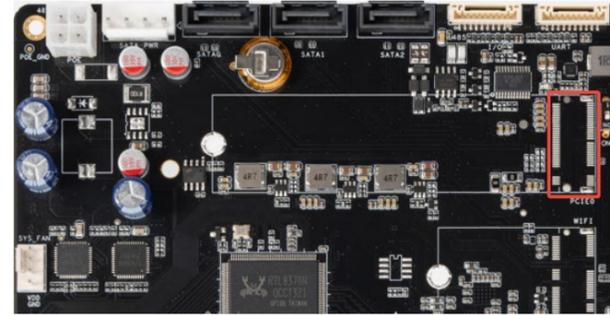


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 3 | GND | | 4 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 8 | NC | |
| 9 | GND | | 10 | DAS/DSS<br>[pull up resistor10K] | 3.3 |
| 11 | NC | | 12 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 13 | NC | | 14 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 15 | NC | | 16 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 17 | NC | | 18 | VCC3V3_PCIE1 (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 | DEVSLP1 | 3.3 |
| 39 | GND | | 40 | NC | |
| 41 | PCIE0_RX0_P / SATA_RX0_P | - | 42 | NC | |
| 43 | PCIE0_RX0_N / SATA_RX0_N | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE0_TX0_N / SATA_TX0_N | - | 48 | NC | |
| 49 | PCIE0_TX0_P / SATA_TX0_P | - | 50 | PCIE0_RST* | 3.3 |
| 51 | GND | | 52 | PCIE0_CLKREQ* | 3.3 |
| 53 | PCIE0_EP_CLK_N | - | 54 | PCIE_WAKE* | 3.3 |
| 55 | PCIE0_EP_CLK_P | - | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 71 | GND | | 72 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 73 | GND | | 74 | VCC3V3_PCIE1 (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# Interface definition

**12.(U52) PCIE-WIFI M.2 Module E-KEY (Defult:NC)**



| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | WIFI_3V3 (3.3V Output) | 3.3 |
| 3 | NC | | 4 | WIFI_3V3 (3.3V Output) | 3.3 |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 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 | NC | |
| 21 | NC | | 22 | NC | |
| 23 | NC | | 32 | NC | |
| 33 | GND | | 34 | NC | |
| 35 | PCIE0_TX0_P / SATA_TX0_P (Series capacitor 220nF) | - | 36 | NC | |

# Interface definition

| 37 | PCIE0_TX0_N / SATA_TX0_N (Series capacitor 220nF) | - | 38 | NC | |
|---|---|---|---|---|---|
| 39 | GND | | 40 | NC | |
| 41 | PCIE0_RX0_P / SATA_RX0_P | - | 42 | NC | |
| 43 | PCIE0_RX0_N / SATA_RX0_N | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE0_EP_CLK_P | - | 48 | NC | |
| 49 | PCIE0_EP_CLK_N | - | 50 | 32KOUT_WIFI | 1.8 |
| 51 | GND | | 52 | PCIE0_RST* | 3.3 |
| 53 | PCIE0_CLKREQ* | 3.3 | 54 | NC | |
| 55 | PCIE_WAKE* | 3.3 | 56 | WIFI_DISABLE_L | 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

**13.(U4) PCIE M.2 NGFF M-KEY SOCKET (Defult:NC)**
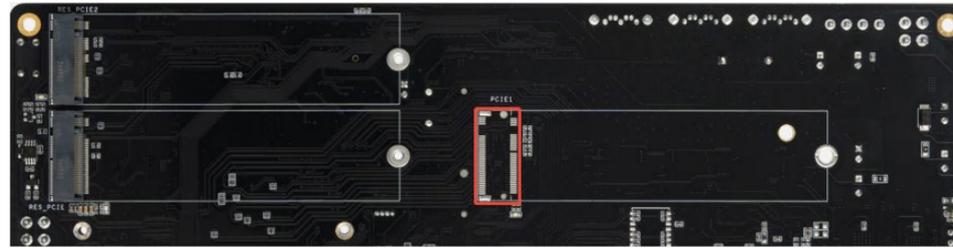


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|-----------|---------|-----|-----------|---------|
| 1 | GND | | 2 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 3 | GND | | 4 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 5 | PCIE1_RX3_N | - | 6 | NC | |
| 7 | PCIE1_RX3_P | - | 8 | NC | |
| 9 | GND | | 10 | DAS/DSS<br>[pull up resistor10K] | 3.3 |
| 11 | PCIE1_TX3_N | - | 12 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 13 | PCIE1_TX3_P | - | 14 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 15 | GND | | 16 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 17 | PCIE1_RX2_N | - | 18 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 19 | PCIE1_RX2_P | - | 20 | NC | |
| 21 | GND | | 22 | NC | |
| 23 | PCIE1_TX2_N | - | 24 | NC | |
| 25 | PCIE1_TX2_P | - | 26 | NC | |
| 27 | GND | | 28 | NC | |
| 29 | PCIE1_RX1_N | - | 30 | NC | |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 31 | PCIE1_RX1_P | - | 32 | NC | |
| 33 | GND | | 34 | NC | |
| 35 | PCIE1_TX1_N | - | 36 | NC | |
| 37 | PCIE1_TX1_P | - | 38 | DEVSLP1<br>[pull up resistor10K] | 3.3 |
| 39 | GND | | 40 | NC | |
| 41 | PCIE1_RX0_N | - | 42 | NC | |
| 43 | PCIE1_RX0_P | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE1_TX0_N | - | 48 | NC | |
| 49 | PCIE1_TX0_P | - | 50 | PCIE1_RST* | 3.3 |
| 51 | GND | | 52 | PCIE1_CLKREQ* | 3.3 |
| 53 | PCIE30_PORT0_CLKN | - | 54 | PCIE_WAKE* | 3.3 |
| 55 | PCIE30_PORT0_CLKP | - | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 71 | GND | | 72 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 73 | GND | | 74 | VCC3V3_PCIE0 (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# Interface definition

## 14.(U60) PCIE M.2 NGFF M-KEY SOCKET
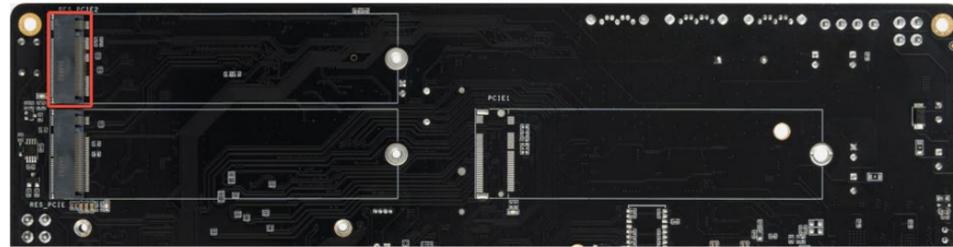


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|---|---|---|---|---|---|
| 1 | GND | | 2 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 3 | GND | | 4 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 8 | NC | |
| 9 | GND | | 10 | DAS/DSS [pull up resistor10K] | 3.3 |
| 11 | NC | | 12 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 13 | NC | | 14 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 15 | GND | | 16 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 17 | NC | | 18 | VCC3V3_PCIE2 (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 | |
| 29 | PCIE2_RX1_N | - | 30 | NC | |

# Interface definition

| 31 | PCIE2_RX1_P | - | 32 | NC | |
|----|-------------|---|----|----|--|
| 33 | GND | | 34 | NC | |
| 35 | PCIE2_TX1_N (Series capacitor 220nF) | - | 36 | NC | |
| 37 | PCIE2_TX1_P (Series capacitor 220nF) | - | 38 | NC | |
| 39 | GND | | 40 | NC | |
| 41 | PCIE2_RX0_N | - | 42 | NC | |
| 43 | PCIE2_RX0_P | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | PCIE2_TX0_N (Series capacitor 220nF) | - | 48 | NC | |
| 49 | PCIE2_TX0_P (Series capacitor 220nF) | - | 50 | PCIE2_RST* | 3.3 |
| 51 | GND | | 52 | PCIE2_CLKREQ* | 3.3 |
| 53 | PCIE2_CLK_N | - | 54 | PCIE_WAKE* | 3.3 |
| 55 | PCIE2_CLK_P | - | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 71 | GND | | 72 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 73 | GND | | 74 | VCC3V3_PCIE2 (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# Interface definition

**15.(U24) PCIE M.2 NGFF M-KEY SOCKET**
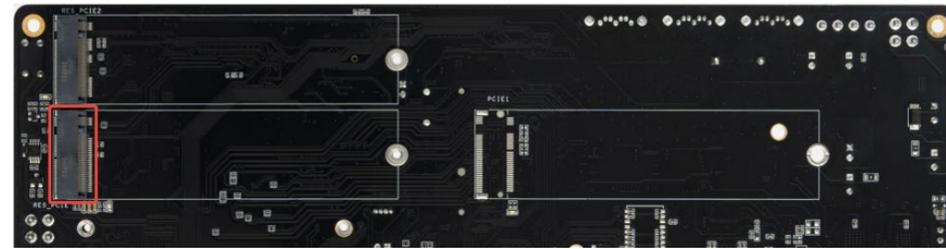


| NO. | Definition | Power/V | NO. | Definition | Power/V |
|-----|------------|---------|-----|------------|---------|
| 1 | GND | | 2 | VCC3V3_PCIE0_RES(3.3V Output) | 3.3 |
| 3 | GND | | 4 | VCC3V3_PCIE0_RES(3.3V Output) | 3.3 |
| 5 | NC | | 6 | NC | |
| 7 | NC | | 8 | NC | |
| 9 | GND | | 10 | DAS/DSS [pull up resistor10K] | 3.3 |
| 11 | NC | | 12 | VCC3V3_PCIE0_RES(3.3V Output) | 3.3 |
| 13 | NC | | 14 | VCC3V3_PCIE0_RES(3.3V Output) | 3.3 |
| 15 | GND | | 16 | VCC3V3_PCIE0_RES(3.3V Output) | 3.3 |
| 17 | NC | | 18 | VCC3V3_PCIE0_RES(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 | |
| 29 | NC | | 30 | NC | |

# Interface definition

| | | | | | |
|---|---|---|---|---|---|
| 31 | NC | | 32 | NC | |
| 33 | GND | | 34 | NC | |
| 35 | NC | | 36 | NC | |
| 37 | NC | | 38 | RES_DEVSLP<br>[pull up resistor10K] | 3.3 |
| 39 | GND | | 40 | NC | |
| 41 | PCIE2_RX0_N | - | 42 | NC | |
| 43 | PCIE2_RX0_P | - | 44 | NC | |
| 45 | GND | | 46 | NC | |
| 47 | RES_PCIE1_TX0_N<br>(Series capacitor 100nF) | - | 48 | NC | |
| 49 | RES_PCIE1_TX0_P<br>(Series capacitor 100nF) | - | 50 | RES_PCIE1_RST* | 3.3 |
| 51 | GND | | 52 | RES_PCIE1_CLKREQ* | 3.3 |
| 53 | RES_PCIE1_EP_CLK_N | - | 54 | PCIE_WAKE* | 3.3 |
| 55 | RES_PCIE1_EP_CLK_P | - | 56 | NC | |
| 57 | GND | | 58 | NC | |
| 67 | NC | | 68 | NC | |
| 69 | GND | | 70 | VCC3V3_PCIE0_RES (3.3V Output) | 3.3 |
| 71 | GND | | 72 | VCC3V3_PCIE0_RES (3.3V Output) | 3.3 |
| 73 | GND | | 74 | VCC3V3_PCIE0_RES (3.3V Output) | 3.3 |
| 75 | GND | | | | |

# T-CHIP INTELLIGENCE TECHNOLOGY

**Contact Us**
(+86)18688117175

**E-mail**
global@t-firefly.com

**Website**
https://en.t-firefly.com/

**Address**
Room 2101, Hongyu Building, #57 Zhongshan 4Rd, East District, Zhongshan, Guangdong, China.

Firefly