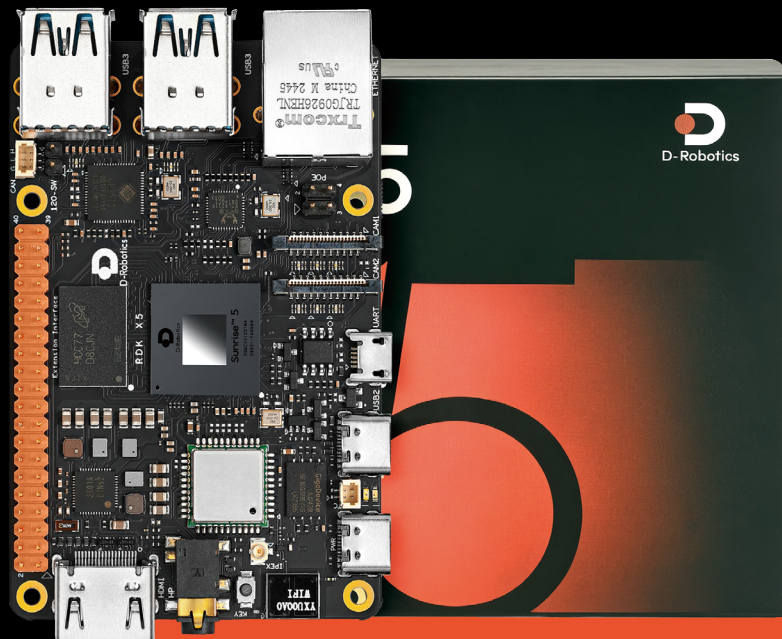




# D-Robotics

## RDK X5



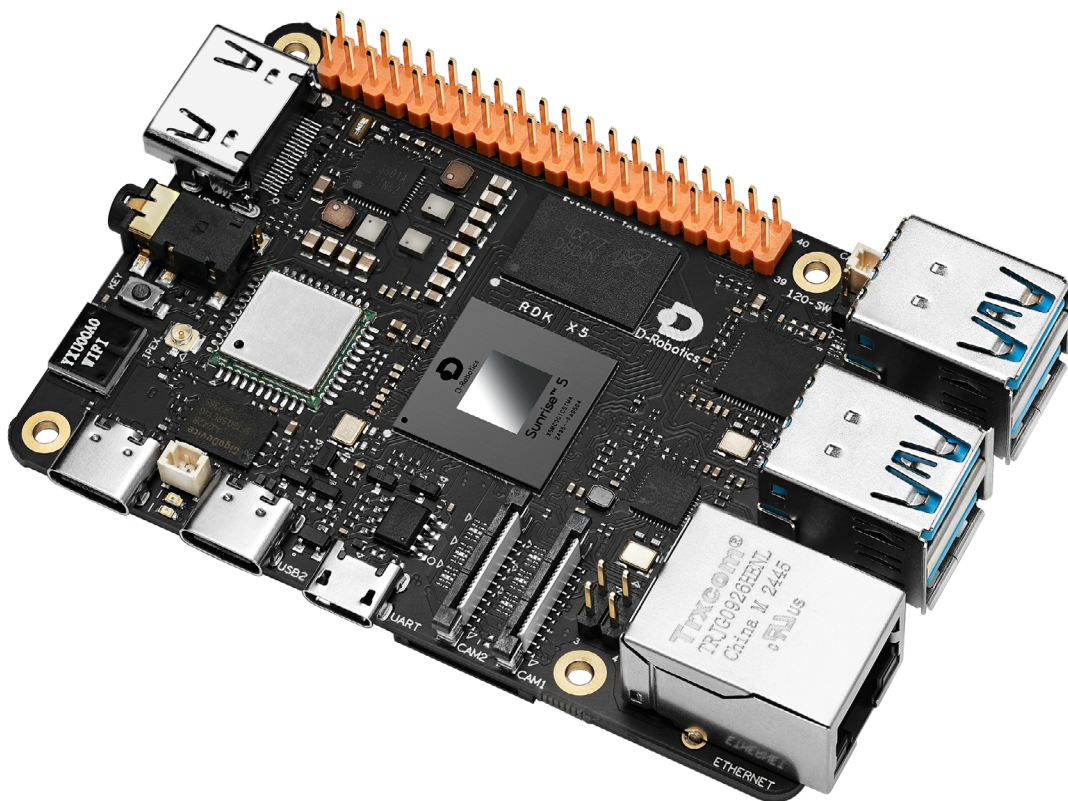
V1.1

2025-05

D-ROBOTICS HOLDING LIMITED

# D-Robotics RDK X5

The D-Robotics RDK™ X5 is powered by the D-Robotics Sunrise™ 5 intelligent computing chip, delivering up to 10 TOPS of AI performance. It is an all-in-one development kit designed for intelligent computing and robotics applications. With rich I/O and exceptional usability, it supports complex models and cutting-edge algorithms such as Transformer, RWKV, Occupancy, and Stereo Perception, enabling rapid deployment of AI-driven applications.



## OVERVIEW

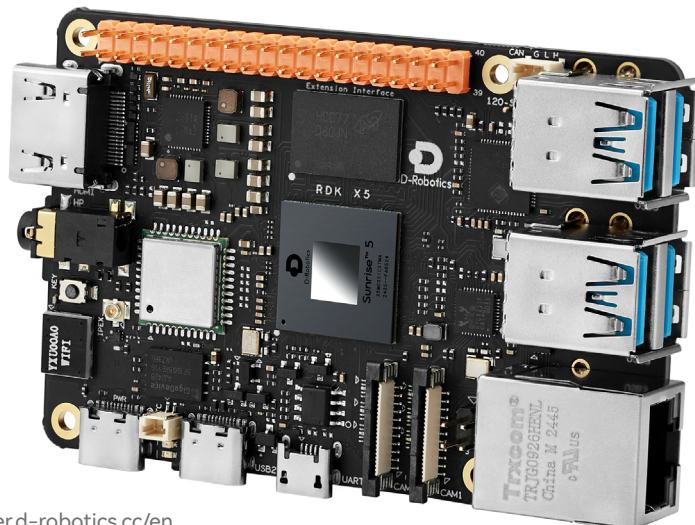
The RDK X5 Robotics Developer Kit features an octa-core Arm® Cortex®-A55 processor, a 10 TOPS BPU, and a 32 GFLOPS GPU, with up to 8GB LPDDR4 memory. Key I/O interfaces include HDMI, Ethernet, USB 3.0, USB 2.0, 4-lane MIPI CSI, 4-lane MIPI DSI, 3.5mm audio jack, CAN, and TF card slot.

The RDK X5 offers dual-band 2.4/5GHz wireless LAN, supporting Wi-Fi 6 and Bluetooth 5.4. It includes a high-performance onboard antenna and supports optional external antenna kits for robust wireless connectivity, reducing development and testing costs.

RAM options include 4GB and 8GB configurations.

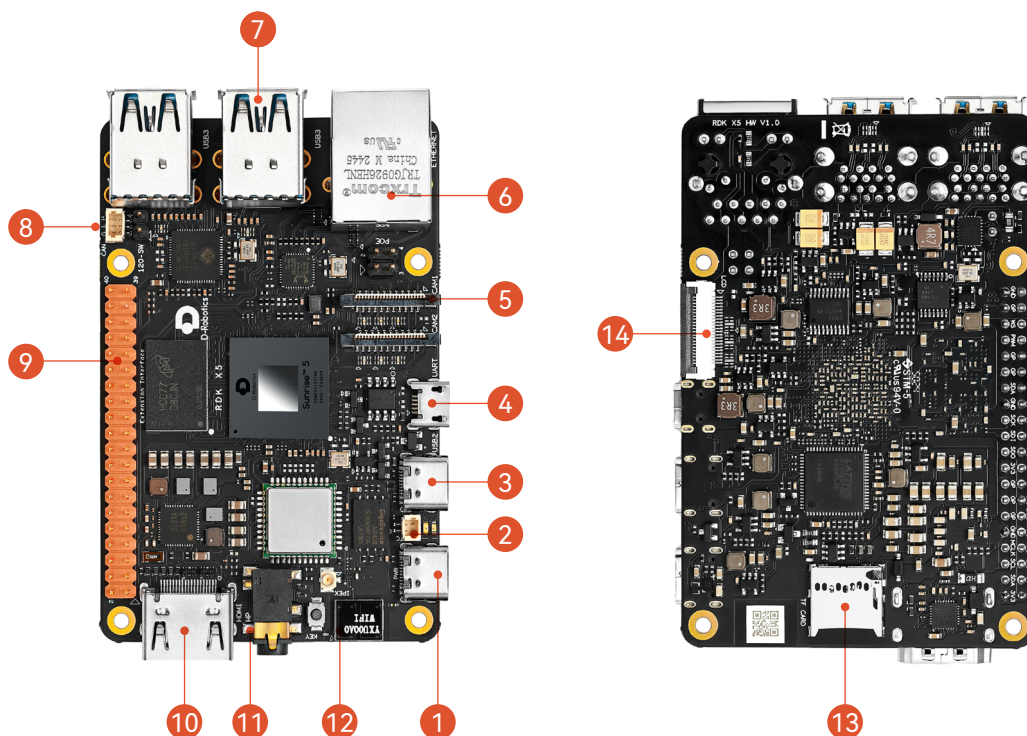
## SPECIFICATIONS

|                              |  |                                  |
|------------------------------|--|----------------------------------|
| <b>Dimensions</b>            | 85 x 56 x 20 mm  |                                  |
| <b>Processor</b>             | <b>CPU</b>   | 8x1.5GHz Arm® Cortex®-A55        |
|                              | <b>BPU</b>   | 1xBayers BPU with 10 TOPS (INT8) |
|                              | <b>GPU</b>   | 1xGPU with 32 GFLOPS performance |
| <b>Memory</b>                | LPDDR4, Configurations: 4GB or 8GB   |                                  |
| <b>Storage</b>               | Onboard 1 Gbit NAND flash  |                                  |
|                              | microSD card slot supporting UHS-I mode  |                                  |
| <b>Display Interfaces</b>    | 1x4-lane MIPI DSI (compliant with MIPI DSI v1.2)   |                                  |
|                              | 1xHDMI Type-A (up to 1080p@60fps)  |                                  |
| <b>I/O Interfaces</b>        | 4xUSB 3.0 Type-A (host)  |                                  |
|                              | 1xUSB 2.0 Type-C (device)  |                                  |
|                              | 1xUSB 2.0 Micro-B (UART debug)   |                                  |
|                              | 1xCAN FD interface   |                                  |
|                              | 28 x GPIOs (3.3V) supporting: SPI , I <sup>2</sup> C , I <sup>2</sup> S , PWM , UART   |                                  |
| <b>Camera Interfaces</b>     | 2x4-lane MIPI CSI (compliant with MIPI CSI-2 v2.1)   |                                  |
| <b>Audio</b>                 | 3.5mm stereo audio jack (input/output)   |                                  |
|                              | Cadence® HiFi 5 Audio DSP: Voice wake-up support , PDM and I <sup>2</sup> S multichannel processing , Low-power voice operation capability         |                                  |
| <b>Networking</b>            | 1xRJ45 Ethernet port: Supports 10/100/1000 Mbps , Supports Power over Ethernet (PoE)   |                                  |
|                              | Wireless: Dual-band 2.4/5GHz WLAN (IEEE 802.11ax / Wi-Fi 6), Bluetooth® 5.4, Onboard high-performance antenna, IPEX connector for external antenna |                                  |
| <b>Power Supply</b>          | 5V / 5A DC input via Type-C connector  |                                  |
|                              | Provides 5V and 3.3V output for external components  |                                  |
| <b>Operating Temperature</b> | -20° C to +60° C   |                                  |



For detailed specifications, please visit : <https://developer.d-robotics.cc/en>

## SPECIFICATIONS



| No. | Function                      | No. | Function                                 | No. | Function                            |
|-----|-------------------------------|-----|--|-----|-------------------------------------|
| 1   | Power Supply (USB Type-C)     | 2   | RTC Battery                              | 3   | QuickLink (USB Type-C)              |
| 4   | Debug Serial Port (Micro USB) | 5   | Dual MIPI Camera                         | 6   | Gigabit Ethernet Port, supports PoE |
| 7   | 4 × USB 3.0 Type-A Ports      | 8   | CAN FD High-Speed                        | 9   | 40-Pin Header                       |
| 10  | HDMI Display                  | 11  | Multi-standard Compatible Headphone Jack | 12  | Onboard Wi-Fi Antenna               |
| 13  | TF Card Slot (bottom side)    | 14  | LCD Display (MIPI DSI)                   |     |                                     |

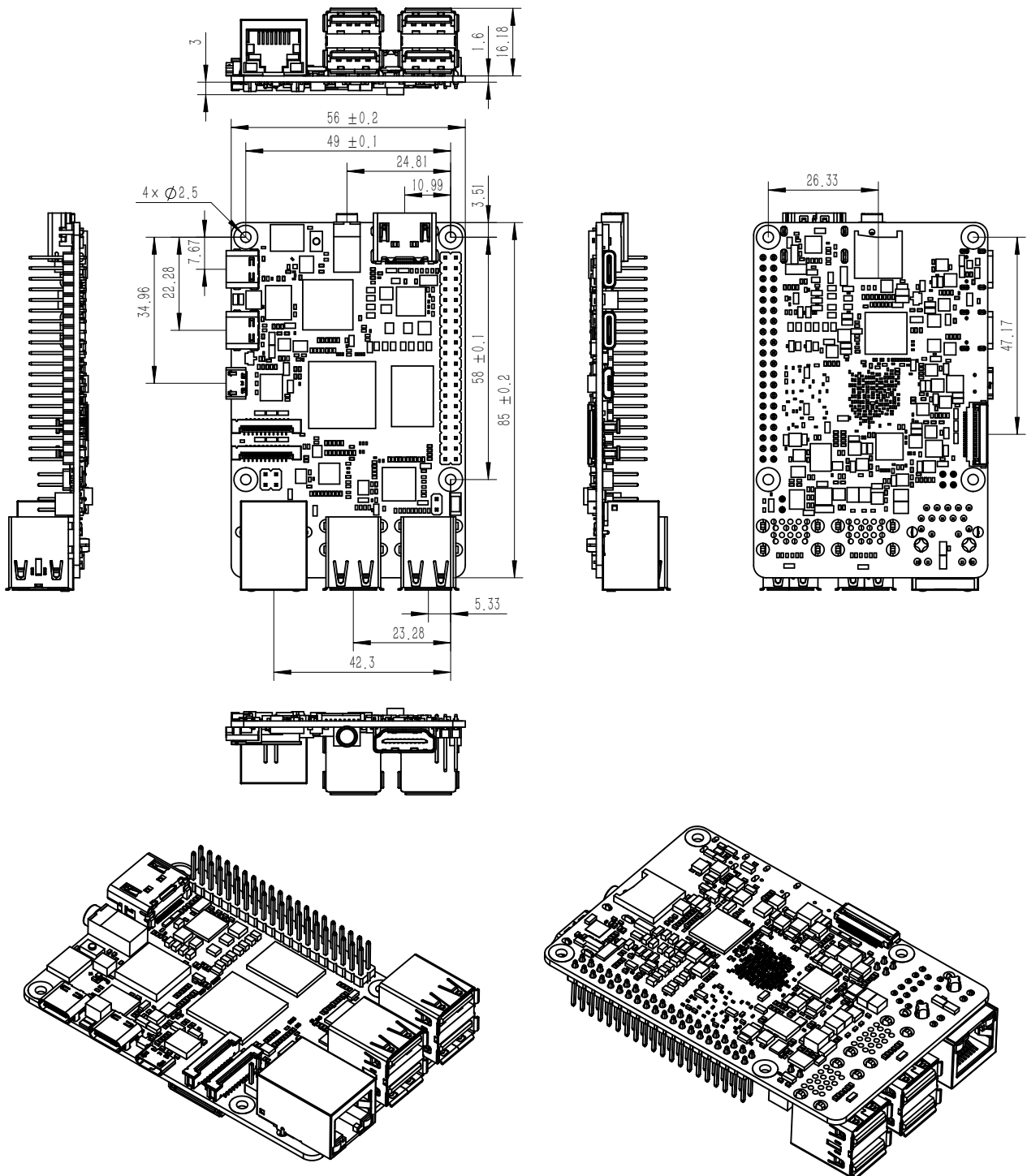
### Specification & Model

| Part Number | RAM Capacity |
|-------------|--------------|
| RDK X5 4G   | 4GB          |
| RDK X5 8G   | 8GB          |



## SPECIFICATIONS

### Dimension



## WARNINGS

- Ensure external power supplies meet local regulatory standards.
- Operate in a well-ventilated environment. Proper thermal management is required when used in enclosed spaces.
- Place the device on a stable, flat, non-conductive surface during operation.
- Damage caused by incompatible external devices will not be covered under warranty.
- All peripherals used with the RDK X5 must comply with local safety and performance standards, including but not limited to keyboards, displays, and mice.
- Peripheral cables and connectors must be adequately insulated to meet relevant safety standards.

## SAFETY INSTRUCTIONS

### To Avoid Malfunction Or Damage:

- Do not expose the device to water, moisture, or conductive surfaces during operation.
- Do not place the device near any external heat sources. The RDK X5 is designed for reliable operation under standard environmental temperatures.
- During assembly, avoid mechanical or electrical stress on the PCB and connectors.
- When powered, avoid touching the PCB or board edges to prevent electrostatic discharge (ESD) damage.





<https://developer.d-robotics.cc>