



# D-Robotics

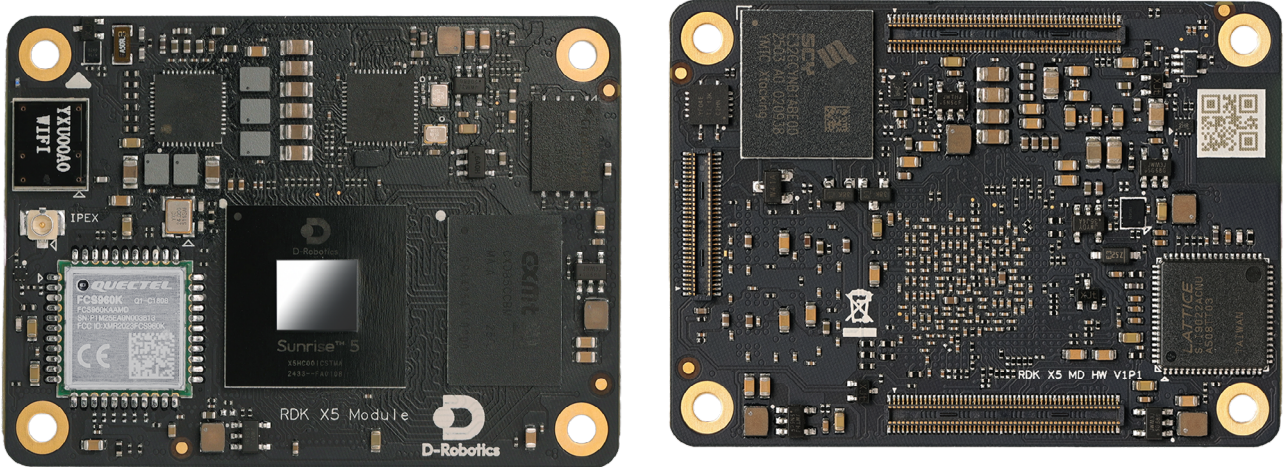
## RDK X5 Module



V1.1.0  
2025-07

D-ROBOTICS HOLDING LIMITED

# D-Robotics RDK X5 Module



## BRIEF

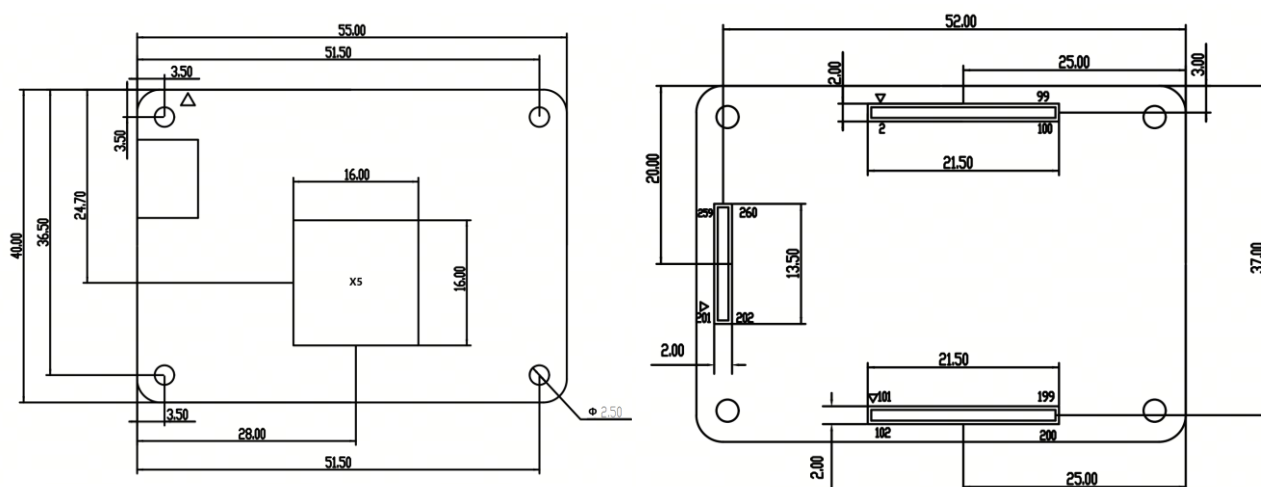
D-Robotics RDK® X5 Module is equipped with the D-Robotics Sunrise® 5 intelligent computing chip, delivering up to 10 TOPS of computing power. It is an all-in-one development kit designed for intelligent computing and robotics applications, featuring abundant interfaces, exceptional ease of use, and support for a variety of complex models and cutting-edge algorithms, including Transformer, RWKV, Occupancy, and Stereo Perception, enabling rapid deployment of intelligent applications.

- 8-core ARM® Cortex®-A55 processor, 10 TOPS BPU computing power, 32 GFLOPS GPU performance
- Supports 4K@60 H.264/H.265/M-JPEG video encoding and decoding
- Main interfaces include HDMI, Gigabit Ethernet, USB 3.0, MIPI CSI, and MIPI DSI
- Optional dual-band 2.4/5 GHz wireless module supporting Wi-Fi 6 and Bluetooth 5.4, with a high-performance onboard antenna and support for external antenna kits
- Optional onboard RAM capacities: 2GB, 4GB, 8GB
- Optional onboard eMMC capacities: 0GB, 16GB, 32GB, 64GB

## SPECIFICATIONS

<b>Dimensions</b>	55 mm × 40 mm, 4 × M2.5 mounting holes
<b>CPU</b>	8 × Arm CortexA55 64bit @ 1.5GHz
<b>BPU</b>	10 TOPS
<b>Memory</b>	2/4/8GB LPDDR4
<b>Storage</b>	0/16/32/64GB eMMC
<b>Peripheral Interfaces</b>	Optional onboard WiFi module supporting 2.4 GHz and 5 GHz bands (compliant with IEEE 802.11a/b/g/n/ac/ax standards), supports Bluetooth 5.4, and compatible with external antenna kits
	1 × Gigabit Ethernet PHY, supporting Network Time Protocol (NTP) and IEEE 1588
	1 × USB 3.0 PHY, 1 × USB 2.0 PHY
	Supports 1.8V/3.3V SDIO, compatible with Speed (DS), HighSpeed (HS), SDR12, SDR25, SDR50, and SDR104 modes, supports UHS1 mode
<b>Imaging</b>	49 GPIOs, supporting up to 4 × SPI, 7 × IIC, 6 × UART, and 1 × DEBUG UART
	2 × 4lane MIPI CSI interfaces, compliant with MIPI V2.1 protocol, supports 4 × 2lane mode for connecting up to 4 cameras
<b>Display</b>	1 × HDMI interface, supporting up to 1080P@60FPS
	1 × 4lane MIPI DSI interface, compliant with MIPI V1.2 protocol
<b>Multimedia</b>	Video Encoding/Decoding: 4K@60FPS H.264/H.265/M-JPEG
	ISP: 4K@60FPS, supports HDR/3DNR/WDR/PDAF
<b>Power Input</b>	5V DC
<b>Operating Temperature</b>	-20° C to 80° C (up to 85° C without WiFi module)
<b>Lifecycle</b>	Mass production maintained at least until 2031

## Dimension

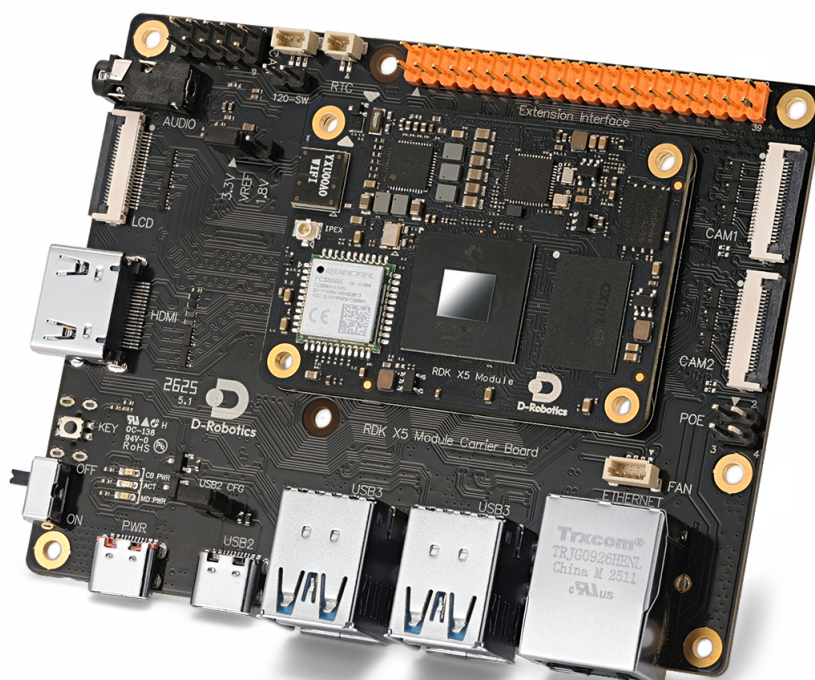


For detailed specifications, please visit : <https://developer.d-robotics.cc/en>

## Specification & Model

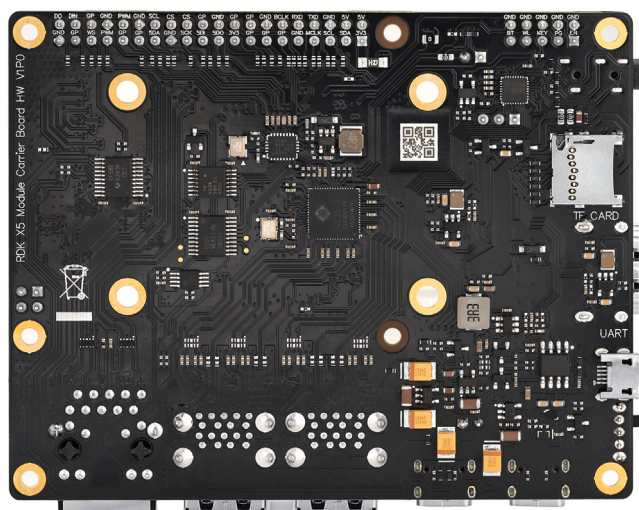
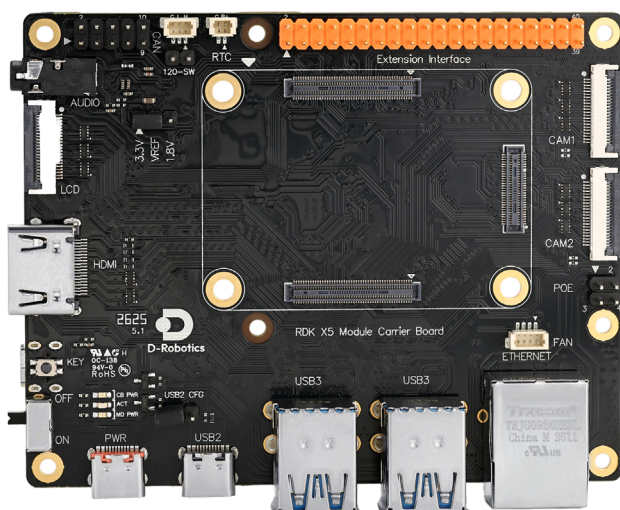
Part Number	Wireless	RAM	eMMC
RDKX5MD002000	No	2GB	N/A
RDKX5MD002016			16GB
RDKX5MD002032			32GB
RDKX5MD002064			64GB
RDKX5MD004000		4GB	N/A
RDKX5MD004016			16GB
RDKX5MD004032			32GB
RDKX5MD004064			64GB
RDKX5MD008000		8GB	N/A
RDKX5MD008016			16GB
RDKX5MD008032			32GB
RDKX5MD008064			64GB
RDKX5MD102000	Yes	2GB	N/A
RDKX5MD102016			16GB
RDKX5MD102032			32GB
RDKX5MD102064			64GB
RDKX5MD104000		4GB	N/A
RDKX5MD104016			16GB
RDKX5MD104032			32GB
RDKX5MD104064			64GB
RDKX5MD108000		8GB	N/A
RDKX5MD108016			16GB
RDKX5MD108032			32GB
RDKX5MD108064			64GB

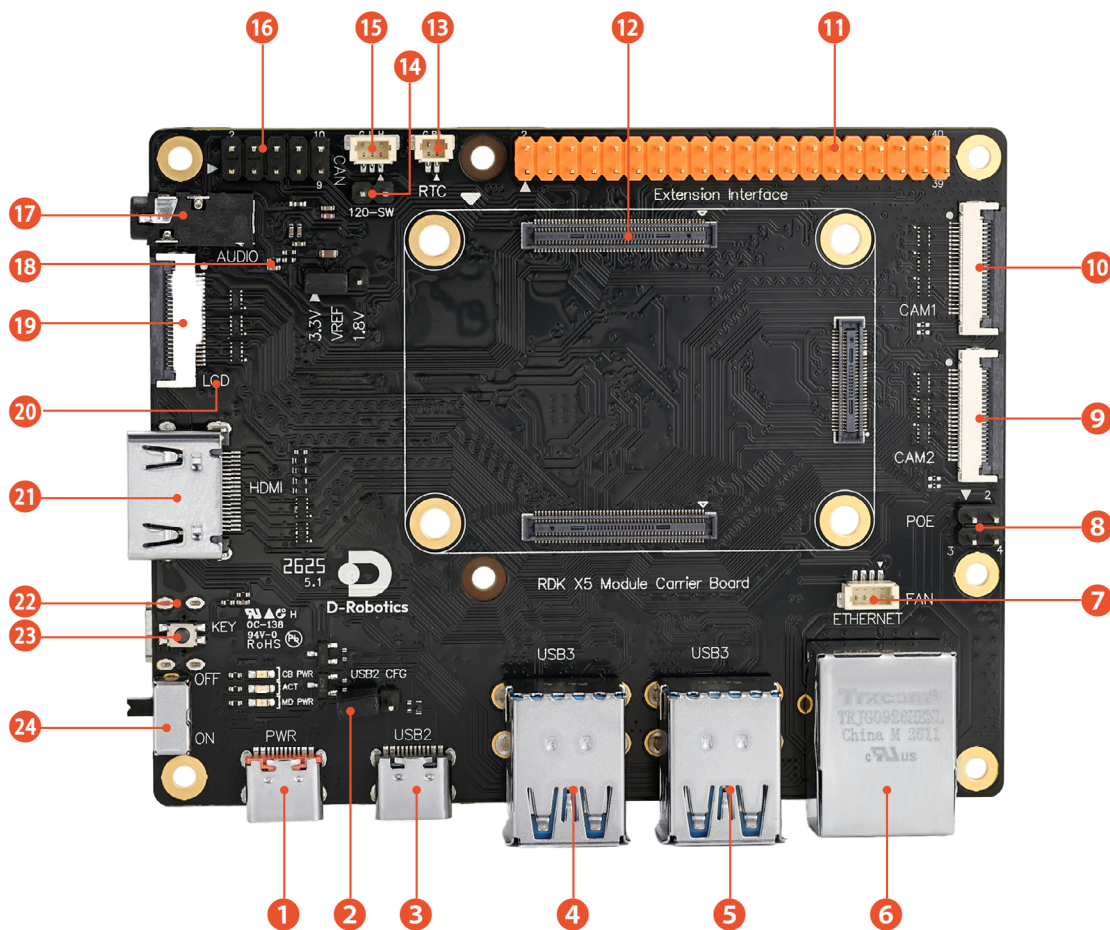




## D-Robotics RDK X5 Module Carrier Board

RDK X5 Module Carrier Board, as the supporting baseboard for the RDK X5 module, offers a wide range of configurations and interfaces, including USB 3.0, Ethernet, HDMI, MIPI CSI, MIPI DSI, and 40-pin, enabling users to easily perform functional verification and development of the module.





No.	Interface Function	No.	Interface Function	No.	Interface Function
1	Power Connector	9	CAM2 Interface, 4-lane	17	Audio Interface
2	USB 2.0 Configuration Header	10	CAM1 Interface, 4-lane	18	IO Level Selection Header
3	USB 2.0 Device Port	11	40-pin Header	19	MIPI DSI Interface
4	USB 3.0 HOST Port	12	Core Module Connector	20	Micro SD Card Slot (Back)
5	USB 3.0 HOST Port	13	RTC Battery Connector	21	HDMI Interface
6	Gigabit Ethernet Port	14	CAN Bus Termination Resistor Switch	22	Debug Port, USB-to-Serial Port (Back)
7	Fan Connector	15	CAN Bus Connector	23	Sleep Button
8	POE Port	16	Function Control IO Header	24	Power Switch



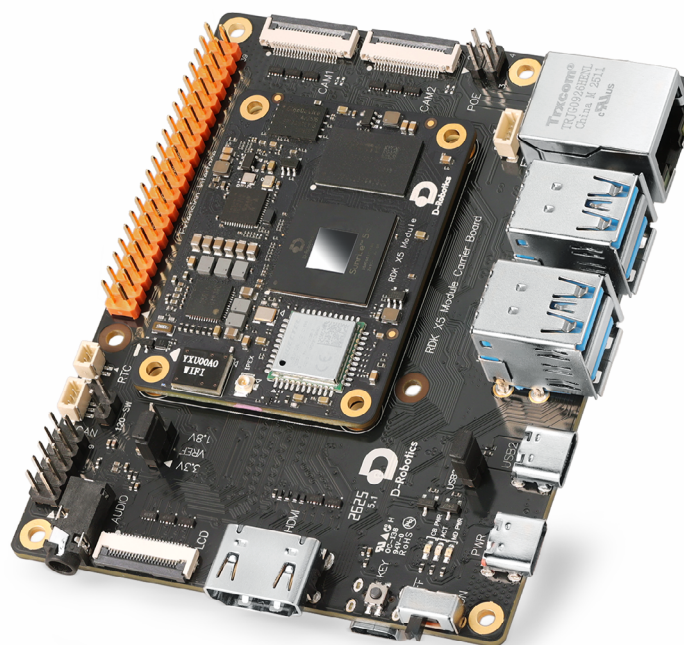
## WARNINGS

- When using an external power supply with the RDK X5 Module, ensure that it complies with regional safety regulations and standards.
- Operate the product in a well-ventilated environment. If used in an enclosed space, adequate thermal management must be provided.
- Place the device on a stable, flat, and non-conductive surface during operation.
- Damage caused by connecting incompatible devices is not covered under warranty.
- All peripheral devices used with the RDK X3 Module (including but not limited to keyboards, displays, and mice) must comply with the applicable national standards and certifications to ensure safety and performance.
- All cables and connectors used with peripheral devices must be properly insulated to meet safety requirements.

## SAFETY INSTRUCTIONS

### To Avoid Malfunction Or Damage:

- Do not expose the device to moisture or place it on conductive surfaces during operation.
- Keep the device away from heat sources; the RDK X5 Module is designed to operate reliably under standard room temperature conditions.
- During assembly, avoid applying mechanical or electrical stress to the PCB and connectors.
- Avoid touching the PCB or device edges while powered on to minimize the risk of electrostatic discharge (ESD) damage.





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