Introduction to RDK X5 board

1.Preparation

1. Power supply

The RDK X5 development board is powered by the USB Type C interface. You need to use a power adapter that supports **5V/3A** or **5V/5A** to power the development board.

2. Storage

The RDK X5 development board uses a Micro SD memory card as the system boot medium. A memory card with at least 32GB capacity is recommended to meet the storage space requirements of the Ubuntu system and application software.

3. Display

The RDK X5 development board supports the HDMI display interface. The development board and the display are connected via an HDMI cable to support graphical desktop display.

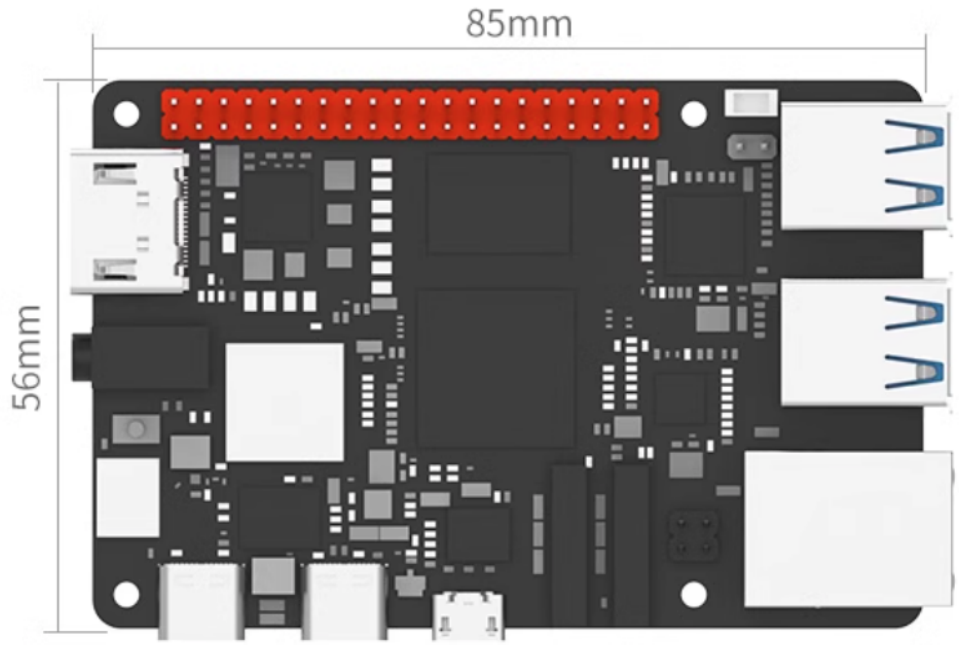
4. Network connection

The RDK X5 development board supports two network interfaces: Ethernet and Wi-Fi. Users can achieve network connection functions through any interface.

2.Interface Overview

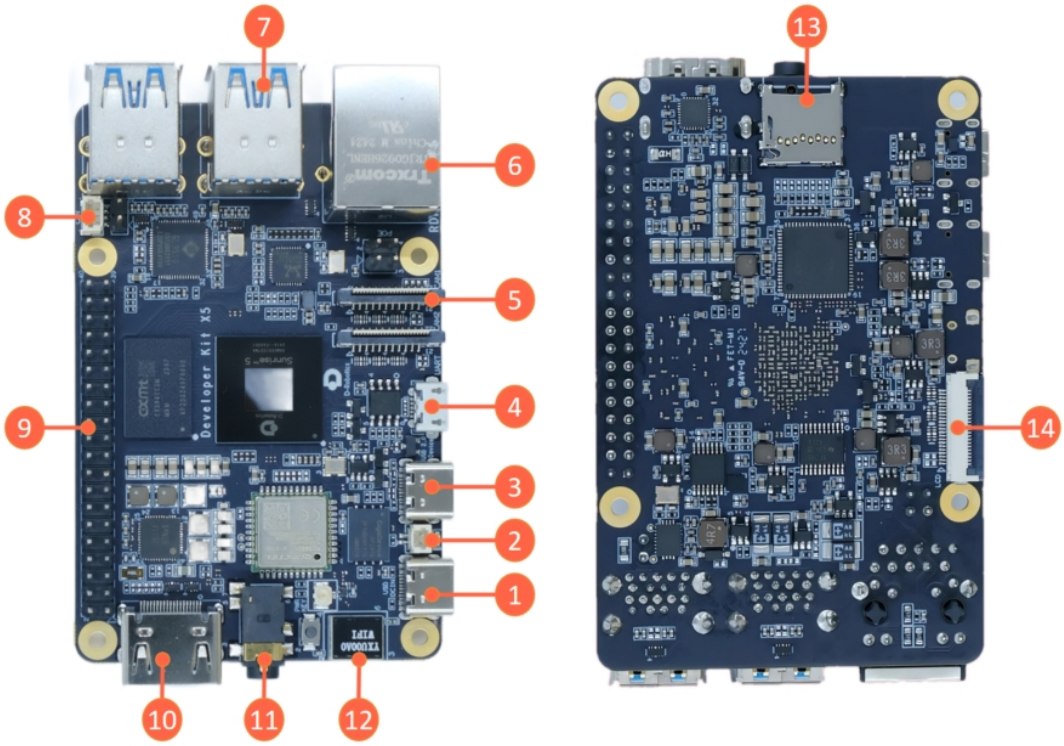
RDK X5 provides various functional interfaces, including Ethernet, USB, camera, LCD, HDMI, CAN FD, and 40-pin GPIO, enabling users to develop and test applications such as multimedia processing and deep learning algorithms. The layout of the development board's interfaces is shown below:

2.1 Size parameters


85mm
56mm

RDK X5 Board		
Hardware	AI Performance	10 TOPS
	CPU	8xA55@1.5GHz
	GPU	32Gflops
	Memory	4GB/8GB Optional
	RAM	Micro SD
	CSI camera	2x4-lane MIPI CSI
	Video encoding	1x4K60(H.265\H.264)
	Video decoding	1x4K60(H.265\H.264)
	Audio	1x3.5mm headphone jack, supports output/input
	Display	1xHDMI , Support highest 1080p60 , 1 x MIPI DSI 4 Lane
	USB	4x USB 3.0 HOST (TYPE A) 1xUSB 2.0 Device(TYPE C) 1xDebug serial port(Micro USB)
	Network	1xRJ45Gigabit network port, supports PoE power supply 1xDual-band WiFi6+BT 5.4
	CAN	1xCAN FD
	IO	28 GPIOs (Maximum reusable support5xUART,8xPWM,3xI2C,2xSPI,1xI2S)
	Power supply	5V/5A
Software	System	RDK OS V3.X(Ubuntu22.04)
	Robot development middleware	TogetheROS.Bot,ROS2
	Development environment	RDK Studio， NodeHub
	Support AI algorithm	LLM,2D/3D Detection,Stereo Depth, Stereo Occupancy, Image Classfication etc.
	Support robot application	SLAM,VSLAM,VIO,Navigation, Language Interaction, Grasping etc.

2.1 Functional interface distribution



No.	Function	No.	Function	No.	Function
1	Power Interface (USB Type C)	2	RTC Battery Interface	3	Easy Connect Port (USB Type C)
4	Debug Serial Port (Micro USB)	5	Dual MIPI Camera Ports	6	Gigabit Ethernet Port with PoE
7	4 USB 3.0 Type A Ports	8	High-Speed CAN FD Interface	9	40-pin GPIO Interface
10	HDMI Display Interface	11	Multi-standard Headphone Jack	12	Onboard Wi-Fi Antenna
13	TF Card Interface (Bottom)	14	LCD Display Interface (MIPI DSI)		

2.2 Dimension