

# Smart Humanoid Robot DK

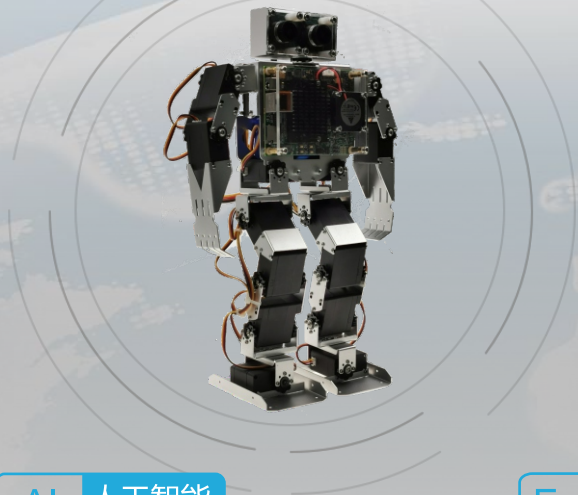
Model: QA200R

Dual 4K visual interaction

Promote visual interaction unmanned systems

Open source software, open hardware, platform and modular education.

Development platform and education platform of intelligent biped humanoid robot based on Atlas200 Support binocular 4K real-time video analysis; ultra-small unmanned system that can realize visual interaction Biped humanoid intelligent robot with 17 degrees of freedom; Support multiple communication methods such as Lora.



AI 人工智能

Embedded 嵌入式

Robot 机器人

## QA200R product Overview

Robot body	Steering gear * 17
	Size: 270*230*110mm
	Weight: 2.1kg
Motor control board	Power: lithium battery 5000mA 7.2V
	Synchronous control of 24 servo motors
	I/O
	High-speed serial communication (UART)
	Lora wireless controller and wireless remote control
Vision module	Support three-axis gyroscope inclination sensor
	Power output: 12V3A
	Total pixels of single lens: 8Mega
	Automatic white balance and digital signal processing: Support AWB/AE, built-in ISP processing unit
Application lens: 4mm fixed focus 4K lens	
Imaging device: SONY IMX334	

## Core AI motherboard QA200 product specifications

AI chip	Ascend 310 (Atlas200)
AI computing power	22TOPS INT8
Memory	16TOPS INT8
specifications	LPDDR4X,8GB,total band width 51.2GB/S
Encoding capability	• H.264 hardware decoding, 16-channel 1080p 30FPS (2-channel 3840*2160@60 FPS )
	• H.265 hardware decoding, 16-channel 1080p 30FPS (2-channel 3840*2160@60 FPS )
	• H.264 hardware encoding, 1-channel 1080p 30 FPS
	• H.265 hardware encoding, 1-channel 1080p 30 FPS
	• JPEG decoding: 1080p 256FPS; encoding: 1080p 64 FPS; maximum resolution; 8192*4320
• PNG decoding: 1080p 24FPS; maximum resolution: 4096*2160	
operating system	• Ubuntu 16.04.3
Interface chip	• Hi3519AV100
Interface	• 2 MIPI Sensor input: IPEX 20525-050E-02C
	• Internet: 1 GE RJ45
	• USB: 1 USB2.0 typeAB
	• 4 UART: ATLAS200*2, Hi3519*2
	• 1 I2C
• 1 MIC	
• 1 Fan socket	
Memory	• 2 SD Card slot
Power	• 12 VDC, default configuration 12V/3A adapter
Power consumption	• 20W
Operating temperature	• 0°C ~45°C
Dimension	100mm*75mm*25mm

## Courses and training content

- Artificial intelligence algorithms, machine vision
  - Based on Ubuntu18.04 embedded programming exercises
  - Debug software environment based on Huawei Mindstudio, manage offline models and simulations
  - Image processing and robot vision algorithm exercises
  - Real-time target recognition and multiple algorithm exercises
  - Exercise recognition algorithm and robot simulation control algorithm
- Embedded foundation
  - Electronic circuit design training
  - C language python language training
  - System hardware and software debugging training
- Electrical control
  - Synchronous motor control based on PWM
  - QA200 and control board realize intelligent control through UART communication
  - Remote control of the robot via Lora
  - Keep the robot standing by the three-axis gyroscope sensor

AI Every Where

