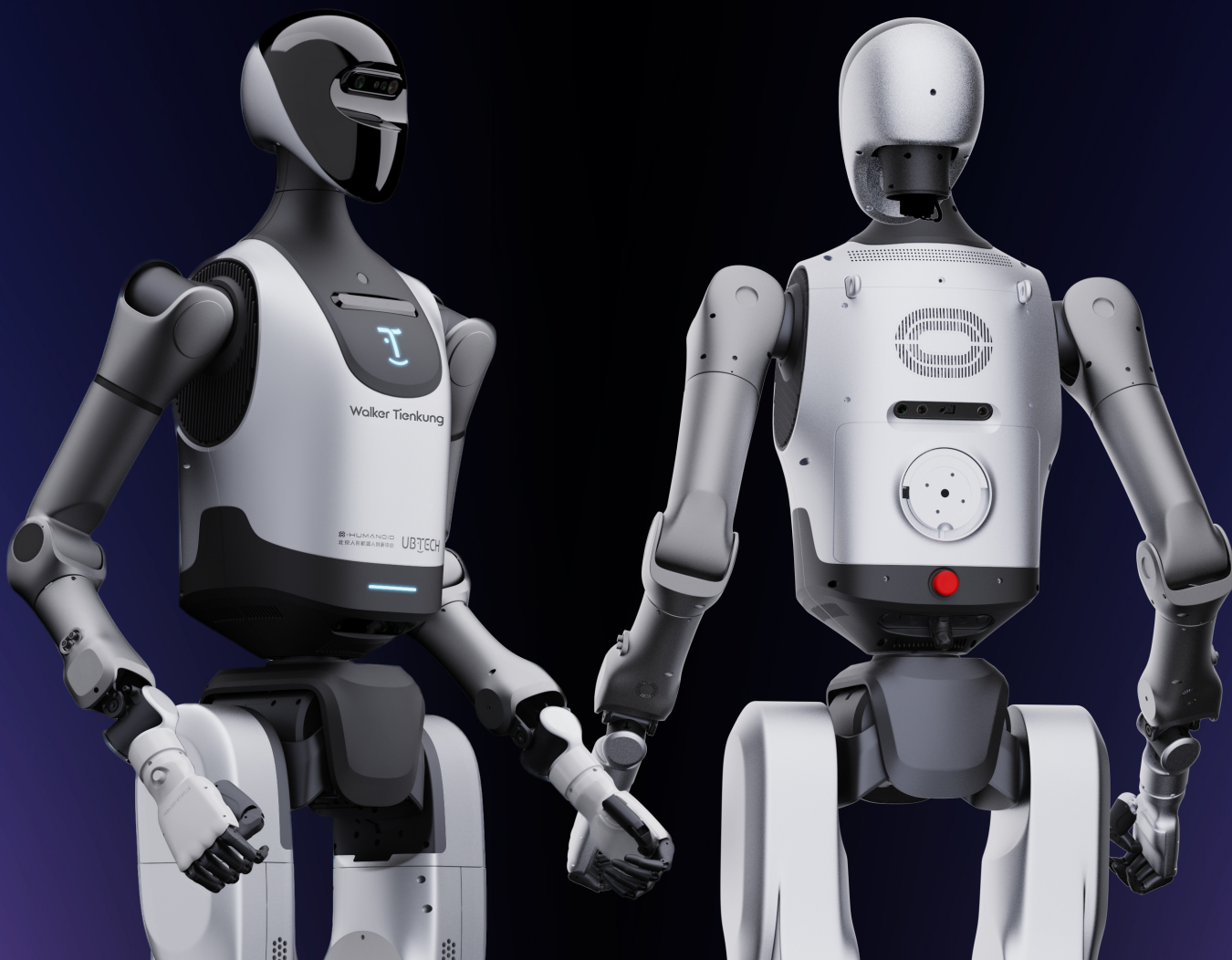


# Walker Tienkung

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## Full-Size Humanoid Robot for Educational Research & Secondary Development

Empower tech youth to innovate in humanoid robots,  
achieve original tech breakthroughs, and foster  
embodied intelligence talents



# Product Positioning

A full-size, high-performance, research-grade humanoid robot for universities, research institutions, and developers. Open-source architecture supports scientific research and scenario-based innovation, driving technological advancement and practical applications.

## Core Advantages

### Full-Size & High-Performance Humanoid Robot

- **Anthropomorphic Design:** 172cm height, 42 DOF configuration, supports 10km/h sprinting and complex movements
- **Lightweight Structure:** Proprietary integrated joint modules, 300Nm peak torque, aerospace-grade aluminum + titanium alloy construction
- **Dual-Battery Thermal Management:** 30Ah+3Ah hot-swappable batteries, full-body air duct cooling
- **Work smarter, not hotter:** 3-hour continuous motion, 8-hour non-stop performance

### Modular Design with High scalability

- **Body Expansion:** 7-DOF collaborative arms, 6-DOF dexterous hands, 3-DOF head module
- **Perception & Computing:** Depth cameras, AI voice kit, six-axis force sensors, 550 TOPS Orin computing board
- **Application Scenarios:** University Research, Commercial services, complex terrain navigation, industrial logistics, healthcare, home assistance, power inspection

### Open-Source Ecosystem

- **Open Interfaces:** Motor control, sensor data, motion control APIs with ROS2 compatibility
- **Development Suite:** High-precision URDF models, open training framework, access to "KaiWu" platform (robot trajectory data, meta-skills, open OS)
- **Comprehensive Resources:** Mature development guides + sample code for embodied intelligence control and precision motion research

### University-Industry-Research Collaboration

- **UBTECH Humanoid Research Fund:** A cross-industry initiative propelling robotics innovation through standardization, grants, and global competitions, backing academic R&D in humanoid technologies.

# Product Parameters

## for Walker Tienkung Voice and Vision Version

It has 21 degrees of freedom, is equipped with language and vision modules, and has a computing power of 275 Tops. In addition to the basic version functions, it can be used for interactive research scenarios such as voice interaction and access to large language/vision models.

|                           |                                                                             |
|---------------------------|-----------------------------------------------------------------------------|
| Height                    | 172cm                                                                       |
| Net Weight                | ≈61kg                                                                       |
| Total DOF                 | 21                                                                          |
| Head/Neck DOF             | /                                                                           |
| Per Arm DOF               | 4, Shoulder*3, Elbow*1                                                      |
| Per Leg DOF               | 6, Hip*3, Knee*1, Ankle*2                                                   |
| Depth Camera              | Depth Camera ×3                                                             |
| High-precision IMU        | ✓                                                                           |
| Six-axis Force Sensor     | /                                                                           |
| AI Voice Kit              | Linear MIC*4, Speaker*1, Sound Card*1, 720P Monocular Camera*1              |
| 5-finger Dexterous Hand   | /                                                                           |
| Battery Capacity          | 30Ah+3Ah                                                                    |
| Runtime                   | 6h (Standing), 3h (Working)                                                 |
| Onboard Computer          | CPU Intel core i7; Main Frequency up to 4.7GHz;<br>Memory: 16GB; SSD: 256GB |
| AI Compute Board          | NVIDIA Jetson AGX Orin ×1 (275 TOPS)                                        |
| Openness                  | Whole-body Motor Control and Sensor Interface Open                          |
| Middleware                | ROS2                                                                        |
| Internal Comms            | Full-body CAN/EtherCAT Bus Communication,<br>Maximum Control Rate of 1000Hz |
| External Comms            | WiFi, Bluetooth 5.2, Ethernet                                               |
| Heat Dissipation Capacity | Continuous Working Without Overheating                                      |
| Support Capacity          | Dancing; Waving; Walking; Conversation                                      |

Product Parameters

for Walker Tienkung Embodied Intelligence Version

It has 42 DOF, is equipped with a five-finger dexterous hand, and has a high computing power of 550 Tops. In addition to the basic functions, it can be used for interactive research scenarios such as voice interaction and language/visual large model access. It can also be used for embodied operation research scenarios such as hand-eye coordination and dexterous operation.

|                           |                                                                             |
|---------------------------|-----------------------------------------------------------------------------|
| Height                    | 172cm                                                                       |
| Net Weight                | ≈73kg                                                                       |
| Total DOF                 | 42                                                                          |
| Head/Neck DOF             | 3-DOF Head Module (Standard)                                                |
| Per Arm DOF               | 7, Shoulder*3, Elbow*1, Wrist*3                                             |
| Per Leg DOF               | 6, Hip*3, Knee*1, Ankle*2                                                   |
| Depth Camera              | Depth Camera ×3                                                             |
| High-precision IMU        | ✓                                                                           |
| Six-axis Force Sensor     | 2 (Standard)                                                                |
| AI Voice Kit              | Linear MIC*4, Speaker*1, Sound Card*1, 720P Monocular Camera*1              |
| 5-finger Dexterous Hand   | 6-DOF Dexterous Hand ×2 (Standard)                                          |
| Battery Capacity          | 30Ah+3Ah                                                                    |
| Runtime                   | 6h (Standing), 3h (Working)                                                 |
| Onboard Computer          | CPU Intel core i7; Main Frequency up to 4.7GHz;<br>Memory: 16GB; SSD: 256GB |
| AI Compute Board          | NVIDIA Jetson AGX Orin ×2 (550 TOPS)                                        |
| Openness                  | Whole-body Motor Control and Sensor Interface Open                          |
| Middleware                | ROS2                                                                        |
| Internal Comms            | Full-body CAN/EtherCAT Bus Communication,<br>Maximum Control Rate of 1000Hz |
| External Comms            | WiFi, Bluetooth 5.2, Ethernet                                               |
| Heat Dissipation Capacity | Continuous Working Without Overheating                                      |
| Support Capacity          | Dancing; Waving; Walking; Conversation; Dexterous Hand                      |

Note: Specifications subject to change. Final interpretation reserved by manufacturer.

## Systematic Open Source and Open Resource Support

|                        |                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------|
| Application Interfaces | Voice recognition   Semantic recognition   Vector walking   Full-body movement   Arm trajectory planning   ... |
| Hardware Interfaces    | Joint motor   IMU   Depth camera   Dexterous hand control   Six-axis force sensor   ...                        |
| Support                | High-precision URDF   Open Source Dataset   SDK   ...                                                          |

\*Open-source and open resources are updated irregularly, and the randomly provided SDK documentation shall prevail.

## Applicable Scenarios

|                     |                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------|
| Scientific Research | Motion control algorithm research, Language/visual large model interaction research, embodied operation research, etc. |
| Talents Cultivation | Robot engineering practice, Digital acquisition job skills training and teacher training                               |
| Innovation Scenario | Explorations in commercial, terrain, logistics, medical, home service, power inspection scenarios, etc.                |

## Standard Configurations

Humanoid robot body ×1

Power adapter ×1

Wireless controller ×1

User manual ×1

Development support: SDK; URDF

## Basic Accessories Package

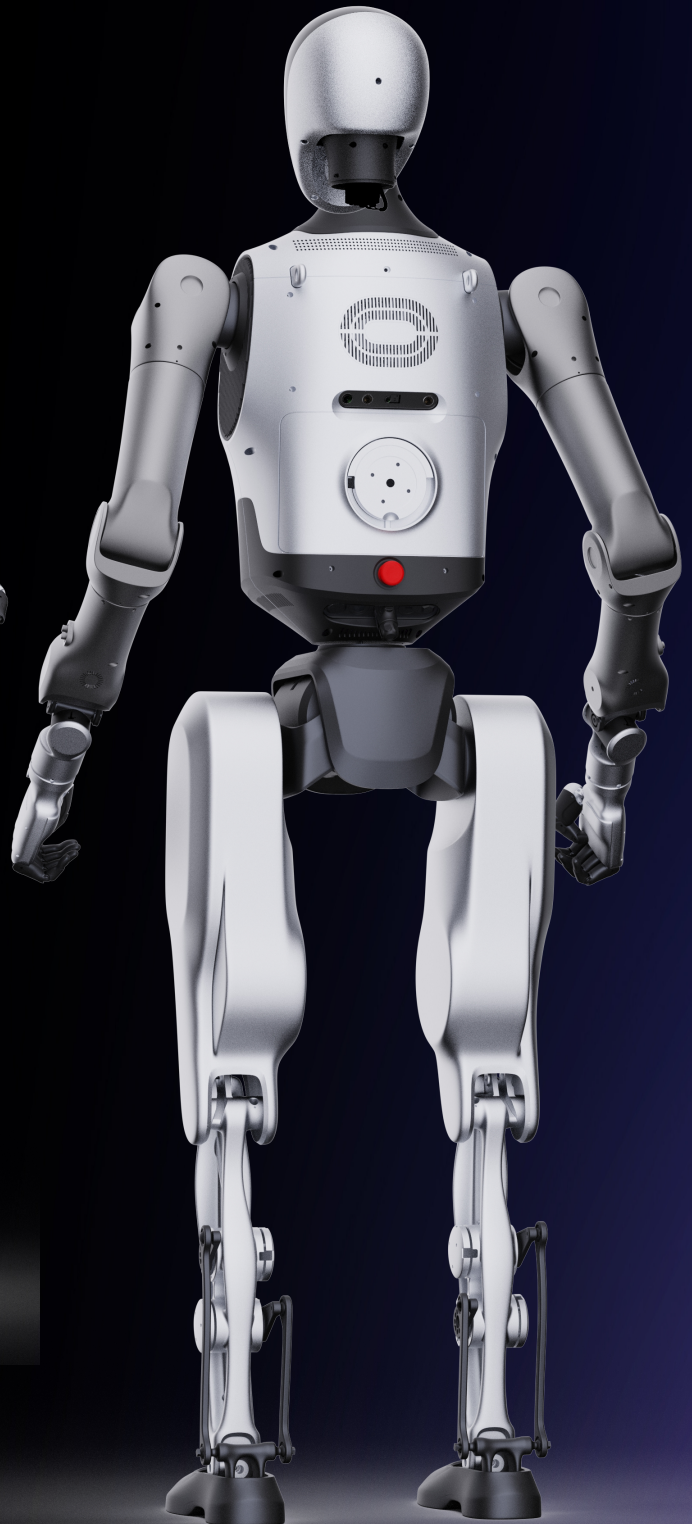
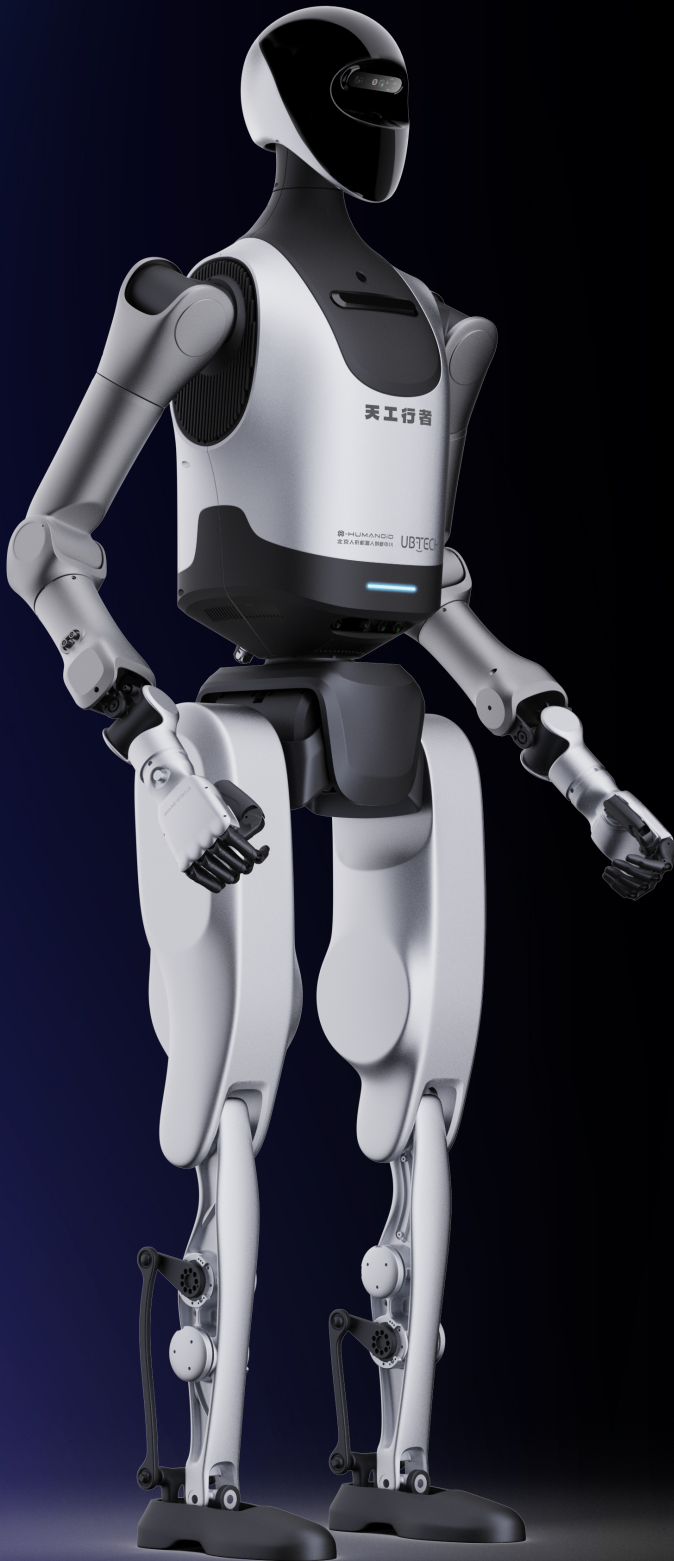
|             |             |              |
|-------------|-------------|--------------|
| Flight Case | Safety Rope | Display Rack |
|-------------|-------------|--------------|

### Basic Accessories Package Applicable Scenarios

Basic accessory pack can be used for equipment storage, transportation, and daily use

Height: 172cm

Total DOF: 42



Full-Size  
Humanoid Robot