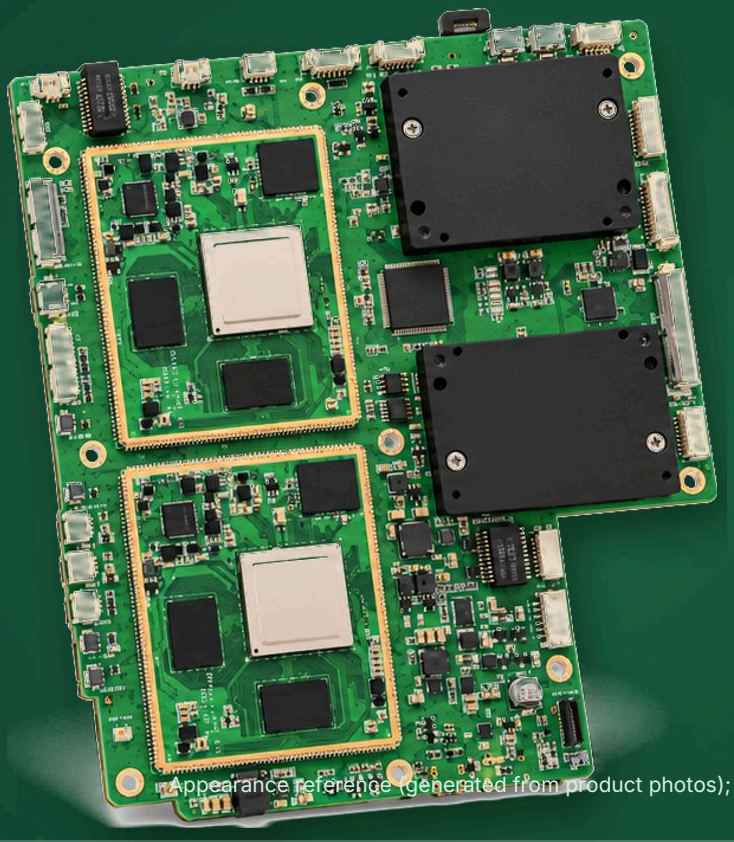
EQIO

WJ-EA

PRODUCT MANUAL

Dual RK3588M Heterogeneous AI Main Board

Dual Rockchip RK3588M 8-core processor



Appearance reference (generated from product photos); shipped units may differ.

Measurement and control, made easy.

Easy · Quick · Input · Output

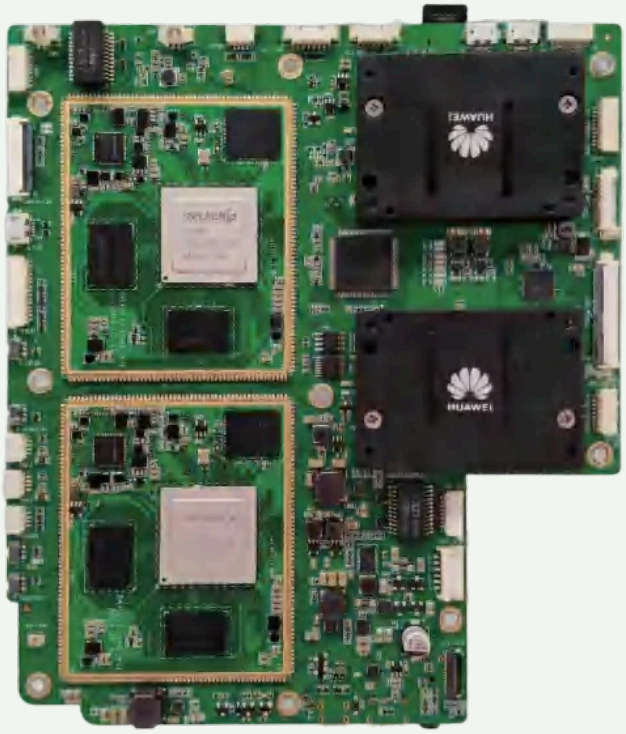
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01 OVERVIEW

Dual RK3588M Heterogeneous AI Main Board

Control and payload main board · Edge AI · Industrial control · Intelligent terminal · Rockchip

WJ-EA uses dual RK3588M and dual Atlas 200 AI processor architecture, each main processor configured with 16GB memory and 256GB storage, provides BeiDou positioning, multi type industrial I/O and Ubuntu, UnionTech system supports, used for edge inference and multi task data processing integrates.
Dual Gigabit Ethernet, RS-422, Type-C and Micro HDMI connect communications, display and payload equipment, audio I/O used for recording and loudspeaker. Board suited to multi sensing data aggregation, mobile equipment controller and edge computing system integration.



Product appearance reference; shipped units may differ.

Key features

- Dual RK3588M and dual Atlas 200
- Each main processor 16GB memory, 256GB storage
- Dual Gigabit Ethernet and RS-422
- Type-C, Micro HDMI and audio connect
- BeiDou positioning function

02 FUNCTIONS

Functions and engineering value

Dual main processor and processing resources

Main board configured with 2 RK3588M and 2 Atlas 200 series AI module, each RK3588M rated 16GB memory and 256GB storage. Can around task partition compute and inference resources, but not published internal interconnect or shared mechanism, software must separately verification data path and model run.

Multi I/O payload and HMI connect

Dual Gigabit Ethernet, RS-422 circular connector and 2 Type-C provides equipment and data peripherals connect, Micro HDMI used for display expansion. Programmable keys, microphone air recording and audio loudspeaker can together with operation terminal design, I/O electrical and connector definition should combined with board data confirm.

Positioning and software platform supports

Board supports BeiDou positioning and Ubuntu, UnionTech system solution, independent debug interface facilitates system deployment and maintenance. Source data lists positioning search time and satellite search quantity conditions, actual application also requires check antenna, receive environment and software I/O, not accordingly inferred positioning accuracy.

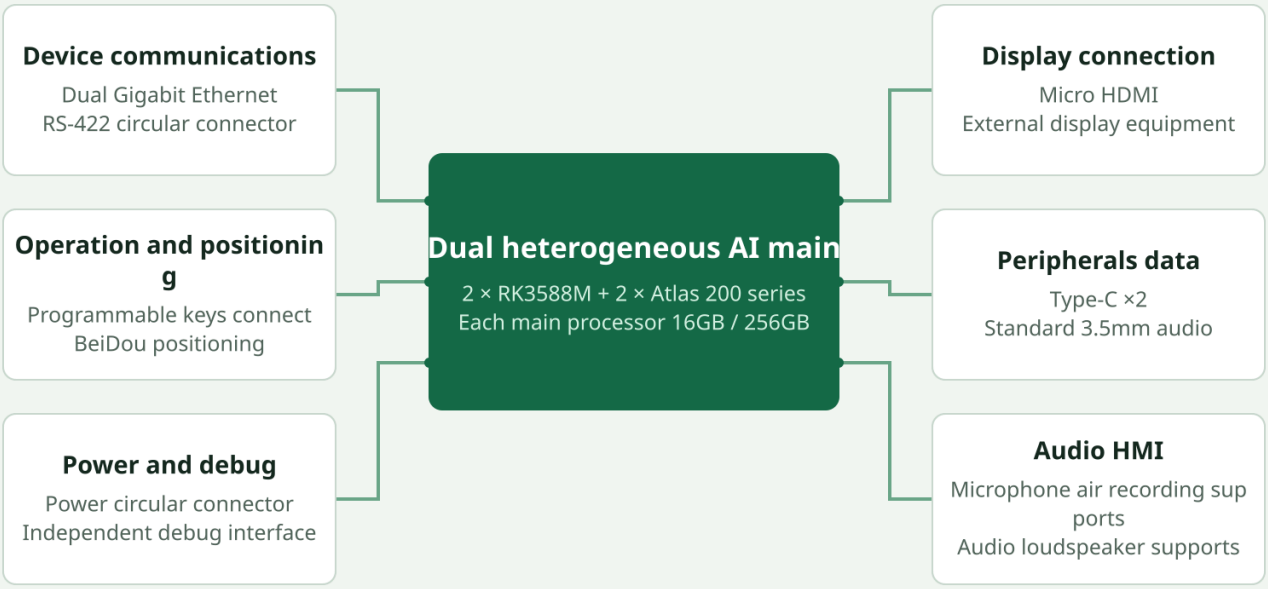
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Product functional architecture

FUNCTIONAL BLOCK DIAGRAM

WJ-EA



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

From published specification illustrative functional grouping, does not show internal circuits, on-board bus or signal routing; I/O direction actual protocol shall prevail. Power voltage and internal interconnect method pending board connect data confirm.

Platform and I/O

Configured with 2 × RK3588M 8-core main processor and 2 × Atlas 200 series AI processing module, each main processor 16GB memory and 256GB storage. RK3588M profile in 6 TOPS belongs to single device rated value; Atlas model, interconnect and power consumption not stated, platform performance must follow actual configured with verification.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Core system

Processor	2 × Rockchip RK3588M 8-core main processor + 2 × Atlas 200 series AI processing module
Capacity	Each RK3588M rated capacity 16GB+256GB
Operating system	Can supports Ubuntu, UnionTech etc.operating system

Mechanical specifications and system requirements

Environmental ratings	Operating temperature: -40°C~55°C, storage temperature: -45°C~60°C, 20%~80%RH, allow error±5%RH

I/O and expansion

Control peripherals	Power circular connector I/O*1, serial 422 circular connector*1, Type-C I/O*2, standard 3.5mm audio I/O*1 standard MicroHDMI I/O*1, Gigabit Ethernet*2, debug interface*1, multi-channel programmable keys*1
Audio	Supports microphone air recording function, supports audio loudspeaker output
Positioning	Supports BeiDou positioning function (search time 2 minutes internal, satellite search quantity not less than 8)

05 COMPONENTS

Processor and device specifications

Device figures come from vendor publications and describe the chip or module. The implemented product follows the specification tables. Optional devices are supplied with the selected configuration.

Rockchip RK3588M

Process	8 nm
CPU structure	4 × Cortex-A76 + 4 × Cortex-A55, 8-core
NPU rated	6 TOPS
SoC display engine capability	8K display/video, native seven display display capability
SoC native Type-C controller	2-ch
SoC imaging processing resources	Dual 16M ISP, at least 12-ch camera supports

Sources: Rockchip, Rockchip release RK3588M intelligent vehicle-mounted surround view solution.

06 APPLICATIONS

From product capability to applications

Edge AI controller integrates

Can RK3588M side deployment application management and data processing program, and adapts inference operation to Atlas module, suited to requires multi task coordination edge system. Actual parallel method depends on to module model, interconnect and software, not can device peak simple single add system compute.

Multi equipment data aggregation

Dual Gigabit Ethernet can attach field data equipment, RS-422 and Type-C used for corresponding control or data peripherals, main board run Ubuntu or UnionTech application. Task log, data forwarding and equipment status management from software implements, required check complete load under throughput and response.

With positioning intelligent terminal

BeiDou positioning, display and audio I/O can together with external display, microphone air and speaker unit forms equipment operation terminal, programmable keys provides quick ingress. Product must add charging source, cooling, housing and people unit structure design, and verification positioning environment and application software data used method.

Integration checks

Module and interconnect	Confirm Atlas 200 specific version, module interconnect and software supports, not inferred shared memory.
Power cooling	Source data not to input voltage and power consumption, integrates front confirm power and cooling budget.
System image	Stated Ubuntu or UnionTech version, BSP, AI run library and driver delivery content.
Positioning and port	Confirm BeiDou antenna and software I/O, and RS-422, Type-C, keys connect definition.

07 CONFIGURATION

Appearance, configuration and selection



Multi-angle reference (generated from product photos); shipped units may differ.

Configuration

Provides Ubuntu and UnionTech system supports, settings independent debug and programmable keys connect.

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

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EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

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