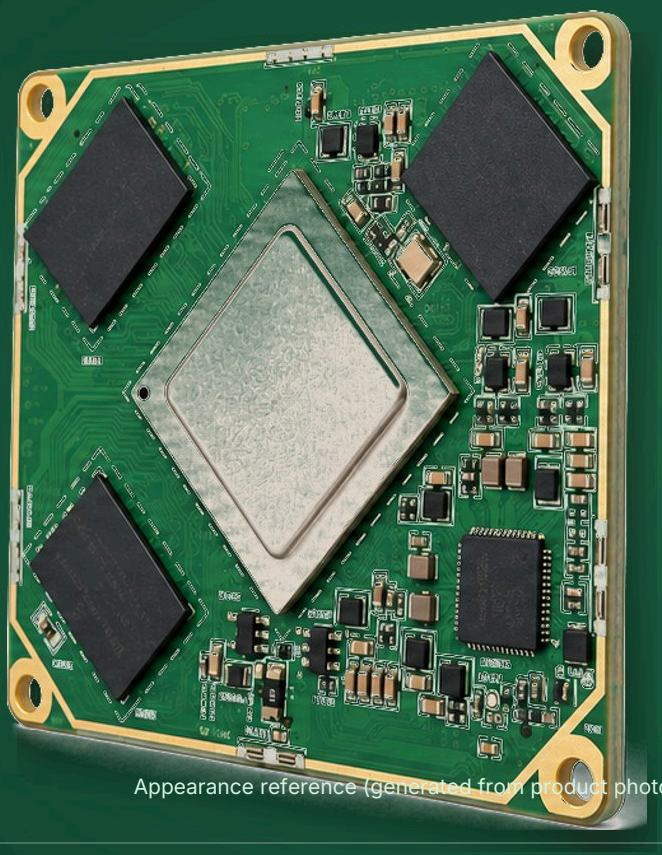
EQIO

WJ-MRK-B2B

PRODUCT MANUAL

RK3588M Board-to-Board Compute Module

Rockchip RK3588M 8-core processor



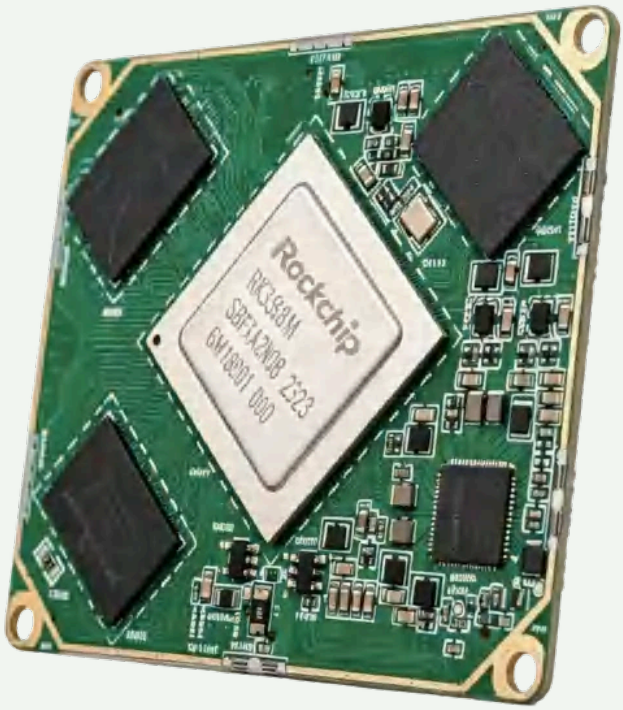
Appearance reference (generated from product photos); shipped units may differ.

01 OVERVIEW

RK3588M Board-to-Board Compute Module

Rockchip compute module · Embedded terminal · Edge computing · Multi-display display · Rockchip

WJ-MRK-B2B uses RK3588M 8-core compute platform, standard 8GB LPDDR4X and 128GB eMMC, 60 × 50mm board-to-board module form centralized compute and storage resources, facilitates embedded carrier integrates.
HDMI, MIPI and eDP can combined with carrier build display HMI, can removal connector facilitates compute module and carrier separate assembly. Suited to industrial control, HMI and space limited equipment controller design, centralized layout compute and storage resources.



Product appearance reference; shipped units may differ.

Key features

- 60 × 50mm board-to-board module
- RK3588M 8-core compute platform
- 8GB LPDDR4X and 128GB eMMC
- Can removal 320 pin connector
- HDMI, MIPI and eDP display connection

02 FUNCTIONS

Functions and engineering value

Compact compute and storage integrate

Module 60 × 50mm space internal centralized RK3588M 8-core compute, 8GB LPDDR4X and 128GB eMMC, suited to controller resources independent to application carrier configured with. Can removal connect method facilitates compute module and display, power carrier respectively assembly, also facilitates rear continued maintenance when positioning replacement range.

For multi video display connection

Product lists 2-ch HDMI, 2-ch MIPI and 2-ch eDP display connection, can combined with carrier organize equipment operator UI and status video. Multi-display secondary display solution requires a and confirm display timing, carrier pins assign and software display configured with, not can directly SoC native display upper limit treat as product can at the same time used display number.

Graphics and inference task coordination

RK3588M platform includes Mali-G610 graphics unit and rated 6 TOPS NPU resources, can used for UI drawn and adapts rear edge inference task. Actual model throughput depends on to operator supports, quantization method and cooling conditions, application software required and selected system and inference run environment together verification.

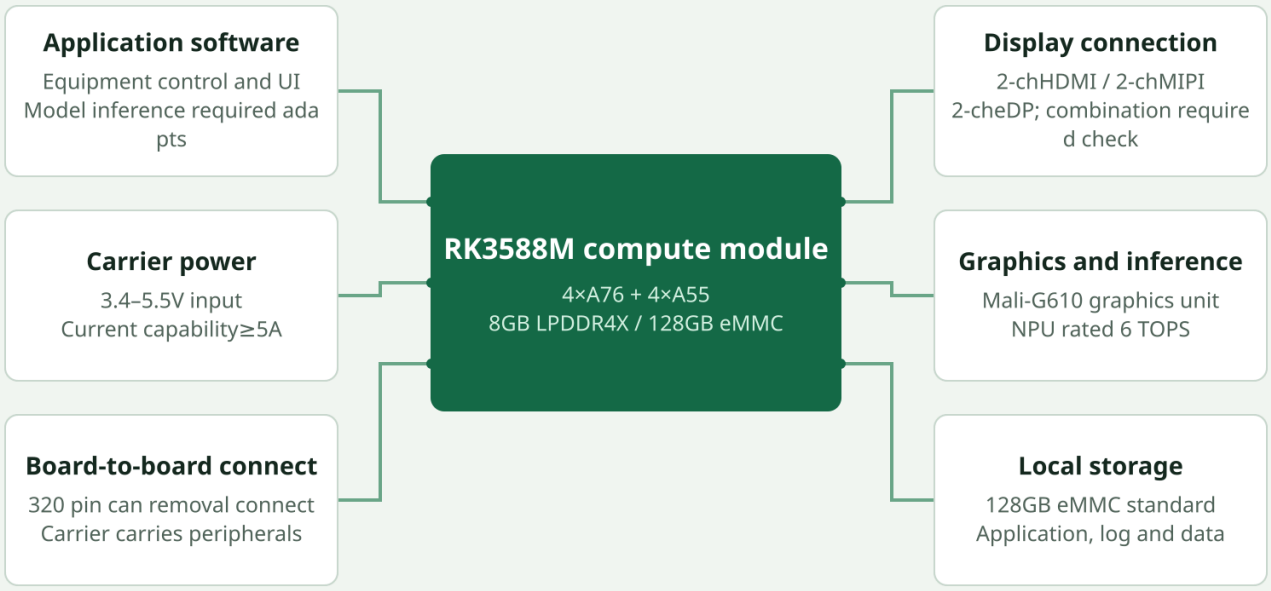
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Compute platform and functional relationships

FUNCTIONAL BLOCK DIAGRAM

WJ-MRK-B2B



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

From published module specification express functional relationship; not indicates on-board routing. Display combination and peripherals brought out carrier definition shall prevail, 6 TOPS NPU rated capability.

Platform and I/O

RK3588M uses 4 Cortex-A76 and 4 Cortex-A55 8-core structure, and integrates graphics and NPU resources. Module compute, memory and eMMC centralized to can removal core board, external display and device connection from 320 pin connector and carrier completed together, chip capability and carrier brought out must separately check.

> **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

CPU	Rockchip RK3588M, 4 × Arm Cortex-A76 + 4 × Arm Cortex-A55, 8-core
System memory	8GB LPDDR4X (supports expansion to 16GB), standard eMMC5.1 128GB
GPU	Mali-G610 Mc4
NPU performance	6 TOPS
Operating system	Kylin OS V10/UnionTech military version V20/Ubuntu20.04

Mechanical specifications and system requirements

Dimensions	60mm long *50mm wide *4.2mm high

I/O and expansion

Display output	Supports 2-chHDMI output, 2-chMIPI display, 2-chEDP display, supports multi-display secondary display
Connect method	BDB board-to-board connector can removal type core board, pins up to 320P

Environmental conditions

Operating temperature	-40°C ~ 60°C (operating temperature)
Operation voltage	3.4-5.5V, current requirements≥5A

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

Industrial HMI terminal

Module and dedicated carrier and MIPI or eDP display connect, can used for equipment parameters setting, run trend and alarm video display. 8GB memory and 128GB eMMC application and local data provides basic configured with, product design when at the same time arrangement touch peripherals, structure cooling and field power.

Edge vision processing node

Carrier completes graphics input connect rear, can uses 8-core CPU handles procedure control, and evaluate NPU run already adapts recognition model. Graphics input I/O and acquisition quantity must be specific carrier solution determine; model recognition result, event image and log can per task policy write local eMMC.

Multi-display equipment status show

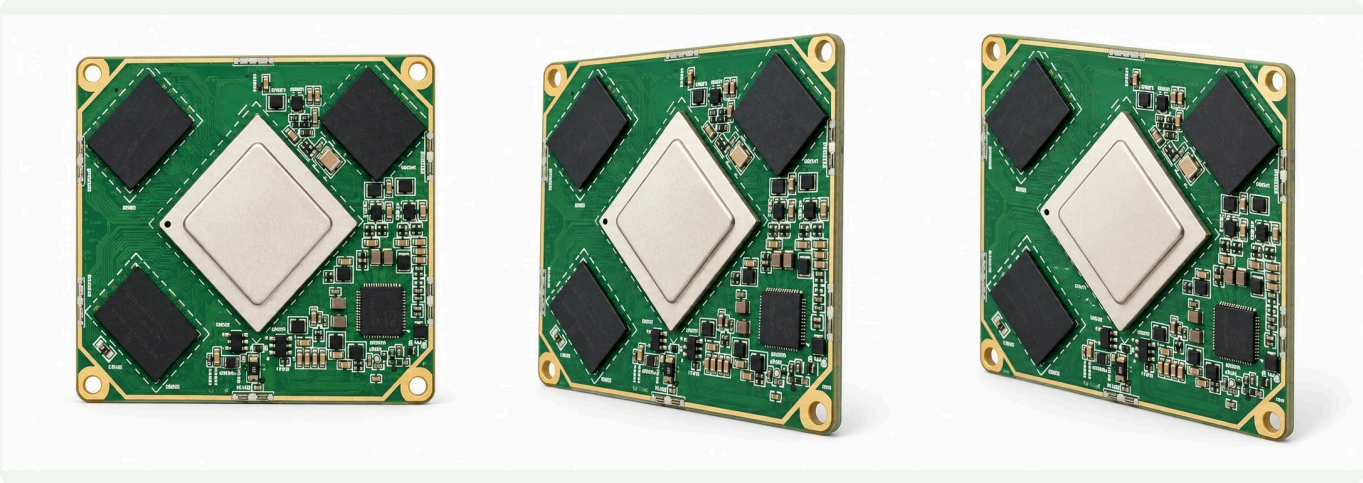
Equipment requires at the same time present control UI and run information when, can around HDMI, MIPI and eDP planning multi video system. First determine each display resolution, refresh rate and display content, again verification system under output combination, avoid I/O quantity etc.same to all channel full specification parallel run.

Integration checks

Carrier connect	Check 320 pin board-to-board connector model, configured height, pins table and assembly tolerance; board outline dimensions 60 × 50 × 4.2mm.
Input power	Per 3.4–5.5V input design power, current capability at least 5A, and check boot voltage drop, connector hosts and power timing.
Memory and system	8GB standard, 16GB belongs to expansion configured with; system image required match Kylin OS V10, UnionTech V20 or Ubuntu20.04 solution.
Display and cooling	One by one confirm HDMI/MIPI/eDP actual combination; product cooling conditions under verification−40–60°Coperating temperature range.

07 CONFIGURATION

Appearance, configuration and selection



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

Configuration

Uses 3.4–5.5V input, power current capability at least 5A, can combined with carrier design display and peripheral I/O.

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

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

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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