MYiR 米尔电子
Make Your Idea Real

MEC-B5760 AI Edge IPC Box

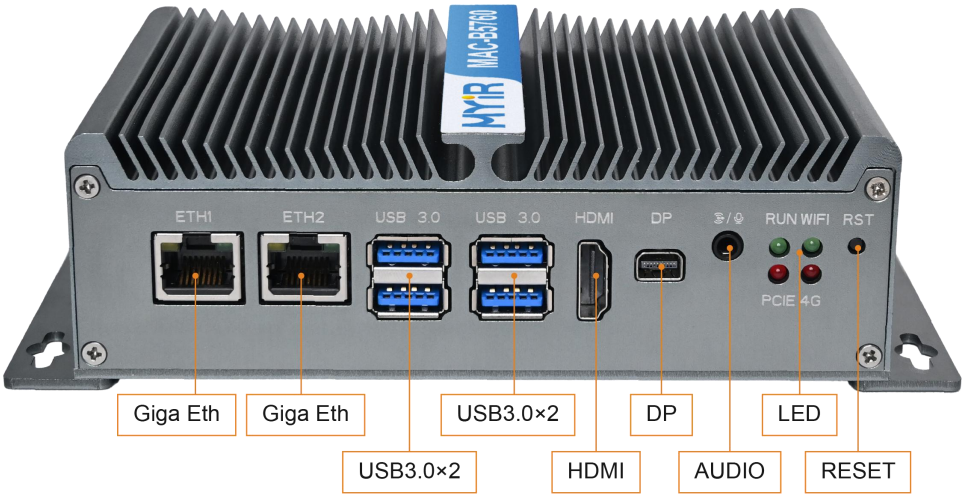
Overview

- ✓ RK3576 Processor based on 2.2GHz Quad-core ARM Cortex-A72 and 1.8GHz Quad-core ARM Cortex-A53
- ✓ Equipped with a 6 TOPS NPU Accelerator and a 3D GPU
- ✓ 8GB LPDDR5, 64GB eMMC, 4KB EEPROM
- ✓ 1x Debug Port, 2x Gigabit Ethernet, 4x USB 3.0, 1x MicroSD, 1x SIM Card Slot
- ✓ Onboard WiFi/Bluetooth Module and Mini-PCIe Slot for 4G/5G Module
- ✓ Onboard M.2 (PCIe) M-Key 2280 Slot for SSD and Computing Power Card
- ✓ Supports HDMI and Mini DP Display, and Audio In/Out
- ✓ Supports Linux (Yocto), Debian
- ✓ Rugged and Fanless Enclosure Design
- ✓ Operating Temperature 0° C ~ 70° C

The **MEC-B5760 AI Edge IPC Box** is a high-performance industrial computer launched by MYIR. It is built around the **Rockchip RK3576** processor and housed in a rugged aluminum alloy enclosure purpose-built for AI edge computing scenarios.

Powered by the RK3576 SoC, it integrates an octa-core CPU (**4x Cortex-A72@2.2GHz + 4x Cortex-A53@1.8GHz**) and a **6 TOPS NPU** for AI acceleration. It is coupled with high-speed **LPDDR5** memory to deliver strong computing and AI processing capabilities. It supports the expansion of AI Accelerator Card and M.2 SSD storage via onboard **M.2 (PCIe) M-KEY 2280 slot**, with flexible storage configurations including eMMC and UFS. Additionally, this IPC Box is equipped with rich peripheral interfaces including **2x Gigabit Ethernet, 4x USB 3.0, HDMI and Mini DP display outputs, a 3.5mm Audio Input and Output jack**, etc. It supports **WiFi/Bluetooth** wireless communication and **4G/5G** cellular communication via an onboard **mini PCIe slot** and a **Micro SIM card slot**.

MYIR offers complete software resources for the MEC-B5760, covering system images for **Linux (Yocto) and Debian, U-Boot, Linux kernel 6.1, and full peripheral drivers** all provided in source code, along with development tools. Comprehensive technical documents including product manuals, user guides, and development references are provided to support customers with secondary development, shorten project cycles, and accelerate time-to-market for custom AI applications such as visual analysis, robotics, autonomous driving control, and smart retail.



MEC-B5760 Front view

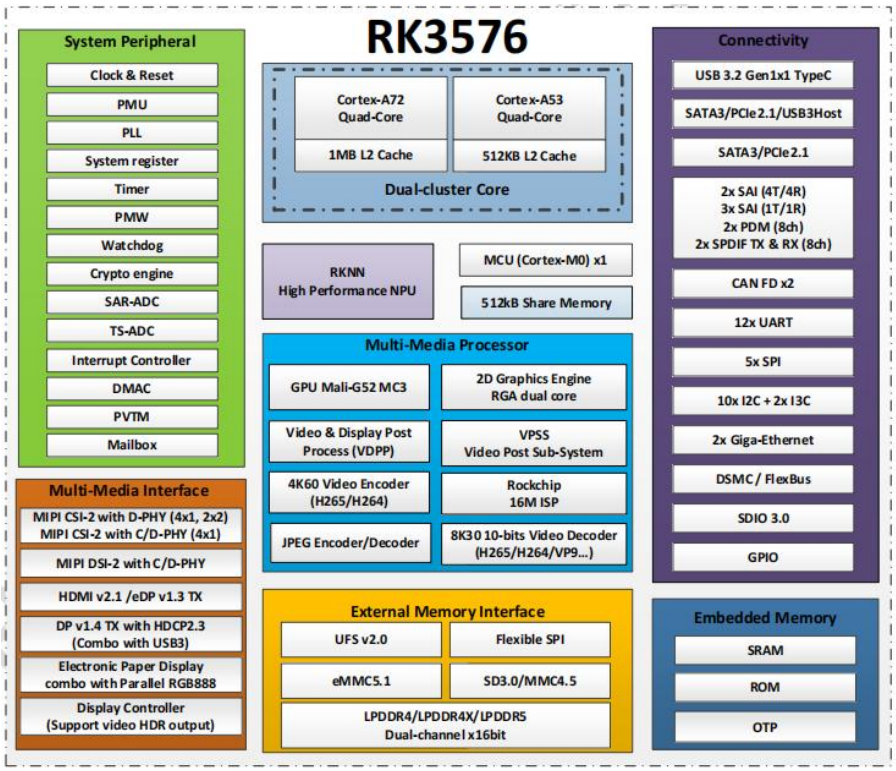
MEC-B5760 Rear view

MEC-B5760 Side view

Hardware Specification

The MEC-B5760 AI Edge IPC Box is built around the Rockchip RK3576 SoC. This processor is designed as a low-power, high-performance solution for ARM-based PCs, edge computing devices, personal mobile Internet devices, and a range of digital multimedia applications.

It features an integrated quad-core Cortex-A72 and quad-core Cortex-A53 architecture. The RK3576's video decoder is capable of supporting H.264, H.265, VP9, AV1, and AVS2 at up to 8K@30fps or 4K@120fps, while its video encoder can handle H.264 and H.265 formats at up to 4K@60fps. The embedded 3D GPU ensures compatibility with a range of graphics standards, including OpenGL ES 1.1, 2.0, and 3.2, OpenCL 2.0, and Vulkan 1.1. A dedicated 2D hardware engine, equipped with an MMU, optimizes display performance and ensures exceptionally smooth operation. In addition, this processor offers extensive peripheral extension support, such as dual Gigabit Ethernet interfaces, PCIe 2.1, USB 3.2, SATA 3, DSMC/Flexbus, CANFD, UART, and more.



RK3576 Processor Block Diagram

The MEC-B5760 AI Edge IPC Box fully leverages the high performance of the Rockchip RK3576 processor. The main features are listed in the following table.

Item	Features
SOC	Rockchip RK3576 processor - Octa-core Arm MPU with 4x Cortex-A72 cores at 2.2 GHz, 4x Cortex-A53 cores at 1.8 GHz - Arm Cortex-M0 MCU at 400MHz for user application - Arm Mali-G52 MC3 3D GPU - 6 TOPS NPU supports INT4/8/16/FP16/BF16/TF32 - Supports up to 8K@30fps or 4K@120fps video decoding (H.265/HEVC, VP9, AVS2, and AV1) and video encoder up to 4K@60fps video encoding (H.265 and H.264) - Integrated 16M Pixel ISP for high-quality camera input
Memory	8GB LPDDR5 (4GB available as a customization option)
Storage	64GB eMMC (32GB or 128GB UFS available as customization options) 4KB EEPROM 1x Micro SD card slot 1x M.2 (PCIe) M-Key 2280 slot for SSD storage and AI computing card expansion
Multimedia Interfaces	1x HDMI (supports up to 4K@120Hz resolution) 1x Mini DisplayPort (DP) (supports up to 4K@60Hz resolution) 1x 3.5mm Audio Jack (headphone output and microphone input)
Communication Interfaces	1x Type-C USB-UART Debug Interface 4x USB 3.0 Host Type-A Ports 2x 10/100/1000Mbps Gigabit Ethernet Interfaces Onboard WiFi/BT Module (complies with IEEE 802.11 a/b/g/n/ac/ax standard, supports WiFi 6+BT V5.4) with 1x WiFi/BT antenna interface 1x Mini-PCIe Slot for 4G/5G Module, paired with 1x Micro SIM card slot
Others	1x External RTC (requires external 3.3V battery) 1x Onboard buzzer 4x LEDs (Power/System, WiFi, PCIe SSD, 4G/5G) 3x Buttons (Reset, RECOVERY, MASKROM)
Power Supply	12V/5A DC Jack input
Dimensions	150mm x 101mm x 47mm (without mounting bracket) 177mm x 101mm x 49mm (with mounting bracket)
Operating Temp.	0° C ~ 70° C
Net Weight	575g
OS	Linux (Yocto), Debian
Installation	Desktop/Wall mounted (can be customized for Rail mounted)

Features of MEC-B5760 AI Edge IPC

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Software Features

The MEC-B5760 supports Debian Linux operating system and is equipped with comprehensive software packages. To assist clients in speeding up their projects, the kernel and numerous peripheral drivers are provided in source code format. Below is a brief overview of the key software features:

Item	Features	Description	Source code
Bootloader	Pre-loader	First bootloader	NO
	U-Boot	U-Boot 2017.09	YES
Kernel	Linux Kernel	Customized based on Rockchip's official Linux kernel 6.1	YES
Drivers	EEPROM	EEPROM (BL24C32F) driver	YES
	USB	USB driver	YES
	Ethernet	Ethernet (YT8531SH) driver	YES
	HDMI	HDMI driver	YES
	DP	DP driver	YES
	MIPI DSI	MIPI DSI driver	YES
	Audio	ES8390 audio driver	YES
	RTC	RX8025 driver	YES
	WiFi	WiFi (BL-M8800DS7-80I) driver	YES
	BT	Bluetooth (BL-M8800DS7-80I) driver	YES
File system	myir-image-mec-b5760-debian	Image built based on Debian system	YES
	myir-image-mec-b5760-yocto	Linux image built with Yocto	YES
	myir-image-mec-b5760-yocto-preempt-rt	Rt Linux image built with Yocto	YES

MEC-B5760 Software Features

Order Information

Item	Part No.	Packing List
MEC-B5760 AI Edge IPC Box	MEC-B5760-CC810000	✓ One MEC-B5760 AI Edge IPC Box (8GB LPDDR5+64GB eMMC) ✓ One Quick Start Guide ✓ One WiFi/Bluetooth antenna ✓ 12V/5A power adapter
MEC-B5760 AI Edge IPC Box	MEC-B5760-CC81000C	✓ One MEC-B5760 AI Edge IPC Box (8GB LPDDR5+64GB eMMC) ✓ One Quick Start Guide ✓ One WiFi/Bluetooth antenna ✓ 12V/5A power adapter ✓ AI Accelerator Card (20 TOPS, RM1828MC0-F)

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