MYiR 米尔电子
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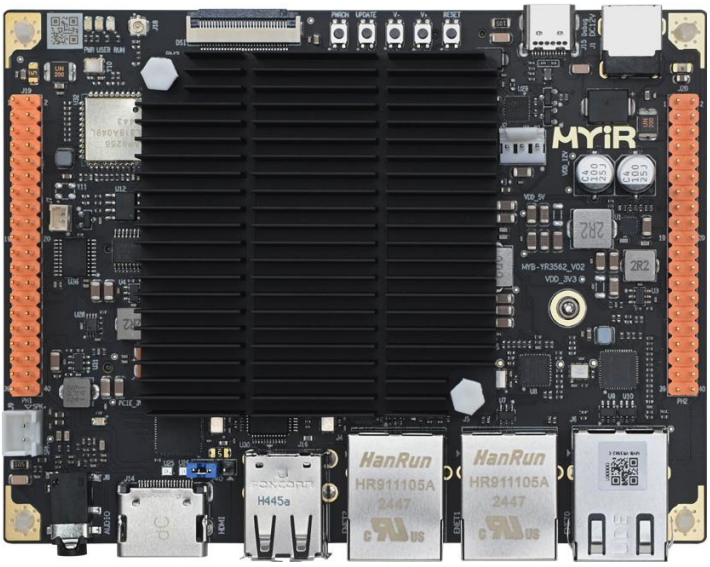
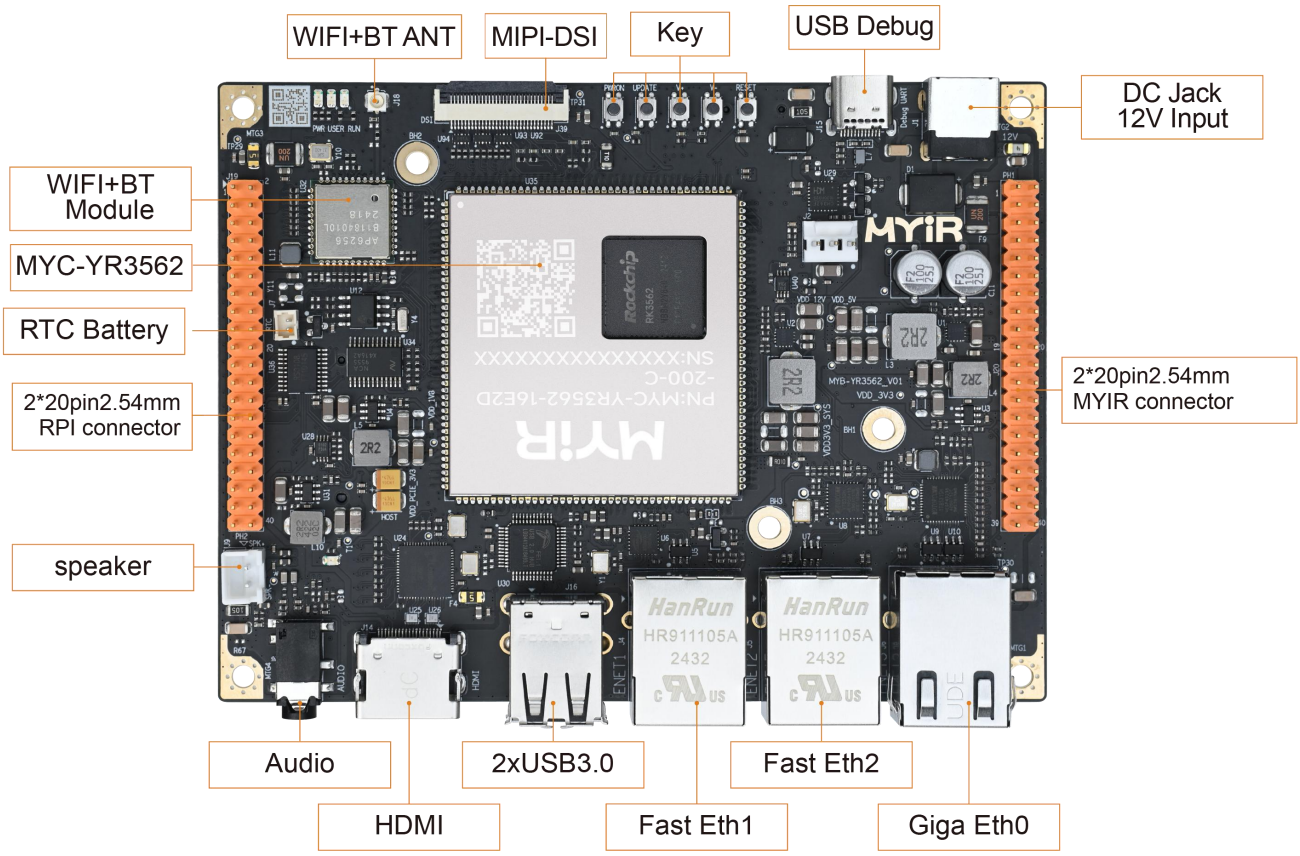
MYD-YR3562 Development Board Overview



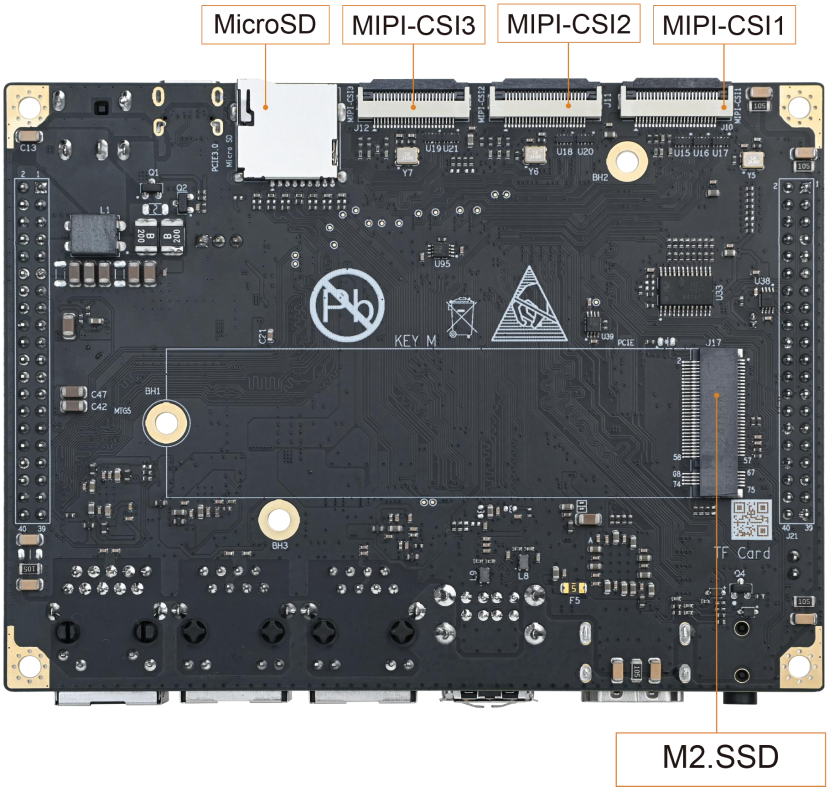
- ✓ *MYC-YR3562 SOM as Controller Board*
- ✓ *Rockchip RK3562/RK3562J Application Processor based on Up to 2.0GHz Quad Arm Cortex-A53 Cores*
- ✓ *Neural Processing Unit (NPU) operating at up to 1 TOPs (Only for RK3562 CPU)*
- ✓ *1GB/2GB LPDDR4, 8GB/16GB eMMC, 32Kbit EEPROM*
- ✓ *2x USB 3.0, 1x Gigabit Ethernet, 2x 10/100 Mbps Ethernet, WIFI/Bluetooth*
- ✓ *Micro SD Card Slot, M.2 SSD PCIe Slot*
- ✓ *3x MIPI CSI, 1x MIPI DSI, HDMI, Audio Input/Output*
- ✓ *Ready to Run Linux 6.1.99 OS*
- ✓ *Optional 10.1-inch LCD Module and Camera Modules*

The MYD-YR3562 Development Board is powered by the RK3562/RK3562J processor, a high-performance, low-power chip from Rockchip designed for industrial automation and consumer electronics. This processor features up to 2.0GHz Quad ARM Cortex-A53 cores, a 1 TOPs NPU (exclusive to the RK3562 CPU), a 3D GPU, and 4K video codecs. The board supports the Linux 6.1.99 OS and comes with comprehensive documentation and software packages. It can operate within an industrial temperature range of -40 to 85 Celsius or a commercial range of 0 to 70 Celsius.

The MYD-YR3562 Development Board is built around the MYC-YR3562 System-On-Module (SOM), leveraging the RK3562/RK3562J's advanced features through a 164-pin Castellated-Hole and a 58-pin LGA expansion interface. It is equipped with two USB 3.0 ports, one Gigabit Ethernet, two 10/100Mbps Ethernet, and an integrated WiFi/Bluetooth module. Storage options include a Micro SD card slot and an M.2 NVMe SSD-compatible PCIe slot. Multimedia capabilities are extensive, with HDMI, MIPI-DSI, three MIPI-CSI video inputs, and a 3.5mm Audio interface. Peripheral expansion is possible via the RPI Interface (GPIO/I2C/UART/SPI/CAN) and MiFAN Interface (GPIO/I2C/UART/SPI/USB2.0), allowing for customizable projects and an enhanced development experience.

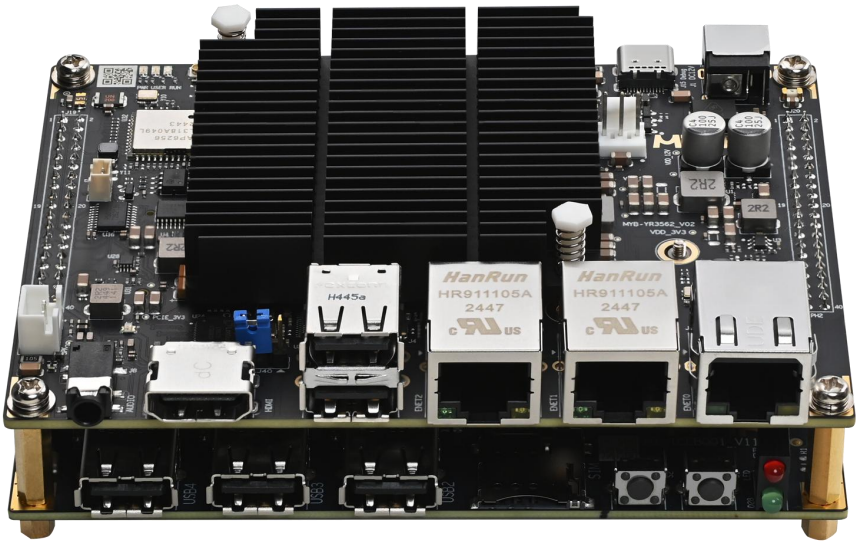


MYD-YR3562 Development Board (RK3562 version) Top-view (delivered with a pre-installed heatsink by default)

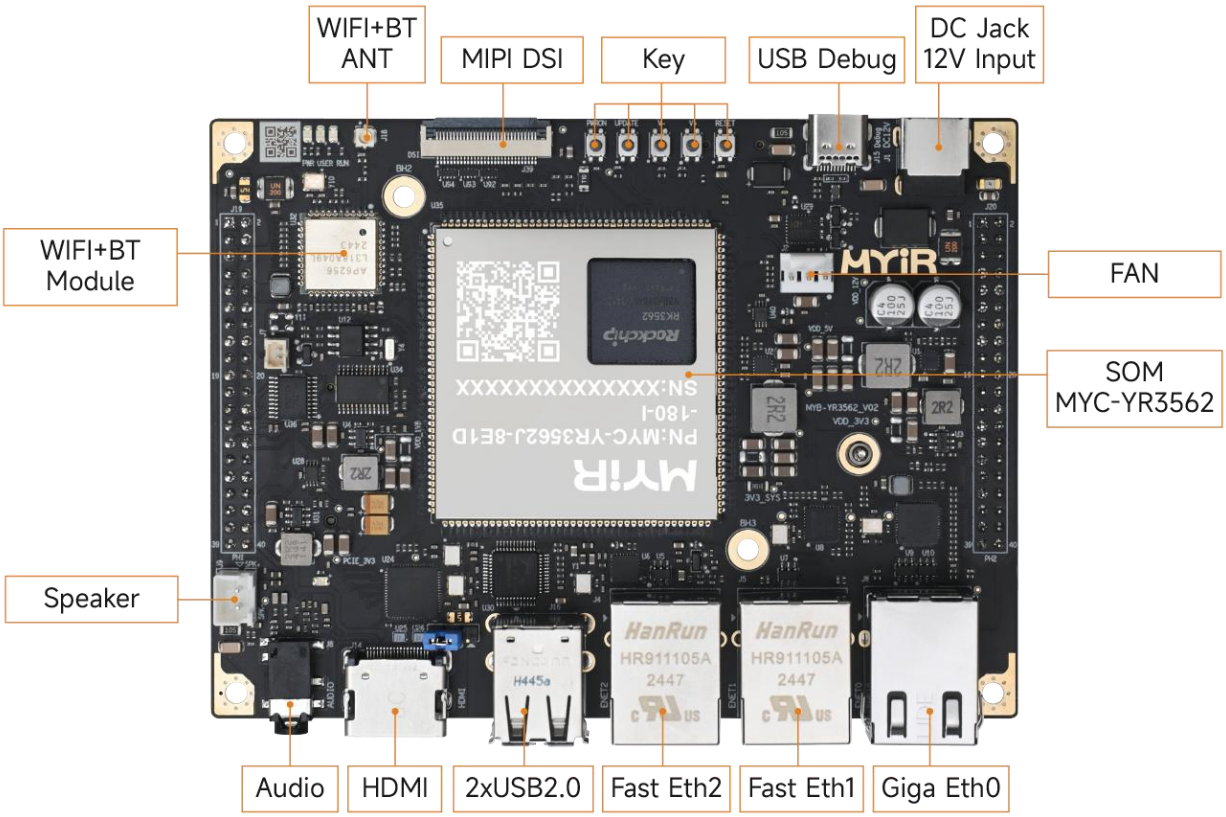


MYD-YR3562 Development Board (RK3562 version) Bottom-view

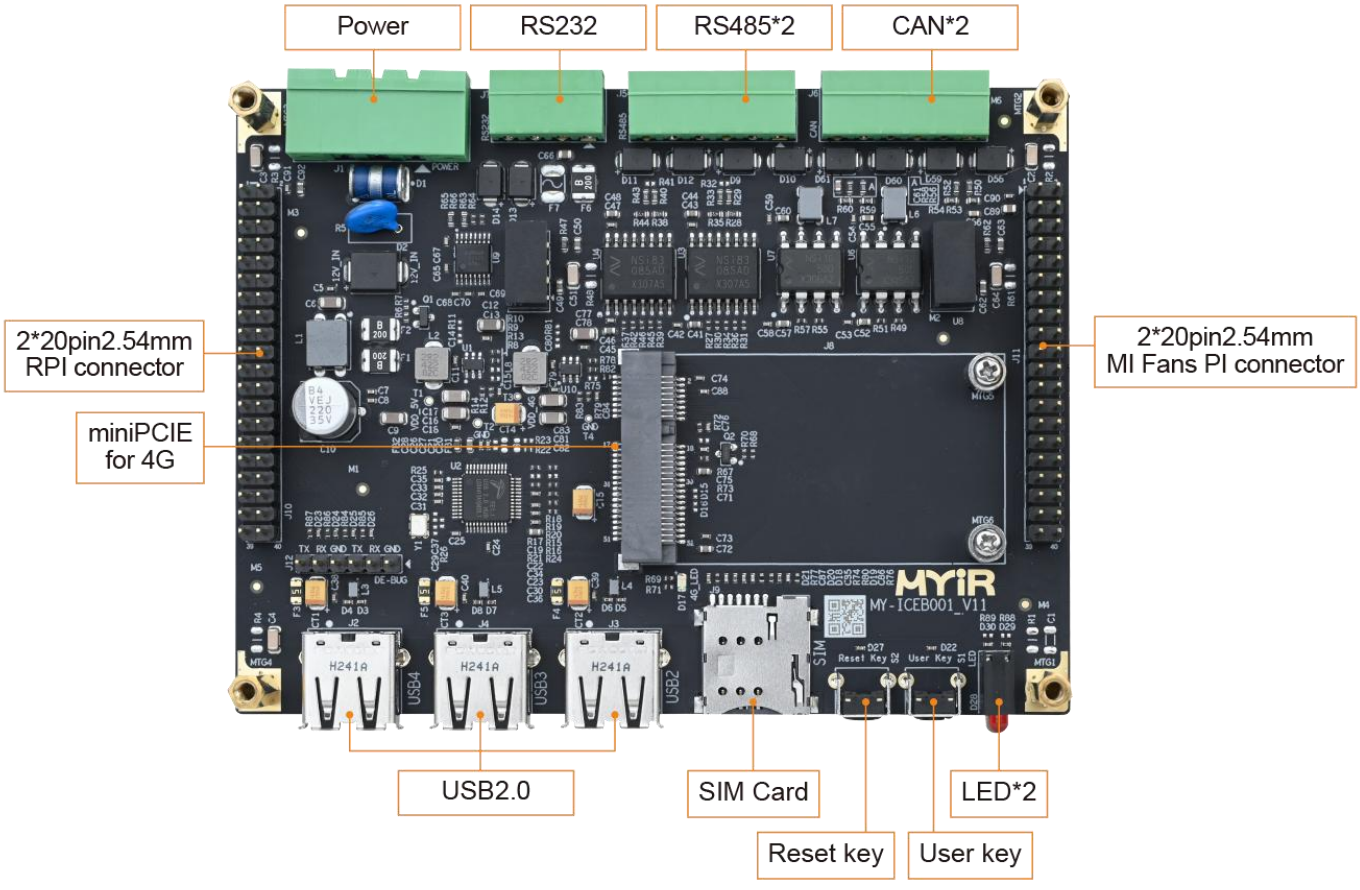
The MYD-YR3562 is equipped with a 12V/3A power adapter, a USB Type-C cable, a WiFi/Bluetooth antenna, and a quick start guide. MYIR provides optional accessories, such as the MY-CAM004M 4AHD-to-MIPI Camera Module, MY-CAM005M MIPI Camera Module, and MY-MIPI101C 10.1-inch LCD Module. The MYD-YR3562J-GK kit, featuring the RK3562J CPU, includes the MY-ICEB001 expansion board, which adds three USB2.0 ports, one RS232 port, two RS485 ports, two CAN interfaces, and an M.2 Socket for a USB-based 4G/5G LTE Module with a SIM card holder, operating within a temperature range of -40 to 85 degrees Celsius. These enhancements substantially broaden the board's functionality, providing users with the flexibility to tailor the solution to their unique project needs.



the MYD-YR3562 Development Board (RK3562J version) Integrates with the MY-ICEB001 Expansion Board



MYD-YR3562 Development Board (RK3562J version) Top-view



MY-ICEB001 Expansion Board

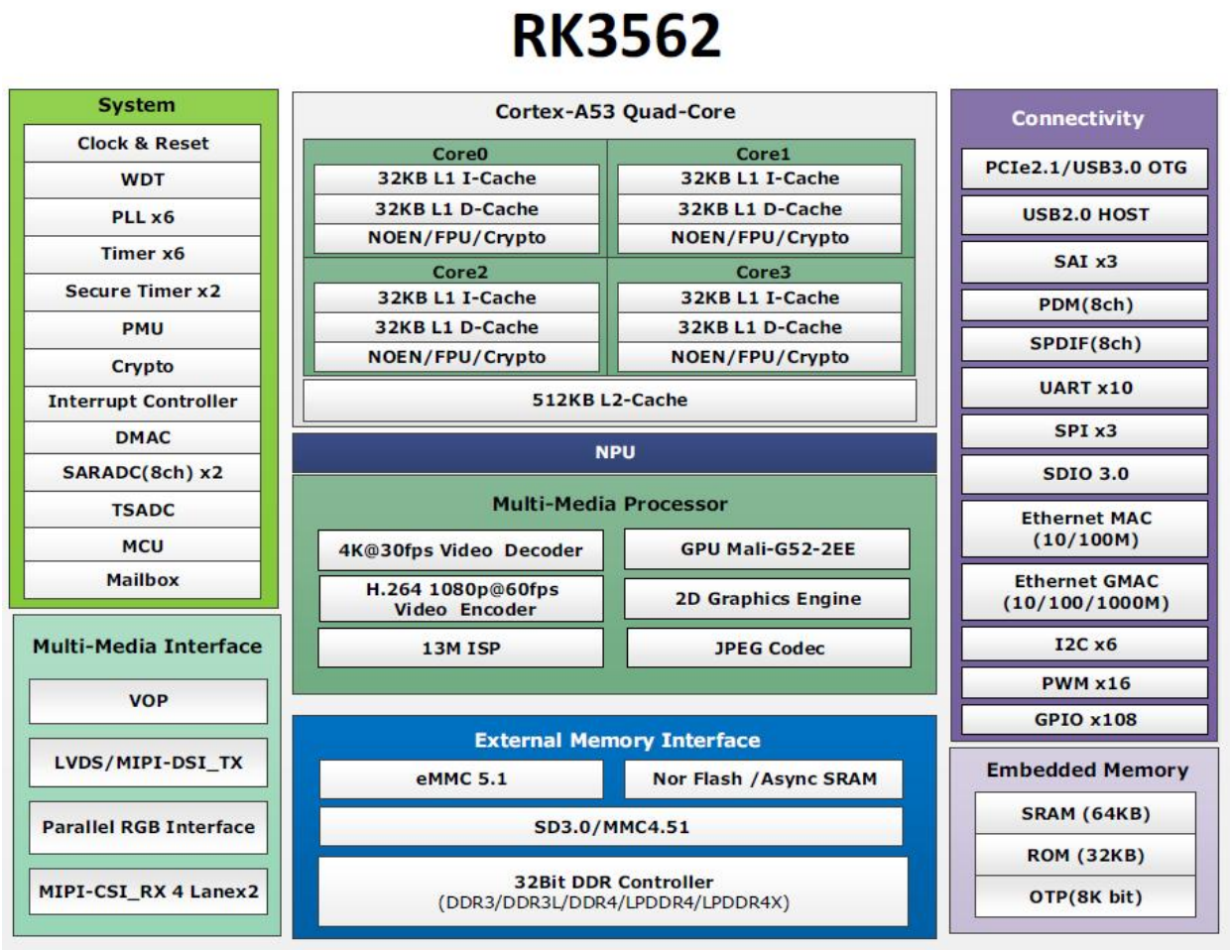
Hardware Specification

The RK3562 and RK3562J processors are high-performance, low-power solutions from Rockchip, designed for industrial automation and consumer electronics. The RK3562 supports a working temperature range from 0 to 70 degrees Celsius, whereas the RK3562J supports -40 to 85 degrees Celsius.

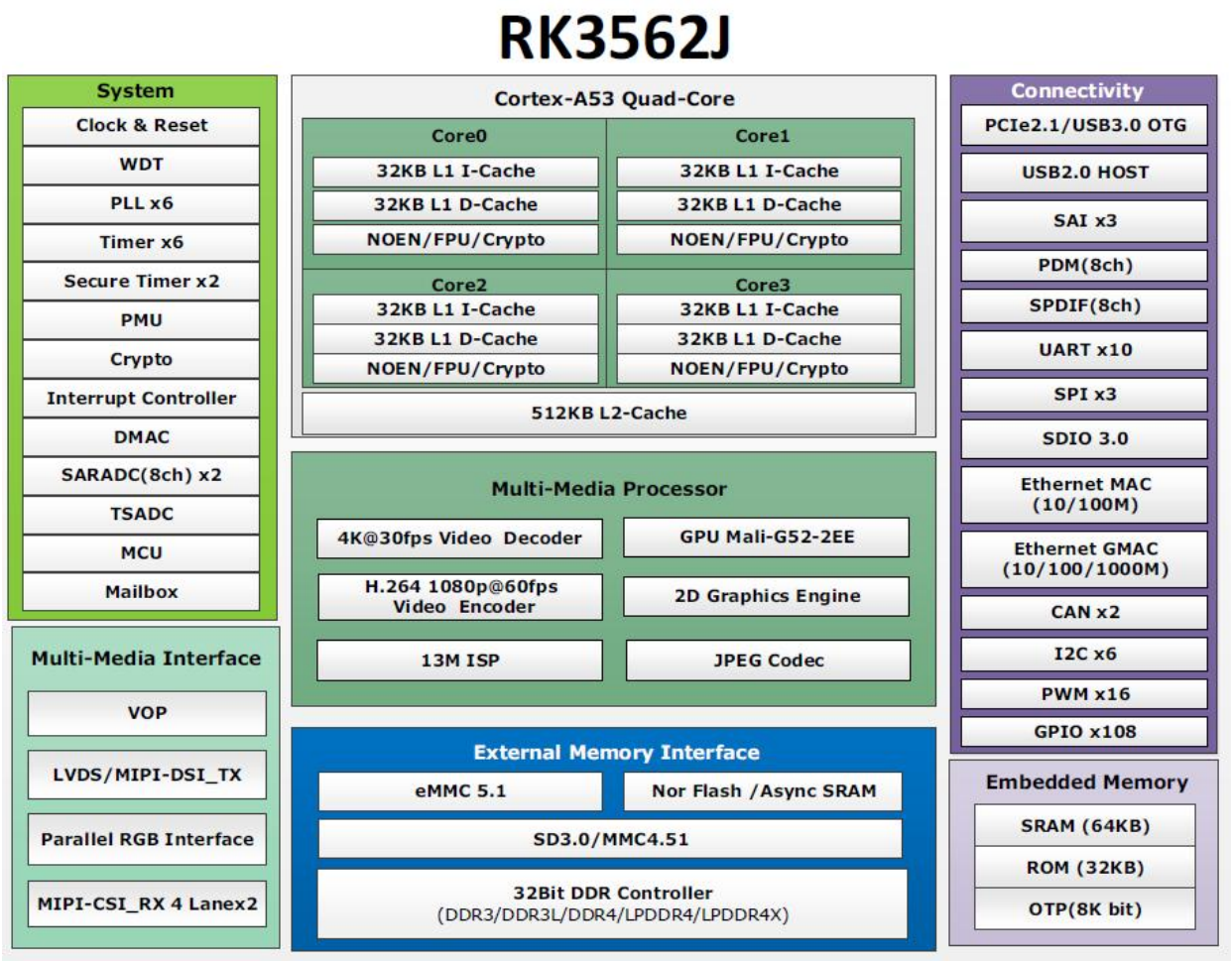
The RK3562 features a built-in NPU that supports hybrid operations with INT4/INT8/INT16/FP16 data types. Moreover, it offers strong compatibility with various frameworks, including TensorFlow, MXNet, PyTorch, and Caffe, facilitating easy conversion of network models.

Both processors are equipped with several embedded hardware engines to optimize performance for high-end applications. They support nearly full-format H.264 decoding at 1080p@60fps, H.265 decoding at 4K@30fps, and H.264 encoding at 1080p@60fps. Additionally, they include a high-quality JPEG encoder and decoder. The processors come with an embedded 3D GPU that ensures complete compatibility with OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, and Vulkan 1.1. A special 2D hardware engine is also included to maximize display performance and ensure smooth operation.

They are suitable for next-generation smart power devices, industrial Internet of Things (IoT) devices, industrial control equipment, industrial robots, digital signage, touch all-in-one machines, engineering machinery, rail transit, and other advanced industrial applications.



RK3562 Processor Block Diagram



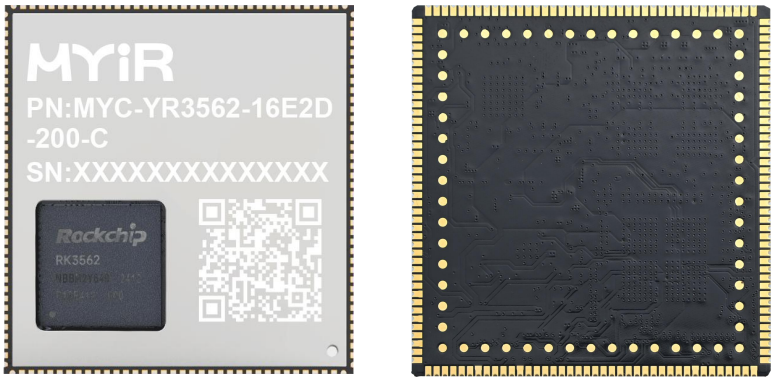
RK3562J Processor Block Diagram

The MYD-YR3562 Development Board utilizes the MYC-YR3562 as its core controller board, featuring the Rockchip RK3562/RK3562J processor. The primary characteristics are as follows:

Mechanical Parameters

- Dimensions: 120mm x 90mm (base board), 43mm x 45mm (SOM)
- PCB Layers: 6-layer design (base board), 10-layer design (SOM)
- Power supply: +12V/3A (base board); +3.3V/2A (SOM)
- Working temperature: 0~70 Celsius (commercial grade, with RK3562 CPU) or -40~85 Celsius (industrial grade, with RK3562J CPU)

The MYD-YR3562 Controller Board (MYC-YR3562 SOM)



MYC-YR3562 System On Module (Top-view and Bottom-view)

Processor

- Rockchip RK3562/RK3562J processor
- - Quad-core ARM Cortex-A53@2.0GHz (RK3562)
  - Quad-core ARM Cortex-A53@1.2GHz/1.8GHZ (RK3562J at normal mode/overdrive mode)
  - 3D GPU Mail-G52-2EE
  - 1080p@60fps H.264 decoding, 4K@30fps H.265 decoding, and 1080p@60fps H.264 encoding
  - Up to 1 Tops NPU (only for RK3562 CPU)

Memory

- 1GB/2GB LPDDR4
- 8GB/16GB eMMC
- 32Kbit EEPROM

Peripherals and Signals Routed to Pins

- Power Management IC
- 1.0mm pitch 164-pin Castellated-Hole and 58-pin LGA Expansion Interfaces
  - 1x RGMII
  - 1x RMII
  - 1x USB3.0/2.0 OTG
  - 1x USB2.0 Host
  - 1x PCIE 2.1/USB3.0 (Multi-PHY)
  - 3x SPI
  - 2x SDIO 3.0
  - 10x UART
  - 2x CAN 2.0B
  - 5x I2C
  - 16x PWM
  - 2x SARADC
  - 2x MIPI CSI
  - 1x MIPI DSI
  - 1x 24-bit RGB
  - 1x LVDS
  - 3x SAI
  - 1x SPDIF
  - 1x 8-ch PDM

Note: the peripheral signals brought out to the expansion interface are listed in maximum number. Some signals are reused. Please refer to the processor datasheet and the SOM pinout description file.

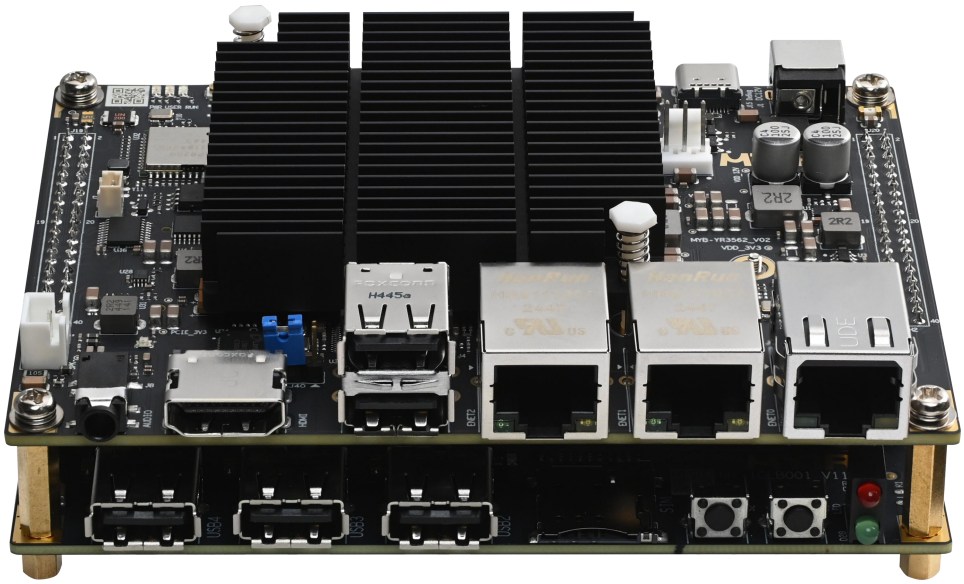
The MYD-YR3562 Development Board Base Board

- 1x Power Jack
- 5x Buttons (Update, PWR, V+, V-, RESET)
- 3x LEDs (1x PWR LED, 1x RUN LED, 1x USR LED)
- 1x Micro SD card slot
- 1x M.2 NVME PCIE SSD socket
- 1x Debug UART (USB Type-C)
- 1x 10/100/1000Mbps Ethernet (RJ45)
- 2x 10/100Mbps Ethernet (RJ45)

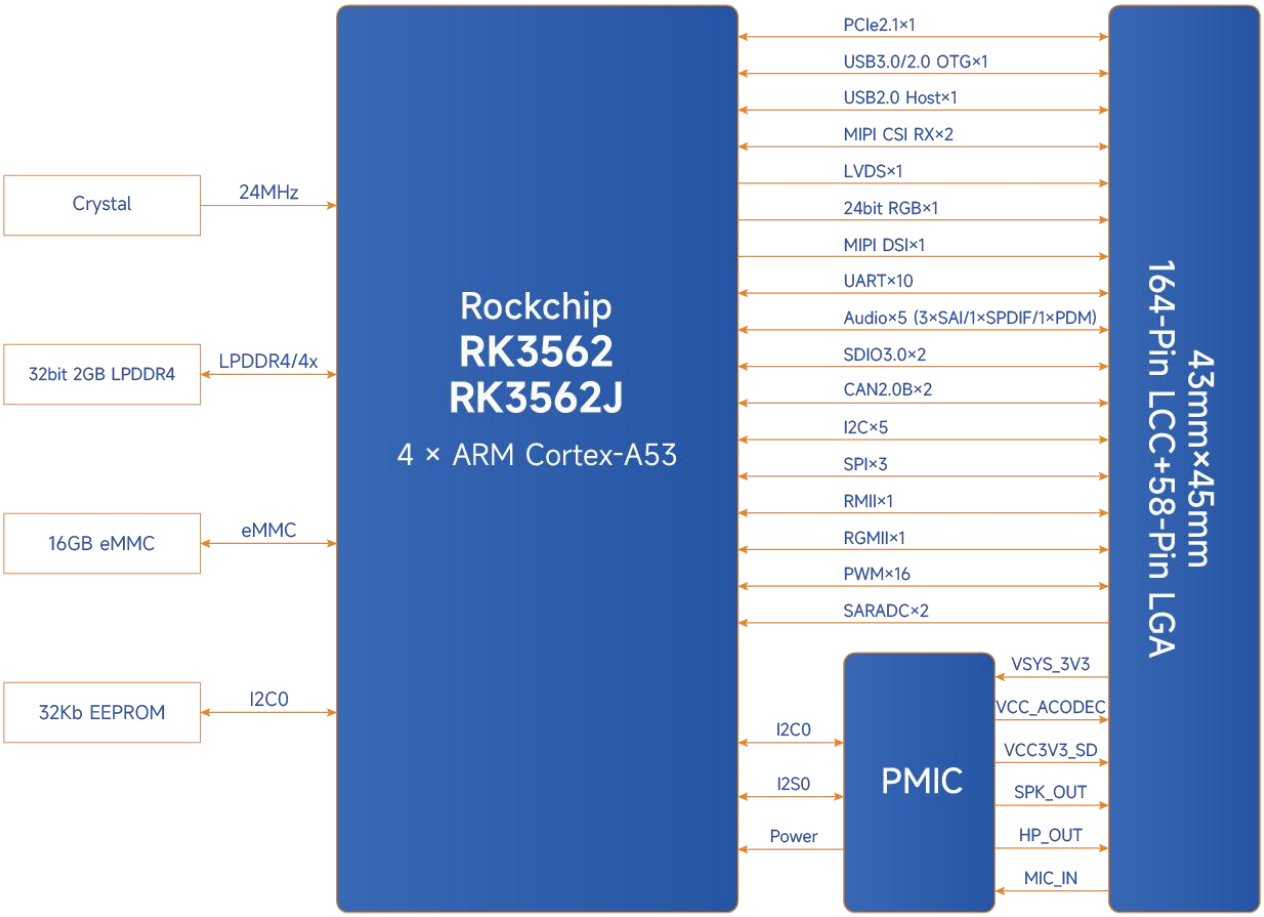
- 1x WiFi/Bluetooth Module (complies with IEEE 802.11a/b/g/n/ac standard and supports BT 5.2)
- 2x USB3.0 Interfaces (Type-A)
- 1x HDMI Interface
- 1x MIPI-DSI Interface (0.5mm pitch 30-pin FPC connector)
  Support MYIR's MY-MIPI101C 10.1-inch MIPI Module 1920*1200 resolution
- 3x MIPI-CSI Interfaces (0.5mm pitch 30-pin FPC connector)
  Support MYIR's MY-CAM004M and MY-CAM005M MIPI Camera Modules
- 1x 3.5mm Audio Interface
- 1x Speaker Interface
- 2x Extension Interfaces (2.54mm pitch 2x 20-pin expansion connector)
  - RPI Interface (GPIO/I2C/UART/SPI/CAN, compatible with Raspberry PI standard 40-pin extension interface)
  - MiFAN Interface (GPIO/I2C/UART/SPI/USB2.0)

The MY-ICEB001 Expansion Board (for MYD-YR3562J-GK)

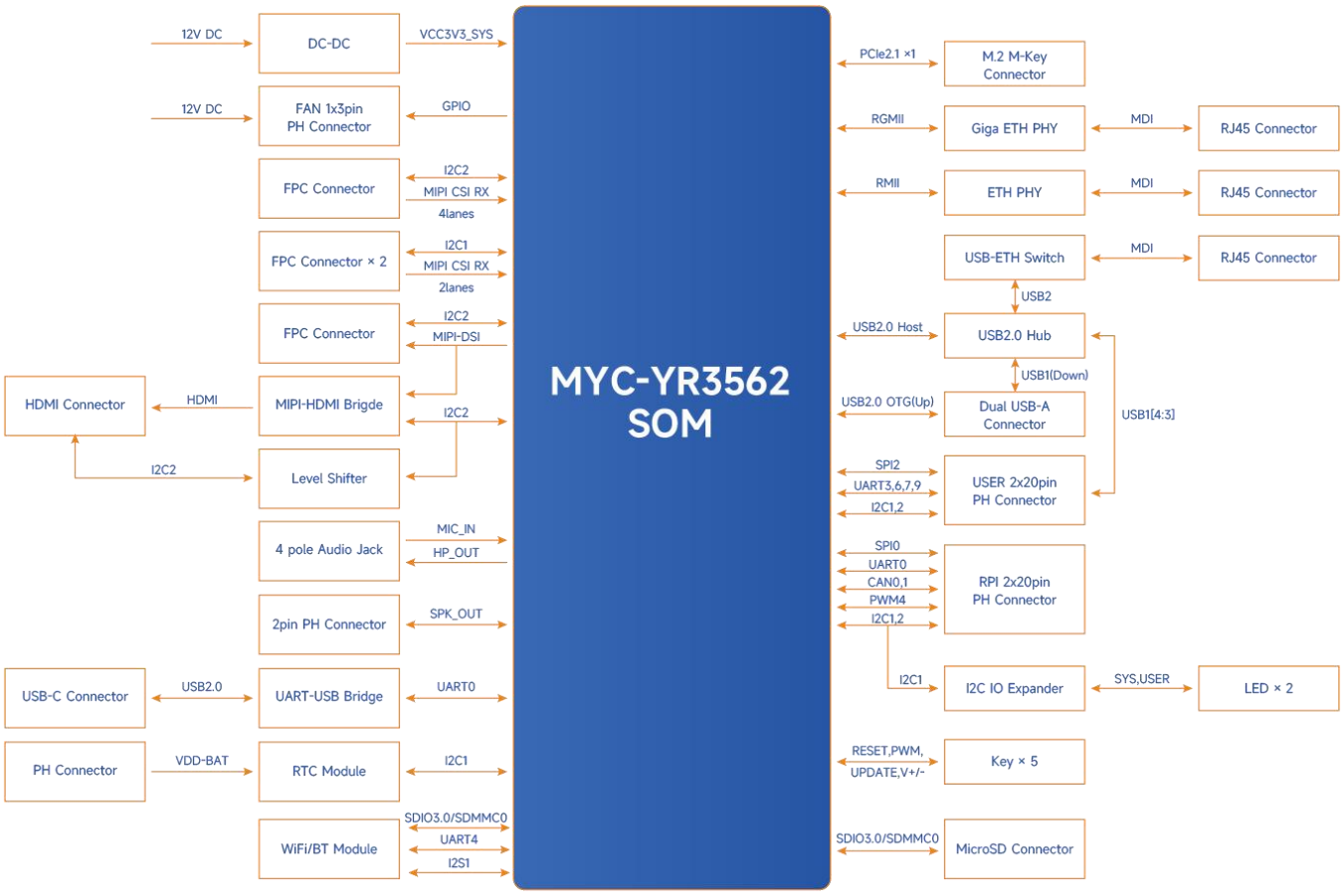
- 1x Power Input (Phoenix connector)
- 2x Buttons (RESET, USER)
- 2x LEDs (1x RUN LED, 1x USR LED)
- 1x RS232 Serial Port
- 2x RS485 Serial Ports
- 2x CAN Interfaces
- 3x USB2.0 Ports (Type-A)
- 1x M.2 Socket for a USB-based 4G LTE Module
- 1x SIM Card Slot
- 2x Extension Interfaces (2.54mm pitch 2x 20-pin connector)
  - RPI Interface (GPIO/I2C/UART/SPI/CAN)
  - MiFAN Interface (GPIO/I2C/UART/SPI/USB/PWM)



MYD-YR3562 Development Board (RK3562J version) Integrates with the MY-ICEB001 Expansion Board



MYC-YR3562 Function Block Diagram



MYD-YR3562 Function Block Diagram

Software Features

The MYD-YR3562 development board offers supports for Linux OS 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 feature:

Item	Features	Description	Source Code
Bootloader	SPL	First bootloader	YES
	U-boot	Second bootloader uboot_2017.9	YES
Linux kernel	Linux kernel	Customized base on official kernel_6.1.99 version	YES
Device driver	EEPROM	BL24C32F driver	YES
	USB Host	USB Host driver	YES
	USB OTG	USB OTG driver	YES
	I2C	I2C bus driver	YES
	SPI	SPI bus driver	YES
	Ethernet	YT8531SH-CA driver	YES
		SR9900AI driver	YES
		YT8512H driver	YES
	HDMI	LT8912B driver	YES
	RTC	LK8563T driver	YES
	GPIO	Generic GPIO driver	YES
	UART	RS232/RS485 Driver	YES
	CAN	CAN driver	YES
	WIFI	AP6256 driver	YES
	BT	AP6256 driver	YES
	LED	GPIO LED driver	YES
	Key	GPIO Key driver	YES
File system	myir-image-linux	Full-featured image built as buildroot	YES

MYC-YR3562 Software Features

Order Information

<table>
<tr><th>Product Item</th><th>Part No.</th><th>Packing List</th></tr>
<tr><td>MYD-YR3562
Development Board</td><td>MYD-YR3562-16E2D-200-C
(with NPU, commercial grade)</td><td>✓ One MYD-YR3562 Board
✓ One USB TYPE-C cable
✓ One WiFi Antenna
(with ipex connector)
✓ One 12V/3A Power adapter
✓ One Quick Start Guide</td></tr>
<tr><td>MYD-YR3562J-GK
Development Kit</td><td>MYD-YR3562J-16E2D-180-I-GK
(without NPU, industrial grade)</td><td>✓ One MYD-YR3562 Board
✓ One MY-ICEB001 Expansion Board
✓ One USB TYPE-C cable
✓ One WiFi Antenna
(with ipex connector)
✓ One 12V/3A Power adapter
✓ One Quick Start Guide</td></tr>
<tr><td rowspan="3">MYC-YR3562
System-On-Module</td><td>MYC-YR3562J-8E1D-180-I</td><td rowspan="6">Add-on Options
✓ One MYC-YR3562 SOM
✓ MY-MIPI101C 10.1-inch LCD Module
✓ MY-CAM004M MIPI Camera Module
✓ MY-CAM005M MIPI Camera Module</td></tr>
<tr><td>MYC-YR3562J-16E2D-180-I</td></tr>
<tr><td>MYC-YR3562-16E2D-200-C</td></tr>
<tr><td>MY-MIPI101C LCD Module</td><td>MY-MIPI101C</td></tr>
<tr><td>MY-CAM004M Camera Module</td><td>MY-CAM004M</td></tr>
<tr><td>MY-CAM005M Camera Module</td><td>MY-CAM005M</td></tr>
<tr><td colspan="3">Note:
1. One MYD-YR3562 Development Board comprises one MYC-YR3562 SOM mounted onto the base board. If you require additional SOMs, you may place order for extras.
2. Bulk discounts are available. Please contact MYIR for inquiries.
3. We accept custom design based on the MYD-YR3562, whether reducing, adding or modifying the existing hardware according to customer's requirement.</td></tr>
</table>

MYIR Electronics Limited

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