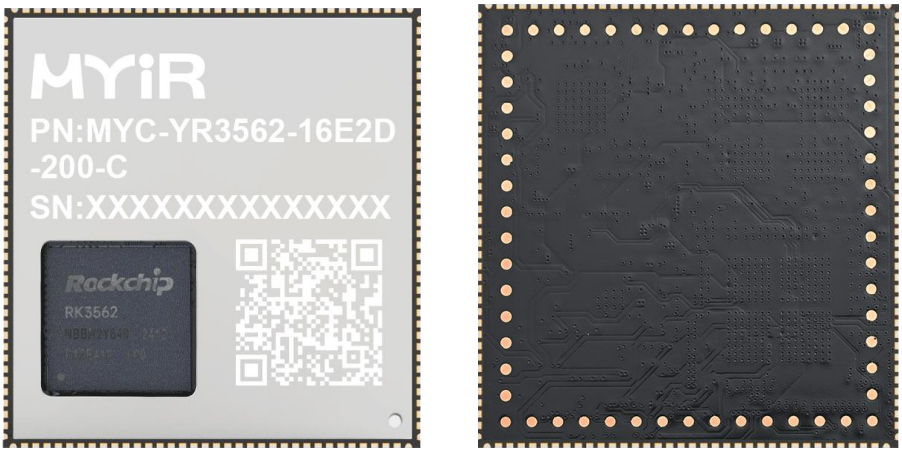
MYiR 米尔电子
Make Your Idea Real

MYC-YR3562
System-On-Module
Overview

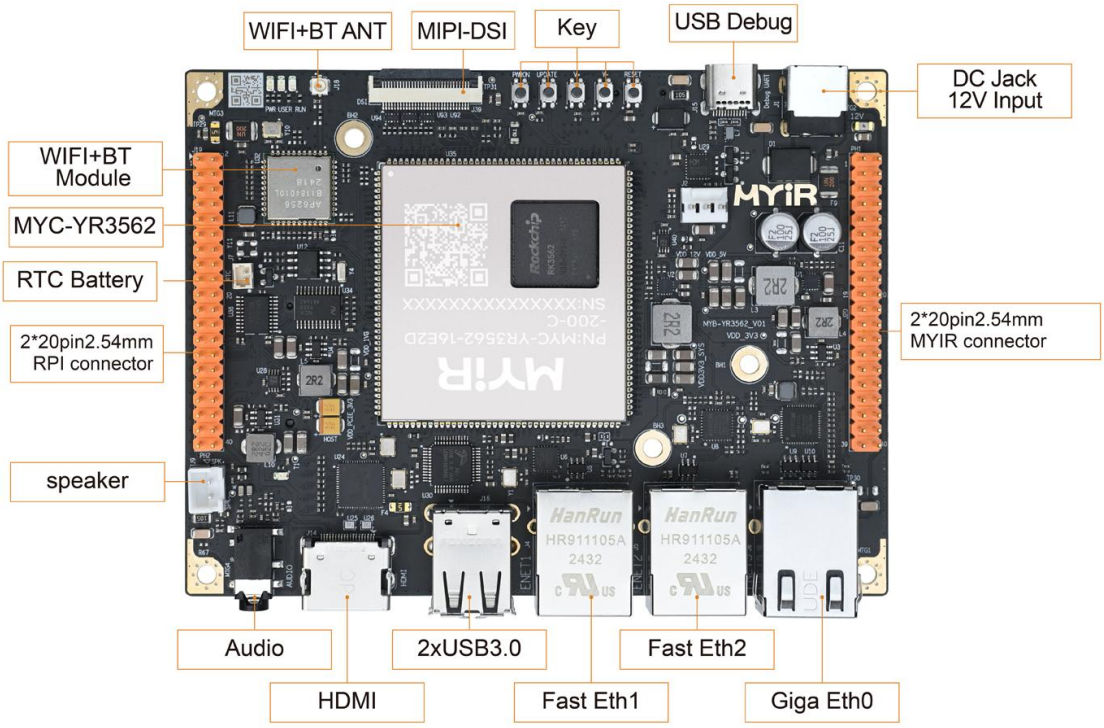
- ✓ *Rockchip RK3562/RK3562J Processor based on Up to 2.0GHz Quad ARM Cortex-A53 Cores*
- ✓ *Neural Processing Unit (NPU) Operating at Up to 1 TOPS*
- ✓ *3D GPU with Support for OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1*
- ✓ *Supports 4K 30fps H.265, 1080p 60fps H.264 Decoder and 1080P 60fps H.264 Encoder*
- ✓ *1GB/2GB LPDDR4, 8GB/16GB eMMC, 32Kbit EEPROM*
- ✓ *Power Management IC (PMIC)*
- ✓ *164-pin Castellated-Hole and 58-pin LGA expansion interfaces*
- ✓ *Supports Linux 6.1.99, Debian 12 and Ubuntu 22.04*

The MYC-YR3562 System-On-Module (SOM), measuring just 43mm by 45mm, is powered by the Rockchip RK3562 / RK3562J - a high-performance, low-power quad-core Arm Cortex-A53 processor family designed for consumer electronics equipment. It features a 1TOPS NPU, a G52 3D GPU, and supports 1080p@60fps H.264 decoding, 4K@30fps H.265 decoding, and 1080p@60fps H.264 encoding. Available with 1GB/2GB LPDDR4 and 8GB/16GB eMMC, it includes a 32Kbit EEPROM and a Power Management IC (PMIC). The module features a 222-pin expansion interface with 164-pin Castellated-Hole and 58-pin in LGA package, which simplifies soldering onto base boards, enabling a range of I/O functionalities. It is capable of running Linux 6.1.99, Debian 12 and Ubuntu 22.04 OS, and comes with comprehensive documentation and software packages, making it suitable for applications such as smart electric devices, industrial IoT, robotics, and advanced industrial systems.

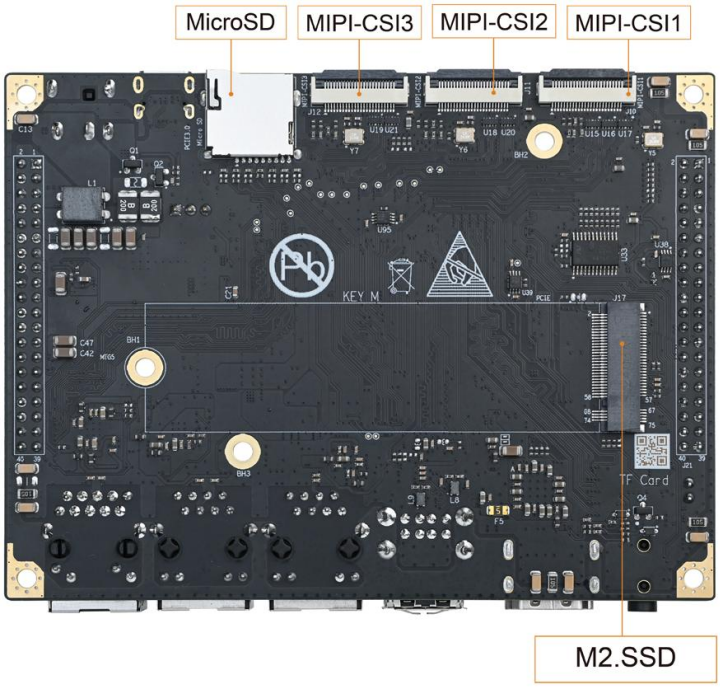


MYC-YR3562 System-On-Module Top-view and Bottom-view

MYIR's MYD-YR3562 Development Board is designed for evaluating the MYC-YR3562 SOM. It features a base board with two USB3.0 ports, one Gigabit Ethernet, two 10/100Mbps Ethernet interfaces, onboard WiFi/Bluetooth, a Micro SD card slot, and an M.2 NVMe SSD-compatible PCIe slot. The board includes a variety of multimedia interfaces such as HDMI, MIPI-DSI, three MIPI-CSI video inputs, and audio. It also offers expansion flexibility through the RPI Interface (GPIO/I2C/UART/SPI/CAN-FD) and the MiFAN Interface (GPIO/I2C/UART/SPI/USB), enabling users to tailor their development projects.

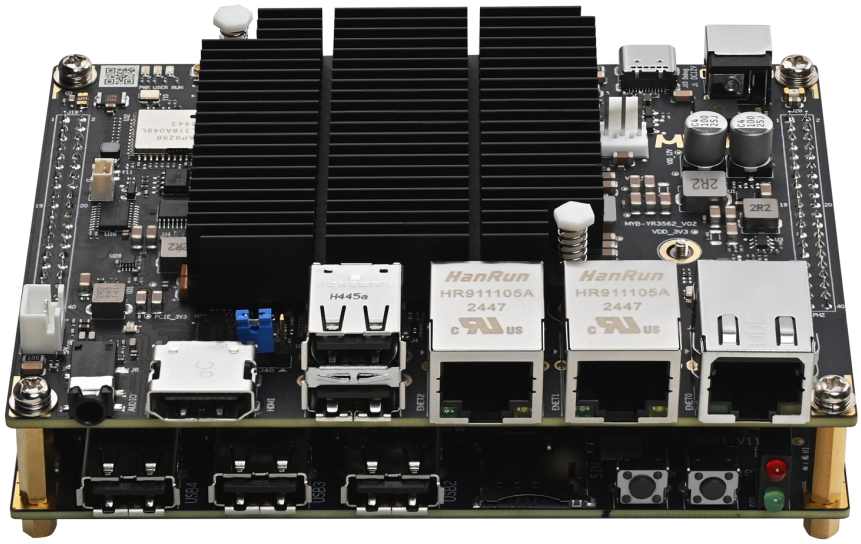


MYD-YR3562 Development Board Top-view (RK3562 CPU)

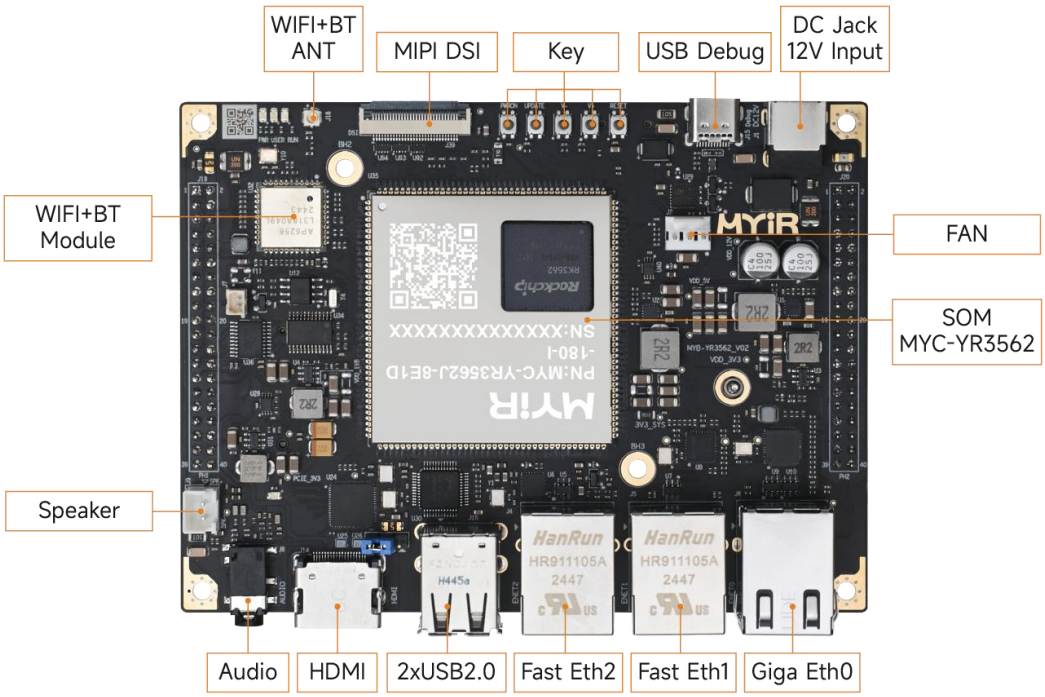


MYD-YR3562 Development Board Top-view (RK3562 CPU)

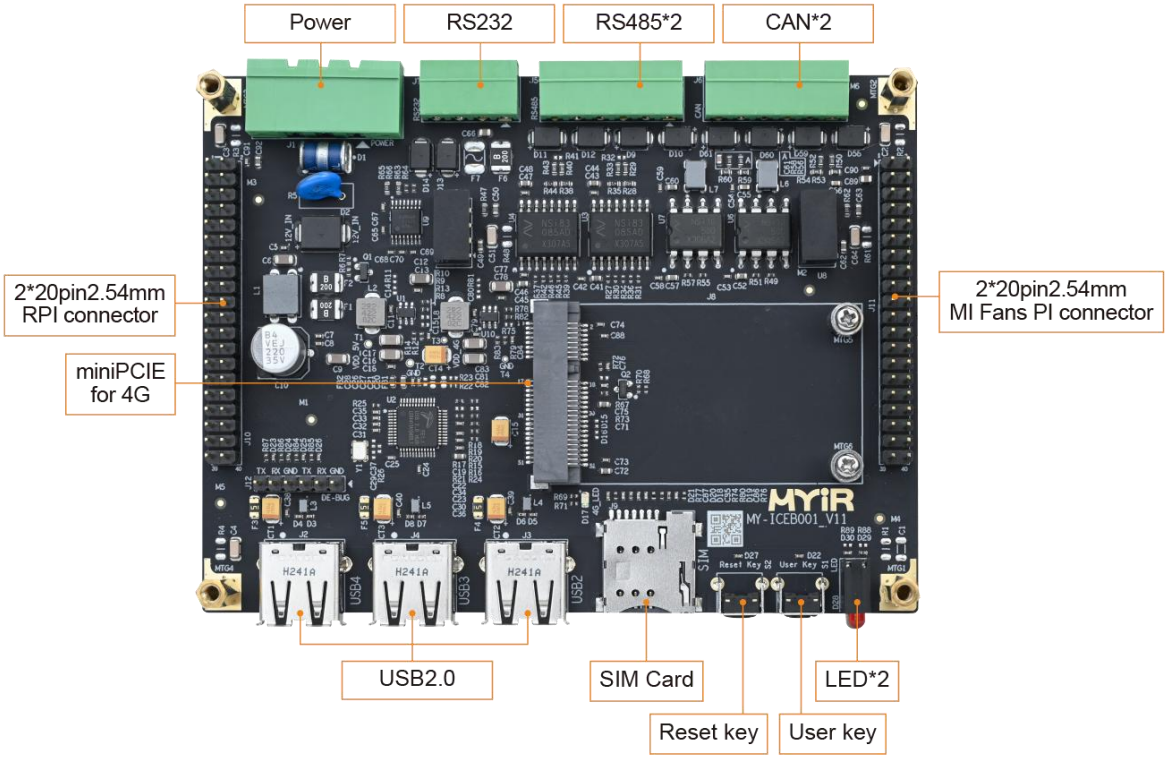
The MYD-YR3562 is equipped with a 12V/3A power adapter, a USB Type-C cable, a WiFi/Bluetooth antenna, and a quick start guide. MYIR provides optional accessories, such as the MY-CAM004M 4AHD-to-MIPI Camera Module, MY-CAM005M MIPI Camera Module, and MY-MIPI101C 10.1-inch LCD Module. The MYD-YR3562J-GK 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



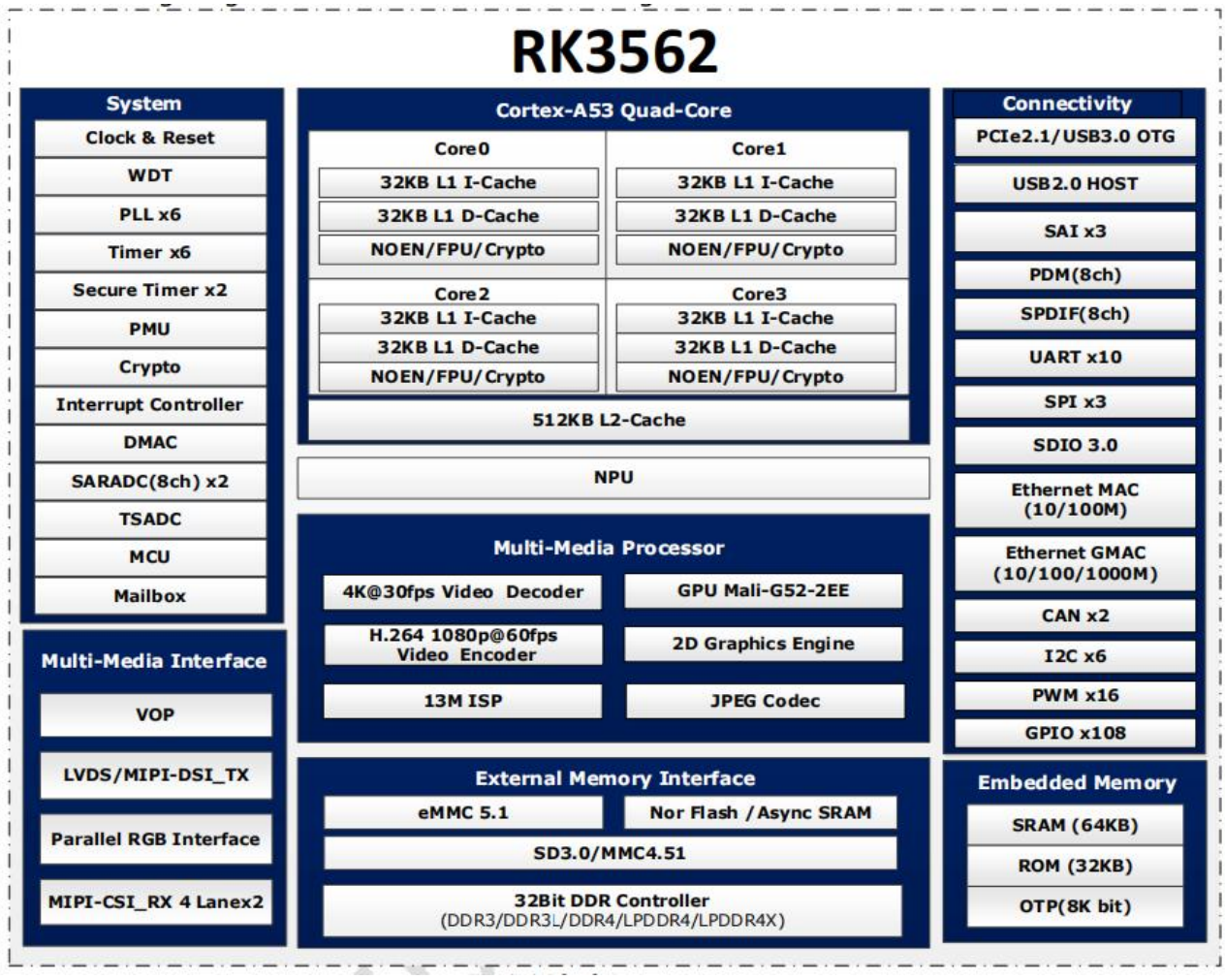
MY-ICEB001 Expansion Board

Hardware Specification

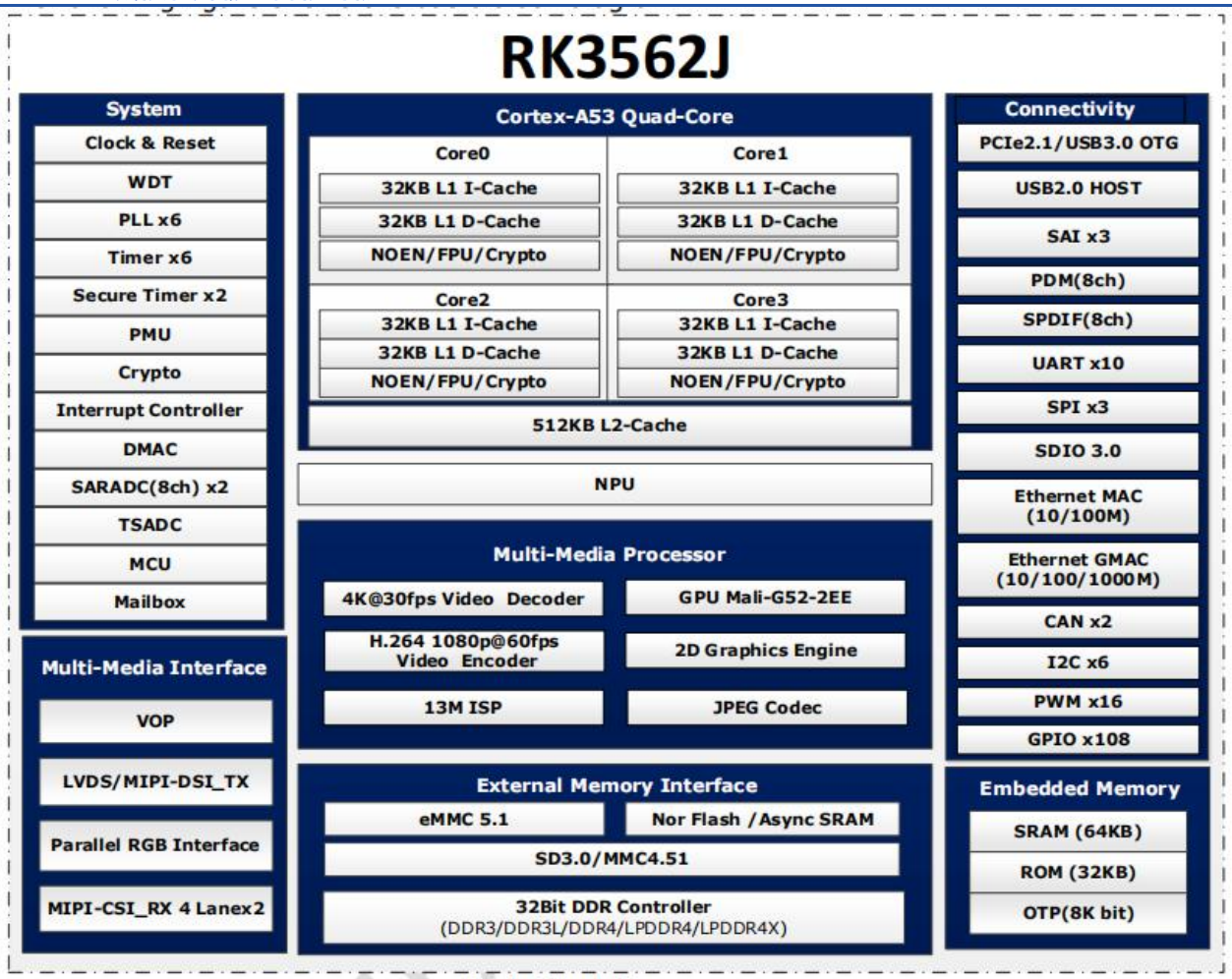
The RK3562 and RK3562J processors are high-performance, low-power solutions from Rockchip, designed for industrial automation and consumer electronics. The RK3562 supports a working temperature range from 0 to 70 degrees Celsius, whereas the RK3562J supports -40 to 85 degrees Celsius.

Both processors are equipped with several embedded hardware engines to optimize performance for high-end applications. They feature 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. 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 MYC-YR3562 System-On-Module harnesses the full capabilities of the RK3562/RK3562J processor, highlighting the following key features:

Mechanical Parameters

- Dimensions: 43mm x 45mm
- PCB Layers: 10-layer design
- Power supply: +3.3V/2A
- Working temperature: -40~85 Celsius (industrial grade, with RK3562J CPU),
  0~70 Celsius (commercial grade, with RK3562 CPU)

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

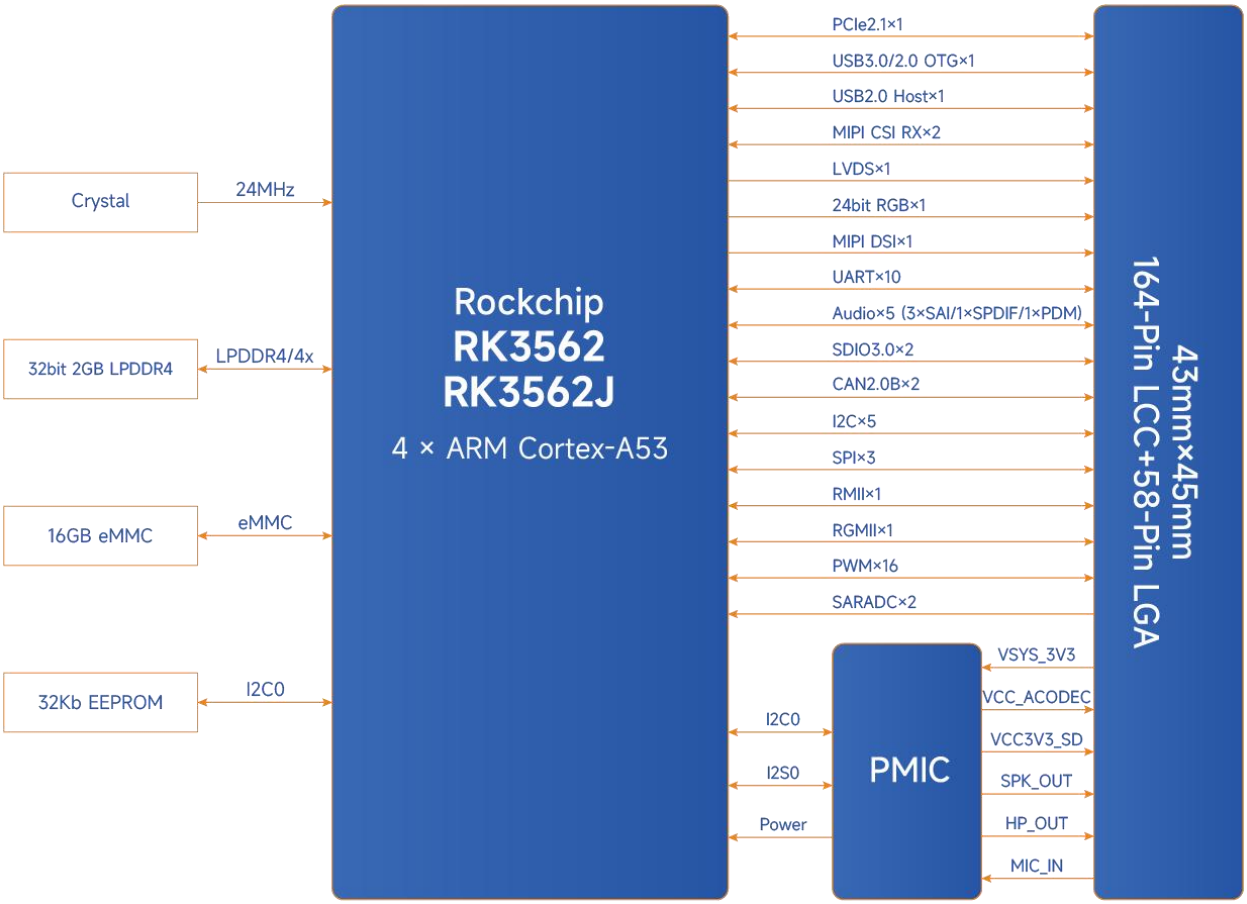
Memory and Storage

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

Peripherals and Signals Routed to Pins

- Power Management IC
- 1.0 mm 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.



MYC-YR3562 Function Block Diagram

Software Features

The MYC-YR3562 SOM supports for Linux, Debian and Ubuntu OS, and is furnished with comprehensive software packages. To facilitate clients in accelerating their projects, the kernel and numerous peripheral drivers are provided in source code format. The following is a concise overview of the software's key features:

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	Linux image built with buildroot	YES
	myir-image-debian	Images built on debian system	YES
	Ubuntu 22.04	Image with built with Ubuntu 22.04	YES

MYD-YR3562 Software Features

Order Information

<table>
<tr><th>Product Item</th><th>Part No.</th><th>Packing List</th></tr>
<tr><td rowspan="3">MYC-YR3562
System-On-Module</td><td>MYC-YR3562J-8E1D-180-I</td><td rowspan="3">✓ One MYC-YR3562 SOM</td></tr>
<tr><td>MYC-YR3562J-16E2D-180-I</td></tr>
<tr><td>MYC-YR3562-16E2D-200-C</td></tr>
<tr><td>MYD-YR3562
Development Board</td><td>MYD-YR3562-16E2D-200-C
(RK3562, 2GB LPDDR4, 16GB eMMC)</td><td>✓ One MYD-YR3562 Board
✓ One 12V/3A Power adapter
✓ One USB Type-C cable
✓ One WiFi/BT PCB antenna
(with ipex connector)
✓ One Quick Start Guide</td></tr>
<tr><td>MYD-YR3562J-GK
Development Kit</td><td>MYD-YR3562J-16E2D-180-I-GK
(RK3562J, 2GB LPDDR4, 16GB eMMC)</td><td>✓ One MYD-YR3562 Board
✓ One MY-ICEB001 Expansion Board
✓ One 12V/3A Power adapter
✓ One USB Type-C cable
✓ One WiFi/BT PCB antenna
(with ipex connector)
One Quick Start Guide</td></tr>
<tr><td>MY-MIPI101C
10.1-inch LCD Module</td><td>MY-MIPI101C</td><td rowspan="3">Add-on Options
✓ MY-MIPI101C 10.1-inch LCD Module
✓ MY-CAM004M MIPI Camera Module
✓ MY-CAM005M MIPI Camera Module</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 orders for extras.
2. Bulk discounts are available. For inquiries, kindly contact MYIR.
3. We cater to custom design requests based on the MYD-YR3562, whether it involves reducing, adding or modifying the existing hardware components to suit the customers' specific needs.</td></tr>
</table>

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