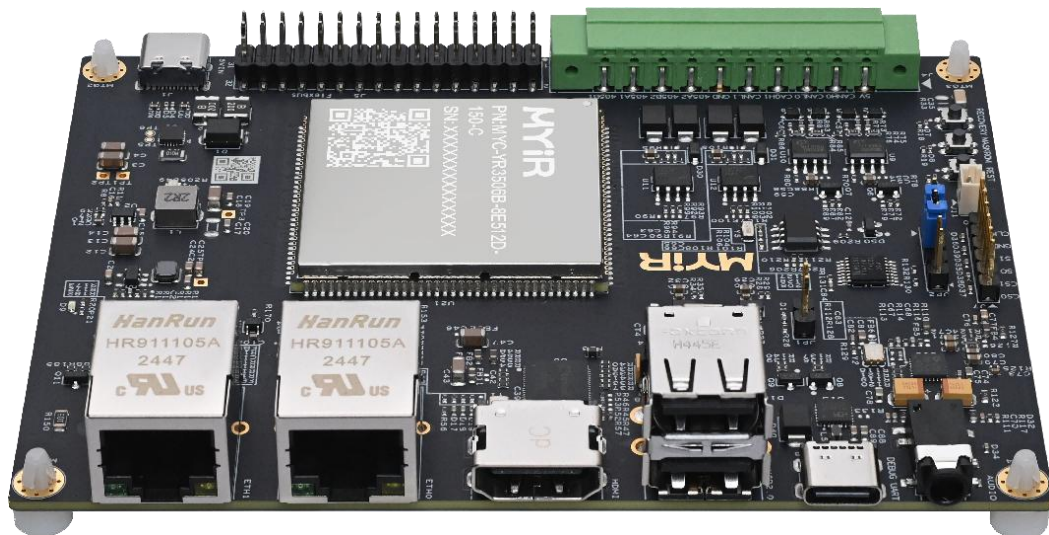


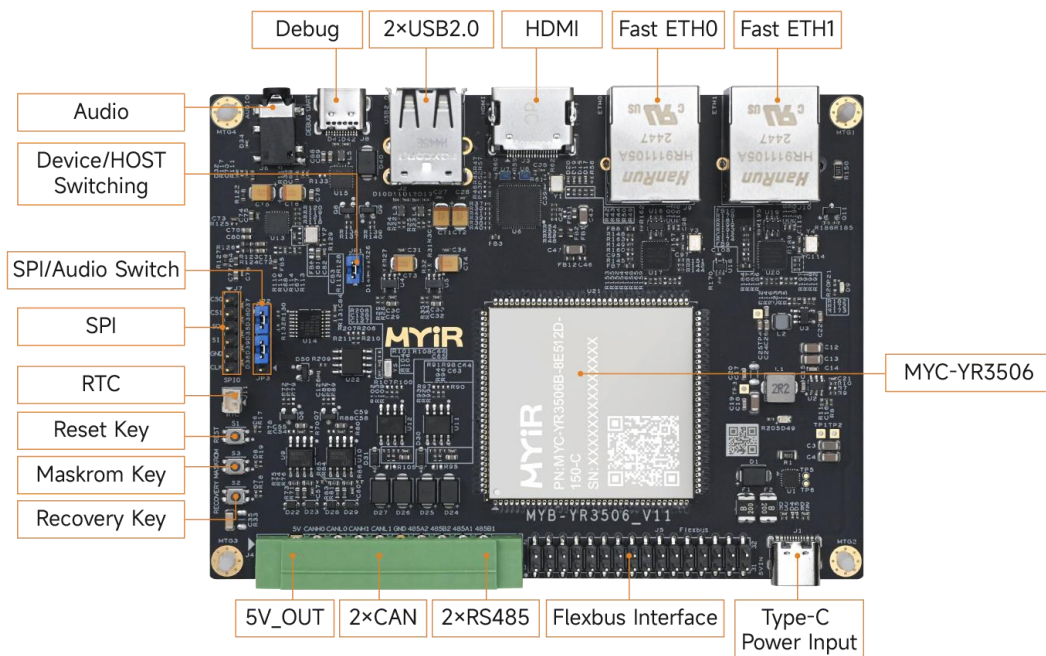
MYD-YR3506 Development Board Overview



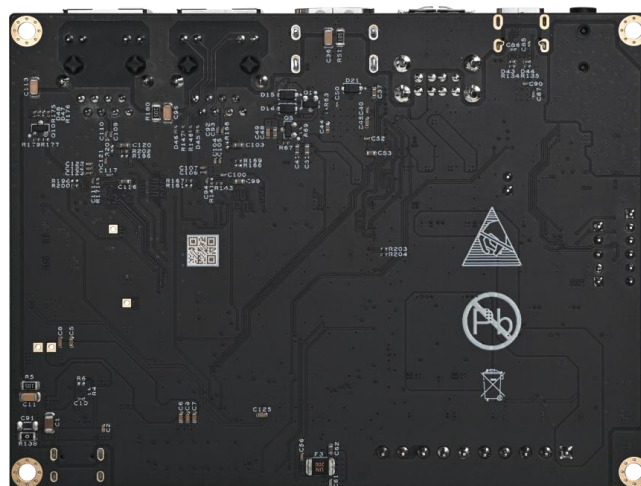
- ✓ MYC-YR3506 SOM as Controller Board
- ✓ Rockchip RK3506 Processor based on up to 1.5GHz Tripe ARM Cortex-A7 and 200MHz Cortex-M0 Cores
- ✓ 256MB/512MB LPDDR3L, 256MB Nand Flash/8GB eMMC, 32Kbit EEPROM
- ✓ 2x USB 2.0, 2x 10/100Mbps Ethernet, 1x SPI, 1x DSMC, 2x CAN, 2x RS485, 1x HDMI, 1x Audio Input/Output
- ✓ Ready to Run Linux 6.1.99 OS

The MYD-YR3506 Development Board is powered by the RK3506 series processor, a high-performance chip designed for industrial and commercial applications. This processor up to 1.5GHz Tripe ARM Cortex-A7 cores and 200MHz Cortex-M0 real-time MCU, coupled with the 2D graphic engine and support for a variety of display interfaces such as MIPI and Parallel DSI. The board supports for Linux OS, and it can withstand industrial working temperature range from -40 to 85 Celsius or the commercial range from 0 to 70 Celsius.

The MYD-YR3506 Development Board is built around the MYC-YR3506 System-On-Module (SOM) and leverages the advanced features of the Rockchip RK3506 processor through its 1.0mm pitch 140-pin Castellated-Hole expansion interfaces. The expansion base board is equipped with two 10/100Mbps Ethernet interfaces, two USB ports, one SPI interface, two CAN interfaces, two RS485 interfaces and one DSMC interface. In terms of multimedia capabilities, the board provides one HDMI port and one Audio Input and Output interface. Besides, the MYD-YR3506 Development Board is fully compatible with Linux 6.1.99 operating system, ensuring reliable and efficient performance for a wide range of applications. MYIR offers a comprehensive suite of software resources, including the source code for the kernel and drivers, along with detailed documentation and development tools. This extensive support enables developers to harness the full potential of the MYD-YR3506, ultimately enhancing their innovation and productivity.



MYD-YR3506 Development Board (Top view)



MYD-YR3506 Development Board (Bottom view)

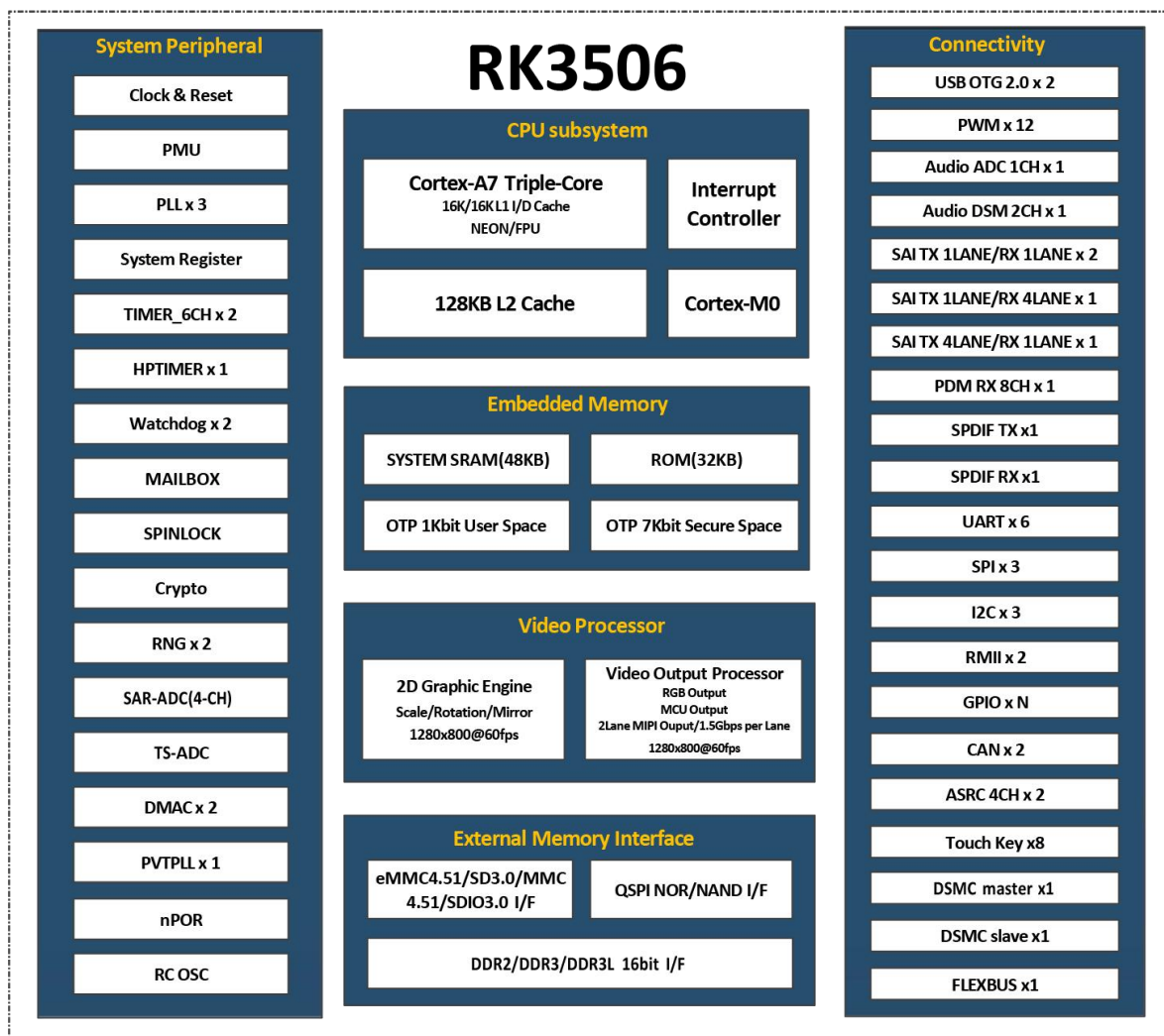


Hardware Specification

MYIR utilizes the RK3506B and RK3506J for its MYC-YR3506 System-On-Module. The Rockchip RK3506 series processor is a high-performance chip designed for industrial and commercial applications. It integrates tripe-core ARM Cortex-A7 main CPU and single Cortex-M0 real-time MCU, with 2D graphic engine and support for a variety of display interfaces such as MIPI and Parallel DSI. The processor also integrates rich interfaces such as DSMC (Localbus), FLEXBUS, Dual 100 Mbps Ethernet, USB2.0, CAN, SDIO/SD/MMC, I2C, SPI, and UART, which are suitable for the new generation of power intelligent devices, industrial gateways, industrial control devices, demonstrators, HMIs, commercial displays, and smart homes, etc., which require high reliability and real-time application scenarios.

| Features | RK3506G2 | RK3506B | RK3506J |
|-----------------|----------------------------|--|--|
| CPU Clock Speed | 1.2GHz | 1.5GHz | 1.2GHz |
| DDR | Embedded DDR3L 128MB | 16-bit DDR2/DDR3/DDR3L External Memory | 16-bit DDR2/DDR3/DDR3L External Memory |
| Packaging | QFN128L 12.3mm x 12.3mm | FBGA333L 13.3mm x 11.3mm | FBGA333L 13.3mm x 11.3mm |
| Working Temp. | -20°C to 80°C | -20°C to 80°C | -40°C to 85°C |

RK3506 Application Processors



RK3506 Block Diagram

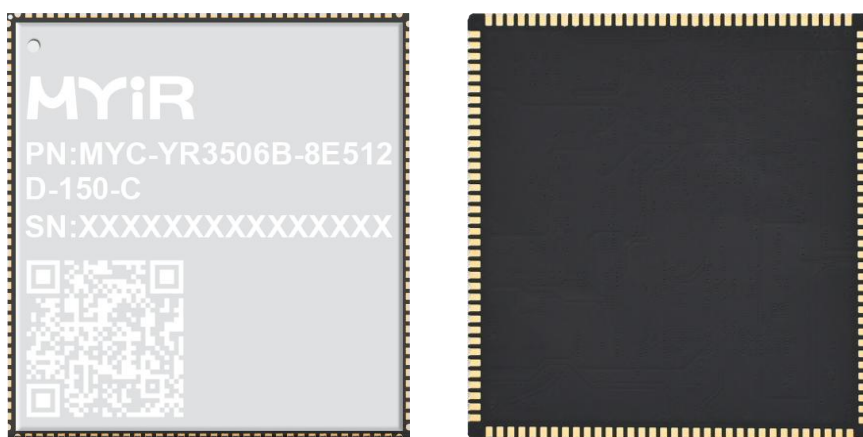


The MYD-YR3506 Development Board utilizes the MYC-YR3506 as its core controller board, featuring the Rockchip RK3506 processor. The primary characteristics are as follows:

Mechanical Parameters

- Dimensions: 120mm x 90mm (base board), 37mm x 39mm (SOM)
- PCB Layers: 6-layer design (base board), 8-layer design (SOM)
- Power supply: +5V/3A (base board); +5V/2A (SOM)
- Working temperature: 0~70 Celsius (commercial grade) or -40~85 Celsius (industrial grade)

The MYD-YR3506 Controller Board (MYC-YR3506 SOM)



MYC-YR3506 System On Module (Top-view and Bottom-view)

Processor

- Rockchip RK3506 processor
 - RK3506B: Tripe-core ARM Cortex-A7@1.5GHz + Cortex-M0@200MHz
 - RK3506J: Tripe-core ARM Cortex-A7@1.2GHz + Cortex-M0@200MHz
 - 2D Graphics Engine
 - Supports dual-channel MIPI output, with the maximum output resolution of 1280x1280@60fps

Memory

- 256MB/512MB LPDDR3L
- 256MB Nand Flash/8GB eMMC
- 32Kbit EEPROM

Peripherals and Signals Routed to Pins

- 140-pin Castellated-Hole Expansion Interfaces
 - 2x RMII
 - 2x USB2.0 OTG
 - 3x SPI
 - 6x UART
 - 2x CAN
 - 3x I2C
 - 12x PWM
 - 1x SARADC
 - 1x DSMC Master, 1x DSMC Slave

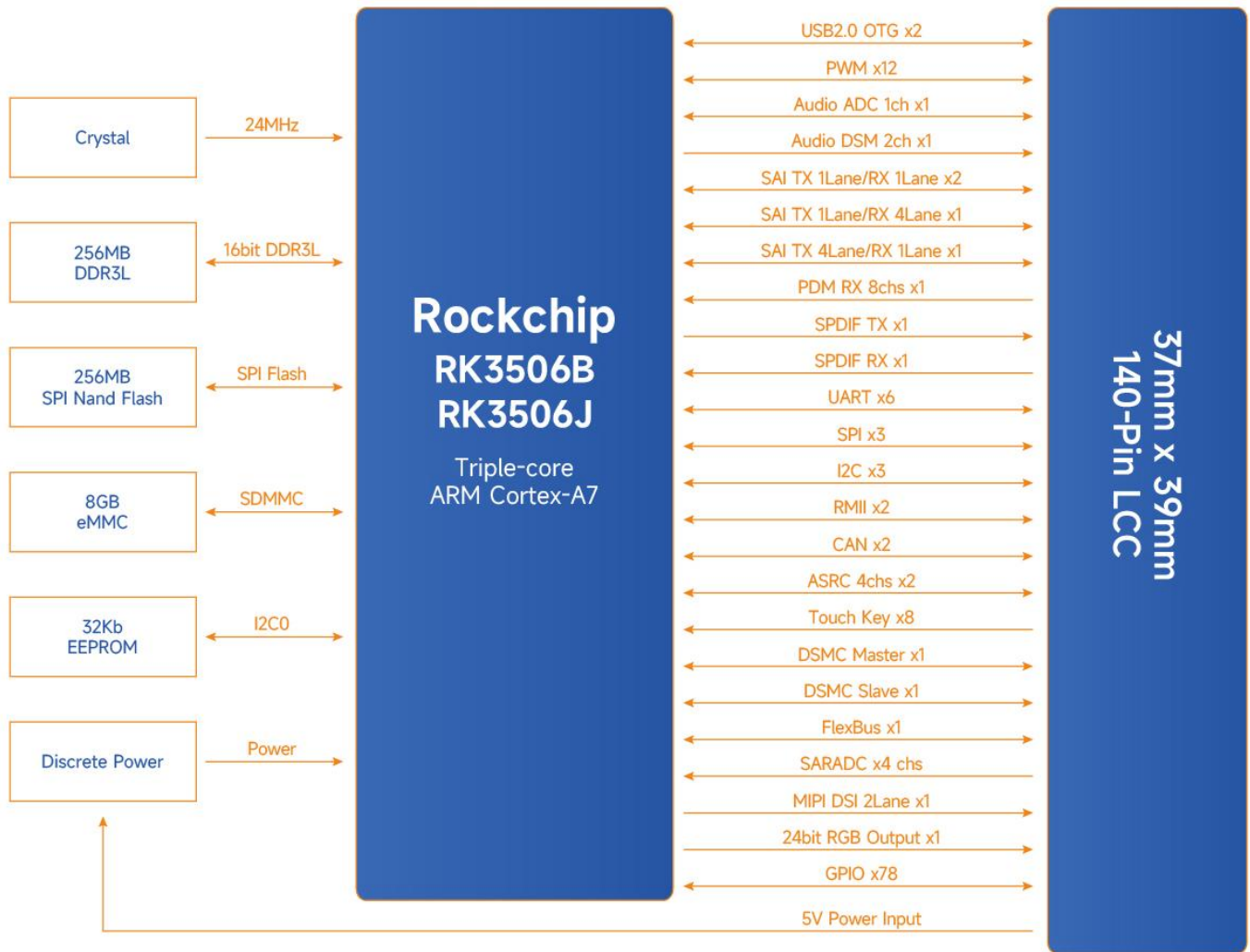


- 1x FlexBus
- 2x MIPI CSI
- 1x MIPI DSI 2Lane
- 1x 24bit RGB
- 2x SAI TX 1Lane/RX 1Lane
- 1x SAI TX 1Lane/RX 4Lane
- 1x SAI TX 4Lane/RX 1Lane
- 1x SPDIF TX
- 1x SPDIF RX
- 1x PDM RX 8ch
- 1x Audio ADC 1ch
- 1x Audio DSM 2ch
- 2x ASRC 4chs
- 78x GPIO

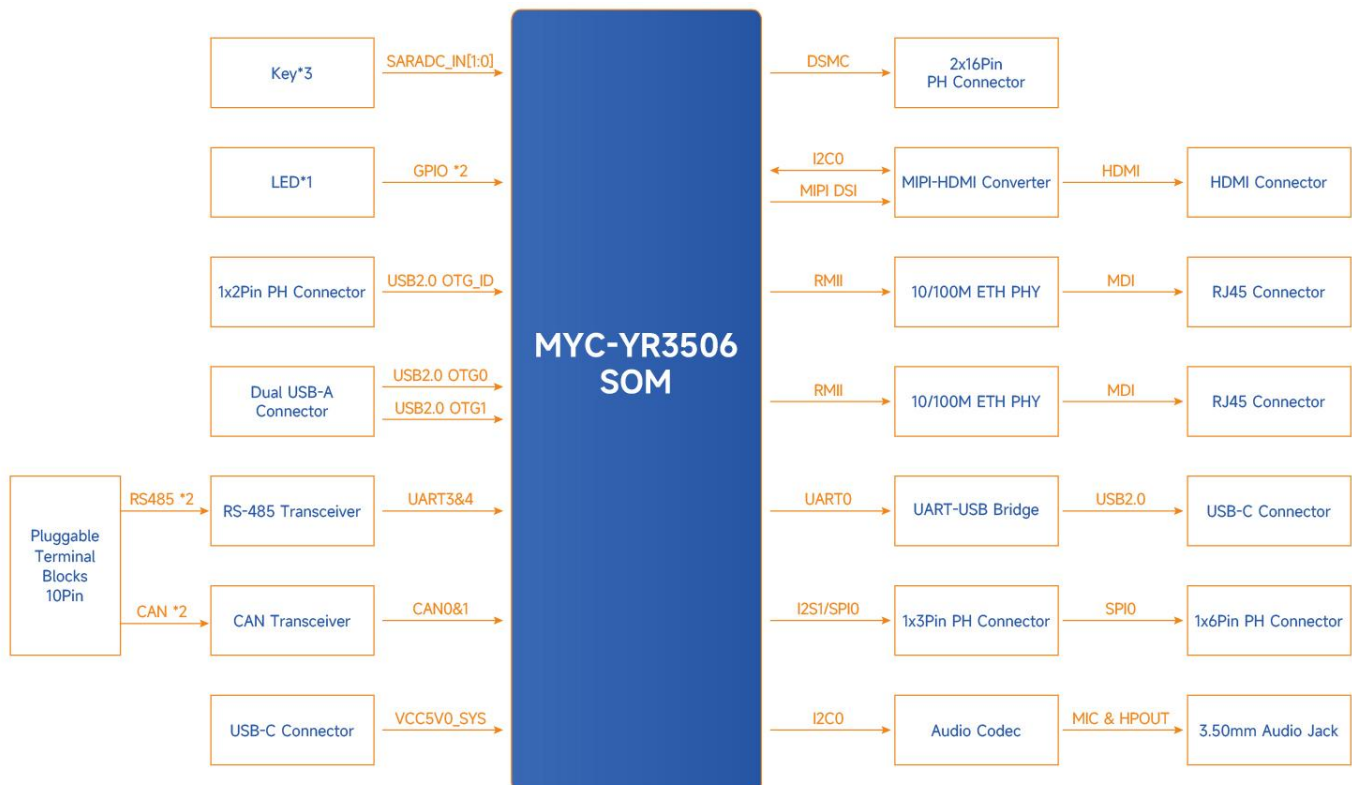
Note: the peripheral signals brought out to the expansion interface are listed in maximum number. Some signals are reused. Please refer to the processor datasheet and the SOM pinout description file.

The MYD-YR3506 Development Board Base Board

- 5V/3A USB Power Supply (Type-C)
- 3x Buttons (Reset, Recovery, Maskrom)
- 1x Debug UART (USB Type-C connector)
- 2x 10/100Mbps Ethernet
- 2x USB2.0 OTG
- 1x SPI Interface (6-pin connector)
- 1x 16-bit DSMC Interface
- 2x RS485 (Via Phoenix Terminal)
- 2x CAN (Via Phoenix Terminal)
- 1x Audio Input and Output Interface
- 1x HDMI Interface



MYC-YR3506 Function Block Diagram



MYD-YR3506 Function Block Diagram



Software Features

The MYD-YR3506 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 | Features | Source Code |
|---------------|------------------|--|-------------|
| Bootloader | SPL | First bootloader | YES |
| | U-boot | The second boot program uboot_2017.09 | YES |
| Linux kernel | Linux kernel | Customized based on official kernel_6.1.99 version | YES |
| Device driver | USB OTG | USB OTG driver | YES |
| | I2C | I2C bus driver | YES |
| | SPI | SPI bus driver | YES |
| | Ethernet | YT8522H driver | YES |
| | Audio | ES8388 audio driver | YES |
| | MIPI-HDMI | LT9611 driver | YES |
| | GPIO | General purpose GPIO driver | YES |
| | RS485 | CS48520S driver | YES |
| | UART | CH342F driver | YES |
| | CAN | SIT1050T driver | YES |
| | DSMC | DSMC driver | YES |
| File system | myir-image-linux | A fully functional image built with buildroot, including all complete hardware drivers, commonly used system tools, debugging tools, etc | YES |

MYC-YR3506 Software Features



Order Information

| Product Item | Part No. | Packing List |
|---------------------------------|----------------------------|---|
| MYD-YR3506 Development Board | MYD-YR3506B-8E512D-150-C | ✓ One MYD-YR3506 Development Board |
| | MYD-YR3506J-8E512D-120-I | ✓ One USB TYPE-C Cable ✓ One Quick Start Guide |
| MYC-YR3506 System-On-Module | MYC-YR3506B-8E512D-150-C | ✓ One MYC-YR3506 SOM |
| | MYC-YR3506B-256N256D-150-C | |
| | MYC-YR3506J-256N256D-120-I | |
| | MYC-YR3506J-8E512D-120-I | |

Note:

1. One MYD-YR3506 Development Board comprises one MYC-YR3506 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-YR3506, whether reducing, adding or modifying the existing hardware according to customer's requirement.



MYIR Electronics Limited

Headquarter Address: Room 04, 6th Floor, Building No.2, Fada Road, Yunli Smart Park, Bantian, Longgang District, Shenzhen, Guangdong, China 518129

Factory Address: Room 201, Block C, Shengjianli Industrial Park, Dafu Industrial Zone, Guanlan, Longhua District, Shenzhen, 518110, China

Website: en.myir.cn

Email: sales@myir.cn

Tel: +86-755-22984836