MYiR 米尔电子
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MYC-JR3588
System-On-Module
Overview





- ✓ *Rockchip RK3588(J) Octa-core Arm processor with 4x Cortex-A76 cores@2.4GHz and 4x Cortex-A55 cores@1.8GHz, plus 3x Cortex-M0*
- ✓ *Neural Processing Unit (NPU) up to 6 TOPS, ARM Mali-G610 MP4 3D GPU*
- ✓ *Supports Up to 8K@60fps High Frame Rate Video Decoding*
- ✓ *8GB LPDDR5, 64GB eMMC, 32Kbit EEPROM*
- ✓ *Onboard WiFi 6 & BT 5.4 Module*
- ✓ *SMARC 2.2 314-pin Expansion Connector*
- ✓ *Supports Working Temperature Ranging from 0 ~ +70 Celsius and -40 ~ +85 Celsius*
- ✓ *Linux BSP, Yocto Support*

Measuring 82mm x 50mm, the MYC-JR3588 is a high-performance Edge AI SMARC System-on-Module (SOM) powered by the Rockchip RK3588/RK3588J processor. It features an octa-core 64-bit CPU that combines four Cortex-A76 cores (up to 2.4 GHz) and four Cortex-A55 cores (up to 1.8 GHz) for application processing, three Cortex-M0 cores for real-time control, and a 6 TOPS NPU plus ARM Mali-G610 MP4 3D GPU for edge AI inference and graphics.

The MYC-JR3588 SOM integrates LPDDR5 (8GB), eMMC (64GB), and 32Kbit EEPROM for flexible storage options, along with an onboard WFi 6 and BT 5.4 module, a Gigabit Ethernet PHY, and a USB 3.0 HUB. Security is reinforced by an independent TPM 2.0 chip and the built-in RK3588 security subsystem, while the onboard PMIC delivers efficient power management.

The 314-pin SMARC 2.2 connector delivers versatile expansion options, including dual Gigabit Ethernet, multi-display outputs (HDMI, DP, MIPI-DSI/LVDS), three MIPI-CSI camera inputs, PCIe/SATA, USB 3.0/USB 2.0, along with a full suite of UART, SPI, I2C, PWM, SDIO, interfaces for peripheral integration.

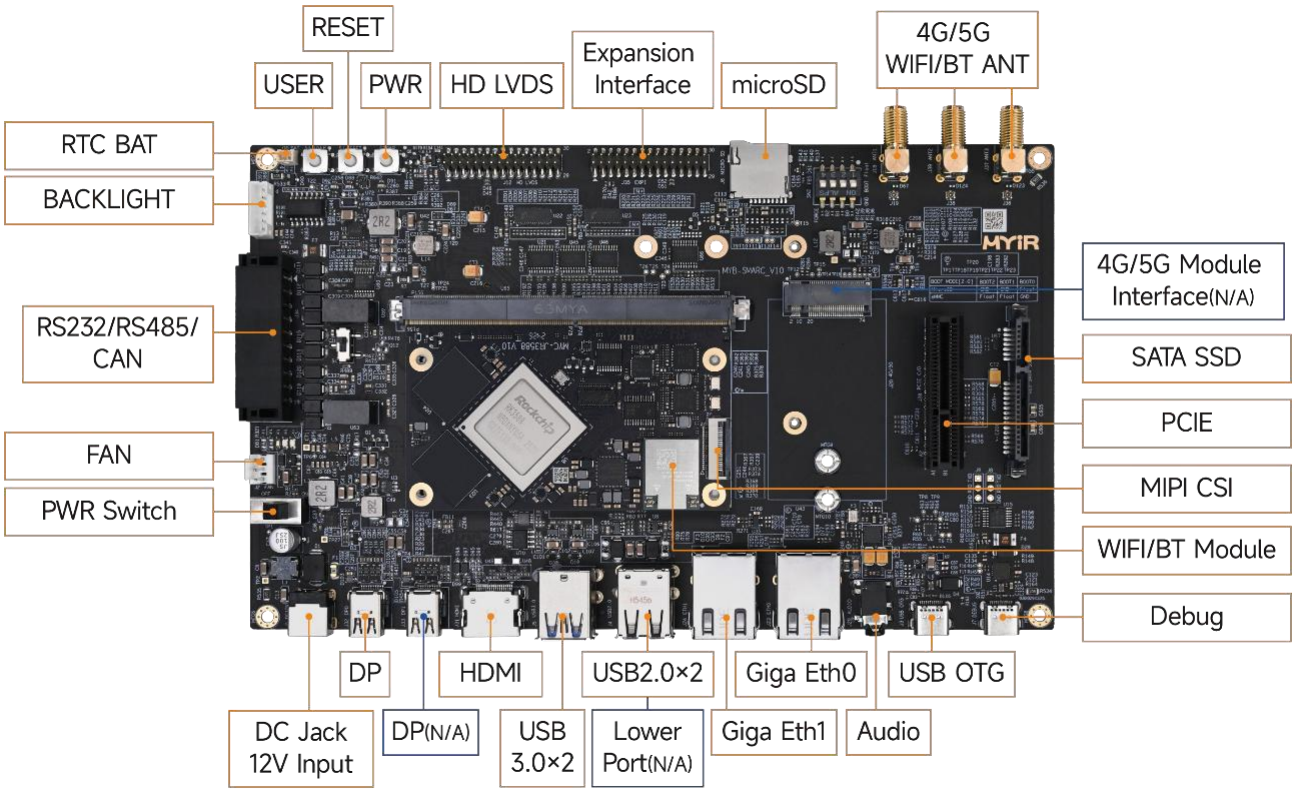
MYIR provides a complete software package including Yocto Linux (kernel 6.1) BSP, open-source drivers, and documentation to accelerate time-to-market. The module is available in commercial (0 to +70 ℃) and industrial (-40 to +85 ℃) temperature grades, making it Suitable for a wide range of high-end applications, including edge computing, robotic control, intelligent security, AGV/AMR, smart healthcare, and in-vehicle displays.



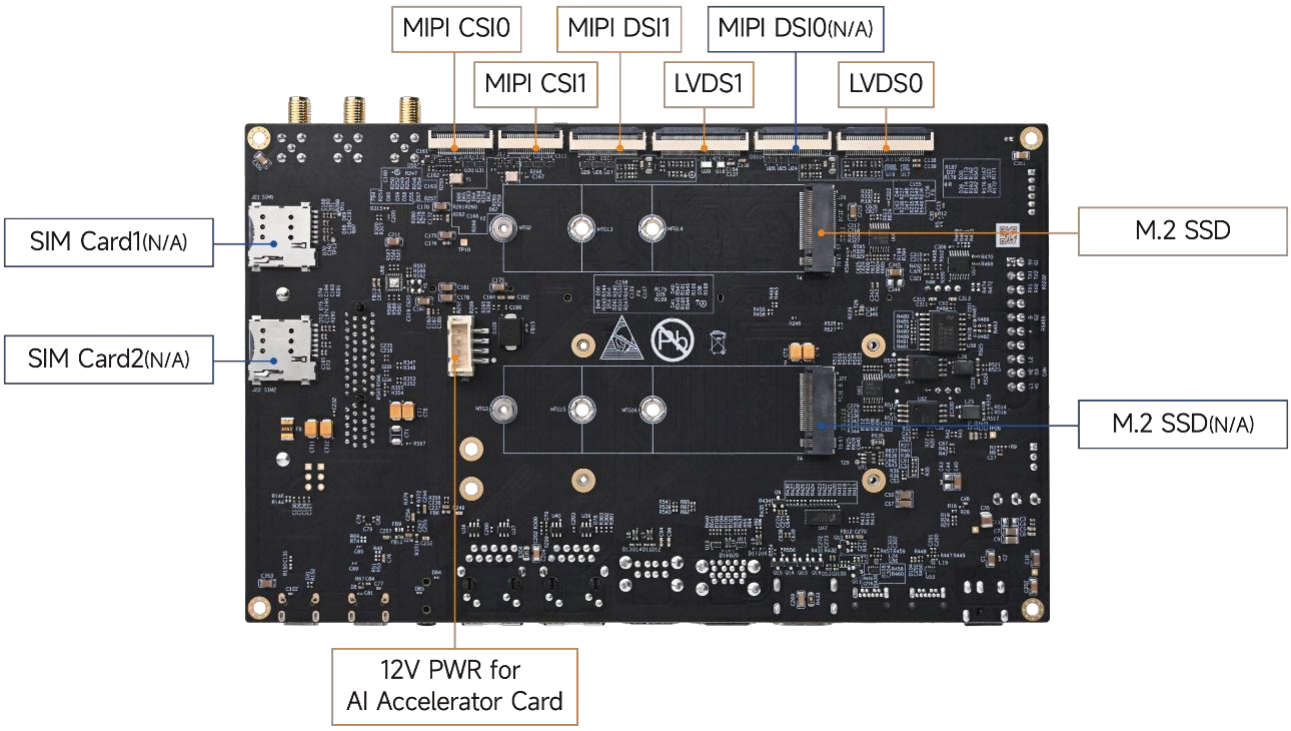
MYC-JR3588 System-On-Module (Top-view and Bottom-view)

The MYD-JR3588 development board combines the MYC-JR3588 SOM with a carrier board via a 314-pin SMARC connector. The carrier board delivers extensive evaluation interfaces, including dual Gigabit Ethernet, M.2-2280 PCIe for NVMe SSD, MicroSD, multiple USB ports (2x USB 3.0 Host, 1x USB 2.0 Host, and 1x USB 2.0 OTG), and RS485 & RS232 shared on a single Phoenix connector. For display and imaging, it supports HDMI, MIPI-DSI/LVDS, and DisplayPort (DP), plus three MIPI-CSI camera inputs and audio I/O. This rich I/O portfolio makes it a solid reference platform for evaluating and prototyping RK3588-based solutions.

To enhance development flexibility, MYIR offers optional display and camera accessories for the MYD-JR3588: the MY-MIPI101C-V2 10.1-inch MIPI display, the MY-LVDS070C 7-inch LVDS display, and the MY-CAM003M (5MP) / MY-CAM005M (13MP) MIPI-CSI camera modules, providing a streamlined, ready-to-use development experience.



MYD-JR3588 Development Board (Top-view)

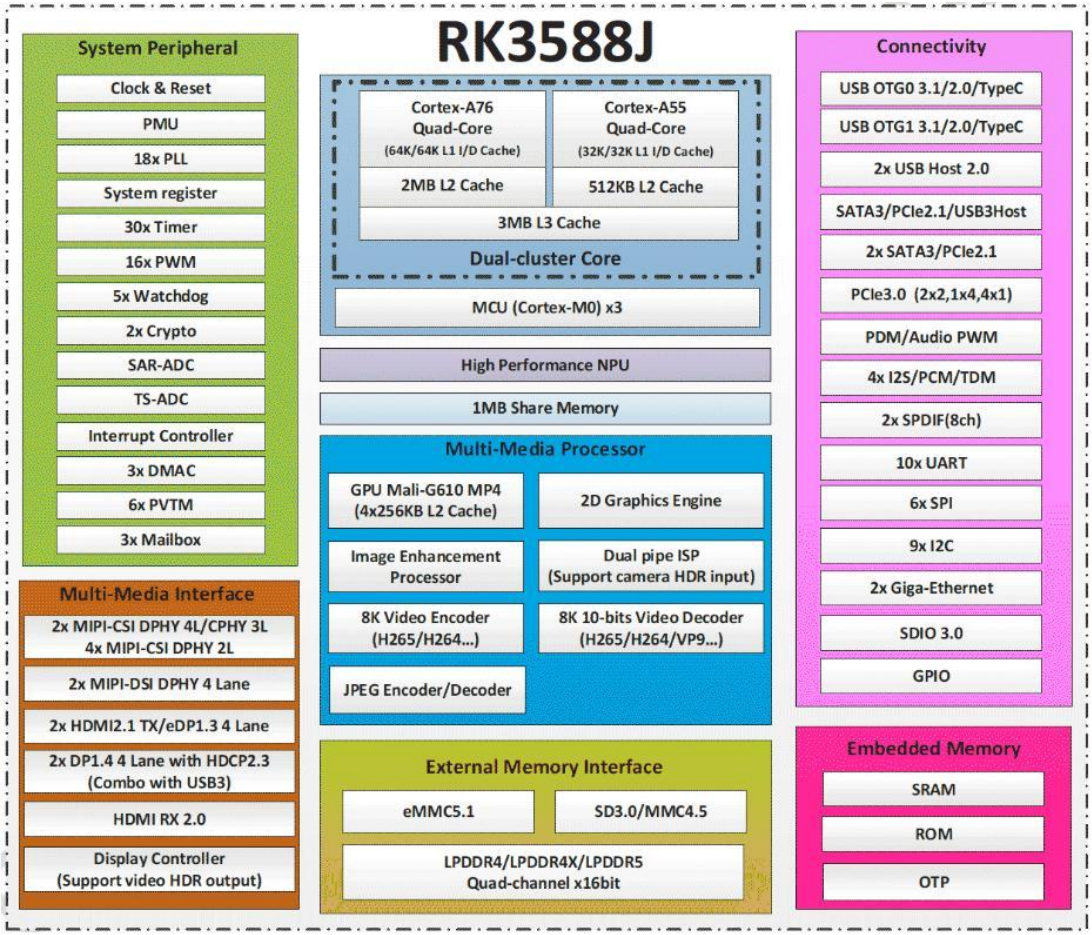


MYD-JR3588 Development Board (Bottom-view)

Hardware Specification

The MYC-JR3588 System-on-Module (SOM) is powered by the Rockchip RK3588 applications processor, which is offered in two grades: the commercial RK3588 and the industrial RK3588J. The processor is built on an octa-core 64-bit CPU combining 4x Cortex-A76 and 4x Cortex-A55 cores with 3 Cortex-M0 real-time cores, and integrates a 6 TOPS NPU for edge AI inference and an ARM Mali-G610 MP4 3D GPU. Its multimedia engine supports 8K@60fps video decoding (H.265, VP9) and 8K@30fps encoding (H.265, H.264), together with a rich set of display and camera interfaces including HDMI, eDP, DP, MIPI-DSI, Parallel RGB, MIPI-CSI ,48M ISP

The processor also provides a comprehensive peripheral set covering dual Gigabit Ethernet, PCIe 3.0, USB 3.1, SATA 3.0, SDIO, UART, making the RK3588 well-suited for a broad range of high-end industrial, robotics, medical and AIoT applications requiring intelligent edge-AI features with optimized power consumption.



RK3588 Series Processor Block Diagram

The MYC-JR3588 takes full advantage of the Rockchip RK3588 processor and the main features are characterized as below:

Mechanical Parameters

- Dimensions: 82mm x 50mm
- PCB Layers: 12-layer design
- Power Supply: +5V
- Working temperature: 0~+70 Celsius (commercial grade) / -40~+85 Celsius (industrial grade)

Processor

- Rockchip RK3588 processor (RK3588 / RK3588J)
  - 4x Cortex-A76 @2.4GHz + 4x Cortex-A55 @1.8GHz (RK3588, commercial grade)
  - 4x Cortex-A76 @1.6GHz + 4x Cortex-A55 @1.3GHz (RK3588J, industrial grade)
  - 3x Cortex-M0 real-time core @200 MHz
  - Integrated 6 TOPS NPU (INT8) for edge AI inference
  - Arm Mali-G610 MP4 3D GPU
  - Supports up to 8K@60fps video decoding (H.265 and VP9,) and video encoder up to 8K@30fps video encoding (H.265 and H.264)

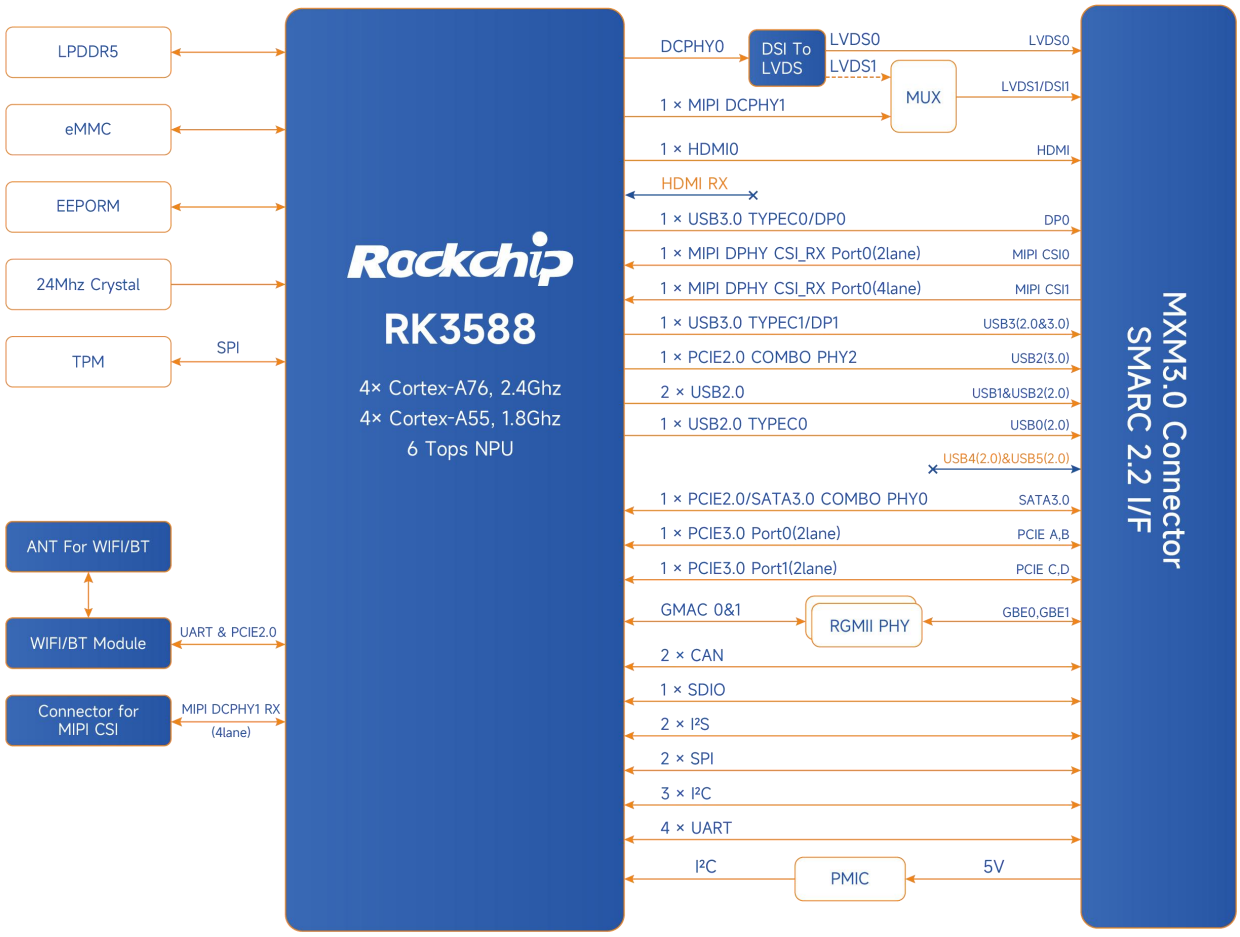
Memory

- 8GB LPDDR5
- 64GB eMMC
- 32Kbit EEPROM

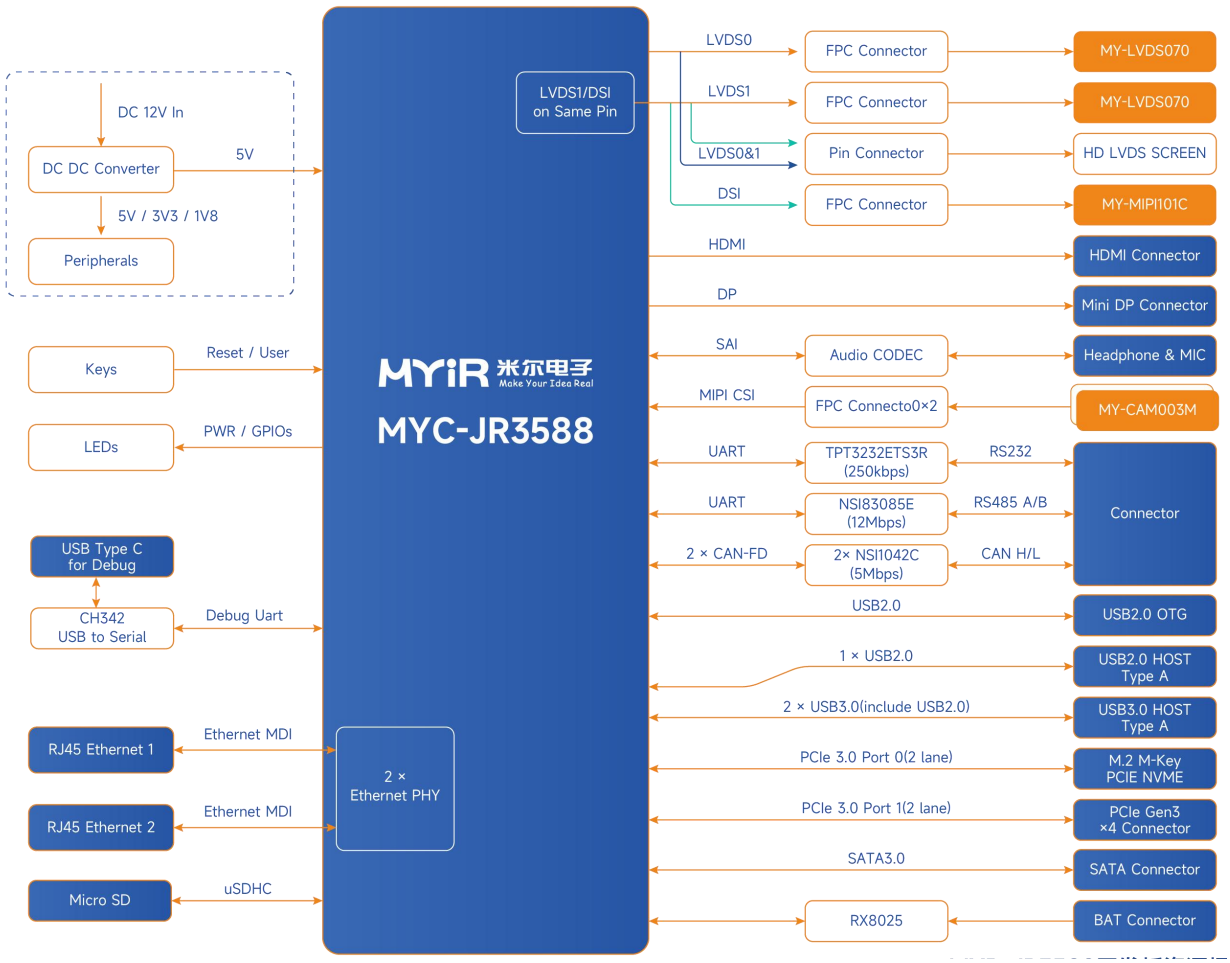
Peripherals and Signals Routed to Pins

- Onboard WiFi 6 (802.11a/b/g/n/ac/ax) + Bluetooth 5.4 Module
- Independent TPM 2.0 security chip
- Gigabit Ethernet PHY
- 314-pin SMARC 2.2 Expansion Connector
  - 2x GBE MDI, 10/100/1000Mbps
  - 1x USB 2.0 OTG
  - 1x USB 2.0 Host
  - 2x USB 3.0 Host
  - 1x PCIE3.0 4-lane or 2x PCIE3.0 2-lane
  - 1x SATA 3.0
  - 4x UART
  - 2x SPI
  - 3x I2C
  - 1x SDIO
  - 3x PWM
  - 14x GPIO
  - 3x MIPI CSI (2x 4-lane, 1x 2-lane)
  - 2x LVDS (or 1xLVDS + 1x MIPI DSI, MIPI DSI is multiplexed with LVDS1)
  - 1x HDMI, 1x DP
  - 2x I2S

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-JR3588 Function Block Diagram



MYD-JR3588 Function Block Diagram

Software Features

The MYC-JR3588 System-On-Module is fully compatible with Linux OS and comes with a complete set of software packages. To help clients accelerate their projects, the source code for the kernel and various peripheral drivers is included. The main software features are summarized below:

Item	Features	Description	Source Code
Bootloader	U-boot	Boot program uboot_2017.09	YES
Kernel	Linux kernel	Customized based on official kernel_6.1 version	YES
Driver	EEPROM	BL24C32F driver	YES
	Ethernet	YT8531SH driver	YES
	WIFI	AW-XM729 driver	YES
	BT	AW-XM729 driver	YES
	LVDS	LT89211 driver	YES
	MIPI DSI	MIPI DSI driver	YES
	HDMI	HDMI driver	YES
	DP	DP driver	YES
	MIPI CSI	OV5640 and OV13855 driver	YES
	Audio	ES8390 driver	YES
	RTC	RX-8025T driver	YES
	Micro SD	SD card driver	YES
	UART	RS485/RS232 driver	YES
	GPIO	GPIO driver	YES
	TPM2.0	TPM driver	-
File system	myir-image-jr3588-yocto	Linux Image built as Yocto	YES

MYC-JR3588 Software Features

Order Information

Product Item	Part No.	Packing List
MYC-JR3588 System-On-Module	MYC-JR3588-64E8D-240-C	✓ One MYC-JR3588 SOM (Heatsink not included)
	MYC-JR3588J-64E8D-160-I	
MYD-JR3588 Development Board	MYD-JR3588-64E8D-240-C	✓ One MYD-JR3588 Board (includes MYC-JR3588 SOM, with pre-installed heatsink) ✓ One 12V/5A Power Adapter ✓ One USB Type-A to Type-C cable ✓ One Quick Start Guide ✓ One Wi-Fi IPEX antenna ✓ One Wi-Fi rod antenna
	MYD-JR3588J-64E8D-160-I	
MY-MIPI101C-V2 10.1-inch LCD Module	MY-MIPI101C-V2	✓ MY-MIPI101C-V2 10.1-inch MIPI LCD Module with Capacitive Touch Screen
MY-LVDS070C 7-inch LCD Module	MY-LVDS070C	✓ MY-LVDS070C 7-inch LVDS Display Module with Capacitive Touch Screen
MY-CAM003M MIPI Camera Module	MY-CAM003M	✓ MY-CAM003M MIPI Camera Module
MY-CAM005M MIPI Camera Module	MY-CAM005M	✓ MY-CAM005M MIPI Camera Module

Note:

1. One MYD-JR3588 Development Board comprises one MYC-JR3588 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-JR3588, whether reducing, adding or modifying the existing hardware according to customer's requirement.

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