

MYiR
MYC-LR3568
SYSTEM ON
MODULE SOM



MYIR MYC-LR3568 System On Module SoM Instruction Manual

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MYIR MYC-LR3568 System On Module SoM



Specifications

- **Processor:** Rockchip RK3568 Application Processor
- **CPU:** Up to 2.0GHz Quad ARM Cortex-A55 Cores
- **NPU:** Neural Processing Unit Operating at Up to 1 TOPS
- **GPU:** Arm Mali-G52 2EE with support for OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1
- **Video Support:** 4K 60fps H.265/H.264/VP9 Decoder, 1080P 60fps H.265/H.264 Encoder
- **Memory:** 2GB LPDDR4, 16GB eMMC Flash, 32KB EEPROM
- **Power Management IC:** RK809-5
- **Expansion Interface:** 381-pin with LGA Package
- **Operating Systems:** Supports Linux and Debian OS

Product Usage Instructions

Hardware Setup

1. Ensure all necessary components are available: System-On-Module, development board, expansion board (if applicable).
2. Connect the System-On-Module to the development board following the provided instructions.
3. If using the expansion board, integrate it with the development board as per the guidelines.
4. Power on the setup and ensure all connections are secure.

Software Installation

1. Download the required software packages for Linux 5.10 and Debian 11 from the provided sources.
2. Follow the installation guide to set up the bootloader, Linux kernel, and other necessary software components.
3. Verify the software installation by booting up the system and checking for proper functionality.

Product Maintenance

1. Regularly check for software updates and patches to ensure optimal performance.
2. Clean the hardware components periodically to prevent dust accumulation.

3. Handle the System-On-Module and associated boards with care to avoid damage.

FAQ

Q: Can I use this module with other operating systems?

A: The MYC-LR3568 is designed to support Linux and Debian OS; compatibility with other operating systems may vary.

Q: What is the maximum video resolution supported by this module?

A: The module supports video decoding up to 4K at 60fps and encoding up to 1080P at 60fps.

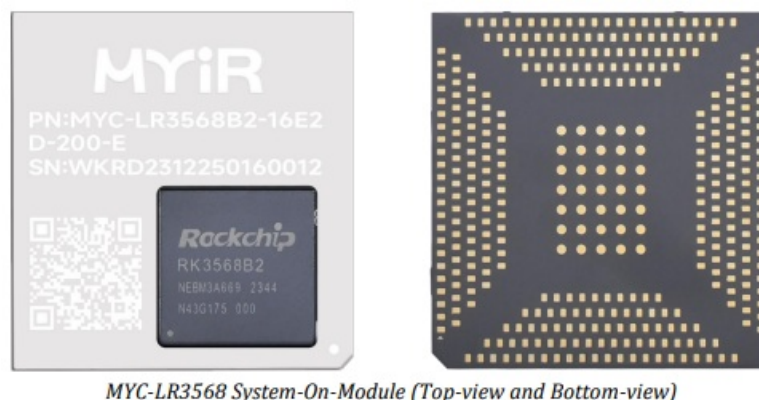
Q: Are there any specific power requirements for this product?

A: The RK809-5 Power Management IC handles the power requirements; ensure a stable power supply within the specified range.

- Rockchip RK3568 Application Processor based on Up to 2.0GHz Quad ARM Cortex-A55 Cores
- Neural Processing Unit (NPU) Operating at Up to 1 TOPS
- Arm Mali-G52 2EE GPU with support for OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1
- Supports 4K 60fps H.265/H.264/VP9 Decoder and 1080P 60fps H.265/H.264 Encoder
- 2GB LPDDR4, 16GB eMMC Flash, 32KB EEPROM
- RK809-5 Power Management IC
- 381-pin Expansion Interface with LGA Package
- Supports for Linux and Debian OS

INFORMATION

The MYC-LR3568 System-On-Module (SoM), boasting a compact size of 45mm x 43mm, offers exceptional reliability for your upcoming embedded design projects. Powered by the robust Rockchip RK3568 application processor, it features four high-performance ARM Cortex-A55 cores, a 1 Tops NPU, and a 3D GPU. The RK3568 supports various video codecs, including 4K 60fps H.265/H.264/VP9 decoding and 1080P 60fps H.265/H.264 encoding, ensuring users can experience high-quality video playback and recording. In addition to the RK3568 CPU, the MYC-LR3568 SOM integrates 2GB LPDDR4, 16GB eMMC, and a power management IC (PMIC) on board. It offers a range of peripheral and IO signals are via a 381-pin expansion interface with LGA Package. It supports for Linux and Debian OS. With its high-performance and low-power design, this feature-packed SOM is a reliable and efficient solution for personal mobile internet devices, AIoT equipment, intelligent hardware, and industrial applications.

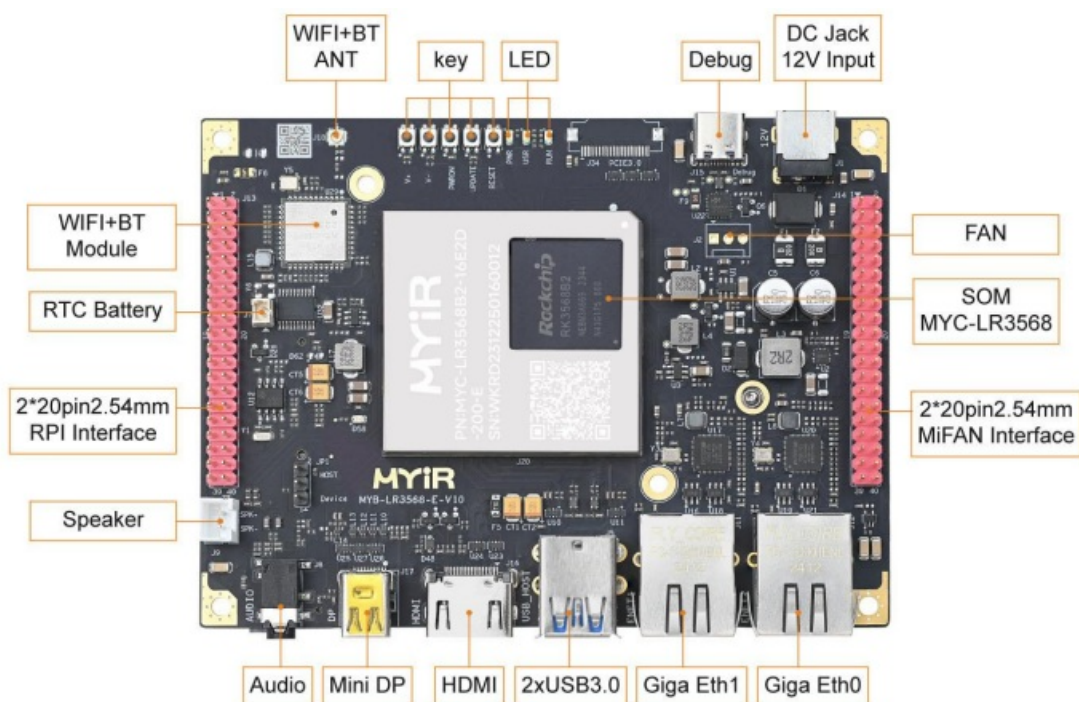


The MYD-LR3568 Development Board serves as a comprehensive evaluation platform specially designed for the RK3568. Centered around the MYC-LR3568 SOM, it boasts an extensive array of peripheral interfaces on its base

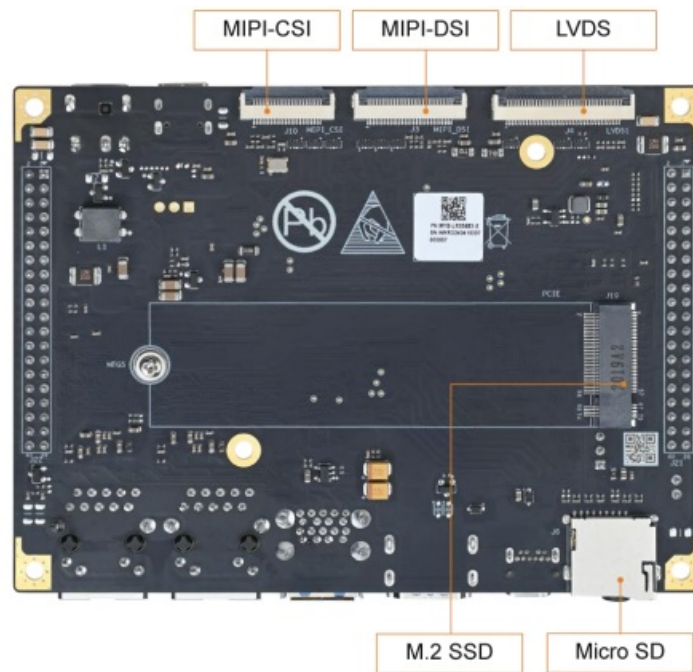
board, including two USB 3.0 ports, one USB 2.0 interface, dual Gigabit Ethernet interfaces, two CAN interfaces, and an integrated WiFi/Bluetooth module. Furthermore, it incorporates a Micro SD card slot and an M.2 NVMe SSD-compatible PCIe slot. The board also features a diverse set of multimedia interfaces, such as HDMI, Mini DP, MIPI-DSI and LVDS display interfaces, along with a MIPI-CSI video input interface and audio capabilities. Moreover, the board offers flexibility for expansion through various peripheral signals accessible via the RPI Interface (GPIO/I2C/UART/SPI/CAN) and the MiFAN Interface (GPIO/I2C/UART/SPI/USB/PWM), enabling users to customize and enhance their development experience.

The MYD-LR3568 comes bundled with a 12VDC power adapter, a USB cable, and a quick start guide. Additionally, MYIR offers optional add-ons for the board, such as the MY-CAM004M 4AHD-to-MIPI Camera Module, MY-CAM005M MIPI Camera Module, MY-LVDS070C 7-inch LCD Module and MY-WIREDCOM RPI Module. The MYD-LR3568 with the RK3568J version also includes an expansion board MY-ICEB001 that extends three USB2.0 ports, one RS232 port, two RS485 port, two CAN interfaces and one M.2 Socket for a USB-based 4G/5G LTE Module with a SIM card holder. These enhancements significantly broaden the board's capabilities, enabling users to fulfill their unique project needs with versatility and flexibility.

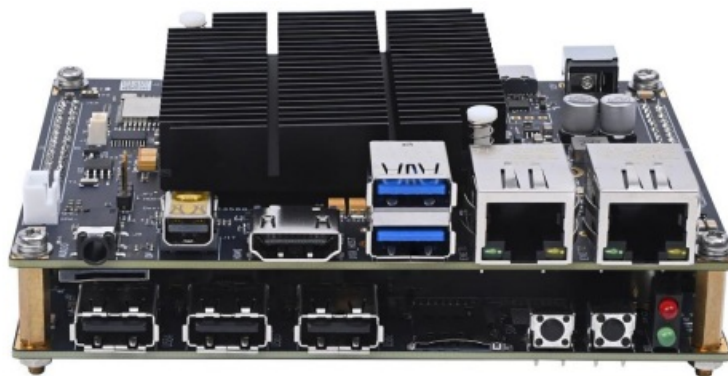
INSTALLATION



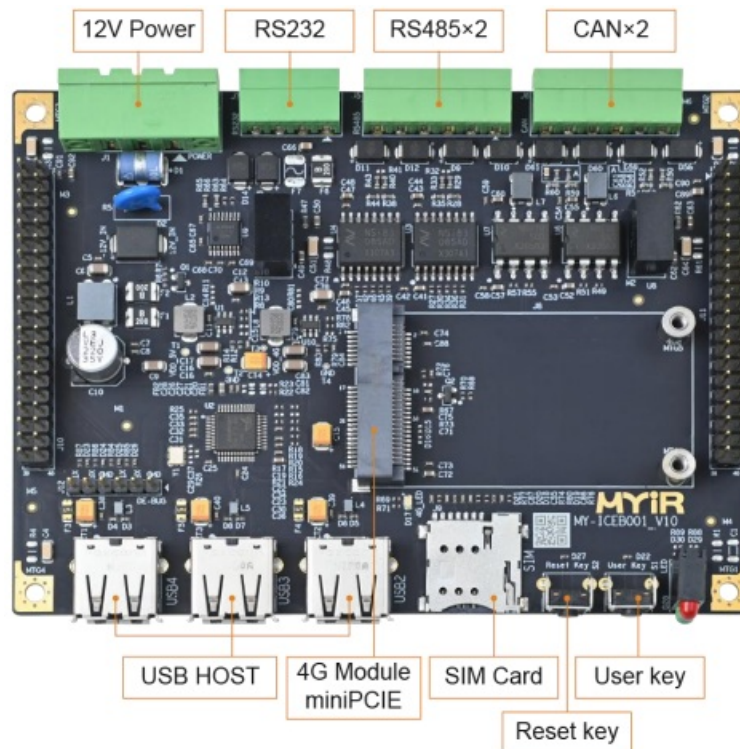
MYD-LR3568 Development Board (RK3568B2 version) Top-view (delivered with a pre-installed heatsink by default)



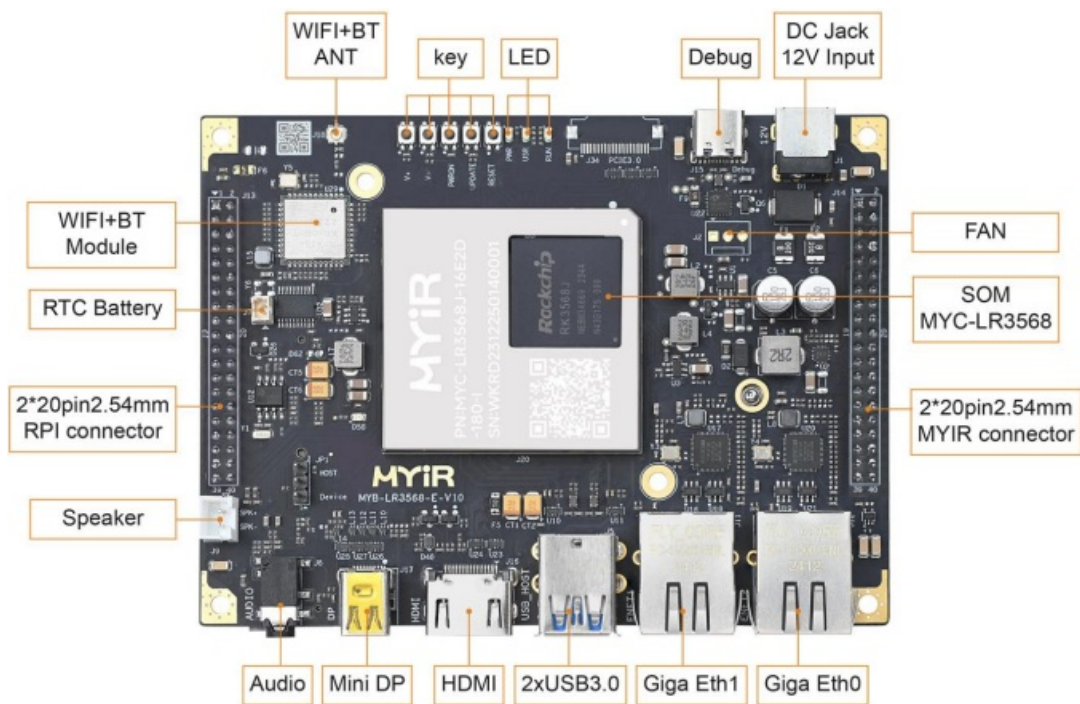
MYD-LR3568 Development Board (RK3568B2 version) Bottom-view



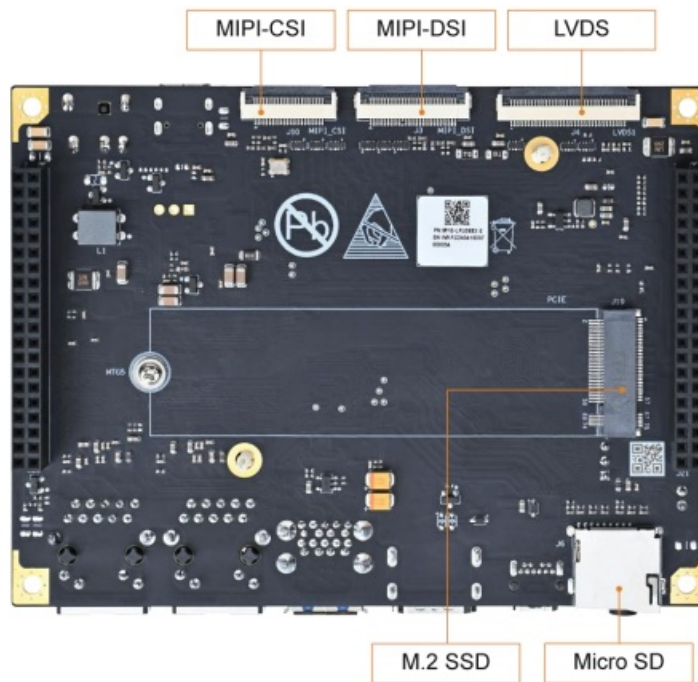
the MYD-LR3568 Development Board (RK3568J version) Integrates with the MY-ICEB001 Expansion Board



MY-ICEB001 Expansion Board



MYD-LR3568 Development Board (RK3568J version) Top-view (delivered with a pre-installed heatsink by default)

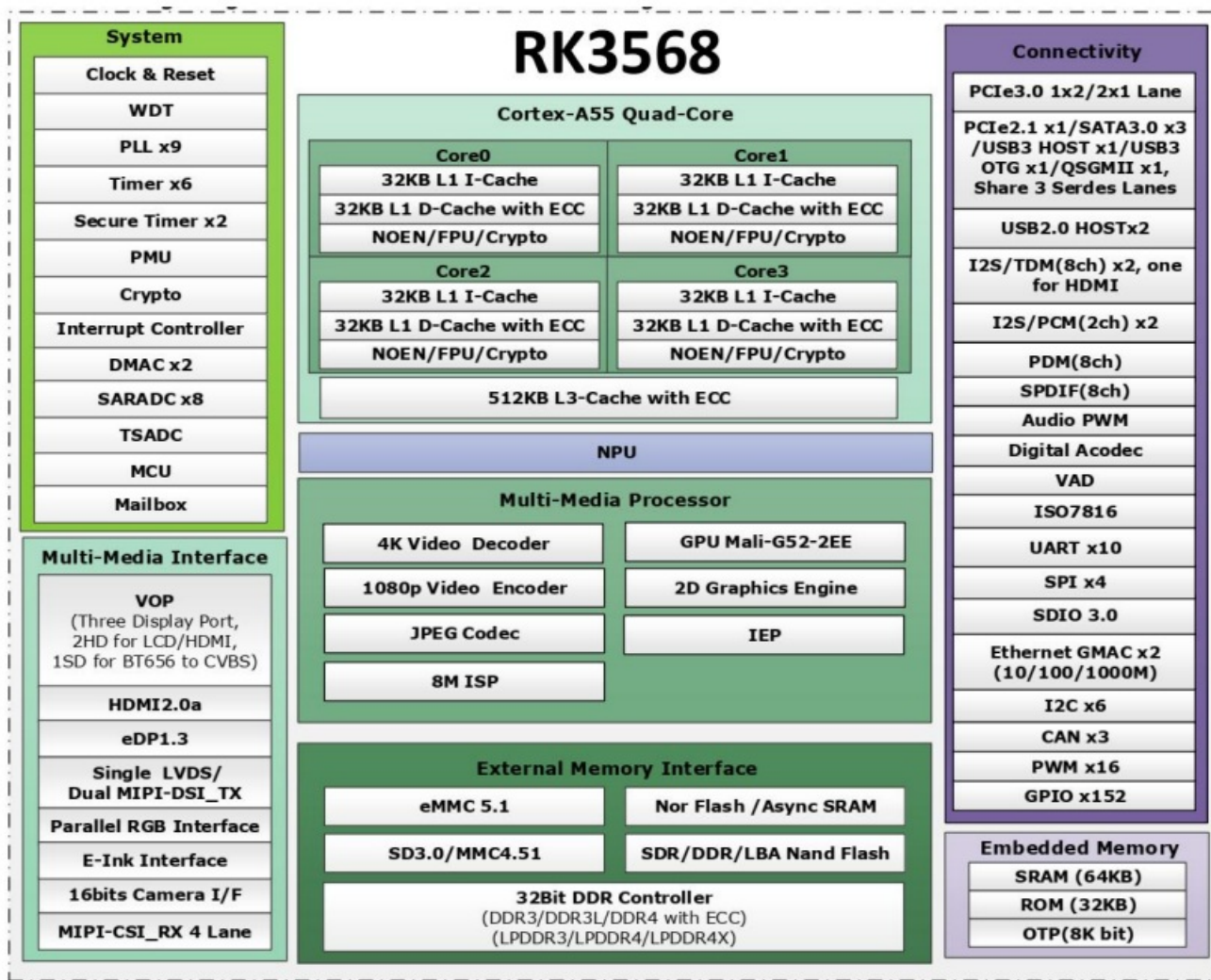


MYD-LR3568 Development Board (RK3568J version) Bottom-view

Hardware Specification

The RK3568 is a high-performance general-purpose SoC produced by Rockchip, which adopts an advanced 22nm process technology and integrates a 4-core ARM A55 processor and an advanced Mali G52 2EE graphics processor. It supports 4K decoding and 1080P encoding. Moreover, the RK3568 supports various types of peripheral interfaces such as SATA/PCIE/USB3.0, and has a built-in independent NPU that can be used for lightweight artificial intelligence (AI) applications. The RK3568 is targeted at a diverse range of applications, including IoT gateways, NVR storage, industrial control, HMI, cloud terminals, central vehicle controllers, and facial recognition systems. Its robust performance and feature set make it a reliable and versatile solution for these demanding applications.

MYIR utilizes the RK3568B2 and RK3568J for its MYC-LR3568 System-on-Module. Both the RK3568B2 and RK3568J are fully compatible and share the same FCCSP636L package. The MYC-LR3568 equipped with the RK3568B2 supports an operating temperature range of -20 to 70 degrees Celsius, with a CPU clock speed reaching up to 2.0GHz. Meanwhile, the MYC-LR3568 featuring the RK3568J can operate within a temperature range of -40 to 85 degrees Celsius, and its CPU clock speed reaches up to 1.8GHz in overdrive mode.



RK3568 Processor Block Diagram

The MYC-LR3568 System-On-Module leverages the full capabilities of the RK3568 processor, showcasing the following key features:

Mechanical Parameters

- Dimensions: 45mm x 43mm
- PCB Layers: 12-layer design
- Power supply: +5V/1A, 3.3V/3A
- Working temperature: -40~85 Celsius (industrial grade) or -20~70 Celsius (extended temperature)

Processor

- Rockchip RK3568 processor
 - Quad-core ARM Cortex-A55@2.0GHz (RK3568B2)/Quad-core ARM Cortex-A55@1.4GHz (RK3568J)(If you need RK3568J version at 1.8GHz in overdrive mode, please inquire MYIR.)
 - Arm Mali-G52 2EE GPU with support for OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1
 - Up to 1.0 TOPS NPU
 - Supports 4K 60fps H.265/H.264/VP9 Decoder and 1080P 60fps H.265/H.264 Encoder

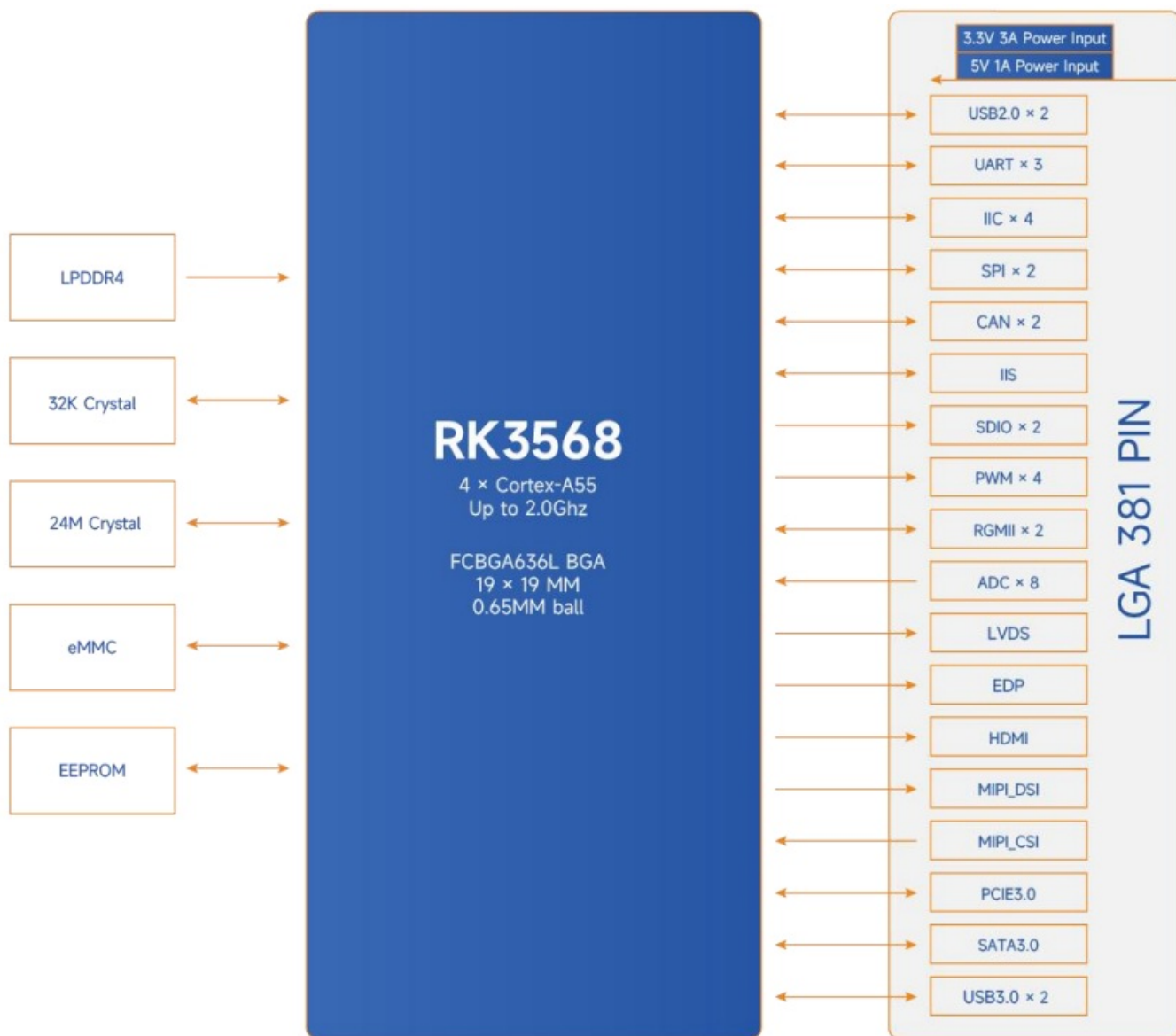
Memory

- 2GB LPDDR4 (Supports 1GB/4GB/8GB)
- 16GB eMMC (Supports 8GB/32GB)
- 32KB EEPROM

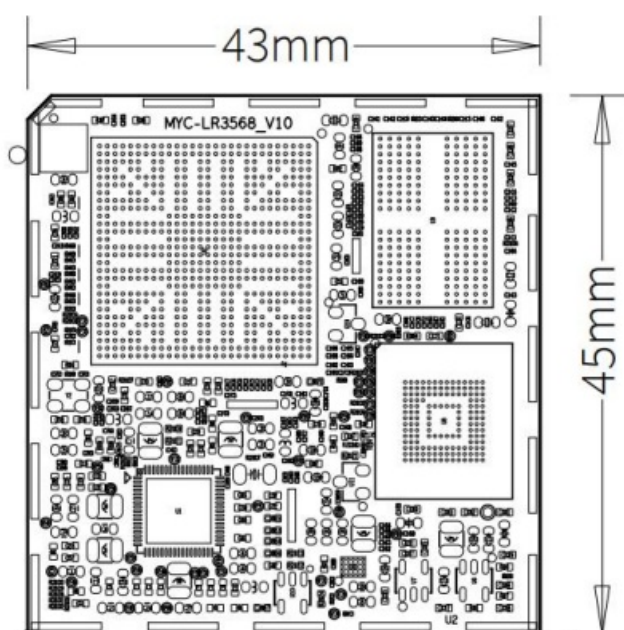
Peripherals and Signals Routed to Pins

- Power Management IC (RK809-5)
- 381-pin LGA Expansion Interface
 - 2x RGMII/RMII
 - 1x PCIe 3.0, 1x 2 lane RC/EP, 2x 1 lane RC
 - 2x USB2.0 Host
 - Multi-PHY (USB3.0 OTG/SATA0, USB3.0 Host/SATA1/QSGMII/SGMII, PCIe2.1/SATA2/QSGMII/SGMII)
 - SDIO (SDIO3.0/EMMC4.5.1, SDIO3.0)
 - 10x UART
 - 3x CAN2.0 a/b
 - 6x I2C
 - 15x PWM
 - 4x SPI
 - 8x SARADC, 10-bit
 - 1x DVP Camera Input, 16-bit
 - 1x MIPI-CSI, 4 lane/2+2 lane, 2.5Gbps
 - 1x HDMI2.0 (supports 4K@60fps/1080p@120fps)
 - 1x eDP1.3 (supports 2.5K@60fps)
 - 1x LVDS/Dual MIPI-DSI (supports 2.5Kp@60fps)
 - 1x Parallel RGB (supports 1080p@60fps)
 - 2x I2S/PCM, 8-channel
 - 1x I2S/PCM, 2-channel
 - 1x PDM, 8-channel
 - Up to 152x GPIOs

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-LR3568 Function Block Diagram



MYC-LR3568 Dimensions Chart

Software Features

The MYC-LR3568 supports for Linux 5.10 and Debian 11 Operating Systems. In support of rapid project development, MYIR has provided comprehensive software packages. Below is a brief overview of the key software features:

Item	Features	Description	Source Code
Bootloader	ATF	Switching and initialization of secure and non-secure environments	YES
	SPL	Initialize DDR, RTC, PMIC, and load the image into RAM	YES
	U-boot	Boot program uboot_2017.09	YES
Linux kernel	Linux kernel	Customized base on official kernel_5.10.198 version	YES
Device driver	MMC	eMMC driver	YES
	USB Host	USB driver	YES
	I2C	I2C driver	YES
	SPI	SPI driver	YES
	Ethernet	Gigabit Ethernet driver	YES
	UART	RS232/RS485 Driver	YES
	CSI	MIPI Camera driver Support MYIR's MY-CAM003M camera module (OV5640)	YES
	RTC	RTC driver	YES
	GPIO Key	Key driver	YES
	GPIO LED	LED driver	YES
	HDMI	HDMI driver	YES
	Touch	Touch screen driver	YES
	WIFI/Bluetooth	WIFI/BT driver	YES
	SOUND	Audio driver	YES
	LVDS	LVDS driver	YES
File system	myir-lr3568-core	Full-featured Linux image without GUI, built by buildroot	YES
	myir-image-debian	Compiled and constructed based on Debian 11 SDK	YES

Order Information

Product Item	Part No.	Packing List
MYC-LR3568 System-On-Module	MYC-LR3568J-16E2D-180-I	One MYC-LR3568 SOM (for RK3568J)
	MYC-LR3568B2-16E2D-200-E	One MYC-LR3568 SOM (for RK3568B2)
MYD-LR3568 Development Board	MYD-LR3568J-16E2D-180-I-G K	One MYD-LR3568 Board (for RK3568J) One MY-ICEB001 Expansion Board One USB cable One 12V/3A Power adapter One Quick Start Guide
	MYD-LR3568B2-16E2D-200-E	One MYD-LR3568 Board (for RK3568B2) One USB cable One 12V/3A Power adapter One Quick Start Guide
MY-CAM004M 4AHD-to-MIPI Camera Module	MY-CAM004M	Add-on Options MY-CAM004M Camera Module MY-CAM005M Camera Module MY-LVDS070C 7-inch LCD Module MY-WIREDCOM RPI Module
MY-CAM005M MIPI Camera Module	MY-CAM005M	
MY-LVDS070C 7-inch LCD Module	MY-LVDS070C	
MY-WIREDCOM RPI Module (RS232/RS485/CAN)	MY-WIREDCOM	
Note: 1. One MYD-LR3568 Development Board comprises one MYC-LR3568 SOM mounted onto the base board. If you require additional SOMs, you may place orders for extras. 2. The RK3568J used can only work at 1.4GHz in normal mode. If you need RK3568J version at 1.8GHz in overdrive mode, please inquire MYIR. 3. Bulk discounts are available. For inquiries, kindly contact MYIR. 4. We cater to custom design requests based on the MYD-LR3568, whether it involves reducing, adding or modifying the existing hardware components to suit the customers' specific needs.		

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Documents / Resources

	<p>MYIR MYC-LR3568 System On Module SoM [pdf] Instruction Manual</p> <p>MYC-LR3568 System On Module SoM, MYC-LR3568, System On Module SoM, On Module SoM, Module SoM, SoM</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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