

MYC-LT527 System-On-Module Overview

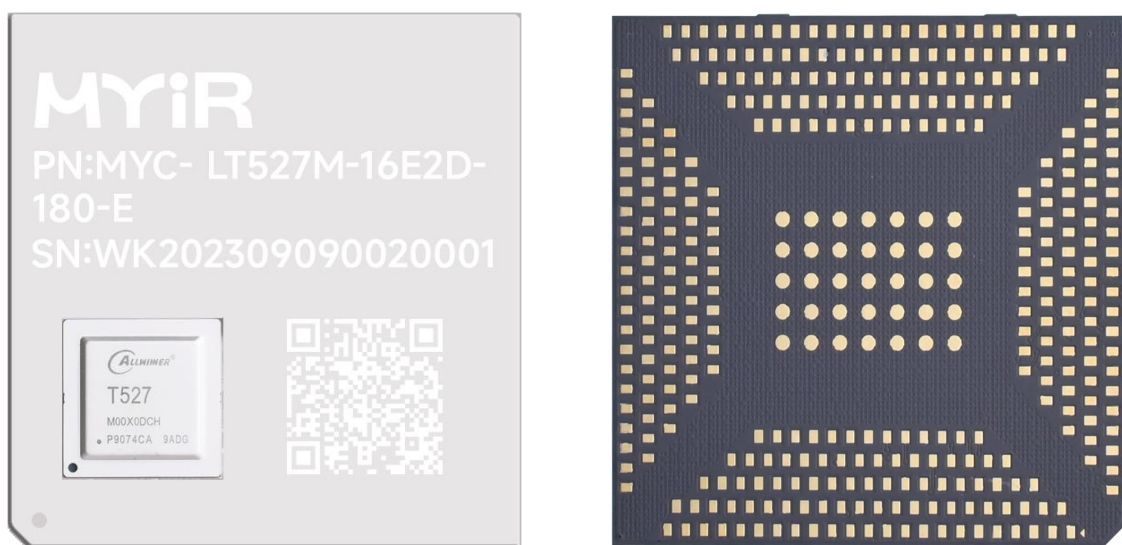


- ✓ Up to 1.8GHz Allwinner T527 Octa-core ARM Cortex-A55 MPU with GPU
- ✓ Neural Processing Unit (NPU) operating at up to 2 TOPS
- ✓ 2GB/4GB LPDDR4, 16GB/32GB eMMC Flash, 32Kbit EEPROM
- ✓ Power Management IC (PMIC)
- ✓ 381-pin Expansion Interface with LGA Package
- ✓ Supports for Linux, Android and Ubuntu OS



Measuring only 43mm by 45mm, the MYC-LT527 is a compact System-on Module (SoM) based on the Allwinner T527 processor, features an Octa-core ARM Cortex-A55 CPU clocked at up to 1.8GHz and a G57 MC1 GPU. It supports 4K@30fps H.265 video decoding and 4K@25fps H.264 video encoding. The T527 can also support up to 2 TOPs NPU.

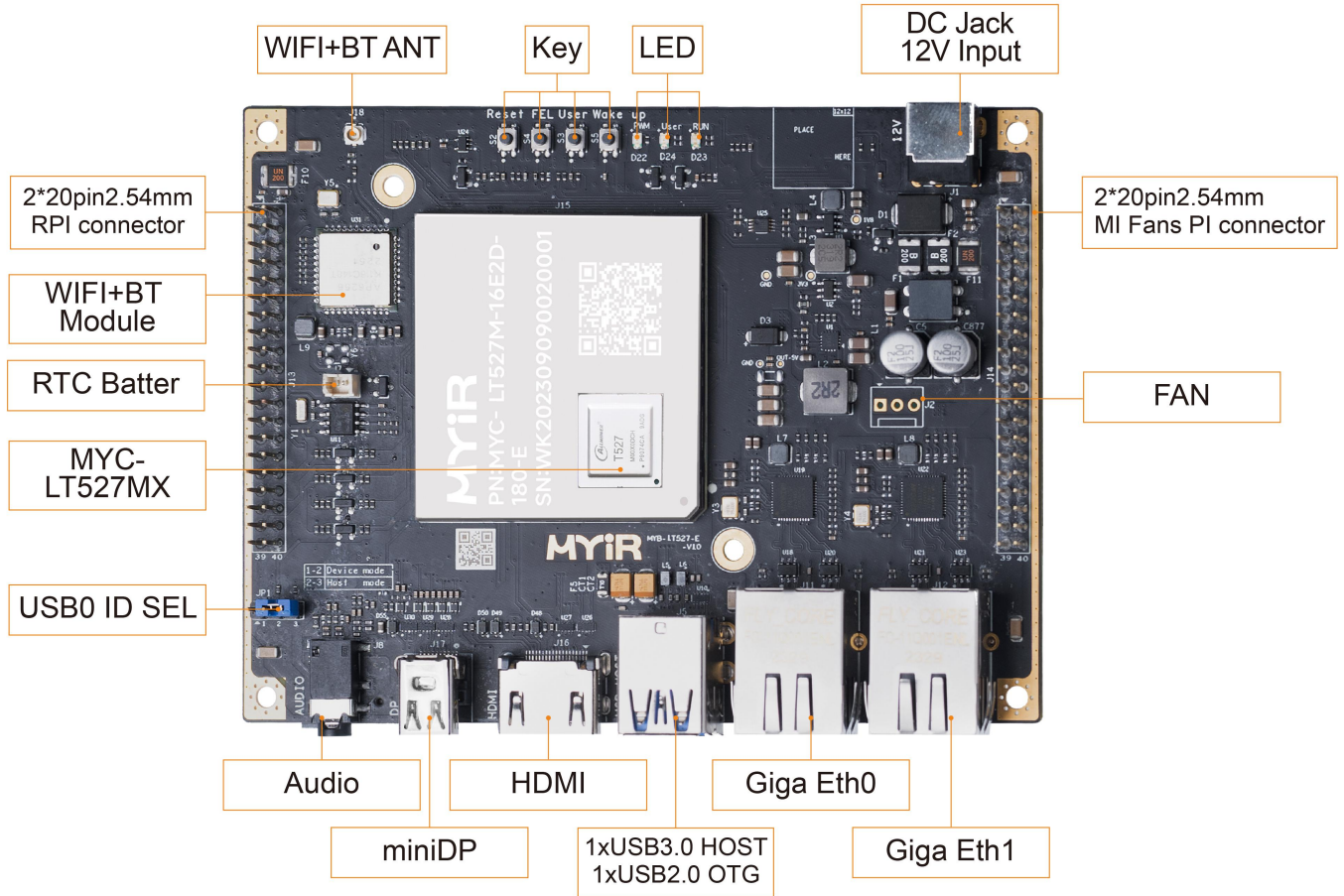
The MYC-LT527 incorporates the T527 processor and offers onboard 2GB/4GB LPDDR4, 16GB/32GB eMMC, 32Kbit EEPROM and a Power management IC (PMIC). It has 381-pin expansion interface design in LGA package, facilitating soldering on base boards. This interface enables the base board to carry most I/O signals to and from the SOM. With its robust performance, extensive peripheral resources and cost-effectiveness, the MYC-LT527 is well-suited for a range of applications including high-performance industrial robots, energy and electric power, medical equipment, display and controller machines, Edge Board AI boxes, vehicle terminals, and other embedded devices that require media and AI functionalities.



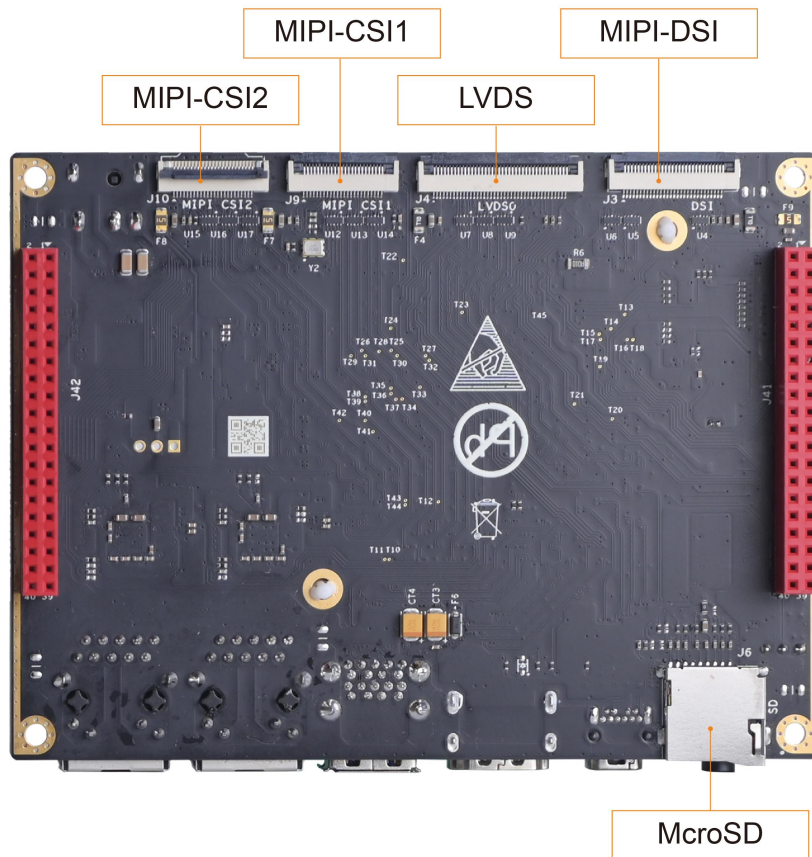
MYC-LT527 Top-view and Bottom-view (delivered with shielding cover installed by default)

The MYC-LT527 supports for Linux 5.15, Android 13 and Ubuntu 22.04 operating systems. MYiR offers a comprehensive software package including kernel and driver source codes, as well as compilation tools, to enable users to start their development rapidly and easily.

MYiR offers the MYD-LT527 Development Board for evaluating the MYC-LT527. This board is assembled by soldering the MYC-LT527 SOM onto a base board which is served as an expansion board specifically tailored for using with the MYC-LT527 SOM. It is equipped with one USB3.0, two USB2.0, two Gigabit Ethernet, two CAN interfaces, one WiFi/Bluetooth module, Micro SD card slot, Audio interface, two Mini-CSI interfaces as well as multiple display interfaces: HDMI, Mini-DP, MIPI-DSI and LVDS. It also features a 40-pin RPI compatible expansion interface and one MYiR custom 40-pin expansion interface, MI Fans PI interface, for increased expandability. MYiR also offers MY-CAM003M Camera Module, MY-WIREDCOM RPI Module (RS232/RS485/CAN) and MY-LVDS070C LCD Module as options for the board which have greatly enhanced the functionality of the board.



MYD-LT527 Development Board Top-view

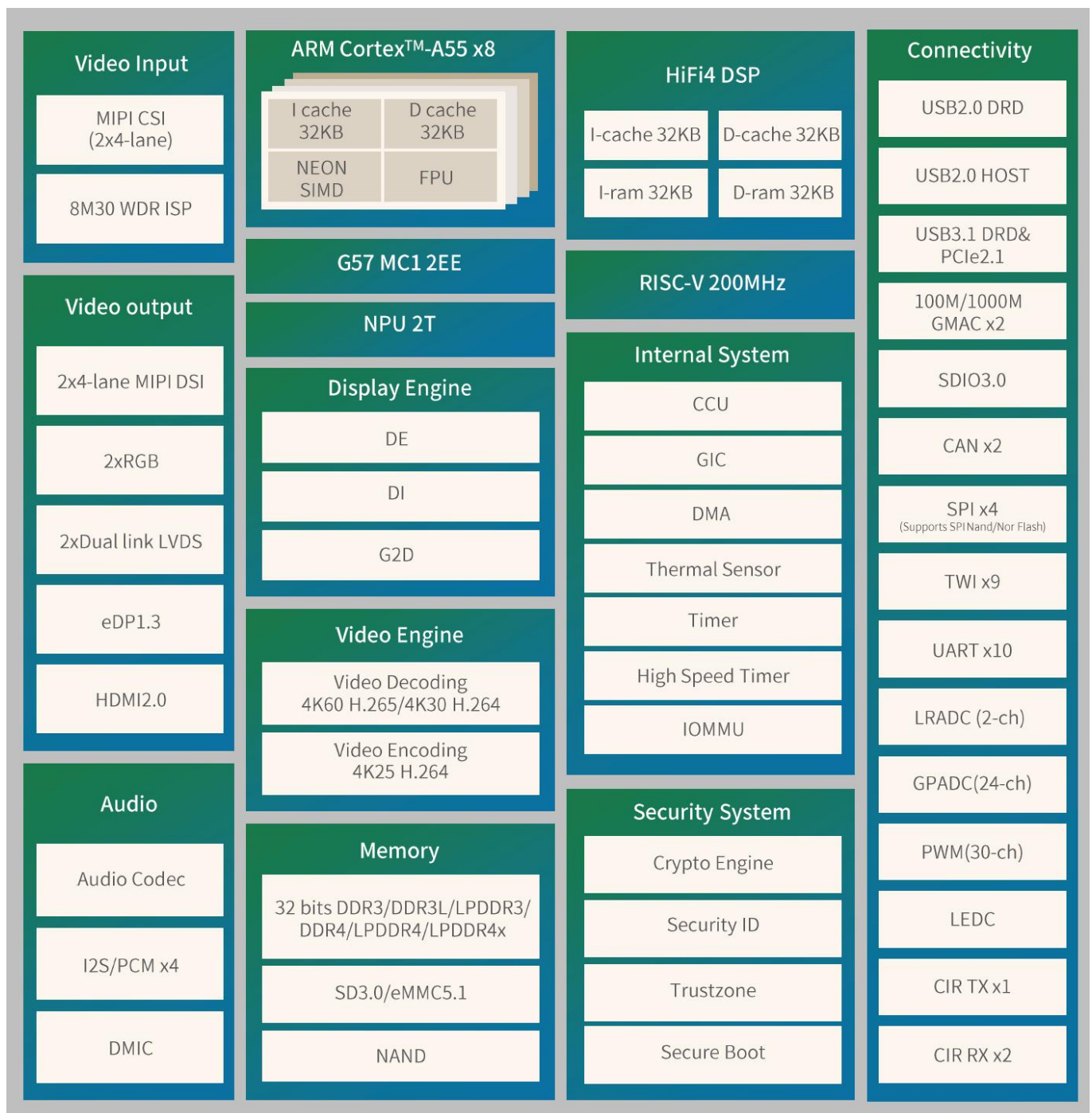


MYD-LT527 Development Board Bottom-view



Hardware Specification

Allwinner T527 series features high-performance octa-core Cortex-A55 AI platform SoCs for the electronic commercial, industrial, and automotive fields. The chip family integrates octa-core Cortex-A55 CPU, a HiFi4 DSP, 2 TOPS NPU, G57 MC1 GPU, 32-bit DDR3/DDR3L/DDR4/LPDDR3/LPDDR4/LPDDR4X DRAM, high-speed interfaces (PCIe2.1 and USB3.1), automotive interface (CAN), multi video output interfaces (2*RGB/2*Dual-LVDS/2*MIPI DSI/HDMI/eDP), and video input interfaces (MIPI CSI). The chip family supports 4K@60fps H.265 decoder, 4K@30fps H.264 decoder, 1080p@60fps H.264 encoder, DI, and SmartColor system, which provides users with smooth experience and professional AI visual effect. T527 series can be used in Content sharing and self-service interactive terminals, Smart manufacturing, and other electronic commercial and industrial devices.



T527 Processor Block Diagram

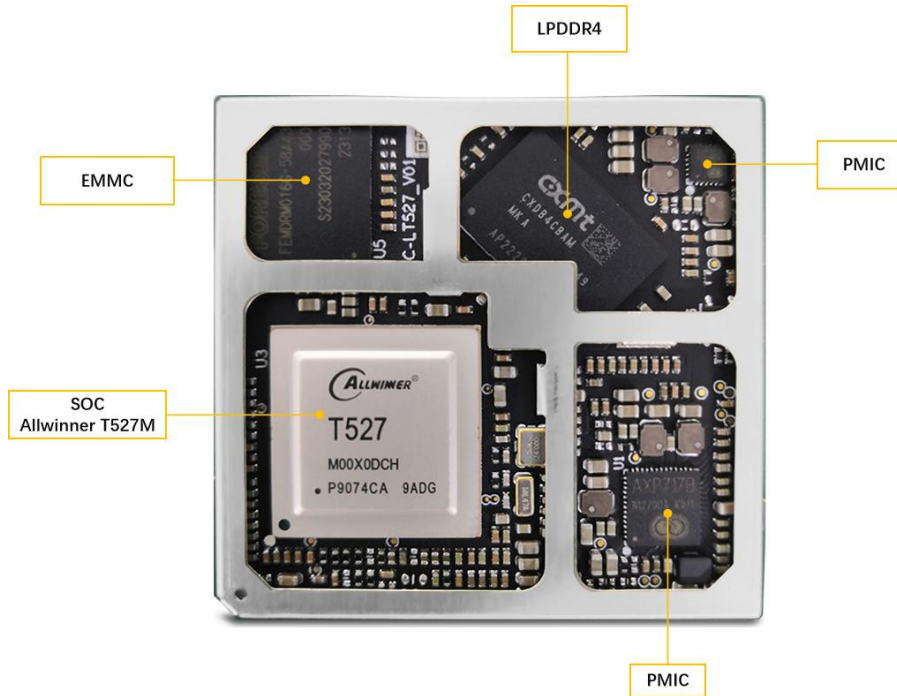


MYIR is using the T527M00X0DCH and T527M02X0DCH processors for the MYC-LT527. The main differences of the T527 series devices are described as in below form:

| Devices | NPU | Video Decoder | Package |
|---------------------|--------------------|-------------------------------|---------------------------------------|
| T527H02X0DCH | Support | H.265, 4K@60fps, 10bits | 17 mm x 17 mm, FCBGA 664 balls |
| T527H00X0DCH | Not Support | H.265, 4K@60fps, 10bits | 17 mm x 17 mm, FCBGA 664 balls |
| T527M02X0DCH | Support | H.265, 4K@30fps, 8bits | 17 mm x 17 mm, FCBGA 664 balls |
| T527M00X0DCH | Not Support | H.265, 4K@30fps, 8bits | 17 mm x 17 mm, FCBGA 664 balls |

T527 Series Device Summary

The MYC-LT527 takes full features of the T527 processor and the main features are characterized as below:



MYC-LT527

Mechanical Parameters

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

Processor

- Allwinner T527 processor
 - Octa-core ARM Cortex-A55, up to 1.8GHz
 - RISC-V CPU, up to 200 MHz
 - 600MHz HIFI4 Audio DSP
 - ARM G57 MC1 GPU
 - Up to 2 Tops NPU



Memory and Storage

- 2GB/4GB LPDDR4
- 16GB/32GB eMMC
- 32Kbit EEPROM

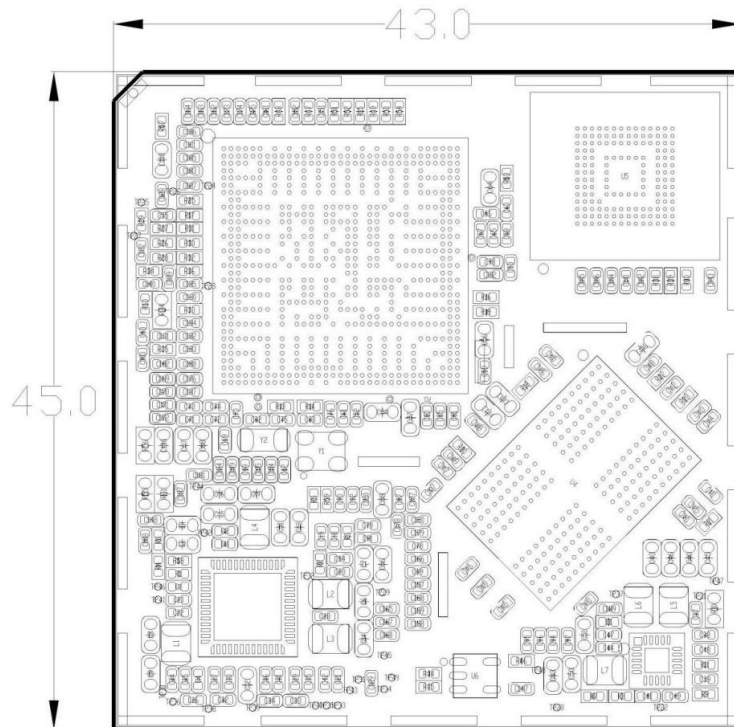
Peripherals and Signals Routed to Pins

- Power Management IC
- 381-pin LGA Expansion Interface
 - 2 x RGMII/RMII
 - 1 x PCIe2.1, RC mode (reused with USB3.1)
 - 1 x USB 2.0 DRD
 - 1 x USB 2.0 Host
 - 1 x USB 3.1 DRD (reused with PCIe2.1)
 - 2 x SDIO 3.0
 - 10 x UART
 - 2 x CAN
 - 9 x I2C
 - 30 x PWM
 - 4 x SPI
 - 24 x GPADC, 12-bit
 - 2 x LRADC, 6-bit
 - 1 x Parallel CSI, 16-bit
 - 1 x HDMI 2.0
 - 1 x eDP
 - 2 x LVDS with dual link
 - 2 x RGB
 - 4+4-lane, 4+2+2-lane, or 2+2+2+2-lane MIPI-CSI
 - 2 x MIPI-DSI
 - 2 x DACs and 3 x ADCs
 - 3 x audio outputs
 - 3 x audio inputs
 - 4 x I2S/PCM
 - 1 x SPIF I/O
 - 2 x CIR RX and 1 x CIR TX
 - Up to 138 x 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.



MYC-LT527 Block Diagram



MYC-LT527 Dimensions Chart (Unit: MM)



Software Features

The MYC-LT527 supports for Linux, Android 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 | U-boot | Boot program uboot_2018.02 | YES |
| Linux kernel | Linux kernel | Customized base on official kernel_5.15 version | YES |
| Device driver | USB Host | USB Host driver | YES |
| | USB OTG | USB OTG driver | YES |
| | USB Mouse | Standard USB mouse driver | YES |
| | USB Camera | Standard UVC driver-free camera driver | YES |
| | USB 4G | EC20/EC200 | YES |
| | USB 5G | Quectel RG200U | YES |
| | I2C | I2C bus driver | YES |
| | RTC | LK8563T driver | YES |
| | SPI | QSPI, SPI bus driver | YES |
| | SDHI | eMMC, SD/TF card storage driver | YES |
| | WiFi | AP6256 driver (SDIO) | YES |
| | Ethernet | YT8531SH driver | YES |
| | MIPI-CSI | MY-CAM003M camera module driver (OV5640) | YES |
| | MIPI-DSI | LT9611 driver (MIPI-to-HDMI, 1920x1080p60) | YES |
| | LVDS | MY-LVDS070C display module driver (1024*600 pixels resolution) | YES |
| | HDMI Out | HDMI display driver, 4K@60fps, with audio | YES |
| | DP | Standard DP display driver, 1080p@60fps, with audio | YES |
| | Audio | SPDIF, MIC, HPout, LINEout and I2S drivers | YES |
| | GPIO | GPIO driver | YES |
| | Watchdog | Watchdog driver | YES |
| | Key | Key driver | YES |
| | LED | LED driver | YES |
| | DI&DO | DI&DO driver | YES |
| PWM | PWM driver | YES | |
| ADC | ADC driver | YES | |
| UART | RS232/RS485/TTL UART Driver | YES | |
| CAN | CAN Driver | YES | |
| Timer | Timer Driver | YES | |
| File system | myir-image-Android 13 | Compiled and built based on Android13 SDK | YES |
| | myd-lt527-core.img | Linux image without GUI, built by buildroot | YES |
| | myd-lt527-full.img | Linux image with GUI, built by buildroot | YES |
| | Ubuntu 22.04 | | YES |

MYC-LT527 Software Features



Order Information

| Product Item | Part No. | Packing List |
|---|---|---|
| MYC-LT527 System-On-Module | MYC-LT527MN-32E4D-180-I-G (with NPU, Industrial) | ✓ One MYC-LT527 SOM |
| | MYC-LT527MN-16E2D-180-I-G (with NPU, Industrial) | |
| | MYC-LT527M-16E2D-180-I-G (without NPU, Industrial) | |
| | MYC-LT527M-16E2D-180-E (without NPU, Extended) | |
| MYD-LT527 Development Board | MYD-LT527MN-32E4D-180-I (with NPU, Industrial) | ✓ One MYD-LT527 Development Board ✓ (including MYC-LT527) ✓ One 12V/2A Power adapter ✓ One USB to TTL cable ✓ One Quick Start Guide |
| | MYD-LT527MN-16E2D-180-I (with NPU, Industrial) | |
| | MYD-LT527M-16E2D-180-I (without NPU, Industrial) | |
| | MYD-LT527M-16E2D-180-E (without NPU, Extended) | |
| MY-LVDS070C 7-inch LCD Module | MY-LVDS070C | Add-on Options ✓ MY-CAM003M Module ✓ MY-LVDS070C Module ✓ MY-WIREDCOM Module |
| MY-WIREDCOM RPI Module (RS232/RS485/CAN) | MY-WIREDCOM | |
| MY-CAM003M MIPI Camera Module | MY-CAM003M | |

Note:

1. One MYD-LT527 Development Board comprises one MYC-LT527 SOM mounted onto the base board. If you require additional SOMs, you may place orders for extras.
2. The items of industrial grade support -40 to 85 degree Celsius temperature range; the items of extended temperature range support -20 to 70 degree Celsius temperature range.
3. Bulk discounts are available. For inquiries, kindly contact MYIR.
4. We cater to custom design requests based on the MYD-LT527, whether it involves reducing, adding or modifying the existing hardware components to suit the customers' specific needs.



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