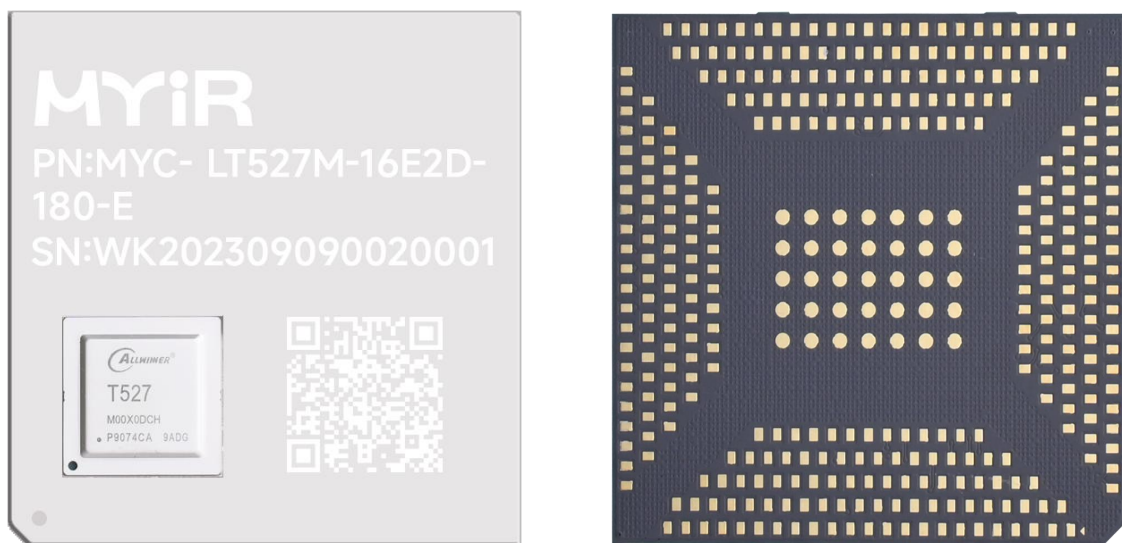# MYC-LT527
System-On-Module
Overview

- ✓ 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.
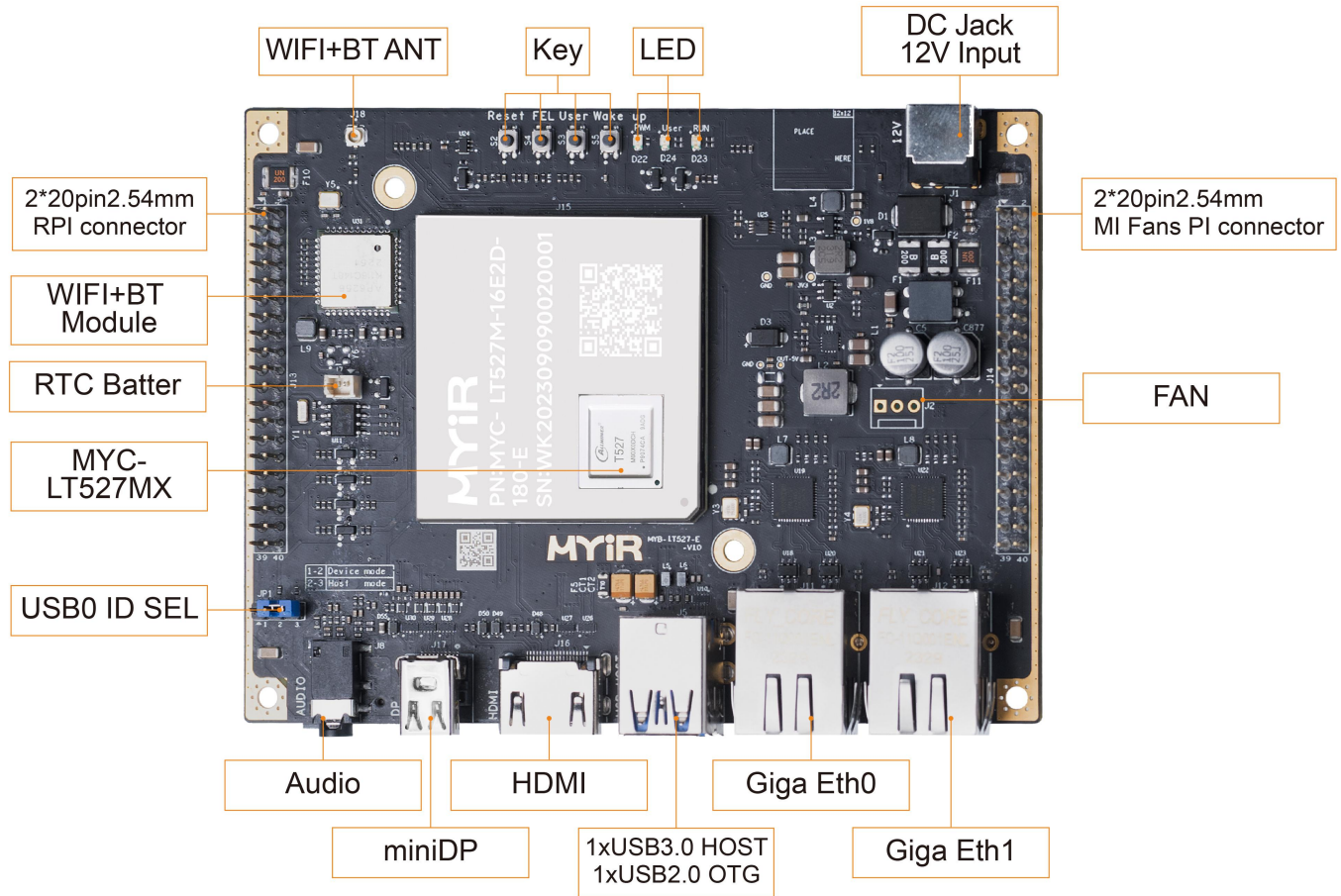
The MYC-LT527 incorporates the T527 processor and offers onboard 2GB/4GB LPDDR4, 16GB/32GB eMMC, 32Kbit EEPROM and a Power management IC (PMIC). It has 381-pin expansion interface design in LGA package, facilitating soldering on base boards. This interface enables the base board to carry most I/O signals to and from the CPU module. 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.
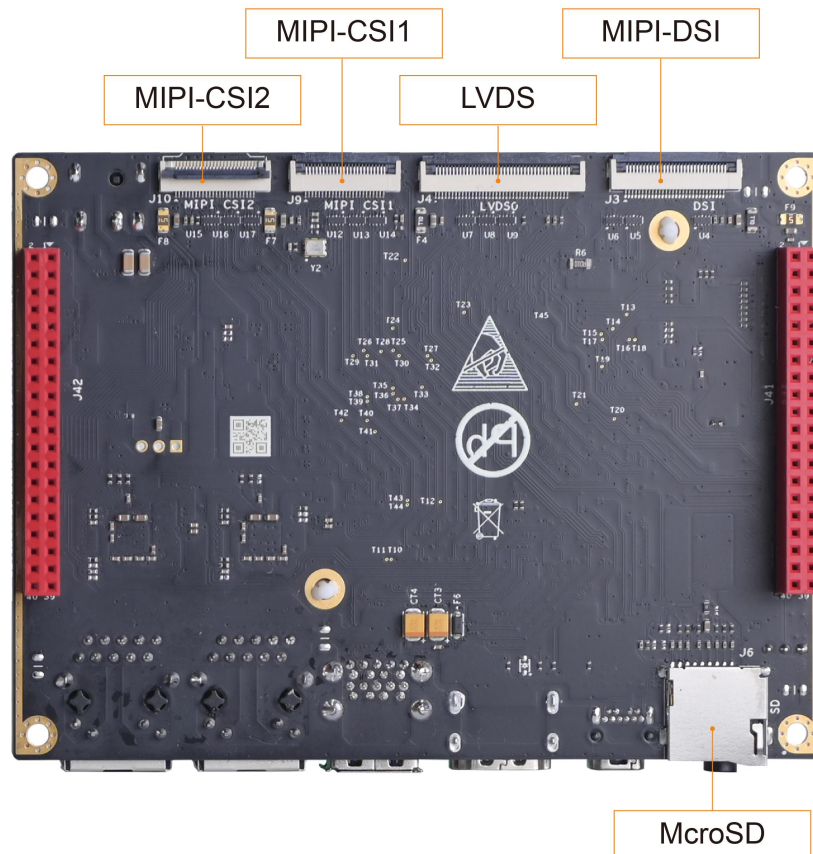

MYC-LT527 Top-view and Bottom-view (delivered with shielding cover installed by default)

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 CPU Module 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.

WIFI+BT ANT

Key

LED

DC Jack
12V Input

2*20pin2.54mm
RPI connector

2*20pin2.54mm
MI Fans PI connector

WIFI+BT
Module

RTC Batter

FAN

MYC-
LT527MX

USB0 ID SEL

Audio

HDMI

Giga Eth0

miniDP

1xUSB3.0 HOST
1xUSB2.0 OTG

Giga Eth1

MYD-LT527 Development Board Top-view

MIPI-CSI1

MIPI-DSI

MIPI-CSI2

LVDS

McroSD

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.
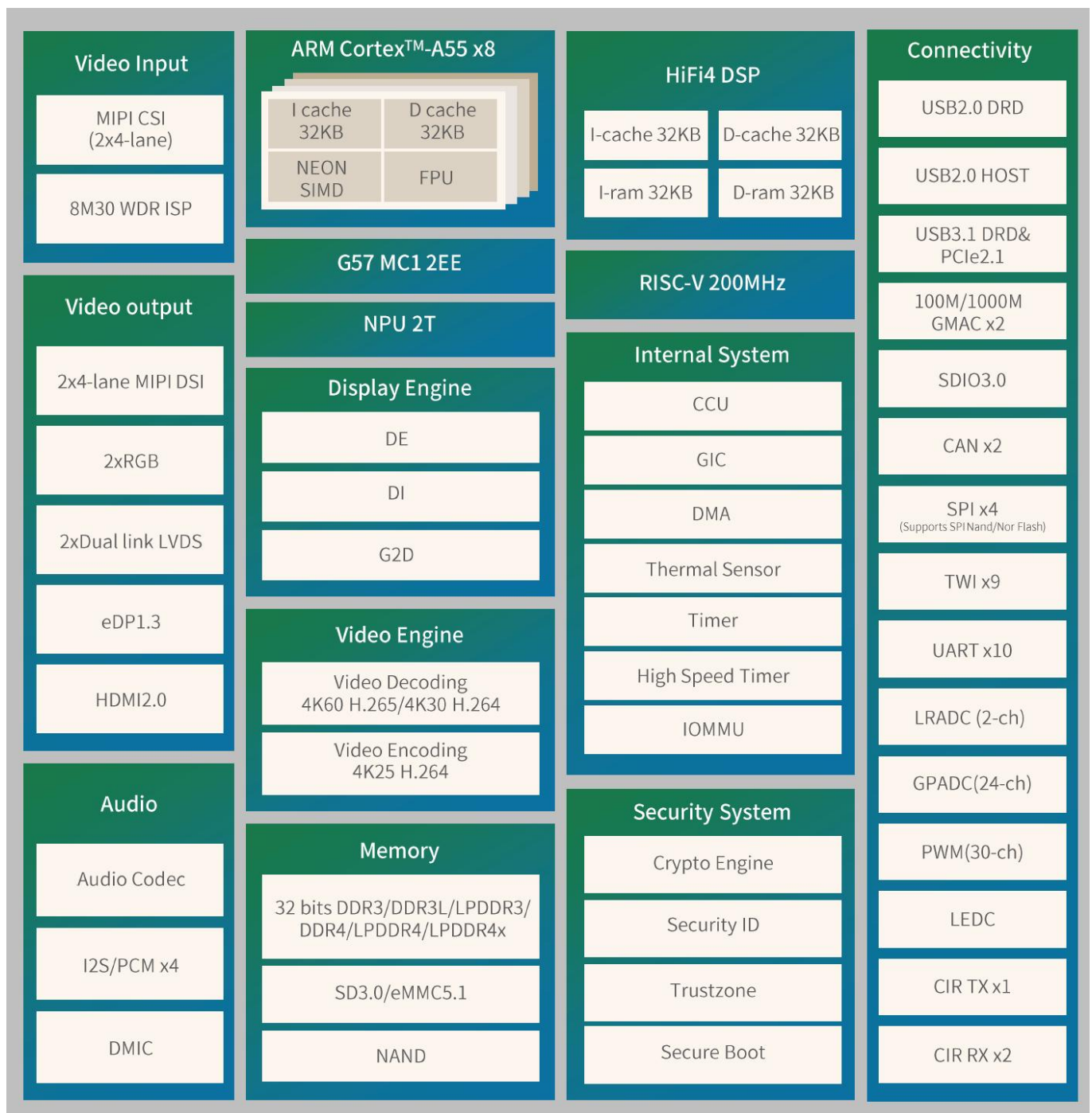

T527 Processor Block Diagram

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:
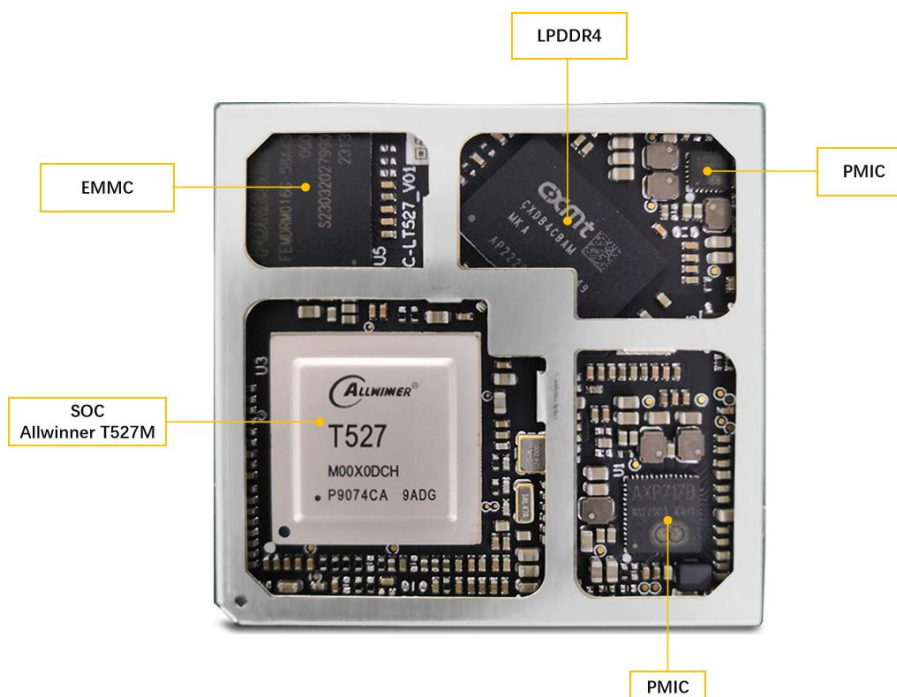
MYC-LT527

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
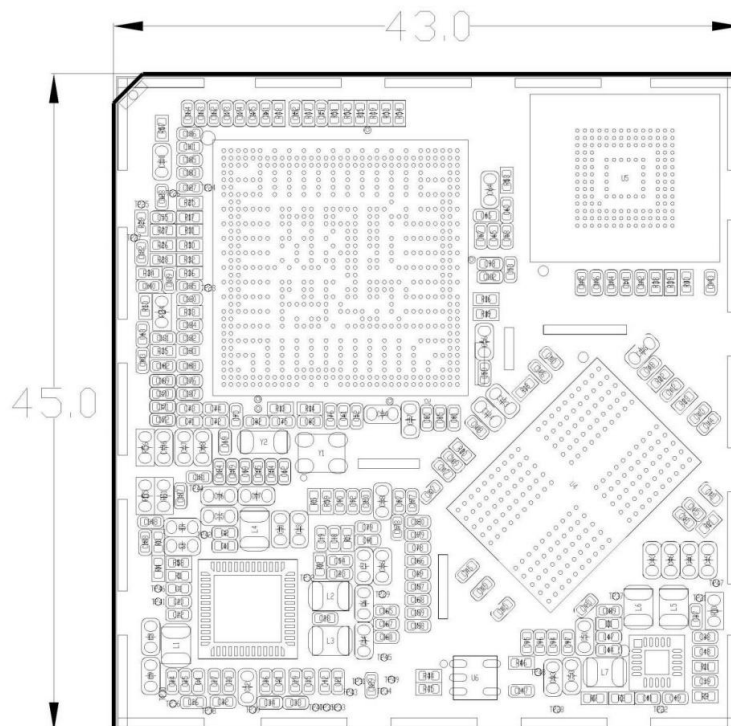
MYC-LT527 Dimensions Chart (Unit: MM)

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.

MYIR Electronics Limited

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Authorized Distributor

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