MYiR 米尔电子
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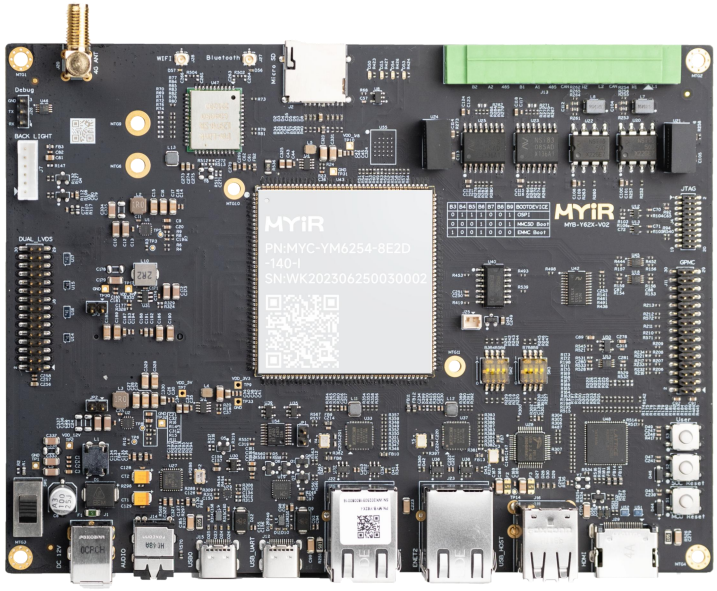
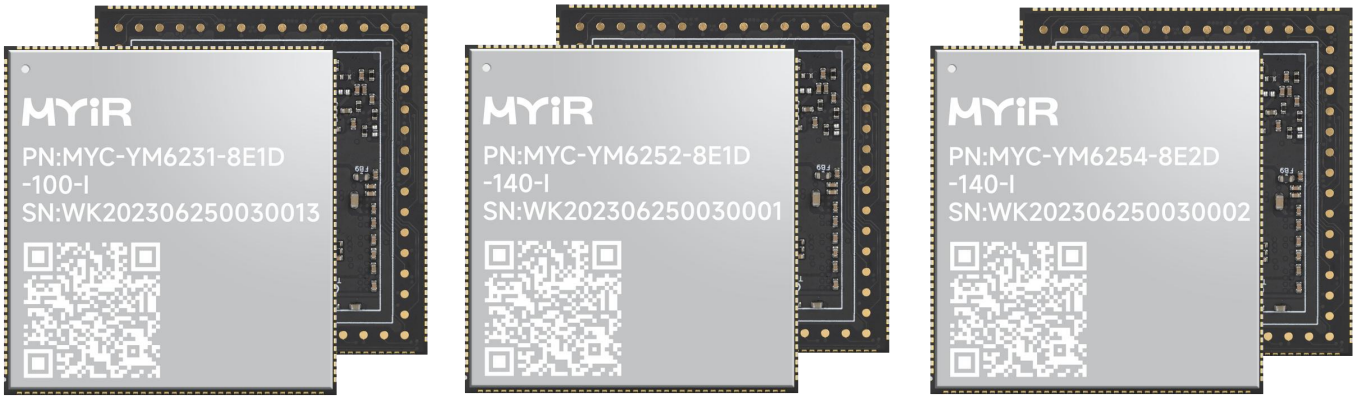
MYD-YM62X Development Board Overview



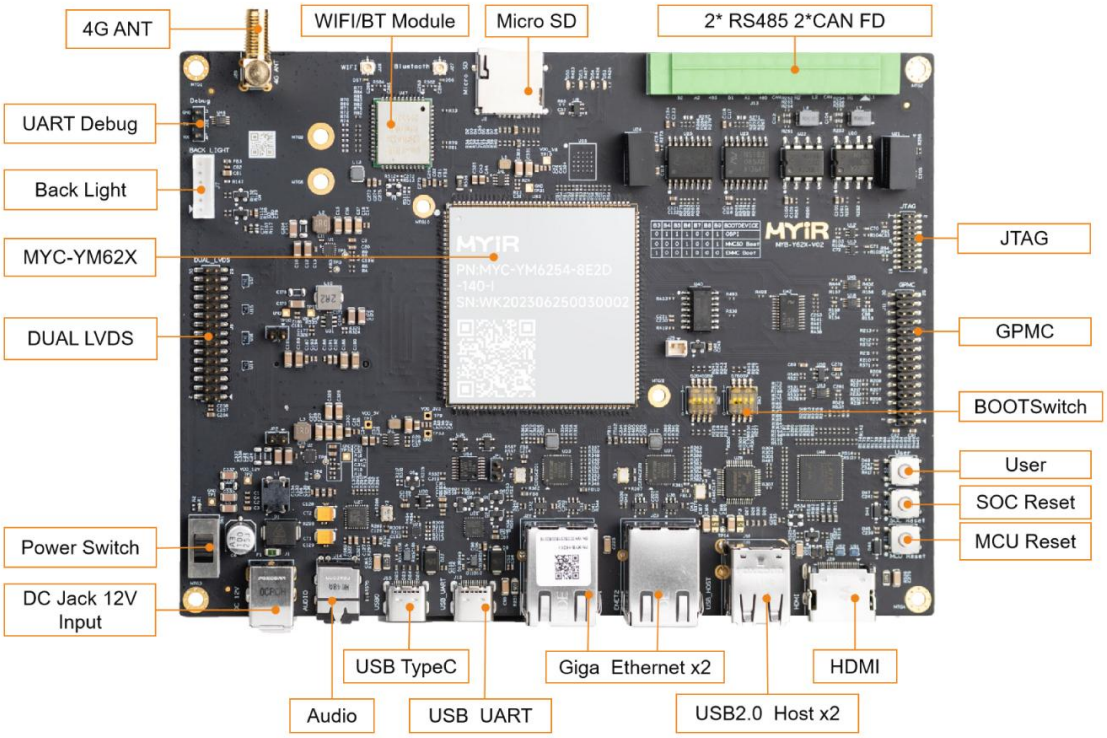
- ✓ *MYC-YM62X System-On-Module as Controller Board*
- ✓ *TI AM62x Processor based on up to 1.4GHz Quad ARM Cortex-A53 and 400MHz Cortex-M4F Cores*
- ✓ *1GB/2GB DDR4, 8GB eMMC Flash, 32KB EEPROM*
- ✓ *2 x USB 2.0 Host, 1 x USB 2.0 OTG, 2 x CAN, 2 x RS485, Micro SD card Slot, GPMC*
- ✓ *Supports 2 x Gigabit Ethernet, WiFi/Bluetooth and 4G/5G LTE*
- ✓ *LVDS, HDMI, Camera Interface (MIPI-CSI), Audio Input/Output*
- ✓ *Ready to Run Linux 6.12.35 OS*

The MYD-YM62X development board is a versatile testing and evaluation platform for TI AM623 and TI AM625 microprocessors which among the TI Sitara AM62x MPU family and feature up to 1.4GHz Quad ARM Cortex-A53 and 400MHz Cortex-M4F cores, dual-display support and 3D graphics acceleration, along with an extensive set of peripherals.

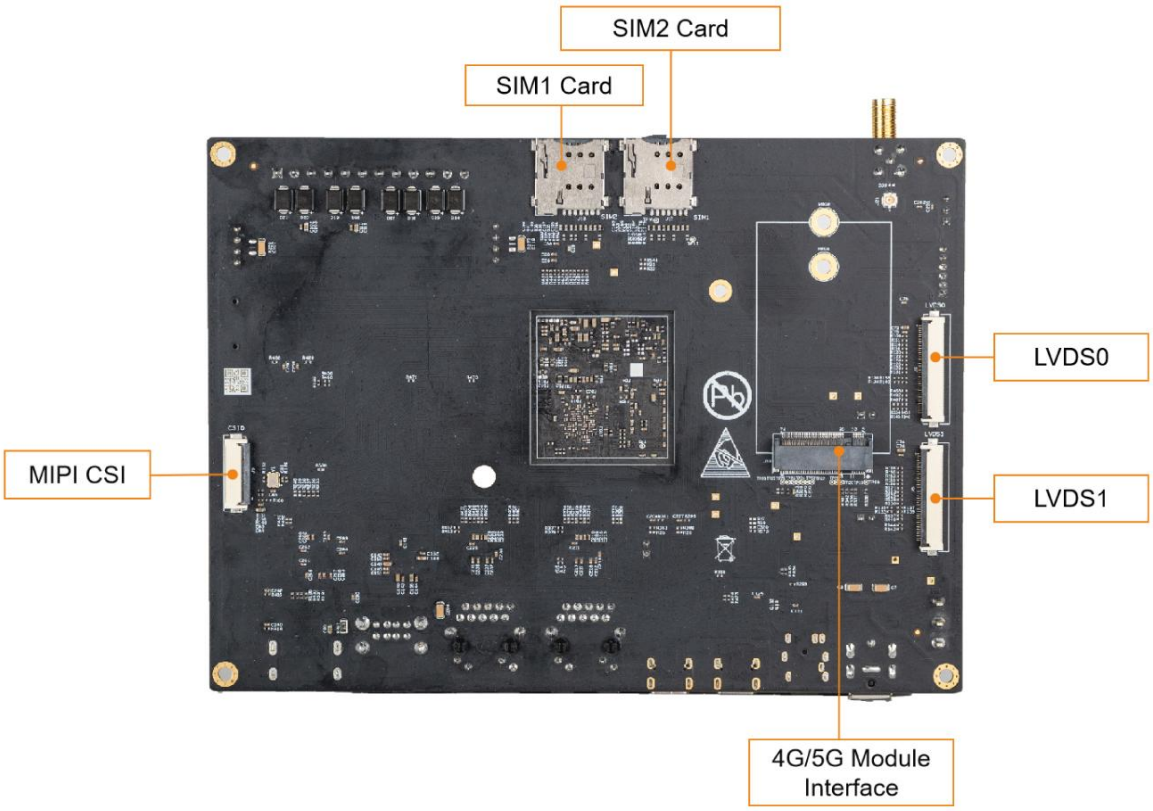
The MYD-YM62X development board is built around the MYC-YM62X SOM and has explored many features of the AM62x SoC through the 1.0 mm pitch 164-pin Castellated-Hole and 58-pin LGA expansion interfaces. It has rich communication interfaces including dual RS485, dual CAN, dual Gigabit Ethernet, dual USB Hos, one OTG, one USB based 5G/4G module interface, one WiFi/BT module and one GPMC external memory bus. It also has advanced multi-media capabilities to support dual LVDS display, audio and camera as well as HDMI display support via a RGB conversion chip. With the excellent performance of AM62x, the MYD-YM62X can be used for various industrial and display applications. The board is preloaded with Linux image and provided with complete development package. The MY-CAM003M MIPI Camera Module and MY-LVDS070C LCD Module can be used as options for the MYD-YM62X board which allows customers to acquire better development experience.



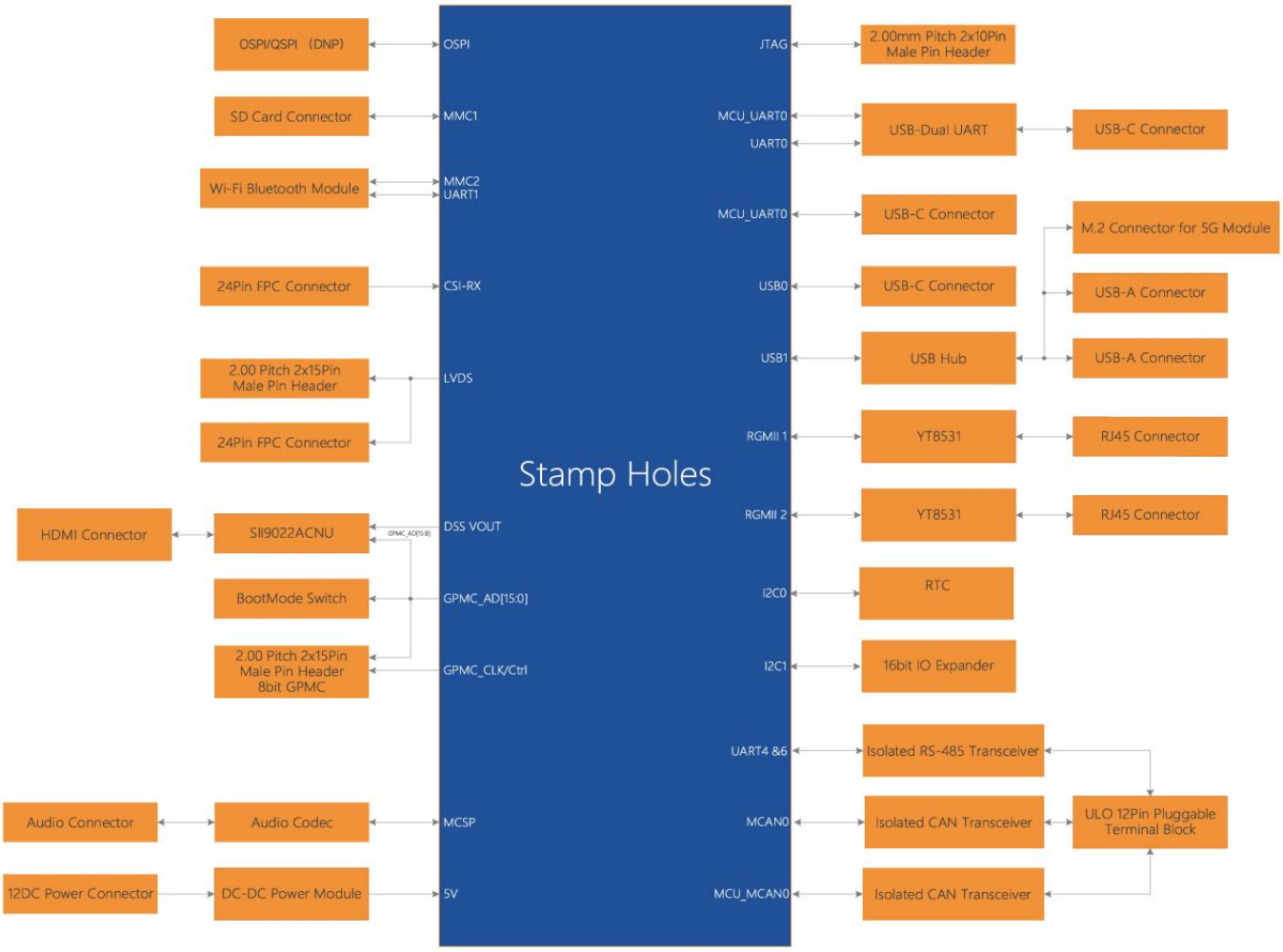
MYC-YM62X (MYC-YM6231 / MYC-YM6252 / MYC-YM6254)



MYD-YM62X Development Board (Top view)



MYD-YM62X Development Board (Bottom view)



MYD-YM62X Function Block Diagram

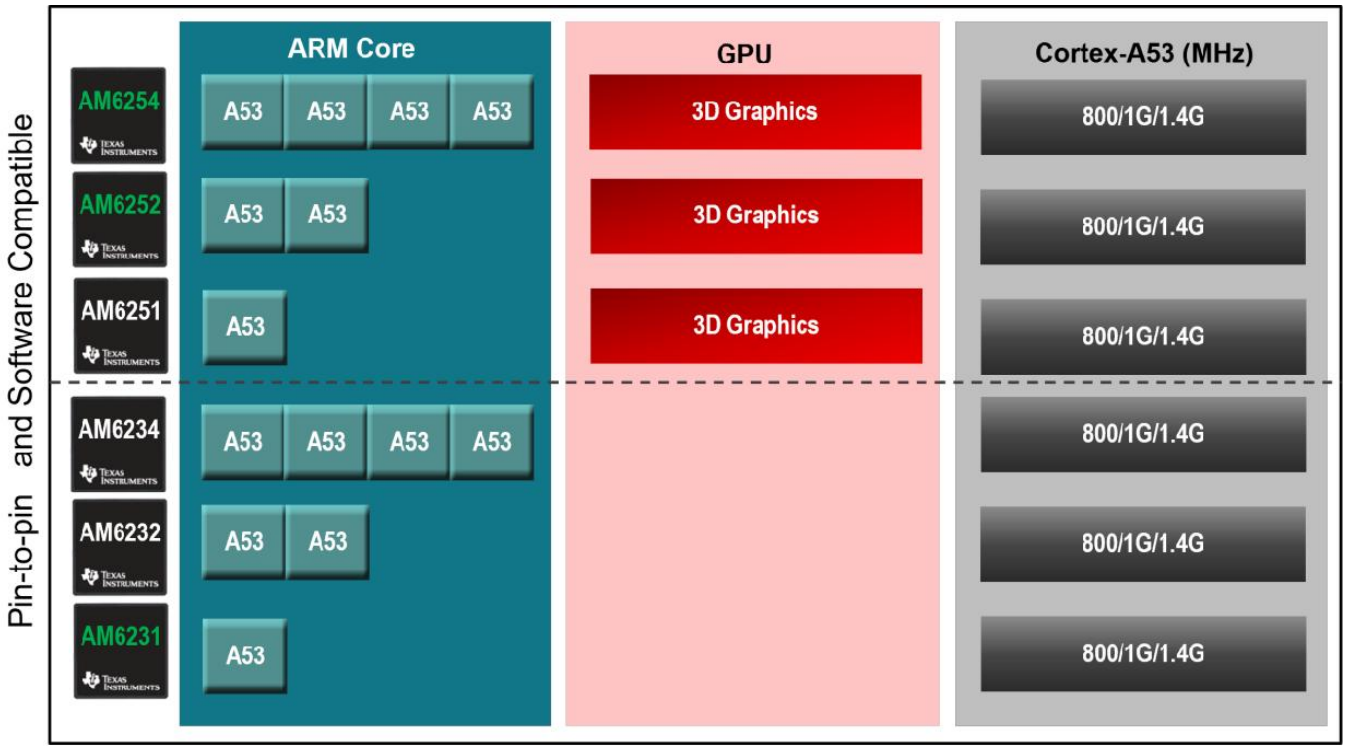
Hardware Specification

The MYC-YM62X on the MYD-YM62X development board is an SoM solution for TI AM623 and AM625 processors which are among the low-cost AM62x Sitara MPU family built for Linux application development. With scalable Arm Cortex-A53 performance and embedded features, such as: dual-display support and 3D graphics acceleration, along with an extensive set of peripherals that make the AM62x device well-suited for a broad range of industrial and automotive applications while offering intelligent features and optimized power architecture as well.

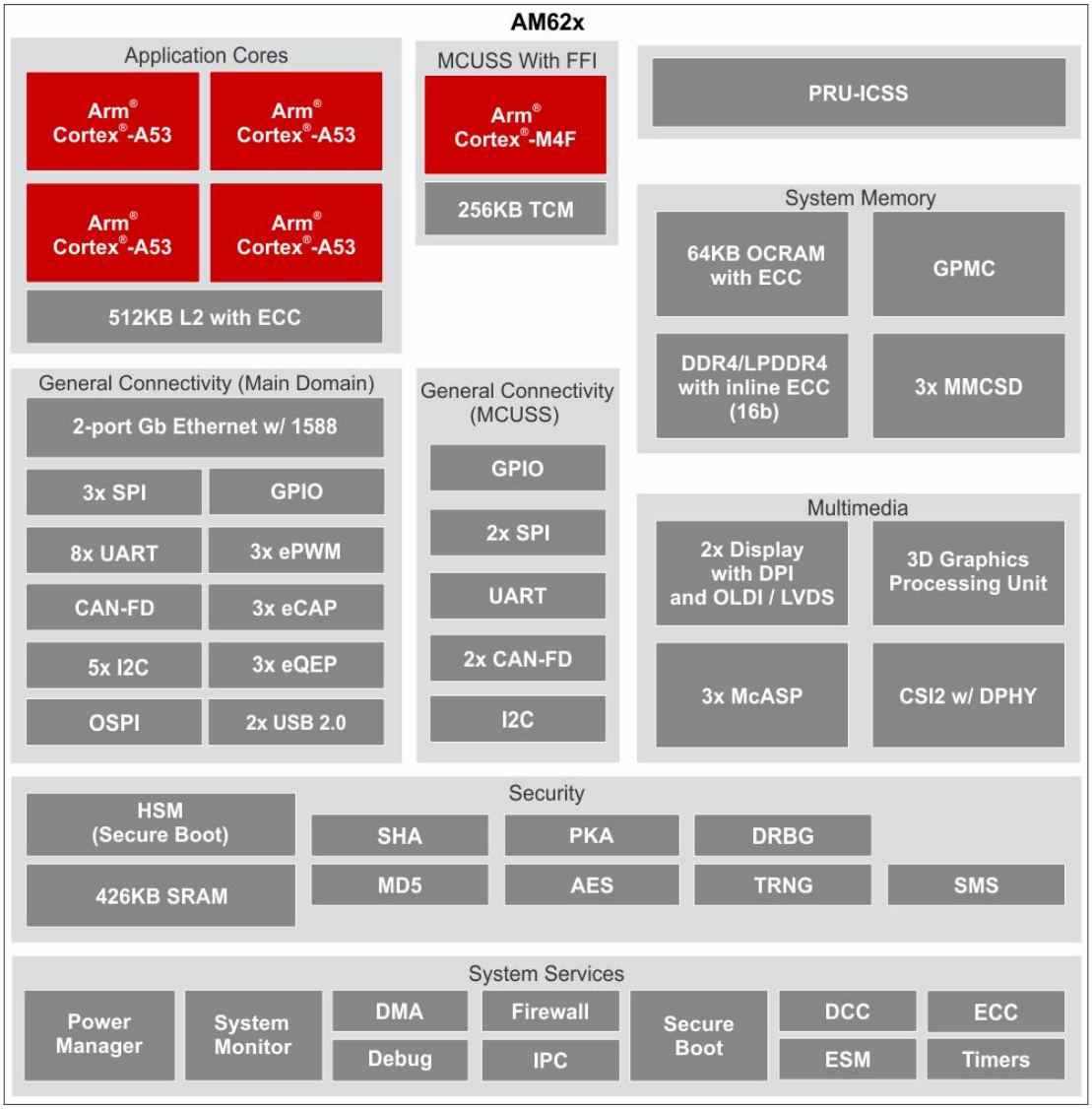
Some of these applications include:
• Industrial HMI
• EV charging stations
• Touchless building access
• Driver monitoring systems

The MYC-YM62X is using the 13 x 13mm (ALW) package AM62x processors (AM6254ATCGGAALW, AM6252ATCGGAALW and AM6231ASGGGAALW). The 3-port Gigabit Ethernet switch has one internal port and two external ports with Time-Sensitive Networking (TSN) support. An additional PRU module on the device enables real-time I/O capability for customer's own use cases. In addition, the extensive set of peripherals included in AM62x enables system-level connectivity, such as: USB, MMC/SD, Camera interface, OSPI, CAN-FD and GPMC for parallel host interface to an external ASIC/FPGA.

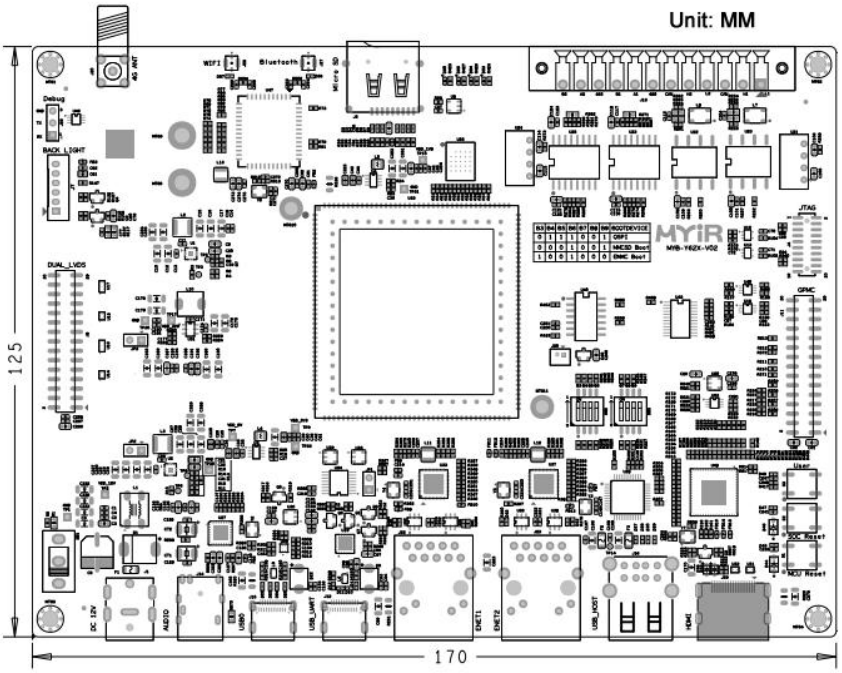
Products in the AM62x processor family (13mm x 13mm package size) :
• AM625 – Human-machine Interaction SoC with Arm Cortex-A53 based edge AI and full-HD dual-display
• AM623 – Internet of Thinks (IoT) and Gateway SoC with Arm Cortex-A53 based object and gesture recognition



AM62x Devices Comparison



AM62x Block Diagram



MYD-YM62X Dimensions Chart

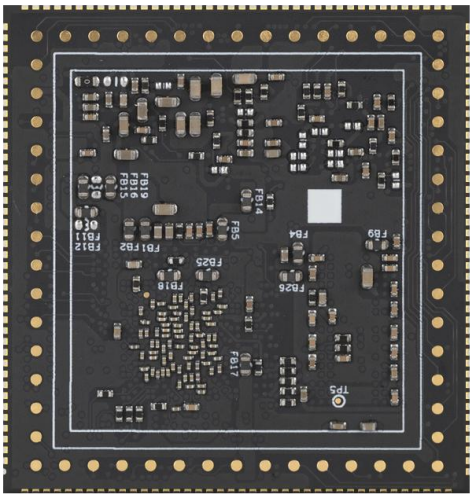
The MYD-YM62X development board consists of an MYC-YM62X SOM and a base board to expose many features of the TI AM62x processors through the 1.0mm pitch 222-pin stamp hole expansion interface. This board is characterized as follows:

Mechanical Parameters

- Dimensions: 170mm x 125mm (base board), 43mm x 45mm (SOM)
- PCB Layers: 6-layer design (base board), 10-layer design (SOM)
- Power supply: +12V/2A (base board), +5V/1A (SOM)
- Working temperature: -40~85 Celsius (industrial grade)

<u>The MYC-YM62X System-On-Module</u>

MYC-YM62X Top-view



MYC-YM62X Bottom-view

Processor

- TI AM62x processor (AM6254/AM6252/AM6231)
  - TI AM6254: 4*Cortex-A53@1.4GHz + Cortex-M4F@400MHz (AM6254ATCGGAALW)
  - TI AM6252: 2*Cortex-A53@1.4GHz + Cortex-M4F@400MHz (AM6252ATCGGAALW)
  - TI AM6231: 1*Cortex-A53@1.0GHz + Cortex-M4F@400MHz (AM6231ASGGGAALW)
  - Two PRU-SS running up to 333MHz
  - 3D GPU graphics accelerator (only for AM625 processors)

Memory

- 1GB/2GB DDR4 (supports up to 4GB)
- 8GB eMMC (supports up to 128GB)
- 32KB EEPROM

Peripherals and Signals Routed to Pins

- Power Management IC (TPS6521901)
- 1.0mm pitch 164-pin Castellated-Hole and 58-pin LGA Expansion Interfaces
  - 2 x RGMII
  - 2 x USB2.0
  - 9 x UART
  - 3 x CAN FD
  - 6 x I2C

- 5 x SPI
- 1 x GPMC
- 2 x LVDS
- 1 x RGB
- 1 x MIPI-CSI
- 3 x MCASP
- 1 x JATG
- Up to 143 x 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.

The MYD-YM62X Development Board Base Board

- 1 x Power Jack
- 1 x Power Switch
- Serial ports
  - 1 x Debug Interface (3-pin male header, for Cortex-M4F MCU)
  - 1 x USB UART port (for Cortex-A53 MPU)
  - 2 x RS485 interface (with isolation)
- USB
  - 2 x USB2.0 Host ports
  - 1 x USB2.0 OTG port
  - 1 x M.2 socket for USB based 4G/5G LTE Module
- 2 x SIM card slots
- 1 x External antenna connector (for 4G LTE module)
- 1 x WiFi/BT Module (complies with IEEE 802.11a/b/g/n/ac and Bluetooth 5.0)
- 2 x 10/100/1000Mbps Ethernet interfaces
- 2 x CAN FD interfaces (with isolation)
- 1 x Micro SD card slot
- 1 x JTAG Interface
- 3 x Buttons (2 x Reset buttons, 1 x User button)
- 1 x GPMC (30-pin expansion male header)
- 2 x BOOT Switches
- 1 x Dual-channel LVDS Display Interface (30-pin 2.0mm pitch header connector)
- 2 x Single-channel LVDS Display Interfaces (40-pin 0.5mm pitch FPC connectors)
- 1 x HDMI Display Interface
- 1 x MIPI-CSI Camera Interface (24-pin 0.5mm pitch FPC connectors)
- 1 x Audio Input and Output Interface

Software Features

The MYD-YM62X development board supports for Linux and is provided with software packages. Many peripheral drivers are in source code to help accelerate customers' designs with a stable and reliable hardware and software platform. The software features are summarized as below:

Item	Feature	Description	Source code
Bootloader	trusted-firmware-a	Fsbl boot start	YES
	U-boot	Second Boot Program uboot_2025.01	YES
Linux kernel	Linux kernel	Based on the official kernel_ 6.12.35 version customization	YES
Device driver	PMIC	TPS6521901driver	YES
	OSPI	OSPI driver	YES
	USB Host	USB Host driver	YES
	USB OTG	USB OTG driver	YES
	I2C	I2C bus driver	YES
	SPI	SPI bus driver	YES
	Ethernet	YT8531SH driver	YES
	SDHI	eMMC/SD card storage driver	YES
	HDMI	SII9022ACNU driver	YES
	LVDS	LVDS driver	YES
	Audio	SGTL5000 audio driver	YES
	4G/5G	4G/5G driver	YES
	PWM	PWM control	YES
	ADC	ADC driver	YES
	RTC	RTC driver	YES
	GPIO	Universal GPIO driver	YES
	UART	RS485/TTL driver	YES
	CAN	CAN driver	YES
	Camera (MIPI)	OV5640 camera driver	YES
	WiFi/BT	FGL297BSRX-00 driver	YES
File system	myir-image-core	Image built in Yocto without GUI interface	YES
	myir-image-full	A fully functional image built with Yocto	YES
Industry DEMO	Application of Charging pile	Refer to the State grid charging pile program to realize the meter Modbus protocol, IEC104 platform communication protocol and charging demonstration interface. Integrate into the MeasyHMI V2.0 version and demonstrate through full image.	YES
	Engineering Machinery Scenarios	Four AHD cameras capture four images and display them on the screen. The Analog instrument information is displayed on the screen, and the video picture and instrument information are displayed on split screens. Integrate into the MeasyHMI V2.0 version and demonstrate through full image.	YES

MYD-YM62X Software Features

Order Information

Product Item	Part No.	Packing List
MYD-YM62X Development Board	MYD-YM6254-8E2D-140-I	✓ One MYD-YM62X Development Board (MYD-YM6254/MYD-YM6252/MYD-YM6231) ✓ One USB to TTL cable ✓ One 12V/2A Power adapter ✓ One DC Power jack adapter ✓ One Quick Start Guide
	MYD-YM6252-8E1D-140-I	
	MYD-YM6231-8E1D-100-I	
MYC-YM62X System-On-Module	MYC-YM6254-8E2D-140-I	✓ One MYC-YM6254 CPU Module
	MYC-YM6252-8E1D-140-I	✓ One MYC-YM6252 CPU Module
	MYC-YM6231-8E1D-100-I	✓ One MYC-YM6231 CPU Module
MY-CAM003M MIPI Camera Module	MY-CAM003M	**Add-on Options** ✓ MY-LVDS070C 7-inch LCD Module ✓ MY-CAM003M Module
MY-LVDS070C 7-inch LCD Module	MY-LVDS070C	

Note:

1. One MYD-YM62X Development Board comprises one MYC-YM62X SOM mounted onto the base board. If you require additional SOMs, you may place orders for extras.

2. Bulk discounts are available. For inquiries, please contact MYIR.

3. We cater to custom design requests based on the MYD-YM62X, whether it involves reducing, adding or modifying the existing hardware components to suit the customers' specific needs.

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