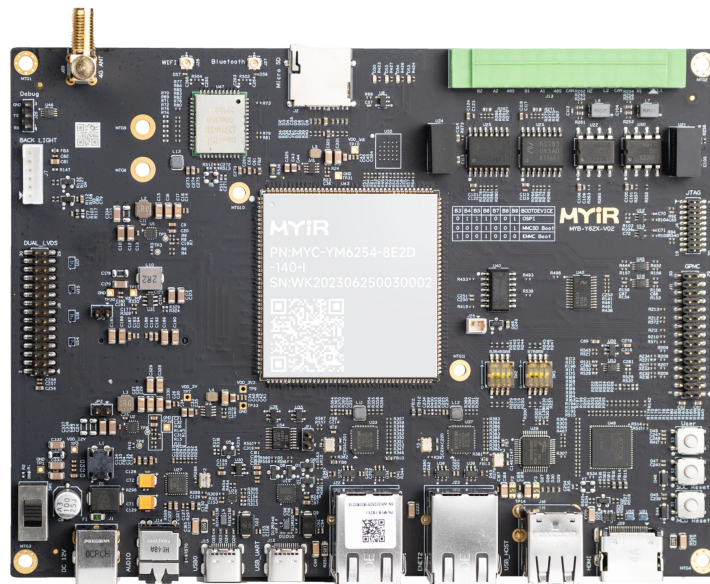


# MYD-YM62X Development Board Overview

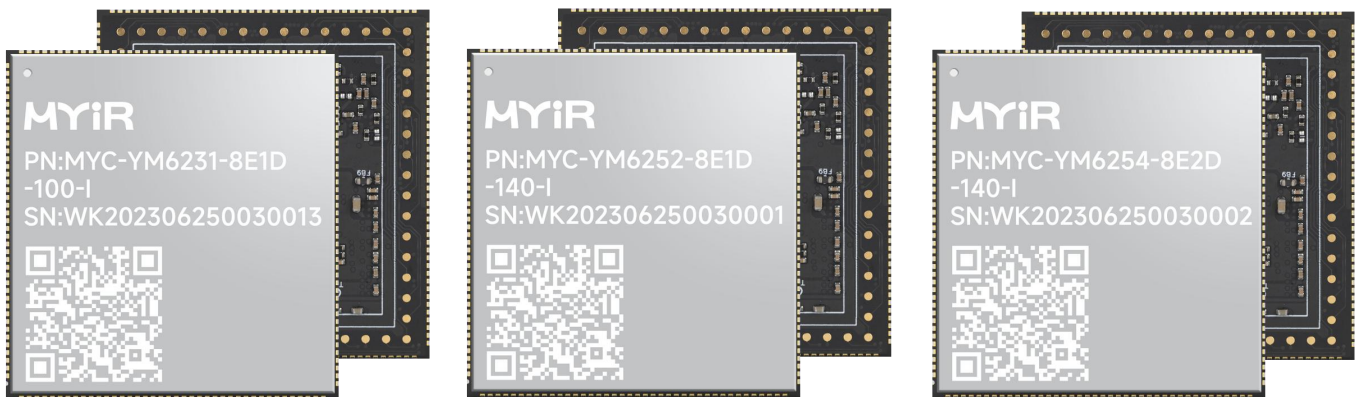


- ✓ MYC-YM62X System-On-Module as Controller Board
- ✓ TI AM62x Processor based on up to 1.4GHz Quad ARM Cortex-A53 and 400MHz Cortex-M4F Cores
- ✓ 1GB/2GB DDR4, 8GB eMMC Flash, 32KB EEPROM
- ✓ 2 x USB 2.0 Host, 1 x USB 2.0 OTG, 2 x CAN, 2 x RS485, Micro SD card Slot, GPMC
- ✓ Supports 2 x Gigabit Ethernet, WiFi/Bluetooth and 4G/5G LTE
- ✓ LVDS, HDMI, Camera Interface (MIPI-CSI), Audio Input/Output
- ✓ Ready to Run Linux 6.1 OS

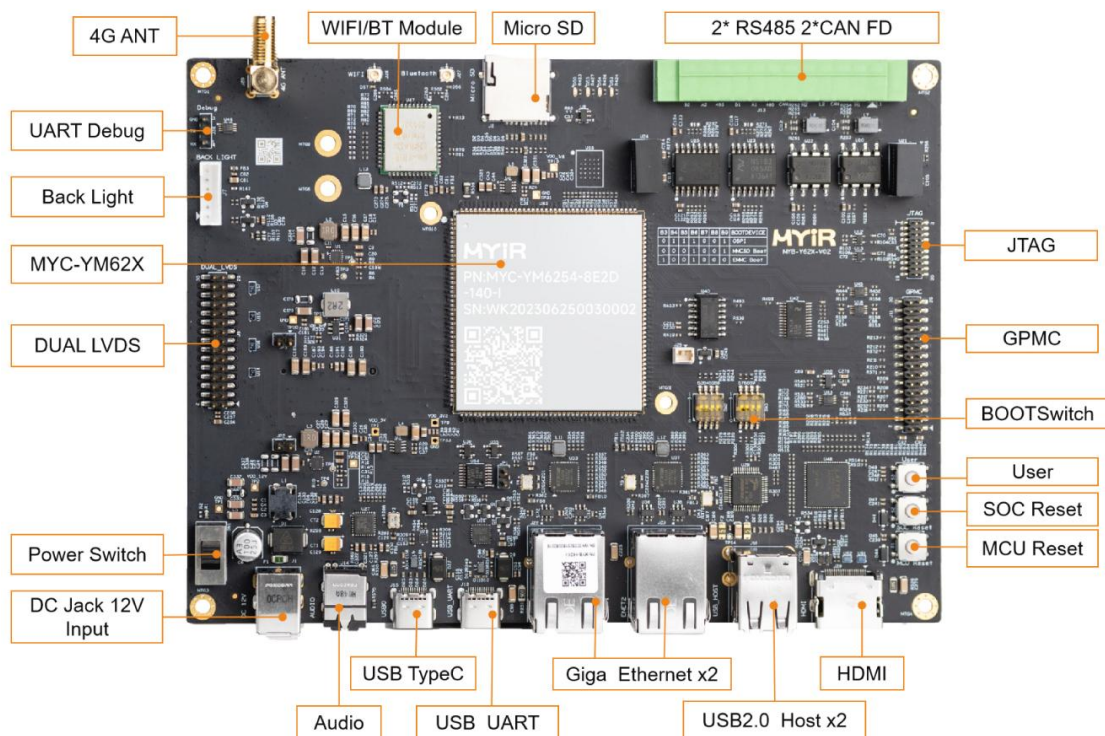


The [MYD-YM62X development board](#) is a versatile testing and evaluation platform for [TI AM623](#) and [TI AM625](#) microprocessors which among the TI Sitara AM62x MPU family and feature up to 1.4GHz Quad ARM Cortex-A53 and 400MHz Cortex-M4F cores, dual-display support and 3D graphics acceleration,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

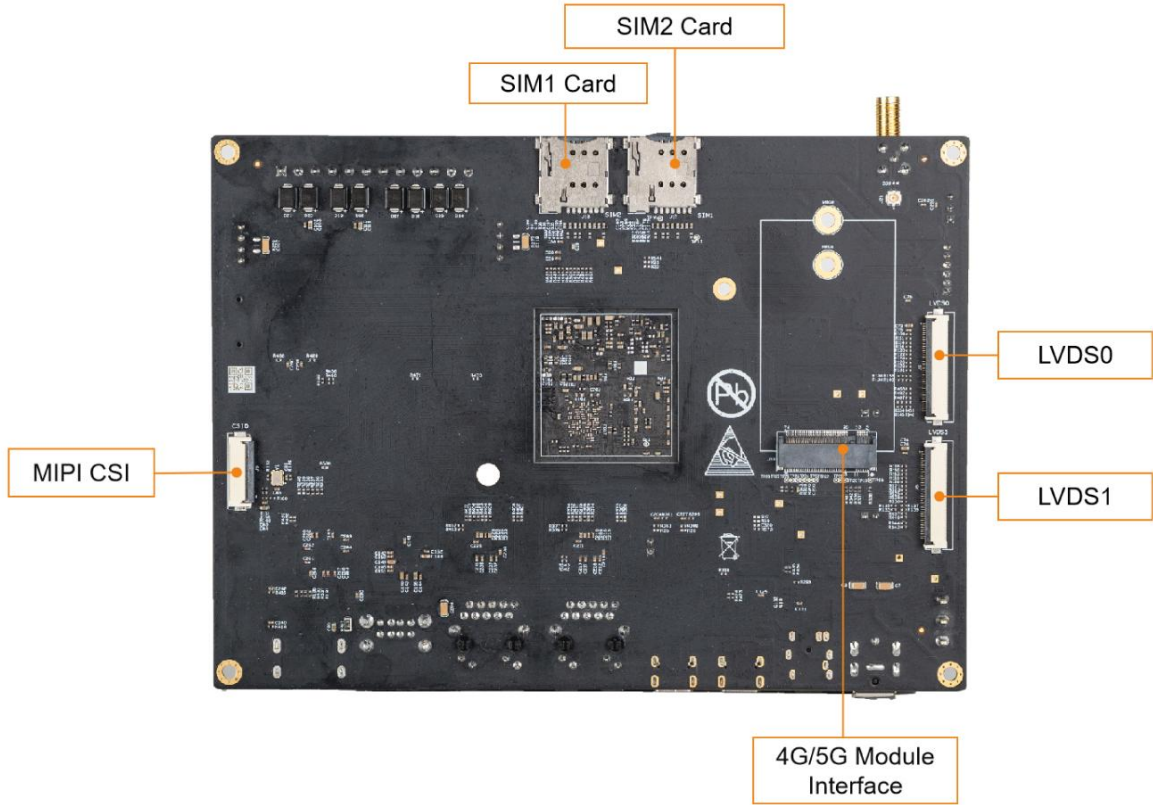
The [MYD-YM62X development board](#) is built around the [MYC-YM62X](#) SOM and has explored many features of the AM62x SoC through the 1.0 mm pitch 164-pin Castellated-Hole and 58-pin LGA expansion interfaces. It has rich communication interfaces including dual RS485, dual CAN, dual Gigabit Ethernet, 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.



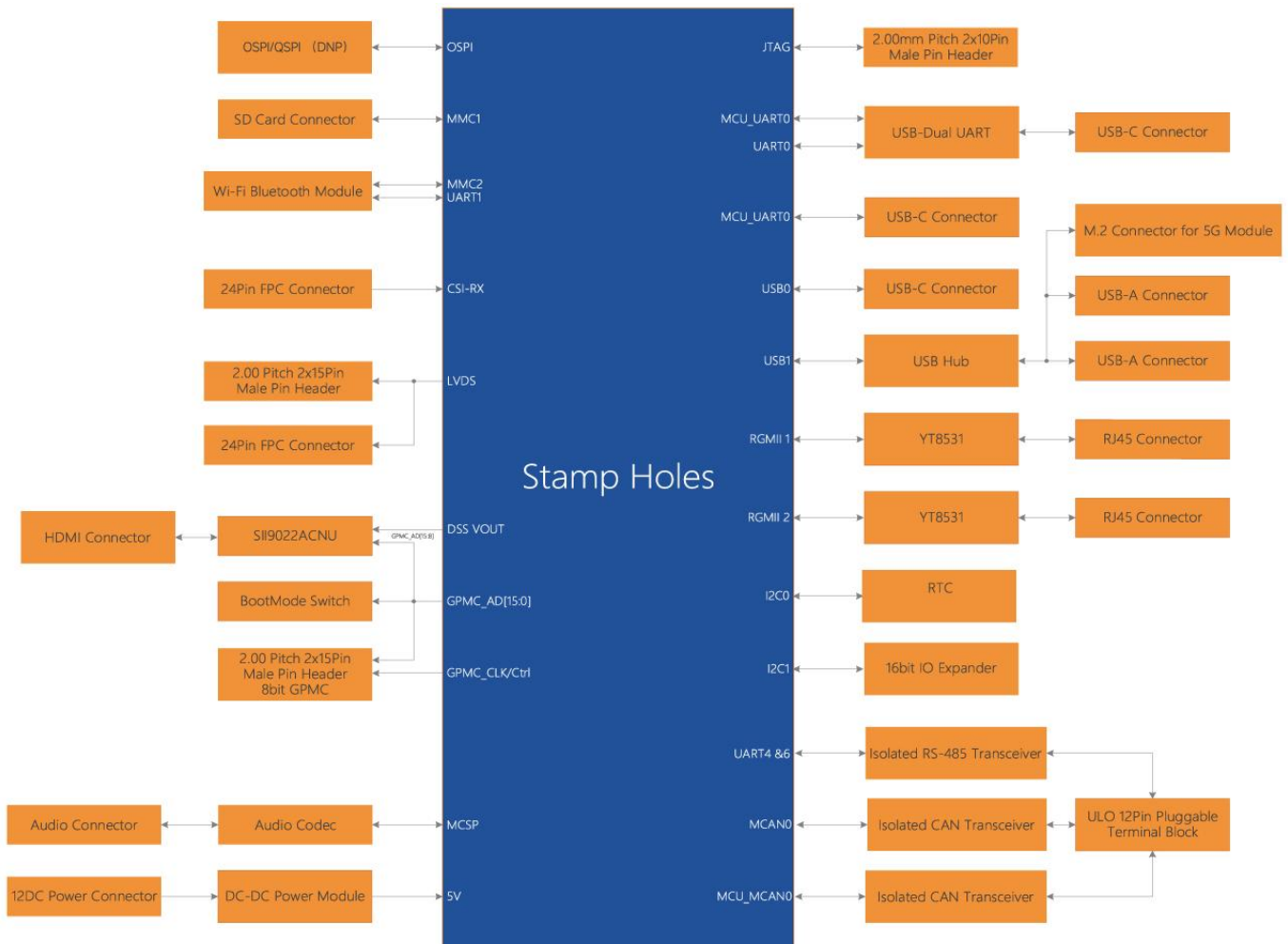
MYC-YM62X (MYC-YM6231 / MYC-YM6252 / MYC-YM6254)



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.

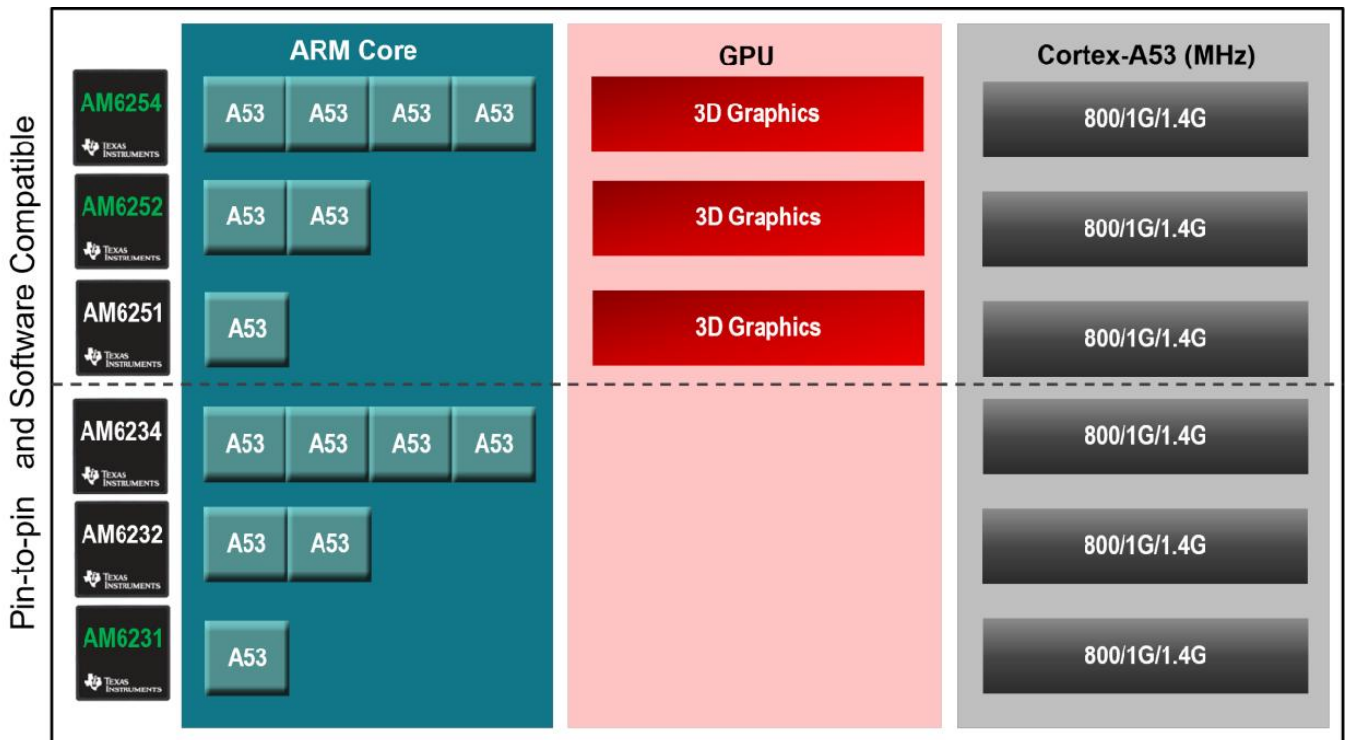
Some of these applications include:

- Industrial HMI
- EV charging stations
- Touchless building access
- Driver monitoring systems

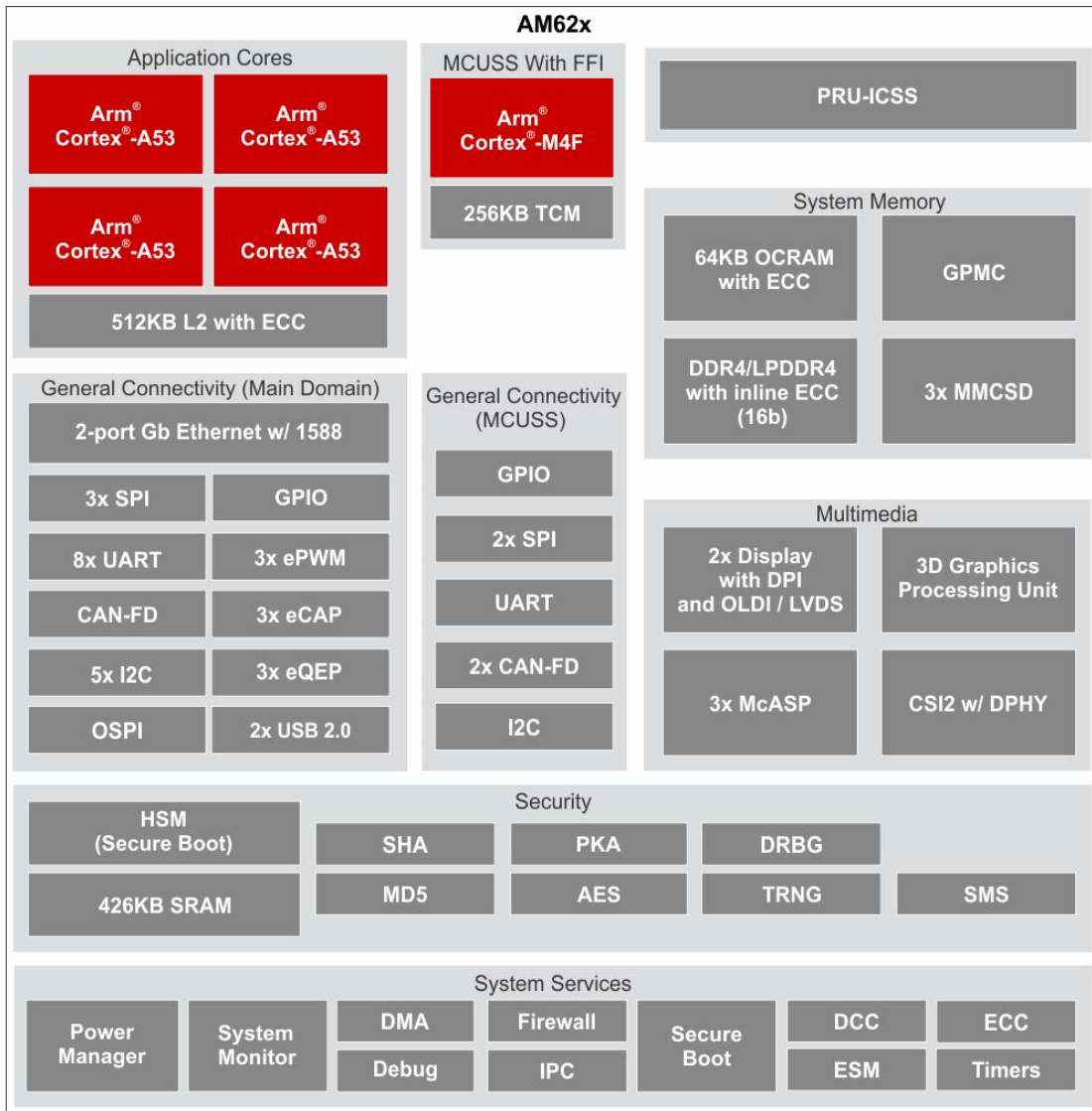
The [MYC-YM62X](#) is using the 13 x 13mm (ALW) package AM62x processors (AM6254ATCGGAALW, AM6252ATCGGAALW and AM6231ASGGGAALW). The 3-port Gigabit Ethernet switch has one internal port and two external ports with Time-Sensitive Networking (TSN) support. An additional PRU module on the device enables 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) :

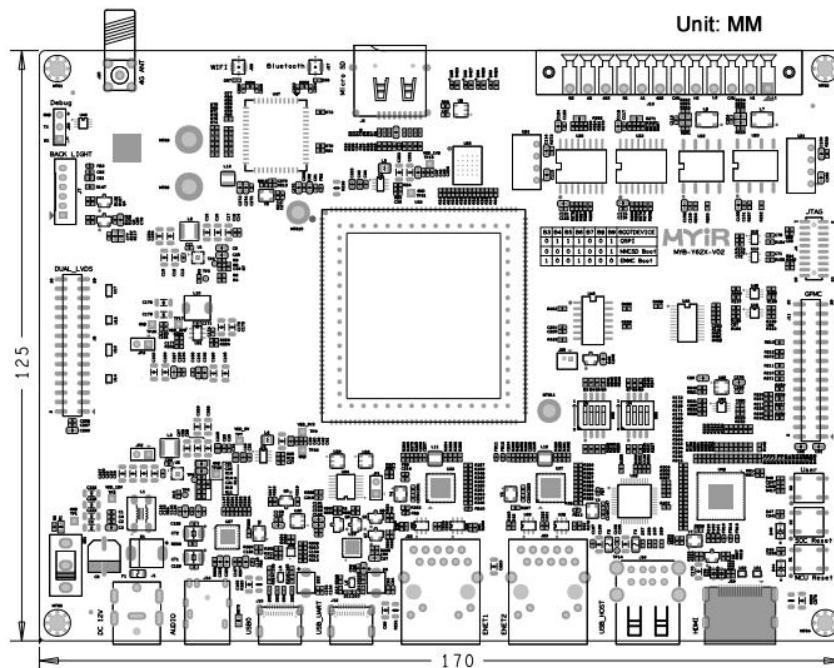
- [AM625](#) – Human-machine Interaction SoC with Arm Cortex-A53 based edge AI and full-HD dual-display
- [AM623](#) – Internet of Things (IoT) and Gateway SoC with Arm Cortex-A53 based object and gesture recognition



*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:

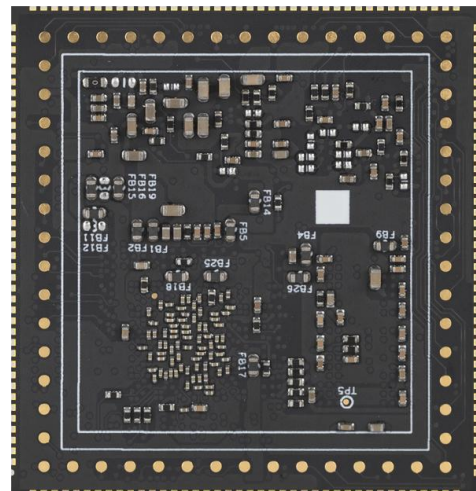
**Mechanical Parameters**

- 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)

**The MYC-YM62X System-On-Module**



*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 JTAG
- 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_2023.04  | YES         |
| Linux kernel  | Linux kernel                    | Based on the official kernel_ 6.1.46 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<br>Development Board   | MYD-YM6254-8E2D-140-I | ✓ One MYD-YM62X Development Board<br>(MYD-YM6254/MYD-YM6252/MYD-YM6231)              |
|  | MYD-YM6252-8E1D-140-I | ✓ One USB to TTL cable   |
|  | MYD-YM6231-8E1D-100-I | ✓ One 12V/2A Power adapter<br>✓ One DC Power jack adapter<br>✓ One Quick Start Guide |
| MYC-YM62X<br>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<br>MIPI Camera Module   | MY-CAM003M            | <b>Add-on Options</b><br>✓ MY-LVDS070C 7-inch LCD Module<br>✓ MY-CAM003M Module      |
| MY-LVDS070C<br>7-inch LCD Module   | MY-LVDS070C           |  |
| <p><i>Note:</i></p> <p>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.</p> <p>2. Bulk discounts are available. For inquiries, please contact MYIR.</p> <p>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.</p> |                       |  |



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