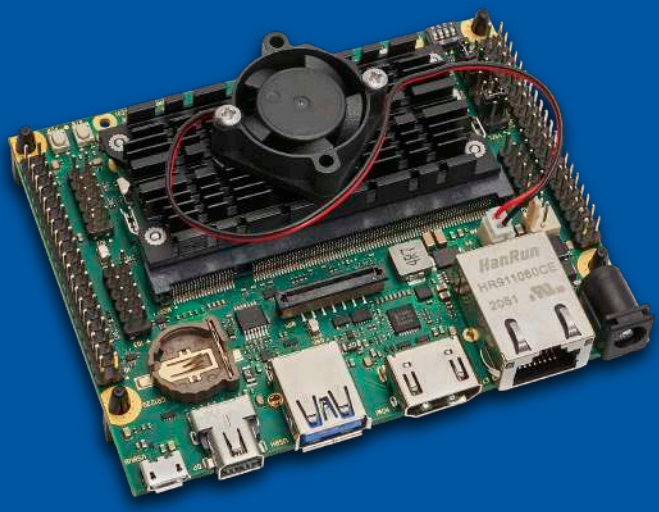
MARS XU3
Design-In Kit

Quick Start Guide



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What's in the Box

- Mars XU3 module
- Mars ST3 base board
- USB camera
- Heatsink
- Fan
- Power supply
- USB cable
- MiniDP to DP cable
- Micro SD card
- Example designs: AI face detection and image classification based on ResNet50 and Xilinx Vitis AI
- Quick start guide

Mars XU3

- Xilinx® Zynq UltraScale+™ MPSoC
- Up to 4 GB DDR4
- 64 MB QSPI flash
- 16 GB eMMC flash
- PCIe® Gen2 ×4
- 4 × 5 Gbit/sec MGT
- Gigabit Ethernet
- USB 3.0
- USB 2.0 OTG PHY
- Up to 154,000 LUT4-eq
- 108 user I/Os

Available Resources

The following manuals and software are available for download for owner of the kits:

- Documentation
- Design support
  - ✔ Design-in kit user guide
  - ✔ User manuals
  - ✔ Reference design
  - ✔ PetaLinux board support package (BSP)
  - ✔ Buildroot-based Linux BSP
  - ✔ Module pin connection guidelines
  - ✔ Master pinout
  - ✔ Footprints
  - ✔ 3D model
  - ✔ IO net length
  - ✔ User schematics
  - ✔ Altium design files (base board)
  - ✔ Application notes

The Design-In Kit

Mars XU3 System-on-Module (SOM)

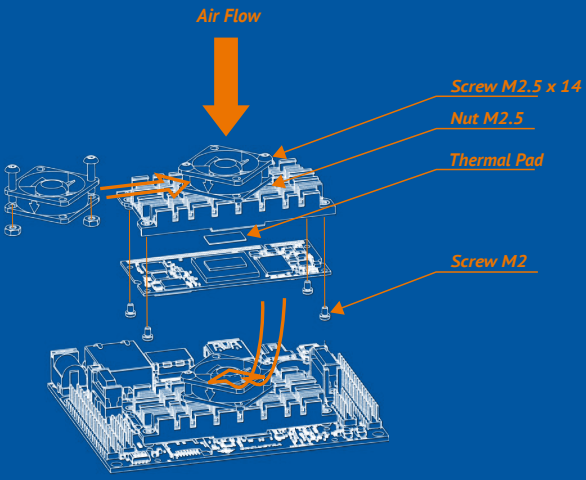
Top view

Bottom view

Mars ST3 Base Board

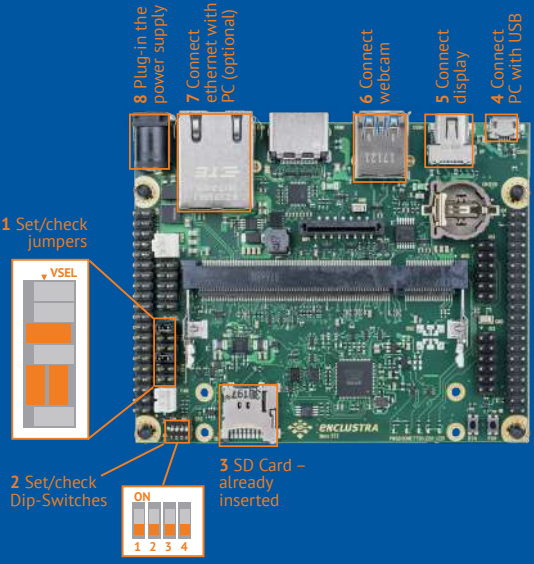
Set up the Hardware

1 Mount the module the fan and the heatsink to the base board



2 Connect the Base Board

1. Insert module first. 2. Follow the steps in the order indicated in the image below. 3. Insert power last.



Run the Demos

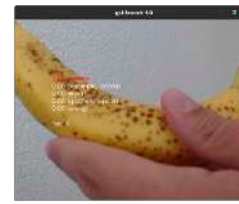
Preparation:

– Prepare and connect the board according to the hardware setup instructions (see «Set up the Hardware»).
– Open a terminal program on your computer (e.g. Tera Term) and open a serial port connection using the COM port labeled with the higher number from the two newly detected ports.

Face Detection Demo

1. Power on the board and log in as root/root
2. Check that you can ping the board from your computer
3. Start the face detection demo with the command: **`root@ST3_MA-XU3-2CG-1E-D10:~# facedetect`**
4. The live video of the USB camera should be displayed on the monitor
5. Optional: View the stream on your PC via network using the following GStreamer pipeline: **`gst-launch-1.0 tcpclientsrc host=IP_ADDRESS_OF_THE_BOARD port=7001 ! jpegdec ! videoconvert ! autovideosink`**

Image Classification Demo



1. Power on the board and log in as root/root
2. Check that you can ping the board from your computer
3. Run the resnet50 example with the command: **`root@ST3_MA-XU3-2CG-1E-D10:~# resnet50`**
4. The live video of the USB camera should be displayed on the monitor
5. Optional: View the stream on your PC via network using the following GStreamer pipeline: **`gst-launch-1.0 tcpclientsrc host=IP_ADDRESS_OF_THE_BOARD port=7001 ! jpegdec ! videoconvert ! autovideosink`**

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