

ARM



ARM is most known for their CPU architectures, but they also have a GPU architecture, MALI. Their devices support:

- OpenCL
- OpenGL
- Vulkan
- RenderScript

OpenCL

ARM takes OpenCL serious and has various developer boards and drivers for their MALI GPU. Most notable Samsung has their Exynos chips, but now also Rockchip brings high-end MALI GPUs.

Drivers and SDK

ARM MALI Linux SDK



]

The SDK can be downloaded [here](#). Developers manual is [here](#). A 14-page FAQ with lots of answers on your questions is [here](#).

For compilation on Ubuntu g++-arm-linux-gnueabi is needed. Also remove the "-none" in platform.mk. Then compilation will result in a libOpenCL.so.

```
vincent@truus-desktop:~/Projects/Mali_OpenCL_SDK_v1.1.0/lib$ make  
arm-linux-gnueabi-g++ -fpic -shared -I./include/ -o libOpenCL.so openc1_stubs.c  
vincent@truus-desktop:~/Projects/Mali_OpenCL_SDK_v1.1.0/lib$ ls  
libOpenCL.so Makefile openc1_stubs.c  
vincent@truus-desktop:~/Projects/Mali_OpenCL_SDK_v1.1.0/lib$
```

Drivers for Android

Software available for the Arndale can be found [here](#) - drivers (including graphics drivers with OpenCL-support) are [here](#). The current state is that their OpenCL drivers are [sometimes working, most times not](#) - we are very sorry for that and try to find fixes.

We did not test the drivers with other devices than the Arndale with the same chipset (such as the new Chromebook and the Nexus 10).

Drivers for Linux

For the Samsung Chromebook drivers are available [here](#). For Arndale these drivers should work too (not tested yet), if you use the [kernel-drivers](#) of the same version.

Firefly RK3288



The [Firefly](#) has:

RK3288 Cortex-A17 quad core@ 1.8GHz

Mali-T764 GPU with support for OpenGL ES 1.1/2.0 /3.0, OpenVG1.1, OpenCL, Directx11

Drivers have not yet been tested with this board yet! Cheap alternatives can be found [here](#).

Exynos 5 Boards

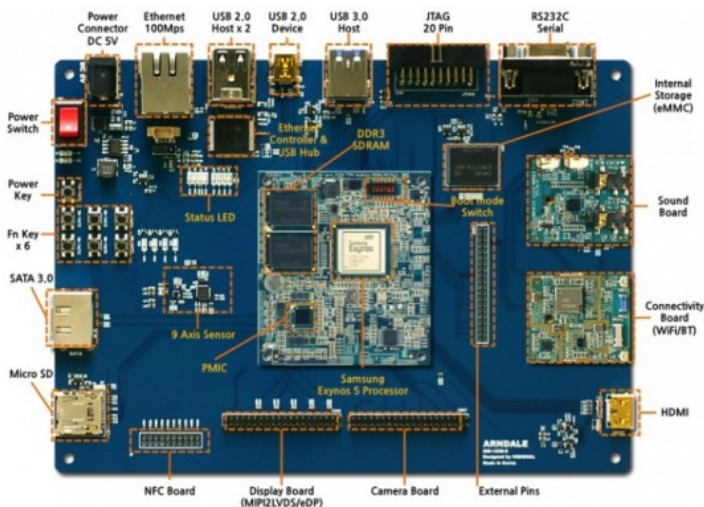
The following boards are available:

- Arndale 5250-A
- YICsystem YSE5250
- YICsystem SMDKC520
- Nexus 10
- Samsung Chromebook

Scroll down for more info on these boards.

Board 1: Arndale 5250-A

The board is fully loaded and can be extended with touch-screen, SSD, Wifi+sound and camera. Below is an image with the soundboard and connectivity-board attached.

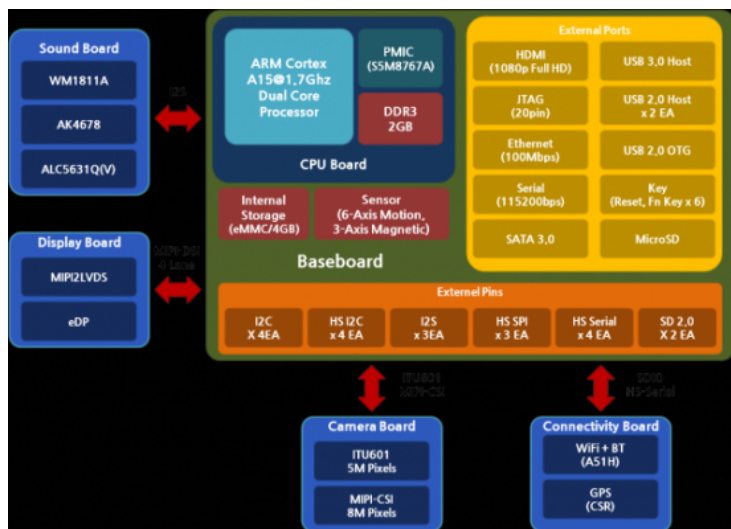


Working boards using OpenCL on display (click on image to see the Twitter-status):



Here are a few characteristics:

- Cortex-A15 @ 1.7 GHz dual core
- 128 bit SIMD NEON
- 2GB 800MHz DDR3 (32 bit)



More information can be found on the [wiki](#) and [forum](#).

Order information

For more information and to order, go to http://howchip.com/shop/item.php?it_id=AND5250A. For an overview of extensions, go to: http://howchip.com/shop/content.php?co_id=ArndaleBoard_en. The price is \$250 for the board, \$50 for shipping to Europe, and extension-boards start at \$60. You need a VAT-number to get it through the customs, but you have to pay EU-VAT anyway.

Currently you need to order the LCD too, as the latest [proprietary drivers](#) (which includes OpenCL) does not work with HDMI.] There are (vague) solutions, to be found on the forums.

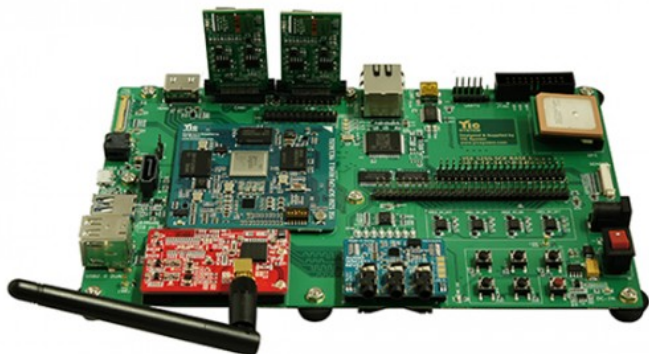
Be sure you can buy a good 5V adapter (the + at the pin). A minimum of 3A is required for the board (TDP of the whole board is 11 to 12 Watt). Adapter costs around \$25,- in the store, or you can buy them [online](#) for \$7,50. You also need a serial cable - there are

USB2COM-cables under 20,-. If you are in doubt, buy the \$60,- package with cables (no COM2USB), adapter and microSD card.

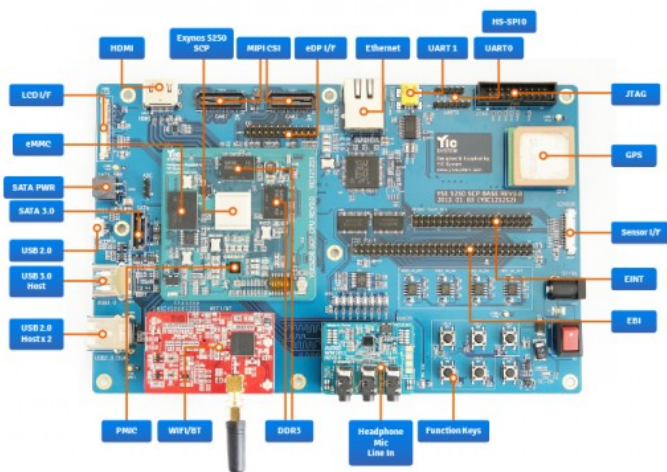
Board 2: YICsystem YSE5250

This board has 2GB DDR3L(32bit 800MHz) and 8GB eMMC (onboard memory-card), USB 3.0 and LAN. Optional boards are for audio, WIFI, sensors (Gyroscope, Accelerometer, Magnetic, Light & Proximity), 5MB camera, LCD and GPS.

Currently it is unknown if OpenCL-drivers will be delivered, and there is no mention of it on their site.



Below you'll find the layout of the board.



Order information

You can order at <http://www.yicsystem.com/products/low-cost-board/yse5250/>. The complete board costs \$245,-. Costs for shipping and import are unknown.

Board 3: YICsystem SMDKC520

The SMDKC520 board is the official reference board of Samsung Exynos5250 System. Currently it is unknown if OpenCL-drivers will be delivered, but as chances are high I already put it here.

It is like the YSE5250, but it seems it includes WIFI, camera and LCD - though the webpage is very vague. Once I have more info

on the YSE5250, I'll continue on getting more infor on this board.

Price is unknown, but does not fall under "budget boards".



Order information

You can send an enquiry at <http://www.yicsystem.com/products/smdk-board/smdk-c520/>. Remember that OpenCL-support is currently unknown!

Board 5: Google Nexus 10

OpenCL-drivers have been found pre-installed on this tablet, so with some tinkering you can run openCL rightaway.

It is a complete tablet, so no case-modding is needed. It has 2GB RAM, WIFI, 16 or 32GB eMMC, 5MP camera, 10" WXGA LCD, all sensors, NFC, sound, etc. For all the specs, see [this page](#).



Order information

You can order the Nexus 10 not in all countries, as google has restricted sales channels. See <http://www.google.com/nexus/10/> for more info on ordering. With some creativity you can find ways to order this tablet into countries not selected by Google. Price is \$400 or ?400.

Board 6: Samsung Chromebook



For ?300 a complete laptop that runs Linux and has OpenGL ES and OpenCL 1.1 drivers? That makes it a great OpenCL "board".

See [ARM's Chromebook dev-page](#) for more information on how to get Linux running with OpenCL and OpenGL.

The drivers are brand new - when we've tested it, we'll add more information on this page.