



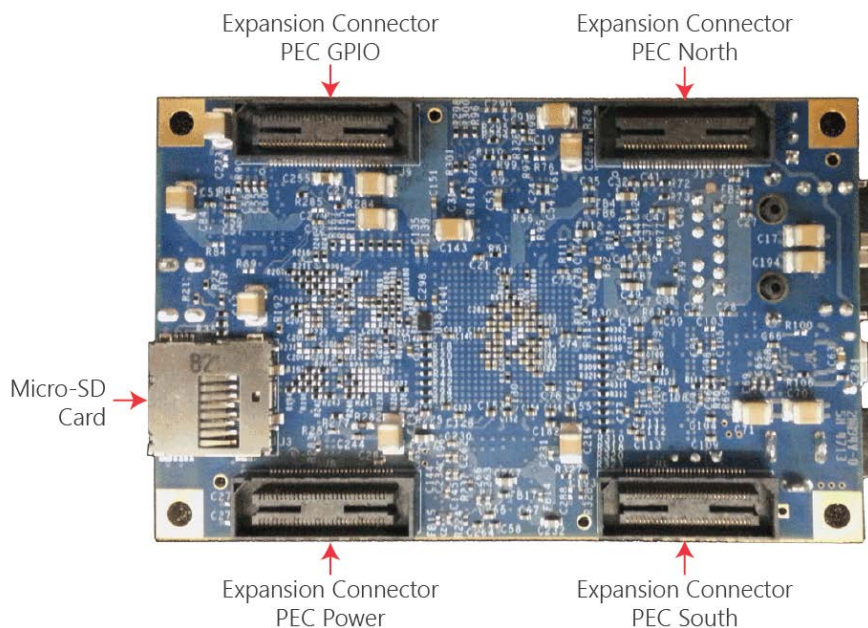
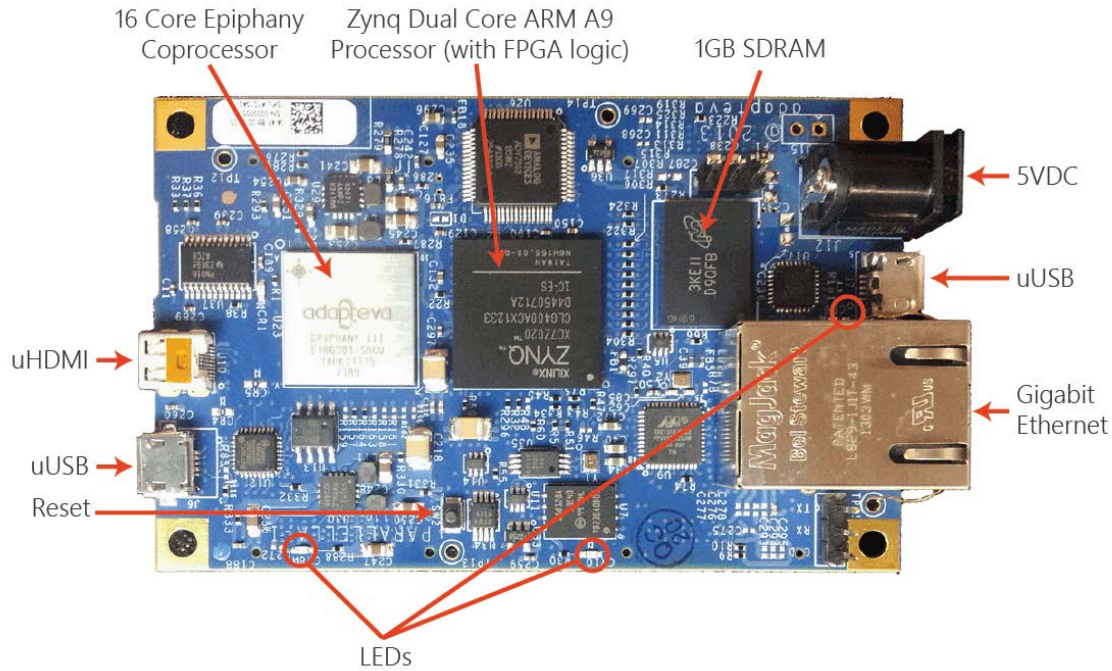
Parallella Quick Start Guide

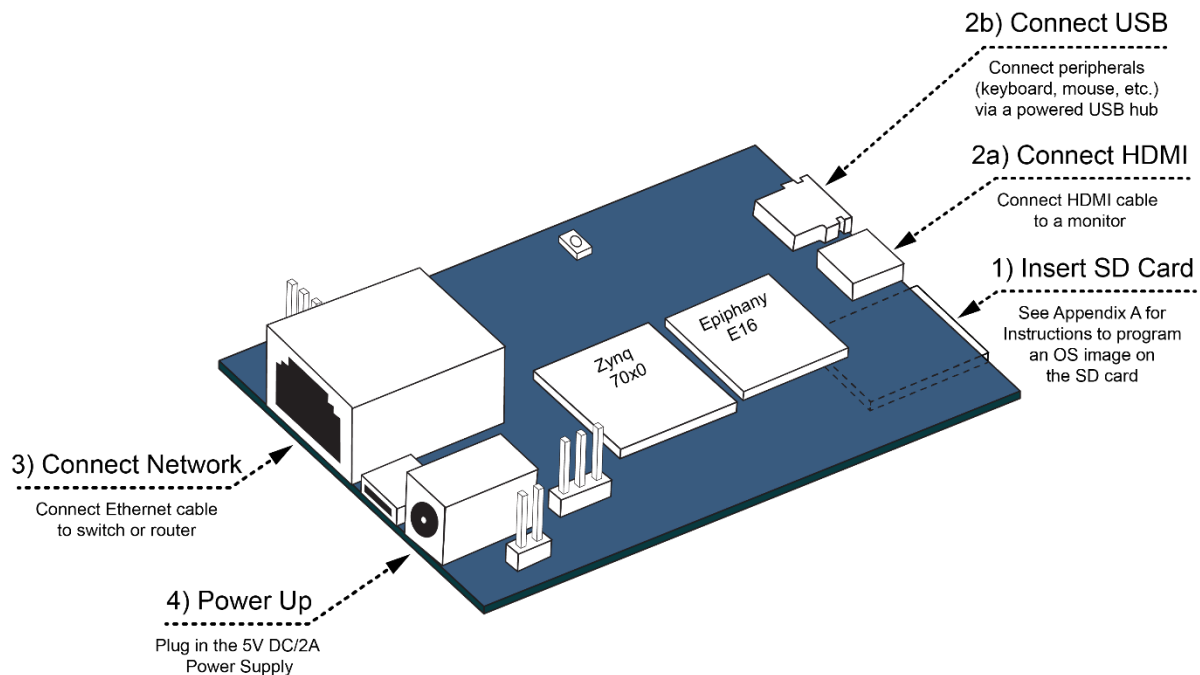
Updated: 14/12/13

Please read the whole guide before unpacking the board!

This guide describes how to get started with the Parallella board. The picture below shows the Gen1.1 Parallella board that is shipping to Kickstarter backers and customers from Dec 2013.

The pictures and illustration highlight some key components relevant to getting the board up and running:





Step #1: Insert Micro-SD Card

Imaging the SD-Card

For the Parallella board to operate the SD card must have the boot image which includes the boot files and the Ubuntu Linux in two partitions - for instructions how to flash the card, see Appendix A below.

Push the pre-imaged micro-SD card in the micro-SD slot on the bottom of the board. The gold tabs on the micro-SD card should be facing down. The SD card should go in smoothly and clicks into place. To remove the card, push the card in further and it should unlock and pop out. Do not try to forcibly pull out the card without first pushing it in as this could damage the board!

Step #2 Connect peripherals (optional)

Connect an HDMI cable and connect to a monitor and then connect a keyboard and mouse through a powered USB hub to the USB port next to the HDMI port.

Step #3: Connect to Network

Connect the Parallella board to the network with a CAT5 Ethernet cable.

Step #4: Power up board

Apply power to the board through the 5V DC power connector as highlighted with the green boxes. One green LED should come on and stay on. If the green LED lights go out or flicker at all, there is an issue with the power to the board so check that the power connector is correctly inserted.



If you have a Monitor Connected to the HDMI Port (Step #3) then continue... (else skip to Step 5A)

Step #5 – Your Done!

The Ubuntu GUI should appear on your monitor. You should be able to control your Parallella from the GUI. You can also open a Terminal window and run a test. Enter “./test.sh” at the command line to run your first parallel Parallella program.

Summary

You now have a fully functional Parallella board running Ubuntu – check out the parallella.org website and forums.parallella.org for help, ideas and recommendations of programming you can get involved in.

Notes:

Heatsinks: in the package with your Parallella board are two heatsinks. While the Parallella seems to be running okay without cooling, we strongly recommend either putting the board in a ventilated installation (with a fan) or installing the heatsinks to help dissipate the heat from the Zynq chip and the Epiphany chip.

Install the heatsinks with the fins from top to bottom (in-line with the width of the board). The heatsink with white colored tape is for the Zynq (plastic case) and the heatsink with the dark colored tape is for the Epiphany (metal case).

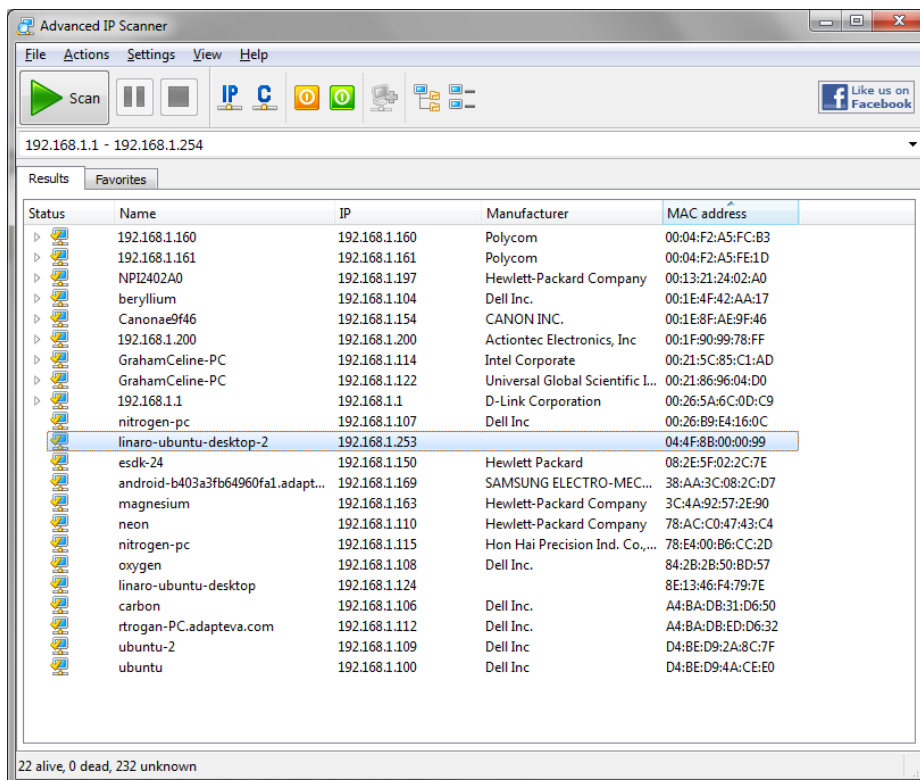
USB 2: The USB port between the Ethernet and the power connector is the host port. More details to follow on its use and functionality.

Step #5A: Find MAC Address and IP Address

The MAC Address is printed on the label of the Parallella board – 04:4F:8B:xx:xx:xx.

[The rightmost numbers in the serial number can also be used to determine the MAC address of the board. The rightmost seven numbers are used converted to HEX format. The base MAC address for all Parallella boards is 04:4F:8B:00:00:00. To get the exact MAC ID for your board, add the number in HEX to the base MAC address. Example: for serial number 0000031, the MAC ID would be 04:4F:8B:00:00:1E (for hex converter tool link [here](#))]

To find the IP Address of the board check your router or use an IP scanning tool - find the IP address associated with the MAC Address of the board. (Alternatively try logging in directly to “linaro-ubuntu-desktop” from another computer.)



Recommended IP Scanning tools:

<http://www.advanced-ip-scanner.com/> (no install required)

<http://www.radmin.com/download/previousversions/portscanner.php> (install required)

Step #6: Log In to the Board from a Remote Machine

From Windows Login into a remote session using a terminal tool like PuTTY (<http://www.putty.org/>)

Session is SSH on Port 22

The default Parallella user name is “linaro”

The default password is “linaro”



From Linux: Open an SSH shell

```
%ssh linaro@192.168.x.x
```

or

```
%ssh linaro@linaro-ubuntu-desktop
```

We recommend that you change the default settings for security reasons.

FINAL STEP: Running a Test

After a successful login, enter “./test.sh” at the command line to run your first parallel Parallella program.

Opening a GUI Window from Remote

You can login to the Parallella board’s Ubuntu GUI from another Linux machine using VNC

1) On the Parallella board:

Start the VNC server

```
linaro@linaro-ubuntu-desktop:~$ vncserver
```

```
New 'X' desktop is linaro-ubuntu-desktop:1
```

```
Starting applications specified in /home/linaro/.vnc/xstartup
```

```
Log file is /home/linaro/.vnc/linaro-ubuntu-desktop:1.log
```

Note the response gives the “display #” which you will need to access this server (number after the colon)

On a Linux machine:

```
testuser@MyPC:~$ xtightvncviewer 192.168.x.x:N
```

Where the IP address is the IP of the Parallella board and N is the Display number

```
example: testuser@MyPC:~$ xtightvncviewer 192.168.2.119:1
```

The user password to the Parallella board will be required (linaro) and then a window will open with the Ubuntu GUI of the Parallella.



Update Software

Check for development software updates to make sure you are always running the latest Epiphany SDK.

Pre-built SDKs are available at <ftp://ftp.parallella.org> while sources and built scripts are available at

<http://github.com/adapteva/epiphany-sdk>

Known Issues with the Gen1 Board:

1. USB host port is not operating (TBD)
- 2.

Appendix A:

How to Flash an SD Card with Ubuntu

1. Download and *uncompress* the image found in the directory (<ftp://ftp.parallella.org/parallella/gen1/>)
 - a. For Parallella-16 use file Parallella16_z7020wGPIO_131210.zip
 - b. For Parallella-64 use file xxxxx.zip
2. Insert new 16G SD card into your pc (windows machine)
3. In order to flash the SD card in Windows, it is necessary to first download a third-party application named Disk Imager (<http://sourceforge.net/projects/win32diskimager/>)
 - a. Locate and uncompress the files you downloaded in a convenient place.
 - b. Launch the application **Win32DiskImager.exe**
 - c. Select uncompressed version of the image (*ADD FILENAME*)
 - d. Make sure the correct drive/device is selected
 - e. Click the Write button
4. Single image write into SD card can take about 35min.

