

# Pynq-Z1 Setup

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## 1 Introduction

This setup was completed using Ubuntu 22.04.1 LTS with codename Jammy. Setup does not require this information, however, using the Pynq board may require different versions.

This setup also uses the already setup Pynq board that has its own connections and OS information set up. Therefore, if you are beginning with a new device, this video is highly recommended —> Setup Pynq Board Video

## 2 Prepare the Micro SD

1. Download the PYNQ-Z1 image from Here

You can write this to the SD card with Win32 Disk Imager on Windows or DD to write to the Micro SD on Mac and Linux.

Note: A MicroSD card of size 8Gb or greater should be used. 8Gb is what was used in this case.

## 3 Setup Jumpers

In our case, we want to use the USB power supply selection. Therefore, on the jumper labeled **JP5** we want the jumpers to be set over these pins.

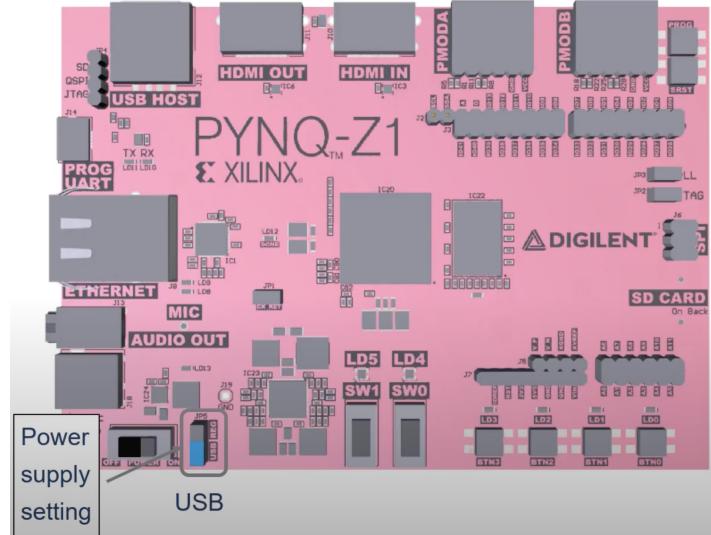


Figure 1. USB Jumper Setting on Pynq Board Graphic

USB is recommended and should be used in most applications. An external power source can be used if more power is required for more hardware or higher resource tasks on the board.

The boot jumper on the top (**JP4**) should be set to SD so we boot from the SD card that was inserted. Details on this boot jumper can be found below.

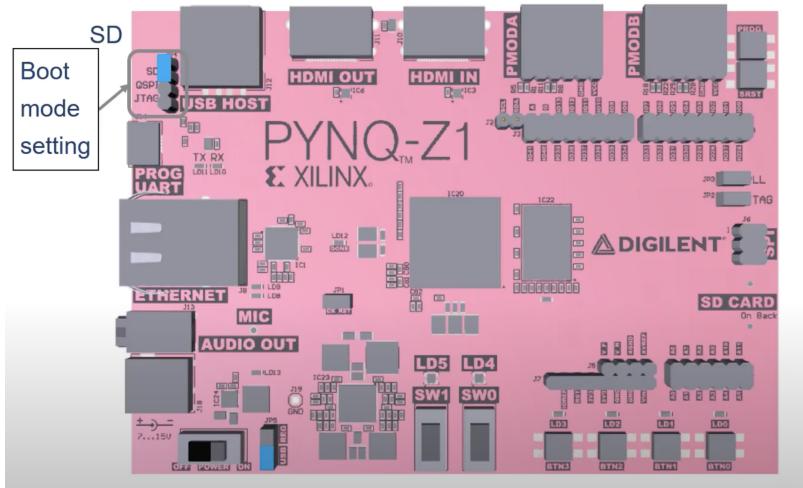


Figure 2. Boot Jumper Setting on Pynq Board Graphic

Now we should be able to boot from the SD card. To make sure this works the SD card should be inserted on the right of the board at the bottom. This mechanism is spring loaded and should click once fully inserted (quiet, you may not hear it).

To connect the Pynq board to power, you should connect a Micro-USB cable to the **USB UART** port on the board and the other end of the cable to the laptop (power source).



Figure 3. USB UART Connection on Pynq Board Graphic

## 4 Connecting To A Network

There are two ways to connect to a network, however, the one that is going to be used here connects to a switch/router. This will allow the board to access the internet and you can connect to it from the machine you are using on the same network.

1. Connect the Pynq Board via Ethernet to the switch connected to your network.
2. Connect your machine (laptop/desktop) to the same switch that will be connected to the same network.

If your machine is wirelessly connected to the same router as the Pynq board. You should be fine and the connection should work.

From here, you can now turn on the board by using the switch at the bottom left of the board and setting it to **ON**.

The board will now begin to start up and should take a moment. Please wait until the four LED's on the bottom flash blue then create a solid green color.



Figure 4. Power Switch on Pynq Board Graphic

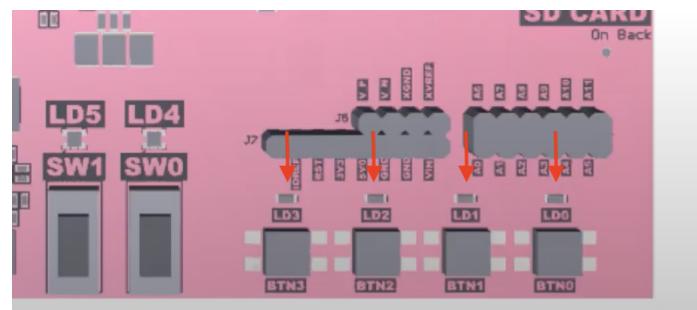


Figure 5. Status LED's on Pynq Board Graphic

## 5 Accessing the Board Online

Since the board has already been configured/set up, connecting to the board online in this manner should be easy.

To connect to the board once it has been correctly turned on and your machine (desktop/laptop) is on the same wifi as the switch, you open a new tab on your internet browser of choice.

Note: Internet Explorer is not currently supported.

Input the link *marinella\_pynq:9090* in your browser and hit enter. You should come to a site that looks like this.

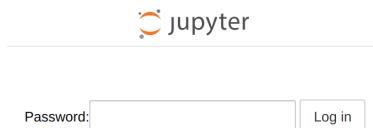


Figure 6. Jupyter Pynq Login Screen Graphic

The password is: **xilinx**

Once you have logged on, you are now able to access all information on the board and can then create a terminal or access and edit Jupyter notebooks in your browser.

## 6 Accessing Files and Terminal

To access the general device files you can click on any file that you see once logged in. Clicking on a Jupyter Notebook will open the notebook for editing or to view. These are the files that end in **.ipynb**.

Accessing the terminal is important for any device. To do this, access the new dropdown in the top right corner and select terminal. From here you are able to access and open the terminal for this Pynq device.



Figure 7. Run Local Pynq Terminal Graphic

You now have the general setup of the device and are ready to continue.

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