OPEN HARDWARE WORKSHOP

College of Engineering Trivandrum

RASPBERRY PI

USER GUIDE

Overview

Raspberry Pi is a credit card sized single board computer. Raspberry Pi is based on the Broadcom BCM2835 system on a chip (SoC),which includes an ARM1176JZF-S 700 MHz processor, VideoCore IV GPU, and was originally shipped with 256 megabytes of RAM, later upgraded (models B and B+) to 512 MB. The system has Secure Digital (SD) (models A and B) or MicroSD (models A+ and B+) sockets for boot media and persistent storage.

The following are needed to set up RaspberryPi:

- SD Card of minimum 4Gb size, class 4.

- HDMI to HDMI / DVI lead

- RCA video lead

- Keyboard and mouse

- Ethernet network cable

- Power adapter which can provide atleast 700mA at 5V
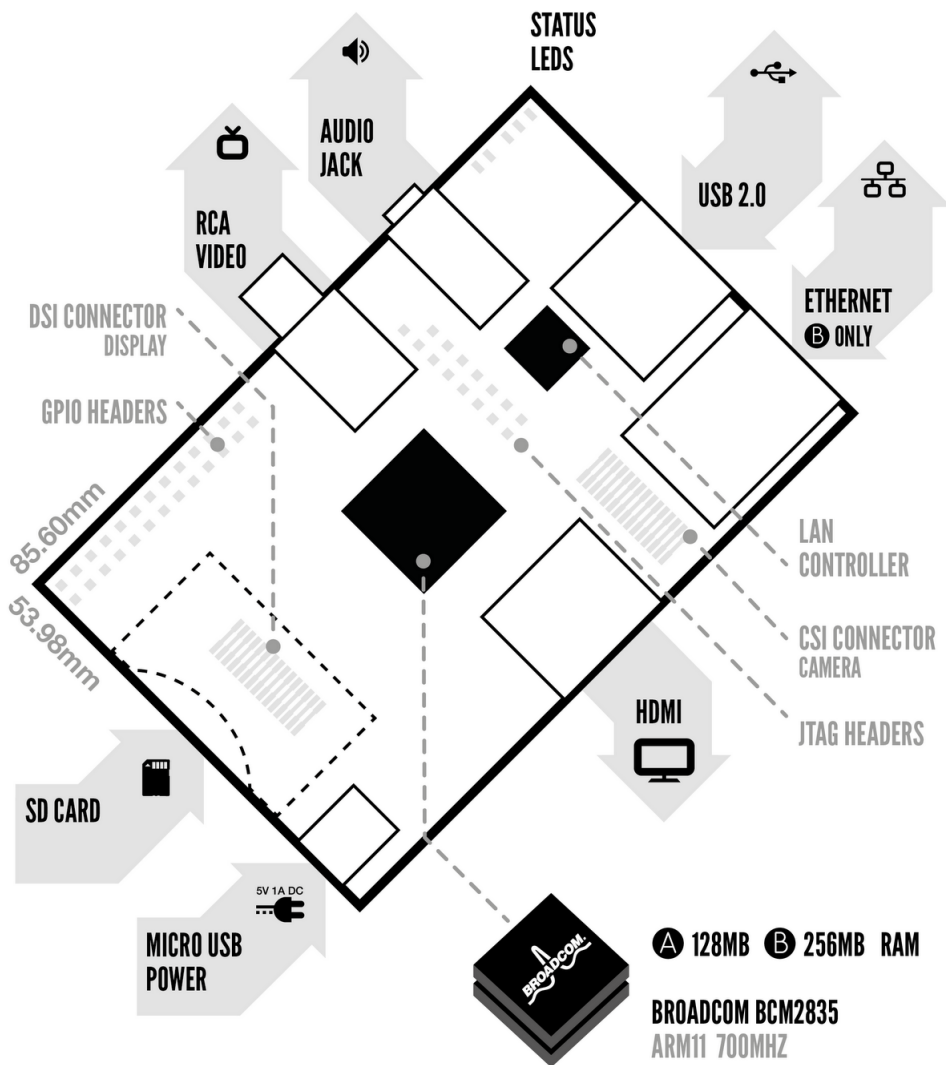
- Audio lead (optional)

Figure 1: RaspberryPi

Preparing SD Card for RaspberryPi

The SD card contains the Raspberry Pi's operating system. The following instructions are for Windows users.

- Download the Raspberry Pi operating system The recommended OS is called Raspbian. Download the Raspberry Pi operating system

- Unzip the file that you just downloaded.Right click on the file and choose "Extract all". Follow the instructions—you will end up with a file ending in .img. This .img file can only be written to your SD card by special disk imaging software.

- Download the Win32DiskImager software. Download win32diskimager-binary.zip. Unzip it in the same way you did the Raspbian .zip file. You now have a new folder called win32diskimager-binary. You are now ready to write the Raspbian image to your SD card.

- Writing Raspbian to the SD card; Plug your SD card into your PC. In the folder you made in step 3(b), run the file named Win32DiskImager.exe. (in Windows Vista, 7 and 8 we recommend that you right-click this file and choose "Run as administrator".

- If the SD card (Device) you are using isn't found automatically then click on the drop down box and select it.

- In the Image File box, choose the Raspbian .img file that you downloaded. Click Write. After a few minutes you will have an SD card that you can use in your Raspberry Pi.
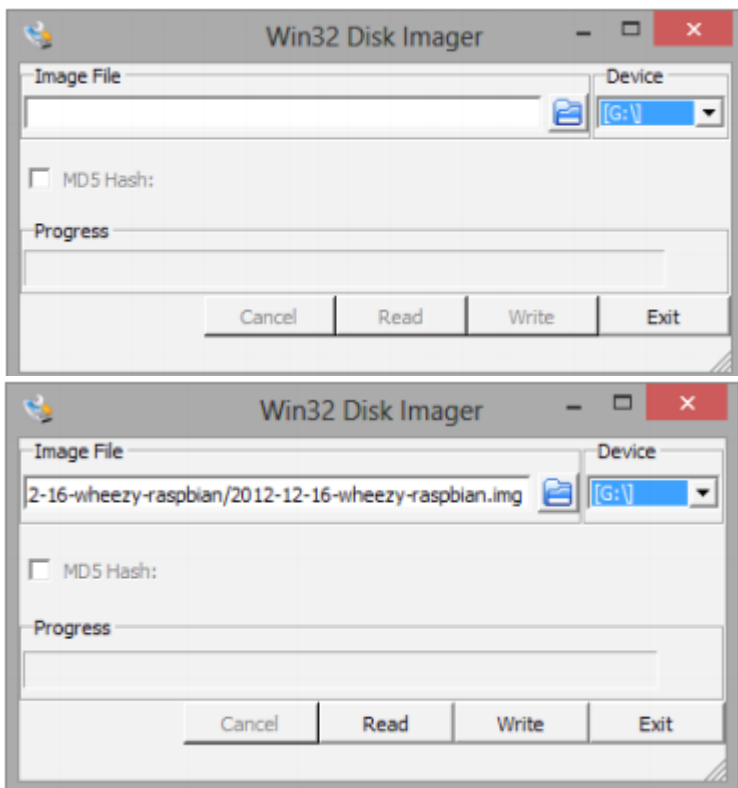
Figure 2: Writing Raspbian to the SD card

Booting Raspberry Pi

- On first boot you will come to the `Raspi-config` window

- Change settings such as timezone and locale if you want

- Finally, select the second `expand-rootfs` and say 'yes' to a reboot

- The Raspberry Pi will reboot and you will see raspberrypi login:

- Type: `pi`

- You will be asked for your Password

- Type: `raspberry`

- You will then see the prompt: `pi@raspberry`

- Start the desktop by typing: `startx`

- The screen will now turn black, then come back as a normal desktop environment