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| **Rasberry Pie** | **Beagle Bone Black** |
| It performs Analog write, Digital Read and Digtial Write. But there is no analog read Rasberry Pie | It performs all Analog read,Analog write, Digital Read and Digtial Write.  It has 7 Analog Input pins (0~1.8 volts) |

**Step by Step Configuration of the boards and set up in Windows OS:**

Step 1: Plug in the Ethernet chord to Beagle Bone Black Ethernet port (to establish communication)

(or) use any other bootalbe options such as SD card, MMC.

Plug in the USB chord to the host machine and the other end to the micro USB port in the

Beagle Bone Black (To supply power to the Beagle Bone Black)

Step 2: Installing Drivers in the Host machine

Visit https://beagleboard.org/getting-started

Depending on the configuration of the host machine download and install the respective USB Driver Installer. Once installed Reboot the host machine.

Step 3: Connecting to Beagle Bone Black via Ethernet.

Open any Browser (preferably Chrome or Firefox) type the below IP address in the URL

IP address: 192.168.7.2 .

Beagleboadr.org Web page gets loaded which is already present in the Beagle Bone Black

Now the connection to Beagle Bone Black is successful.

Step 4: Obtaining the unique IP address

Click on the Cloud9 IDE a web page loads and select once again Cloud9 IDE this takes to the Cloud9 IDE which is running on the Beagle Bone Black.

(If any error occurs then make sure don’t use the Internet Explorer Browser)

Open new terminal in the Cloud9 IDE and type the command “ifconfig”.

Note down the IP address in the eth0 section.

Step 5: Connect to the Beagle Bone Black using simple SSH client i.e., PuTTY

Open the url : https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

Download the putty.exe depending on the host machine configuration.

Step 6: Launch the SSH client i.e., PuTTY. Enter the IP address (Noted in the Step 4) in the Host name *IP address text field. Click on Open. This launches a Linux Terminal window in the host machine which asks for the login credential login as: root (which is default).*

Step 7: Remotely connecting to the Beagle Bone Black using TightVNC viewer.

TightVNC server is already installed in the Beagle Bone Black. But TightVNC viewer is required for the remote PC in order to access remotely. Download the TightVNC viewer using url link : <https://www.tightvnc.com/download.php>

Download and install the TightVNC viewer based on the configuration on windows.

Step 8: Fire up VNC sever before running the TightVNC viewer in the remote machine.

Launch putty.exe in the Host machine and login. Then install tightvncserver.

Type the “sudo apt-get install tightvncserver” command.

(Note: The below steps are to be performed only once)

Then type command “typevncserver” (Press enter)A

Set Password and Verify Password.

Now type command “vncserver :1 -geometry 1280x800 -depth 24 -dpi 96” (Press enter)

Step 9: Launch TightVNC viewer in the remote machine and enter the IP address (Noted in Step 4) along with :1 Example: 10.1.15.25 : 1

Click on connect and enter VNC password which was set in the Step 8.

A graphical user interface window pops up.

**Step by Step Configuration of the boards and set up in Linux OS:**

Step 1: sudo minicom -s

Step 2: serial port setup (know the TTL cable name)

(In other terminal)

Step 3: dmesg (Search for Prolific Technology) port ttyUSB0

Step 4: Press a and enter /dev/ttyUSB0

Step 5: Press e check for Standard Bod rate : 115200 8N1

8-bit

N-no parity

1-Stop bit

Step 6: Press f, Check for Hardware flow control set it to NO

Step 7: Press g, Check for software flow control set it to NO

Step 8: Save the settings as dfl (default)

Step 9: exit

Step 10: connect usb

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Step 11: beaglebone login: root

root@beaglebone:~#

Step 12: shutdownnow