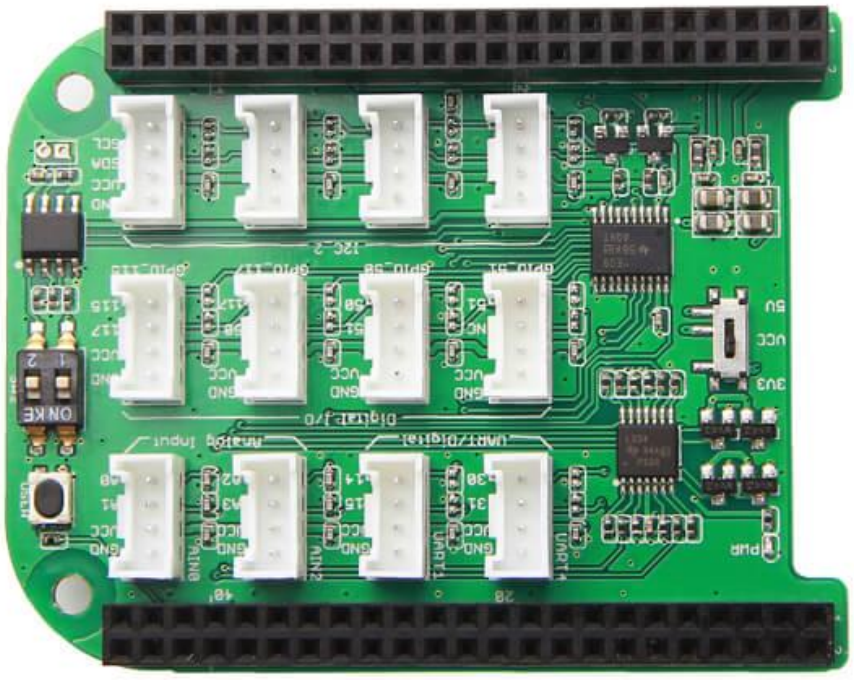
# Grove Base Cape for Seeed Studio BeagleBone® Green v2



**Grove Base Cape for BeagleBone®** v2 is a Grove system [/Grove_System] expansion board for BeagleBone® platform. This cape makes it convenient to connect many transducers (sensors and actuators) available as Grove modules with BeagleBone® platform. The boards also includes a 256kb Serial EEPROM. It will

save a lot effort for you in product development process with soldering-free design and compact plug-and-play ports.

The cape provides 12 easy-to-use Grove connectors to do plug-and-play with the big family of Grove modules. The connectors include 2x UART, 2x ADC, 4x Digital I/O and 4x I2C that interface to the pins on your BeagleBone® board, offering almost everything you need. There are two switches used to reset the I2C address in case of address conflicts. The board also integrates a switch for voltage transition - from a normal 5V to 3.3V and vice versa.

Get One Now

[https://www.seeedstudio.com/Grove-Base-Cape-for-Beaglebone-v2.0-p-2644.html]

## Features

- Easier connection between your BeagleBone® and Grove Modules.
- Soldering-free
- Saves your time and money

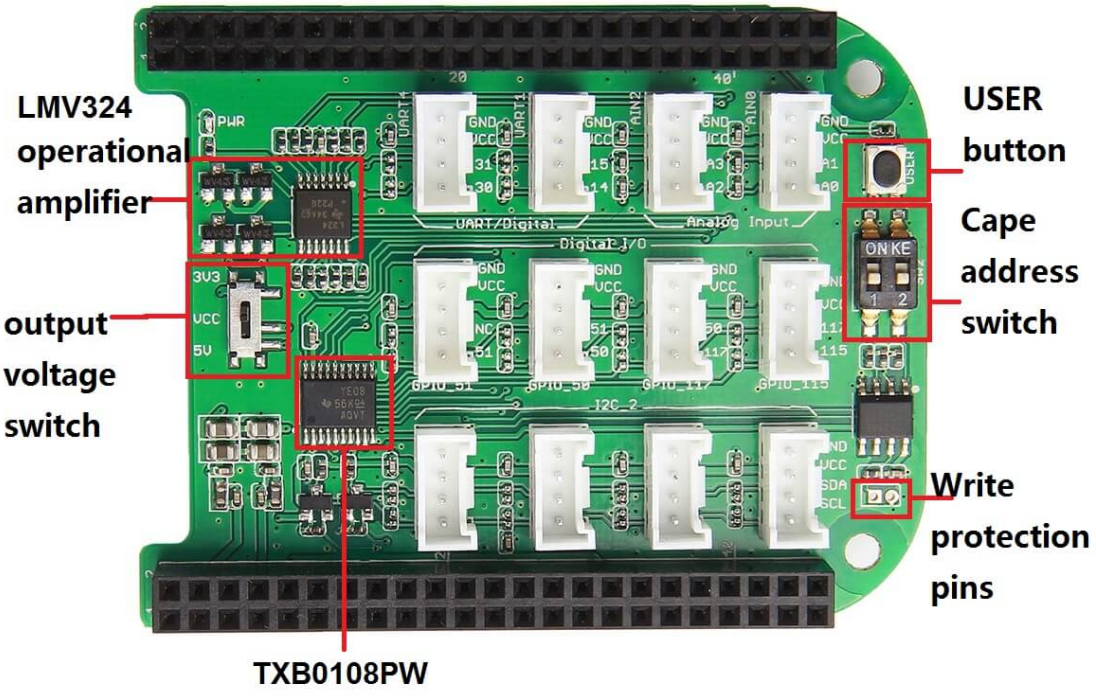
## Specifications

| | |
|---|---|
| Output voltage | 3.3 V or 5 V(switchable) |
| Maximum output current | 500 mA at 3.3V, 500 mA at 5V |
| Digital Grove Ports | 6 , share same pins with UART1(labeled) and UART4(labeled) |
| Analog Grove Ports | 2 |
| $I^2C$ Grove Ports | 4 |
| UART Grove Ports | 2 (UART1, UART4) |
| EEPROM | 256kb (Model: CAT24C256WI) |
| Dimensions | 70 mm(Length) × 50 mm(width) |

## Parts list

| Parts name | Quantity |
|---|---|
| Grove Base Cape for BeagleBone® v2 | 1 PCS |

# Hardware overview




**Output voltage switch**, is a switch to control output voltage to Grove ports.

**USER button**, is a button that can be used as BeagleBone® USER button.

**Cape address switch**, is a switch to choose cape address (only useful when multiple capes are attached) to avoid I2C address collision. For details about using more capes, please visit https://beagleboard.org/Support/bone101/#capes [https://beagleboard.org/Support/bone101/#capes] and http://elinux.org/BeagleBone_Community#Capes [http://elinux.org/BeagleBone_Community#Capes]. You can use this switch to choose address from **00**(binary, pulled down for

factory setttings) to **11**(binary, on Grove Base Cape for BeagleBone v2) which correspond to 0x54 to 0x57 for all capes.

**Write protection pin**, is used to disable write protection of EEPROM of a cape if those pins are connected. By default, it is not connected.

**LMV324 operational amplifier **, is a low-voltage rail-to-rail output operational amplifiers to control analog voltage. Read more [http://www.ti.com/lit/ds/symlink/lmv324.pdf]

**TXB0108PW**, is an 8-bit bidirectional voltage-level translator. Read more [http://www.electroensaimada.com/uploads/9/0/8/9/9089783/txb0108.pdf].

**Note** you can find two notch(round corner with holes) on one end of Grove Base Cape for BeagleBone® v2.0. This end corresponds to the end with same notch on BeagleBone® Green. You can use this notches to ensure proper orientation.

# Get started

In this section, we will show you a basic example to use this board. You can find more demos at BeagleBone® Recipes [https://www.seeedstudio.com/recipe/index.php?query=beaglebone] page. Just append Grove Base Cape for BeagleBone® v2 to those projects to make wire connection convenient.

## Suggested reading

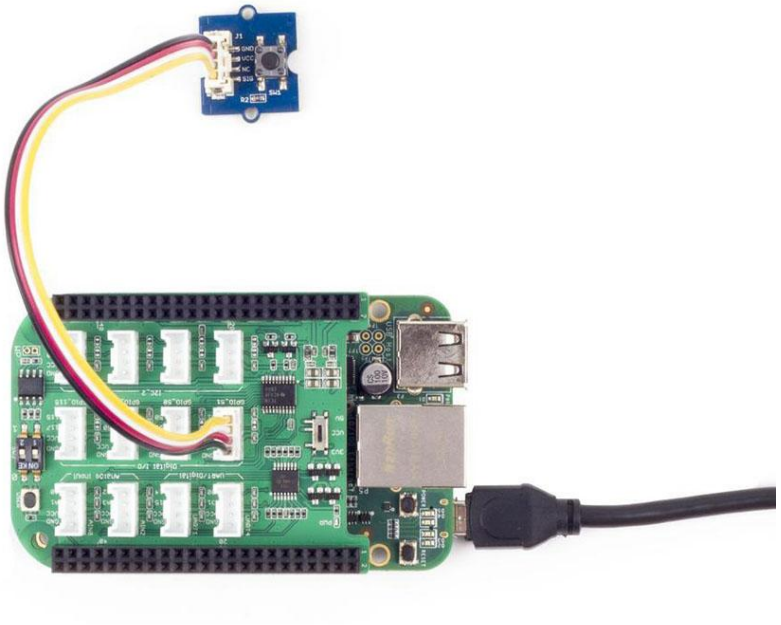
- BeagleBone® Green [/BeagleBone_Green]
- BeagleBone® community [https://beagleboard.org/]
- BeagleBone® 101 [https://beagleboard.org/support/bone101]
- BoneScript [https://beagleboard.org/support/bonescript]

## Materials required

- Grove Base Cape for BeagleBone® v2 × 1
- Grove - Button [https://www.seeedstudio.com/item_detail.html?p_id=766] × 1
- BeagleBone® Green [https://www.seeedstudio.com/item_detail.html?p_id=2504] (fully compatible with BeagleBone® Black without HDMI output)
- USB cable (type A to type B, for Arduino) × 1 or USB cable (Type-A to micro Type-B, for Seeeduino) × 1
- Grove cable [https://www.seeedstudio.com/depot/Grove-Universal-4-Pin-Buckled-5cm-Cable-5-PCs-Pack-p-925.html?cPath=98_106_57] × 1

## Coding work

1.Connect BeagleBone® Green to Your PC or MAC by USB cable. Click http://192.168.7.2:3000/ide.html [http://192.168.7.2:3000/ide.html] to Open Cloud9 IDE. 2.Connect Grove - Button(P) to Grove Base Cape for BeagleBone® v2 with Grove cable. Plug Grove cable to GPIO pin 51.

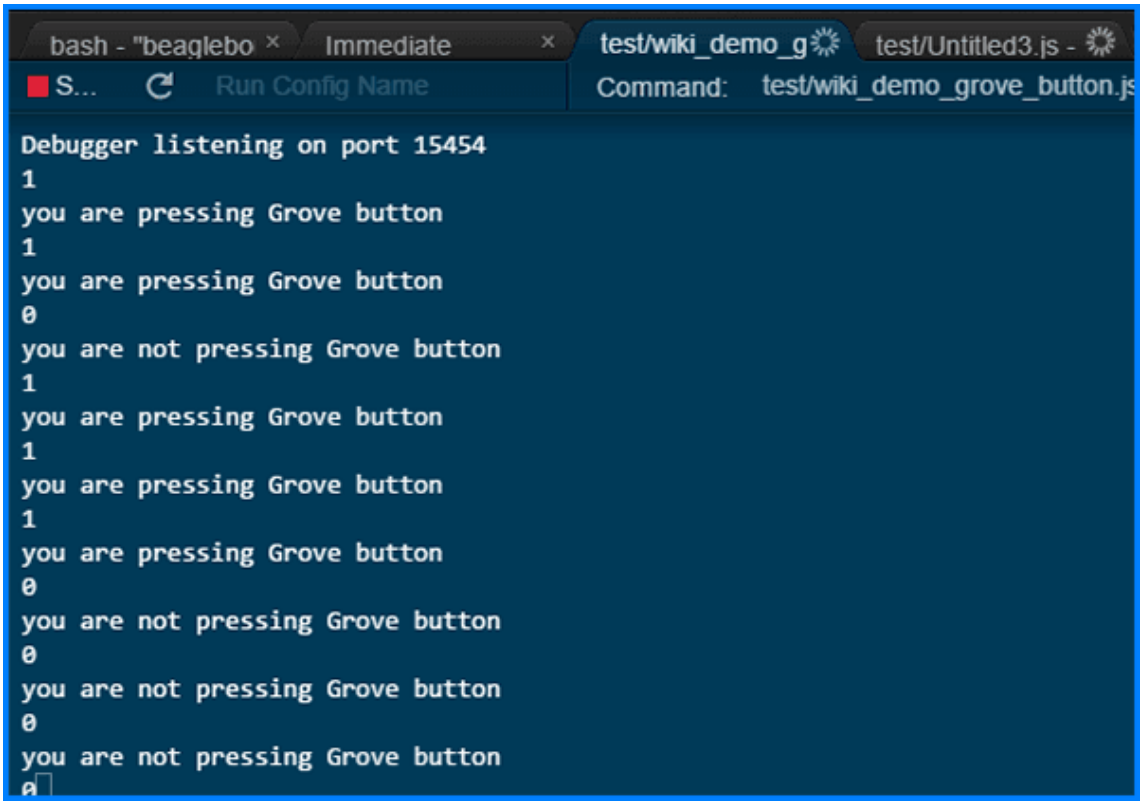


3.Copy following code to Cloud9, save it to a **.js** file.

```
var b = require('bonescript');
b.pinMode('P9_16', b.INPUT);//GPIO 51 correspond to P9_1

setInterval(check,1000);

function check(){
    b.digitalRead('P9_16', checkButton);
}

function checkButton(x) {
    console.log(x.value);
    if(x.value == 1){
        console.log("you are pressing Grove button");
    }
    else{
        console.log("you are not pressing Grove button")
    }
}
```

4.Click **Run** in Cloud9 IDE to run the program on BeagleBone® Green.

5.Wait for about 10 seconds to view the output at the bottom of Cloud9 IDE. The output probably looks like the following screen-shot:




# Schematic Online Viewer

## Resources

- EAGLE Schematic & PCB files and PDF format Schematic [https://files.seeedstudio.com/wiki/Grove_Base_Cape_for_BeagleBone_v2/res/Grove_Base_Cape_for_BeagleBone_v2.0_Schematics.zip]
- BeagleBone® Green [/BeagleBone_Green]

- BeagleBone® community [https://beagleboard.org/]
- BeagleBone® 101 [https://beagleboard.org/support/bone101]
- BoneScript [https://beagleboard.org/support/bonescript]
- Cloud9 [https://c9.io/]
- TXB0108PW datasheet [http://www.electroensaimada.com/uploads/9/0/8/9/9089783/txb0108.pdf]
- LMV324 datasheet [http://www.ti.com/lit/ds/symlink/lmv324.pdf]
- More demos at https://www.seeedstudio.com/recipe/index.php?query=beaglebone [https://www.seeedstudio.com/recipe/index.php?query=beaglebone] and https://www.seeedstudio.com/recipe/index.php?query=beaglebone [https://www.seeedstudio.com/recipe/index.php?query=beaglebone]

## Tech Support

Please submit any technical issue into our forum [https://forum.seeedstudio.com/].


[https://www.seeedstudio.com/act-4.html?utm_source=wiki&utm_medium=wikibanner&utm_campaign=newproducts]