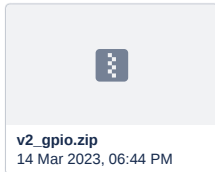


V2 GPIO Setup

It can be helpful to interface your V2 machine with external devices such as a robot, mister, etc. Out of the box the V2 does not provide a way to do this. But, if you're willing to do a bit of tinkering, it can be done. Follow these steps to get access to the Beaglebone Black's P8.29-P8.32 pins as digital outputs that can be turned on or off with M62-M65 (see the [LinuxCNC documentation](#) for more info). You will also get access to pins P8.39-P8.42 as digital inputs, which you can read using M66 (again see the [LinuxCNC documentation](#) for more info). Note that these pins can only handle 3.3V and up to 6mA of current, so care must be taken when wiring up circuits to them to prevent damage to the Beaglebone.

Software Setup



Start by downloading the v2_gpio.zip file above. Copy it to the home directory of your Beaglebone Black.

```
1 scp v2_gpio.zip pocketnc@192.168.6.2:~
```

NOTE: If you don't have the scp command, you can upload the v2_gpio.zip file using Kinetic Control, like you would a G code program. If you do so, you will also need to run `mv ~/ncfiles/v2_gpio.zip ~` to move the zip file to your home directory from the ncfiles folder that G code programs are uploaded to.

SSH to the Beaglebone Black.

```
1 ssh pocketnc@192.168.6.2
```

Run the following commands, which will set up the GPIO pins when your machine starts up.

```
1 unzip v2_gpio.zip
2 echo "/home/pocketnc/v2_gpio/setupGPIO.sh &" >> ~/.pocketnc_env
```

Reboot your V2.

```
1 sudo reboot
```

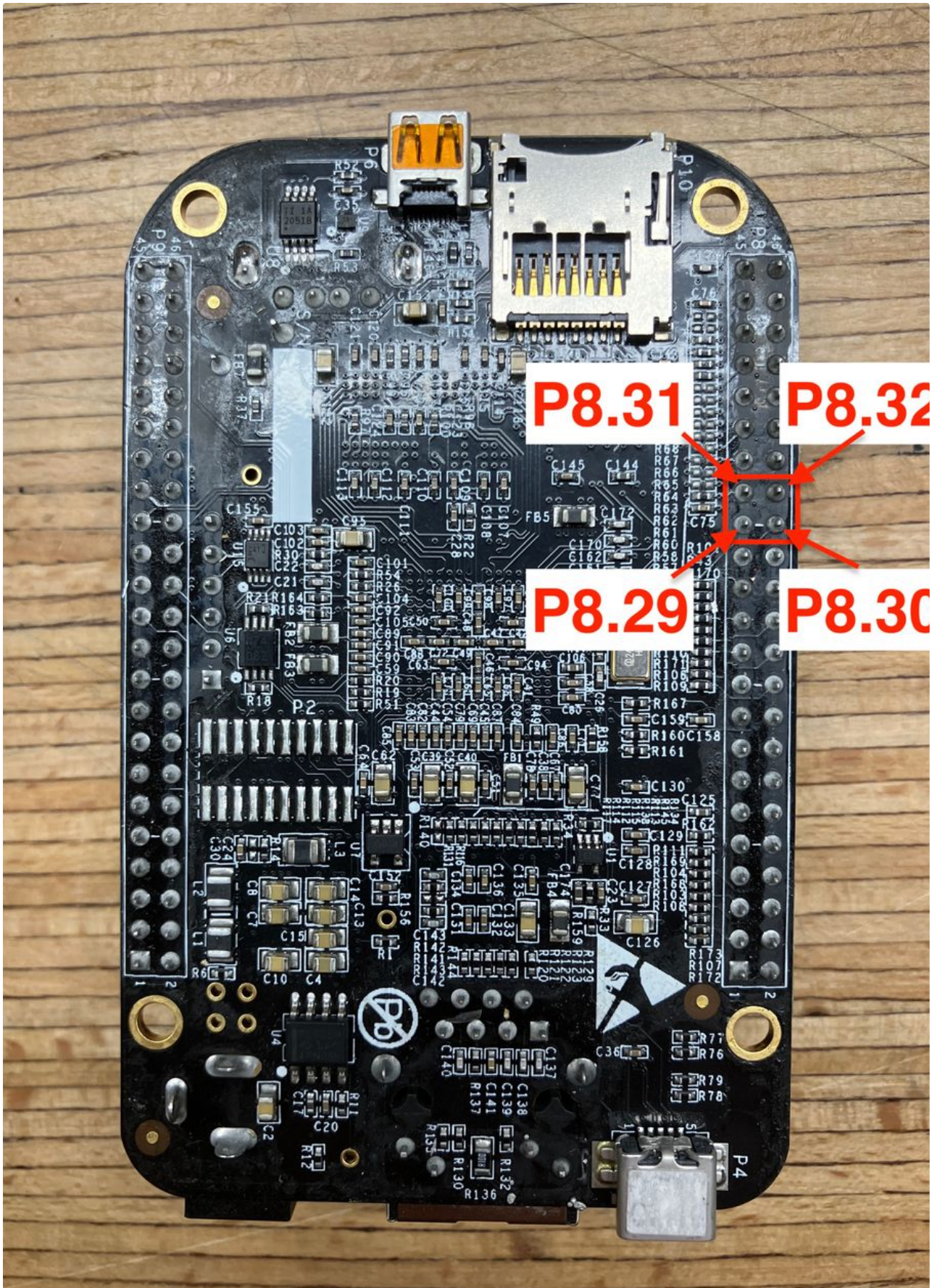
NOTE:

The P8.39-42 input pins are configured with built in pull up resistors. The `setupGPIO.sh` script can be modified to set them to floating (in) or as a pull down (in-).

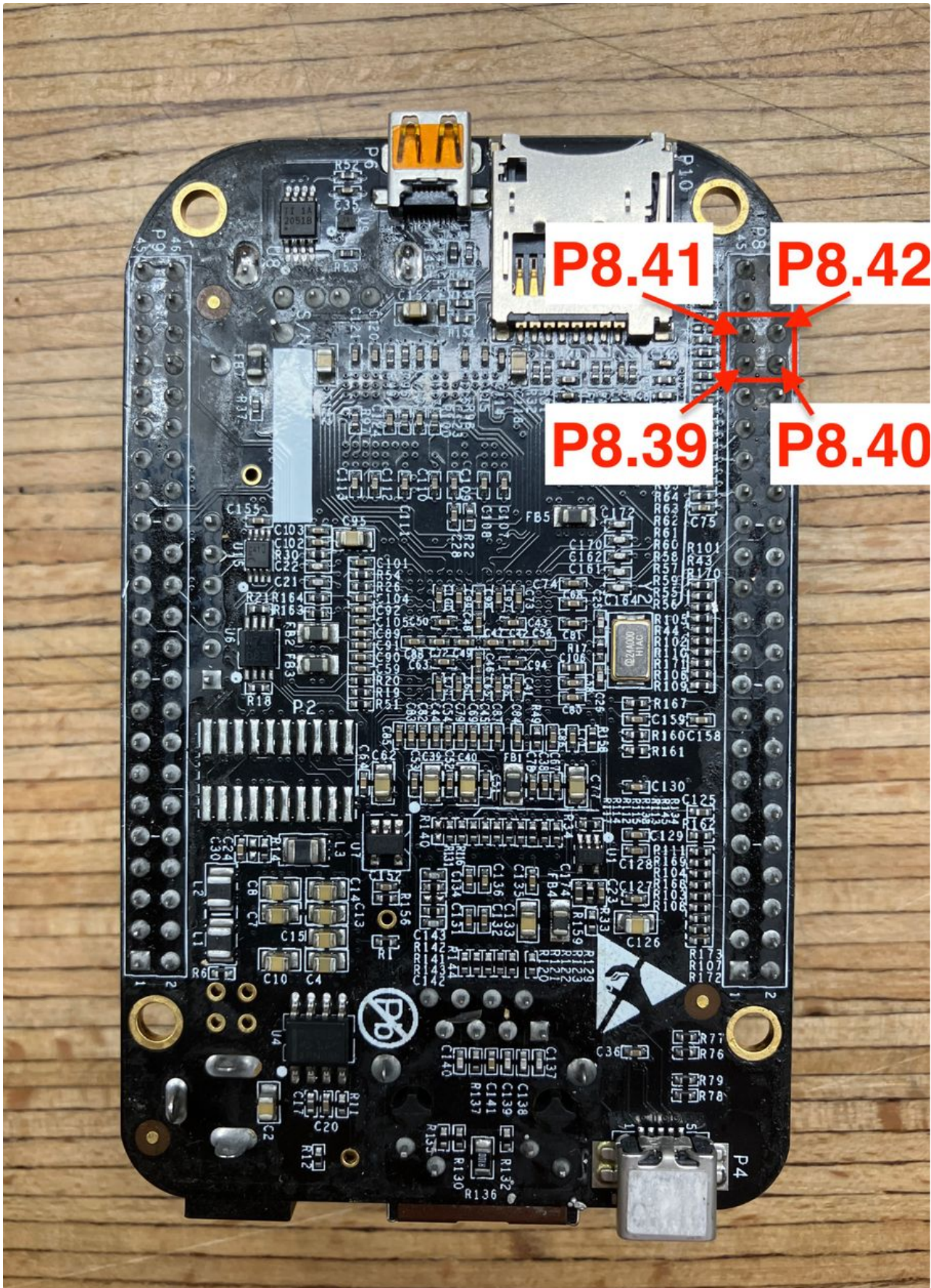
Hardware Setup

This is the part which will require some tinkering. We don't provide a convenient way to interface directly with the Beaglebone pins. The pins chosen are fairly easy to identify by looking at the markings on the back of the Beaglebone, but you'll likely need to solder wires directly to those pins or come up with your own interfacing board that could fit under the Beaglebone itself.

The P8 pins are along the bottom of the Beaglebone when inserted into the V2. There are white lines that mark every 10 pins, so the output pins P8.29-32 are the 4 pins by the 3rd white line from the left.



The input pins P8.39-42 are the 4 pins by the 4th white line (the last one). By default these pins are configured with a built in pull up resistor.



P8.41

P8.42

P8.39

P8.40