

Check GPIO/PWM Driver at /sys/class/pwm

<https://forums.developer.nvidia.com/t/how-do-i-use-pwm-on-jetson-nano/72595/5>

Step 1. Check if pwm driver is already installed in your OS kernel

```
$ls sys/class/pwm
```

```
harry-nano@harry-desktop-nano: /sys/class
harry-nano@harry-desktop-nano: /sys/class$ ls /sys/class/pwm
pwmchip0  pwmchip4
harry-nano@harry-desktop-nano: /sys/class$
```

So in response, we have:

pwmchip0 pwmchip4

Step 2. Check the number of channels for each pwm

First go to pwm folder, then from there to pwmchip0, then do

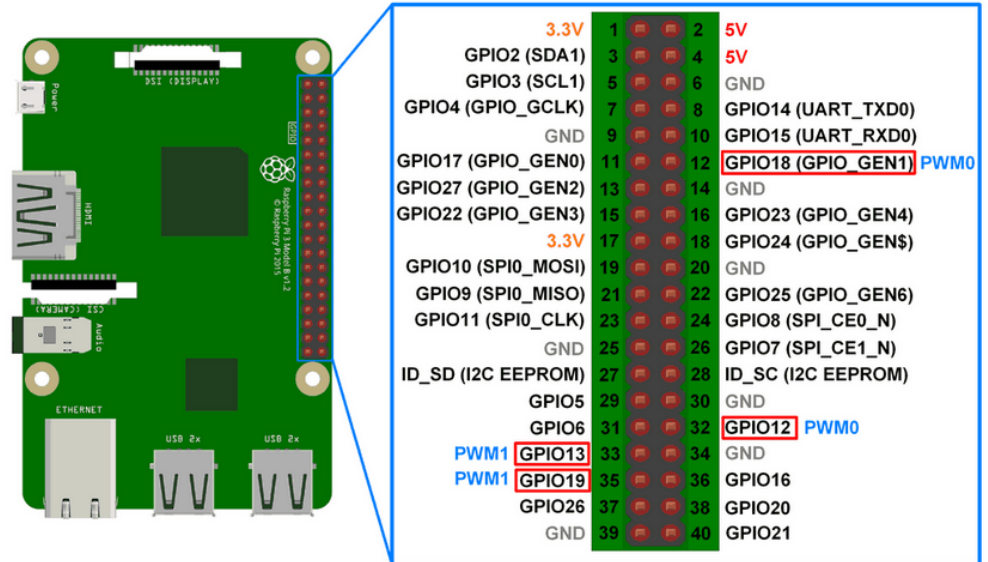
```
$cat npwm //to find number of channels
```

```
harry-nano@harry-desktop-nano: /sys/class/pwm/pwmchip0
pwmchip0  pwmchip4
harry-nano@harry-desktop-nano: /sys/class/pwm$ cd pwmchip0
harry-nano@harry-desktop-nano: /sys/class/pwm/pwmchip0$ cat npwm
4
```

If you do the same for pwmchip4, you will find 1 channel.
So the total pwm channel is 5.

Step 3. Find the mapping to the connector pins, use the pi pin assignment as a reference (see below)

Pi Pin layout



Jetson Nano J41 Header Pinout for GPIO/PWM

<https://www.jetsonhacks.com/nvidia-jetson-nano-j41-header-pinout/>

Note: I2C and UART pins are connected to hardware and should not be reassigned. By default, all other pins (except power) are assigned as GPIO. Pins labeled with other functions are recommended functions if using a different device tree.

| | | | | | |
|---------|------------------------|----|----|------------------------|---------|
| | GND | 25 | 26 | SPI_1_CS1 | gpio20 |
| | I2C_1_SDA I2C Bus 0 | 27 | 28 | I2C_1_SCL I2C Bus 0 | |
| gpio149 | CAM_AF_EN | 29 | 30 | GND | |
| gpio200 | GPIO_PZ0 | 31 | 32 | LCD_BL_PWM | gpio168 |
| gpio38 | GPIO_PE6 | 33 | 34 | GND | |
| gpio76 | I2S_4_LRCK | 35 | 36 | UART_2_CTS | gpio51 |
| gpio12 | SPI_2_MOSI | 37 | 38 | I2S_4_SDIN | gpio77 |
| | GND | 39 | 40 | I2S_4_SDOUT | gpio78 |

Use pin 32 for PWM

pin 12 for gpio78

| | | | | | |
|---------|------------------------|----|----|---------------------------|---------|
| | 3.3 VDC Power | 1 | 2 | 5.0 VDC Power | |
| | I2C_2_SDA I2C Bus 1 | 3 | 4 | 5.0 VDC Power | |
| | I2C_2_SCL I2C Bus 1 | 5 | 6 | GND | |
| gpio216 | AUDIO_MCLK | 7 | 8 | UART_2_TX /dev/ttyTHS1 | |
| | GND | 9 | 10 | UART_2_RX /dev/ttyTHS1 | |
| gpio50 | UART_2_RTS | 11 | 12 | I2S_4_SCLK | gpio79 |
| gpio14 | SPI_2_SCK | 13 | 14 | GND | |
| gpio194 | LCD_TE | 15 | 16 | SPI_2_CS1 | gpio232 |
| | 3.3 VDC Power | 17 | 18 | SPI_2_CS0 | gpio15 |
| gpio16 | SPI_1_MOSI | 19 | 20 | GND | |
| gpio17 | SPI_1_MISO | 21 | 22 | SPI_2_MISO | gpio13 |
| gpio18 | SPI_1_SCK | 23 | 24 | SPI_1_CS0 | gpio19 |
| | GND | 25 | 26 | SPI_1_CS1 | gpio20 |

pin 12 for gpio79

Step 1. Fix bugs
from the distribution

Configuration of Pins with jetson-io.py

```
$sudo find /opt/nvidia/jetson-io/ -mindepth 1 -maxdepth 1 -type d -exec touch {}/_init__.py \;
```

```
$sudo /opt/nvidia/jetson-io/config-by-pin.py -p 5
```

```
harry@harry-desktop:~$ sudo /opt/nvidia/jetson-io/config-by-pin.py -p 5
Traceback (most recent call last):
  File "/opt/nvidia/jetson-io/config-by-pin.py", line 84, in <module>
    main()
  File "/opt/nvidia/jetson-io/config-by-pin.py", line 39, in main
    jetson = board.Board()
  File "/opt/nvidia/jetson-io/Jetson/board.py", line 229, in __init__
    self.dtb = _board_get_dtb(self.compat, self.model, dtbdir)
  File "/opt/nvidia/jetson-io/Jetson/board.py", line 114, in _board_get_dtb
    raise RuntimeError("No DTB found for %s!" % model)
RuntimeError: No DTB found for NVIDIA Jetson Nano Developer Kit!
```

```
$sudo mkdir -p /boot/dtb
```

```
$ ls /boot/*.dtb | xargs -I{} sudo ln -s {} /boot/dtb/
```

Step 2. Run jetson-io.py to configure
pins

```
$sudo /opt/nvidia/jetson-io/jetson-io.py
```

```
harry@harry-desktop: ~
Select one of the following:
  Configure Jetson 40pin Header
  Configure Jetson Nano CSI Connector
  Configure Jetson M.2 Key E Slot
  Exit
```

Be sure to choose
save and reboot to
reboot the system

```
unused ( 33) .. ( 36) unused
unused ( 37) .. ( 38) unused
GND ( 39) .. ( 40) unused

Jetson 40pin Header:
Configure for compatible hardware
Configure header pins manually
Back
```

```
==== Jetson Expansion Header Tool ====

Select desired functions (for pins):

[ ] aud_mclk      (7)
[ ] i2s4          (12,35,38,40)
[*] pwm0          (32)
[*] pwm2          (33)
[ ] spi1          (19,21,23,24,26)
[ ] spi2          (13,16,18,22,37)
[ ] uarbt-cts/rts (11,36)

Back
```

```
NA ( 29) .. ( 30) GND
NA ( 31) .. ( 32) pwm0
pwm2 ( 33) .. ( 34) GND
unused ( 35) .. ( 36) unused
unused ( 37) .. ( 38) unused
GND ( 39) .. ( 40) unused

Jetson 40pin Header:

Configuration saved to file
/boot/tegra210-p3448-0000-p3449-0000-a02-hdr40-user-custom.dtbo.

Press any key to go back
```