

# Pi Zero PWM Audio - device tree overlay

A project log for PiBoy-Zero  
*yet another portable console! ;-)* roughly the  
 size of a gameboy micro, with a 2.2" display

JohSchneider • 04/02/2016 at 11:03 • 3 Comments

the adafruit guide for pwm-audio on the pi-zero ( <https://learn.adafruit.com/adding-basic-audio-output-to-raspberry-pi-zero/pi-zero-pwm-audio> ) configures the gpio-alt functions on the fly to remap the audio-pwm pins from hidden ones to pins on the gpio-pinheader after reading up on

device tree configurations and tracking down all necessary pieces, i got this this code snippet/overlay to do the same at boot-time:

```
/dts-v1/;
/plugin/;

/ {
    compatible = "brcm,bcm2708";

    fragment@0 {
        target = <&gpio>;
        __overlay__ {

            pinctrl-names = "default";
            pinctrl-0 = <&pwm_audio_pins>;

            pwm_audio_pins: pwm_audio_pins {
                brcm,pins = <13 18>; /* gpio no ('BCM' number) */
                brcm,function = <4 2>; /* 0:in, 1:out, 2: alt5, 3: alt4, 4:
                brcm,pull = <0 0>; /* 2:up 1:down 0:none */
            };
        };
    };
};
```

```

    },
};
};
};

```

this maps the left channel to pin 33 (BCM=13) and the right channel to pin 12 (BCM=18)

compiled with:

```
dtc -@ -I dts -O dtb -o pwm-audio-pi-zero-overlay.dtb pwm-audio-pi-zero.dts
```

and enabled by appending this line to the /boot/config.txt:

```
dtoverlay=pwm-audio-pi-zero
```

helpful links:

[http://elinux.org/RPi\\_BCM2835\\_GPIOs](http://elinux.org/RPi_BCM2835_GPIOs) - pins and alt functions for the pi-zeros cpu

<https://learn.adafruit.com/introducing-the-raspberry-pi-zero/audio-outputs> - the other adafruit guide, touching opi-zero pwm audio

<https://www.raspberrypi.org/documentation/configuration/device-tree.md> - general documentation on devicetrees on raspberry

<https://www.raspberrypi.org/documentation/configuration/pin-configuration.md>

<https://www.kernel.org/doc/Documentation/devicetree/bindings/pinctrl/brcm,bcm2835-gpio.txt> - documentation on the gpio pinconfig via dtoverlay

<https://github.com/fivdi/onoff/wiki/Enabling-Pullup-and-Pulldown-Resistors-on-The-Raspberry-Pi> - good example of gpio config via dt-overlay

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04/02/2016 at 14:14 • 0 comments

## DISCUSSIONS

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Louise wrote 03/08/2018 at 22:32

so, does this work if I try using another pins as PWM and filtering the output myself?



Alex Gonzalez wrote 10/17/2017 at 22:31

Do you add this to the bottom of boot config txt



Andy wrote 01/11/2017 at 20:41

This helped! It didn't quite work to set the alt modes, but I was able to do so from a service file after applying this. Thanks!

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