D5282BRUZ20 – digital potentiometer

Linux driver and interface

I2C 2 have connected 2 digital potentiometers

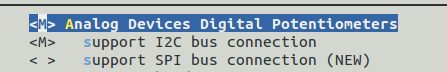
Digital potentiometers: Two Digital potentiometers, each contains two 256 taps potentiometer channels. The potentiometers responsible for define gain of OP-AMPs. The potentiometer is Analog Device AD5282BRUZ20.

* + I2C address – 2Eh: Ch#1 – TX VVA1, Ch#2 – TX VVA2
  + I2C address – 2Fh: Ch#1 – RX VVA1, Ch#2 – RX VVA2

This device also have driver build in in the Linux kernel

<https://wiki.analog.com/resources/tools-software/linux-drivers/misc/dpot>

We need to enable it in the Linux kernel – make kernel-config



When we build the kernel we see that the ad525x\_dpot-i2c module has been compiled now with our kernel.

We later on need to modprobe it.

Building modules, stage 2.

MODPOST 62 modules

CC drivers/misc/ad525x\_dpot-i2c.mod.o

LD [M] drivers/misc/ad525x\_dpot-i2c.ko

CC drivers/misc/ad525x\_dpot.mod.o

LD [M] drivers/misc/ad525x\_dpot.ko

**Device tree:**

https://github.com/OpenChannelSSD/linux/blob/master/Documentation/devicetree/bindings/iio/potentiometer/ds1803.txt

<https://www.kernel.org/doc/Documentation/misc-devices/ad525x_dpot.txt>

The node for this driver must be a child node of a I2C controller, hence

How to find the compatible driver?

From the driver source ,we can find all the supported IDS:

static const struct i2c\_device\_id ad\_dpot\_id[] = {

{"ad5258", AD5258\_ID},

{"ad5259", AD5259\_ID},

{"ad5251", AD5251\_ID},

{"ad5252", AD5252\_ID},

{"ad5253", AD5253\_ID},

{"ad5254", AD5254\_ID},

{"ad5255", AD5255\_ID},

{"ad5241", AD5241\_ID},

{"ad5242", AD5242\_ID},

{"ad5243", AD5243\_ID},

{"ad5245", AD5245\_ID},

{"ad5246", AD5246\_ID},

{"ad5247", AD5247\_ID},

{"ad5248", AD5248\_ID},

{"ad5280", AD5280\_ID},

**{"ad5282", AD5282\_ID},**

{"adn2860", ADN2860\_ID},

{"ad5273", AD5273\_ID},

{"ad5161", AD5161\_ID},

{"ad5171", AD5171\_ID},

{"ad5170", AD5170\_ID},

{"ad5172", AD5172\_ID},

{"ad5173", AD5173\_ID},

{"ad5272", AD5272\_ID},

{"ad5274", AD5274\_ID},

{}

};

Our chip is D5282BRUZ20 so we have a match. We can add to i2c 2 the dt bindings:

|  |
| --- |
|  |

We have two devices:

ad5282\_1:ad5282@1 {

reg = <0x2E>;

compatible=”ad,ad5282”;

};

ad5282\_1:ad5282@1 {

reg = <0x2E>;

compatible=”ad,ad5282”;

};

We cannot put one entry with reg = <0x2E 0x2F >

And we cannot put the same name

So here is the final i2c entry in the device tree:

&i2c2 {

clock-frequency = <100000>;

pinctrl-names = "default";

pinctrl-0 = <&pinctrl\_i2c2>;

status = "okay";

ad5282\_1:ad5282@2E {

reg = <0x2E>;

compatible="ad,ad5282";

};

ad5282\_2:ad5282@2F {

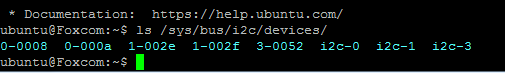
reg = <0x2F>;

compatible="ad,ad5282";

};

};

We can see the i2c devices in the sys bus interface:



**How to read from the device:**

The device expose sysfs interface

<https://www.kernel.org/doc/Documentation/misc-devices/ad525x_dpot.txt>

