cedargrove_ad5293

A CircuitPython driver for the AD5293 digital potentiometer.

The AD5293 Digital Potentiometer is an SPI, 10-bit, 100K-ohm device. The device operates with a digital logic power source of 2.7v to 5.5v and a dual analog power source of +/-9v to +/-16.5v. The potentiometer pins act similarly to a passive resistive potentiometer, but requires that voltages placed on any of the three pins not exceed the analog power supply voltage.

The CircuitPython driver supports a single SPI potentiometer device per instance. It does not work with daisy-chained devices.

The Cedar Grove AD5293 custom breakout board provides power and signal connections for SPI and the potentiometer chip. The AD5293 is also used in the AD9833-based Cedar Grove Precision VCO Eurorack module.

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Implementation Notes

Hardware:

- Cedar Grove Studios AD5293 breakout or equivalent

Software and Dependencies:

- Adafruit CircuitPython firmware for the supported boards: https://github.com/adafruit/circuitpython/releases

class cedargrove_ad5293.AD5293(**, spi, select, wiper=0*)

Class representing the Cedar Grove AD5293, an SPI digital linear taper potentiometer.

Parameters:	• **spi** – The board's ***busio.SPI*** definition. No default. • **select –** The AD5293 chip select pin designation. No default. • **wiper** – The initial wiper integer value ranging from 0 to 1023. Default is 0.

wiper

A class get/set property.

Parameters:	Change or read the integer value of the potentiometer wiper position, ranging from 0 to 1023.

normalized_wiper

A class get/set property.

Parameters:	Change or read the normalized floating-point potentiometer wiper position, ranging from 0.0 to 1.0.

reset()

A class helper function.

Parameters:	Reset the potentiometer. Refresh the wiper position to mid-scale. Disable write-protect.

shutdown()

A class helper function.

Parameters:	Connects the ***W*** pin to the ***B*** pin and opens the ***A*** pin. The content of the wiper register is not changed.