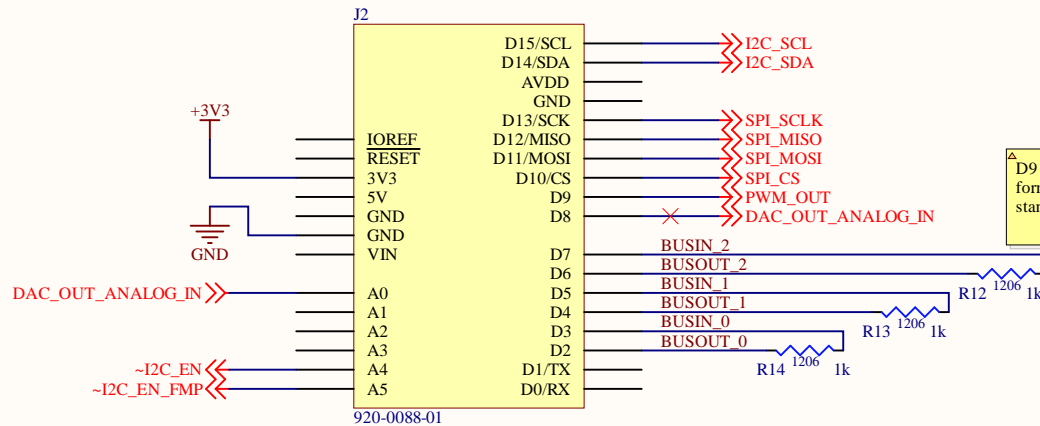
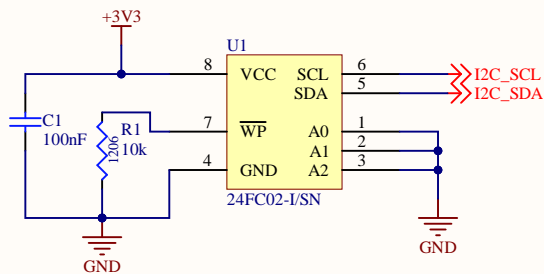


Mbed CI Test Shield

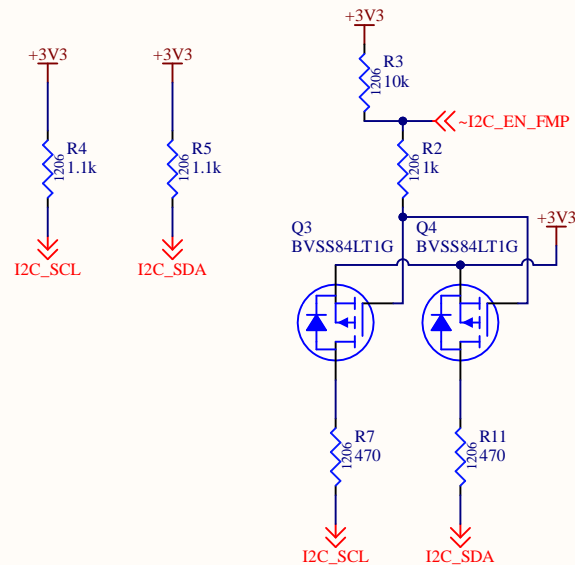
Updated by Jamie Smith



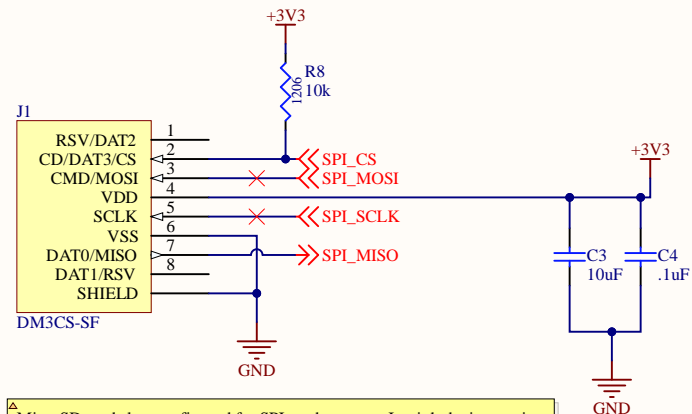
D9 is a standard PWM out pin in the Arduino form factor. D8 is a random pin as there is no standard Arduino Uno pin for a DAC.



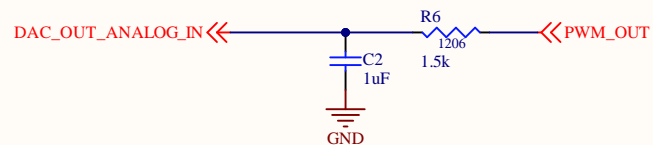
▲ I2C EEPROM.
Frequencies: 100kHz, 400kHz, 1MHz
I2C Address (7-bit): 0x50 through 0x57



▲ I2C normal / fast mode plus pullup selector.
I2C_EN_FMP = 3.3V -> I2C pullups at 1.1k / 3mA drive current.
I2C_EN_FMP = 0 -> I2C pullups at 330 ohms / 10mA drive current, needed for Fast Mode Plus support.



▲ MicroSD card slot, configured for SPI mode access. It might be interesting to try and add SDMMC mode later on, but I think that requires a different enough set of electrical connections that we'd need a second slot.



▲ A PWM signal can be effectively averaged into a voltage by an RC filter with a cutoff frequency at 1/100 the PWM frequency.

This filter has a cutoff frequency of 100 Hz, so it can take a 10kHz PWM signal and average it into a constant voltage with a response time of roughly 10ms.

Source: Simulations on this site
<https://www.allaboutcircuits.com/technical-articles/low-pass-filter-a-pwm-signal-into-an-analog-voltage>

