CONTROL

Key:
P | P_* = ATMega328P
M | M_* = ATMega2560
C* = Capacitor
R* = Resistor
(plus arbitrary variants like CP* meaning a capacitor for 328P)
N | N_* = Neopixel (WS2812B's)

References:
http://www.14core.com/wp-content/uploads/2015/06/ATMEGA-2560-Pin-Out-Diagram.png

NOTES:
The original boards were manufactured using MacroFab's standard 4-layer turnkey process.
If needed, my own library has been included.

Objects beginning with "MF" are from the MacroFab Eagle library, available on Github, along with the relevant DRC.
MacroFab has a relatively long lead time (~1mo) and occasionally makes mistakes,
so budget in some ChipQuik and don't procrastinate with orders.
MacroFab's system pulls model numbers from the Eagle "value" field,
so if you're not sure what something here is, see if there's not something in it.

Special thanks to SparkFun and Adafruit OSHW designs, on which parts of this are based.

Also FYI: WS2812B's (the LED's) have an equivalent Moisture Sensitivity Level 6!
Using them in a reflow oven without using desiccants and baking them before use will lead to cracked epoxy lenses!
Resoldering them by hand was not fun.
(The next versions will use the newer variants with redundant data lines as an extra precaution.)

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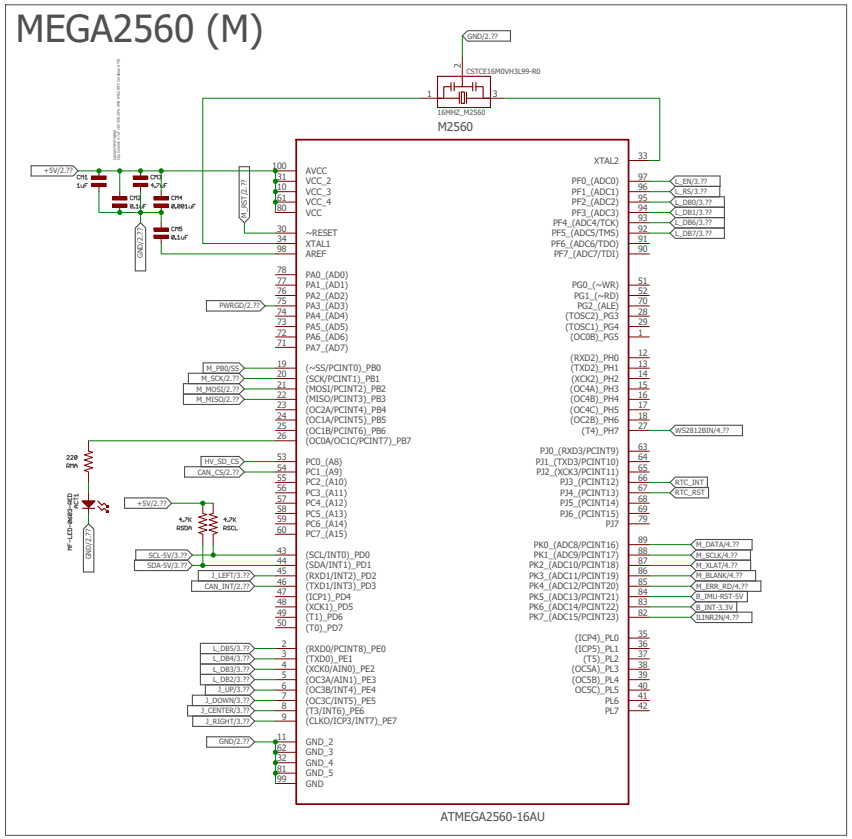
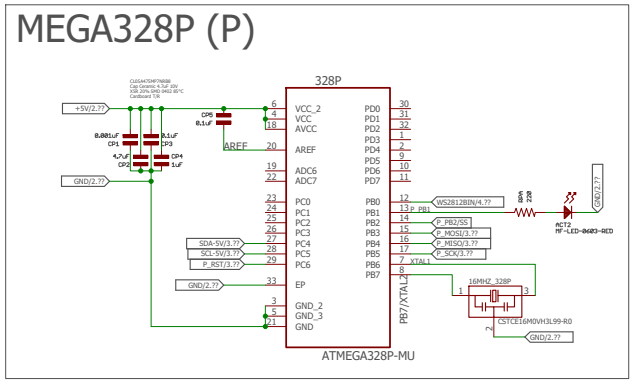
Kennesaw State University Motorsports

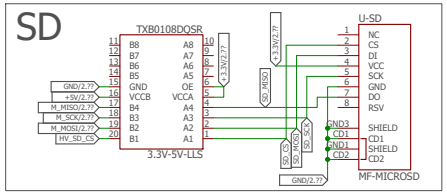
MEGA2560 (M)



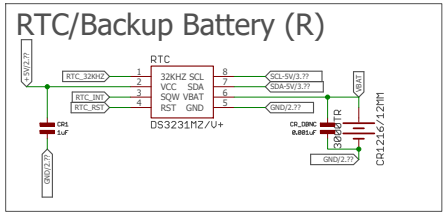
MEGA328P (P)



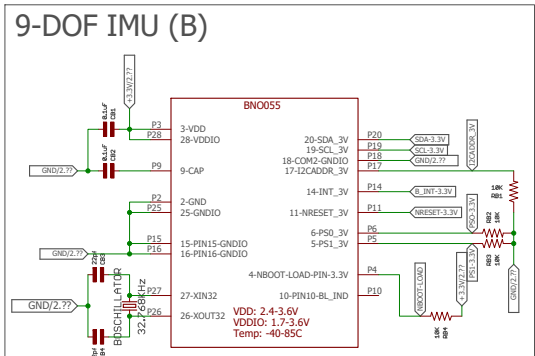
SD



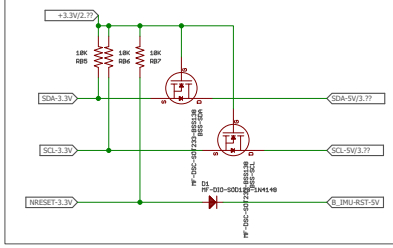
RTC/Backup Battery (R)



9-DOF IMU (B)

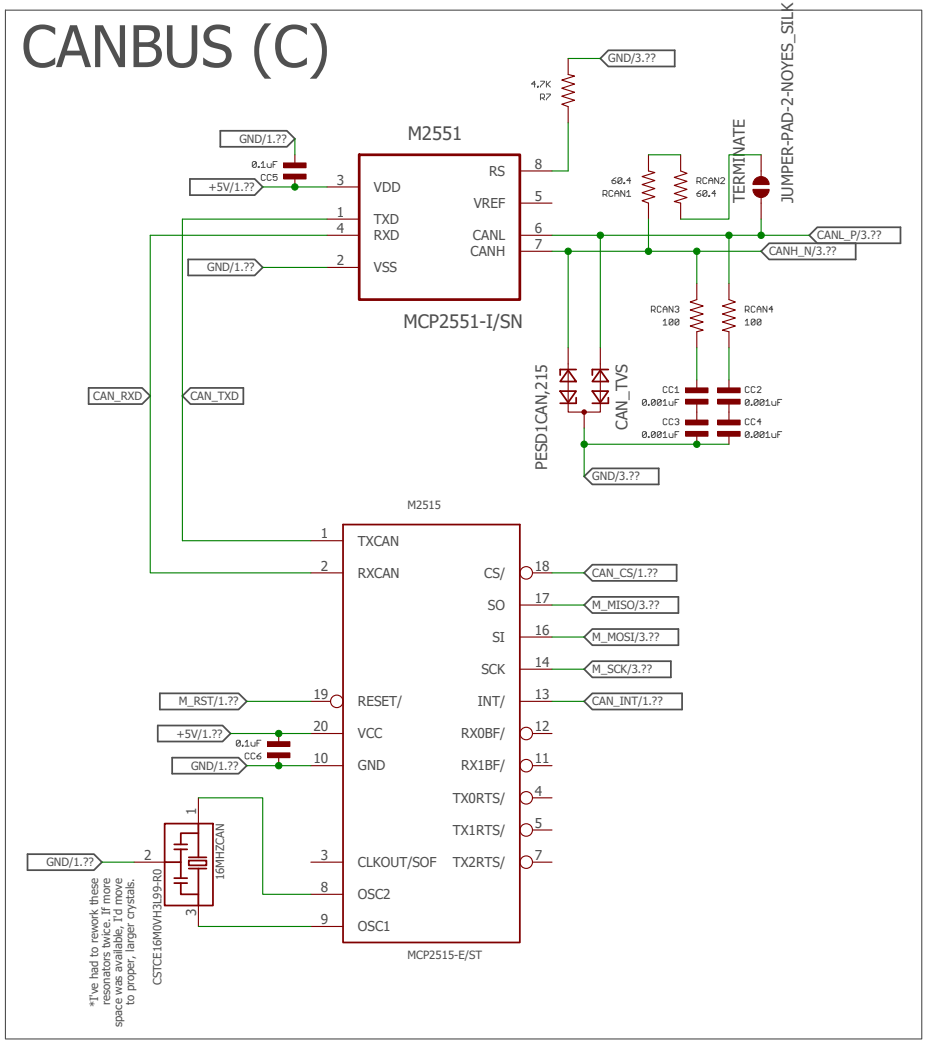


3.3-5V IMU I2C LEVEL SHIFTER

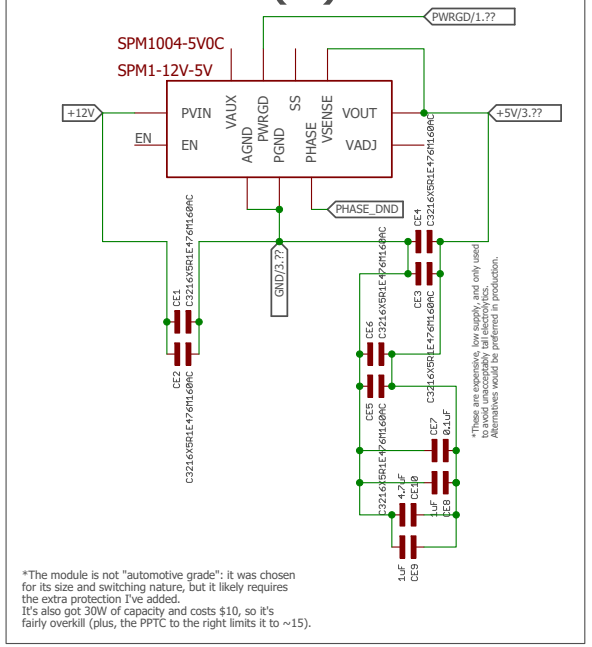


CAN/POWER

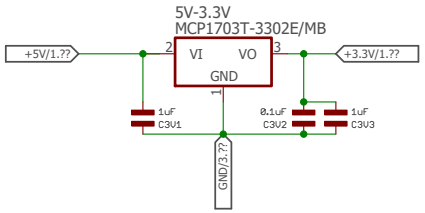
CANBUS (C)



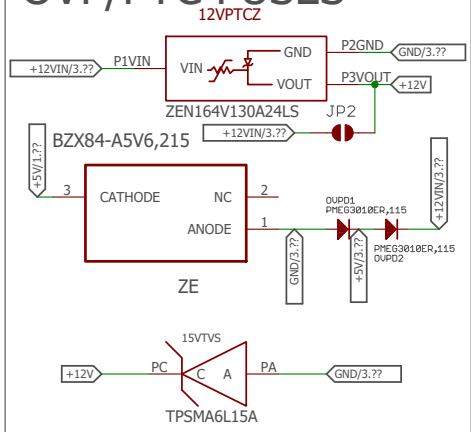
12V->5V (E)



5V->3.3V

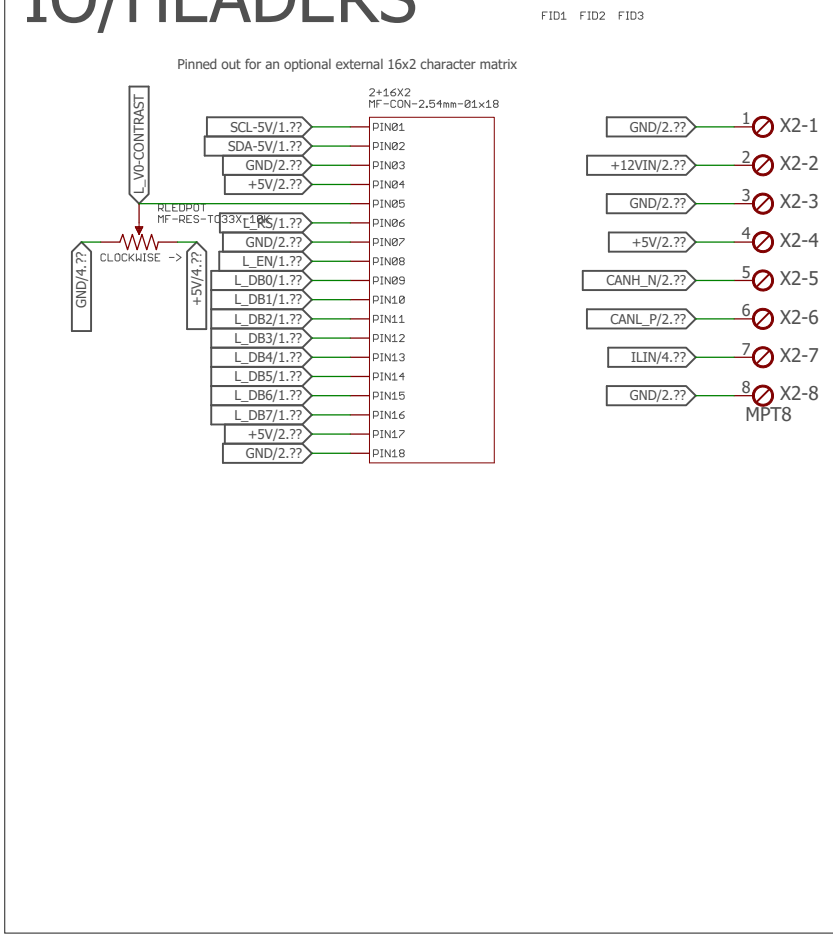


OVP/PTC FUSES

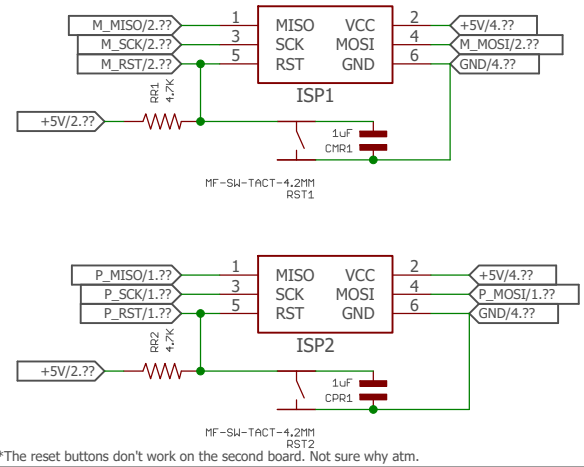


INPUTS/PINOUTS/HEADERS

IO/HEADERS

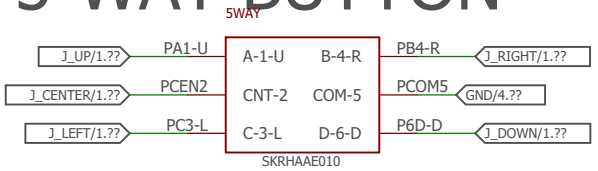


ICSP's



*The reset buttons don't work on the second board. Not sure why atm.

5-WAY BUTTON

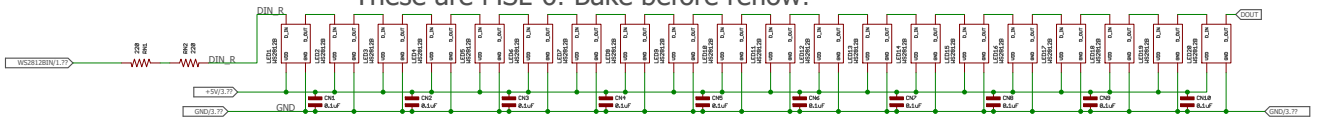


*This was soldered upside down on the second board despite the correct footprint. Still works partially.

OUTPUTS/LEDS

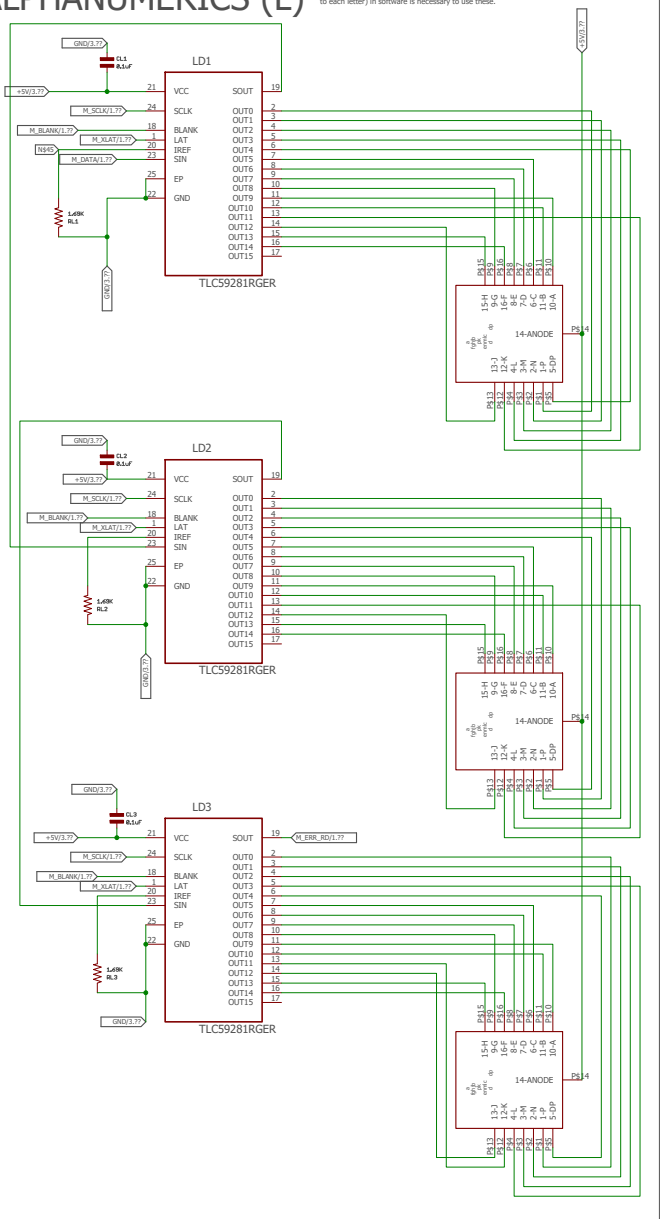
NEOPIXELS (N)

These are MSL-6! Bake before reflow!

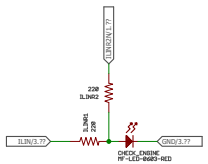


ALPHANUMERICS (L)

*Mapping each bit to each display segment (and then to each letter) in software is necessary to use these.



IDIOT LIGHT



POWER LED