

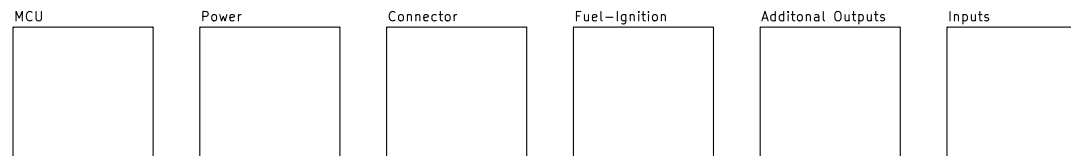
Pre-Ignition x4

© 2023 DetonationEMS (Aaron S.)

PN:MX4C

Pre-Ignition x4 is a 4 channel, (4 indavidually controlled ignition and injector outputs)
Universal Standalone Engine Managment System.

Board Selection in tuner studio for this ECU is "Speeduino v0.4"



DetonationEMS ECU's are powered by an open source
project called Speeduino by Josh Stewart.

DetonationEMS GitHub – <https://github.com/DetonationEMS>
Speeduino Official GitHub – <https://github.com/noisymime/speeduino>

If you are happy with DetonationEMS and Speeduino Compatible
devices, Firmware and/or Software. Please consider sponsoring
Josh on github so he can advance his efforts.

<https://github.com/sponsors/noisymime>

DetonationEMS.com

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Sheet: /

File: Pre_Ignition.kicad_sch

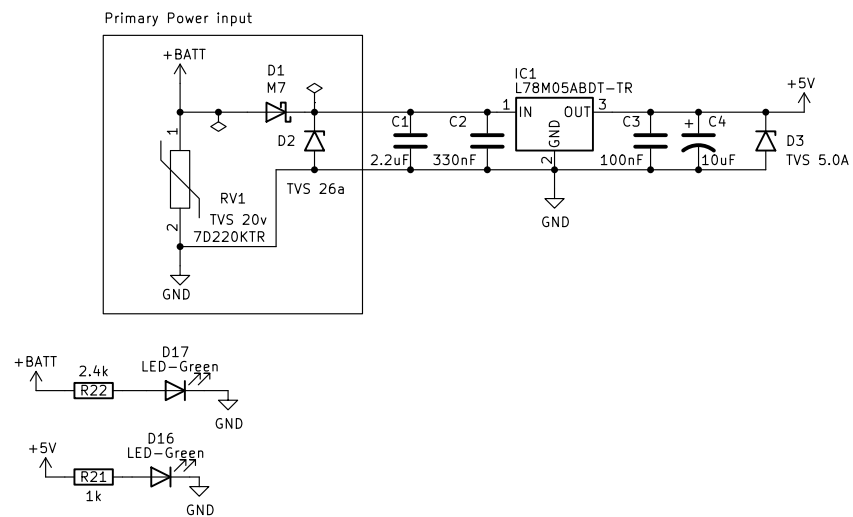
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Size: USLetter Date: 2023-10-24

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Rev: C

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Power Supply

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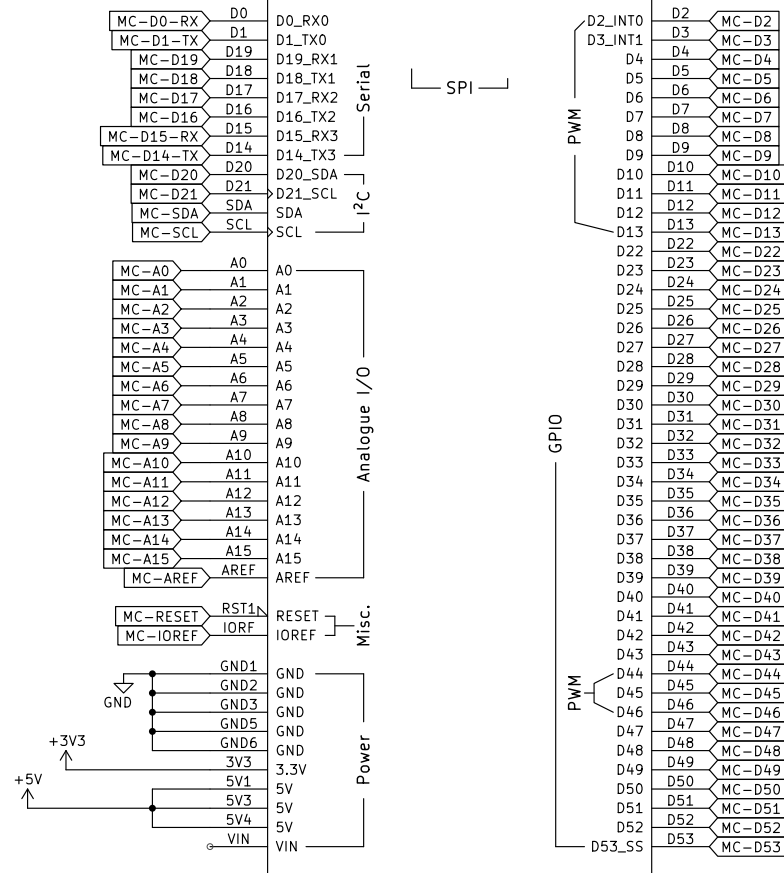
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Rev: C

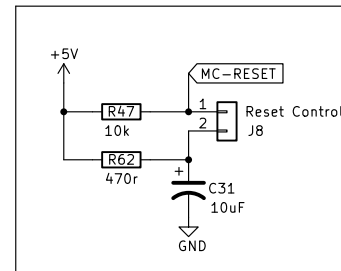
Id: 2/7

Arduino_Mega2560_Shield-Arduino



Remove DC Jack for proper fitment.

Reset Control



MCU

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File: mcu.kicad_sch

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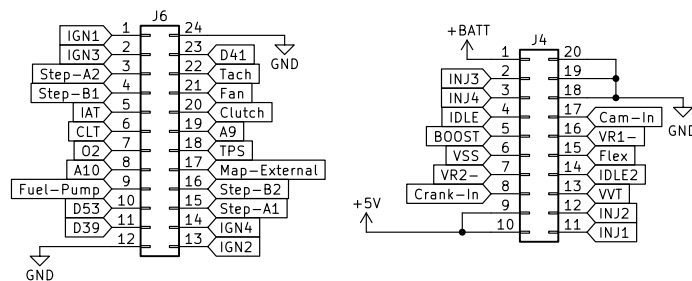
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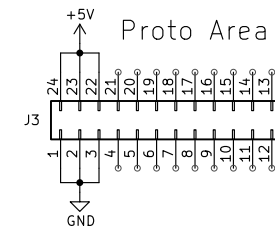
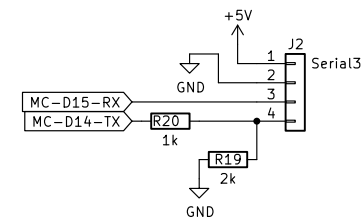
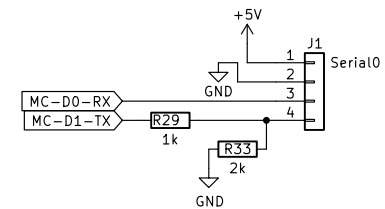
Rev: C

Id: 3/7

Main Connection



Serial/Proto



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File: Connector.kicad_sch

Title: Pre-Ignition X4

Size: A4

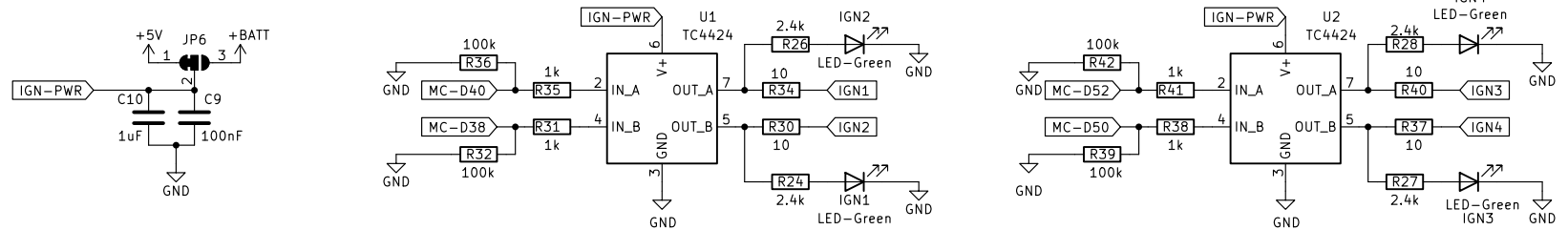
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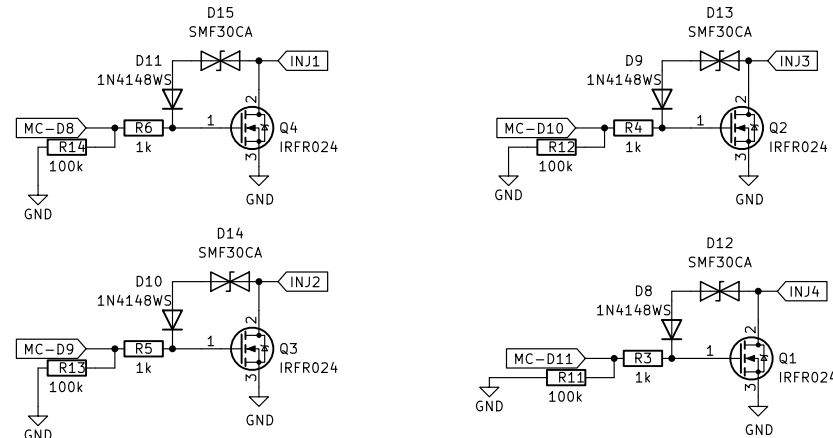
Rev: C

Id: 4/7

Ignition Output



Fuel Injector Output



D6-D13 only need to be populated when NOT using internally clamped injector mosfets.

D6-D9 Fast switching

D10-D13 Zener Value must be below mosfet Vds. (Recommend Zener 36-60v)

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Sheet: /Fuel-Ignition/

File: Fuel-Ignition.kicad_sch

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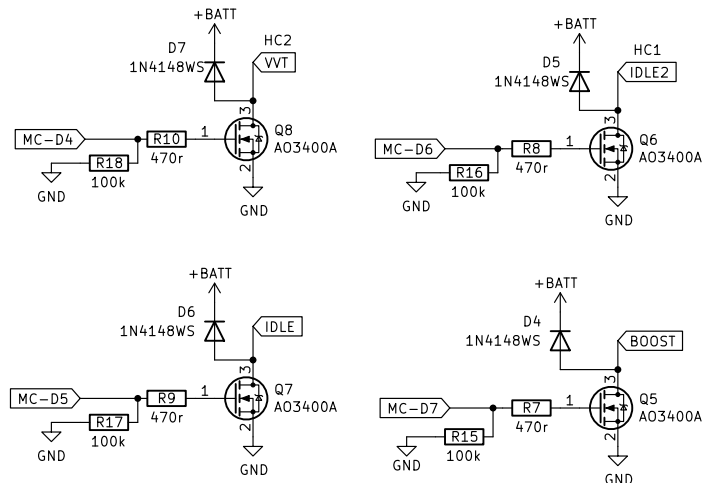
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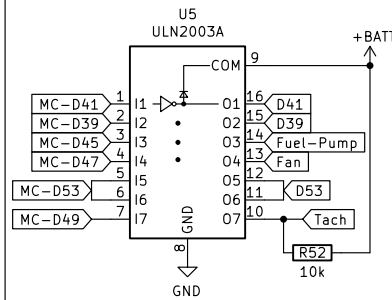
Rev: C

Id: 5/7

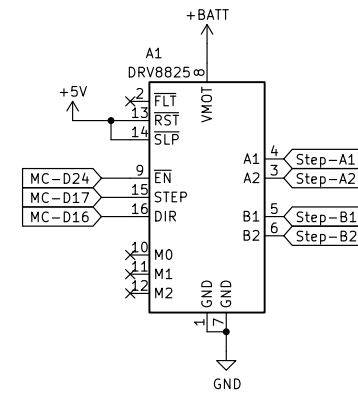
High Current Output – 1A Max



Relay Control Tach Output



Stepper Driver



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Sheet: /Additional Outputs/

File: Output.kicad_sch

Title: Pre-Ignition X4

Size: A4

Date: 2023-10-24

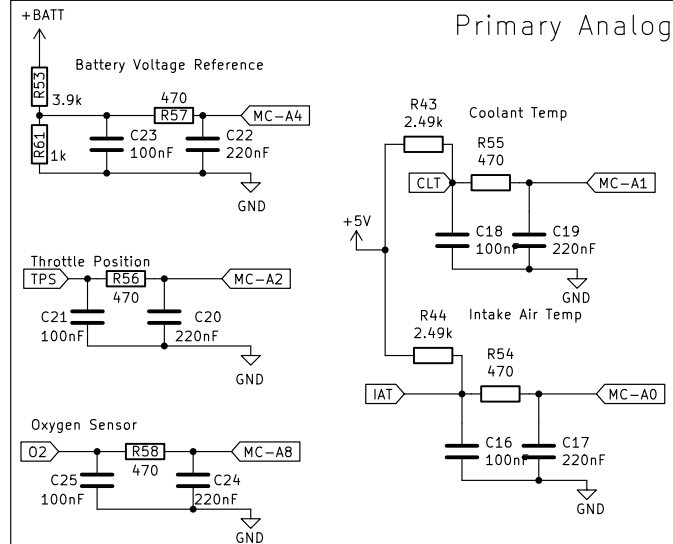
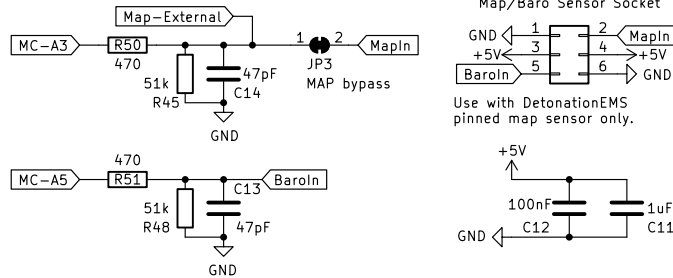
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Rev: C

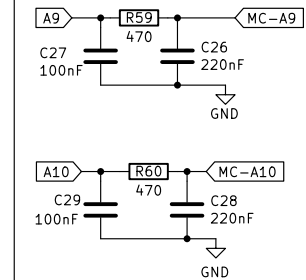
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Analog-Inputs

Map Sensor

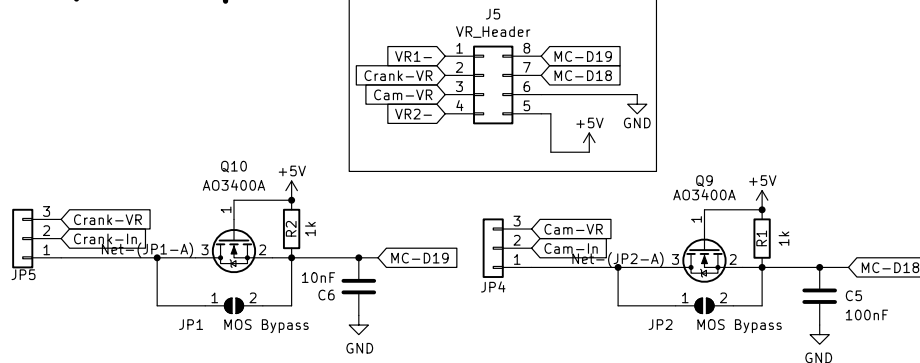


Aux Analog

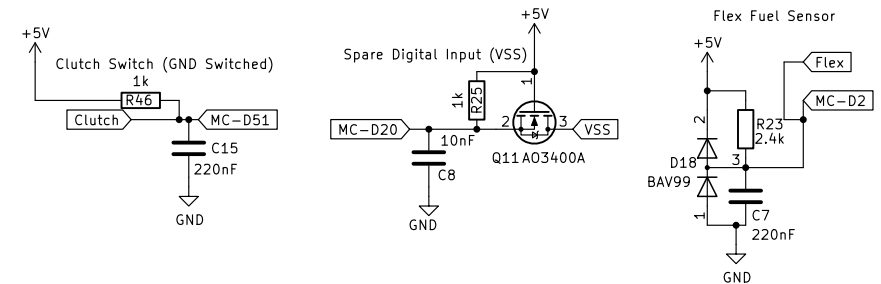


Crank/Cam Inputs

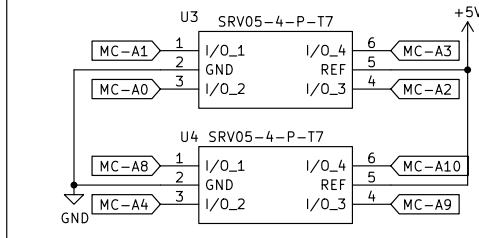
VR Header (Speeduino Compatible)



Digital-Inputs



5v Protection



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Sheet: /Inputs/

File: Analog.kicad_sch

Title: Pre-Ignition X4

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