Notes:

Jumpers labeled JP5 and JP6 are crossover wires,nothing more. This was done to ease single sided PCB Prototype testing.

J2 is the TE Connectivity Automotive Grade water resistant connector. The 35 positions will allow for modifications to the board for additional inputs/outputs as this design only uses 27 positions. My samples to test have arrived, http://www.te.com Part #'s:

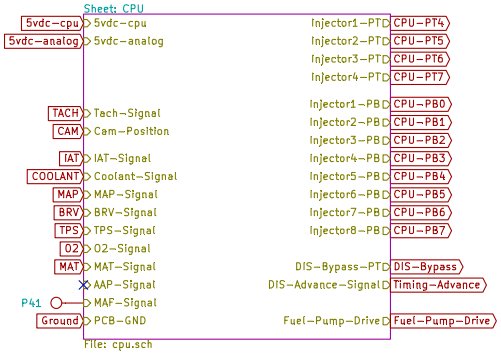
1-776163-2 Right Angle 35 Position Header (Natural Color)
OR
1-776231-2 Vertical 35 Position Header (Natural Color)
1-776231-2 Vertical 35 Position Header (Natural Color)
776164-2 35 Position AMP SEAL Plug Assembly (Natural Color)

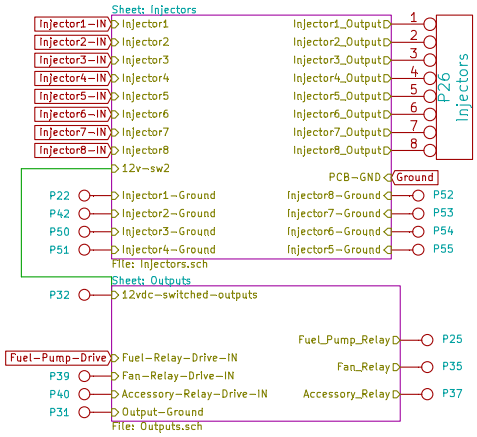
Make sure that the PCB grounds do not touch the inside of the case and isolate the TO-220 voltage regulators from the end panels of the case with mica insulators and use plastic screws.

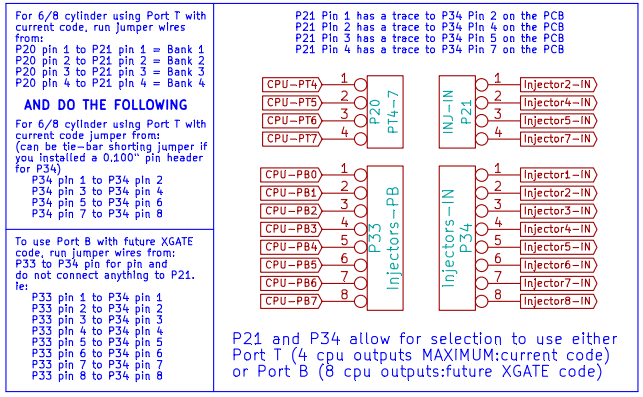
5vdc-cpu = VDD

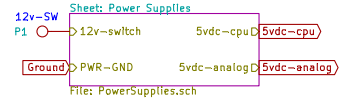
5vdc-analog = VCC

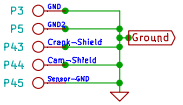
INJ-GND and INJ-GND2 are isolated to only be used by the Injector FETs

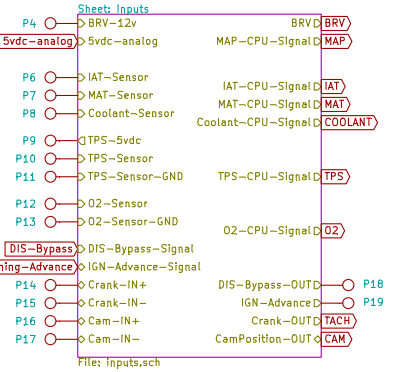


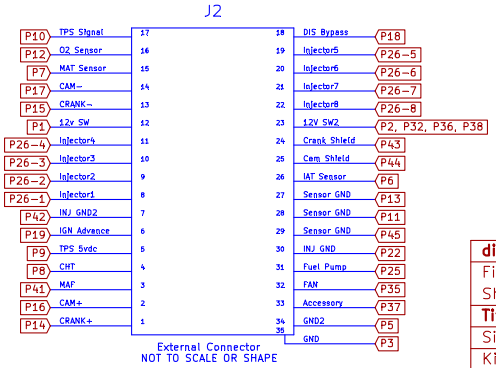












diyefi.org		
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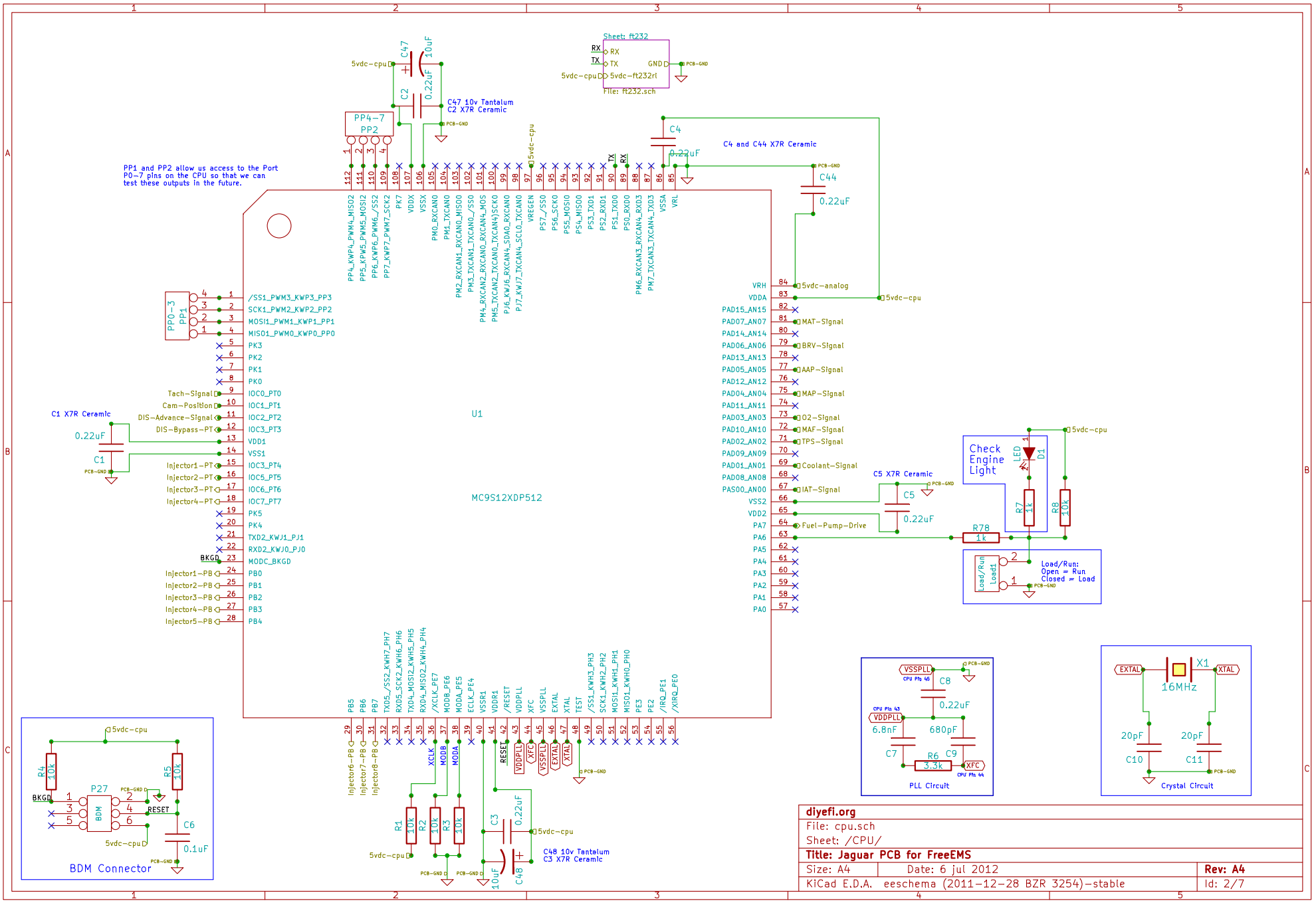
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A.	eeschema (2011-12-28 BZR 3254)-stable	Id: 1/7



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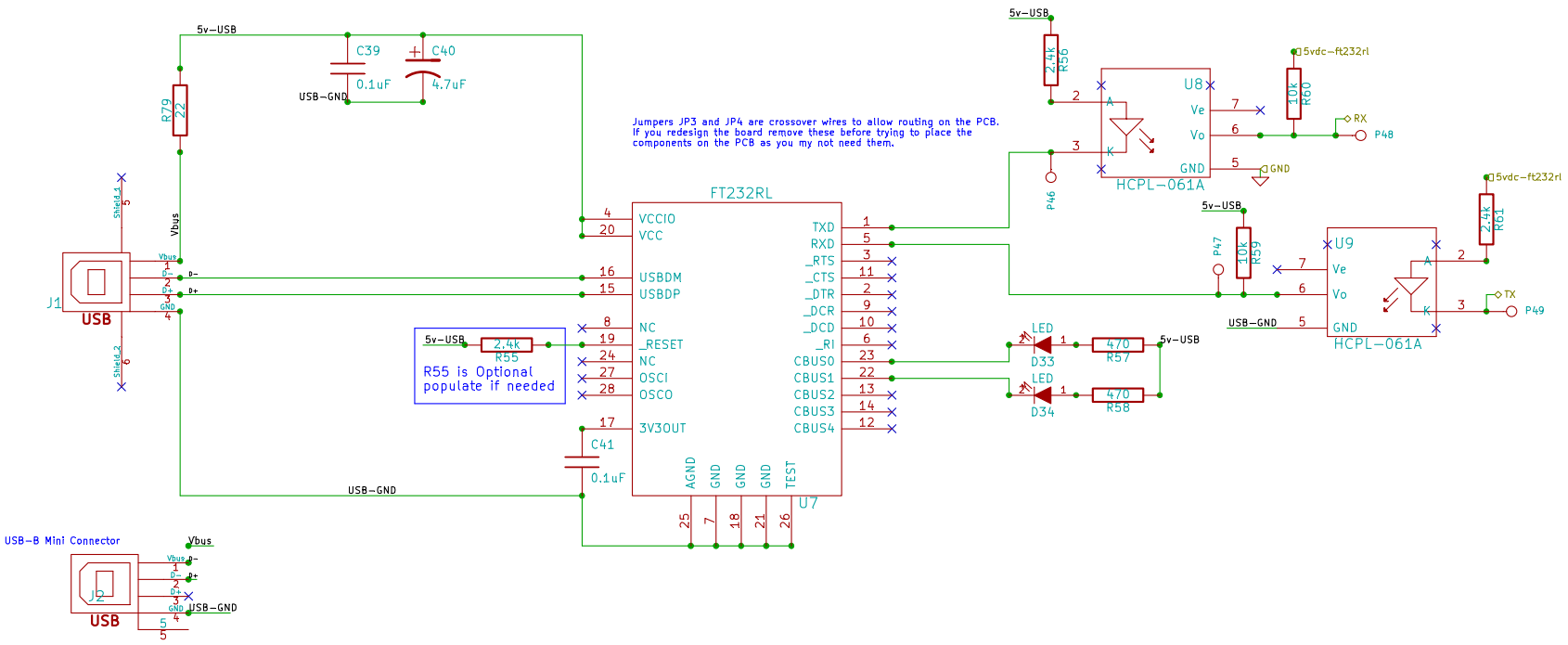
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A.	eeschema (2011-12-28 BZR 3254)-stable	Id: 2/7



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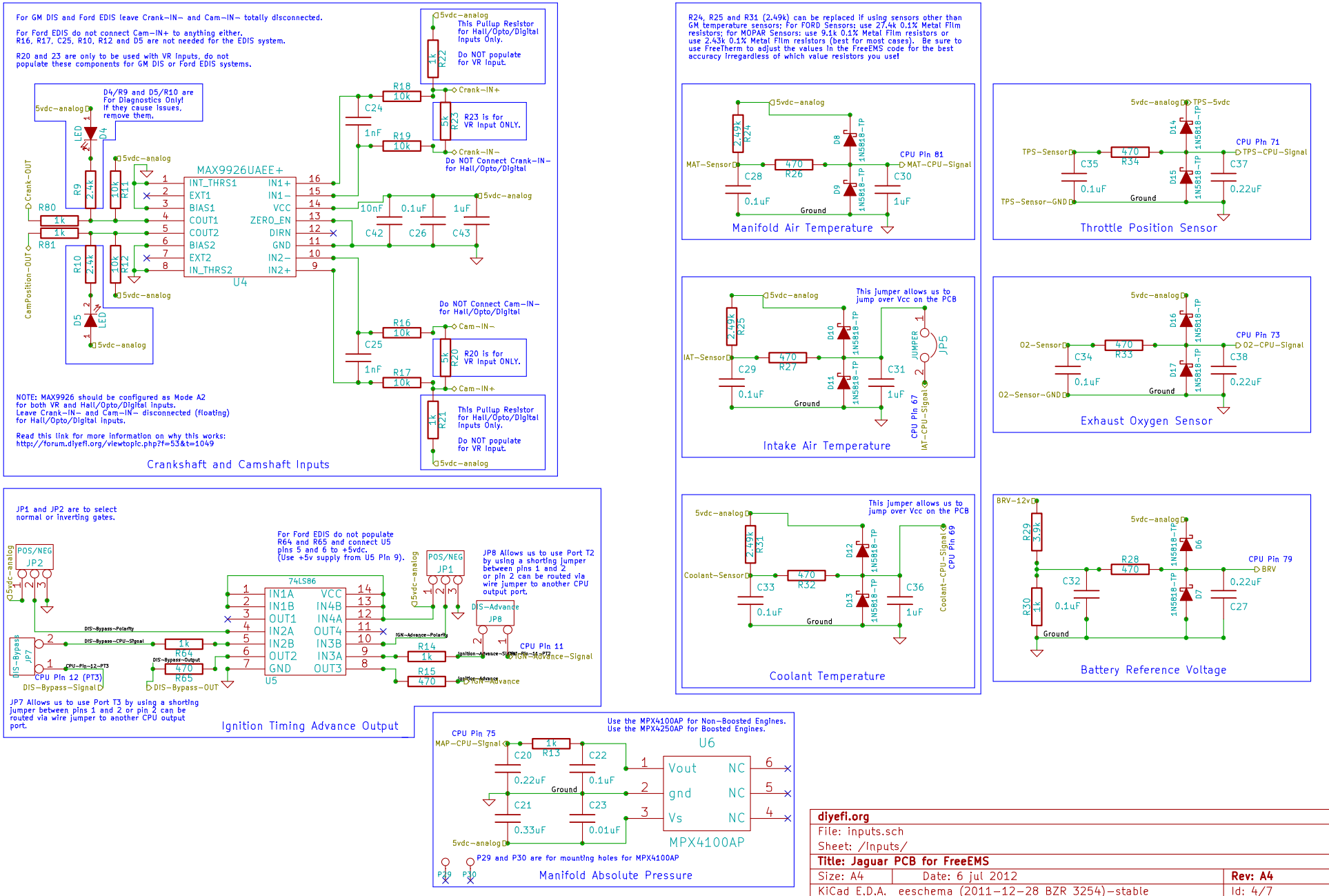
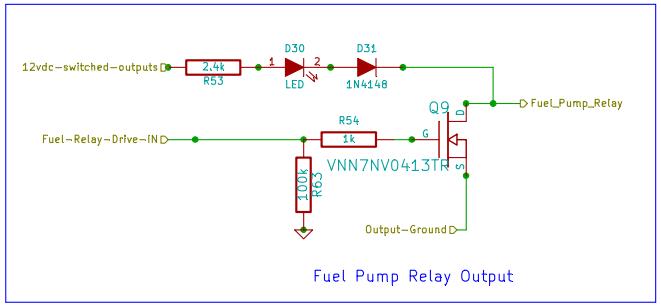
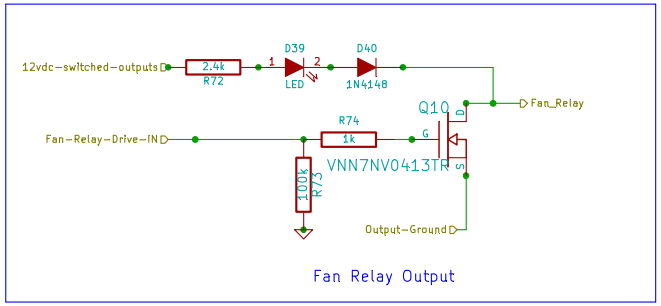
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A. eeschema (2011-12-28 BZR 3254)-stable		Id: 3/7

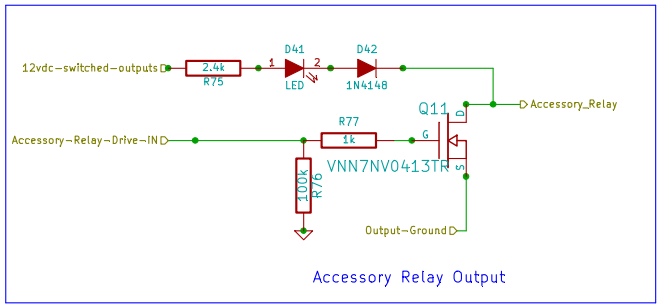

For GM DIS and Ford EDIS leave Crank-IN- and Cam-IN- totally disconnected.
For Ford EDIS do not connect Cam-IN+ to anything either.
R16, R17, C25, R10, R12 and D5 are not needed for the EDIS system.
R20 and 23 are only to be used with VR inputs, do not populate these components for GM DIS or Ford EDIS systems.
D4/R9 and D5/R10 are For Diagnostics Only! If they cause issues, remove them.
MAX9926UAEE+
U4
INT_THRS1
EXT1
BIAS1
COUT1
COUT2
BIAS2
EXT2
IN_THRS2
IN1+
IN1-
VCC
ZERO_EN
DIRN
GND
IN2-
IN2+
This Pullup Resistor for Hall/Opto/Digital Inputs Only.
Do NOT populate for VR Input.
R23 is for VR Input ONLY.
Do NOT Connect Crank-IN- for Hall/Opto/Digital
Do NOT Connect Cam-IN- for Hall/Opto/Digital
R20 is for VR Input ONLY.
NOTE: MAX9926 should be configured as Mode A2 for both VR and Hall/Opto/Digital inputs. Leave Crank-IN- and Cam-IN- disconnected (floating) for Hall/Opto/Digital inputs.
Read this link for more information on why this works:
http://forum.diyefi.org/viewtopic.php?f=53&t=1049
Crankshaft and Camshaft Inputs
R24, R25 and R31 (2.49k) can be replaced if using sensors other than GM temperature sensors; For FORD Sensors: use 27.4k 0.1% Metal Film resistors; for MOPAR Sensors: use 9.1k 0.1% Metal Film resistors or use 2.43k 0.1% Metal Film resistors (best for most cases). Be sure to use FreeTherm to adjust the values in the FreeEMS code for the best accuracy irregardless of which value resistors you use!
Manifold Air Temperature
Throttle Position Sensor
Intake Air Temperature
This jumper allows us to jump over Vcc on the PCB
Exhaust Oxygen Sensor
Coolant Temperature
Battery Reference Voltage
JP1 and JP2 are to select normal or inverting gates.
For Ford EDIS do not populate R64 and R65 and connect U5 pins 5 and 6 to +5vdc. (Use +5v supply from U5 Pin 9).
JP8 Allows us to use Port T2 by using a shorting jumper between pins 1 and 2 or pin 2 can be routed via wire jumper to another CPU output port.
JP7 Allows us to use Port T3 by using a shorting jumper between pins 1 and 2 or pin 2 can be routed via wire jumper to another CPU output port.
74LS86
U5
Ignition Timing Advance Output
Use the MPX4100AP for Non-Boosted Engines.
Use the MPX4250AP for Boosted Engines.
U6
MPX4100AP
P29 and P30 are for mounting holes for MPX4100AP
Manifold Absolute Pressure
diyefi.org
File: inputs.sch
Sheet: /Inputs/
Title: Jaguar PCB for FreeEMS
Size: A4
Date: 6 jul 2012
Rev: A4
KiCad E.D.A. eeschema (2011-12-28 BZR 3254)-stable
Id: 4/7



Fuel Pump Relay Output



Fan Relay Output



Accessory Relay Output

diyefi.org		
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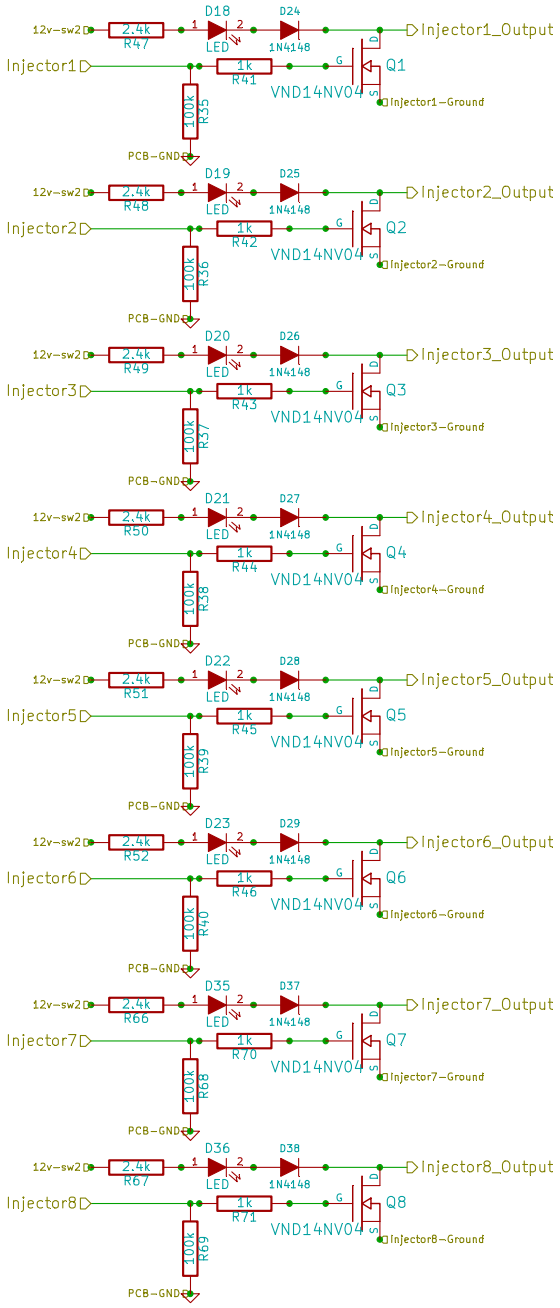
Sheet: /Outputs/		
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A. eeschema (2011-12-28 BZR 3254)-stable		Id: 5/7



diyefi.org		
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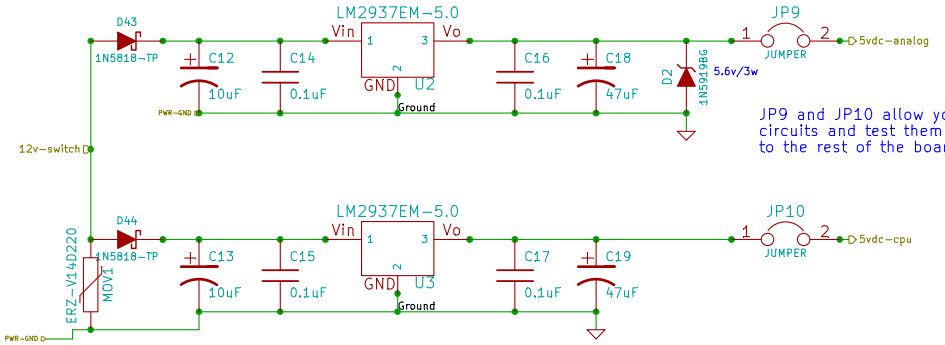
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A. eeschema (2011-12-28 BZR 3254)-stable		Id: 6/7



JP9 and JP10 allow you to build the power supply circuits and test them before connecting them to the rest of the board.

C14, C15, C16 and C17 are 50v X7R Ceramic capacitors.

C12 and C13 are 35v Tantalum capacitors.
C18 and C19 are 10v Tantalum capacitors.

diyefi.org		
File: PowerSupplies.sch		
Sheet: /Power Supplies/		
Title: Jaguar PCB for FreeEMS		
Size: A4	Date: 6 jul 2012	**Rev: A4**
KiCad E.D.A. eeschema (2011-12-28 BZR 3254)-stable		Id: 7/7