

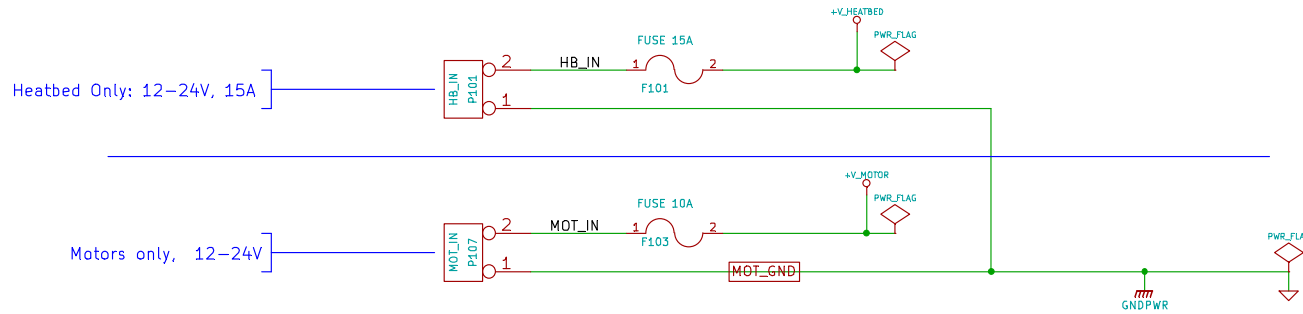
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 Derived from RAMPS 1.4 re:prap.org/wiki/RAMPS1.4

File: RAMPS-FD.sch
 Sheet: /

Title: RAMPS-FD (RAMPS for Arduino Due)

Size: A4	Date: 9 feb 2014	Rev: v2 Issue A
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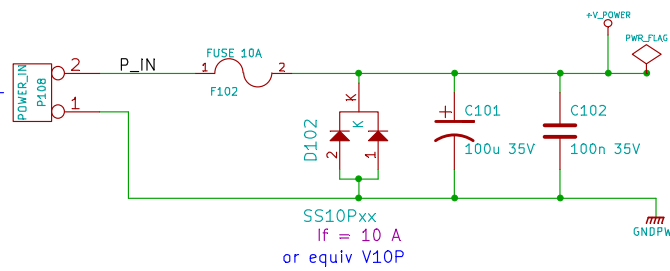
Power



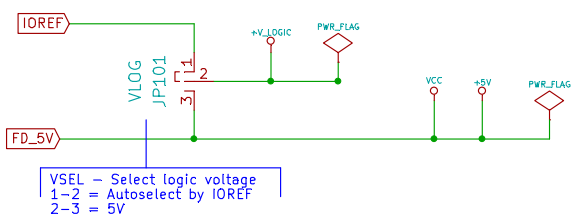
Note: use thick traces for all high power connections

Medium power MOSFETS
(extruder heaters, fans)

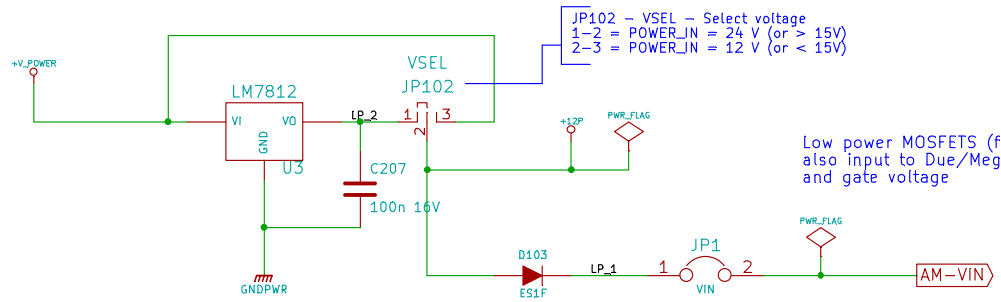
12V or 24V input
(ensure to set JP102 correctly!)



Note: On R3 compatible Arduinos, IOREF will supply 3.3V (Due), or 5V (Mega).
If IOREF is not provided (non-R3) then it must be a 5V Arduino so set VSEL to 5V.

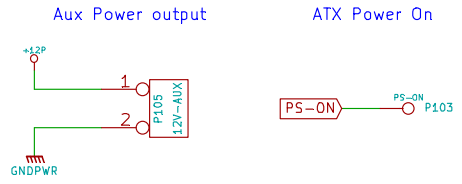
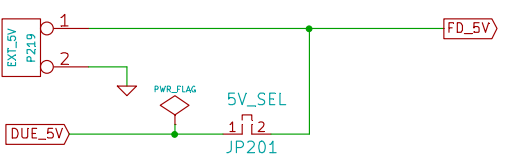


VSEL - Select logic voltage
1-2 = Autoselect by IOREF
2-3 = 5V



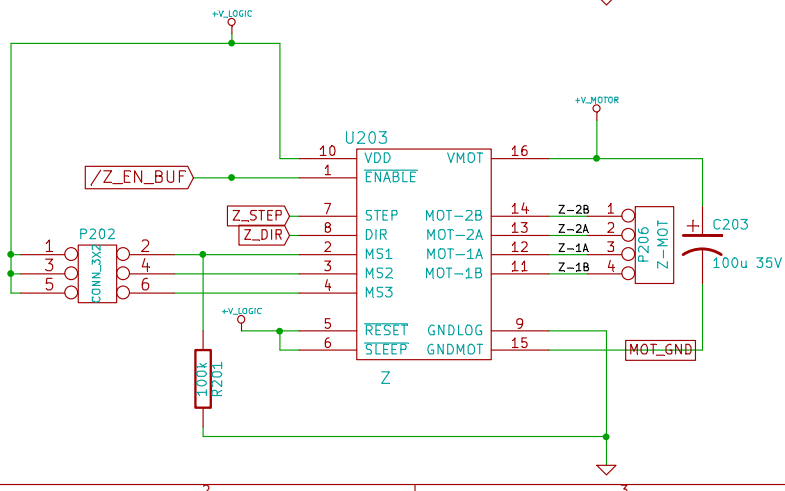
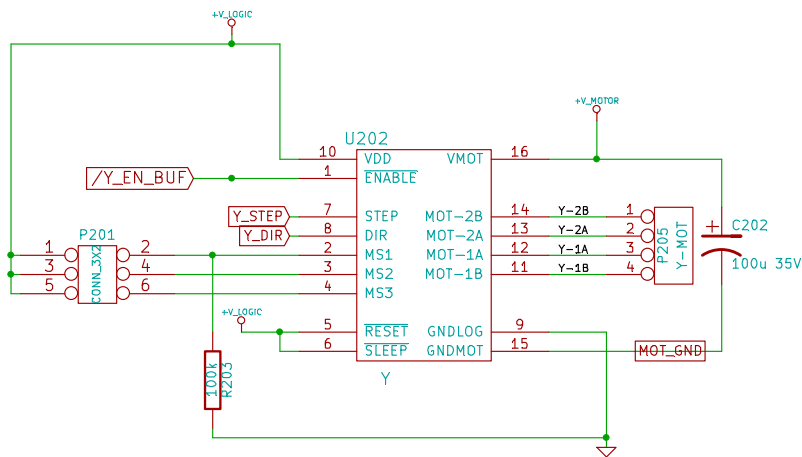
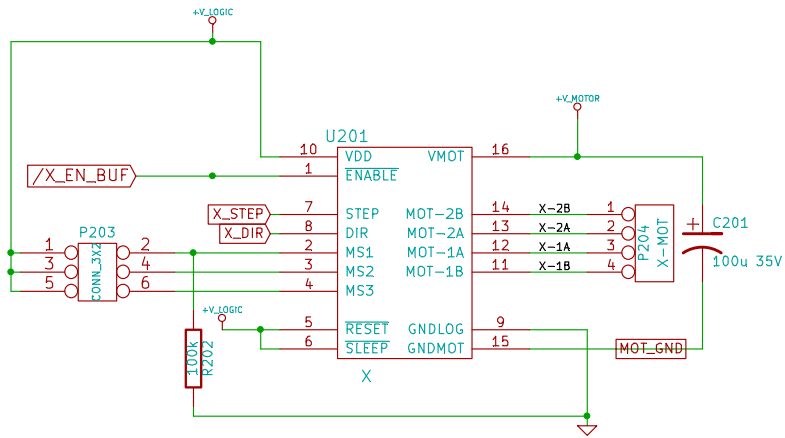
Low power MOSFETS (fans etc) also input to Due/Mega and gate voltage

JP1: Supply 12V to Arduino in standalone operation
Remove if Arduino is powered by USB or other supply



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File: Power.sch		Rev: v2 Issue A	
Sheet: /Power/		Date: 9 feb 2014	
Title: RAMPS-FD (RAMPS for Arduino Due)			
Size: A4	Date: 9 feb 2014	Id: 2/10	
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File: steppers.sch
 Sheet: /Stepper Drivers/

Title: RAMPS-FD (RAMPS for Arduino Due)

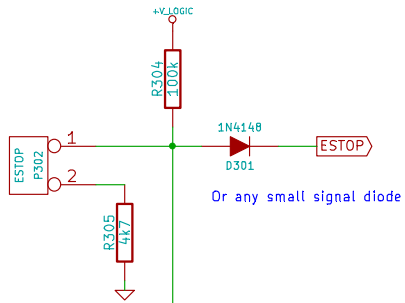
Size: A4 Date: 9 feb 2014

Rev: v2 Issue A

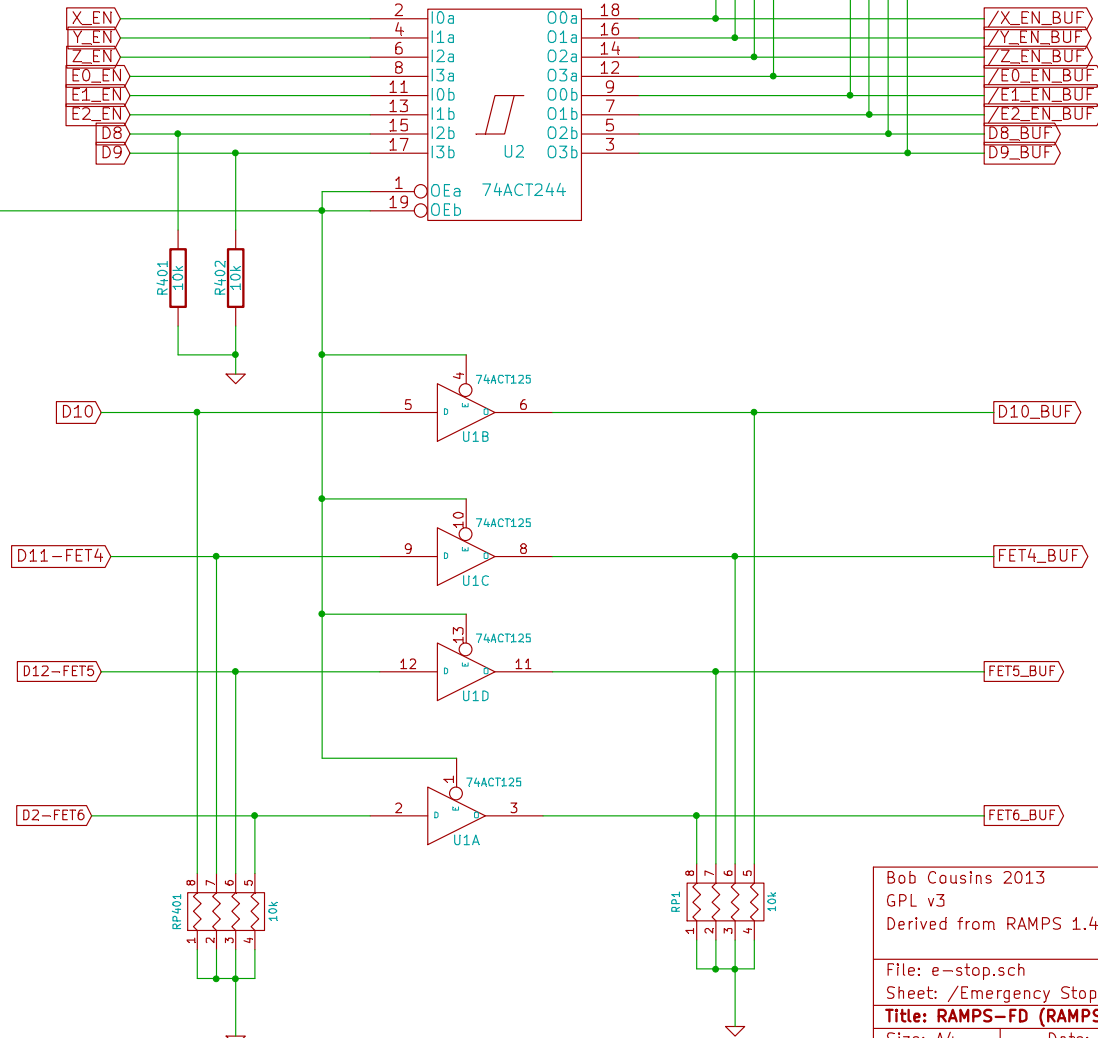
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Emergency Stop switch (Normally Closed type)
use jumper if not present



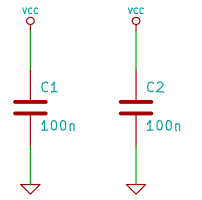
Or any small signal diode



Active low

Active high

Must use ACT (or HCT) type buffers.
Inputs are compatible with
3.3V or 5V logic

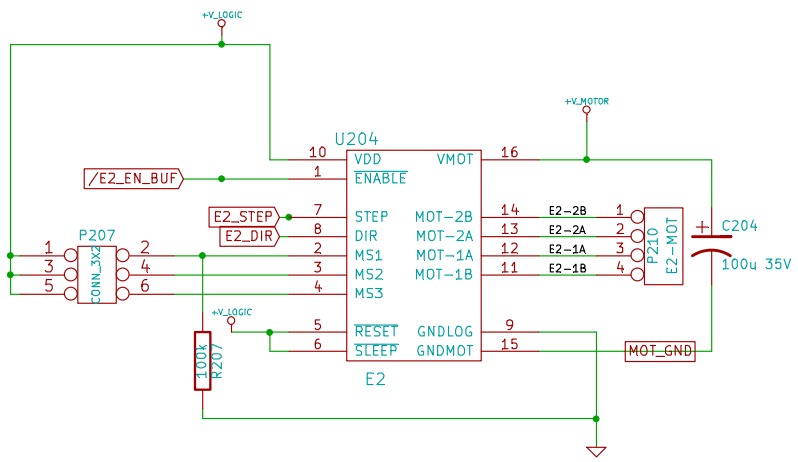
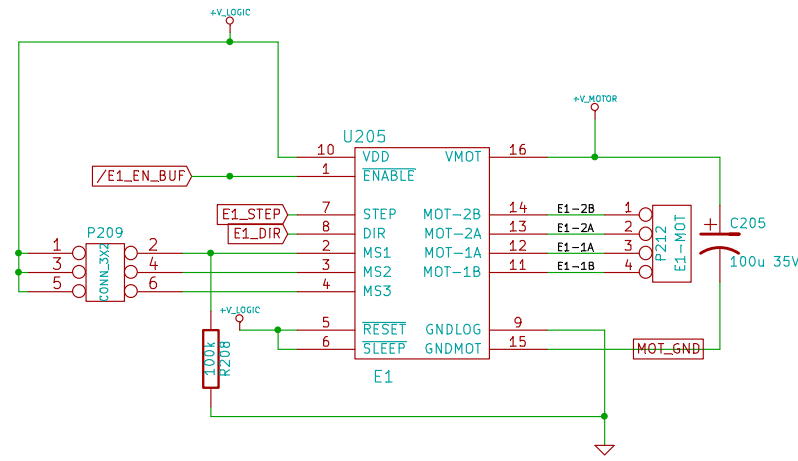
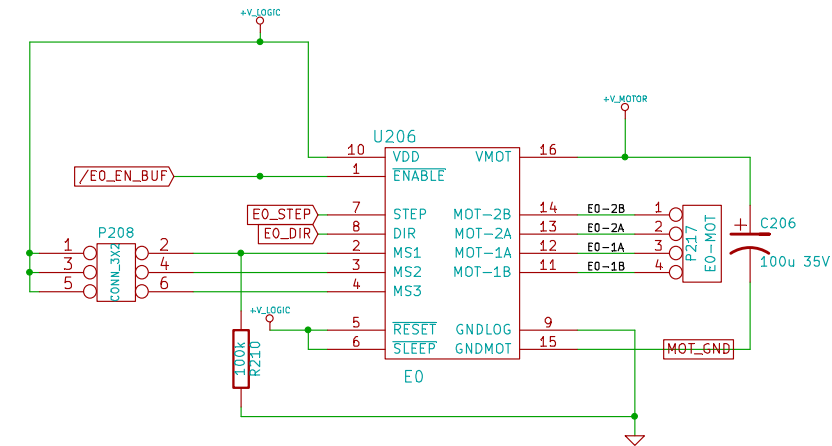


VCC = 5V

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File: e-stop.sch
Sheet: /Emergency Stop/
Title: RAMPS-FD (RAMPS for Arduino Due)

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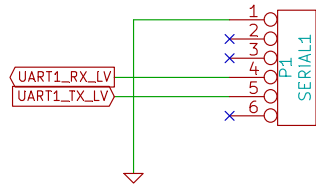
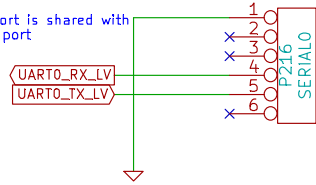
File: steppers2.sch		Rev: v2 Issue A	
Sheet: /Stepper Drivers 2/		Date: 9 feb 2014	
Title: RAMPS-FD (RAMPS for Arduino Due)		KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable	
Size: A4		Id: 5/10	

NB: On Arduino Due: IOs on this page are not 5V tolerant. Do not exceed 3.3V.

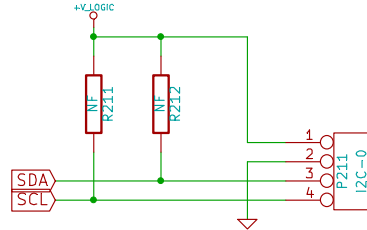
Serial

Note: this serial port is shared with USB programming port

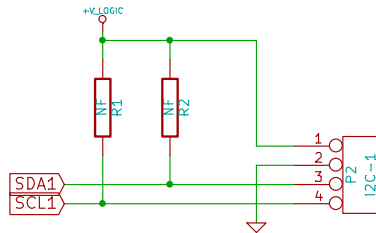
UART-TTL



I2C

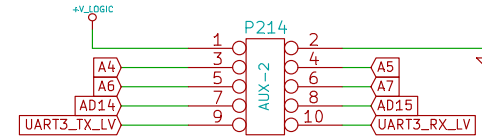


1k5 Pull ups on Due
Must not have external pullups to 5V if IOREF = 3.3V



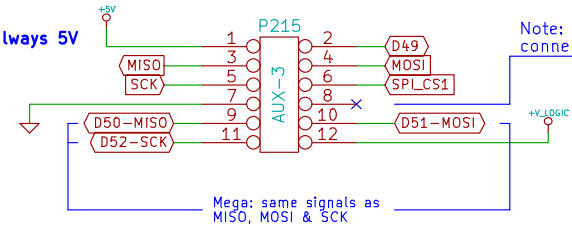
Aux connectors

Aux2



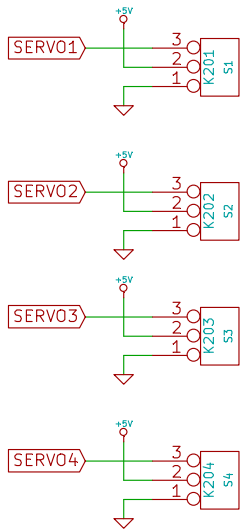
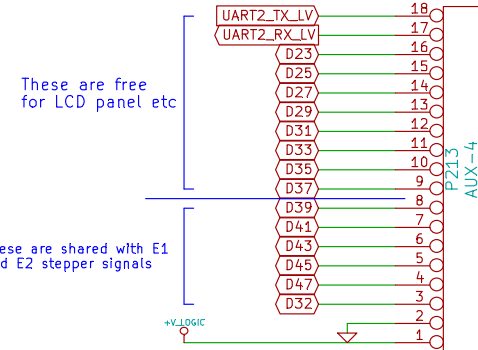
Aux3 - SPI

NB This pin is always 5V



Mega: same signals as MISO, MOSI & SCK

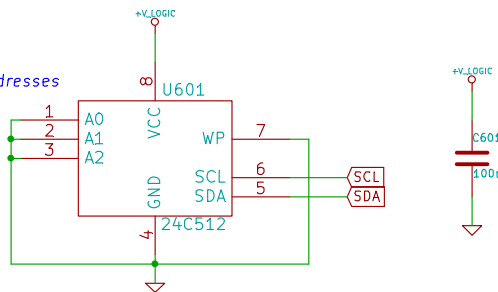
Aux4 - general IO



Servos
Need buffered outputs?

EEPROM

Might want to allow other addresses



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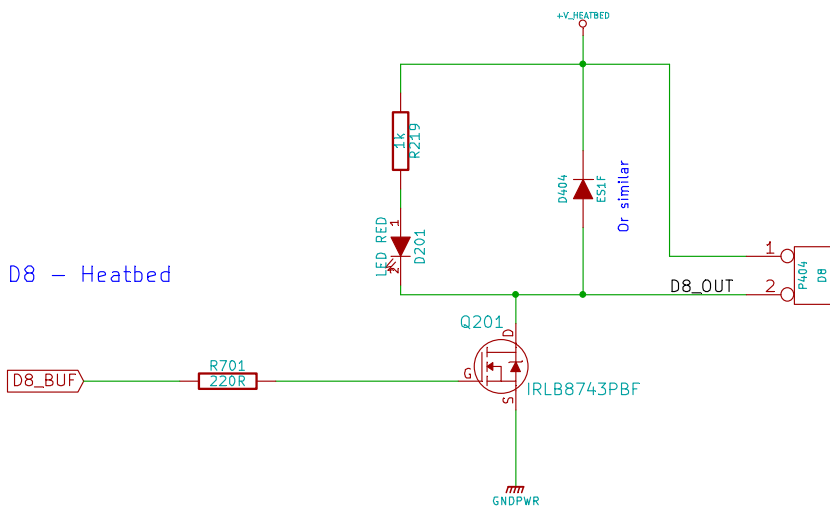
File: con_misc.sch
Sheet: /Misc Connectors/
Title: RAMPS-FD (RAMPS for Arduino Due)

Size: A4	Date: 9 feb 2014	Rev: v2 Issue A
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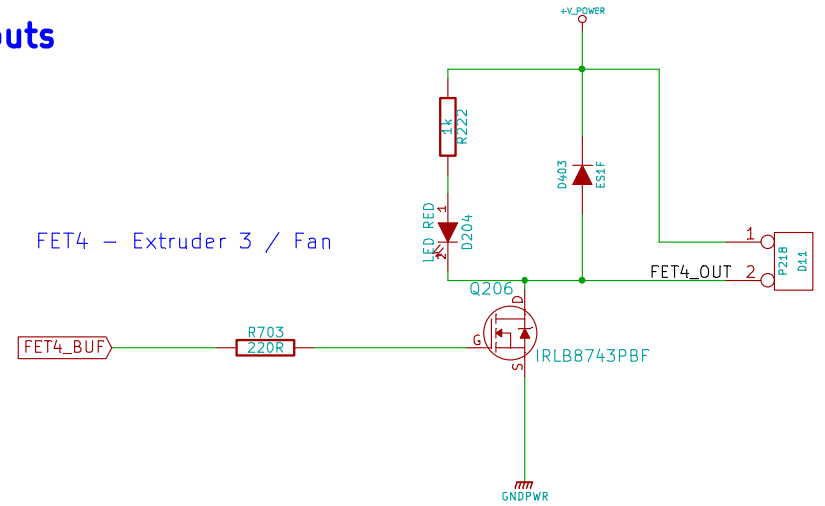
MOSFET Outputs

Non-inverting drivers

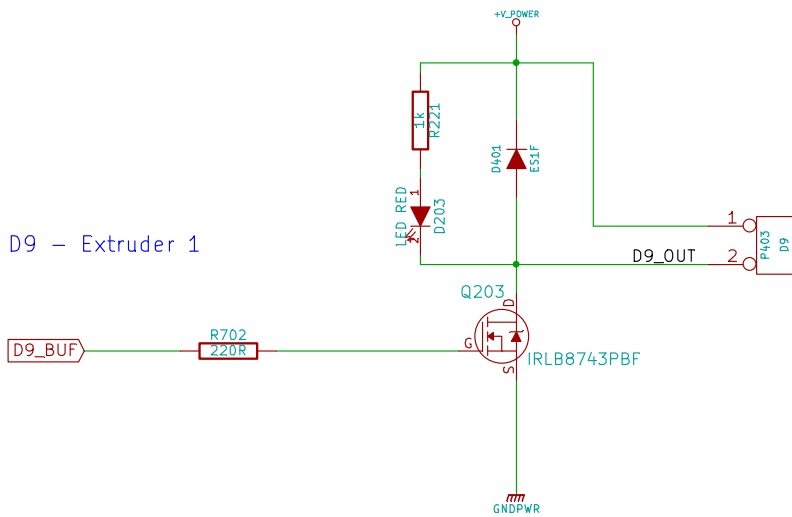
D8 - Heatbed



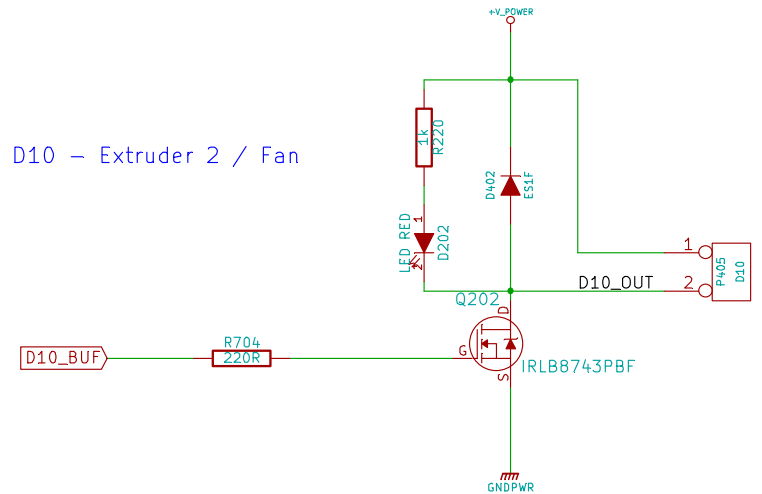
FET4 - Extruder 3 / Fan



D9 - Extruder 1



D10 - Extruder 2 / Fan



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 Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: con_outputs.sch
 Sheet: /Mosfet Outputs/

Title: RAMPS-FD (RAMPS for Arduino Due)

Size: A4 Date: 9 feb 2014

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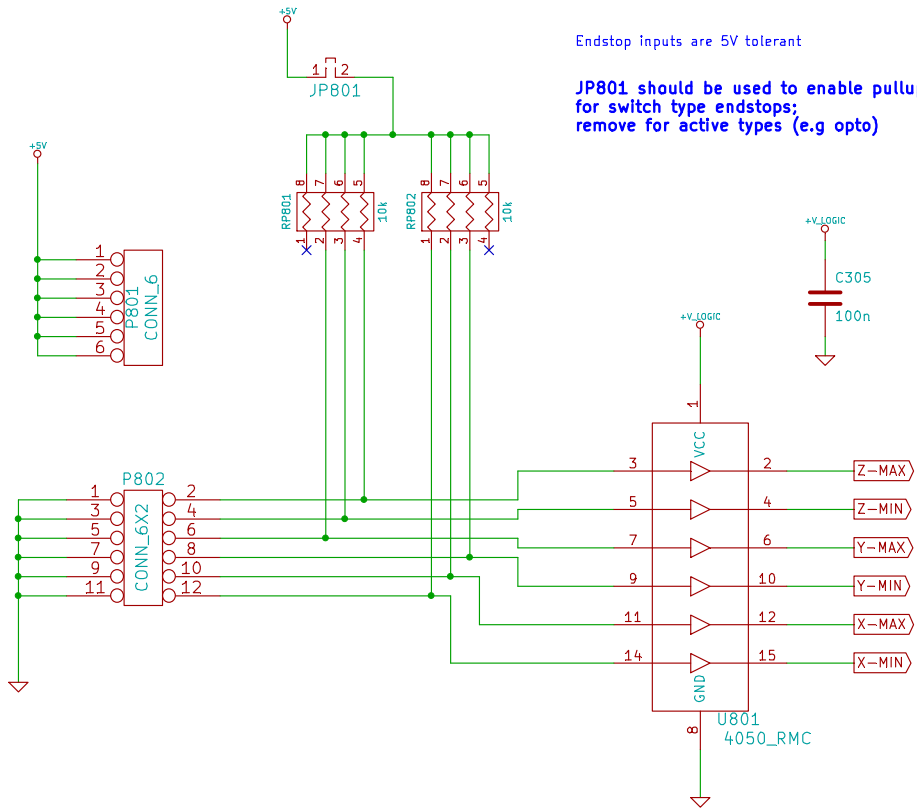
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Id: 7/10

Endstops

Endstop inputs are 5V tolerant

JP801 should be used to enable pullups for switch type endstops; remove for active types (e.g. opto)

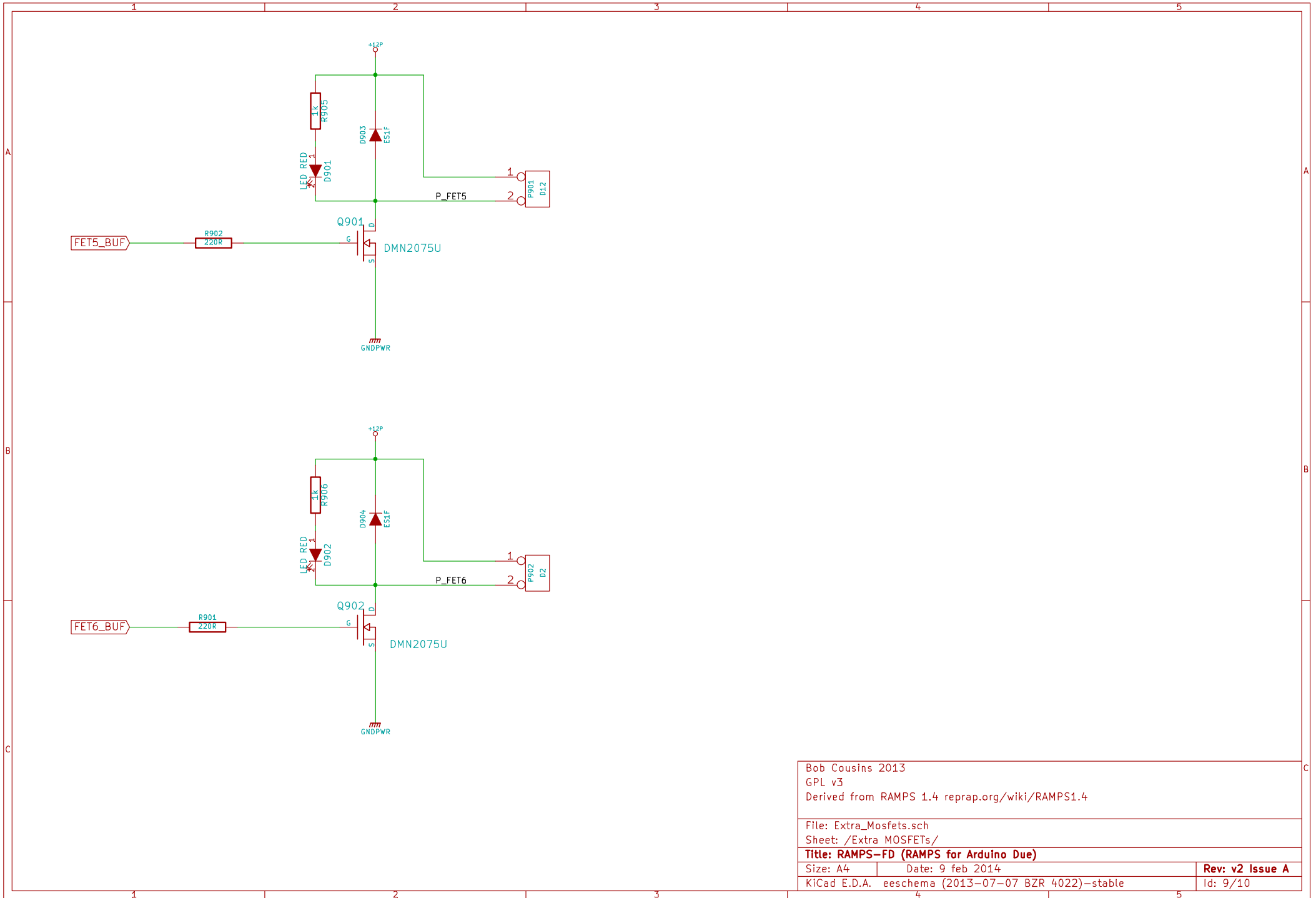


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File: con_inputs.sch
 Sheet: /Endstop Inputs/

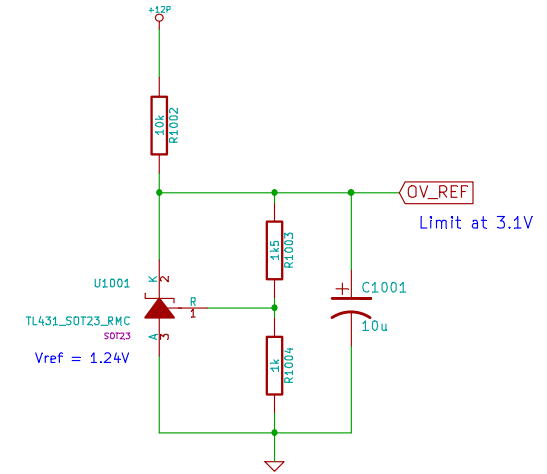
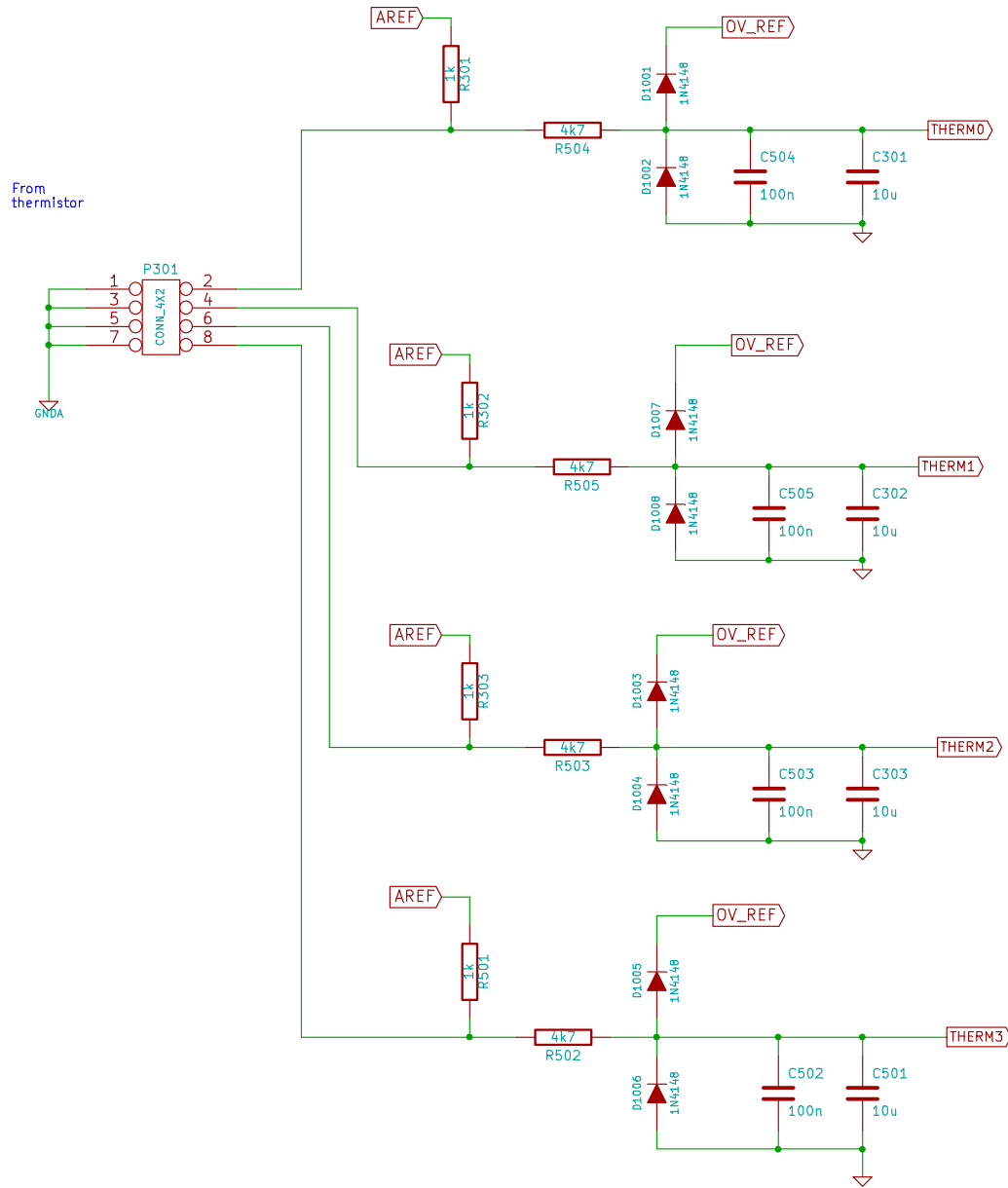
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File: Extra_Mosfets.sch Sheet: /Extra MOSFETs/		
Title: RAMPS-FD (RAMPS for Arduino Due)		
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Thermistor Inputs



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File: thermistor_inputs.sch Sheet: /Thermistor inputs/		
Title: RAMPS-FD (RAMPS for Arduino Due)		
Size: A4	Date: 9 feb 2014	Rev: v2 Issue A
KiCad E.D.A. eschema (2013-07-07 BZR 4022)-stable		Id: 10/10