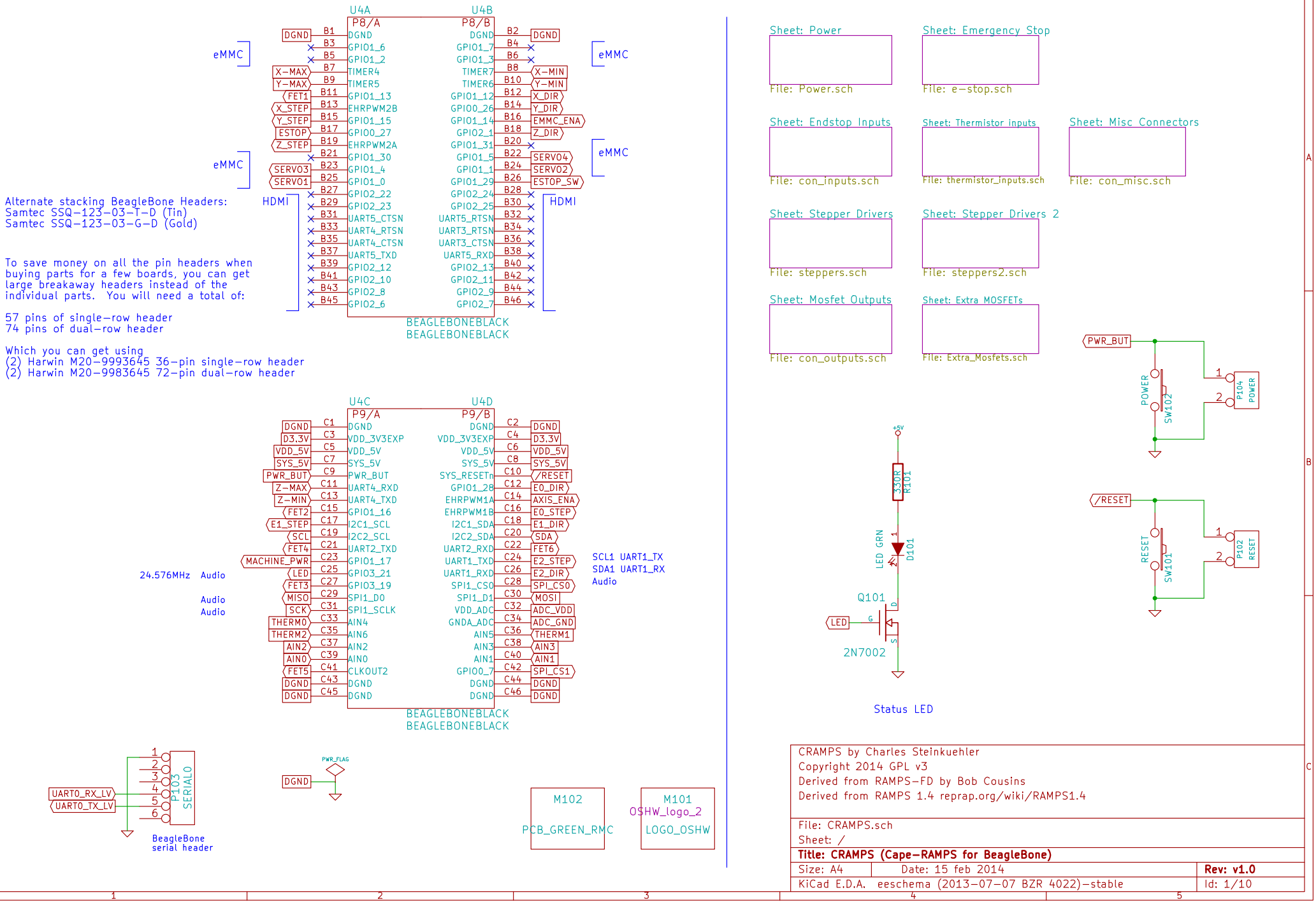

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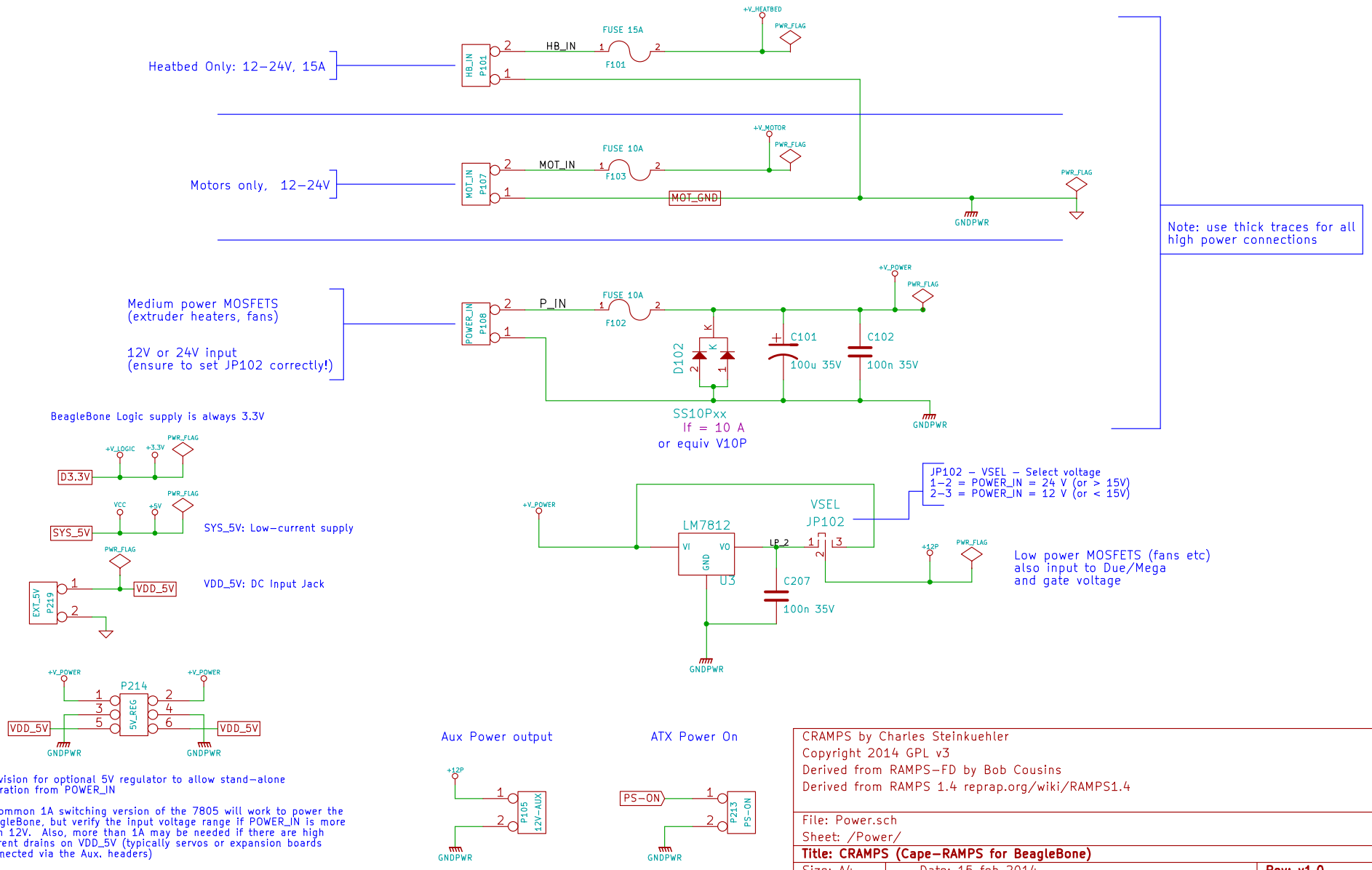
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: CRAMPS.sch
Sheet: /

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 1/10

Power



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

File: Power.sch
Sheet: /Power/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
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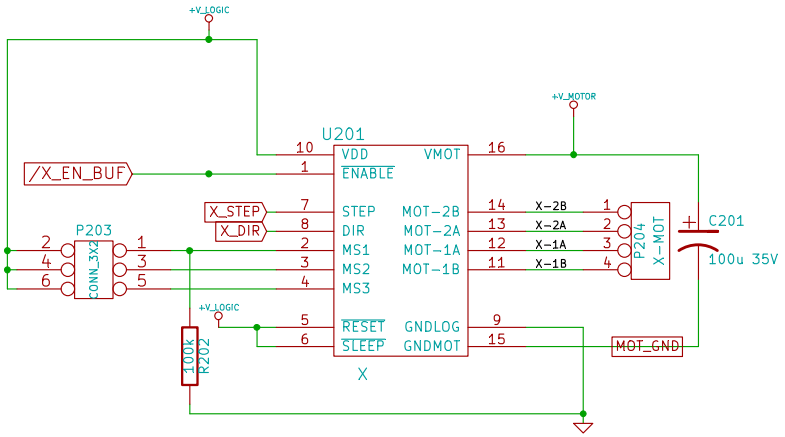

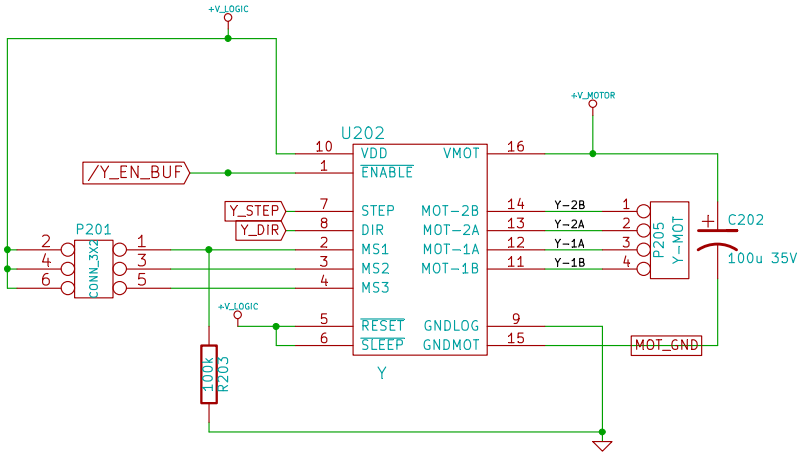

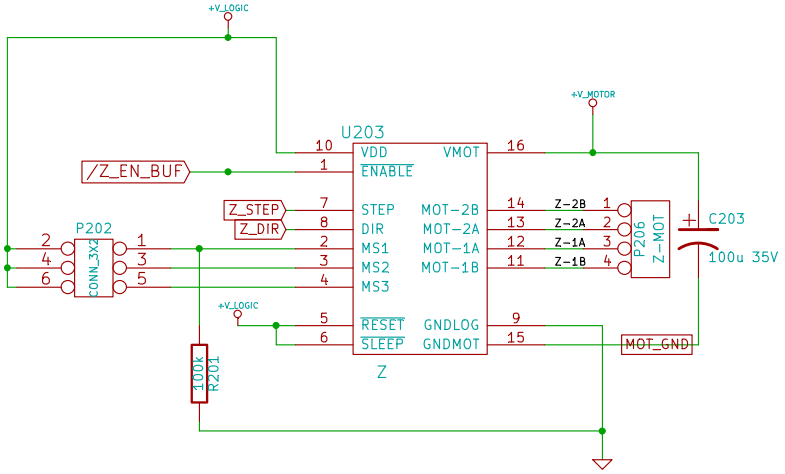

File: steppers.sch
Sheet: /Stepper Drivers/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
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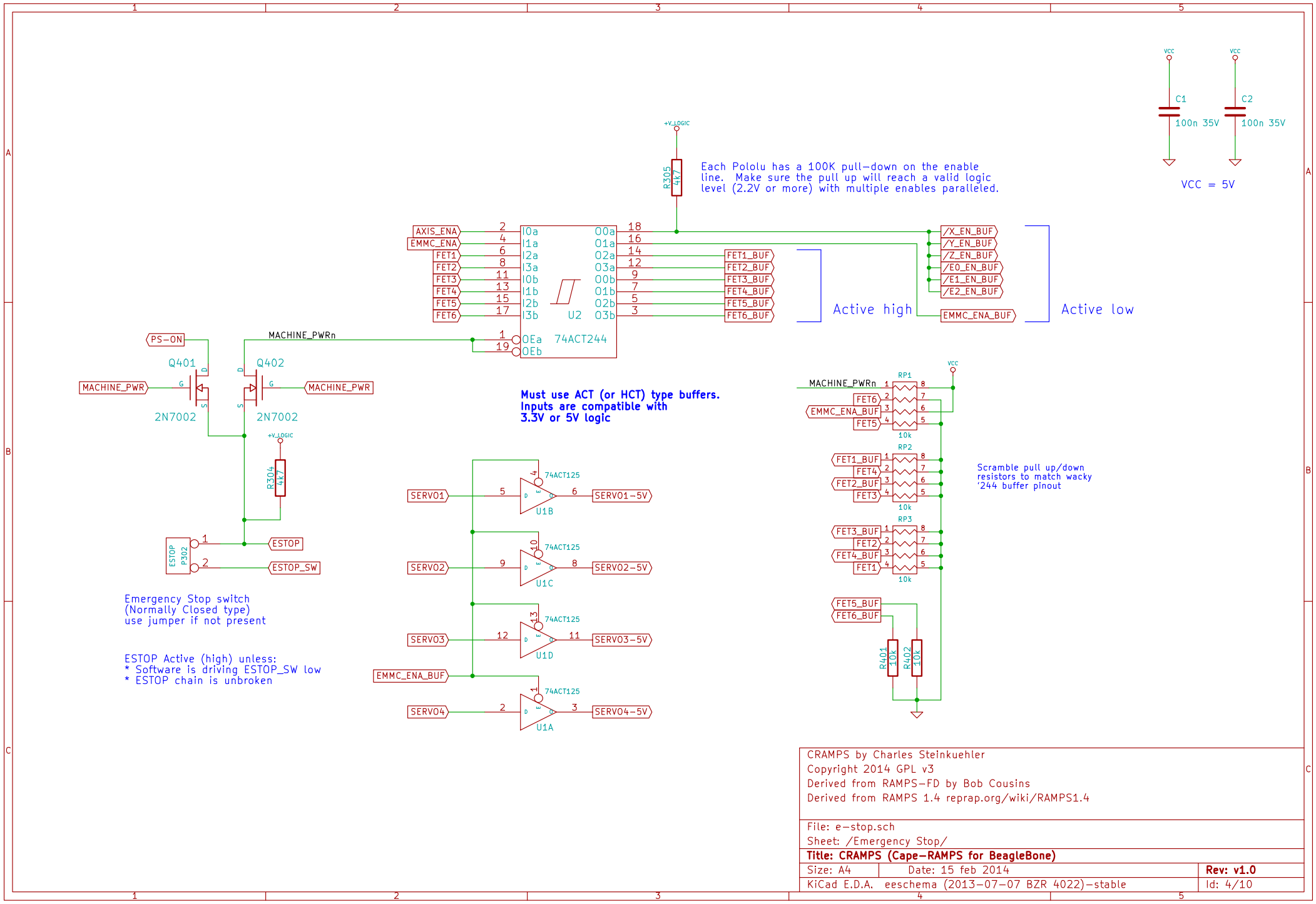
VCC
C1
100n 35V
C2
100n 35V
VCC = 5V
+V_LOGIC
R305
4k7
Each Pololu has a 100K pull-down on the enable line. Make sure the pull up will reach a valid logic level (2.2V or more) with multiple enables paralleled.
AXIS_ENA
EMMC_ENA
FET1
FET2
FET3
FET4
FET5
FET6
I0a
I1a
I2a
I3a
I0b
I1b
I2b
I3b
U2
O0a
O1a
O2a
O3a
O0b
O1b
O2b
O3b
OEa
OEb
74ACT244
FET1_BUF
FET2_BUF
FET3_BUF
FET4_BUF
FET5_BUF
FET6_BUF
Active high
/X_EN_BUF
/Y_EN_BUF
/Z_EN_BUF
/E0_EN_BUF
/E1_EN_BUF
/E2_EN_BUF
EMMC_ENA_BUF
Active low
PS-ON
MACHINE_PWRn
Q401
Q402
MACHINE_PWR
2N7002
2N7002
MACHINE_PWR
Must use ACT (or HCT) type buffers.
Inputs are compatible with
3.3V or 5V logic
R304
4k7
ESTOP
P302
ESTOP
ESTOP_SW
Emergency Stop switch
(Normally Closed type)
use jumper if not present
ESTOP Active (high) unless:
* Software is driving ESTOP_SW low
* ESTOP chain is unbroken
SERVO1
SERVO2
SERVO3
SERVO4
74ACT125
U1B
U1C
U1D
U1A
SERVO1-5V
SERVO2-5V
SERVO3-5V
SERVO4-5V
EMMC_ENA_BUF
RP1
RP2
RP3
10k
Scramble pull up/down resistors to match wacky '244 buffer pinout
R401
10k
R402
10k
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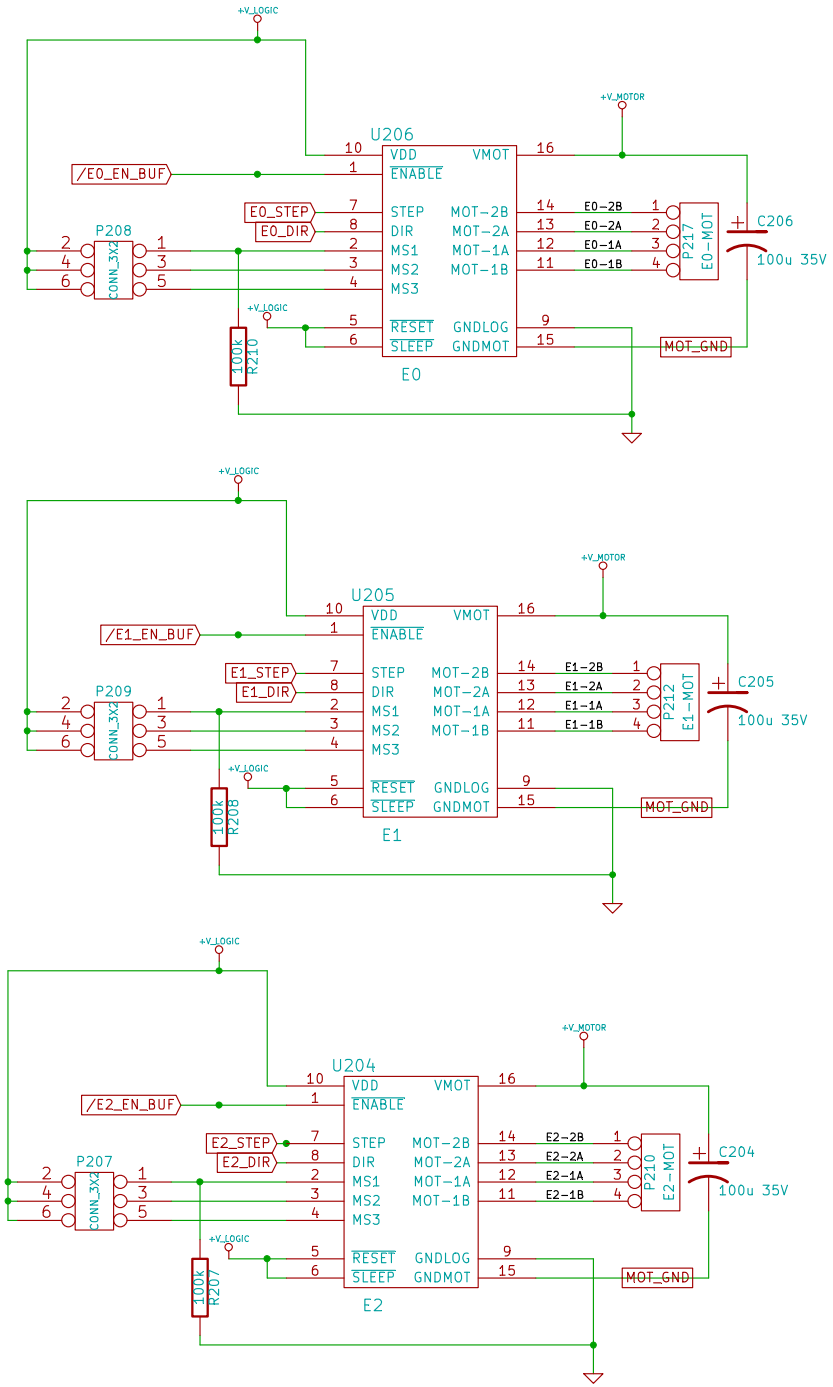
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4
File: e-stop.sch
Sheet: /Emergency Stop/
Title: CRAMPS (Cape-RAMPS for BeagleBone)
Size: A4
Date: 15 feb 2014
Rev: v1.0
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable
Id: 4/10



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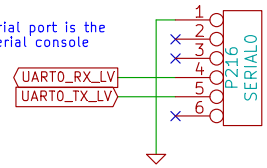
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: steppers2.sch		
Sheet: /Stepper Drivers 2/		
Title: CRAMPS (Cape-RAMPS for BeagleBone)		
Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 5/10

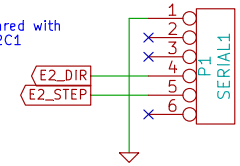
Only I/O indicated with a –5V suffix are 5V tolerant.
Do not exceed 3.3V on any other signals.
Analog signals may not exceed 1.8V

Serial

Note:
This serial port is the
main serial console

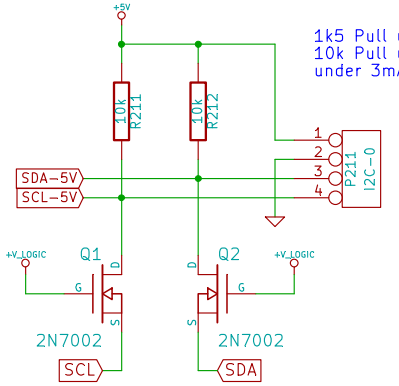


Note:
Signals shared with
Ext2 and I2C1

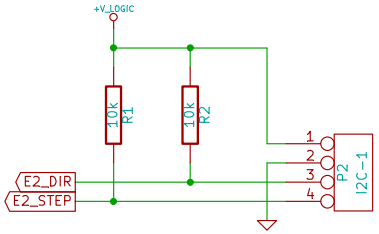


I2C

1k5 Pull ups on Due
10k Pull up to 5V keeps current
under 3mA per I2C spec.



Level translation per I2C specification 2.1 Section 18

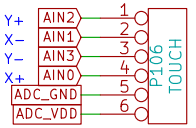


Note:
Signals shared with
UART1 and I2C1

Aux connectors

Aux2 – Analog

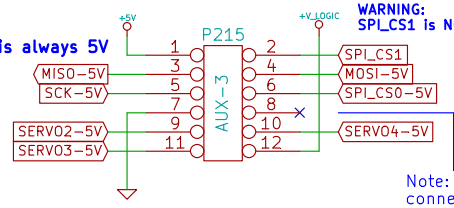
Resistive Touch Screen



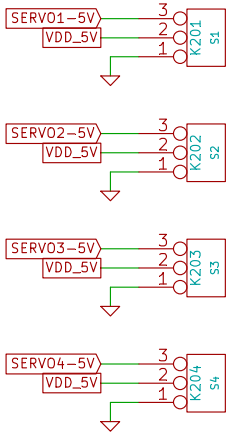
Aux3 – SPI

NB This pin is always 5V

WARNING:
SPI_CS1 is NOT 5V Tolerant!

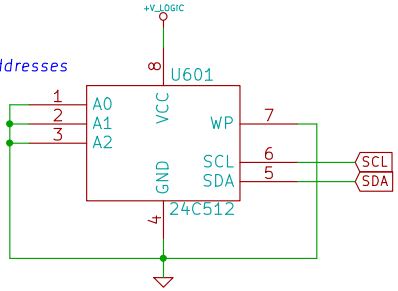


Note: Some addon boards
connect this pin to GND.



Servos

Might want to
allow other addresses



EEPROM

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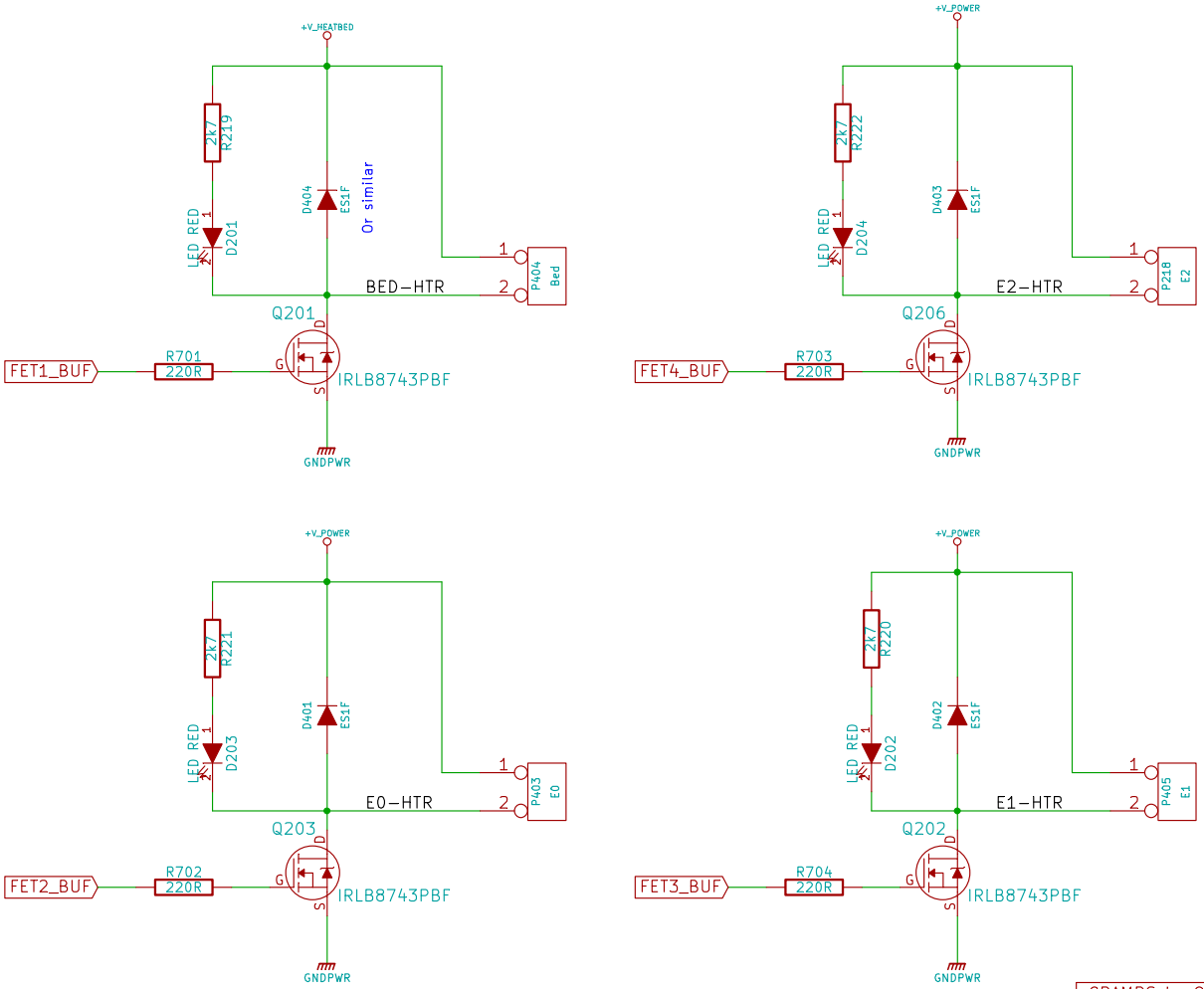
File: con_misc.sch
Sheet: /Misc Connectors/

Title: CRAMPS (Cape–RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A.	eeschema (2013–07–07 BZR 4022)–stable	Id: 6/10

MOSFET Outputs

Non-inverting drivers



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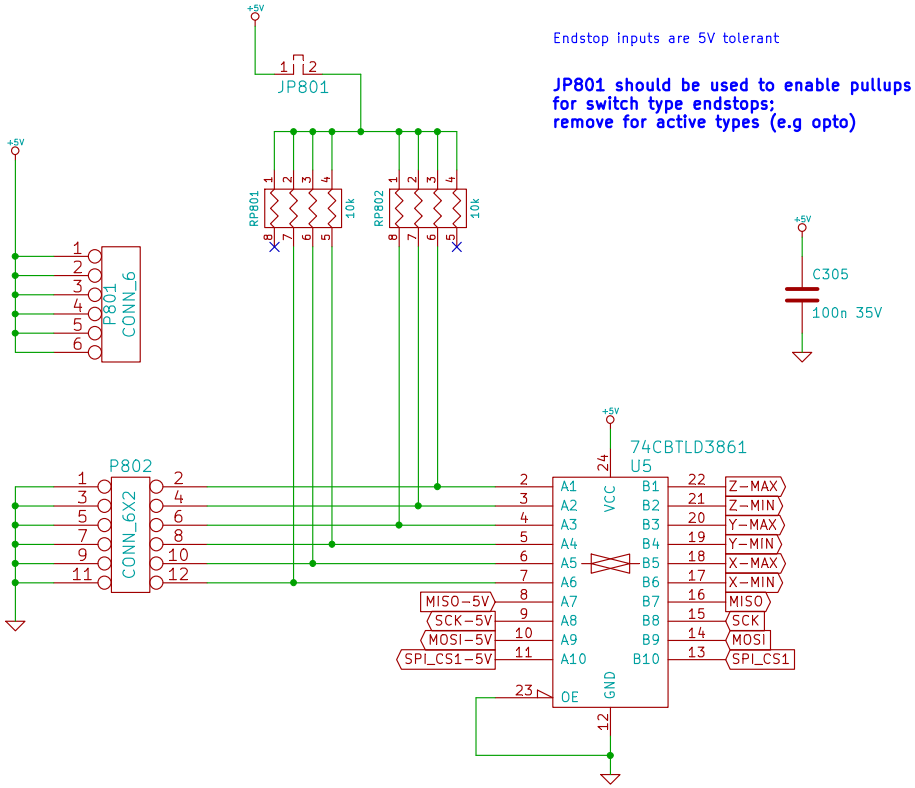
Derived from RAMPS-FD by Bob Cousins
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: con_outputs.sch
Sheet: /Mosfet Outputs/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A.	eeschema (2013-07-07 BZR 4022)-stable	Id: 7/10

Endstops



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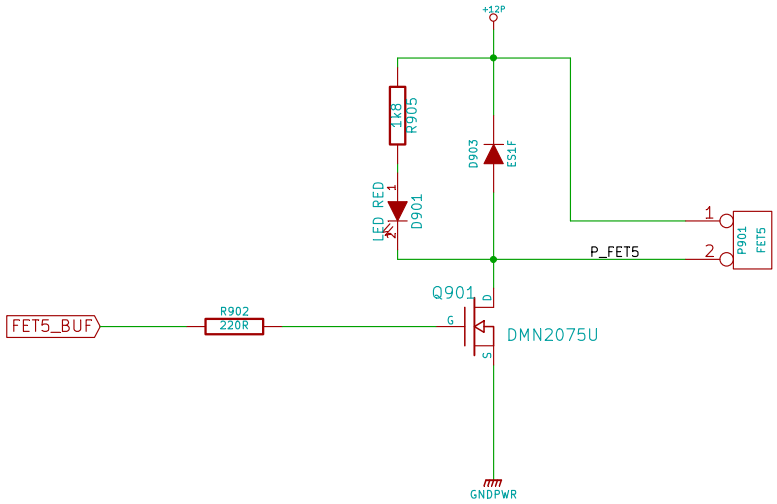
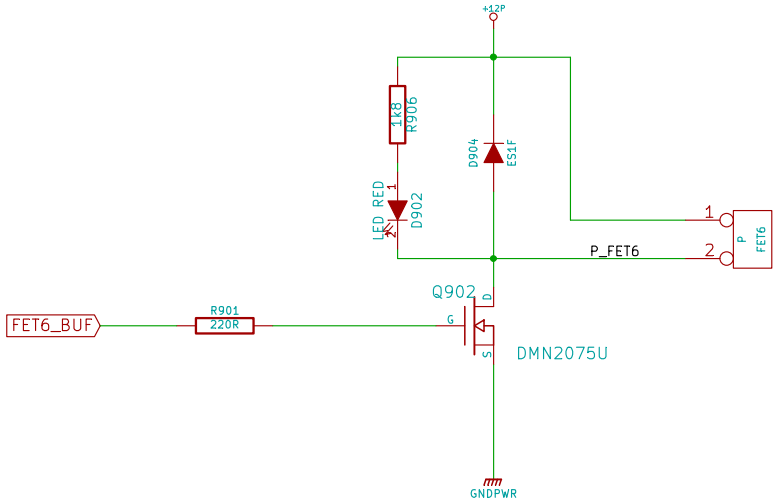
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: con_inputs.sch
Sheet: /Endstop Inputs/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A.	eeschema (2013-07-07 BZR 4022)-stable	Id: 8/10





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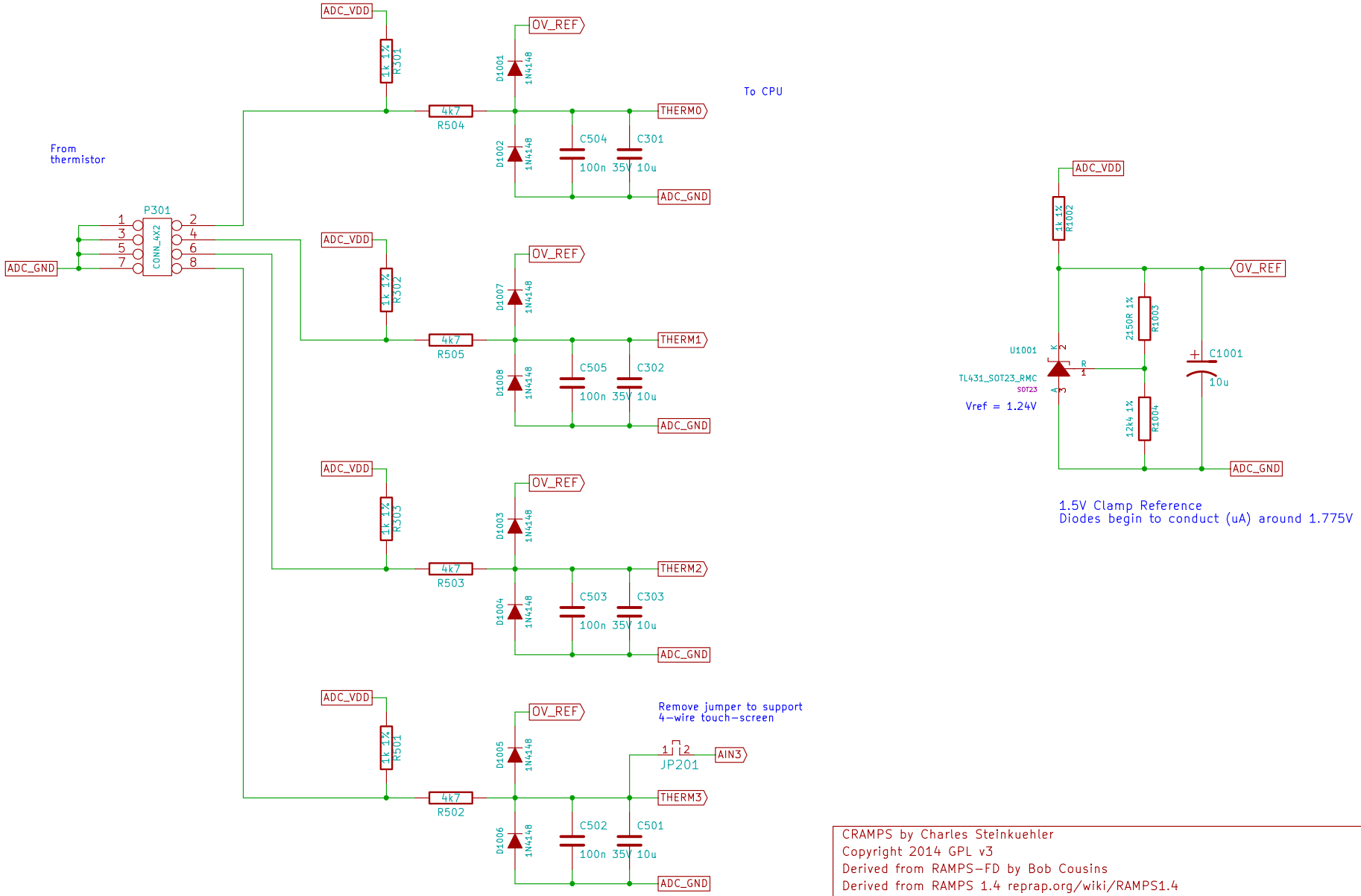
Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

File: Extra_Mosfets.sch
Sheet: /Extra MOSFETs/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A.	eeschema (2013-07-07 BZR 4022)-stable	Id: 9/10

Thermistor Inputs



1.5V Clamp Reference
Diodes begin to conduct (uA) around 1.775V

File: thermistor_inputs.sch		
Sheet: /Thermistor inputs/		
Title: CRAMPS (Cape-RAMPS for BeagleBone)		
Size: A4	Date: 15 feb 2014	**Rev: v1.0**
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 10/10