

Alternate stacking BeagleBone Headers:
MajorLeague SSHQ-123-D-08-GT-LF
Samtec SSQ-123-03-T-D (Tin)
Samtec SSQ-123-03-G-D (Gold)

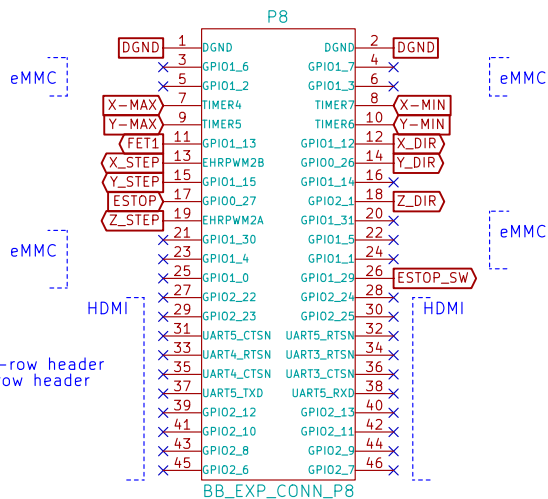
Or use plain pin headers if you do not require additional expansion capes

To save money on all the pin headers when buying parts for a few boards, you can get large breakaway headers instead of the individual parts. You will need a total of:

57 pins of single-row header
74 pins of dual-row header

Which you can get using

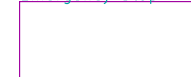
- (2) Harwin M20-9993645 36-pin single-row header
- (2) Harwin M20-9983645 72-pin dual-row header



Stepper Drivers



Emergency Stop



Inputs

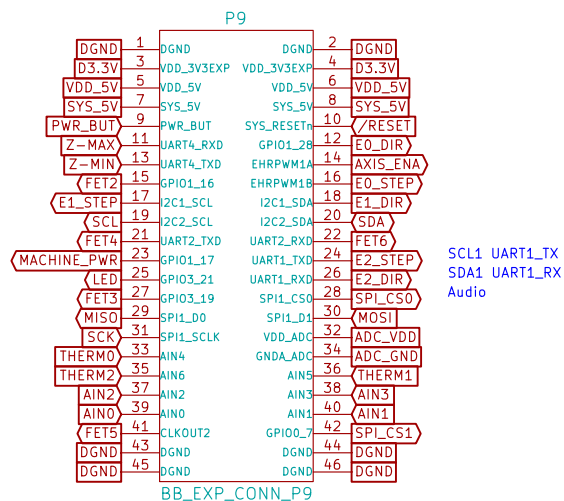


Mosfet Outputs

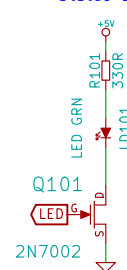


24.576MHz Audio

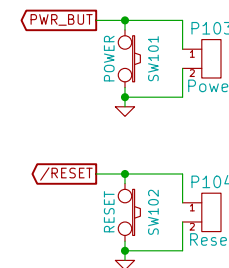
Audio
Audio



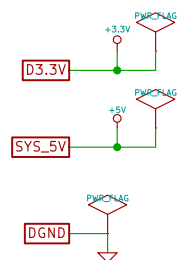
Status LED



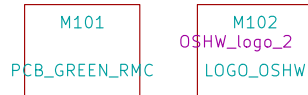
BB Turned On



BeagleBone Logic supply is always 3.3V



SYS_5V: Low-current supply
Active when BeagleBone is running



CRAMPS by Charles Steinkuehler and Murray Lindeblom
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Derived from RAMPS-FD by Bob Cousins
Derived from RAMPS 1.4 rewrap.org/wiki/RAMPS1.4

File: CRAMPS.sch

Sheet: /

Title: CRAMPS (Cape-RAMPS for BeagleBone)

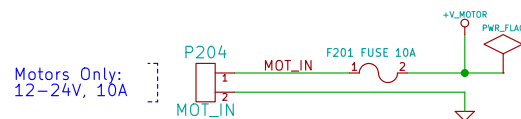
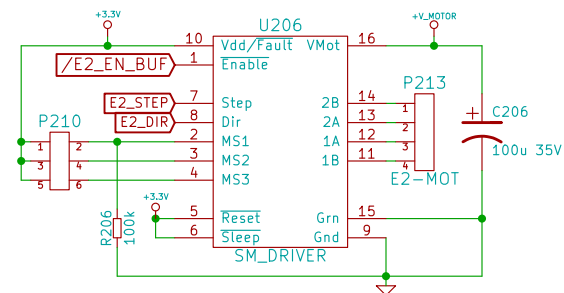
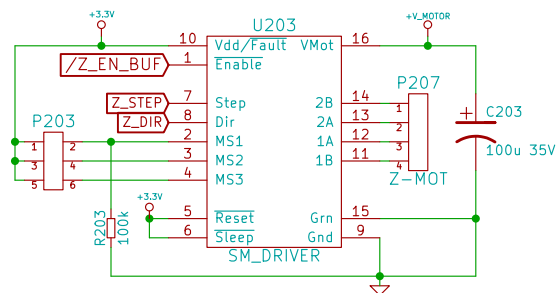
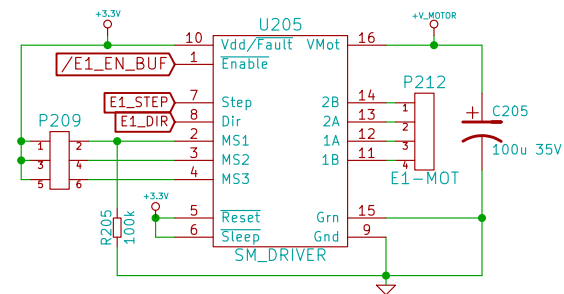
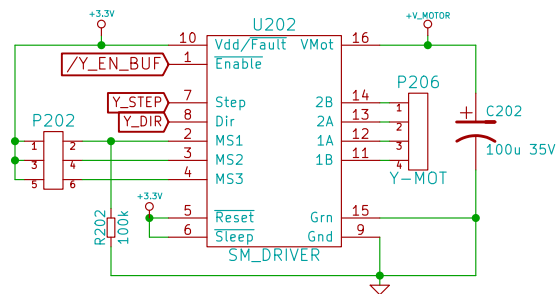
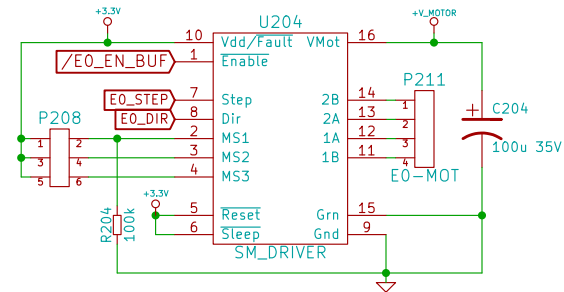
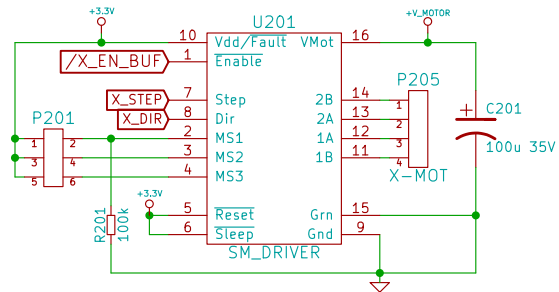
Size: A

Date: 4 apr 2014

Rev: v1.0

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Id: 1/5

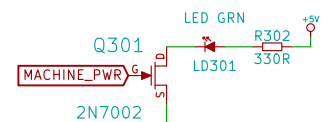


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File: steppers.sch
 Sheet: /Stepper Drivers/
 Title: CRAMPS (Cape-RAMPS for BeagleBone)

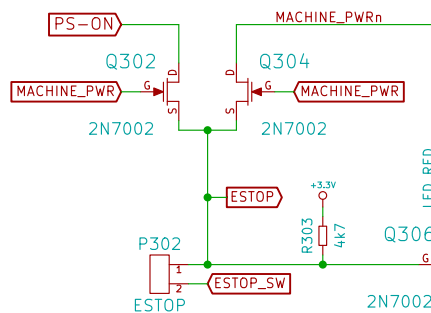
Size: A Date: 4 apr 2014
 KiCad E.D.A.

Rev: v1.0
 Id: 2/5



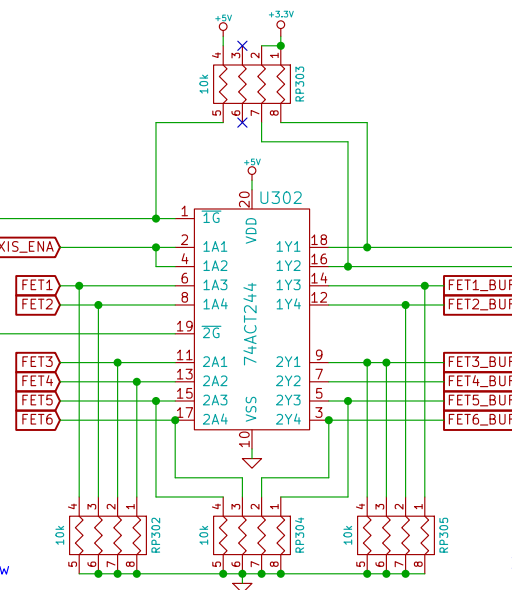
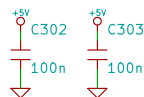
Machine Power Status

ATX Power On



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

ESTOP Active (high) unless:
* ESTOP chain is unbroken
* Software is driving ESTOP_SW low



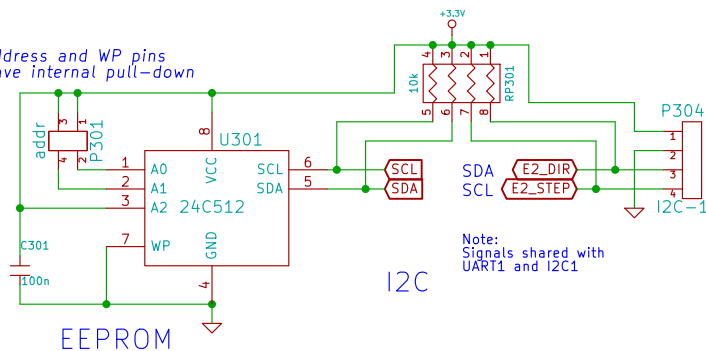
Each Pololu has a 100K pull-down on the enable line. Make sure the pull up will reach a valid logic level (2.2V or more) with multiple enables paralleled.

Active high

Active low

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

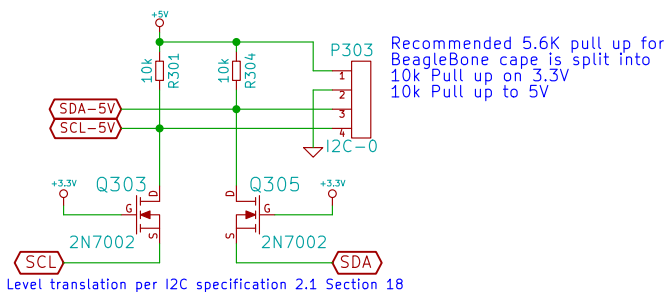
Address and WP pins have internal pull-down



EEPROM

I2C

Note:
Signals shared with
UART1 and I2C1



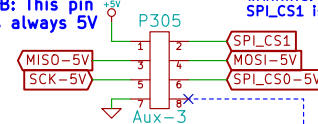
Level translation per I2C specification 2.1 Section 18

Recommended 5.6K pull up for
BeagleBone cape is split into
10k Pull up on 3.3V
10k Pull up to 5V

Aux connectors

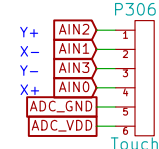
Aux3 - SPI

NB: This pin is always 5V



WARNING:
SPLCS1 is NOT 5V Tolerant!

Aux2 - Analog Resistive Touch Screen



Note: Some addon boards connect this pin to GND.

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File: e-stop.sch
Sheet: /Emergency Stop/
Title: CRAMPS (Cape-RAMPS for BeagleBone)

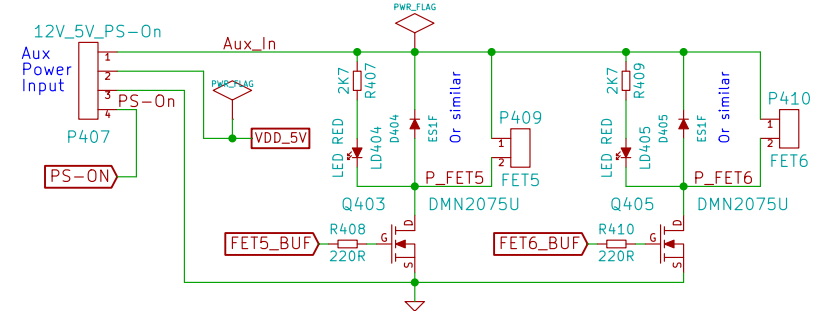
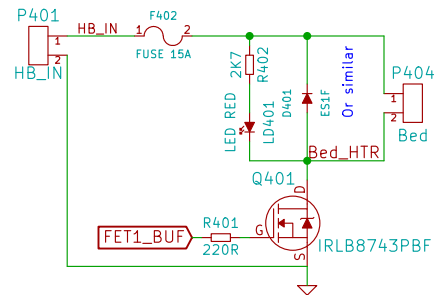
Size: A Date: 4 apr 2014
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Rev: v1.0
Id: 3/5

MOSFET Outputs

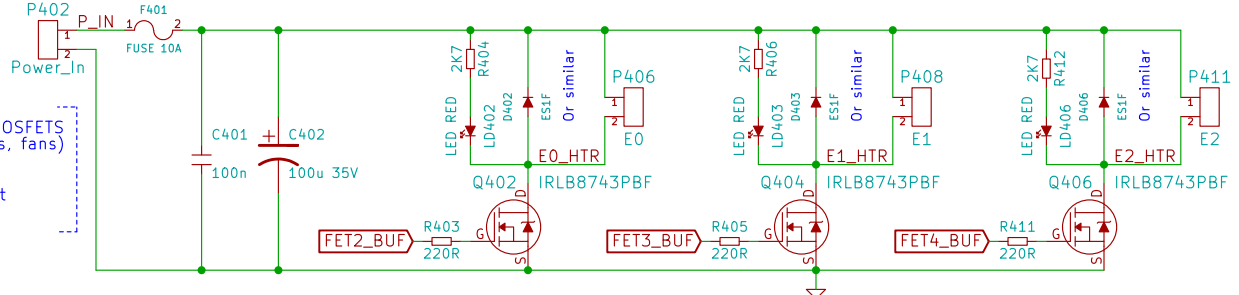
Non-inverting drivers

Heatbed Only:
12-24V, 15A



Medium power MOSFETS
(extruder heaters, fans)

12V to 24V input



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File: con_outputs.sch

Sheet: /Mosfet Outputs/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A

Date: 4 apr 2014

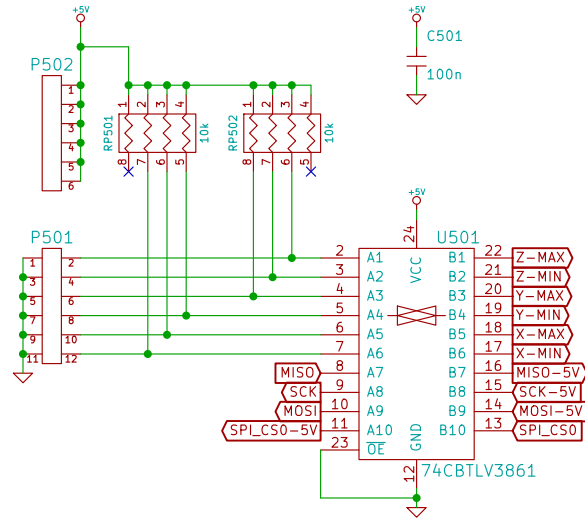
Rev: v1.0

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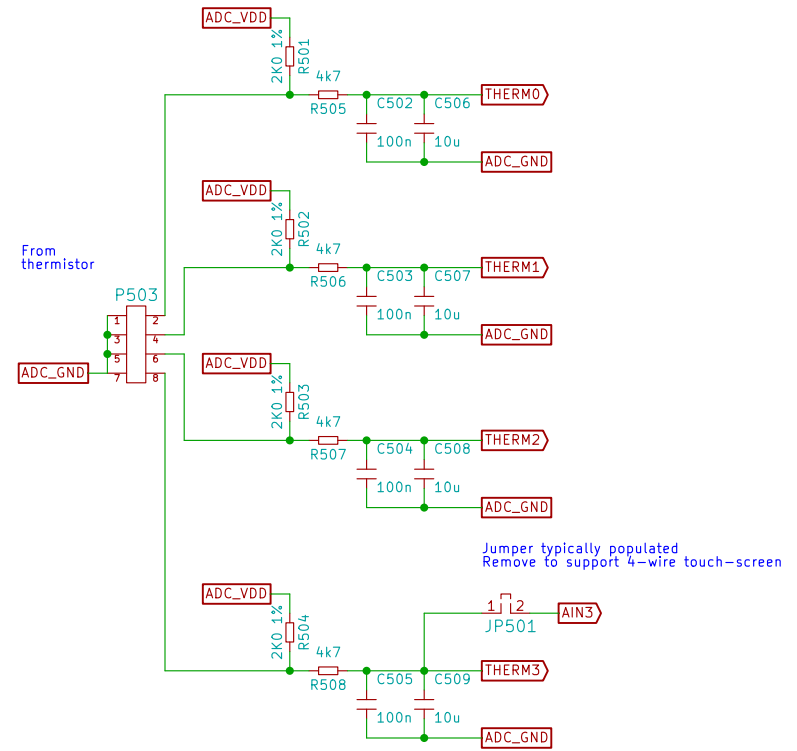
Id: 4/5

Endstops

Endstop inputs are 5V tolerant



Thermistor Inputs



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

File: con_inputs.sch

Sheet: /Inputs/

Title: CRAMPS (Cape-RAMPS for BeagleBone)

Size: A

Date: 4 apr 2014

Rev: v1.0

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Id: 5/5