PGA2350B

File: PGA2350B.kicad_sch

Ethernet

File: Ethernet.kicad_sch

Stepper Output

File: StepperOutput.kicad_sch

Misc IO

File: MiscIO.kicad_sch

Spindle

File: Spindle.kicad_sch

Limit and Control inputs

File: LimitandControlInputs.kicad_sch

DigitalIO and Relays

File: DigitalIO and Relays.kicad_sch

Power

File: power.kicad_sch

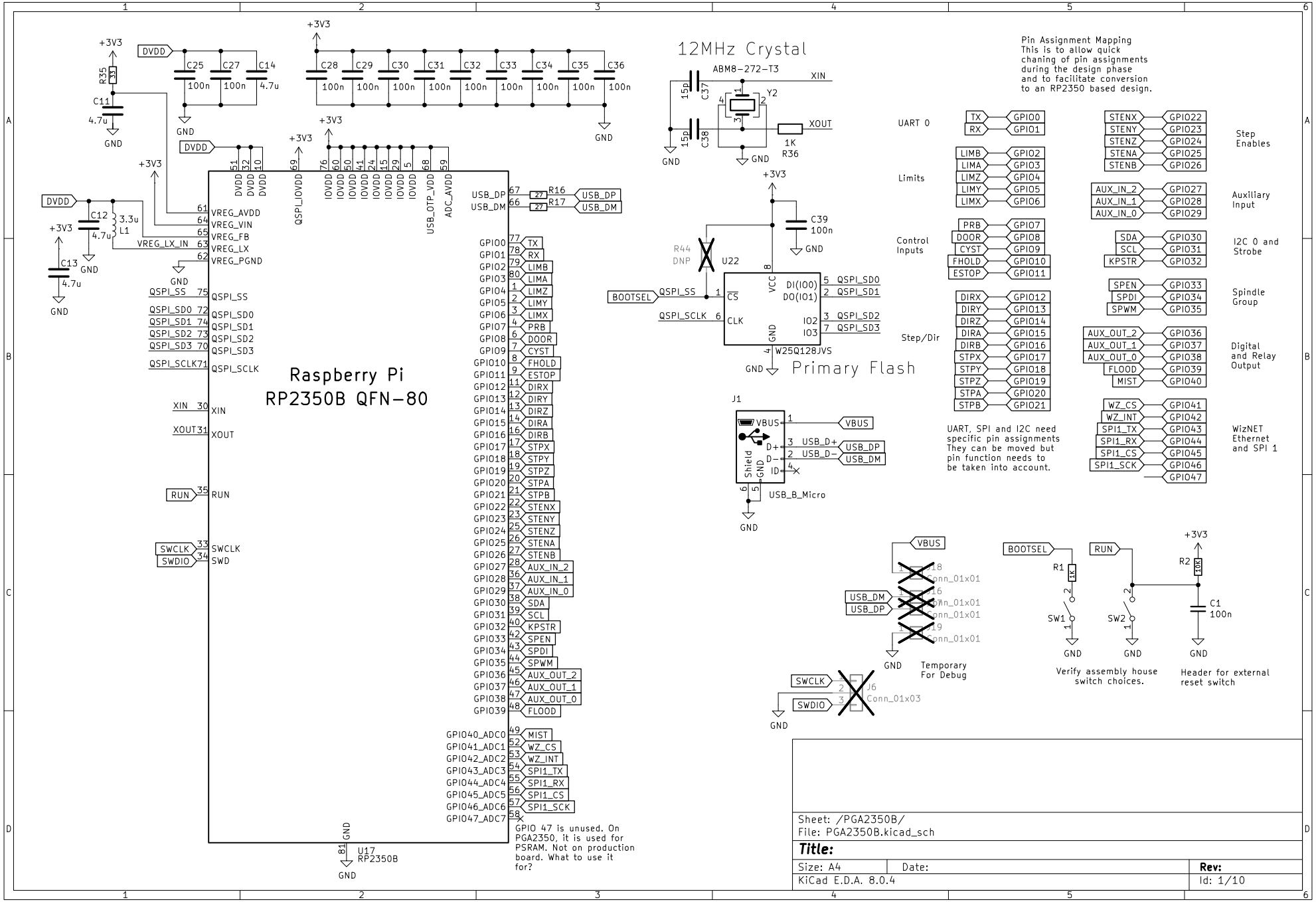
Servo_error

File: servo_error.kicad_sch

Sheet: /
File: PGA2350.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. 8.0.4		Id: 1/10


Raspberry Pi
RP2350B QFN-80
12MHz Crystal
ABM8-272-T3
Primary Flash
W25Q128JVS
USB_B_Micro
Pin Assignment Mapping
This is to allow quick chaning of pin assignments during the design phase and to facilitate conversion to an RP2350 based design.
UART 0
Limits
Control Inputs
Step/Dir
Step Enables
Auxiliary Input
I2C 0 and Strobe
Spindle Group
Digital and Relay Output
WizNET Ethernet and SPI 1
UART, SPI and I2C need specific pin assignments They can be moved but pin function needs to be taken into account.
Temporary For Debug
Verify assembly house switch choices.
Header for external reset switch
GPIO 47 is unused. On PGA2350, it is used for PSRAM. Not on production board. What to use it for?
Sheet: /PGA2350B/
File: PGA2350B.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. 8.0.4
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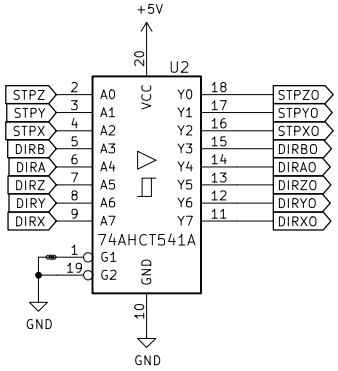
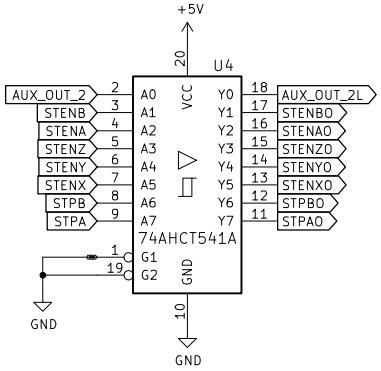
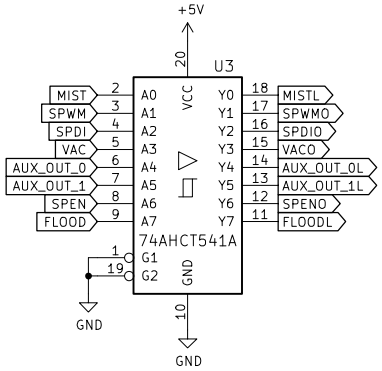
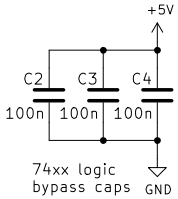


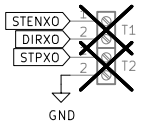


Digital output section. 3.3V inputs, 5V outputs. Use of AHCT logic allows this. Drive capability of 8mA.

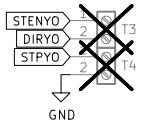




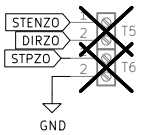
74xx logic bypass caps



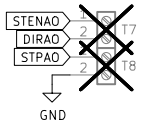
X Axis driver interface.



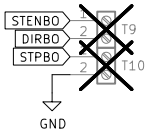
Y Axis driver interface.



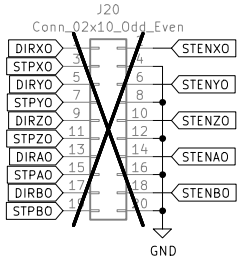
Z Axis driver interface.



A Axis driver interface.



B Axis driver interface.



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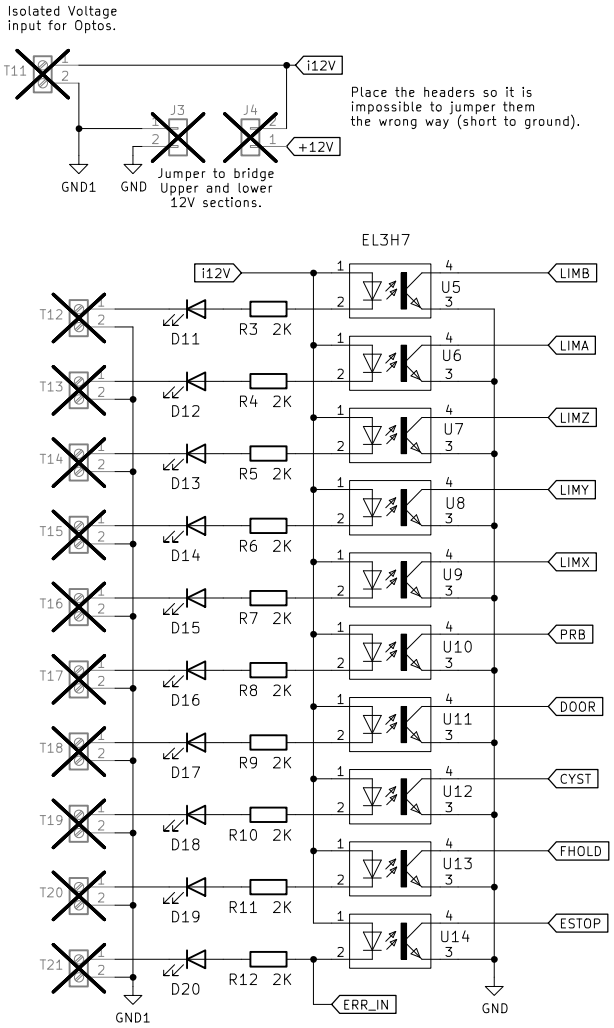
KiCad E.D.A. 8.0.4		Id: 1/10



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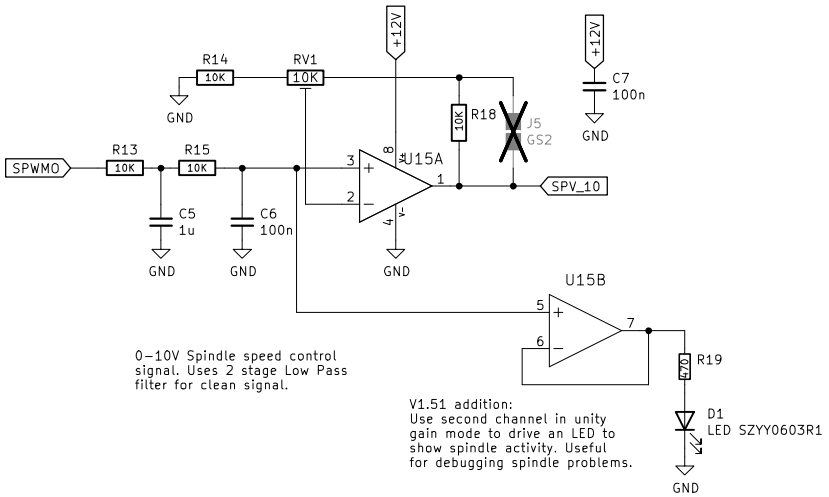
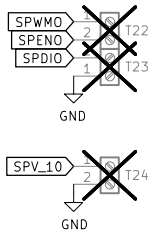
Size: A4	Date:	**Rev:**
KiCad E.D.A. 8.0.4		Id: 1/10





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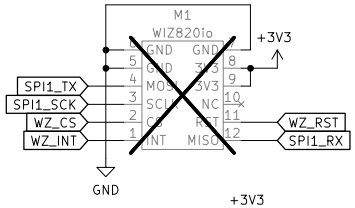
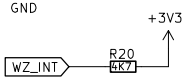
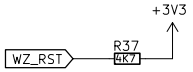




The WZ850io datasheet shows a pullup resistor on it but there have been reports of instability when WZ_INT does not have the additional pullup resistor. So, included out of caution — the additional pullup does not seem to hurt.

Wiz820io used here is technically the Wiz850io. Marketed as being compatible with the Wiz820io, it uses the W5500 chip. The Wiz820io uses the W5200 chip and is not supported.

Yes, it is confusing — just make sure the module has a W5500 on it.



RST is held high. Need to make sure that there will not be a case where RST (active low) is needed. Evaluate if a higher value (10K) is better.

Sheet: /Ethernet/ File: Ethernet.kicad_sch		
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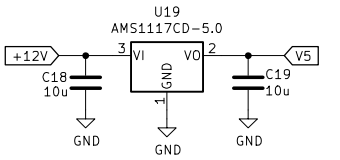
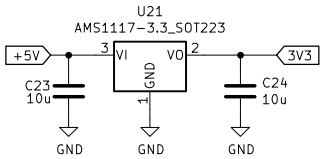
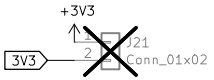
Size: A4	Date:	**Rev:**
KiCad E.D.A. 8.0.4		Id: 1/10

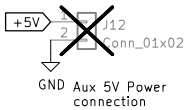


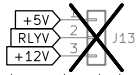


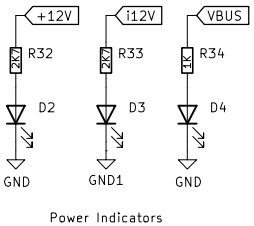
5V bypass to allow USB VBUS +5V for testing. Remove for production PCB? Convert to solder jumper?

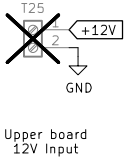


3V3 bypass to allow external 3.3V for testing. Remove for production PCB and connect to +3V3.









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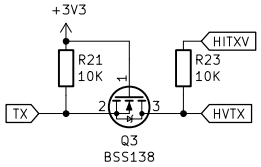
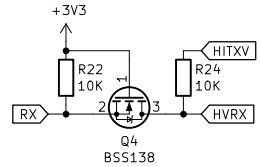
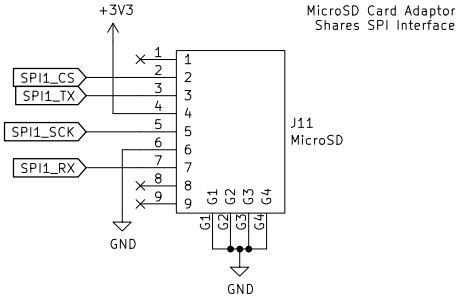
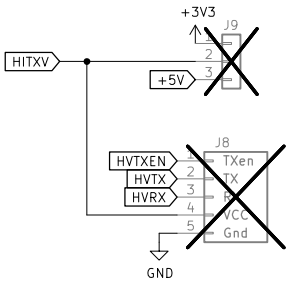
KiCad E.D.A. 8.0.4		Id: 1/10

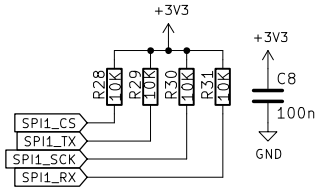


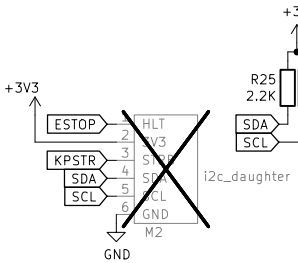


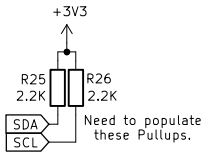




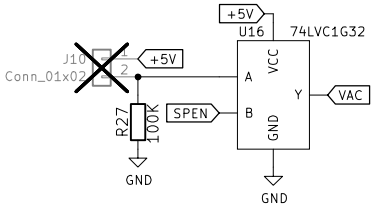
UART 0 support. Adds standard mounting holes.







I2C Daughter card header. Adds standerd mounting holes.



Independent Control for Dust Extractor. A switch attached to the pin header can turn on the DE separately from the spindle.

Sheet: /Misc IO/		
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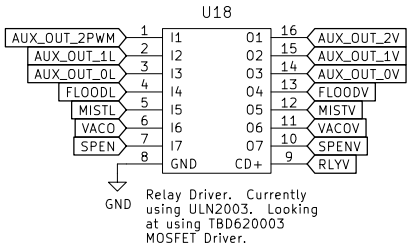
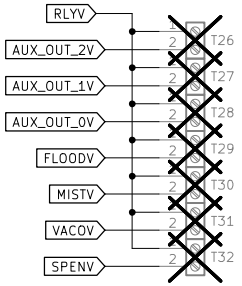
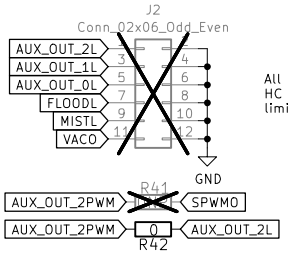
Size: A4	Date:	**Rev:**
KiCad E.D.A. 8.0.4		Id: 1/10



Relay Driver. Currently using ULN2003. Looking at using TBD620003 MOSFET Driver.

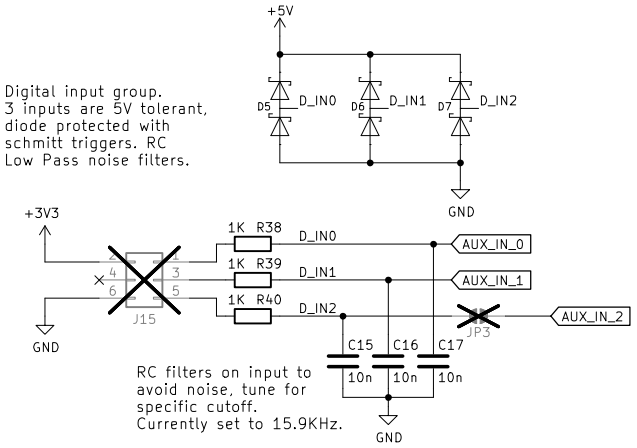




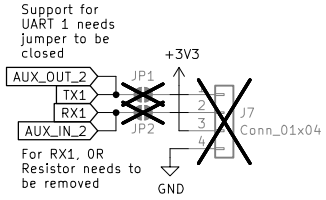
All these outputs have HC level drive capability. limited to 6mA.

Resistor for spindle PWM input to allow ULN2003 AUX_OUT_2 to drive 12V PWM loads (like lasers). Default is AUX_OUT_2 output.

Digital input group. 3 inputs are 5V tolerant, diode protected with schmitt triggers. RC Low Pass noise filters.



RC filters on input to avoid noise, tune for specific cutoff. Currently set to 15.9KHz.



UART 1 alternate needs jumper configuration

Sheet: /DigitalIO and Relays/ File: DigitalIO and Relays.kicad_sch		
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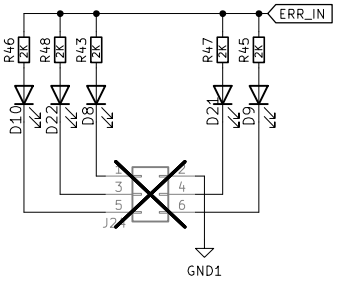
KiCad E.D.A. 8.0.4		Id: 1/10



Sheet: /Servo_error/		
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