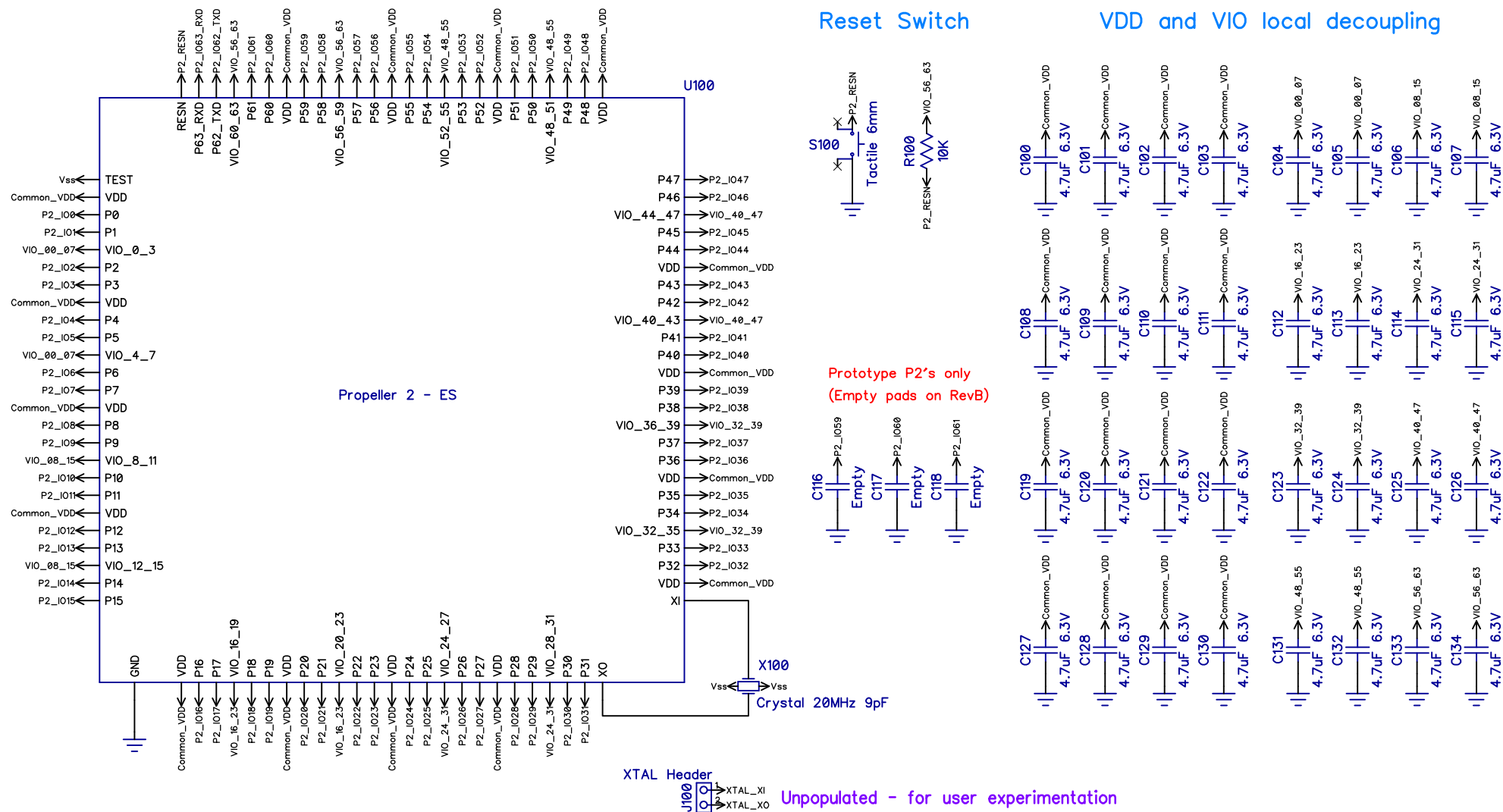


Microcontroller



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 (916) 624-8333
<http://www.parallax.com/>

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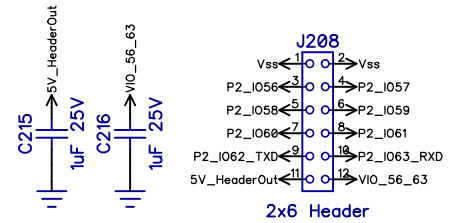
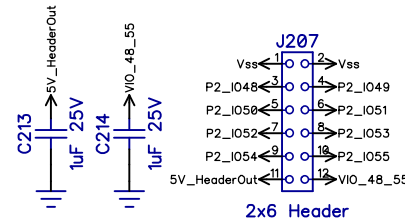
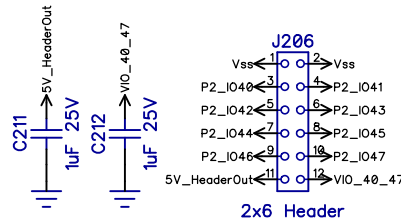
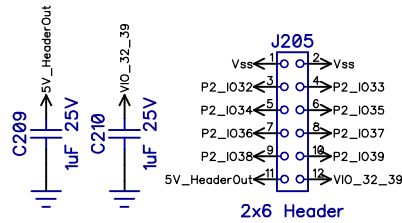
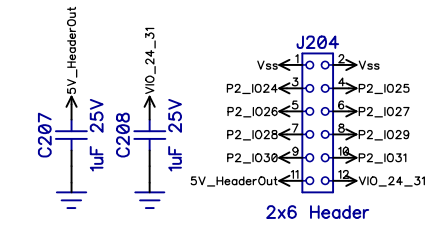
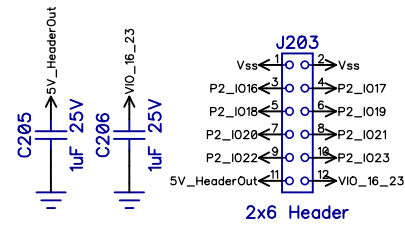
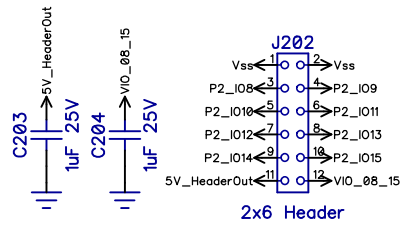
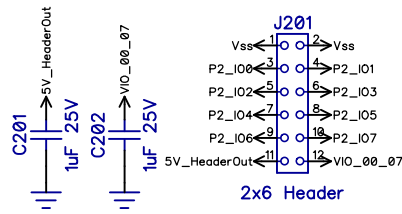
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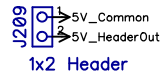
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I/O Headers

Edge expansion headers



Voltage Selection/Disable for Header 5V pins



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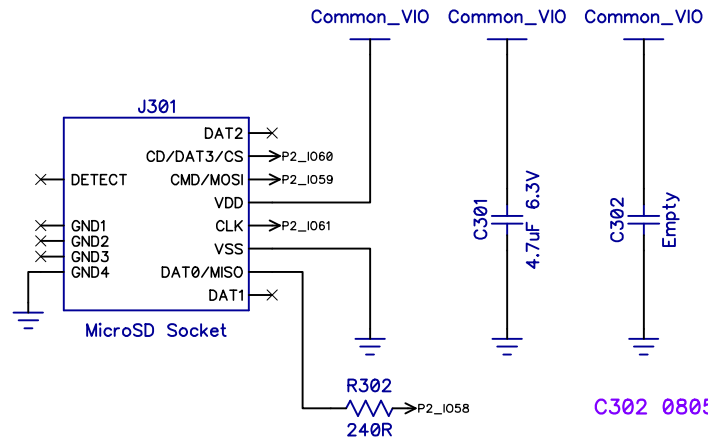
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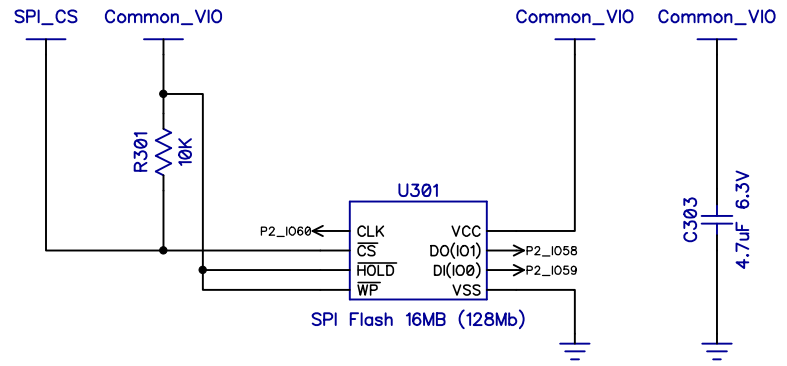
Memory

MicroSD



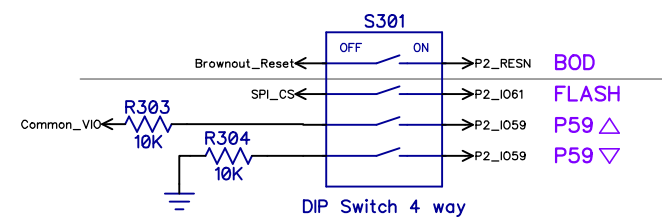
C302 0805 footprint included for SD testing

SPI Flash



Boot Mode Selection	FLASH	P59 \triangle	P59 ∇
Serial window of 60 seconds, default. (When SD card is NOT inserted)	OFF	OFF	OFF
Serial window of 60 seconds, overrides SPI Flash and SD card.	ON or OFF	ON	OFF
Serial window of 100 ms, then SPI flash. If SPI flash fails then serial window of 60 seconds.	ON	OFF	OFF
SPI flash only (fast boot), no serial window. If SPI flash fails then shutdown.	ON	OFF	ON
SD card with serial window on failure. If SD card fails then serial window of 60 seconds.	OFF	OFF	OFF
SD card only, no serial window. If SD card fails then shutdown.	OFF	OFF	ON

Boot options and "BOD" brownout enable switch



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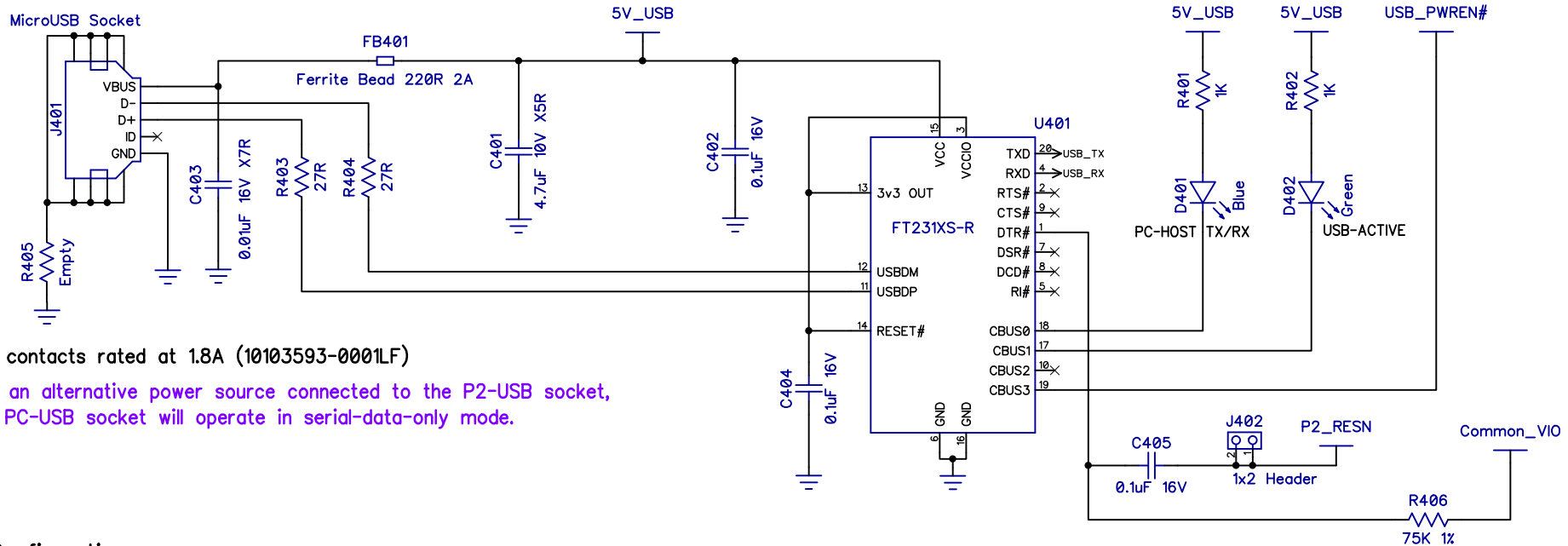
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USB PC Socket

PC-USB power socket and P2-to-PC serial data



USB contacts rated at 1.8A (10103593-0001LF)

With an alternative power source connected to the P2-USB socket, this PC-USB socket will operate in serial-data-only mode.

FTDI Configuration

CBUS0 = TX&RXLED

CBUS1 = PWREN#

CBUS2 = TriState

CBUS3 = PWREN#

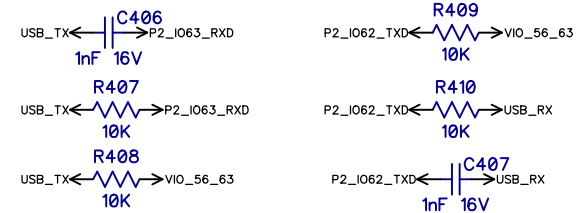
USB Config / MaxPower = 500mA

Manufacturer = Parallax Inc

Product Description = Propeller P2-EVAL-ES

Set CBUS3 to Tristate to disable PC-USB power (ie. Serial comms only via USB socket)

J402 - Allow DTR disable AND/OR remote control of RESN



Pull-up serial bus to prevent floating-state terminal chars
 Include series to prevent parasitic power in either direction
 Keep as single components to allow high-speed testing. (PASS > 3MBaud)

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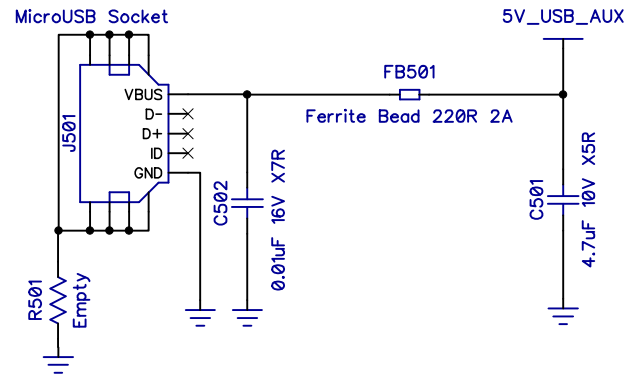
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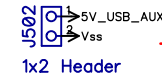
USB Aux Power Socket

P2-USB high current power socket and P2 USB data



USB contacts rated at 1.8A (10103593-0001LF)

Auxiliary power header pads (unpopulated)



These pads are unprotected! Proceed at your own risk!
Unpopulated pads - Use with care !

The pads at J502 connect directly to the P2-AUX 5V input power rail.
Source power here, for example to power a fan, or power your P2-EVAL instead of from USB.

IF you use these pads to supply power to the P2-EVAL board,
you must ensure no other power source is connected to the P2-USB socket!
Do NOT exceed the maximum input voltage of 5.5V. Minimum input voltage is 4.5V

Use of J502 Auxiliary power header pads at USER OWN RISK!

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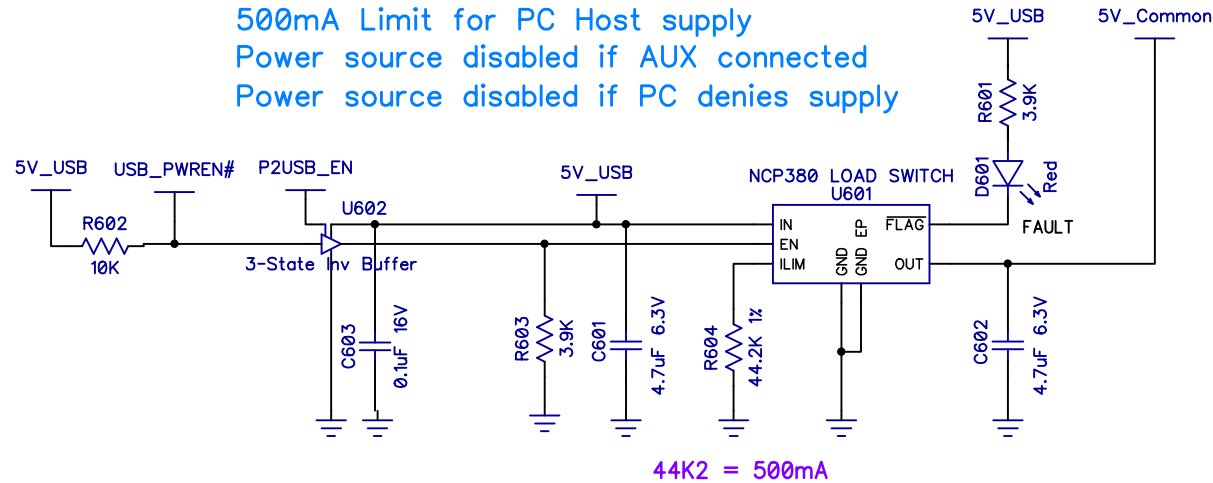
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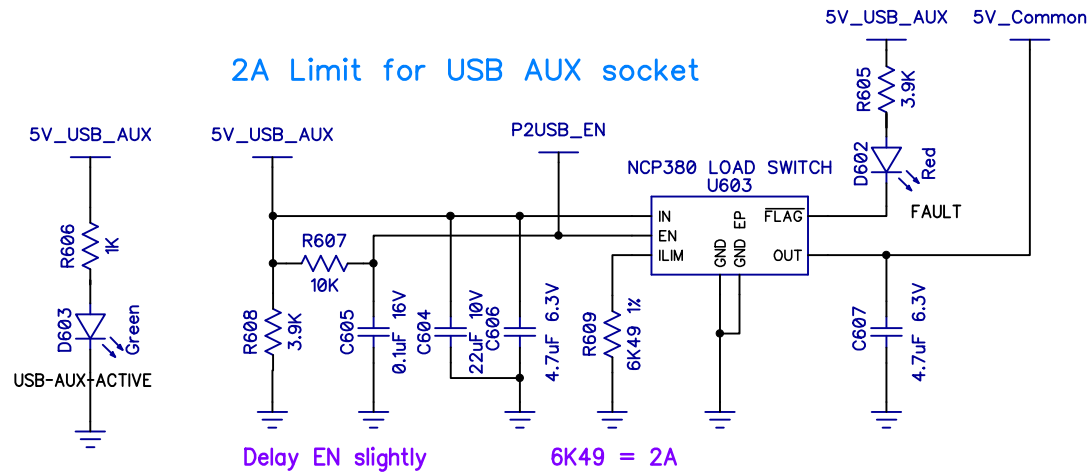
USB Current Limit and Logic

500mA Limit for PC Host supply
 Power source disabled if AUX connected
 Power source disabled if PC denies supply

FLAG maximum sink 1mA !!



2A Limit for USB AUX socket



3K9 discharge path and also holds OE(inv buffer) low

Safe to connect power sources to both USB sockets at the same time.
 USB Switches will source power from only one socket, AUX socket preferred.

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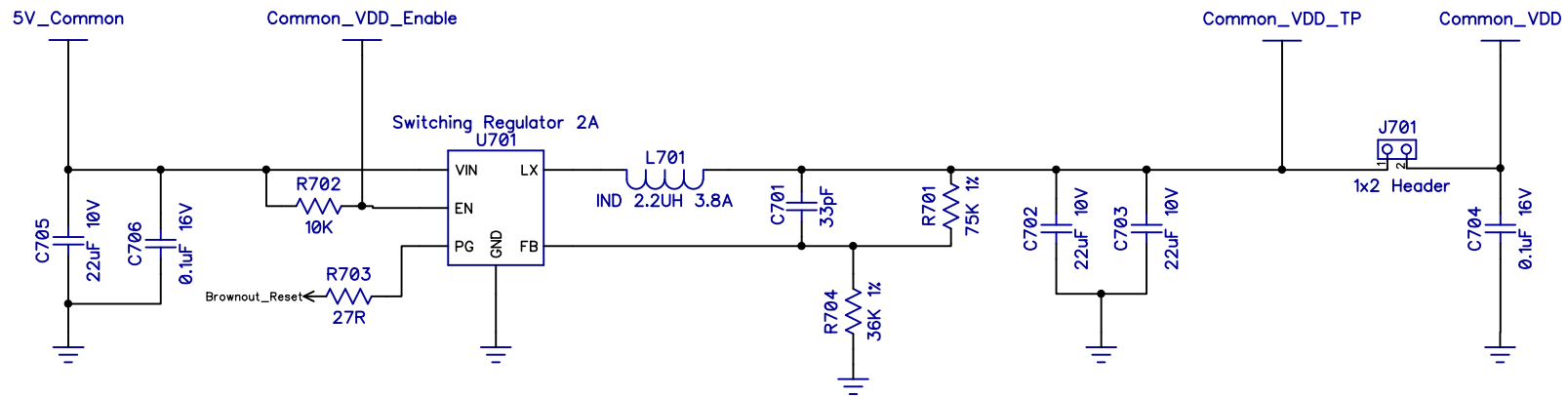
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Common VDD 1V8

VDD Power Supply - Nominal 1V8

Current Test Point VDD Male Header



AT USER RISK! External voltage source for P2-VDD could be injected at Common_VDD with shunt removed
DO NOT EXCEED 2.2V OR RISK PERMANENT DAMAGE!

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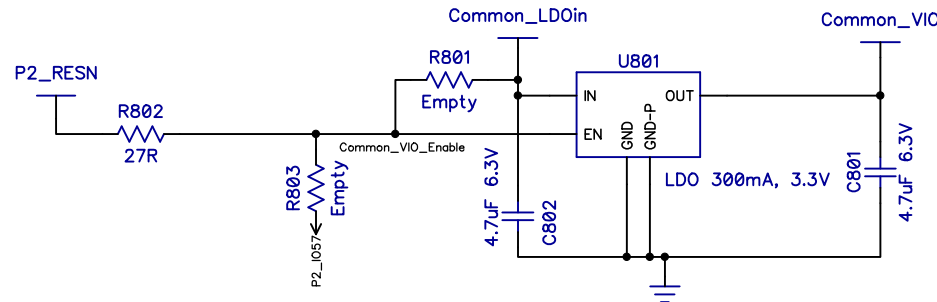
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VIO Power Supply - LDO 3V3 for Flash and SD card



Allow user to toggle SD card power from P2-I057

P2_RESn (Reset button press) will disable this LDO, to powercycle the Flash and SD card

Fast pulse on DTR will not provide reset

To disable this feature, remove R802 AND install suitable pullup resistor at R801 (10K, 0402 package suggested)

Optional configuration

R803 would allow user control of reset from P2 I057 (240 Ohm, 0402 package suggested)

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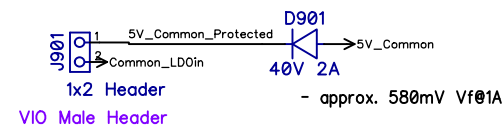
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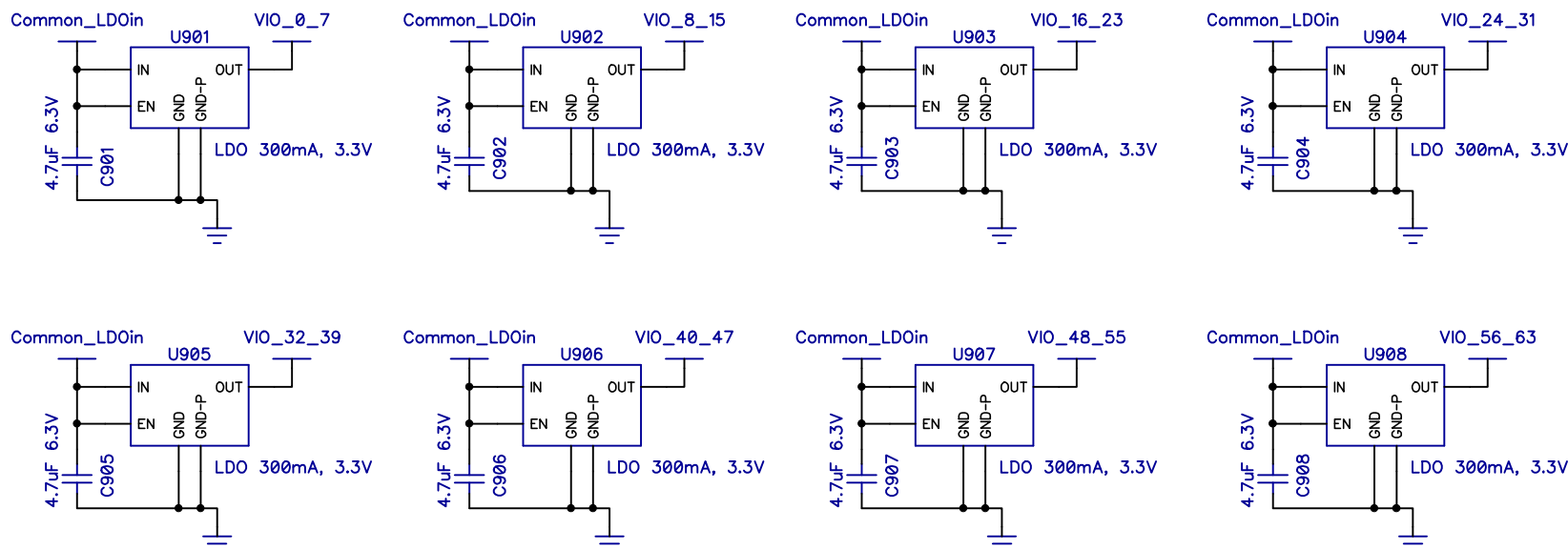
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Low noise VIO 3V3 local regulation



Note: LDO output caps located beside P2 microcontroller

These power sources ensure a fixed 3V3 low noise supply for each group of eight P2 smart pins.

A single high-current regulator could be used, but this design has some advantages, including:

- Less boardspace and lower part cost
- Thermal footprint spread over significantly larger area of copper
- Regulates directly to the power pins, removing power-path losses
- No requirement for local beads/caps for analog experiments, eliminates filtering losses
- Groups of IO's isolated from power supply cross-interference
- Limits power pin issues in each group from impacting others, including undervoltage, overvoltage and short-circuit protection

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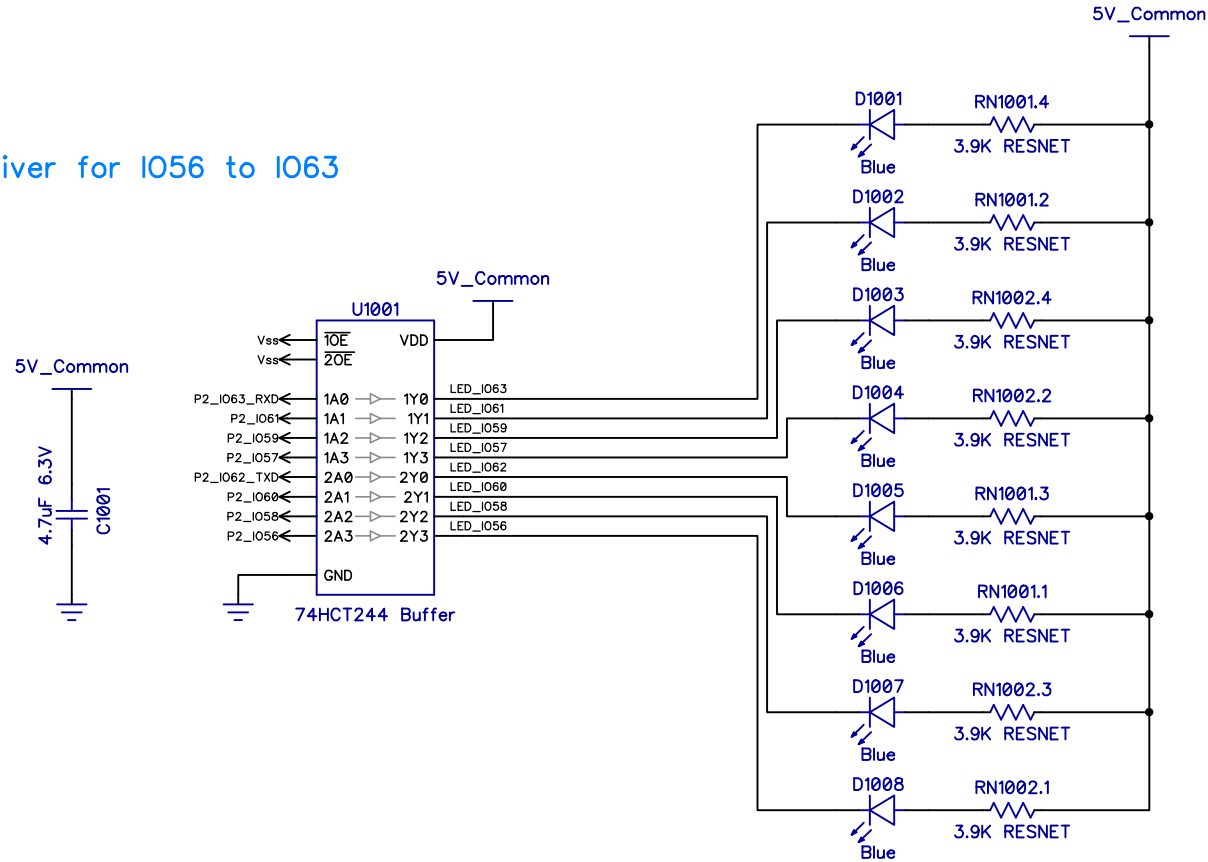
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LEDs

LED driver for IO56 to IO63



P2_IO56 to P2_IO63 are typically idle high and active low.

The LED's are wired such that they turn ON when the corresponding P2_IO pin asserts low.

Buffer input capacitance typically 3.5pF.

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Mounting holes

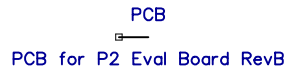


Mounting hole diameter 3.2mm
40mm hole spacing (56.56mm diagonal), suitable for 50mm fan

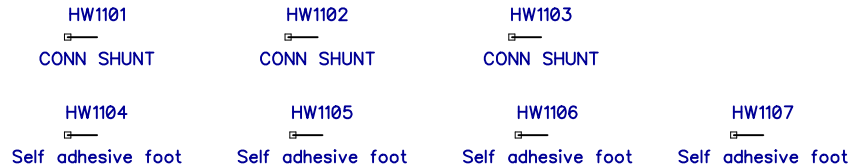
Gnd test points



BOM only - mfg



BOM only - kitted parts



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