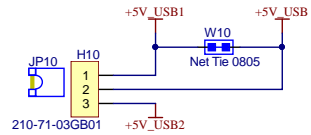
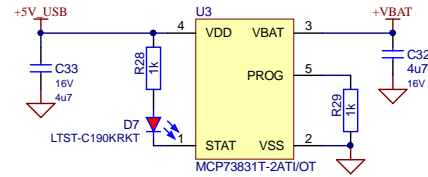


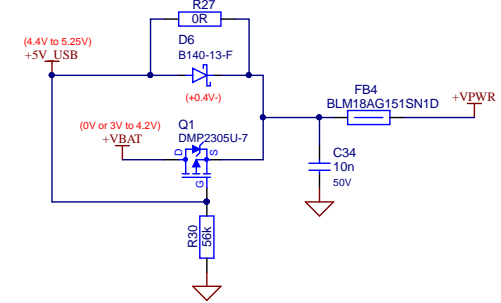
USB input power selector (jumper)



Li-Po Battery Charger

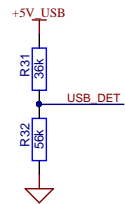


Automatic power path selection

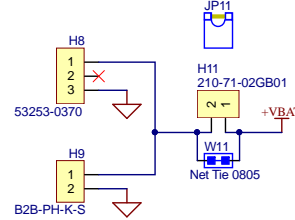


USB power detect

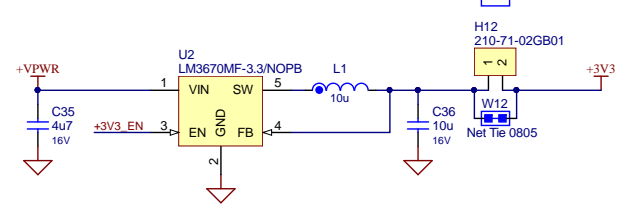
Vusb_min = 4.4V
Vusb_max = 5.25V
Vusb_det_min = 2.66V
Vusb_det_max = 3.22V



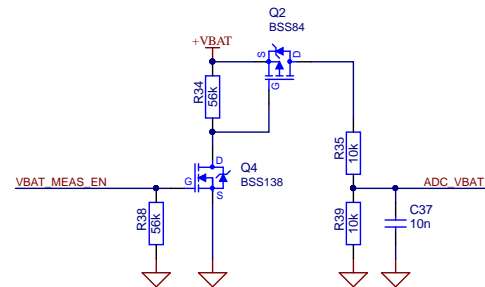
Li-Po Battery Connector (Molex or JST)



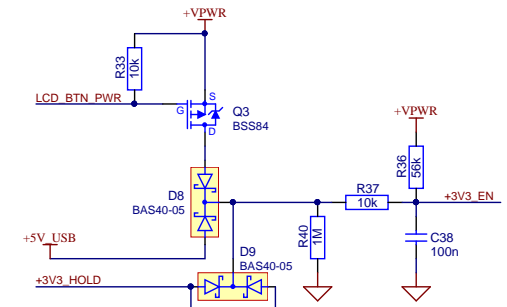
+3V3 high efficiency buck regulator



Battery Voltage Measurement



Power on button and microcontroller hold (always on when USB connected)



Fiducials

- H14 Fiducial 1mm
- H16 Fiducial 1mm
- H19 Fiducial 1mm
- H21 Fiducial 1mm

Mounting Holes

- H15 Mounting hole, M3
- H17 Mounting hole, M3
- H20 Mounting hole, M3
- H22 Mounting hole, M3

GND Test Points

- H13 210-71-02GB01
- H18 210-71-02GB01

BOM

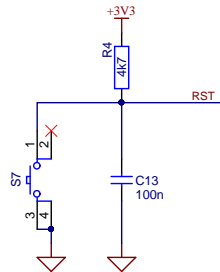
- PCB1
- P0014

PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Power Supply		PCB REV F
SHEET 1 OF 3	DATE 2019-10-24	VARIANT [No Variations]
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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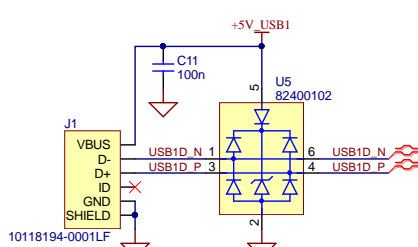
STM32 ARM Cortex M0+ Microcontroller



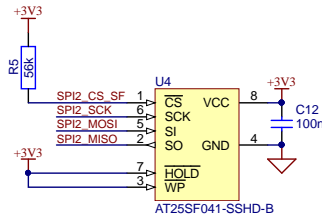
Reset Button



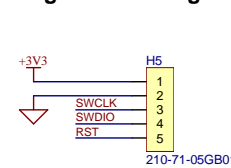
USB Device Port



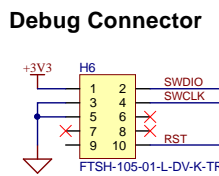
Serial Flash



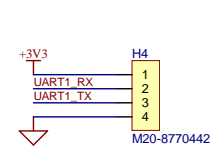
Program & Debug

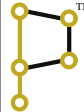


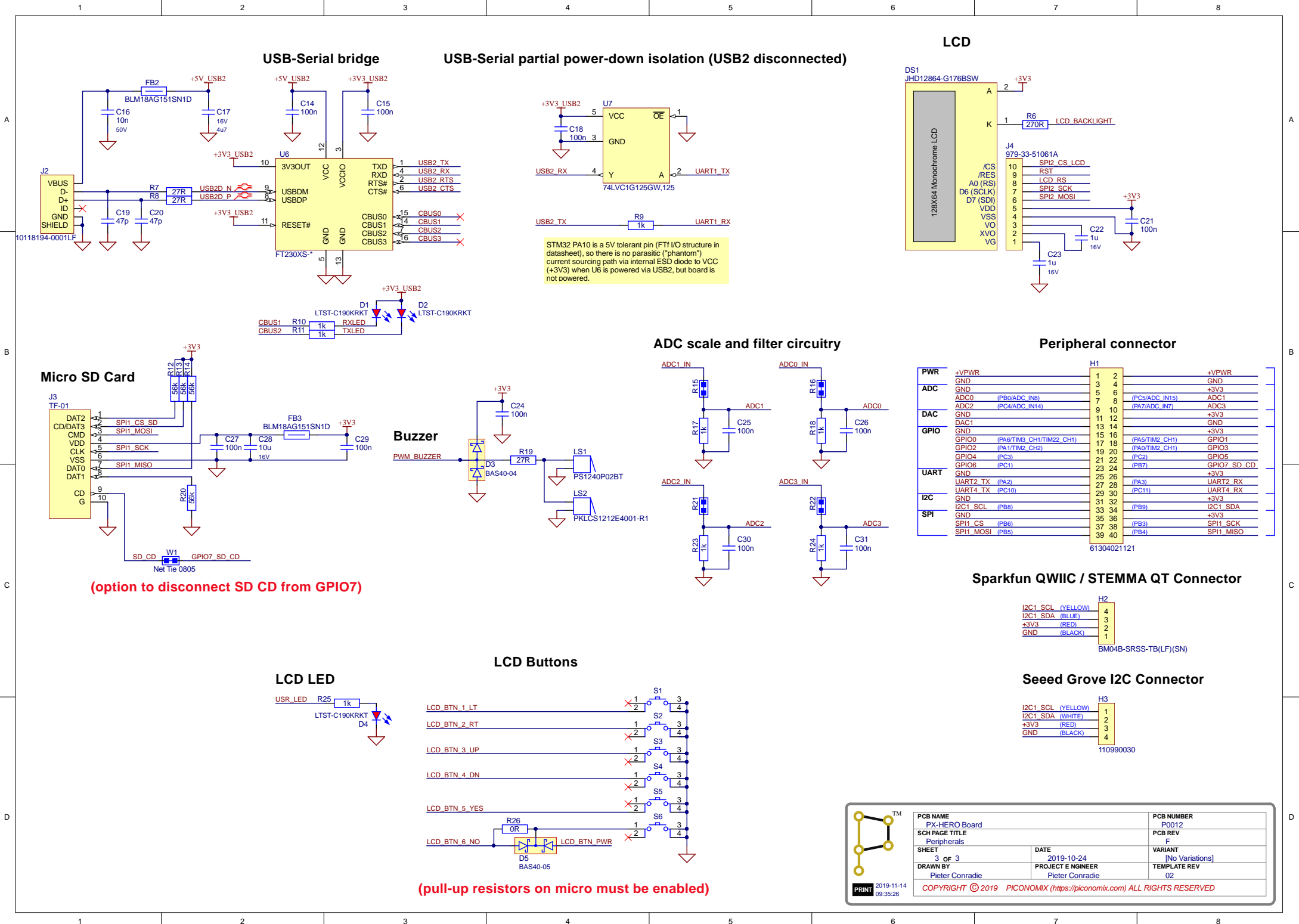
Standard ARM Cortex Debug Connector



UART Header



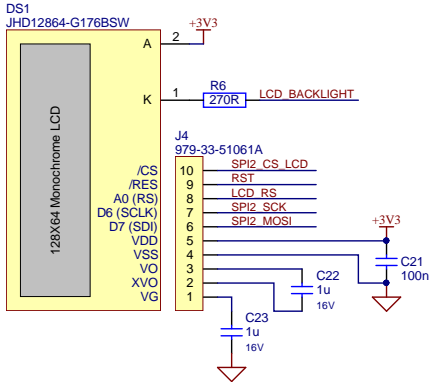
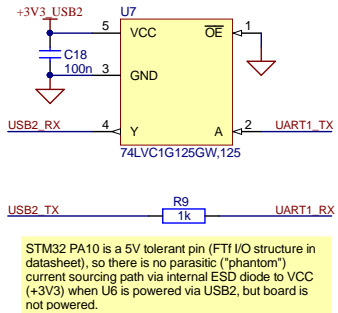
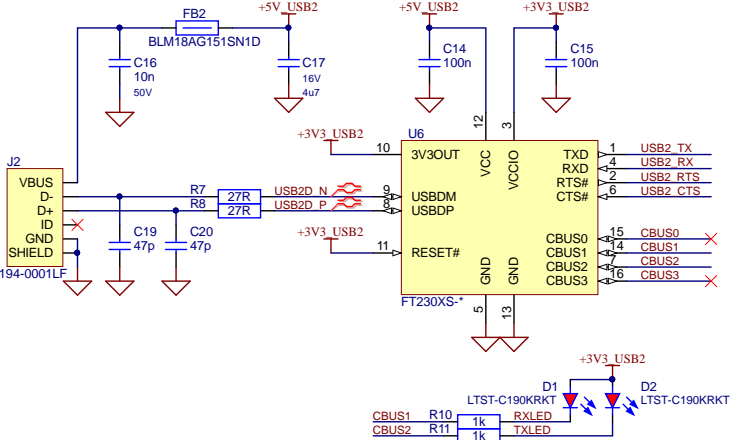
		PCB NAME PX-HERO Board		PCB NUMBER P0012	
SCH PAGE TITLE Microcontroller		DATE 2019-10-24		PCB REV F	
SHEET 2 OF 3		PROJECT E NGINEER Pieter Conradie		VARIANT [No Variations]	
DRAWN BY Pieter Conradie		TEMPLATE REV 02		COPYRIGHT © 2019 PICONOMIX (https://piconomix.com) ALL RIGHTS RESERVED	



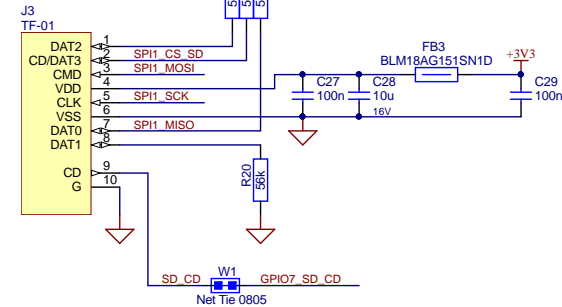
USB-Serial bridge

USB-Serial partial power-down isolation (USB2 disconnected)

LCD

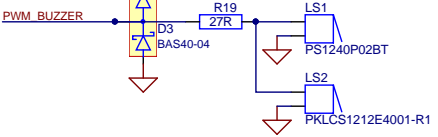


Micro SD Card

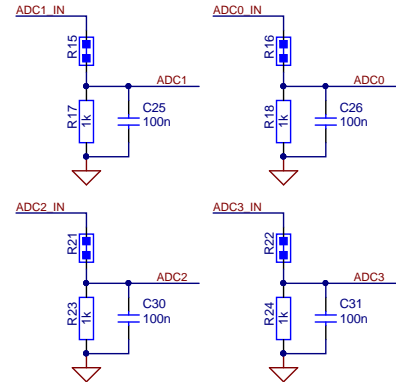


(option to disconnect SD CD from GPIO7)

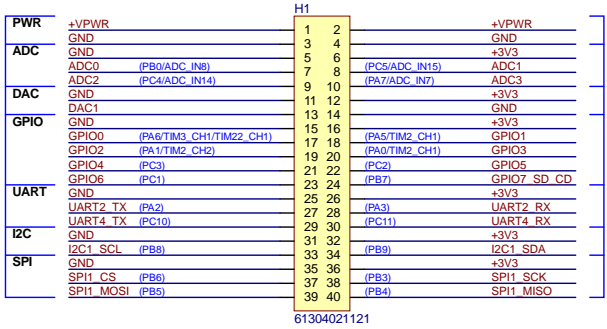
Buzzer



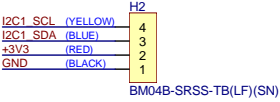
ADC scale and filter circuitry



Peripheral connector



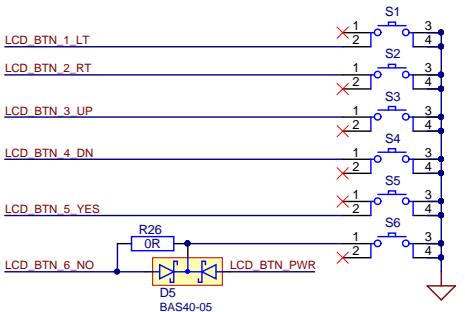
Sparkfun QWIC / STEMMA QT Connector




LCD LED



LCD Buttons



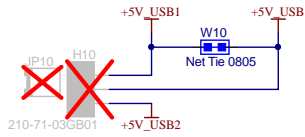
(pull-up resistors on micro must be enabled)



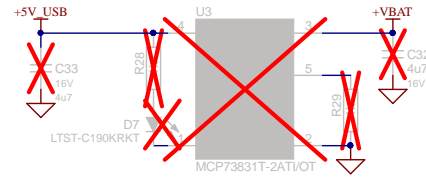
PRINT 2019-11-14 09:35:26

PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV F
SHEET 3 OF 3	DATE 2019-10-24	VARIANT [No Variations]
DRAWN BY Pieter Conradie		TEMPLATE REV 02
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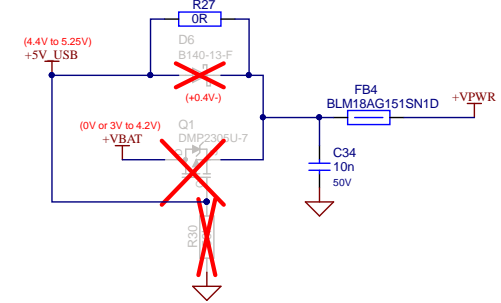
USB input power selector (jumper)



Li-Po Battery Charger

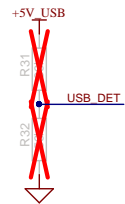


Automatic power path selection

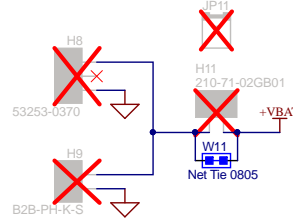


USB power detect

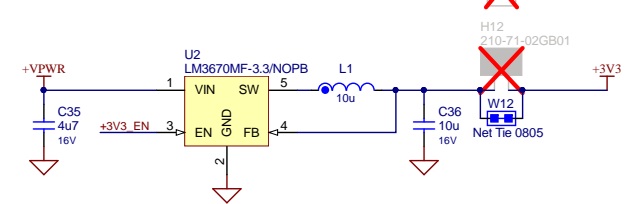
Vusb_min = 4.4V
Vusb_max = 5.25V
Vusb_det_min = 2.66V
Vusb_det_max = 3.22V



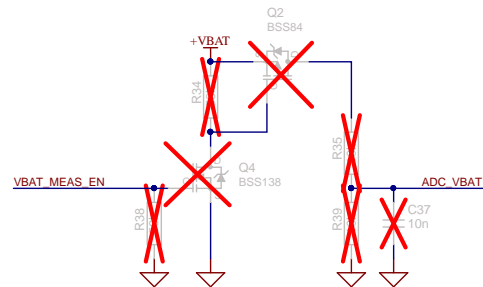
Li-Po Battery Connector (Molex or JST)



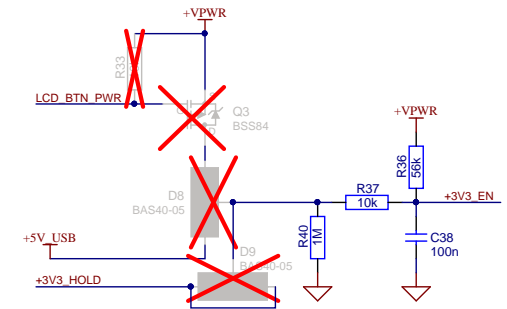
+3V3 high efficiency buck regulator



Battery Voltage Measurement



Power on button and microcontroller hold (always on when USB connected)



Fiducials

- H14 Fiducial 1mm
- H16 Fiducial 1mm
- H19 Fiducial 1mm
- H21 Fiducial 1mm

Mounting Holes


- H15 Mounting hole, M3
- H17 Mounting hole, M3
- H20 Mounting hole, M3
- H22 Mounting hole, M3

GND Test Points

- H13 210-71-02GB01
- H18 210-71-02GB01

BOM

- PCB1
- P0014



PCB NAME <u>PX-HERO Board</u>		PCB NUMBER <u>P0012</u>	
SCH PAGE TITLE <u>Power Supply</u>		PCB REV <u>F</u>	
SHEET <u>1</u> OF <u>3</u>	DATE <u>2019-10-24</u>	VARIANT <u>lite edition</u>	
DRAWN BY <u>Pieter Conradie</u>	PROJECT E ENGINEER <u>Pieter Conradie</u>	TEMPLATE REV <u>02</u>	
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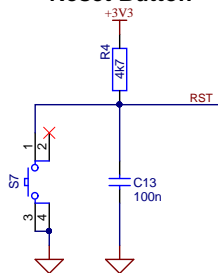
PRINT

2019-11-14
09:35:27

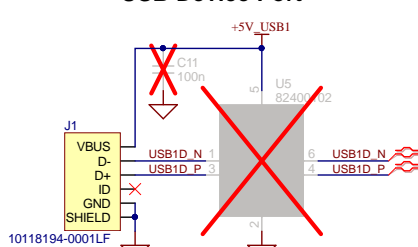
STM32 ARM Cortex M0+ Microcontroller



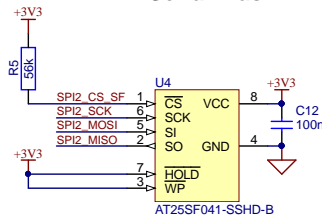
Reset Button



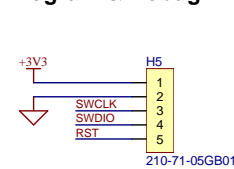
USB Device Port



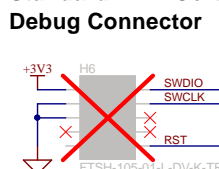
Serial Flash



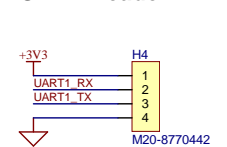
Program & Debug



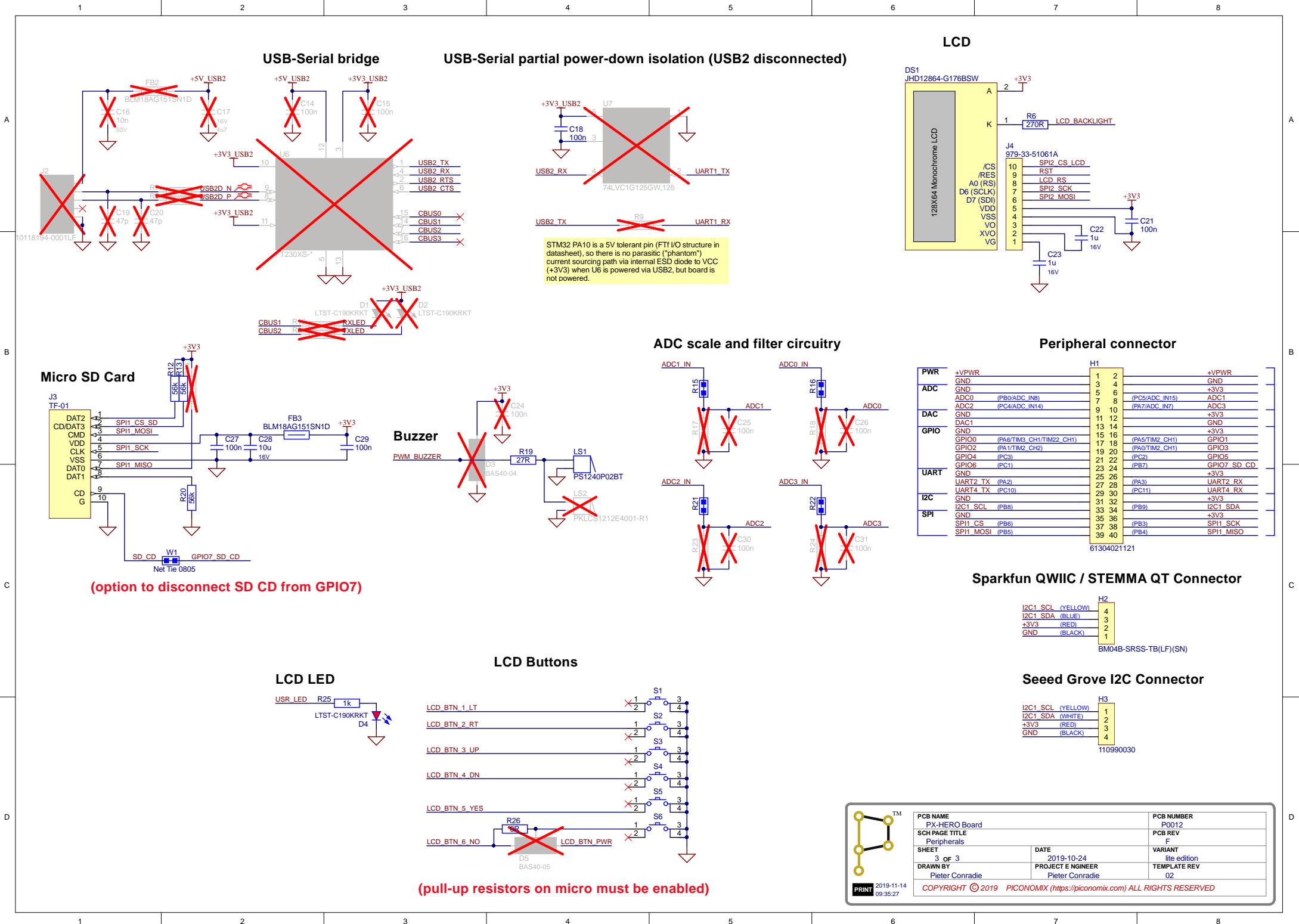
Standard ARM Cortex Debug Connector



UART Header



PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV F
SHEET 2 OF 3	DATE 2019-10-24	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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USB-Serial bridge

USB-Serial partial power-down isolation (USB2 disconnected)

LCD

Micro SD Card

ADC scale and filter circuitry

Peripheral connector


Buzzer

Sparkfun QWIC / STEMMA QT Connector

LCD Buttons

Seeed Grove I2C Connector

LCD LED



PCB NAME
PX-HERO Board

SCH PAGE TITLE
Peripherals

SHEET
3 OF 3

DRAWN BY
Pieter Conradie

DATE
2019-10-24

PROJECT ENGINEER
Pieter Conradie

PCB NUMBER
P0012

PCB REV
F

VARIANT
lite edition

TEMPLATE REV
02

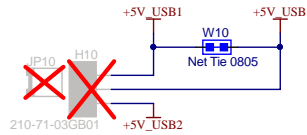
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STM32 PA10 is a 5V tolerant pin (FT1/I/O structure in datasheet), so there is no parasitic ("phantom") current sourcing path via internal ESD diode to VCC (+3V3) when U6 is powered via USB2, but board is not powered.

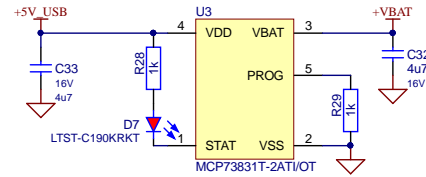
(option to disconnect SD CD from GPIO7)

(pull-up resistors on micro must be enabled)

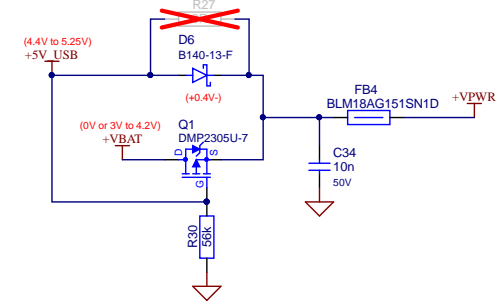
USB input power selector (jumper)



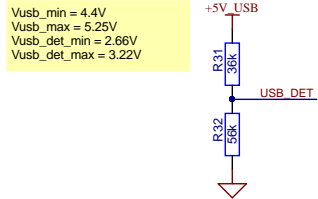
Li-Po Battery Charger



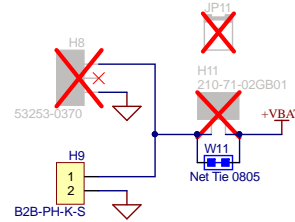
Automatic power path selection



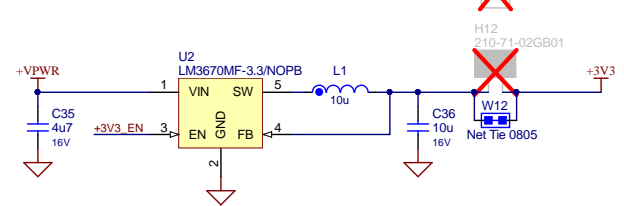
USB power detect



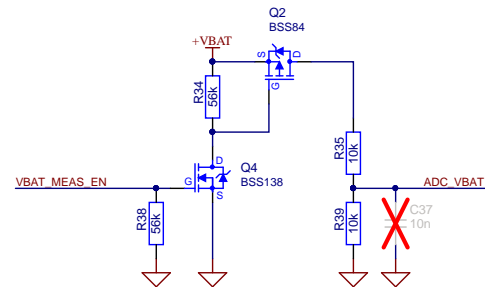
Li-Po Battery Connector (Molex or JST)



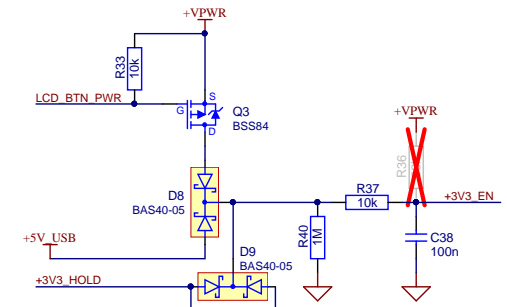
+3V3 high efficiency buck regulator



Battery Voltage Measurement



Power on button and microcontroller hold (always on when USB connected)



Fiducials

- H14 Fiducial 1mm
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- H19 Fiducial 1mm
- H21 Fiducial 1mm

Mounting Holes


- H15 Mounting hole, M3
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- H20 Mounting hole, M3
- H22 Mounting hole, M3

GND Test Points

- H13 210-71-02GB01
- H18 210-71-02GB01

BOM

- PCB1
- P0014

	PCB NAME PX-HERO Board		PCB NUMBER P0012	
	SCH PAGE TITLE Power Supply		PCB REV F	
	SHEET 1 OF 3	DATE 2019-10-24	VARIANT deluxe edition	
	DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02	
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09:35:29

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