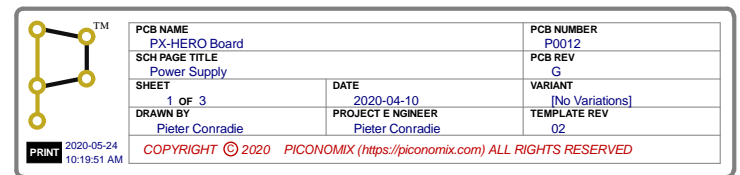


A



C

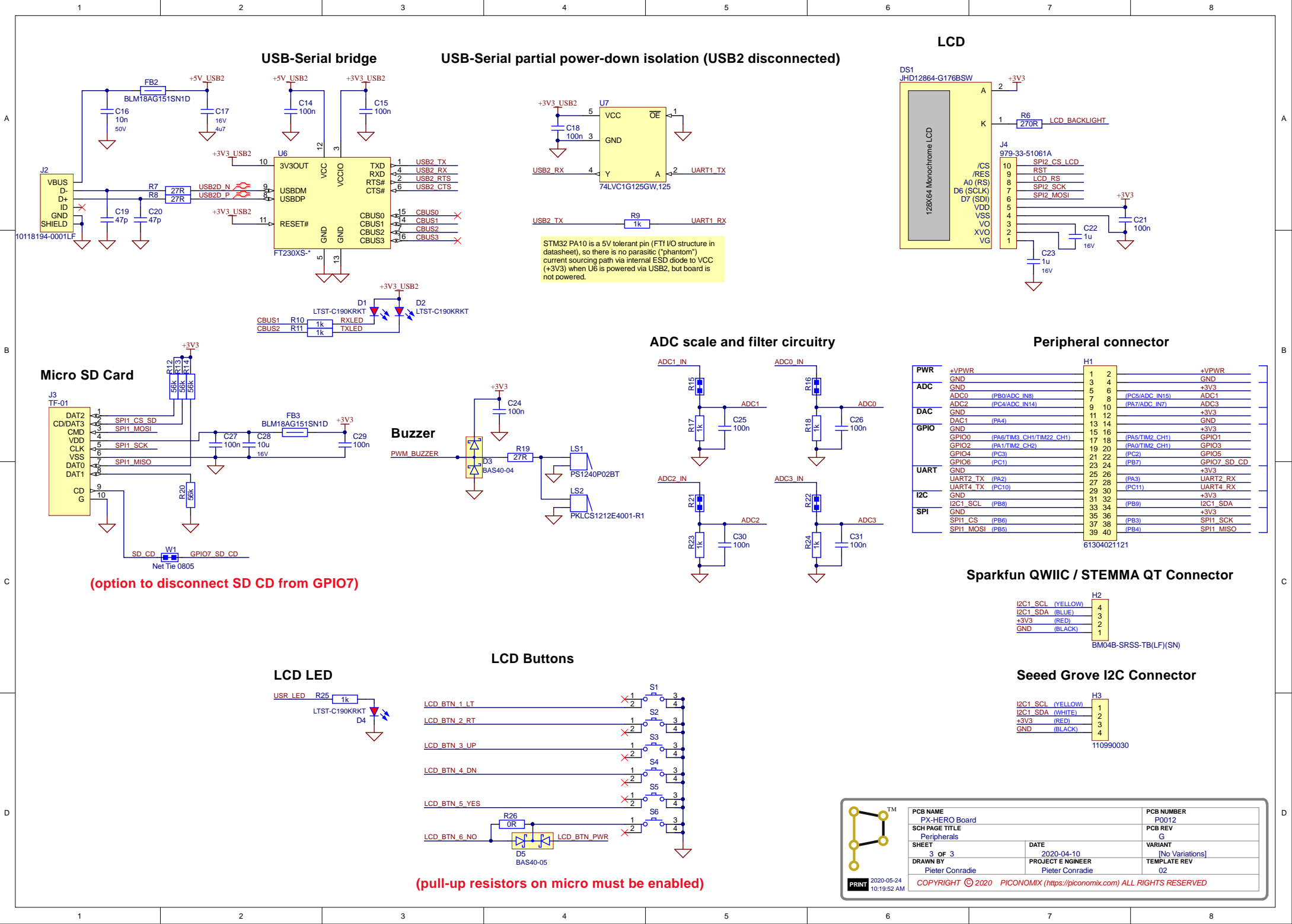
D



STM32 ARM Cortex M0+ Microcontroller



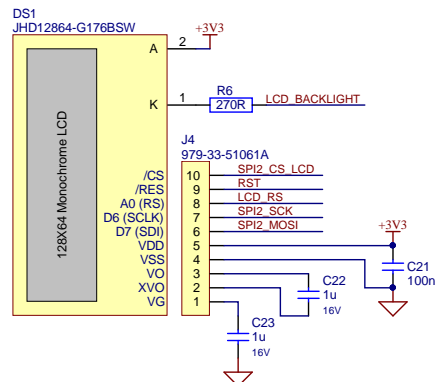
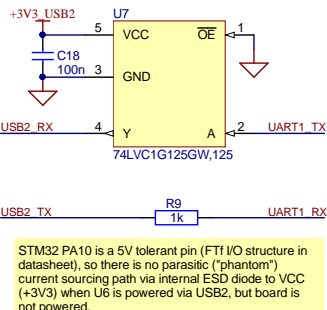
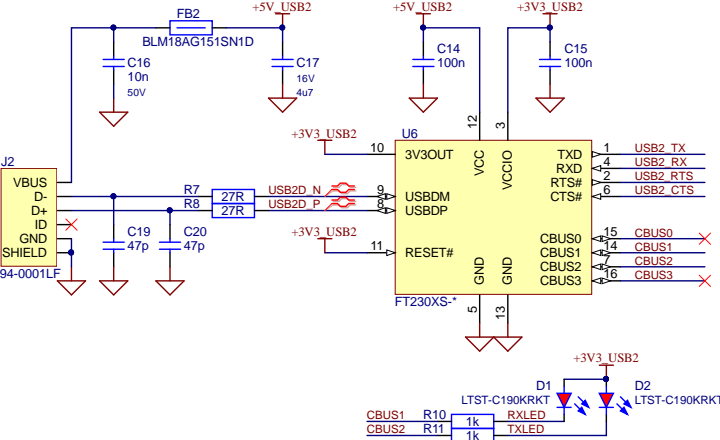
PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV G
SHEET 2 OF 3	DATE 2020-04-10	VARIANT [No Variations]
DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02
PRINT 2020-05-24 10:19:52 AM		
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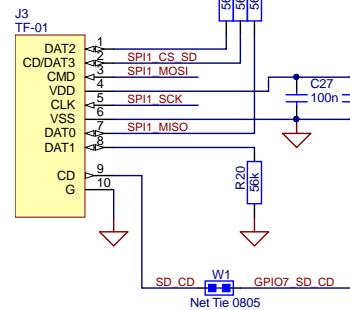
USB-Serial bridge

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

LCD

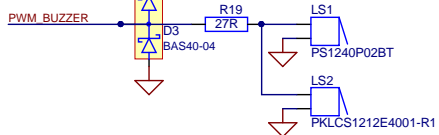


Micro SD Card

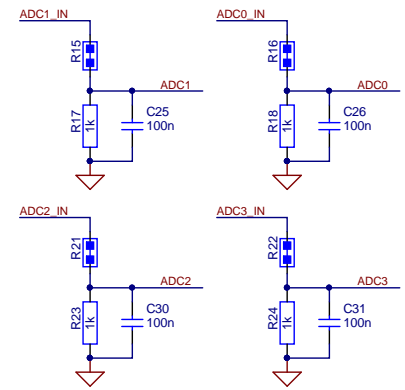


(option to disconnect SD CD from GPIO7)

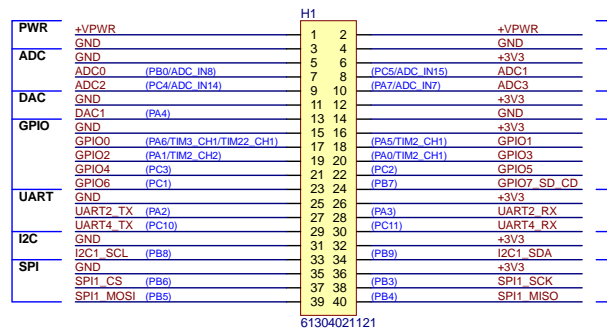
Buzzer



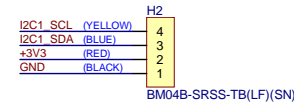
ADC scale and filter circuitry



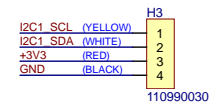
Peripheral connector



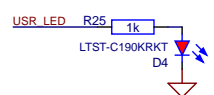
Sparkfun QWIC / STEMMA QT Connector



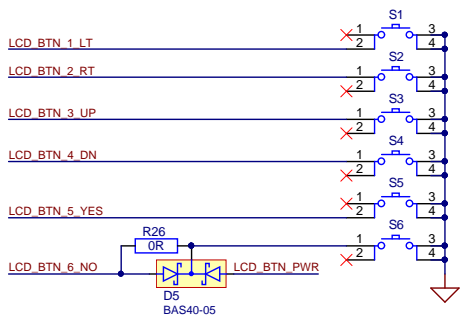
Seed Grove I2C Connector



LCD LED



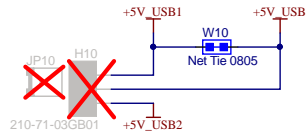
LCD Buttons



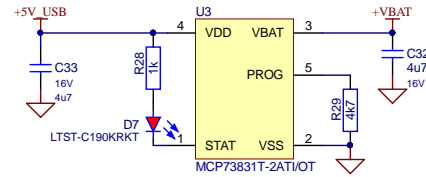
(pull-up resistors on micro must be enabled)

PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV G
SHEET 3 OF 3	DATE 2020-04-10	VARIANT [No Variations]
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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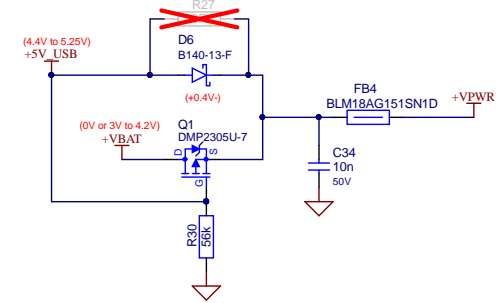
USB input power selector (jumper)



Li-Po Battery Charger

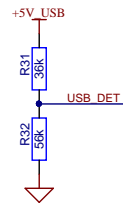


Automatic power path selection

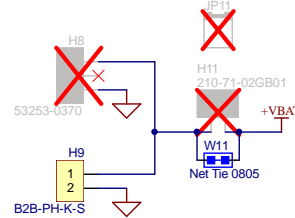


USB power detect

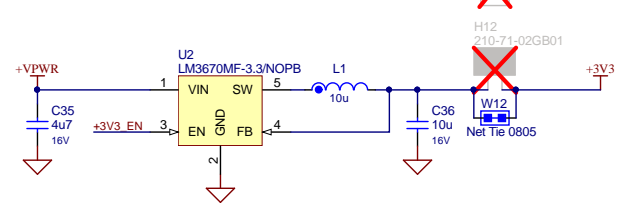
Vusb_min = 4.4V
Vusb_max = 5.25V
Vusb_det_min = 2.66V
Vusb_det_max = 3.22V



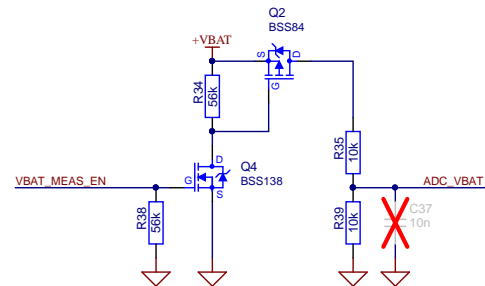
Li-Po Battery Connector (Molex or JST)



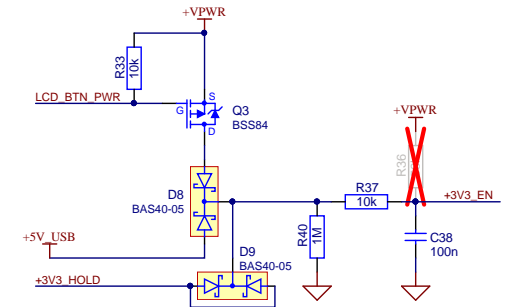
+3V3 high efficiency buck regulator



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

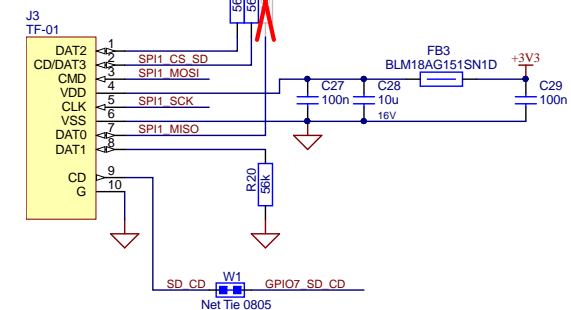
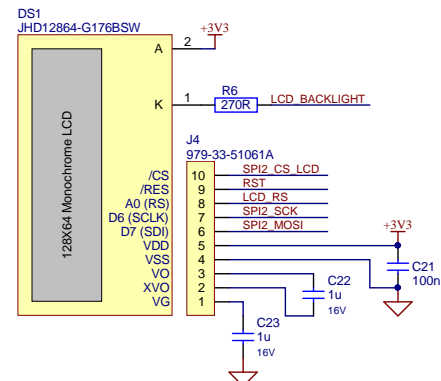
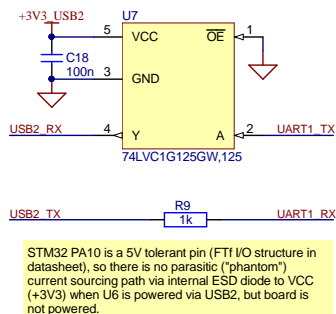
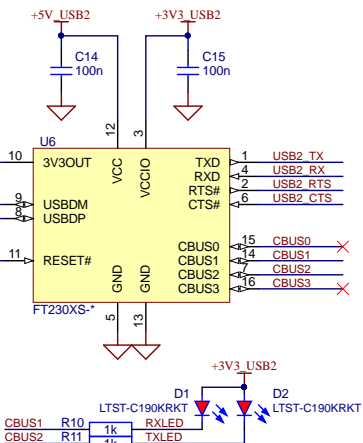
- PCB1
- P0014

	PCB NAME PX-HERO Board			PCB NUMBER P0012		
	SCH PAGE TITLE Power Supply			PCB REV G		
	SHEET 1 OF 3		DATE 2020-04-10	VARIANT deluxe edition		
	DRAWN BY Pieter Conradie		PROJECT E NGINEER Pieter Conradie		TEMPLATE REV 02	
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	2020-05-24 10:19:53 AM					

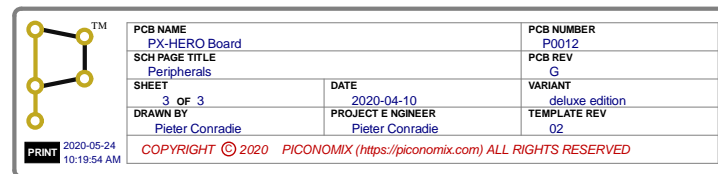
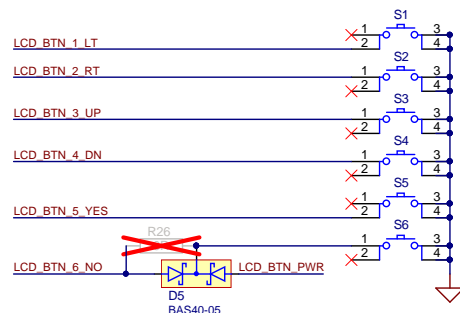
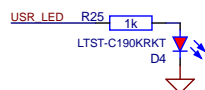
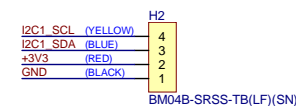
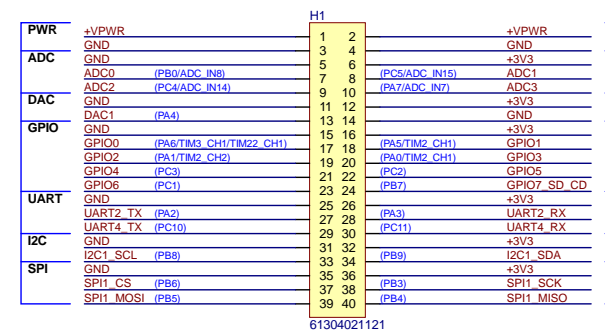
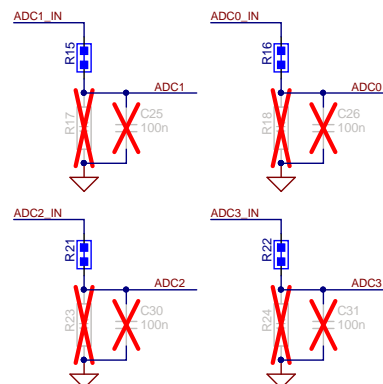
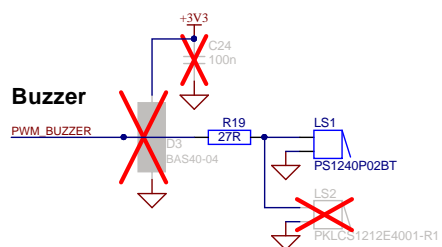
STM32 ARM Cortex M0+ Microcontroller



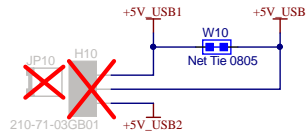
PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV G
SHEET 2 OF 3	DATE 2020-04-10	VARIANT deluxe edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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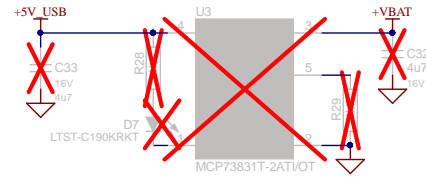
PWM_BUZZER



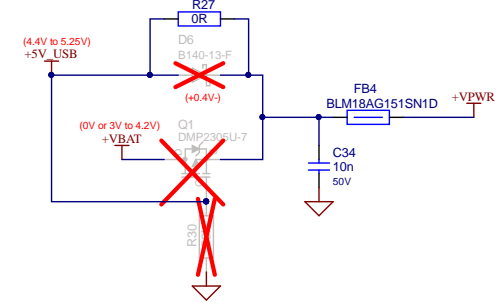
USB input power selector (jumper)



Li-Po Battery Charger

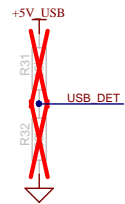


Automatic power path selection

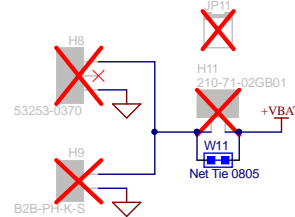


USB power detect

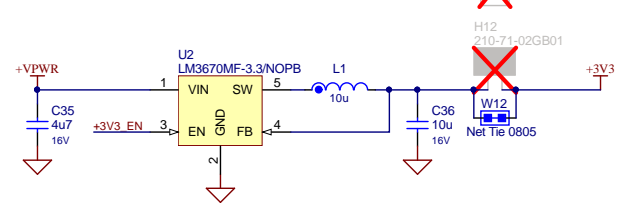
Vusb_min = 4.4V
Vusb_max = 5.25V
Vusb_det_min = 2.66V
Vusb_det_max = 3.22V



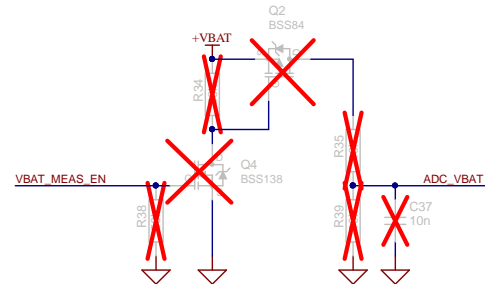
Li-Po Battery Connector (Molex or JST)



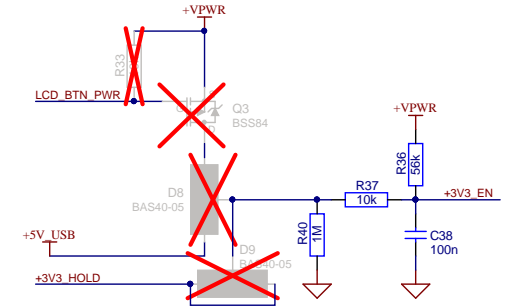
+3V3 high efficiency buck regulator



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

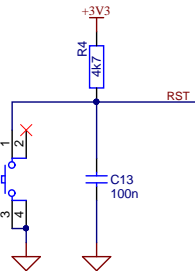
- PCB1
- P0014

PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Power Supply		PCB REV G
SHEET 1 OF 3	DATE 2020-04-10	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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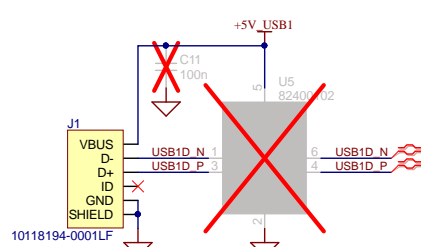
STM32 ARM Cortex M0+ Microcontroller



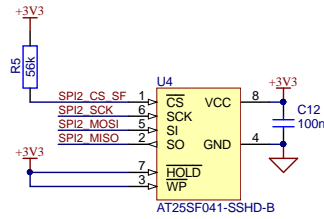
Reset Button



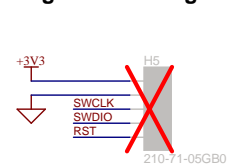
USB Device Port



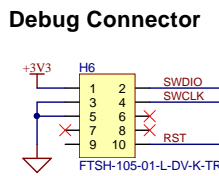
Serial Flash



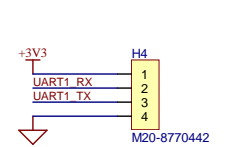
Program & Debug





Standard ARM Cortex Debug Connector

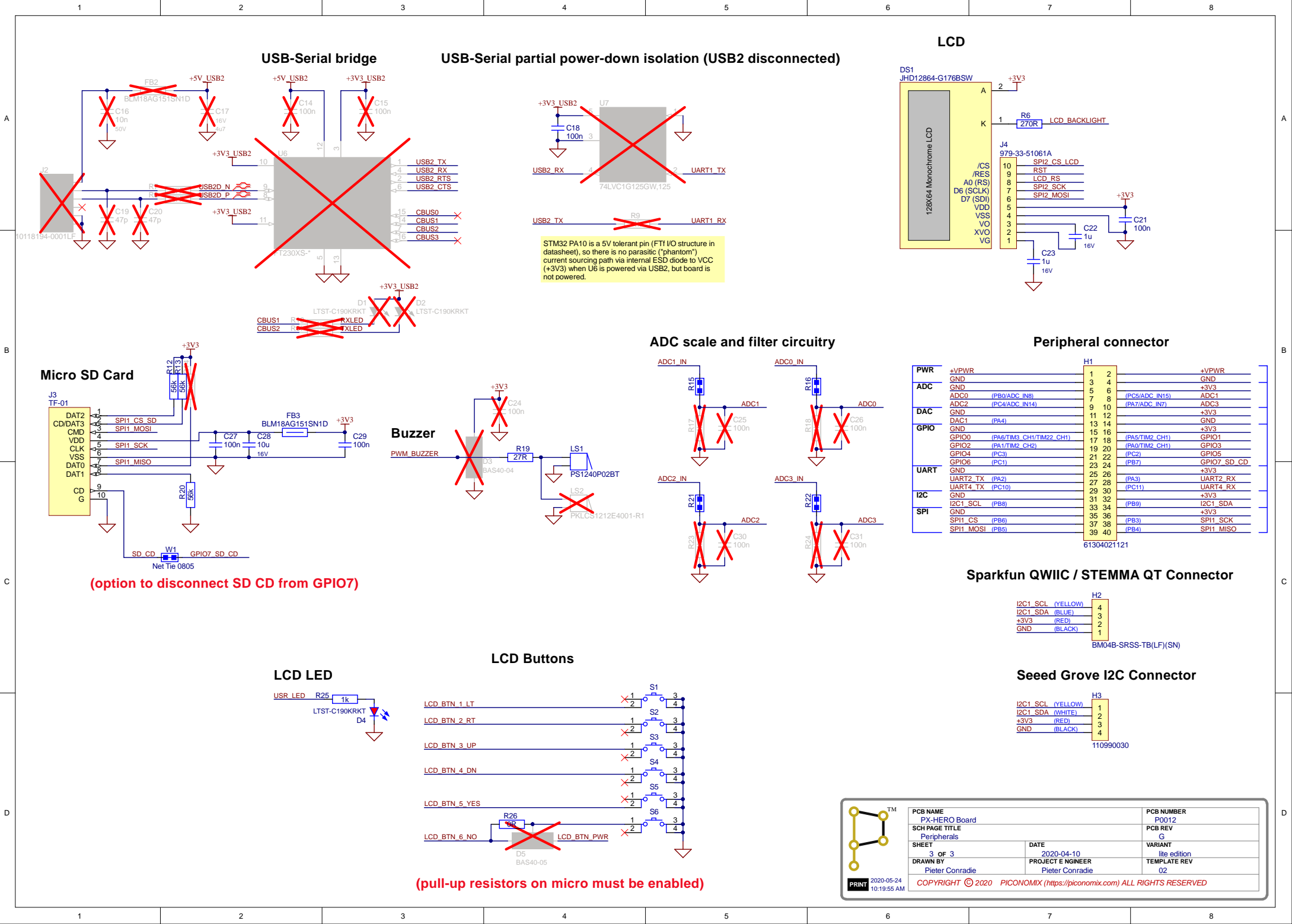


UART Header



	PCB NAME PX-HERO Board		PCB NUMBER P0012	
	SCH PAGE TITLE Microcontroller		PCB REV G	
	SHEET 2 OF 3	DATE 2020-04-10	VARIANT lite edition	
	DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02	
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USB-Serial bridge

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

LCD

Micro SD Card

Buzzer

ADC scale and filter circuitry


Peripheral connector

Sparkfun QWIC / STEMMA QT Connector

Seed Grove I2C Connector

LCD Buttons

LCD LED



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PCB NAME PX-HERO Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV G
SHEET 3 OF 3	DATE 2020-04-10	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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PWR	+VPWR	H1	1	2	+VPWR
ADC	GND		3	4	GND
	GND		5	6	+3V3
	ADC0 (PB9/ADC_IN8)		7	8	(PC5/ADC_IN15) ADC1
	ADC2 (PC4/ADC_IN14)		9	10	ADC3
DAC	GND		11	12	+3V3
	DAC1 (PA4)		13	14	GND
GPIO	GND		15	16	+3V3
	GPIO0 (PA6/TIM3_CH1/TIM22_CH1)		17	18	(PA5/TIM2_CH1) GPIO1
	GPIO2 (PA1/TIM2_CH2)		19	20	(PA0/TIM2_CH1) GPIO3
	GPIO4 (PC3)		21	22	GPIO5
	GPIO6 (PC1)		23	24	(PB7) GPIO7_SD_CD
UART	GND		25	26	+3V3
	UART2_TX (PA2)		27	28	(PA3) UART2_RX
	UART4_TX (PC10)		29	30	(PC11) UART4_RX
I2C	GND		31	32	+3V3
	I2C1_SCL (PB8)		33	34	(PB9) I2C1_SDA
SPI	GND		35	36	+3V3
	SPI1_CS (PB6)		37	38	(PB3) SPI1_SCK
	SPI1_MOSI (PB5)		39	40	(PB4) SPI1_MISO

61304021121

I2C1_SCL (YELLOW)	H2	4
I2C1_SDA (BLUE)		3
+3V3 (RED)		2
GND (BLACK)		1

BM04B-SRSS-TB(LF)(SN)

I2C1_SCL (YELLOW)	H3	1
I2C1_SDA (WHITE)		2
+3V3 (RED)		3
GND (BLACK)		4

110990030

(pull-up resistors on micro must be enabled)

(option to disconnect SD CD from GPIO7)