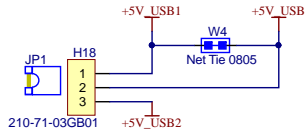
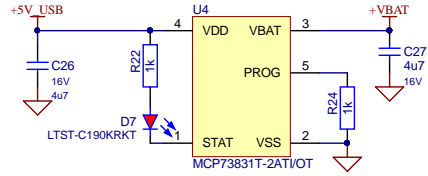


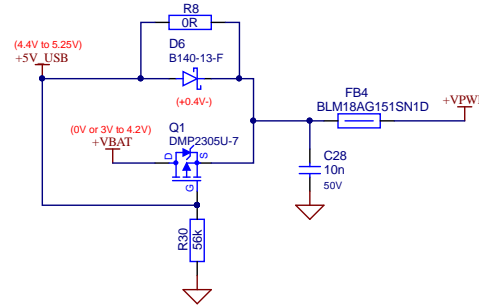
USB input power selector (jumper)



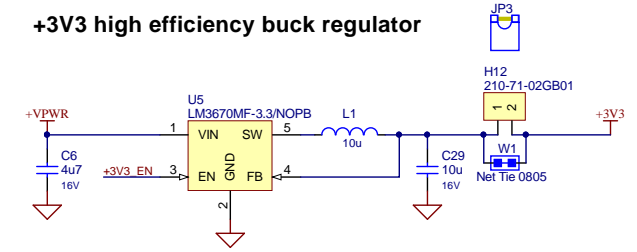
Li-Po Battery Charger



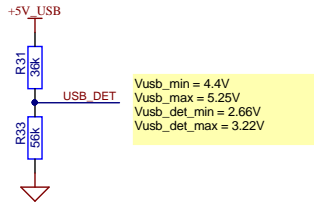
Automatic power path selection



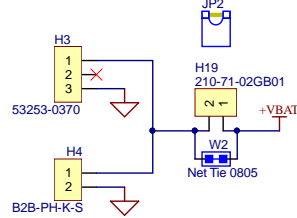
+3V3 high efficiency buck regulator



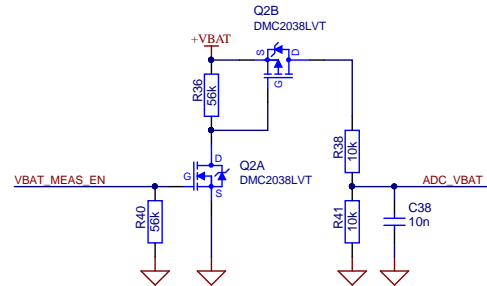
USB power detect



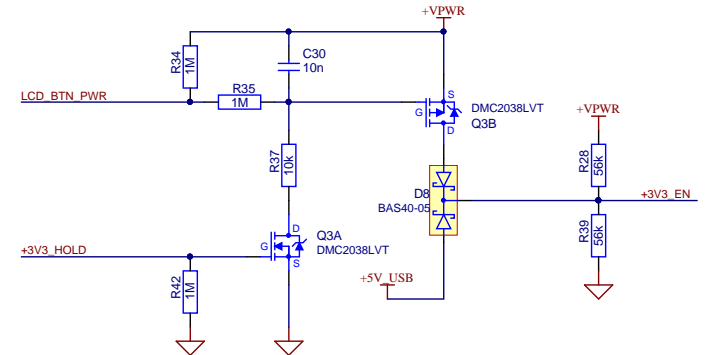
Li-Po Battery Connector (Molex or JST)



Battery Voltage Measurement



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



Fiducials

- H5 Fiducial 1mm
- H8 Fiducial 1mm
- H13 Fiducial 1mm
- H14 Fiducial 1mm

Mounting Holes

- H6 Mounting hole, M3
- H9 Mounting hole, M3
- H10 Mounting hole, M3
- H11 Mounting hole, M3

GND Test Points

- H1 210-71-02GB01
- H22 210-71-02GB01

BOM

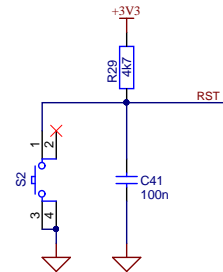
- PCB1
- P0014

PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Power Supply		PCB REV D
SHEET 1 OF 3	DATE 2019-02-26	VARIANT [No Variations]
DRAWN BY Pieter Conradie	PROJECT E ENGINEER Pieter Conradie	TEMPLATE REV 02
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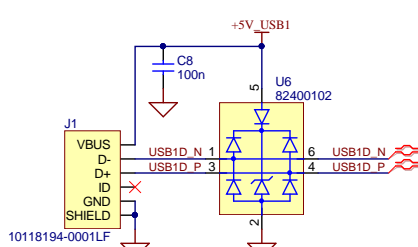
STM32 ARM Cortex M0+ Microcontroller



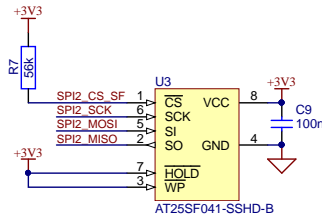
Reset Button



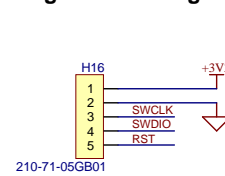
USB Device Port



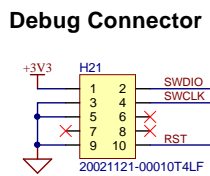
Serial Flash



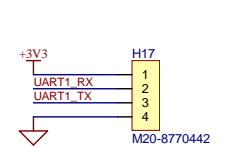
Program & Debug



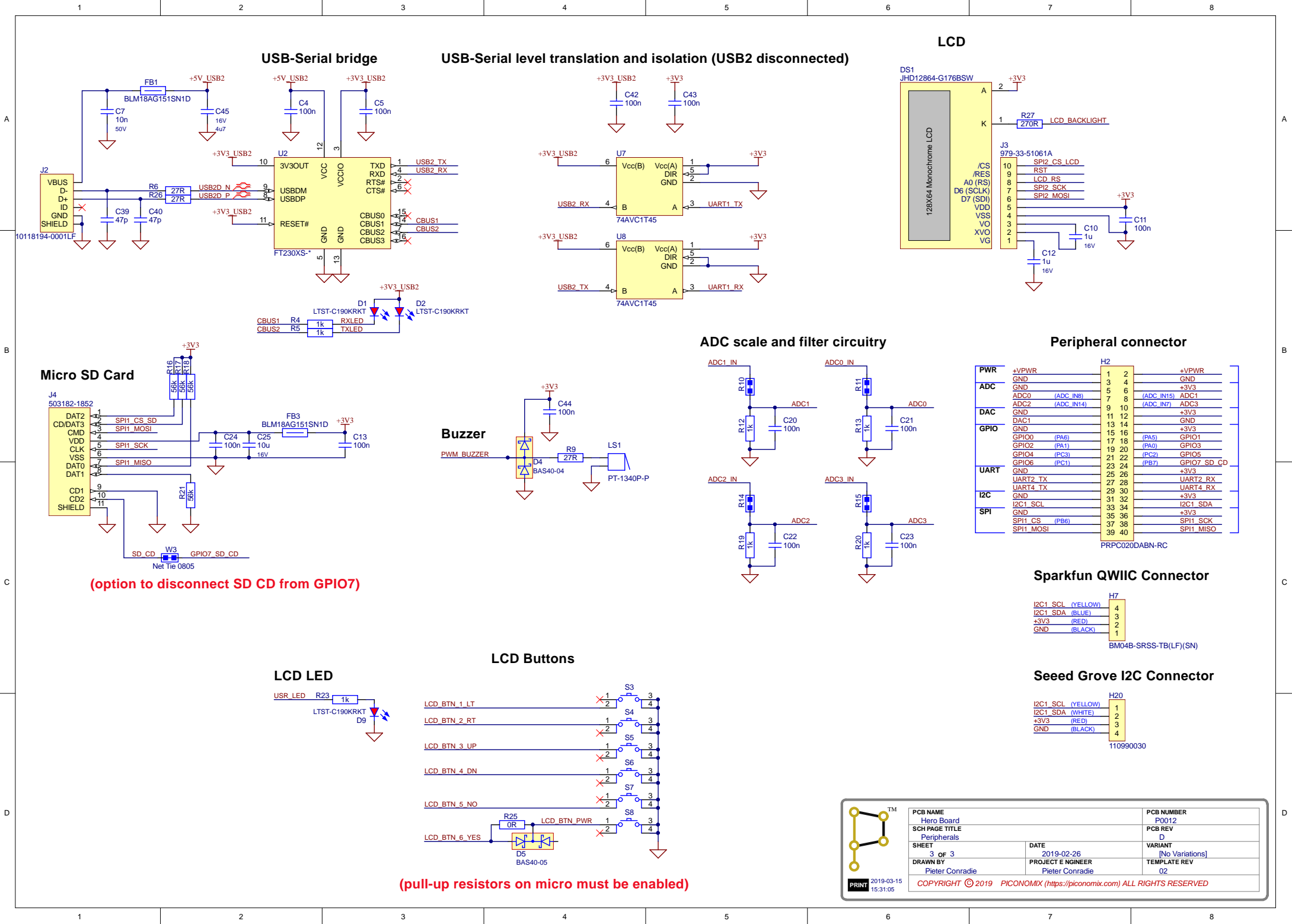
Standard ARM Cortex Debug Connector



UART Header



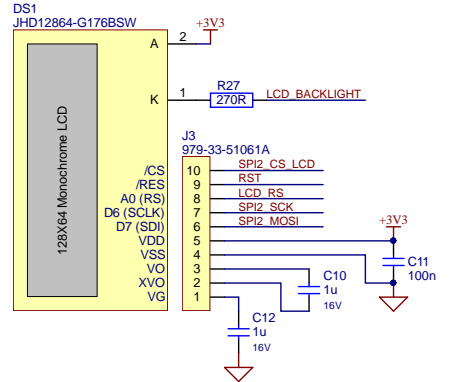
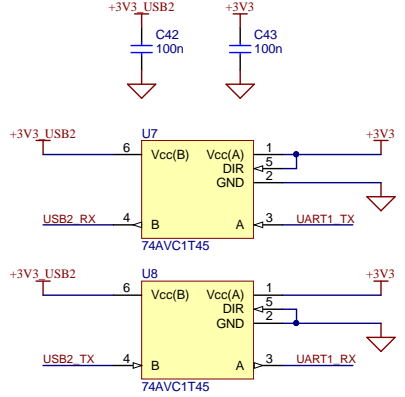
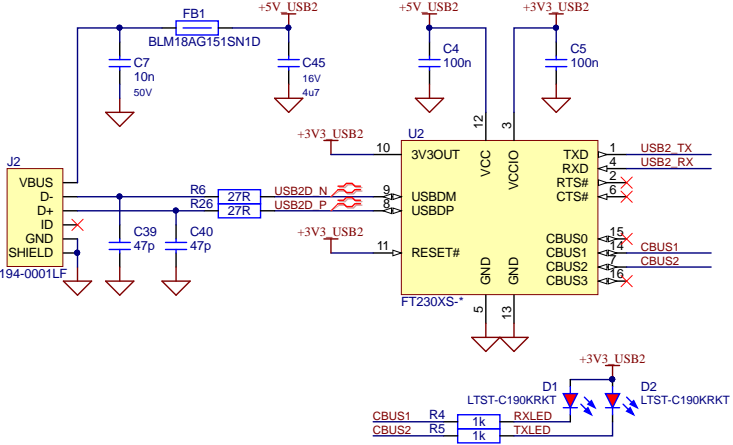
PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV D
SHEET 2 OF 3	DATE 2019-02-26	VARIANT [No Variations]
DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02
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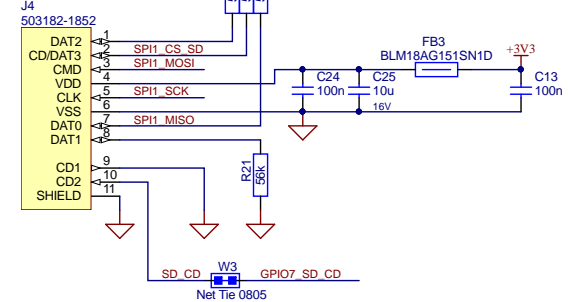
USB-Serial bridge

USB-Serial level translation and isolation (USB2 disconnected)

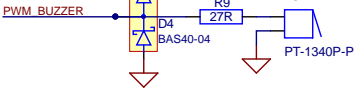
LCD



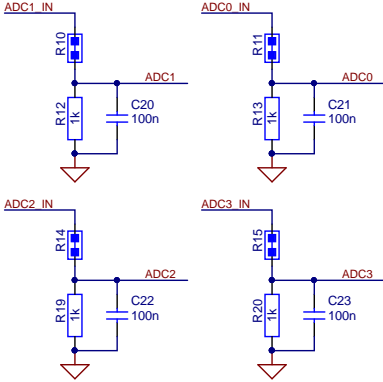
Micro SD Card



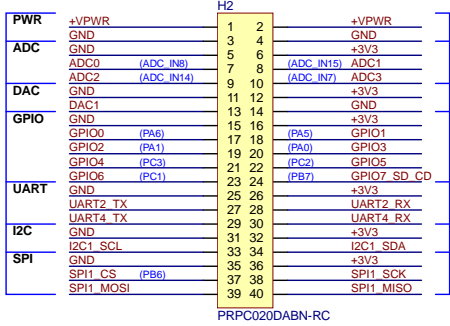
Buzzer



ADC scale and filter circuitry

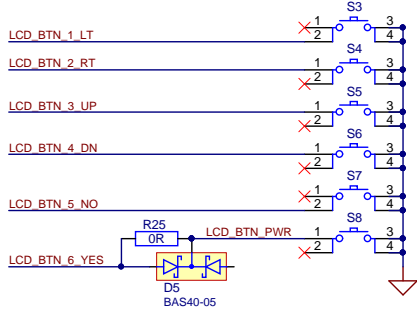


Peripheral connector

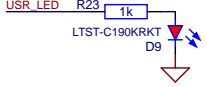


(option to disconnect SD CD from GPIO7)

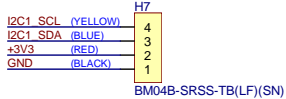
LCD Buttons



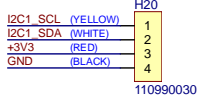
LCD LED




Sparkfun QWIIIC Connector



Seed Grove I2C Connector



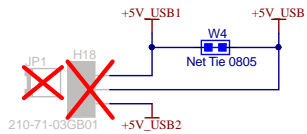
(pull-up resistors on micro must be enabled)



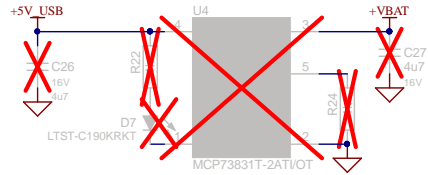
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PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV D
SHEET 3 OF 3	DATE 2019-02-26	VARIANT [No Variations]
DRAWN BY Pieter Conradie		TEMPLATE REV 02
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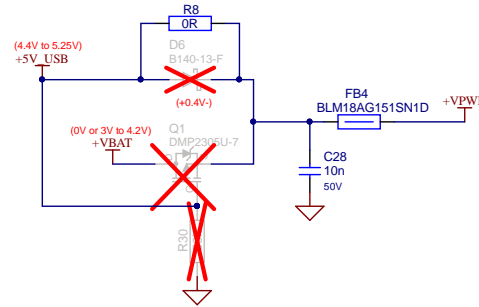
USB input power selector (jumper)



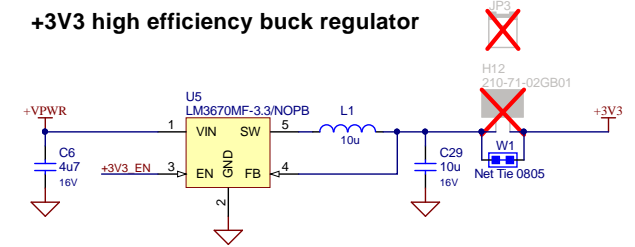
Li-Po Battery Charger



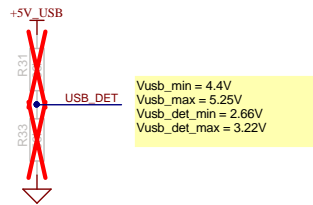
Automatic power path selection



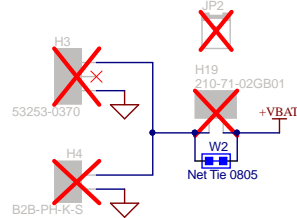
+3V3 high efficiency buck regulator



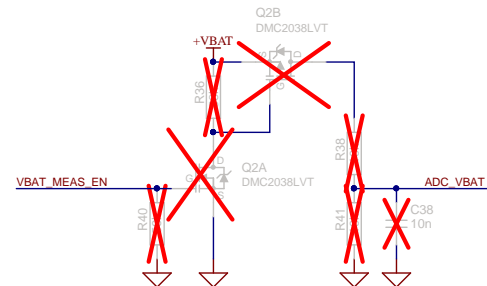
USB power detect



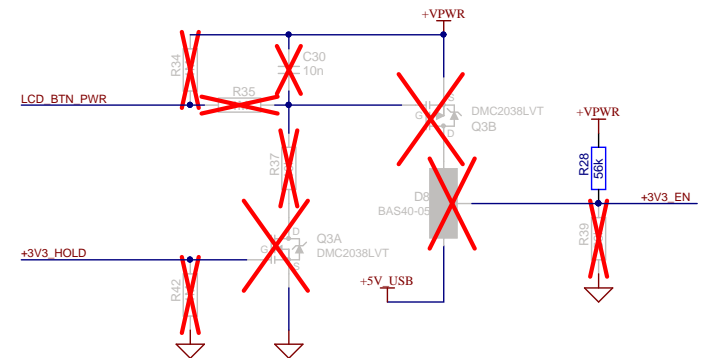
Li-Po Battery Connector (Molex or JST)



Battery Voltage Measurement



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



Fiducials

- H5 Fiducial 1mm
- H8 Fiducial 1mm
- H13 Fiducial 1mm
- H14 Fiducial 1mm

Mounting Holes

- H6 Mounting hole, M3
- H9 Mounting hole, M3
- H10 Mounting hole, M3
- H11 Mounting hole, M3

GND Test Points

- H1 210-71-02GB01
- H22 210-71-02GB01

BOM

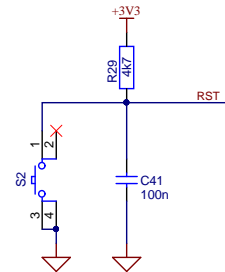
- PCB1
- P0014

PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Power Supply		PCB REV D
SHEET 1 OF 3	DATE 2019-02-26	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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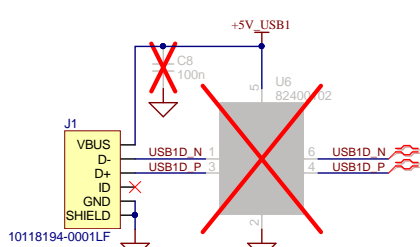
STM32 ARM Cortex M0+ Microcontroller



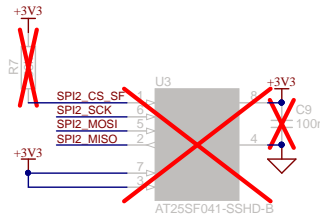
Reset Button



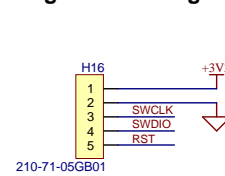
USB Device Port



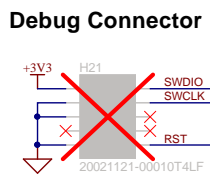
Serial Flash



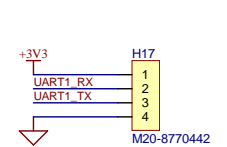
Program & Debug



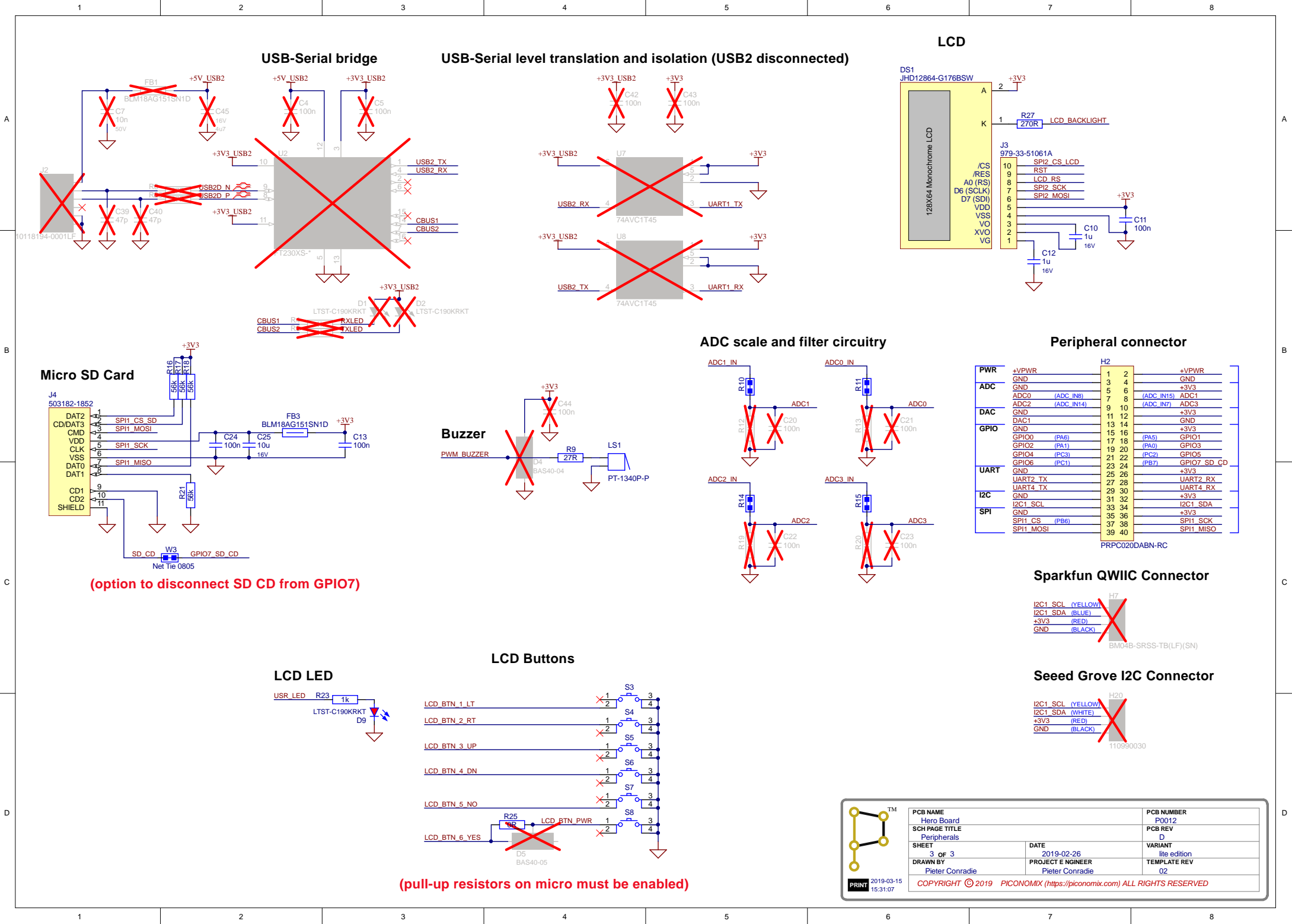
Standard ARM Cortex Debug Connector



UART Header



PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV D
SHEET 2 OF 3	DATE 2019-02-26	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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USB-Serial bridge

USB-Serial level translation and isolation (USB2 disconnected)

LCD

Micro SD Card

ADC scale and filter circuitry

Peripheral connector

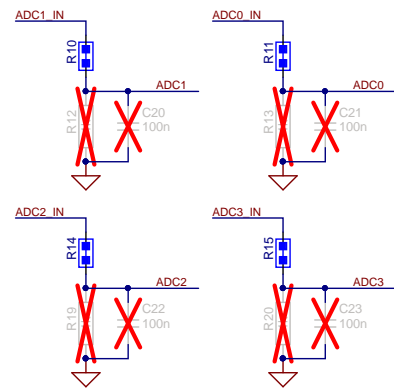
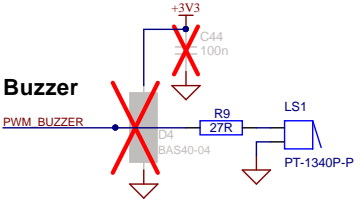
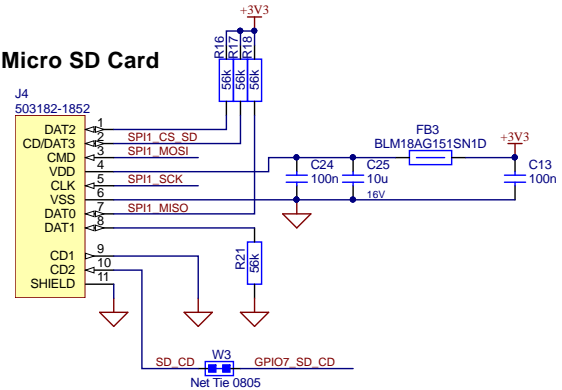
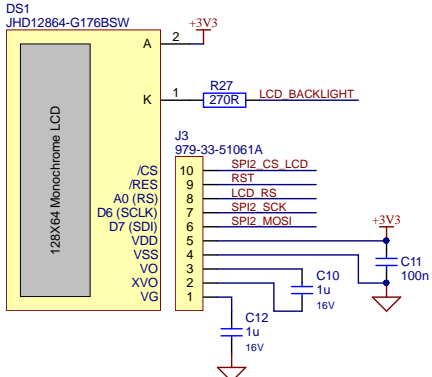
Sparkfun QWIIIC Connector

Seed Grove I2C Connector

LCD Buttons

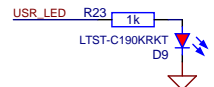
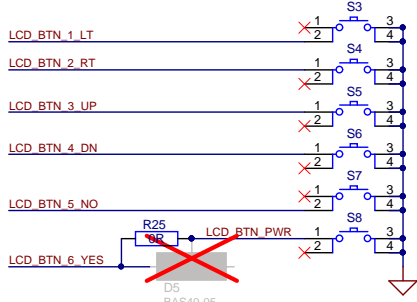
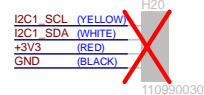
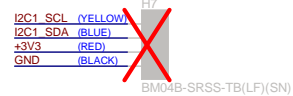
LCD LED

PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV D
SHEET 3 OF 3	DATE 2019-02-26	VARIANT lite edition
DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02
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PWR	+VPWR	1	2	+VPWR
	GND	3	4	GND
ADC	GND	5	6	GND
	ADC0 (ADC IN8)	7	8	ADC IN15
	ADC2 (ADC IN14)	9	10	ADC IN7
DAC	GND	11	12	GND
	DAC1	13	14	GND
GPIO	GND	15	16	GND
	GPIO0 (PA6)	17	18	GPIO1 (PA5)
	GPIO2 (PA1)	19	20	GPIO3 (PA0)
	GPIO4 (PC3)	21	22	GPIO5 (PC2)
	GPIO6 (PC1)	23	24	GPIO7 SD GD (PB7)
UART	GND	25	26	GND
	UART2_TX	27	28	UART4_RX
	UART4_TX	29	30	GND
I2C	I2C1_SCL	31	32	GND
	I2C1_SDA	33	34	GND
SPI	GND	35	36	GND
	SPI1_CS (PB6)	37	38	GND
	SPI1_MOSI	39	40	GND

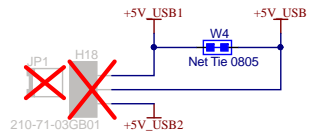
PRPC020DABN-RC



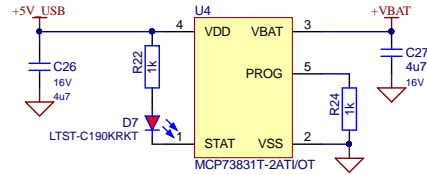
(option to disconnect SD CD from GPIO7)

(pull-up resistors on micro must be enabled)

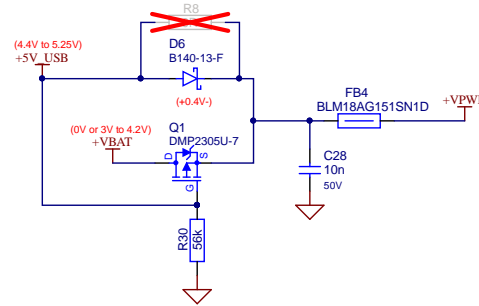
USB input power selector (jumper)



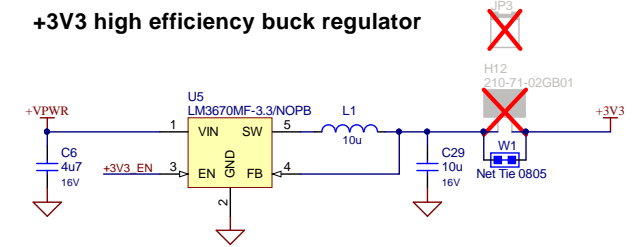
Li-Po Battery Charger



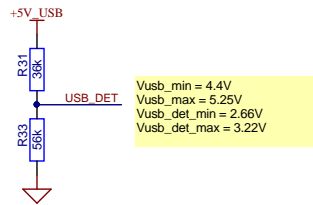
Automatic power path selection



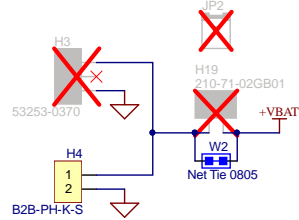
+3V3 high efficiency buck regulator



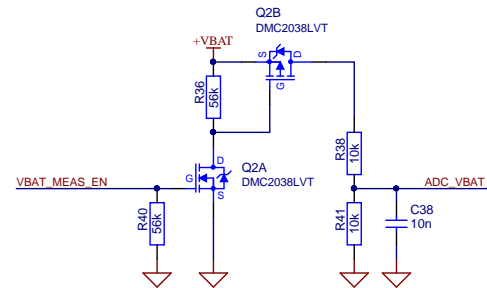
USB power detect



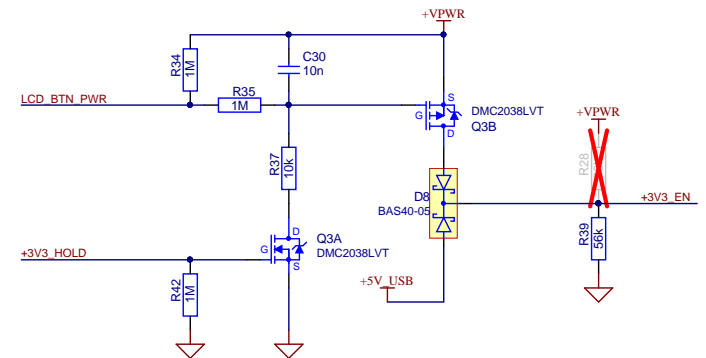
Li-Po Battery Connector (Molex or JST)



Battery Voltage Measurement



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



Fiducials

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- H8 Fiducial 1mm
- H13 Fiducial 1mm
- H14 Fiducial 1mm

Mounting Holes

- H6 Mounting hole, M3
- H9 Mounting hole, M3
- H10 Mounting hole, M3
- H11 Mounting hole, M3

GND Test Points

- H1 210-71-02GB01
- H22 210-71-02GB01

BOM

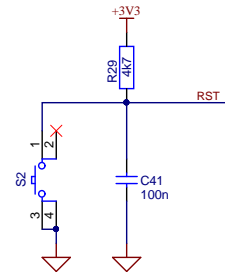
- PCB1 P0014

PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Power Supply		PCB REV D
SHEET 1 OF 3	DATE 2019-02-26	VARIANT deluxe edition
DRAWN BY Pieter Conradie	PROJECT E ENGINEER Pieter Conradie	TEMPLATE REV 02
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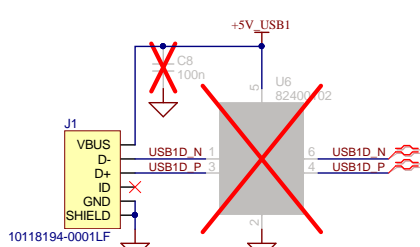
STM32 ARM Cortex M0+ Microcontroller



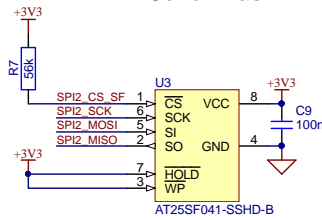
Reset Button



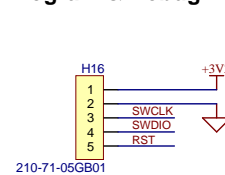
USB Device Port



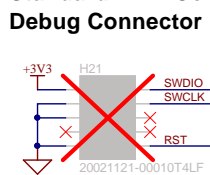
Serial Flash



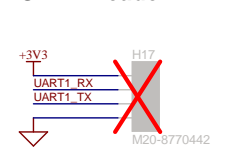
Program & Debug




Standard ARM Cortex Debug Connector




UART Header

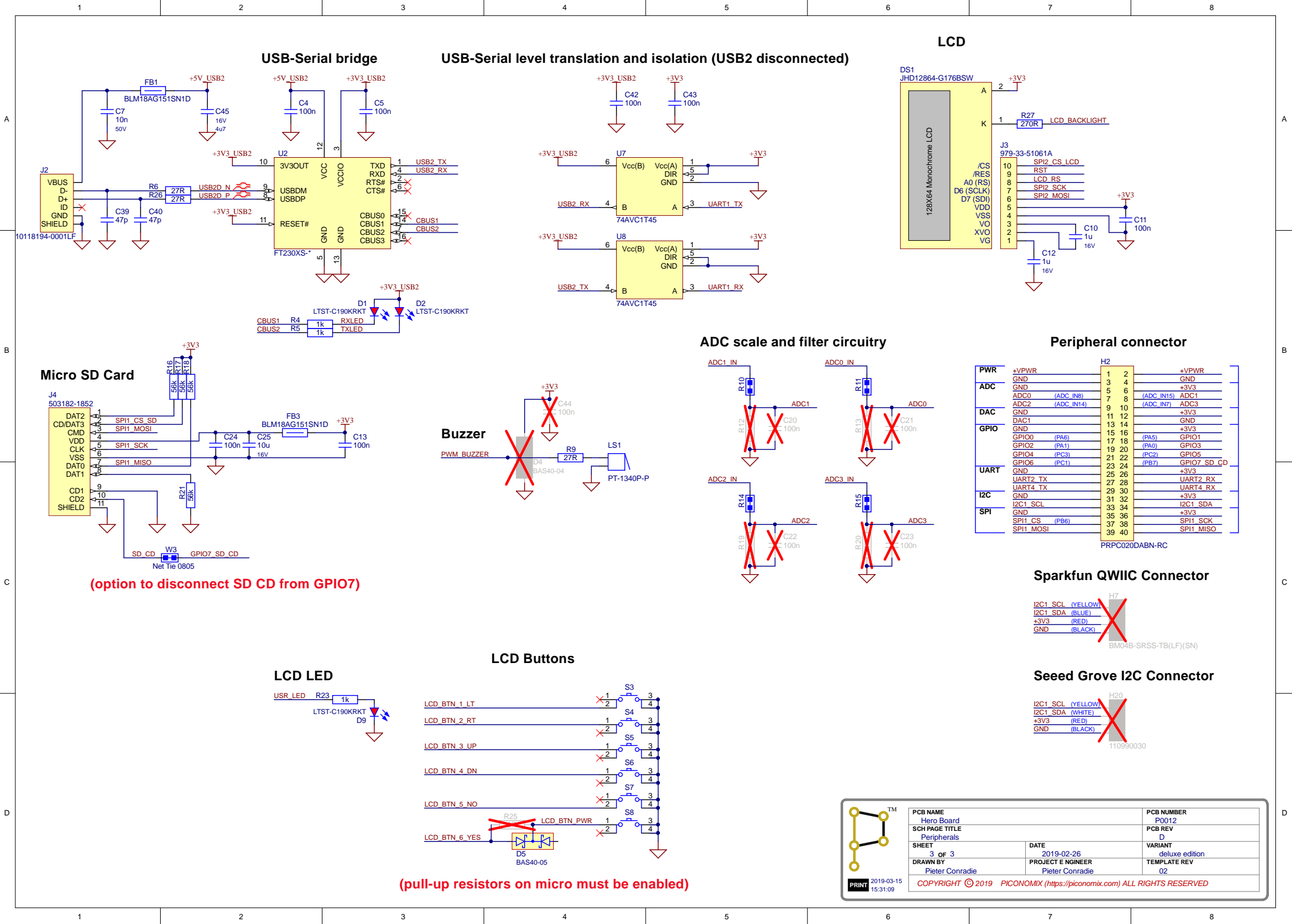




PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Microcontroller		PCB REV D
SHEET 2 OF 3	DATE 2019-02-26	VARIANT deluxe edition
DRAWN BY Pieter Conradie	PROJECT E NGINEER Pieter Conradie	TEMPLATE REV 02
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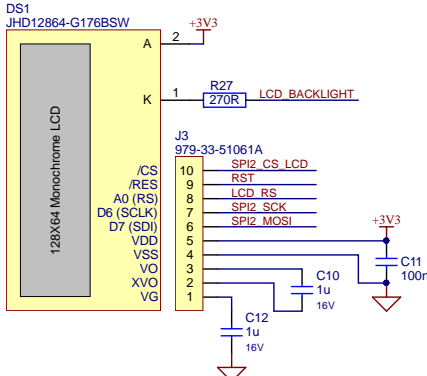
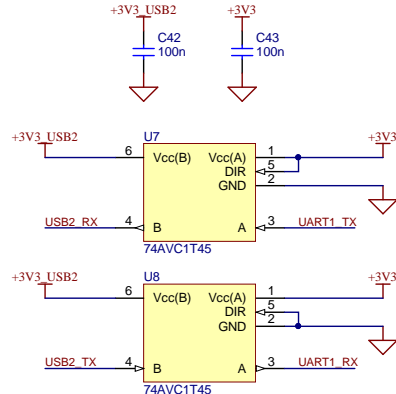
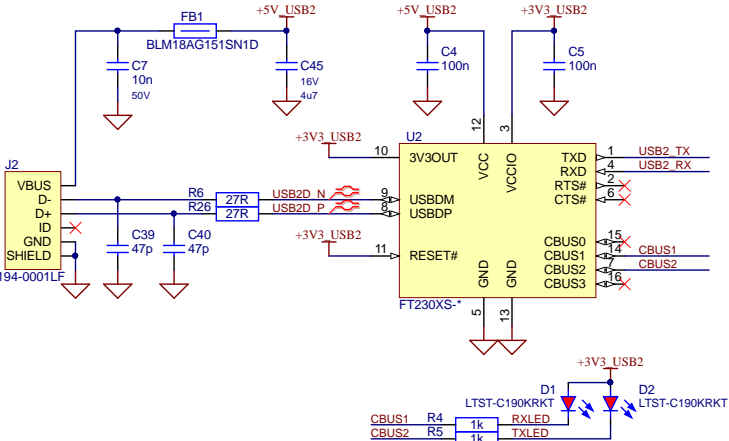
2019-03-15
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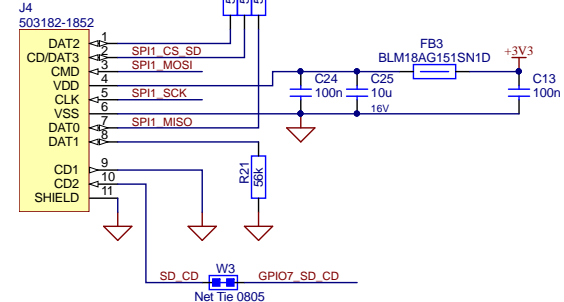
USB-Serial bridge

USB-Serial level translation and isolation (USB2 disconnected)

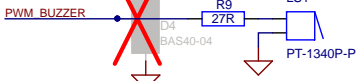
LCD



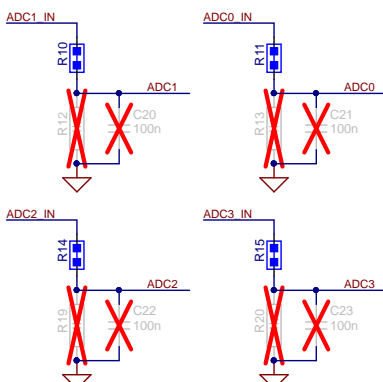
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Buzzer



ADC scale and filter circuitry

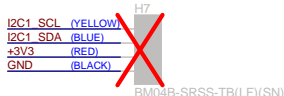


Peripheral connector

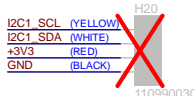
PWR	+VPWR	1	2	+VPWR
ADC	GND	3	4	GND
DAC	ADC0 (ADC IN8)	5	6	(ADC IN15) ADC1
GPIO	GND	7	8	(ADC IN7) ADC3
UART	DAC1	9	10	+3V3
I2C	GPIO0 (PA6)	11	12	GND
SPI	GPIO2 (PA1)	13	14	+3V3
	GPIO4 (PC3)	15	16	+3V3
	GPIO6 (PC1)	17	18	GPIO1
	GND	19	20	(PA0) GPIO3
	UART2_TX	21	22	(PC2) GPIO5
	UART4_TX	23	24	(PB7) GPIO7 SD_CD
	GND	25	26	+3V3
	UART2_RX	27	28	UART4_RX
	GND	29	30	+3V3
	I2C1_SCL	31	32	+3V3
	GND	33	34	I2C1_SDA
	SPI1_CS (PB6)	35	36	+3V3
	SPI1_MOSI	37	38	SPI1_SCK
		39	40	SPI1_MISO

(option to disconnect SD CD from GPIO7)

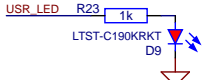
Sparkfun QWII Connector



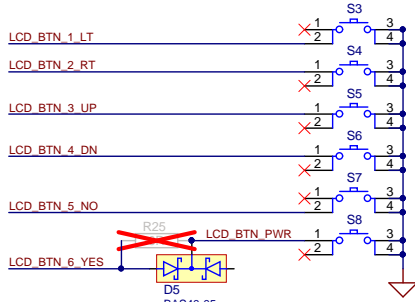
Seed Grove I2C Connector



LCD LED



LCD Buttons



(pull-up resistors on micro must be enabled)

PCB NAME Hero Board		PCB NUMBER P0012
SCH PAGE TITLE Peripherals		PCB REV D
SHEET 3 OF 3	DATE 2019-02-26	VARIANT deluxe edition
DRAWN BY Pieter Conradie	PROJECT ENGINEER Pieter Conradie	TEMPLATE REV 02
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