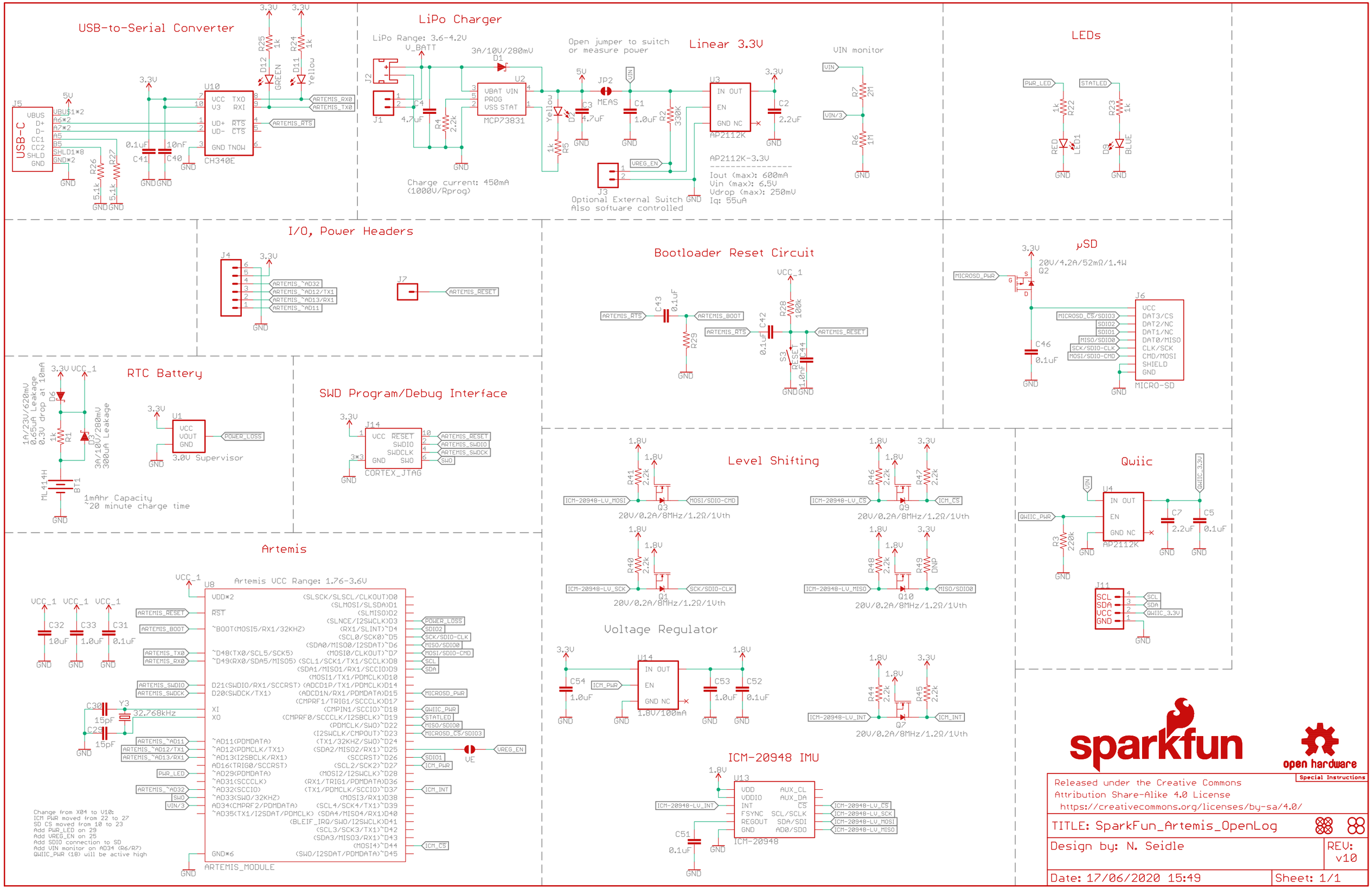
USB-to-Serial Converter
J5
USB-C
VBUS
D+
D-
CC1
CC2
SHLD
GND
U10
CH340E
VCC TXO
V3 RXI
UD+ RTS
UD- CTS
GND TNOW
ARTEMIS_RX0
ARTEMIS_TX0
ARTEMIS_RTS
D12 GREEN
D11 Yellow
R25 1k
R24 1k
R26 5.1k
R27 5.1k
C41 0.1uF
C40 10nF
3.3V
5V
GND
LiPo Charger
LiPo Range: 3.6-4.2V
V_BATT
J2
J1
C4 4.7uF
R4 2.2k
3A/10V/280mV
D1
U2
VBAT VIN
PROG
VSS STAT
MCP73831
Yellow
D2
R5 1k
C3 4.7uF
Charge current: 450mA
(1000V/Rprog)
Open jumper to switch
or measure power
JP2
MEAS
VIN
C1 1.0uF
R2 330k
VREG_EN
J3
Optional External Switch
Also software controlled
Linear 3.3V
U3
IN OUT
EN
GND NC
AP2112K
C2 2.2uF
AP2112K-3.3V
Iout (max): 600mA
Vin (max): 6.5V
Vdrop (max): 250mV
Iq: 55uA
VIN monitor
VIN
VIN/3
R7 2M
R6 1M
LEDs
PWR_LED
STATLED
R22 1k
R23 1k
RED LED1
D9 BLUE
I/O, Power Headers
J4
ARTEMIS_^AD32
ARTEMIS_^AD12/TX1
ARTEMIS_^AD13/RX1
ARTEMIS_^AD11
J7
ARTEMIS_RESET
Bootloader Reset Circuit
VCC_1
C43 0.1uF
ARTEMIS_RTS
ARTEMIS_BOOT
R29
R28 100k
C42 0.1uF
ARTEMIS_RESET
S3 RESET
C44 1.0nF
µSD
20V/4.2A/52mΩ/1.4W
Q2
MICROSD_PWR
J6
MICRO-SD
VCC
DAT3/CS
DAT2/NC
DAT1/NC
DAT0/MISO
CLK/SCK
CMD/MOSI
SHIELD
GND
MICROSD_CS/SDIO3
SDIO2
SDIO1
MISO/SDIO0
SCK/SDIO-CLK
MOSI/SDIO-CMD
C46 0.1uF
RTC Battery
1A/23V/620mV
0.65uA Leakage
0.3V drop at 10mA
D6
R1 1k
D3
3A/10V/280mV
300uA Leakage
BT1
ML414H
1mAhr Capacity
~20 minute charge time
U1
VCC
VOUT
GND
POWER_LOSS
3.0V Supervisor
SWD Program/Debug Interface
J14
VCC RESET
SWDIO
SWDCLK
GND SWO
CORTEX_JTAG
ARTEMIS_RESET
ARTEMIS_SWDIO
ARTEMIS_SWDCK
SWO
Artemis
Artemis VCC Range: 1.76-3.6V
U8
VDD*2
RST
~BOOT(MOSI5/RX1/32KHZ)
~D48(TX0/SCL5/SCK5)
~D49(RX0/SDA5/MISO5)
D21(SWDIO/RX1/SCCRST)
D20(SWDCK/TX1)
XI
XO
~AD11(PDMDATA)
~AD12(PDMCLK/TX1)
~AD13(I2SBCLK/RX1)
AD16(TRIG0/SCCRST)
~AD29(PDMDATA)
~AD31(SCCCLK)
~AD32(SCCIO)
~AD33(SWO/32KHZ)
AD34(CMPRF2/PDMDATA)
~AD35(TX1/I2SDAT/PDMCLK)
GND*6
(SLSCK/SLSCL/CLKOUT)D0
(SLMOSI/SLSDA)D1
(SLMISO)D2
(SLNCE/I2SWCLK)D3
(RX1/SLINT)~D4
(SCL0/SCK0)~D5
(SDA0/MISO0/I2SDAT)~D6
(MOSI0/CLKOUT)~D7
(SCL1/SCK1/TX1/SCCLK)D8
(SDA1/MISO1/RX1/SCCIO)D9
(MOSI1/TX1/PDMCLK)D10
(ADCD1P/TX1/PDMCLK)D14
(ADCD1N/RX1/PDMDATA)D15
(CMPRF1/TRIG1/SCCCLK)D17
(CMPIN1/SCCIO)~D18
(CMPRF0/SCCCLK/I2SBCLK)~D19
(PDMCLK/SWO)~D22
(I2SWCLK/CMPOUT)~D23
(TX1/32KHZ/SWO)~D24
(SDA2/MISO2/RX1)~D25
(SCCRST)~D26
(SCL2/SCK2)~D27
(MOSI2/I2SWCLK)~D28
(RX1/TRIG1/PDMDATA)D36
(TX1/PDMCLK/SCCIO)~D37
(MOSI3/RX1)D38
(SCL4/SCK4/TX1)~D39
(SDA4/MISO4/RX1)D40
(BLEIF_IRQ/SWO/I2SWCLK)D41
(SCL3/SCK3/TX1)~D42
(SDA3/MISO3/RX1)~D43
(MOSI4)~D44
(SWO/I2SDAT/PDMDATA)~D45
ARTEMIS_MODULE
POWER_LOSS
SDIO2
SCK/SDIO-CLK
MISO/SDIO0
MOSI/SDIO-CMD
SCL
SDA
MICROSD_PWR
QWIIC_PWR
STATLED
MISO/SDIO0
MICROSD_CS/SDIO3
VREG_EN
VE
SDIO1
ICM_PWR
ICM_INT
ICM_CS
C32 10uF
C33 1.0uF
C31 0.1uF
C30 15pF
C29 15pF
Y3 32.768kHz
Change from X04 to V10:
ICM PWR moved from 22 to 27
SD CS moved from 10 to 23
Add PWR_LED on 29
Add VREG_EN on 25
Add SDIO connection to SD
Add VIN monitor on AD34 (R6/R7)
QWIIC_PWR (18) will be active high
Level Shifting
ICM-20948-LV_MOSI
MOSI/SDIO-CMD
R41 2.2k
Q3
20V/0.2A/8MHz/1.2Ω/1Vth
ICM-20948-LV_CS
ICM_CS
R46 2.2k
R47 2.2k
Q9
ICM-20948-LV_SCK
SCK/SDIO-CLK
R40 2.2k
Q1
ICM-20948-LV_MISO
MISO/SDIO0
R48 2.2k
R49 DNP
Q10
Voltage Regulator
U14
IN OUT
EN
GND NC
1.8V/100mA
C54 1.0uF
ICM_PWR
C53 1.0uF
C52 0.1uF
ICM-20948-LV_INT
ICM_INT
R44 2.2k
R45 2.2k
Q7
ICM-20948 IMU
U13
VDD
VDDIO
INT
FSYNC
REGOUT
GND
AUX_CL
AUX_DA
CS
SCL/SCLK
SDA/SDI
AD0/SDO
ICM-20948
C51 0.1uF
Qwiic
U4
QWIIC_PWR
R3 220k
C7 2.2uF
C5 0.1uF
QWIIC_3.3V
J11
SCL
SDA
VCC
GND
QWIIC_3.3V
sparkfun
open hardware
Special Instructions
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Design by: N. Seidle
REV: v10
Date: 17/06/2020 15:49
Sheet: 1/1