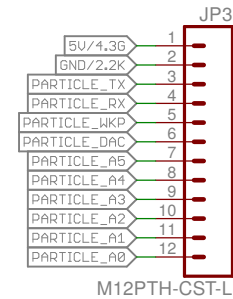
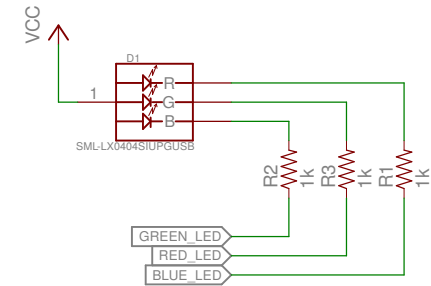
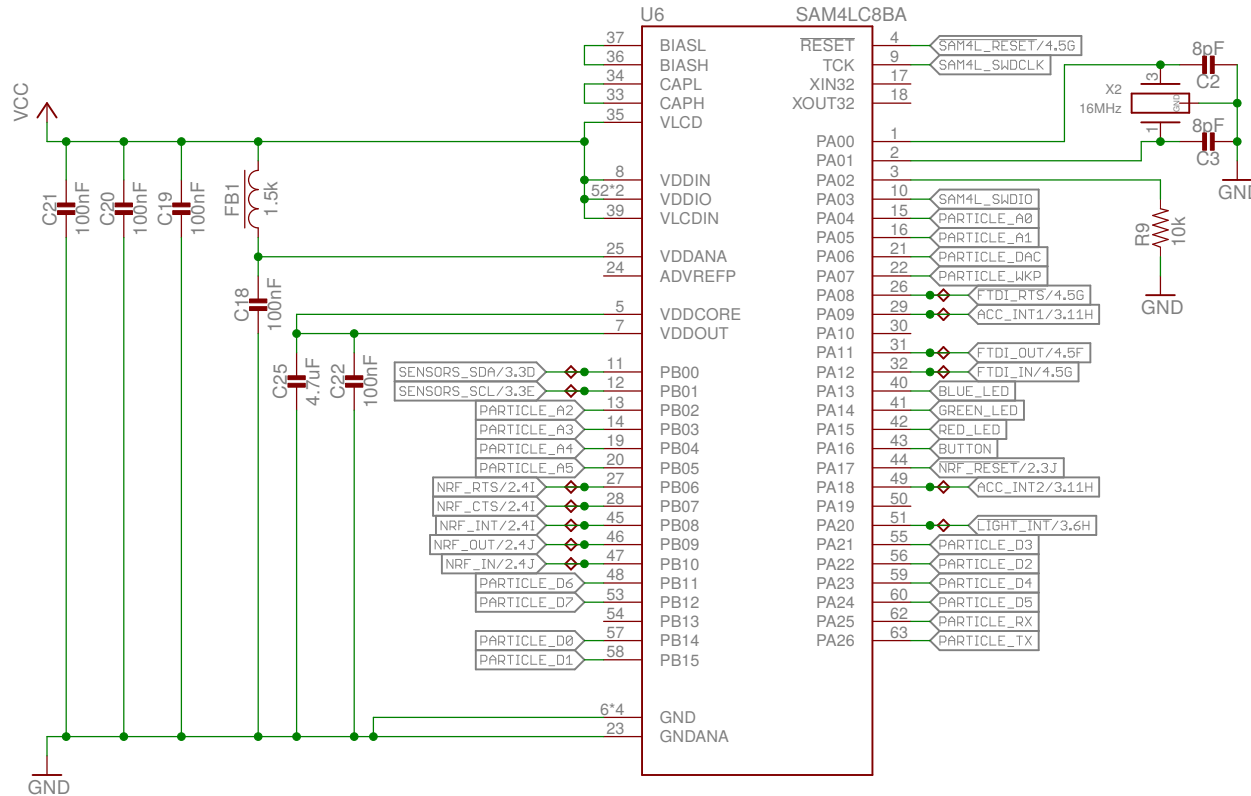
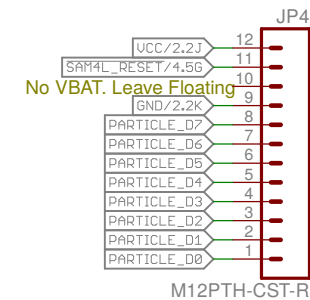


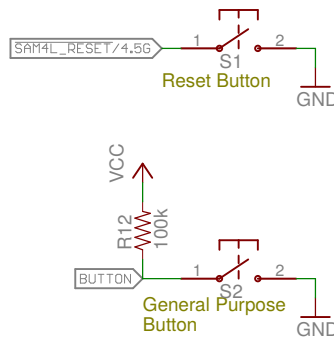
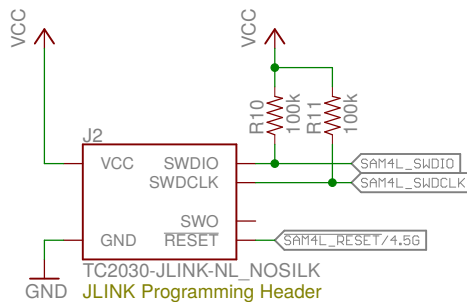
# Microcontroller



M12PTH-CST-L



M12PTH-CST-R



**M** Hail

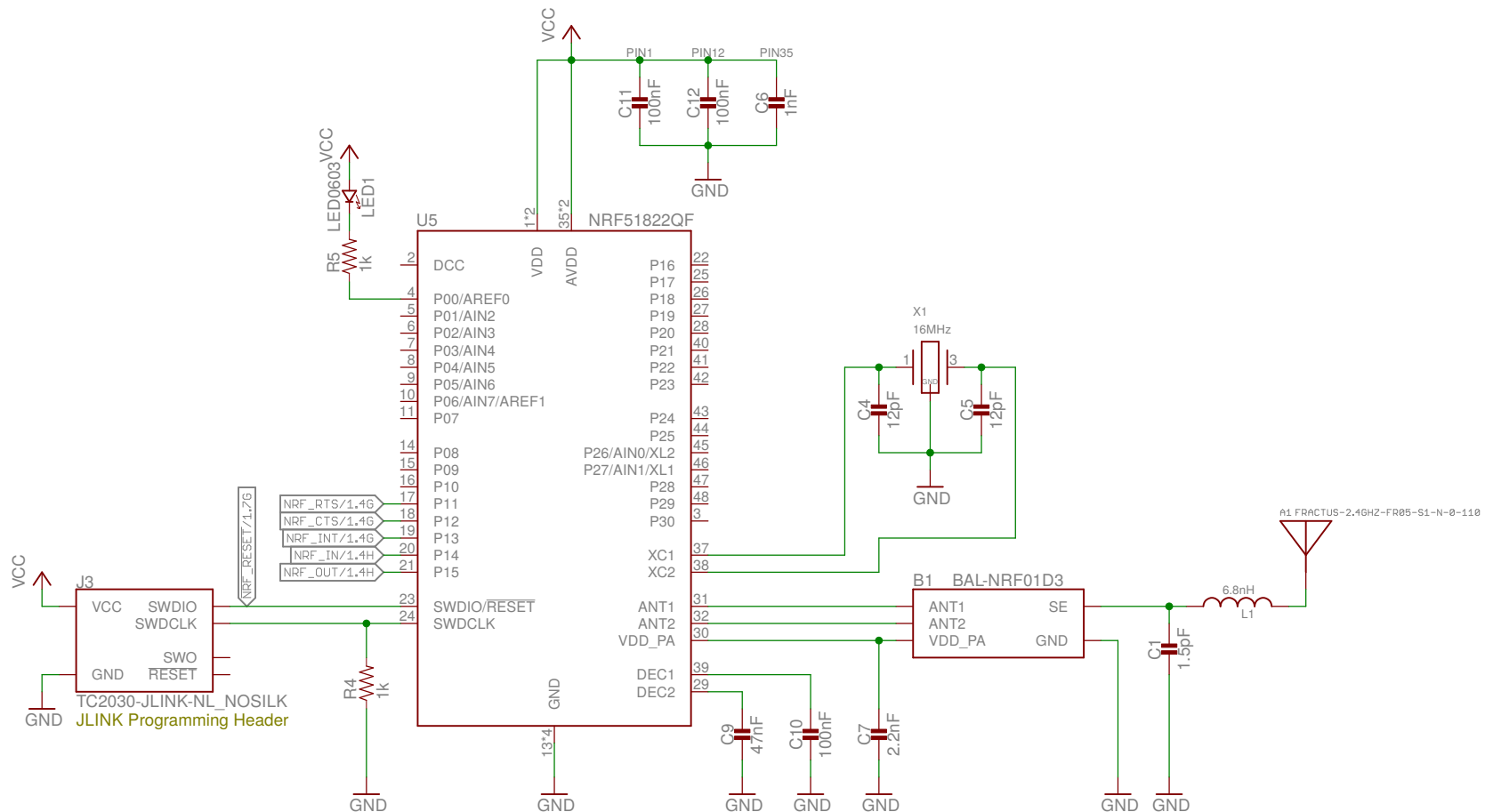
REV:  
A

Author: Branden Ghena

Date: 12/3/16 3:40 PM

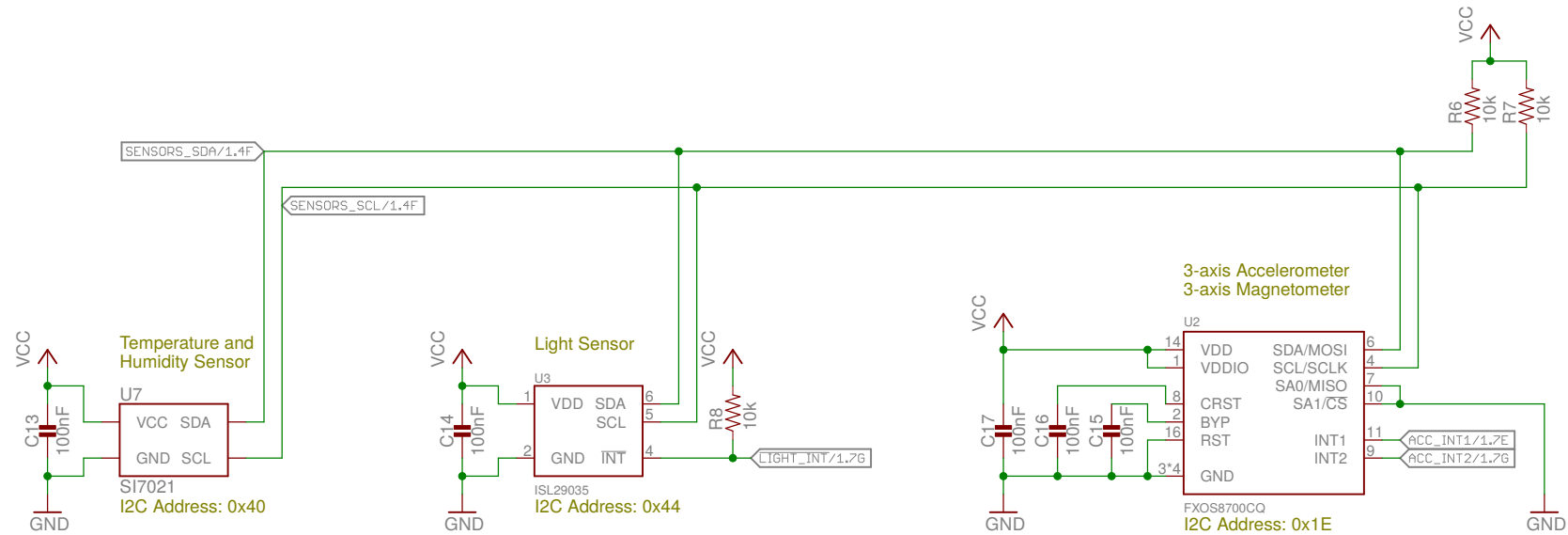
Sheet: 1/4

# BLE Radio



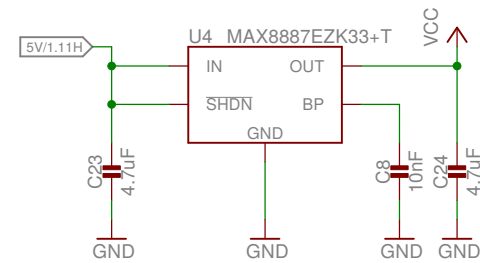
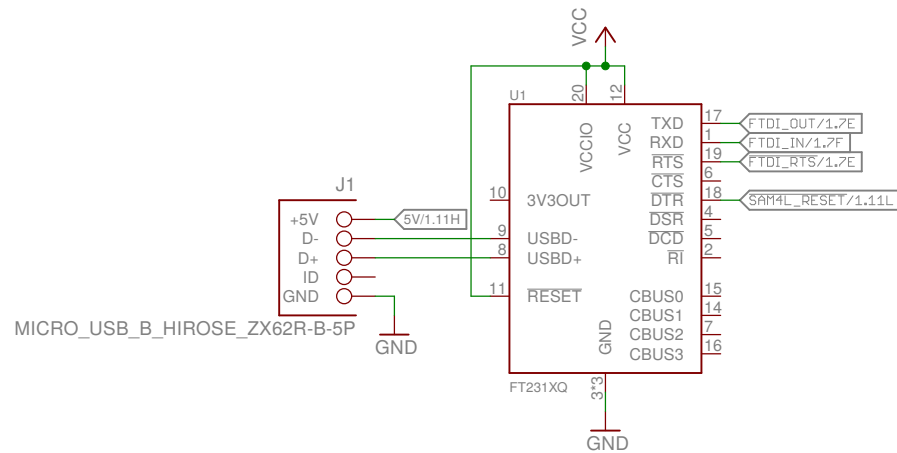
<b>M</b> Hail	REV: A
Author: Branden Ghena	
Date: 12/3/16 3:40 PM	Sheet: 2/4

# Sensors



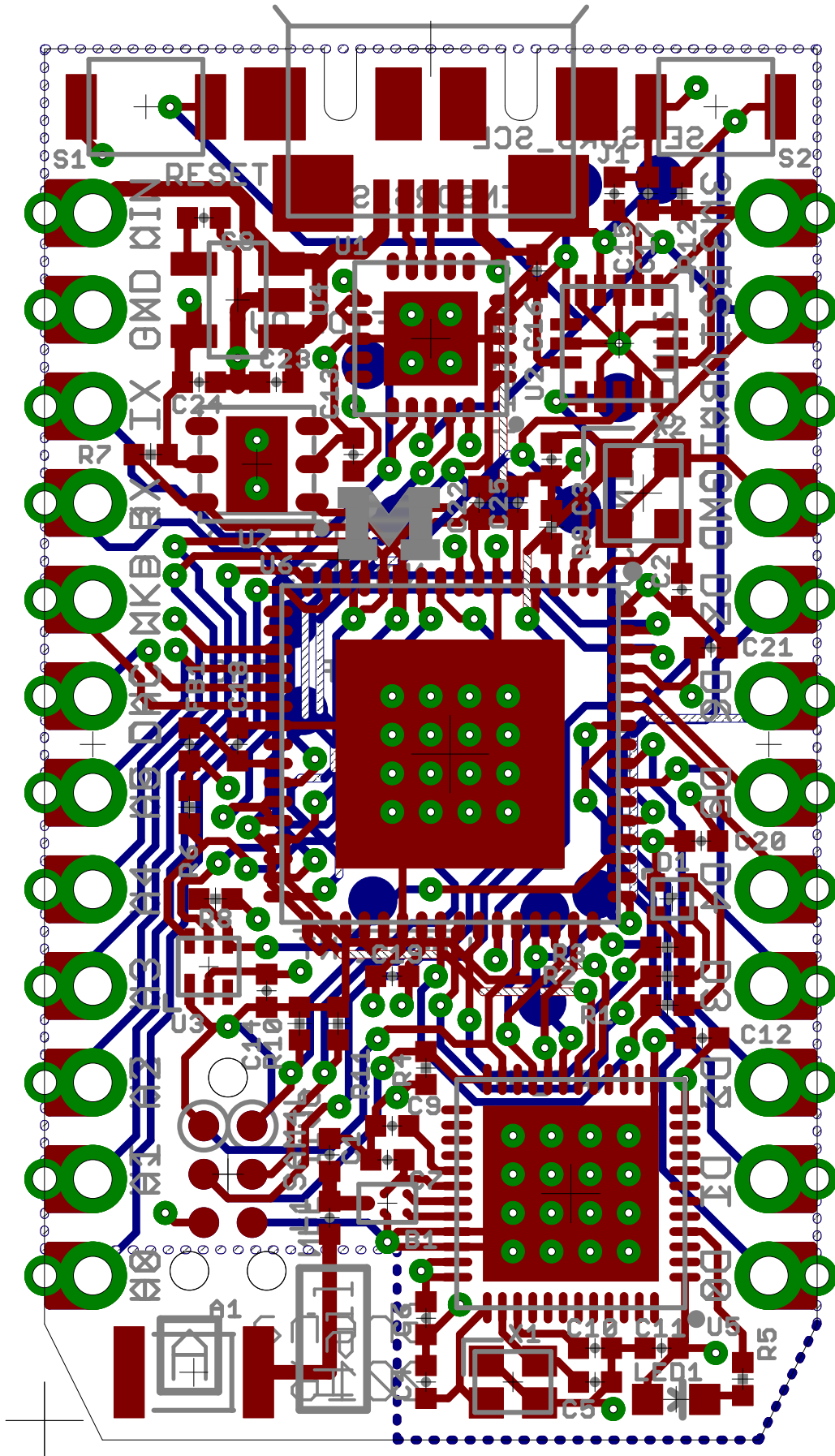
<b>M</b> Hail	REV: A
Author: Branden Ghena	
Date: 12/3/16 3:40 PM	Sheet: 3/4

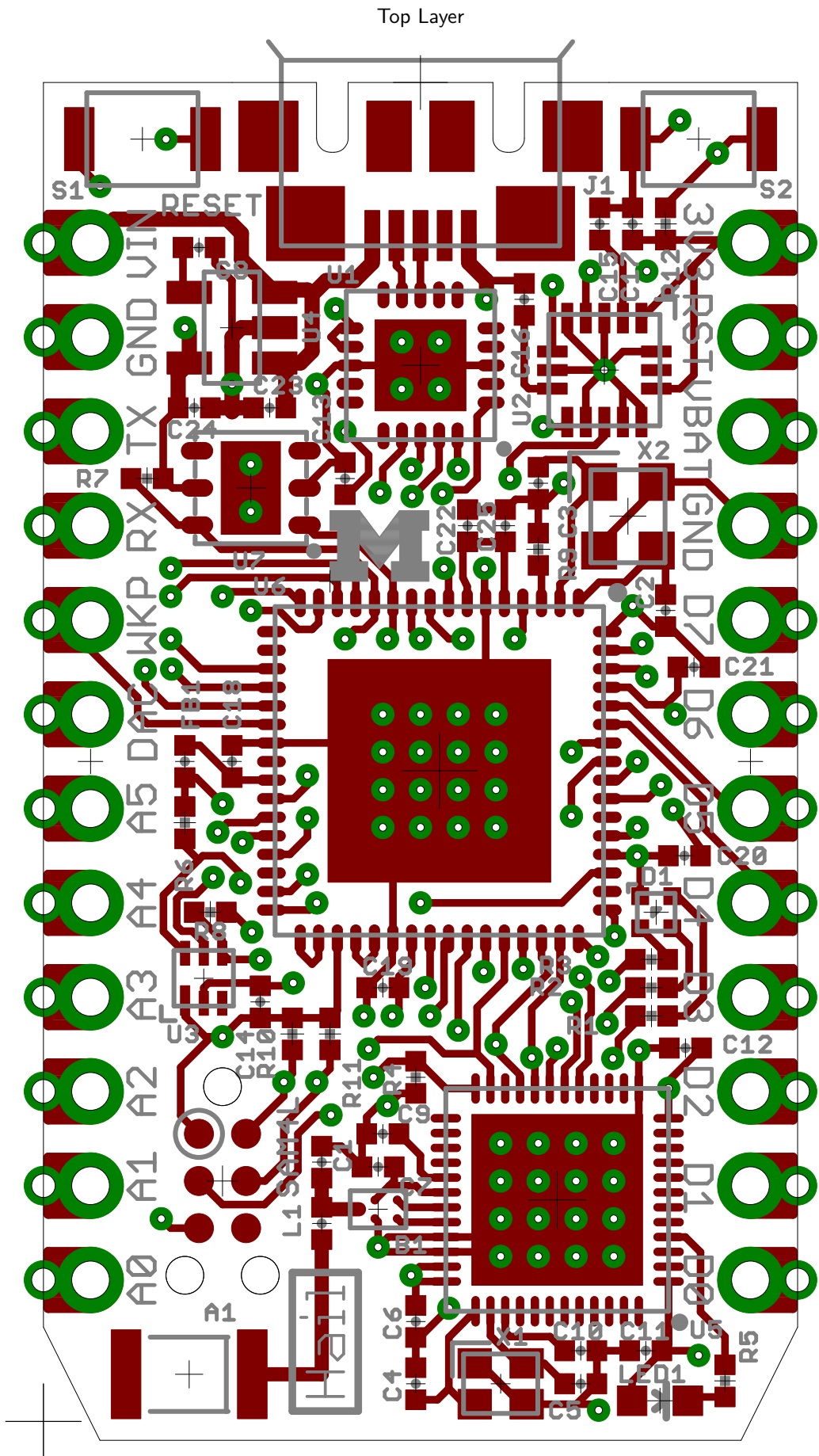
# Power and USB

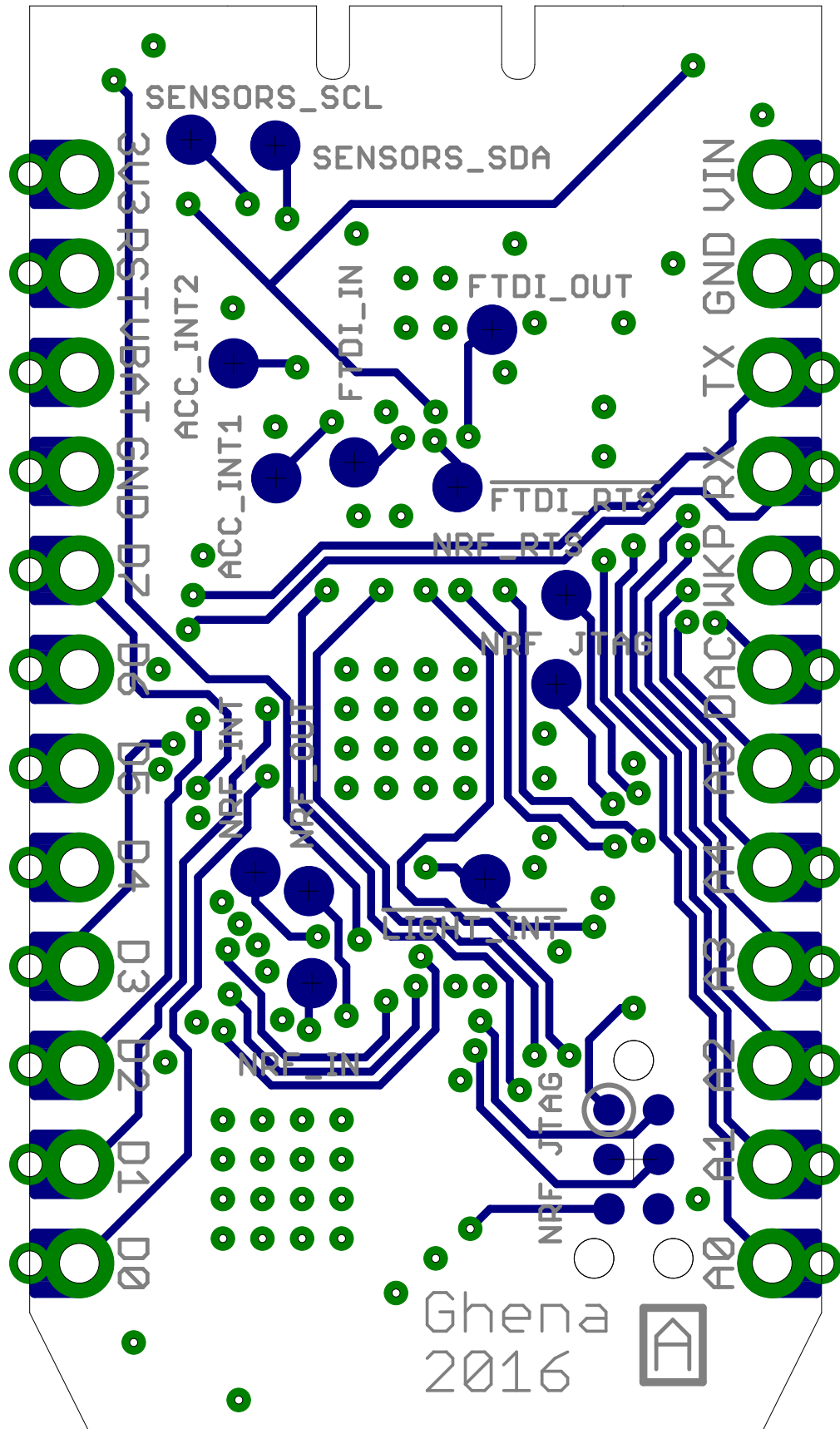


<b>M</b> Hail	REV: A
Author: Branden Ghena	
Date: 12/3/16 3:40 PM	Sheet: 4/4

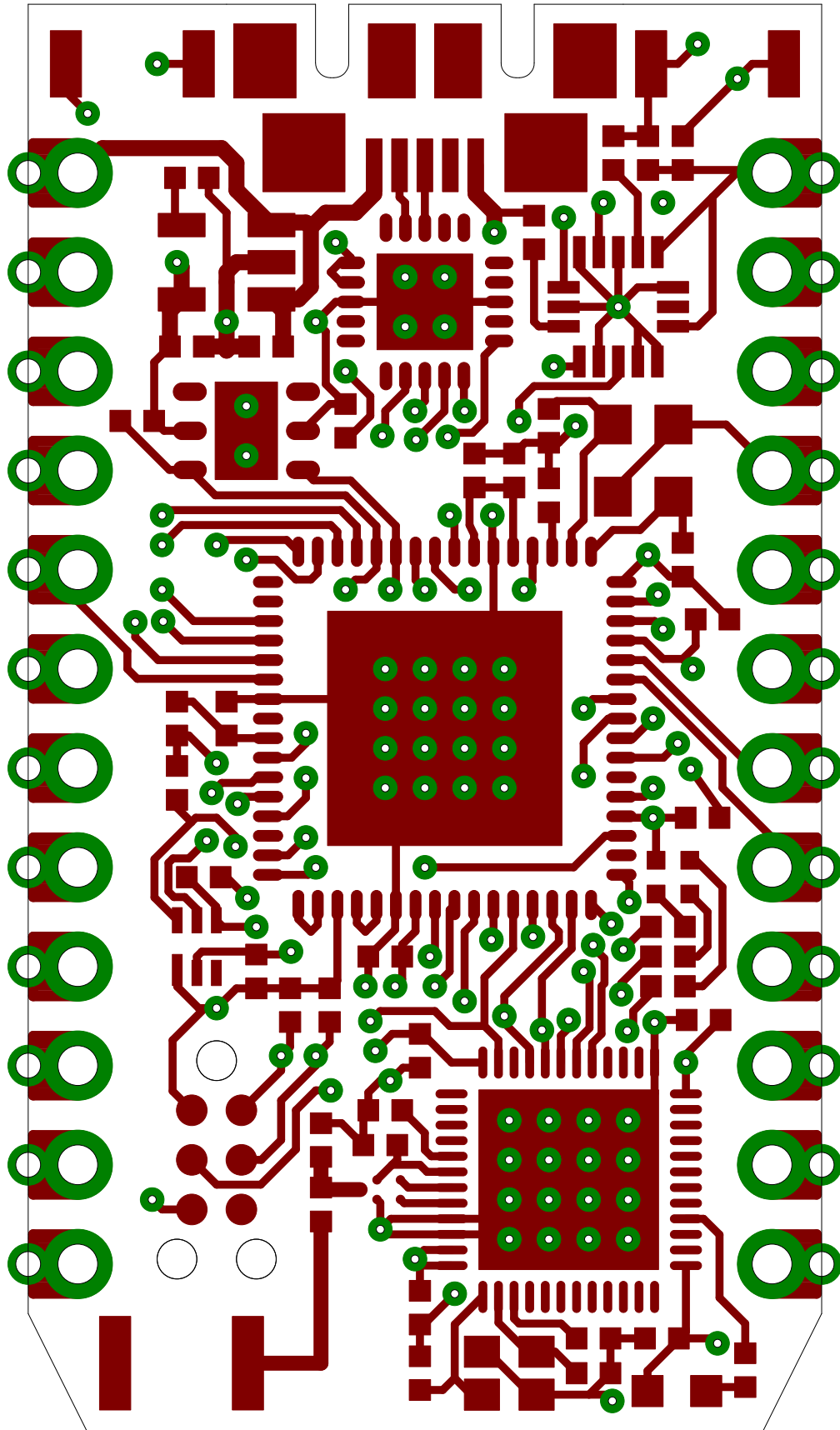
Top and Bottom Layers



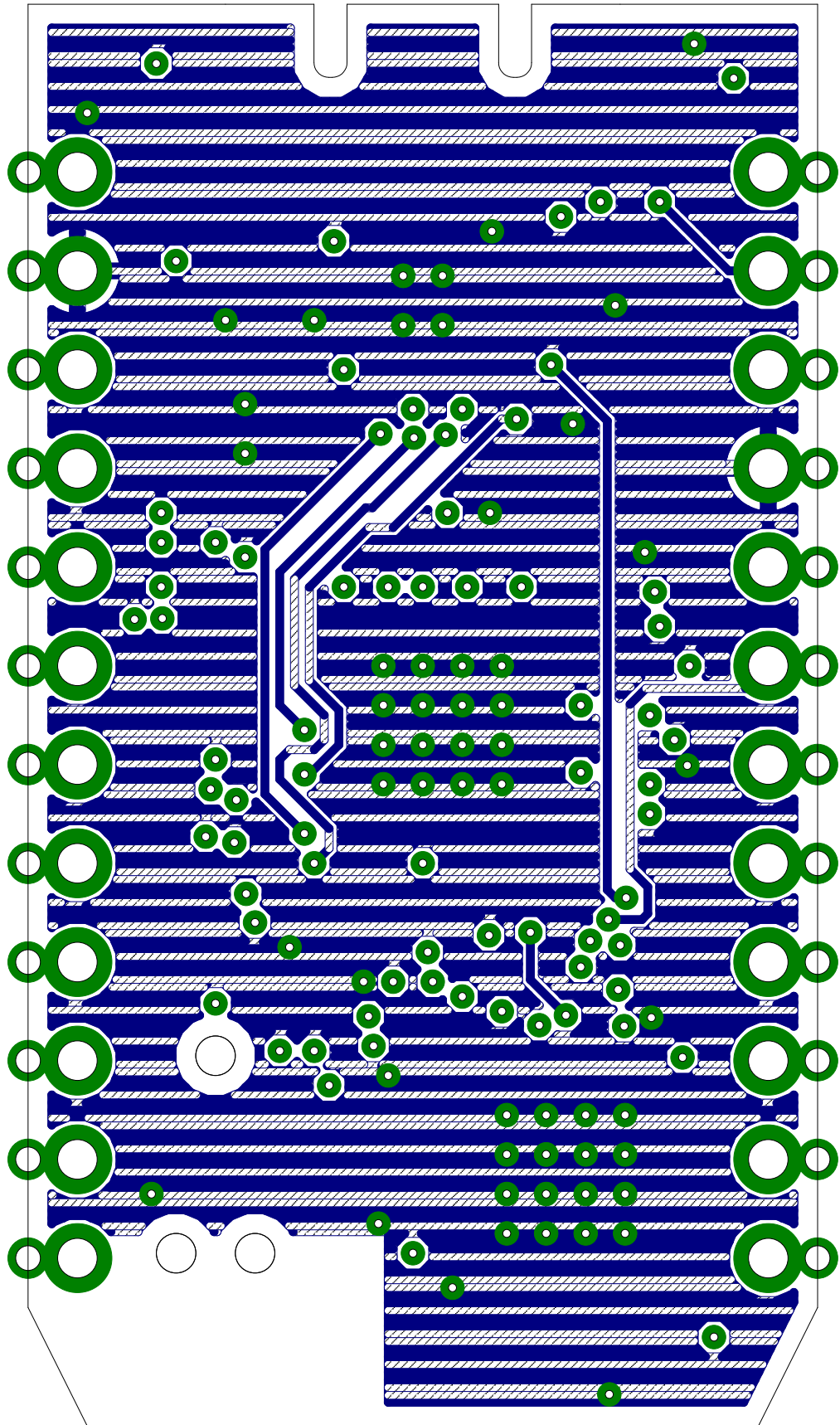


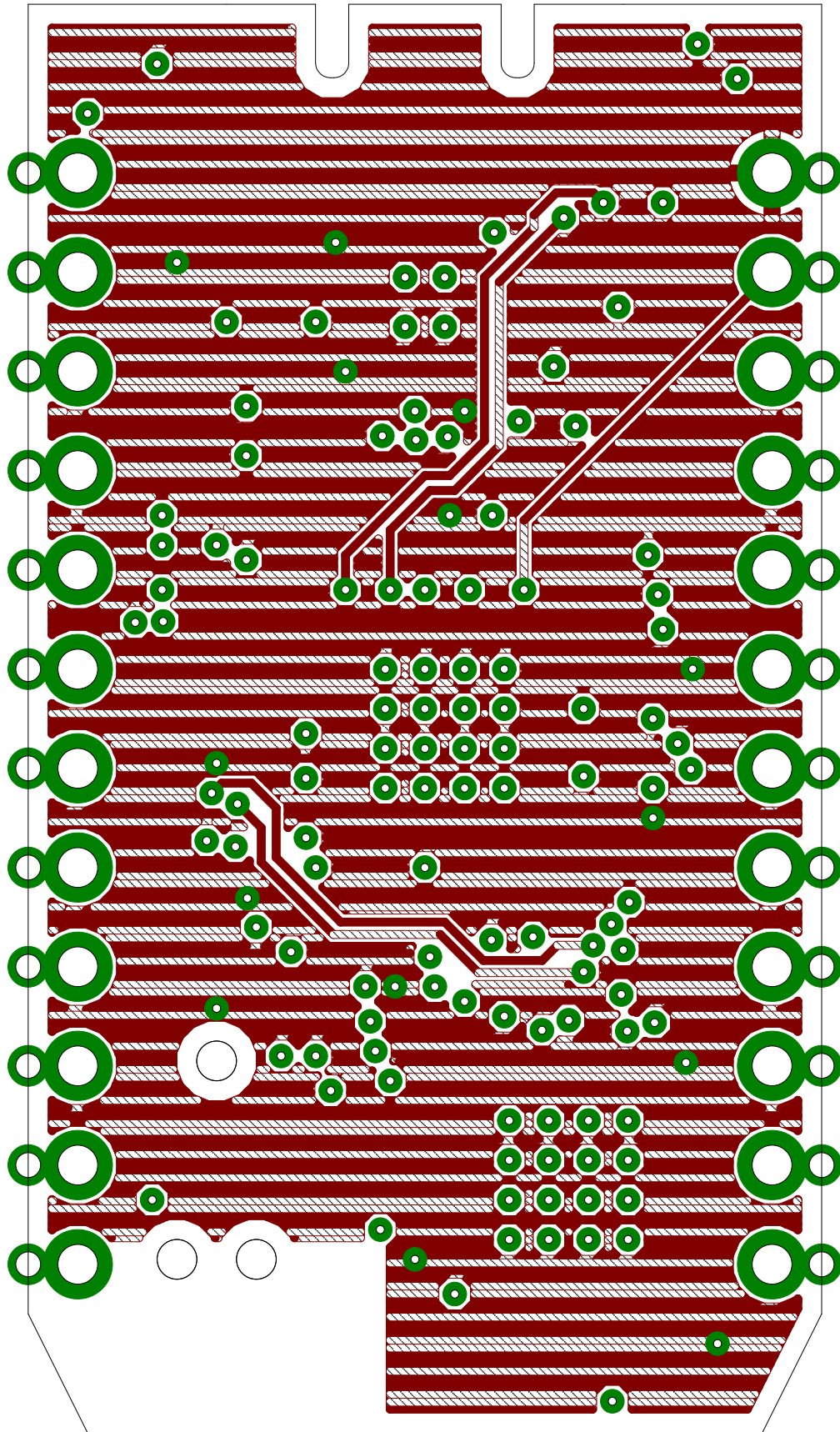


Top Copper Layer

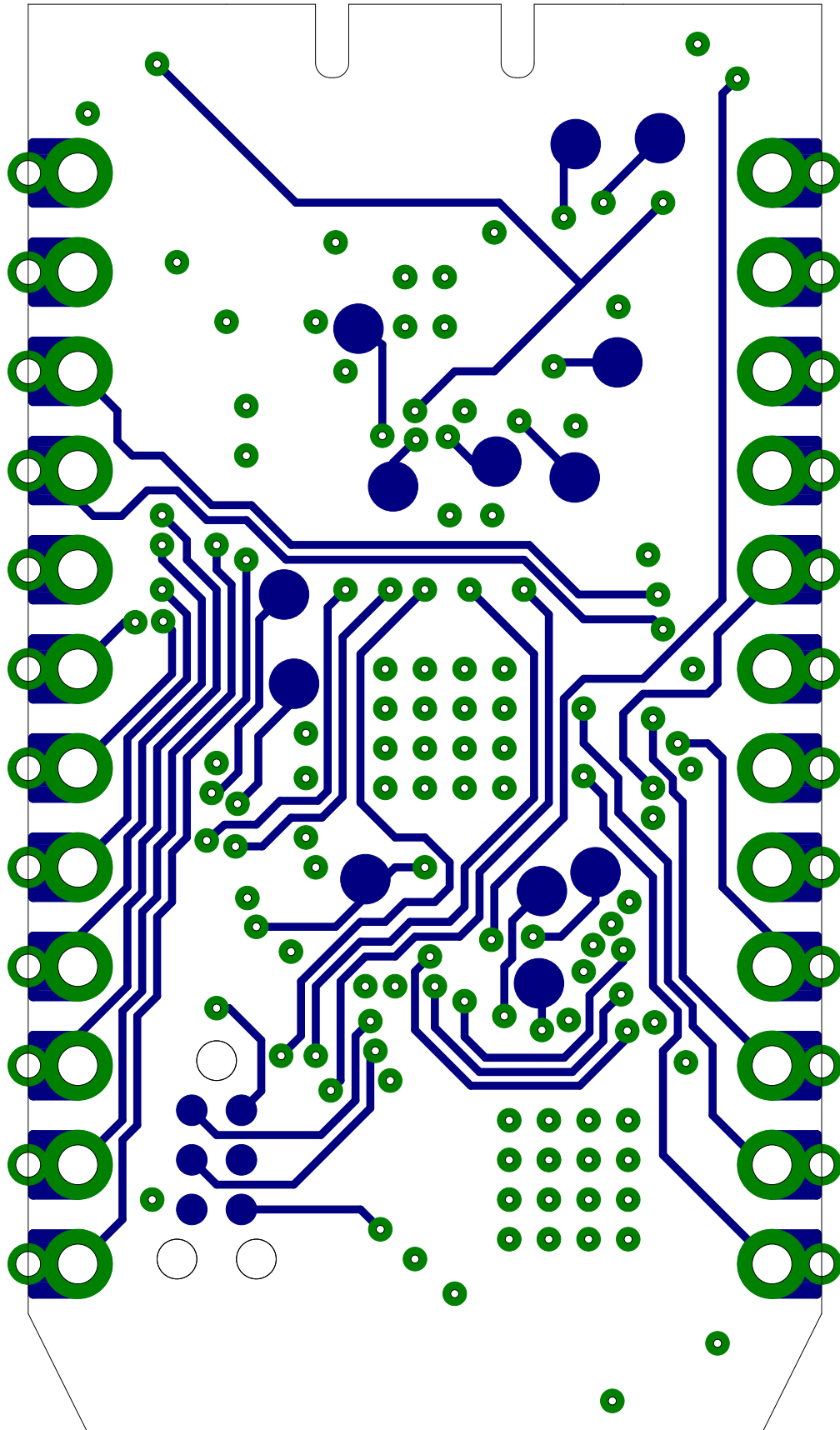


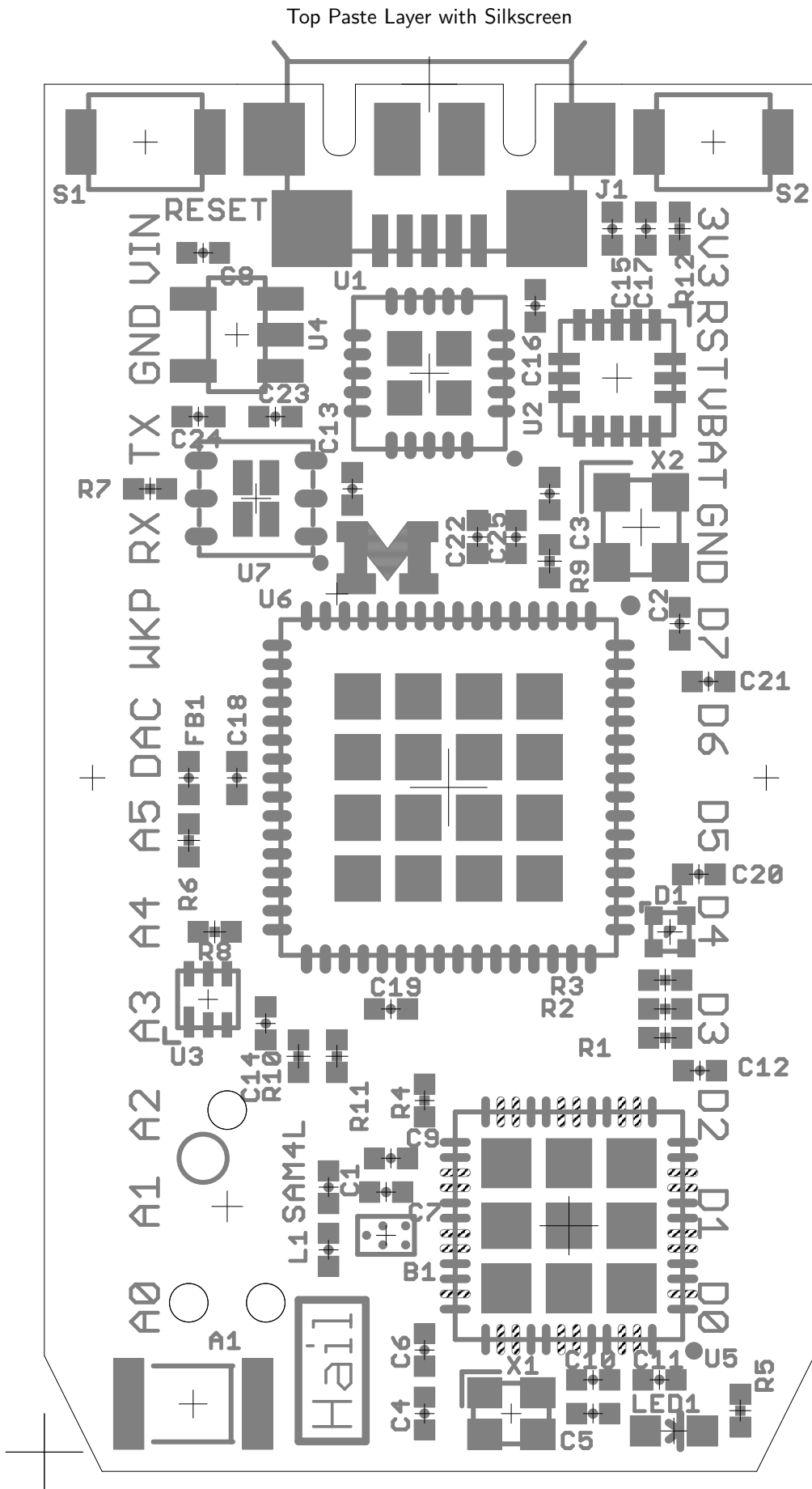


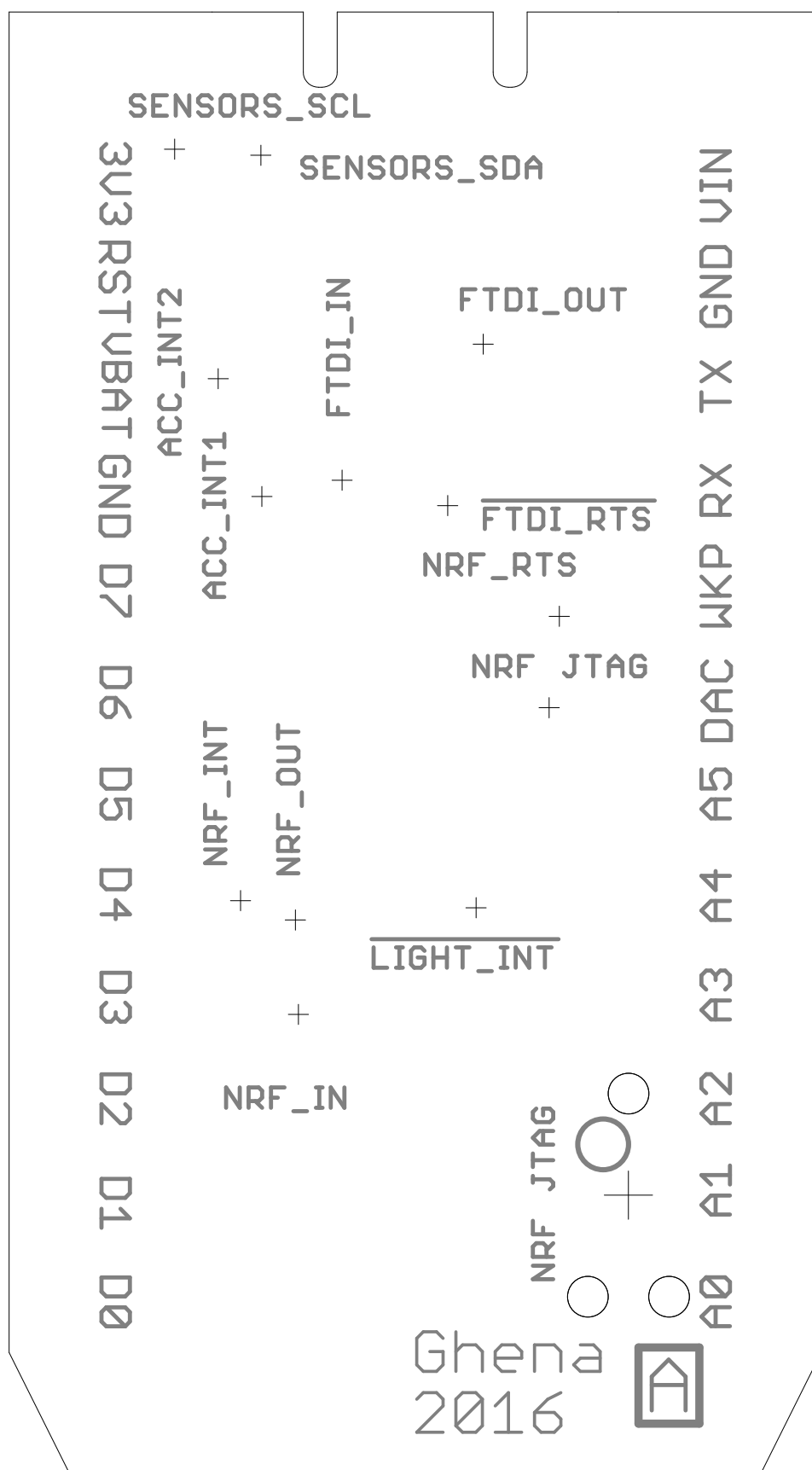




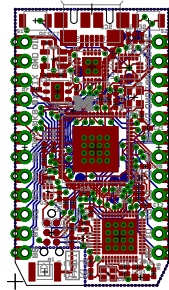
Bottom Copper Layer

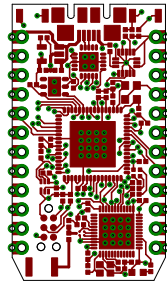


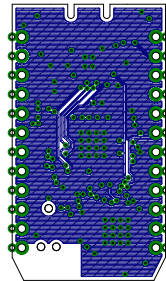




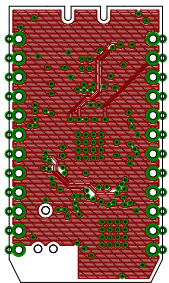
Top and Bottom Layers 1:1 Scale



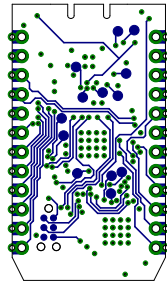








Bottom Copper Layer 1:1 Scale



# hail\_bom

Qty	Value	Device
1	FRACTUS-2.4GHZ-FR05-S1-N-0-110	FRACTUS-2.4GHZ-FR05-S1-N-0-110
1	BAL-NRF01D3	BAL-NRF01D3
1	1.5pF	CAPACITOR0402_CAP
2	8pF	CAPACITOR0402_CAP
2	12pF	CAPACITOR0402_CAP
1	1nF	CAPACITOR0402_CAP
1	2.2nF	CAPACITOR0402_CAP
1	10nF	CAPACITOR0402_CAP
1	47nF	CAPACITOR0402_CAP
13	100nF	CAPACITOR0402_CAP
3	4.7uF	CAPACITOR0402_CAP
1	SML-LX0404SIUPGUSB	SML-LX0404SIUPGUSB
1	1.5k	FERRITE_BEAD0402
1	MICRO_USB_B_HIROSE_ZX62R-B-5	MICRO_USB_B_HIROSE_ZX62R-B-5
2	TC2030-JLINK-NL_NOSILK	TC2030-JLINK-NL_NOSILK
1	M12PTH-CST-L	M12PTH-CST-L
1	M12PTH-CST-R	M12PTH-CST-R
1	6.8nH	INDUCTOR0402
1	LED0603	LED0603
5	1k	RESISTOR0402_RES
4	10k	RESISTOR0402_RES
3	100k	RESISTOR0402_RES
2	B3U-1000P	B3U-1000P
1	FT231XQ	FT231XQ
1	FXOS8700CQ	FXOS8700CQ
1	ISL29035	ISL29035
1	MAX8887EZK33+T	MAX8887EZK33+T
1	NRF51822QF	NRF51822QF
1	SAM4LC8BA	SAM4LC8BA
1	SI7021	SI7021
1	16MHz	TXC-8Y
1	16MHz	FH1600015

## hail\_bom

Package  
FRACTUS-ANTENNA-FR05-S1-N-0-110  
BAL-NRF01D3  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
0402\_CAP  
1MM\_SQ\_4PAD  
0402\_CAP  
USB\_MICRO\_B-HIROSE-ZX62R-B-5P  
TC2030-IDC-NL\_NOSILK  
1X12-CASTELLATED  
1X12-CASTELLATED  
0402\_CAP  
LED-0603  
0402\_RES  
0402\_RES  
0402\_RES  
B3U-1000P  
QFN-20-4MM  
QFN-16-3MM  
ODFN-6-1.5MMX1.6MM  
SOT-23-5  
QFN-48-6MM  
QFN-64-9MM  
DFN-6/3MM  
TXC-8Y  
FHXXX

## hail\_bom

### Parts

A1

B1

C1

C2, C3

C4, C5

C6

C7

C8

C9

C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22

C23, C24, C25

D1

FB1

J1

J2, J3

JP3

JP4

L1

LED1

R1, R2, R3, R4, R5

R6, R7, R8, R9

R10, R11, R12

S1, S2

U1

U2

U3

U4

U5

U6

U7

X1

X2

## hail\_bom

Description	DIGIKEY
Fractus Micro Reach Xtend	
50 ohm nominal input / conjugate match balun to nRF51422-QFAA,	497-13637-1-ND
0402 Capacitor	490-6212-1-ND
0402 Capacitor	490-8230-1-ND
0402 Capacitor	490-6197-1-ND
0402 Capacitor	490-1303-1-ND
0402 Capacitor	490-5419-1-ND
0402 Capacitor	490-7763-1-ND
0402 Capacitor	445-1264-1-ND
0402 Capacitor	490-10777-1-ND
0402 Capacitor	490-13252-1-ND
1mm^2 RGB LED	67-2125-1-ND
0402 Ferrite Bead	490-5216-1-ND
USB Micro B Connector	H125274CT-ND
Header 12	
Header 12	
A very specific inductor	490-6840-1-ND
LED	160-1837-6-ND
Resistor	1276-3430-1-ND
Resistor	1276-3431-1-ND
Resistor	1276-3432-1-ND
Switch	SW1020CT-ND
USB Bridge, USB to UART USB 2.0 UART Interface	768-1128-1-ND
Accelerometer, Magnetometer, 3 Axis Sensor, I2C/SPI	FXOS8700CQR1CT-ND
Optical Sensor Ambient 550nm I2C	ISL29035IROZ-T7CT-ND
IC REG LDO 3.3V 0.3A TSOT23-5	MAX8887EZK33+TCT-ND
Multiprotocol Bluetooth® 4.0 low energy/2.4 GHz RF SoC	1490-1032-1-ND
SAM4L Microcontroller. 64QFN Package. 512 Flash.	ATSAM4LC8BA-MURDKR-ND
IC TEMP SENSOR RH 2% DFN	336-3141-1-ND
2mmx1.6mm SMD Crystal	887-2003-1-ND
Pericom Type FH 16 MHz 2.5 x 2.0 mm	FH1600015CT-ND

hail\_bom

RICHARDSON\_RFPD  
FR05-S1-N-0110B