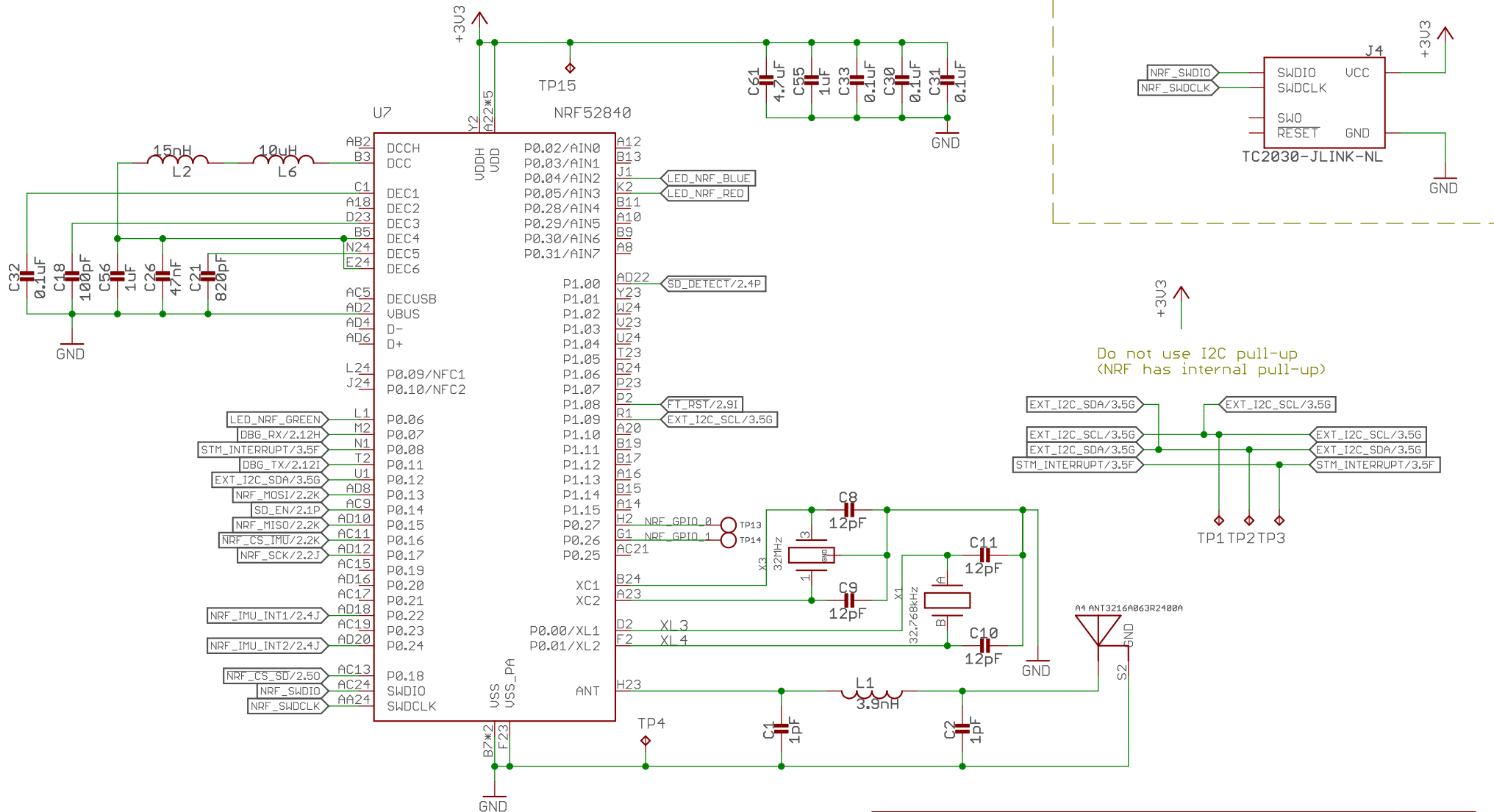
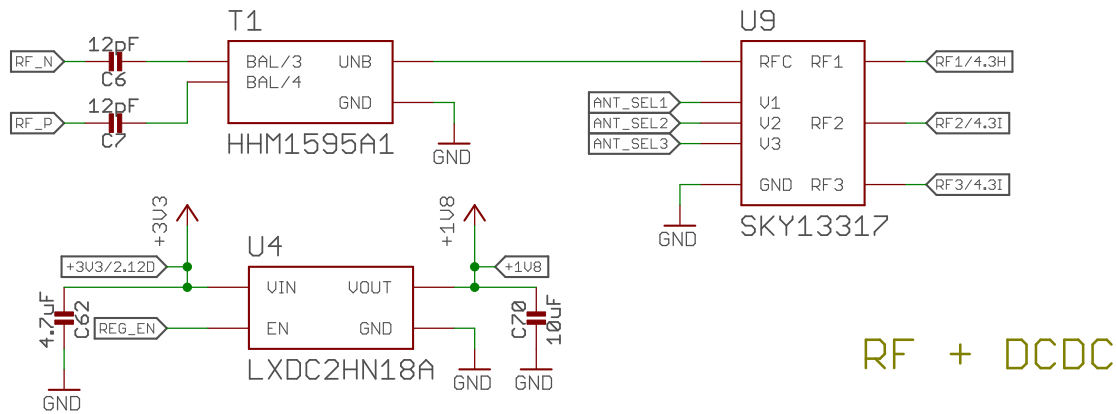


nRF52840 BLE

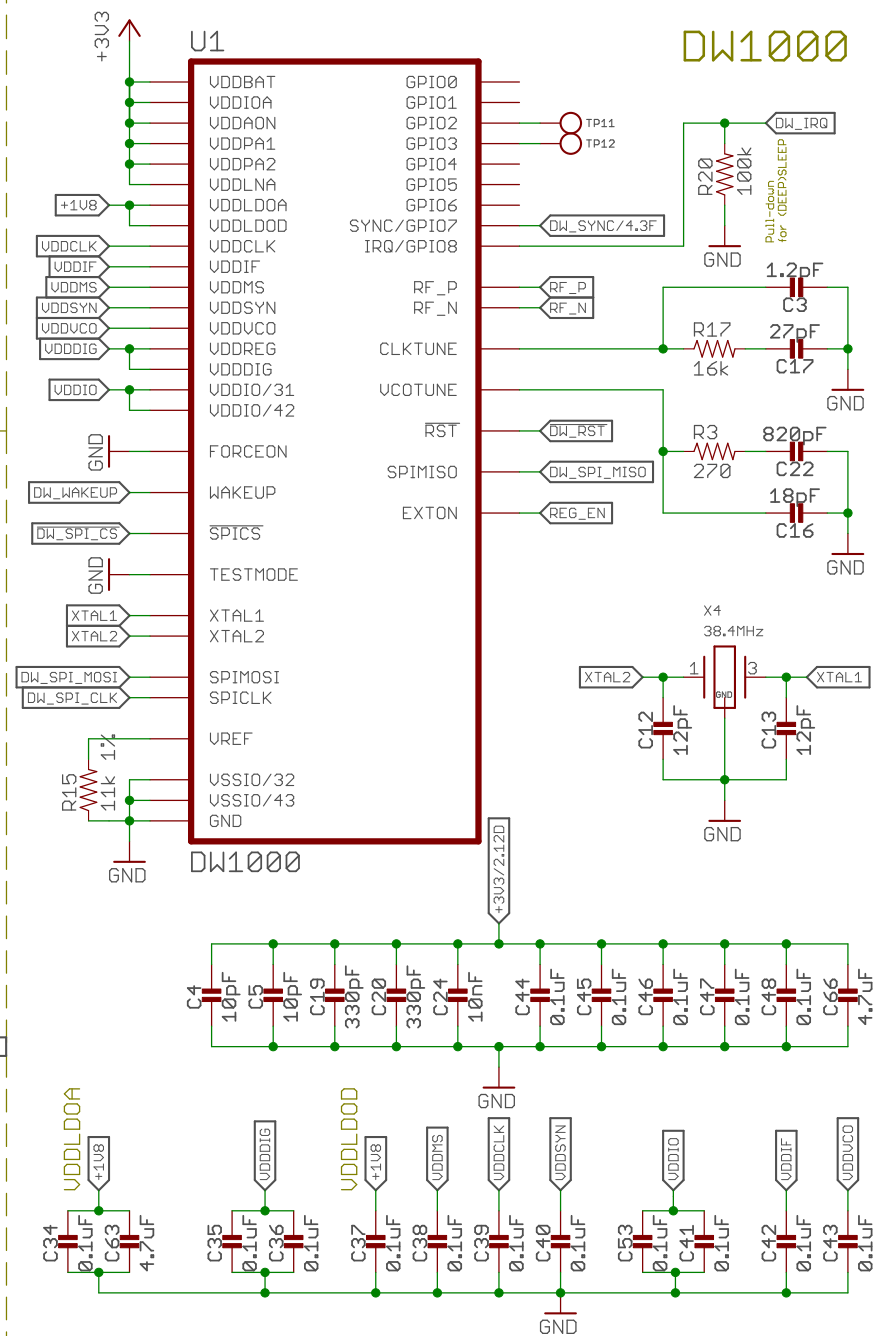
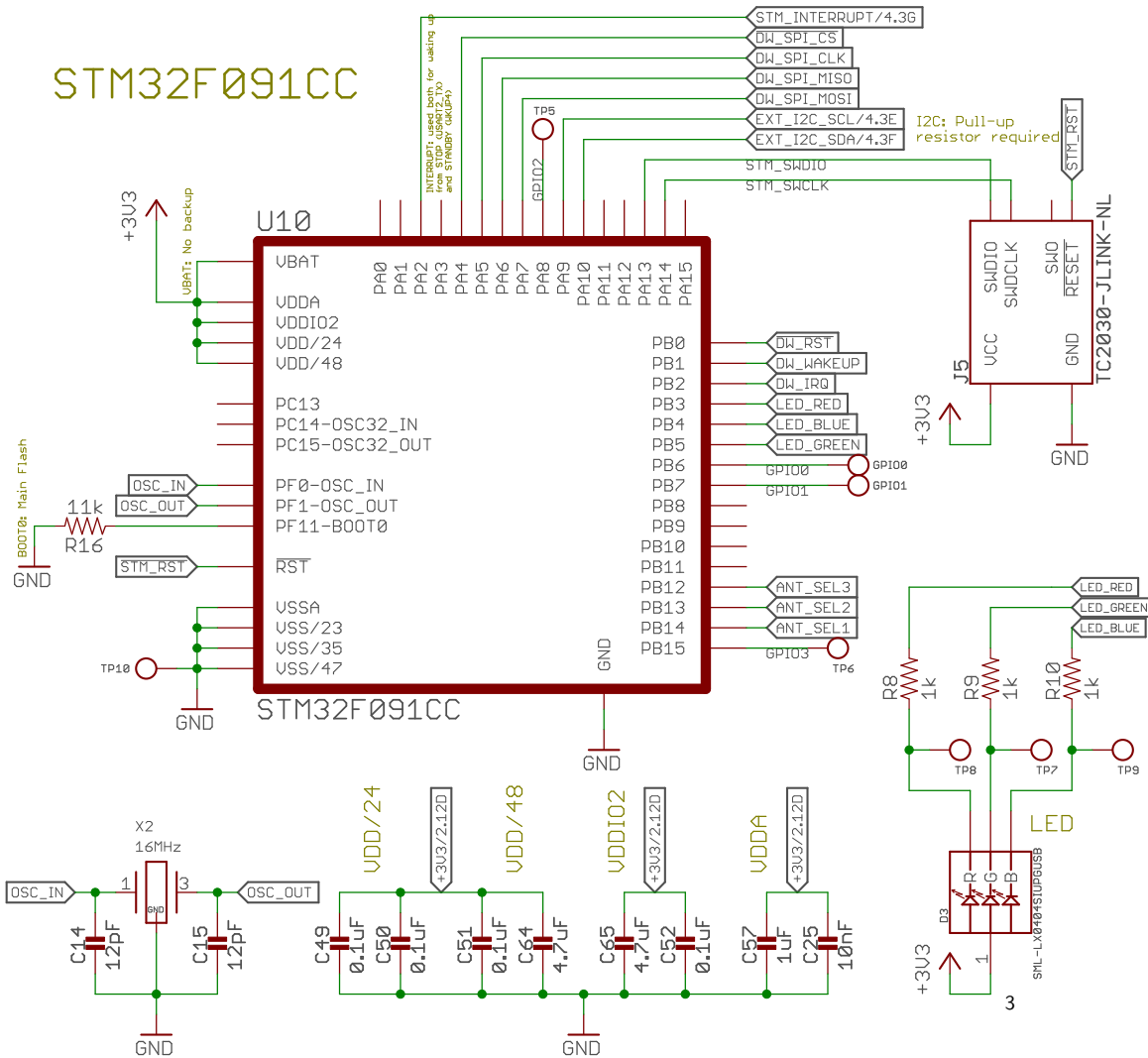


Do not use I2C pull-up
(NRF has internal pull-up)

TriTag		REV:
Author: Andreas Biri		C
Date: 23.07.18 13:10		Sheet: 1/4



STM32F091CC



TriTag

Author: Andreas Biri

Date: 23.07.18 13:10

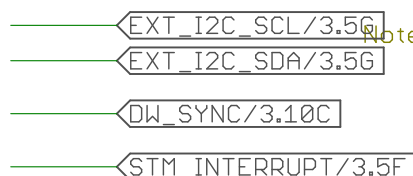
REV:
C

Sheet: 3/4

EXTERNAL SIGNALS

The following signals must be integrated into all designs using the design block:

Signals



Note: Additional I2C pull-up resistors required to +3V3

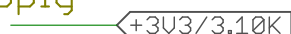
Antennas



Guarantee 120° offset in-between antennas to maximize polarization difference and antenna diversity

RF traces should respect the keepout zones and be surrounded by a via shield. Furthermore, try to keep them as short and straight as possible

Power Supply



Be aware that the DecaWave is very sensitive regarding its power supply.

We suggest using the "MAX8887EZK33+T" from Maxim Integrated.
You can find a reference layout at github.com/lab11/polypoint/pcb/tritag.

TriTag

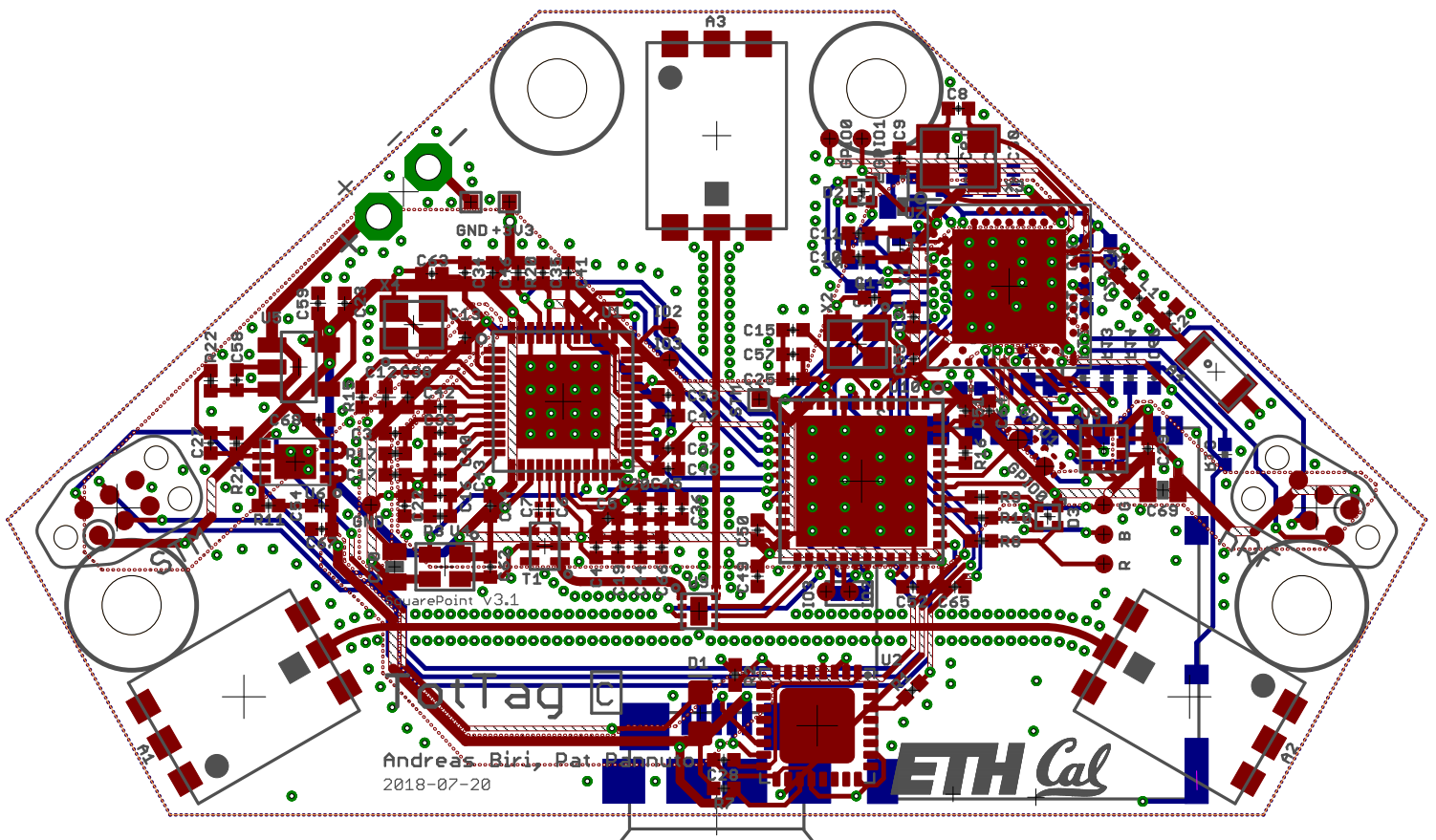
REV:
C

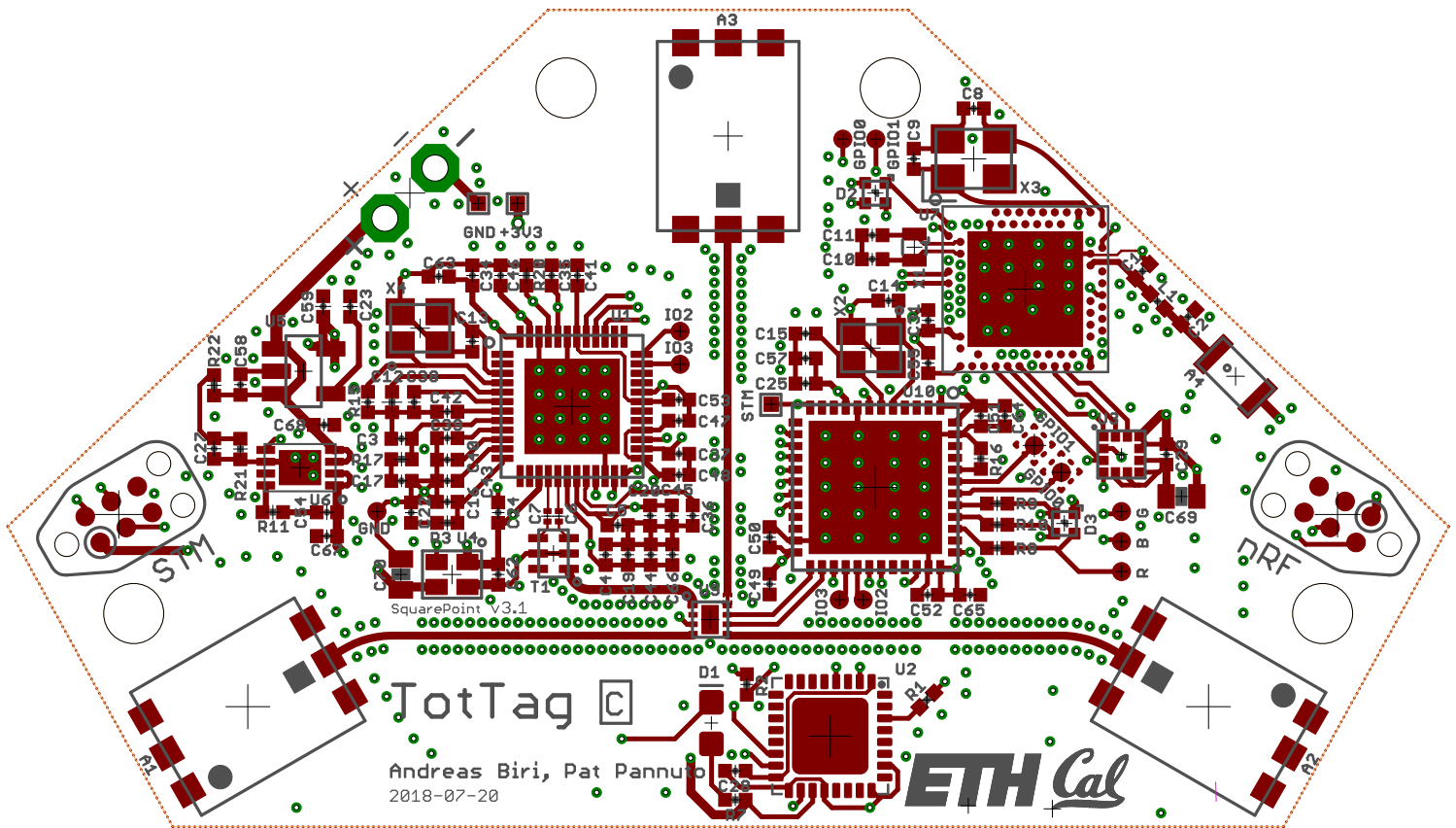
Author: Andreas Biri

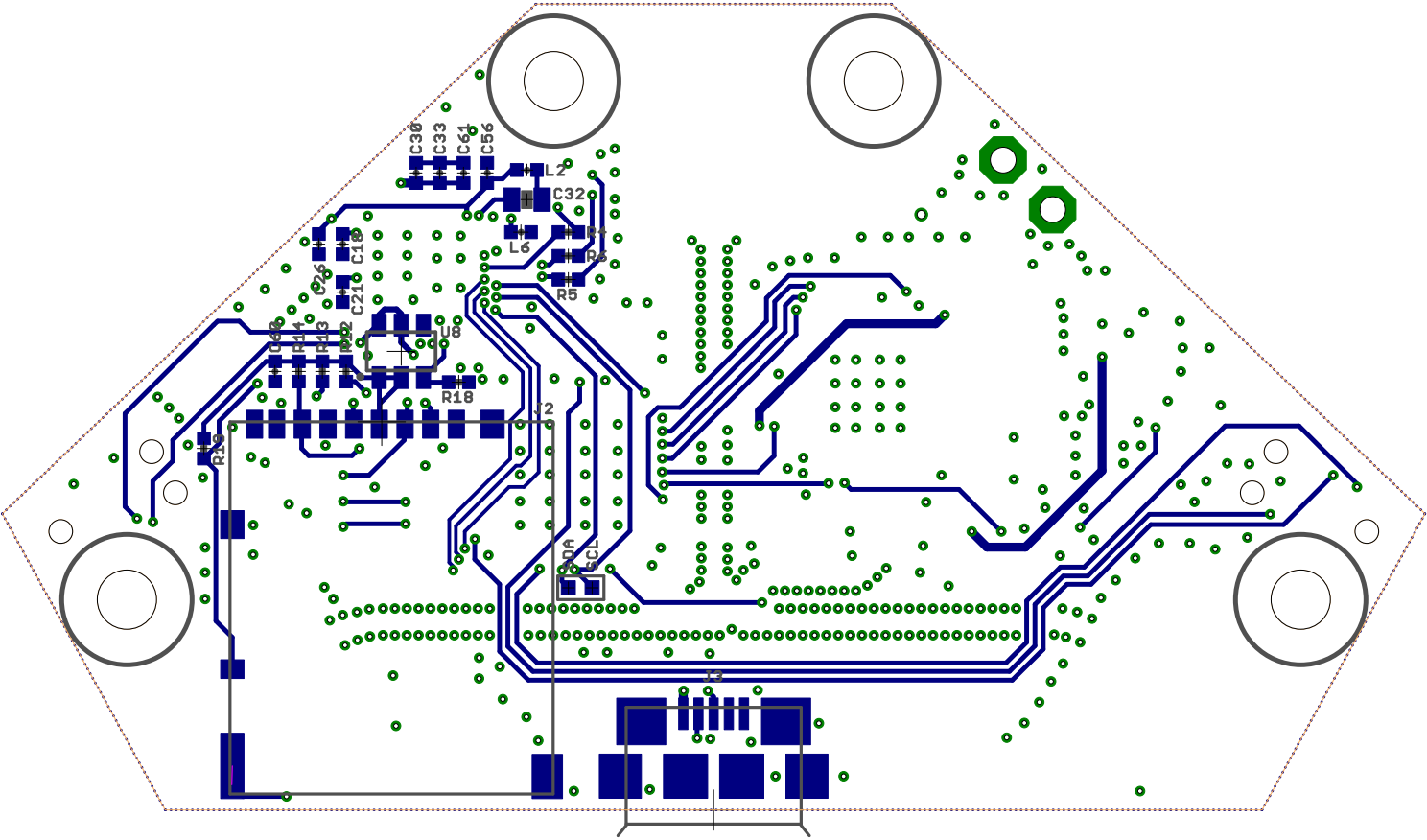
Date: 23.07.18 13:10

Sheet: 4/4

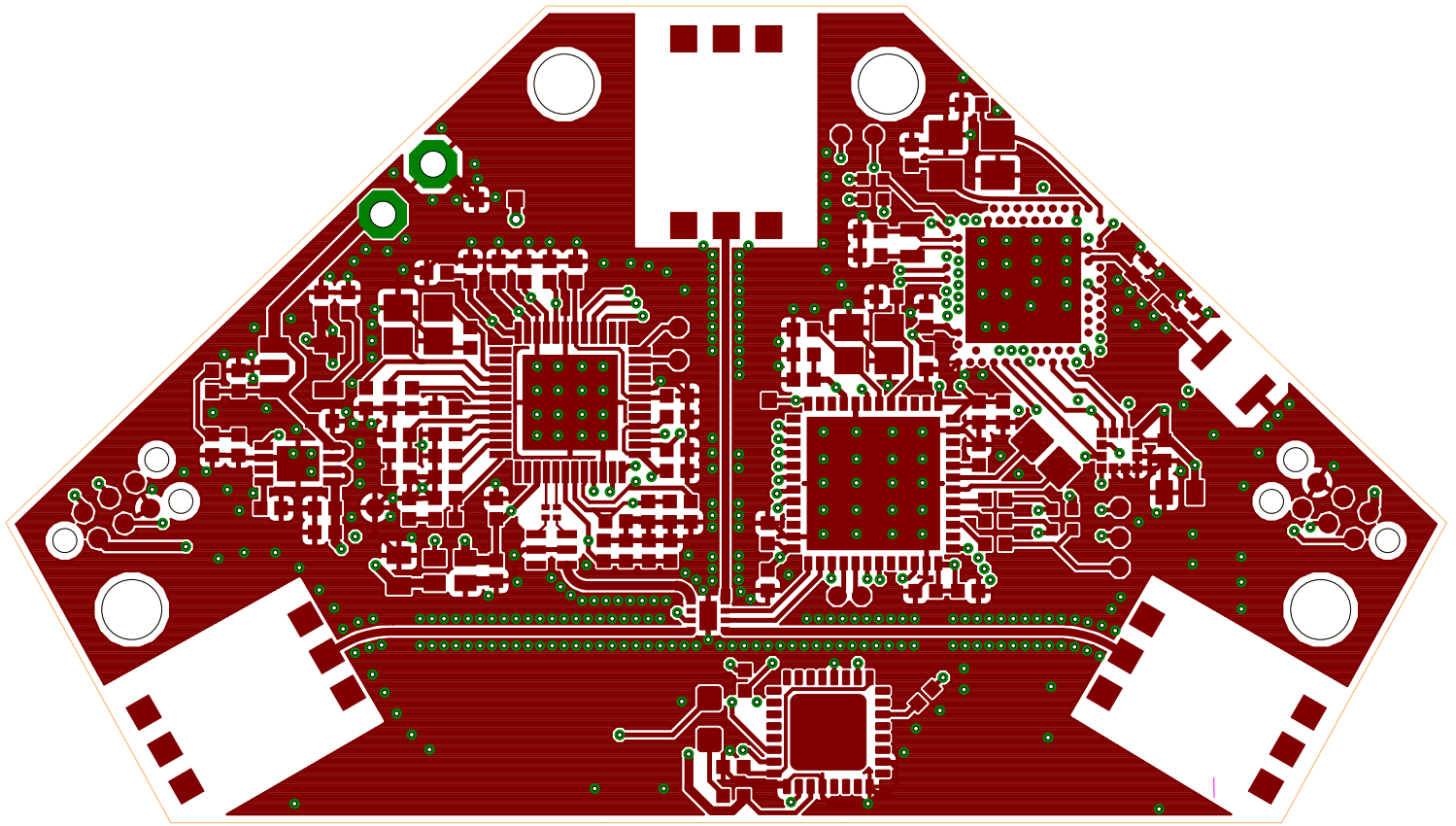
Top and Bottom Layers

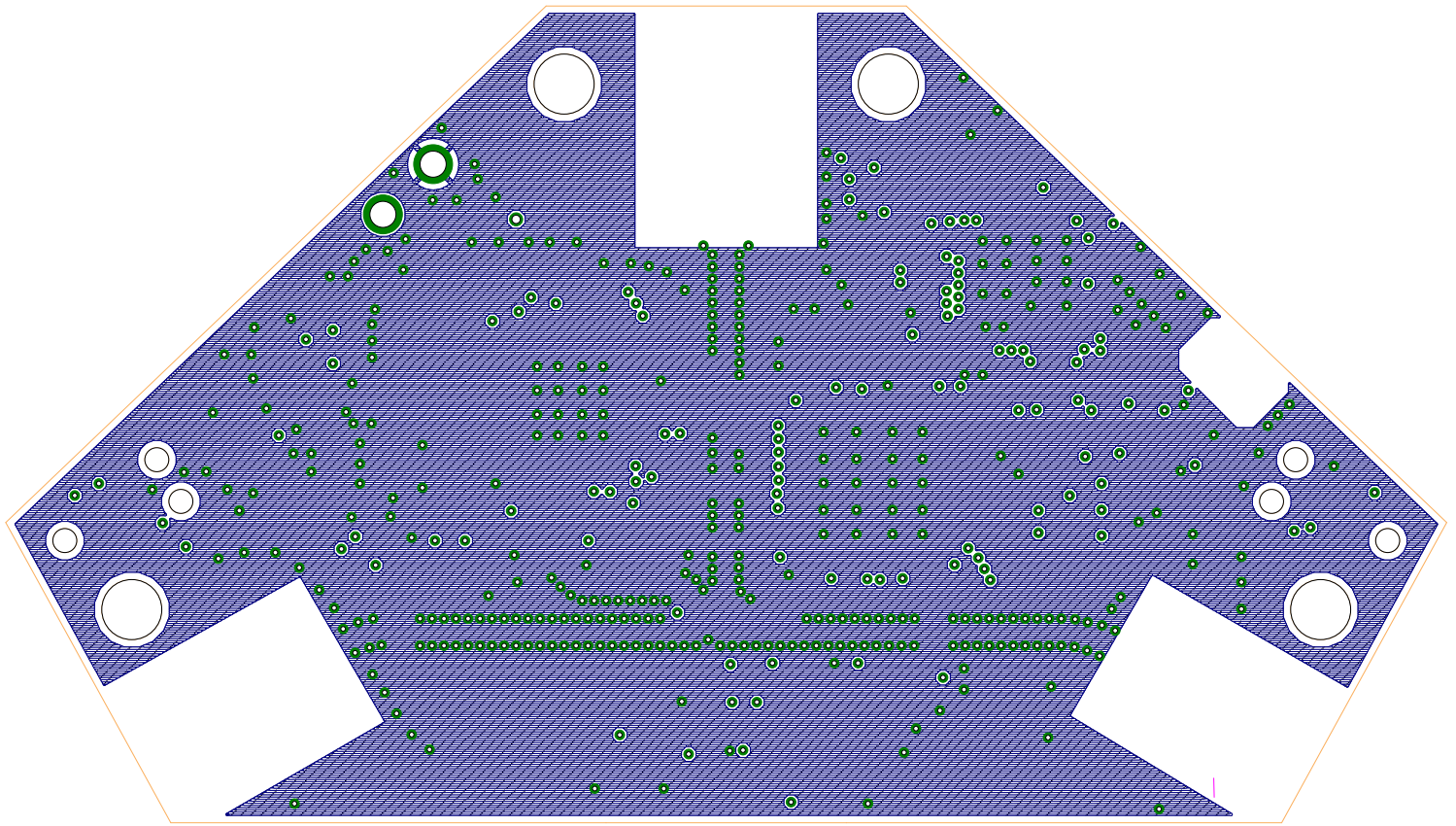


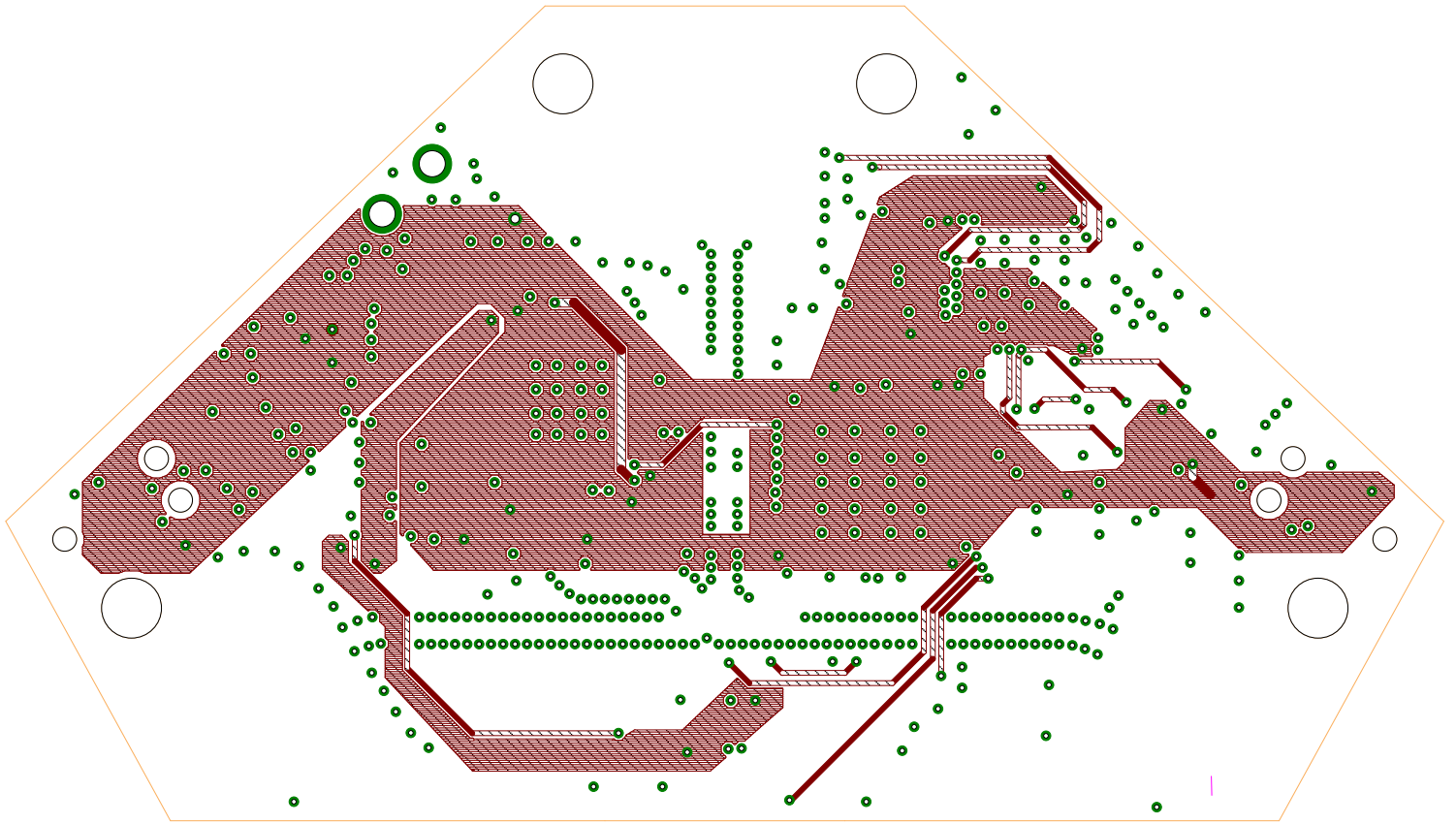




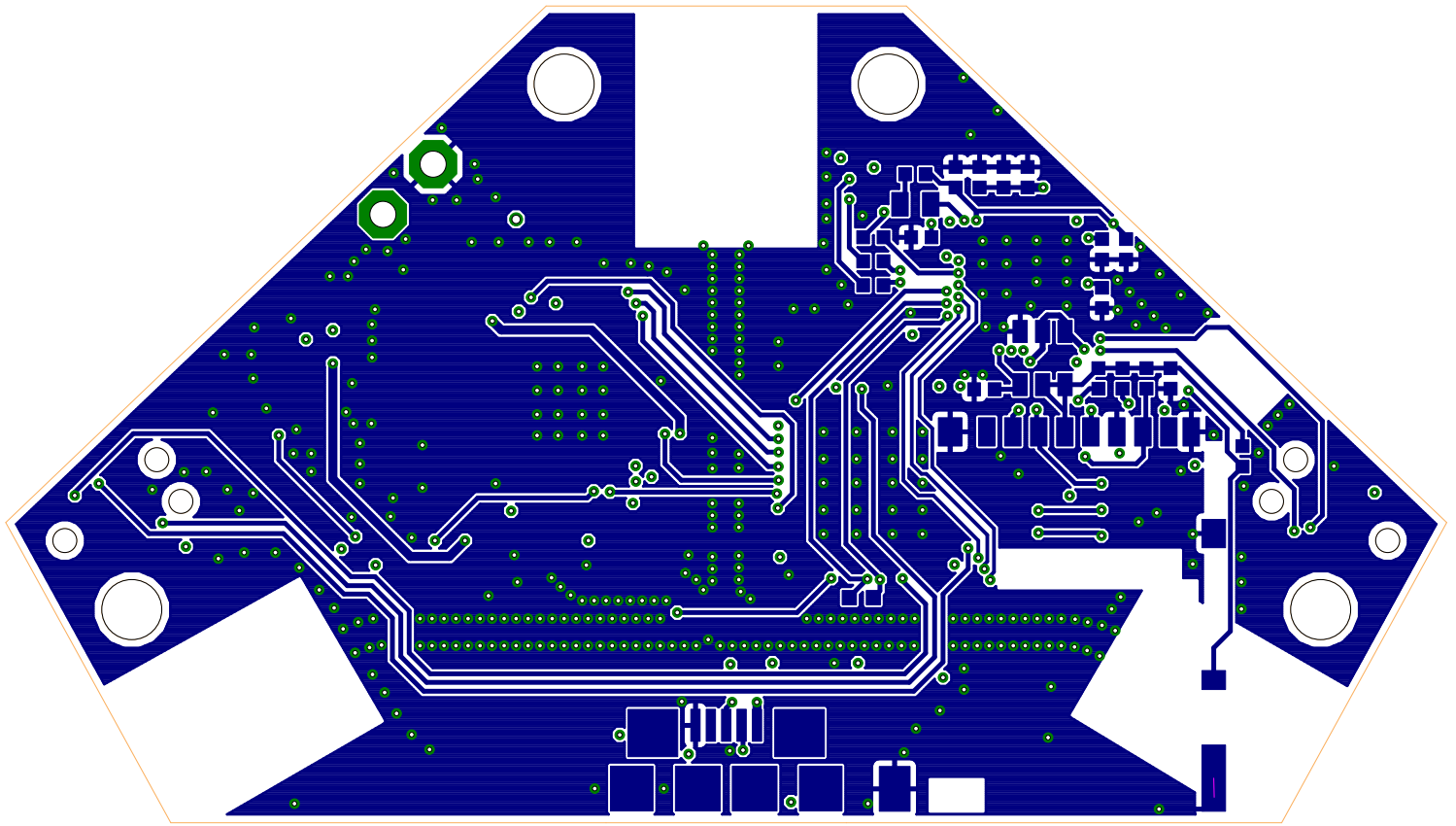
Top Copper Layer

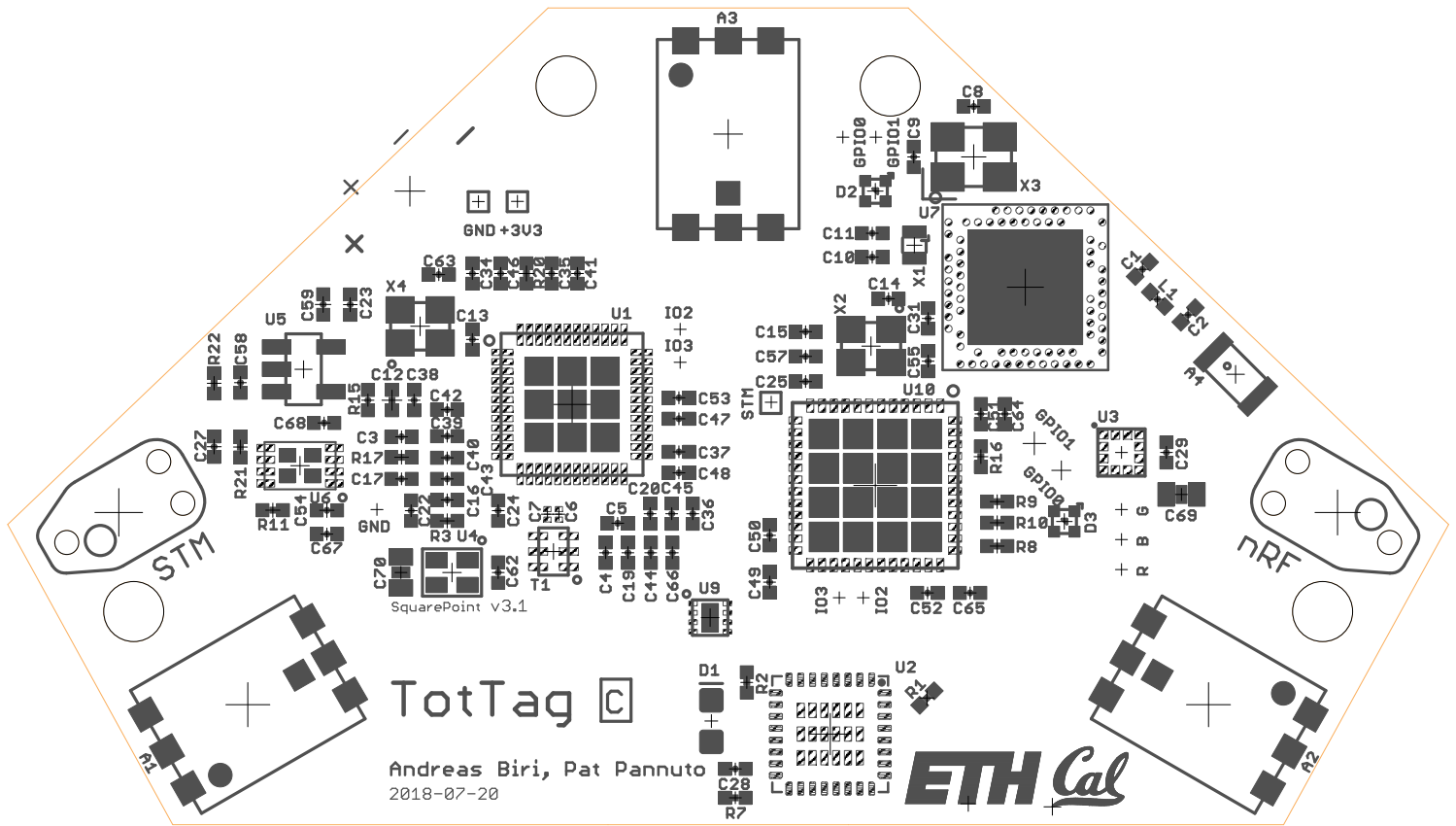




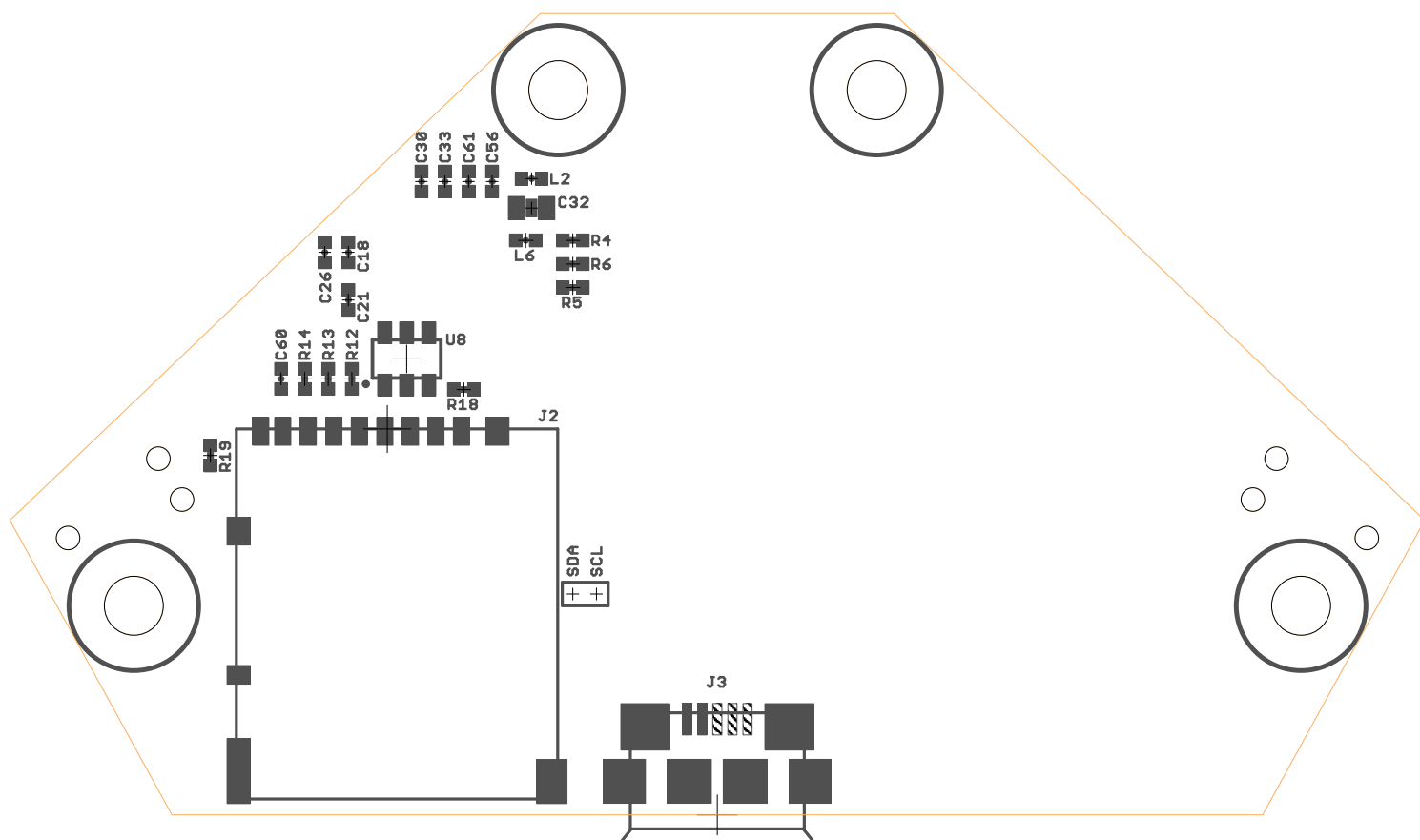


Bottom Copper Layer

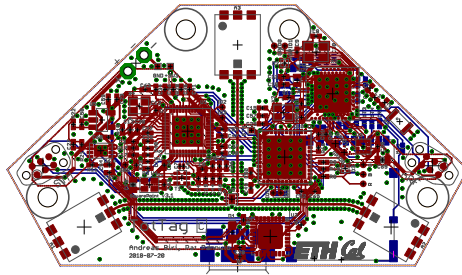




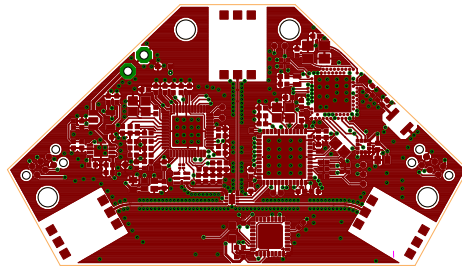
Bottom Paste Layer with Silkscreen

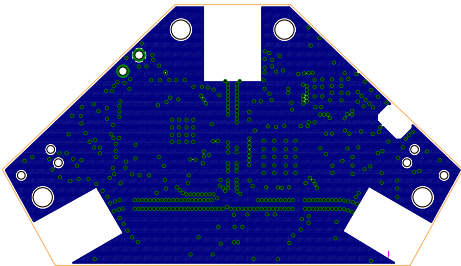


Top and Bottom Layers 1:1 Scale

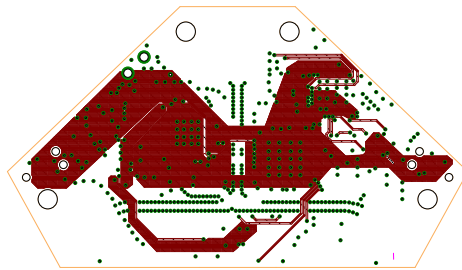


Top Layer 1:1 Scale

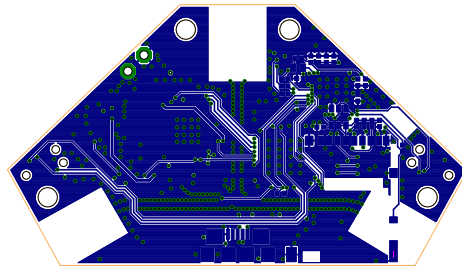




Layer 3 Copper 1:1 Scale



Bottom Copper Layer 1:1 Scale



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Qty	Value	Device	Package
3	TAIYO-YUDEN-AH086M	TAIYO-YUDEN-AH086M	TAIYO-YUDEN-AH0
1	ANT3216A063R2400A	ANT3216A063R2400A	ANT3216A063R240
2	1pF	CAPACITOR0402_CAP	0402_CAP
1	1.2pF	CAPACITOR0402_CAP	0402_CAP
2	10pF	CAPACITOR0402_CAP	0402_CAP
2	12pF	CAPACITOR0201_CAP	0201_CAP
8	12pF	CAPACITOR0402_CAP	0402_CAP
1	18pF	CAPACITOR0402_CAP	0402_CAP
1	27pF	CAPACITOR0402_CAP	0402_CAP
1	100pF	CAPACITOR0402_CAP	0402_CAP
2	330pF	CAPACITOR0402_CAP	0402_CAP
2	820pF	CAPACITOR0402_CAP	0402_CAP
3	10nF	CAPACITOR0402_CAP	0402_CAP
1	47nF	CAPACITOR0402_CAP	0402_CAP
27	0.1uF	CAPACITOR0402_CAP	0402_CAP
4	1uF	CAPACITOR0402_CAP	0402_CAP
11	4.7uF	CAPACITOR0402_CAP	0402_CAP
2	10uF	CAPACITOR0603_CAP	0603_CAP
1	GREEN	LED0603	LED-0603
2	SML-LX0404SIUPGUSB	SML-LX0404SIUPGUSB	1MM_SQ_4PAD
1	CON_MICRO_SDDM3AT-SF-PEJM5	CON_MICRO_SDDM3AT-SF-PEJ	DM3AT-SF-PEJM5
1	MICRO_USB_B_HIROSE_ZX62-B-5PA(11)	MICRO_USB_B_HIROSE_ZX62-EUSB_MICRO_B-HIF	
1	3.9nH	INDUCTOR0402	0402_CAP
1	15nH	INDUCTOR0402	0402_CAP
1	10uH	INDUCTOR0603	0603_CAP
2		0 RESISTOR0402_RES	0402_RES
1		270 RESISTOR0402_RES	0402_RES
3		470 RESISTOR0402_RES	0402_RES
4	1k	RESISTOR0402_RES	0402_RES
1	2k 1%	RESISTOR0402_RES	0402_RES
3	10k	RESISTOR0402_RES	0402_RES
2	11k 1%	RESISTOR0402_RES	0402_RES
1	16k	RESISTOR0402_RES	0402_RES
3	100k	RESISTOR0402_RES	0402_RES
1	2.2M	RESISTOR0402_RES	0402_RES
1	10M	RESISTOR0402_RES	0402_RES
1	HHM1595A1	HHM1595A1	EIA-0805
1	DW1000	DW1000	QFN-48-DW1000
1	FT232RQ	FT232RQ	QFN32
1	LIS2DW12	LIS2DW12	LGA-12
1	LXDC2HN18A	LXDC2HN18A	LXDC2HN
1	MAX8887EZK33+T	MAX8887EZK33+T	SOT-23-5
1	MCP73831	MCP73831	DFN-8-MCP
1	NRF52840	NRF52840	AQFN73
1	SIP32510	SIP32510	TSOT23-6
1	SKY13317	SKY13317	MLPQ-UT-8
1	STM32F091CC	STM32F091CC	UFQFPN-48
1	32.768kHz	ABS05-32.768KHZ-9-T	ABS05
1	16MHz	FA-20H	FA-20H
1	32MHz	7V-32.000MAHV-T	TXC-7V
1	38.4MHz	FA-20H	FA-20H

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Parts	Description	DATASHEET	DESCRIP
A1,A2,A3	UWB Antenna - 3.1-8GHz		
A4	Yageo 2.4GHz		
C1,C2	SMD Capacitor		
C3	SMD Capacitor		
C4,C5	SMD Capacitor		
C6,C7	SMD Capacitor		
C8,C9,C10,C11,C12	SMD Capacitor		
C16	SMD Capacitor		
C17	SMD Capacitor		
C18	SMD Capacitor		
C19,C20	SMD Capacitor		
C21,C22	SMD Capacitor		
C23,C24,C25	SMD Capacitor		
C26	SMD Capacitor		
C27,C28,C29,C30,C	SMD Capacitor		
C54,C55,C56,C57	SMD Capacitor		
C58,C59,C60,C61,C	SMD Capacitor		
C69,C70	SMD Capacitor		
D1	LED (Generic)		
D2,D3	1mm^2 RGB LED		
J2	CONN MICRO SD R/A PUSH-PUSH SMC		
J3	Connector Receptacle USB - micro B 2.0		
L1	A very specific inductor		
L2	A very specific inductor		
L6	A very specific inductor		
R1,R2	Resistor		
R3	Resistor		
R4,R5,R6	Resistor		
R7,R8,R9,R10	Resistor		
R11	Resistor		
R12,R13,R14	Resistor		
R15,R16	Resistor		
R17	Resistor		
R18,R19,R20	Resistor		
R21	Resistor		
R22	Resistor		
T1	Description: Synr	https://produc	XFMR BAL
U1	Description: Th	https://www.de	IC RF TXR
U2	Source: http://www.ftdichip.com/Docume		
U3	ultra low power 3 axis accelerometer		
U4	Description: Synr	https://www.m	DC/DC CC
U5	IC REG LDO 3.3V 0.3A TSOT23-5		
U6	Description: Dev	http://ww1.mi	IC CONTR
U7	ultra-low power 2.4 GHz wireless system		
U8	Load switch, slew rate controlled. By Vish		
U9	Description: Dev	http://www.sk	IC SWITCHI
U10	Description: ST	https://www.st	IC MCU 32
X1	32.768kHz Crystal		
X2	Description: Osc	https://suppor	16MHz ±1
X3	TXC CRYSTAL SMD		
X4	Description: Osc	https://suppor	38.4MHz ±

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DIGIKEY	MANUFACTURER
587-2204-1-ND	
311-1542-1-ND	YAGEO
712-1266-1-ND	
490-3085-1-ND	
732-12054-1-ND	
712-1208-1-ND	
490-11190-1-ND	
490-14582-1-ND	
1276-1153-1-ND	
490-5922-1-ND	
311-3768-1-ND	
1276-6989-1-ND	
1276-1057-1-ND	
445-1264-1-ND	
1276-1234-1-ND	
1276-6805-1-ND	
490-14306-1-ND	
490-10474-1-ND	
160-1446-1-ND	
67-2125-1-ND	
HR1964CT-ND	
H125270CT-ND	
AISC-0402-3N9G-TCT-ND	
587-1521-1-ND	
445-6755-1-ND	
P0.0JCT-ND	
1276-3970-1-ND	
541-4072-1-ND	
541-3240-1-ND	
P2.00KLCT-ND	
P10KJCT-ND	
P11.0KLCT-ND	
YAG5263CT-ND	
541-3960-1-ND	
541-4083-1-ND	
541-4068-1-ND	
445-3387-1-ND	TDK Corporation
1479-1001-1-ND	Decawave Limited
768-1008-1-ND	
497-17718-1-ND	STMicroelectronics
490-12092-1-ND	Murata Electronics North America
MAX8887EZK33+TCT-ND	
MCP73831T-2ACI/MCCT-ND	Microchip Technology
1490-1071-1-ND	NORIDIC SEMICONDUCTOR
SIP32510DT-T1-GE3CT-ND	Vishay
863-1056-1-ND	Skyworks Solutions Inc.
497-15813-ND	STMicroelectronics
535-11897-1-ND	Abracon
SER4201CT-ND	EPSON
887-1913-1-ND	TXC CORPORATION
SER3631CT-ND	EPSON

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MF MOUSER

MPN

NEWARK OC_FARNELL OC_NEWARK

ANT3216A063R2400A

GJM1555C1H120FB01D

GRM1555C1H101JA01D

CL05C821JB5NFNC

C1005X7R1C473K050BC

GRM188R61A106KE69D

LTST-C191KGKT

SML-LX0404SIUPGUSB

ZX62-B-5PA(33)

AISC-0402-3N9G-T

HK100515NJ-T

MLZ1608N100LT000

ERJ-2GE0R00X

RC1005F271CS

810-HHM1595A1

HHM1595A1

DW1000-I-TR13

FT232RQ

1146033 91K9919

511-LIS2DW12TR

LIS2DW12TR

LXDC2HN18A-097

579-MCP73832T-2ACIMC

MCP73831T-2ACI/MC

NRF52840

SIP32510DT-T1-GE3

SKY13317-373LF

511-STM32F091CCU6

STM32F091CCU6

FA-20H 16.0000MF10Z-AJ5

7M-32.000MAAE-T

TP_SIGNAL_NAME