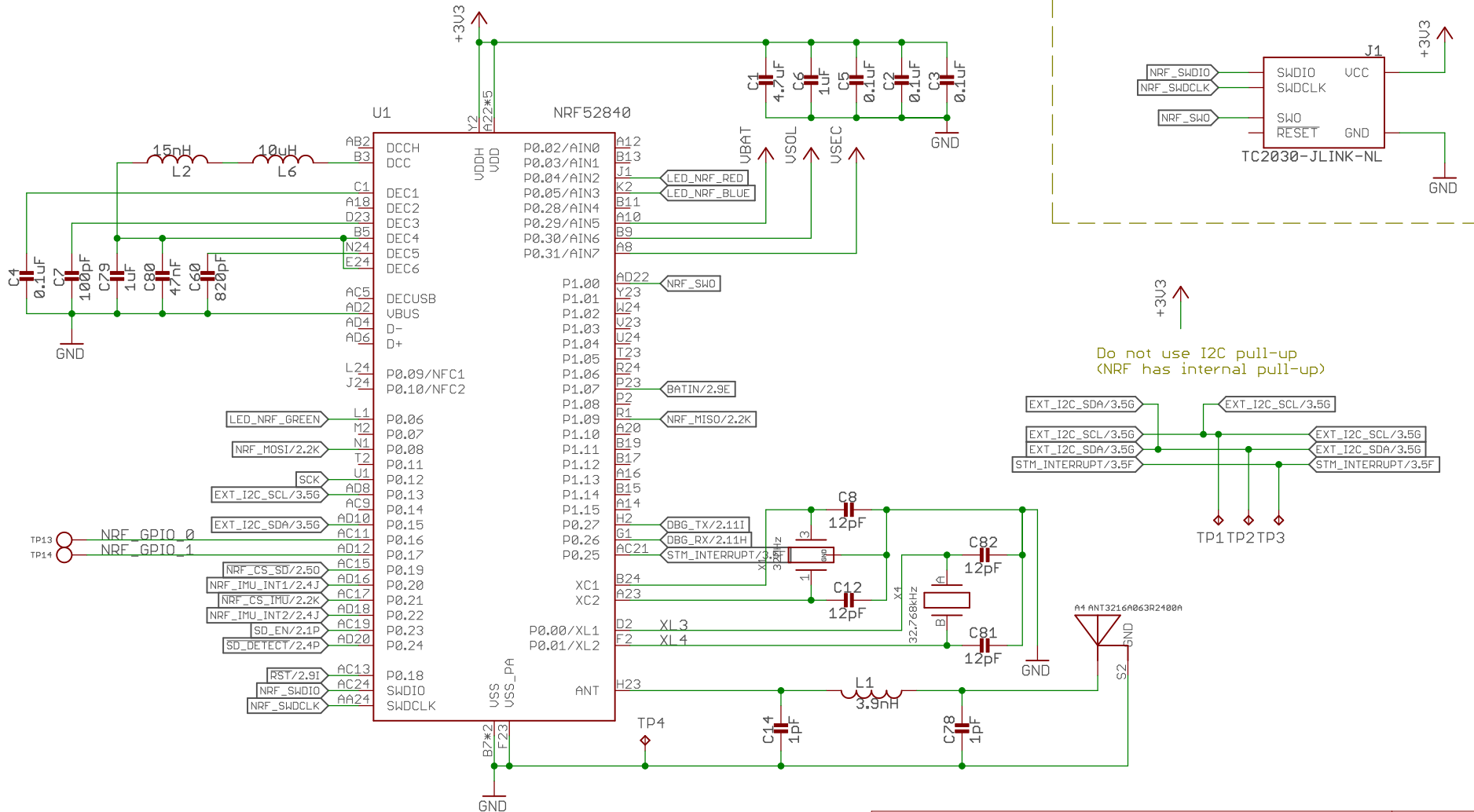


nRF52840 BLE



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

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Power Supply and Charging

The diagram illustrates the power supply and charging circuit for the DW1000 module. It features a Micro-USB connector (J3) connected to a USB cable. The circuit includes an MCP73831 (U2) which is a USB-to-I2C bridge. It is connected to a USB port (U1) and a battery (UBAT). The battery is connected to a MAX8887EZK33+T (U4) LDO regulator, which provides a stable 3V3 output. The diagram also shows various capacitors (C13, C10, C11, C9) and resistors (R2, R3, R7, R8) used for filtering and timing.

Components and Connections:

- Micro-USB Connector (J3):** Connected to a USB cable. Pins are labeled +5V, D-, D+, ID, and GND.
- USB Port (U1):** Connected to the Micro-USB connector. Pins are labeled VBUS, D+, D-, ID, and GND.
- MCP73831 (U2):** A USB-to-I2C bridge. Pins are labeled VDD/1, VDD/2, VBAT/3, VBAT/4, NC, PROG, STAT, USS, and GND.
- Battery (UBAT):** Connected to the VBAT/3 and VBAT/4 pins of the MCP73831.
- MAX8887EZK33+T (U4):** A LDO regulator. Pins are labeled IN, OUT, SHDN, BP, and GND.
- Capacitors:** C13 (1uF), C10 (4.7uF), C11 (4.7uF), and C9 (0.1uF).
- Resistors:** R2 (1k), R3 (2k 1%), R7 (2.2M), and R8 (10M).

Notes:

- Must be a stable LDO for the DW1000.
- UBAT/3 and VBAT/4 pins of the MCP73831 are connected to the same point.
- The output of the LDO is labeled +3V3.

Accelerometer

Antennas

The diagram illustrates three antennas, labeled A1, A2, and A3, each connected to a corresponding RF module. The antennas are represented by red outlines of a horn or funnel shape. The RF modules are green rectangular boxes with rounded ends, each containing the text 'RF 1/3.6A', 'RF 2/3.6B', and 'RF 3/3.6C' respectively. Green lines connect each antenna to its respective RF module. The labels for the antennas are 'A1 TAIYO-YUDEN-AH086M', 'A2 TAIYO-YUDEN-AH086M', and 'A3 TAIYO-YUDEN-AH086M'.

A1 TAIYO-YUDEN-AH086M

A2 TAIYO-YUDEN-AH086M

A3 TAIYO-YUDEN-AH086M

RF 1/3.6A

RF 2/3.6B

RF 3/3.6C

SD Card Adapter

SD Card Adapter

U12: SIP32510

U12 Pins: VLOAD, USUPP, EN, GND

R19: 100k

R20: 100k

R21: 10k

R22: 10k

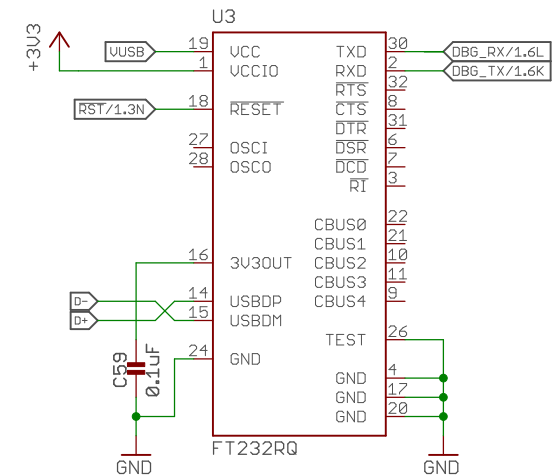
R23: 10k

C77: 4.7uF

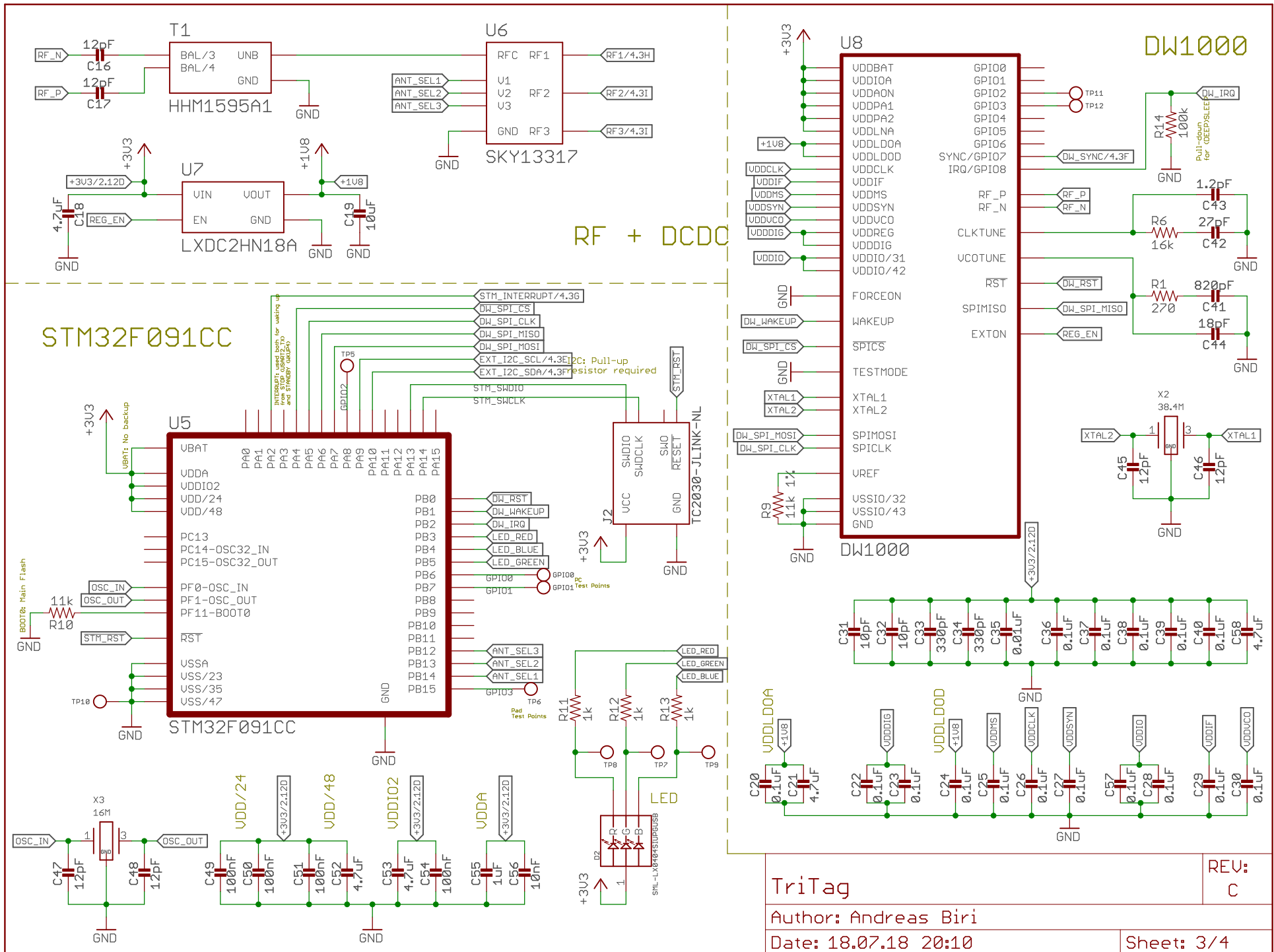
J7 Connector Pins:

- 4: VCC
- 8: DATA0/MISO
- 1: DATA1/RSU
- 2: DATA2/NC
- 3: DATA3-CD/CS_N
- 5: CMD/MOSI
- 6: CLK
- GND
- CARD_INSERTED

CON_MICRO_SDDM3AT-SF-PEJM5



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EXTERNAL SIGNALS

The following signals must be integrated into all designs.

Signals

—  EXT_I2C_SCL/3.5G

—  EXT_I2C_SDA/3.5G

—  DW_SYNC/3.10C

—  STM_INTERRUPT/3.5F

Note: Additional I2C pull-up resistor is required.

Antennas

—  RF1/3.6A


—  RF2/3.6B

—  RF3/3.6C

Guarantee 120° offset in-between antennas.

RF traces should respect the keep-out zone. Furthermore, try to keep them as short as possible.

Power Supply

—  +3V3/3.10K

Be aware that the DecaWave is voltage sensitive.

We suggest using the "MAX887EZ" regulator. You can find a reference layout in the "MAX887EZ" folder.

signs using the design block:

resistors required to +3V3

antennas to maximize polarization difference and antenna diversity

apout zones and be surrounded by a via shield.
short and straight as possible

ery sensitive regarding its power supply.

"K33+T" from Maxim Integrated.
at github.com/lab11/polypoint/pcb/tritag.

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