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Revisions

Rev	Description	Date	Approved
X1	First Release	14FEB18	IAIN GALLOWAY
X2	Project Rename & A7102CH IC	SEP18	IAIN GALLOWAY
B	Reference Designator are sync with NXP_NXPhlite 3.0RC18	23OCT18	IAIN GALLOWAY
BX1		11NOV18	IAIN GALLOWAY
BX2			IAIN GALLOWAY
BX3			IAIN GALLOWAY
BX4			IAIN GALLOWAY
BX5	-Added J28 for external sensors -Added PX4FMU baro sensor	14NOV18	IAIN GALLOWAY
BX6			IAIN GALLOWAY
BX7		23NOV18	IAIN GALLOWAY
BX8	-Added ESD diodes	24NOV18	IAIN GALLOWAY
BX9	- Added MS621FE-FL11E Batery - BMM150 SPI to I2C mode	28NOV18	IAIN GALLOWAY
BX10	- Removed duplicate pullup / down resistors from I2C1_SDA_INTERNAL & I2C1_SCL_INTERNAL - On-Board sensors moved to 'SENSORS' page	03DEC18	IAIN GALLOWAY

RDDRONE-FMUK66

ICAP Classification: CP: ___ IUO: X PUBI: ___

Drawing Title: **RDDRONE-FMUK66**

Page Title: **TITLE, TOC & REV**

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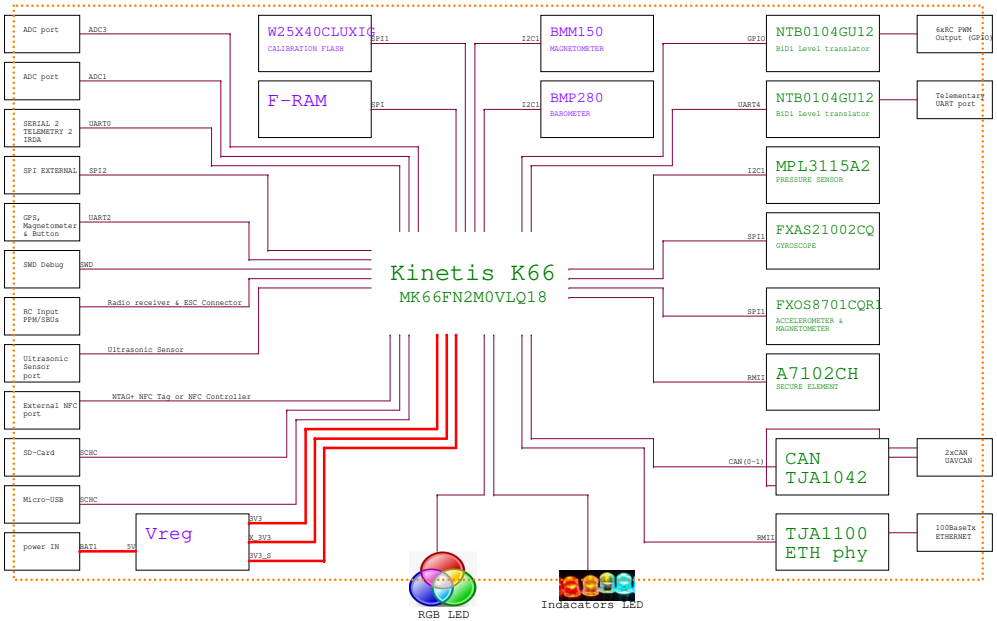
REF DES	ASSY_OPT	PAGE NAME
R61,R60,R114,R115,C103,R121	DNP	3. MCU
R77	DNP	4. POWER
R45,R128	DNP	5. CONNECTORS
R65,R132,R134,R64,R133,R131	DNP	6. SENSORS
R111,C108,R120	DNP	7. SDCARD & MEMORY

RDDRONE-FMUK66 Modular and flexible Drone development platform



NXP part | Non-NXP part | Interface | Power | Signal

ICAP Classification: CP: IUO: X PUBI:

Drawing Title: RDDRONE-FMUK66

Page Title: BLOCK DIAGRAM

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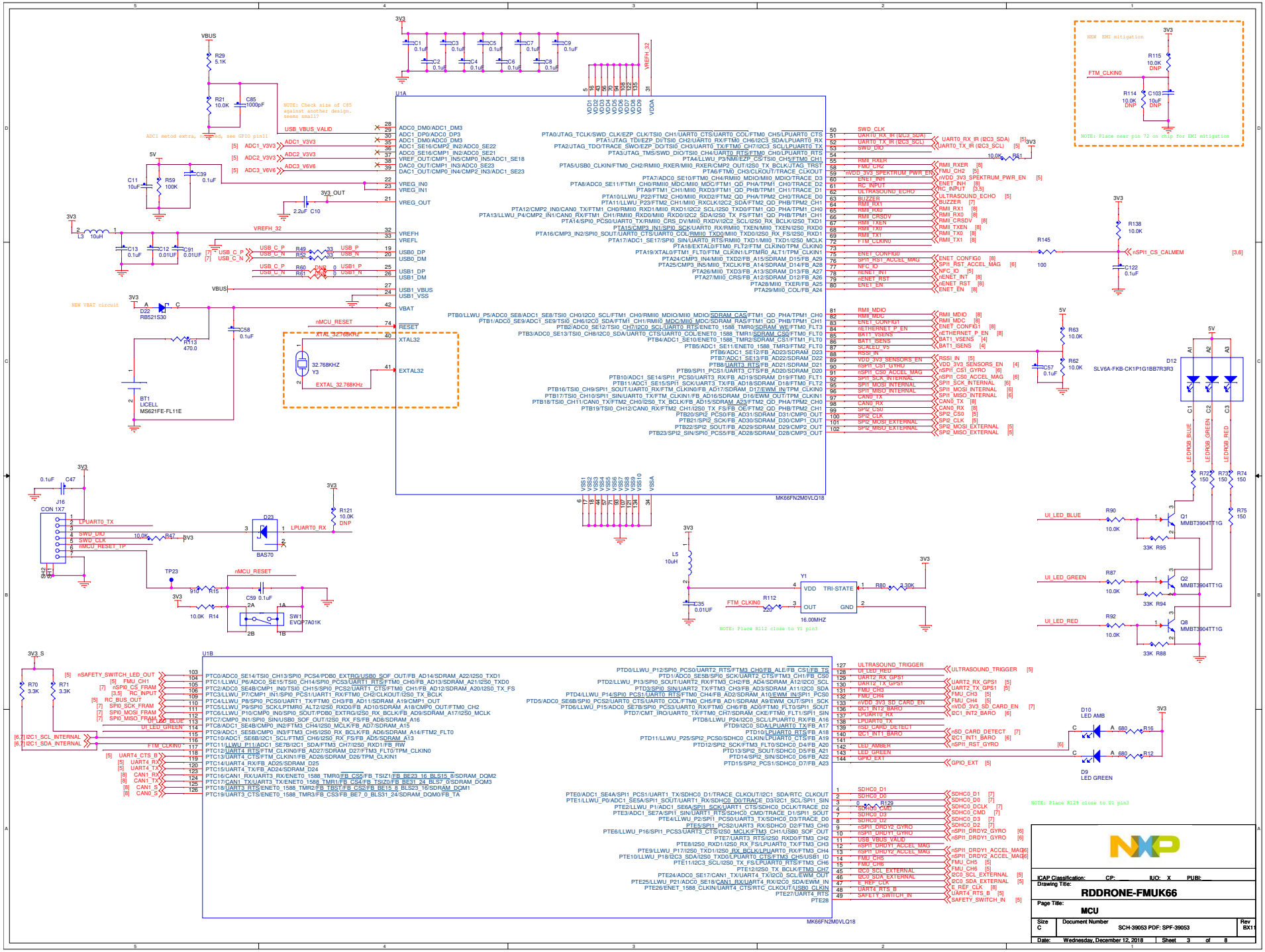
U1A
MK66FN2M0VLQ18
U1B
MK66FN2M0VLQ18
NEW EMI mitigation
NOTE: Place near pin 72 on chip for EMI mitigation
NEW VBAT circuit
NOTE: Check size of C85 against another design. seems small?
ADC1 metod extra, not used, see GPIO pin11
XTAL_32.768KHz
EXTAL_32.768KHz
32.768KHZ
Y3
BT1
LICELL
MS621FE-FL11E
RB521S30
BAS70
SLV6A-FKB-CK1P1G1BB7R3R3
SW1
EVQP7A01K
Y1
16.00MHZ
CON 1X7
J16
NOTE: Place R112 close to Y1 pin3
NOTE: Place R129 close to U1 pin3
LED AMB
LED GREEN
ICAP Classification:
CP:
IUO: X
PUBI:
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MCU
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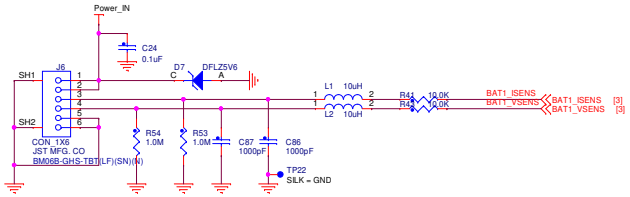
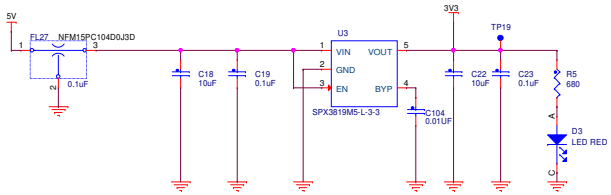
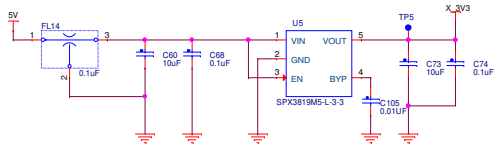
Power_IN

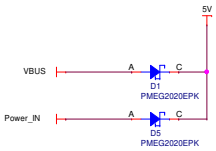


VCC to 3.3V for MCU



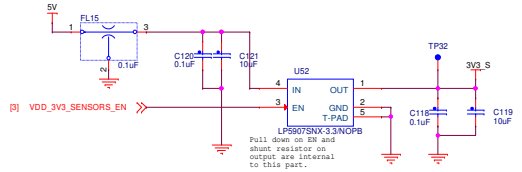
VCC to 3.3V for Ethernet, CAN, FRAM, SDCARD





VCC to 3.3V for Sensors / "Extra low noise"

NOTE: Extra Low Noise



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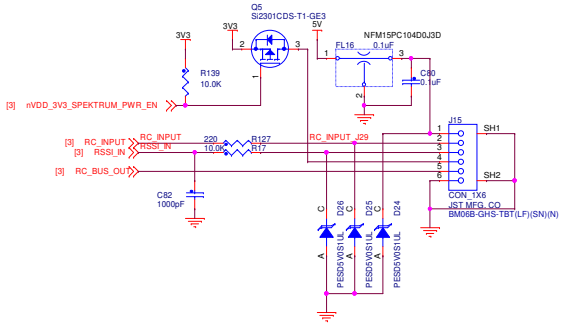
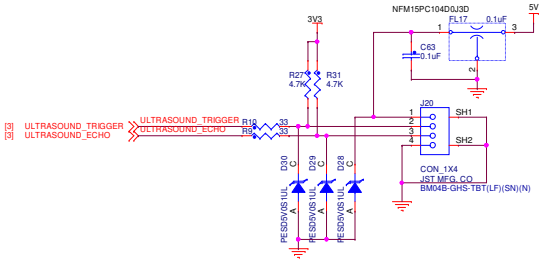
Radio receiver & ESC Connector

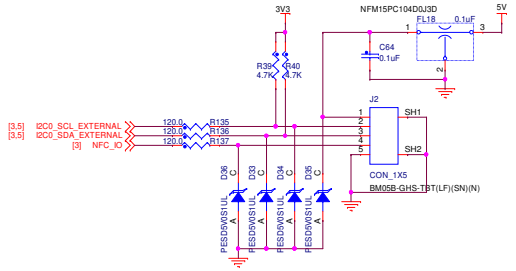
PPM-RSSI-SBUS-SPEKTRUM
SERIAL4/FrSky



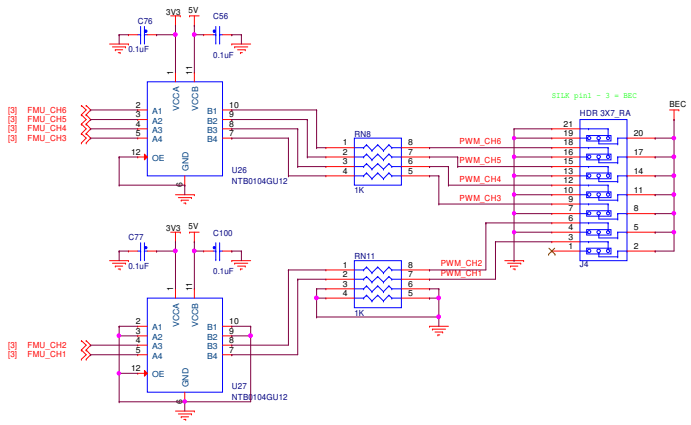
Ultrasonic Sensor



I2C0. Also for NTAG+ NFC Tag or NFC Controller

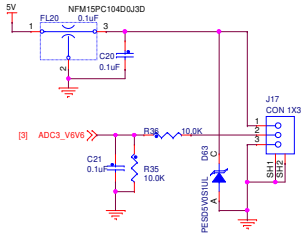


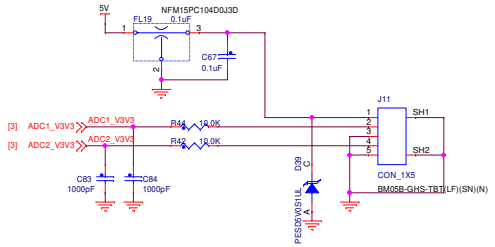
PWM OUT + BEC



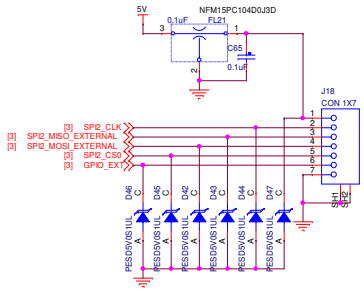
NOTE: TXS0108QFN20 is used on PX4.
Should we use this?

ADC PORT



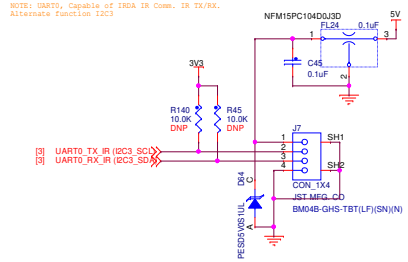


SPI EXTERNAL



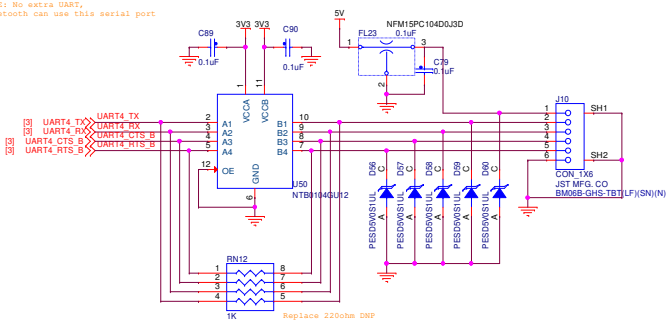
SERIAL 2 / TELEMETRY 2 / IRDA

NOTE: UART0, Capable of IRDA IR Comm. IR TX/RX.
Alternate function I2C3



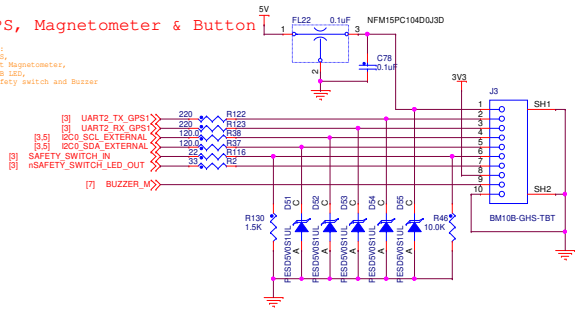
SERIAL 1 / TELEMETRY 1

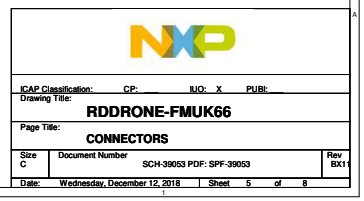
NOTE: No extra UART,
Bluetooth can use this serial port



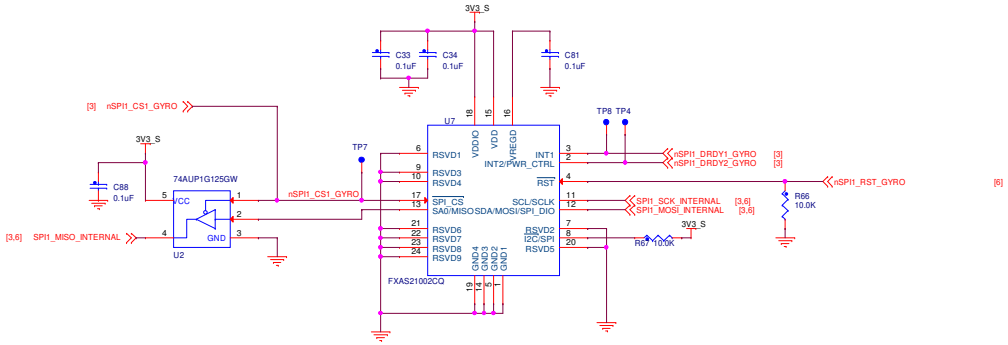
GPS, Magnetometer & Button

NOTE:
- GPS,
- Ext Magnetometer,
- RGB LED,
- Safety switch and Buzzer

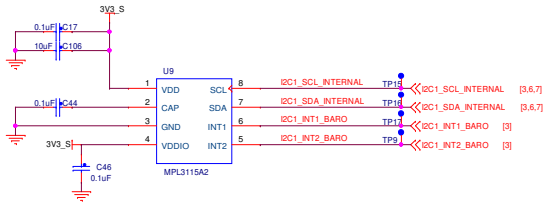




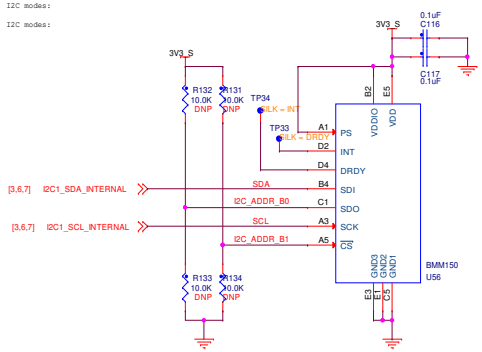
GYROSCOPE



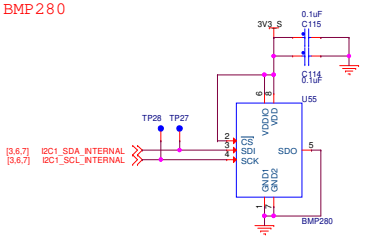
PRESSURE SENSOR



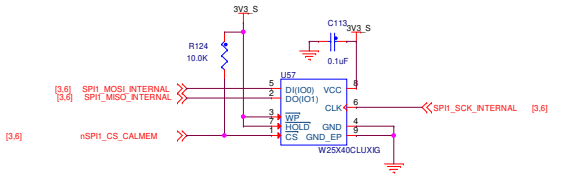
MAGNETOMETER BMM150



BAROMETER BMP280

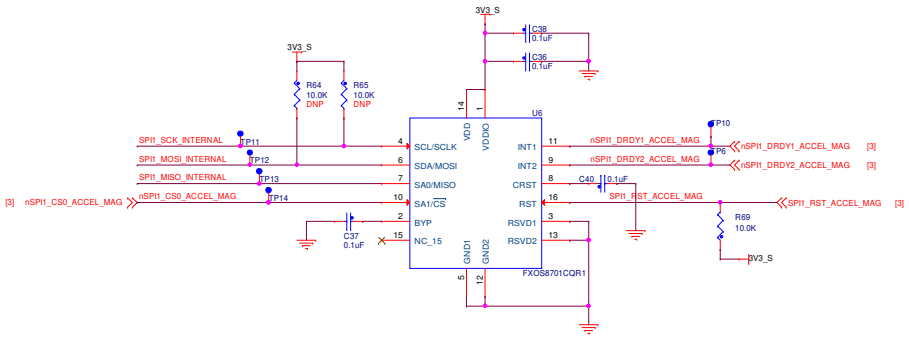


SENSOR MODULE CALIBRATION FLASH



ACCELEROMETER & MAGNETOMETER

NOTE: keep sensors



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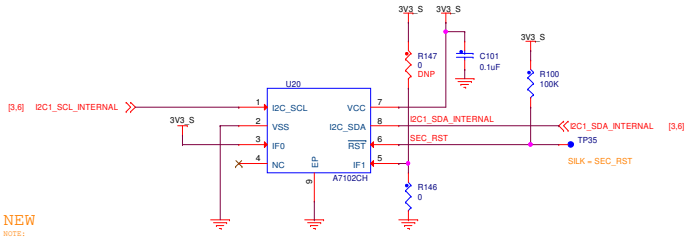
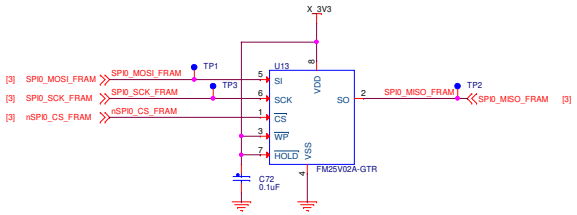
SECURE ELEMENT

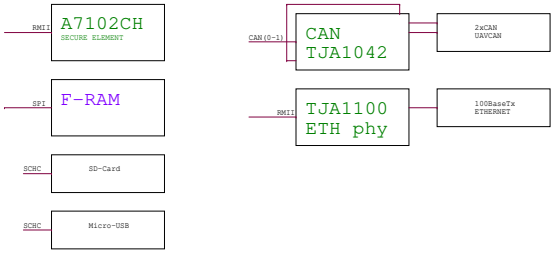


NEW

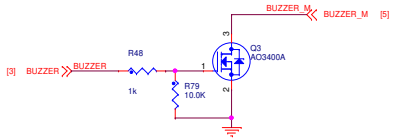
NOTE:
- 400kbit/s supported
- I2C Address:
- IF1 =0 Address= 0x90/91
- IF1 =1 Address= 0x92/93

FRAM

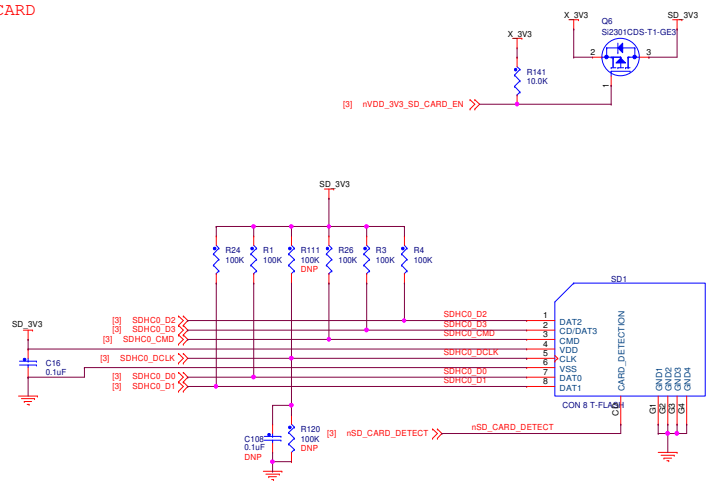




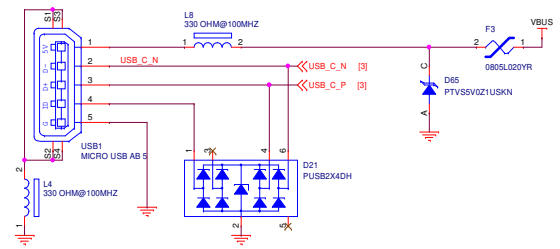
BUZZER



SD CARD



MICRO USB



NOTE: Swap pins as needed for optimal layout.

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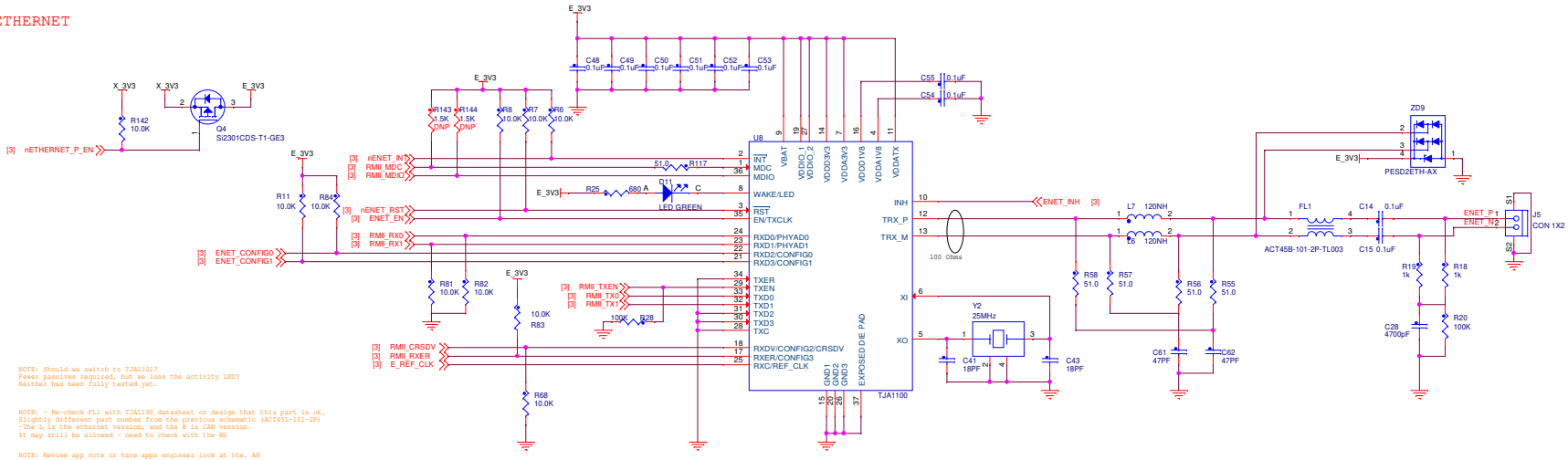
ETHERNET



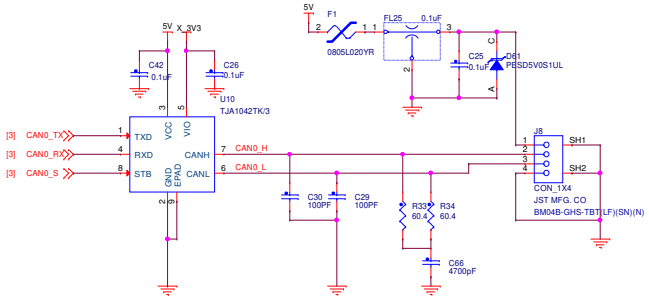
NOTE: Should we switch to TJA1101?
Fewer passives required, but we lose the activity LED?
Neither has been fully tested yet.

NOTE: - Re-check FL1 with TJA1100 datasheet or design that this part is ok.
Slightly different part number from the previous schematic (ACT45L-101-2P)
-The L is the ethernet version, and the B is CAN version.
It may still be allowed - need to check with the BL

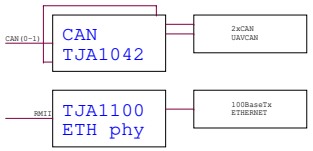
NOTE: Review app note or have apps engineer look at the. AN
for TJA1101 shows additional ferrite and filtering for VDDA, VBAT and other signals.
Could add optional components in case they are needed for EMI mitigation.

NOTE: App note for TJA1100 shows optimal protection diode layout

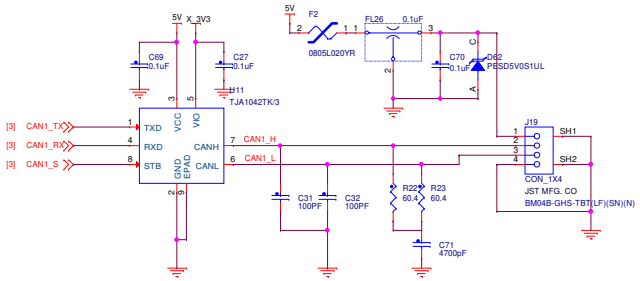
CAN_0 TRANSCEIVER



LAYOUT NOTE: Mounting holes 96mil PLATE
(top-bottom)



CAN_1 TRANSEIVER



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