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Sheet: BB-XM Adapter (CPU)  
File: neo900\_SS\_34.sch  
**BB-XM Adapter (CPU)**

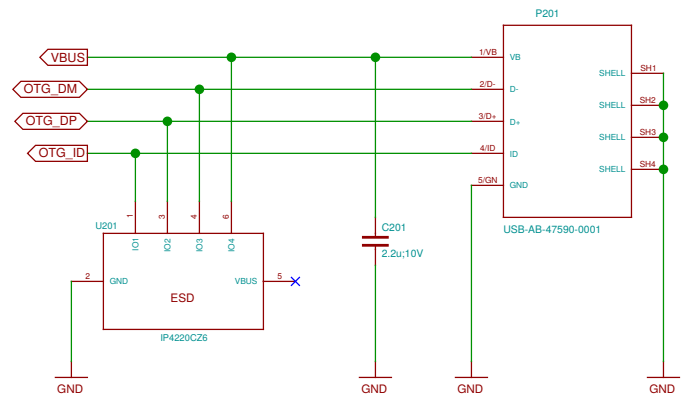
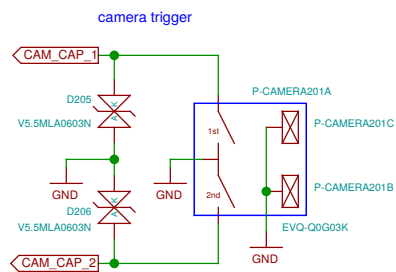
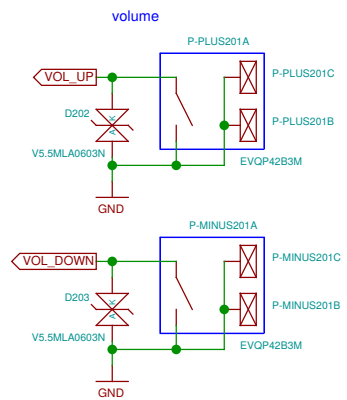
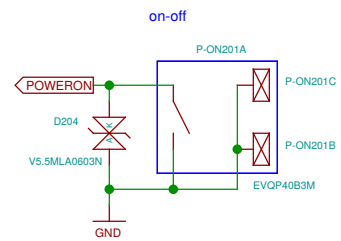
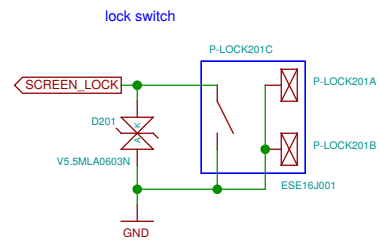
Sheet: BB-XM Adapter (DISP)  
File: neo900\_SS\_35.sch  
**BB-XM Adapter (DISP)**

Sheet: BB-XM Adapter (CAM)  
File: neo900\_SS\_36.sch  
**BB-XM Adapter (CAM)**

Sheet: No-Solder Components  
File: neo900\_SS\_37.sch  
**No-Solder Components**

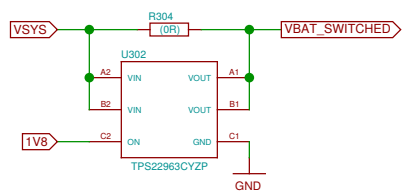
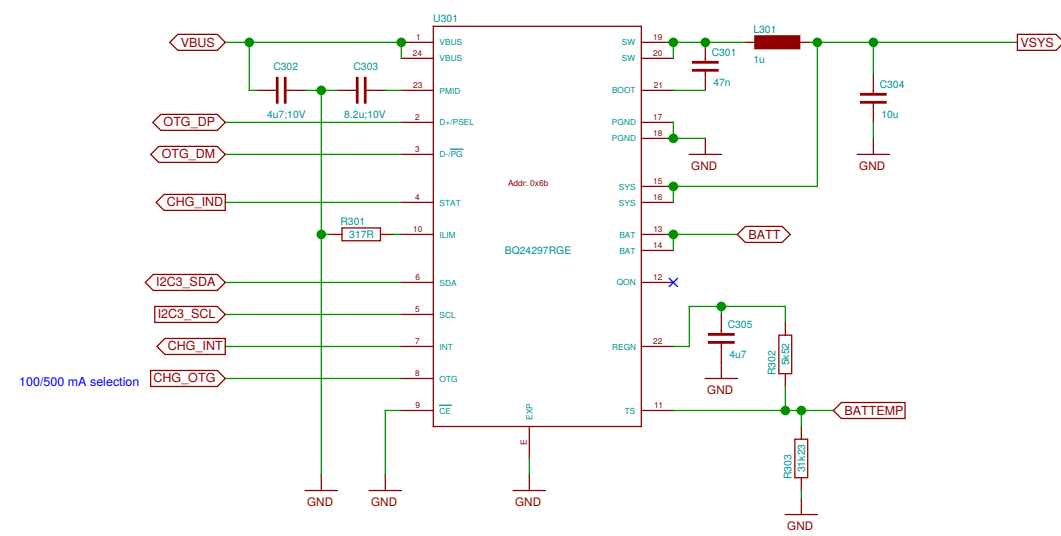
Note regarding I2C addresses:  
Addresses in the schematics are provided for convenience.  
The authoritative source is  
<https://neo900.org/git?p=misc;a=tree;f=i2c>

Sheet: /	
File: neo900.sch	
Title: Neo900	
Size: A3	Date: 16 JUL 2016
Plotted by eeshow 14908eb+ 20160930-18:22Z	
Rev:	Id: 1/37

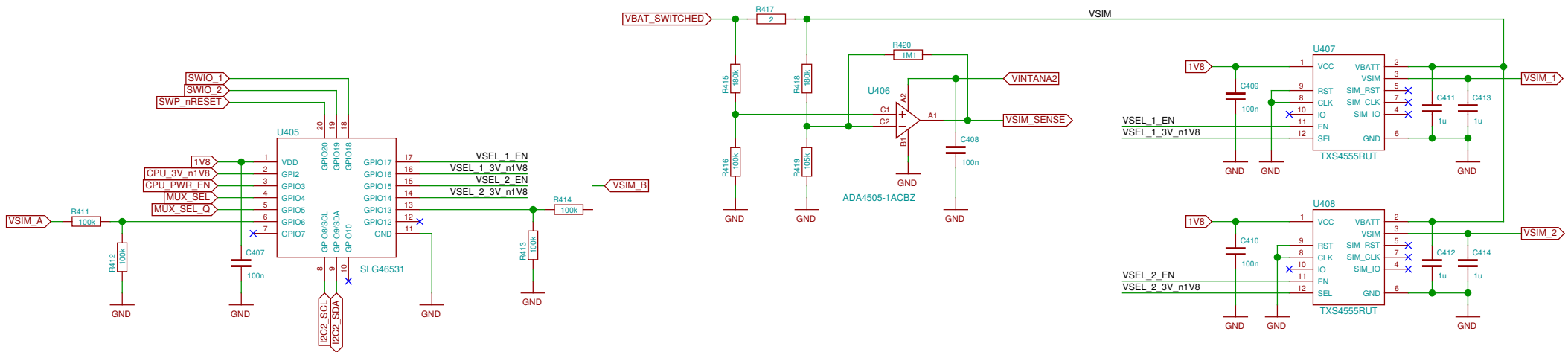
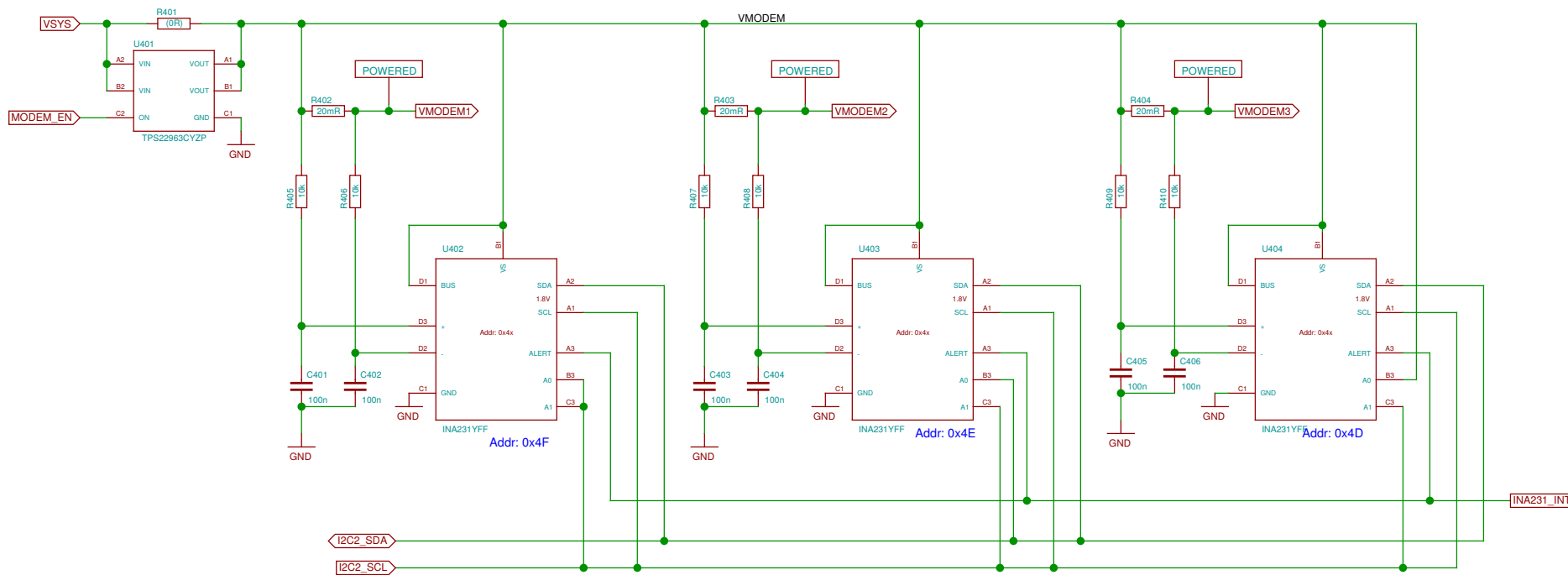


place in scan matrix? would need 3-4 wires to UPPER board instead of 2

in any case it is sufficient to connect GPIO-VOL+ and VOL- to two pins on the B2B connector

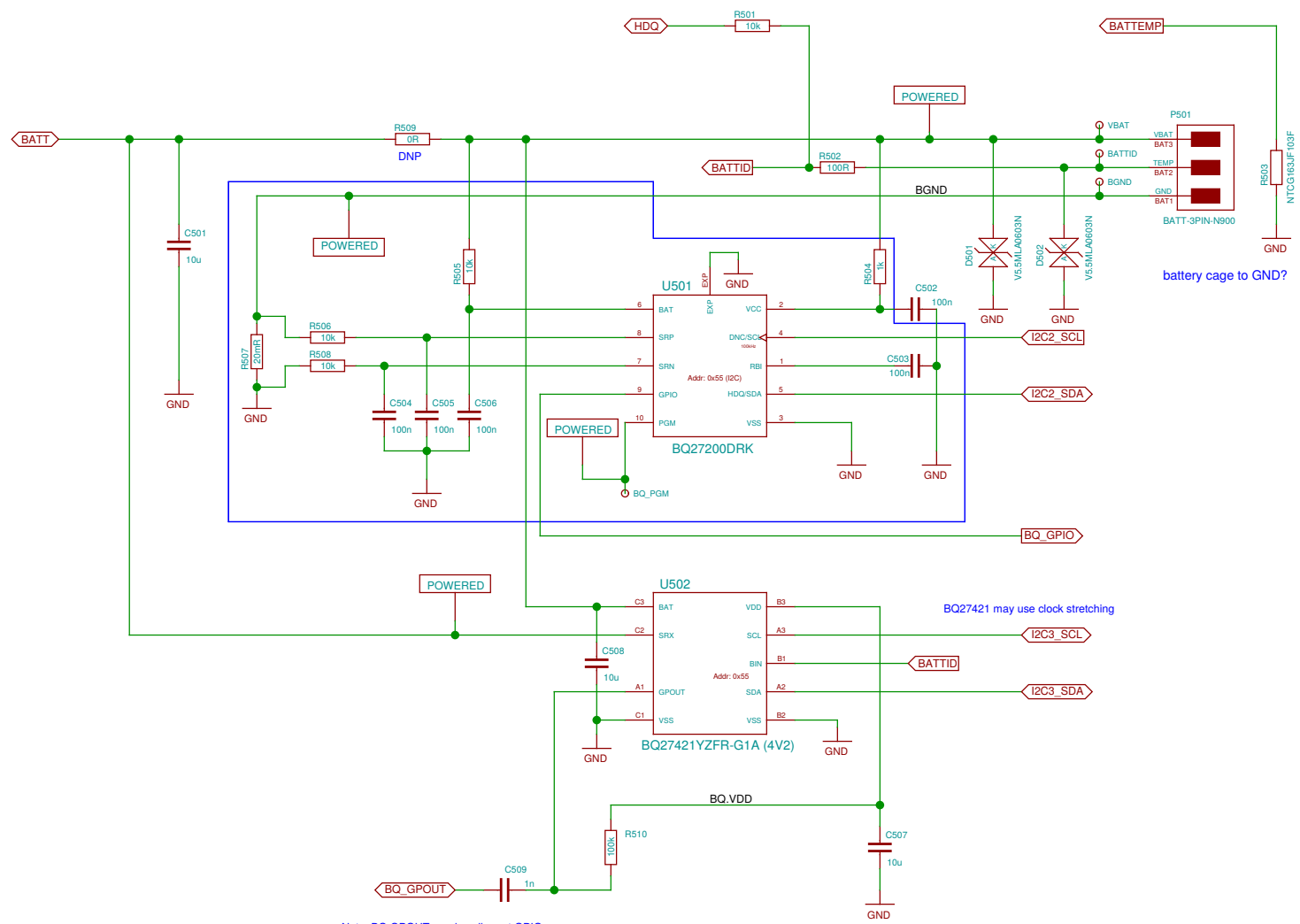


Sheet: /Charger/OTG-Booster/		
File: neo900_SS_3.sch		
Title: Charger/OTG-Booster		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 3/37



**TODO: update SLG design for changed pins**

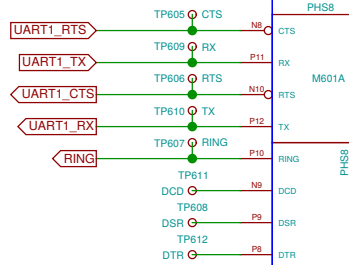
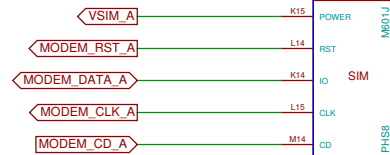
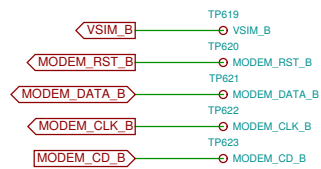
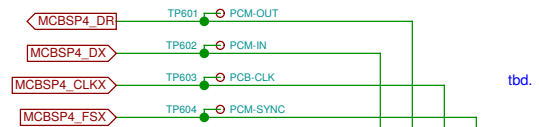
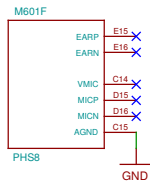
TODO: does BATTID go to UPPER, too ?



battery cage to GND?

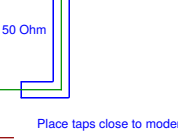
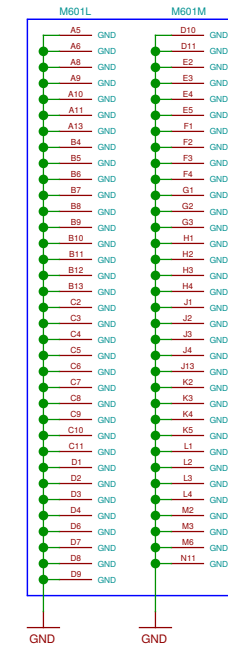
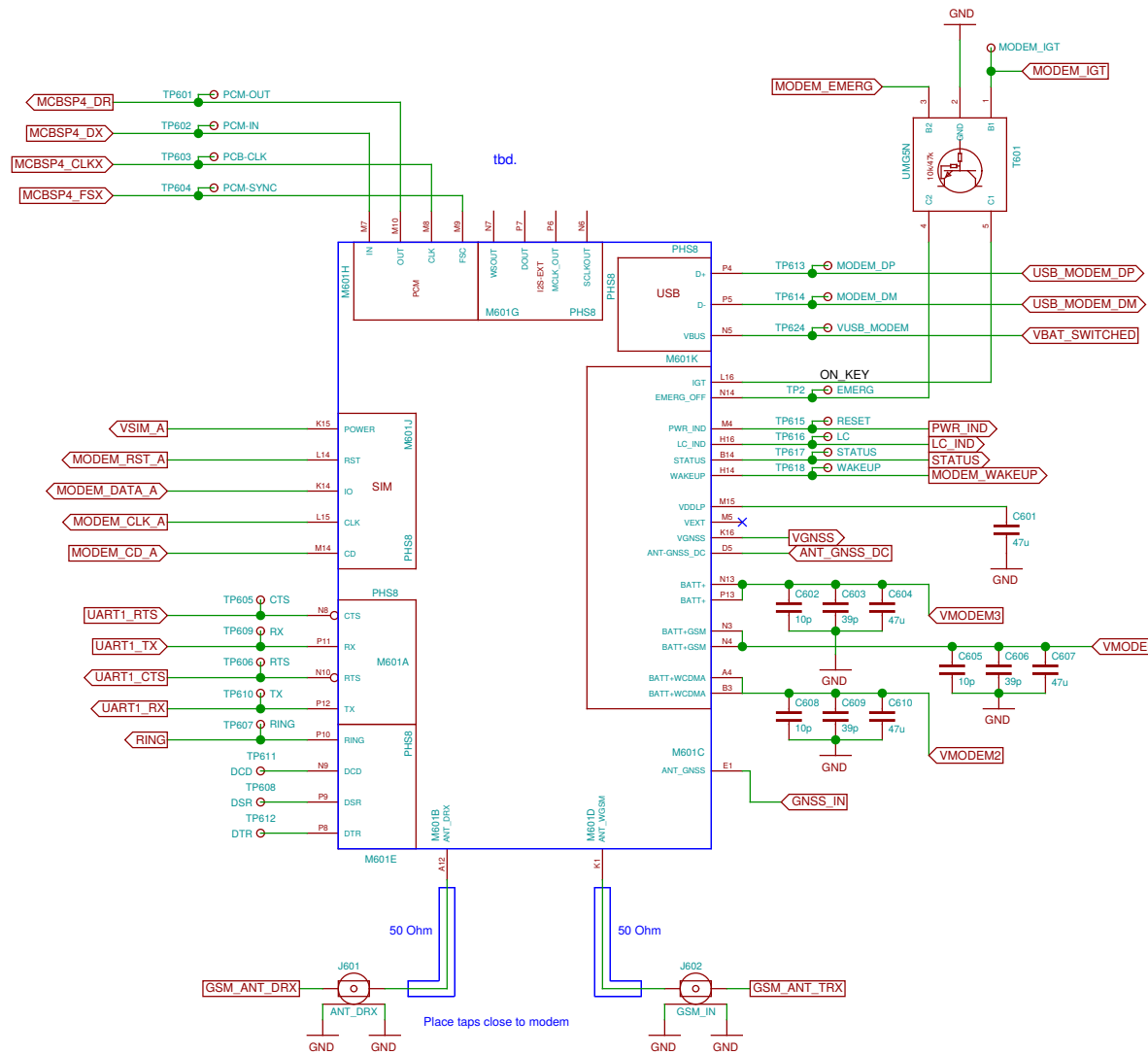
Note: BQ.GPOUT needs pull-up at GPIO.

Sheet: /Fuel Gauge/		Date: 17 JUL 2016	
File: neo900_SS_5.sch		Rev:	
Title: Fuel Gauge			
Size: A3	Plotted by: eeshow 14908eb+ 20160930-18:22Z	Id: 5/37	



# TODO: B-SIM bus FFS

Can we connect UART in parallel to Bluetooth UART (i.e. if BT is disabled we can unbrick the Modem?)



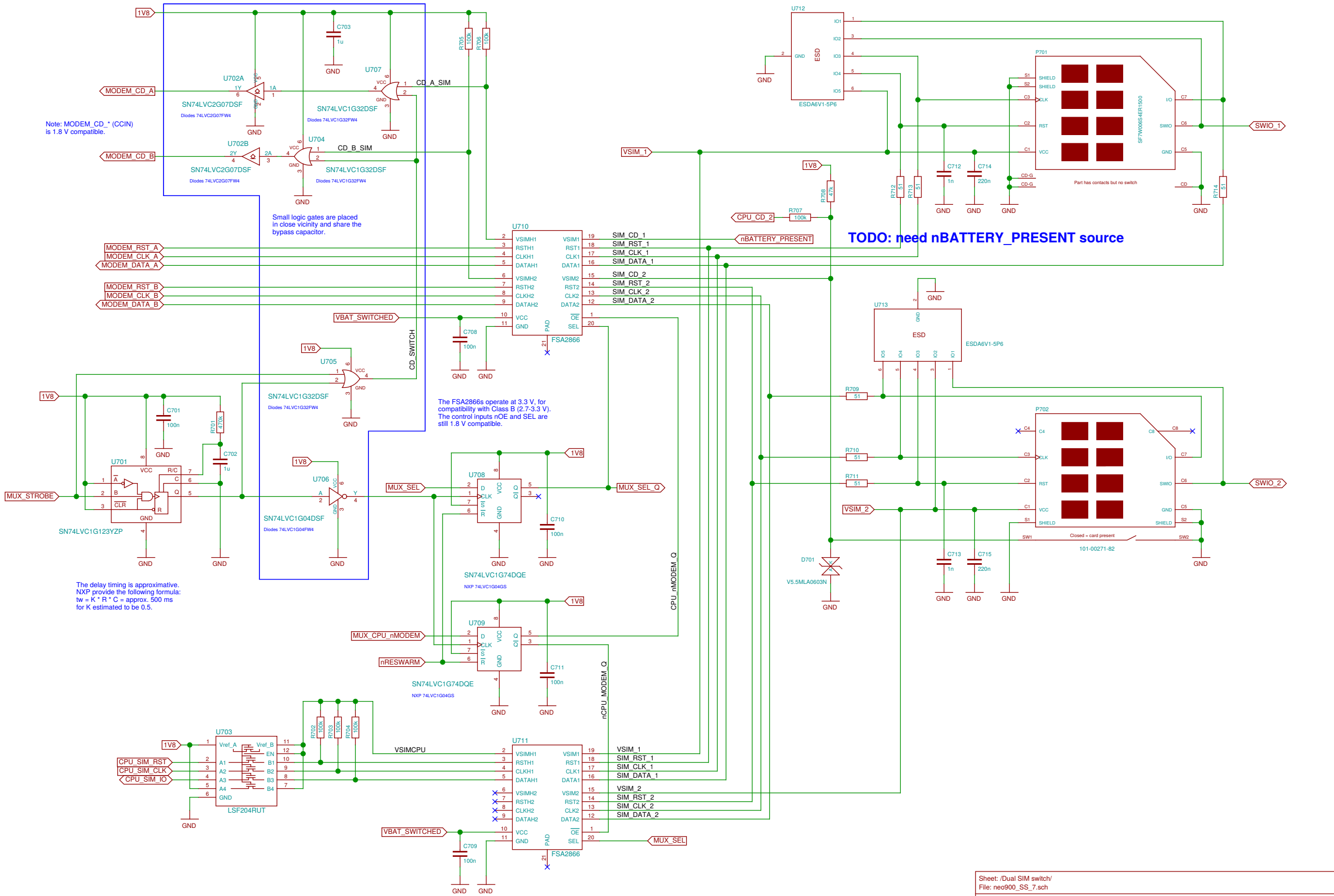
Note: MODEM\_CD\_\* (CCIN) is 1.8 V compatible.

Small logic gates are placed in close vicinity and share the bypass capacitor.

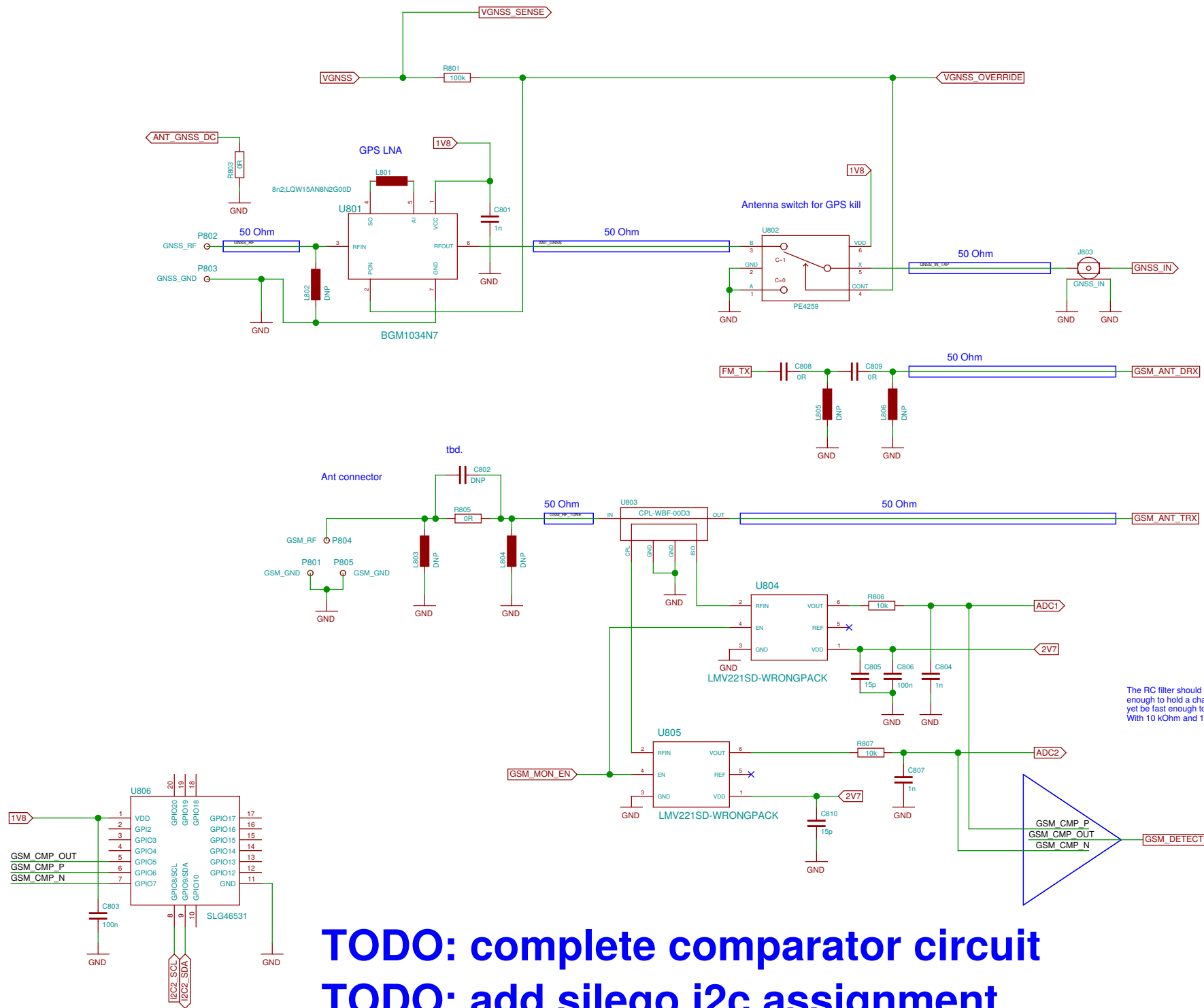
The FSA2866s operate at 3.3 V, for compatibility with Class B (2.7-3.3 V). The control inputs nOE and SEL are still 1.8 V compatible.

The delay timing is approximative. NXP provide the following formula:  $t_w = K * R * C = \text{approx. } 500 \text{ ms}$  for K estimated to be 0.5.

TODO: need nBATTERY\_PRESENT source



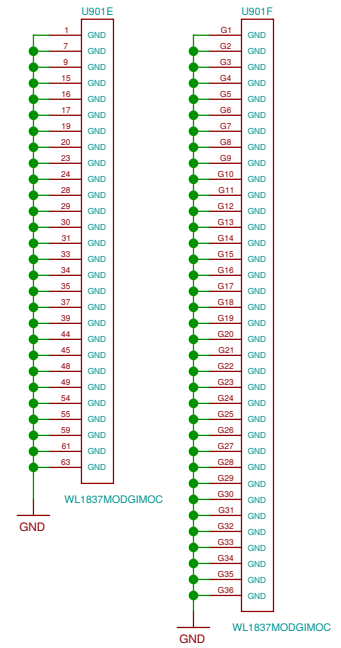
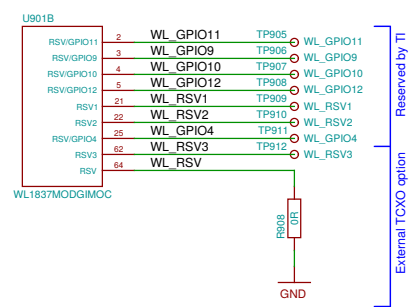
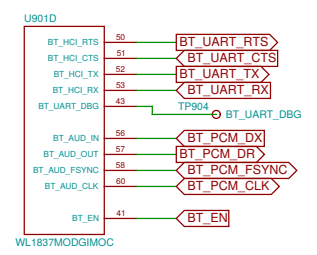
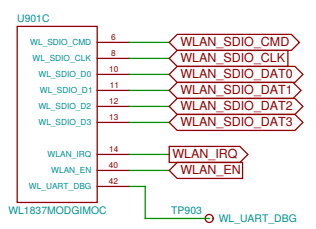
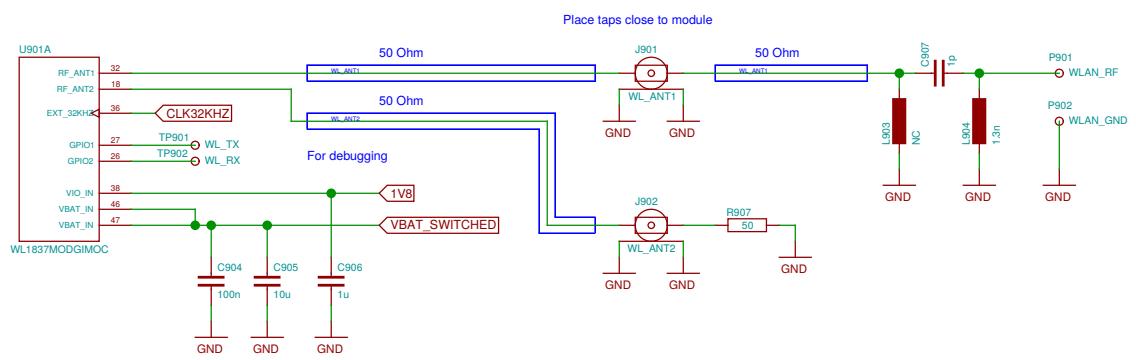
Sheet: /Dual SIM switch/		File: neo900_SS_7.sch	
Title: Dual SIM switch			
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by eshow 14908eb+ 20160930-18:22Z		Id: 7/37	



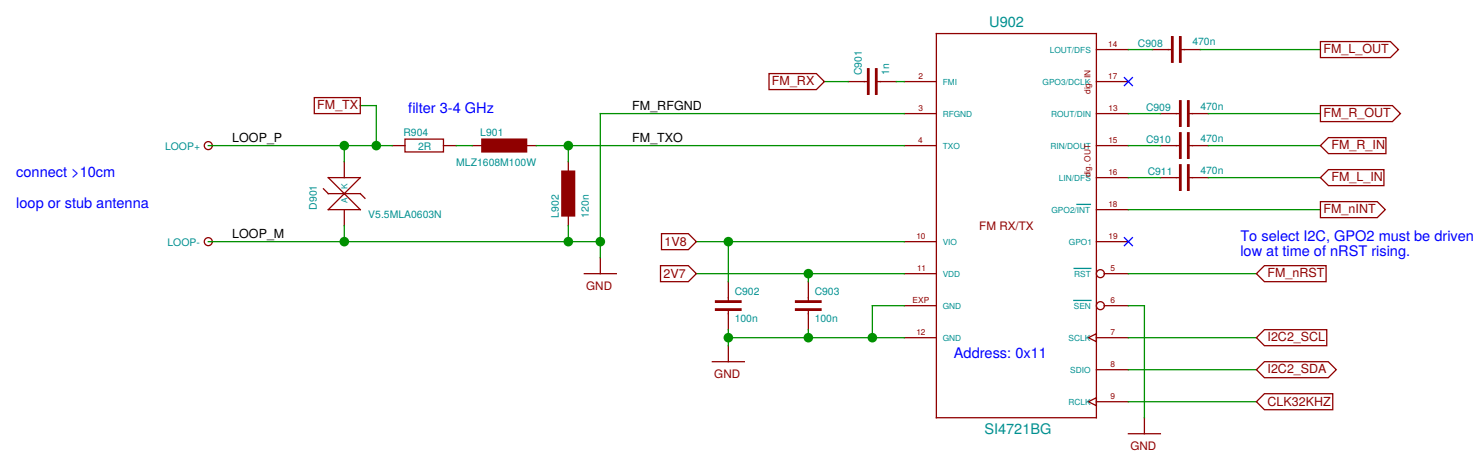
**TODO: complete comparator circuit**  
**TODO: add silego i2c assignment**  
**TODO: iox**

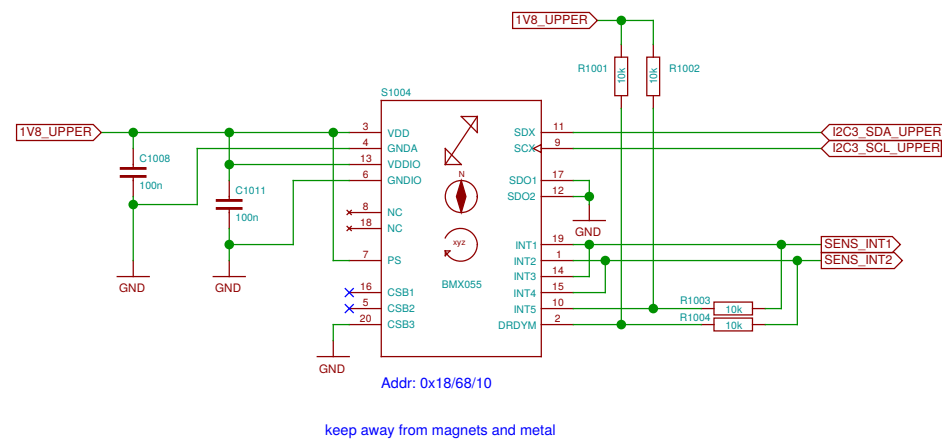
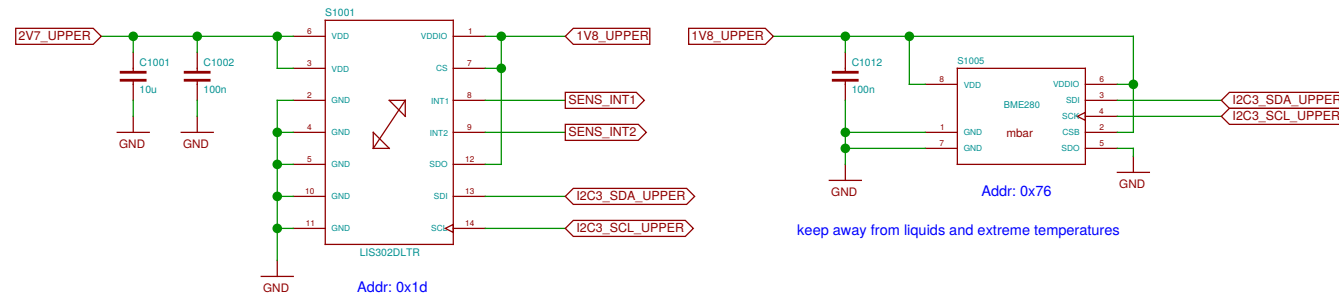


TODO: assign footprints



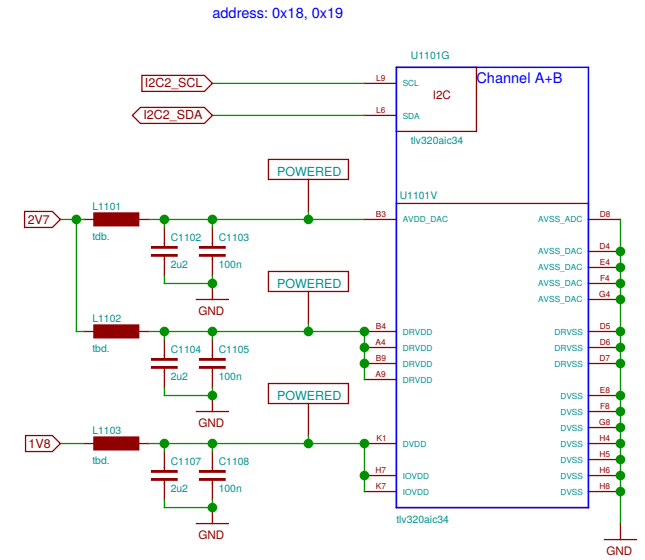
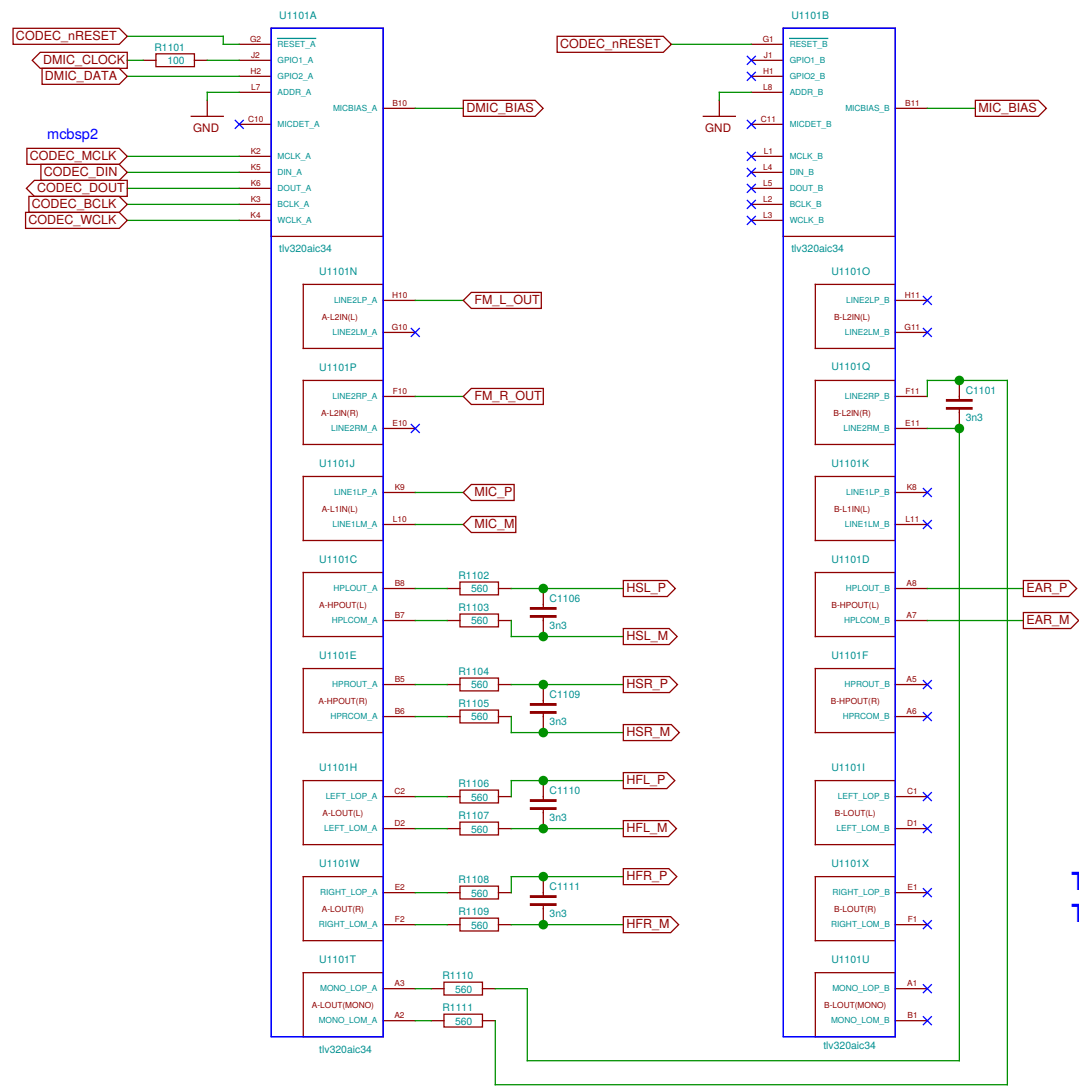
TODO: check caps



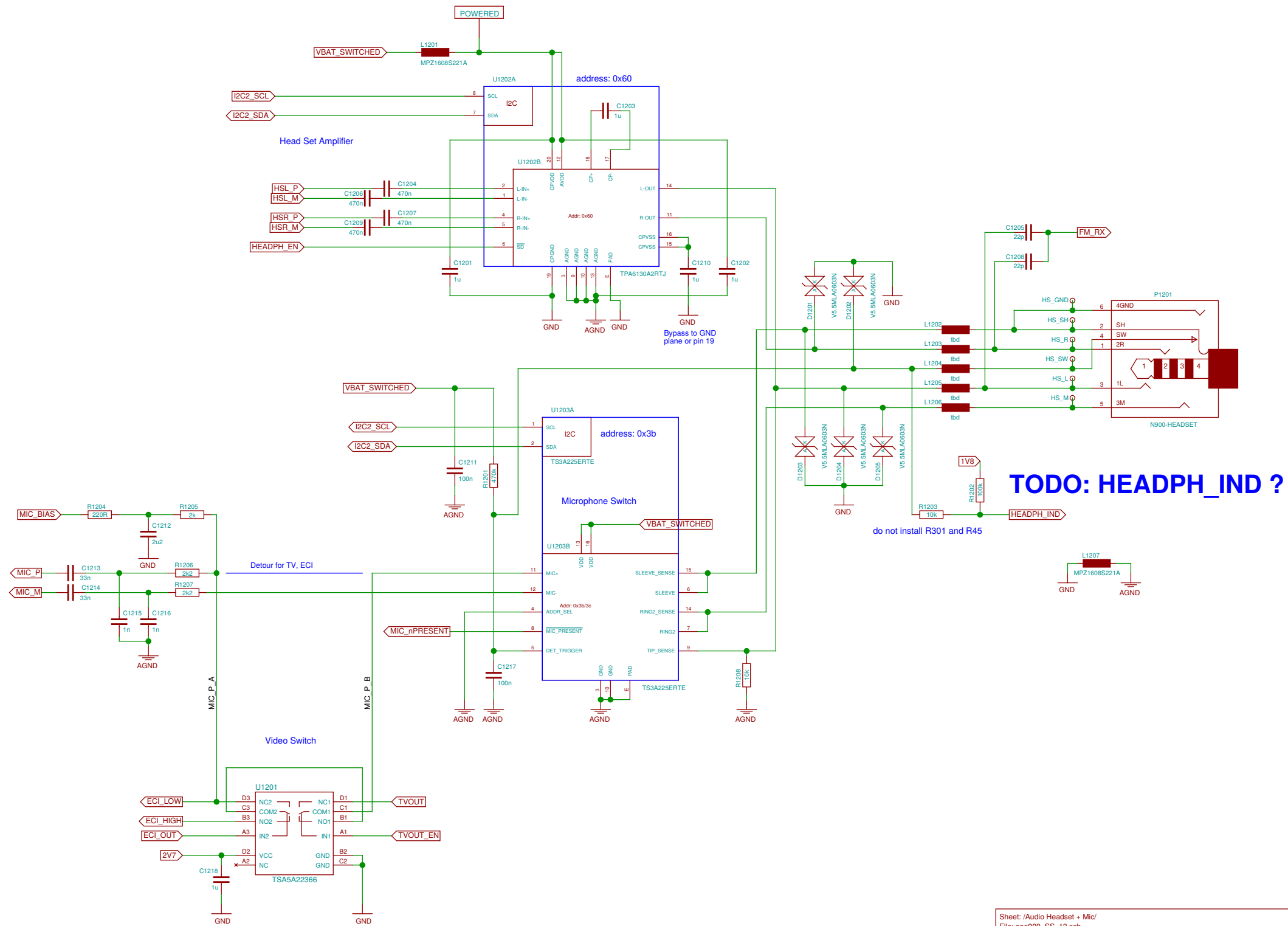


Sheet: /Sensors/ File: neo900_SS_10.sch		Title: Sensors	
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 10/37	

problem: this is a 0.5mm BGA making lower board expensive  
 but it appears to be not extremely critical (only 3 rows and inner ring is GND)  
 problem: analog mic is on upper board  
 alternative: place on upper board (to be evaluated)



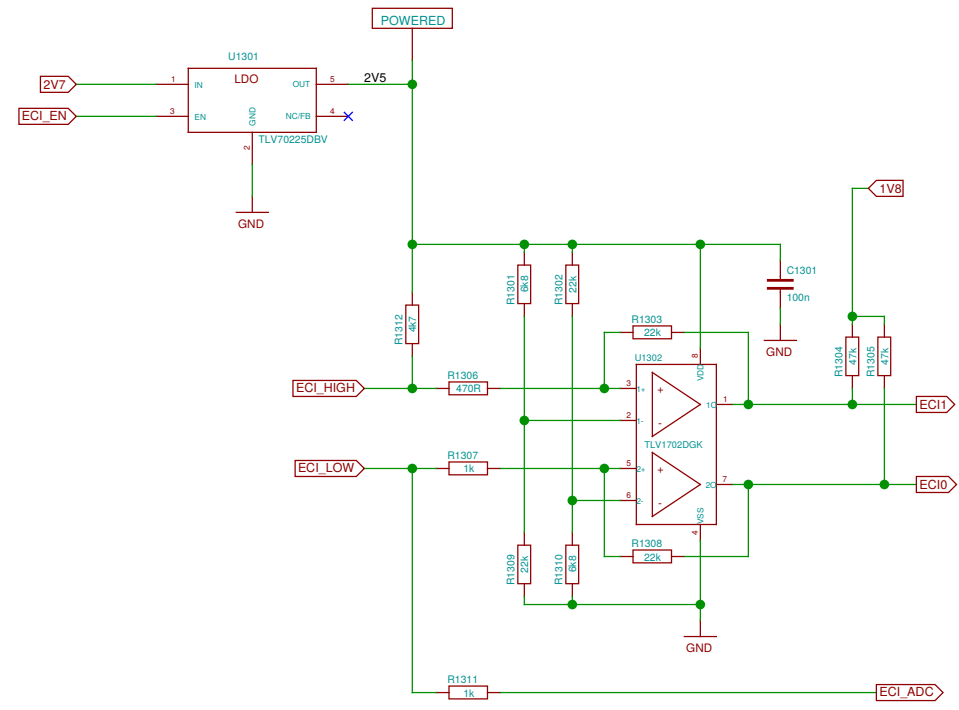
**TODO: assign FM out (FM\_L\_IN, FM\_R\_IN)**  
**TODO: IR\_AUDIOIN**



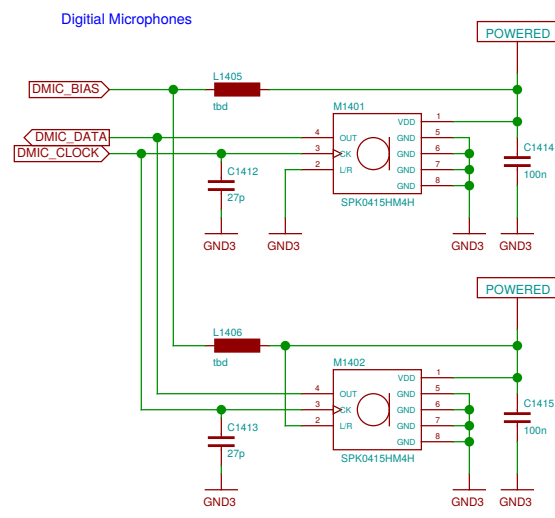
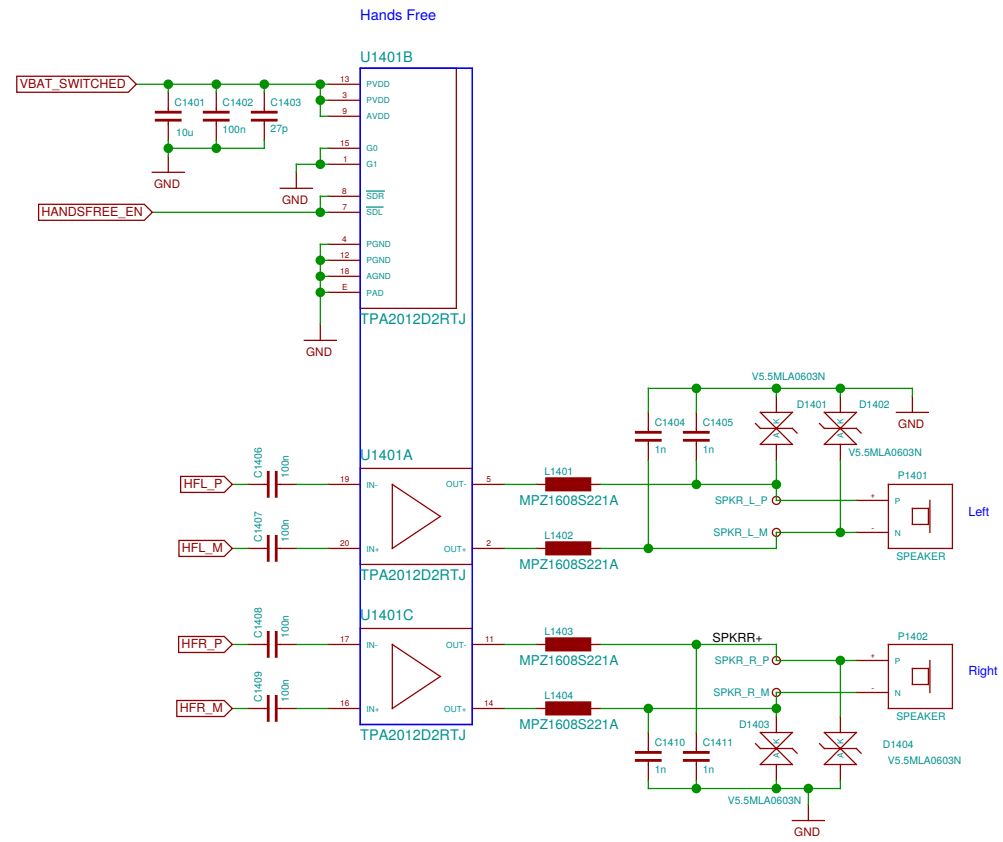
**TODO: HEADPH\_IND ?**

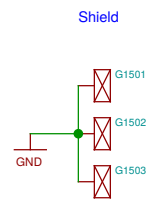
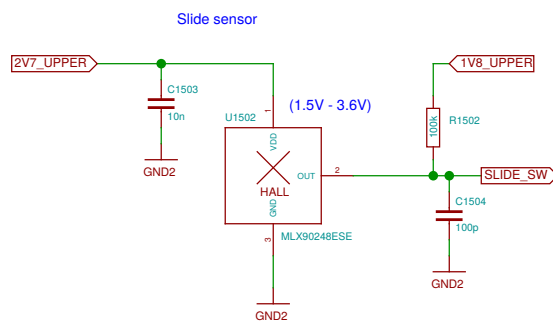
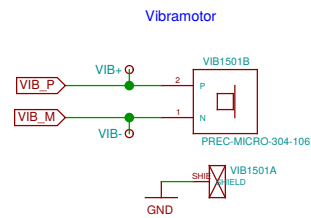
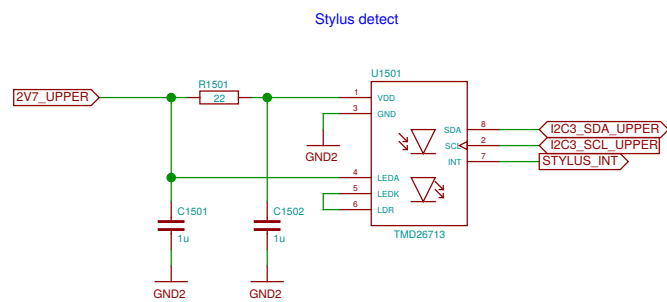
do not install R301 and R45

Sheet: /Audio Headset + Mic/		
File: neo900_SS_12.sch		
Title: Audio Headset + Mic		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 12/37

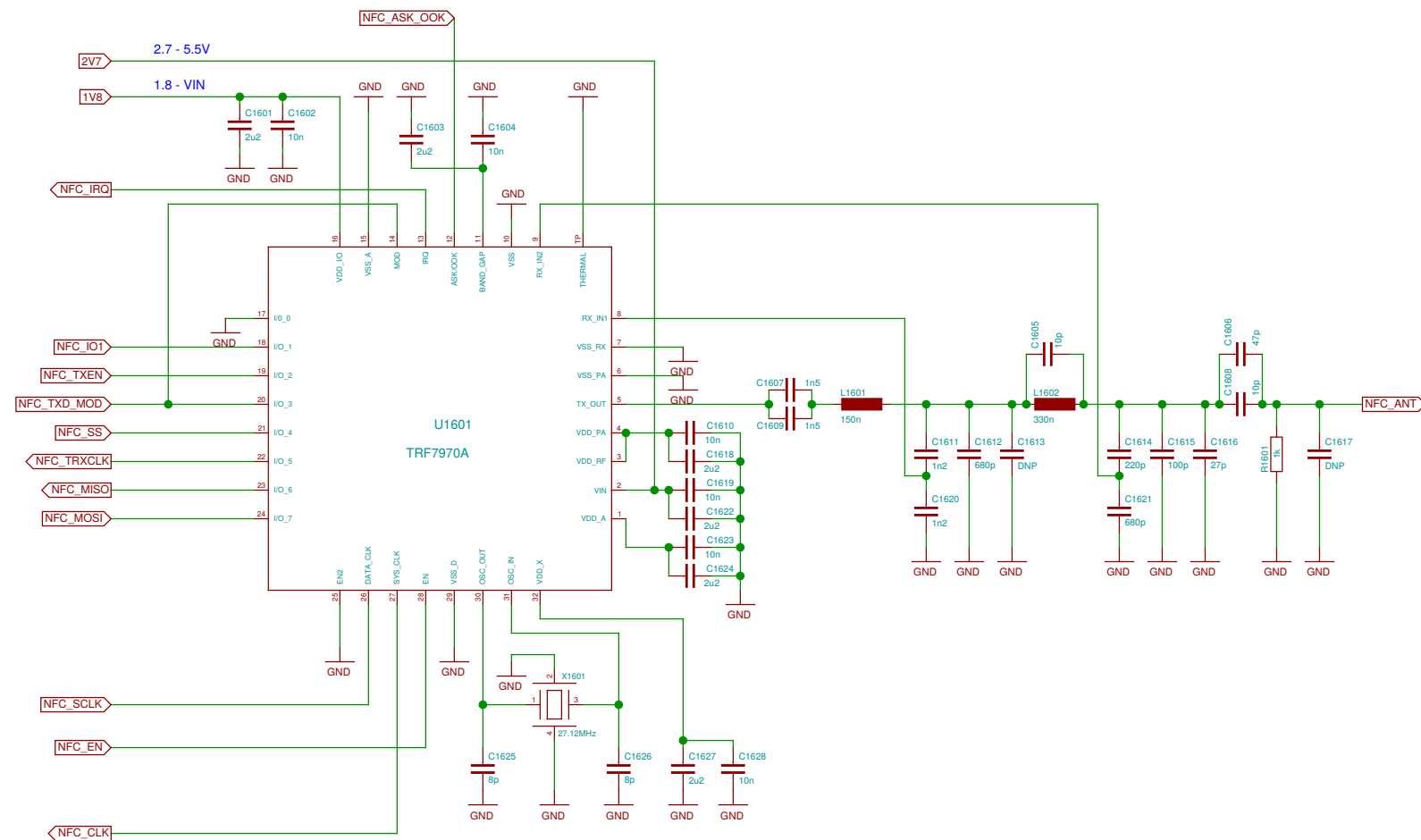


Sheet: /ECI/		File: neo900_SS_13.sch	
Title: ECI			
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 13/37	





Sheet: /Misc/ File: neo900_SS_15.sch	
Title: Misc	
Size: A3	Date: 17 JUL 2016
Plotted by eeshow 14908eb+ 20160930-18:22Z	Rev: Id: 15/37



Some choices, 3.2 x 2.6 mm, 8-10 pF:  
 NDK NX3225GA-27.12M-STD-CRG-2  
 NDX NX3225SA-27.12M-STD-CSR-3  
 Tattien XXCCEINANF-27.120000

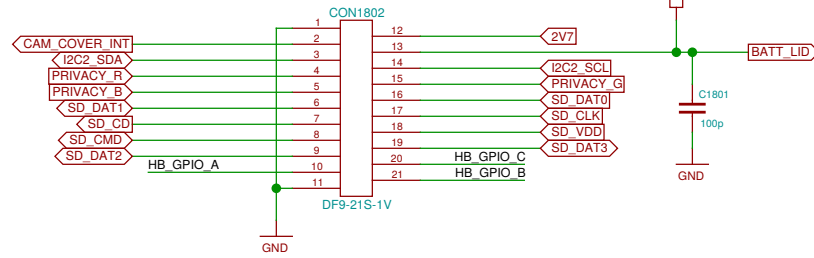
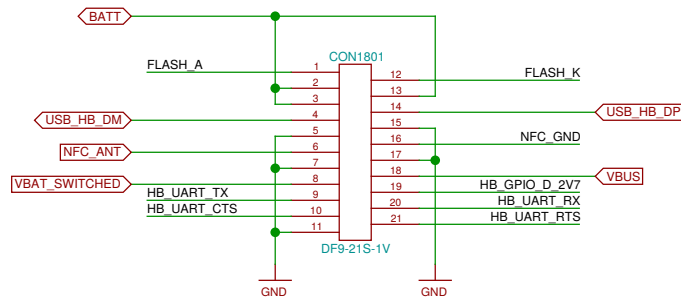




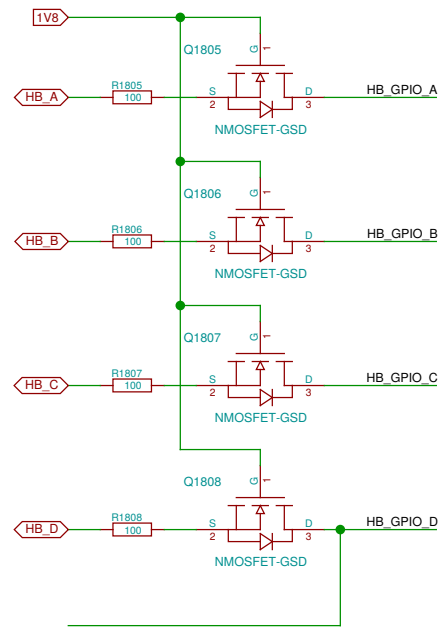
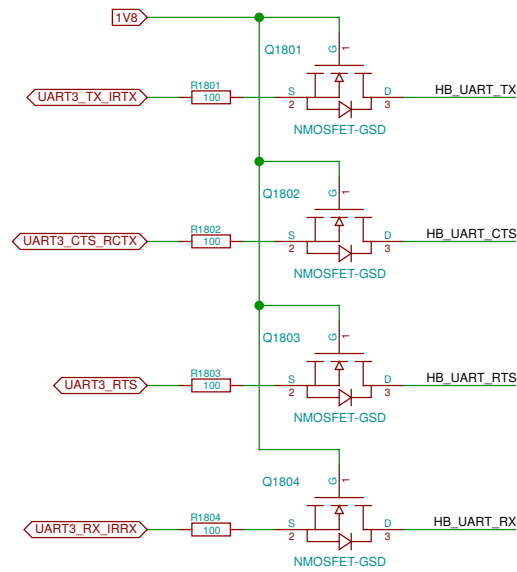
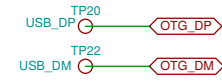
NOTE: this is mangling up Breakout and Lower board connectors  
 Signals may have to be fed through the breakout board connector increasing resistance

TODO: add fuse

The LOWER-BOB interconnect is defined in the Hackerbus specification  
<http://neo900.org/stuff/papers/hb.pdf>

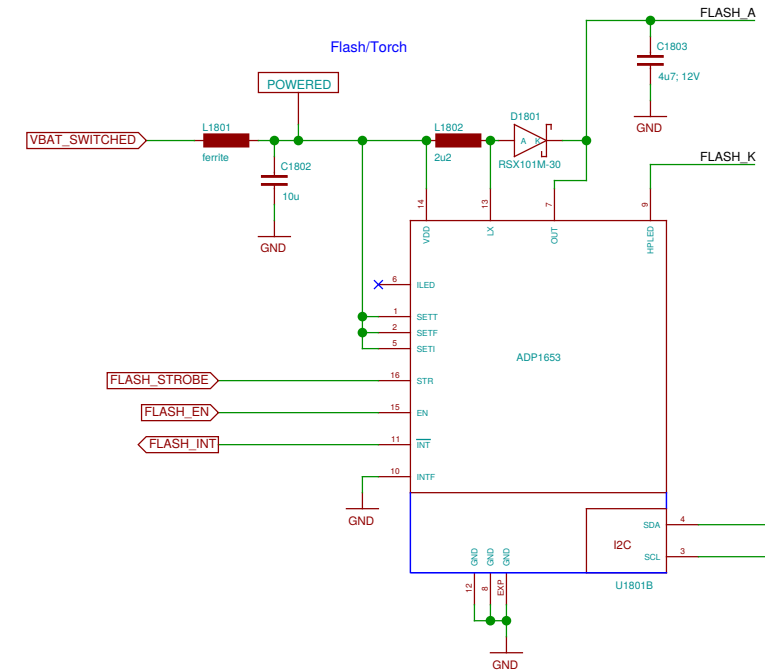


TODO: define NFC-GND



TODO: use arrays

TODO: 2V7+SW / LDO ?



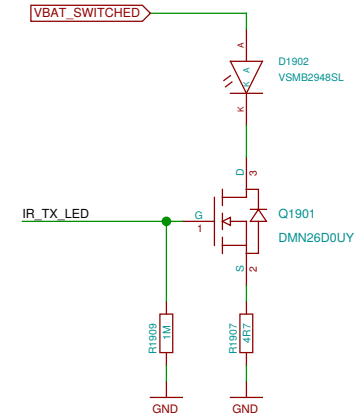
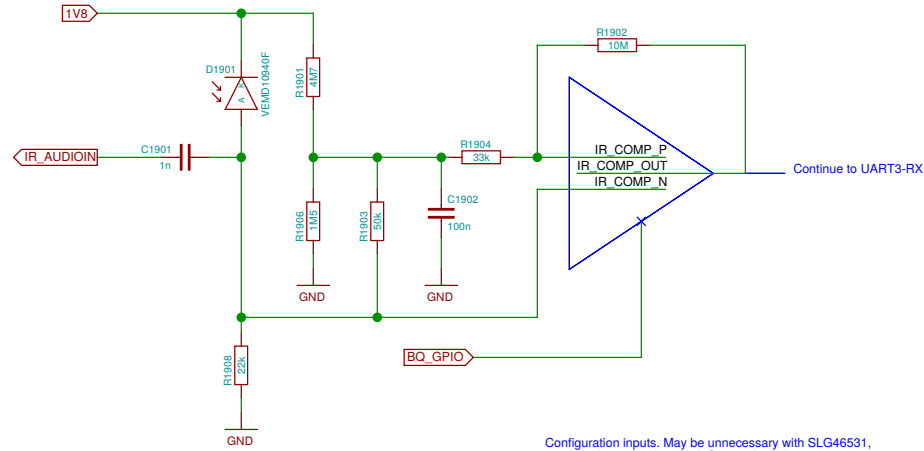
Missing 10 level shifter chip (or do we really have the space for 10x discrete T+R+D ca. 3x3mm each?)  
 Missing 6x 2R for alternate function select (do we have the space for ca. 2.5 x 5mm?)

TODO: HB USB PHY may go here

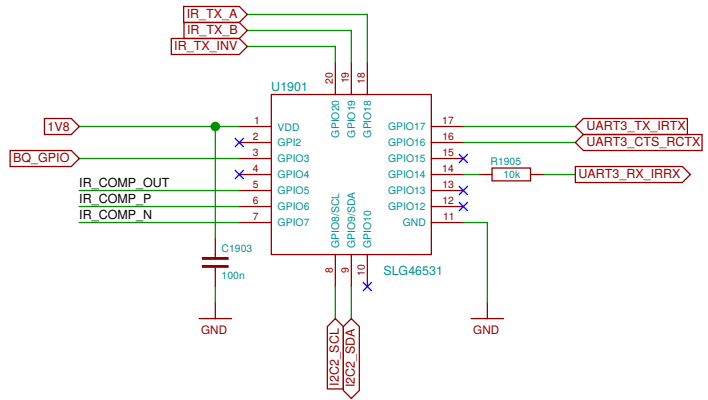
Sheet: /Hackerbus/ File: neo900_SS_18.sch		Title: Hackerbus	
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 18/37	

# TODO: update D1901 footprint

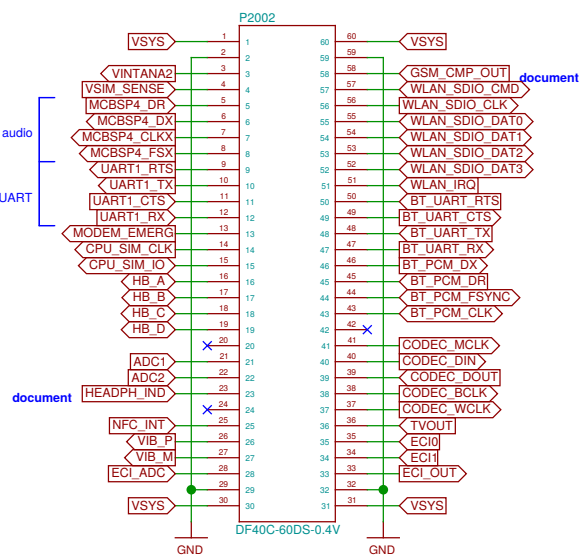
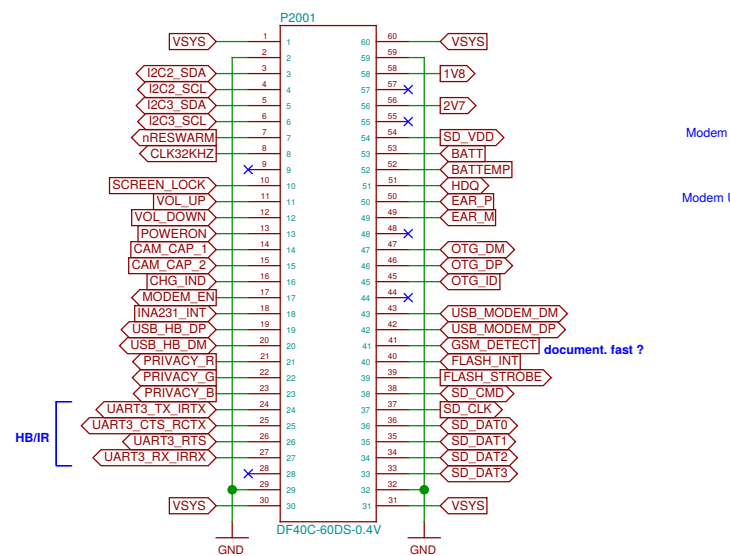
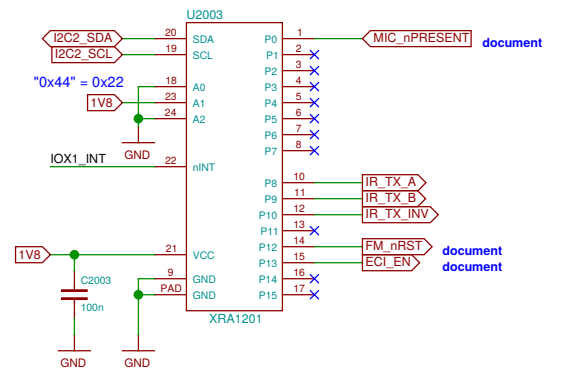
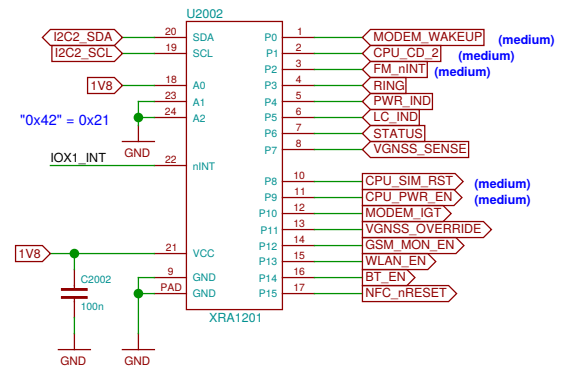
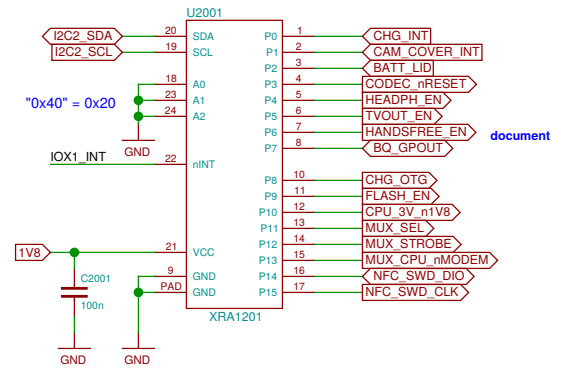
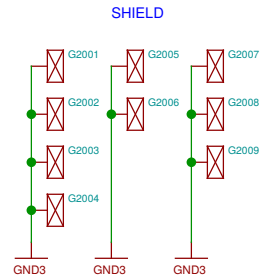
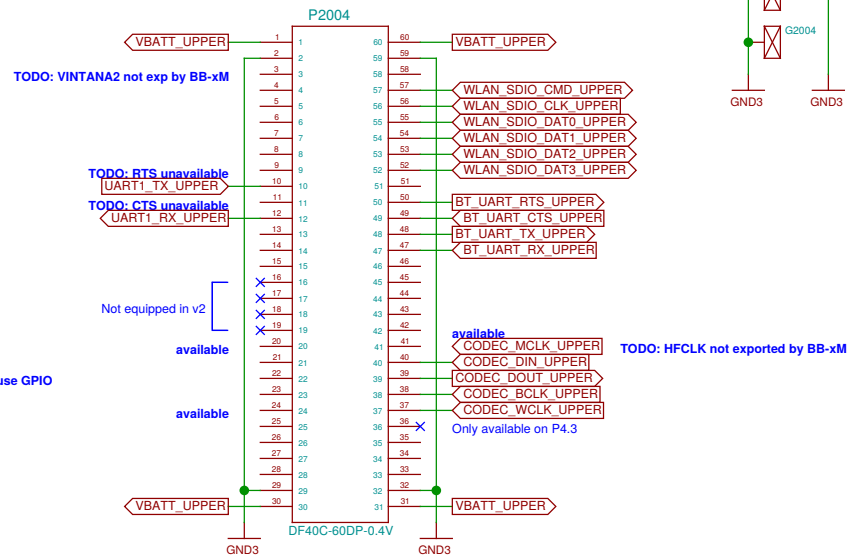
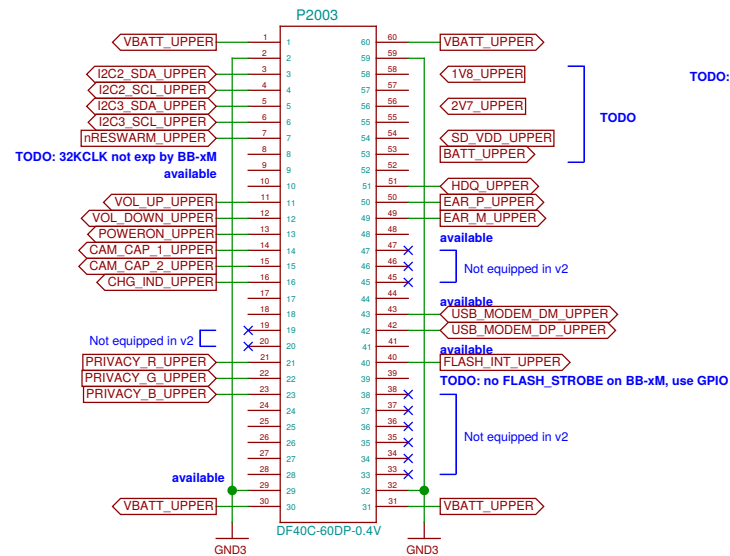
NOTE: 1V8 may be quite noisy



Configuration inputs. May be unnecessary with SLG46531, once configuration through I2C is confirmed.

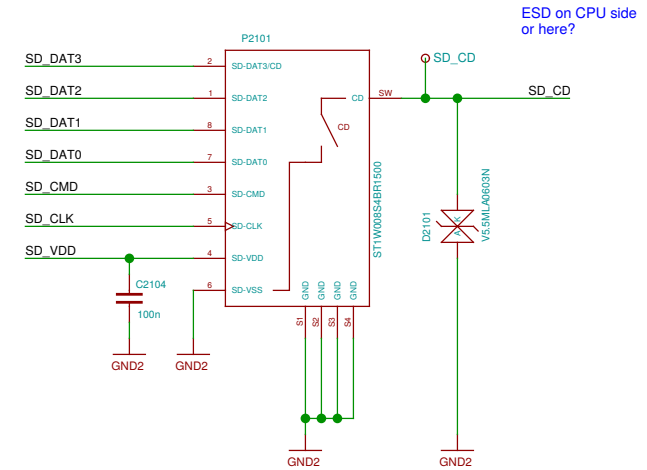
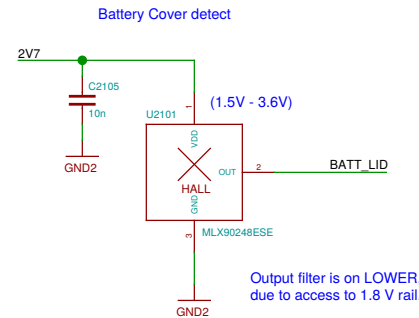
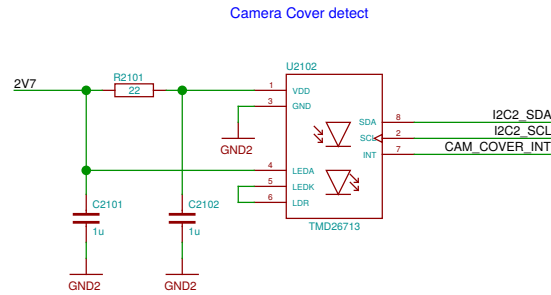


# This is just the collection of signals we have. Proper assignment still pending.

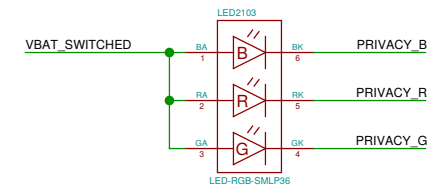
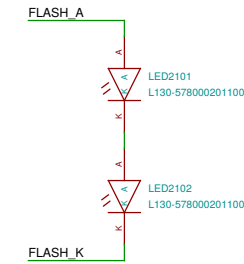
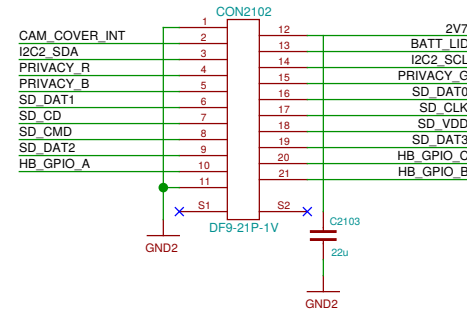
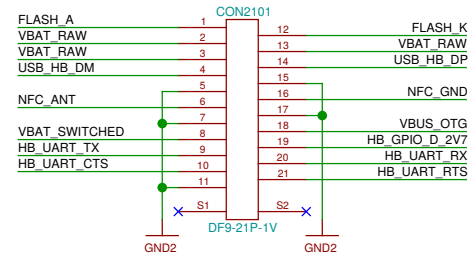


Current rating per contact: 0.3 A

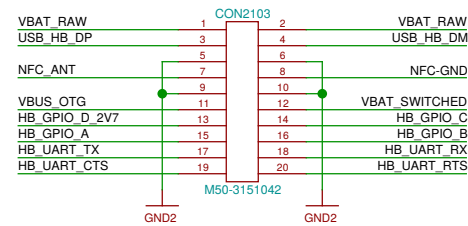
# TODO: add ESD protection (here)



The LOWER\_BOB interconnect is defined in the Hackerbus specification  
<http://neo900.org/stuff/papers/hb.pdf>



## Hackerbus

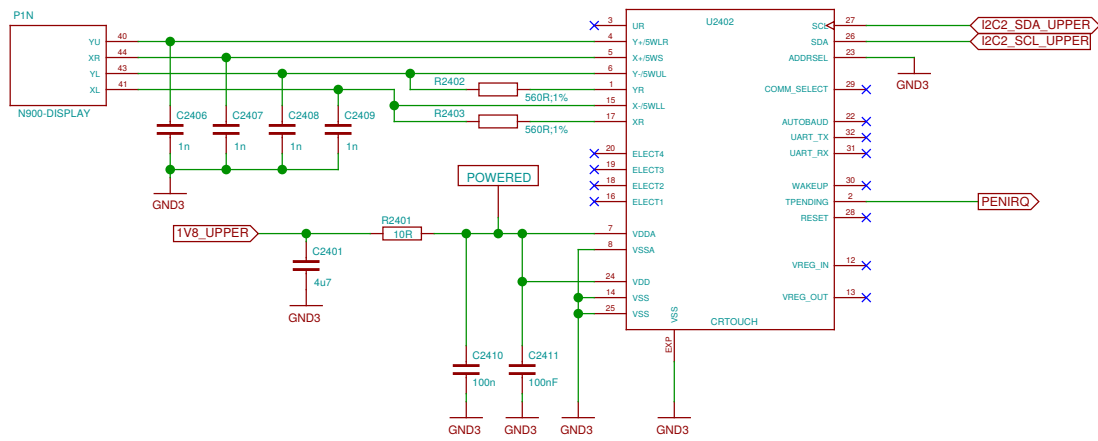


**TODO: consider sheet for deletion**

Sheet: /empty/ File: neo900_SS_22.sch		
Title: empty		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 22/37



Resistive Touch (display connector)







**OMAP is not part of v2**

Sheet: /CPU + PoP RAM/NAND/ File: neo900_SS_26.sch		
Title: CPU + PoP RAM/NAND		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 26/37

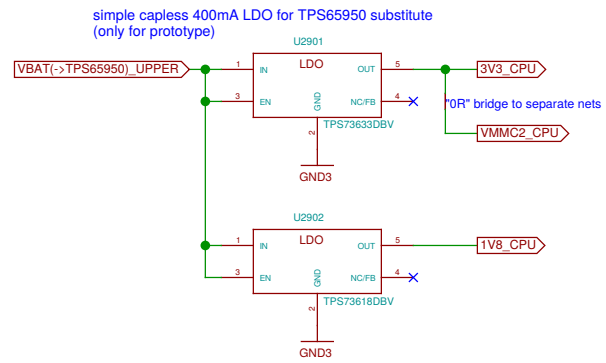
**eMMC is not part of v2**

Sheet: /eMMC/ File: neo900_SS_27.sch		
Title: eMMC		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 27/37

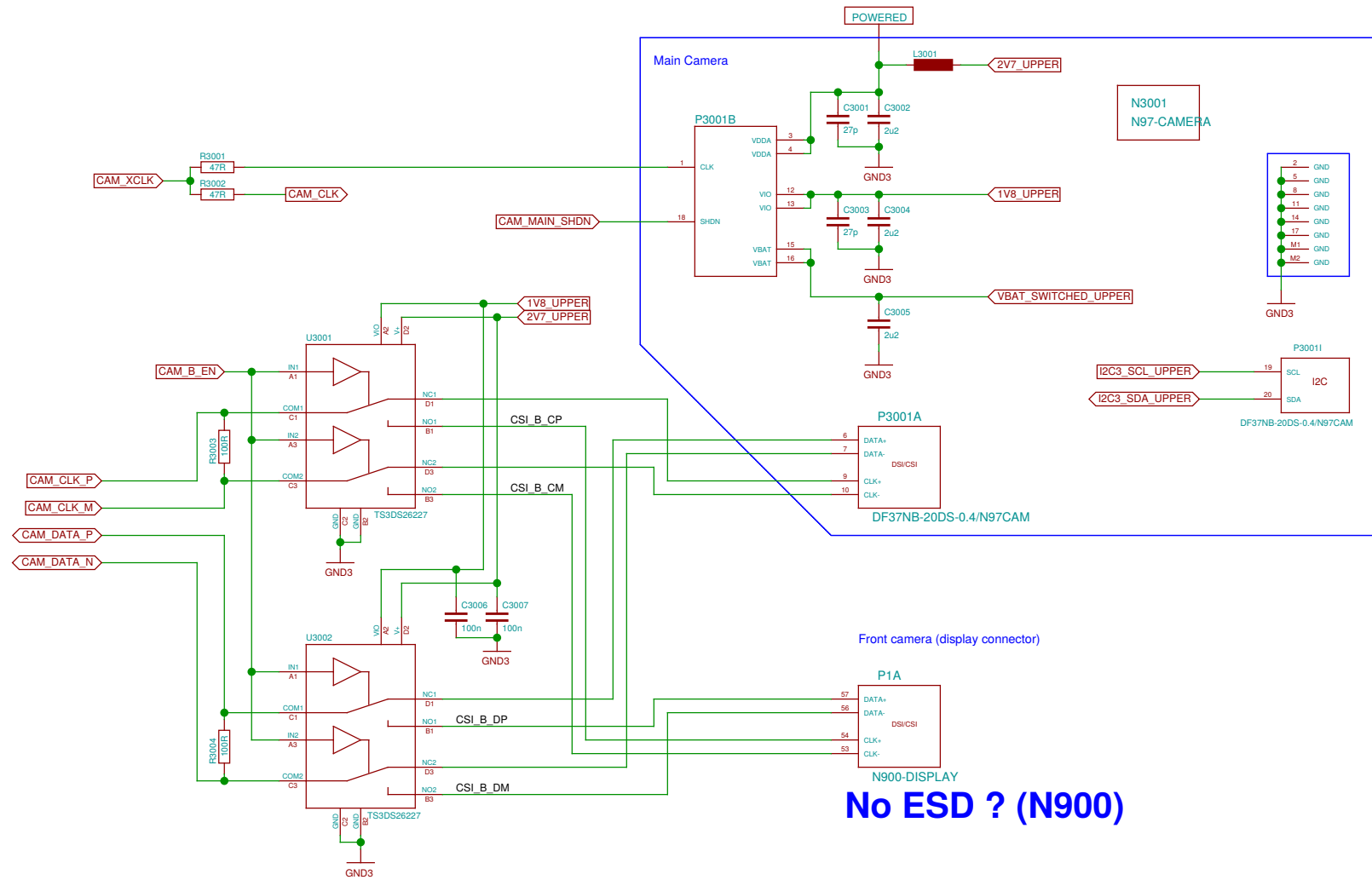
**Companion chip (TPS65950) is not part of v2**

Sheet: /PMU+Codec/ File: neo900_SS_28.sch		
Title: PMU+Codec		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 28/37

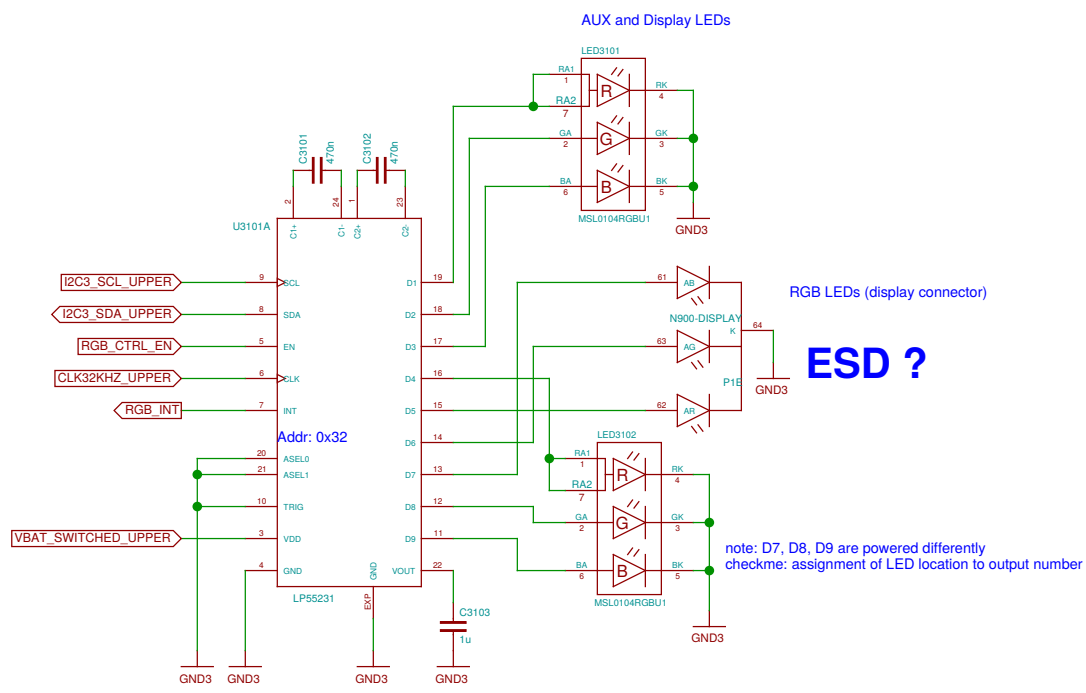
TODO: empty this sheet, too ?



Sheet: /BB-XM Dummy (TWL4030)/		
File: neo900_SS_29.sch		
Title: BB-XM Dummy (TWL4030)		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 29/37



Sheet: /Camera/ File: neo900_SS_30.sch	
Title: Camera	
Size: A3	Date: 17 JUL 2016
Plotted by eeshow 14908eb+ 20160930-18:22Z	
Rev:	Id: 30/37



AUX and Display LEDs

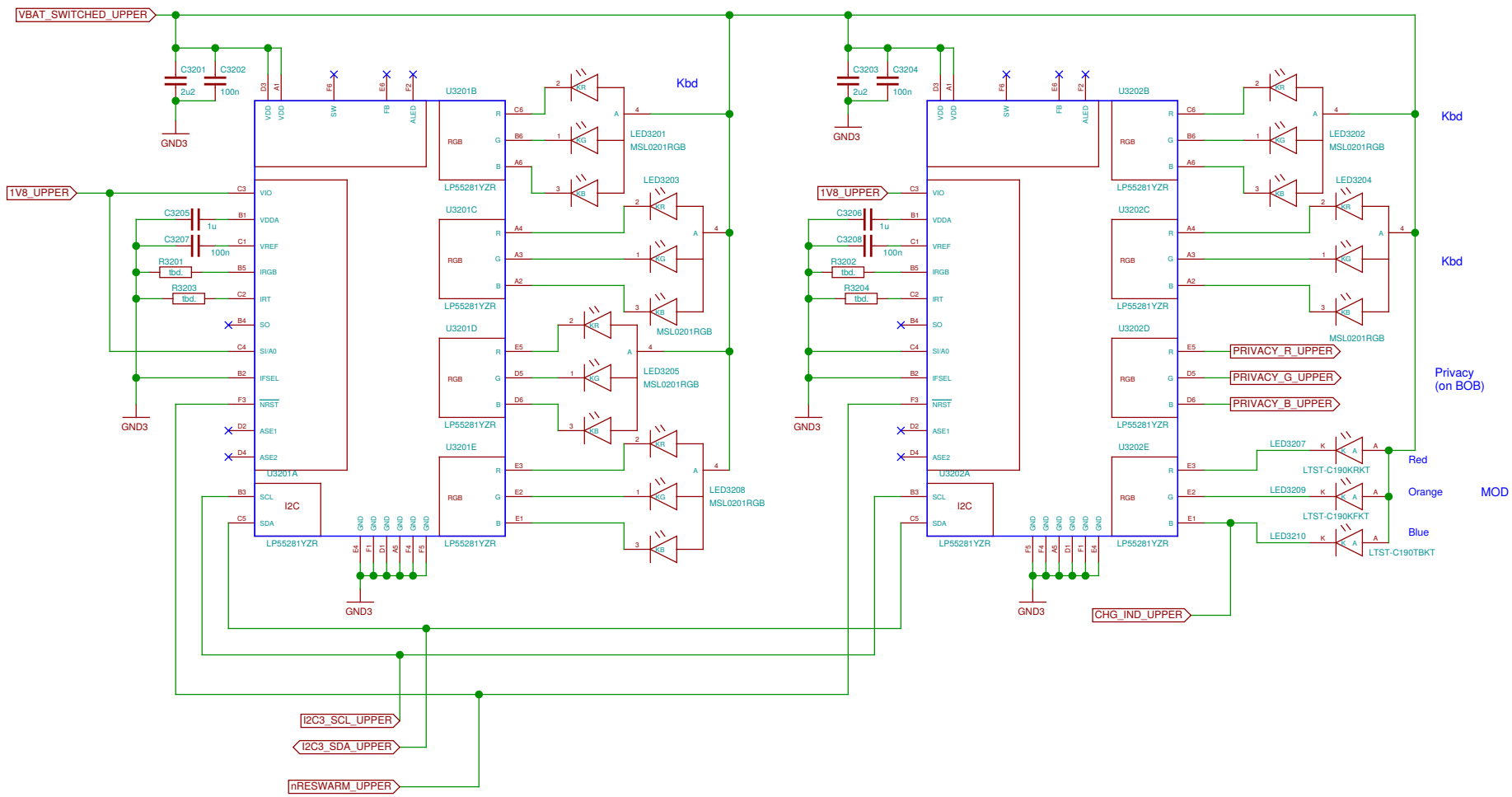
RGB LEDs (display connector)

**ESD ?**

note: D7, D8, D9 are powered differently  
checkme: assignment of LED location to output number

Addr: 0x32

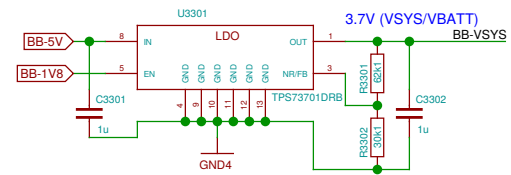
Sheet: /Fancy LEDs/		Date: 17 JUL 2016	
File: neo900_SS_31.sch		Rev:	
Title: Fancy LEDs			
Size: A3	Date: 17 JUL 2016		Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z			Id: 31/37





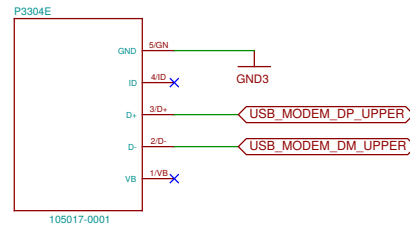
Cleaning up. The connections to BB-xM are on the next sheets.

TODO: v2 power supply still needs designing



Ersetzen durch 2A buck converter

connect to BB by some Micro-USB cable

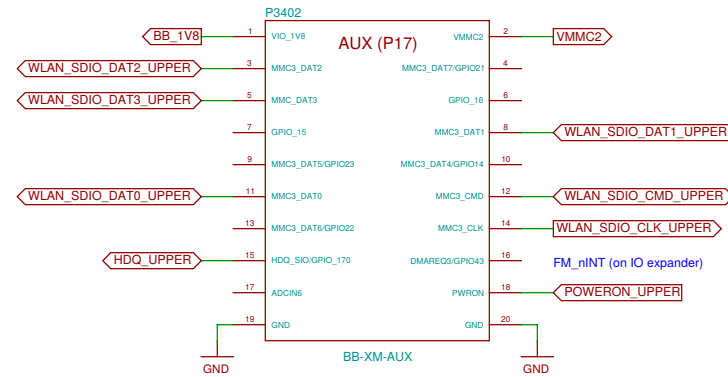


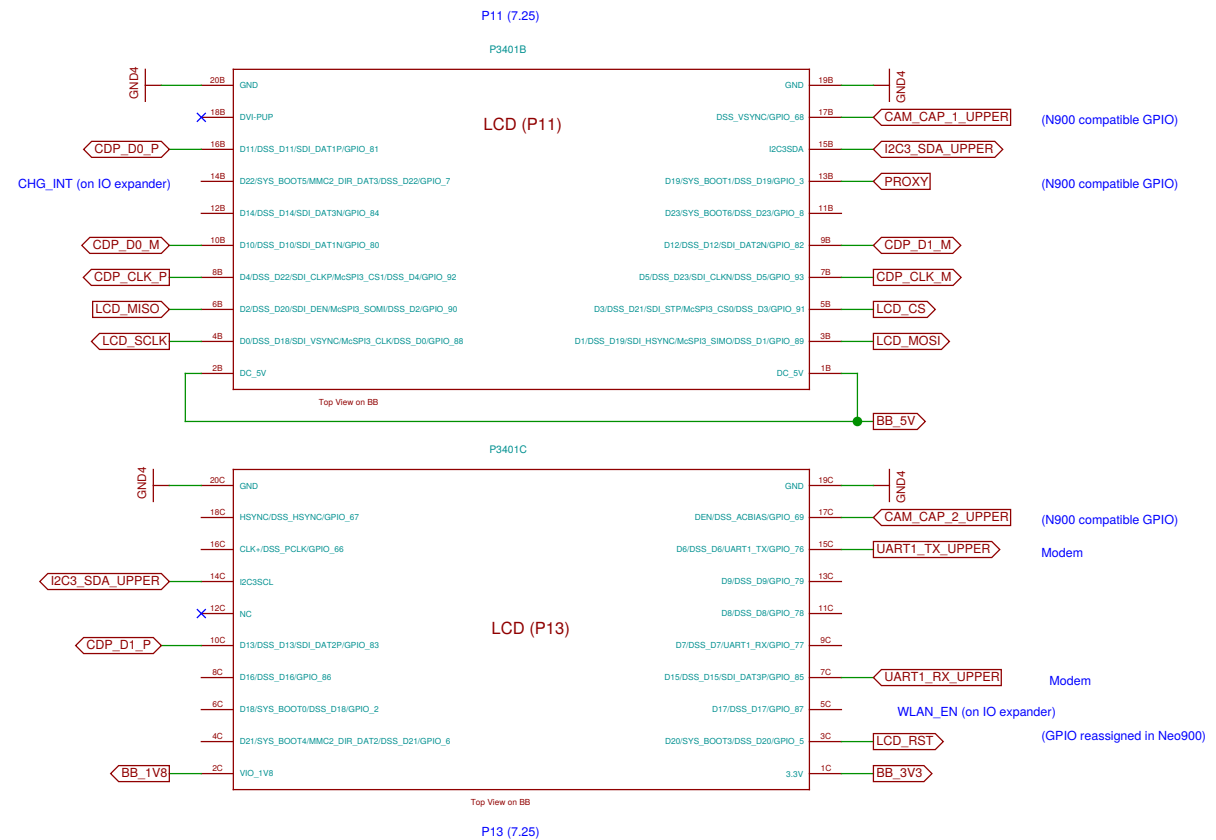
TODO: assign

- SENS\_IN1 -X
- SENS\_IN2 -X
- PENIRQ -X
- STYLUS\_INT -X
- SLIDE\_SW -X
- KEYIRQ -X
- RGB\_INT -X
- RGB\_CTRL\_EN -X



**TODO: update pin names in footprint**

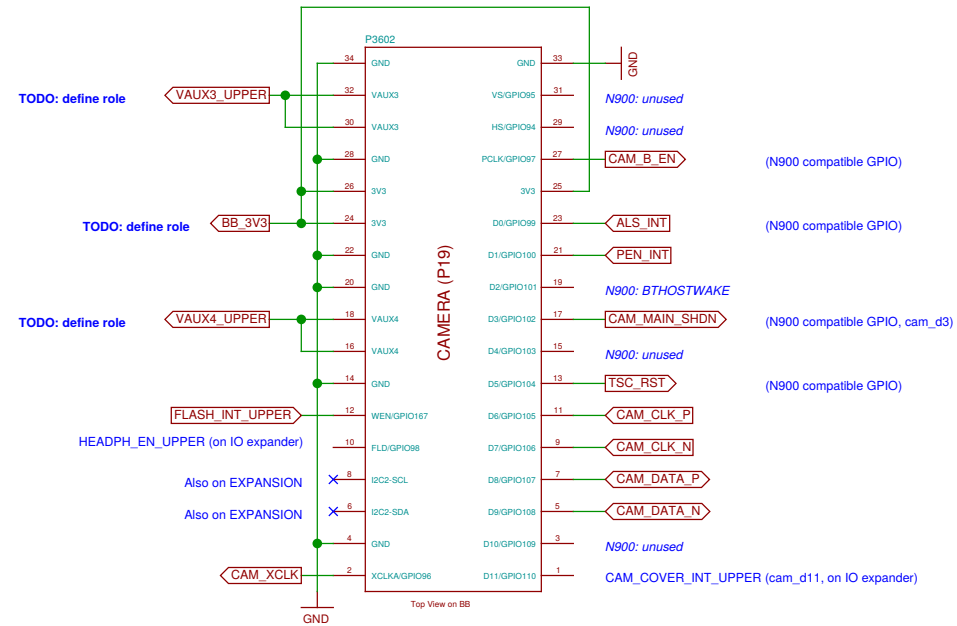




**TODO: update pin names in footprint**

UART1\_RTS → **TODO**  
UART1\_CTS → **TODO**

Processor Camera Port Interface (P19, 7.20.3)



**TODO: update pin names in footprint**



Molex Jumper cables to connect BB-XM-Adapter to Uppwer board

N3701 15015-0439	N3702 15015-0439	N3703 15015-0439
CPU	DISP	CAM

N3704 N900 case assembly
-----------------------------

N3705 N97-CAMERA-HOLE
--------------------------

N3706 headset jack
-----------------------

N3707 STENCIL-TOP
----------------------

N3708 STENCIL-BOTTOM
-------------------------

Sheet: /No-Solder Components/ File: neo900_SS_37.sch		
Title: No-Solder Components		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 14908eb+ 20160930-18:22Z		Id: 37/37