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Sheet: BB-XM Adapter (CPU)
File: neo900_SS_34.sch
BB-XM Adapter (CPU)

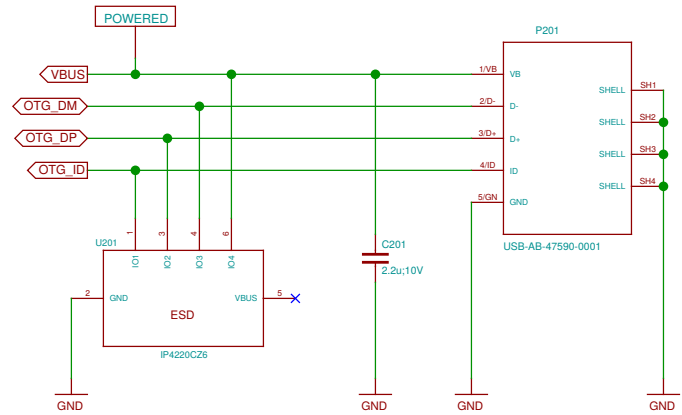
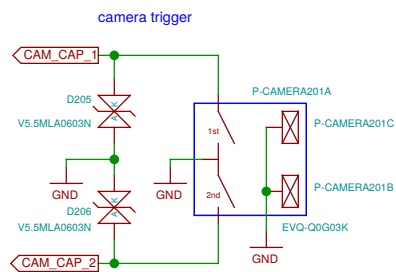
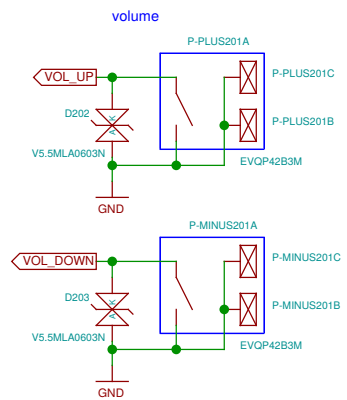
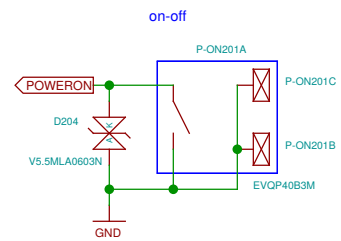
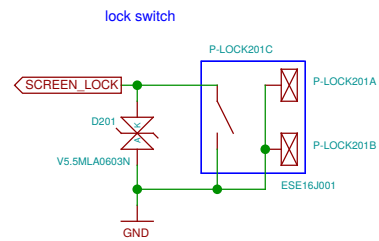
Sheet: BB-XM Adapter (DISP)
File: neo900_SS_35.sch
BB-XM Adapter (DISP)

Sheet: BB-XM Adapter (CAM)
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BB-XM Adapter (CAM)

Sheet: No-Solder Components
File: neo900_SS_37.sch
No-Solder Components

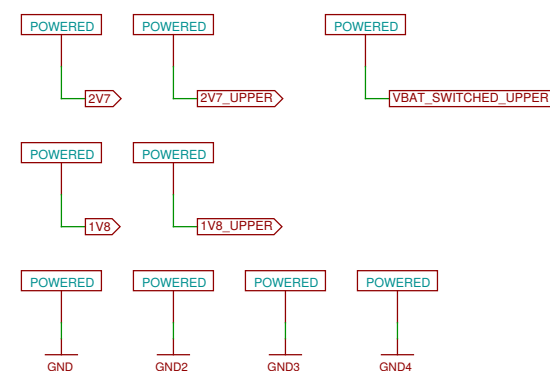
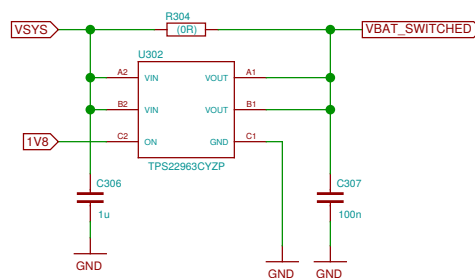
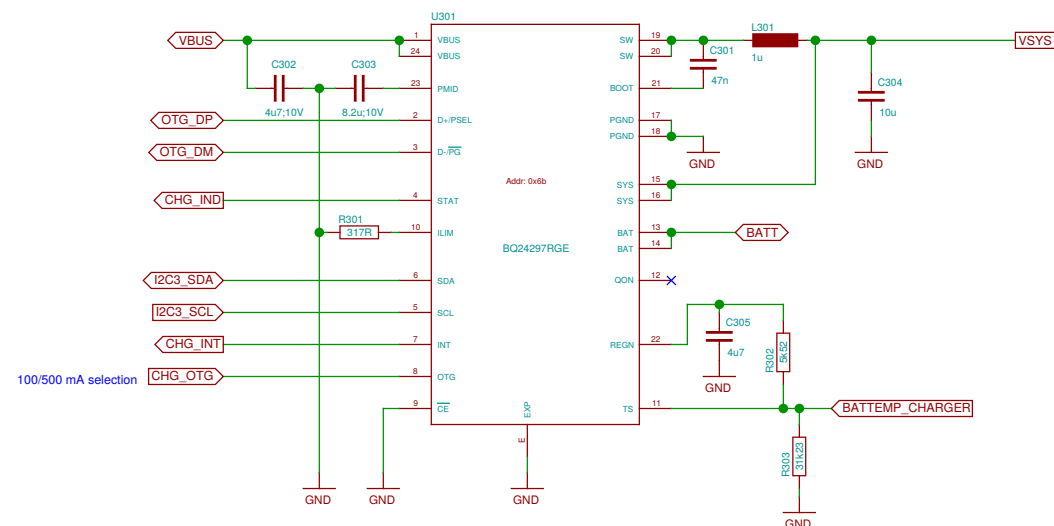
Note regarding I2C addresses:
Addresses in the schematics are provided for convenience.
The authoritative source is
<https://neo900.org/git?p=misc;a=tree;f=i2c>

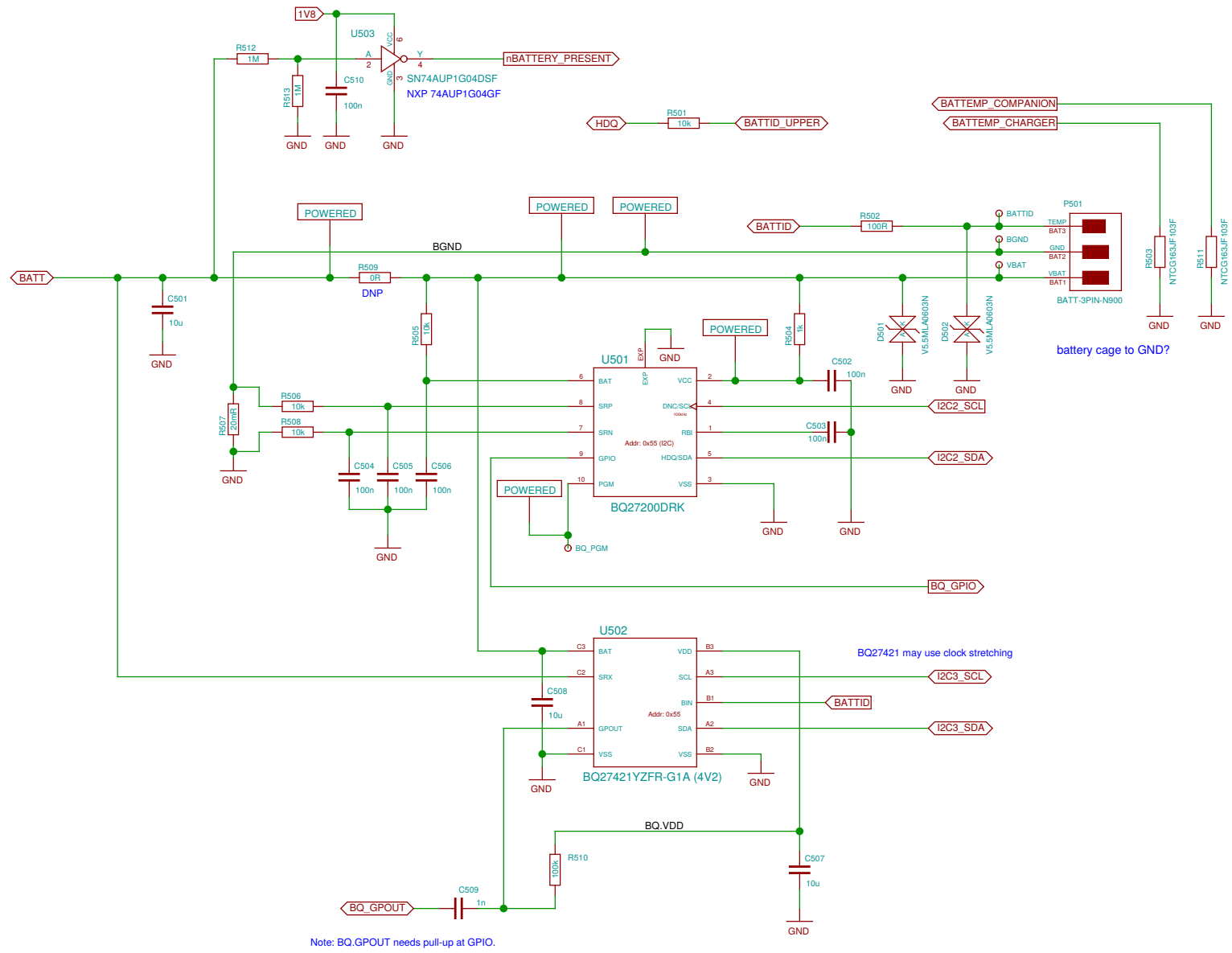
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File: neo900.sch	
Title: Neo900	
Size: A3	Date: 16 JUL 2016
Plotted by eeshow 2f031f5+ 20161019-02:26Z	
Rev:	Id: 1/37



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

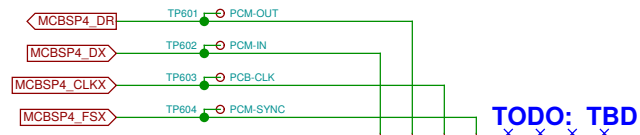
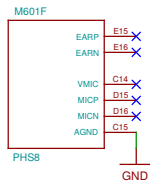




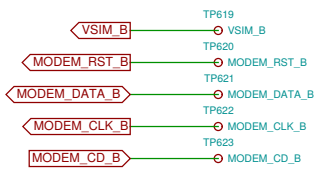
battery cage to GND?

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

Sheet: /Fuel Gauge/		Date: 17 JUL 2016		Rev:	
File: neo900_SS_5.sch		Date: 17 JUL 2016		Rev:	
Title: Fuel Gauge					
Size: A3	Date: 17 JUL 2016	Date: 17 JUL 2016		Rev:	
Plotted by eeshow 2f031f5- 20161019-02:26Z				Id: 5/37	

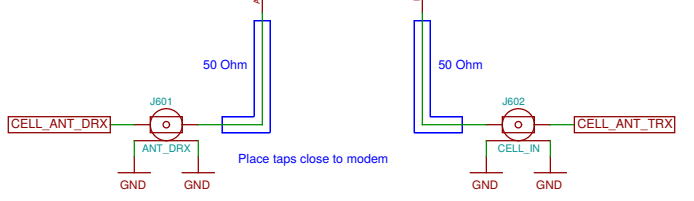
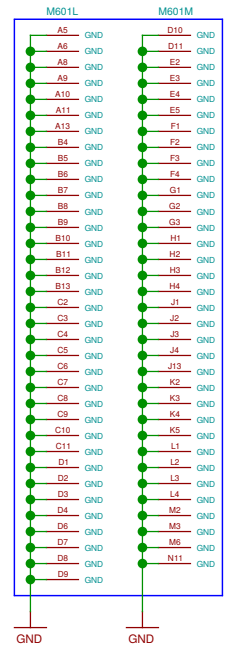
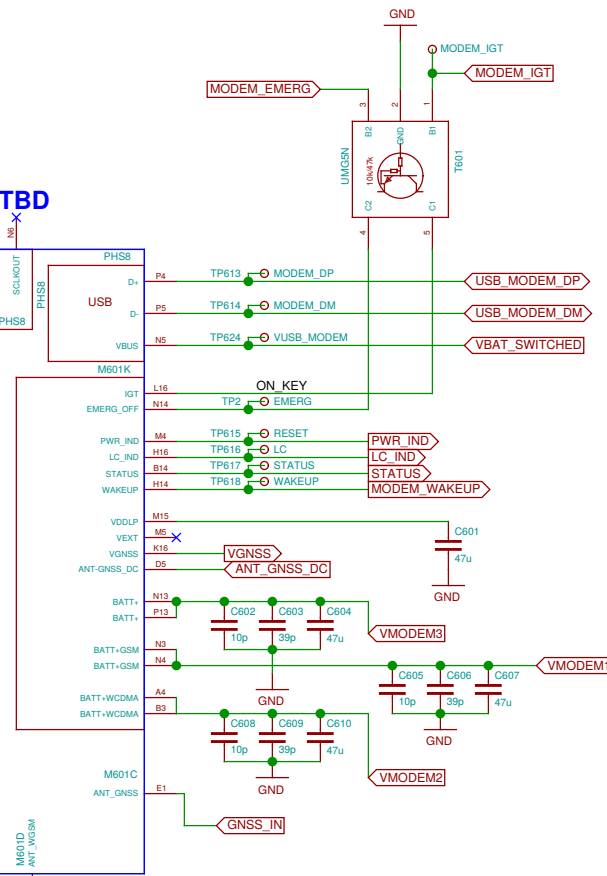
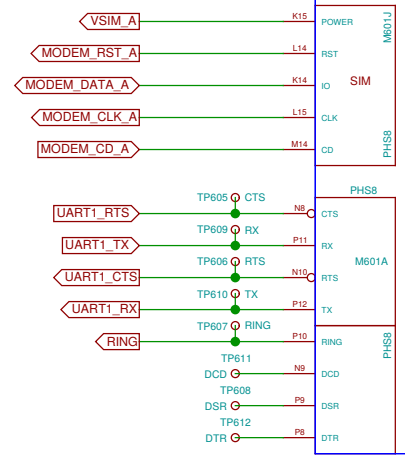


TODO: TBD



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?)



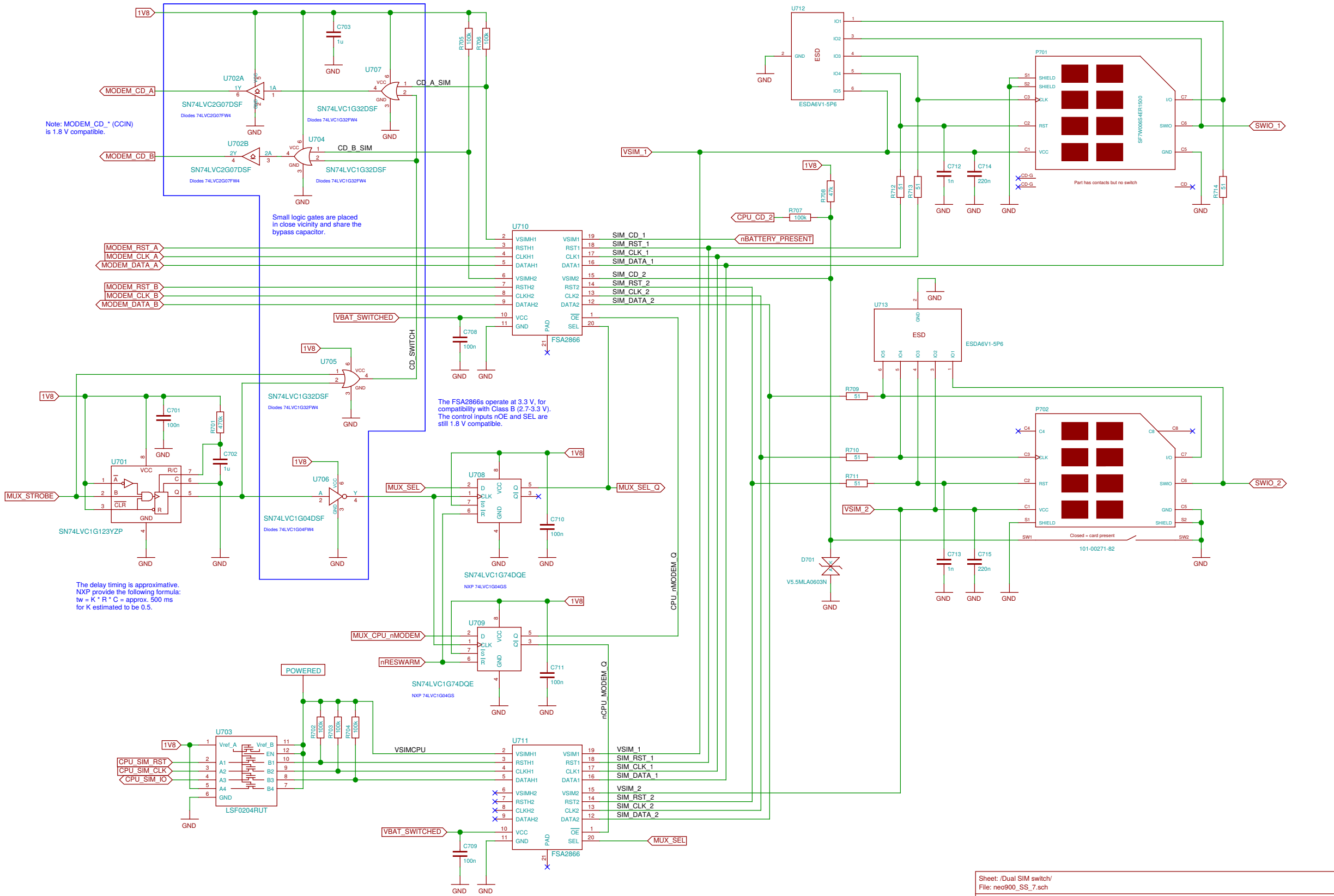
Place taps close to modem

Note: MODEM_CD_* (CCIN) is 1.8 V compatible.

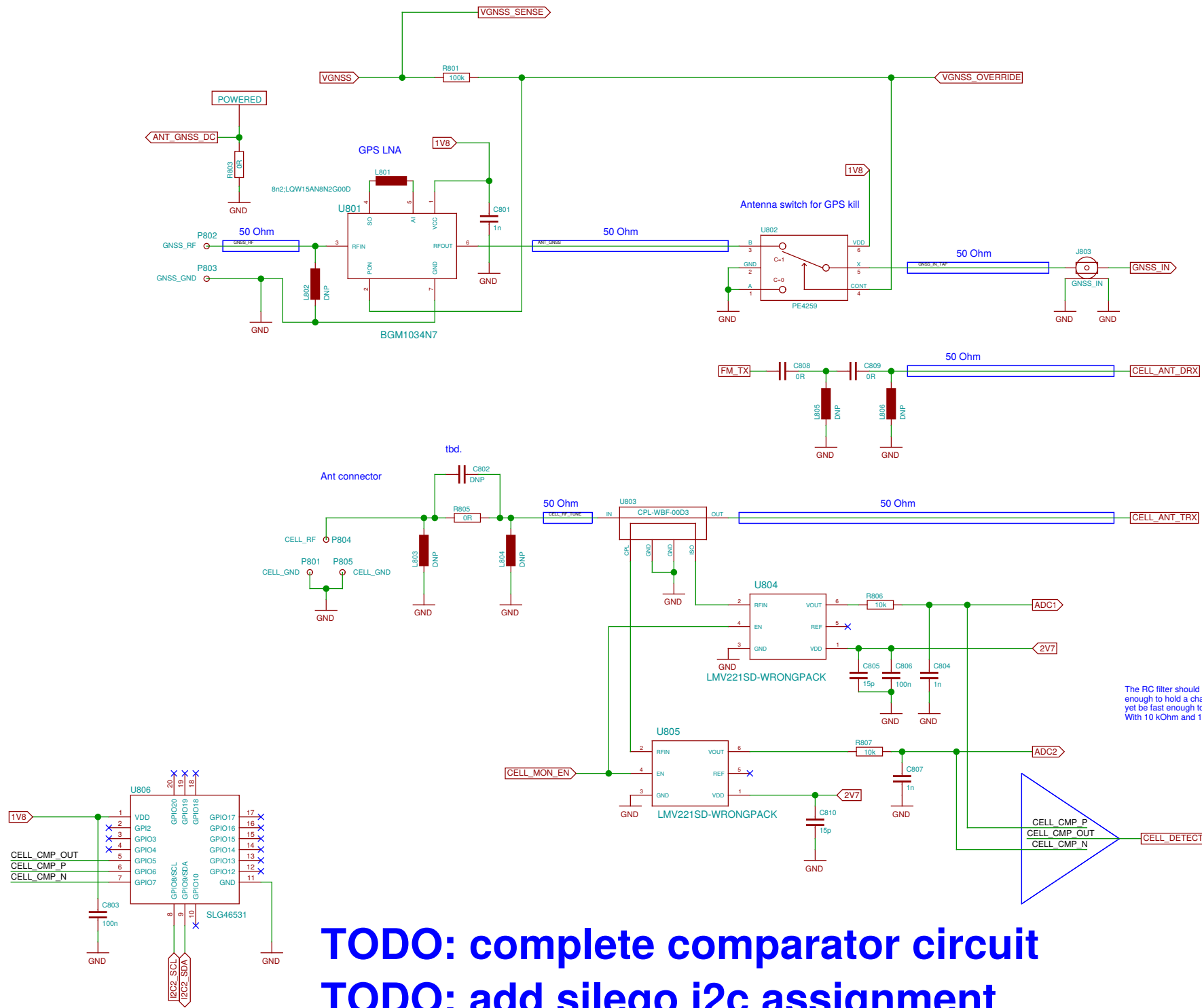
Small logic gates are placed in close vicinity and share the bypass capacitor.

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.

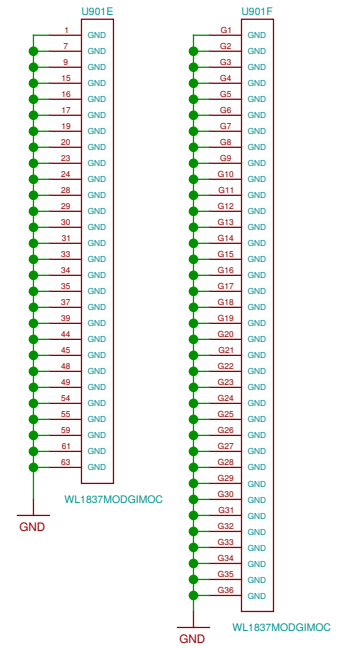
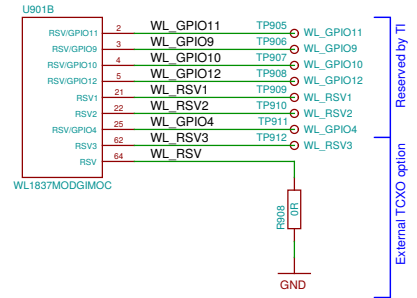
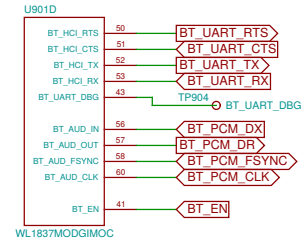
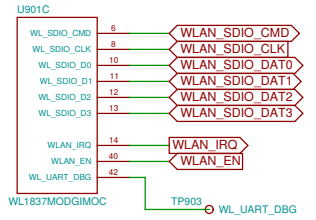
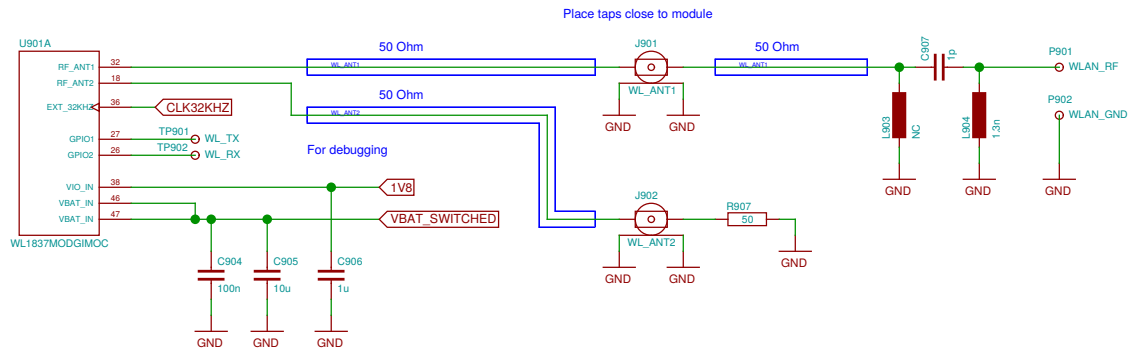


Sheet: /Dual SIM switch/		File: neo900_SS_7.sch	
Title: Dual SIM switch			
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by eeshow 2f031f5 - 20161019-02:26Z		Id: 7/37	

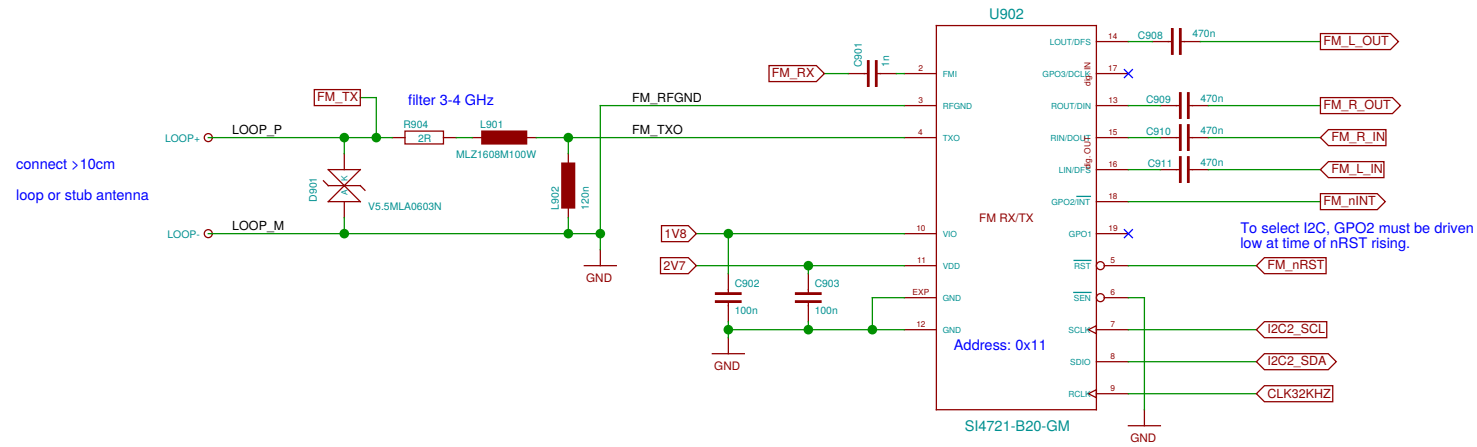


TODO: complete comparator circuit
TODO: add silego i2c assignment
TODO: iox

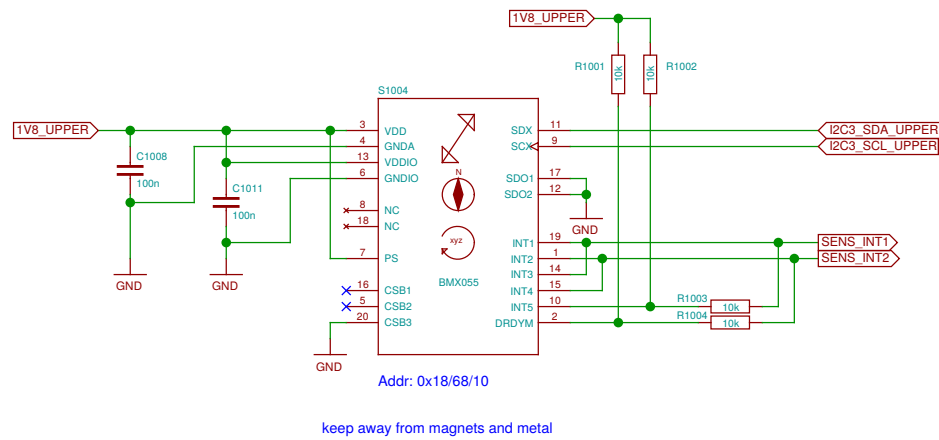
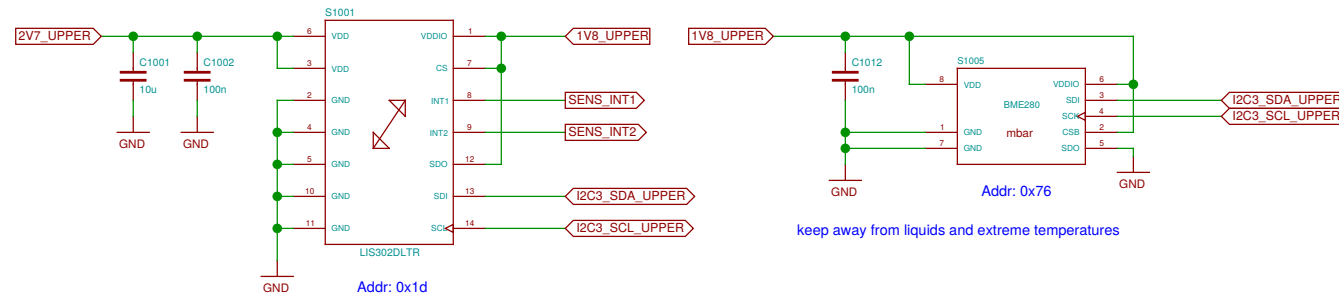
TODO: assign footprints for c-spring contacts

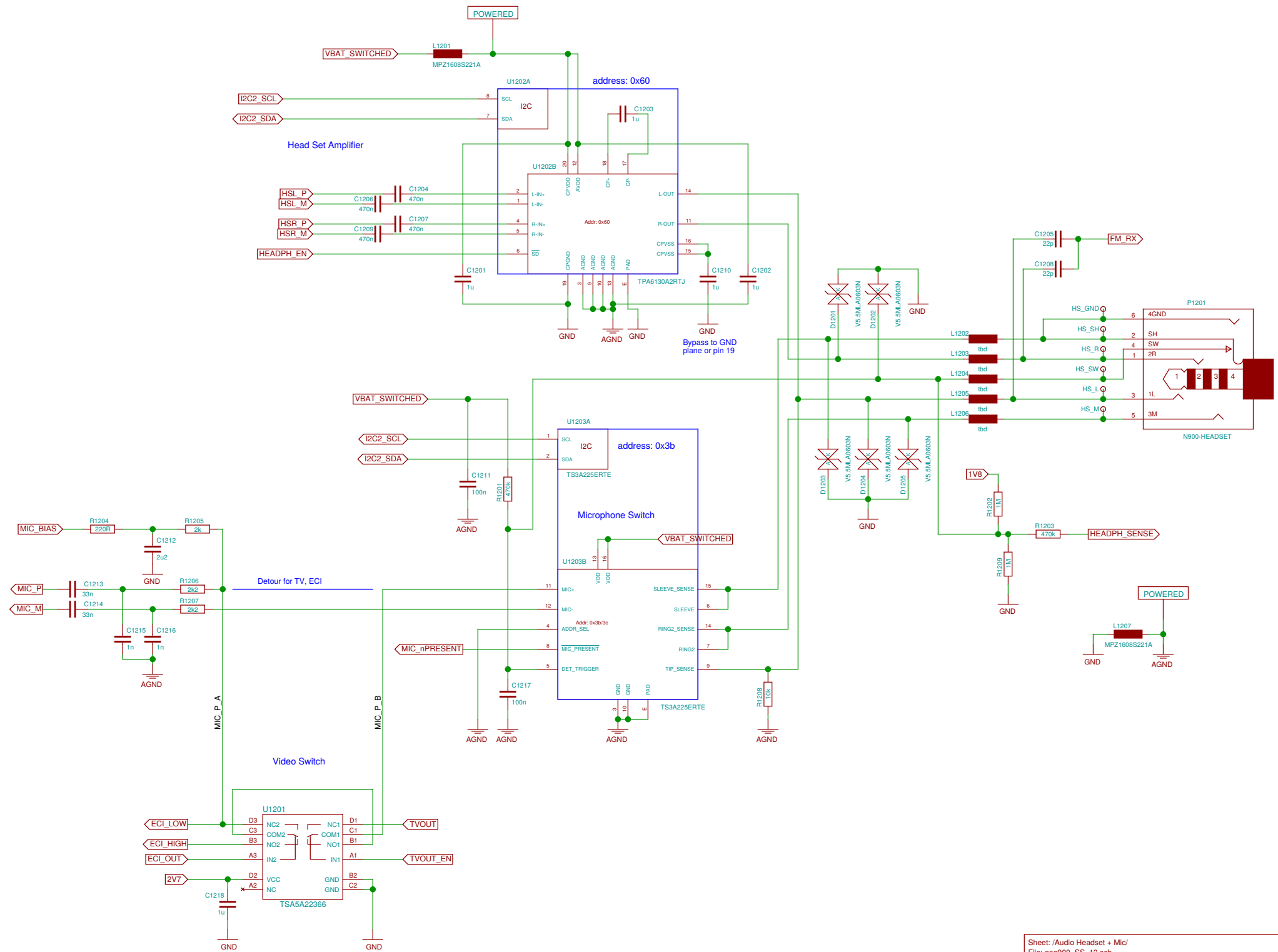


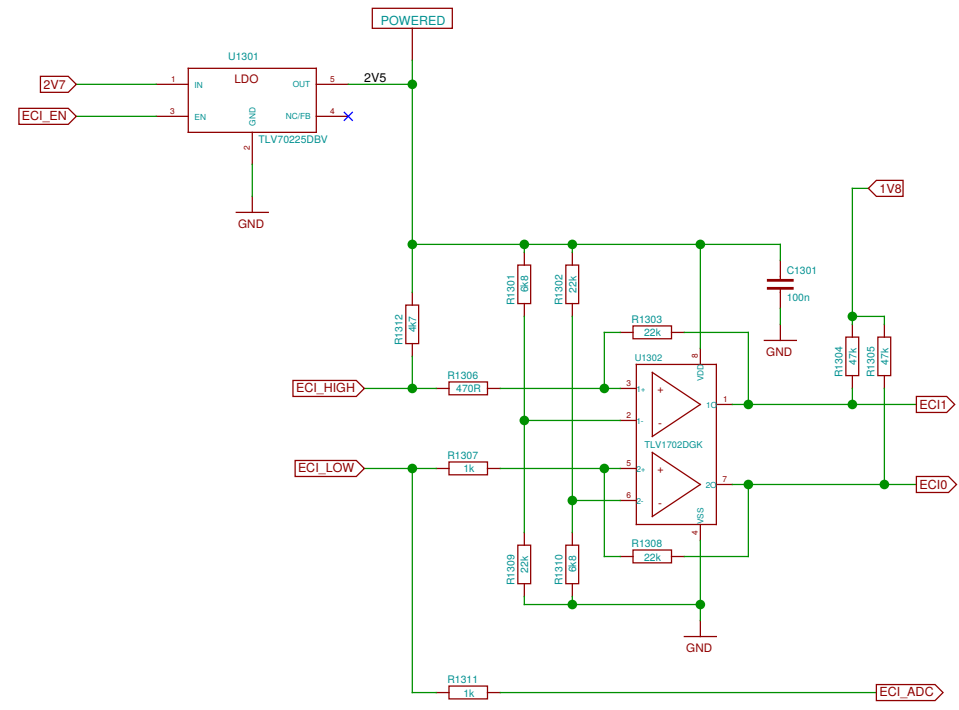
TODO: check caps



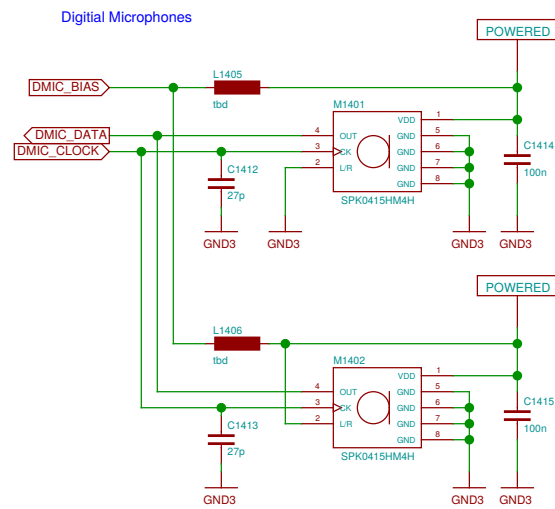
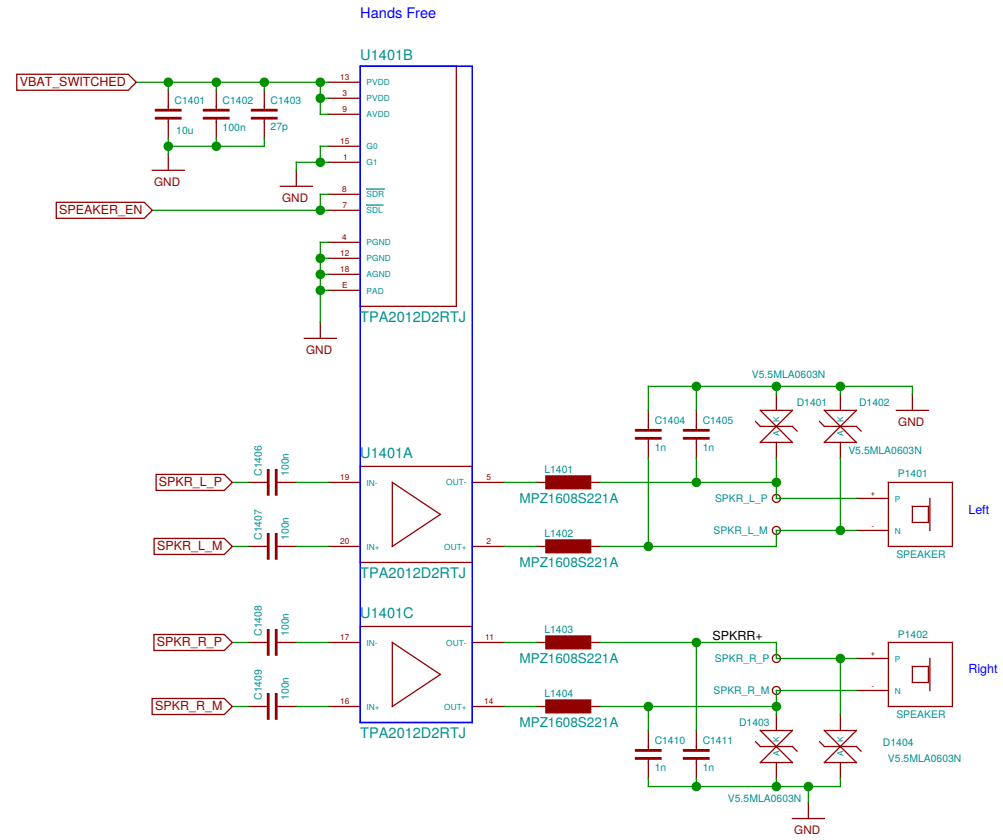
Si4705 is pin compatible (mostly) but RX-only

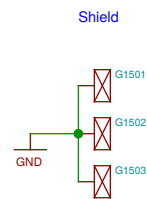
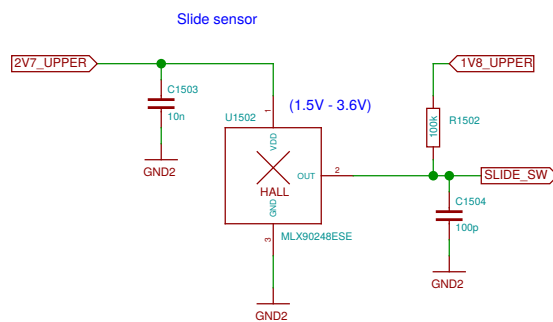
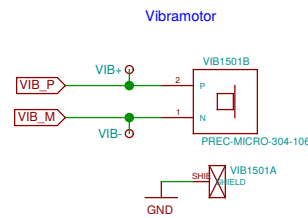
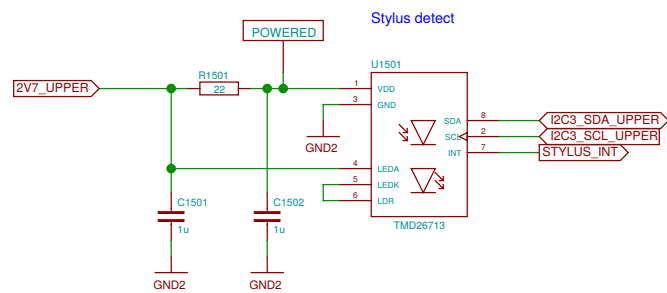




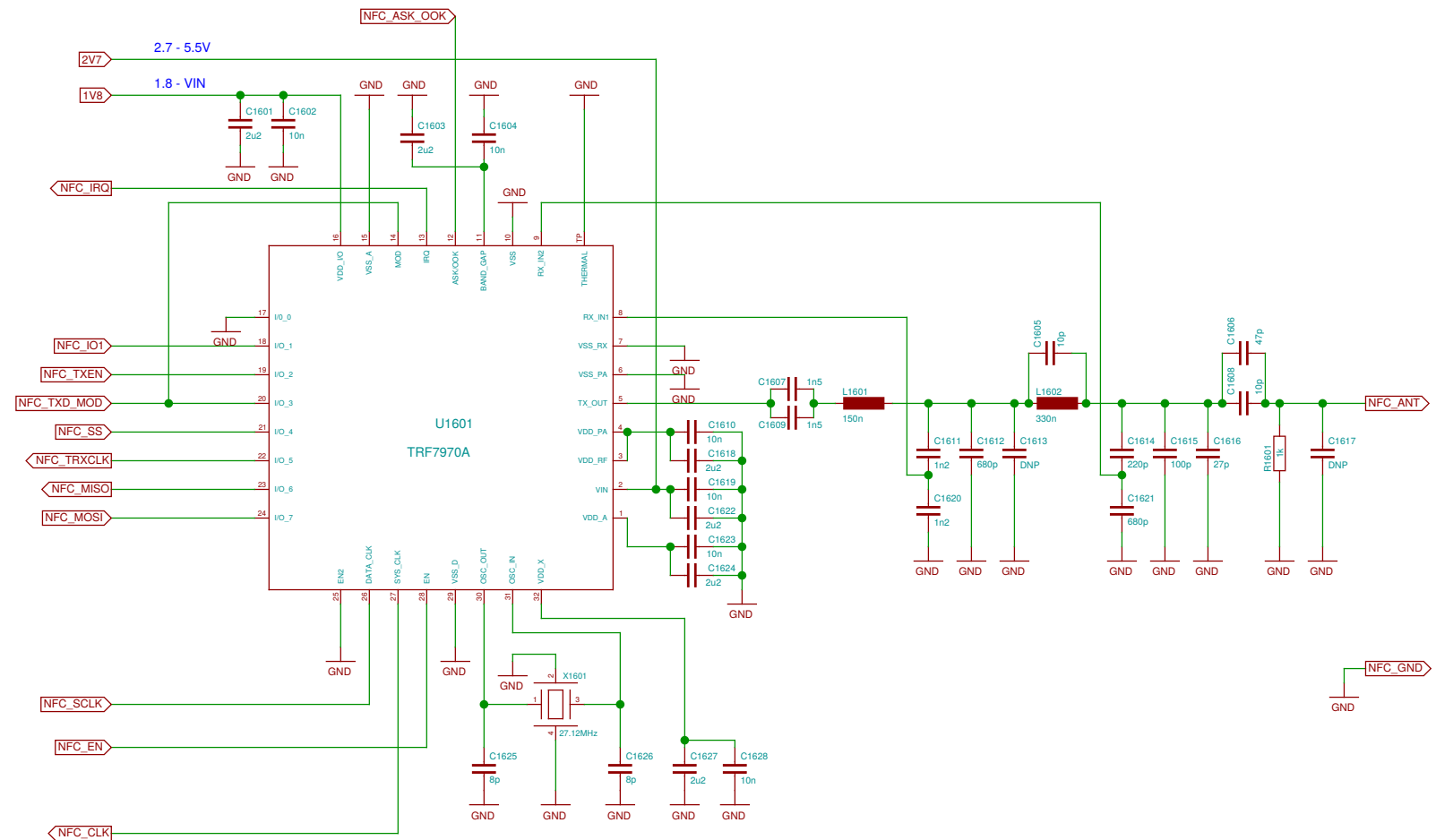


Sheet: /ECI/		
File: neo900_SS_13.sch		
Title: ECI		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2/03/15- 2016/10/19-02:26Z		Id: 13/37

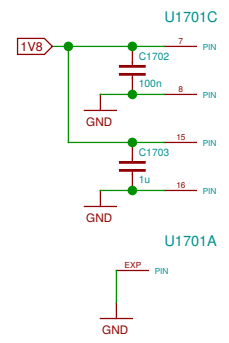
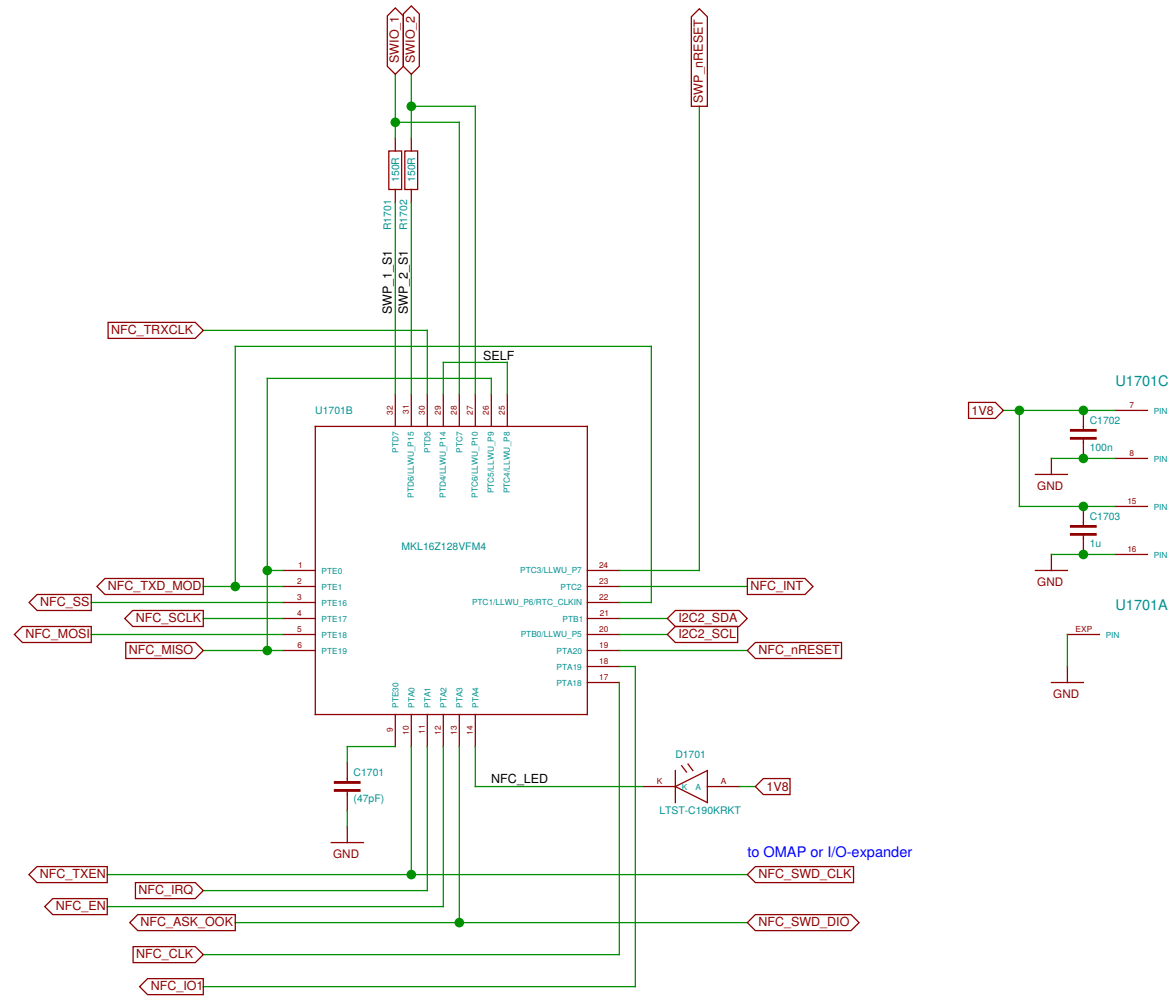




Sheet: /Misc/ File: neo900_SS_15.sch	
Title: Misc	
Size: A3	Date: 17 JUL 2016
Plotted by eeshow 2103115+ 20161019-02:26Z	
Rev:	Id: 15/37

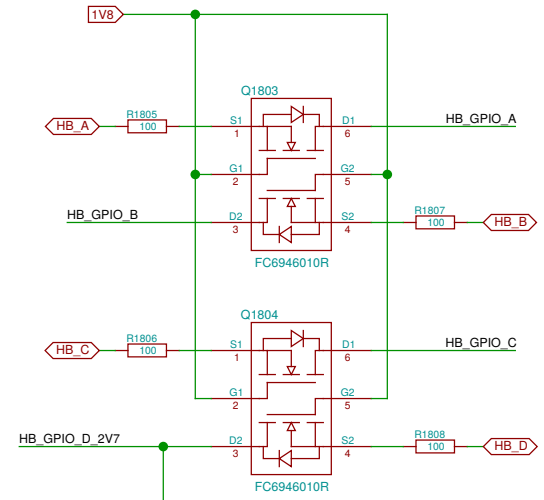
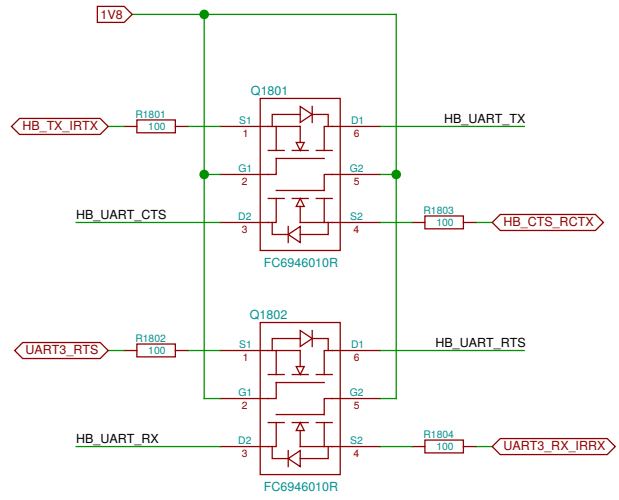
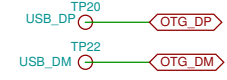
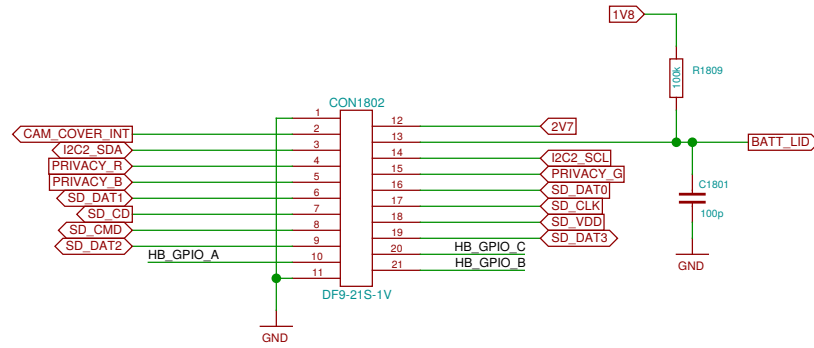
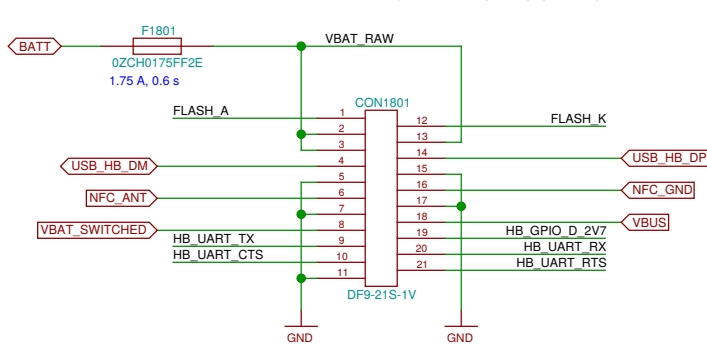


Some choices, 3.2 x 2.6 mm, 8-10 pF:
 NDK NX3225GA-27.12M-STD-CRG-2
 NDK NX3225SA-27.12M-STD-CSR-3
 Tattien XXCCEINANF-27.120000

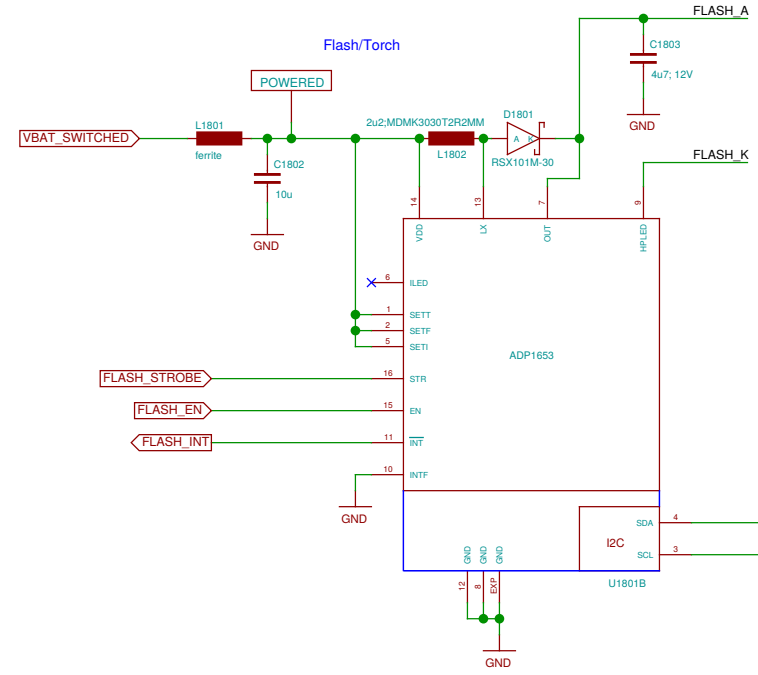
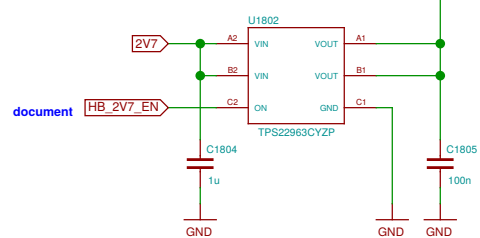


The LOWER-BOB interconnect is defined in the Hackerbus specification
<http://neo900.org/stuff/papers/hb.pdf>

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



Q18xx alternative: Diodes DMN63D8LV



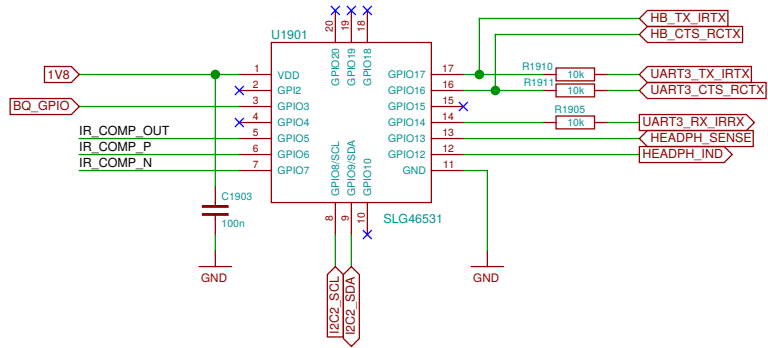
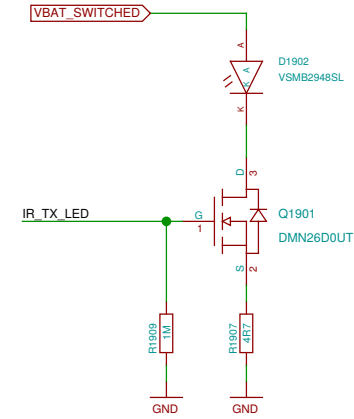
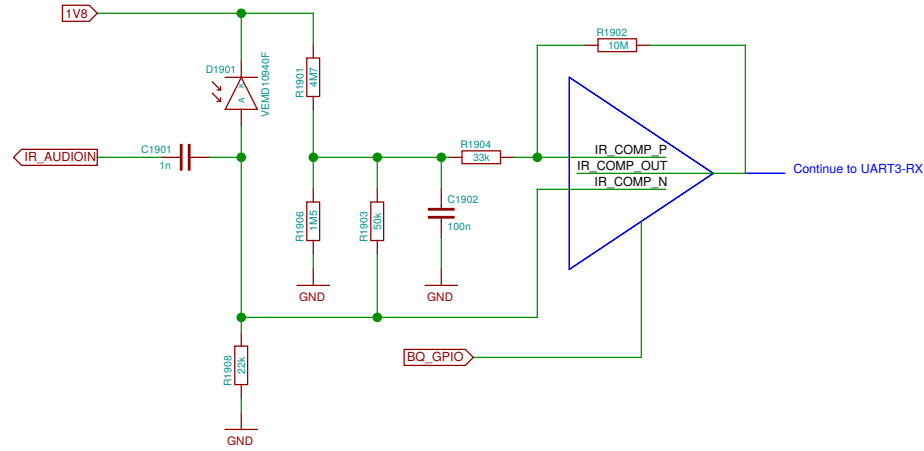
TODO: HB USB PHY may go here

Missing 6x 2R for alternate function select (do we have the space for ca. 2.5 x 5mm?)

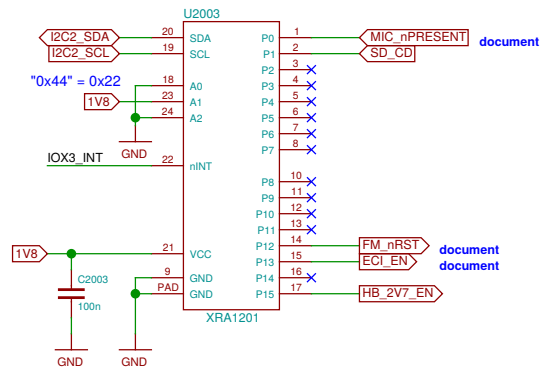
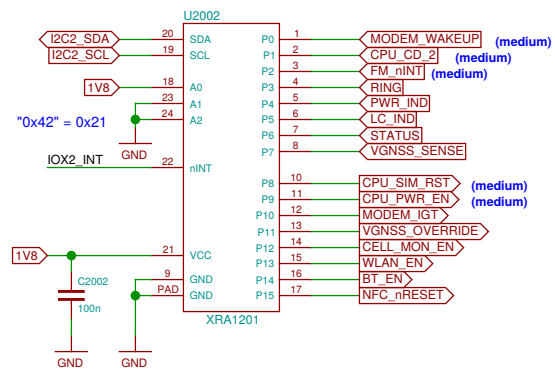
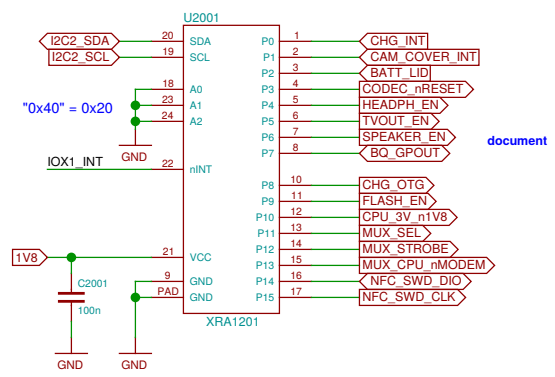
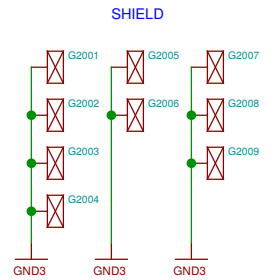
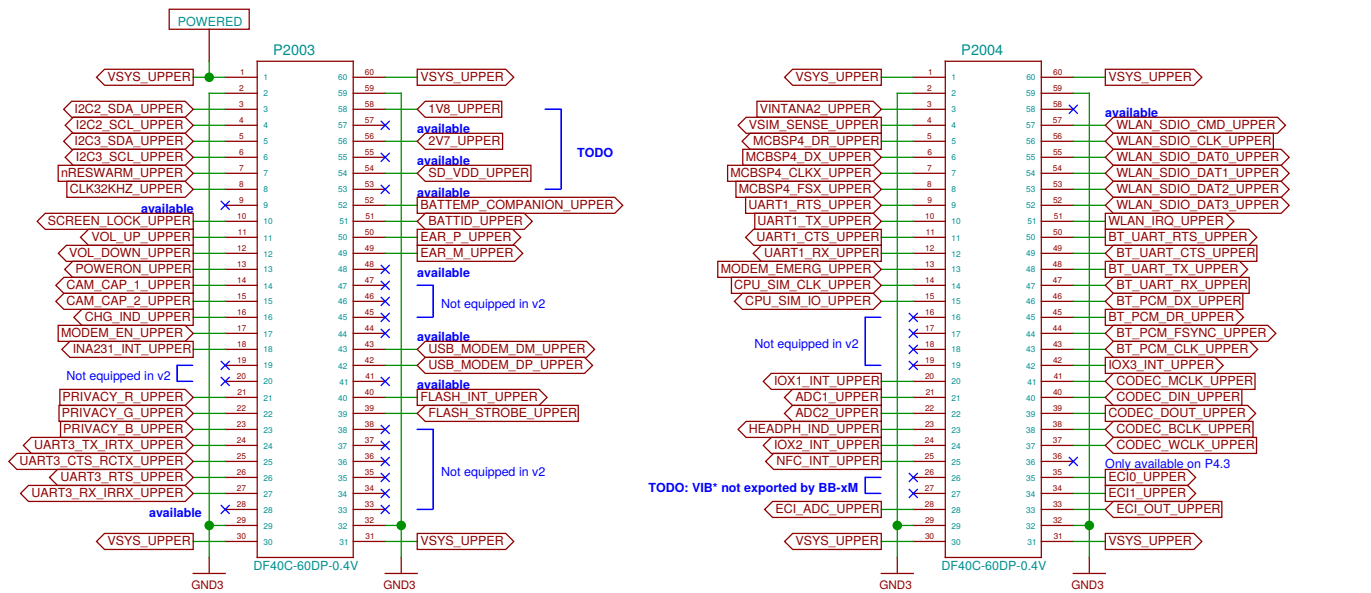
Sheet: /Hackerbus/		File: neo900_SS_18.sch	
Title: Hackerbus			
Size: A3	Date: 17 JUL 2016	Rev:	
Plotted by: eeshow 2103115- 20161019-02:26Z		Id: 18/37	

TODO: update D1901 footprint

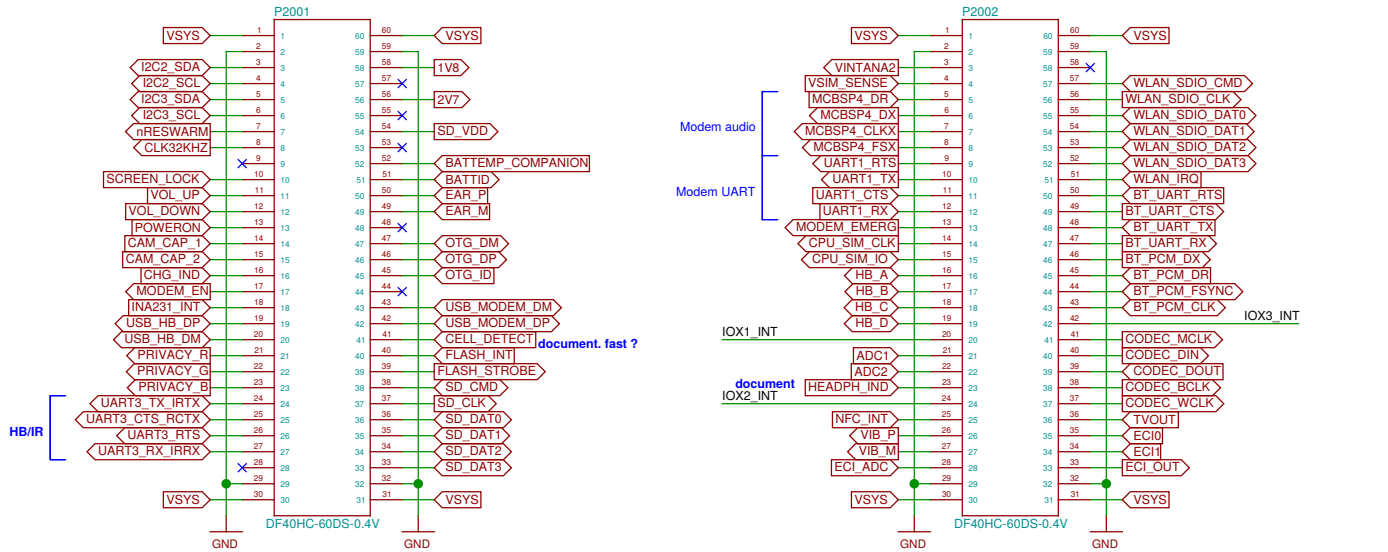
NOTE: 1V8 may be quite noisy



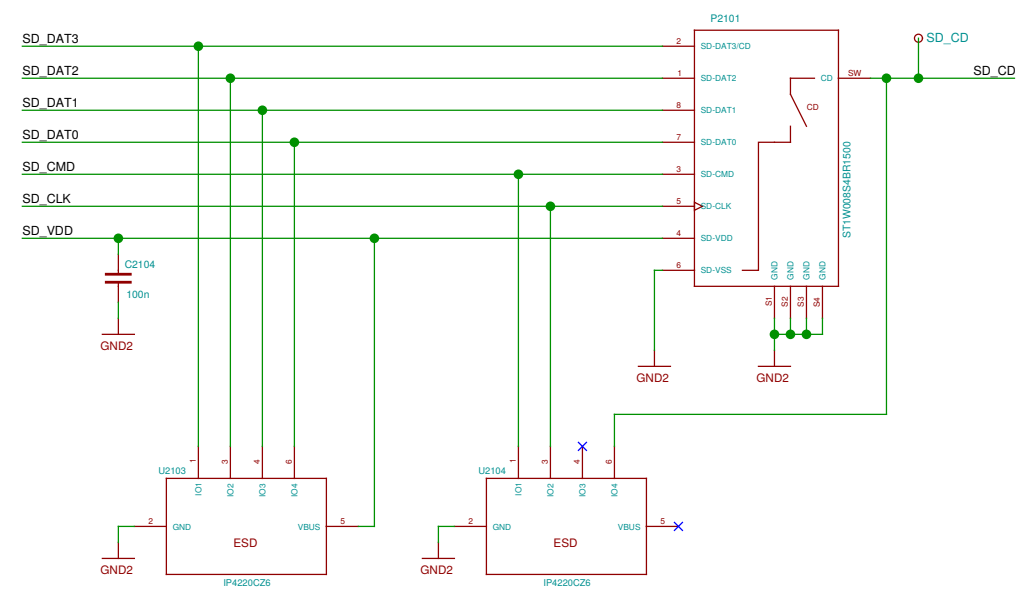
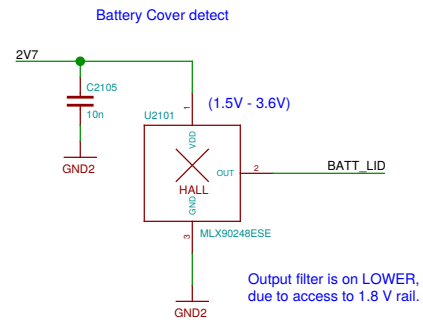
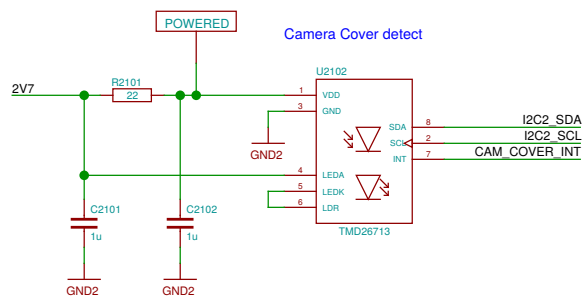
This is just the collection of signals we have. Proper assignment still pending.



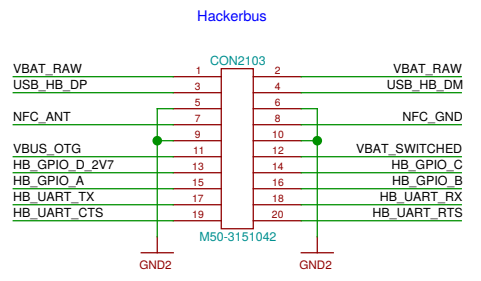
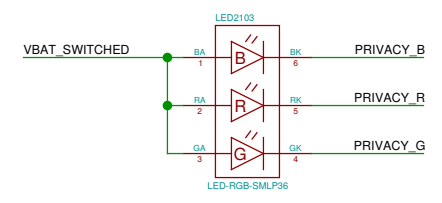
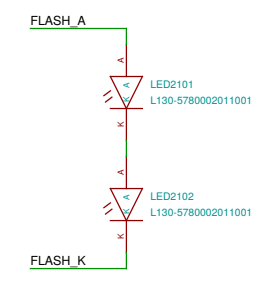
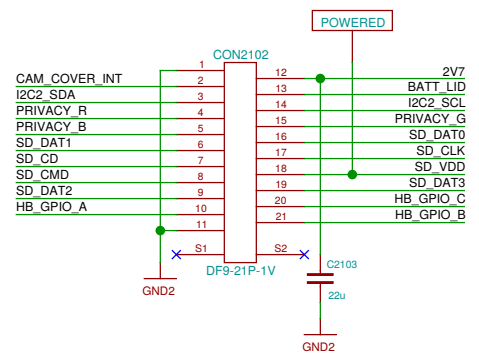
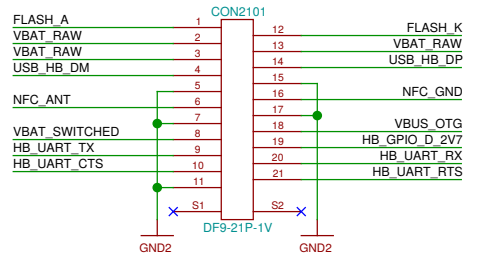
UPPER
LOWER



Current rating per contact: 0.3 A



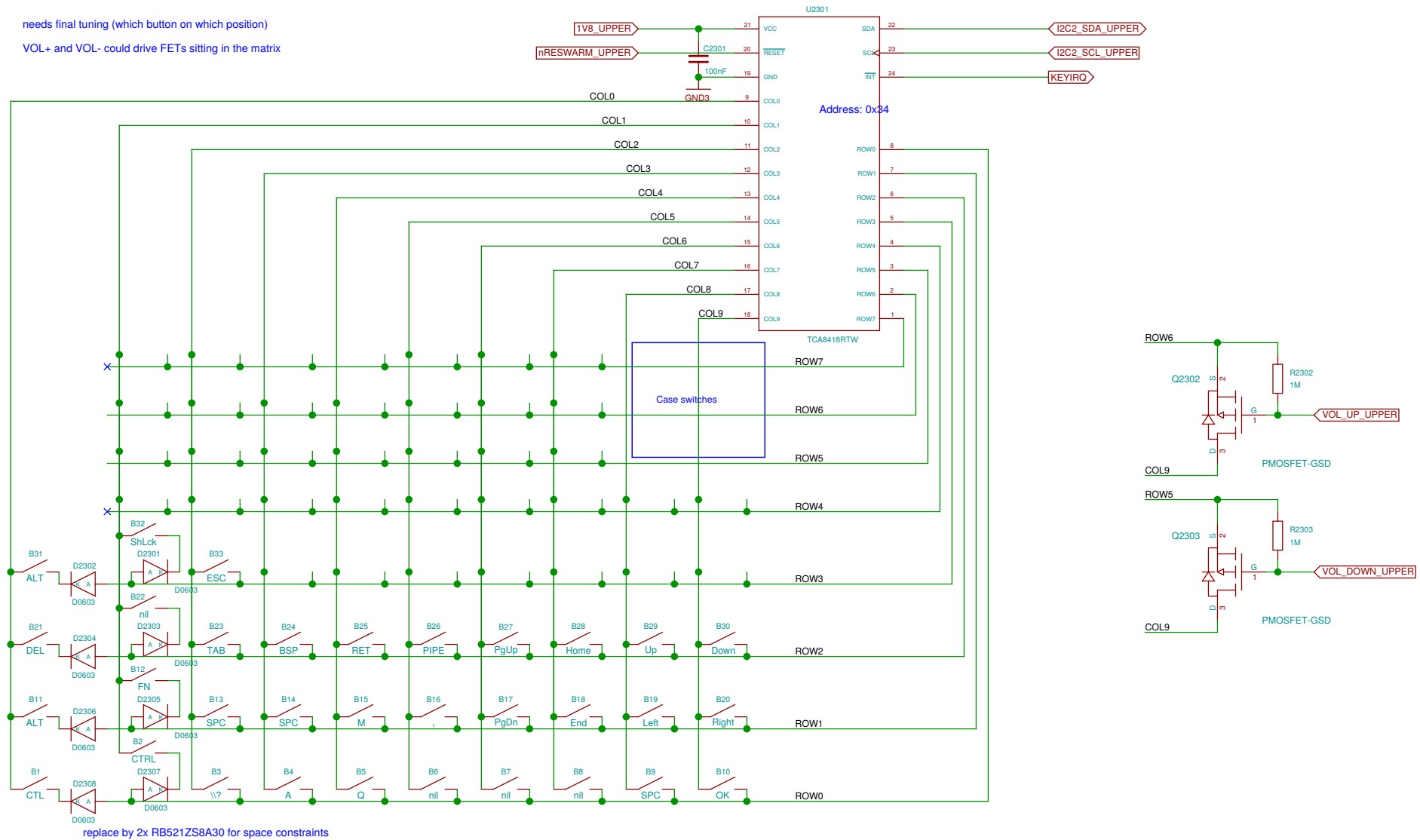
The LOWER_BOB interconnect is defined in the Hackabus specification
<http://neo900.org/stuff/papers/hb.pdf>



TODO: consider sheet for deletion

Sheet: /empty/ File: neo900_SS_22.sch		
Title: empty		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 22/37

needs final tuning (which button on which position)
 VOL+ and VOL- could drive FETs sitting in the matrix



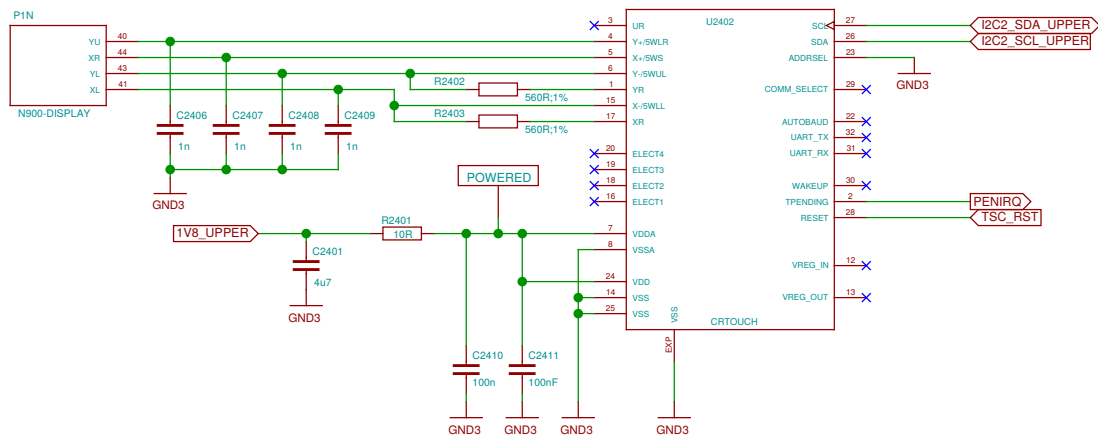
replace by 2x RB521ZS8A30 for space constraints

TODO: key names are nonsense

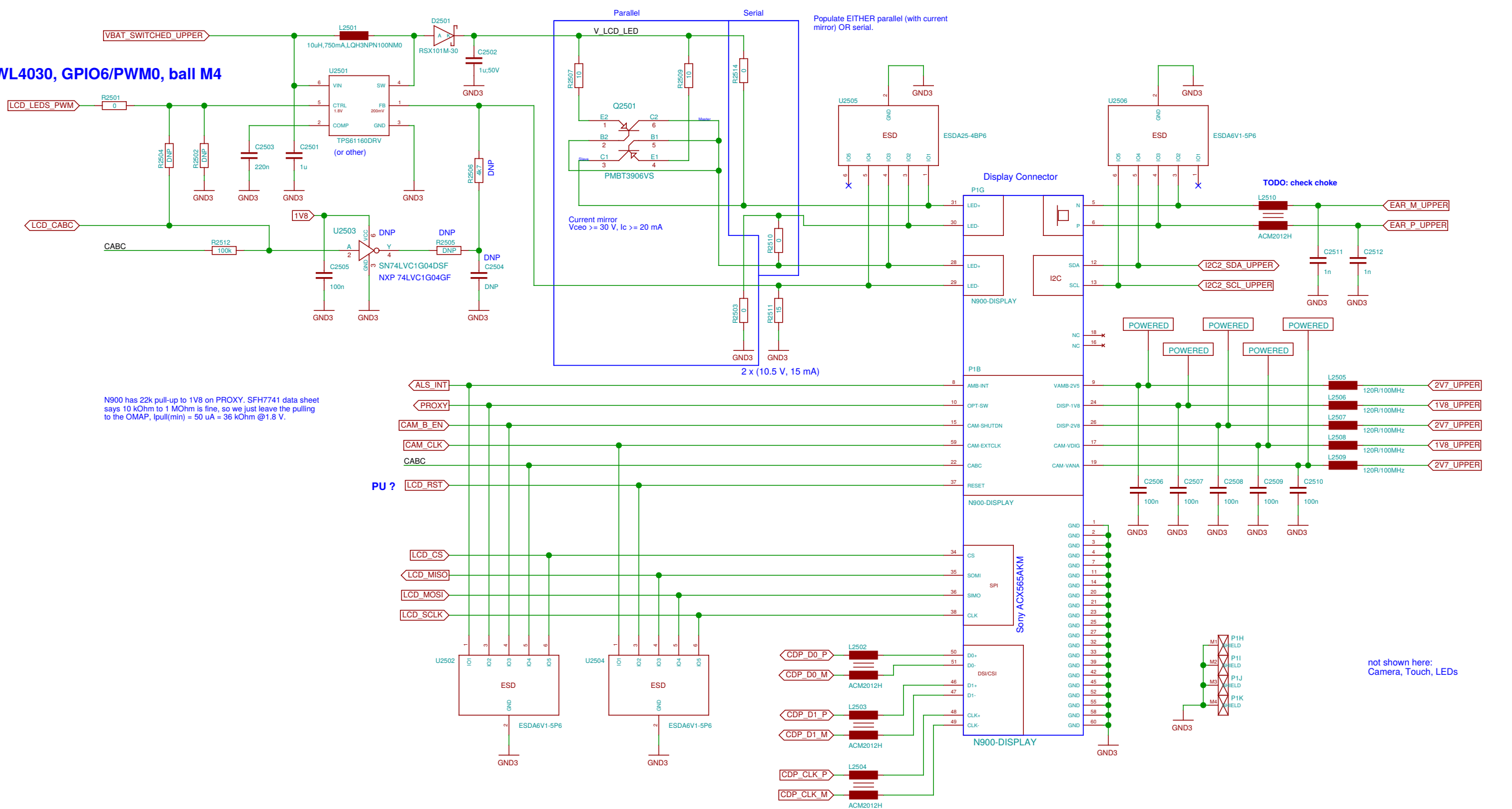
TODO: rearrange matrix to avoid diodes ?

Sheet: /Keypad/		Date: 17 JUL 2016		Rev:	
File: neo900_SS_23.sch		Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 23/37	
Title: Keypad					
Size: A3					

Resistive Touch (display connector)



TWL4030, GPIO6/PWM0, ball M4



N900 has 22k pull-up to 1V8 on PROXY. SFH7741 data sheet says 10 kOhm to 1 MOhm is fine, so we just leave the pulling to the OMAP, Ipull(min) = 50 uA = 36 kOhm @1.8 V.

Current mirror
Vceo >= 30 V, Ic >= 20 mA

2 x (10.5 V, 15 mA)

TODO: check choke

not shown here:
Camera, Touch, LEDs

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 2103115+ 20161019-02:26Z		Id: 26/37

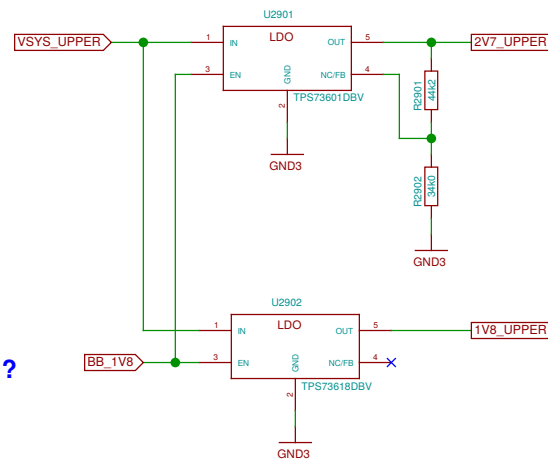
eMMC is not part of v2

Sheet: /eMMC/ File: neo900_SS_27.sch		
Title: eMMC		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 27/37

Companion chip (TPS65950) is not part of v2

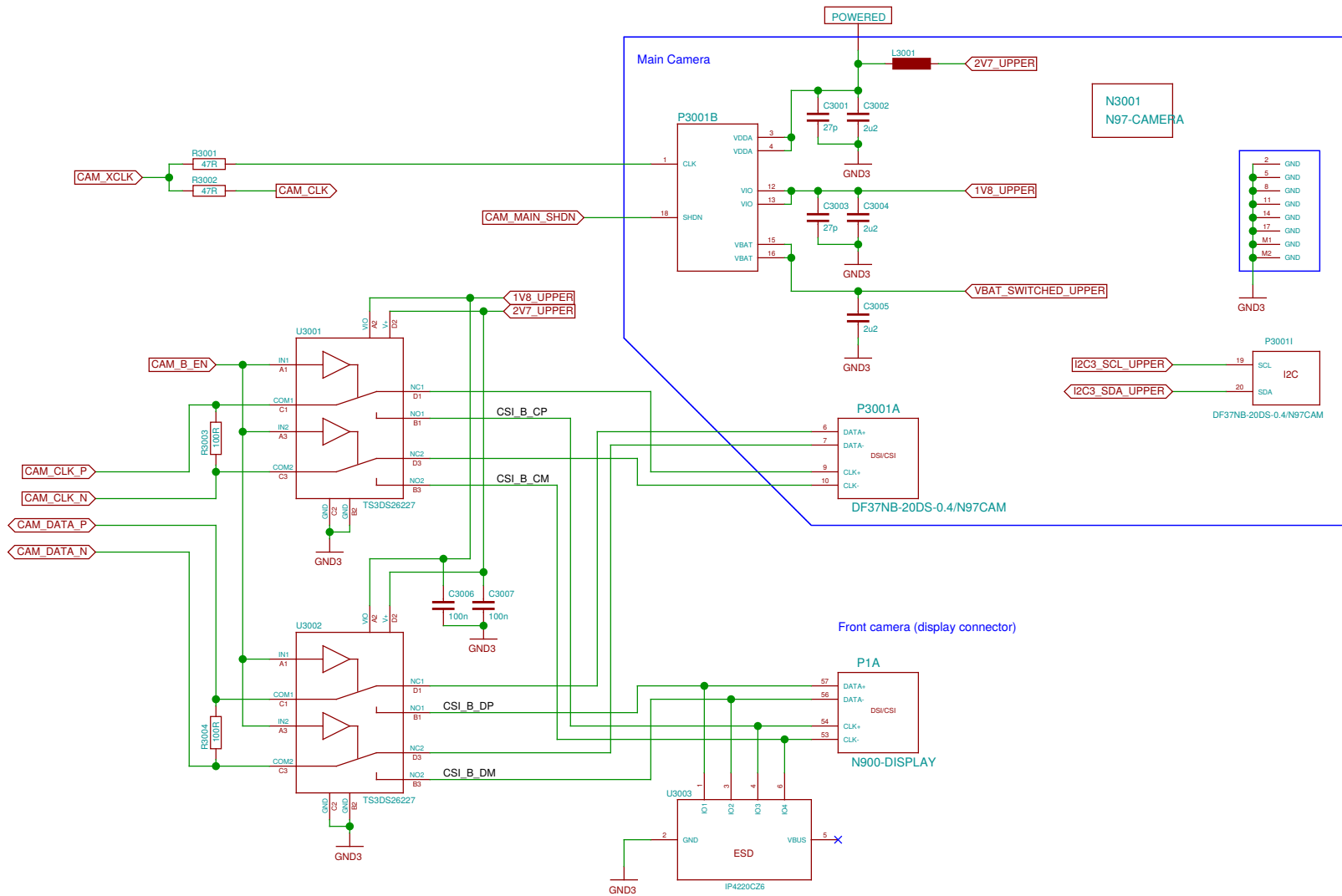
Sheet: /PMU+Codec/ File: neo900_SS_28.sch		
Title: PMU+Codec		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 28/37

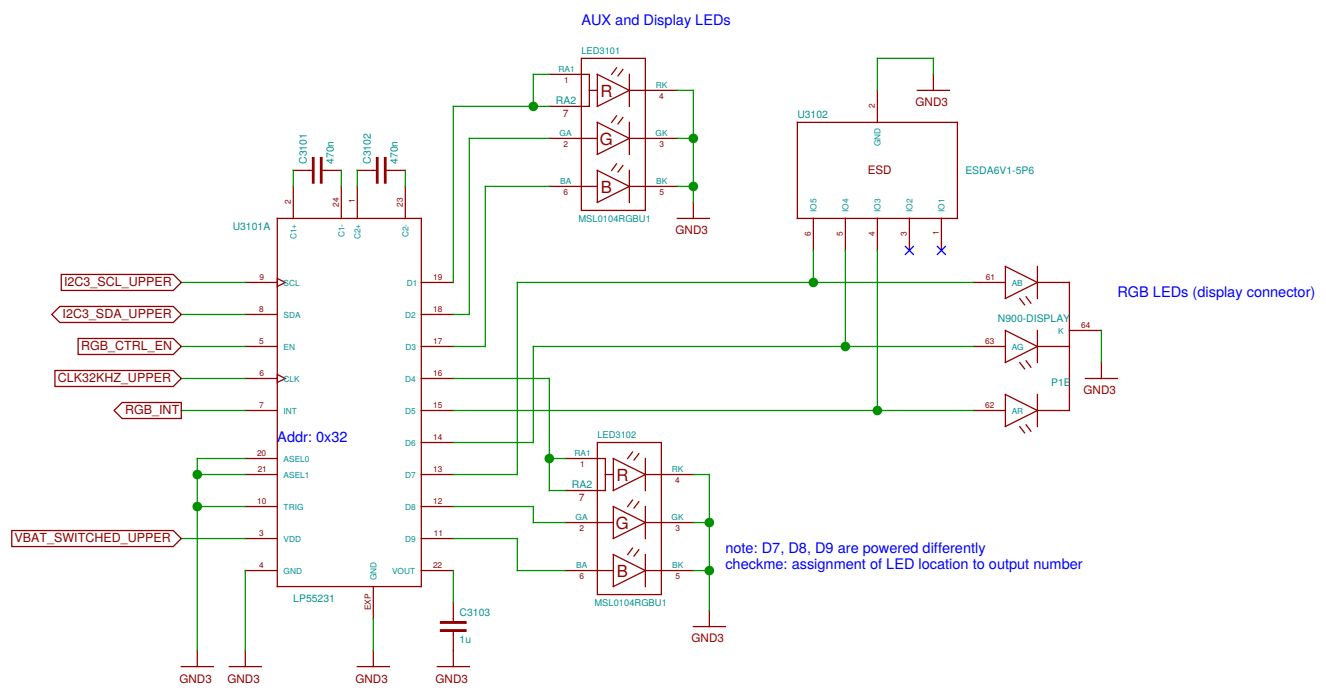
simple capless 400mA LDO for TPS65950 substitute
(only for prototype)



TODO: use REGEN ?

Sheet: /BB-XM Dummy (TWL4030)/	
File: neo900_SS_29.sch	
Title: BB-XM Dummy (TWL4030)	
Size: A3	Date: 17 JUL 2016
Plotted by eeshow 2f031f5+ 20161019-02:26Z	
Rev:	Id: 29/37



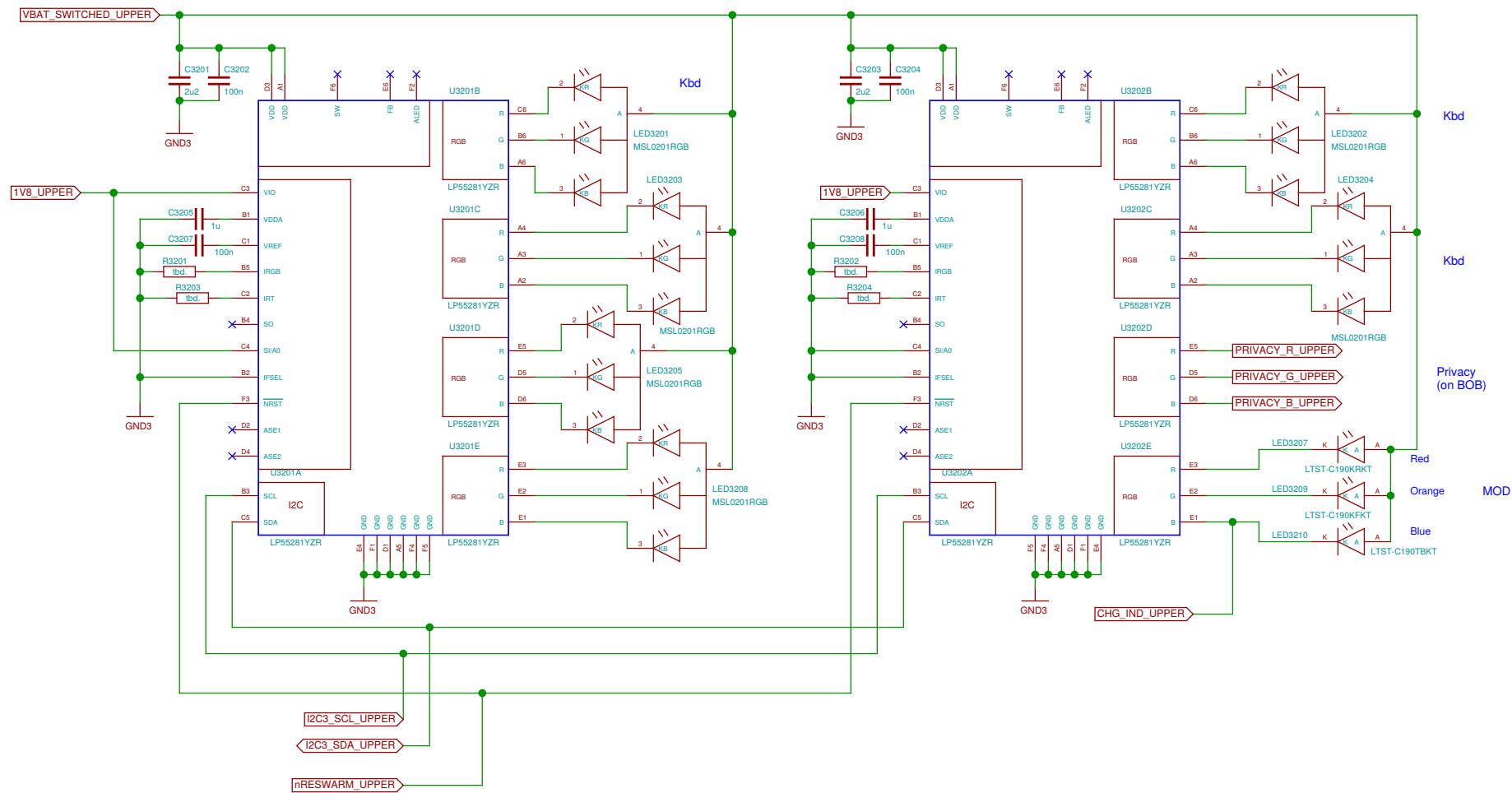


AUX and Display LEDs

RGB LEDs (display connector)

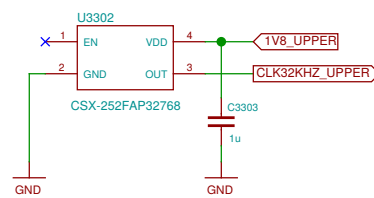
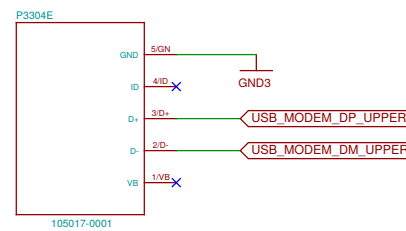
note: D7, D8, D9 are powered differently
checkme: assignment of LED location to output number

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 2f031f5+ 20161019-02:26Z		Id: 31/37	



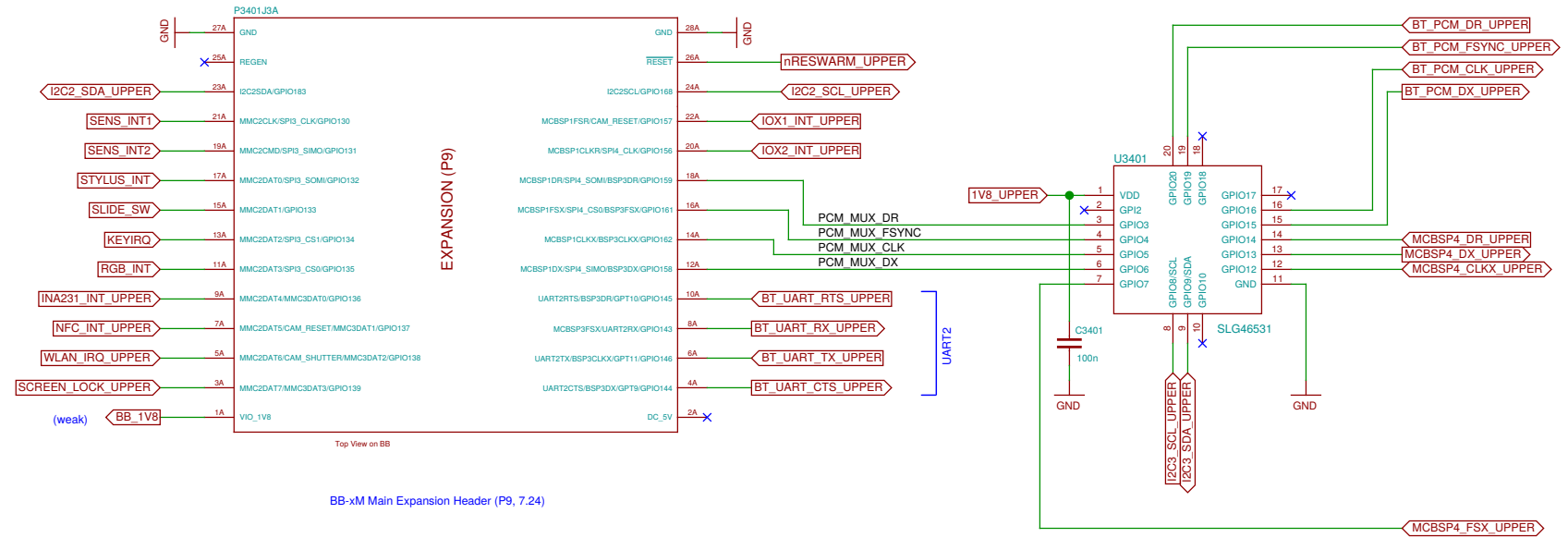
Cleaning up. The connections to BB-xM are on the next sheets.

connect to BB
by some Micro-USB cable

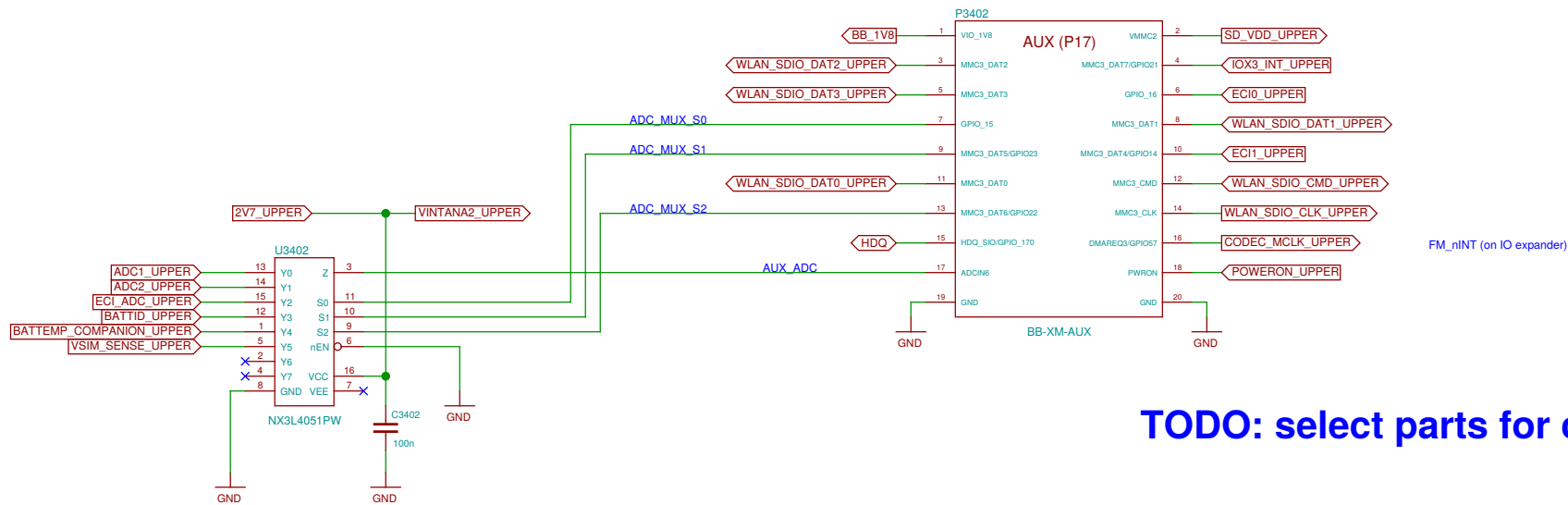


Alternative: OYKTGLJANF-0.032768

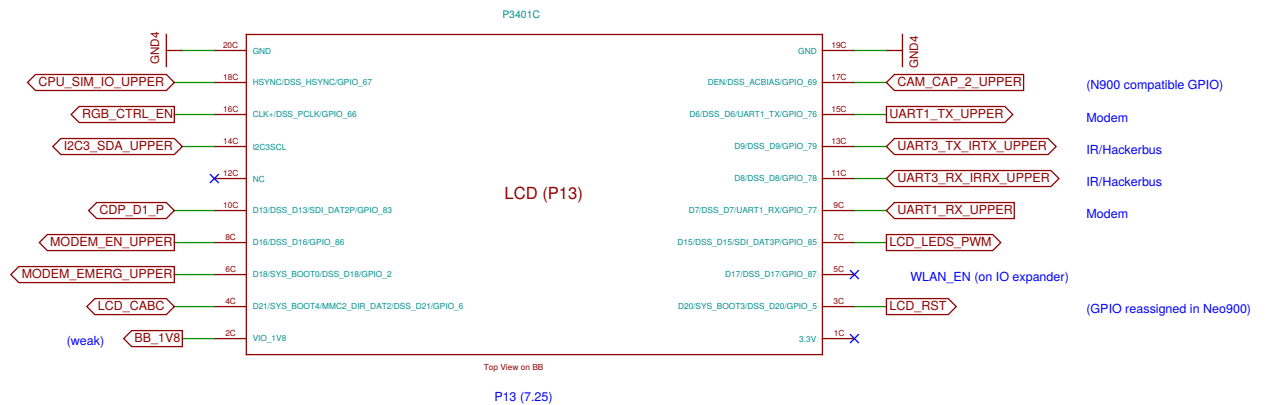
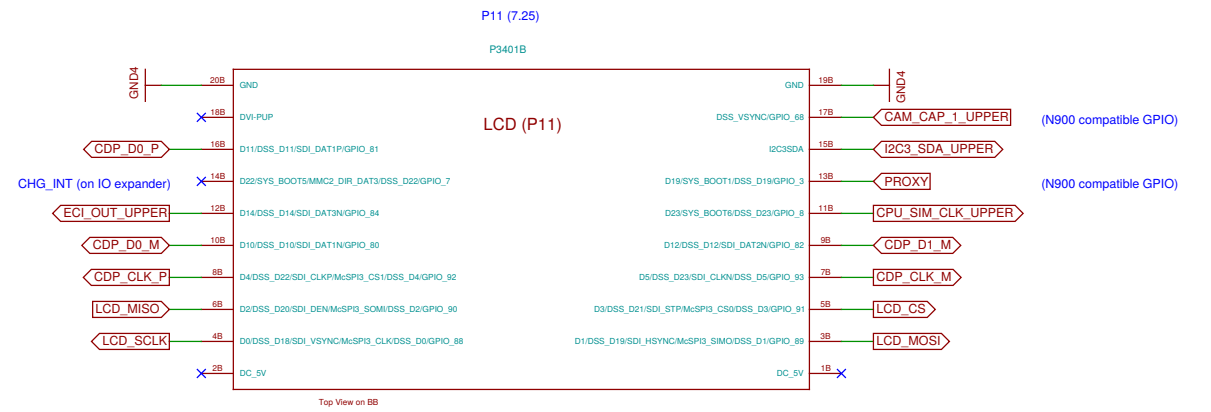
Sheet: /Connector to BB-XM/ File: neo900_SS_33.sch		
Title: Connector to BB-XM		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 33/37



TODO: update pin names in footprint



TODO: select parts for connectors



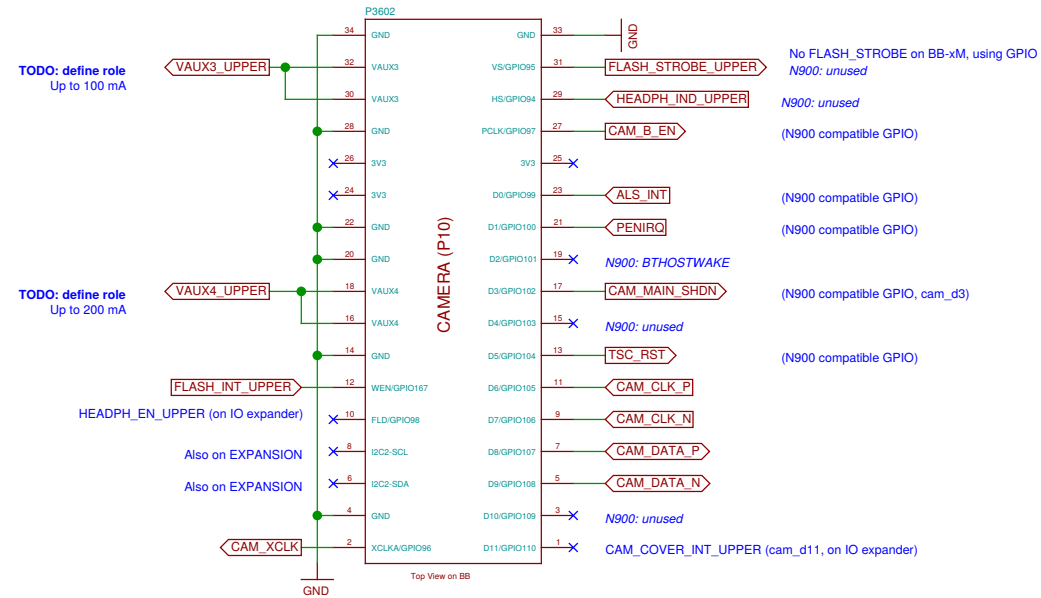
TODO: update pin names in footprint

UART1_RTS_UPPER ✗
 UART1_CTS_UPPER ✗
 UART3_CTS_RCTX_UPPER ✗
 UART3_RTS_UPPER ✗

TODO

Sheet: /BB-XM Adapter (DISP/		
File: neo900_SS_35.sch		
Title: BB-XM Adapter (DISP)		
Size: A3	Date: 17 JUL 2016	Rev:
Plotted by eeshow 2103115+ 20161019-02:26Z		Id: 35/37

Processor Camera Port Interface (P10, 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 2f031f5+ 20161019-02:26Z		Id: 37/37