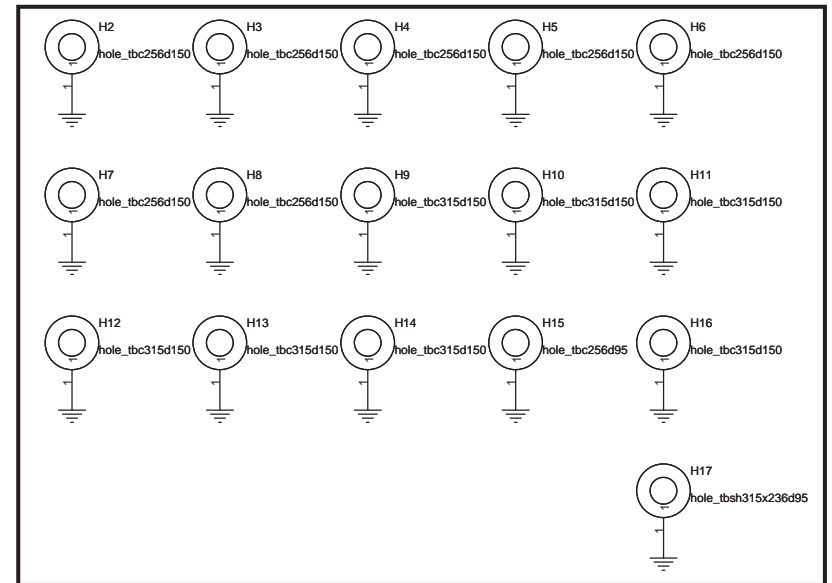


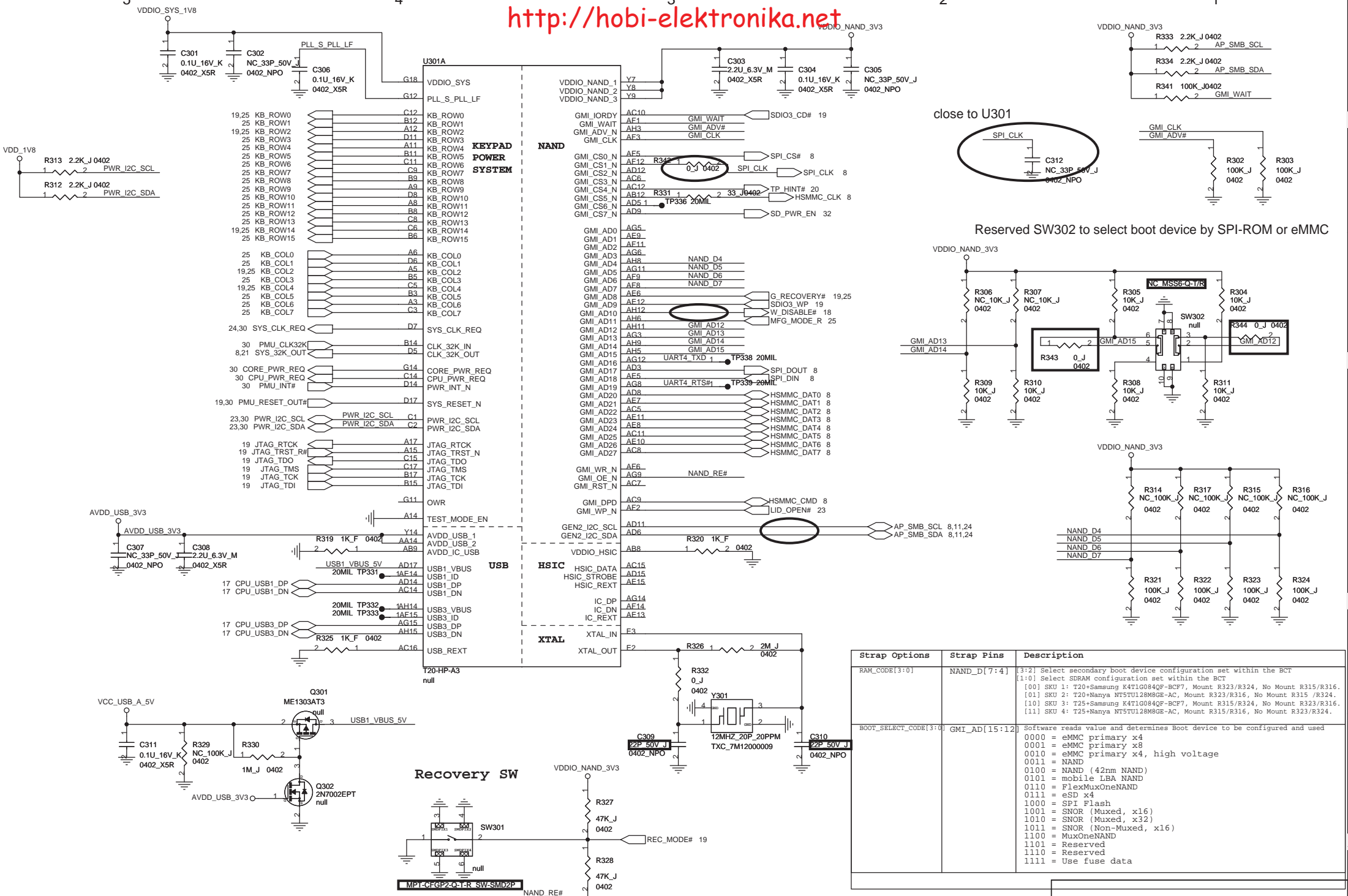
Schematics Page Index

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- 02 System Block Diagram
- 03 T20 Keyboard, USB, NAND, HSIC and X'tal
- 04 T20 UART, BB, Audio, SDIO and VDAC
- 05 T20 DDR and PCIE
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- 29 System 5V, 3.3V Power Source
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- 31 System 1.8V Power Source
- 32 Power Switch
- 33 Low Battery Detector & System OVP
- 34 Change Notice

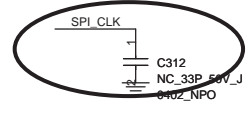


Title		
List of Schematic		
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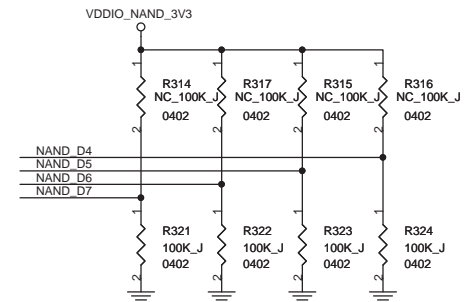
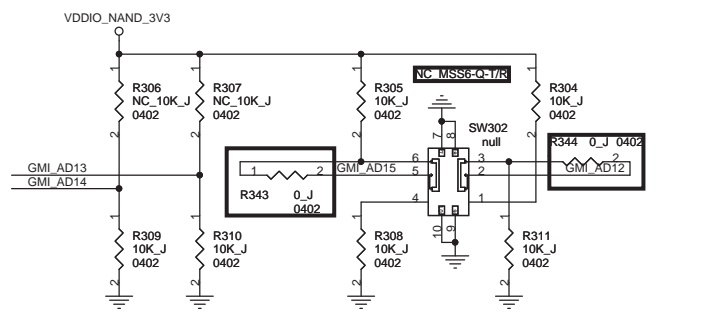




close to U301

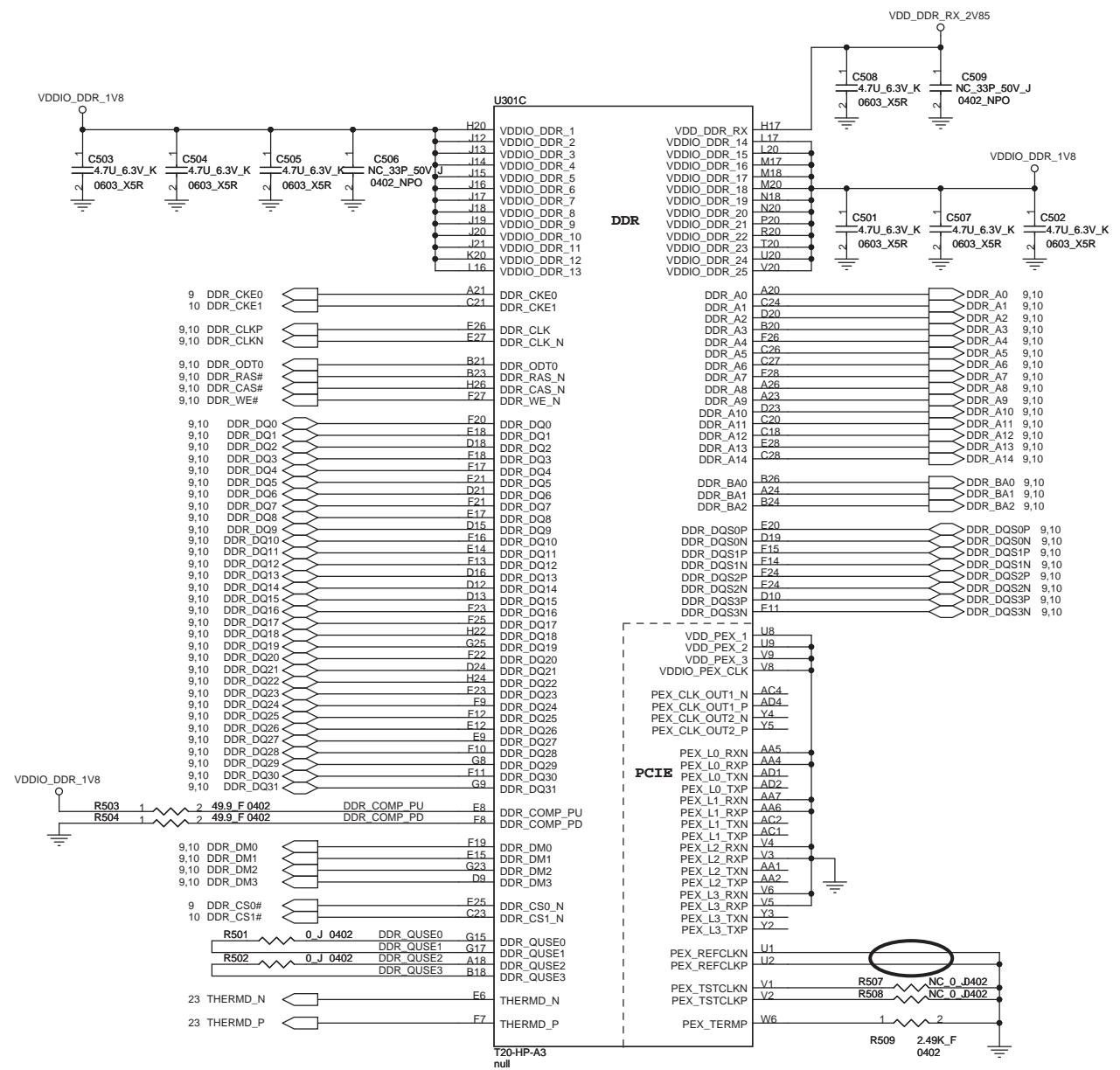


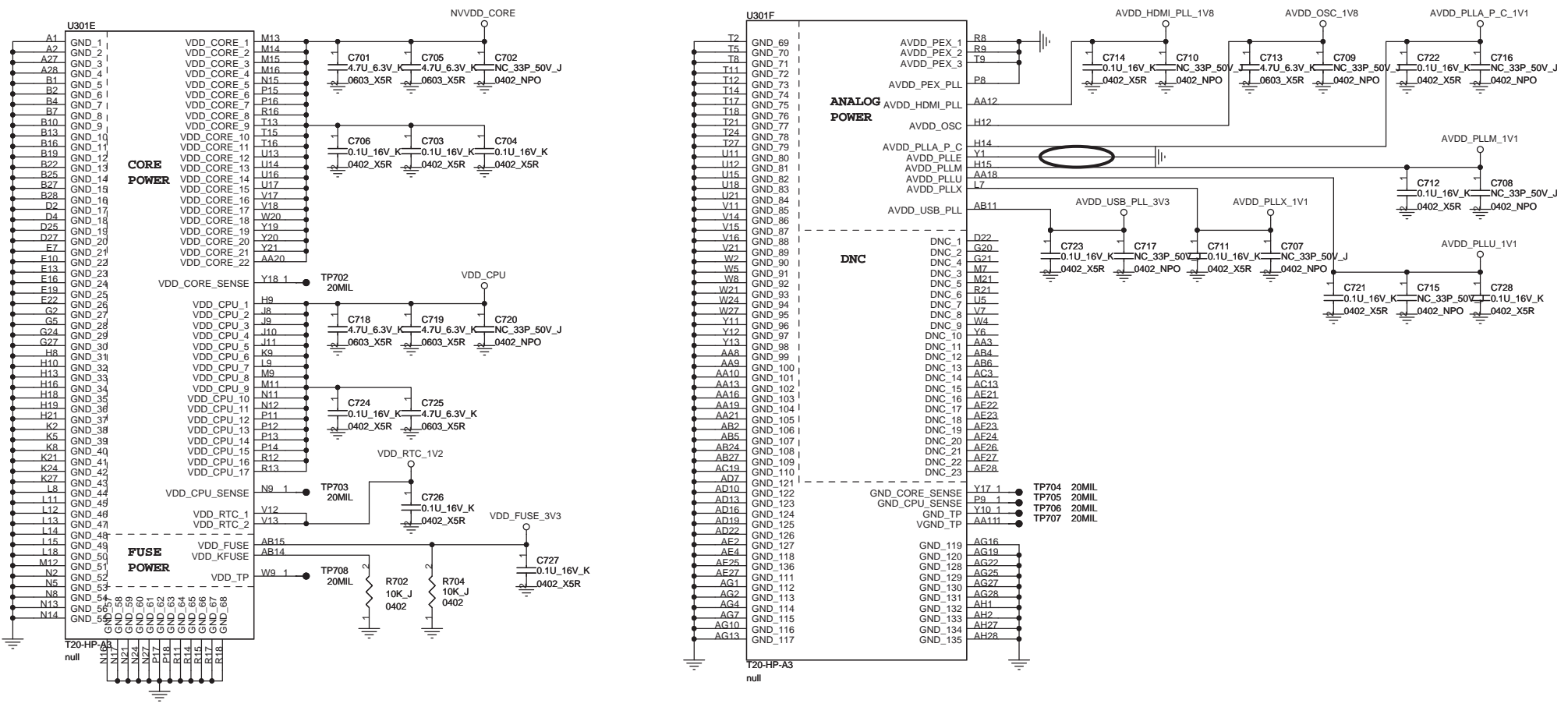
Reserved SW302 to select boot device by SPI-ROM or eMMC



Strap Options	Strap Pins	Description
RAM_CODE[3:0]	NAND_D[7:4]	[3:2] Select secondary boot device configuration set within the BCT [1:0] Select SDRAM configuration set within the BCT [00] SKU 1: T20+Samsung K4T1G084QF-BCF7, Mount R323/R324, No Mount R315/R316. [01] SKU 2: T20+Nanya NT5TU128M8GE-AC, Mount R323/R316, No Mount R315/R324. [10] SKU 3: T25+Samsung K4T1G084QF-BCF7, Mount R315/R324, No Mount R323/R316. [11] SKU 4: T25+Nanya NT5TU128M8GE-AC, Mount R315/R316, No Mount R323/R324.
BOOT_SELECT_CODE[3:0]	GMI_AD[15:12]	Software reads value and determines Boot device to be configured and used 0000 = eMMC primary x4 0001 = eMMC primary x8 0010 = eMMC primary x4, high voltage 0011 = NAND 0100 = NAND (42nm NAND) 0101 = mobile LBA NAND 0110 = FlexMuxOneNAND 0111 = eSD x4 1000 = SPI Flash 1001 = SNOR (Muxed, x16) 1010 = SNOR (Muxed, x32) 1011 = SNOR (Non-Muxed, x16) 1100 = MuxOneNAND 1101 = Reserved 1110 = Reserved 1111 = Use fuse data

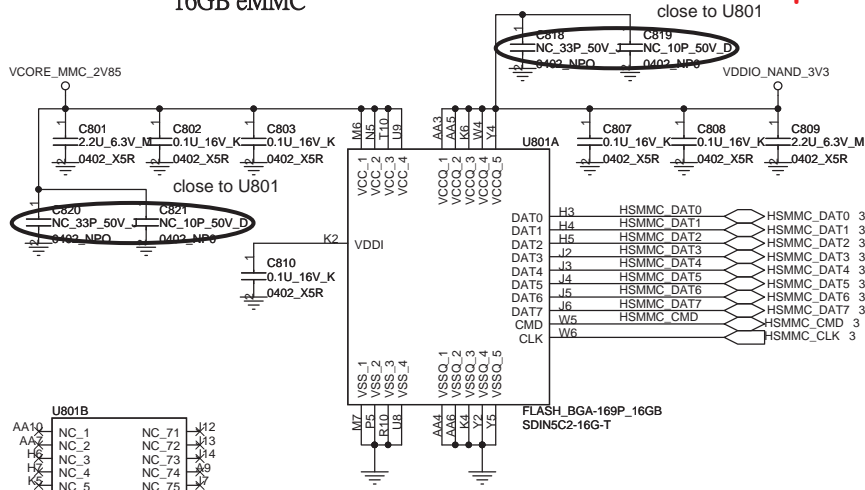
Press this SW while boot up device can let system enter force recovery mode. It's only for RD debug on PCBA.





Title		
T20 POWER		
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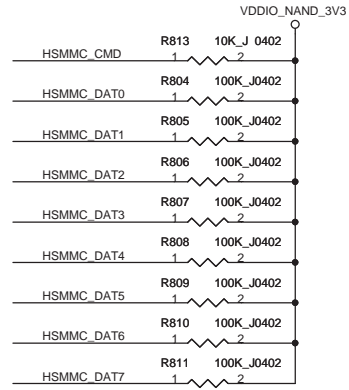
16GB eMMC



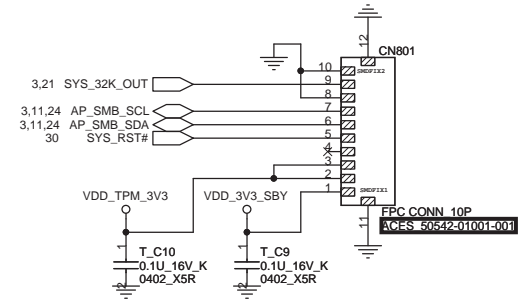
U801B

AA10	NC 1	NC 71	J12
AA11	NC 2	NC 72	J13
H2	NC 3	NC 73	J14
H2	NC 4	NC 74	J15
K2	NC 5	NC 75	J16
M10	NC 6	NC 76	J18
M8	NC 7	NC 77	J19
N10	NC 8	NC 78	J20
P10	NC 9	NC 79	J21
R3	NC 10	NC 80	J22
R3	NC 11	NC 81	J23
R5	NC 12	NC 82	J24
T5	NC 13	NC 83	J25
U10	NC 14	NC 84	J26
U6	RESET	NC 85	J27
U7	NC 16	NC 86	J28
U7	NC 17	NC 87	J29
A11	NC 18	NC 88	J30
AA2	NC 19	NC 89	J31
V3	NC 20	NC 90	J32
W10	NC 21	NC 91	J33
W10	NC 22	NC 92	J34
W10	NC 23	NC 93	J35
W12	NC 24	NC 94	J36
W12	NC 25	NC 95	J37
W10	NC 26	NC 96	AA11
W3	NC 27	NC 97	J38
W2	NC 28	NC 98	J39
W2	NC 29	NC 99	J40
AA2	NC 30	NC 100	J41
W6	NC 31	NC 101	J42
W6	NC 32	NC 102	J43
Y3	NC 33	NC 103	J44
Y3	NC 34	NC 104	J45
Y3	NC 35	NC 105	J46
Y3	NC 36	NC 106	J47
Y3	NC 37	NC 107	AA12
Y3	NC 38	NC 108	J49
Y3	NC 39	NC 109	J50
Y6	NC 40	NC 110	J51
V2	NC 41	NC 111	J52
Y6	NC 42	NC 112	J53
Y6	NC 43	NC 113	J54
Y6	NC 44	NC 114	J55
AE1	NC 45	NC 115	J56
AE1	NC 46	NC 116	J57
AG1	NC 47	NC 117	J58
AG1	NC 48	NC 118	AA13
AH1	NC 49	NC 119	J60
AH1	NC 50	NC 120	J61
AH1	NC 51	NC 121	J62
A1	NC 52	NC 122	J63
BE1	NC 53	NC 123	J64
B1	NC 54	NC 124	J65
DE	NC 55	NC 125	J66
D1	NC 56	NC 126	J67
D1	NC 57	NC 127	J68
H1	NC 58	NC 128	J69
H10	NC 59	NC 129	AA14
H10	NC 60	NC 130	J71
H10	NC 61	NC 131	J72
A6	NC 62	NC 132	J73
H10	NC 63	NC 133	J74
H10	NC 64	NC 134	J75
H2	NC 65	NC 135	J76
H2	NC 66	NC 136	J77
H2	NC 67	NC 137	J78
J10	NC 68	NC 138	J79
J10	NC 69	NC 139	J80
J11	NC 70	NC 140	J81

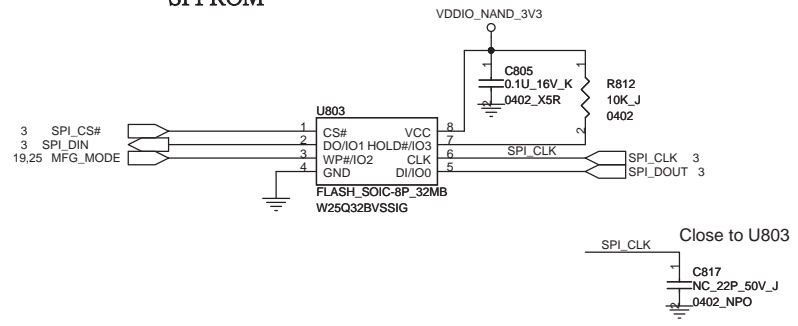
FLASH_BGA-169P_16GB
SDIN5C2-16G-T

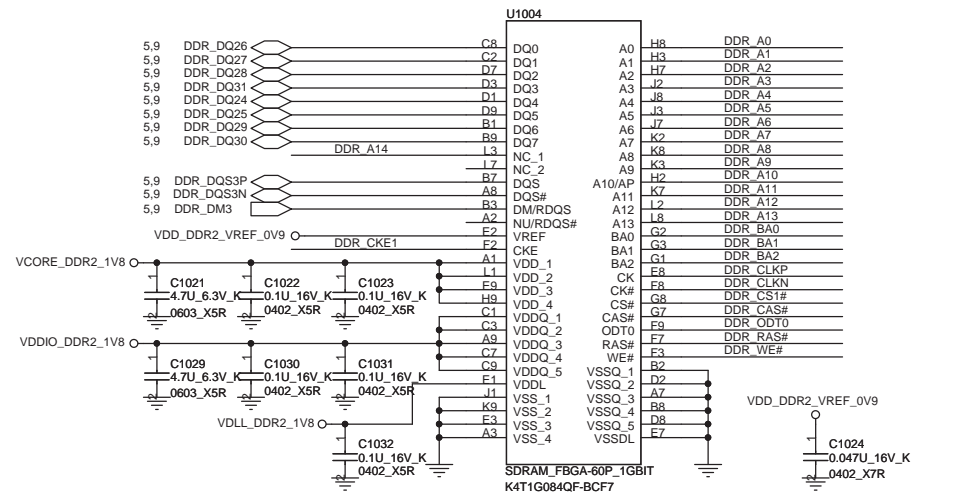
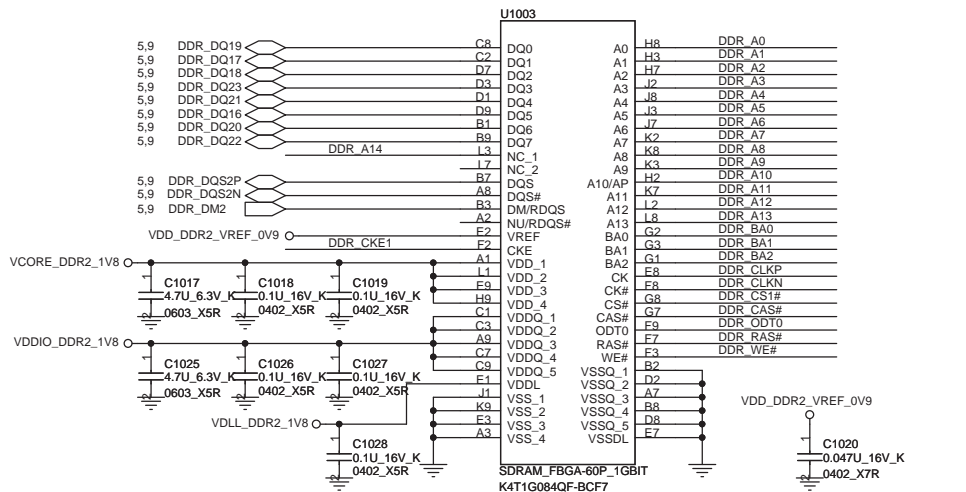
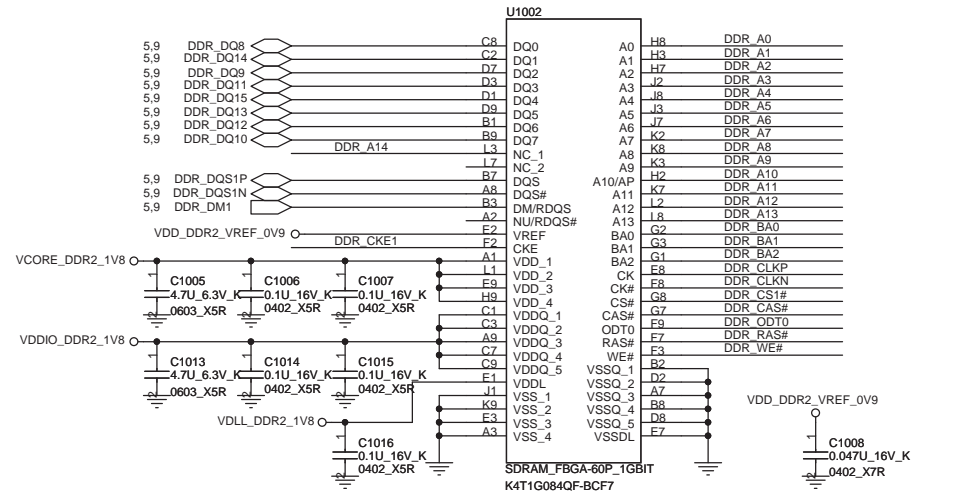
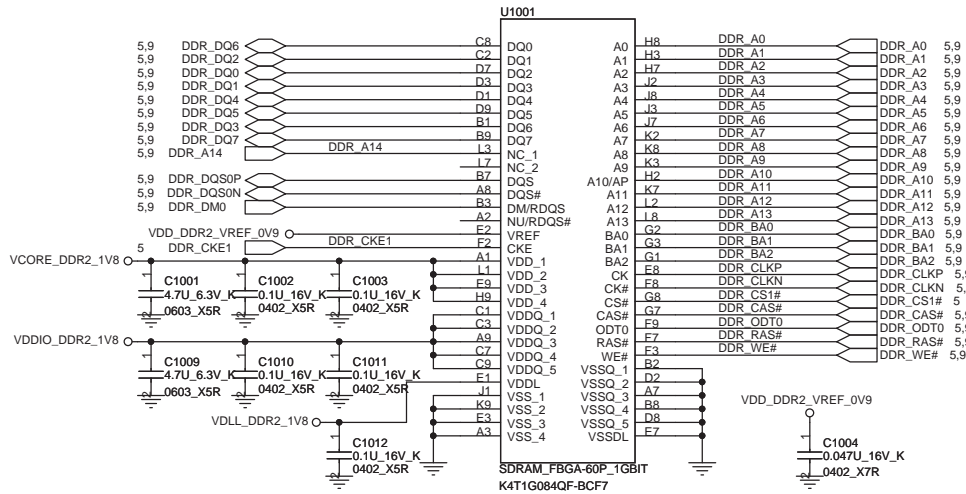


TPM

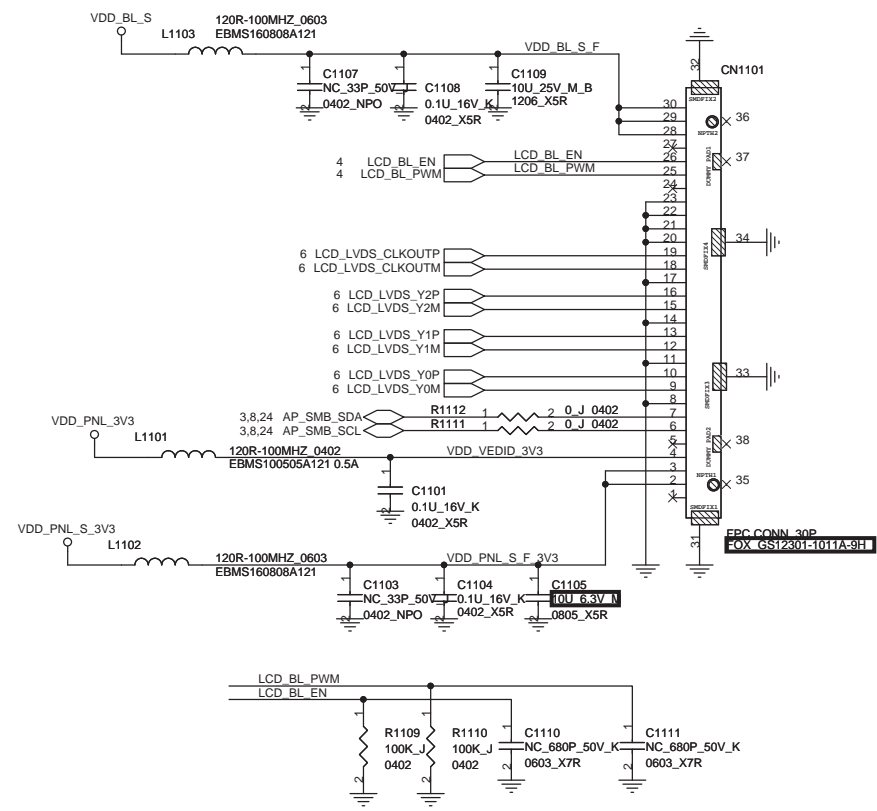
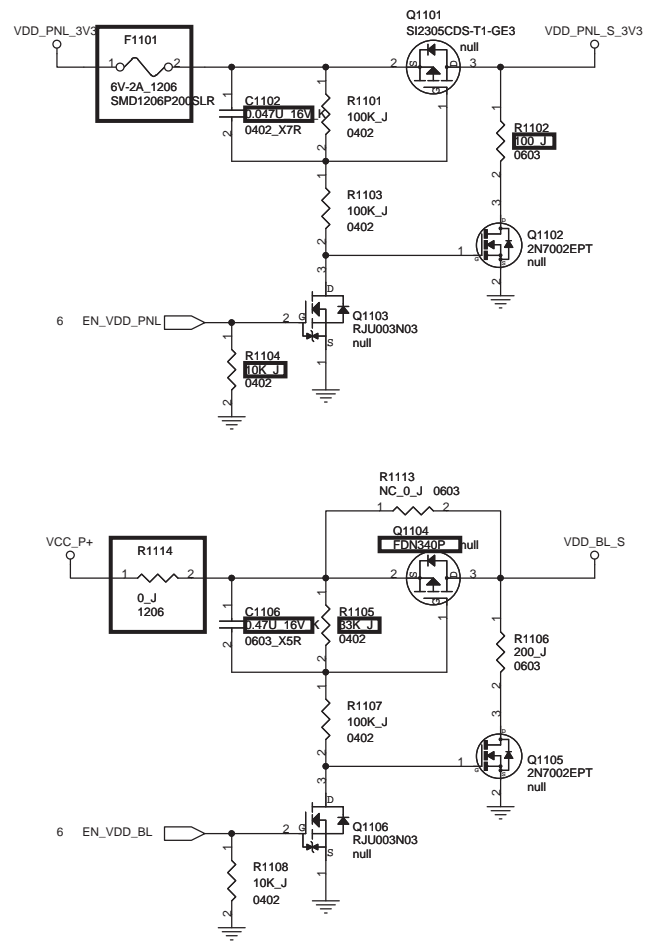


SPI ROM

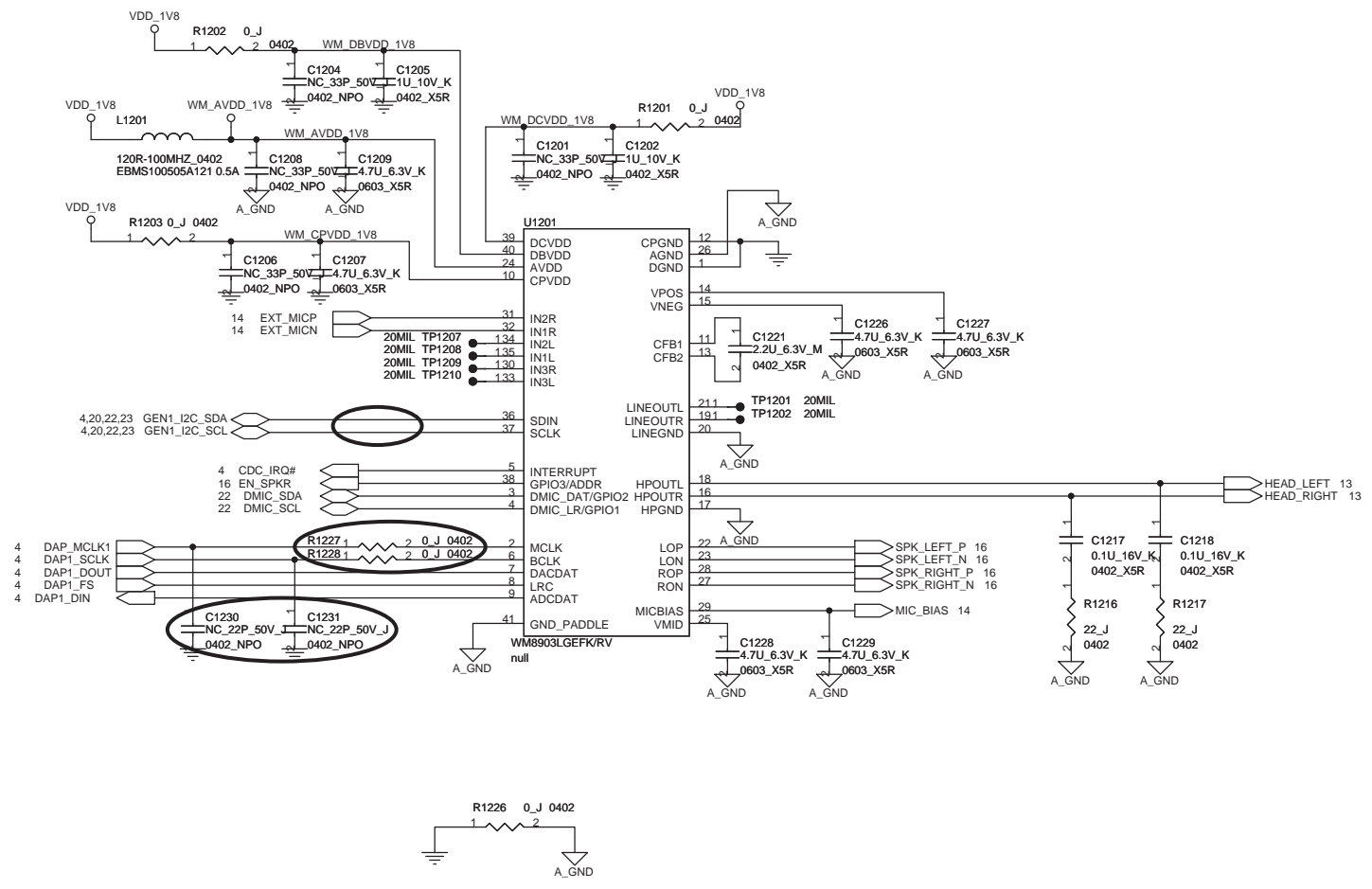


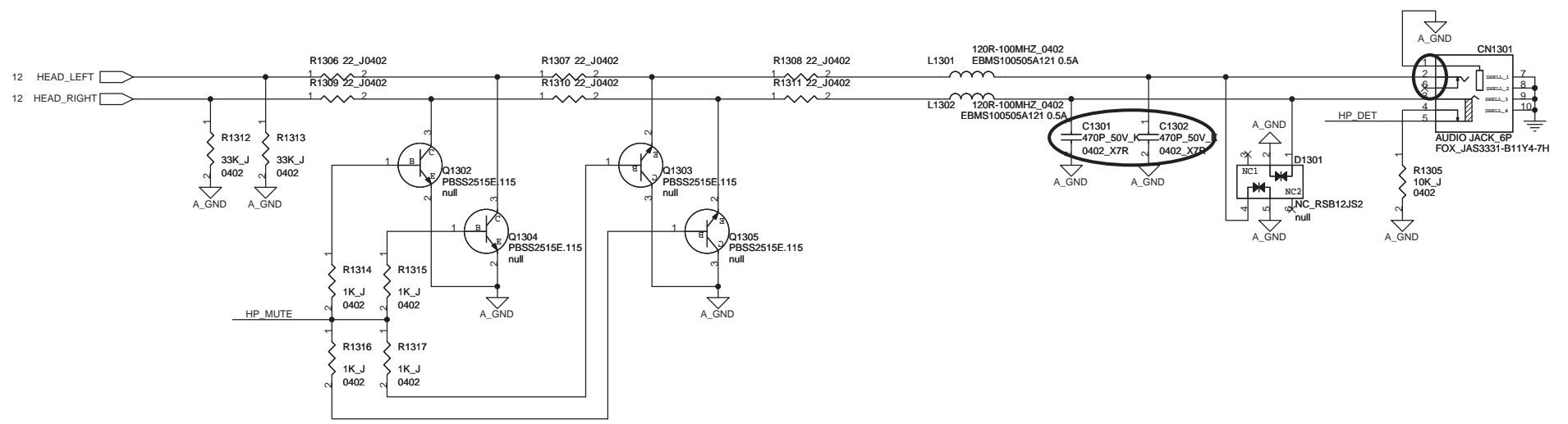
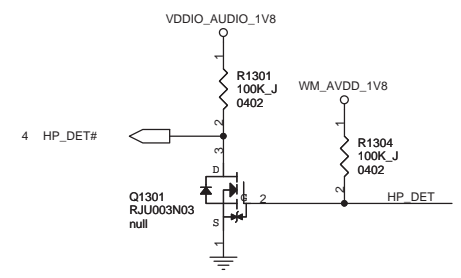
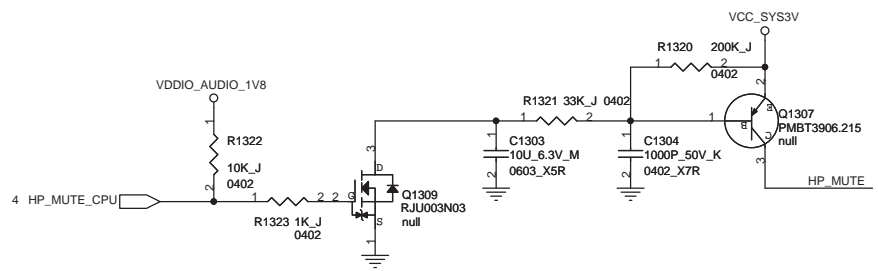


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DDR2 Rank1		
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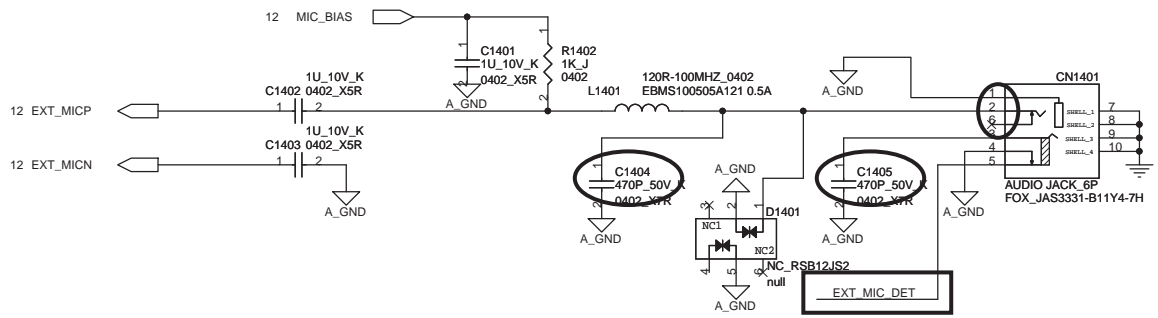


Title		
LCD Connector		
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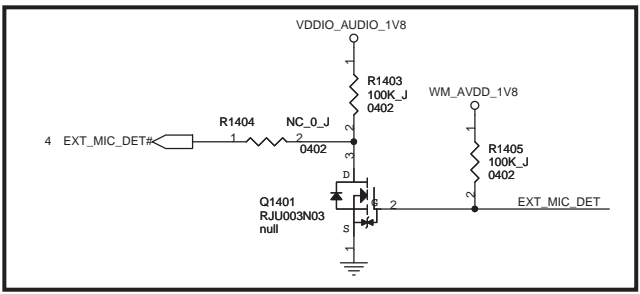


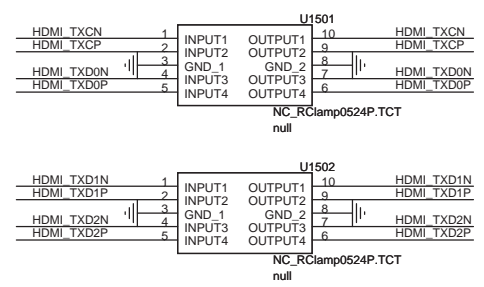
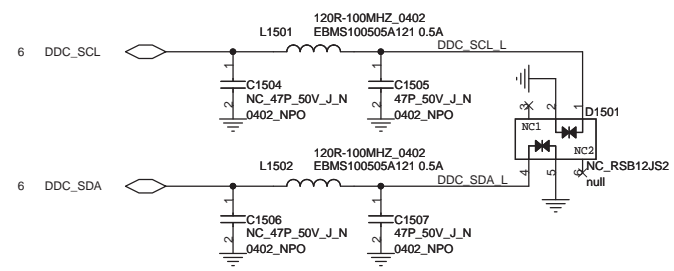
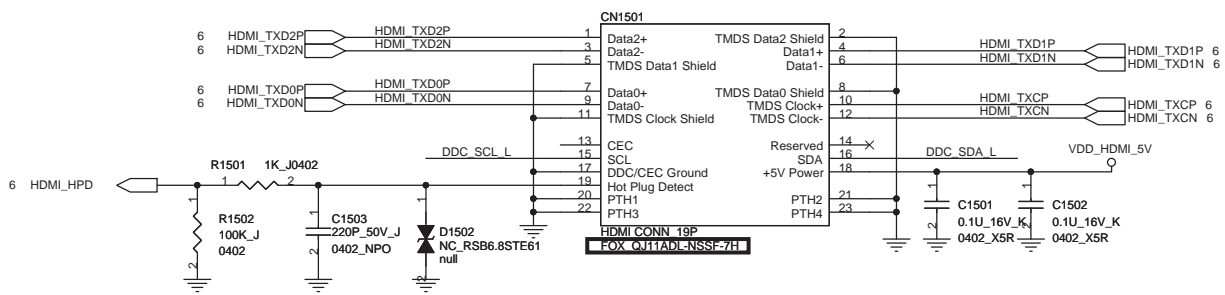


Title		
Headphone Jack and Mute Circuit		
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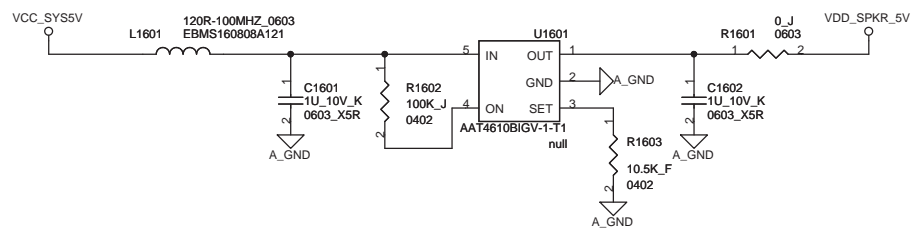


Seaboard does not support this function.

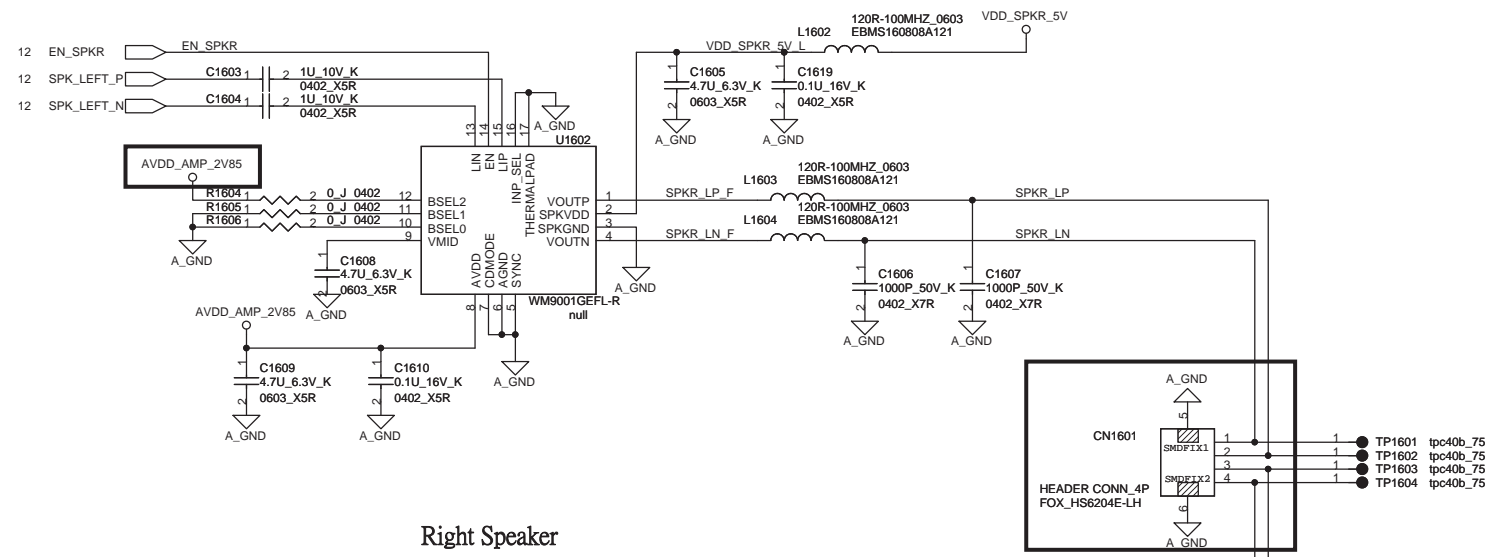




Set current limit on 750mA-1250mA

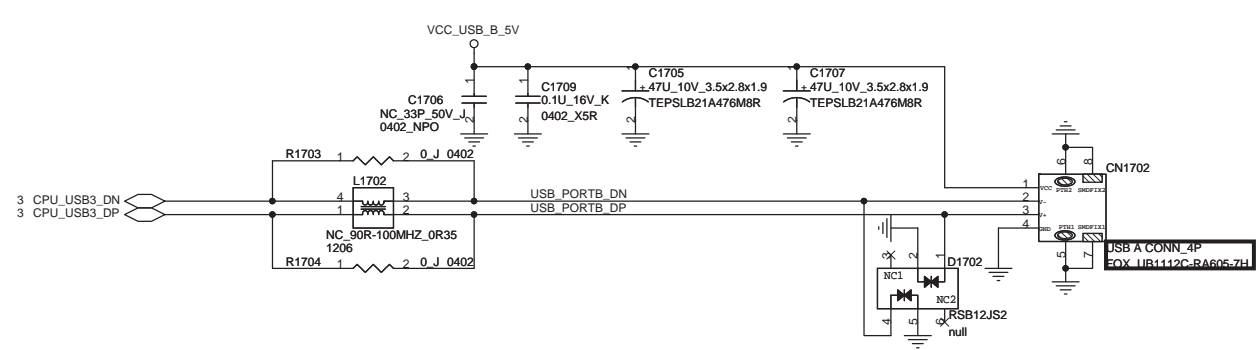
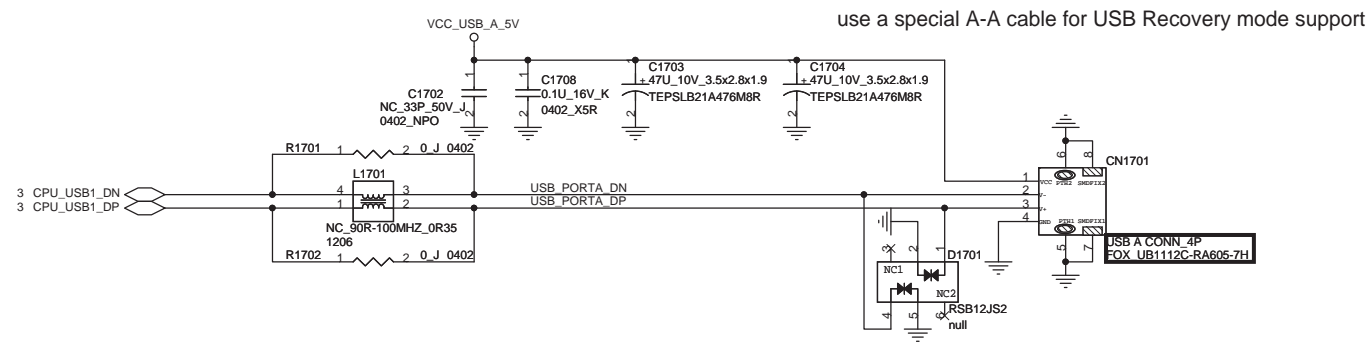


Left Speaker

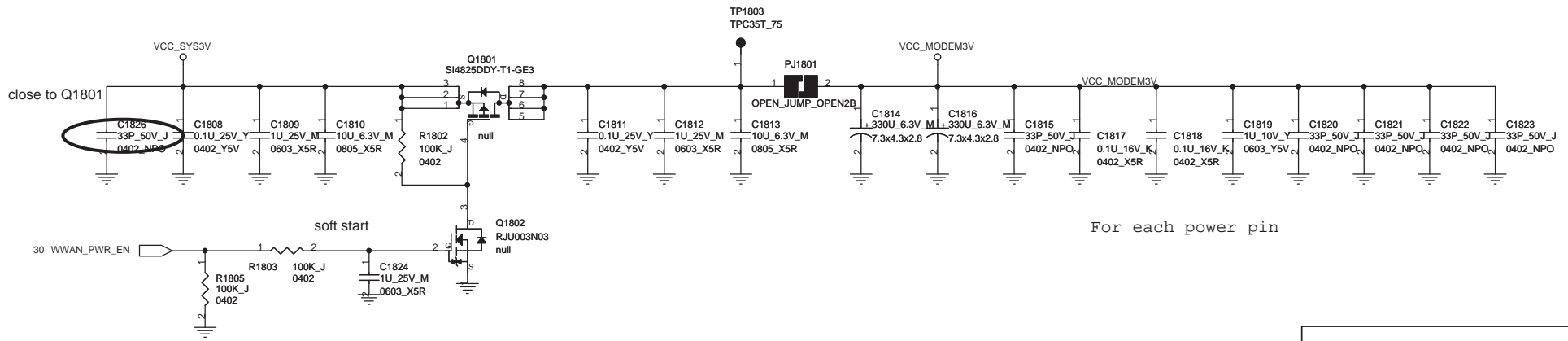
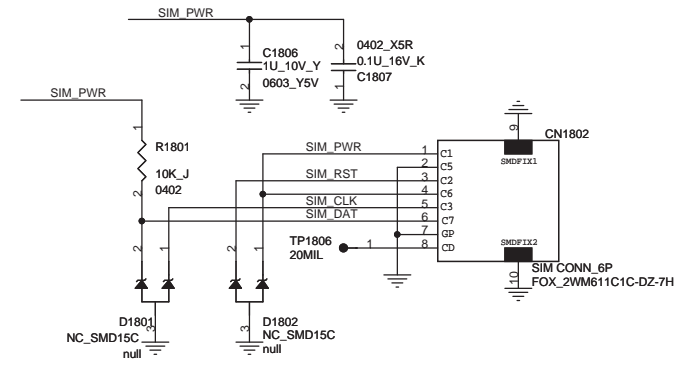
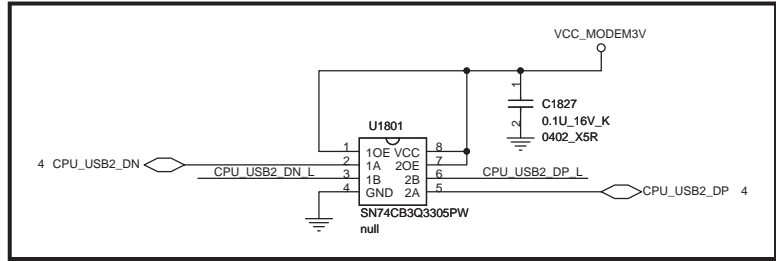
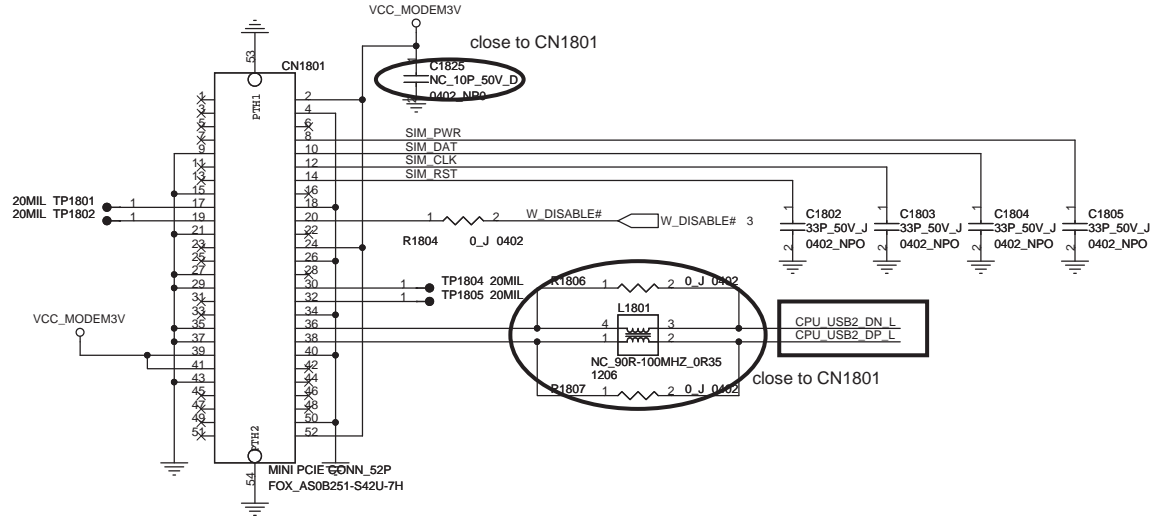
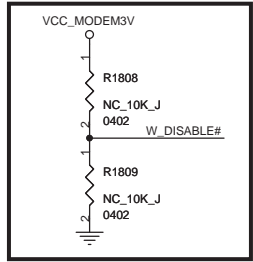


Right Speaker

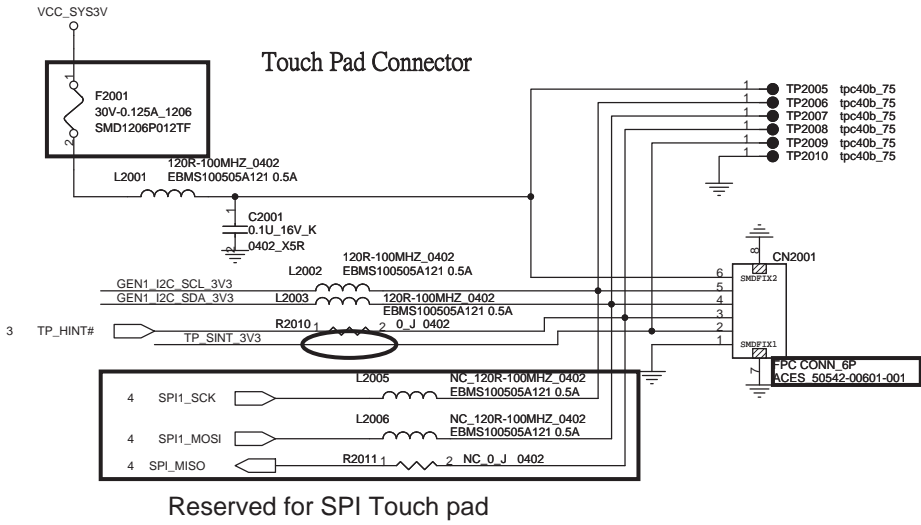
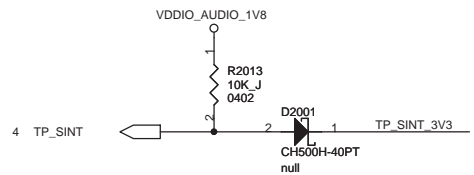
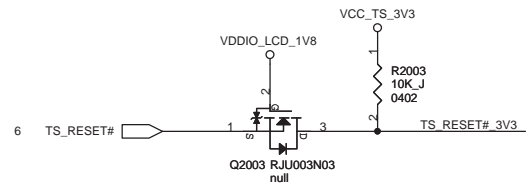
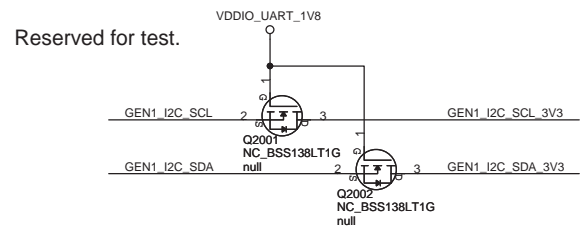
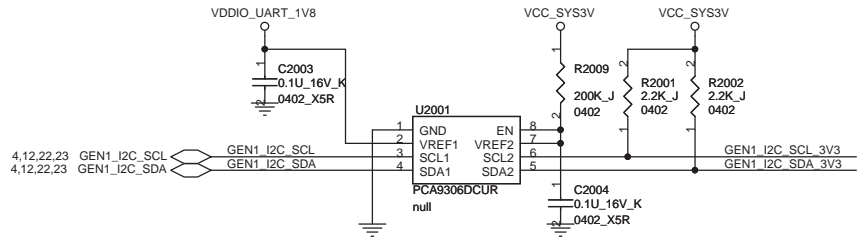
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Speaker Connectors		
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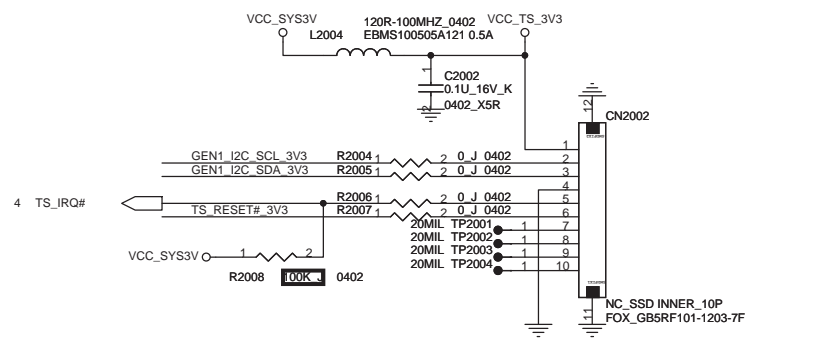
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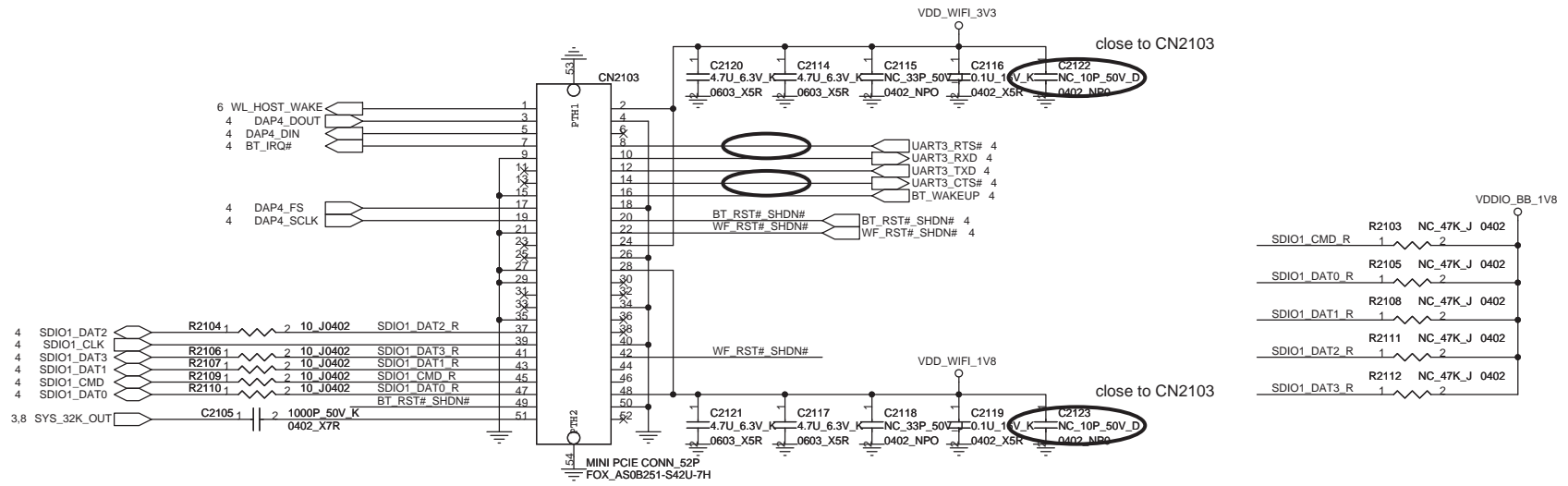
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WWAN Connector		
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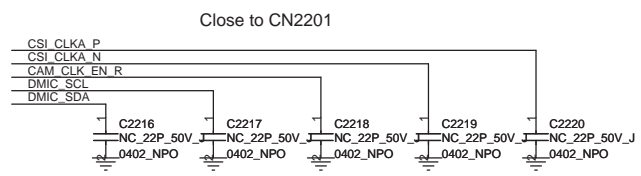
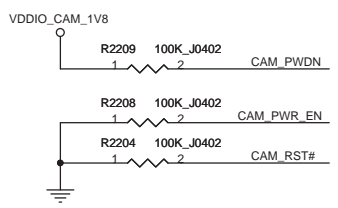
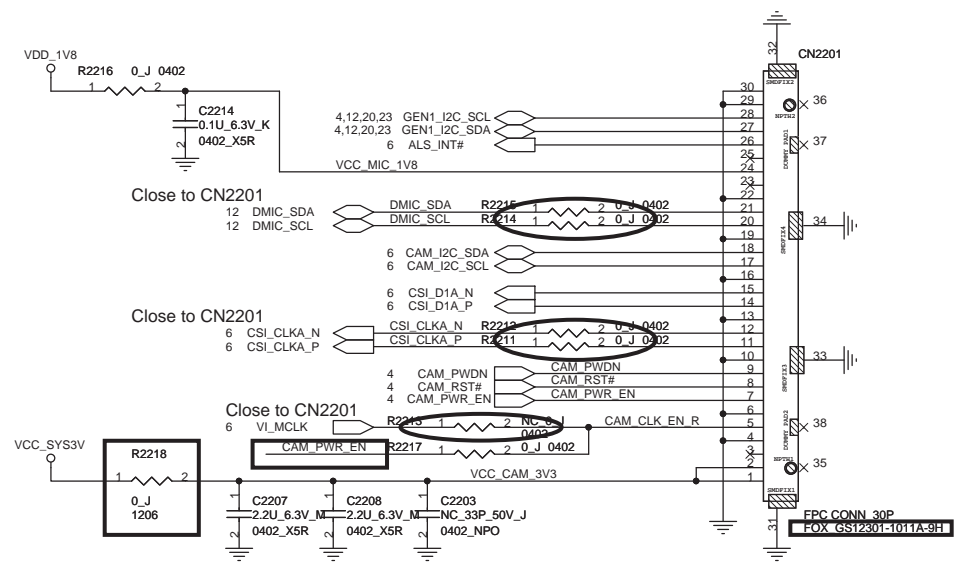
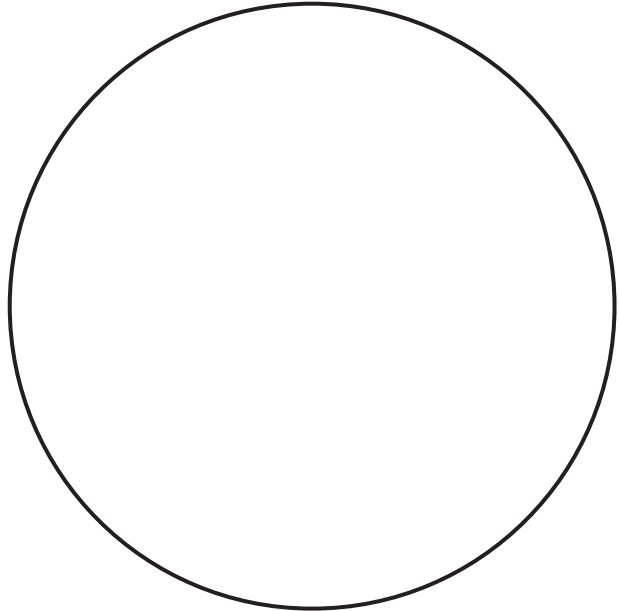
It is only evaluation Touch Screen Connector



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Touch Pad		
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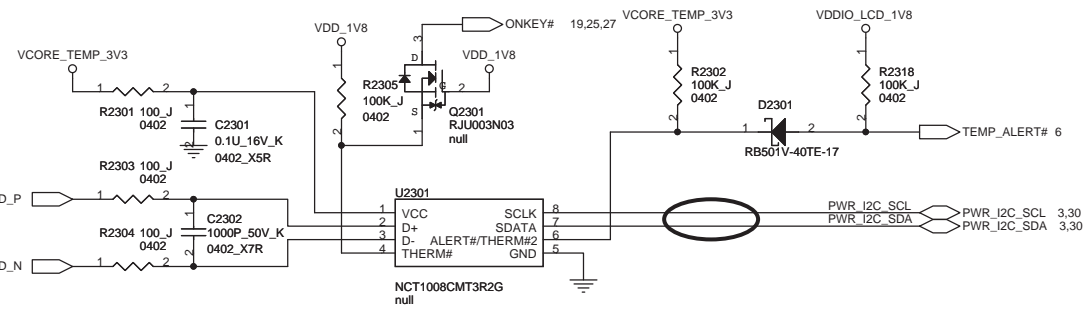


move LDO and some parts to module side.

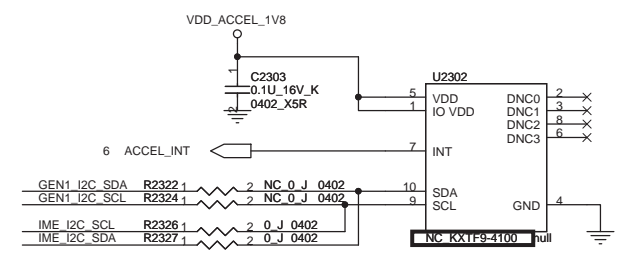


Title		
Camera Module Connector		
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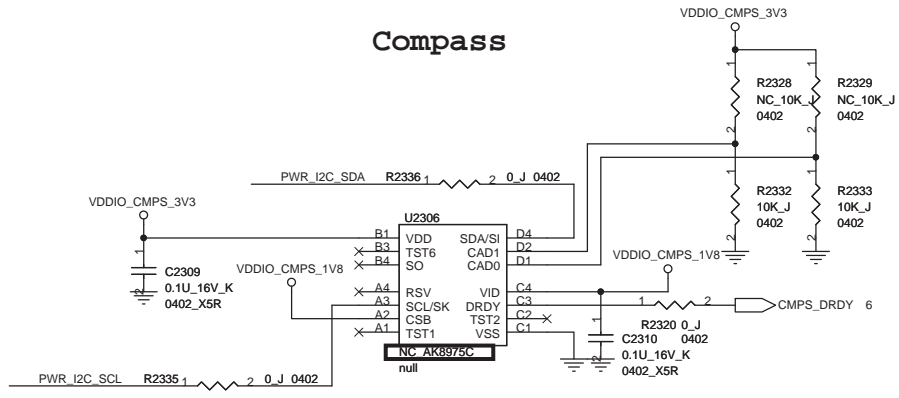
Thermal Sensor



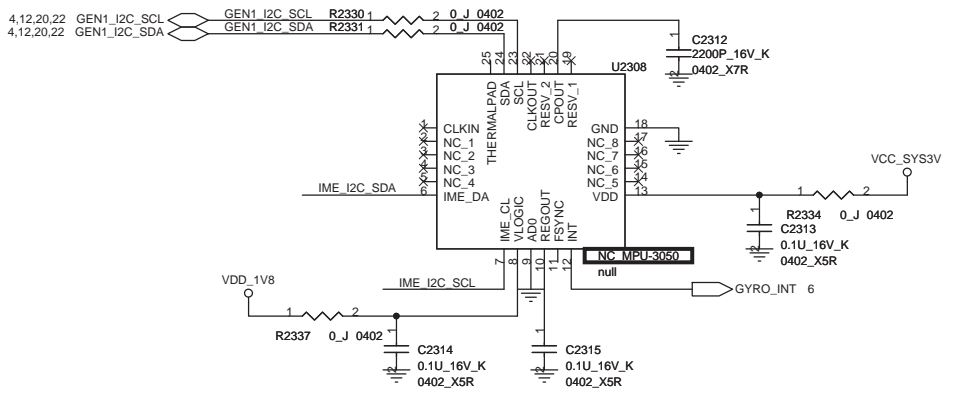
Accelerometer



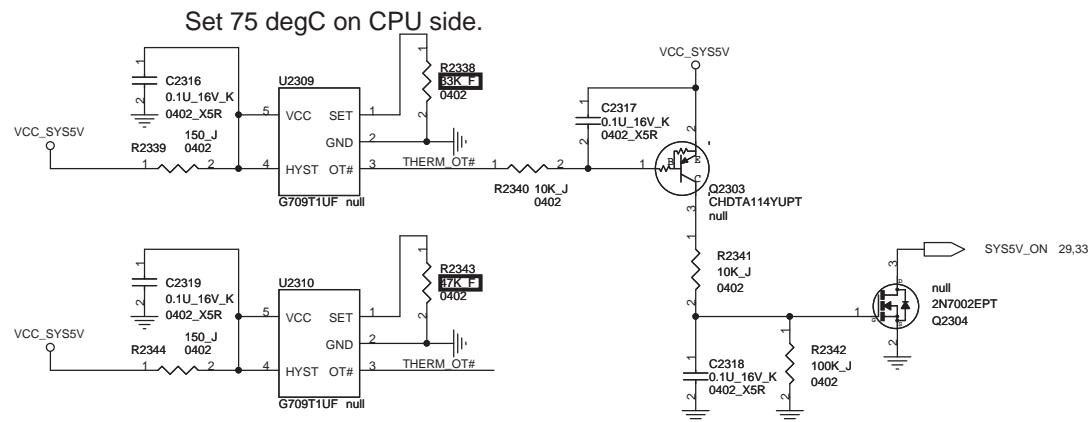
Compass



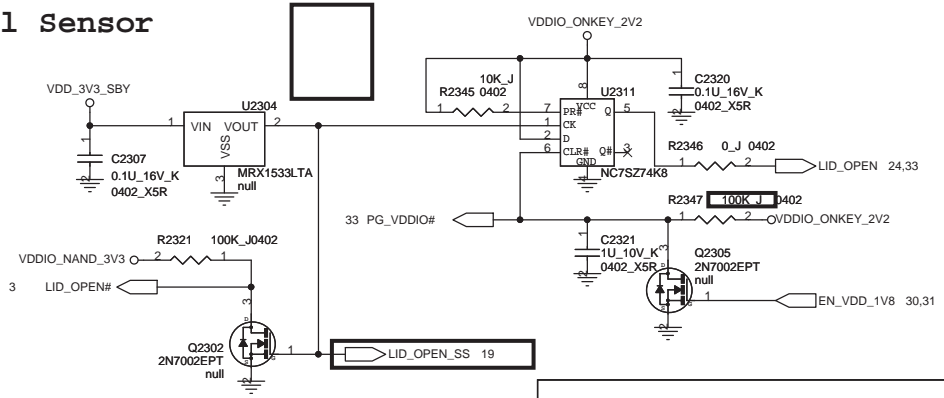
Gyroscope



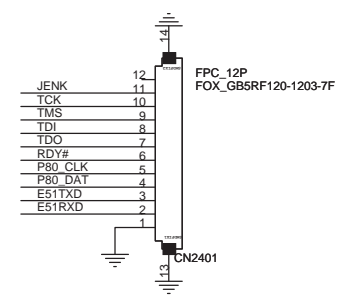
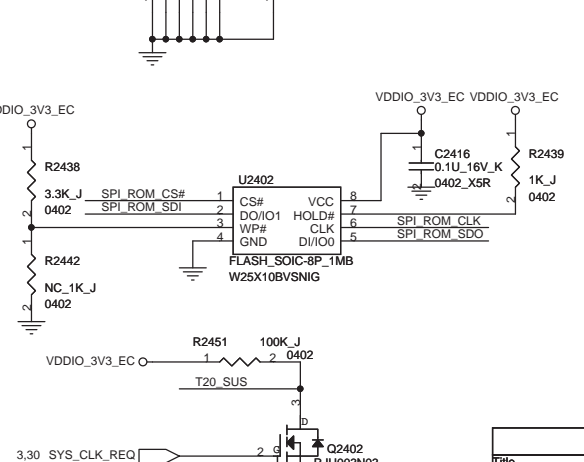
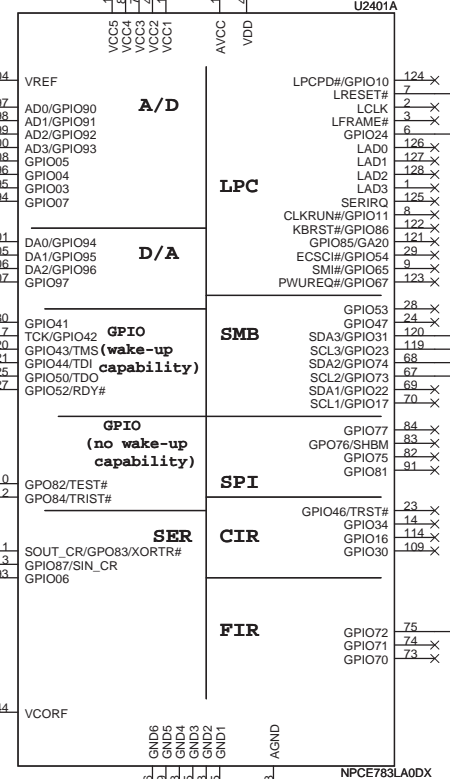
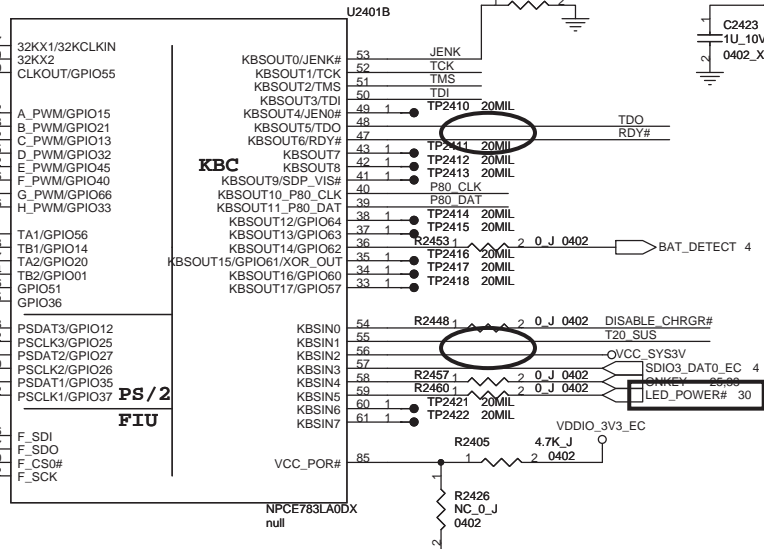
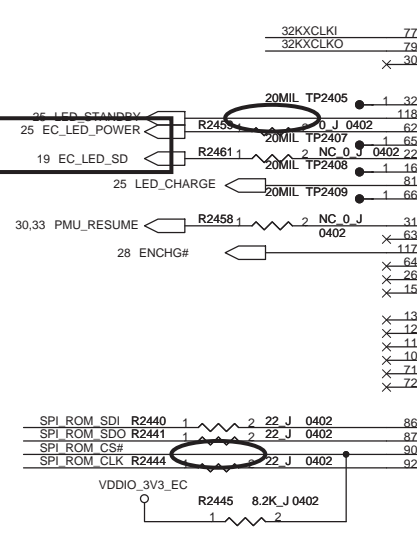
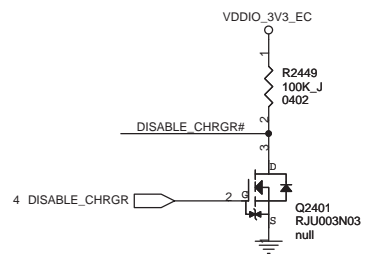
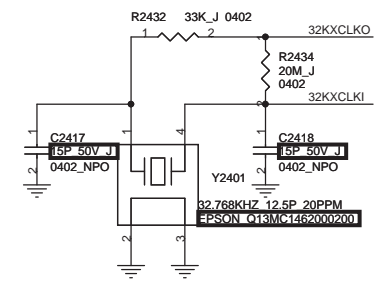
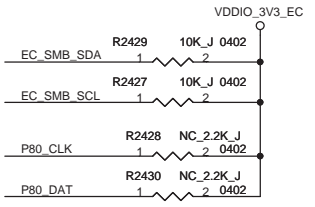
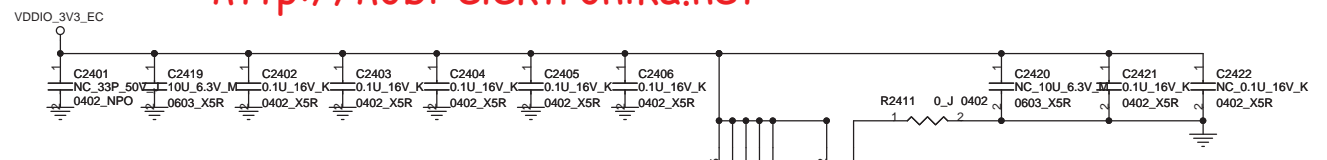
Thermal Switch



Hall Sensor



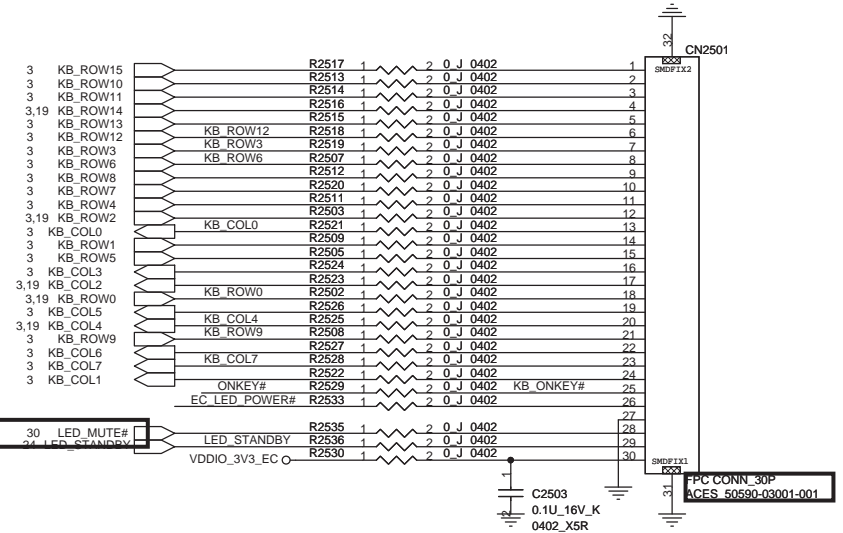
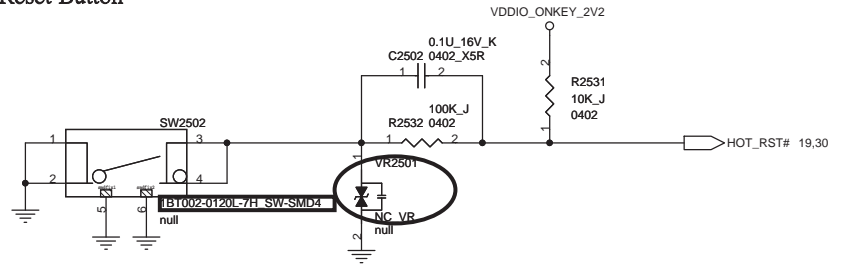
Title		
Sensors		
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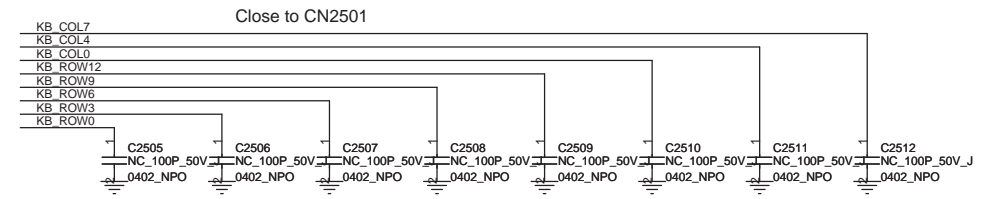
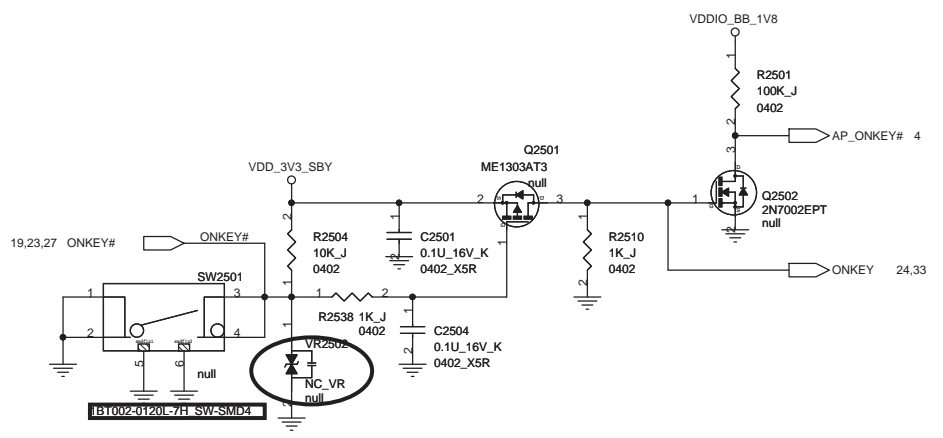
Title		Battery Charge Controller	
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Keyboard Connector

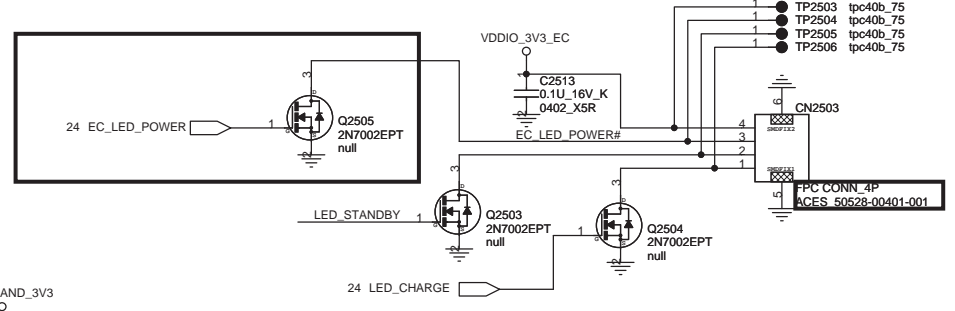
Reset Button



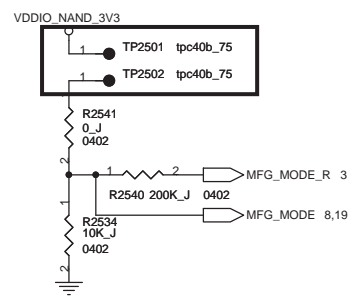
Power Button



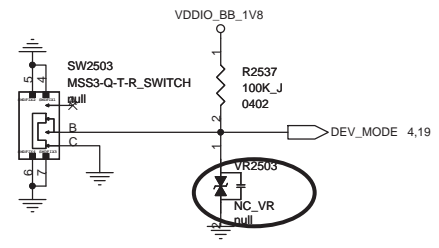
LED DB Connector



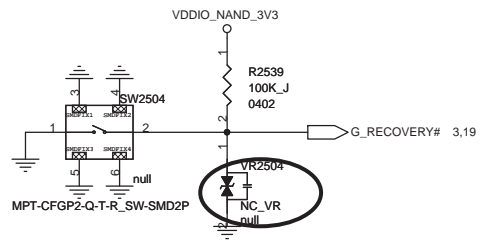
Manufacture Mode



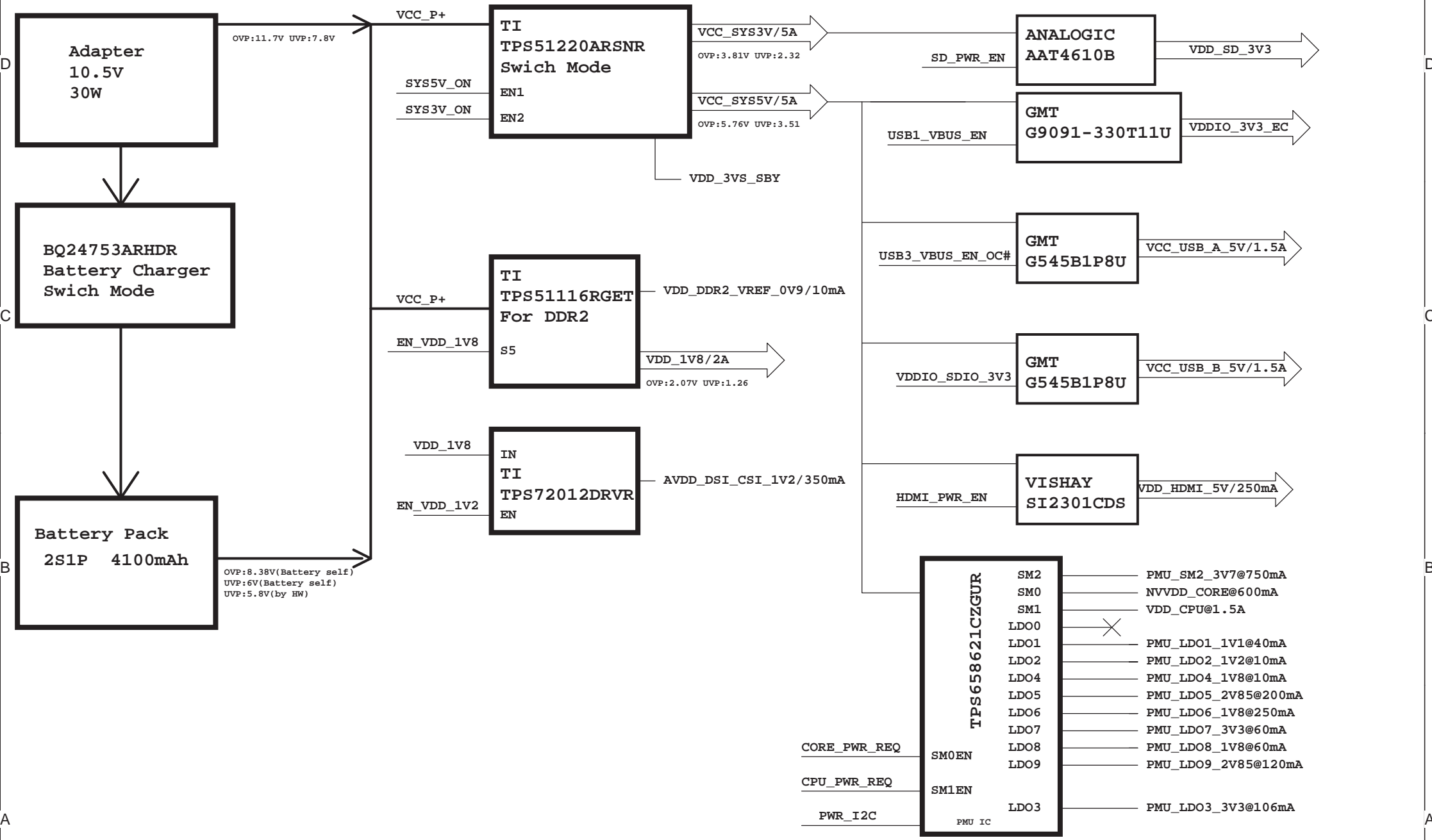
Develop Mode



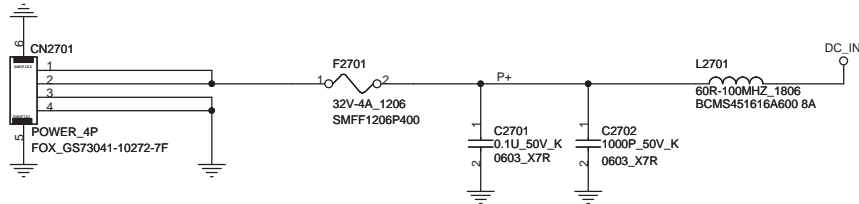
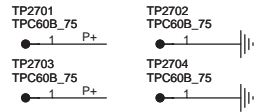
G Recovery SW



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Keyboard and Switches		
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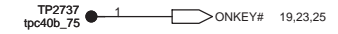


DC IN CONN.

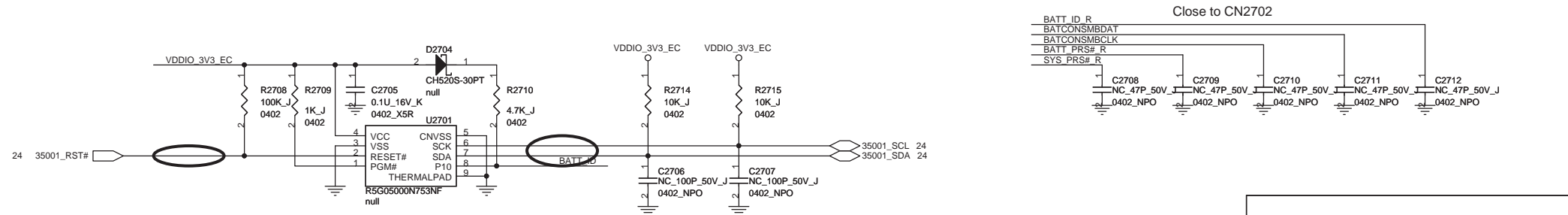
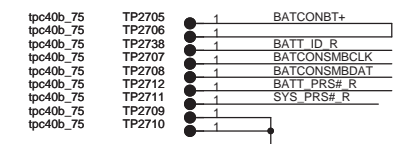
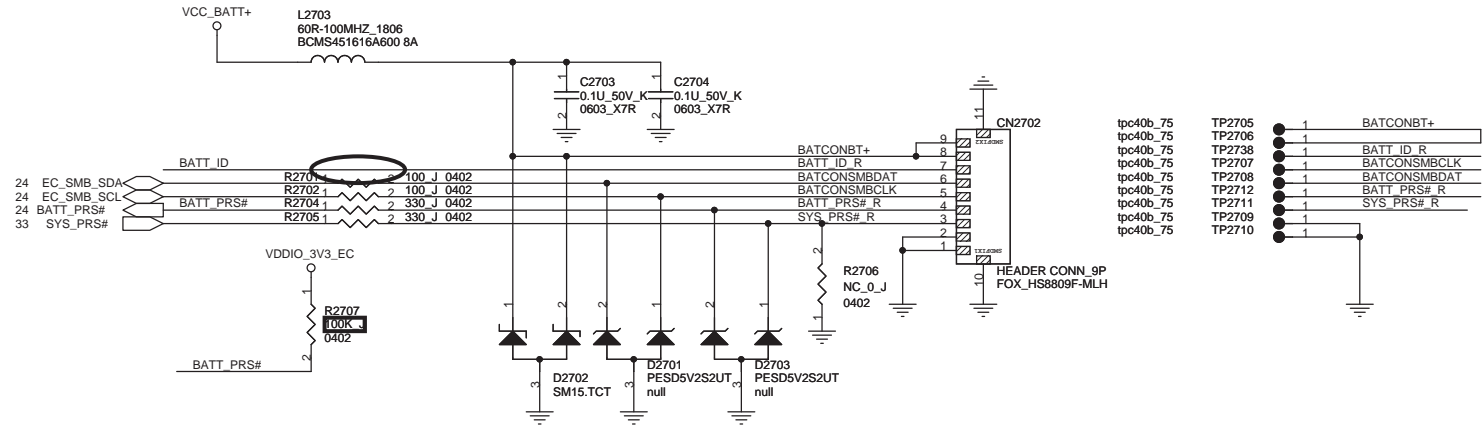


- VCC_P+ ○ 1 ● TP2713 tpc40b_75
- VCC_SYS5V ○ 1 ● TP2714 tpc40b_75
- VCC_SYS3V ○ 1 ● TP2715 tpc40b_75
- VDDIO_3V3_EC ○ 1 ● TP2716 tpc40b_75
- PMU_VSYS_5V ○ 1 ● TP2717 tpc40b_75
- NVDD_CORE ○ 1 ● TP2718 tpc40b_75
- VDD_CPU ○ 1 ● TP2719 tpc40b_75
- PMU_SM2_3V7 ○ 1 ● TP2720 tpc40b_75
- PMU_LDO1_1V1 ○ 1 ● TP2721 tpc40b_75
- PMU_LDO2_1V2 ○ 1 ● TP2722 tpc40b_75
- PMU_LDO3_3V3 ○ 1 ● TP2723 tpc40b_75
- PMU_LDO4_1V8 ○ 1 ● TP2724 tpc40b_75
- PMU_LDO5_2V85 ○ 1 ● TP2725 tpc40b_75
- PMU_LDO6_1V8 ○ 1 ● TP2726 tpc40b_75
- PMU_LDO7_3V3 ○ 1 ● TP2727 tpc40b_75
- PMU_LDO8_1V8 ○ 1 ● TP2728 tpc40b_75
- PMU_LDO9_2V85 ○ 1 ● TP2729 tpc40b_75

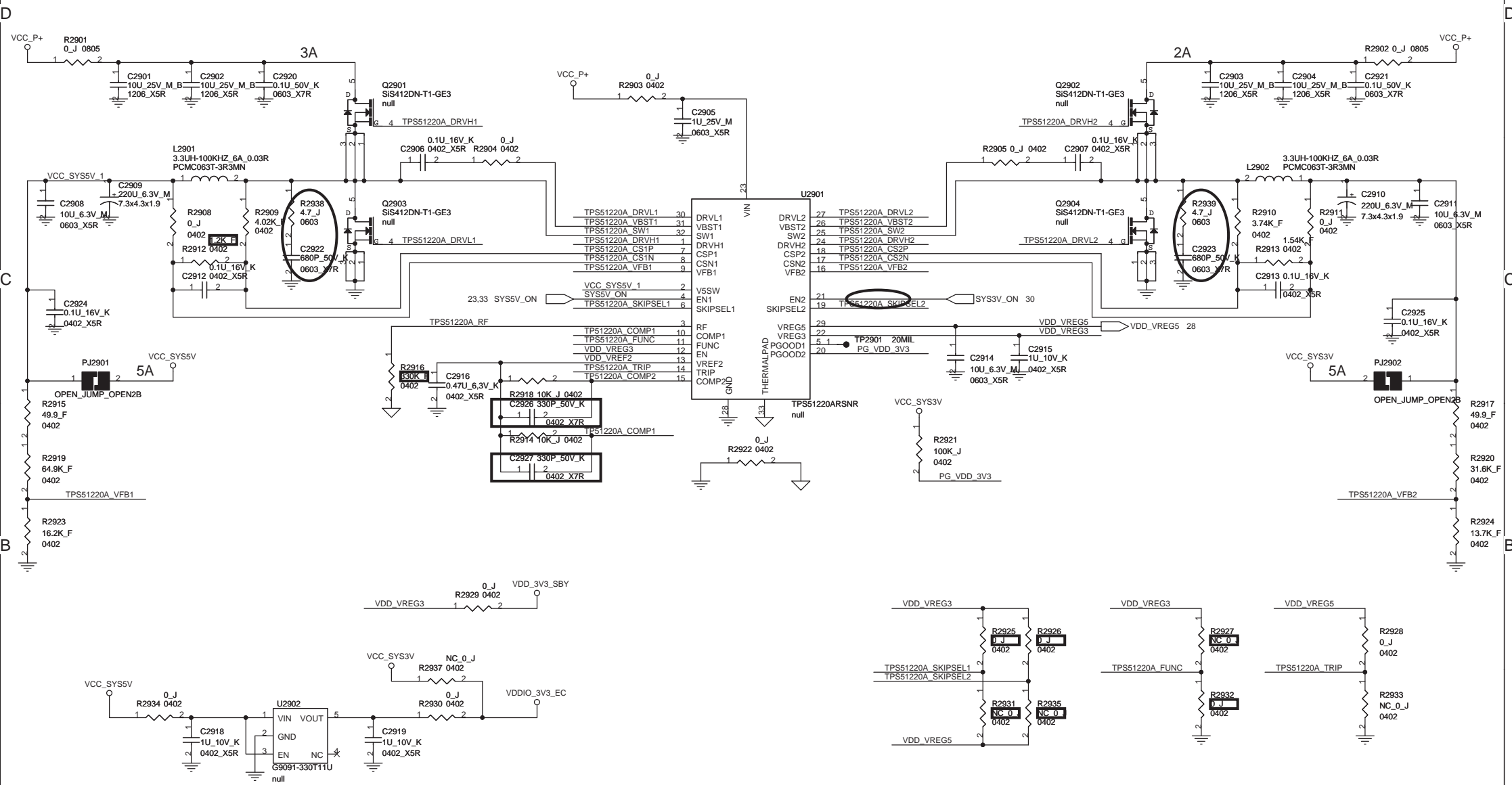
- VDD_1V8 ○ 1 ● TP2730 tpc40b_75
- VDD_DDR2_VREF_0V9 ○ 1 ● TP2731 tpc40b_75
- VCC_USB_A_5V ○ 1 ● TP2732 tpc40b_75
- VCC_USB_B_5V ○ 1 ● TP2733 tpc40b_75
- VDD_HDMI_5V ○ 1 ● TP2734 tpc40b_75
- VDD_SD_3V3 ○ 1 ● TP2735 tpc40b_75
- AVDD_DSI_CSI_1V2 ○ 1 ● TP2736 tpc40b_75



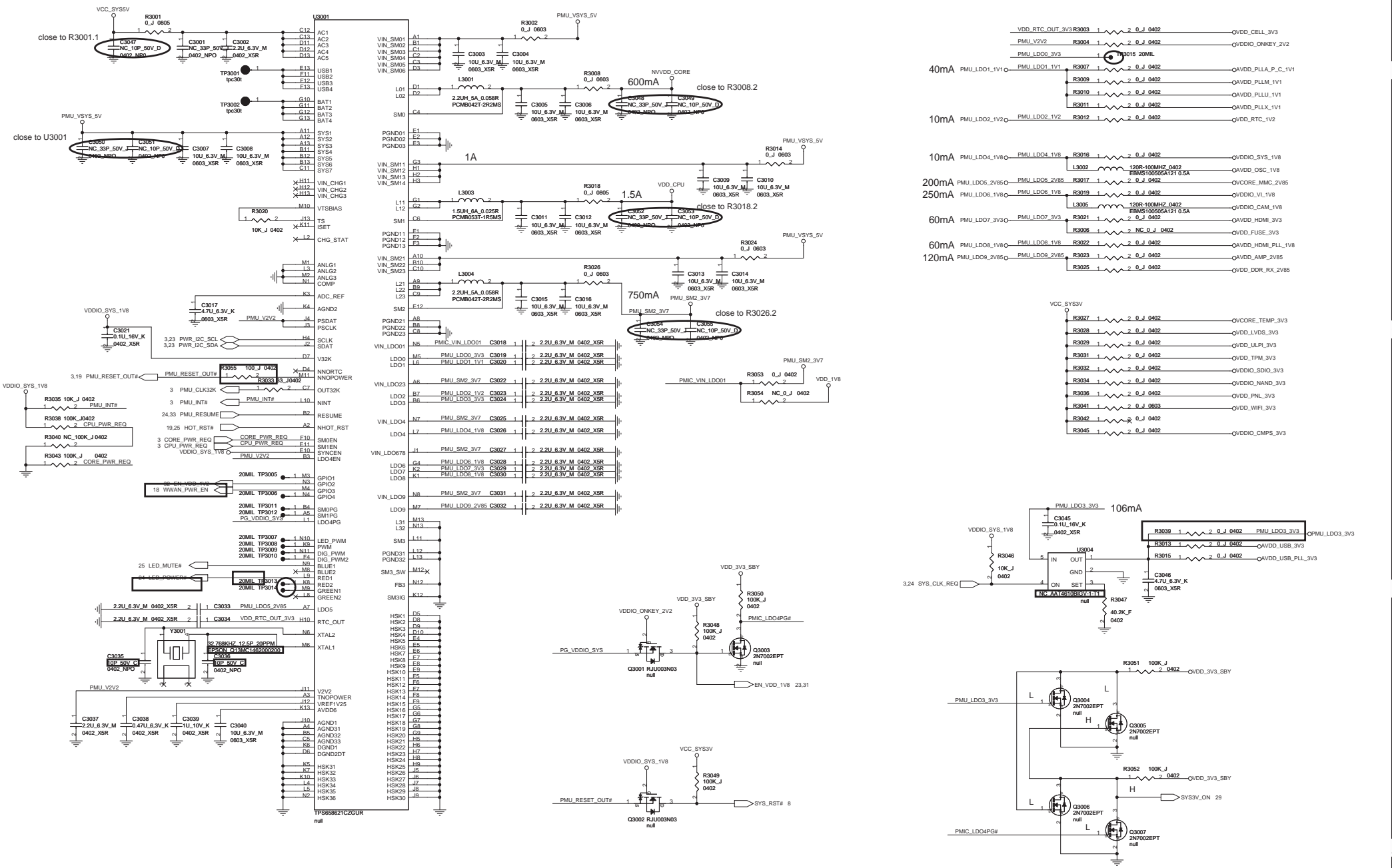
Battery CONN.



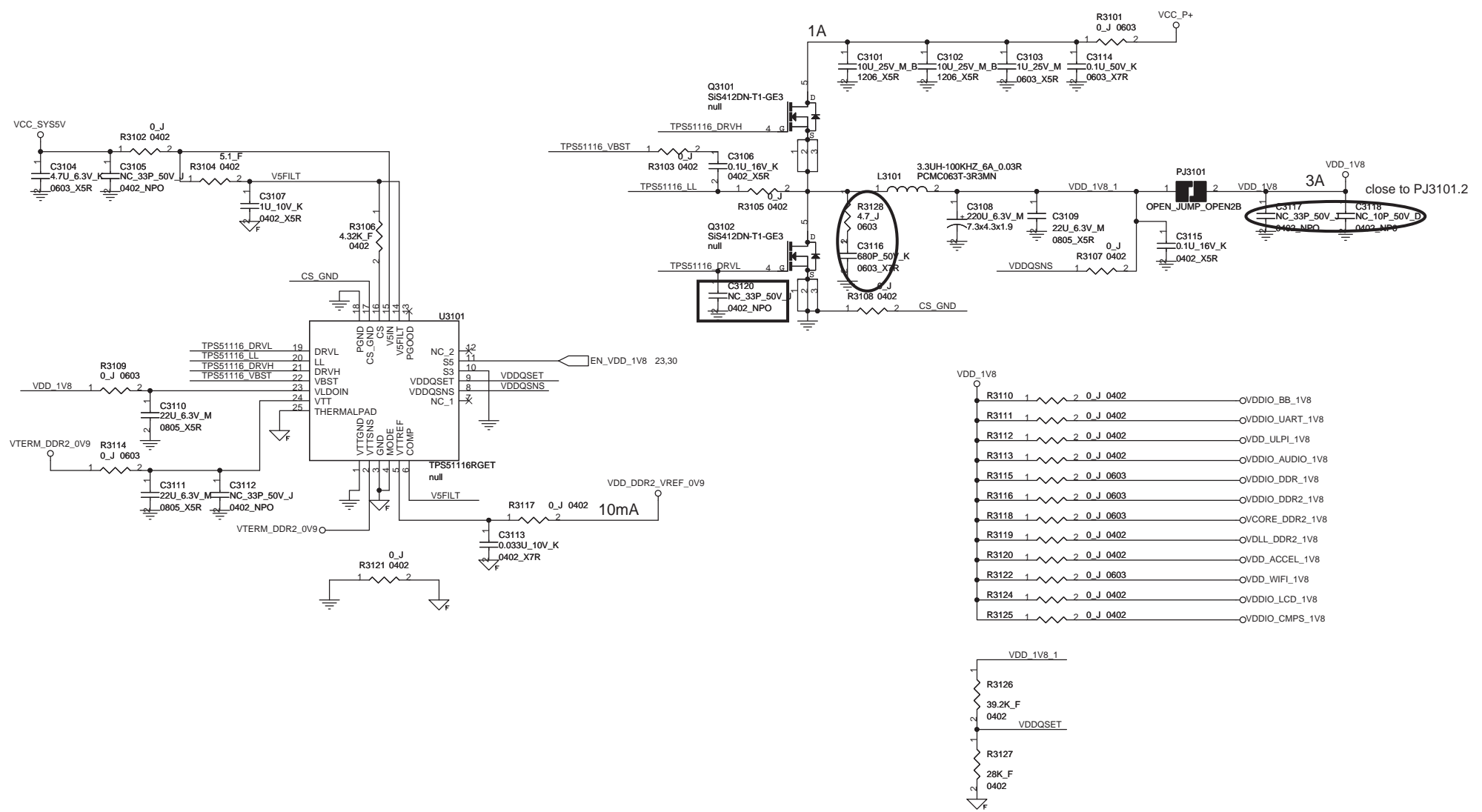
Title		
DCIN & Battery Connector		
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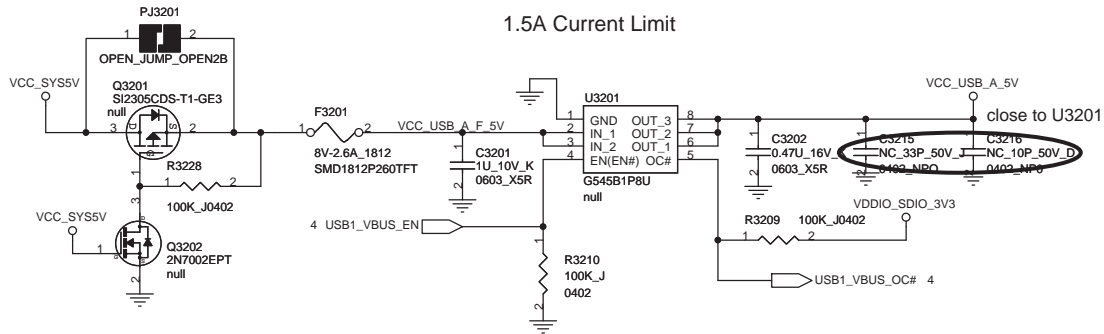
Title		
5V,3V3 Power Source		
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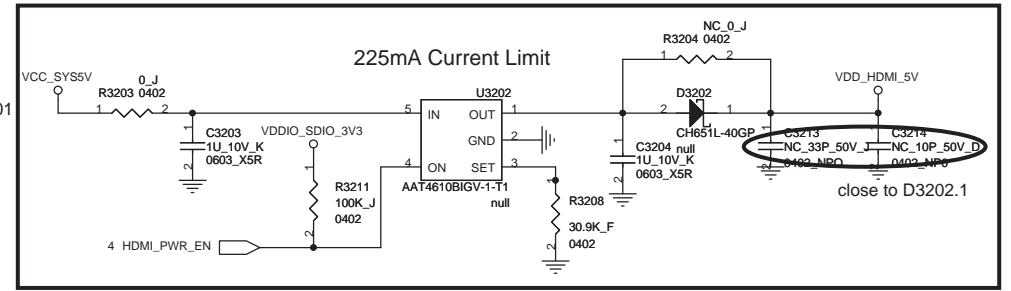
Title		
PMIC for CPU		
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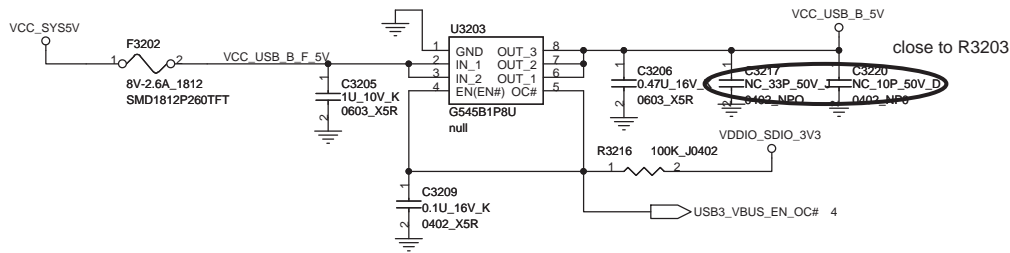
A USB Conn. Power Switch



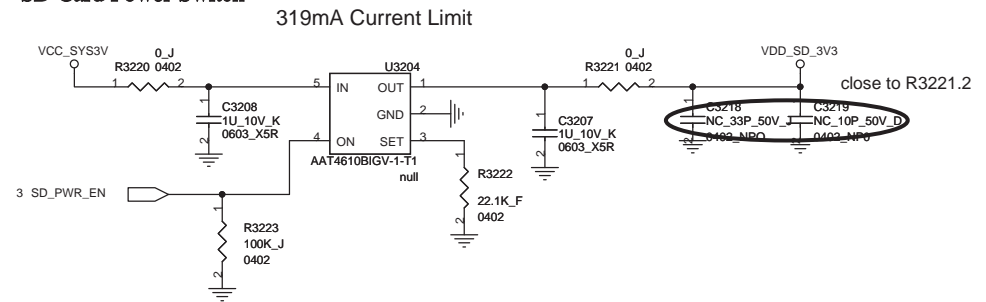
HDMI Port Power Switch



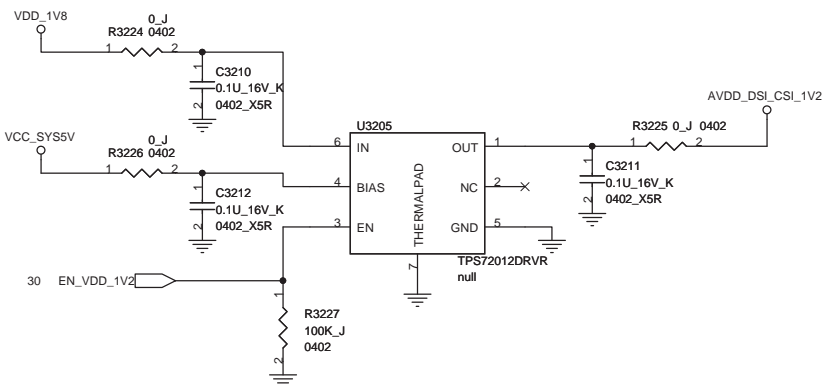
B USB Conn. Power Switch



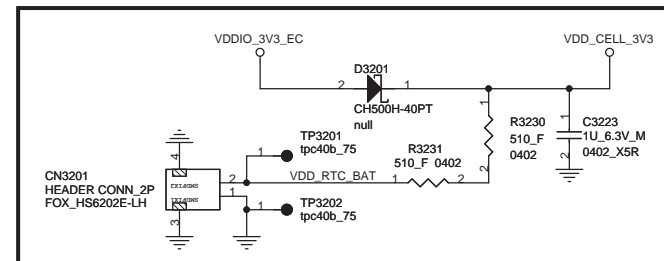
SD Card Power Switch



1.2V For MIPI

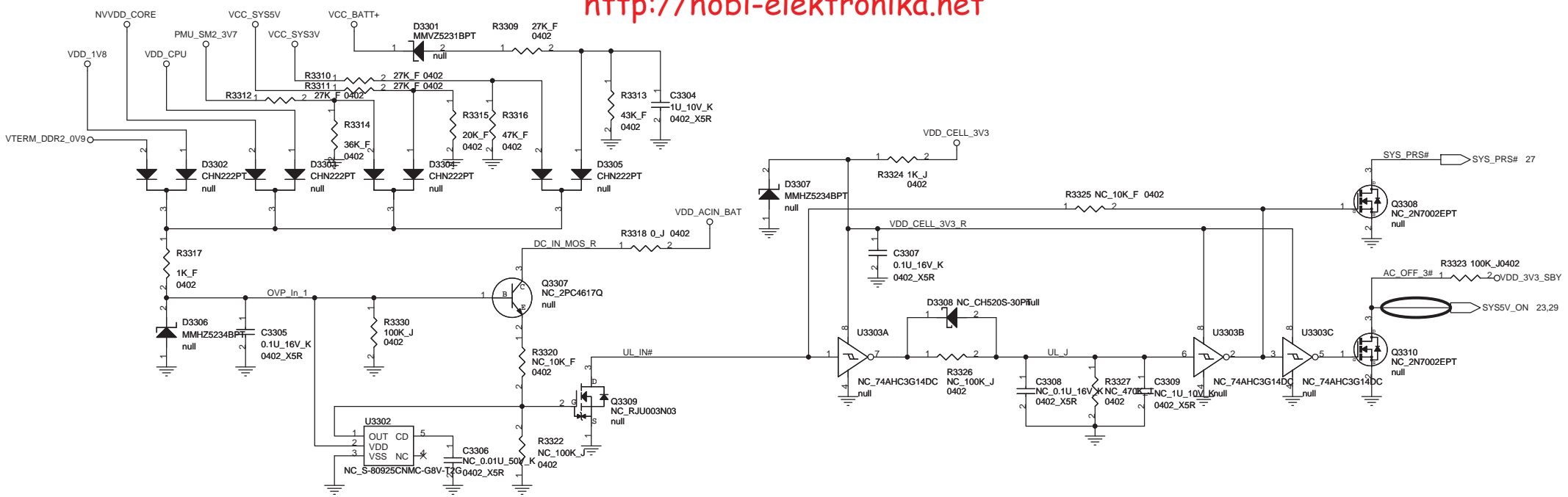


RTC CELL

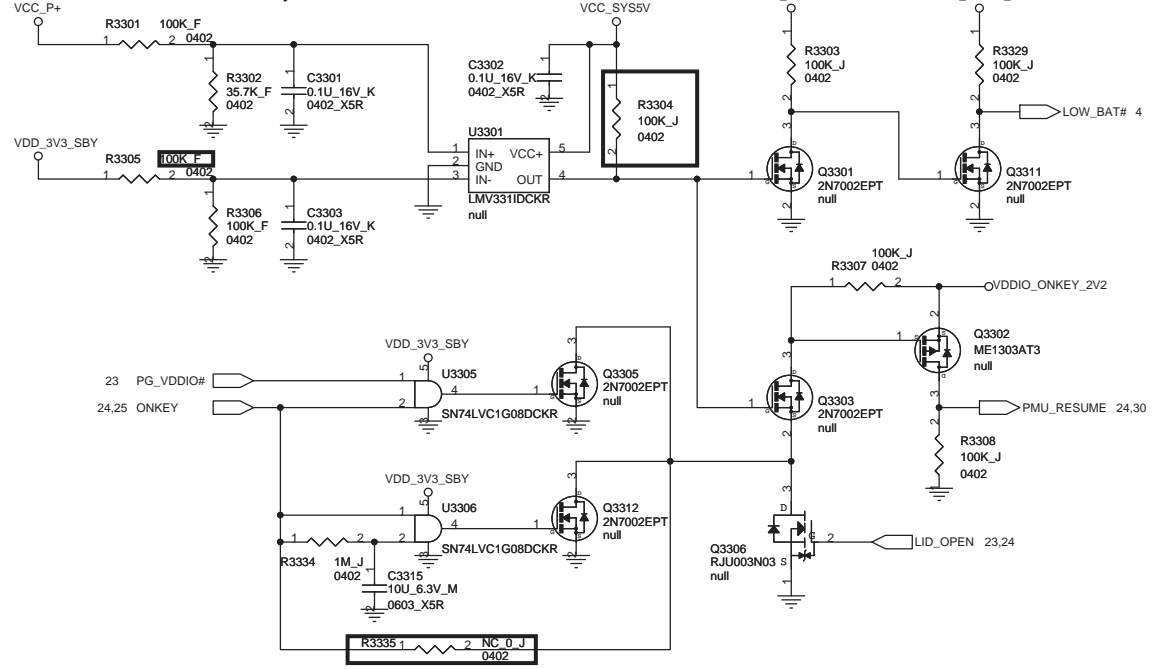


RTC connector has to check it with ME.

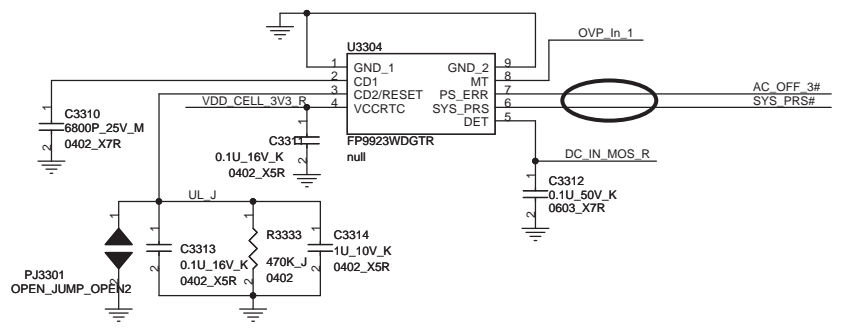
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Power Switch		
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Battery Low set to 6.3V.



Use FP9923WDGTR to replace OVP circuit (include latch circuit)



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2010/12/20

Page 08: Connect the VSB pin of U802 to Standby 3.3V (VDD_3V3_SBY) instead of VDD_TPM_3V3.
Page 16: Connect pin12 of WM9001(U1602, U1603) to AVDD_AMP_2V85.
Page 23: Remove R2316.
Add a net 'LID_OPEN_SS' from debug connector.
Cahnge R2347 from 10K to 100K.
Page 26: Modify the power block diagram.
Page 32: Modify HDMI power circuit.
Page 33: Add 100K resistor between pin4 and pin5 of U3301.

2010/12/23

Page 16: Combine two speaker connectors to one 4pin connector.
Page 24, 25, 30: change Power_LED controlled path. PMIC >EC >LED.
Page 30: Change PMIC from TPS658621A to TPS658621CZGUR.
Page 32: Exchange pin1 and pin2 of CN3201. (more popular)
Page 08, 24, 30: Becasue current 32.768K X'tal will be EOL.
EPSON hopes we use Q13MC1462000200 to replace it.

2011/1/3

Page 01: Change the size of screw hole.
Page 08: Move TPM circuit to TPM DB.
Page 13: Fix left channel of headphone no audio output.
Page 14: Fix external microphone no function.
Page 17: Change USB connector to FOX_UB1112C-RA605-7H.
Page 20: Change touch pad connector to ACES_50542-00601-001.
Page 25: Add a MOS to reverse control signal of POWER LED.
Change keyboard connector to ACES_50590-03001-001.
Change LED DB connector to ACES_50528-00401-001.
Page 32: Change RTC connector to holder type.
Add two test pad for RTC current measurement.

2011/1/7

Page 03: Change SW301 to NC.
Change SW302 to NC, and set the booting device in SPI-ROM.
Page 23: Change U2302, U2306, and U2308 to NC.
Page 25: Remove SW2505, use two test points to replace it.
Change SW2501, SW2502 to NC.
Page 32: Change RTC to rechargeable type.

2011/1/14

Page 01: Change the size of screw hole (H15).
Page 04,19,30: Modify SD LED circuit. Remove PMIC control SD LED.
Page 11: Modify RC value on LCD power rails.
Add fuse on LCD power rails.
Change CN1101 to GS12301-1011A-9H.
Page 15: Change HDMI con. from QJ1119L-NV25-7H to QJ11ADL-NSSF-7H.
Page 20: Add fuse on touch pad power rail.
Page 22: Modify camera circuit, move some parts to module side.
Page 24,30: Fine tune the capacitors for 32K crystal.

Page 29: Set TPS51122A to current mode and fine tune some resistors.
Page 33: Battery UVP set to 5.9V.

2010/01/18

Page 27: Add test points for power rails testing.

2010/01/24

Page 23: Change the HW thermal switch setting, CPU: 75 degree C, Environment: 57 degree C.
Page 31: Reserve a cap on "TPS51116_DRVL" to fine tune deadtime.
Page 19: Reserve VR to GND on each SD pin except GND pin for ESD.
Page 25: Reserve VR to GND on each switch for ESD issue.
Page 12: Reserve RC on DAP_MCLK1 & DAP1_SCLK for EMI.
Page 13: Change 100pf*2 to 470pf*2 on C1301&C1302 for Audio EMI.
Page 14: Change 220pf*2 to 470pf*2 on C1404&C1405 for Audio EMI.
Page 29: Mount R2938(4.7ohm), C2922(680pf) on VCC_SYS5V for EMI.
Mount R2939(4.7ohm), C2923(680pf) on VCC_SYS3V for EMI.
Page 04: Change below RC values to improve RF sensitivity.
DAP_MCLK1; R424 -> 100ohm, C421 -> 12pF.
DAP1_SCLK; R421 -> 68ohm, C422 -> 12pF.
SDIO1_CLK; R426 -> 68ohm, C424 -> 12pF.
DAP_MCLK2; add a Cap -> 12pF.
Page 20: Change R2008 to 100K. for less power consumption.
Page 27: Change R2707 to 100K. for less power consumption.
Page 28: Change R2820 to 100K. for less power consumption.
Page 03: Fine tune the capacitors for 12M crystal.
Page 33: Battery UVP set to 6.3V, same as EVT.

2010/01/25

Page 08: Change TPM connector to ACES_50542-01001-001.

2010/01/26

Page 30: Add an series 100ohm resistor on the pin M11 of U3001.
Page 03: Mount SW301 for nVIDIA force recovery mode.
Page 25: Mount SW2501 for power button and SW2502 for reset button.
Page 32: Modify HDMI power circuit. back to EVT circuit.
Page 22: Connects pin1 of R2217 to "CAM_PWR_EN" signal.
Page 04,19,24: Add EC_LED_SD control signal from EC, and refer to SDIO3_DAT0.

2010/01/27

Page 11: Change Q1104 to FDN340P.
Page 19: Change R1929 to 100K and Q1901 to 2N7002ESPT.
Page 20: Reserve CN2003 in top-side for test.
Page 24: Change EC_LED_SD signal to E_PWM (pin22)
All page: remove some non-used 0ohm resistors, and direct connection.

2010/01/28

Page 04,20: Reserved for SPI Touch pad.

2010/02/09

Page 04,14: Reserved Tegra N25 pin for EXT_MIC_DET# signal use.
Page 18: Add bus switch IC in WWAN USB interface.

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Change Notice			
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