Dragon Board 4 V3

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4	\	APQ8016 - EBI0-LPDDR3									
5	\	APQ8016 - GPIO 0-73									
6	\	APQ8016 - GPIO 74-121 / DNC									
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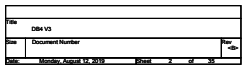
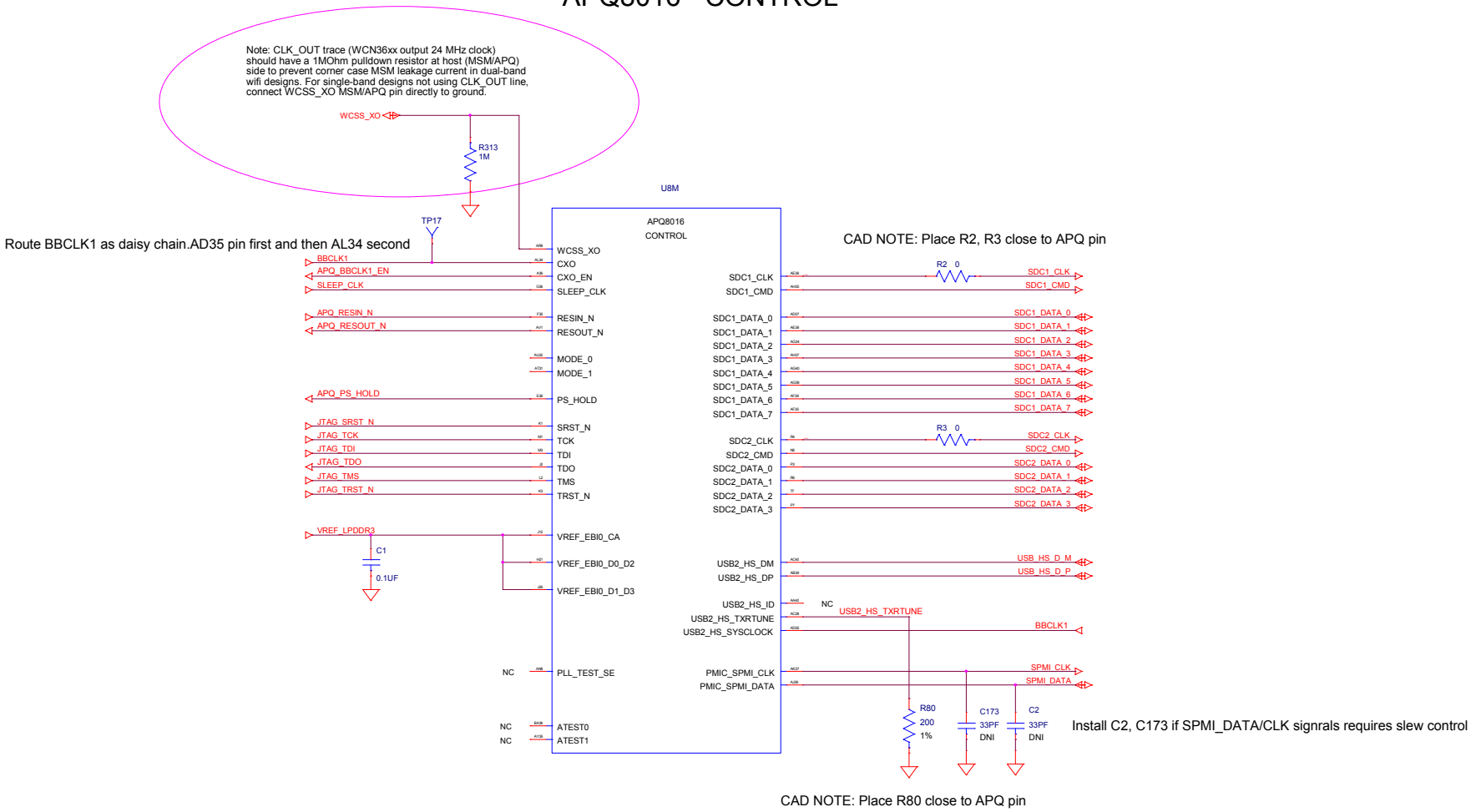


APQ8016 - CONTROL



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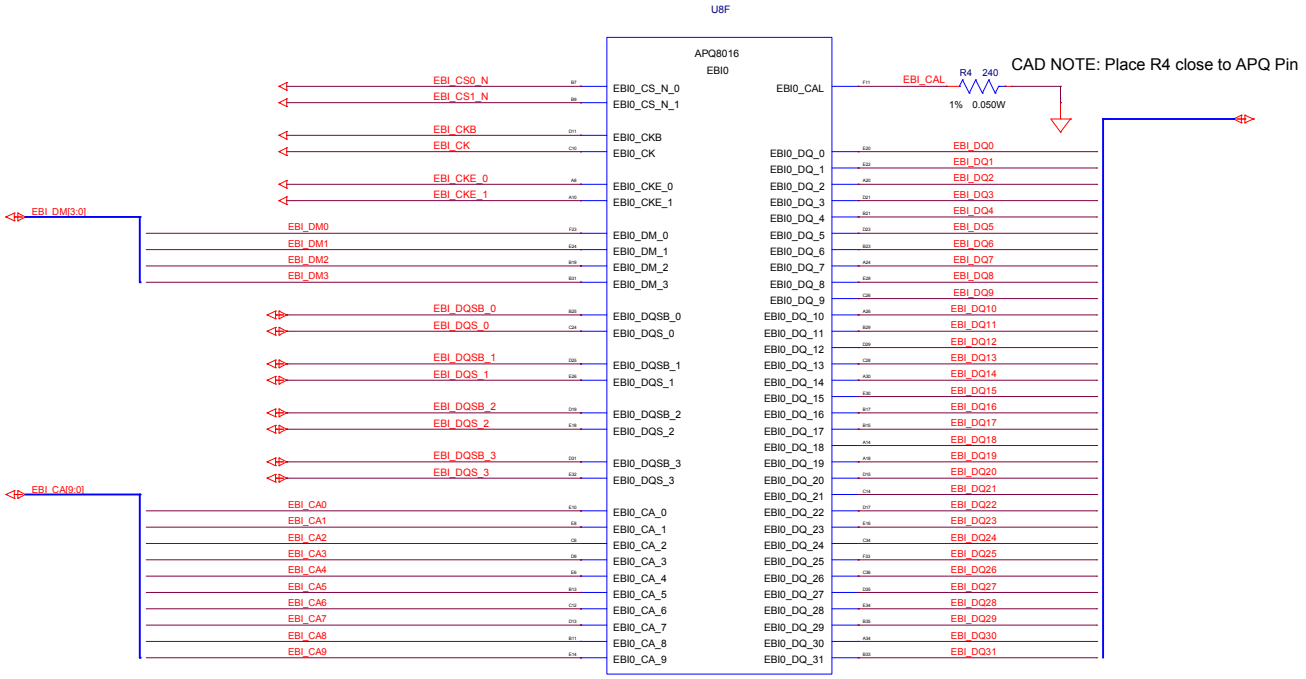
APQ8016 - EBI0-LPDDR3



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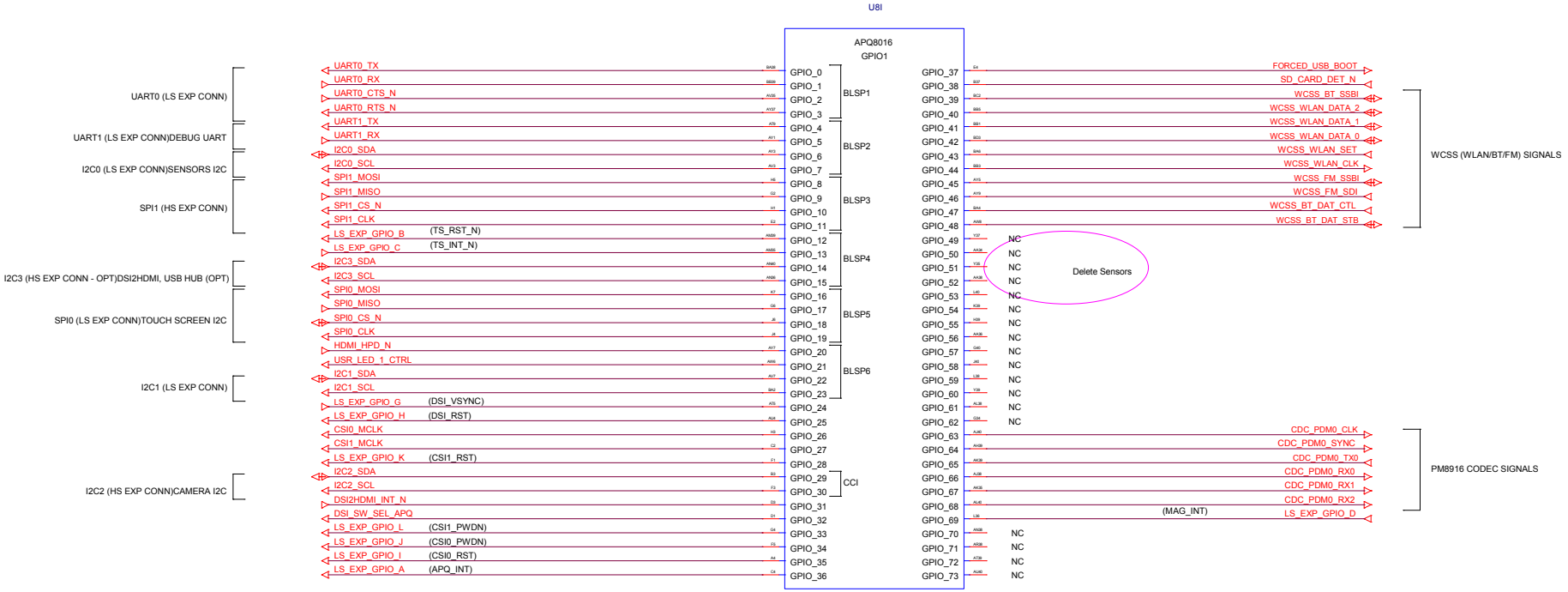
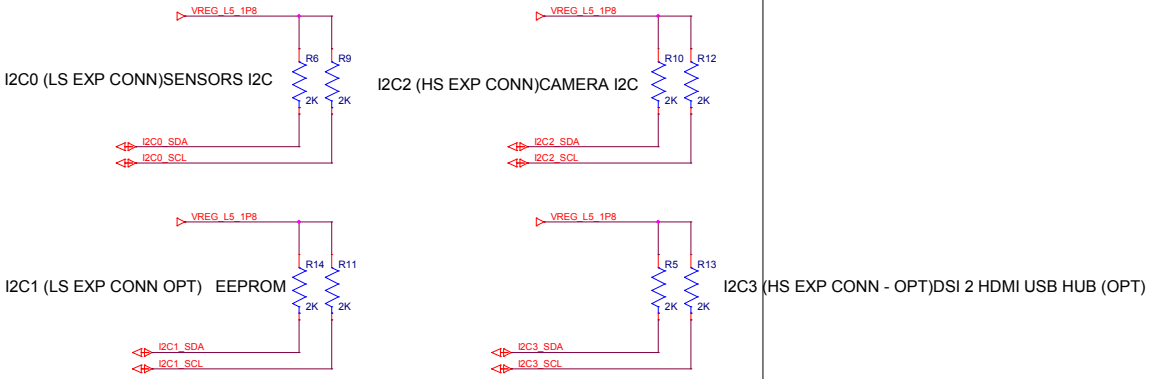
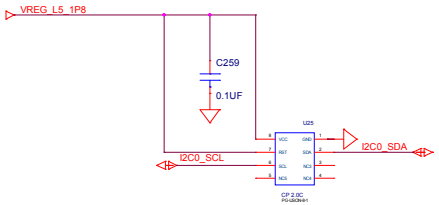
APQ8016 - GPIO 0-73



I2C PULL-UP RESISTORS



Apple Authentication Coppocessor 2.0C



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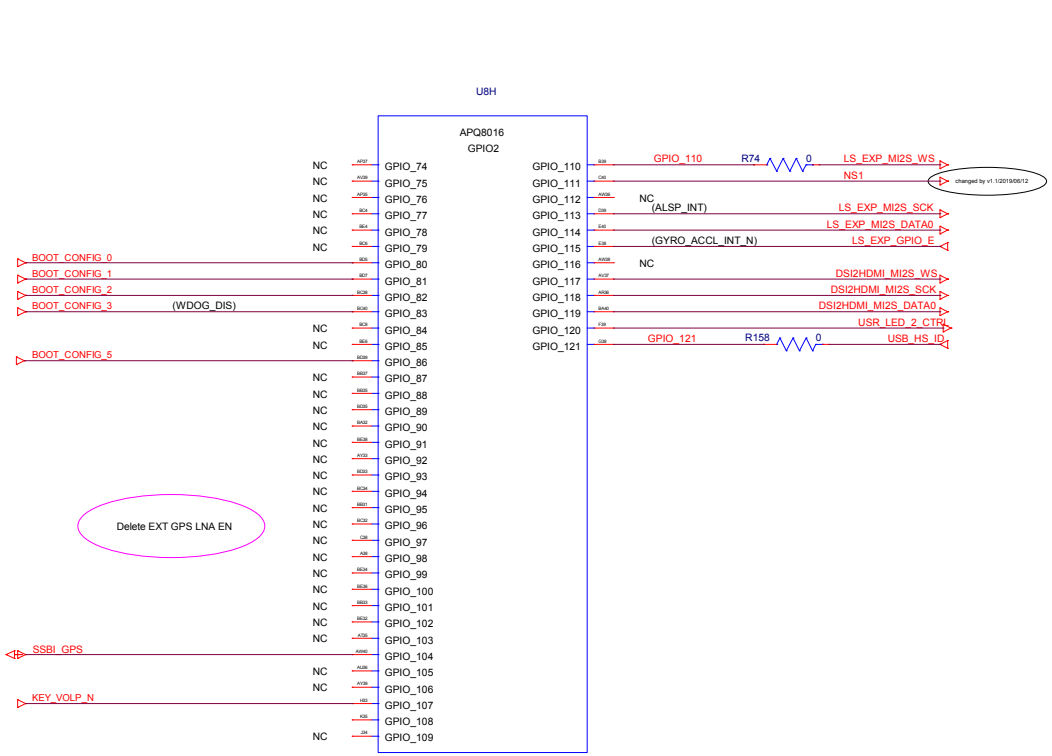
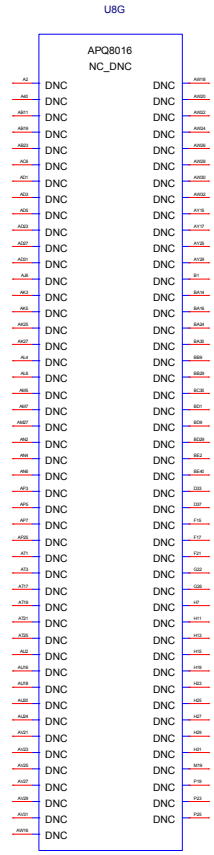
APQ8016 - GPIO 74-121 / DNC





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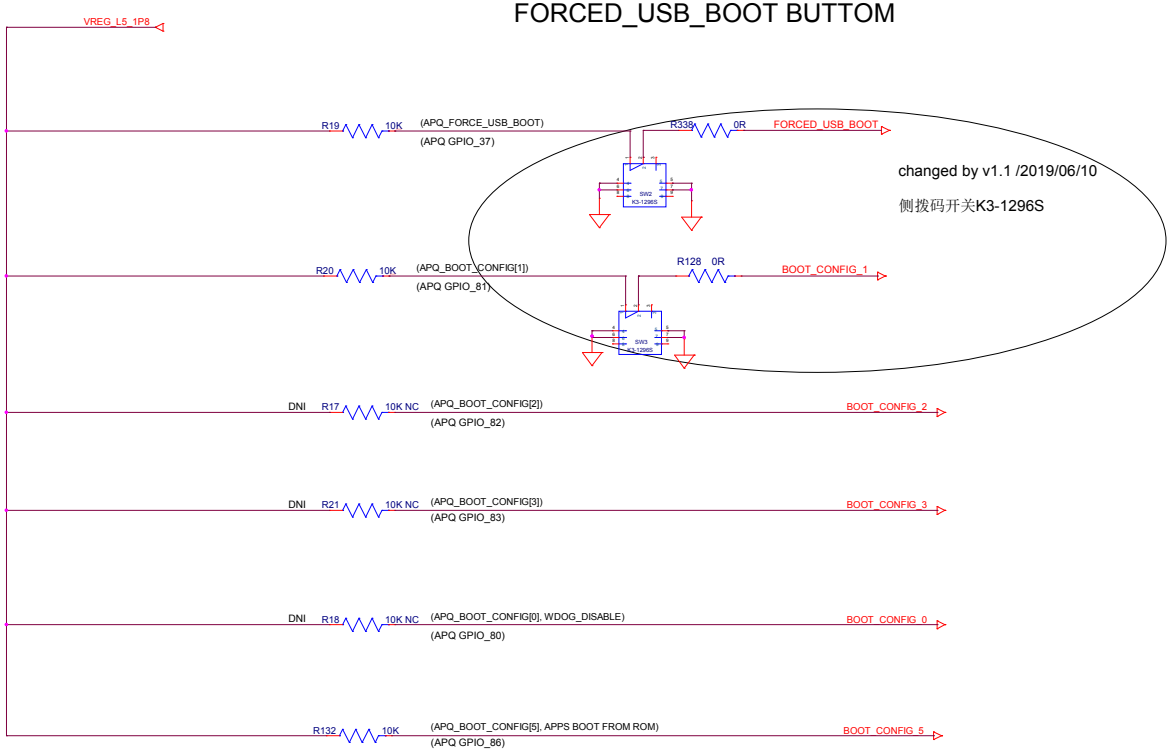
APQ8016 - BOOT CONFIG SW

BOOT CONFIGURATIONS

BOOT_CONFIG[3:1]	BOOT OPTIONS
0b000	SDC1 --> SDC2 --> USB2.0
0b001	SDC2 --> SDC1 --> USB2.0
0b010	SDC1 --> USB2.0
0b011	USB2.0

Default Boot Config (0b000) is eMMC on the SDC1

FORCED_USB_BOOT BUTTOM



Note 1: Short between resistors pads to force boot from USB when dip-switch is not installed
Note 2: Short between resistors pads to boot from uSD when dip-switch is not installed

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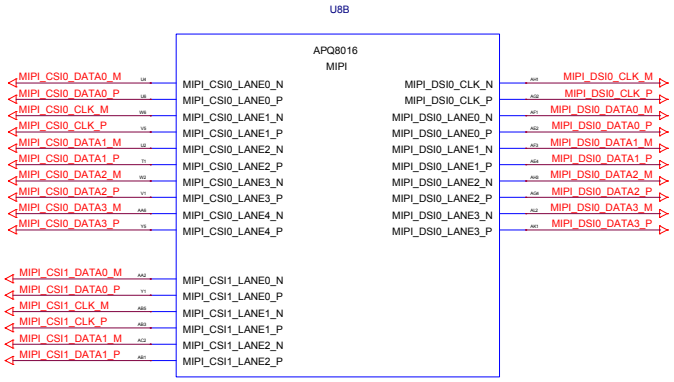

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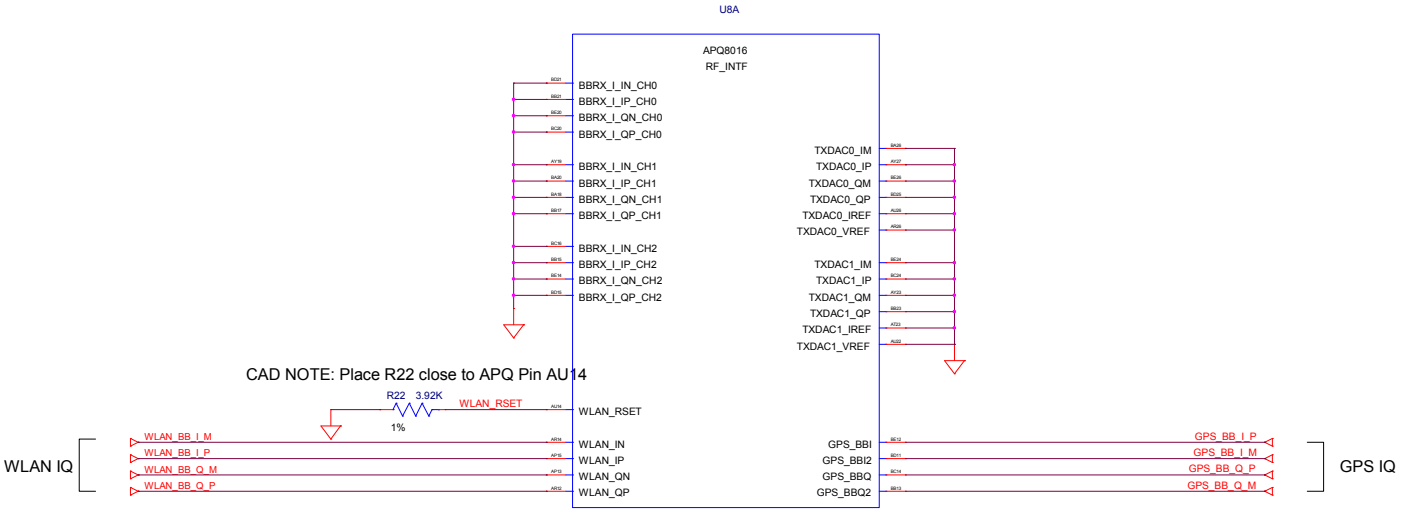
APQ8016 - RF INTERFACE



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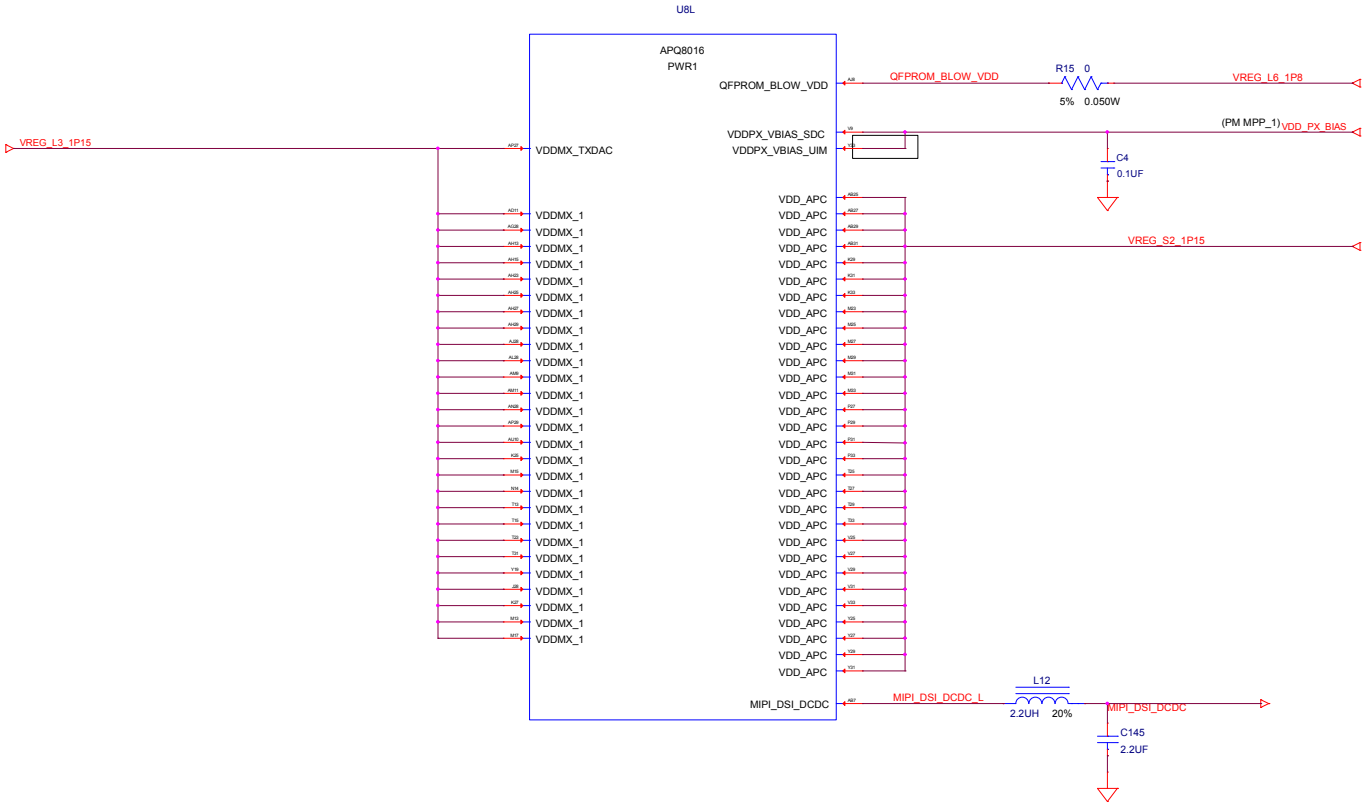
APQ8016 - PWR1



CAD NOTE: Loop to be shorted with MSM AG6 Pin

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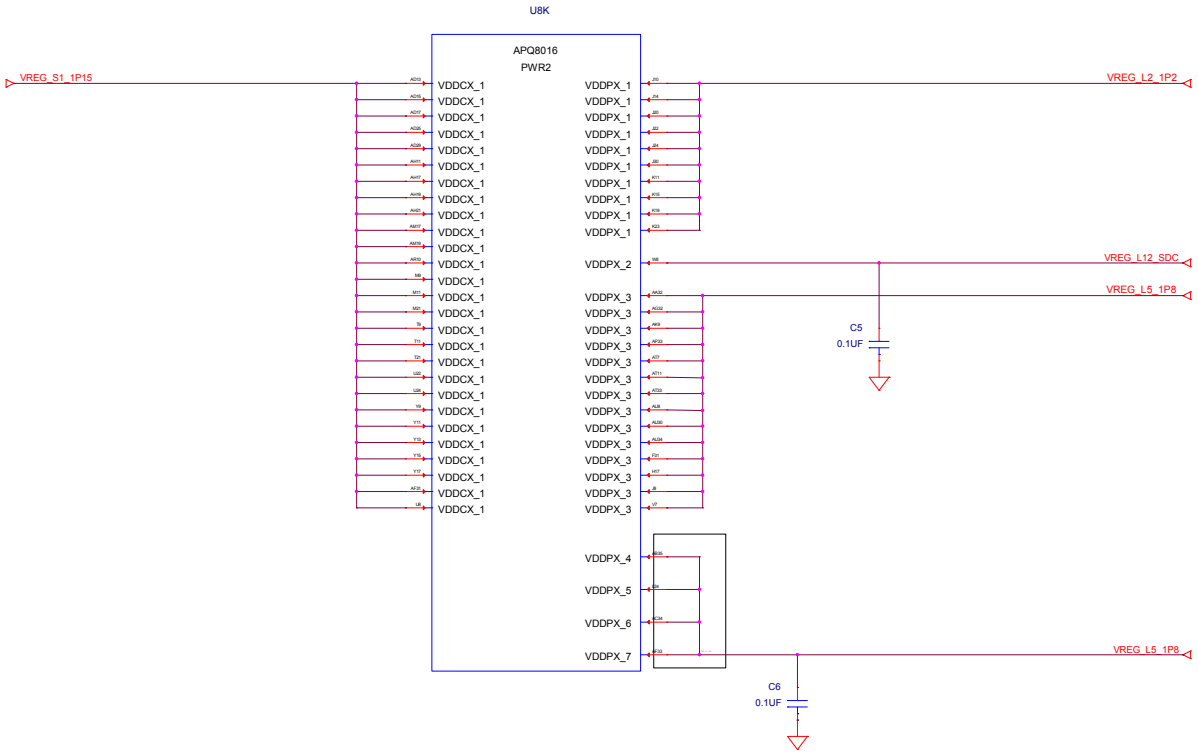
APQ8016 - PWR2



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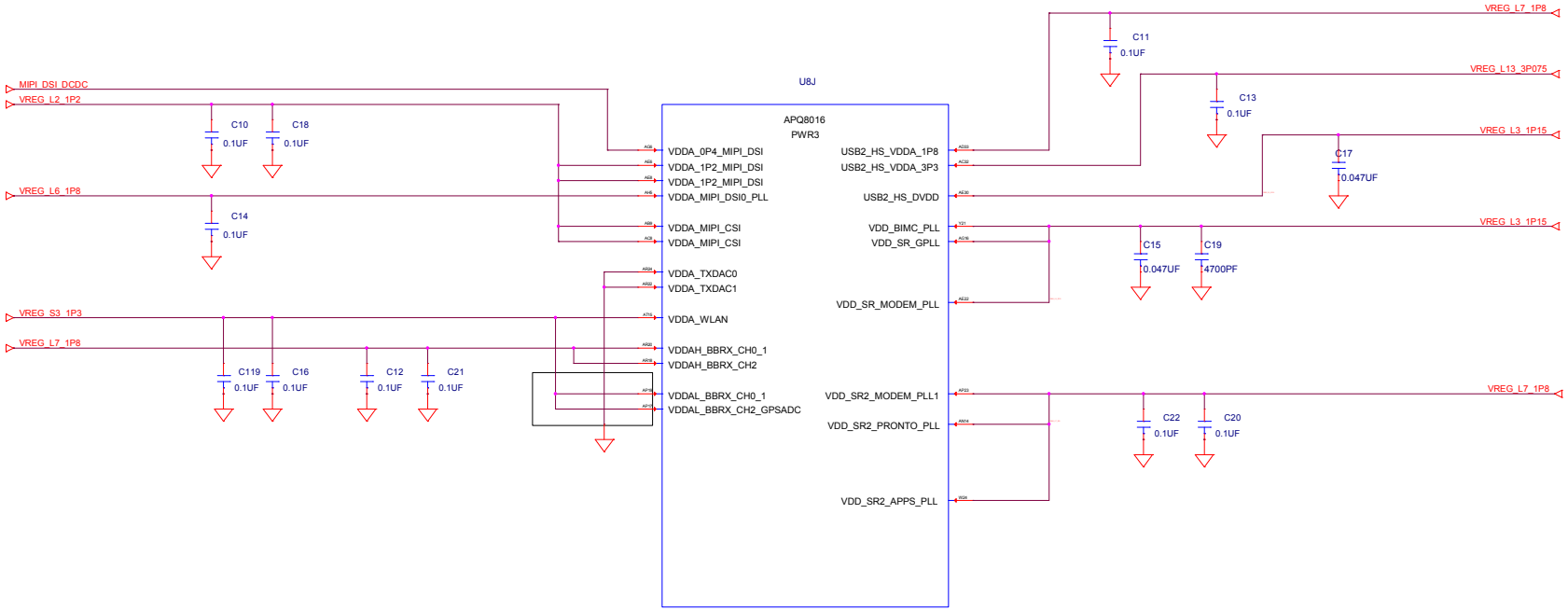
APQ8016 - PWR3



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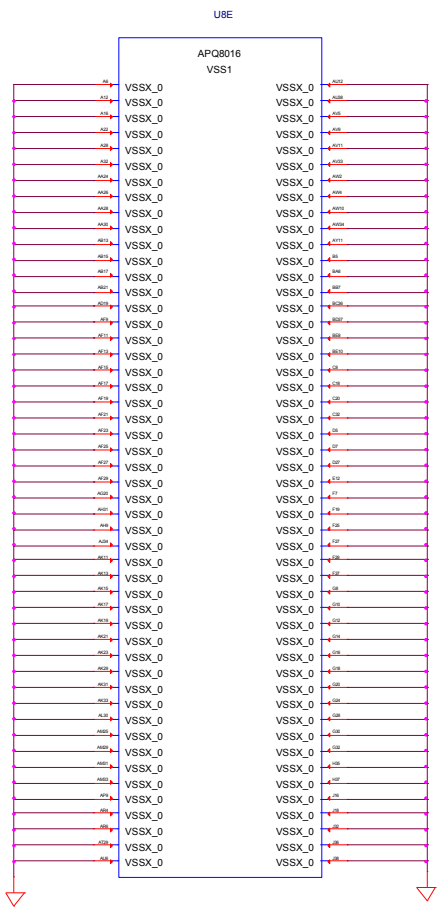
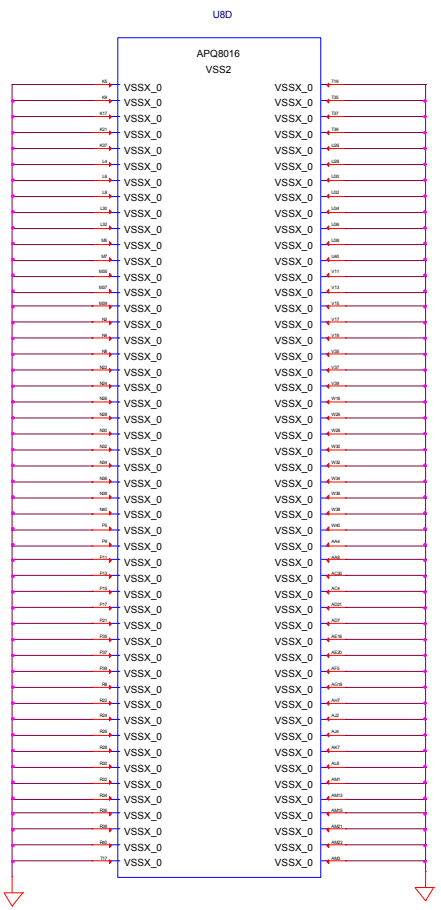
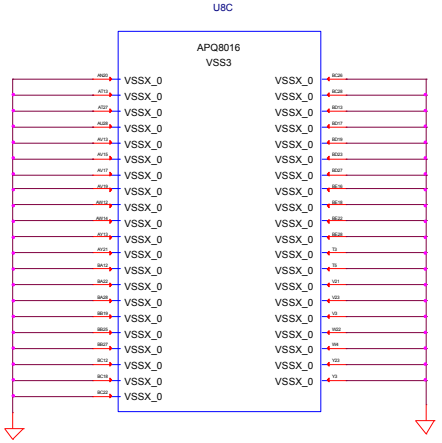
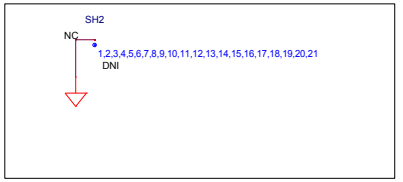
APQ8016 - GND







APQ / PM / DDR Circuitry Shield



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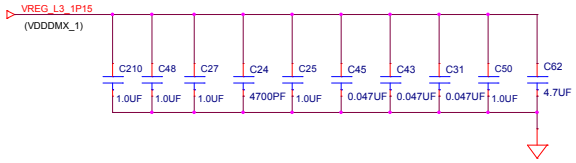
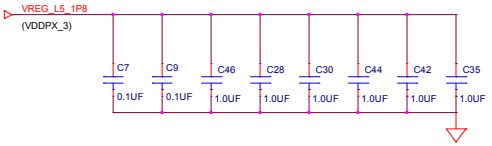
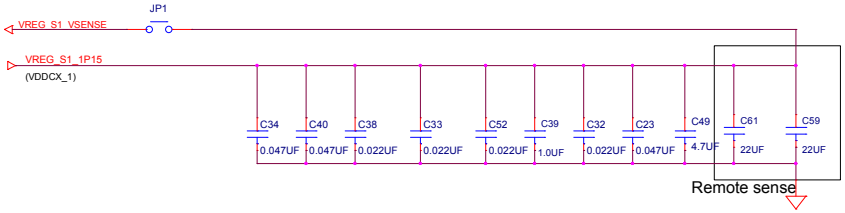
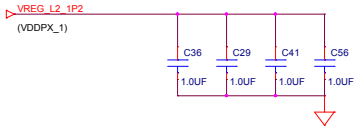
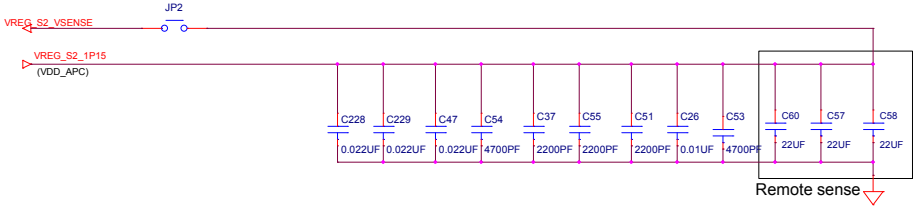
APQ8016 BYPASS CAPACITORS











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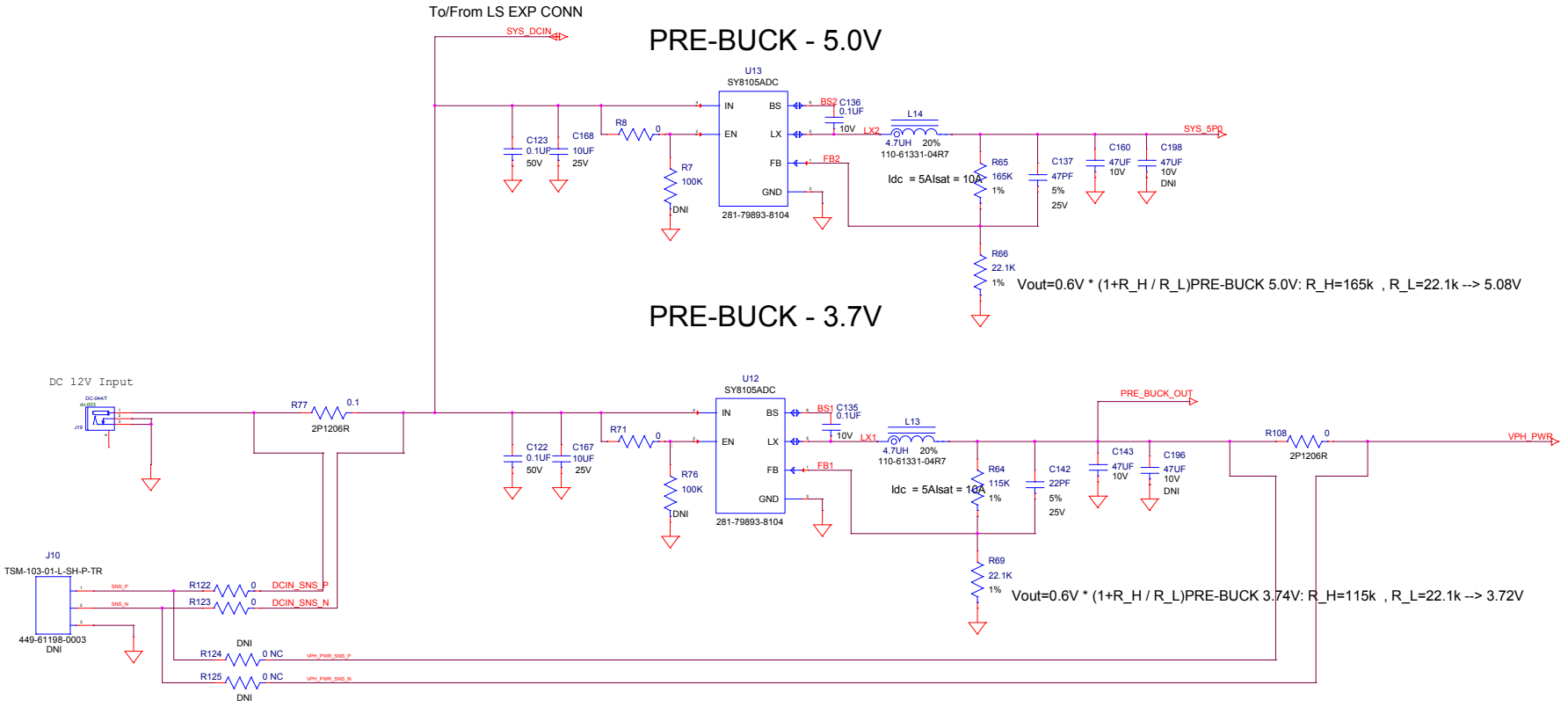
EXTERNAL BUCK REGULATORS



ARM ENERGY PROBE (PWR MEAS)

SUPPORTED	ASSY OPTION
YES	INSTALL J10
NO	DNI J10

Delete VPH_PWR SOURCE

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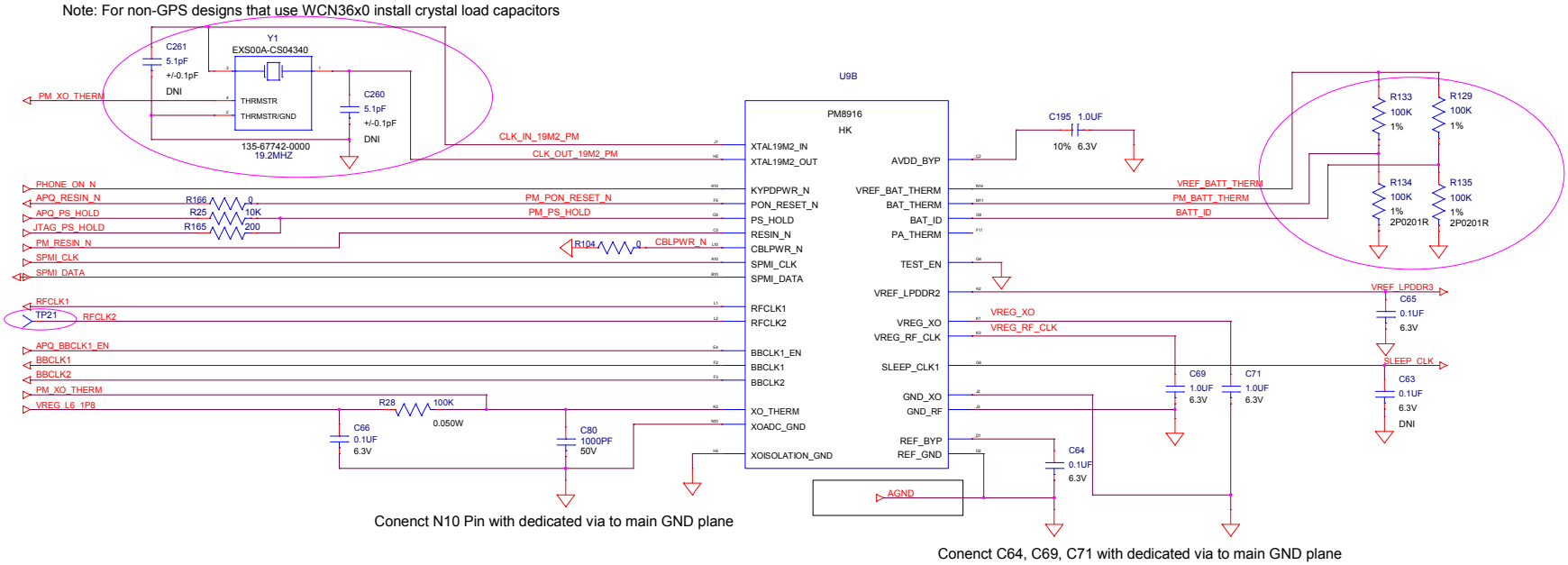
PM8916 - CONTROL/CLOCKS



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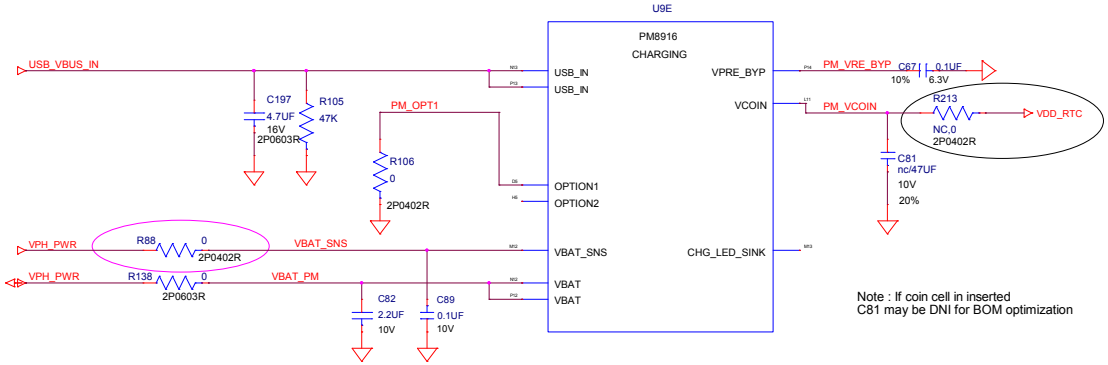
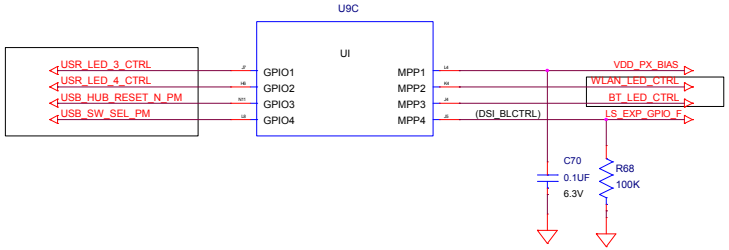
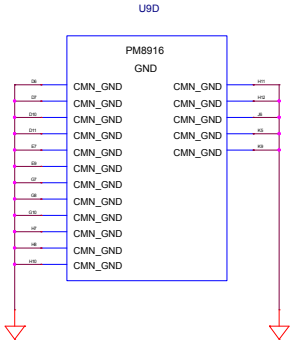
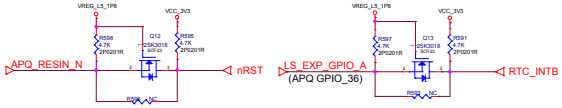
PM8916 - CHARGER/GPIOS/MPPS



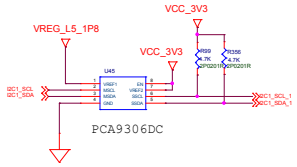
Note : If coin cell in inserted
C81 may be DNI for BOM optimization

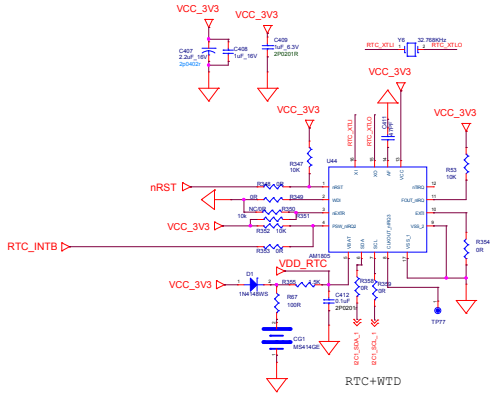






1.8V I2C转换成3.3V I2C 给到RTC和硬件加密





changed by v1.1 /2019/06/10

RTC方案换兼容AM1805，电池可充电

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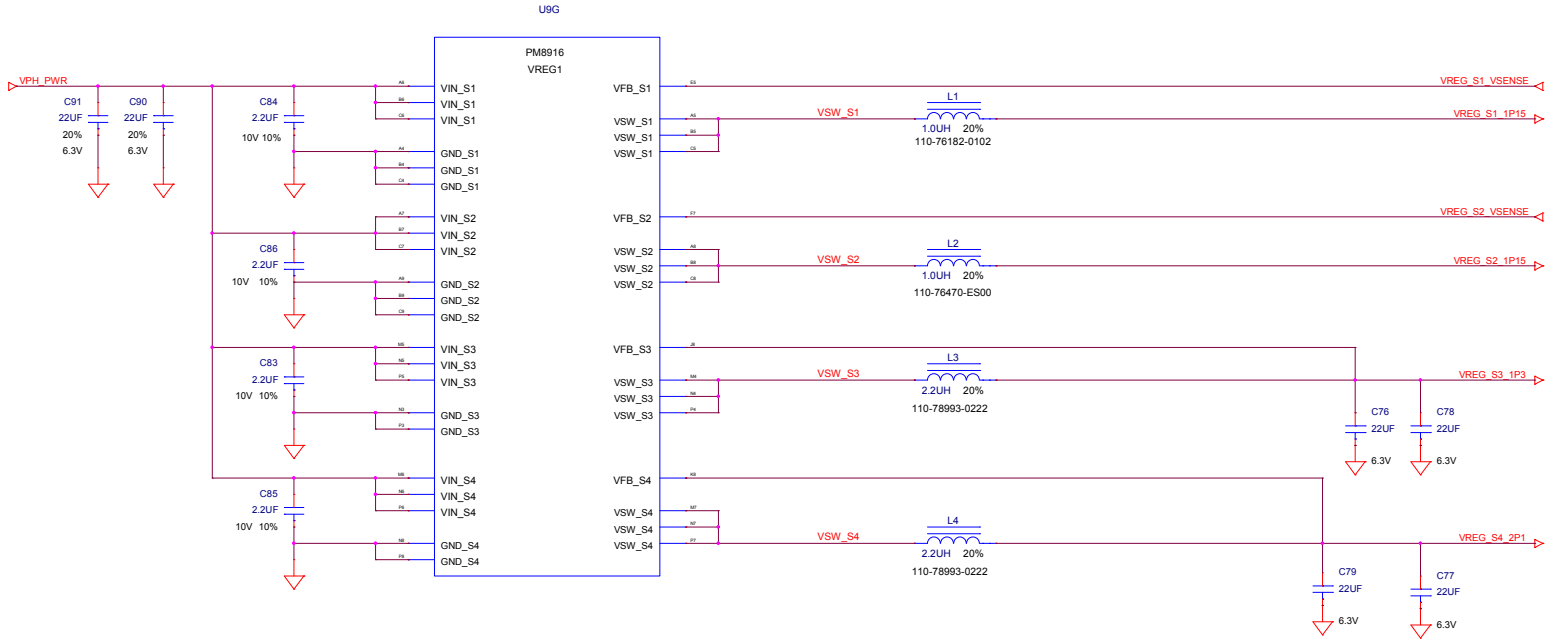
PM8916 - SMPS



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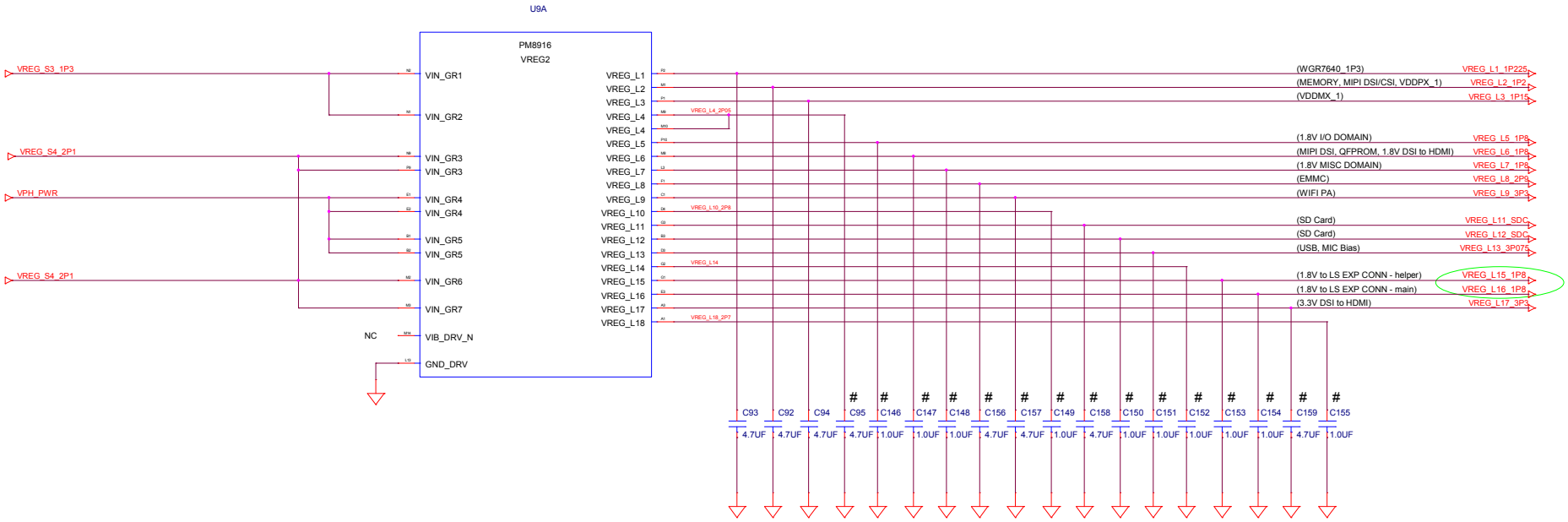
PM8916 - LDOs



NOTES:

Effective output capacitanceLDOs L1, L2, L3, L4, L8, L9, L11, L17 --> Cout_eff = 4.7uFLDOs L5, L6, L7, L10, L12, L13, L14, L15, L16, L18 --> Cout_eff = 1.0uF

PSEUDO CAPLESS LDOs (indicated by # near the capacitor)L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15, L16, L17, L18

PSEUDO CAPLESS LDOs capacitors location is defined in 80-NK808-21

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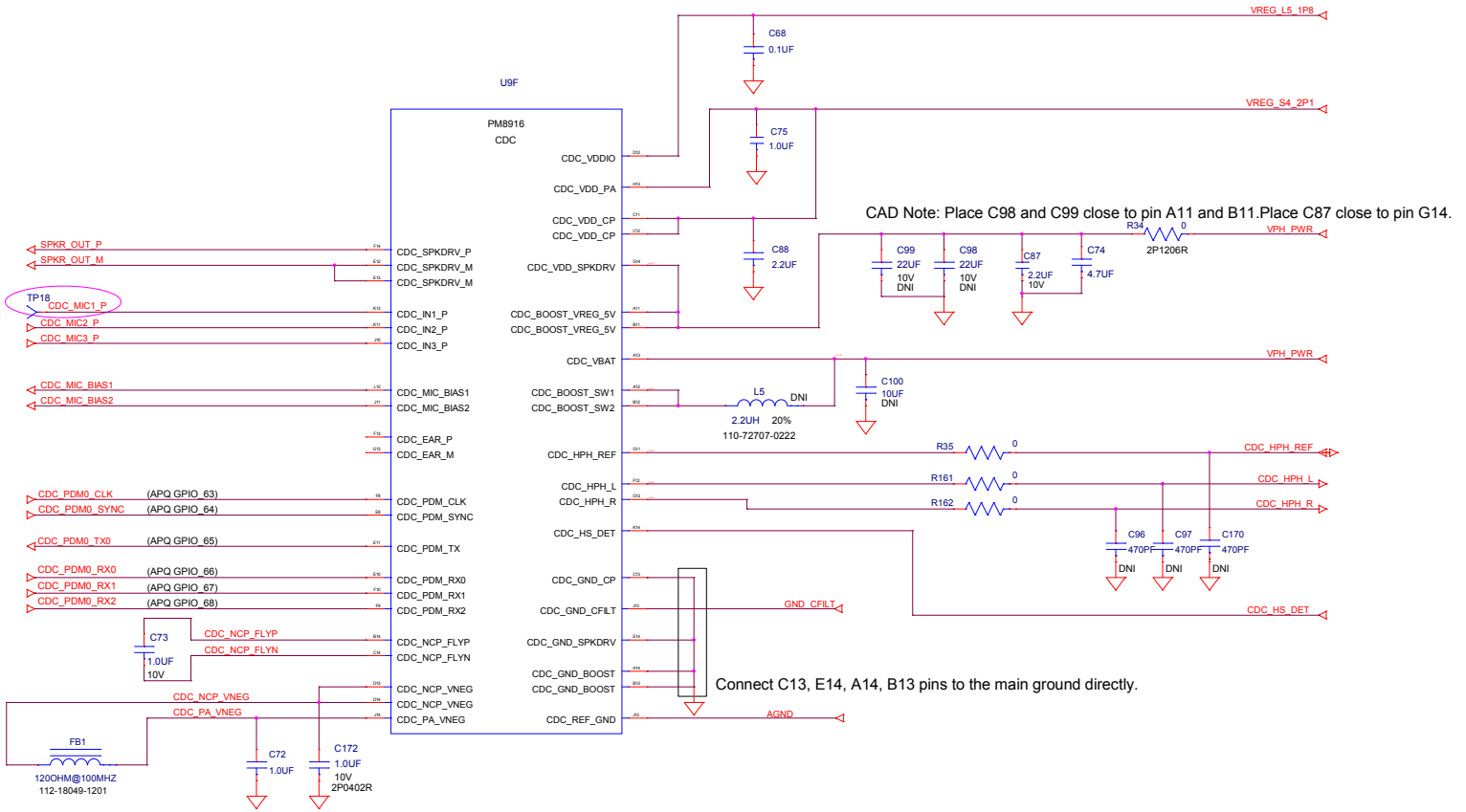
PM8916 - AUDIO



Delete ANALOG MIC Connector

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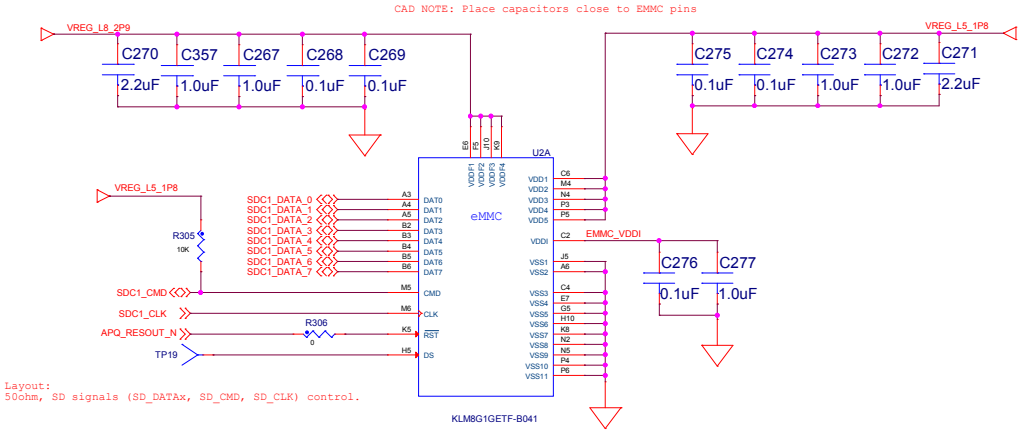
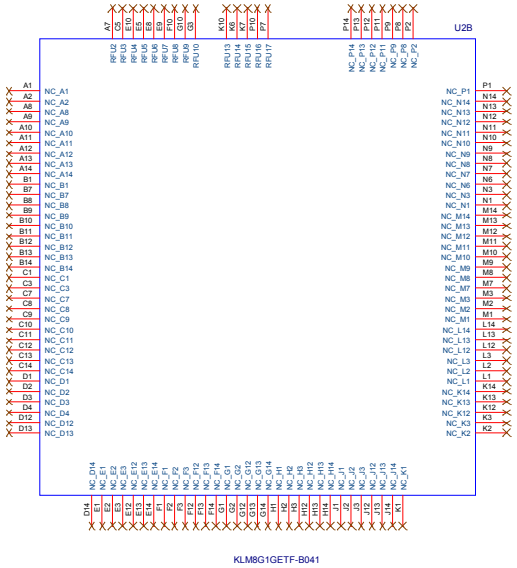
MEMORY - EMMC





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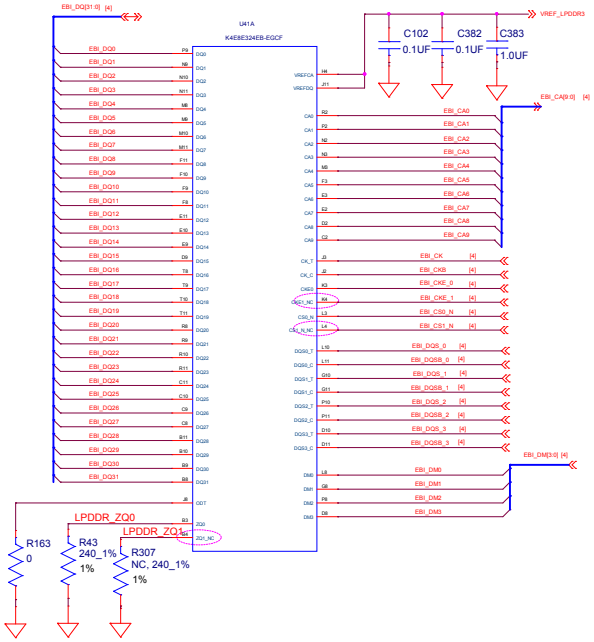
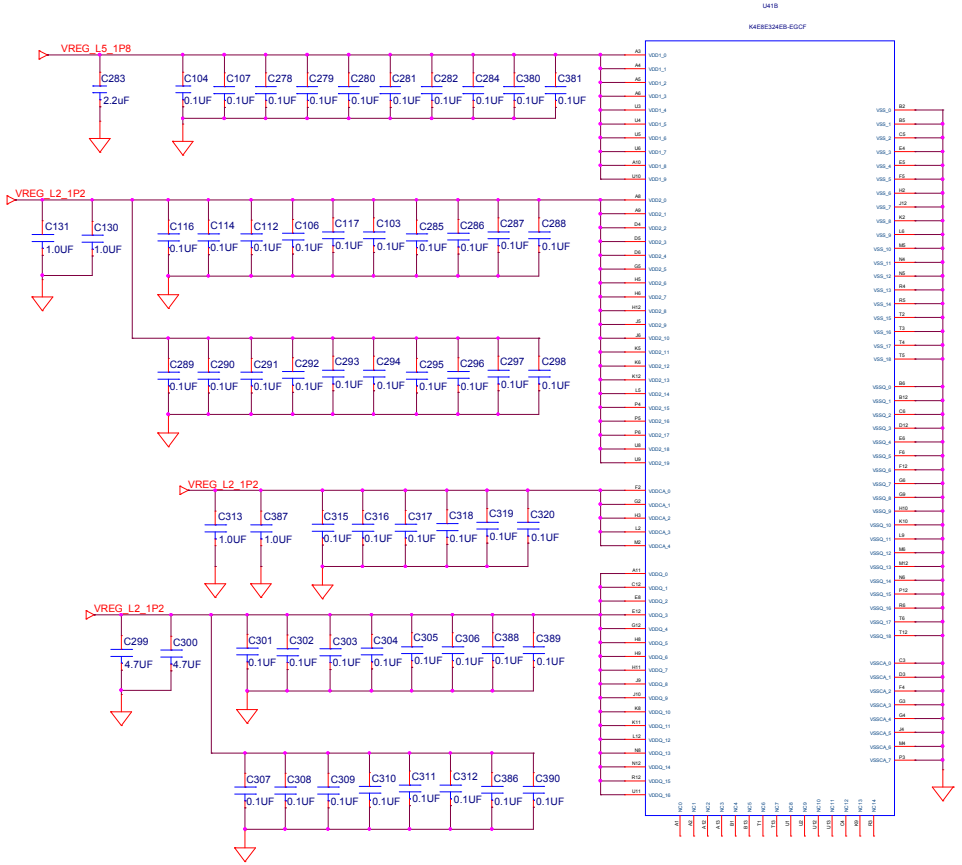
MEMORY - LPDDR3





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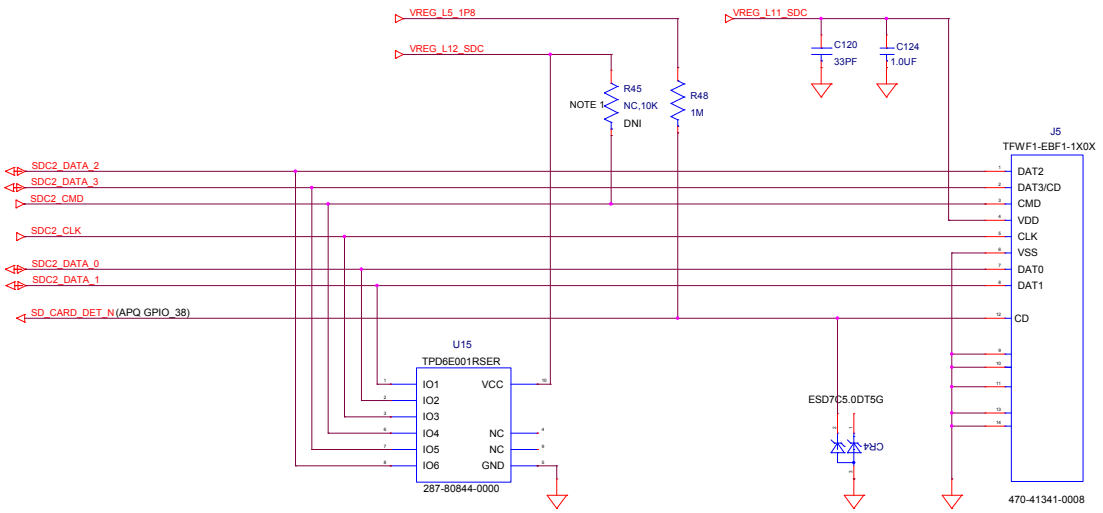
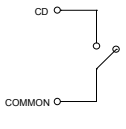
MEMORY - uSD CONNECTOR



CARD DETECT	CASE
CARD NOT INSTALLED	CD-COMMON SW=OFF
CARD INSTALLED	CD-COMMON SW=ON



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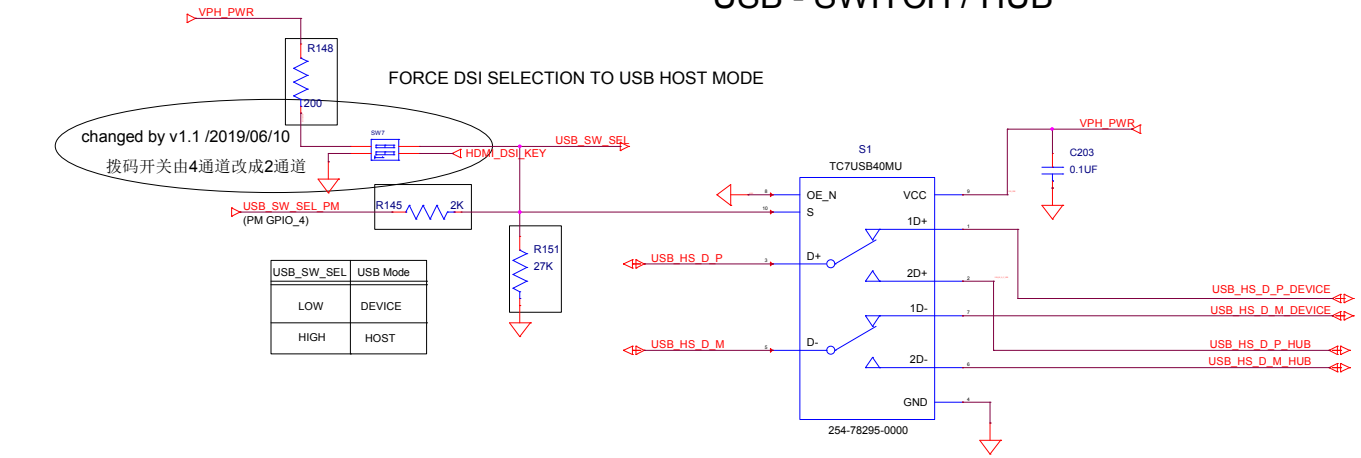
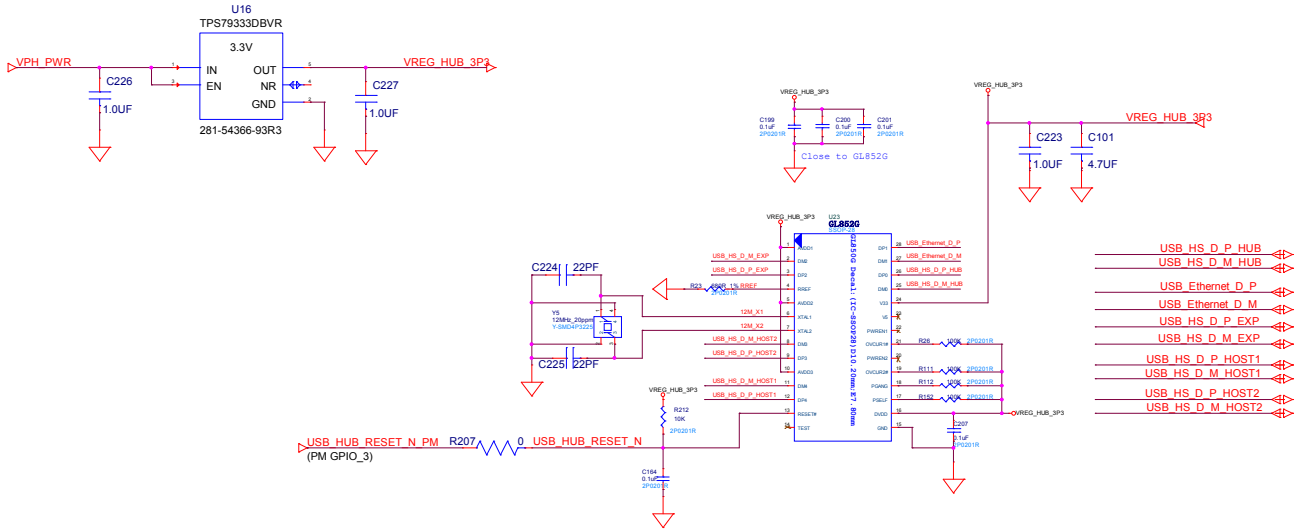
USB - SWITCH / HUB





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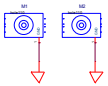
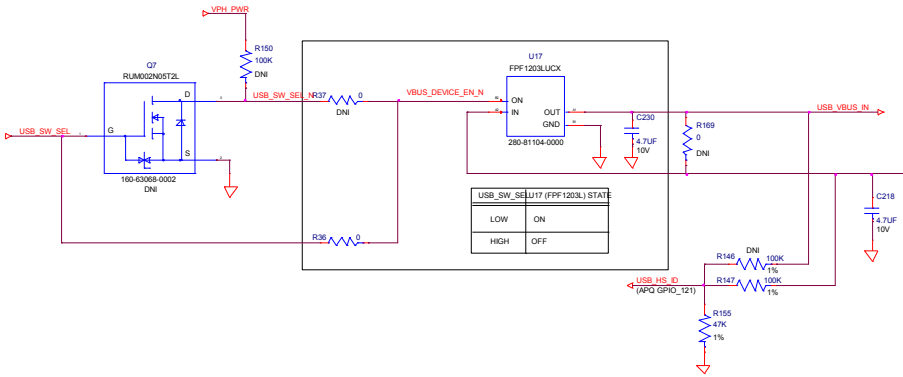
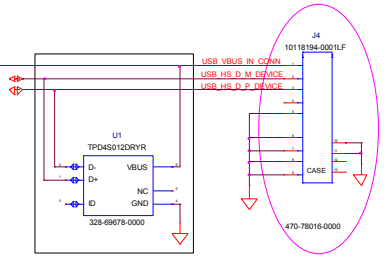
USB - CONNECTORS

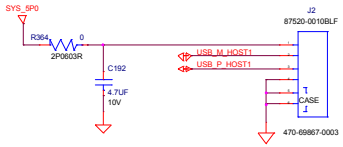




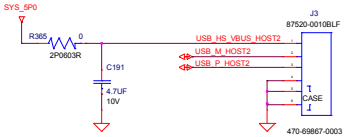
USB2.0 uB - DEVICE



USB2.0 Type A - HOST1

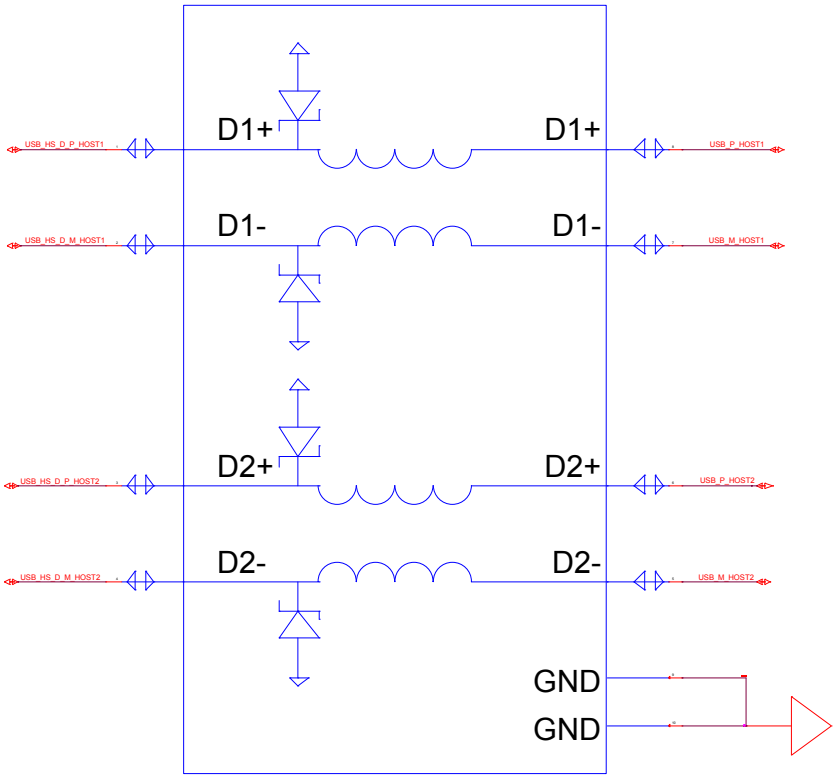


USB2.0 Type A - HOST2



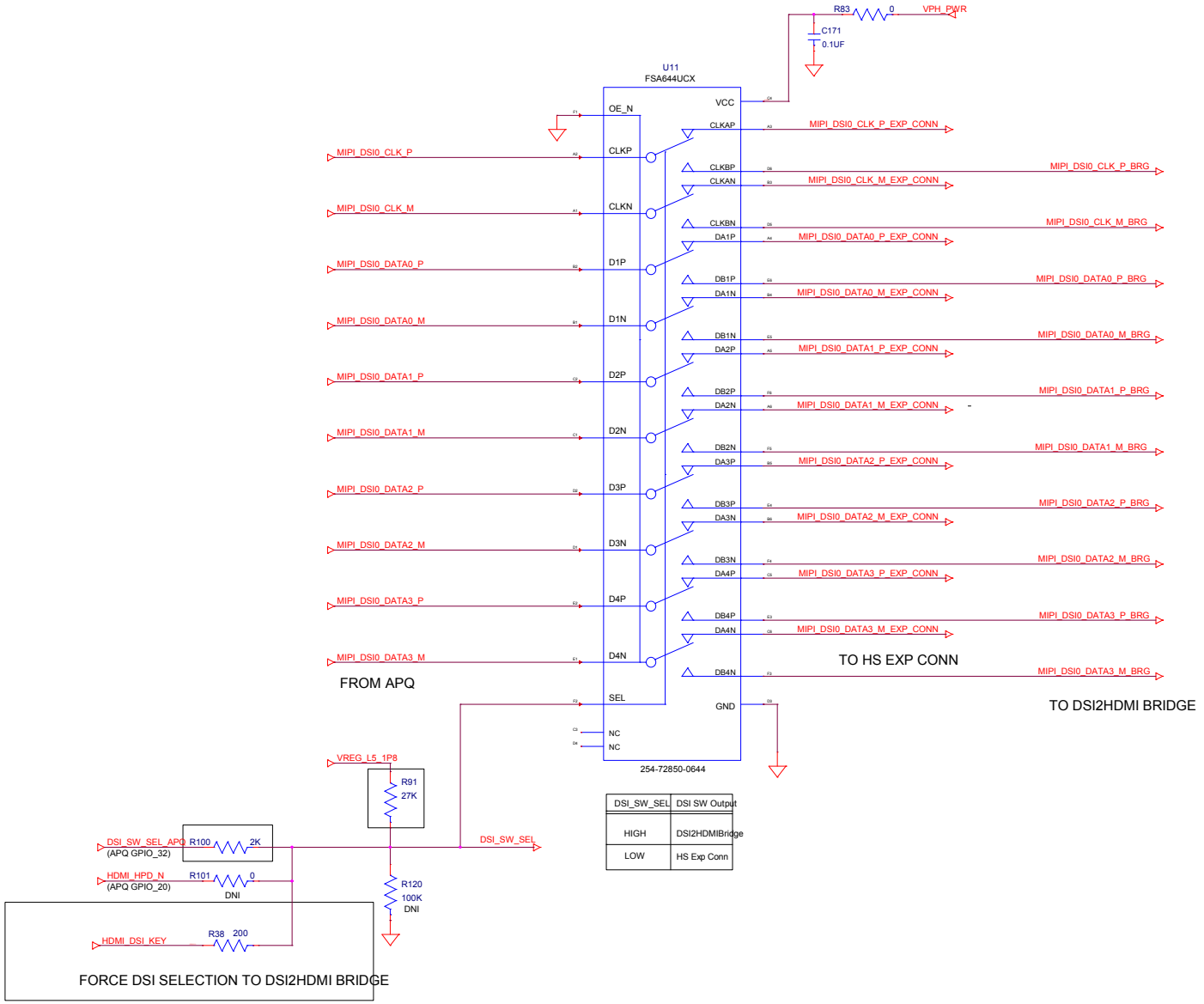
FL3

TEF2012A4X101MT



TEF2012A4X101MT 121-78323-ES00

DISPLAY - DSI SWITCH



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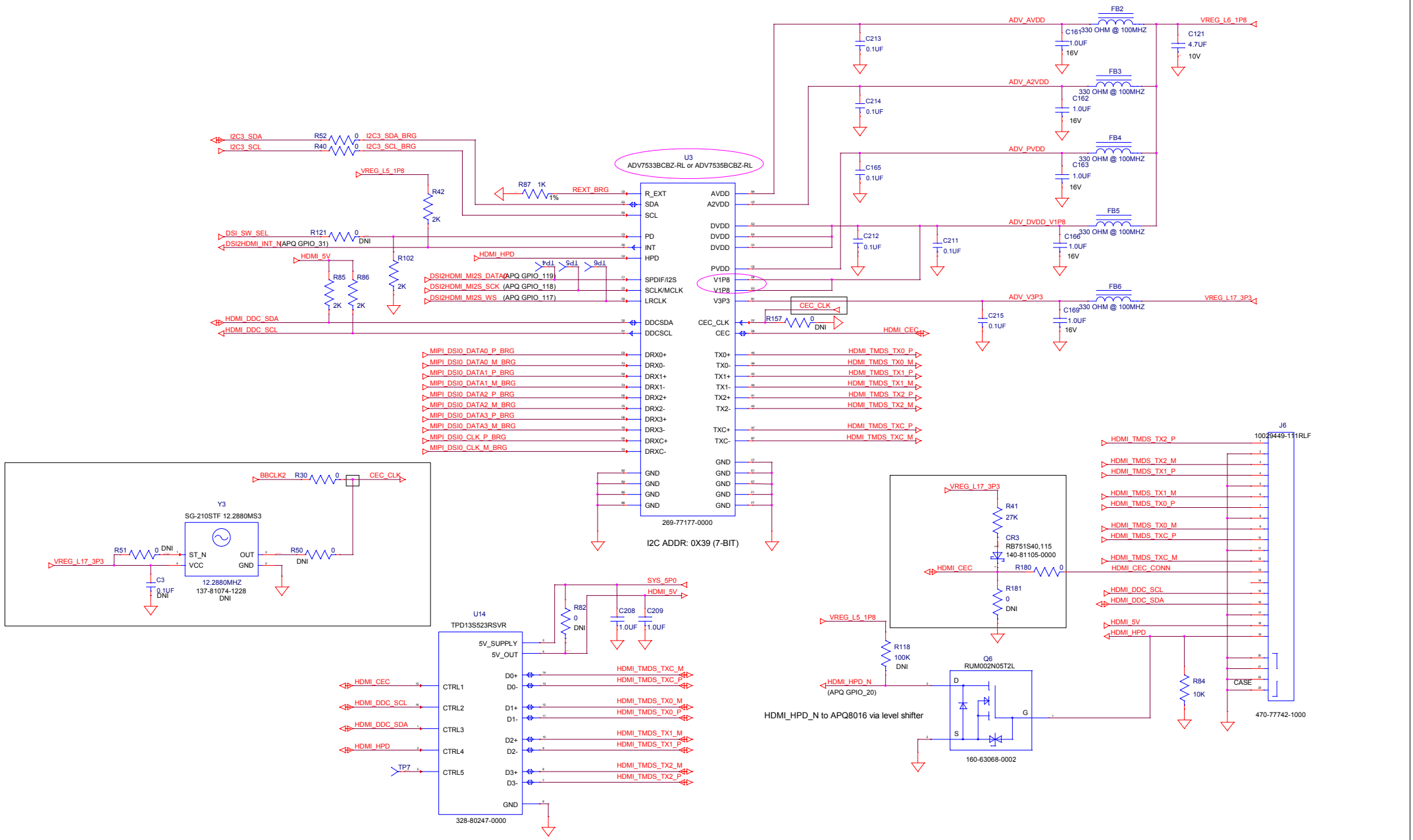
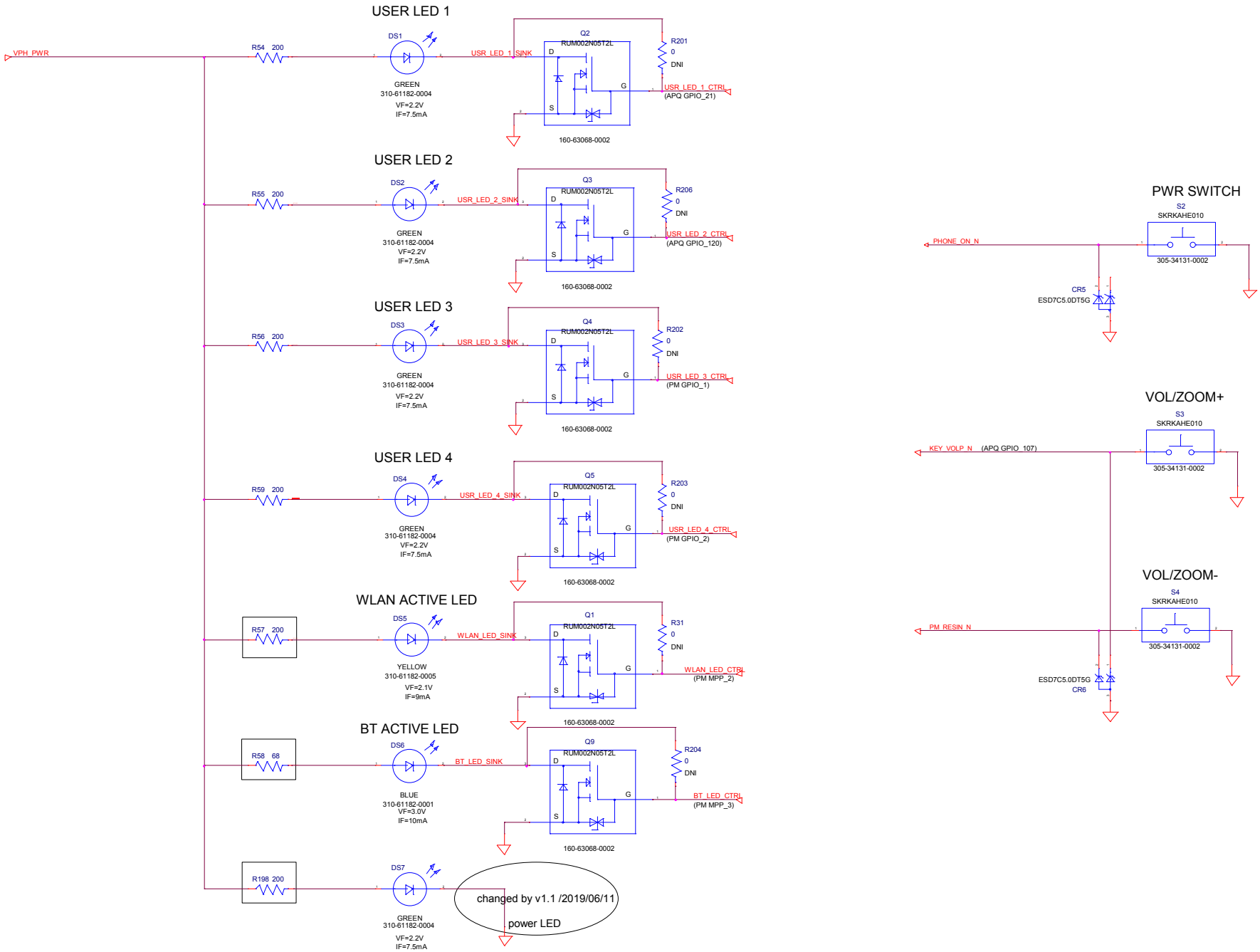
DISPLAY - DSI TO HDMI BRIDGE

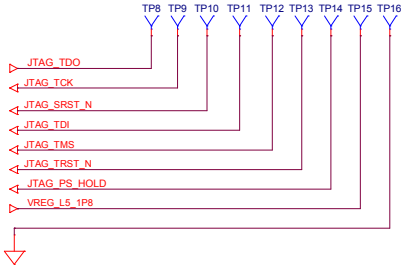


SWITCHES / LEDS

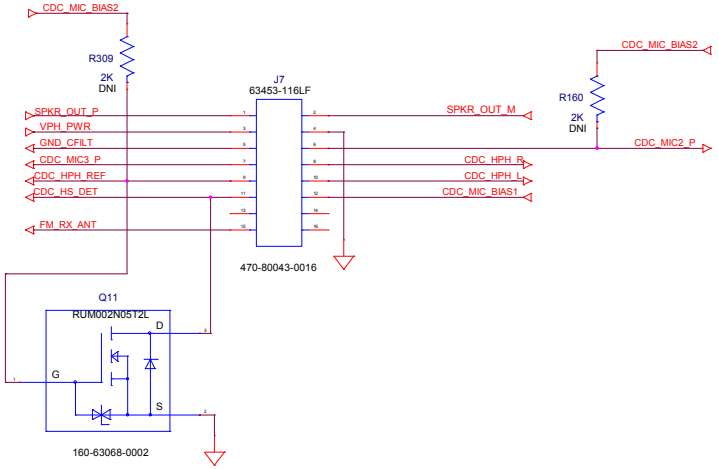


JTAG / UART / ANALOG EXPANSION CONNECTORS

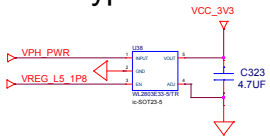
JTAG INTERFACE (TOP)

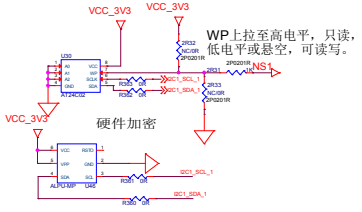


ANALOG EXPANSION CONNECTOR



Encrypted IC





changed by v1.1 /2019/06/11

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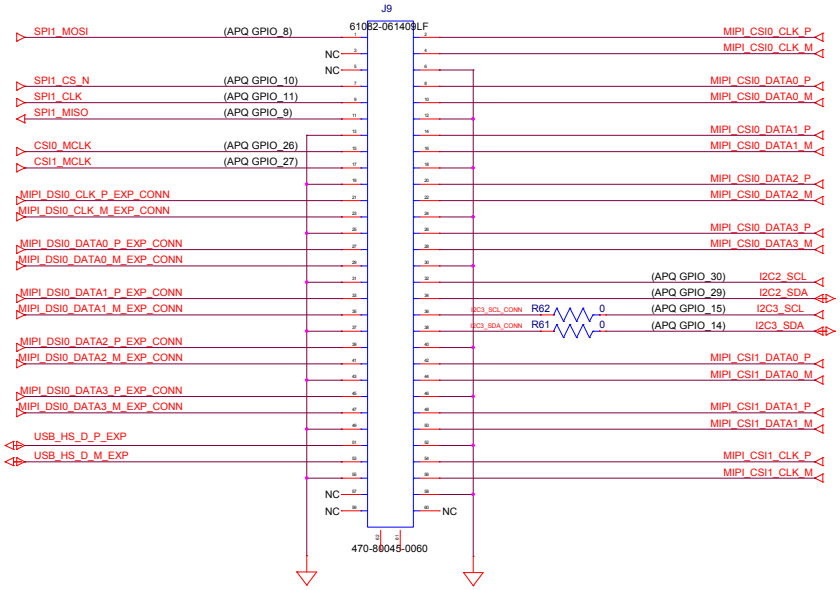
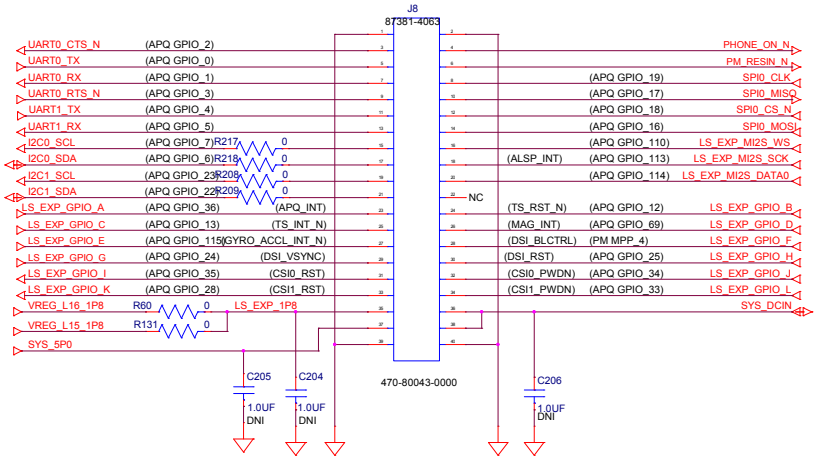
LS / HS EXPANSION CONNECTORS

HS EXPANSION CONNECTOR



LS EXPANSION CONNECTOR



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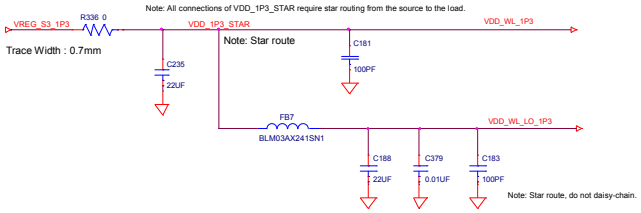
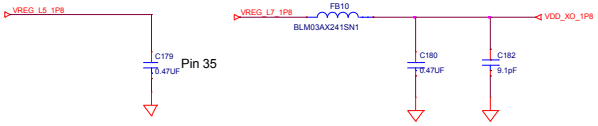
1.3V



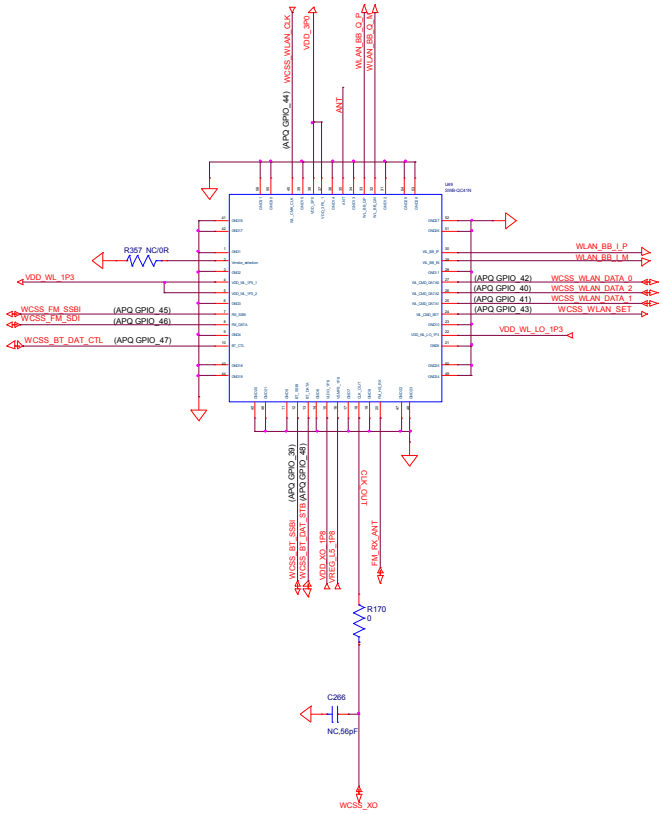
3.3V

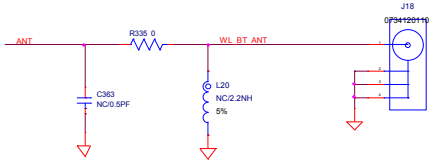
1.8V



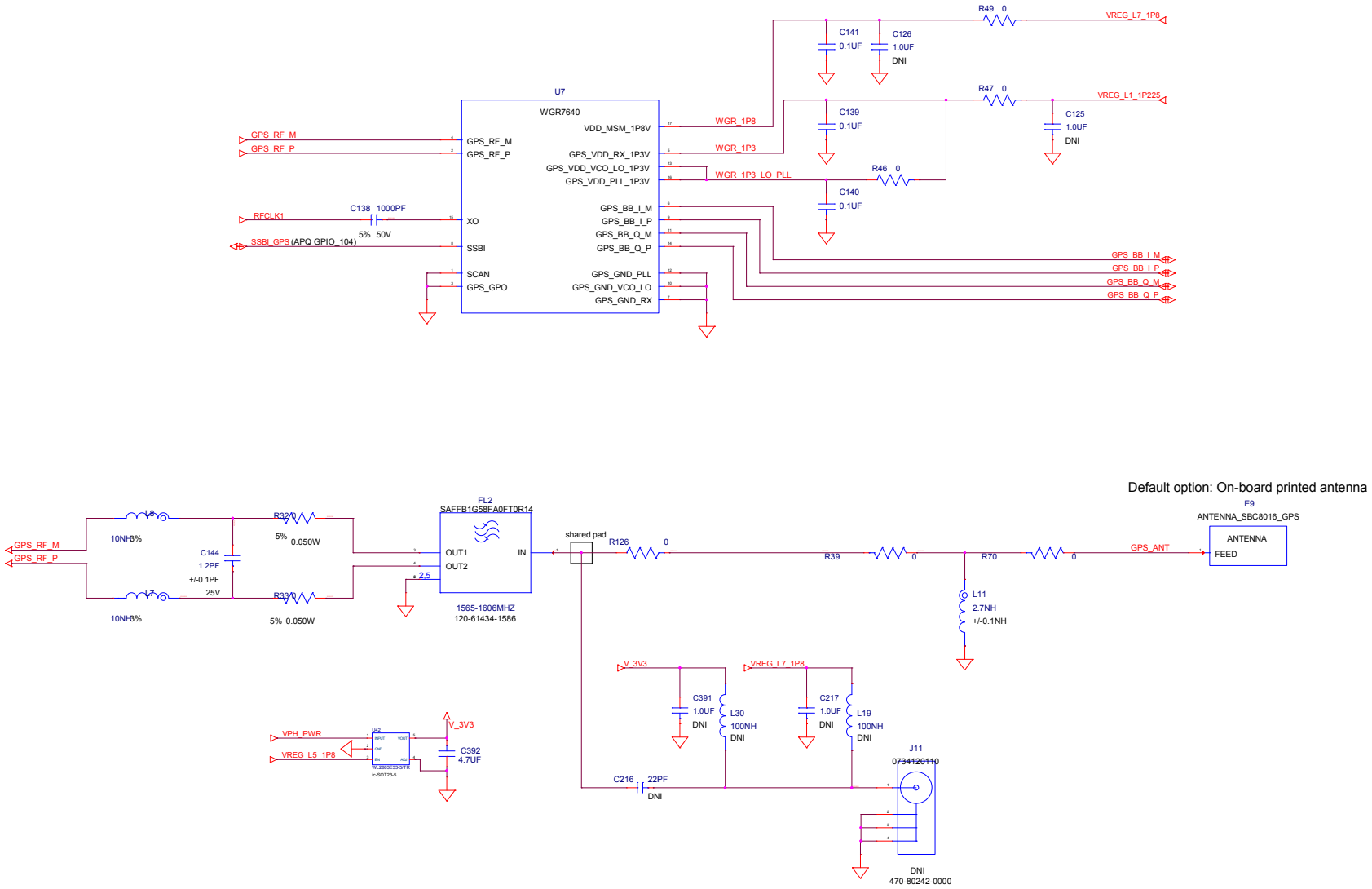
changed by v1.1 /2019/06/10

WiFi换成模组SWB-QC41N



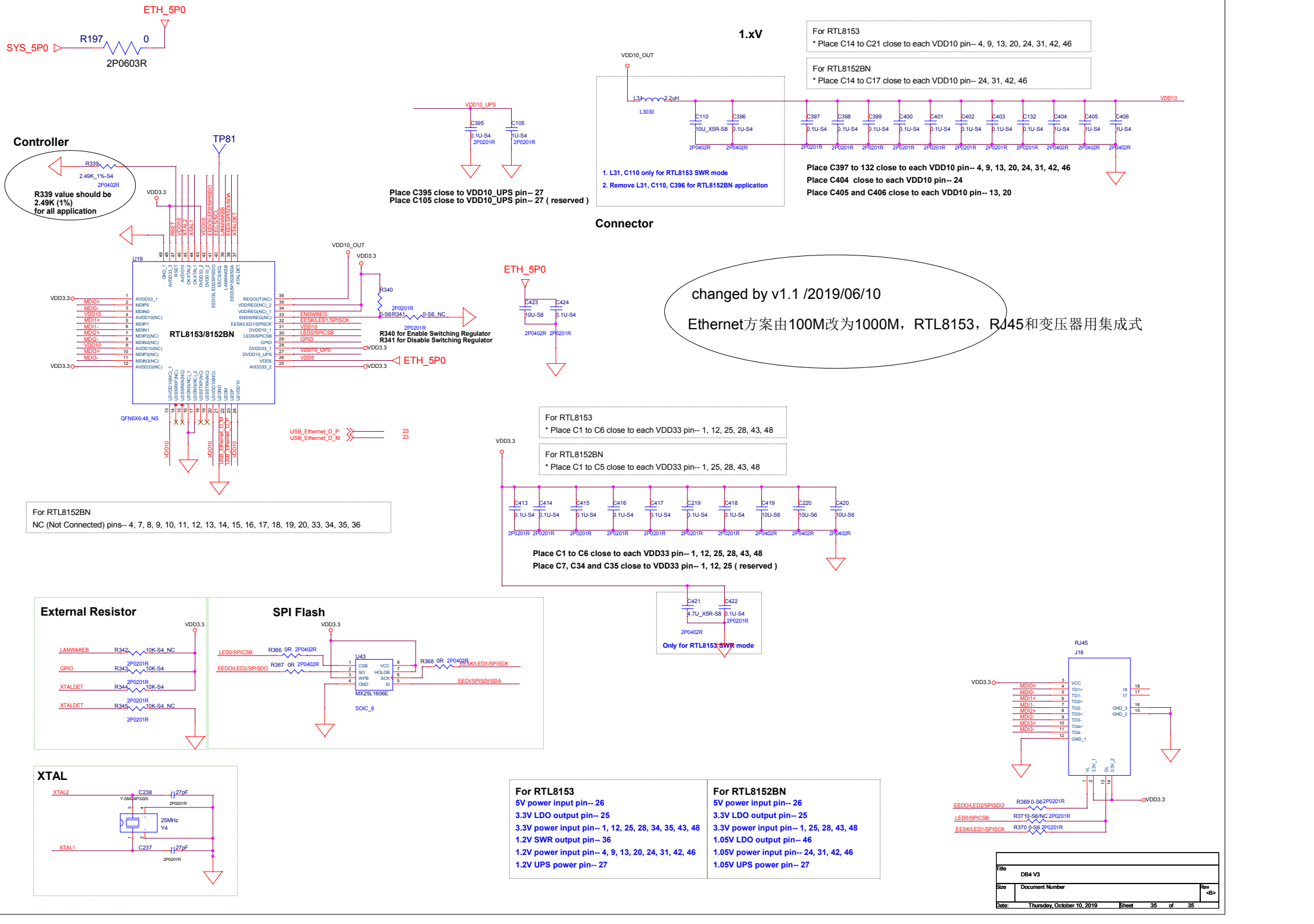


WGR7640 - GPS



Default option: On-board printed antenna

Stuffing option: UFL connector for external antenna


ETH_5P0
SYS_5P0
R197
0
2P0603R
1.xV
For RTL8153
* Place C14 to C21 close to each VDD10 pin-- 4, 9, 13, 20, 24, 31, 42, 46
For RTL8152BN
* Place C14 to C17 close to each VDD10 pin-- 24, 31, 42, 46
VDD10_OUT
L31
2.2uH
L3030
C110
10U_X5R-S8
C396
0.1U-S4
C397
C398
C399
C400
C401
C402
C403
C132
C404
C405
C406
1U-S4
2P0402R
2P0201R
VDD10
1. L31, C110 only for RTL8153 SWR mode
2. Remove L31, C110, C396 for RTL8152BN application
Place C397 to 132 close to each VDD10 pin-- 4, 9, 13, 20, 24, 31, 42, 46
Place C404 close to each VDD10 pin-- 24
Place C405 and C406 close to each VDD10 pin-- 13, 20
VDD10_UPS
C395
C105
Place C395 close to VDD10_UPS pin-- 27
Place C105 close to VDD10_UPS pin-- 27 (reserved)
Controller
TP81
R339
2.49K_1%-S4
2P0402R
R339 value should be 2.49K (1%) for all application
VDD3.3
U19
RTL8153/8152BN
QFN6X6-48_NS
VDD10_OUT
R340
0-S6R341
0-S6_NC
R340 for Enable Switching Regulator
R341 for Disable Switching Regulator
ENSWREG
EESK/LED1/SPISCK
LED0/SPICSB
GPIO
VDD10_UPS
VDD5
ETH_5P0
C423
C424
10U-S8
0.1U-S4
Connector
changed by v1.1 /2019/06/10
Ethernet方案由100M改为1000M，RTL8153，RJ45和变压器用集成式
For RTL8152BN
NC (Not Connected) pins-- 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 33, 34, 35, 36
USB_Ethernet_D_P
USB_Ethernet_D_M
For RTL8153
* Place C1 to C6 close to each VDD33 pin-- 1, 12, 25, 28, 43, 48
For RTL8152BN
* Place C1 to C5 close to each VDD33 pin-- 1, 25, 28, 43, 48
C413
C414
C415
C416
C417
C219
C418
C419
C220
C420
10U-S6
Place C1 to C6 close to each VDD33 pin-- 1, 12, 25, 28, 43, 48
Place C7, C34 and C35 close to VDD33 pin-- 1, 12, 25 (reserved)
C421
C422
4.7U_X5R-S8
Only for RTL8153 SWR mode
External Resistor
LANWAKEB
GPIO
XTALDET
R342
R343
R344
R345
10K-S4_NC
10K-S4
SPI Flash
U43
MX25L1606E
SOIC_8
R366 0R 2P0402R
R367 0R 2P0402R
R368 0R 2P0402R
EESK/LED1/SPISCK
EEDI/SPISDI/SDA
XTAL
XTAL2
XTAL1
C238
C237
27pF
25MHz
Y4
Y-SMD4P3225
RJ45
J16
R369 0-S6
R371 0-S6/NC
R370 0-S6
For RTL8153
5V power input pin-- 26
3.3V LDO output pin-- 25
3.3V power input pin-- 1, 12, 25, 28, 34, 35, 43, 48
1.2V SWR output pin-- 36
1.2V power input pin-- 4, 9, 13, 20, 24, 31, 42, 46
1.2V UPS power pin-- 27
For RTL8152BN
5V power input pin-- 26
3.3V LDO output pin-- 25
3.3V power input pin-- 1, 25, 28, 43, 48
1.05V LDO output pin-- 46
1.05V power input pin-- 24, 31, 42, 46
1.05V UPS power pin-- 27
Title
DB4 V3
Size
Document Number
Rev
<B>
Date: Thursday, October 10, 2019
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