

# LCFC Confidential


## G Project M/B Schematics Document

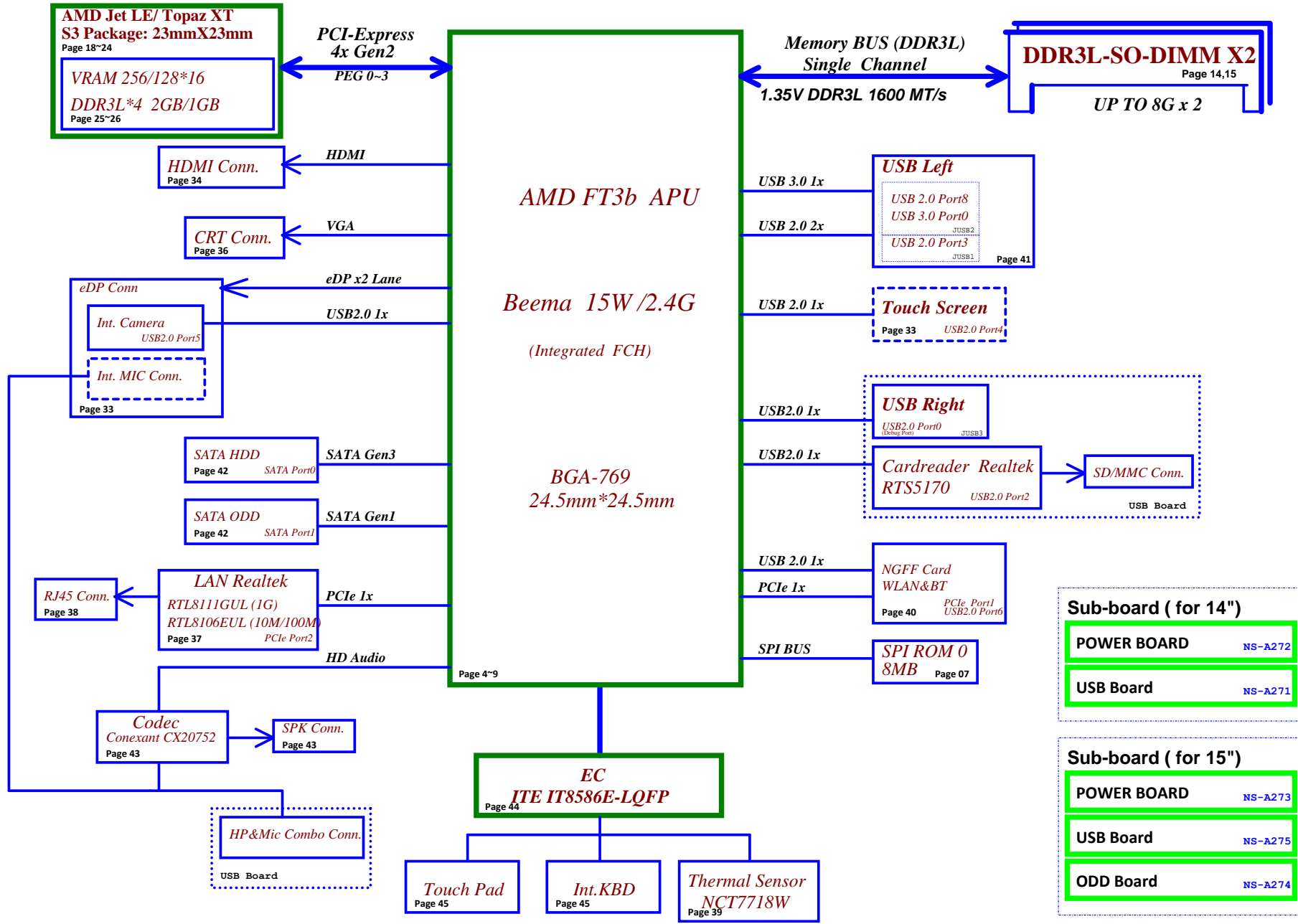
AMD FT3B Beema SOC with DDRIIL

AMD JET-LE

2014-1-3

REV: 0.3

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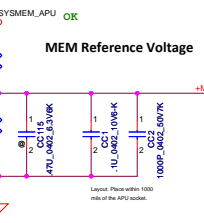
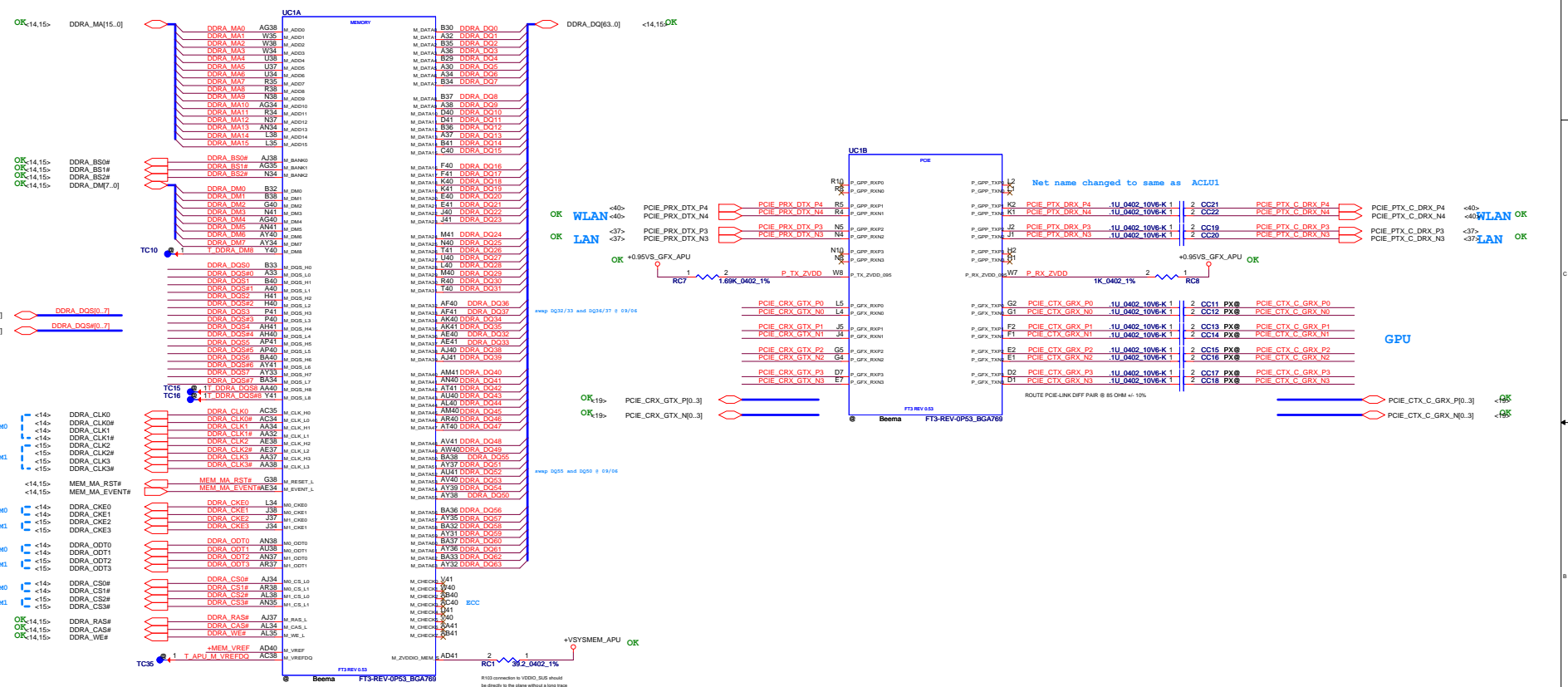


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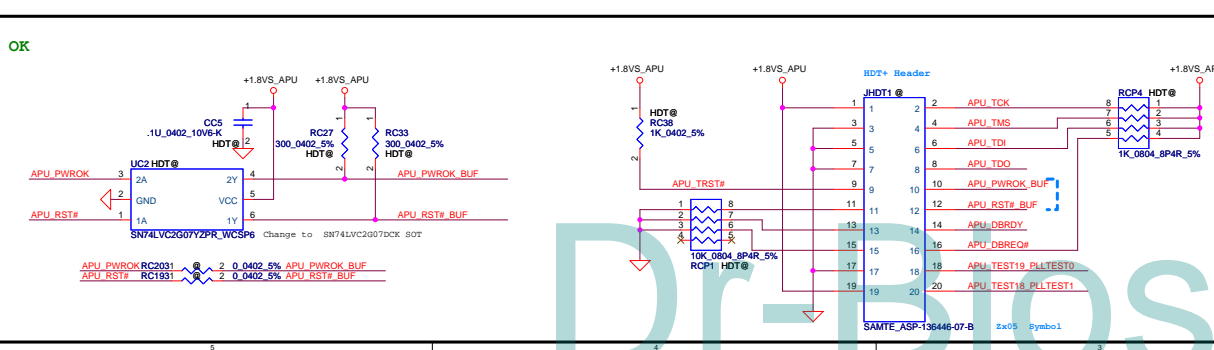
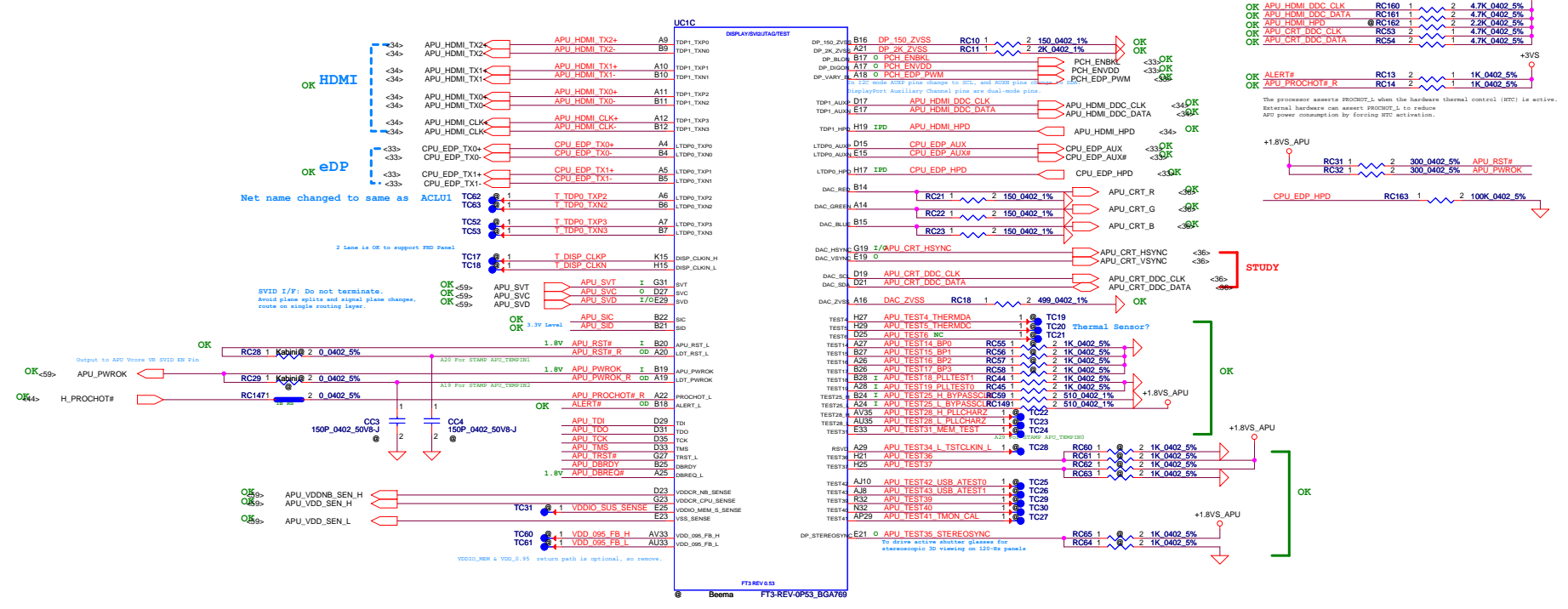
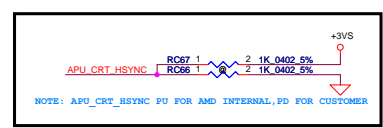
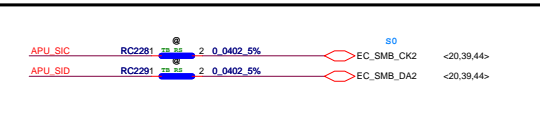




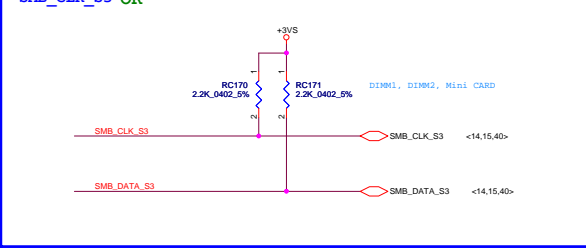
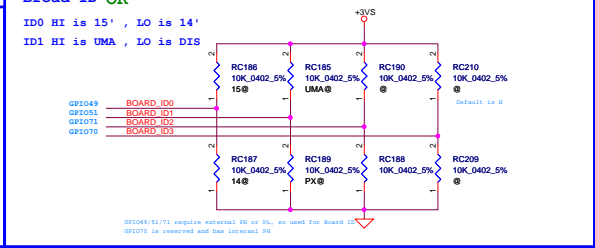
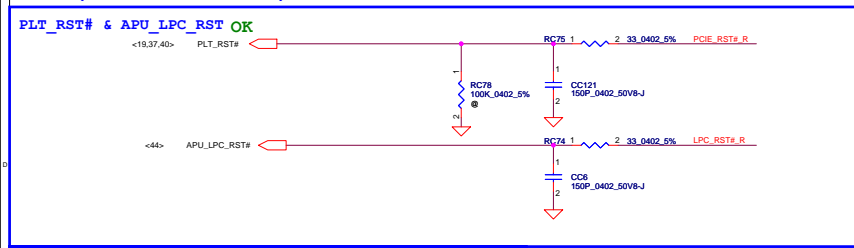


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Title <b>Beema (MEM &amp; PCIE I/F)</b>				

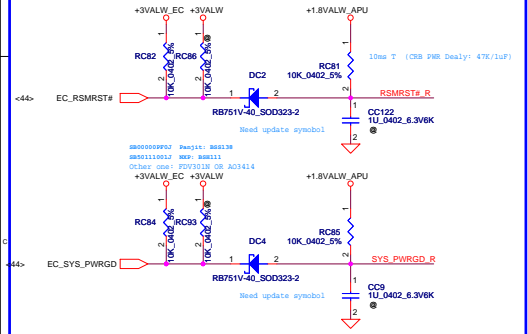
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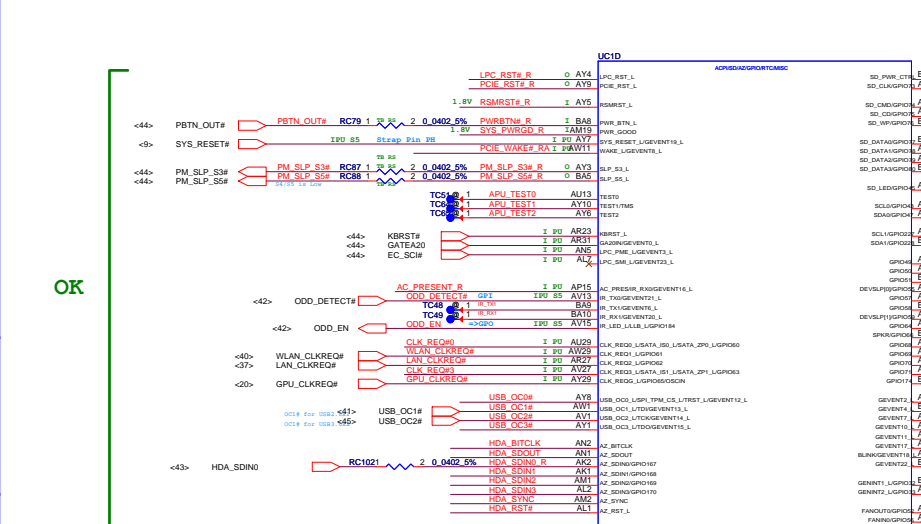
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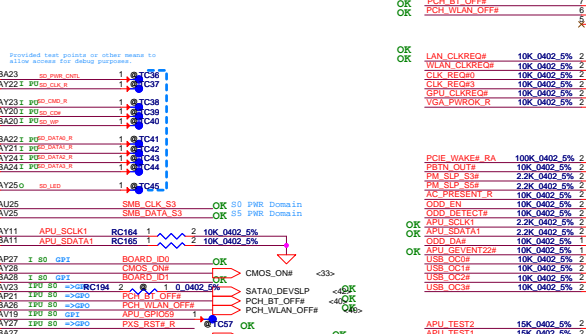
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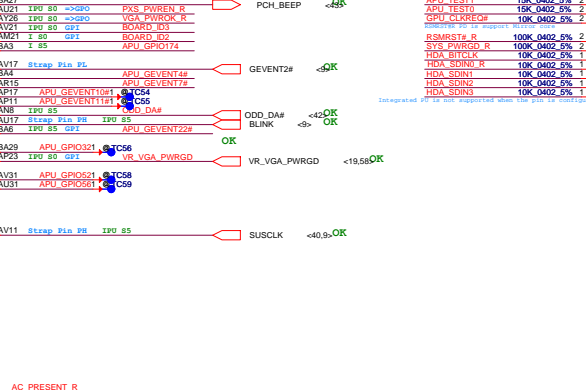
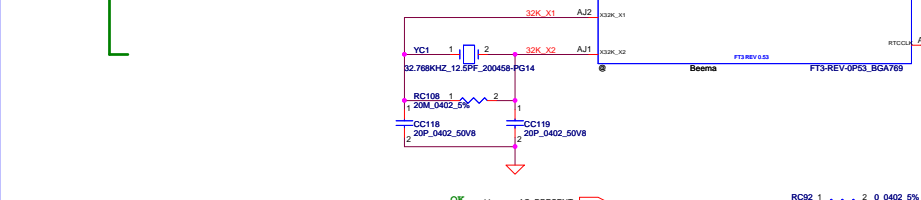
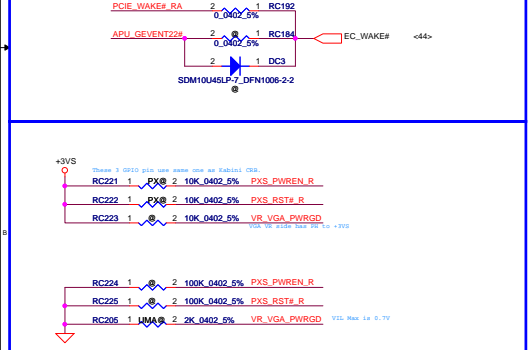
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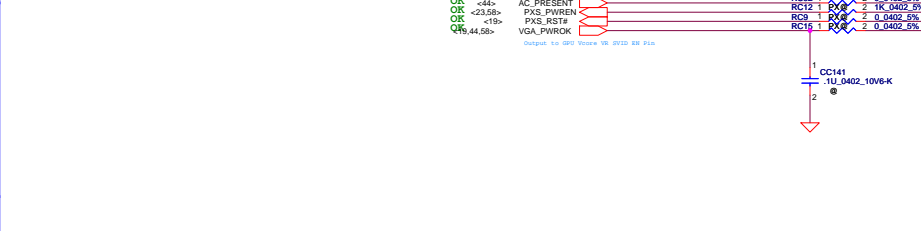
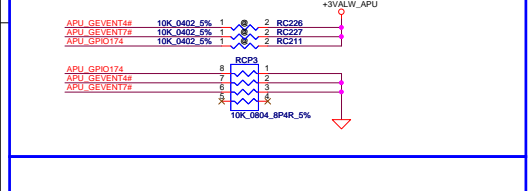
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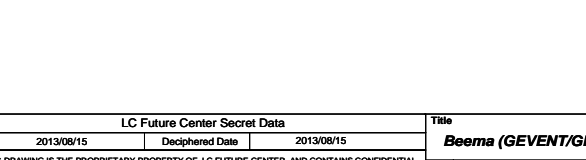
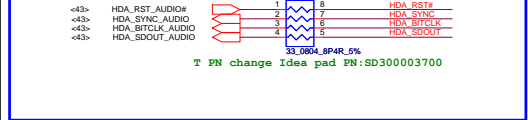
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APU\_GEVT# OK



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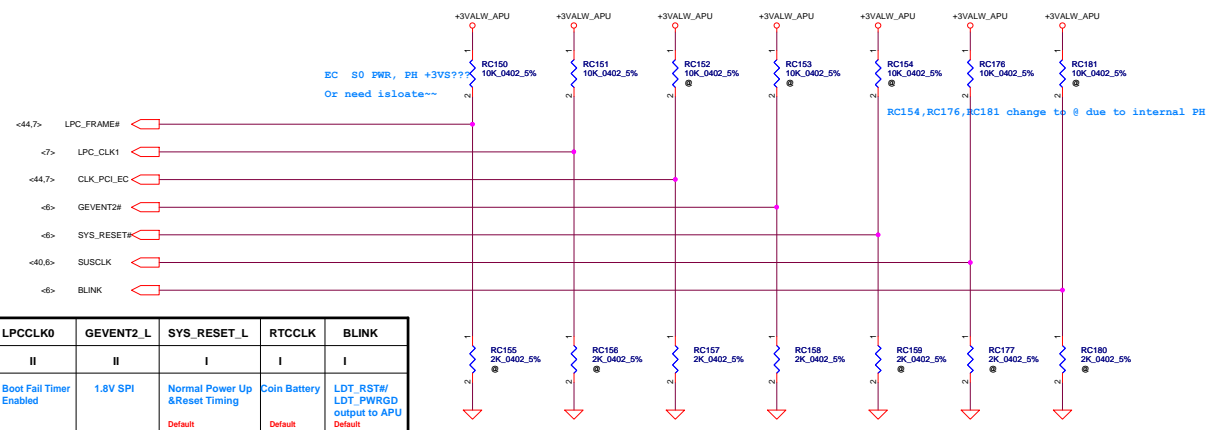
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**STRAP PINS**


Signal	LFRAME_L	LPCCCLK1	LPCCCLK0	GEVENT2_L	SYS_RESET_L	RTCCLK	BLINK
Type	II	II	II	II	I	I	I
PULL HIGH	SPI ROM <i>Default</i>	Internal CLK Gen <i>Default</i>	Boot Fail Timer Enabled	1.8V SPI	Normal Power Up & Reset Timing <i>Default</i>	Coin Battery <i>Default</i>	LDT_RST#/LDT_PWRGD output to APU <i>Default</i>
PULL LOW	LPC ROM	External CLK Gen	Boot Fail Timer Disabled <i>Default</i>	3.3V SPI <i>Default</i>	Reserved	Direct DC	Reserved

Type I straps become valid immediately after capture with the rising edge of RSMRST\_L.  
 Type II straps become valid after PWR\_GOOD is asserted.  
 All Strap pins must be configured with either external pull-up or pull-down resistors.


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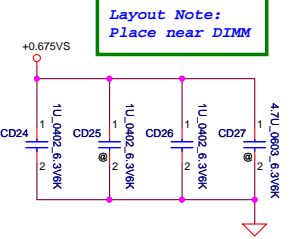
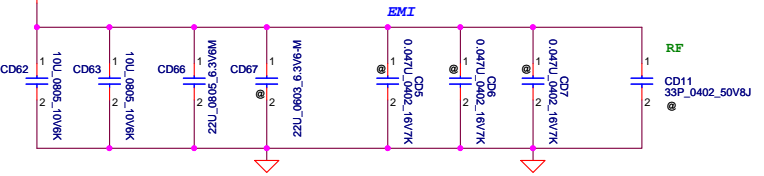
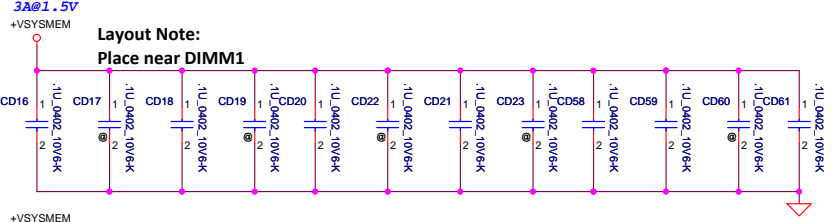
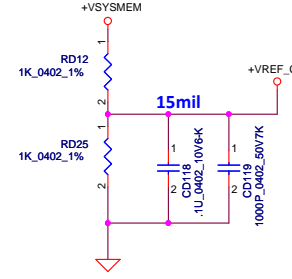
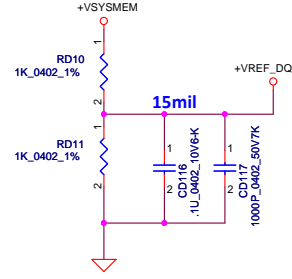
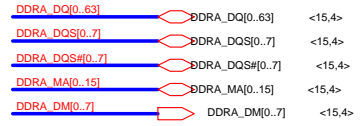
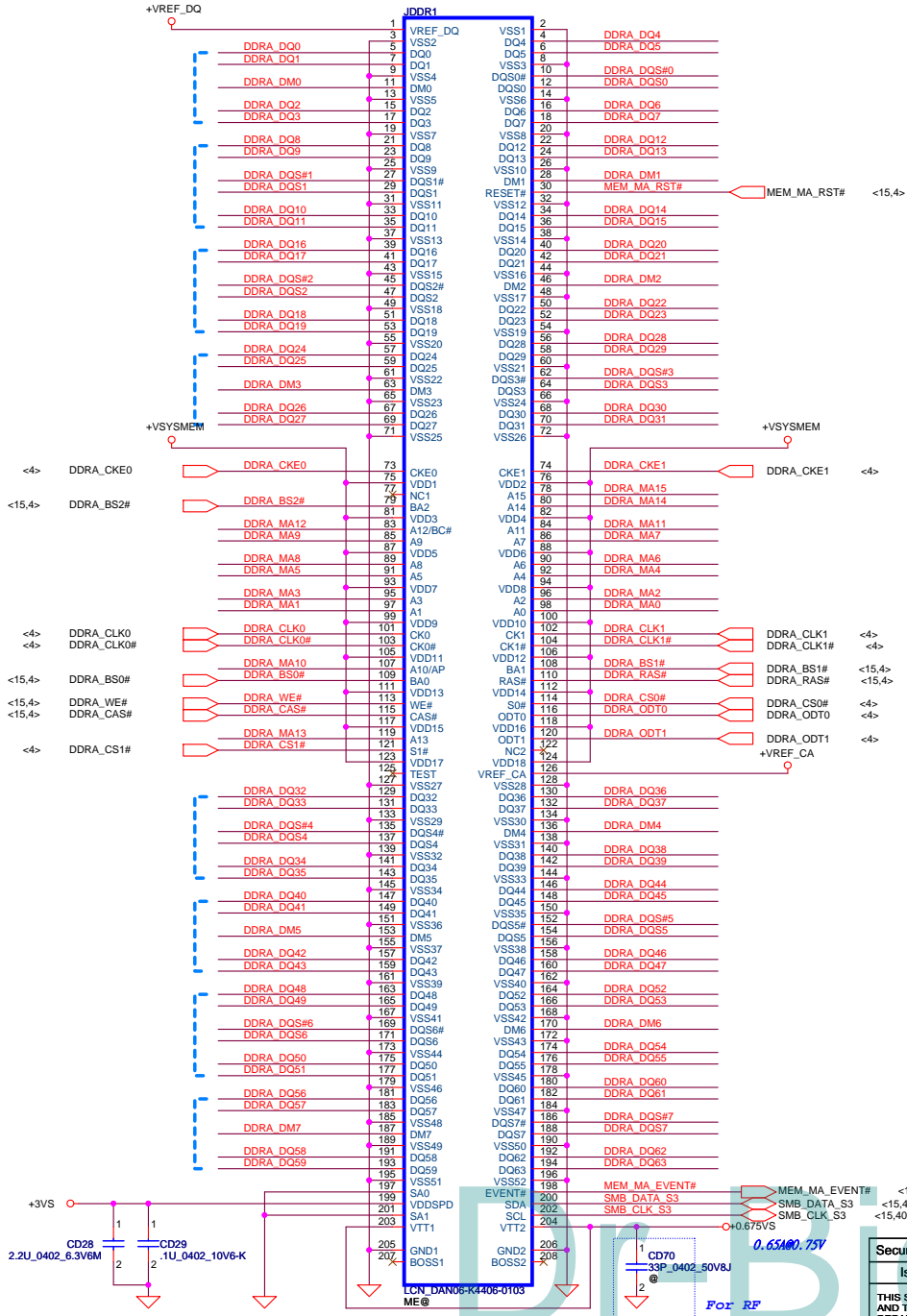
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# DDR3 SO-DIMM A




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VGA Note list need to be update!

Power-Up/Down Sequence

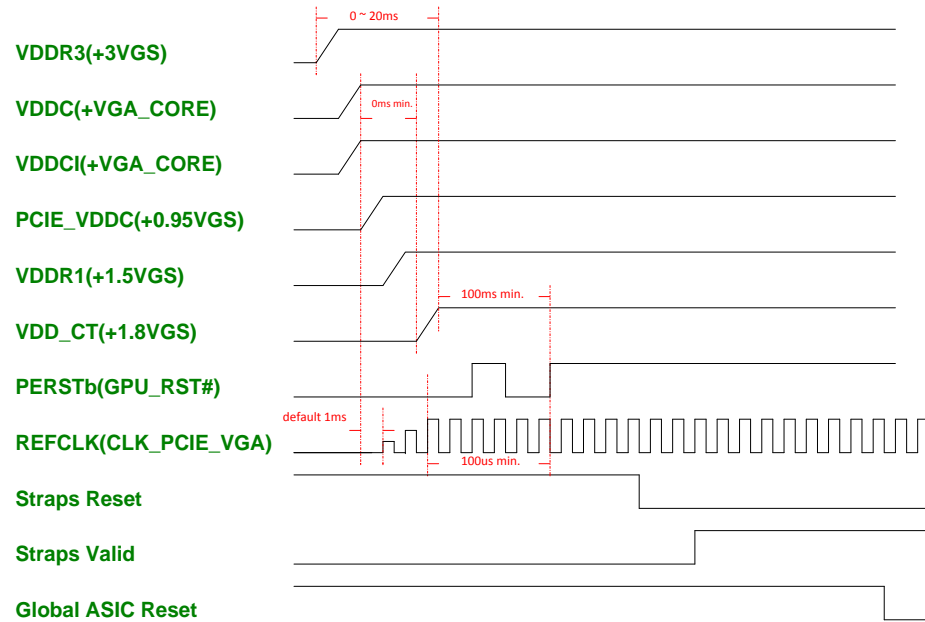
"Mars" has the following requirements with regards to power-supply sequencing to avoid damaging the ASIC:

- All the ASIC supplies must reach their respective nominal voltages within 20 ms of the start of the ramp-up sequence, though a shorter ramp-up duration is preferred. The maximum slew rate on all rails is 50 mV/μs.

The external pull ups on the DDC/AUX signals (if applicable) should ramp up before or after both VDDC and VDD\_CT have ramped up.

VDDC and VDD\_CT should not ramp up simultaneously. For example, VDDC should reach 90% before VDD\_CT starts to ramp up (or vice versa).

For power down, reversing the ramp-up sequence is recommended.

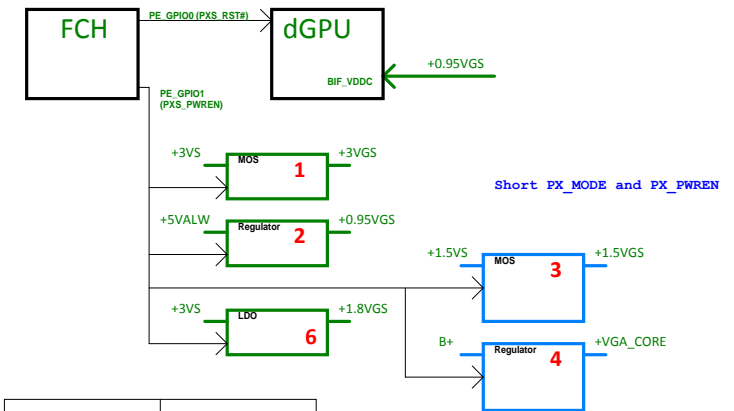


Without BACO option :

PE\_GPIO0 : Low -> Reset dGPU ; High -> Normal operation  
 PE\_GPIO1 : Low -> dGPU Power Off ; High -> dGPU Power ON

dGPU Power Pins	Voltage	Max current
VDD_CT, DP_VDDR, SPLL_PVDD, MPLL_PVDD, PCIE_PVDD, TSVDD, VDDR4, AVDD, VDD1D1	1.8V	1243mA
DP_VDDC, SPLL_VDDC, PCIE_VDDC, BIF_VDDC	0.95V	4560mA
VDDR3	3.3V	25mA
VDDR1	1.5V	1.5A
VDDC	0.8~1.125V	TBD
VDDCI	0.8~1.1V	8.8A

PX5.5

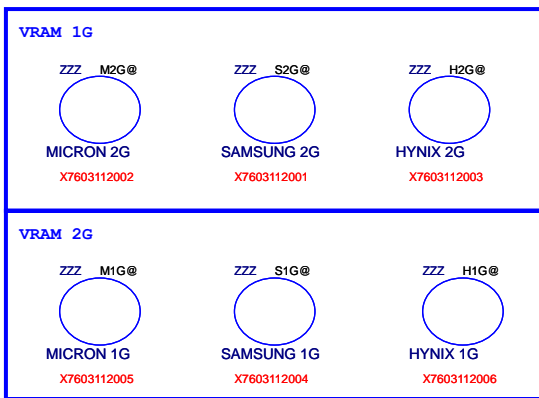


Name	Pin Assignment
PE_GPIO0	GPIO191
PE_GPIO1	GPIO192

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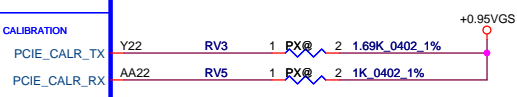
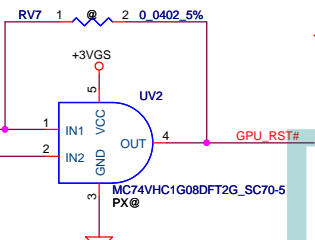
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 OK4> PCIE\_CTX\_C\_GRX\_N[3..0] → PCIE\_CTX\_C\_GRX\_N[3..0]

PCIE\_CRX\_GTX\_P[3..0] → PCIE\_CRX\_GTX\_P[3..0] <4>OK  
 PCIE\_CRX\_GTX\_N[3..0] → PCIE\_CRX\_GTX\_N[3..0] <4>OK



OK7> CLK\_PCIE\_GPU → CLK\_PCIE\_GPU AK30  
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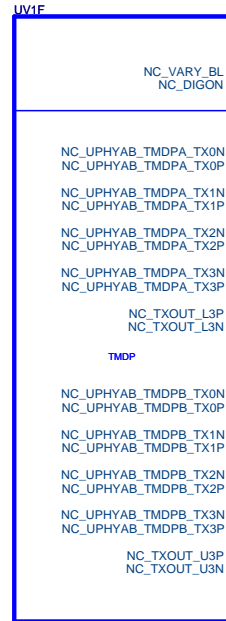
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 OK VGA\_PWROK → VGA\_PWROK <44,58,6>OK

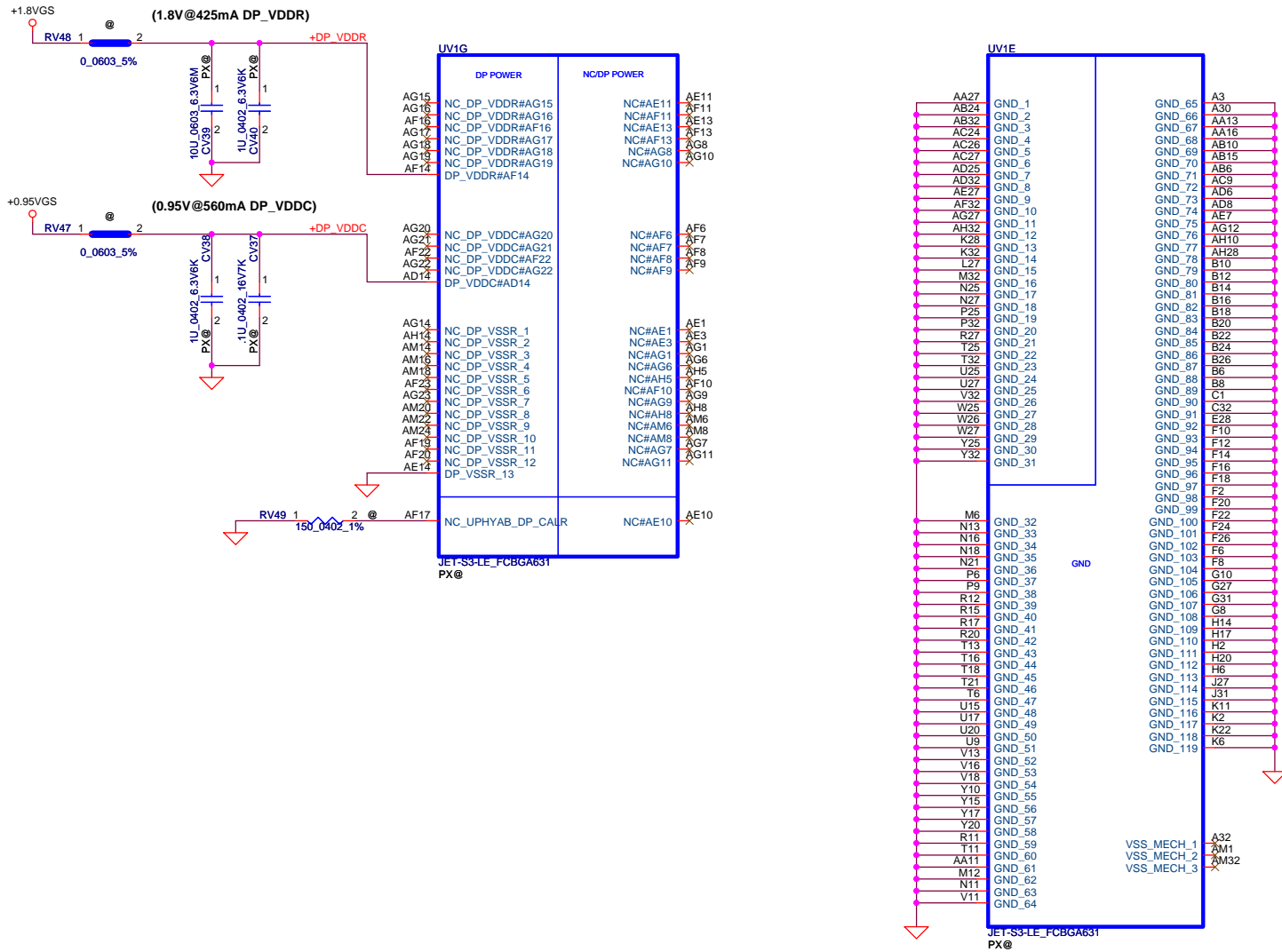
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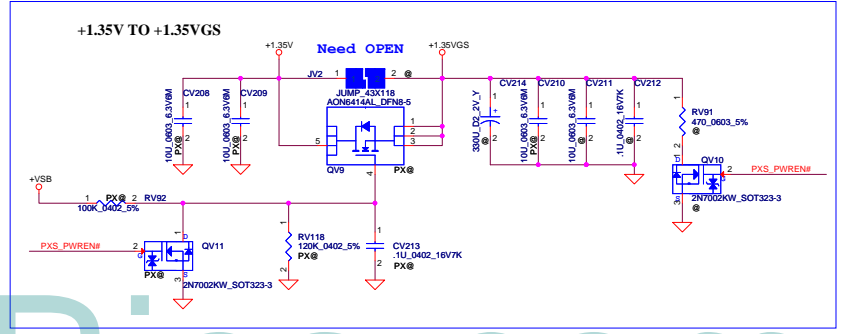
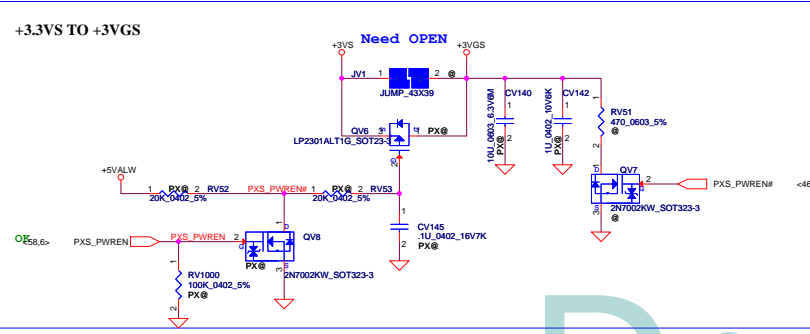
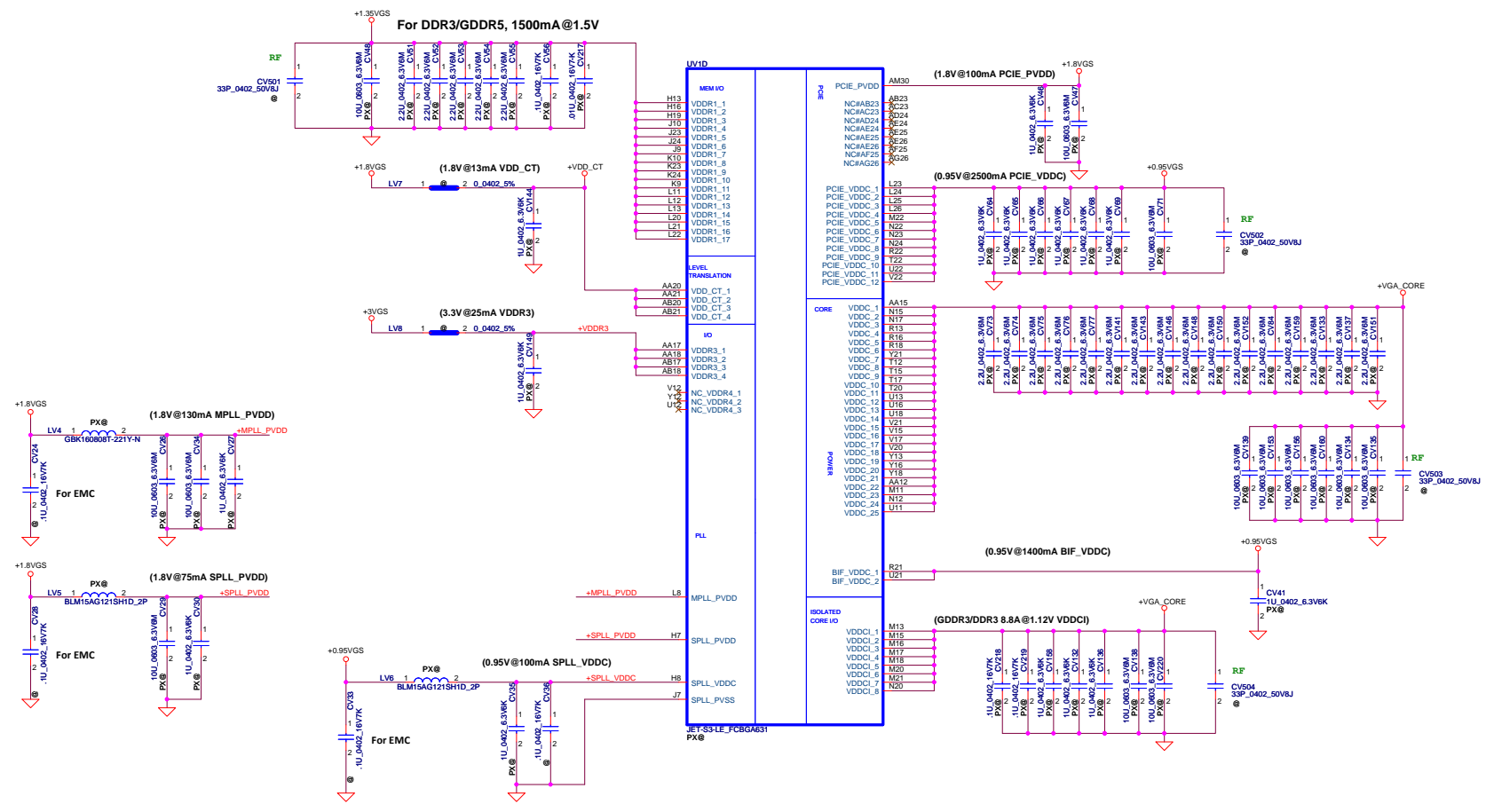
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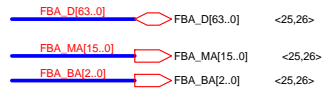
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Size	Document Number	Rev
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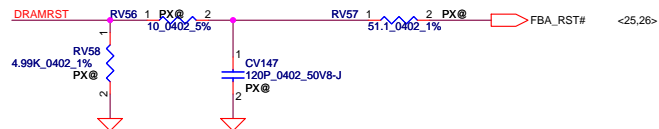
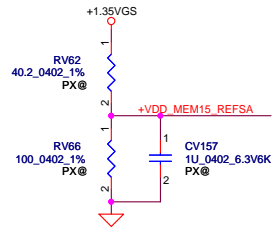
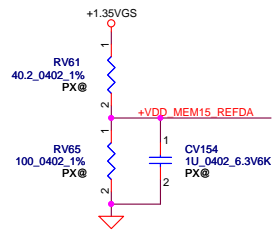
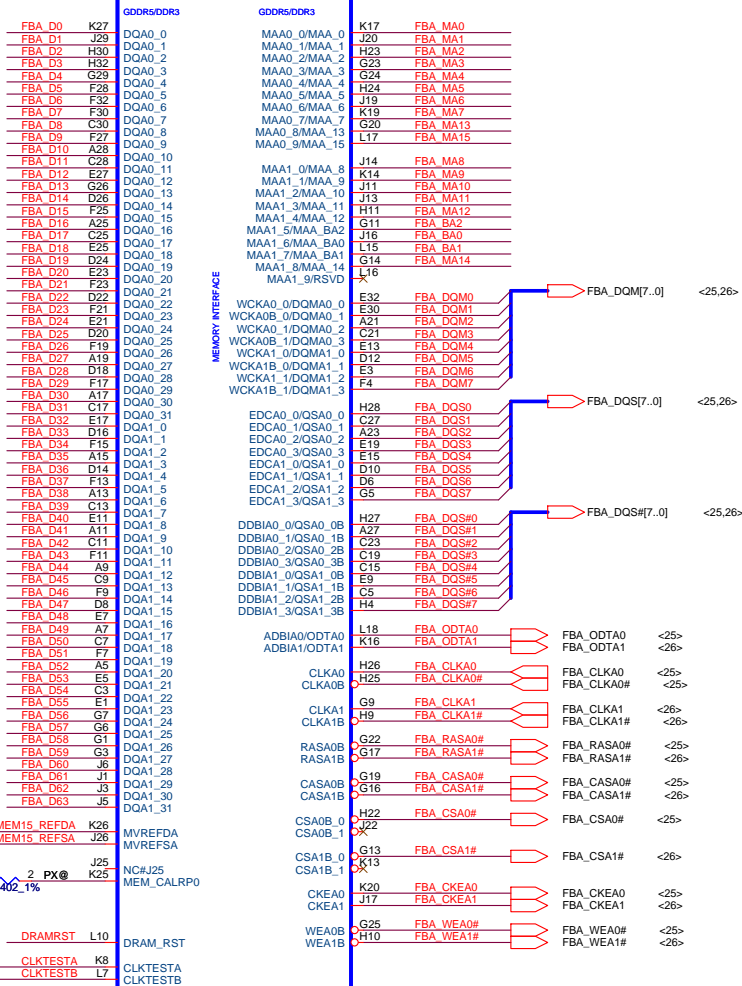
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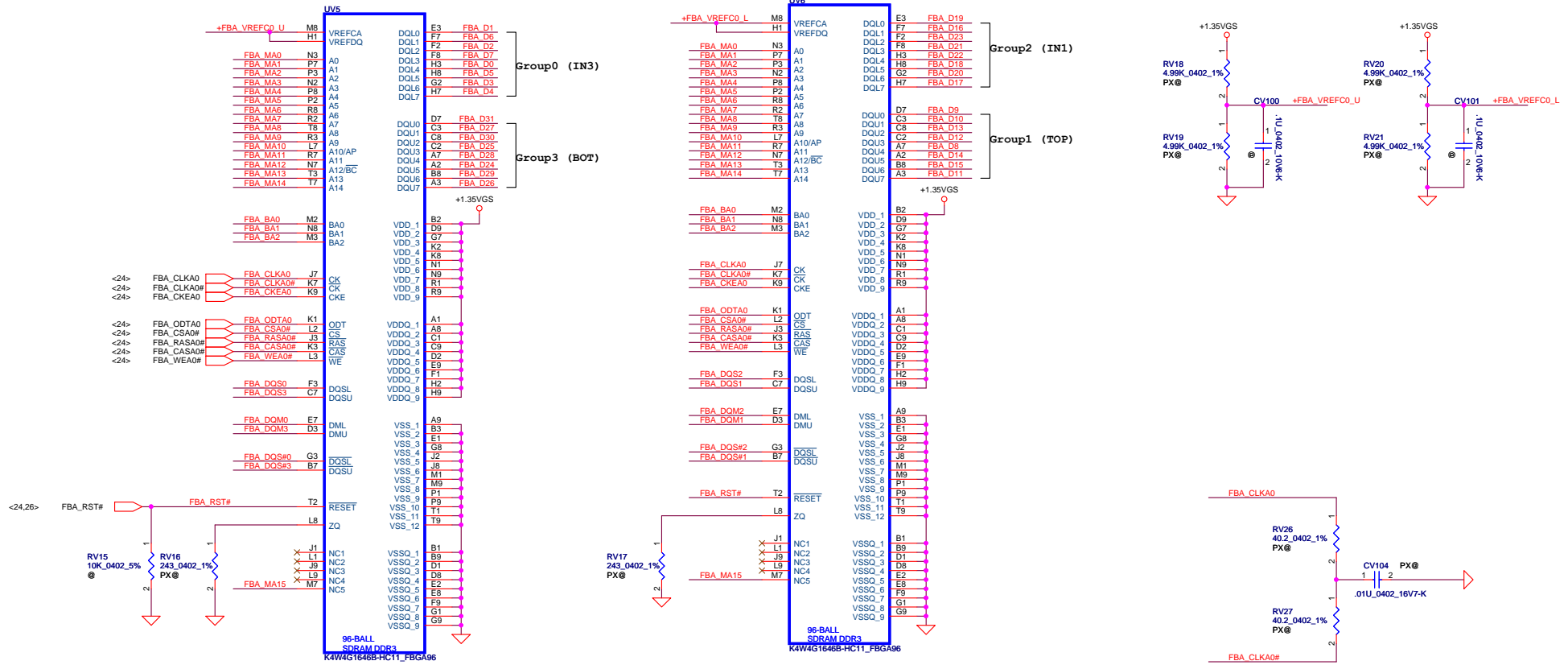
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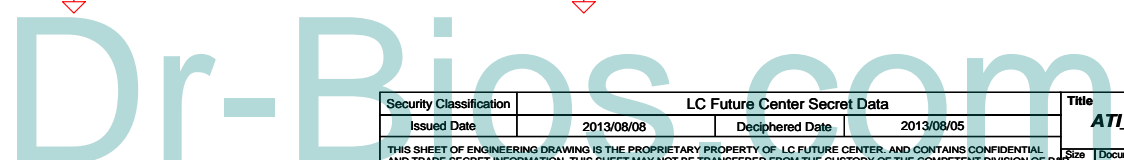
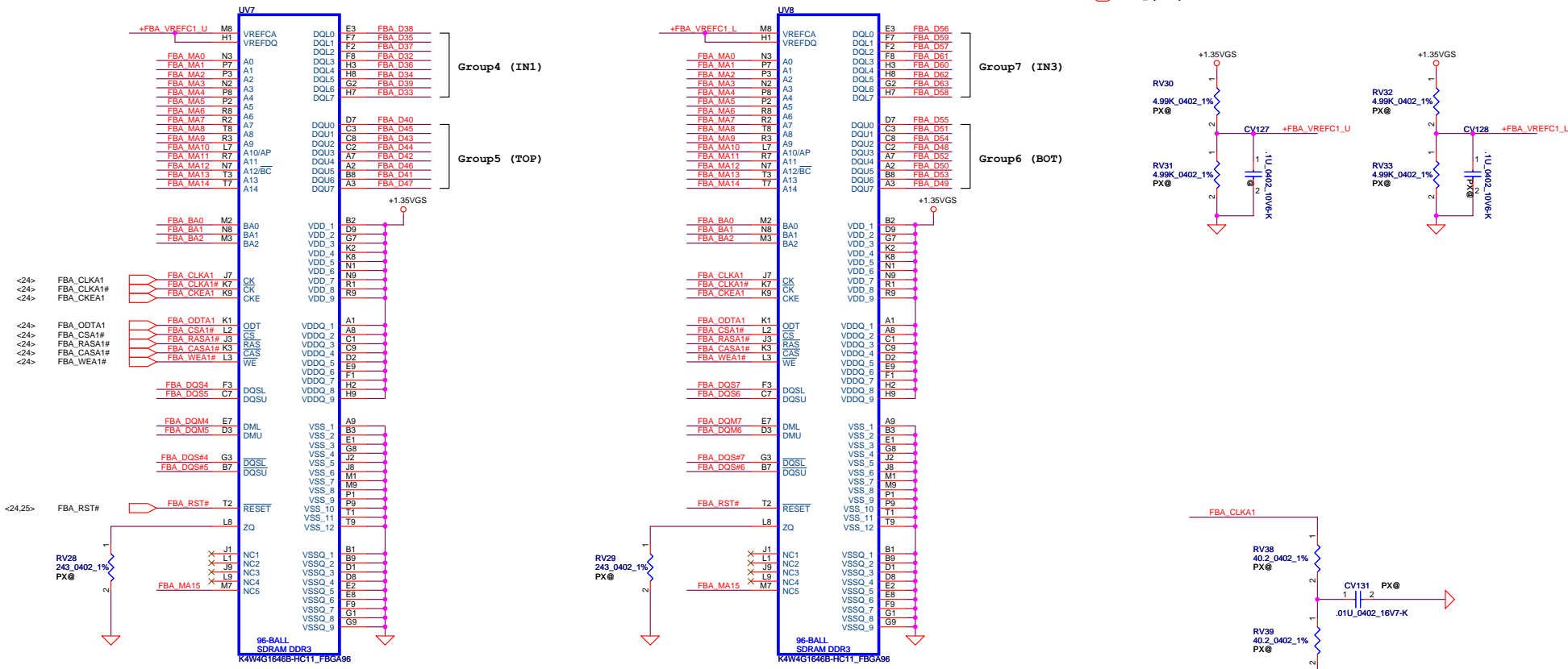
# Memory Partition A - Lower 32 bits

-  FBA\_MA[15..0] <24,26>
-  FBA\_BA[2..0] <24,26>
-  FBA\_DQS[3..0] <24>
-  FBA\_DQM[3..0] <24>
-  FBA\_DQS# [3..0] <24>
-  FBA\_D[31..0] <24>


ACLU5 swap the VRAM Data @ 08/26  
 VRAM 8 pcs change to 4 pcs @ 09/26




# Memory Partition A - Upper 32 bits



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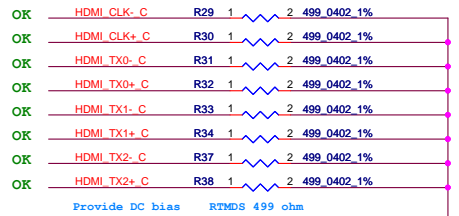
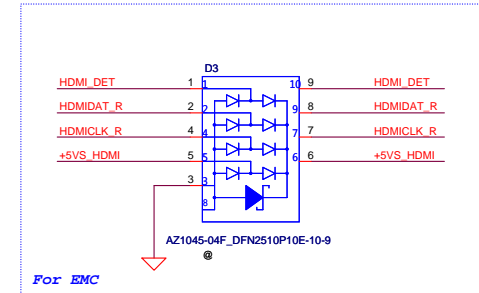
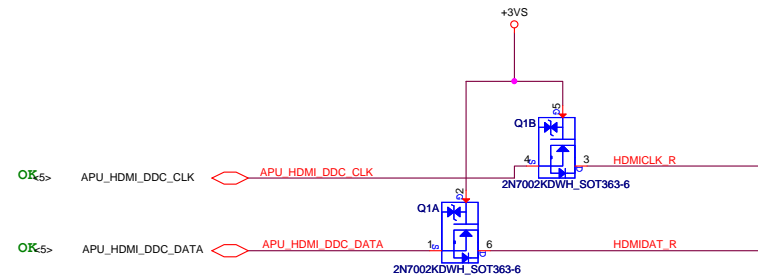
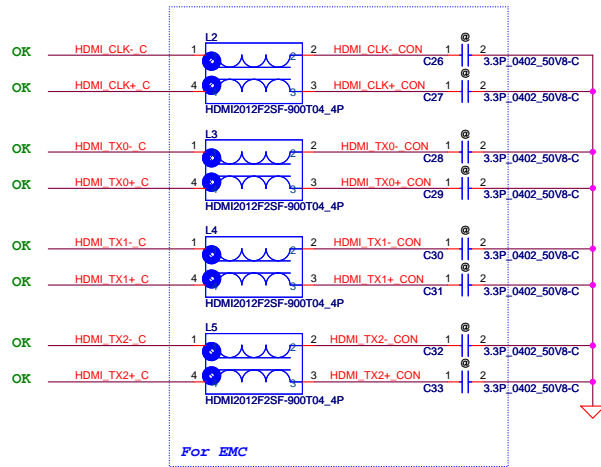
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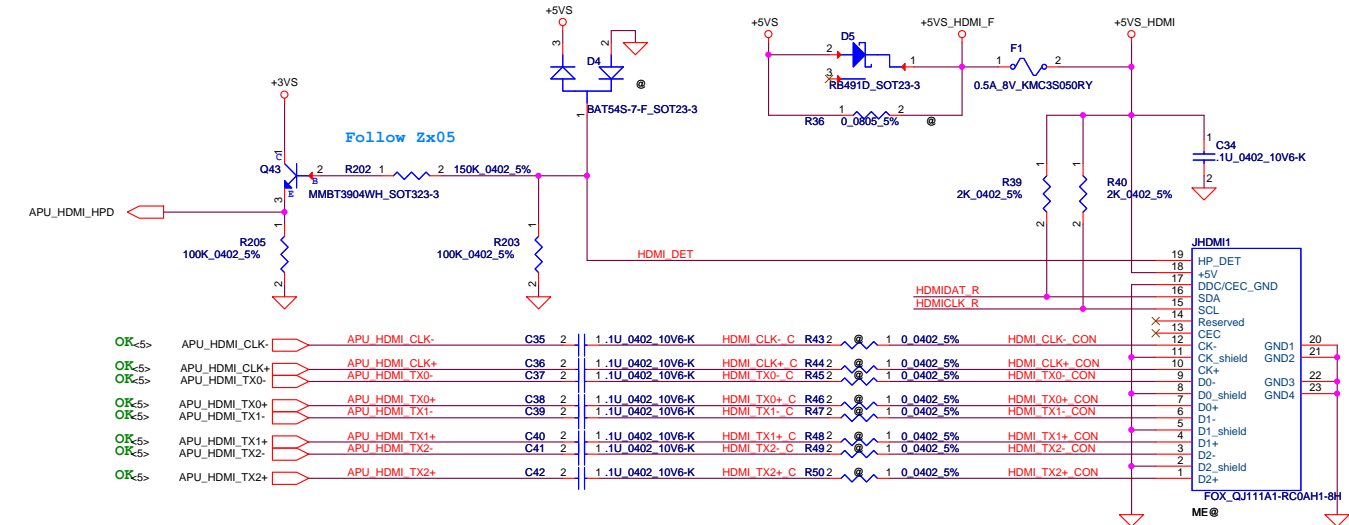
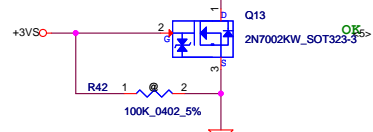
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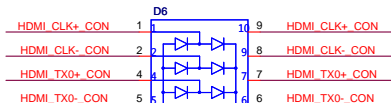




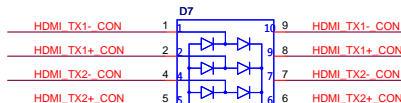
Provide DC bias RTMSD 499 ohm



Close to JHDMI1



For EMC




For EMC

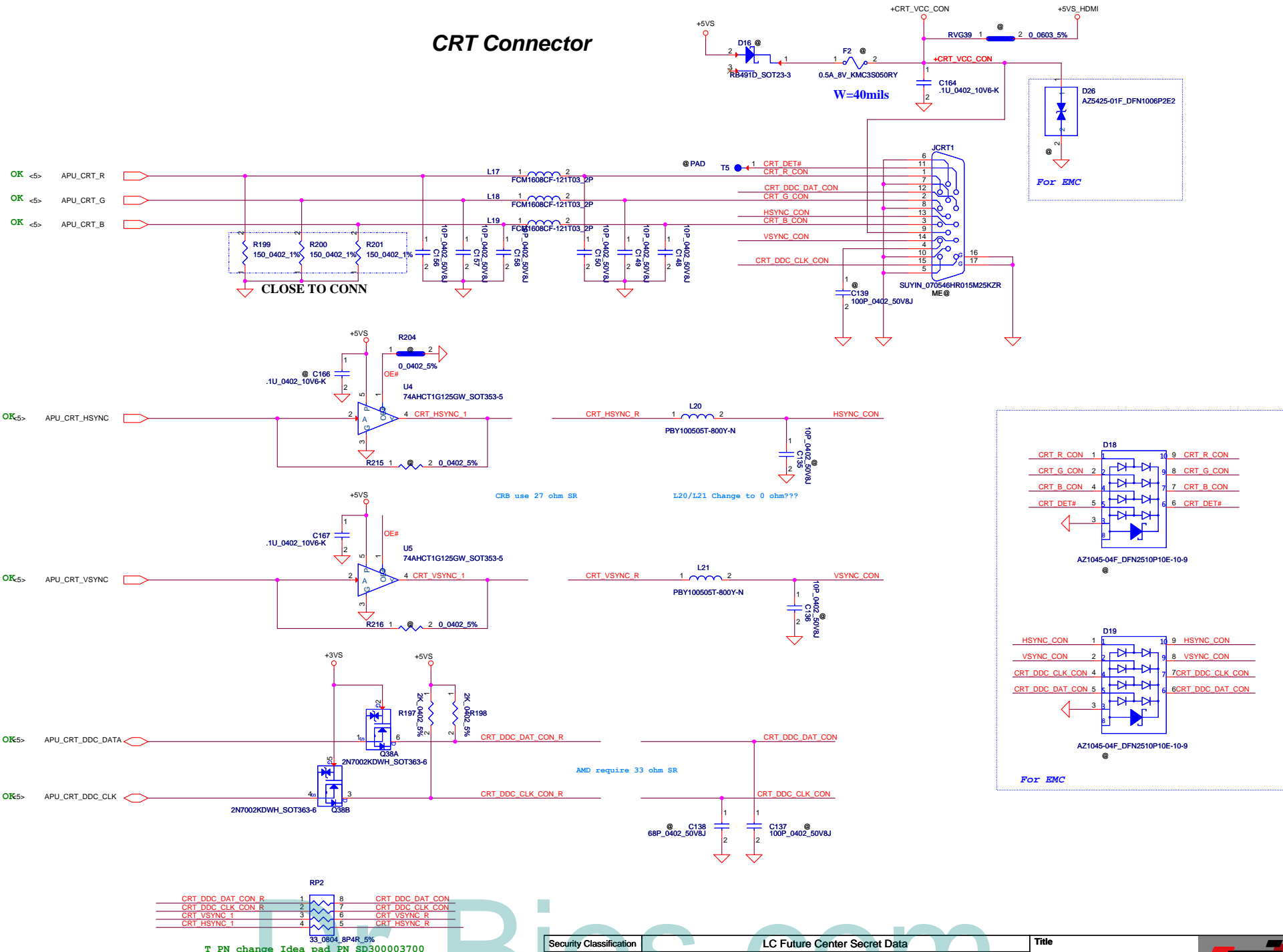
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# CRT Connector



T PN change Idea pad PN SD300003700

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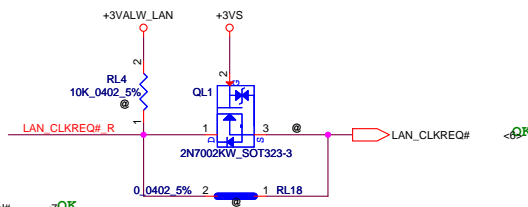
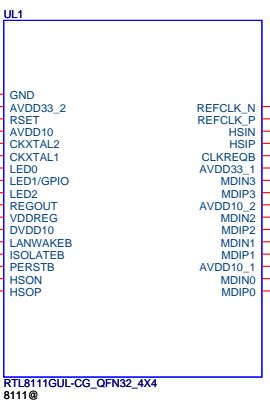
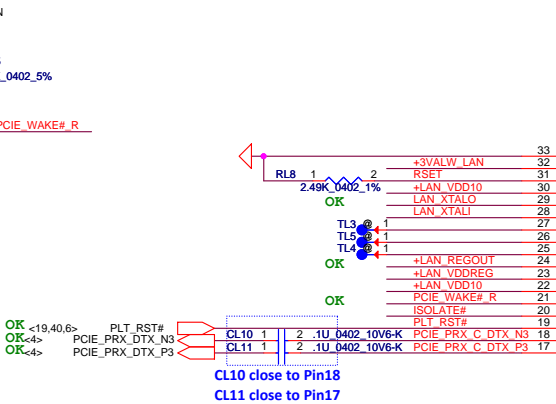
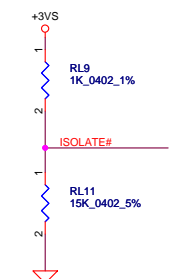
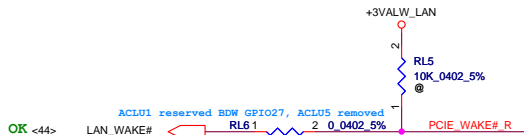
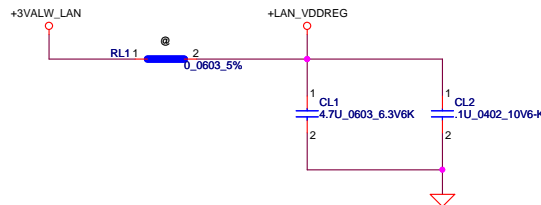
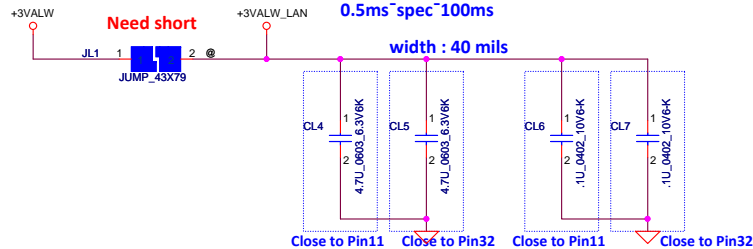


NM-A281

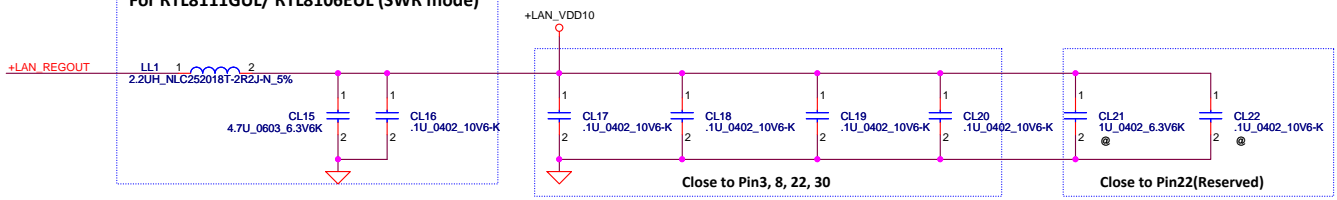
+3VALW TO +3VALW\_LAN

+3VALW\_LAN rising time (10%~90%):  
0.5ms spec~100ms

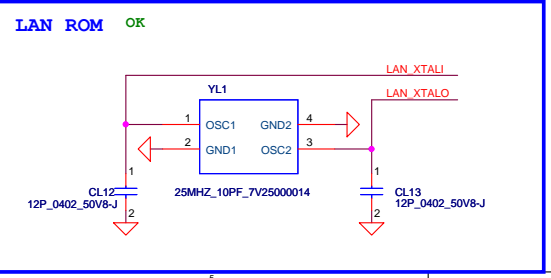
width : 40 mils



For RTL8111GUL/RTL8106EUL (SWR mode)

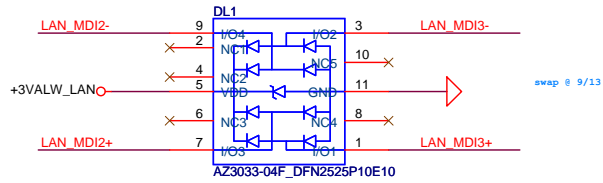


Layout Note: LL1 must be within 200mil to Pin36,  
CL15,CL16 must be within 200mil to LL1  
+LAN\_REGOUT: Width =60mil

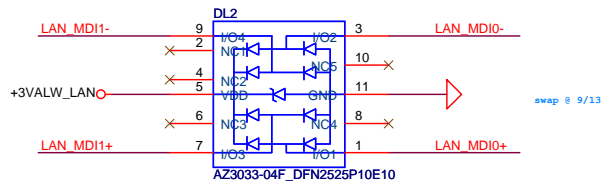


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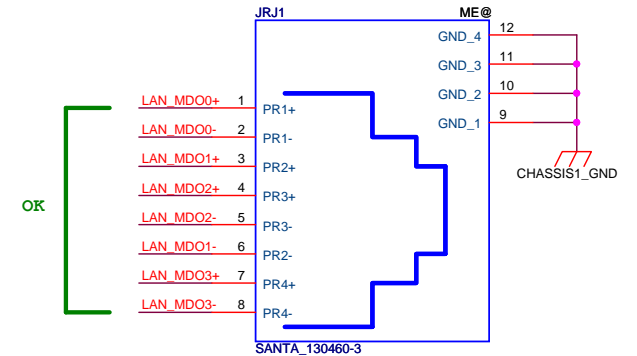
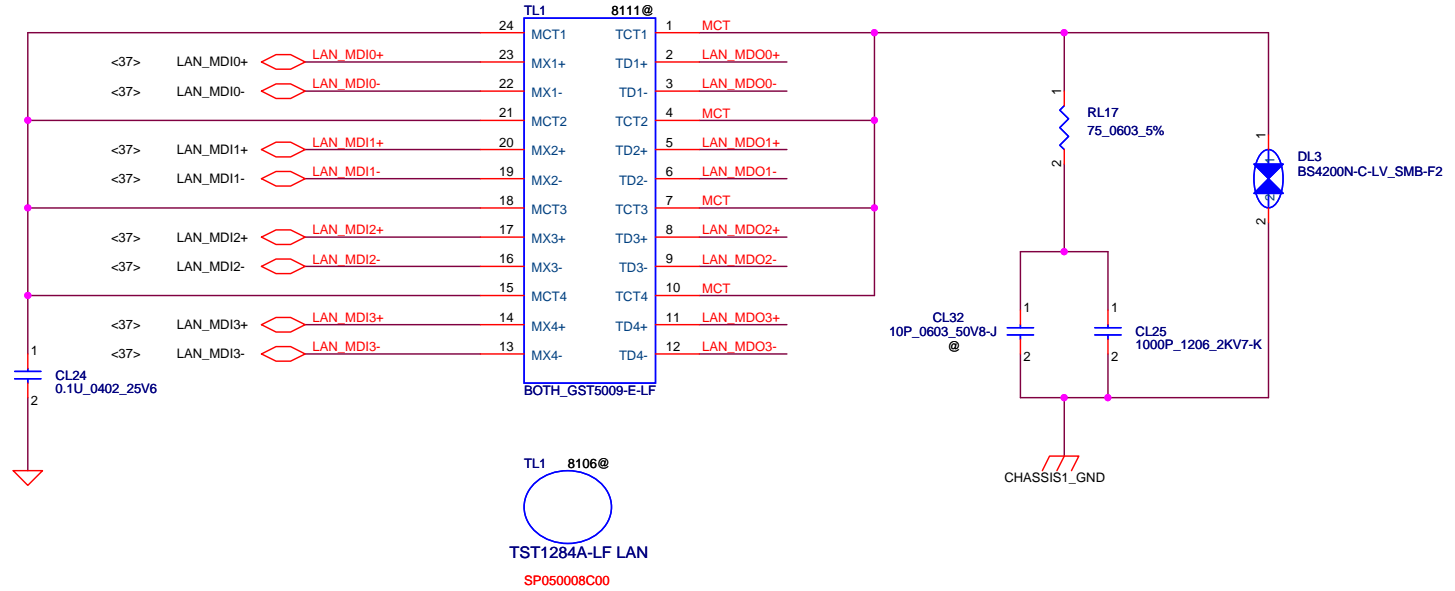
**DL1/DL2**  
1'S PN:SC30003M00



Place Close to TL1

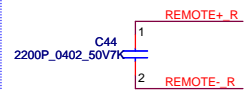


Place Close to TL2



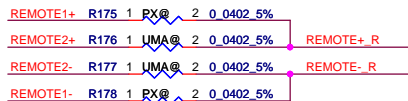
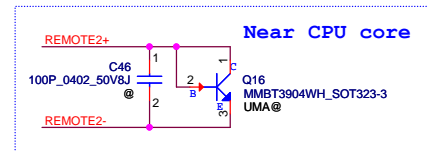
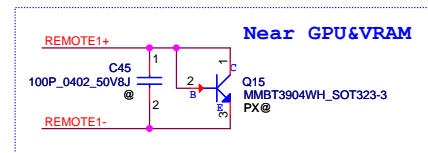
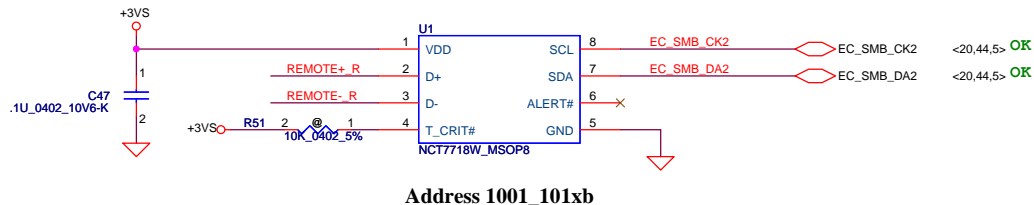
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Close to U1



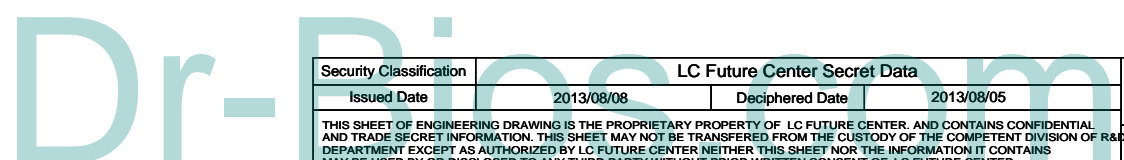
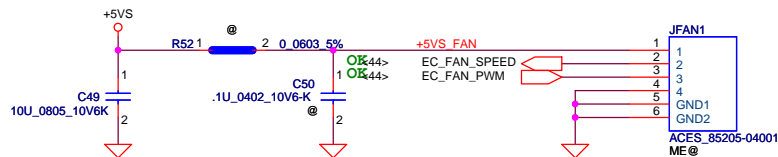
### SMSC thermal sensor placed near DIMM


OK



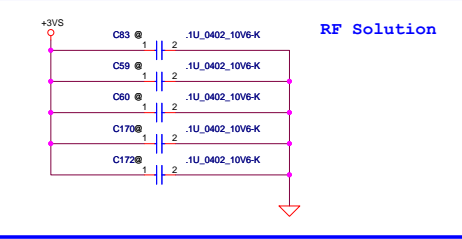
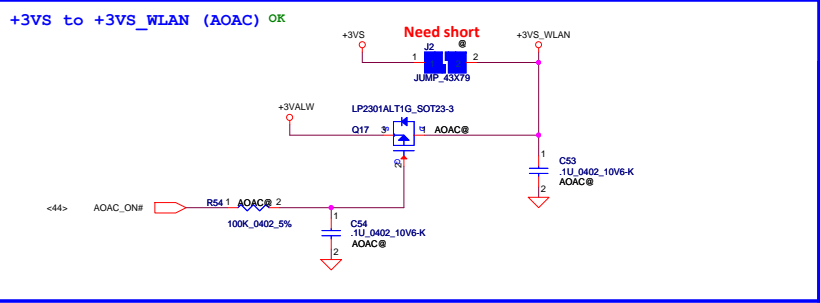
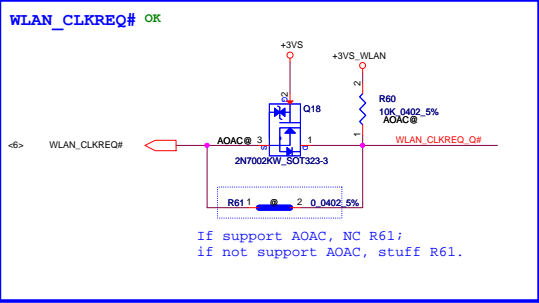
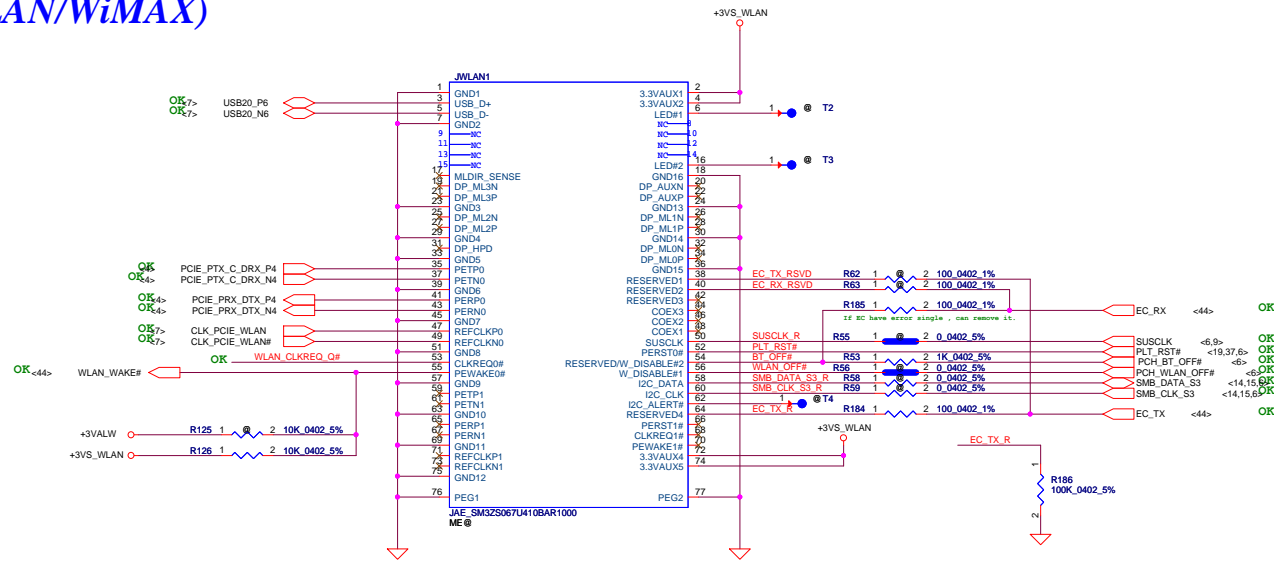
REMOTE+/-\_R, REMOTE1+/-, REMOTE2+/-:  
Trace width/space:10/10 mil  
Trace length:<8"

### FAN Conn



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# Mini-Express Card(WLAN/WiMAX)

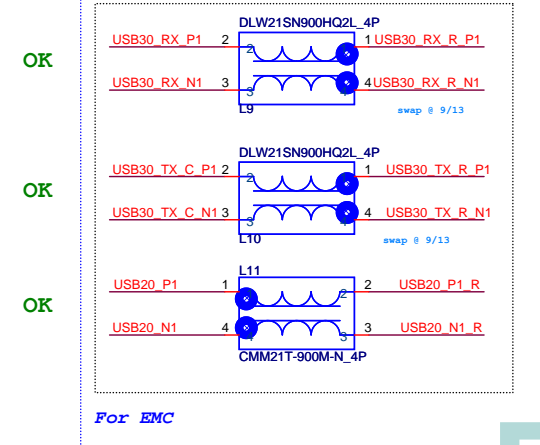
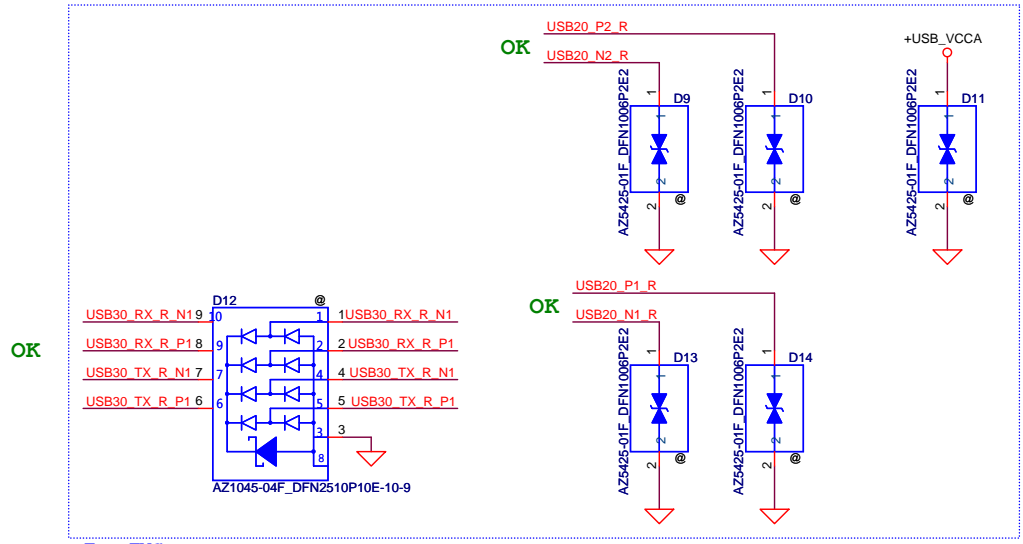
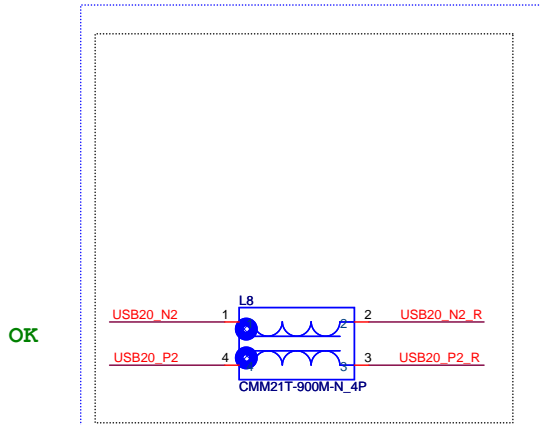
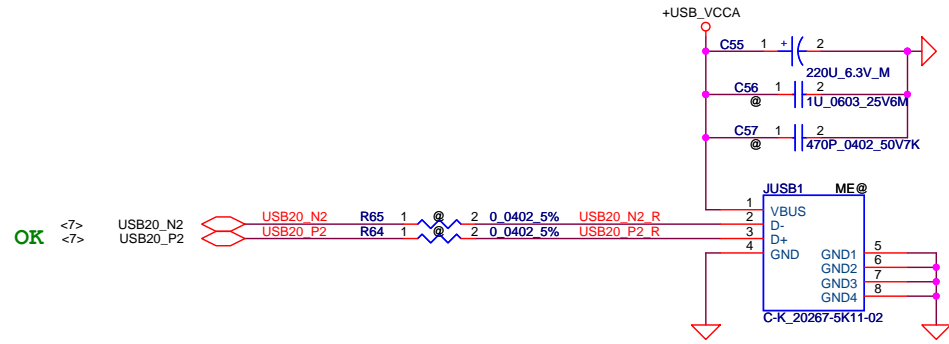
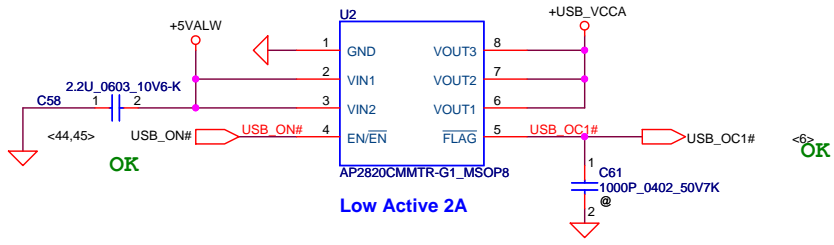


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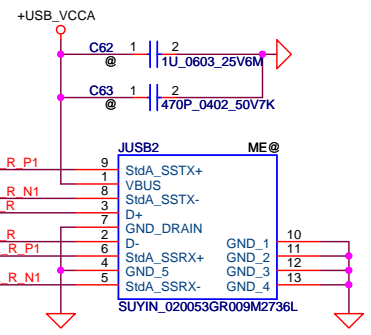


# LEFT SIDE USB3.0 PORT X2



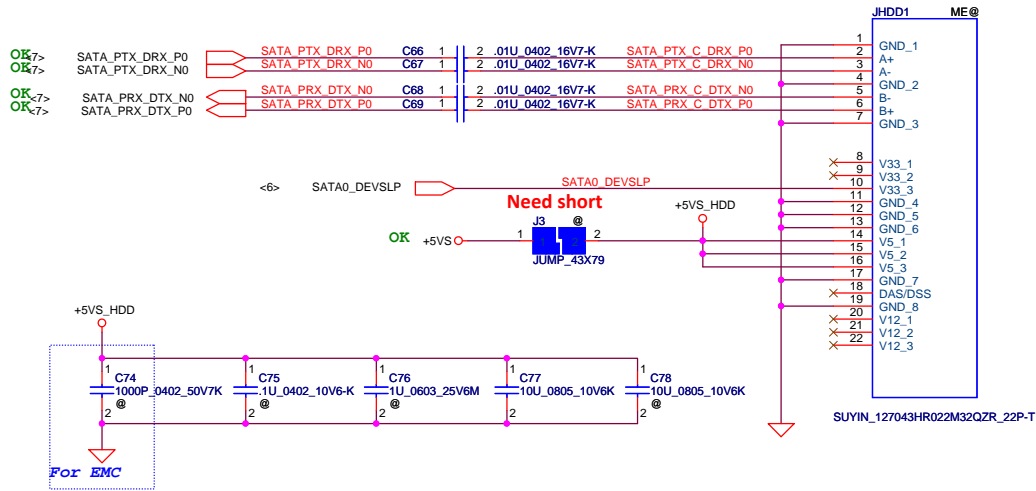
For EMC

OK	<7>	USB30_TX_P1	USB30_TX_P1	C64	1	2	.1U 0402 10V6-K	USB30_TX_C_P1	R68	1	2	0 0402 5%	USB30_TX_R_P1
OK	<7>	USB30_TX_N1	USB30_TX_N1	C65	1	2	.1U 0402 10V6-K	USB30_TX_C_N1	R69	1	2	0 0402 5%	USB30_TX_R_N1
OK	<7>	USB20_P1	USB20_P1						R70	1	2	0 0402 5%	USB20_P1_R
OK	<7>	USB20_N1	USB20_N1						R71	1	2	0 0402 5%	USB20_N1_R
OK	<7>	USB30_RX_P1	USB30_RX_P1						R72	1	2	0 0402 5%	USB30_RX_R_P1
OK	<7>	USB30_RX_N1	USB30_RX_N1						R73	1	2	0 0402 5%	USB30_RX_R_N1

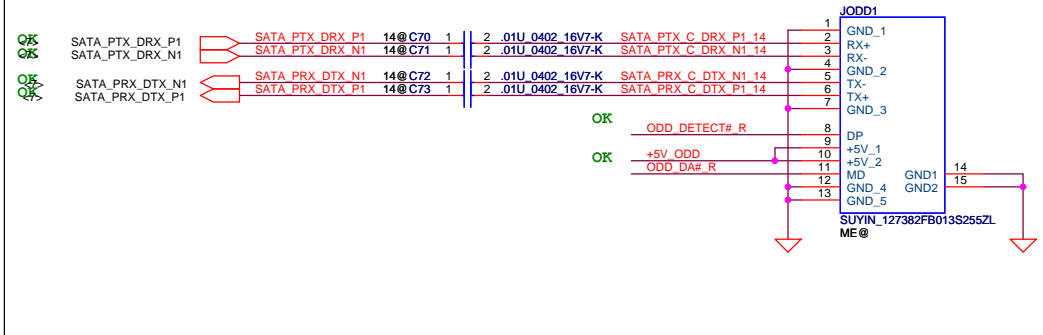


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### SATA HDD Conn.

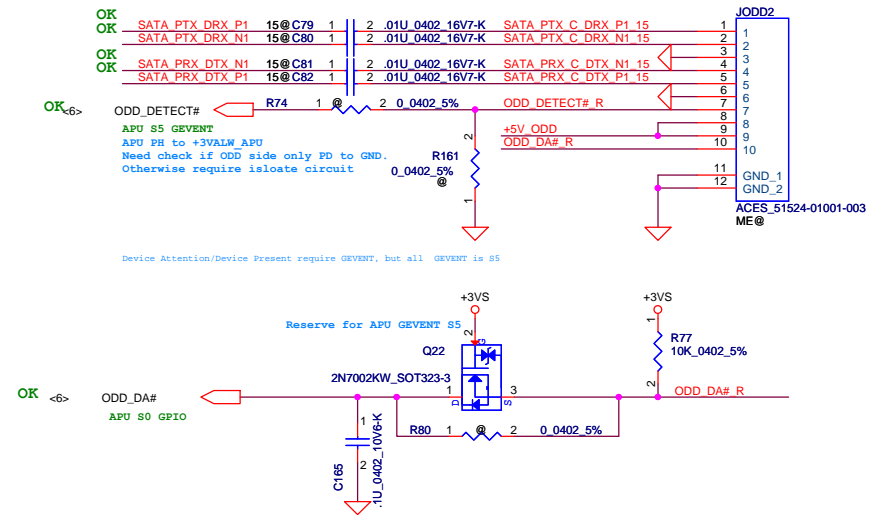
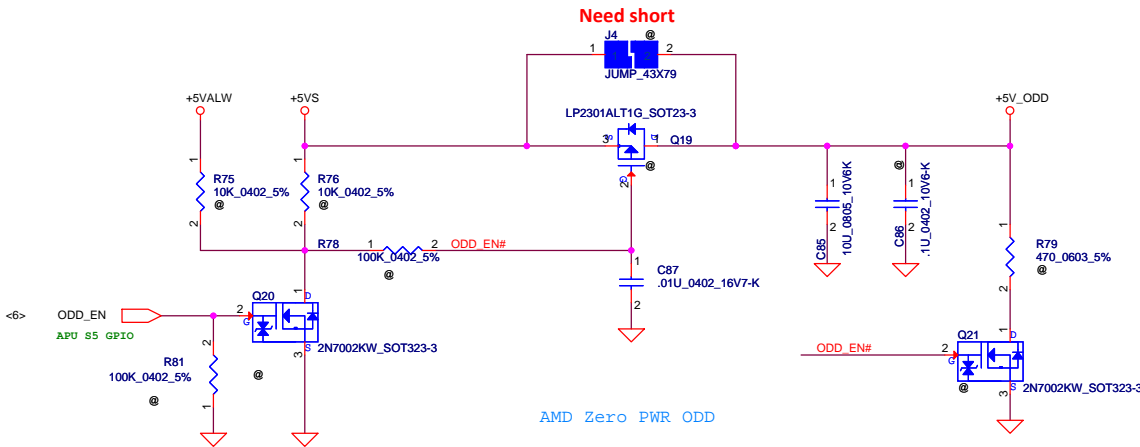


### FOR 14" SATA ODD Conn.



### FOR 15" SATA ODD FFC Conn

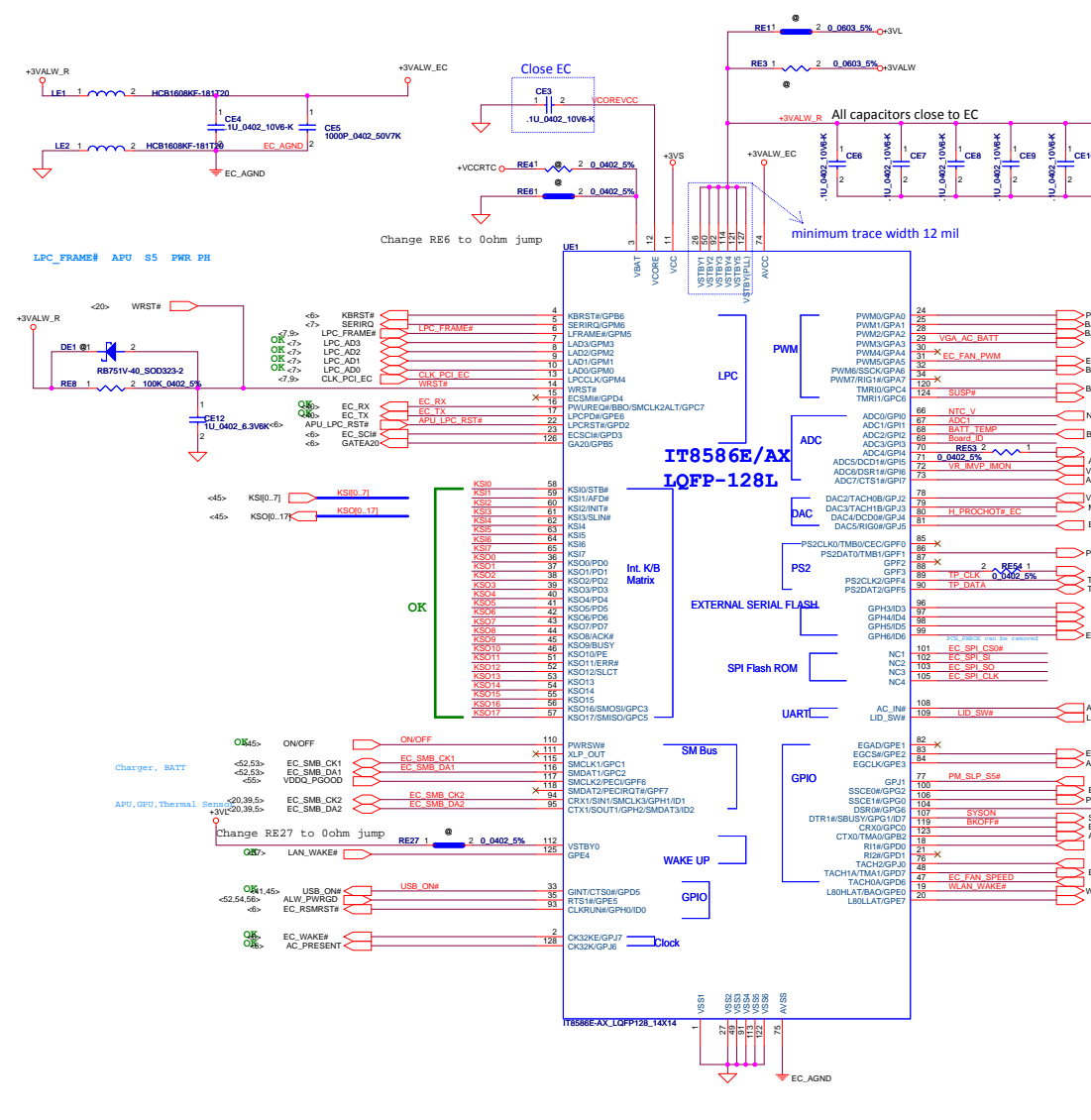
### +5VS to +5V\_ODD OK



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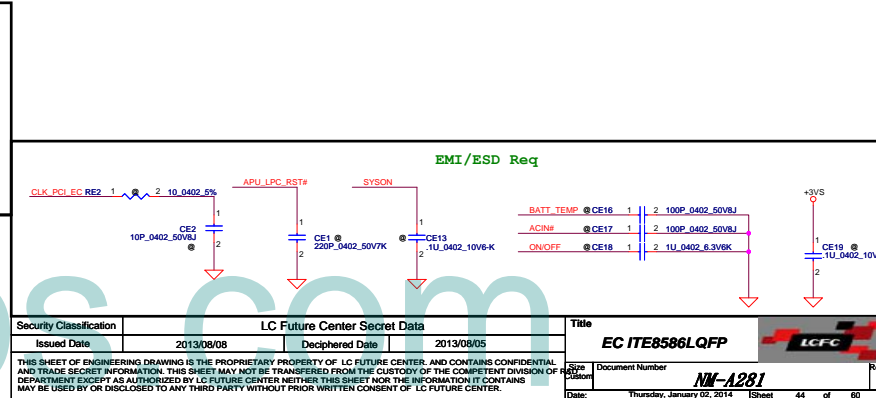
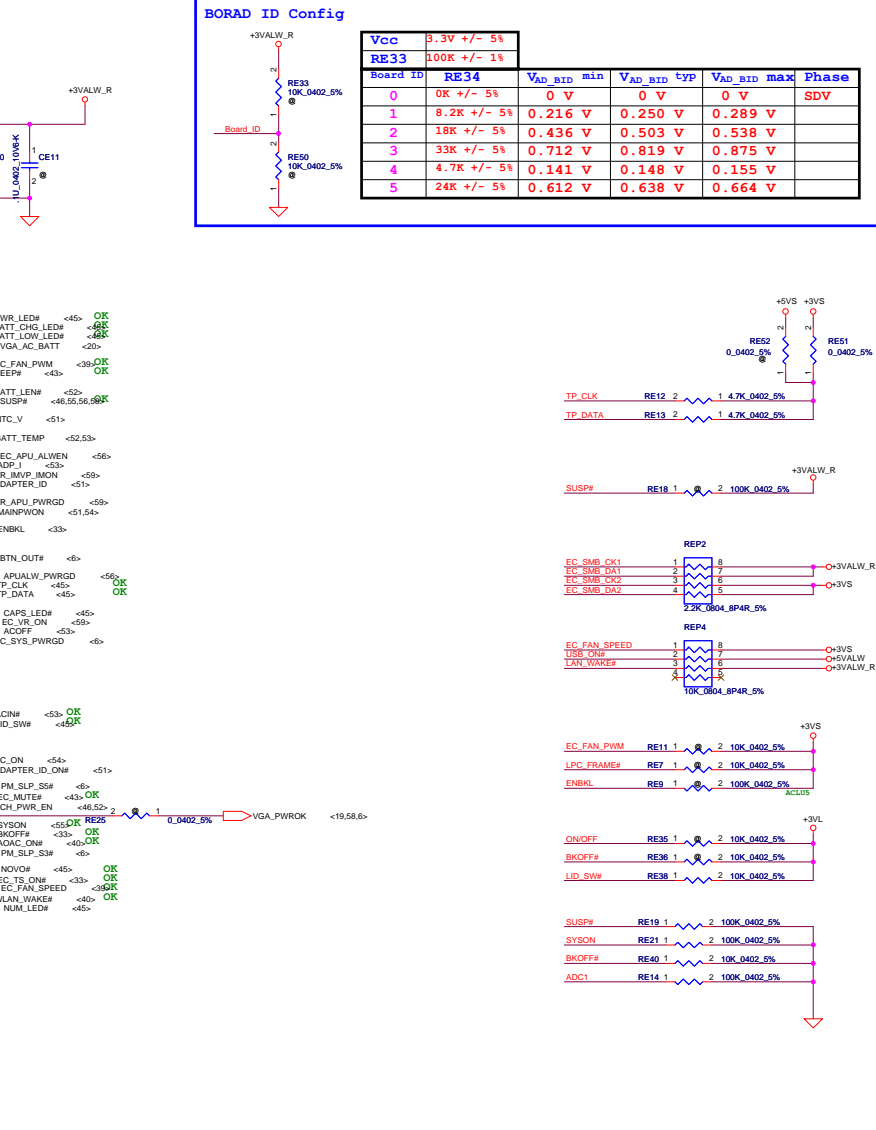
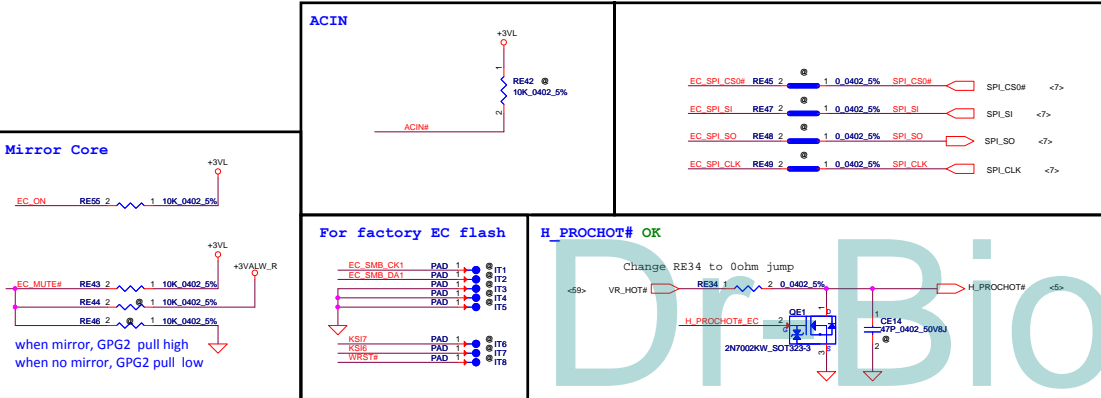
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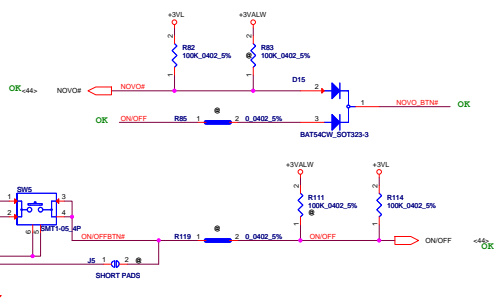
**BORAD ID Config**

Board ID	RE34	V <sub>AD_BTD</sub> min	V <sub>AD_BTD</sub> typ	V <sub>AD_BTD</sub> max	Phase
0	0K +/- 5%	0 V	0 V	0 V	SDV
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	
2	18K +/- 5%	0.436 V	0.503 V	0.538 V	
3	33K +/- 5%	0.712 V	0.819 V	0.875 V	
4	4.7K +/- 5%	0.141 V	0.148 V	0.155 V	
5	24K +/- 5%	0.612 V	0.638 V	0.664 V	

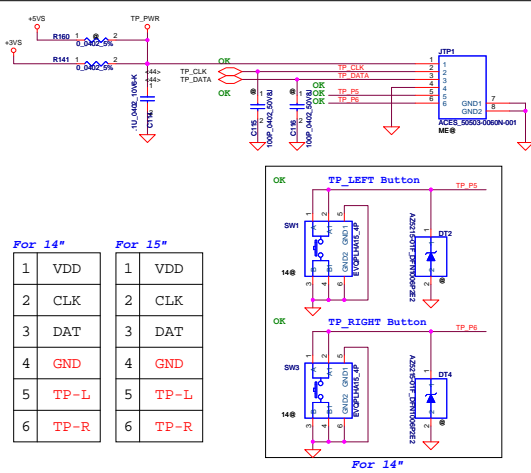


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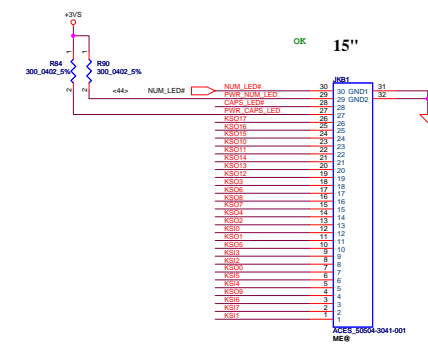
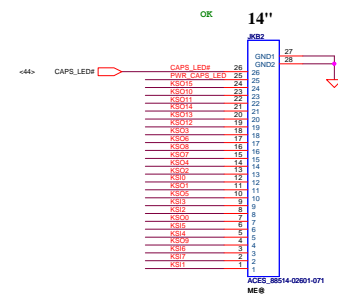
**ON/OFF switch**



**TP/B Connector**

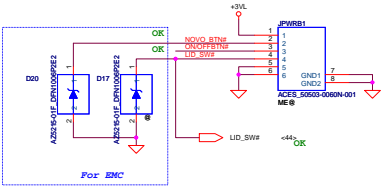


**K/B Connector**

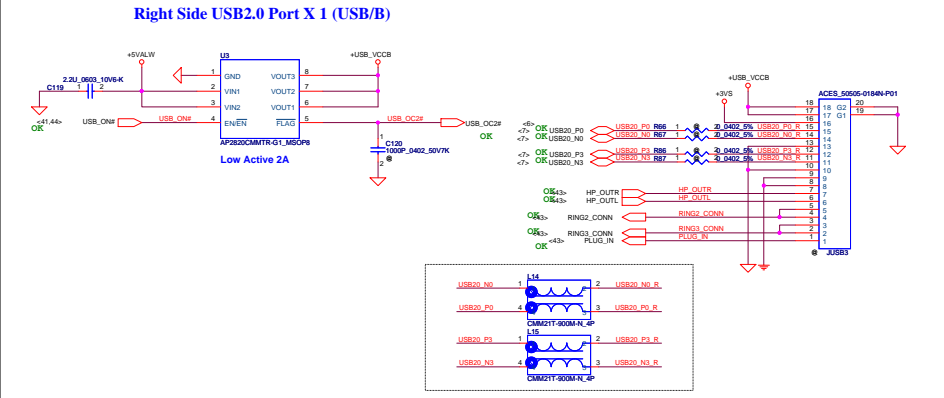


	14''	15''
KB_1	KS11_14	KS00_15
KB_2	KS17_14	KS12_15
KB_3	KS16_14	KS13_15
KB_4	KS09_14	KS05_15
KB_5	KS14_14	KS01_15
KB_6	KS14_14	KS10_15
KB_7	KS00_14	KS02_15
KB_8	KS12_14	KS04_15
KB_9	KS13_14	KS07_15
KB_10	KS05_14	KS08_15
KB_11	KS01_14	KS06_15
KB_12	KS10_14	KS03_15
KB_13	KS02_14	KS01_15
KB_14	KS04_14	KS01_15
KB_15	KS07_14	KS01_15
KB_16	KS08_14	KS01_15
KB_17	KS06_14	KS01_15
KB_18	KS03_14	KS01_15
KB_19	KS02_14	KS01_15
KB_20	KS01_14	KS01_15
KB_21	KS01_14	KB_LED_PWR_15
KB_22	KS01_14	CAPS_LED#_15
KB_23	KS01_14	VDD_15
KB_24	KS01_14	NUM_LED#_15

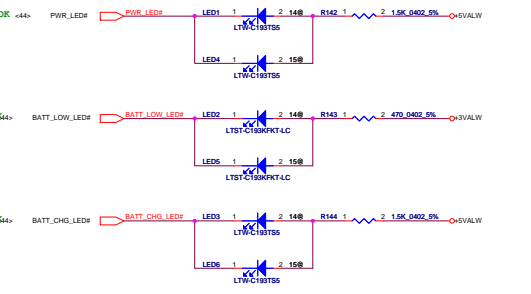
**PWR/B Connector**



**USB I/O Connector**

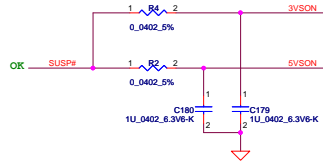


**LED**

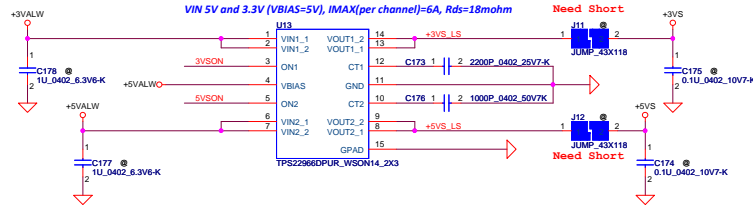


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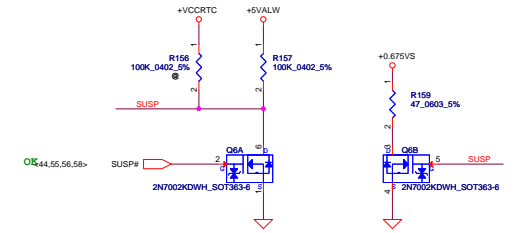
**Load Switch**  
**+5VALW To +5VS OK**  
**+3VALW To +3VS**



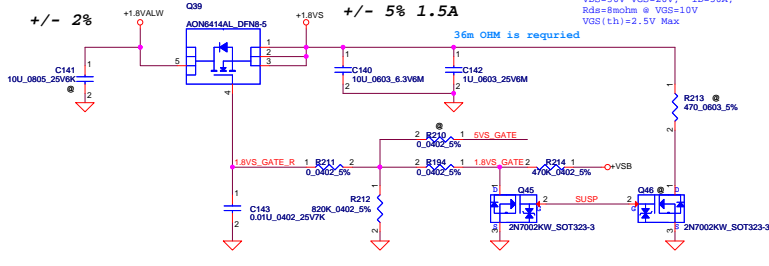
**+5VS, C159 --> 1.5ms**  
**+3VS, C160 --> 2.5ms**



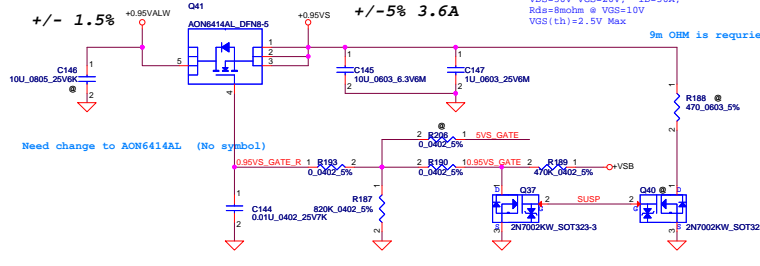
**For DisCharge**



**+1.8VALW to +1.8VS**

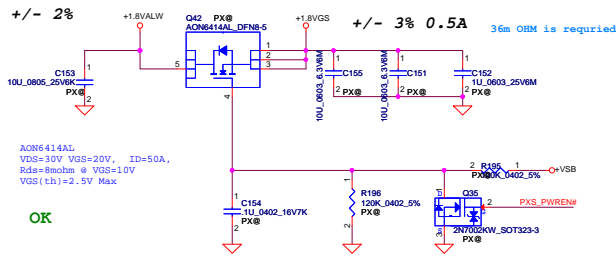


**+0.95VALW to +0.95VS**

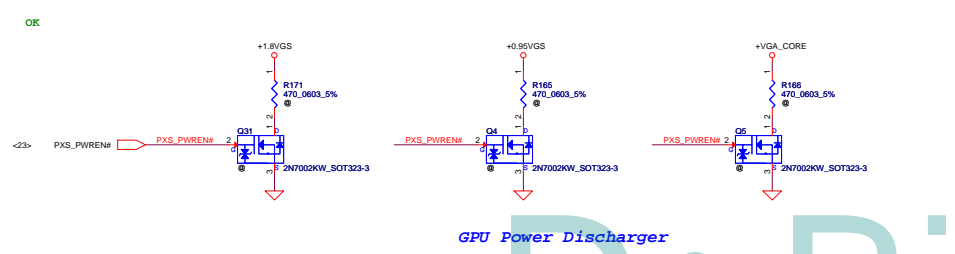
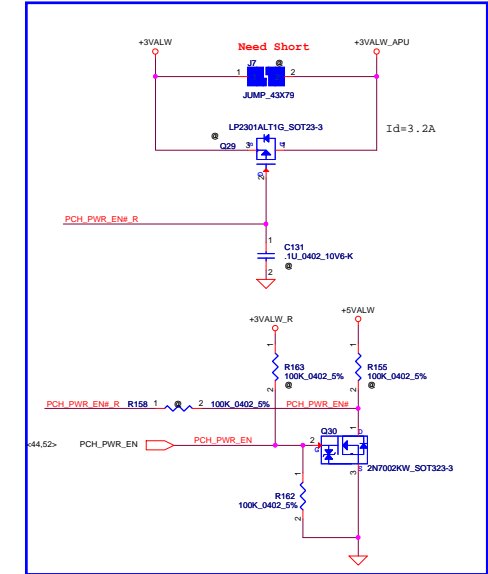
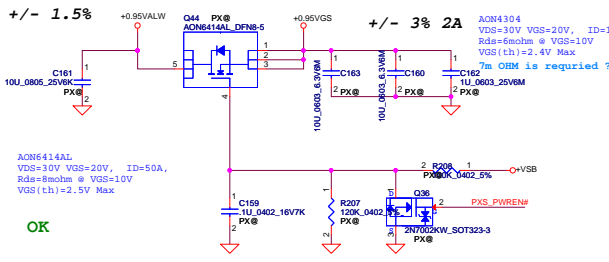


**Need check all the EN pin and PWR Sequence.**

**+1.8VALW to +1.8VGS Reserve for GPU/APU share +1.8V**



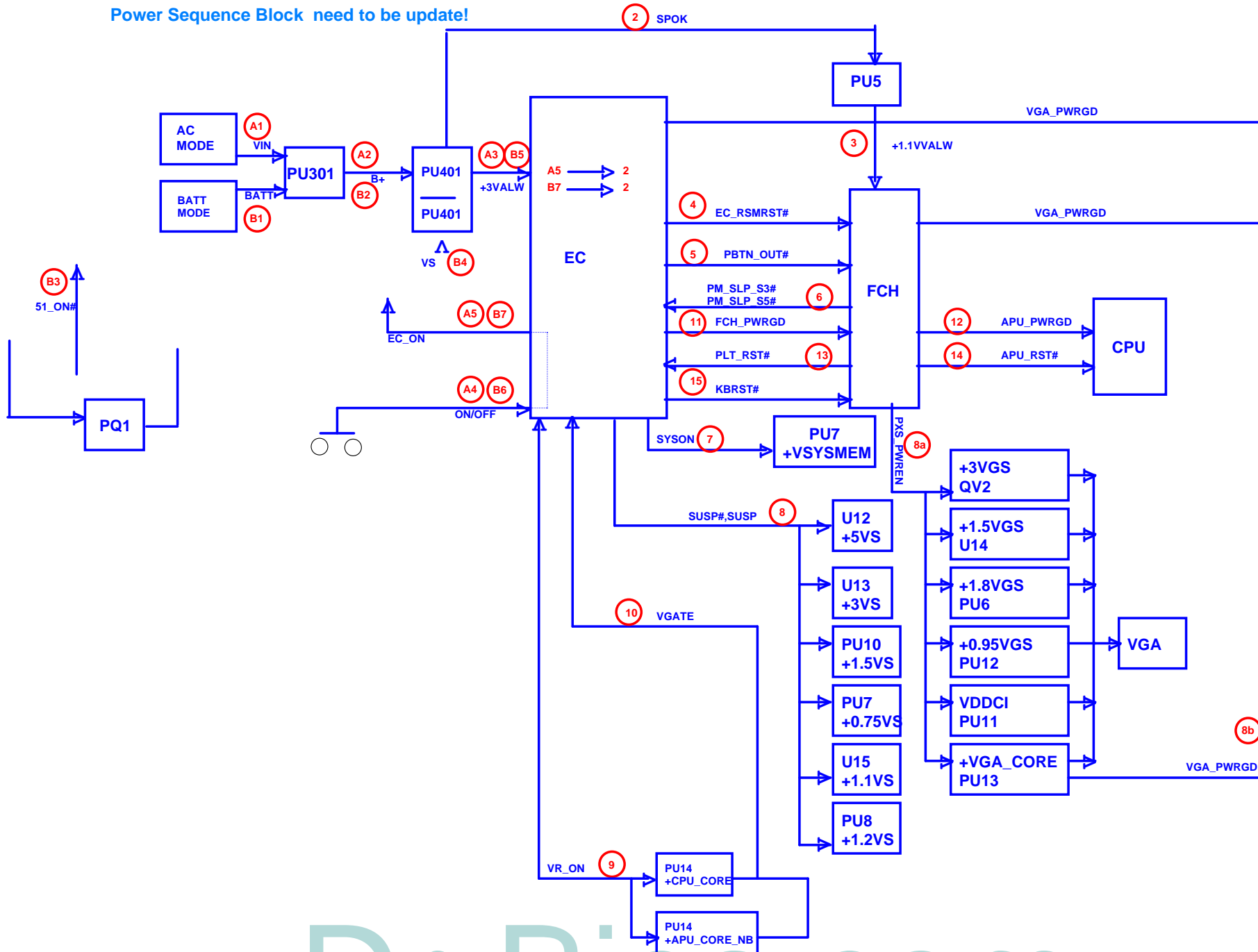
**+0.95VALW to +0.95VGS Reserve for GPU/APU share +0.95V**



**GPU Power Discharge**

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Power Sequence Block need to be update!




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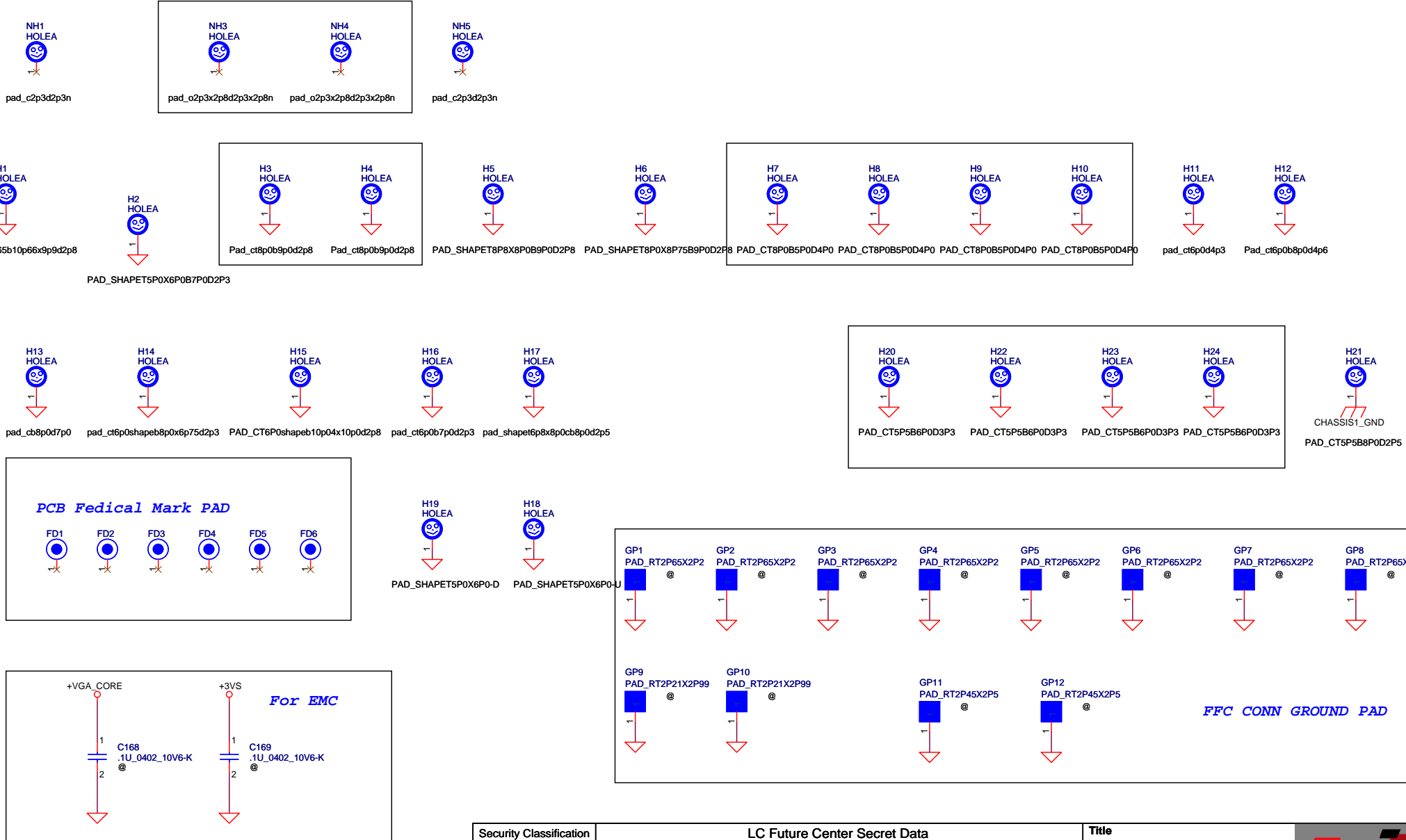
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5	4	3	2	1	
D					D
C					C
B					B
A					A

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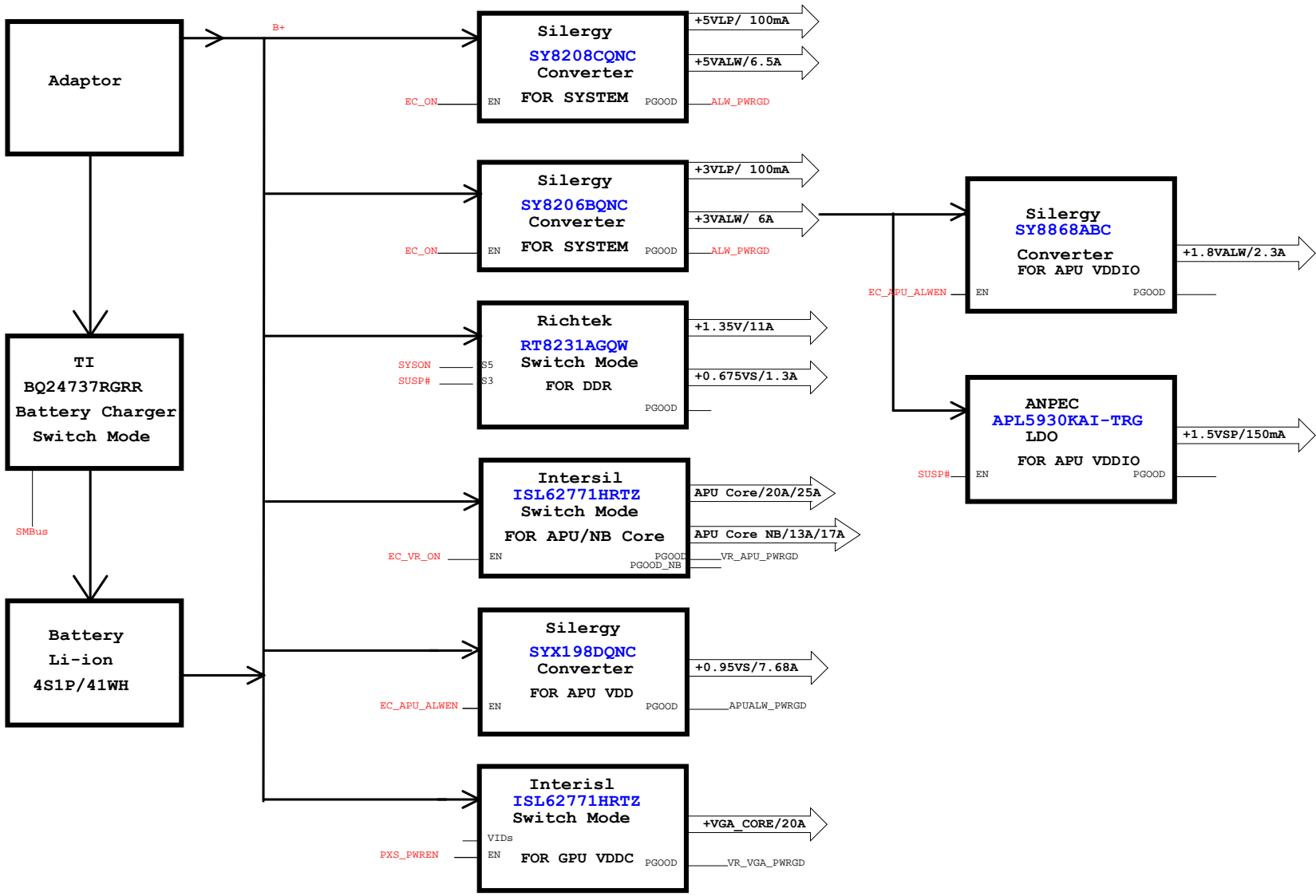
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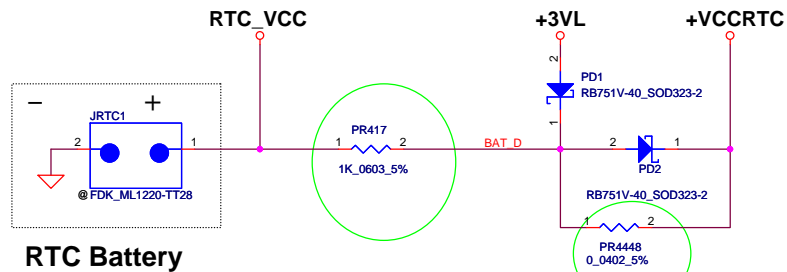
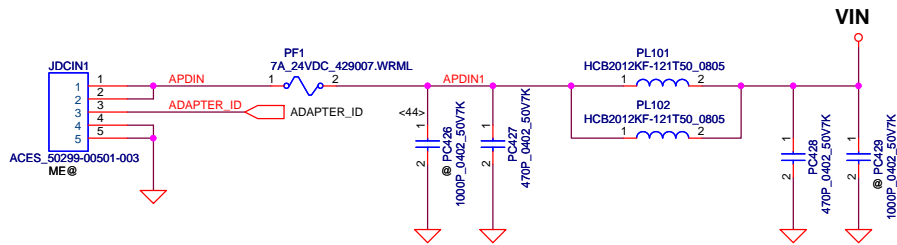
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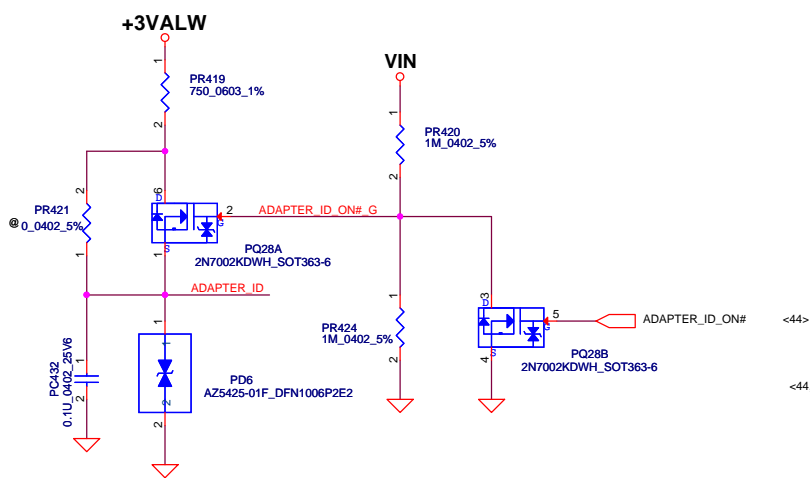


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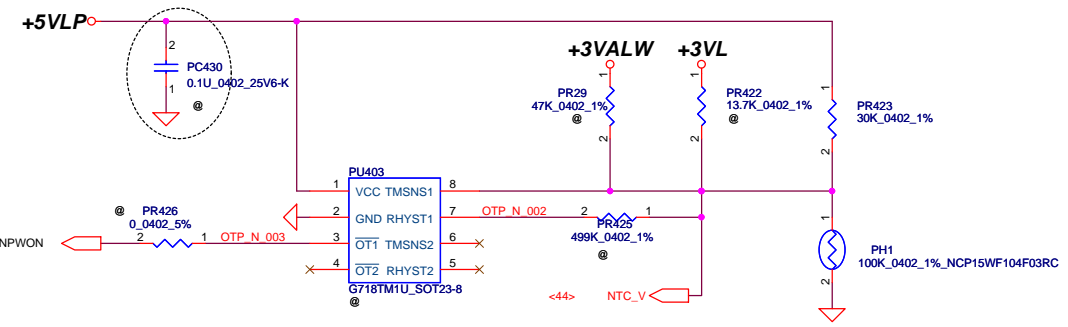
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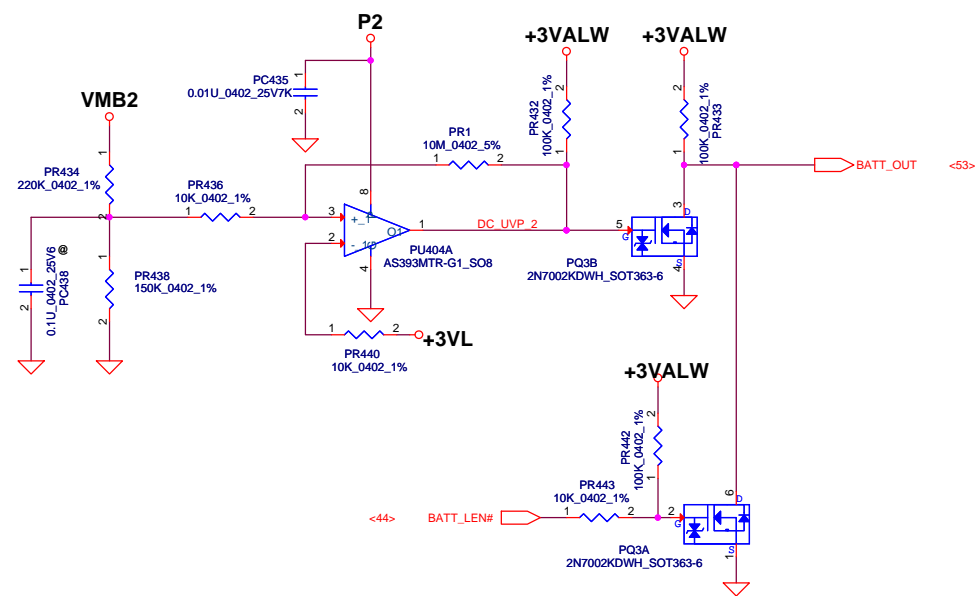
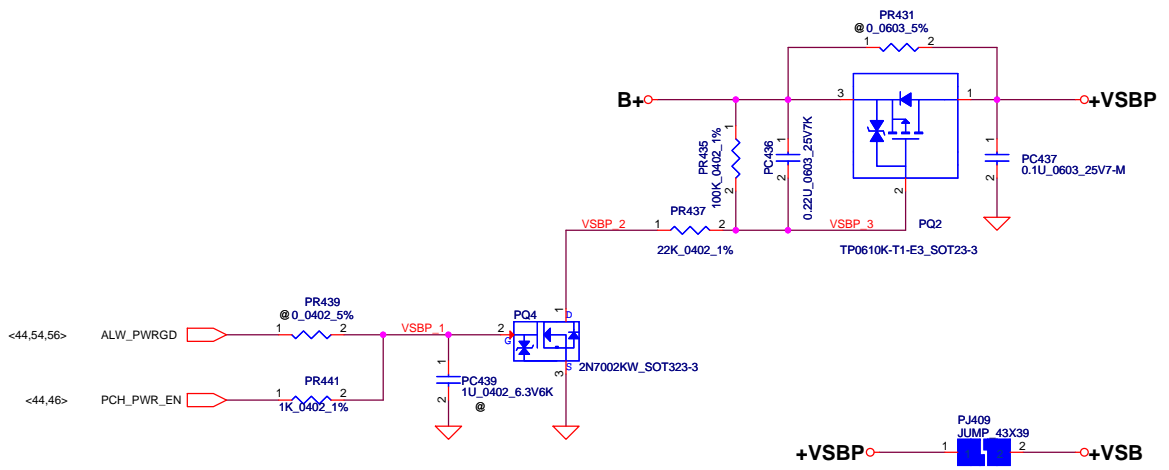
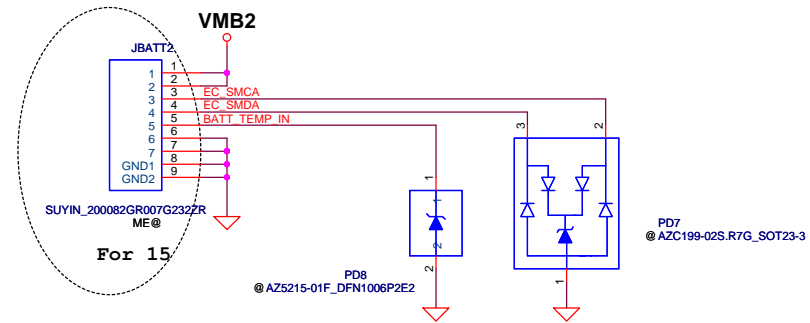
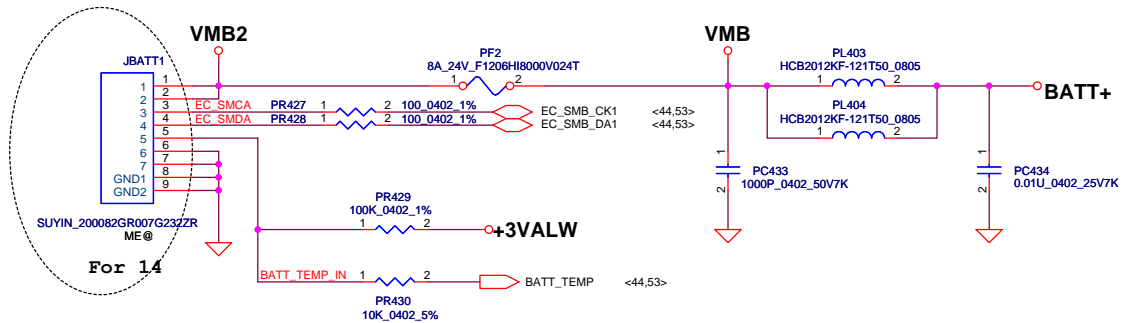
RTC Battery



PH1 under CPU bottom side :  
 CPU thermal protection at 92+3 degree C  
 Recovery at 56 +3 degree C

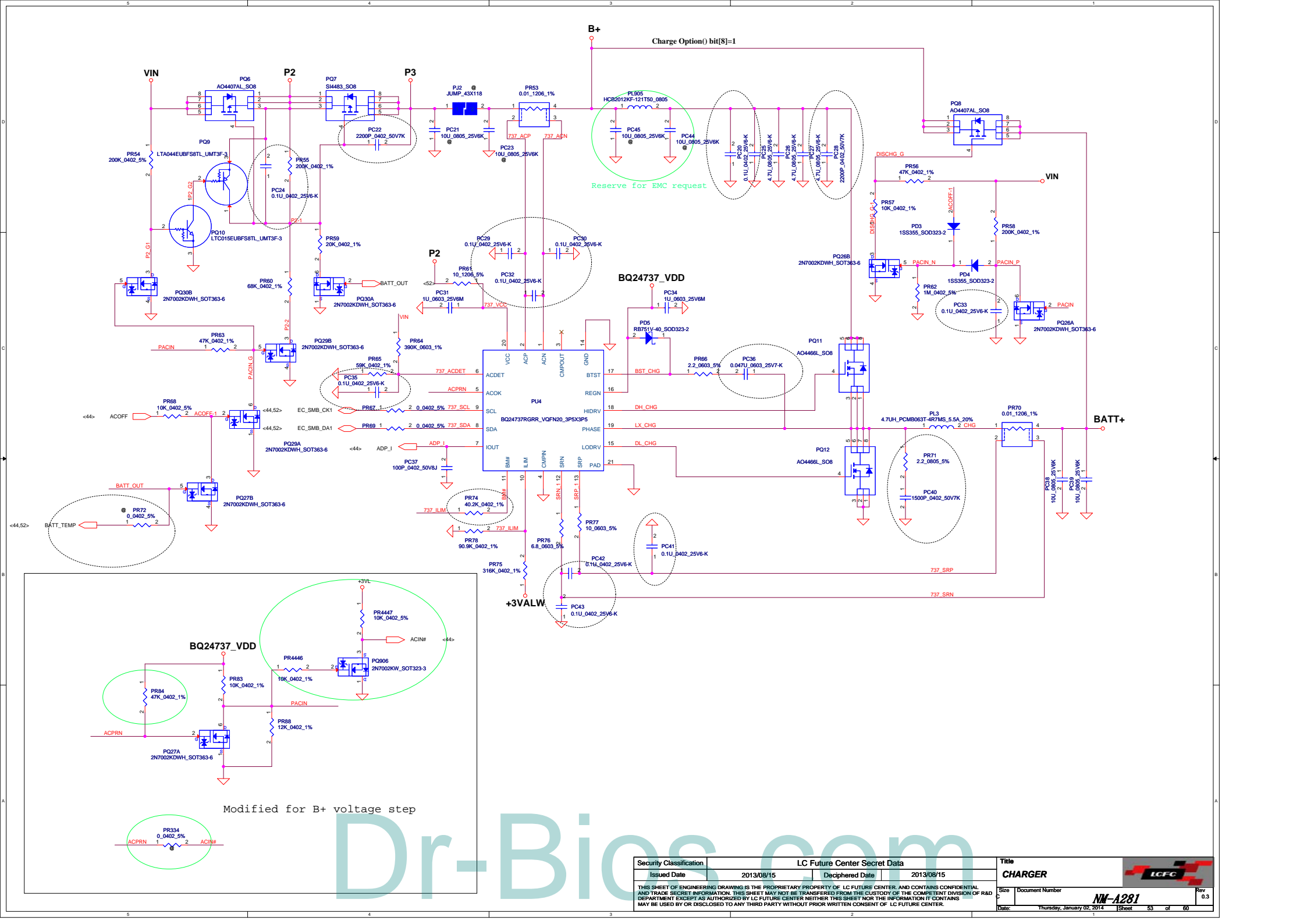


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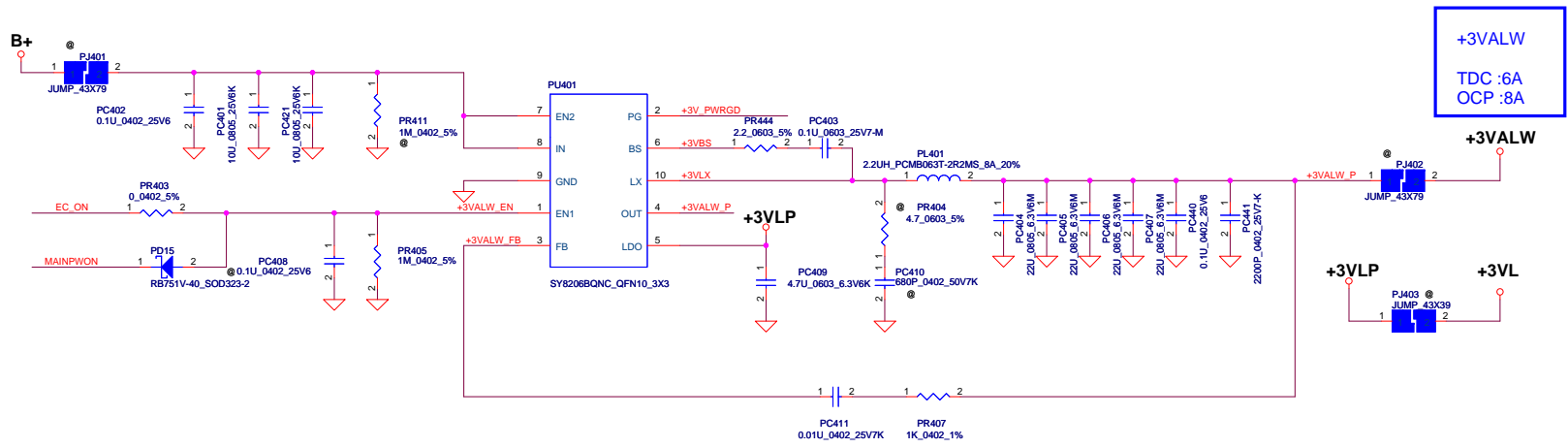
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Modified for B+ voltage step

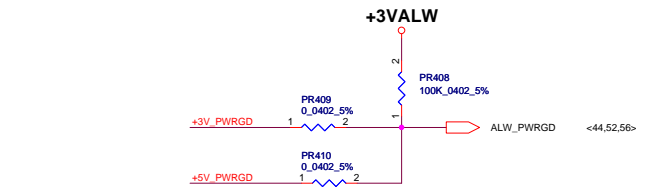
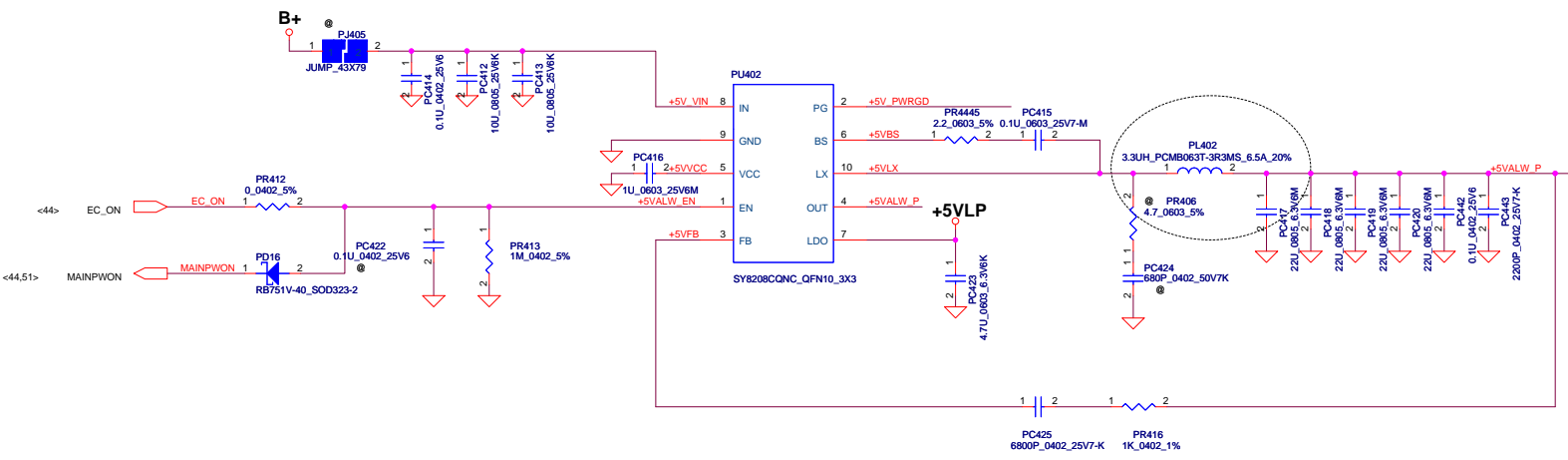
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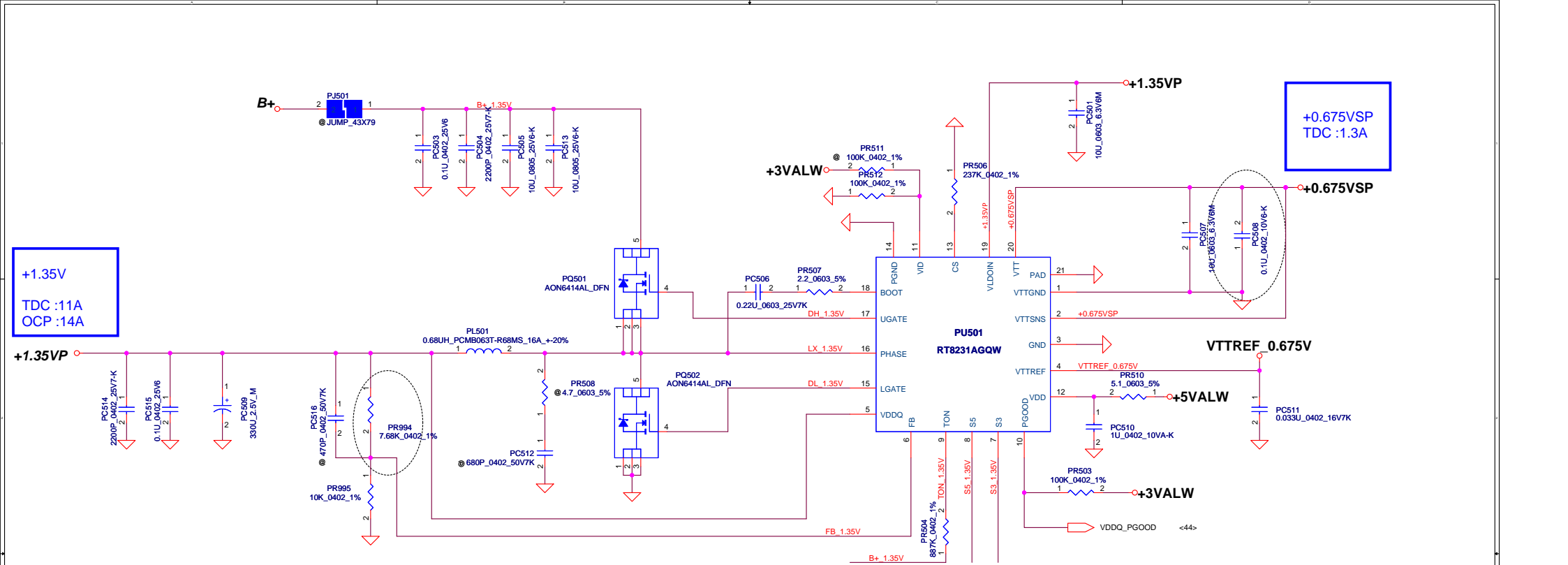
**+3VALW**  
TDC :6A  
OCP :8A

**+5VALW**  
TDC :6.5A  
OCP :11A



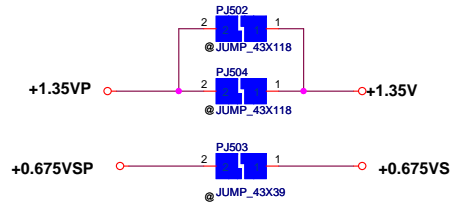
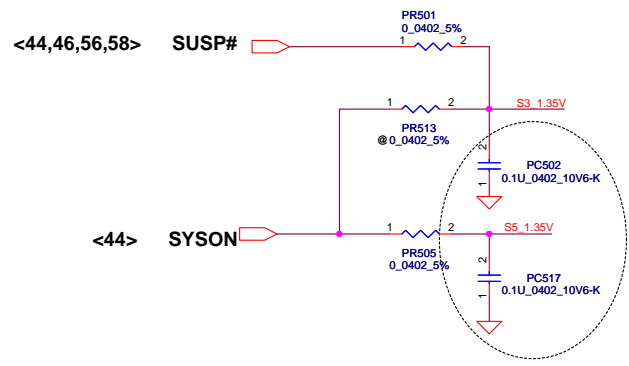
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+1.35V  
TDC :11A  
OCP :14A

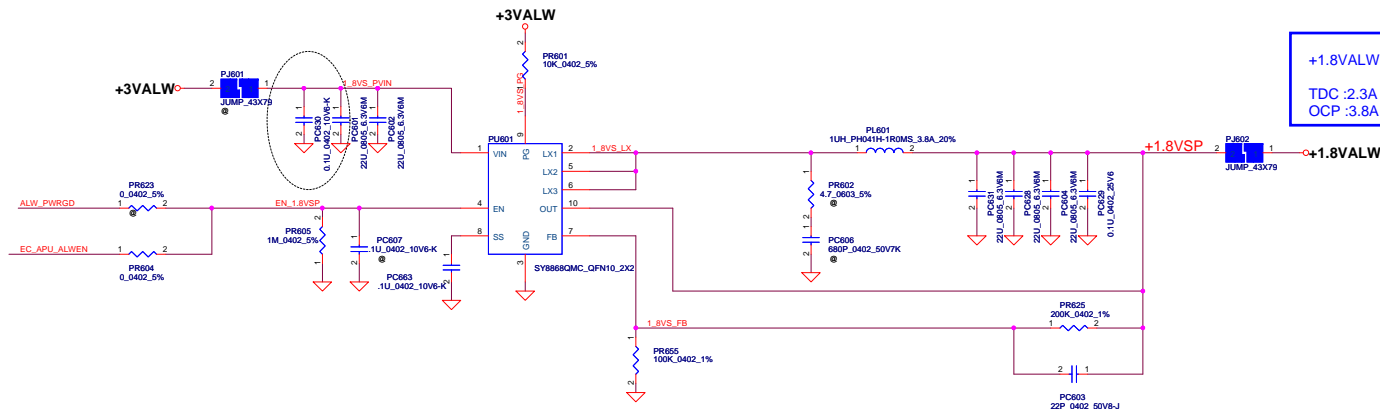
+0.675VSP  
TDC :1.3A



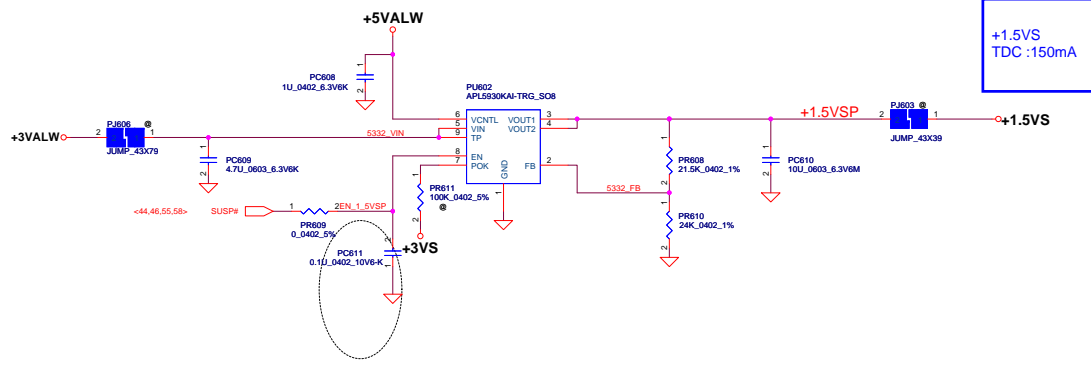
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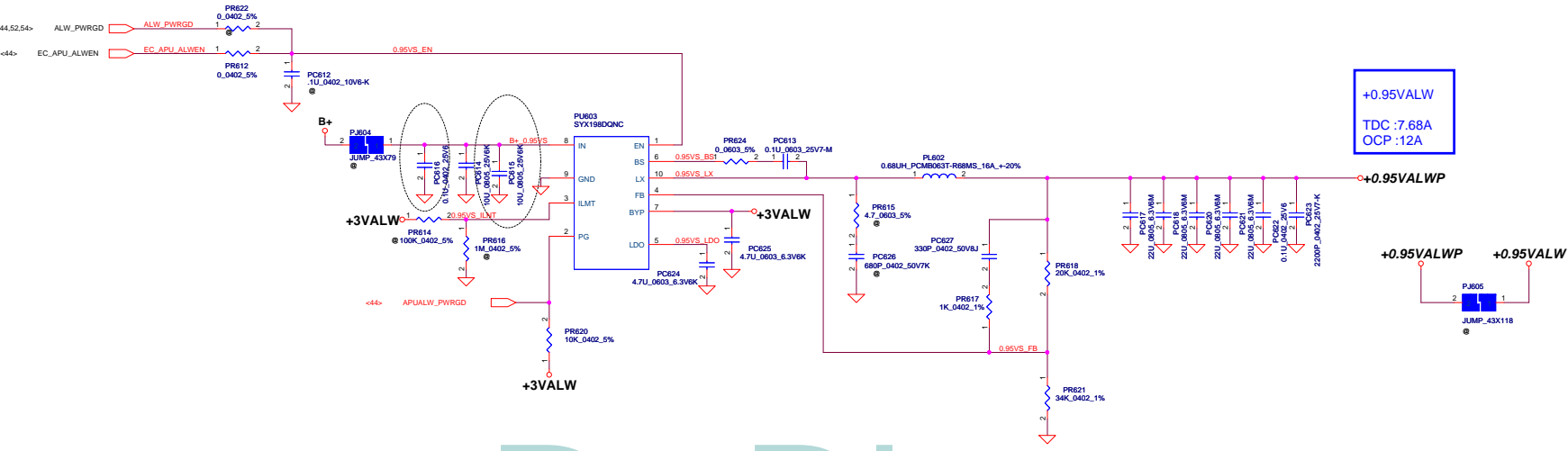
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1.35VS/+0.675VS			
Size	Document Number	Rev	
Custom	NM-A281	0.3	
Date:	Thursday, January 02, 2014	Sheet	55 of 60



+1.8VALW  
TDC :2.3A  
OCP :3.8A



+1.5VS  
TDC :150mA



+0.95VALW  
TDC :7.68A  
OCP :12A


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		2013/08/15

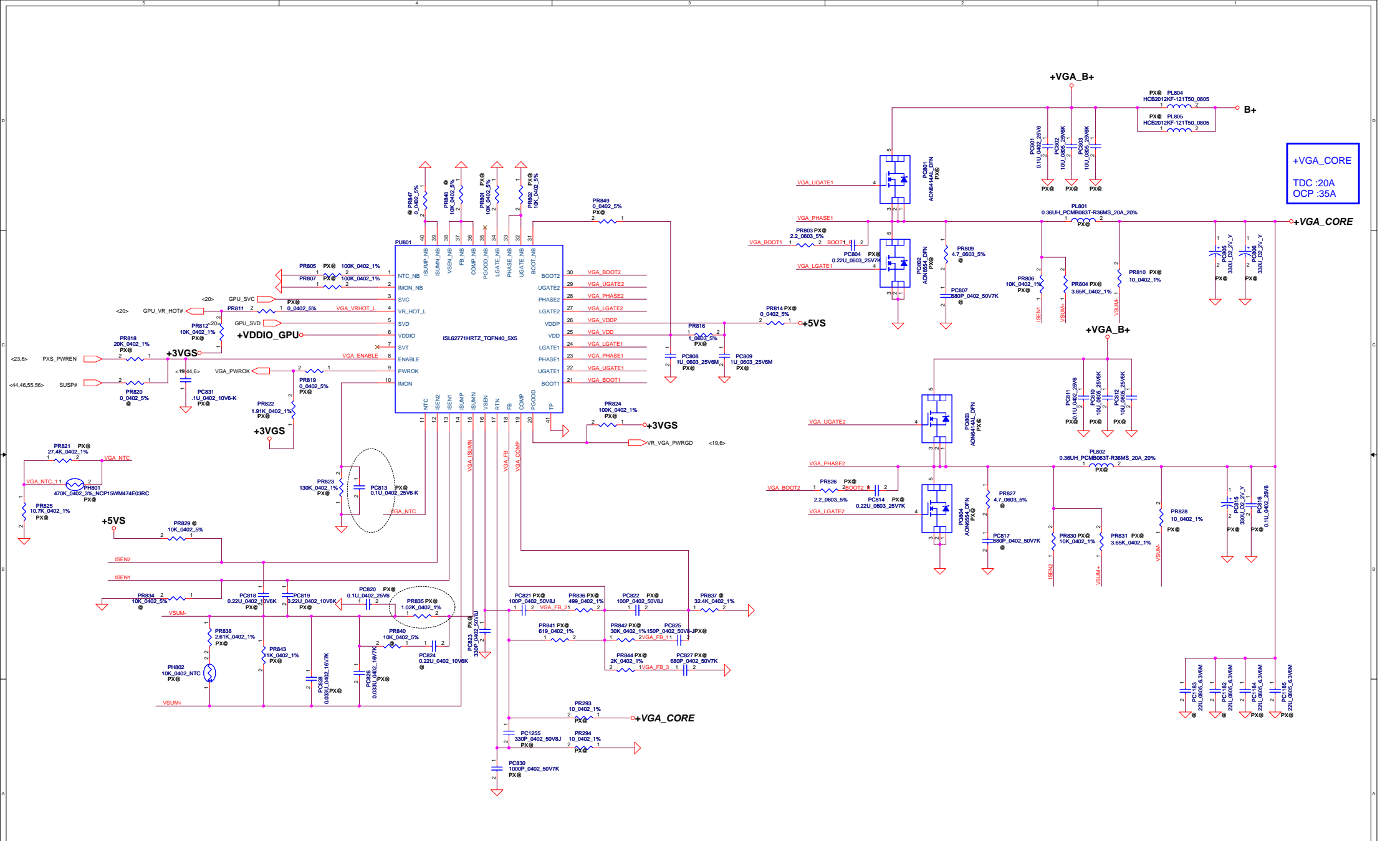
Title	+1.35VS_VGA/+1.5VS
Document Number	NM-A281
Rev	03
Date	Thursday, January 02, 2014
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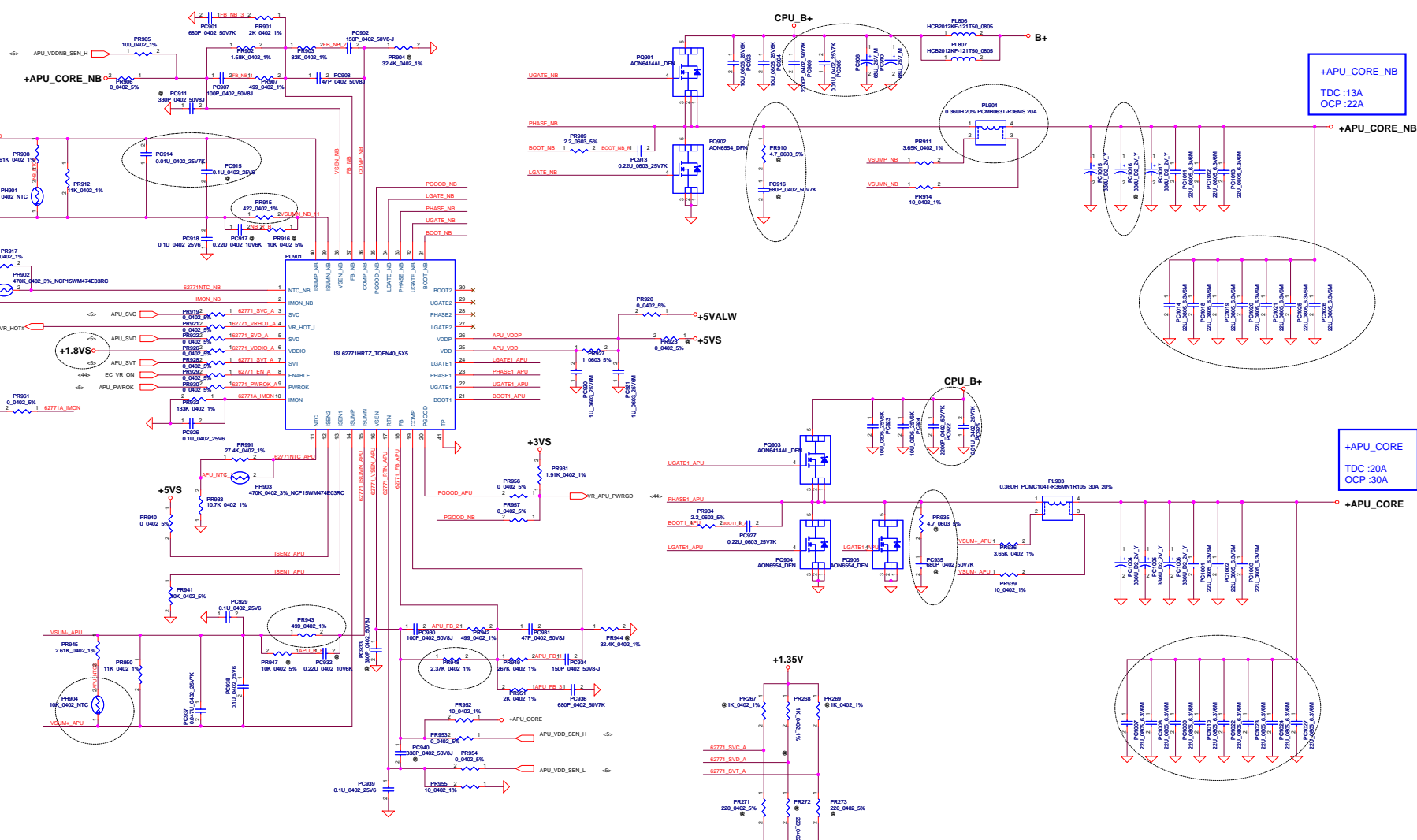


**+VGA\_CORE**  
TDC :20A  
OCP :35A

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Title	<b>+VGA_CORE</b>	
Document Number	NM-A281	
Date	Thursday, January 02, 2014	Sheet 58 of 60

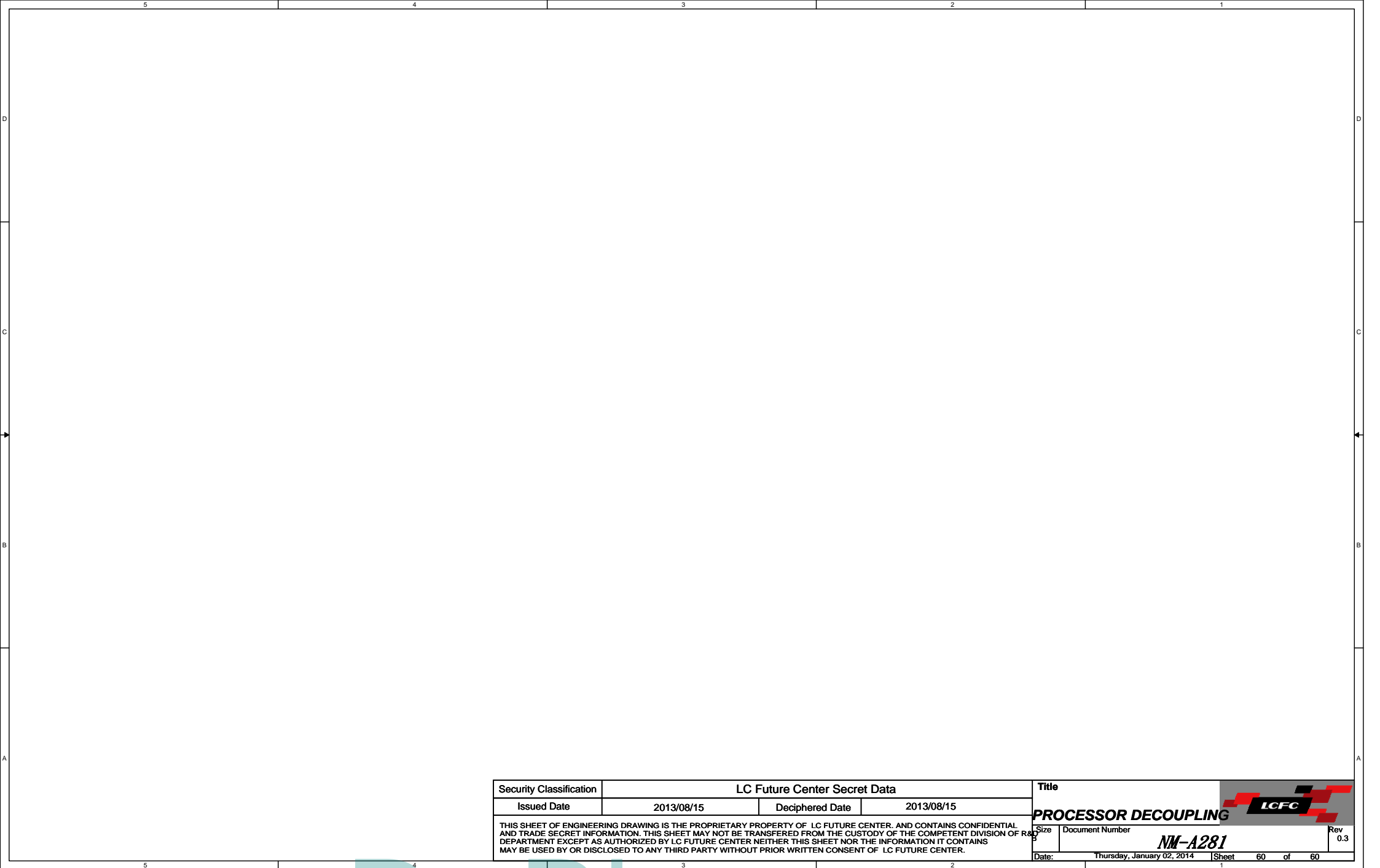
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PRE-PWROK METAL VID CODES

SVC	SVD	Boot Voltage
0	0	1.1V
0	1	1.0V
1	0	0.9V
1	1	0.8V(Default)

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2013/08/15	Deciphered Date	2013/08/15	PWR_CPU Core	
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Rev	0.5	Rev	0.5	Doc#	NI-4281
Date	Thursday, January 03, 2014	Sheet	59	of	60



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Issued Date	2013/08/15	Deciphered Date	2013/08/15	<b>PROCESSOR DECOUPLING</b>			
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						<b>NM-A281</b>	0.3
					Date:	Thursday, January 02, 2014	Sheet 60 of 60

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