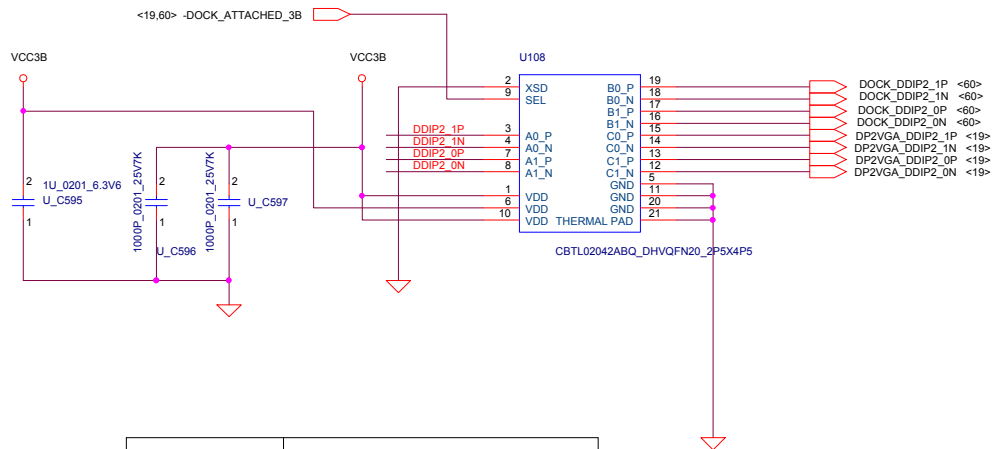


ST-2 UMA LOGIC SCHEMATICS

- | | | |
|------------------------------------|---------------------------|---------------------------------|
| 1.TITLE PAGE | 36.BLANK | 71.THINK ENGINE(1/2) |
| 2.EC HISTORY | 37.BLANK | 72.THINK ENGINE(2/2) |
| 3.CPU(1/16) : DDI/EDP | 38.LCD CONNECTOR | 73.DC-IN |
| 4.CPU(2/16) : MISC/JTAG | 39.BLANK | 74.BATTERY INPUT |
| 5.CPU(3/16) : DDR3L CHANNEL-A | 40.EXT CRT INTERFACE | 75.BATTERY CHARGER(BQ24760T) |
| 6.CPU(4/16) : DDR3L CHANNEL-B | 41.DISPLAY PORT CONNECTOR | 76.CHARGER SELECTOR |
| 7.CPU(5/16) : RTC/HDA/SATA/JTAG | 42.BLANK | 77.BATTERY MONITOR |
| 8.CPU(6/16) : CLOCK SIGNALS | 43.SATA HDD CONN | 78.DC/DC VCC5M/VCC3M(TPS51220A) |
| 9.CPU(7/16) : LPC/SPI/SMBUS/C-LINK | 44.BLANK | 79.DC/DC VCCCPUCORE(VT1328M) |
| 10.CPU(8/16) : SYSTEM PM | 45.USB POWER/CONN | 80.DC/DC VCCCPUCORE(VT1334S) |
| 11.CPU(9/16) : LCD/PCI/DDI CONTROL | 46.GBE CLARKVILLE | 81.BLANK |
| 12.CPU(10/16) : GPIO/CPU/MISC/LPIO | 47.GBE LAN SWITCH | 82.VCCCPUCORE DECOUPLING |
| 13.CPU(11/16) : PCIE/USB | 48.GBE MAGNETICS | 83.BLANK |
| 14.CPU(12/16) : POWER | 49.RJ45 CONNECTOR | 84.BLANK |
| 15.CPU(13/16) : POWER | 50.PCIE MINI CARD SLOT | 85.DC/DC VCC1R05AMT(VT384B) |
| 16.CPU(14/16) : GND | 51.MEDIA CARD CONTROLLER | 86.DC/DC VCC1R35A(VT387B) |
| 17.CPU(15/16) : NCTF | 52.MEDIA CARD ITERFACE | 87.DC/DC VCC0R675B(TPS51200) |
| 18.CPU(16/16) : CFG/RESERVED | 53.SMART CARD I/F | 88.BLANK |
| 19.DDI-VGA CONVERTER | 54.AUDIO ALC3232-GR | 89.BLANK |
| 20.BLANK | 55.AUDIO CONNECTOR | 90.BLANK |
| 21.XDP CONNECTOR | 56.AUDIO JACK SENSE | 91.BLANK |
| 22.RTC BATTERY | 57.AUDIO EXT MIC I/F | 92.DC/DC VCC1R5B(BU15TD2WNVX) |
| 23.SPI FLASH | 58.AUDIO SPEAKER | 93.LOAD SW PCH SUS |
| 24.DDR3L BASE MEMORY CH-A (1/2) | 59.AUDIO BEEP | 94.LOAD SW LAN |
| 25.DDR3L BASE MEMORY CH-A (2/2) | 60.DOCKING CONNECTOR | 95.BLANK |
| 26.DDR3L SO DIMM CHANNEL-B | 61.MEC1633L(1/3) | 96.LOAD SW B |
| 27.BLANK | 62.MEC1633L(2/3) | 97.BLANK |
| 28.BLANK | 63.MEC1633L(3/3) | 98.LOAD SW WWAN & WLAN |
| 29.BLANK | 64.KEYBOARD CONNECTOR | 99.PTH FOR SCREW HOLES |
| 30.BLANK | 65.TOUCH PAD CONNECTOR | 100.3rd USB |
| 31.BLANK | 66.BLANK | |
| 32.BLANK | 67.FAN CONNECTOR | |
| 33.BLANK | 68.G-SNESOR | |
| 34.BLANK | 69.TPM | |
| 35.BLANK | 70.EEPROM/SMBUS SW | |

EC Modify History		
Date	EC version	File name
2013/8/28	ST-2_UMA_SDV_EC001-006	JV_ST-2_UMA_SDV_SCH_EC001-006_082801.pdf
2013/8/30	ST-2_UMA_SDV_EC007-010	JV_ST-2_UMA_SDV_SCH_EC007-010_083001.pdf
2013/9/5	ST-2_UMA_SDV_EC011	JV_ST-2_UMA_SDV_SCH_EC011_090501.pdf
2013/12/11	ST-2_UMA_SDV2_ECR001-002	JV_ST-2_UMA_SDV2_SCH_ECR001-002_121101.pdf



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10K_0201_5%

U_C598
0.1U_0201_6.3V6K

VCC5B

U2
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1A
2A
3A
4A
1B1
1B2
2B1
2B2
3B1
3B2
4B1
4B2
OE
S
GND
T-PAD

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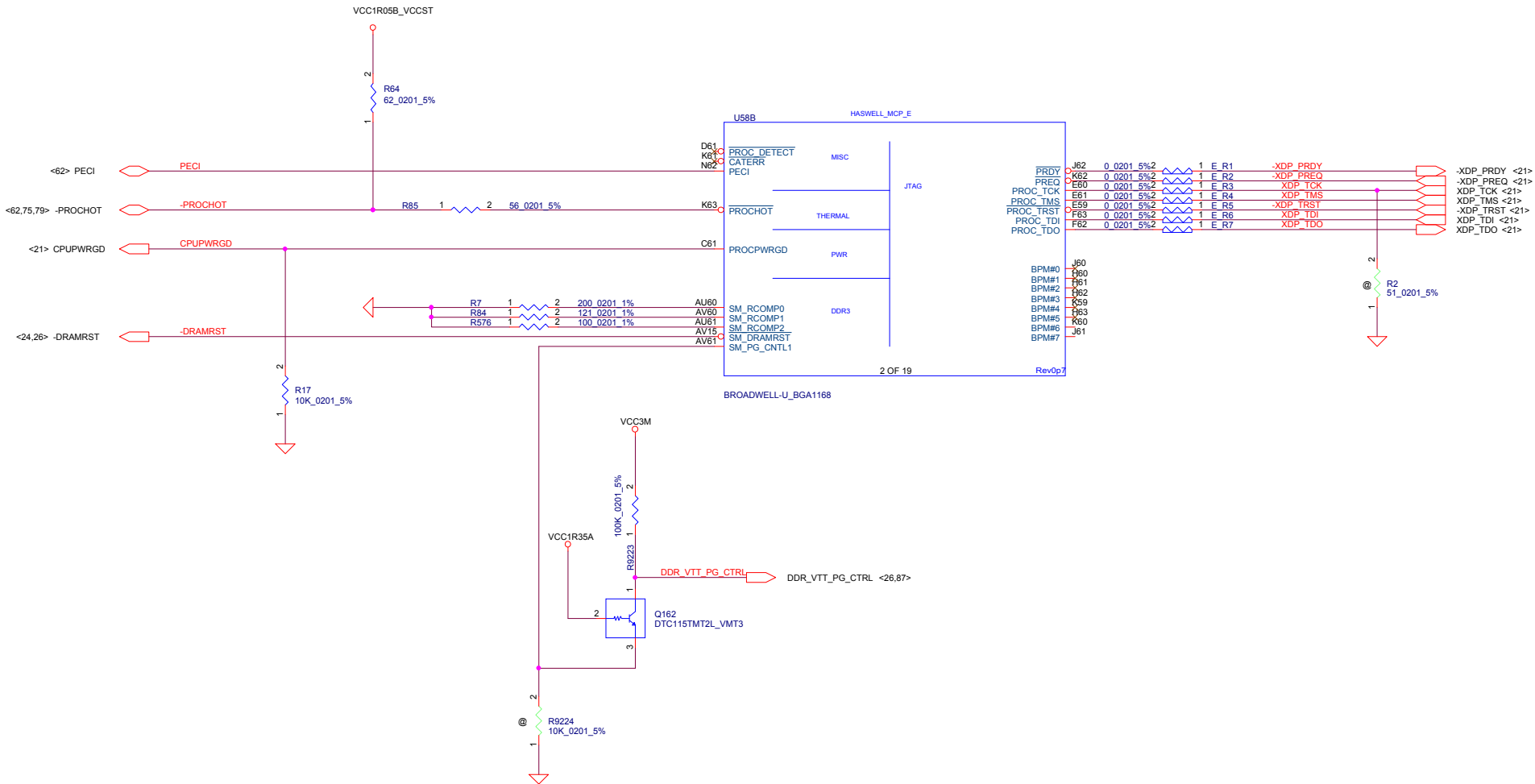
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100K_0201_5%

Vendor	P/N
NXP	CBT3257ABQ

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Size	Document Number	STING UMA			Rev
Custom					0.1
Date	Thursday, October 23, 2014		15:24	3 of 100	



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M_A_DQ2
M_A_DQ3
M_A_DQ4
M_A_DQ5
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M_A_DQ7
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M_A_DQ59
M_A_DQ60
M_A_DQ61
M_A_DQ62
M_A_DQ63

U58C

HASWELL_MCP_E

AH63 SA_DQ0
AH62 SA_DQ1
AK63 SA_DQ2
AK62 SA_DQ3
AH61 SA_DQ4
AH60 SA_DQ5
AK61 SA_DQ6
AK60 SA_DQ7
AH63 SA_DQ8
AM62 SA_DQ9
AP63 SA_DQ10
AP62 SA_DQ11
AM61 SA_DQ12
AM60 SA_DQ13
AP61 SA_DQ14
AP60 SA_DQ15
AP58 SA_DQ16
AR58 SA_DQ17
AM57 SA_DQ18
AK57 SA_DQ19
AL58 SA_DQ20
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AU58 SA_DQ36
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SA_DQ39
AY54 SA_DQ40
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AU52 SA_DQ47
AK40 SA_DQ48
AK42 SA_DQ49
AM43 SA_DQ50
AM45 SA_DQ51
AK45 SA_DQ52
AK43 SA_DQ53
AM40 SA_DQ54
AM42 SA_DQ55
AM46 SA_DQ56
AK46 SA_DQ57
AM49 SA_DQ58
AK49 SA_DQ59
AM48 SA_DQ60
SA_DQ61
AM51 SA_DQ62
AK51 SA_DQ63

DDR CHANNEL A

3 OF 19

SA_CLK#0
SA_CLK#1
SA_CLK#1
SA_CKE0
SA_CKE1
SA_CKE2
SA_CKE3
SA_CS#0
SA_CS#1
SA_ODT0
SA_RAS
SA_WE
SA_CAS
SA_BA0
SA_BA1
SA_BA2
SA_MA0
SA_MA1
SA_MA2
SA_MA3
SA_MA4
SA_MA5
SA_MA6
SA_MA7
SA_MA8
SA_MA9
SA_MA10
SA_MA11
SA_MA12
SA_MA13
SA_MA14
SA_MA15
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SA_DQSN2
SA_DQSN3
SA_DQSN4
SA_DQSN5
SA_DQSN6
SA_DQSN7
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SA_DQSP5
SA_DQSP6
SA_DQSP7
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SM_VREF_DQ0
SM_VREF_DQ1

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AV37
AW36
AY36
AU43
AW43
AY42
AY43
AP33
AR32
AP32
AY34
AW34
AU34
AU35
AV35
AY41
AU36
AY37
AR38
AP36
AU39
AR36
AV40
AW39
AY39
AU40
AP35
AW41
AU41
AR35
AV42
AU42
AJ61
AN62
AM58
AM55
AV57
AV53
AL43
AL48
AJ62
AN61
AN58
AN55
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AW53
AL42
AL49
AP49
AR51
AP51

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M_A_CKE1 <24,25>

-M_A_CS0
-M_A_CS1

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-M_A_CS1 <24,25>

-M_A_RAS
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M_A_BS2

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M_A_A2

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M_A_A5

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M_A_A8

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M_A_A11

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M_A_A14

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-M_A_DQS5

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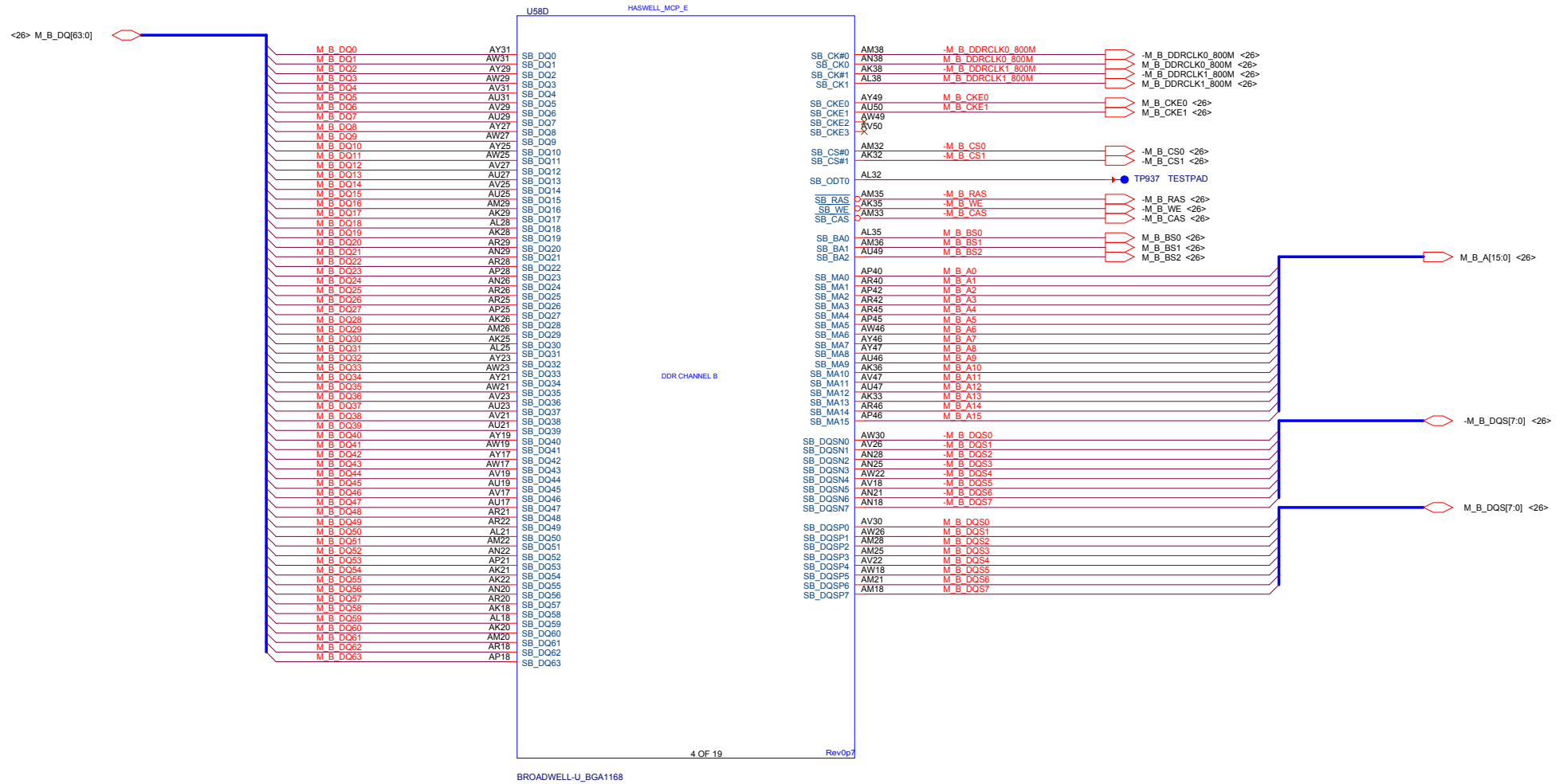
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Rev0p7

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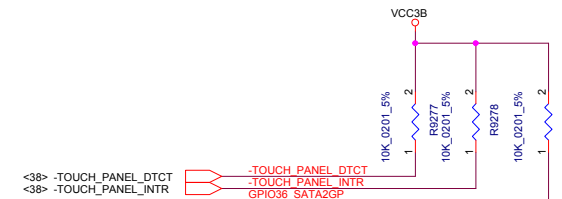
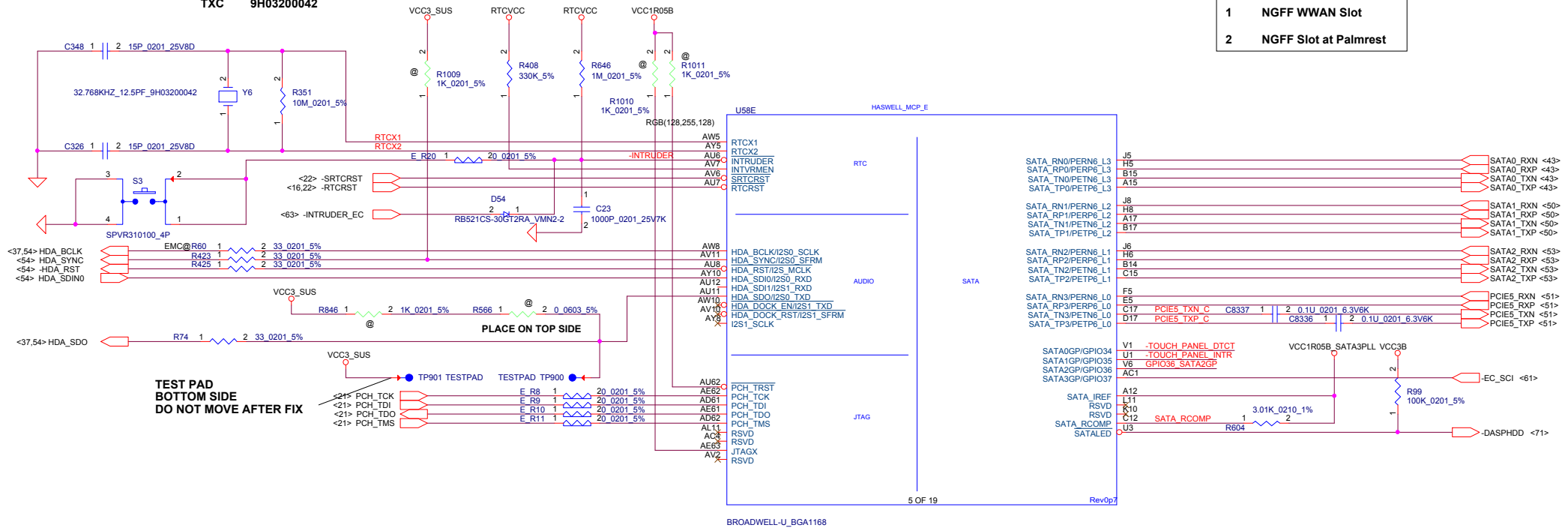
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Issued Date	2012/05/01	Deciphered Date	2012/12/01
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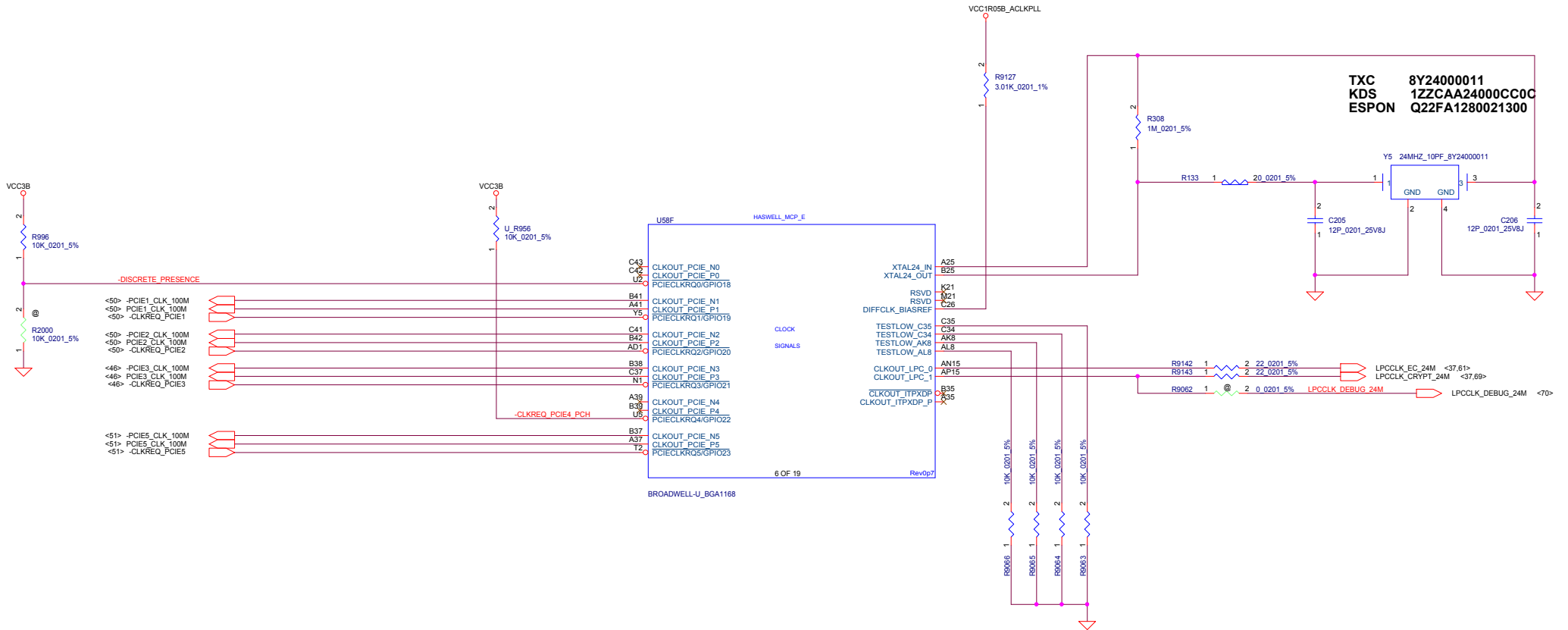
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CPU(3/16) : DDR3L CHANNEL-A		Rev 0.1	
Date:	Thursday, October 23, 2014	Sheet	5 of 100



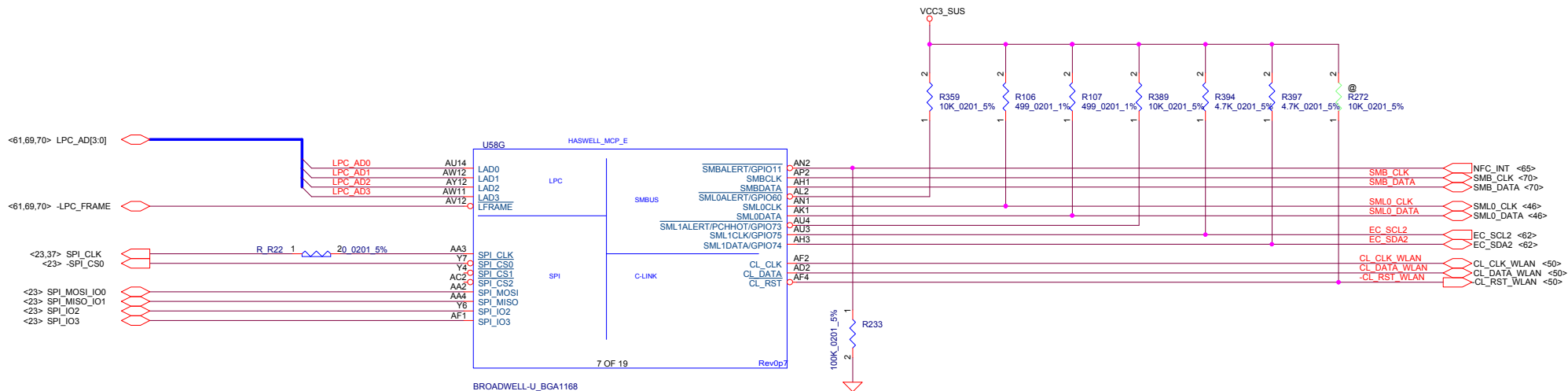
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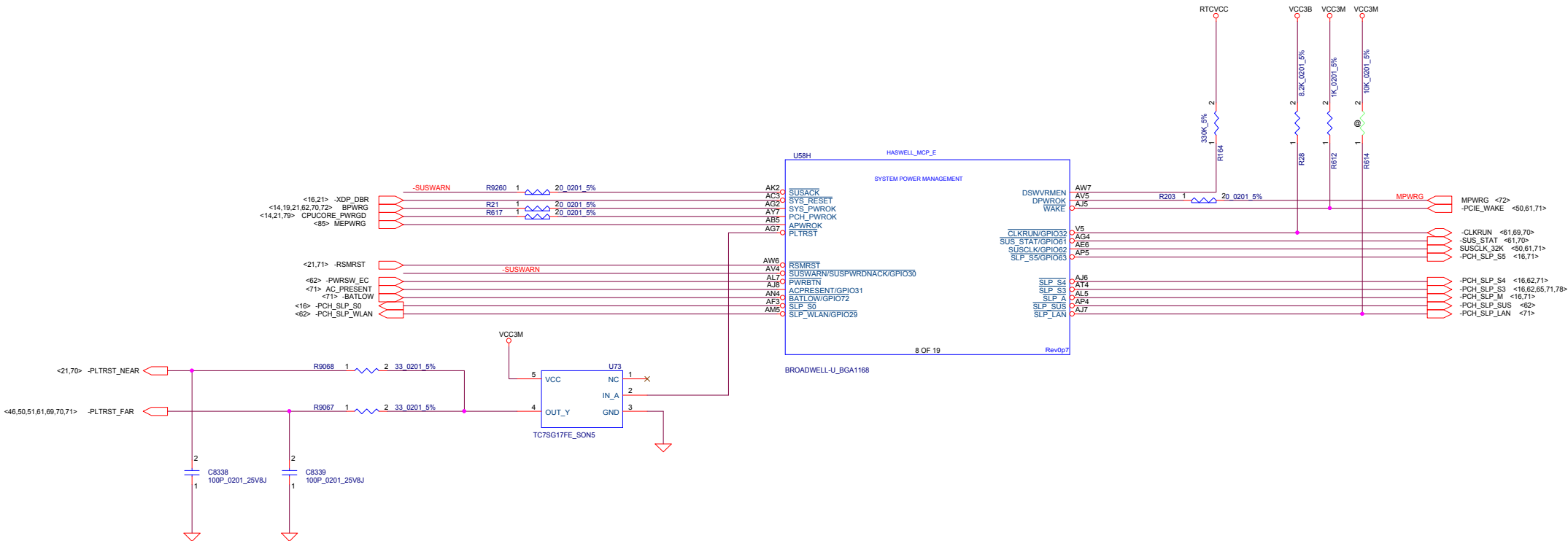
SATA Port Assignment	
0	HDD Connector
1	NGFF WWAN Slot
2	NGFF Slot at Palmrest





Security Classification		LC Future Center Secret Data		Title	
Issued Date		2012/05/01		Deciphered Date	
2012/05/01		2012/12/01		CPU(6/16) : CLOCK SIGNALS	
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Date:		Thursday, October 23, 2014		Sheet	
		1		8 of 100	

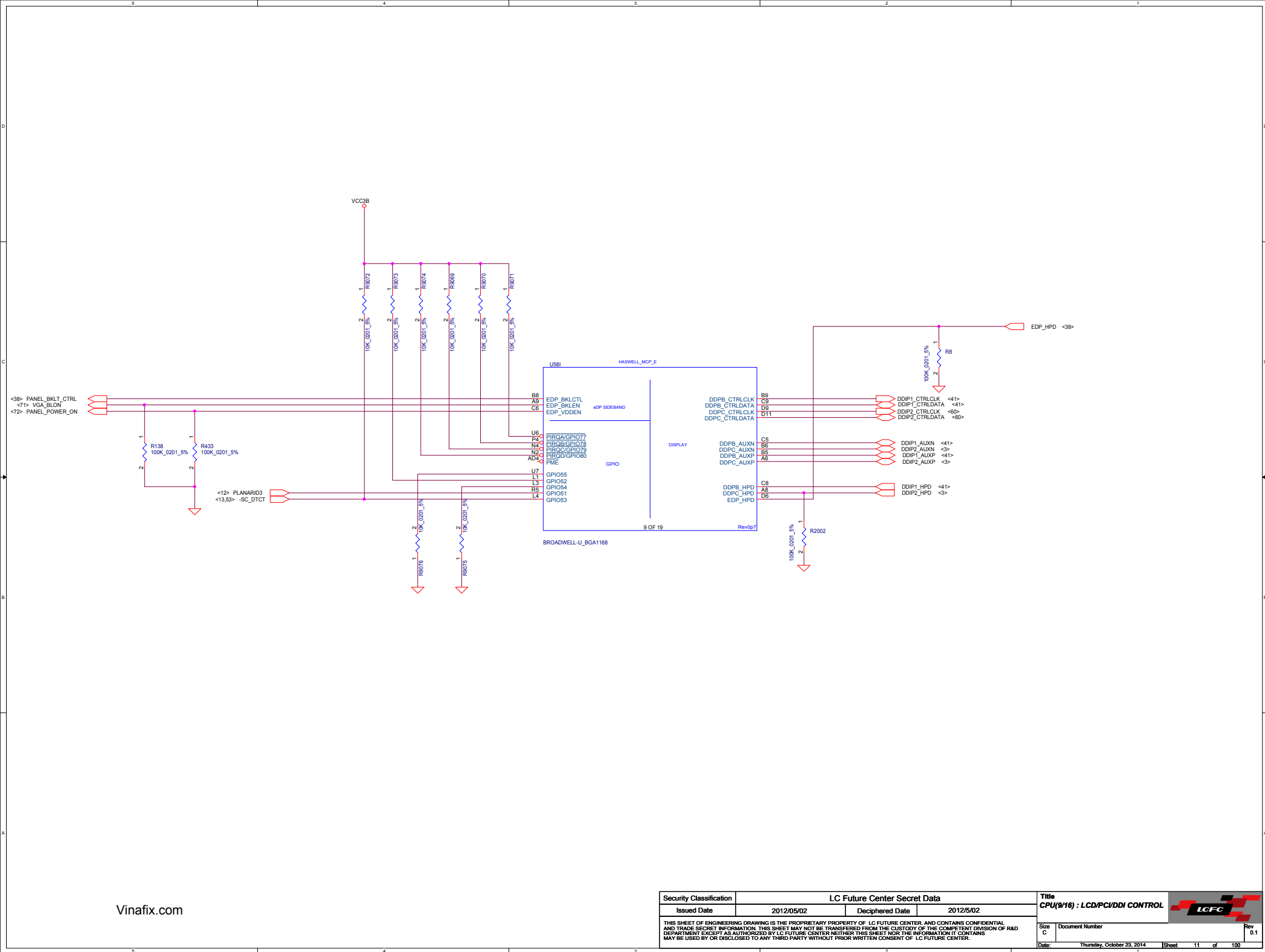


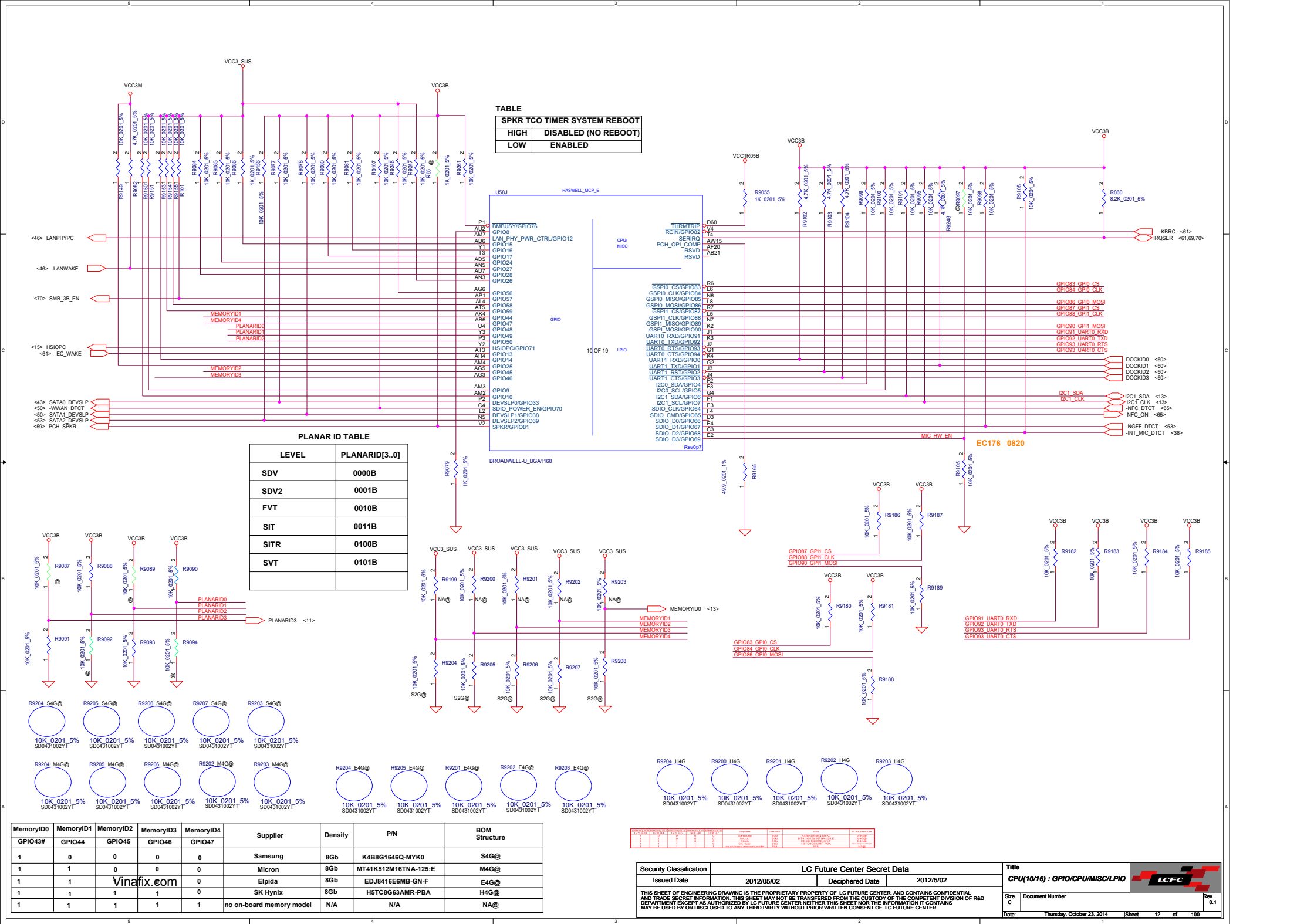


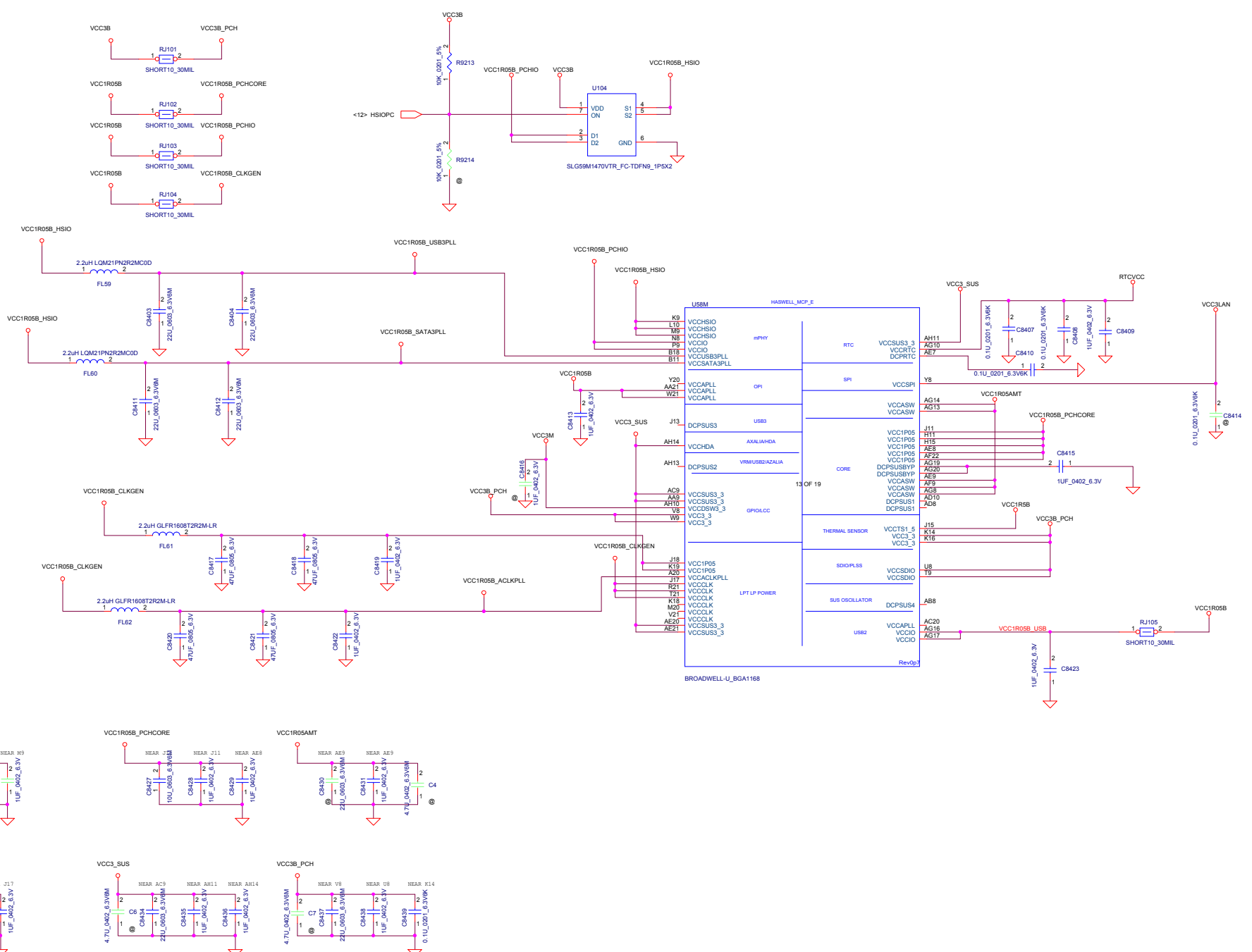
TABLE

CFG2 : PEG Static Lane Reversal
1 : Normal Operation
0 : Lane Reversal
CFG4 : Display Port Presence
1 : Disabled
0 : Enabled
CFG[6:5] : PEG Bifurcation
11 : Func 1 Disabled, Func 2 Disabled (x16,---,---)
10 : Func 1 Enabled, Func 2 Disabled (x8,x8,---)
01 : Func 1 Disabled, Func 2 Enabled
00 : Func 1 Enabled, Func 2 Enabled (x8,x4,x4)
CFG7 : PEG Defer Training
1 : PEG Train Immediately Following XXRESETB Deassertion
0 : PEG Wait for BIOS for Training

Security Classification		LC Future Center Secret Data		Title			
Issued Date		2012/05/01		Deciphered Date			
		2012/12/01		CPU(8/16) : SYSTEM PM			
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				Size		Document Number	
				Custom		Rev	
						0.1	
				STING UMA			
Date:				Thursday, October 23, 2014			
Sheet				10 of 100			

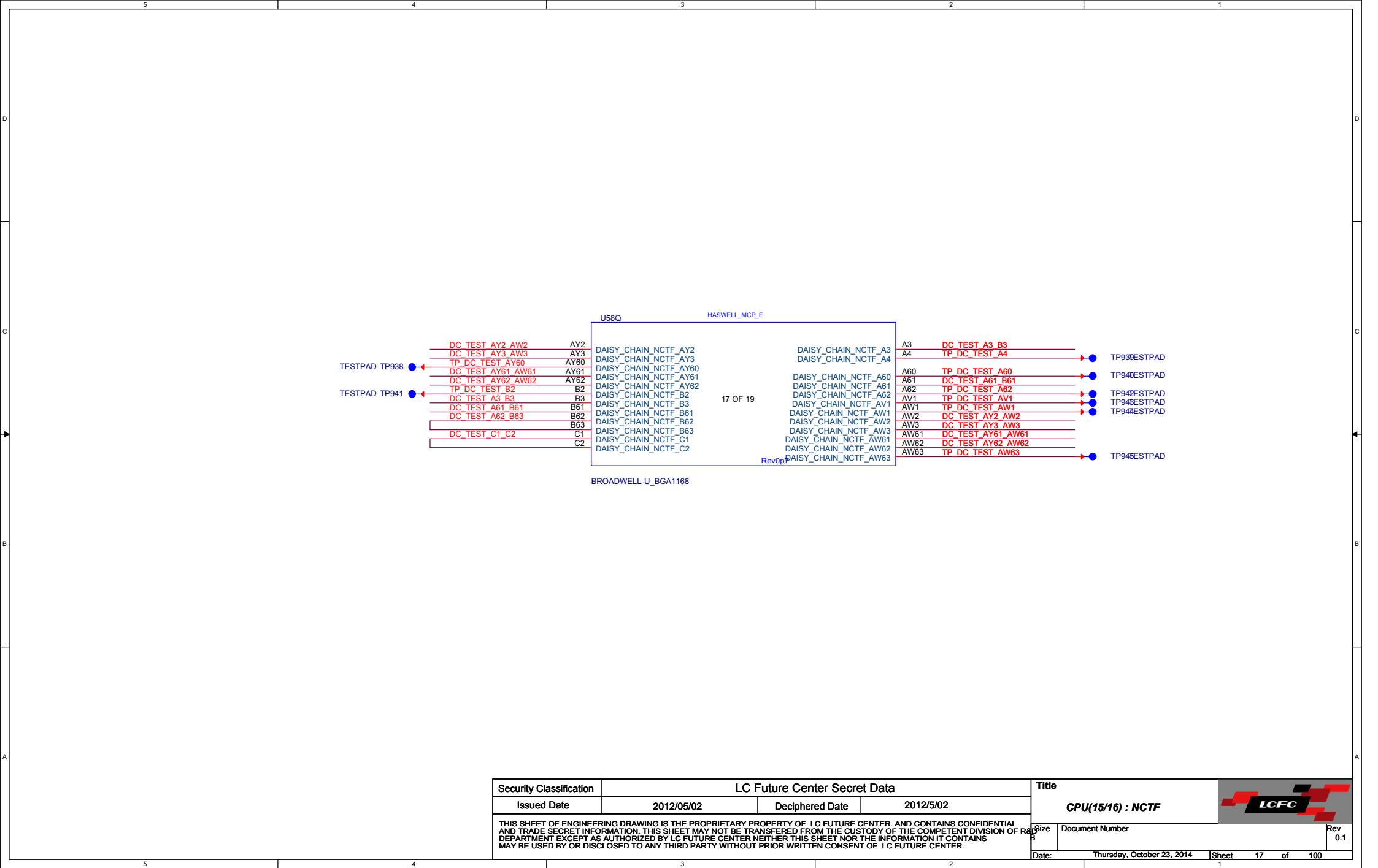






Pin 19 connection diagram for the PIC10F162-180ELF. The diagram shows a 20-pin package with pins 1 through 19. Pin 19 is connected to VCC3. Other pins are connected to various signals: Pin 18 to NC1, Pin 17 to NC2, Pin 16 to NC3, Pin 15 to SLP_S0W, Pin 14 to GND1, Pin 13 to SYS_RESET#, Pin 12 to PWRBTN#, Pin 11 to GND3, Pin 10 to RTCRST#, Pin 9 to GND4, Pin 8 to VCC30S, Pin 7 to SLP_A#, Pin 6 to SLP_D#, Pin 5 to SLP_S#, Pin 4 to VDDIOV3_3, Pin 3 to SLP_S#, and Pin 2 to VDDIOV3_3. A red arrow points to pin 19, indicating the connection point for VCC3.

[illegible]



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												0.1		
												Date:	Thursday, October 23, 2014	
												Sheet	17 of 100	

CFG4: Display Port Presence
1: Disabled 0: Enabled



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				Sheet 20 of 100	Rev 0.1

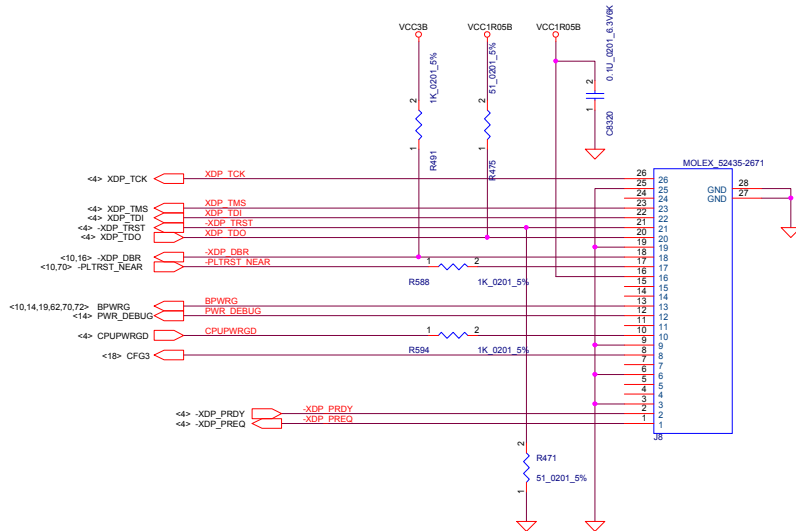


TABLE : CPU ITP DEBUG REPORT

SIGNAL	REF DES	Planar Only	BOX
TDO	R475	ASM	ASM
TRST#	R471	ASM	ASM
DBRST#	R491	ASM	ASM
RESET#	R588	ASM	ASM
PWRGD	R594	ASM	ASM
CONNECTOR	J8	ASM	NO ASM

NOTE : APPLY EACH LOGIC ACCORDING TO CONFIGURATION IN SDV

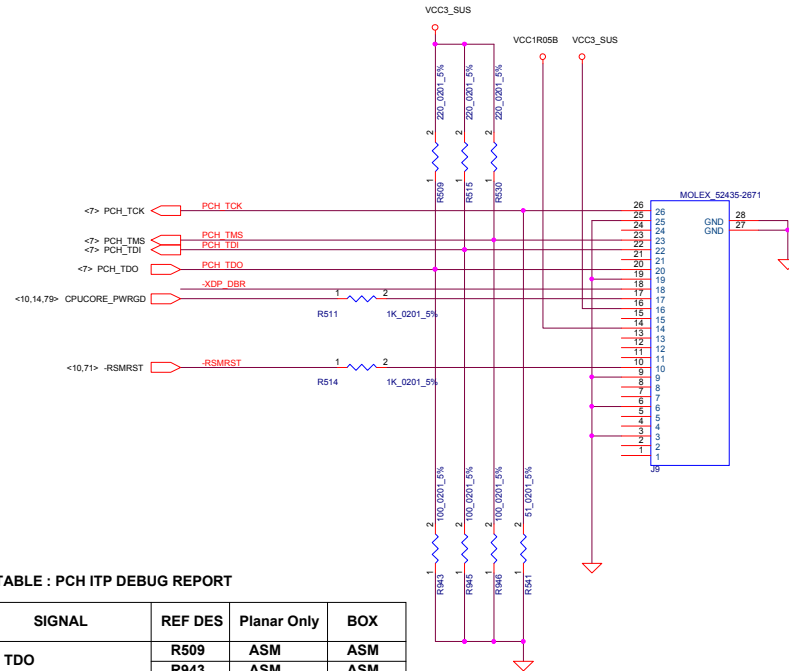
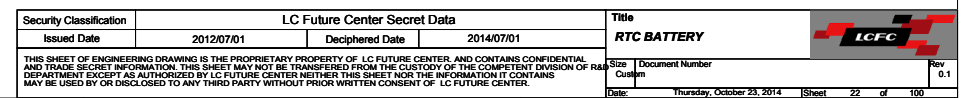


TABLE : PCH ITP DEBUG REPORT

SIGNAL	REF DES	Planar Only	BOX
TDO	R509	ASM	ASM
	R943	ASM	ASM
TMS	R530	ASM	ASM
	R946	ASM	ASM
TDI	R515	ASM	ASM
	R945	ASM	ASM
TCK	R541	ASM	ASM
CPUCORE_PWRGD	R511	ASM	ASM
-RSMRST	R514	ASM	ASM
CONNECTOR	J9	ASM	NO ASM

NOTE : APPLY EACH LOGIC ACCORDING TO CONFIGURATION IN SDV



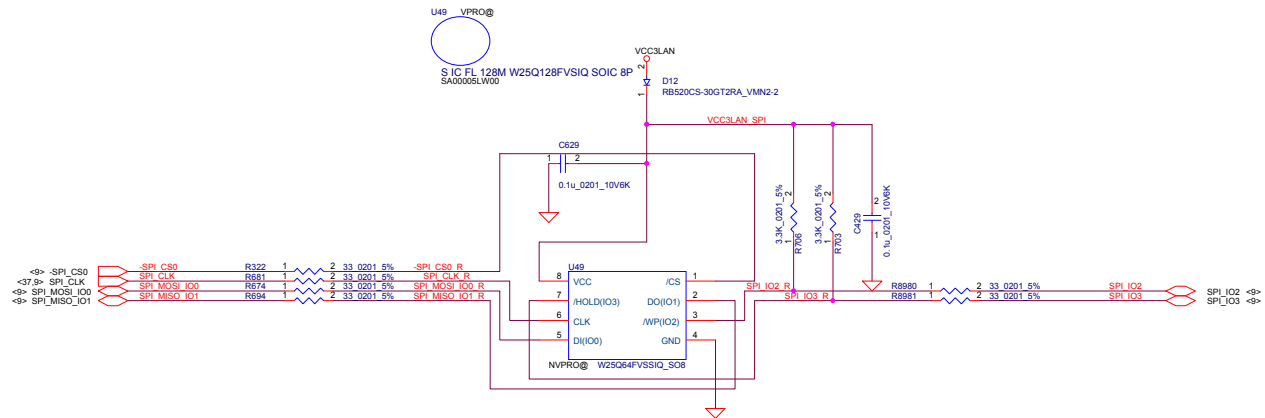
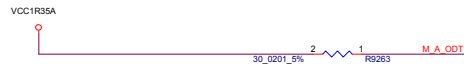
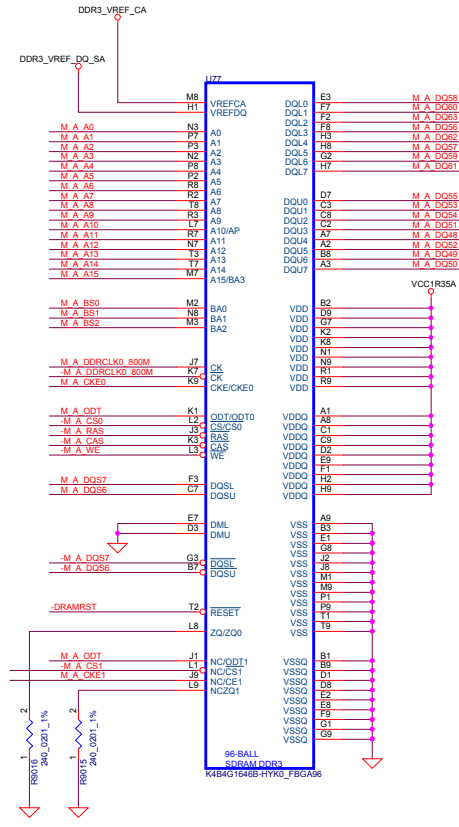
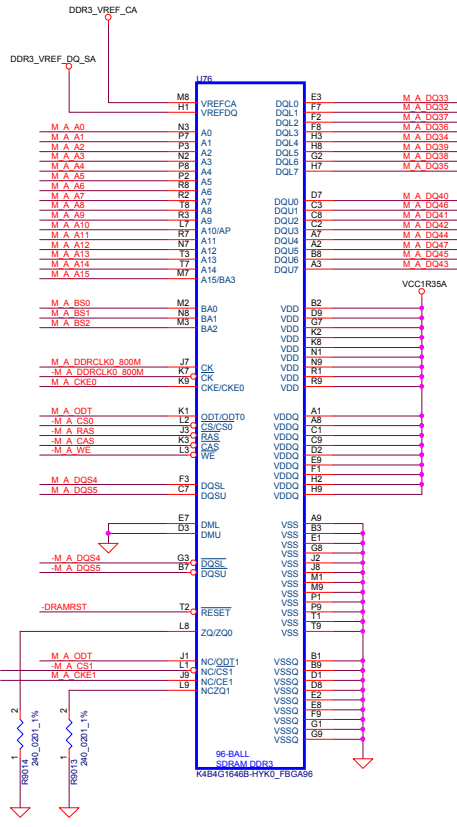
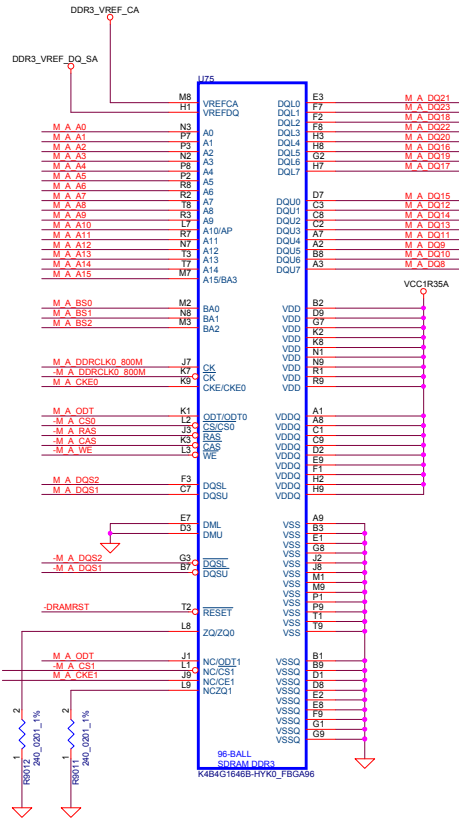
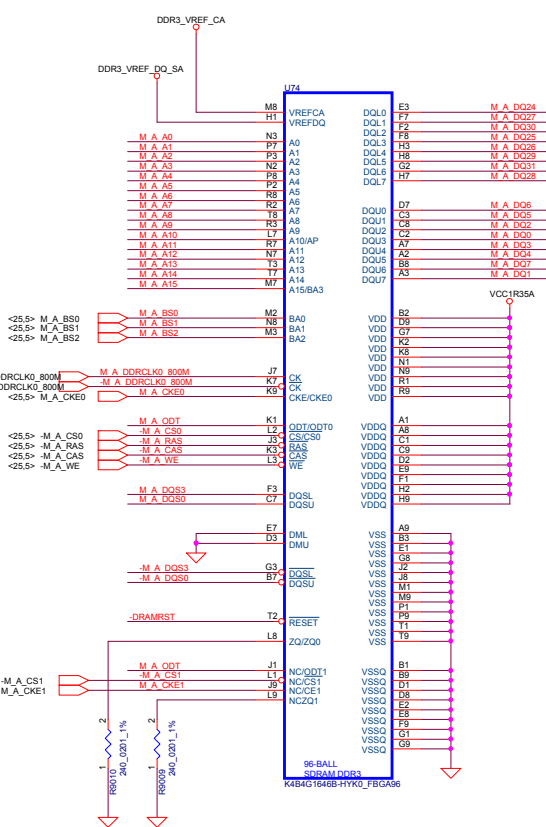


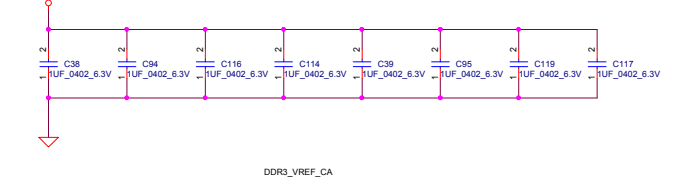
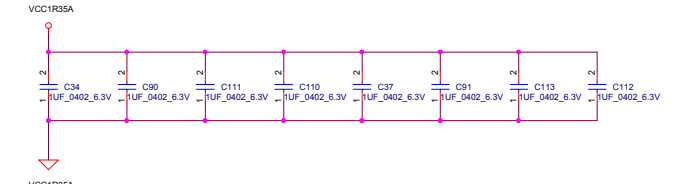
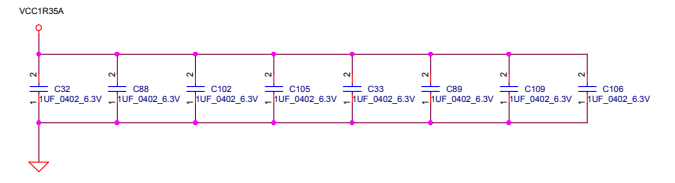
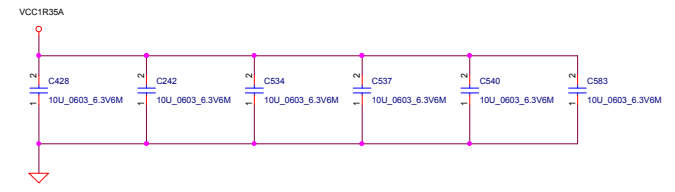
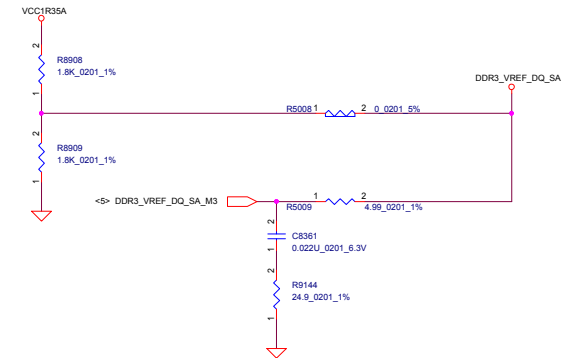
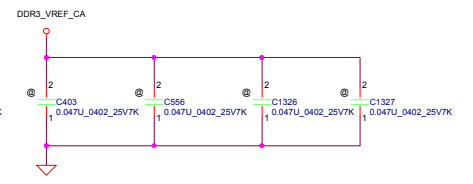
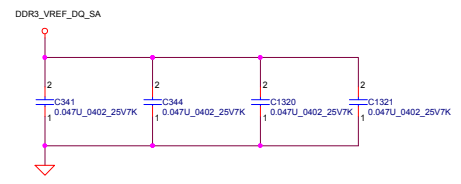
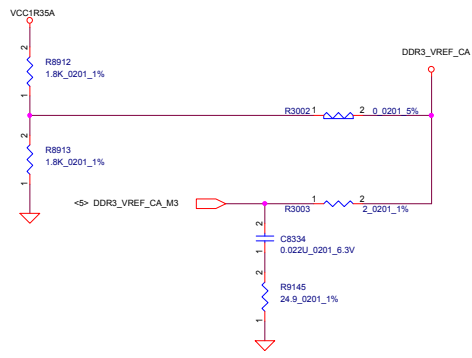
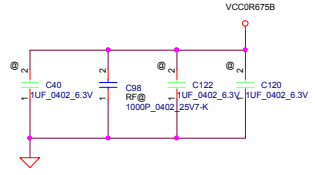
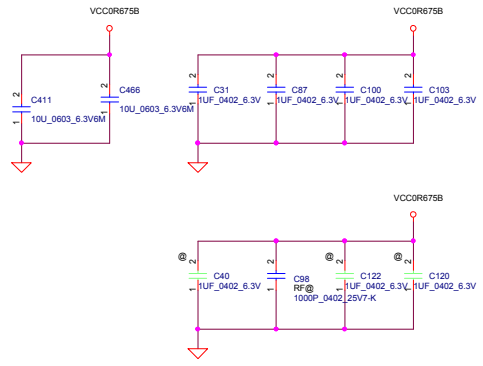
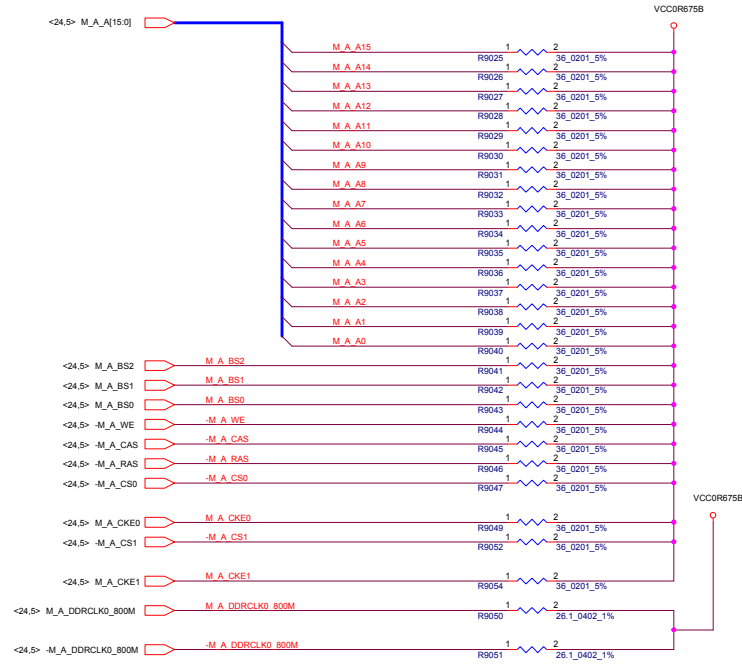
TABLE					
SF100 PIN HEADER INTERFACE (TOP VIEW)					
1	VCC	D12.1	GND	GND	2
3	CS#	R322.2	R681.2	CLK	4
5	MISO	R684.2	R674.2	MOSI	6
7	(KEY)	N/A	N/A	(RESET)	8

U49 SPI ROM	
vPRO model(16MB)	
WINBOND	W25Q128FVSIQ
MACRONIX	MX25L12875FM2L-10G
MICRON	N25Q128A13ESEC0F

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 <S> M_A_DQS[7:0] 
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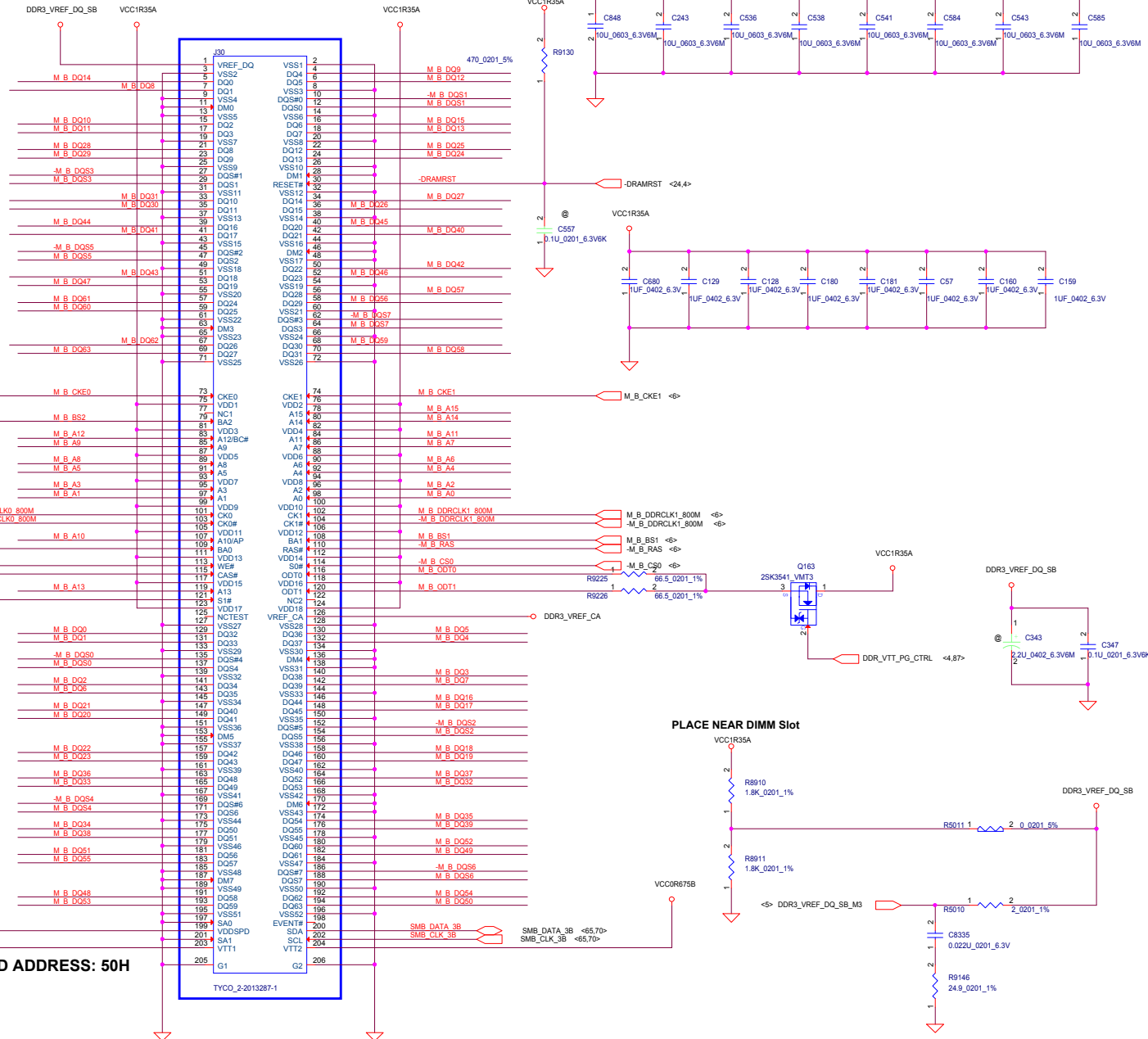
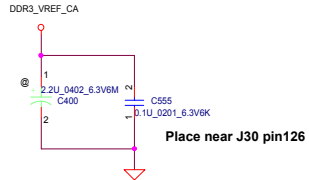


<6> M_B_DQ[63:0]

<6> -M_B_DQS[7:0]

<6> M_B_DQS[7:0]

<6> M_B_A[15:0]



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				Date	Thursday, October 23, 2014
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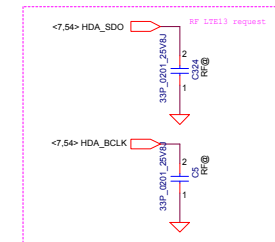
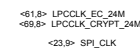
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Date:				Thursday, October 23, 2014	Sheet 35 of 100

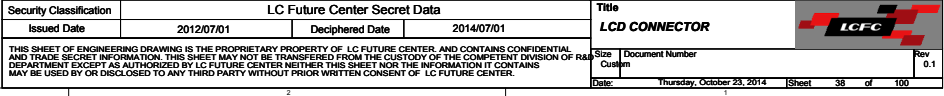


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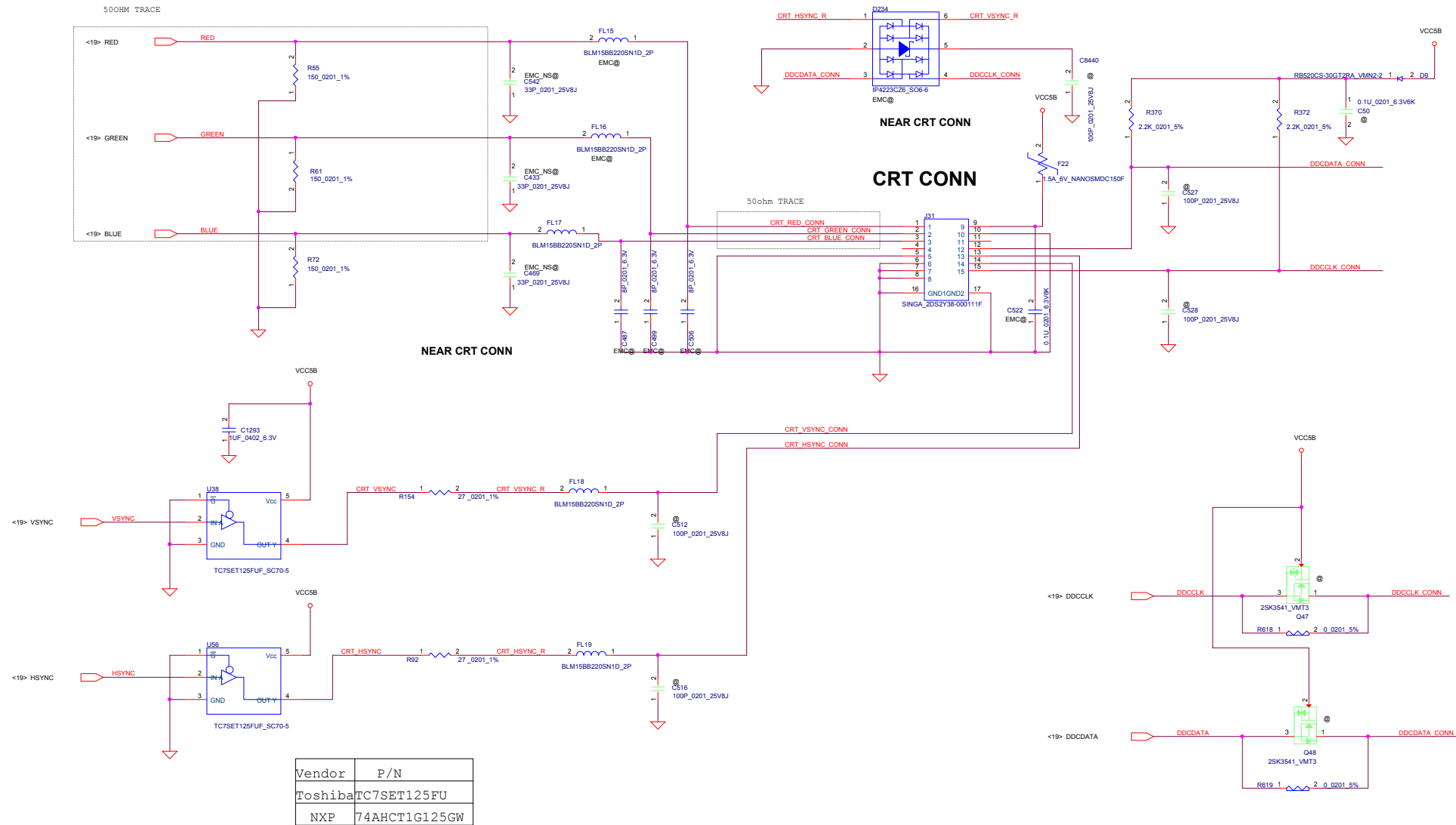


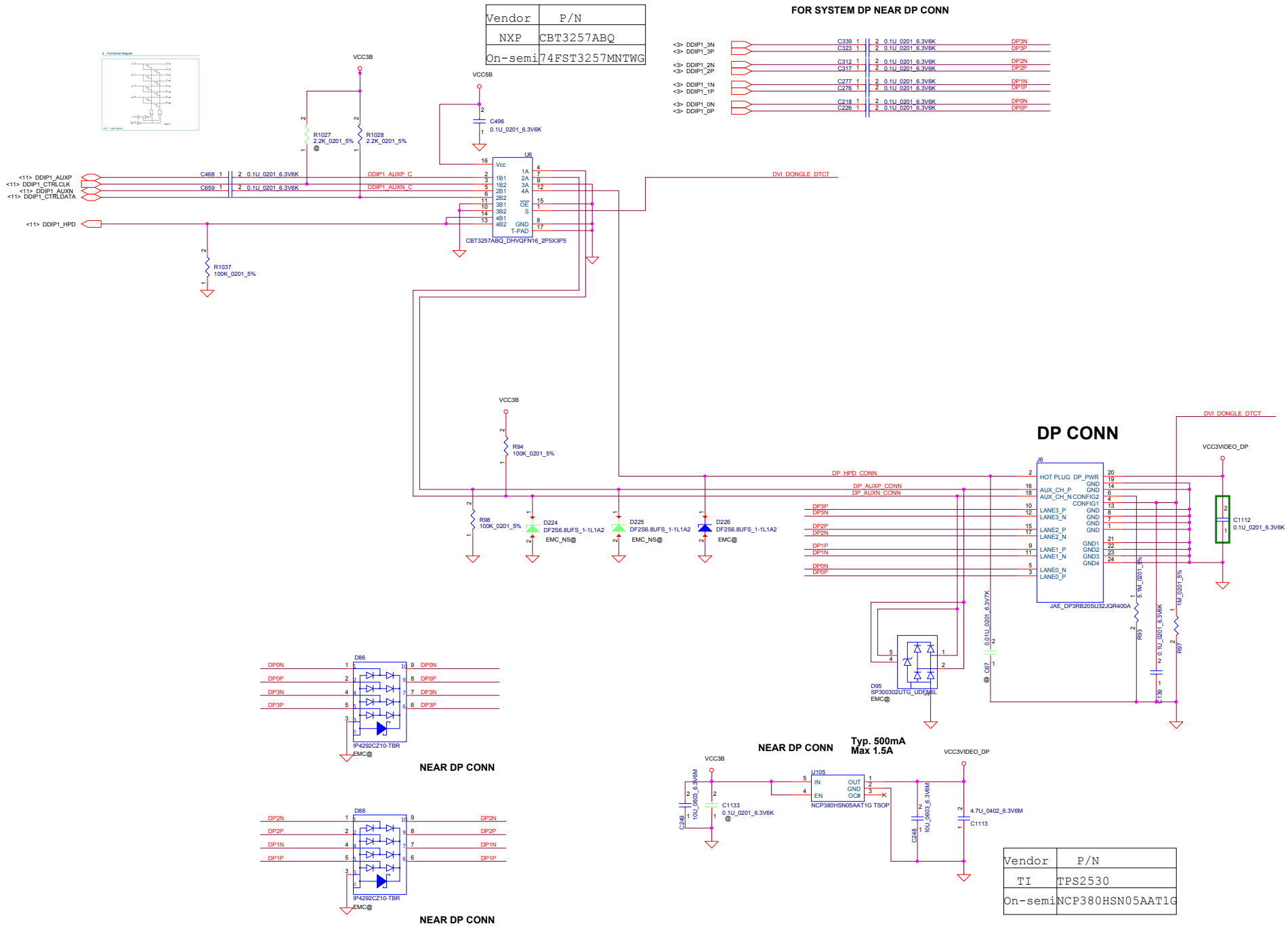


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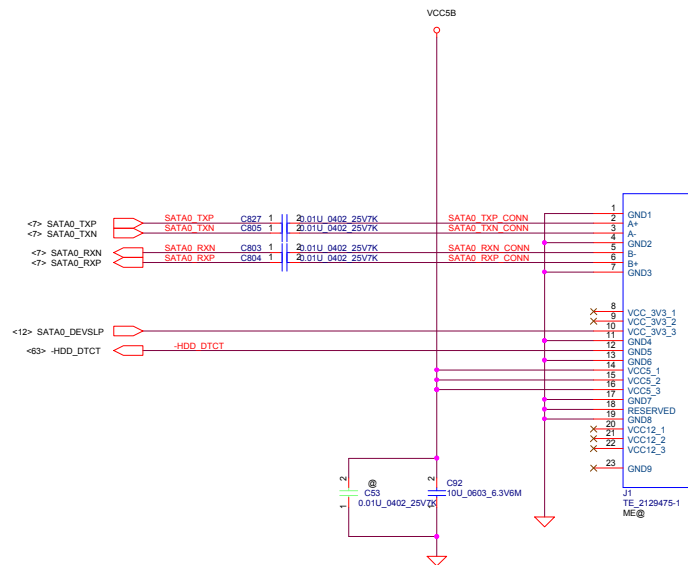


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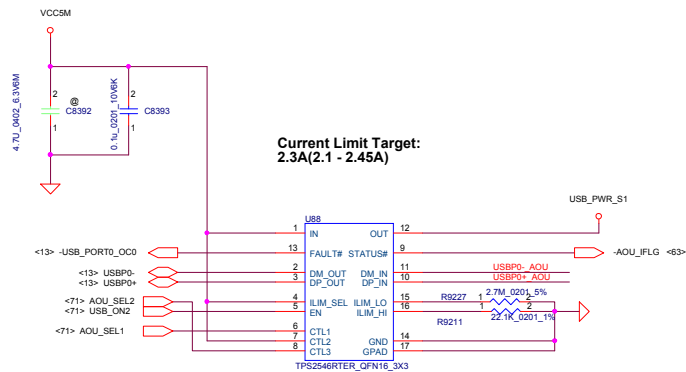
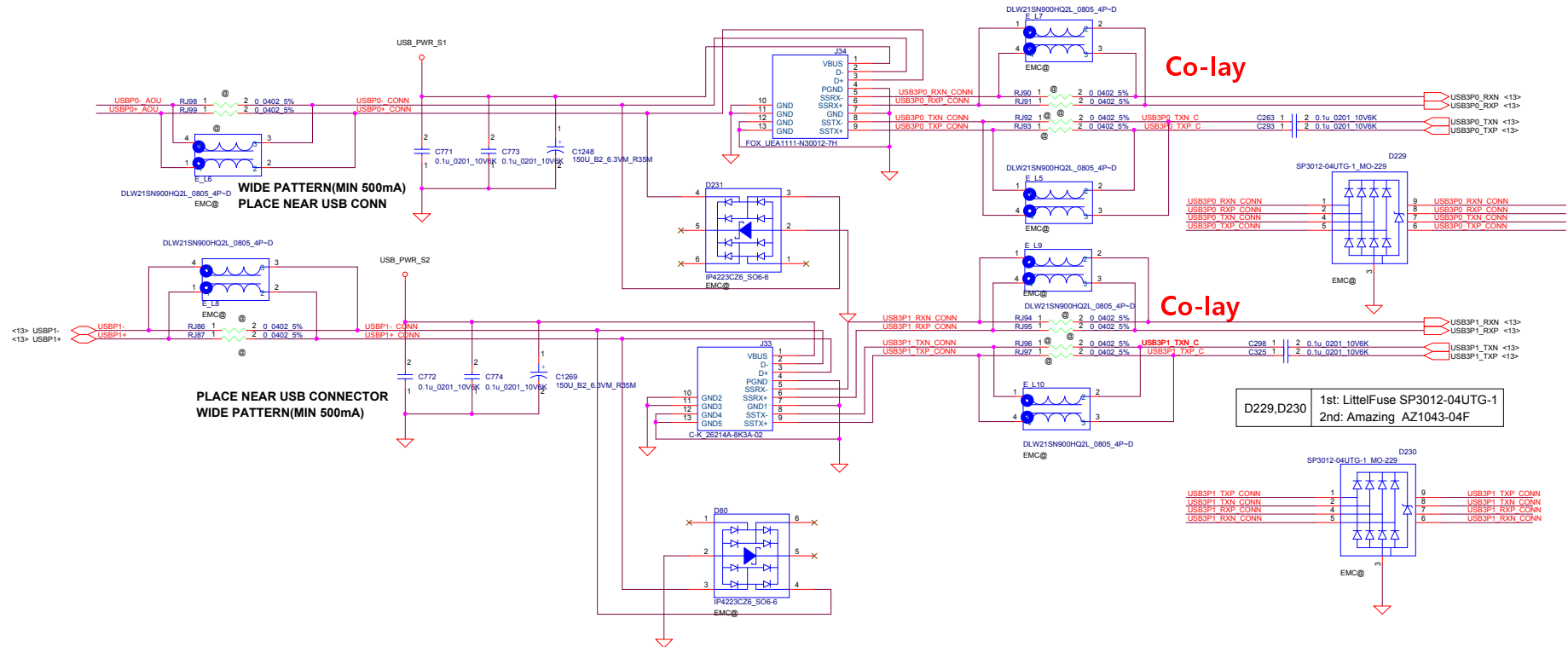




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				Rev	0.1





Vendor	P/N
TI	TPS2546RTER

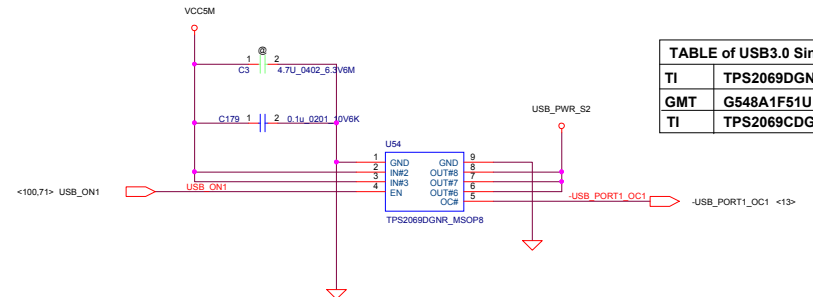
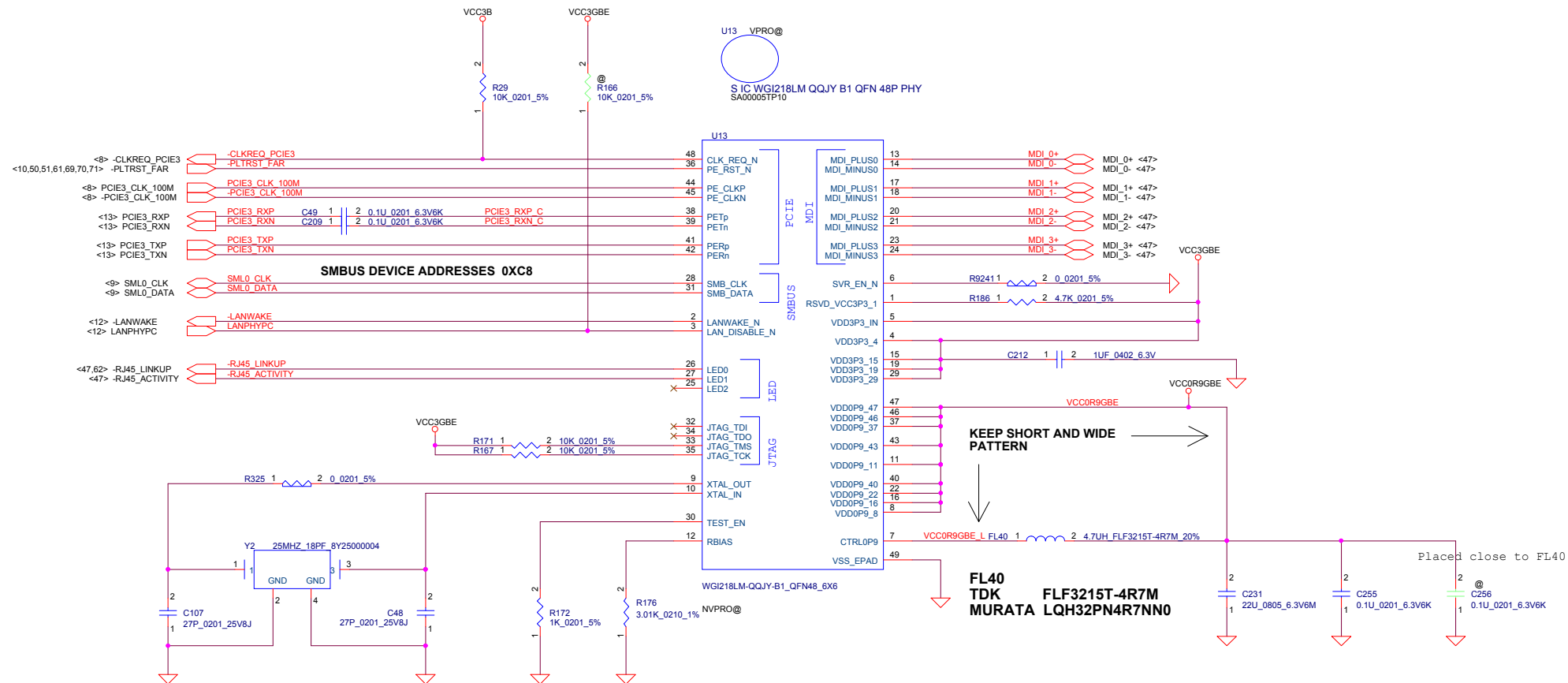


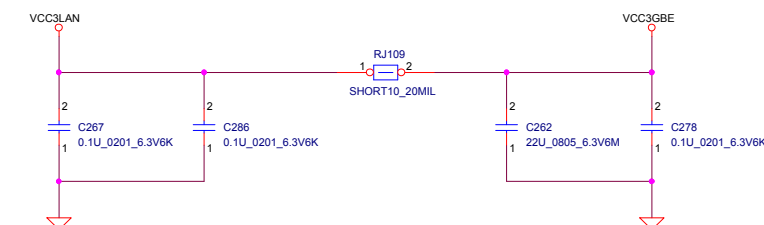
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TI	TPS2069DGN
GMT	G548A1F51U
TI	TPS2069CDGNR-2



TXC 8Y25000004
KDS 1ZZHAE25000CC0A
ESPON Q22FA1280023800

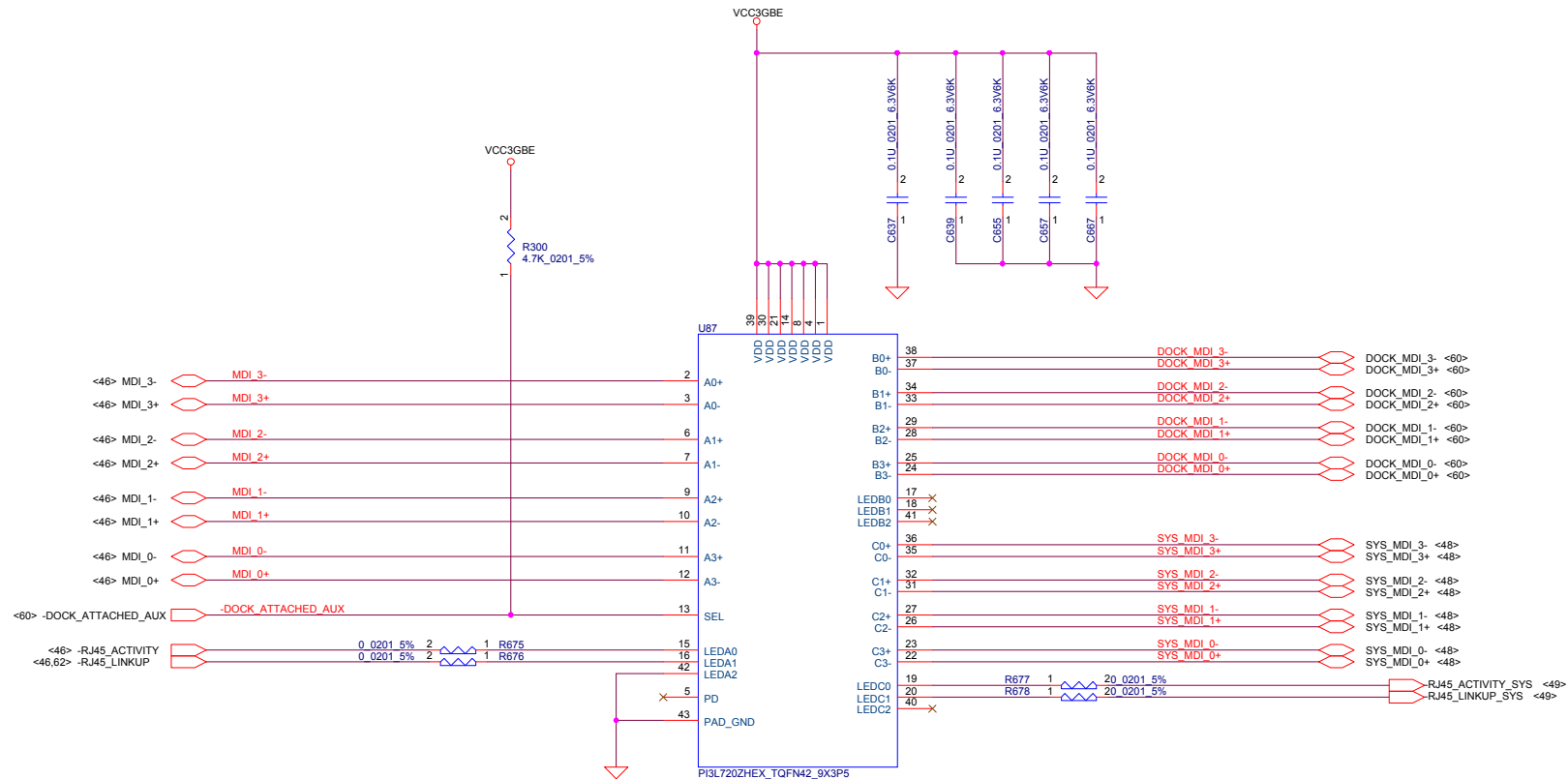
U13 GBE PHY

vPRO Model	Non-vPRO Model
I218LM	I218V



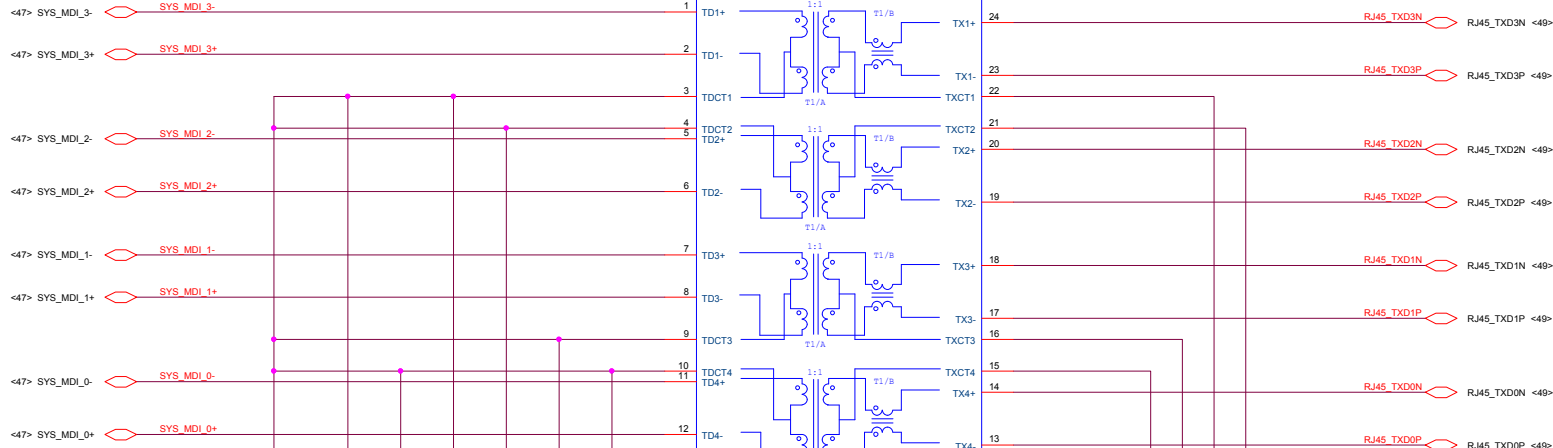
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Date:	Thursday, October 23, 2014	Sheet 46 of 100



U87

Vendor	P/N
Pericom ST micro Onsemi	PI3L720ZHE STMUX1800E NCN7201



THE WIDTH OF THESE TRACE SHOULD BE WIDER THAN 35MIL TO PREVENT VOLTAGE DROP.

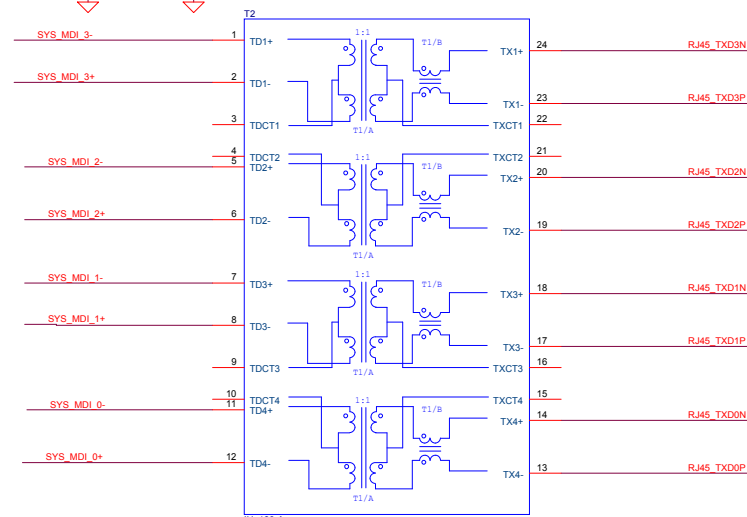
C303 SHOULD BE PLACED AS CLOSE TO MAGNETICS AS POSSIBLE.

ESD REASON

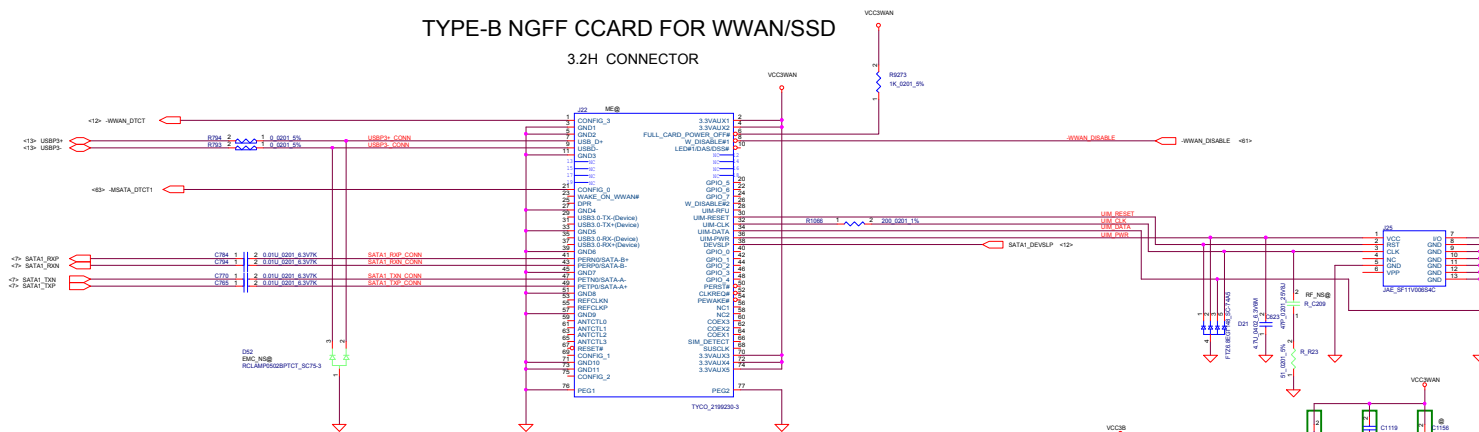
PATTERN MUST BE SHORT AND WIDE.

HIGH VOLTAGE 1500PF CAP IS OPTIONAL

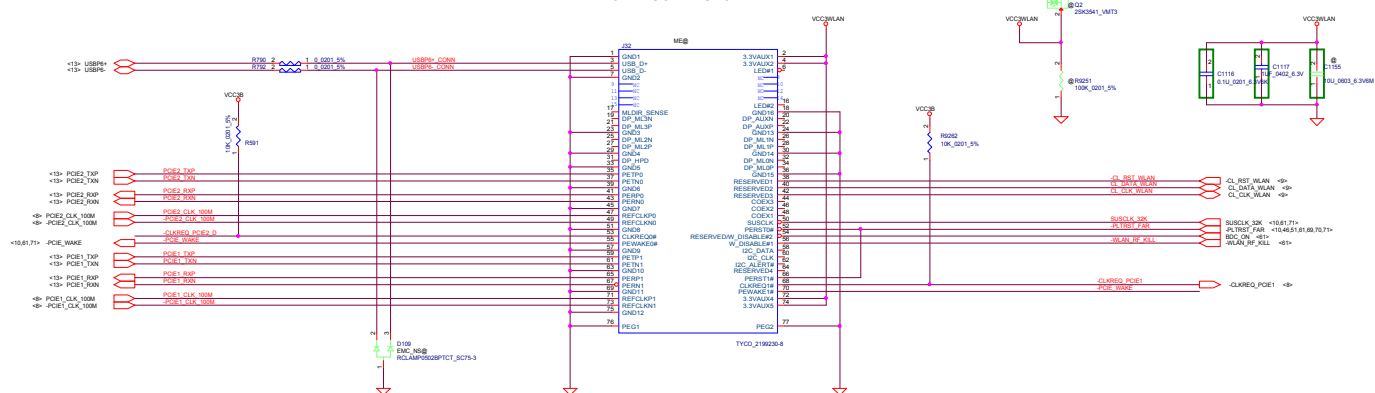
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TDK	TLA-7T231HF-T
Timag	IH-115-F
Bothhand	NA69LF



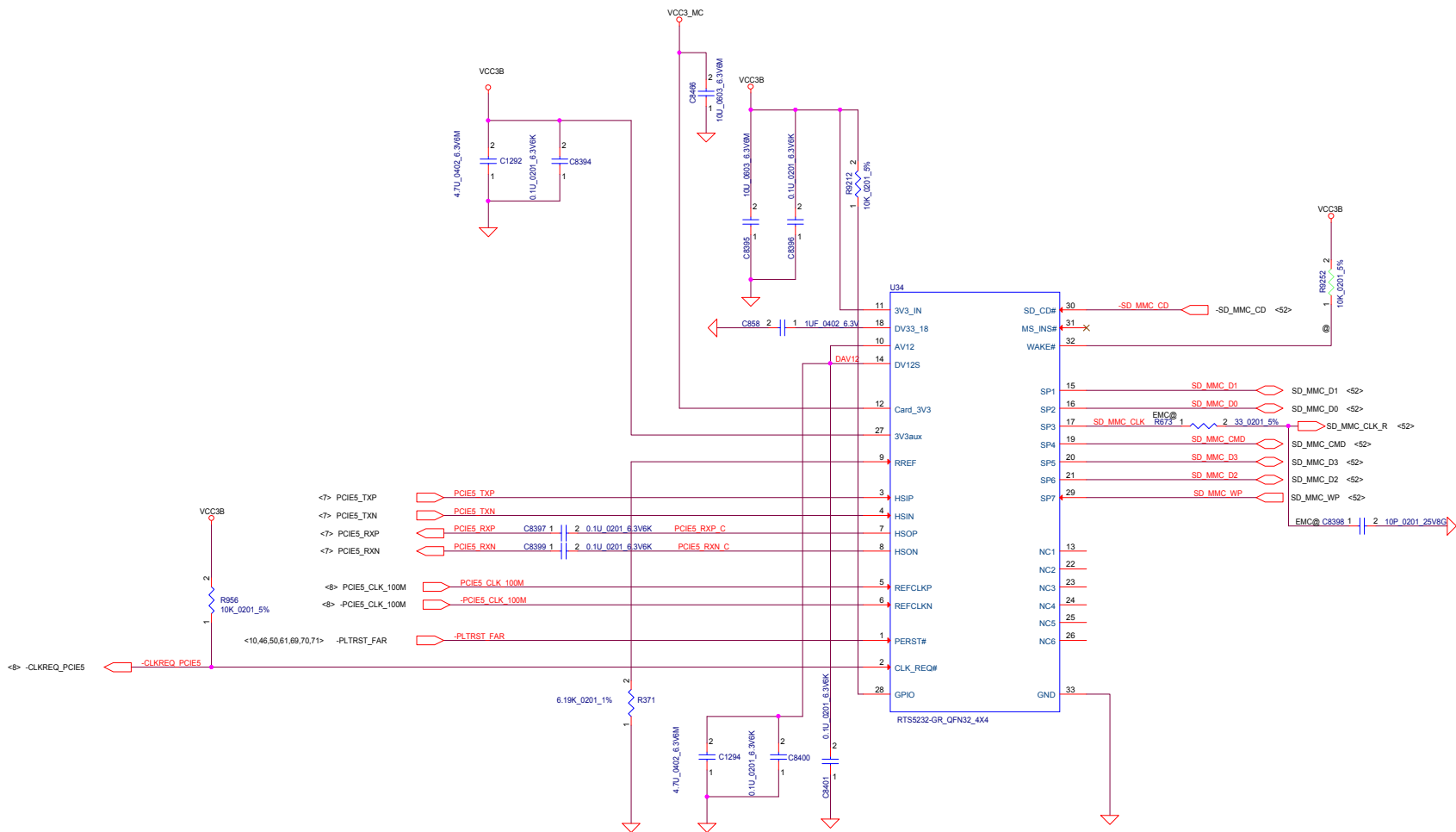
3.2H CONNECTOR

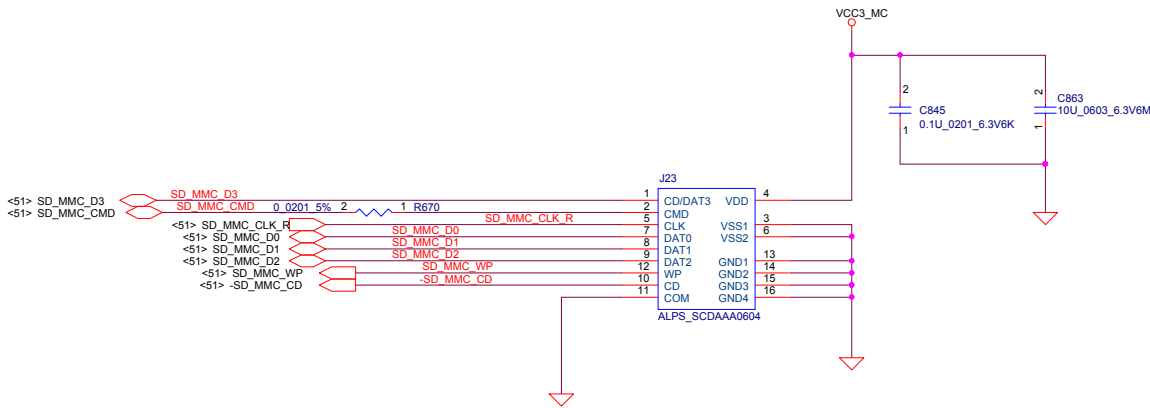


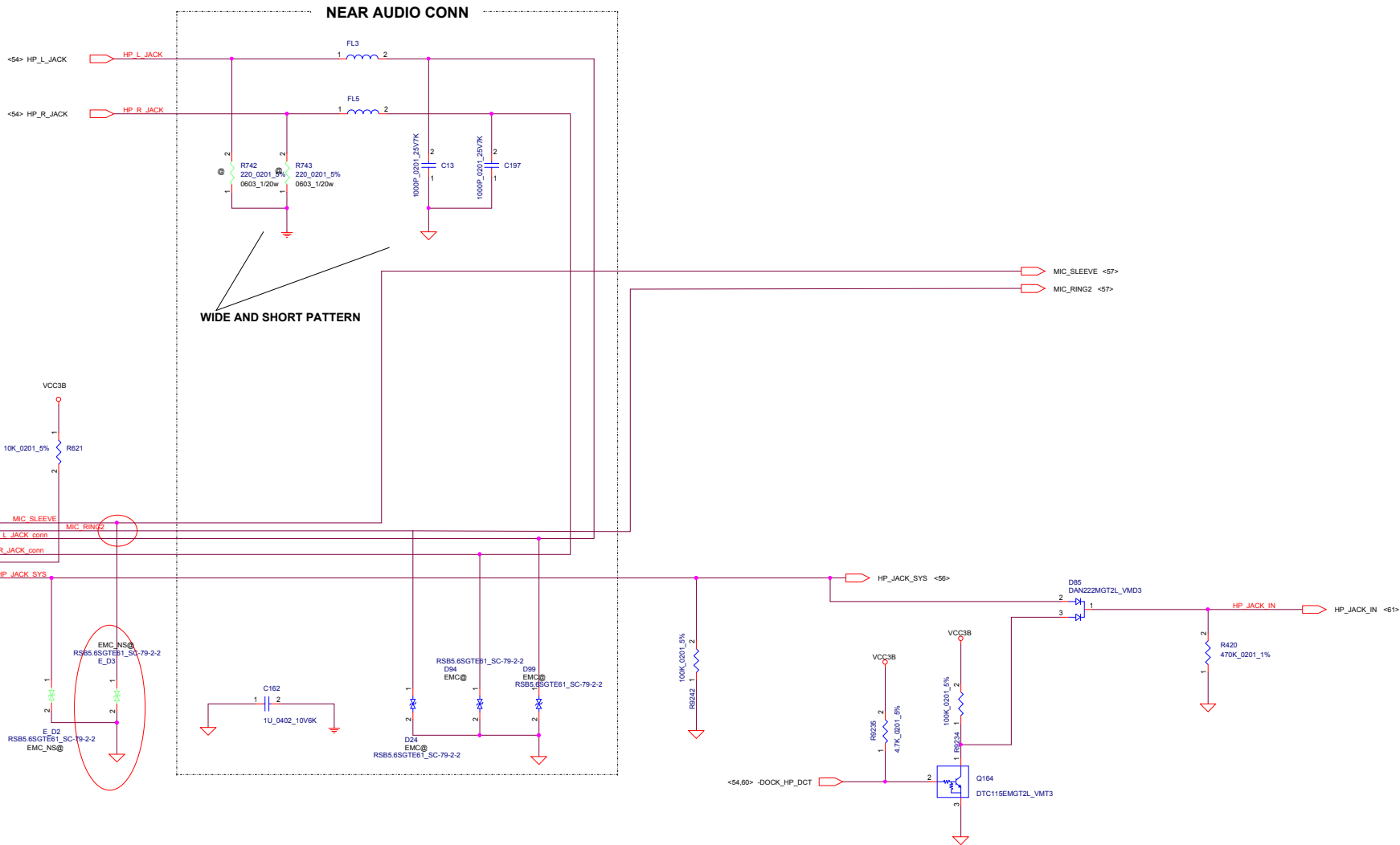
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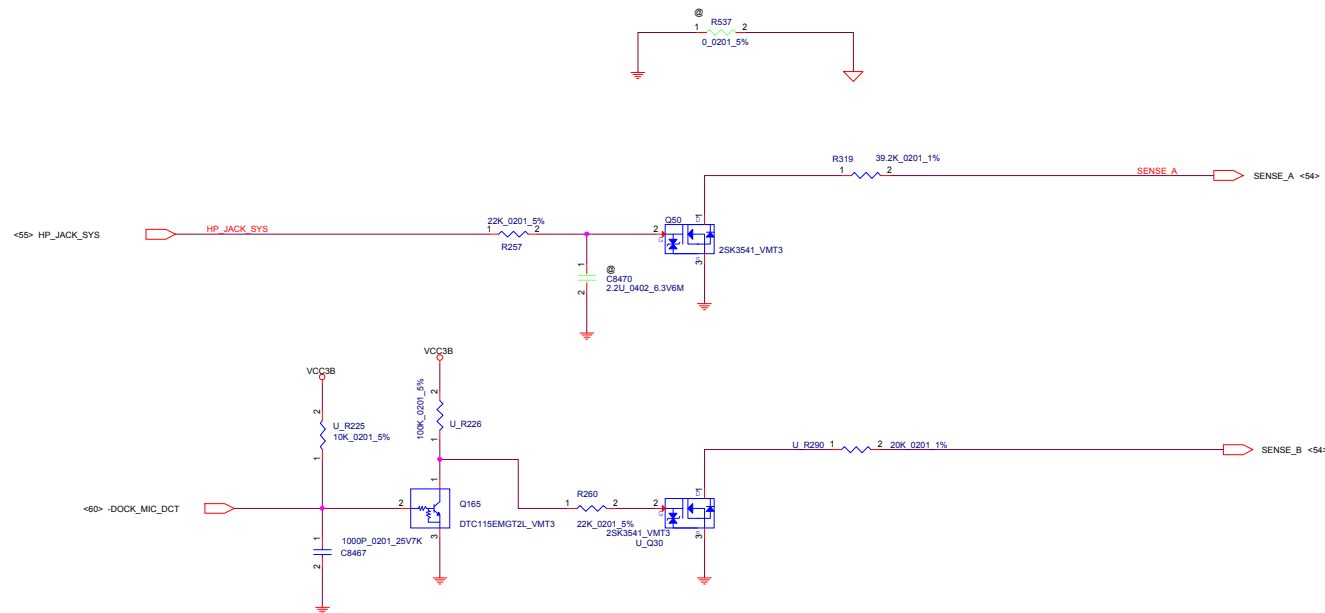


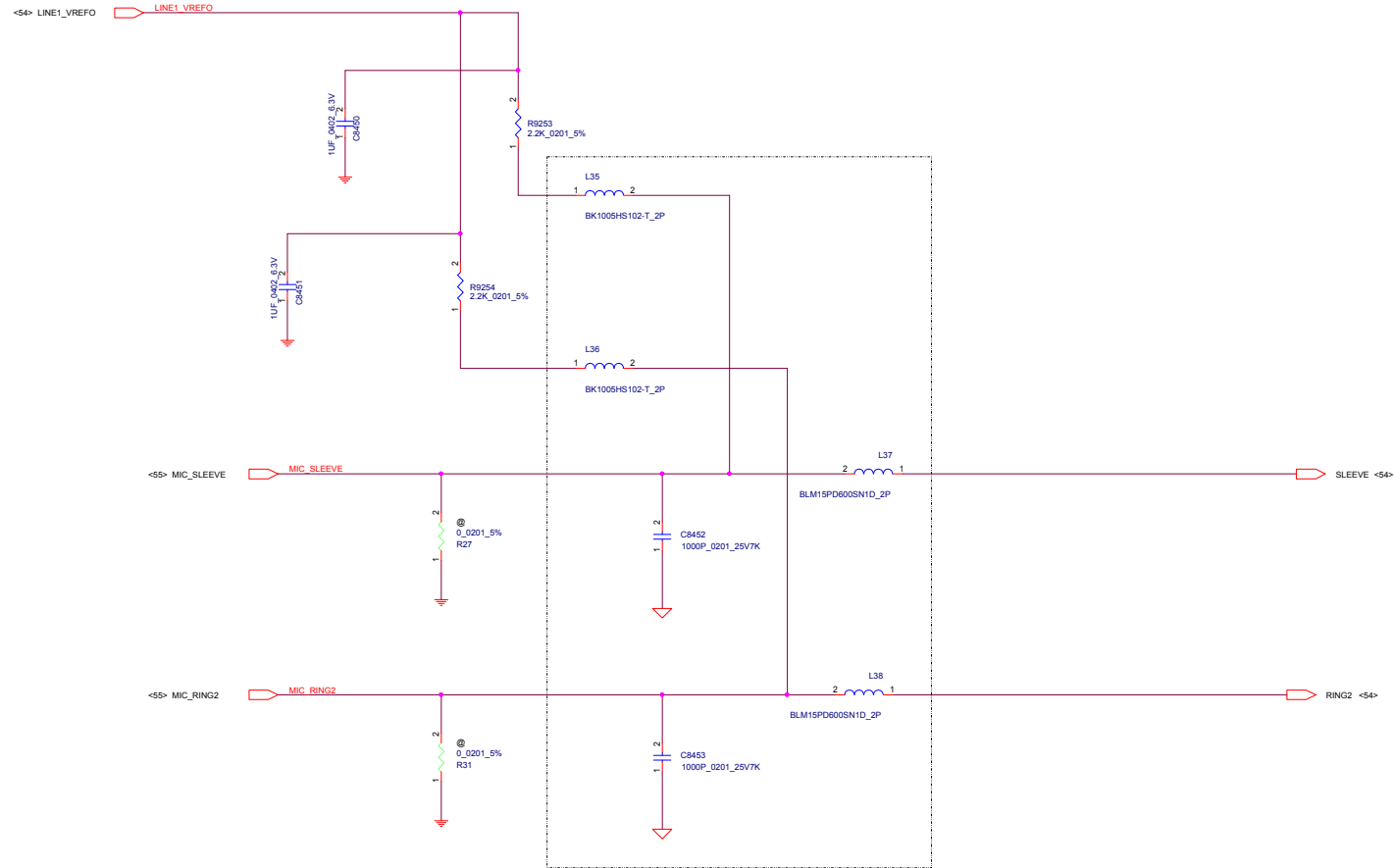
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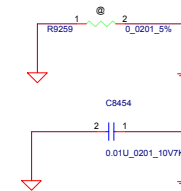


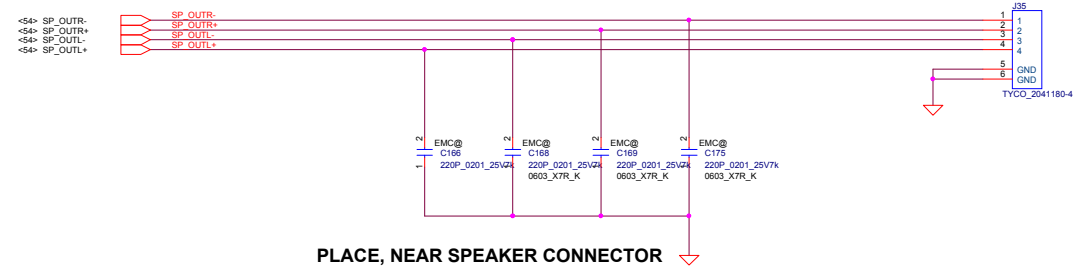


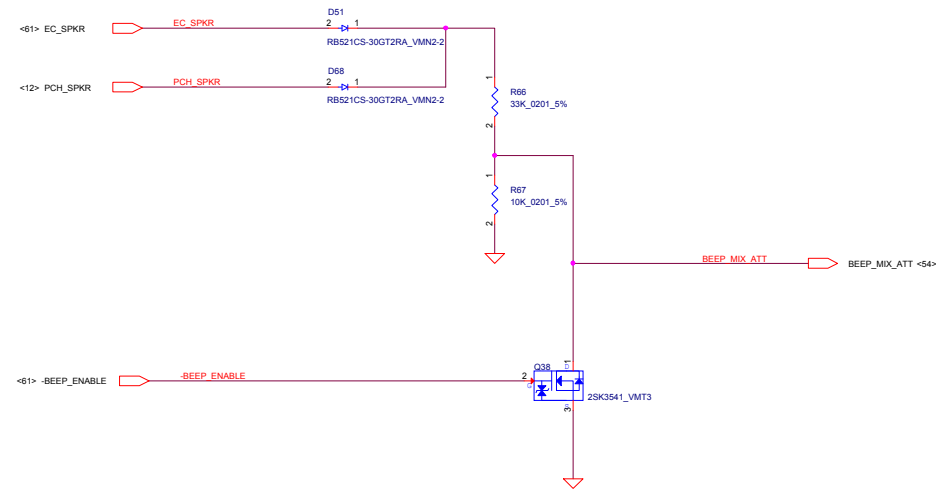


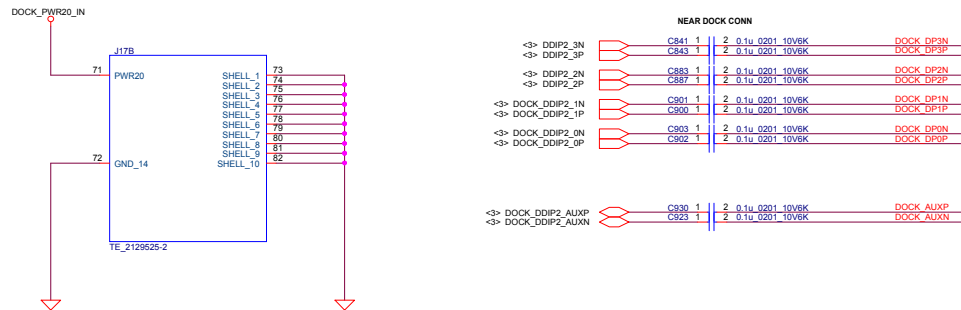
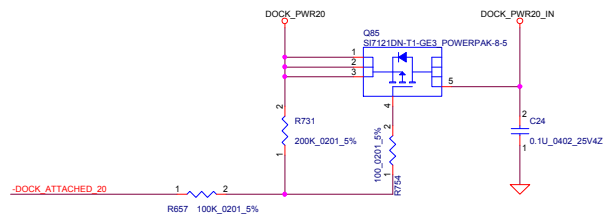
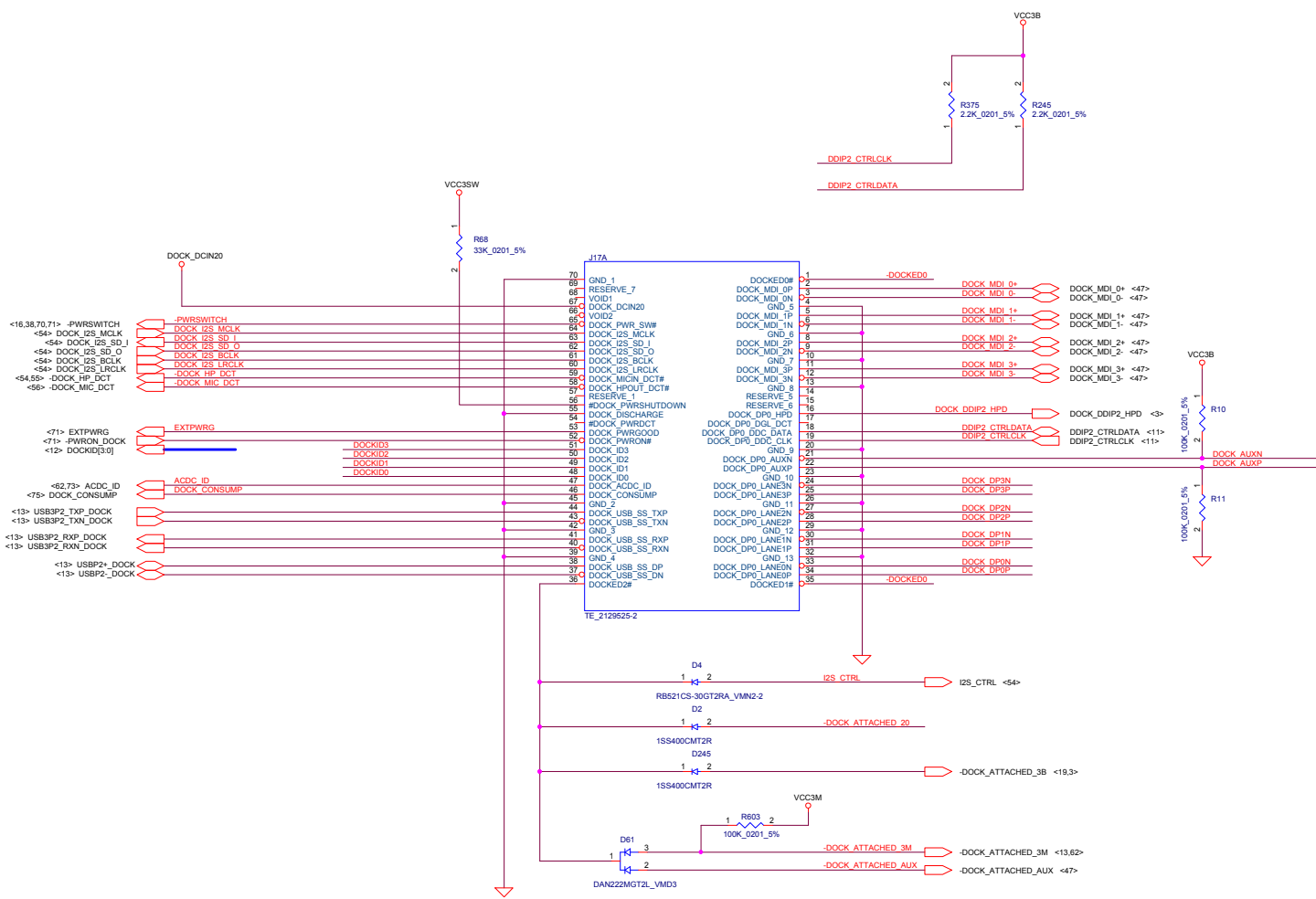


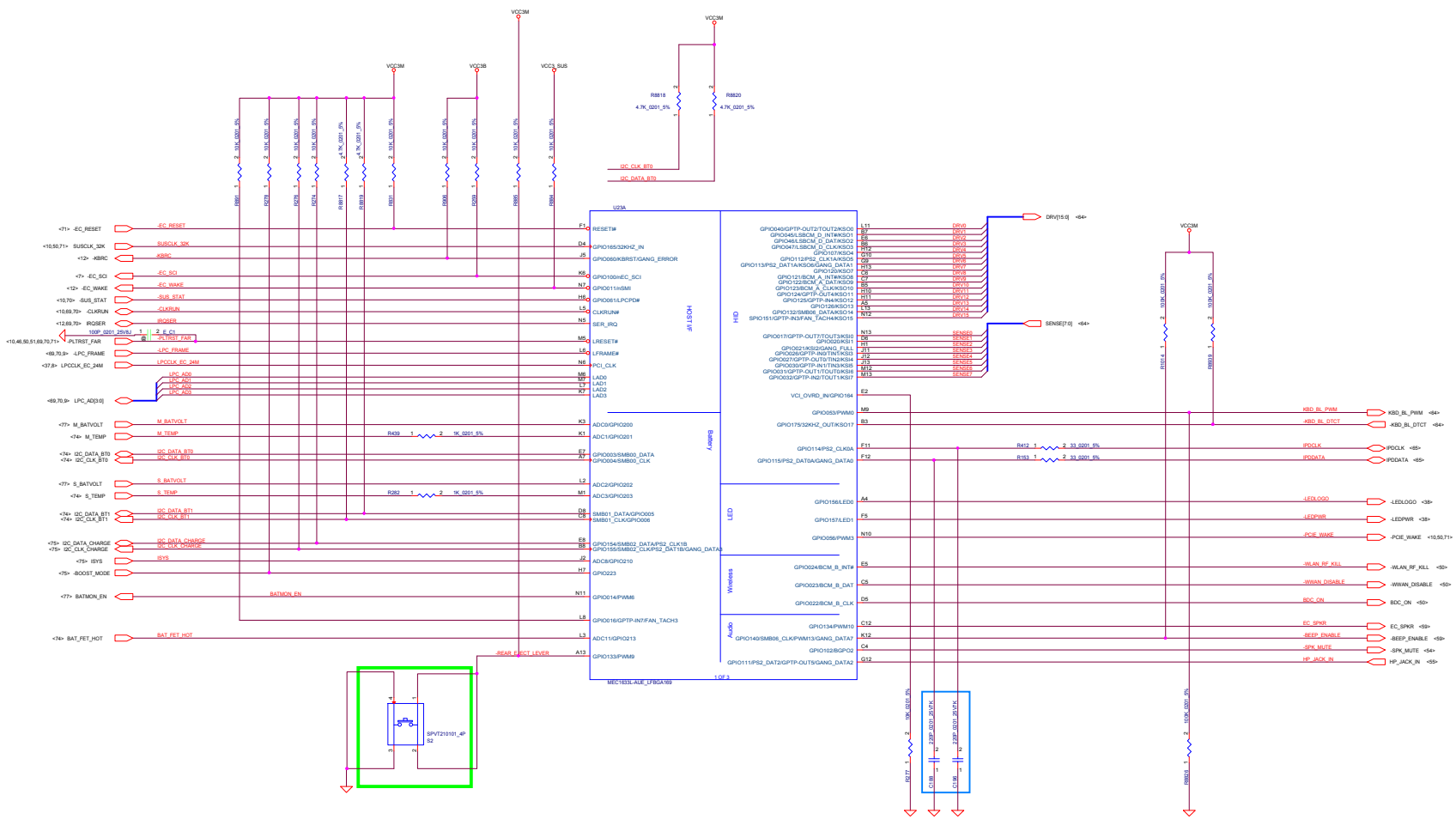
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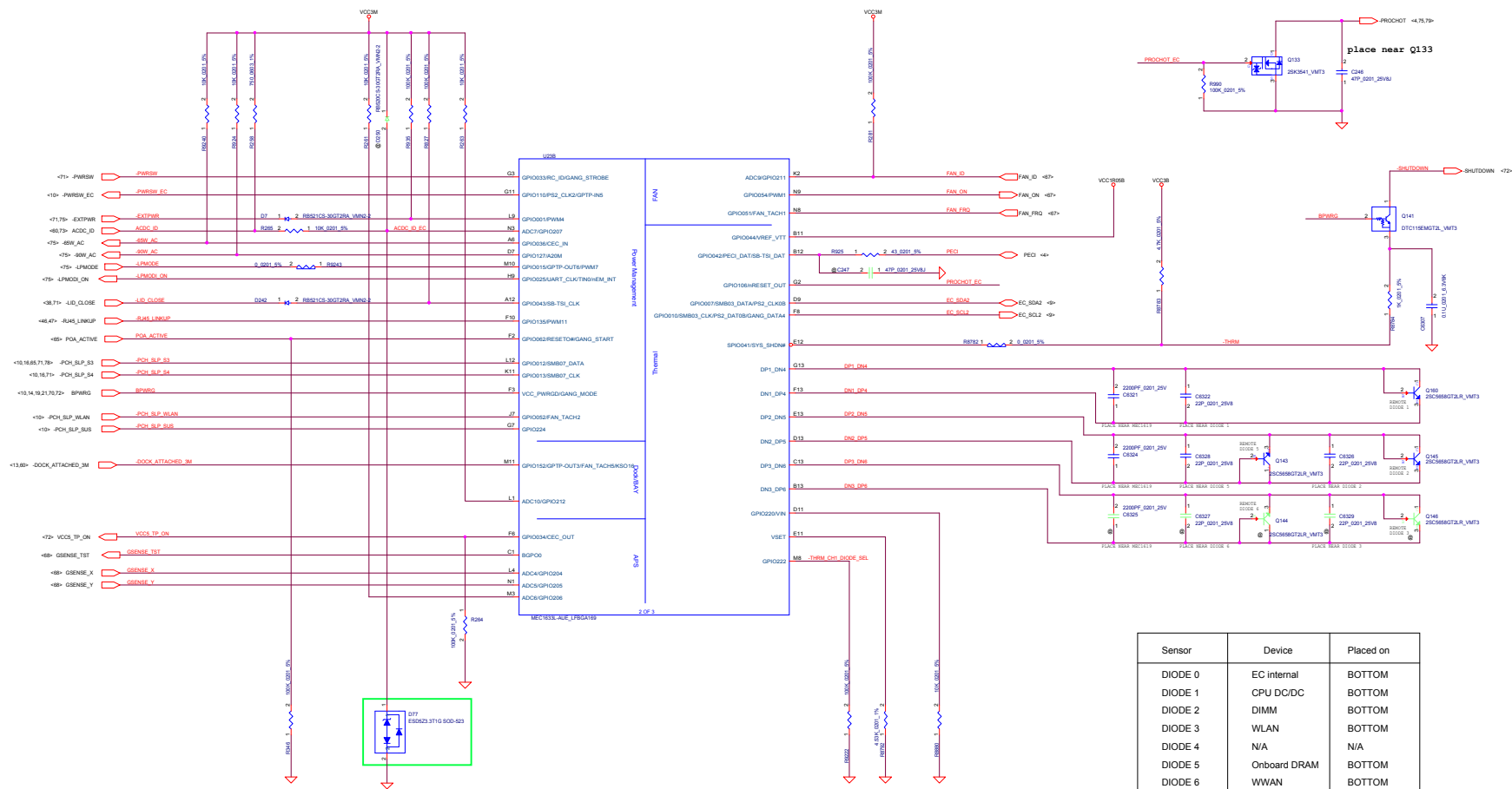




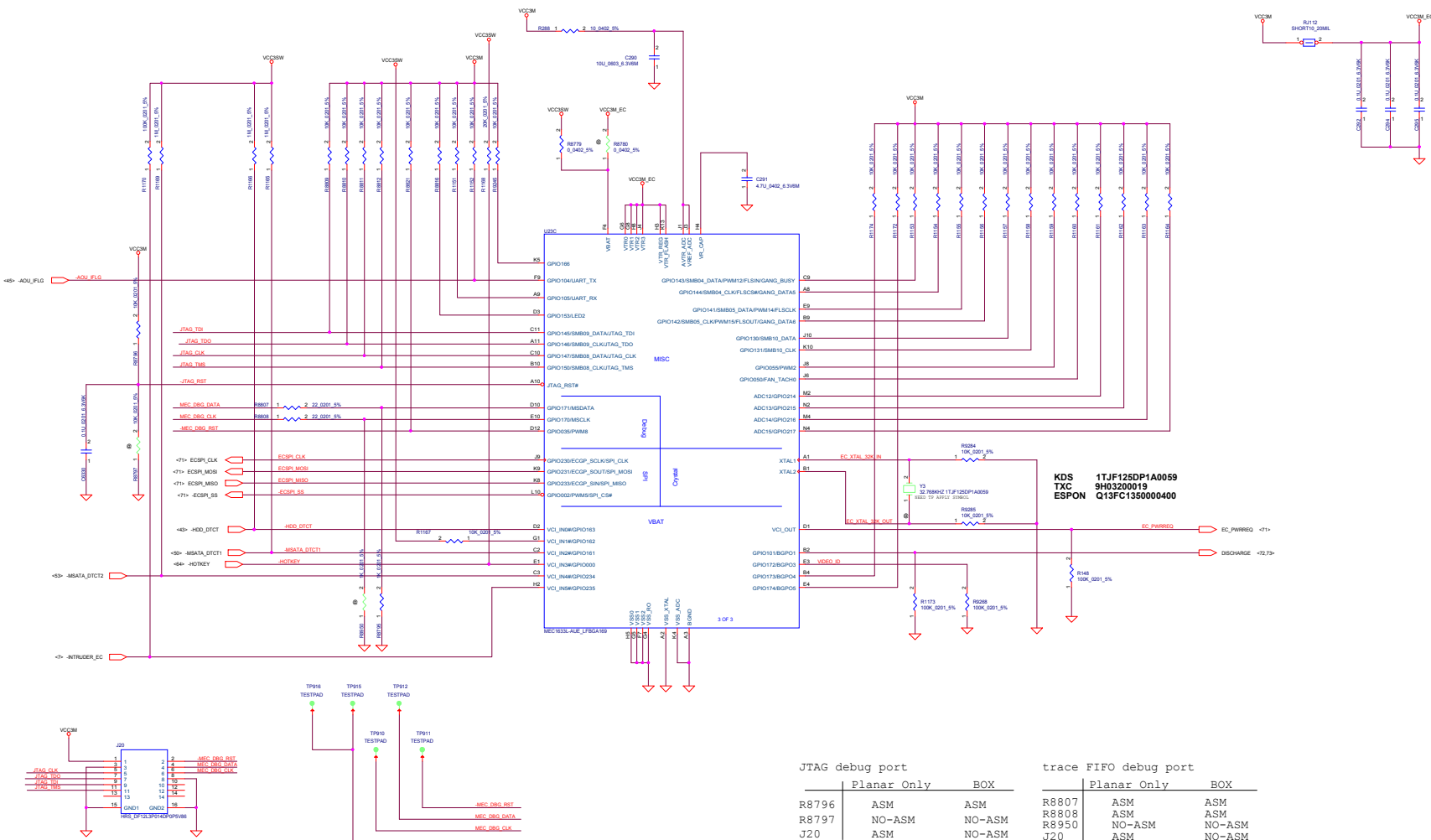




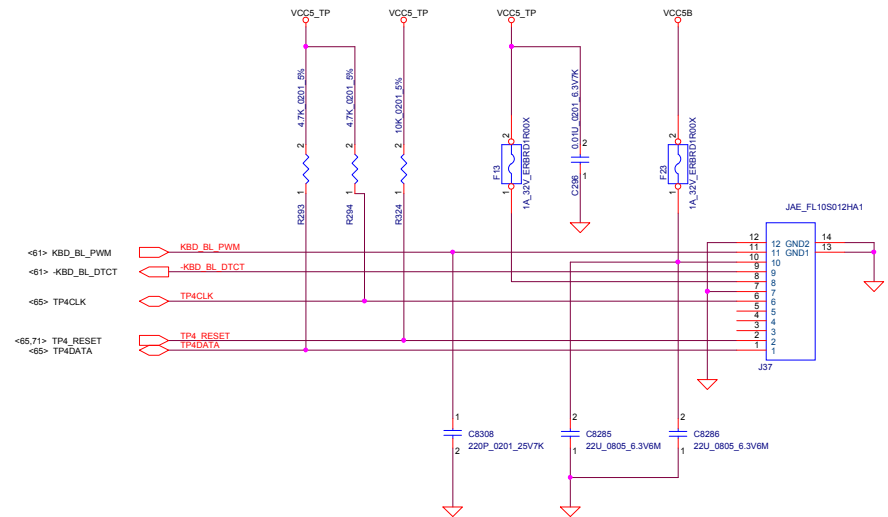
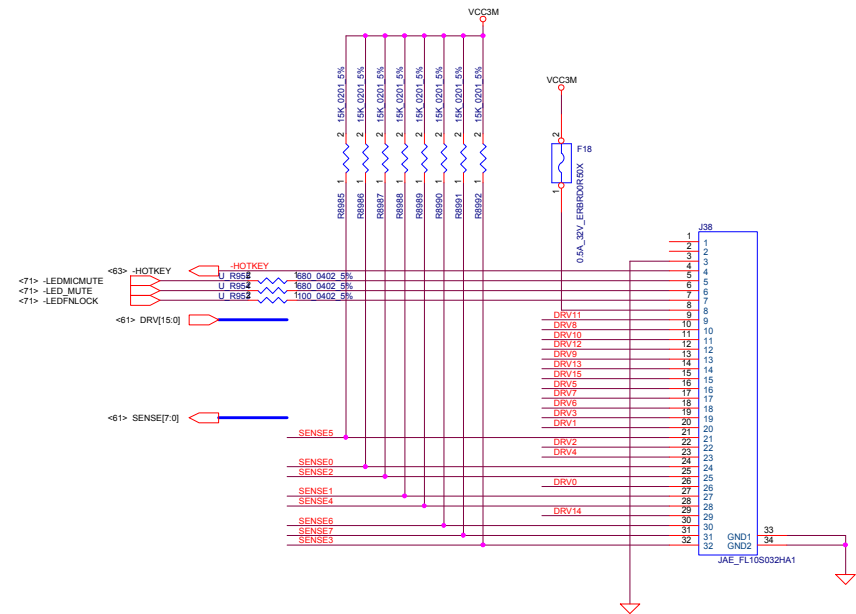


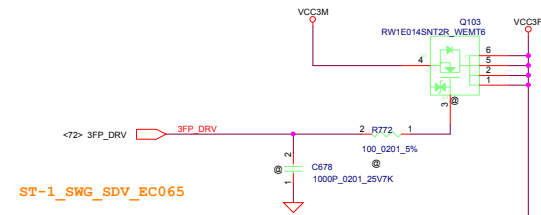
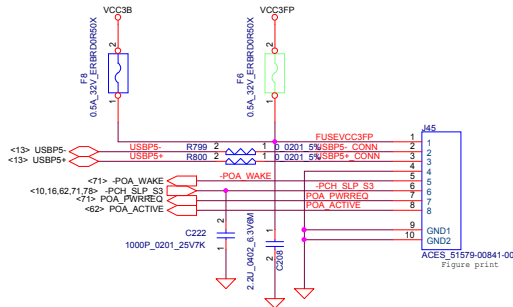
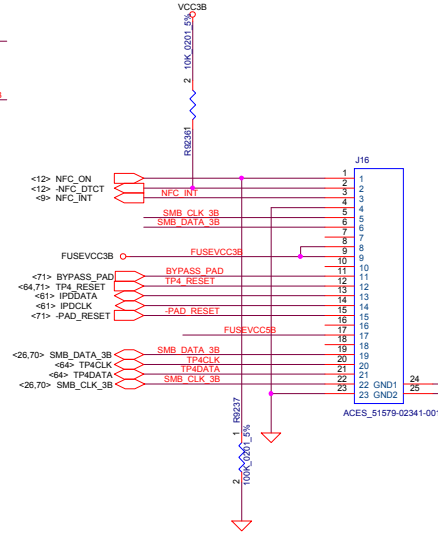
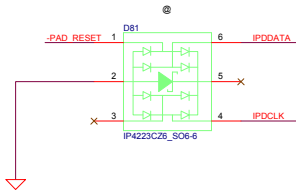
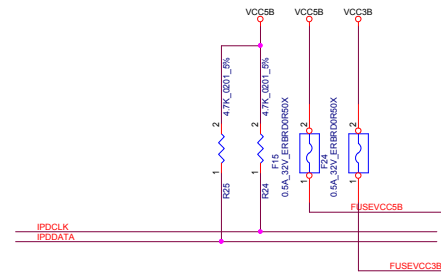


Sensor	Device	Placed on
DIODE 0	EC internal	BOTTOM
DIODE 1	CPU DC/DC	BOTTOM
DIODE 2	DIMM	BOTTOM
DIODE 3	WLAN	BOTTOM
DIODE 4	N/A	N/A
DIODE 5	Onboard DRAM	BOTTOM
DIODE 6	WWAN	BOTTOM

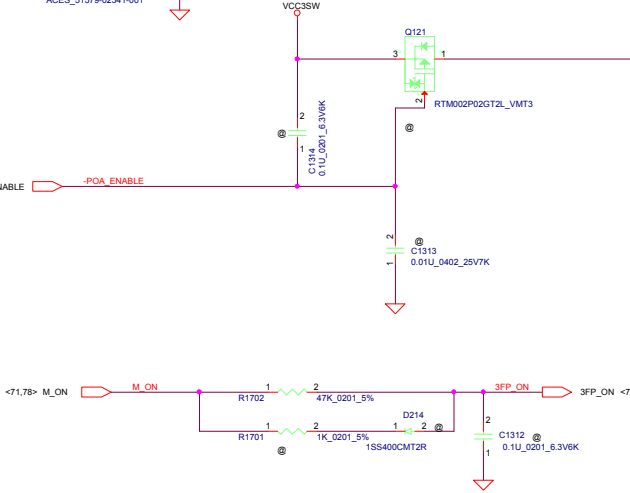


JTAG debug port			trace FIFO debug port		
	Planar Only	BOX		Planar Only	BOX
R8796	ASM	ASM	R8807	ASM	ASM
R8797	NO-ASM	NO-ASM	R8808	ASM	ASM
J20	ASM	NO-ASM	R8950	NO-ASM	NO-ASM





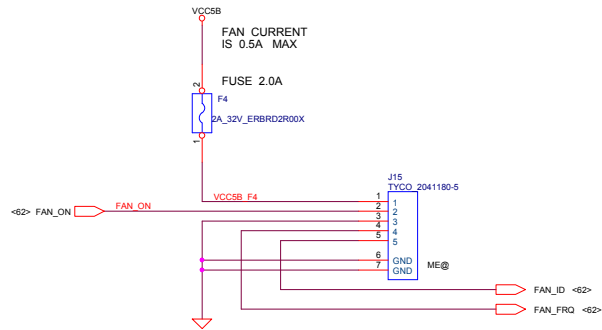
ST-1_SWG_SDV_EC065



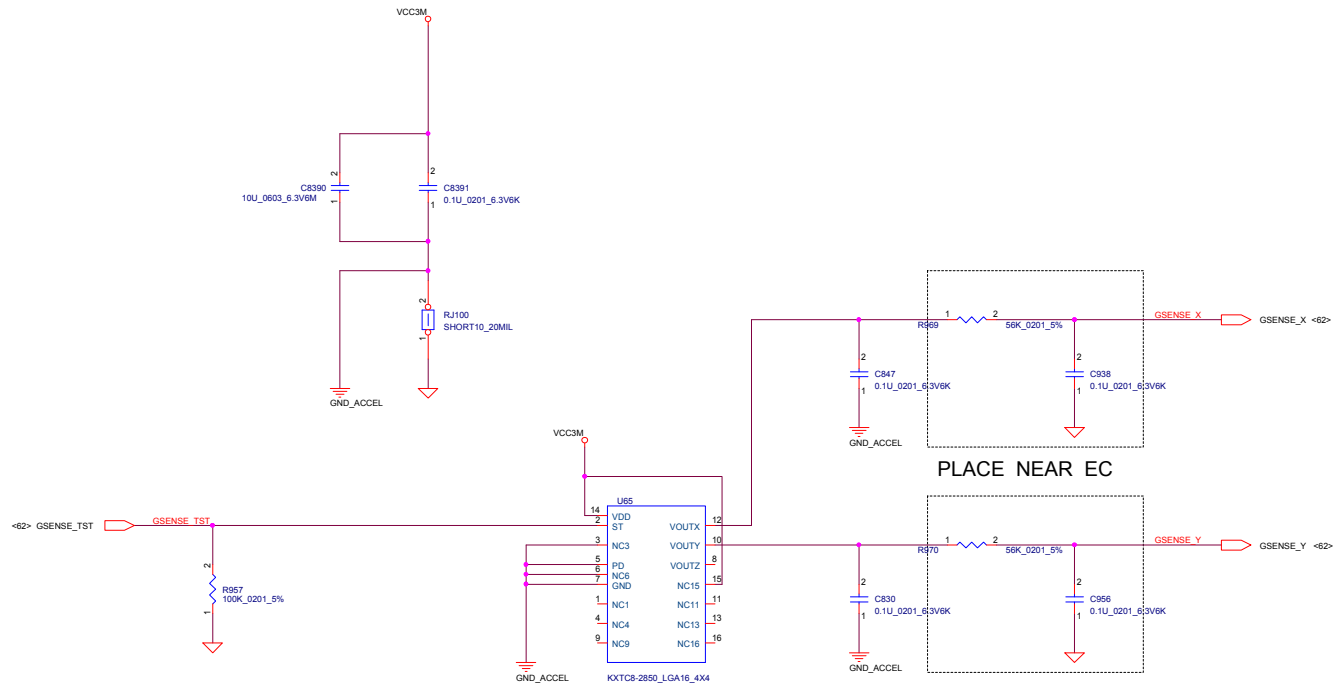
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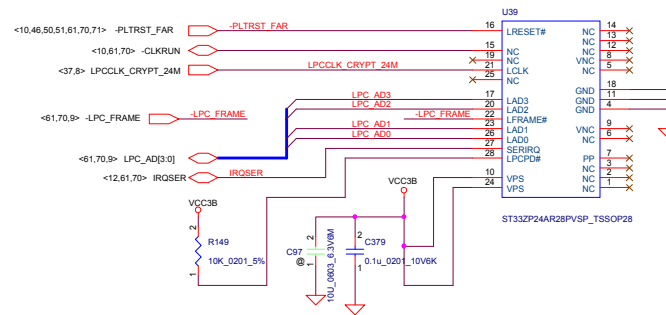
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2012/05/02		2012/5/02			
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				Sheet	66 of 100





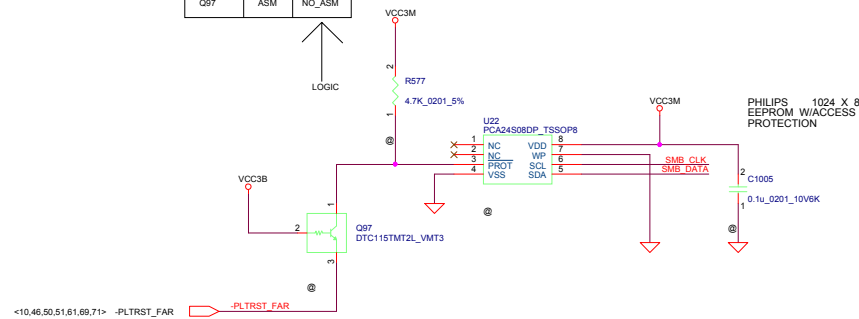
	LIS344L KXTC8-2850	NO ACC.
R401 R957	NO_ASM ASM	ASM ASM
U65	ASM	NO_ASM
Q105	ASM	NO_ASM
R885 C829 C969	10-OHM ASM ASM	NO_ASM NO_ASM NO_ASM
C830 C847	ASM ASM	NO_ASM NO_ASM
R969 C938 R970 C956	56K ASM 56K ASM	NO_ASM NO_ASM NO_ASM NO_ASM
C704 R344 C703	NO_ASM NO_ASM NO_ASM	NO_ASM NO_ASM NO_ASM
R125	ASM	ASM





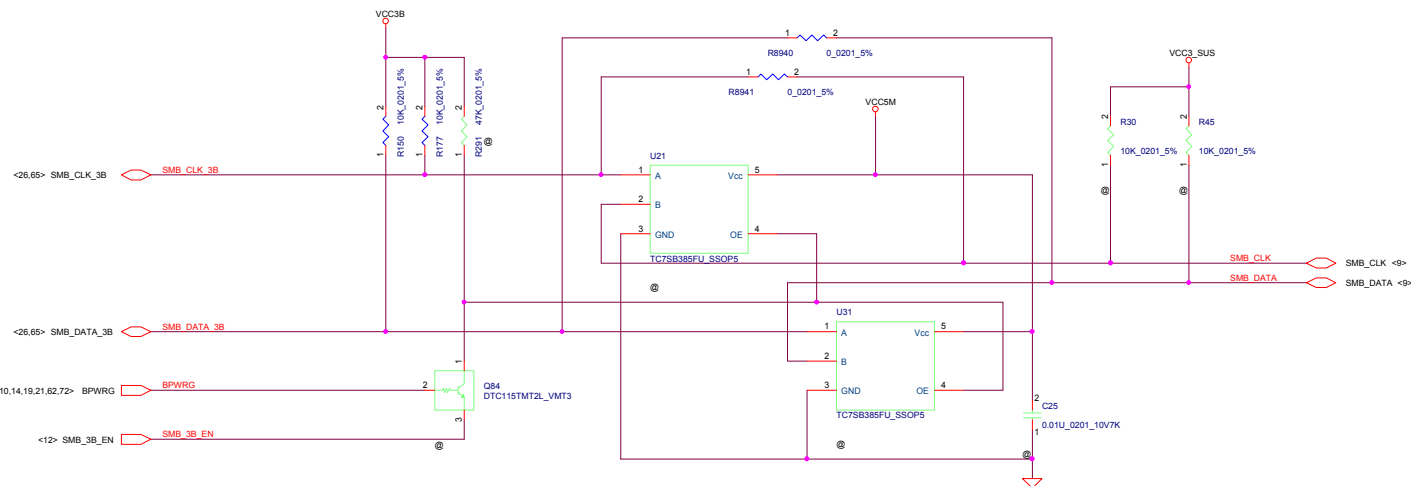
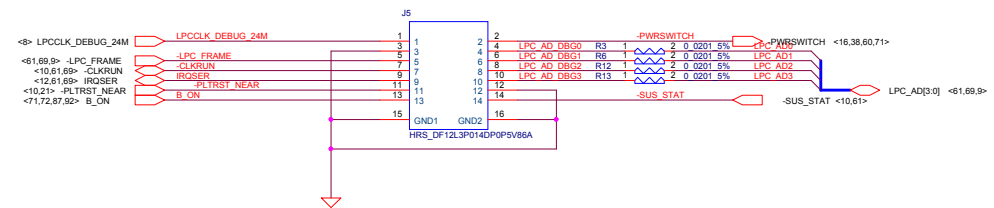
TABLE

EEPROM	U22	U23
U22	ASM	NO_ASM
C1005	ASM	NO_ASM
R577	ASM	NO_ASM
Q97	ASM	NO_ASM



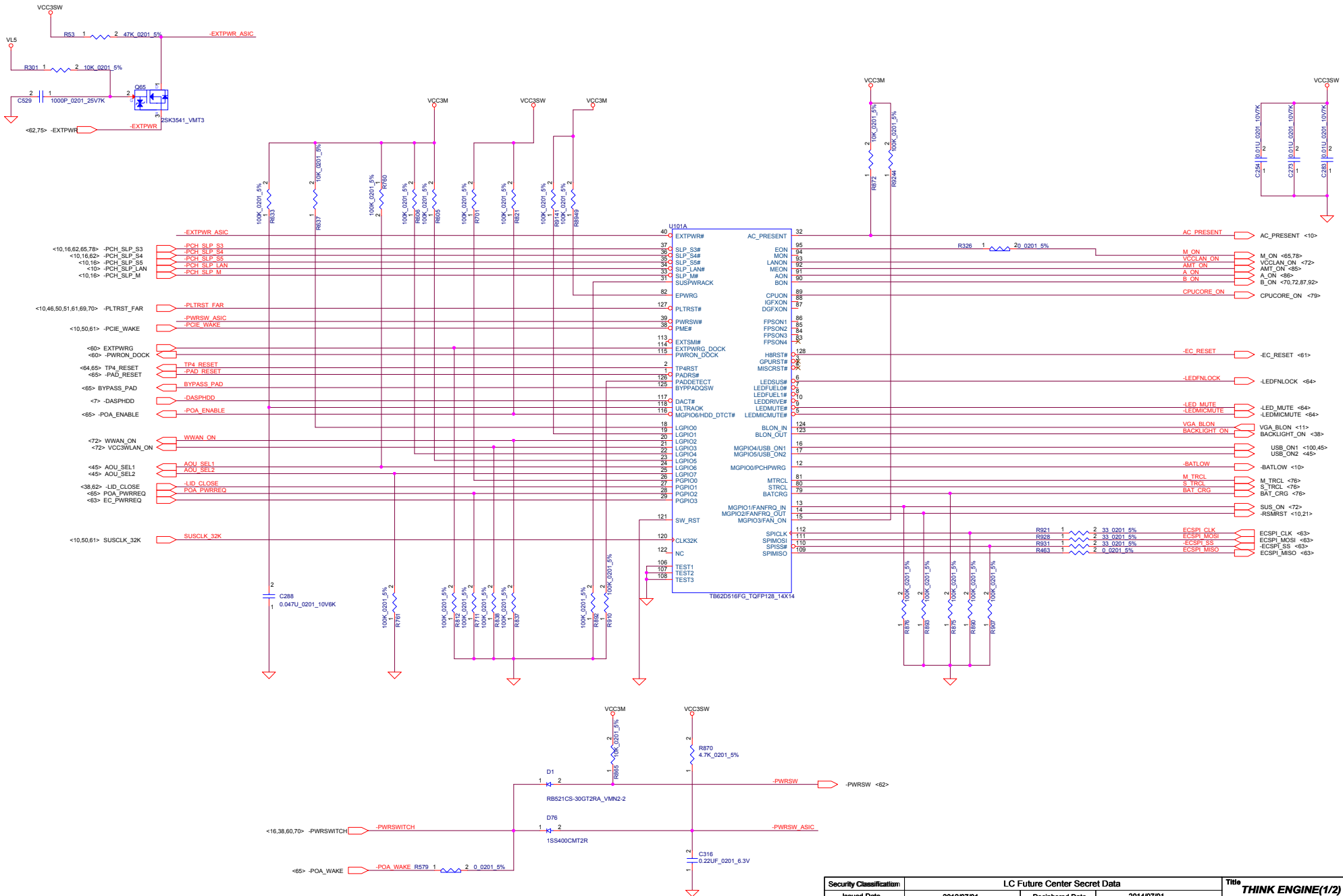
LPC Debug Port

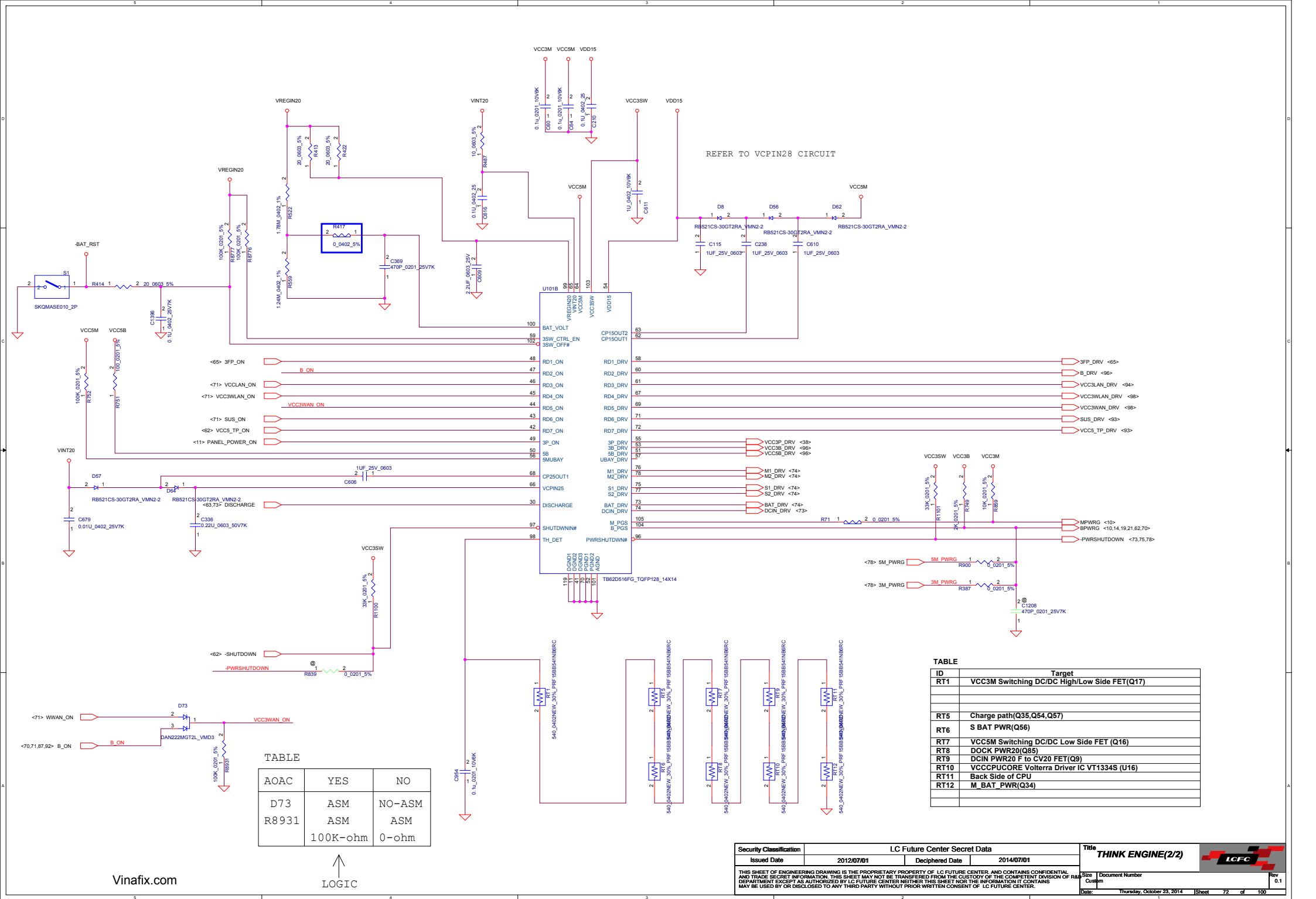
	Planar Only	BOX
J5	ASM	NO_ASM
R9062	ASM	ASM

TABLE

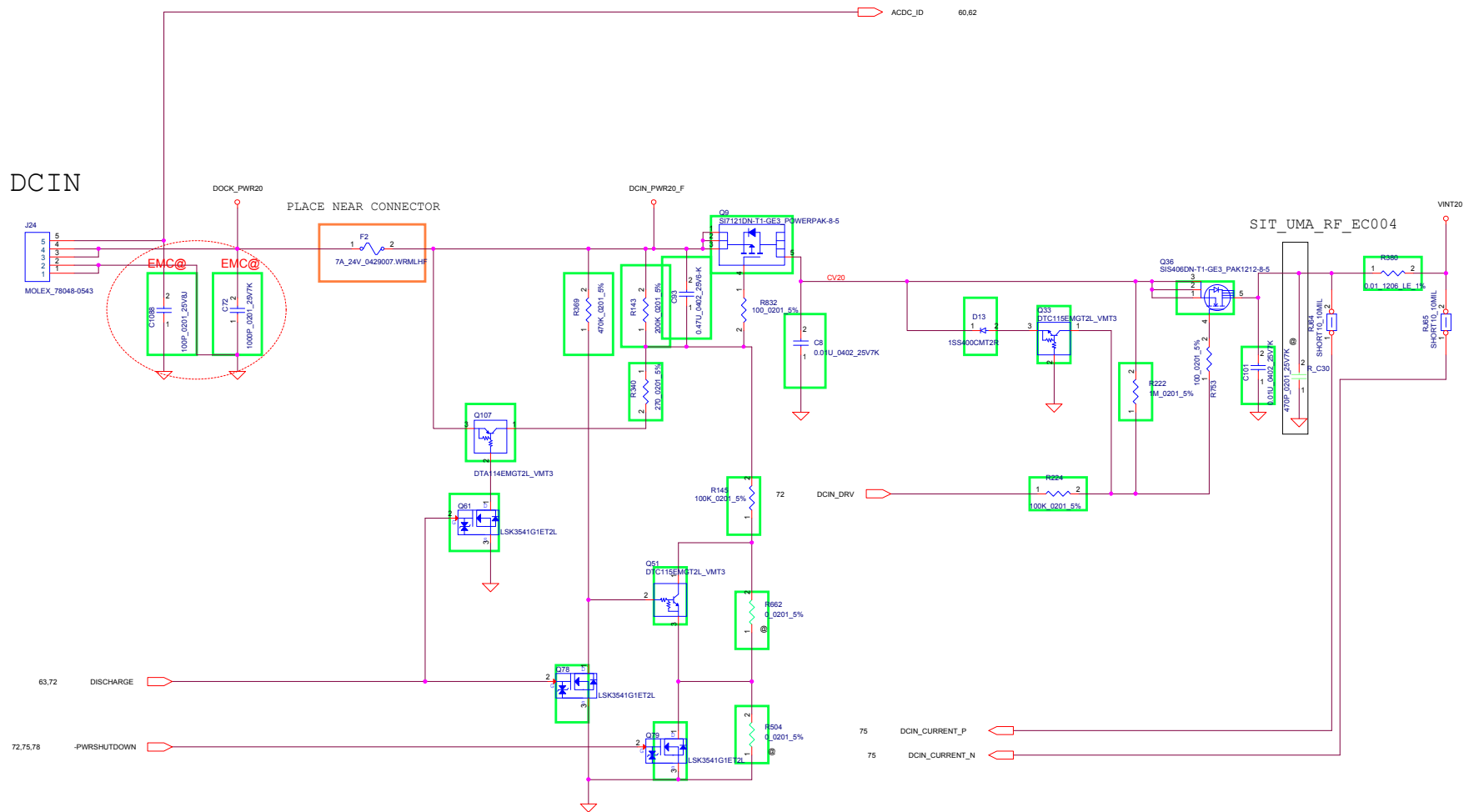
EEPROM	U22	U23
U21	ASM	NO_ASM
U31	ASM	NO_ASM
C25	ASM	NO_ASM
R291	ASM	NO_ASM
Q84	ASM	NO_ASM
R8941	NO_ASM	ASM
R8940	NO_ASM	ASM
R30	ASM	NO_ASM
R45	ASM	NO_ASM

LOGIC





DCIN



TABLE

PEAK SHIFT	YES	NO
R662	NO-ASM	ASM
R369	ASM	NO-ASM
Q78	ASM	NO-ASM
Q51	ASM	NO-ASM

↑
LOGIC

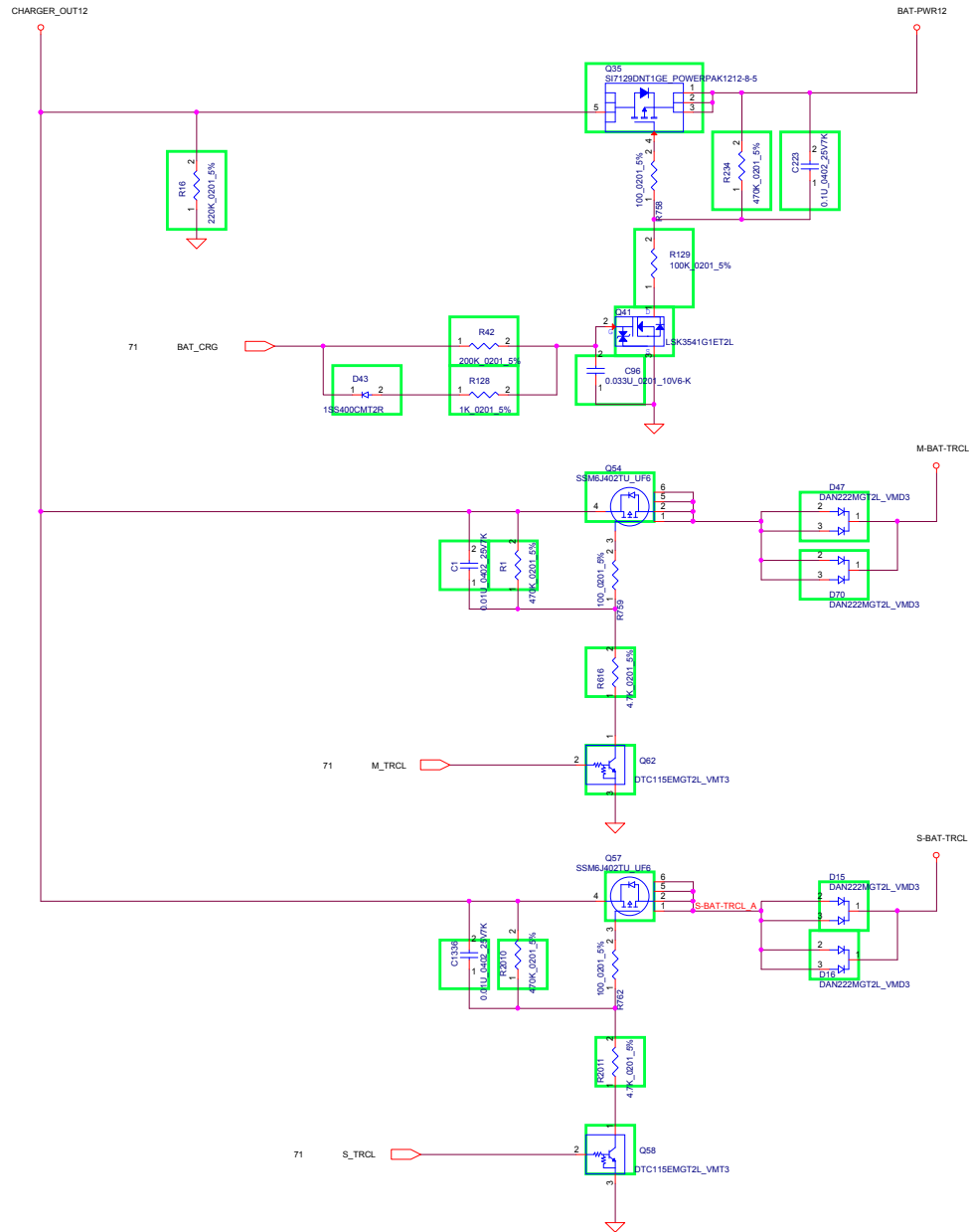
to connect lines of I2C_DATA and I2C_CLK in parallel

All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.

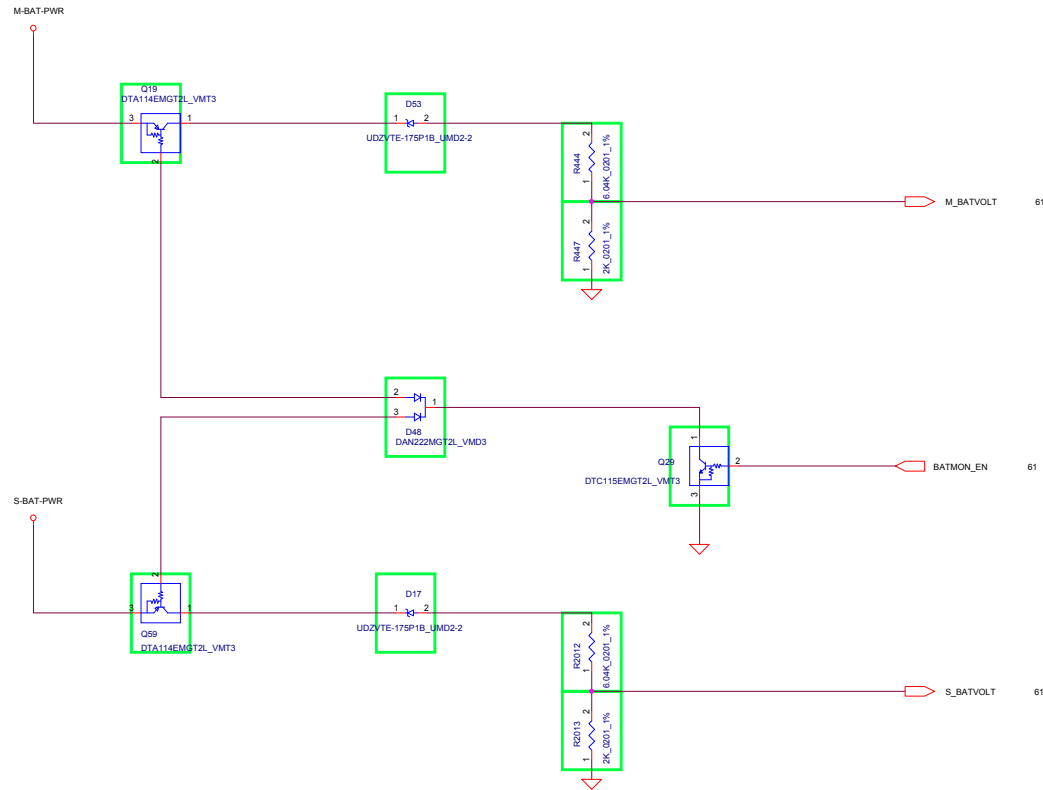
place R735 and C299 near EC

	170W Adapter	135W Adapter	90W Adapter	65W Adapter	45W Adapter
ACDC_ID signal	2.590V >= ID > 2.149V	2.189V >= ID > 1.172V	1.618V >= ID > 1.172V	1.663V >= ID > 0.693V	0.663V >= ID > 0.234V
-65W_AC signal	Low	Low	Low	Low	High
-90W_AC signal	Low	Low	Low	High	High

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Size	Document Number			Rev	
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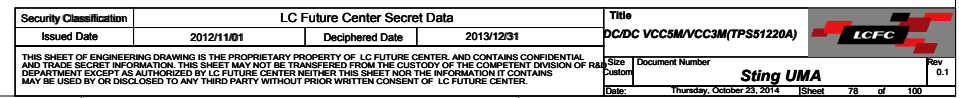


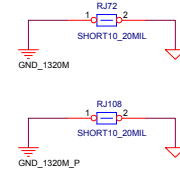
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Date	Thursday, October 23, 2014				Sheet		77 of 100		

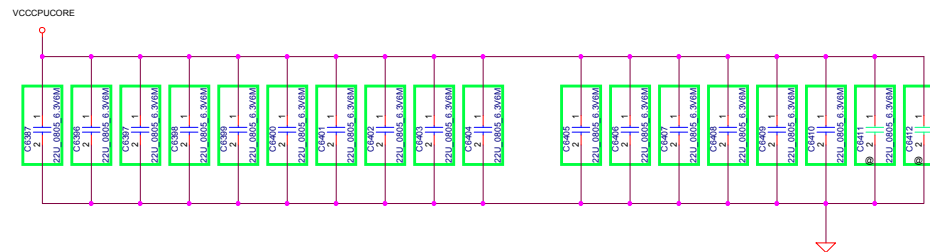
All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.





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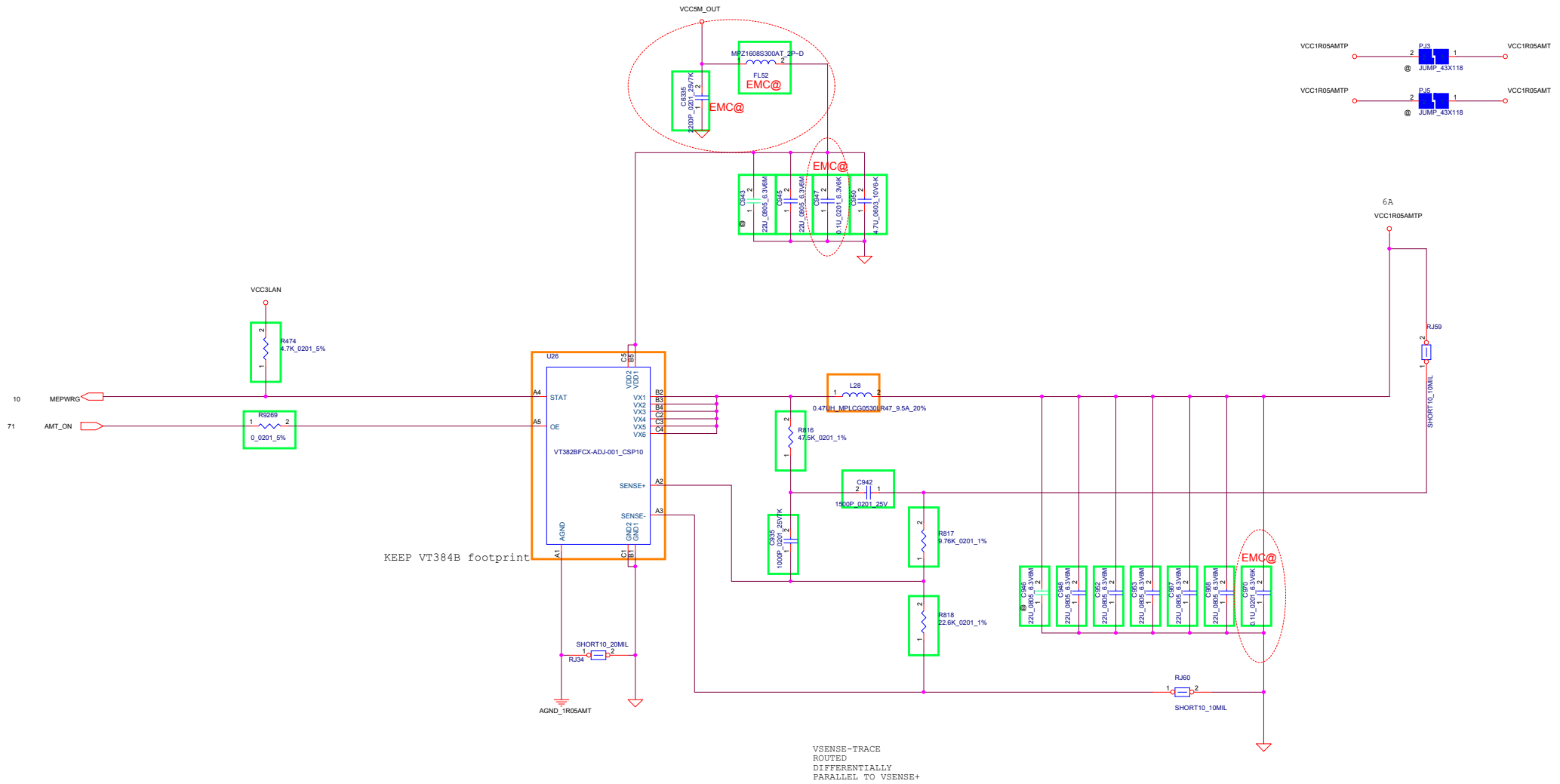
16pcs 22uF for VCCCPUCORE of 25W ULT CPU
(14pcs 22uF for VCCCPUCORE of 15W ULT CPU)

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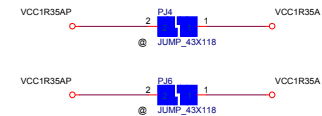
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KEEP VT384B footprint

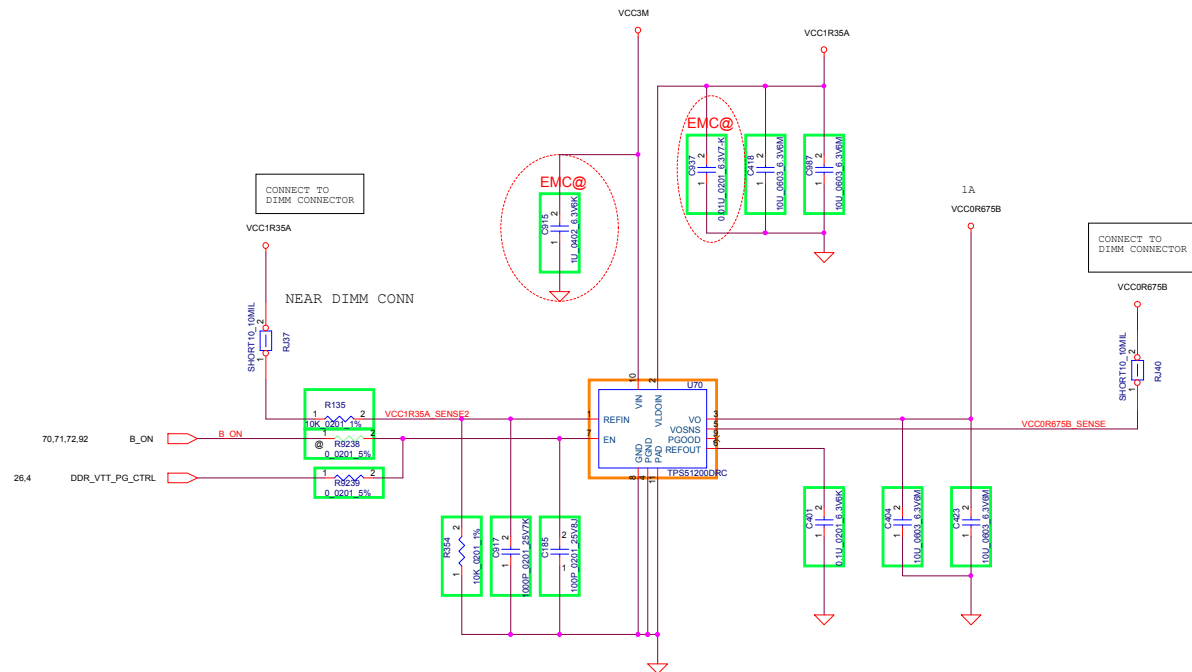
VSENSE-TRACE
ROUTED
DIFFERENTIALLY
PARALLEL TO VSENSE+

$$V_{out} = 0.75 \times (1 + R817/R818)$$



VSENSE-TRACE
ROUTED DIFFERENTIALLY
PARALLEL TO VSENSE+

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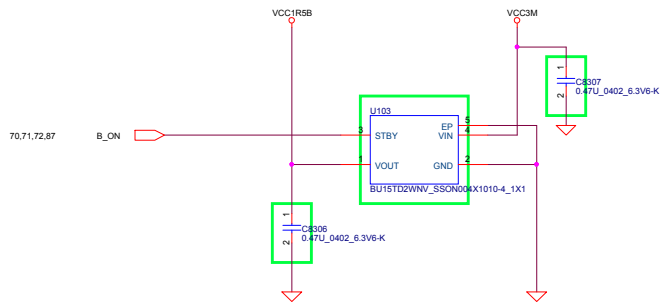
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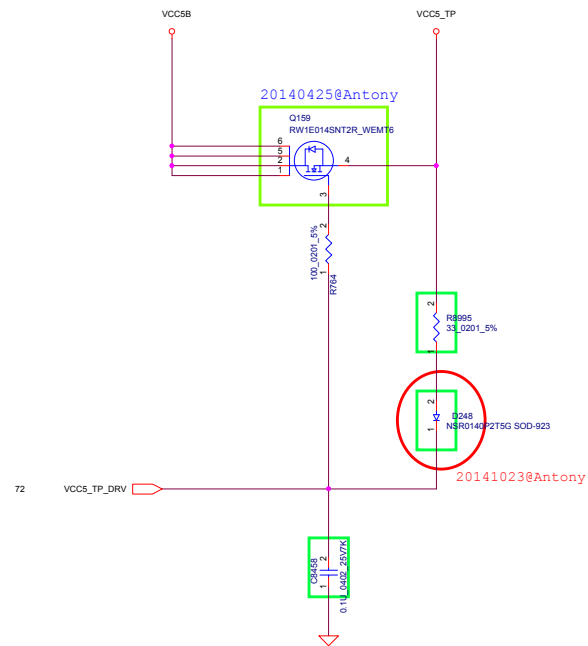
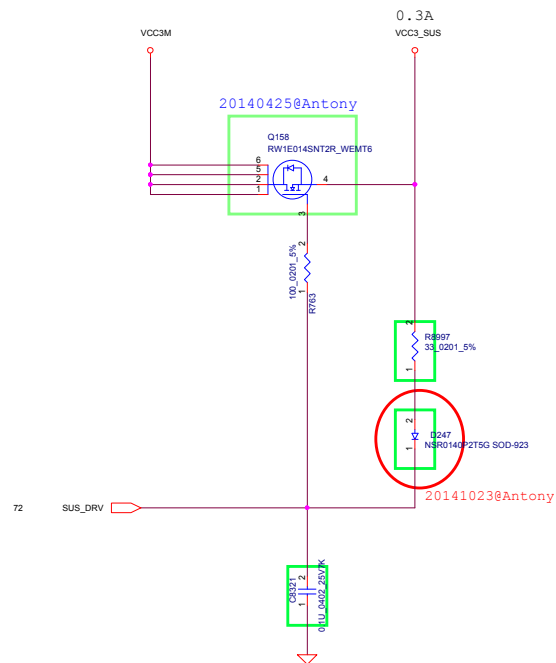
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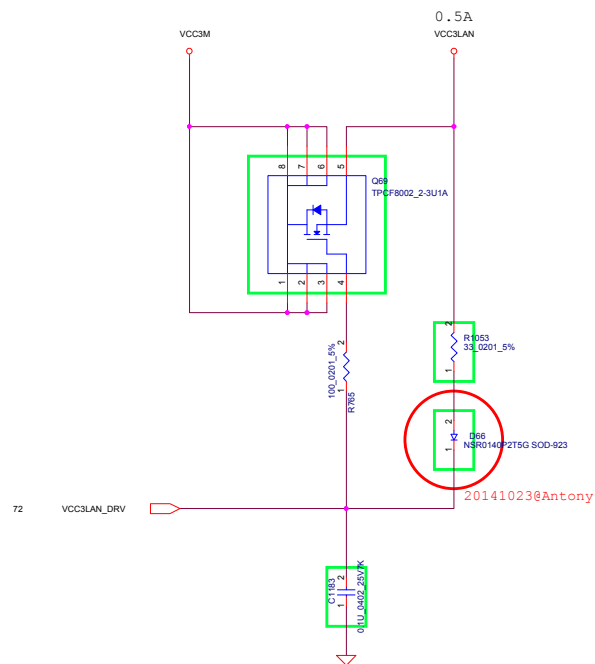
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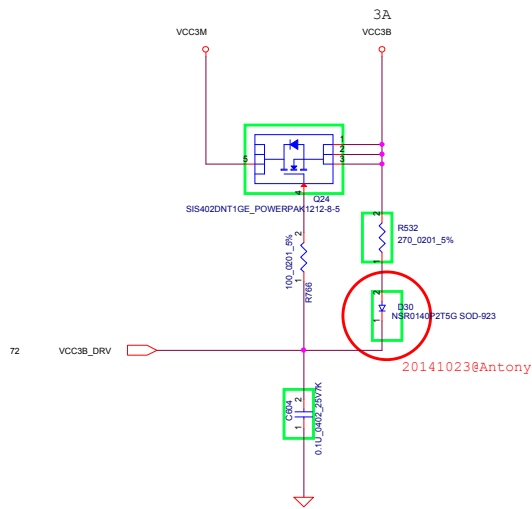




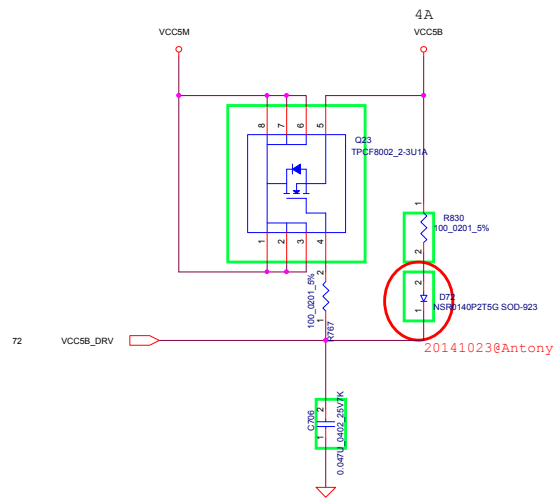


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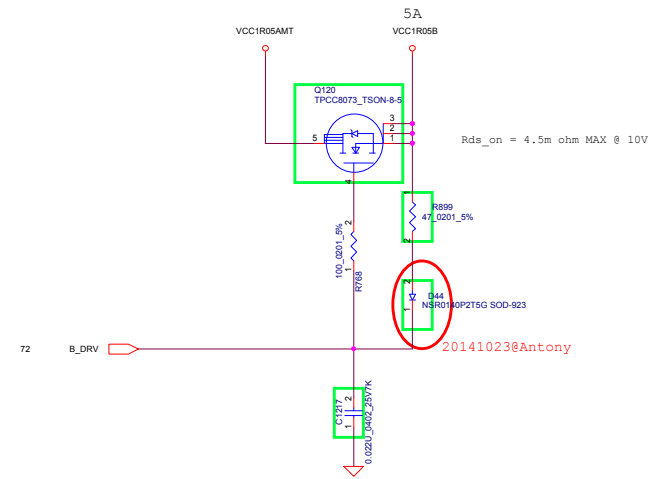
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20141023@Antony



20141023@Antony

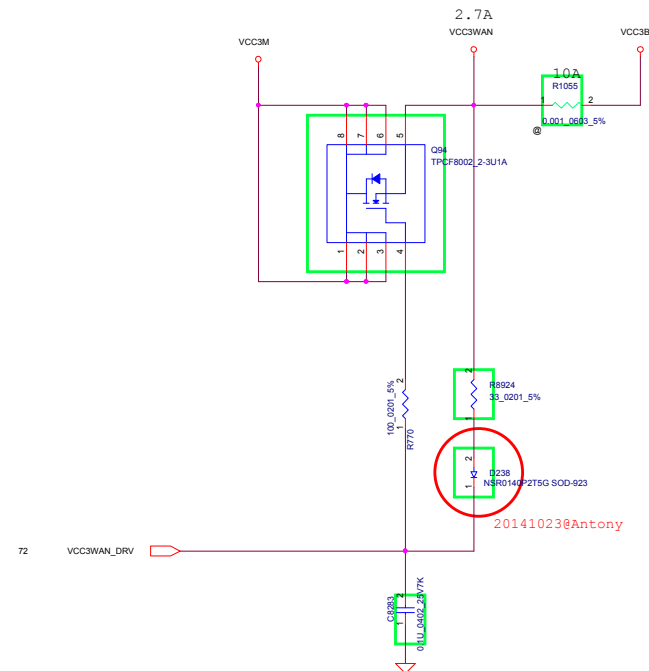
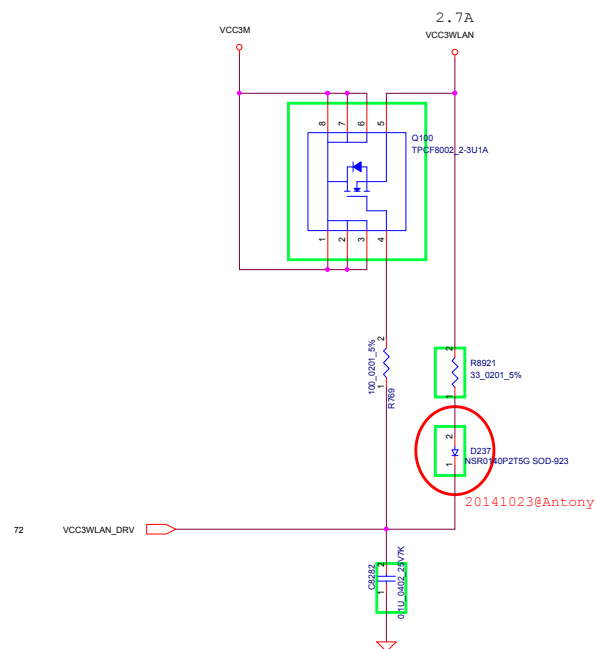


$R_{ds_on} = 4.5m\ \text{ohm MAX @ } 10V$

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TABLE

AOAC	YES	NO
R1055	NO-ASM	ASM
Q94	ASM	NO-ASM
R8924	ASM	NO-ASM
R8926	ASM	NO-ASM
C8283	ASM	NO-ASM
D238	ASM	NO-ASM

↑
LOGIC

