

# CB-2 UMA LOGIC SCHEMATICS


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- 81.BLANK
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- 83.BLANK
- 84.BLANK
- 85.DC/DC VCC1R05AMT(VT382B)
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- 88.BLANK
- 89.BLANK
- 90.BLANK
- 91.BLANK
- 92.DC/DC VCC1R5B(BU15TD2WNV)
- 93.LOAD SW PCH SUS
- 94.LOAD SW LAN
- 95.BLANK
- 96.LOAD SW B
- 97.BLANK
- 98.LOAD SW WWAN & WLAN
- 99.PTH FOR SCREW HOLES
- 100.3rd USB

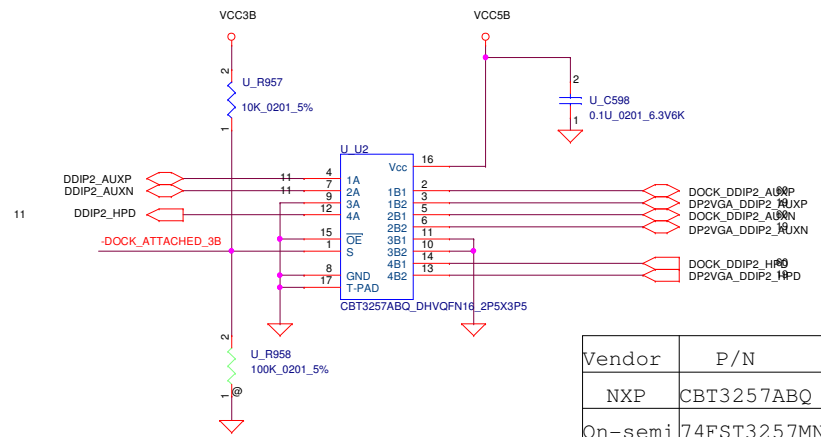
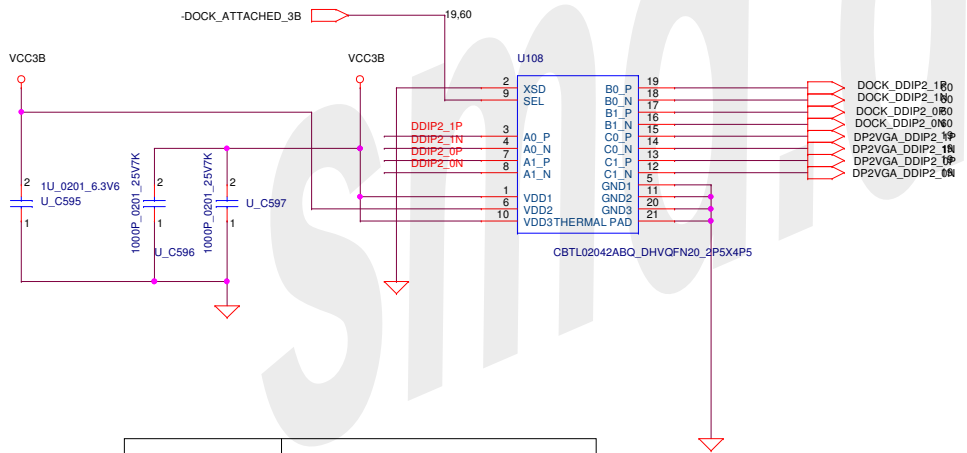
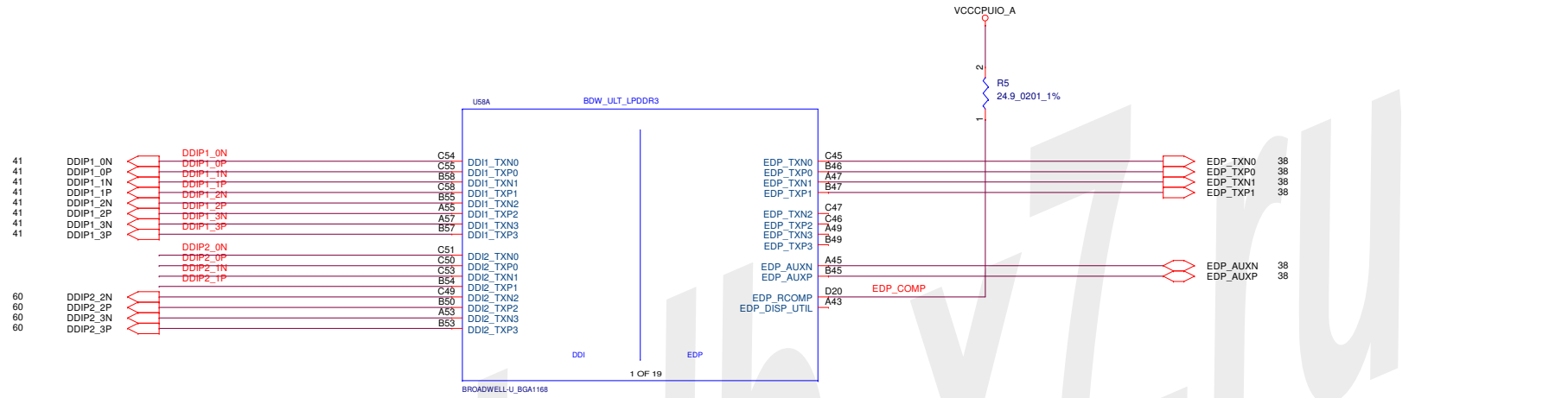
EC Modify History

Date                      EC version                      File name

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NXP	CBTL02042ABQ

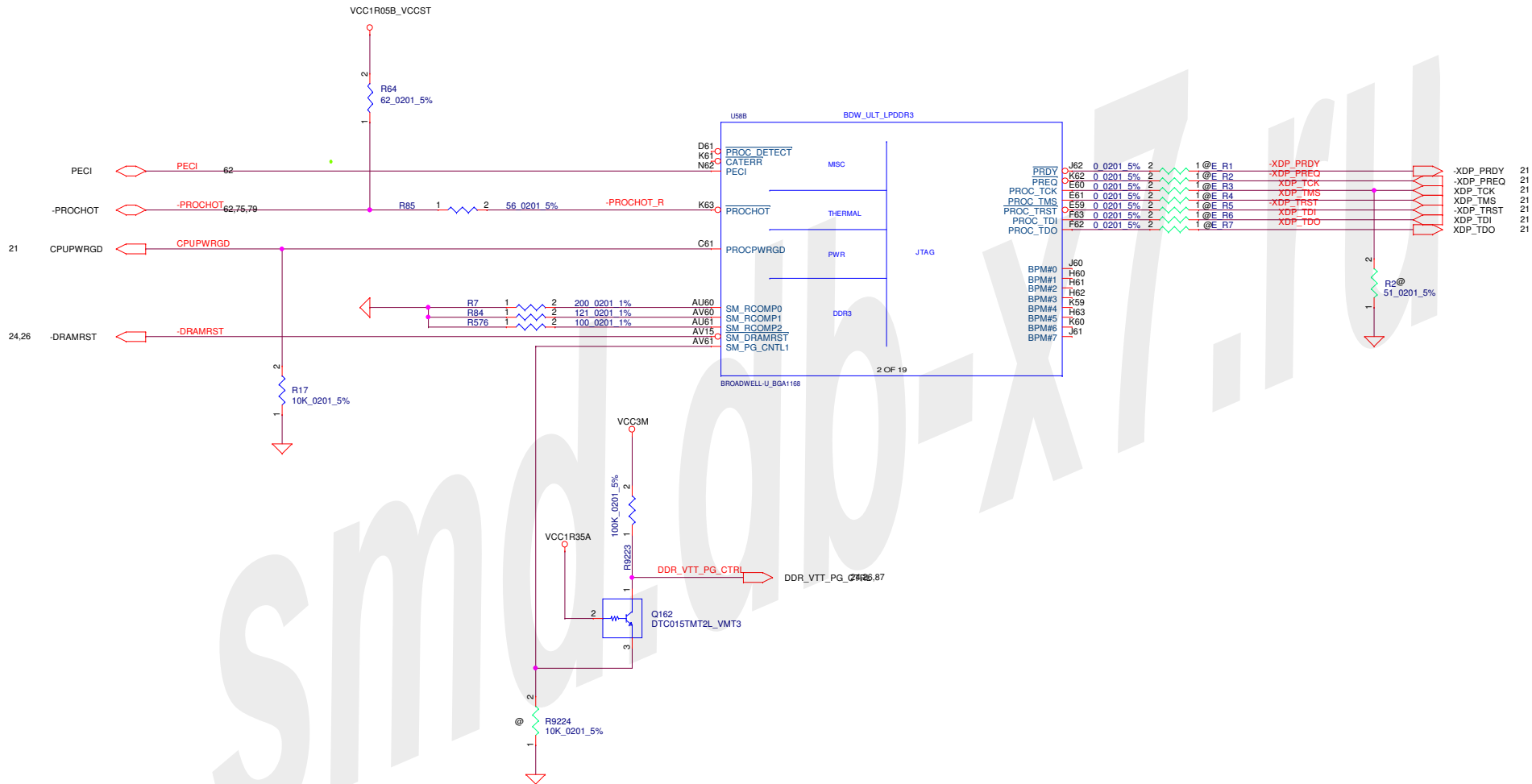
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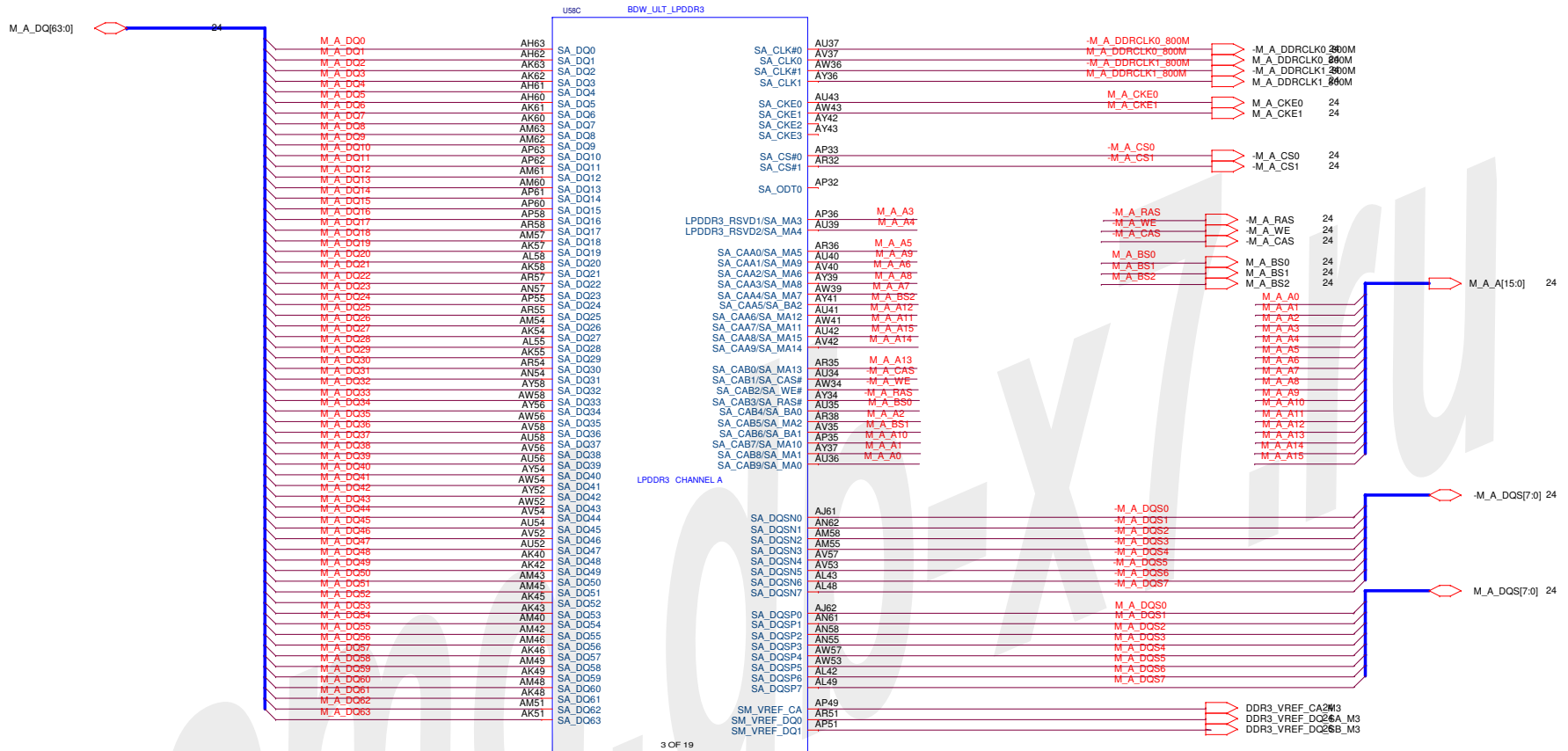


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Title	
CPU(2/16) : MISC/JTAG	

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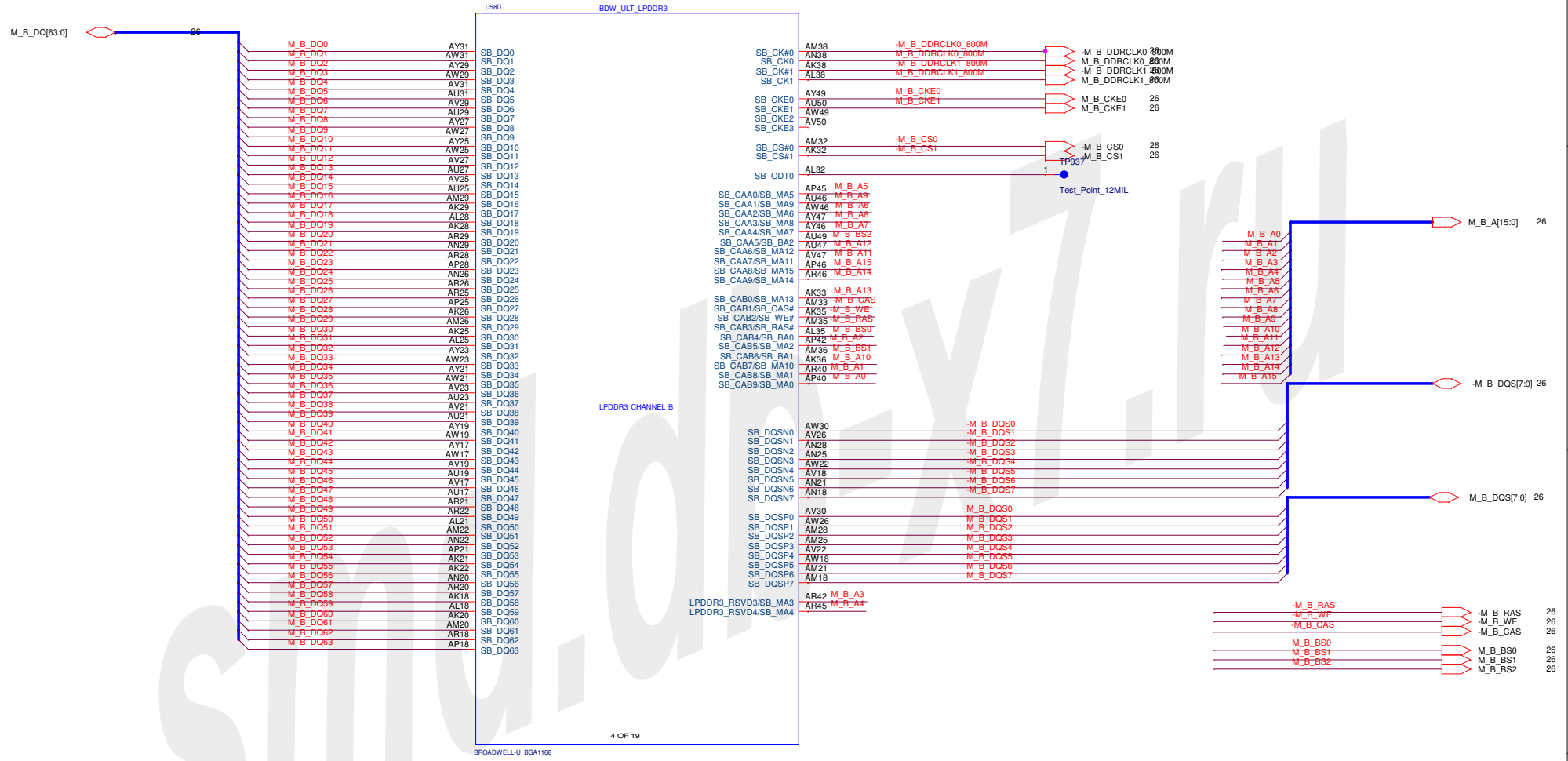
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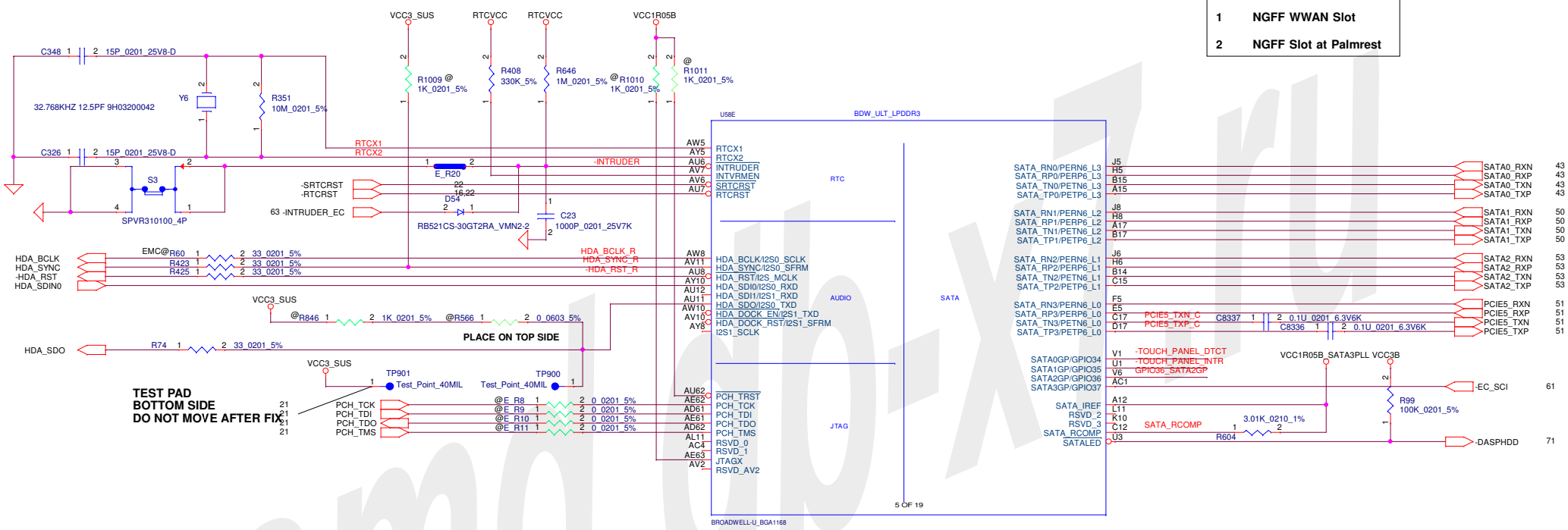
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Title	
CPU(4/16) : DDR3L CHANNEL-B	

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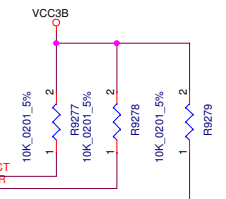
SATA Port Assignment	
0	HDD Connector
1	NGFF WWAN Slot
2	NGFF Slot at Palmrest

**TEST PAD  
BOTTOM SIDE  
DO NOT MOVE AFTER FIX**

- 21 PCH\_TCK @E R8 1 2 0 0201 5%
- 21 PCH\_TDI @E R9 1 2 0 0201 5%
- 21 PCH\_TDO @E R10 1 2 0 0201 5%
- 21 PCH\_TMS @E R11 1 2 0 0201 5%

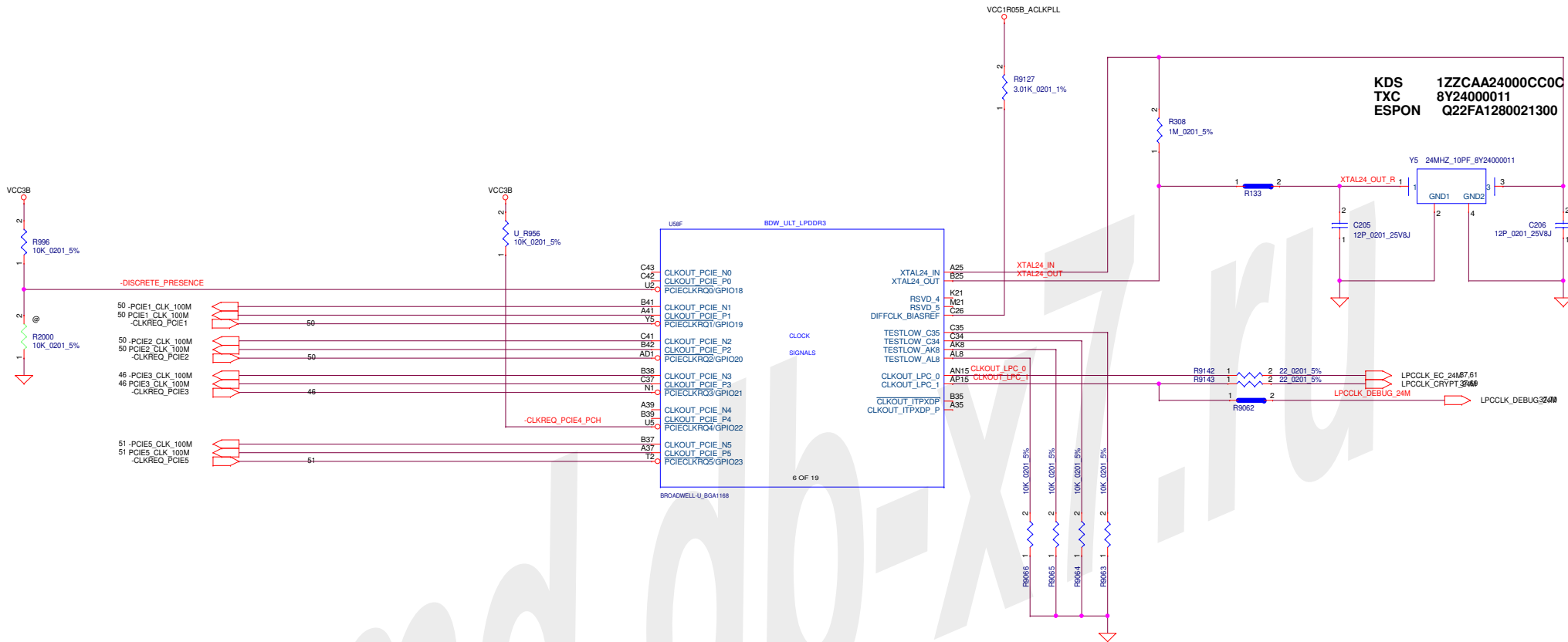
**PLACE ON TOP SIDE**

- VCC3\_SUS @R846 1 2 1K 0201 5%
- VCC3\_SUS @R566 1 2 0 0603 5%




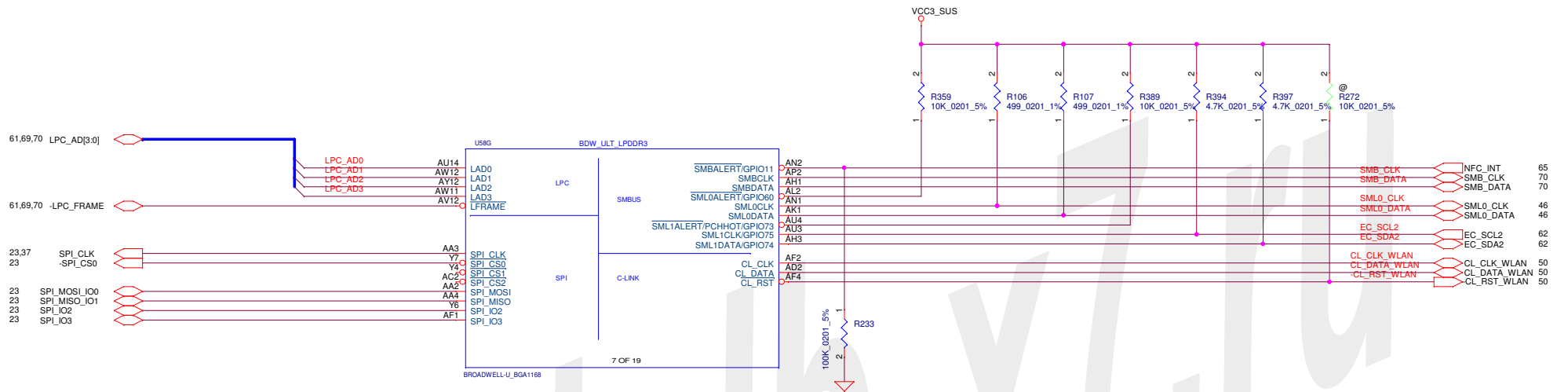
- TOUCH\_PANEL\_DTCT
- 3-TOUCH\_PANEL\_INTR
- TOUCH\_PANEL\_DTCT
- TOUCH\_PANEL\_INTR
- GPIO36\_SATA2GP

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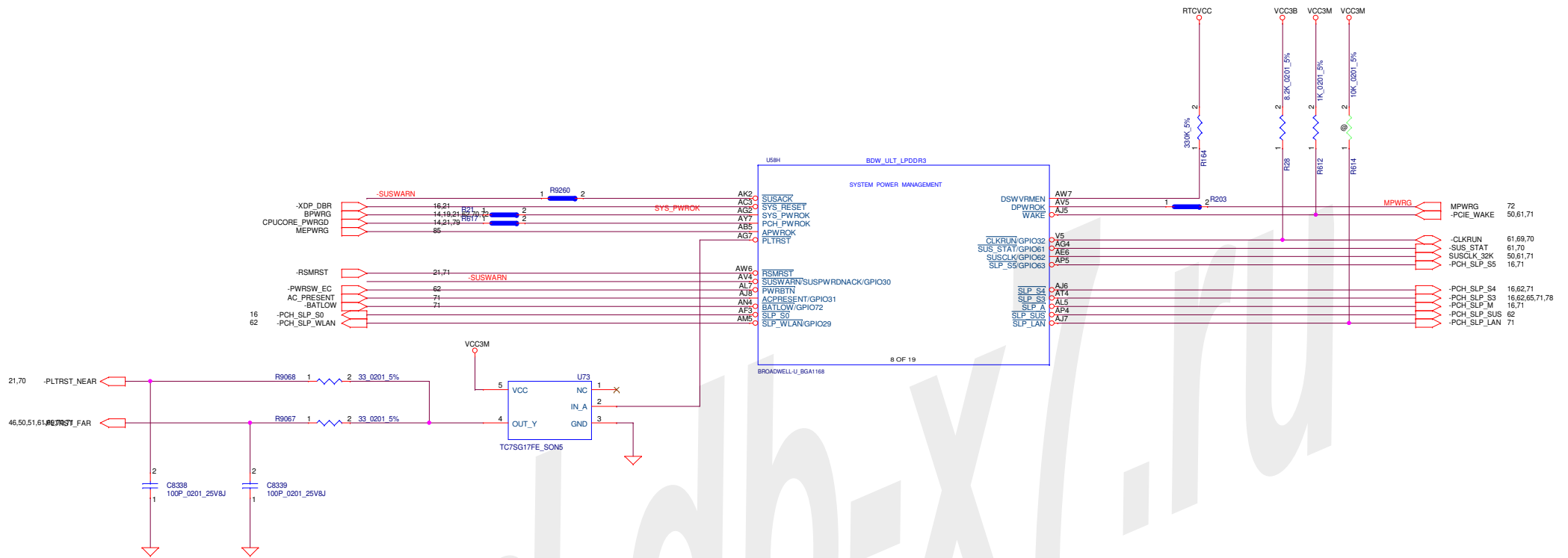
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CPU(6/16) : CLOCK SIGNALS			Document Number <b>COBAIN UMA</b>	Rev 0.1
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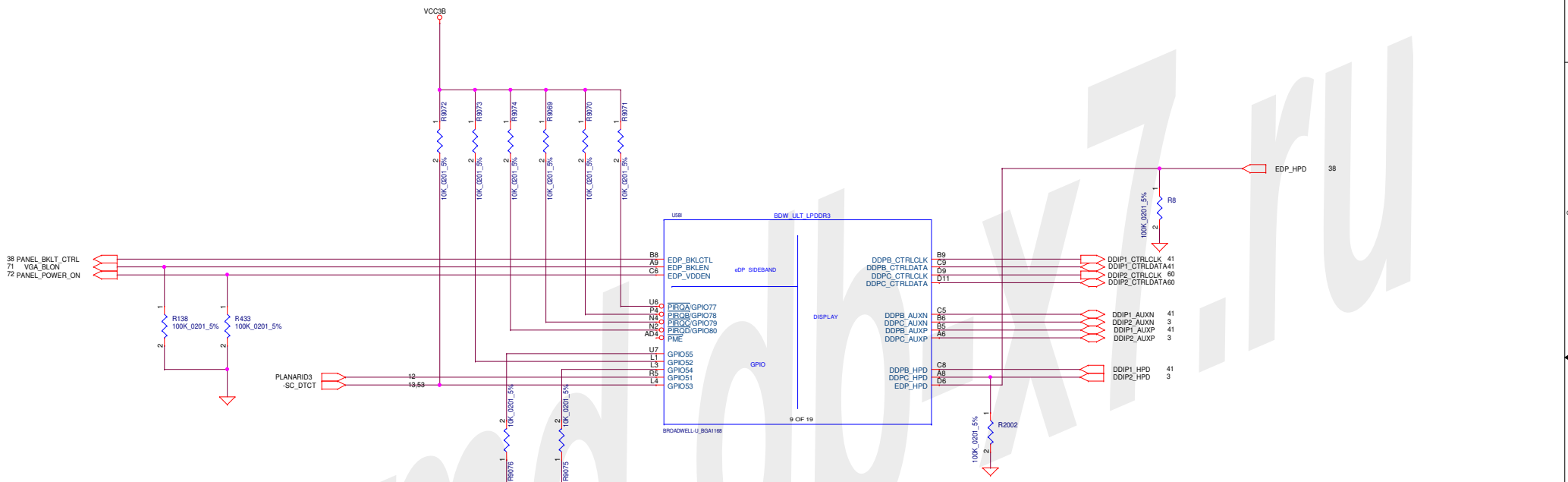
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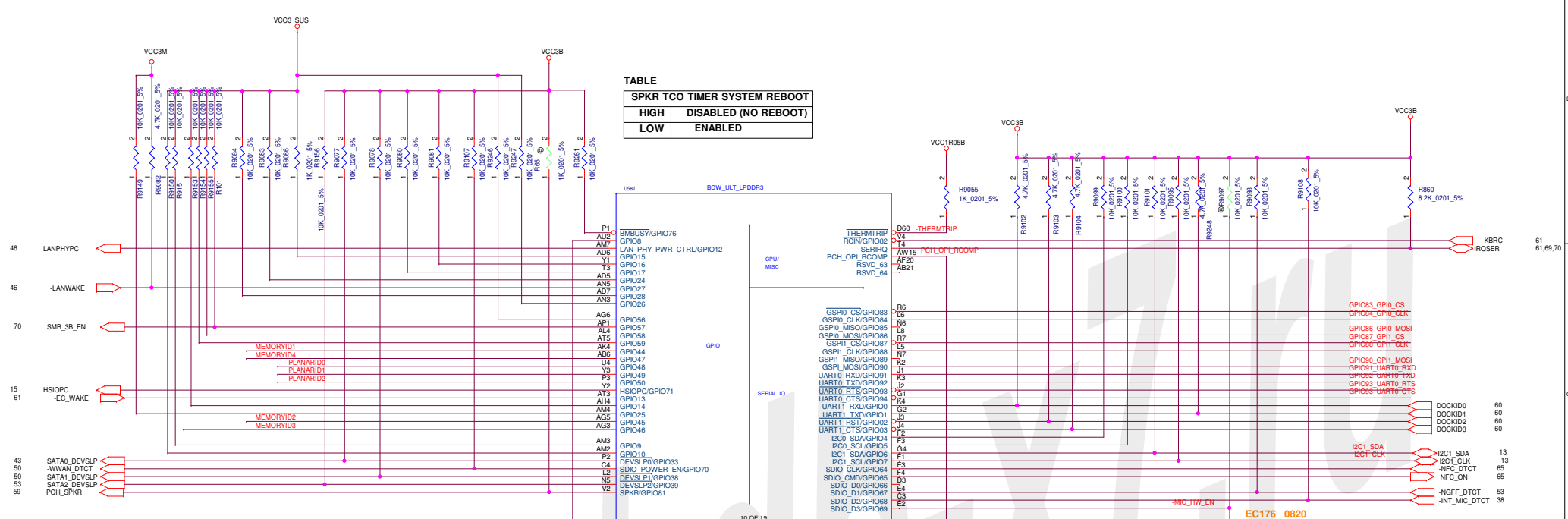
**TABLE**

- 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	 <b>CPU(8/16) : SYSTEM PM</b>
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Date: Thursday, October 23, 2014				Rev 0.1
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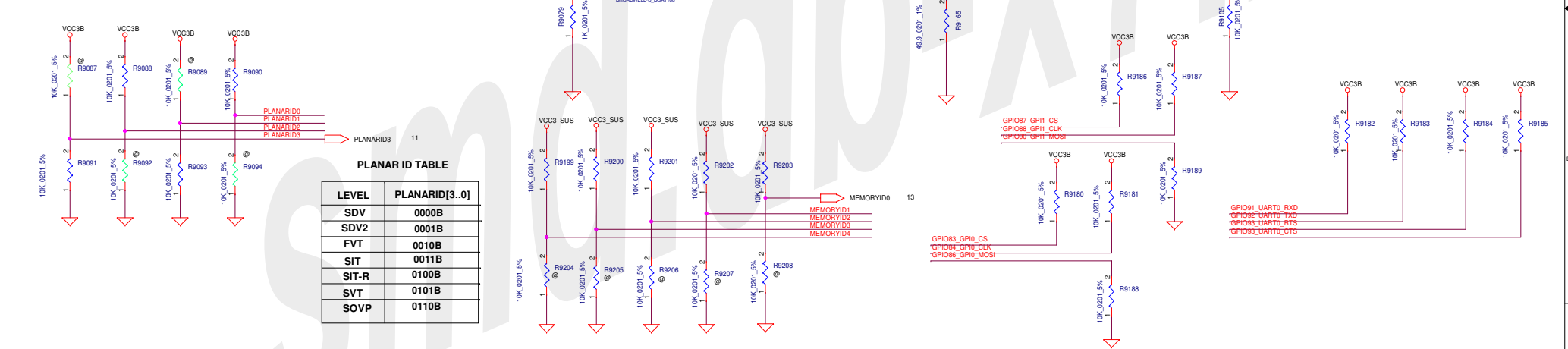
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**TABLE**

**SPKR TCO TIMER SYSTEM REBOOT**

HIGH	DISABLED (NO REBOOT)
LOW	ENABLED



**PLANAR ID TABLE**

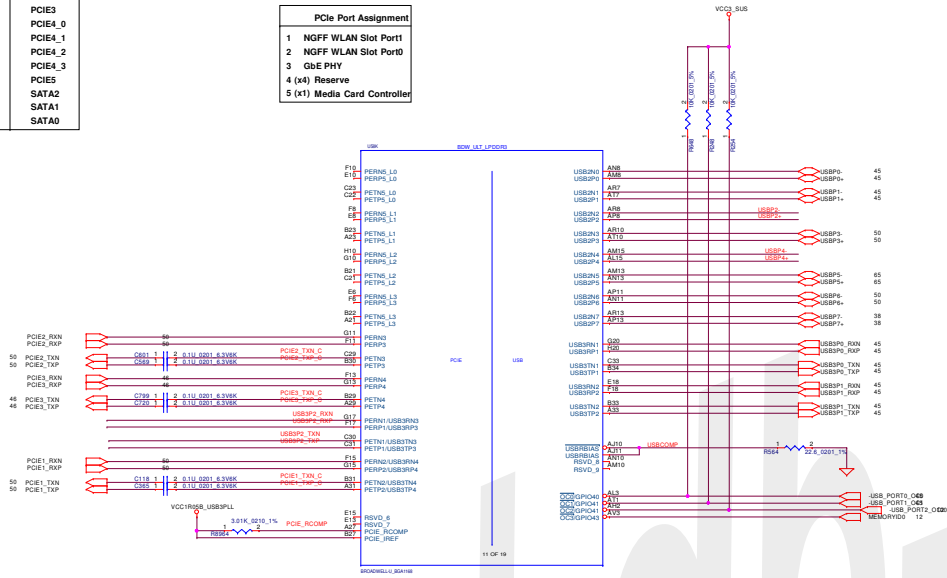
LEVEL	PLANARID[3..0]
SDV	0000B
SDV2	0001B
FVT	0010B
SIT	0011B
SIT-R	0100B
SVT	0101B
SOVP	0110B

MemoryID0	MemoryID1	MemoryID2	MemoryID3	MemoryID4	Supplier	Density	P/N	BOM Structure
GPIO43#	GPIO44	GPIO45	GPIO46	GPIO47				
1	0	0	0	0	Samsung	8Gb	K4B8G1646Q-MYK0	S4G@
1	1	0	0	0	Micron	8Gb	MT41K512M16TNA-125-E	M4G@
1	1	1	0	0	Elpida	8Gb	EDJ8416E6MB-GN-F	E4G@
1	1	1	1	0	SK Hynix	8Gb	H5TC8G63AMR-PBA	H4G@
1	1	1	1	1	no on-board memory model	N/A	N/A	NA@

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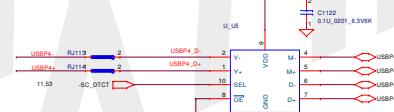
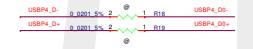
Flexible I/O Configuration			
I/O	High Speed Signals	Configuration	Net Name
Port 1	USB3 1	USB3 1	USB3P0
Port 2	USB3 2	USB3 2	USB3P1
Port 3	PCIE 1/USB3 3	USB3 3	USB3P2
Port 4	PCIE 2/USB3 4	PCIE 2	PCIE1
Port 5	PCIE 3	PCIE 3	PCIE2
Port 6	PCIE 4	PCIE 4	PCIE3
Port 7	PCIE 5 L0	PCIE 5 L0	PCIE4_0
Port 8	PCIE 5 L1	PCIE 5 L1	PCIE4_1
Port 9	PCIE 5 L2	PCIE 5 L2	PCIE4_2
Port 10	PCIE 5 L3	PCIE 5 L3	PCIE4_3
Port 11	PCIE 6 L0	PCIE 6 L0	PCIE5
Port 12	SATA 2/PCIE 6 L1	SATA 2	SATA2
Port 13	SATA 1/PCIE 6 L2	SATA 1	SATA1
Port 14	SATA 0/PCIE 6 L3	SATA 0	SATA0

PCIe Port Assignment	
1	NGFF WLAN Slot Port1
2	NGFF WLAN Slot Port2
3	GbE PHY
4 (x4)	Reserve
5 (x1)	Media Card Controller



USB Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB 3.0 System Port (Debug)
2	USB 3.0 Docking/3rd USB3.0 System Port
3	NGFF WWAN Slot
4	Smart Card Slot / Touch Panel
5	Fingerprint Reader
6	NGFF WLAN Slot
7	USB Camera

USB 3.0 Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB 3.0 System Port (Debug)
2	USB 3.0 Docking



Device Selection	
0	Smart Card Slot
1	Touch Panel

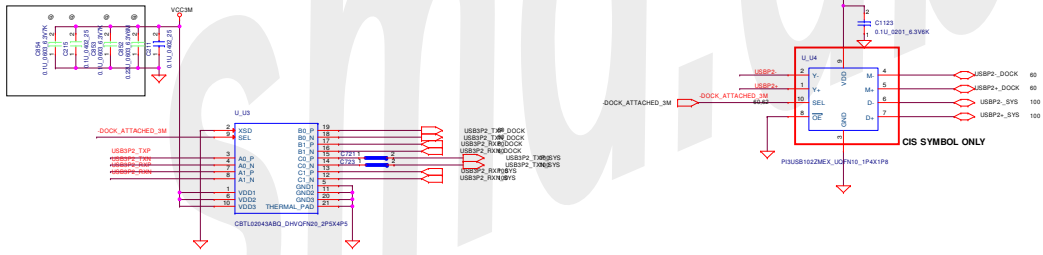
CIS SYMBOL ONLY



CIS SYMBOL ONLY

Vendor	P/N
Pericom	PI3USB102ZME
NXP	NX3DV42GU

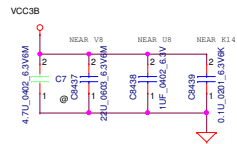
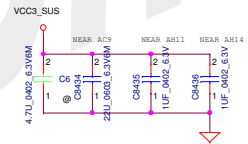
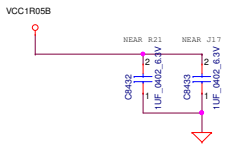
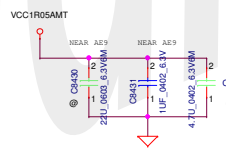
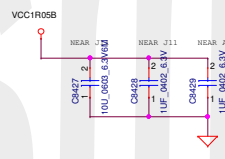
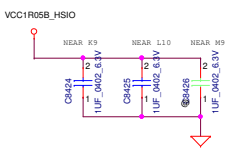
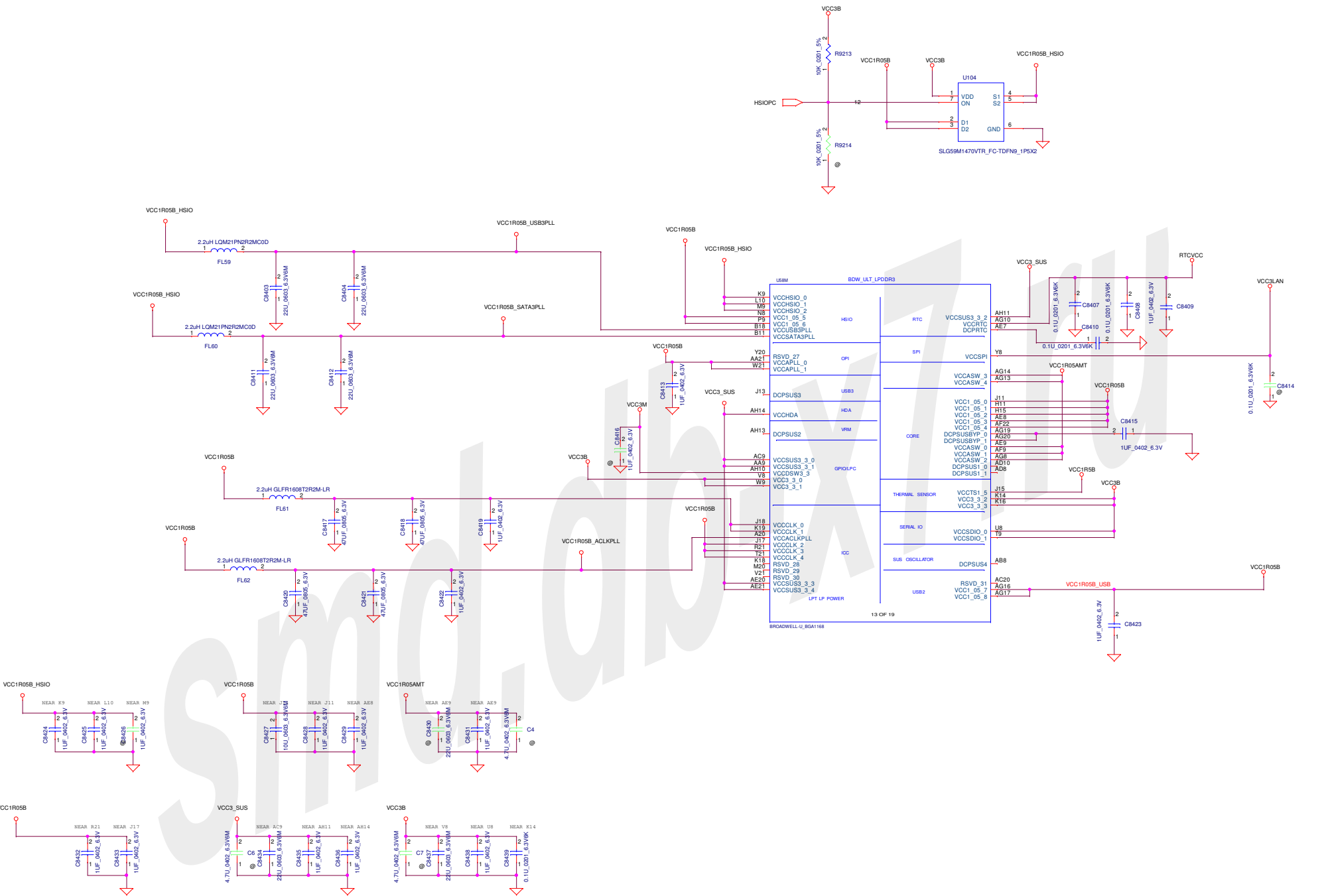
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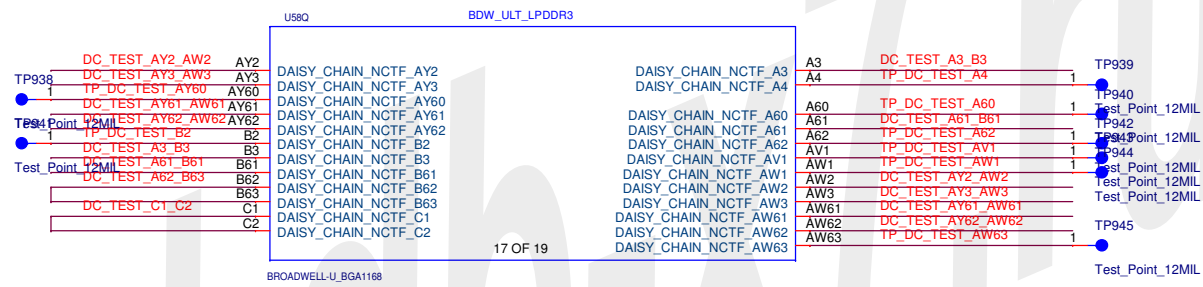
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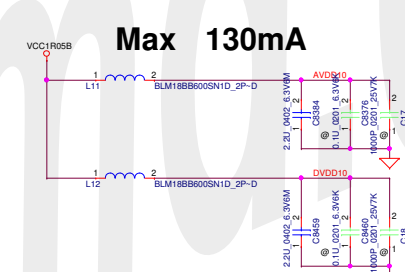
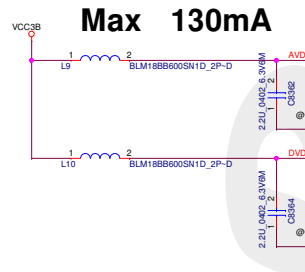
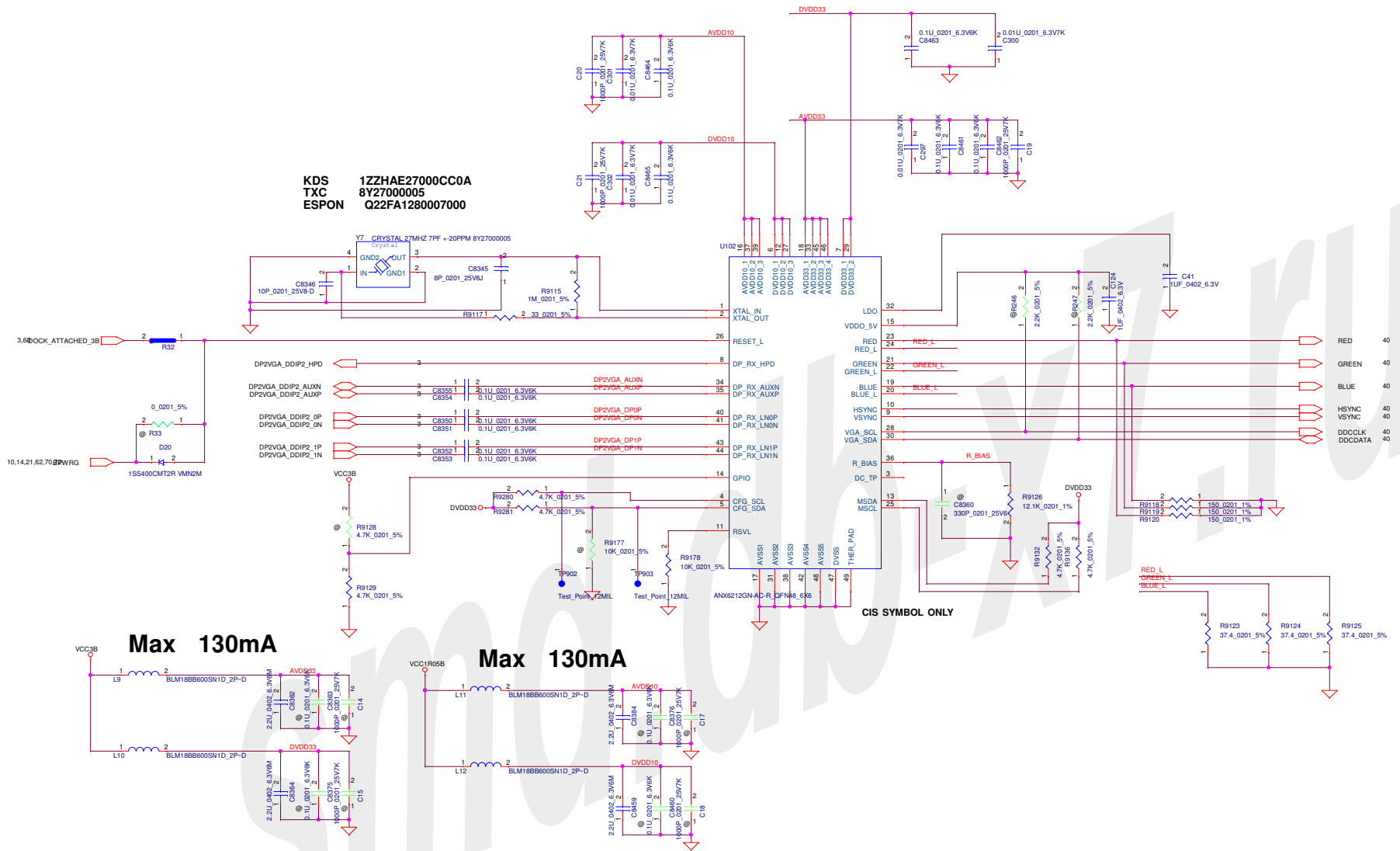
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KDS  
TXC  
ESPN

1ZZHAE2700CC0A  
8Y27000005  
Q22FA128007000



2.2uF, 0.1uF, 1000pF: Near filter

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Date:				Thursday, October 23, 2014	Sheet 19 of 100

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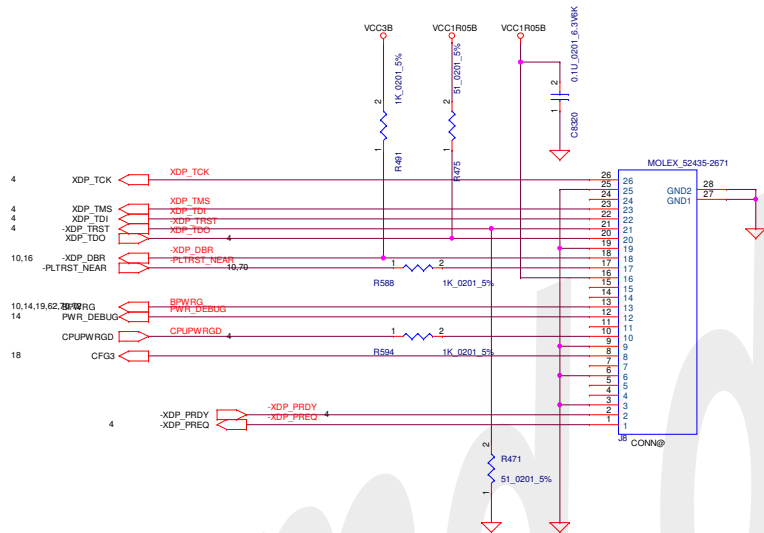


TABLE CPU ITP DEBUG PORT

SIGNAL	REF DES	PLANER ONLY	DISABLE
TDO	R475	ASM	ASM
TRST#	R471	ASM	ASM
DBRST#	R491	ASM	ASM
RESET#	R588	ASM	ASM
PWRGD	R594	ASM	ASM
CONNETER	J6	ASM	NO ASM

NOTE:APPLY EACH ACCORDING TO CONFIGURATION IN SDV

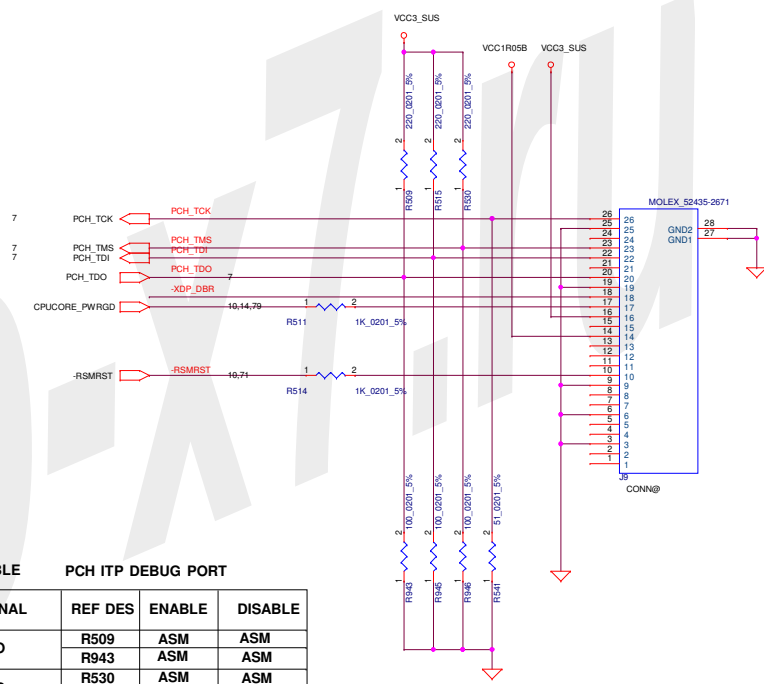
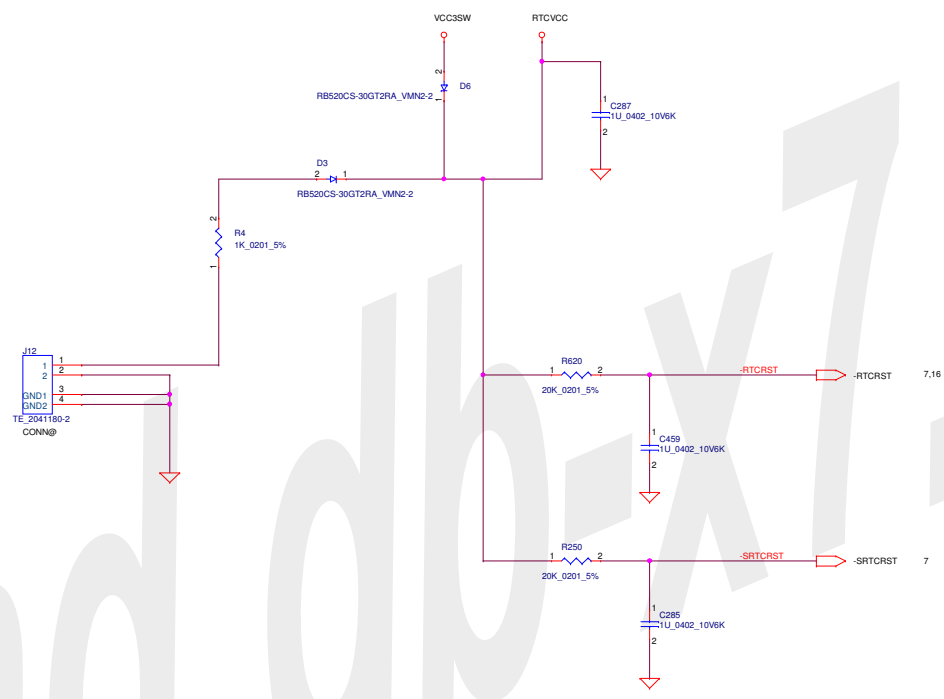


TABLE PCH ITP DEBUG PORT

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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
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-RSMRST	R514	ASM	ASM
CONNETER	J9	ASM	NO ASM

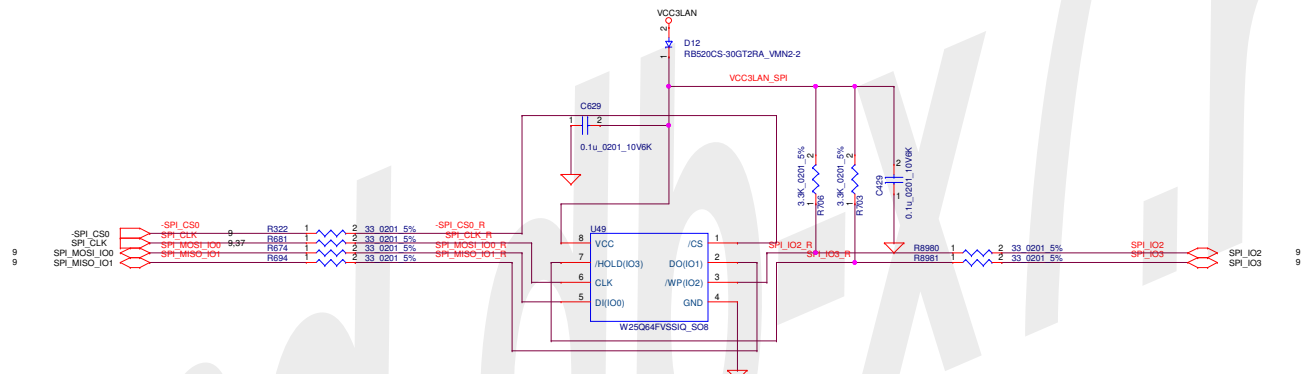
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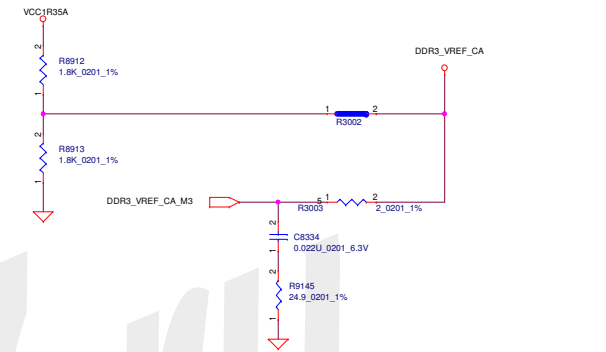
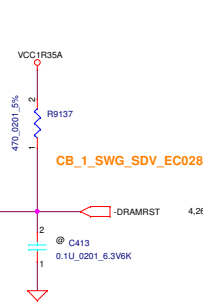
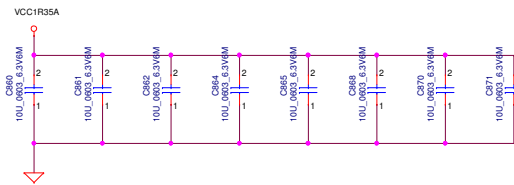
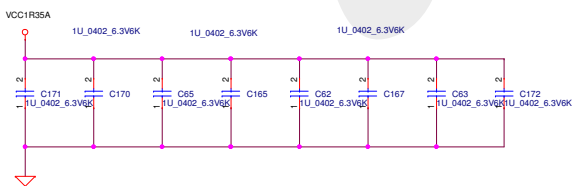
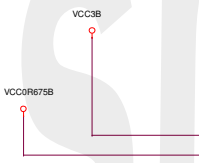
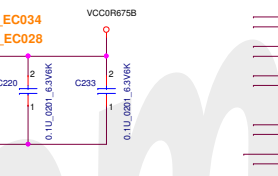
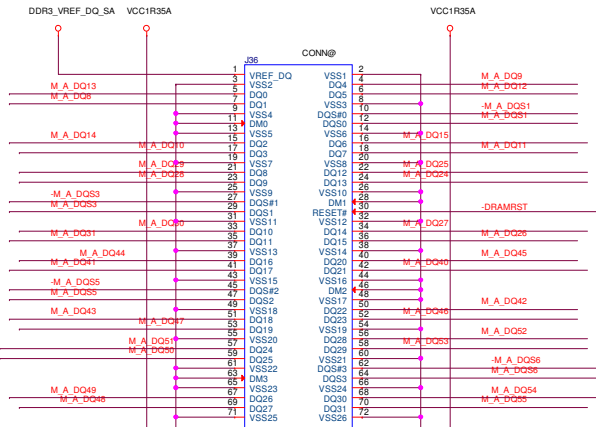
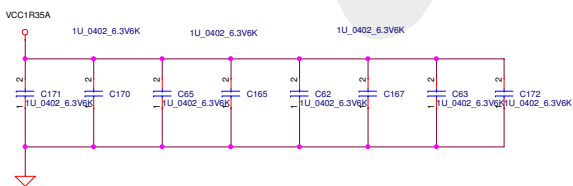
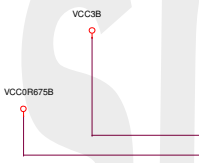
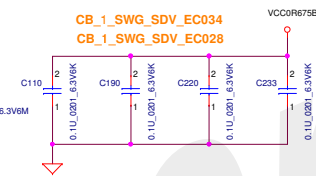
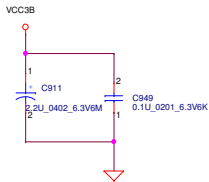
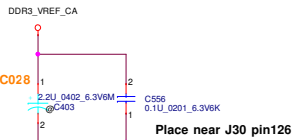
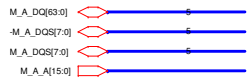


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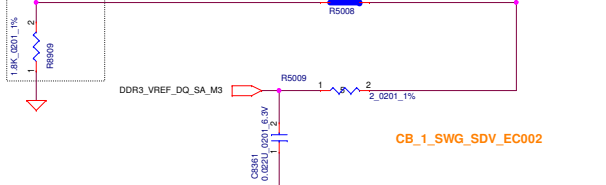
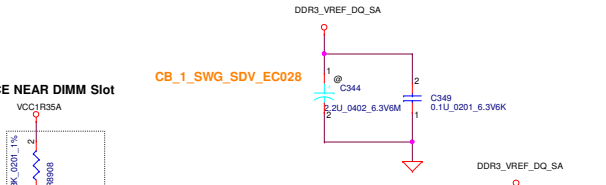
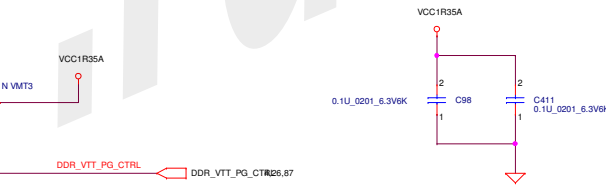
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3	CS#	R322.2	R881.2	CLK	4
5	MISO	R694.2	R674.2	MOSI	6
7	(KEY)	N/A	N/A	(RESET)	8

U49 SPI ROM

vPro / non-vPro Model (16MB)	
WINBOND	W25Q128FYSIQ
MACRONIX	MX25L1287FM2-10G
MICRON	N25Q128A13ESEC00F





PLACE 1UF NEAR VCC1R35A PIN.

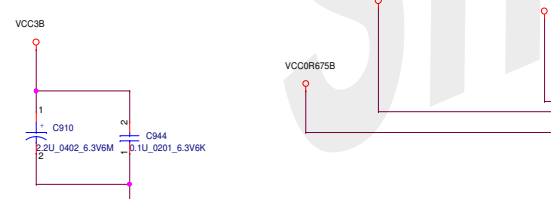
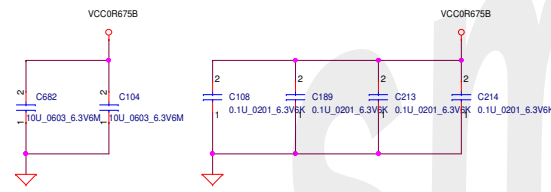
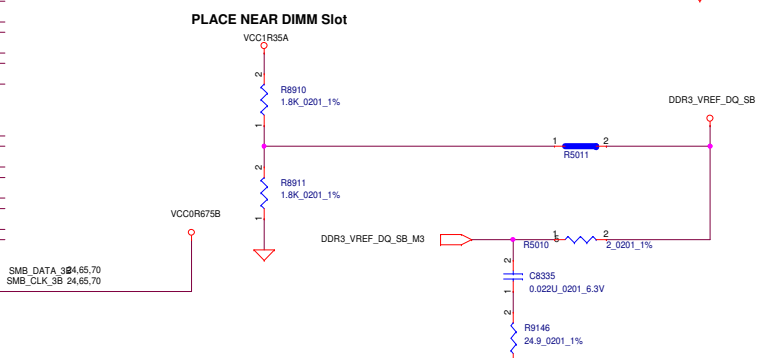
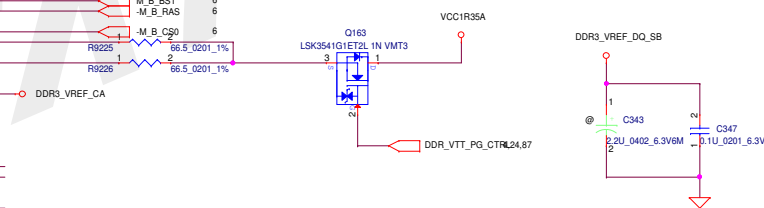
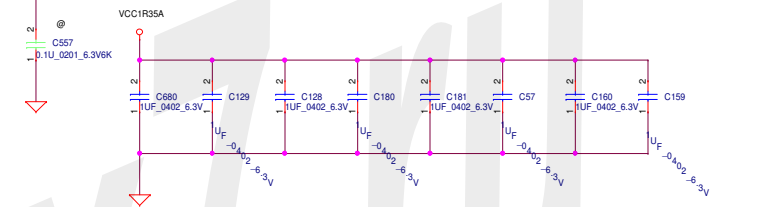
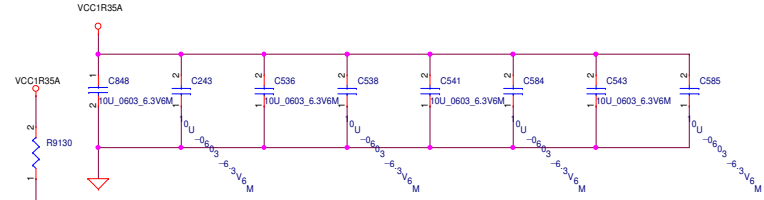
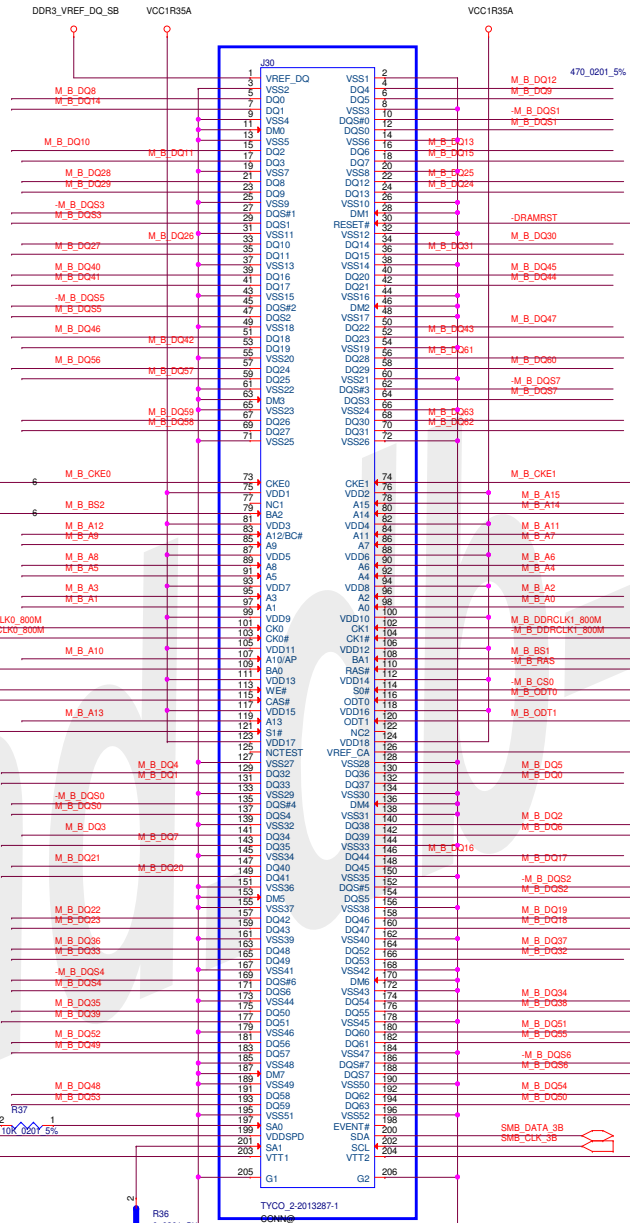
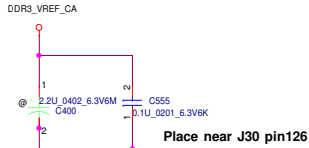
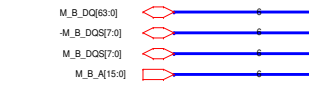


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PLACE 1UF NEAR VCC1R35A PIN.




PLACE NEAR DIMM Slot

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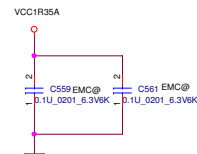
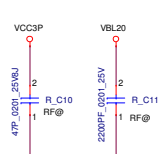
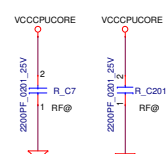
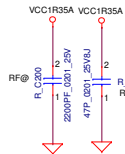
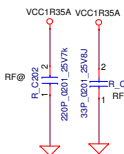
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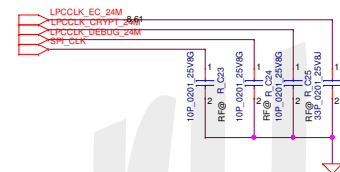
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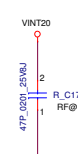
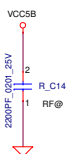
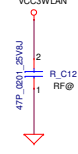
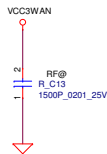
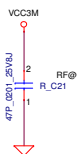


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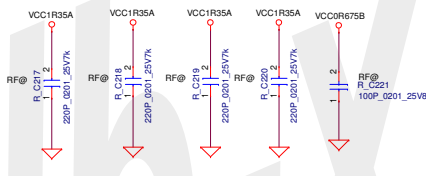
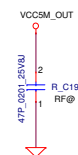
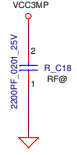
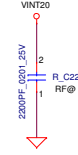


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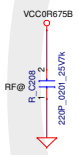
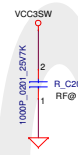
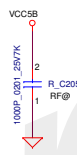
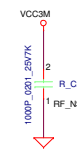
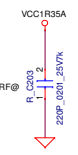
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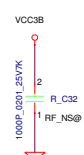
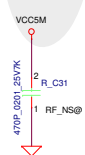
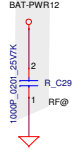
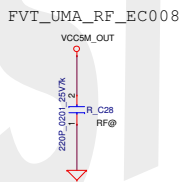
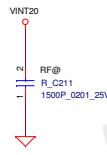
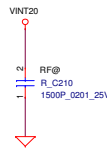
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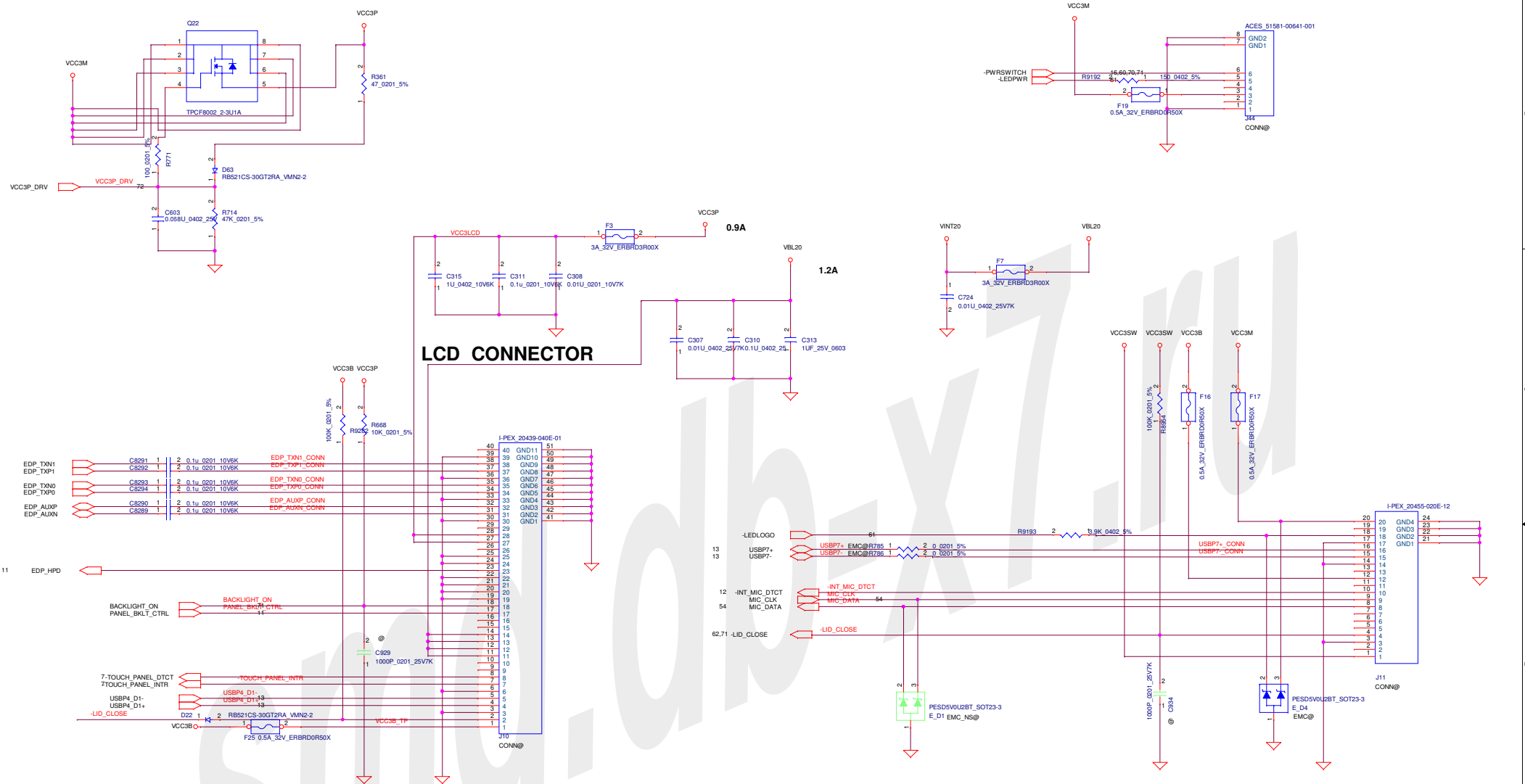
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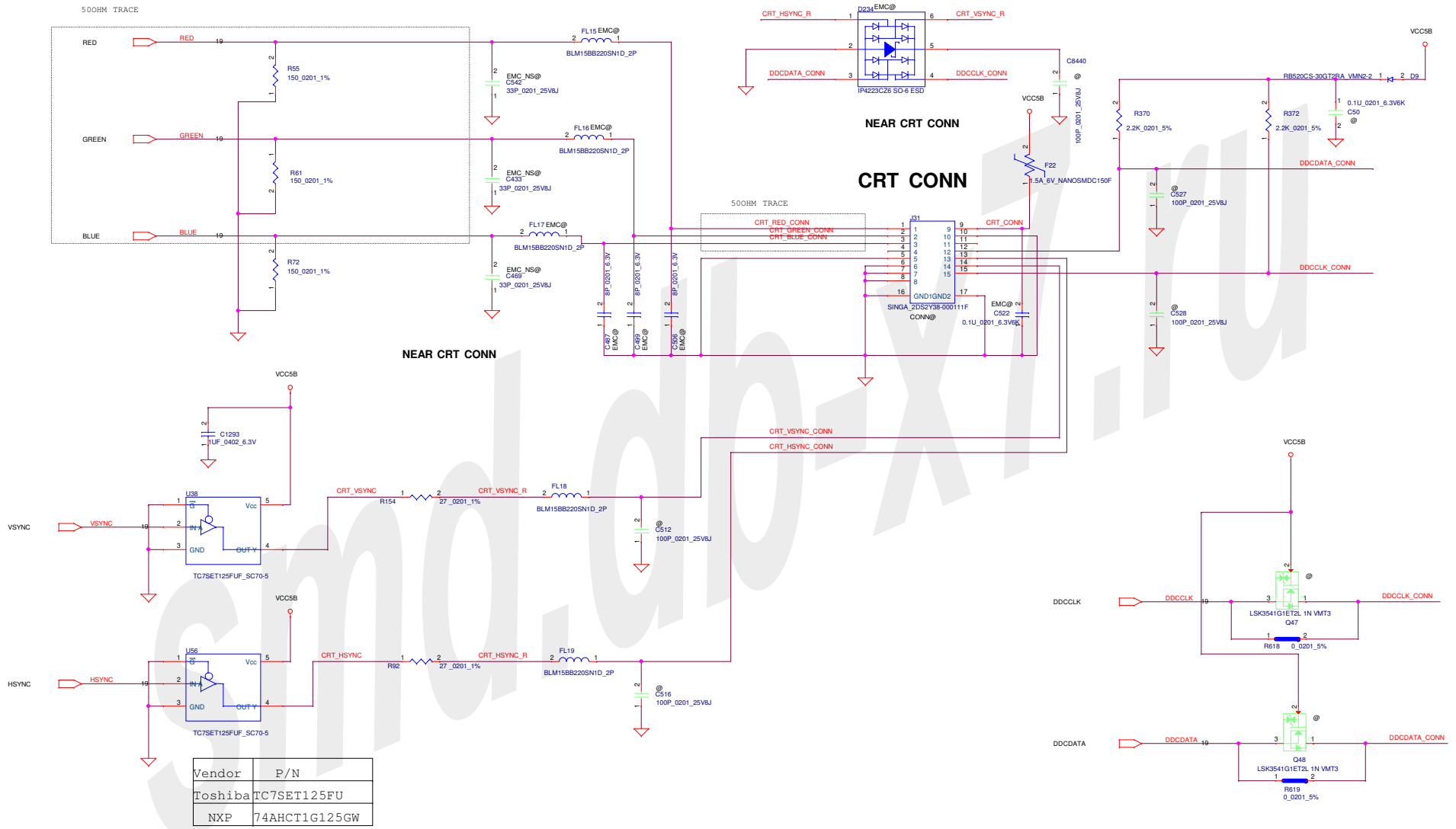
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Sheet	39	of	100		

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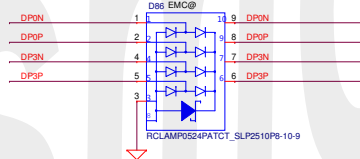
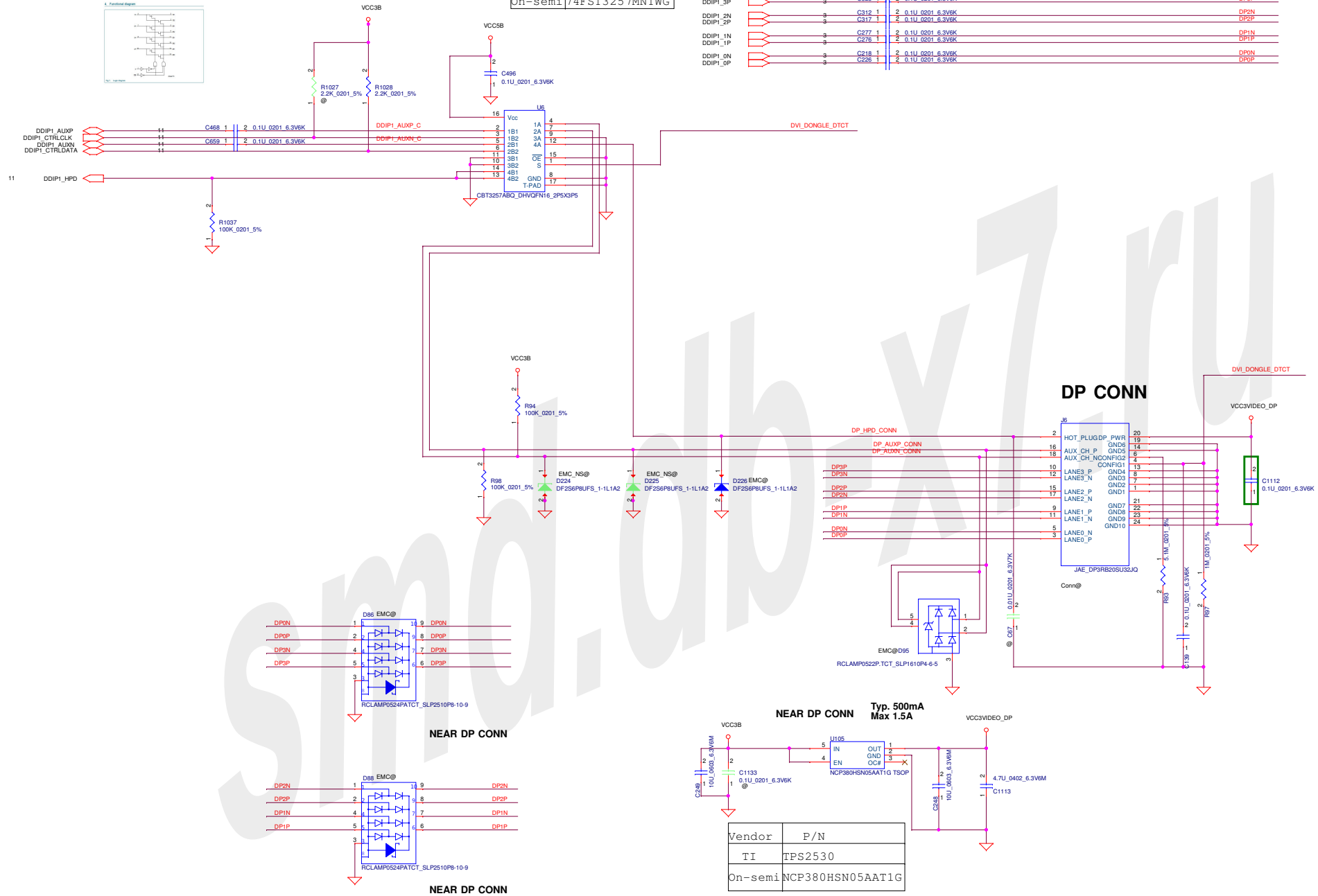
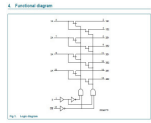
Vendor	P/N
Toshiba	TC7SET125FU
NXP	74AHCT1G125GW

Security Classification	LC Future Center Secret Data		<b>THIS EXT CRT INTERFACE</b> COBAIN LIMA	
Issued Date	2012/06/21	Deciphered Date		
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Date:	Thursday, October 23, 2014	Sheet	40	of 100

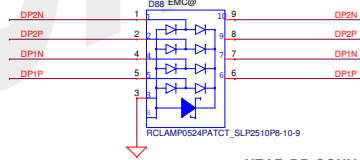
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NXP	CBT3257ABQ
On-semi	74FST3257MNTWG

FOR SYSTEM DP NEAR DP CONN

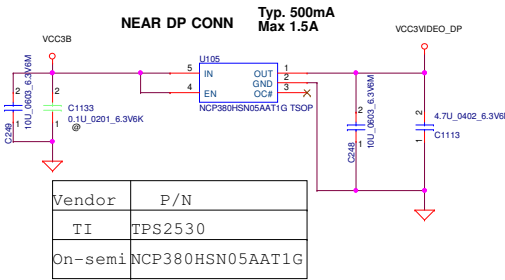
DDIP1_3N	3	C339 1	2	0.1U_0201_6.3VK	DP3N
DDIP1_3P	3	C323 1	2	0.1U_0201_6.3VK	DP3P
DDIP1_2N	3	C312 1	2	0.1U_0201_6.3VK	DP2N
DDIP1_2P	3	C317 1	2	0.1U_0201_6.3VK	DP2P
DDIP1_1N	3	C277 1	2	0.1U_0201_6.3VK	DP1N
DDIP1_1P	3	C276 1	2	0.1U_0201_6.3VK	DP1P
DDIP1_0N	3	C218 1	2	0.1U_0201_6.3VK	DP0N
DDIP1_0P	3	C228 1	2	0.1U_0201_6.3VK	DP0P



NEAR DP CONN



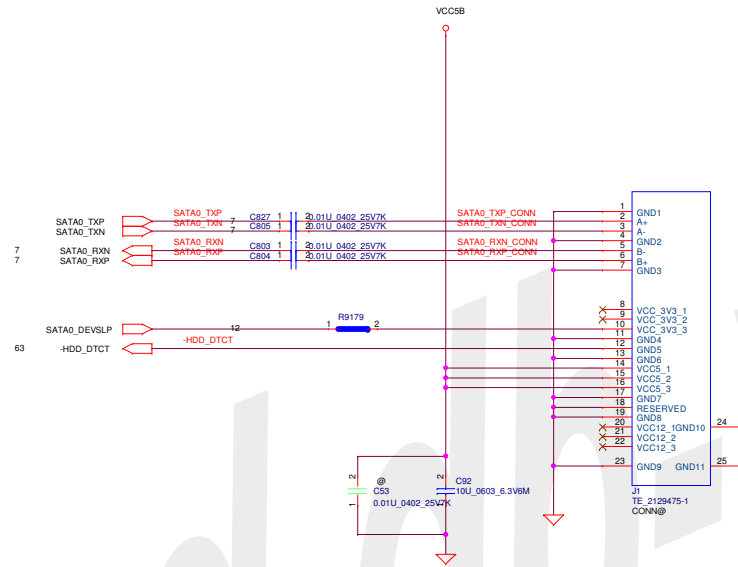
NEAR DP CONN




Vendor	P/N
TI	TPS2530
On-semi	NCP380HSN05AAT1G

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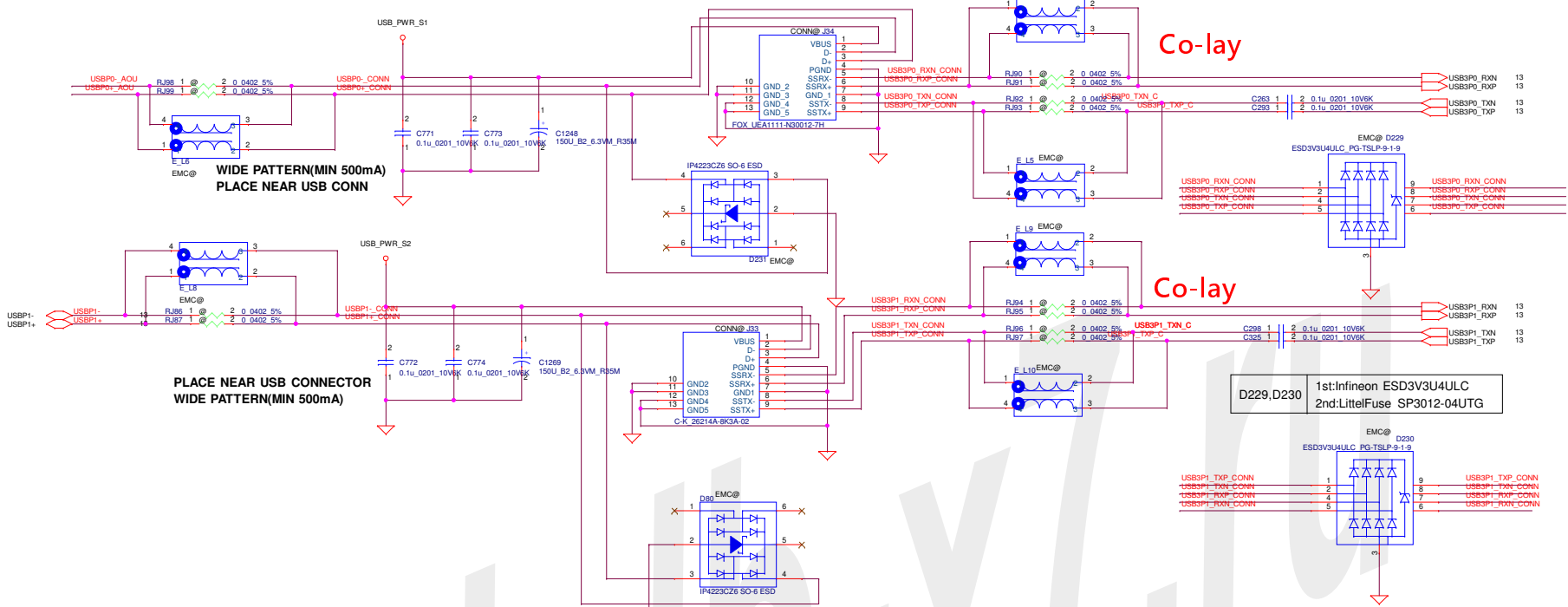
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Issued Date	2012/06/21	Deciphered Date			
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Date: Thursday, October 23, 2014					Sheet 43 of 100

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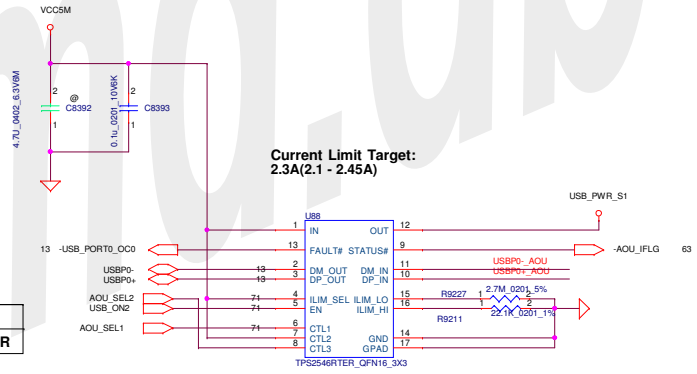
PLACE NEAR USB CONNECTOR  
WIDE PATTERN(MIN 500mA)

WIDE PATTERN(MIN 500mA)  
PLACE NEAR USB CONN

Co-lay

Co-lay

D229,D230  
1st:Infineon ESD3V3U4ULC  
2nd:LitelFuse SP3012-04UTG



Current Limit Target:  
2.3A(2.1 - 2.45A)

U88

Vendor	P/N
TI	TPS2546RTER

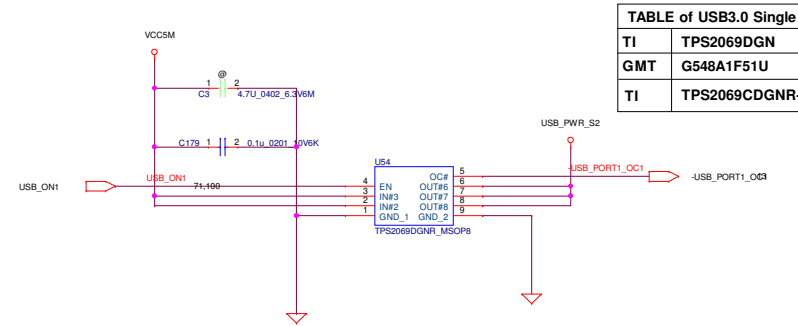
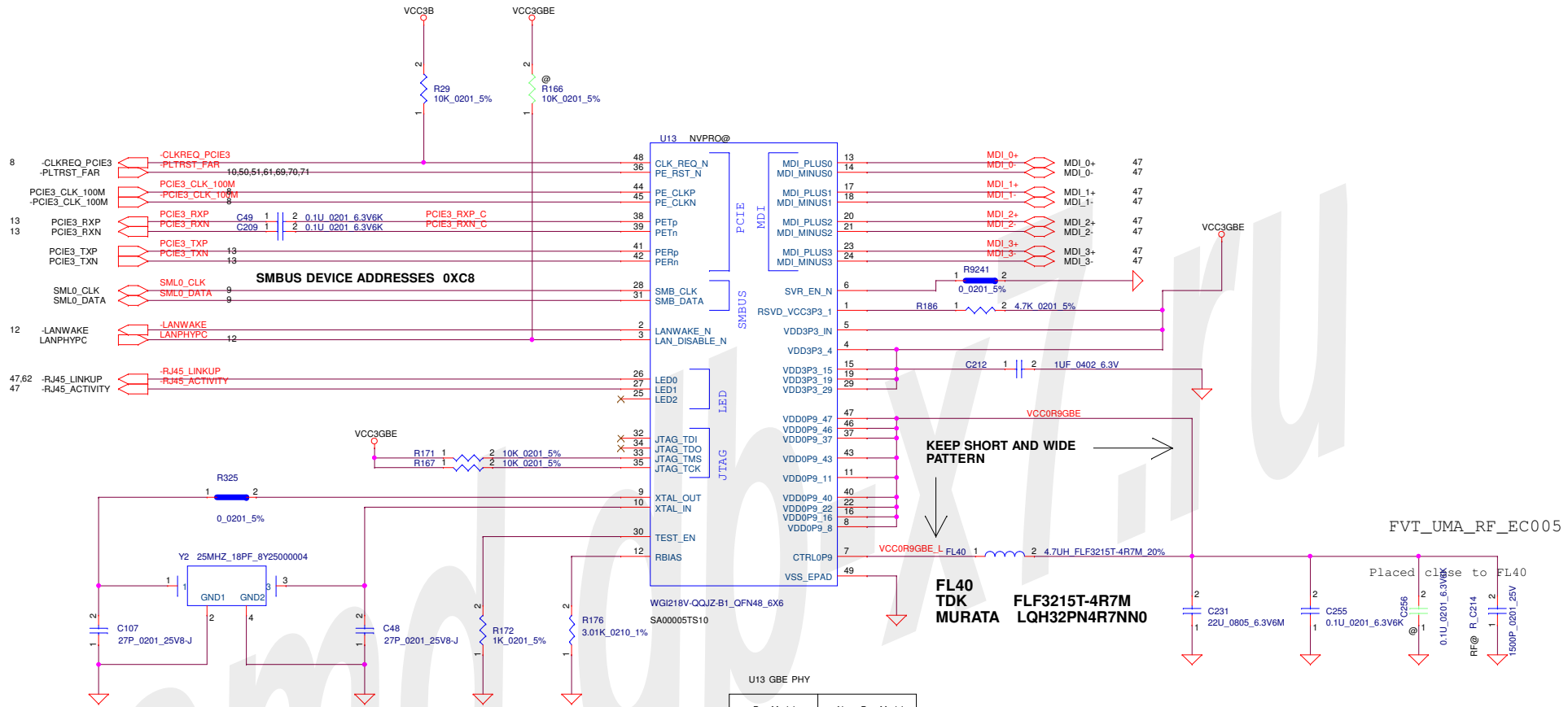


TABLE of USB3.0 Single

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GMT	G548A1F51U
TI	TPS2069CDGMR-2

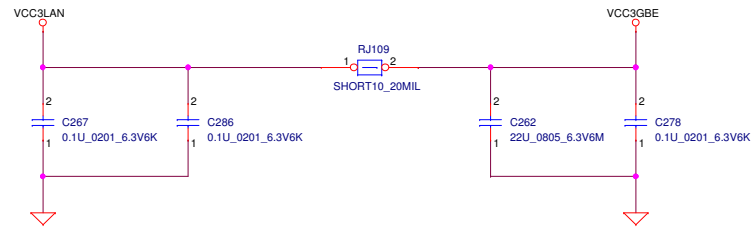


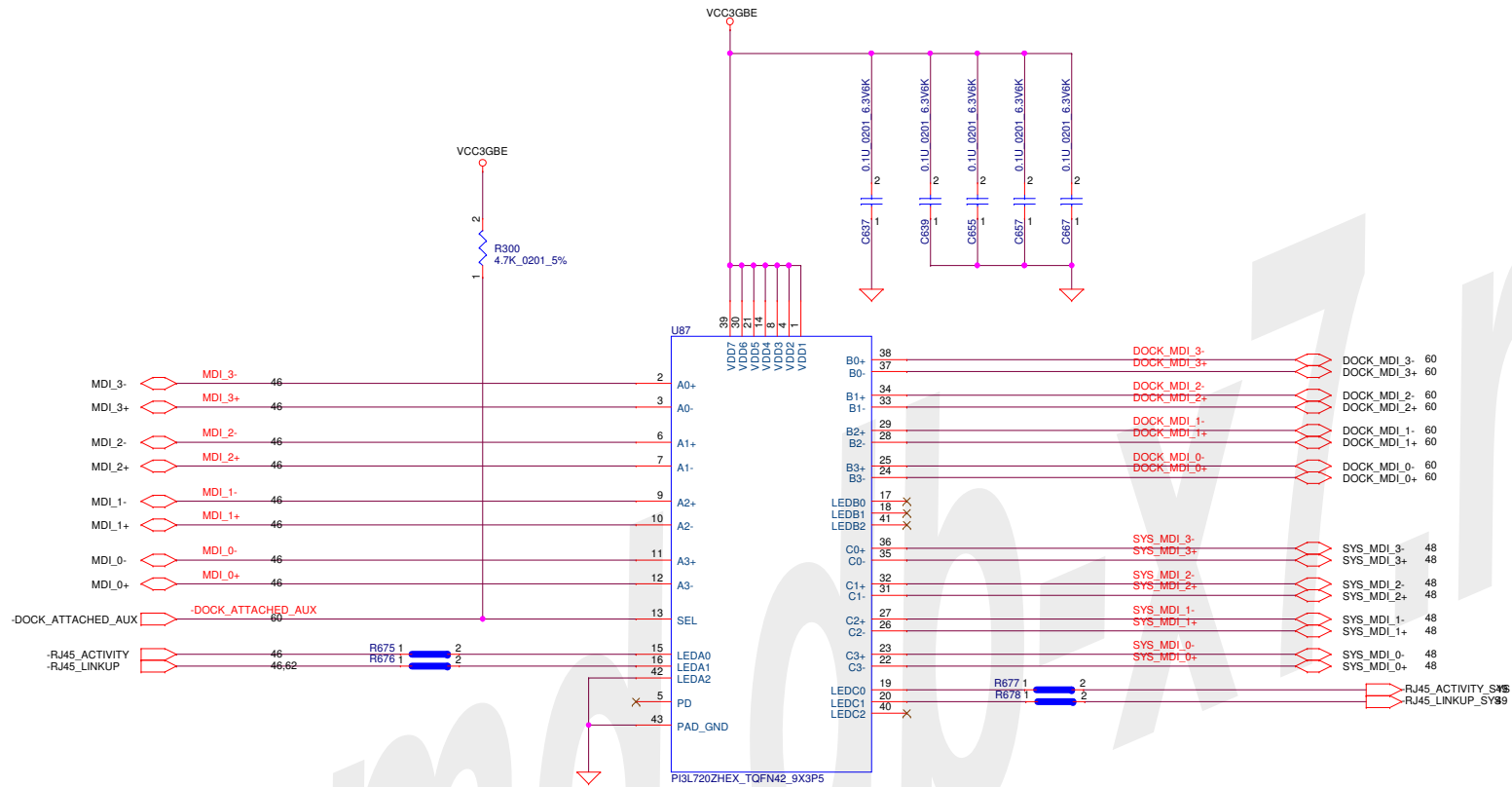
KDS  
TXC  
ESPON

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8Y25000004  
Q22FA1280023800

U13 GBE PHY

vPro Model	Non-vPro Model
I218LM	I218V





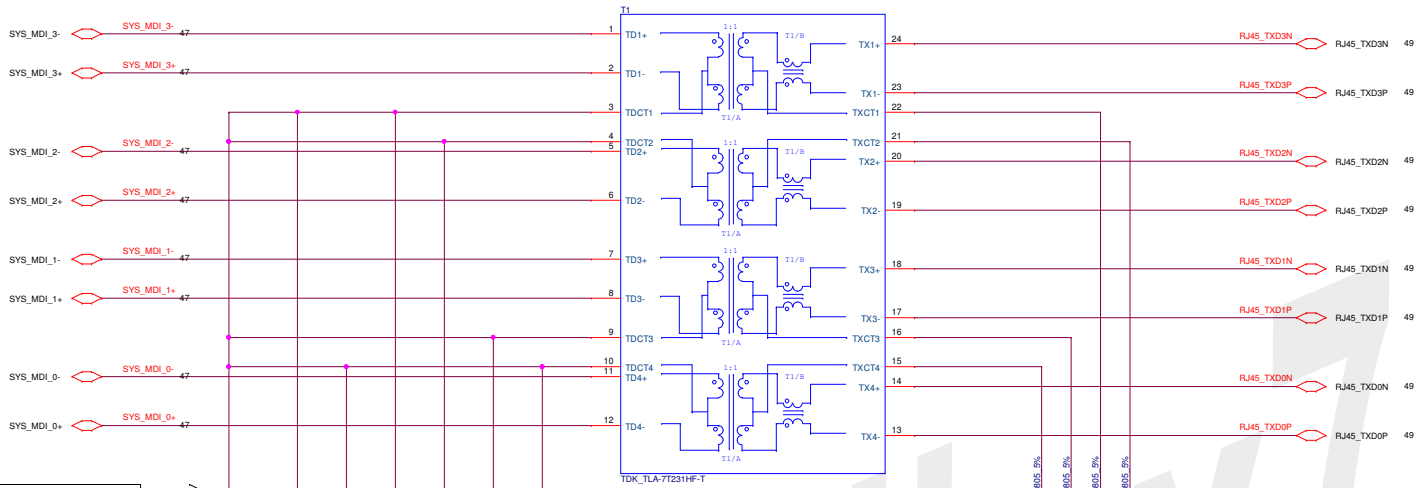
U87

Vendor	P/N
Pericom ST micro Onsemi	PI3L720ZHE STMUX1800E NCN7201

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Custom	<b>COBAIN UMA</b>	0.1
Date:	Thursday, October 23, 2014	Sheet 47 of 100





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

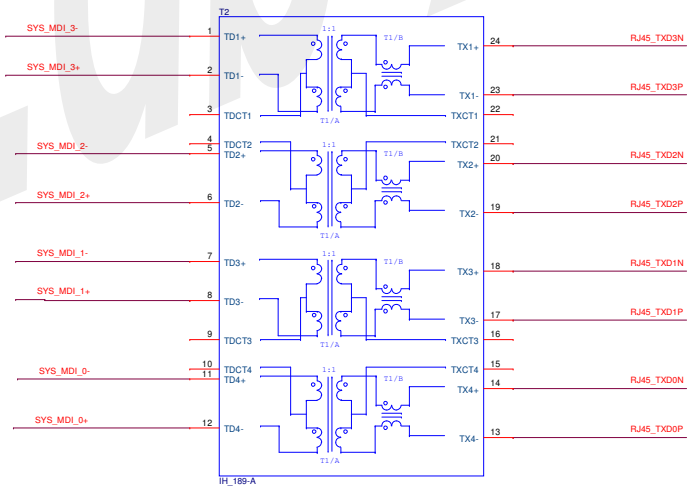
C303 SHOULD BE PLACED AS CLOSE TO MAGNETICS AS POSSIBLE.

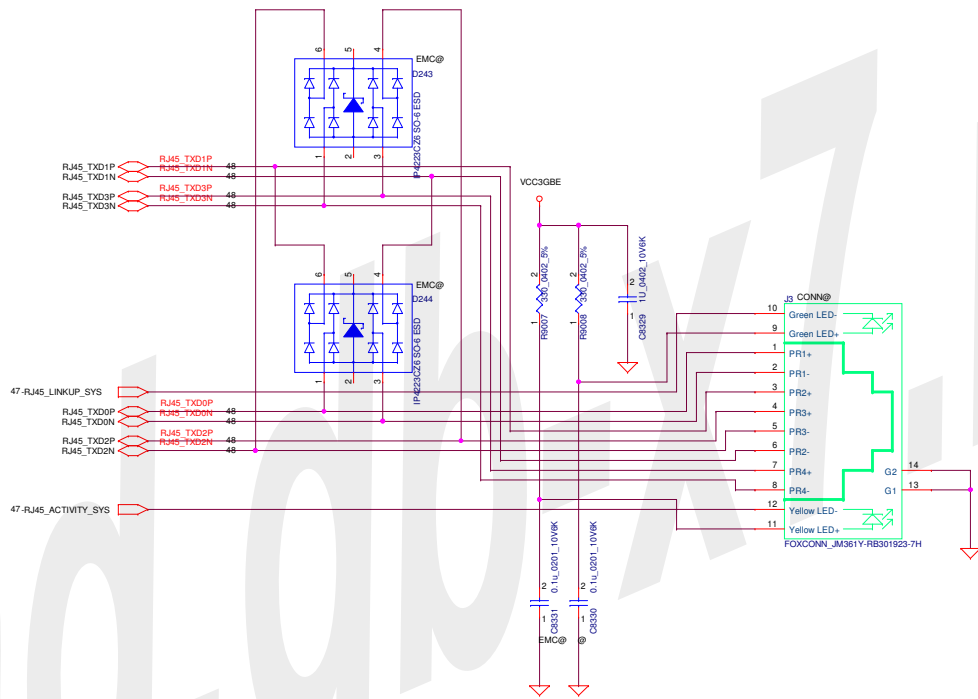
ESD REASON

PATTERN MUST BE SHORT AND WIDE.

HIGH VOLTAGE 1500PF CAP IS OPTIONAL

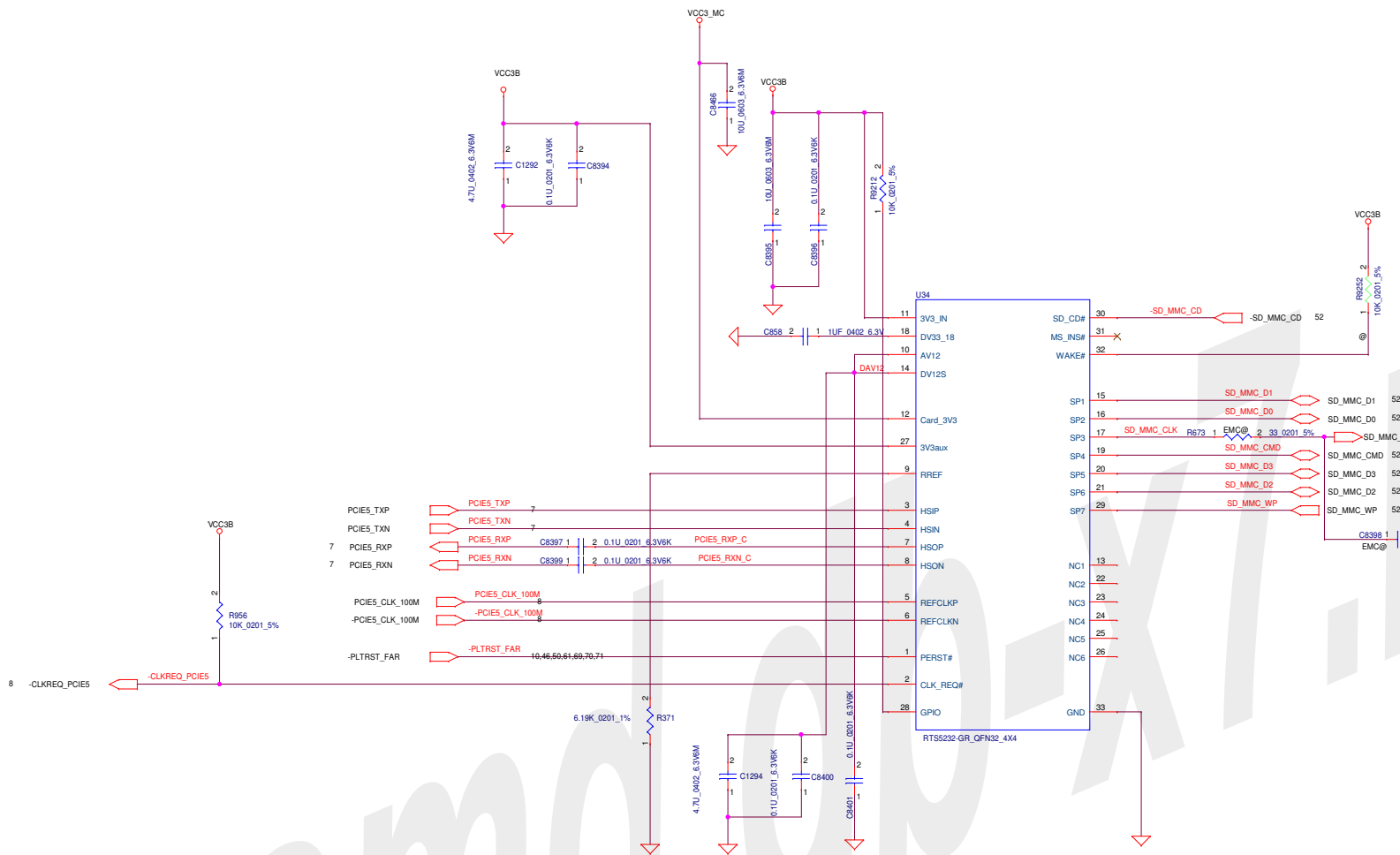
Vendor	P/N
TDK	TLA-7T231HF-T
Timag	IH-115-F
Bothhand	NA69LF
TDK	TLA-7T201HF-T






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	COBA IN IMA			01	
Date:	Thursday, October 23, 2014	Sheet	49	of	100

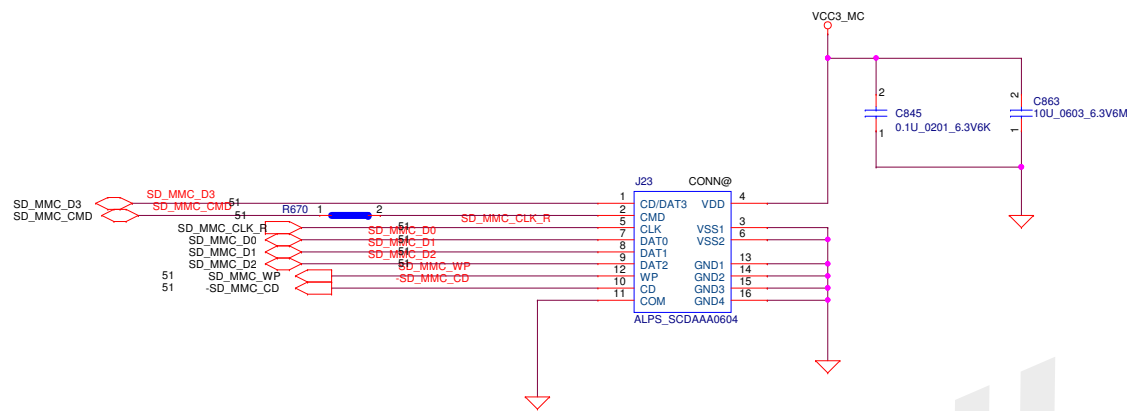





Security Classification	LC Future Center Secret Data	
Issued Date	2012/05/01	Deciphered Date
		2012/12/01

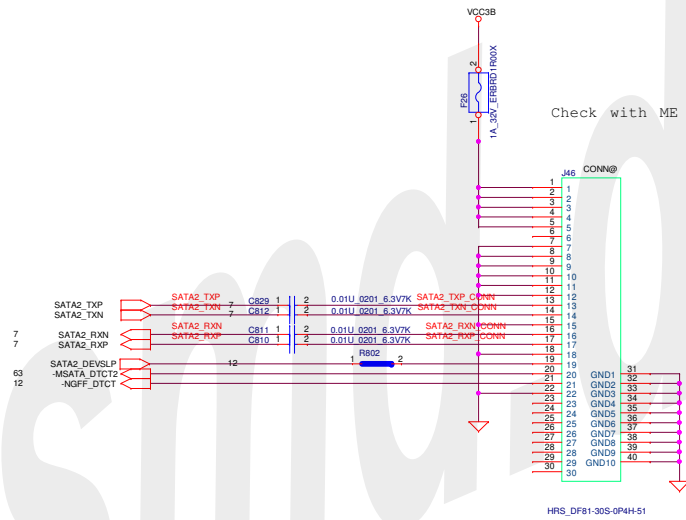
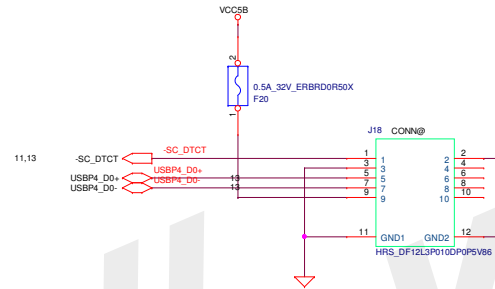
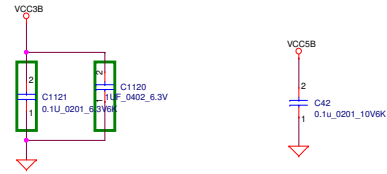
Title		
MEDIA CARD CONTROLLER		
Size	Document Number	Rev
C	COBAIN UMA	0.1
Date:	Thursday, October 23, 2014	Sheet 51 of 100

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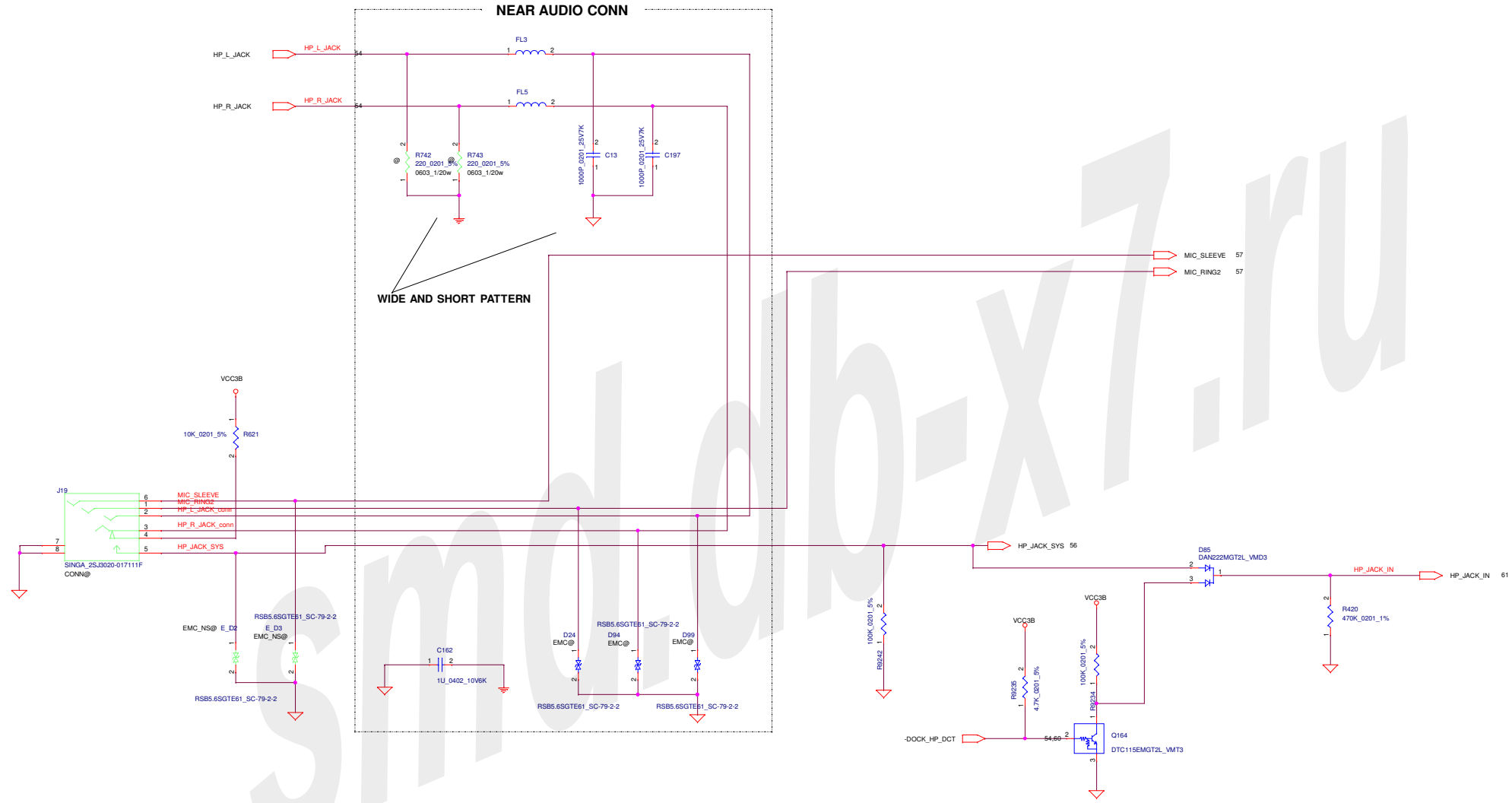
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Security Classification		LC Future Center Secret Data		Title		
Issued Date	2012/05/01	Deciphered Date	2012/12/01	MEDIA CARD INTERFACE		
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Issued Date	2012/07/01	Deciphered Date	2014/07/01	
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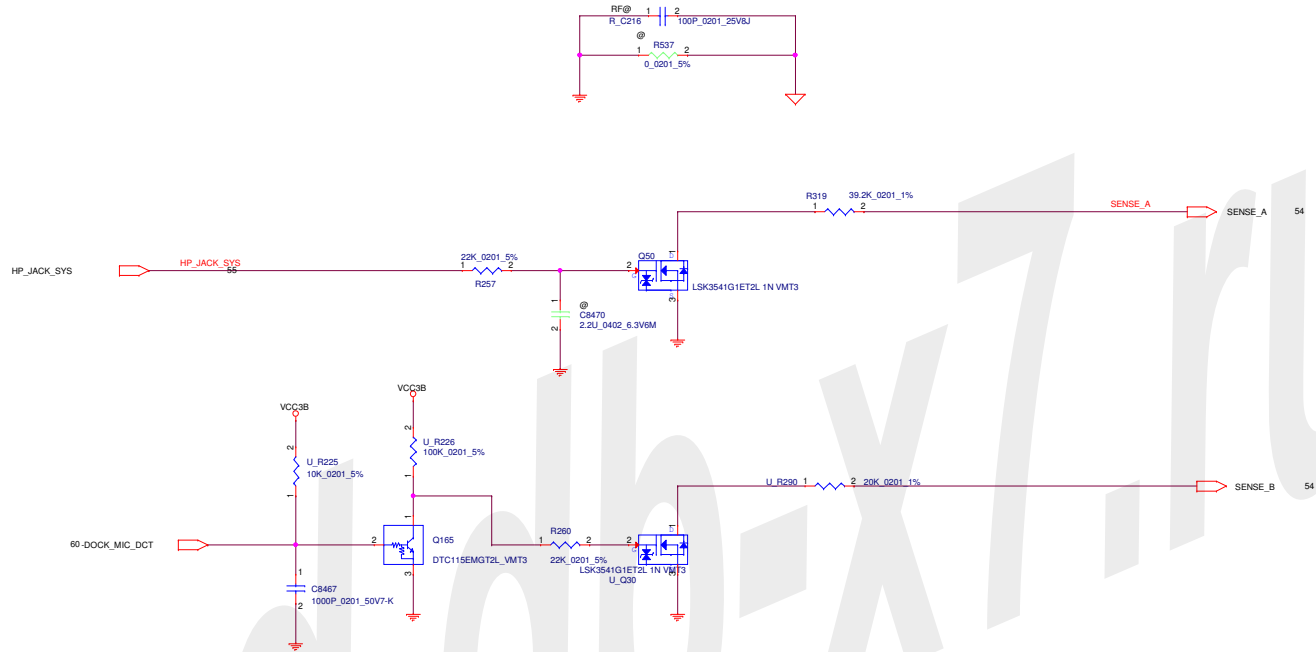




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Issued Date	2012/05/02	Deciphered Date	2012/5/02	
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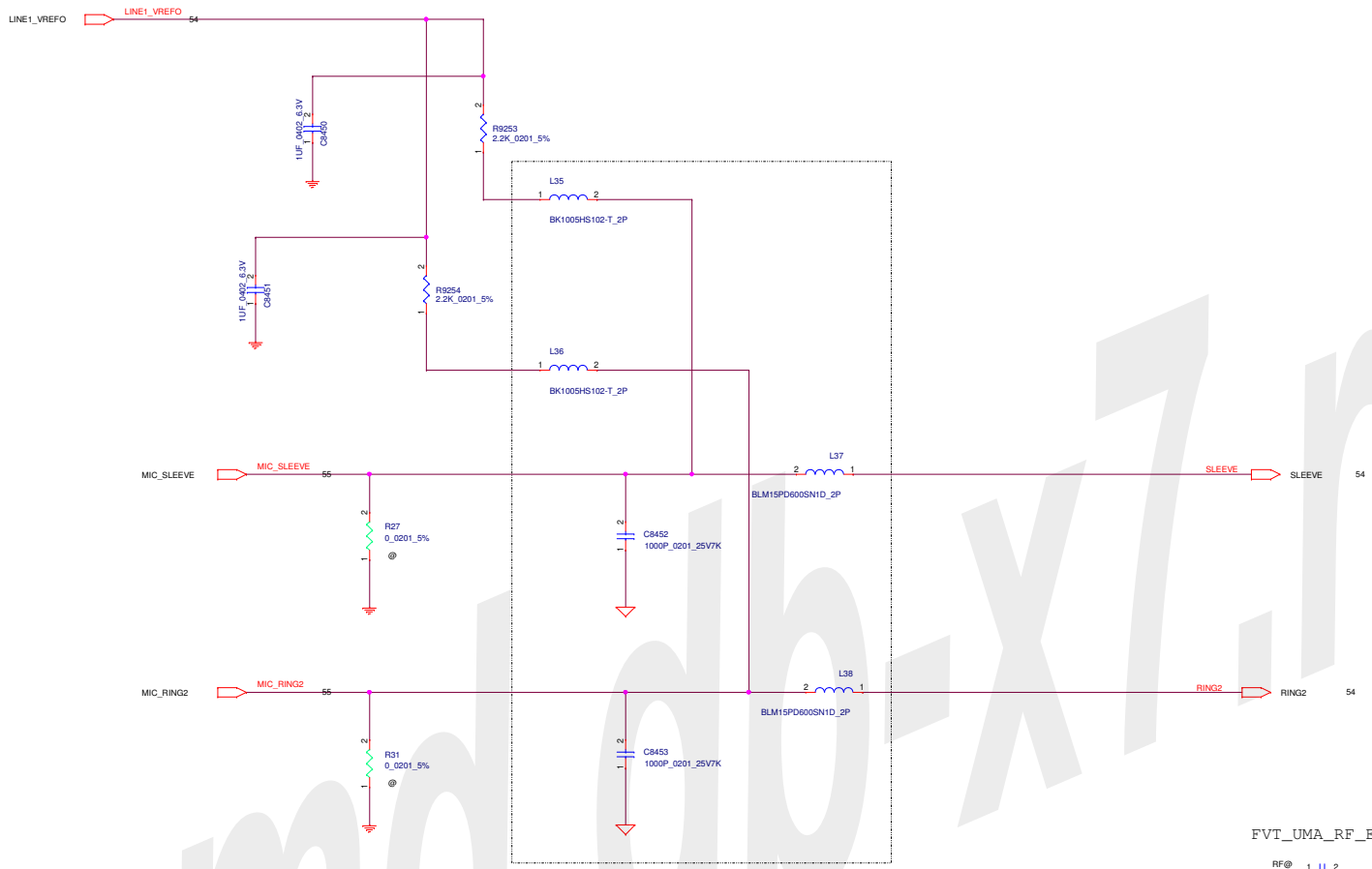
**AUDIO CONNECTOR**

**COBA IN IMA**

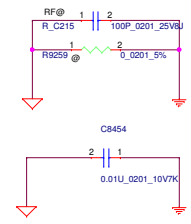
FVT\_UMA\_RF\_EC007



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Issued Date	2012/05/02	Deciphered Date	2012/5/02	
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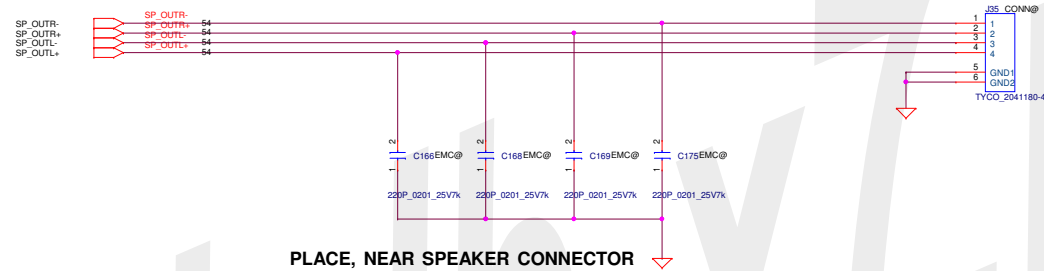


FVT\_UMA\_RF\_EC006




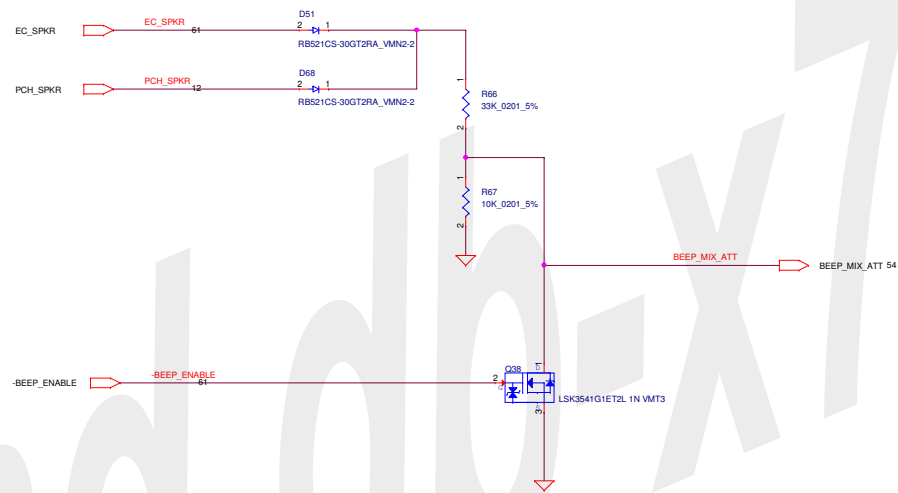
Security Classification	LC Future Center Secret Data		Title	AUDIO EXT MIC I/F
Issued Date	2012/06/21	Deciphered Date		
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Date:	Thursday, October 23, 2014	Sheet	57	of 100






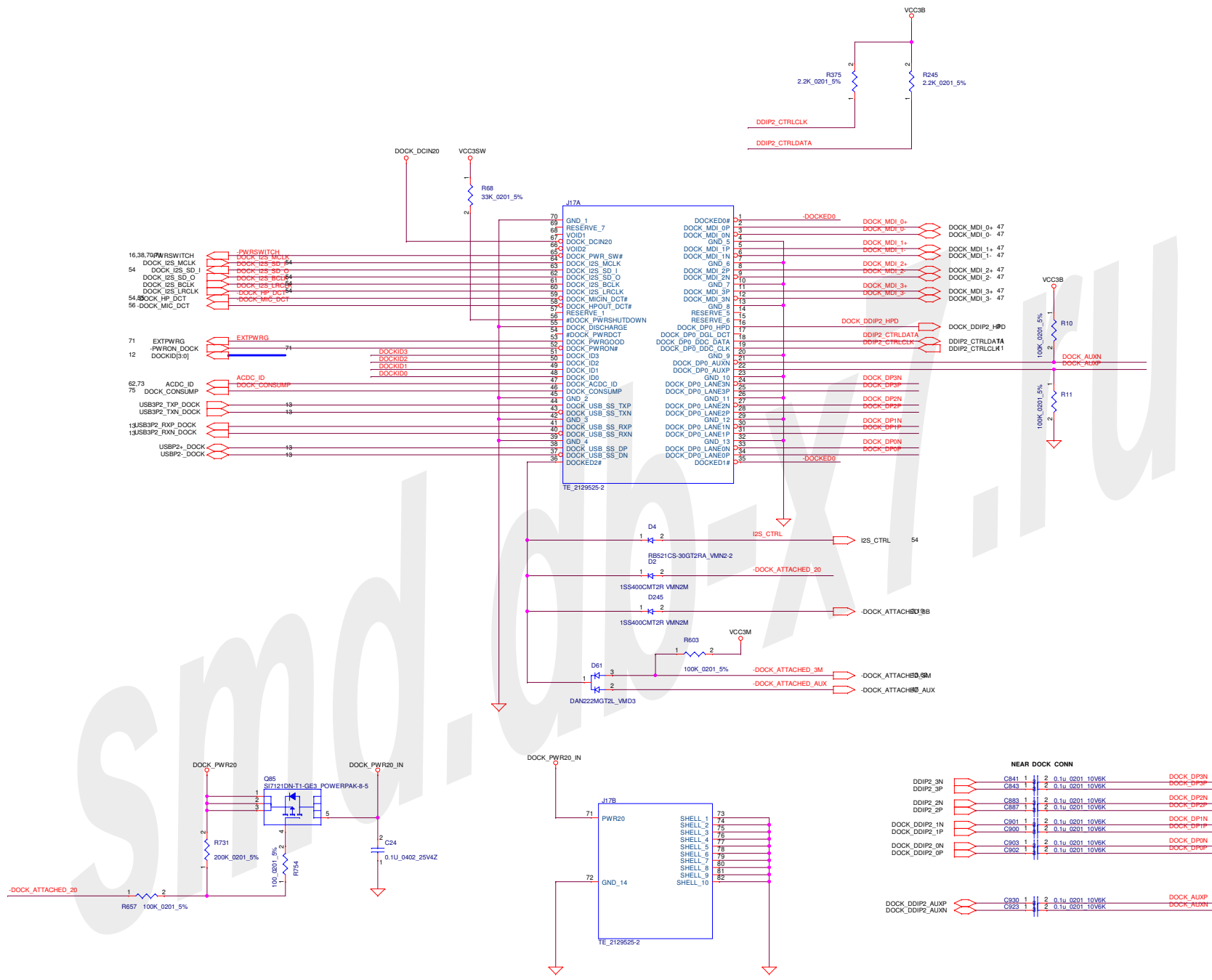
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Issued Date	2012/05/02	Deciphered Date	2012/5/02	
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Date: Thursday, October 23, 2014				Sheet 59 of 100

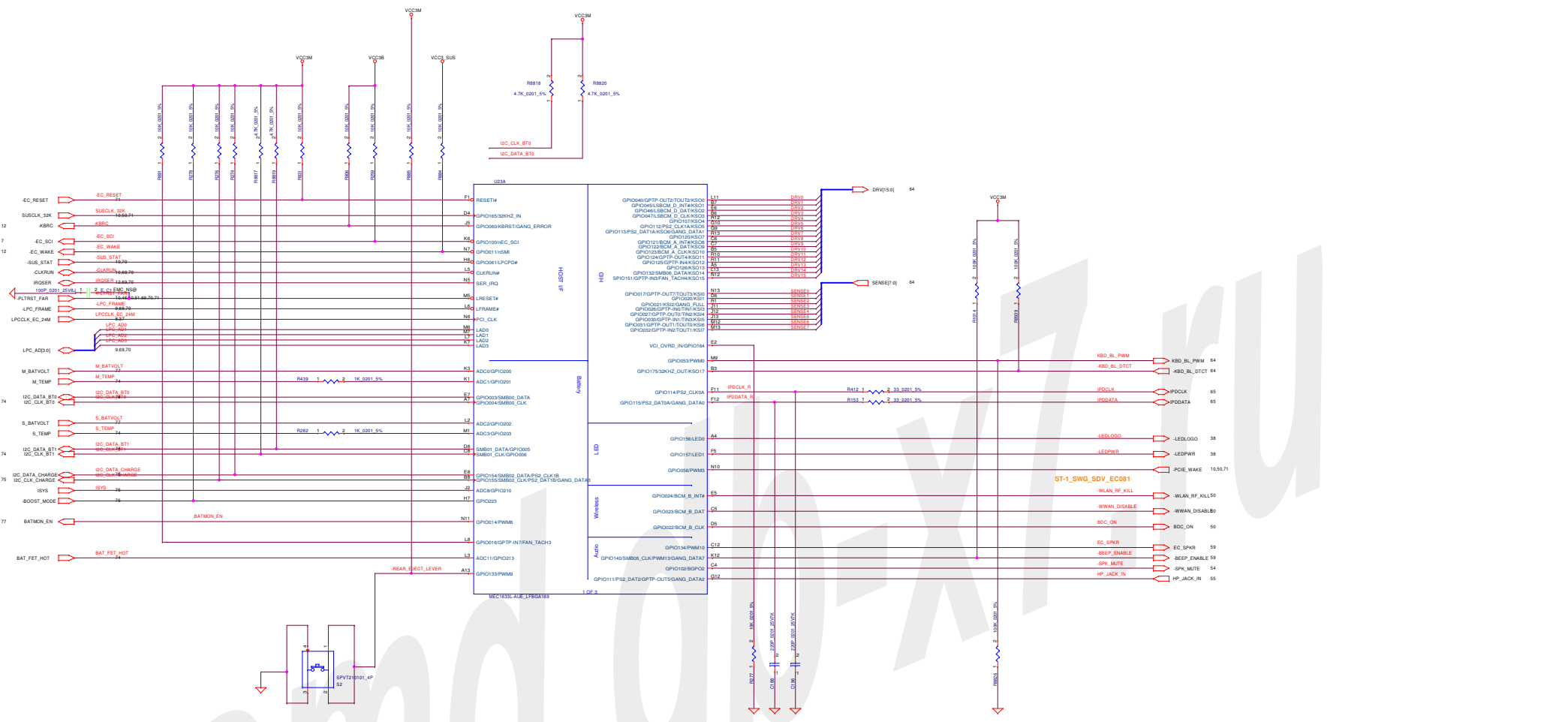


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Issued Date	2012/05/02	Deciphered Date	2012/5/02	
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Date: Thursday, October 23, 2014				Sheet 99 of 100

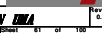


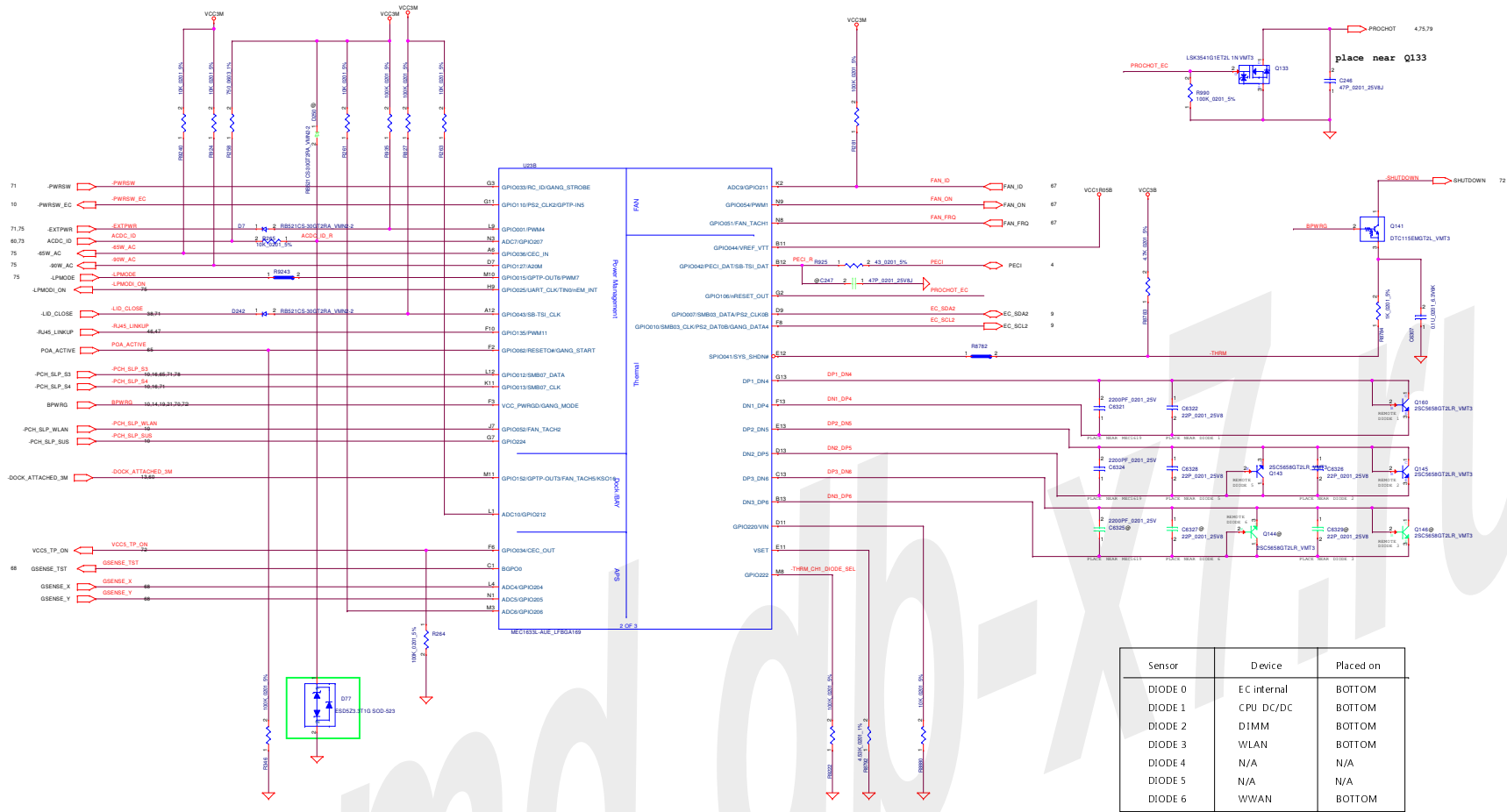
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Issued Date	2012/05/02	Deciphered Date	2012/5/02	DOCKING CONNECTOR	
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Size	Document Number	Rev		Rev	
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Date:	Thursday, October 23, 2014	Sheet	60	of	100

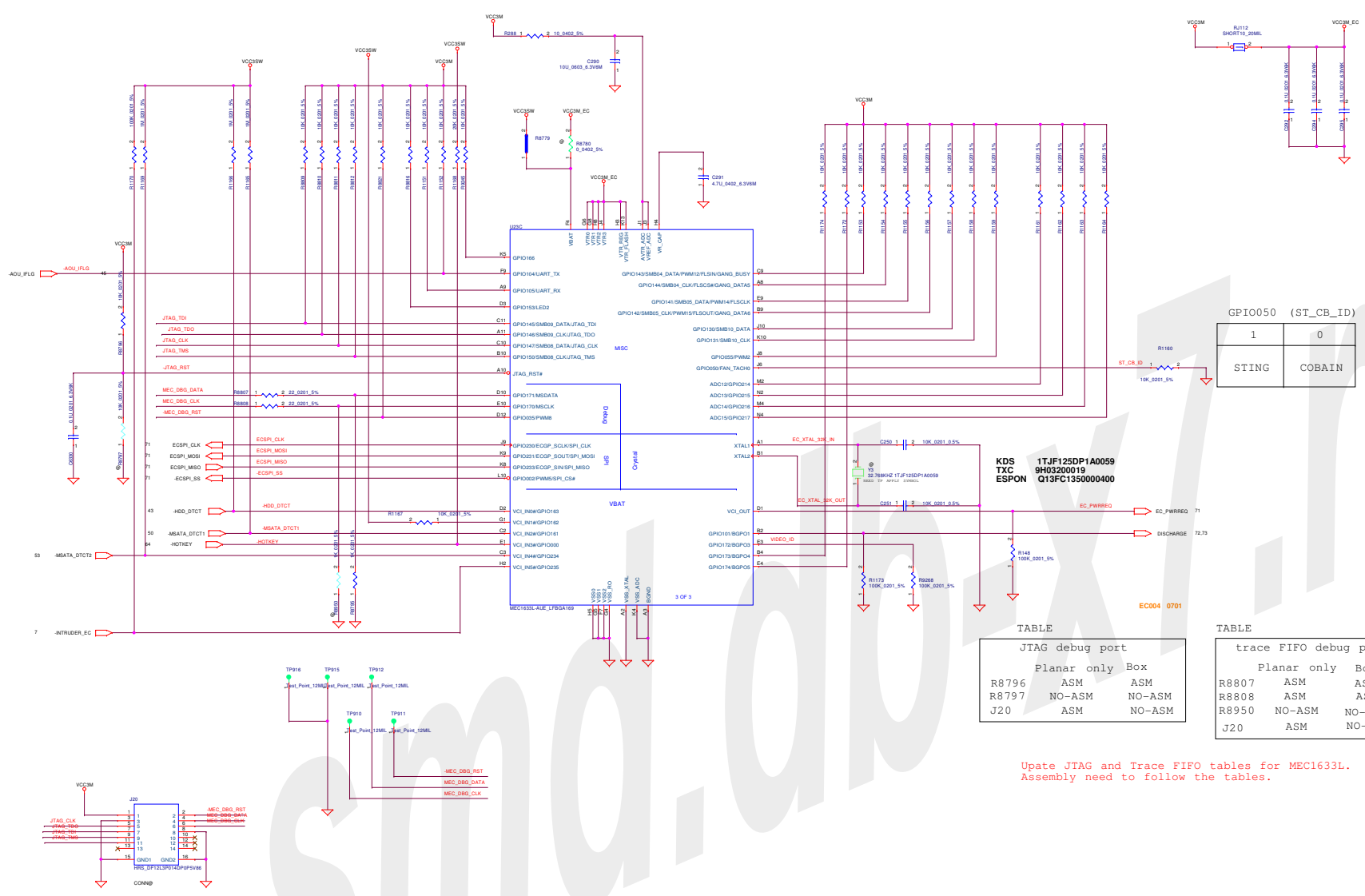


Security Classification	LC Future Center Secret Data		Title
Issued Date	2012/05/01	Discontinued Date	2012/12/01
			EC - ME16331 (1/3)
Doc No.	Document Number	Doc No.	ME16331
			REV 01

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GPIO050 (ST\_CB\_ID)

1	0
STING	COBAIN

KDS  
TXC  
ESPON

1TJF125DP1A0059  
9H0320019  
Q13FC1350000400

TABLE

JTAG debug port

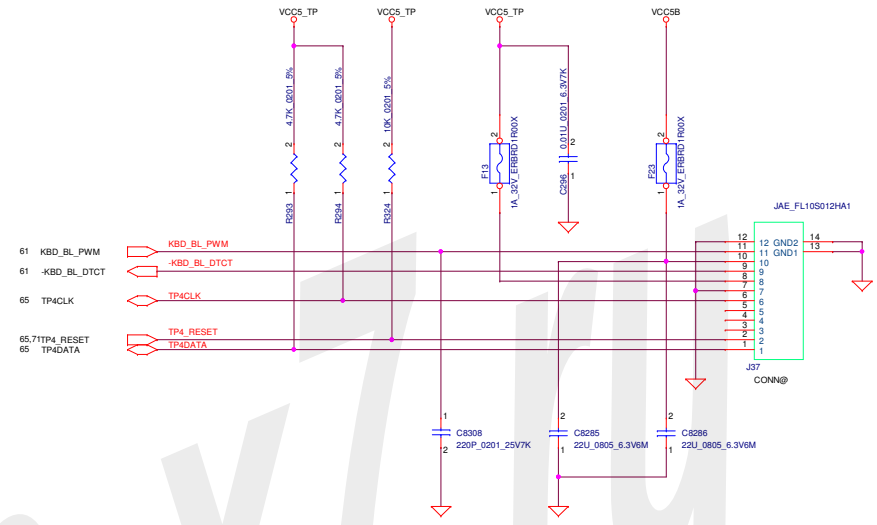
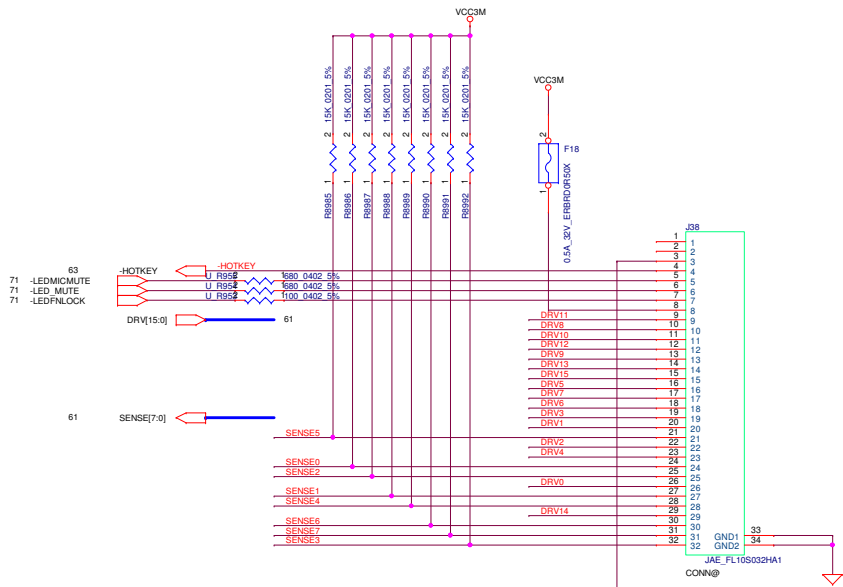
	Planar only	Box
R8796	ASM	ASM
R8797	NO-ASM	NO-ASM
J20	ASM	NO-ASM

TABLE


trace FIFO debug port

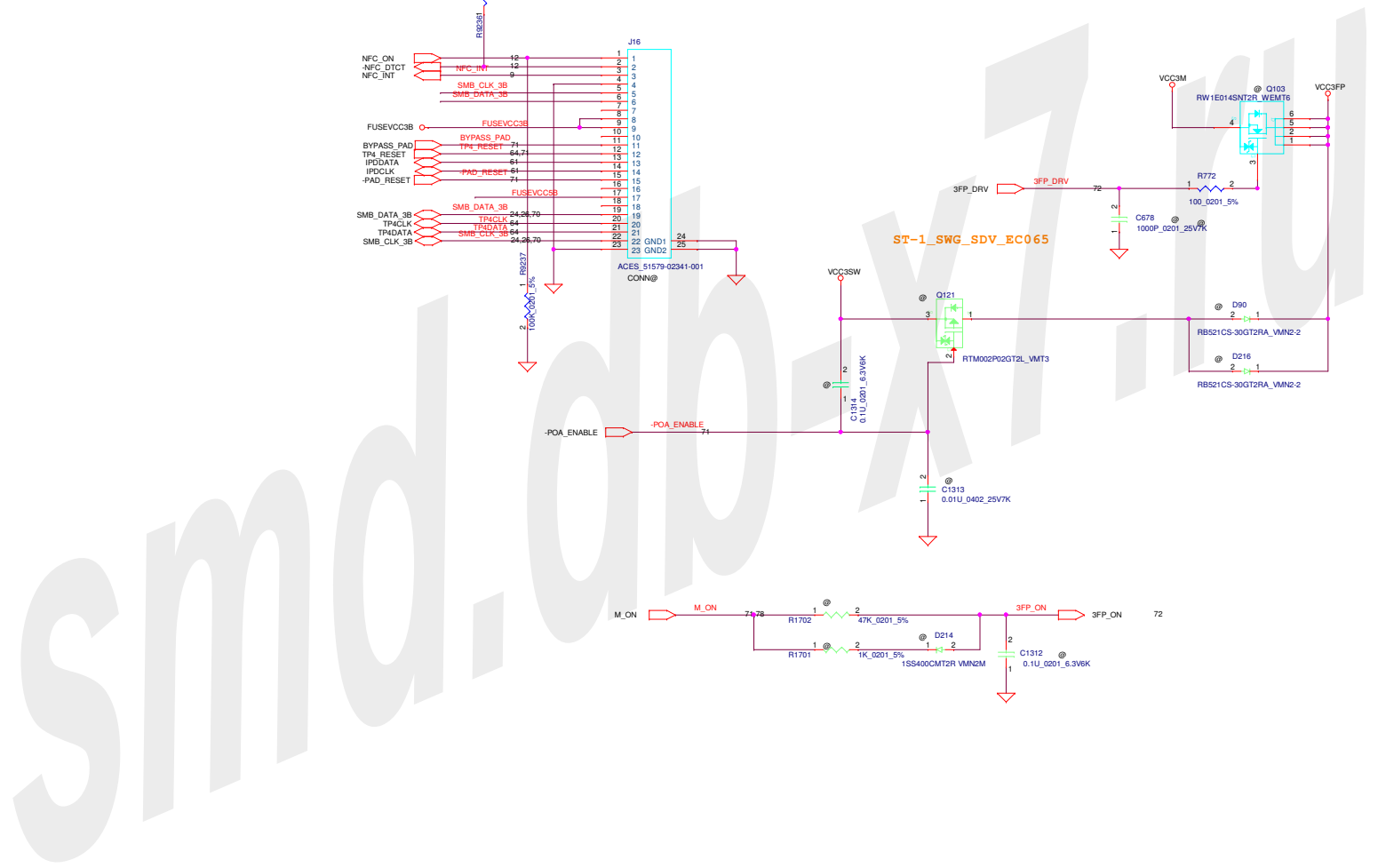
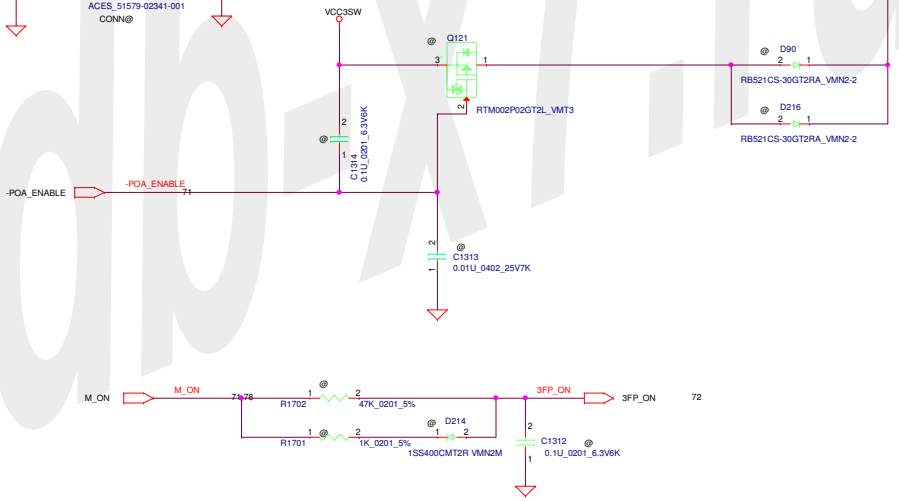
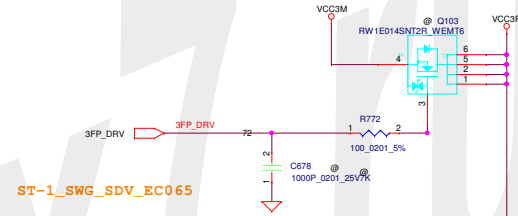
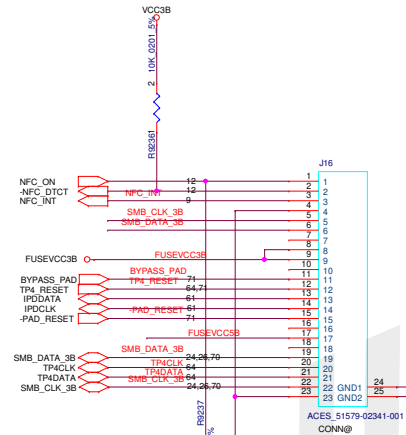
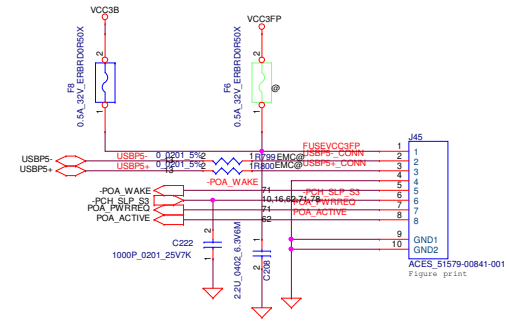
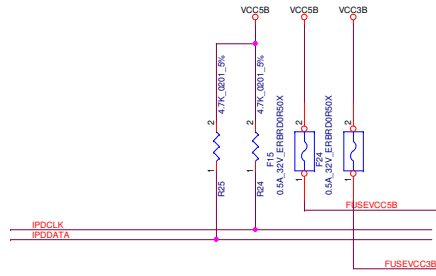
	Planar only	Box
R8807	ASM	ASM
R8808	ASM	ASM
R8950	NO-ASM	NO-ASM
J20	ASM	NO-ASM

Update JTAG and Trace FIFO tables for MEC1633L.  
Assembly need to follow the tables.



smd.db-X7.114

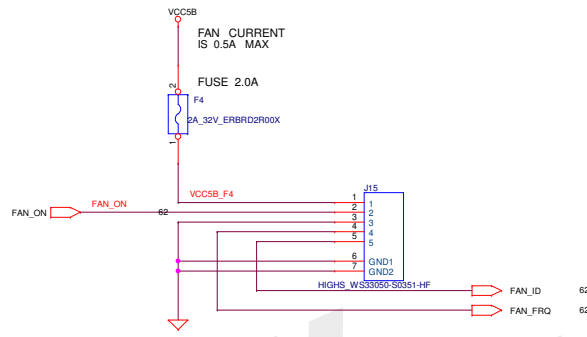
Security Classification		LC Future Center Secret Data		Title	
Issued Date	2012/05/01	Deciphered Date	2012/12/01	KEYBOARD CONNECTOR	
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Date:	Thursday, October 23, 2014	Sheet	65 of 100

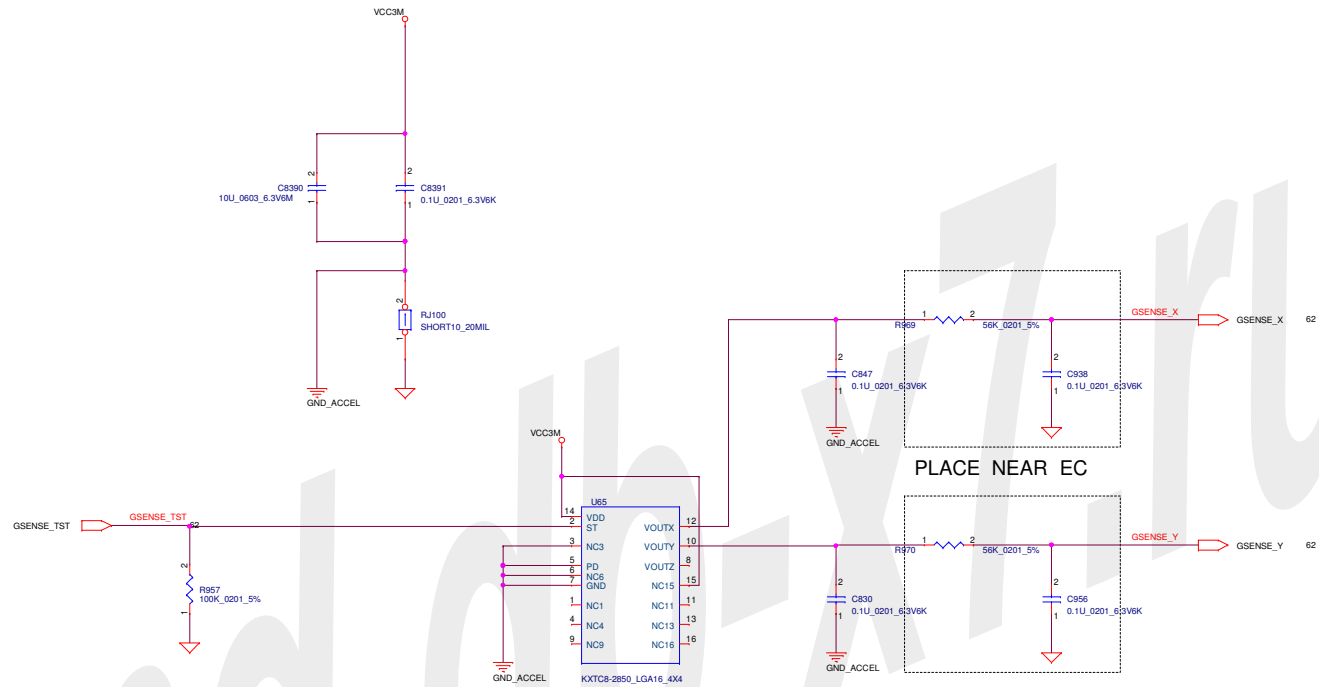
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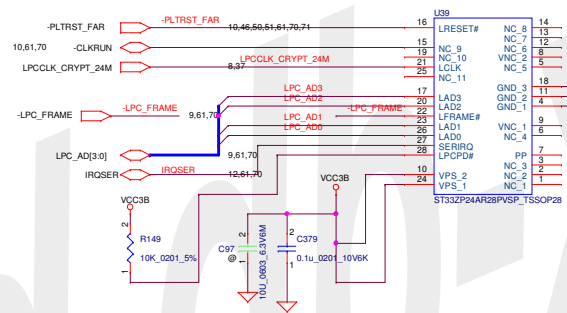
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Date: Thursday, October 23, 2014				Sheet 07 of 100



TABLE

	LIS34AL KXTC8-2850	NO ACC.
R401 R957	NO_ASM ASM	ASM ASM
U65 Q105	ASM ASM	NO_ASM NO_ASM
R885 C829 C959	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

LOGIC  
↓



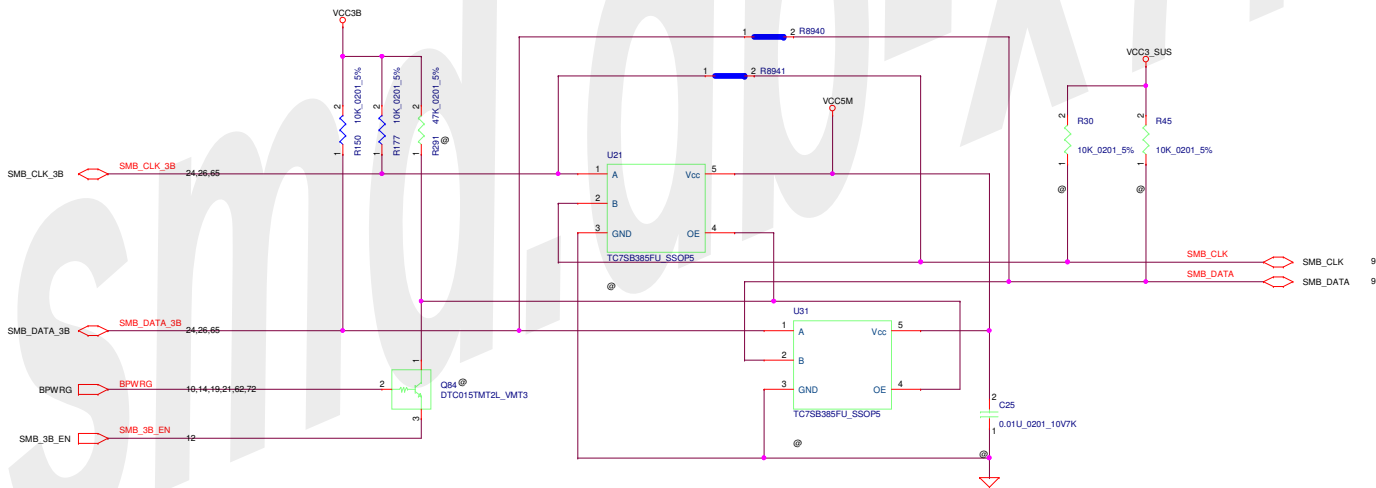
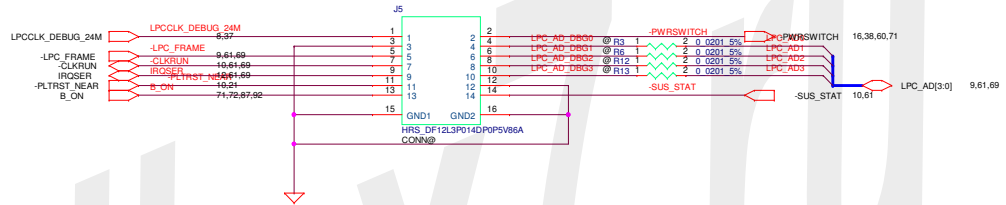
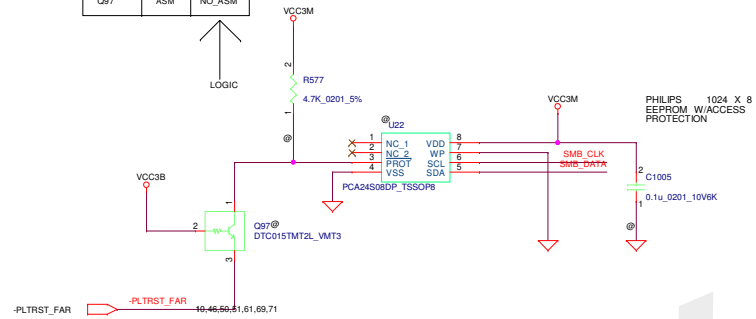
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Issued Date	2012/05/02	Deciphered Date	2012/5/02	TPM	
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TABLE

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

Update the table for LPC debug port

LPC Debug Port		
J5	ASM	NO_ASM
R9062	ASM	ASM



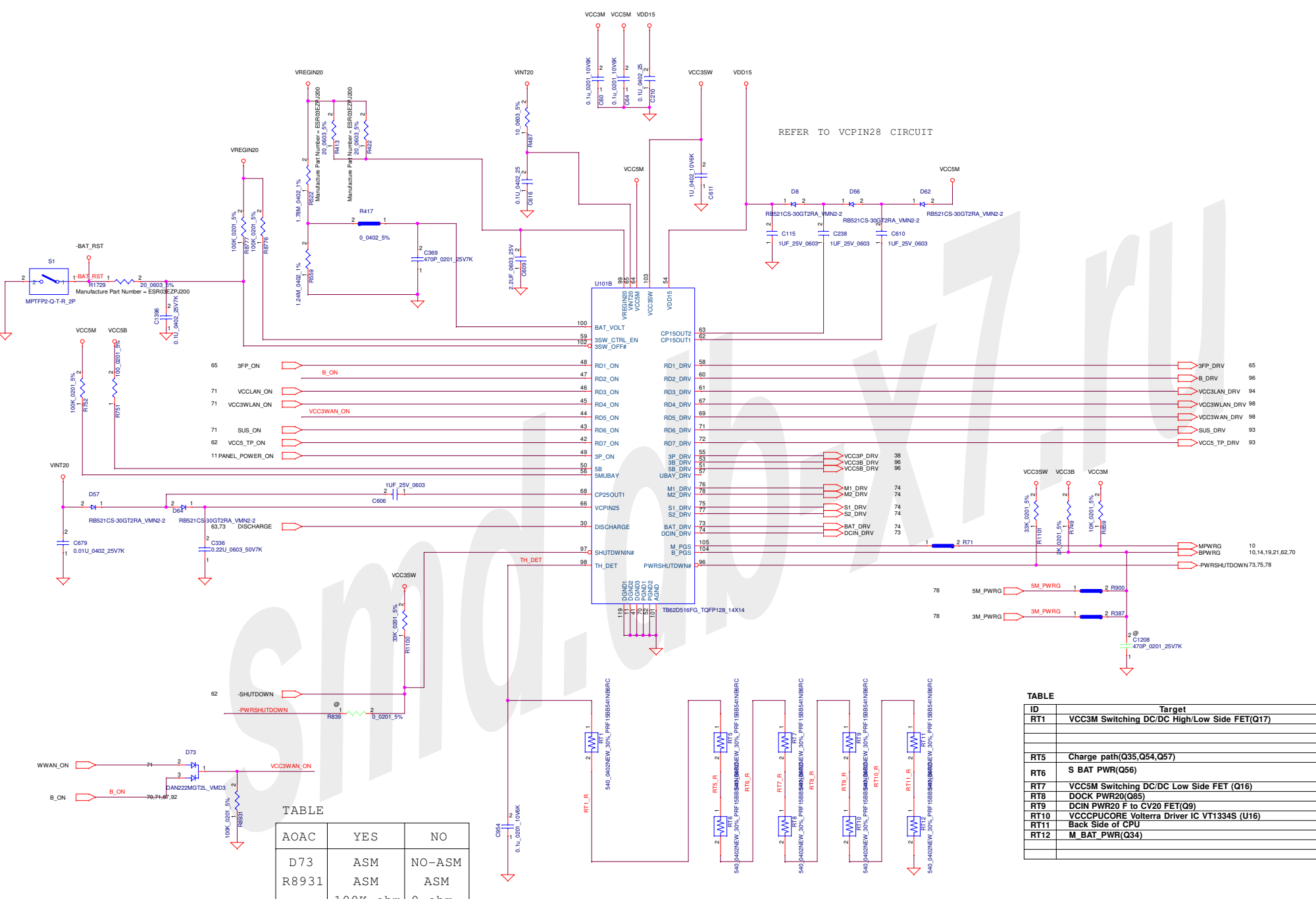
TABLE

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

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REFER TO VCPIN28 CIRCUIT

TABLE

AOAC	YES	NO
D73	ASM	NO-ASM
R8931	ASM	ASM
	100K-ohm	0-ohm

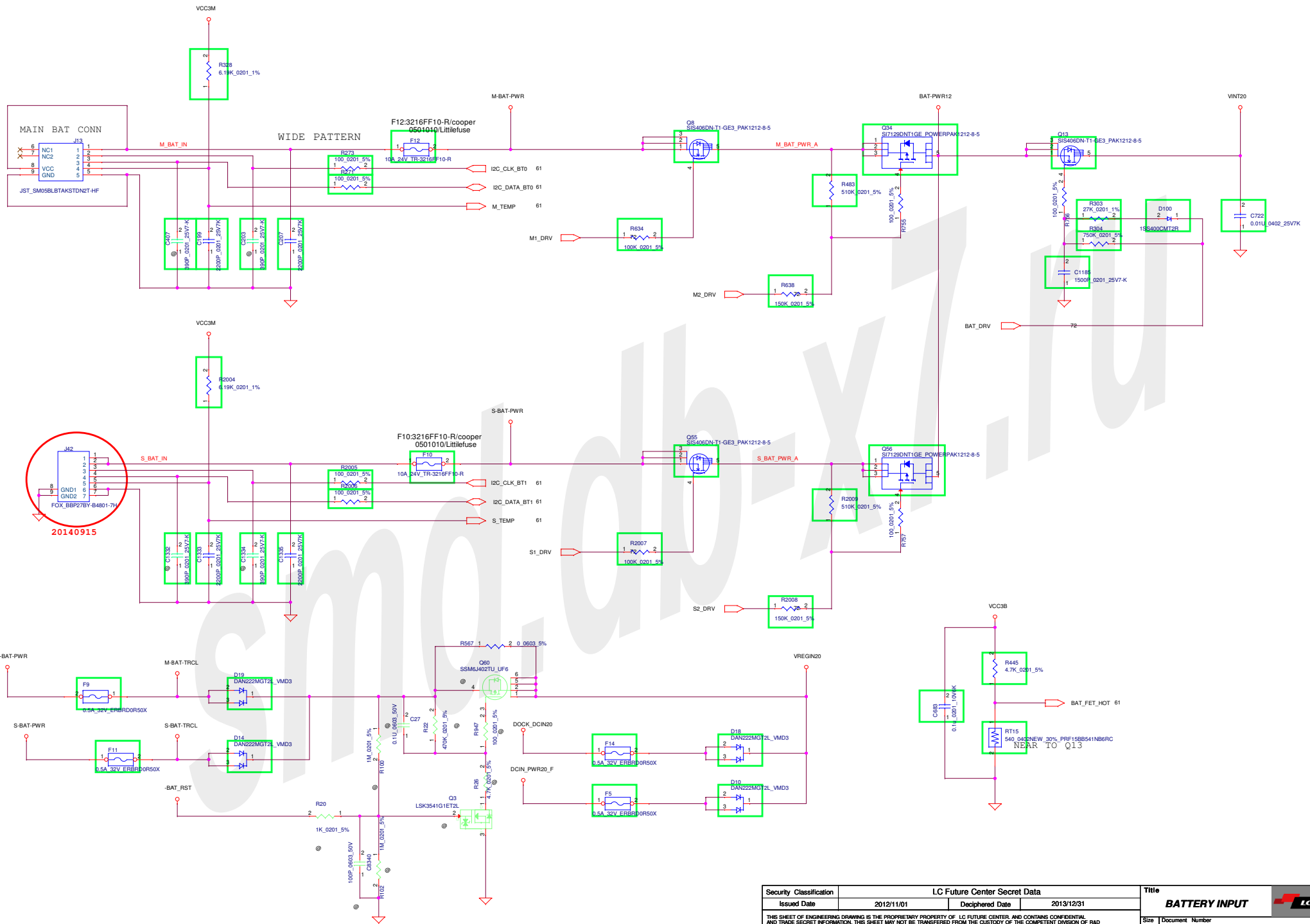
LOGIC

TABLE


ID	Target
RT1	VCC3M Switching DC/DC High/Low Side FET(Q17)
RT5	Charge path(Q35,Q54,Q57)
RT6	S BAT PWR(Q56)
RT7	VCC5M Switching DC/DC Low Side FET (Q16)
RT8	DOCK PWR20(Q85)
RT9	DOCK PWR20 F to CV20 FET(Q9)
RT10	VCC5M PUCORE Voltterra Driver IC VT1334S (U16)
RT11	Back Side of CPl
RT12	M_BAT PWR(Q34)

Security Classification	LC Future Center Secret Data		Title	THINK ENGINE(2/2)
Issued Date	2012/07/01	Deciphered Date	2014/07/01	Size
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				01
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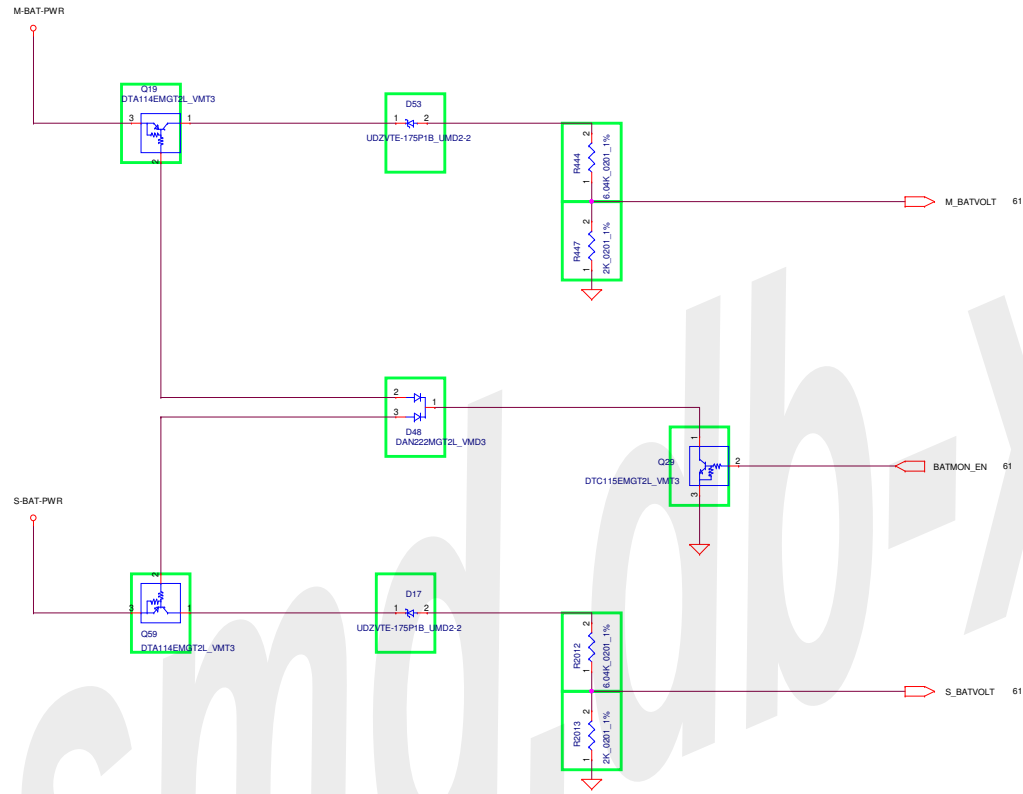



20140915

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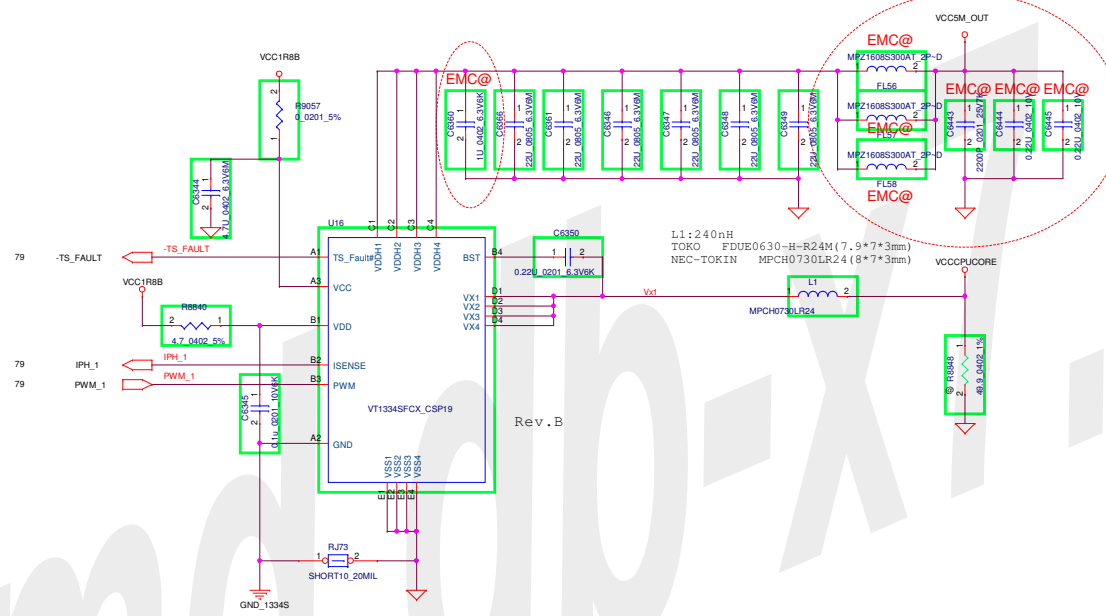





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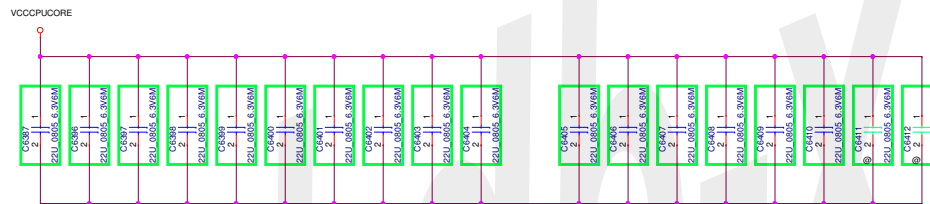


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Issued Date	2012/11/01	Deciphered Date	2013/12/31	
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16pcs 22uF for VCCCPUCORE of 25U ULT CPU  
 (14pcs 22uF for VCCCPUCORE of 15U ULT CPU)

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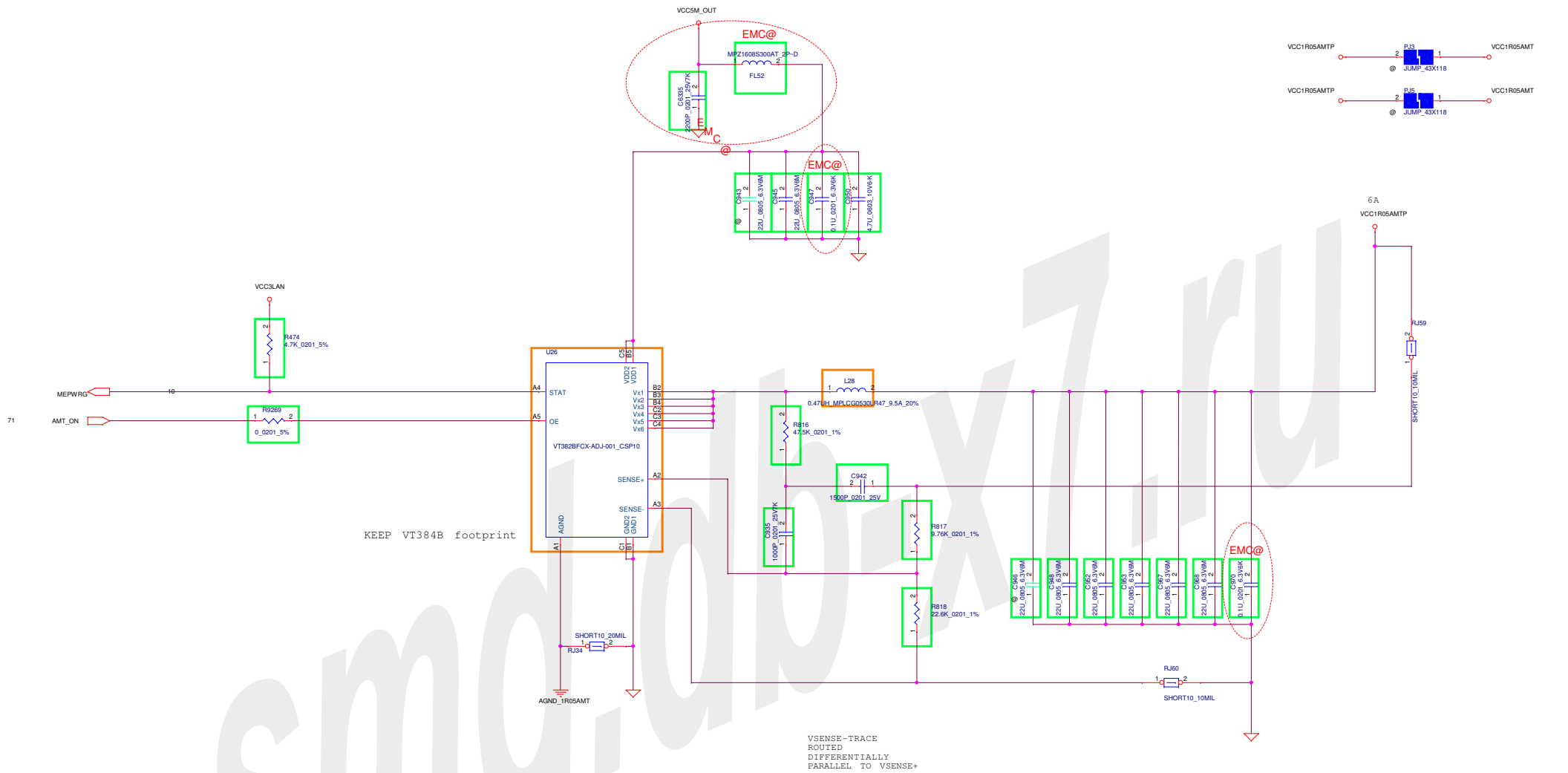
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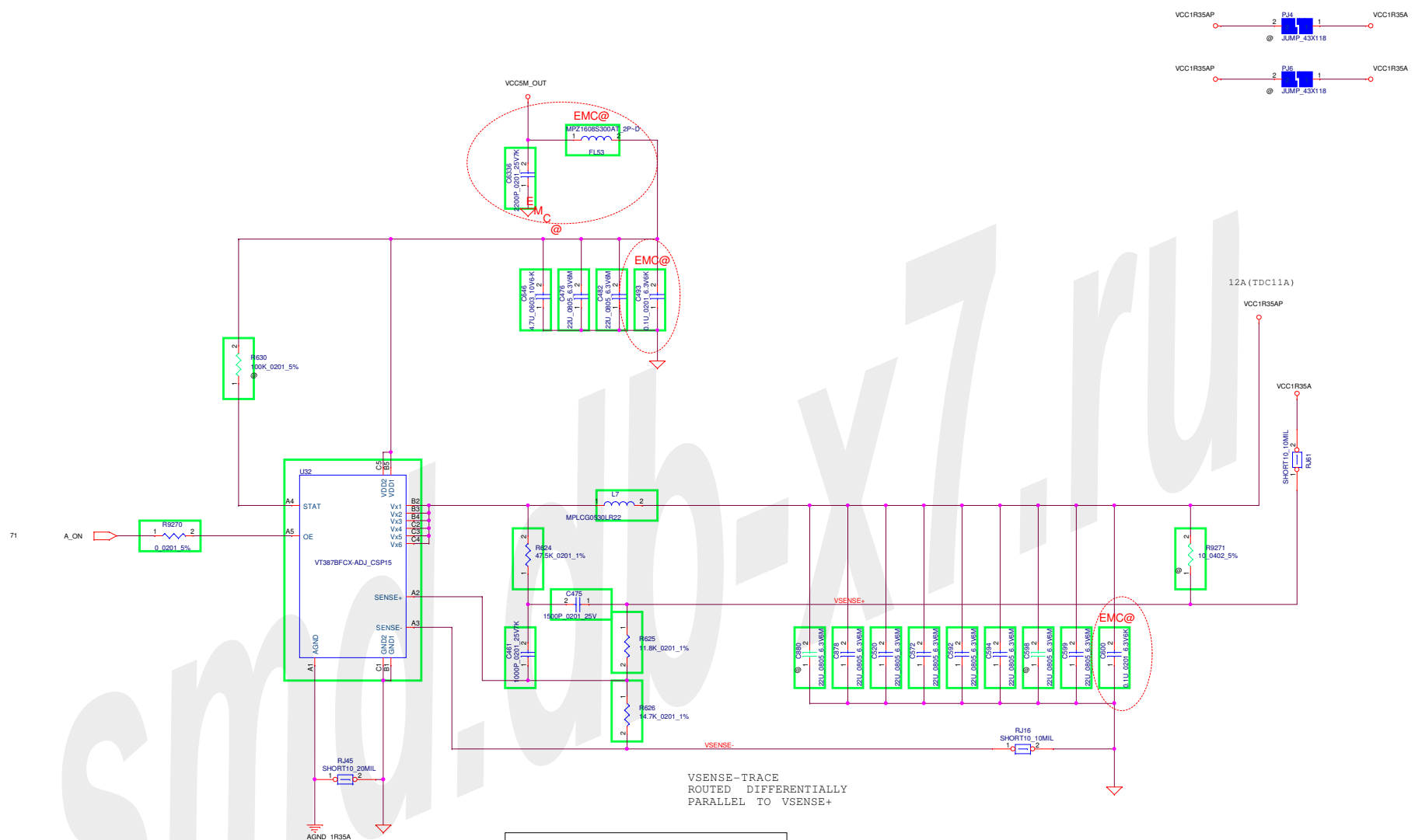


KEEP VT384B footprint

VSENSE-TRACE  
ROUTED  
DIFFERENTIALLY  
PARALLEL TO VSENSE+

$$V_{out} = 0.75 \times (1 + R_{817}/R_{818})$$

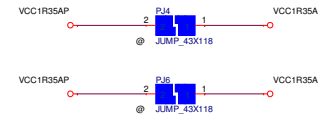
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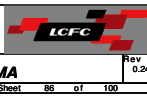
$$V_{out} = 0.75 \times (1 + (R_{F1}/R_{F2}))$$

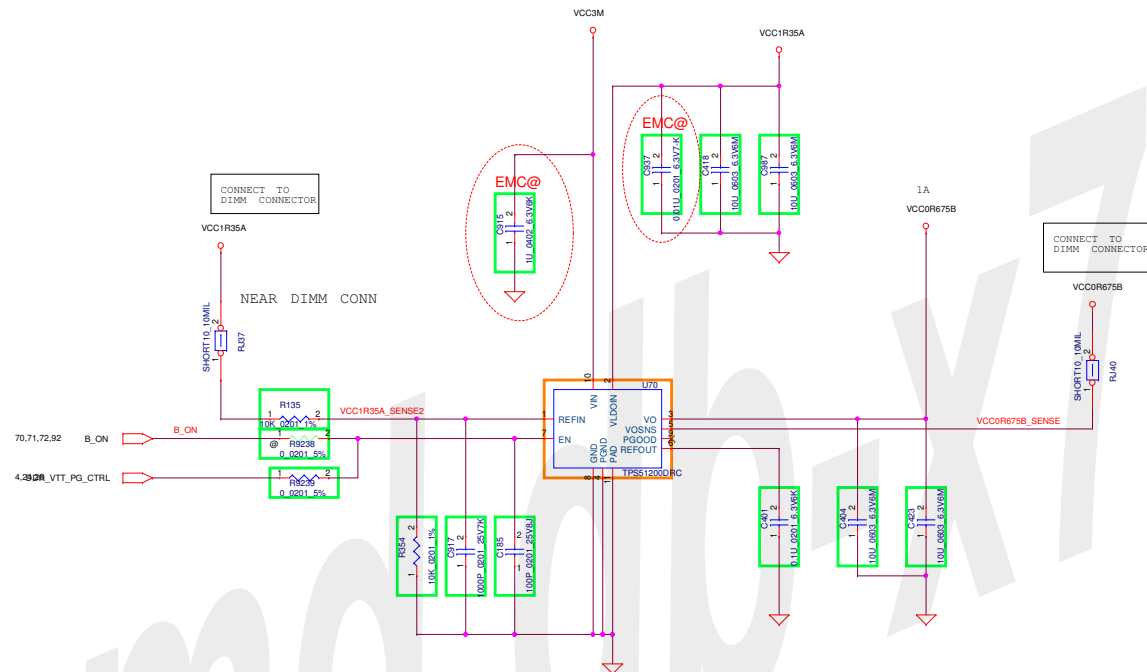
RF1	RF2
R625	R626
3.65K	4.53K for 1.35V
4.02K	4.02K for 1.50V


VSENSE-TRACE  
ROUTED DIFFERENTIALLY  
PARALLEL TO VSENSE+



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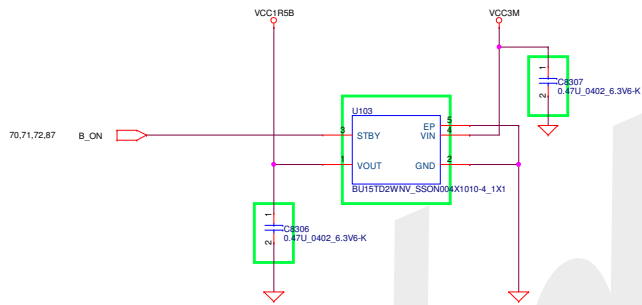
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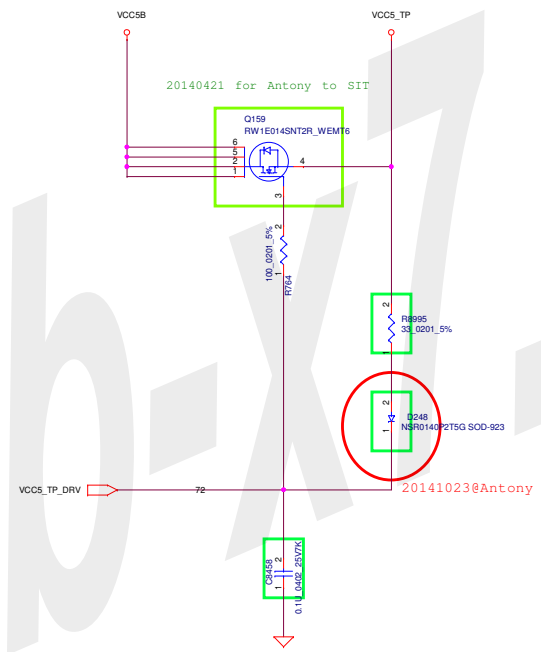
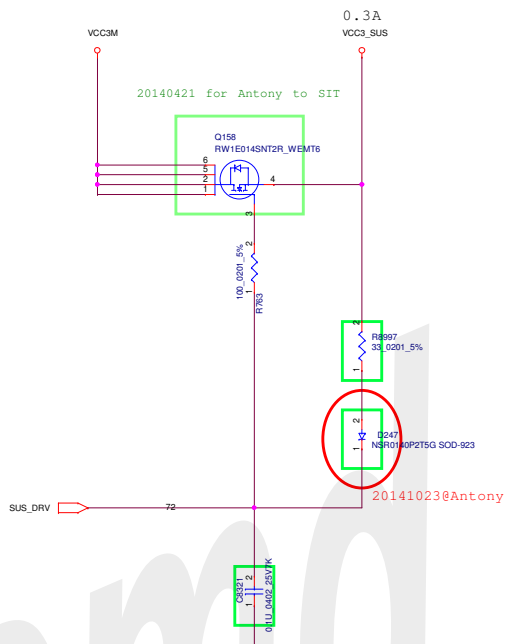
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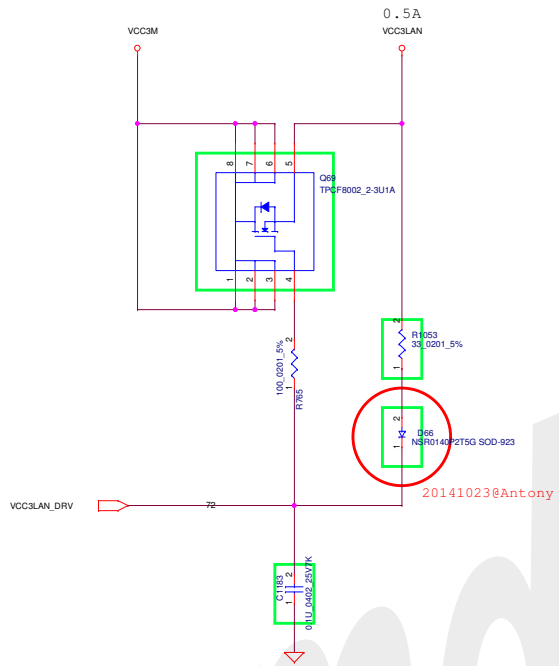


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Size	Document Number	Rev	0.24
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Security Classification	LC Future Center Secret Data		Title	 <b>LOAD SW PCH SUS</b>
Issued Date	2012/11/01	Deciphered Date	2013/12/31	
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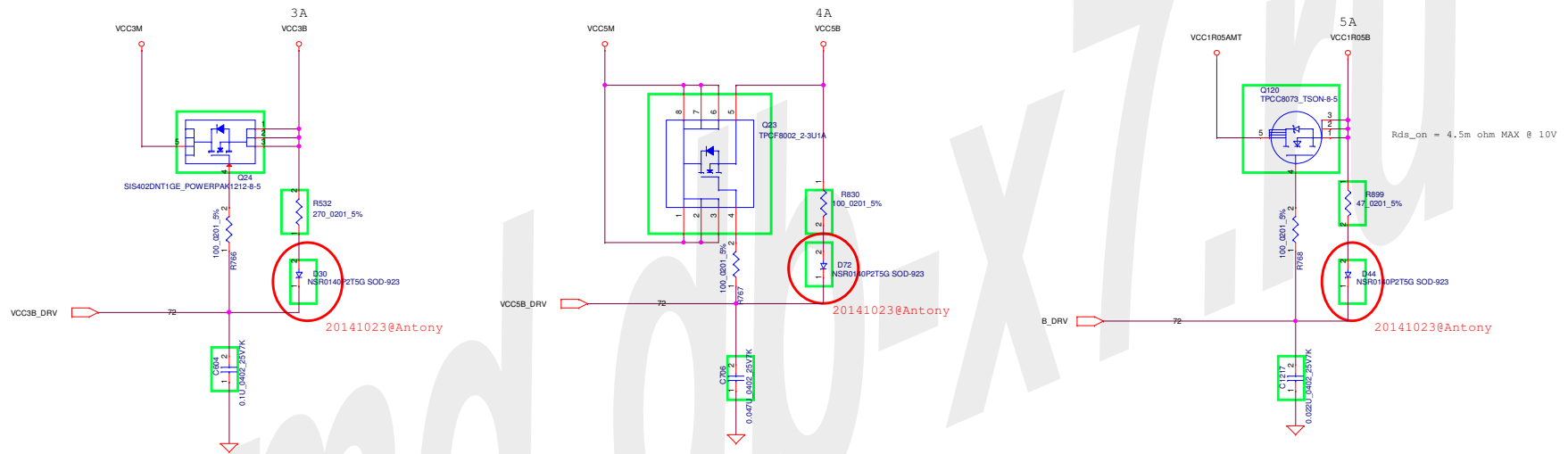
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Security Classification	LC Future Center Secret Data		Title	 <b>LOAD SW LAN</b>
Issued Date	2012/11/01	Deciphered Date	2013/12/31	
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				Customer	<b>Sting UMA</b>	0.24
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20141023@Antony



20141023@Antony

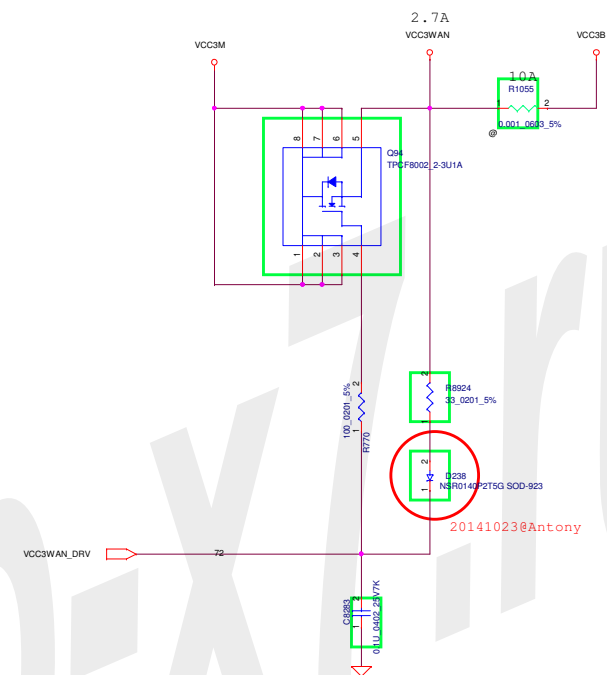
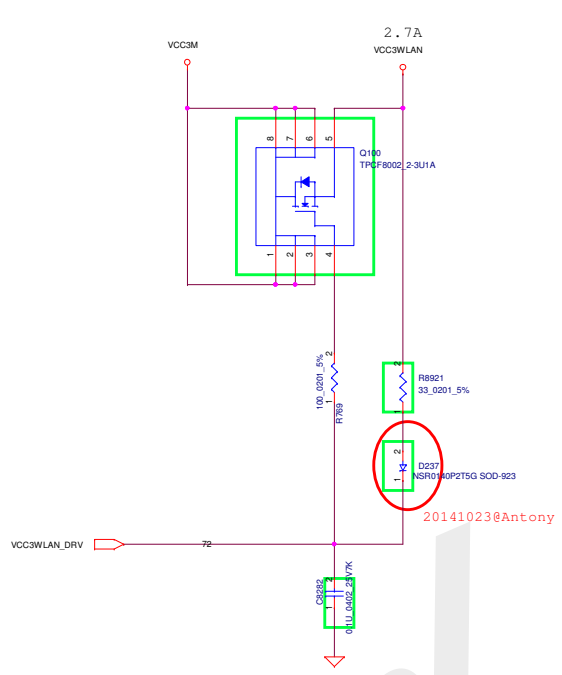
$R_{da\_on} = 4.5m \text{ ohm MAX @ } 10V$

Security Classification	LC Future Center Secret Data		Title
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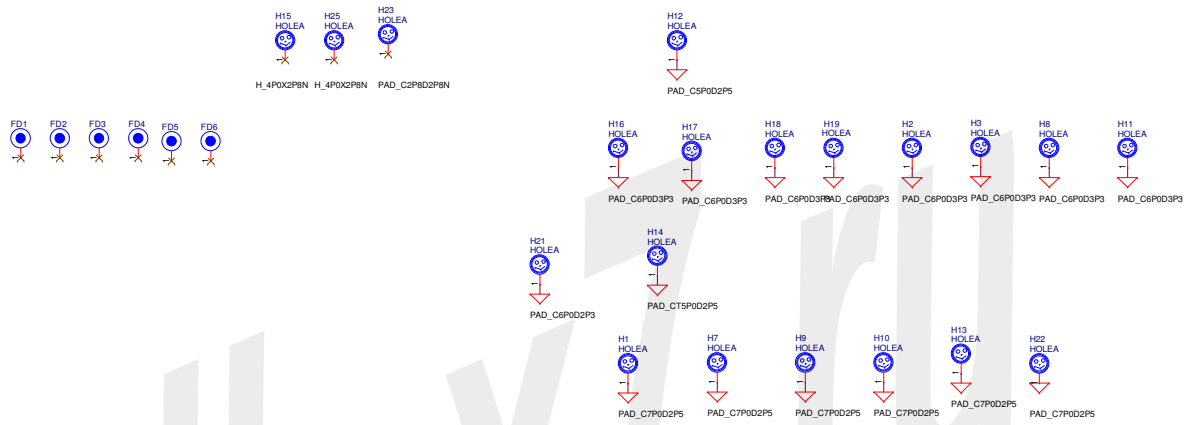


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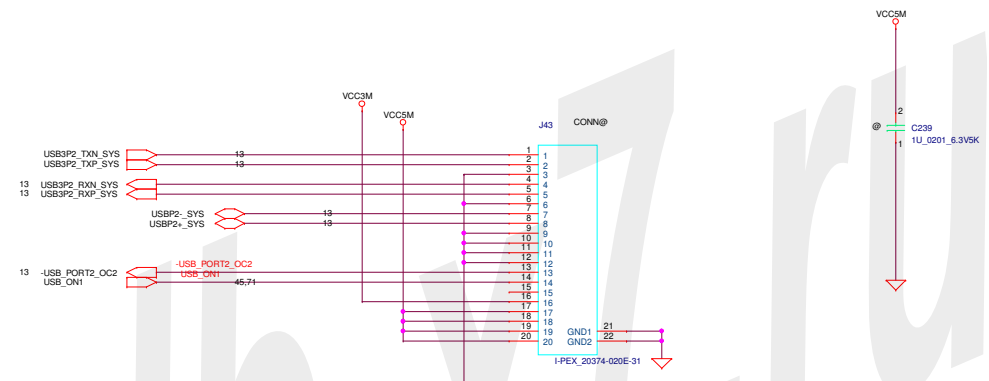
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R1055	NO-ASM	ASM
Q94	ASM	NO-ASM
R8924	ASM	NO-ASM
R8926	ASM	NO-ASM
C8283	ASM	NO-ASM
D238	ASM	NO-ASM

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<b>lenovo</b>		
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