

KTCAA

Los Angeles 10/10G

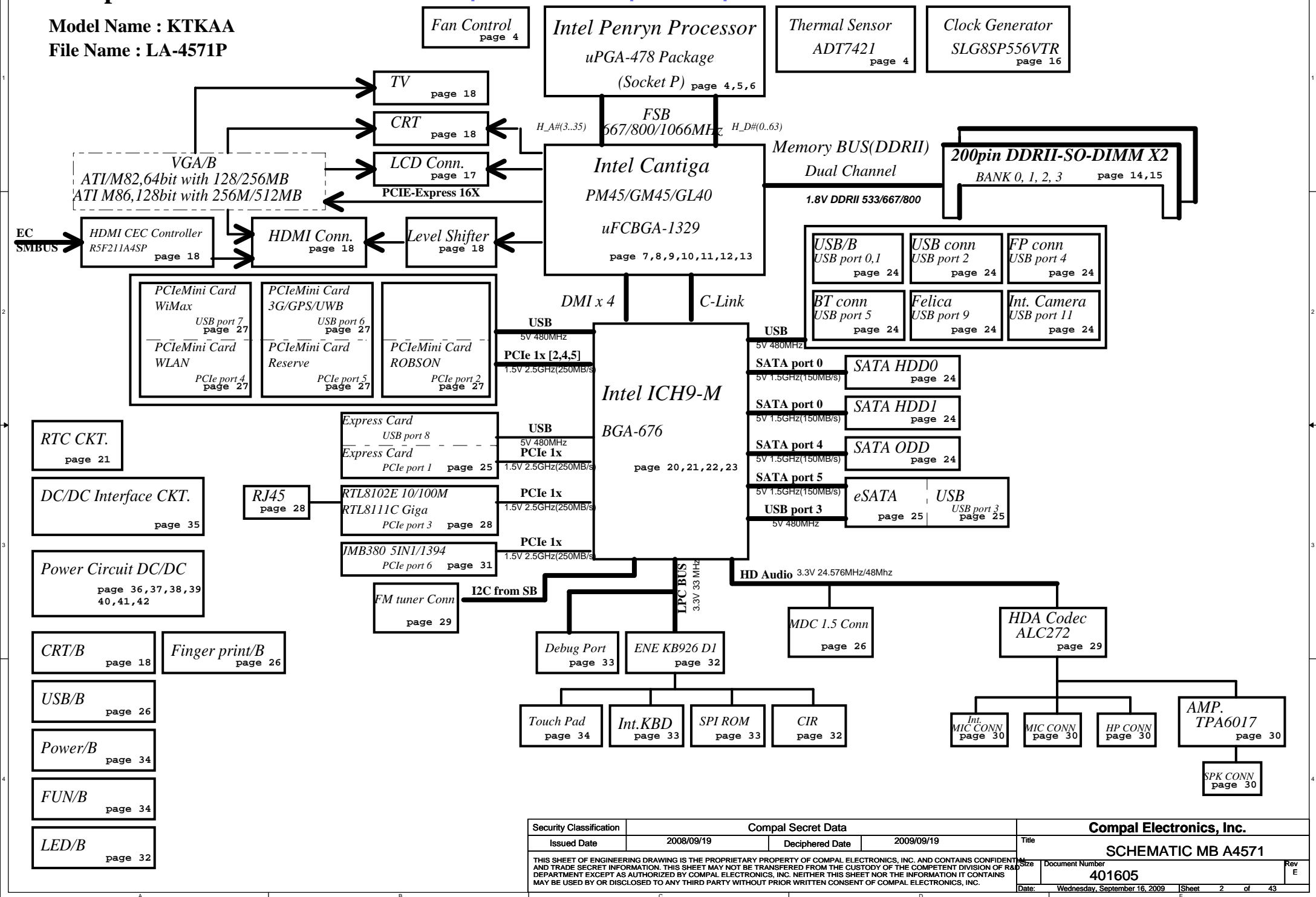
LA-4571P REV 2.0 Schematic

Intel Penryn/ Cantiga/ ICH9M
2008-09-19 Rev. 2.0

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
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File Name : LA-4571P



Voltage Rails

Power Plane	Description	S1	S3	S5	G3
VIN	Adapter power supply (19V)	ON	ON	ON	OFF
B+	AC or battery power rail for power circuit.	ON	ON	ON	ON
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF	OFF
+1.05VS	1.05V switched power rail	ON	OFF	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON	OFF
+3VL	3.3V always on power rail	ON	ON	ON	ON
+3V_SB	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_LAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+3V_WLAN	3.3V power rail for LAN	ON	ON	OFF	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON	OFF
+5VL	5V always on power rail	ON	ON	ON	ON
+5V_SB	5V power rail for SB	ON	ON	OFF	OFF
+5VS	5V switched power rail	ON	OFF	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON	OFF
+RTCVCC	RTC power	ON	ON	ON	ON
+CPU_CORE	Core voltage for VGA chip	ON	ON	OFF	OFF
+VGA_PCIE_1.1VS	1.1V switched power rail for VGA PCIE	ON	ON	OFF	OFF
+1.8VS	1.8V power rail for VRAM	ON	ON	OFF	OFF

External PCI Devices

EC SM Bus1 address

Power	Device	Address	Power	Device	Address
+5VL	EC KB926 C0		+3VS	EC KB926 C0	
+5VL	Smart Battery	0001 011X b	+3VS	CPU THM Sen	
+5VL	HDMI-CEC	0011 010x b	+3VS	SMSC SMC1402	0100 110x b
+5VL	FUN/B (CAP Sensor)		+3VS	VGA THM Sen	1001 110Xb
				ADM1032ARMZ	

EC SM Bus2 address

Power	Device	Address
+3VS	VGA on die thermal sensor	1001 111Xb

need to confirm

ICH9M SM Bus address

Power	Device	Address
+3V_SB	ICH9M	
+3VS	Clock Generator (SLG8SP556V)	1101 001Xb
+3VS	DDR DIMM0	1001 000Xb
+3VS	DDR DIMM1	1001 010Xb
+3VS	Express	
+3VS	FM Module	

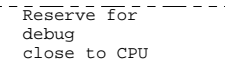
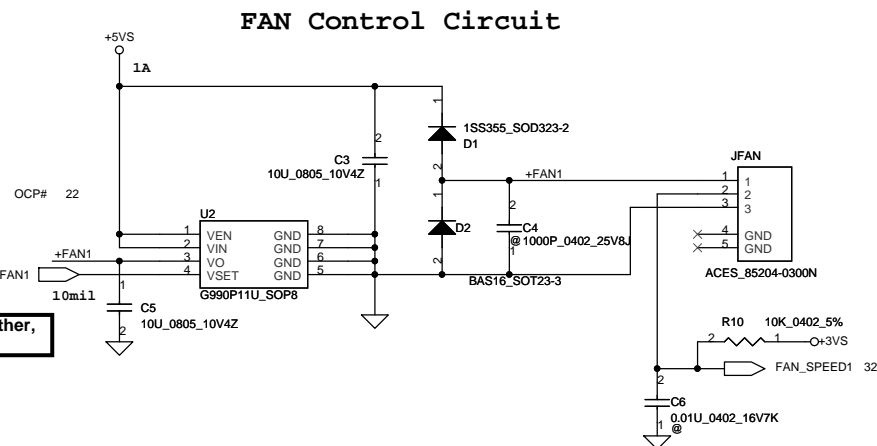
STATE	SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#		
Full ON		HIGH	HIGH	HIGH	HIGH		
S1 (Power On Suspend)		LOW	HIGH	HIGH	HIGH		
S3 (Suspend to RAM)		LOW	LOW	HIGH	HIGH		
S4 (Suspend to Disk)		LOW	LOW	LOW	HIGH		
S5 (Soft OFF)		LOW	LOW	LOW	LOW		
G3		LOW	LOW	LOW	LOW		

BTO Option Table

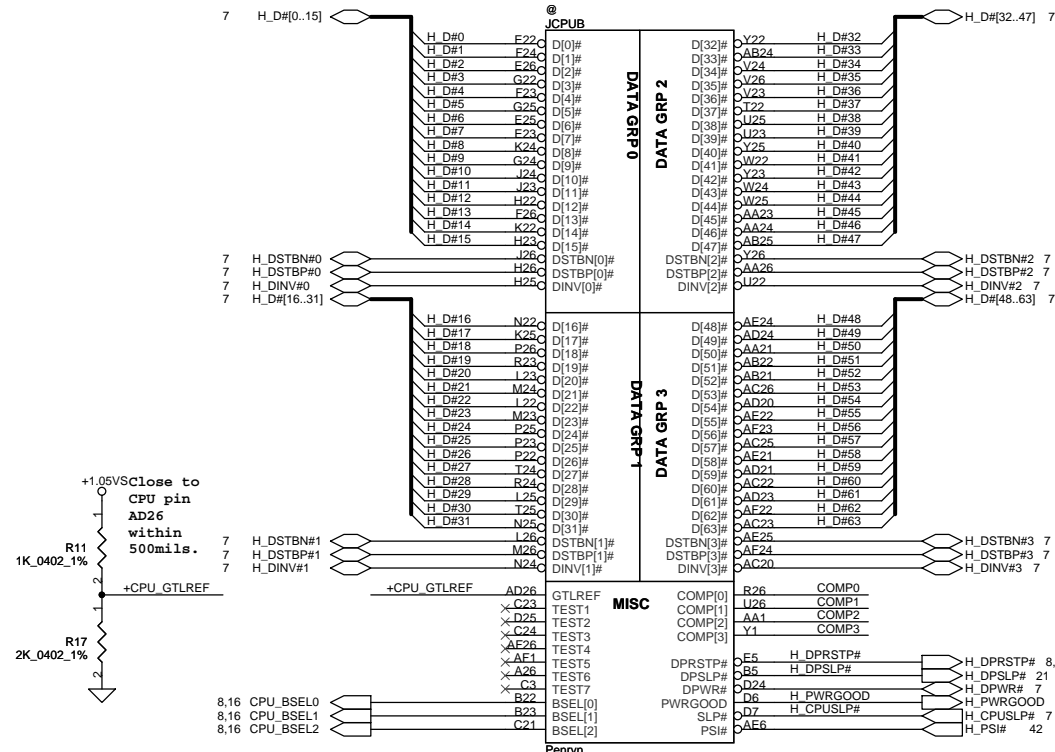
Function	2nd HDD	LAN		Mini card		RJ11/FM tuner		3G SIM slot
description	(2H)	(E)	(C)	(D2)	(D3)	(R)	(M)	(G)
explain		10/100M	Giga	Two Crads	three Crads	RJ11	FM	
BTO	2HDD@	8102E@	8111C@	WLAN@	GPS@	NAND@	MDC@	3G@

Function	HDMI		TV-out	CIR	CAMERA & MIC		Finger printer
description	(Y)		(S)	(I)	(X)		(F)
explain	Intel(UMA)	ATI VGA/B	COMMON		CAMERA	MIC	
BTO	IHDMI@	NIHDMI@	HDMI@	H@	TVOUT@	CIR@	FP@

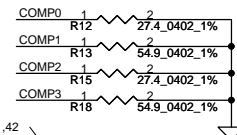
Function	Felica	BLUE TOOTH	
description	(J)	(B)	
explain			
BTO	FLICA@	BT@	



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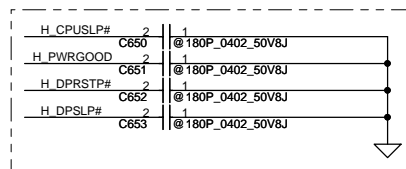
Resistor placed within 0.5" of CPU pin. Trace should be at least 25 mils away from any other toggling signal. COMP[0,2] trace width is 18 mils. COMP[1,3] trace width is 4 mils.



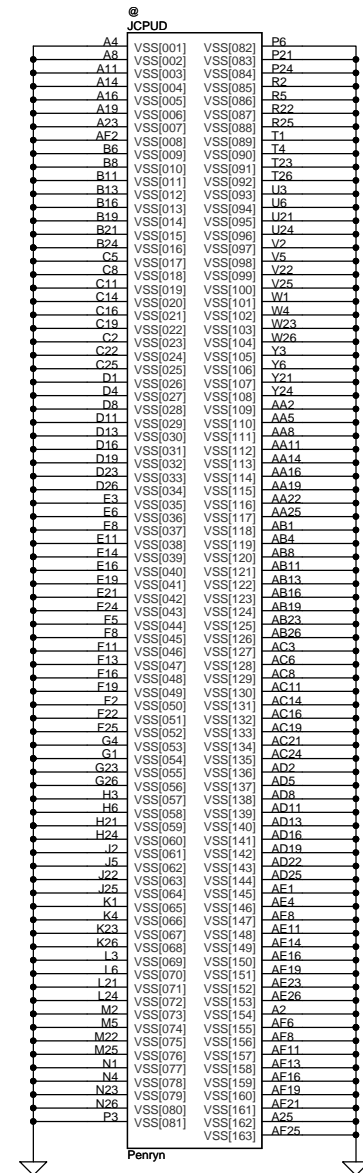
layout note: Please use "Daisy Chain" to layout and the signal (H_DPRSTP#) is routed from ICH9 to power IC, then to NB and CPU

layout note: Route TEST3 & TEST5 traces on ground referenced layer to the TPs

CPU_BSEL	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
166	0	1	1
200	0	1	0
266	0	0	0

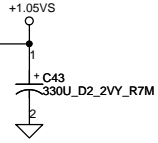
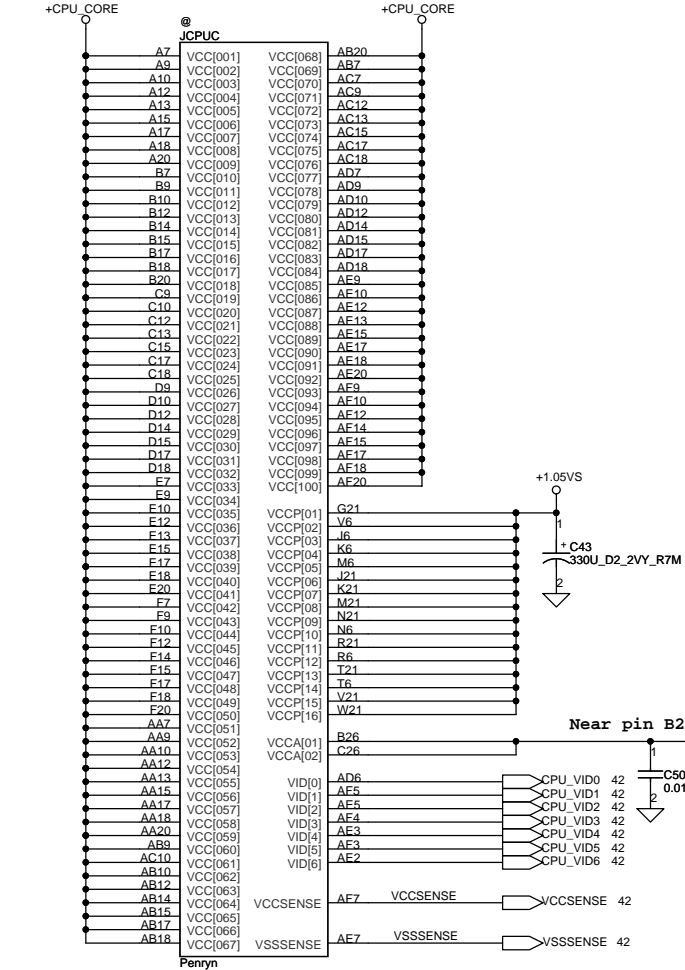
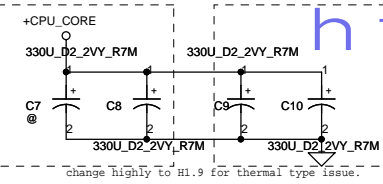


Reserve for debug close to CPU

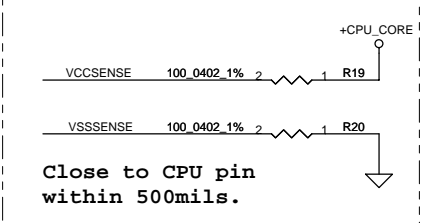
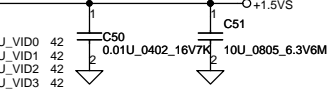


Near CPU CORE regulator

ESR <= 1.5m ohm
Capacitor > 1980uF

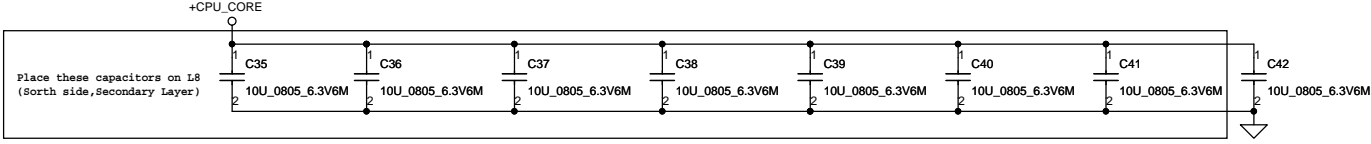
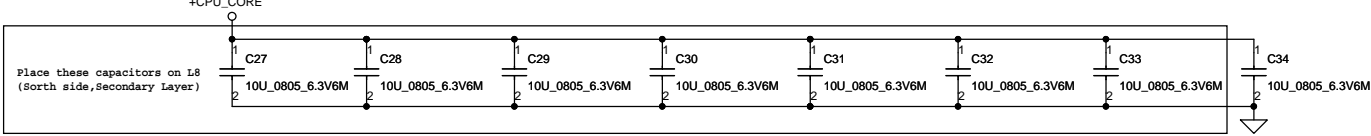
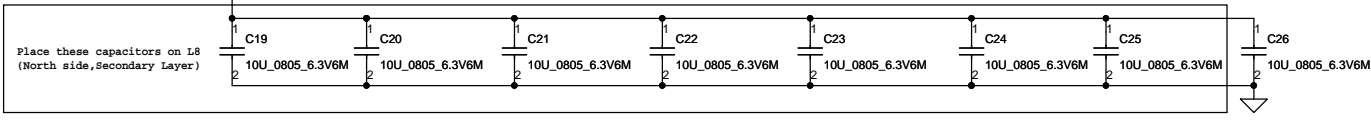
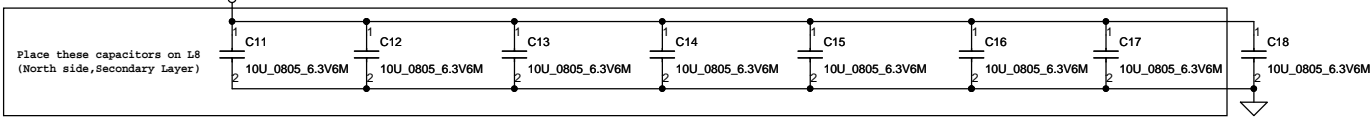


Near pin B26

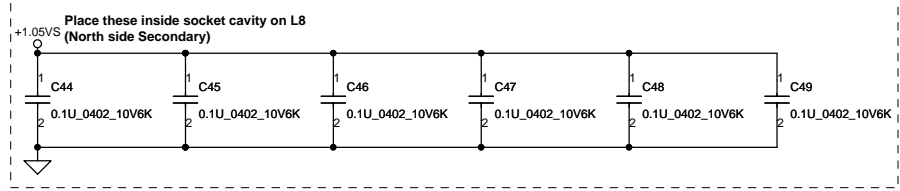


Length match within 25 mils.
The trace width/space/other is 14/7/25.

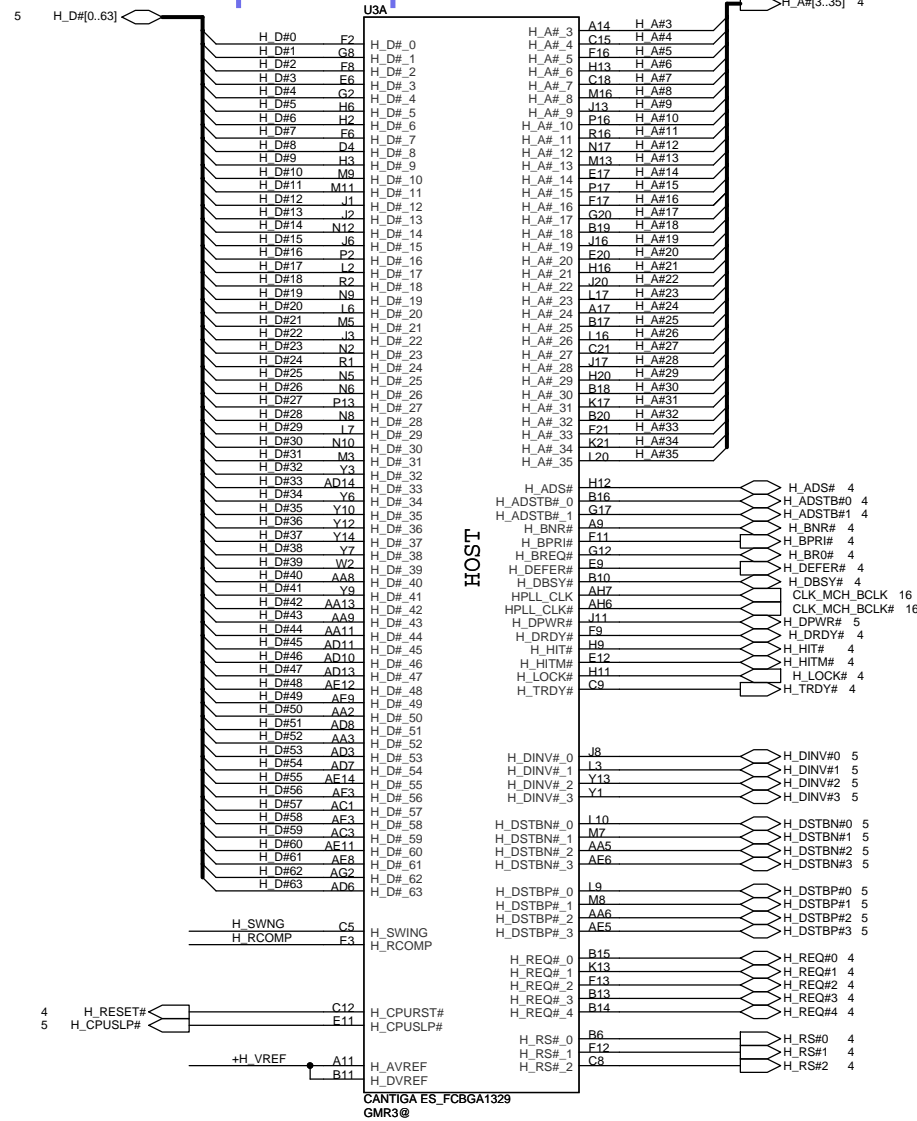
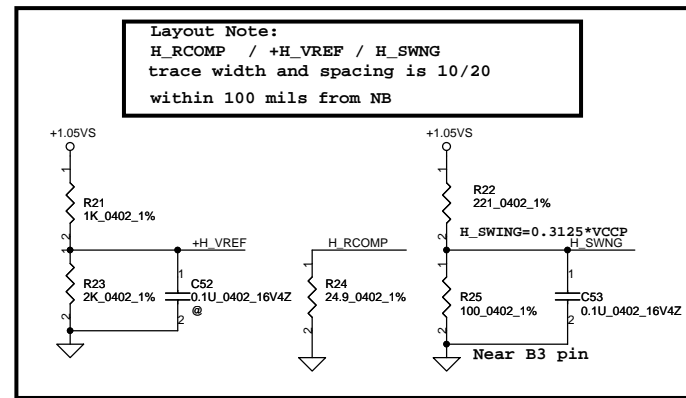
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Mid Frequency Decoupling



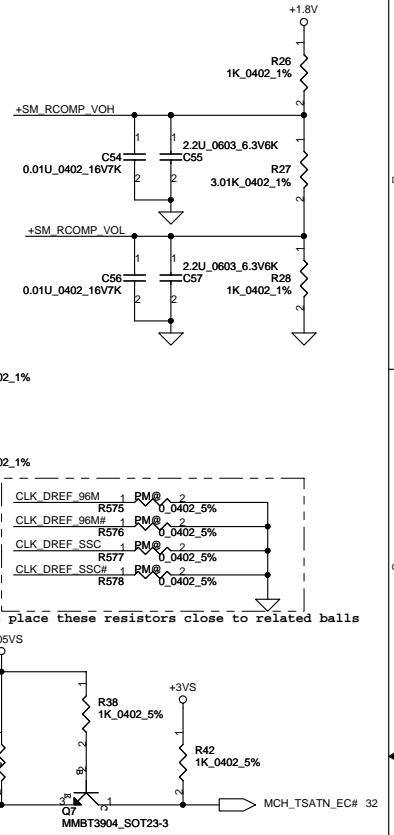
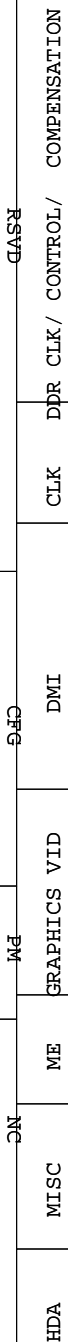
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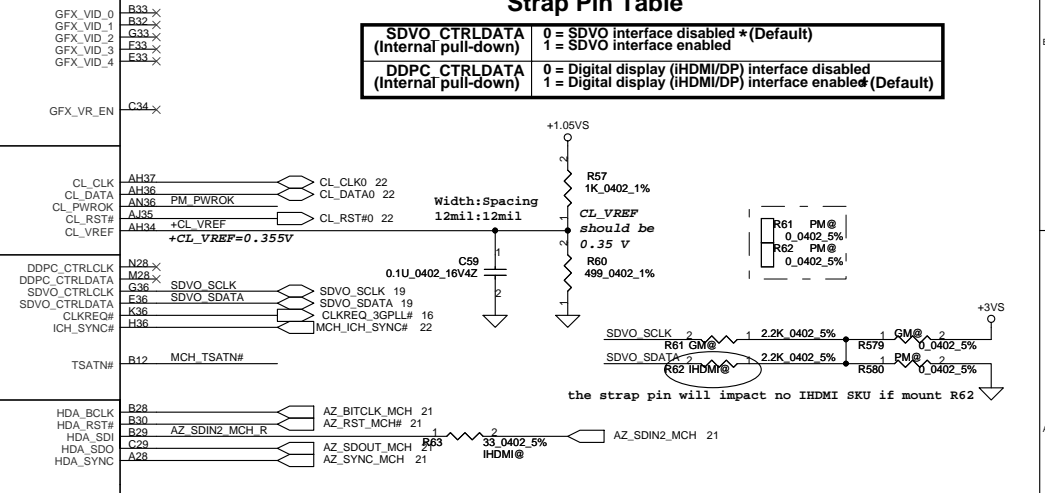
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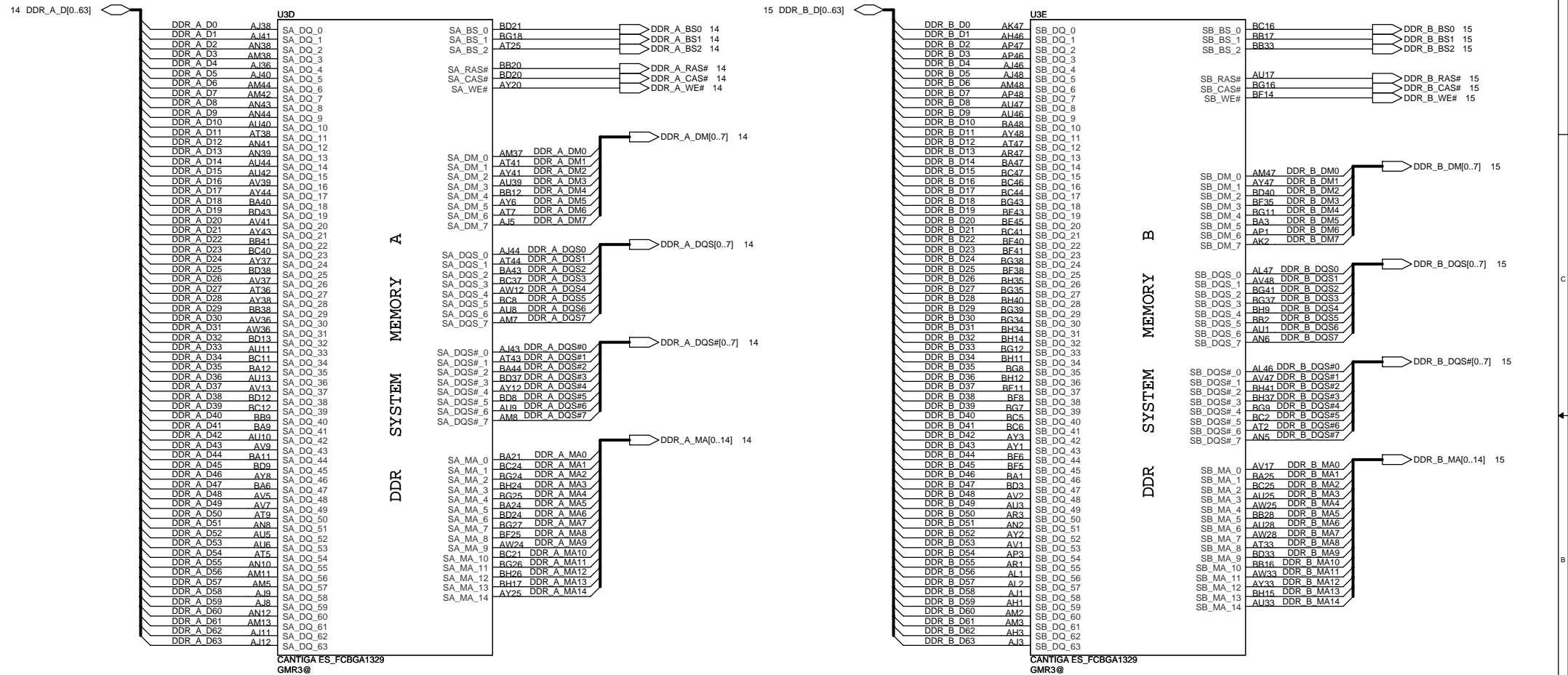
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U3B	
× M36	RSVD1
× M36	RSVD2
× R33	RSVD3
× T33	RSVD4
× AH9	RSVD5
× AH10	RSVD6
× AH12	RSVD7
× AH13	RSVD8
× K12	RSVD9
× K34	RSVD10
× AK34	RSVD11
× AN35	RSVD12
× AM35	RSVD13
× T24	RSVD14
× B31	RSVD15
× M2	RSVD16
× B7	RSVD17
× AY21	RSVD20
× BG23	RSVD22
× BF23	RSVD23
× BH18	RSVD24
× BF14	RSVD25
T25	CFG. 0
R25	CFG. 1
× P20	CFG. 2
× P24	CFG. 3
× C25	CFG. 4
M24	CFG. 5
× E23	CFG. 6
× C24	CFG. 7
× P22	CFG. 8
× P21	CFG. 9
T21	CFG. 10
× R20	CFG. 11
× P22	CFG. 12
× L21	CFG. 13
× H21	CFG. 14
× P29	CFG. 15
× P28	CFG. 16
× T28	CFG. 17
	CFG. 18
	CFG. 19
	CFG. 20
R29	PM, SYN
B7	PM, DPR
N33	PM, EXT
× R34	PM, EXT
× AT40	PWROK
× AT11	RSITIN
T20	THERMIT
R32	DPRLSP
× BG48	NC. 1
× BD48	NC. 2
× BH48	NC. 3
× BH47	NC. 4
× BG47	NC. 5
× BH46	NC. 6
× BF46	NC. 7
× BG45	NC. 8
× BH45	NC. 9
× BH44	NC. 10
× BH6	NC. 11
× BH5	NC. 12
× BH3	NC. 13
× BF3	NC. 14
× BH2	NC. 15
× BH1	NC. 16
× BE2	NC. 17
× BG1	NC. 18
× BF1	NC. 19
× BD1	NC. 20
× F1	NC. 21
× A7	NC. 22
	NC. 23
	NC. 24
	NC. 25
	NC. 26

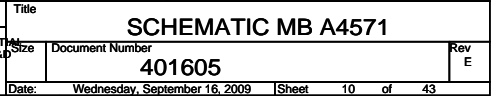


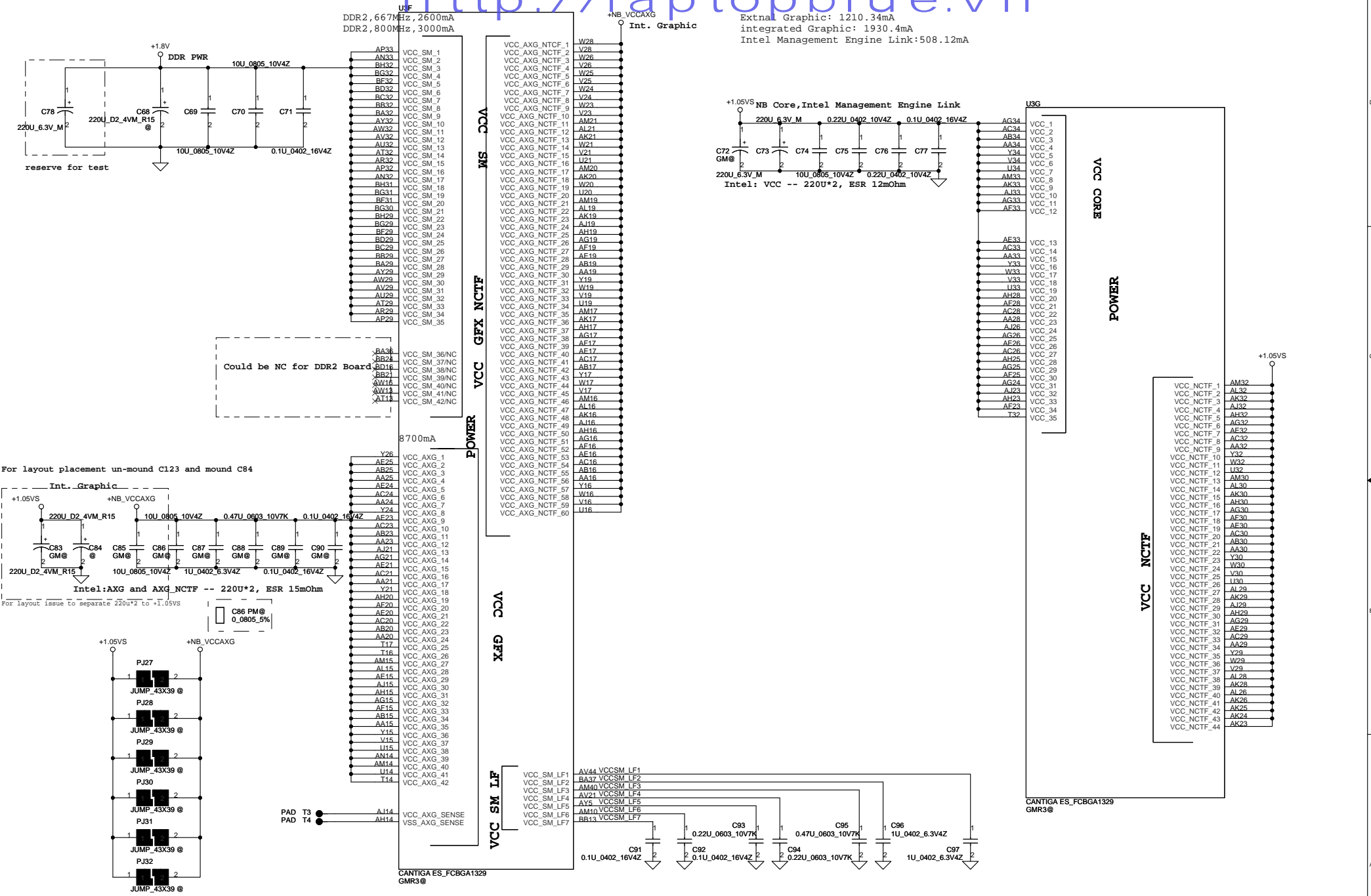
Map Pin Table



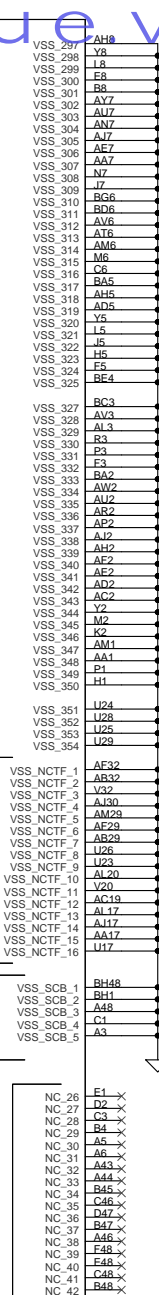
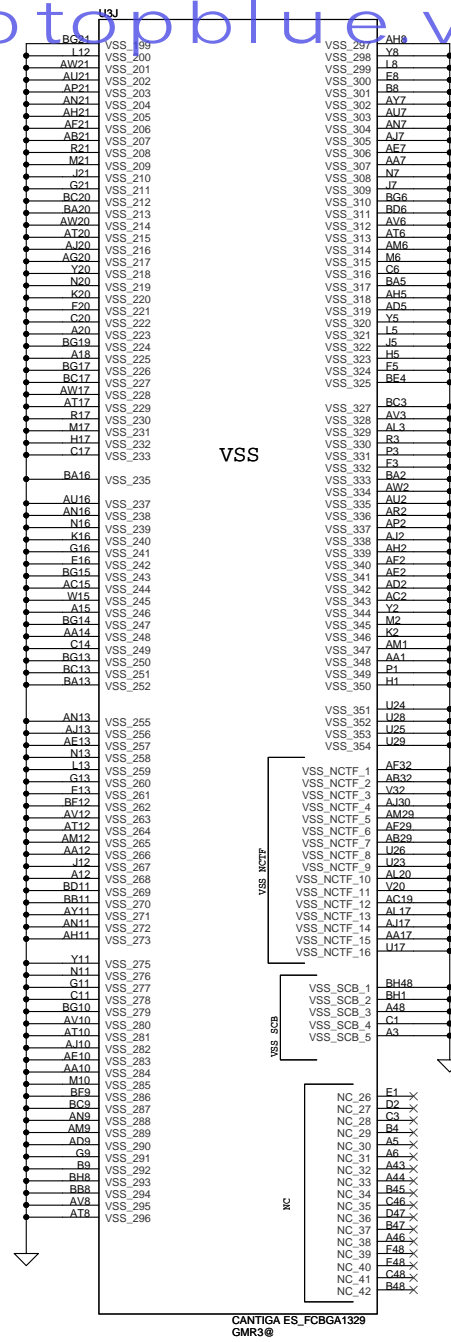
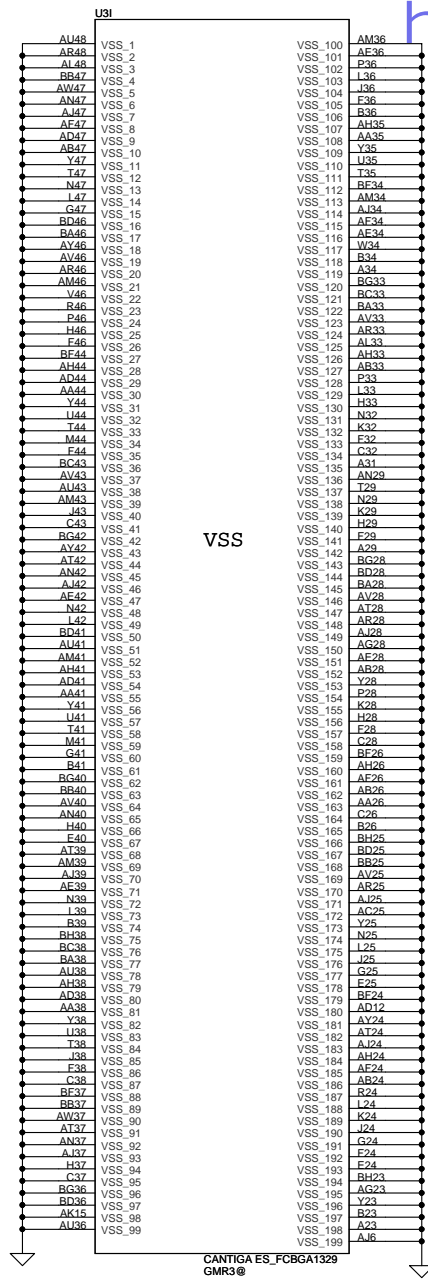


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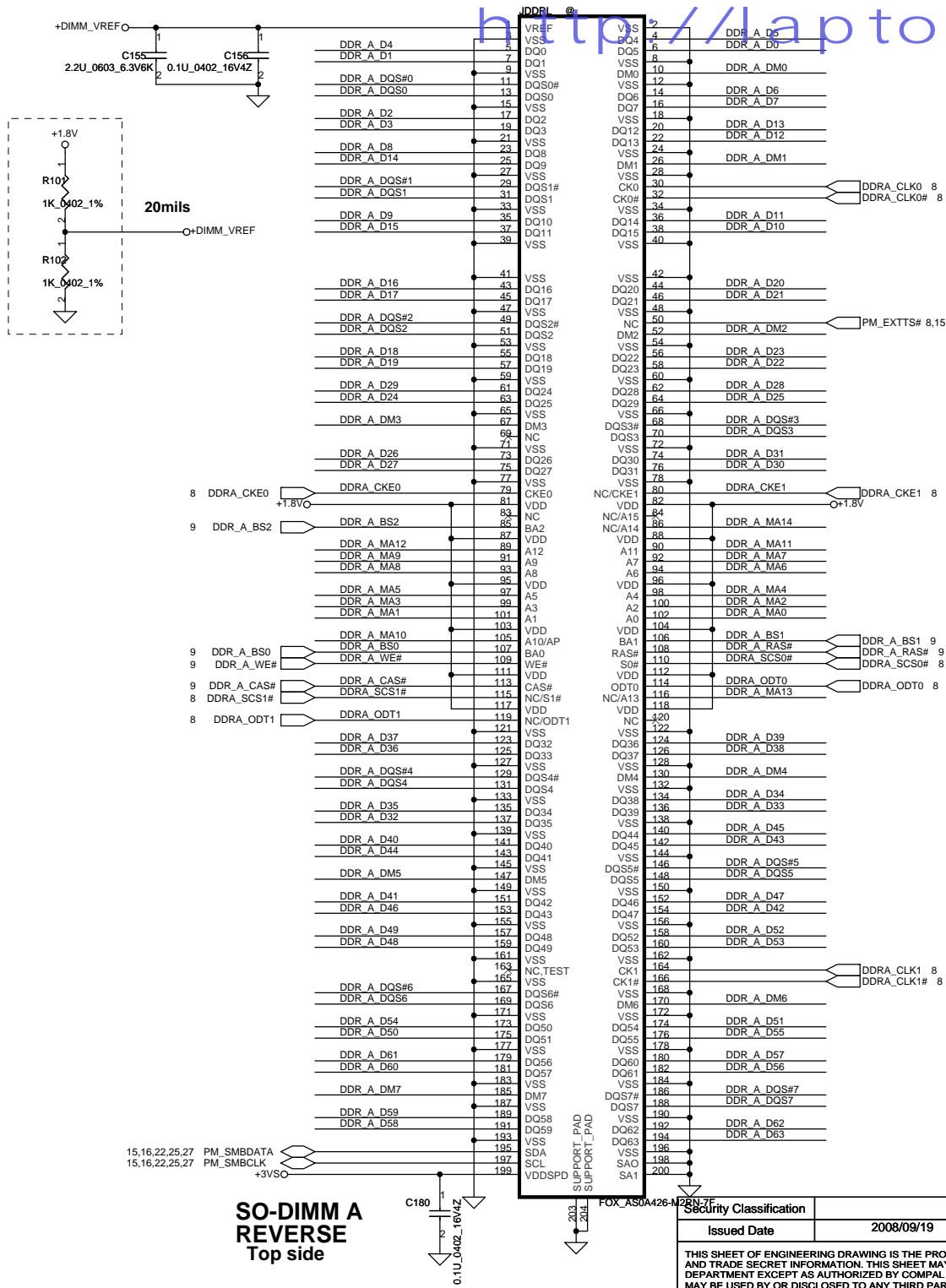


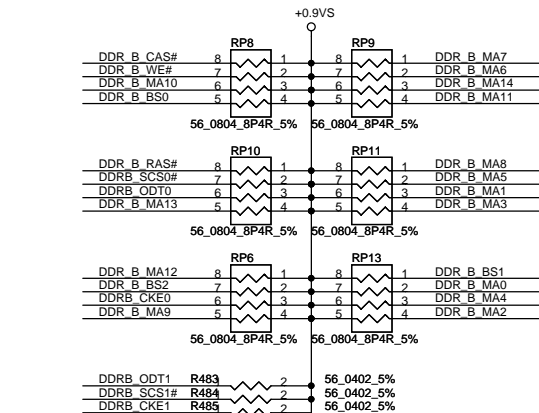
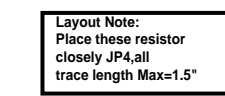
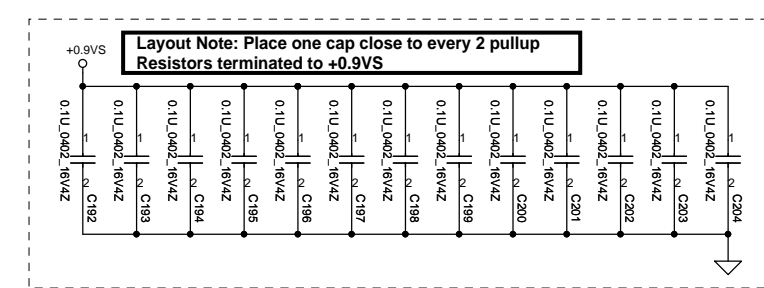
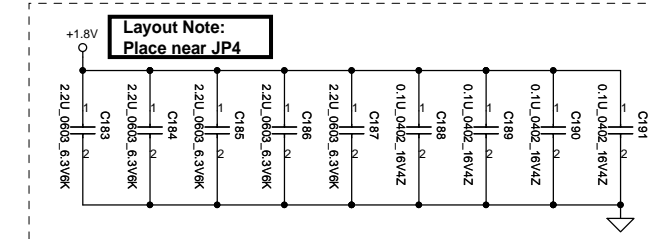
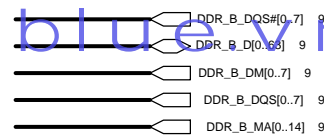
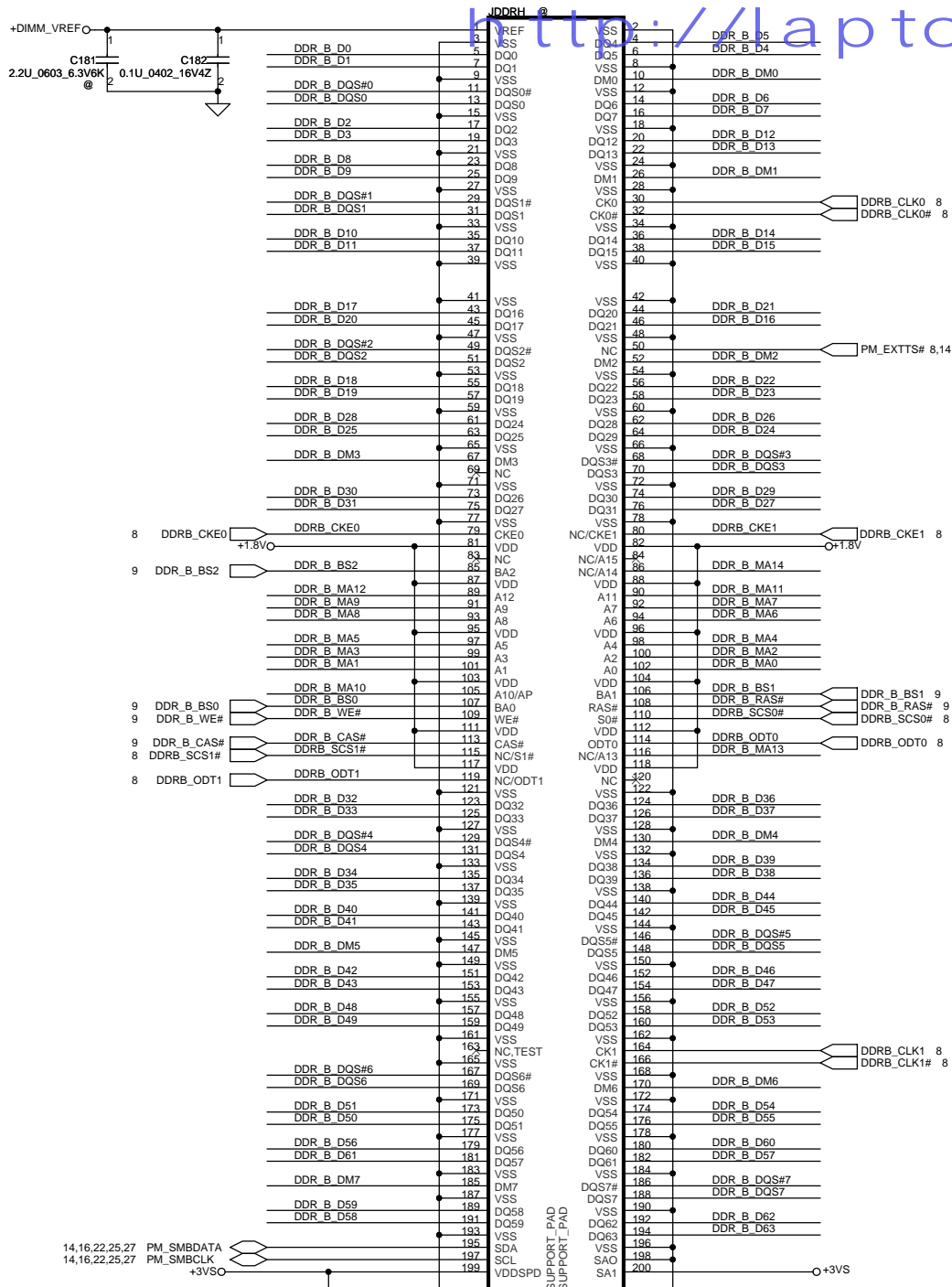


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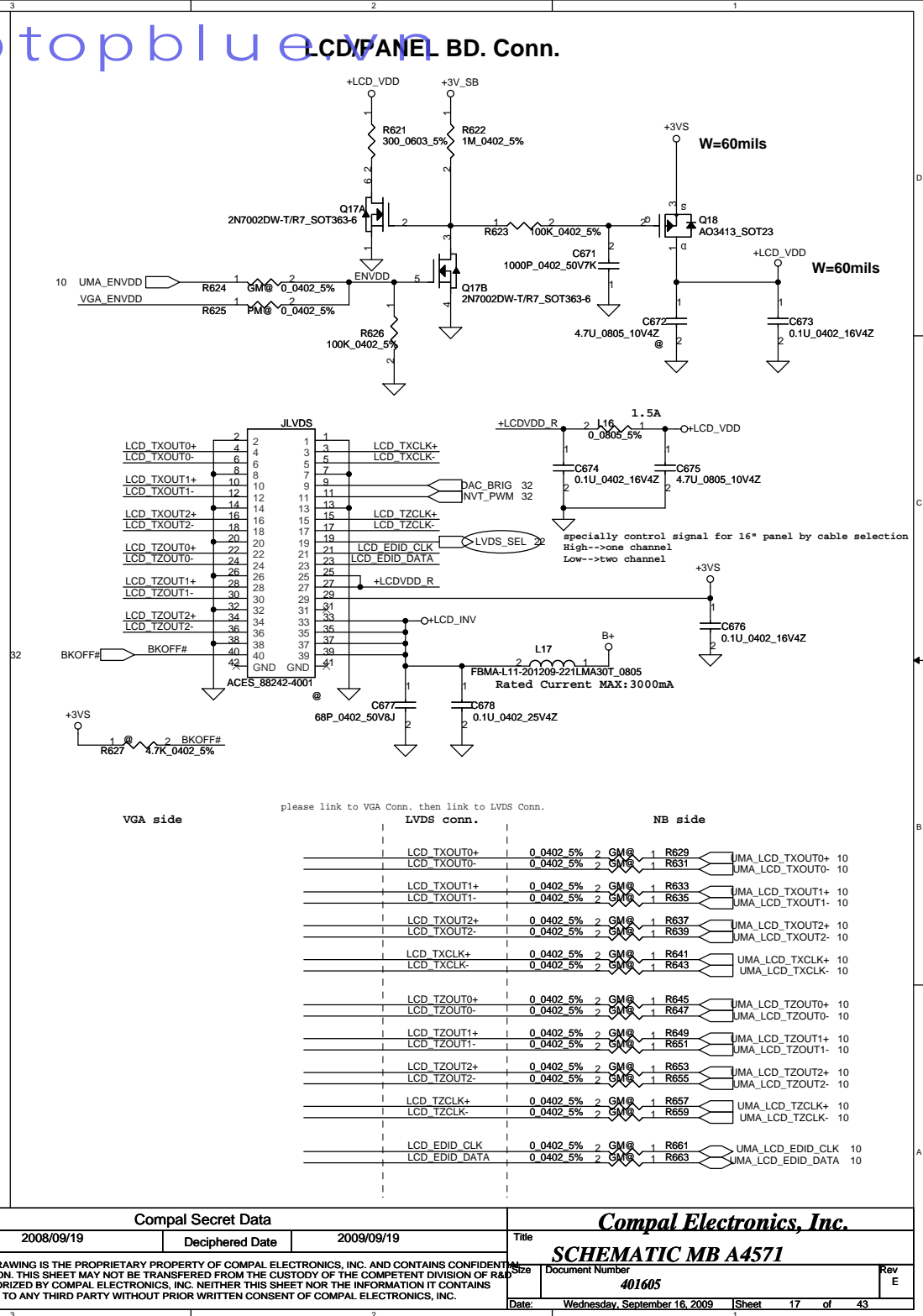
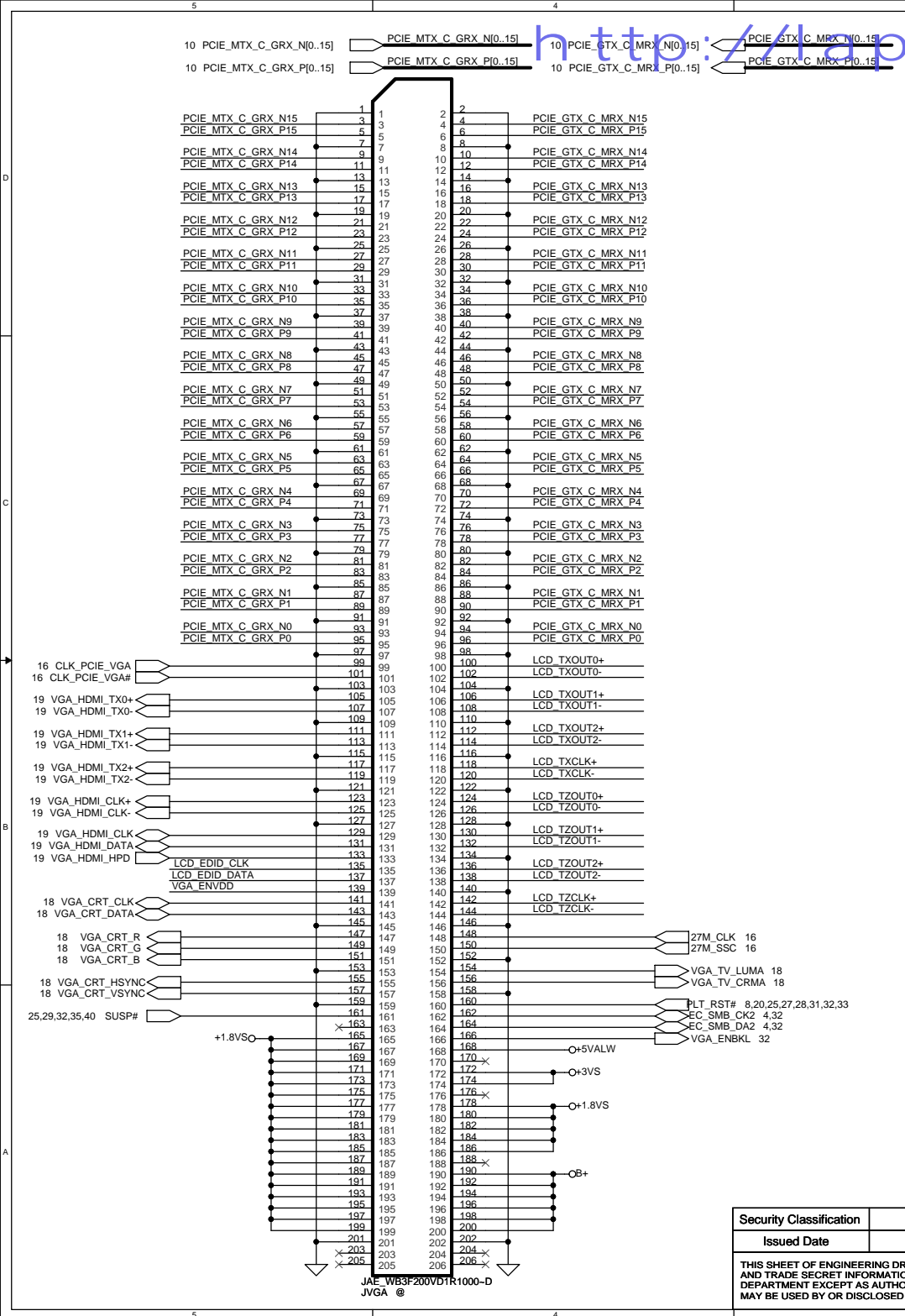
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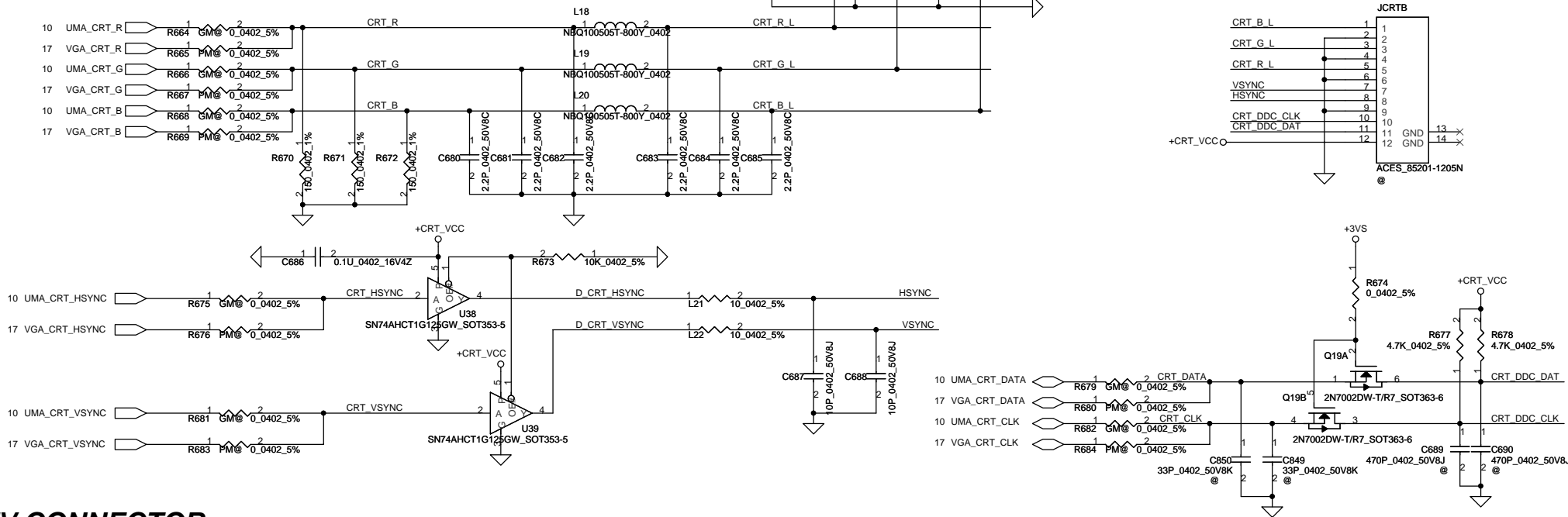
**SO-DIMM B
STANDARD
Bottom side**

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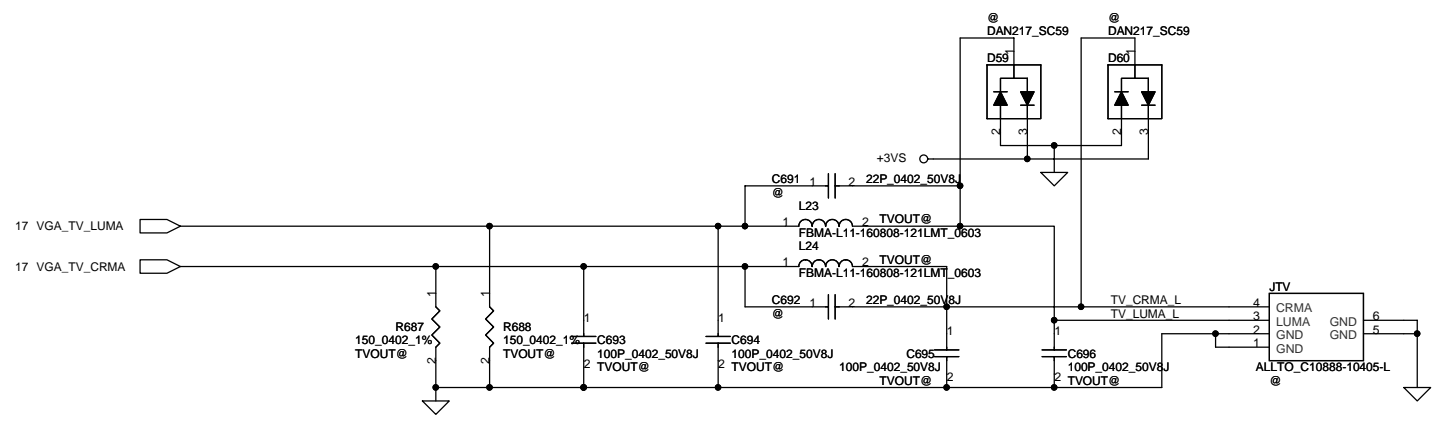


CRT CONNECTOR

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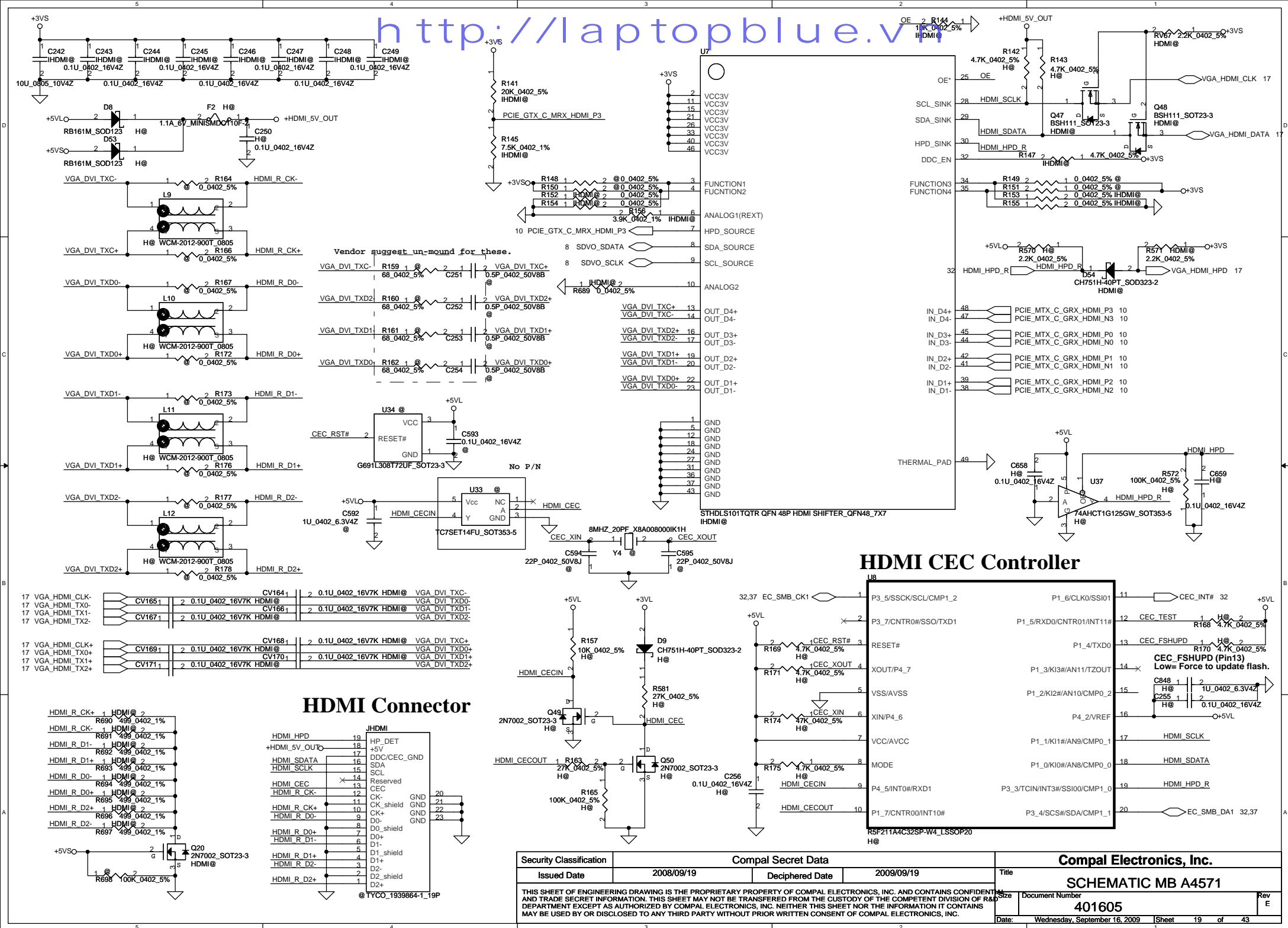
TV CONNECTOR

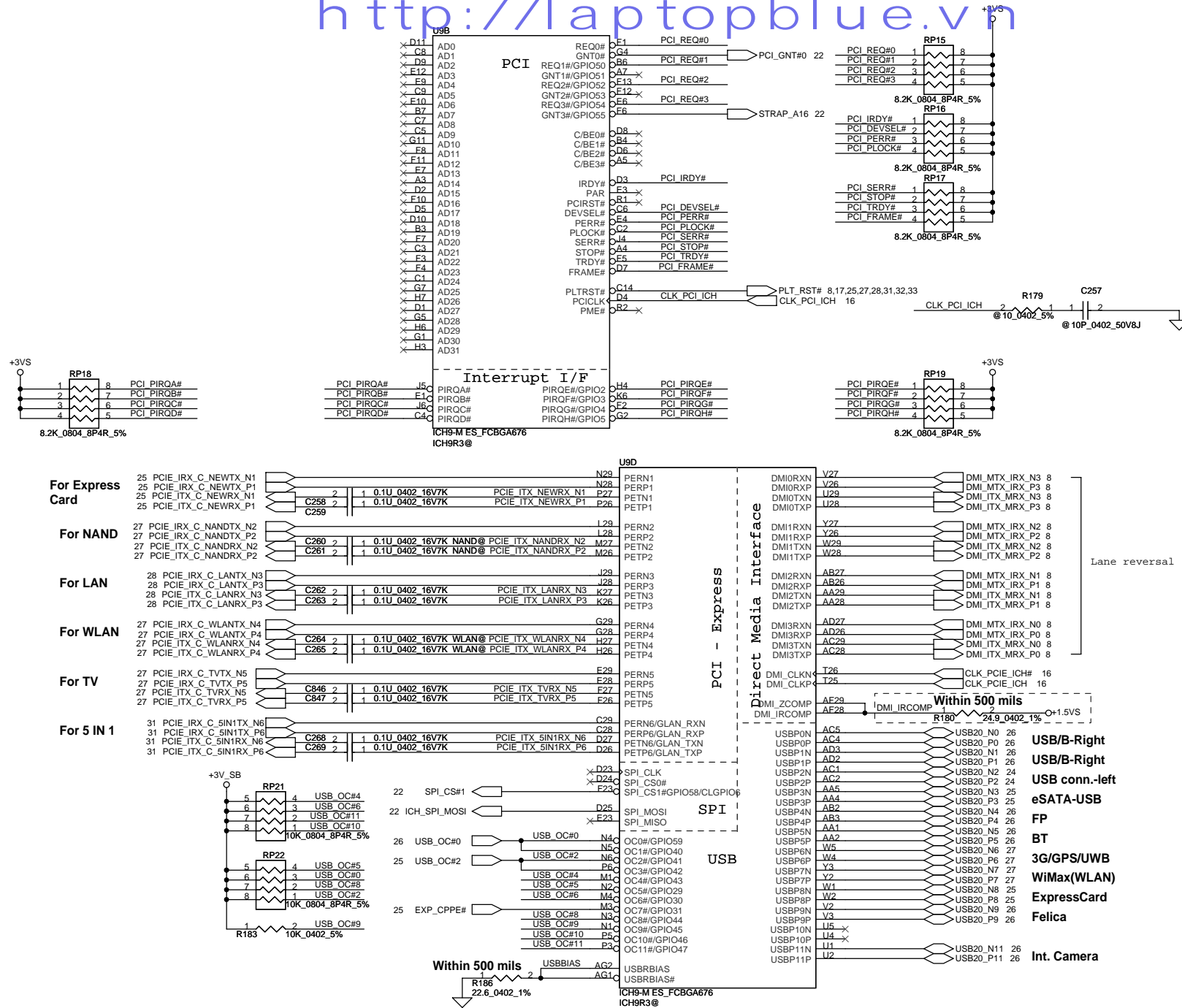


TV-OUT Conn.

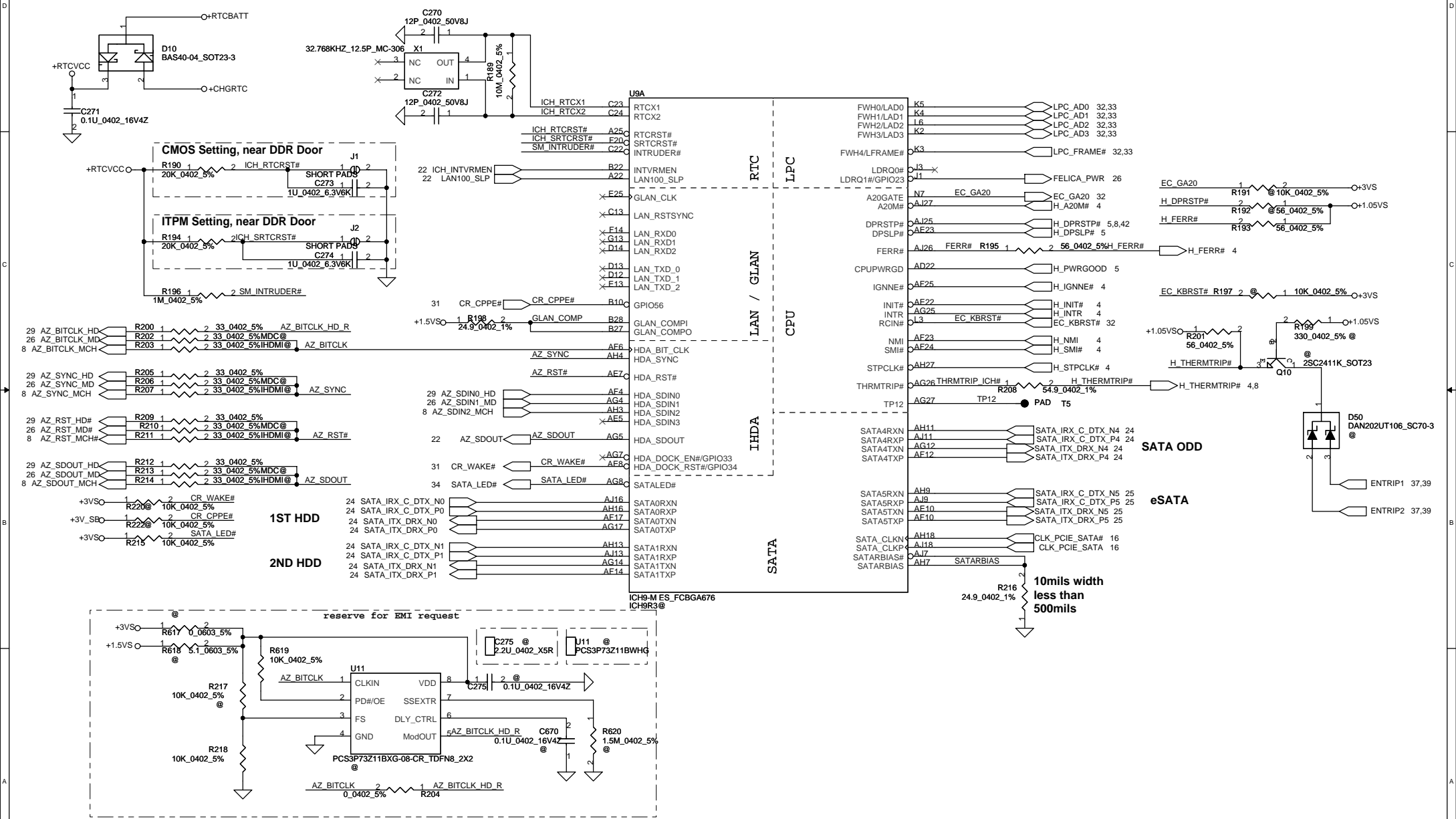
- 1. Y ground
- 2. C ground
- 3. Y (luminance+sync)
- 4. C (chrominance)

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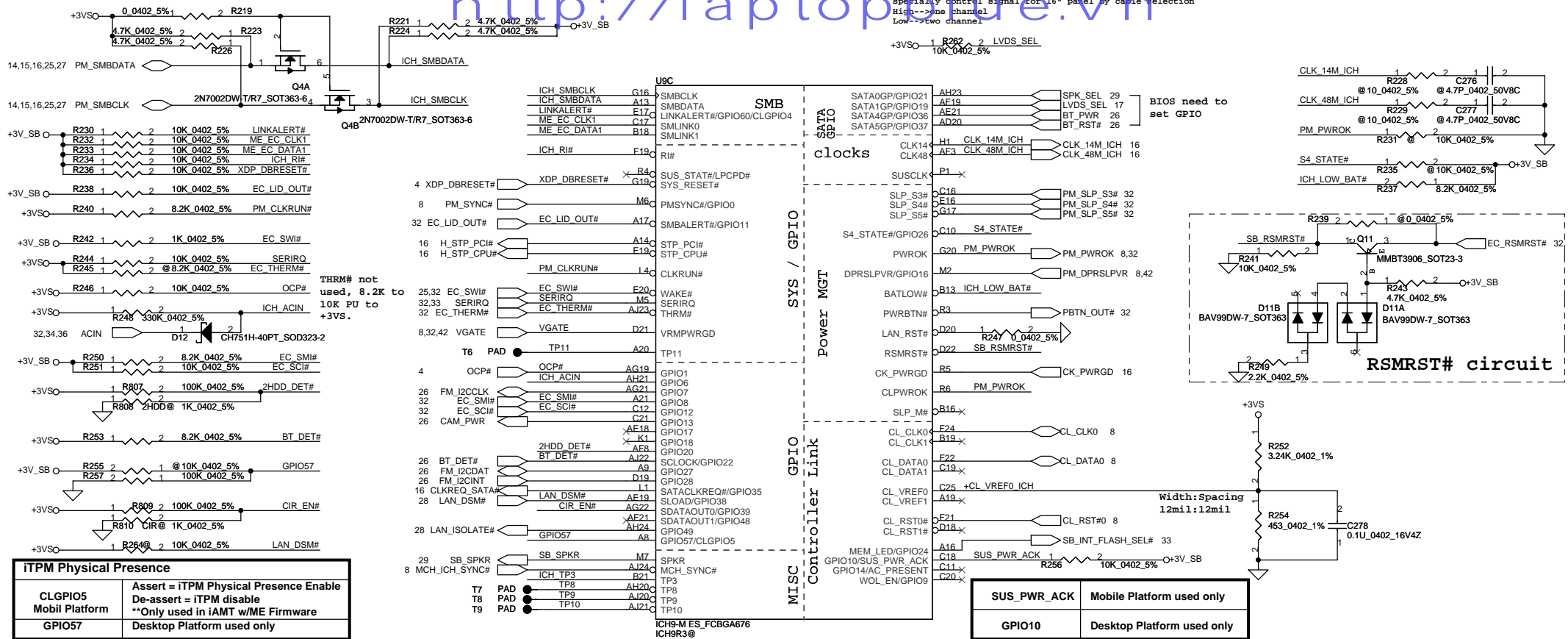


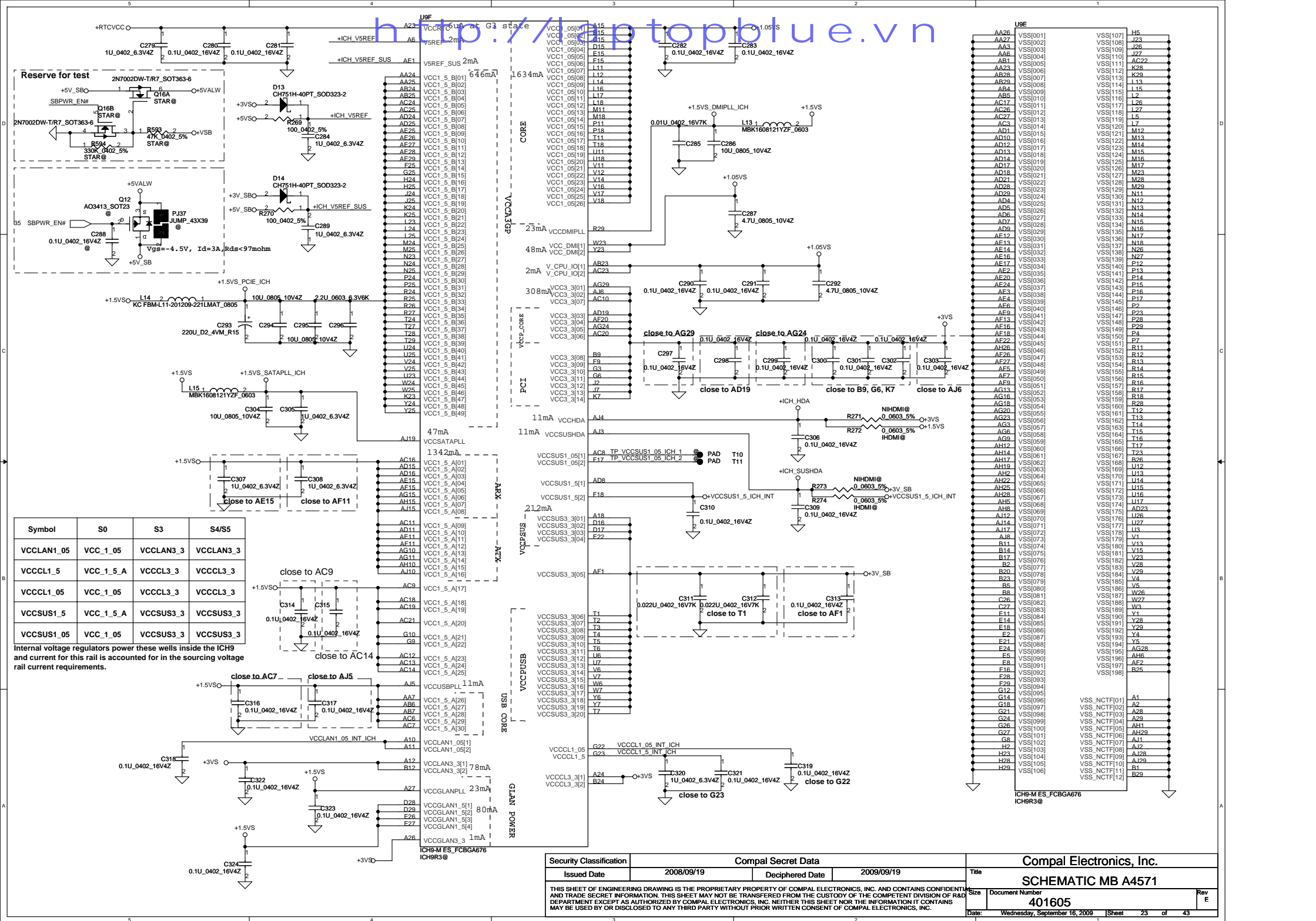


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Size	Document Number	401605	Rev	E	
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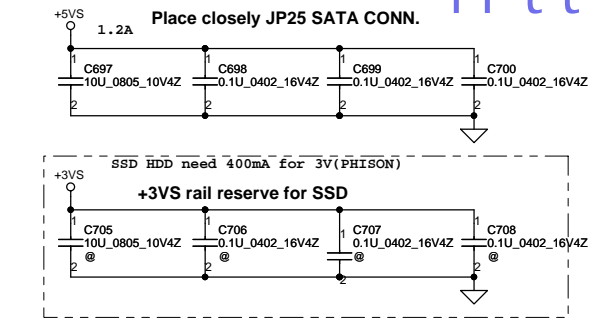


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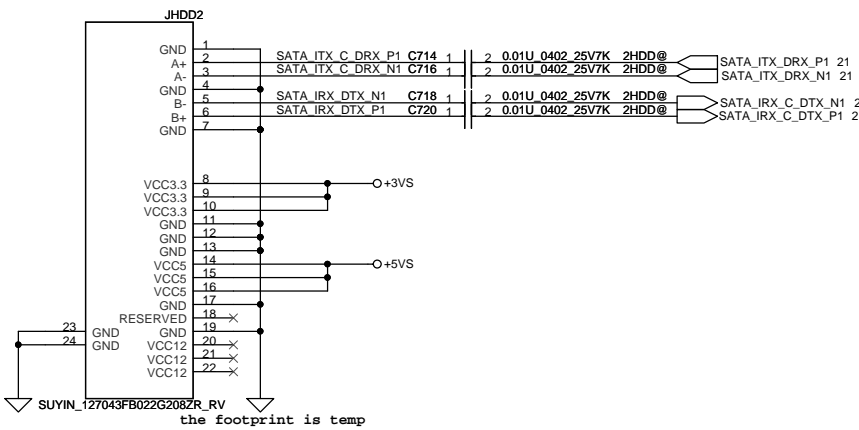
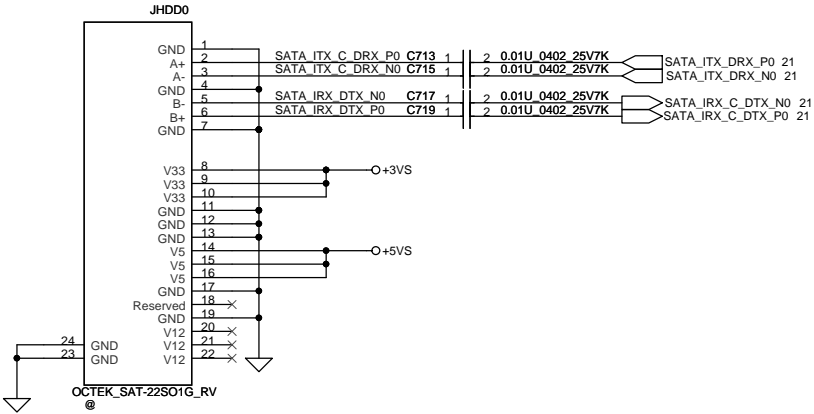
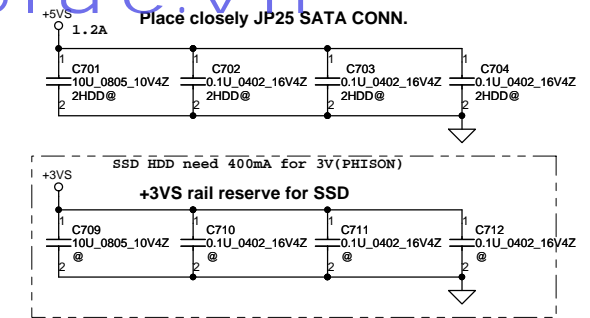




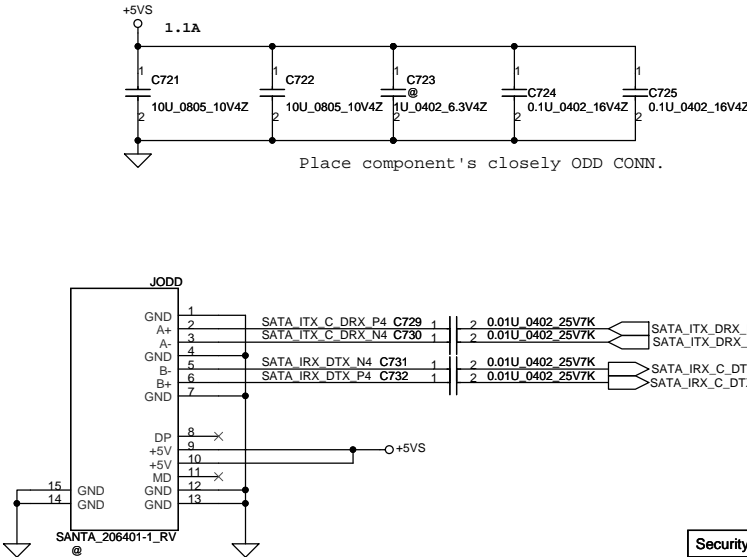
SATA HDD1 Conn.



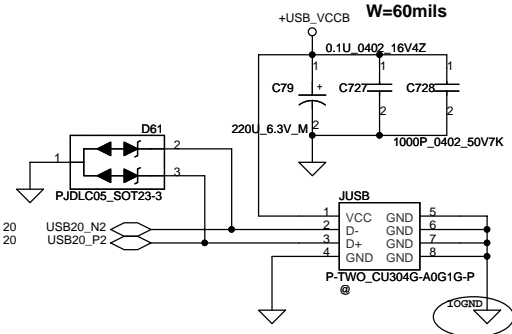
SATA HDD2 Conn.



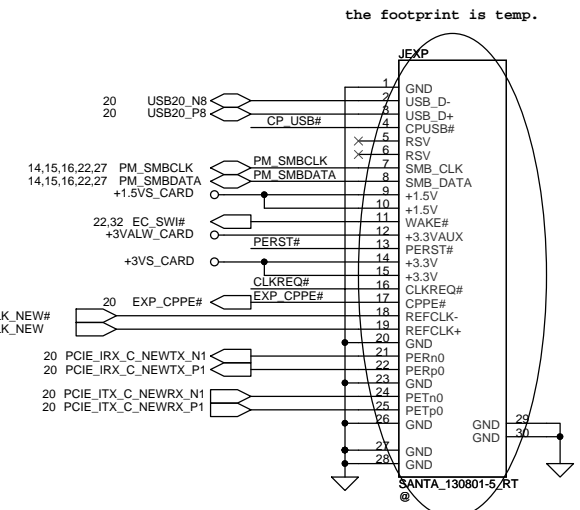
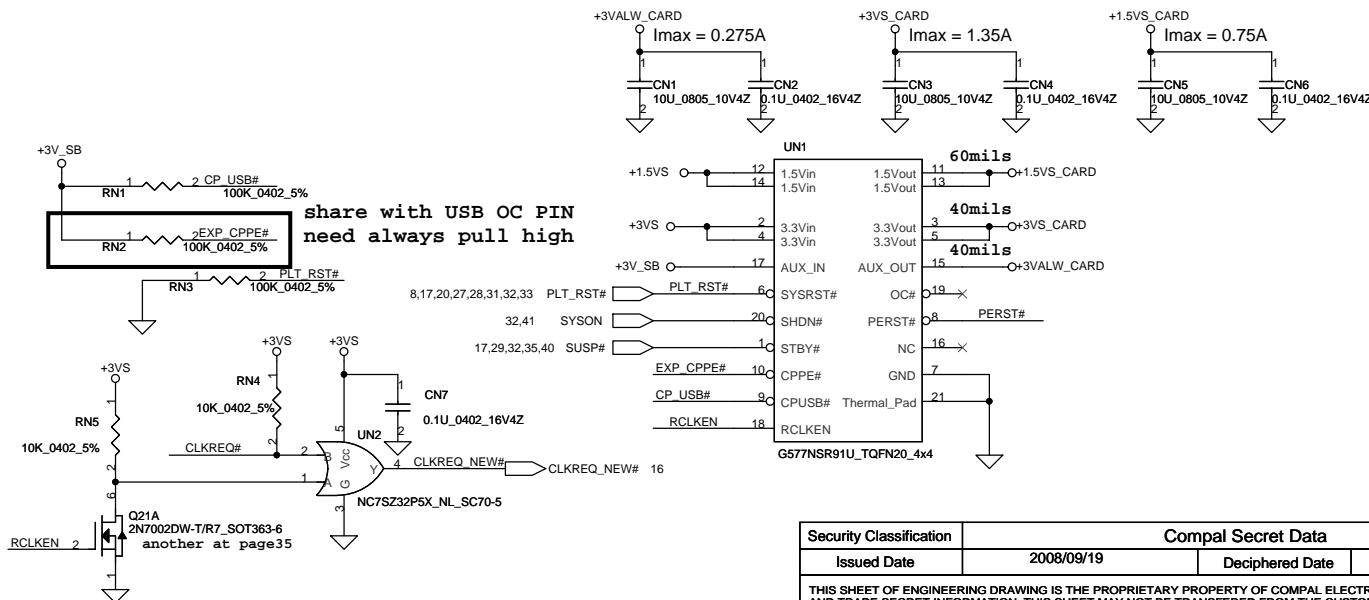
SATA ODD Conn



USB Conn.

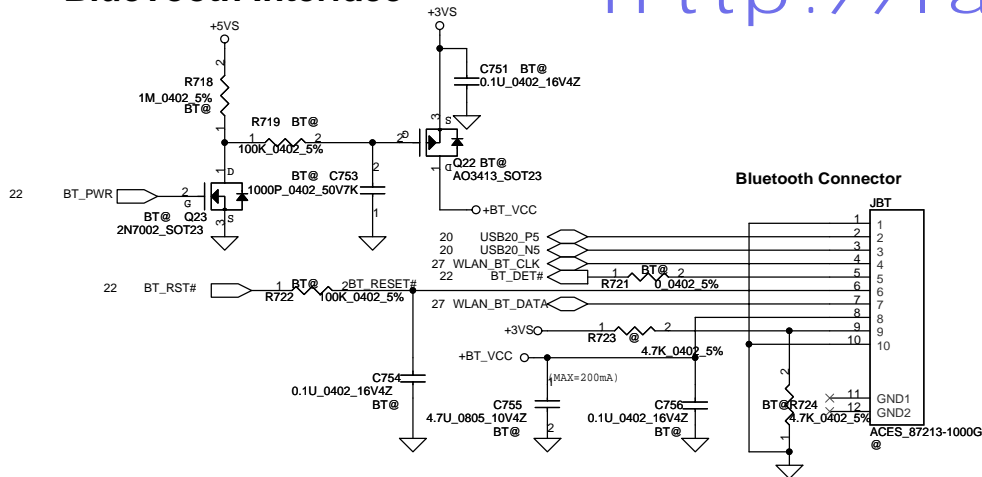


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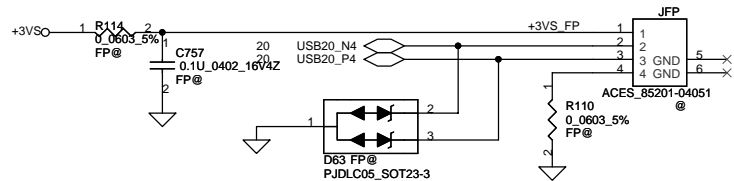


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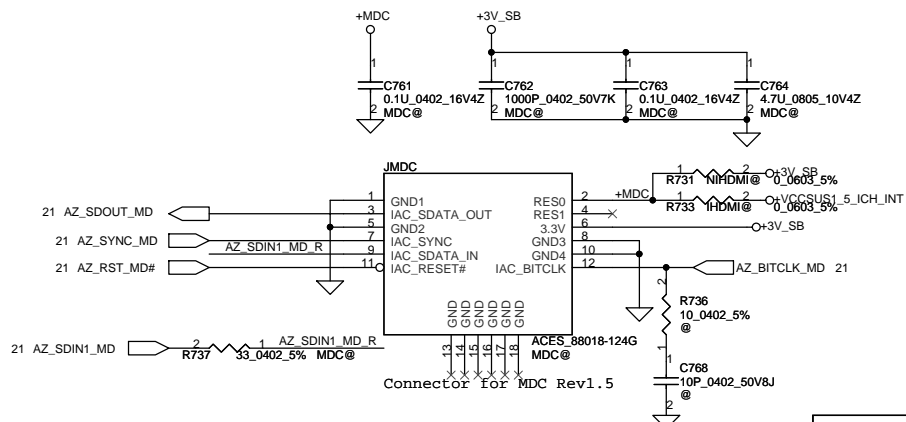
BlueTooth Interface



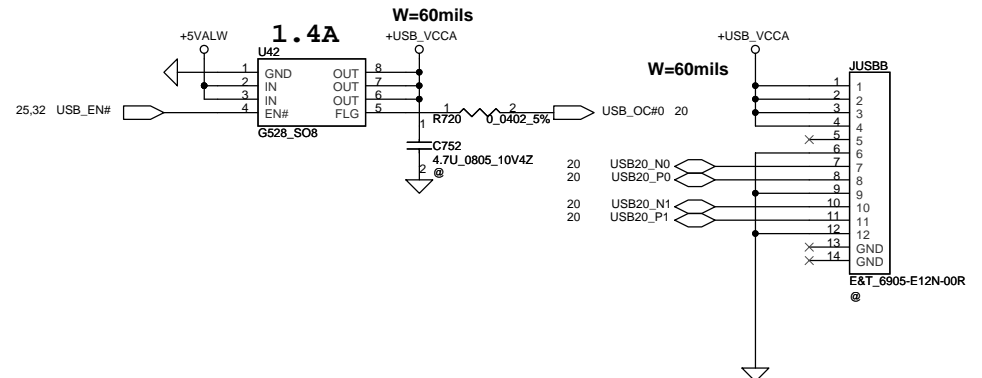
Finger printer



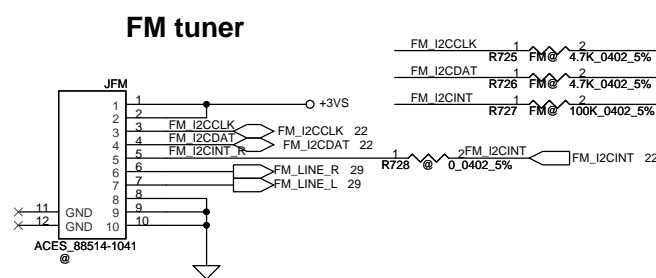
MDC 1.5 Conn.



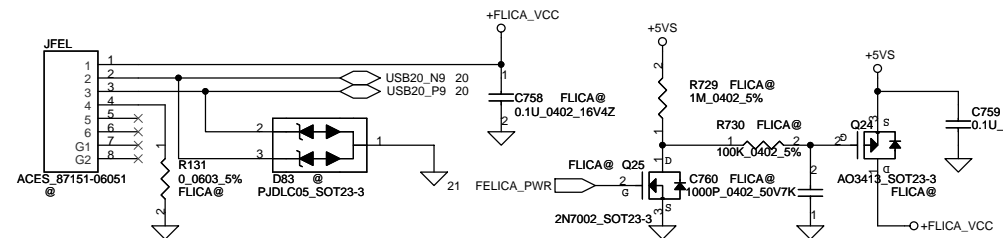
USB Board



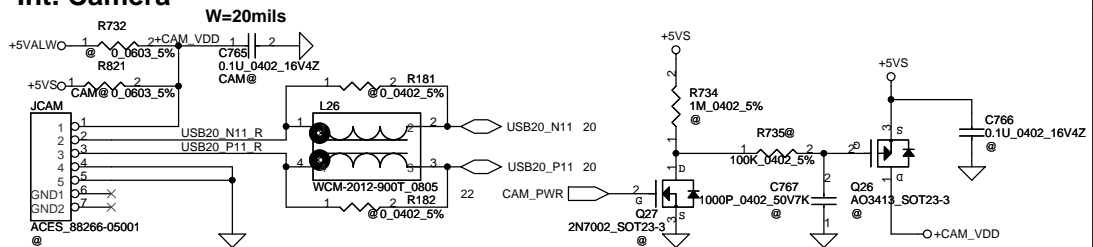
FM tuner



Felica

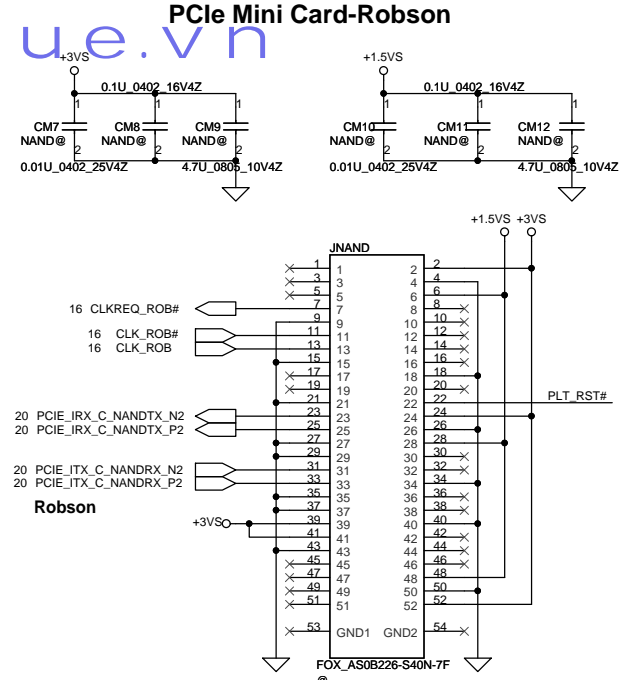


Int. Camera

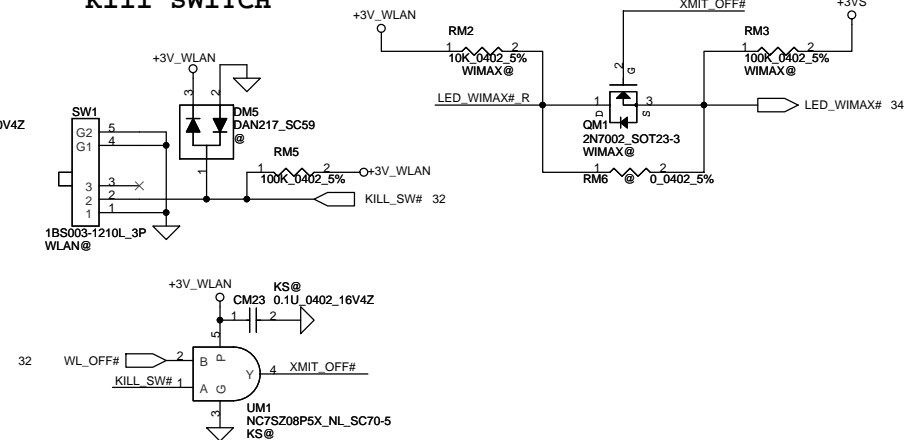


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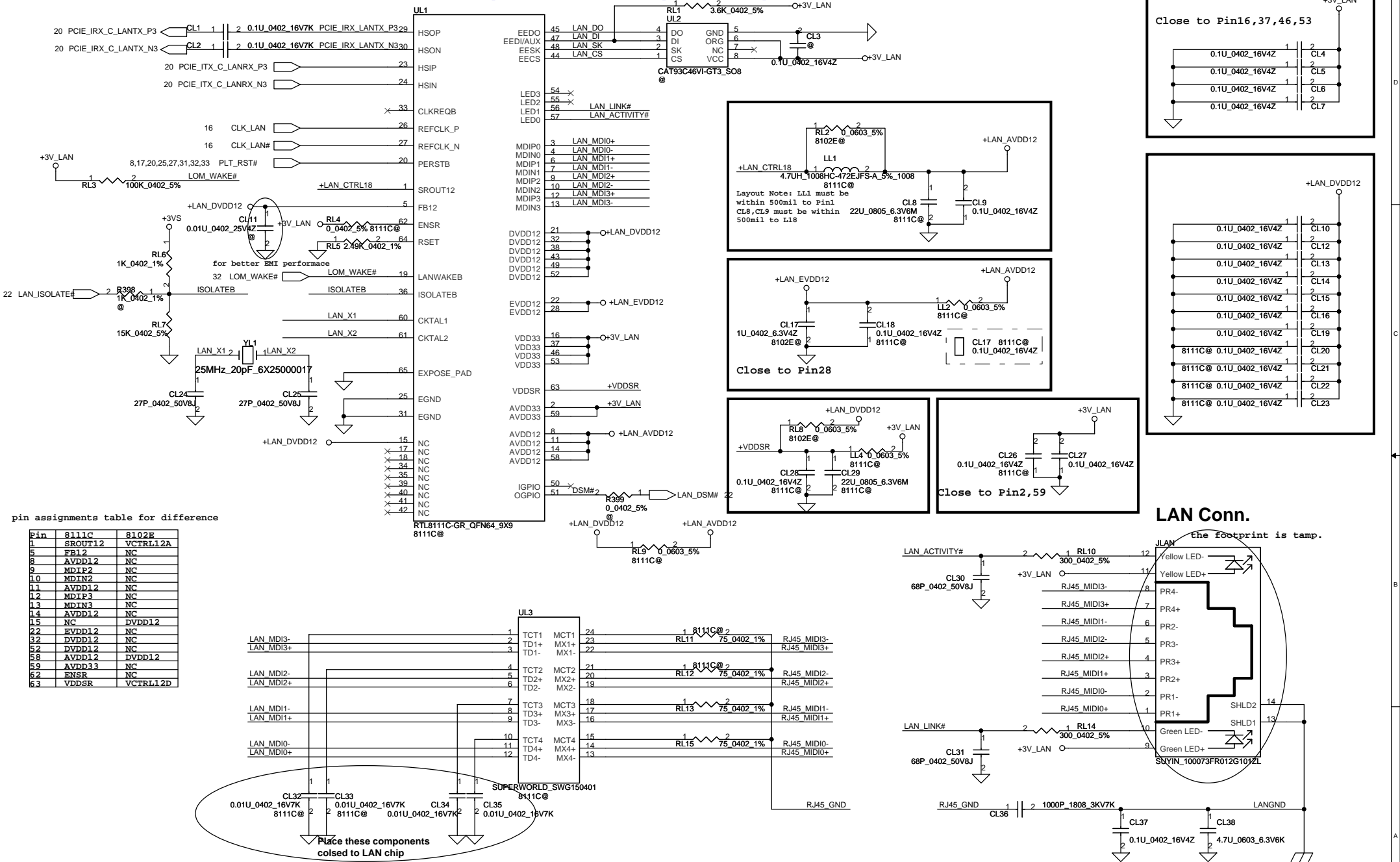
h t t p : / / l a p t o p b l u e . v n



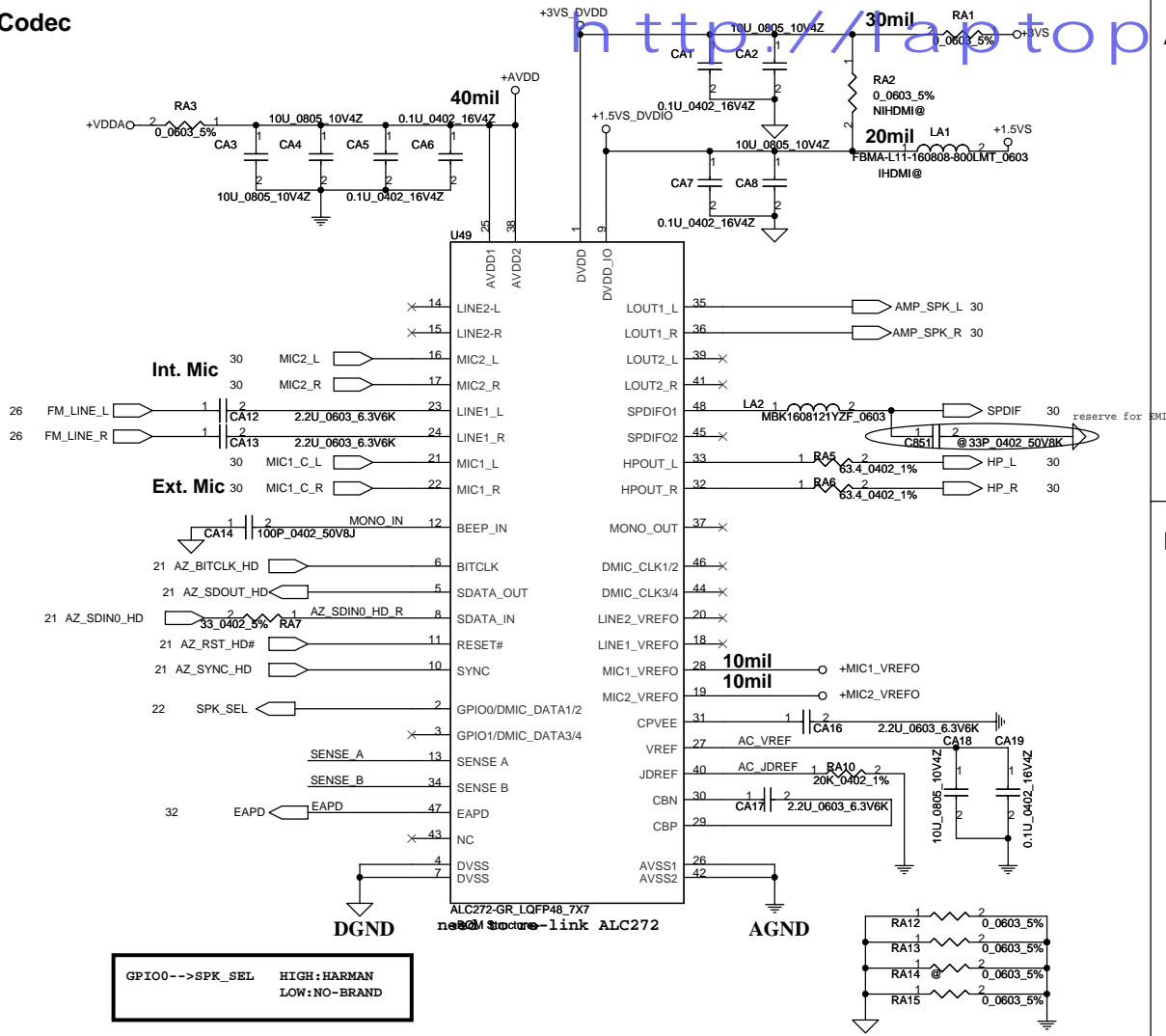
Kill SWITCH



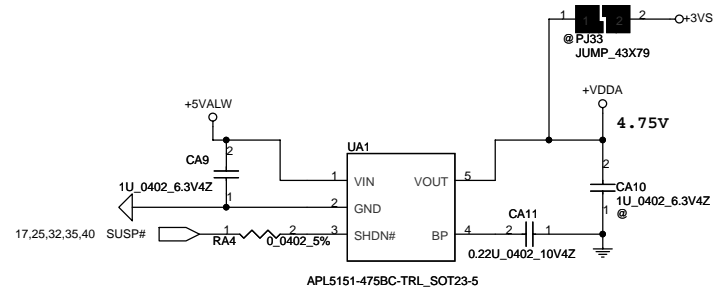
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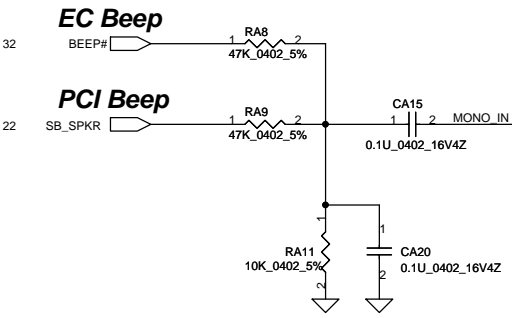
Codec



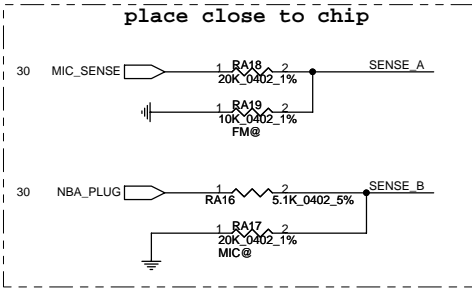
Audio regulator



Beep sound



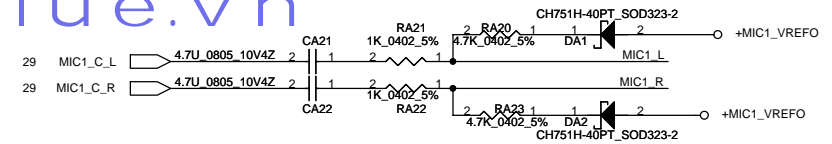
Sense Pin	Impedance	Codec Signals	Function
SENSE A	39.2K	PORT-A (PIN 39, 41)	
	20K	PORT-B (PIN 21, 22)	Ext. MIC
	10K	PORT-C (PIN 23, 24)	FM tuner
SENSE B	5.1K	PORT-D (PIN 35, 36)	SPK out
	39.2K	PORT-E (PIN 14, 15)	
	20K	PORT-F (PIN 16, 17)	Int. MIC
	10K	PORT-H (PIN 37)	
	5.1K	PORT-I (PIN 32, 33)	Headphone out



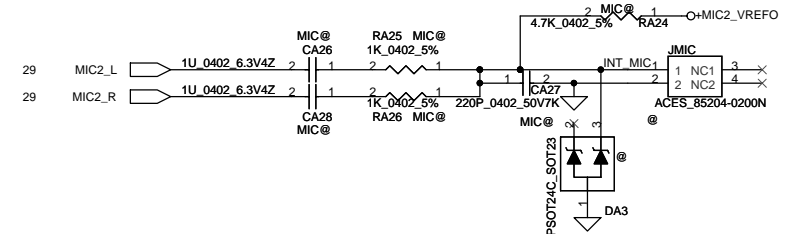
TPA6017 Medium Range Amplifier

http://laptopblue.vn

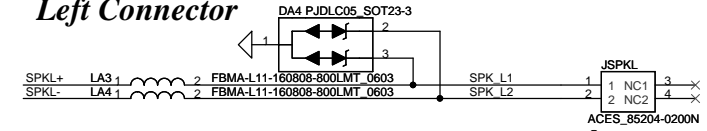
Ext. Mic



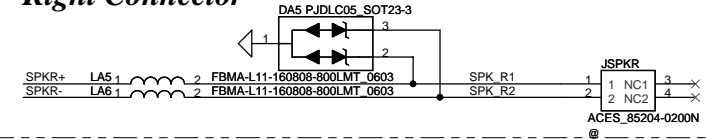
Int. Mic



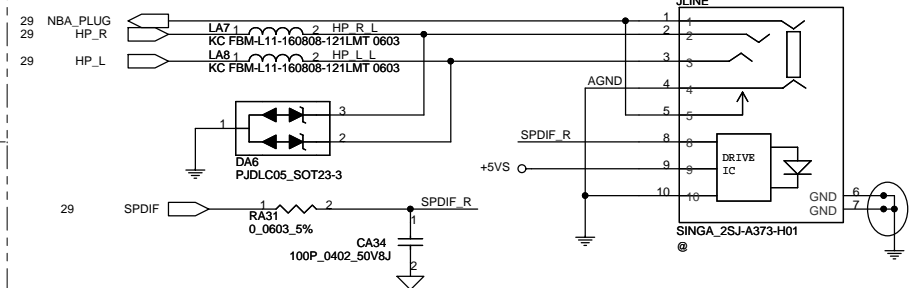
Left Connector



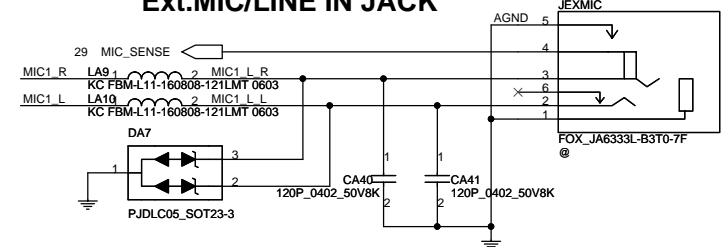
Right Connector



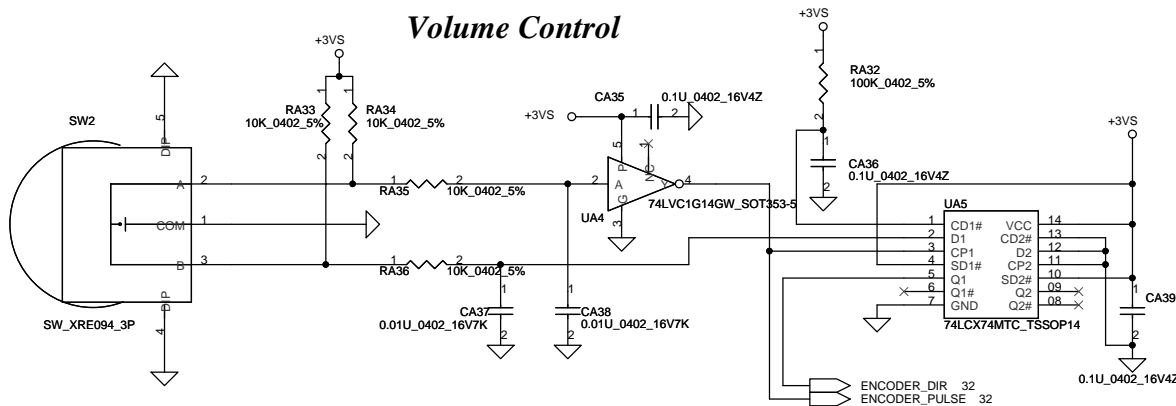
HeadPhone/LINE Out JACK



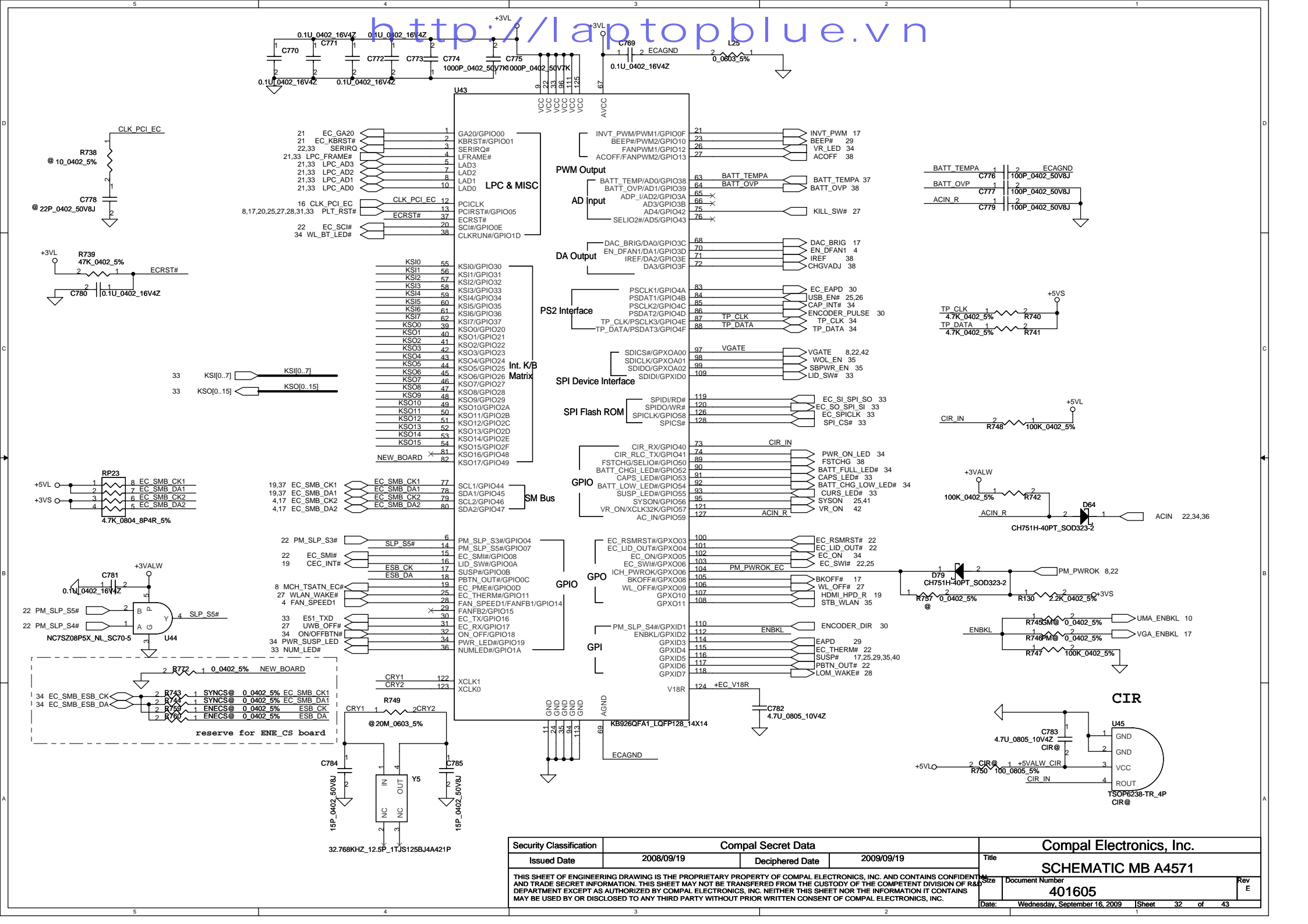
Ext.MIC/LINE IN JACK



Volume Control

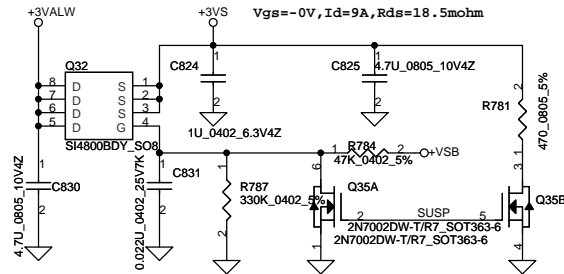


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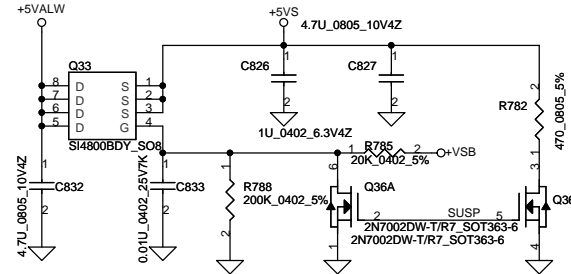


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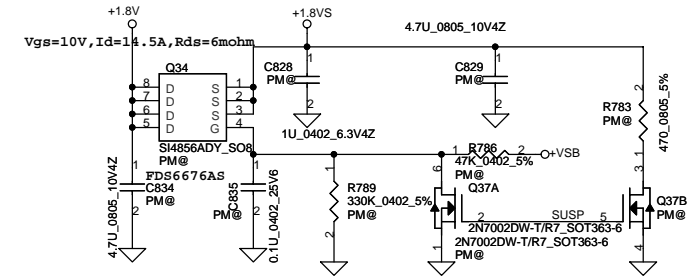
+3VALW TO +3VS



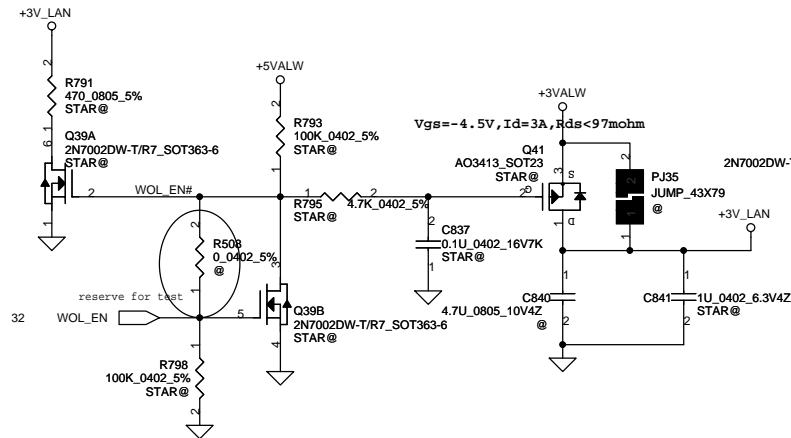
+5VALW TO +5VS



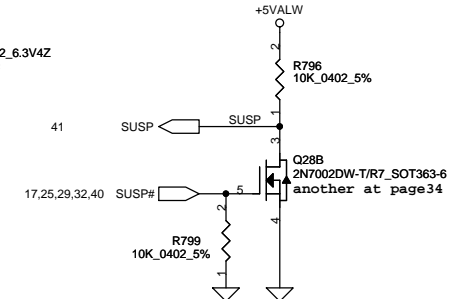
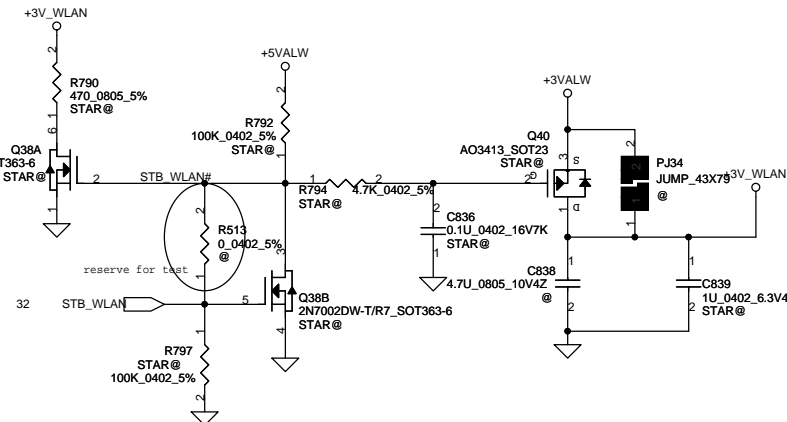
+1.8V to +1.8VS



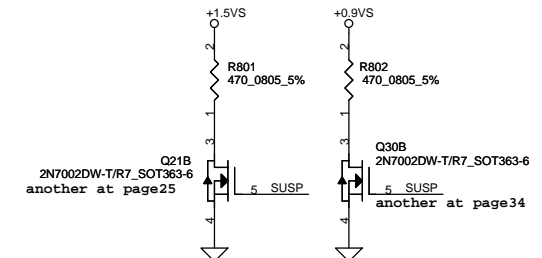
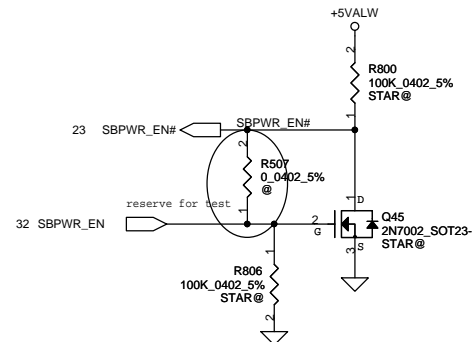
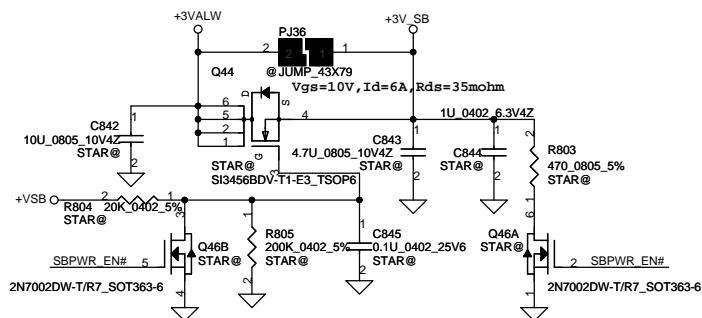
+3VALW TO +3V_LAN



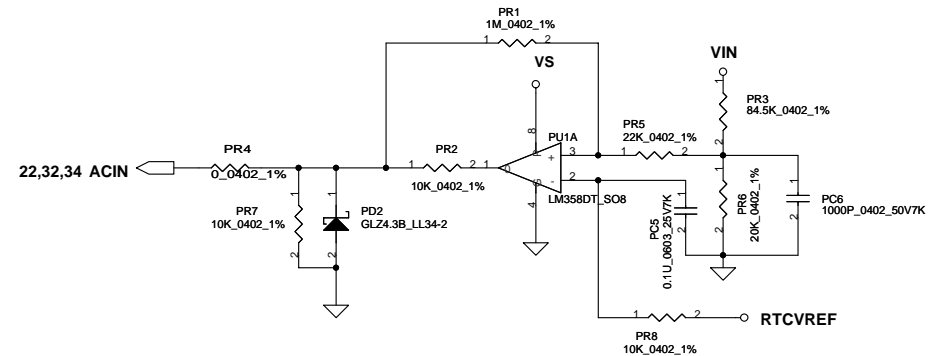
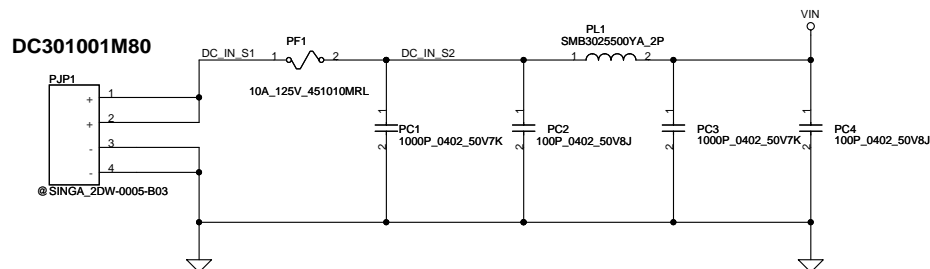
+3VALW TO +3V_WLAN



+3VALW TO +3V_SB



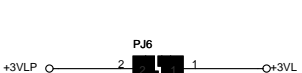
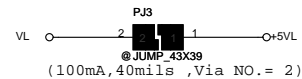
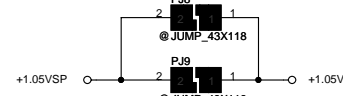
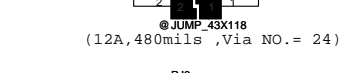
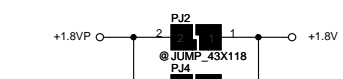
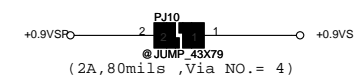
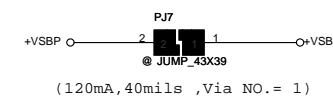
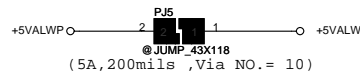
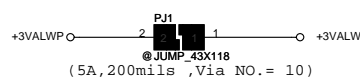
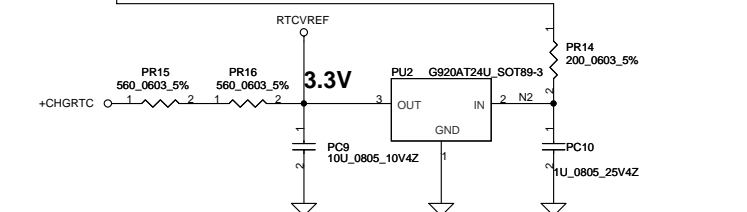
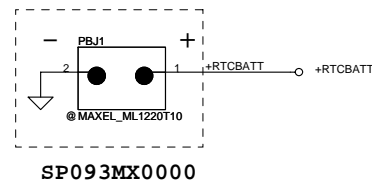
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Vin Detector

High	18.384	17.901	17.430
Low	17.728	17.257	16.976

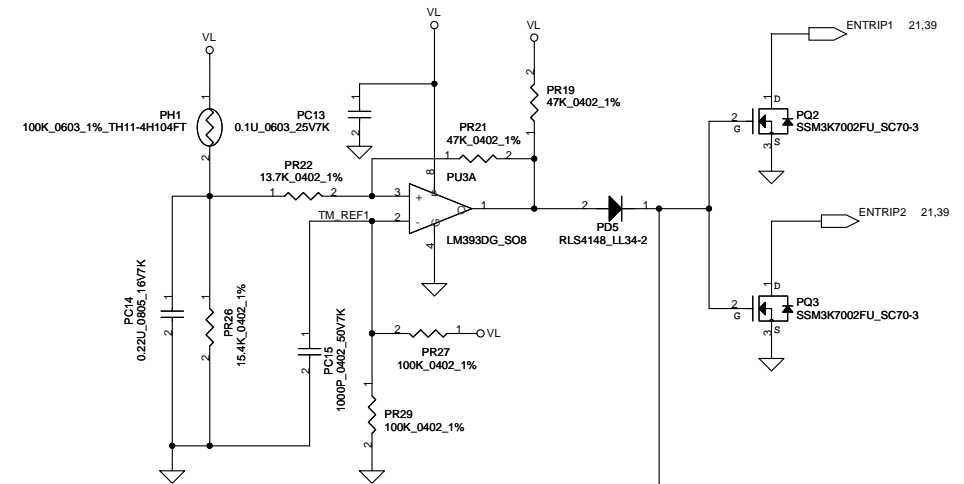
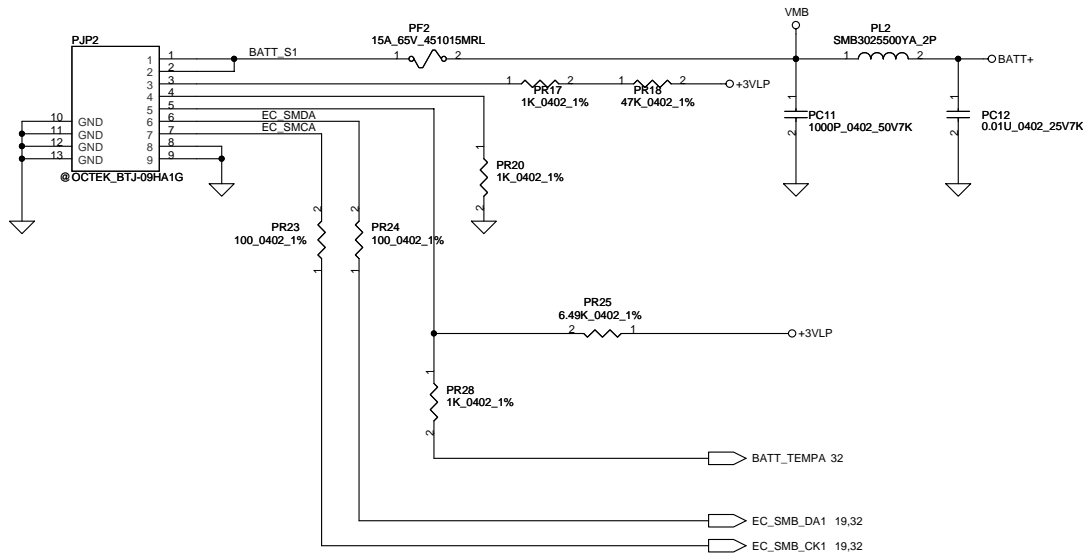
RTC Battery



PH1 under CPU botten side :

CPU thermal protection at 92 degree C

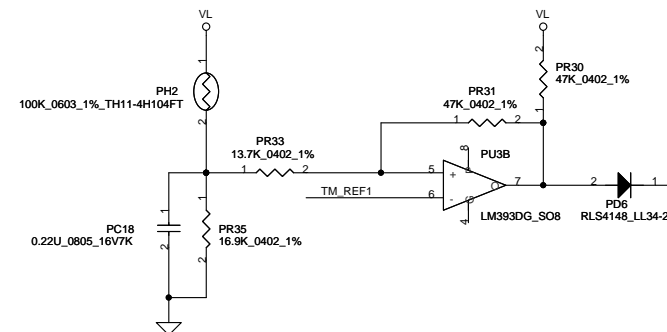
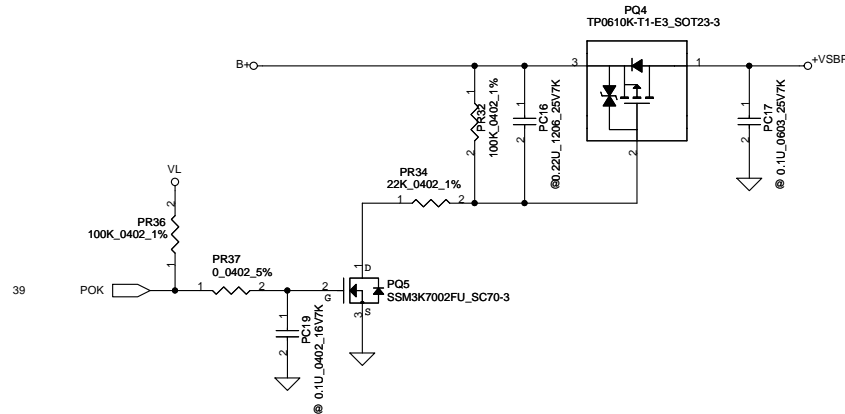
Recovery at 56 degree C

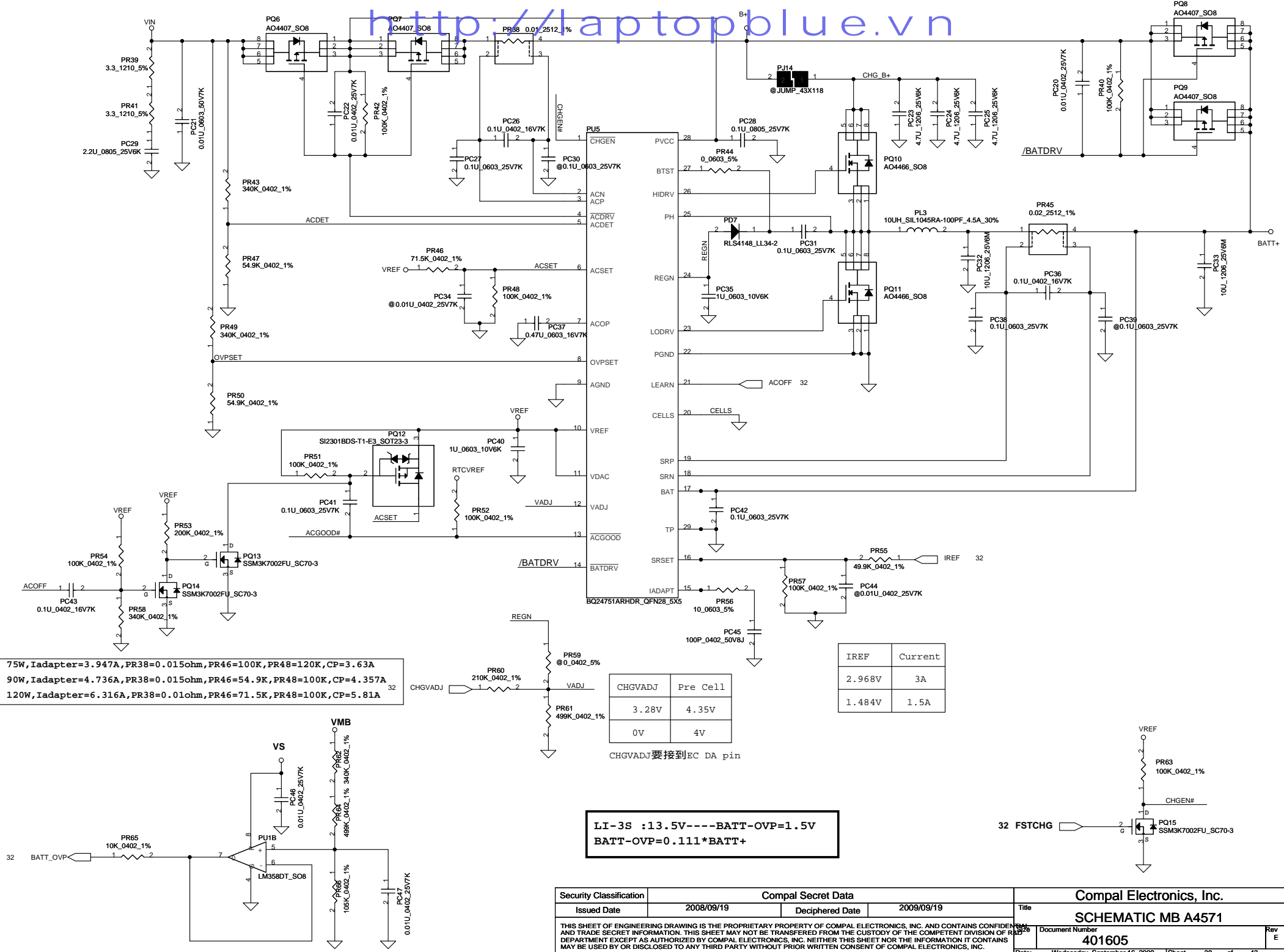


PH2 near main Battery CONN :

BAT. thermal protection at 90 degree C

Recovery at 53 degree C





75W, Iadapter=3.947A, PR38=0.015ohm, PR46=100K, PR48=120K, CP=3.63A
 90W, Iadapter=4.736A, PR38=0.015ohm, PR46=54.9K, PR48=100K, CP=4.357A
 120W, Iadapter=6.316A, PR38=0.01ohm, PR46=71.5K, PR48=100K, CP=5.81A

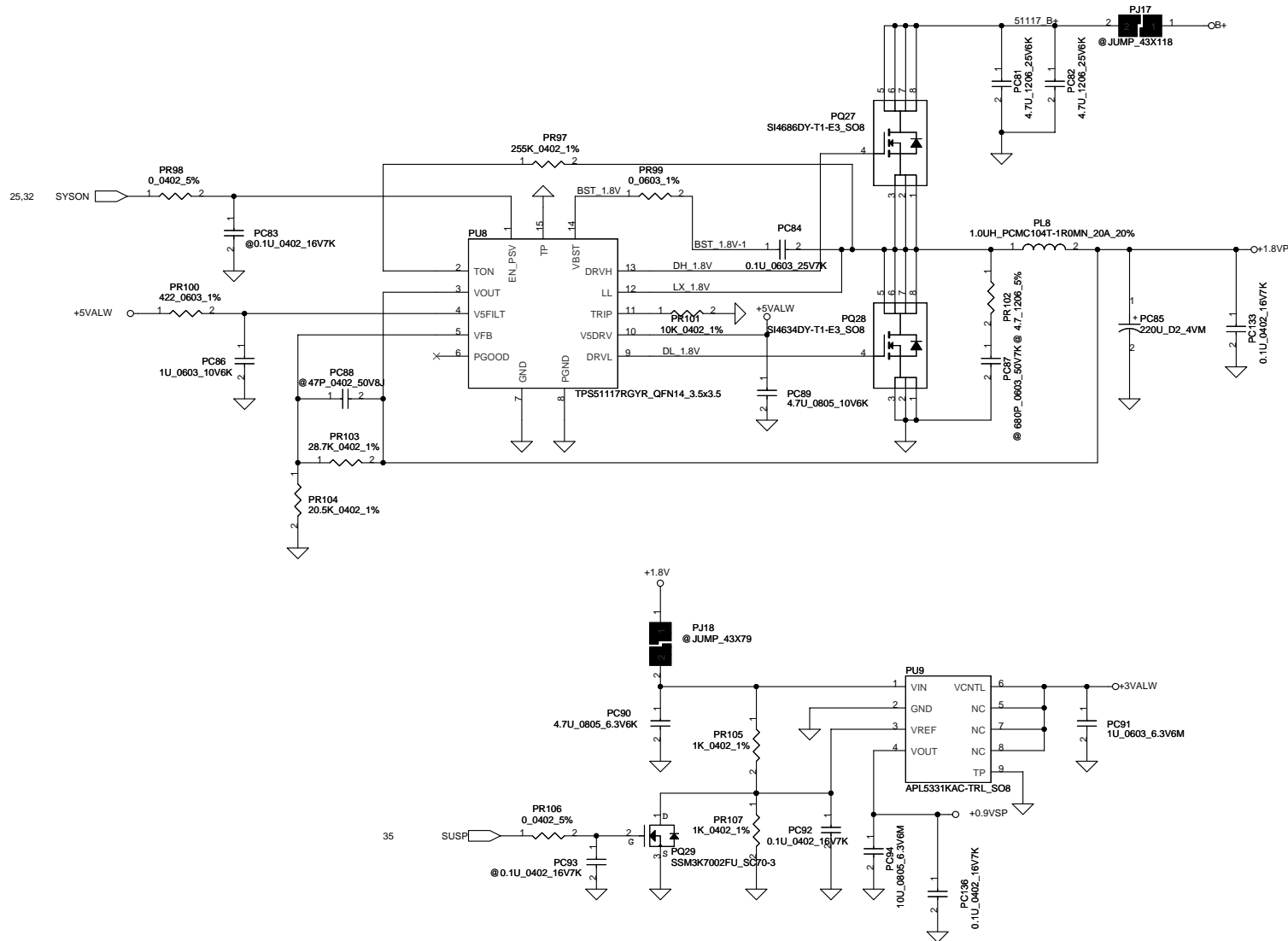
CHGVADJ	Pre Cell
3.28V	4.35V
0V	4V

CHGVADJ要接到EC DA pin

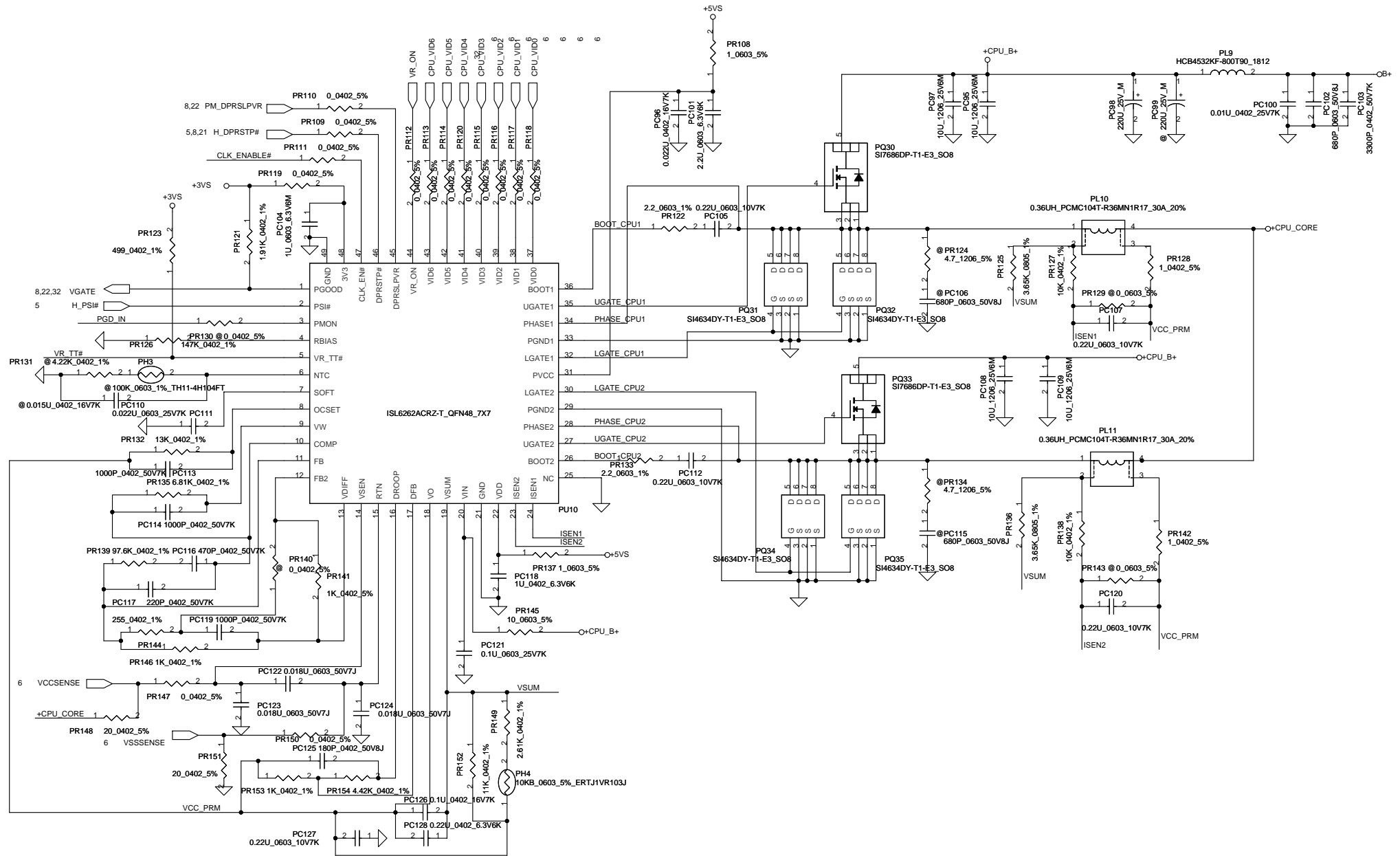
LI-3S :13.5V---BATT-OVP=1.5V
 BATT-OVP=0.111*BATT+

IREF	Current
2.968V	3A
1.484V	1.5A

32 FSTCHG



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PIR (Product Improve Record)

KTCAA LA-4571P SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.1 TO 0.2

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NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1	6/18	34	change Q29.3 to pull up with +3VALW and R770, R720 to 120ohm	to solve suspend led issue.
2	6/18	27	exchange J3GSIM pin2 and pin3	link to error pin definition.
3	6/18	27	change CM15,CM16 to 10P and un-mount RM1 and Cm14.	for customer request.
4	6/24	18	add C849, C850 for EMI request.	for EMI request.
5	6/24	11	add 220u to +1.8V with C78.	reserve for test.
6	6/24	24	add 220u to +USB_VCCB with C79.	reserve for test.
7	6/24	29	add C851 to SPDIF.	for EMI request.
8	6/24	27	link JNAND.39,41 to +3VS, and 39,43 pin link to GND	this is standard pin define
9	6/25	19	change U37 power from +HDMI_5V_OUT to +5VL	for customer request and follow Toshiba design guide with CEC.
10	6/25	27	reserve some circuit for change Mini card 1 and 2	reserve for GPS issue
11	6/26	30	change CA29-CA32 from 0.47u to 0.033u	set high pass frequency to 68Hz
REVISION CHANGE: 0.2 TO 0.3				
1	7/19	34	add R506 and Q52 for Wimax LED control	reserve Wimax LED control to avoid MINI card module damage.
2	7/19	35	change R788,R805 from 330K to 200K	reduce the voltage on the Vgs of MOS as AC mode.
3	7/19	35	mount R507 and un-mount Q45,R800,R806	use another control for +5V_SB
4	7/19	23	mount Q16,R593,R594 and un-mount Q12	use another control for +5V_SB
5	7/22	35	add R508,R513	reserve for tset
5	7/22	31	add D77,D78 on 1394 port	reserve for EMI request
6	7/22	26	exchange JFEL all pin	to solve the cable reverse issue
7	7/24	3	delete XDP conn and related compoments	to improve ESD issue
8	7/24	34	add Q42 and link to EC U43.72	to solve the power on LED need 2.1S will be light after press power button
9	7/24	31	add Q54,R129,R220,R222,D81 and link to U9.B10,U9.AE8	reserve D3E mode as JMB380
10	7/24	28	add R398,R399,R264 for LAN and link to U9.AH24,U9.C21	reserve LAN saving mode
11	7/24	32	add R757,R130,D79	to avoid glitch issue when KB926 power on
12	7/24	34	add D80	reserve for ESD request
13	7/24	26	add L26,R181,R182 on camera conn.	reserve for EMI request
14	7/24	34	add R514-R517,D5,D6	reserve for LED type option
15	7/25	34	add R97,R103,R518,C852-C854,D82 on CS/B conn	reserve for ESD request
16	7/25	34	add R105,R106 on Touch/B conn	reserve for ESD request
17	7/25	26	add R110,R114 on Finger/B conn	reserve for ESD request
18	7/25	26	add R131,D83 on Felica conn	reserve for ESD request
19	7/25	28	change LAN footprint to "TYCO_2068888-1_12P-T"	for ME team request
20	7/25	31	add R132 and separate support pin of 1394,USB,esATA to IOGND	for ESD request
21	7/25	18	change C680-C685 to 2.2pF	for customer request
22	7/25	26	change R722 form 0ohm to 100Kohm	it's to let the power on first then reset# will be high later to meet spec
23	7/25	34	mount D5,D6,R515,R517 and un-mount D71,D73,R514,R516	change logo LED to high illumination
REVISION CHANGE: 0.3 TO 1.0				
1	8/10	27	exchange QM1 Pin2,3	reserve 3G SMI card VPP function.
2	8/10	27	add R820 and link to both JGPS.16 and J3GSIM.5	add more power pin for standard definition
3	8/10	27	link JGPS.24 to +3V_WLAN,link JNAND.24 to +3VS	reduce the forward voltage for HDMI logo Spec.
4	8/10	19	change D8,D53 from RB491D to RB161M	no 0603 type part in Compal Hub and improve the audio performance
5	8/10	30	change CA29-CA32 form 0603 type to 0402	for Layout team request
6	8/10	34	change H19,H21 from 4P8X3P8 to 3P8X4P8	change camera power to +5VS for energy star
7	8/10	26	add R821 and link +5VS to +CAM_VDD	for DFX request to easy check when SMT
8	8/11	11	change C72,C73,C78,C79,C146 Footprint to C_PXC6P3VC220MF60	2008 no amber LED on power button
9	8/11	34	delete R772	follow Intel design guide when no XDP schematic
10	8/18	4	change R4-R7 from 49.9ohm to 54.9ohm	to solve measure HDMI logo can't be detected with test implement
11	8/18	19	Change RV67 from 10K to 2.2Kohm	solve EMI issue
12	8/18	19	use common choke(L9-L12) to replace 0ohm	to solve the word is blurred when CRT mode
13	8/18	18	change L18-L20 to high speed bead	solve EMI issue
14	8/18	21	mount EMI SSIC and related compoments for Bit_CLK	for EMI request
15	8/18	33	mount C793,C794	to solve VGA/B external thermal sensor can't normal work when VGA chip is very high temp.
16	8/18	34	change C831 from 0.01u to 0.022u	enable D3E mode
17	8/31	31	change D81 to 0805_0	expand PM_PWROK voltage from 2.4V to 3.05V
18	8/31	32	change R130 form 10K to 2.2K	for EMI request
19	9/5	30	mount CA40 and CA41 to 120P	set right strap pin when no IHDMI SKU
20	9/5	8	change R62 BOM config from GM@ to IHDMI@	solve some CRT device will appear most resolution when CRT only mode
21	9/8	18	change R674 from 10K to 0ohm	
REVISION CHANGE: 1.0 TO 2.0				
1	9/19	27	change JGPS power from +3V_WLAN to +3VS	Solve GPS disappear when link 850Mhz only
2.	9/19	N/A	change PCB from 6 layer to 8 layer	imporve EMI and slove assembly procedure not easy issue