

# KSKAA

## Bradford 10M/10MG

# LA-4991P REV 1.0 Schematic

Intel Penryn/ Cantiga/ ICH9M  
2008-05-07 Rev. 1.0

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				Rev	D





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## 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

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	HDMI			CRT	Display	LAN		
description	(Y)			(Q)	(Z)	(E)	(C)	
explain	Intel(UMA)	ATI MXM/B	COMMON			10/100M	Giga	
BTO	IHDMI@	NIHDMI@	HDMI@	H@	CRT@	DP@	8103EL@	8111DL@

Function	3G SIM slot	Mini card	Felica	Finger printer	CIR	CAMERA & MIC		BLUE TOOTH
description	(3)	(D2)	(J)	(F)	(I)	(X)		(B)
explain		Two Cards				CAMERA	MIC	
BTO	3G@	3G@	FLICA@	FP@	CIR@	CAM@	MIC@	BT@

## External PCI Devices

## EC SM Bus1 address

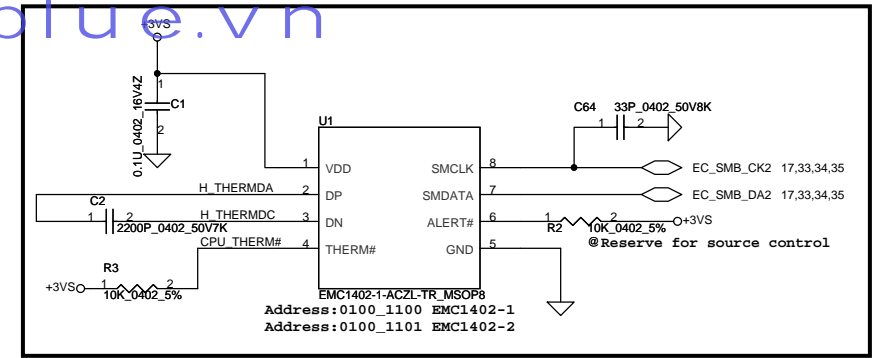
## EC SM Bus2 address

Power	Device	Address	Power	Device	Address
+3VL	EC KB926 D3		+3VS	EC KB926 D3	
+5VL	Smart Battery	0001 01X b		CPU THM Sen	
+5VL	HDMI-CEC	0011 010x b	+3VS	SMSC SMC1402	0100 110x b
+3VL	FUN/B (CAP Sensor)				

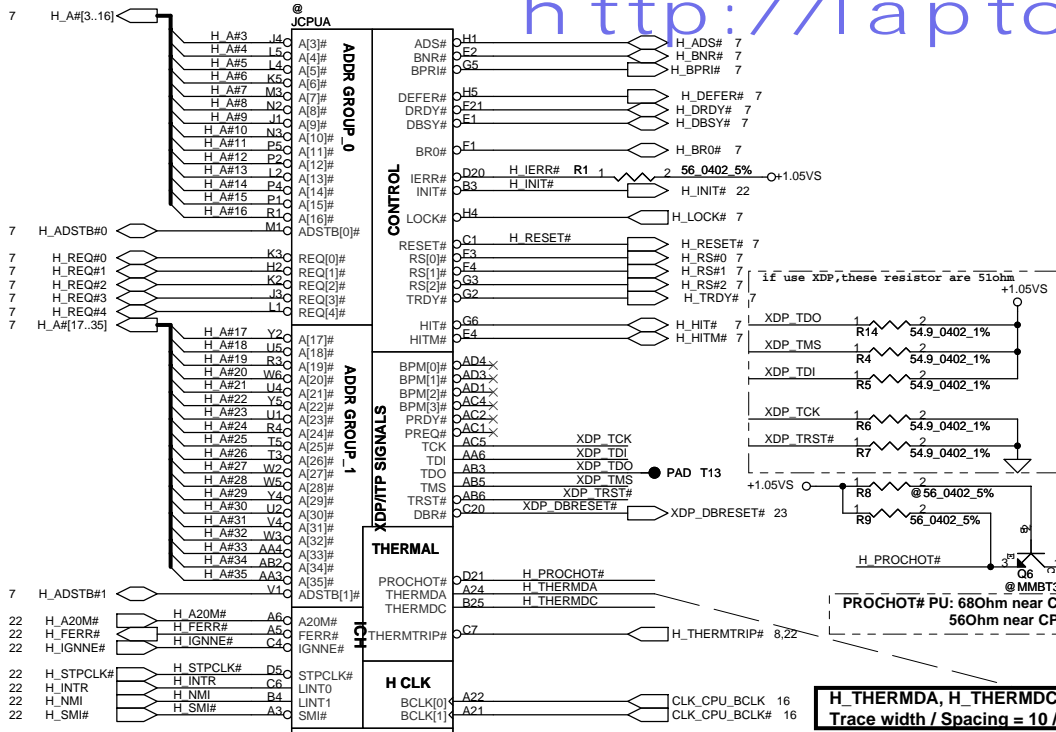
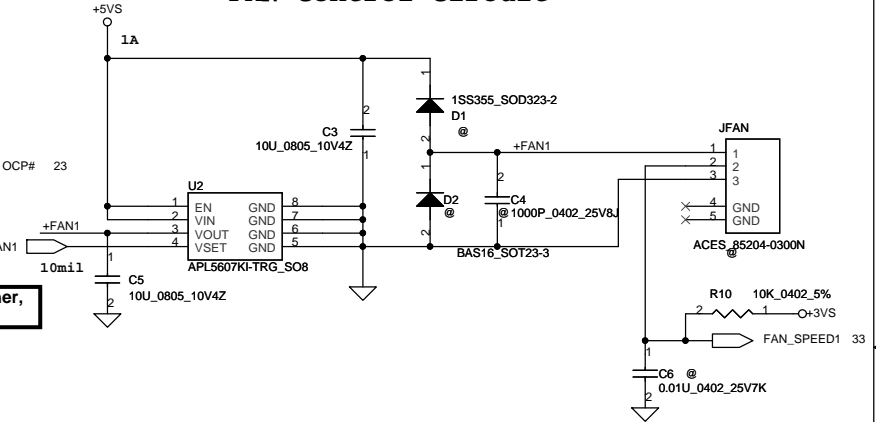
## ICH9M SM Bus address

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

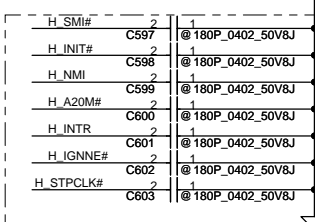
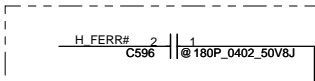
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## FAN Control Circuit

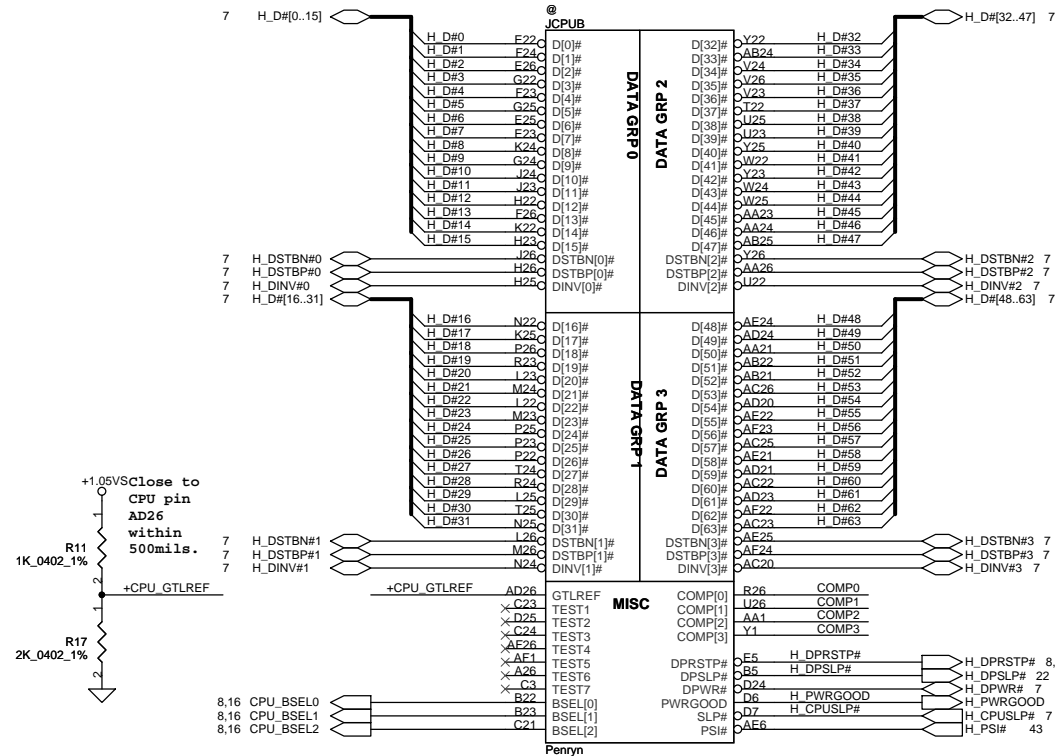


Reserve for debug close to South Bridge



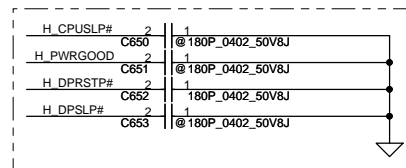
Reserve for debug close to CPU

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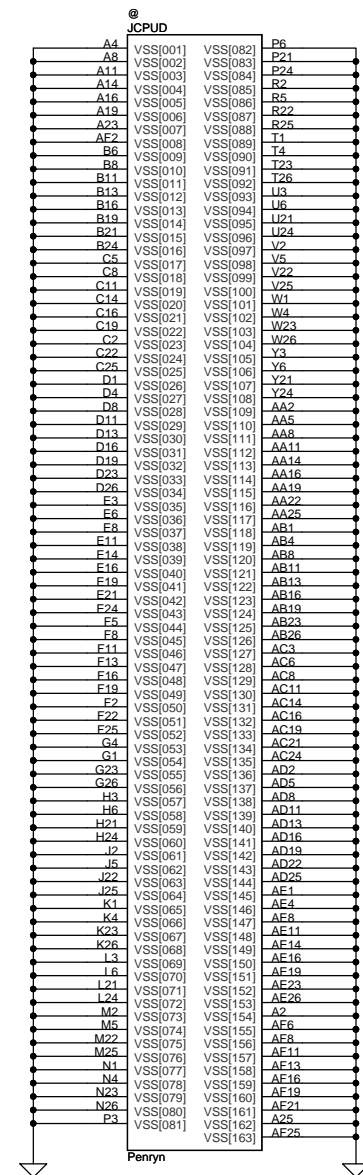


layout note: Route TEST3 & TEST5 traces on ground referenced layer to the TPs

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

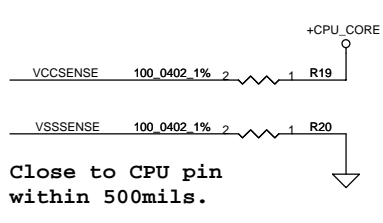
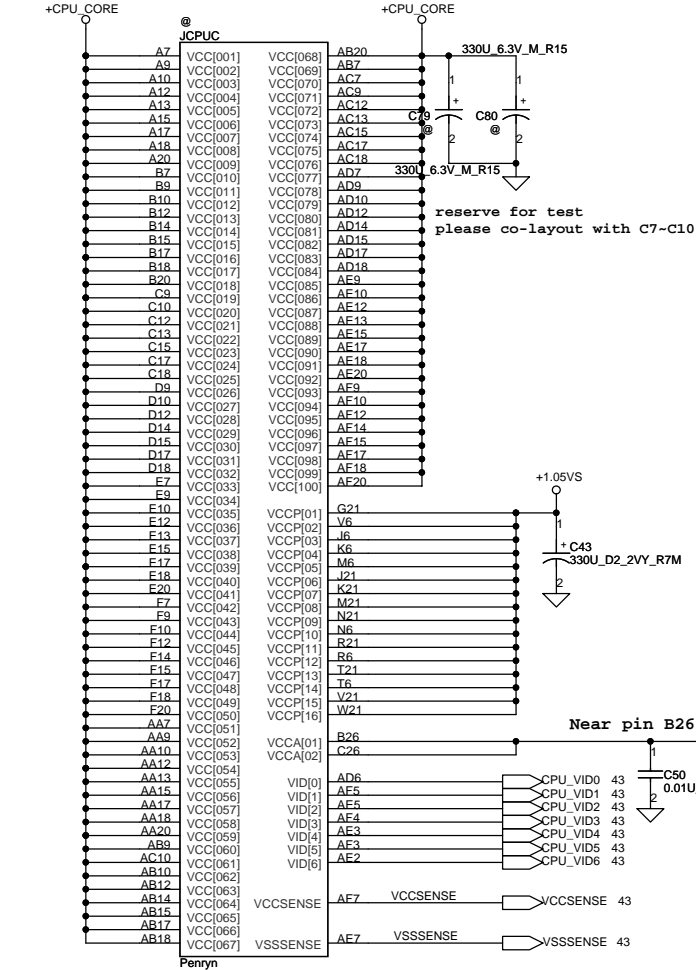
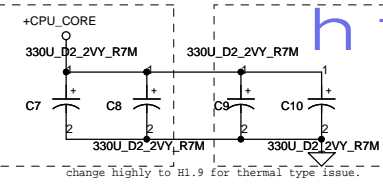


Reserve for debug close to CPU



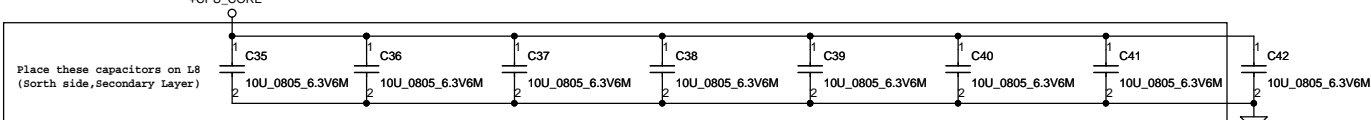
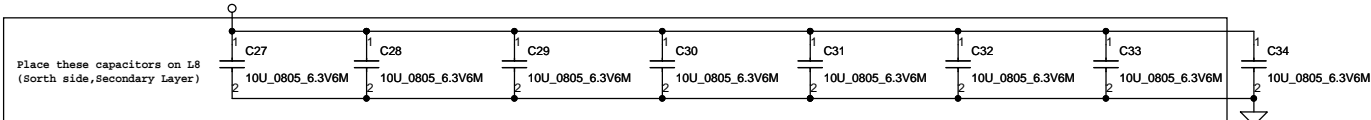
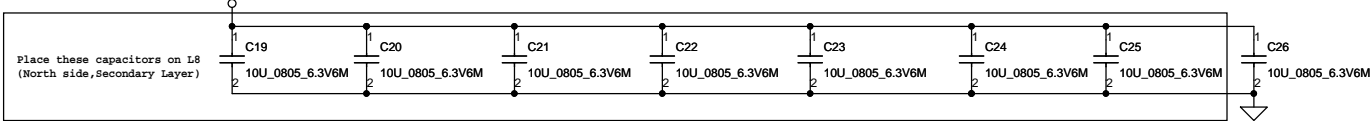
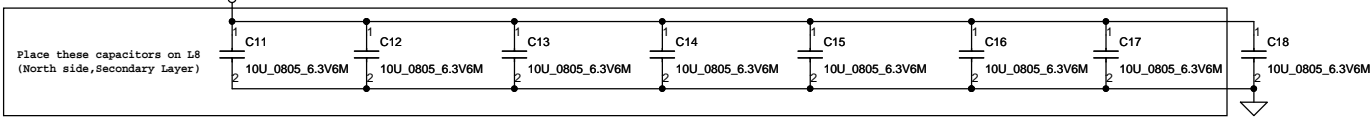
Near CPU CORE regulator

ESR <= 1.5m ohm  
Capacitor > 1980uF

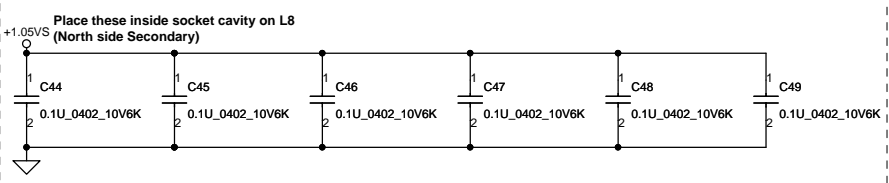


Length match within 25 mils.  
The trace width/space/other is 14/7/25.

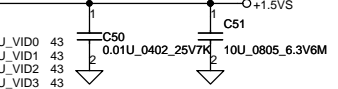
http://laptopblue.vn



Mid Frequence Decoupling

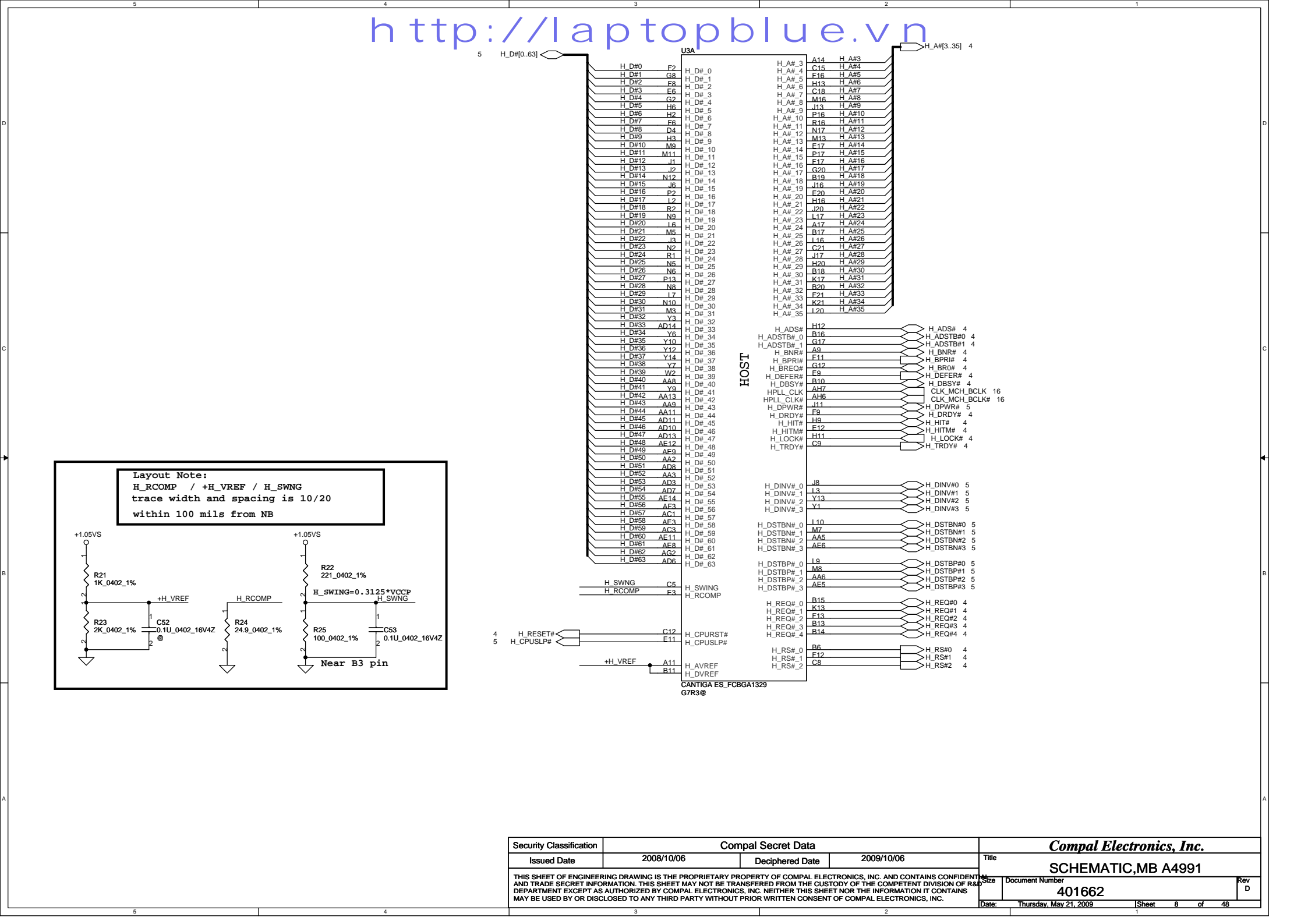
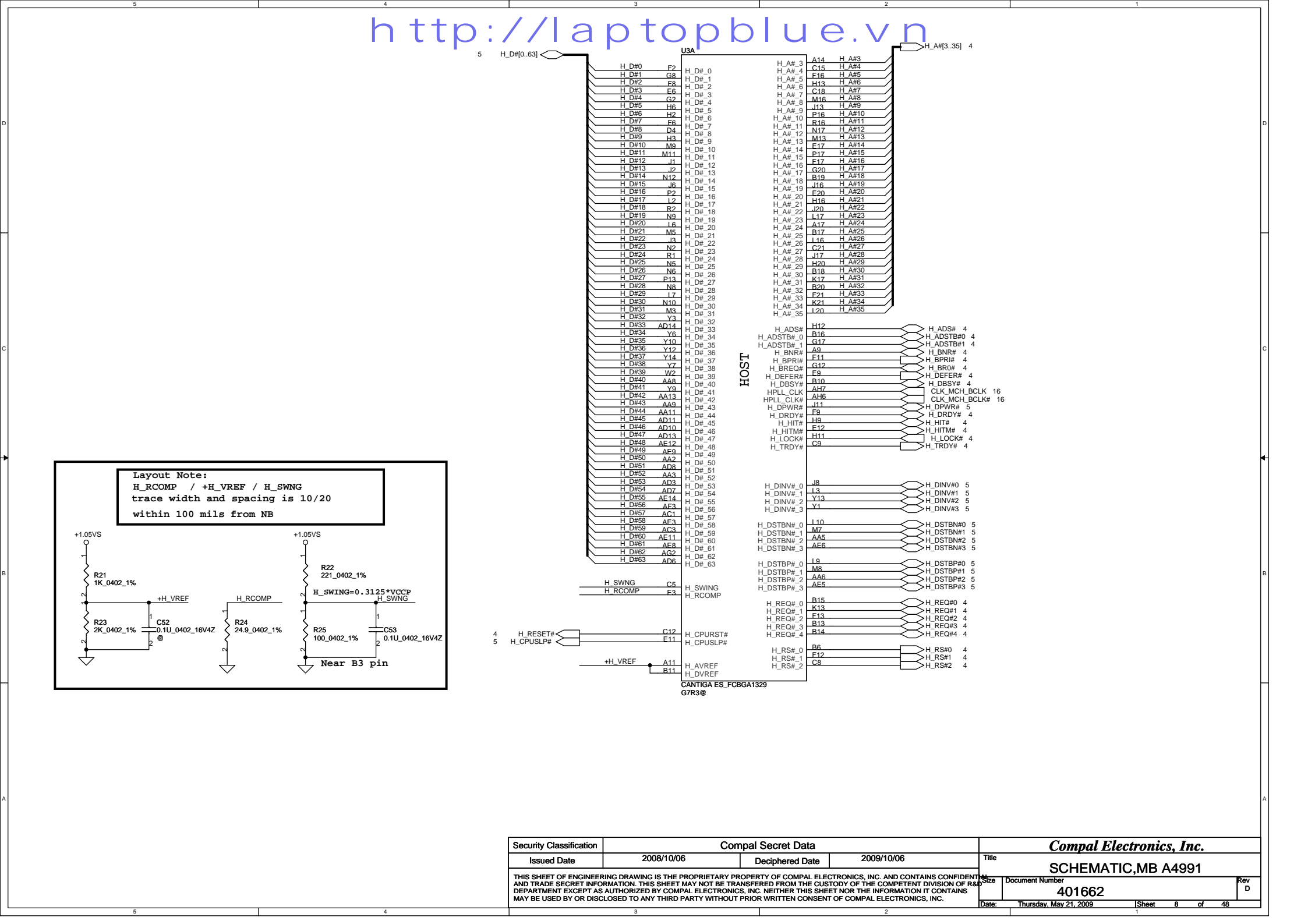


Near pin B26



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5 H\_D#[0..63] U3A H\_A#[3..35] 4

H\_D#0 F2 H\_D# 0 H\_A#\_3 A14 H\_A#3  
H\_D#1 F8 H\_D#\_1 H\_A#\_4 C15 H\_A#4  
H\_D#2 F8 H\_D#\_2 H\_A#\_5 E16 H\_A#5  
H\_D#3 F6 H\_D#\_3 H\_A#\_6 A13 H\_A#6  
H\_D#4 G2 H\_D#\_4 H\_A#\_7 C18 H\_A#7  
H\_D#5 H6 H\_D#\_5 H\_A#\_8 M16 H\_A#8  
H\_D#6 H2 H\_D#\_6 H\_A#\_9 J13 H\_A#9  
H\_D#7 F6 H\_D#\_7 H\_A#\_10 P16 H\_A#10  
H\_D#8 D4 H\_D#\_8 H\_A#\_11 R16 H\_A#11  
H\_D#9 H3 H\_D#\_9 H\_A#\_12 N17 H\_A#12  
H\_D#10 M9 H\_D#\_10 H\_A#\_13 M13 H\_A#13  
H\_D#11 M11 H\_D#\_11 H\_A#\_14 E17 H\_A#14  
H\_D#12 J1 H\_D#\_12 H\_A#\_15 P17 H\_A#15  
H\_D#13 J2 H\_D#\_13 H\_A#\_16 F17 H\_A#16  
H\_D#14 N12 H\_D#\_14 H\_A#\_17 G20 H\_A#17  
H\_D#15 J6 H\_D#\_15 H\_A#\_18 B19 H\_A#18  
H\_D#16 P2 H\_D#\_16 H\_A#\_19 J16 H\_A#19  
H\_D#17 L2 H\_D#\_17 H\_A#\_20 E20 H\_A#20  
H\_D#18 R2 H\_D#\_18 H\_A#\_21 H16 H\_A#21  
H\_D#19 N9 H\_D#\_19 H\_A#\_22 J20 H\_A#22  
H\_D#20 L6 H\_D#\_20 H\_A#\_23 L17 H\_A#23  
H\_D#21 M5 H\_D#\_21 H\_A#\_24 A17 H\_A#24  
H\_D#22 J3 H\_D#\_22 H\_A#\_25 B17 H\_A#25  
H\_D#23 N2 H\_D#\_23 H\_A#\_26 L16 H\_A#26  
H\_D#24 R1 H\_D#\_24 H\_A#\_27 C21 H\_A#27  
H\_D#25 N5 H\_D#\_25 H\_A#\_28 J17 H\_A#28  
H\_D#26 N6 H\_D#\_26 H\_A#\_29 H20 H\_A#29  
H\_D#27 P13 H\_D#\_27 H\_A#\_30 B18 H\_A#30  
H\_D#28 N9 H\_D#\_28 H\_A#\_31 K17 H\_A#31  
H\_D#29 L7 H\_D#\_29 H\_A#\_32 G20 H\_A#32  
H\_D#30 N10 H\_D#\_30 H\_A#\_33 E21 H\_A#33  
H\_D#31 M3 H\_D#\_31 H\_A#\_34 K21 H\_A#34  
H\_D#32 Y3 H\_D#\_32 H\_A#\_35 L20 H\_A#35

H\_D#33 AD14 H\_D#\_33 H\_ADS# H12 H\_ADS# 4  
H\_D#34 Y6 H\_D#\_34 H\_ADSTB#\_0 B16 H\_ADSTB#0 4  
H\_D#35 Y10 H\_D#\_35 H\_ADSTB#\_1 G17 H\_ADSTB#1 4  
H\_D#36 Y12 H\_D#\_36 H\_BNR# A9 H\_BNR# 4  
H\_D#37 Y14 H\_D#\_37 H\_BPR# E11 H\_BPR# 4  
H\_D#38 Y7 H\_D#\_38 H\_BREQ# G12 H\_BREQ# 4  
H\_D#39 W2 H\_D#\_39 H\_DEFER# E9 H\_DEFER# 4  
H\_D#40 AA8 H\_D#\_40 H\_DBSY# B10 H\_DBSY# 4  
H\_D#41 Y9 H\_D#\_41 HPL\_L\_CLK AH7 CLK\_MCH\_BCLK 16  
H\_D#42 AA13 H\_D#\_42 HPL\_L\_CLK AH6 CLK\_MCH\_BCLK# 16  
H\_D#43 AA9 H\_D#\_43 H\_DPWR# J11 H\_DPWR# 5  
H\_D#44 AA11 H\_D#\_44 H\_DRDY# E9 H\_DRDY# 4  
H\_D#45 AD11 H\_D#\_45 H\_HIT# H9 H\_HIT# 4  
H\_D#46 AD10 H\_D#\_46 H\_HITM# E12 H\_HITM# 4  
H\_D#47 AD13 H\_D#\_47 H\_LOCK# H11 H\_LOCK# 4  
H\_D#48 AE12 H\_D#\_48 H\_TRDY# C9 H\_TRDY# 4  
H\_D#49 AE9 H\_D#\_49  
H\_D#50 A2 H\_D#\_50  
H\_D#51 AD8 H\_D#\_51  
H\_D#52 AA3 H\_D#\_52  
H\_D#53 AD3 H\_D#\_53  
H\_D#54 AD7 H\_D#\_54  
H\_D#55 AE3 H\_D#\_55  
H\_D#56 AC1 H\_D#\_56  
H\_D#57 AE3 H\_D#\_57  
H\_D#58 AC3 H\_D#\_58  
H\_D#59 AE11 H\_D#\_59  
H\_D#60 AE8 H\_D#\_60  
H\_D#61 AG2 H\_D#\_61  
H\_D#62 AG2 H\_D#\_62  
H\_D#63 AD6 H\_D#\_63

H\_SWNG C5 H\_SWNG  
H\_RCOMP E3 H\_RCOMP

H\_RESET# C12 H\_CPURST#  
H\_CPUSLP# E11 H\_CPUSLP#

H\_VREF A11 H\_AVREF  
H\_DVREF B11 H\_DVREF

H\_A#\_3 A14 H\_A#3  
H\_A#\_4 C15 H\_A#4  
H\_A#\_5 E16 H\_A#5  
H\_A#\_6 A13 H\_A#6  
H\_A#\_7 C18 H\_A#7  
H\_A#\_8 M16 H\_A#8  
H\_A#\_9 J13 H\_A#9  
H\_A#\_10 P16 H\_A#10  
H\_A#\_11 R16 H\_A#11  
H\_A#\_12 N17 H\_A#12  
H\_A#\_13 M13 H\_A#13  
H\_A#\_14 E17 H\_A#14  
H\_A#\_15 P17 H\_A#15  
H\_A#\_16 F17 H\_A#16  
H\_A#\_17 G20 H\_A#17  
H\_A#\_18 B19 H\_A#18  
H\_A#\_19 J16 H\_A#19  
H\_A#\_20 E20 H\_A#20  
H\_A#\_21 H16 H\_A#21  
H\_A#\_22 J20 H\_A#22  
H\_A#\_23 L17 H\_A#23  
H\_A#\_24 A17 H\_A#24  
H\_A#\_25 B17 H\_A#25  
H\_A#\_26 L16 H\_A#26  
H\_A#\_27 C21 H\_A#27  
H\_A#\_28 J17 H\_A#28  
H\_A#\_29 H20 H\_A#29  
H\_A#\_30 B18 H\_A#30  
H\_A#\_31 K17 H\_A#31  
H\_A#\_32 G20 H\_A#32  
H\_A#\_33 E21 H\_A#33  
H\_A#\_34 K21 H\_A#34  
H\_A#\_35 L20 H\_A#35

H12 H\_ADS# 4  
B16 H\_ADSTB#0 4  
G17 H\_ADSTB#1 4  
A9 H\_BNR# 4  
E11 H\_BPR# 4  
G12 H\_BREQ# 4  
E9 H\_DEFER# 4  
B10 H\_DBSY# 4  
AH7 CLK\_MCH\_BCLK 16  
AH6 CLK\_MCH\_BCLK# 16  
J11 H\_DPWR# 5  
E9 H\_DRDY# 4  
H9 H\_HIT# 4  
E12 H\_HITM# 4  
H11 H\_LOCK# 4  
C9 H\_TRDY# 4

H\_DIN#\_0 J8 H\_DIN#0 5  
H\_DIN#\_1 J3 H\_DIN#1 5  
H\_DIN#\_2 Y13 H\_DIN#2 5  
H\_DIN#\_3 Y1 H\_DIN#3 5

H\_DSTBN#\_0 L10 H\_DSTBN#0 5  
H\_DSTBN#\_1 M7 H\_DSTBN#1 5  
H\_DSTBN#\_2 AA6 H\_DSTBN#2 5  
H\_DSTBN#\_3 AE6 H\_DSTBN#3 5

H\_DSTBP#\_0 L9 H\_DSTBP#0 5  
H\_DSTBP#\_1 M8 H\_DSTBP#1 5  
H\_DSTBP#\_2 AA6 H\_DSTBP#2 5  
H\_DSTBP#\_3 AE5 H\_DSTBP#3 5

H\_REQ#\_0 B15 H\_REQ#0 4  
H\_REQ#\_1 K13 H\_REQ#1 4  
H\_REQ#\_2 E13 H\_REQ#2 4  
H\_REQ#\_3 B13 H\_REQ#3 4  
H\_REQ#\_4 B14 H\_REQ#4 4

H\_RS#\_0 B6 H\_RS#0 4  
H\_RS#\_1 E12 H\_RS#1 4  
H\_RS#\_2 C8 H\_RS#2 4

CANTIGA ES\_FCBGA1329  
G7R3@

Layout Note:  
H\_RCOMP / +H\_VREF / H\_SWNG  
trace width and spacing is 10/20  
within 100 mils from NB

+1.05VS  
R21 1K\_0402\_1%  
R23 2K\_0402\_1%  
C52 0.1U\_0402\_16V4Z  
+H\_VREF  
H\_RCOMP  
R24 24.9\_0402\_1%  
C53 0.1U\_0402\_16V4Z  
Near B3 pin

+1.05VS  
R22 221\_0402\_1%  
R25 100\_0402\_1%  
C53 0.1U\_0402\_16V4Z  
H\_SWNG=0.3125\*VCCP  
H\_SWNG

H\_RESET# 4  
H\_CPUSLP# 5

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The diagram illustrates a USB-to-serial bridge circuit. A USB connector (U3B) is connected to an RS485 transceiver (N36). The transceiver is connected to a microcontroller (U24) via SA\_CK\_0 and SA\_CK\_1 signals. The microcontroller is also connected to a DDR4 memory module (U21) via DDR4\_CLK0 and DDR4\_CLK1 signals.

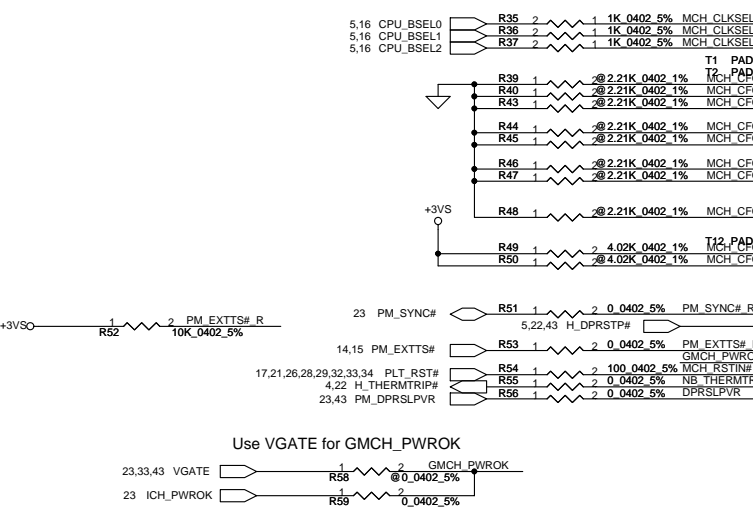
**U3B**

**7/1apto blue v**

Pin	Signal	Function	Value/Notes
X M36	RSVD1	SA, CK_0	AB24
X N36	RSVD2	SA, CK_1	AT21
X P33	RSVD3	SB, CK_0	AV24
X T33	RSVD4	SB, CK_1	AU20
X A90	RSVD5		AB24
X AH10	RSVD6	SA, CK#_0	AB21
X AH12	RSVD7	SA, CK#_1	AB24
X AH13	RSVD8	SB, CK#_0	AV20
X K12	RSVD9	SB, CK#_1	AV20
AL34	RSVD10		BC28
X AC34	RSVD11	SA, CK#_0	AY28
X AN35	RSVD12	SA, CK#_1	AY26
X AN35	RSVD13	SB, CK#_0	BB36
X T24	RSVD14	SB, CK#_1	BB36
		SA, CS#_0	BA17
		SA, CS#_1	AY16
X B31	RSVD15	SB, CS#_0	AV16
X B2	RSVD16	SB, CS#_1	AR13
X M1	RSVD17		BD17
		SA, ODT_0	AY17
		SA, ODT_1	BE15
AY21	RSVD20	SB, ODT_0	AY13
		SB, ODT_1	
		SM, RCOMP_VOH	BG22
		SM, RCOMP#	BH21
BC23	RSVD22	SM, RCOMP#	
BE23	RSVD23	SM, RCOMP#	
BH18	RSVD24	SM, RCOMP#	
BE18	RSVD25	SM, RCOMP#	
		SM, RCOMP_VOH	BF28
		SM, RCOMP_VOL	BH28
		SM, VREF	AV42
		SM, PWROK	AR36
		SM, REXT	BE17
		SM, DRAMRST#	BC36
		DP, REF, CLK	B38
		DP, REF, CLK#	E41
		DP, REF, SSCLK	E47
		DP, REF, SSCLK#	F41
		PEG, CLK	F43
		PEG, CLK#	F43
		DMI, RXN_0	AE41
		DMI, RXN_1	AE37
		DMI, RXN_2	AE47
		DMI, RXN_3	AH39
		DMI, RXP_0	AE40
		DMI, RXP_1	AE38
		DMI, RXP_2	AE48
		DMI, RXP_3	AH40
		DMI, TXN_0	AE35
		DMI, TXN_1	AE43
		DMI, TXN_2	AH42
		DMI, TXN_3	
		DMI, TXP_0	AD35
		DMI, TXP_1	AE44
		DMI, TXP_2	AE46
		DMI, TXP_3	AH43
		GFX, VID_0	B33
		GFX, VID_1	B32
		GFX, VID_2	F33
		GFX, VID_3	F33
		GFX, VID_4	F33
		GFX, VR_EN	C34
		CL, CLK	AH37
		CL, DATA	AH38
		CL, PWROK	AN36
		CL, RST#	AJ35
		CL, VREF	AH34
			+CL, VREF = 0.355V
		DP, CLK	N28
		DP, DATA	M28
		SDVO, SCLK	G36
		SDVO, SDATA	K36
		CLKREQ, SPLL#	H36
		MCH, ICH_SYNC#	
		TSATN#	B12
		HDA, BCLK	B28
		HDA, RST#	B30
		HDA, SDI	B29
		HDA, SYNC	A28

**SDVO (Internal)**

**DDPC (Internal)**

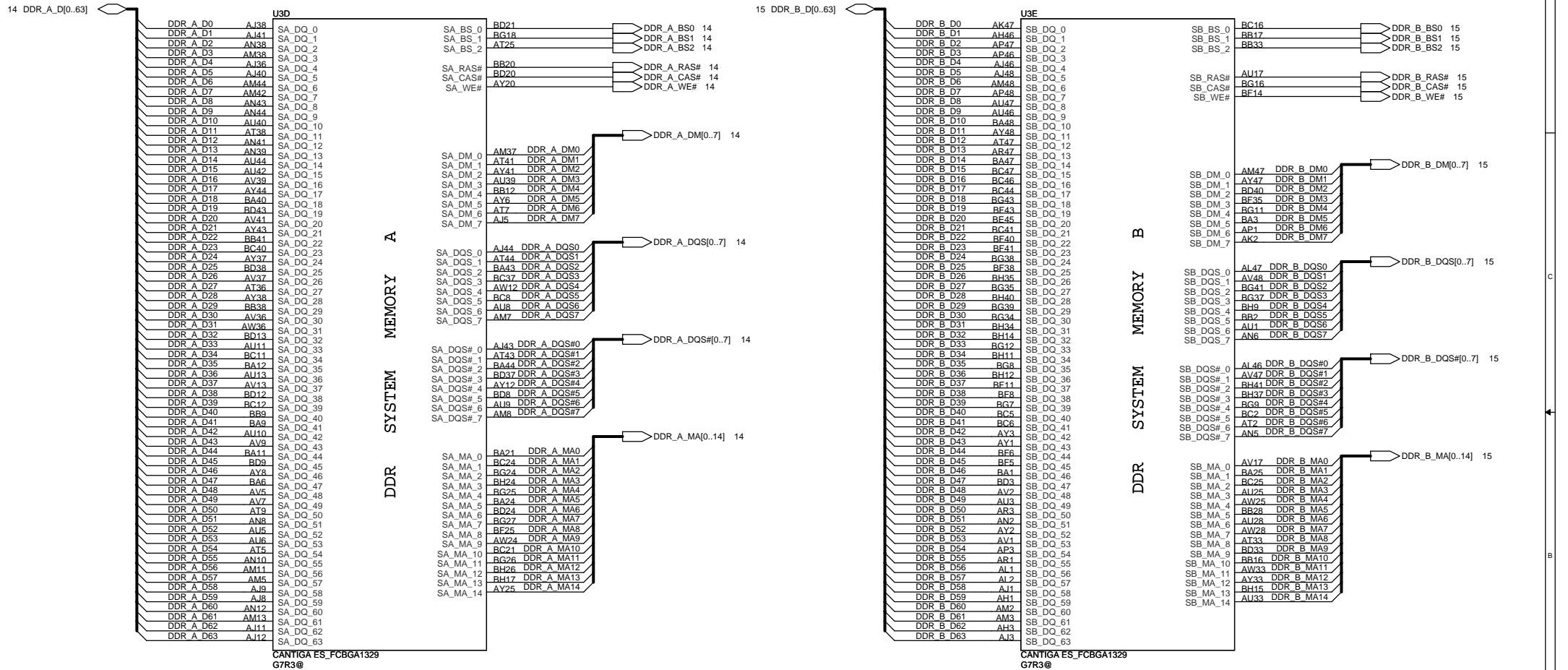


<b>TRLDATA</b> (ull-down)	<b>0 = SDVO interface disabled *(Default)</b> <b>1 = SDVO interface enabled</b>
<b>TRLDATA</b> (ull-down)	<b>0 = Digital display (I/HDMI/DP) interface disabled</b> <b>1 = Digital display (I/HDMI/DP) interface enabled*(Default)</b>

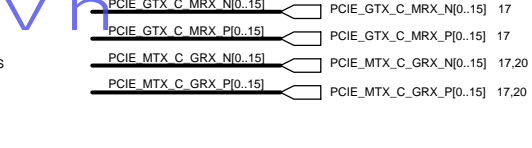
  

the strap pin will impact no I2MCH SKU if mount R62

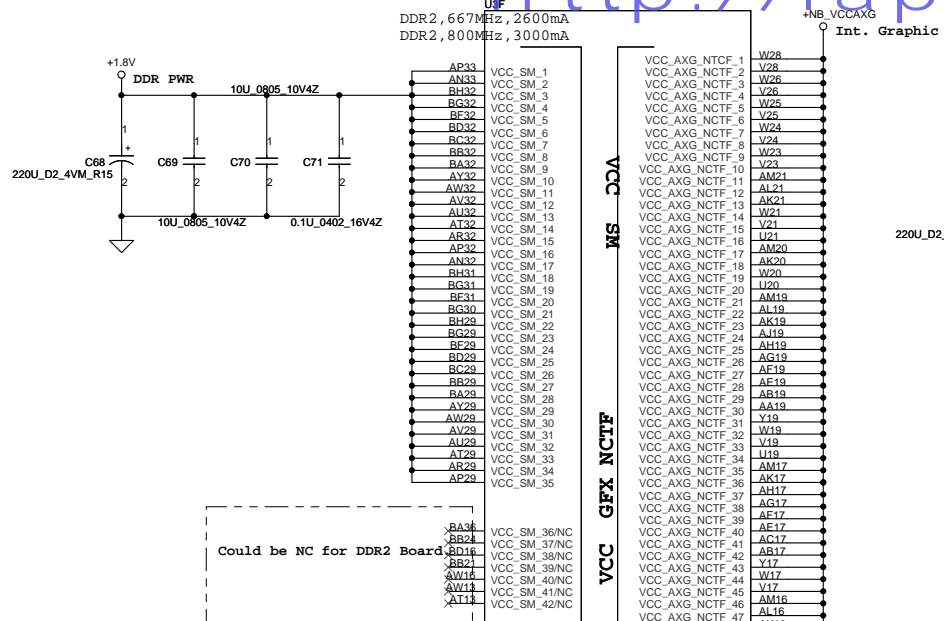
R57	1K_0402_1%
R60	499_0402_1%
R61	2.2K_0402_5%
R62	2.2K_0402_5%



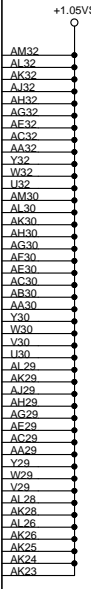
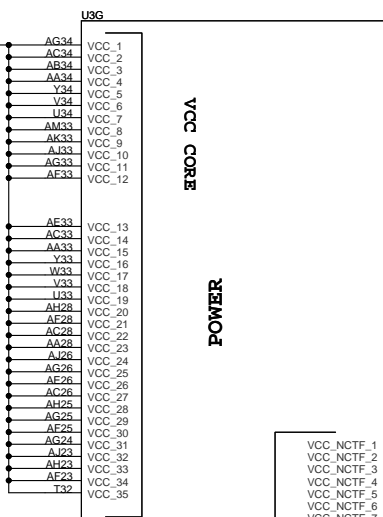
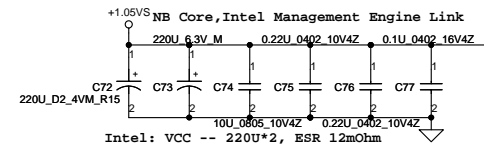
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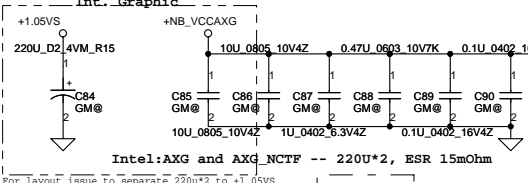
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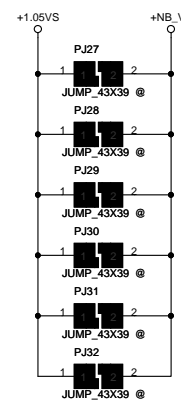
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Integrated Graphic: 1930.4mA  
Intel Management Engine Link: 508.12mA



For layout placement un-mound C123 and mound C84



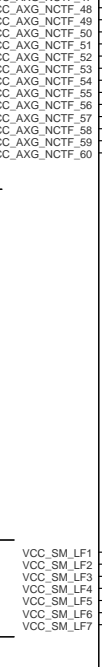
C86 PM@ 0.0805\_5%



PAD T3  
PAD T4

CANTIGA ES\_FCBGA1329  
G7R3@

POWER  
VCC GFX  
VCC SM LF



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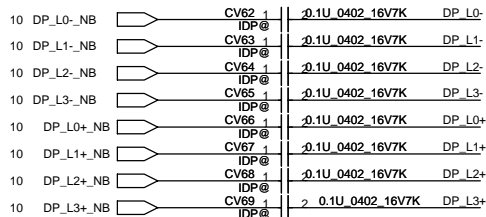
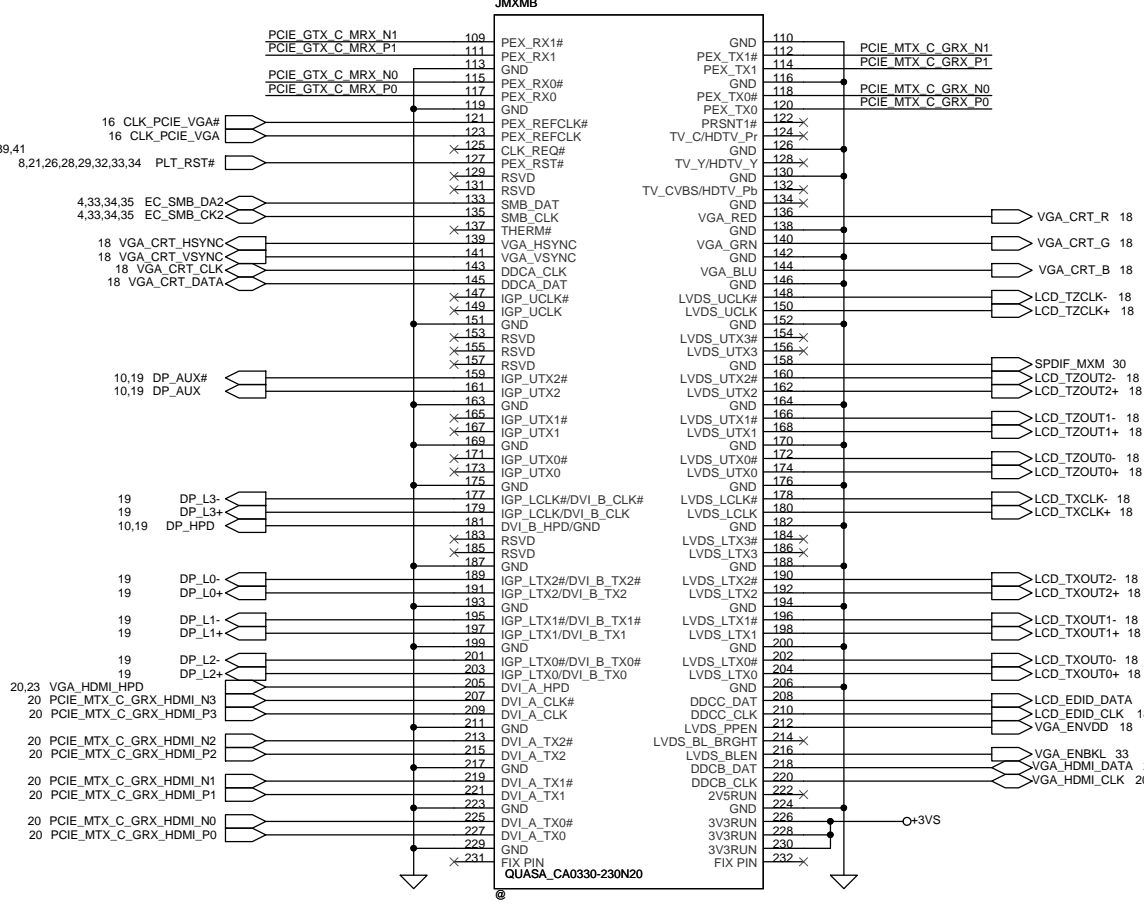
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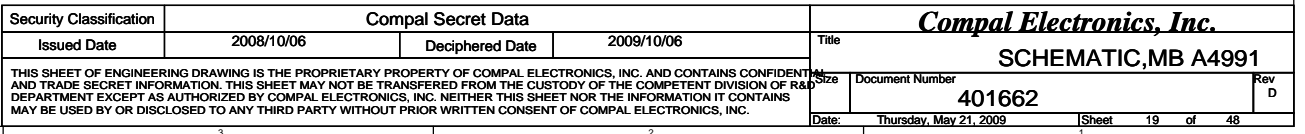




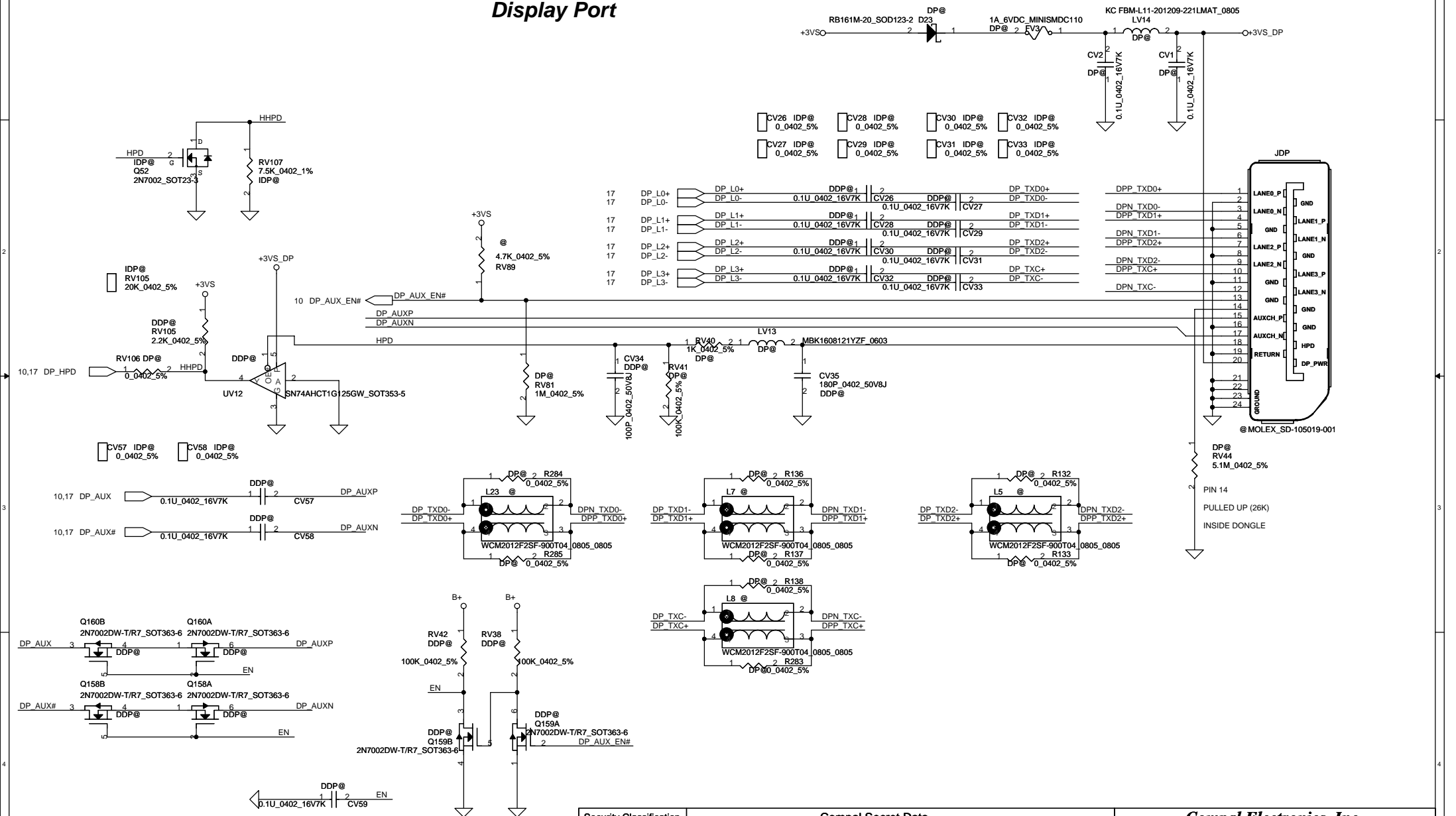




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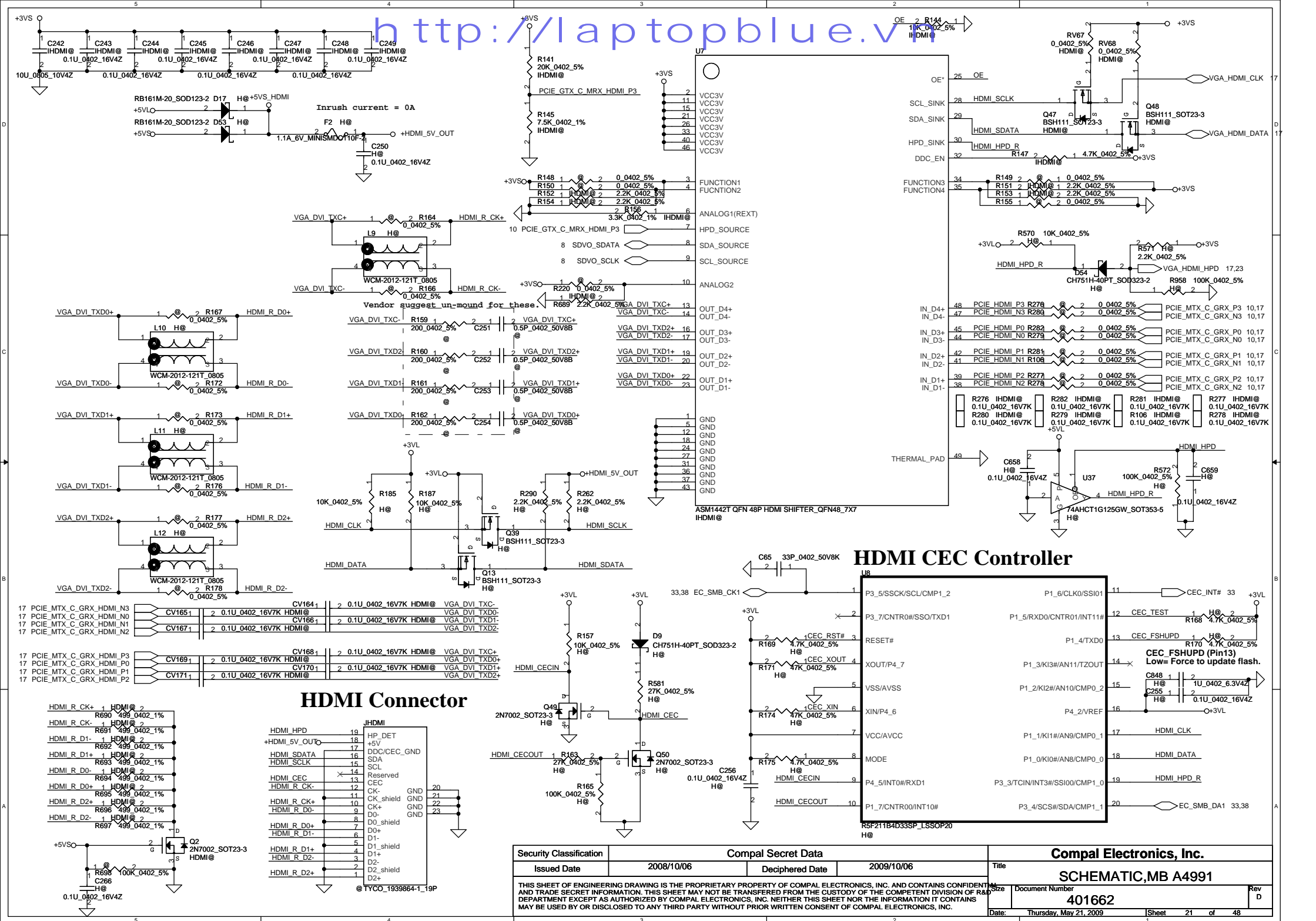


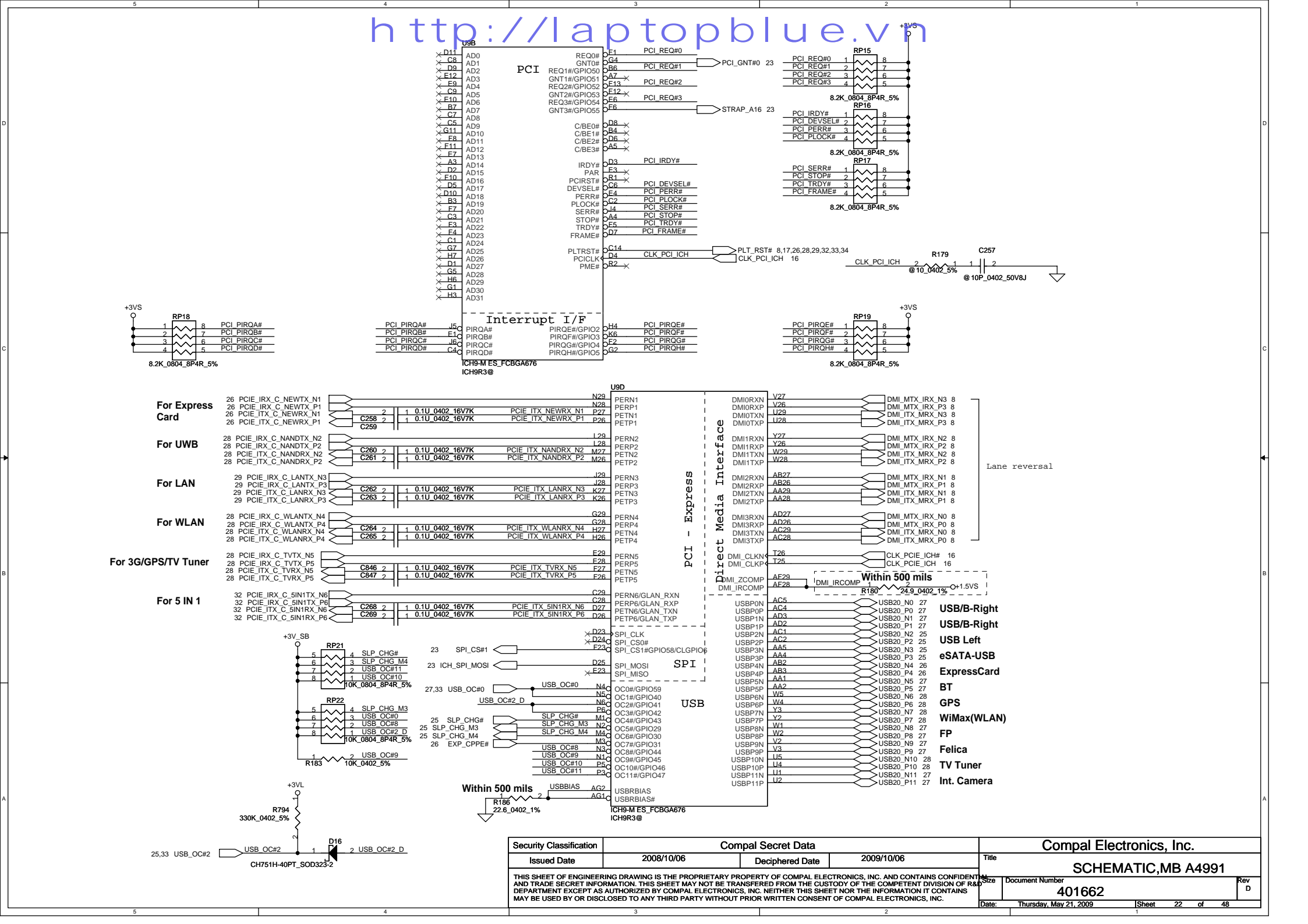
# Display Port



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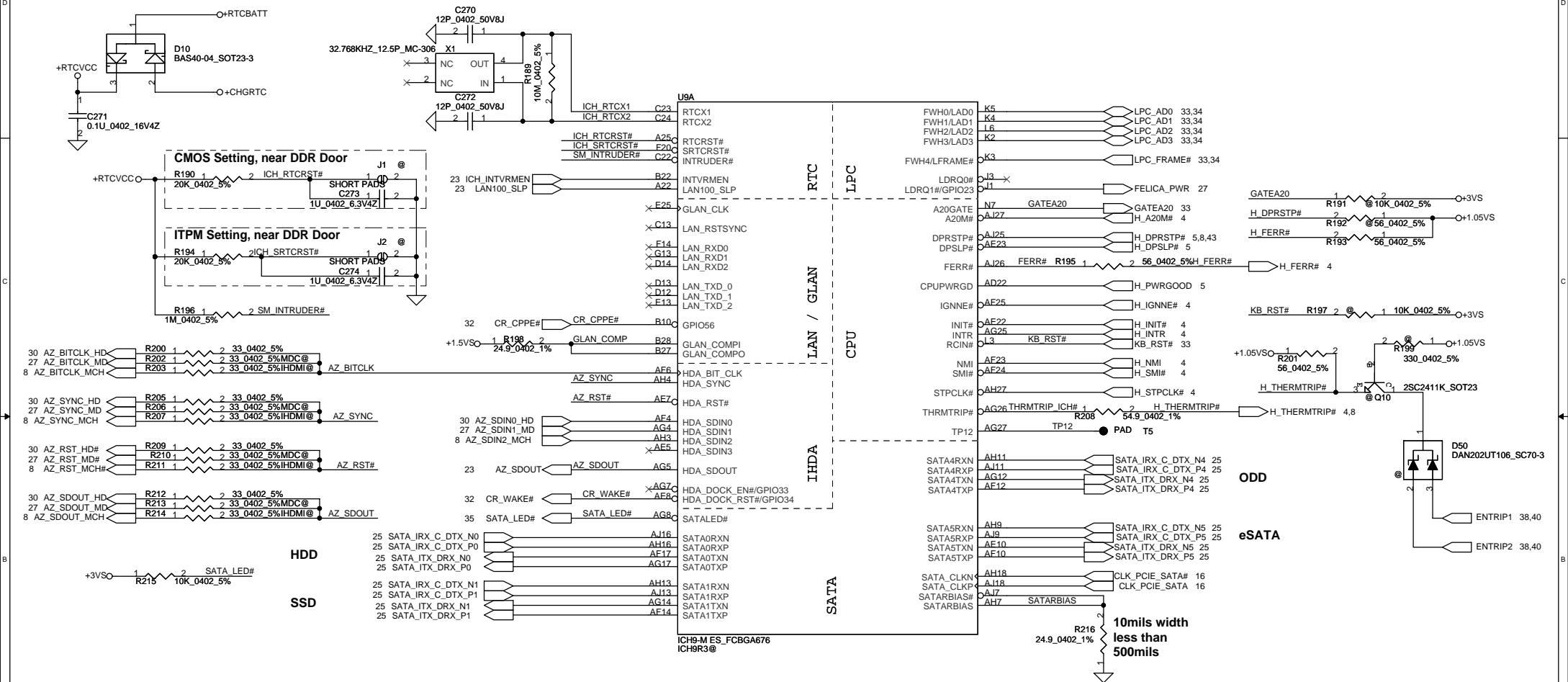




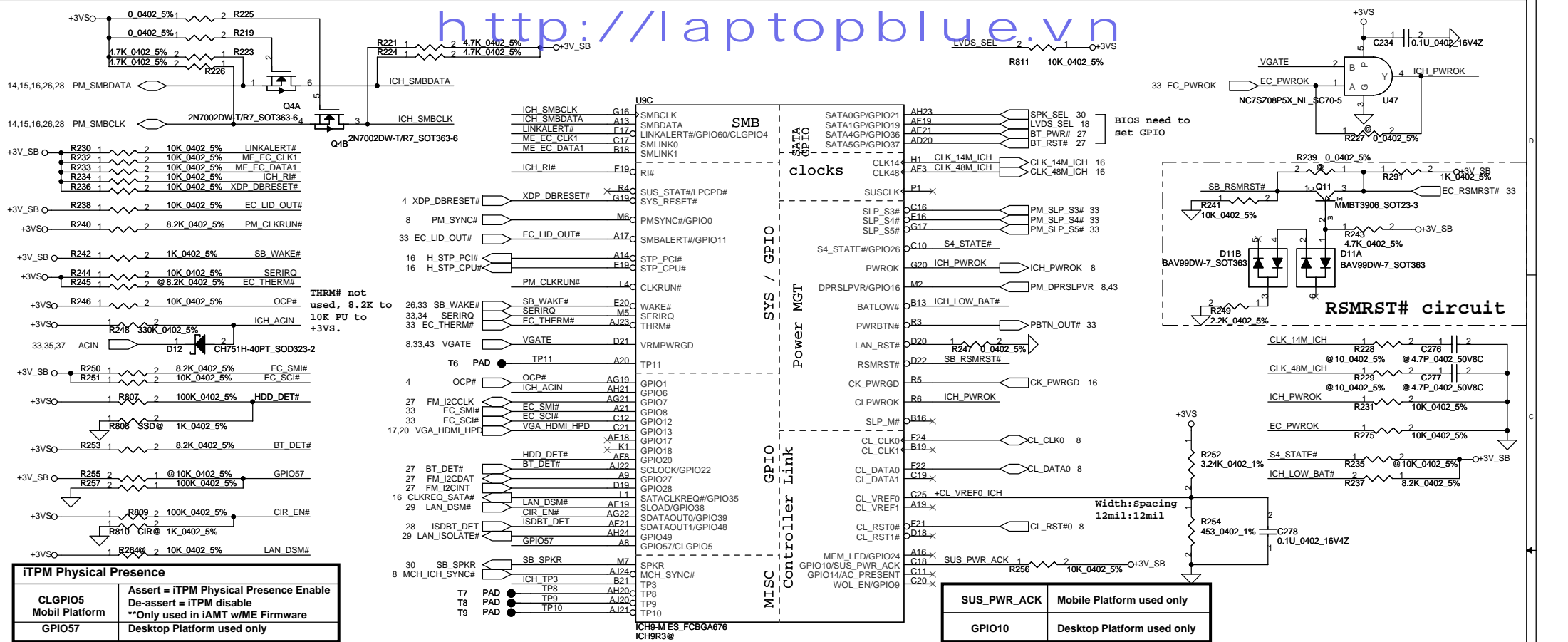


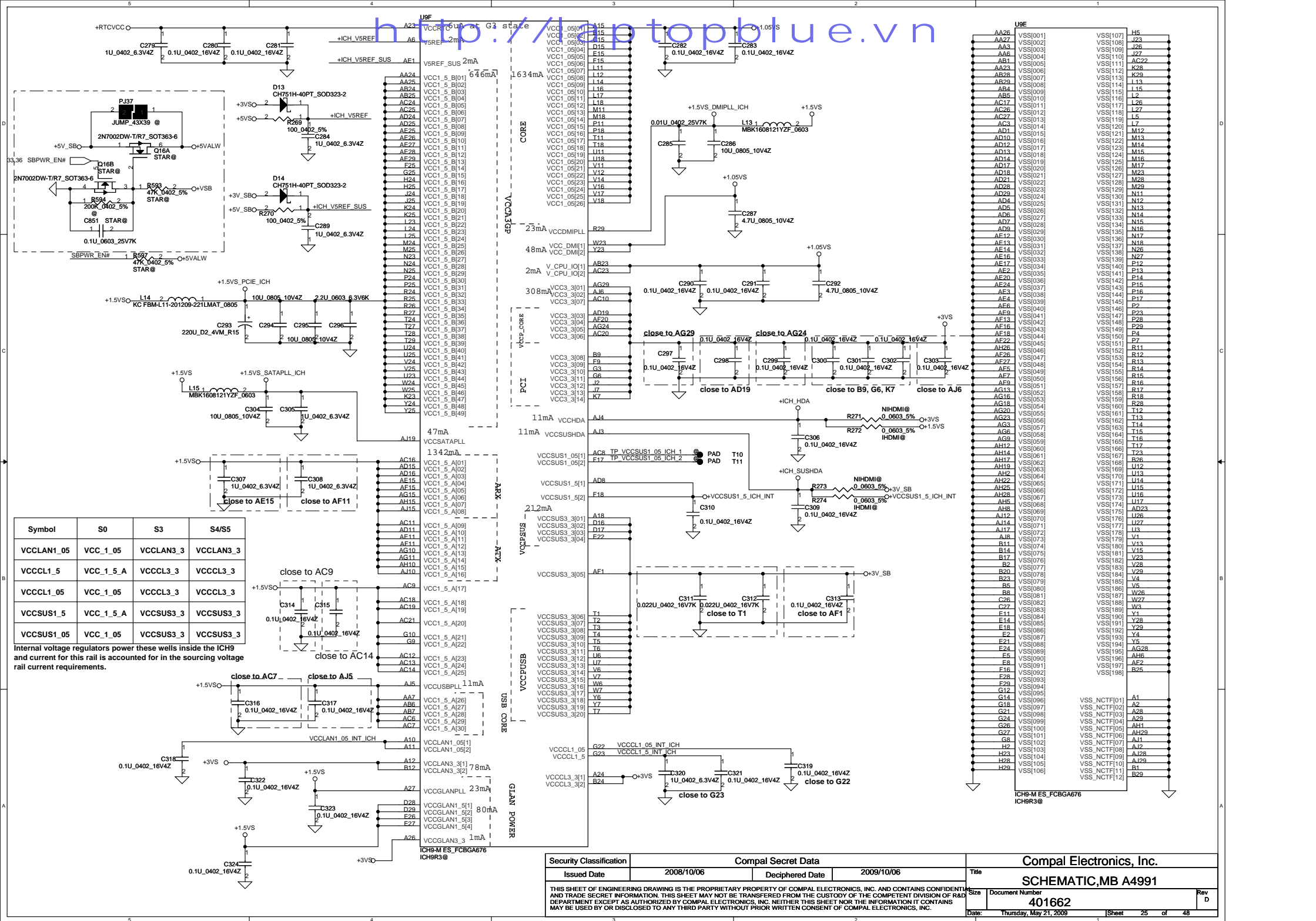
# http://laptopblue.vn



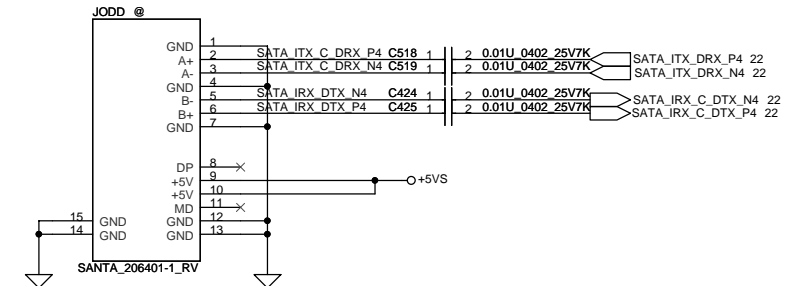
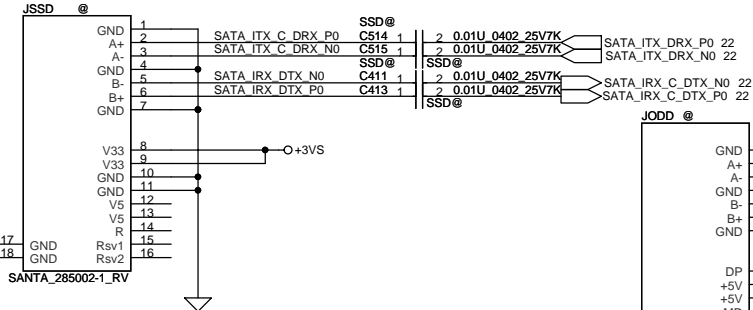
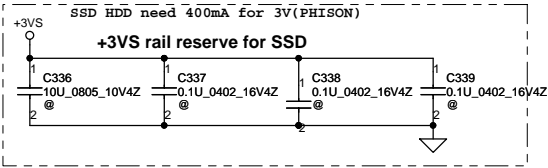
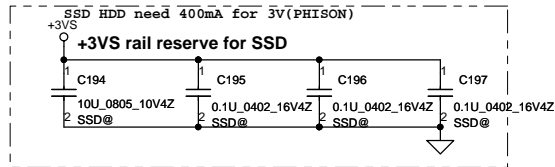


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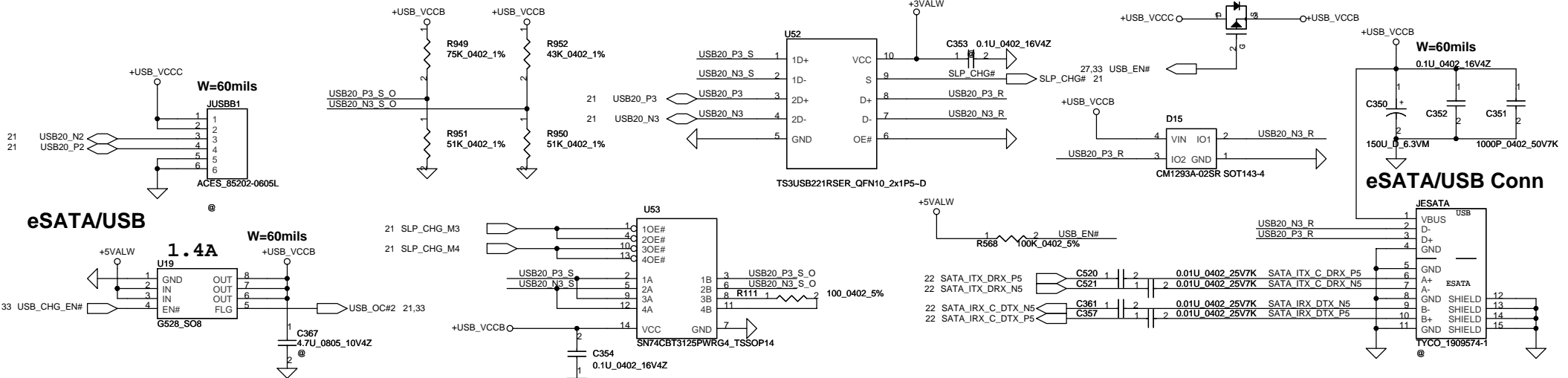




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~~SSD Conn.~~

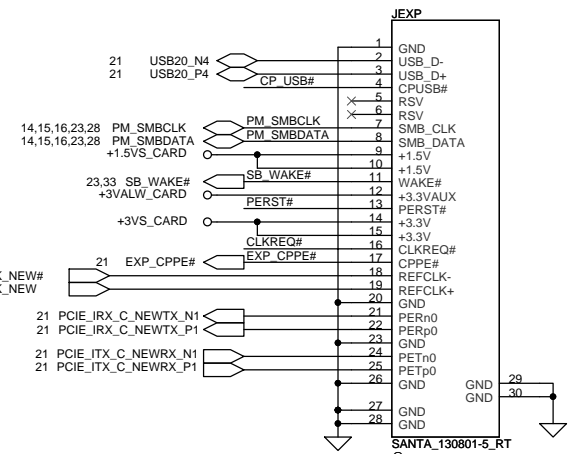
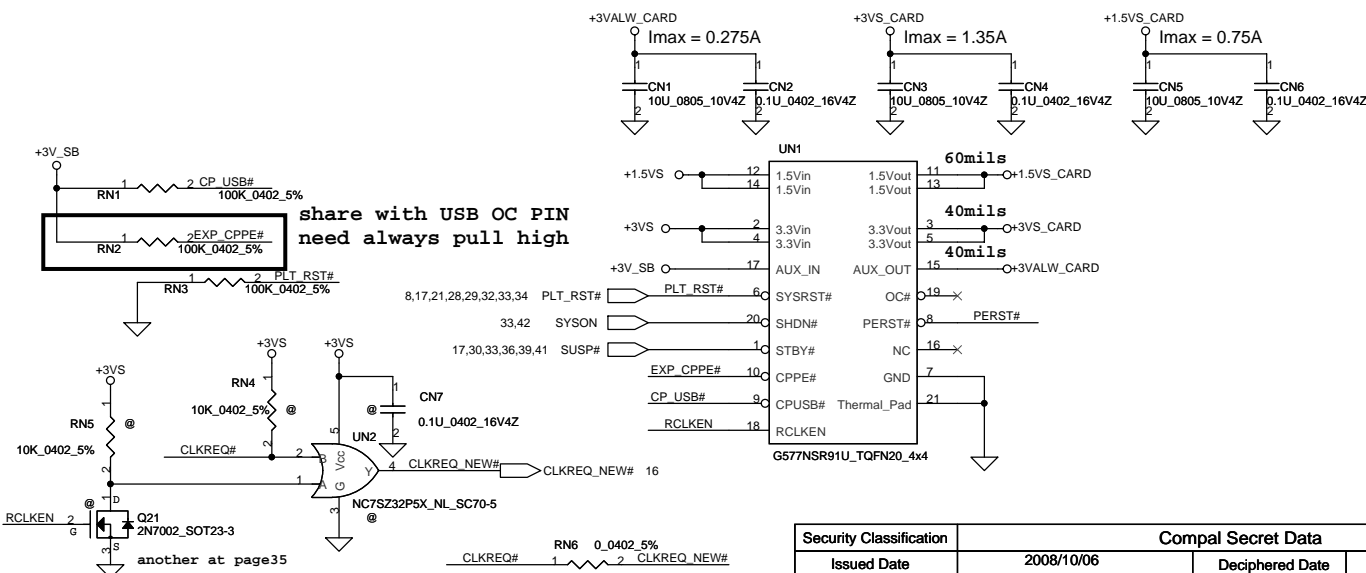
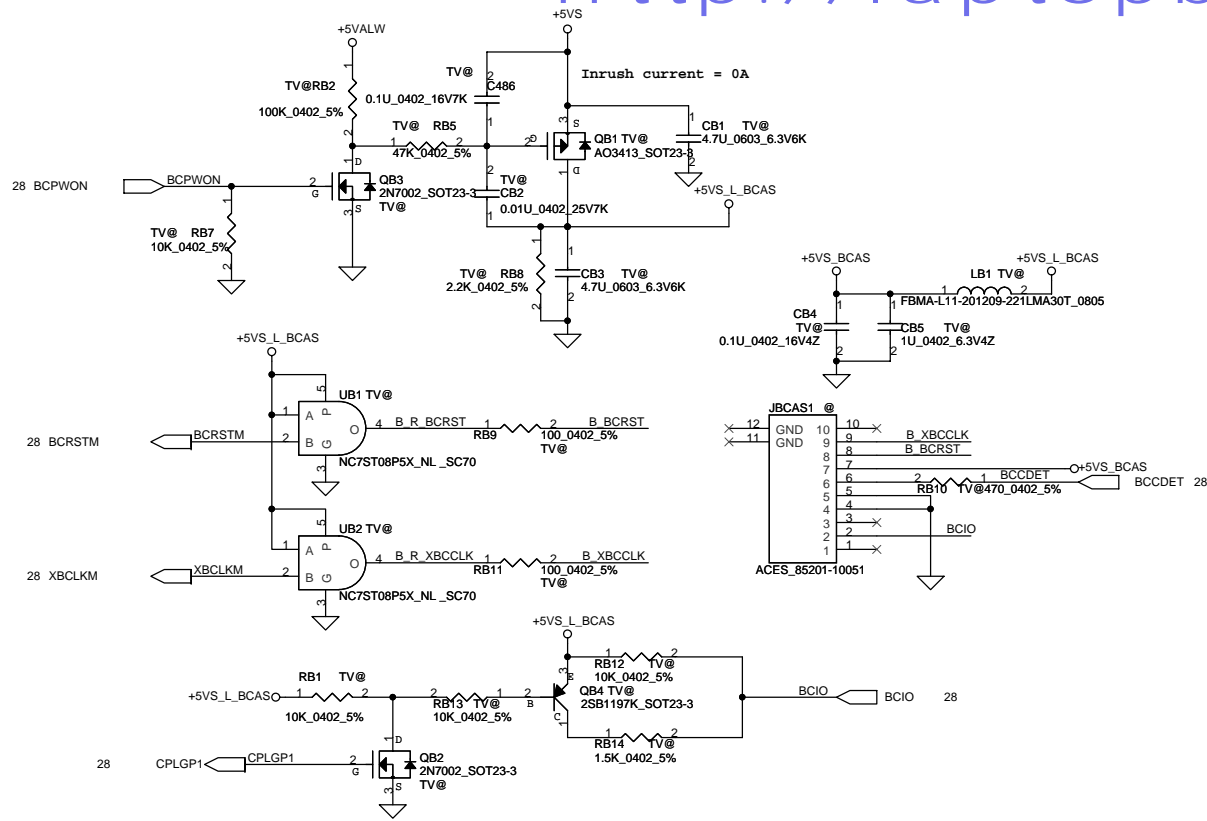
## eSATA/USB



SLP_CHG	FUNCTION
LOW	D=1D
HIGH	D=2D

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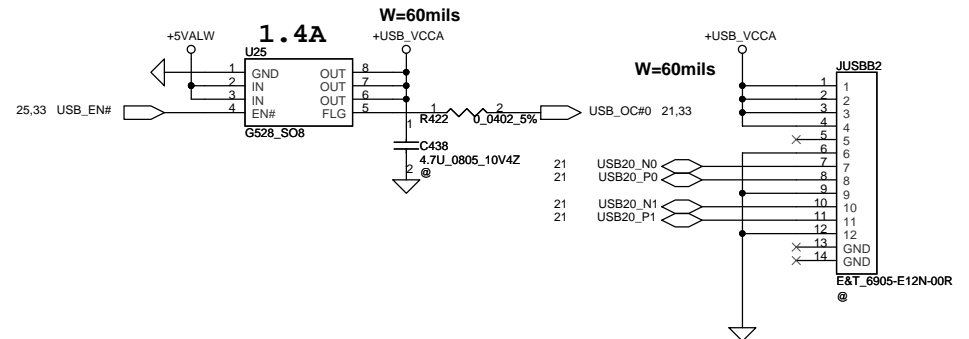
# B-CAS Circuit



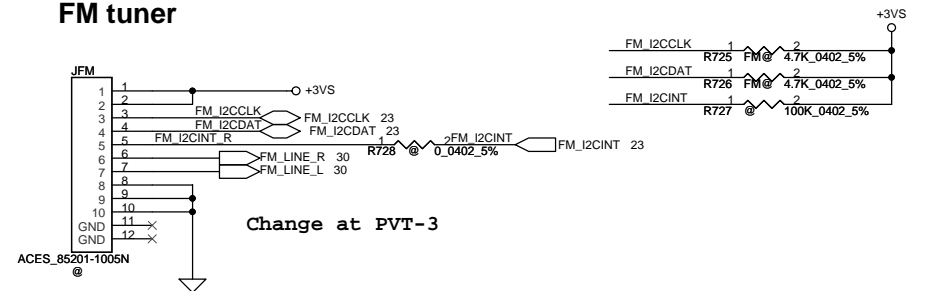
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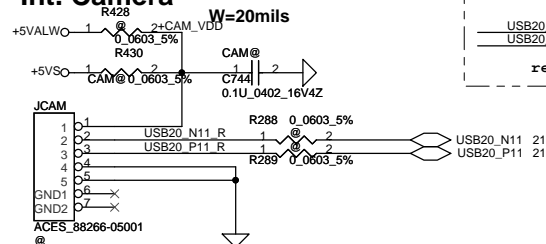
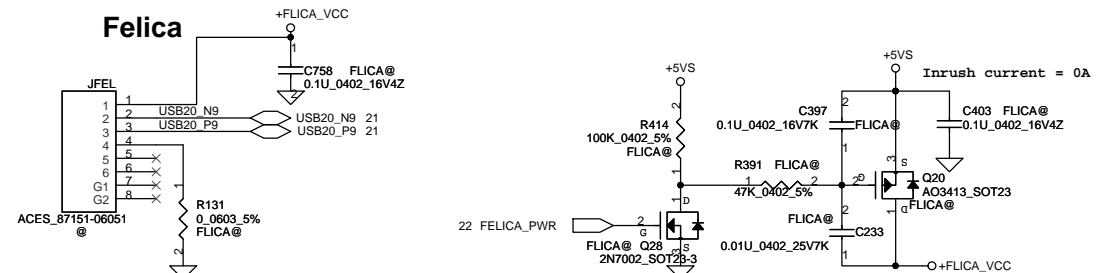
Right USB Board



## FM tuner

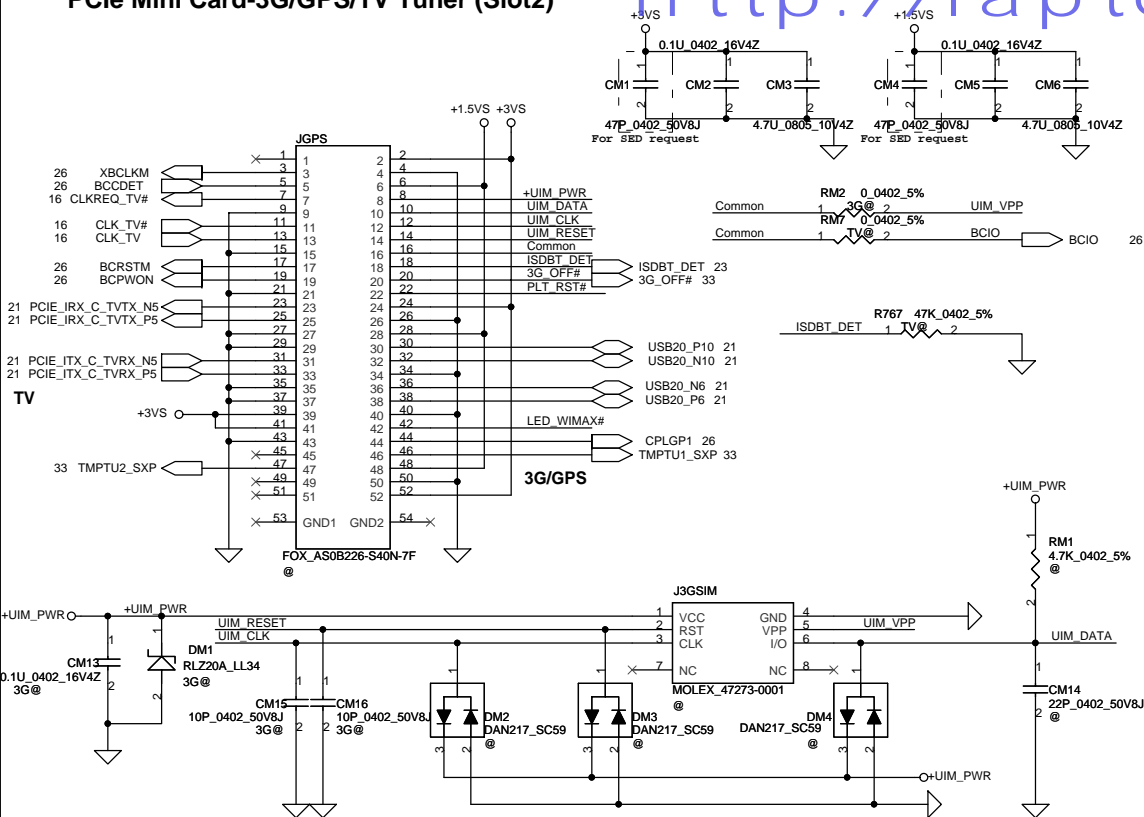


## Felica

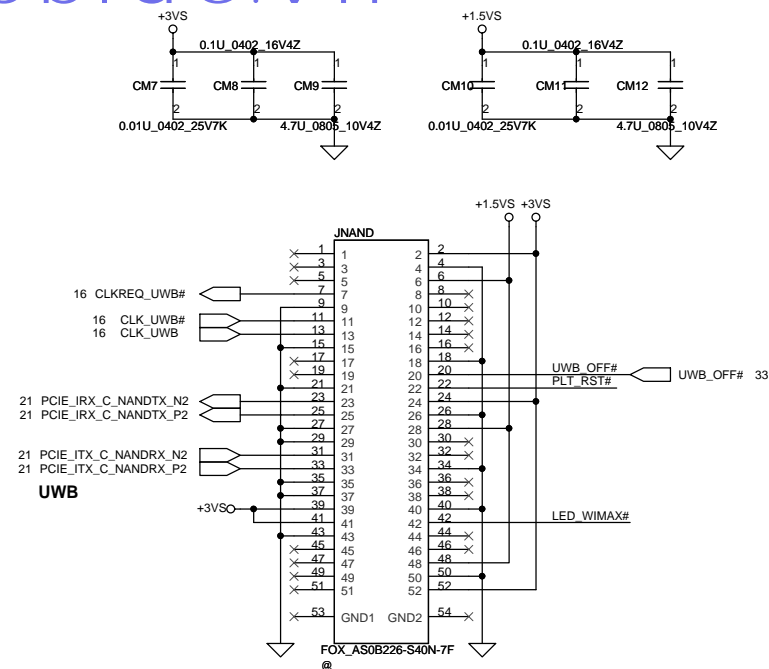


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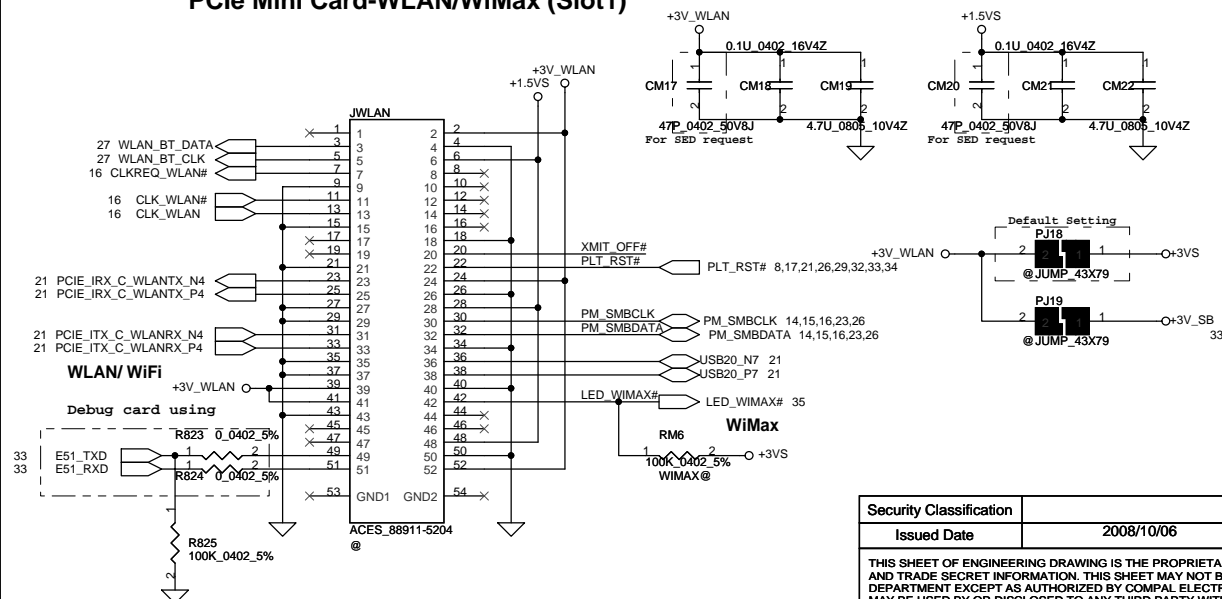
## PCIe Mini Card-3G/GPS/TV Tuner (Slot2)



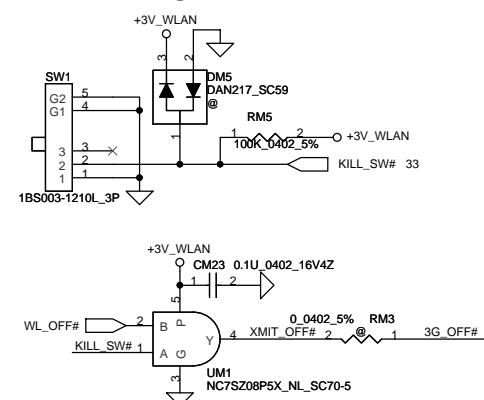
## UWB/JET (Slot3)



## PCIe Mini Card-WLAN/WiMax (Slot1)



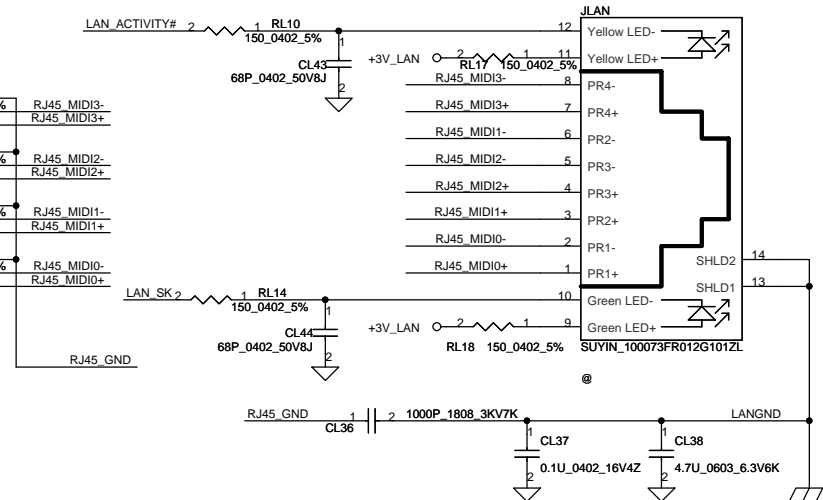
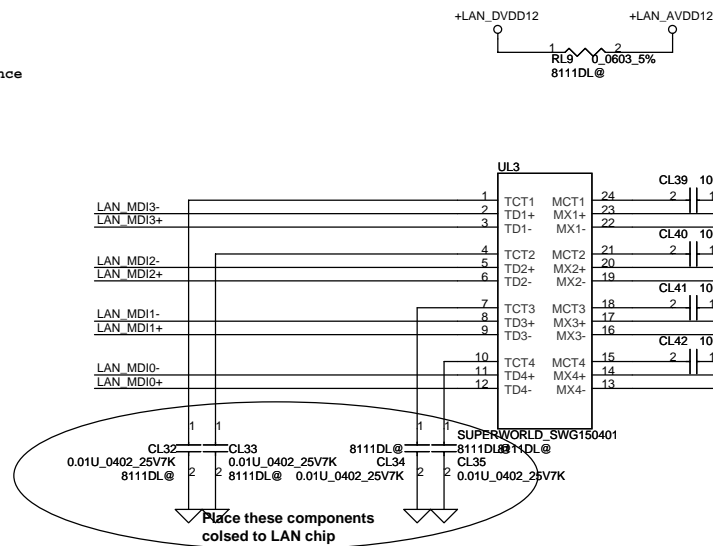
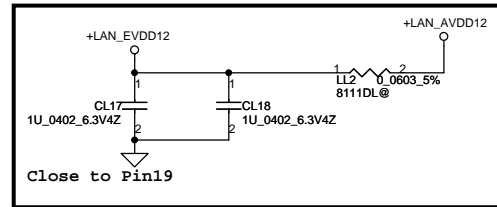
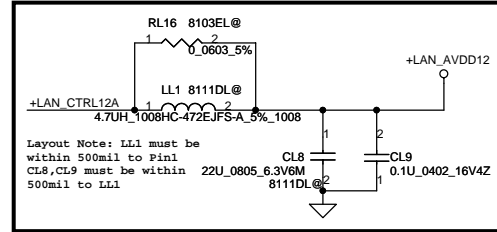
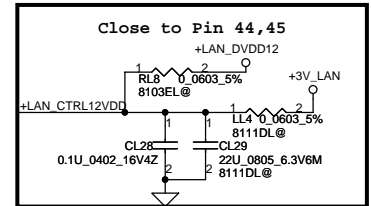
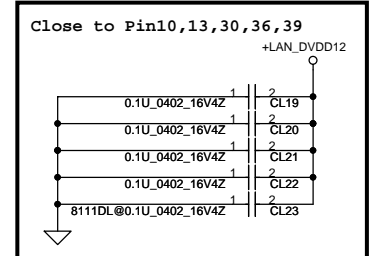
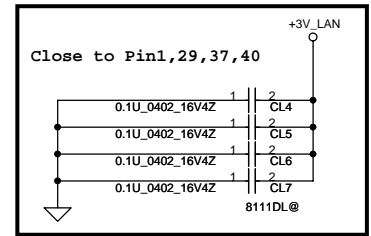
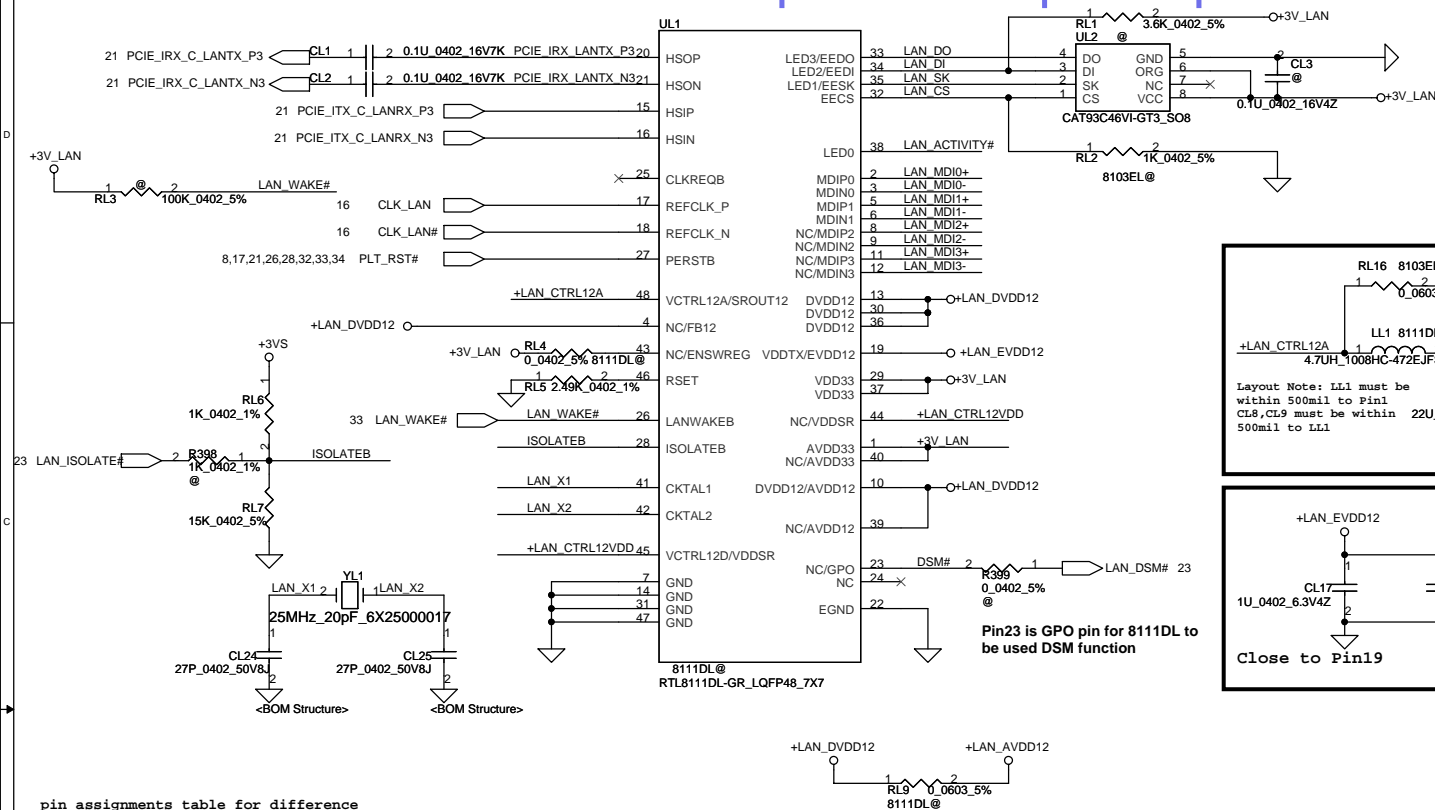
## Kill SWITCH



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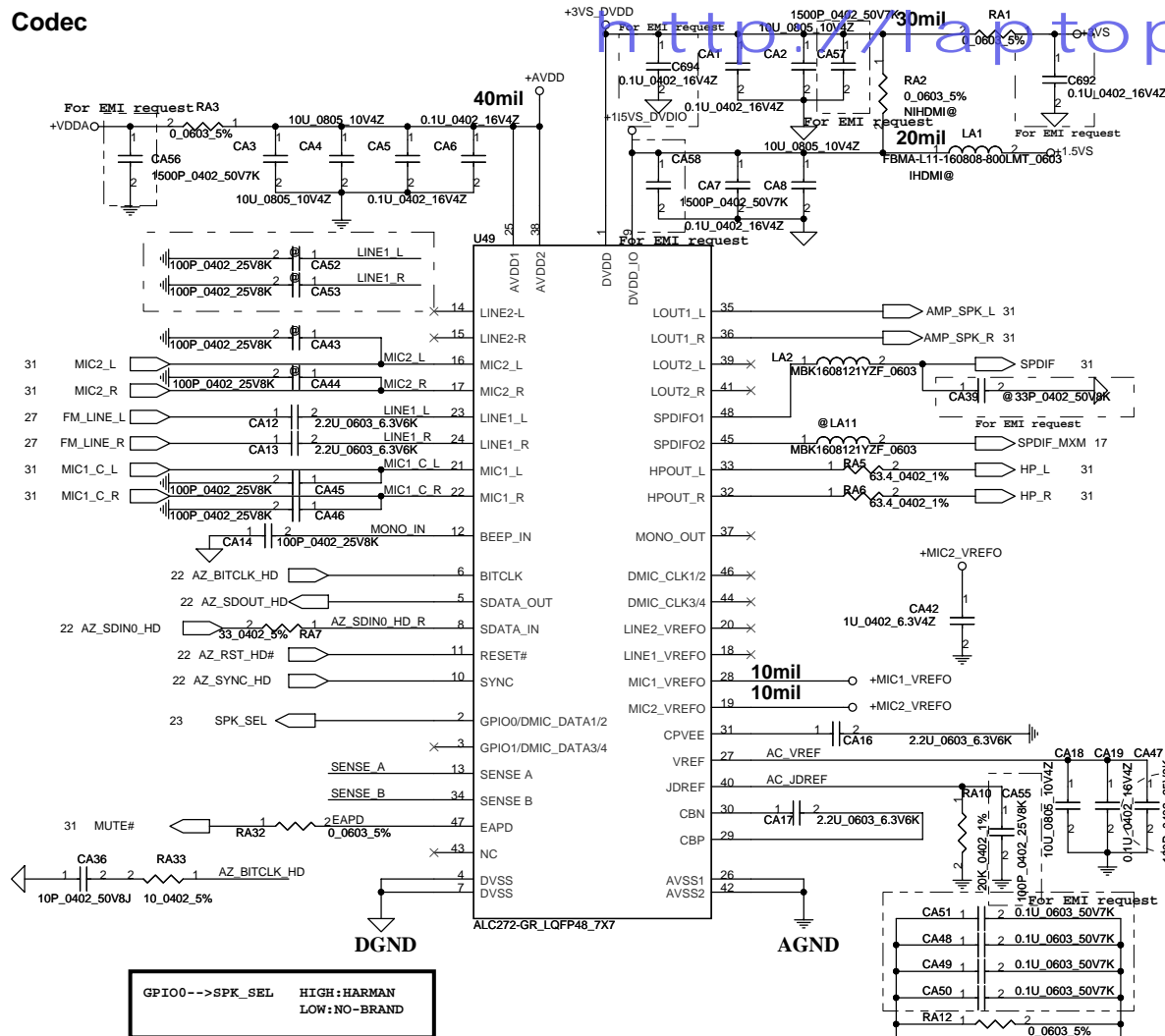


Pin	8111DL	8103EL
4	FB12	NC
8	MD1P2	NC
9	MD1N2	NC
10	AVDD12	DYDD12
11	MD1P3	NC
12	MD1N3	NC
19	EVDD12	VDDTX
23	GPO	NC
33	EEDO	LED3
34	EEDI	LED2
35	EESK	LED1
39	AVDD12	NC
40	AVDD33	NC
43	ENSR	NC
44	VDDSR	NC
45	VDDSR	VTCL12D
48	SROUT12	VTCL12A

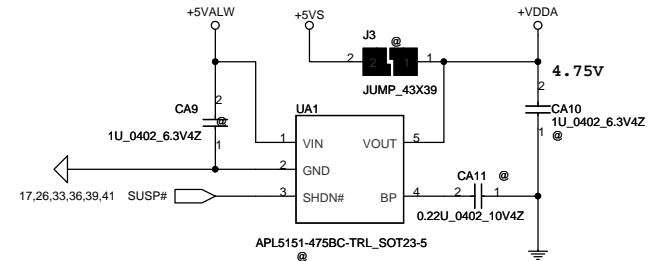
**LAN Conn.**

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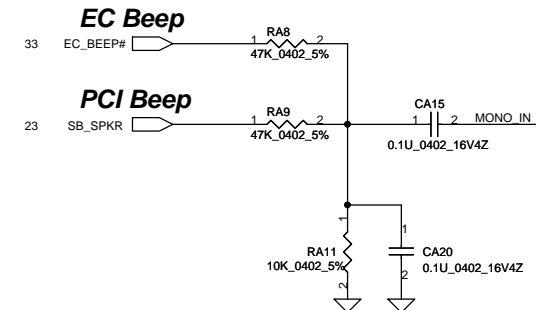
## Codec



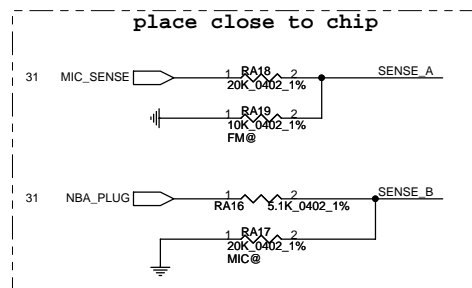
# Audio regulator



### Beep sound

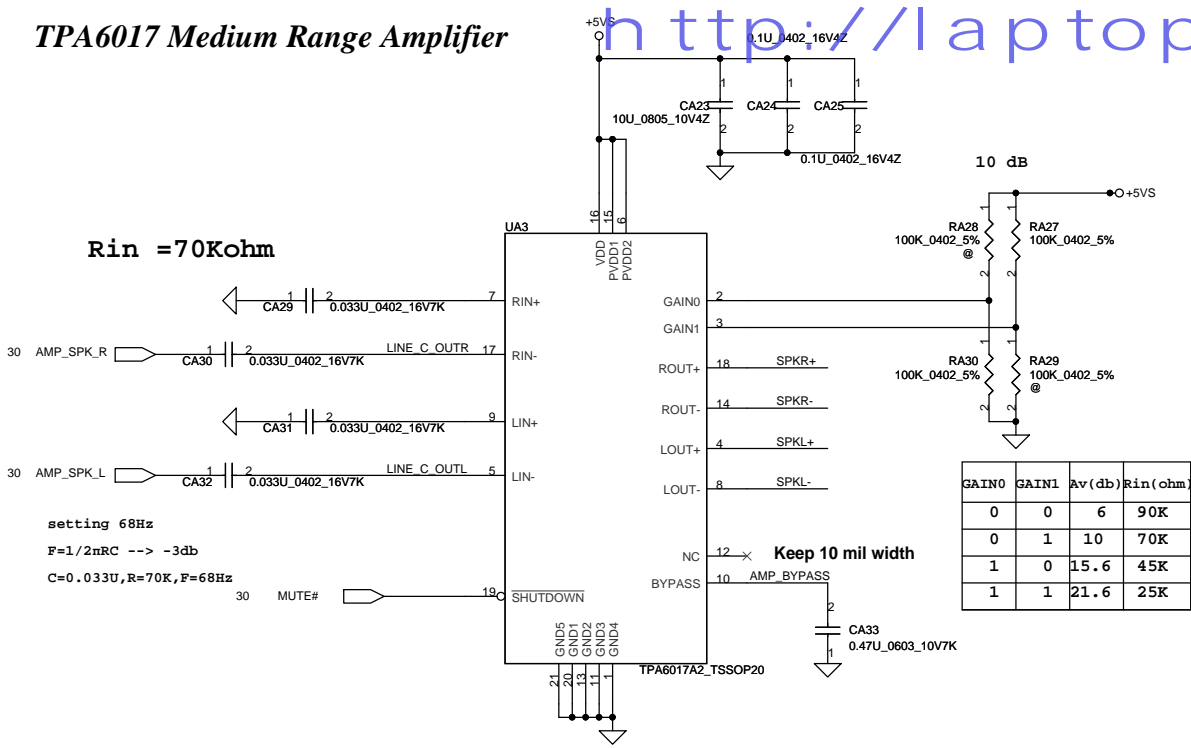


Sense Pin	Impedance	Codec Signals	Function
SENSE A	39.2K	PORT-A (PIN 39, 41)	
	20K	PORT-B (PIN 21, 22)	Ext. MIC
	10K	PORT-C (PIN 23, 24)	FM tuner
	5.1K	PORT-D (PIN 35, 36)	SPK out
SENSE B	39.2K	PORT-E (PIN 14, 15)	
	20K	PORT-F (PIN 16, 17)	Int. MIC
	10K	PORT-H (PIN 37)	
	5.1K	PORT-I (PIN 32, 33)	Headphone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



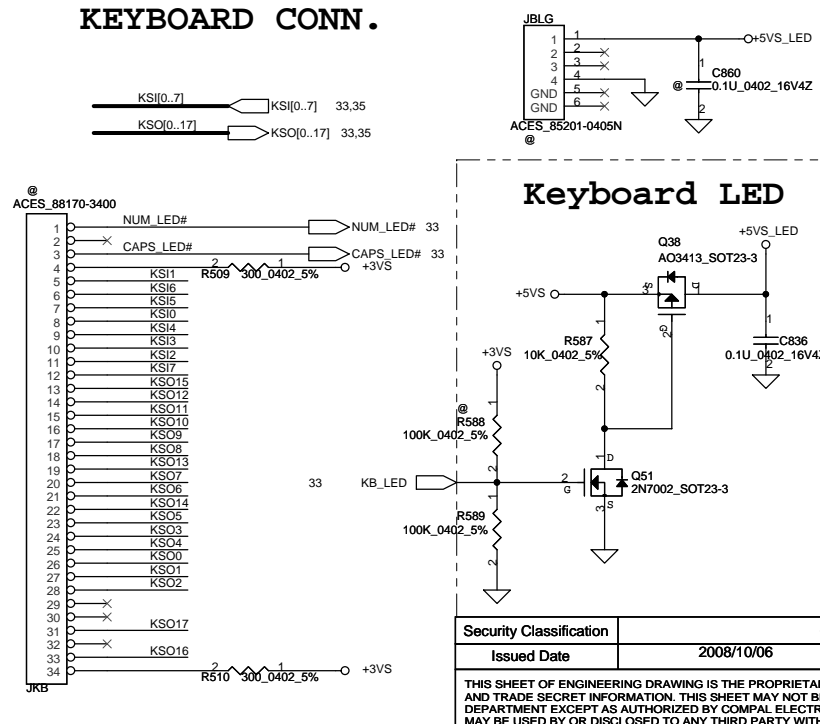
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# TPA6017 Medium Range Amplifier

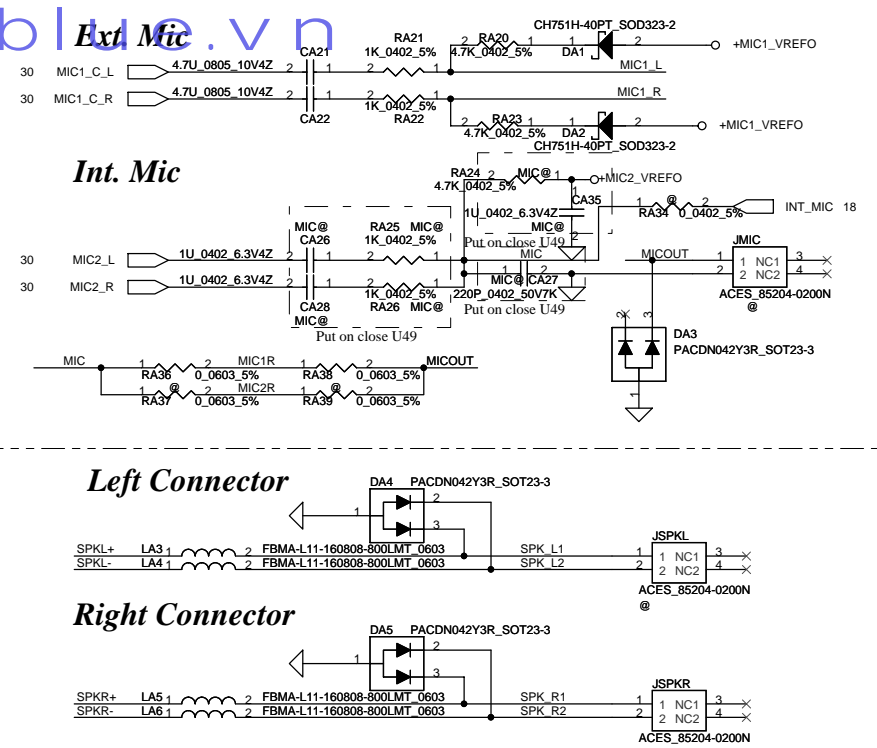


KSO10	C803	100P_0402_25V8K
KSO11	C804	100P_0402_25V8K
KSO12	C805	100P_0402_25V8K
KSO15	C807	100P_0402_25V8K
KSI7	C808	100P_0402_25V8K
KSI2	C810	100P_0402_25V8K
KSI3	C811	100P_0402_25V8K
KSI4	C812	100P_0402_25V8K
KSI0	C813	100P_0402_25V8K
KSI5	C814	100P_0402_25V8K
KSI6	C815	100P_0402_25V8K
KSI1	C816	100P_0402_25V8K
CAPS_LED#	C817	100P_0402_25V8K
NUM_LED#	C818	100P_0402_25V8K
KSO16	C809	100P_0402_25V8K
KSO17	C806	100P_0402_25V8K
KSO2	C793	100P_0402_25V8K
KSO1	C790	100P_0402_25V8K
KSO0	C791	100P_0402_25V8K
KSO4	C792	100P_0402_25V8K
KSO3	C795	100P_0402_25V8K
KSO5	C796	100P_0402_25V8K
KSO14	C797	100P_0402_25V8K
KSO6	C798	100P_0402_25V8K
KSO7	C799	100P_0402_25V8K
KSO13	C800	100P_0402_25V8K
KSO8	C801	100P_0402_25V8K
KSO9	C802	100P_0402_25V8K

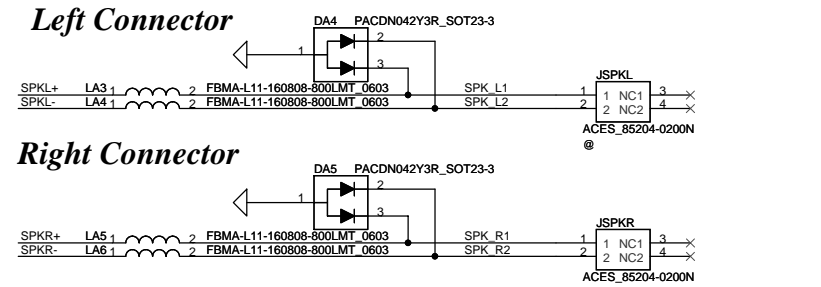
## KEYBOARD CONN.



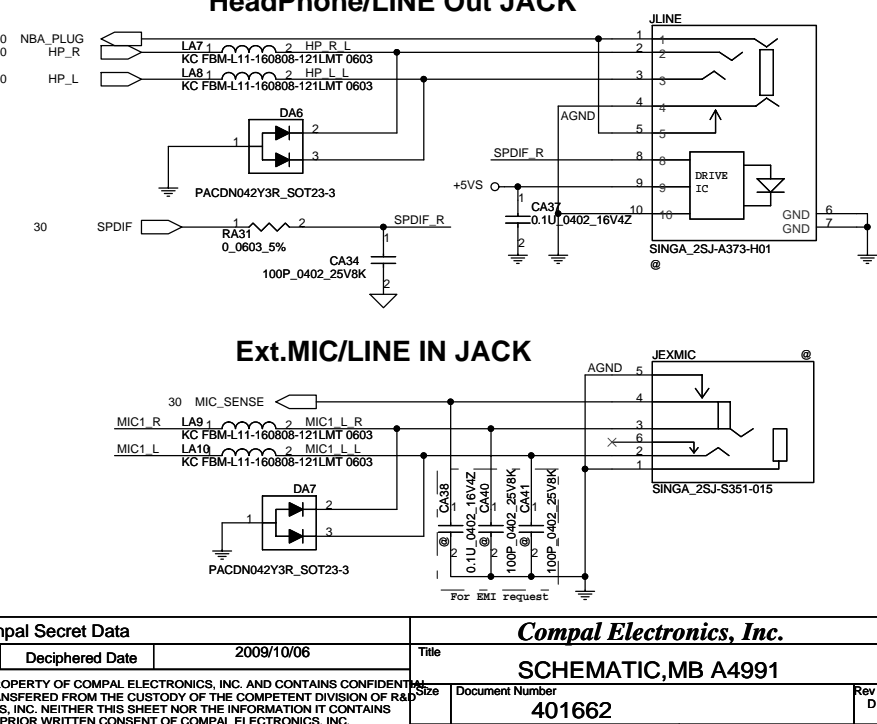
# Ext Mic



## Left Connector

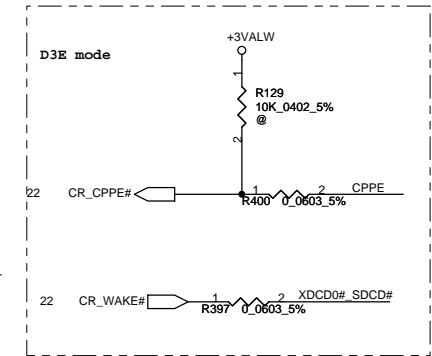
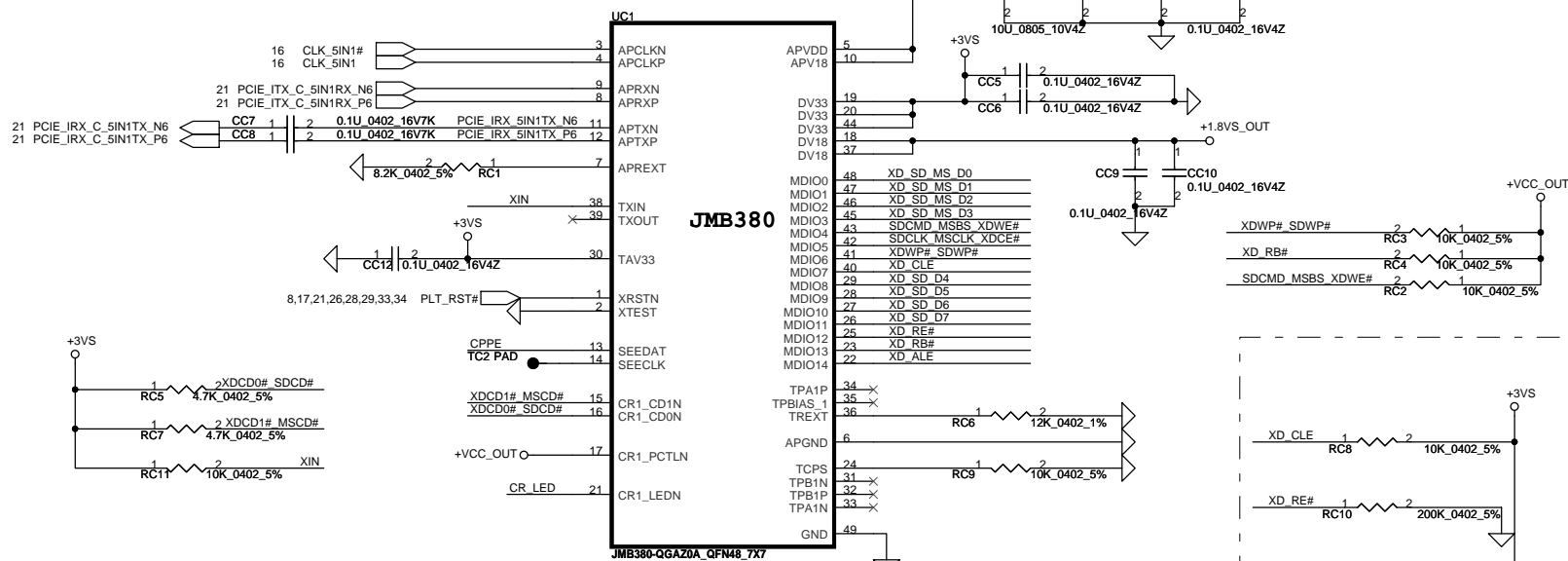


## HeadPhone/LINE Out JACK



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## Power Circuit

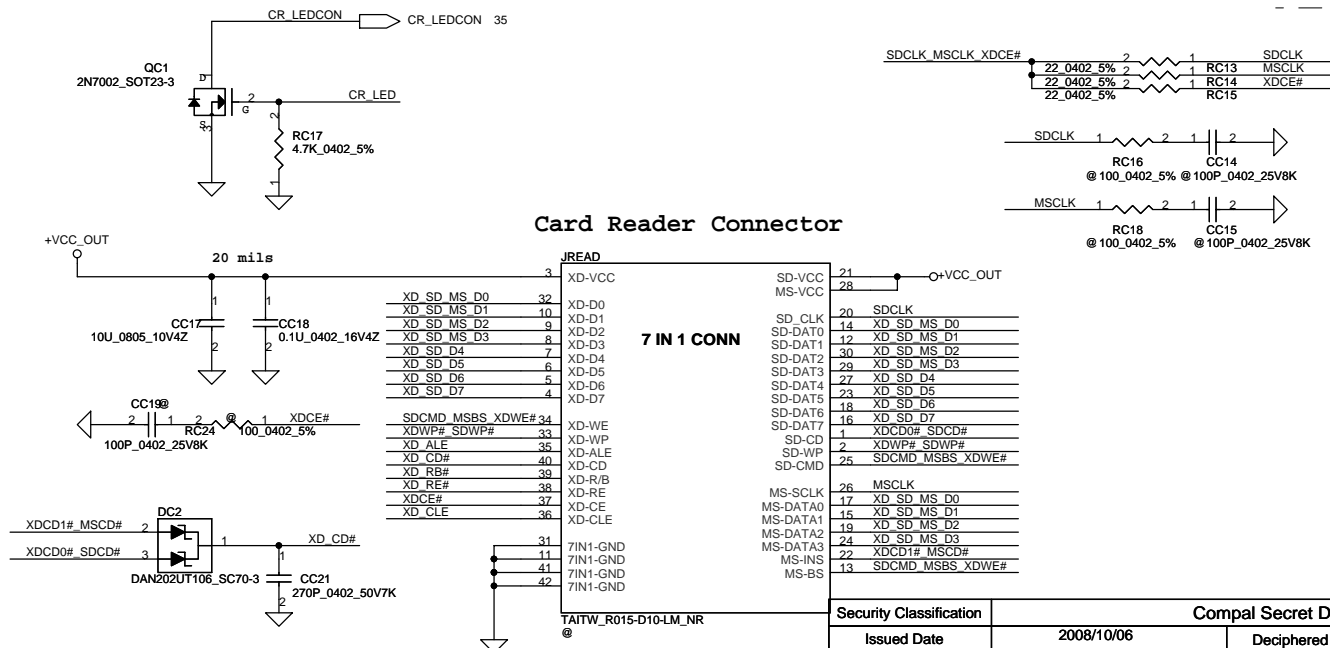


## Strapping setting

Pin name	Description	
	High	low
MDIO7	on-board	add-in card
MDIO12	+VCC_OUT high active	+VCC_OUT low active
MDIO14	CR_LED high active	CR_LED low active

P.S CR1\_PCTLN aslo can out 3V with 250mA for 5IN1 using.(MDIO12 can't be seted after MP IC)

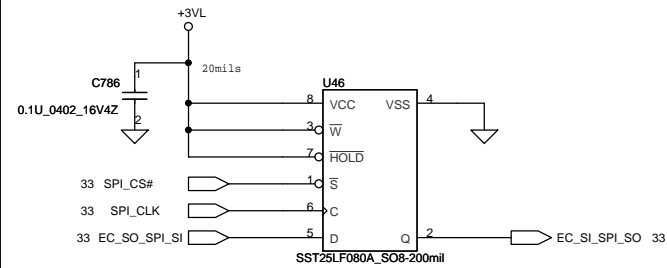
## Card Reader Connector



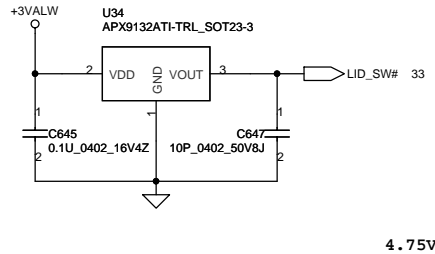
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## SPI Flash (16Mb\*1)

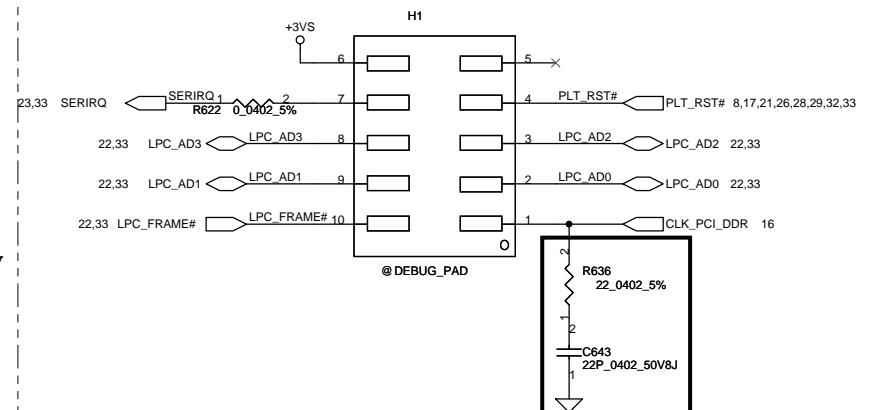


## Lid SW

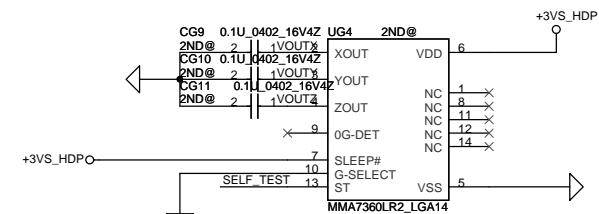
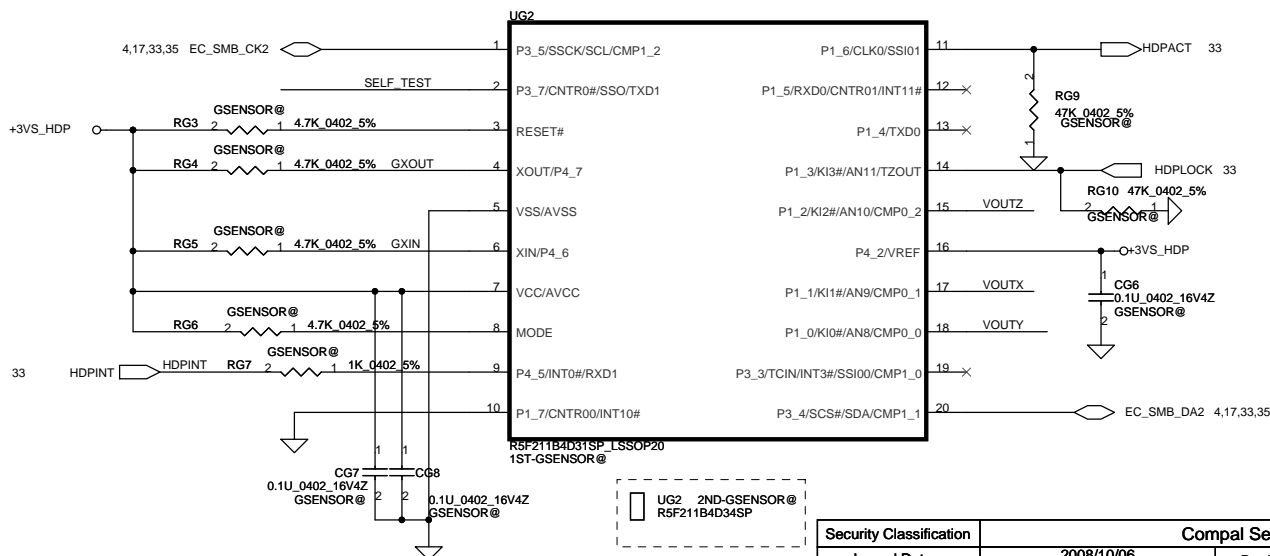
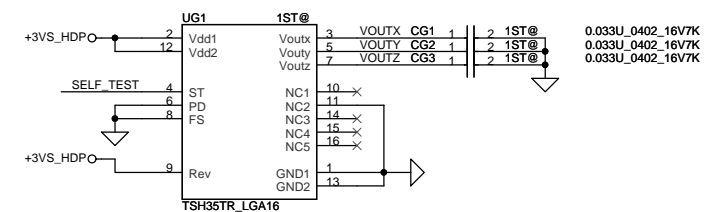
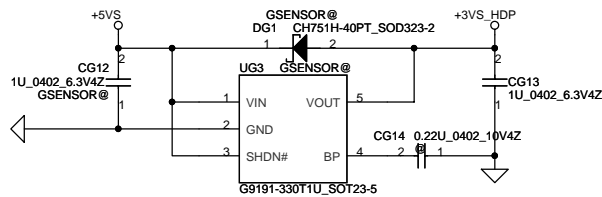


## LPC Debug Port

Please place the PAD under DDR DIMM.



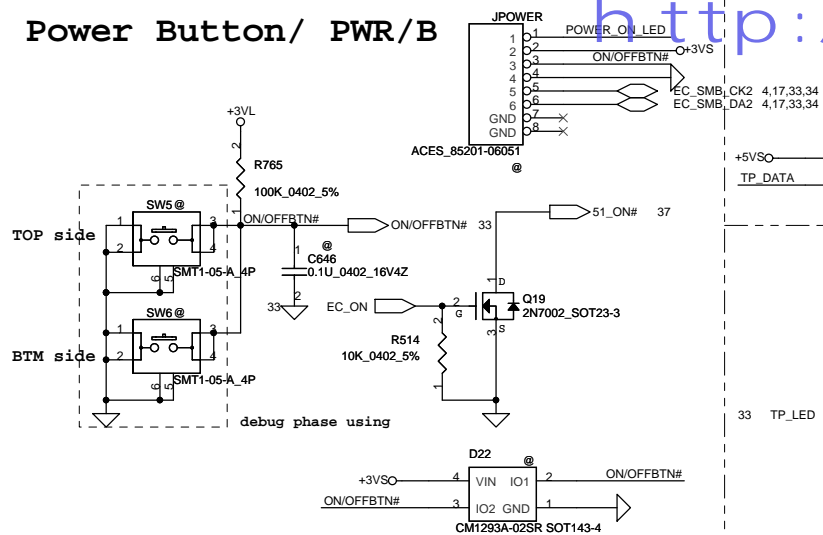
## G-Sensor



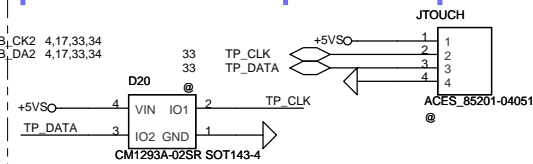
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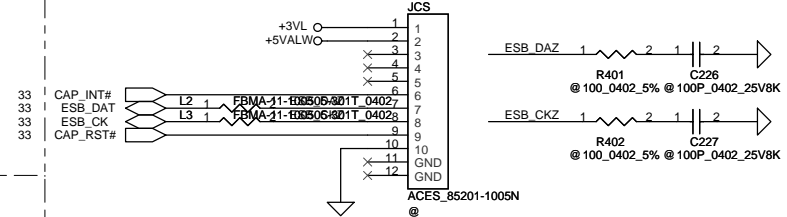
**Power Button/ PWR/B**



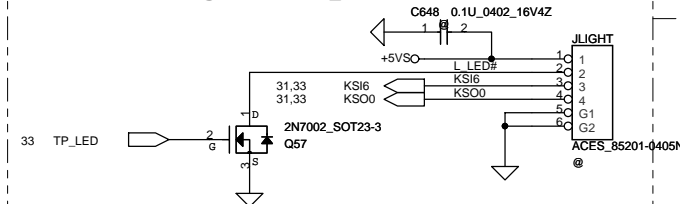
## Touch/B Connector



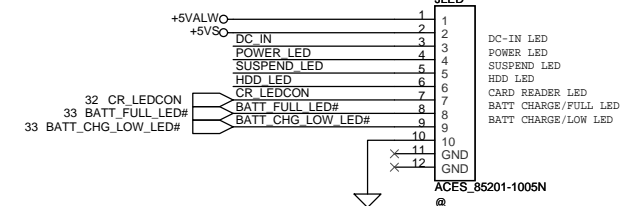
## / Caps Sensor Connector



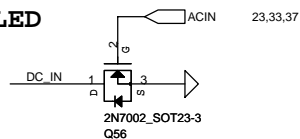
## Light Pipe Connector



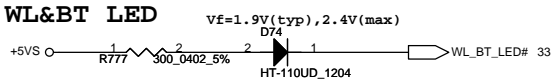
## LED/B Connector



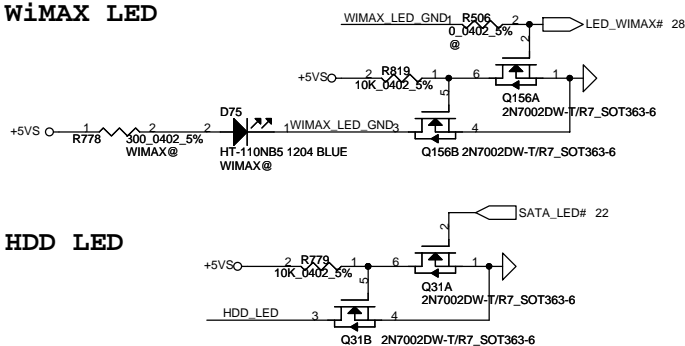
DC-IN LED



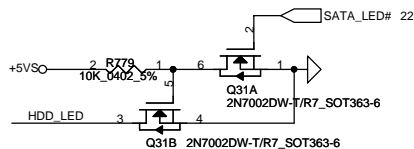
WL&BT LED



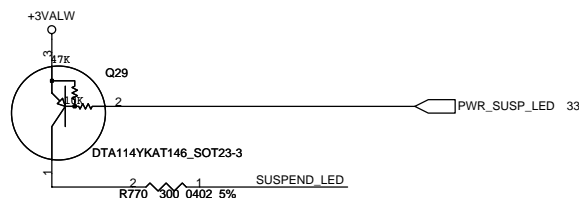
## Wimax LED



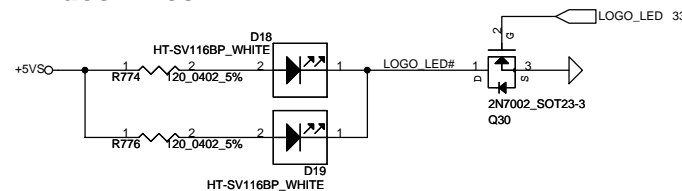
## HDD LED



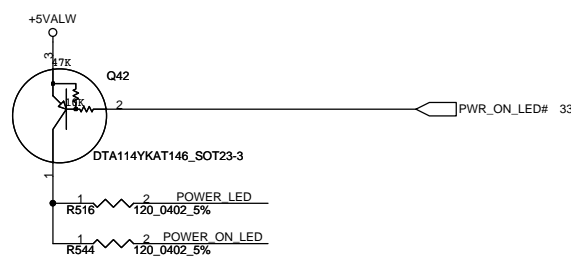
SUSPEND LED



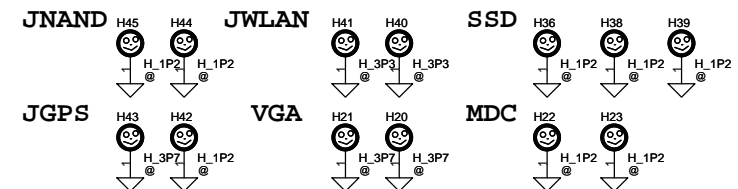
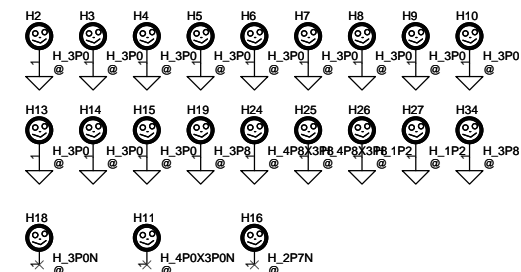
## Satellite LED



## POWER LED



## Screw Hole



## PCB Fedical Mark PAD

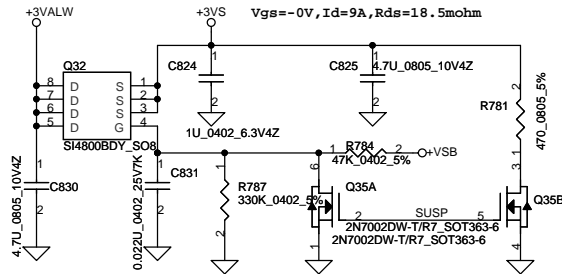


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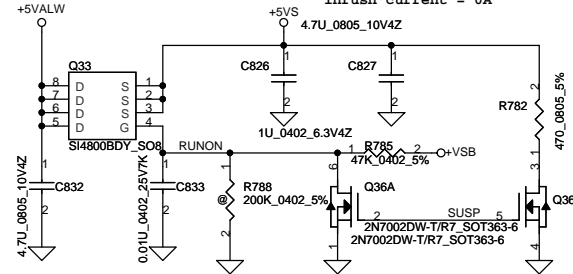
### +3VALW TO +3VS

Inrush current = 0A  
Vgs=-0V, Id=9A, Rds=18.5mohm



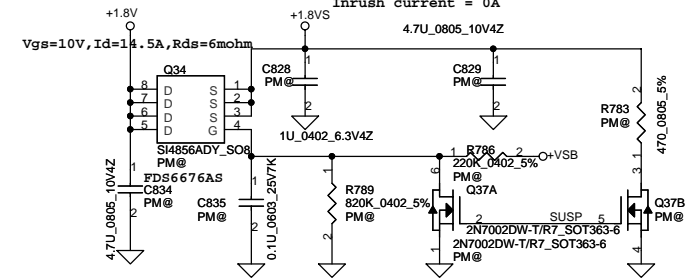
### +5VALW TO +5VS

Inrush current = 0A



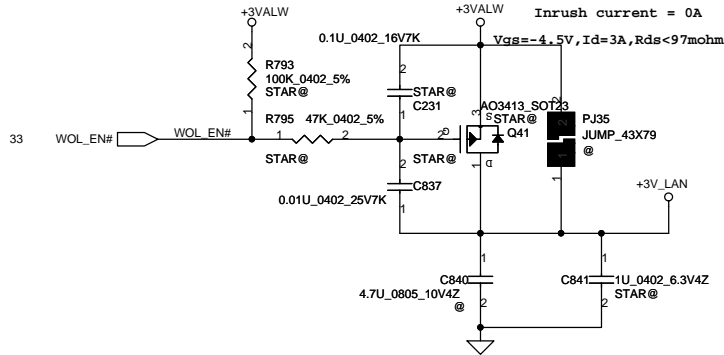
### +1.8V to +1.8VS

Inrush current = 0A



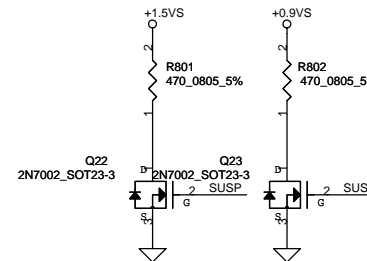
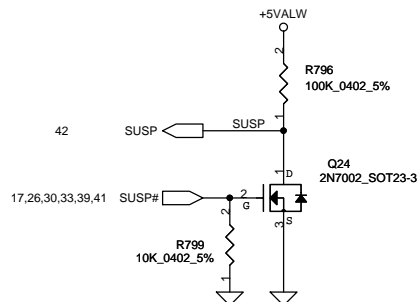
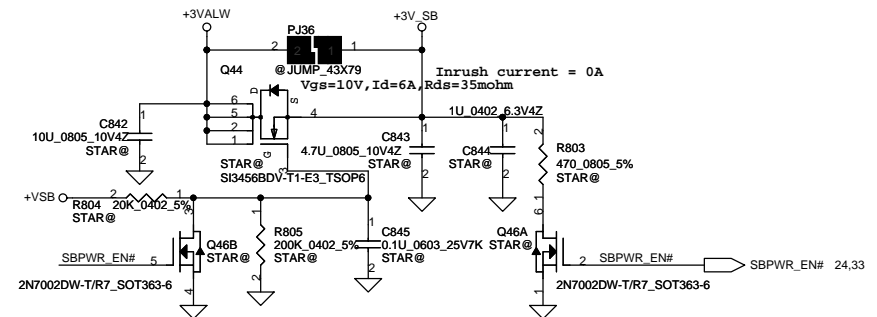
### +3VALW TO +3V\_LAN

Inrush current = 0A



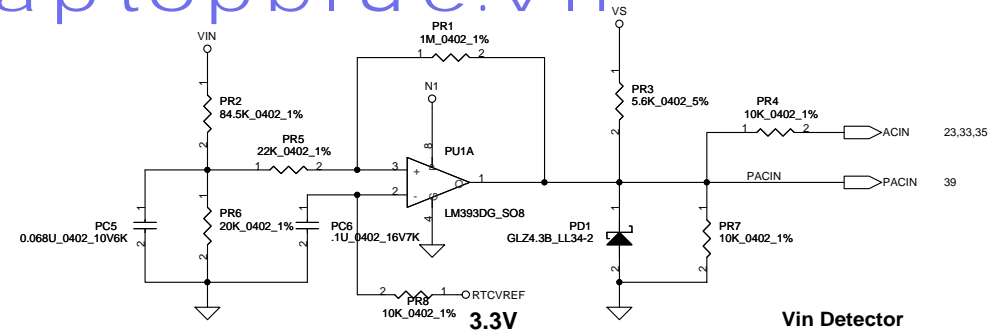
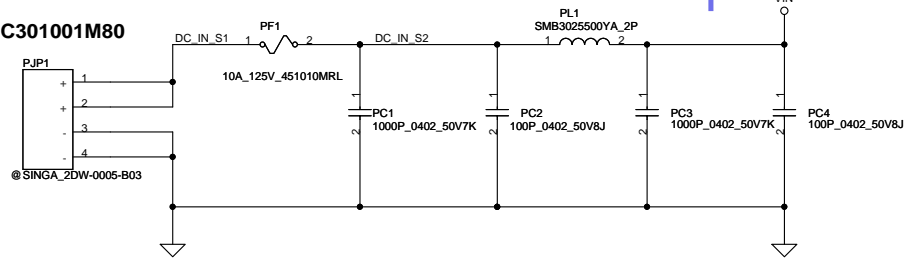
### +3VALW TO +3V\_SB

Inrush current = 0A



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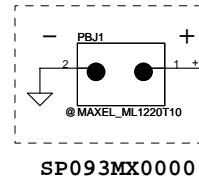
# DC301001M80



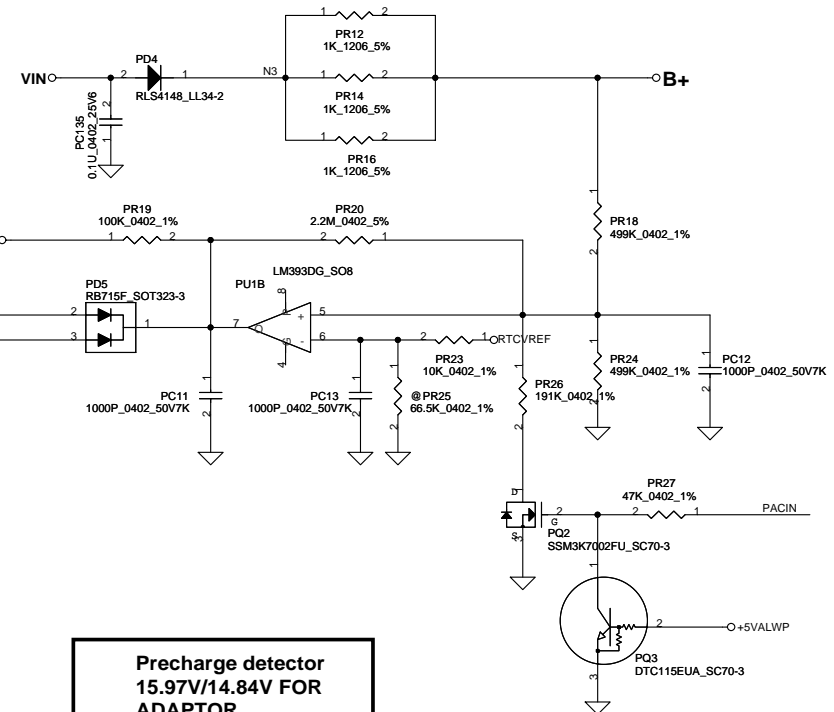
## Vin Detector

High 18.384 17.901 17.430  
Low 17.728 17.257 16.976

## RTC Battery



40 EN0  
39 ACON



Precharge detector  
15.97V/14.84V FOR  
ADAPTOR

+3VALWP 2 1 +3VALW  
@JUMP\_43X118  
(5A,200mils ,Via NO.= 10)  
OCP(min)=7.7A

+1.8VP 2 1 +1.8V  
@JUMP\_43X118  
(8A,320mils ,Via NO.= 16)  
OCP(min)=10.28A

VL 2 1 +5VL  
@JUMP\_43X39  
(100mA,40mils ,Via NO.= 2)

+5VALWP 2 1 +5VALW  
@JUMP\_43X118  
(5A,200mils ,Via NO.= 10)  
OCP(min)=7.9A

+1.05VSP 2 1 +1.05VS  
@JUMP\_43X118  
(10A,400mils ,Via NO.=20)  
OCP(min)=12.32A

+3VLP 2 1 +3VL  
@JUMP\_43X39  
(100mA,40mils ,Via NO.= 2)

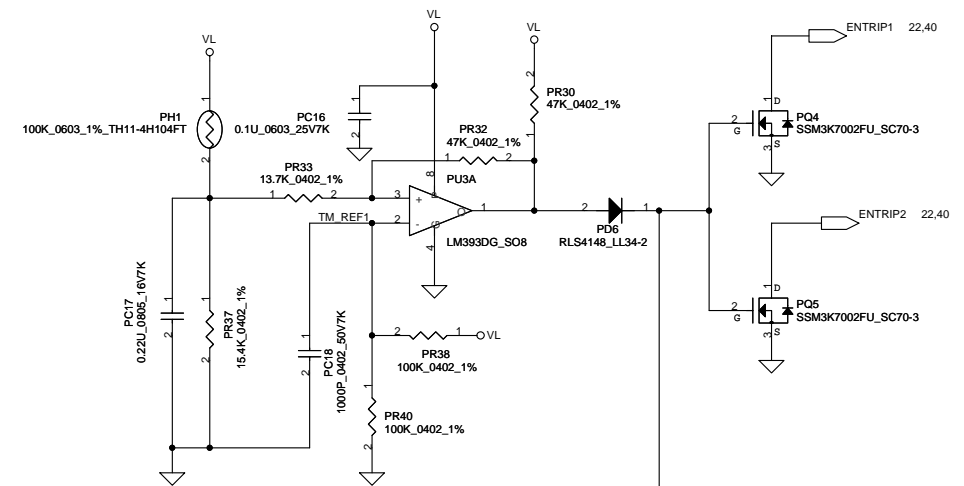
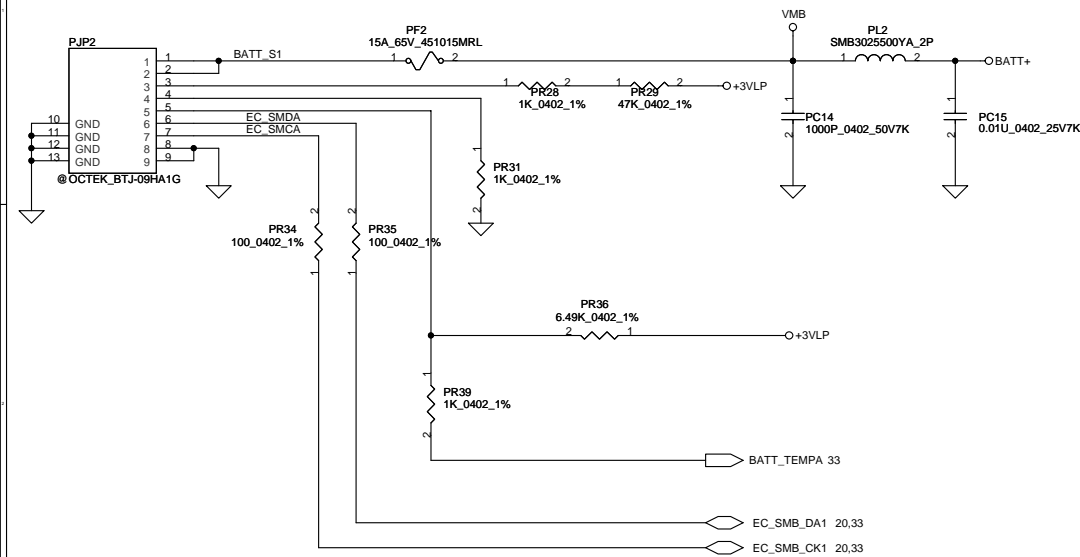
+VSBP 2 1 +VSB  
@JUMP\_43X39  
(120mA,40mils ,Via NO.= 1)

+0.9VSP 2 1 +0.9VS  
@JUMP\_43X79  
(2A,80mils ,Via NO.= 4)

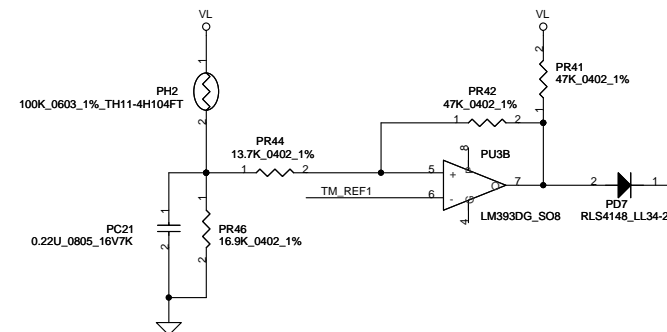
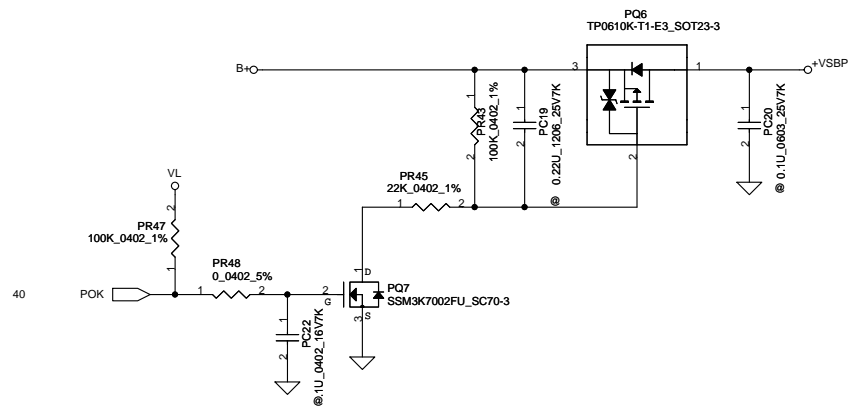
+1.5VSP 2 1 +1.5VS  
@JUMP\_43X79  
(6.0A,240mils ,Via NO.=12)  
OCP(min)=7.96A

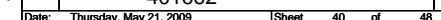
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PH1 under CPU botten side :  
CPU thermal protection at 92 degree C  
Recovery at 56 degree C

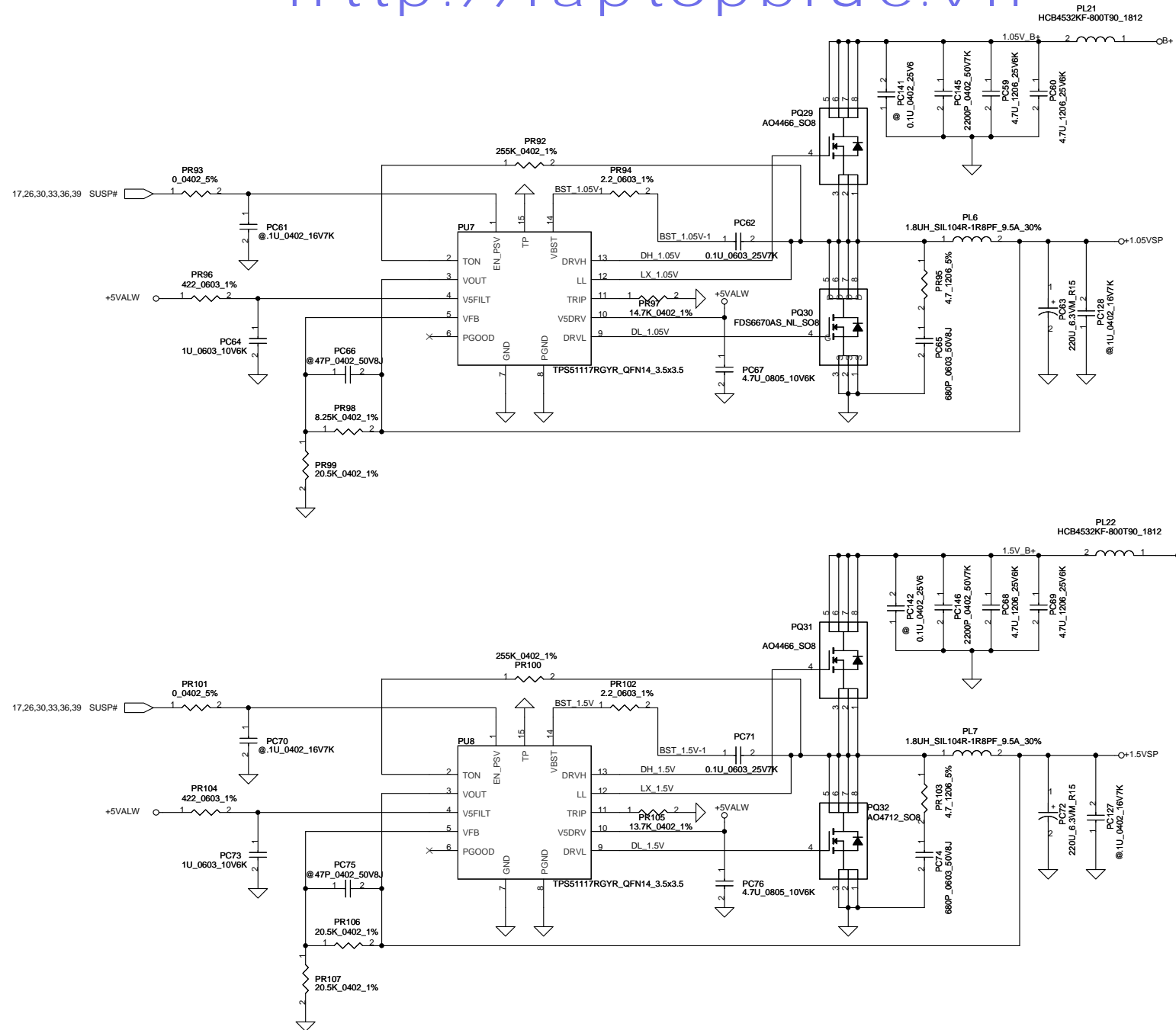


PH2 near main Battery CONN :  
BAT. thermal protection at 90 degree C  
Recovery at 53 degree C

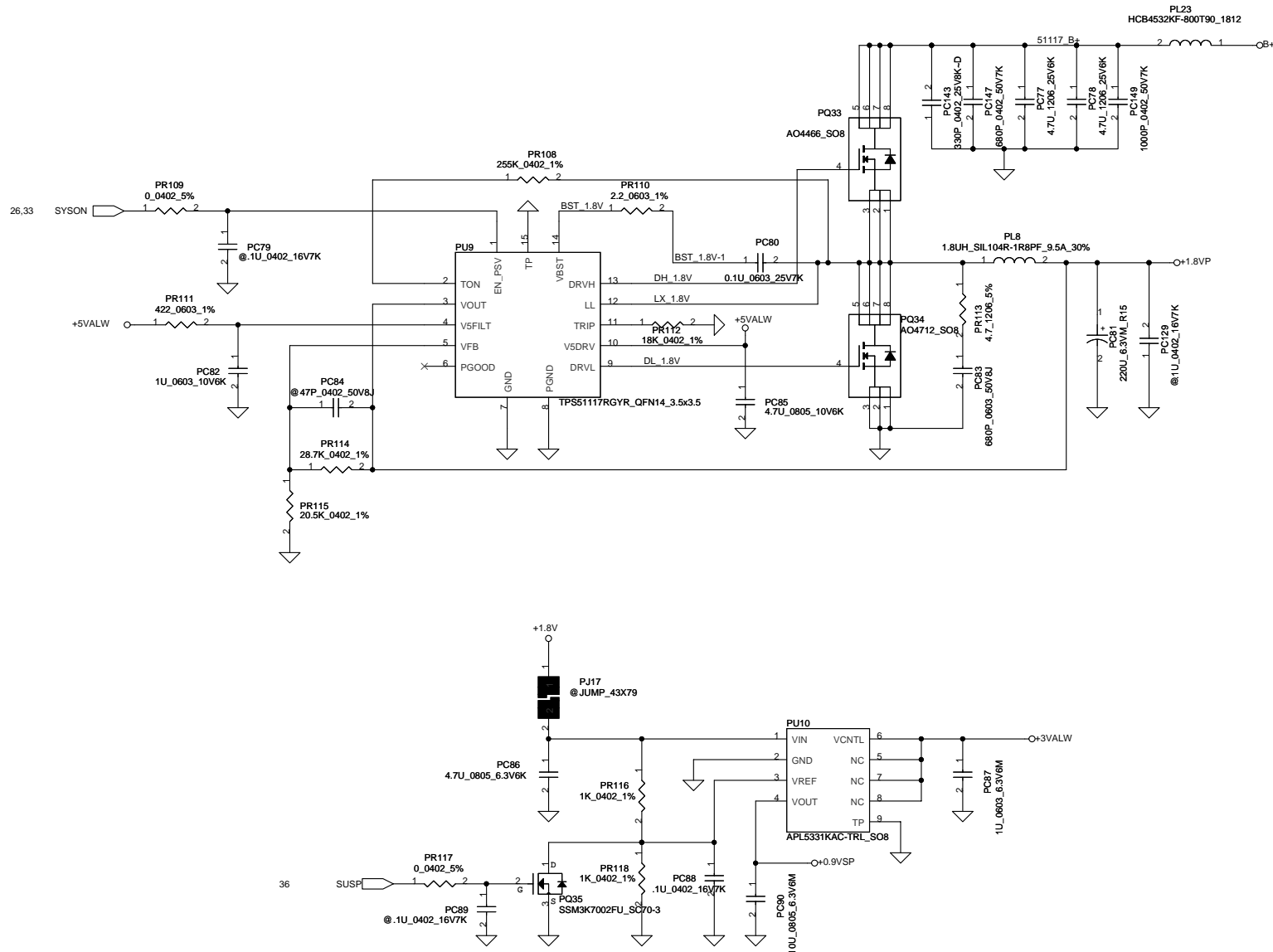




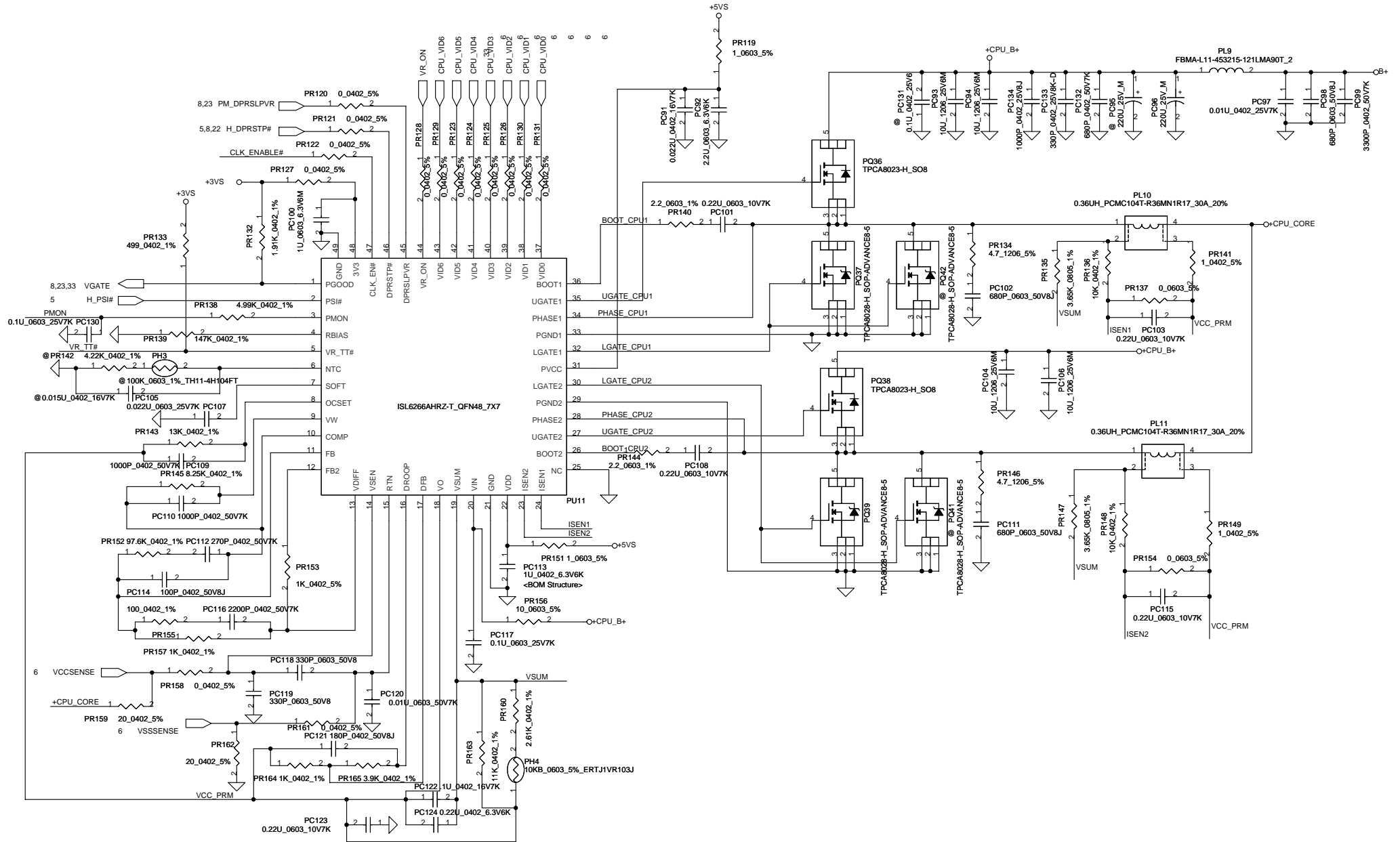








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NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
EVT		DCIN/DECTOR	Change location PU3A to PU1B	Circuit modify
			Change ENTRIP1 to EN0 ,ENTRIP2 to ACON VL to RTCVREF in PR23 Pin6 Change PR23 to10k ohm, PR25 to unpop Delete PD13	
EVT		BATTERY CONN/OTP	Change location PU4A to PU3A	Circuit modify
EVT		+CPU_CORE	Add PR137 0ohm_0402,PR154 0ohm_0402	Circuit modify
EVT		3VALWP/5VALWP	Change PR82 and PR83 to 2.2ohm Add PC136 1000P_0402,PC137 330P_0402, PC138 680P_0402	EMI request
EVT		1.8VP/0.9VSP	Change PR110 to 2.2ohm	EMI request
EVT		+CPU_CORE	Change PR140 and PR144 to 2.2ohm, PL9 to FBMA-L11-453215-121LMA90T_2 Add PC131 0.1U_00402,PC132 680P_0402, PC133 330P_0402, PC134 1000P_0402 PC102 680P_0603,PC111_680P_0603 PR134 4.7ohm _0402,PR146 4.7ohm_0402	EMI request
EVT		CHARGER	Change PR70 to 24k ohm	Circuit modify for 75W
EVT		CHARGER	Change PL3 to 10UH_4.5A_20%,PR71 to 120Kohm	Circuit modify
DVT		1.8VP/0.9VSP	Add PC143 330P_0402,PC147 680P_0402 PC149 680P_0402	EMI request
DVT		CHARGER	Add PC139 0.1U_0402, PC144 2200P_0402, PC140 680P_0603,PR166 4.7ohm_0603 Change PR69 to 2.2 ohm	SED request
DVT		3VALWP/5VALWP	Add PC148 0.1U_0402,PC54 680P_0603, PC55 680P_0603,PR84 4.7ohm_1206, PR85 4.7ohm_1206	SED request
DVT		1.05V/1.5V	Add PC141 0.1U_0402, PC142 0.1U_0402, PC145 2200P_0402,PC146 2200P_0402, PC65 680P_0603,PC74 680P_0603, PR95 4.7 ohm_0402,PR103 4.7 ohm_0402 Change PR94 and PR102 to2.2 ohm	SED request
DVT		1.8VP/0.9VSP	Add PC143 0.1U_0402,PC147 2200P_0402, PC83 680P_0603,PR113 4.7 ohm_0402	SED request
DVT		CHARGER	Change PR71 to 120k ohm	Circuit modify
DVT		CHARGER	Change PR70 to 75k ohm	Circuit modify for 65W
DVT		+CPU_CORE	Change PR145 to 11.3k ohm	Circuit modify
PVT		DCIN/DECTOR	Change PU1 Pin8 from VS to N1	Circuit modify
PVT-3		DCIN/DECTOR	Change PC135 from 0.1U_0402_16V to 0.1U_0402_25V	Circuit modify
PVT-3		CHARGER	Change PR74 to 15.4k ohm Change PJ12 to PL19,add PR167 10K ohm	Circuit modify
PVT-3		3VALWP/5VALWP	Change PJ13 to PL20	Circuit modify
PVT-3		1.05V/1.5V	Change PJ14 to PL21,Change PJ15 to PL22	Circuit modify
PVT-3		1.8VP/0.9VSP	Change PJ16 to PL23	Circuit modify

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# ISPD

Revision Change: 0.1 to 0.2









NB_PM_R3	 <p>U3 CANTIGA PM PMR3@</p>	PCB	 <p>ZZZ PCB ZKU LA-4991P REV0</p>
NB_PM_R1	 <p>U3 CANTIGA PM PMR1@</p>	DC-IN	 <p>PJP1 PJP1 45@</p>
NB_G5_R3	 <p>U3 CANTIGA GM45 G5R3@</p>	Transformer	 <p>UL3 10/100M transformer 8103EL @</p>
NB_GL_R1	 <p>U3 CANTIGA GL40 GLR1@</p>	LAN	 <p>UL1 8103EL 8103EL @</p>

Diagram illustrating the layout of the 10th floor, showing various rooms and corridors. The floor is divided into two main sections: the left section (labeled '10th floor' in the top left) and the right section (labeled '10th floor' in the top right).

**Left Section (10th floor):**

- U3:** Located at the top left, adjacent to the '10th floor' label.
- NB\_GL\_R3:** Located below U3.
- U5:** Located below NB\_GL\_R3.
- NB\_GM7\_R1:** A large rectangular area located below U5.
- U6:** Located below NB\_GM7\_R1.
- NB\_GM9\_R1:** A rectangular area located below U6.
- U10:** Located below NB\_GM9\_R1.
- NB\_GM9\_R3:** A rectangular area located below U10.
- U11:** Located below NB\_GM9\_R3.

**Right Section (10th floor):**

- U9:** Located at the top right, adjacent to the '10th floor' label.
- SB\_GL\_R1:** A large rectangular area located below U9.
- ICH9-M ES** and **ICH9R1@:** Located below SB\_GL\_R1.

**Central Corridor:**

- CANTIGA GL40** and **GMLR3@:** Located between U3 and U5.
- CANTIGA GM47** and **GMLR1@:** Located between U5 and U6.
- CANTIGA GM47** and **@:** Located between U6 and U10.
- CANTIGA GM49** and **GMLR1@:** Located between U10 and U11.
- CANTIGA GM49:** Located below U11.

U11

NB\_GM9\_R3

CANTIGA GM49

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Security Classification	Compal Secret Data			Compal Electronics, Inc.		
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PIR (Product Improve Record)

KSKAA LA-4991P SCHEMATIC CHANGE LIST  
REVISION CHANGE:

Revision Change: 0.3 to 0.4

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
15	02/04	18	ADD C267	For LVDS change PMOS Design
16	02/04	26	ADD C486	For B-CAS change PMOS Design
17	02/04	20	DELETE D8,D53 ,ADD Q161,R130,C876	Change HDMI design
18	02/04	27	ADD C232,C233	For Blue tooth and Felica change PMOS Design
19	02/04	34	unmount RG2 ; mount CG12,DG1,UG3,CG14,CG13	For G-Sensor Design change
20	02/04	36	ADD C837	For +3VALW -> +3V_LAN Change PMOS Design
21	02/04	26	unmount RN4,RN5,CN7,UN2,Q21 ; mount RN6	For cost down
22	02/04	30	DELETE UA1,CA11	For cost down
23	02/04	19	DELETE R134,R135,L6	For EMI Request
24	02/04	30	DELETE R204,R220	For HDMI issue
25	02/04	19	Modify JBLG footprint to ACES_85201-0405N_4P	For KB Bcaklight
26	02/05	33	exchange U43.25 , U43.26	For Backlight KB issue
27	02/05	26	JEXP USB20_N8,USB20_P8 Change to USB20_N4,USB20_P4	For design change
28	02/05	27	JFP USB20_N4,USB20_P4 Change to USB20_N8,USB20_P8	For design change
29	02/05	35	D20,D22	For EMI request
30	02/05	27	D21	For EMI request
31	02/05	31	C860	For EMI request
32	02/05	25	Change D15 PN to SC300000P00	For EMI request
33	02/05	31	Change DA4,DA5,DA6,DA7 PN to SCA00000G00	For EMI request
34	02/05	30	Change CA36 to 10p ,RA33 to 10 ohm	For EMI request
35	02/05	30	C694	For EMI request
36	02/05	20	HDMI CEC schematic modify	Cut-in New Design
37	02/06	10	ADD C644,C649,R204,R217,R218,R188,R135	For Display port issue
38	02/05	30	Modify J3 Footprint to JUMP_43X39	For Design request
39	02/05	28	Modify J3GSIM footprint to MOLEX_47273-0001_6P-S	For ME request
40	02/07	19	Remove RV45 ,RV81 Change to 1Mohm	For Display port issue
41	02/07	10	U13.2 Change DP_AUX_NB to DP_AUX U13.5 Change DP_AUX#_NB to DP_AUX#	For Display port issue
42	02/07	10	U14.2 Change DP_AUX_NB to DP_AUX U14.5 Change DP_AUX#_NB to DP_AUX#	For Display port issue
43	02/07	10	R797.2 Change DP_HPD_NB to DP_HPD	For Display port issue
44	02/10	26	change JBCAS1 connect method	For B-CAS issue
45	02/10	33	ADD D4	leakage electircity issue
46	02/10	28	Change JWLAN +3VS->+3V_LAN	For Design change
47	02/10	28	ADD PJ18,PJ19	For Design change
48	02/10	19	Remove RV37,RV79	For Display port issue
49	02/10	10	ADD R135	For Display port issue
50	02/10	8	ADD RA35,CA43	For HDMI noise issue
51	02/10	20	ADD R220,Q26,R558,C861	Cut-in New design
52	02/11	20	Change R156 to 4.12kohm	For HDMI issue
53	02/11	20	UV12.1,UV12.5 don't connect	For design issue
54	02/11	28	RM6.2 change to +3VS	For design issue
55	02/11	20	C861 footprint change to 0603	For design issue
56	02/11	29	UL3 PN -> SP050005L00	For EMI request
57	02/11	34	UG1 PN -> SA000039900	For customer request
58	02/11	32	Remove 1394 function	For customer request

Revision Change: 0.5 to 0.6

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
01	04/01	32	Replace JMB380 to JMB385	Layout placement high limit
02	04/01	32	Remove RC11, add RC2,XC1,RC6,CC11,CC13	Replacement JMB380
03	04/01	32	Remove J1394,RC20,RC21,RC22,RC23,CC16,RC19,CC20	Remove 1394 , request from customer
04	04/01	19	Remove Q162, Add D23	Customer request
05	04/01	29	Change CL43 connect to JLAN pin12	For common design with KSKAE
06	04/01	29	Change CL44 connect to JLAN pin10	For common design with KSKAE
07	04/01	18	Change R673 from 0 to 10K	For common design with KSKAE
08	04/01	27	Change R722 from 0 to 100K	For common design with KSKAE
09	04/02	20	Remove Q161,Q26,R220,R558,C861, Add D53	For common design with KSKAE
10	04/02	28	Add R825	ES Status review
11	04/02	32	Remove CC11, CC13, XC1, RC2, RC6, RC9	For common design with KSKAE
12	04/03	30	Add CA56, CA57, CA58	FOR EMC status update
13	04/03	32	Add RC2, RC6, RC9, RC11	FOR JMB380 W/O 1394
14	04/06	20	Change U7 from STHDLS101TQT to CH7318C-BF	FOR HDMI fuction measure
15	04/06	20	Change L9,L10,L11,L12 from WCM-2012-900T to WCM-2012-121T	FOR EMI request
16	04/06	27	Change R722 from 10K ohm to 0ohm	Need meet Blue tooth spec

PIR (Product Improve Record)

KSKAA LA-4991P SCHEMATIC CHANGE LIST  
REVISION CHANGE:

Revision Change: 0.4 to 0.5

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
01	03/14	18	Change R103 from 100K to 10K with BKOFF#	To solve some panel still have white screen when insert and un-insert AC adapter
02	03/14	18	Mount R431 and un-mount R429	For LVDS connector with camera power to +5VS For design change
03	03/14	20	Change U8 net for HDMI_SCLK/SDATA to HDMI CLK/DATA to CEC	For wrong connect impact leakage current
04	03/14	20	Change R570 from 100K to 10K	To avoid low voltage when insert HDMI device
05	03/14	20	Change C861 floorprint from 0603 to 0402	For common design with KSWAA
06	03/14	21	Change R794 connect to D16 pin1	For wrong pull-up rail of USB_OC#2
07	03/14	21	Exchange U9 USB port4 and port8	For customer request
08	03/14	23	Add U47,R227,C234 and remove D4	For CMOS discharge fail
09	03/14	25	Mount C350 and unmount C353	For USB power function
10	03/14	26	Change RN1 and RN2 pull high from +3VALW to +3V_SB	For common design with KSWAA
11	03/14	27	Add R428 with 0ohm for reserve +5VALW	For use module on camera connector & LVDS connector
12	03/14	27	JFM inverse connection	For pin no match with MB and cable
13	03/14	28	Connect to JGPS.49 and JGPS.51 reserve	To avoid some issue happen
14	03/14	28	Unmount RM3	For common design with KSKAE
15	03/14	28	un-mount RL3 with +3V_LAN for LAN_WAKE#	For common design with KSKAA
16	03/14	30	Add CA43,CA44,CA45,CA46,CA52,CA53 on codec input/power pins	For common design with KSKAE
17	03/14	31	Add R790,R791,R792,R798 with 100ohm	For speaker ouput voltage to high
18	03/14	31	Change Q38 from SI2301BDS to AO3413 and change R587 from 100K to 10K	For use module on camera connector & LVDS connector
19	03/14	32	Add RC9 with 10K	For common design with KSKAE
20	03/14	32	Change schematic design from JMB380 to JMB385	For customer change spec
21	03/14	33	R751 pull-up to +3VL of CEC_INT#	For common design with KSKAE
22	03/14	33	Change R755 and R756 from 4.7K to 2.2K and pull up +3VL	For common design with KSKAE
23	03/14	33	Exchange HDPINT and HDPACT	For G-sensor function work normal
24	03/14	33	un-mount R788 for +5VS power switch	For reduce inrush current
25	03/14	33	Add R761,R762,R763,R764	To prevent voltage leakage in S5
26	03/14	34	Change UG3 from APL5151 to G9191 and unmount CG13	For common design with KSKAE
27	03/14	35	Connect JLIGHT pin5,6 to GND	For common design with KSKAE
28	03/14	36	un-mount R594 for +5V_SB power switch	Let the power switch can get more Vgs voltage when battery low voltage state
29	03/14	36	change R789 from 330K to 820K and R786 from 100K to 220K	For +1.8VS power sequence For power question request
30	03/15	36	Remove R790,R791,R792,R798 with 100ohm	For speaker out voltage is normal
31	03/15	36	Add RA12 with 0ohm	For common desin with KSKAE

Revision Change: 0.6 to 1.0

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
01	04/10	23	Add R811 and connect to U9C.AF18	For single and dual panel select
02	04/10	20	Change R156 from 4.12K to 976 ohm	For change level shifter IC of HDMI function
03	04/10	31	Add RA36, RA37, RA38, RA39 with 0ohm	For Int. MIC noise
04	04/10	35	Change Q42 power from +3VALW to +5VALW	For Power LED too dark issue
05	04/10	20	Add R220 with 0ohm	For use ASML442T reserve.
06	04/20	20	Change U7 to ASM1442T	For HDMI signal quality bad issue
07	04/20	20	Delete R149,R159,R160,R161,R162,C251,C252,C253,C254	For HDMI signal quality bad issue
08	04/20	20	Change R151,R152,R153,R154,R689 to 2.2K and R156 to 3.3K	For HDMI signal quality bad issue
09	05/05	20		For HDMI signal quality bad issue