

Compal Confidential

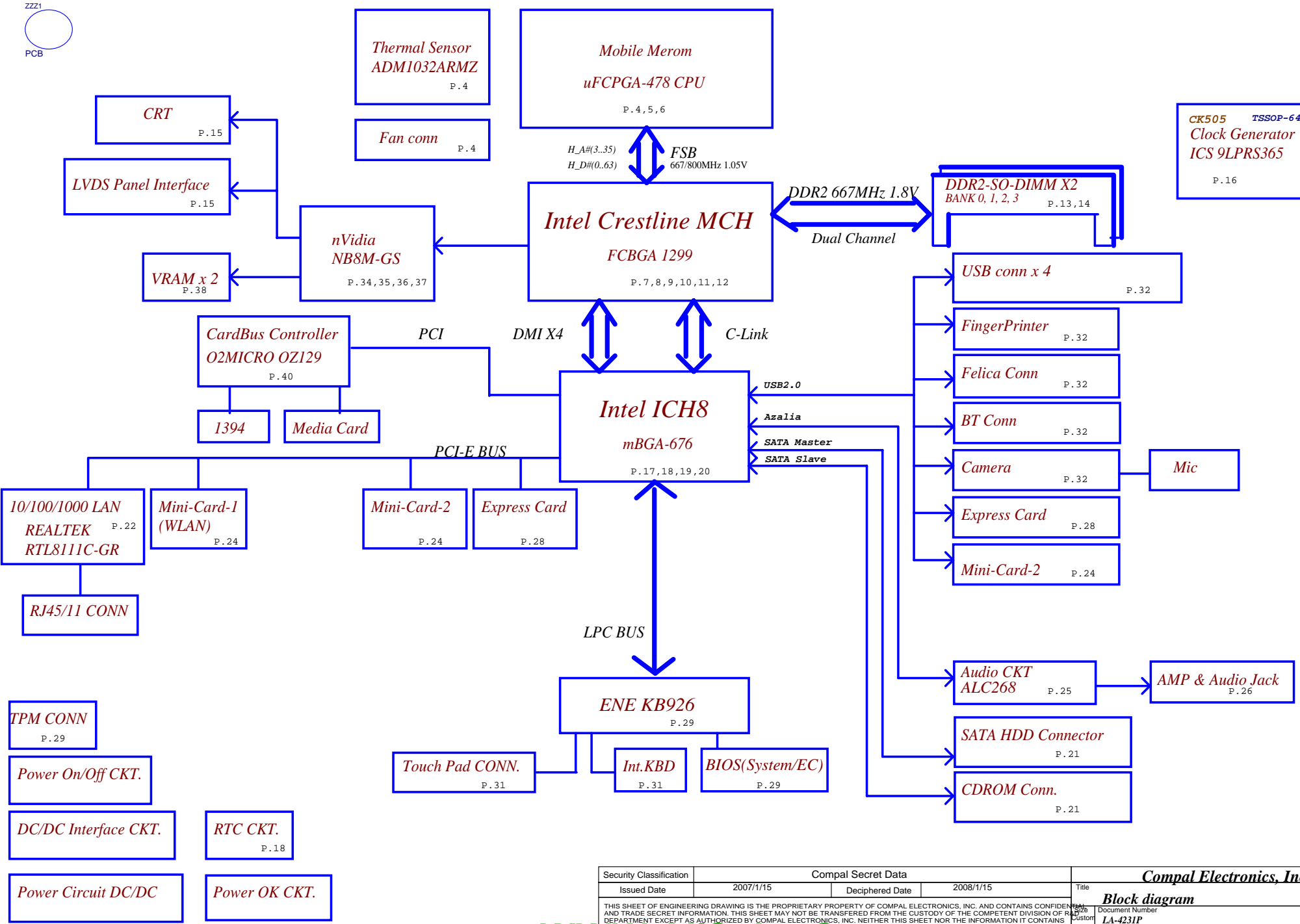
Schematic Document

Crestline + ICH8

2007 / 11 / 14    Rev:0.2

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Issued Date	2007/1/15	Deciphered Date	2008/1/15	Title	Cover Sheet
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File Name : LA-4231P



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Issued Date	2007/1/15	Deciphered Date	2008/1/15	Title	Block diagram
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power plane  State	+B	+5VALW +3VALW	+3V +1.8V	+5VS +3VS +1.8VS +1.5VS +1.25VS  +CPU_CORE +VCCP	CLOCK
S0	O	O	O	O	O
S3	O	O	O	X	O
S5 S4/AC	O	O	X	X	O
S5 S4/ Battery only	O	X	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X	X

O MEANS ON

X MEANS OFF

S3 : STR

S4 : STD

S5 : SOFT OFF

## External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
CardBus	AD21	0	PIRQE/PIRQF/PIRQG

**EC SM Bus1 address**

Device	Address
Smart Battery	0001 011X b?
EEPROM(24C16/02)	1010 000X b?
(24C04)	1011 000Xb?

**EC SM Bus2 address**

Device	Address
ADM1032	4D

### ICH7 SM Bus address

Device	Address
Clock Generator (ICS ICS9LPR310)	1101 001Xb?
DDRII DIMM0	1001 000Xb?
DDRII DIMM2	1001 010Xb?

<div>STATE \ SIGNAL</div>	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

### Board ID Table for AD channel

Vcc	3.3V +/- 5%
Ra / Rc	100K +/- 5%

Board ID	Rb / Rd	V <sub>AD_BID</sub> min	V <sub>AD_BID</sub> typ	V <sub>AD_BID</sub> max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

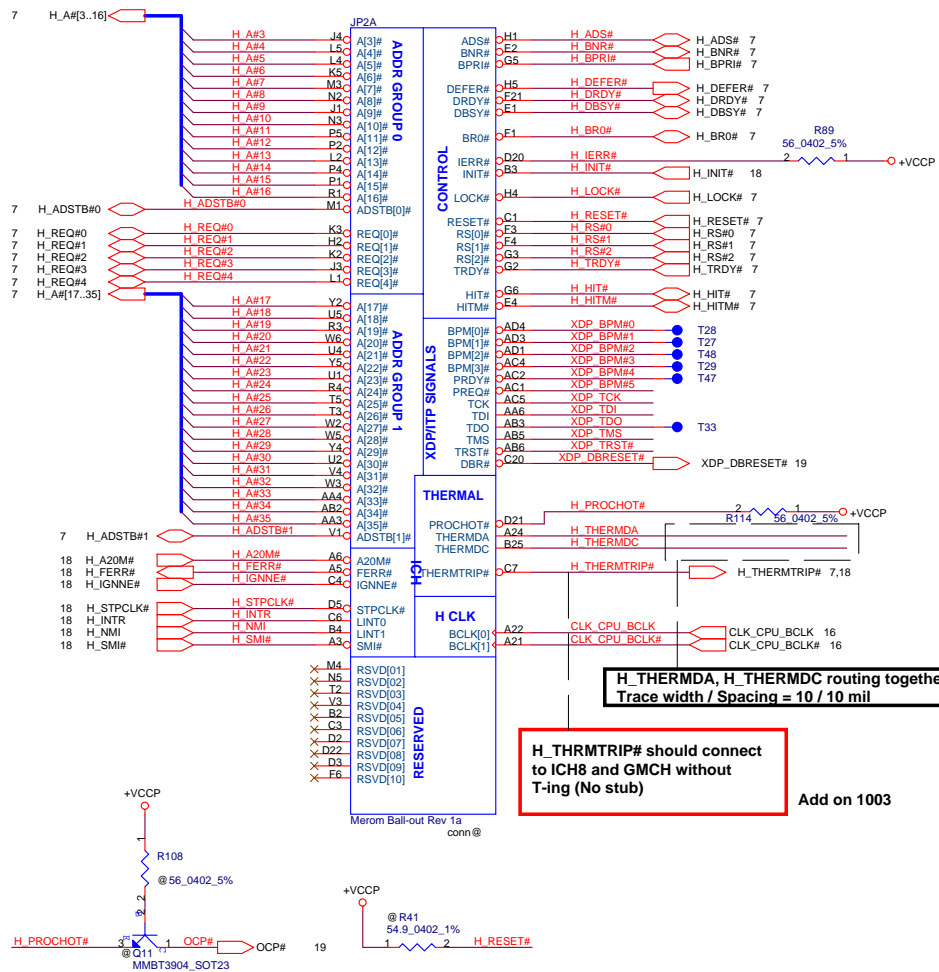
### BOARD ID Table

Board ID	PCB Revision
0	0.1
1	0.2
2	
3	
4	
5	
6	
7	

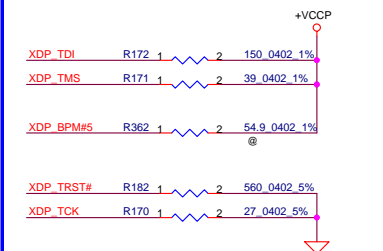
### BTO Option Table

[illegible]

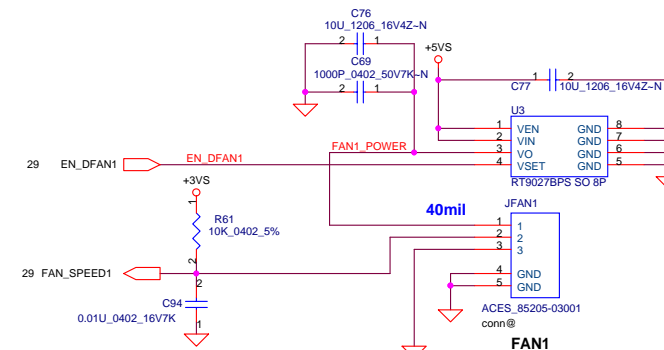
Security Classification	Compal Secret Data			<b>Compal Electronics, Inc.</b> <i>Notes</i> Document Number <b>LA-4231P</b>		
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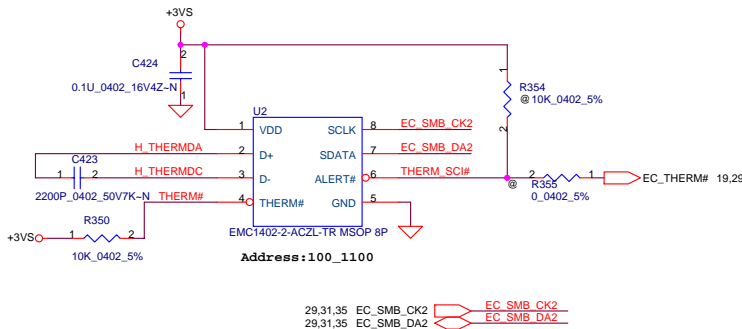
## XDP Reserve



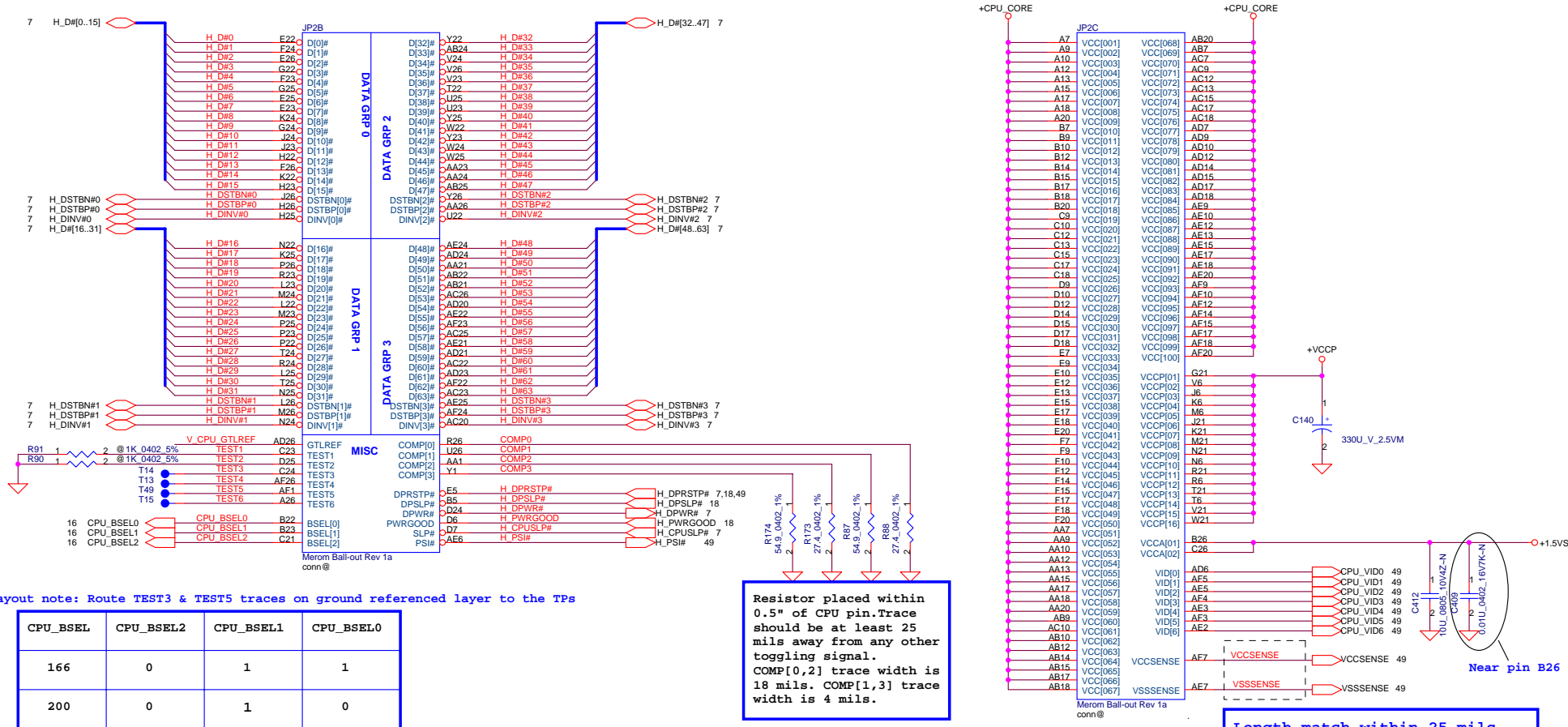
## FAN1 Control and Tachometer



## Thermal Sensor EMC1402-1-ACZL-TR



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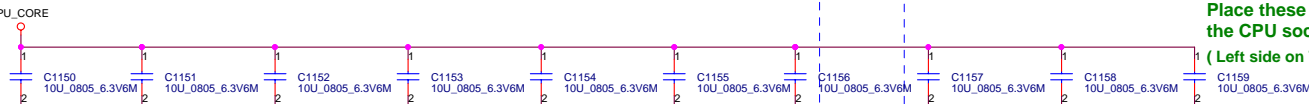


# High Frequency Decoupling

10uF 0805 X5R -> 85 degree.

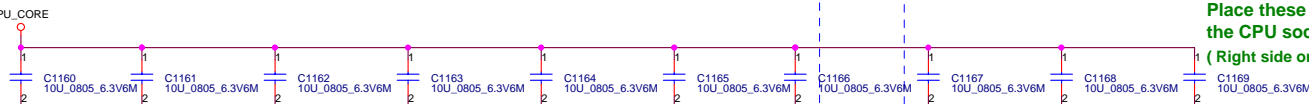
JP20		
A4	VSS[001]	P6
A8	VSS[002]	P21
A11	VSS[003]	P24
A14	VSS[004]	R2
A16	VSS[005]	R5
A19	VSS[006]	R22
A23	VSS[007]	R25
A6	VSS[008]	T1
B6	VSS[009]	T4
B8	VSS[010]	T23
B11	VSS[011]	T26
B13	VSS[012]	U3
B16	VSS[013]	U6
B19	VSS[014]	U21
B21	VSS[015]	U24
B24	VSS[016]	V2
C5	VSS[017]	V5
C8	VSS[018]	V22
C11	VSS[019]	V25
C14	VSS[020]	W1
C16	VSS[021]	W4
C19	VSS[022]	W23
C2	VSS[023]	W26
C22	VSS[024]	Y3
C25	VSS[025]	Y6
D1	VSS[026]	Y21
D4	VSS[027]	Y24
D8	VSS[028]	AA2
D13	VSS[029]	AA5
D16	VSS[030]	AA11
D19	VSS[031]	AA12
D23	VSS[032]	AA14
D26	VSS[033]	AA16
E3	VSS[034]	AA19
E6	VSS[035]	AA22
E8	VSS[036]	AA25
F11	VSS[037]	AB1
F14	VSS[038]	AB4
F16	VSS[039]	AB8
F19	VSS[040]	AB11
F21	VSS[041]	AB13
F24	VSS[042]	AB16
F5	VSS[043]	AB19
F8	VSS[044]	AB23
F11	VSS[045]	AB26
F13	VSS[046]	AC3
F16	VSS[047]	AC8
F19	VSS[048]	AC8
F2	VSS[049]	AC11
F22	VSS[050]	AC14
F25	VSS[051]	AC16
G4	VSS[052]	AC19
G1	VSS[053]	AC21
G23	VSS[054]	AC24
G26	VSS[055]	AD2
H3	VSS[056]	AD5
H6	VSS[057]	AD8
H21	VSS[058]	AD11
H24	VSS[059]	AD13
J2	VSS[060]	AD16
J5	VSS[061]	AD19
J22	VSS[062]	AD22
J25	VSS[063]	AE1
K1	VSS[064]	AE4
K4	VSS[065]	AE8
K23	VSS[066]	AE11
K26	VSS[067]	AE14
L3	VSS[068]	AE16
L6	VSS[069]	AE19
L21	VSS[070]	AE23
L24	VSS[071]	AE26
M2	VSS[072]	A2
M5	VSS[073]	AF6
M22	VSS[074]	AF8
M25	VSS[075]	AF11
N1	VSS[076]	AF13
N4	VSS[077]	AF16
N23	VSS[078]	AF19
N26	VSS[079]	AF21
P3	VSS[080]	A25
	VSS[081]	AF25

Place these caps inside the CPU socket cavity. ( Left side on Top ).



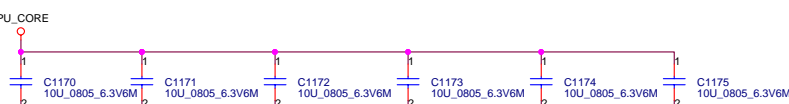
Place these caps inside the CPU socket. ( Left side on Top ).

Place these caps inside the CPU socket cavity. ( Right side on Top side ).

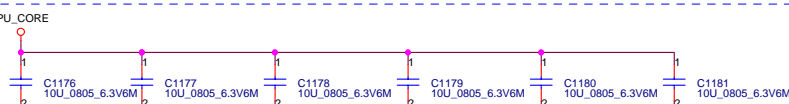


Place these caps inside the CPU socket. ( Right side on Top ).

Place these caps inside the CPU socket cavity. ( Left side on Bottom ).

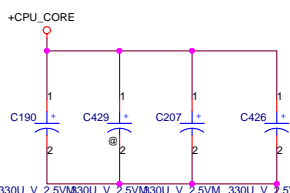


Place these caps inside the CPU socket cavity. ( Right side on Bottom ).



Near CPU CORE regulator

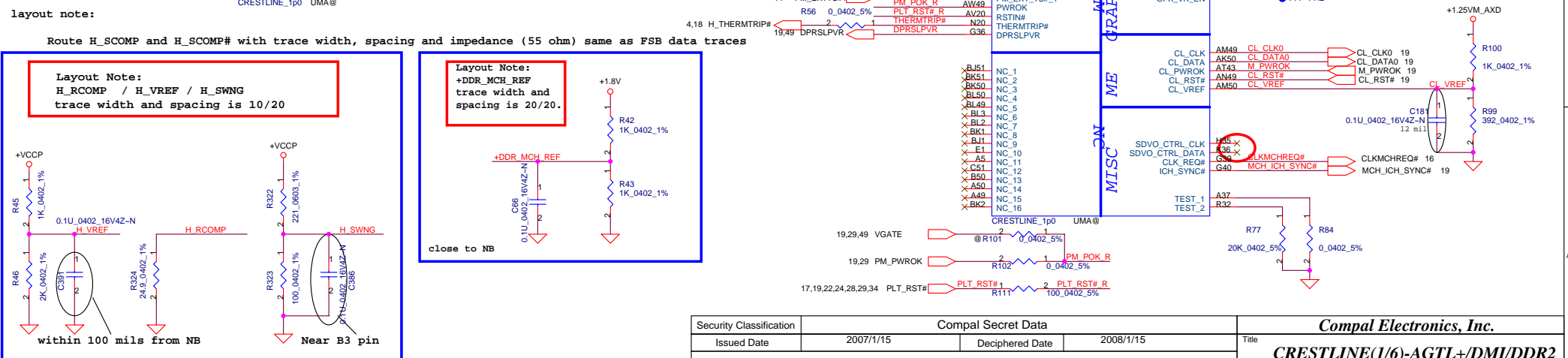
ESR <= 1.5m ohm  
Capacitor > 1980uF



Place these inside socket cavity on L8 (North side Secondary)

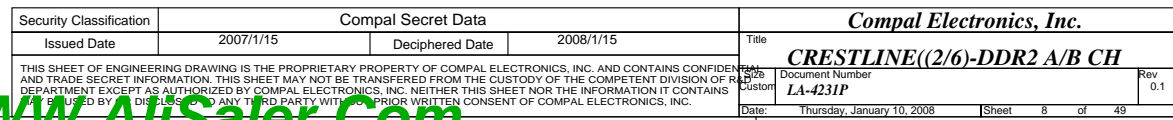


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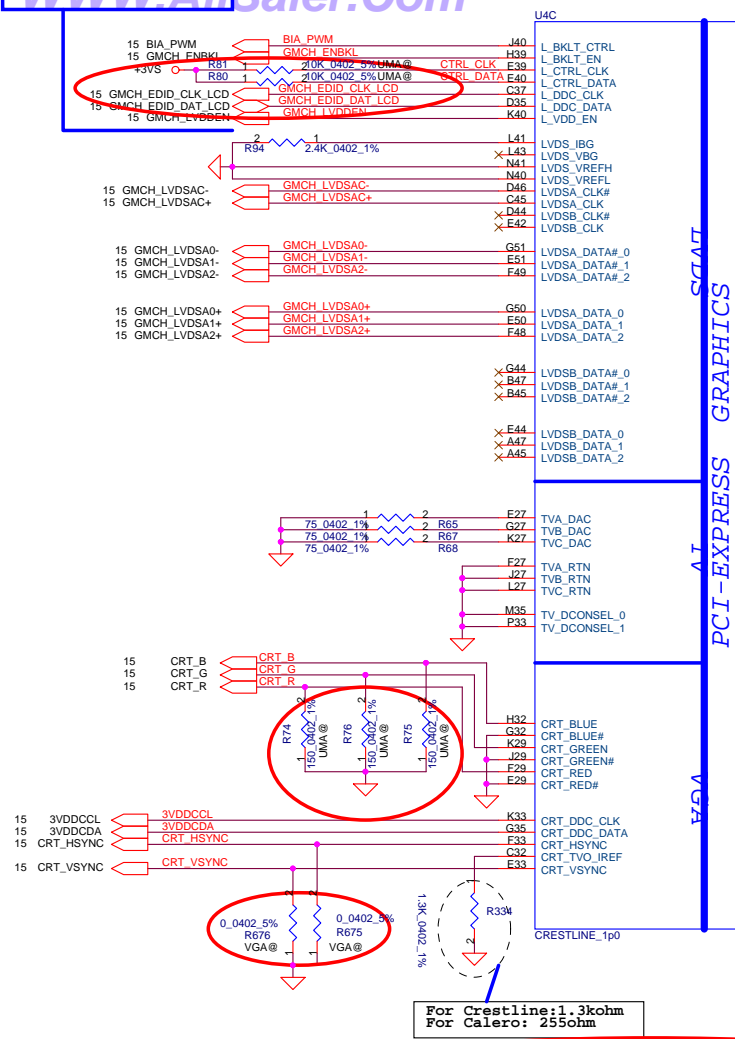


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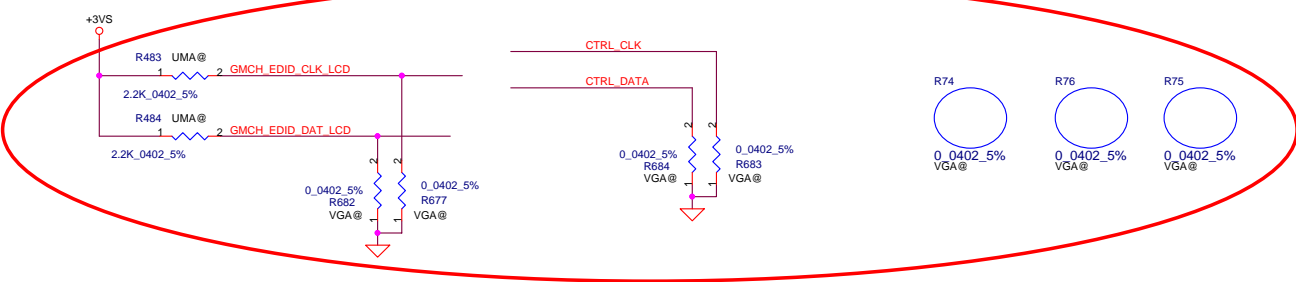








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Note: CRT / TV-out should route to JP30 first then to the JP1 & JP2 on system side.

PEGCOMP trace width  
and spacing is 20/25 mils.

## Strap Pin Table

CFG[2:0] FSB Freq select	010 = FSB 800MHz 011 = FSB 667MHz Others = Reserved
CFG5 (DMI select)	0 = DMI x 2 1 = DMI x 4 *
CFG6	Reserved
CFG7 (CPU Strap)	0 = Reserved 1 = Mobile CPU *
CFG8 (Low power PCIe)	0 = Normal mode 1 = Low Power mode *
CFG9 (PCIe Graphics Lane Reversal)	0 = Reverse Lane 1 = Normal Operation *
CFG[11:10]	Reserved 00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation(Default) *
CFG[15:14]	Reserved
CFG16 (FSB Dynamic ODT)	0 = Disabled 1 = Enabled *
CFG[18:17]	Reserved
SDVO_CTRLDATA	0 = No SDVO Device Present * 1 = SDVO Device Present
CFG19 (DMI Lane Reversal)	0 = Normal Operation (Lane number in Order) * 1 = Reverse Lane
CFG20 (PCIe/SDVO concurrent)	0 = Only PCIe or SDVO is operational. * 1 = PCIe/SDVO are operating simu.

CFG5 1 2 @ 4.02K 0.402 1%

7 CFG7 1 2 @ 4.02K 0.402 1%

7 CFG8 1 2 @ 4.02K 0.402 1%

7 CFG9 1 2 @ 4.02K 0.402 1%

7 CFG12 1 2 @ 4.02K 0.402 1%

7 CFG13 1 2 @ 4.02K 0.402 1%

7 CFG16 1 2 @ 4.02K 0.402 1%

CFG[17:3] have internal pull up

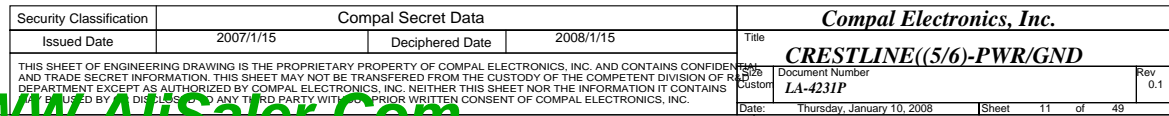
CFG[19:18] have internal pull down

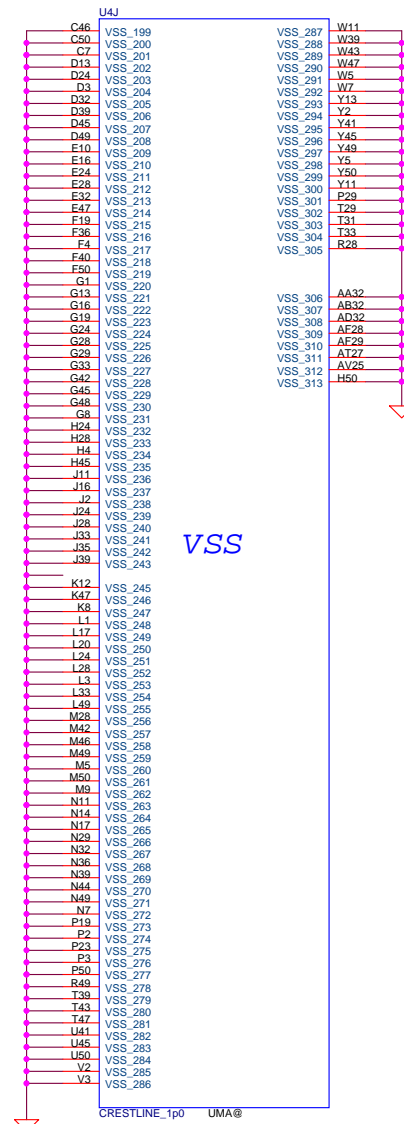
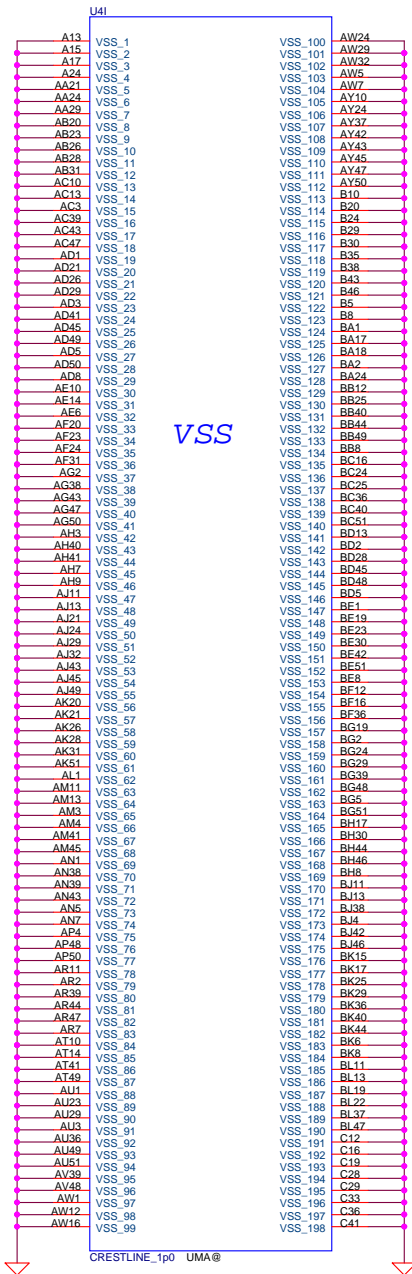
+3VS

7 CFG19 1 2 @ 4.02K 0.402 1%

7 CFG20 1 2 @ 4.02K 0.402 1%







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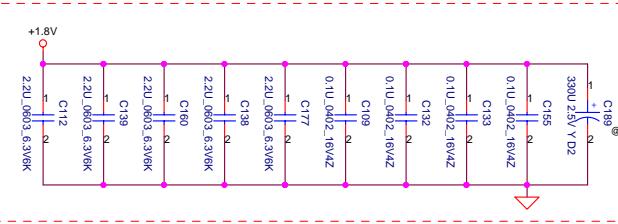
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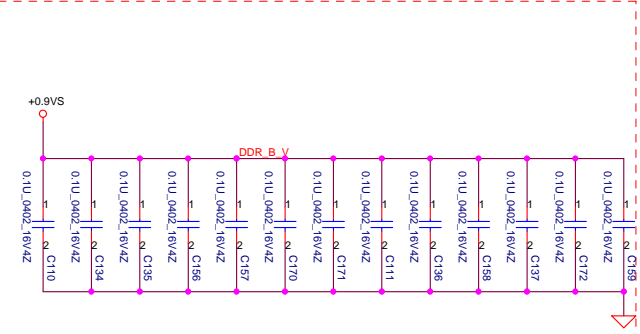
**WWW.AliSaler.Com**



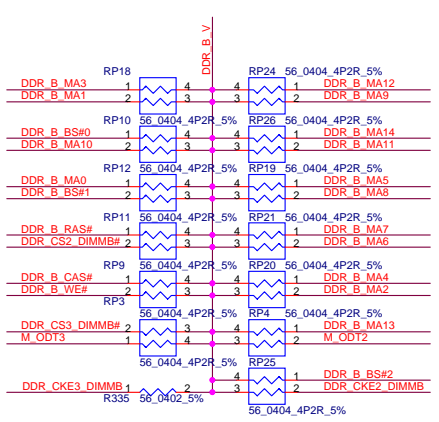
Layout Note:  
Place near JDIM2



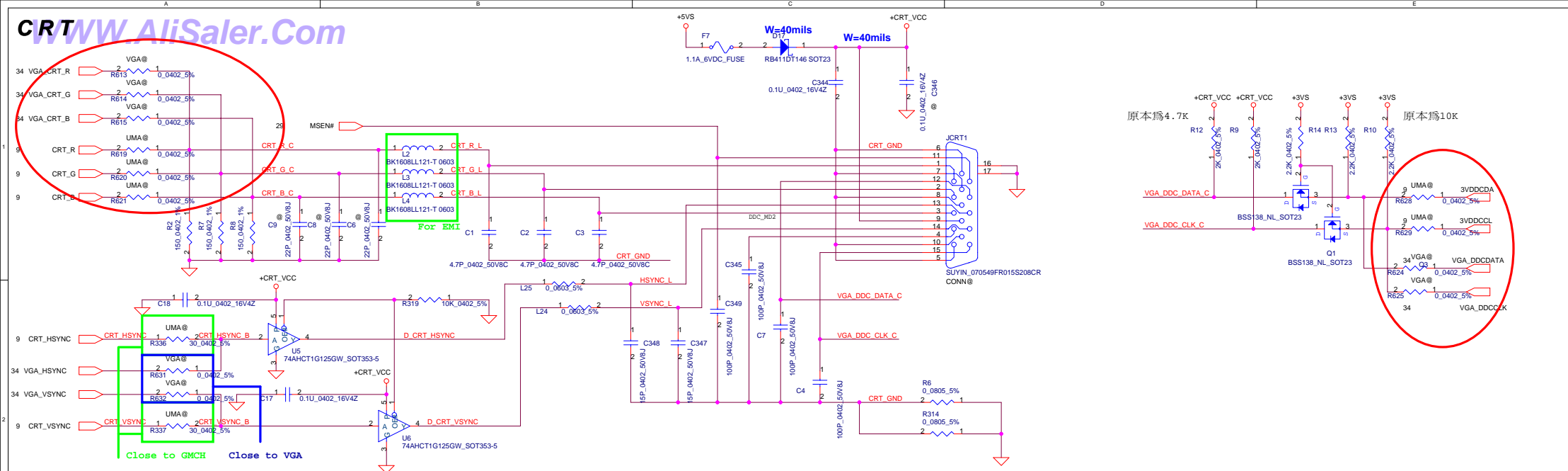
Layout Note:  
Place one cap close to every 2 pullup resistors terminated to +0.9VS



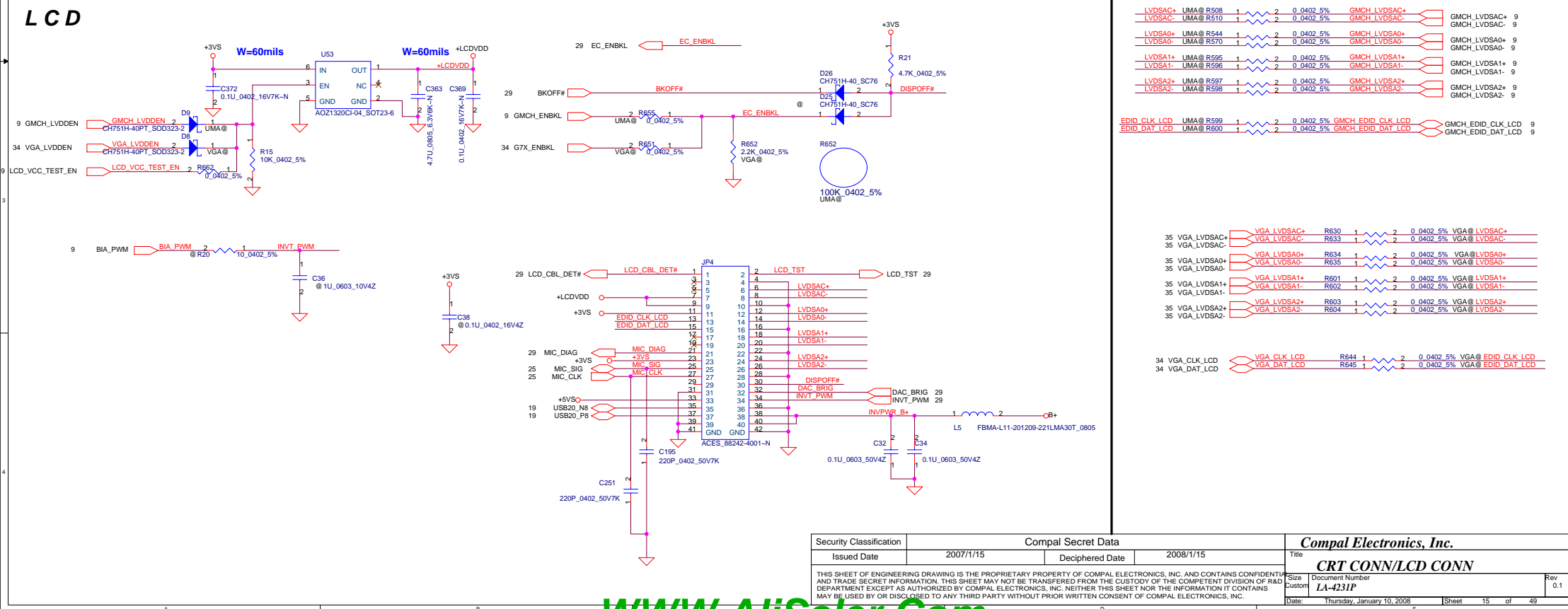
Layout Note:  
Place these resistor closely JP42,all trace length Max=1.5"



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					DDR2 SO-DIMM II					
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**LCD**

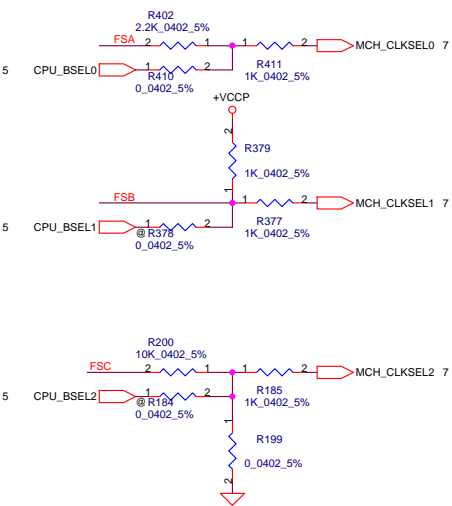




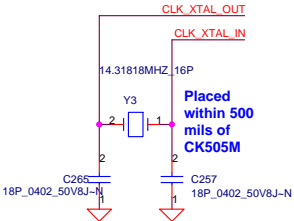
FSLC CLKSEL2	FSLB CLKSEL1	FSLA CLKSEL0	CPU MHz	SRC MHz	PCI MHz
0	1	0	200	100	33.3
0	1	1	166	100	33.3

FSB Frequency Selet:

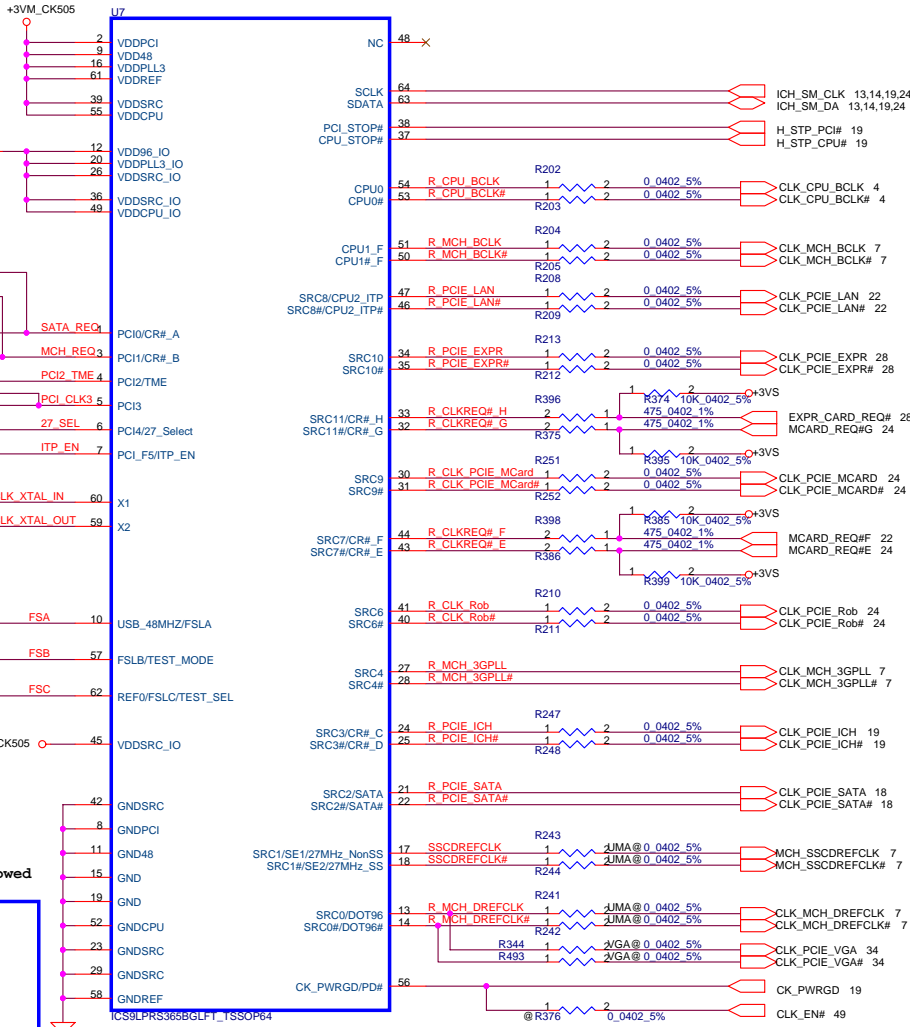
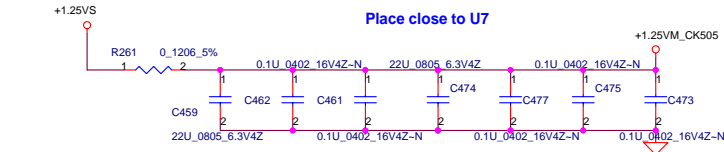
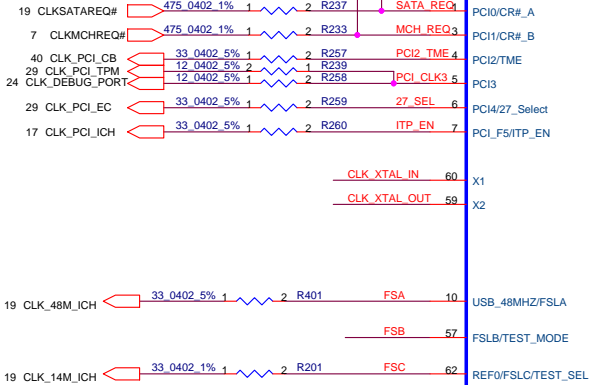
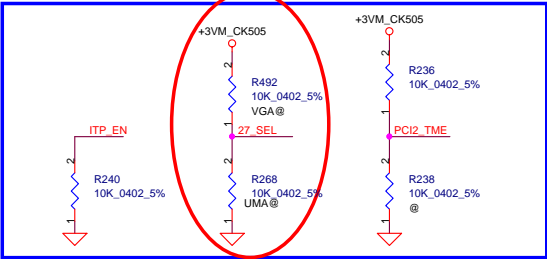
CPU Driven	Stuff	R1107	R1135	R1083			
* (Default)	No Stuff	R1074	R1086	R1098	R1113	R1128	R1139
667MHz	Stuff	R1086	R1139	R1135	R1074	R1139	R1135
	No Stuff	R1083	R1107	R1128	R1113	R1098	
800MHz	Stuff	R1135	R1139				
	No Stuff	R1083	R1086	R1098	R1128		



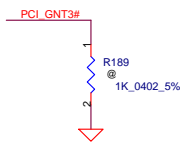
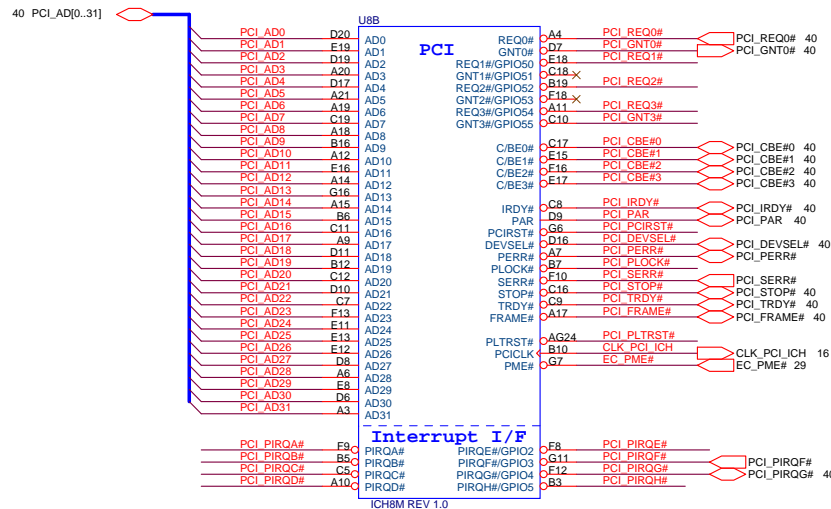
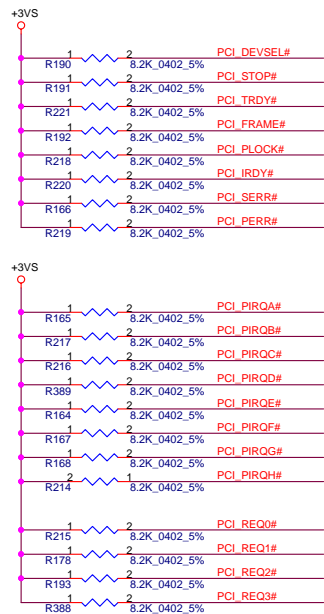
For ITP\_EN, 0 =SRC8/SRC8#; 1 = ITP/ITP#  
 For 27\_SEL, 0 = Enable DOT96 & SRC1,  
                   1 = Enable SRC0 & 27MHz  
 For PCI2\_EN, 0 = Overclocking of CPU and SRC Allowed  
                   1 = Overclocking of CPU and SRC NOT allowed



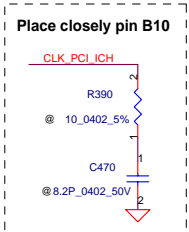
Routing the trace at least 10mil



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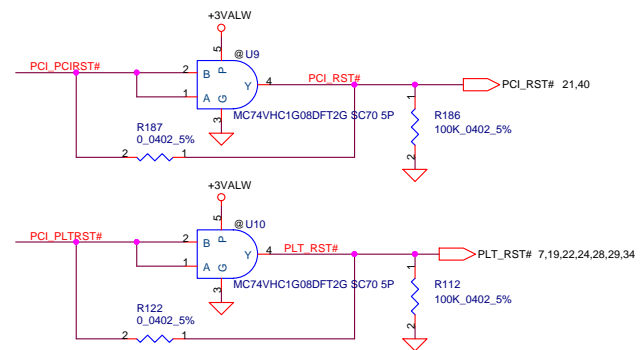
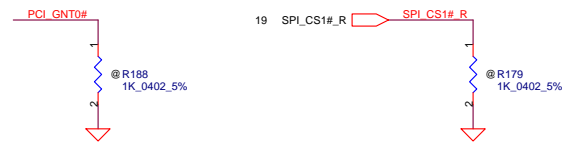


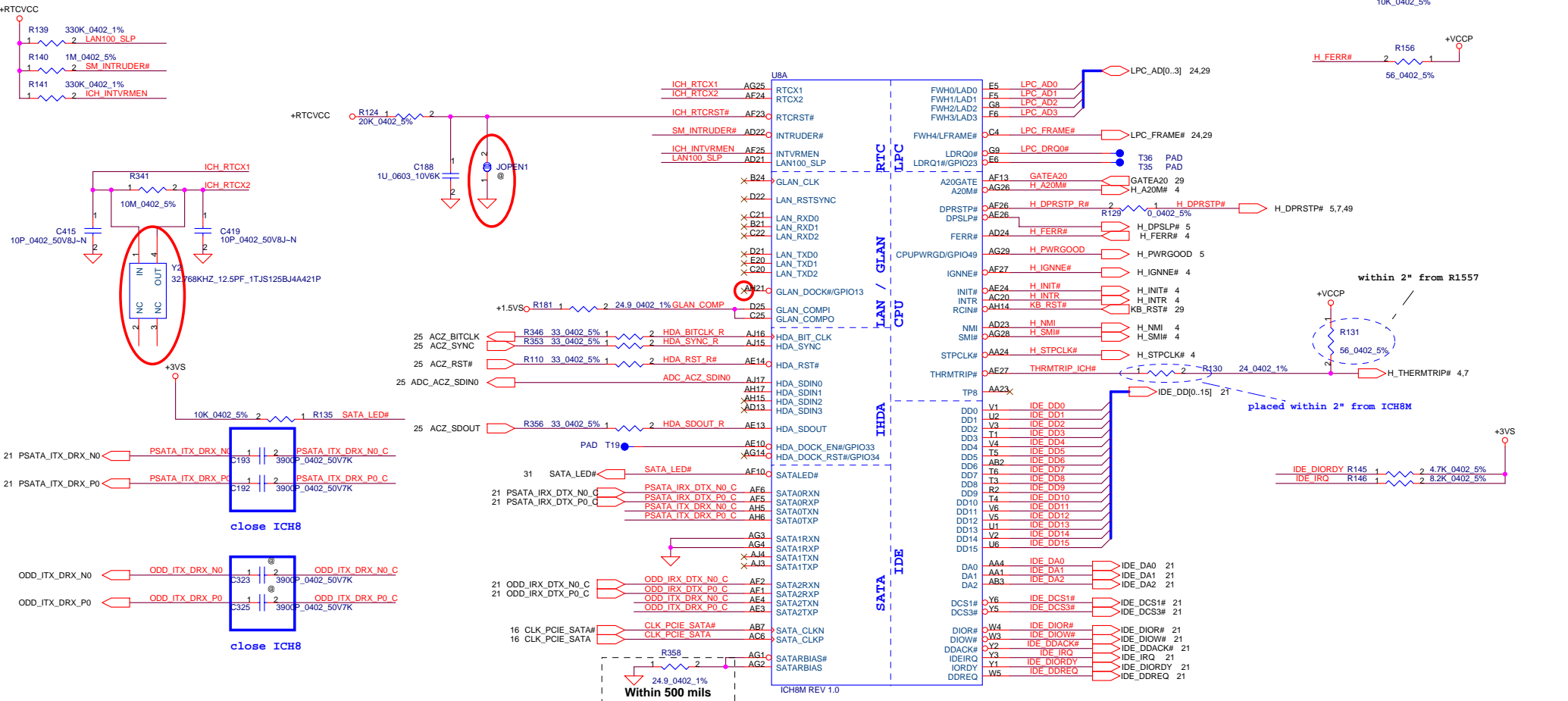
A16 swap override Strap	
PCI_GNT3#	Low= A16 swap override Enble High= Default*



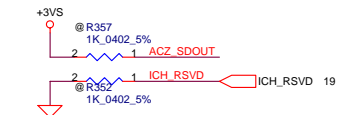
Check if use LPC?

Boot BIOS Strap		
PCI_GNT0#	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC *



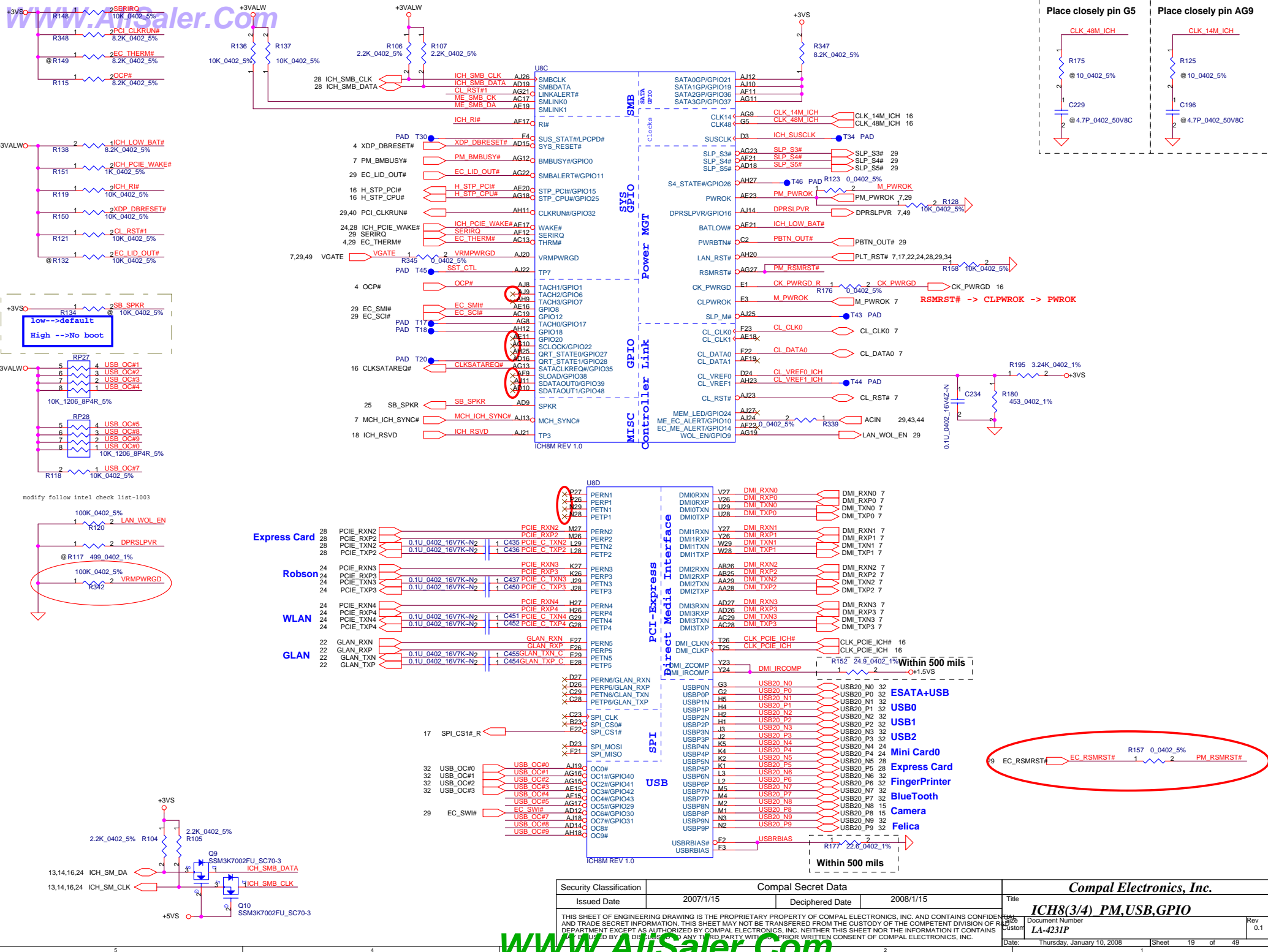


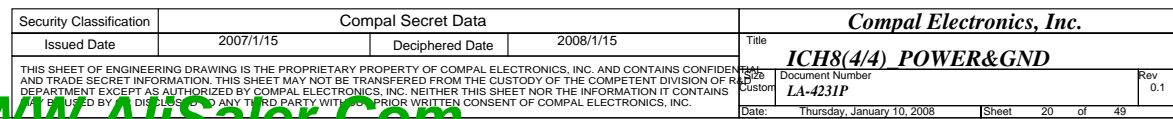
**XOR CHAIN ENTRANCE STRAP:RSVD**



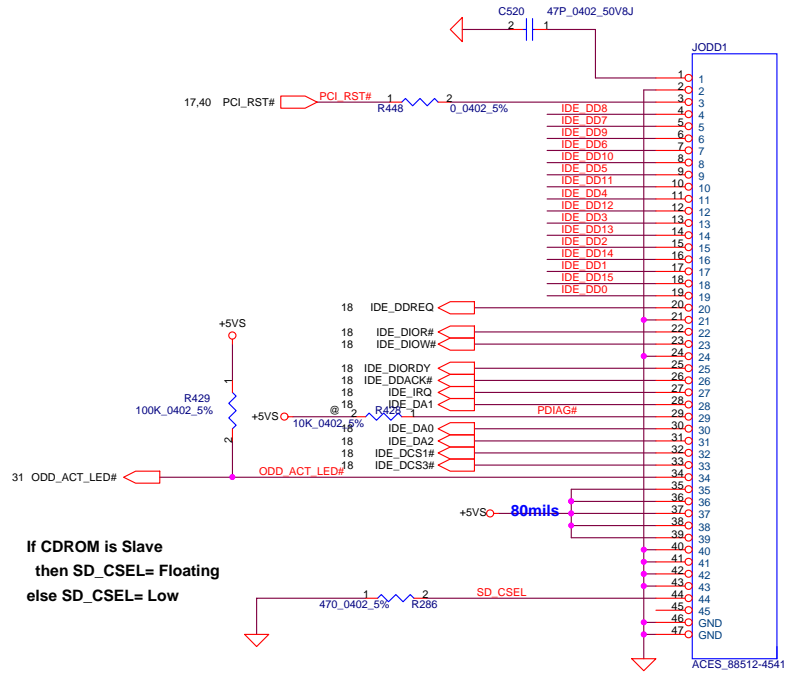
XOR Chain Entrance Strap		
ICH RSVD	HDA SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal Operation (Default)
1	1	Set PCIE port config bit 1

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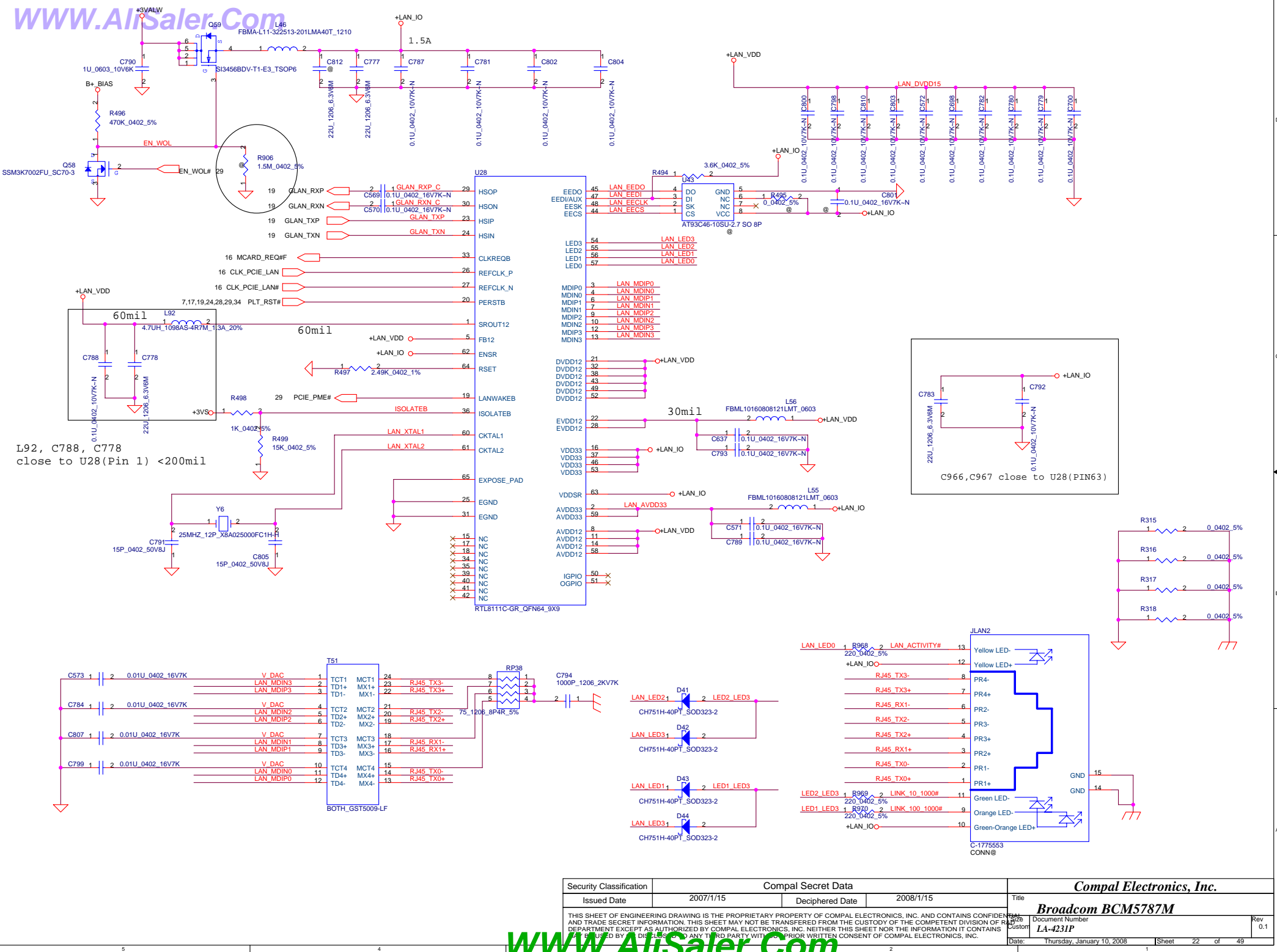




## CDROM CONN

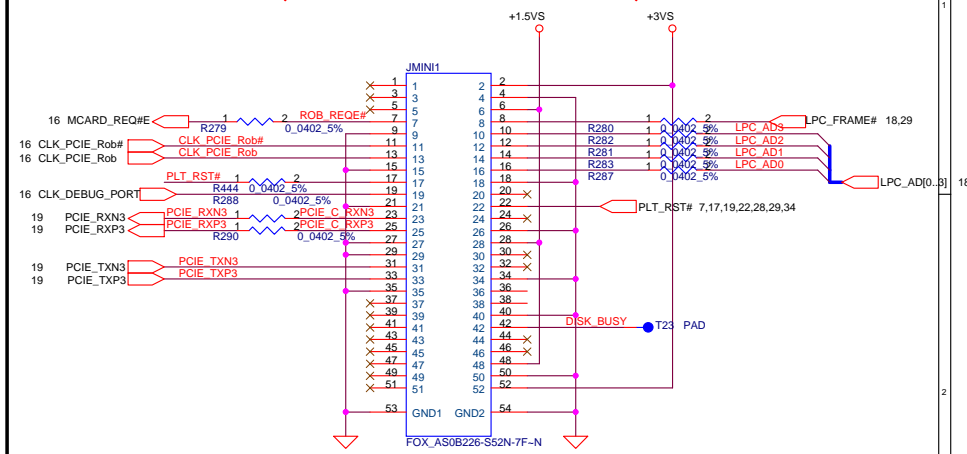
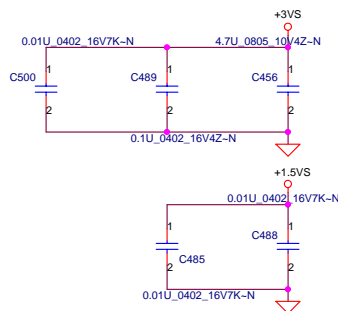
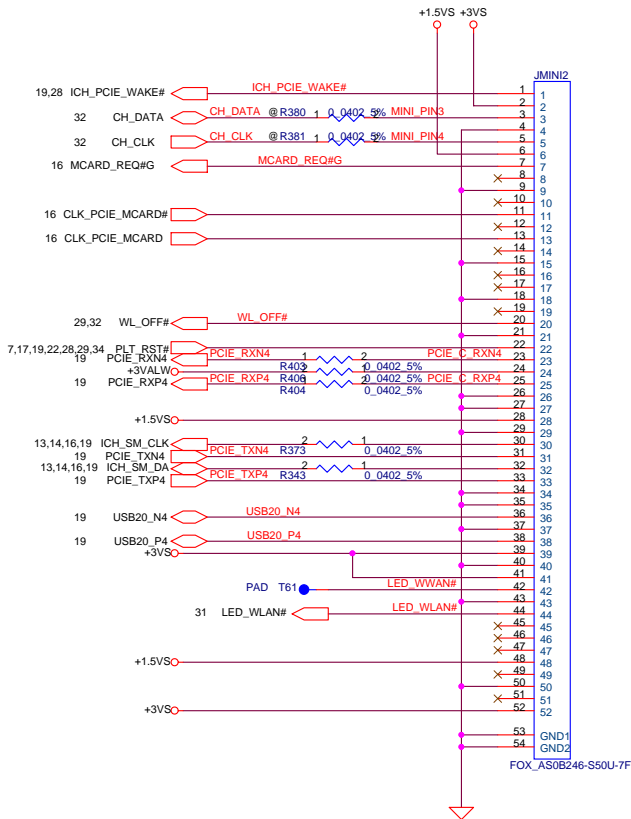




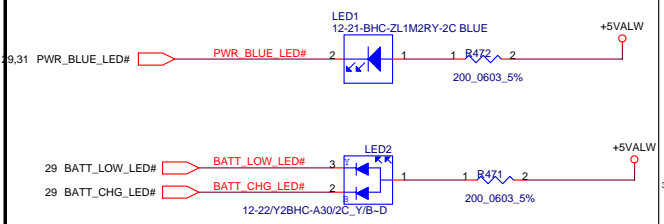


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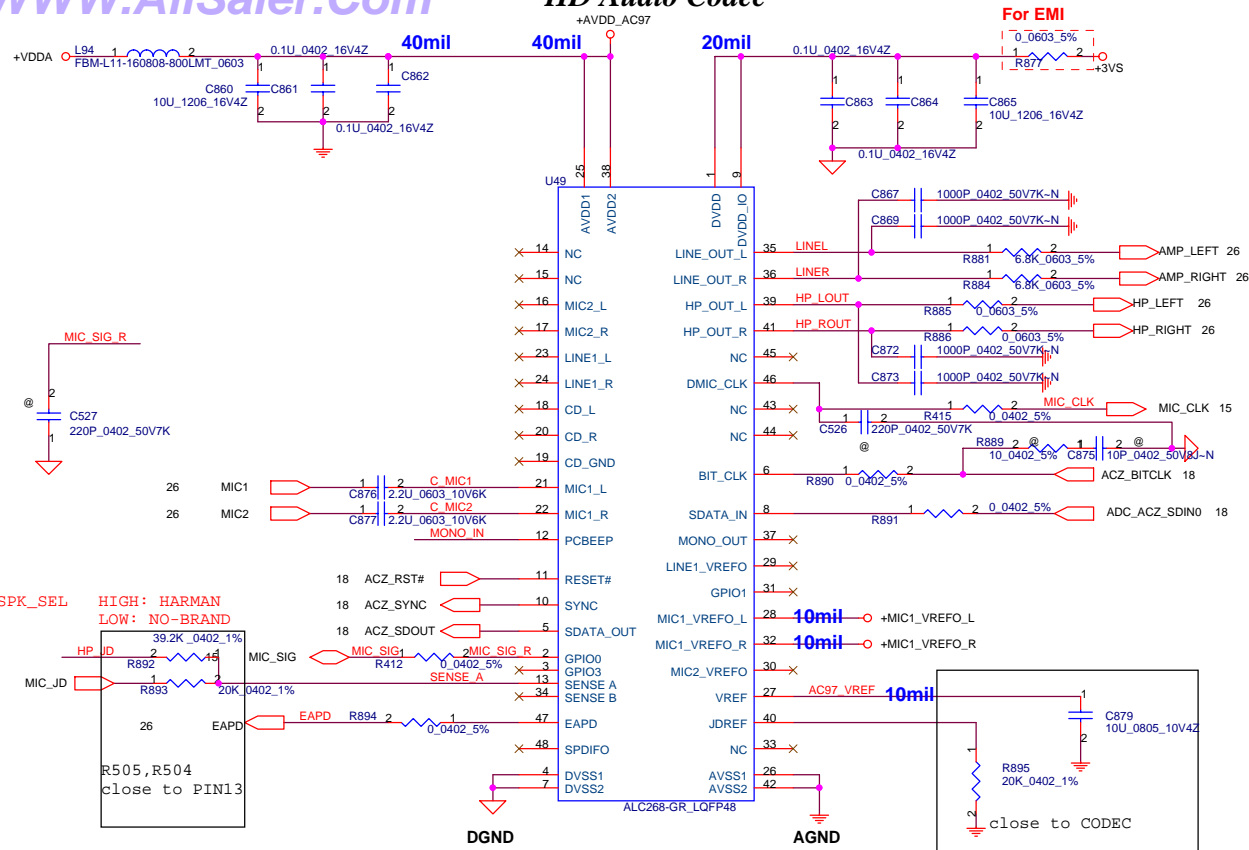


Power status(Left)



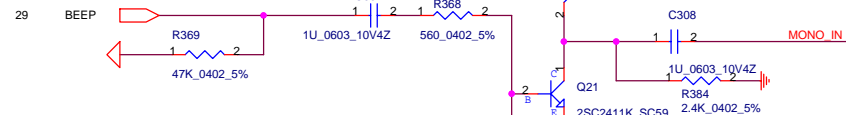
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# HD Audio Codec

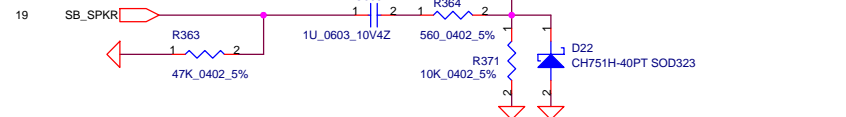


For EMI

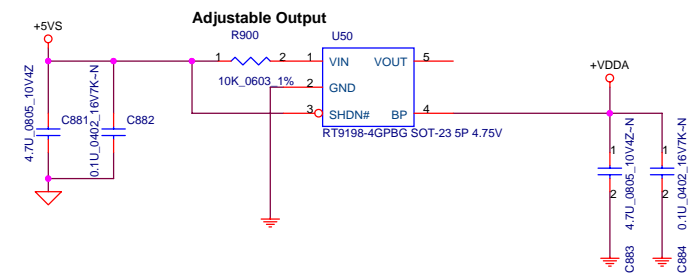
## EC BEEP



## ICH BEEP

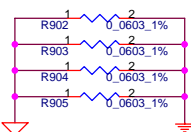


## Regulator for CODEC



Sense Pin	Impedance	Codec Signals
SENSE A	39.2K	PORT-A (PIN 39, 41)
	20K	PORT-B (PIN 21, 22)
	10K	PORT-C (PIN 23, 24)
	5.1K	PORT-D (PIN 35, 36)
SENSE B	39.2K	PORT-E (PIN 14, 15)
	20K	PORT-F (PIN 16, 17)
	10K	PORT-G (PIN 43, 44)
	5.1K	PORT-H (PIN 45, 46)

## Moat Bridge



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[illegible][illegible]

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**Speaker Connector**

**MICROPHONE IN JACK**

**HEADPHONE OUT JACK**

**AMP/Audio Jack**

Security Classification: Compal Secret Data

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**Speaker Connector**

**MICROPHONE IN JACK**

**HEADPHONE OUT JACK**

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**Speaker Connector**

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**HEADPHONE OUT JACK**

**AMP/Audio Jack**

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Document Number: LA-4231P

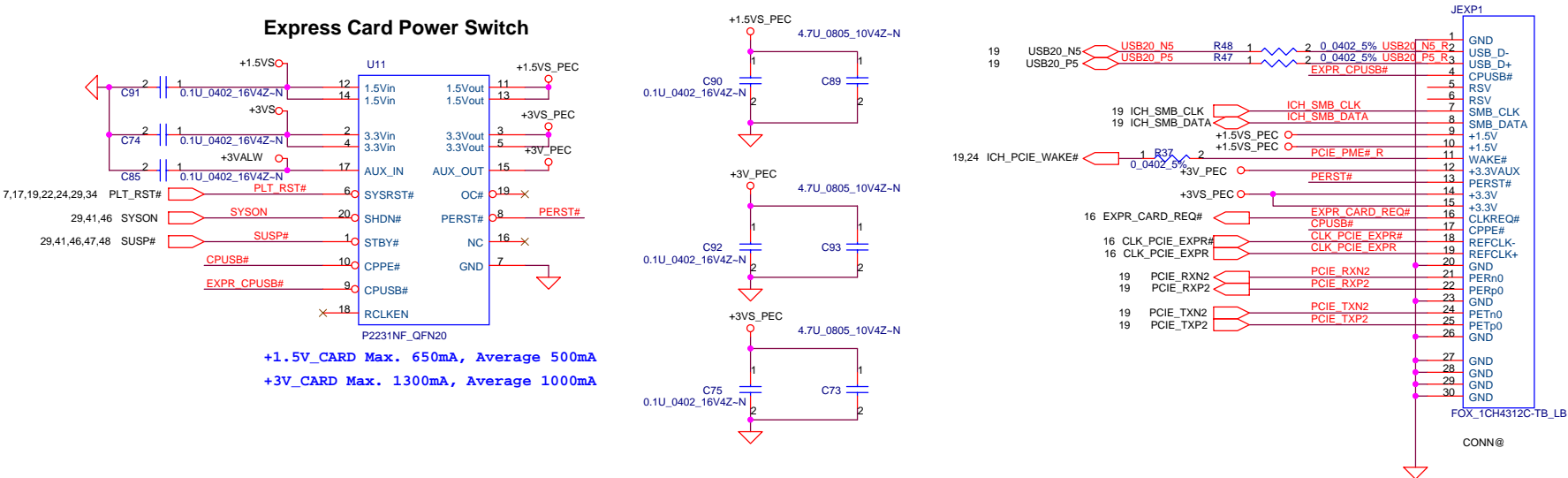
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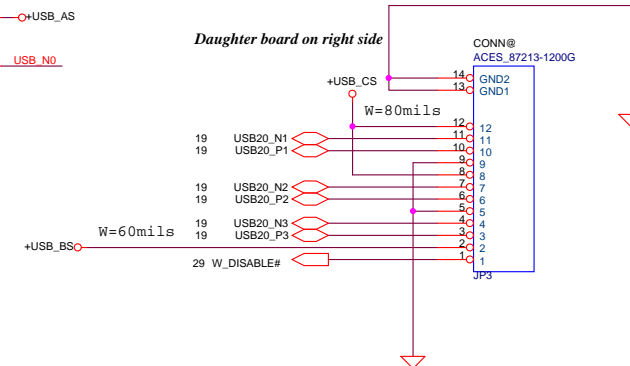
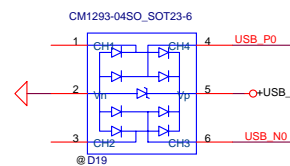
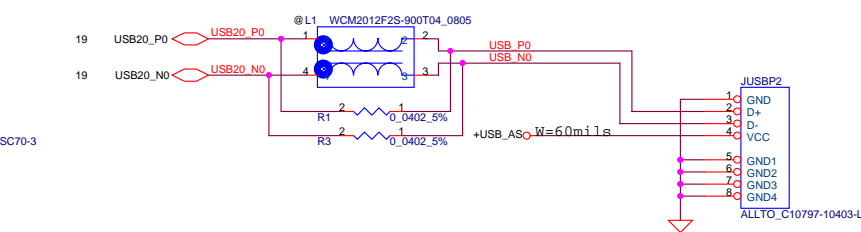


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										EXPRESS CARD	
										Document Number	
										LA-4231P	
										Rev	
										0.1	
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				Document Number <i>LA-4231P</i>	0.1
Date:		Thursday, January 10, 2008		Sheet	29 of 49

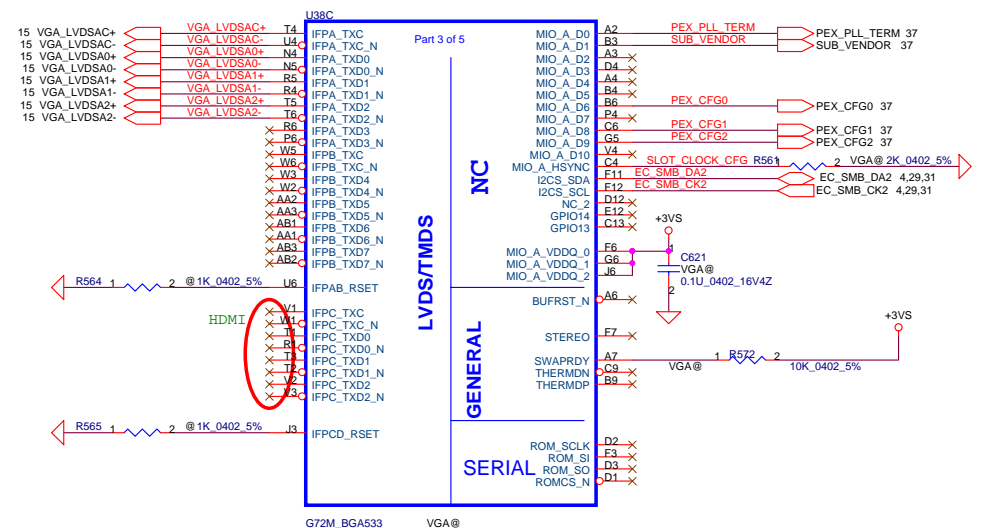
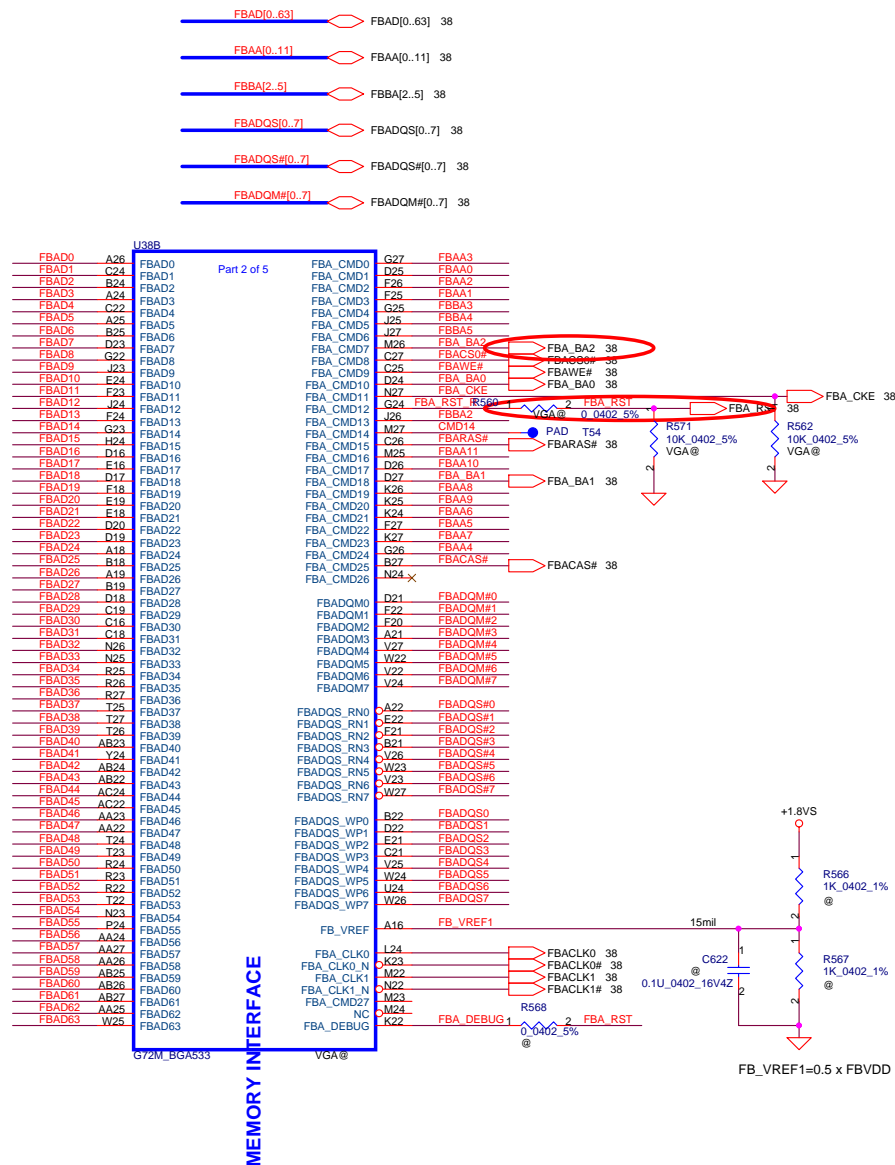




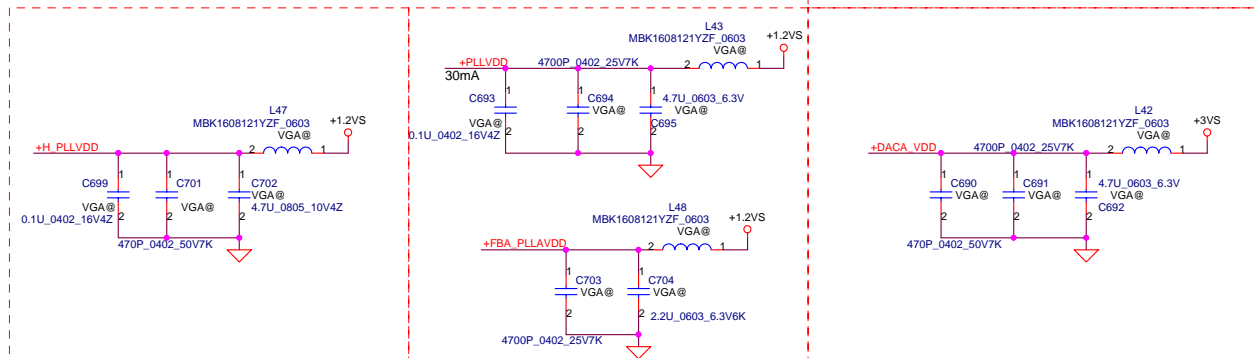
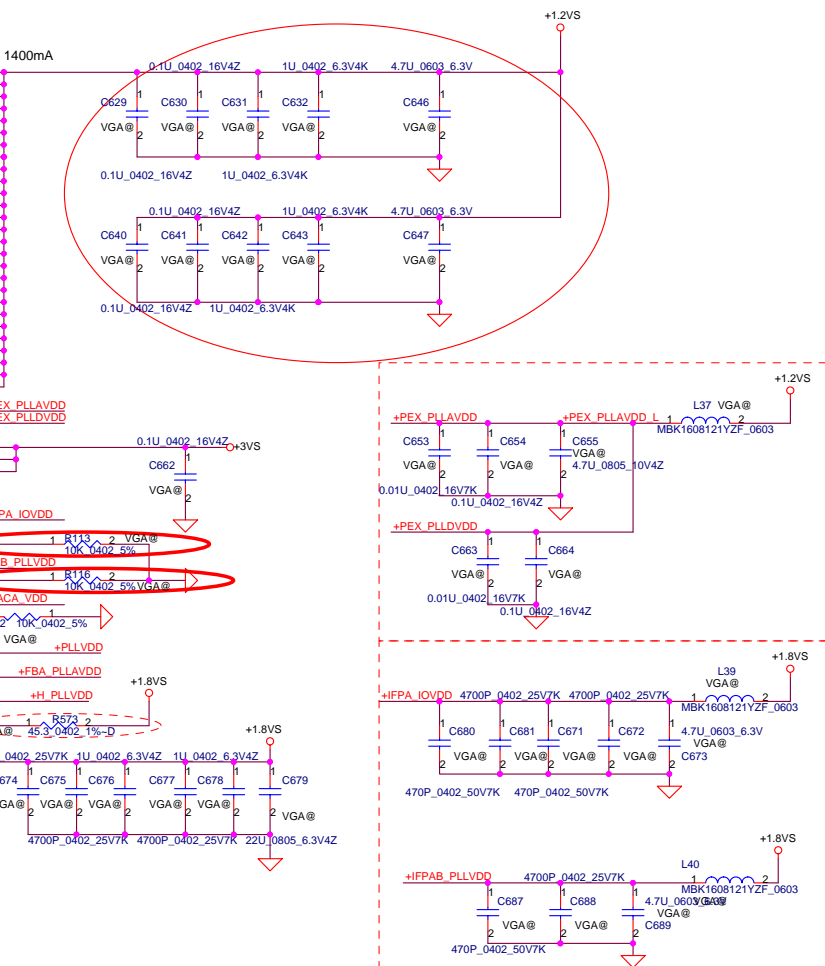
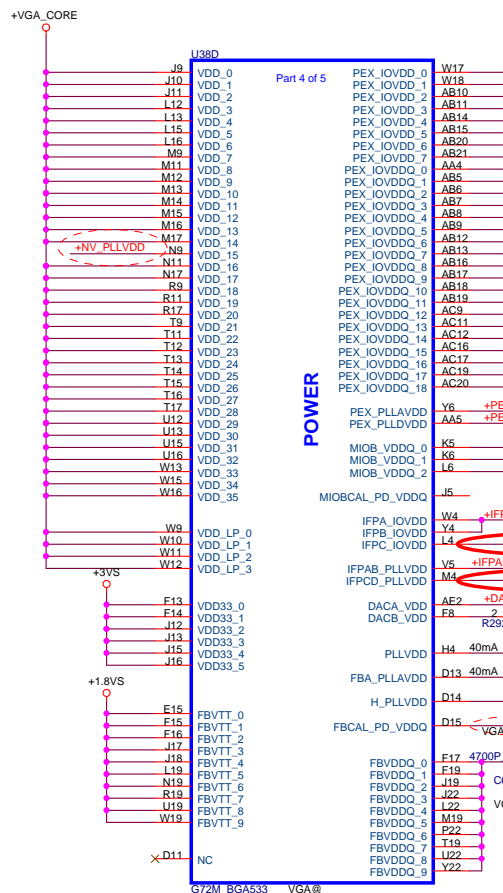
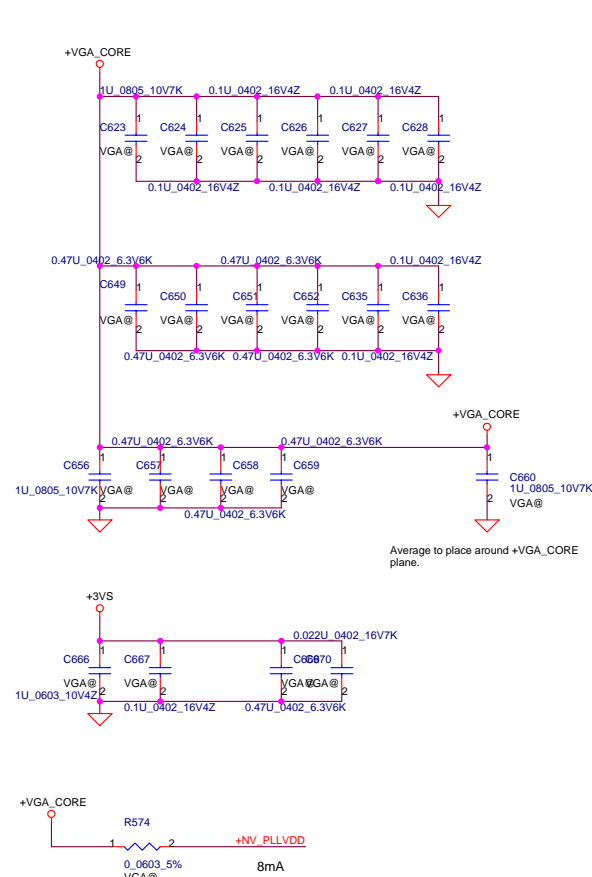
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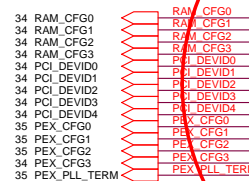




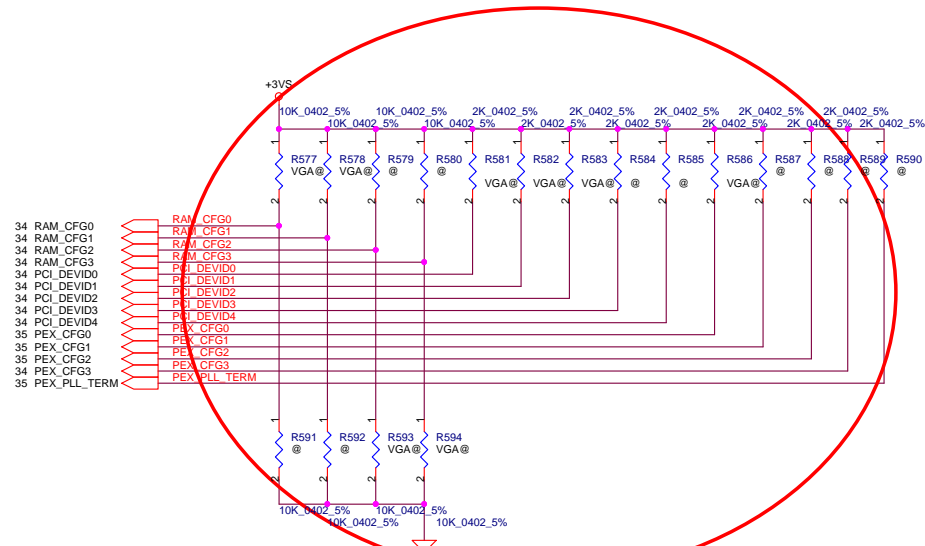
SLOT_CLOCK_CFG	SHARE REFERENCE CLOCK
0	Disable
1	Enable(Default)



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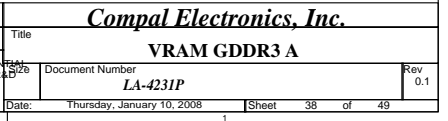


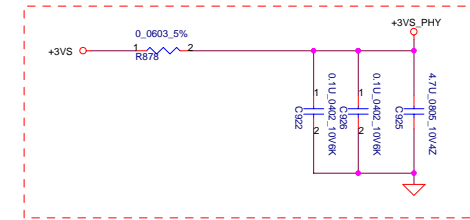
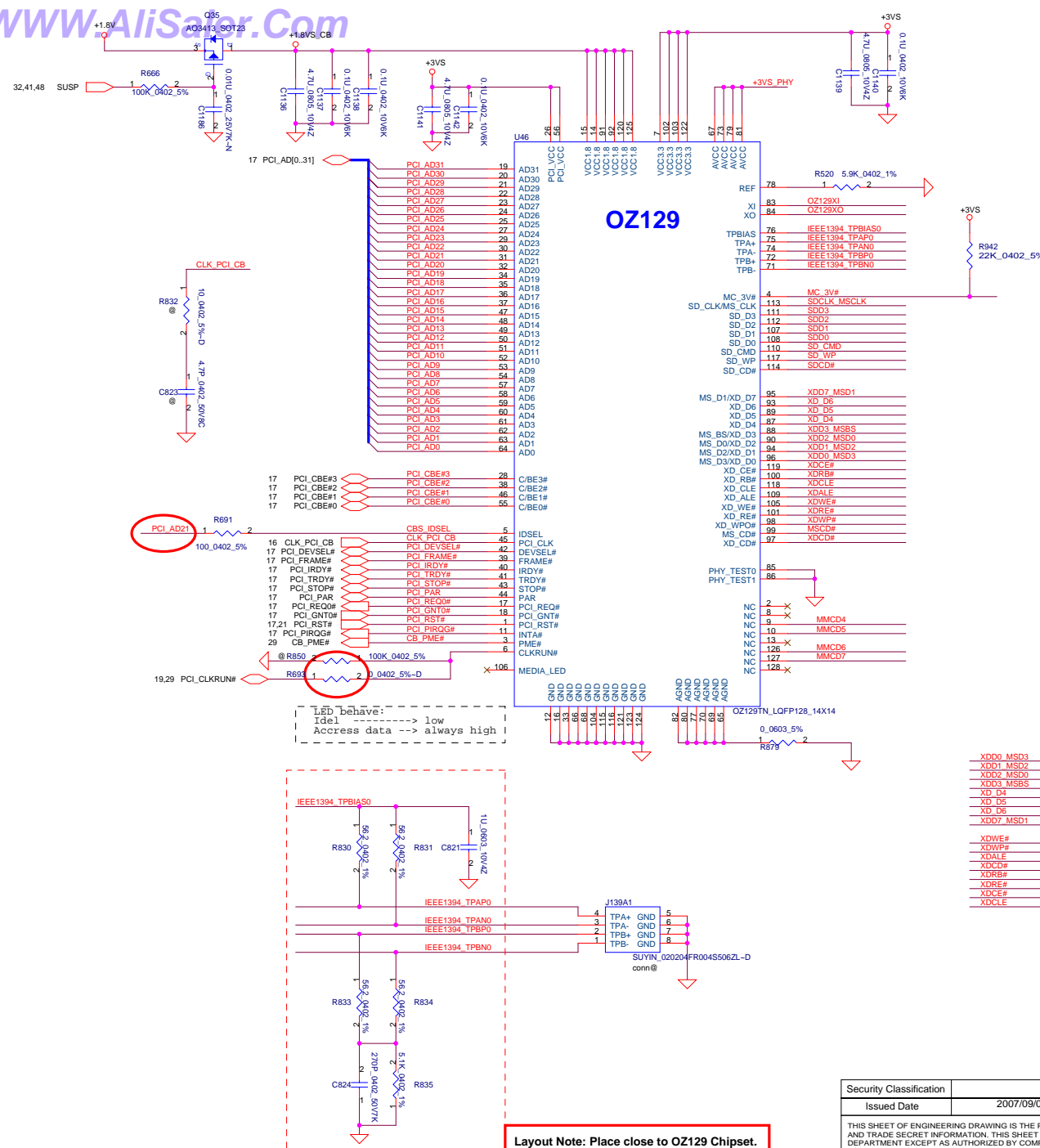
STRAPS	PIN	DESCRIPTION	Value	Value
SUB_VENDOR	MIO_A_D1	VBIOS on card (pull high) VBIOS with system BIOS (pull down)	0	
PEX_PLL_TERM	MIO_A_D0	PCI-E PLL termination 0----->Enable (Default) 1----->Disable	0	
PEX_CFG[3:0]	MIOAD [9,8,6] MIOBD_HSYNC	Recommended for G8x	0001	
RAM_CFG[3:0]	MIOAD0  MIOAD1  MIOAD8  MIOAD9	0001 ---> Qimonda 16Mx32 0010 ---> Hynix 16Mx32 0011 ---> Samsung 16Mx32	0011	
PCI_DEVID[3:0]	VIPD[5:3] MIOA_HSYNC	G73M-xxxxx8 G72M-0x01D8 NB8M-GS : 0X0427 NB8M-SE : 0X0428	0111 1000	
		G72MV-0x01D7 TBD/TBD	0111	



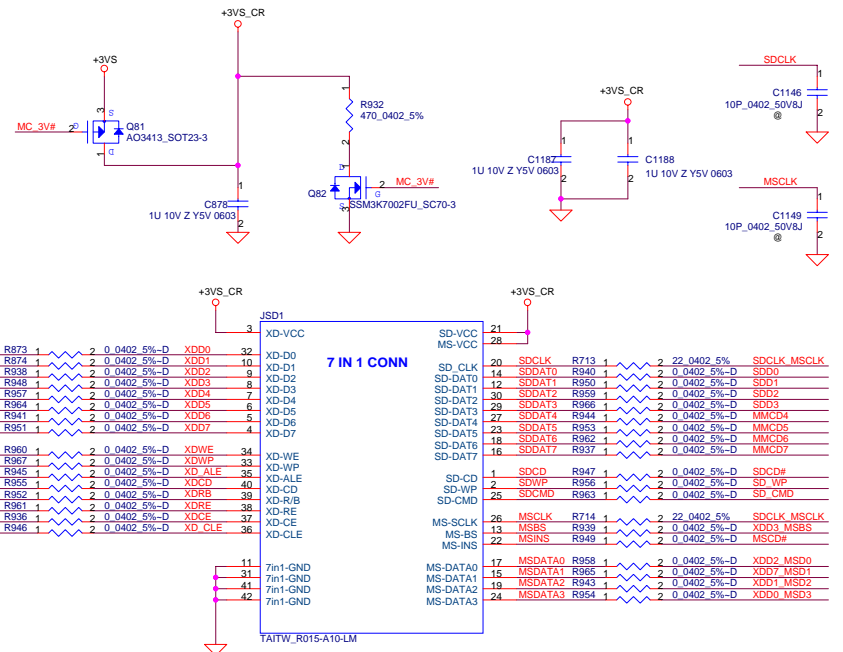
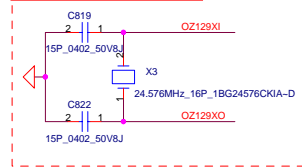
Package		
(10*12.5)	Infineon GDDR2(400): SA00000S800 (HYB18T256161AF-25)	Infineon GDDR2(350): SA00000T700 (HYB18T256161AF-28)
(11*13)	Samsung GDDR2 (400): SA00000FG10 (K4N56163QF-ZC25)	Samsung GDDR2 (350): SA00000TB00 (K4N56163QF-ZC2A)
(8*13)	Hynix GDDR2 (400): SA00000FF10 (HY5PS561621AFP-25)	Hynix GDDR2 (350): SA00000TJ00 (HY5PS561621AFP-28)

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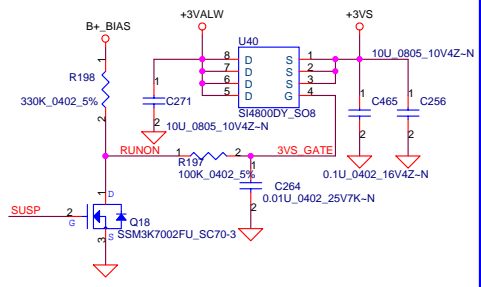
**Layout Note: Place close to OZ129 and Shield GND.**



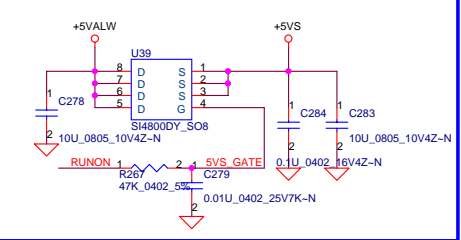
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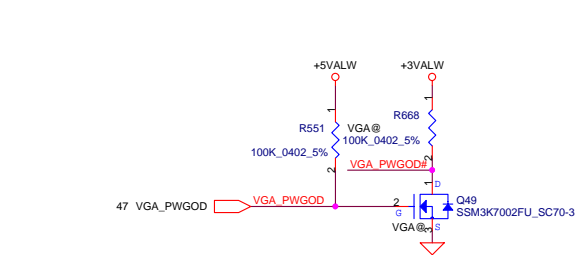
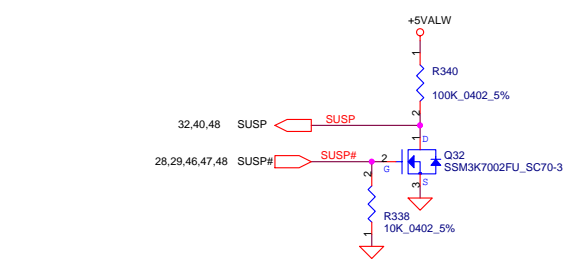
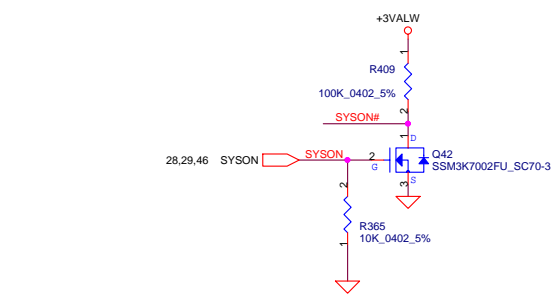
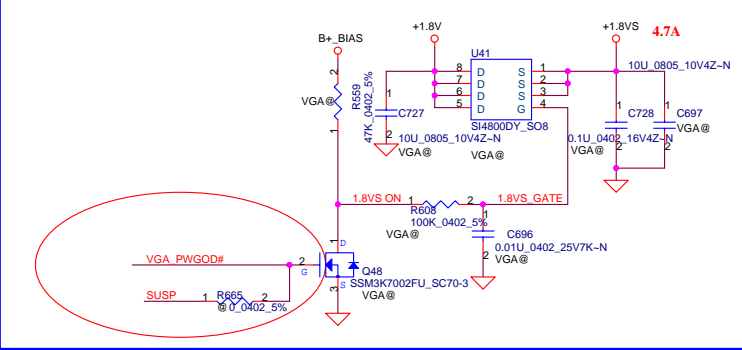
**+3VALW to +3VS Transfer**



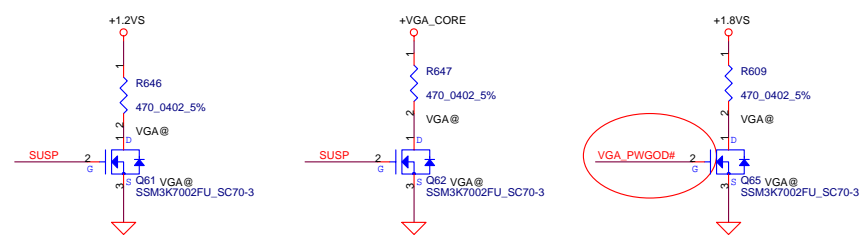
**+5VALW to +5VS Transfer**



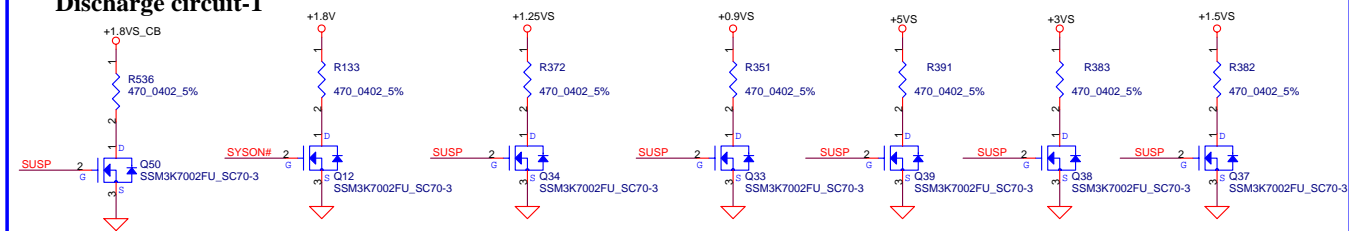
**+1.8V to +1.8VS Transfer**



**VGA Discharge circuit**



**Discharge circuit-1**



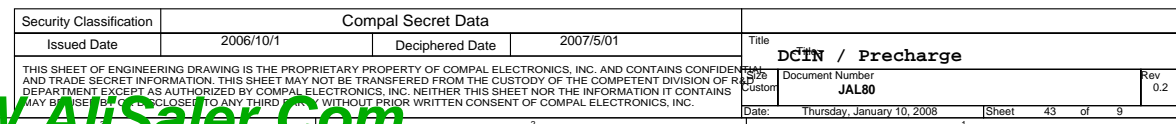
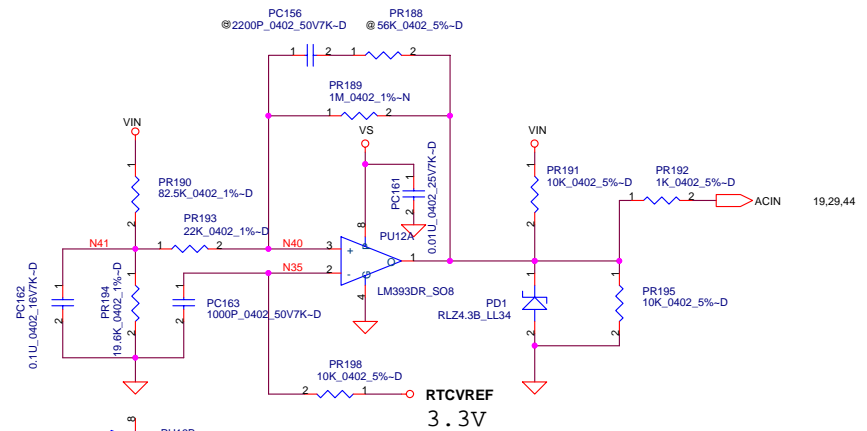
SYSON -> SUSP# -> VGA\_ON->VGA\_PWGOD

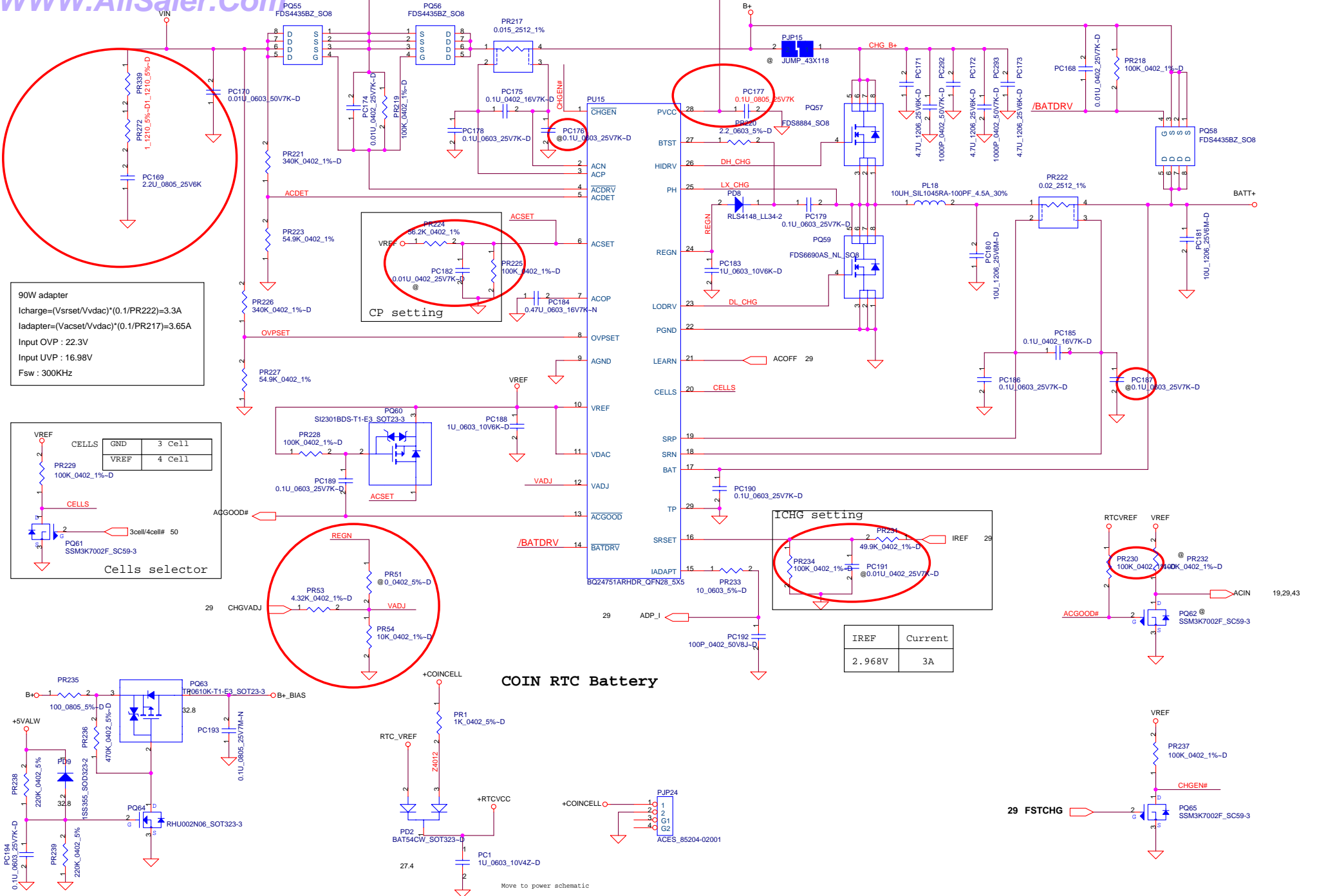
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						Document Number		0.1	
						LA-4231P			
						Date:		Thursday, January 10, 2008	
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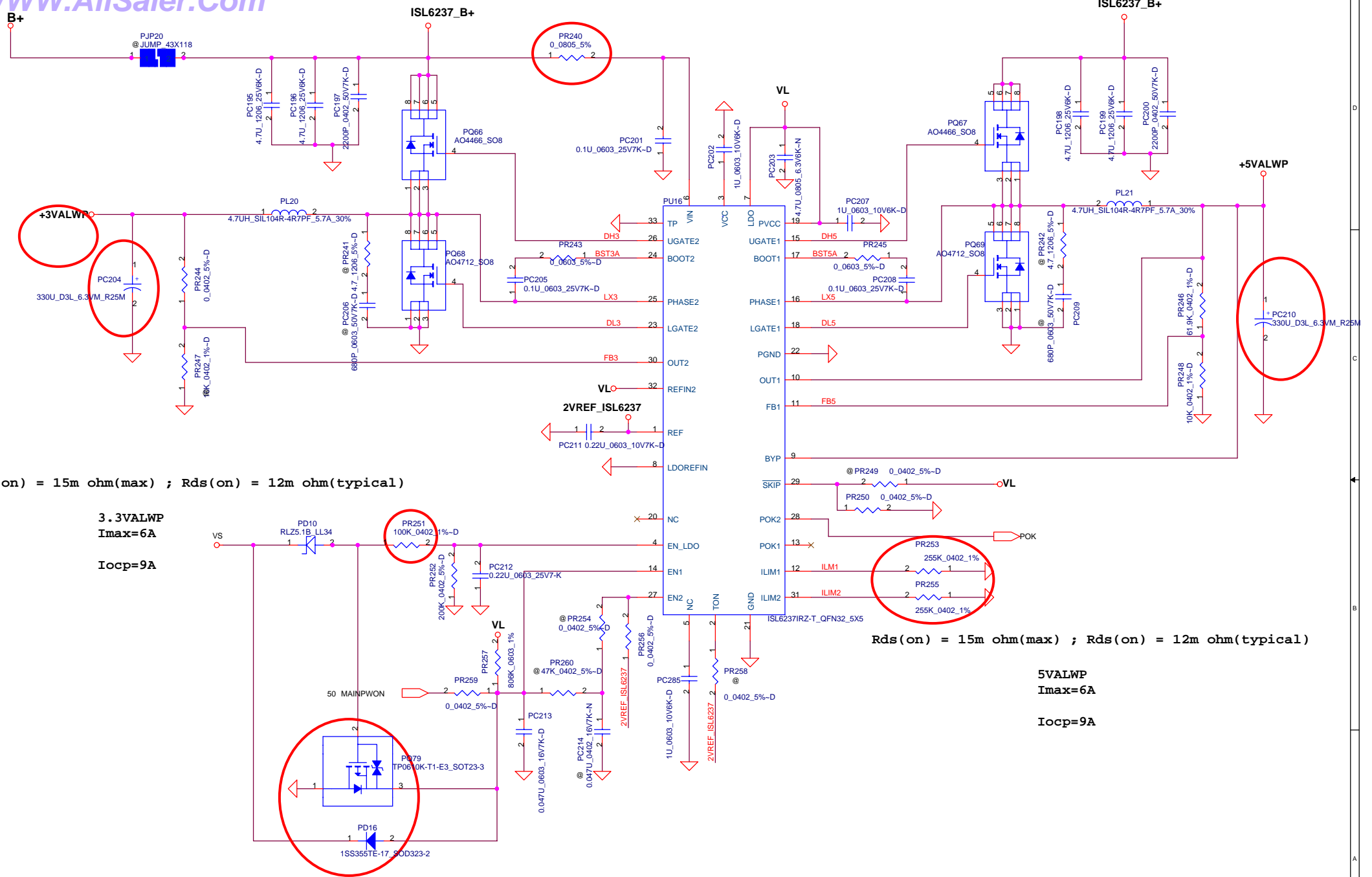


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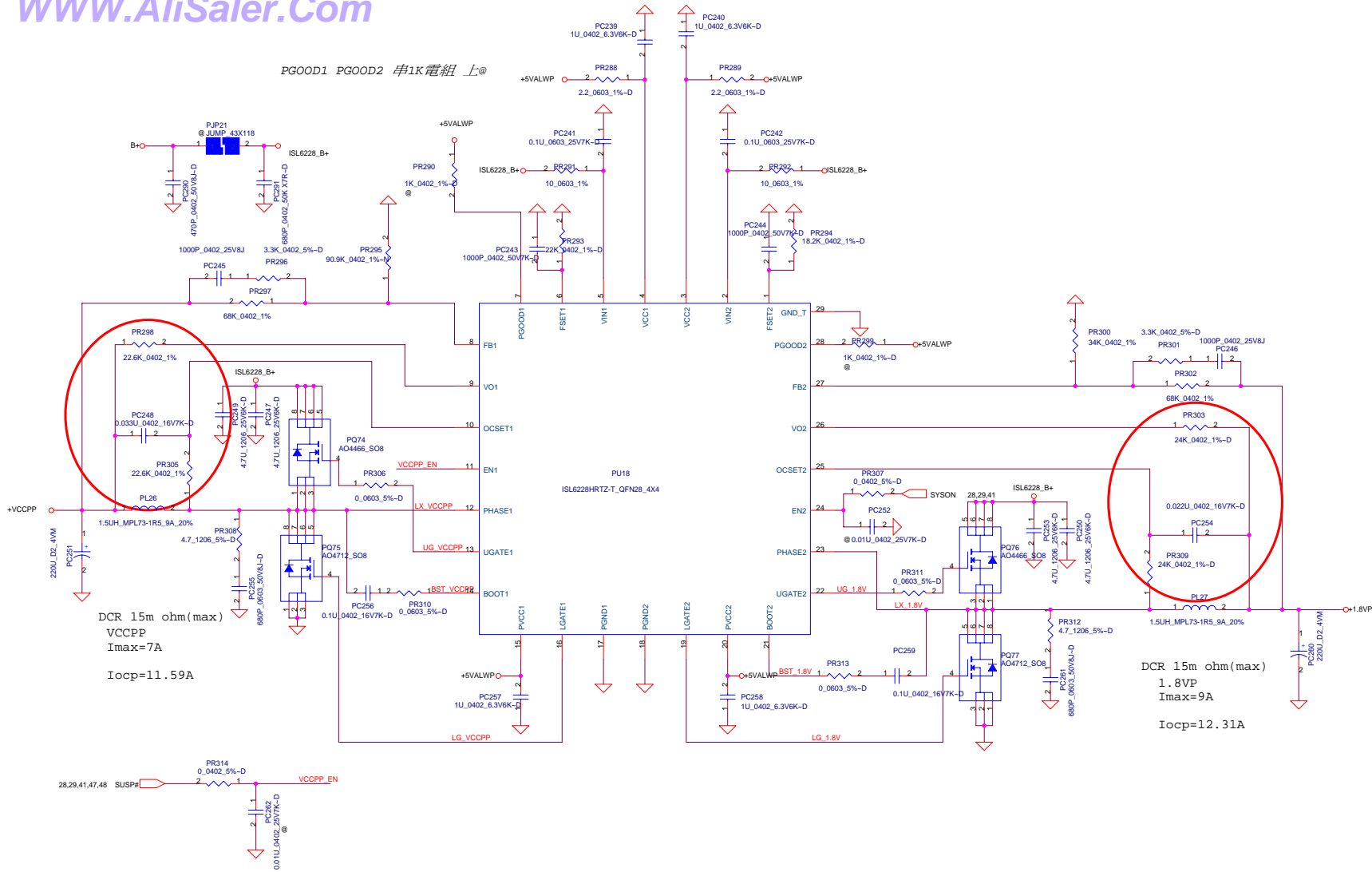


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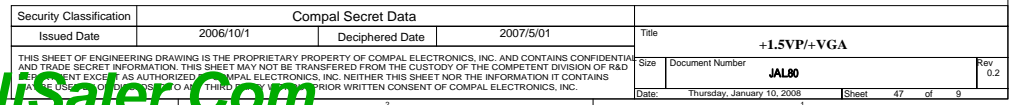


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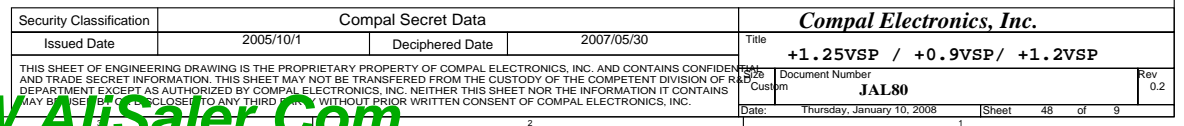
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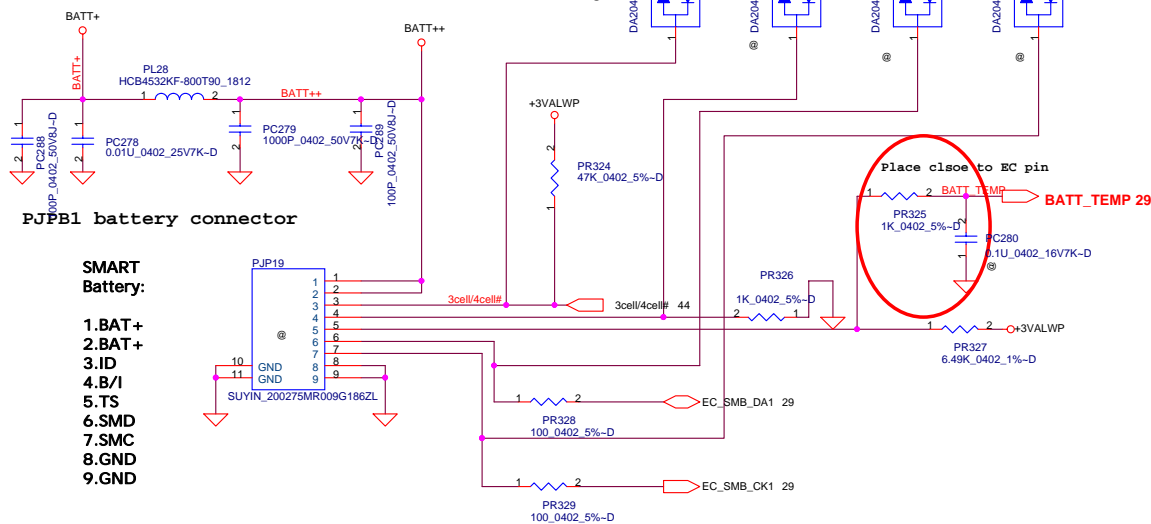








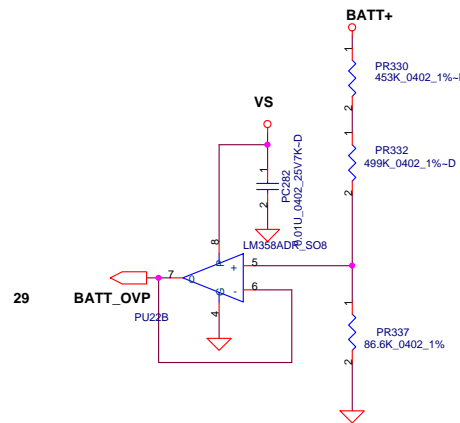
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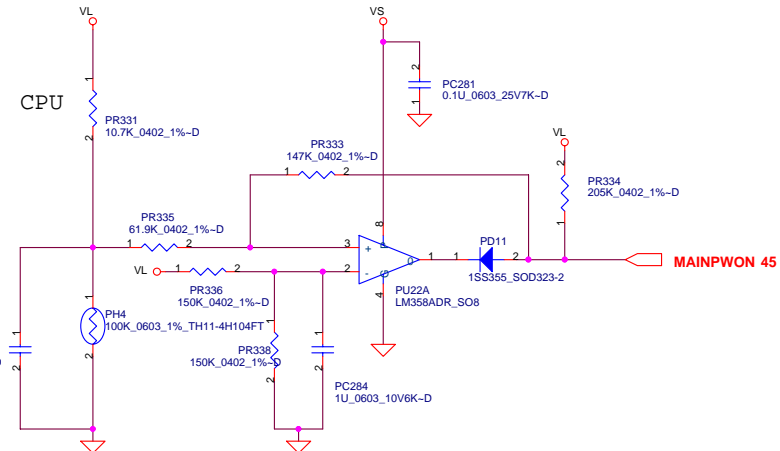
## Battery Connect/OTP

### CPU

**PH1 under CPU bottom side :**  
CPU thermal protection at 90 +-3 degree C  
Recovery at 50 +-3 degree C



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



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Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	board rev update to 0.2	R231 change to 15K & R232 pop	0.2
2	40	P40-OZ129_Card Reader/1394	07/10/30	compal	CardBus vendor change	CardBus R5C833 change to OZ129	0.2
3	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	Change pull up resistance	Change EC pin17,18 pull up to 4.7Kohm	0.2
4	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	Need pull up	NET MIC_DIAG pull up R to 10Kohm 3VS	0.2
5	13,14	DDR2 SODIMM-I,II Socket	07/10/30	compal	Change Capacitance	Change C84,C189 to SGA00002680 330U	0.2
6	29	P29-EC KB926/REED SW/TPM1.2	07/10/30	compal	EC update rev	EC change to 926C	0.2
7	28	P28-Express card	07/10/30	compal	Express card can't detect	POWER IC(U11) ADD PIN10 CPUSB# PIN9 EXPR_CPUSB#S	0.2
8	32	P32-USB/ BlueTooth/ FP/ Felica	07/10/30	compal	Bluetooth can't detect	BLUETOOTH CONN USB+- change	0.2
9	42	P42-Screws	07/10/30	compal	FIDUCAL no enough	ADD FIDUCAL*4	0.2
10	41	P41-DC/DC Interface	07/10/30	compal	Need pull down	SYSON pull down 10K ohm	0.2
11	41	P41-DC/DC Interface	07/11/12	compal	USB can't detect	SUSP change to 5VALW(Q32)	0.2
12	06	P06-Merom(3/3)-GND/Bypass	07/11/12	compal	Change CPU High Freqeunce Decoupling Capacitance	C195 change to C1150-C1181	0.2
13	41	P41-DC/DC Interface	07/11/13	compal	+1.8VS Discharge error	+1.8VS Discharge circuit Q65 net change to VGA_PWGOD#	0.2
14	41	P41-DC/DC Interface	07/11/16	compal	Delete	Remove SIM card connector	0.2
15	42	P42-Screws	07/11/16	compal	Change Holea size	Change Holea size 2.5 to 2.8, change 3.5 to 3.8	0.2
16	31	P31-PWR_OK/ BTN/ KB / TouchPad	07/11/21	compal	Change Touch PAD/B connector	Touch PAD/B connector change net	0.2
17	15	P15-CRT Conn.& LCD Conn.	07/11/21	compal	Add LCD control pin	Add LCD control pin LCD_CBL_DET# & LCD_TST & LCD_VCC_TEST_EN	0.2
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Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	41	+3VALWP/+5VALWP	07/11/19	COMPAL	When in the DC-mode , shut down the system ,5valwp output not turn off	ADD PQ79 to turn off 5VALWP wehn shut down the system in the DC-mode	
2	44	Charge	07/12/26	COMPAL	change charge voltage can to adjust	Change PR53 from 15K to 4.3K	
3	49	CPU_CORE	07/12/26	COMPAL	Increase Resistor 0ohm on CPU_CORE high side gate for EMI request	ADD PR163 PR184	
4	45	+3VALWP/+5VALWP	07/12/26	COMPAL	The schematic location is wrong	DEL PL19	
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				0.1	LA-3682P	0.1
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