

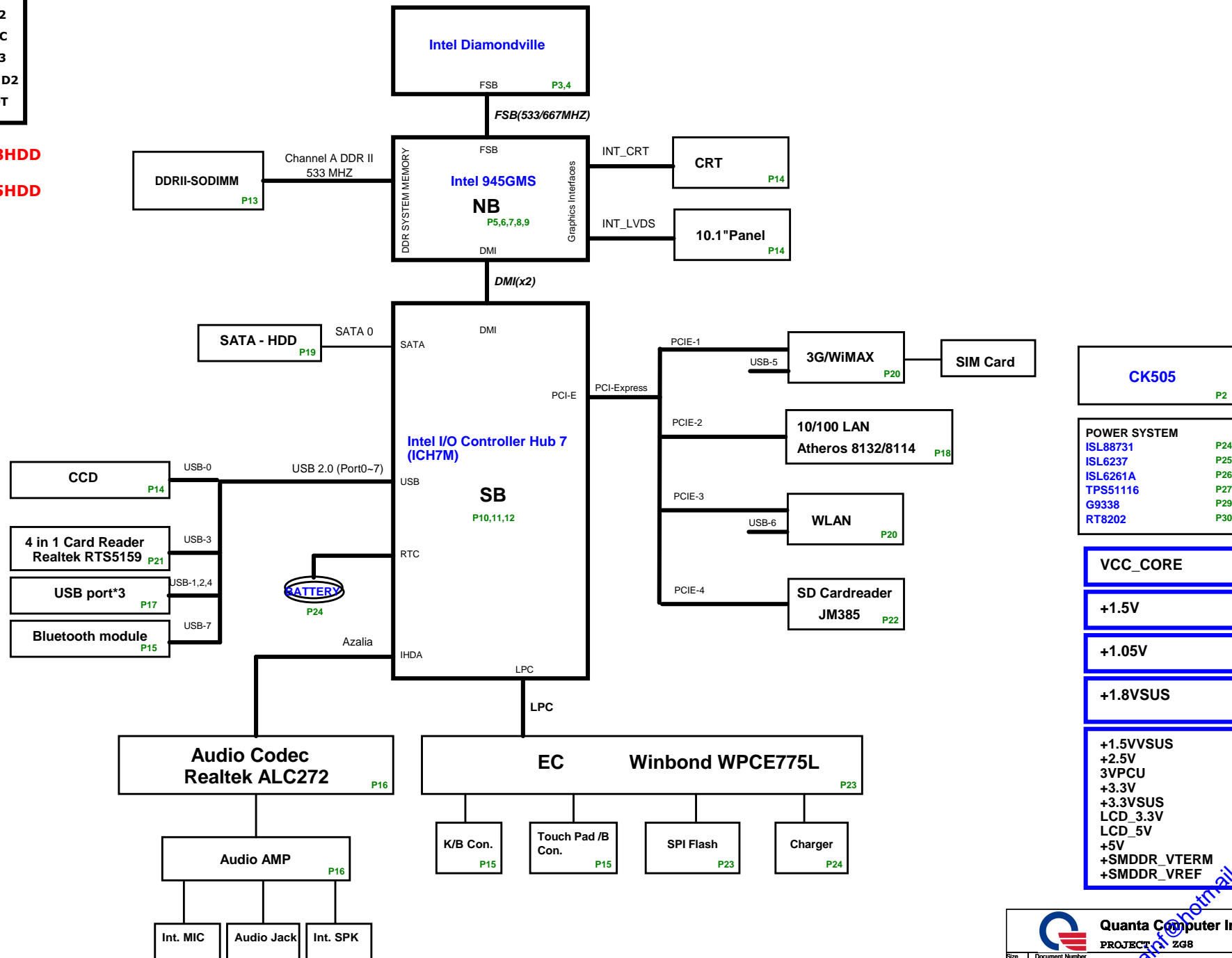
ZG8 Block Diagram

PCB STACK UP

- LAYER 1 : TOP
- LAYER 2 : GND1
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : IN3
- LAYER 7 : GND2
- LAYER 8 : BOT

1.8@ for 1.8HDD

2.5@ for 2.5HDD



CK505
P2

POWER SYSTEM

- ISL88731 P24
- ISL6237 P25
- ISL6261A P26
- TPS51116 P27
- G9338 P29
- RT8202 P30

VCC_CORE

+1.5V

+1.05V

+1.8VSUS

+1.5VVSUS
+2.5V
3VPCU
+3.3V
+3.3VSUS
LCD_3.3V
LCD_5V
+5V
+SMDDR_VTERM
+SMDDR_VREF

Audio Codec
Realtek ALC272 P16

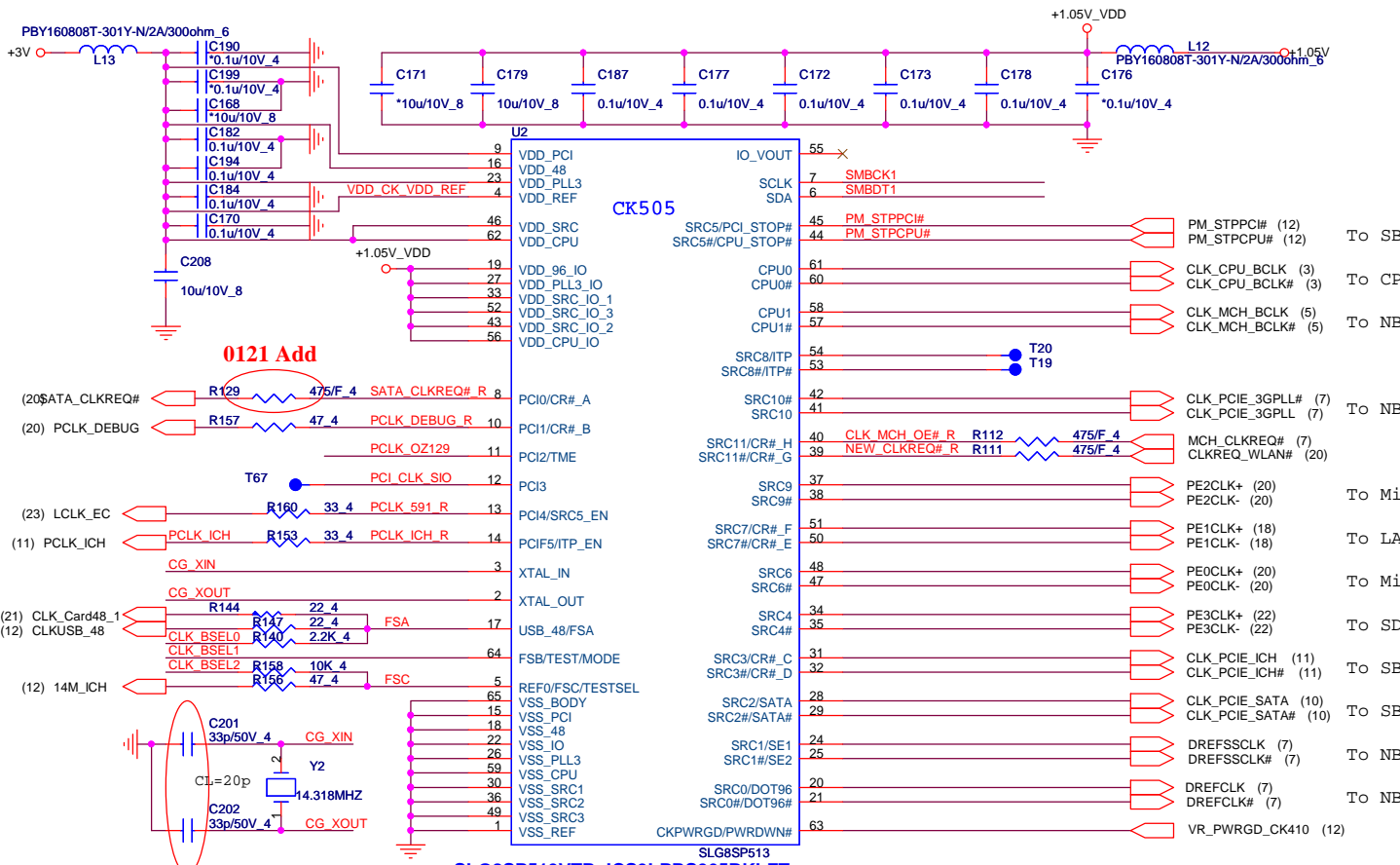
Audio AMP P16

- Int. MIC
- Audio Jack
- Int. SPK

EC Winbond WPCE775L P23

- K/B Con. P15
- Touch Pad /B Con. P15
- SPI Flash P23
- Charger P24

Clock Generator(CLK)

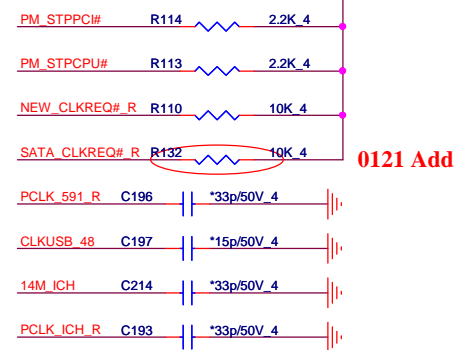


12/19 modify

	ICS9LPRS365 (ALPRS365K13)	RTM875T-606 (AL000875K06)	PULL HIGH	PULL DOWN
Pin 11	PCI2/TME	PCI2/TME internal PD	NO OVERCLOCKING (default)	NORMAL RUN
Pin 12	PCI-3	PCI-3/SRC5_EN internal PD	PIN37/38 IS SRC5	PIN37/38 IS PCI_STOP/CPU_STOP (default)
Pin 13	PCI-4/27M_SEL	PCI-4/27M_SEL internal PD	PIN 17/18 IS 27MHz	PIN 17/18 IS SRC/DOT (default)
Pin 14	PCIF-5/ITP_EN	PCIF-5/ITP_EN internal PD	PIN 46/47 IS CPUITP	PIN 46/47 IS SRC0 (default)

Blue Gen I2C

<MAIN>: ICS9LPRS365BGLFT QCI: ALPRS365K13
 <SECOND>: SLG8SP512TTR: QCI: AL8SP512K05

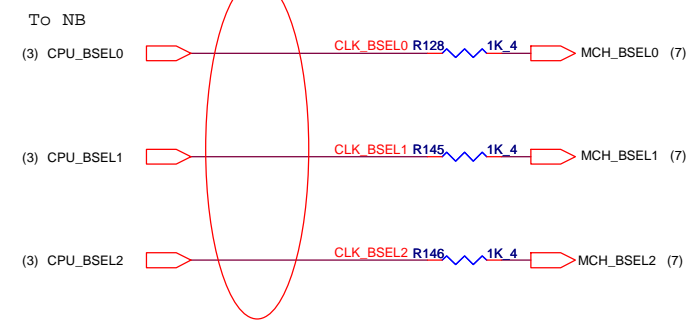
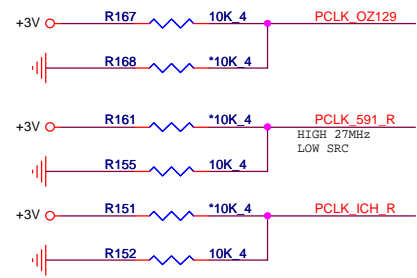


0121 Add

SEL2 SEL1 SEL0 Frequency select

FSC	FSB	FSA	CPU	SRC	PCI
1	0	1	100	100	33
0	0	1	133	100	33
0	1	1	166	100	33
0	1	0	200	100	33
0	0	0	266	100	33
1	0	0	333	100	33
1	1	0	400	100	33
1	1	1	Reserved		

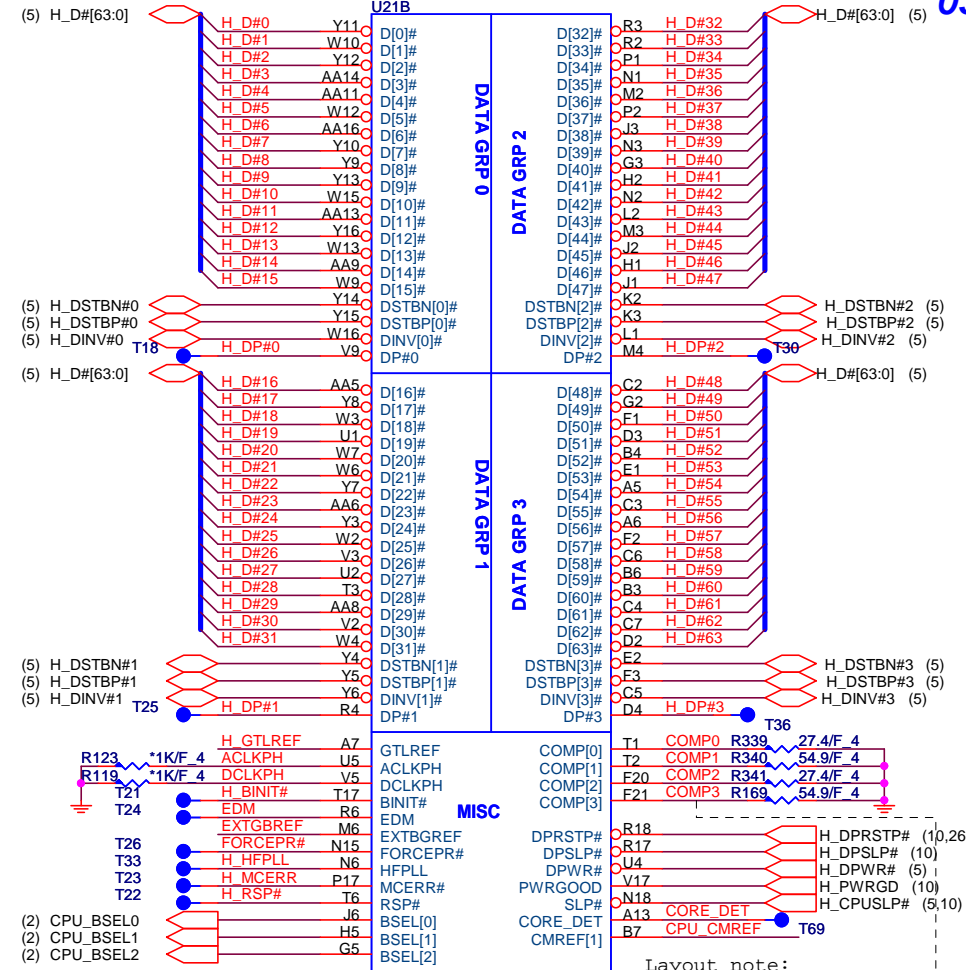
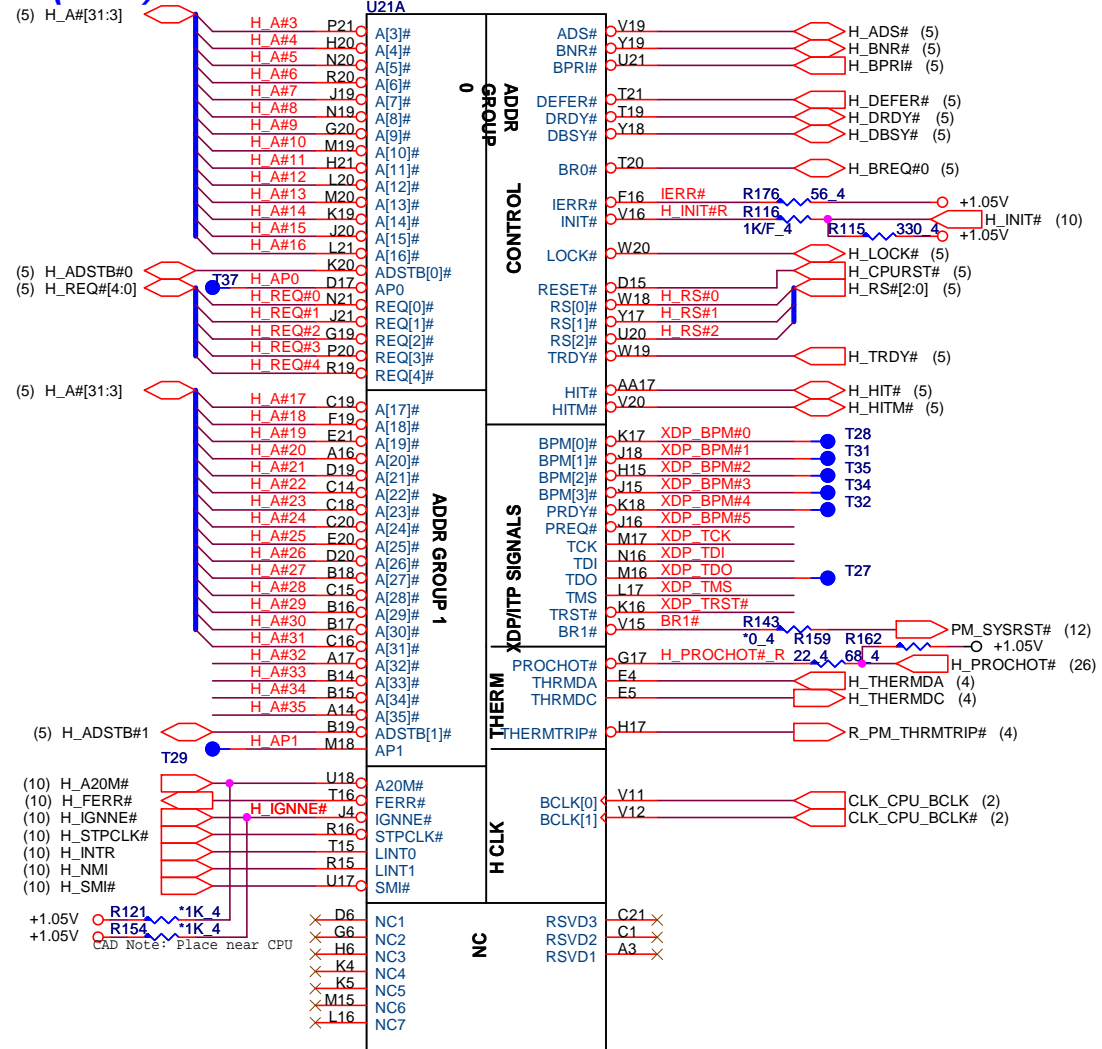
Default



Quanta Computer Inc.
PROJECT : ZG8

Size	Document Number	Rev
	CLOCK GENERATOR	1A
Date: Tuesday, February 03, 2009		
Sheet 2 of 33		

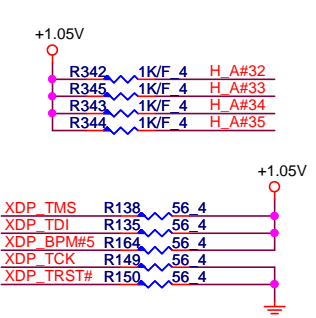
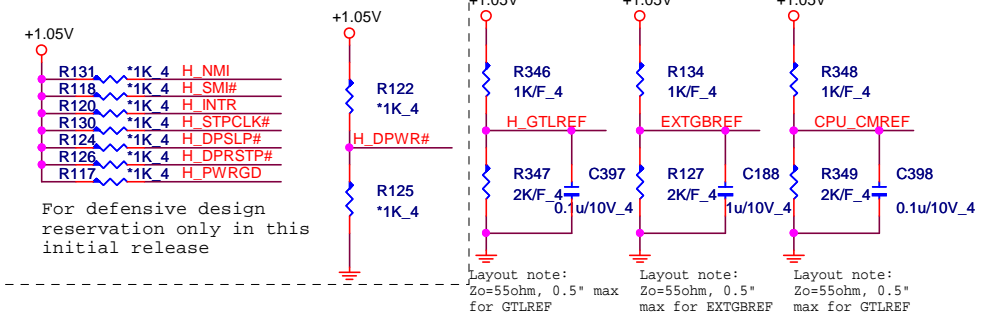
CPU-1(CPU)



Diamondville_SC_Rev1


Diamondville_SC_Rev1

Layout note:
 Comp0,2 connect with Zo=27.4ohm, make trace length shorter than 0.5"
 Comp1,3 connect with Zo=55ohm, make trace length shorter than 0.5"



Layout note:
 Zo=55ohm, 0.5" max for GTLREF
 Zo=55ohm, 0.5" max for EXTGBREF
 Zo=55ohm, 0.5" max for GTLREF

For defensive design reservation only in this initial release

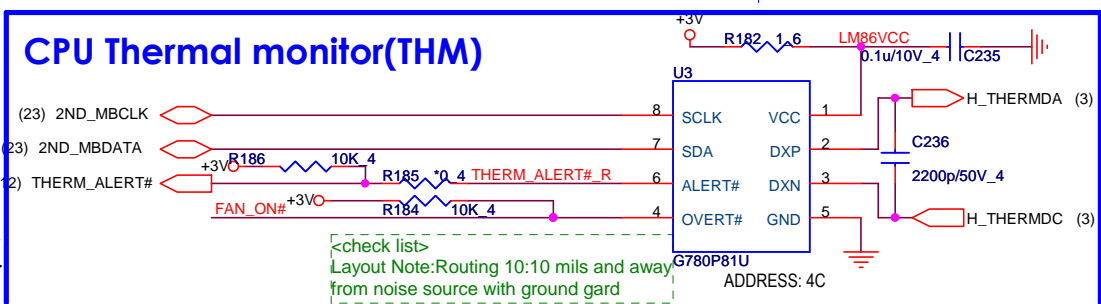
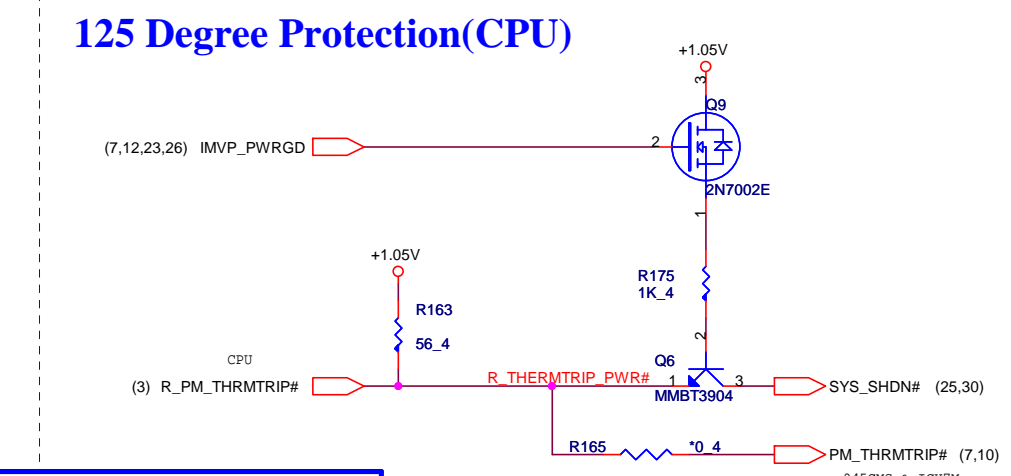
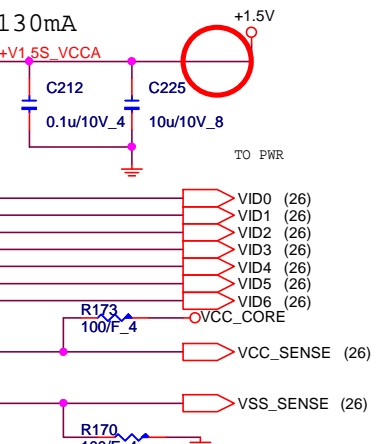
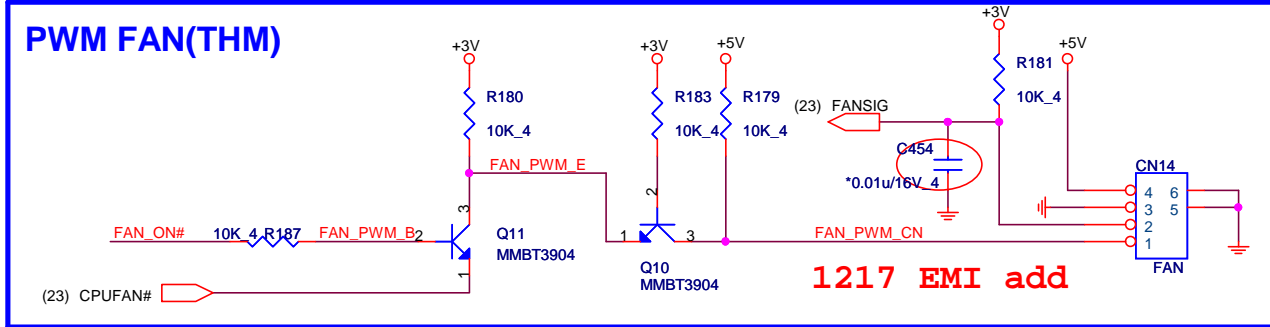
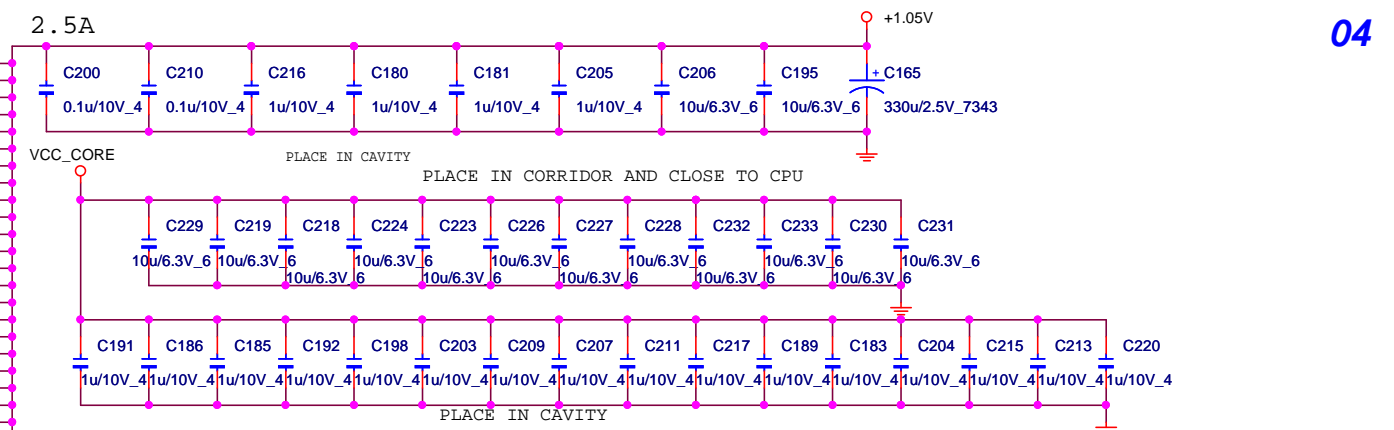
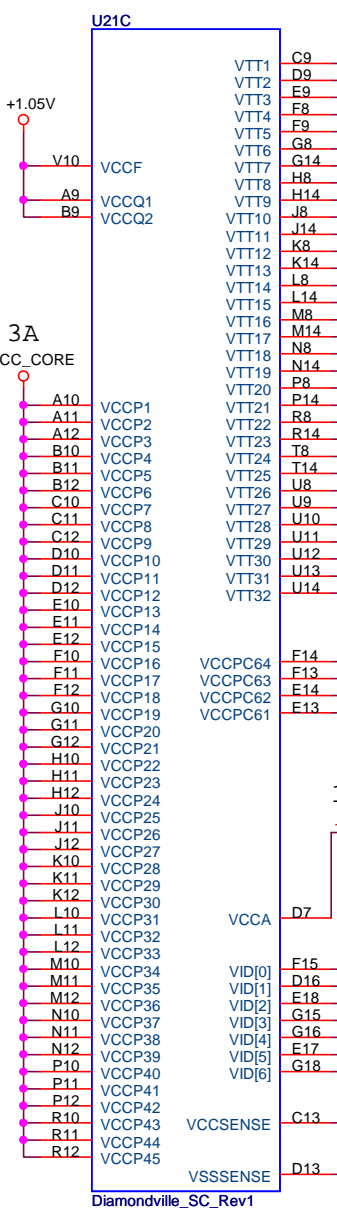
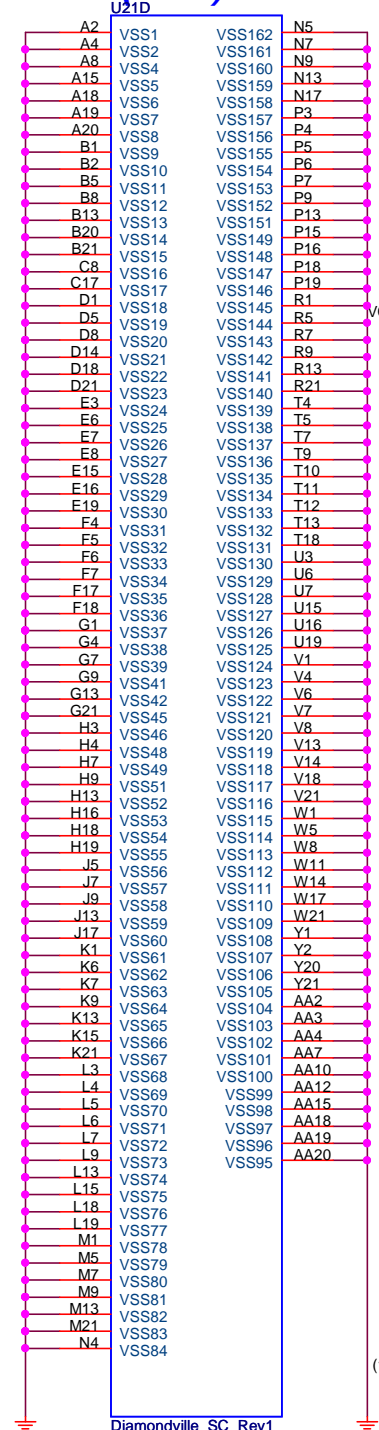


Quanta Computer Inc.
PROJECT ZG8

Size	Document Number	Rev
	Diamondville(1/2)	1A
Date:	Monday, January 19, 2009	Sheet 3 of 33

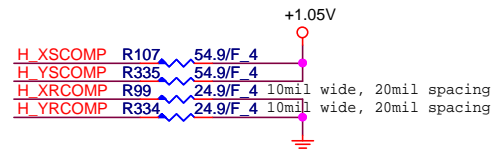
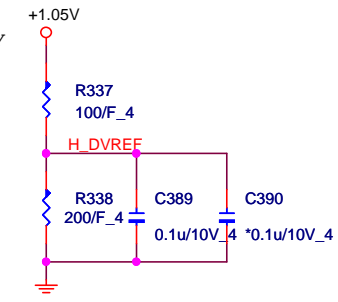
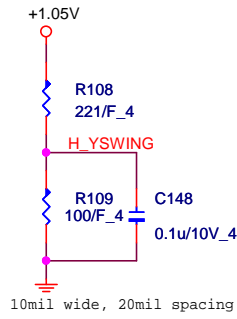
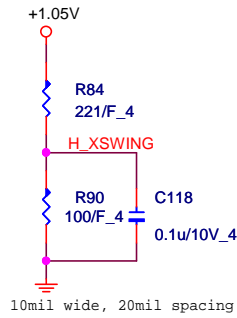
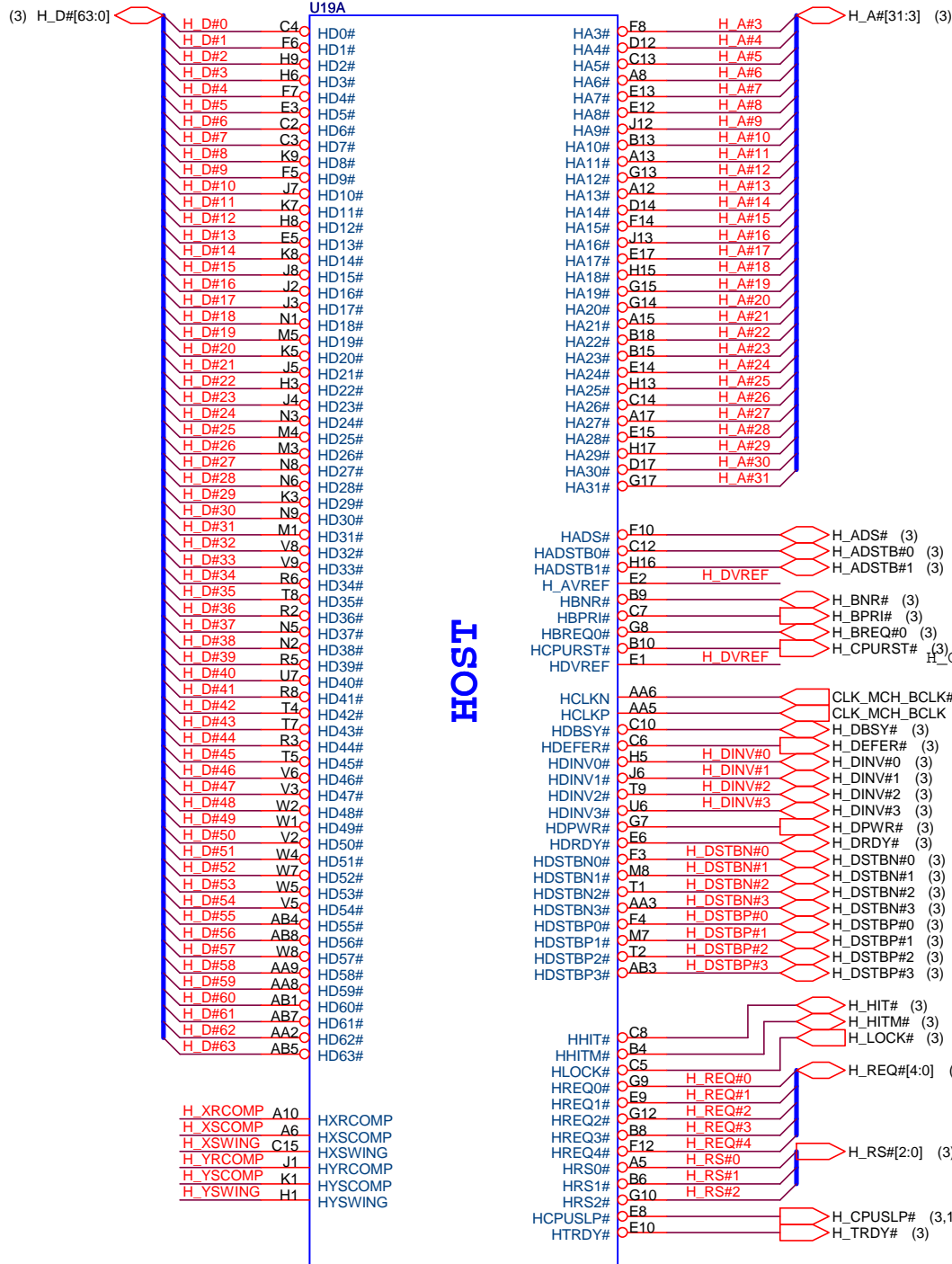
hexainf@notmail.com

CPU-2(CPU)



Quanta Computer Inc.
PROJECT : ZG8

Date: Monday, February 02, 2009	Document Number Diamondville(2/2)	Rev 1A
Sheet 4 of 33		

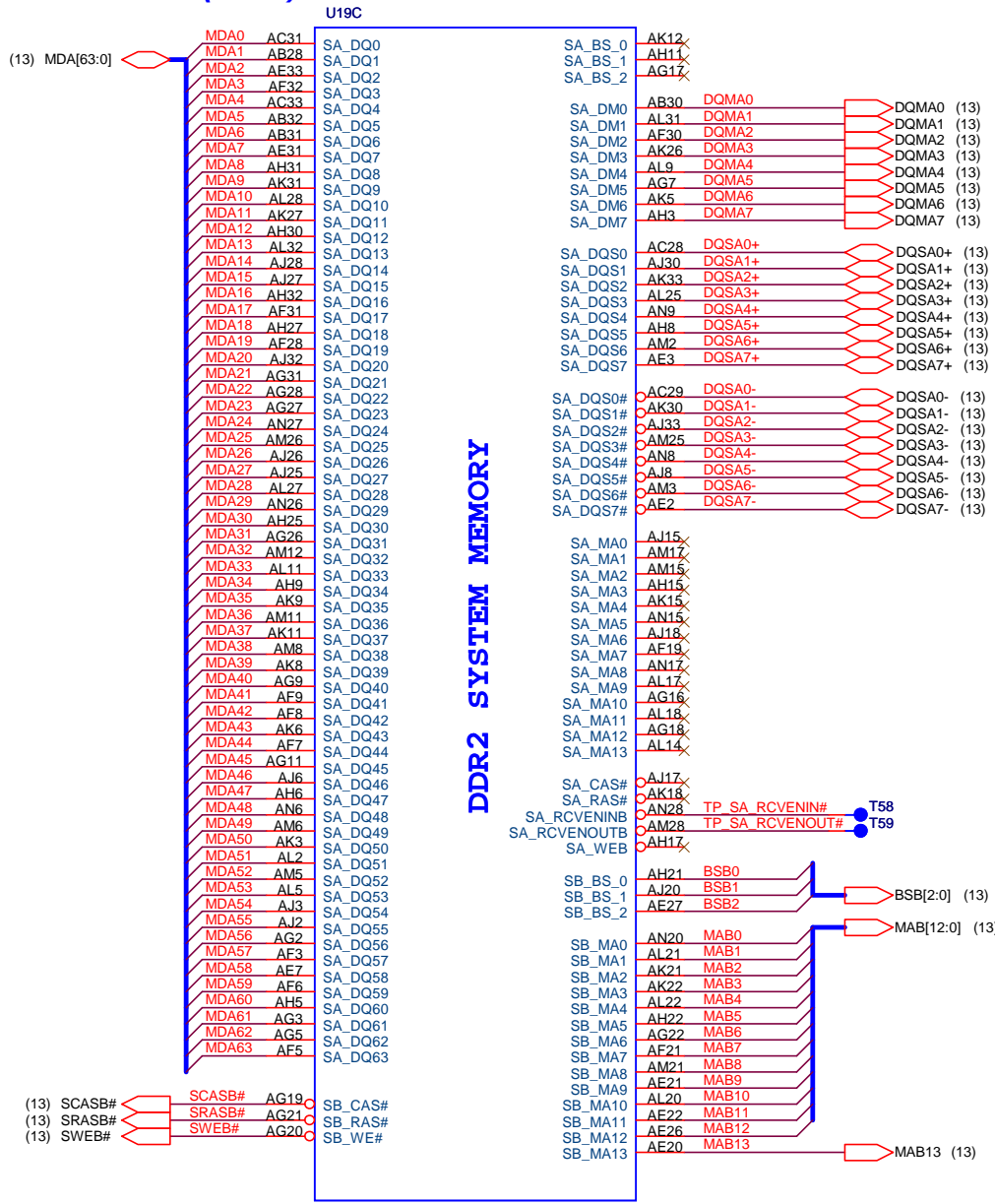


Quanta Computer Inc

PROJECT : ZG8

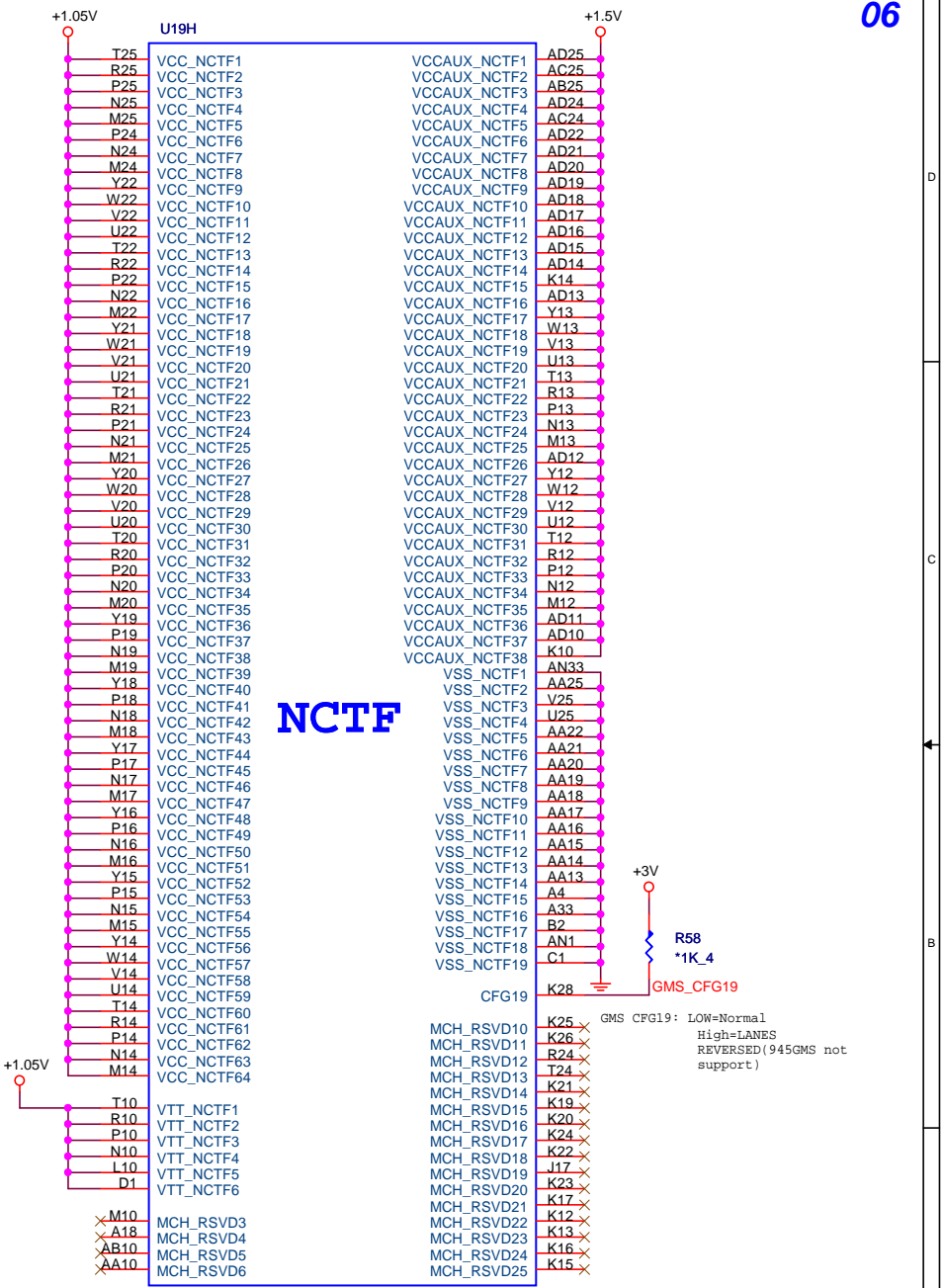
Size	Document Number	Rev
	945GMS HOST	1A
Date:	Monday, January 19, 2009	Sheet 5 of 33

hexairn@hotmail.com



DDR2 SYSTEM MEMORY

945GMS



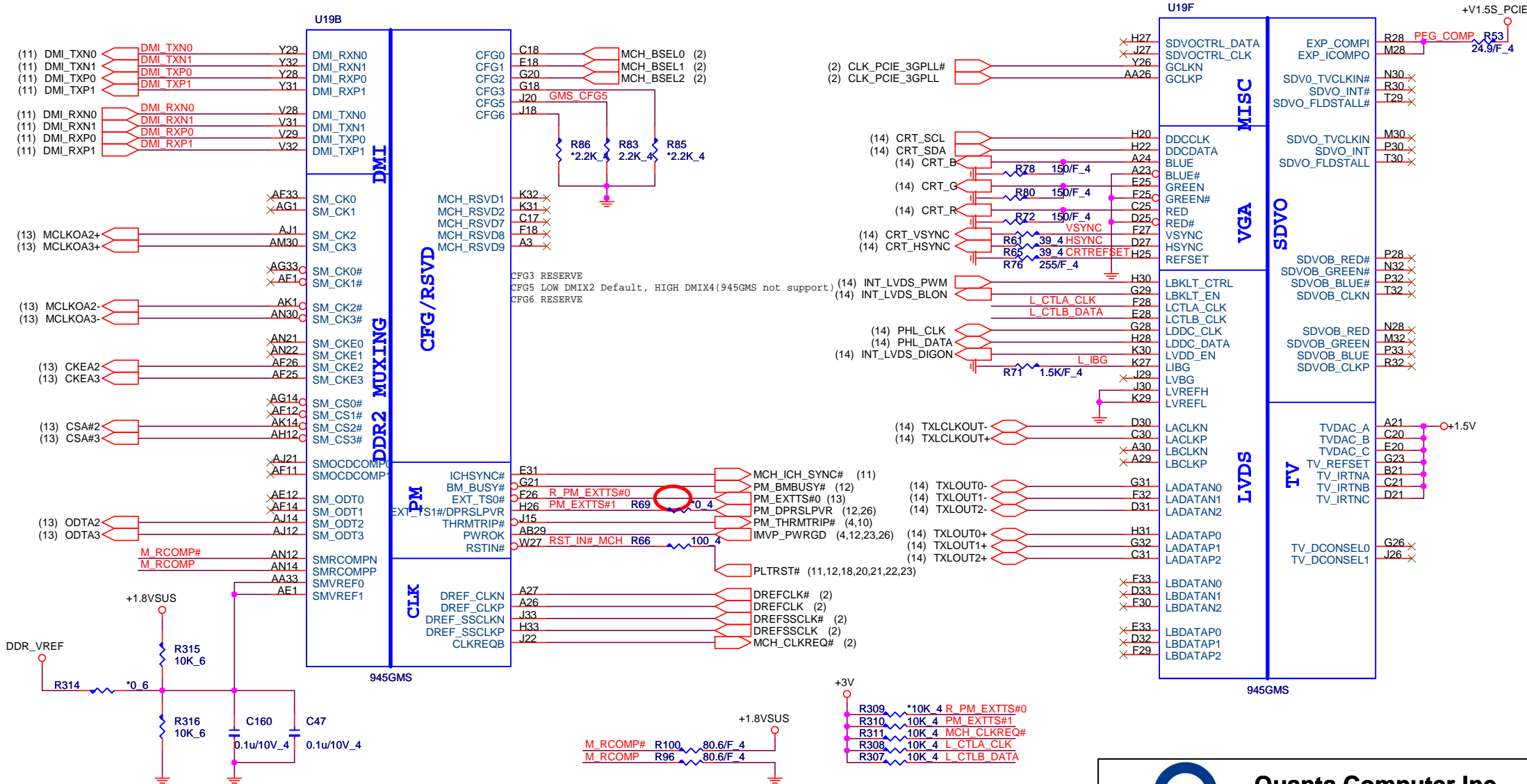
NCTF

945GMS

Quanta Computer Inc.
 PROJECT : ZG8

Size	Document Number	Rev
	945GMS DDR	1A
Date:	Monday, February 02, 2009	Sheet 6 of 33

DMI, LVDS, DDR CLK(CLG)



Quanta Computer Inc.
PROJECT : ZG8

Size	Document Number	Rev
	945GMS LVDS, DMI, DDR CLK	1A
Date:	Monday, January 19, 2009	Sheet 7 of 33

hexainf@hotmail.com

AH33	VSS1
Y33	VSS2
R33	VSS3
G33	VSS4
AK32	VSS5
AG32	VSS6
AE32	VSS7
AC32	VSS8
AA32	VSS9
U32	VSS10
H32	VSS11
E32	VSS12
C32	VSS13
AM31	VSS14
AJ31	VSS15
AA31	VSS16
U31	VSS17
T31	VSS18
R31	VSS19
P31	VSS20
N31	VSS21
M31	VSS22
J31	VSS23
F31	VSS24
AL30	VSS25
AG30	VSS26
AE30	VSS27
AC30	VSS28
AA30	VSS29
Y30	VSS30
V30	VSS31
U30	VSS32
G30	VSS33
F30	VSS34
B30	VSS35
AA29	VSS36
U29	VSS37
R29	VSS38
P29	VSS39
N29	VSS40
M29	VSS41
H29	VSS42
E29	VSS43
B29	VSS44
AK28	VSS45
AH28	VSS46
AE28	VSS47
AA28	VSS48
U28	VSS49
T28	VSS50
J28	VSS51
D28	VSS52
AM27	VSS53
AF27	VSS54
AB27	VSS55
AA27	VSS56
Y27	VSS57
U27	VSS58
T27	VSS59
R27	VSS60
P27	VSS61
N27	VSS62
M27	VSS63
G27	VSS64
E27	VSS65
O27	VSS66
B27	VSS67
AL26	VSS68
AH26	VSS69
W26	VSS70
U26	VSS71
AN25	VSS72
AK25	VSS73
AG25	VSS74
AE25	VSS75
J25	VSS76
G25	VSS77
A25	VSS78
H23	VSS79
F23	VSS80
R23	VSS81
AM22	VSS82
AJ22	VSS83
AF22	VSS84
G22	VSS85
E22	VSS86
L21	VSS87
H21	VSS88
F21	VSS89
AM20	VSS90
AK20	VSS91
AH20	VSS92
AF20	VSS93
D20	VSS94
W19	VSS95
R19	VSS96
AM18	VSS97
AH18	VSS98
AF18	VSS99
U18	VSS100
H18	VSS101
D18	VSS102
AK17	VSS103
V17	VSS104
T17	VSS105
F17	VSS106
B17	VSS107
AH16	VSS108
U16	VSS109
	VSS110

VSS

J16
U19E
945GMS


U19G
W33
AM33
AL33
C33
B33
AM32
A32
AN31
W28
W27
W29
J24
AL24
W32
G24
F24
E24
D24
AE11
K33
A31
E21
C23
AN19
AM19
AL19
J9
AJ19
AH19
AN3
Y9
J19
H19
G19
F19
E19
D19
C19
B19
AJ19
Y8
G16
F16
E16
D16
C16
B16
AN2
A16
Y7
AM4
AF4
AA4
AL4
AK4
W31
AJ4
AH4
E4
AG4
AE4
AM1

NC

945GMS

NC61
NC62
NC63
NC64
NC65
NC66
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NC68
NC69
NC70
NC71
NC72
NC1
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NC60

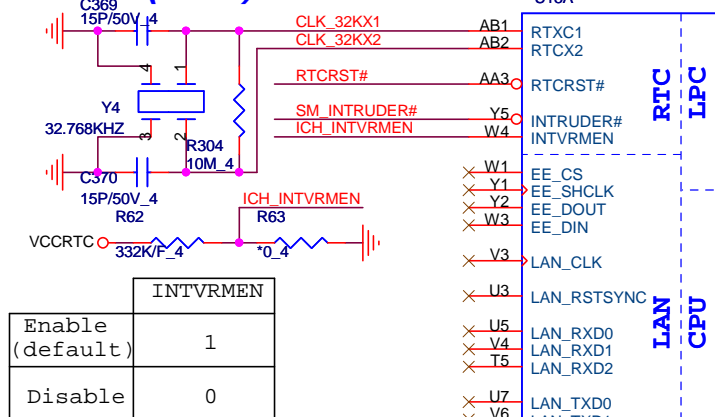
W30
Y6
AL1
Y5
Y10
W25
V24
U24
V10
U10
K18
Y25
Y24
AB22
AB21
AB19
AB16
AB14
AA12
W24
AA24
AB24
AB20
AB18
AB15
AB13
AB12
AB17

 **Quanta Computer Inc.**
PROJECT : ZG8

Size	Document Number	Rev
	945GMS GND	1A
Date:	Monday, January 19, 2009	Sheet 9 of 33

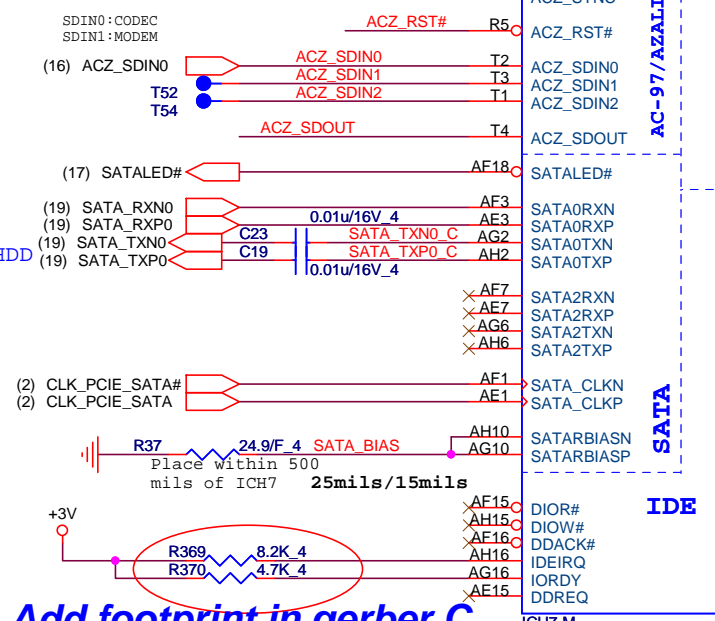
hexainf@hotmail.com

ICH7-M(CLG) 1/7 Change CAP to 15P for crystal precision

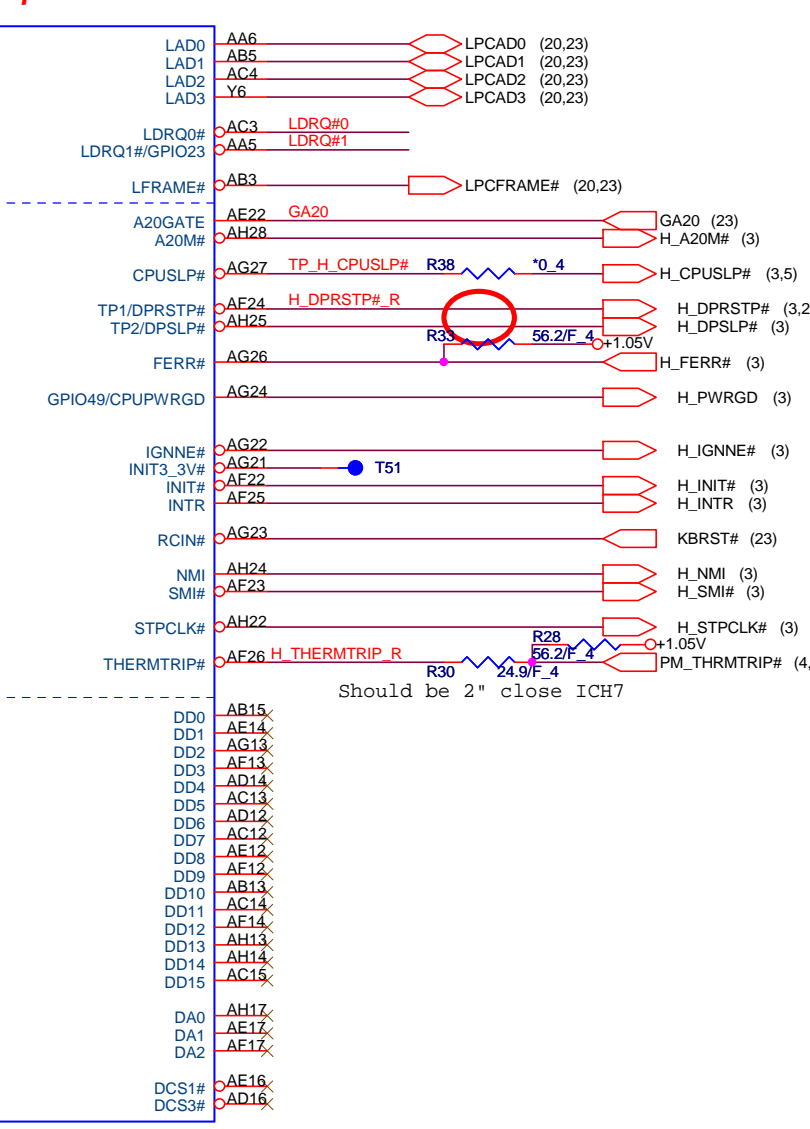
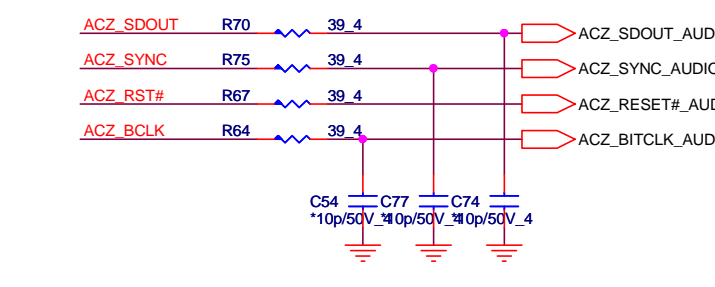


ICH7 internal VR enable strap

INTVRMEN	
Enable (default)	1
Disable	0



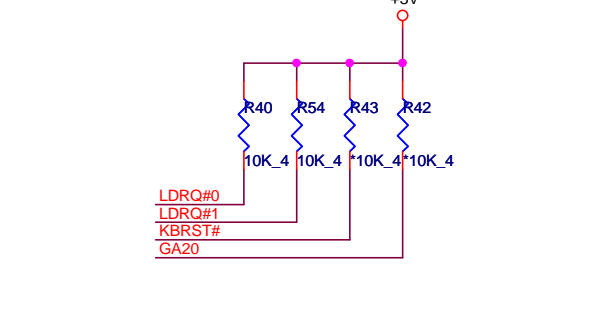
Add footprint in gerber C



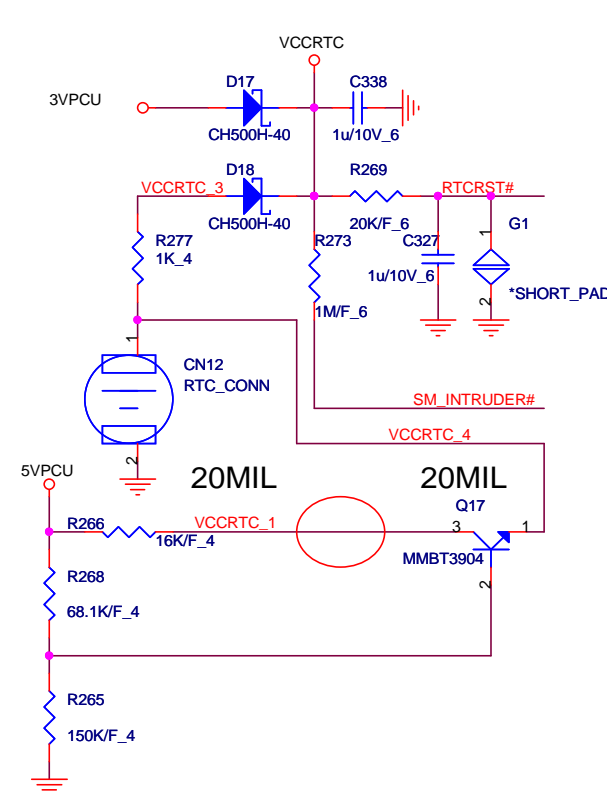
Should be 2" close ICH7


COMPONENTS	P/N
945GMS	AJSLB2R0T00
ICH7-M	AJSL8YB0T21

Pull-UP 10



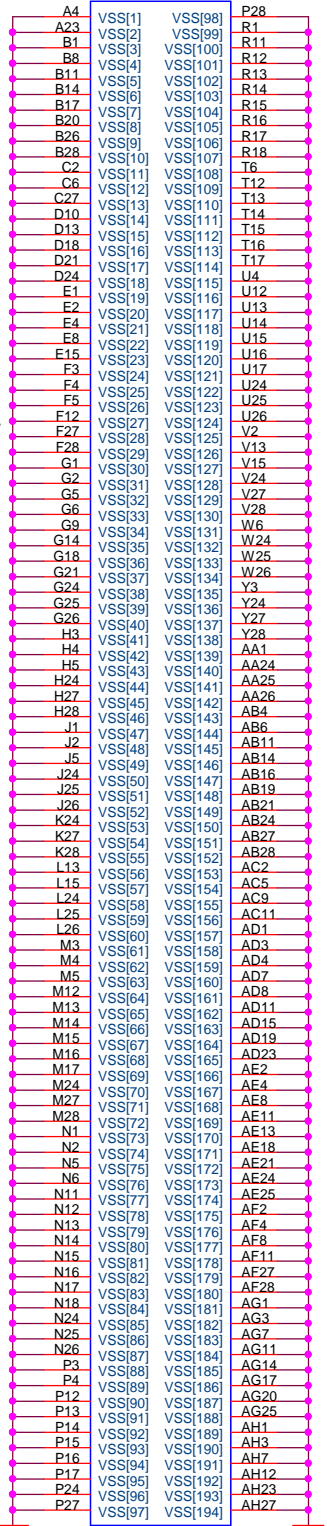
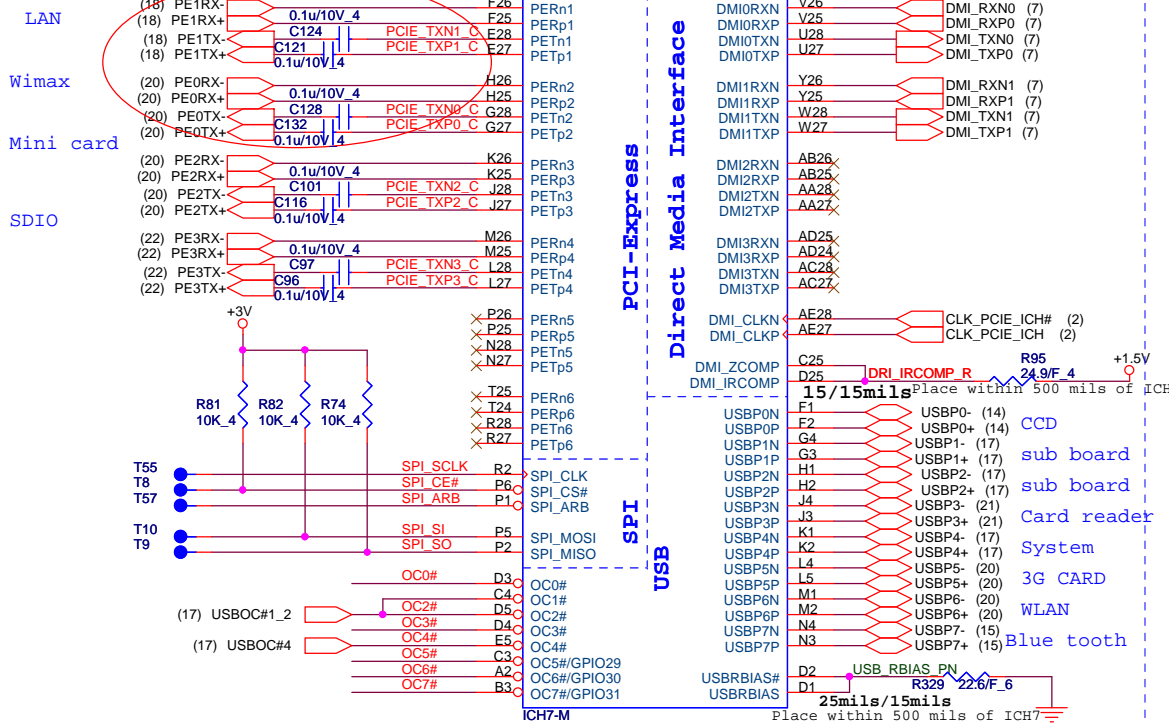
RTC(RTC)





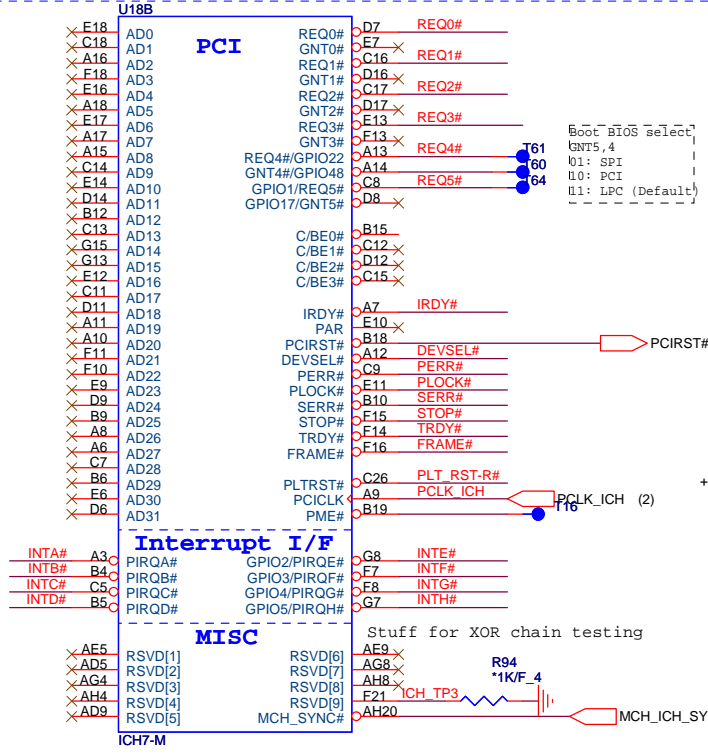
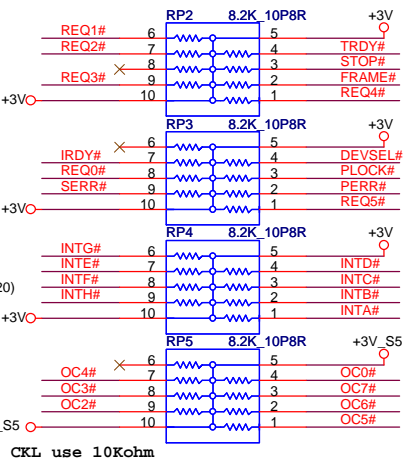
Quanta Computer Inc.
PROJECT : ZG8

Size	Document Number	Rev
	ICH7-M (CPU, SATA, IDE, LPC)	1A
Date:	Tuesday, February 03, 2009	Sheet 10 of 33

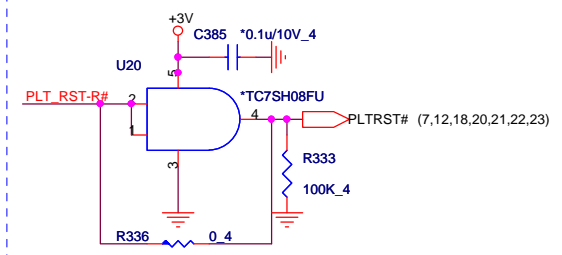


U18E ICH7-M

Pull-UP resistor

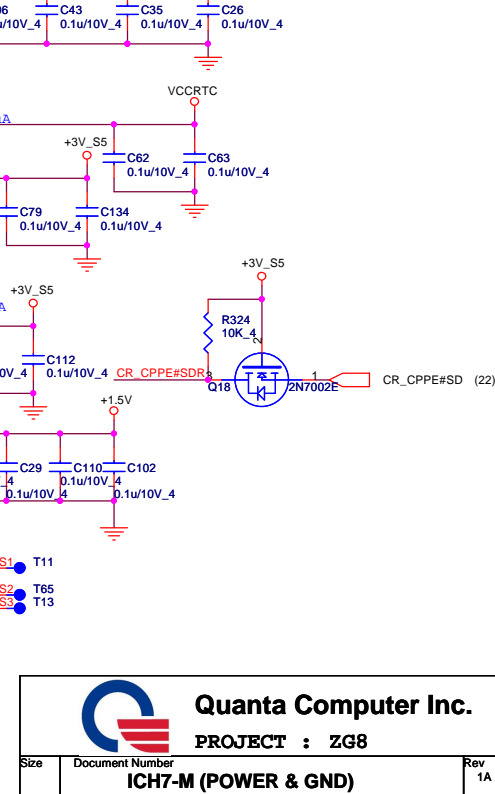
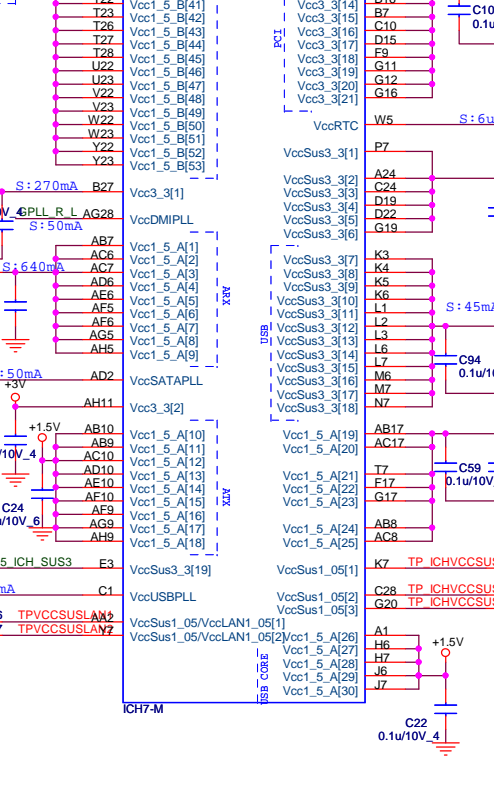
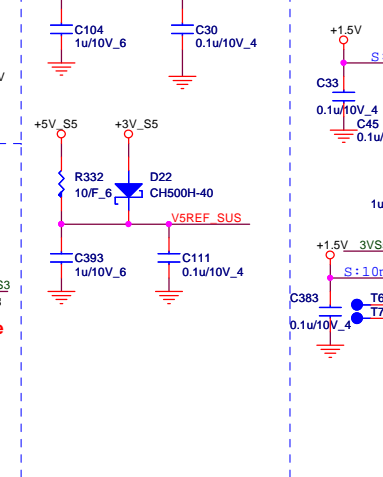
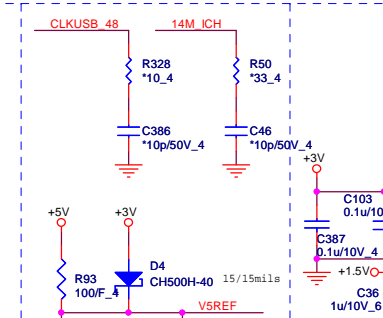
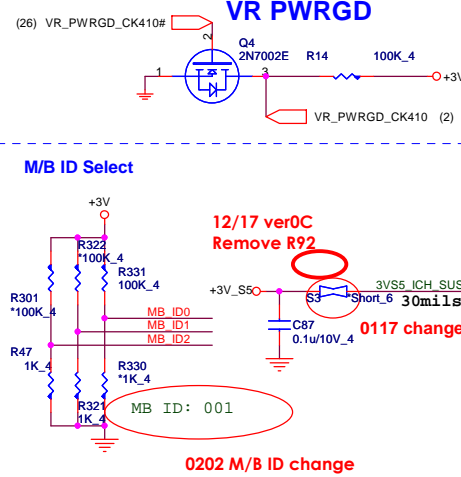
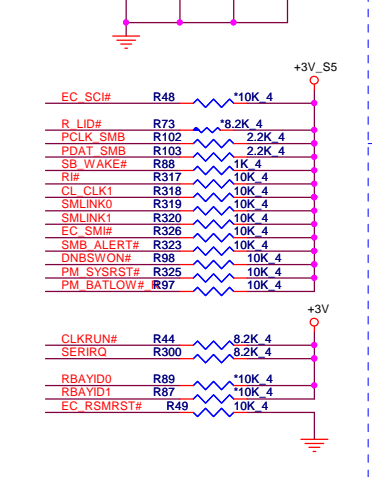
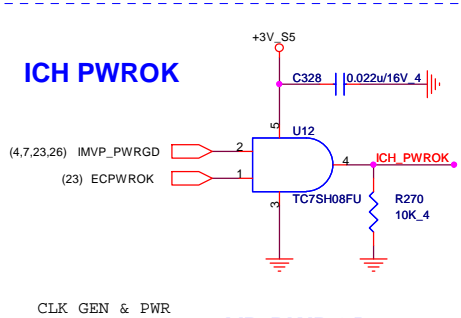
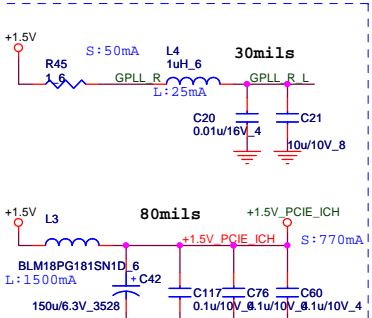
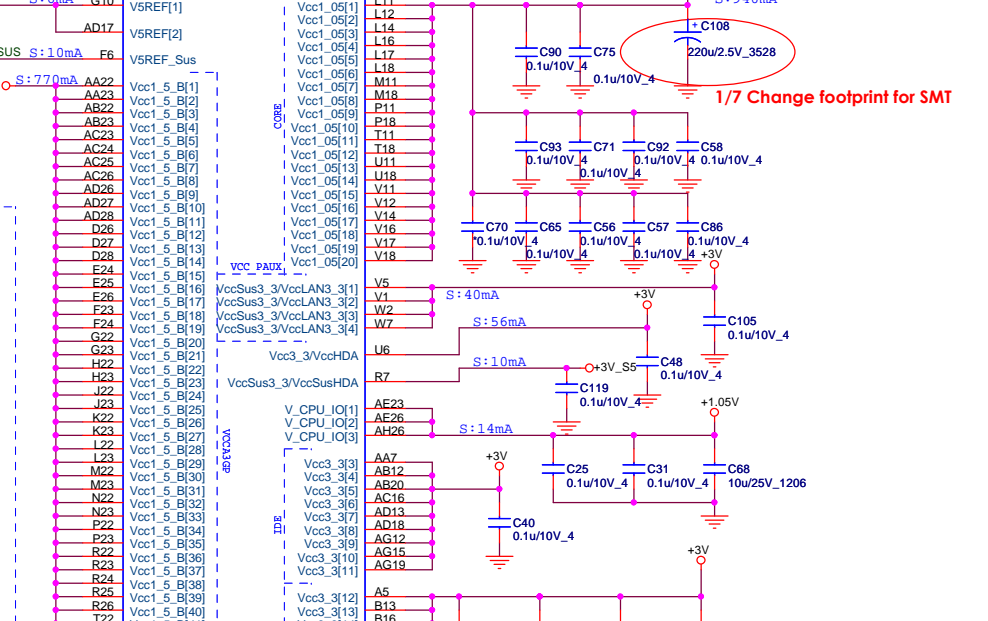
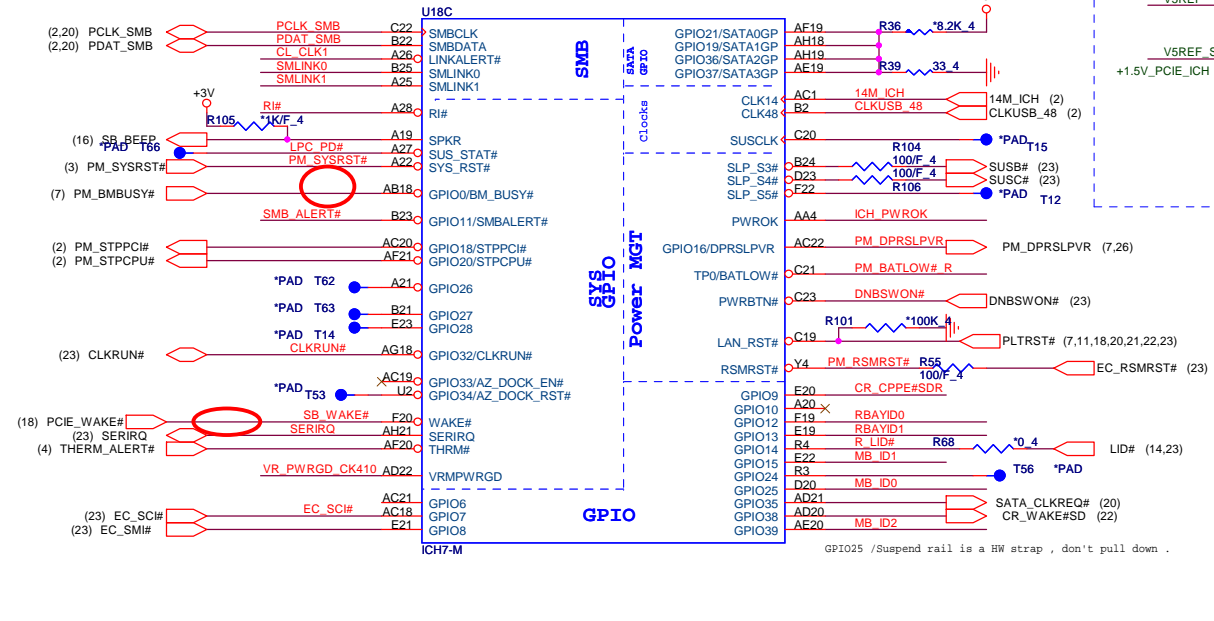


Platform Reset



Quanta Computer Inc.
 PROJECT : ZG8

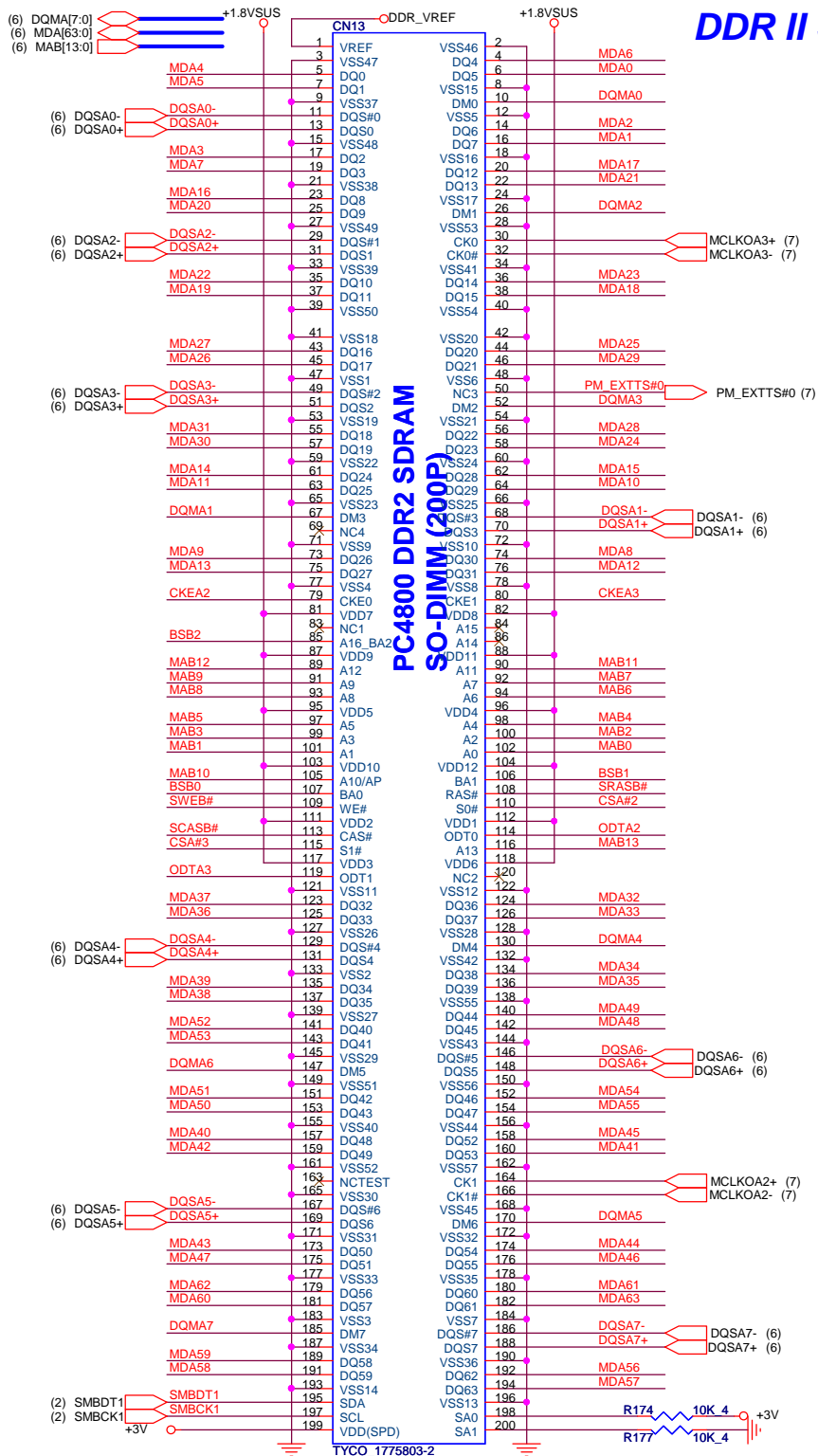
ICH7-M(CLG)



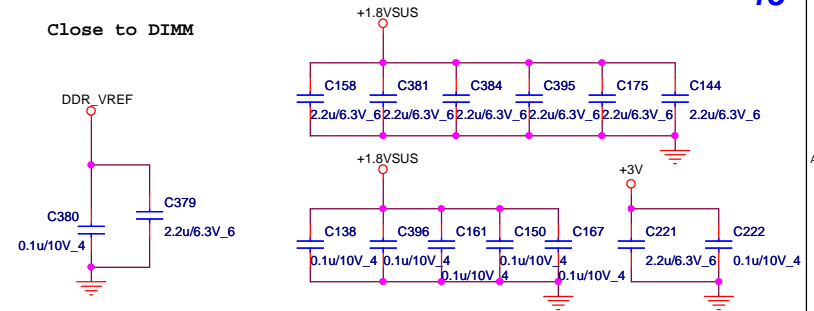
Quanta Computer Inc.
PROJECT : ZG8

Size	Document Number	Rev
	ICH7-M (POWER & GND)	1A
Date:	Thursday, February 05, 2009	Sheet 12 of 33

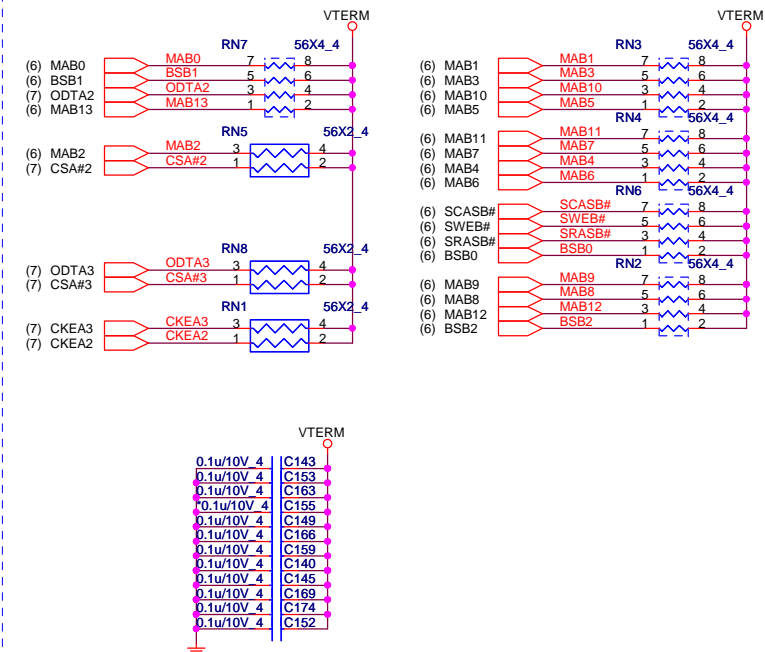
DDR II SOCKET(DDR)



Close to DIMM



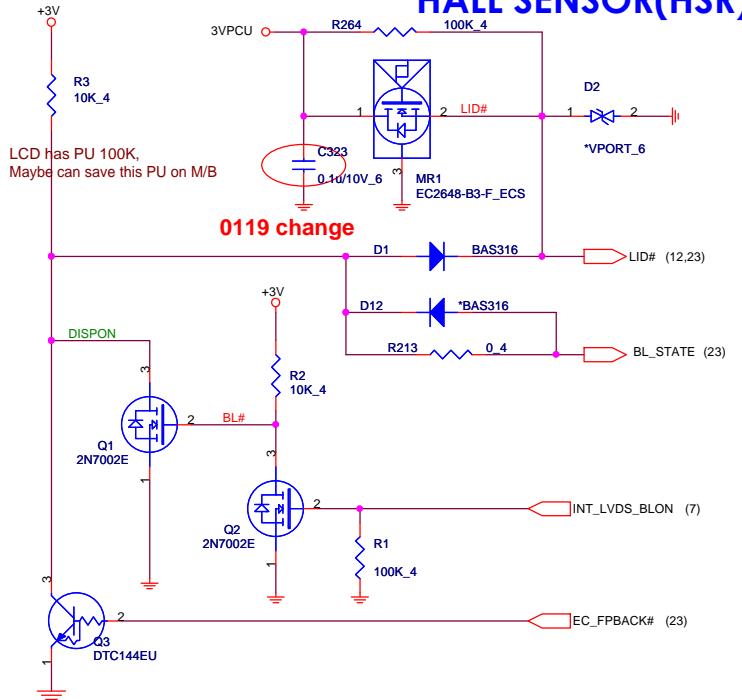
Termination resistor



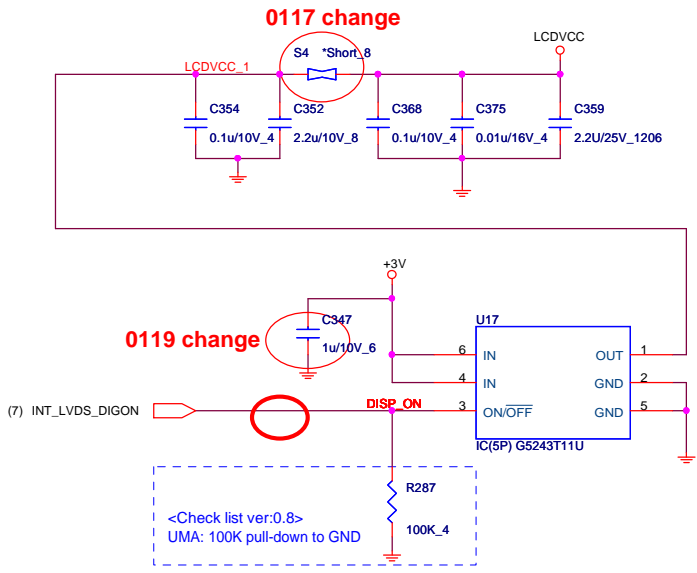
Quanta Computer Inc.
PROJECT ZG8

Size	Document Number	Rev
	DDR2 SO-DIMM(200P)	1A
Date:	Monday, February 02, 2009	Sheet 13 of 33

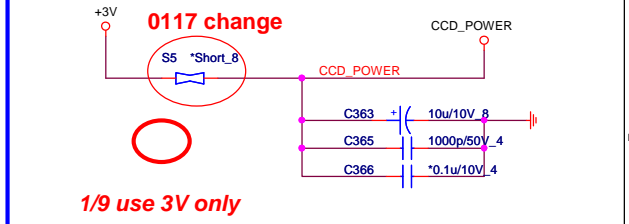
HALL SENSOR(HSR)



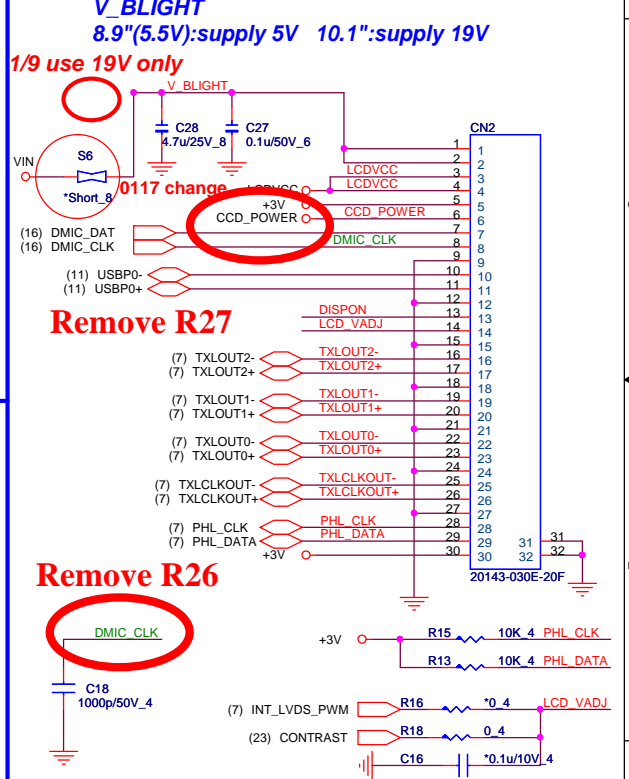
LCD POWER SWITCH(LDS)



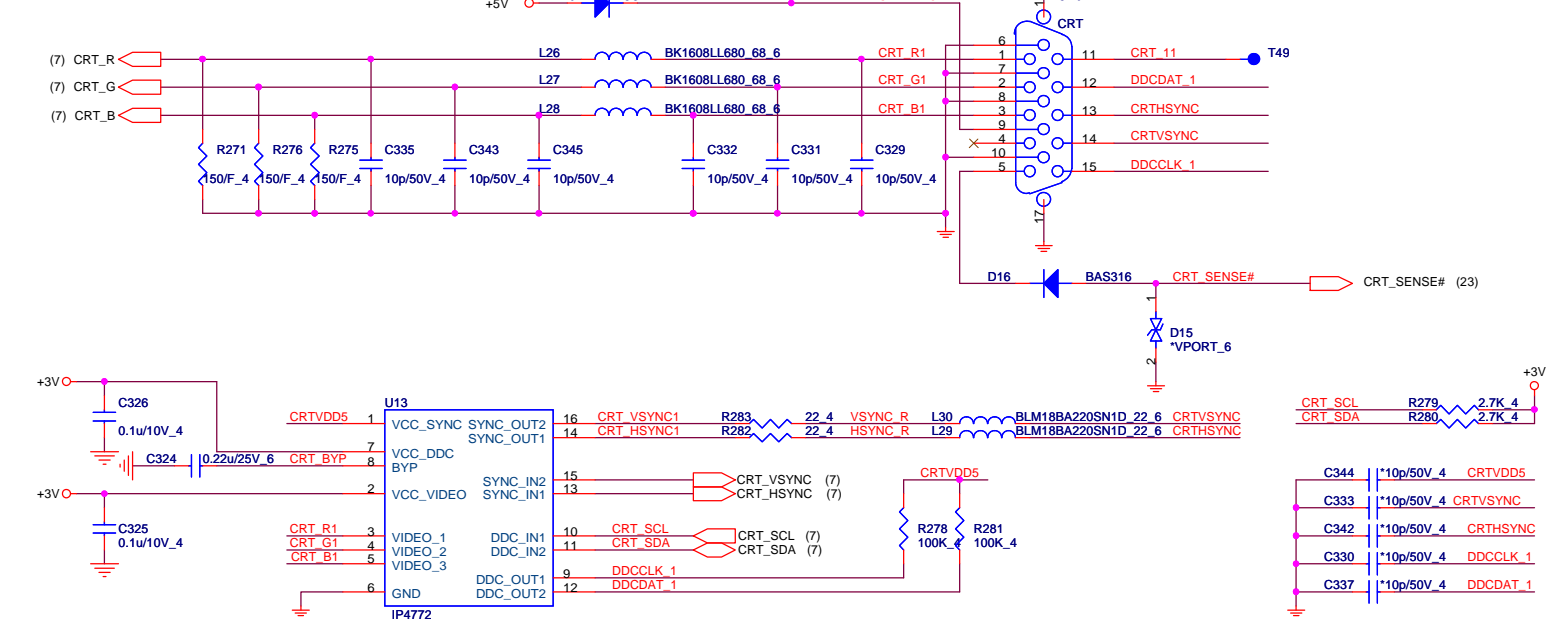
CAMERA POWER(CCD)



LCD MODULE(LDS)



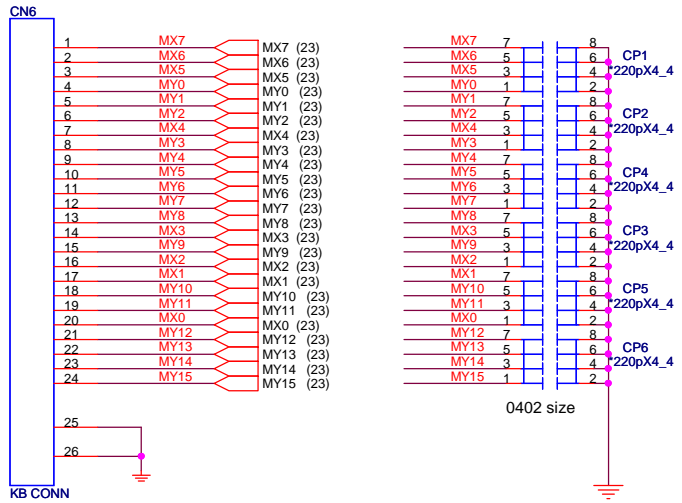
CRT(CRT)



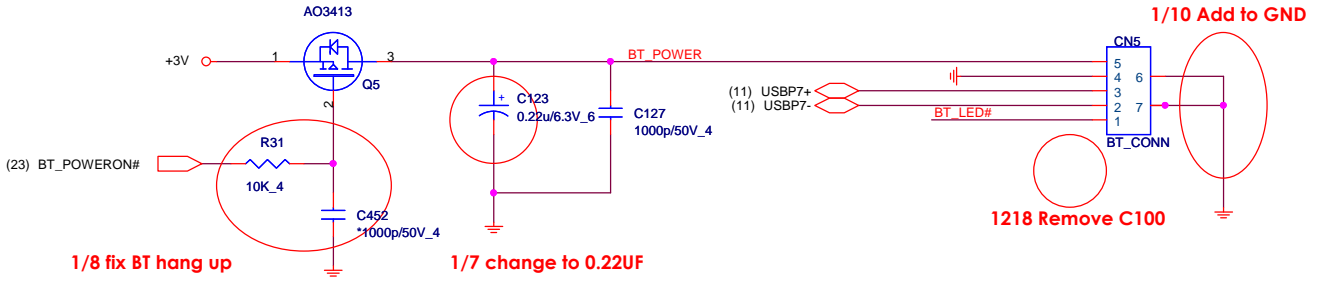
Quanta Computer Inc.
PROJECT : ZG8

Size	Document Number	Rev
Date: Monday, February 02, 2009	CRT/LVDS	1A
Sheet	of	33

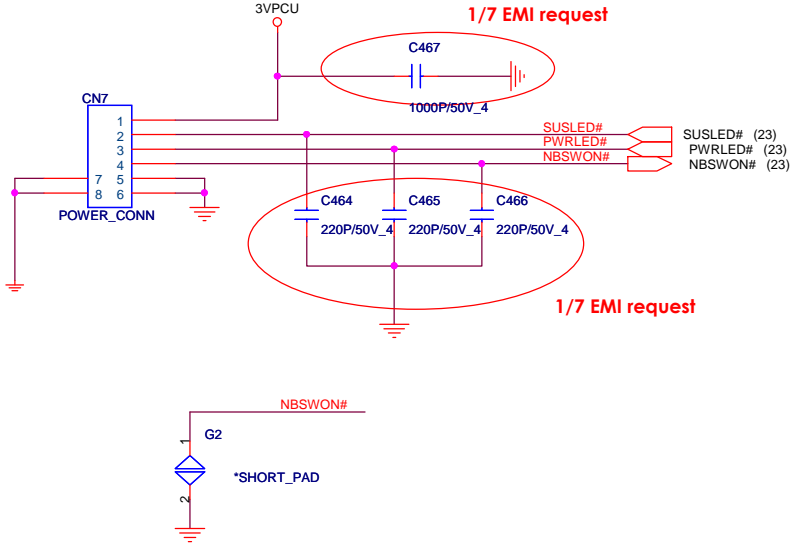
KEYBOARD(KBC)



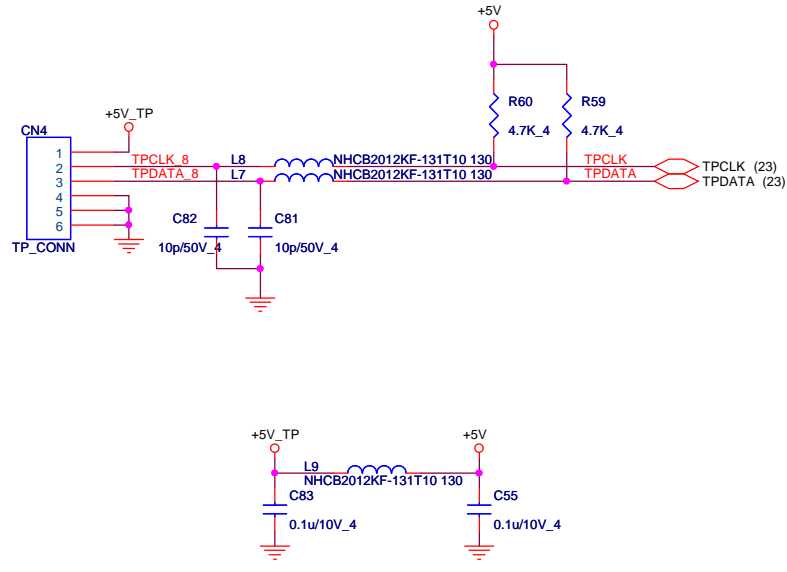
BLUETOOTH(BTM)



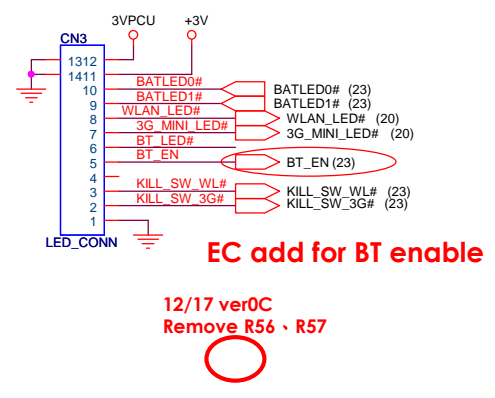
Power On Connector(UIF)



TOUCH PAD(TPD)



LED CONNECTOR(KBC)

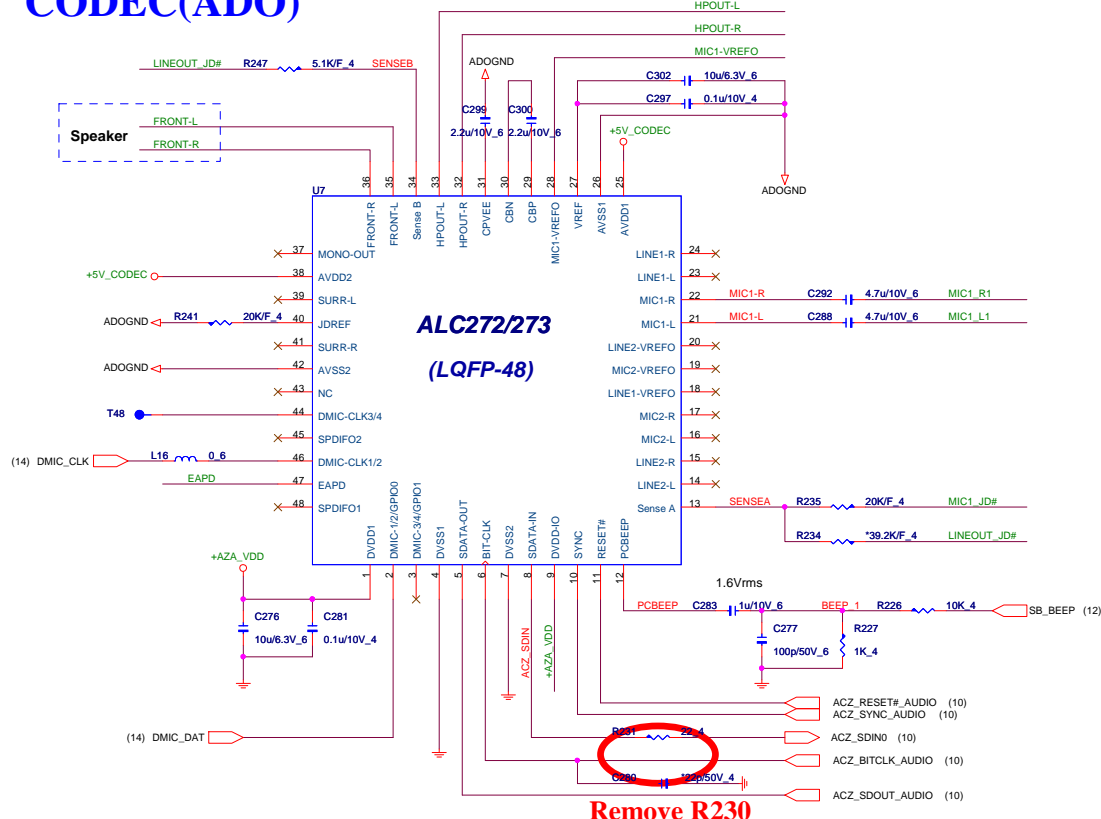


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PROJECT : ZG8

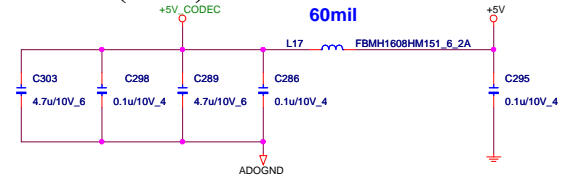
Size	Document Number	Rev
	KB/BT/TP/LED/Power Connector	1A
Date:	Thursday, February 05, 2009	Sheet 15 of 33

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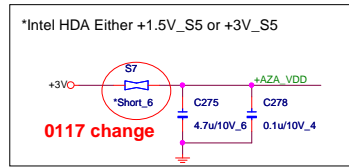
CODEC(ADO)



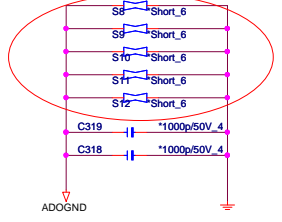
Codec Power(ADO)



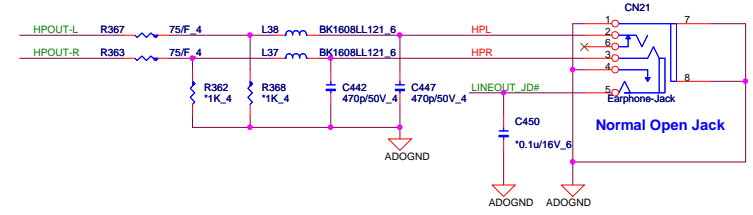
HDA Power(ADO)



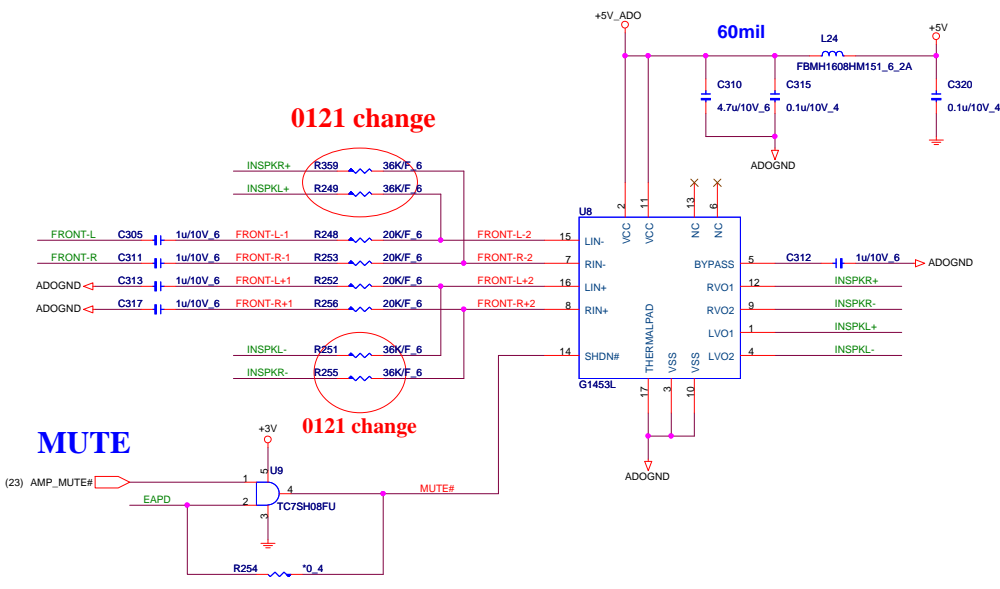
0117 Change short pad



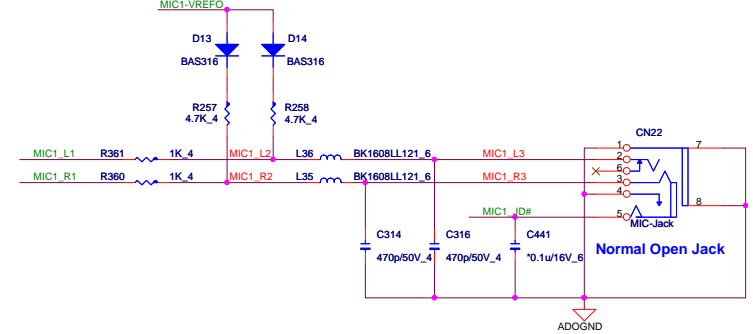
Earphone(AMP)



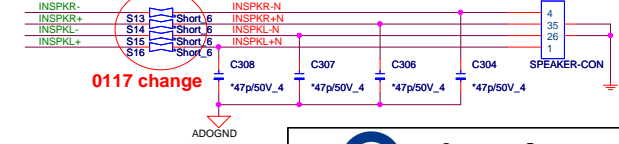
Speaker Amplifier(AMP)



System MIC(AMP)



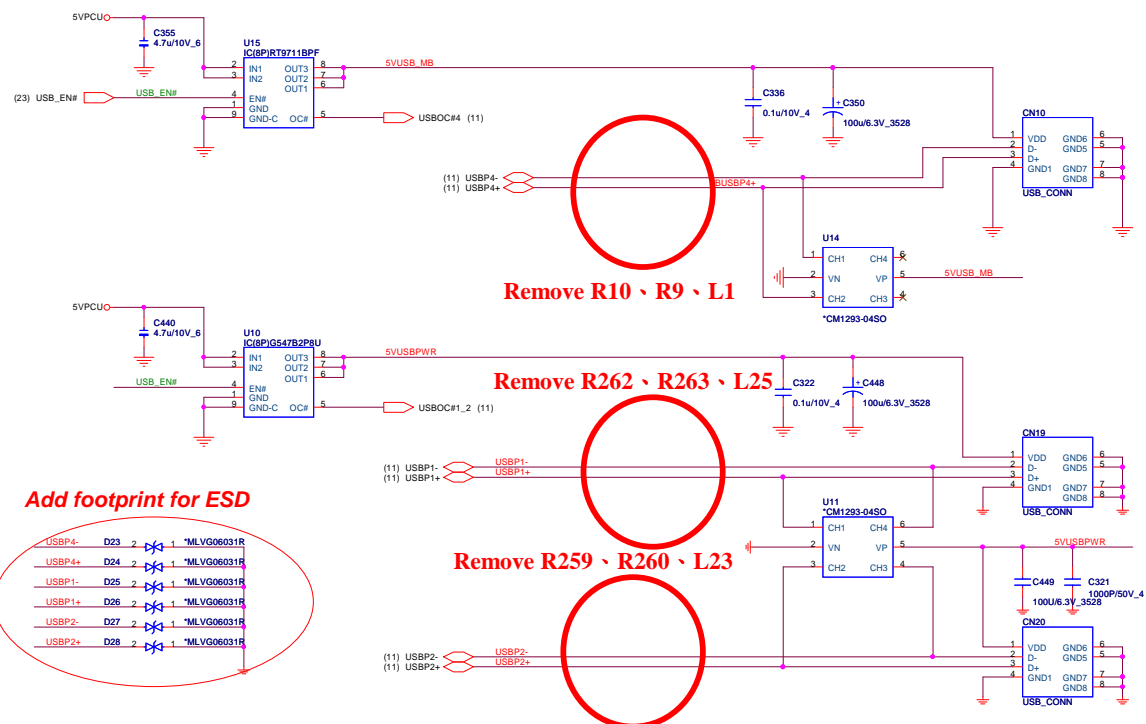
Speaker(AMP)



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PROJECT : ZG8

Size	Document Number	Rev
Audio Codec/Audio AMP		1A
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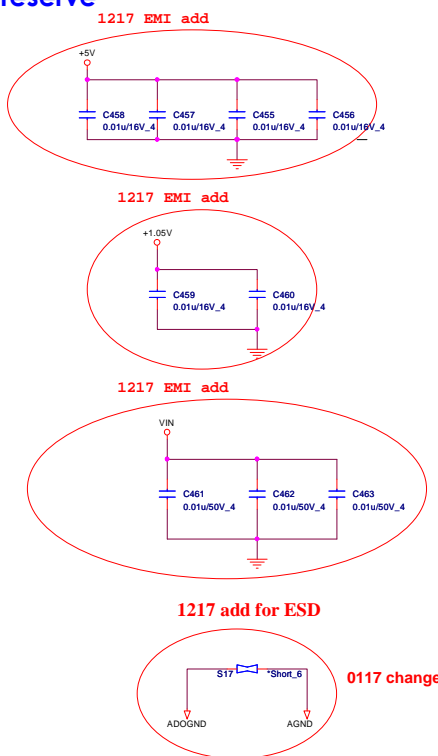
USB(USB)



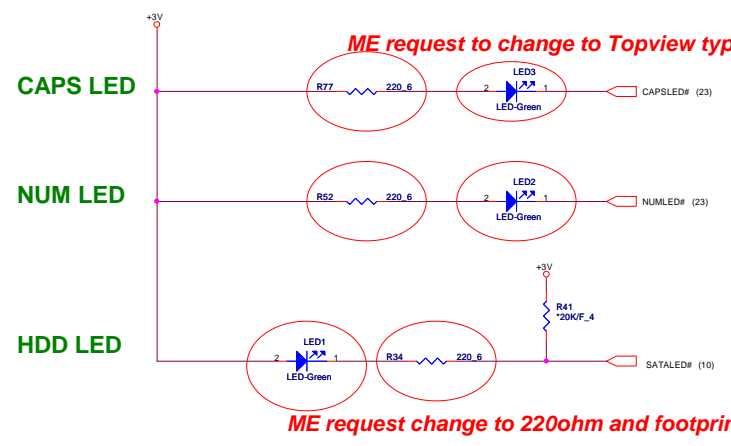
Add footprint for ESD

Signal	Diode	Footprint
USB#4-	D23	*MLVG06031R
USB#4+	D24	*MLVG06031R
USB#1-	D25	*MLVG06031R
USB#1+	D26	*MLVG06031R
USB#2-	D27	*MLVG06031R
USB#2+	D28	*MLVG06031R

EMI reserve

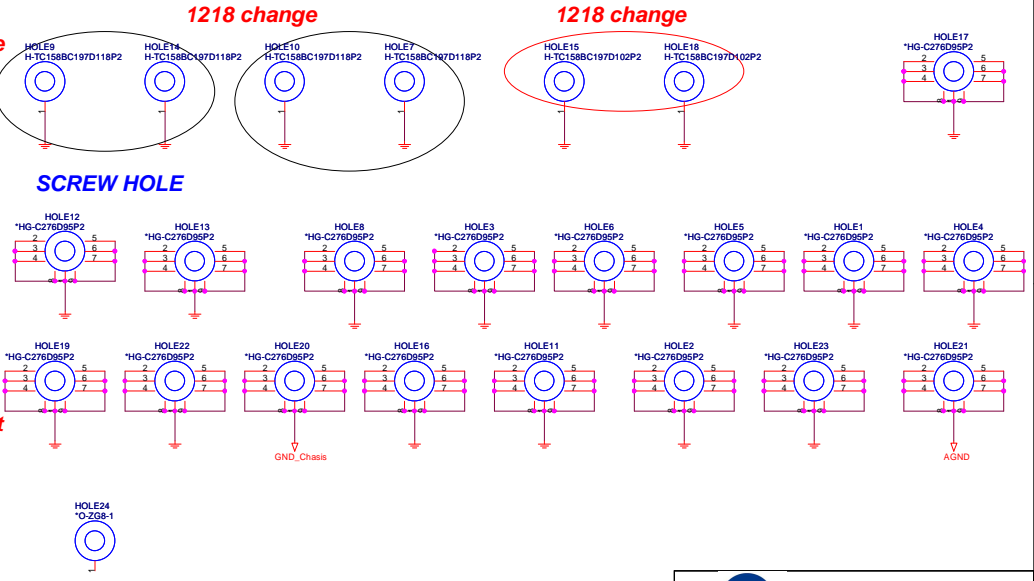


LED on M/B(UIF)



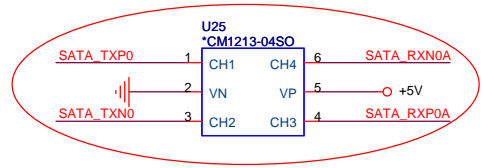
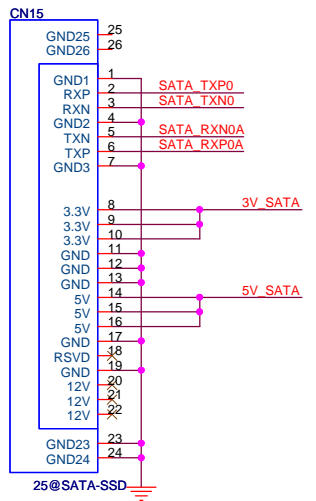
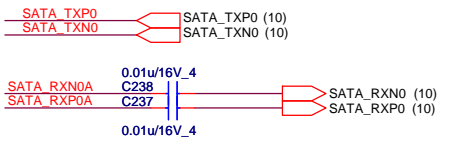
- LED on Main Side:**
- Charger (Green/ Abler)
 - Storage HDD/ SSD/ Media (Gereen)
 - Caps (Green)
 - Num (Green)

SCREW HOLE



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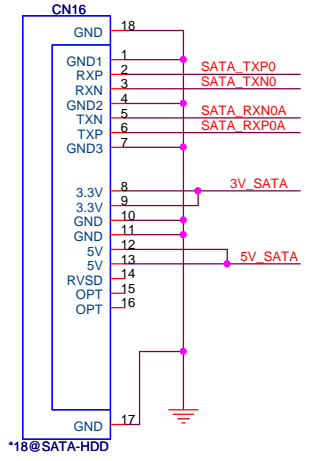
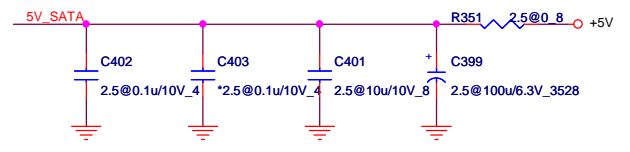
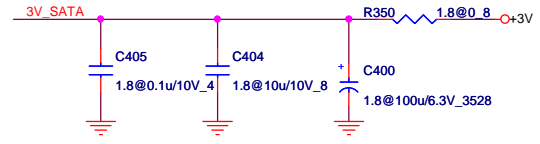
2.5" SATA HDD(HDD)



0119 add for ESD and place near SATA conn

0120 : CN15 PIN25 & 26 IS NP, NO contact to GND.

1.8" SATA HDD(TOSHIBA)



ZT4 card connector



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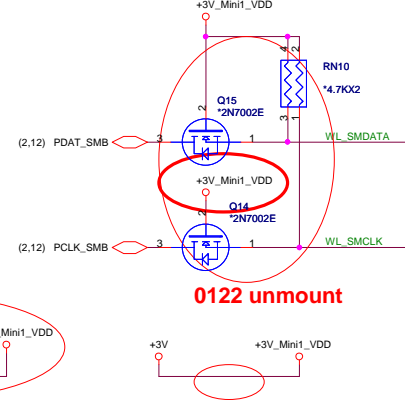
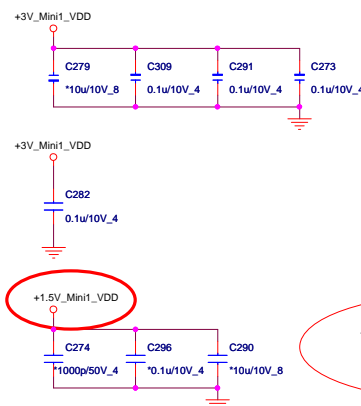
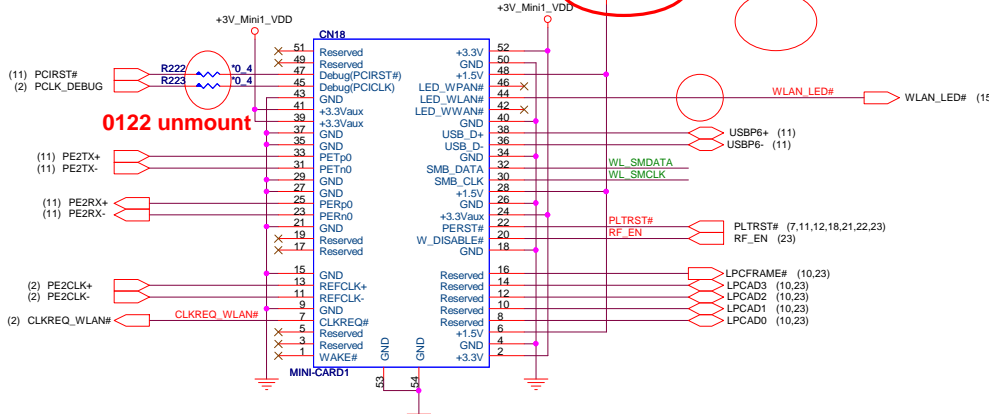
PROJECT : ZG8

Size	Document Number	Rev
	SATA-HDD/SSD	1A

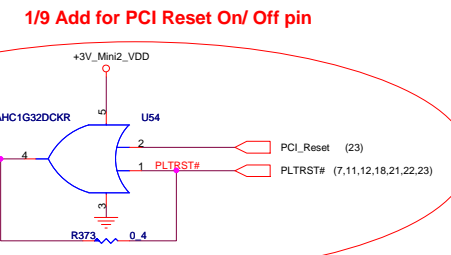
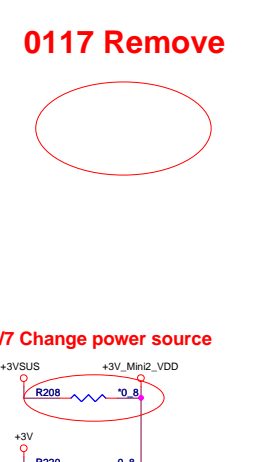
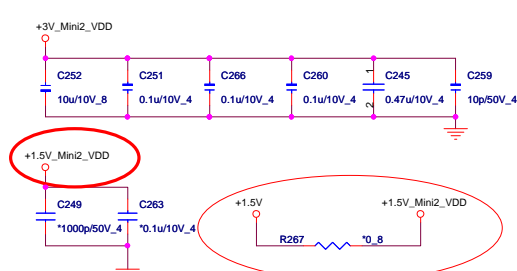
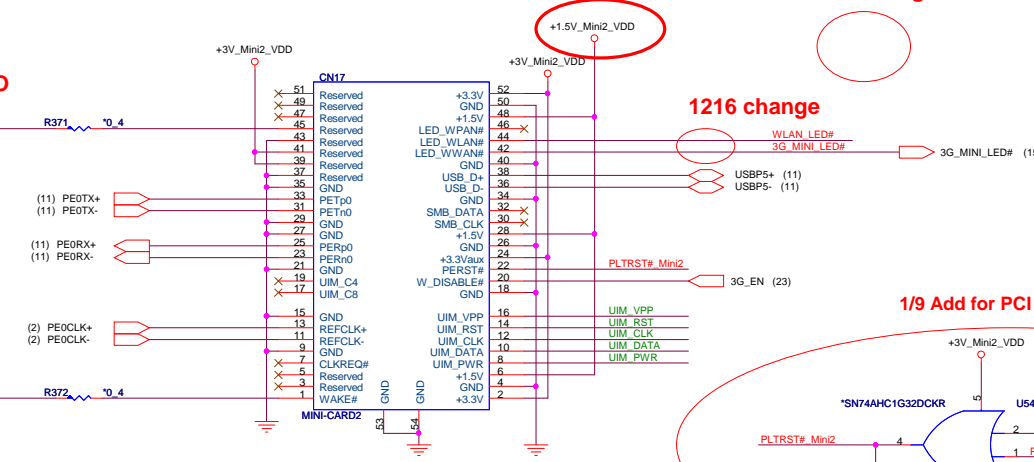
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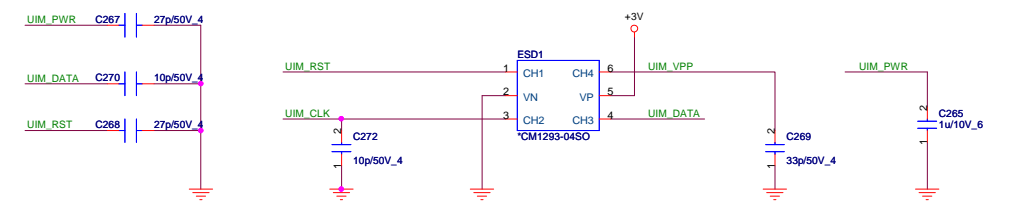
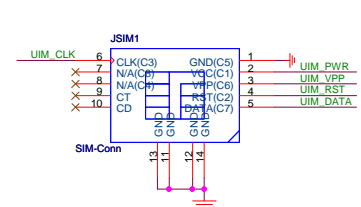
Mini Card(MPC)



Mini Card 2(MNC)



SIM



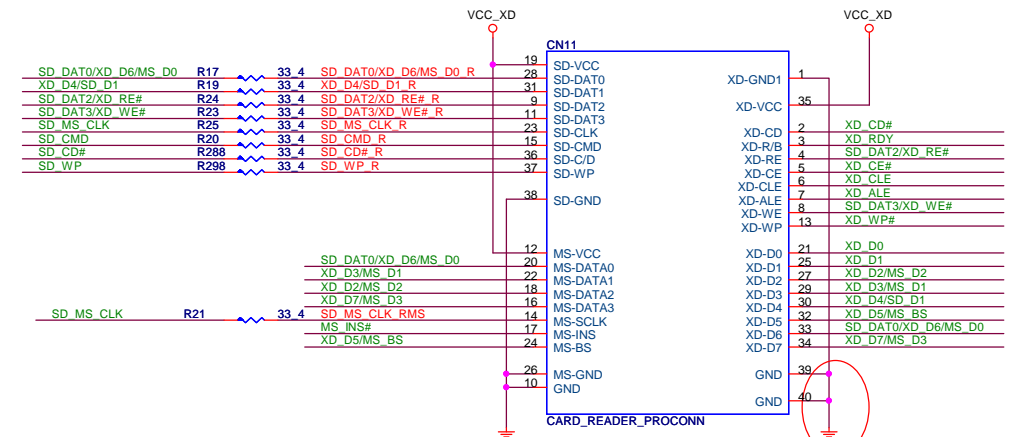
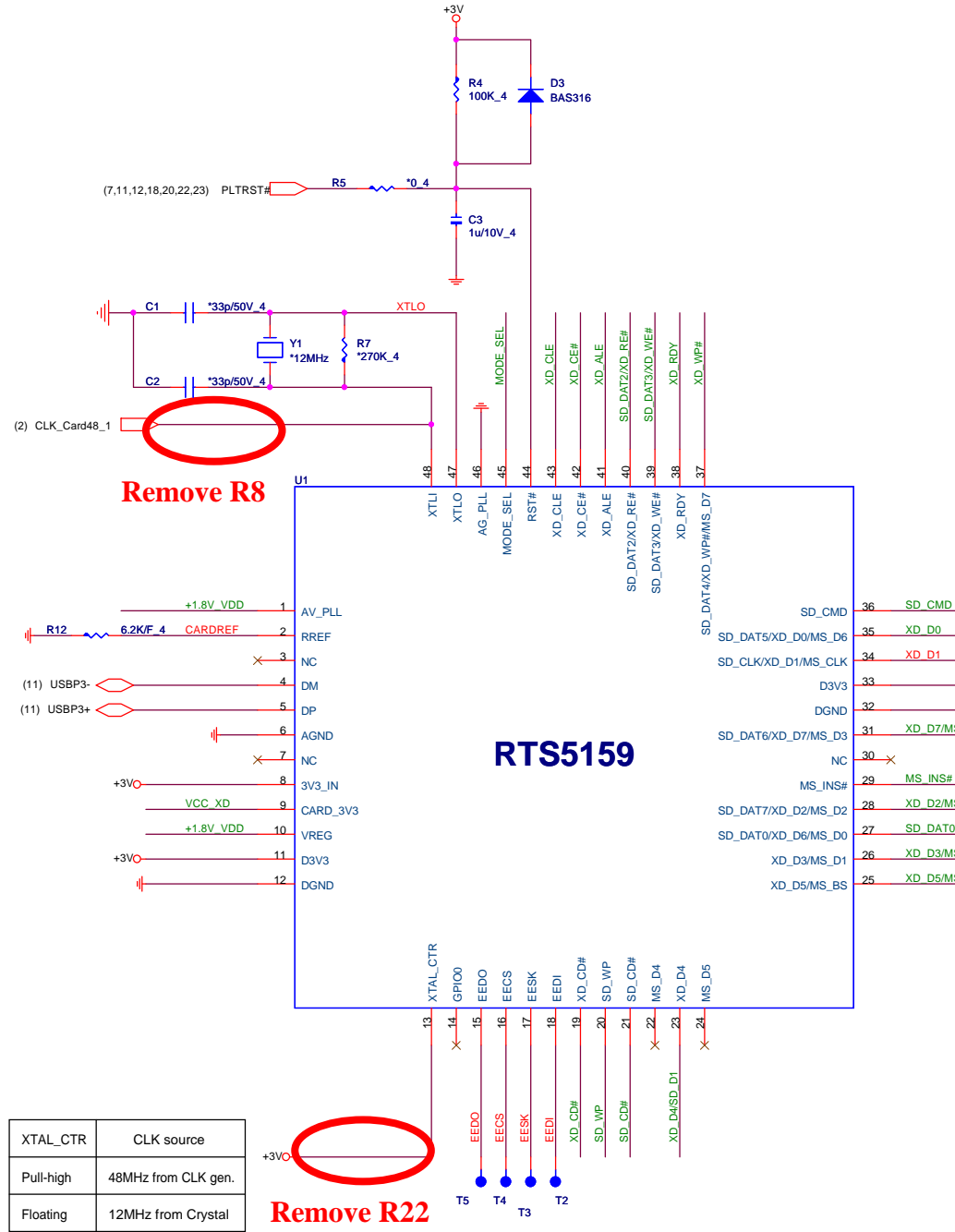
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PROJECT : ZG8

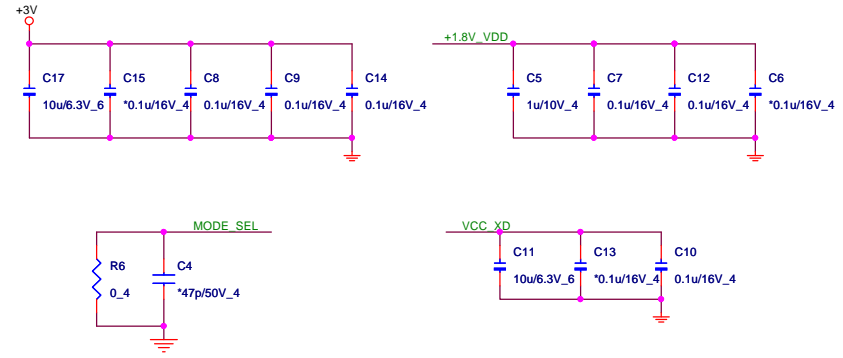
Size Document Number Rev 0A

Mini-Card/WL/3G/SIM

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0117 change



MODE_SEL Table (Please refer to Realtek Application Notes for more detail description)

	R9016	C9016	Power mode	SD_D1 Out From
RTS 5158E	NC	NC	Power Saving	Pin23
RTS 5159	0 ohm	NC	Power Saving	Pin23

Power Saving mode need install Realtek icon driver.
USB Hotfix KB941600 is also needed for Vista SP0 but SP1.



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PROJECT : ZG8

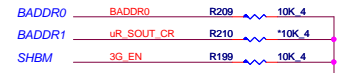
Size	Document Number	Rev
	RTS5159 (Card Reader)	1A
Date:	Monday, February 02, 2009	Sheet 21 of 33

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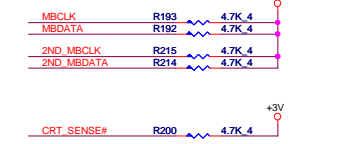
I/O ADDRESS SETTING

I/O Address		
BADDR1-0	Index	Data
0 0	XOR TREE TEST MODE	
0 1	CORE DEFINED	
1 0	2Eh	2Fh
1 1	164Eh	164Fh

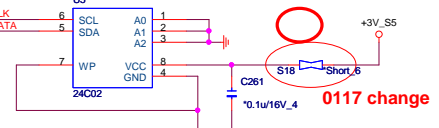
SHBM=0: Enable shared memory with host BIOS



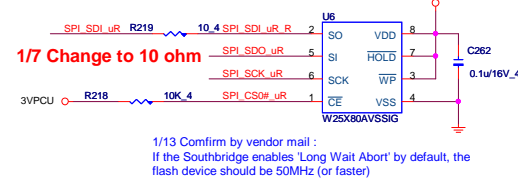
SM BUS PU



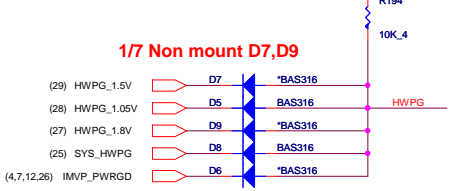
ACER ID



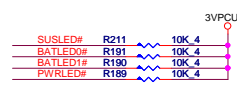
SPI FLASH



HWPG



INTERNAL KEYBOARD STRIP SET

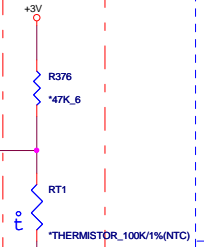


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Remove D10



1218 Add footprint for thermal



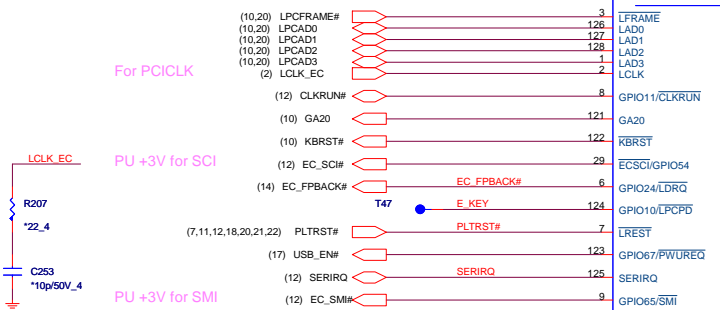
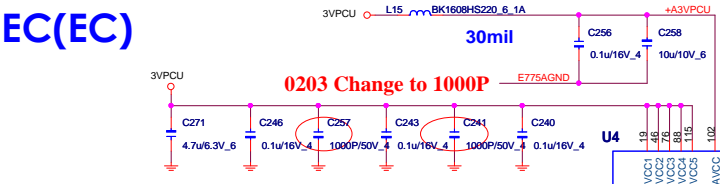
1211 Add for 3G wake

1217 Add for 3G wake

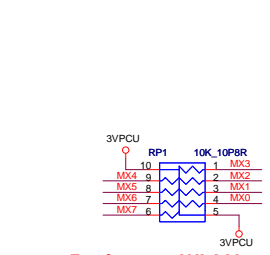
0117 Change

Remove R212

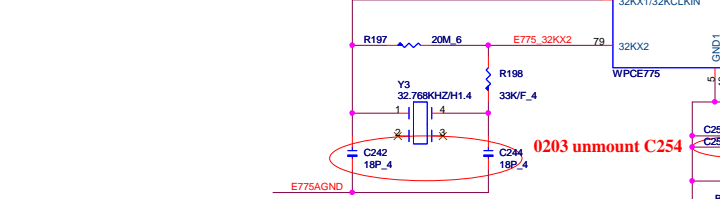
17 Change to 10 ohm



Exchange WLAN and 3G



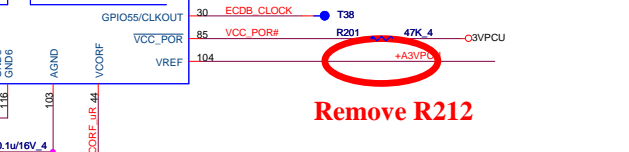
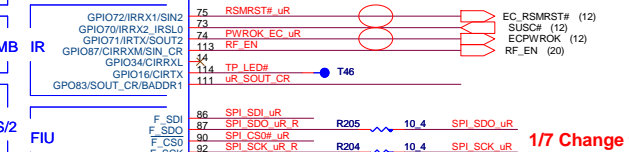
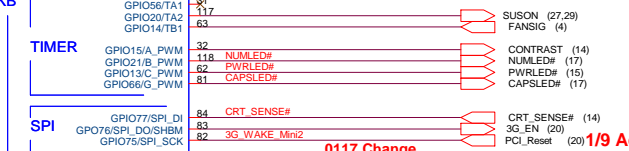
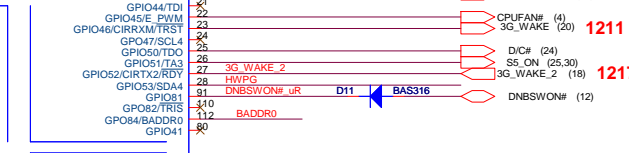
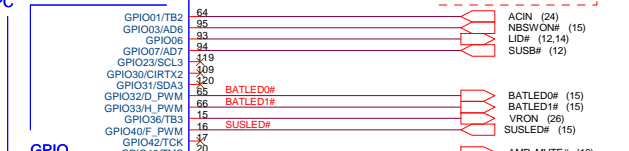
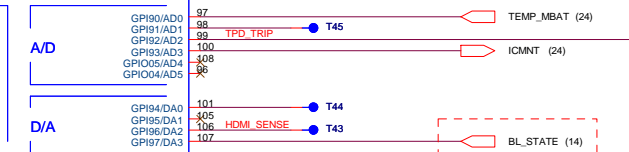
EC add for BT enable



0203 unmount C254

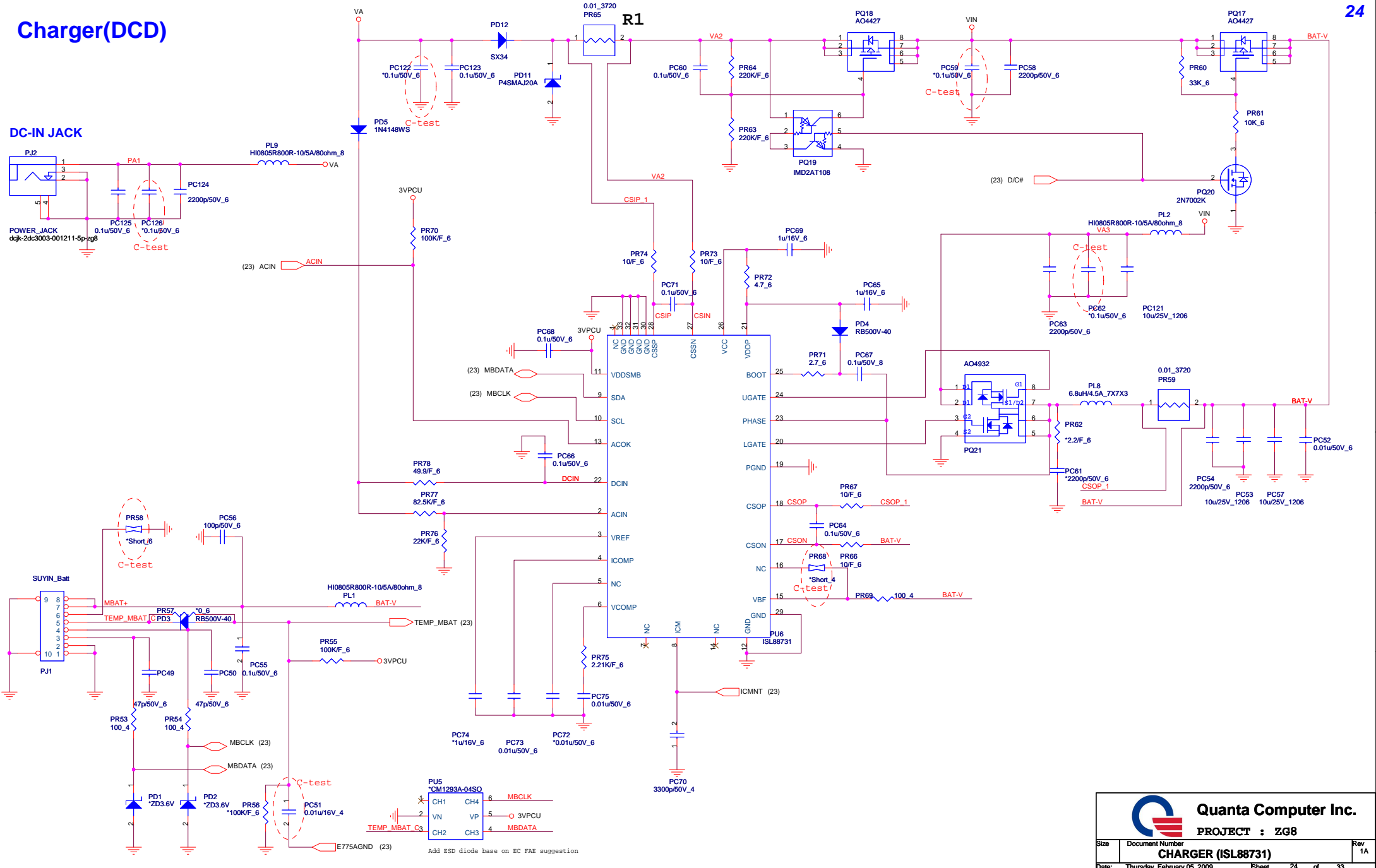
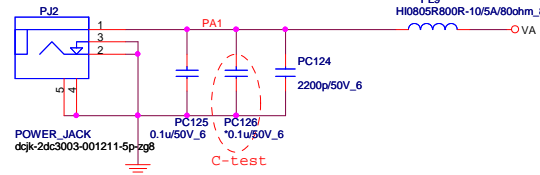
1/7 Change CAP to 18P for Xtal precision

0119 connect to PC51



Charger(DCD)

DC-IN JACK



		PROJECT : ZG8	
		CHARGER (ISL88731)	Rev 1A
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Add ESD diode base on EC FAE suggestion

5V/3V(DCD)

For ISL6237 ADJ

mount PR44 PR145 PR138 , PR141
No mount PR43 , PR45

For RT8206 ADJ

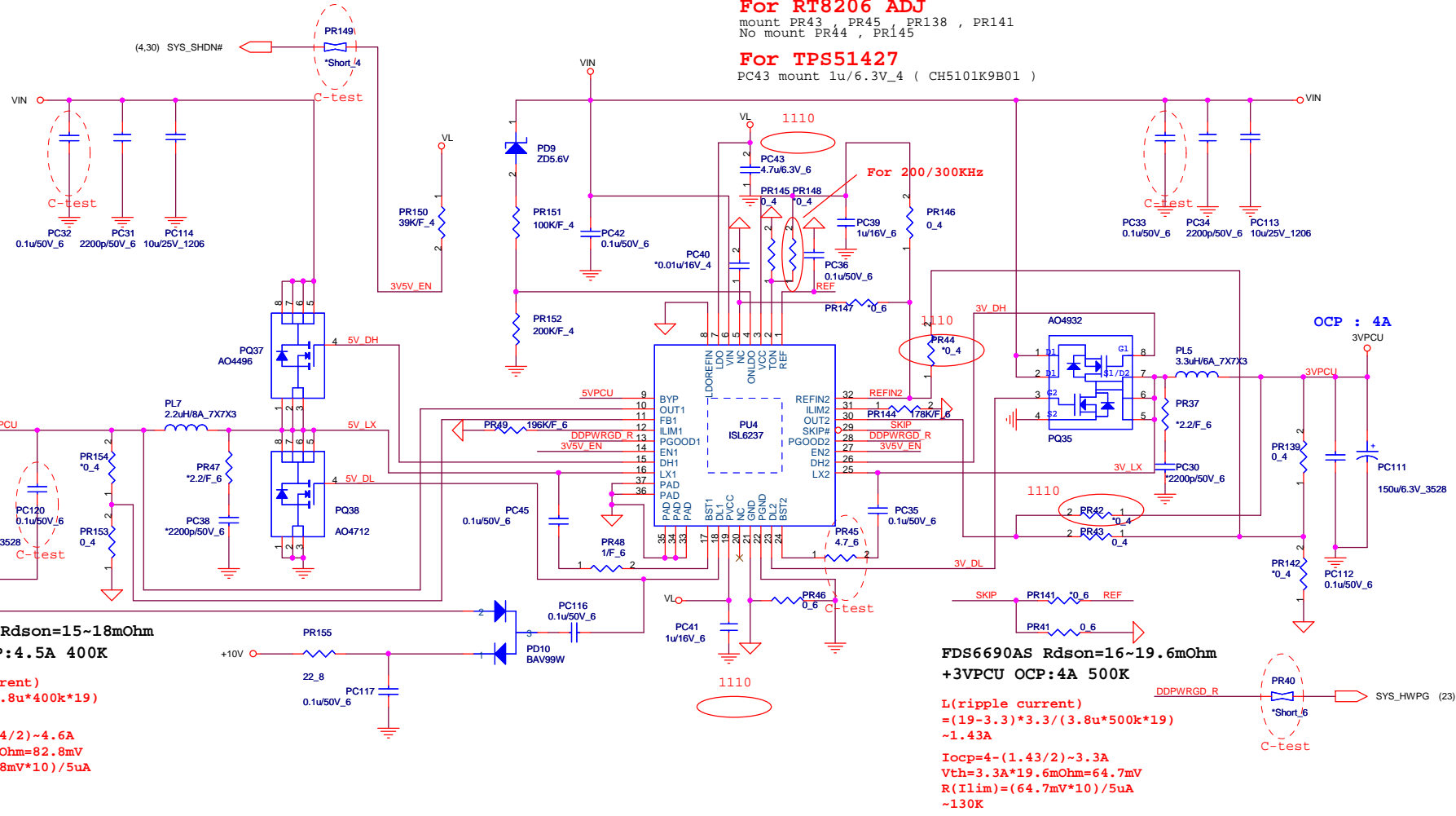
mount PR43 , PR45 PR138 , PR141
No mount PR44 , PR145

For TPS51427

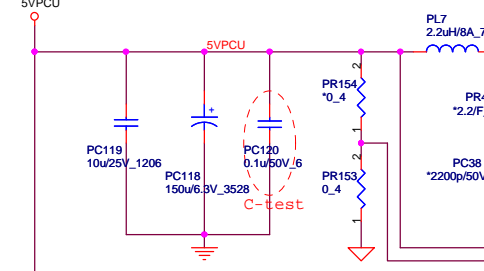
PC43 mount 1u/6.3V_4 (CH5101K9B01)

For ISL6237 & RT8206 Fix

mount PR44 PR138 PR145
No mount PR43 , PR45



OCP: 5.8A

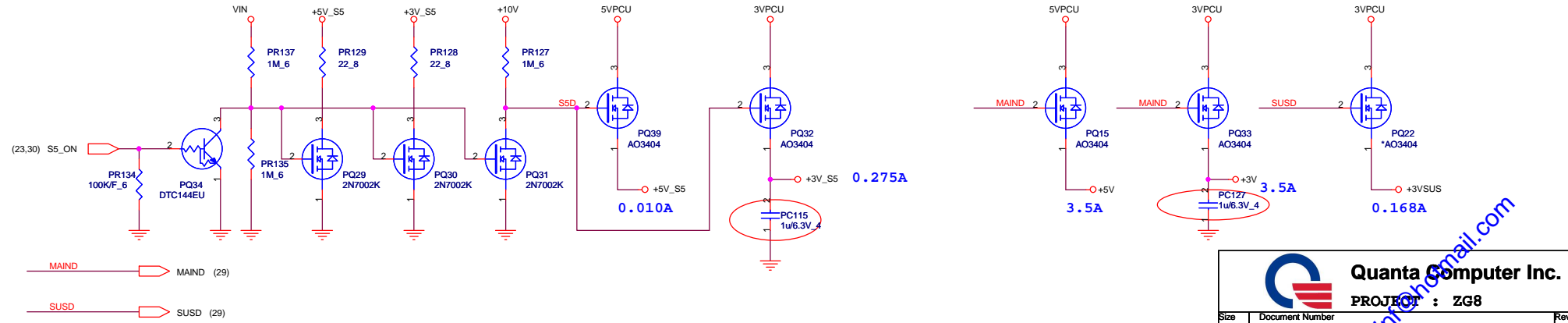


FDS6690AS $R_{dson}=15\sim 18m\Omega$
+5VPCU OCP: 4.5A 400K

$L(\text{ripple current}) = (19-5) * 5 / (3.8u * 400k * 19) \sim 2.4A$
 $I_{ocp} = 5.8 - (2.4 / 2) \sim 4.6A$
 $V_{th} = 4.6A * 18m\Omega = 82.8mV$
 $R(I_{lim}) = (82.8mV * 10) / 5uA \sim 165.6K$

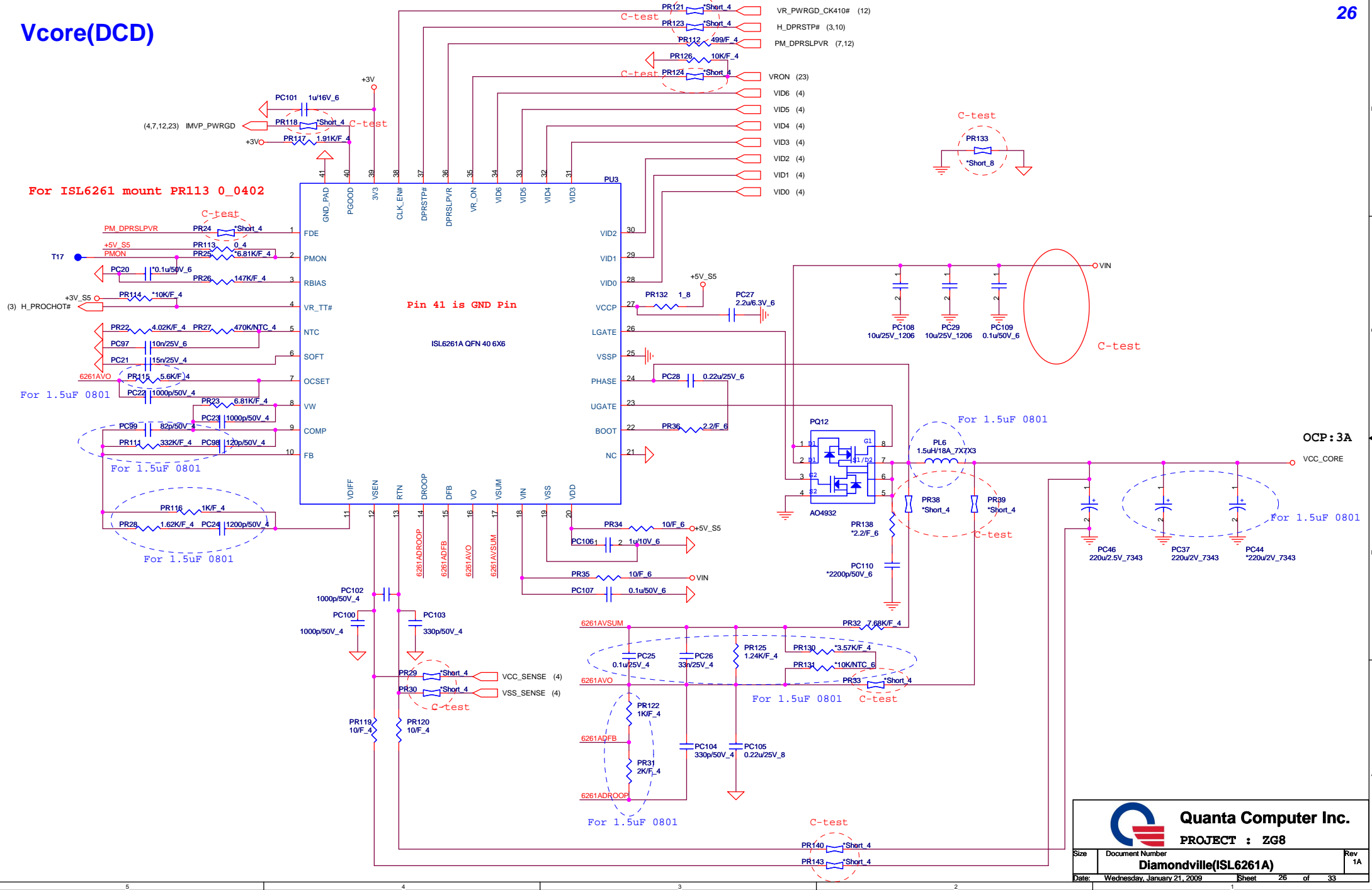
FDS6690AS $R_{dson}=16\sim 19.6m\Omega$
+3VPCU OCP: 4A 500K

$L(\text{ripple current}) = (19-3.3) * 3.3 / (3.8u * 500k * 19) \sim 1.43A$
 $I_{ocp} = 4 - (1.43 / 2) \sim 3.3A$
 $V_{th} = 3.3A * 19.6m\Omega = 64.7mV$
 $R(I_{lim}) = (64.7mV * 10) / 5uA \sim 130K$



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 SYSTEM 5V/3V (ISL6237)
 Date: Thursday, February 12, 2009 Sheet 25 of 33

Vcore(DCD)



For ISL6261 mount PR113 0_0402

Pin 41 is GND Pin

ISL6261A QFN 40 6X6

For 1.5uF 0801

For 1.5uF 0801

For 1.5uF 0801

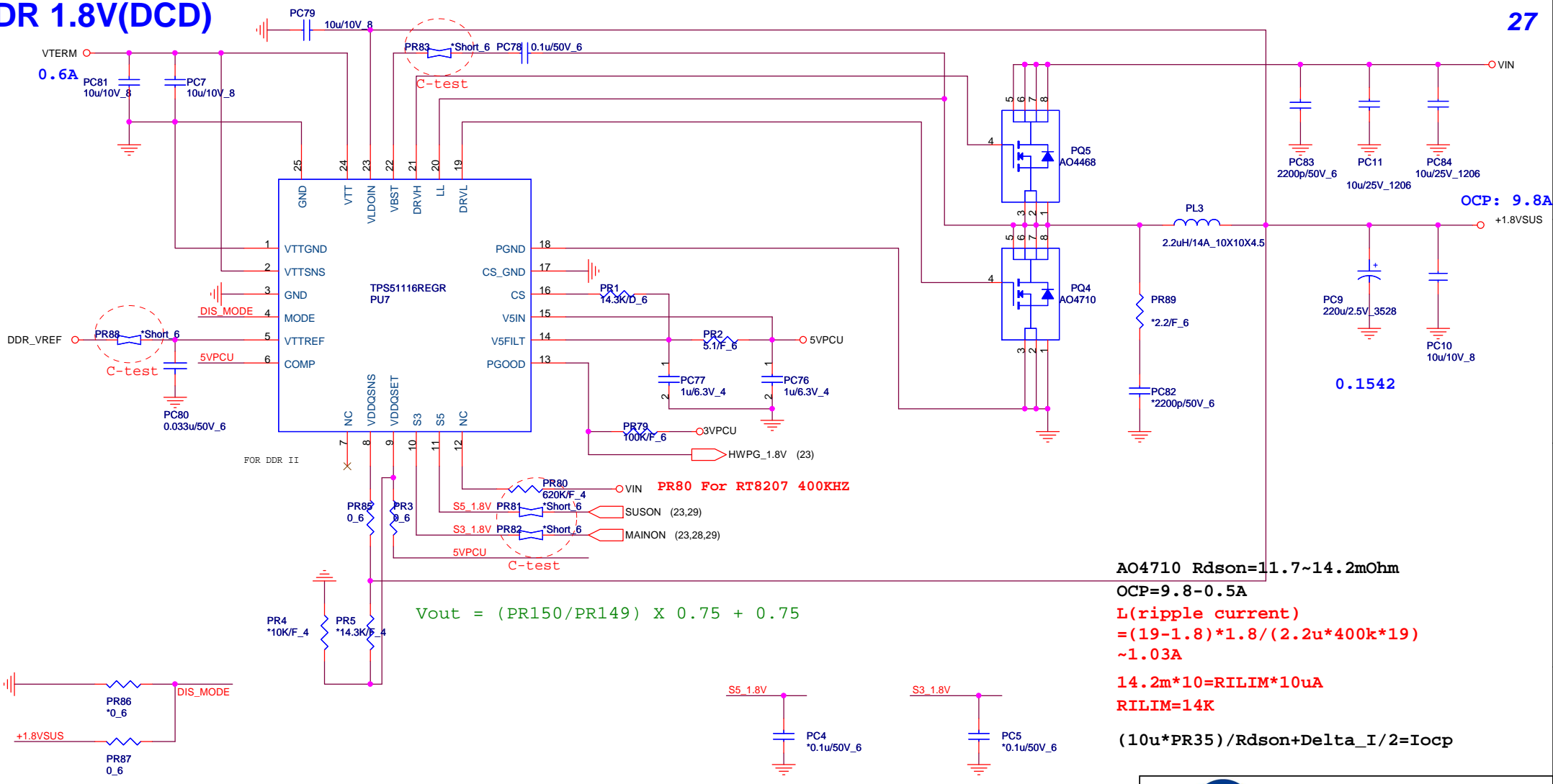
For 1.5uF 0801

For 1.5uF 0801

OCP: 3A


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	Diamondville(ISL6261A)	1A
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DDR 1.8V(DCD)



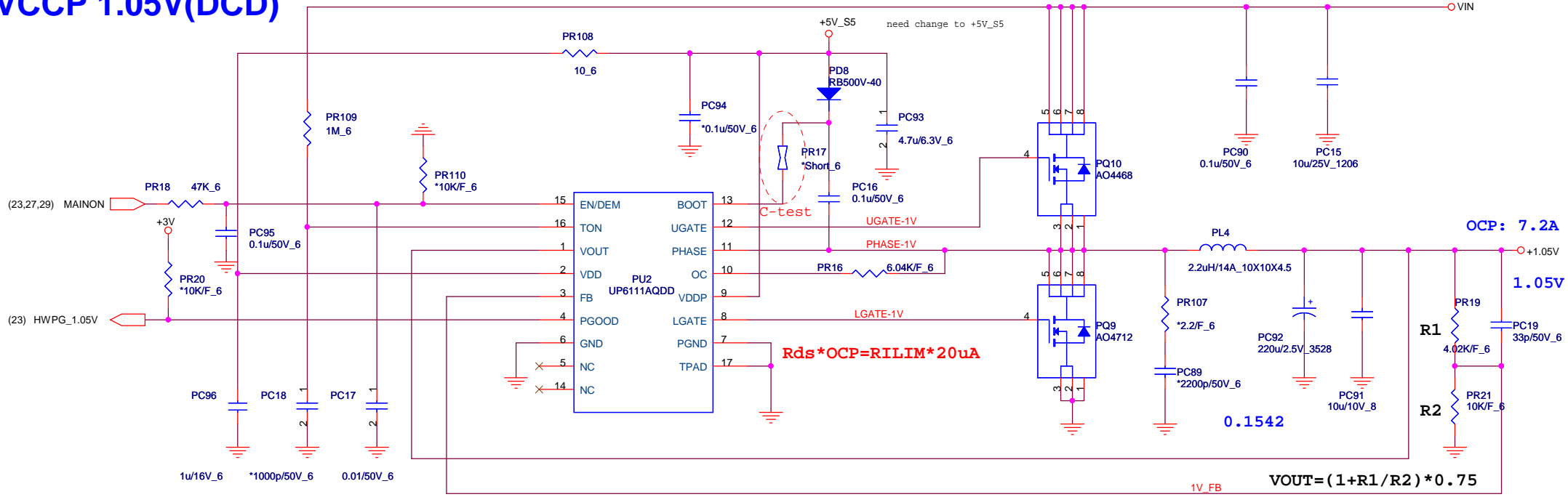
$$V_{out} = (PR150/PR149) \times 0.75 + 0.75$$

AO4710 $R_{dson}=11.7\sim 14.2m\Omega$
 OCP=9.8-0.5A
 $I_L(\text{ripple current}) = (19-1.8) \times 1.8 / (2.2\mu \times 400k \times 19) \sim 1.03A$
 $14.2m \times 10 = RILIM \times 10\mu A$
 $RILIM = 14K$
 $(10\mu \times PR35) / R_{dson} + \Delta I / 2 = I_{ocp}$

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		1A
Size	Document Number	
DDR 1.8V(TPS51116)		
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VCCP 1.05V(DCD)



$TON = 3.85p * RTON * Vout / (Vin - 0.5)$
 $Frequency = Vout / (Vin * TON)$
 $TON = 3.85p * 1M * 1 / (Vin - 0.5)$
 $Frequency = 1 / (0.0036767) = 272K$

AO4712 $R_{dson} = 15 \sim 18m\Omega$
OCP = 7.2 - 0.8A
L(ripple current)
 $= (19 - 1.05) * 1.05 / (2.2u * 272k * 19)$
 $\sim 1.63A$
 $18m * 7 = RILIM * 20uA$
 $RILIM = 6K (2.5 \sim 8K)$

$VOUT = (1 + R1/R2) * 0.75$

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Size	Document Number	Rev
	VCCP 1.05V(RT8202)	1A
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