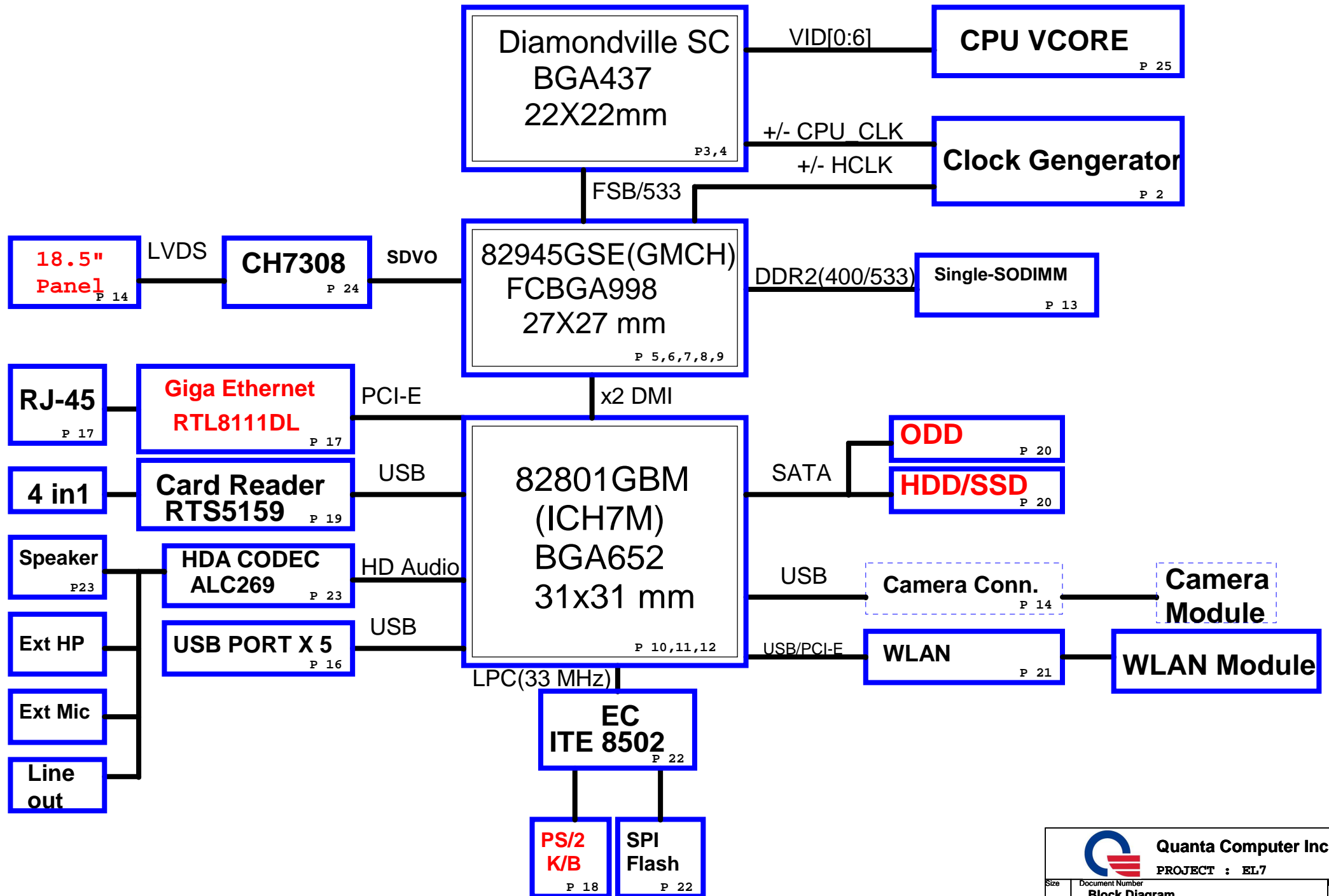
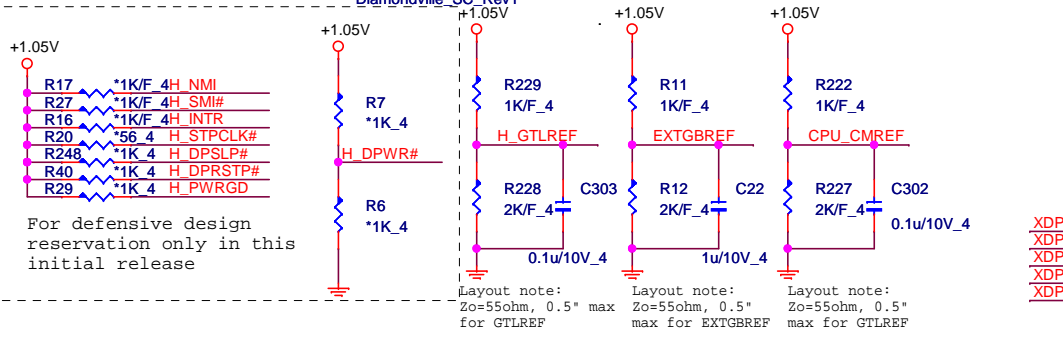
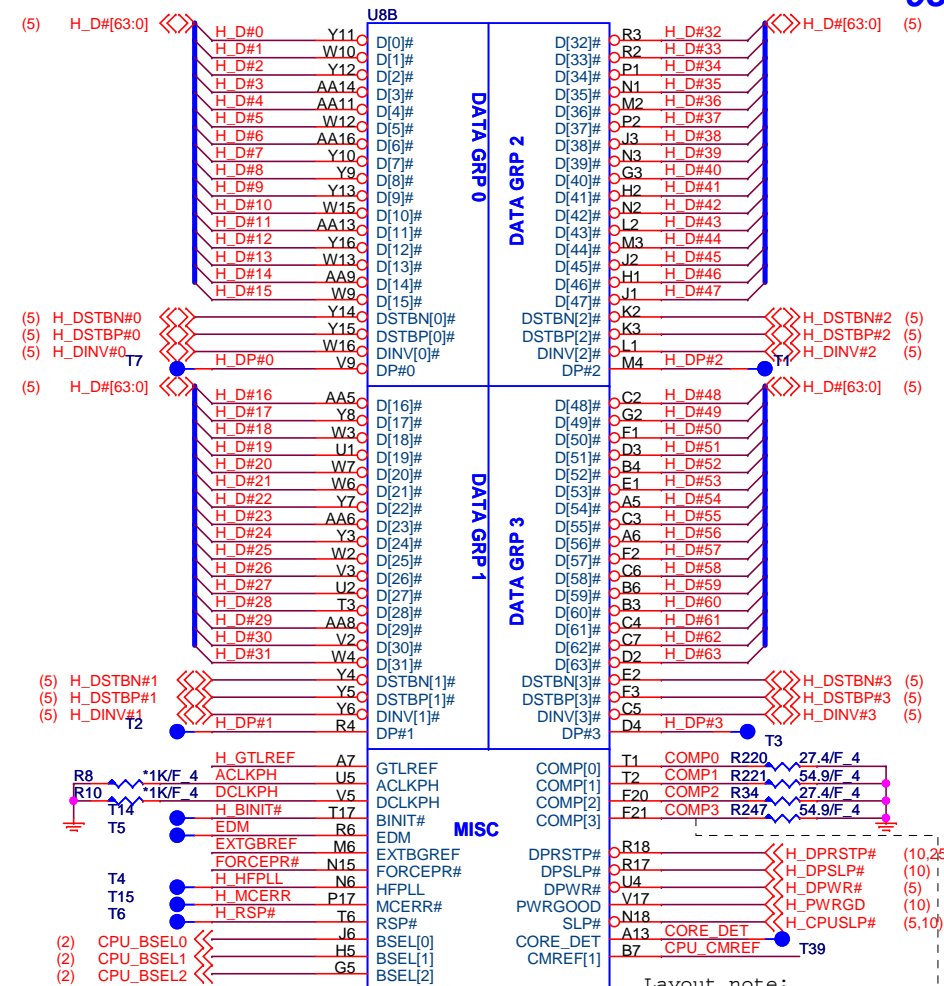
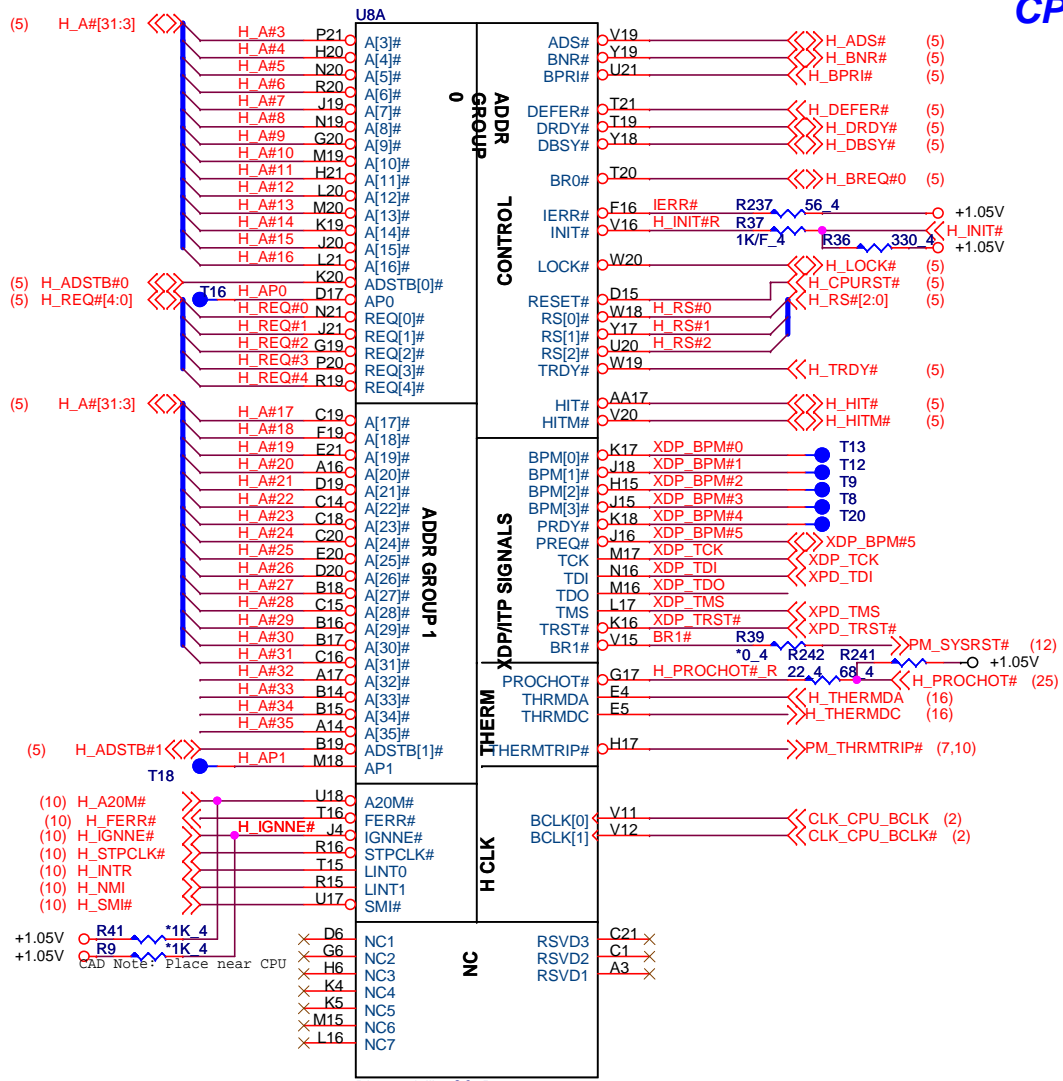


Clapton (EL7) AIO Block Diagram



CPU



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

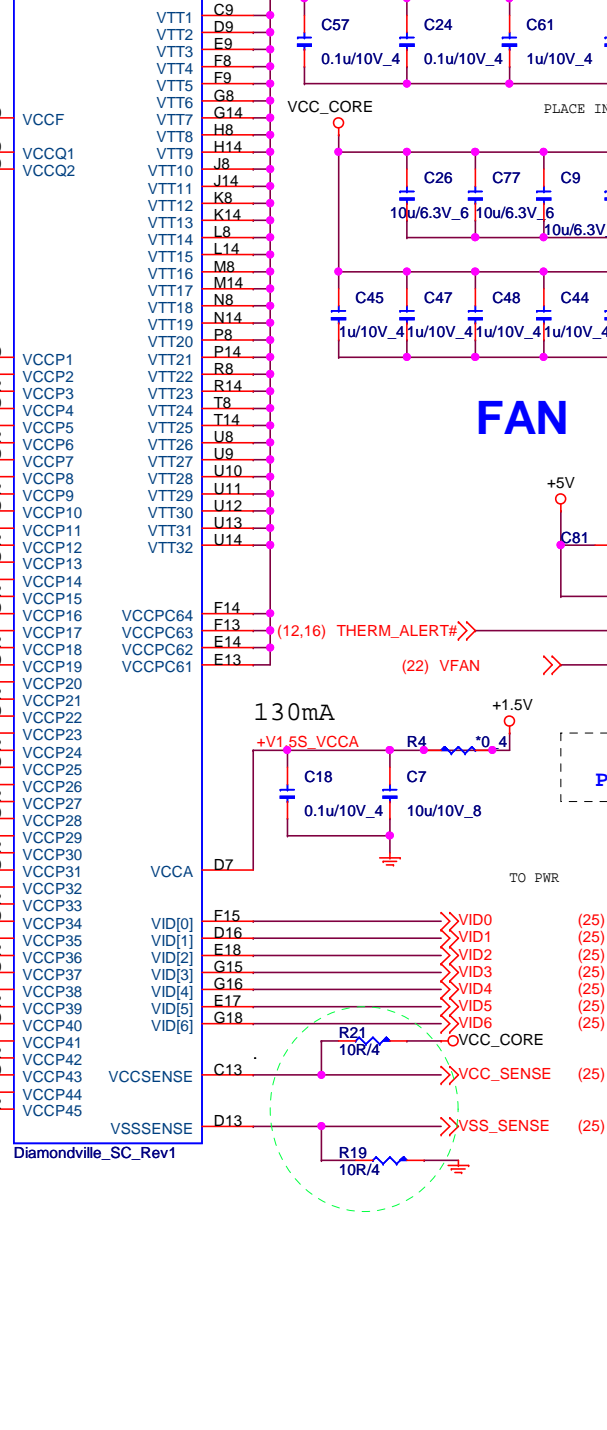
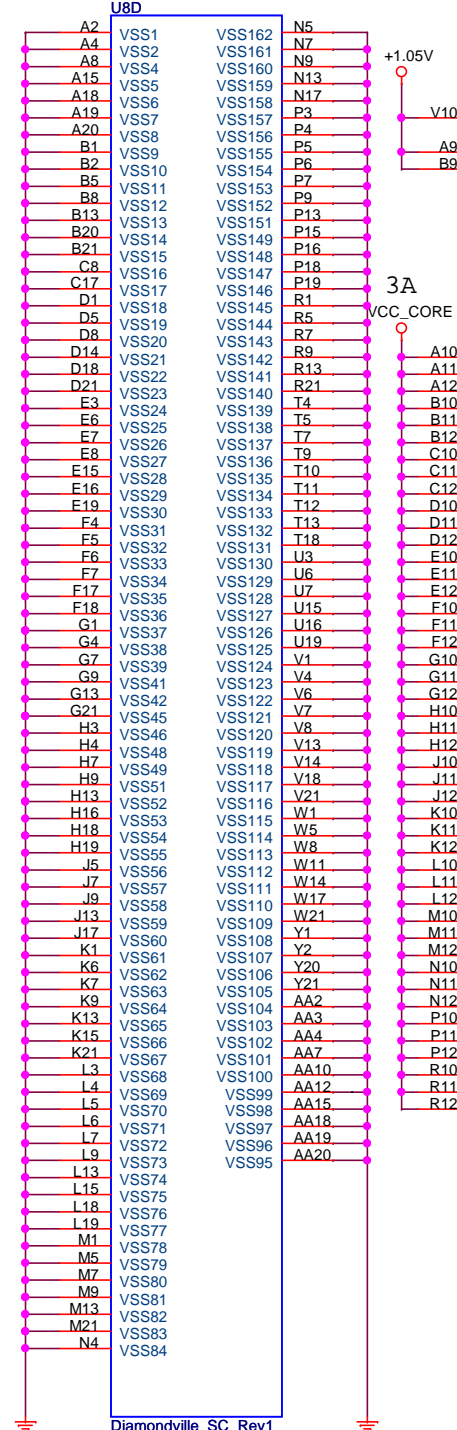
Comp1,3 connect with Zo=55ohm, make trace length shorter than 0.5"

CPU P/N: AJSLB73VT01

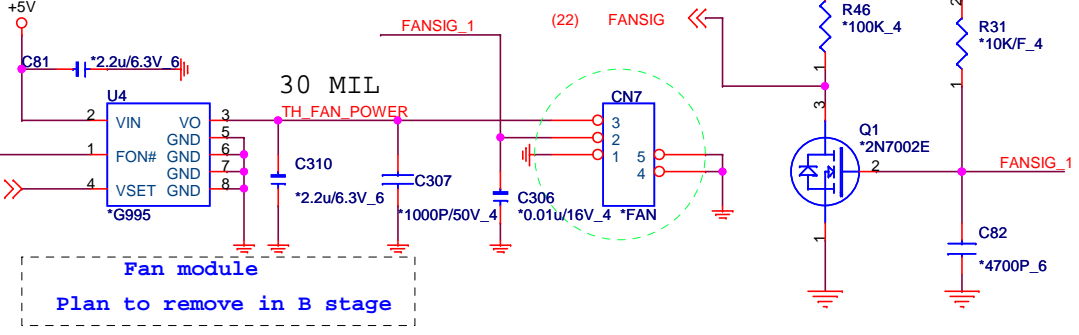
For defensive design reservation only in this initial release

Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	Diamondville(1/2)	1A
Date:	Friday, April 24, 2009	Sheet 3 of 34

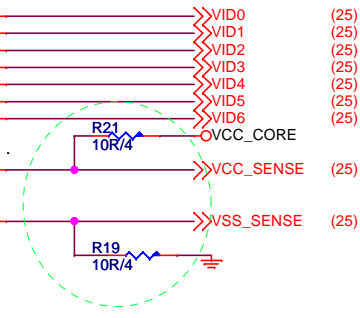


FAN



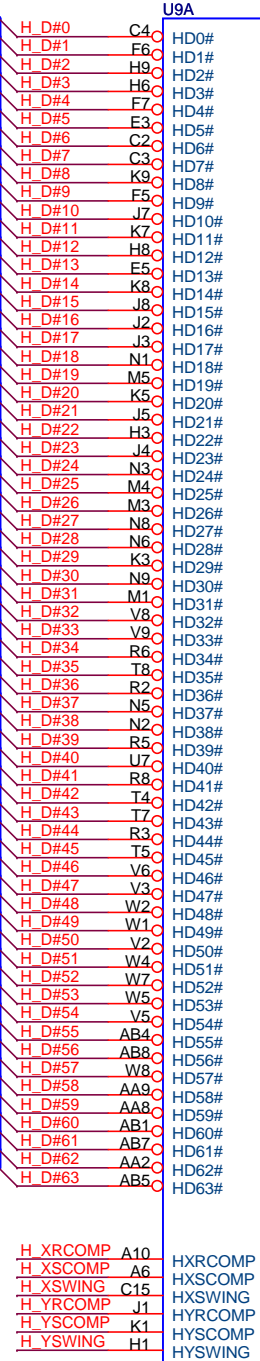
Fan module
Plan to remove in B stage

125 Degree Protection

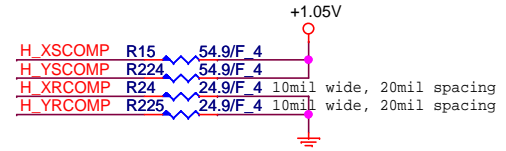
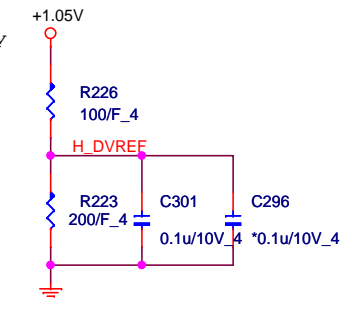
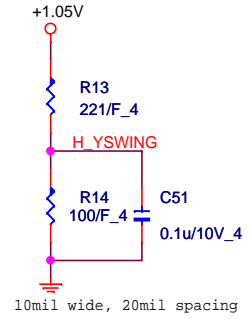
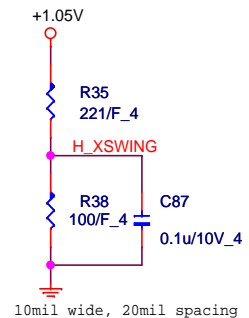
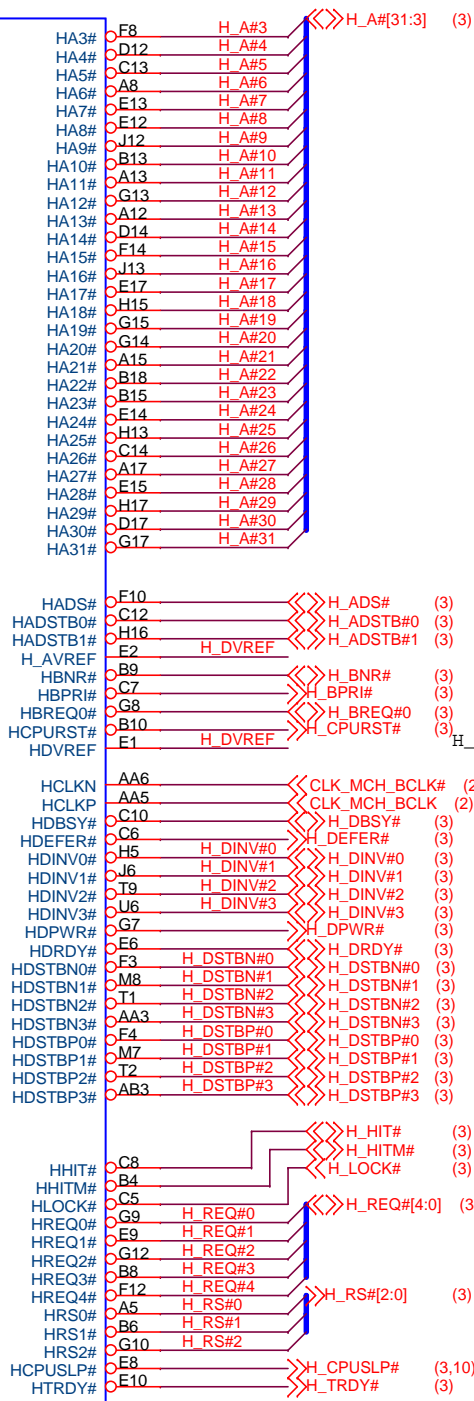


Quanta Computer Inc.
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Size	Document Number	Rev
	Diamondville(2/2)	1A
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HOST



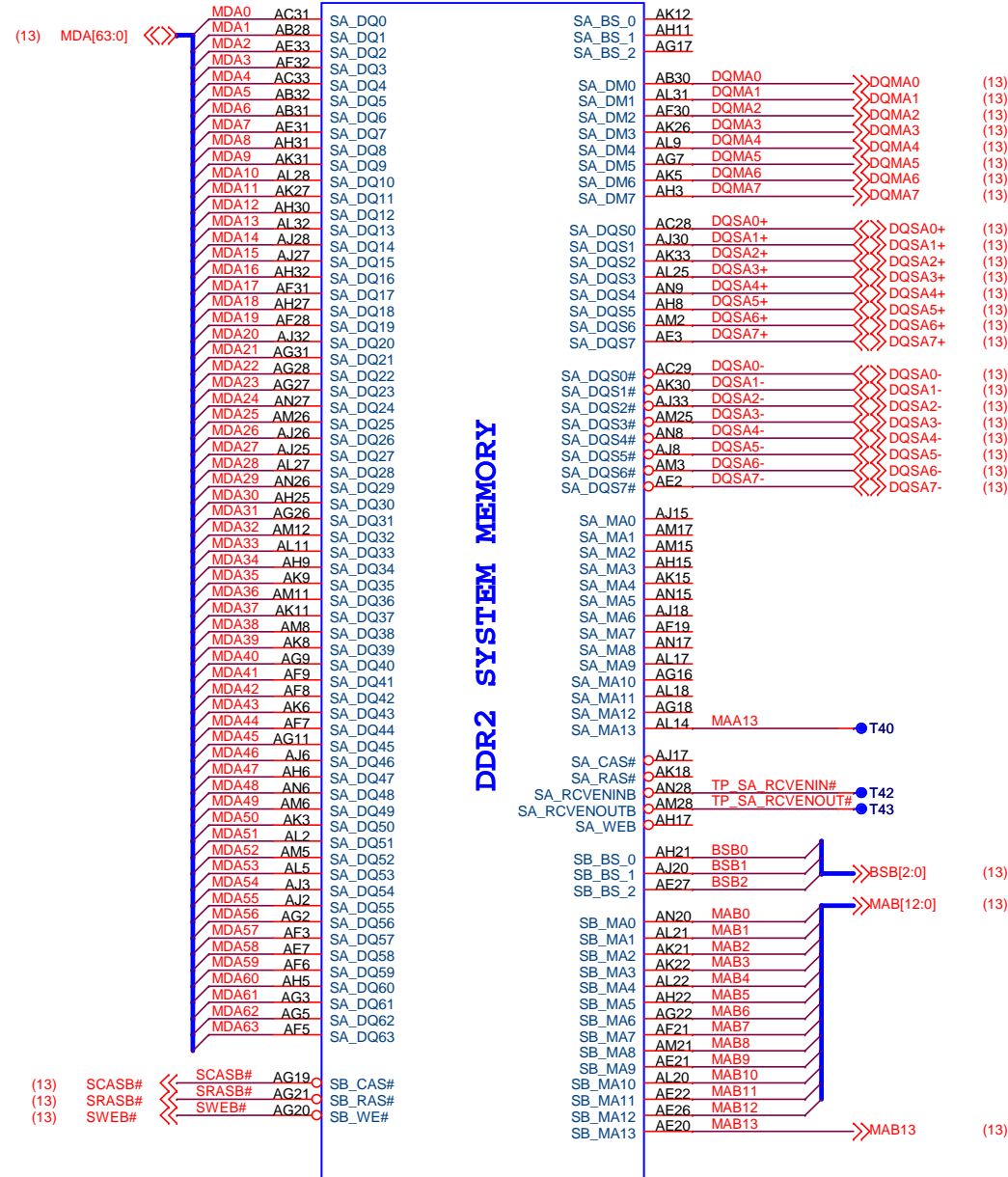
Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	945GMS HOST	1A
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945GMS DDR

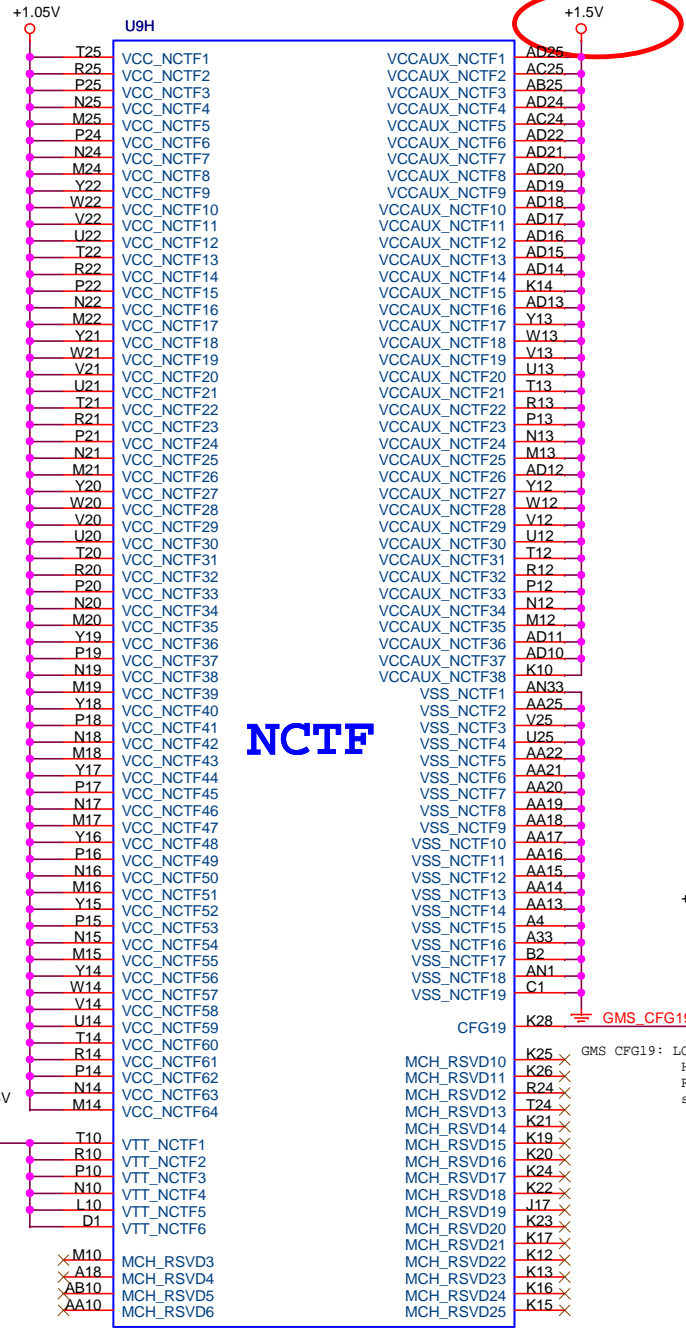
U9C

U9H



DDR2 SYSTEM MEMORY

945GMS



NCTF

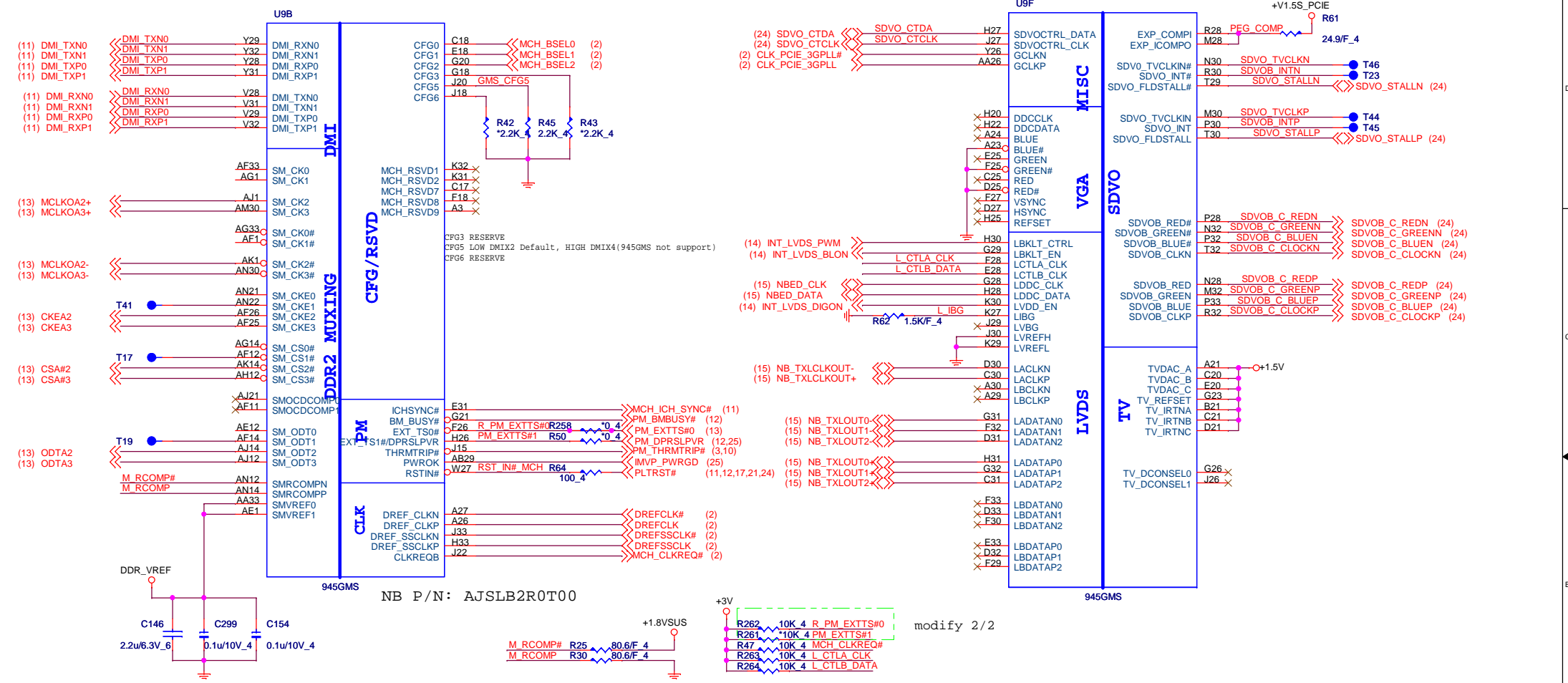
945GMS


NB P/N: AJSLB2R0T00

Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	945GMS DDR	1A
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DMI, LVDS, DDR CLK





Quanta Computer Inc.
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Size	Document Number	Rev
	945GMS LVDS, DMI, DDR CLK	1A
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945GMS GND

AH33	VSS1	J16	U9E
Y33	VSS2	AL15	945GMS
R33	VSS3	AG15	
G33	VSS4	W15	
AK32	VSS5	R15	
AG32	VSS6	F15	
AE32	VSS7	D15	
AC32	VSS8	AM14	
AA32	VSS9	AM14	
U32	VSS10	AE14	
H32	VSS11	H14	
E32	VSS12	B14	
C32	VSS13	F13	
AM31	VSS14	D13	
AJ31	VSS15	AL12	
AA31	VSS16	AG12	
U31	VSS17	H12	
T31	VSS18	B12	
R31	VSS19	AN11	
P31	VSS20	AJ11	
N31	VSS21	AE11	
M31	VSS22	AM9	
J31	VSS23	AJ9	
F31	VSS24	AB8	
AL30	VSS25	W9	
AG30	VSS26	R9	
AE30	VSS27	M9	
AC30	VSS28	J9	
AA30	VSS29	F9	
Y30	VSS30	AJ9	
U30	VSS31	A9	
G30	VSS32	AL8	
E30	VSS33	AG8	
B30	VSS34	AE8	
AA29	VSS35	U8	
U29	VSS36	AA7	
R29	VSS37	V7	
P29	VSS38	R7	
N29	VSS39	N7	
M29	VSS40	H7	
H29	VSS41	E7	
E29	VSS42	B7	
P29	VSS43	AL6	
AK28	VSS44	AG6	
AH28	VSS45	AE6	
AE28	VSS46	AB6	
AA28	VSS47	W6	
U28	VSS48	T6	
T28	VSS49	M6	
J28	VSS50	K6	
AM27	VSS51	AN5	
AF27	VSS52	AJ5	
AB27	VSS53	B5	
AA27	VSS54	AA4	
Y27	VSS55	V4	
U27	VSS56	R4	
T27	VSS57	N4	
R27	VSS58	K4	
P27	VSS59	H4	
N27	VSS60	E4	
M27	VSS61	AL3	
G27	VSS62	AD3	
E27	VSS63	W3	
C27	VSS64	T3	
B27	VSS65	B3	
AL26	VSS66	AK2	
AH26	VSS67	AH2	
W26	VSS68	AF2	
U26	VSS69	AB2	
AN25	VSS70	M2	
AK25	VSS71	K2	
AC25	VSS72	H2	
AE25	VSS73	F2	
J25	VSS74	V1	
G25	VSS75	R1	
A25	VSS76		
H23	VSS77		
F23	VSS78		
B23	VSS79		
AM22	VSS80		
AJ22	VSS81		
AF22	VSS82		
G22	VSS83		
E22	VSS84		
J21	VSS85		
H21	VSS86		
F21	VSS87		
AM20	VSS88		
AK20	VSS89		
AH20	VSS90		
AF20	VSS91		
D20	VSS92		
W19	VSS93		
R19	VSS94		
AM18	VSS95		
AH18	VSS96		
AF18	VSS97		
U18	VSS98		
H18	VSS99		
D18	VSS100		
AK17	VSS101		
V17	VSS102		
T17	VSS103		
F17	VSS104		
B17	VSS105		
AH16	VSS106		
U16	VSS107		
	VSS108		
	VSS109		
	VSS110		

VSS

U9G

W33	NC1	NC61	W30
AM33	NC2	NC62	Y6
AL33	NC3	NC63	AL1
C33	NC4	NC64	Y5
AN32	NC5	NC65	Y10
A32	NC6	NC66	W10
AN31	NC7	NC67	W25
W28	NC8	NC68	W24
V27	NC9	NC69	U24
W29	NC10	NC70	V10
J24	NC11	NC71	U10
H24	NC12	NC72	K18
W32	NC13		
G24	NC14		
F24	NC15		
E24	NC16		
D24	NC17		
C33	NC18		
A33	NC19		
E21	NC20		
C23	NC21		
AN19	NC22		
AM19	NC23		
AL19	NC24		
AK19	NC25		
A19	NC26		
AH19	NC27		
AN3	NC28		
Y9	NC29		
J19	NC30		
H19	NC31		
G19	NC32		
F19	NC33		
E19	NC34		
D19	NC35		
C19	NC36		
B19	NC37		
A19	NC38		
Y8	NC39	MCH_RSVD26	Y25
G18	NC40	MCH_RSVD27	Y24
F16	NC41	MCH_RSVD28	AB22
E16	NC42	MCH_RSVD29	AB24
D16	NC43	MCH_RSVD30	AB19
C16	NC44	MCH_RSVD31	AB16
B16	NC45	MCH_RSVD32	AB14
AN2	NC46	MCH_RSVD33	AA12
A16	NC47	MCH_RSVD34	W24
Y7	NC48	MCH_RSVD35	AA24
AM4	NC49	MCH_RSVD36	AB24
AF4	NC50	MCH_RSVD37	AB20
AD4	NC51	MCH_RSVD38	AB18
AL4	NC52	MCH_RSVD39	AB15
AK4	NC53	MCH_RSVD40	AB13
AJ4	NC54	MCH_RSVD41	AB12
AH4	NC55	MCH_RSVD42	AB17
AG4	NC56		
AE4	NC57		
AM1	NC58		
	NC59		
	NC60		

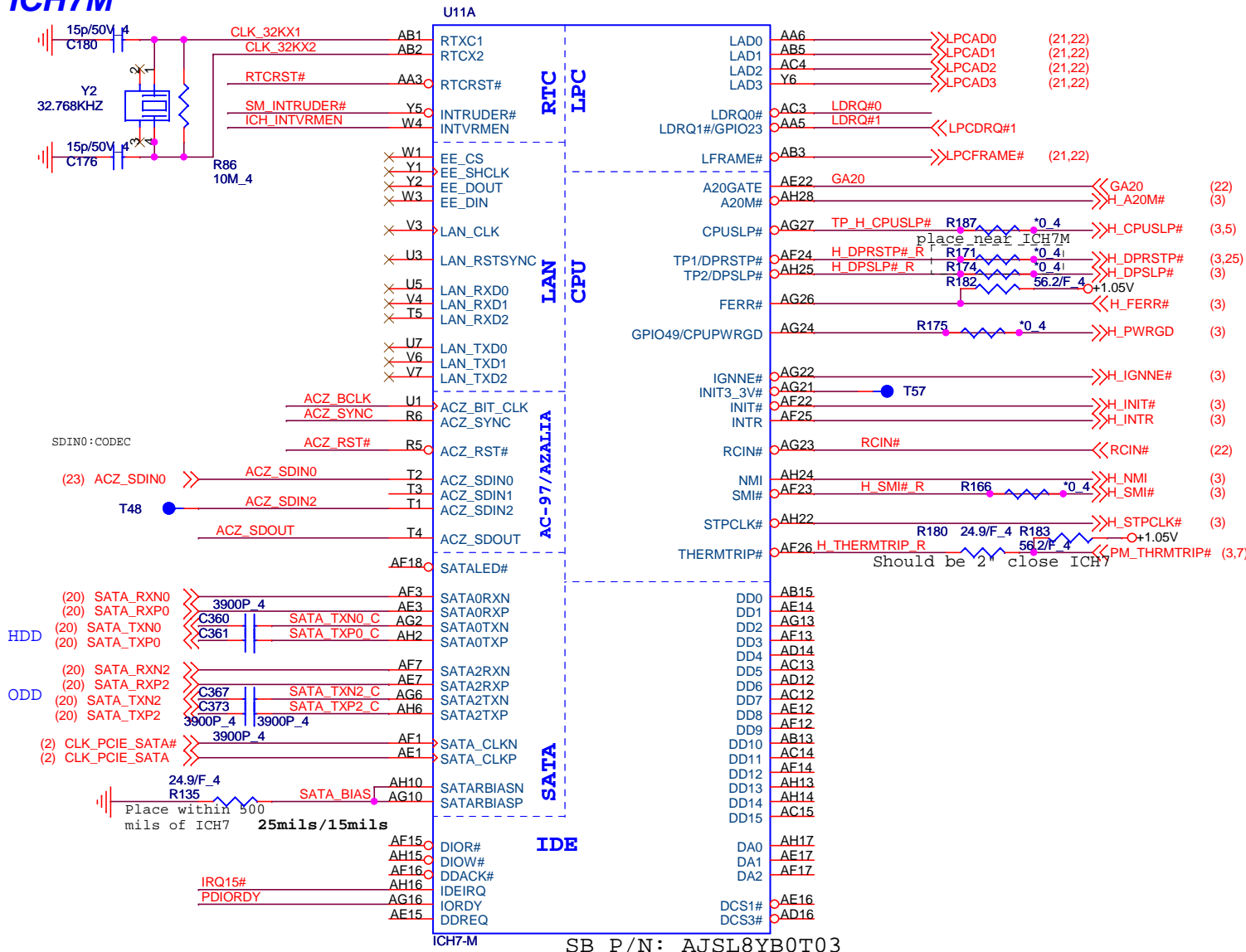
NC

945GMS

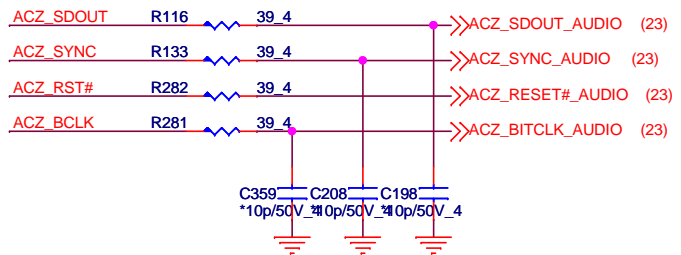
Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	945GMS GND	1A
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ICH7M

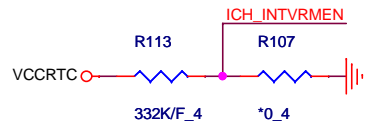


SB P/N: AJSL8YB0T03



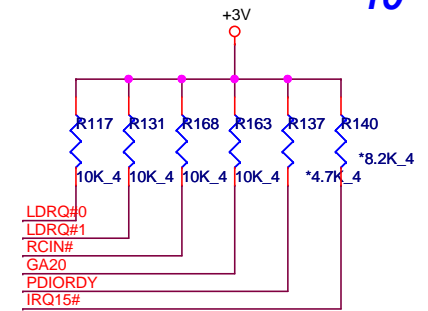
	INTVRMEN
Enable (default)	1
Disable	0

ICH7 internal VR enable strap

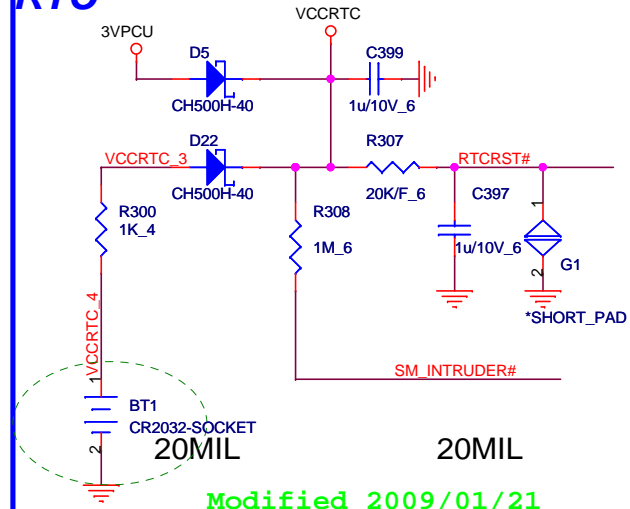


Pull-UP

10



RTC



Modified 2009/01/21

RTC Battery P/N: AHL03003002

COMPONENTS	P/N
N270	AJSLB73VT01
945GSE	AJSLB2R0T00
ICH7-M	AJSL8YB0T03

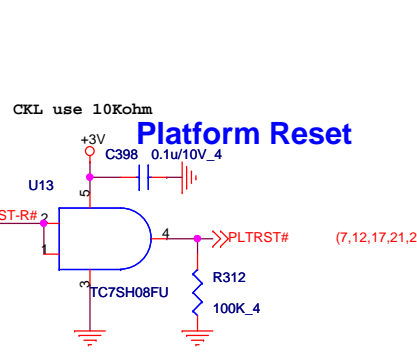
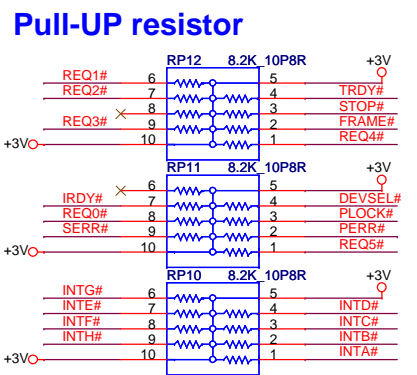
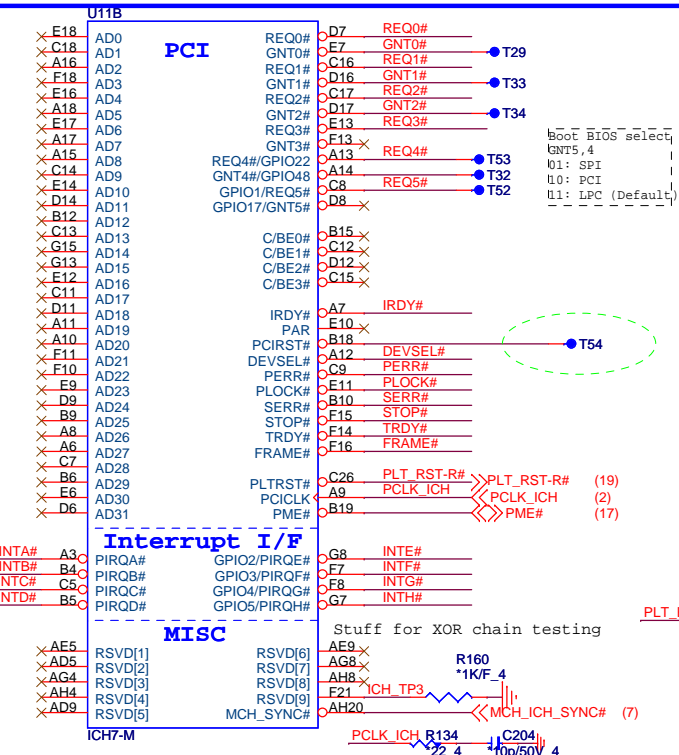
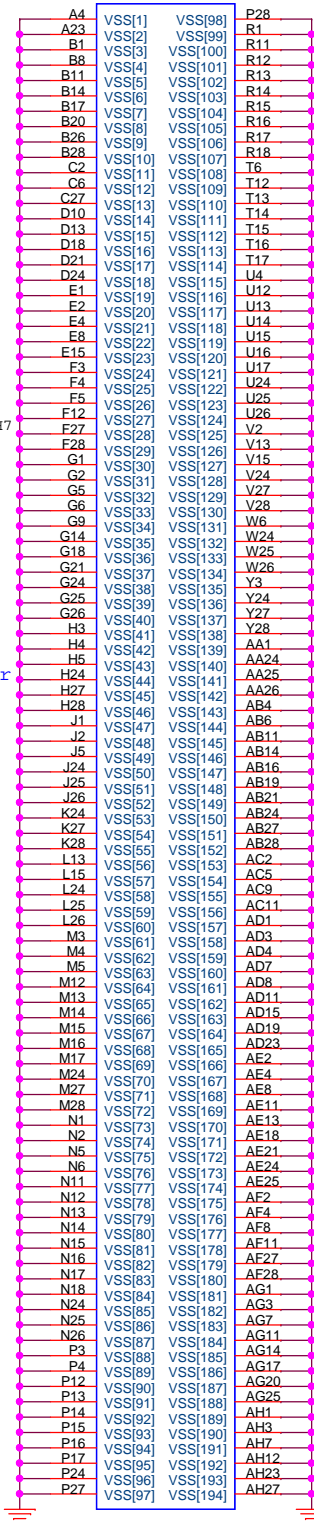
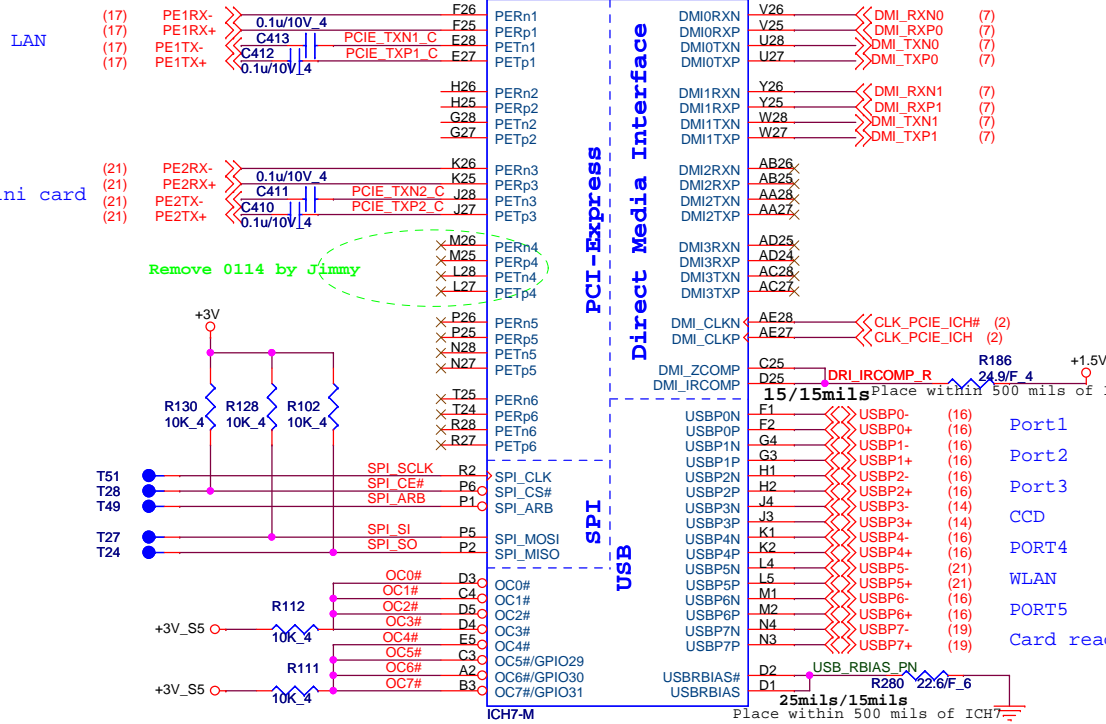


Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	ICH7-M (CPU, SATA, IDE, LPC)	1A
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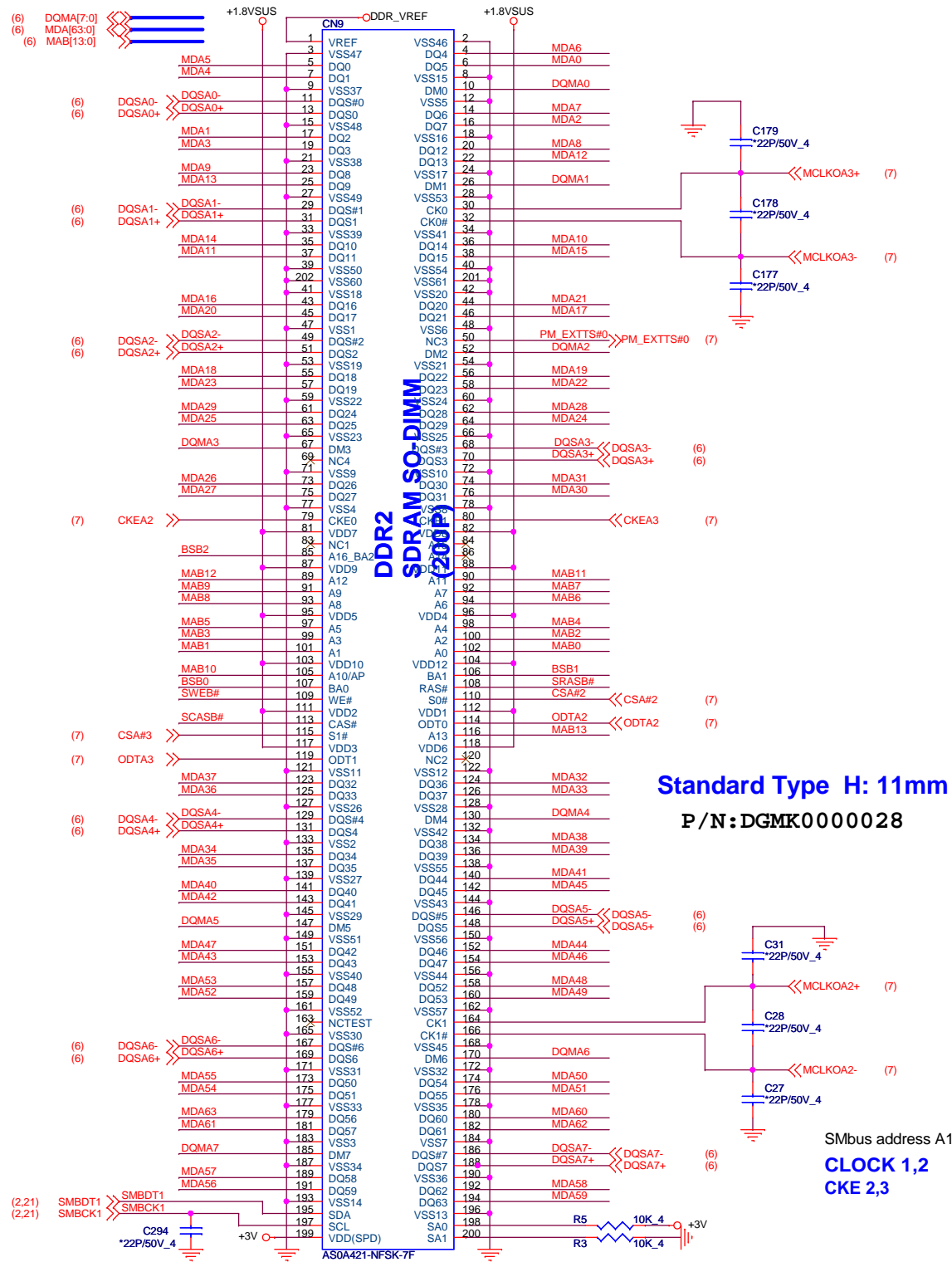
caps within 250mils



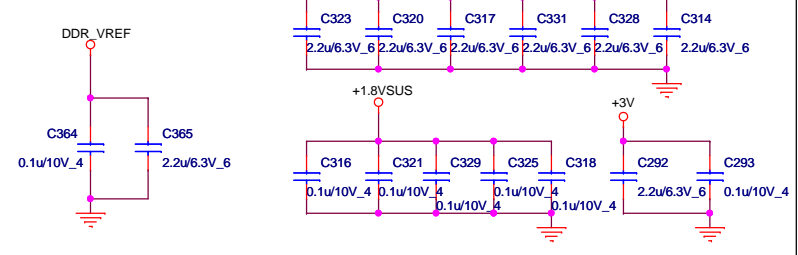
Quanta Computer Inc.
 PROJECT : EL7

Size Document Number Rev
 ICH7-M (USB & DMI & PCIE & PCI) 1A

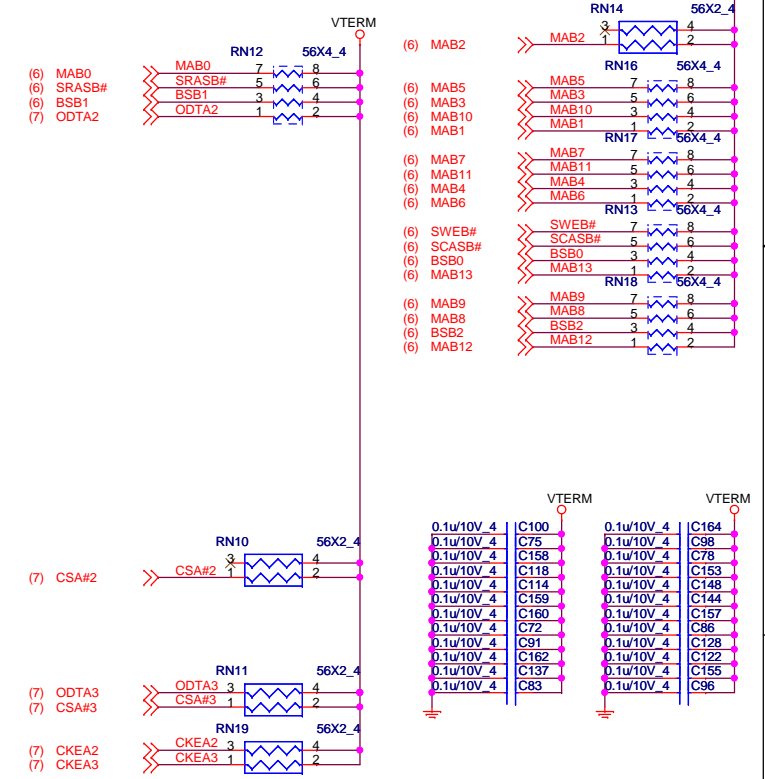
Date: Friday, April 24, 2009 Sheet 11 of 34



Close to DIMM



Termination resistor



Standard Type H: 11mm
P/N: DGMK000028

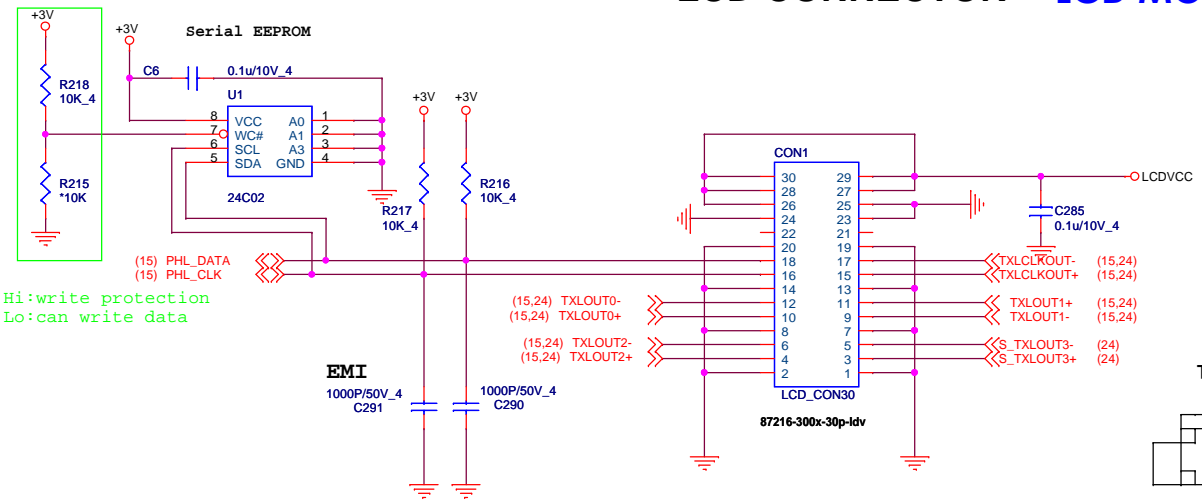
SMbus address A1
CLOCK 1,2
CKE 2,3

Quanta Computer Inc.
PROJECT : EL7

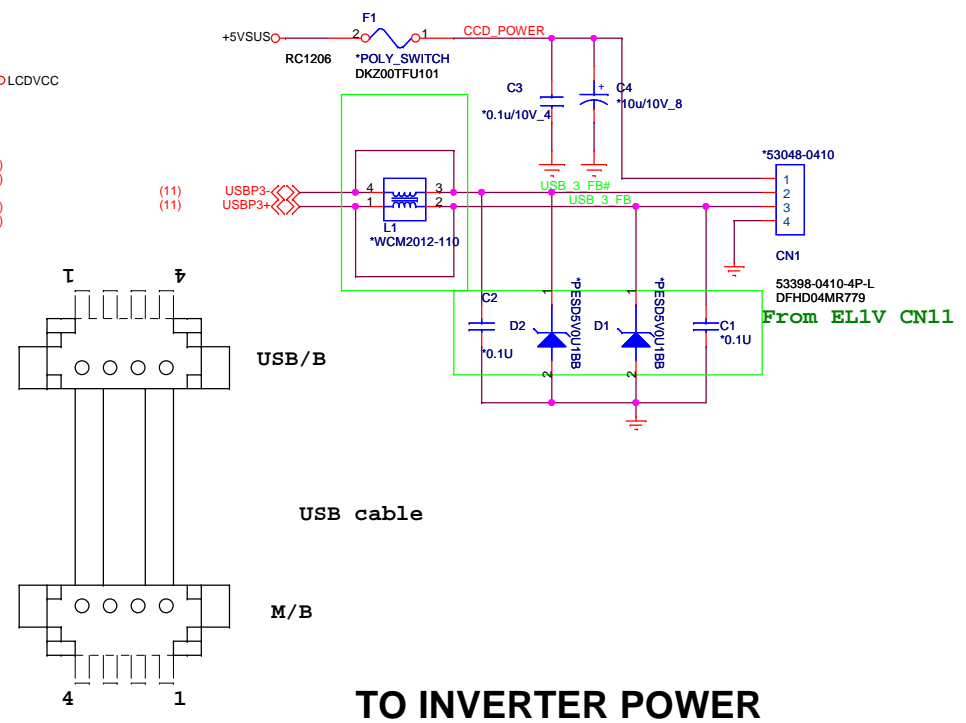
Date: Friday, April 24, 2009	Document Number	Rev 1A
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DDR2 SO-DIMM(200P)

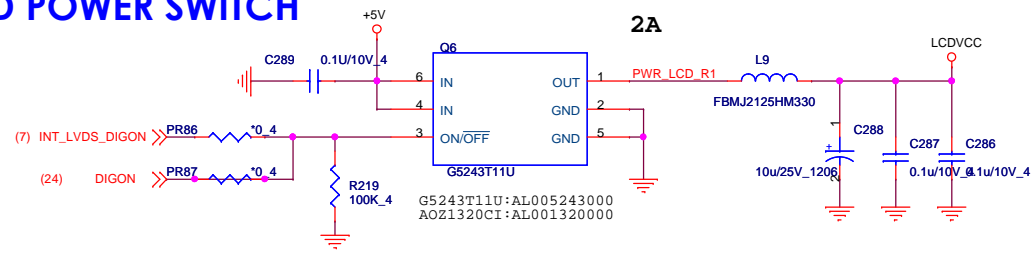
LCD CONNECTOR LCD MODULE



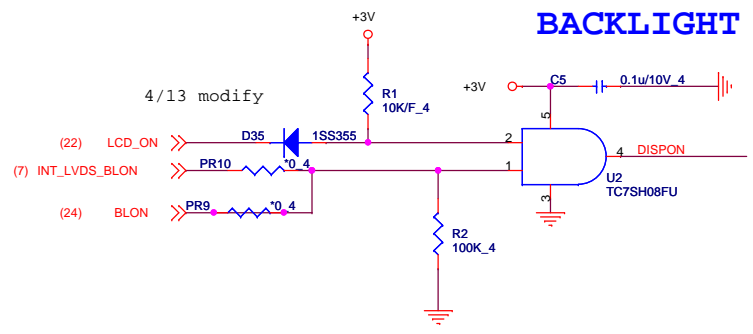
CAMERA POWER



LCD POWER SWITCH



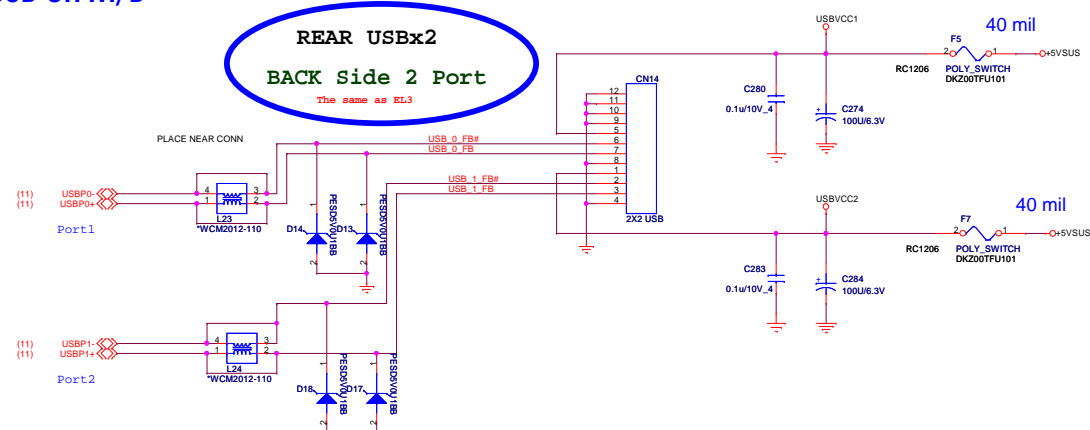
BACKLIGHT CONTROL



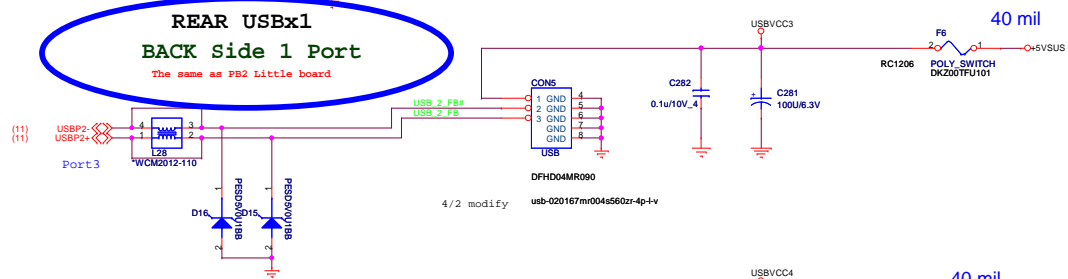
Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	LVDS/Bluetooth	1A
Date:	Friday, April 24, 2009	Sheet 14 of 34

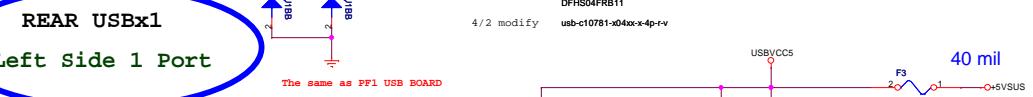
REAR USBx2
BACK Side 2 Port
 The same as EL3



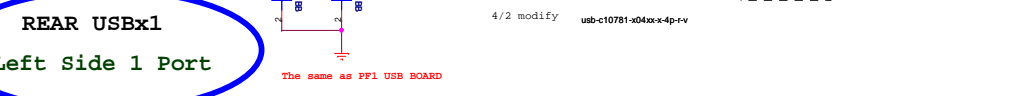
REAR USBx1
BACK Side 1 Port
 The same as PB2 Little board



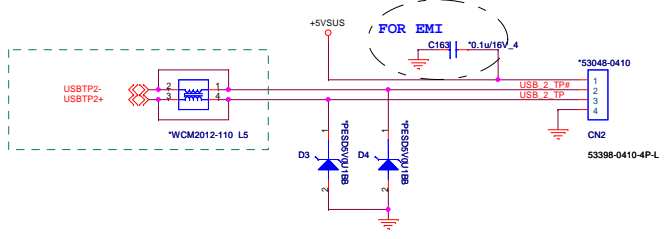
REAR USBx1
Left Side 1 Port



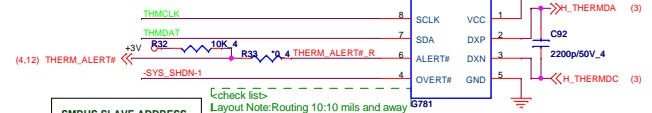
REAR USBx1
Left Side 1 Port



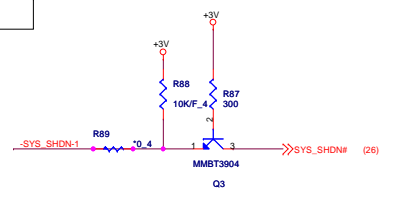
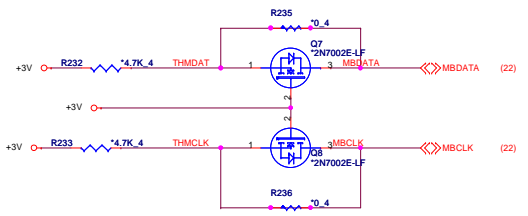
***touch panel connector**



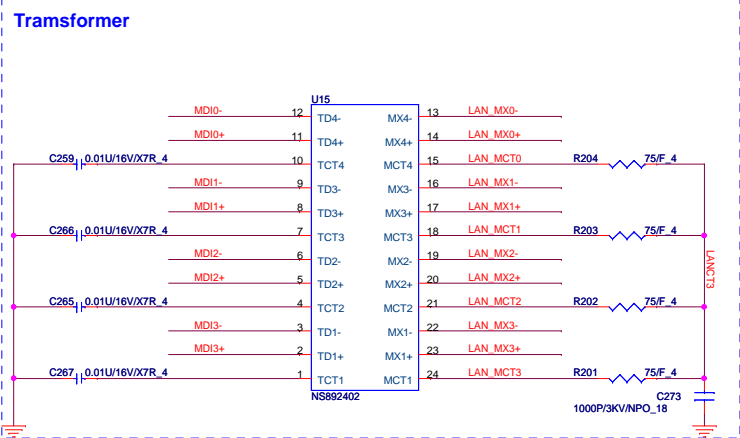
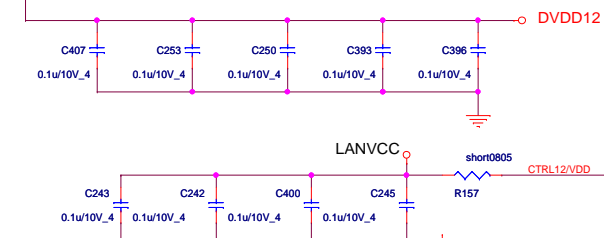
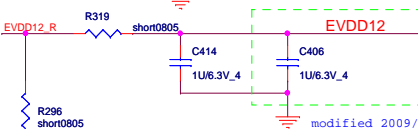
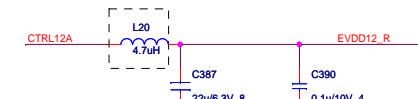
CPU Thermal monitor



SMBUS SLAVE ADDRESS	
G781	98
G781-1	9A

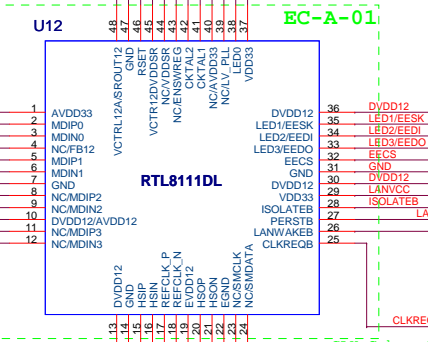
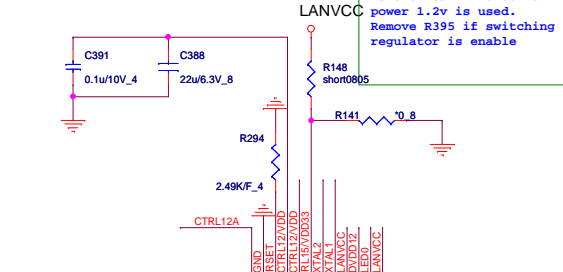


LANVCC



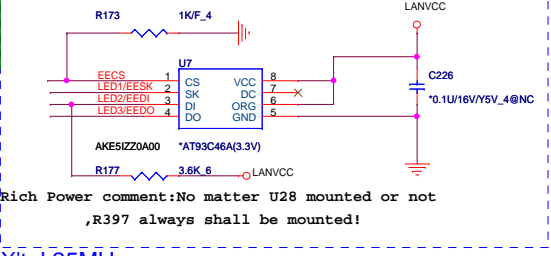
P/N:DB0AT9LAN05

Remove R394 if external power 1.2v is used.
Remove R395 if switching regulator is enable



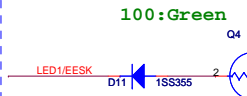
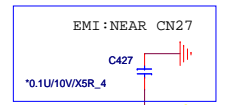
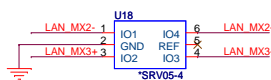
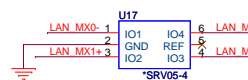
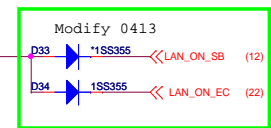
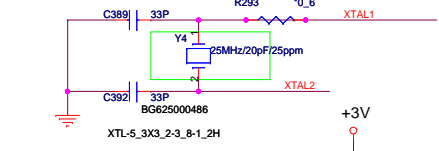
(11) PE1TX+ PE1TX-
(11) PE1RX+ PE1RX-
(2) PE1CLK- PE1CLK+
CLK & have't CLKREQB function

Reserve EEPROM for first stage. No stuff.

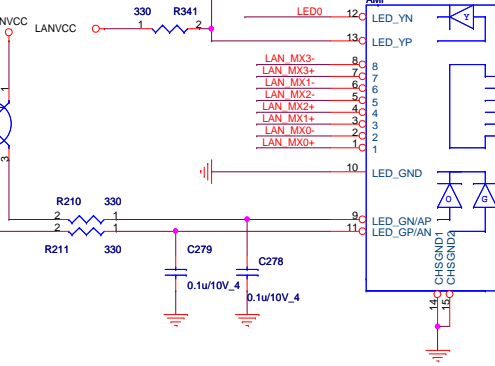


Rich Power comment: No matter U28 mounted or not, R397 always shall be mounted!

X'tal 25MHz



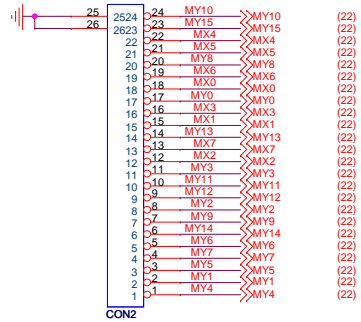
Active:Yellow



KEYBOARD For debug

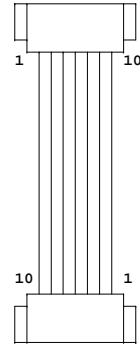
(22) MY[15..0] >>
(22) MX[7..0] >>

*88502-2401-24P-L



TOP Side

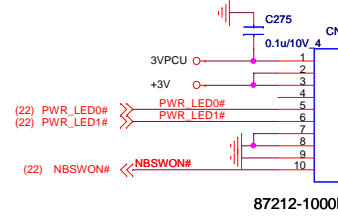
MB Side



TOP Side

SWITCH/B Side

Power SW



87212-1000L-10P-R

Modify 2209/03/02 :the same as CN4

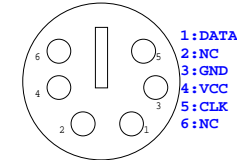
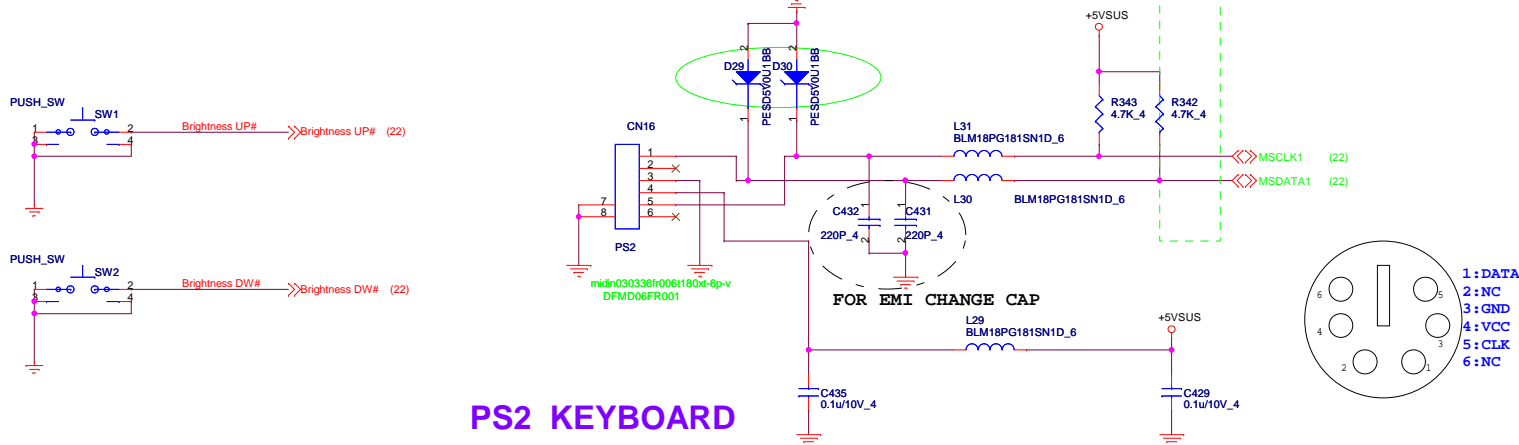
From EL1V

PS2 MOUSE

Green

Brightness Control

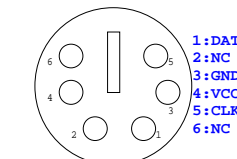
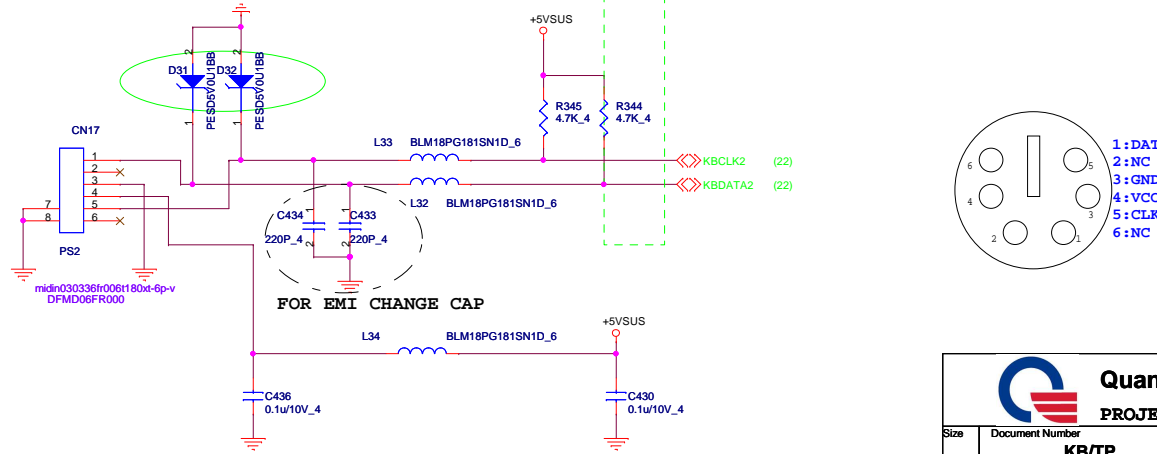
close to conn to version:A



PS2 KEYBOARD

Purple

close to conn to version:A

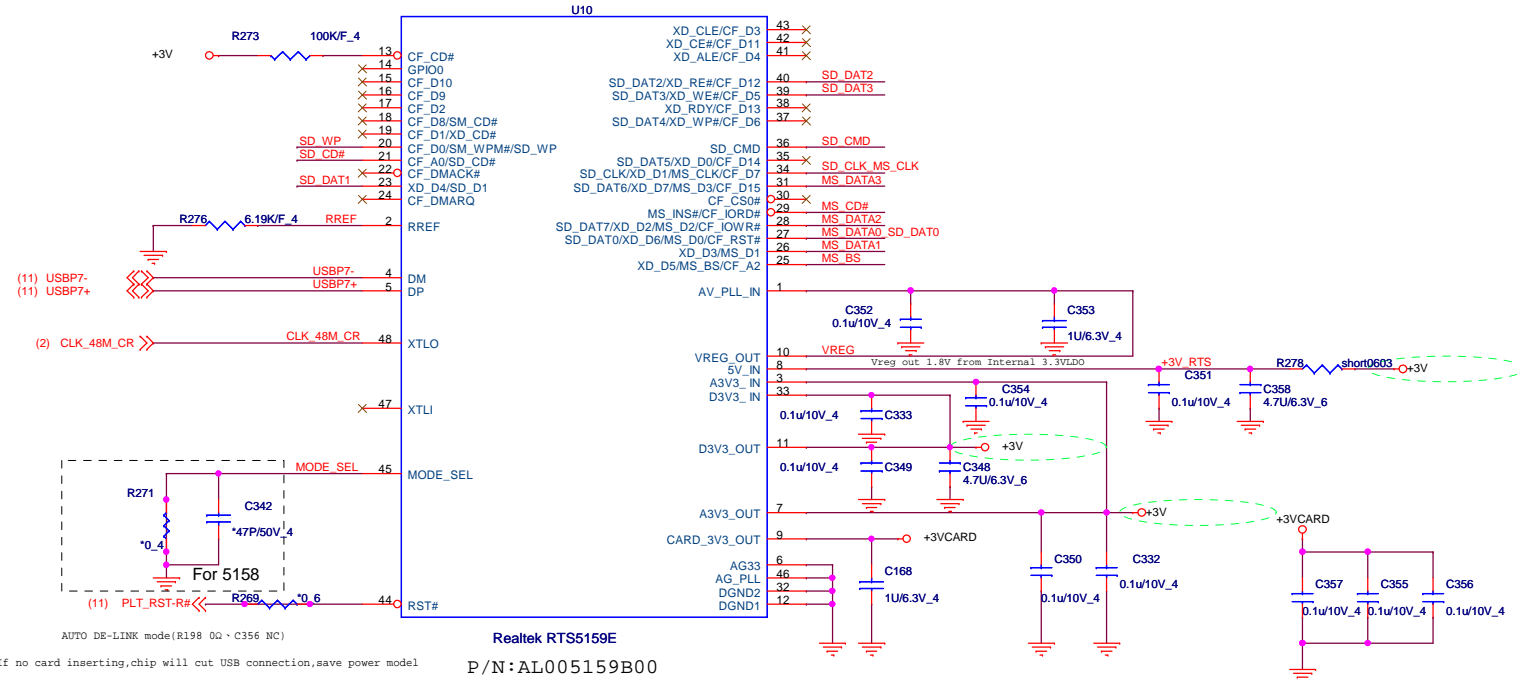


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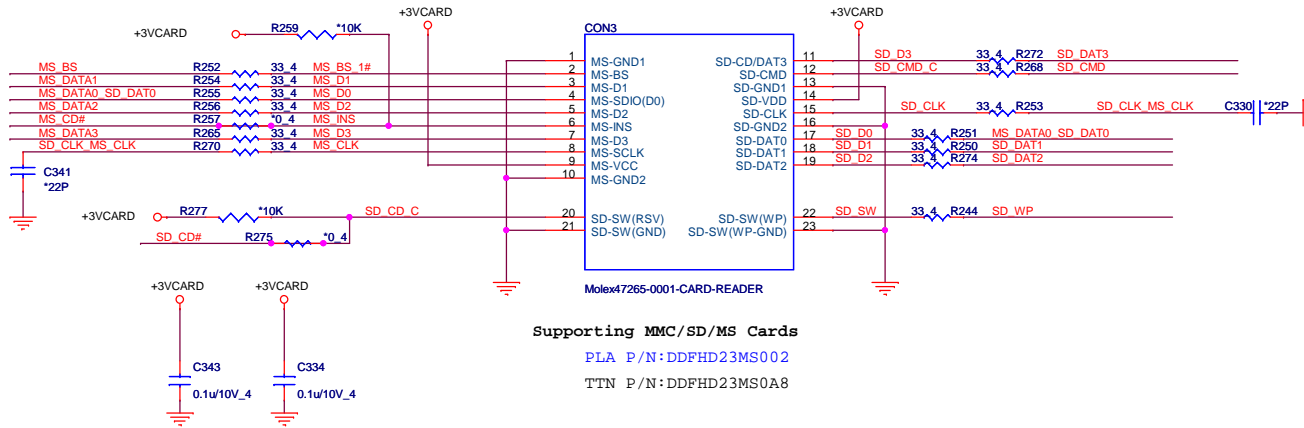
Note:


	SD/MMC	MS	XD
SP0			XD CD#
SP1	SD WP		XD CD#
SP2	SD WP		XD CD#
SP3	SD CD#		XD D4
SP4	SD DAT1	XD D4	
SP5		MS BS	XD D5
SP6	SD DAT1	MS D1	XD D3
SP7	SD DAT0	MS D0	XD D6
SP8	SD DAT7	MS D2	XD D2
SP9		MS INS#	
SP10	SD DAT6	MS D3	XD D7
SP11	SD CLK	MS SCLK	XD D1
SP12	SD DAT5		XD D0
SP13	SD DAT4		XD WP#
SP14			XD RB#
SP15	SD DAT3		XD WE#
SP16	SD DAT2		XD RE#
SP17			XD ALE
SP18			XD CE#
SP19			XD CLE



4 IN 1 CONN

From PB2



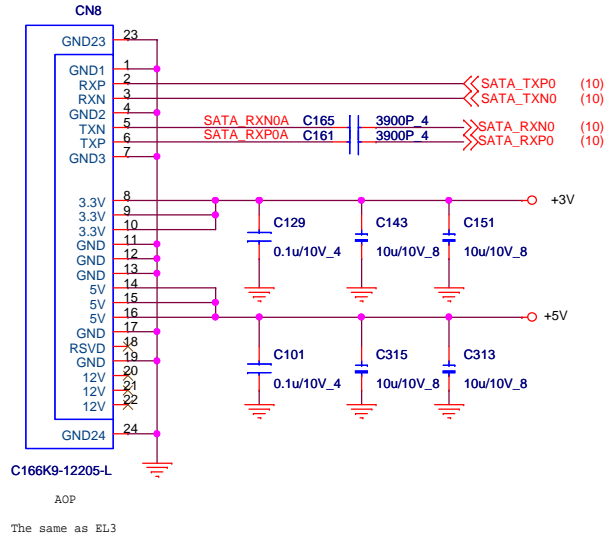


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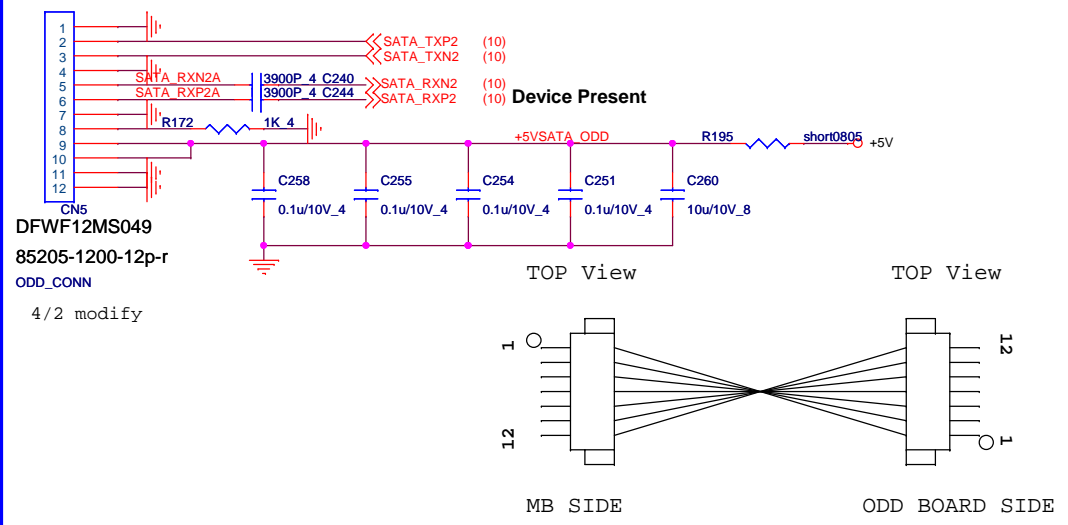
Size	Document Number	Rev
	RTS5159E 4IN1 CARD	1A
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Check New ODD CONN Pin Define.


SATA HDD



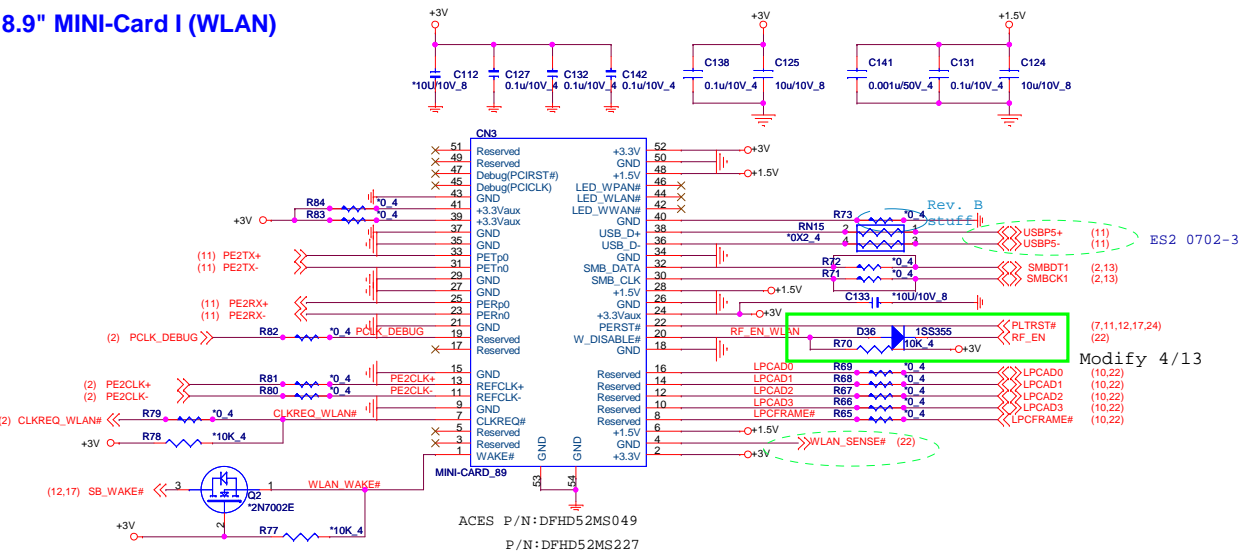
SATA ODD



ZT4 card connector

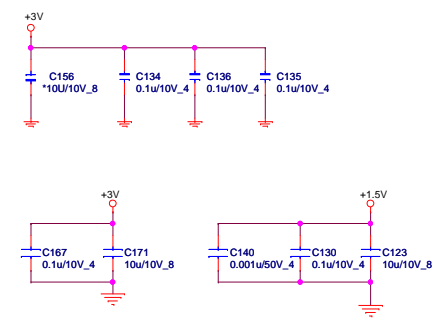
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8.9" MINI-Card I (WLAN)



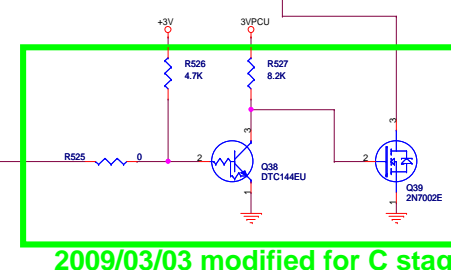
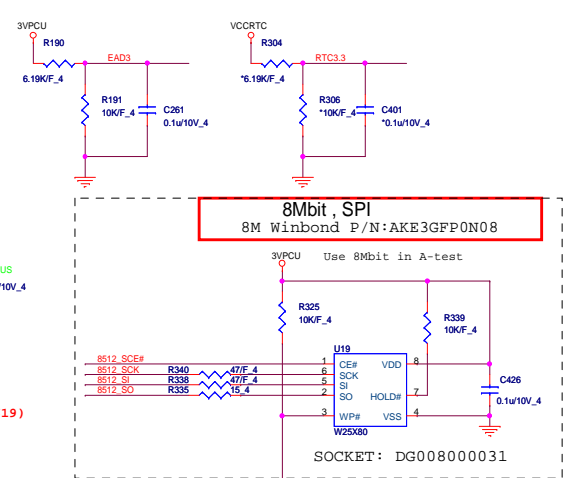
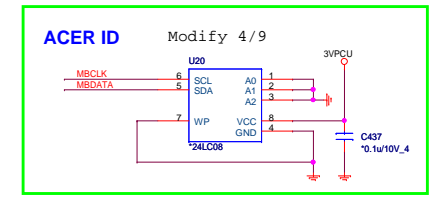
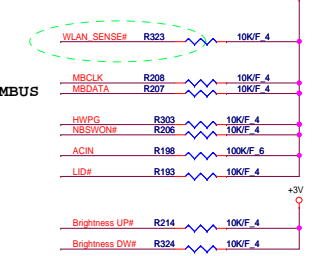
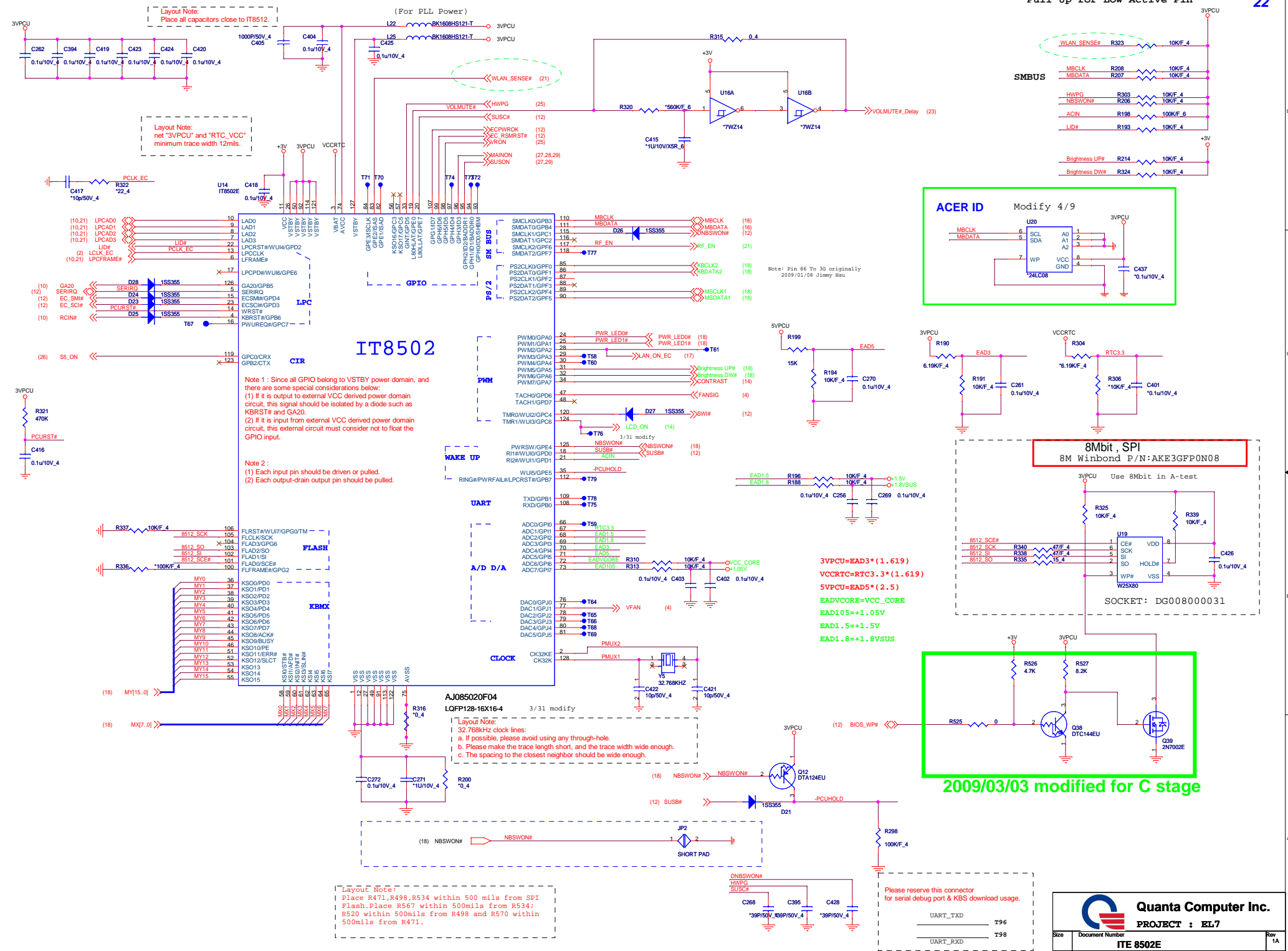
From PB2 or PF1 :Height 9 mm

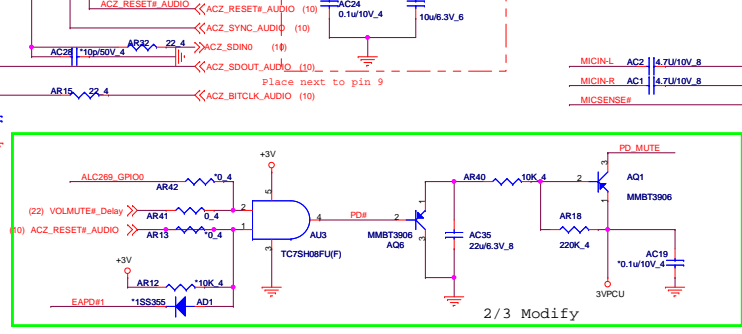
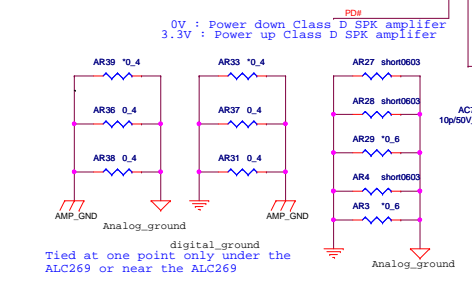
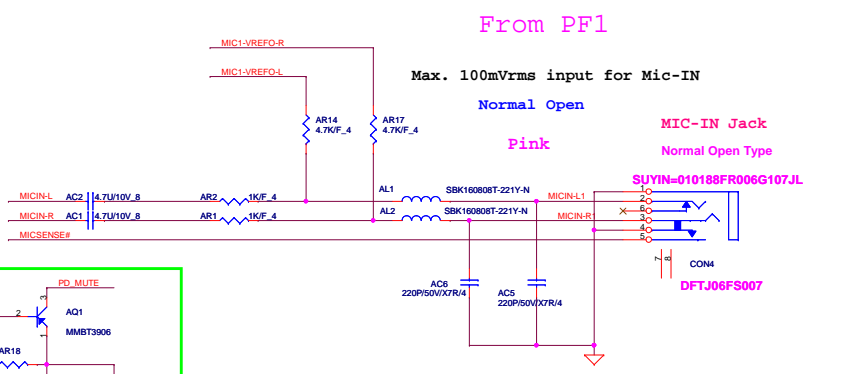
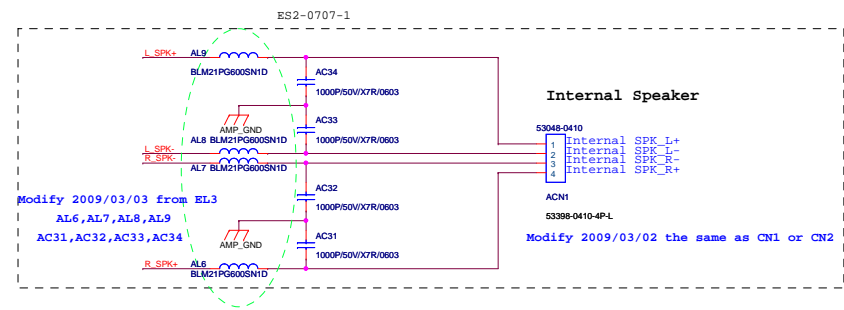
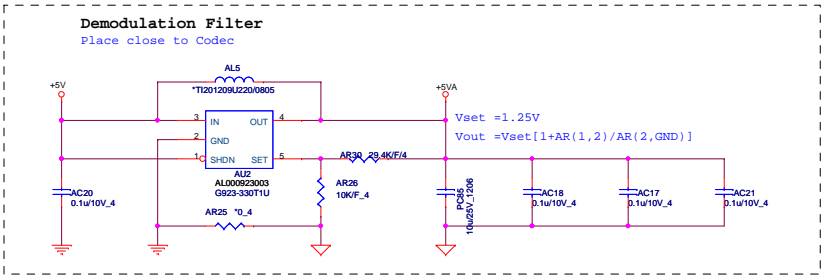
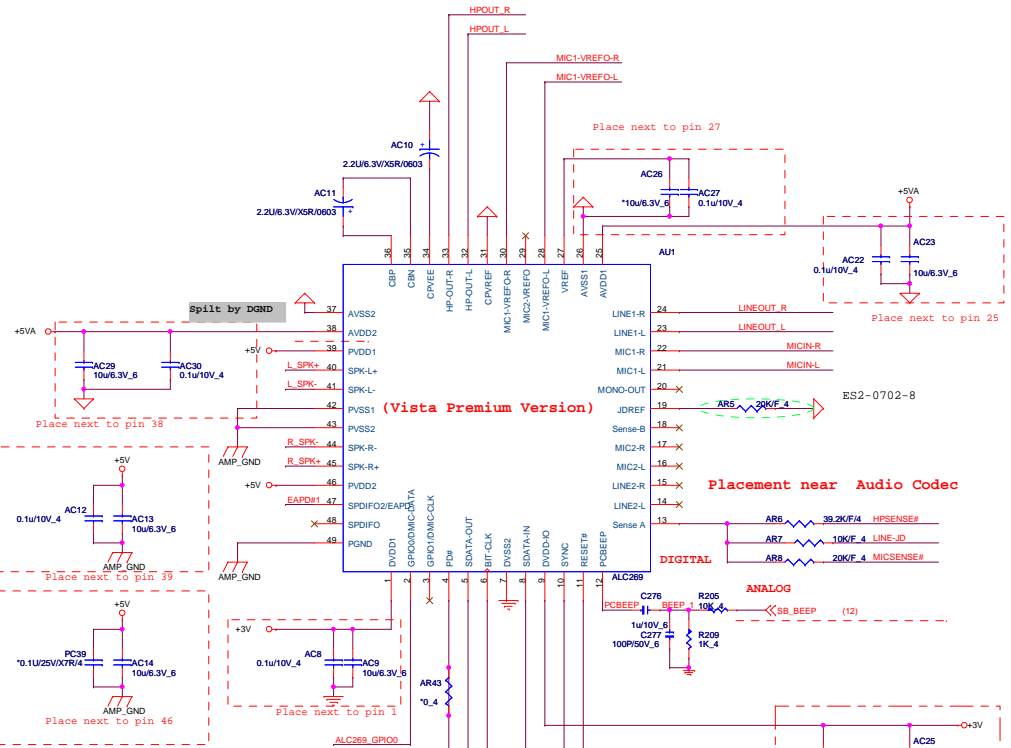
Modify 4/13



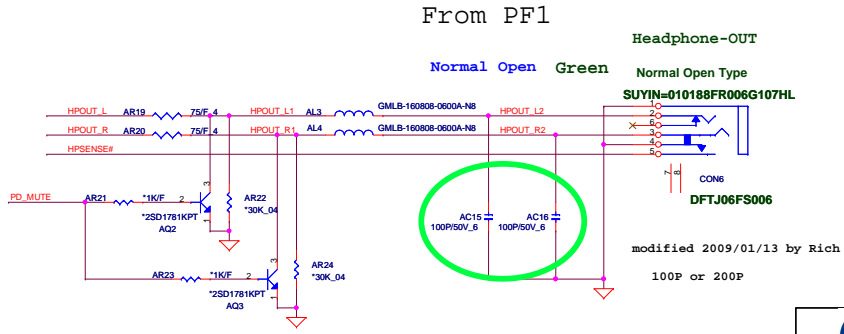
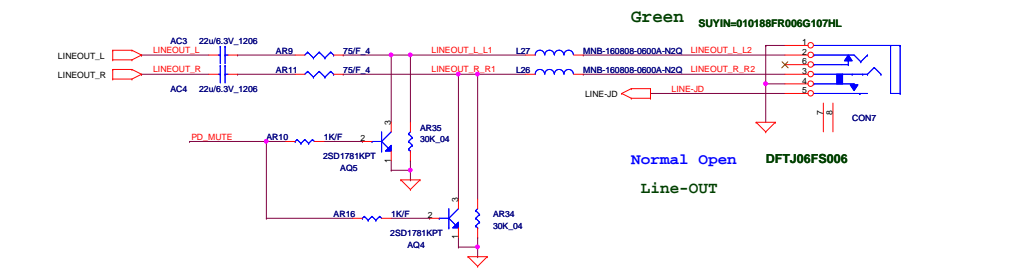
Quanta Computer Inc.
 PROJECT : EL7

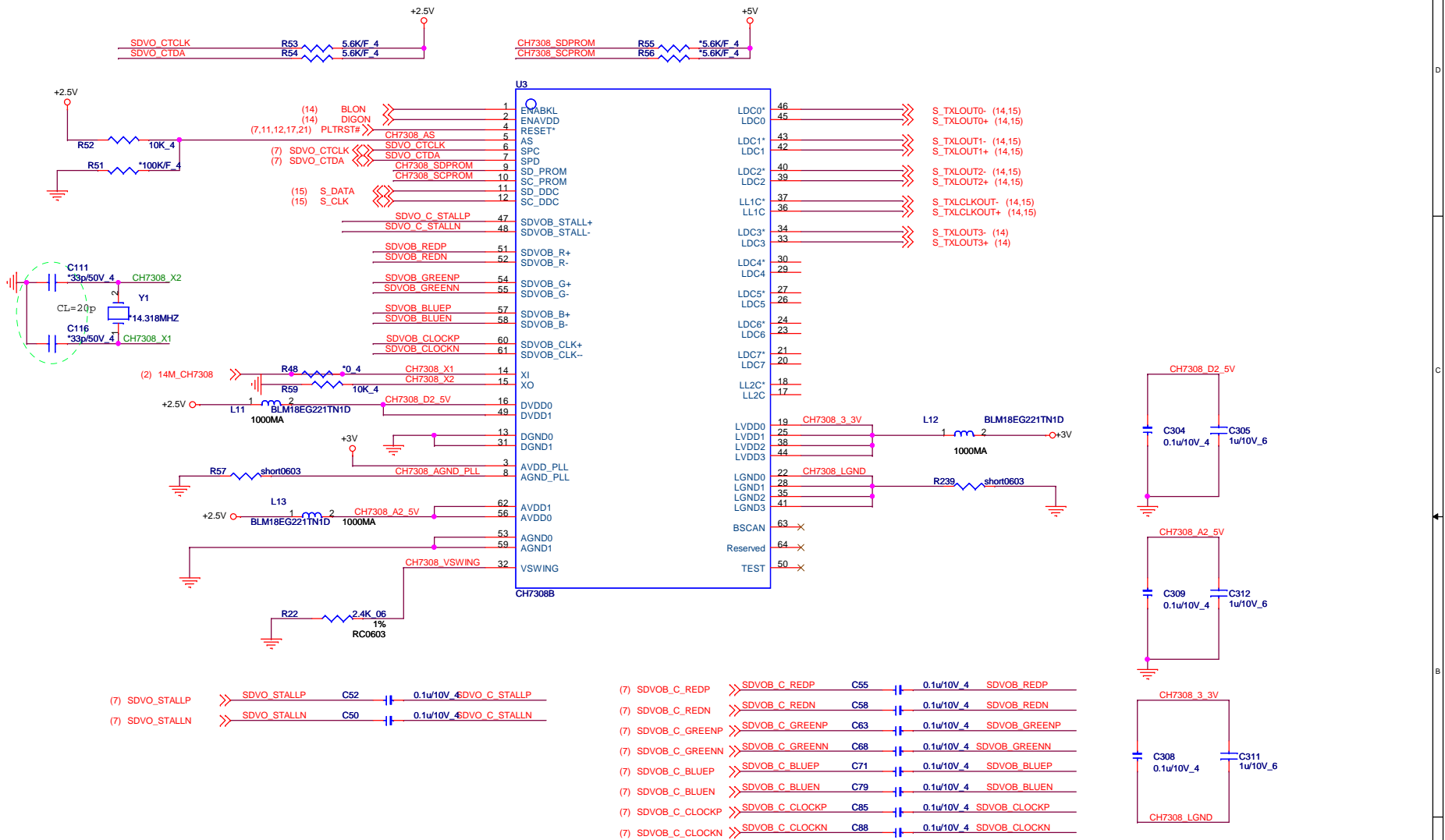
Size	Document Number	Rev
	Mini-Card/WL	1A
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Comment by RichPower Vic 2008/01/12





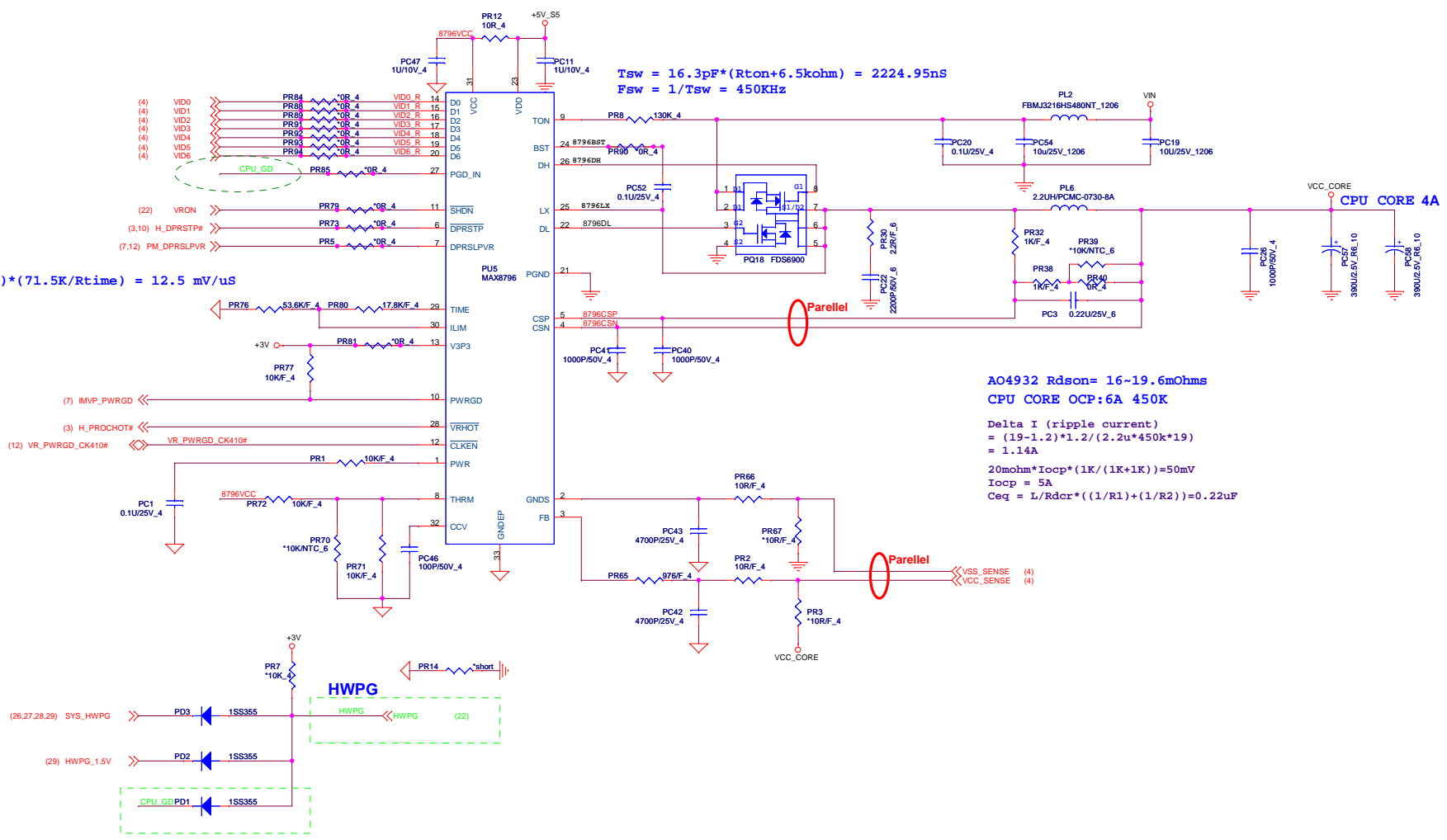
Close to GMCH

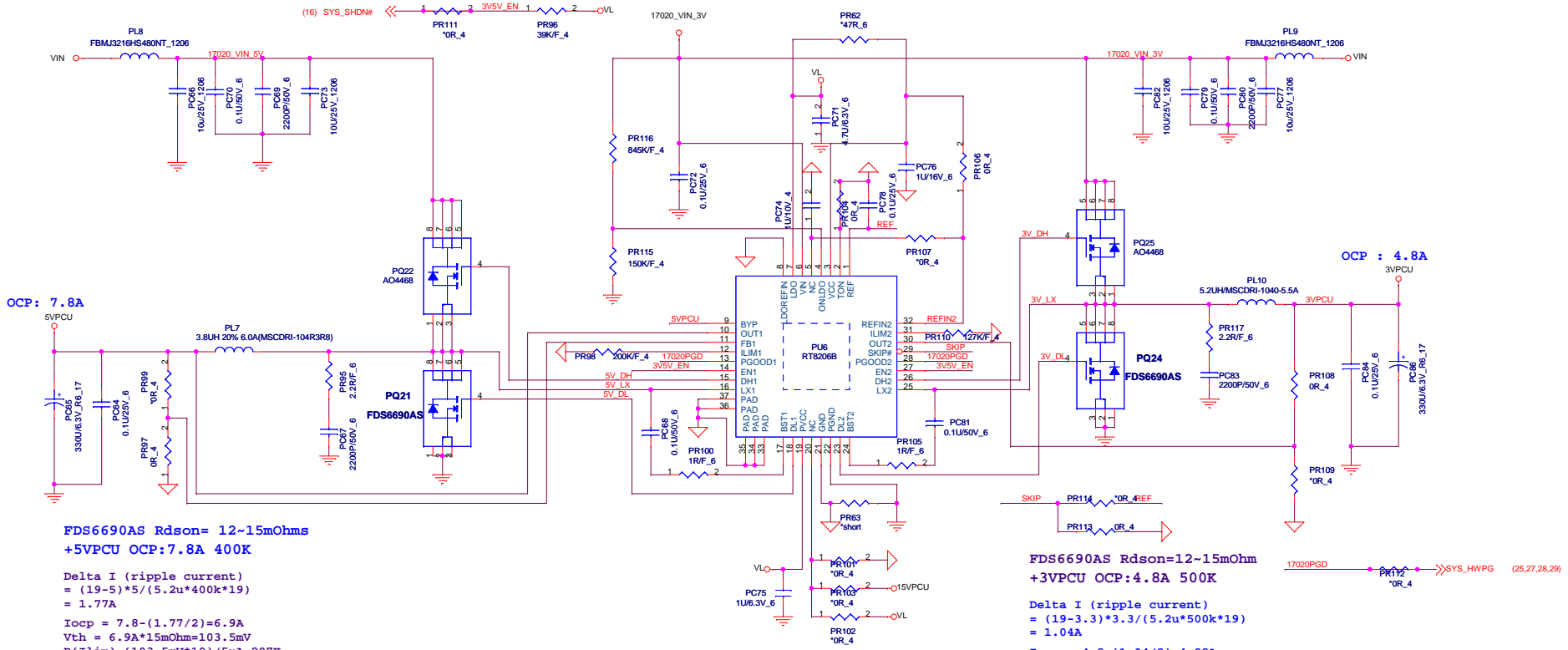
CPU CORE

Slew Rate = $12.5(\text{mV}/\mu\text{s}) * (71.5\text{K}/\text{Rtime}) = 12.5 \text{ mV}/\mu\text{s}$
 Vlimit = 1.5V

$T_{sw} = 16.3\text{pF} * (\text{Rton} + 6.5\text{kohm}) = 2224.95\text{ns}$
 $F_{sw} = 1/T_{sw} = 450\text{KHz}$

AO4932 $R_{dson} = 16\text{-}19.6\text{mOhms}$
 CPU CORE OCP: 6A 450K
 Delta I (ripple current)
 $= (19\text{-}1.2) * 1.2 / (2.2\mu * 450\text{k} * 19)$
 $= 1.14\text{A}$
 $20\text{mohm} * \text{Iocp} * (1\text{K} / (1\text{K} + 1\text{K})) = 50\text{mV}$
 $\text{Iocp} = 5\text{A}$
 $\text{Ceq} = L / \text{Rdcr} * ((1/\text{R1}) + (1/\text{R2})) = 0.22\mu\text{F}$





OCP : 7.8A

FDS6690AS $R_{ds(on)} = 12\text{--}15\text{m}\Omega$
 +5VPCU OCP:7.8A 400K

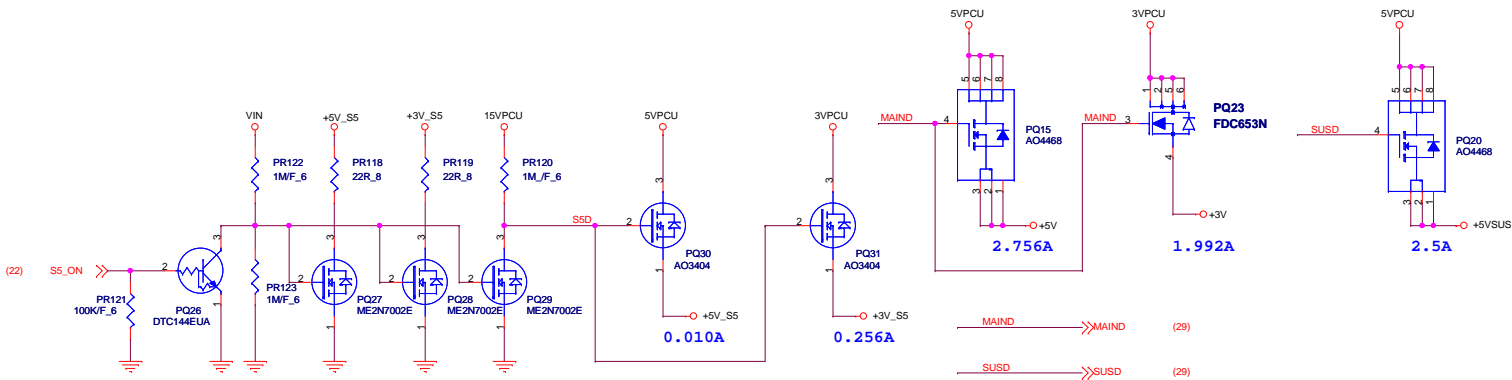
Delta I (ripple current)
 $= (19-5) \cdot 5 / (5.2 \cdot 400 \cdot 19)$
 $= 1.77\text{A}$

$I_{ocp} = 7.8 - (1.77/2) = 6.9\text{A}$
 $V_{th} = 6.9\text{A} \cdot 15\text{m}\Omega = 103.5\text{mV}$
 $R(I_{lim}) = (103.5\text{mV} \cdot 10) / 5\text{uA} = 207\text{K}$

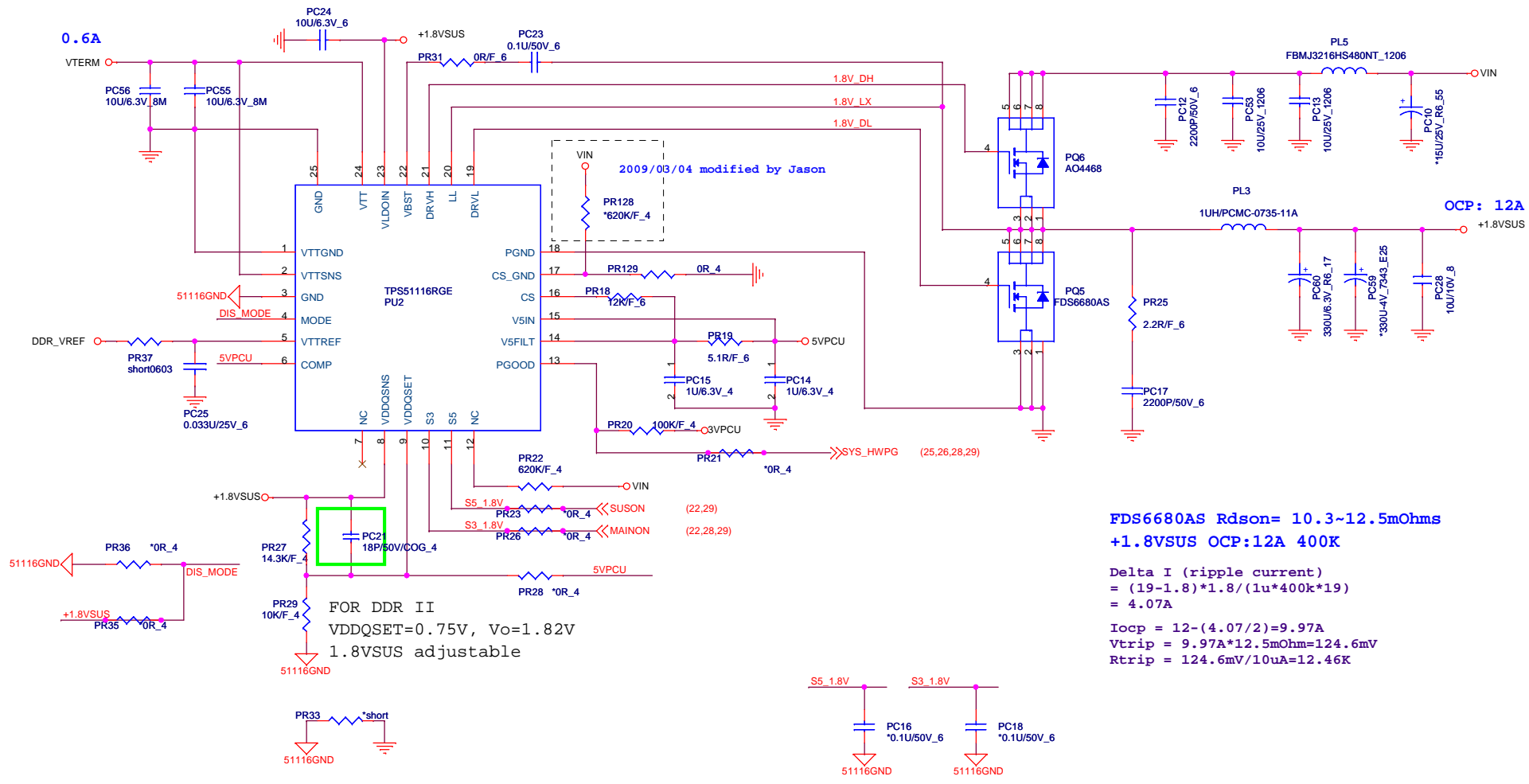
FDS6690AS $R_{ds(on)} = 12\text{--}15\text{m}\Omega$
 +3VPCU OCP:4.8A 500K

Delta I (ripple current)
 $= (19-3.3) \cdot 3.3 / (5.2 \cdot 500 \cdot 19)$
 $= 1.04\text{A}$

$I_{ocp} = 4.8 - (1.04/2) = 4.28\text{A}$
 $V_{th} = 4.28\text{A} \cdot 15\text{m}\Omega = 64.2\text{mV}$
 $R(I_{lim}) = (64.2\text{mV} \cdot 10) / 5\text{uA} = 128\text{K}$



MAIND → MAIND (29)
 SUSD → SUSD (29)




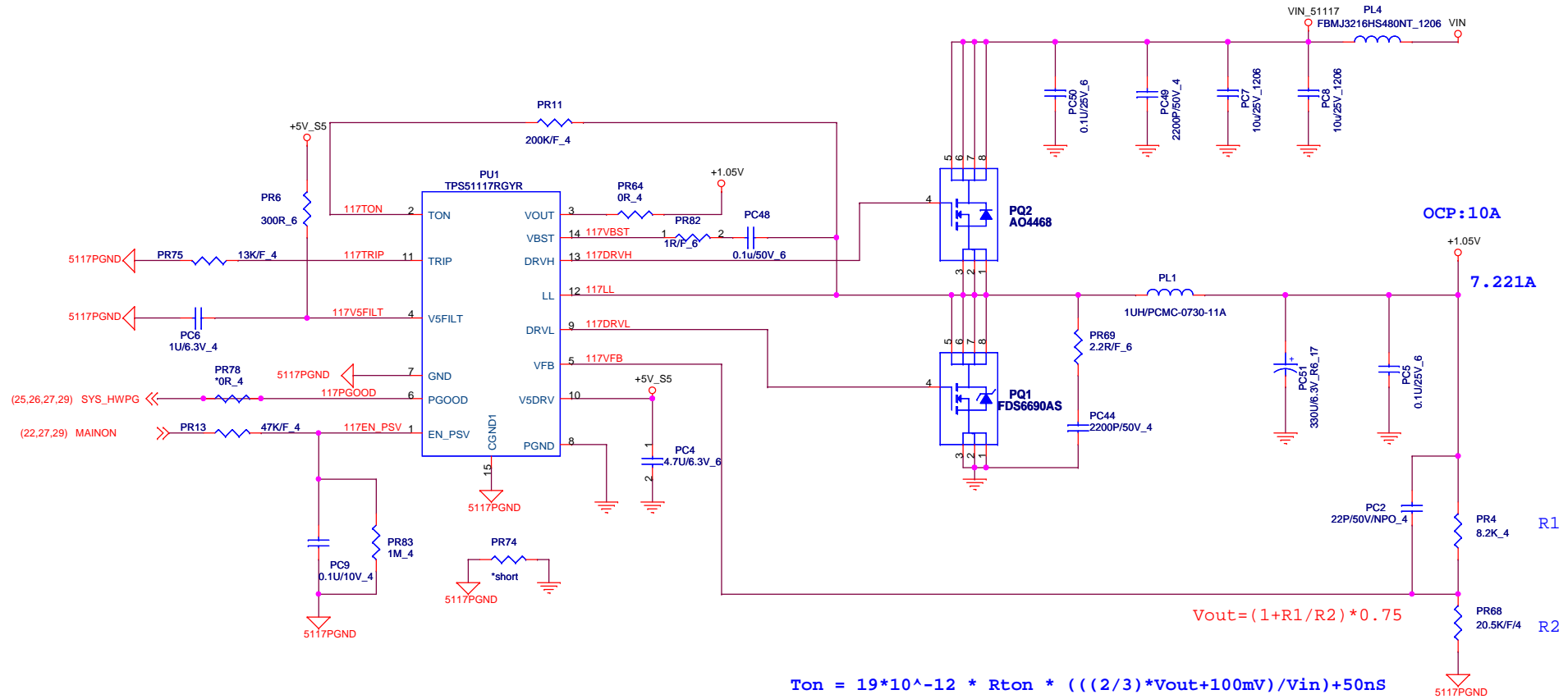
FDS6680AS $R_{dson} = 10.3 \sim 12.5 \text{m}\Omega$
 +1.8VSUS OCP:12A 400K

Delta I (ripple current)
 $= (19-1.8) \cdot 1.8 / (1\mu \cdot 400k \cdot 19)$
 $= 4.07A$

$I_{ocp} = 12 - (4.07/2) = 9.97A$
 $V_{trip} = 9.97A \cdot 12.5\text{m}\Omega = 124.6\text{mV}$
 $R_{trip} = 124.6\text{mV} / 10\mu A = 12.46K$

FOR DDR II
 $VDDQSET = 0.75V$, $V_o = 1.82V$
 1.8VSUS adjustable

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$$T_{on} = 19 * 10^{-12} * R_{ton} * (((2/3) * V_{out} + 100mV) / V_{in}) + 50ns$$

$$= 210ns$$


$$f = (1/T_{on}) * (V_{out} / V_{in})$$

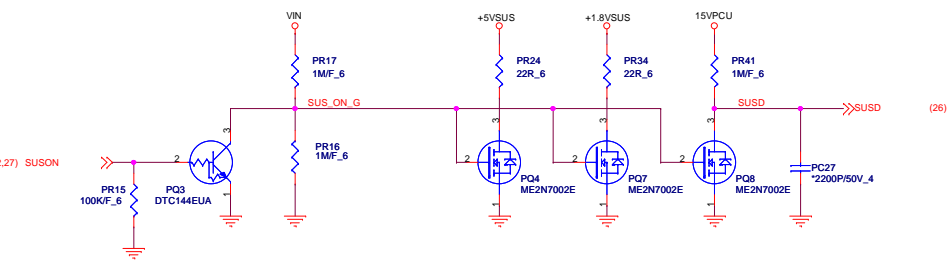
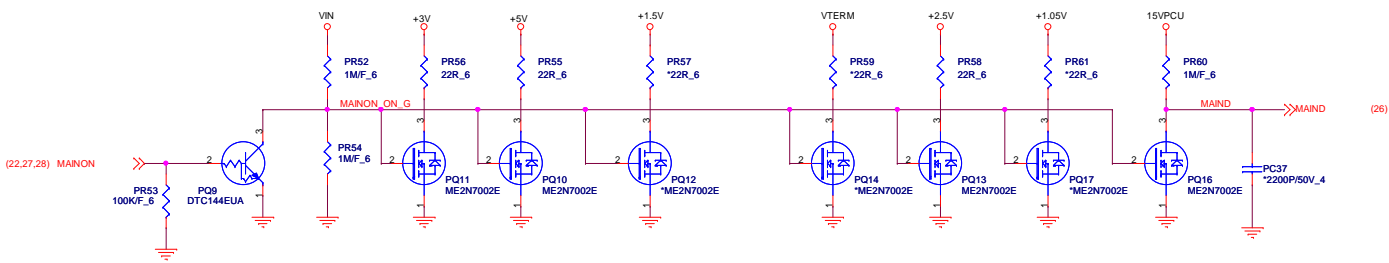
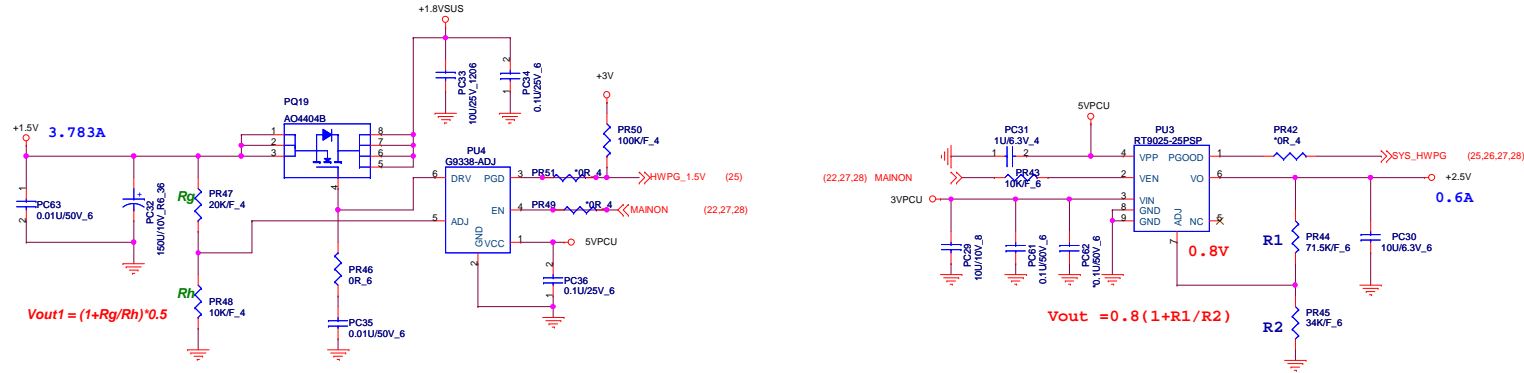
$$\approx 263Hz$$

FDS6690AS $R_{dson} = 12 \sim 15m\Omega$
 +1.05V OCP:10A 263K

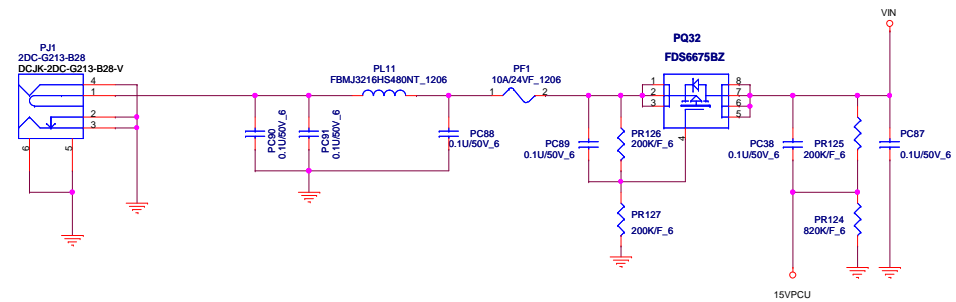
Delta I (ripple current)
 $= (19 - 1.05) * 1.05 / (1u * 263k * 19)$
 $= 3.77A$

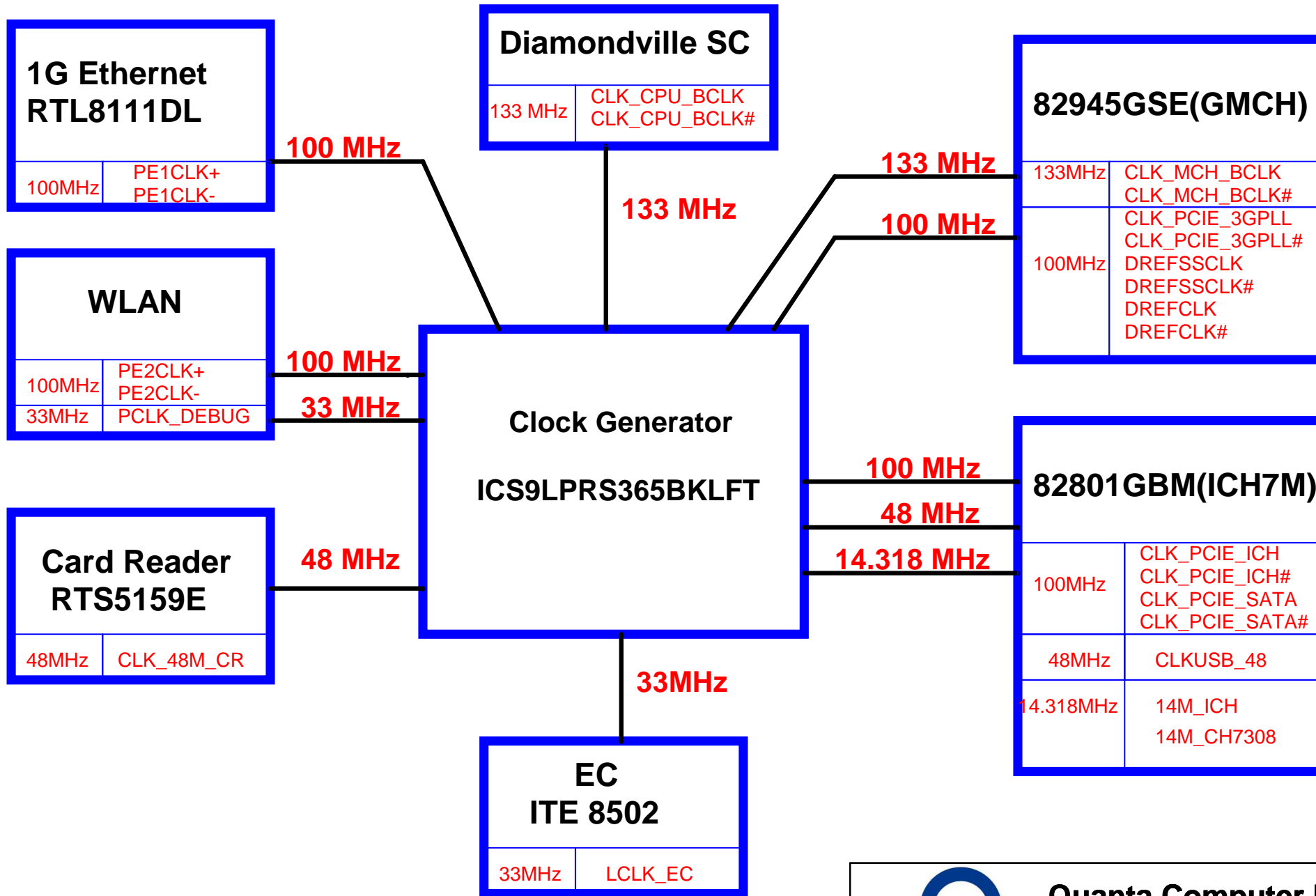
$I_{ocp} = 10 - (3.77/2) = 8.16A$
 $V_{trip} = 8.16A * 15m\Omega = 122.4mV$
 $R_{trip} = 122.4mV / 10uA = 12.24K$


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			VCCP 1.05V(TPSS5117)	1A
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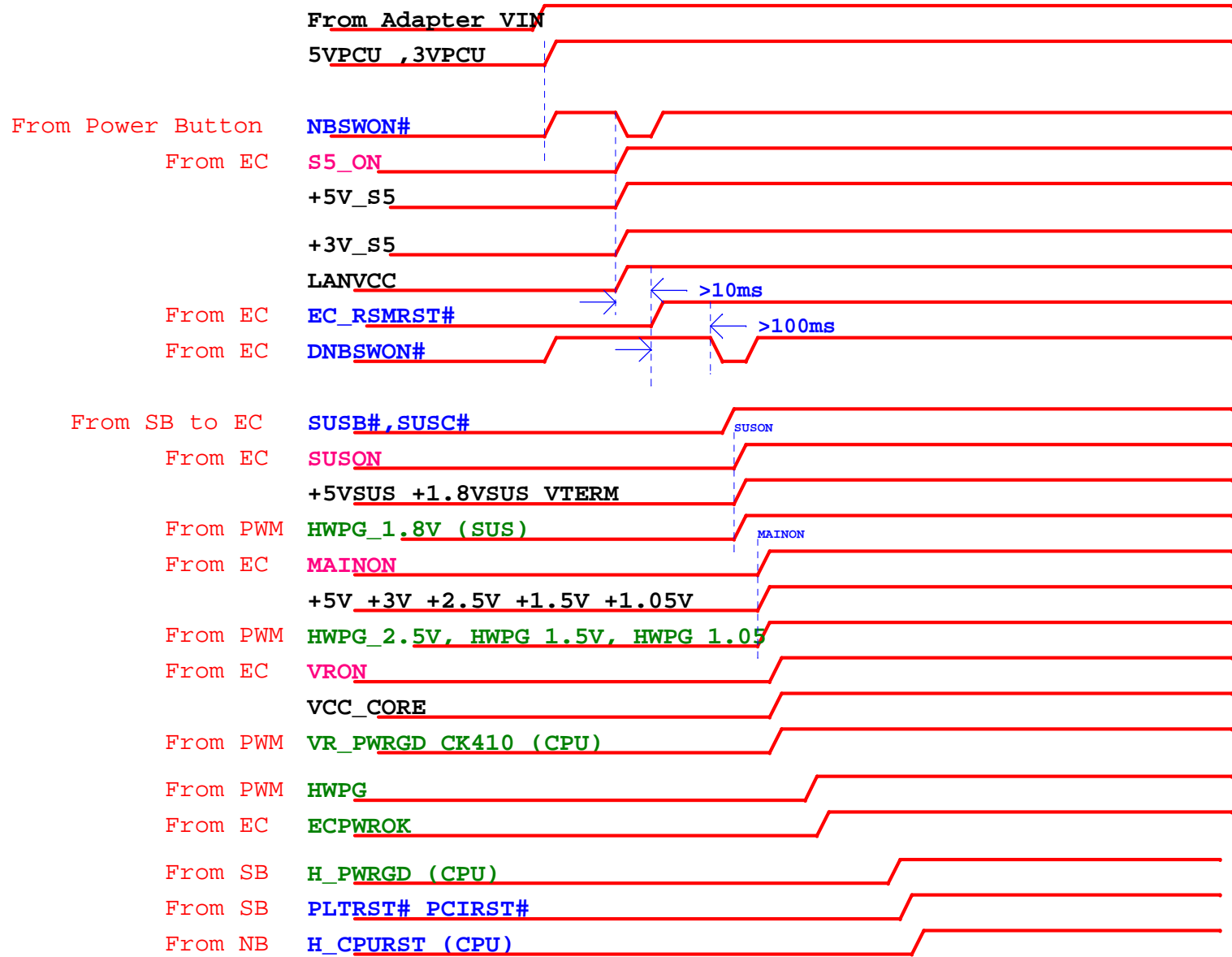
DC IN JACK




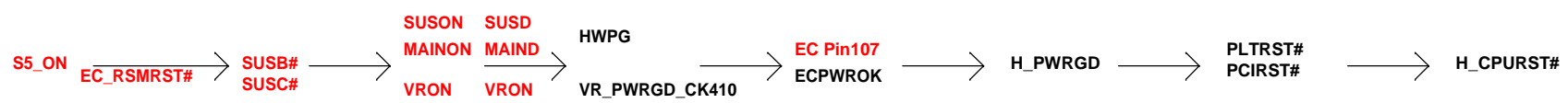
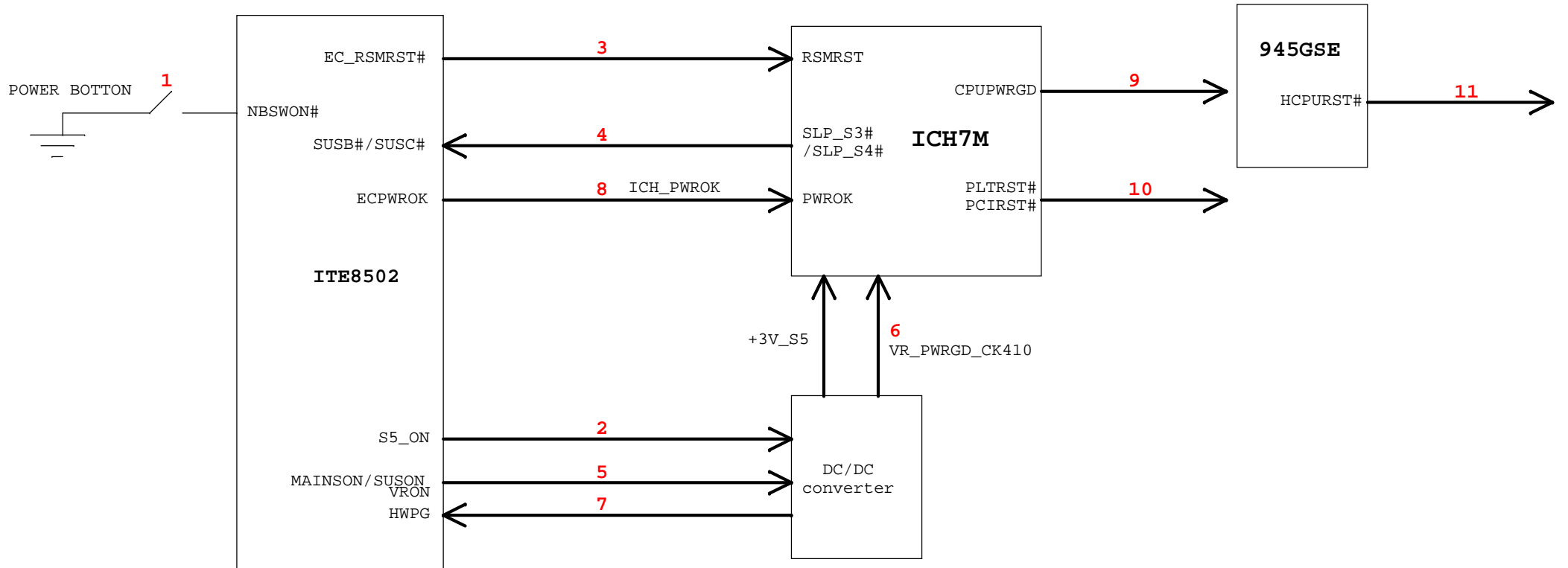


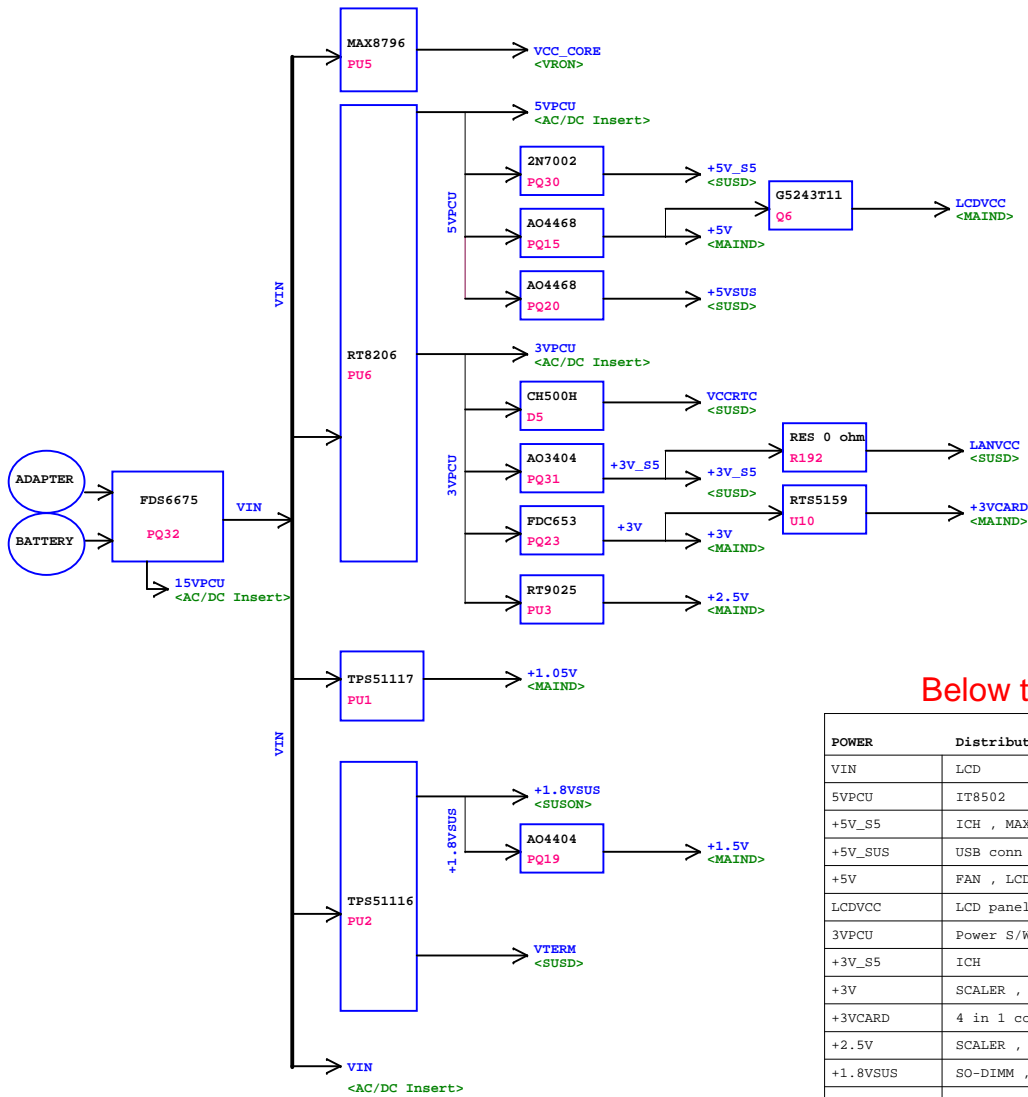
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		1A
Size	Document Number	
Clock Block Diagram		
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Power On Sequence



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Below table need be modify (waiting other schematic ready)

POWER	Distribution
VIN	LCD
5VPCU	IT8502
+5V_S5	ICH , MAX8796 , TPS51117
+5V_SUS	USB conn , PS/2 mouse K/B conn , CAMERA
+5V	FAN , LCD , SATA HDD , SATA ODD , ALC269 , ICH
LCDVCC	LCD panel
3VPCU	Power S/W , IT8502 , ICH
+3V_S5	ICH
+3V	SCALER , ALC269 , IT8502 , CLK gen , MCH , ICH , SO-DIMM , EDID EEPROM , SATA HDD , SSD , WLAN , Power S/W , G781 , RTL8111 , RTS5159
+3VCARD	4 in 1 conn
+2.5V	SCALER , MCH
+1.8VSUS	SO-DIMM , MCH , TPS51116
VTERM	SO-DIMM
+1.5V	CPU , MCH , ICH , WLAN
+1.05V	CLK gen , CPU , MCH , ICH
VCC_CORE	CPU
LANVCC	RTL8111

DATE	Modify Description List	Note
<p>2009 0302 VER:B</p>	<p>1.PAG23 SPK Change ACN1 :the same as CN1 or CN2 (53398-0410-4P-L) 2.PAG18 SW Change CN6:the same as CN4 (87212-1000L-10P-R) 3.PAG20&PG18 Remove SSD module ,H6 and H11 4.PAG12 Signal MID2 change form GPIO35 to GPIO14 5.Change caps or resistors footprints with "-C" to non "-C" 6.PAG16 Chage C274,C281 and C284 to CC3528</p>	
<p>2009 0303 VER:B</p>	<p>1.PAG16 delete R129,R132,R181,R185 of USB 2.PAG25 Short 0 Ohm resistor:PR84,PR88,PR89,PR91,PR92,PR93,PR94,PR85,PR79,PR73,PR5,PR81,PR90 3.PAG26 Short 0 Ohm resistor:PR104,PR111,PR112 4.PAG29 Short 0 Ohm resistor:PR49,PR51 5.PAG22 Modify EC Pin3 to VCCRTC 6.PAG29 Solve +1.5 discharge circuit short problem 7.PAG23 Modify AL6,AL7,AL8,AL9,AC31,AC32,AC33,AC34 8.PAG12 Change GPIO6 to BIOS_WP#,delete R164,R165 9.PAG22 ADD BIOS PROTECT Circuit</p>	
<p>2009 0305 VER:B</p>	<p>1.PAG18 Change L29,L30,L31,L32,L33,L34 to BLM18PG181SN1D_6(The same as L10) 2.PAG27 Add PR129</p>	
<p>2009 0413 VER:C</p>	<p>1.PAG16 Chage C237,C181 to CC3528 2.PAG20 Chage CN5 footprint to 85205-1200-12p-r (DFWF12MS049) 3.PAG14 Add D35 U2 pin connector to EC U14_124 LCD_ON 4.PAG17 Add D33,D34 GPIO34 LAN_ON_SB and LAN_ON_EC U12 pin28 5.PAG21 Add D36,R70 6.PAG22 Add U20,C437</p>	