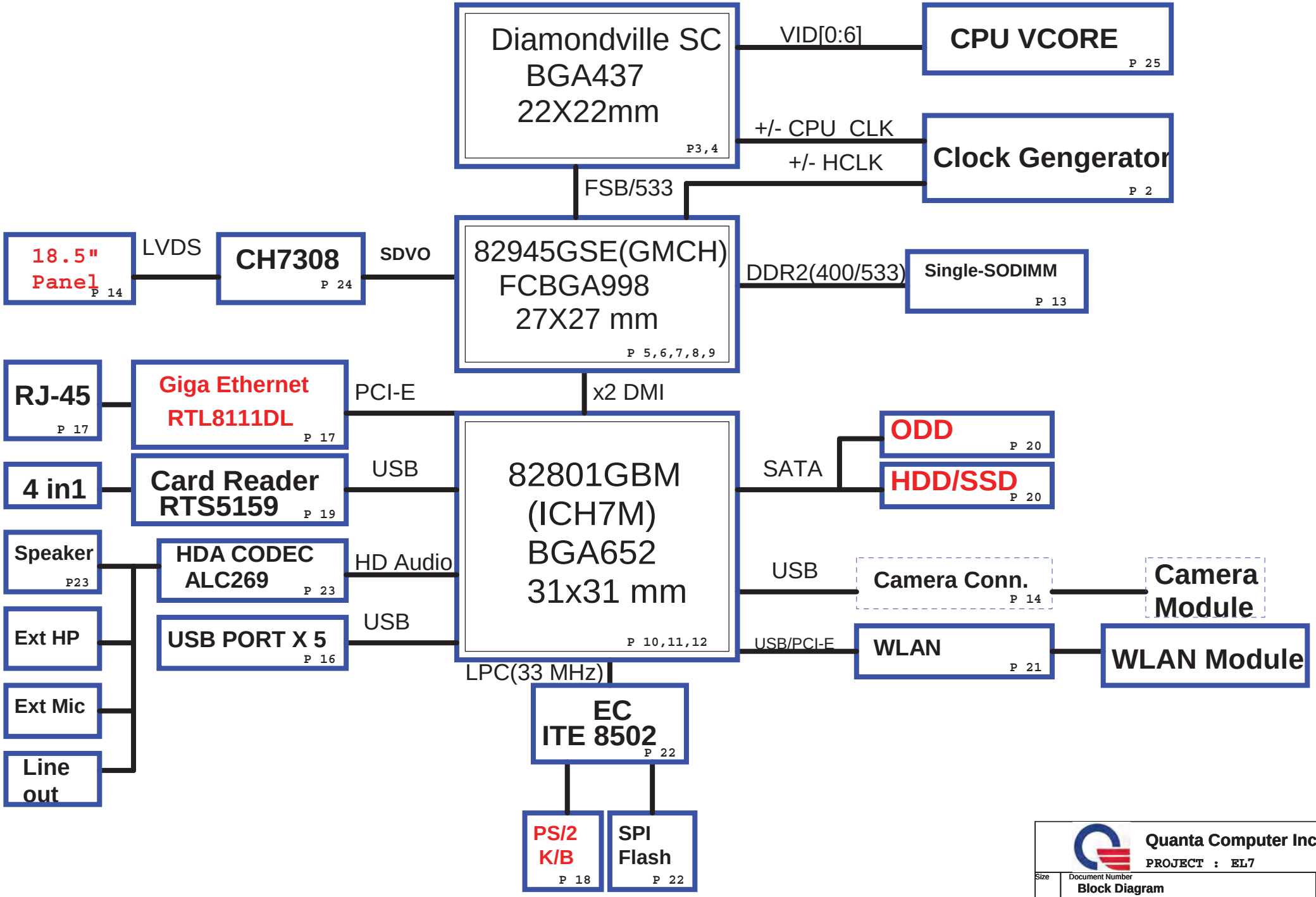
Clapton (EL7) AIO Block Diagram



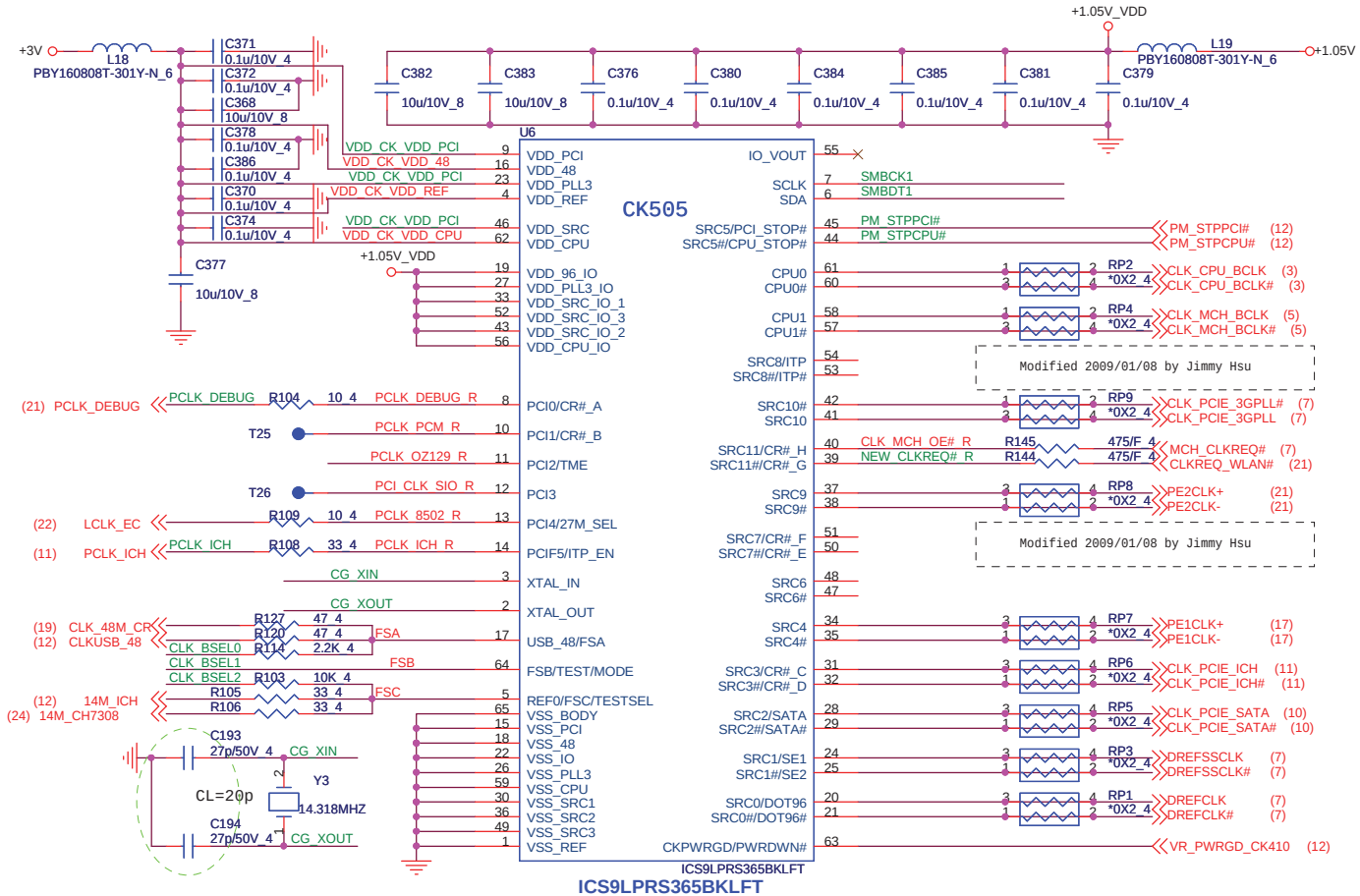
Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	Block Diagram	1A

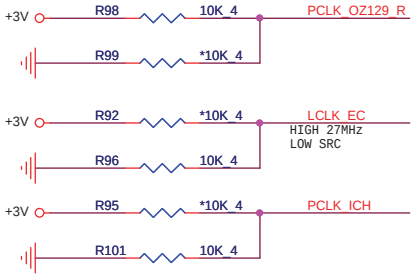
Date: Friday, April 24, 2009 Sheet 1 of 34

Clock Generator

02

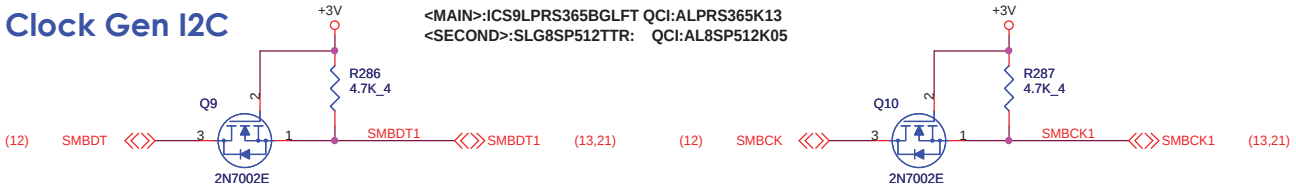


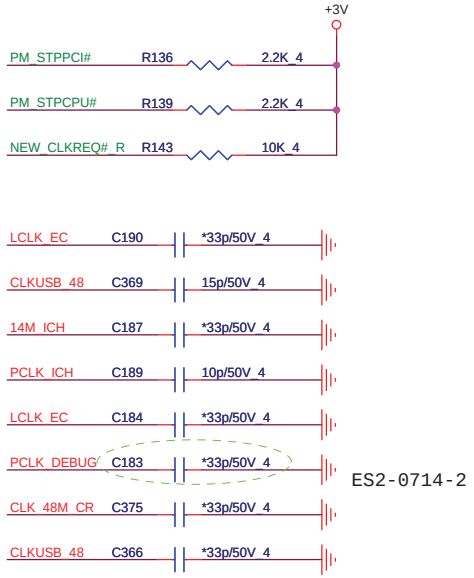
	ICS9LPRS365 (ALPRS365K13)	RTM875T-606 (AL000875K06)	PULL HIGH	PULL DOWN
Pin 11	PCI2/TME	PCI2/TME internal PD	NO OVERCLOCKING (default)	NORMAL RUN
Pin 13	PCI-4/27M_SEL	PCI-4/27M_SEL internal PD	PIN 24/25 IS 27MHz	PIN 20/21 IS SRC/DOT (default)
Pin 14	PCIF-5/ITP_EN	PCIF-5/ITP_EN internal PD	PIN 53/54 IS CPUITP	PIN 53/54 IS SRC8 (default)



Clock Gen I2C

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



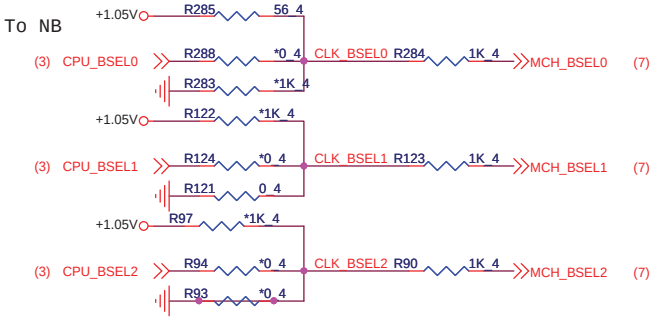


To SB
To CPU
To NB
To 3G
To NB
ES2-0714-2
To WLAN
CLK To 3G
To LAN
To SB
To SB
To NB
To NB

SEL2 SEL1 SEL0 **Frequence select**

FSC	FSB	FSA	CPU	SRC	PCI	
1	0	1	100	100	33	
0	0	1	133	100	33	Default
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			

To NB



Quanta Computer Inc.

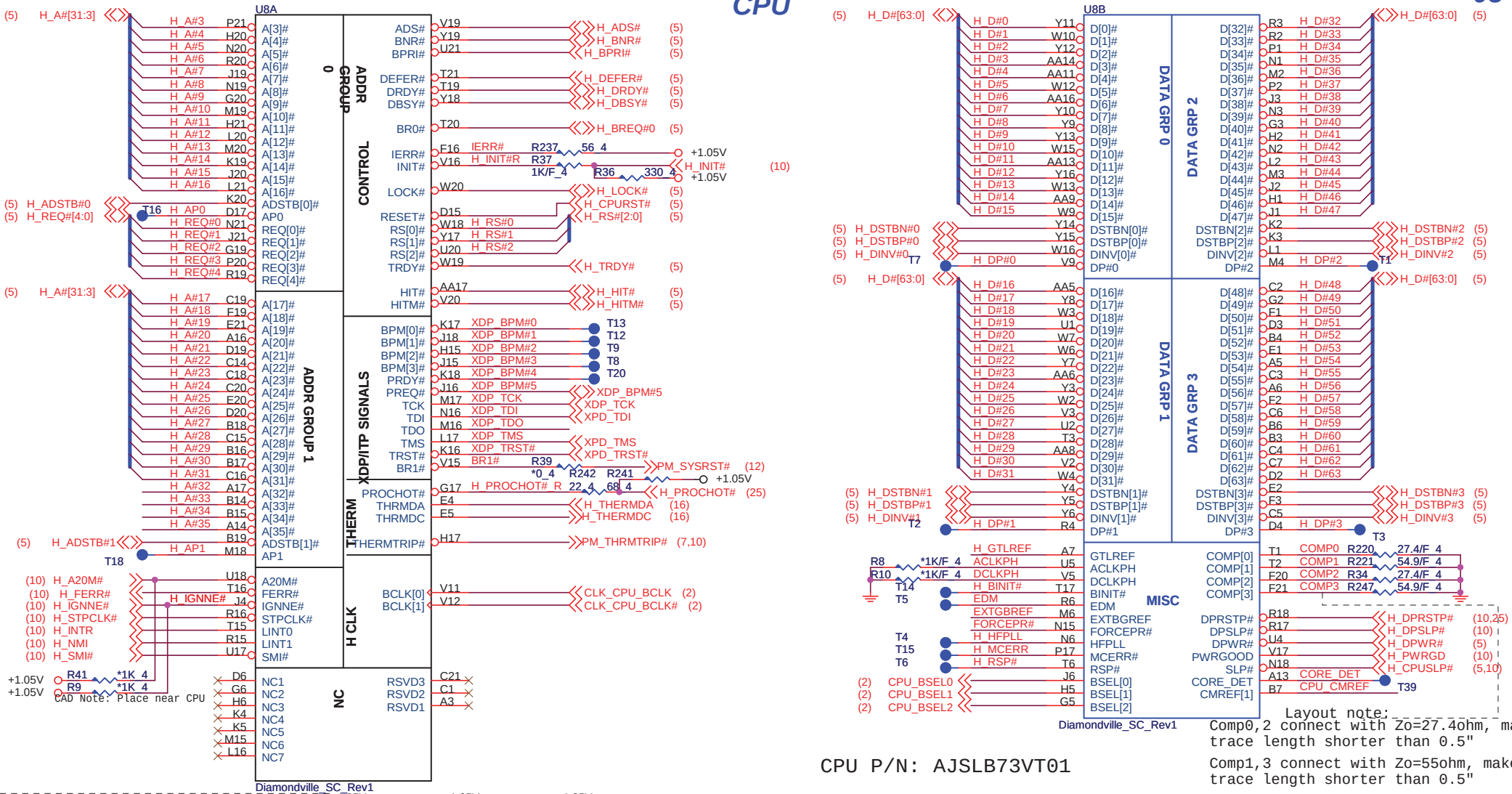
PROJECT : EL7

Size	Document Number	Rev
	CLOCK GENERATOR	1A

Date: Friday, April 24, 2009 Sheet 2 of 34

CPU

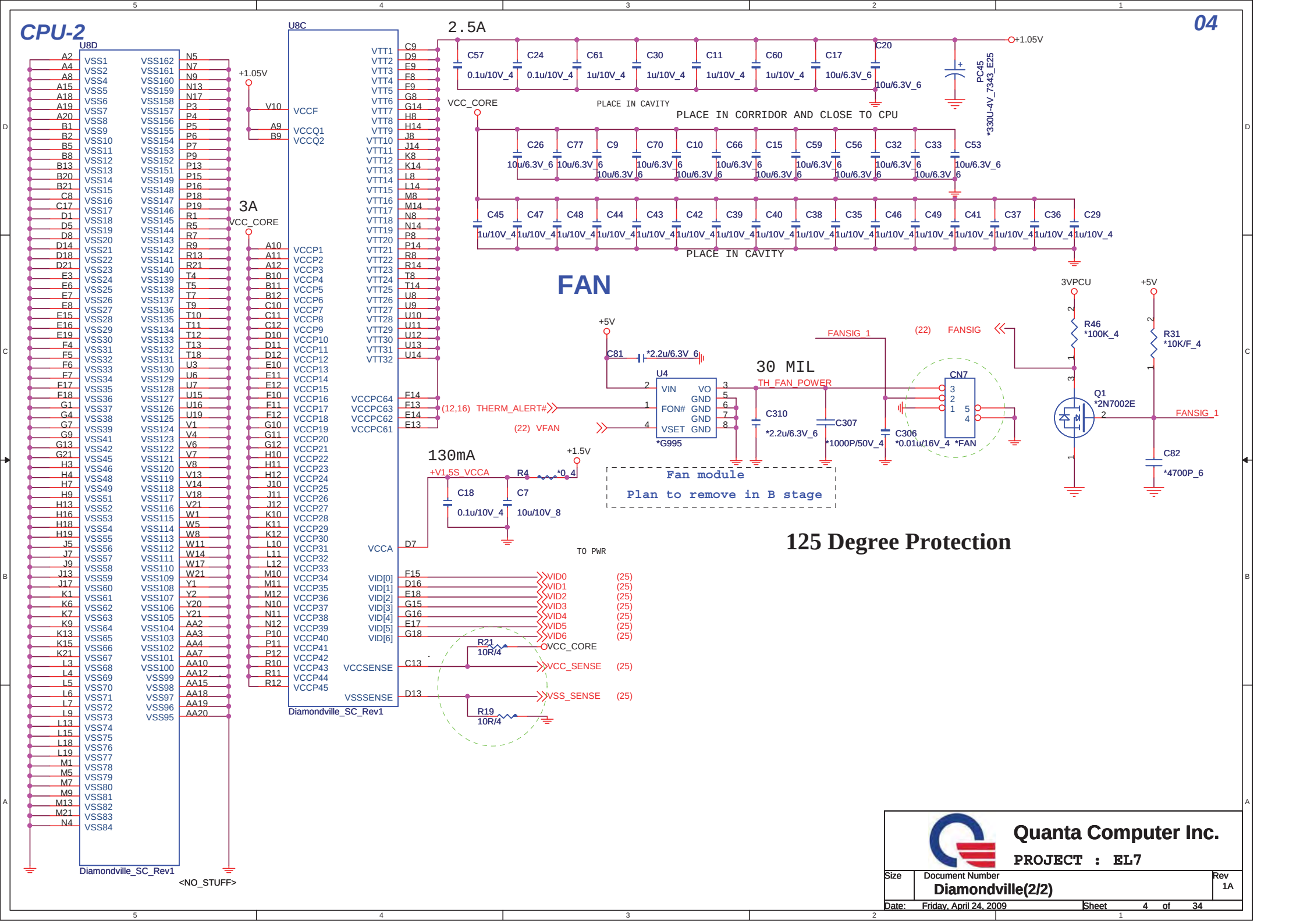
03

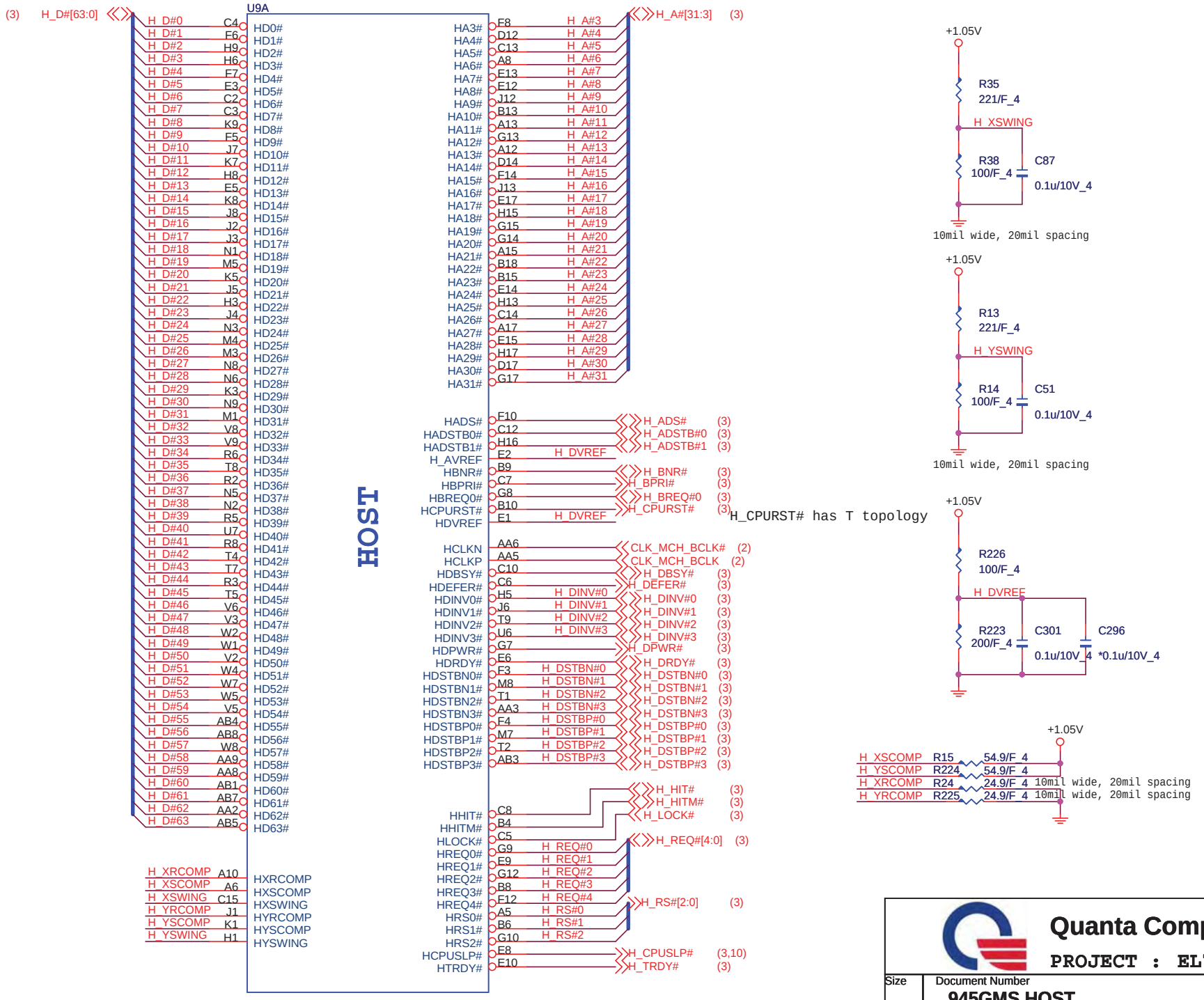


Quanta Computer Inc.

PROJECT : EL7

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


CPU-2
04
U8D
U8C
2.5A
3A
VCC_CORE
+1.05V
PLACE IN CORRIDOR AND CLOSE TO CPU
PLACE IN CAVITY
FAN
+5V
3VPCU
FANSIG_1
(22) FANSIG
30 MIL
TH_FAN_POWER
Fan module
Plan to remove in B stage
130mA
+1.5V
+V1.5S_VCCA
(12,16) THERM_ALERT#
(22) VFAN
TO PWR
125 Degree Protection
Diamondville_SC_Rev1
<NO_STUFF>
Quanta Computer Inc.
PROJECT : EL7
Diamondville(2/2)
Rev 1A
Date: Friday, April 24, 2009
Sheet 4 of 34



Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	945GMS HOST	1A

Date: Friday, April 24, 2009 Sheet 5 of 34

945GMS DDR

06

U9C

DDR2 SYSTEM MEMORY

945GMS

U9H

NCTF

945GMS

+1.05V

+1.5V

+3V

R75 *1K_4

GMS_CFG19

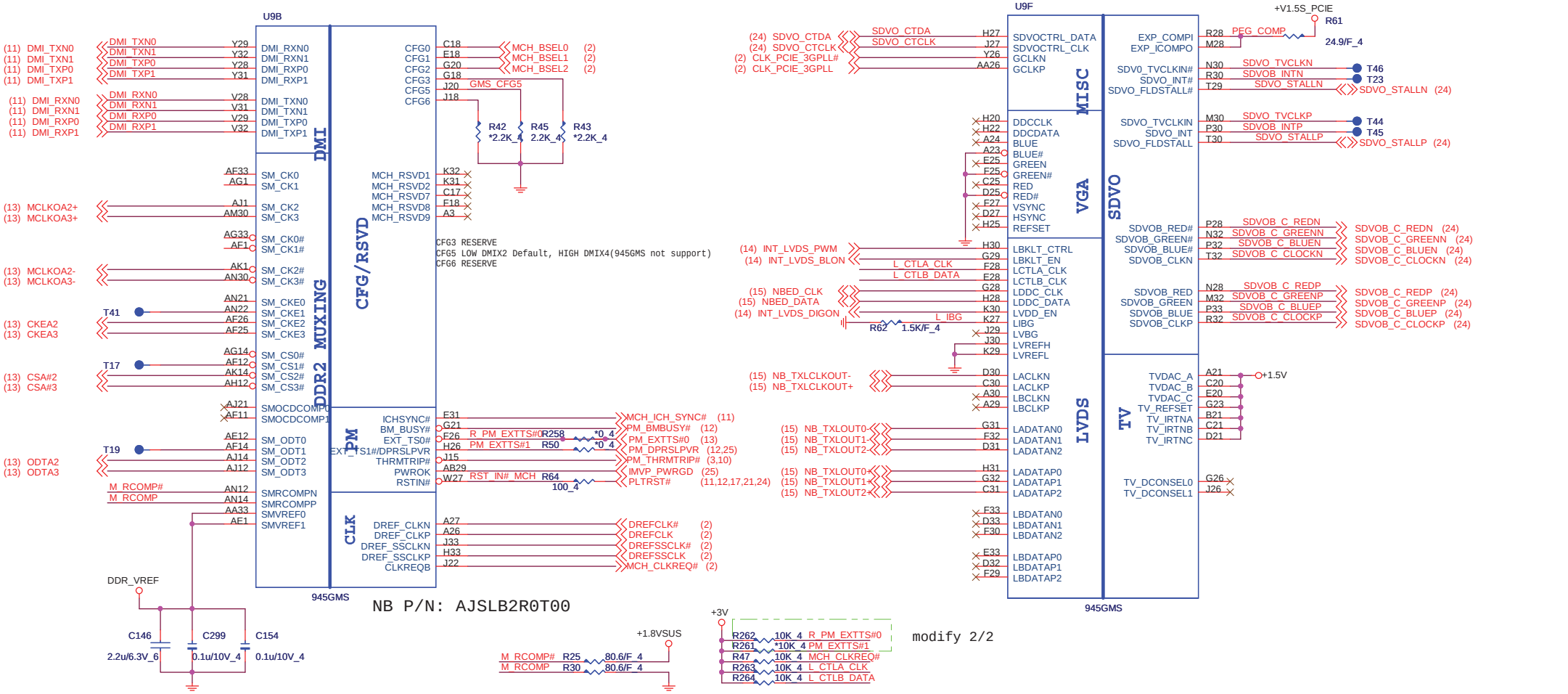
GMS CFG19: LOW=Normal
High=LANES
REVERSED(945GMS not
support)

NB P/N: AJSLB2R0T00

Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: 945GMS DDR	Rev: 1A
Date: Friday, April 24, 2009	Sheet 6 of 34	

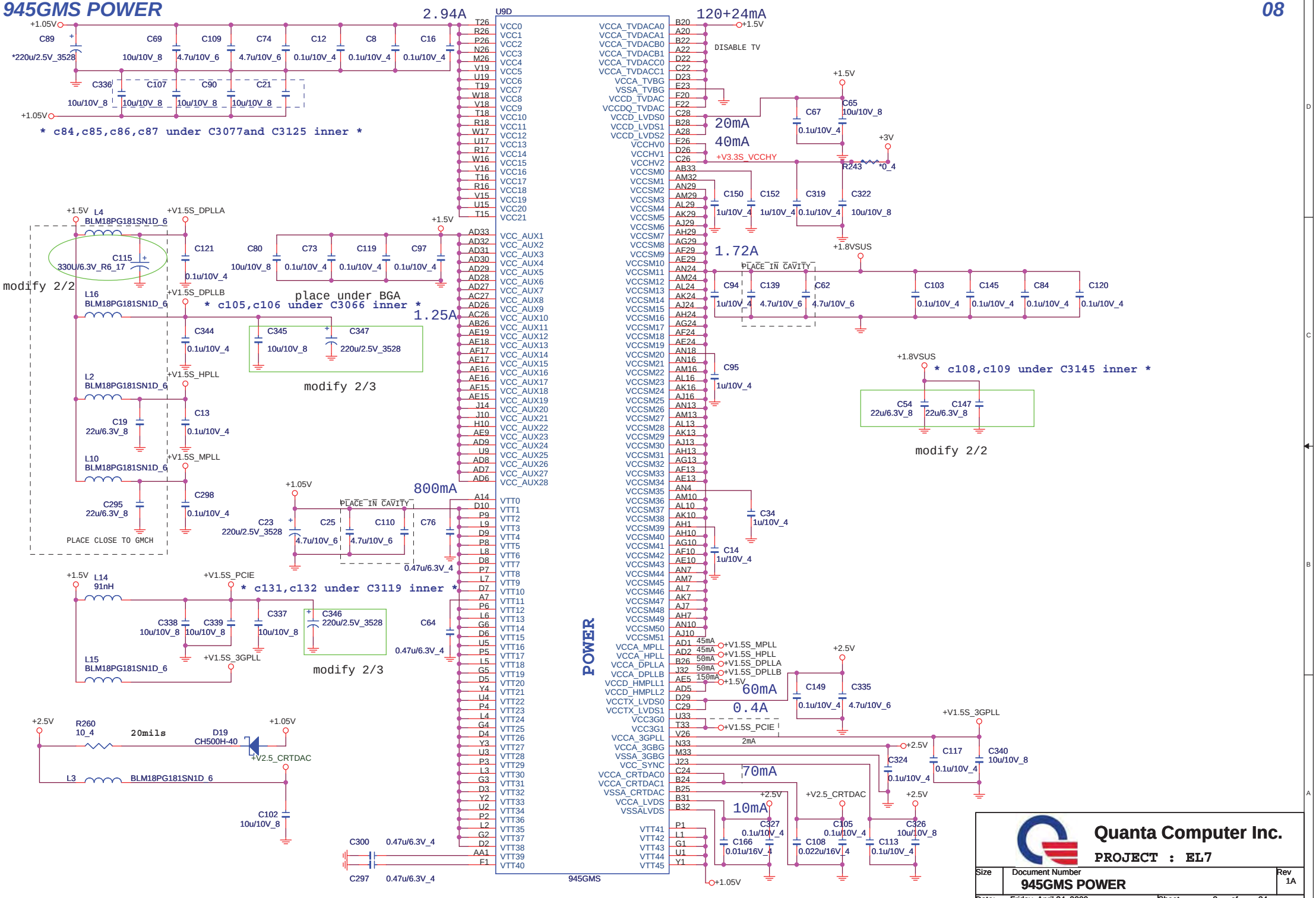
DMI, LVDS, DDR CLK

07



945GMS POWER

08



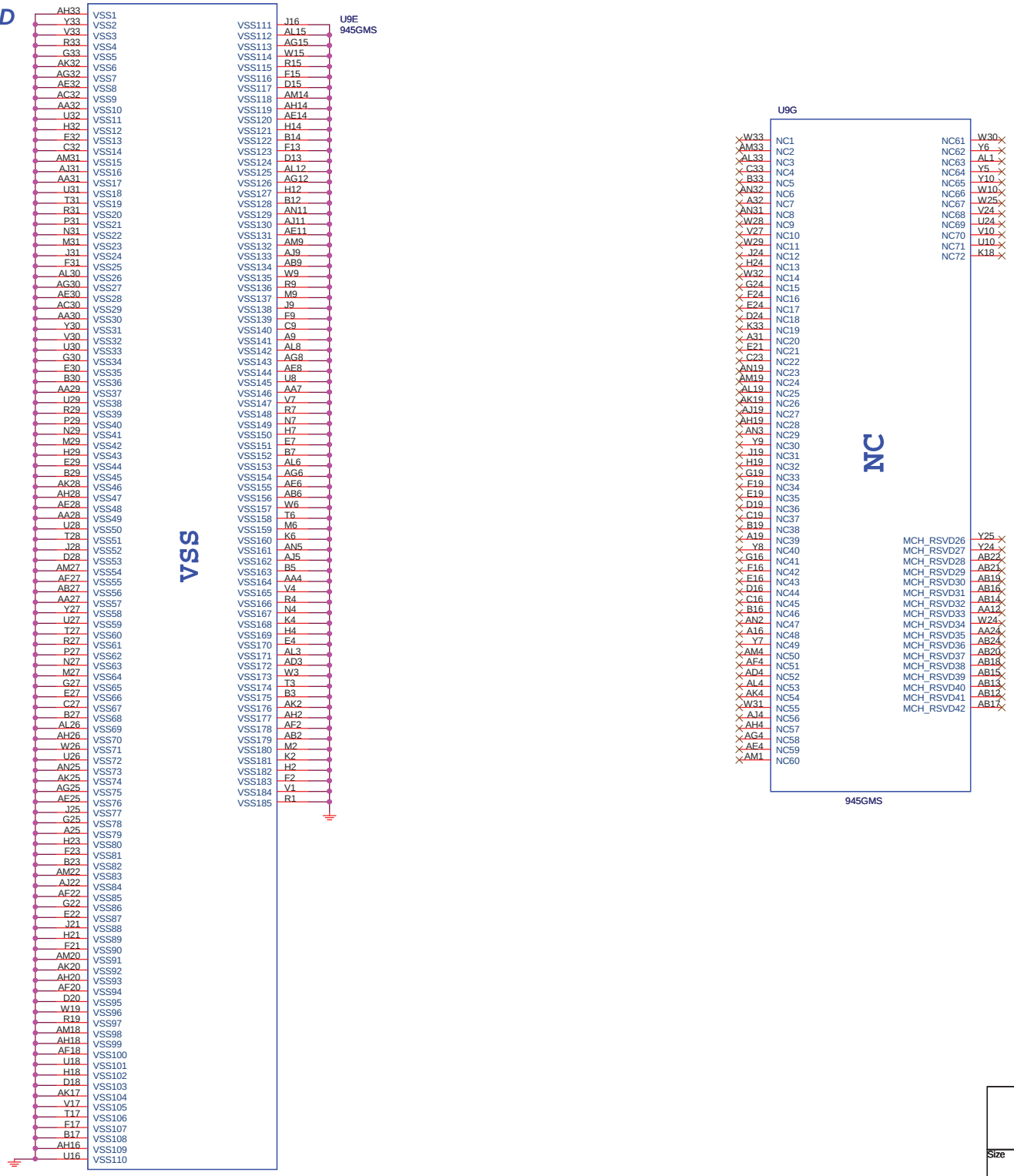
Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	945GMS POWER	1A
Date: Friday, April 24, 2009	Sheet 8 of 34	

945GMS GND

09

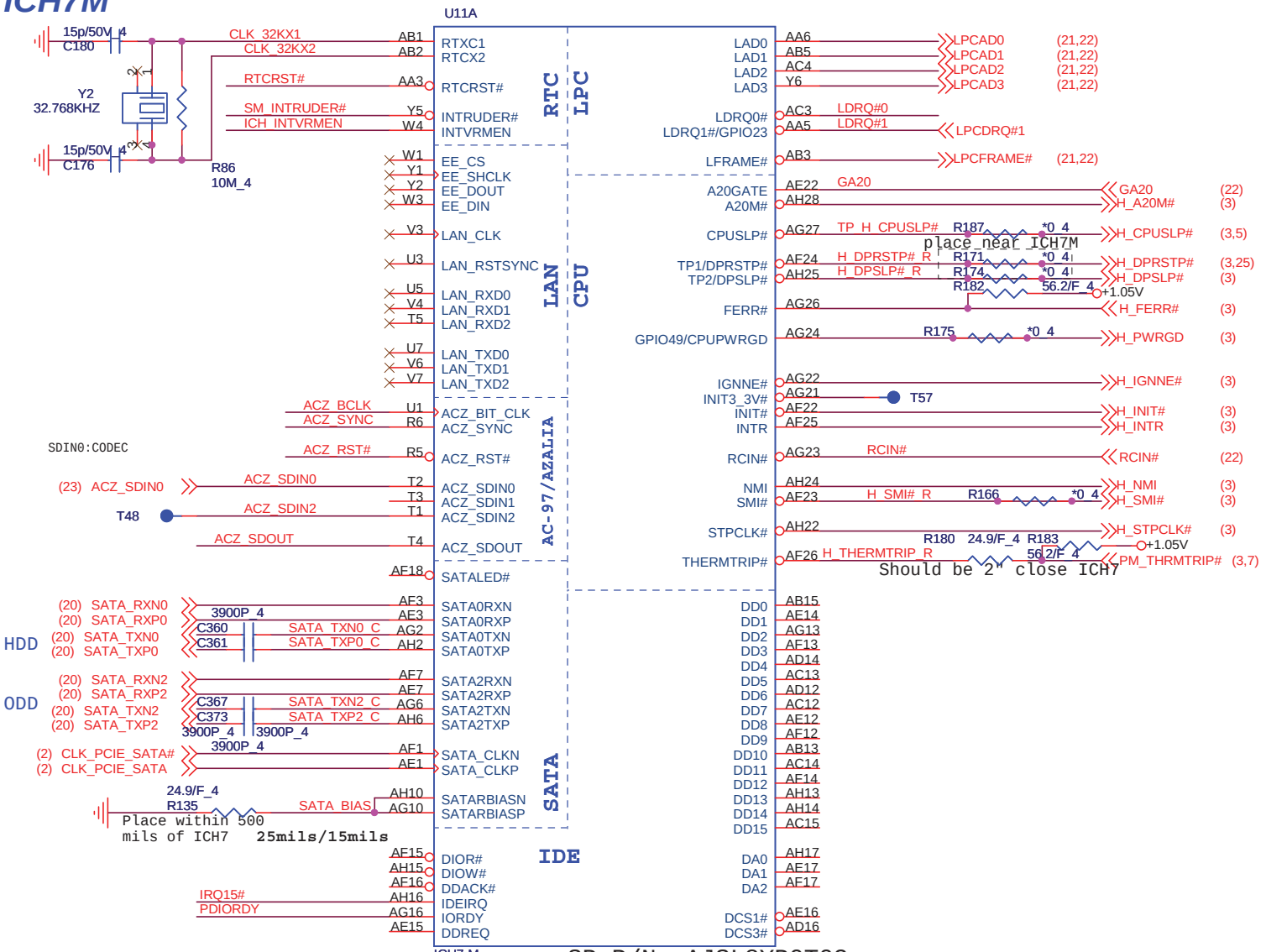


Quanta Computer Inc.

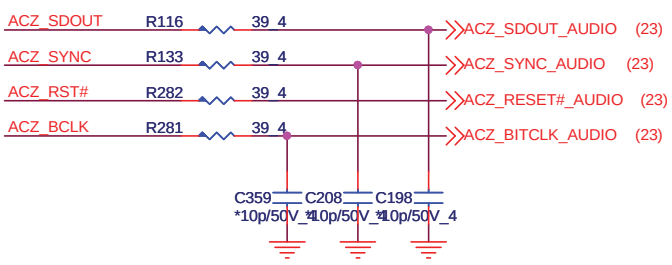
PROJECT : EL7

Size	Document Number	Rev
	945GMS GND	1A
Date: Friday, April 24, 2009	Sheet 9 of 34	

ICH7M

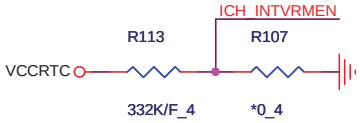


SB P/N: AJSL8YB0T03

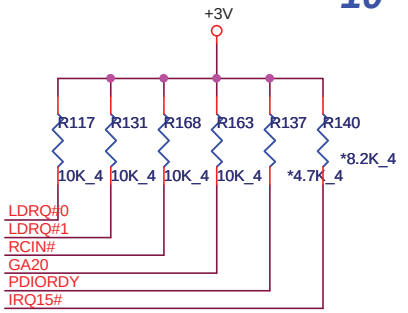


	INTVRMEN
Enable (default)	1
Disable	0

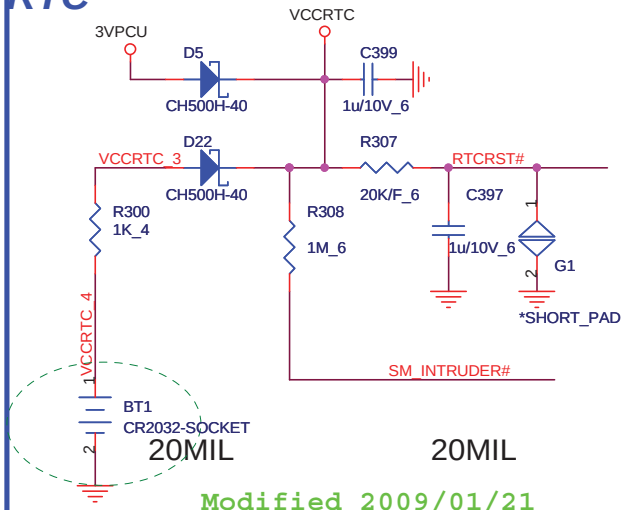
ICH7 internal VR enable strap



Pull-UP 10



RTC



Modified 2009/01/21

RTC Battery P/N: AHL03003002

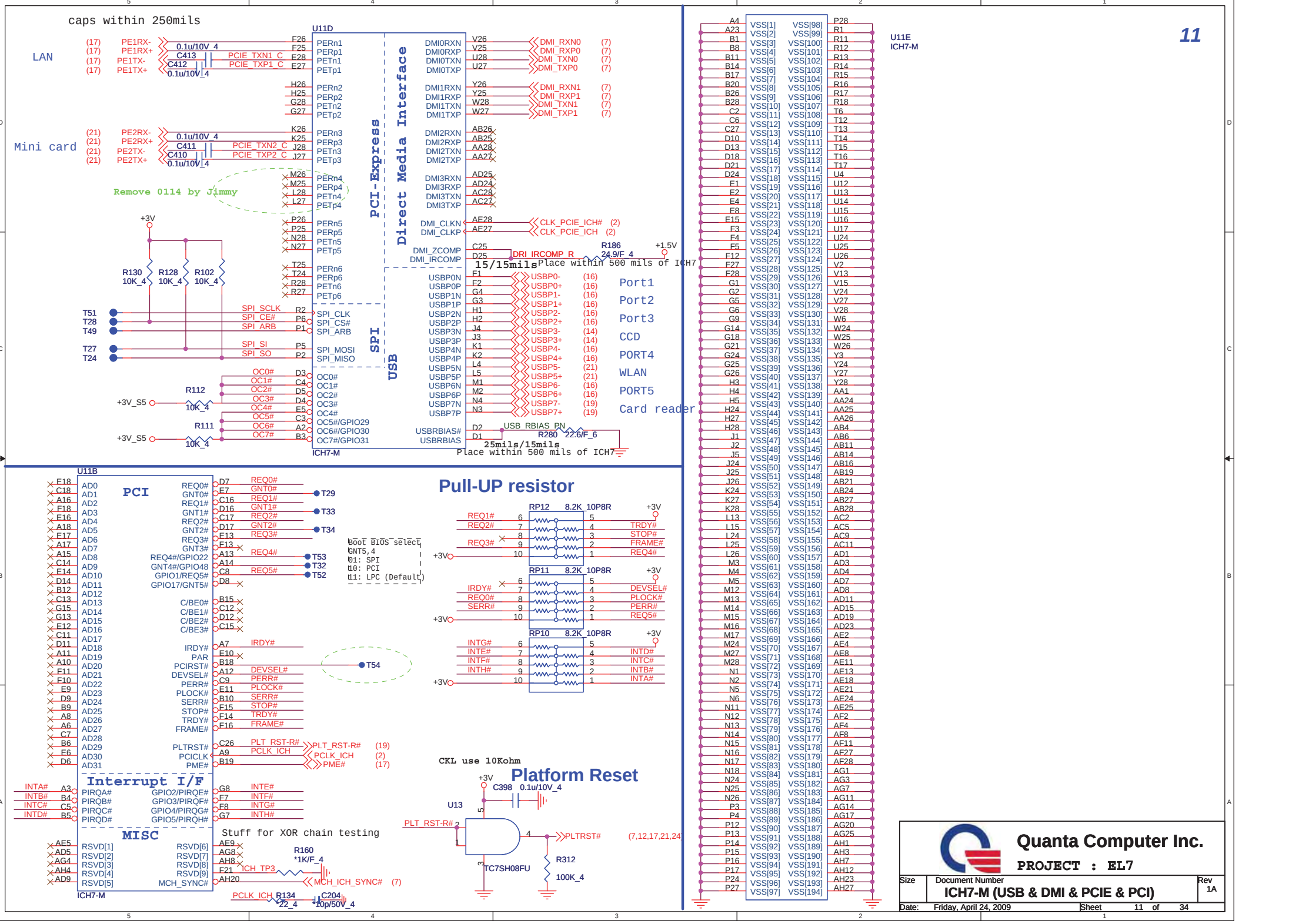
COMPONENTS	P/N
N270	AJSLB73VT01
945GSE	AJSLB2R0T00
ICH7-M	AJSL8YB0T03

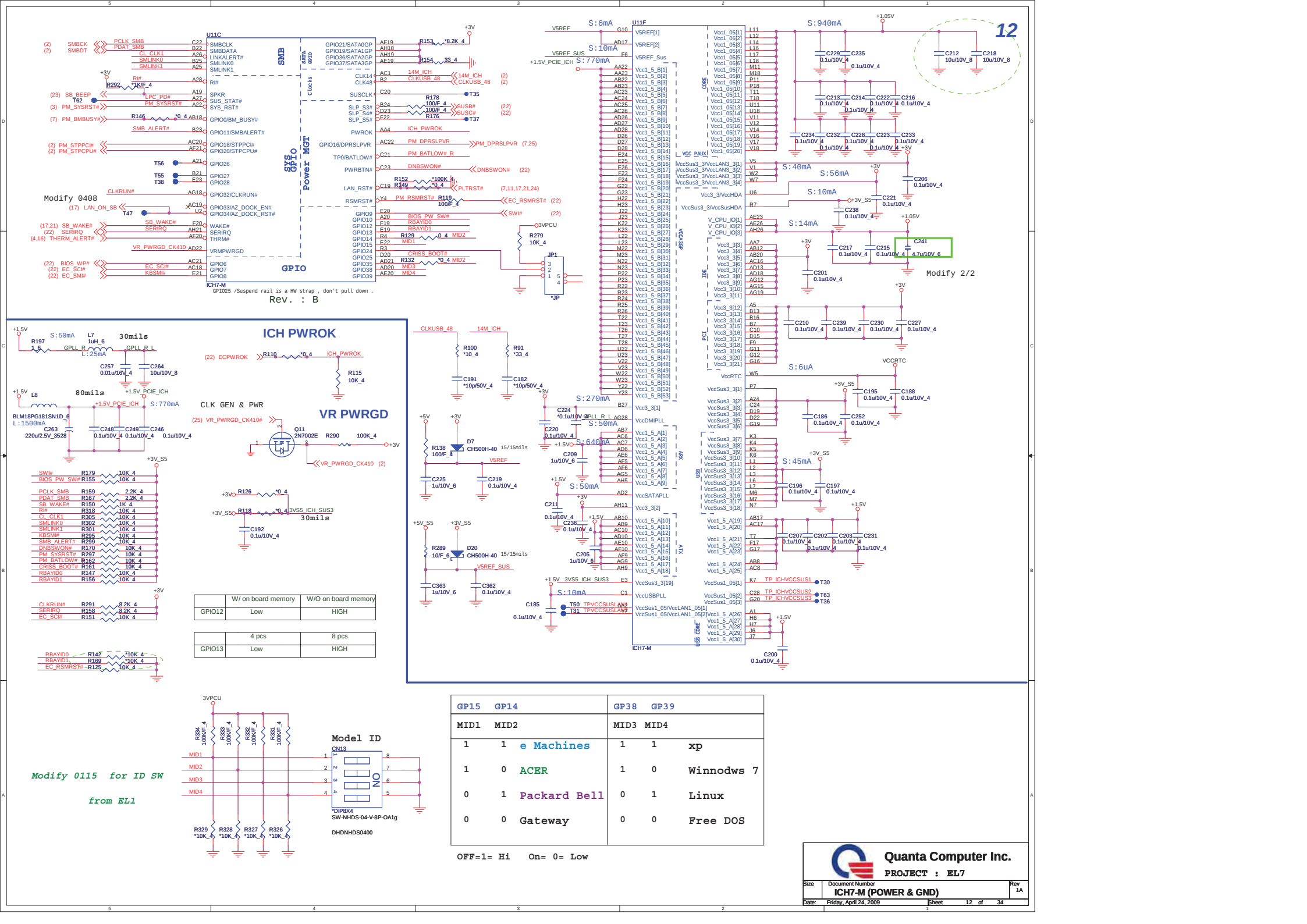
Quanta Computer Inc.

PROJECT : EL7

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

Date: Friday, April 24, 2009 Sheet 10 of 34

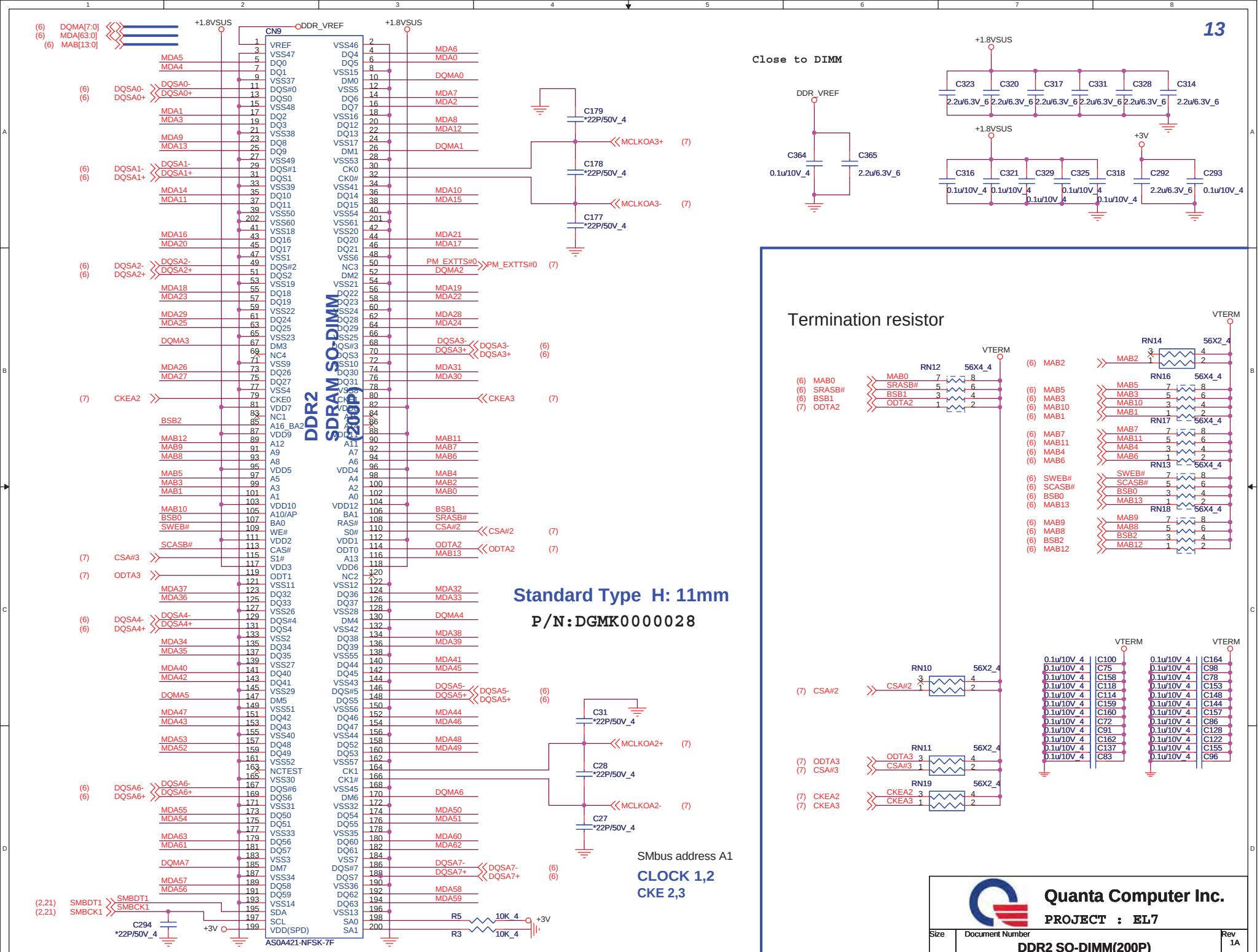

caps within 250mils
U11D
LAN
Mini card
PCI-Express
Direct Media Interface
SPI
USB
Remove 0114 by Jimmy
Place within 500 mils of ICH7
15/15mils
25mils/15mils
Port1
Port2
Port3
CCD
PORT4
WLAN
PORT5
Card reader
ICH7-M
U11B
PCI
Interrupt I/F
MISC
Boot BIOS select
GNT5,4
01: SPI
10: PCI
11: LPC (Default)
Pull-UP resistor
RP12 8.2K_10P8R
RP11 8.2K_10P8R
RP10 8.2K_10P8R
CKL use 10Kohm
Platform Reset
TC7SH08FU
Stuff for XOR chain testing
U11E
ICH7-M
11
Quanta Computer Inc.
PROJECT : EL7
Size
Document Number
ICH7-M (USB & DMI & PCIE & PCI)
Rev
1A
Date: Friday, April 24, 2009
Sheet 11 of 34



	W/ on board memory	W/O on board memory
GPIO12	Low	HIGH

	4 pcs	8 pcs
GPIO13	Low	HIGH

GP15	GP14		GP38	GP39	
MID1	MID2		MID3	MID4	
1	1	e Machines	1	1	xp
1	0	ACER	1	0	Winnodws 7
0	1	Packard Bell	0	1	Linux
0	0	Gateway	0	0	Free DOS


DDR2 SDRAM SO-DIMM 200P
CN9
DDR_VREF
+1.8VSUS
AS0A421-NFSK-7F
Standard Type H: 11mm
P/N:DGMK0000028
SMbus address A1
CLOCK 1,2
CKE 2,3
Close to DIMM
Termination resistor
VTERM
Quanta Computer Inc.
PROJECT : EL7
DDR2 SO-DIMM(200P)
Rev 1A
Date: Friday, April 24, 2009
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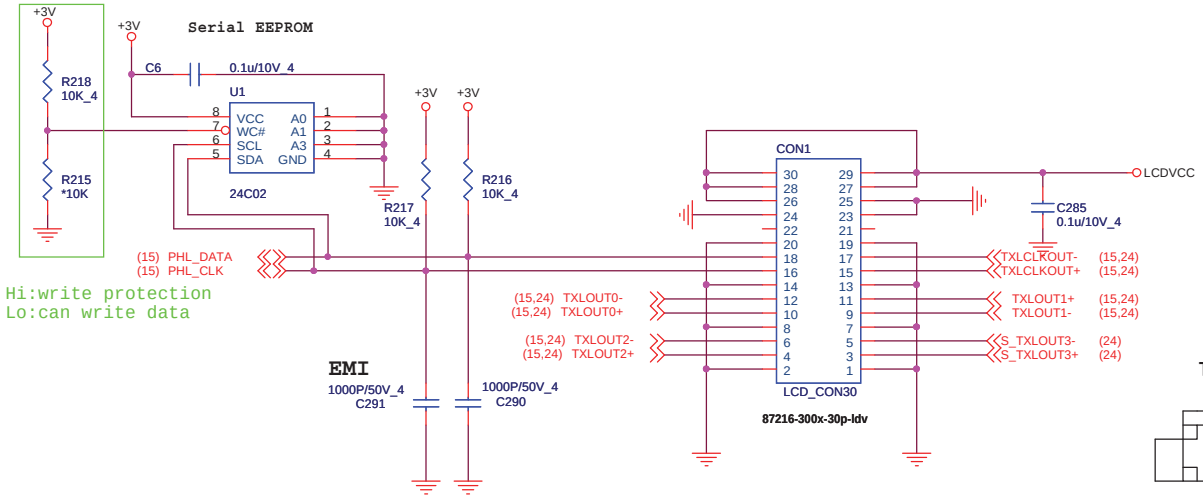
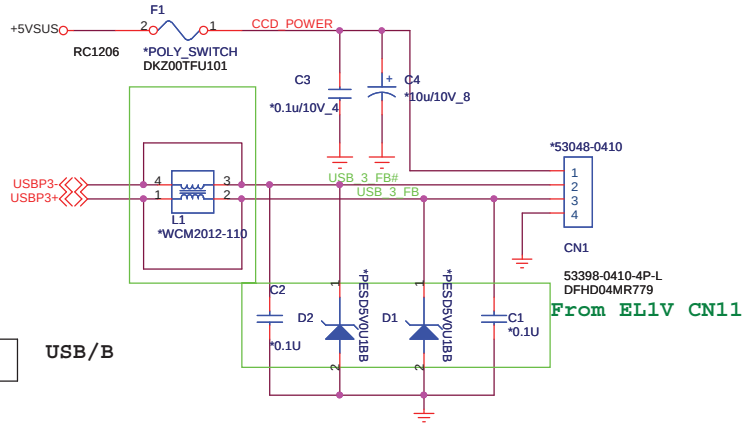
LCD CONNECTOR

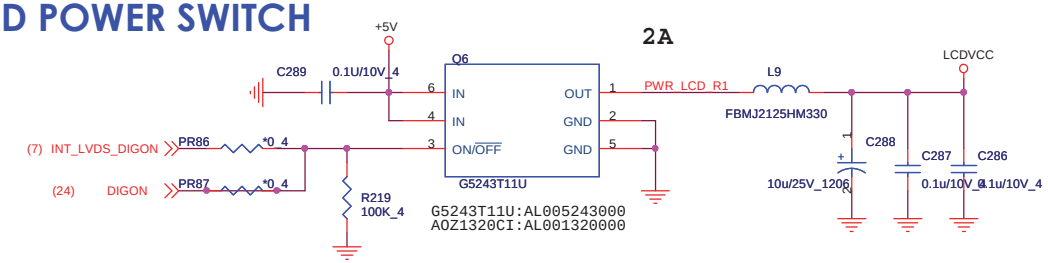
LCD MODULE

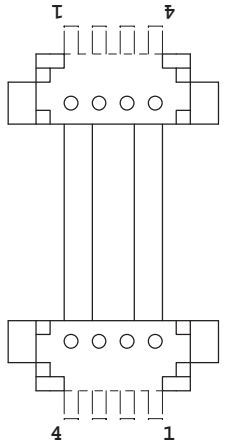


CAMERA POWER

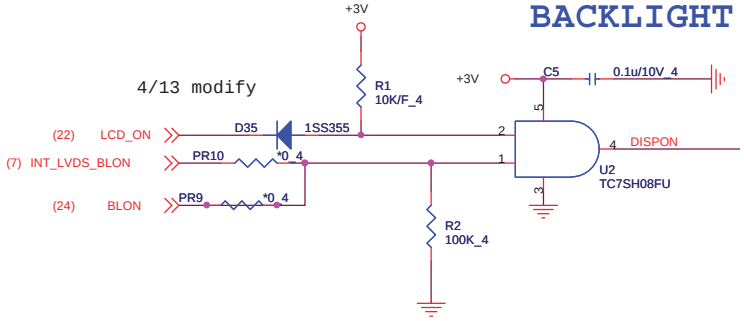


LCD POWER SWITCH

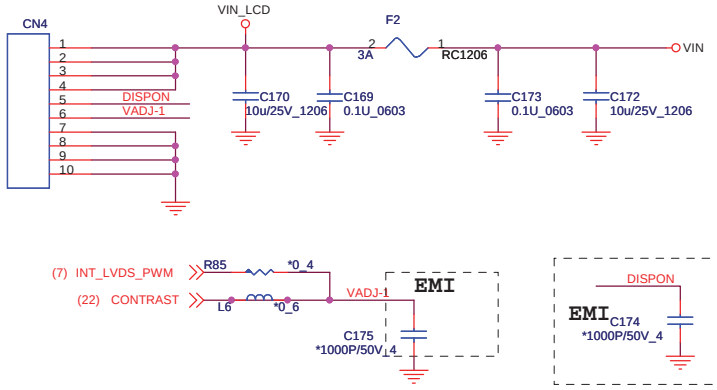




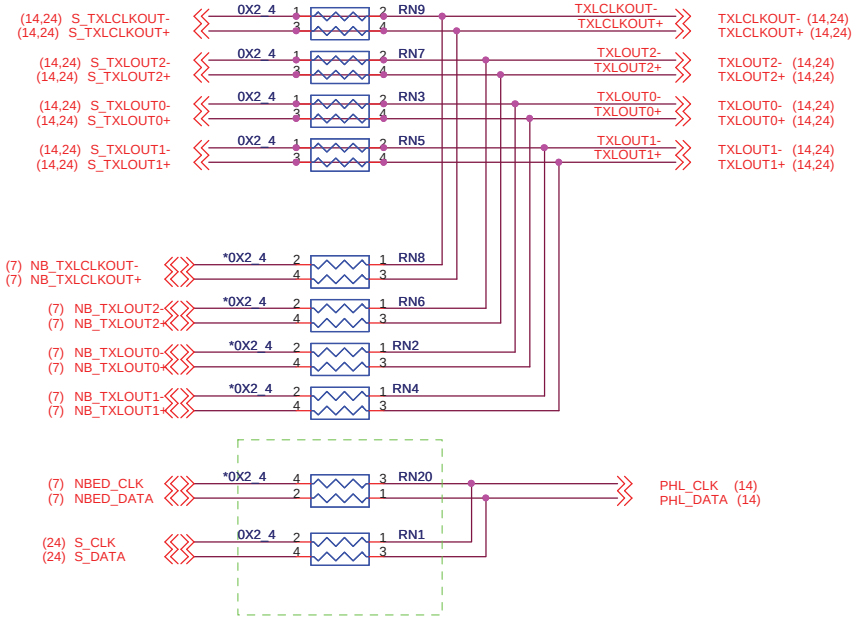
BACKLIGHT CONTROL



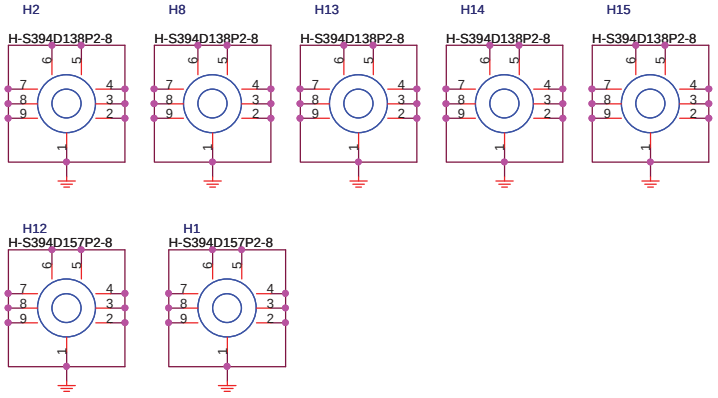
TO INVERTER POWER

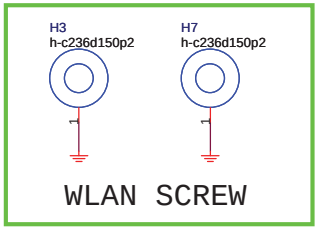


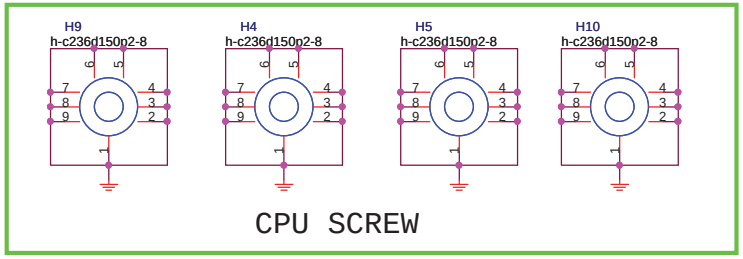
Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number	Rev
	LVDS/Bluetooth	1A
Date: Friday, April 24, 2009	Sheet 14 of 34	



Note:Close to LVDS CNN:CON1







Modify footprint 2009/03/05 by Jimmy:h-c236d150p2-8
NUT is the same as JR1:MBJR1003010

Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: LVDS Bridge/HOLES	Rev: 1A
Date: Friday, April 24, 2009	Sheet 15 of 34	

REAR USBx2
BACK Side 2 Port
The same as EL3

PLACE NEAR CONN

Port1

Port2

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

Port3

4/2 modify

REAR USBx1
Left Side 1 Port
The same as PF1 USB BOARD

Port4

4/2 modify

REAR USBx1
Left Side 1 Port
The same as PF1 USB BOARD

Port5

4/2 modify

*touch panel connector

FOR EMI

CPU Thermal monitor

SMBUS SLAVE ADDRESS	
G781	98
G781-1	9A

<check list>
Layout Note:Routing 10:10 mils and away from noise source with ground gard

P/N:AL000781039

Quanta Computer Inc.
PROJECT : EL7

Size	Document Number	Rev
	USB on Board/CPU Thermal monitor	1A

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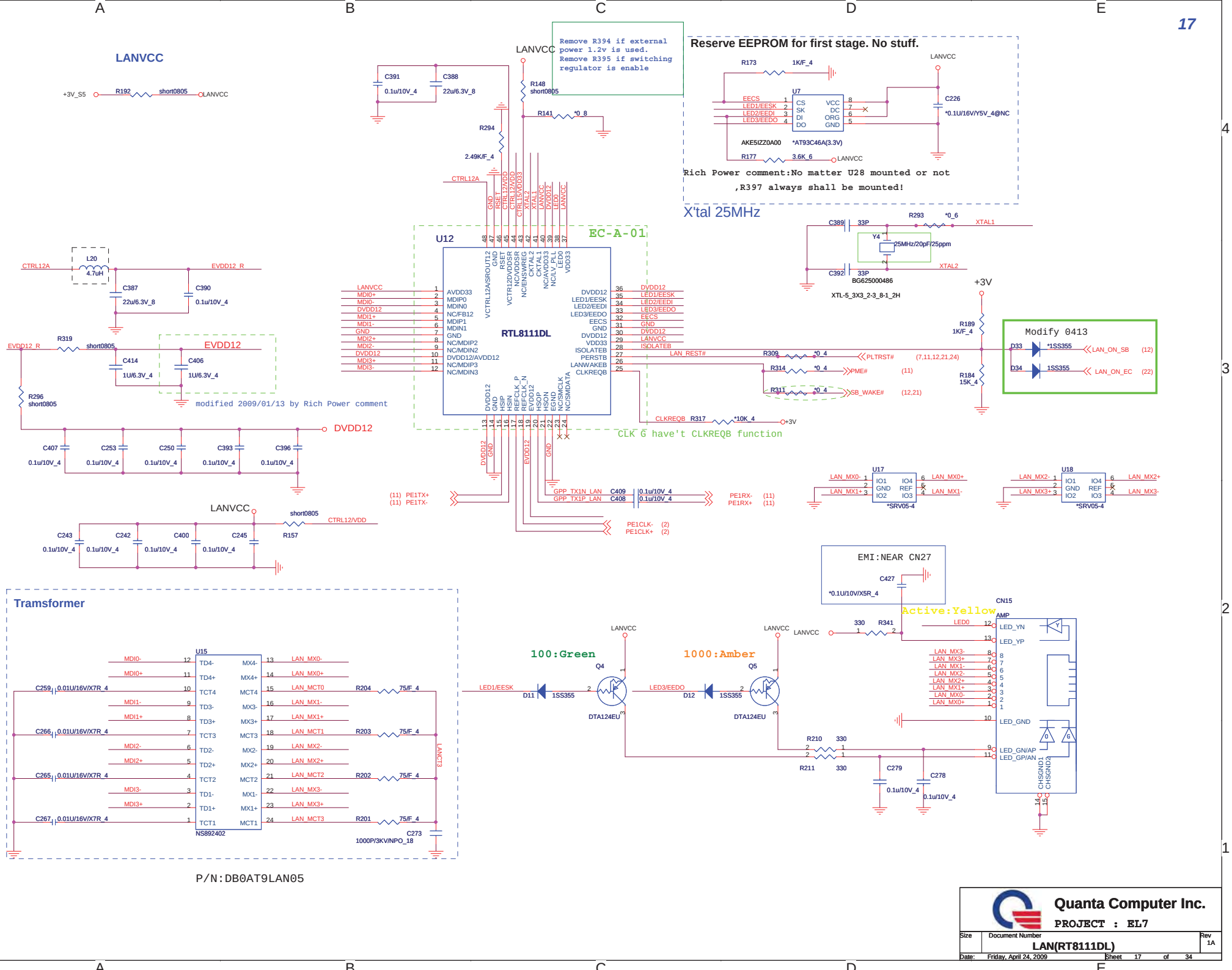
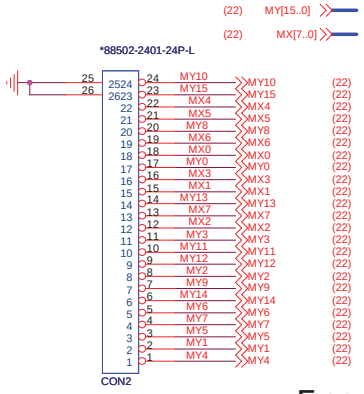


Quanta Computer Inc.	
PROJECT : EL7	
Size	Document Number: LAN(RT8111DL) — Rev 1A
Date: Friday, April 24, 2009	Sheet 17 of 34

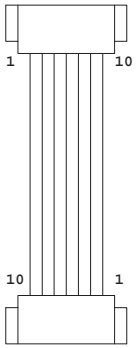
KEYBOARD For debug



From EL1V

TOP Side

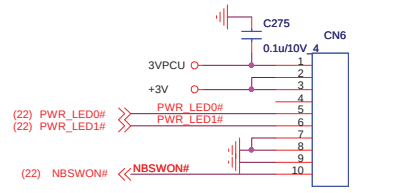
MB Side



TOP Side

SWITCH/B Side

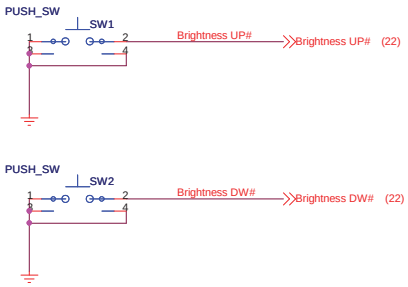
Power SW



87212-1000L-10P-R

Modify 2209/03/02 :the same as CN4

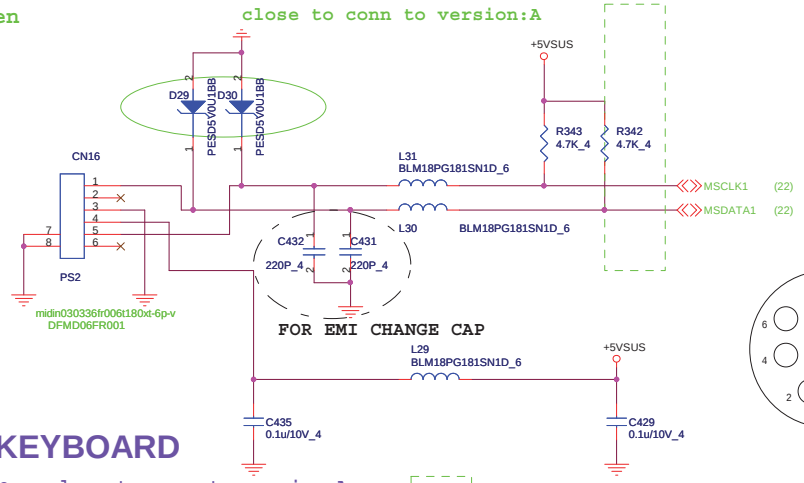
Brightness Control

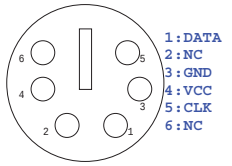


PS2 MOUSE

Green

close to conn to version:A

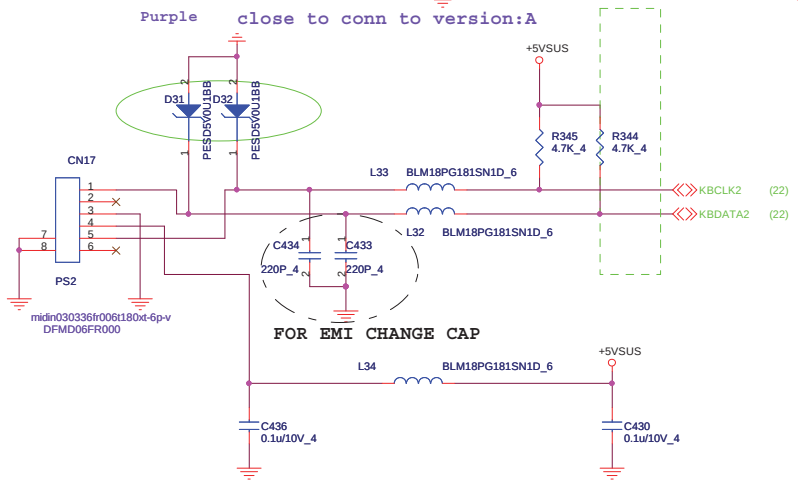


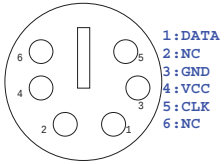


PS2 KEYBOARD

Purple

close to conn to version:A





Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	KB/TP	1A

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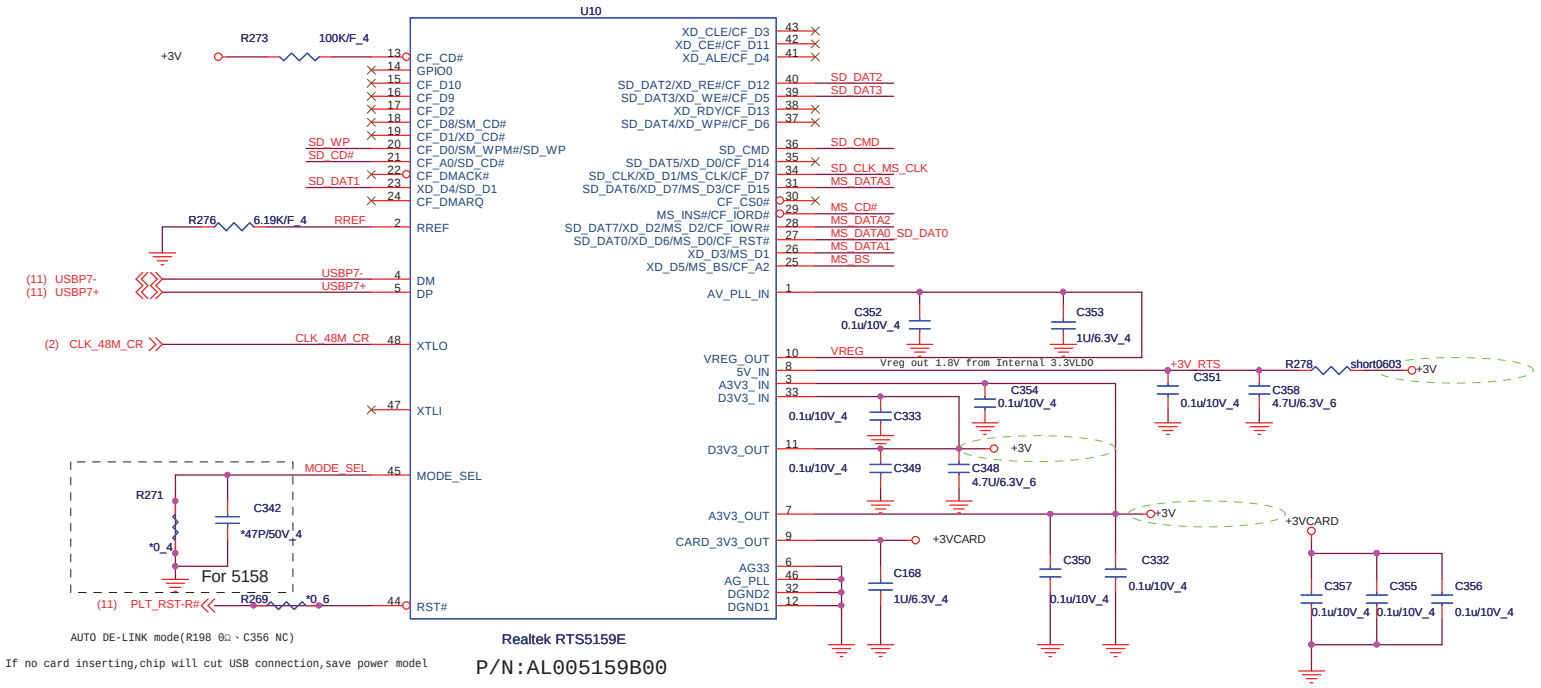
Note:

	SD/MMC	MS	XD
SP0			
SP1			XD_CD#
SP2	SD_WP		
SP3	SD_CD#		
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_R/B#
SP15	SD_DAT3		XD_WE#
SP16	SD_DAT2		XD_RE#
SP17			XD_ALE
SP18			XD_CE#
SP19			XD_CLE



AUTO DE-LINK mode(R198 0Ω、C356 NC)

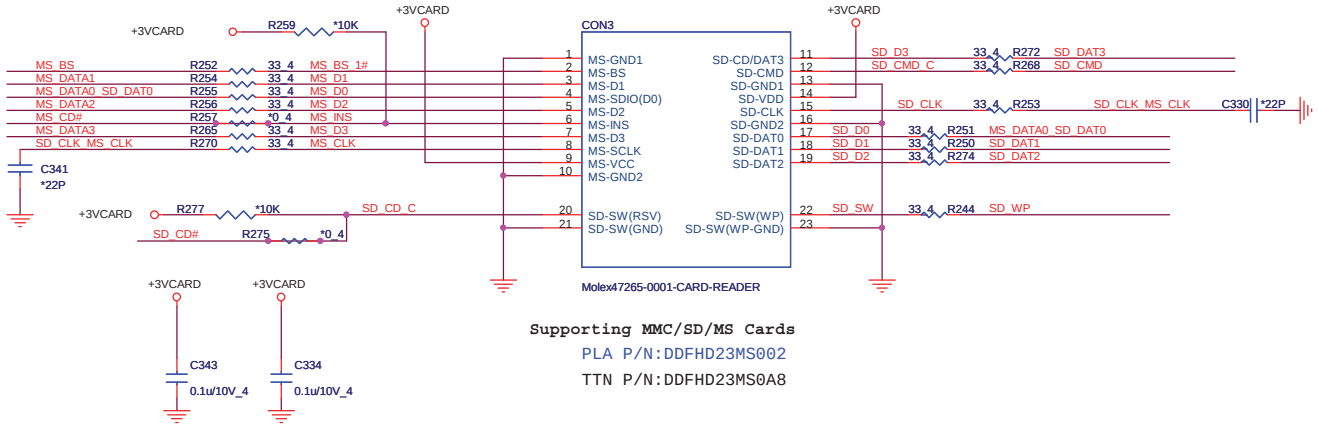
If no card inserting,chip will cut USB connection,save power model

Realtek RTS5159E

P/N:AL005159B00

4 IN 1 CONN

From PB2



Supporting MMC/SD/MS Cards

PLA P/N:DDFHD23MS002

TTN P/N:DDFHD23MS0A8

Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	RTS5159E 4IN1 CARD	1A
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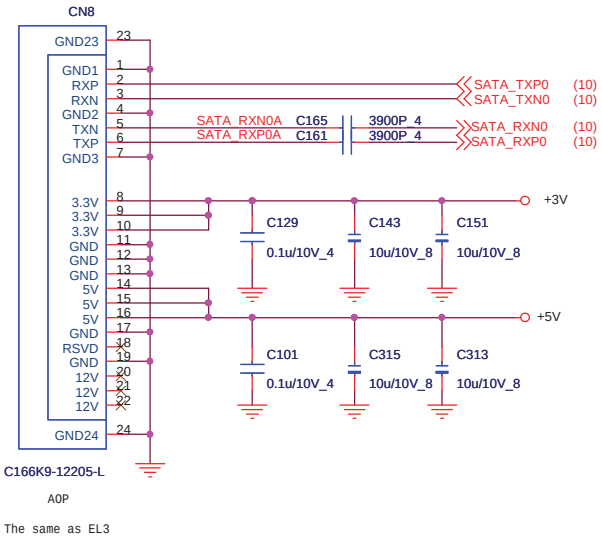
SATA HDD

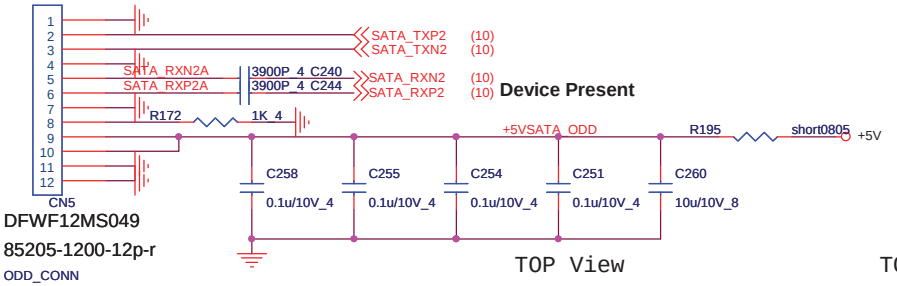


The same as EL3

SATA ODD

20

Check New ODD CONN Pin Define.

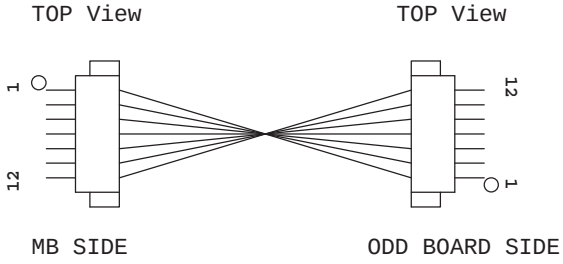


DFWF12MS049

85205-1200-12p-r

ODD_CONN

4/2 modify



ZT4 card connector

Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: SATA-HDD/CF/SSD	Rev: 1A
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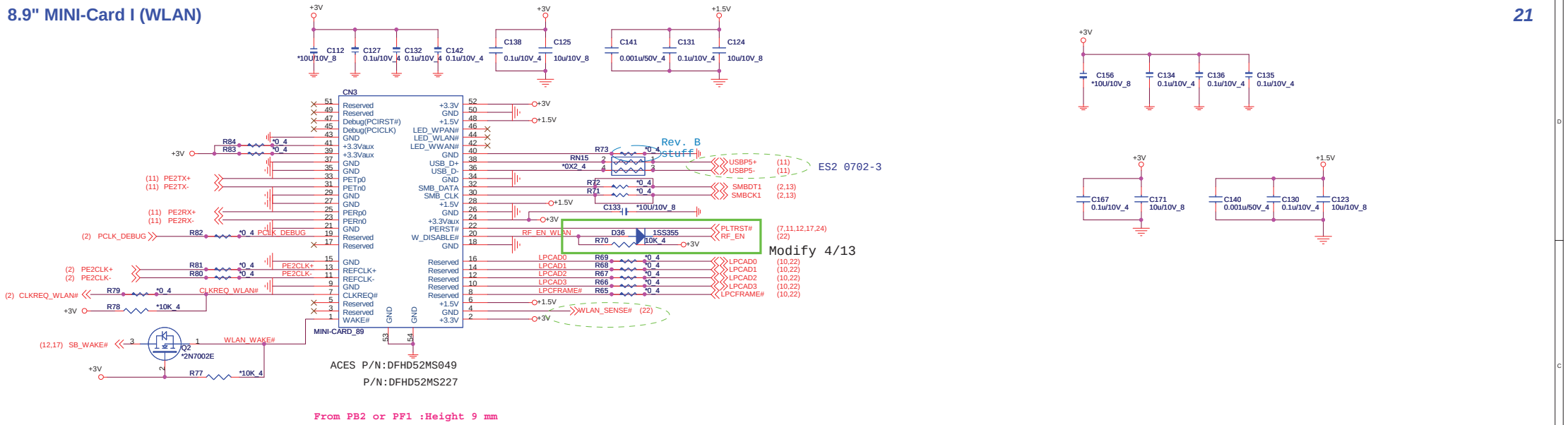
8.9" MINI-Card I (WLAN)



Quanta Computer Inc.			
PROJECT : EL7			
Size	Document Number		Rev
	Mini-Card/WL		1A
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IT8502

Layout Note:
Place all capacitors close to IT8512.

(For PLL Power)

Layout Note:
net "3VPCU" and "RTC_VCC"
minimum trace width 12mils.

Note 1 : Since all GPIO belong to VSTBY power domain, and there are some special considerations below:
(1) If it is output to external VCC derived power domain circuit, this signal should be isolated by a diode such as KBRST# and GA20.
(2) If it is input from external VCC derived power domain circuit, this external circuit must consider not to float the GPIO input.

Note 2 :
(1) Each input pin should be driven or pulled.
(2) Each output-drain output pin should be pulled.

Note: Pin 86 To 3G originally
2009/01/08 Jimmy Hsu

3/31 modify

AJ085020F04
LQFP128-16X16-4 3/31 modify

Layout Note:
32.768kHz clock lines:
a. If possible, please avoid using any through-hole.
b. Please make the trace length short, and the trace width wide enough.
c. The spacing to the closest neighbor should be wide enough.

Layout Note:
Place R471,R498,R534 within 500 mils from SPI Flash.Place R567 within 500mils from R534; R520 within 500mils from R498 and R570 within 500mils from R471.

Please reserve this connector for serial debug port & KBS download usage.

ACER ID Modify 4/9

8Mbit , SPI
8M Winbond P/N:AKE3GFP0N08

Use 8Mbit in A-test

SOCKET: DG0080000031

3VPCU=EAD3*(1.619)
VCCRTC=RTC3.3*(1.619)
5VPCU=EAD5*(2.5)
EADVCORE=VCC_CORE
EAD105=+1.05V
EAD1.5=+1.5V
EAD1.8=+1.8VSUS

2009/03/03 modified for C stage

Quanta Computer Inc.
PROJECT : EL7
Size | Document Number | Rev
ITE 8502E | 1A
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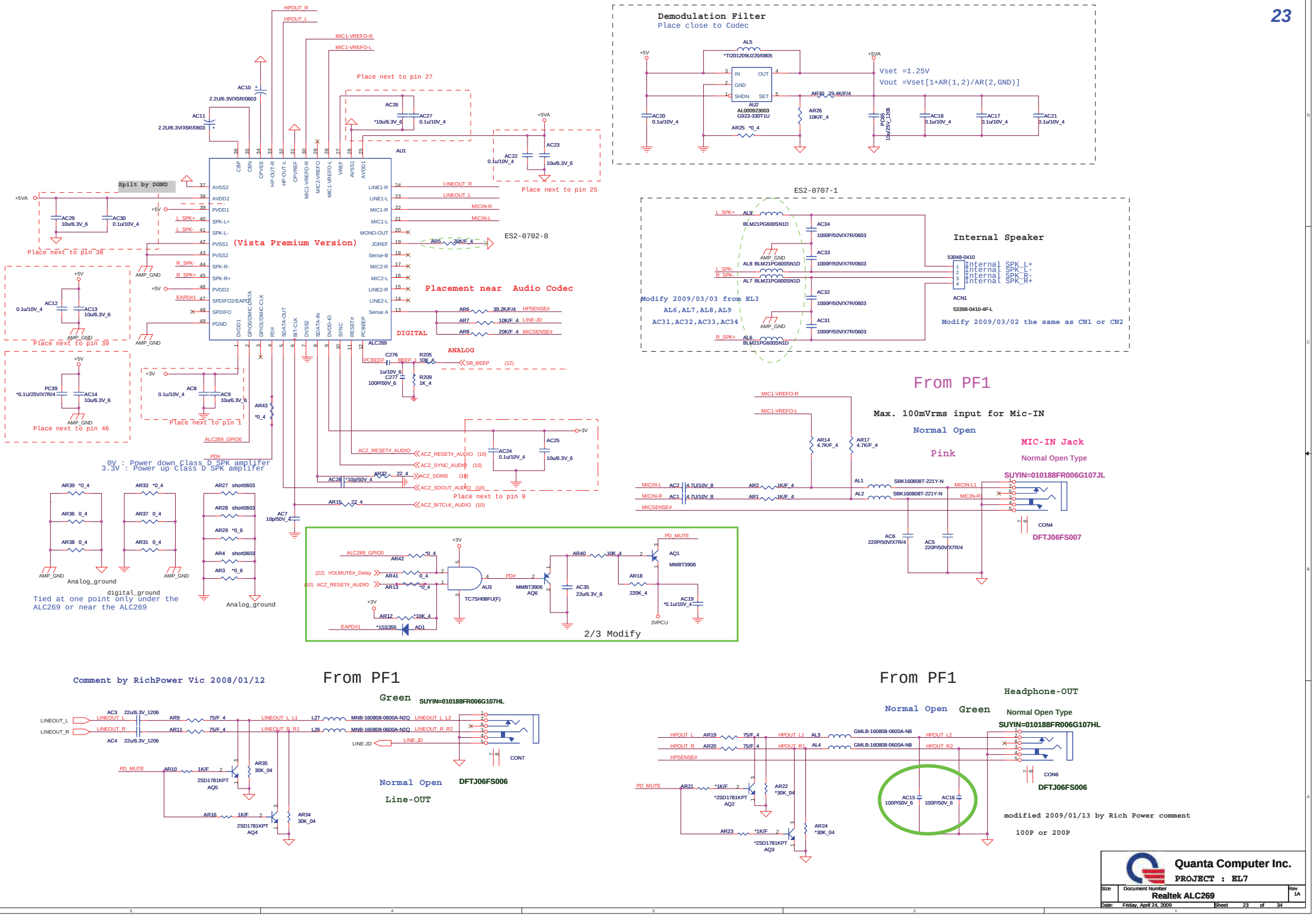
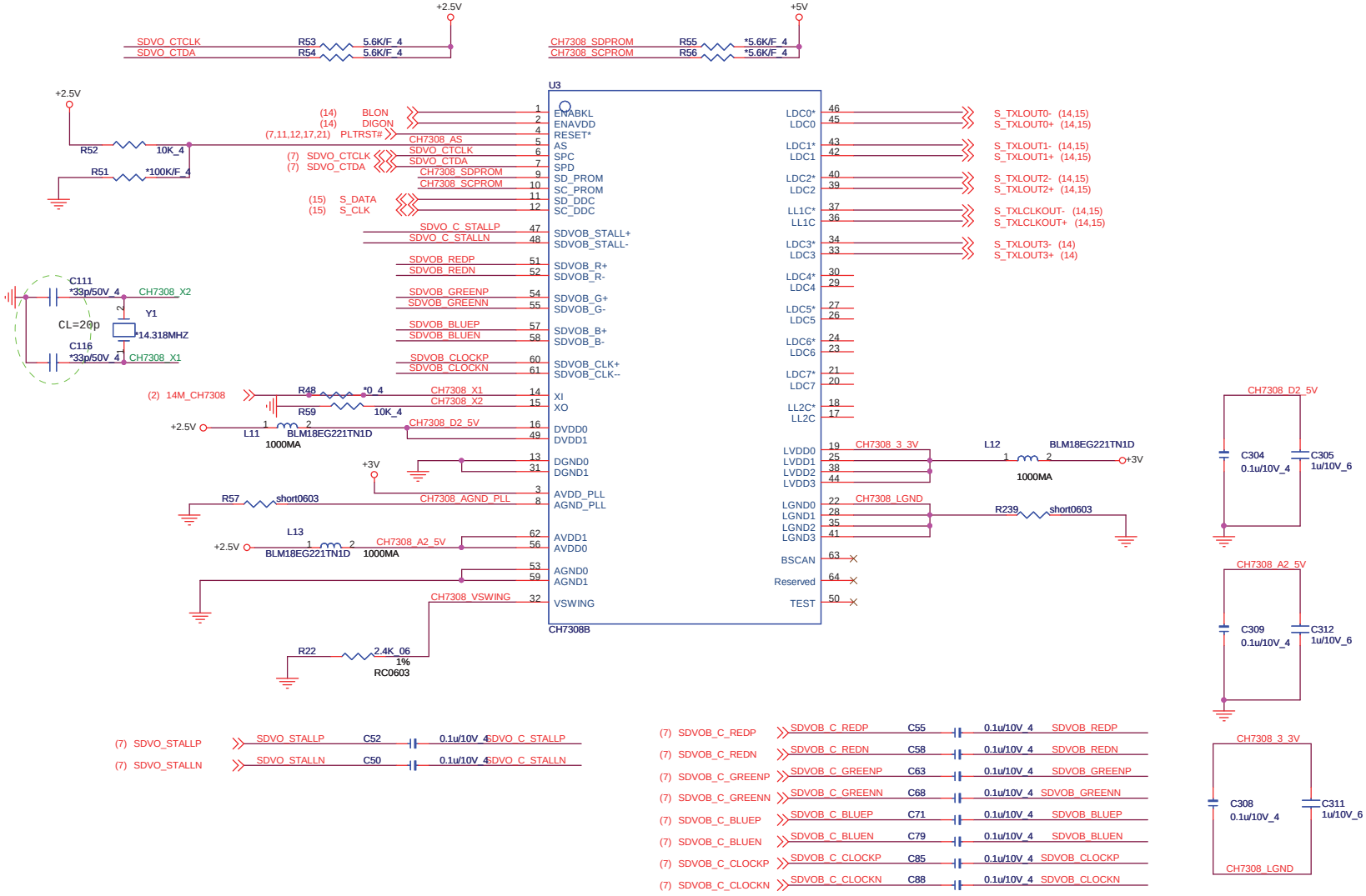


Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	Realtek ALC269	1A

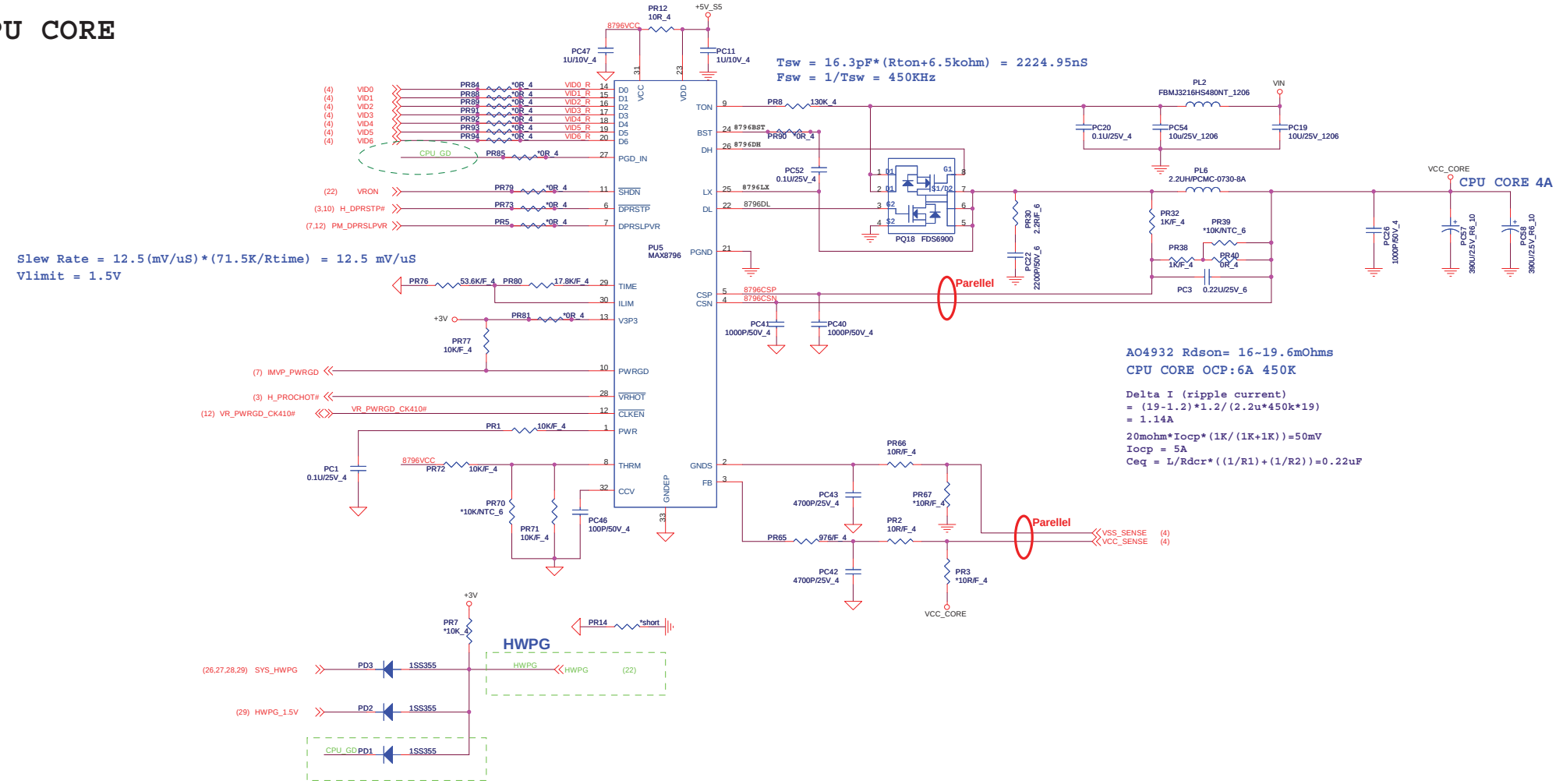
Date: Friday, April 24, 2009 Sheet 23 of 34



Close to GMCH

Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: DDR2_MODULE_RANK1	Rev: 1A
Date: Friday, April 24, 2009	Sheet 24 of 34	

CPU CORE



Quanta Computer Inc.
PROJECT : EL7
Size
Document Number
CPU VCORE MAX8796
Rev 1A
Date: Friday, April 24, 2009
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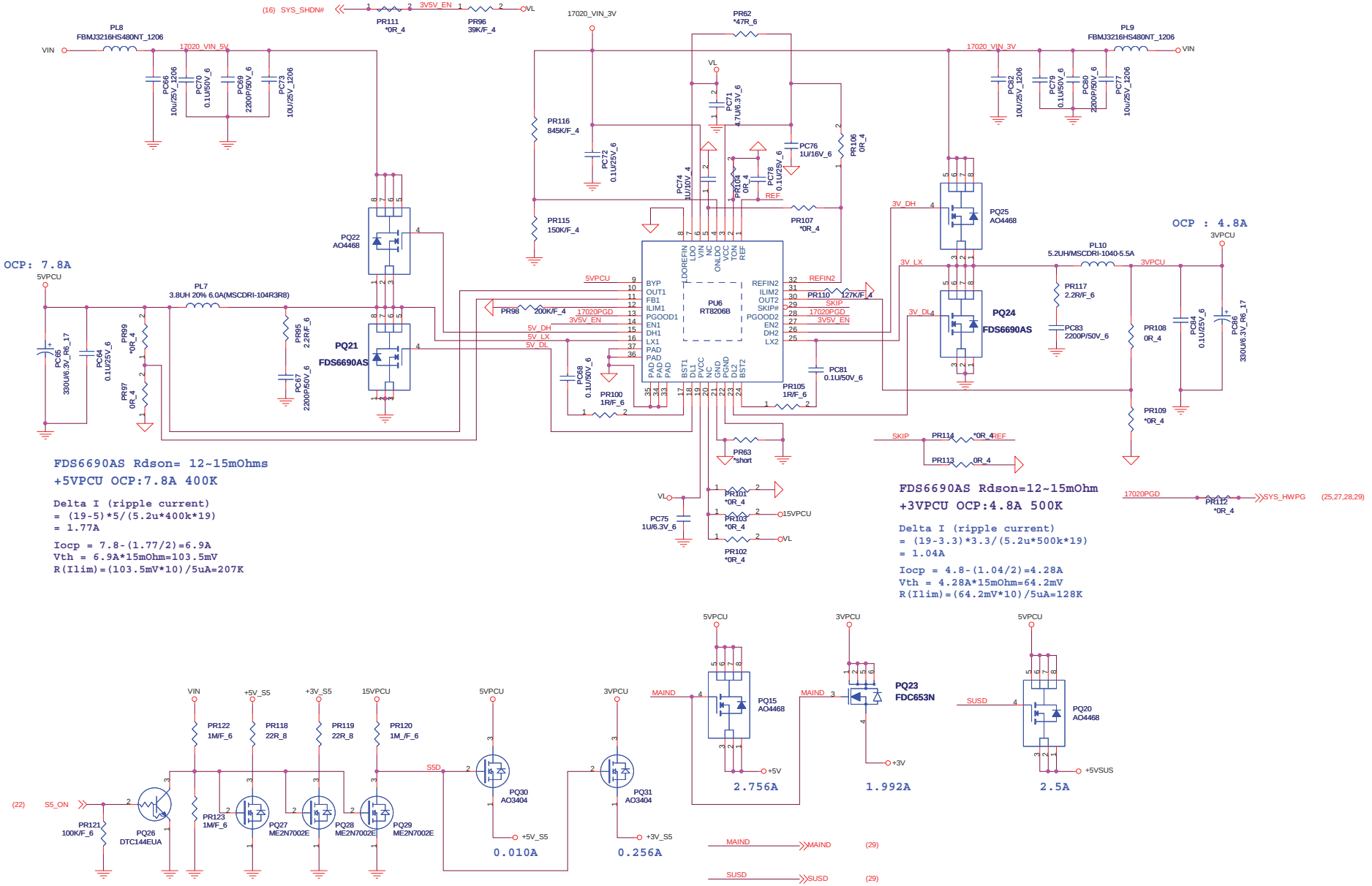
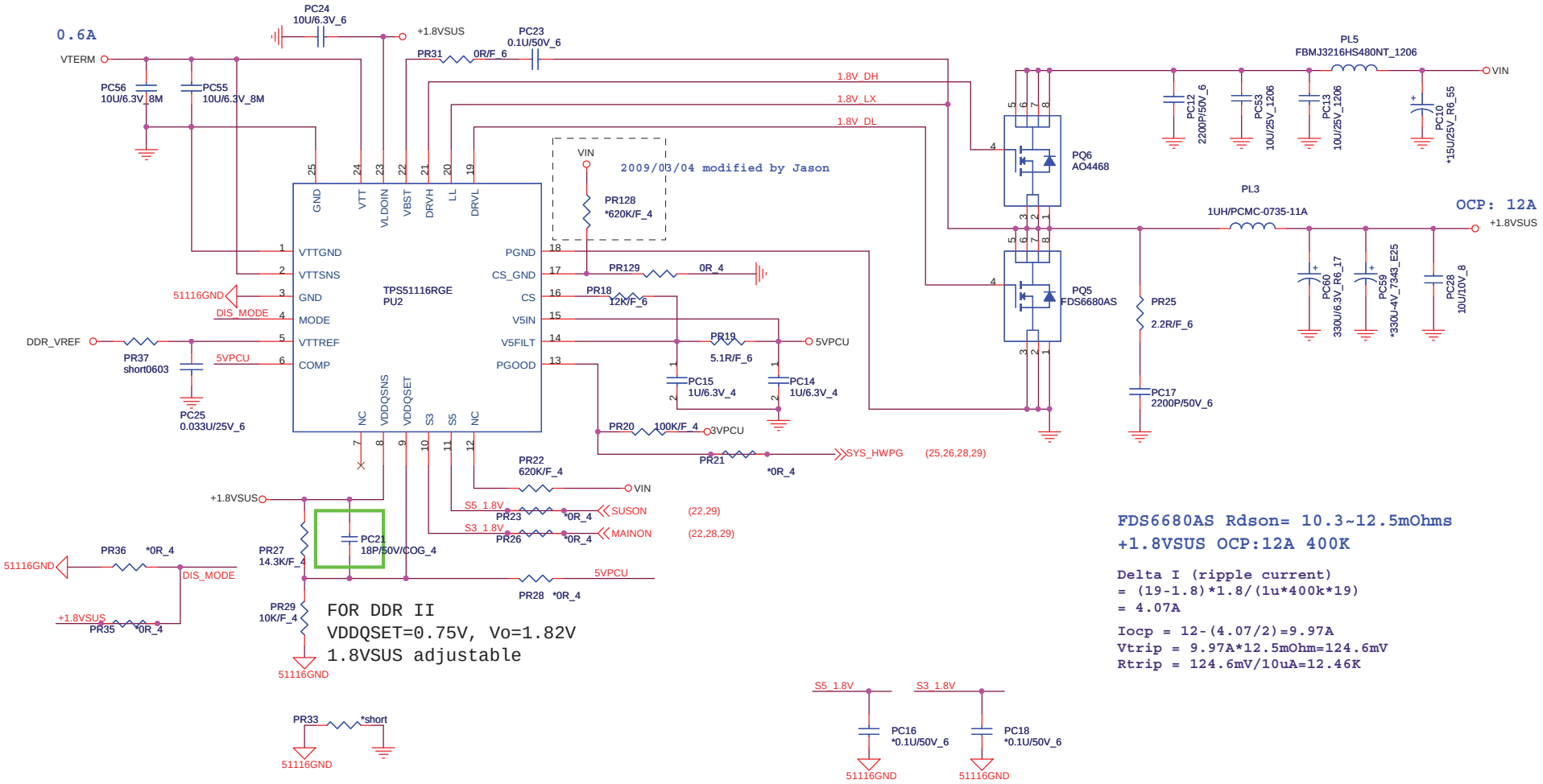


	Quanta Computer Inc.		
	PROJECT : EL7		
Size	Document Number		Rev
	5V / 3V (ISL6237)		1A
Date:	Friday, April 24, 2009	Sheet 26 of 34	

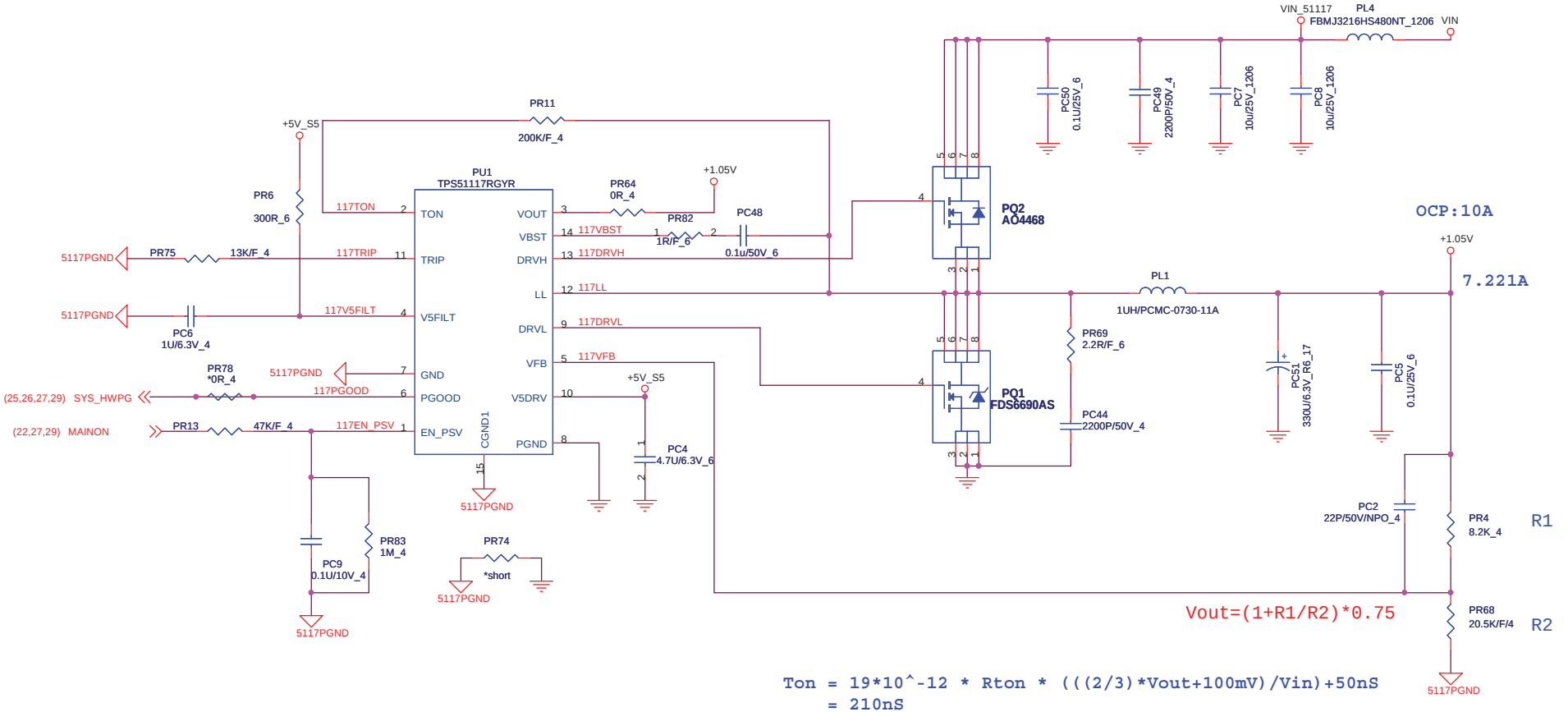


FDS6680AS Rdson= 10.3~12.5mOhms
+1.8VSUS OCP:12A 400K

Delta I (ripple current)
= (19-1.8)*1.8/(1u*400k*19)
= 4.07A

Iocp = 12-(4.07/2)=9.97A
Vtrip = 9.97A*12.5mOhm=124.6mV
Rtrip = 124.6mV/10uA=12.46K

Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: TPS51116REGR/1.8VSUS	Rev: 1A
Date: Friday, April 24, 2009	Sheet 27 of 34	



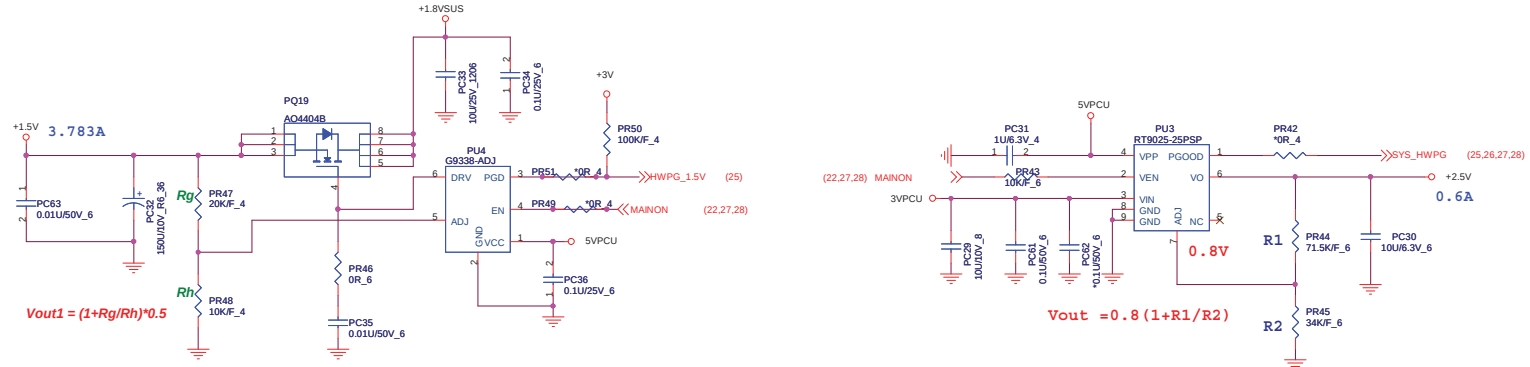
Ton = 19*10^-12 * Rton * (((2/3)*Vout+100mV)/Vin)+50nS
= 210nS
f = (1/Ton)*(Vout/Vin)
~=263Hz

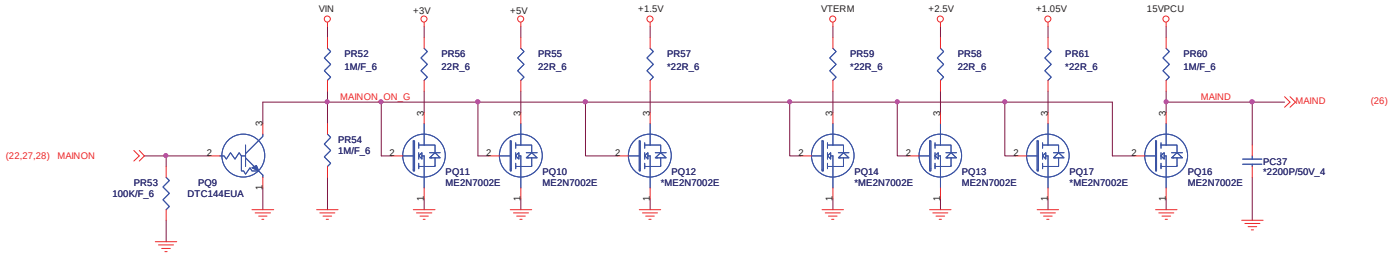
FDS6690AS Rdson= 12~15mOhms
+1.05V OCP:10A 263K

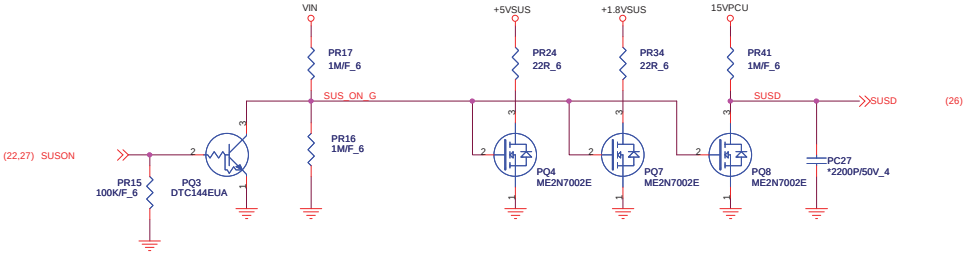
Delta I (ripple current)
= (19-1.05)*1.05/(1u*263k*19)
= 3.77A

Iocp = 10-(3.77/2)=8.16A
Vtrip = 8.16A*15mOhm=122.4mV
Rtrip = 122.4mV/10uA=12.24K

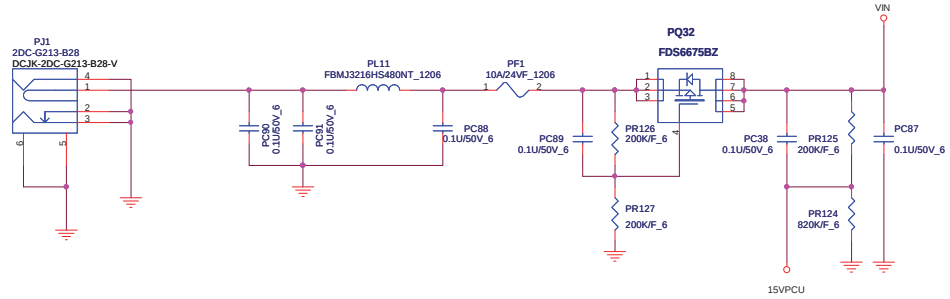
Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: VCCP 1.05V(TPS51117)	Rev: 1A
Date: Friday, April 24, 2009	Sheet 28 of 34	



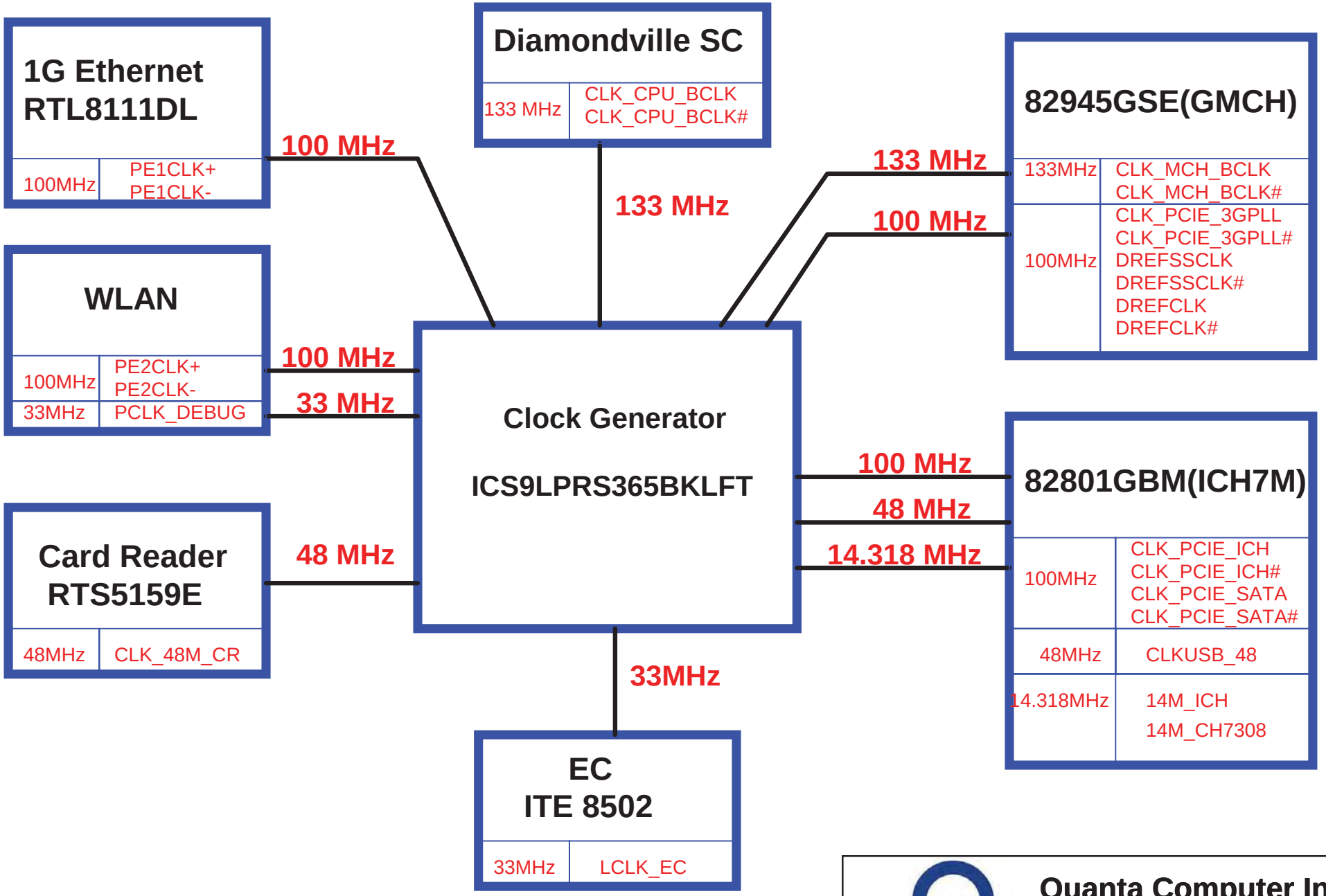




DC IN JACK

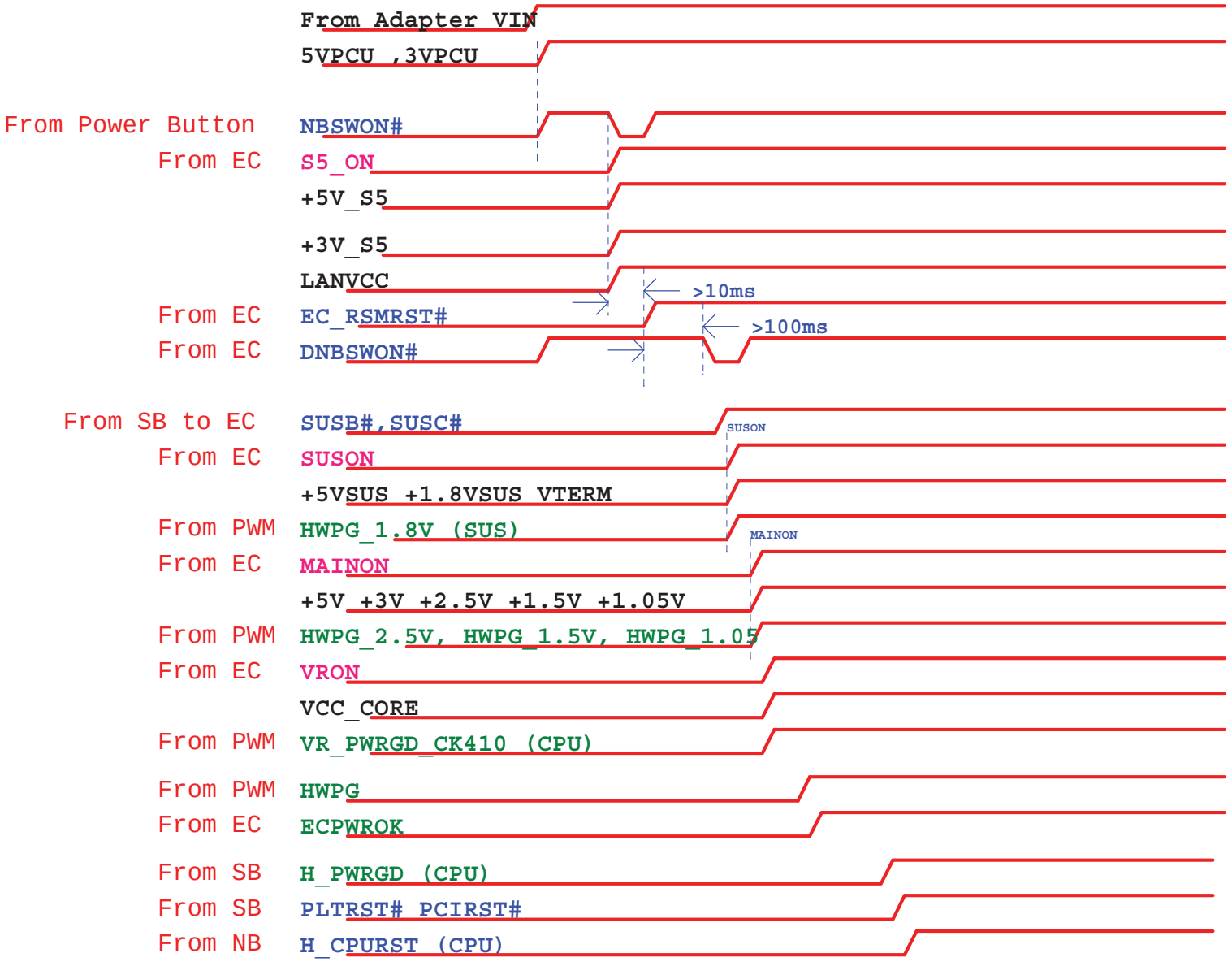


Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: Discharge/1.5V	Rev 1A
Date: Friday, April 24, 2009	Sheet 29 of 34	



Quanta Computer Inc.		
PROJECT : EL7		
Size	Document Number: Clock Block Diagram	Rev 1A
Date: Friday, April 24, 2009	Sheet 30 of 34	

Power On Sequence



Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	EL7 Power On Sequence	1A

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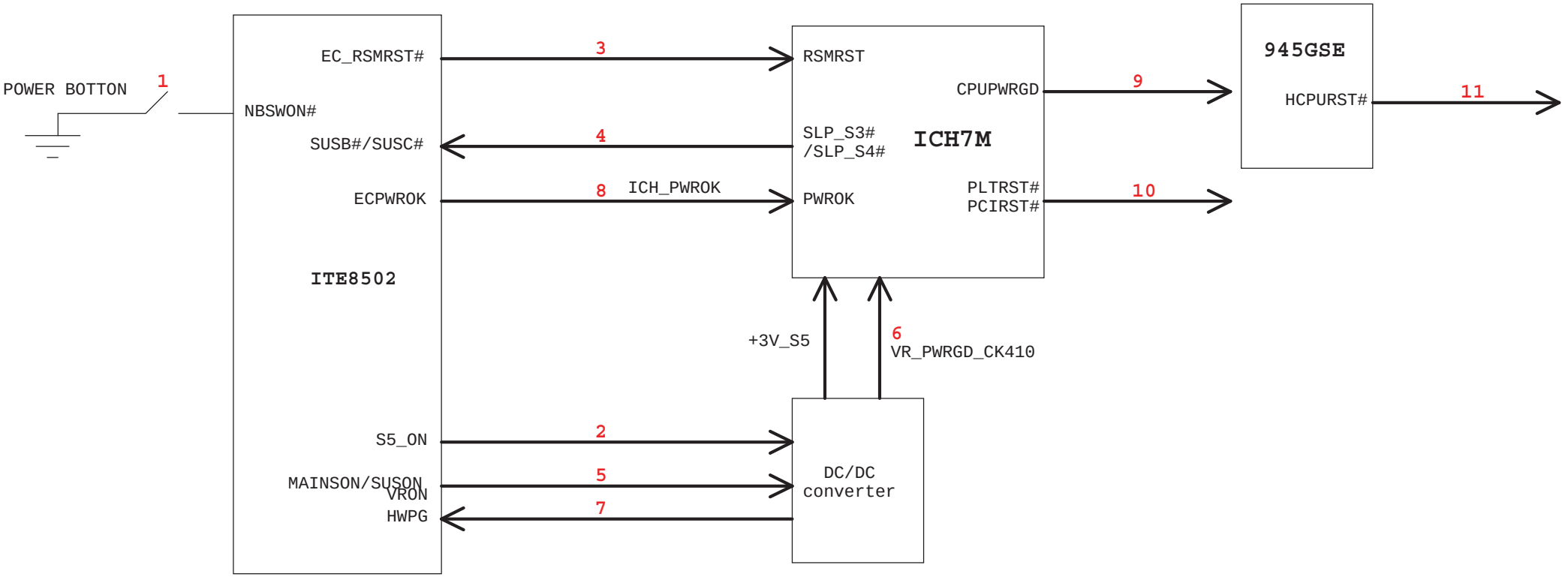

S5_ON → EC_RSMRST# → SUSB# SUSC# → SUSON MAINON VRON / SUSD MAIND VRON → HWPG VR_PWRGD_CK410 → EC Pin107 ECPWROK → H_PWRGD → PLTRST# PCIRST# → H_CPURST#

Quanta Computer Inc.

PROJECT : EL7

Size	Document Number	Rev
	Power On Diagram	1A

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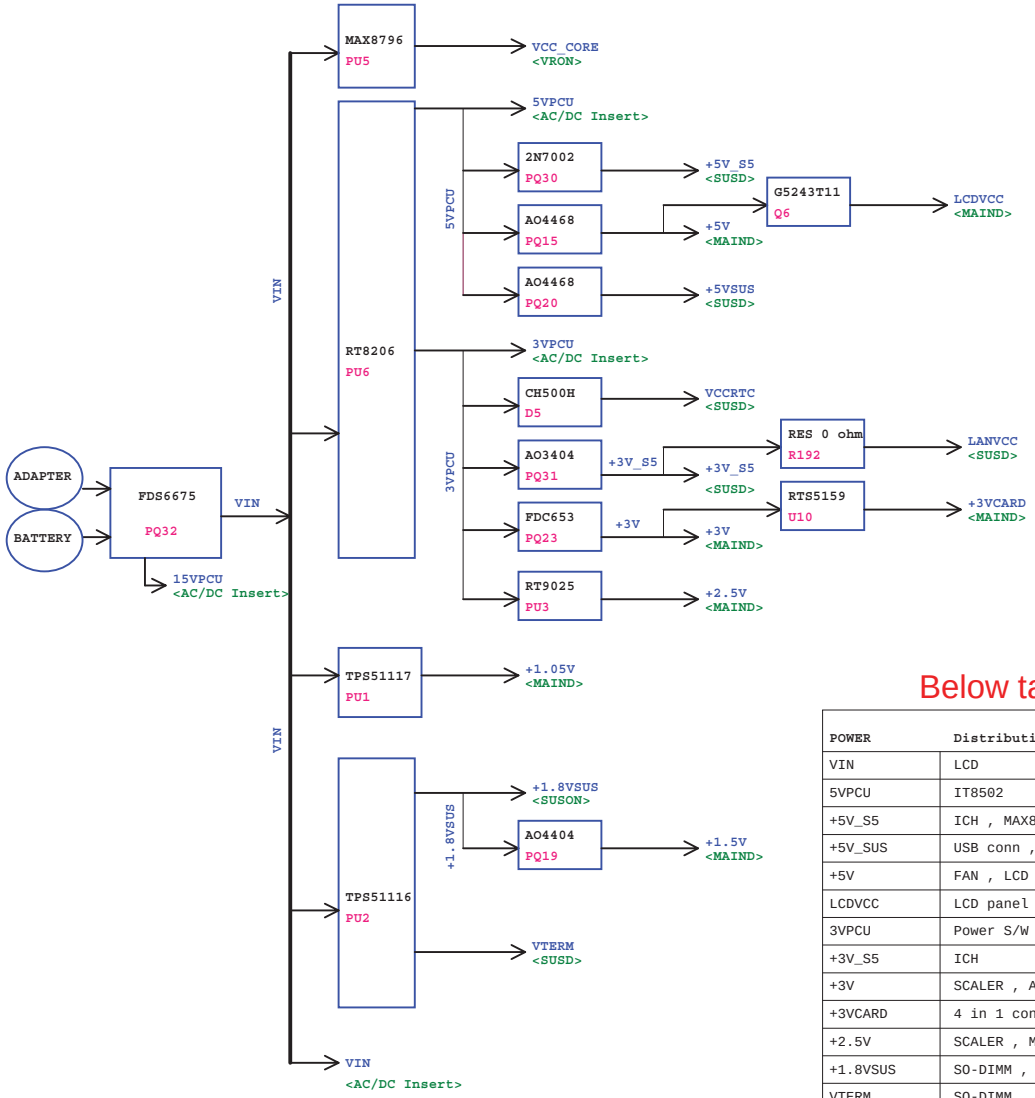
Powr Tree



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
2009 0302 VER:B	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	
2009 0303 VER:B	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	
2009 0305 VER:B	1.PAG18 Change L29,L30,L31,L32,L33,L34 to BLM18PG181SN1D_6(The same as L10) 2.PAG27 Add PR129	
2009 0413 VER:C	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	