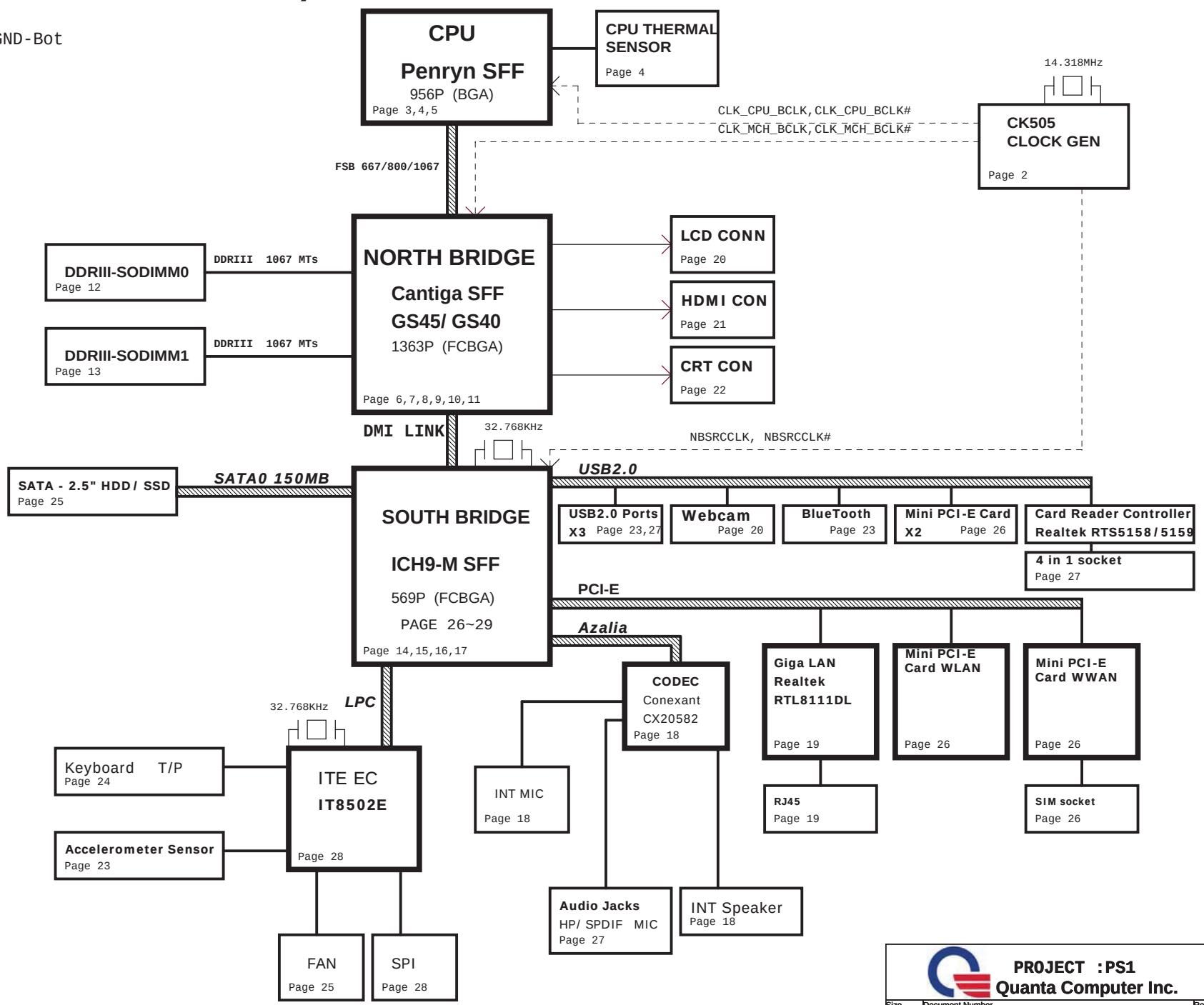
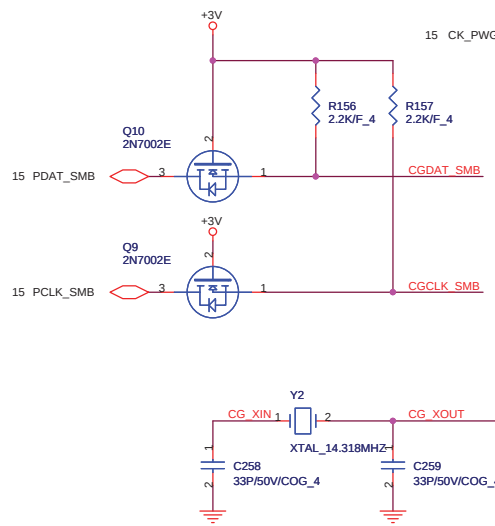
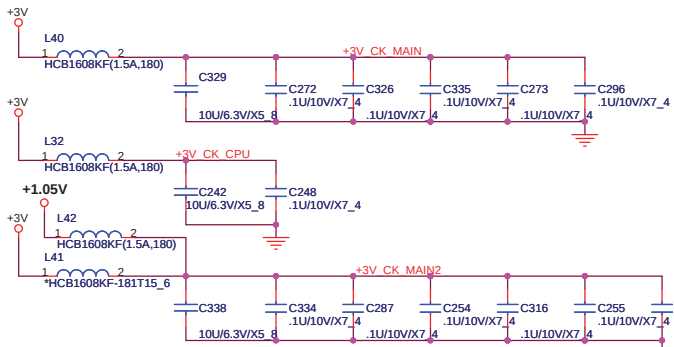


PS-Note, CULV BLOCK DIAGRAM

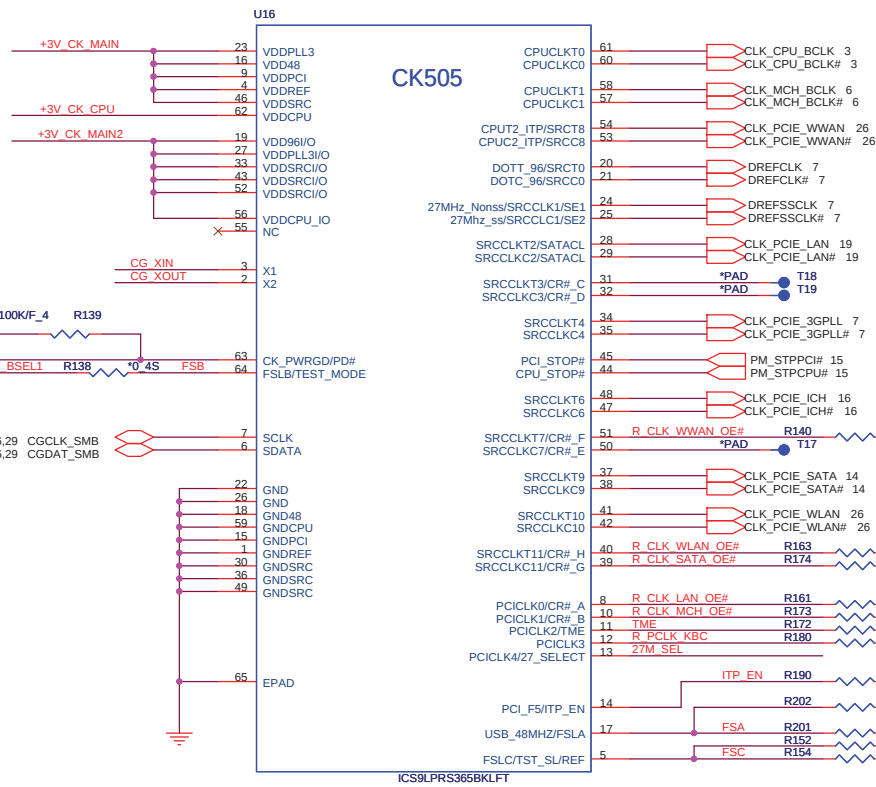
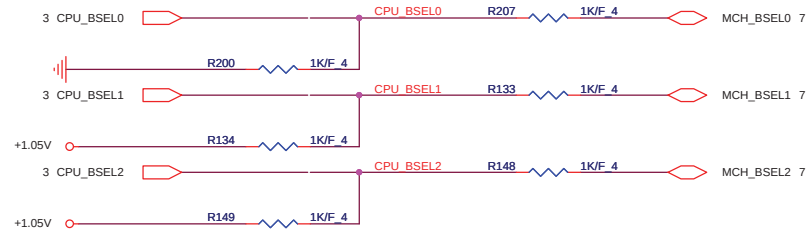
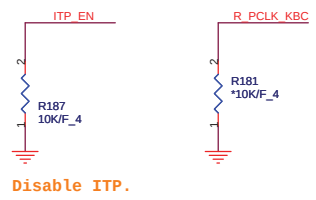
- Battery Charger**
ISL88731A
Page 30
- 3V/5V**
ISL6237IRZ-T
Page 31
- CPU CORE**
RT8152B
Page 32
- DDR3, VTT**
TPS51116REGR
Page 33
- 1.05V/ 1.5V**
RT8204
Page 34
- NB CORE**
MAX8796GTJ+
Page 37
- S5 power, LDO**
Page 36





TME=High
OC of CPU and SRC are not allowed.

27M_SEL= LOW UMA



CLKREQ SRC Port

CR#_B	SRC 1,4	CLK_MCH_OE#	SRC4
CR#_A	SRC 0,2	CLK_LAN_OE#	SRC2
CR#_G	SRC 9	CLK_SATA_OE#	SRC9
CR#_H	SRC 10	CLK_MINI_OE#	SRC10
CR#_F	SRC 8	CLK_WWAN_OE#	SRC 8

CPU Differential Host Clock

NB Differential Host Clock

WWAN EC-20090726A-4

NB Display PLLA Differential Clock

NB Display PLLB Differential Clock

PCI-E LAN

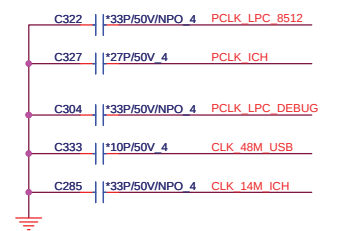
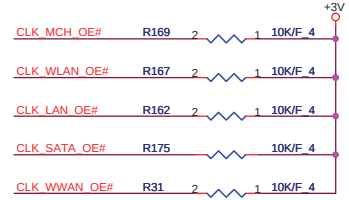
NB Differential PCI Express based Graphics/DMI Clock

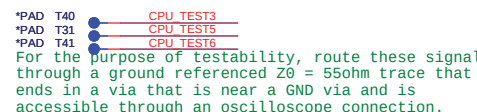
SB

SATA

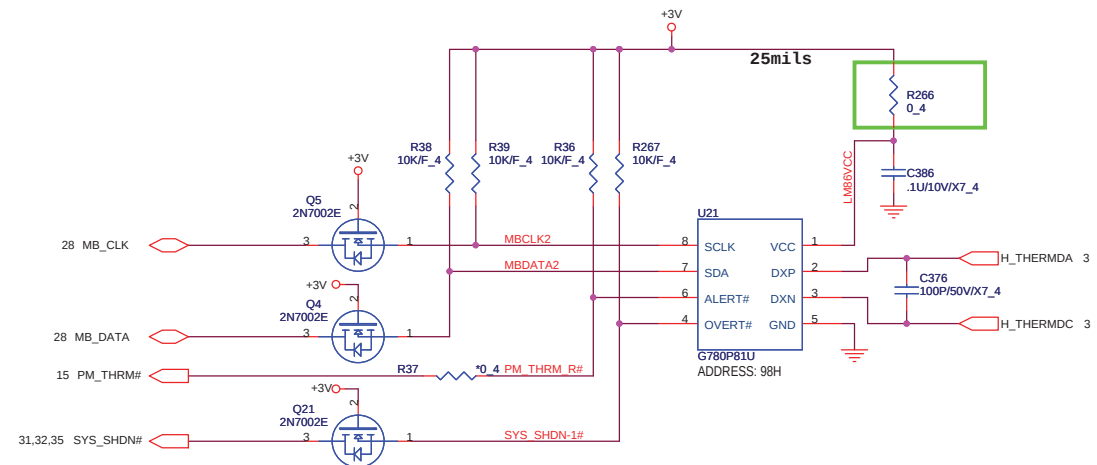
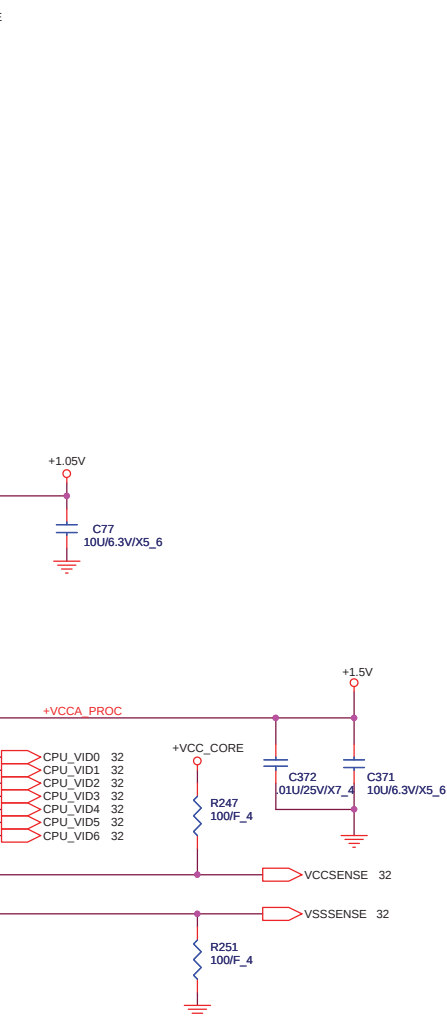
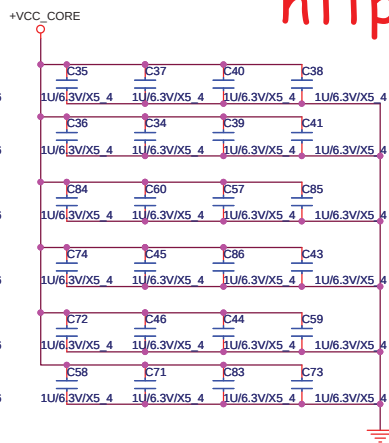
WLAN

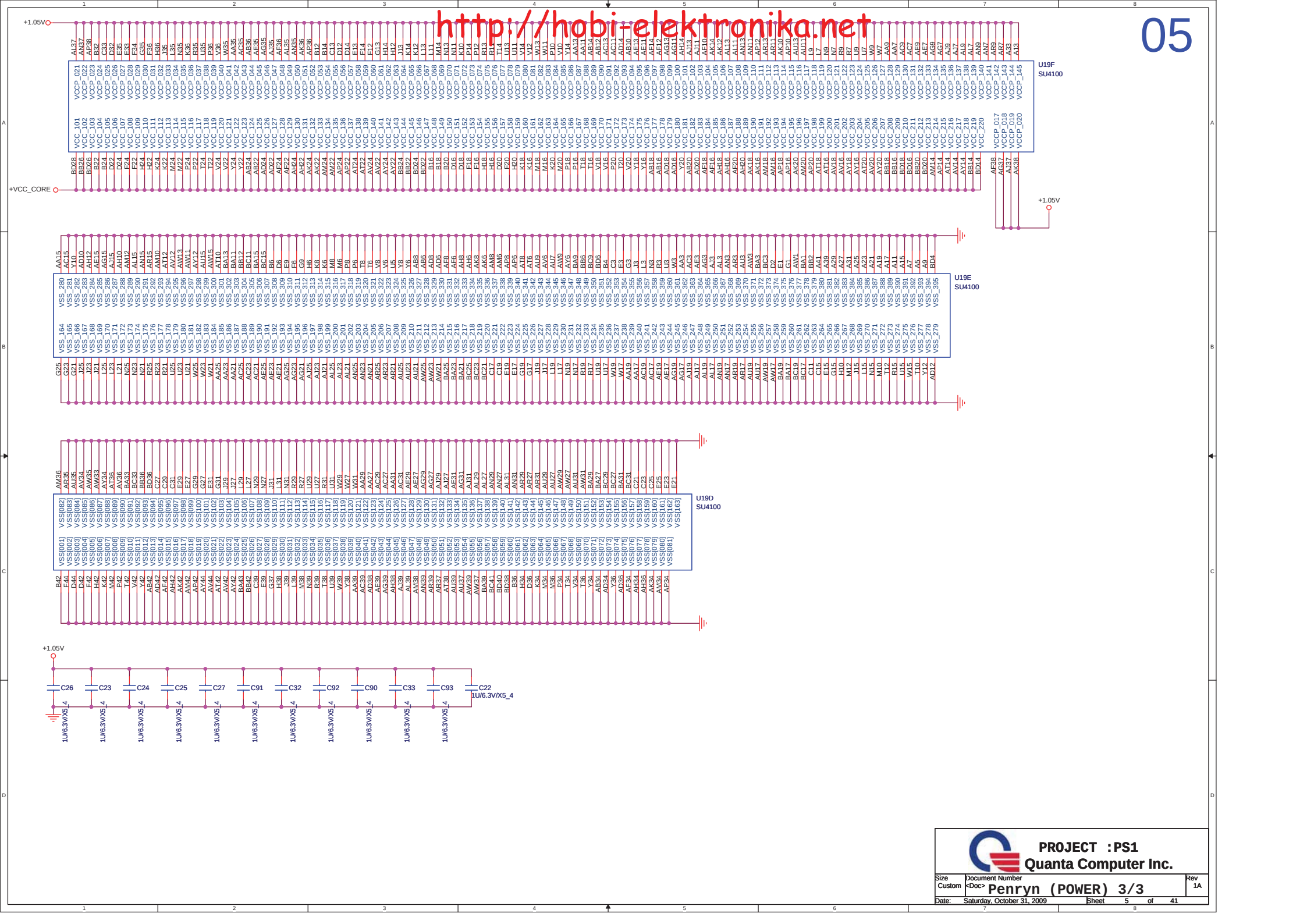
EC-20090726A-3

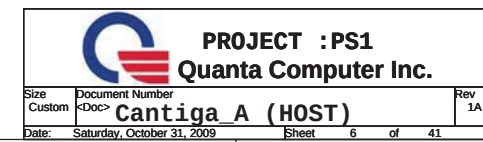
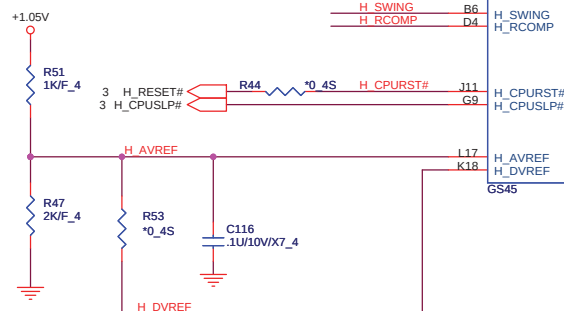


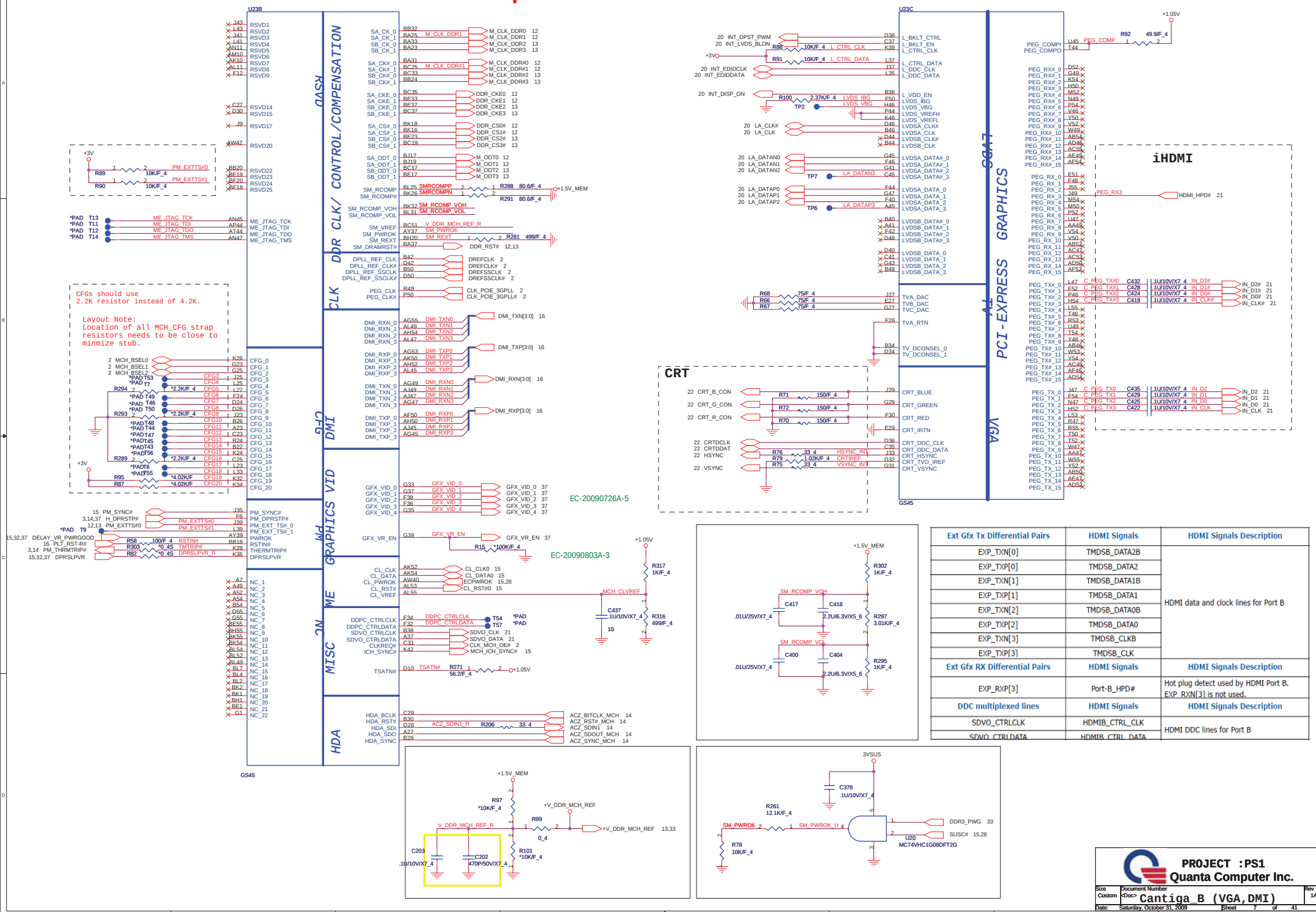


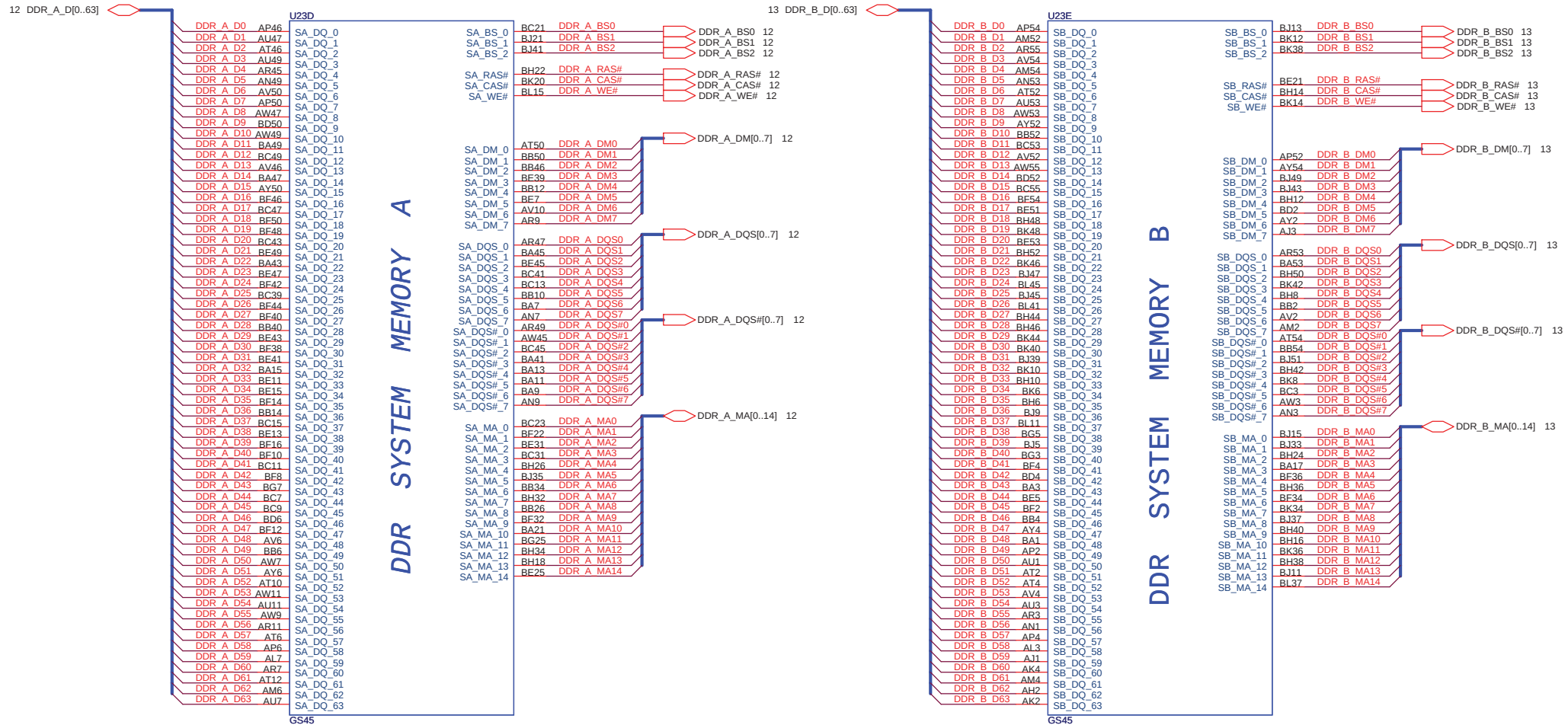
 PROJECT : PS1 Quanta Computer Inc.			
Size Custom	Document Number <Doc> Penryn (HOST BUS) 1/3	Rev 1A	
Date: Saturday, October 31, 2009	Sheet 3 of 41		











PROJECT : PS1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	<Doc> Cantiga_C (DDR interface)	1A

Date: Saturday, October 31, 2009 Sheet 8 of 41

Ivcc_sm (DDR3, 1.5V, 1066MTs) -->4140mA

Layout Note:
370 mils from edge.

Layout Note:
Inside GMCH cavity.

10A for each Jumper

Layout Note:
370 mils from edge.

VCC CORE

POWER

VCC NCTF

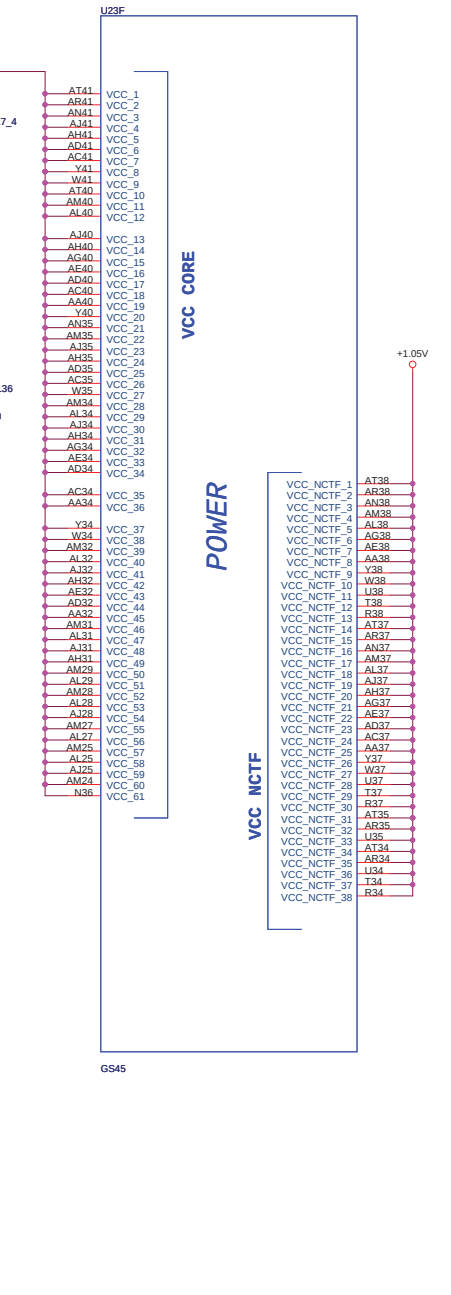
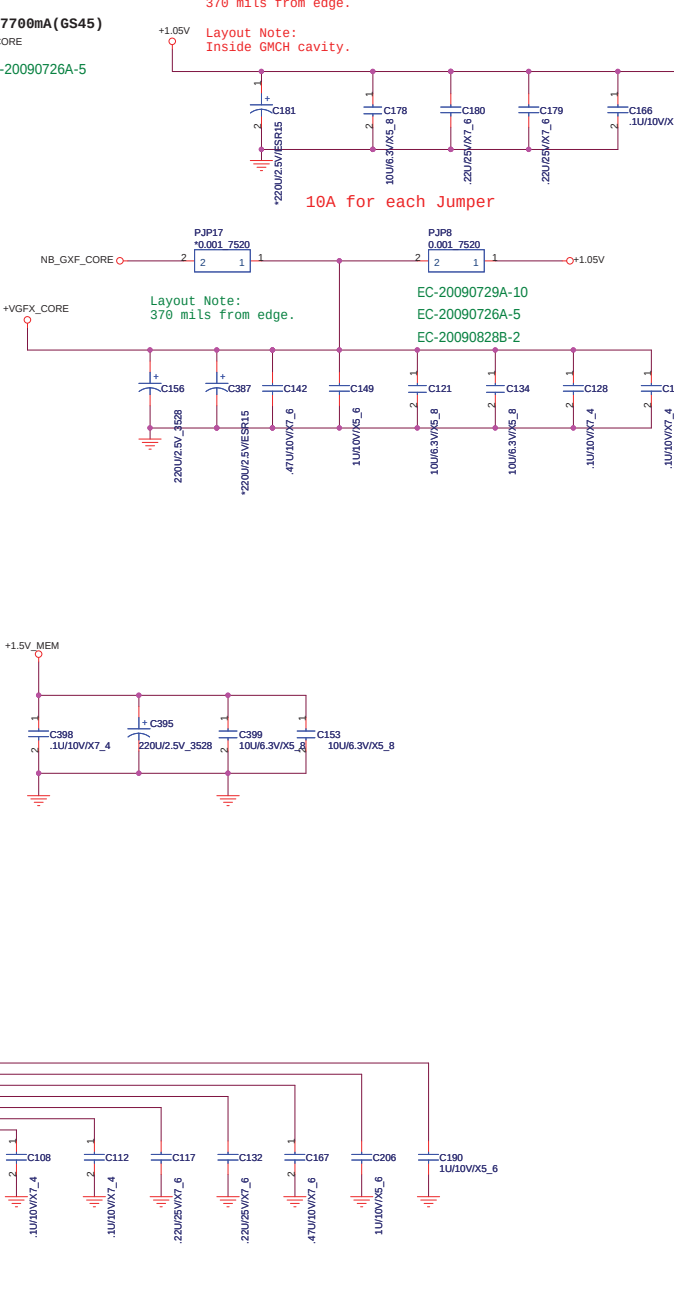
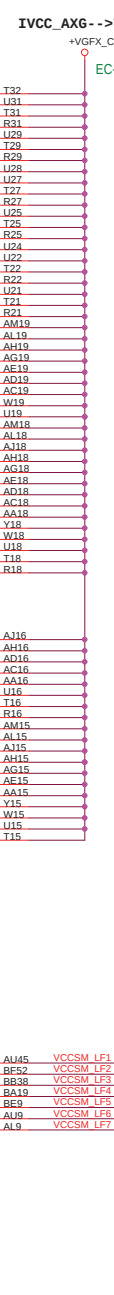
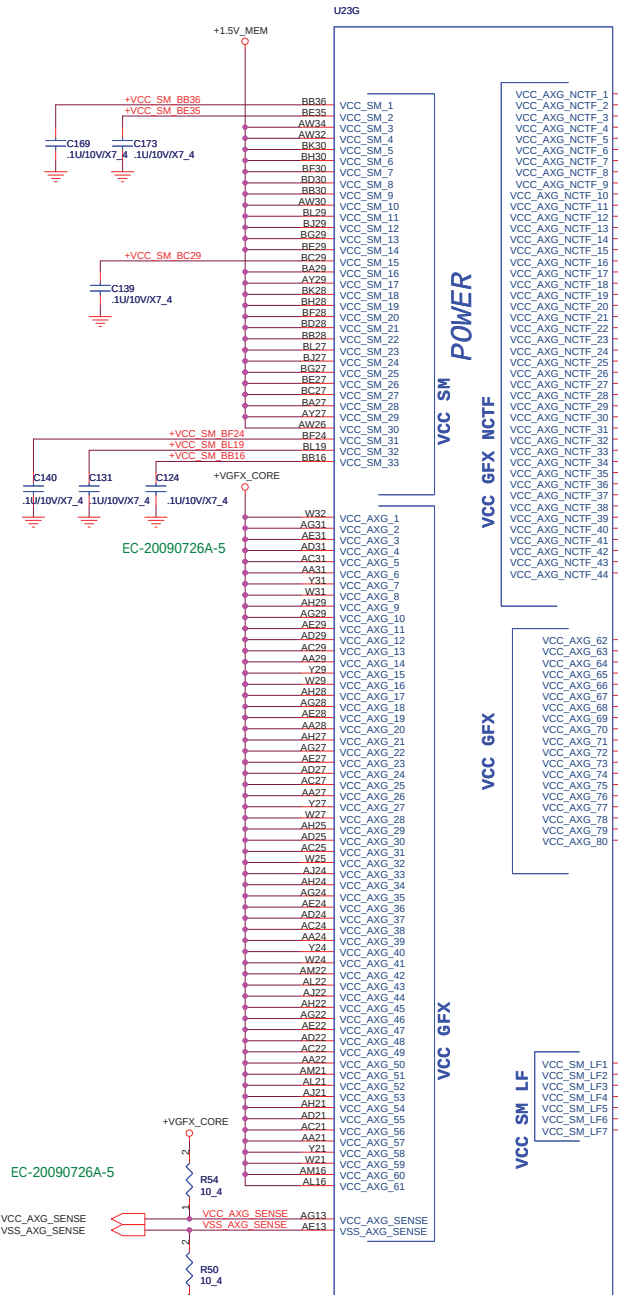
VCC SM

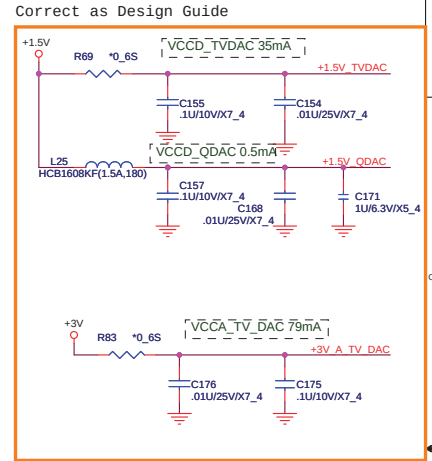
VCC GFX NCTF

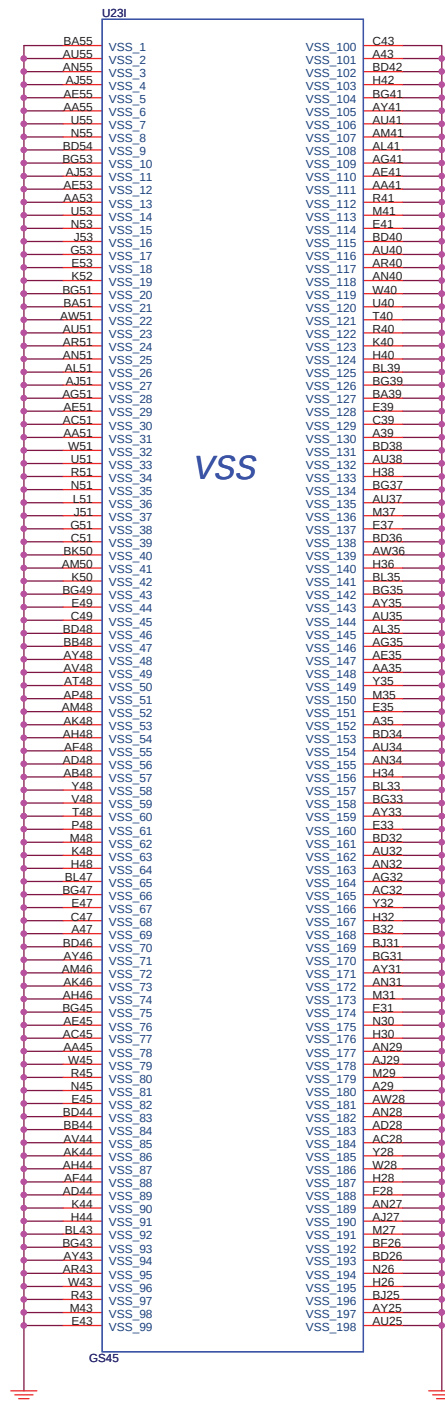
VCC GFX

VCC GFX

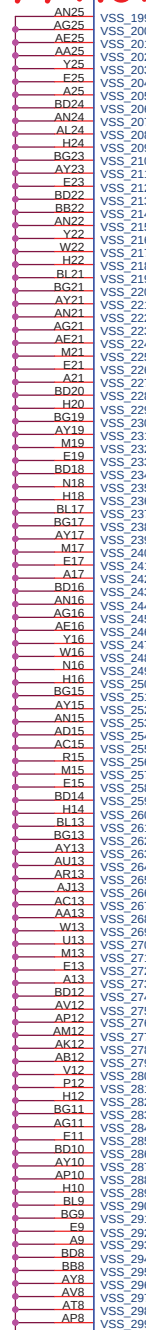
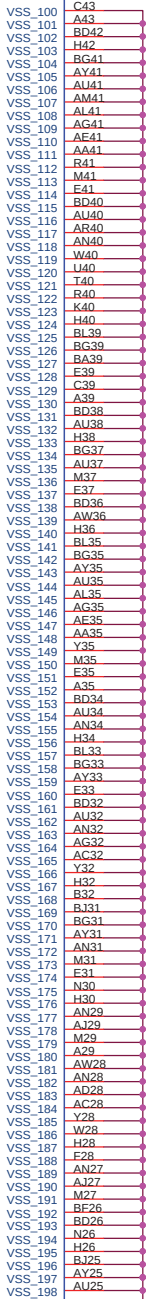
VCC SM LF







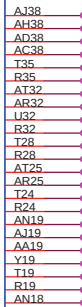
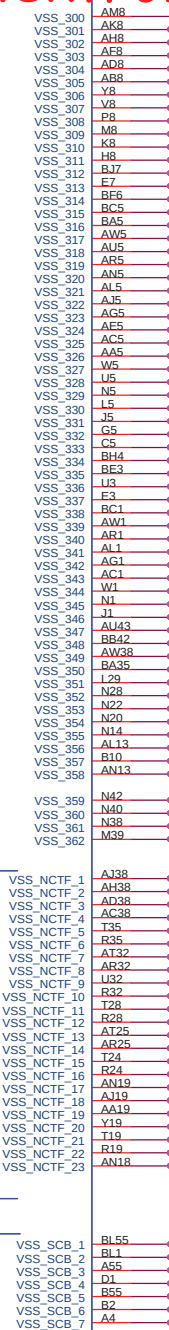
VSS

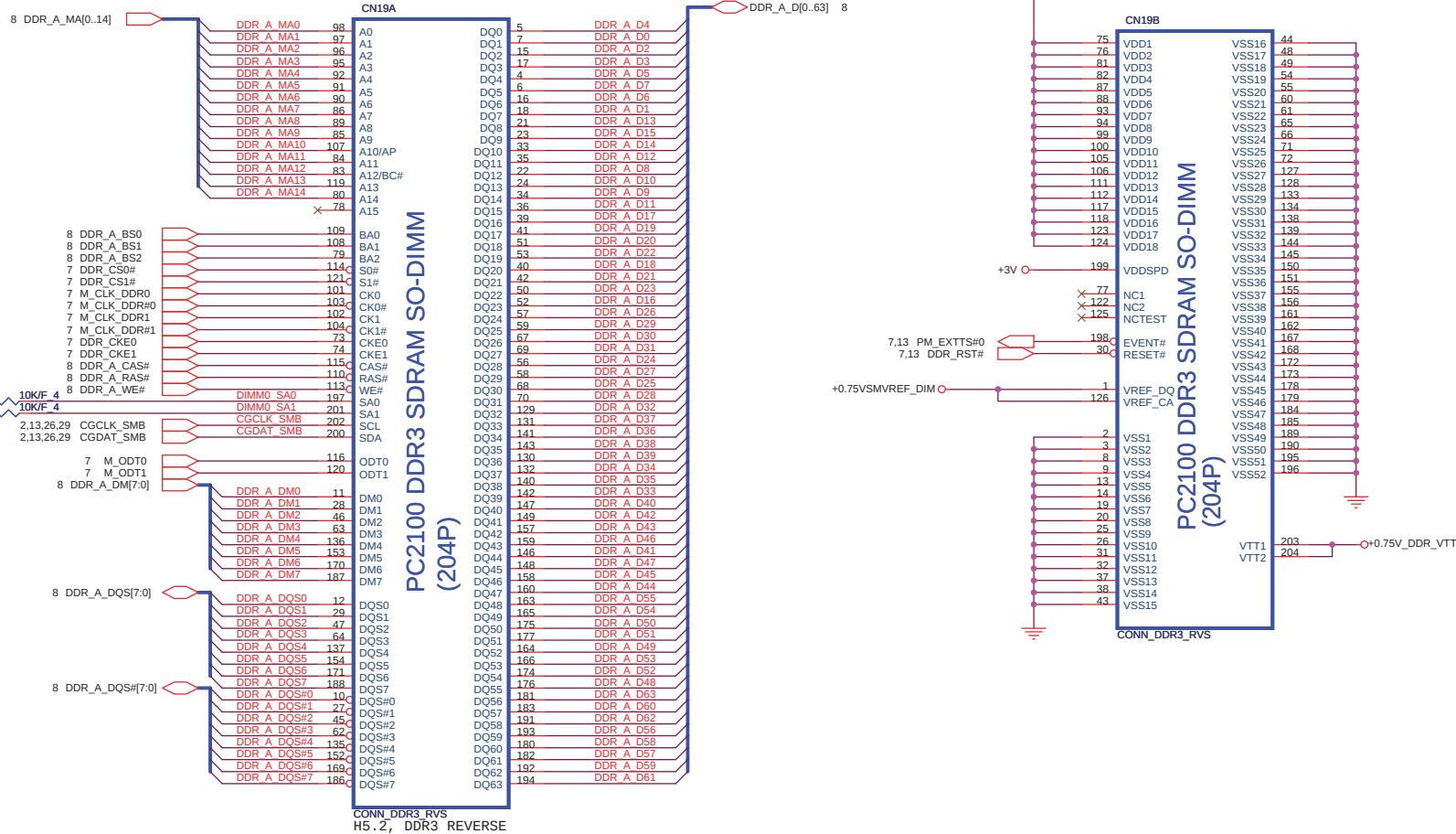


VSS

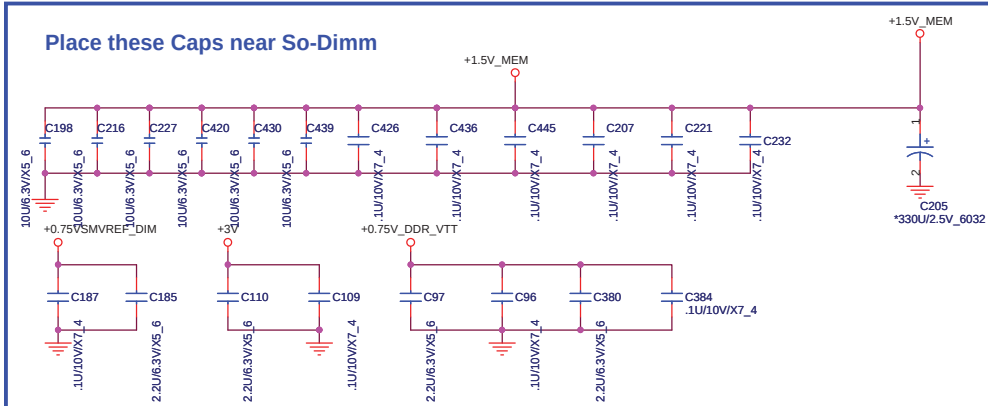
VSS NCTF

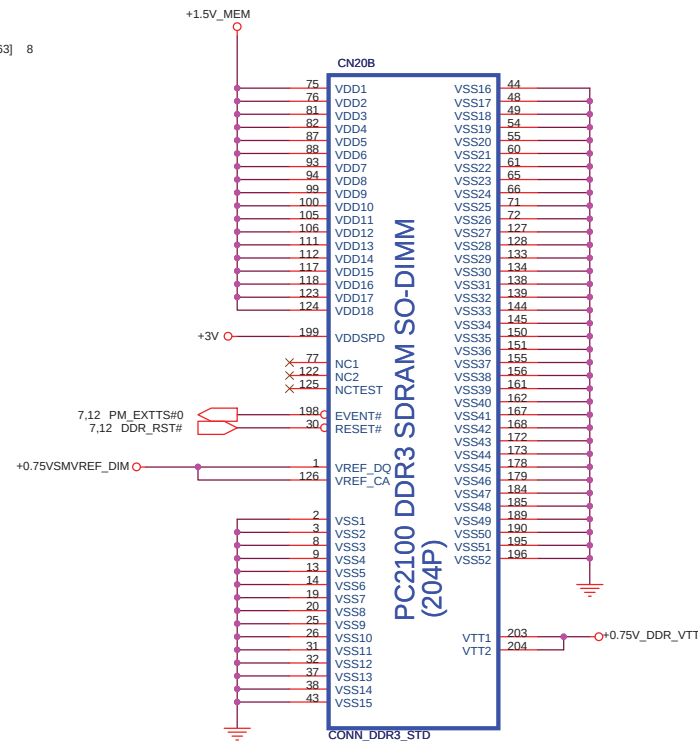
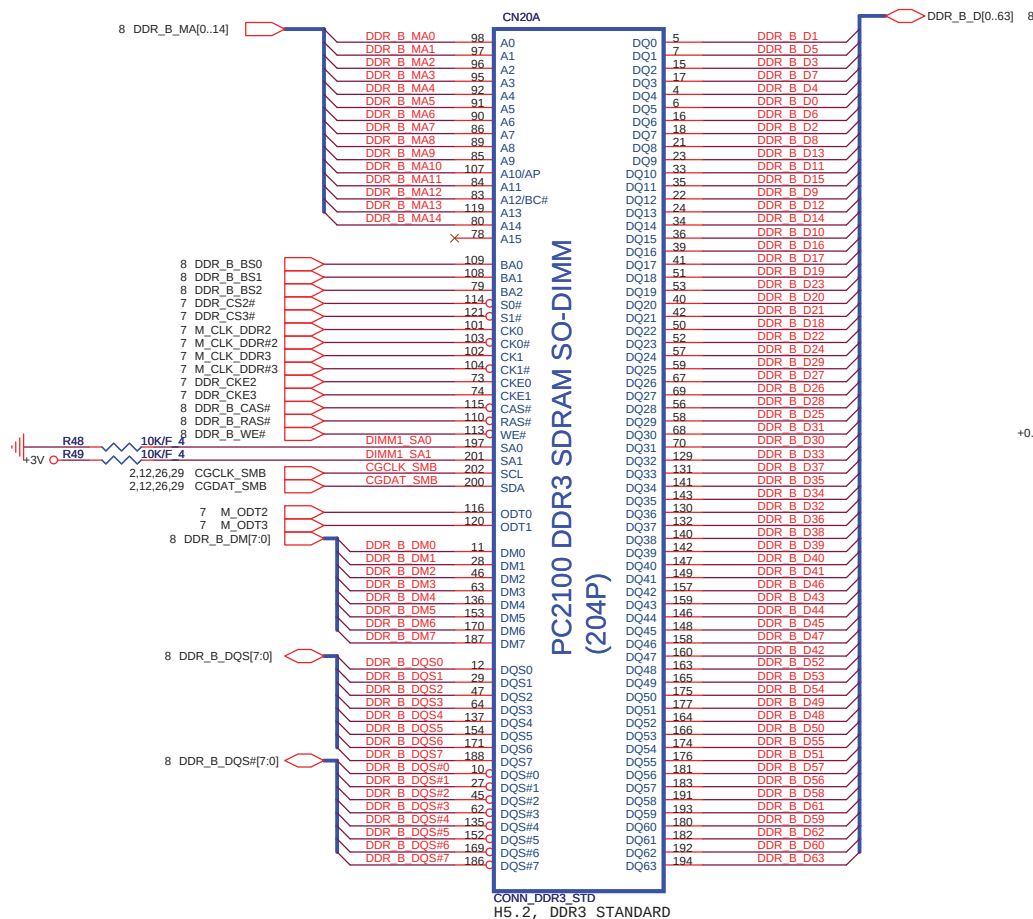
VSS SCB



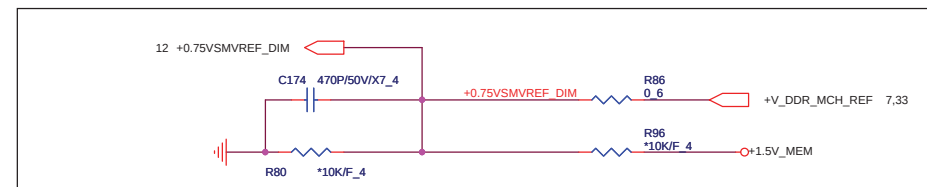
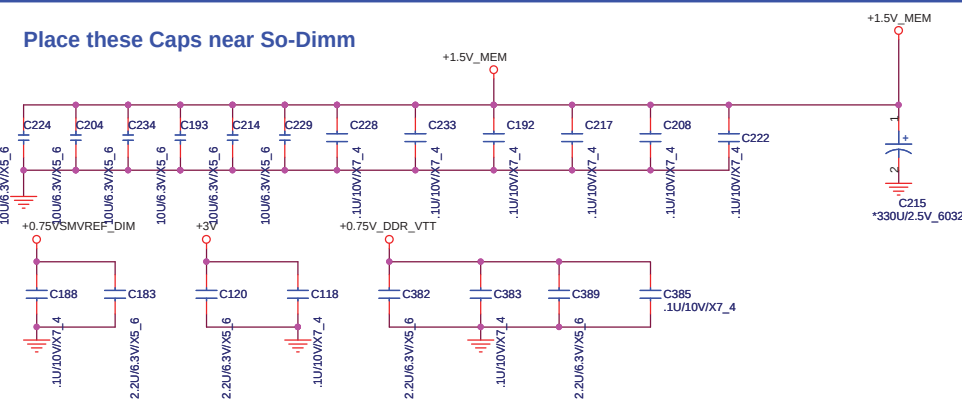


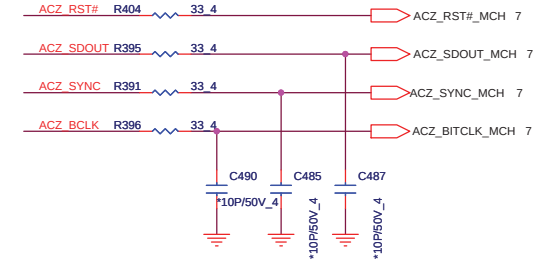
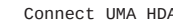
Place these Caps near So-Dimm



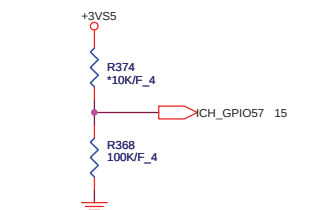
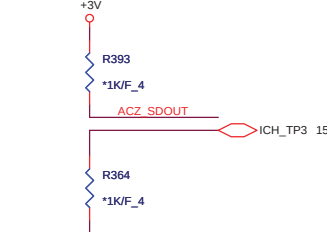


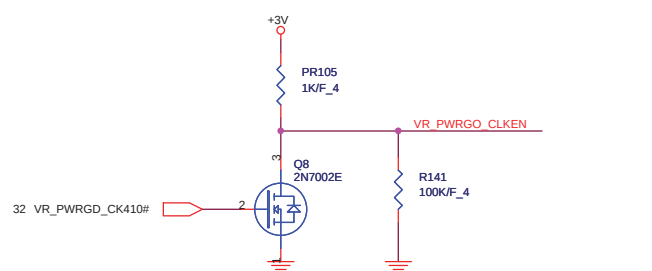
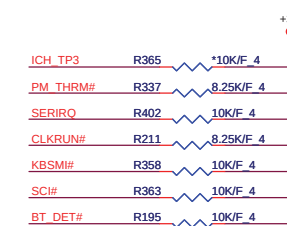
Place these Caps near So-Dimm





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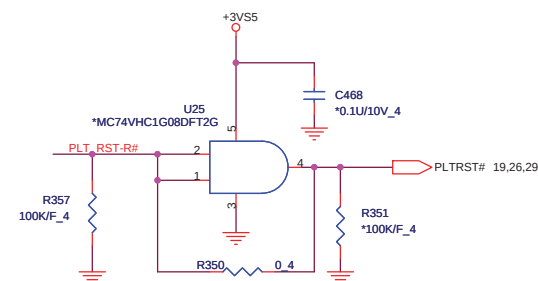
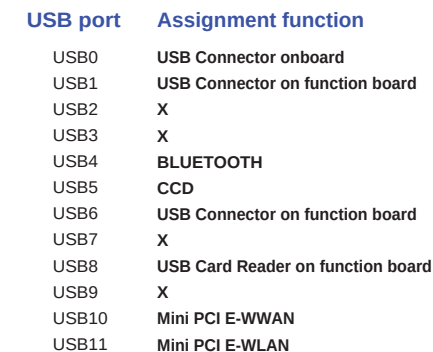


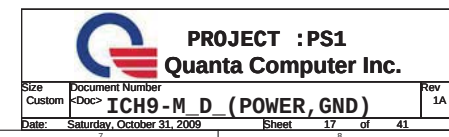


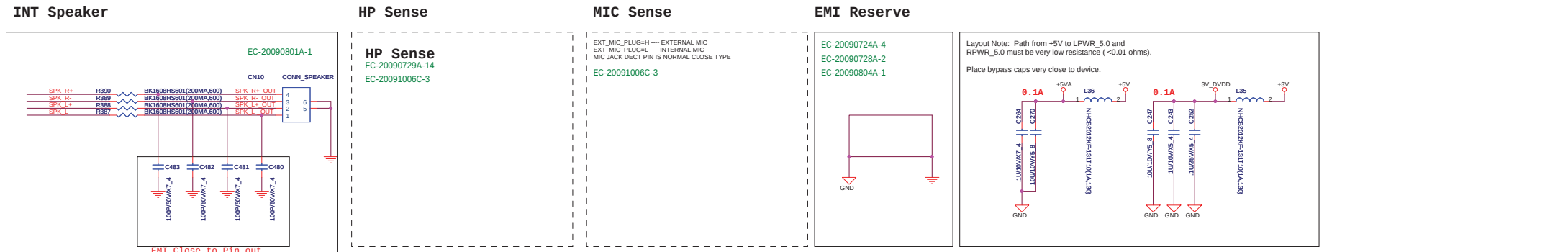
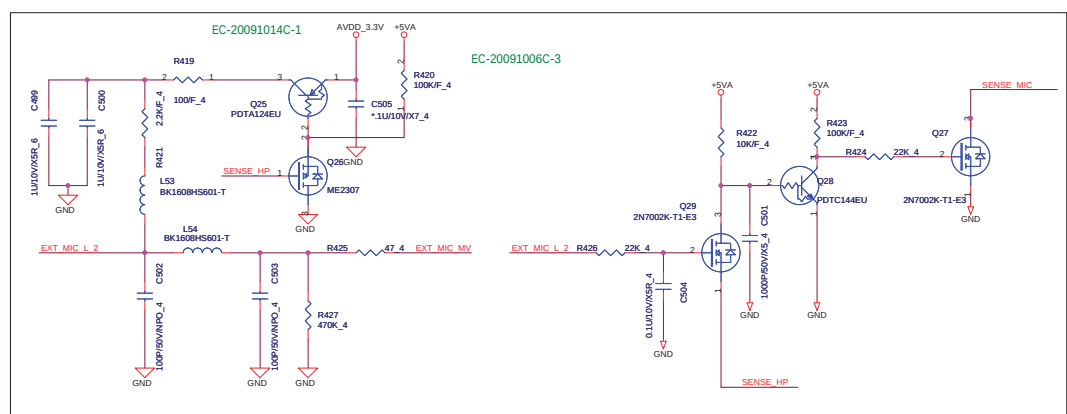
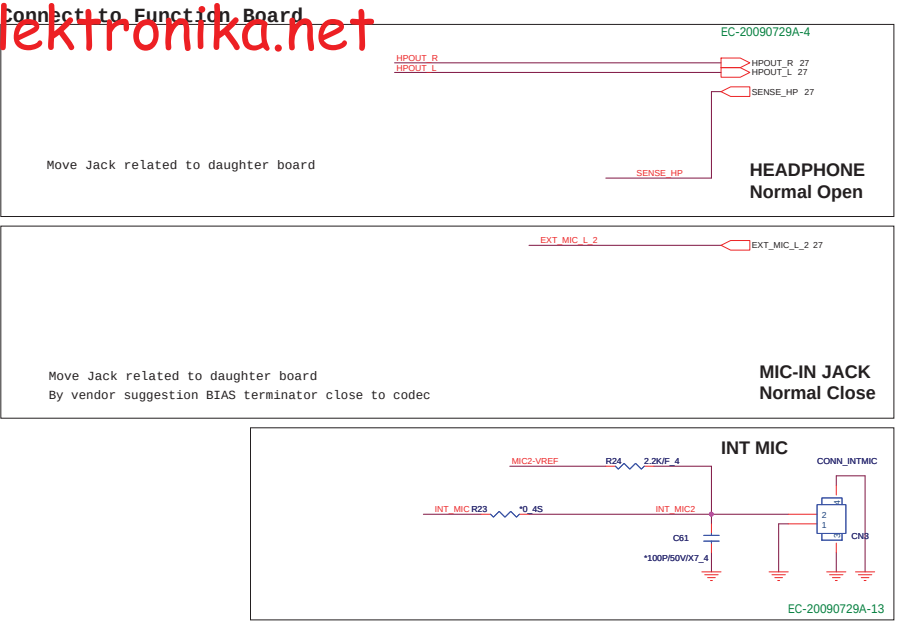
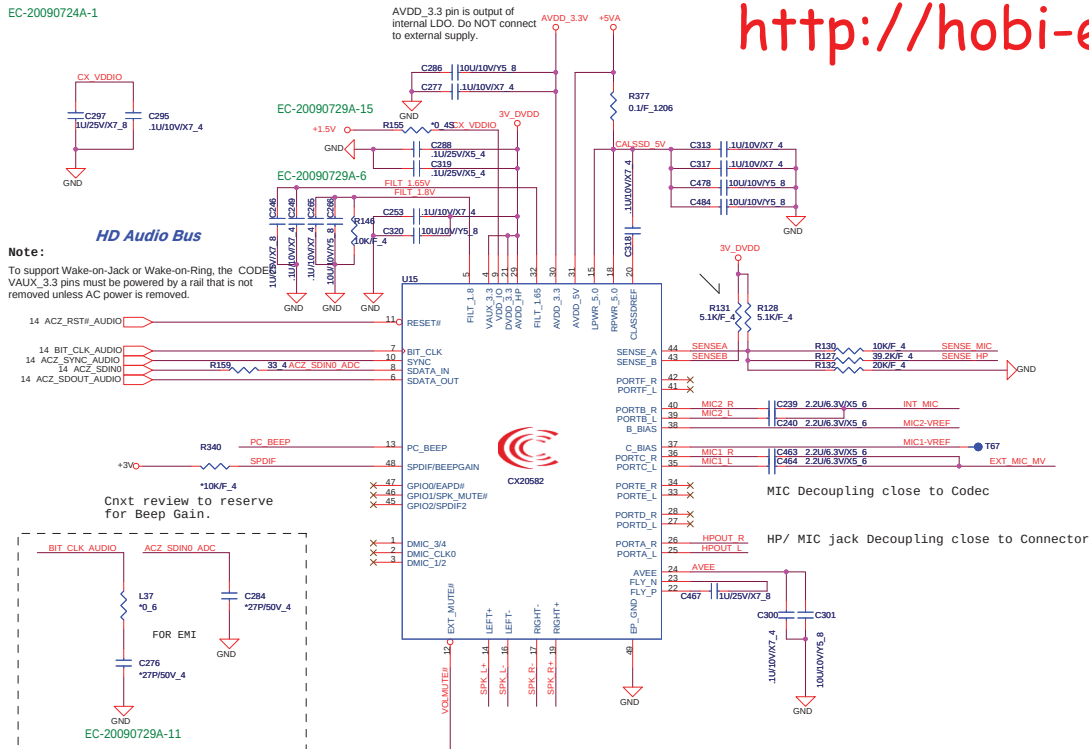
The diagram illustrates the connection of the +3V supply to the BOARD ID pins (ID0 to ID5) of the ESP8266 module. Each ID pin is connected to +3V through a 10K pull-up resistor. The ground connection is shown at the bottom right.

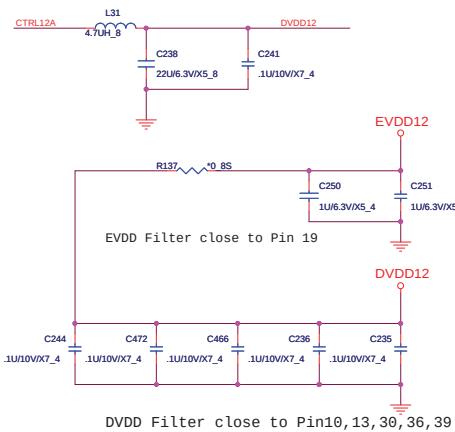
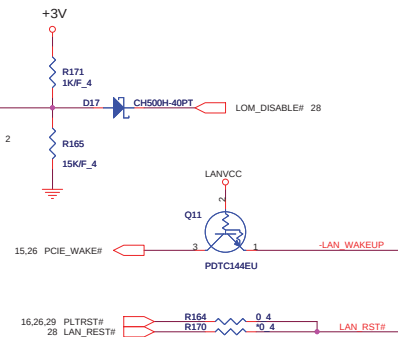
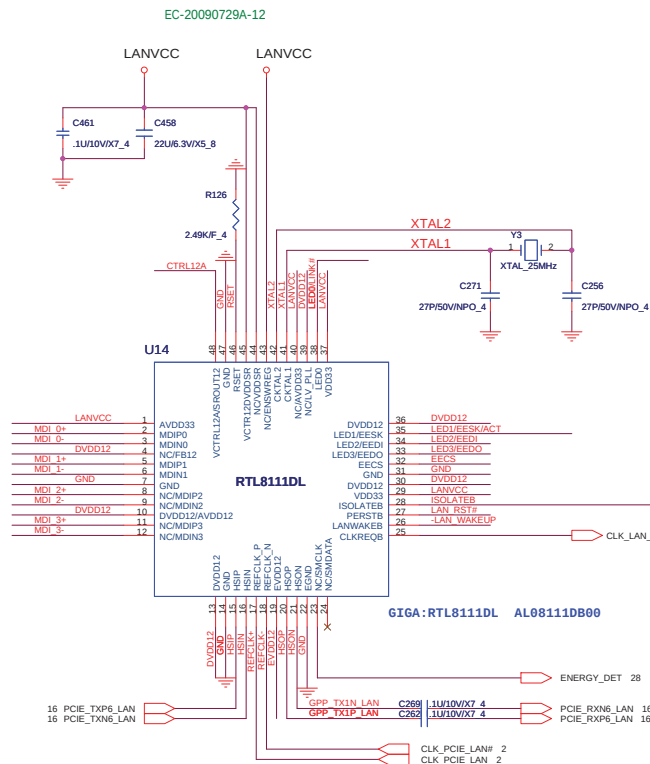
Pin	Resistor Value	Resistor Label	Pin	Resistor Value	Resistor Label
R367	10K/F	BOARD ID0	R370	10K/F	4
R362	10K/F	BOARD ID1	R359	10K/F	4
R348	10K/F	BOARD ID2	R349	10K/F	4
R354	10K/F	BOARD ID3	R355	10K/F	4
R338	10K/F	BOARD ID4	R341	10K/F	4
R344	10K/F	BOARD ID5	R345	10K/F	4



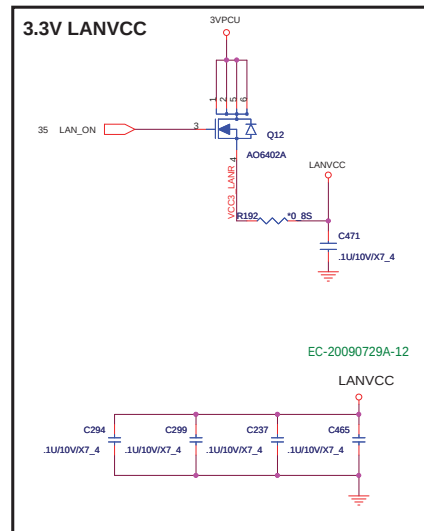
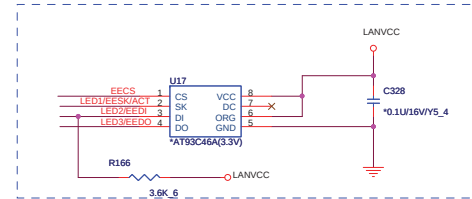






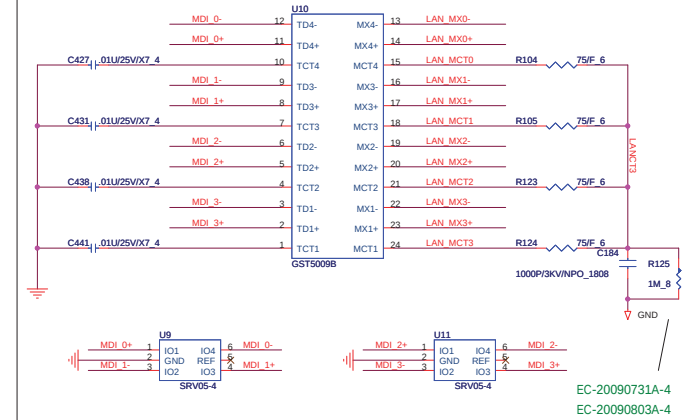


EC-20090729A-12



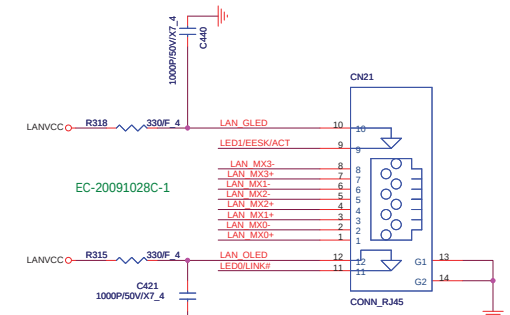
EC-20090729A-12

Transformer

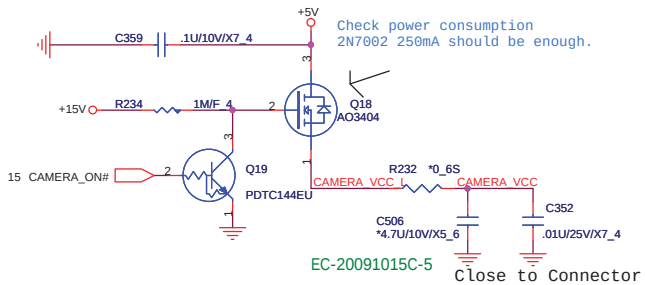


RJ45 Connector

EMI: Close RJ45 Conn.

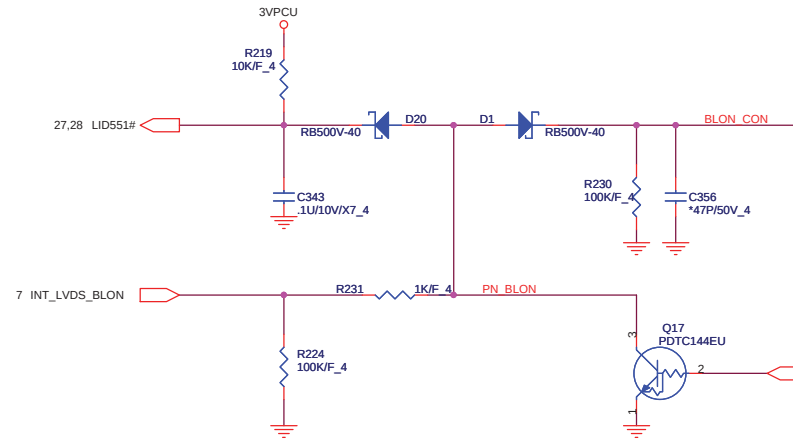


CCD POWER CONTROL

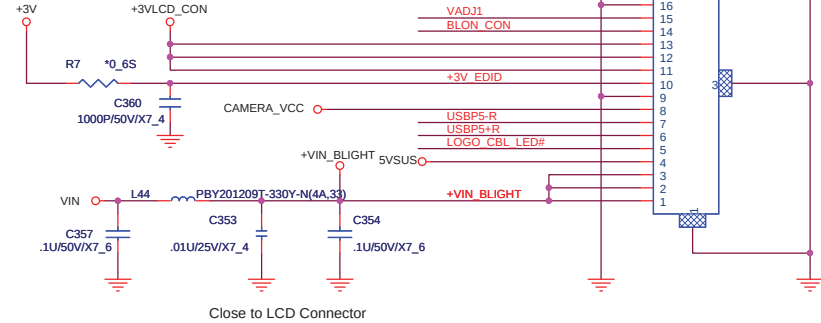
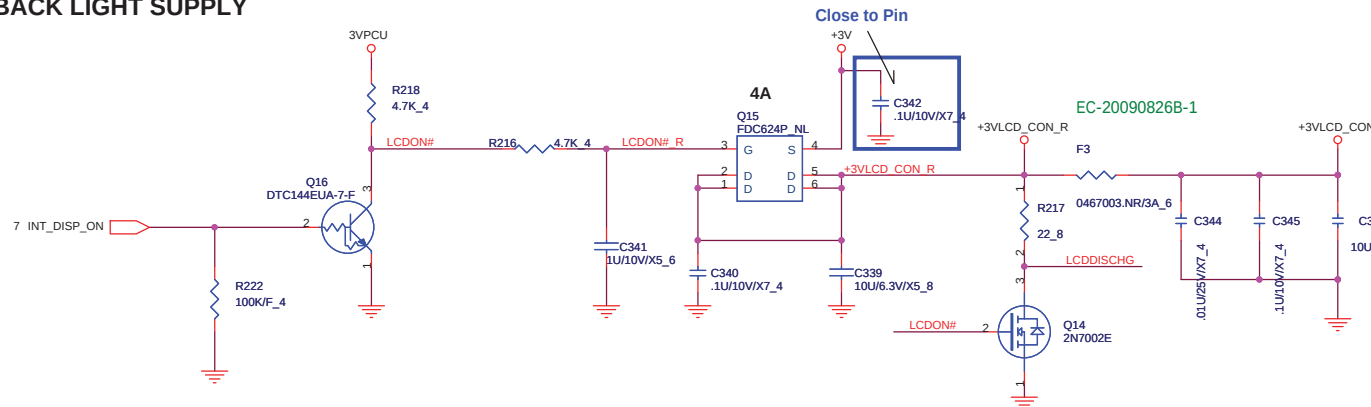


SUPPORT 13.3" LED TYPE LCD

BACK LIGHT CONTROL



BACK LIGHT SUPPLY



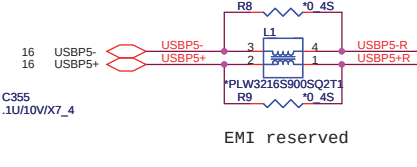
From NB

7 INT_DPST_PWM

From EC

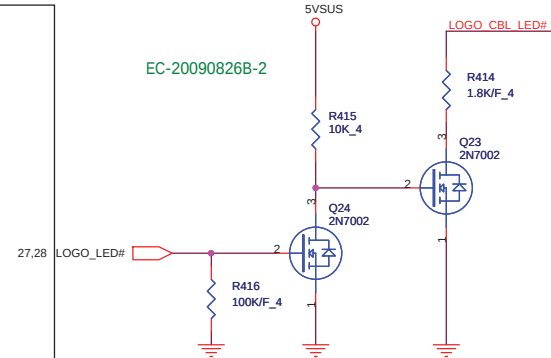
28 BRIGHT_PWM

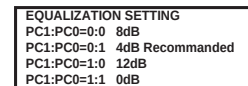
EC-20090729A-3



EC-20091028C-1

EC-20090826B-2



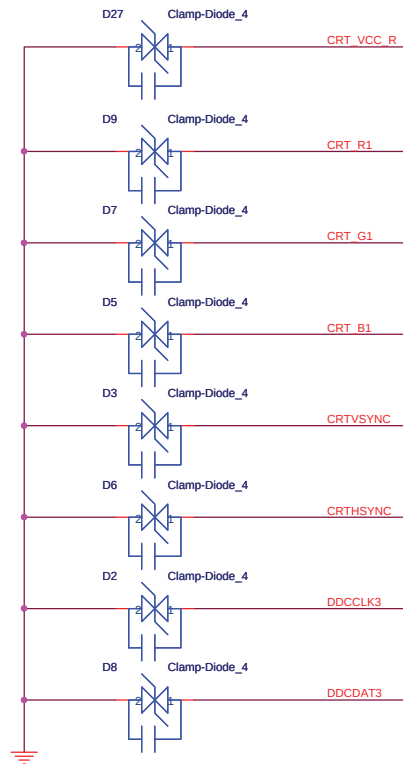


The ESD protection is build-in in PS8101



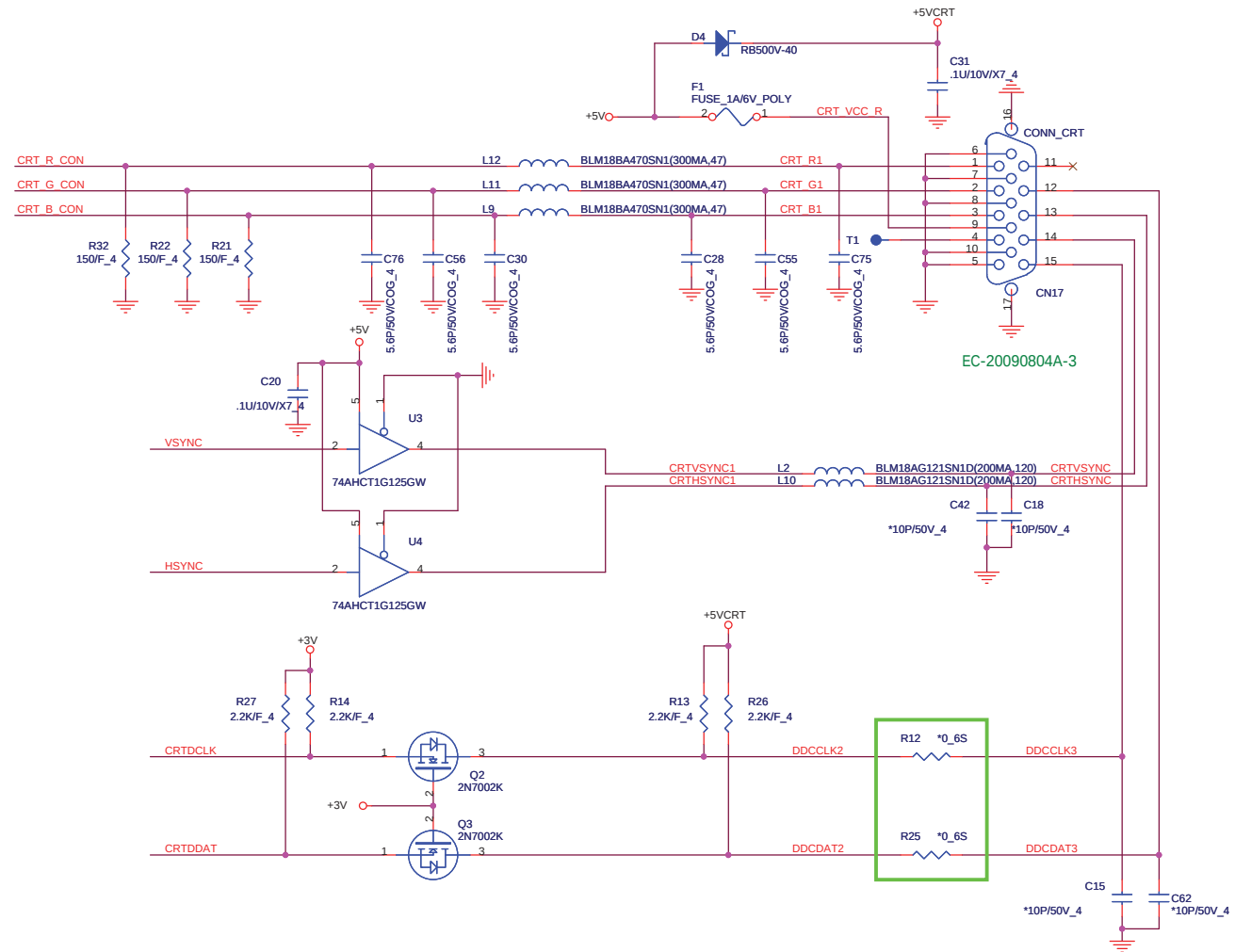
 PROJECT : PS1 Quanta Computer Inc.		Rev 1
Size C	Document Number <Doc> CONN (HDMI, level Shift)	
Date: Saturday, October 31, 2009	Sheet 21 of 41	

7 CRT_R_CON
7 CRT_G_CON
7 CRT_B_CON
7 HSYNC
7 VSYNC
7 CRTDCLK
7 CRTDDAT



By ESD suggestion EC-20090805A-3

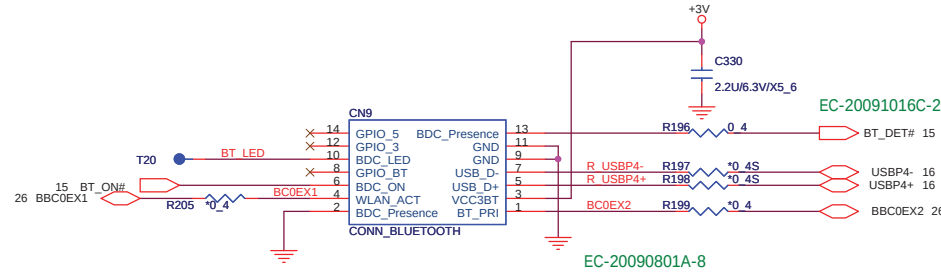
EC-20090826B-3



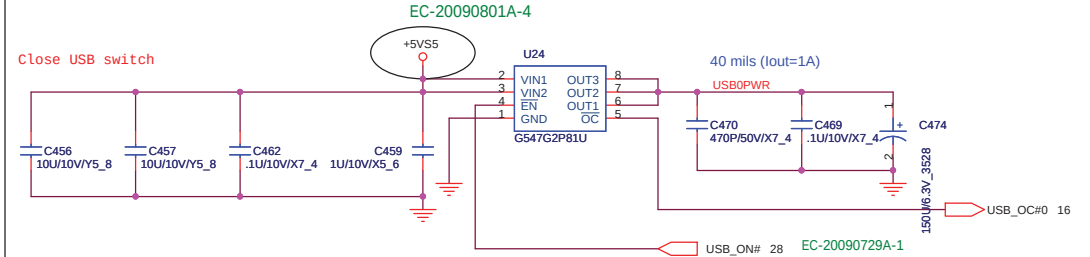
Blue Tooth control

EC-20090729A-3

EC-20090730A-1

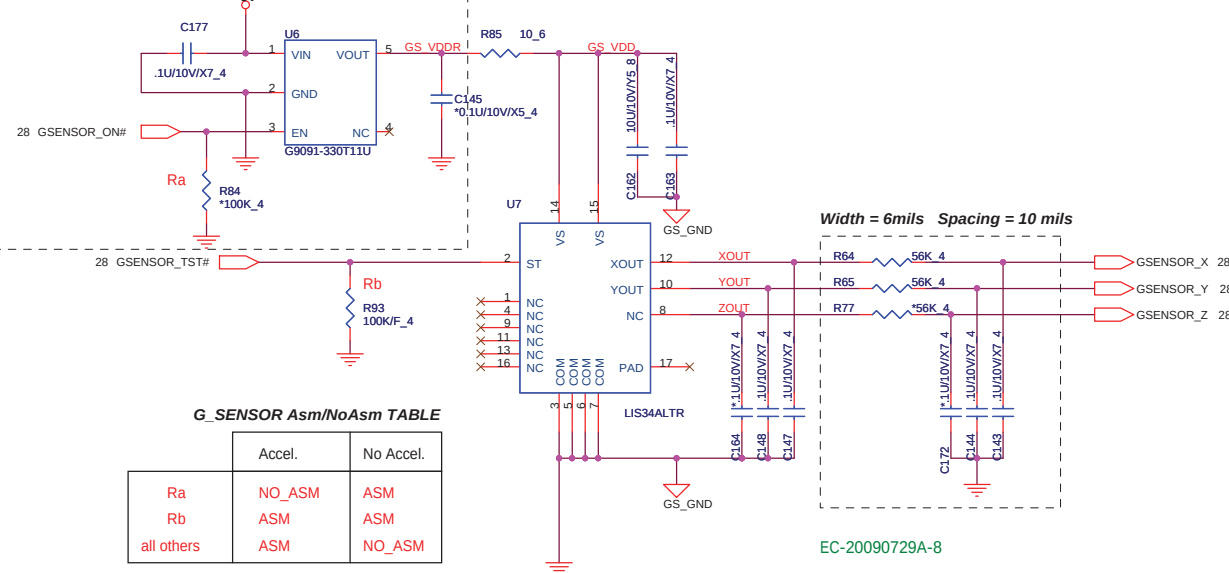


Close USB switch



Accelerometer Sensor

EC-20090801A-3

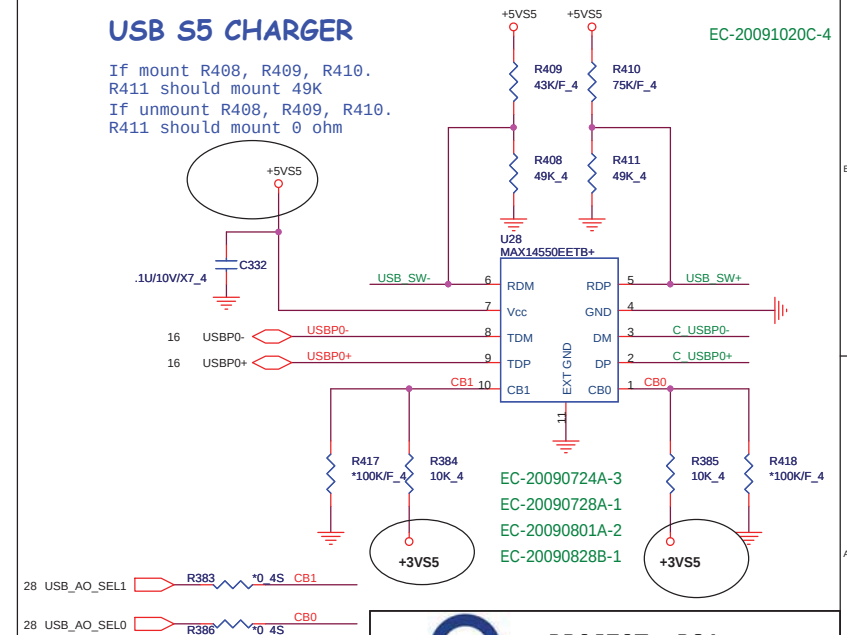


G_SENSOR Asm/NoAsm TABLE

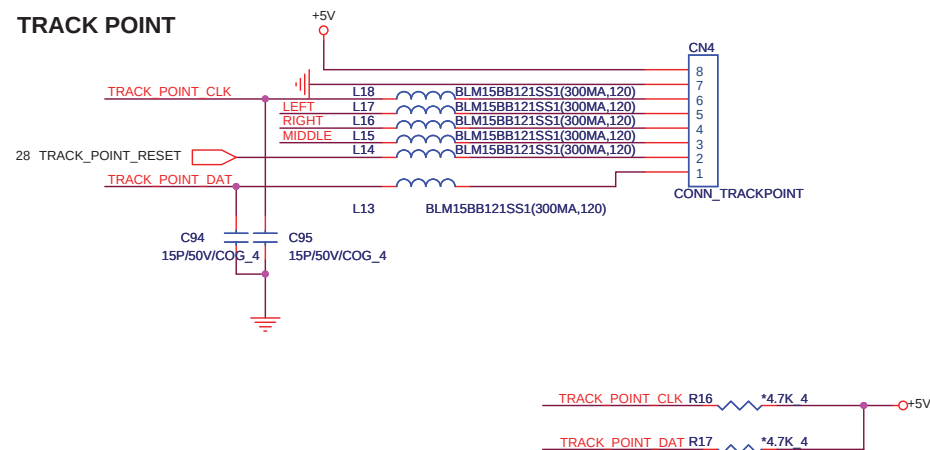
	Accel.	No Accel.
Ra	NO_ASM	ASM
Rb	ASM	ASM
all others	ASM	NO_ASM

USB S5 CHARGER

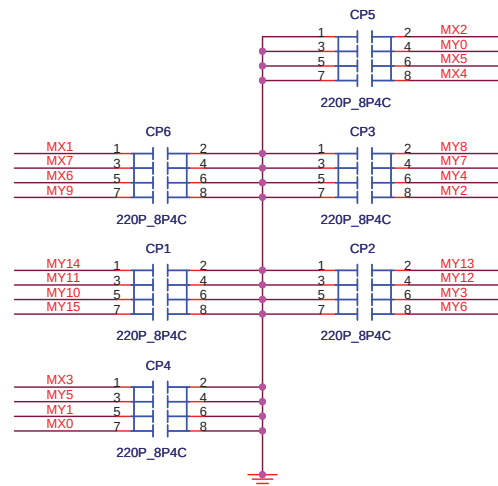
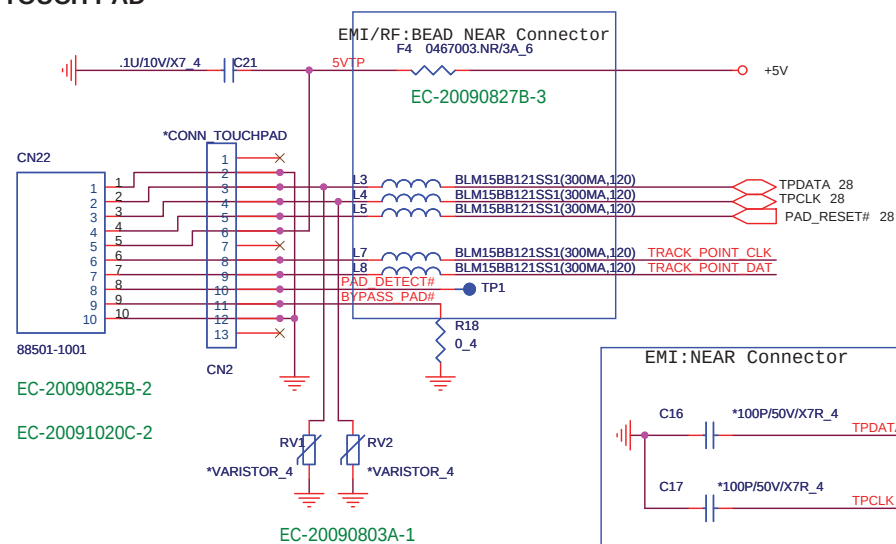
If mount R408, R409, R410.
R411 should mount 49K
If unmount R408, R409, R410.
R411 should mount 0 ohm



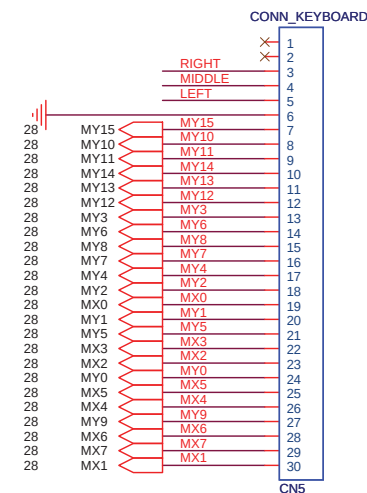
TRACK POINT



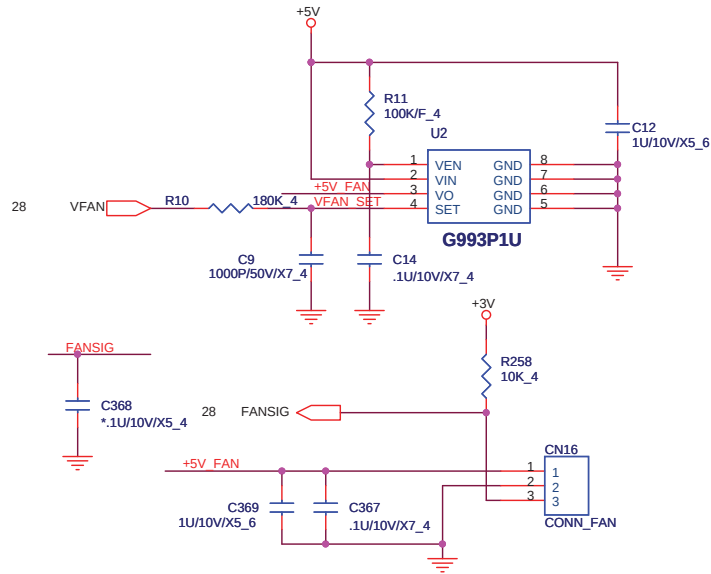
TOUCH PAD



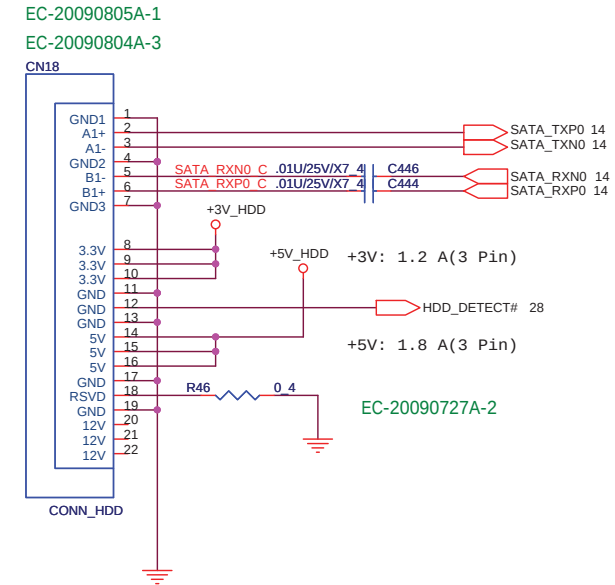
KEYBOARD connector



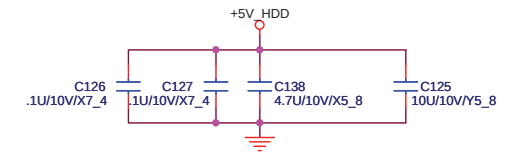
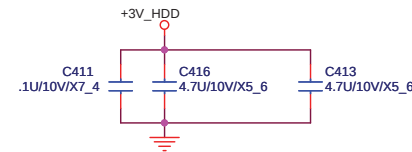
FAN CONTROL



SATA-HDD CONNECTOR



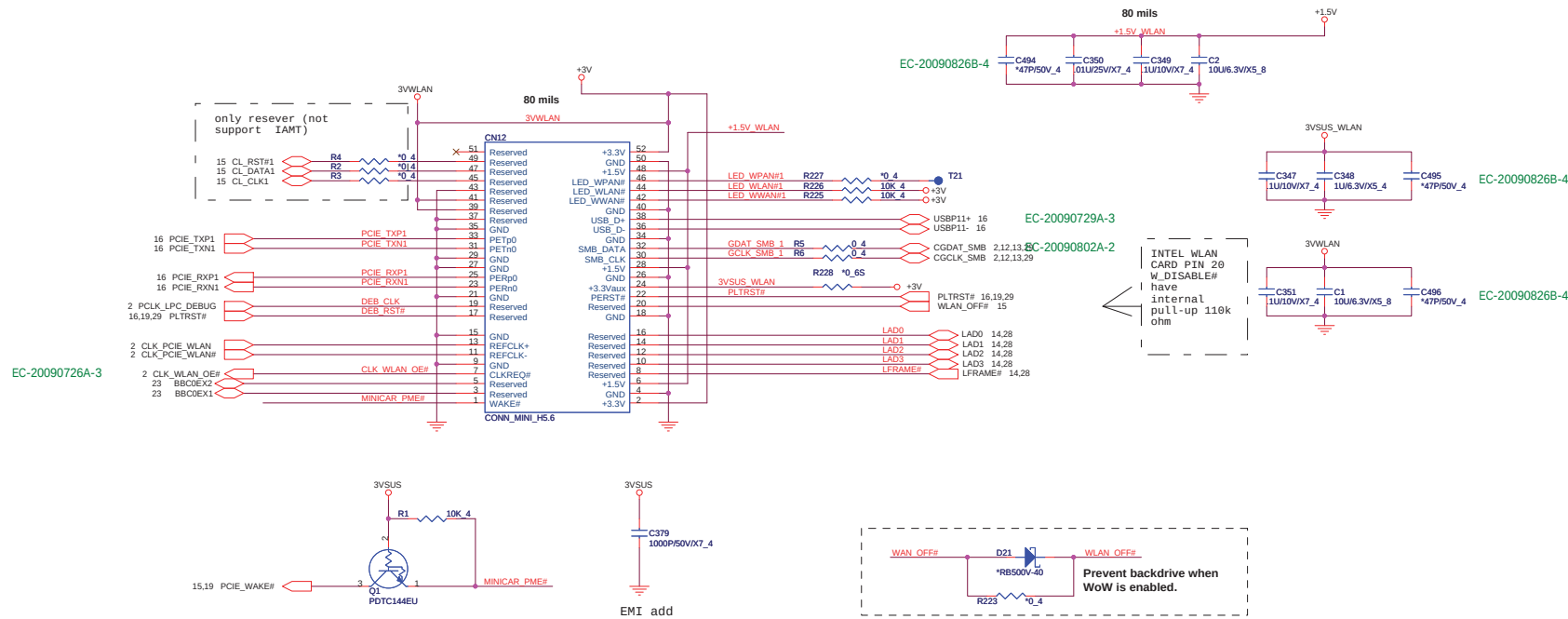
Reserved for power consumption measurement



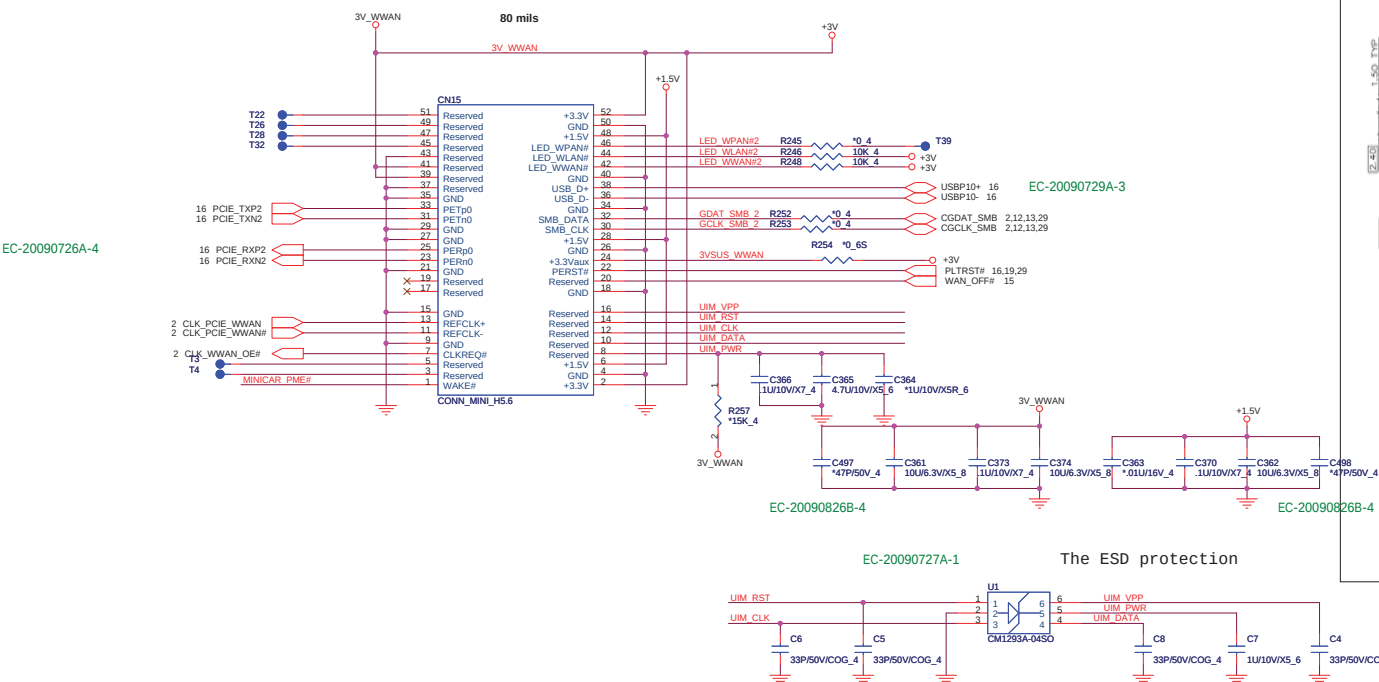
PROJECT : PS1
Quanta Computer Inc.

Size B	Document Number <Doc>	Rev 1A
Date: Saturday, October 31, 2009	CONN (HDD, FAN)	
Sheet 25	of 41	

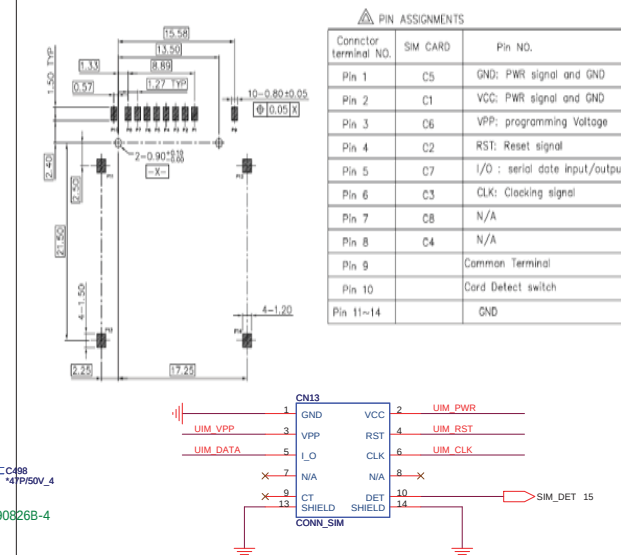
Mini PCI-E Card 1
WLAN



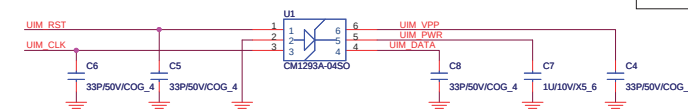
Mini PCI-E Card 2
WWAN(W/SIM)



SIM SOCKET

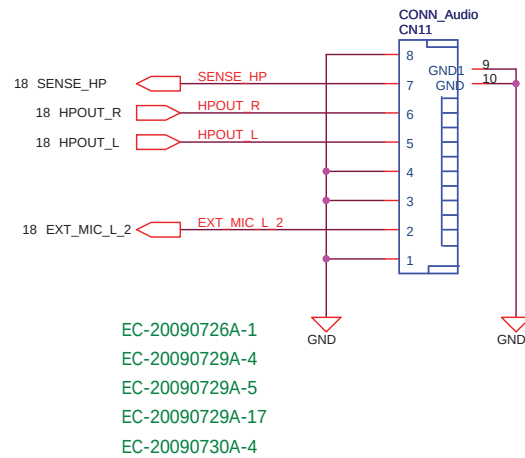


The ESD protection



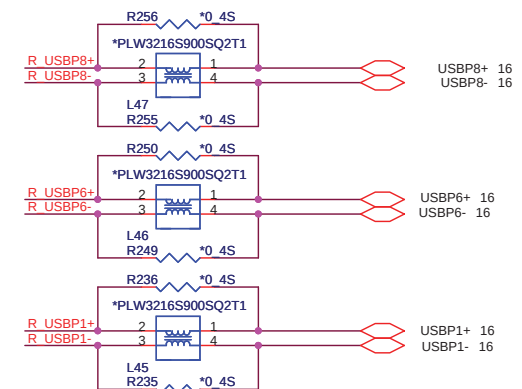
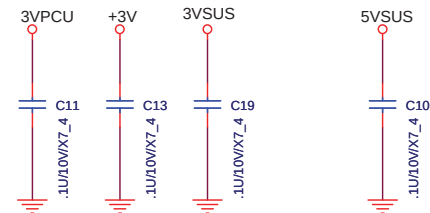
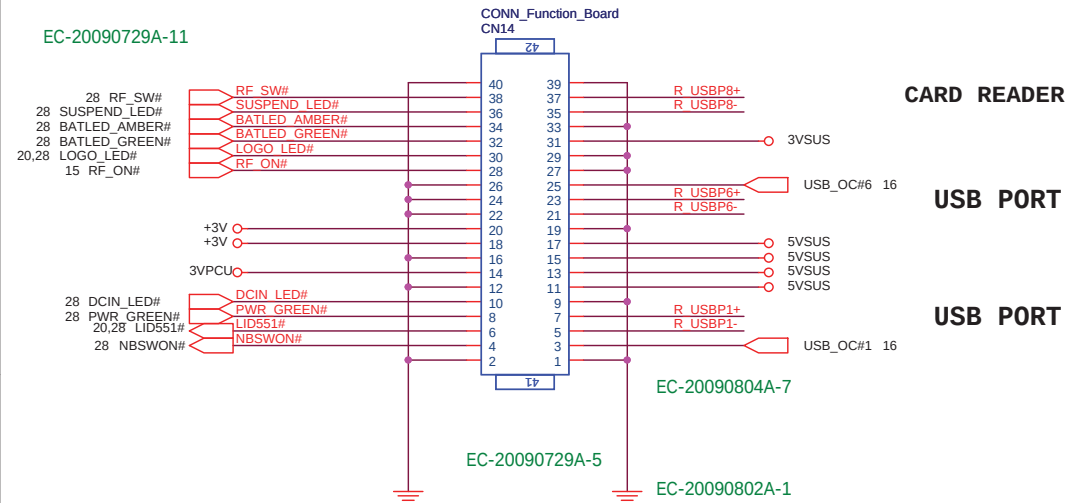
EC-20090726A-1

Audio connect

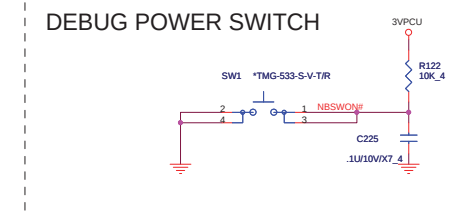
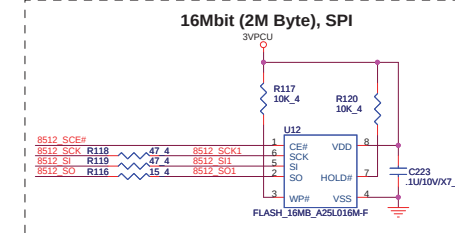


EC-20090729A-11

EC-20090726A-2

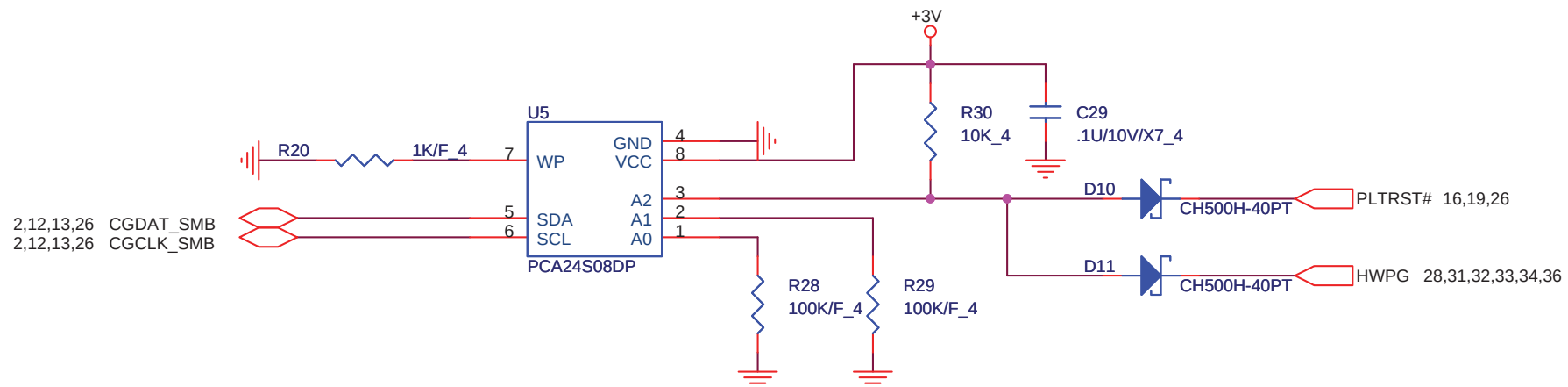


		PROJECT : PS1	
		Quanta Computer Inc.	
Size B	Document Number	Rev 1A	
	<Doc> CONN (Wire to Board)		
Date:	Saturday, October 31, 2009	Sheet	27 of 41



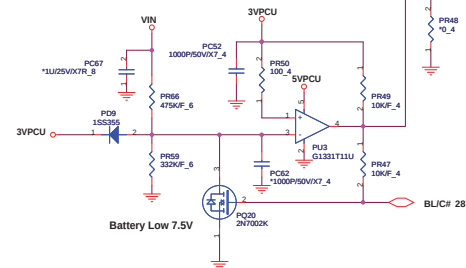
RFID EEPROM

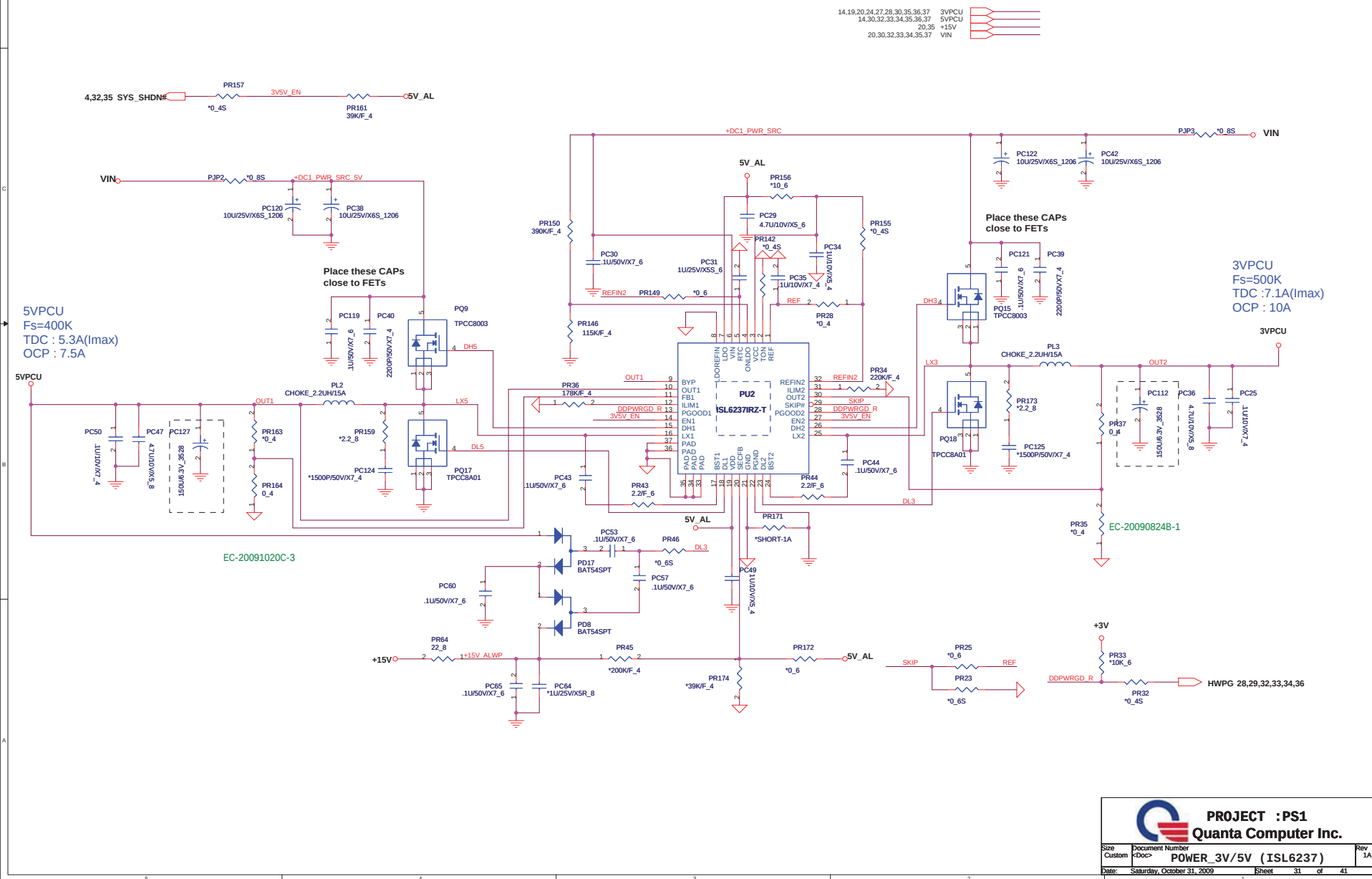
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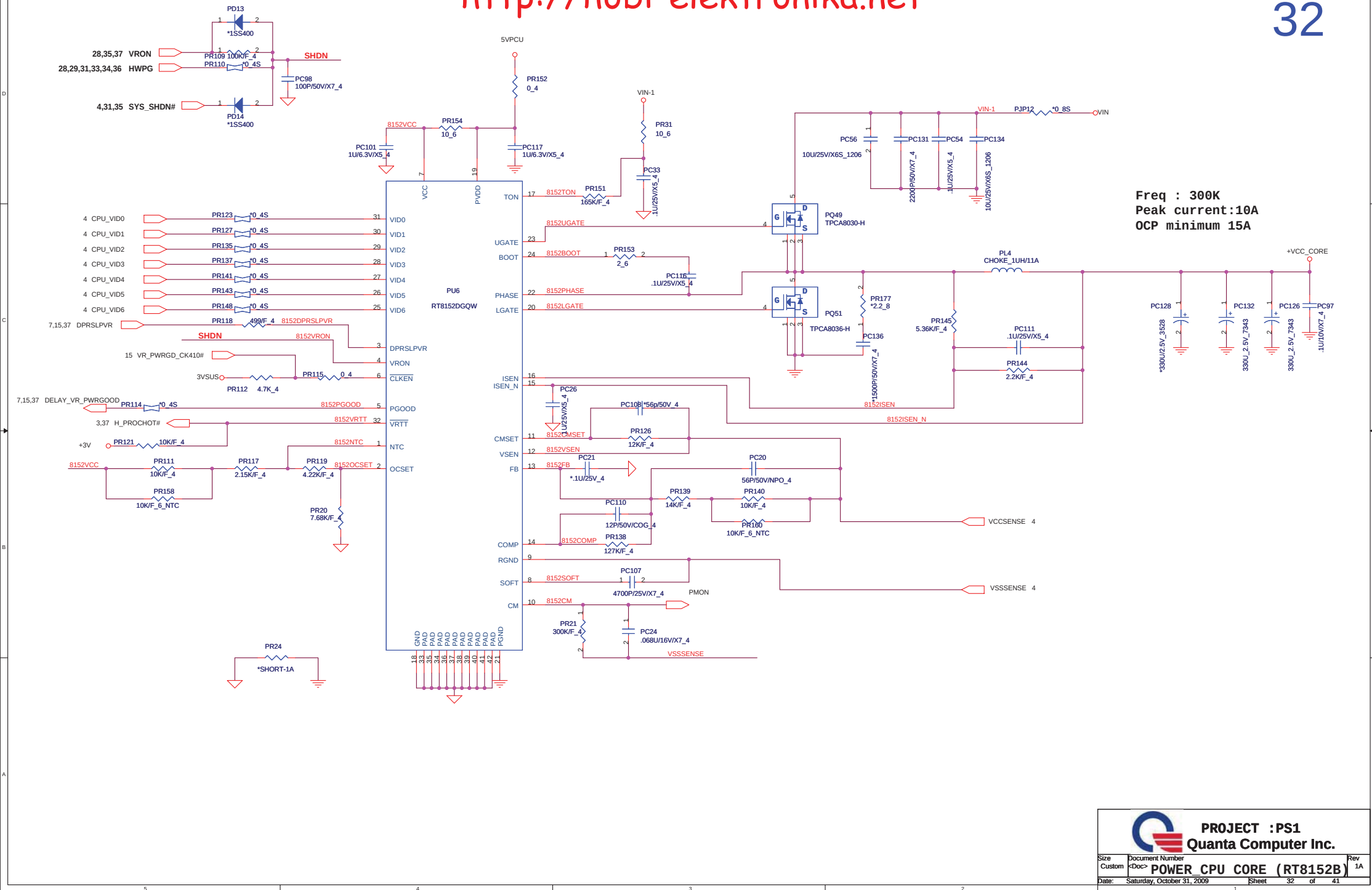


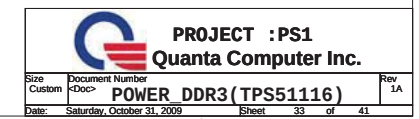
PROJECT : PS1
Quanta Computer Inc.

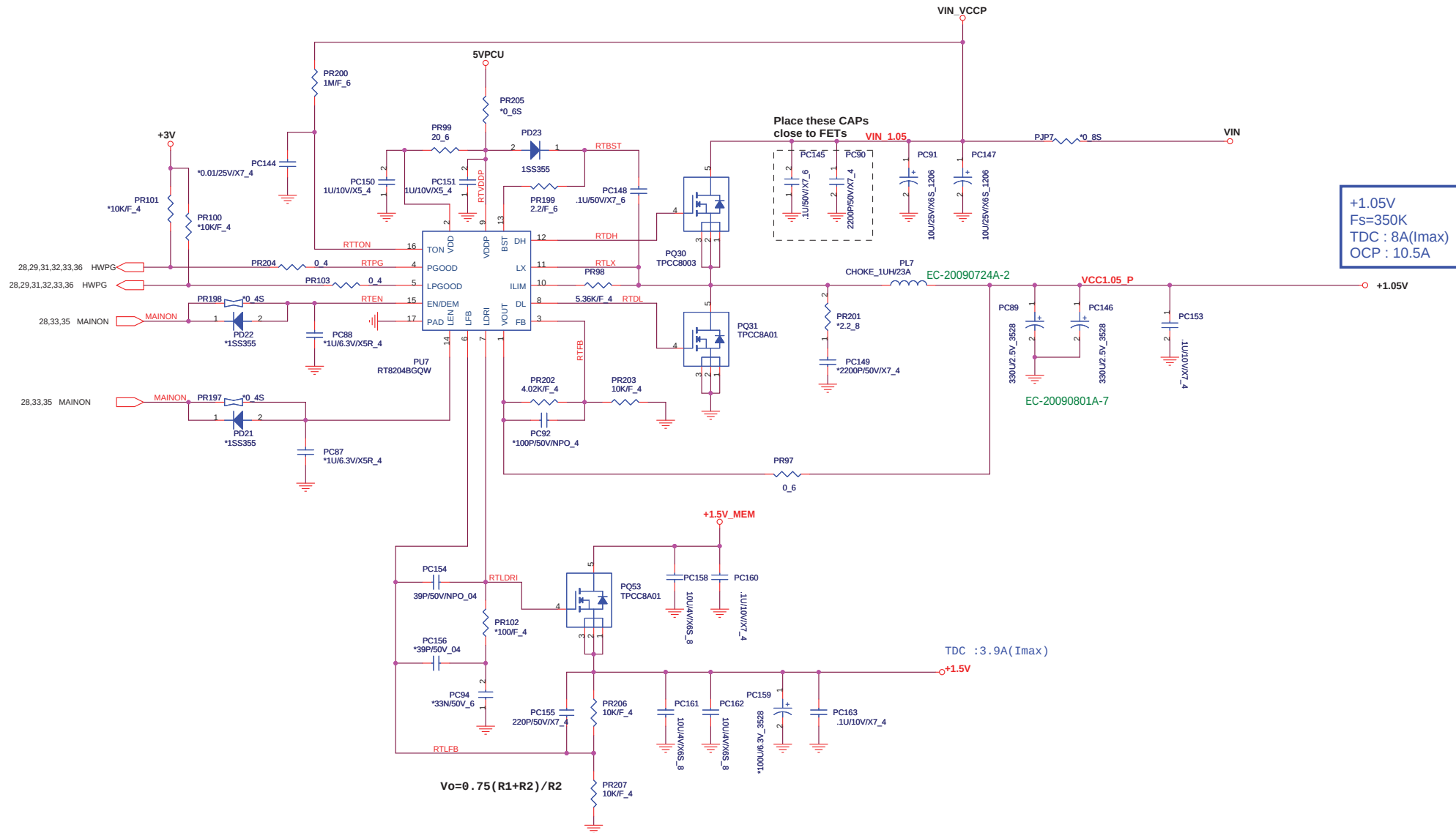
Size A	Document Number <Doc>	Rev 1A
Date:	Saturday, October 31, 2009	Sheet 29 of 41



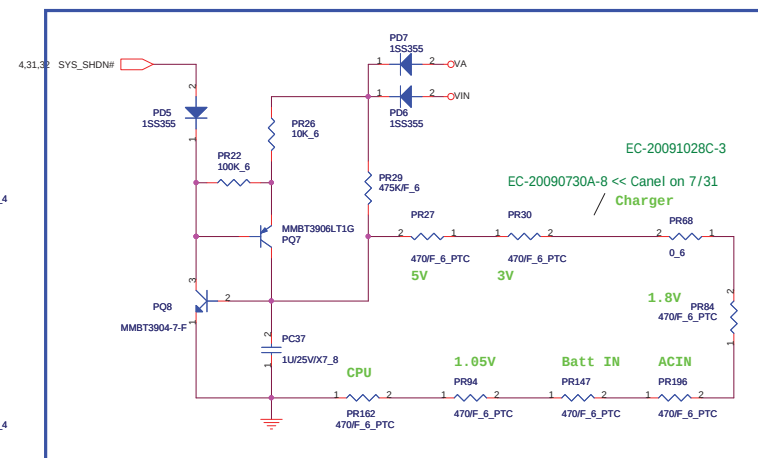
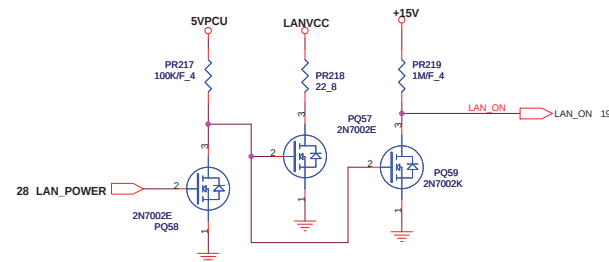
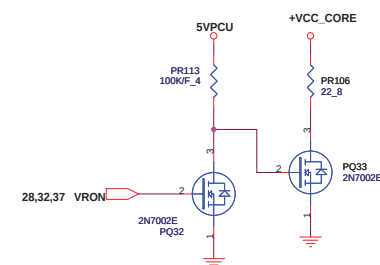
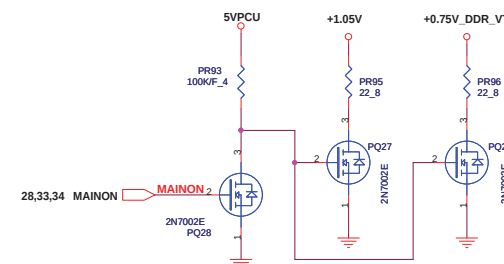








PROJECT : PS1
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EC-20090804A-2
EC-20091020C-1

<http://hobi-elektronika.net>

37

EC-20090726A-5

$t_{SW} = 16.3pF \times (R_{TON} + 6.5K)$
 $f_{sw} = 300KHz$

EC-20090824B-2

EC-20090726A-5

PU5
*MAX8796GTJ+

EC-20090813B-1

Load-line=-6.9mV/A

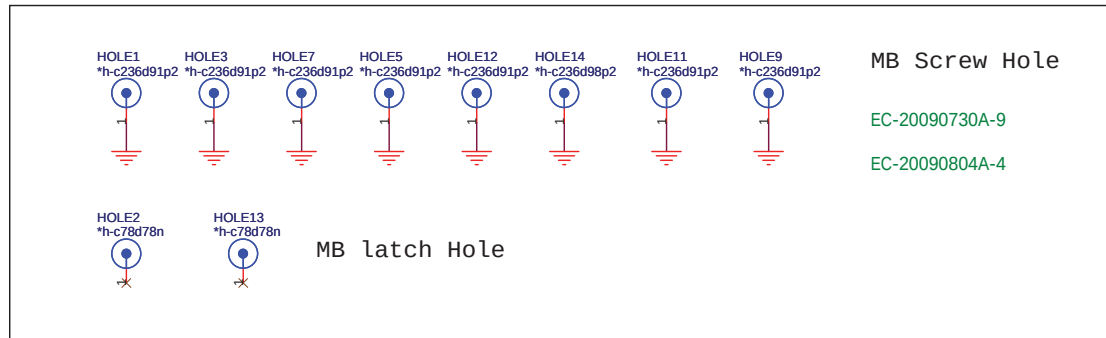
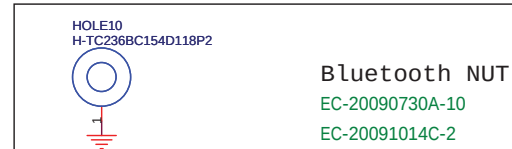
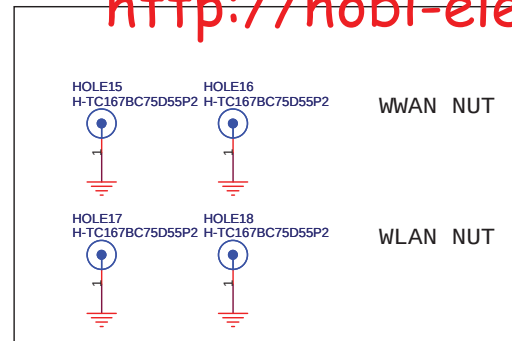
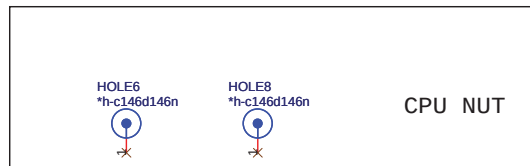
PS-Mika check with TIM about VCC_SENSE and VSS_SENSE

PS-Mika check with TIM



PROJECT :PS1
Quanta Computer Inc.

Size Custom	Document Number <Doc>	Rev 1A
POWER_Render (MAX8796GTJ+)		
Date:	Saturday, October 31, 2009	Sheet 37 of 41



EC-20090723A-1	P28	BIOS RECOMMAND	Pin Definition follow G-note setting
EC-20090724A-1	P18		Change audio codec circuit from ALC269 to CX20582.
EC-20090724A-2	P30	Power RECOMMAND	Update PC19, PL1, PQ2, PQ6, PQ7, PQ9 footprint
	P31		Update PL2 and PL3 footprint
	P33		Update PL5 footprint
	P34		Update PL6 footprint
EC-20090724A-3	P23		Add USB sleep charge schematic for BlackBerry
EC-20090724A-4	P18	EMI RECOMMAND	Reserve 0-ohm to separate AGND and GND
EC-20090726A-1	P27		Add Audio connector (wire to board)
	P27		Remove original U350 Power connector and Led connector (wire to board)
EC-20090726A-2	P27		Change Function connector from 30pin to 40pin (wire to board), because combine with Power and Led function
EC-20090726A-3	P2		Rename the CLK_MINI_OE# to CLK_WLAN_OE#
	P26		Rename the CLK_MINI_OE# to CLK_WLAN_OE#
EC-20090726A-4	P2		Add WWAN CLK(CLK_PCIE_WWAN) and WWAN CLKREQ#(CLK_WWAN_OE#)
	P14		Remove SATA signal
	P16		Add WWAN PCI-E signal
	P26		Mini-PCIE connector interface change from SATA-IF to WWAN-IF
EC-20090726A-5	P7		Connect VID and Enable pin between NB and MAX8796
	P9		Reserve Render standby power for NB
	P37		Connect VID and Enable pin between NB and MAX8796
EC-20090727A-1	P23		Add ESD protection at USB Port
	P26		Add ESD protection at SIM-Card
EC-20090727A-2	P25		Reserve 0ohm on SATA Pin-18 for Gen1 or Gen2
EC-20090728A-1	P23		Modify USB charge circuit, CB0 and CB1 pull high with 5VPCU
	P23		R445 and R447 change to stuff
EC-20090728A-2	P18		All AGND net-name change to GND, But keep original symbol
EC-20090728A-3	P38		Add NUT for SB Thermal module used
EC-20090729A-1	P23		Connect USB_ON# control pin, to enable USB Power switch
	P28		Connect USB_ON# control pin, to enable USB Power switch
EC-20090729A-2	P14		Change Y4 footprint for accurate component
EC-20090729A-3	P16	SW RECOMMAND	Swap USB port by SW suggestion
	P20		Swap CCD USB By SW suggestion
	P23		Swap Bluetooth USB By SW suggestion
	P26		Swap Mini-PCIE USB By SW suggestion
EC-20090729A-4	P18		Remove SPDIF Function
	P27		Remove SPDIF Function
EC-20090729A-5	P27		Swap Function-board connector pin definition
	P27		Swap Audio-connector pin definition
EC-20090729A-6	P18		Change C300 to 0.1u capacitor and Add R455 for discharge Path
EC-20090729A-7	ALL		Change the Short-pad to 0-ohm Resistor, 0402_SIZE : R99, R20, R27, R265, R58, R262, R260, R72, R101, R138, R3, R4, R281, R283, R274, R79, PR106, PR110, PR111, PR112, PR113, PR114, PR120, PR122, PR124 0603_SIZE : R45, R57, L61, L62, R193, R2, L2, L3, L38, L7, R210, R224, R222, R341 0805_SIZE : R13, R30, R158, R165, R430, R271, R60
EC-20090729A-8	P23		Reserve GSENSOR_Z signal so R376, C489, C490 no-stuff
EC-20090729A-9	P10		Change C192, C194, C213 value from 330U to 220U and add C581 Capacitor Change C78, C214 value from 10U to 22U Change R14 value from 1-ohm to 0.5-ohm
EC-20090729A-10	P9		For power rating concern, so change 0-ohm Resistor to Power-Jump
EC-20090729A-11	P27		Connect DCIN_LED# and LOGO_LED# between EC and Function-board connector
	P28		Connect DCIN_LED# and LOGO_LED# between EC and Function-board connector
EC-20090729A-12	P19		Remove RTL8103 circuit note (10/100M-Lan)
EC-20090729A-13	P18	ME RECOMMAND	Change INT_MIC connector footprint
EC-20090729A-14	P18		Add headphone sense circuit.
EC-20090729A-15	P18		Change R455 Symbol from Capacitor-type to Resistor-type
EC-20090729A-16	P30		Swap the DC_IN connector for layout routing
EC-20090729A-17	P27		Swap Audio-connector pin definition, follow daughter change

EC-20090730A-1	P23	Update Bluetooth Connector	Change Connector Type to follow latest ME placement.
EC-20090730A-2	P21	Update HDMI Connector	Change Connector Type to follow latest ME placement.
EC-20090730A-3	P15	Connect BT_DET#	Connect BT_DET# from BT conn. to GPIO48.
EC-20090730A-4	P27	Update Audio 8Pin singal	Update Audio wire to board cable pin definition.
EC-20090730A-5	P27	Delet +5V EMI filter	Due to delete SPDIF feature, no +5V needed on this conn.
EC-20090730A-6	P29	Update Bluetooth Connector	Change Connector Type to follow latest ME placement.
EC-20090730A-7	P37	Change Footprint	Change PC176/PC177 to small size to fit into placement.
EC-20090730A-8	P35	Add one thermistor	Add one more thermistor in Charger block.
EC-20090730A-9	P38	Add one more MB hole	For ME structure needed.
EC-20090730A-10	P38	Add Bluetooth module NUT	Add NUT for BT module support.
EC-20090730A-11	P18	Add EMI solution	Add LC filter for Bitclk.
EC-20090731A-1	P30	Swap DC in signal	Per Power input routing concern.
EC-20090730A-8	P35	Cancel	Cancel this change on 0731, power remove one thermistor
EC-20090729A-2	P14	Cancel	Cancel this change on 0731, Change back to small size of 32.768KHz Xtal.
EC-20090731A-2	P19	Update RJ45 connector	Change Connector Type to follow latest ME placement.
EC-20090731A-3	P23	Update USB connector	Change Connector Type to follow latest ME placement.
EC-20090731A-4	P19	Change 1M resistor size	Change 1M discharge resistor size from 0603 to 0805.
EC-20090801A-1	P18	Swap Speaker Pin definition	For Better cable routing.
EC-20090801A-2	P23	Correct GPIO pull high	Pull High EC GPIO in +3VSS sequence to support S5 charge.
EC-20090801A-3	P23	Change G-sensor power	To meet G-sensor ripple SPEC, use LDO to generare +3V.
EC-20090801A-4	P23	Correct USB charger power	Change USB power to +5VSS source to support S5 charge.
EC-20090801A-5	P35	Change 5VSUS supply MOS	Correct 5VSUS output rating.
EC-20090801A-6	P35	Change +3VSS supply MOS	Correct +3VSS output rating.
EC-20090801A-7	P34	Capacitor footprint change	Change PC121 and PC122 footprint from 7343-size to 3528-size
EC-20090801A-8	P23	Change USB net name	Change USBP13+_C and USBP13+_C net name to R_USB4- and R_USB4+
EC-20090802A-1	P27	EMI RECOMMAND	Reserve 0-ohm resistor for USB signal (USB1, USB6, USB8)
EC-20090802A-2	P26	EMI RECOMMAND	Reserve 0-ohm resistor for CN12 GCLK_SMB_1 and GDAT_SMB_1 signal
EC-20090803A-1	P24	ESD RECOMMAND	Reserve VARISTOR for Touch pad signal
EC-20090803A-2	P37	Power Tim RECOMMAND	Pull high voltage change from 5VPCU to +3V for HWPG signal
EC-20090803A-3	P07	Intel Design Guide	Follow Intel Design Guide, Option A solution --> GFX_VR_EN Pull down 100K
EC-20090803A-4	P19		Change Transformer IO_GND to GND
EC-20090804A-1	P18		Remove L61 and L62, short the AGND and GND directly
EC-20090804A-2	P37	Power engineer RECOMMAND	Render standby be modified by TIM
EC-20090804A-3	P22,25	ME RECOMMAND	CRT and SATA connector, change to correct footprint
EC-20090804A-4	P38		Add one Hole for M/B
EC-20090804A-5	P29	BIOS RECOMMAND	Add RFID EEPROM
EC-20090804A-6	P19		Modify LAN connector LED color
EC-20090804A-7	P27		Change one pin from GND to 5VSUS
EC-20090805A-1	P25	For layout space concern	Change SATA connector footprint to original U350 connector footprint
EC-20090805A-2	P38		Add one Hole for KB
EC-20090805A-3	P22		Stuff the Varistor for CRT
EC-20090806A-1	P23		Add EXT_GND for Thermal pad
EC-20090811A-1	P10	CRT ripple lesson learn	Change C165 from 0.1U to 4.7U for CRT ripple concern.

EC-20090813B-1	P37	Remove PR76 and PU5.Pin12 connect to AGND directly
EC-20090819B-1	P10	C165 : Change footprint from 0402_Size to 0603_Size
EC-20090824B-1	P31	Remove PR35 to solve 3VPCU short to Gnd issue
EC-20090824B-2	P37	Remove PR81 to solve no +VCC_CORE issue, because the VRON levle is divided by 1/10
EC-20090824B-3	P36	PR220 change from 43K to 20K to solve no +1.5V_SS
EC-20090825B-1	P30-P34 and P37	PJP5, PJP13, PJP14, PJP15, PJP16 are removed and short directly PJP1, PJP2, PJP3, PJP4, PJP6, PJP7, PJP10, PJP11, PJP12 are changed to 0-ohm short-pad
EC-20090825B-2	P24	Add CN22 for 10-PIN Touch-Pad
EC-20090825B-3	P30, P32, P33, P34, P37	PR15, PR123, PR127, PR135, PR137, PR141, PR143, PR148, PR110, PR114, PR51, PR52, PR178, PR179, PR197, PR198 are changed to 0-ohm short-pad (0402-size) PR78, PR189, PR205 are changed to 0-ohm short-pad (0603-size)
	P20	R7, R232 are changed to 0-ohm short-pad (0603-size)
	P19, P25	R137, R192, R61, R310 are changed to 0-ohm short-pad (0805-size)
EC-20090826B-1	P20 Power RECOMMAND	L43 is changed to F3 for pass IBM test
EC-20090826B-2	P20	Add schematic to control Logo-Led on/off
EC-20090826B-3	P22 ESD RECOMMAND	Add TVS (D27) for ESD protection
EC-20090826B-4	P26 RF RECOMMAND	Reserve C494~C498 for WWAN & WLAN
EC-20090827B-1	P33	Change PR75 pull-high voltage from +3V to 3VSUS to solve S3 resume issue
EC-20090827B-2	P36	PU8, PU9 : PIN4 connect to 5VPCU
EC-20090827B-3	P24	L6 is changed to F4 for pass IBM test
EC-20090828B-1	P23	USB charge U28 : modify resistor value and voltage state of PIN5 and PIN6 Reserve R417 and R418 with PIN10 and PIN1
EC-20090828B-2	P9	PJP8 and PJP17 are changed to RC7520 footprint, that is for Render standby power

EC-20091002C-1	P28	LOGO_LED# connect to U8.PIN25 not U8.PIN97, U8.PIN25 is PWM signal.
EC-20091002C-2	P3, P6	Change CPU and NB footprint. It is according to Lenovo request to enhance BGA rework performance, lower the F/R of solder mask or pad peel off from the reworking
EC-20091006C-3	P18	The Audio Jack is changed to Combo-type, and remove original HP_SENSE and MIC_SENSE circuit
EC-20091007C-1		R383, R386, R138, R44, R53, R303, R82, R299, R304, R98, R155, R23, R8, R9, R379, R380, R235, R236, R249, R250, R255, R256, R102, R314, R197, R198 are changed to short-pad (0402-size) R69, R83, L22, L23, L24, R12, R25, R228, R254 are changed to 0-ohm short-pad (0603-size) R40, R56, R168, R188, R189, R208 are changed to 0-ohm short-pad (0805-size)
EC-20091014C-1	P18	Follow Audio vendor suggestion, change 3V_DVDD to AVDD_3.3V for External MIC bias voltage
EC-20091014C-2	P38	By QSMC F6 PE suggestion, change BT Nut material so we need to modify footprint for new Nut use
EC-20091015C-1	P28	Remove R285 to reduce leakage current, by EC control to high or low
EC-20091015C-2	P35	Stuff PQ12 for normal discharge
EC-20091015C-3	P14	Change C448 and C449 from 15p to 18p for RTC timer
EC-20091015C-4	P24	Remove RP1 and RP2 to reduce leakage current, EC can provide internal pull-high
EC-20091015C-5	P20	Reserve C506 for CCD power, it is reference PS1A
EC-20091016C-1	P23	Add R428 and R429 for USB charge circuit, the vendor suggest it for new chip application
EC-20091016C-2	P23	R196 be change from 1K-ohm to 0-ohm
EC-20091016C-3	P14	Disable RTC charge function, remove R307, R308, R311, R312, Q22
EC-20091020C-1	P37	Disable Render Standby function, remove PU5, PL5, PQ23, PQ24 PC140, PC83, PC51, PC73, PC143, PC84, PC85, PC86, PC82, PC55, PC61, PC68, PC81, PC48, PC138, PC142 PR188, PR190, PR82, PR194, PR195, PR184, PR92, PR183, PR191, PR91, PR74, PR186, PR65, PR193, PR87, PR86, PR187, PR88, PR79, PR181
EC-20091020C-2	P24	Touch pad interface be changed from 13P(CN2) to 10P(CN22)
EC-20091020C-3	P31	Add PR164 to solve boot issue
EC-20091020C-4	P23	Remove R428 and R429, add R408, R409, R410 and R411 for USB charge circuit, the vendor suggest it for new chip application
EC-20091028C-1	P19	Adjust resistor value for Lan_LED light (R315 and R318 from 150 to 330)
	P20	Adjust resistor value for Logo_LED light (R414 from 510 to 1.8K)
EC-20091028C-2	P23	Change USB connector to yellow color
EC-20091028C-3	P35	Change PR68 from thermal-resistor to 0ohm due to remove render standby