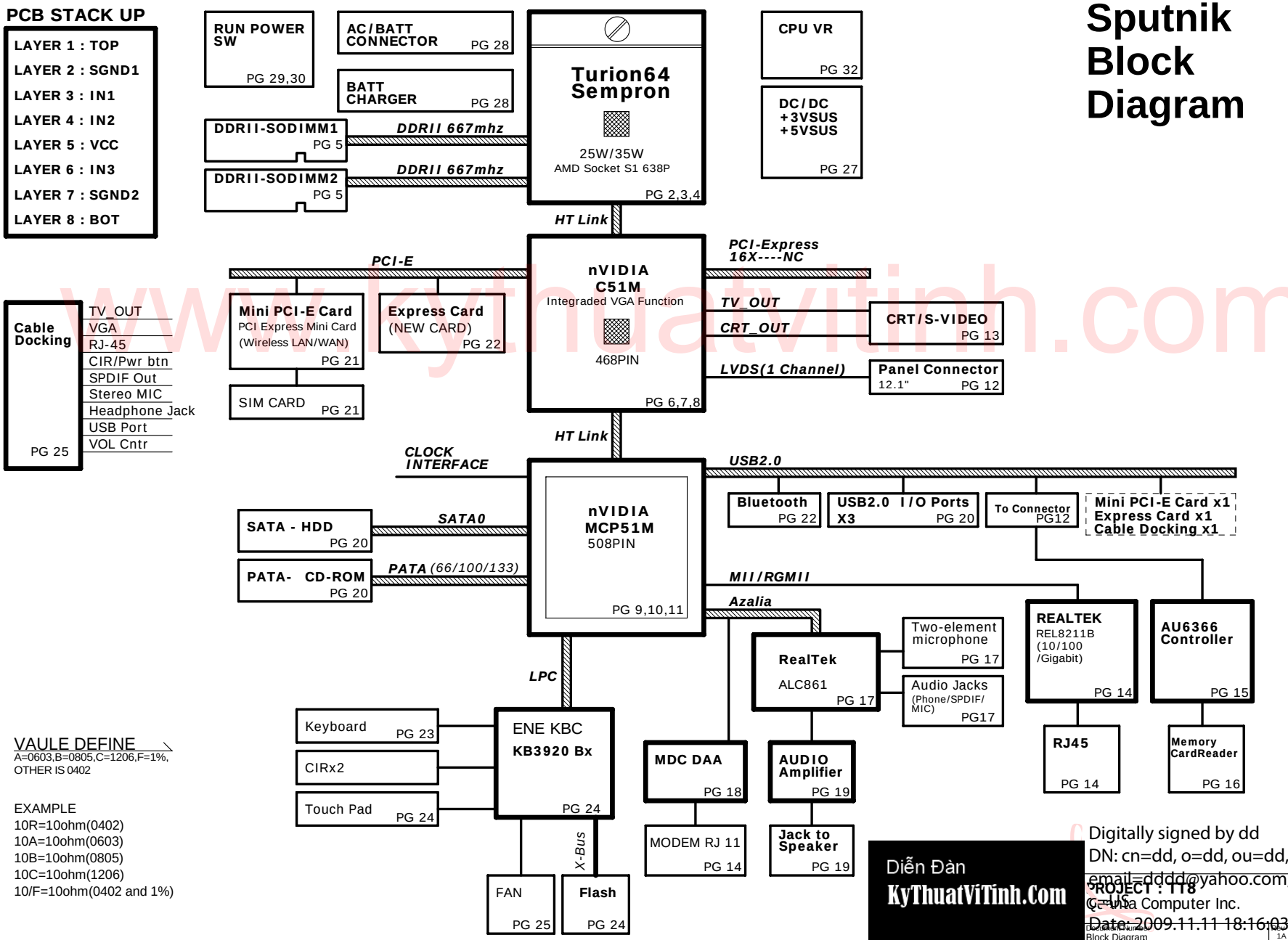
Sputnik Block Diagram

PCB STACK UP

- LAYER 1 : TOP
- LAYER 2 : SGND1
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : IN3
- LAYER 7 : SGND2
- LAYER 8 : BOT



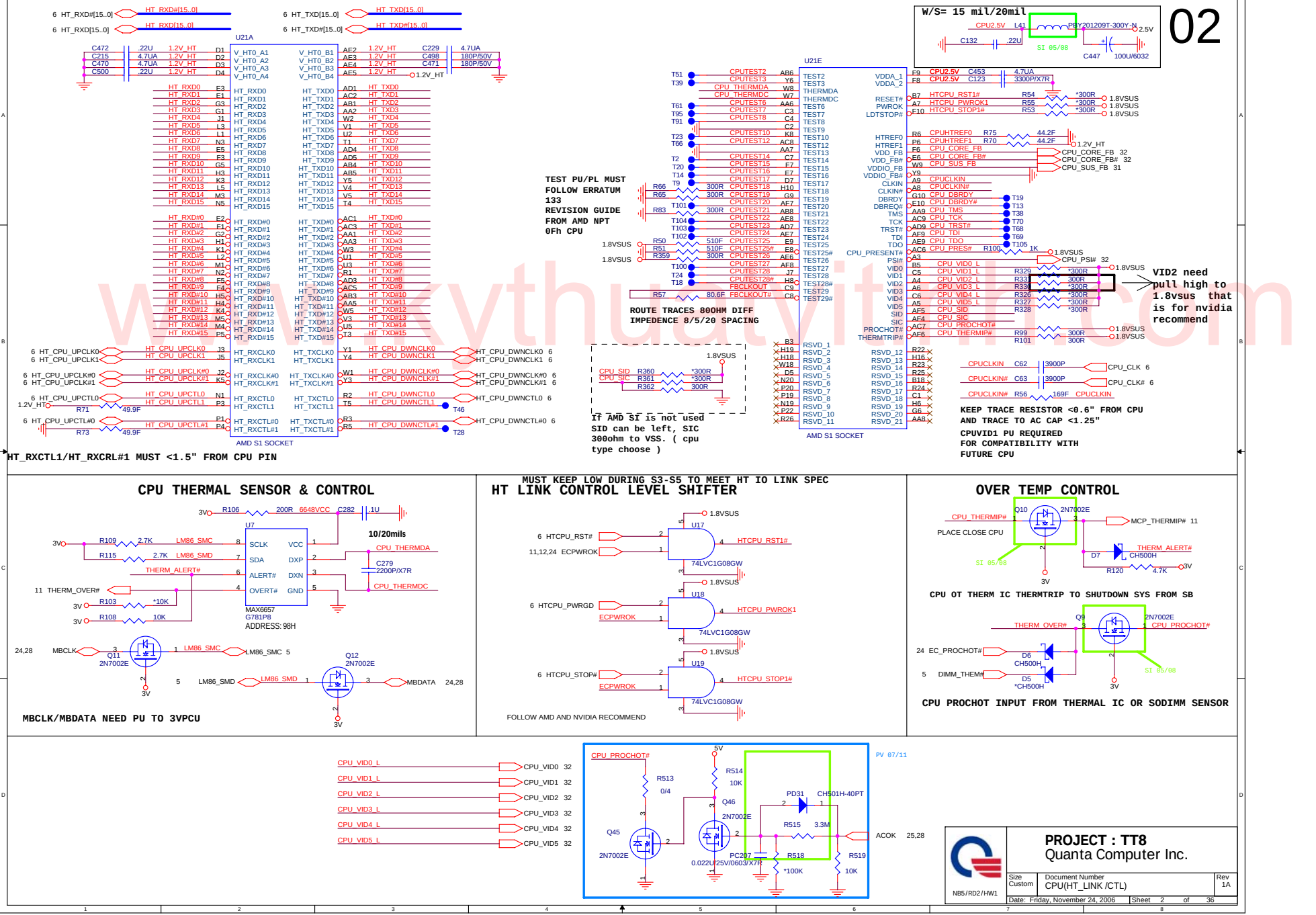
VAULE DEFINE
A=0603,B=0805,C=1206,F=1%,
OTHER IS 0402

EXAMPLE
10R=10ohm(0402)
10A=10ohm(0603)
10B=10ohm(0805)
10C=10ohm(1206)
10/F=10ohm(0402 and 1%)

Digitally signed by dd
DN: cn=dd, o=dd, ou=dd, email=dddd@yahoo.com, c=US
Date: 2009.11.11 18:16:03

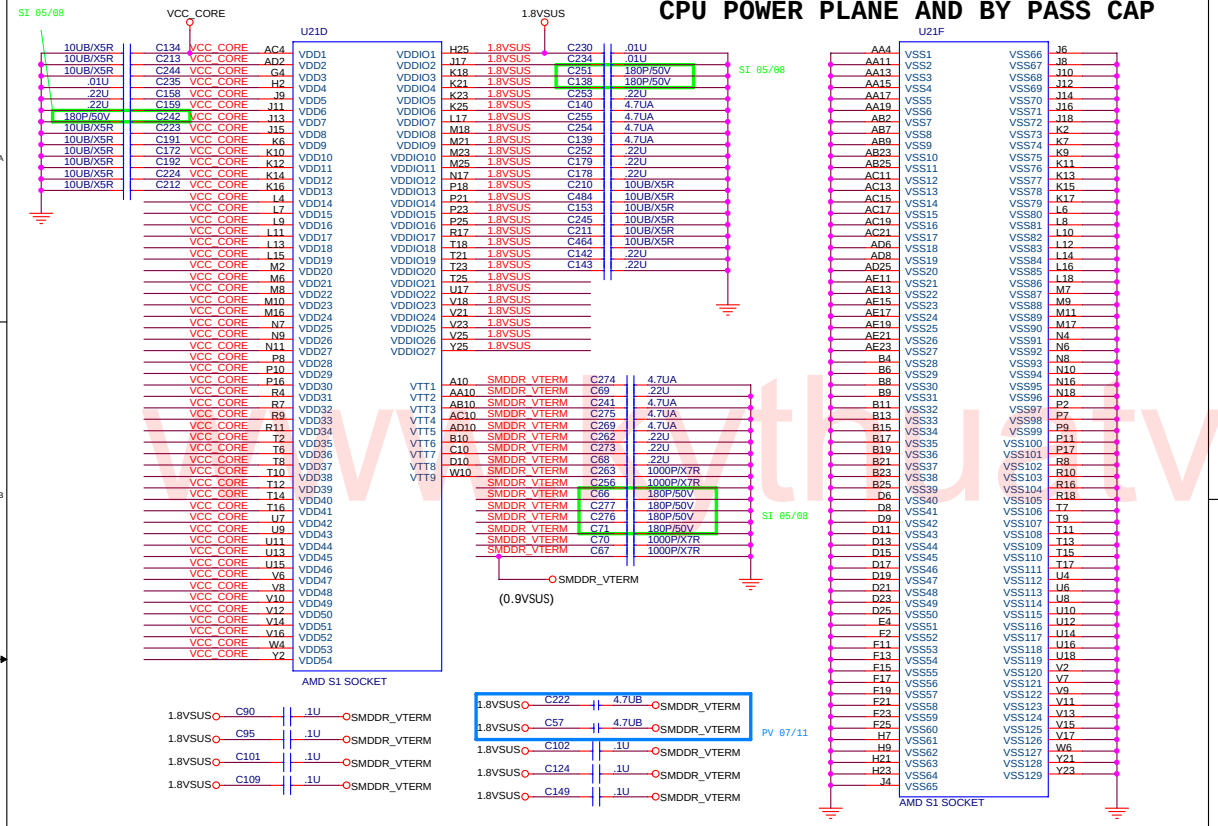
PROJECT : 1T8
Quanta Computer Inc.
LO7D0

Document Number: Block Diagram			Rev: 1A
NB5/RD2/FAN1	Date: Friday, November 24, 2006	Sheet 1 of 36	



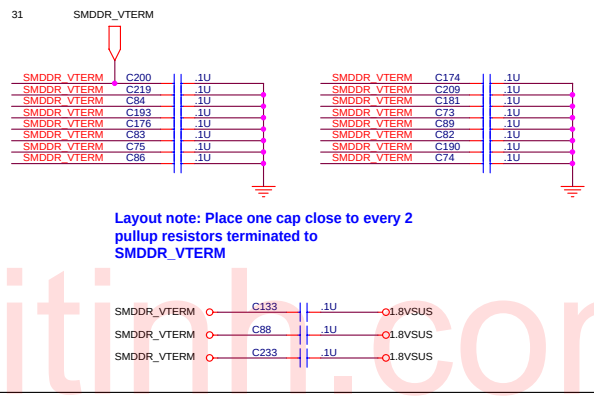
PROJECT : TT8	
Quanta Computer Inc.	
Size: Custom	Document Number: CPU(MEM/IF)
Rev: 1A	
N85/RD2/HW1	Date: Friday, November 24, 2006 Sheet 3 of 36

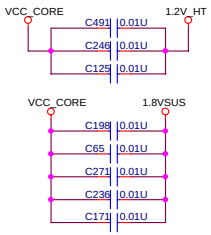
CPU POWER PLANE AND BY PASS CAP



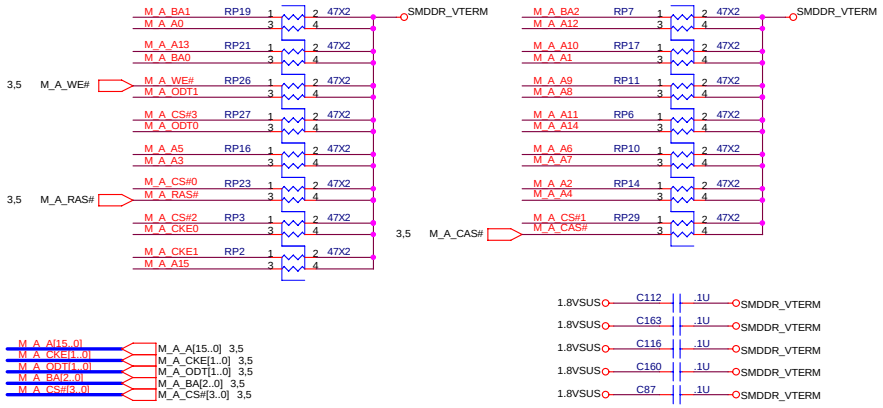
DDR2 TERMINATION BYPASS CAP

04

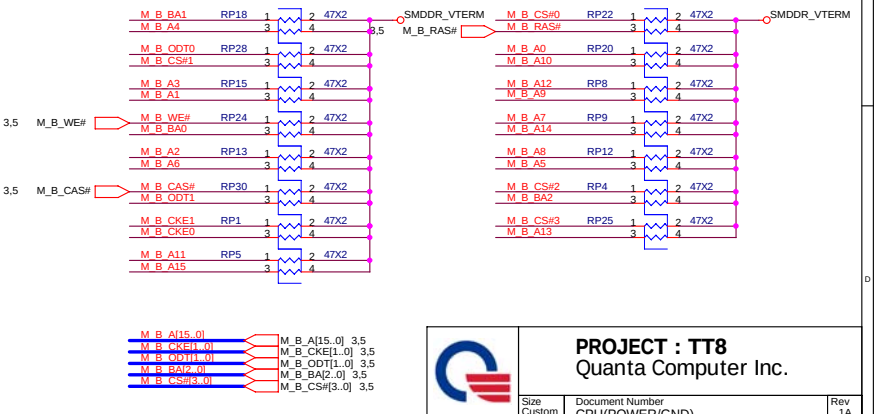




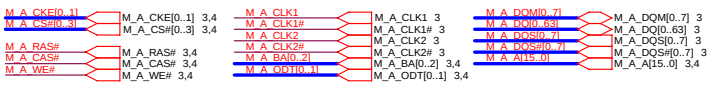
DDRII CHANNEL A TERMINATION

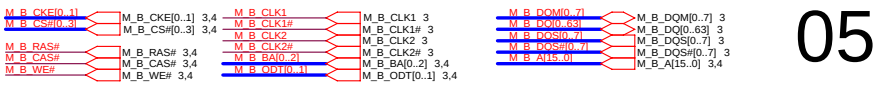


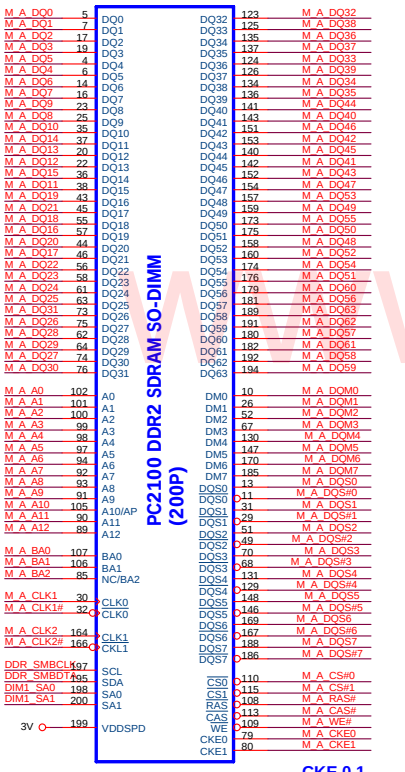
DDRII CHANNEL B TERMINATION



PROJECT : TT8	
Quanta Computer Inc.	
Size: Custom	Document Number: CPU(POWER/GND)
Rev: 1A	
NB5/RD2/HW1	
Date: Friday, November 24, 2006	Sheet 4 of 36

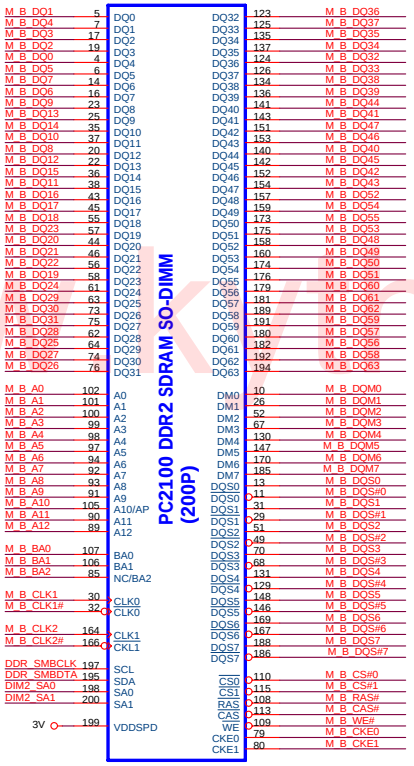






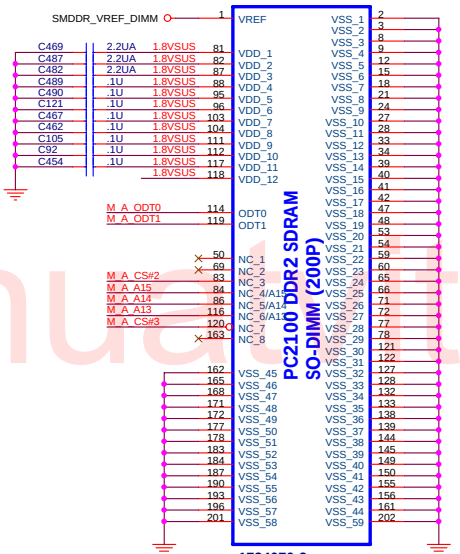
CKE 0,1

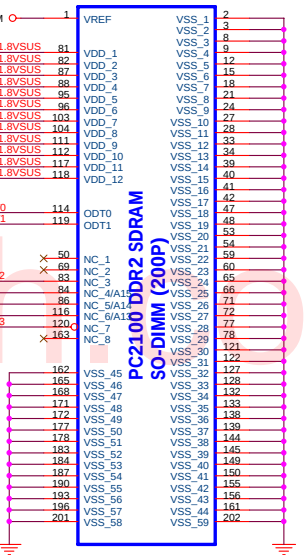
REV type : H 6.5



CKE 2,3

REV type : H 11



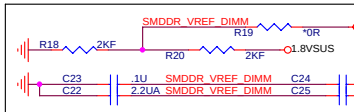


SO-DIMM BYPASS PLACEMENT :

Place these Caps near So-Dimm1.

No Vias Between the Trace of PIN to CAP.

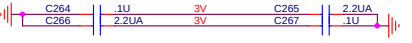
3V 1.8VSUS 3V 1.8VSUS 2,7,8,9,10,11,12,13,17,19,20,21,22,23,24,26,27,32 2,3,4,16,26,29,31

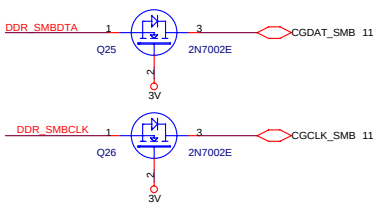


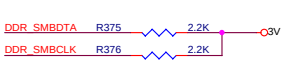
SMDDR_VREF_DIMM :

TRACE WIDTH > 20 MIL

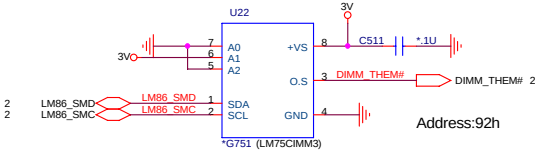
PUT BYPASS CAP ON EACH DIMM







Close DDR2 socket



Address:92h

N85/RD2/HW1	**PROJECT : TT8** Quanta Computer Inc.	
Size: Custom	Document Number: CPU(MEM/IF)	Rev: 1A
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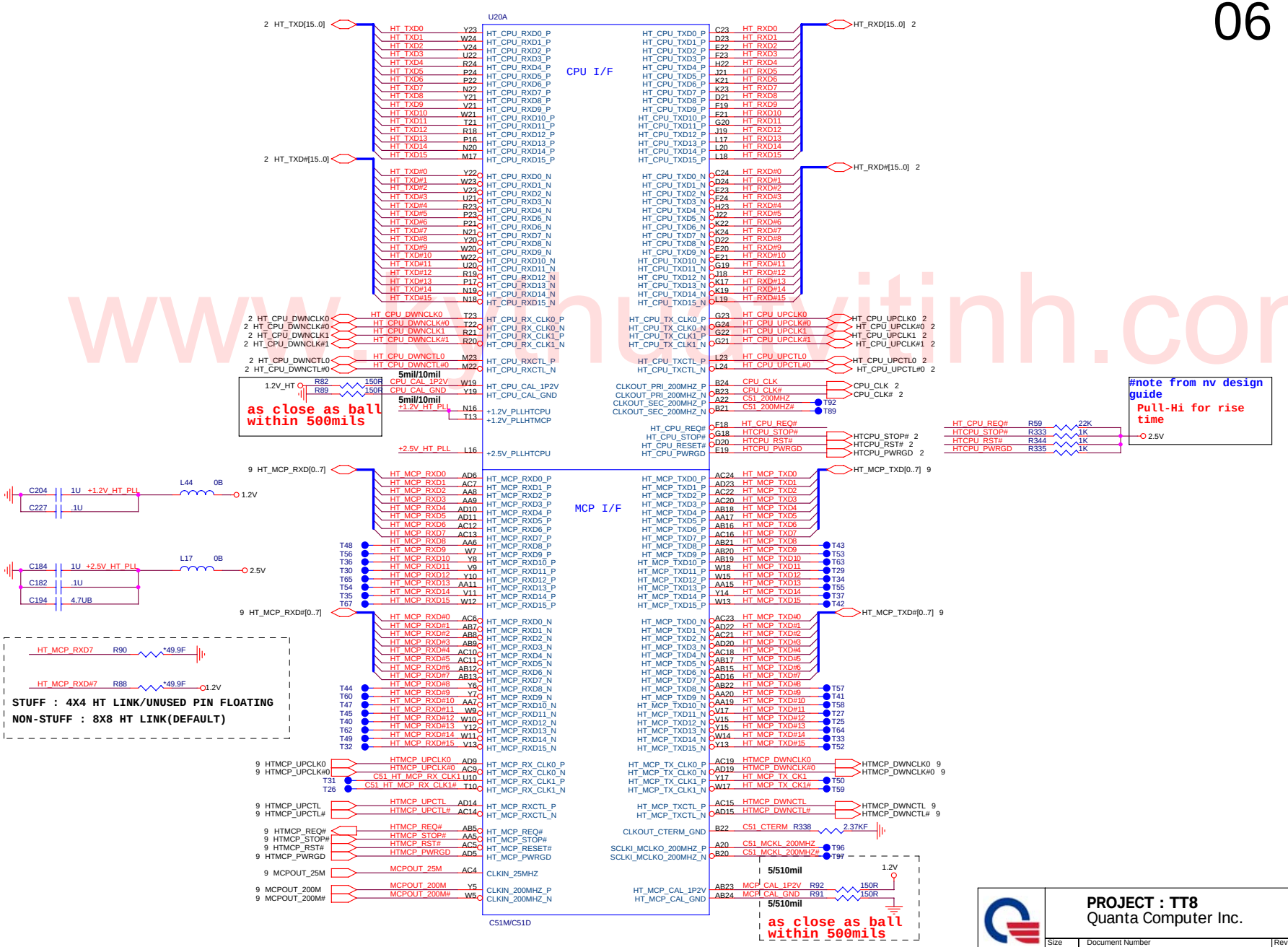
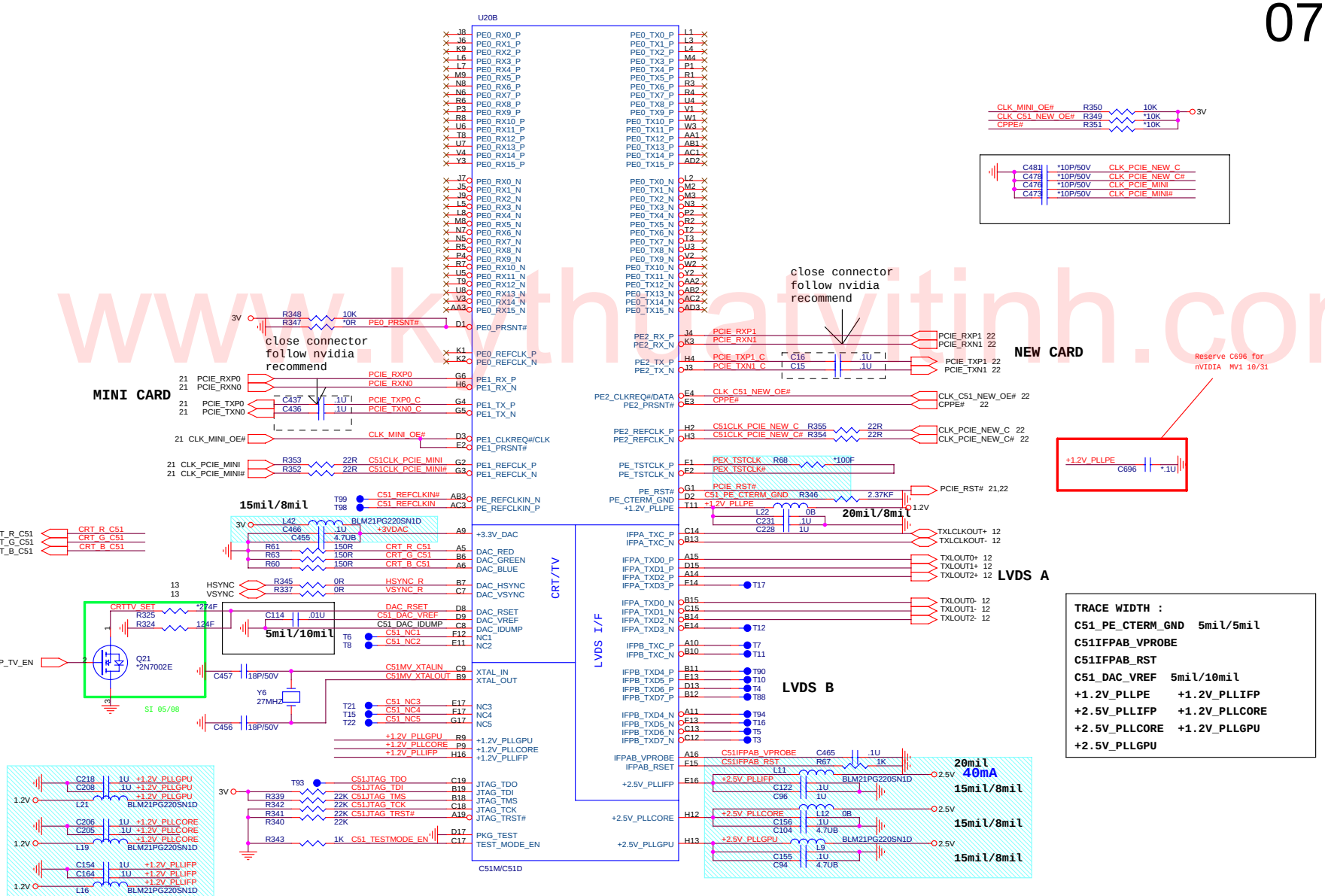
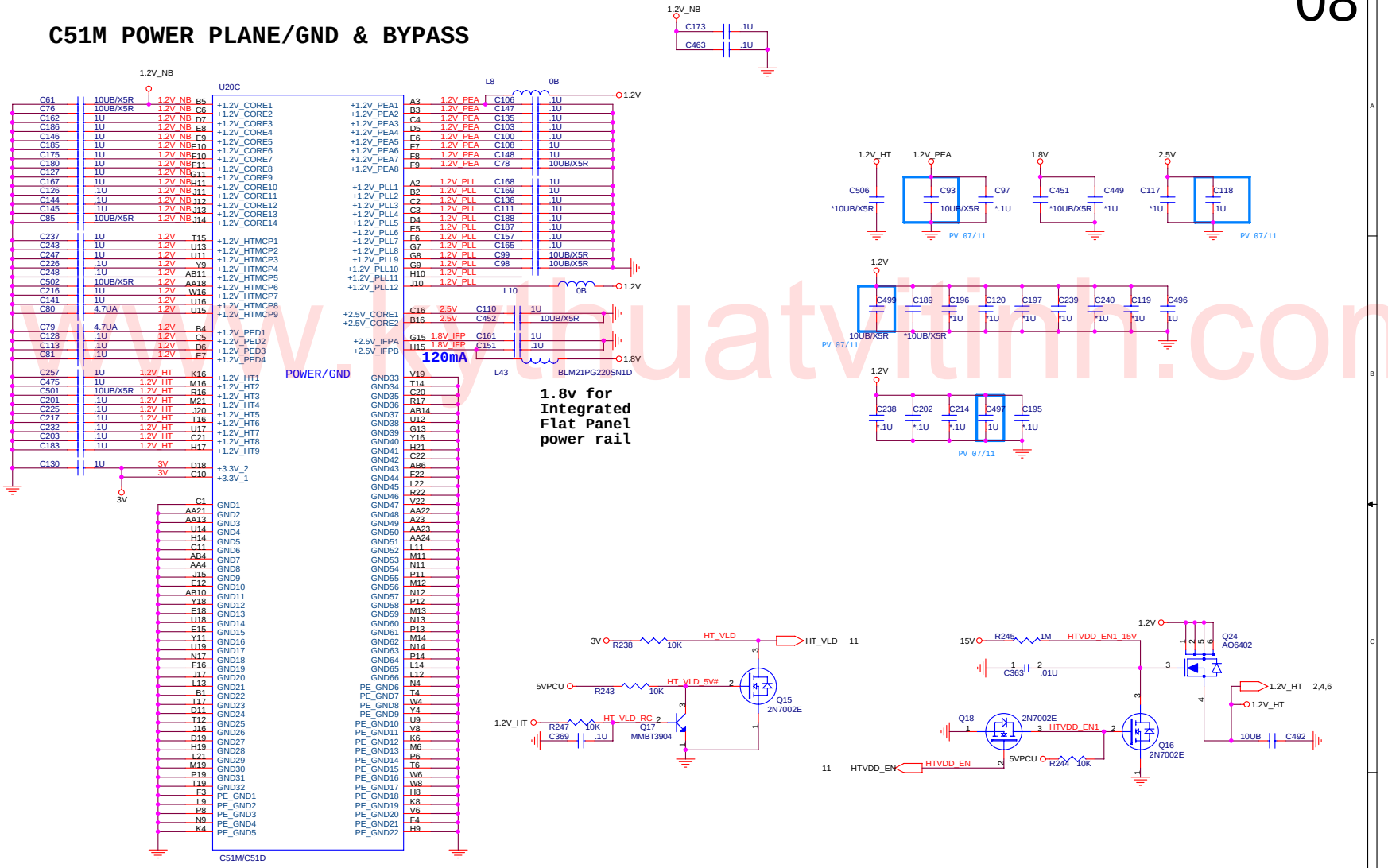


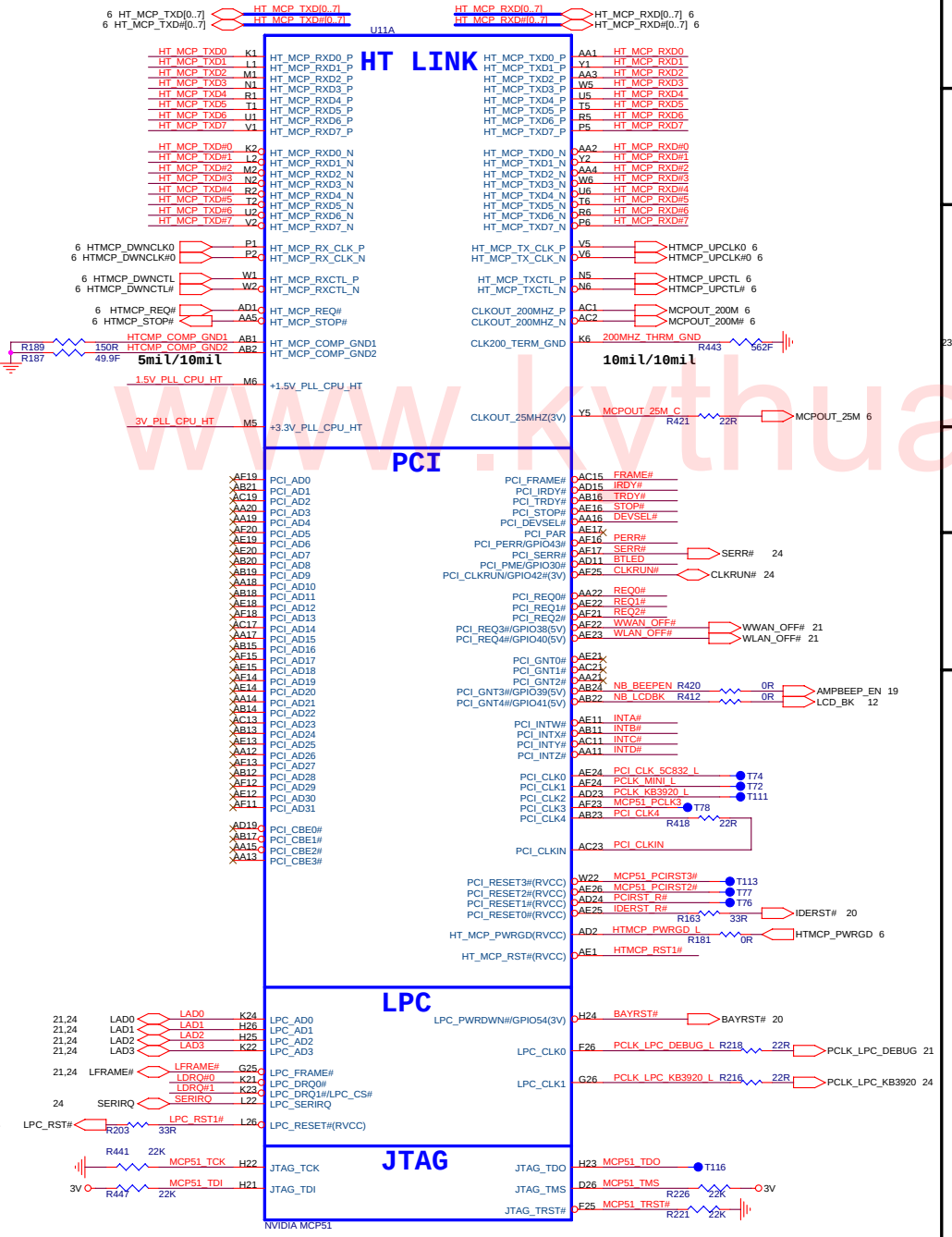
NB5/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: C51MV (HT LINK)	Rev: 1A
Date: Friday, November 24, 2006	Sheet 6 of 36	

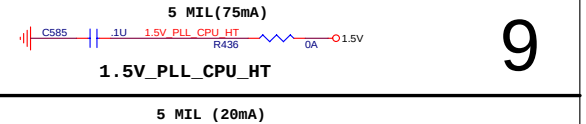


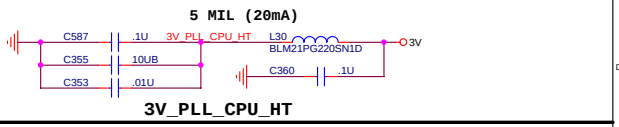
C51M POWER PLANE/GND & BYPASS

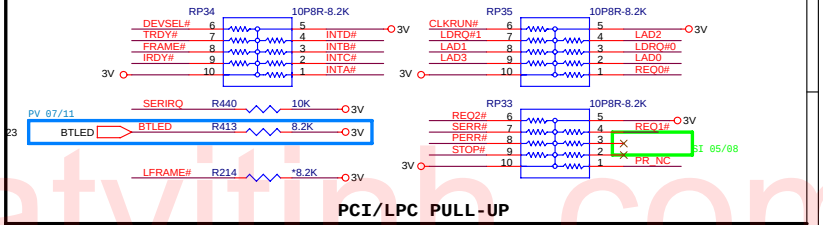


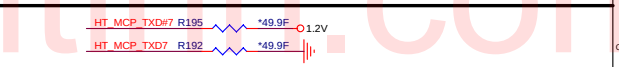
PROJECT : TT8 Quanta Computer Inc.		
Size: Custom	Document Number: C51MV (POWER/GND)	Rev: 1A
NB5/RD2/HW1	Date: Friday, November 24, 2006	Sheet 8 of 36

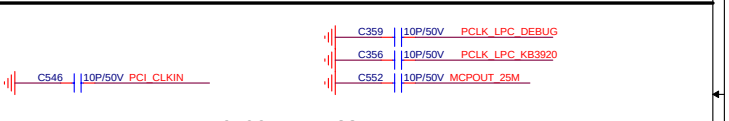


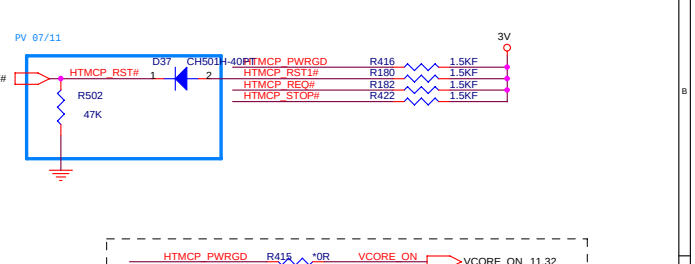












PROJECT : TT8	
Quanta Computer Inc.	
Size: Custom	Document Number: MCP51 (1 of 3)
Rev: 1A	
NB5/RD2/HW1	
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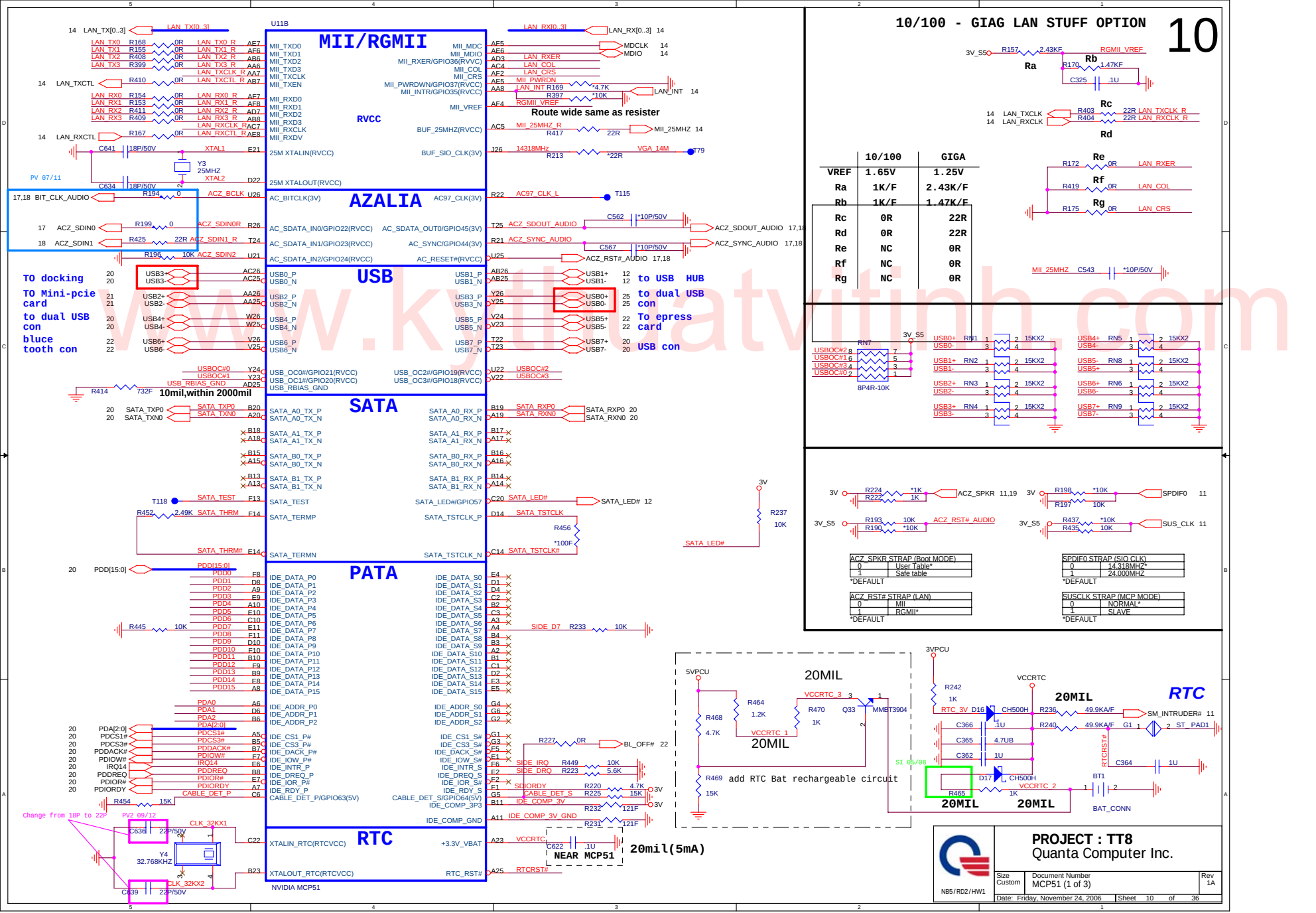

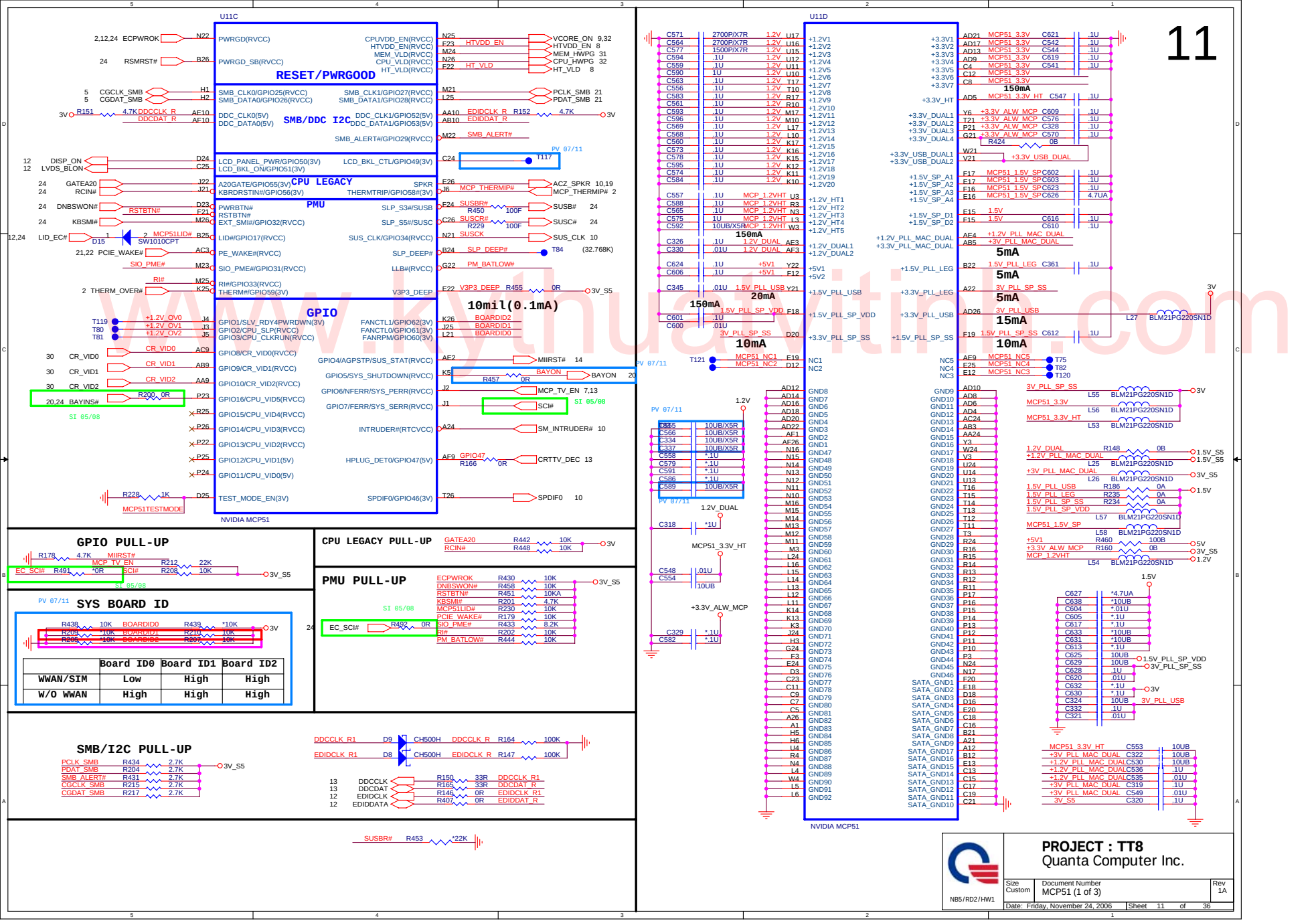

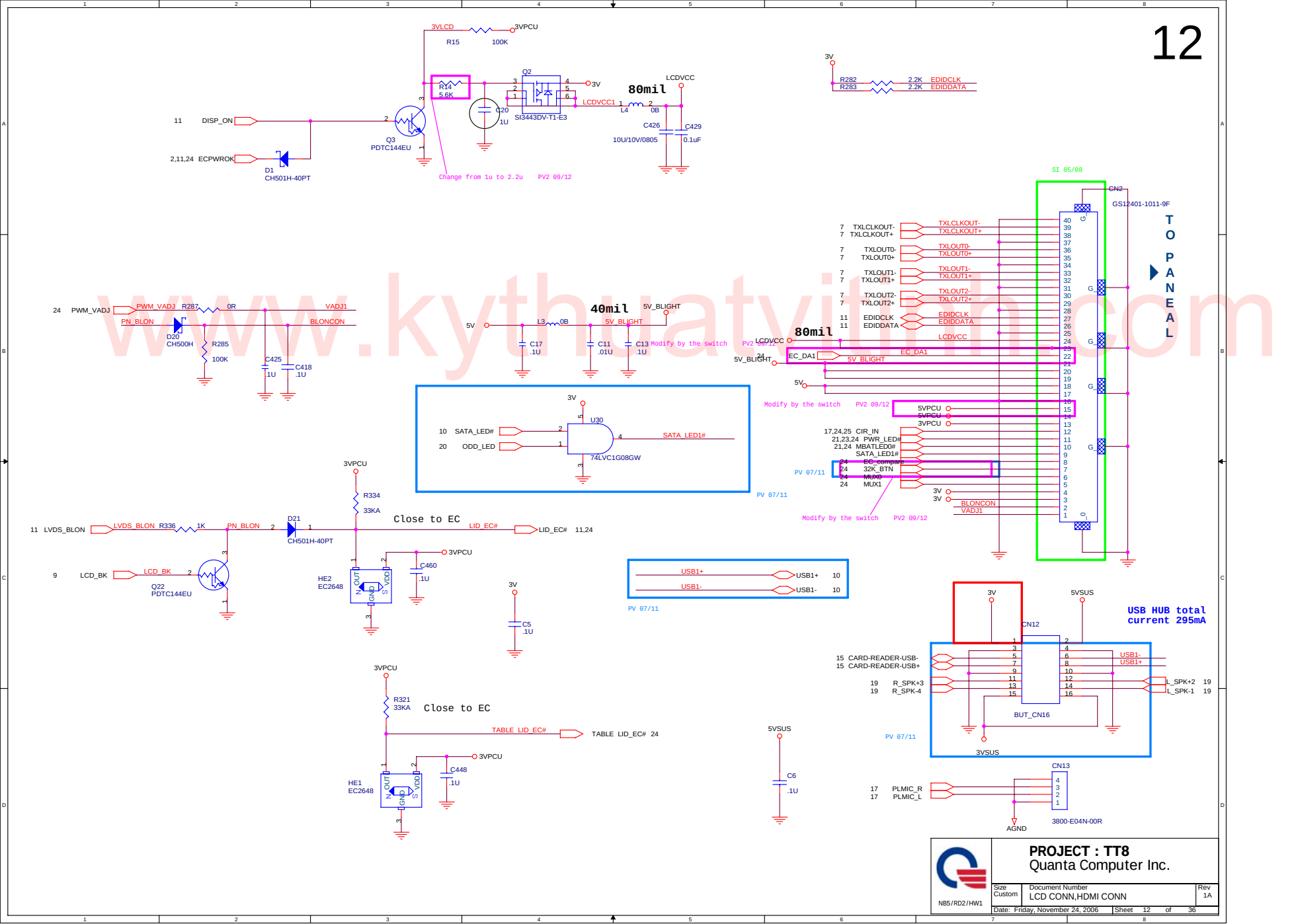

PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LCD CONN,HDMI CONN	1A

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N85/RD2/HW1

CRT/TV SWITCH

MCP_TV_EN: defaule is HI

HI=TV
LOW=CRT

LOAD _CRT -- TV WORK
LOAD_TV -- CRT WORK

CRT PORT

40 MIL

150-R as possible as closed to CRT connector (close with in 600 mil)

Change from nVIDIA for B-test

close conn within 600mils

ESD PROTECTION

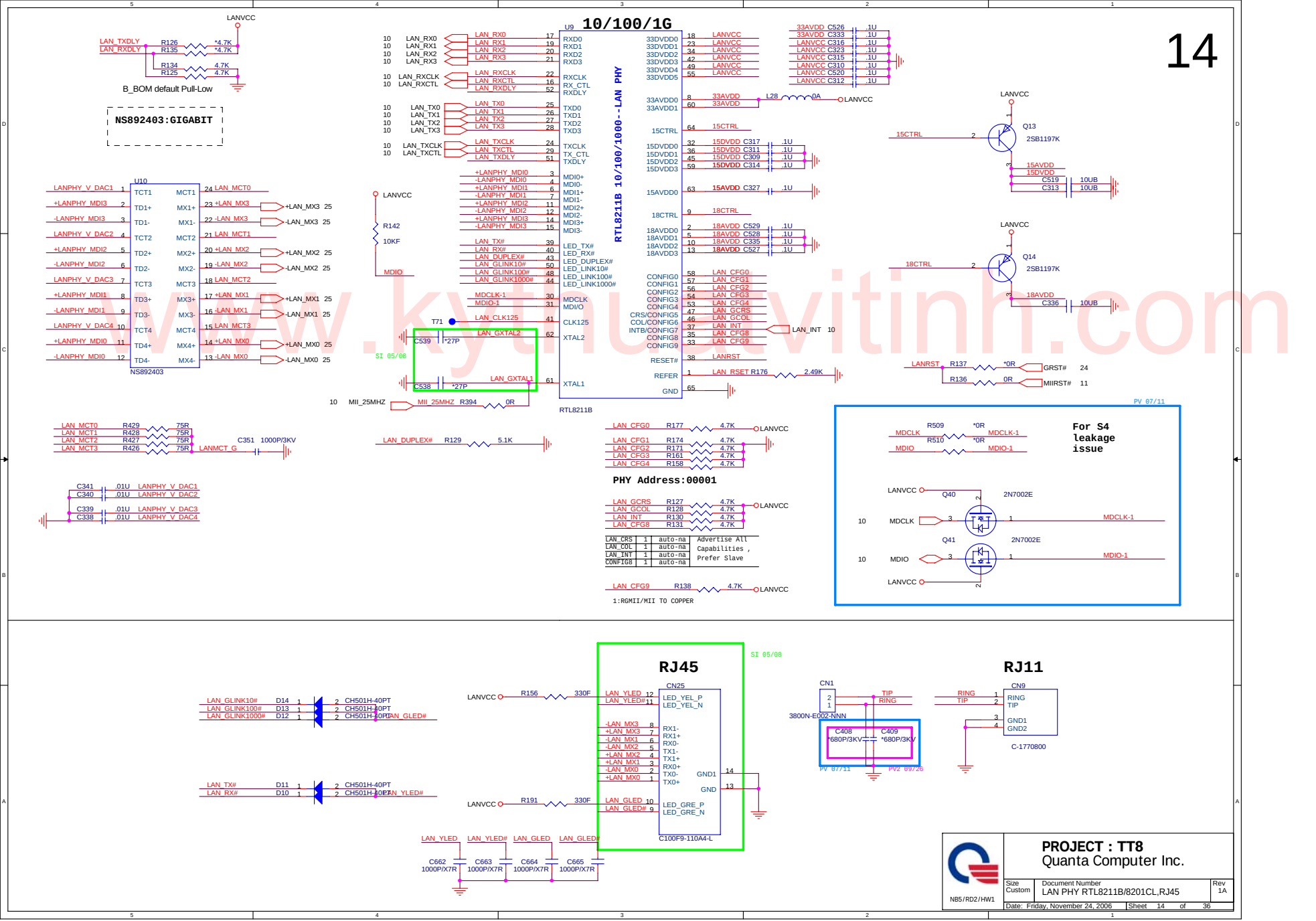
close within 600mils (close data switch)

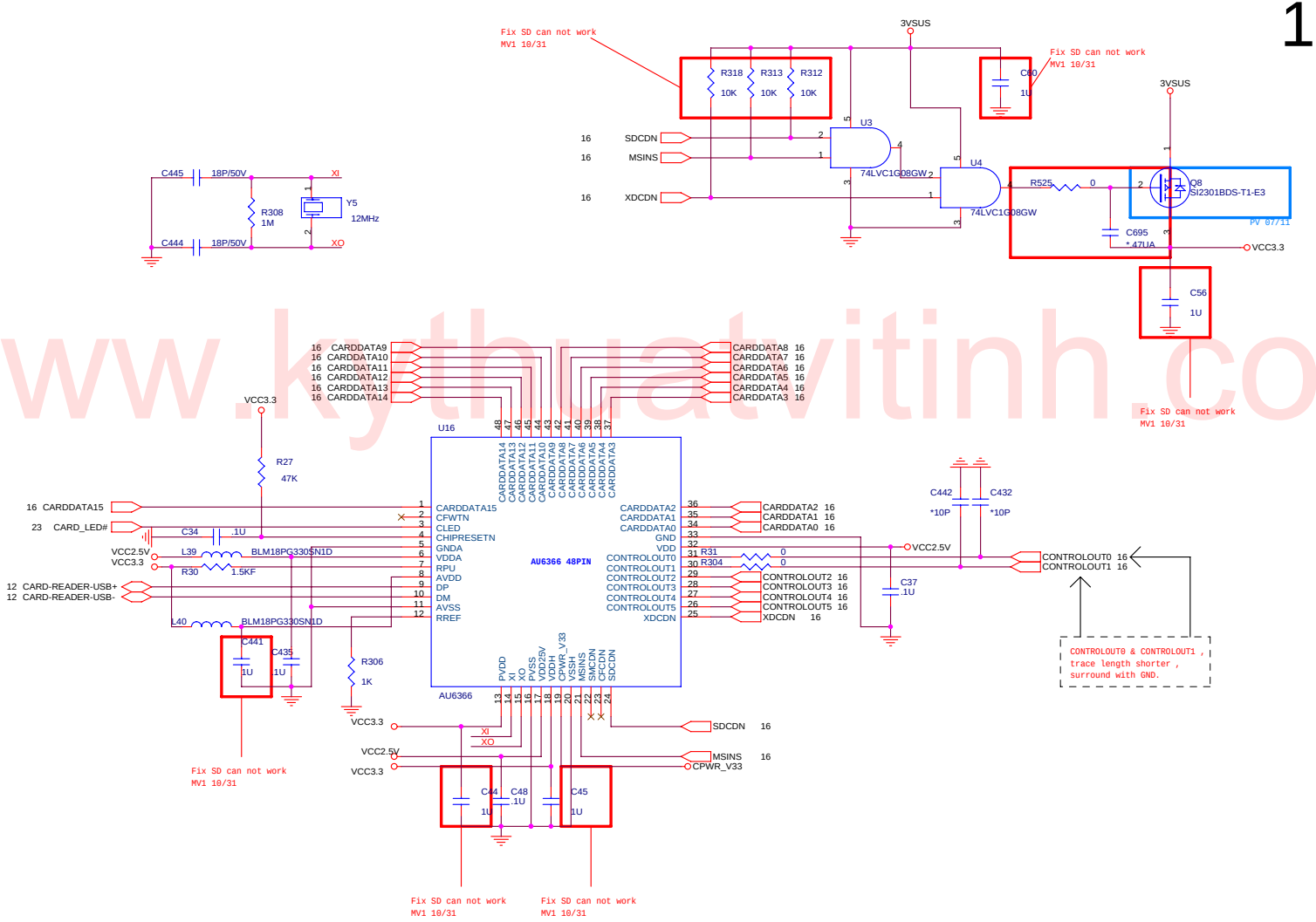
That is for CRT and TV choose.. used immpedance and driver to choose

150-R as possible as closed to Tv connector (close with in 600 mil)

TV_OUT

PROJECT :	TT8
Quanta Computer Inc.	
Size: Custom	Document Number: CRT,TV_OUT
Rev: 1A	
Date: Friday, November 24, 2006	Sheet 13 of 36
N85/RD2/HW1	





NB5/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: AU6366 controller	Rev: 1A
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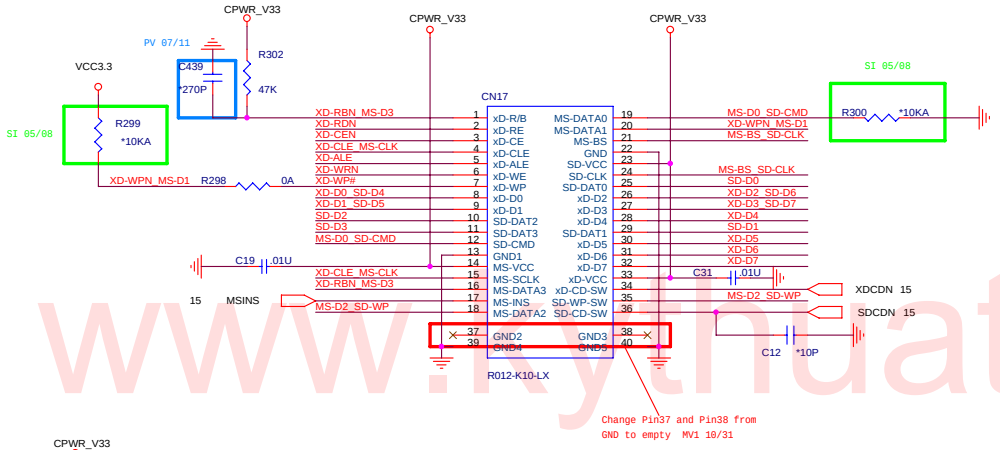
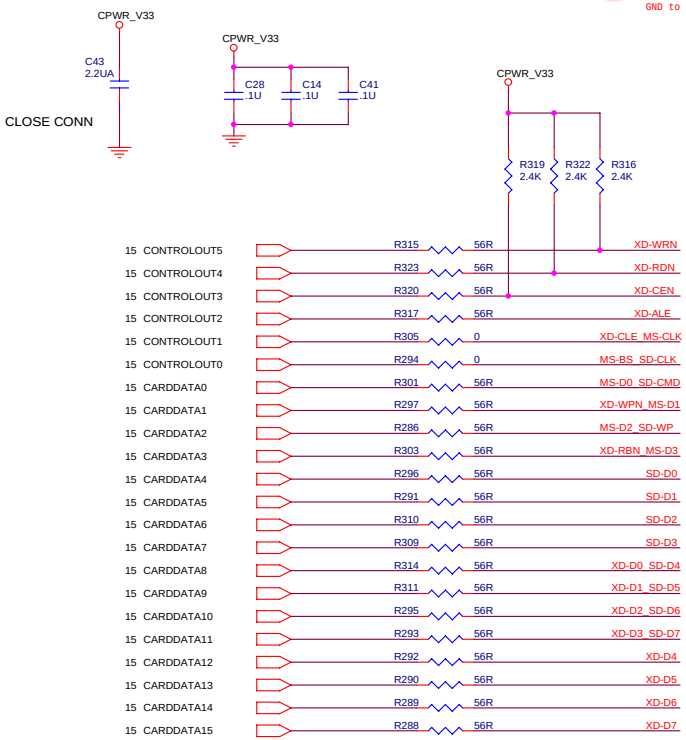
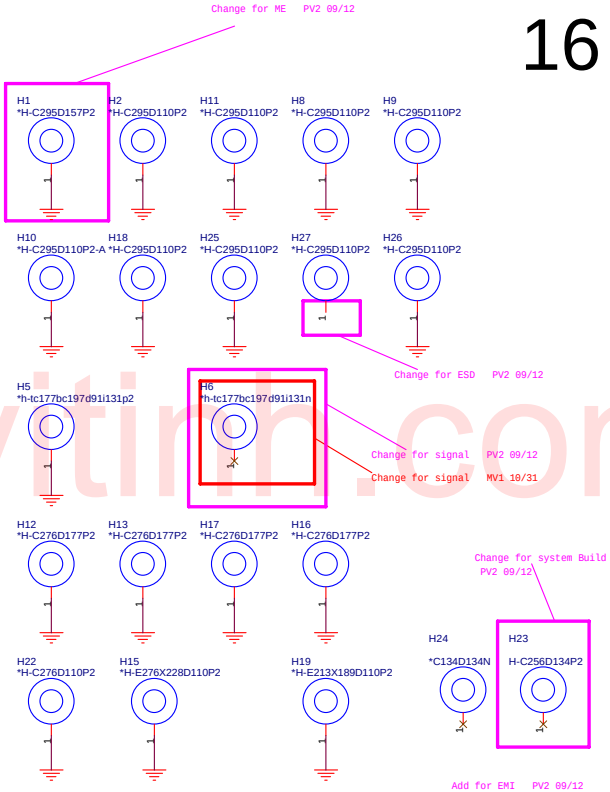
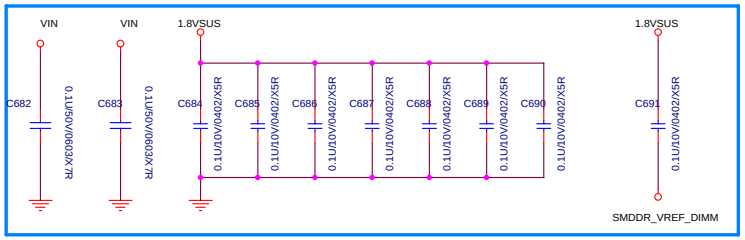
4 IN1 CARD READER
XD,MMC/SD,MS/MSP









PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Card Reader	1A
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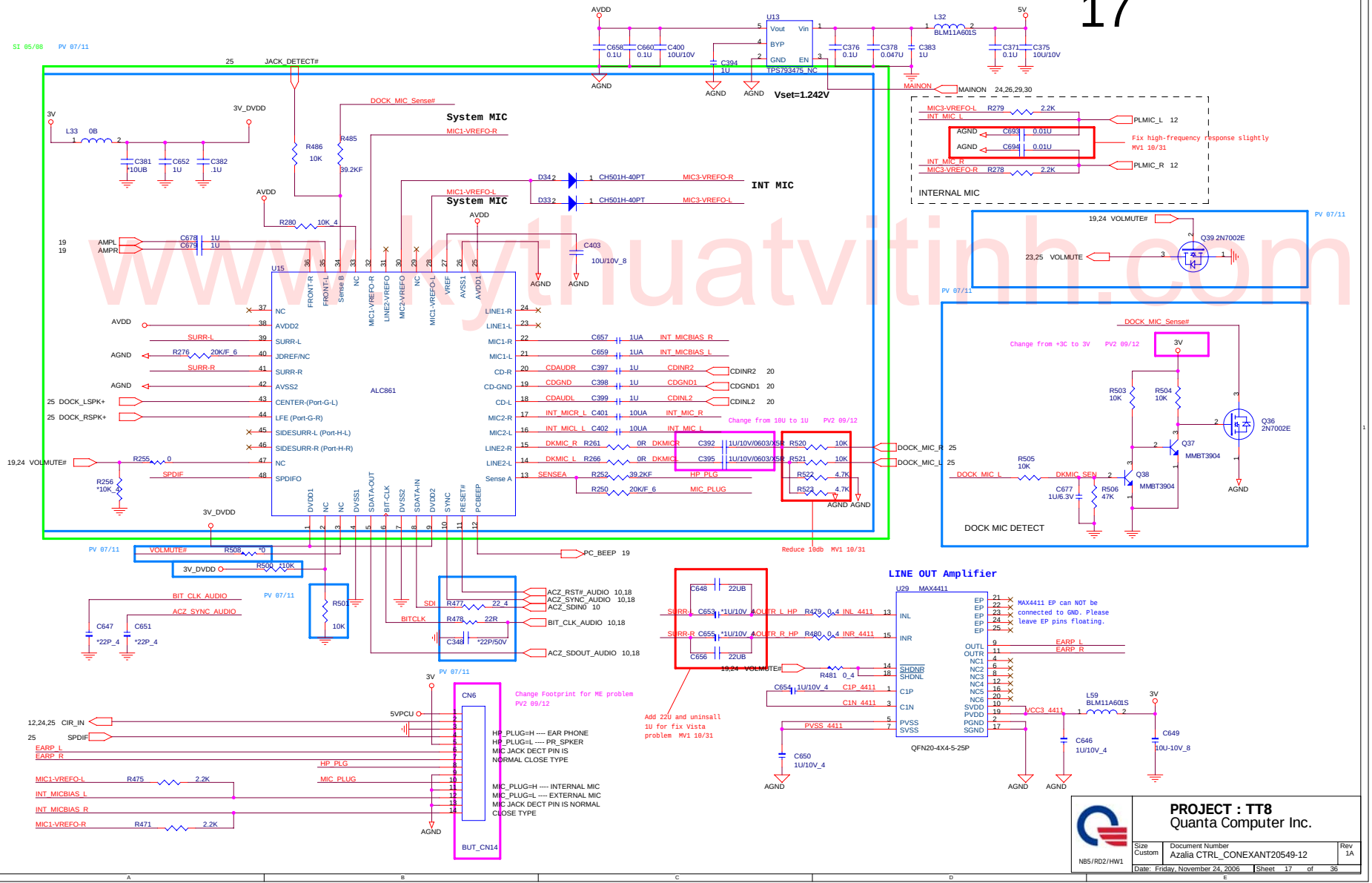
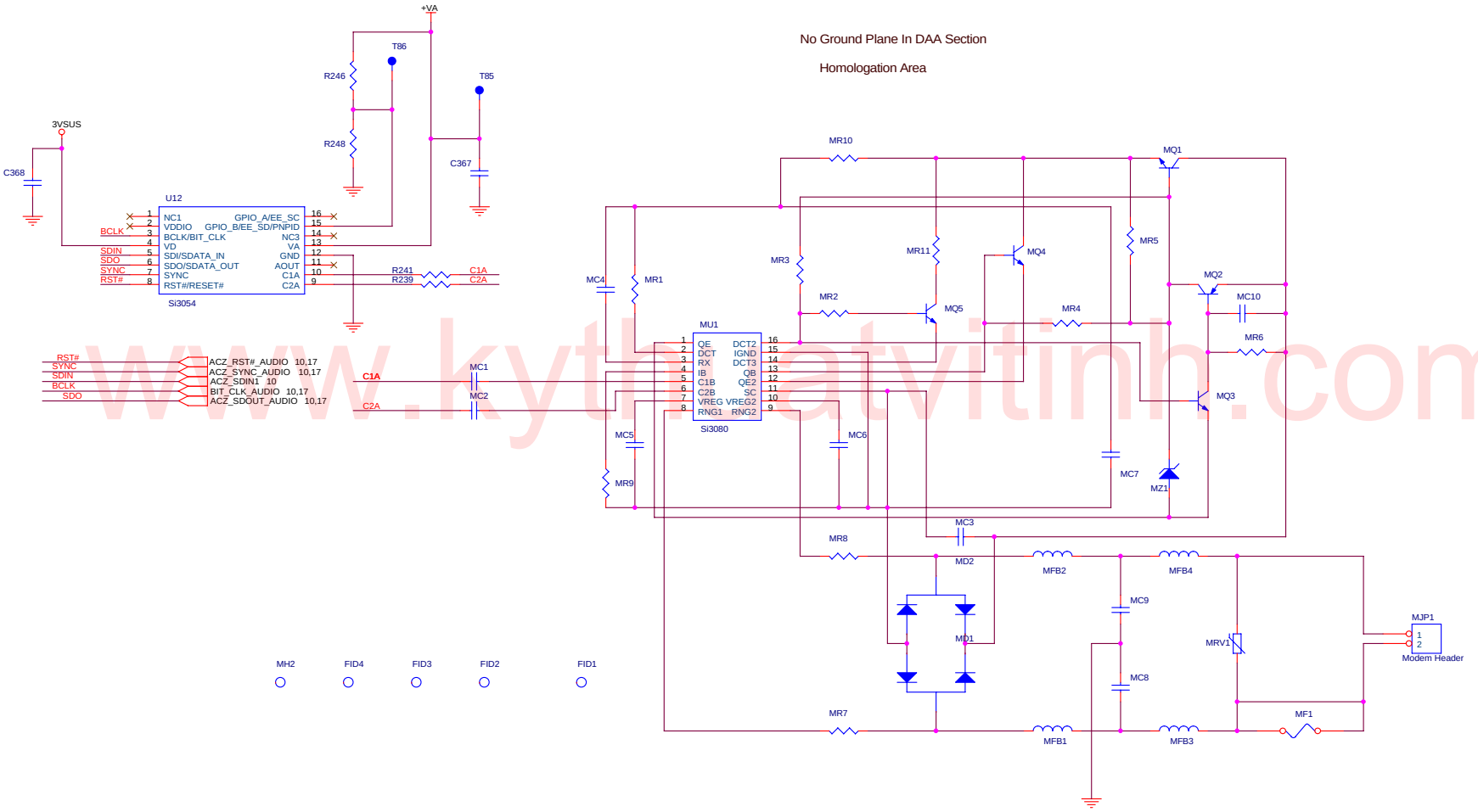
NB5/RD2/HW1





DESIGN SUBJECT TO CHANGE

SILICON LABORATORIES CONFIDENTIAL

PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MODEM (DAA)	1A

NB5/RD2/HW1

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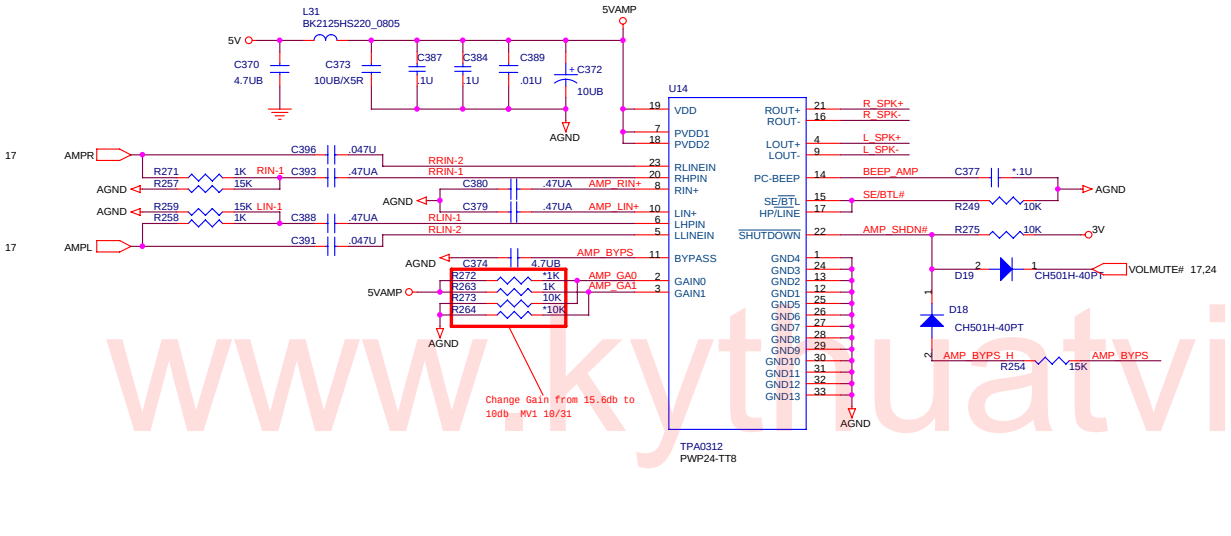
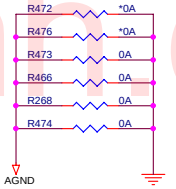
AUDIO AMPLIFIER

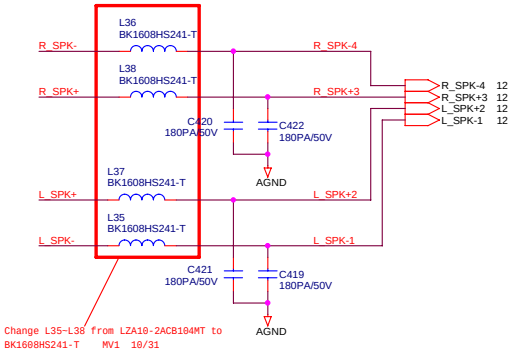


0312 Gain Table

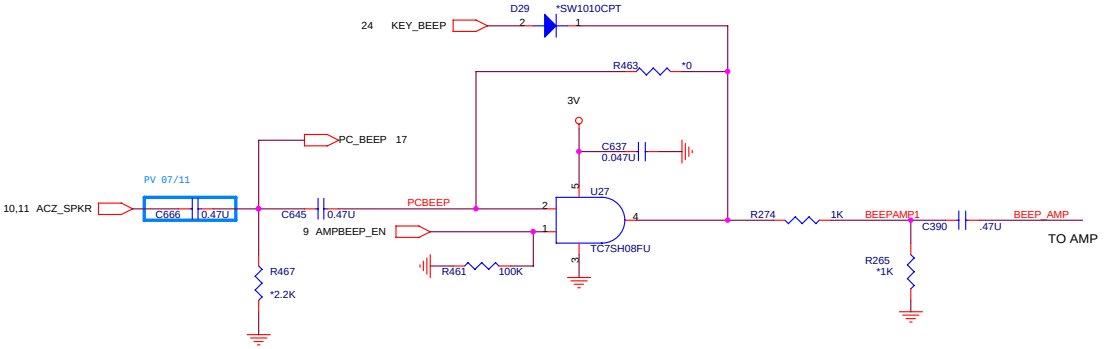
GAIN0	GAIN1	SE/BTL	AV(INV)
0	0	0	6dB
0	1	0	10dB
1	0	0	15.6dB
1	1	0	21.6dB
x	x	1	4.1dB



INT. SPEAKER



PCSPK BEEP



N85/RD2/HW1	**PROJECT : TT8** Quanta Computer Inc.	
Size: Custom	Document Number: JACK, AMP_TPA0312	Rev: 1A
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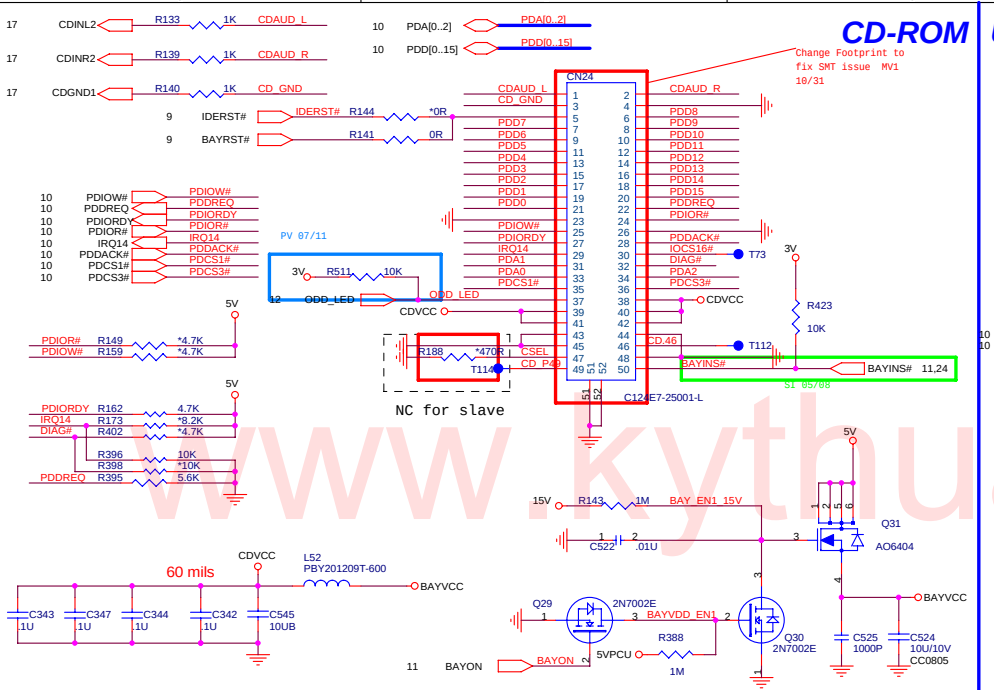
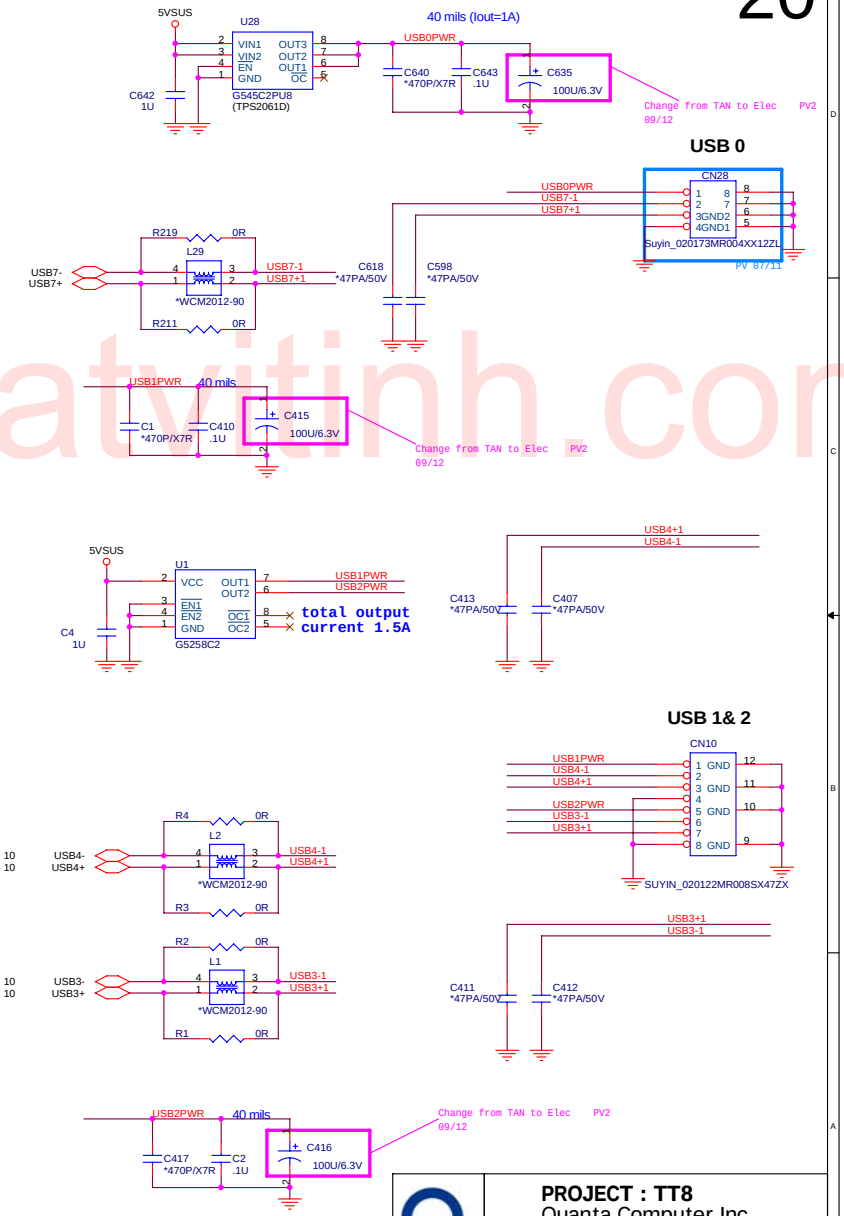
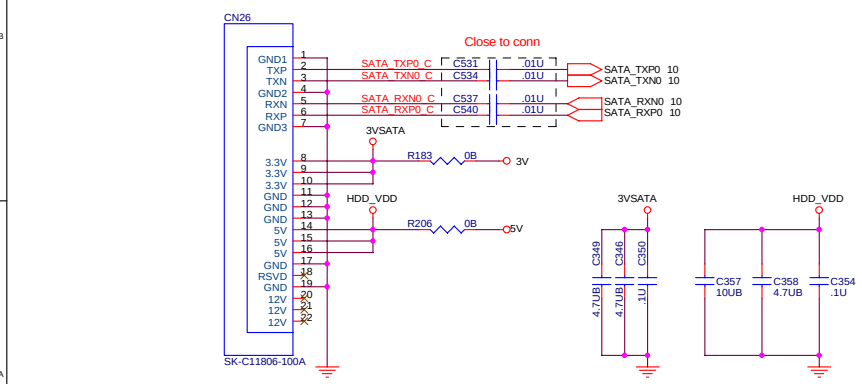
CD-ROM



USBX3



SATA CONNECTOR



USB 1& 2

N85/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: SATA HDD, CD-ROM,USBX2	Rev: 1A
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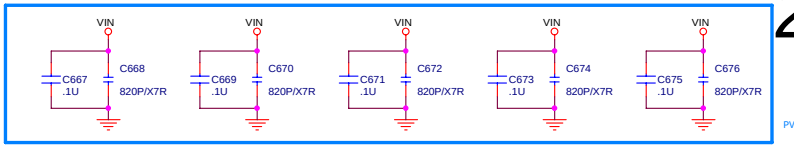
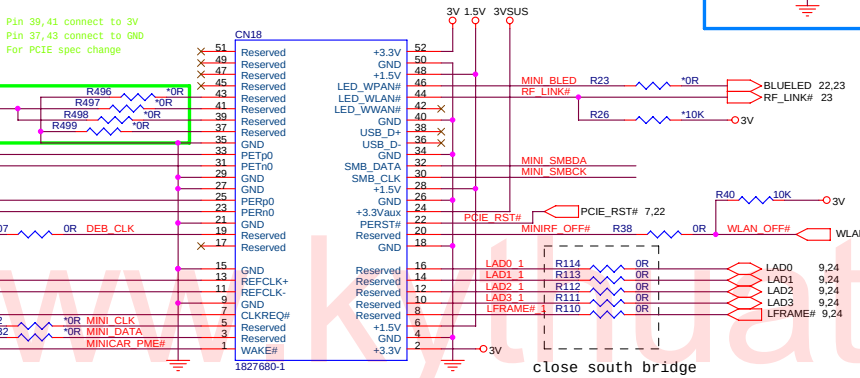
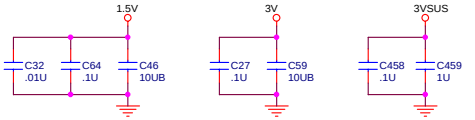
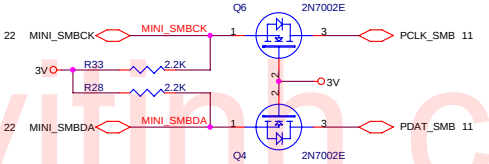
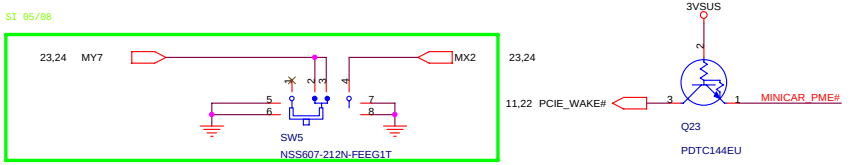
Mini PCI-E Card 1
WLAN



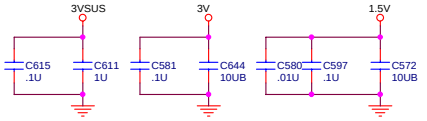


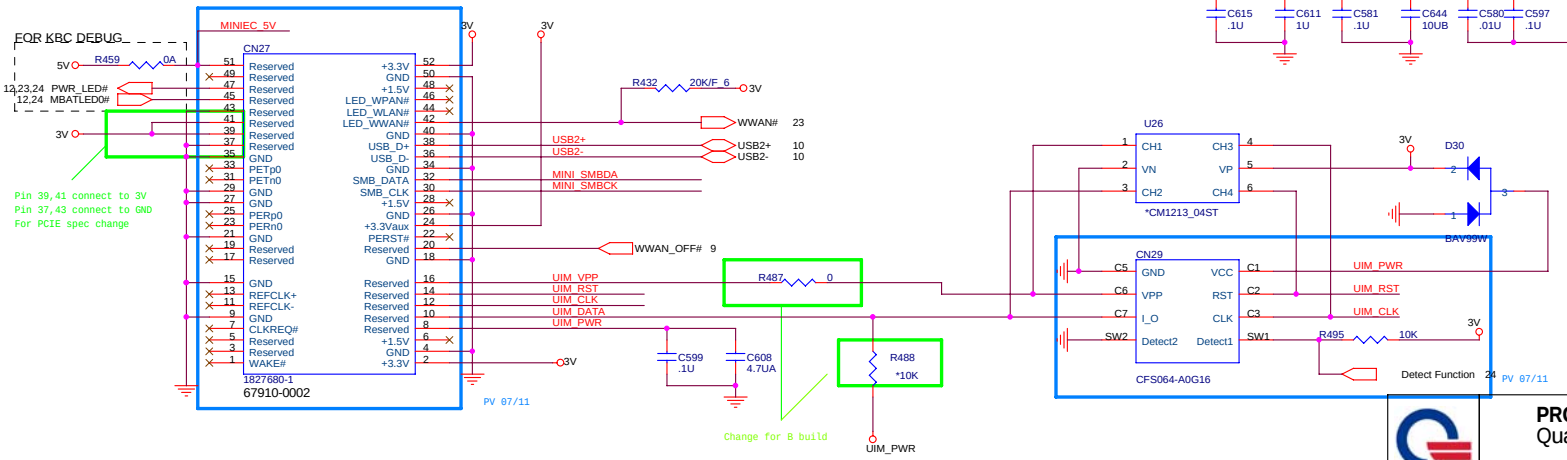






Mini PCI-E Card 2
WWAN(W/SIM)





PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI CARD	1A

NB5/RD2/HW1

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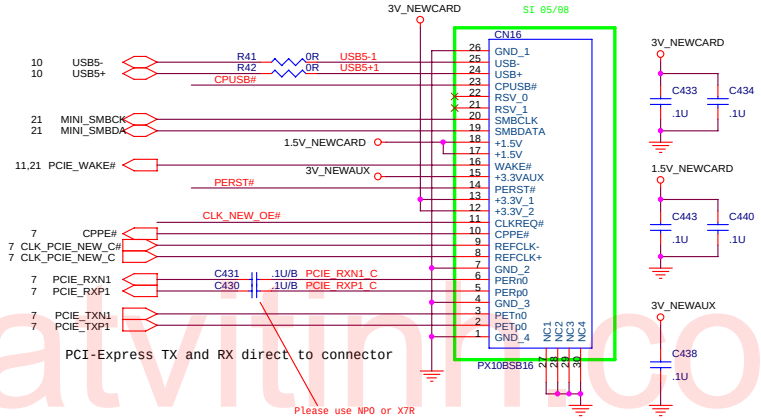
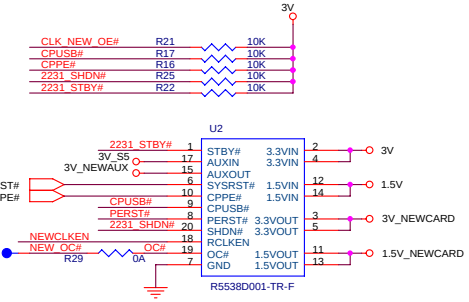
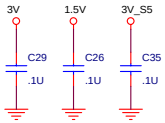
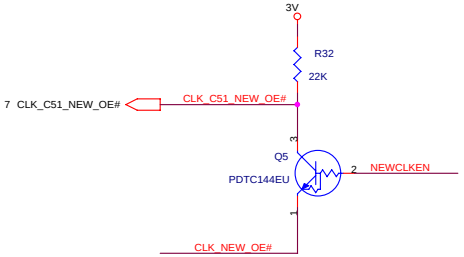
NEWCARD

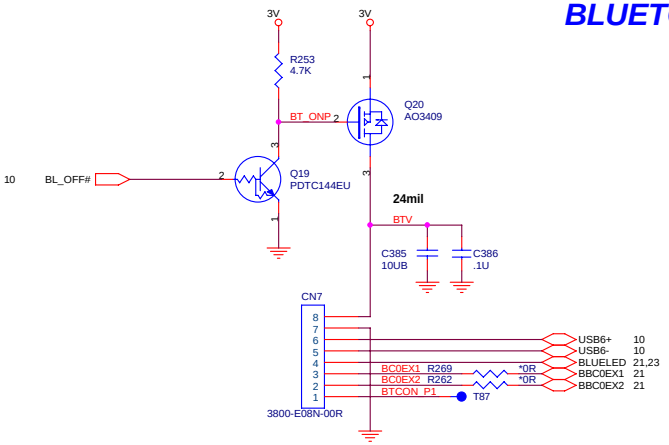








BLUETOOTH



NB5/RD2/HW1	**PROJECT : TT8** Quanta Computer Inc.	
Size: Custom	Document Number: NEW CARD/BT	Rev: 1A
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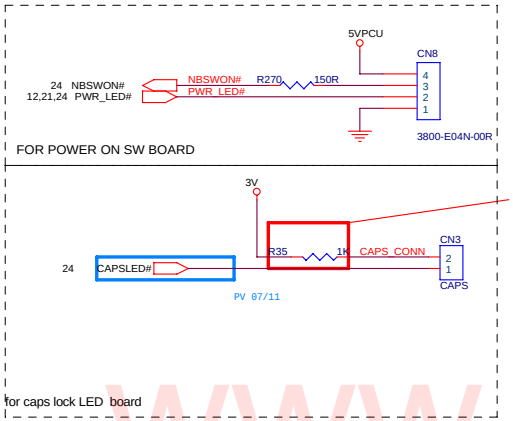
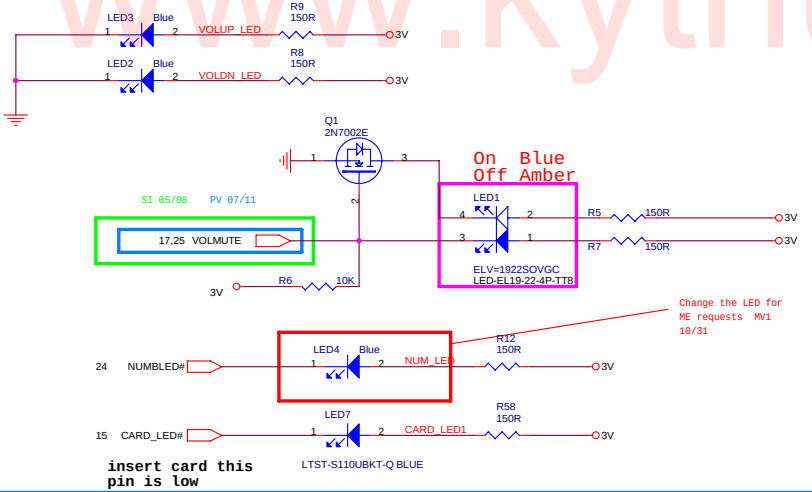
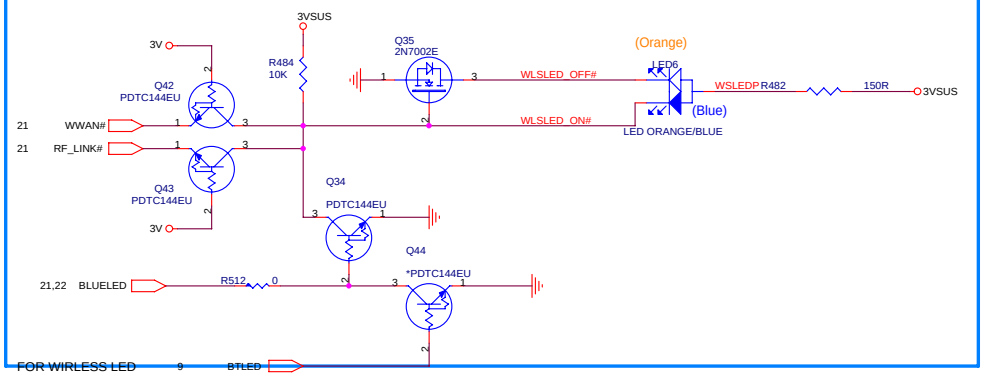
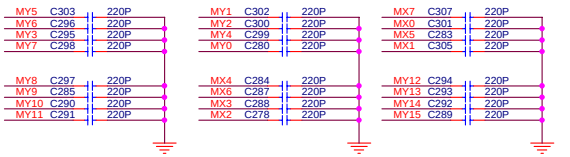
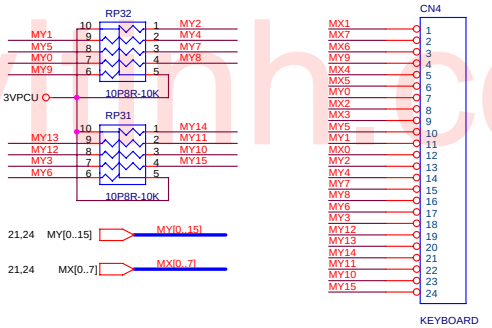








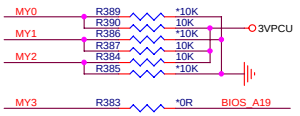
KEYBOARD PULL-UP



NB5/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: LED/KEYBOARD/TP	Rev: 1A
Date: Friday, November 24, 2006	Sheet 23 of 36	

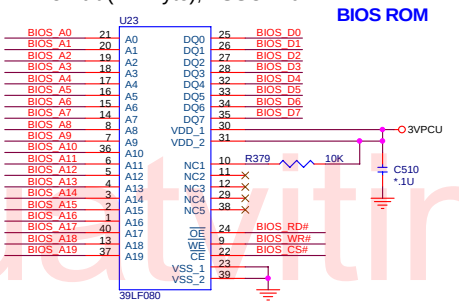
STRAP PIN

MY0	47	TP_TEST: Clock Test Mode Low: Test Mode. HIGH: 32kHz clock in normal runing
MY1	48	TP_PLL: DPLL Test Mode Low: Test Mode. HIGH: Normal operation
MY2	49	TP_SPI: Default flash access Low: Boot from SPI flash part HIGH: Boot from ISA flash part
MY3	50	TP_ISP: In System Programming Mode Low: ISP mode HIGH: Normal Mode

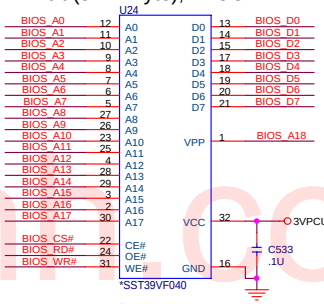


BIOS ROM

8Mbit (1M Byte), TSSOP40

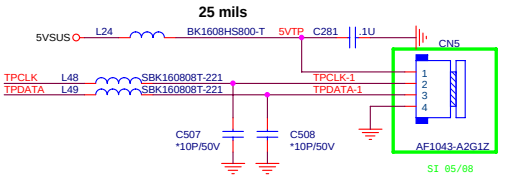


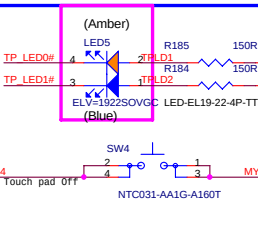
4Mbit (512k Byte), PLCC

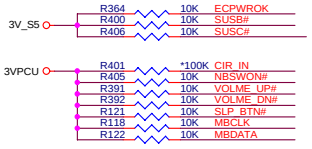


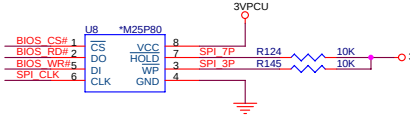
ROM CHIP P/N:AKE34ZAPK01

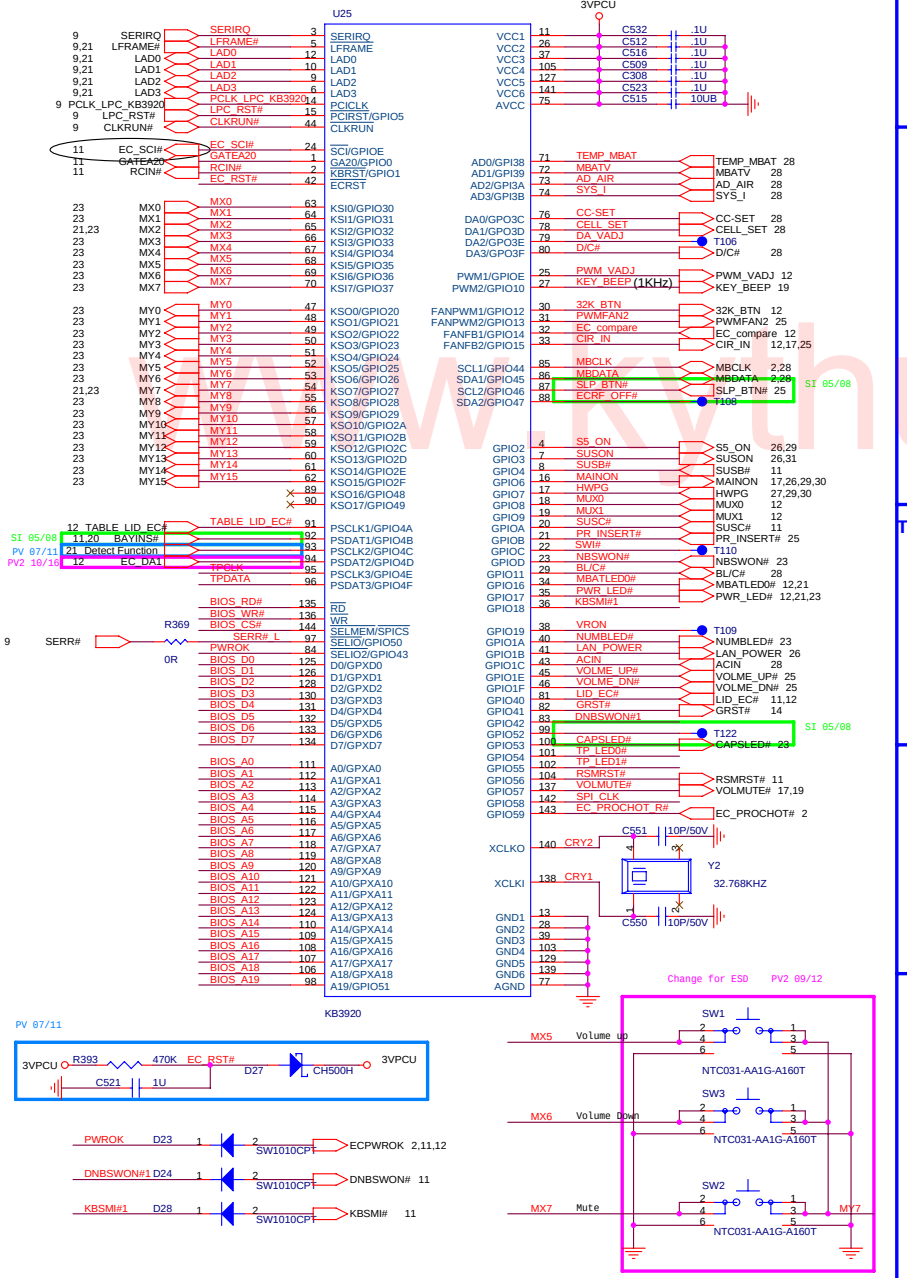
TOUCH PAD CONNECTOR





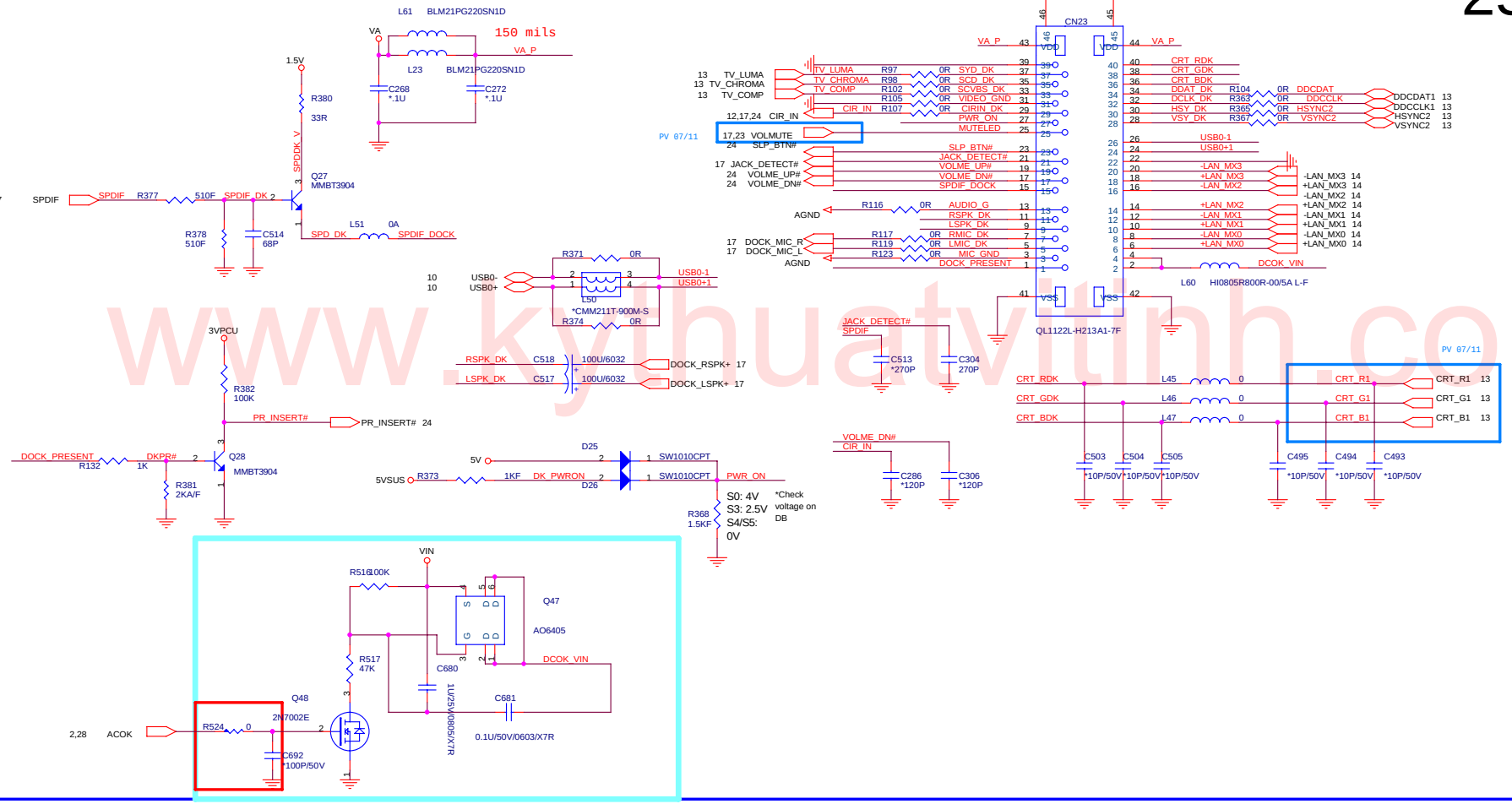




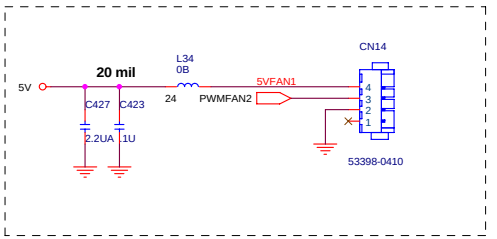


N85/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.		
Size Custom	Document Number KB3920		Rev 1A
Date: Friday, November 24, 2006	Sheet 24 of 36		

CABLE DOCK

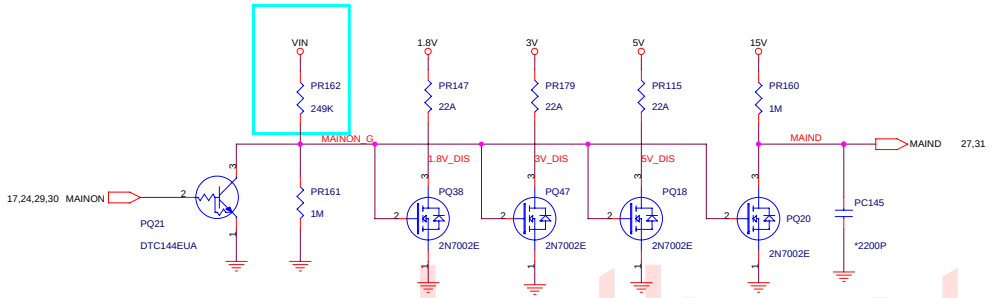


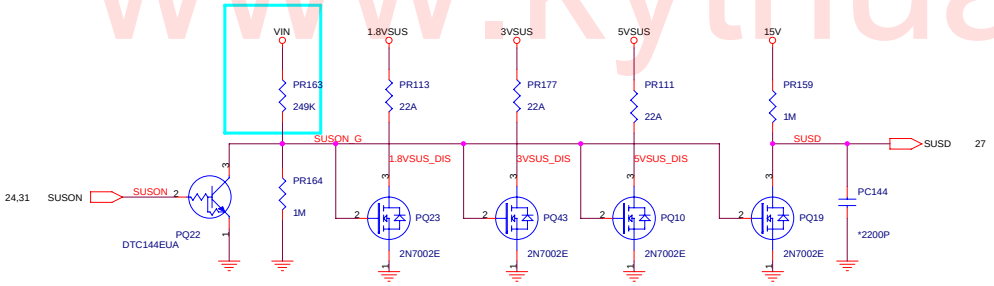
FAN

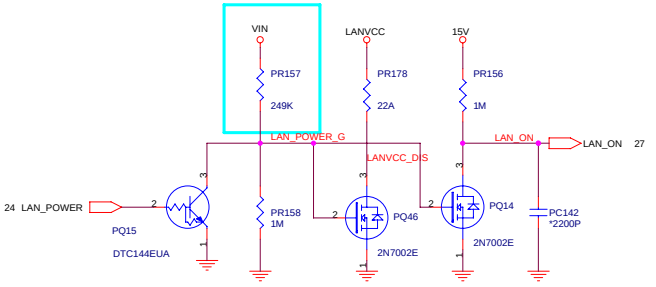


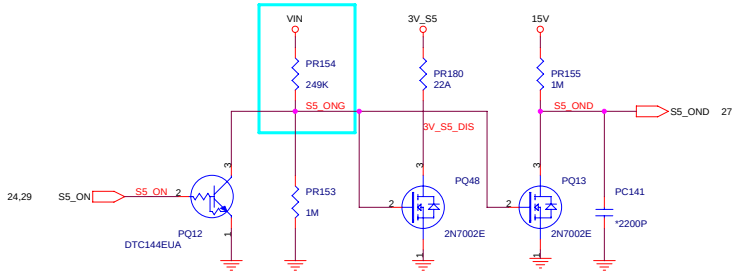
FAN1 PWM CONNECTOR

PROJECT : TT8 Quanta Computer Inc.		
Size: Custom	Document Number: CABLE DOCKING	Rev: 1A
N85/RD2/HW1	Date: Friday, November 24, 2006	Sheet 25 of 36

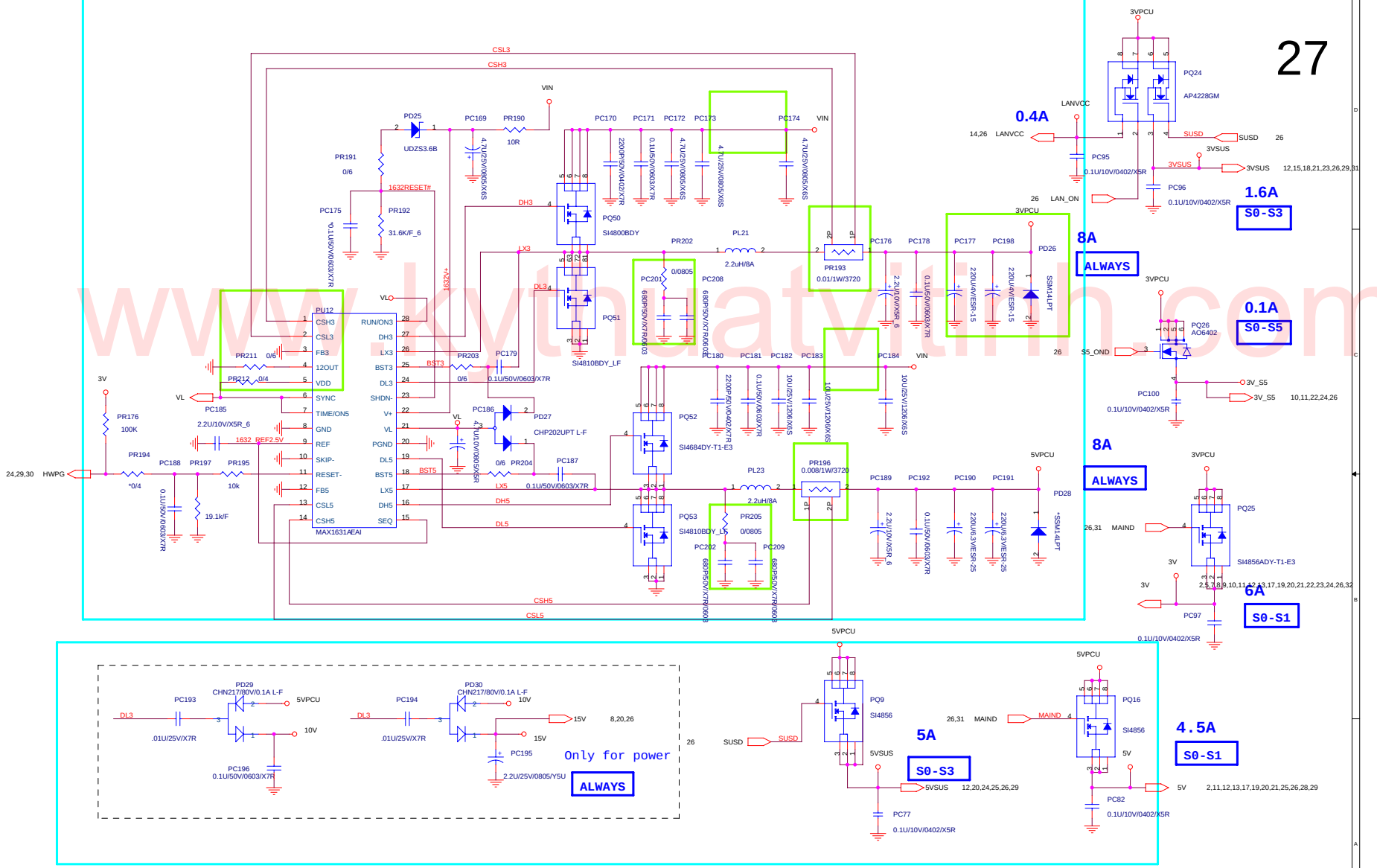








NB5/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: DISCHARGE	Rev: 1A
Date: Friday, November 24, 2006	Sheet 26 of 36	

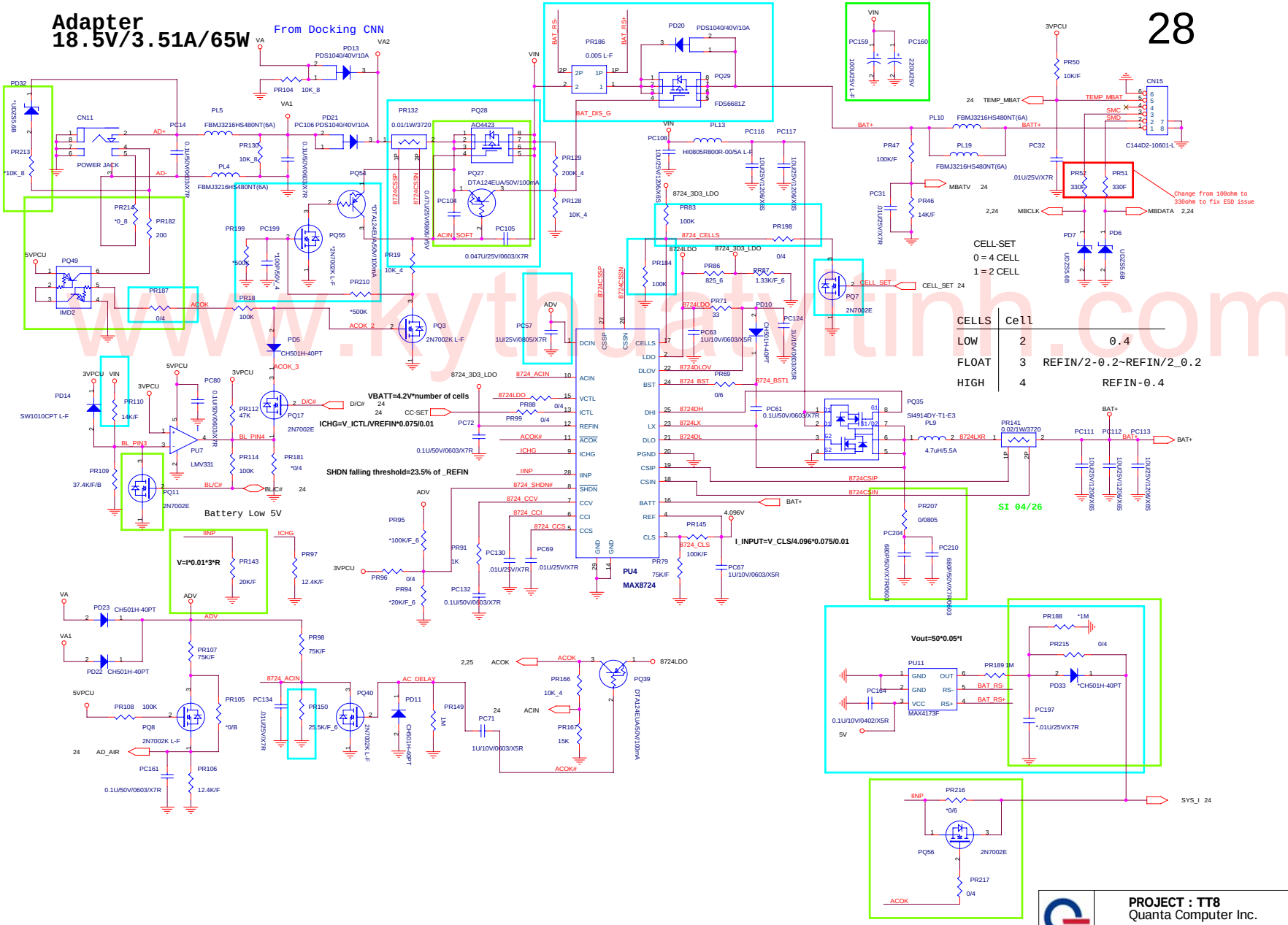


PROJECT : TT8	
Quanta Computer Inc.	
Size: Custom	Document Number: MAX1632A
Rev: 1A	
Date: Friday, November 24, 2006	Sheet 27 of 36
N85/RD2/HW1	

Adapter 18.5V/3.51A/65W

From Docking CNN

28



PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MAX8724A CHARGE	1A

NB5/RD2/HW1

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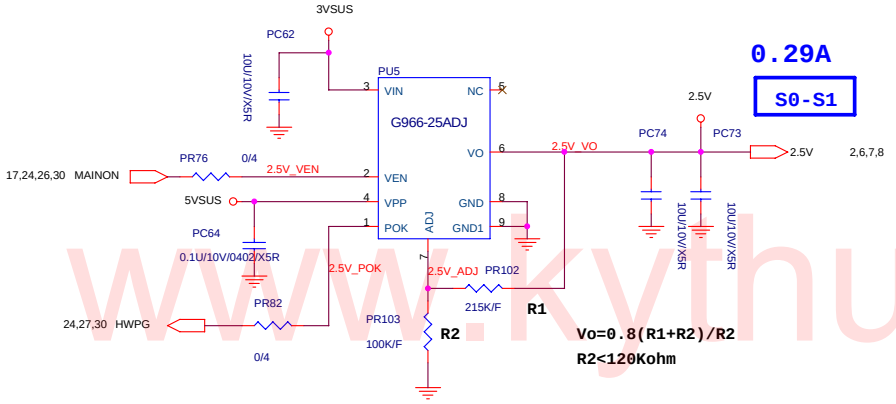
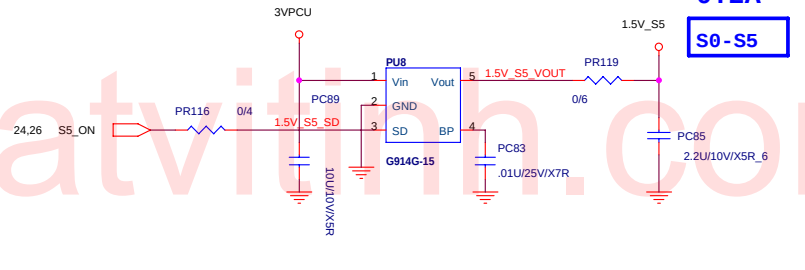
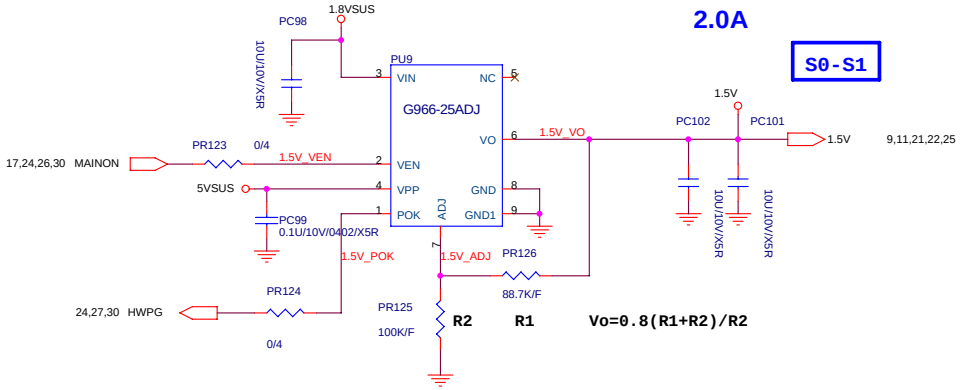
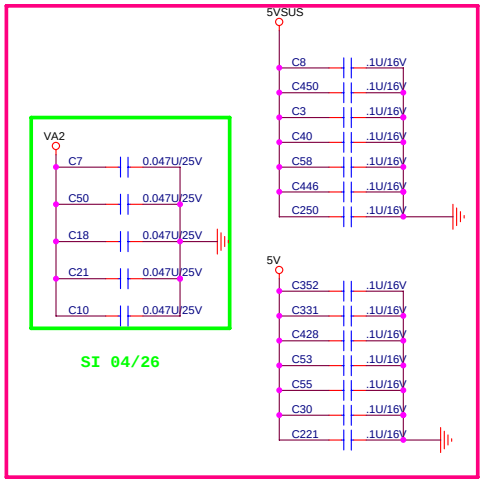


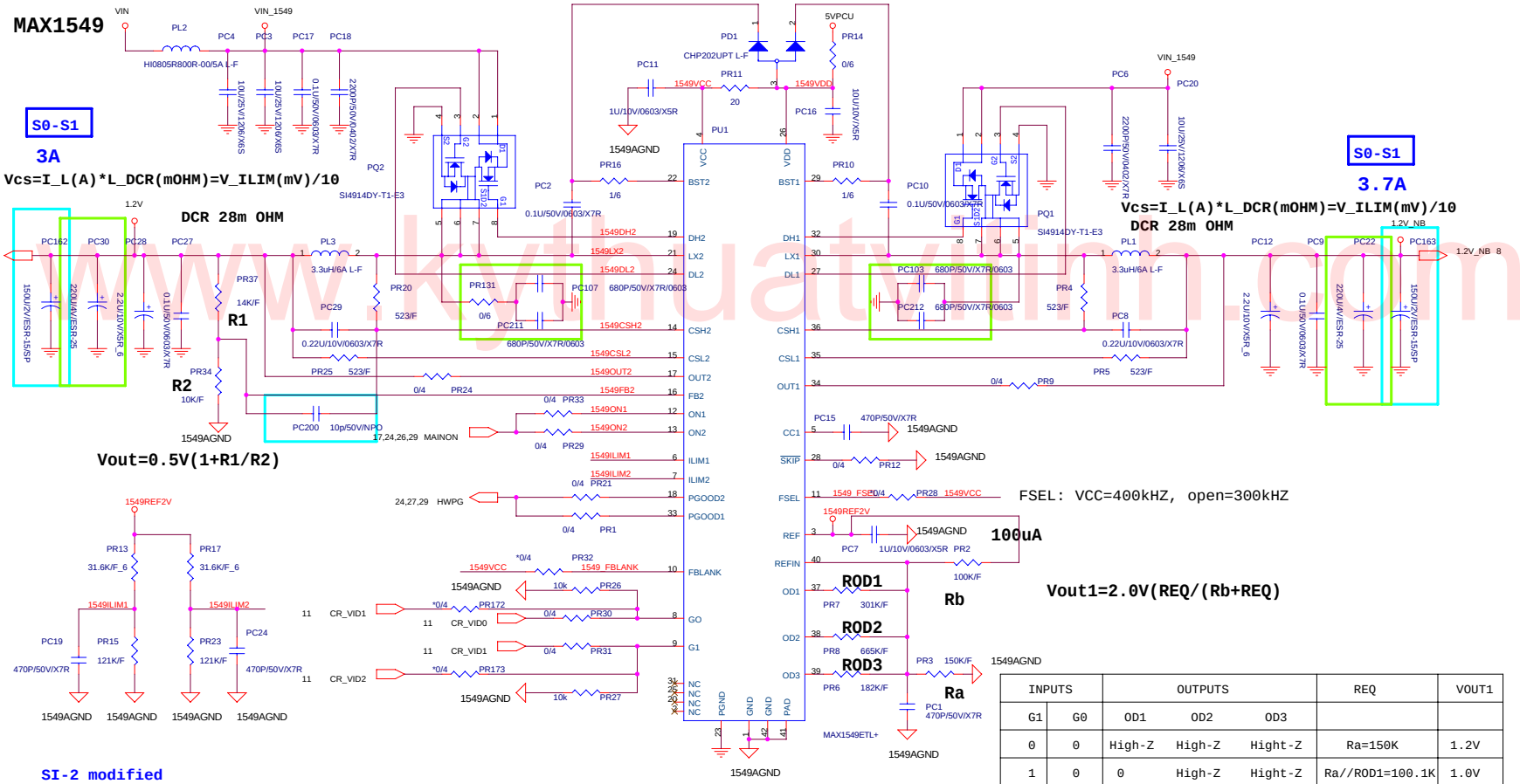


EMI





NB5/RD2/HW1	PROJECT : TT8 Quanta Computer Inc.	
Size: Custom	Document Number: 2.5V/1.5V_S5/1.5V	Rev: 1A
Date: Friday, November 24, 2006	Sheet 29 of 36	



INPUTS		OUTPUTS			REQ	VOUT1
G1	G0	OD1	OD2	OD3		
0	0	High-Z	High-Z	Hight-Z	Ra=150K	1.2V
1	0	0	High-Z	Hight-Z	Ra//ROD1=100.1K	1.0V
0	1	High-Z	0	Hight-Z	Ra//ROD2=122.4K	1.1V
1	1	High-Z	High-Z	0	Ra//ROD3=82.02K	

FBLANK				
VCC	OPEN	REF	GND	
150us	100us	50us	blanking disabled	OU1 fault protection and PGO1 blanking
150us	100us	50us	100us	OU1 forced-PWM transition operation

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	MAX1549 1.2V/1.2V_NB	1A
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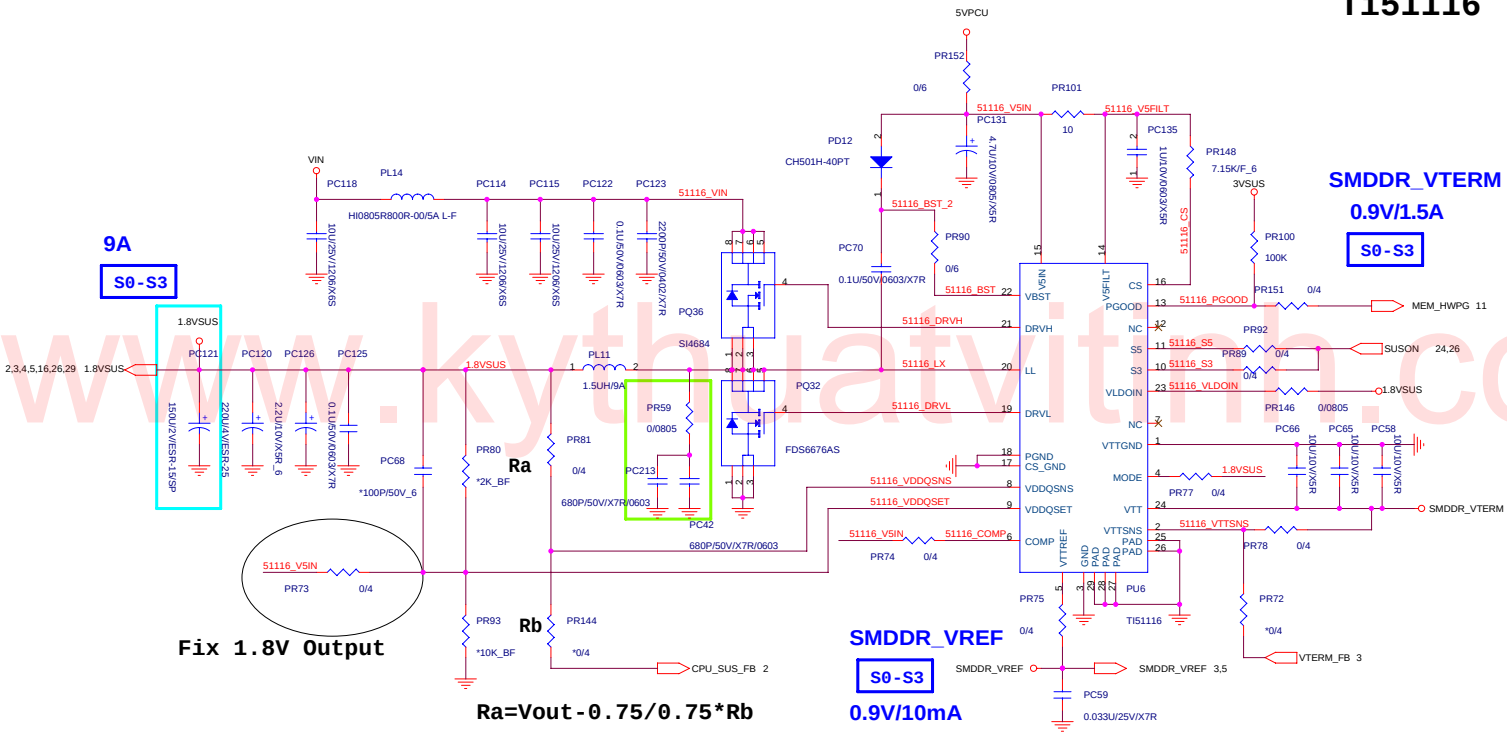
NB5/RD2/HW1



Mode	Discharge Mode
V5IN	No discharge
VDDQ	Tracking discharge
Gnd	Non-tracking discharge

V_TRIP(mV)=R_TRIP(Kohm)*10(uA)

I_OCP=V_trip/Rds_on+I_Ripple/2

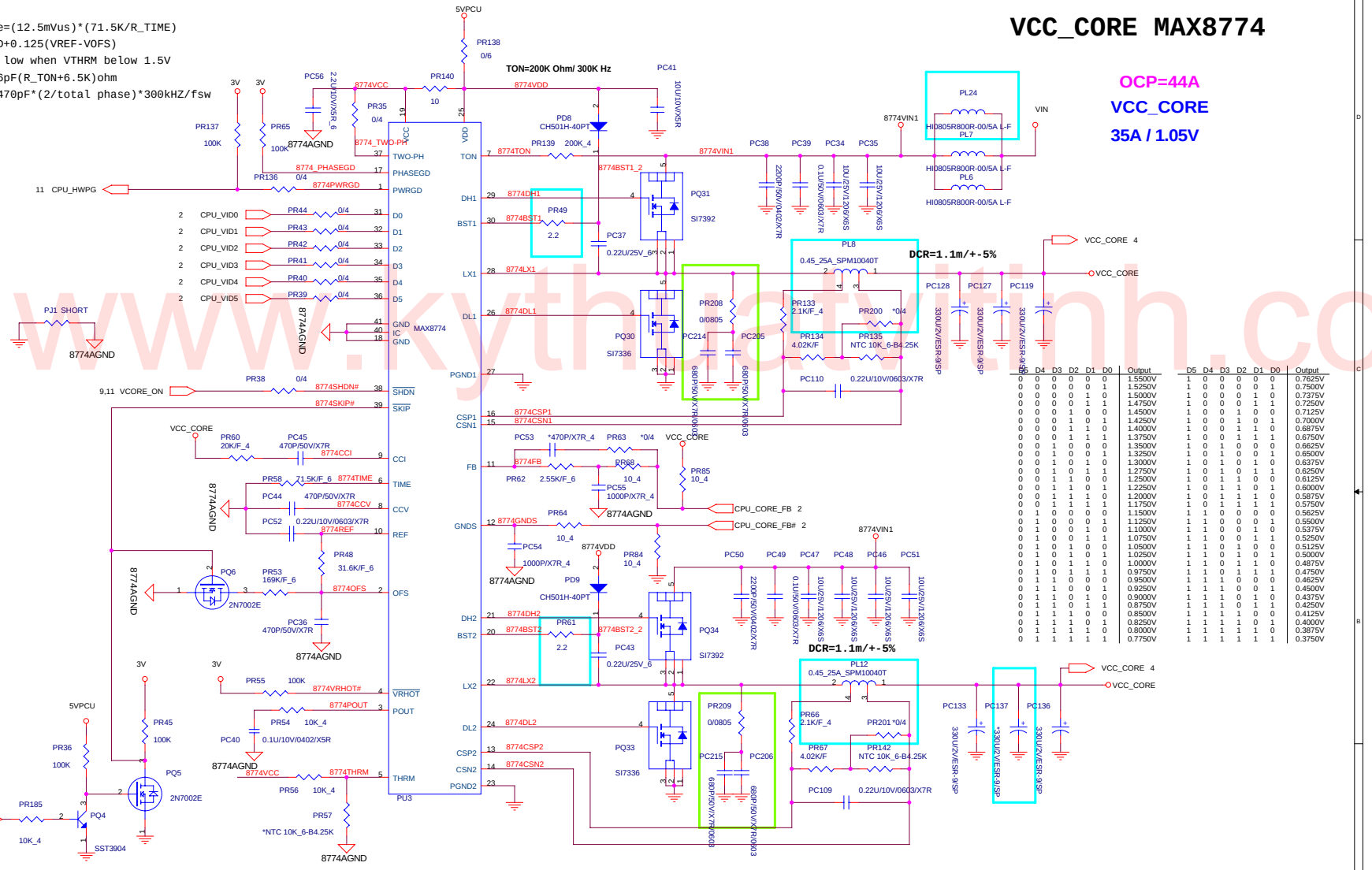
VDDQSET	VDDQ(V)	VTTREF and Vtt	Note
GND	2.5	V_ vddqsns/2	DDR
V5IN	1.8	V _vddqsns/2	DDR2
FB	adjustable	V_VDDQSNS/2	1.5V<VDDQ<3V

PROJECT : TT8	
Quanta Computer Inc.	
Size: Custom	Document Number: Ti51116 1.8VSUS/1.8V/SMDDR
Rev: 1A	
NB5/RD2/HW1	Date: Friday, November 24, 2006 Sheet 31 of 36

VCC_CORE MAX8774

Slew rate=(12.5mVus)*(71.5K/R_TIME)
VFB=V_VID+0.125(VREF-VOFS)
VRHOT is low when VTHRM below 1.5V
Tsw=16.26pF(R_TON+6.5K)ohm
CCV CAP=470pF*(2/total phase)*300kHZ/fsw

OCP=44A
VCC_CORE
35A / 1.05V



D5	D4	D3	D2	D1	D0	Output	D5	D4	D3	D2	D1	D0	Output
0	0	0	0	0	0	1.5500V	1	0	0	0	0	0	0.7625V
0	0	0	0	0	1	1.5250V	1	0	0	0	0	1	0.7500V
0	0	0	0	1	0	1.5000V	1	0	0	0	1	0	0.7375V
0	0	0	0	1	1	1.4750V	1	0	0	0	1	1	0.7250V
0	0	0	1	0	0	1.4500V	1	0	0	1	0	0	0.7125V
0	0	0	1	0	1	1.4250V	1	0	0	1	0	1	0.7000V
0	0	0	1	1	0	1.4000V	1	0	0	1	1	0	0.6875V
0	0	0	1	1	1	1.3750V	1	0	0	1	1	1	0.6750V
0	0	1	0	0	0	1.3500V	1	0	1	0	0	0	0.6625V
0	0	1	0	0	1	1.3250V	1	0	1	0	0	1	0.6500V
0	0	1	0	1	0	1.3000V	1	0	1	0	1	0	0.6375V
0	0	1	0	1	1	1.2750V	1	0	1	0	1	1	0.6250V
0	0	1	1	0	0	1.2500V	1	0	1	1	0	0	0.6125V
0	0	1	1	0	1	1.2250V	1	0	1	1	0	1	0.6000V
0	0	1	1	1	0	1.2000V	1	0	1	1	1	0	0.5875V
0	0	1	1	1	1	1.1750V	1	0	1	1	1	1	0.5750V
0	1	0	0	0	0	1.1500V	1	1	0	0	0	0	0.5625V
0	1	0	0	0	1	1.1250V	1	1	0	0	0	1	0.5500V
0	1	0	0	1	0	1.1000V	1	1	0	0	1	0	0.5375V
0	1	0	0	1	1	1.0750V	1	1	0	0	1	1	0.5250V
0	1	0	1	0	0	1.0500V	1	1	0	1	0	0	0.5125V
0	1	0	1	0	1	1.0250V	1	1	0	1	0	1	0.5000V
0	1	0	1	1	0	1.0000V	1	1	0	1	1	0	0.4875V
0	1	0	1	1	1	0.9750V	1	1	0	1	1	1	0.4750V
0	1	1	0	0	0	0.9500V	1	1	1	0	0	0	0.4625V
0	1	1	0	0	1	0.9250V	1	1	1	0	0	1	0.4500V
0	1	1	0	1	0	0.9000V	1	1	1	0	1	0	0.4375V
0	1	1	0	1	1	0.8750V	1	1	1	0	1	1	0.4250V
0	1	1	1	0	0	0.8500V	1	1	1	1	0	0	0.4125V
0	1	1	1	0	1	0.8250V	1	1	1	1	0	1	0.4000V
0	1	1	1	1	0	0.8000V	1	1	1	1	1	0	0.3875V
0	1	1	1	1	1	0.7750V	1	1	1	1	1	1	0.3750V

PROJECT : TT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MAX8774 VCC_CORE	1A

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NB5/RD2/HW1

MODEL	DB1 --->SI1	CHANGE LIST	Model / Page	OT1 MB BOARD FROM	TO
TT8 MB 31TT8MB0006	4/17-4/20	1.Change Audio port and senser pin resistor. Internal MIC change from Pin14,15 to Pin16,17 Docking Mic Change from Pin16,17 to Pin14,15 Docking spk change from Pin23,24 to Pin 43,44 Swap Pin30 and Pin31 Change R486 from Pin 13 to Pin 34 and change from 5.1KK to 10K Change R251 10K to R485 5.1K	1	1A	
		2.Change WWAN and WLAN Pin define Add R487 and R488	2	1A	
		3.Change TEMP Control chip for leakage, Change Q9 and Q10 to BAM70020074	3	1A	
		4.Change HDD connector type, RJ45/CRT connector footprint	4	1A	
		5.Swap LCD connector singnal from machine require	5	1A	
		6.Swap U5 CRT/TV singnal from nVIDIA require	6	1A	
		7.Change battery and D30 footprint	7	1A	
		8.Change C251,C242,C138,C66,C71,C276,C277 footprint from 0603 to 0402	8	1A	
		9.Add Q36,Q37,R489,C661,R490 for Docking MIC detect	9	1A	
		10.Change SW5 and CN8 footprint for machinecal request	10	1A	
		11.Change L41 to PBY201209T-300Y-N (Footprint : 0805)	11	1A	
		12.Delect H3 and H4 for machinecal change	12	1A	
		13.Change C20 from 0.1U to 1U (Fix LCD rise time)	13	1A	
		14.Move Net "SLP_BTN# from pin99 to pin87	14	1A	
		15.Modify Docking mute LED circuit	15	1A	
		16.Modify U25 SCI# signal from BIOS request, AddR491,R492	16	1A	
		17.Modify Buletooth switch and ODD BAYINS# to EC	17	1A	
		18.Change caps lock connector footprint from machencal request	18	1A	
		19.Add U30,R495,R494,R493,Q38 for reserve SIM card	19	1A	
		20.Change 4-in-1 card footprint	20	1A	
		21.Add R44,R43,R48 Remove R62,R64,R69,R34,R24,R36	21	1A	
		22.Change L45,L46,L47 to 0 ohm Del C503,C504,C505,C493,C494,C495 for D-SUB function	22	1A	
			23	1A	
			24	1A	
			25	1A	
			26	1A	
			27	1A	
			28	1A	
			29	1A	
			30	1A	
			31	1A	
			32	1A	
			33	1A	

MODEL	SI1 --->PV1	CHANGE LIST	Model / Page	OT1 MB BOARD FROM	TO
TT8 MB 31TT8MB0006	5/17-7/11	1.Exchange Audio port External MIC Exchange Pin22 and Pin21 CD Line Exchange Pin18 and Pin20 Internal MIC Exchange Pin16 and Pin17 Docking Mic Exchange Pin14 and Pin15	1	1A	
			2	1A	
			3	1A	
		3.Change R478 from 22ohm to 0ohm	4	1A	
		4.Change R462 0ohm to C666 0.47u for Audio chip distortion	5	1A	
		5.Exchange R272 and R263, R273 and R264 for amplifier gain change	6	1A	
		6.Change Q8 from BAM51030Z15 to BAM23010Z30 for Rdson issue	7	1A	
		7.Remove C439 for MS pro card can not detect	8	1A	
		8.Add C667,C668,C669,C670,C671,C672,C673,C674,C675,C676 for WLAN con not detect issue	9	1A	
		9.Add reverse circuit for LED issue	10	1A	
		10.Delect Q7 for Cap lock LED	11	1A	
		11.Add EMI Cap C93,C118,C496,C497,C499,C566,C589,C555,C334,C337	12	1A	
		12.Change CN19,CN27,CN28,CN29 footprint	13	1A	
		14.Change Sim connector (Add detect pin)	14	1A	
		15.Move Docking CRT signal after PI circuit	15	1A	
		16.Add R500, R501 for Audio chip function	16	1A	
		17.Add D37 and R502 for nVIDIA soluction	17	1A	
		18.Move D22 from +5VCRT to +5VCRT3	18	1A	
		19.Change Docking detect circuit	19	1A	
		20.Delet H20 H21	20	1A	
		21.Exchange MINI_DATA and MINI_CLK	21	1A	
		22.Add Diode for SATA and ODD LED control	22	1A	
		23.Add power controller for 5V shutdown	23	1A	
		24.Change WLAN LED circuit	24	1A	
		25.Add Res for ACZ signal	25	1A	
		26.Delete H7 and H14 for ME change	26	1A	
		27.Modify SB to Audio and Modem signal	27	1A	
			28	1A	
			29	1A	
			30	1A	
			31	1A	
			32	1A	
			33	1A	

MODEL		CHANGE LIST	Model / Page	OT1 MB BOARD FROM	TO
TT8 MB 31TT8MB0006	PV1 --->PV2 9/8-10/17	1.Page17 change voltage from +3V to 3V fix the Mic can not work 2.Page17 change R14 from 4.7K to 5.6K to fix LCCVDD rise time 3.Page17 change LCD cable Pin22 and Pin15 for switch function, Pin7 change to 32K_BTN 4.Page24 add GPIO for switch function 5.Page10 Change cap from 18p to 22p 6.Page17 Change C392 and C395 from 10U to 1U to fix Docking noise 7.Page16 add PA11(EMI spring) 8.Page21 Exchange BBC0EX1 and BBC0EX2 9.Page20 remove C614, C607, C406, C414, C404, C405 10.Page20 Change C635, C415, C416 from TAN to ELEC 11.Page11 Del R205 and Add R207 for Bios check	1	1A	
			2	1A	
			3	1A	
			4	1A	
			5	1A	
			6	1A	
			7	1A	
			8	1A	
			9	1A	
			10	1A	
			11	1A	
			12	1A	
			13	1A	
			14	1A	
			15	1A	
			16	1A	
			17	1A	
			18	1A	
			19	1A	
			20	1A	
			21	1A	
			22	1A	
			23	1A	
			24	1A	
			25	1A	
			26	1A	
			27	1A	
			28	1A	
			29	1A	
			30	1A	
			31	1A	
			32	1A	
			33	1A	

MODEL		CHANGE LIST	Model / Page	OT1 MB BOARD FROM	OT1 MB BOARD TO
TT8 MB 31TT8MB0006	PV2 --->MV1 10/17-11/15	1.Page10 Exchange USB0+/- with USB3+/- signal 2.Page12 Change CN12 Pin1 from 5VSUS to 3V 3.Page17 Change C648 and C656 from 4.7U to 22U to fix Vista issue 4.Page19 Change L35~L38 from LZA10-2ACB104MT to BK1608HS241-T 5.Page19 Change Gain from 15.6db to 10db 6.Page17 Del R260,R267,D312,D322 for Docking MIC 7.Page17 ADD R520,R521,R522,R523 for Docking MIC 8.Page21 Change PR51 PR52 from 100ohm to 330ohm to fix ESD issue 9.Page20 unstuff R188 to fix ODD problem 10.Page11 Change the board ID1 from low to high 11.Page15 Change Cap (C60,C56,C441,C44,C45)from 0.1u to 1u 12.Page15 Change Res (R318,R313,R312)from 39K to 10K 13.Page17 Add 0.01u(C693, C694) to fix high frequency problem 14.Page14 remove the cap(C408,C409) from MV build 15.Page7 Reserve C696 for nVIDIA 16.Page15 Reserve R525 and C695 for 3VSUS drop 17.Page23 Change LED4 for ME requests	1	1A	
			2	1A	
			3	1A	
			4	1A	
			5	1A	
			6	1A	
			7	1A	
			8	1A	
			9	1A	
			10	1A	
			11	1A	
			12	1A	
			13	1A	
			14	1A	
			15	1A	
			16	1A	
			17	1A	
			18	1A	
			19	1A	
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			21	1A	
			22	1A	
			23	1A	
			24	1A	
			25	1A	
			26	1A	
			27	1A	
			28	1A	
			29	1A	
			30	1A	
			31	1A	
			32	1A	
			33	1A	