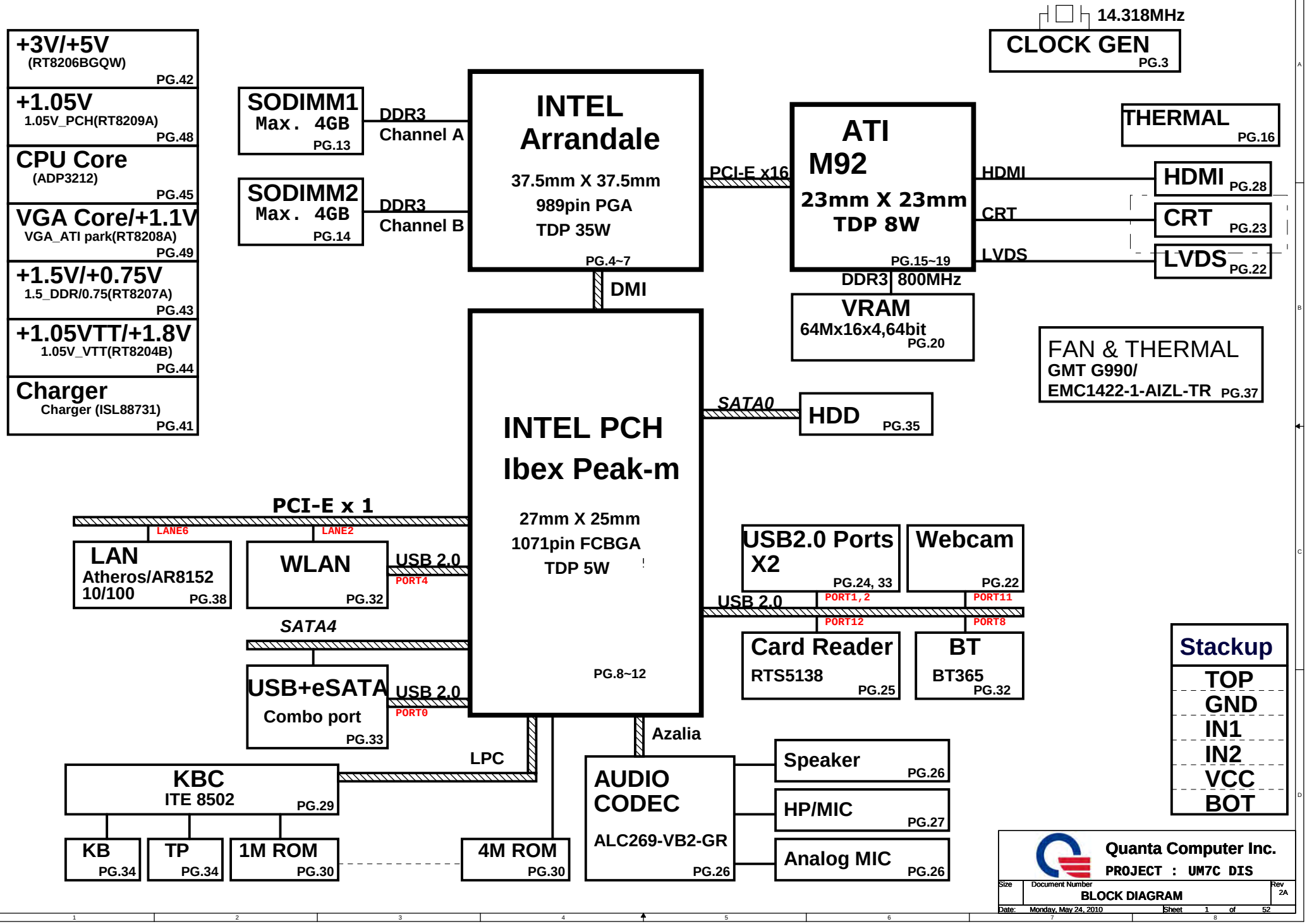
UM7C DISCRETE SYSTEM DIAGRAM



Quanta Computer Inc.
PROJECT : UM7C DIS

Size	Document Number	Rev
	BLOCK DIAGRAM	2A

Date: Monday, May 24, 2010 Sheet 1 of 52

Table of Contents

PAGE	DESCRIPTION
1	Schematic Block Diagram
2	Front Page
3	Clock Generator
4-7	PROCESSER Arrandale
8-12	PCH
13-14	DDRIII SO-DIMM(204P)
15-21	ATI M92-XT
22	LCD CONN W/CCD
23	CRT CONN
24	Right side USB
25	Cardreader (RTS5138)
26	Azalia (ALC269)
27	Audio Connecter
28	HDMI CONN
29	SIO(ITE8502)
30	FLASH / RTC
31	Blank Page
32	MINI-Card (WLAN)+BT
33	ESATA & Left USB
34	TP / KEYBOARD
35	SATA HDD
36	SWITCH LED
37	FAN / THERMAL
38	LAN(AR8152/RJ-45)
39	Blank Page
40	System Reset Circuit
41	Charger (MAX8731)
42	3V/5V (RT8206BGQW)
43	1.5_DDR/0.75(RT8207A)
44	1.05V_VTT(RT8204B)
45	CPU CORE(ADP3212)
46	Run Power Switch
47	DCin & Batt
48	1.05V_PCH(RT8209A)
49	GFX_VCORE (ADP3211)
50	Power Block Diagram
51	Power sequence Block

Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
+PWR_SRC	10V~+19V	23,42,43,44,45,46,49,50	MAIN POWER		S0~S5
+RTC_CELL	+3.0V~+3.3V	09,12,30,31	RTC		S0~S5
					S0~S5
+5V_ALW	+5V	37,43,44,47,48	LARGE POWER	ALW_ON	S0~S5
+3.3V_ALW	+3.3V	30,31,37,42,43,45,47,48	8051 POWER	3.3V_ALW_ON	S0~S5
+5V_SUS	+5V	12,25,34,37,43,44,45,46,47,49,50	SLP_S5# CTRLD POWER	SUS_ON	
+3.3V_SUS	+3.3V	03,08,09,10,11,12,23,35,37,39,41,46,47,50	SLP_S5# CTRLD POWER	SUS_ON	
+1.5V_SUS	+1.5V	04,06,14,15,44,47	SODIMM POWER	SUS_ON	
+0.75V_DDR_VTT	+0.75V	14,15,44	SODIMM POWER	RUN_ON	
+5V_RUN	+5V	08,12,23,24,27,28,29,35,36,3738,47	SLP_S3# CTRLD POWER	RUN_ON	
+3.3V_RUN	+3.3V	3,4,8,9,10,11,12,14,15,23,24,26,27,28,29,30 ,31,33,34,36,37,38,39,41,47	SLP_S3# CTRLD POWER	RUN_ON	
+1.8V_RUN	+1.8V	6,12,45	SDVO POWER	RUN_ON	
+1.05V_VTT	+1.1V	4,6,11,12,45,46	CPU POWER	RUN_ON	
+1.5V_RUN	+1.5V	12,33,47	PCH/Min Card	RUN_ON	
+1.05V_PCH	+1.05V	3,8,9,10,12,49	PCH POWER	RUN_ON	
+VCC_CORE	+0.7V~+1.77V	6,46	CPU CORE POWER	IMVP_VR_ON	
+LCDVCC	+3.3V	23	LCD Power	LCDVCC_TST_EN & ENVDD	

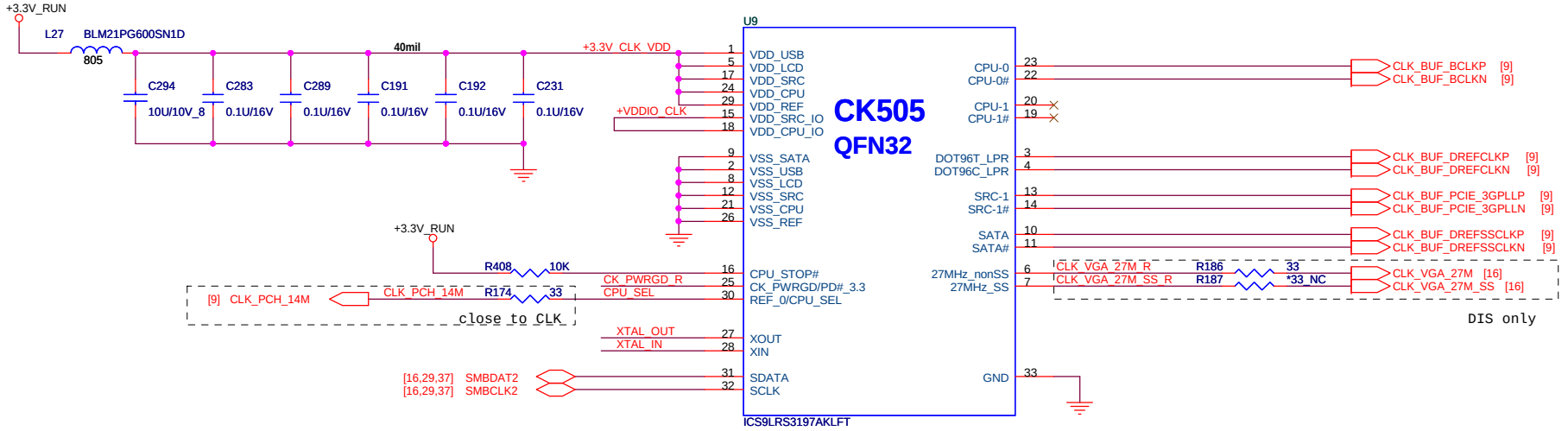
GND PLANE	PAGE	DESCRIPTION
GND	ALL	

Quanta Computer Inc.

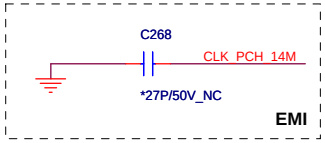
PROJECT : UM7C DIS

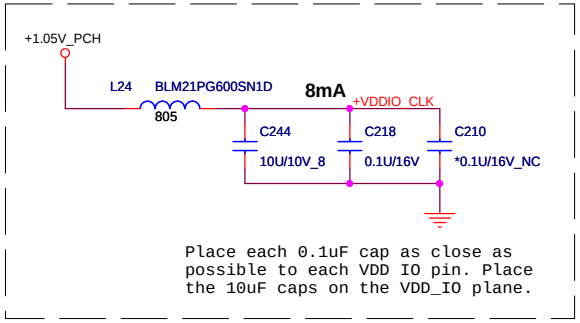
Size	Document Number	Rev
	BLOCK DIAGRAM	2A

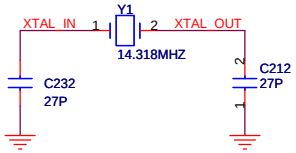
Date: Monday, May 24, 2010 Sheet 2 of 52

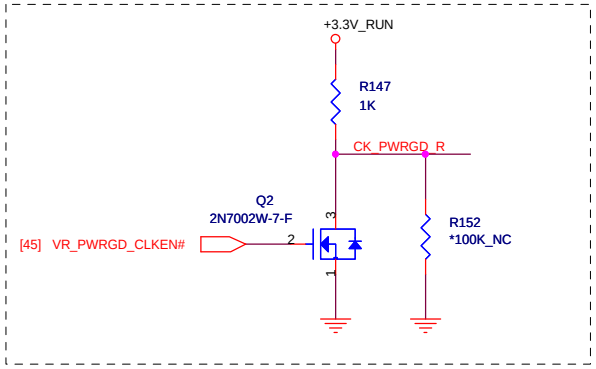


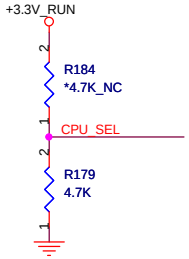
AL003197000IC OTHER(32P)ICS9LRS3197AKLFT(QFN)
~~AL8SP585000IC OTHER(32P)SLG8SP585VTR(QFN)~~
AL8SP590000IC OTHER(32P)SLG8SP590VTR(QFN)







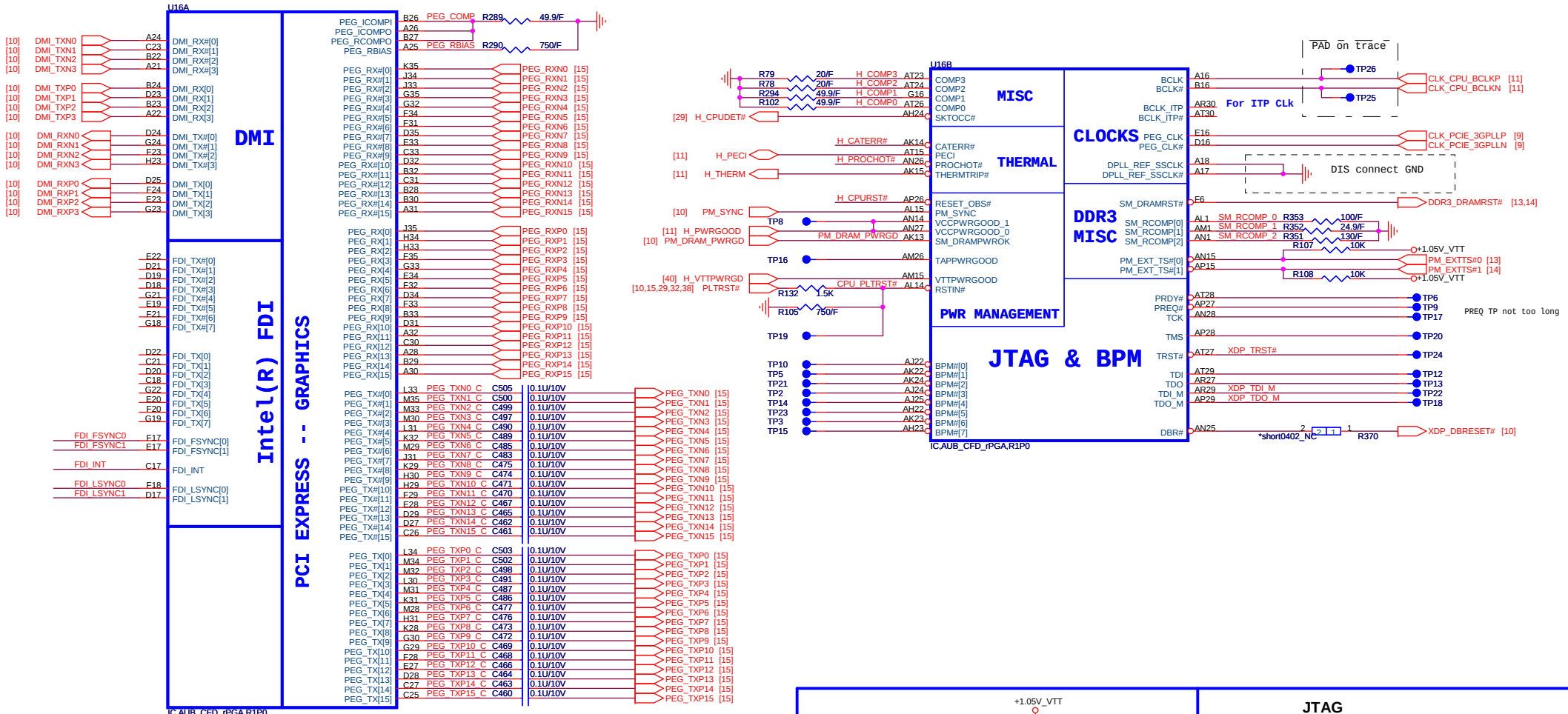


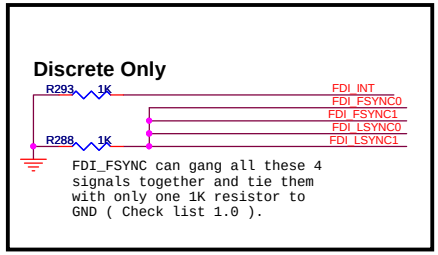


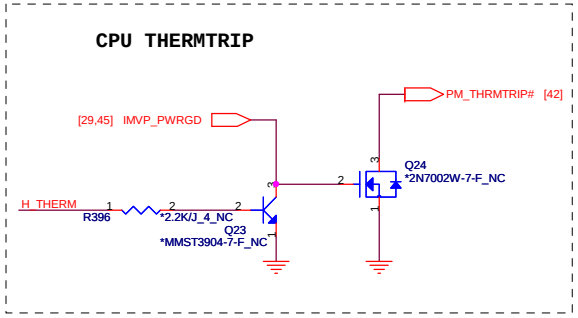
PIN 30	CPU_0	CPU_1
0(default)	133MHz	133MHz
1(0.7V-1.5V)	100MHz	100MHz

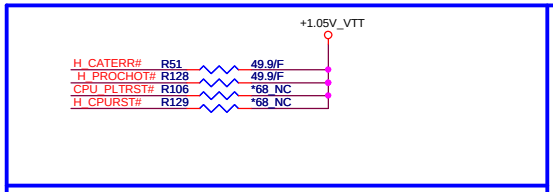
Quanta Computer Inc.
PROJECT : UM7C DIS

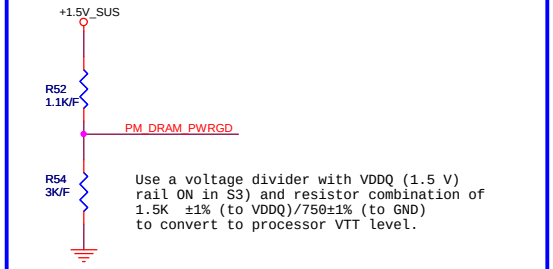
Size	Document Number	Rev
	Clock Generator	2A
Date: Monday, May 24, 2010	Sheet 3 of 52	

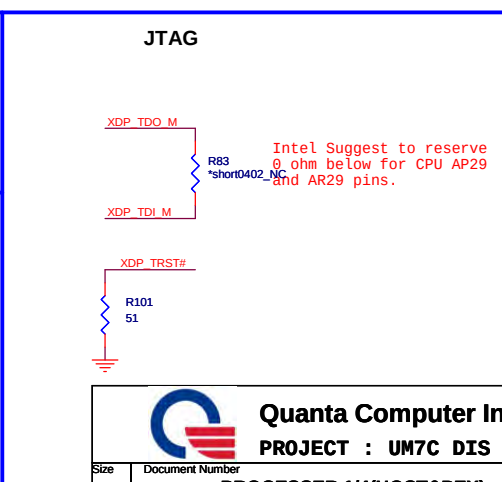












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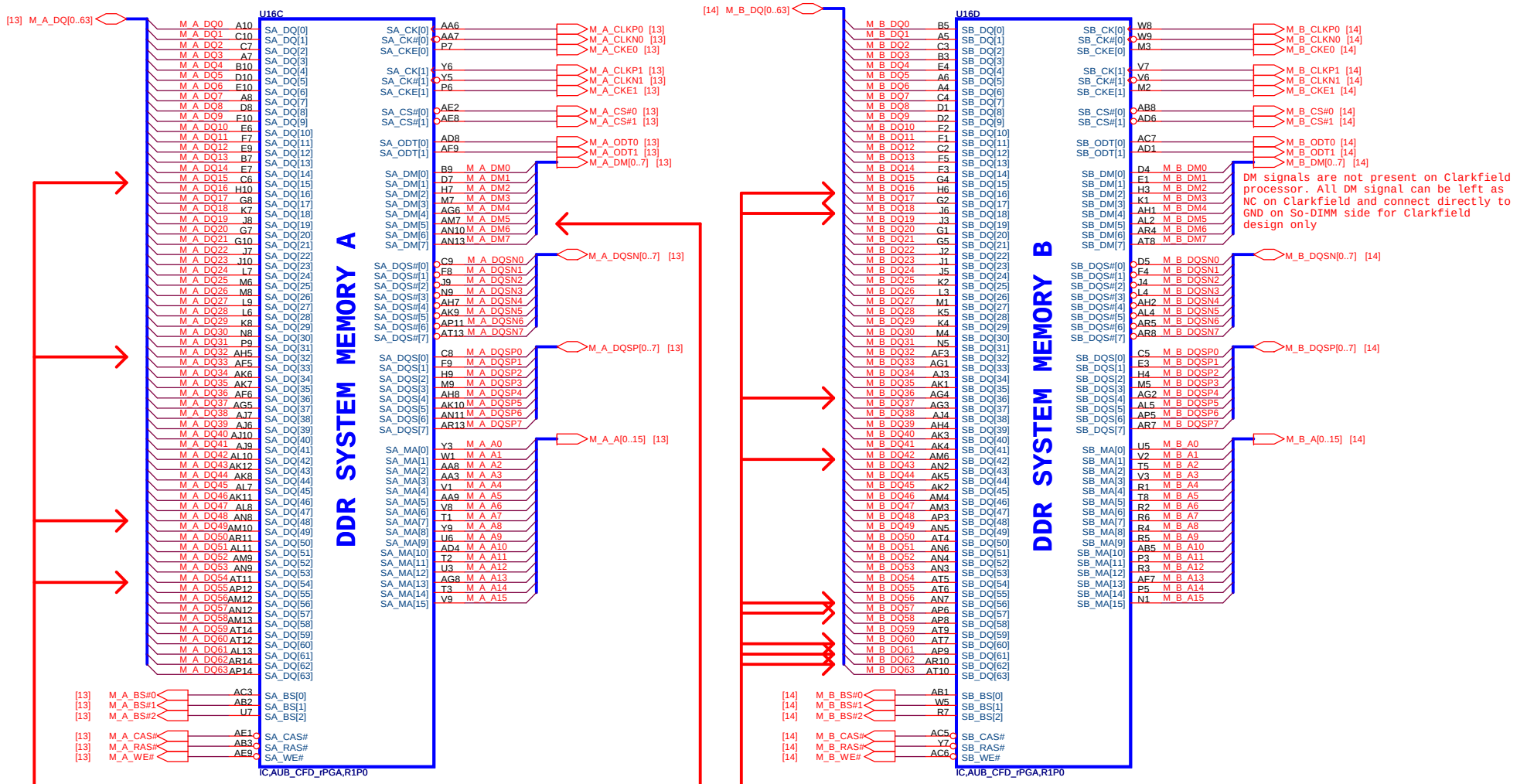
PROJECT : UM7C DIS

Size	Document Number	Rev
	PROCESSER 1/4(HOST&PEX)	2A

Date: Monday, May 24, 2010 Sheet 4 of 52

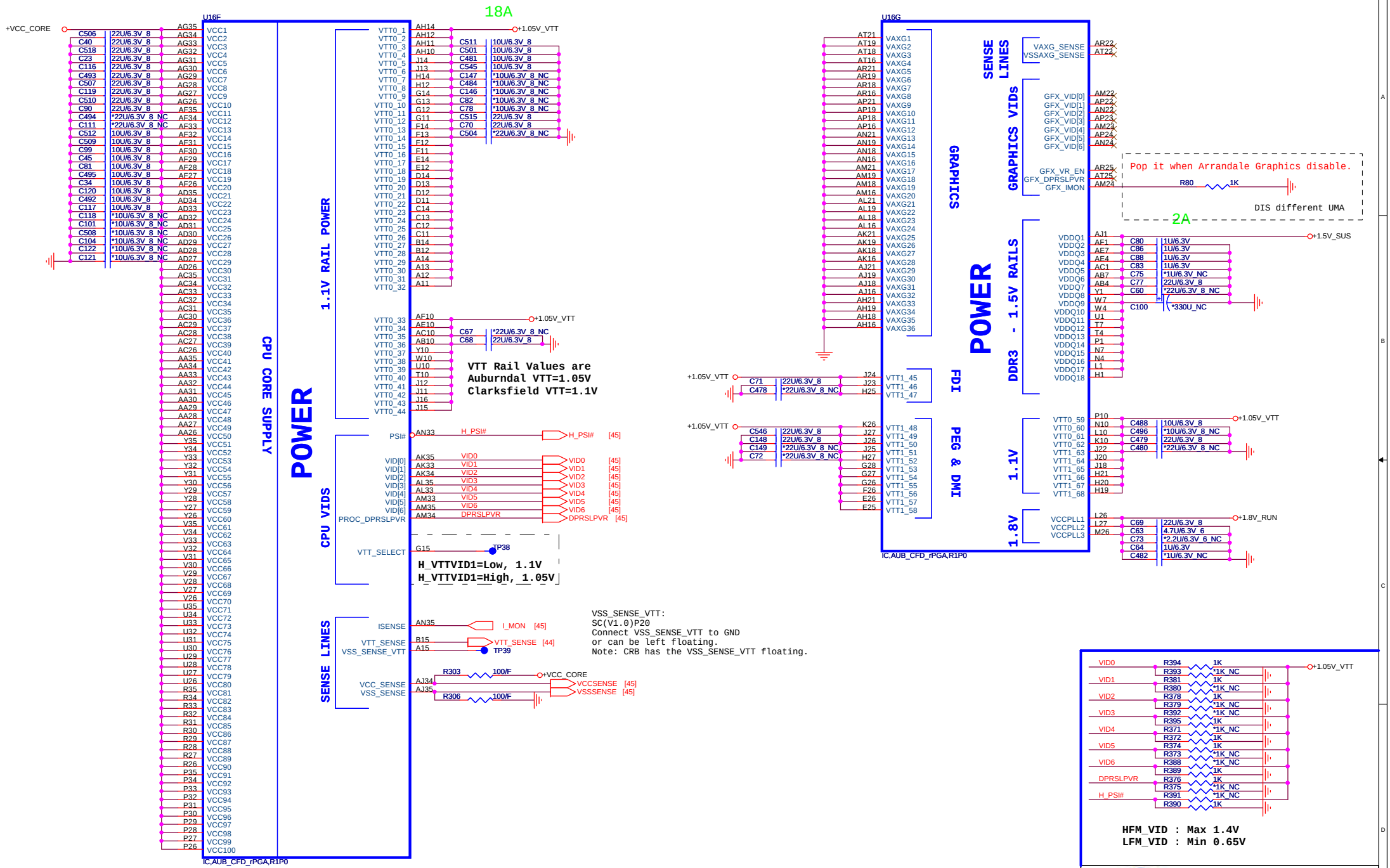
AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)



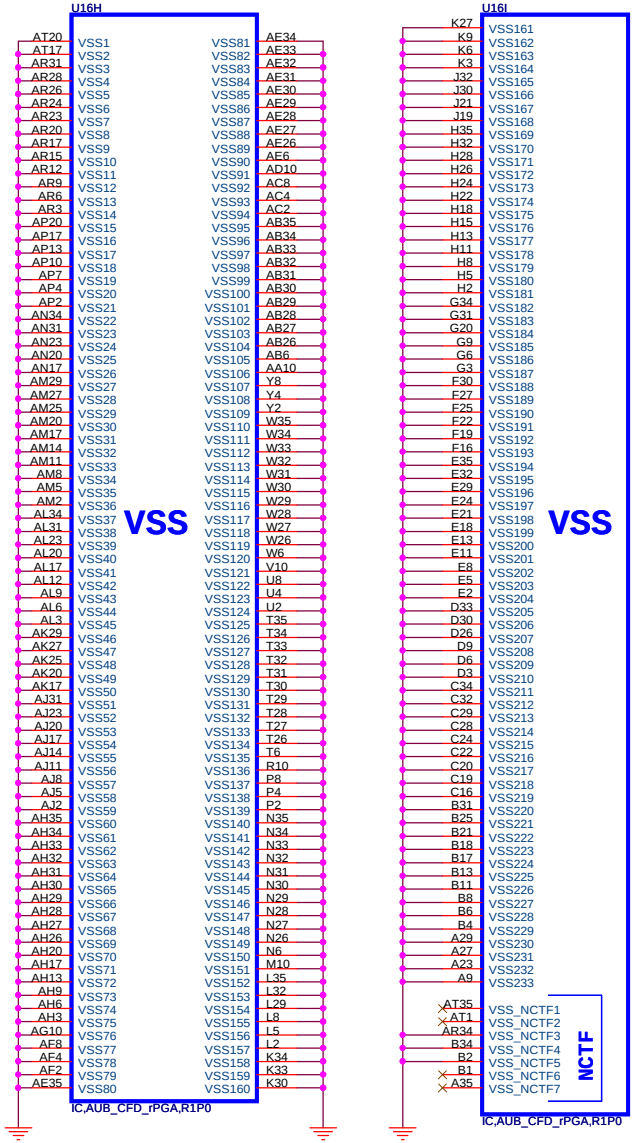
Quanta Computer Inc.

PROJECT : UM7C DIS

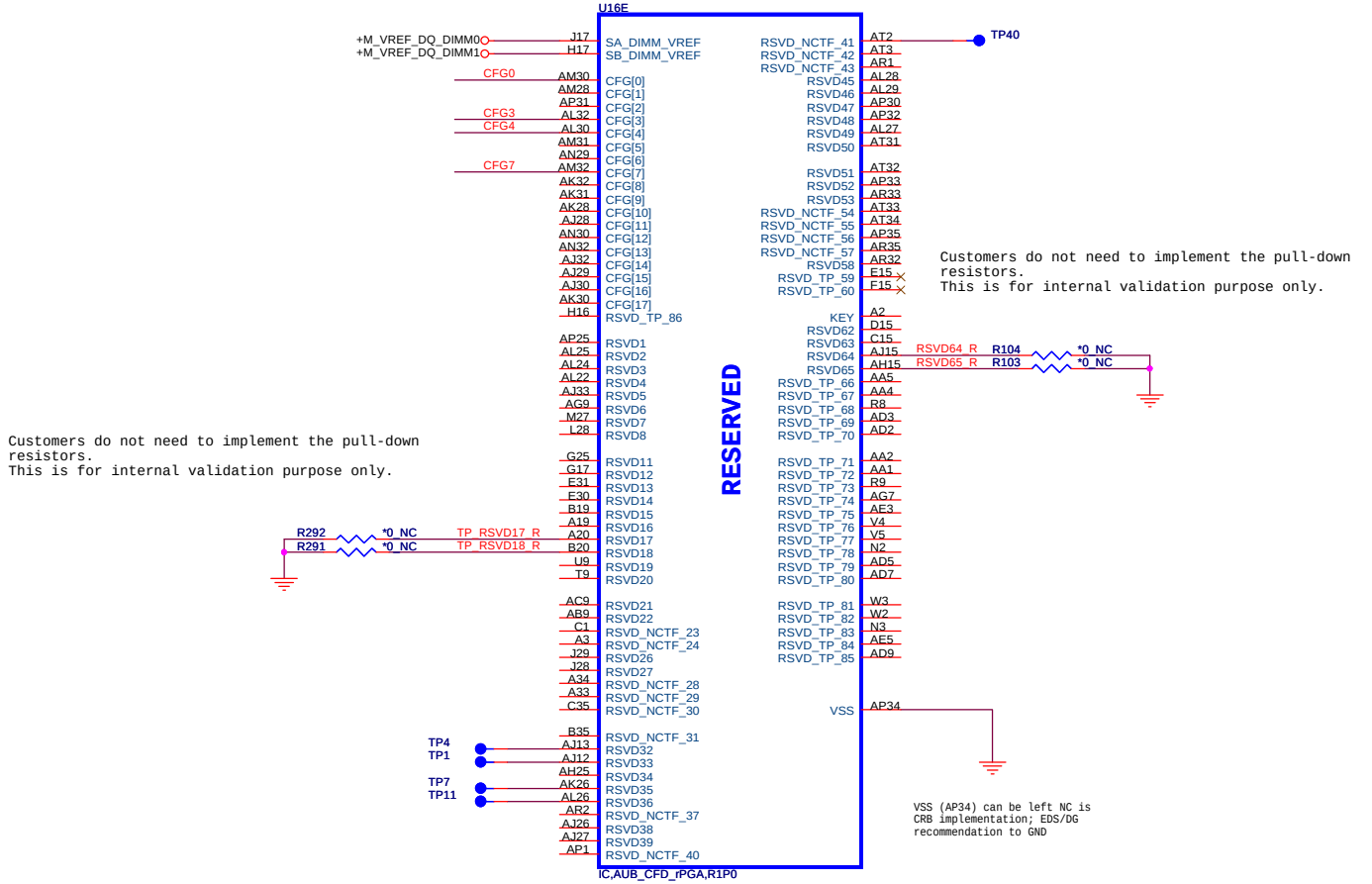
Size	Document Number	Rev
	PROCESSER 2/4(DDR)	2A
Date: Monday, May 24, 2010	Sheet 5 of 52	


18A
U16F
POWER
CPU CORE SUPPLY
1.1V RAIL POWER
CPU VIDS
SENSE LINES
+VCC_CORE
+1.05V_VTT
VTT Rail Values are
Auburndal VTT=1.05V
Clarksfield VTT=1.1V
PSI#
H_PSI#
VID[0]
VID[1]
VID[2]
VID[3]
VID[4]
VID[5]
VID[6]
PROC_DPRSLPVR
VTT_SELECT
H_VTTVID1=Low, 1.1V
H_VTTVID1=High, 1.05V
ISENSE
I_MON
VTT_SENSE
VSS_SENSE_VTT
VCC_SENSE
VSS_SENSE
VCCSENSE
VSSSENSE
VSS_SENSE_VTT:
SC(V1.0)P20
Connect VSS_SENSE_VTT to GND
or can be left floating.
Note: CRB has the VSS_SENSE_VTT floating.
IC,AUB_CFD_rPGA,R1P0
U16G
POWER
GRAPHICS
FDI
PEG & DMI
SENSE LINES
GRAPHICS VIDs
DDR3 - 1.5V RAILS
1.1V
1.8V
VAXG_SENSE
VSSAXG_SENSE
GFX_VID[0]
GFX_VID[1]
GFX_VID[2]
GFX_VID[3]
GFX_VID[4]
GFX_VID[5]
GFX_VID[6]
GFX_VR_EN
GFX_DPRSLPVR
GFX_IMON
Pop it when Arrandale Graphics disable.
R80
1K
DIS different UMA
2A
+1.5V_SUS
+1.8V_RUN
IC,AUB_CFD_rPGA,R1P0
HFM_VID : Max 1.4V
LFM_VID : Min 0.65V
Quanta Computer Inc.
PROJECT : UM7C DIS
Size
Document Number
PROCESSER 3/4(POWER)
Rev
2A
Date: Monday, May 24, 2010
Sheet 6 of 52

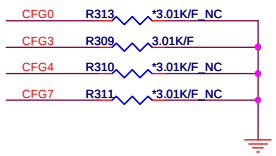
Arrandale PROCESSOR (GND)



Arrandale PROCESSOR(RESERVED, CFG)



Customers do not need to implement the pull-down resistors.
This is for internal validation purpose only.



	1	0
CFG4 (Display Port Presence)	Disabled; No Physical Display Port attached to Embedded Diplay Port	Enabled; An external Display port device is connected to the Embedded Display port
CFG0 (PCI-Epress Configuration Select)	Single PEG	Bifurcation enabled
CFG3 (PCI-Epress Static Lane Reversal)	Normal Operation	Lane Numbers Reversed

The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K +/- 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

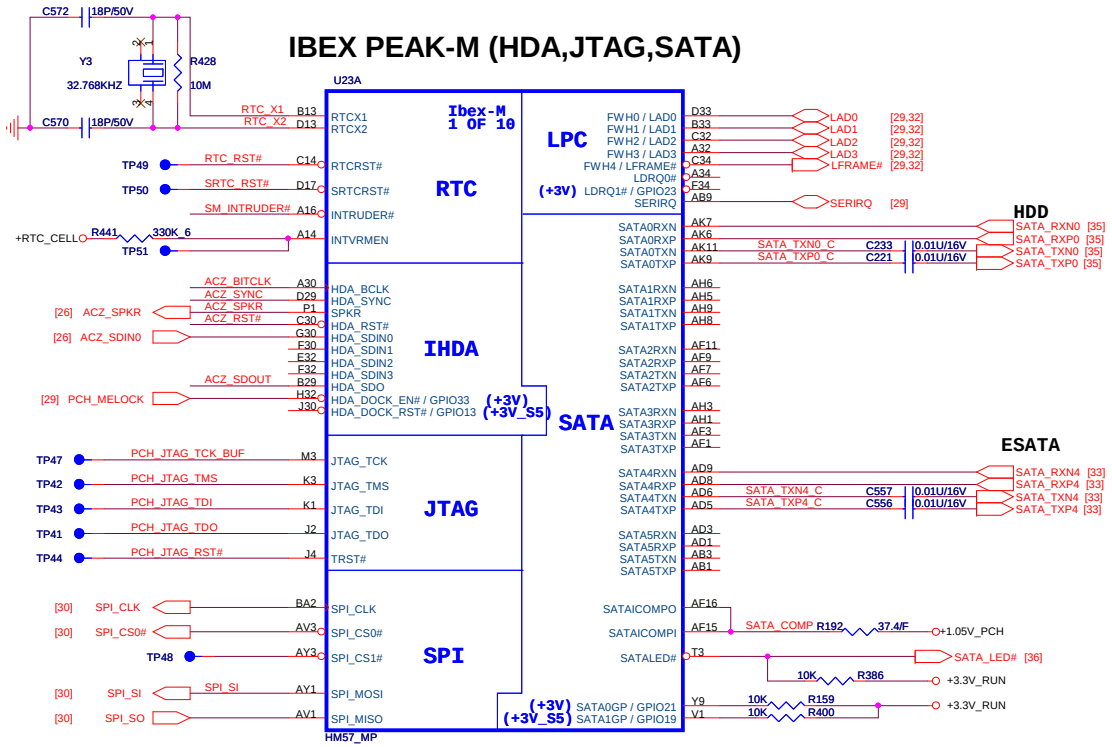
Quanta Computer Inc.
PROJECT : UM7C DIS

Size	Document Number	Rev
	PROCESSER 4/4 (GND)	2A

Date: Monday, May 24, 2010 Sheet 7 of 52

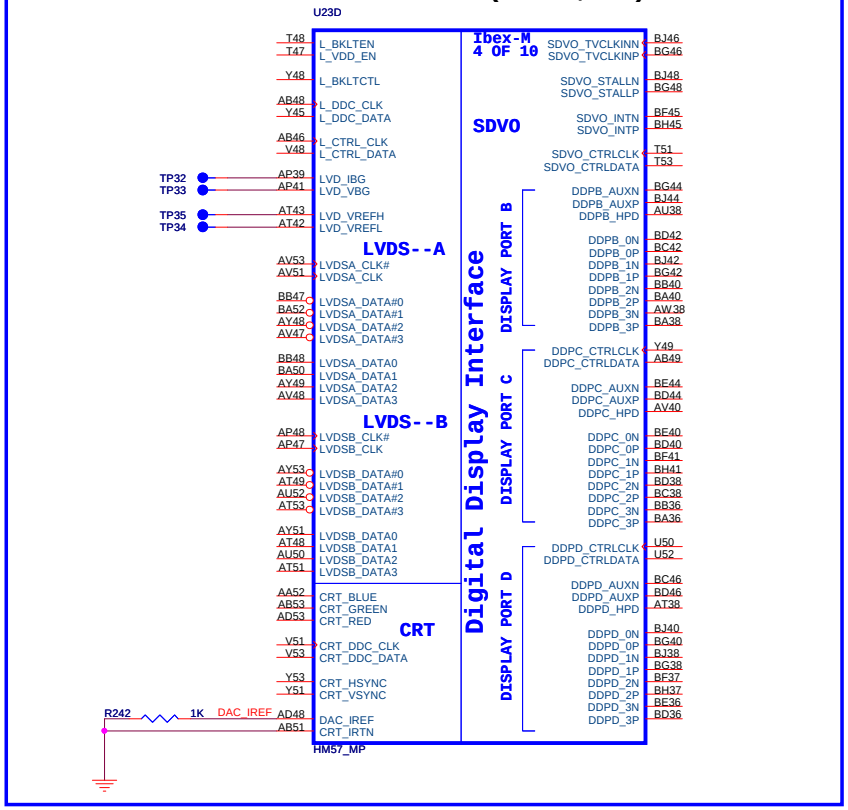
INTVRMEN - Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

IBEX PEAK-M (HDA,JTAG,SATA)



UMA CRT,LVDS&HDMI signals

IBEX PEAK-M (LVDS,DDI)



iTPM ENABLE/DISABLE

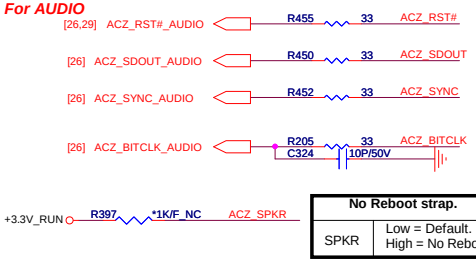
+3.3V_RUN — R406 *1K_NC — SPI_SI

TPM Function	
Enable	Mount
Disable	NC (Default)

Note : Only pop when PCH is production stage & need "JTAG boundary Scan". Remember to depop XDP side Res.

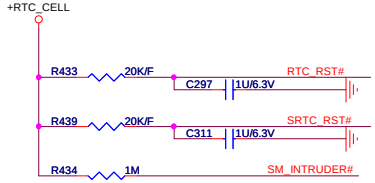
R384 51 PCH_JTAG_TCK_BUF

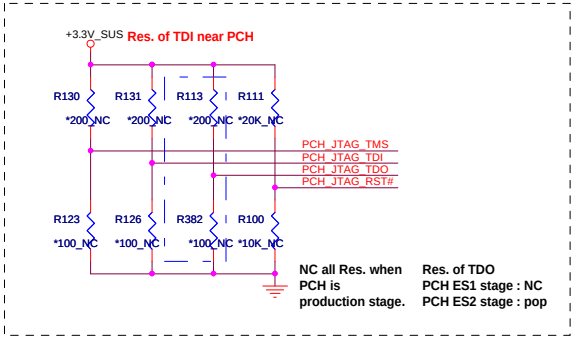
For AUDIO



No Reboot strap.	
SPKR	Low = Default. High = No Reboot.

RTC 1mA





Quanta Computer Inc.
PROJECT : UM7C DIS

Size	Document Number	Rev
	PCH 1/5 (SATA,HDA,LPC)	2A

Date: Monday, May 24, 2010 Sheet 8 of 52

IBEX PEAK-M (GND)

U23I

AY7	VSS[159]	VSS[259]	H49
B11	VSS[160]	VSS[260]	H5
B15	VSS[161]	VSS[261]	J24
B19	VSS[162]	VSS[262]	K11
B23	VSS[163]	VSS[263]	K43
B31	VSS[164]	VSS[264]	K47
B35	VSS[165]	VSS[265]	K7
B39	VSS[166]	VSS[266]	L14
B43	VSS[167]	VSS[267]	L18
B47	VSS[168]	VSS[268]	L2
B7	VSS[169]	VSS[269]	L22
BG12	VSS[170]	VSS[270]	L32
BB12	VSS[171]	VSS[271]	L36
BB16	VSS[172]	VSS[272]	L40
BB20	VSS[173]	VSS[273]	L52
BB24	VSS[174]	VSS[274]	M12
BB30	VSS[175]	VSS[275]	M16
BB34	VSS[176]	VSS[276]	M20
BB38	VSS[177]	VSS[277]	N38
BB42	VSS[178]	VSS[278]	M34
BB49	VSS[179]	VSS[279]	M38
BB5	VSS[180]	VSS[280]	M42
BC10	VSS[181]	VSS[281]	M46
BC14	VSS[182]	VSS[282]	M49
BC18	VSS[183]	VSS[283]	M5
BC2	VSS[184]	VSS[284]	M8
BC22	VSS[185]	VSS[285]	N24
BC32	VSS[186]	VSS[286]	P11
BC36	VSS[187]	VSS[287]	AD15
BC40	VSS[188]	VSS[288]	P22
BC44	VSS[189]	VSS[289]	P30
BC52	VSS[190]	VSS[290]	P32
BH9	VSS[191]	VSS[291]	P34
BD48	VSS[192]	VSS[292]	P42
BD49	VSS[193]	VSS[293]	P45
BD5	VSS[194]	VSS[294]	P47
BE12	VSS[195]	VSS[295]	R2
BE16	VSS[196]	VSS[296]	R52
BE20	VSS[197]	VSS[297]	T12
BE24	VSS[198]	VSS[298]	T41
BE30	VSS[199]	VSS[299]	T46
BE34	VSS[200]	VSS[300]	T49
BE38	VSS[201]	VSS[301]	T5
BE42	VSS[202]	VSS[302]	T8
BE46	VSS[203]	VSS[303]	U30
BE48	VSS[204]	VSS[304]	U31
BE50	VSS[205]	VSS[305]	U32
BE6	VSS[206]	VSS[306]	U34
BE8	VSS[207]	VSS[307]	P38
BF3	VSS[208]	VSS[308]	V11
BF49	VSS[209]	VSS[309]	P16
BF51	VSS[210]	VSS[310]	V19
BG18	VSS[211]	VSS[311]	V20
BG24	VSS[212]	VSS[312]	V22
BG4	VSS[213]	VSS[313]	V30
BG50	VSS[214]	VSS[314]	V31
BH11	VSS[215]	VSS[315]	V32
BH15	VSS[216]	VSS[316]	V34
BH19	VSS[217]	VSS[317]	V35
BH23	VSS[218]	VSS[318]	V38
BH31	VSS[219]	VSS[319]	V43
BH35	VSS[220]	VSS[320]	V45
BH39	VSS[221]	VSS[321]	V46
BH43	VSS[222]	VSS[322]	V47
BH47	VSS[223]	VSS[323]	V49
BH7	VSS[224]	VSS[324]	V5
C12	VSS[225]	VSS[325]	V7
C50	VSS[226]	VSS[326]	V8
D51	VSS[227]	VSS[327]	W2
E12	VSS[228]	VSS[328]	W52
E16	VSS[229]	VSS[329]	Y11
E20	VSS[230]	VSS[330]	Y12
E24	VSS[231]	VSS[331]	Y15
E30	VSS[232]	VSS[332]	Y19
E34	VSS[233]	VSS[333]	Y23
E38	VSS[234]	VSS[334]	Y28
E42	VSS[235]	VSS[335]	Y30
E46	VSS[236]	VSS[336]	Y31
E48	VSS[237]	VSS[337]	Y32
F6	VSS[238]	VSS[338]	Y38
F8	VSS[239]	VSS[339]	Y43
F49	VSS[240]	VSS[340]	Y46
F5	VSS[241]	VSS[341]	P49
G10	VSS[242]	VSS[342]	Y5
G14	VSS[243]	VSS[343]	Y6
G18	VSS[244]	VSS[344]	Y8
G2	VSS[245]	VSS[345]	P24
G22	VSS[246]	VSS[346]	T43
G32	VSS[247]	VSS[347]	AD51
G36	VSS[248]	VSS[348]	AT8
G40	VSS[249]	VSS[349]	AD47
G44	VSS[250]	VSS[350]	Y47
G52	VSS[251]	VSS[351]	AT12
AF39	VSS[252]	VSS[352]	AM6
H16	VSS[253]	VSS[353]	AT13
H20	VSS[254]	VSS[354]	AM5
H30	VSS[255]	VSS[355]	AK45
H34	VSS[256]	VSS[356]	AK39
H38	VSS[257]	VSS[366]	AV14
H42	VSS[258]		

HM57_MP

IBEX PEAK-M (PCI-E,SMBUS,CLK)

U23B

Ibex-M 2 OF 10

PCI-E*

[WLAN]
[32] PCIE_RXN1 → PCIE_RXN1 → AW30 PERN2
[32] PCIE_RXP1 → PCIE_RXP1 → BA30 PERP2
[32] PCIE_TXN1 → C349 0.1U/10V → PCIE_TXN1_C → BC30 PETN2
[32] PCIE_TXP1 → C342 0.1U/10V → PCIE_TXP1_C → BD30 PETP2

AU30 PERN3
AT30 PERP3
AU32 PETN3
AV32 PETP3

BA32 PERN4
BB32 PERP4
BD32 PETN4
BE32 PETP4

BF33 PERN5
BH33 PERP5
BG32 PETN5
BJ32 PETP5

[LAN]
[38] PCIE_RXN6_LAN → BA34 PERN6
[38] PCIE_RXP6_LAN → AW34 PERP6
[38] PCIE_TXN6_LAN → C354 0.1U/10V → PCIE_TXN6_LAN_C → BC34 PETN6
[38] PCIE_TXP6_LAN → C350 0.1U/10V → PCIE_TXP6_LAN_C → BD34 PETP6

AT34 PERN7
AU34 PERP7
AU36 PETN7
AV36 PETP7

BG34 PERN8
BJ34 PERP8
BG36 PETN8
BJ36 PETP8

AK48 CLKOUT_PCIE0N
AK47 CLKOUT_PCIE0P

MiniWLAN
PCIE_CLK_REQ0# → P9 PCIECLKRQ0# / GPIO73 (+3V_S5)
[32] CLK_PCIE_WLANN → AM43 CLKOUT_PCIE1N
[32] CLK_PCIE_WLANP → AM45 CLKOUT_PCIE1P
[32] PCIE_CLK_REQ1# → PCIE_CLK_REQ1# → U4 PCIECLKRQ1# / GPIO18 (+3V)

AM47 CLKOUT_PCIE2N
AM48 CLKOUT_PCIE2P

PCIE_CLK_REQ2# → N4 PCIECLKRQ2# / GPIO20 (+3V)

AH42 CLKOUT_PCIE3N
AH41 CLKOUT_PCIE3P

PCIE_CLK_REQ3# → A8 PCIECLKRQ3# / GPIO25 (+3V_S5)

AM51 CLKOUT_PCIE4N
AM53 CLKOUT_PCIE4P

PCIE_CLK_REQ4# → M9 PCIECLKRQ4# / GPIO26 (+3V_S5)

AJ50 CLKOUT_PCIE5N
AJ52 CLKOUT_PCIE5P

PCIE_CLK_REQ5# → H6 PCIECLKRQ5# / GPIO44 (+3V_S5)

LAN
[38] CLK_PCIE_LANN → AK53 CLKOUT_PEG_B_N
[38] CLK_PCIE_LANP → AK51 CLKOUT_PEG_B_P
[38] PCIE_CLK_REQB# → PCIE_CLK_REQB# → P13 PEG_B_CLKRQ# / GPIO56 (+3V_S5)

HM57_MP

SMBus (+3V_S5)

SMBALERT# / GPIO11 → B9
SMBCLK → H14 ICH_SMBCLK
SMBDATA → C8 ICH_SMBDATA
SML0ALERT# / GPIO60 → J14
SML0CLK → C6
SML0DATA → G8
SML1ALERT# / GPIO74 → M14
SML1CLK / GPIO58 → E10 SMB_CLK_ME1
SML1DATA / GPIO75 → G12 SMB_DATA_ME1

+3.3V_SUS
B9 — 10K — R153
H14 ICH_SMBCLK — 2.2K — R183
C8 ICH_SMBDATA — 2.2K — R415
J14 — 10K — R190
C6 — 2.2K — R411
G8 — 2.2K — R167
M14 — 10K — R201
E10 SMB_CLK_ME1 — 2.2K — R165
G12 SMB_DATA_ME1 — 2.2K — R175

Controller Link

CL_CLK1 → T13
CL_DATA1 → T11
CL_RST1# → T9

ICH_SMBCLK → ICH_SMBCLK [32]
ICH_SMBDATA → ICH_SMBDATA [32]

PEG (+3V_S5)

PEG_A_CLKRQ# / GPIO47 → H1 R383 10K
CLKOUT_PEG_A_N → AD43 → CLK_PCIE_VGAN [15]
CLKOUT_PEG_A_P → AD45 → CLK_PCIE_VGAP [15]
CLKOUT_DMI_N → AN4 → CLK_PCIE_3GPLLN [4]
CLKOUT_DMI_P → AN2 → CLK_PCIE_3GPLLP [4]

DIS different UMA

From CLK BUFFER

CLKOUT_DP_N / CLKOUT_BCLK1_N → AT1
CLKOUT_DP_P / CLKOUT_BCLK1_P → AT3

DIS different UMA

CLKIN_DMI_N → AW24 → CLK_BUF_PCIE_3GPLLN [3]
CLKIN_DMI_P → BA24 → CLK_BUF_PCIE_3GPLLP [3]

CLKIN_BCLK_N → AP3 → CLK_BUF_BCLKN [3]
CLKIN_BCLK_P → AP1 → CLK_BUF_BCLKP [3]

CLKIN_DOT_96N → F18 → CLK_BUF_DREFCLKN [3]
CLKIN_DOT_96P → E18 → CLK_BUF_DREFCLKP [3]

CLKIN_SATA_N / CKSSCD_N → AH13 → CLK_BUF_DREFSSCLKN [3]
CLKIN_SATA_P / CKSSCD_P → AH12 → CLK_BUF_DREFSSCLKP [3]

REFCLK14IN → P41 → CLK_PCH_14M [3]

CLKIN_PCILOOPBACK → J42 → CLK_PCI_FB [18]

DIS different UMA
Intel recommendation
T5
XTAL25_IN → AH51 XTAL25_IN — R504 2 — 1 short0402_NC
XTAL25_OUT → AH53 XTAL25_OUT — T24

XCLK_RCOMP → AF38 XCLK_RCOMP — R213 90.9/F — +1.05V_PCH

Clock Flex

(+3V) CLKOUTFLEX0 / GPIO64 → T45 → T3
(+3V) CLKOUTFLEX1 / GPIO65 → P43 → T2
(+3V) CLKOUTFLEX2 / GPIO66 → T42 → T4
(+3V) CLKOUTFLEX3 / GPIO67 → N50 CLK_FLEX3 — R243 22 → CLK_48M_CARD [25]

C392 10P/50V
EMI

+3.3V_SUS

+3.3V_RUN
PCIE_CLK_REQ1# — R399 — 10K
PCIE_CLK_REQ2# — R139 — 10K

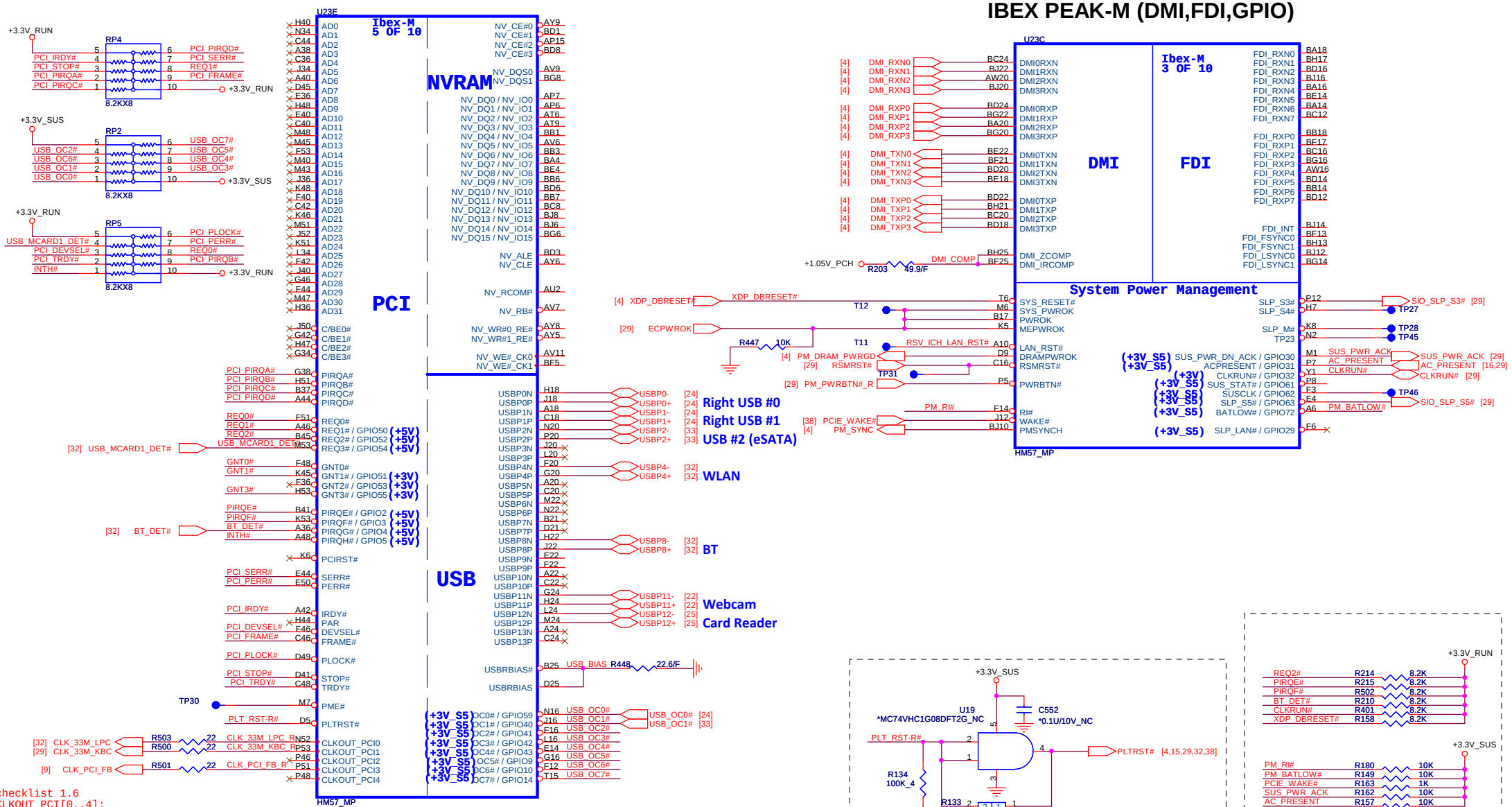
+3.3V_SUS
PCIE_CLK_REQ0# — R177 — 10K
PCIE_CLK_REQ3# — R164 — 10K
PCIE_CLK_REQ4# — R148 — 10K
PCIE_CLK_REQB# — R202 — 10K
PCIE_CLK_REQ5# — R145 — 10K

Q25 2N7002W-7-F
SMB_CLK_ME1 → 1 → 3 → SMBCLK1 [29]
+3.3V_SUS → 2
Q26 2N7002W-7-F
SMB_DATA_ME1 → 1 → 3 → SMBDAT1 [29]
2

25M
DIS different UMA

Quanta Computer Inc.			
PROJECT : UM7C DIS			
Size	Document Number		Rev
	PCH 2/5 (PCIE, SMBUS, CK)		2A
Date: Monday, May 24, 2010	Sheet 9	of 52	

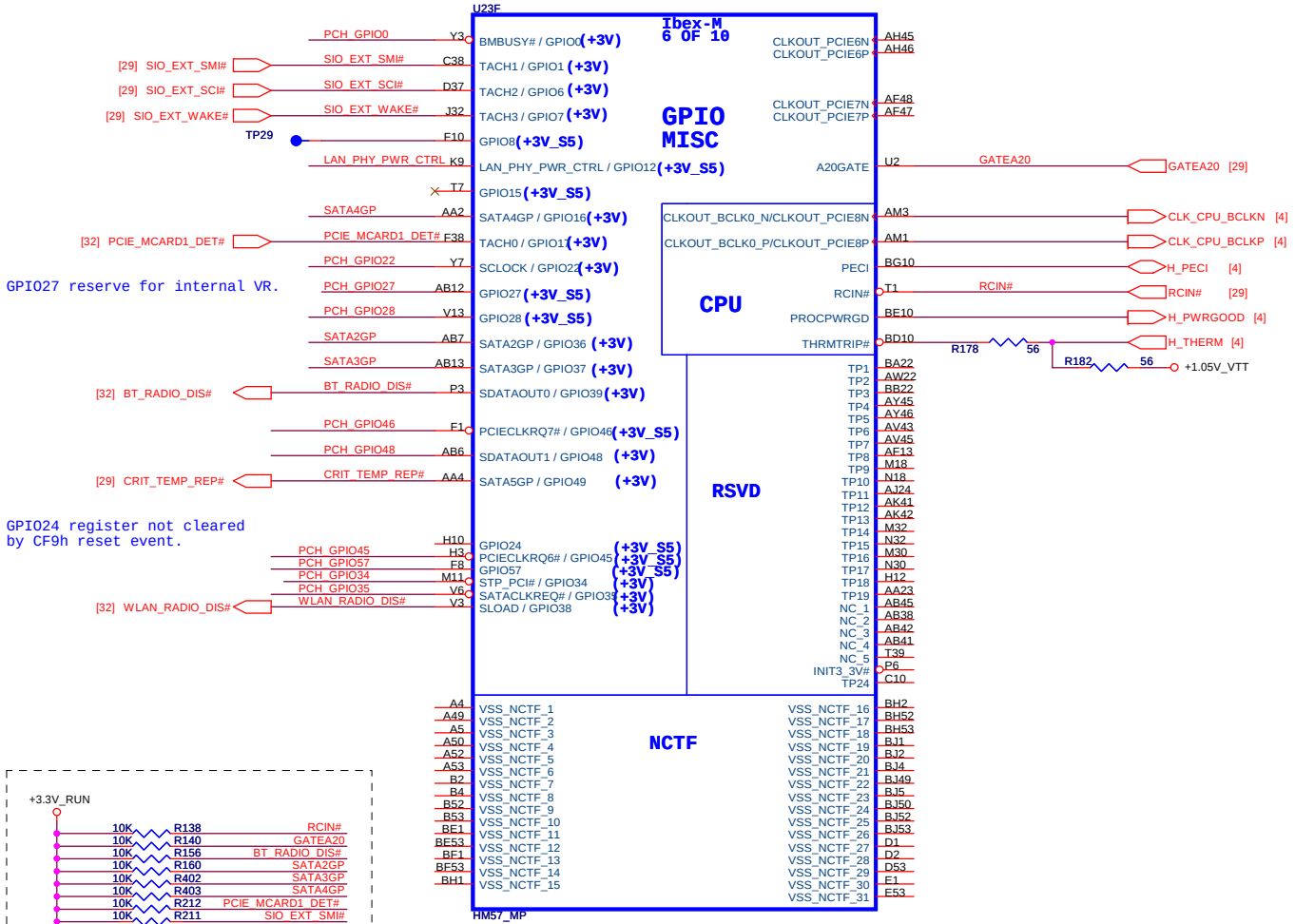
IBEX PEAK-M (PCI,USB,NVRAM)

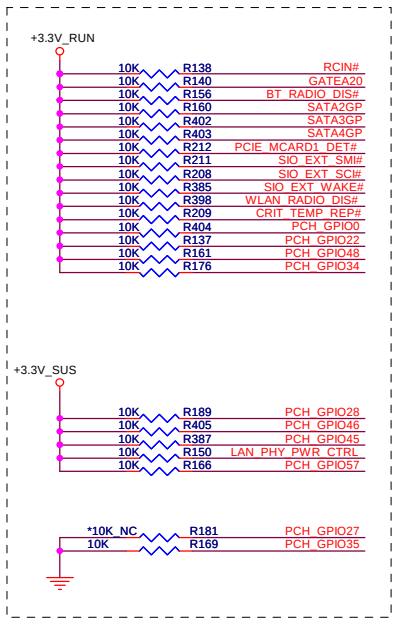


IBEX PEAK-M (DMI,FDI,GPIO)

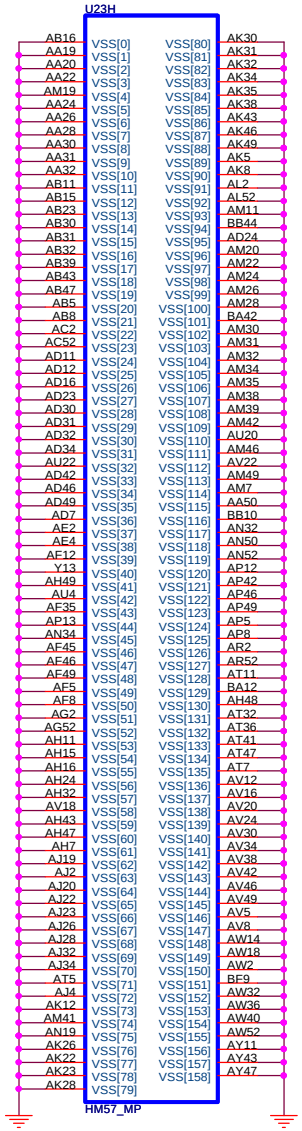
Quanta Computer Inc.	
PROJECT : UM7C DIS	
Size	Document Number: PCH 3/5 (PCI,ONFI,USB,DMI) — Rev 2A
Date: Monday, May 24, 2010	Sheet 10 of 52

IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)





IBEX PEAK-M (GND)



Quanta Computer Inc.

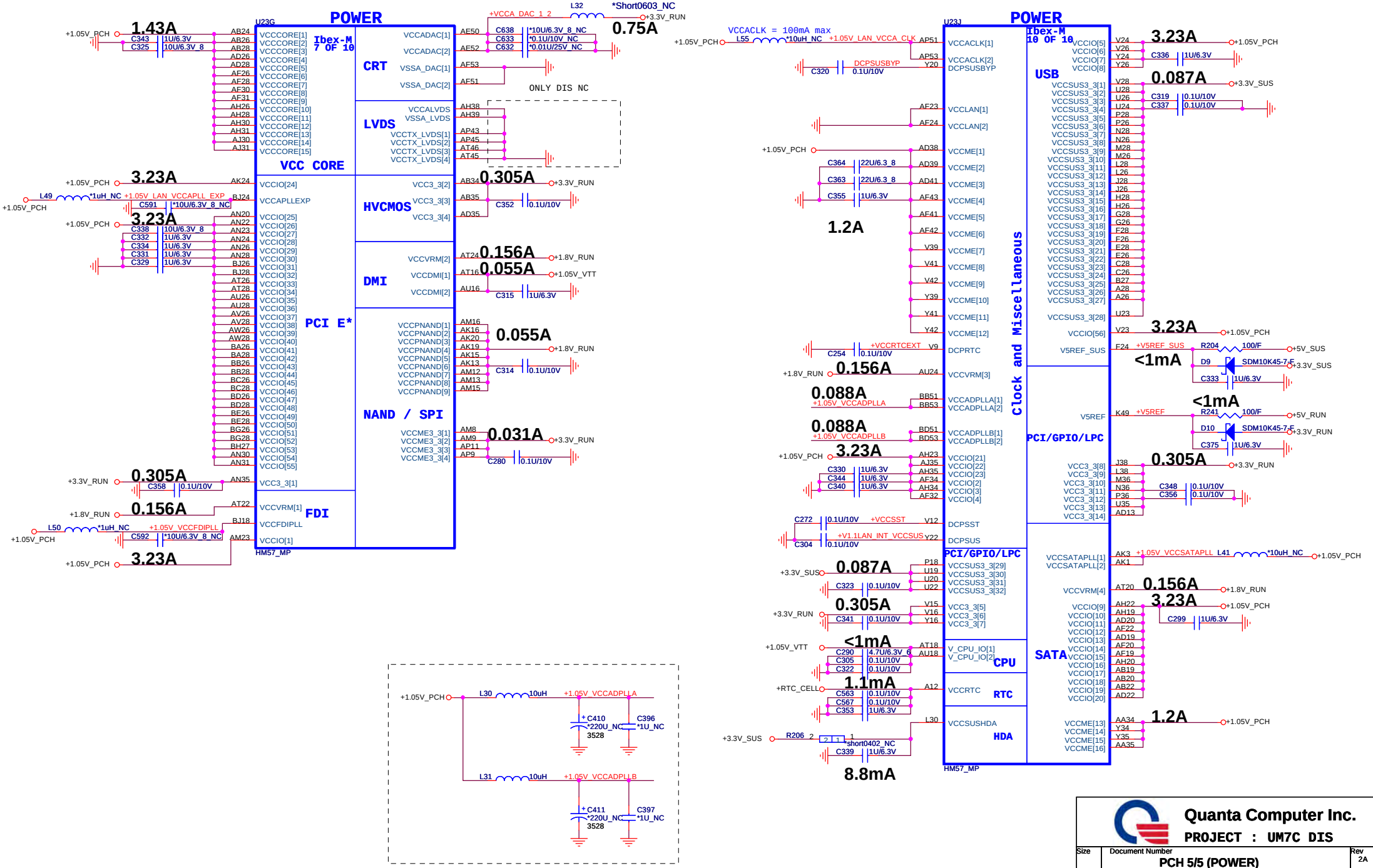
PROJECT : UM7C DIS

Size	Document Number	Rev
	PCH 4/5 (GPIO & Strap)	2A

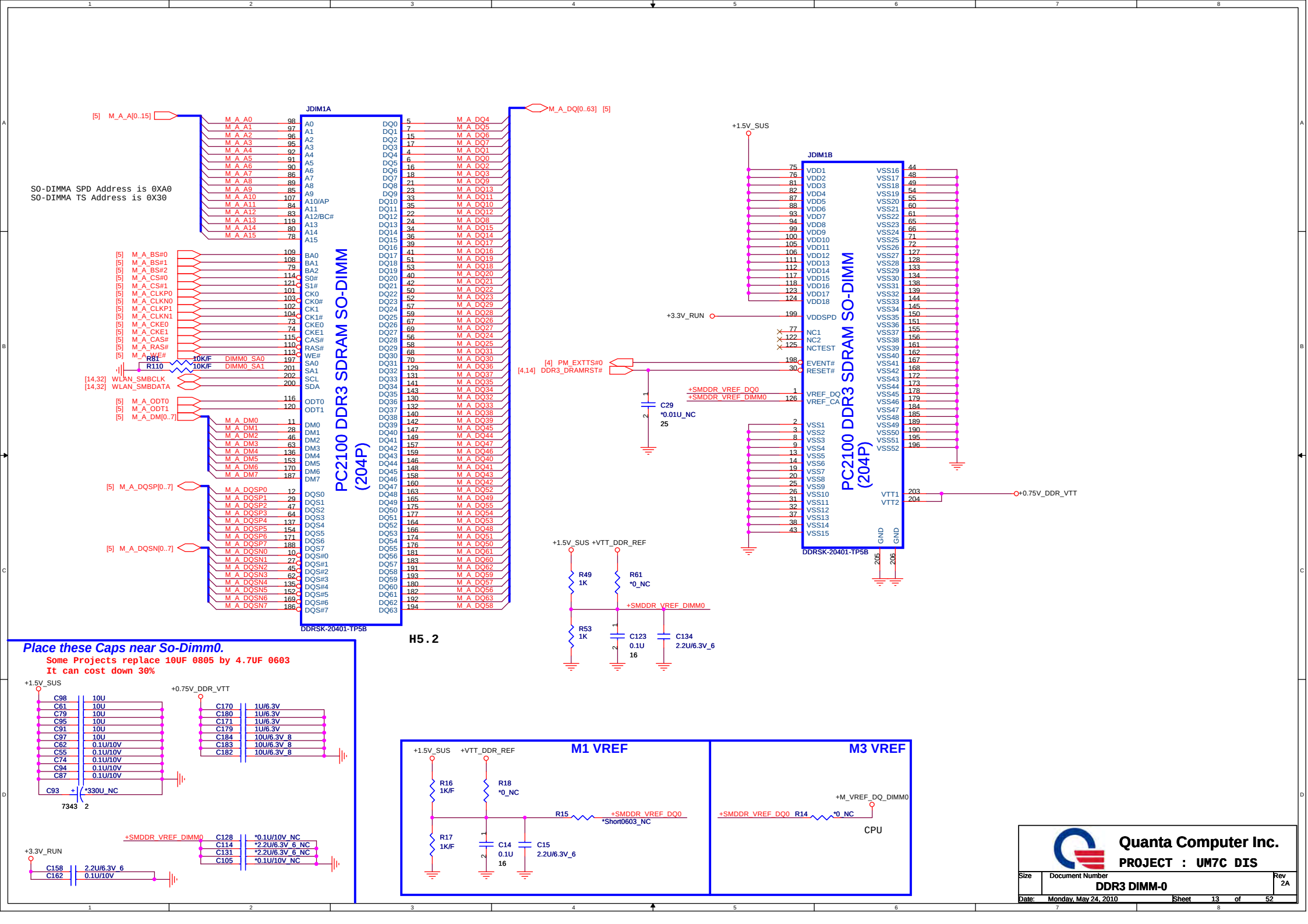
Date: Monday, May 24, 2010 Sheet 11 of 52

L32 UMA↓
EMI FILTER HCB1608KF-181T15(180,1.5A)
CX000181016

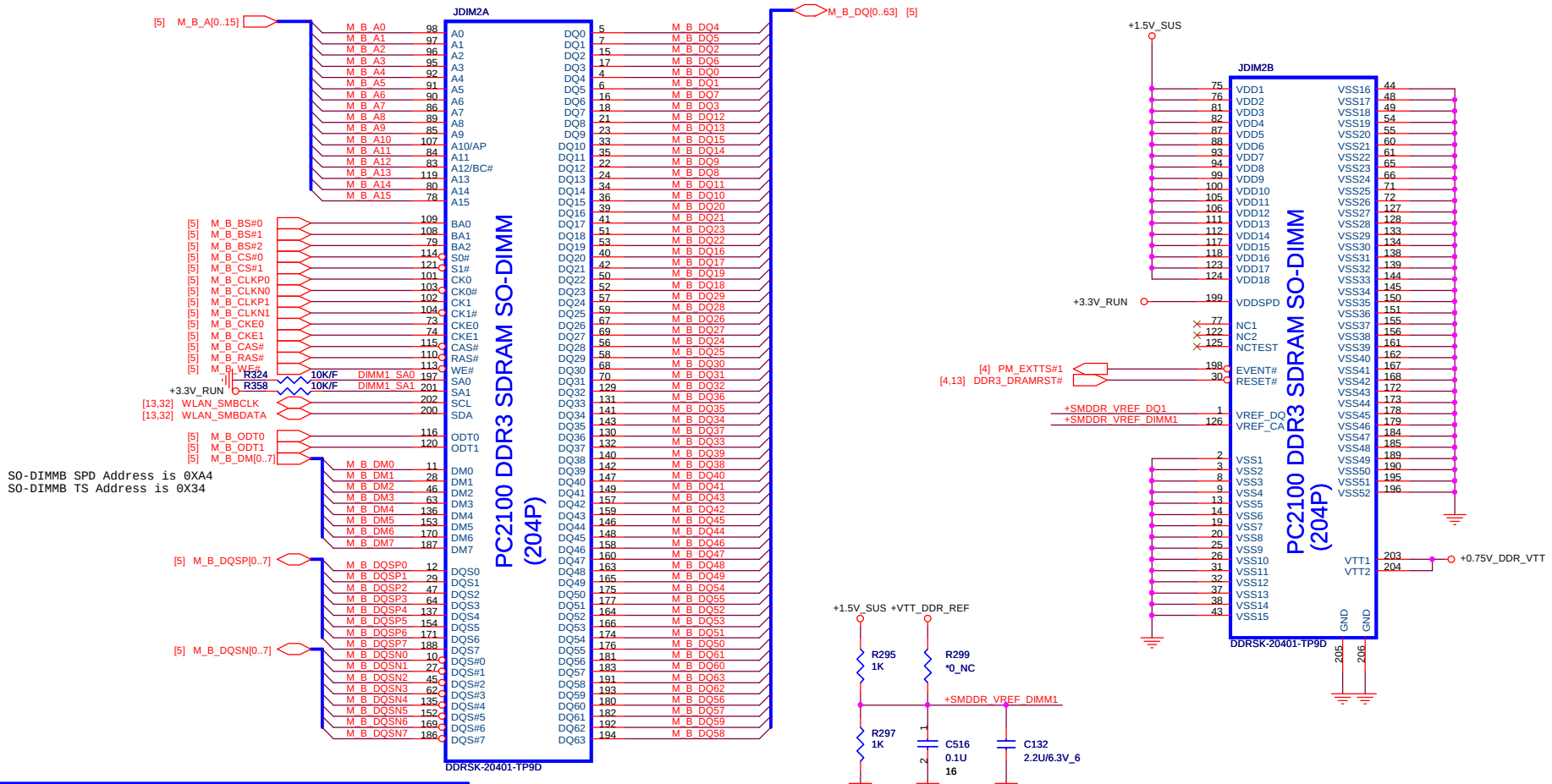
L32 DIS→SHORT



Quanta Computer Inc.			
PROJECT : UM7C DIS			
Size	Document Number		Rev
	PCH 5/5 (POWER)		2A
Date: Monday, May 24, 2010	Sheet 12 of 52		

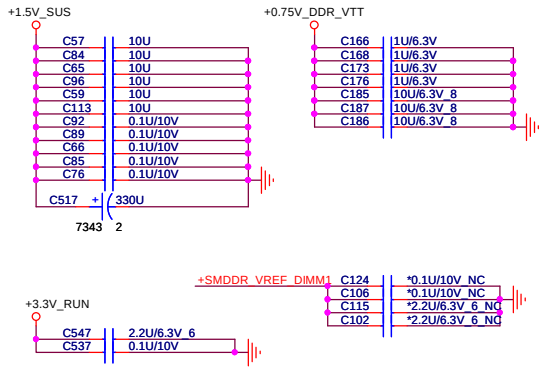


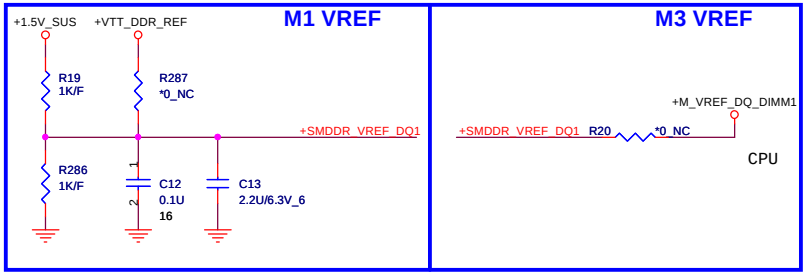
Quanta Computer Inc.			
PROJECT : UM7C DIS			
Size	Document Number		Rev
	DDR3 DIMM-0		2A
Date: Monday, May 24, 2010		Sheet 13 of 52	



Place these Caps near So-Dimm1.

Some Projects replace 10UF 0805 by 4.7UF 0603
It can cost down 30%





Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: DDR3 DIMM-1	Rev: 2A
Date: Monday, May 24, 2010	Sheet 14 of 52	

POWER
+PCIE_VDDR=1.2V
+VDD_MEM1.8V=1.8V
+VGA_CORE=0.9~1.2V

M9X-S2/S3: TMDS/DP=170mA@1.1V
LVDS=100mA@1.1V

2.5GT/s bit rate

U22A

PCIE EXPRESS INTERFACE

[4] PEG_TXP15	[4] PEG_TXN15	AE30 PCIE_RX0P	AE31 PCIE_RX0N	PCIE_TX0P	PCIE_TX0N	AH30 PEG_RXP15_C C249	AG31 PEG_RXN15_C C258	PEG_RXP15 [4]	PEG_RXN15 [4]
[4] PEG_TXP14	[4] PEG_TXN14	AE29 PCIE_RX1P	AD28 PCIE_RX1N	PCIE_TX1P	PCIE_TX1N	AG29 PEG_RXP14_C C277	AF28 PEG_RXN14_C C267	PEG_RXP14 [4]	PEG_RXN14 [4]
[4] PEG_TXP13	[4] PEG_TXN13	AD30 PCIE_RX2P	AC31 PCIE_RX2N	PCIE_TX2P	PCIE_TX2N	AF27 PEG_RXP13_C C240	AF26 PEG_RXN13_C C228	PEG_RXP13 [4]	PEG_RXN13 [4]
[4] PEG_TXP12	[4] PEG_TXN12	AC29 PCIE_RX3P	AB28 PCIE_RX3N	PCIE_TX3P	PCIE_TX3N	AD27 PEG_RXP12_C C672	AD26 PEG_RXN12_C C381	PEG_RXP12 [4]	PEG_RXN12 [4]
[4] PEG_TXP11	[4] PEG_TXN11	AB30 PCIE_RX4P	AA31 PCIE_RX4N	PCIE_TX4P	PCIE_TX4N	AC25 PEG_RXP11_C C646	AB25 PEG_RXN11_C C673	PEG_RXP11 [4]	PEG_RXN11 [4]
[4] PEG_TXP10	[4] PEG_TXN10	AA29 PCIE_RX5P	Y28 PCIE_RX5N	PCIE_TX5P	PCIE_TX5N	Y23 PEG_RXP10_C C686	Y24 PEG_RXN10_C C683	PEG_RXP10 [4]	PEG_RXN10 [4]
[4] PEG_TXP9	[4] PEG_TXN9	Y30 PCIE_RX6P	W31 PCIE_RX6N	PCIE_TX6P	PCIE_TX6N	AB27 PEG_RXP9_C C682	AB26 PEG_RXN9_C C675	PEG_RXP9 [4]	PEG_RXN9 [4]
[4] PEG_TXP8	[4] PEG_TXN8	W29 PCIE_RX7P	V28 PCIE_RX7N	PCIE_TX7P	PCIE_TX7N	Y27 PEG_RXP8_C C676	Y26 PEG_RXN8_C C689	PEG_RXP8 [4]	PEG_RXN8 [4]
[4] PEG_TXP7	[4] PEG_TXN7	V30 PCIE_RX8P	U31 PCIE_RX8N	PCIE_TX8P	PCIE_TX8N	W24 PEG_RXP7_C C681	W23 PEG_RXN7_C C680	PEG_RXP7 [4]	PEG_RXN7 [4]
[4] PEG_TXP6	[4] PEG_TXN6	U29 PCIE_RX9P	T28 PCIE_RX9N	PCIE_TX9P	PCIE_TX9N	V27 PEG_RXP6_C C540	U26 PEG_RXN6_C C684	PEG_RXP6 [4]	PEG_RXN6 [4]
[4] PEG_TXP5	[4] PEG_TXN5	T30 PCIE_RX10P	R31 PCIE_RX10N	PCIE_TX10P	PCIE_TX10N	U24 PEG_RXP5_C C677	U23 PEG_RXN5_C C688	PEG_RXP5 [4]	PEG_RXN5 [4]
[4] PEG_TXP4	[4] PEG_TXN4	R29 PCIE_RX11P	P28 PCIE_RX11N	PCIE_TX11P	PCIE_TX11N	T26 PEG_RXP4_C C685	T27 PEG_RXN4_C C555	PEG_RXP4 [4]	PEG_RXN4 [4]
[4] PEG_TXP3	[4] PEG_TXN3	P30 PCIE_RX12P	N31 PCIE_RX12N	PCIE_TX12P	PCIE_TX12N	T24 PEG_RXP3_C C690	T23 PEG_RXN3_C C542	PEG_RXP3 [4]	PEG_RXN3 [4]
[4] PEG_TXP2	[4] PEG_TXN2	N29 PCIE_RX13P	M28 PCIE_RX13N	PCIE_TX13P	PCIE_TX13N	P27 PEG_RXP2_C C687	P26 PEG_RXN2_C C554	PEG_RXP2 [4]	PEG_RXN2 [4]
[4] PEG_TXP1	[4] PEG_TXN1	M30 PCIE_RX14P	L31 PCIE_RX14N	PCIE_TX14P	PCIE_TX14N	P24 PEG_RXP1_C C678	P23 PEG_RXN1_C C691	PEG_RXP1 [4]	PEG_RXN1 [4]
[4] PEG_TXP0	[4] PEG_TXN0	L29 PCIE_RX15P	K30 PCIE_RX15N	PCIE_TX15P	PCIE_TX15N	M27 PEG_RXP0_C C674	N26 PEG_RXN0_C C679	PEG_RXP0 [4]	PEG_RXN0 [4]

All C: 0.1U/10V

CLOCK

[9] CLK_PCIE_VGAP — AK30 PCIE_REFCLKP
[9] CLK_PCIE_VGAN — AK32 PCIE_REFCLKN

L9 NC#1
N9 NC#2
N10 NC_PWRGOOD

[4,10,29,32,38] PLTRST# — AL27 PERSTB

CALIBRATION

PCIE_CALRP — Y22 — M72_PCIE_CALRP — R114 1.27K/F_4
PCIE_CALRN — AA22 — M72_PCIE_CALRN — R109 2K/F_4 — +PCIE_VDDC

M92

AJ072800T27

100MHz (+/-300ppm) input frequency,
0-0.7V single-ended swing

U22G

DP E/F POWER

1.8V(200mA) +DPF_VDD18 — AG15 DPE_VDD18#1, AG16 DPE_VDD18#2
M9X-S2/S3:200mA@1.1V +DPF_VDD10 — AG20 DPE_VDD10#1, AG21 DPE_VDD10#2
DPE for LVDS
AG14 DPE_VSSR#1, AH14 DPE_VSSR#2, AM14 DPE_VSSR#3, AM16 DPE_VSSR#4, AM18 DPE_VSSR#5
1.8V(200mA) +DPF_VDD18 — AF16 DPF_VDD18#1, AG17 DPF_VDD18#2
M9X-S2/S3:200mA@1.1V +DPF_VDD10 — AF22 DPF_VDD10#1, AG22 DPF_VDD10#2
AF23 DPF_VSSR#1, AG23 DPF_VSSR#2, AM20 DPF_VSSR#3, AM22 DPF_VSSR#4, AM24 DPF_VSSR#5
R449 150/F — AF17 DPEF_CALR
1.8V(20mA) +DPF_PVDD — AG18 DPE_PVDD, AF19 DPE_PVSS
1.8V(20mA) +DPF_PVDD — AG19 NC_DPF_PVDD, AF20 NC_DPF_PVSS

DP A/B POWER

NC_DPA_VDD18#1, NC_DPA_VDD18#2 — AE11 +DPA_VDD18, AF11
DPA_VDD10#1, DPA_VDD10#2 — AF6 +DPA_VDD10, AF7
DPA_VSSR#1 AE1, DPA_VSSR#2 AE3, DPA_VSSR#3 AG1, DPA_VSSR#4 AG6, DPA_VSSR#5 AH5
NC_DPB_VDD18#1, NC_DPB_VDD18#2 — AE13 +DPA_VDD18, AF13
DPB_VDD10#1, DPB_VDD10#2 — AF8 +DPA_VDD10, AF9
DPB for HDMI
DPB_VSSR#1 AF10, DPB_VSSR#2 AG9, DPB_VSSR#3 AH8, DPB_VSSR#4 AM6, DPB_VSSR#5 AM8
DPAB_CALR — AE10 R188 150/F
1.8V(20mA) +DPA_PVDD — AG8 DPA_PVDD, AG7 DPA_PVSS
1.8V(20mA) +DPA_PVDD — AG10 DPB_PVDD, AG11 DPB_PVSS

DP PLL POWER

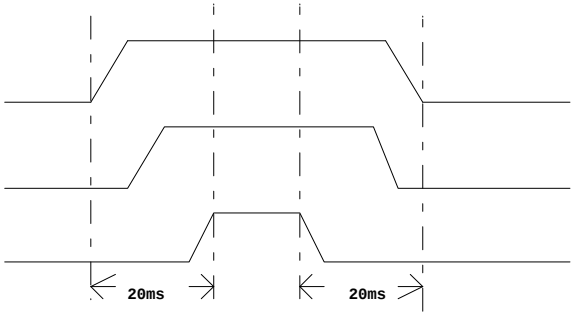
M92

AJ072800T27

+DPF_VDD18 — C266 0.1U/10V, C702 1U/10V, C699 10U/6.3V_8, L73 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_RUN_GFX
+DPA_VDD18 — C237 0.1U/10V, C693 1000P/50V, C694 10U/6.3V_8, L59 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_RUN_GFX
+DPF_VDD10 — C318 0.1U/10V, C692 1000P/50V, C701 10U/6.3V_8, L67 BLM18PG181SN1D(180,1.5A)_6 — +PCIE_VDDC
+DPA_VDD10 — C181 0.1U/10V, C197 10U/6.3V_8, C211 1000P/50V, L29 BLM18PG181SN1D(180,1.5A)_6 — +PCIE_VDDC
+DPF_PVDD — C312 0.1U/10V, C698 1000P/50V, C695 10U/6.3V_8, L74 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_RUN_GFX
+DPA_PVDD — C700 0.1U/10V, C697 1000P/50V, C696 10U/6.3V_8, L60 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_RUN_GFX

AJ072800T27	IC CTRL(631P)216-0728018 FCBGA WIN BSQ
AJ072800T06	IC CTRL(631P)216-0728018 FCBGA

VGA Core BPP
VGA Core VDDC
+1.8V_RUN PCIE_VDDR
+1.8V_RUN PCIE_PVDD
+1.5V_RUN VDDR1
3V_Delay VDDR3



Quanta Computer Inc.
PROJECT : UM7C DIS

Size	Document Number	Rev
	M92_PCIE_Interface	2A

Date: Monday, May 24, 2010 Sheet 15 of 52

Memory Straps	MEM_ID2	MEM_ID1	MEM_ID0	Quanta PN (QuantaBuy)	Vendor PN	Support GPU
800MHz 512MB(64M*16) Samsung	0	0	1	AKD5LGGT502	K4W1G1646E-HC12	For M92
800MHz 512MB(64M*16) Hynix	0	1	0	AKD5LZGTW00	H5TQ1G63BFR-12C	For M92

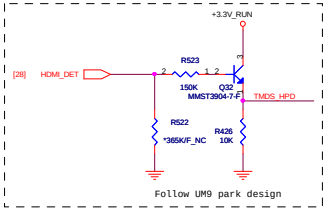
Memory Aperture size

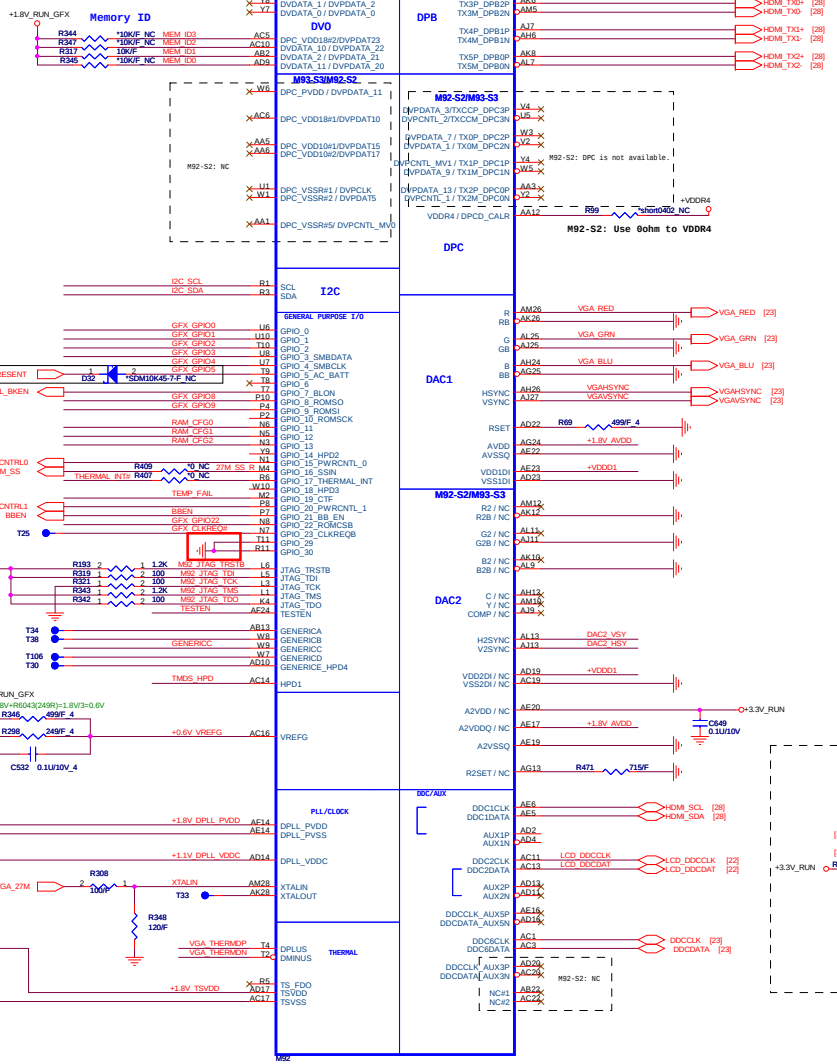
GPIO9 BIOSROM		GPIO13 ROMIDCFG2	GPIO12 ROMIDCFG1	GPIO11 ROMIDCFG0
0	128M	0	0	0
0	256M	0	0	1
0	64M	0	1	0
0	32M	0	1	1
0	512M	1	0	0
0	1G	1	0	1
0	2G	1	1	0
0	4G	1	1	1

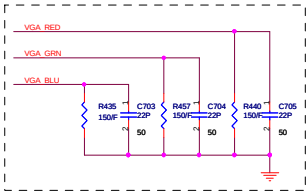
It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.

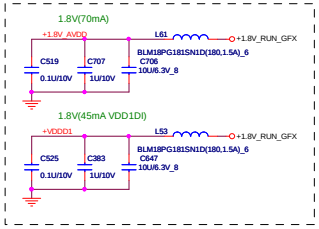
	PWRCNTL1	PWRCNTL0	V-CORE
H	0	0	1.1V
M	0	1	1.05V
M	1	0	0.95V
L	1	1	0.9V

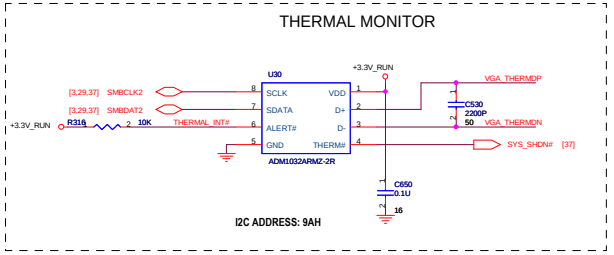
	BBEN	BBP
L	0	V-CORE
H	1	+1.8V

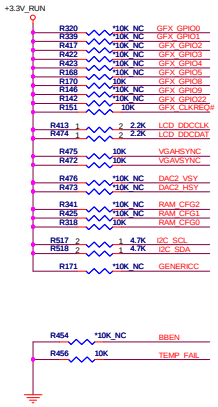


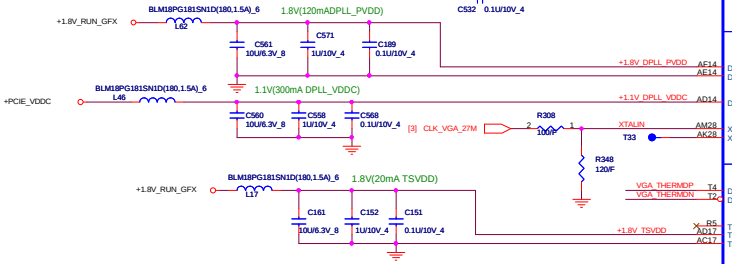


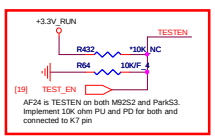




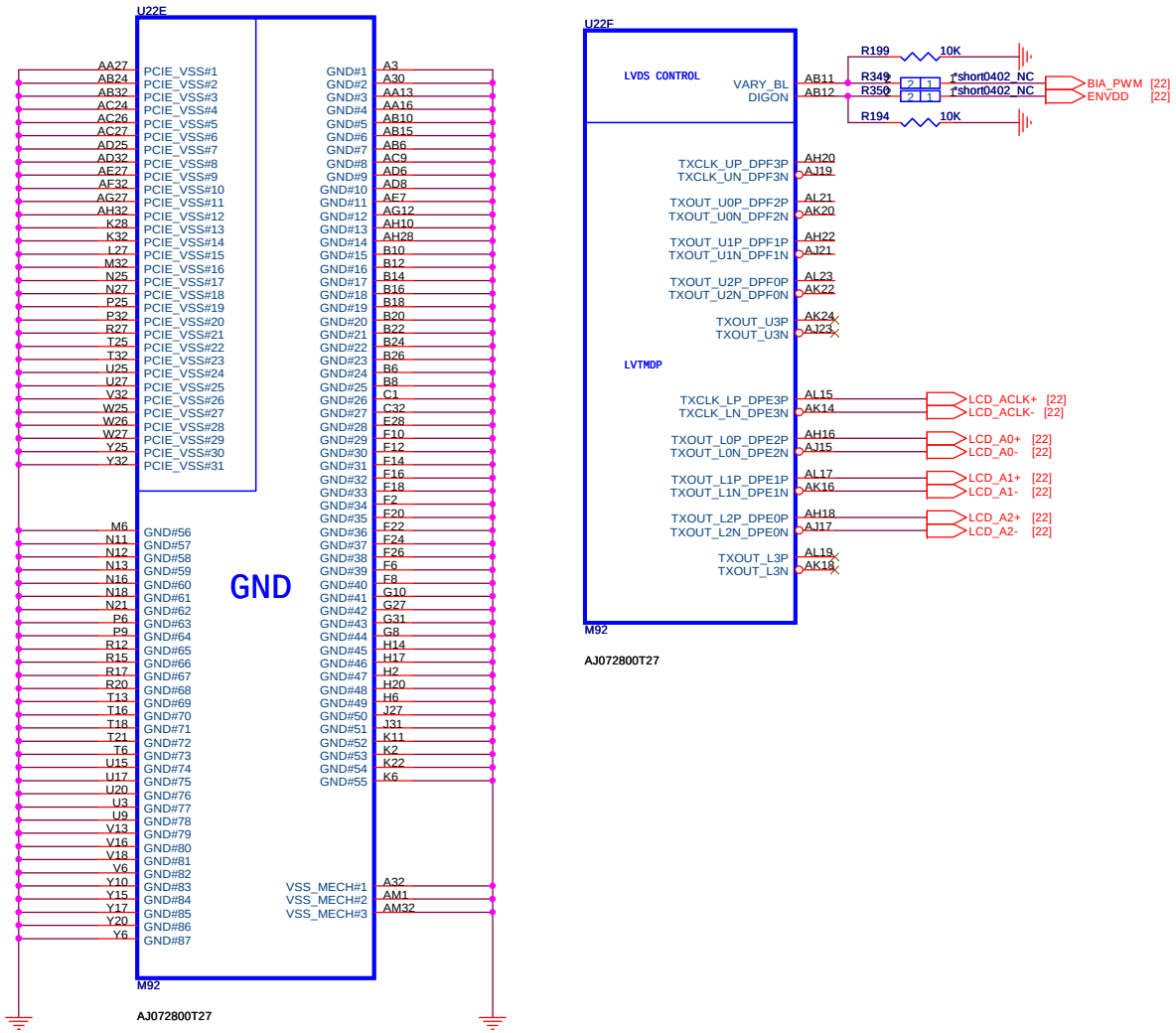








Quanta Computer Inc. PROJECT : UM7C DIS		
Size	Document Number: M92_PCIE_Interface	Rev: 2A
Date: Monday, May 24, 2010	Sheet 16 of 52	



Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	M92_PCIE_Interface	2A
Date: Monday, May 24, 2010	Sheet 17 of 52	

VDD_CT -- Level translation between core and I/O, excluding memory receivers.1.5 V ± 5%

PCIE_VDDR--PCI-E I/O power. 1.8 V ± 5%

1.5V(2.2A VDDR1+VDDRHA)

1.8V(136mA VDD_CT)

VDD_R3 --IO power for 3.3 V pins (e.g. GPIO's). 3.3 V ± 5%

Gated 3.3V 60mA by VDDC

1.8V(170mA VDDR5)

1.8V(170mA VDDR4)

1.8V(68mA PCIE_PVDD)

0.95V~1.1V(35mA SPV10)

1.5/1.8V 120mA

1.8V(500mA)

1.1V(2.0A)

PCIE_VDDC--PCI-E Digital Power Supply (Either 1.0 V or 1.1 V) 1.0 V -5% to 1.1 V +5%

VDDC+VDDCI 0.95~1.1V(15A peak)(Ripple < 87.2mV)

VDDC--Dedicated core power, provides power to the internal logic. 0.9 V - 1.2 V (± 5%)

0.95V~1.1V(2A VDDCI)

VDDCI--Isolated (clean) core power for the I/O logic. Voltage level should match that of VDDC. POWER Same as VDDC

BBP -- Connect to VBBP back bias regulator / generator. If back bias is not used, connect directly to VDDC.

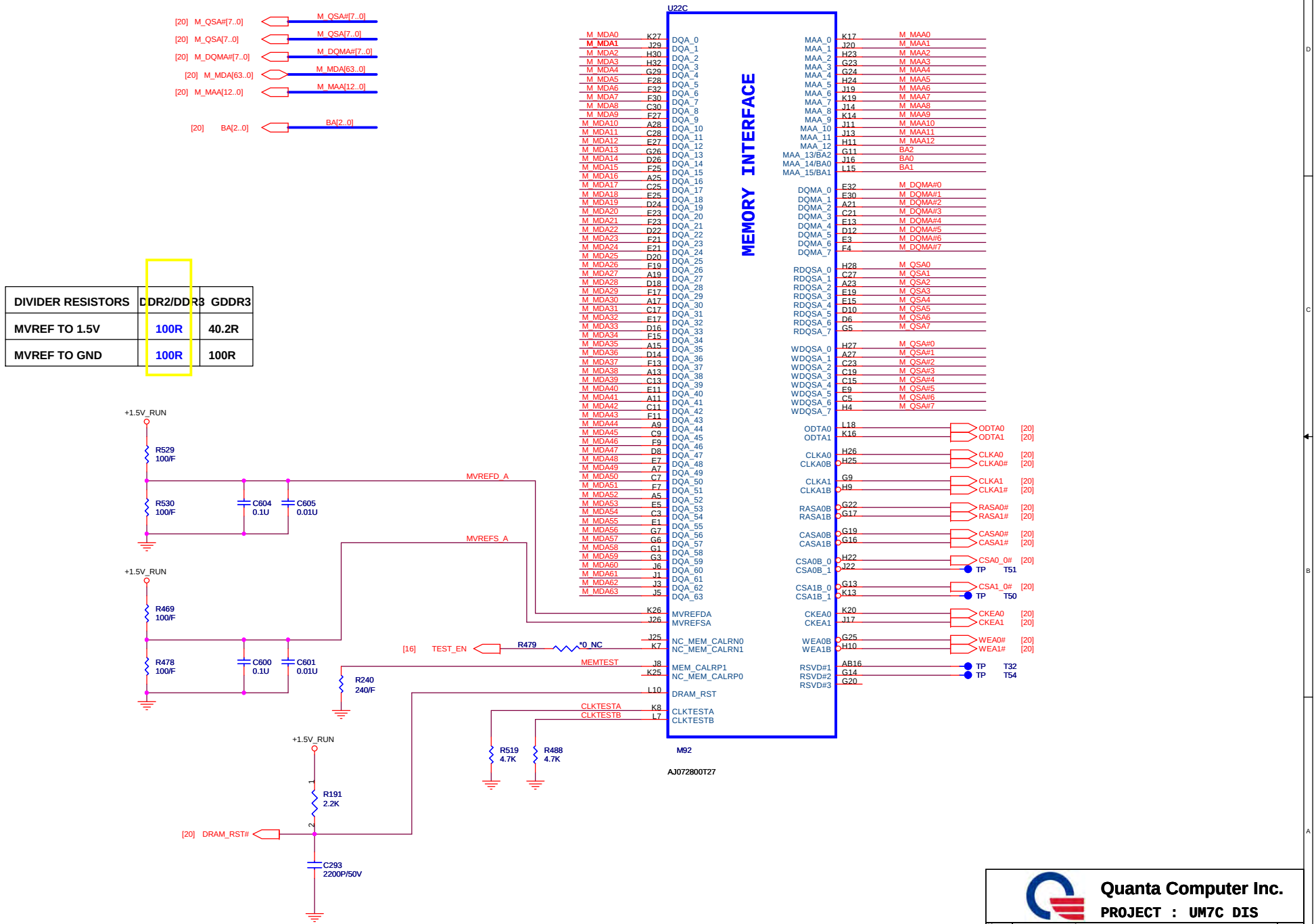
Back Bias Enabled: (GPIO_21_BB_EN = 3.3 V): 1.5 V or 1.8 V

Back Bias Disabled: (GPIO_21_BB_EN = 0 V): VDDC

Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: M92_PCIE_Interface	Rev: 2A
Date: Monday, May 24, 2010	Sheet 18 of 52	

MEMORY INTERFACE

DIVIDER RESISTORS	DDR2/DDR3	GDDR3
MVREF TO 1.5V	100R	40.2R
MVREF TO GND	100R	100R

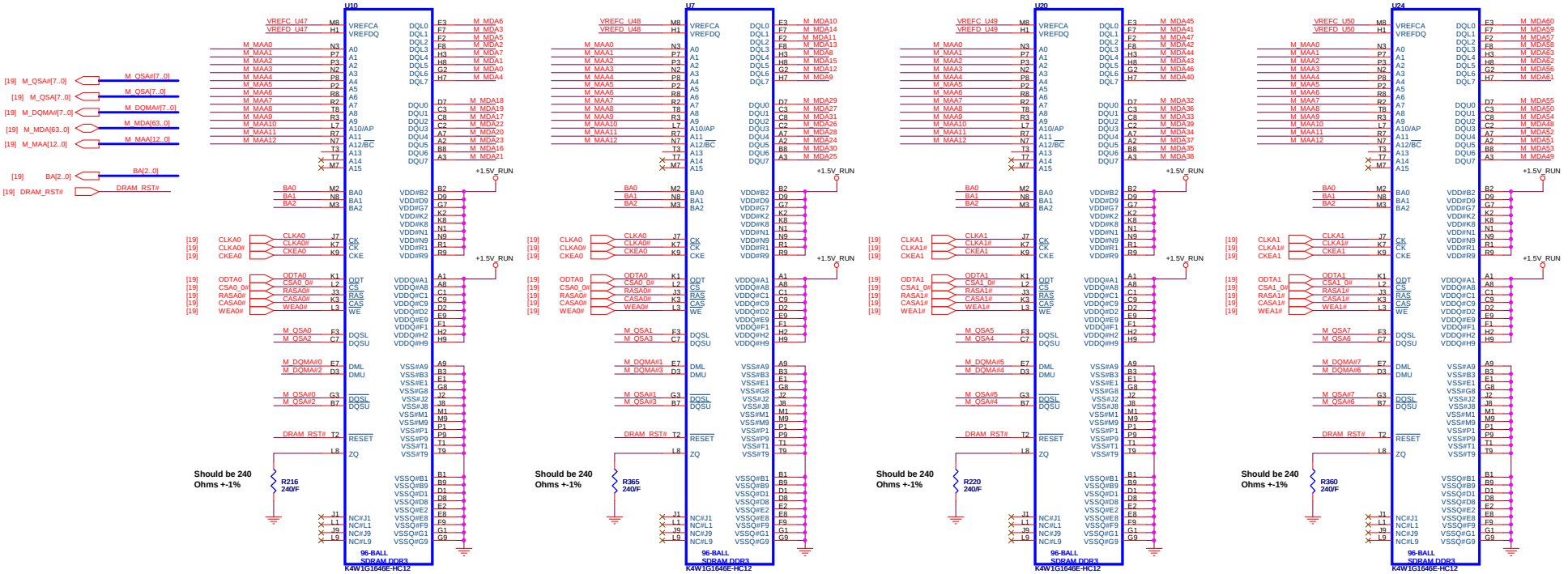


Quanta Computer Inc.

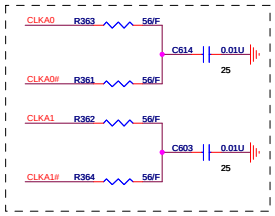
PROJECT : UM7C DIS

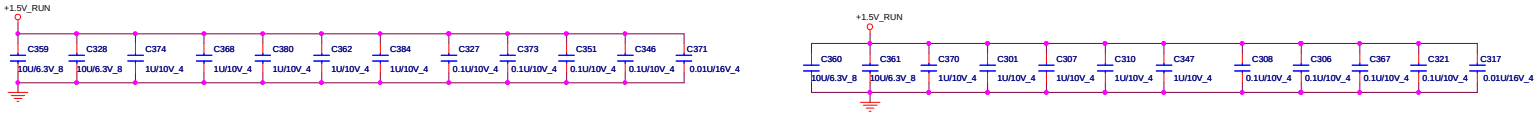
Size	Document Number	Rev
	M92_PCIE_Interface	2A
Date: Monday, May 24, 2010	Sheet 19 of 52	

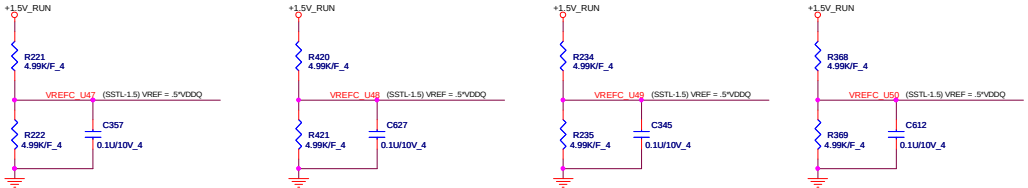
M92-LP (DDR3 512M)



Placement has to be close to VRAM







SAM
AKD5LGGT502
IC SDRAM(96P) K4W1G1646E-HC12(FBGA)

AKD5LGGT505
IC SDRAM(96P)K4W1G1646E-HC12(FBGA)WINBSQ

HYU
AKD5LZGTW00
IC DDR3(96P) H5TQ1G63BFR-12C (FBGA)

AKD5LZGTW03
IC SDRAM(96P)H5TQ1G63BFR-12C(FBGA)WINBSQ

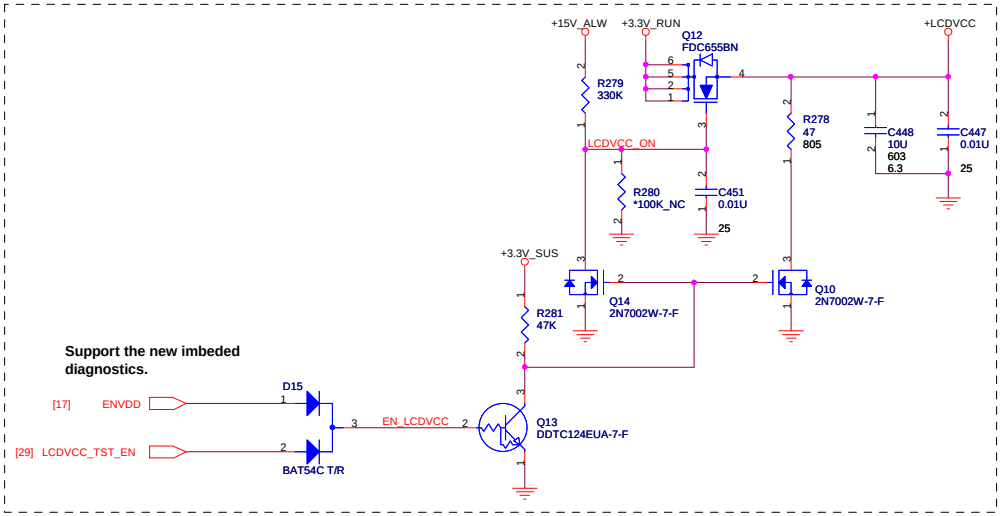
Quanta Computer Inc.
PROJECT : UM7C DIS

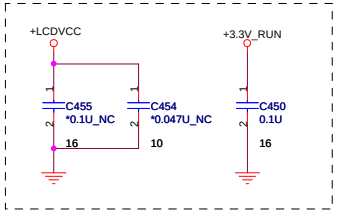
Size	Document Number	Rev
	M92_PCIE_Interface	2A
Date: Monday, May 24, 2010	Sheet 20 of 52	

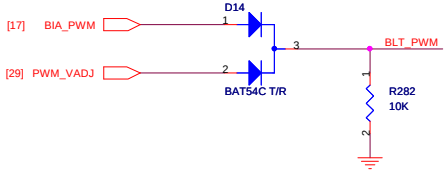
Quanta Computer Inc.

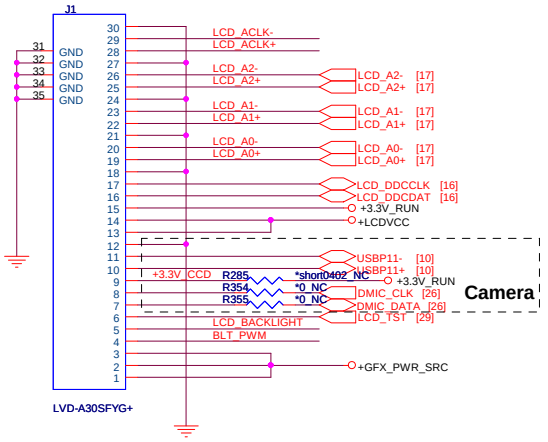
PROJECT : UM7C DIS

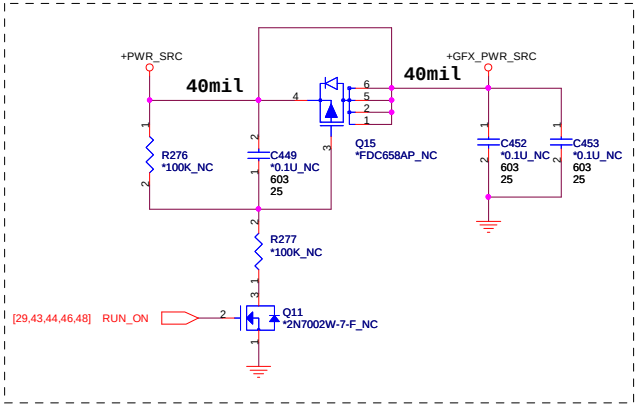
Size	Document Number	Rev
	M92_PCIE_Interface	2A
Date: Monday, May 24, 2010	Sheet 21 of 52	

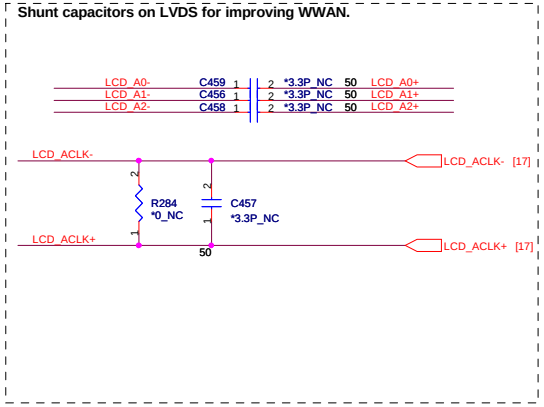


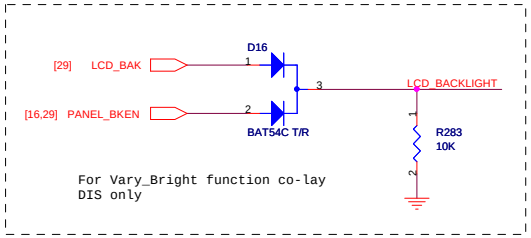












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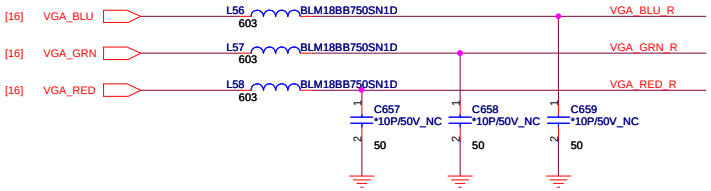
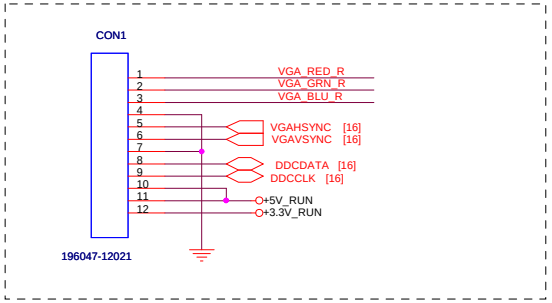
PROJECT : UM7C DIS

Size	Document Number	Rev
	LCD CONN / HDMI CONN	2A

Date: Monday, May 24, 2010 Sheet 22 of 52





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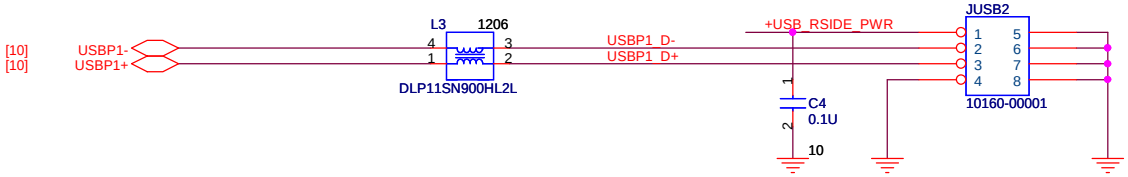
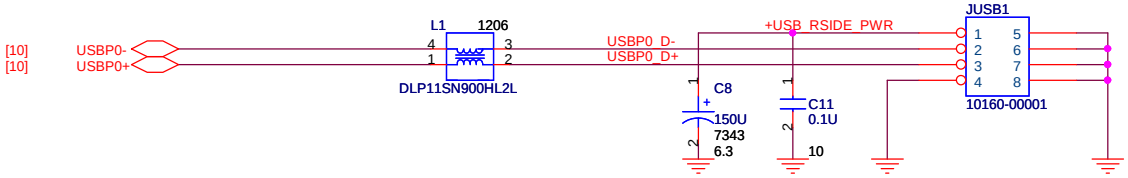
PROJECT : UM7C DIS

Size	Document Number	Rev
	CRT CONN	2A

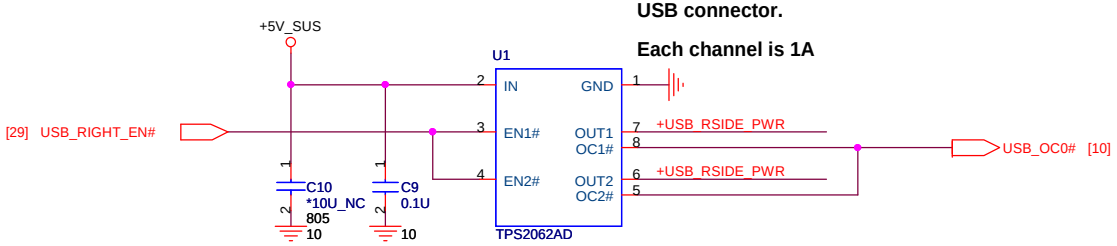
Date: Monday, May 24, 2010 Sheet 23 of 52



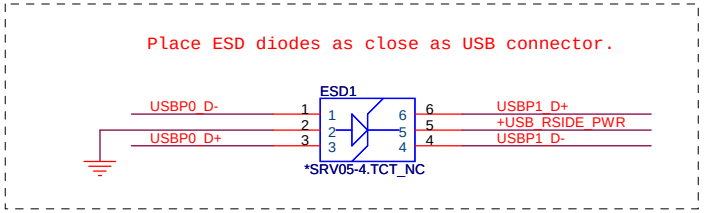


Place one 150uF cap by each USB connector.

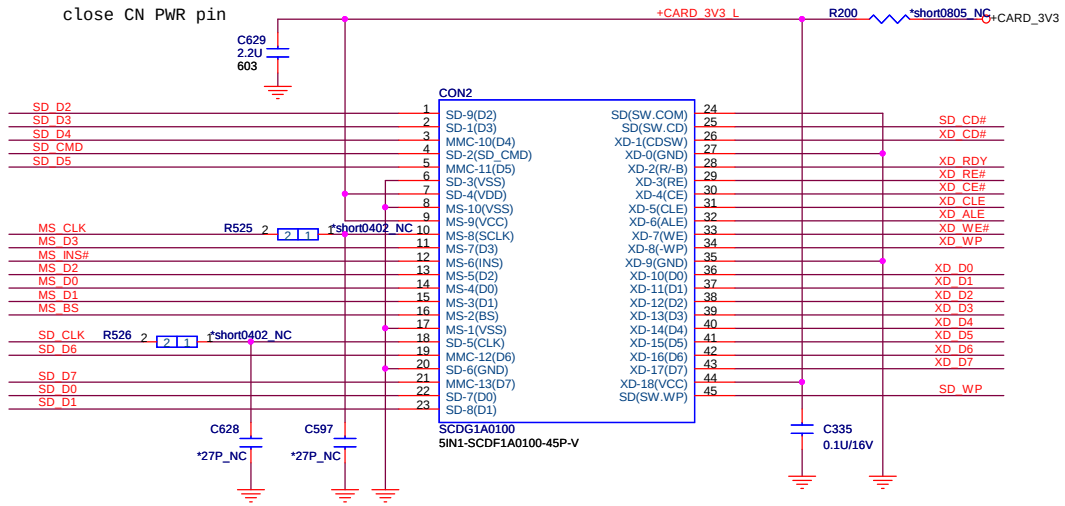
Each channel is 1A

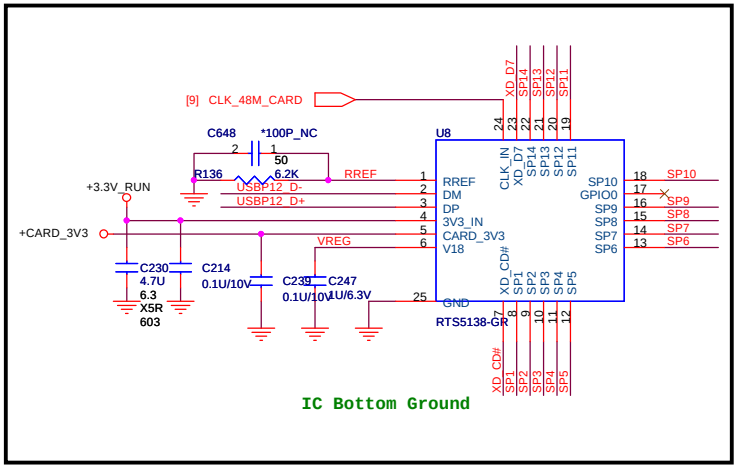


Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.

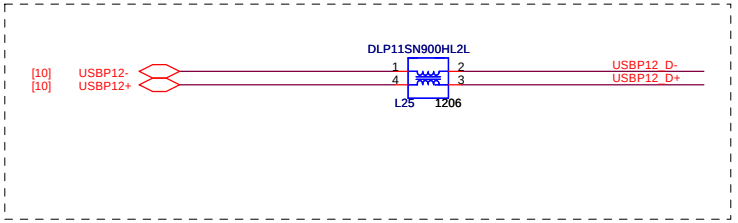


Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: Right USB	Rev: 2A
Date: Monday, May 24, 2010	Sheet 24 of 52	





RTS5138-QFN24



SP1	XD_RDY	SD_WP	MS_CLK
SP2	XD_RE#		MS_INS#
SP3	XD_CE#	SD_D1	
SP4	XD_CLE	SD_D0	MS_D7
SP5	XD_ALE	SD_D7	MS_D3
SP6	XD_WE#	SD_CD#	
SP7	XD_WP	SD_D6	MS_D6
SP8	XD_D0	SD_CLK	MS_D2
SP9	XD_D1	SD_D5	MS_D0
SP10	XD_D2	SD_CMD	
SP11	XD_D3	SD_D4	MS_D4
SP12	XD_D4	SD_D3	MS_D1
SP13	XD_D5	SD_D2	MS_D5
SP14	XD_D6		MS_BS

Share Pin

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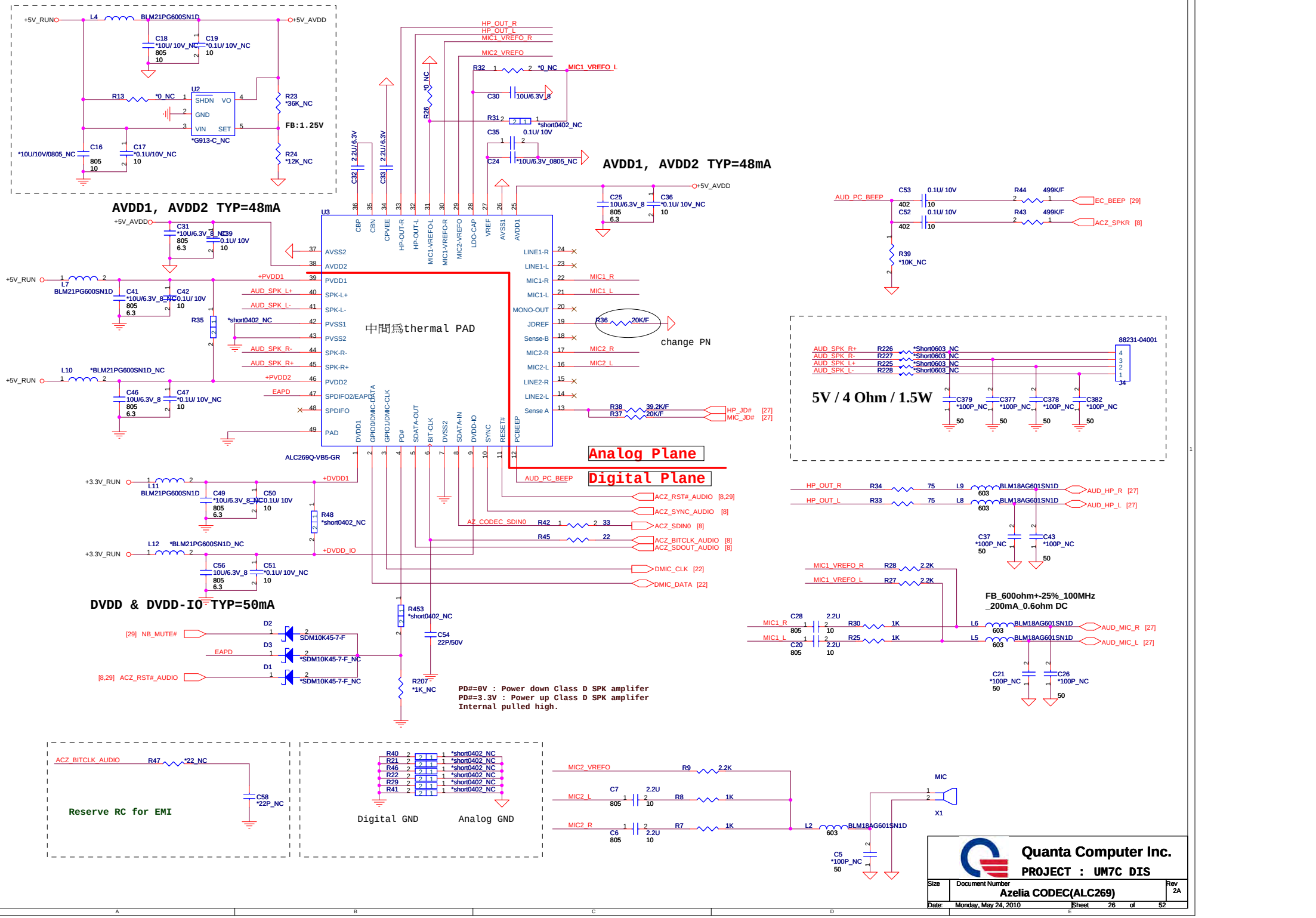
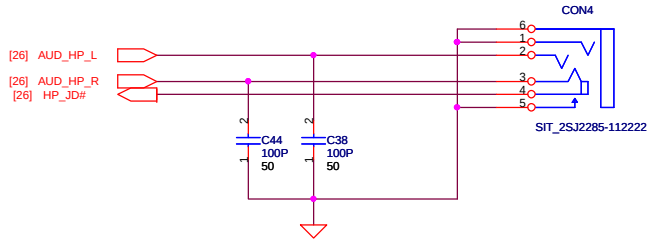
PROJECT : UM7C DIS

Size	Document Number	Rev
	Card Reader(RST5138)	2A
Date: Monday, May 24, 2010	Sheet 25 of 52	


+5V_RUN
L4 BLM21PG600SN1D
+5V_AVDD
C18 *10U/ 10V_NC 805 10
C19 *0.1U/ 10V_NC 10
U2
SHDN VO
GND
VIN SET
*G913-C_NC
R13 *0_NC
R23 *36K_NC
FB:1.25V
R24 *12K_NC
C16 *10U/10V/0805_NC 805 10
C17 *0.1U/10V_NC 10
AVDD1, AVDD2 TYP=48mA
HP_OUT_R
HP_OUT_L
MIC1_VREFO_R
MIC2_VREFO
R32 *0_NC MIC1_VREFO_L
C30 10U/6.3V_8
R31 *short0402_NC
C35 0.1U/ 10V
C24 *10U/6.3V_0805_NC
R26 *0_NC
C32 2.2U/6.3V
C33 2.2U/6.3V
AVDD1, AVDD2 TYP=48mA
C25 10U/6.3V_8 805 6.3
C36 *0.1U/ 10V_NC 10
U3
CBP CBN CPVEE HP-OUT-R HP-OUT-L MIC1-VREFO-L MIC1-VREFO-R MIC2-VREFO LDO-CAP VREF AVSS1 AVDD1
AVSS2 AVDD2 PVDD1 SPK-L+ SPK-L- PVSS1 PVSS2 SPK-R- SPK-R+ PVDD2 SPDIFO2/EAPD SPDIFO PAD
LINE1-R LINE1-L MIC1-R MIC1-L MONO-OUT JDREF Sense-B MIC2-R MIC2-L LINE2-R LINE2-L Sense A
DVDD1 GPIO0/DMIC-DATA GPIO1/DMIC-CLK PD# SDATA-OUT BIT-CLK DVSS2 SDATA-IN DVDD-IO SYNC RESET# PCBEEP
ALC269Q-VB5-GR
中間爲thermal PAD
+5V_AVDD
C31 *10U/6.3V_8_NC 805 6.3
C39 0.1U/ 10V 10
+5V_RUN
L7 BLM21PG600SN1D
C41 *10U/6.3V_8_NC 805 6.3
C42 0.1U/ 10V 10
+PVDD1
AUD_SPK_L+
AUD_SPK_L-
R35 *short0402_NC
AUD_SPK_R-
AUD_SPK_R+
+PVDD2
EAPD
L10 *BLM21PG600SN1D_NC
C46 10U/6.3V_8 805 6.3
C47 *0.1U/ 10V_NC 10
MIC1_R
MIC1_L
MIC2_R
MIC2_L
R36 20K/F
change PN
R38 39.2K/F
R37 20K/F
HP_JD# [27]
MIC_JD# [27]
Analog Plane
Digital Plane
AUD_PC_BEEP
ACZ_RST#_AUDIO [8,29]
ACZ_SYNC_AUDIO [8]
AZ_CODEC_SDIN0
R42 33
ACZ_SDIN0 [8]
R45 22
ACZ_BITCLK_AUDIO [8]
ACZ_SDOUT_AUDIO [8]
DMIC_CLK [22]
DMIC_DATA [22]
+3.3V_RUN
L11 BLM21PG600SN1D
C49 *10U/6.3V_8_NC 805 6.3
C50 0.1U/ 10V 10
+DVDD1
R48 *short0402_NC
L12 *BLM21PG600SN1D_NC
C56 10U/6.3V_8 805 6.3
C51 *0.1U/ 10V_NC 10
+DVDD_IO
DVDD & DVDD-IO TYP=50mA
R453 *short0402_NC
C54 22P/50V
R207 *1K_NC
[29] NB_MUTE#
D2 SDM10K45-7-F
EAPD
D3 *SDM10K45-7-F_NC
[8,29] ACZ_RST#_AUDIO
D1 *SDM10K45-7-F_NC
PD#=0V : Power down Class D SPK amplifer
PD#=3.3V : Power up Class D SPK amplifer
Internal pulled high.
AUD_PC_BEEP
C53 0.1U/ 10V 402 10
C52 0.1U/ 10V 402 10
R39 *10K_NC
R44 499K/F
R43 499K/F
EC_BEEP [29]
ACZ_SPKR [8]
AUD_SPK_R+
AUD_SPK_R-
AUD_SPK_L+
AUD_SPK_L-
R226 *Short0603_NC
R227 *Short0603_NC
R225 *Short0603_NC
R228 *Short0603_NC
88231-04001
J4
5V / 4 Ohm / 1.5W
C379 *100P_NC 50
C377 *100P_NC 50
C378 *100P_NC 50
C382 *100P_NC 50
HP_OUT_R
HP_OUT_L
R34 75
R33 75
L9 BLM18AG601SN1D 603
L8 BLM18AG601SN1D 603
AUD_HP_R [27]
AUD_HP_L [27]
C37 *100P_NC 50
C43 *100P_NC 50
MIC1_VREFO_R
MIC1_VREFO_L
R28 2.2K
R27 2.2K
FB_600ohm+-25%_100MHz
_200mA_0.6ohm DC
MIC1_R
MIC1_L
C28 2.2U 805 10
C20 2.2U 805 10
R30 1K
R25 1K
L6 BLM18AG601SN1D 603
L5 BLM18AG601SN1D 603
AUD_MIC_R [27]
AUD_MIC_L [27]
C21 *100P_NC 50
C26 *100P_NC 50
ACZ_BITCLK_AUDIO
R47 *22_NC
C58 *22P_NC
Reserve RC for EMI
R40 R21 R46 R22 R29 R41 *short0402_NC
Digital GND
Analog GND
MIC2_VREFO
MIC2_L
MIC2_R
R9 2.2K
C7 2.2U 805 10
R8 1K
C6 2.2U 805 10
R7 1K
L2 BLM18AG601SN1D 603
C5 *100P_NC 50
MIC
X1
Quanta Computer Inc.
PROJECT : UM7C DIS
Size
Document Number
Azelia CODEC(ALC269)
Rev 2A
Date: Monday, May 24, 2010
Sheet 26 of 52

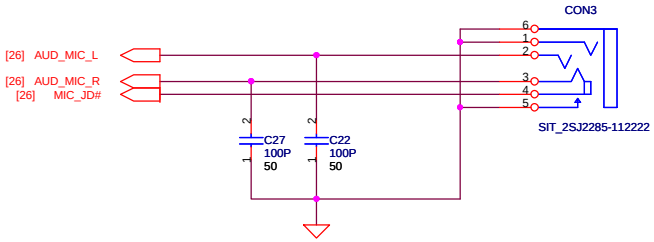
HP JACKN

SUYIN NORMAL OPEN



MIC JACK

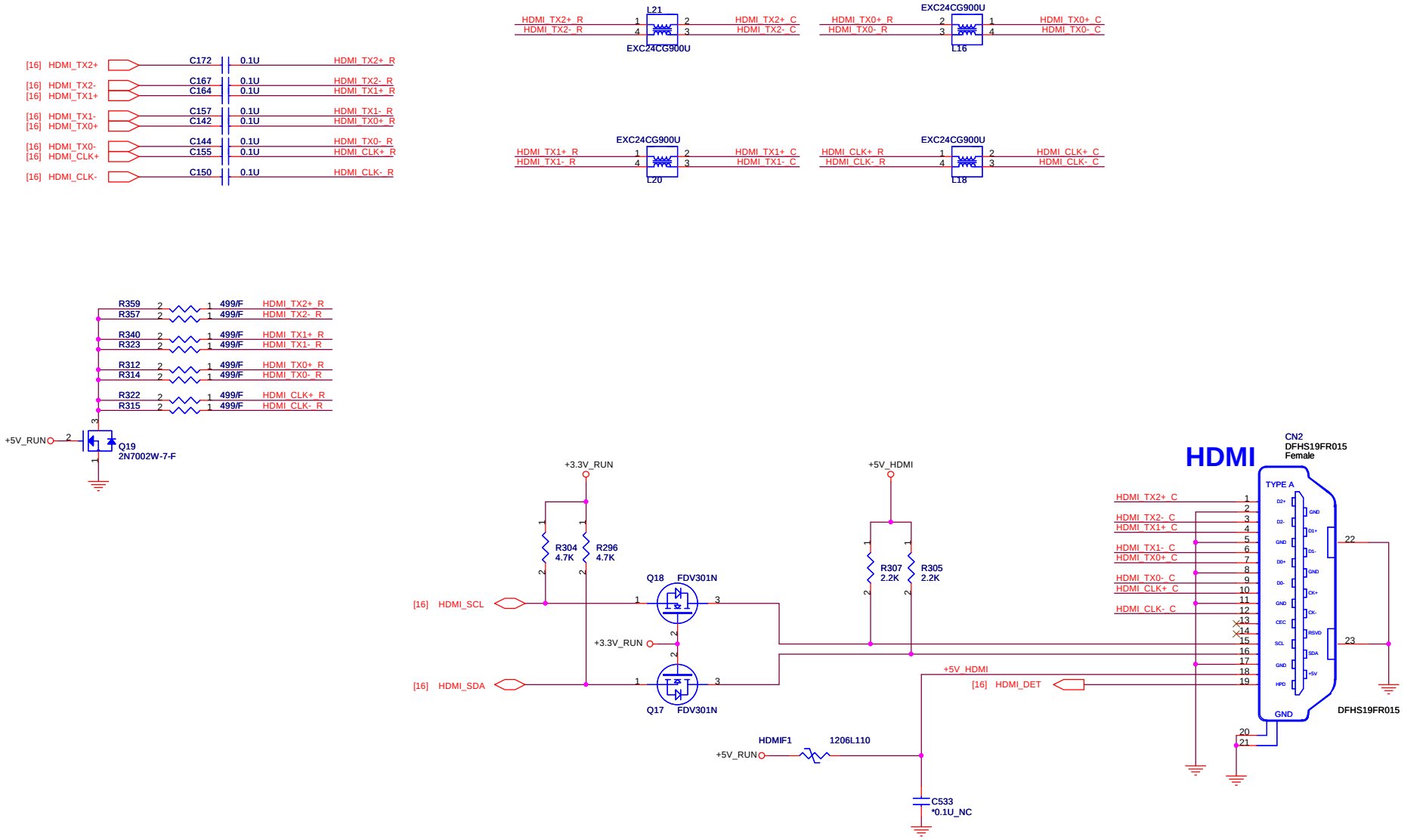
SUYIN NORMAL OPEN



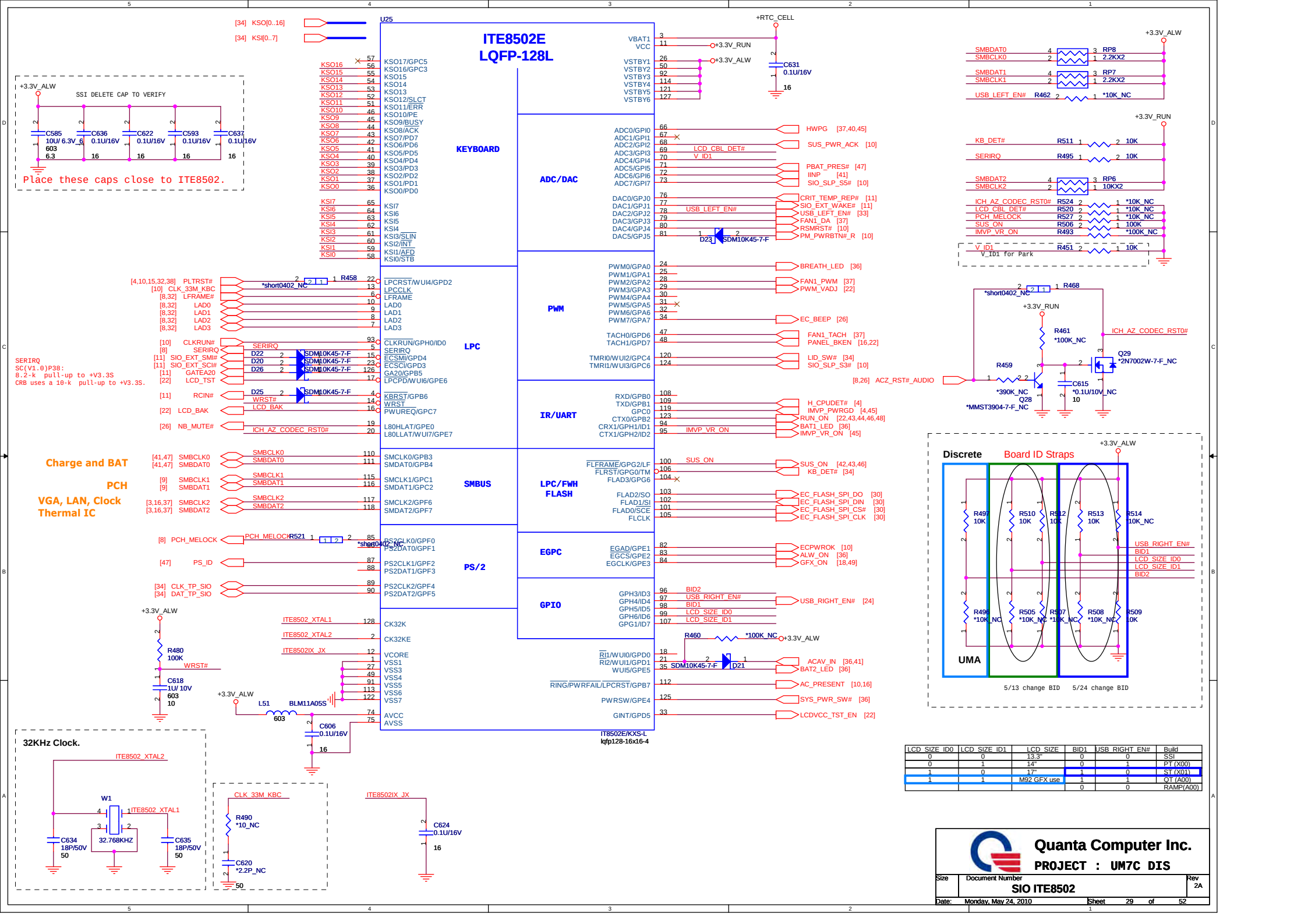
Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	AUDIO CONN	2A
Date: Monday, May 24, 2010	Sheet 27 of 52	

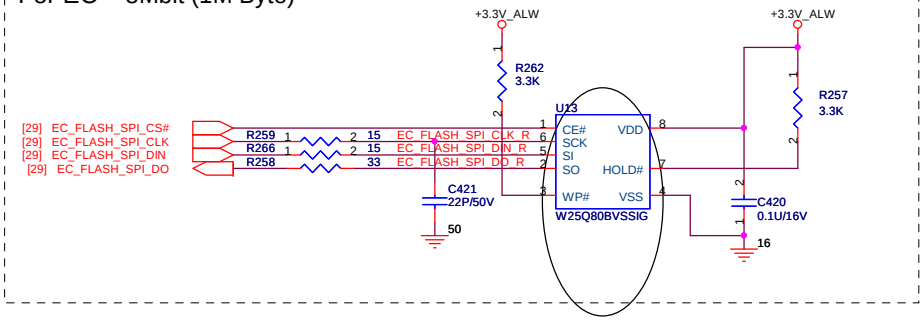


Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: Blank	Rev: 2A
Date: Monday, May 24, 2010	Sheet 28 of 52	



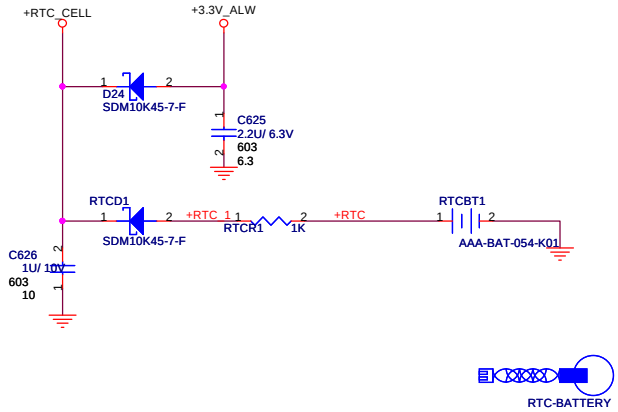
LCD_SIZE_ID0	LCD_SIZE_ID1	LCD_SIZE	BID1	USB_RIGHT_EN#	Build
0	0	13.3"	0	0	SSI
0	1	14"	0	1	PT (X00)
1	0	17"	1	0	ST (X01)
1	1	M92 GFX use	1	1	QT (A00)
			0	0	RAMP(A00)

For EC 8Mbit (1M Byte)



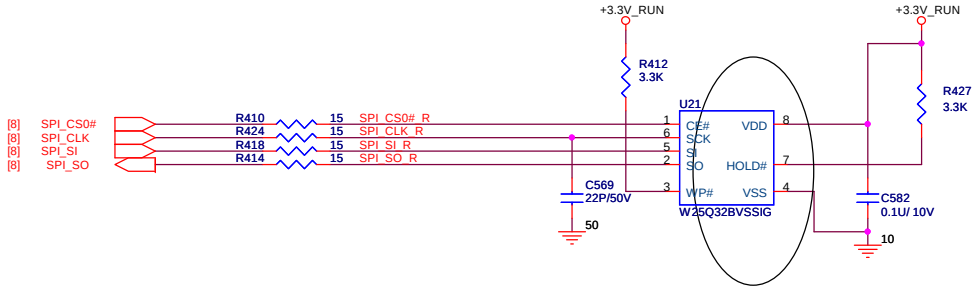
4/26 change to WND

RTC BATTERY



For PCH

32Mbit (4M Byte)



4/26 change to WND

Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	FLASH/RTC	2A
Date: Monday, May 24, 2010	Sheet 30 of 52	

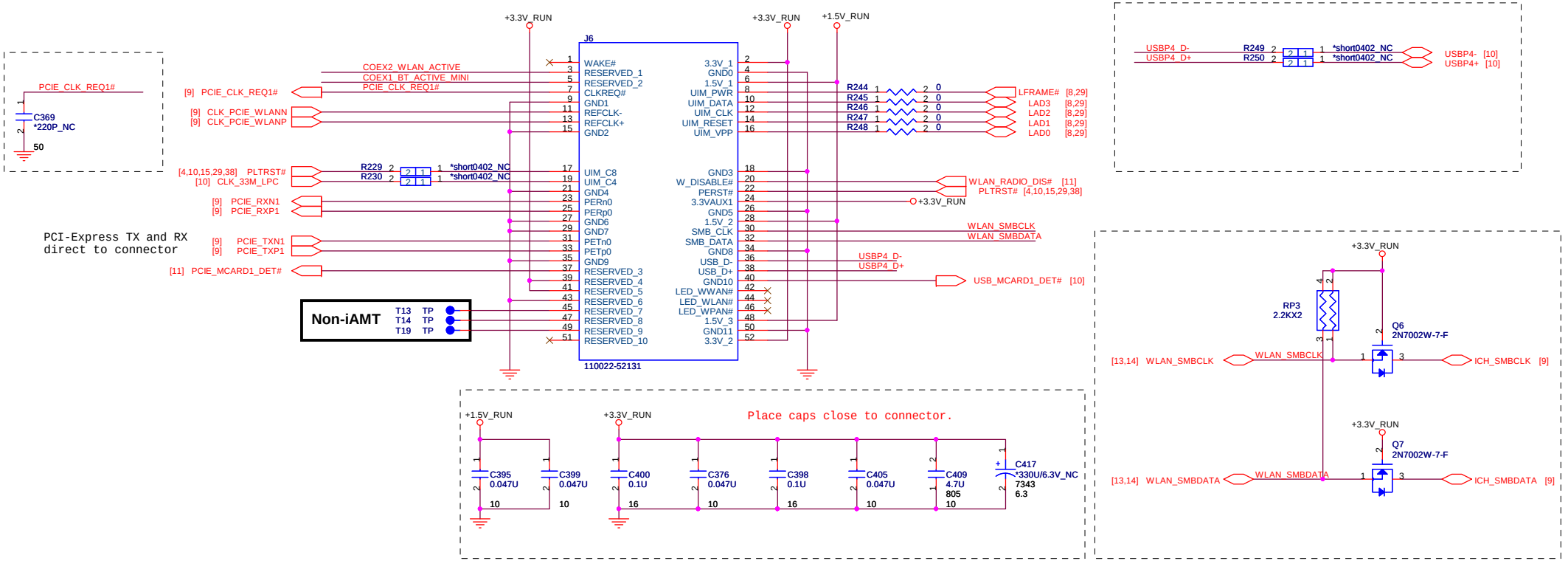
Quanta Computer Inc.

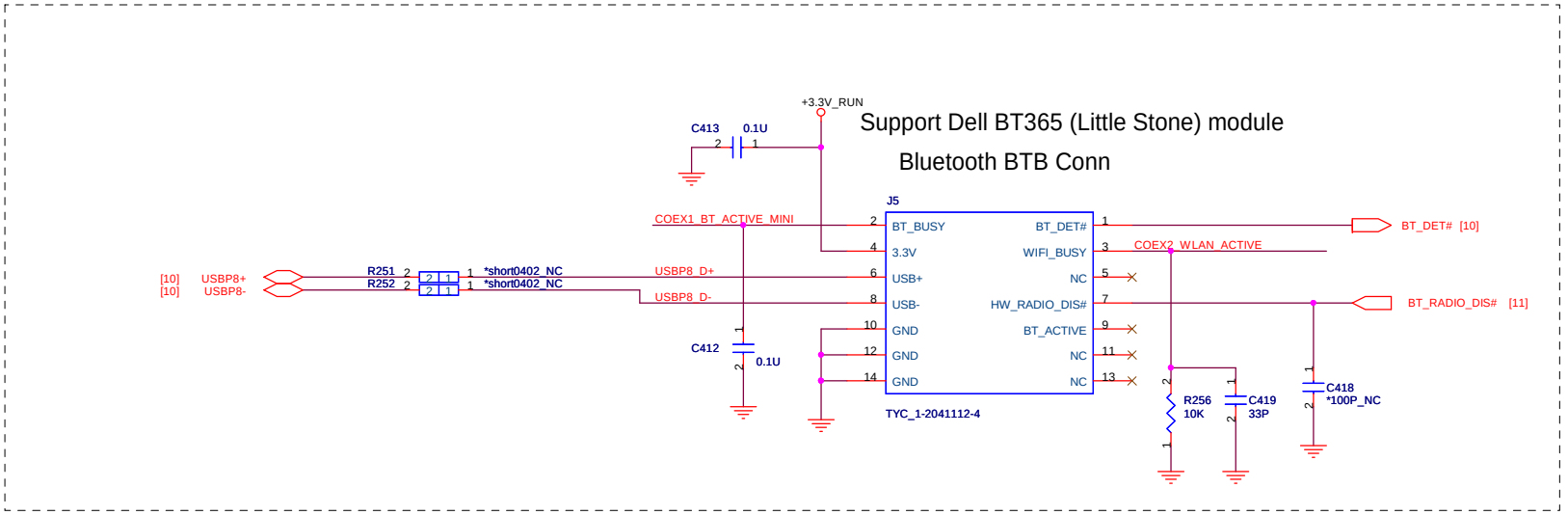
PROJECT : UM7C DIS

Size	Document Number	Rev
	MINI-Card WWAN	2A

Date: Monday, May 24, 2010 Sheet 31 of 52

MiniCard WLAN connector



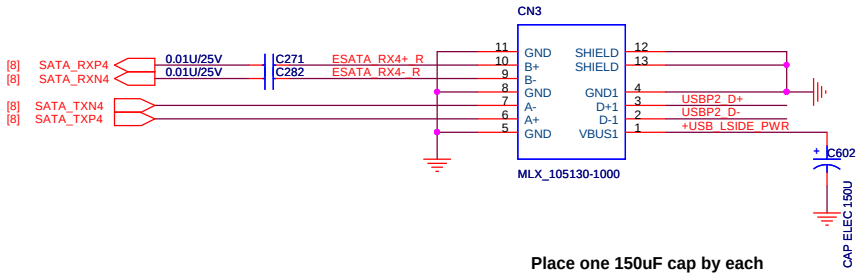


Quanta Computer Inc.

PROJECT : UM7C DIS

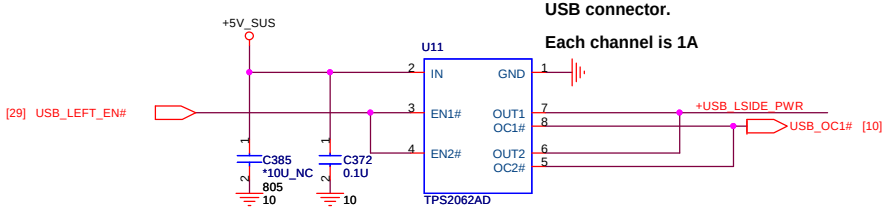
Size	Document Number	Rev
	MINI-Card WLAN / BT	2A
Date: Monday, May 24, 2010	Sheet 32 of 52	

USB and eSATA Conn.

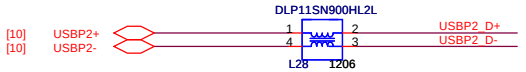


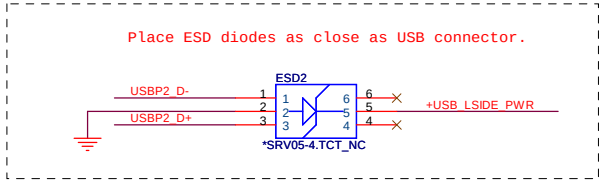
Place one 150uF cap by each USB connector.

Each channel is 1A

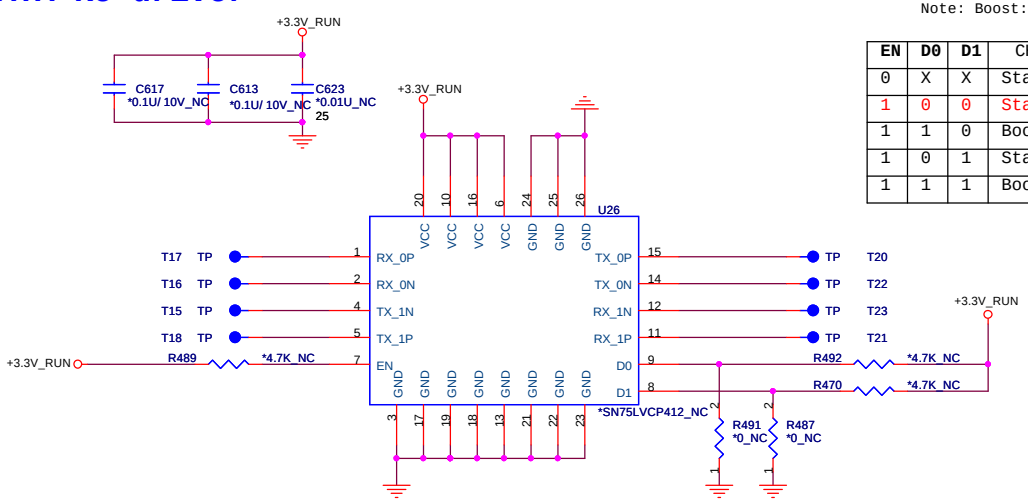


Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.





E-SATA Re-driver



Note: Boost:5dB, Standard SATA:0dB

EN	D0	D1	CH : 0	CH : 1
0	X	X	Standby	Standby
1	0	0	Standard SATA	Standard SATA
1	1	0	Boost	Standard SATA
1	0	1	Standard SATA	Boost
1	1	1	Boost	Boost

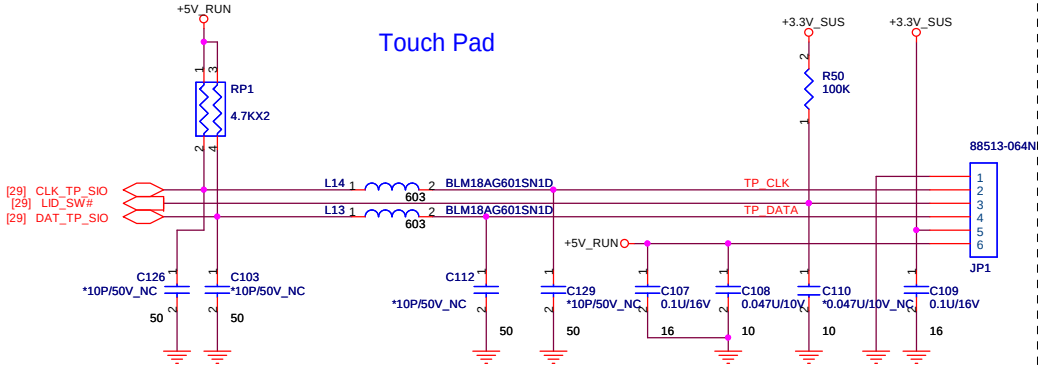
Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	eSATA & Right USB	2A

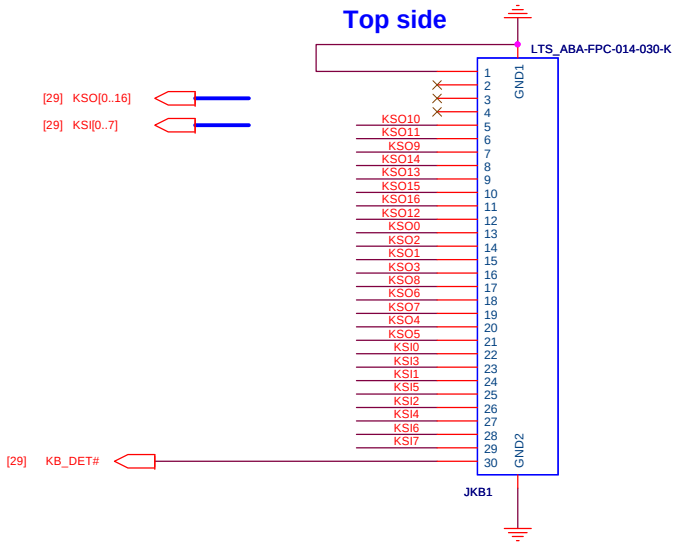
Date: Monday, May 24, 2010 Sheet 33 of 52

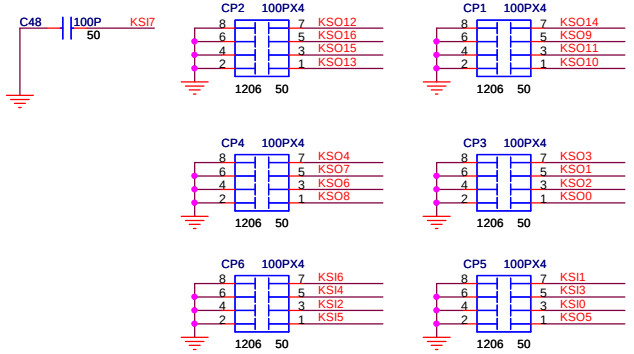
Touch Pad



KEYBOARD CONNECTOR

Top side

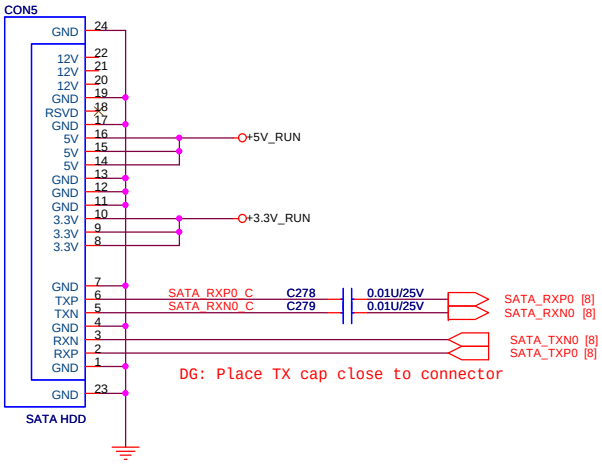


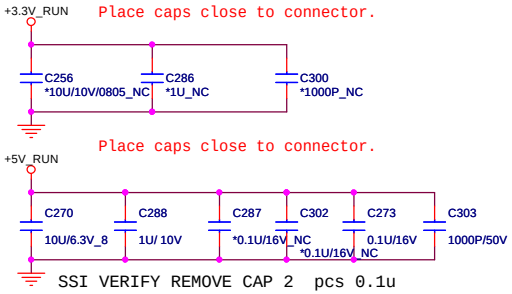


100P CAPS CLOSE TO JKB1

Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: TOUCH PAD, KB	Rev: 2A
Date: Monday, May 24, 2010	Sheet 34 of 52	

SATA Connector.





Quanta Computer Inc.

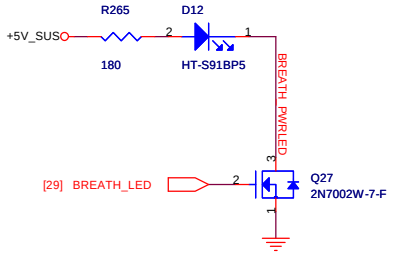
PROJECT : UM7C DIS

Size	Document Number	Rev
	SATA (HDD&CD_ROM)	2A

Date: Monday, May 24, 2010 Sheet 35 of 52

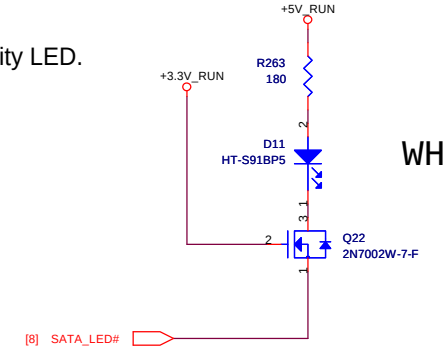
Power

WHITE



HDD activity LED.

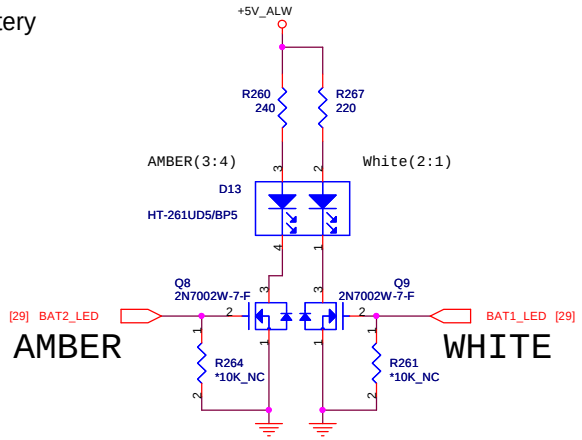
WHITE



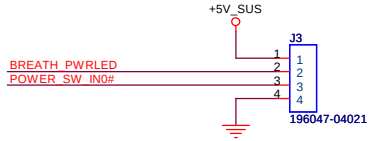
Battery

AMBER

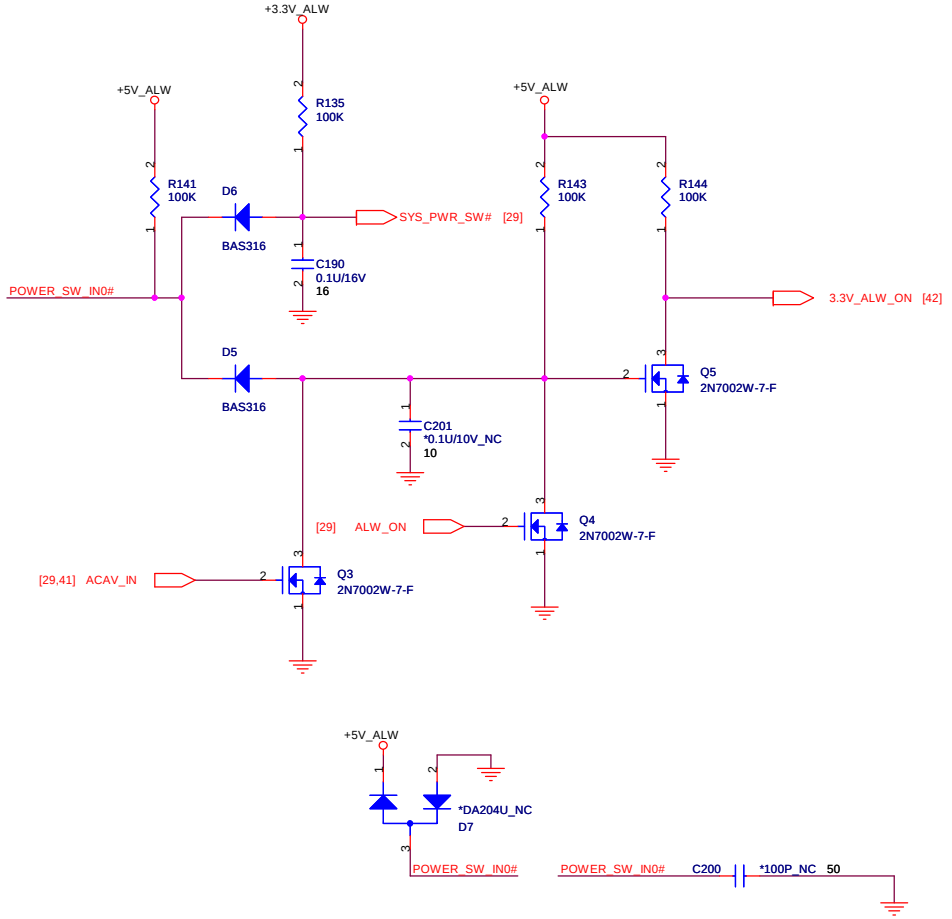
WHITE



Power button Cable

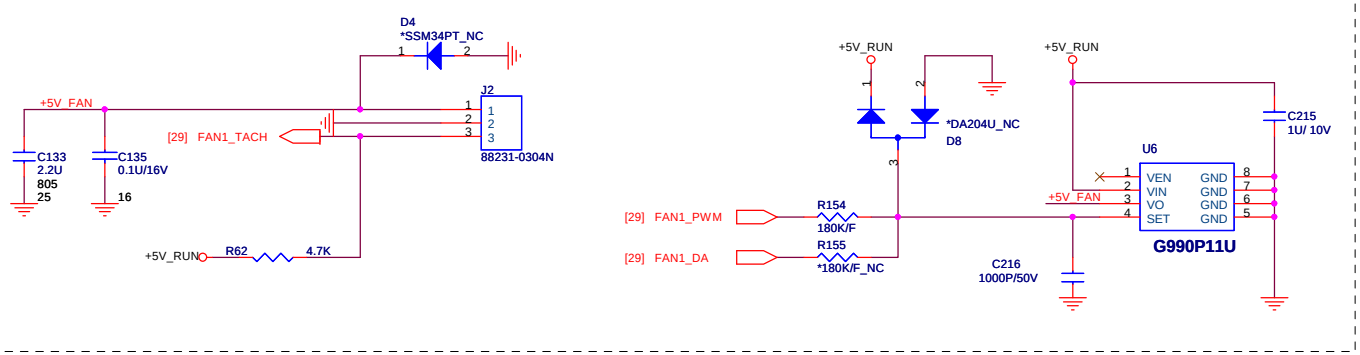


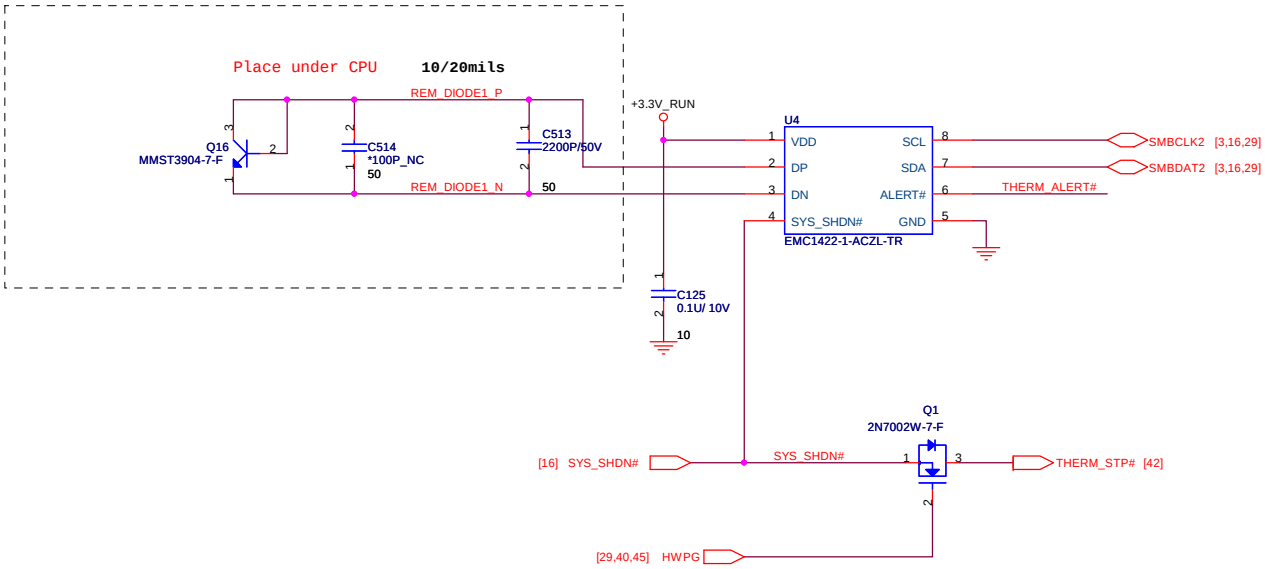
3VALW ON POWER LOGIC

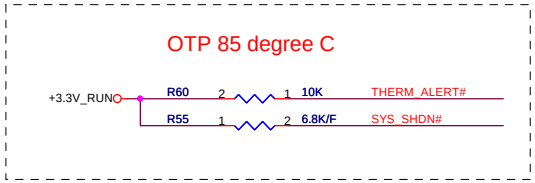


Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: SWITCH, LED	Rev: 2A
Date: Monday, May 24, 2010	Sheet 36 of 52	

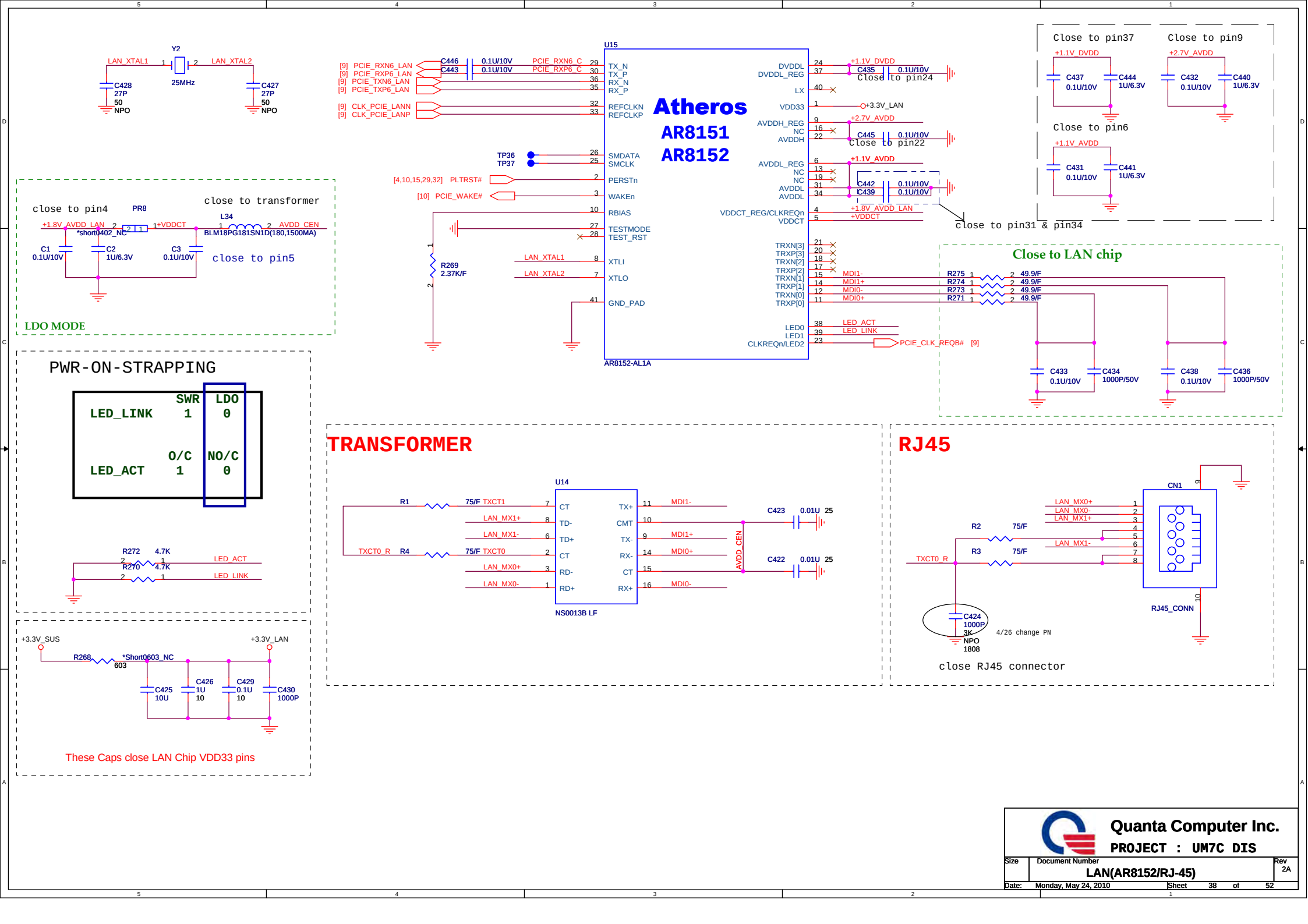
FAN CONTROL







Quanta Computer Inc.		
PROJECT : UM7C DIS		
Size	Document Number: FAN & THERMAL	Rev: 2A
Date: Monday, May 24, 2010	Sheet 37 of 52	

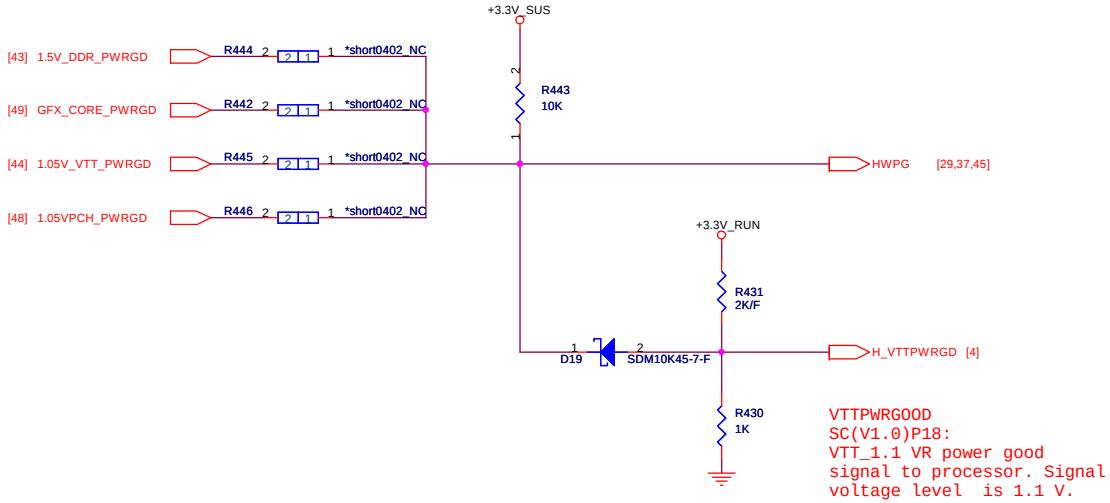

Y2
LAN_XTAL1
LAN_XTAL2
25MHz
C428 27P 50 NPO
C427 27P 50 NPO
U15
Atheros
AR8151
AR8152
AR8152-AL1A
TX_N
TX_P
RX_N
RX_P
REFCLKN
REFCLKP
SMDATA
SMCLK
PERSTn
WAKEn
RBIAS
TESTMODE
TEST_RST
XTLI
XTLO
GND_PAD
DVDDL
DVDDL_REG
LX
VDD33
AVDDH_REG
NC
AVDDH
AVDDL_REG
AVDDL
VDDCT_REG/CLKREQn
VDDCT
TRXN[3]
TRXP[3]
TRXN[2]
TRXP[2]
TRXN[1]
TRXP[1]
TRXN[0]
TRXP[0]
LED0
LED1
CLKREQn/LED2
C446 0.1U/10V
C443 0.1U/10V
PCIE_RXN6_C
PCIE_RXP6_C
[9] PCIE_RXN6_LAN
[9] PCIE_RXP6_LAN
[9] PCIE_TXN6_LAN
[9] PCIE_TXP6_LAN
[9] CLK_PCIE_LANN
[9] CLK_PCIE_LANP
TP36
TP37
[4,10,15,29,32] PLTRST#
[10] PCIE_WAKE#
R269 2.37K/F
+1.1V_DVDD
+3.3V_LAN
+2.7V_AVDD
+1.1V_AVDD
+1.8V_AVDD_LAN
+VDDCT
C435 0.1U/10V
Close to pin24
C445 0.1U/10V
Close to pin22
C442 0.1U/10V
C439 0.1U/10V
close to pin31 & pin34
MDI1-
MDI1+
MDI0-
MDI0+
LED_ACT
LED_LINK
PCIE_CLK_REQB# [9]
Close to pin37
Close to pin9
Close to pin6
C437 0.1U/10V
C444 1U/6.3V
C432 0.1U/10V
C440 1U/6.3V
C431 0.1U/10V
C441 1U/6.3V
close to pin4
PR8
close to transformer
+1.8V_AVDD_LAN
+1VDDCT
AVDD_CEN
*short0402_NC
BLM18PG181SN1D(180,1500MA)
C1 0.1U/10V
C2 1U/6.3V
C3 0.1U/10V
close to pin5
LDO MODE
Close to LAN chip
R275 49.9/F
R274 49.9/F
R273 49.9/F
R271 49.9/F
C433 0.1U/10V
C434 1000P/50V
C438 0.1U/10V
C436 1000P/50V
PWR-ON-STRAPPING
SWR LDO
LED_LINK 1 0
O/C NO/C
LED_ACT 1 0
R272 4.7K
R270 4.7K
LED_ACT
LED_LINK
TRANSFORMER
U14
R1 75/F TXCT1
TXCT0_R R4 75/F TXCT0
LAN_MX1+
LAN_MX1-
LAN_MX0+
LAN_MX0-
CT
TD-
TD+
CT
RD-
RD+
TX+
CMT
TX-
RX-
CT
RX+
MDI1-
MDI1+
MDI0+
MDI0-
AVDD_CEN
C423 0.01U 25
C422 0.01U 25
NS0013B LF
RJ45
CN1
R2 75/F
R3 75/F
C424 1000P 3K NPO 1808
4/26 change PN
RJ45_CONN
close RJ45 connector
+3.3V_SUS
+3.3V_LAN
R268 *Short0603_NC 603
C425 10U
C426 1U 10
C429 0.1U 10
C430 1000P
These Caps close LAN Chip VDD33 pins
Quanta Computer Inc.
PROJECT : UM7C DIS
Size
Document Number
LAN(AR8152/RJ-45)
Rev 2A
Date: Monday, May 24, 2010
Sheet 38 of 52

Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	BTB CONN	2A

Date: Monday, May 24, 2010 Sheet 39 of 52



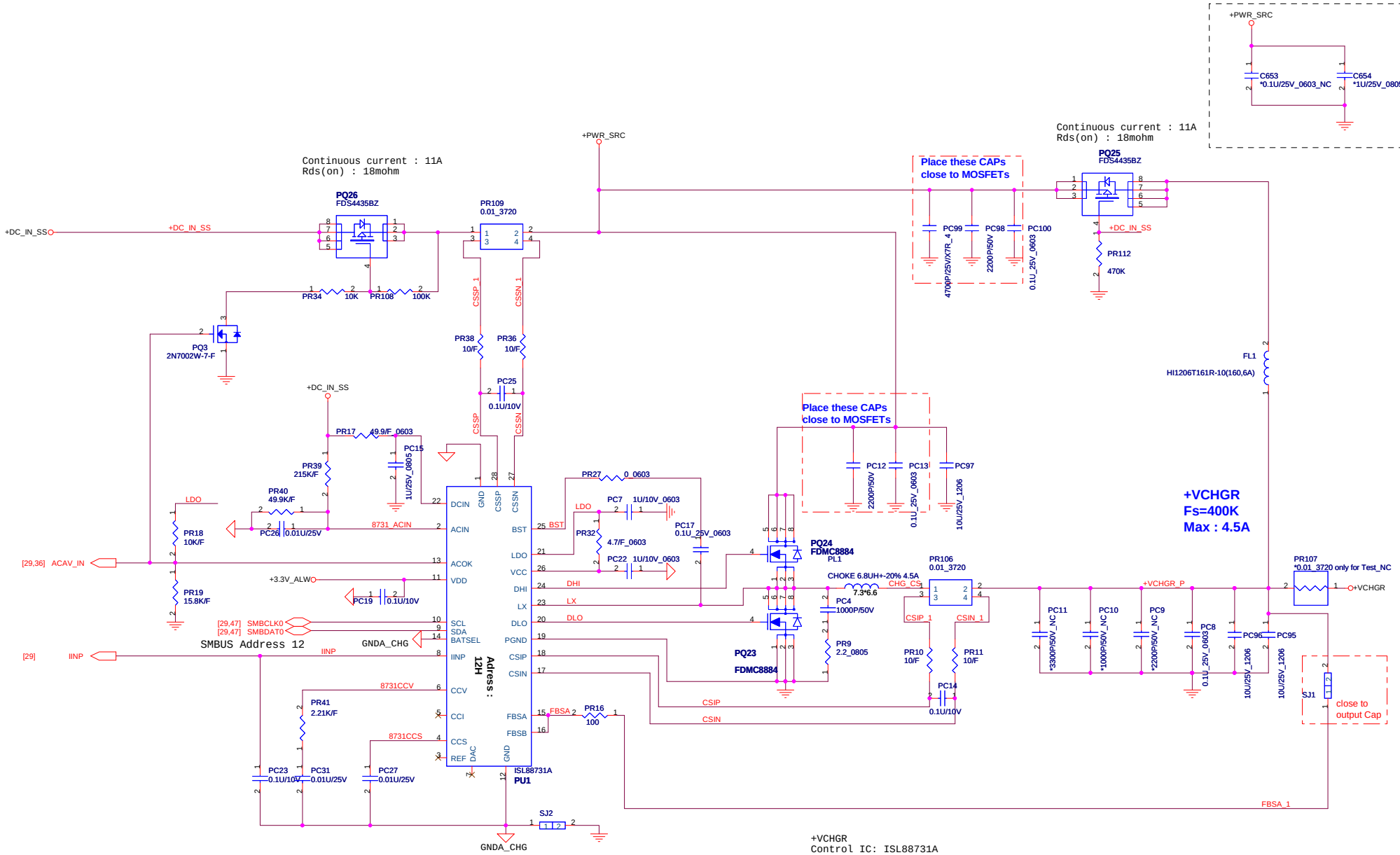
VTTPWRGOOD
SC(V1.0)P18:
VTT_1.1 VR power good
signal to processor. Signal
voltage level is 1.1 V.

Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	System Reset Circuit	2A

Date: Monday, May 24, 2010 Sheet 40 of 52


+PWR_SRC
C653
*0.1U/25V_0603_NC
C654
*1U/25V_0805_NC
Continuous current : 11A
Rds(on) : 18mohm
PQ26
FDS4435BZ
PR109
0.01_3720
Continuous current : 11A
Rds(on) : 18mohm
PQ25
FDS4435BZ
Place these CAPs
close to MOSFETs
PC99
4700P/25V/X7R_4
PC98
2200P/50V
PC100
0.1U_25V_0603
PR112
470K
+DC_IN_SS
PR34
10K
PR108
100K
PQ3
2N7002W-7-F
PR38
10/F
PR36
10/F
CSSP_1
CSSN_1
PC25
0.1U/10V
FL1
HI1206T161R-10(160,6A)
PR17
49.9/F_0603
PC15
1U/25V_0805
PR39
215K/F
PR40
49.9K/F
PC26
0.01U/25V
LDO
PR18
10K/F
PR19
15.8K/F
8731_ACIN
[29,36] ACAV_IN
+3.3V_ALW
PC19
0.1U/10V
[29,47] SMBCLK0
[29,47] SMBDAT0
SMBUS Address 12
[29] IINP
GNDA_CHG
8731CCV
PR41
2.21K/F
8731CCS
PC23
0.1U/10V
PC31
0.01U/25V
PC27
0.01U/25V
DCIN
ACIN
ACOK
VDD
SCL
SDA
BATSEL
IINP
CCV
CCI
CCS
REF
GND
CSSP
CSSN
BST
LDO
VCC
DHI
LX
DLO
PGND
CSIP
CSIN
FBSA
FBSB
DAC
Adress : 12H
ISL88731A
PU1
SJ2
PR27
0_0603
PC7
1U/10V_0603
PR32
4.7/F_0603
PC22
1U/10V_0603
PC17
0.1U_25V_0603
Place these CAPs
close to MOSFETs
PC12
2200P/50V
PC13
0.1U_25V_0603
PC97
10U/25V_1206
PQ24
FDMC8884
PL1
CHOKE 6.8UH+-20% 4.5A
7.3*6.6
PC4
1000P/50V
PQ23
FDMC8884
PR9
2.2_0805
PR106
0.01_3720
CHG_CS
CSIP_1
CSIN_1
PR10
10/F
PR11
10/F
PC14
0.1U/10V
+VCHGR
Fs=400K
Max : 4.5A
PR107
*0.01_3720 only for Test_NC
+VCHGR_P
PC11
*3300P/50V
PC10
*1000P/50V
PC9
*2200P/50V
PC8
0.1U_25V_0603
PC96
10U/25V_1206
PC95
10U/25V_1206
SJ1
close to
output Cap
FBSA_1
+VCHGR
Control IC: ISL88731A
H/S MOSFET: FDMC8884(FAC), Qg=7nC, Rds(on)=30mohm, PD:2.3W
L/S MOSFET: FDMC8884(FAC), Qg=7nC, Rds(on)=30mohm, PD:2.3W
Inductor: CHOKE 6.8UH+-20% 4.5A DCR=44mohm
Output Cap: 2*10U 25V(+-10%,X6S,1206)
QUANTA
COMPUTER
Title
Charger (ISL88731)
Size
Document Number
UM7 Dis
Rev
2A
Date:
Monday, May 24, 2010
Sheet
41
of
52

+5V_SUS
Fs=200K
TDC : 4.915A
OCP : 6.881A

+3.3V_ALW
Fs=250K
TDC : 4.477A
OCP : 6.268A

0127

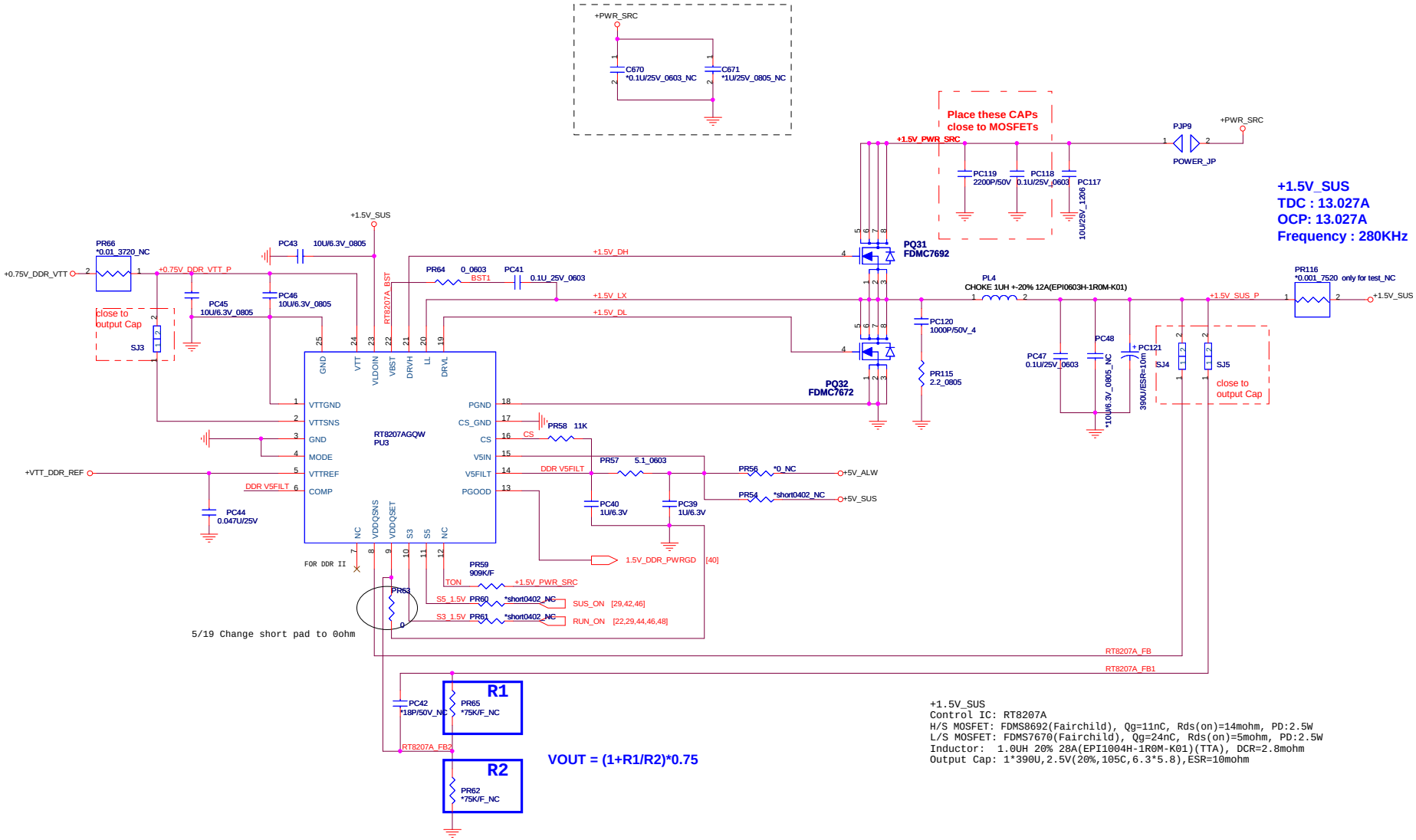
+5V_ALW
Control IC: RT8206B
H/S MOSFET: FDS8884(Fairchild), Qg=13nC, Rds(on)=30mohm, PD:2.5W
L/S MOSFET: FDS6690AS_NL(Fairchild), Qg=23nC, Rds(on)=15mohm, PD:2.5W
Inductor: 3.8UH,30%8A(TPRH10D45F-3R8Y-F02)(TTA), DCR=21mohm
Output Cap: 1*330U,6.3V(20%ESR17,6.3*5.8)

+3.3V_ALW
Control IC: RT8206B
H/S MOSFET: FDS8884(Fairchild), Qg=13nC, Rds(on)=30mohm, PD:2.5W
L/S MOSFET: FDS6690AS_NL(Fairchild), Qg=23nC, Rds(on)=15mohm, PD:2.5W
Inductor: 3 3.8UH,30%8A(TPRH10D45F-3R8Y-F02)(TTA), DCR=21mohm
Output Cap: 1*330U,6.3V(20%ESR17,6.3*5.8)

Ton	GND	VREF2 or Float	5V
Channel1 Fs	400 kHz	300 kHz	200 kHz
Channel2 Fs	500 kHz	375 kHz	250 kHz

Title	3.3V_ALW / 5V_ALW(RT8206B)
Size	Document Number: UM7 Dis — Rev: 2A
Date:	Monday, May 24, 2010 — Sheet 42 of 52

QUANTA COMPUTER



+1.5V_SUS
Control IC: RT8207A
H/S MOSFET: FDMS8692(Fairchild), Qg=11nC, Rds(on)=14mohm, PD:2.5W
L/S MOSFET: FDMS7670(Fairchild), Qg=24nC, Rds(on)=5mohm, PD:2.5W
Inductor: 1.0UH 20% 28A(EPI1004H-1R0M-K01)(TTA), DCR=2.8mohm
Output Cap: 1*390U,2.5V(20%,105C,6.3*5.8),ESR=10mohm

VDDQ and VTT discharge control

MODE pin	Discharge mode
V5IN	No discharge
VDDQ	Tracking discharge
S4/GND	Non-tracking discharge

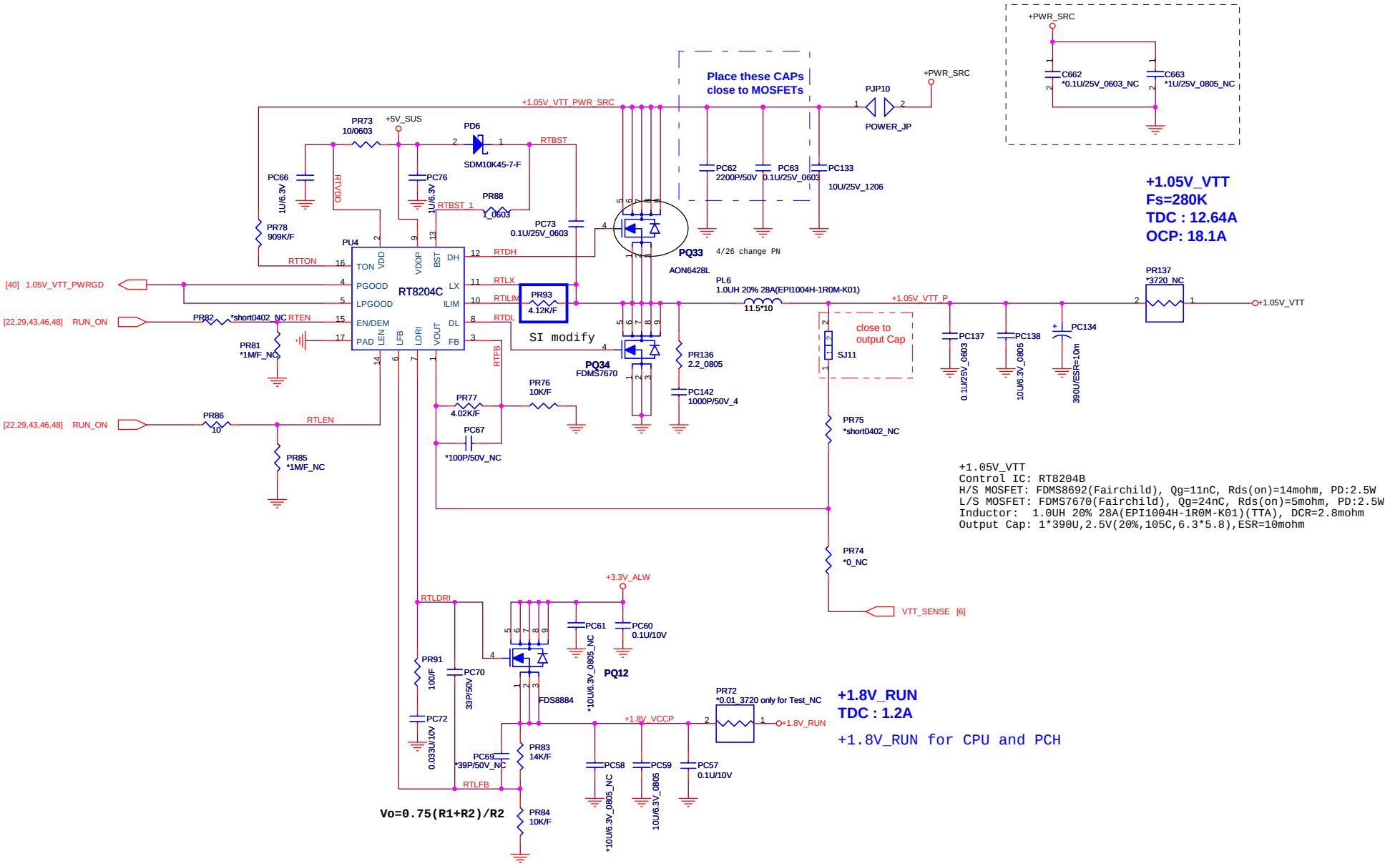
VDDQ output voltage selection

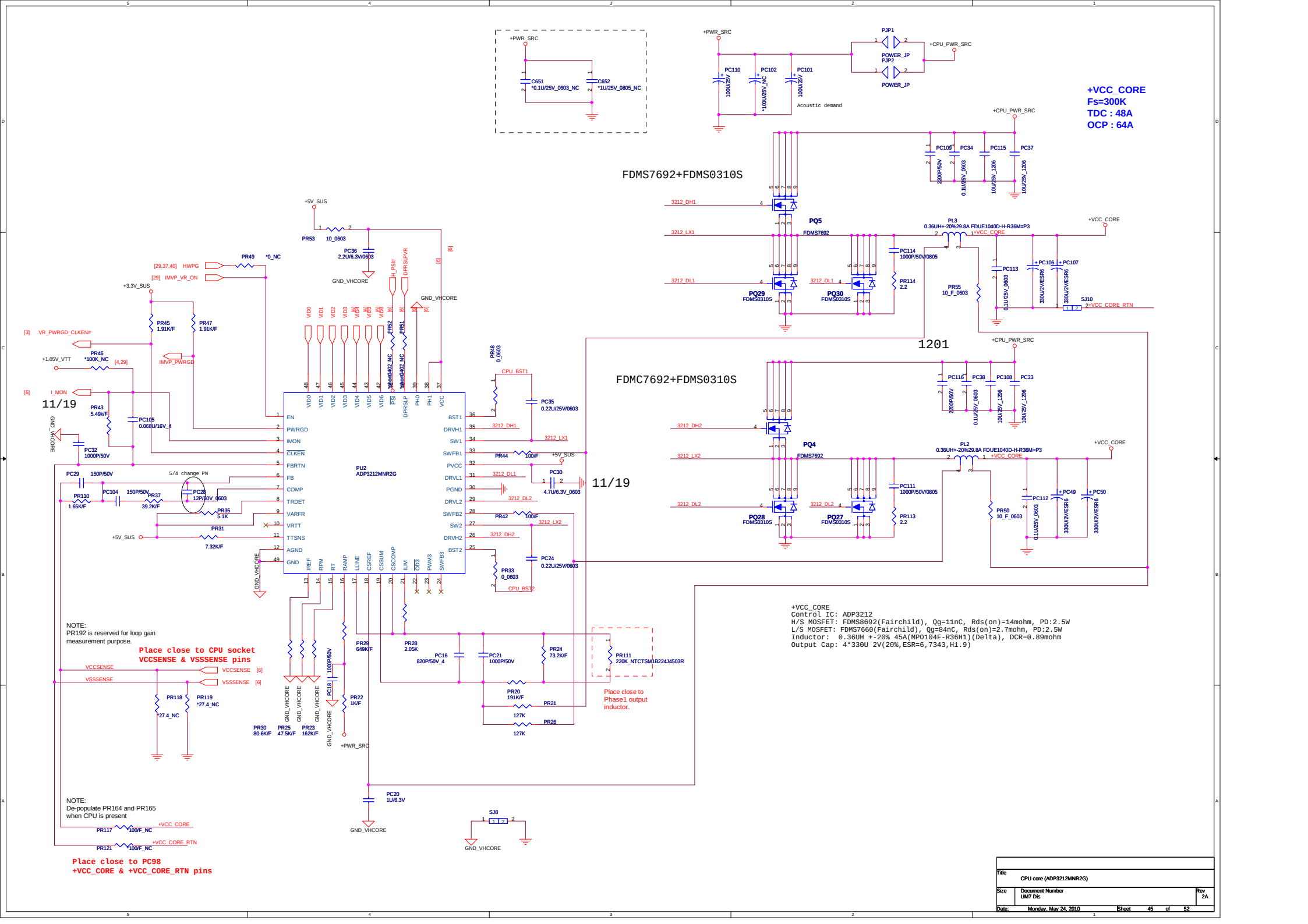
VDDQSET	VDDQ(V)	VTTREF and VTT	NOTE
GND	1.5V	VDDQSNS/2	DDR3
V5IN	1.8V	VDDQSNS/2	DDR2
FB Resistors	Adjusting	VDDQSNS/2	1.5V < VVDDQ < 3V

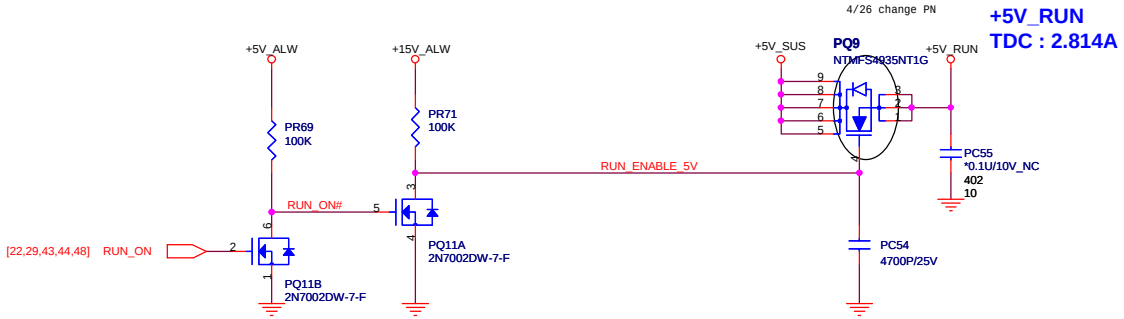
Outputs Management by S3, S5 control

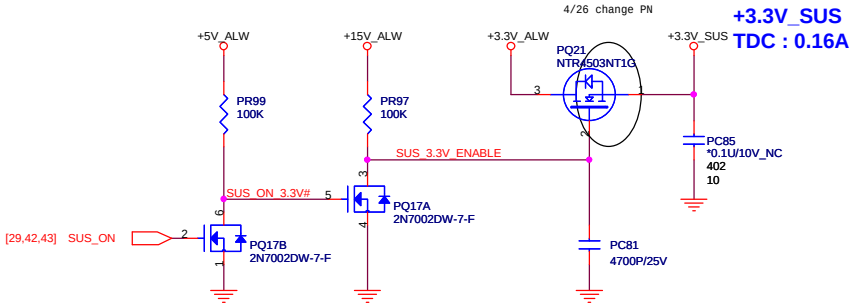
State	S3	S5	VDDQ	VTTREF	VTT
S0	HI	HI	On	On	On
S3	LO	HI	On	On	Off (Hi-Z)
S4/S5	LO	LO	On (discharge)	Off (discharge)	Off (discharge)

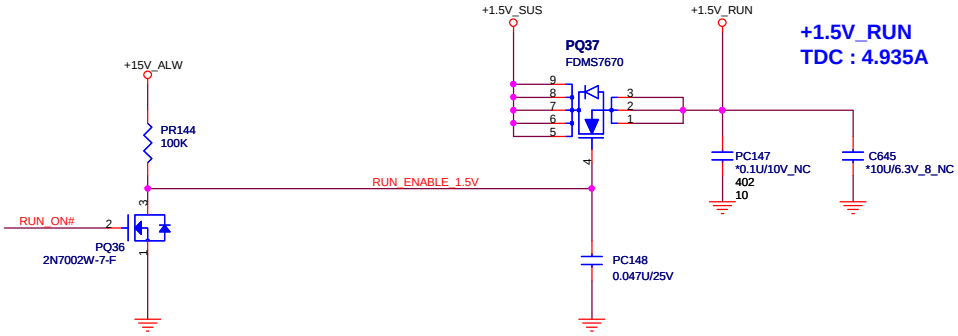
Title	DDR3 +1.5V_SUS(RT8207AGQW)		
Size	Document Number UM7 Dis		Rev 2A
Date: Monday, May 24, 2010	Sheet 43 of 52		

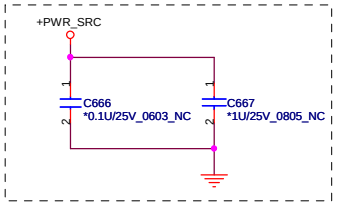

+PWR_SRC
C662
*0.1U/25V_0603_NC
C663
*1U/25V_0805_NC
Place these CAPs close to MOSFETs
+1.05V_VTT_PWR_SRC
PJP10
POWER_JP
PC62
2200P/50V
PC63
0.1U/25V_0603
PC133
10U/25V_1206
+1.05V_VTT
Fs=280K
TDC : 12.64A
OCP: 18.1A
PR73
10/0603
+5V_SUS
PD6
SDM10K45-7-F
RTBST
PC66
1U/6.3V
RTVDD
PC76
1U/6.3V
RTBST_1
PR88
1_0603
PR78
909K/F
PC73
0.1U/25V_0603
PQ33
4/26 change PN
AON6428L
PU4
RT8204C
RTTON
RTDH
RTLX
RTILIM
RTDL
RTFB
PR93
4.12K/F
SI modify
PL6
1.0UH 20% 28A(EPI1004H-1R0M-K01)
11.5*10
+1.05V_VTT_P
PR137
*3720_NC
+1.05V_VTT
[40] 1.05V_VTT_PWRGD
[22,29,43,46,48] RUN_ON
PR82
*short0402_NC
RTEN
PR81
*1M/F_NC
close to output Cap
SJ11
PC137
0.1U/25V_0603
PC138
10U/6.3V_0805
PC134
390U/ESR=10m
PR136
2.2_0805
PC142
1000P/50V_4
PQ34
FDMS7670
PR77
4.02K/F
PR76
10K/F
PC67
*100P/50V_NC
PR86
10
RTLEN
PR85
*1M/F_NC
PR75
*short0402_NC
PR74
*0_NC
VTT_SENSE [6]
+1.05V_VTT
Control IC: RT8204B
H/S MOSFET: FDMS8692(Fairchild), Qg=11nC, Rds(on)=14mohm, PD:2.5W
L/S MOSFET: FDMS7670(Fairchild), Qg=24nC, Rds(on)=5mohm, PD:2.5W
Inductor: 1.0UH 20% 28A(EPI1004H-1R0M-K01)(TTA), DCR=2.8mohm
Output Cap: 1*390U,2.5V(20%,105C,6.3*5.8),ESR=10mohm
+3.3V_ALW
RTLDRI
PC61
*10U/6.3V_0805_NC
PC60
0.1U/10V
PQ12
FDS8884
PR91
100/F
PC70
33P/50V
PC72
0.033U/10V
PC69
*39P/50V_NC
PR83
14K/F
RTLFB
PR84
10K/F
Vo=0.75(R1+R2)/R2
+1.8V_VCCP
PR72
*0.01_3720 only for Test_NC
+1.8V_RUN
PC58
*10U/6.3V_0805_NC
PC59
10U/6.3V_0805
PC57
0.1U/10V
+1.8V_RUN
TDC : 1.2A
+1.8V_RUN for CPU and PCH
Title
+1.05V_VTT(RT8204B)
Size
Document Number
UM7 Dis
Rev
2A
Date:
Monday, May 24, 2010
Sheet
44
of
52

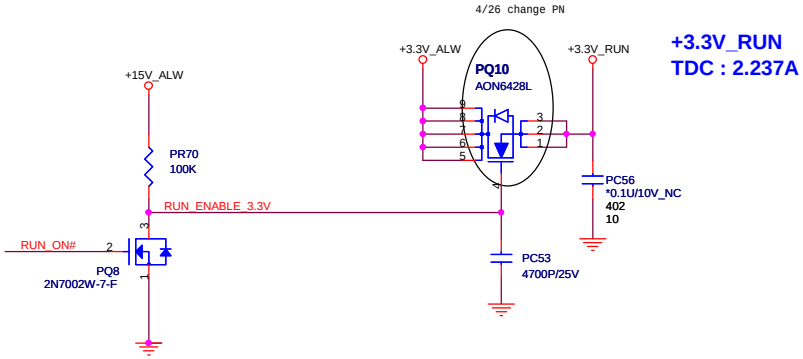

+VCC_CORE
Fs=300K
TDC : 48A
OCP : 64A
FDMS7692+FDMS0310S
FDMC7692+FDMS0310S
1201
11/19
11/19
PU2
ADP3212MNR2G
PQ5
PQ29
PQ30
PQ4
PQ28
PQ27
PL3
PL2
+VCC_CORE
Control IC: ADP3212
H/S MOSFET: FDMS8692(Fairchild), Qg=11nC, Rds(on)=14mohm, PD:2.5W
L/S MOSFET: FDMS7660(Fairchild), Qg=84nC, Rds(on)=2.7mohm, PD:2.5W
Inductor: 0.36UH +-20% 45A(MPO104F-R36H1)(Delta), DCR=0.89mohm
Output Cap: 4*330U 2V(20%,ESR=6,7343,H1.9)
NOTE:
PR192 is reserved for loop gain measurement purpose.
Place close to CPU socket
VCCSENSE & VSSSENSE pins
NOTE:
De-populate PR164 and PR165 when CPU is present
Place close to PC98
+VCC_CORE & +VCC_CORE_RTN pins
Place close to Phase1 output inductor.
Title
CPU core (ADP3212MNR2G)
Size
Document Number
UM7 Dis
Rev
2A
Date:
Monday, May 24, 2010
Sheet
45
of
52



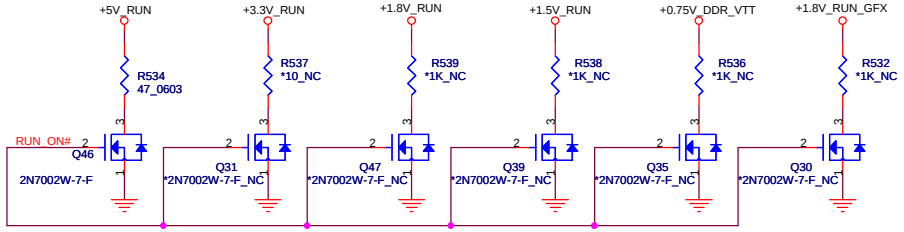


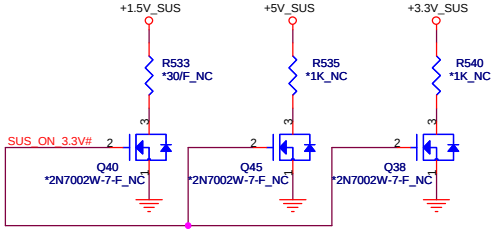






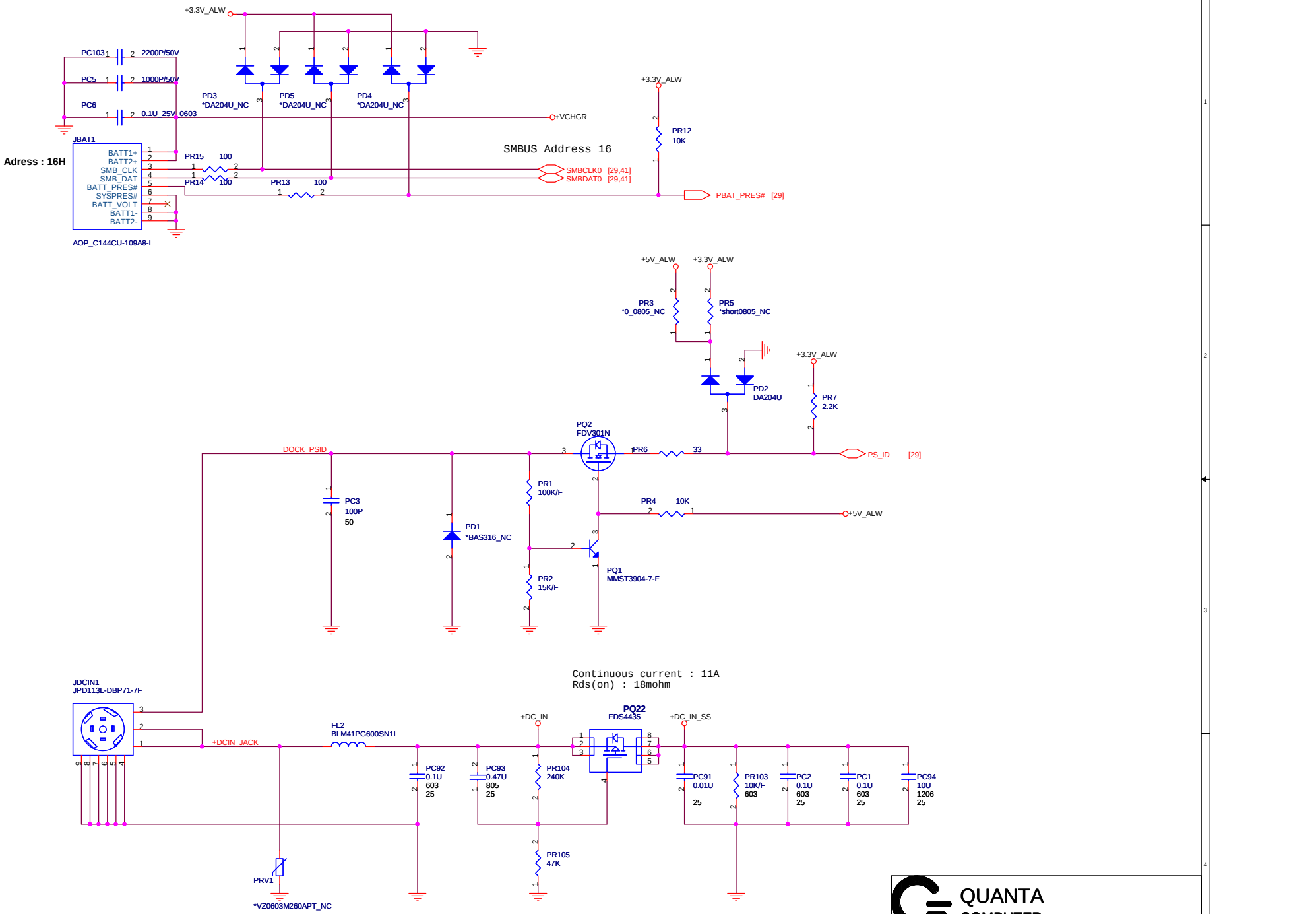
Reserve discharge path





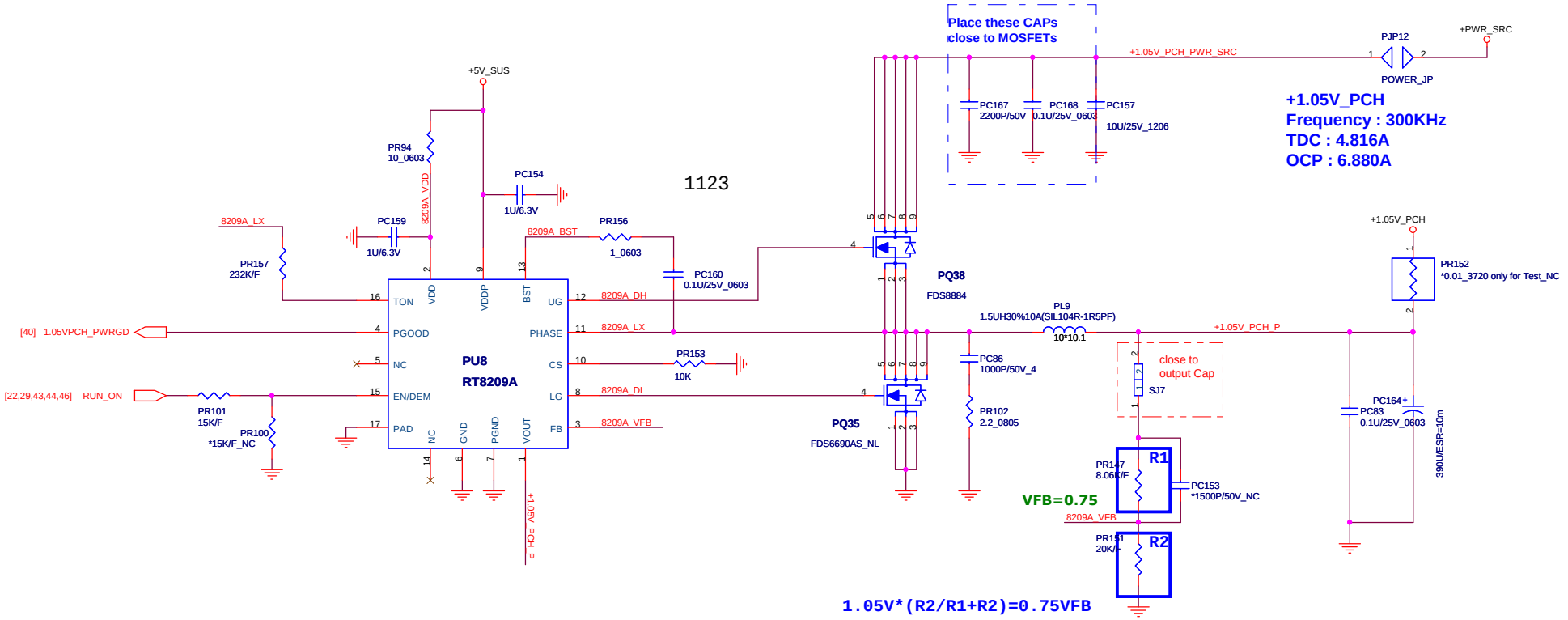
QUANTA COMPUTER

Title	RUN / SUS POWER SW	
Size	Document Number UM7 Dis	Rev 2A
Date: Monday, May 24, 2010	Sheet 46 of 52	

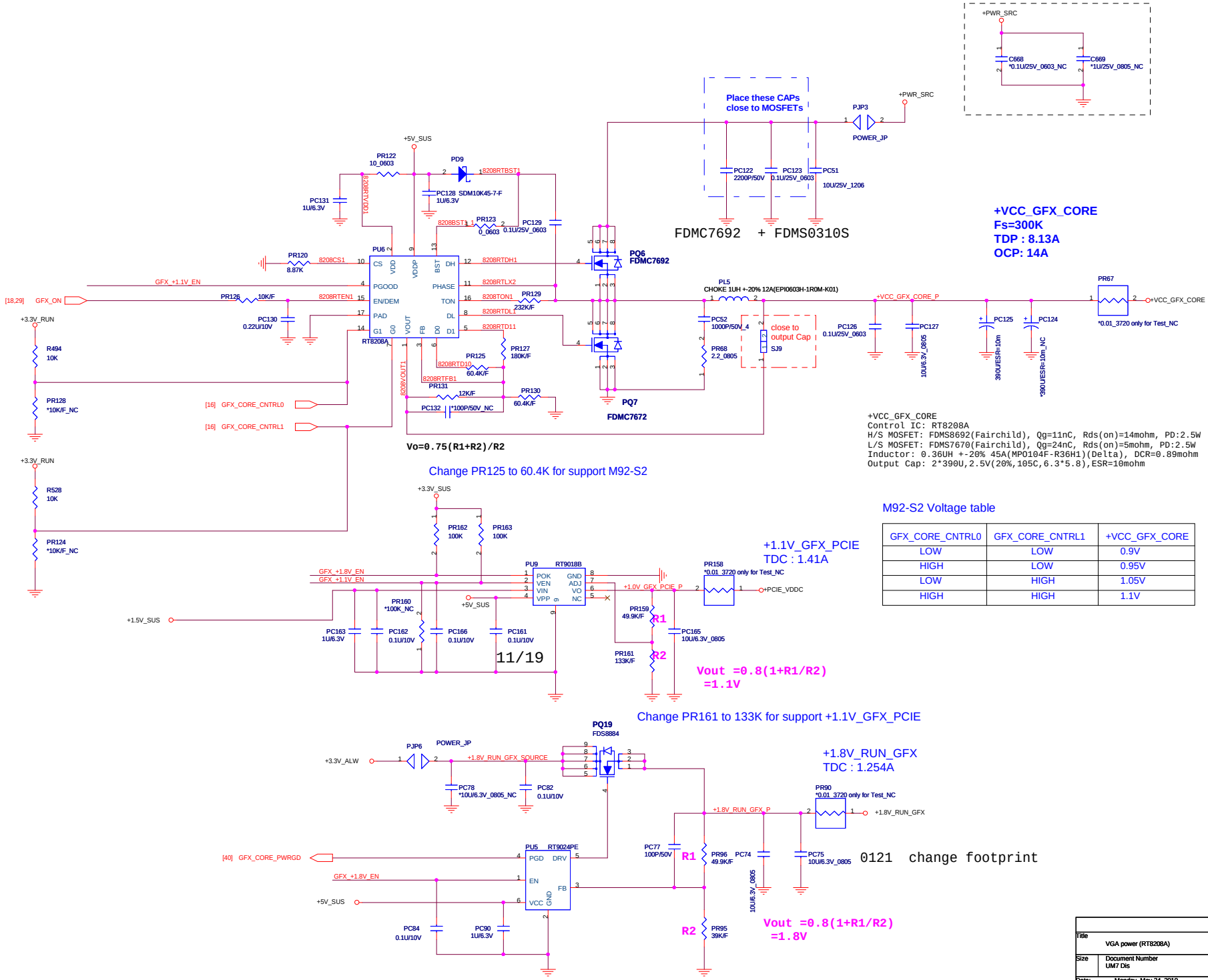


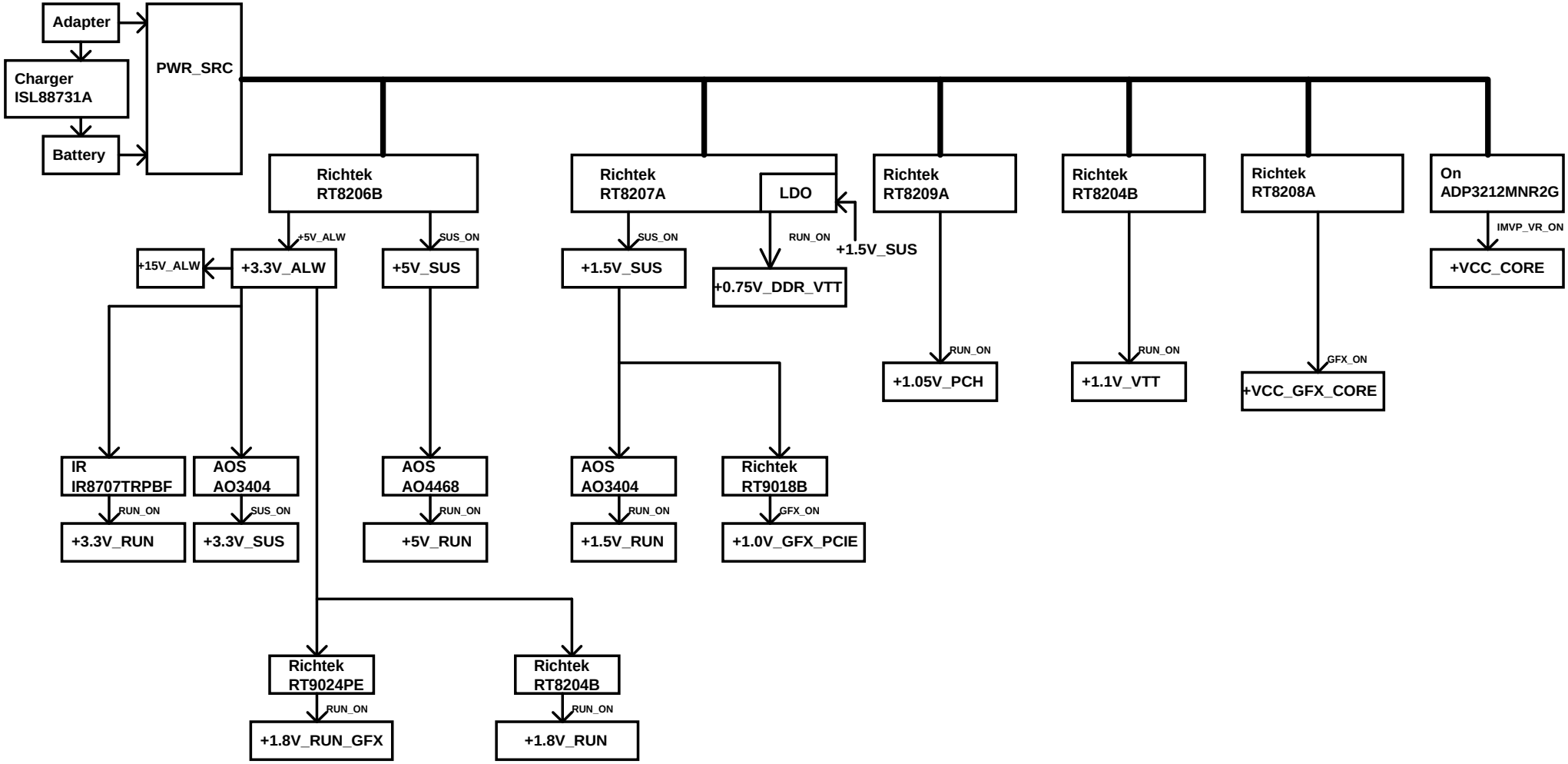
QUANTA COMPUTER

Title	DCIN,BATT CONNECTOR	
Size	Document Number UM7 Dis	Rev 2A
Date: Monday, May 24, 2010	Sheet 47 of 52	



Title	+1.05V_PCH(RT8209A)	
Size	Document Number UM7 Dis	Rev 2A
Date: Monday, May 24, 2010	Sheet 48 of 52	


+PWR_SRC
C668 *0.1U/25V_0603_NC
C669 *1U/25V_0805_NC
Place these CAPs close to MOSFETs
PJP3
POWER_JP
PC122 2200P/50V
PC123 0.1U/25V_0603
PC51 10U/25V_1206
FDMC7692 + FDMS0310S
+VCC_GFX_CORE
Fs=300K
TDP : 8.13A
OCP: 14A
+5V_SUS
PR122 10_0603
PD9
PC128 SDM10K45-7-F 1U/6.3V
PC131 1U/6.3V
PR123 0_0603
PC129 0.1U/25V_0603
PU6
RT8208A
PR120 8.87K
PR126 10K/F
PC130 0.22U/10V
PR129 232K/F
PR125 60.4K/F
PR127 180K/F
PR131 12K/F
PR130 60.4K/F
PC132 *100P/50V_NC
PQ6 FDMC7692
PQ7 FDMC7672
PL5 CHOKE 1UH +-20% 12A(EPI0603H-1R0M-K01)
PC52 1000P/50V_4
close to output Cap
SJ9
PR68 2.2_0805
PC126 0.1U/25V_0603
PC127 10U/6.3V_0805
PC125 390U/ESR=10m
PC124 *390U/ESR=10m_NC
PR67 *0.01_3720 only for Test_NC
+VCC_GFX_CORE
GFX_+1.1V_EN
[18,29] GFX_ON
+3.3V_RUN
R494 10K
PR128 *10K/F_NC
[16] GFX_CORE_CNTRL0
[16] GFX_CORE_CNTRL1
Vo=0.75(R1+R2)/R2
+VCC_GFX_CORE
Control IC: RT8208A
H/S MOSFET: FDMS8692(Fairchild), Qg=11nC, Rds(on)=14mohm, PD:2.5W
L/S MOSFET: FDMS7670(Fairchild), Qg=24nC, Rds(on)=5mohm, PD:2.5W
Inductor: 0.36UH +-20% 45A(MPO104F-R36H1)(Delta), DCR=0.89mohm
Output Cap: 2*390U,2.5V(20%,105C,6.3*5.8),ESR=10mohm
Change PR125 to 60.4K for support M92-S2
M92-S2 Voltage table
GFX_CORE_CNTRL0 | GFX_CORE_CNTRL1 | +VCC_GFX_CORE
LOW | LOW | 0.9V
HIGH | LOW | 0.95V
LOW | HIGH | 1.05V
HIGH | HIGH | 1.1V
+3.3V_SUS
PR162 100K
PR163 100K
PU9 RT9018B
GFX_+1.8V_EN
GFX_+1.1V_EN
+1.5V_SUS
PR160 *100K_NC
PC163 1U/6.3V
PC162 0.1U/10V
PC166 0.1U/10V
PC161 0.1U/10V
+1.0V_GFX_PCIE_P
PR158 *0.01_3720 only for Test_NC
+PCIE_VDDC
PR159 49.9K/F
PC165 10U/6.3V_0805
PR161 133K/F
R1
R2
11/19
+1.1V_GFX_PCIE
TDC : 1.41A
Vout =0.8(1+R1/R2)
=1.1V
Change PR161 to 133K for support +1.1V_GFX_PCIE
PQ19 FDS8884
PJP6 POWER_JP
+3.3V_ALW
+1.8V_RUN_GFX_SOURCE
PC78 *10U/6.3V_0805_NC
PC82 0.1U/10V
PU5 RT9024PE
[40] GFX_CORE_PWRGD
PC84 0.1U/10V
PC90 1U/6.3V
PC77 100P/50V
PR96 49.9K/F
PC74
PC75 10U/6.3V_0805
+1.8V_RUN_GFX_P
PR90 *0.01_3720 only for Test_NC
+1.8V_RUN_GFX
+1.8V_RUN_GFX
TDC : 1.254A
0121 change footprint
PR95 39K/F
Vout =0.8(1+R1/R2)
=1.8V
Title
VGA power (RT8208A)
Size
Document Number
UM7 Dis
Rev
2A
Date: Monday, May 24, 2010
Sheet 49 of 52



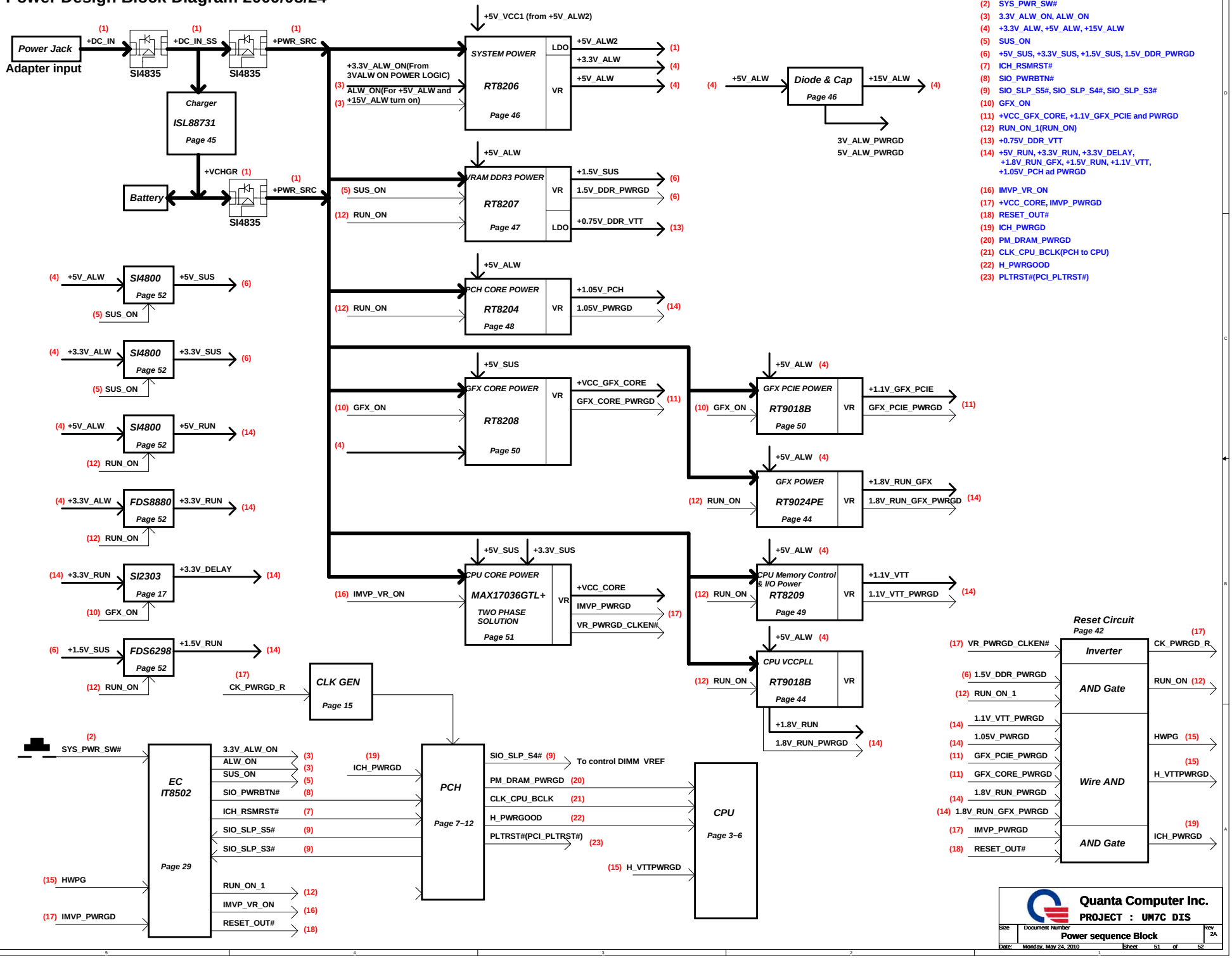
Quanta Computer Inc.

PROJECT : UM7C DIS

Size	Document Number	Rev
	Schematic Block Diagram1	2A

Date: Monday, May 24, 2010 Sheet 50 of 52

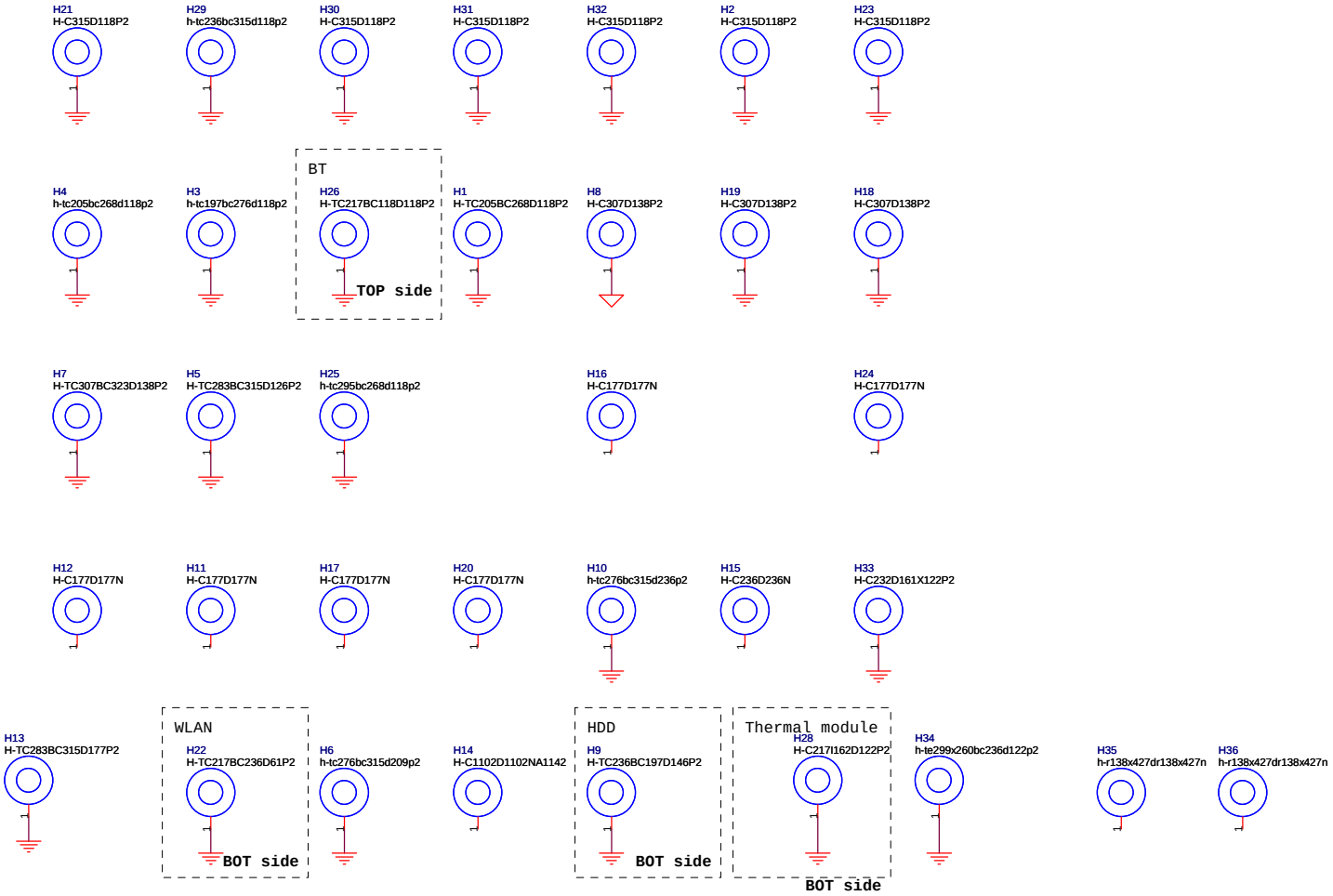
Power Design Block Diagram 2009/08/24



(1) AC : DC_IN -> DC_IN_SS -> +PWR_SRC
Bat : +VCHGR -> +PWR_SRC,+5V_ALW2,
(2) SYS_PWR_SW#
(3) 3.3V_ALW_ON, ALW_ON
(4) +3.3V_ALW, +5V_ALW, +15V_ALW
(5) SUS_ON
(6) +5V_SUS, +3.3V_SUS, +1.5V_SUS, 1.5V_DDR_PWRGD
(7) ICH_RSMRST#
(8) SIO_PWRBTN#
(9) SIO_SLP_S5#, SIO_SLP_S4#, SIO_SLP_S3#
(10) GFX_ON
(11) +VCC_GFX_CORE, +1.1V_GFX_PCIE and PWRGD
(12) RUN_ON_1(RUN_ON)
(13) +0.75V_DDR_VTT
(14) +5V_RUN, +3.3V_RUN, +3.3V_DELAY, +1.8V_RUN_GFX, +1.5V_RUN, +1.1V_VTT, +1.05V_PCH ad PWRGD
(16) IMVP_VR_ON
(17) +VCC_CORE, IMVP_PWRGD
(18) RESET_OUT#
(19) ICH_PWRGD
(20) PM_DRAM_PWRGD
(21) CLK_CPU_BCLK(PCH to CPU)
(22) H_PWRGOOD
(23) PLTRST#(PCI_PLTRST#)

Quanta Computer Inc.
PROJECT : UM7C DIS

Size	Document Number	Rev
	Power sequence Block	2A
Date: Monday, May 24, 2010	Sheet 51 of 52	



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PROJECT : UM7C DIS

Size	Document Number	Rev
	SCREW	2A
Date: Monday, May 24, 2010	Sheet 52 of 52	