DM4/RB4 Intel Huron River Platform with UMA

01

PCB STACK UP

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

POWER

- SYSTEM RESET CIRCUIT PG 7
- BATT CHARGER PG 41
- AC/BATT CONNECTOR PG 41
- RUN POWER SW 3VSUS, 5VSUS, 3V_S5, 5V_S5 +3V, +5V PG 42

POWER

- REGULATOR +1.05V PG 39
- REGULATOR 1.5VSUS, 0.75VSMDDR_VTERM,SMDDR_VREF PG 36
- REGULATOR +1.8V,+0.85V PG 39,38
- CPU Core VCC_CORE PG 35
- DC/DC 3.3PCU, 5VPCU, 15VPCU PG 40
- VGA Core UMA PG 35

FAN / THERMAL G990P11U PG 30

Sandy Bridge

(rPGA 989)

(37.5mm X 37.5mm)

PG 3,4,5,6

DDR3 - SODIMM0 H=5.2 PG 13

DDR3 - SODIMM1 H=9.2 PG 14

Dual Channel DDR3 1333MHz 1.5V

LVDS → Panel Connector PG 15

DP → Dispaly Port Connector PG 16

CRT → CRT Switch SN74CBT3257CPWR PG 17 → CRT Connector(System) PG 17 / CRT Connector(Dock) PG 33

32.768KHz FDI DMI X 4

PCH

Cougar Point

(25mm X 25mm)

PG 7,8,9,10,11,12

SATA-ODD PG 21 — SATA

SATA-HDD PG 21 — SATA

AUDIO ALC269 PG 18 — IHDA

- Audio SPK conn PG 18
- Audio Combo Jacks PG 18
- Audio HP/MIC (Dock) PG 33

Camera + D-MIC PG 15 — USB2.0

FLASH 4Mbyts PG 34 — SPI

Bluetooth PG 28 — USB2.0

Card Reader /Finger Print /RF CONN. PG 23 — PCIEx1, USB2.0

SATA → eSATA(Dock) PG 33 → eSATA/USB Combo PG 22

USB2.0 x 1 → Re-Driver PG 22 → eSATA/USB Combo PG 22

USB2.0 x 3 → USB conn x 3 PG 22,23

PCIEx1 → LAN RTL8111DL PG 20 (25MHz) → LAN Switch PI3L500-AZFEX PG 19 → RJ45/Magnetics PG 20

LAN (DOCK) PG 33

PCIEx1, USB2.0 → EXPRESS-CARD R5538 PG 26

PCIEx1, USB2.0 → MINI-CARD WLAN/WiMAX PG 25

PCIEX1, USB2.0, mSATA → MINI-CARD WWAN/mSATA PG 24

32.768KHz

LPC → KBC ITE8502 PG 27

LPC → Discrete TPM PG 31

SPI, PS/2

- FLASH 2Mbyts PG 27
- Touchpad PG 29
- Keyboard PG 29
- Accelerometer (APS) PG 31

Dock P 33

- USB I/F
- VGA I/F
- Audio I/F
- eSATA I/F
- RJ45
- Dock Ctrl
- DVI
- Display Port(DP0,DP1)

AC-DC, Battery → DC-DC PG 41

Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	System Block Diagram	1A

Date: Friday, December 24, 2010 Sheet 1 of 53

Table of Contents

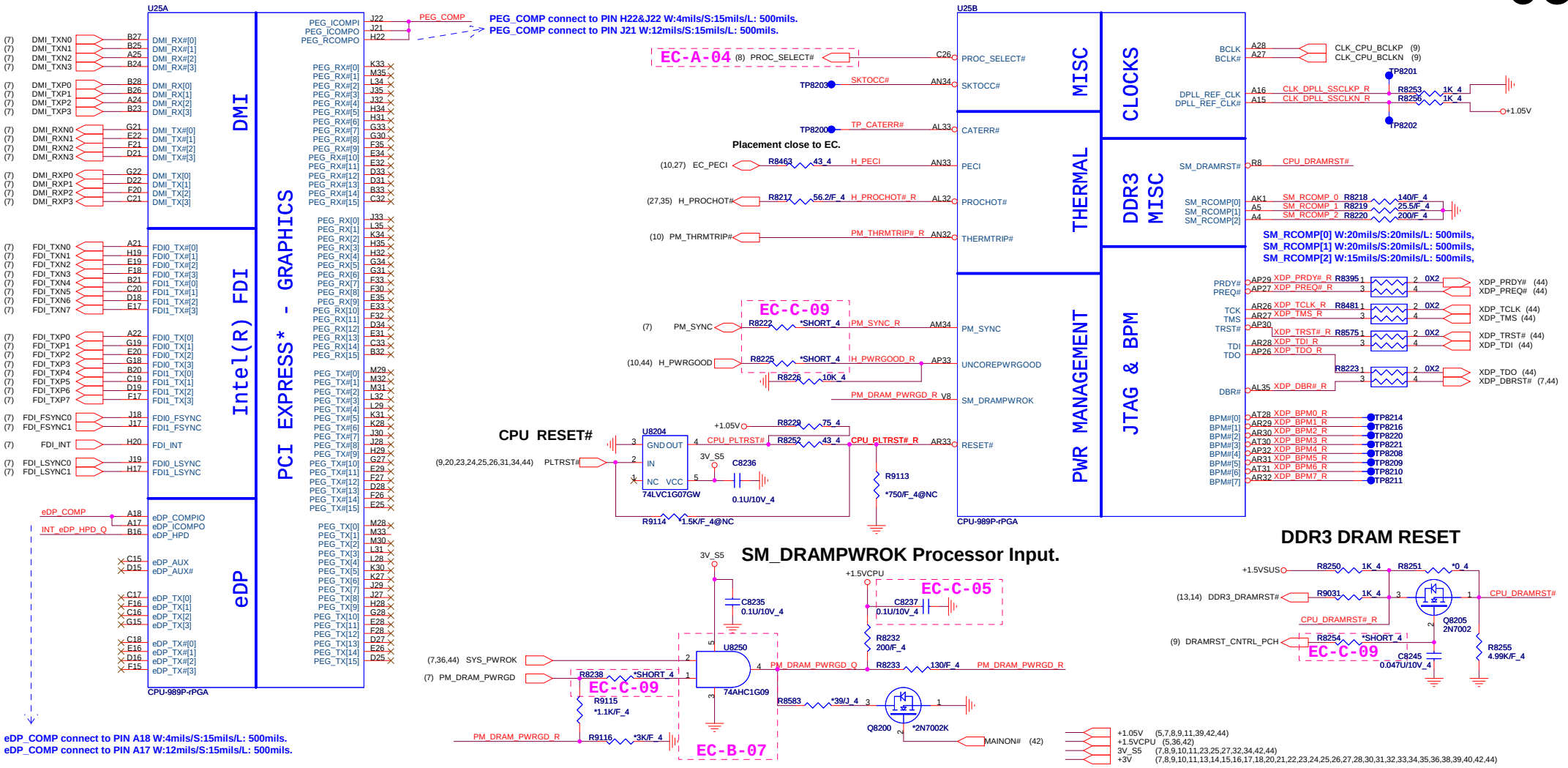
Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
VIN	10V~+20V	15,35,36,38,39,40,41,42	MAIN POWER		S0~S5
+3V_RTC	+3.0V~+3.3V	7,8,11,27	RTC		S0~S5
3VPCU	+3.3V	8,13,14,15,20,27,32,33,39,40,41,42,44	IT8518/19 POWER	3V5V_EN	S0~S5
5VPCU	+5V	13,21,27,36,38,39,40,41,42	DC/DC POWER IC SOURCE	3V5V_EN	S0~S5
+15V	+15V	15,31,36,40,42	LARGE POWER	3V5V_EN	S0~S5
LANVCC	+3.3V	19,20,33,42	LAN POWER	LAN_ON	
5V_S5	+5V	11,22,23,42	PCH SUS POWER	S5_ON	S0~S3
3V_S5	+3.3V	3,7,8,9,10,11,22,23,25,27,34,42	Sys Management,PCH Resume Well, USB,WLAN,WiMAX POWER	S5_ON	S0~S3
5VSUS	+5V	15,35,42	SLP_S4# CTRLD POWER	SUSON	S0~S3
3VSUS	+3.3V	23,26,27,42	SLP_S4# CTRLD POWER	SUSON	S0~S3
+1.5VSUS	+1.5V	3,11,13,14,36,42	DDR3 SODIMM POWER	SUSON	S0~S3
0.75VSMDDR_VTERM	+0.75V	13,14,36,42	DDR3 SODIMM REFERENCE POWER	MAINON	S0
+5V	+5V	7,8,11,16,17,18,21,27,29,30,42	SLP_S3# CTRLD POWER	MAINON	S0
+3V	+3.3V	7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24 25,26,27,28,30,31,32,33,34,35,36,38,39,40 42,44	SLP_S3# CTRLD POWER	MAINON	S0
+VCC_GFX		5,35,42	VGA CORE POWER	MAINON	S0
+VCCSA	+0.8V~+0.9V	5,38,42	Sandy Bridge Power	MAINON	S0
+1.8V	+1.8V	5,8,11,39,42	LVDS,NVM POWER	MAINON	S0
+1.05V	+1.05V	3,5,7,8,9,11,39,42	Sandy Bridge VTT POWER/PCH CORE POWER	MAINON	S0
+VCC_CORE		5,35,42	CPU CORE POWER	VRON	S0
LCDVCC	+3.3V	15	LCD Power	ENVDD	S0
+5V_ODD	+5V	21	ODD Power	ODD_5V_ON	S0
+5V_HDD	+5V	21	HDD Power	MAINON#	S0
BAT-V	+10V~+17V	41	MAIN BATTERY	CHG_PBATT	S0~S5
+1.5VCPU	+1.5V	3,5,36,42	DDR3 1.5V Rails	PS_S3CNTRL	S0

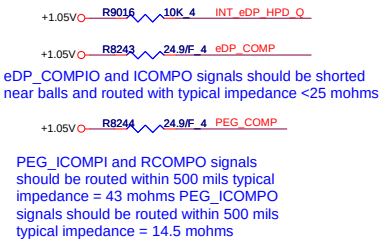
Sandy Bridge Processor (DMI,PEG,FDI)

Sandy Bridge Processor (CLK,MISC,JTAG)

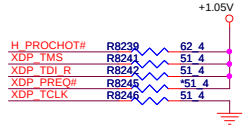
03



DP & PEG Compensation



Processor pull-up (CPU)

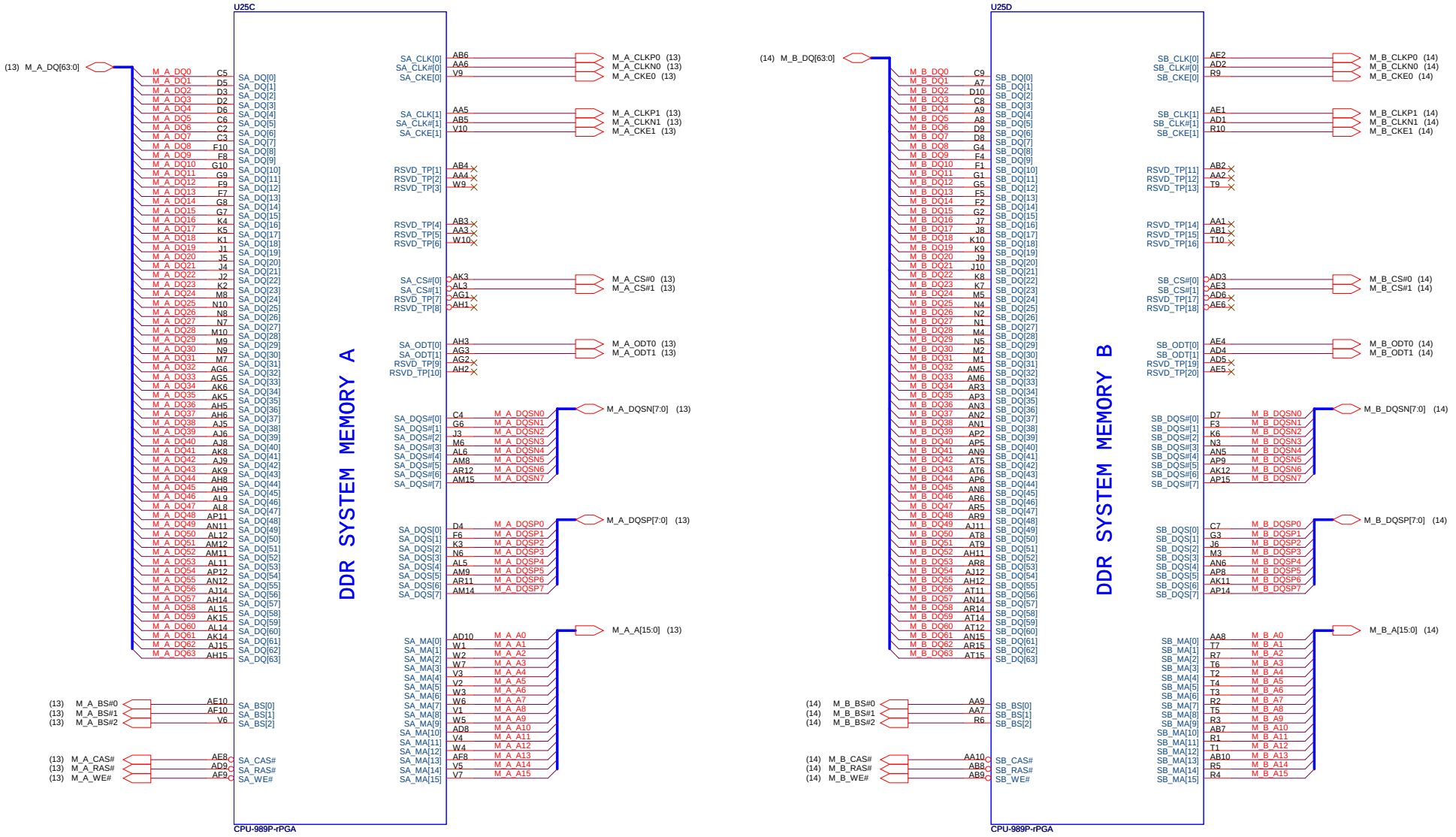


Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	SNB 1/4 (PCIE&DMI&FDI)	1A
Date: Friday, December 24, 2010	Sheet 3 of 53	

Sandy Bridge Processor (DDR3)



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PROJECT : DM4/RB4

Size	Document Number	Rev
	SNB 2/4 (DDR3 I/F)	1A

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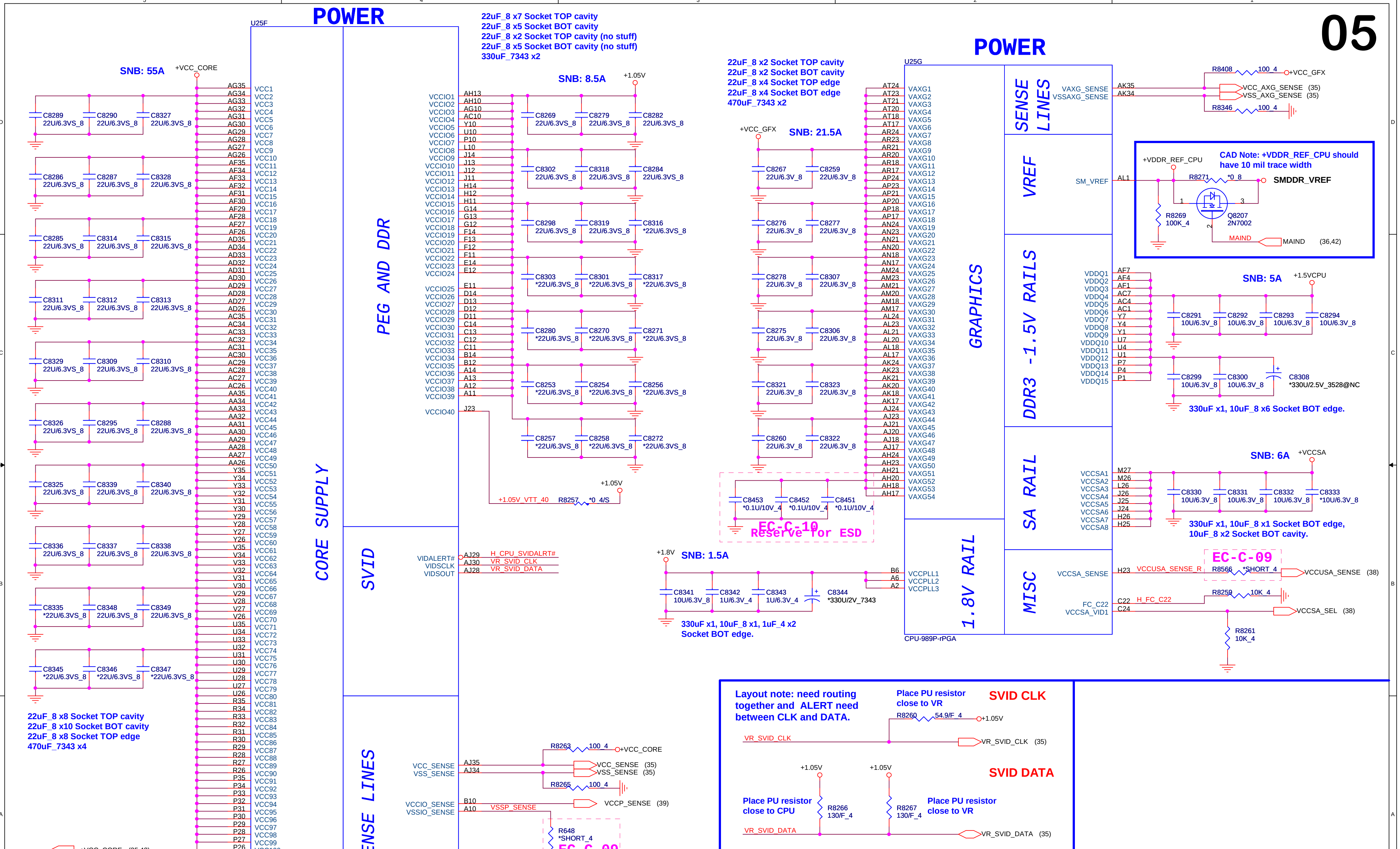

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PROJECT : DM4/RB4

Size	Document Number	Rev
	SNB 3/4 (POWER)	1A

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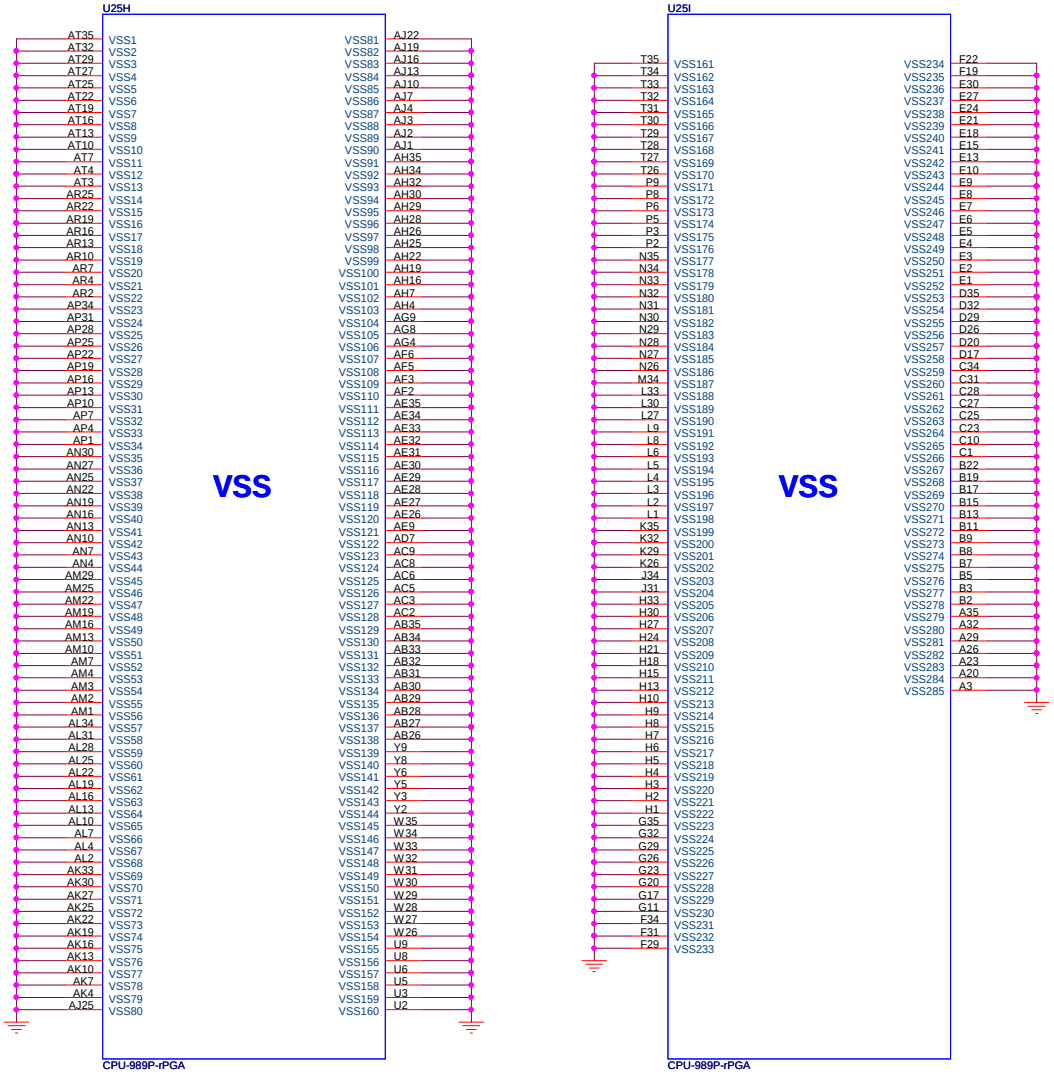
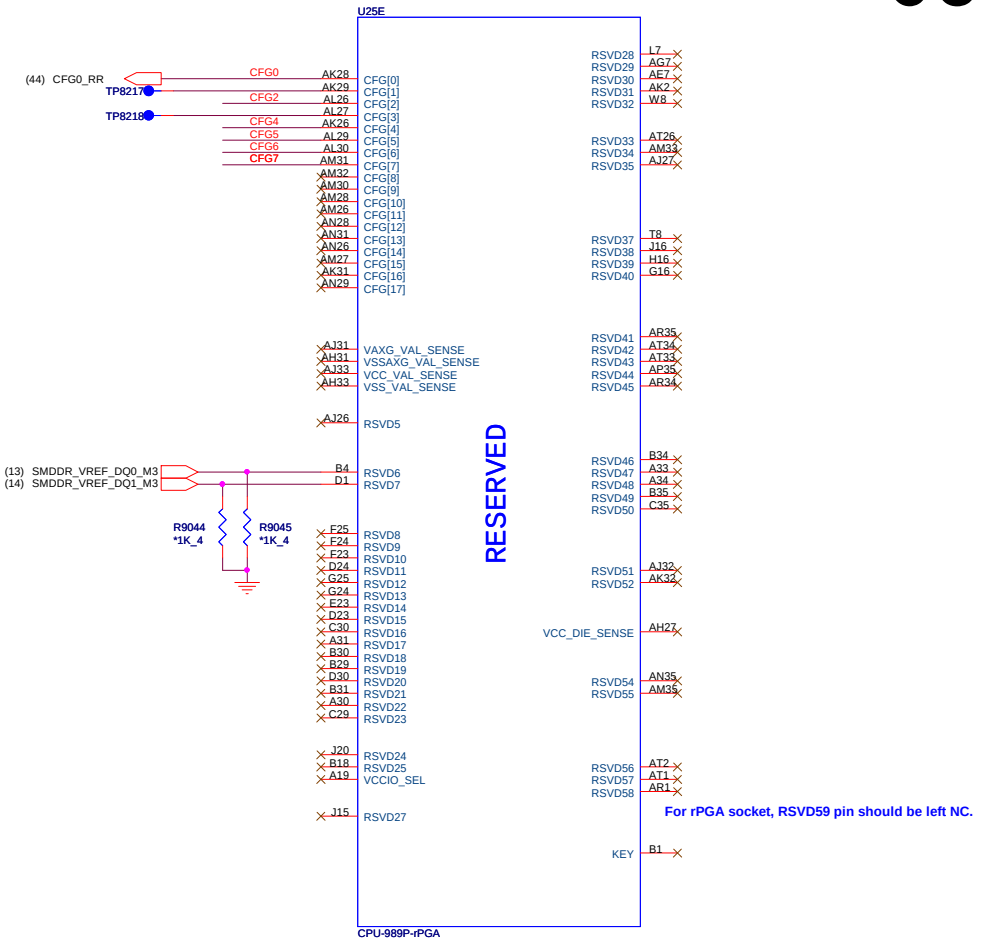
Sandy Bridge Processor (GND)



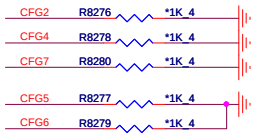
Sandy Bridge Processor (RESERVED, CFG)



Processor Strapping

The CFG signals have a default value of '1' if not terminated on the board.

	1	0
CFG2 (PEG Static Lane Reversal)	Normal Operation	Lane Reversed **(Default)**
CFG4 (DP Presence Strap)	**(Default)** Disable; No physical DP attached to eDP	Enable; An ext DP device is connected to eDP
CFG7 (PEG Defer Training)	**(Default)** PEG train immediately following xxRESETB de assertion	PEG wait for BIOS training



11(Default)

CFG[6:5] (PCIE Port Bifurcation Straps)

11: (Default) x16 - Device 1 functions 1 and 2 disabled
10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled
01: Reserved - (Device 1 function 1 disabled ; function 2 enabled)
00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	SNB 4/4 (GND)	1A

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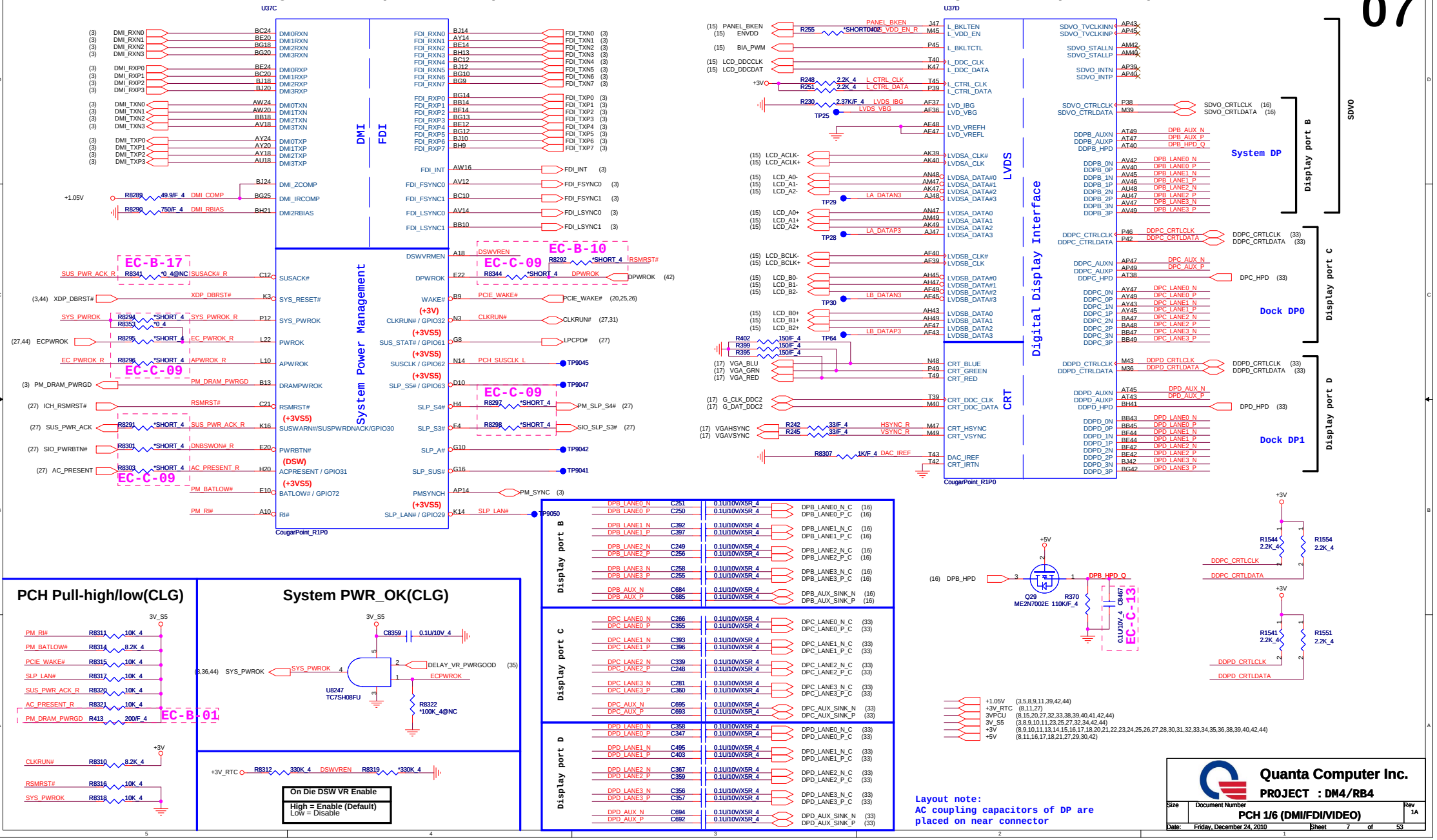
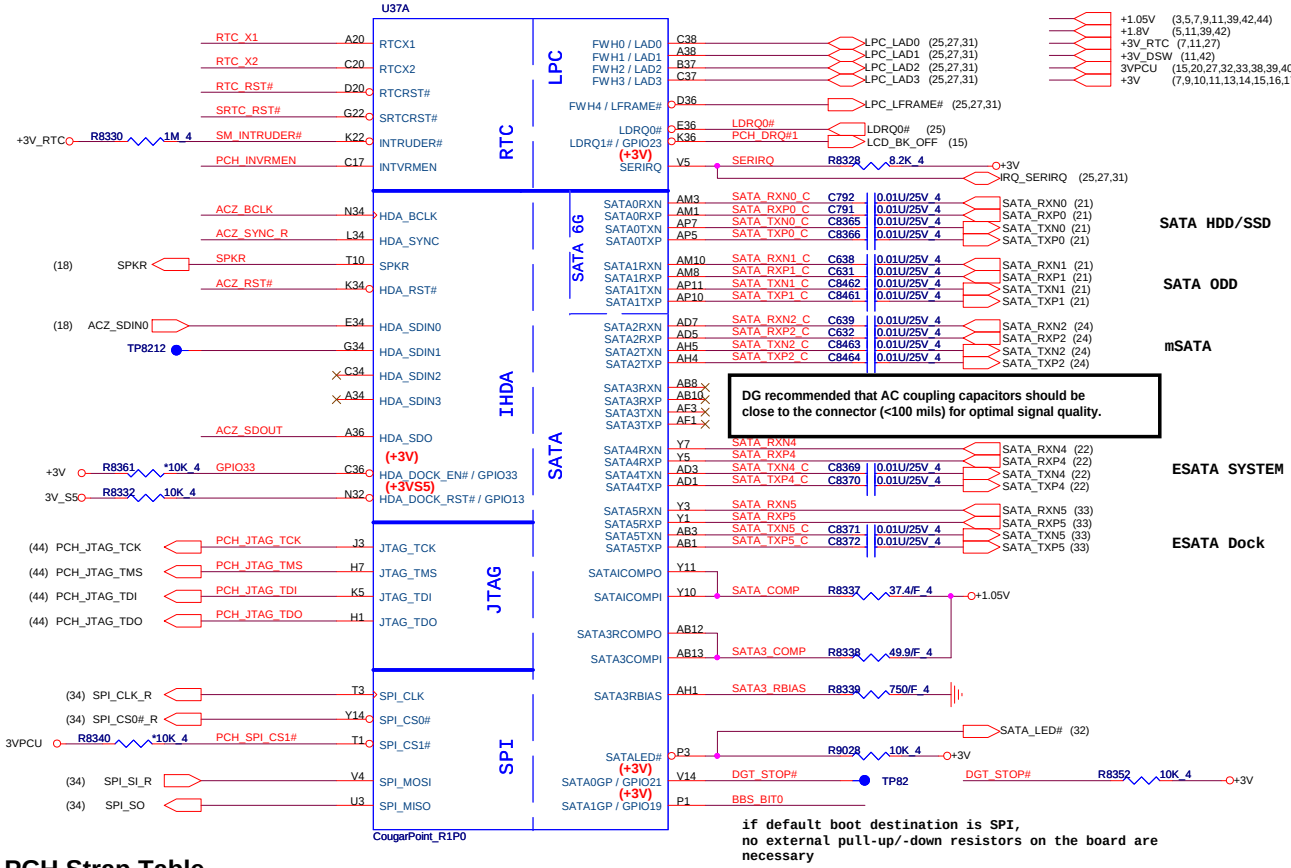
Cougar Point (DMI,FDI,PM)

Cougar Point (LVDS,DDI)

07



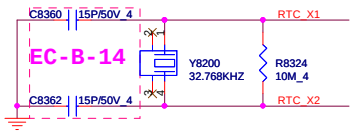
Cougar Point (HDA,JTAG,SATA)



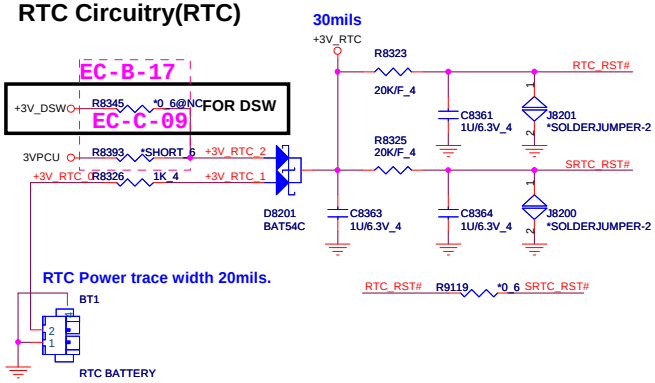
PCH Strap Table

Pin Name	Strap description	Sampled	Configuration	Circuit
SPKR Different from Calpella	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	SPKR R8349 *1K_4 +3V
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)	
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up	PCH_INVRMEN R8351 330K_4 +3V_RTC
HDA_SDO	Flash Descriptor Security Only for Interposer	PWROK	0 = effective(Default: weak pull down) 1 = Override	ACZ_SDOUT R8354 *1K_4 3V_S5
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	GNT1# 1 0 / GNT0# 1 0 / Boot Location SPI LPC	[Need external pull-down for LPC BIOS] R8358 *1K_4 BBS_BIT0 R8362 *1K_4 BBS_BIT1 (9)
GPIO19 Different from Calpella	Boot BIOS Selection 0 [bit-0]	PWROK		
GNT2# / GPIO53	ESI strap (Server only)	PWROK	Should not be pull-down (weak pull-up 20K)	USE GPIO PIN
DF_TVS	DMI Termination voltage	PWROK	weak pull-down 20kohm	+1.8V R8360 2.2K_4 EC-A-04 (3) PROC_SELECT# R390 1K_4 DF_TVS (10) N.A at CPT EDS 0.7
HDA_SYNC	**On-Die PLL VR Voltage Select**	**RSMRST**	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V	3V_S5 R8357 1K_4 ACZ_SYNC_R EC-A-10
GPIO15			(10)	GPIO15 R8350 1K_4 3V_S5
GPIO28 Different from Calpella	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)	R8366 *1K_4 PLL_ODVR_EN (10)
DSWVREN	0: disable 1: enable			

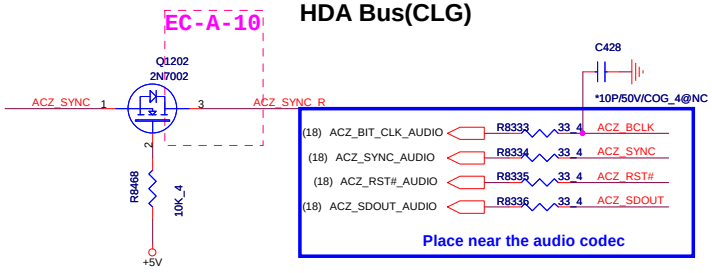
RTC Clock 32.768KHz



RTC Circuitry(RTC)



HDA Bus(CLG)



Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	PCH 2/6 (SATA/HDA/SPI)	1A
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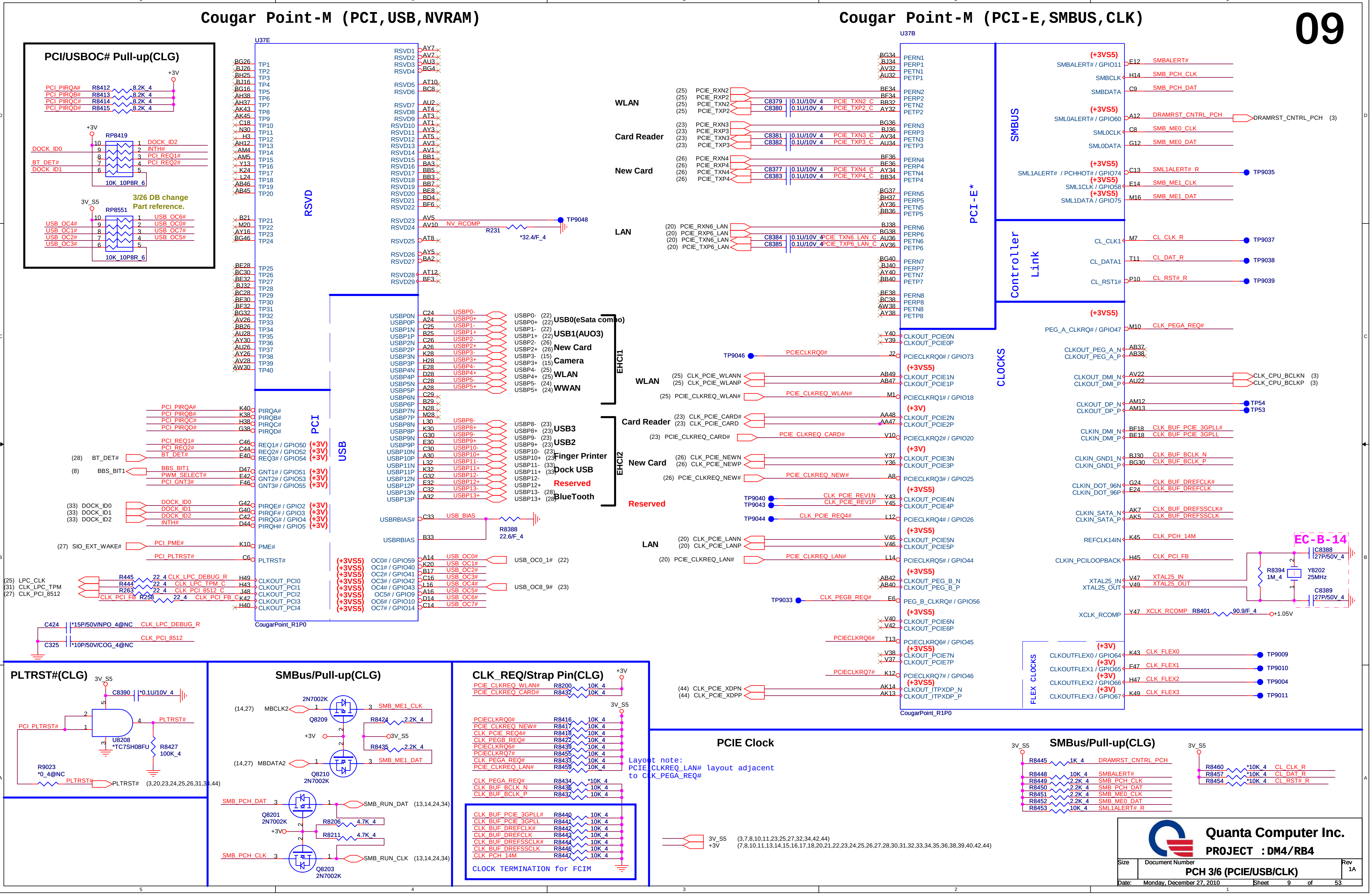

09
Cougar Point-M (PCI,USB,NVRAM)
Cougar Point-M (PCI-E,SMBUS,CLK)
PCI/USBOC# Pull-up(CLG)
3/26 DB change
Part reference.
U37E
U37B
RSVD
PCI
USB
PCI-E*
SMBUS
Controller Link
CLOCKS
FLEX CLOCKS
EHCI1
EHCI2
USB0(eSata combo)
USB1(AUO3)
New Card
Camera
WLAN
WWAN
USB3
USB2
Finger Printer
Dock USB
Reserved
BlueTooth
Card Reader
LAN
CougarPoint_R1P0
EC-B-14
PLTRST#(CLG)
SMBus/Pull-up(CLG)
CLK_REQ/Strap Pin(CLG)
CLOCK TERMINATION for FCIM
PCIE Clock
Layout note:
PCIE_CLKREQ_LAN# layout adjacent
to CLK_PEGA_REQ#
Quanta Computer Inc.
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Rev
1A
PCH 3/6 (PCIE/USB/CLK)
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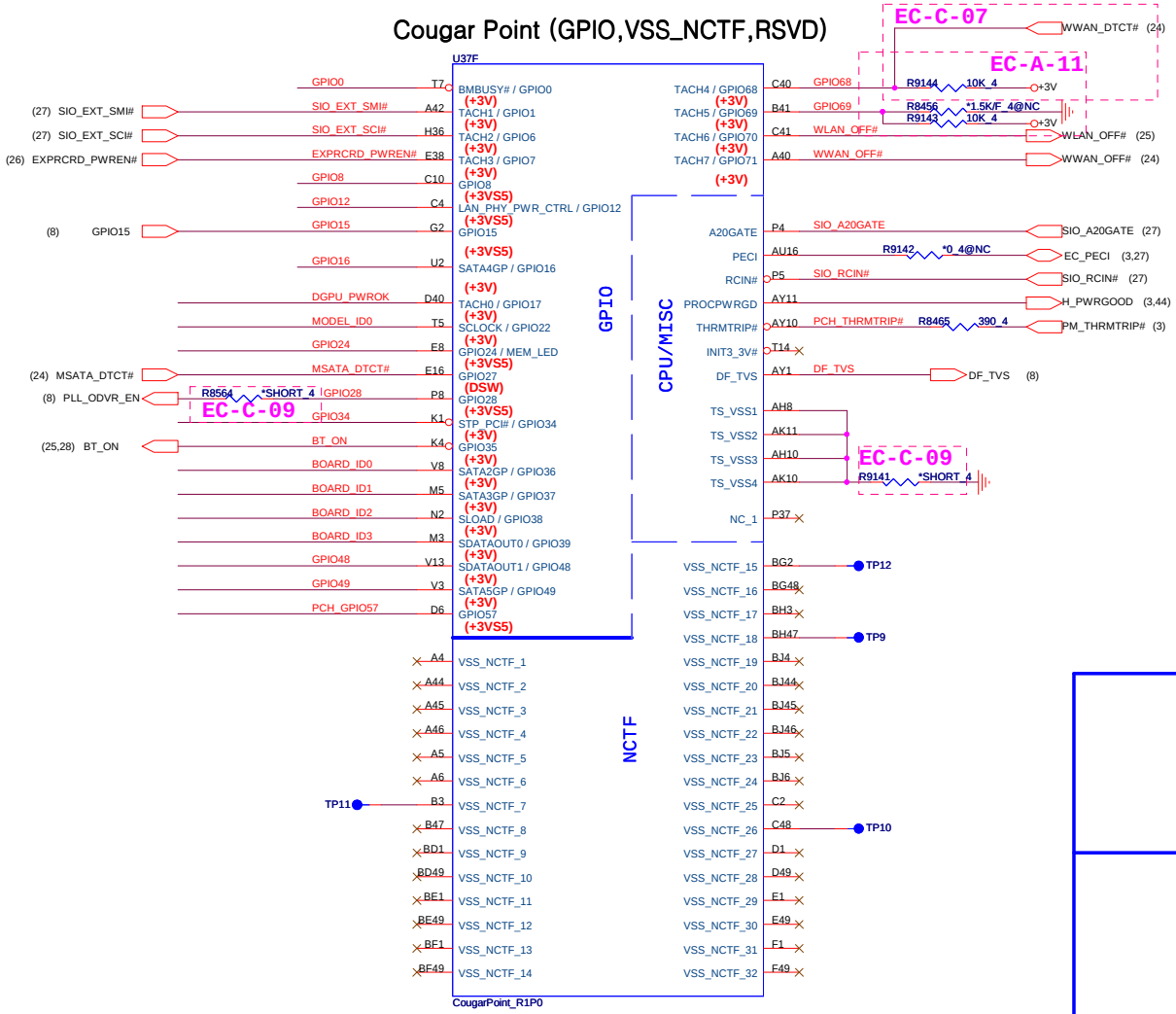
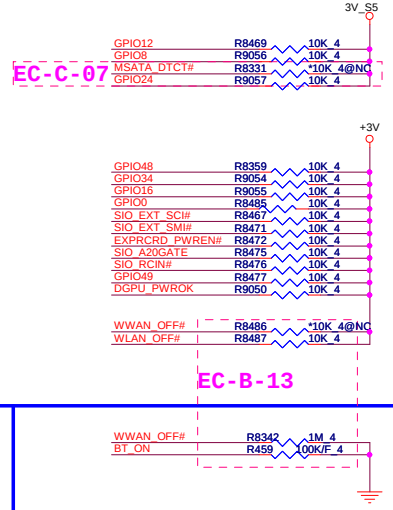
Cougar Point (GPIO,VSS_NCTF,RSVD)





3V_S5 (3,7,8,9,11,23,25,27,32,34,42,44)
+3V (7,8,9,11,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44)

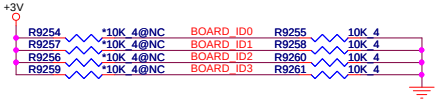
BOARD ID SETTING

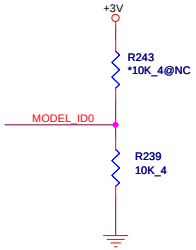
Board ID For Function	ID2 GPIO38	ID1 GPIO37	ID0 GPIO36
SDV	0	0	0
SIV	0	0	1
SIT	0	1	0
SVT	0	1	1
SOVP	1	0	0

EC-C-01

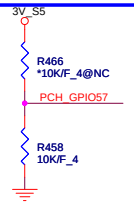
	BOARD_ID3 GPIO39
W/ Dock	0
W/o Dock	1

Model ID	MODEL_ID0
14"	0
15"	1





TPM physical presence	
PCH_GPIO57	Low: Default



Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	PCH 4/6 (GPIO/MISC)	1A

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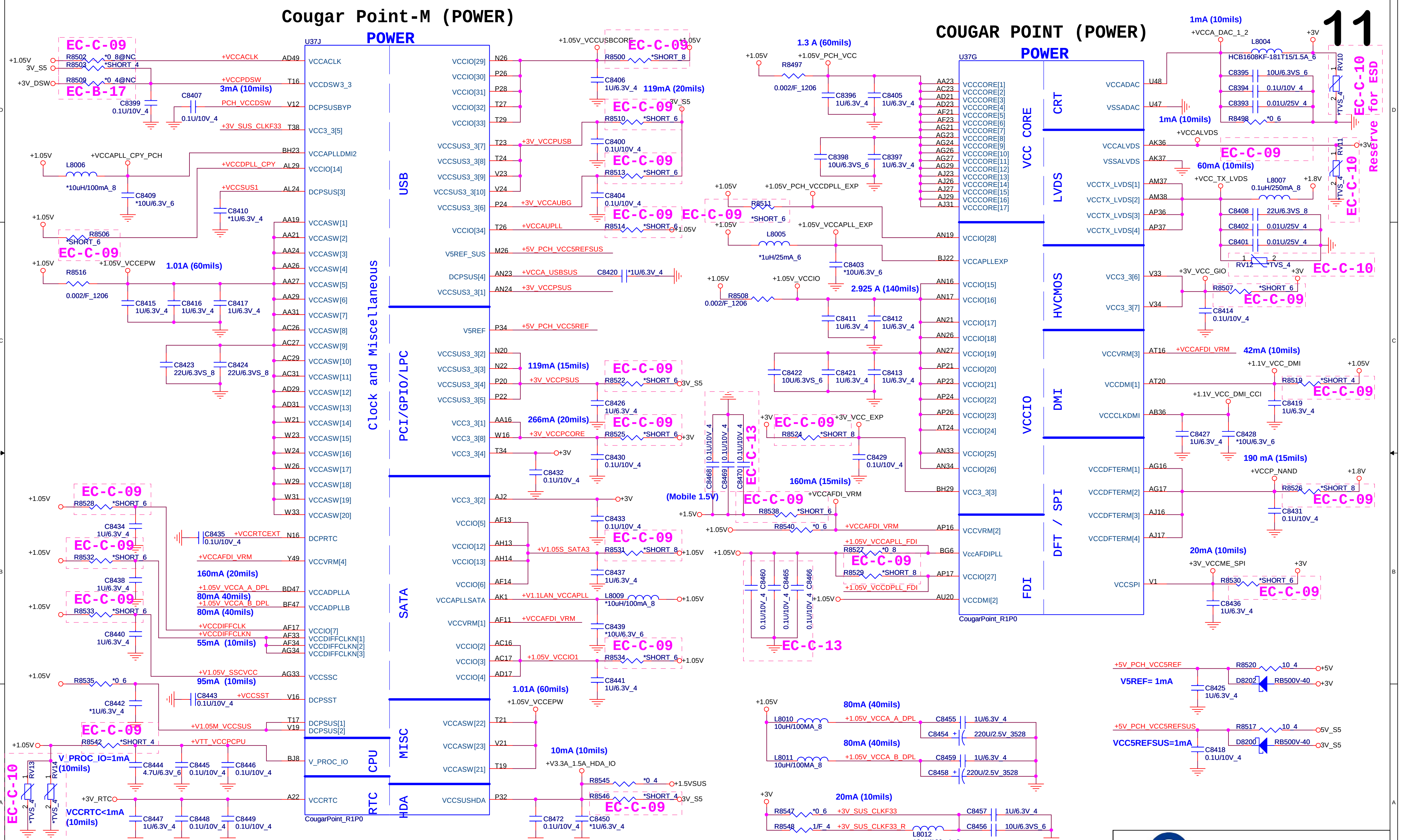
Cougar Point-M (POWER)



Cougar Point-M (POWER)
U37J
POWER
COUGAR POINT (POWER)
U37G
POWER
USB
Clock and Miscellaneous
PCI/GPIO/LPC
SATA
MISC
CPU
RTC
HDA
VCC CORE
CRT
LVDS
HVCMOS
VCCIO
DMI
DFT / SPI
FDI
CougarPoint_R1P0
1.3 A (60mils)
1mA (10mils)
3mA (10mils)
119mA (20mils)
60mA (10mils)
1.01A (60mils)
2.925 A (140mils)
119mA (15mils)
266mA (20mils)
42mA (10mils)
190 mA (15mils)
160mA (15mils)
160mA (20mils)
80mA 40mils)
80mA (40mils)
55mA (10mils)
95mA (10mils)
20mA (10mils)
10mA (10mils)
V_PROC_IO=1mA (10mils)
VCCRTC<1mA (10mils)
V5REF= 1mA
VCC5REFSUS=1mA
(Mobile 1.5V)
EC-C-09
EC-B-17
EC-C-10
EC-C-13
EC-C-10 EC-C-10 for ESD Reserve
+1.05V (3,5,7,8,9,39,42,44)
+1.5VSUS (3,13,14,17,36,42)
+1.8V (5,8,39,42)
+3V_RTC (7,8,27)
+3V_DSW (8,42)
3V_S5 (3,7,8,9,10,23,25,27,32,34,42,44)
+3V (7,8,9,10,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44)
+5VS5
+5V (7,8,16,17,18,21,27,29,30,42)

Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	PCH 5/6 (POWER)	1A

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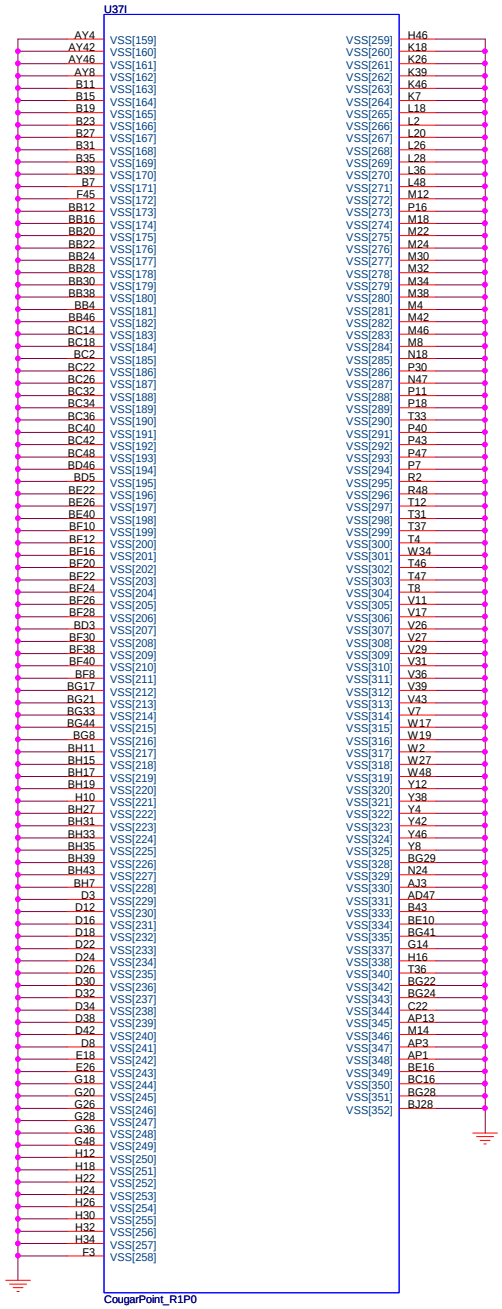
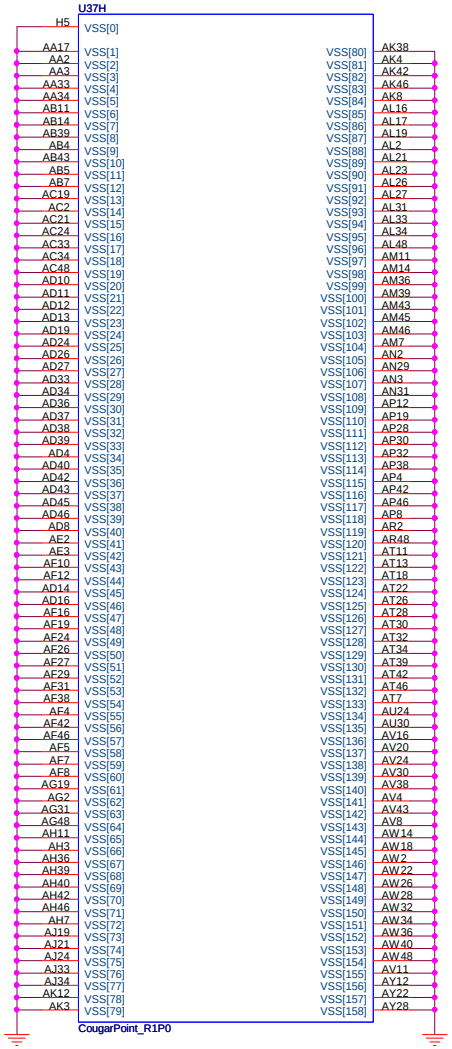
IBEX PEAK-M (GND)



IBEX PEAK-M (GND)



Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	PCH 6/6 (GND)	1A

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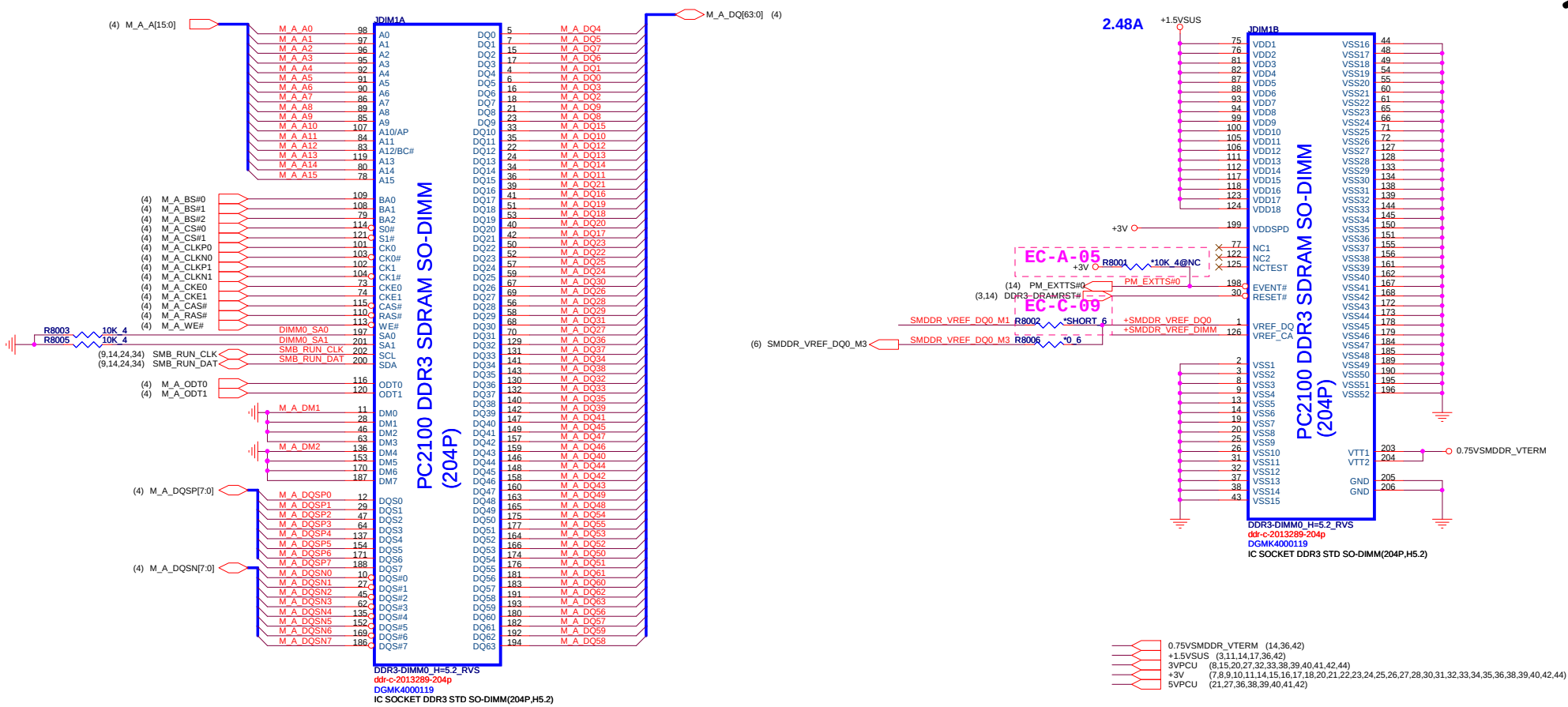
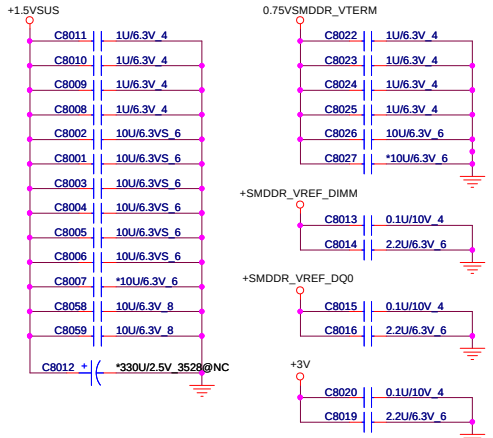
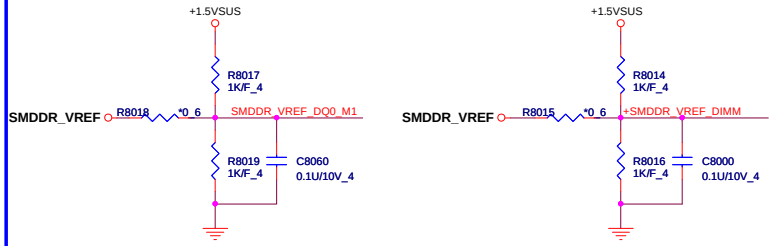


VREF DQ0 M2 Solution

Place these Caps near So-Dimm0.



VREF DQ0 M1 Solution



Quanta Computer Inc.		
PROJECT : DM4/RB4		
Size	Document Number: DDR3 DIMM0-RVS (5.2H)	Rev: 1A
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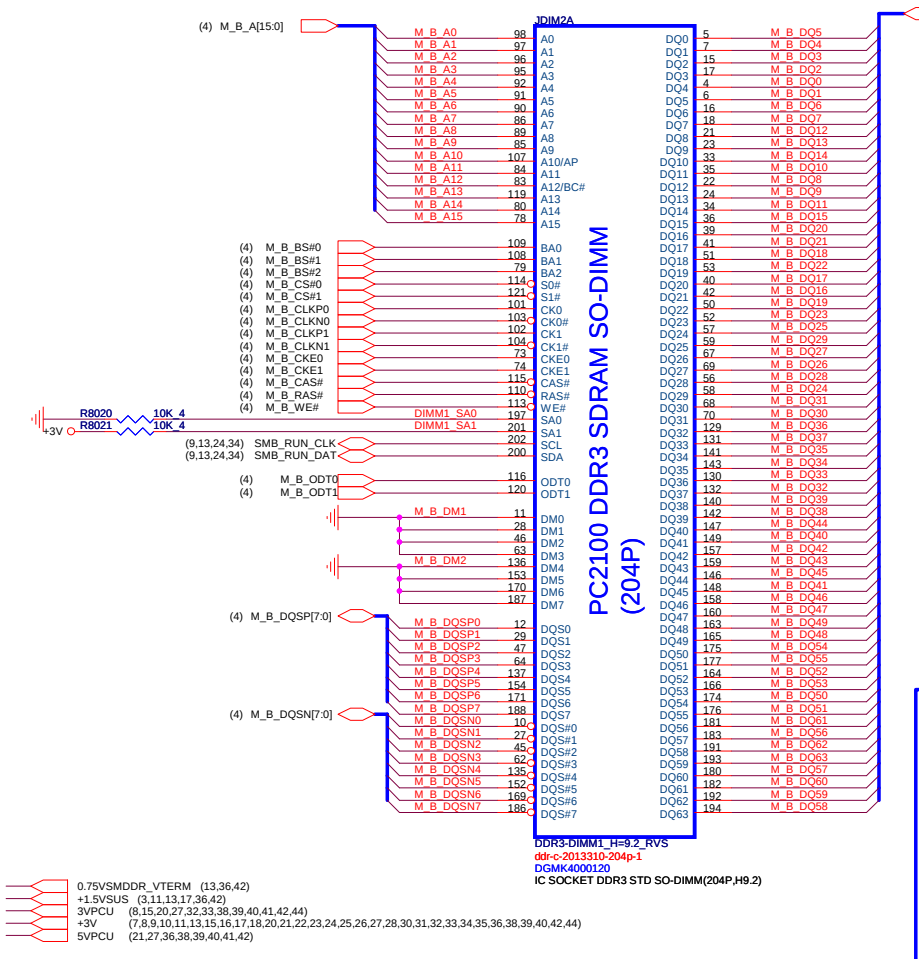
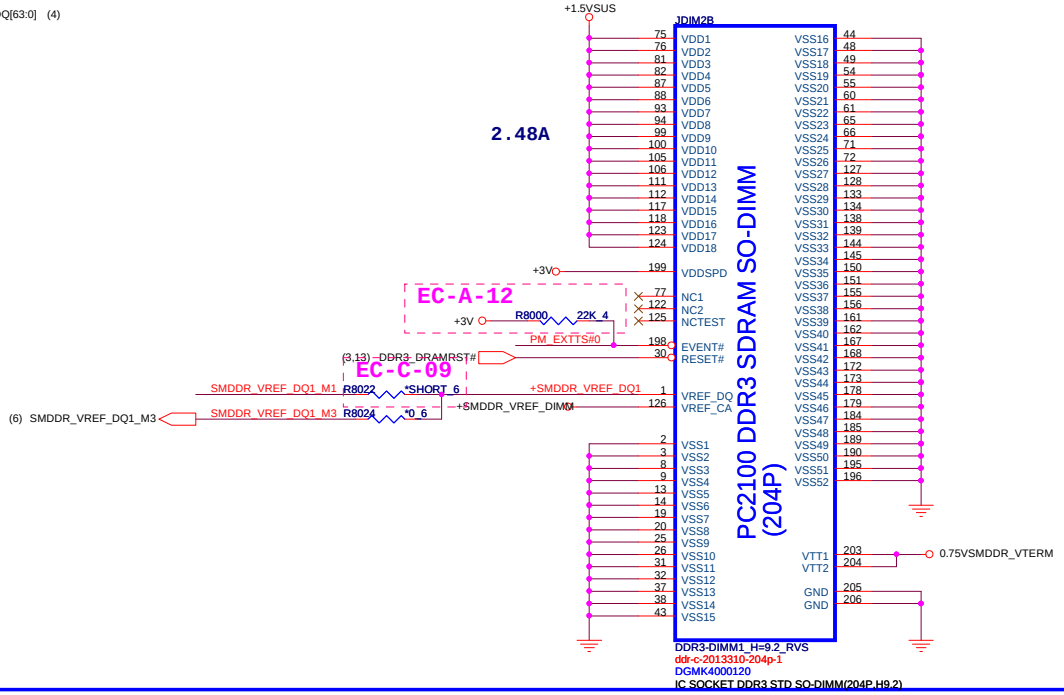
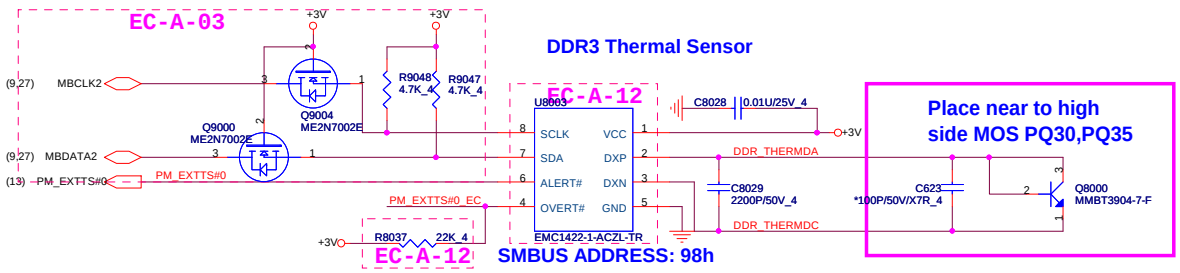
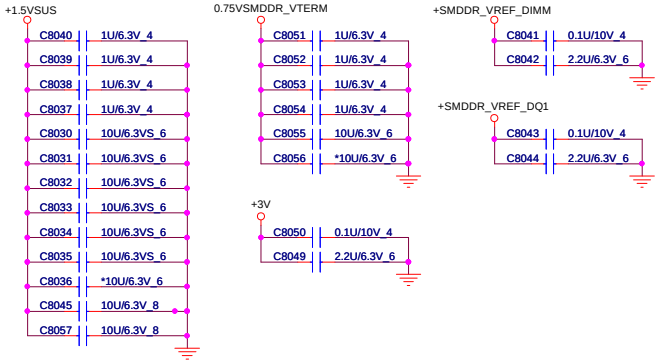




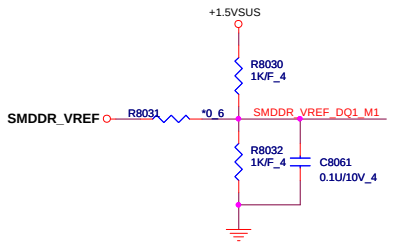


VREF DQ1 M2 Solution

Place these Caps near So-Dimm1.



VREF DQ1 M1 Solution



Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	DDR3 DIMM1-RVS (9.2H)	1A
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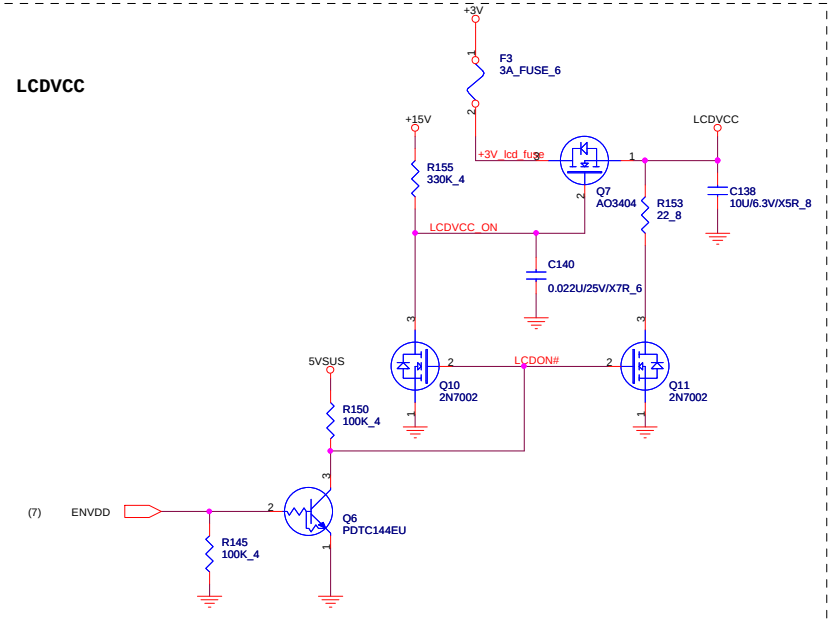
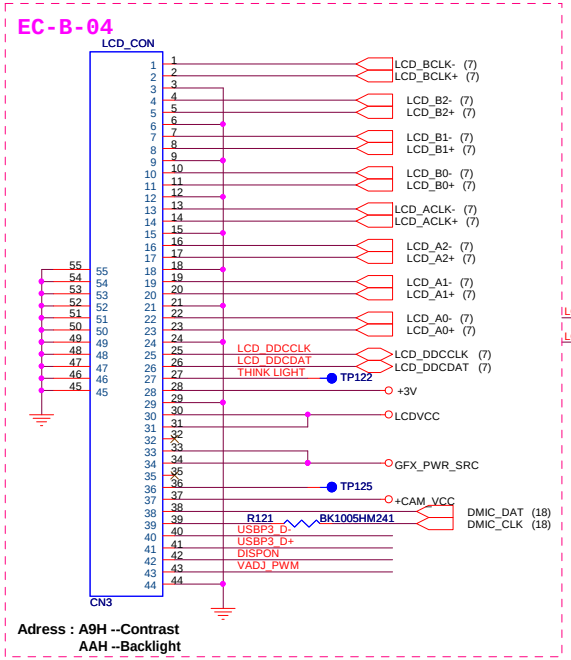
LCDVCC

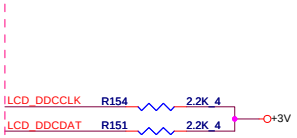


EC-B-04

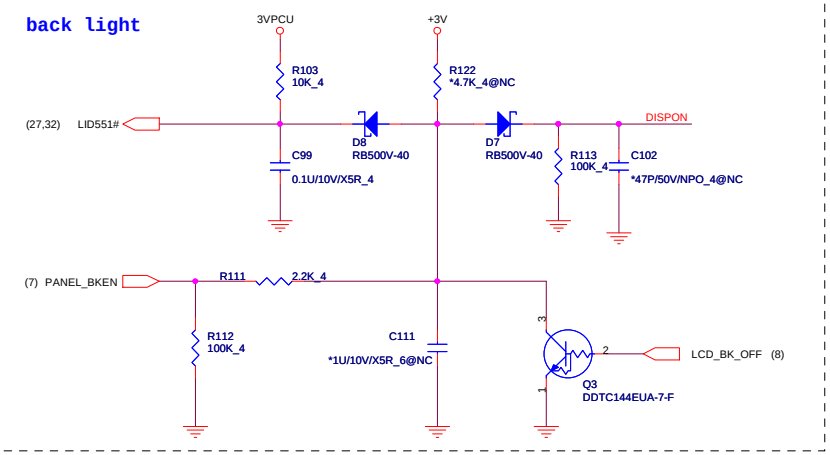


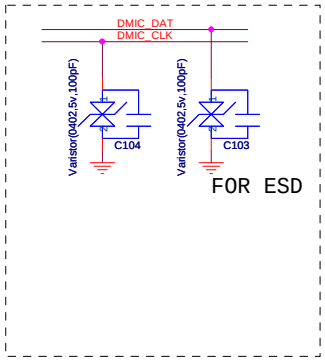
Adress : A9H --Contrast
AAH --Backlight

(7,8,9,10,11,13,14,16,17,18,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(31,36,40,42) +15V
(35,42) 5VSUS
(8,20,27,32,33,38,39,40,41,42,44) 3VPCU
(35,36,38,39,40,41,42) VIN
(7,8,11,16,17,18,21,27,29,30,42) +5V

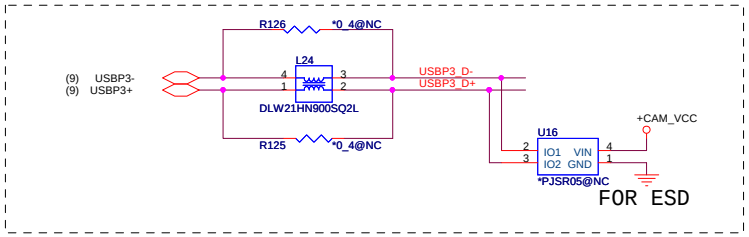


back light



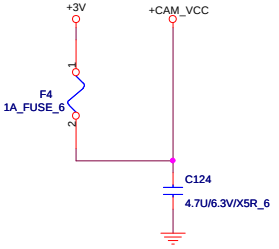


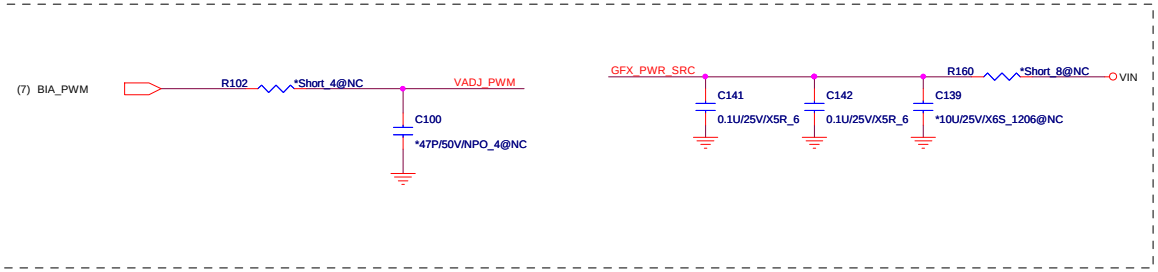
FOR ESD



FOR ESD

CAMERA VCC Control





Quanta Computer Inc.
PROJECT : DM4/RB4

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	LCD + CAMERA CONN	1A
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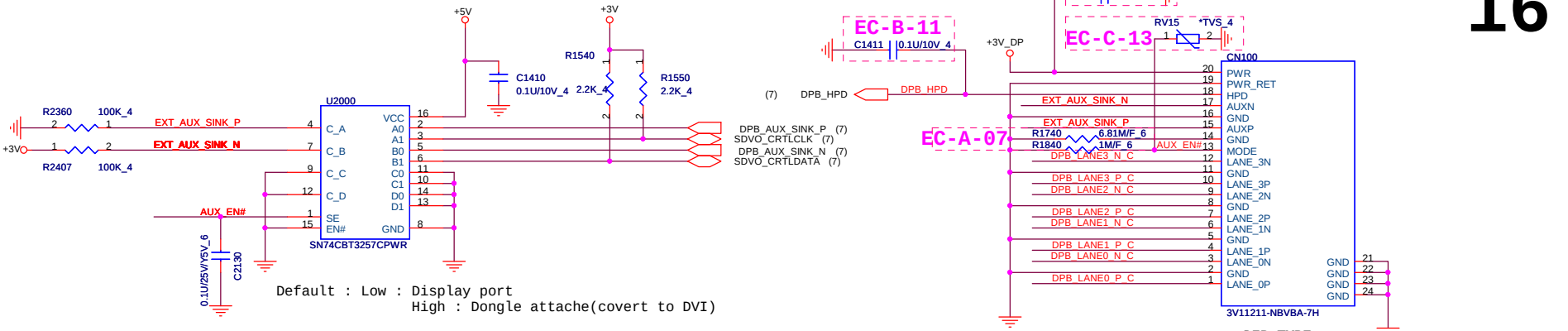
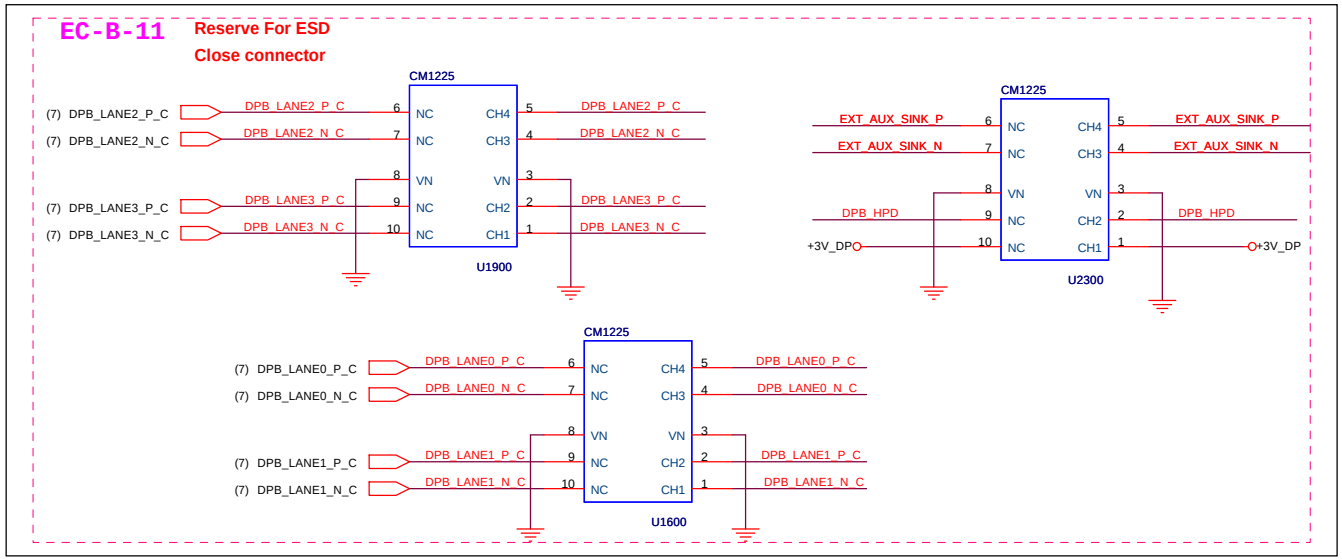
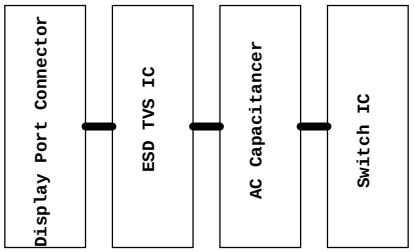
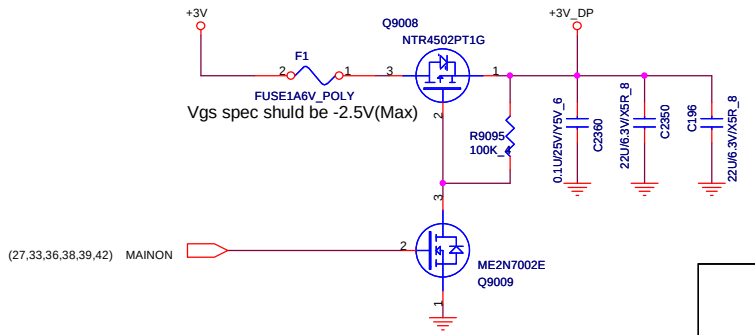
Display Port





Layout Topology





Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	Display Port	1A
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(7,8,11,16,18,21,27,29,30,42) +5V
(7,8,9,10,11,13,14,15,16,18,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V

CRT_VCC
D1 RB500V-40
Layout Note: 40mil
C9 0.1U/10V/X5R_4
+5V
F2 FUSE40A6V
CRT_VCC_R

Layout Note: Setting R,G,B trace impedance to 50 ohm.

CRT_R_CON — L5 BK1608LL680 — CRT_R1
CRT_G_CON — L4 BK1608LL680 — CRT_G1
CRT_B_CON — L3 BK1608LL680 — CRT_B1

R14 150/F_4
R13 150/F_4
R12 150/F_4
C17 5.6P/50V/COG_4
C16 5.6P/50V/COG_4
C15 5.6P/50V/COG_4
C1 5.6P/50V/COG_4
C2 5.6P/50V/COG_4
C3 5.6P/50V/COG_4

CN17
CRT_CONN

EC-B-11
+1.5VSUS — C496 *0.1U/10V_4@NC — +3V

EC-A-02
ESD PROTECTION
U10 TVLST2304AD0
CRT_R1 — CRT_G1
DDCDAT3 — CRT_B1
CRT_VCC_R
EC-B-11
U17 TVLST2304AD0
CRT_VCC_R — DDCCLK3
CRTHSYNC — CRTVSYNC

+5V
(7) VGAVSYNC — U31 AHCT1G125DCH — VGAVSYNC_R — R28 10_4 — CRTVSYNC1 — CRTVSYNC1 (33)
C26 0.1U/10V/X5R_4
(7) VGAHSYNC — U32 AHCT1G125DCH — VGAHSYNC_R — R15 10_4 — CRTHSYNC1 — CRTHSYNC1 (33)

Place near U5001,U5002 < 200 mil

L1 BLM18AG121SN1D — CRTVSYNC
L2 BLM18AG121SN1D — CRTHSYNC
C8 10P/50V/C0G_4
C7 10P/50V/C0G_4
Place near CRT connector < 200 mil

+3V
R8 2.2K_4
R5 2.2K_4
CRT_VCC
R4 2.2K_4
R6 2.2K_4
(7) G_CLK_DDC2 — Q21 2N7002K-T1-E3 — DDCCLK2 — R1 *SHORT0603 — DDCCLK3 — DDCCLK3 (33)
(7) G_DAT_DDC2 — Q22 2N7002K-T1-E3 — DDCDAT2 — R2 *SHORT0603 — DDCDAT3 — DDCDAT3 (33)
C5 *10P/50V/COG_4@NC
C4 *10P/50V/COG_4@NC

EC-B-11
C10 VPORT 100M V05, 10pF_4
+5V
C494 0.1U/10V_4
U40 SN74CBT3257CPWR
(7) VGA_RED — C_A
(7) VGA_GRN — C_B
(7) VGA_BLU — C_C
R396 10K_4 — C_D
(33) DOCK_ATTACHED_3V# — SE/EN#
VCC GND
A0 A1 B0 B1 C0 C1 D0 D1
CRT_R_CON — DOCK_RED (33)
CRT_G_CON — DOCK_GEN (33)
CRT_B_CON — DOCK_BLU (33)

SEL	FUNCTION(COM)
LOW	IN_x0
HIGH	IN_x1

Quanta Computer Inc.
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	CRT CONN	1A
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HDAudio Codec

Digital
ALC269Q-VB6-GR

Analog

EC-C-09
EC-C-12
EC-A-06
EC-B-03
EC-B-11

EXT_ MIC

R5076 and R5325 close to IC

close to IC

C5065, C5066, C5067, C5071 close to IC

C5075, C5074, C5068 close to IC

C5072, C5069, C5070, C5326, C5073 close to IC

ALC269-VB support built-in LDO

Vset=1.242V

Internal Speaker

note : SPKR trace width 40 mils---4ohm speaker

External MIC/ Headphone out combo

note : HPOUT trace width 10 mils

Layout Note:
Place close to
Audio Codec.

PC BEEP

Q34 second source note:
Assumption: MIC_BIAS is 2.2 - 3.0V
Nch MOSFET(Q34) have Vgs(th) = 1.5V.(Max) and 2nd source should keep same characteristics

	VA	VB
R372	3.3K	2K
R640	ASM	
R628	ASM	
U3503	ASM	
R644		ASM
R629		ASM
C673		ASM
L17		ASM
C34	ASM	
R637		(*)

*:Reserve for New combo feature

Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	AUDIO_CODEC ALC269	1A

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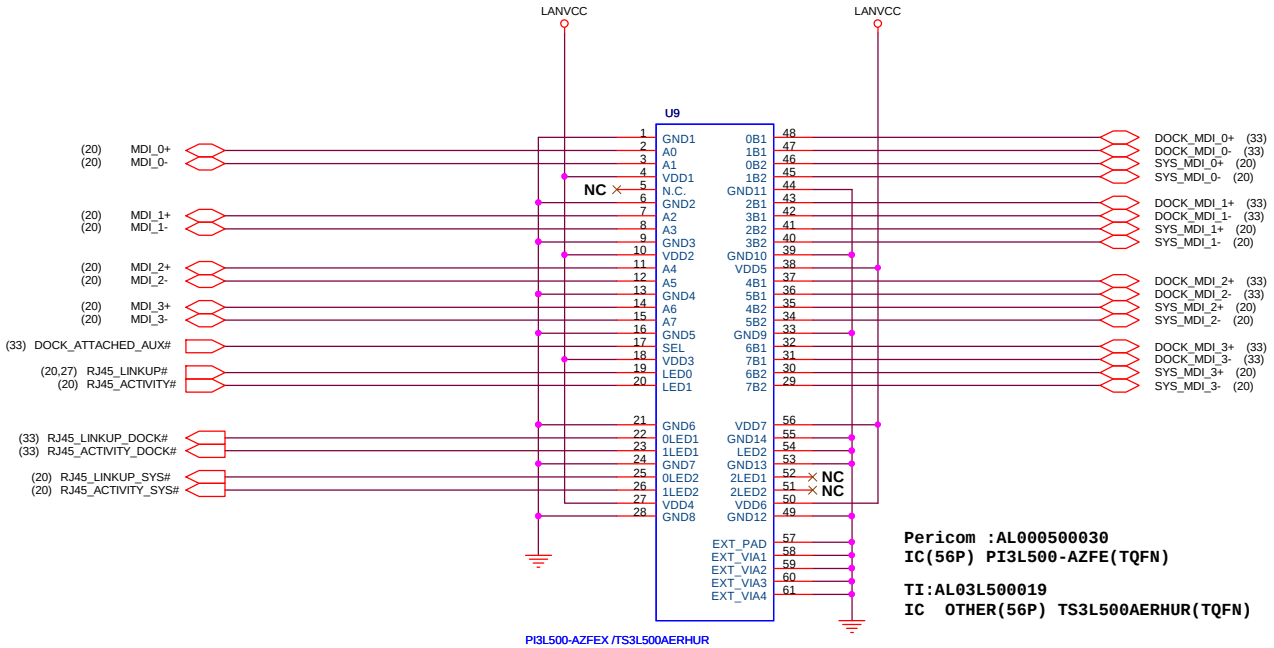
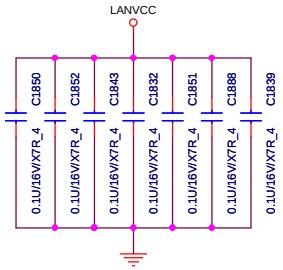


Pericom :AL000500030
IC(56P) PI3L500-AZFE(TQFN)

TI:AL03L500019
IC OTHER(56P) TS3L500AERHUR(TQFN)



Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	LAN SW	1A
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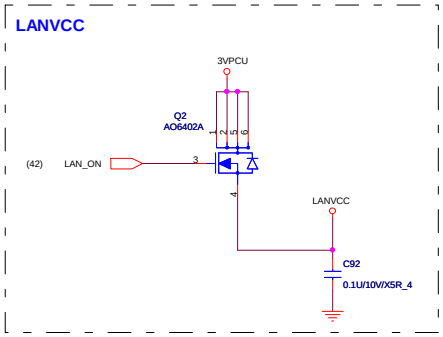
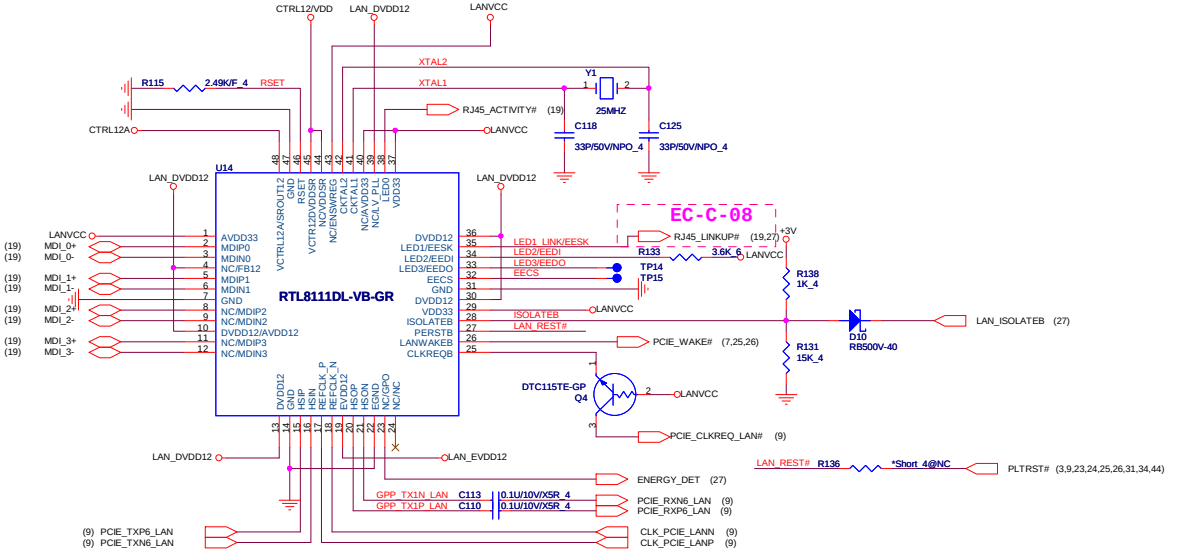
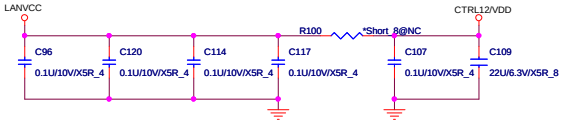
(19,33,42) LANVCC
(7,8,9,10,11,13,14,15,16,17,18,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(8,15,27,32,33,38,39,40,41,42,44) 3VPCU

LANVCC



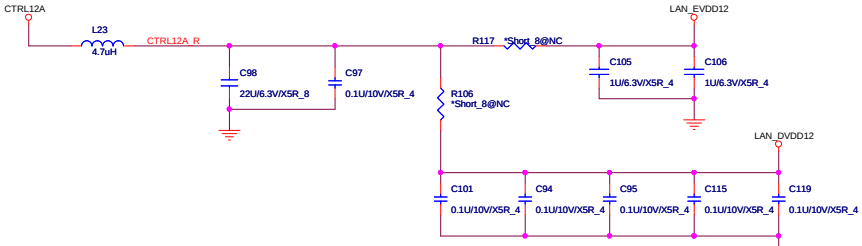




* C5110 to C5113 are for U5006 VDD33 pins-- 1, 29, 37 and 40.

Place C5113 ,C5094 closed to U5006 pins44,45.

* C5116 and C5273 are for U5006 EVDD12 pin 19.

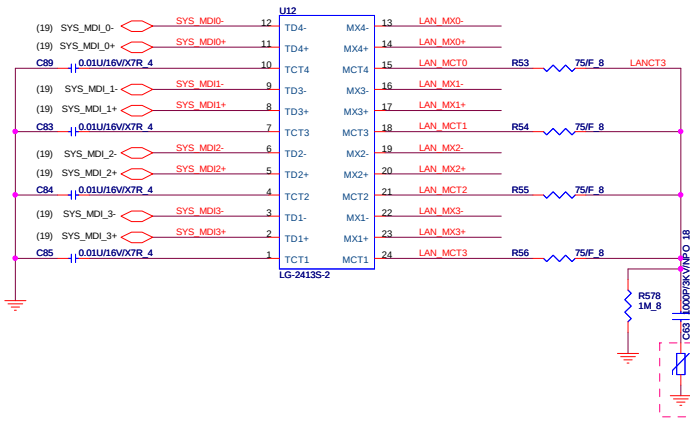


* C5119 to C5123 are for U5006 VDD12 pins-- 10, 13, 30, 36, 39.

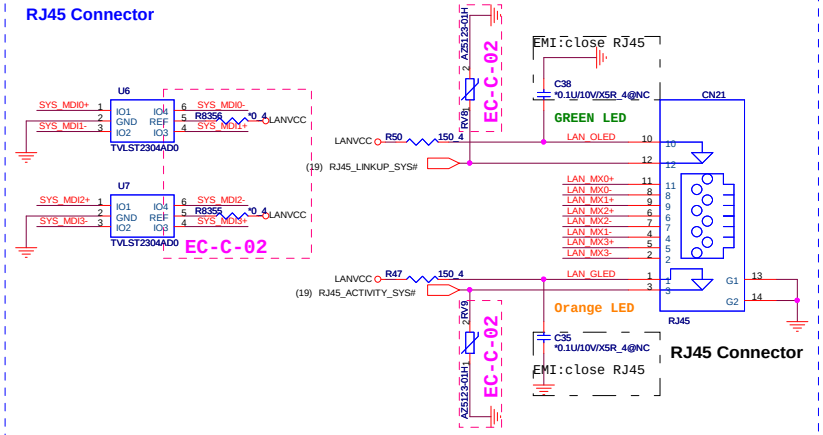
Note 1: The Trace length between L1 and 8111DL's Pin 1 must be within 0.5 cm. C5 and C8 to L1 must be within 0.5cm. Refer to Layout guide for more detail.

Layout:All termination signal should have 20 mil trace

Tramsformer



RJ45 Connector



Quanta Computer Inc.		
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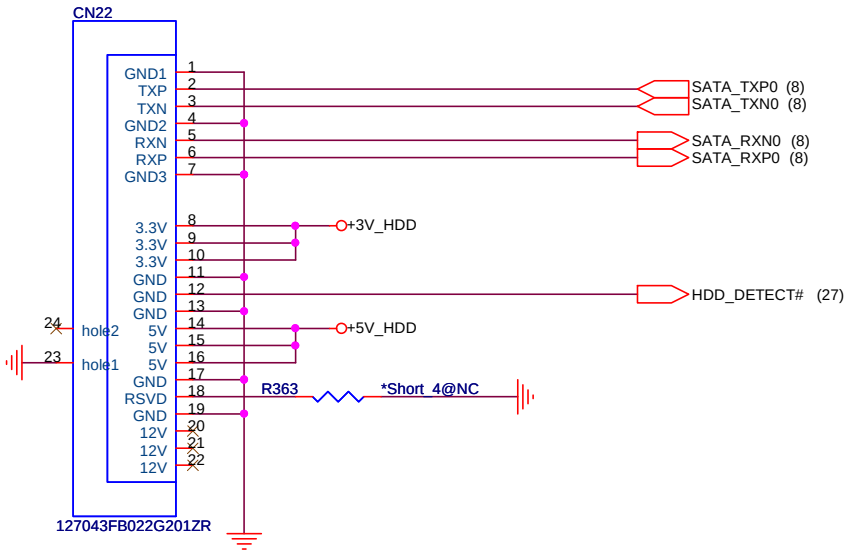
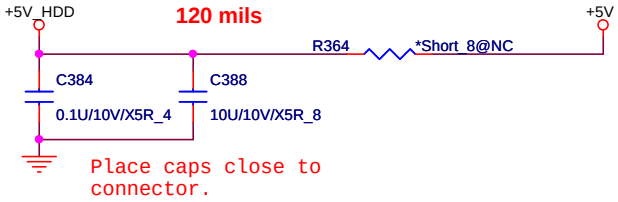
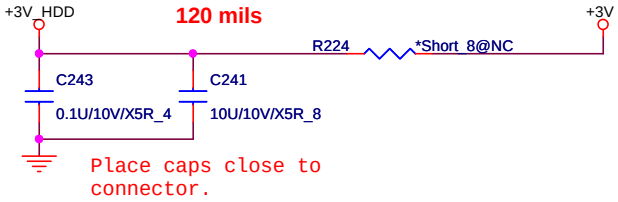
SATA Connector.

(7,8,11,16,17,18,27,29,30,42) +5V
(7,8,9,10,11,13,14,15,16,17,18,20,22,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V

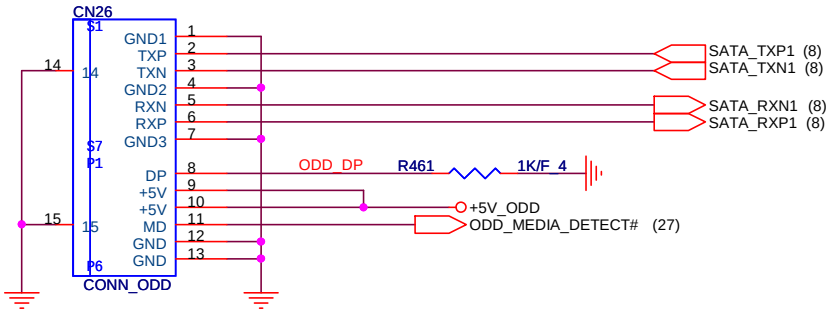
21

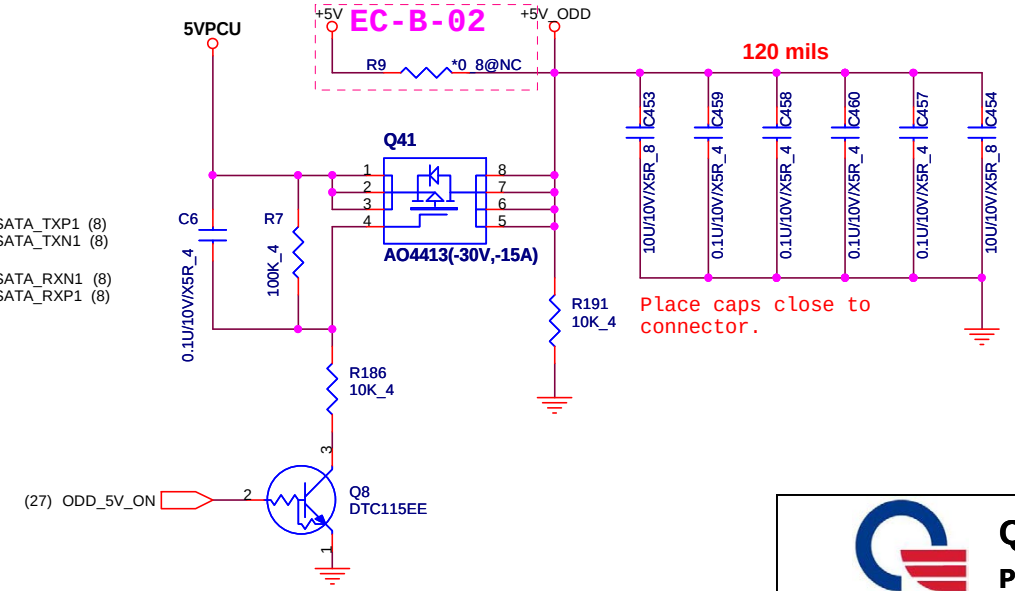






ODD Connector





Quanta Computer Inc.		
PROJECT : DM4/RB4		
Size	Document Number: SATA (HDD&CD_ROM)	Rev: 1A
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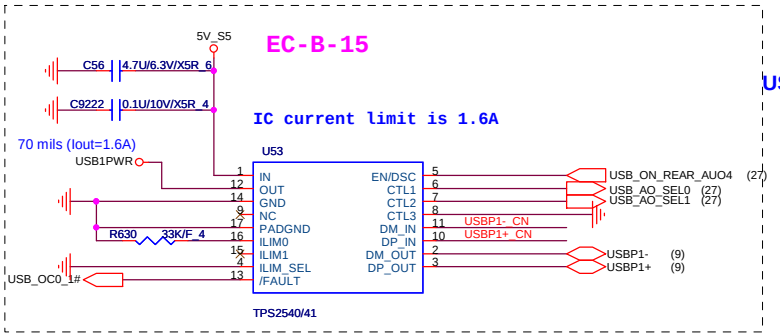
USBX1

(11,23,42) 5V_S5
(7,8,9,10,11,13,14,15,16,17,18,20,21,23,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V

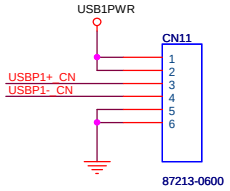
TPS2541 table

CTL1	CTL2	CTL3	Mode
0	0	X	Dedicated Charging Port, Auto-detect
0	1	X	Dedicated Charging Port, BC Specification 1.1 Only
1	0	X	Dedicated Charging Port, Apple Only
1	1	0	Standard Downstream Port, USB 2.0 Mode
1	1	1	Charging Downstream Port, BC Specification 1.1

Table 3 – TPS2541 Control Truth Table

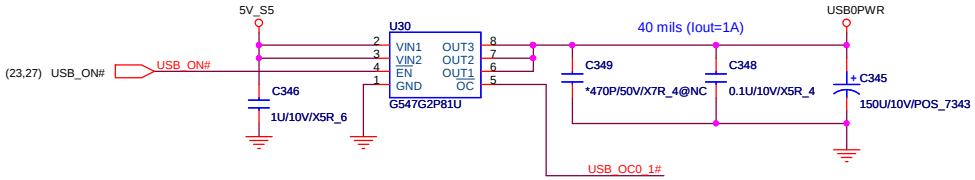


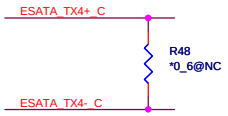
USB X1---> Wire to board conn

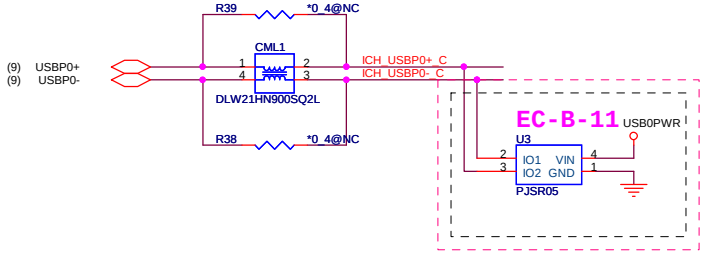


USB 1

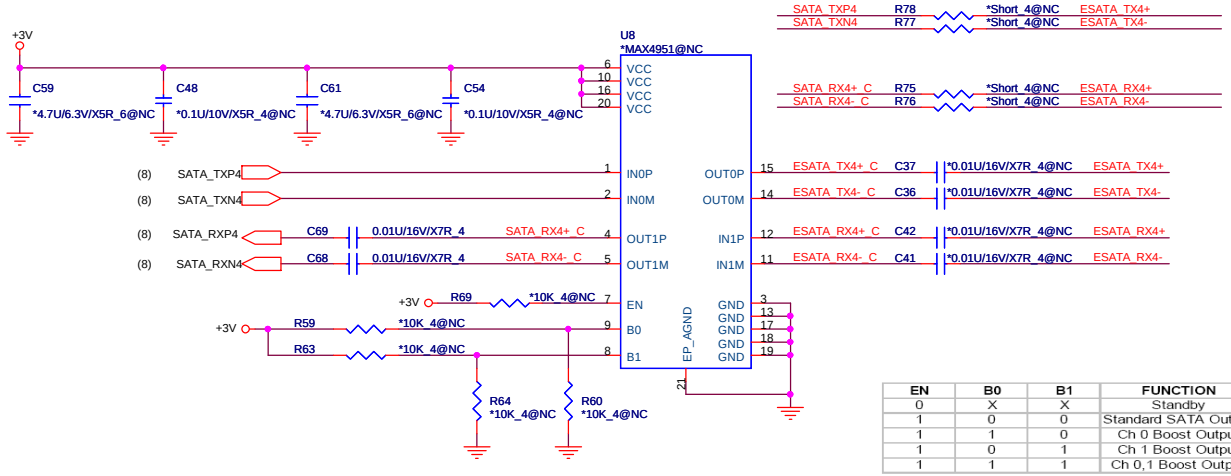
USB + E-SATA



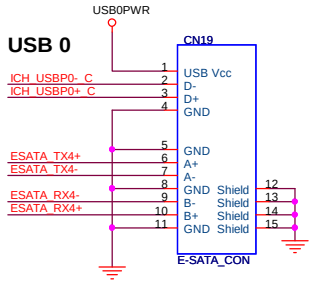




E-SATA RE-DRIVER



EN	B0	B1	FUNCTION
0	X	X	Standby
1	0	0	Standard SATA Output
1	1	0	Ch 0 Boost Output
1	0	1	Ch 1 Boost Output
1	1	1	Ch 0,1 Boost Output



Quanta Computer Inc.
PROJECT : DM4/RB4

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	USB X1/USB+ESATA	1A

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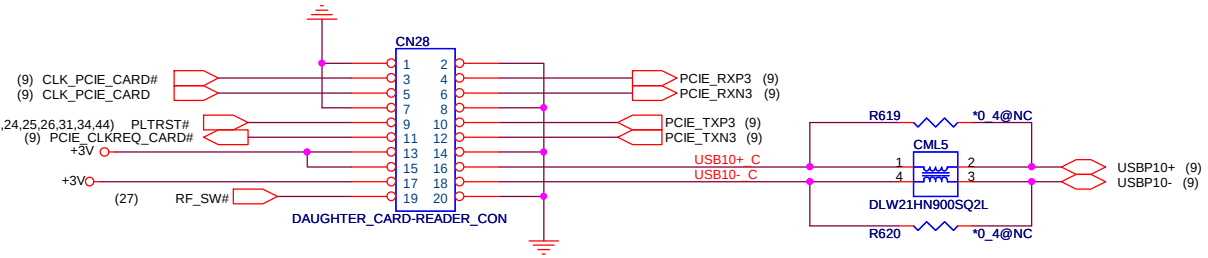
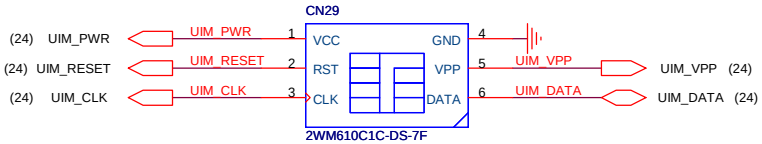
(11,22,42) 5V_S5
(7,8,9,10,11,13,14,15,16,17,18,20,21,22,24,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(8,15,20,27,32,33,38,39,40,41,42,44) 3VPCU
(26,27,42) 3VSUS

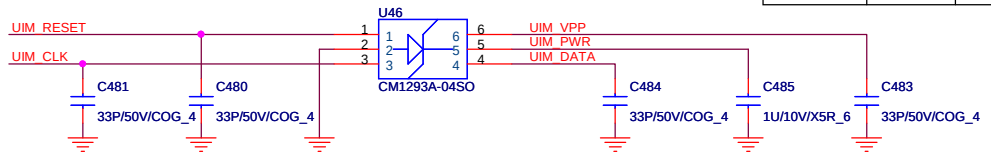


SIM Card CONN

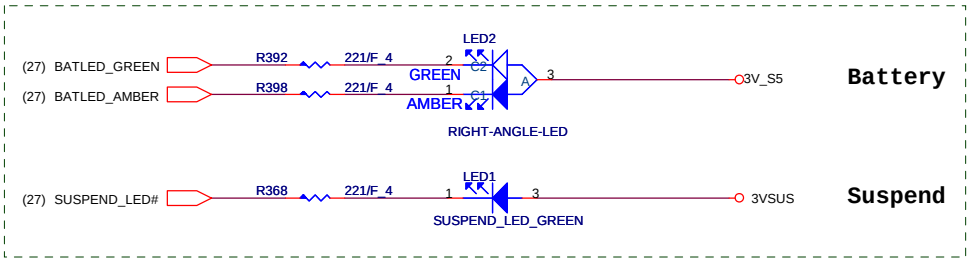


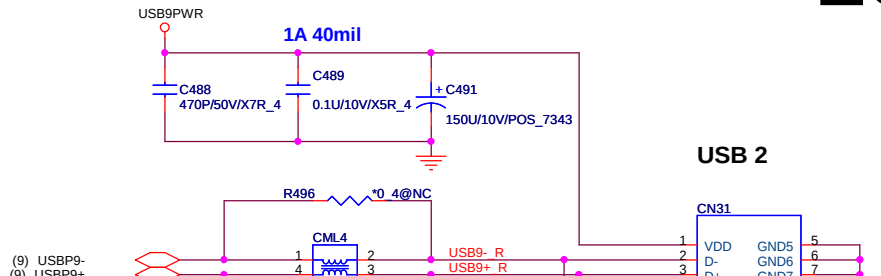
	w/ WWAN	w/o WWAN
CN29	ASM	NO ASM
U46	ASM	NO ASM
C480-C481	ASM	NO ASM
C483-C485	ASM	NO ASM

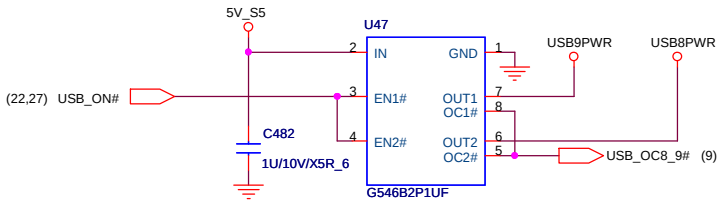
Layout Note:
UIM_RESET,UIM_CLK,UIM_DATA routting as short as possible



FRONT LEDs







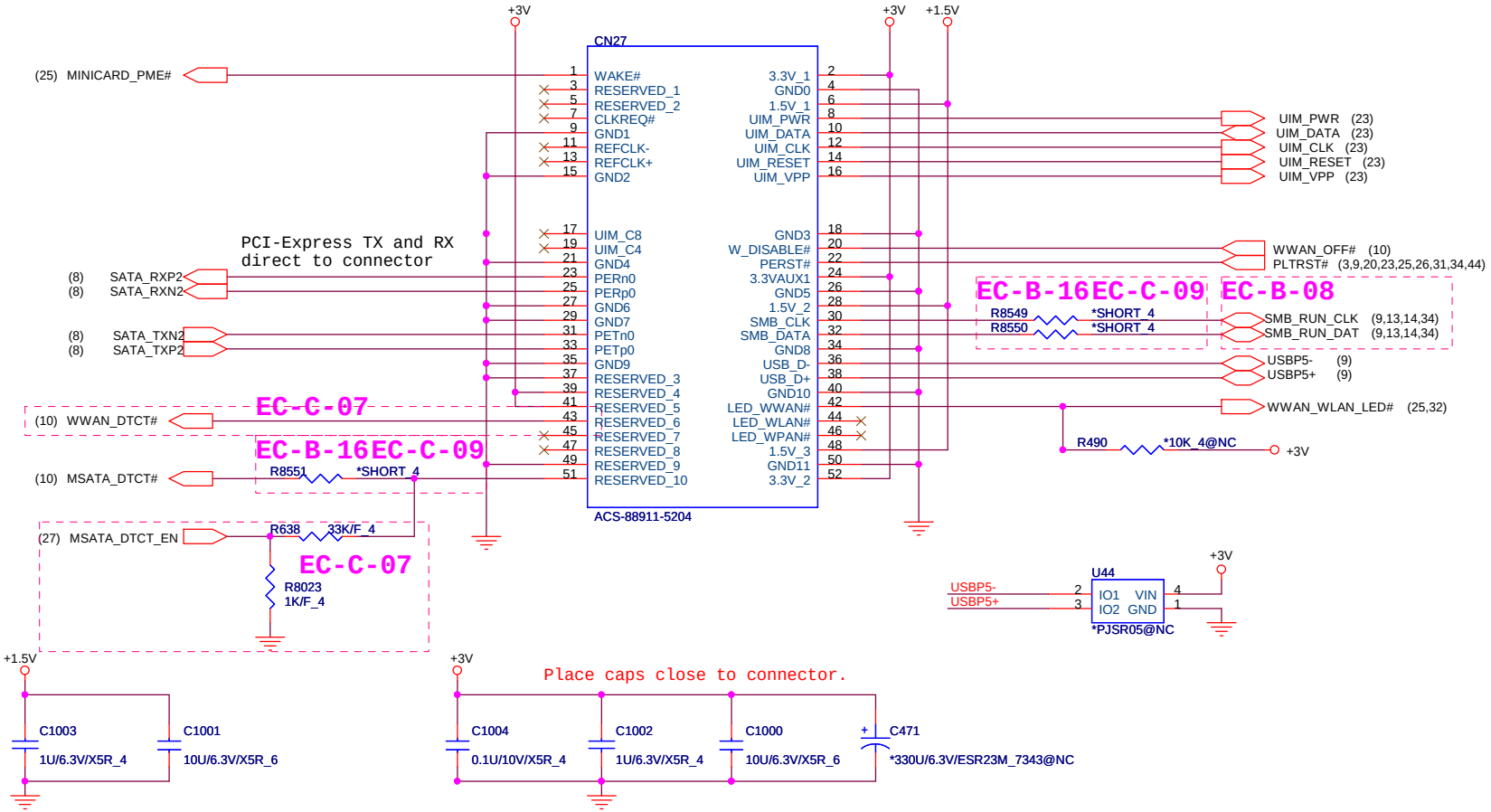
Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	USB X2/SIM_CARD/LEDs/RF	1A

Date: Friday, December 24, 2010 Sheet 23 of 53

MiniCard WWAN connector

(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,25,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(11,25,26,36) +1.5V



	w/ WWAN	w/o WWAN
CN27	ASM	NO ASM
R489	ASM	NO ASM
R484	ASM	NO ASM
R483	ASM	NO ASM
C1000~ C1004	ASM	NO ASM

Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	MINI-Card (SSD, WWAN)	1A

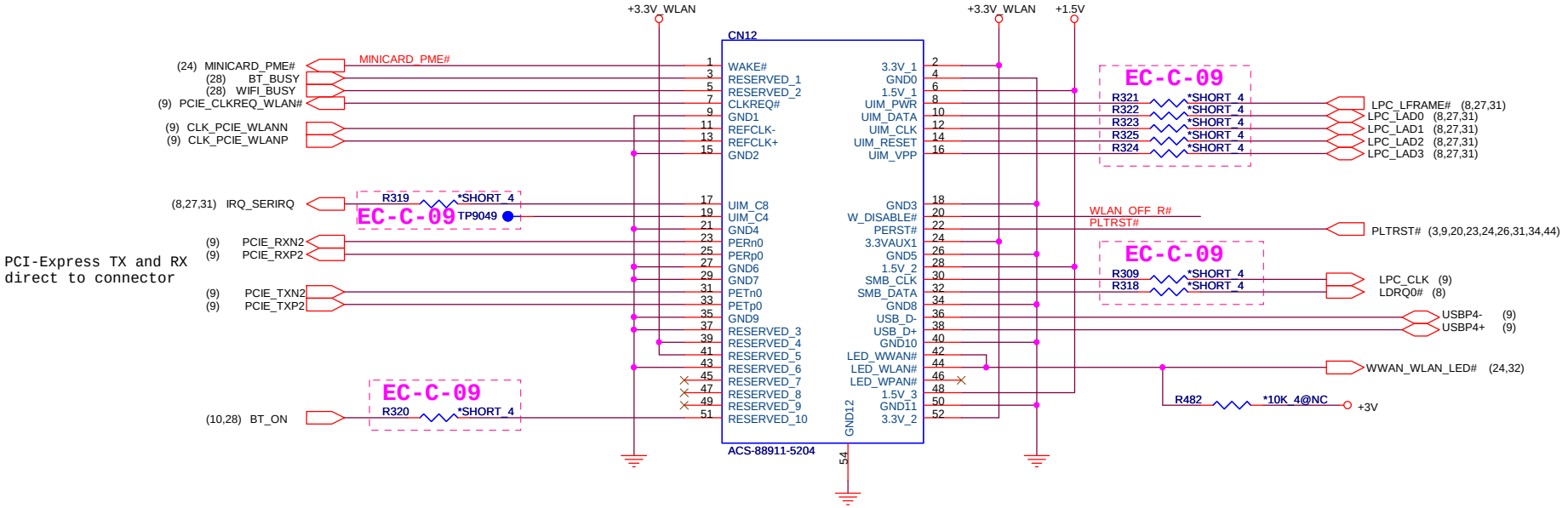
Date: Friday, December 24, 2010 Sheet 24 of 53

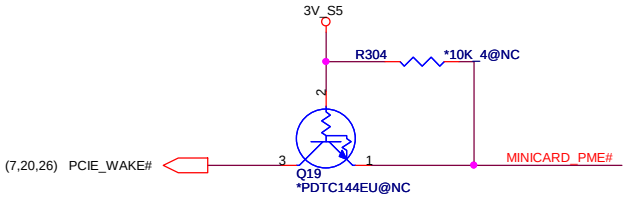
MiniCard WLAN/WiMAX connector

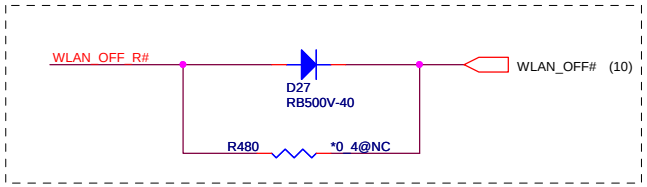
25

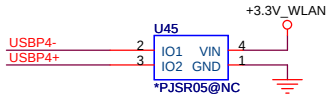
(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,26,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(11,24,26,36) +1.5V
(8,15,20,27,32,33,38,39,40,41,42,44) 3VPCU
(15,35,36,38,39,40,41,42) VIN

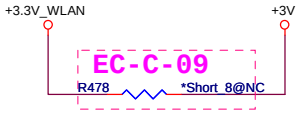
PCI-Express TX and RX direct to connector

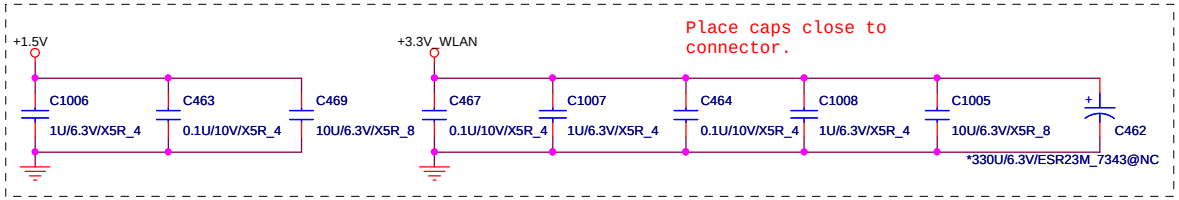












Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	MINI-Card (WLAN/Wimax)	1A
Date: Friday, December 24, 2010	Sheet 25 of 53	

Express Card

(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,25,27,28,30,31,32,33,34,35,36,38,39,40,42,44) +3V
(11,24,25,36) +1.5V
(23,27,42) 3VSUS

26

+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.

(9) USBP2+
(9) USBP2-
R179 *0_4@NC
L26
DLW21HN900SQ2L
R178 *0_4@NC
USBP2_D+
USBP2_D-
U19
IO1 VIN
IO2 GND
*PJSR05@NC
+3.3V_CARD
FOR ESD

20090928
avoid current leakage

PCIE_CLKREQ_NEW#_C
EC-B-12
2SK3018
2RCLKEN
Q5
(9) PCIE_CLKREQ_NEW#

3VSUS
R172 *10K_4@NC 2231_SHDN#
R173 *10K_4@NC 2231_STBY#
(3,9,20,23,24,25,31,34,44) PLTRST#
Q39
2N7002
+3V

+1.5V +3V 3VSUS
+3.3V_CARDAUX +3.3V_CARD +1.5V_CARD
U20
AUXIN
3.3VIN_0
3.3VIN_1
1.5VIN_0
1.5VIN_1
AUXOUT
3.3VOUT_0
3.3VOUT_1
1.5VOUT_0
1.5VOUT_1
ExpressSwitch
SHDN#
STBY#
SYSRST#
NC
GND0
PERST#
CPPE#
CPUSB#
OC#
RCLKEN
CARD_RESET#
EXPRCRD_PWREN#
CPUSB#
TP18
RCLKEN
TP17
R182 *100K_4@NC
R180 *100K_4@NC
3VSUS
G577BSR91U/RT9716AGQW

CN4
GND_1
USB-
USB+
CPUSB#
RSV_0
RSV_1
SMBCLK
SMBDATA
+1.5V_0
+1.5V_1
WAKE#
+3.3VAUX
PERST#
+3.3V_1
+3.3V_2
CLKREQ#
CPPE#
REFCLK-
REFCLK+
GND_2
PERn0
PERp0
GND_3
PETn0
PETp0
GND_4
NC1 NC2 NC3 NC4 NC5
130817-1
SANTA 13181363-1

USBP2_D-
USBP2_D+
CPUSB#
+3.3V_CARDAUX
R170 10K_4
R171 10K_4
+1.5V_CARD
(7,20,25) PCIE_WAKE#
+3.3V_CARDAUX
CARD_RESET#
+3.3V_CARD
PCIE_CLKREQ_NEW#_C
EXPRCRD_PWREN#
(10) EXPRCRD_PWREN#
(9) CLK_PCIE_NEWN
(9) CLK_PCIE_NEWP
(9) PCIE_RXN4
(9) PCIE_RXP4
(9) PCIE_TXN4
(9) PCIE_TXP4
C674
0.047U/25V/X7R_4

+1.5V C170 0.1U/10V/X5R_4 Please the cap near pin 12 & 14(1.5VIN).
+3V C157 0.1U/10V/X5R_4 Please the cap near pin 2 & 4 (3.3VIN).
3VSUS C165 0.1U/10V/X5R_4 Please the cap near pin 17 (AUXIN).
+3.3V_CARDAUX C167 0.1U/10V/X5R_4 Please the cap near pin 15 (AUXOUT).
+3.3V_CARD C160 0.1U/10V/X5R_4 Please the cap near pin 3 & 5 (3.3VOUT).
+1.5V_CARD C171 0.1U/10V/X5R_4 Please the cap near pin 11 & 13(1.5VOUT).

+1.5V_CARD C158 0.1U/10V/X5R_4 C155 0.1U/10V/X5R_4 Please the cap near connector.
+3.3V_CARD C153 0.1U/10V/X5R_4 C156 0.1U/10V/X5R_4 C154 10U/6.3V/X5R_6 Please the cap near connector.

Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	Express Card	1A
Date: Friday, December 24, 2010	Sheet 26 of 53	

IT8518

Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	KBC IT8518/19	1A

Date: Friday, December 24, 2010 Sheet 27 of 53

FLASH TYPE SELECT

R101	
High	LPC/FWH FLASH ROM
Low	SPI FLASH ROM (Default)

Layout Note: Place this test point on top side

Layout Note: Place all capacitors close to IT8512.

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

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

EMI suggestion: Add a 15p bypass CAP on CLK_PCI_8512

(For PLL Power)

RF ON/OFF SWITCH

POWER SWITCH/ CARE BUTTON

4Mbit (512k Byte), SPI

Winbond AKE37FN0N01
MAX AKE37FP0Z02

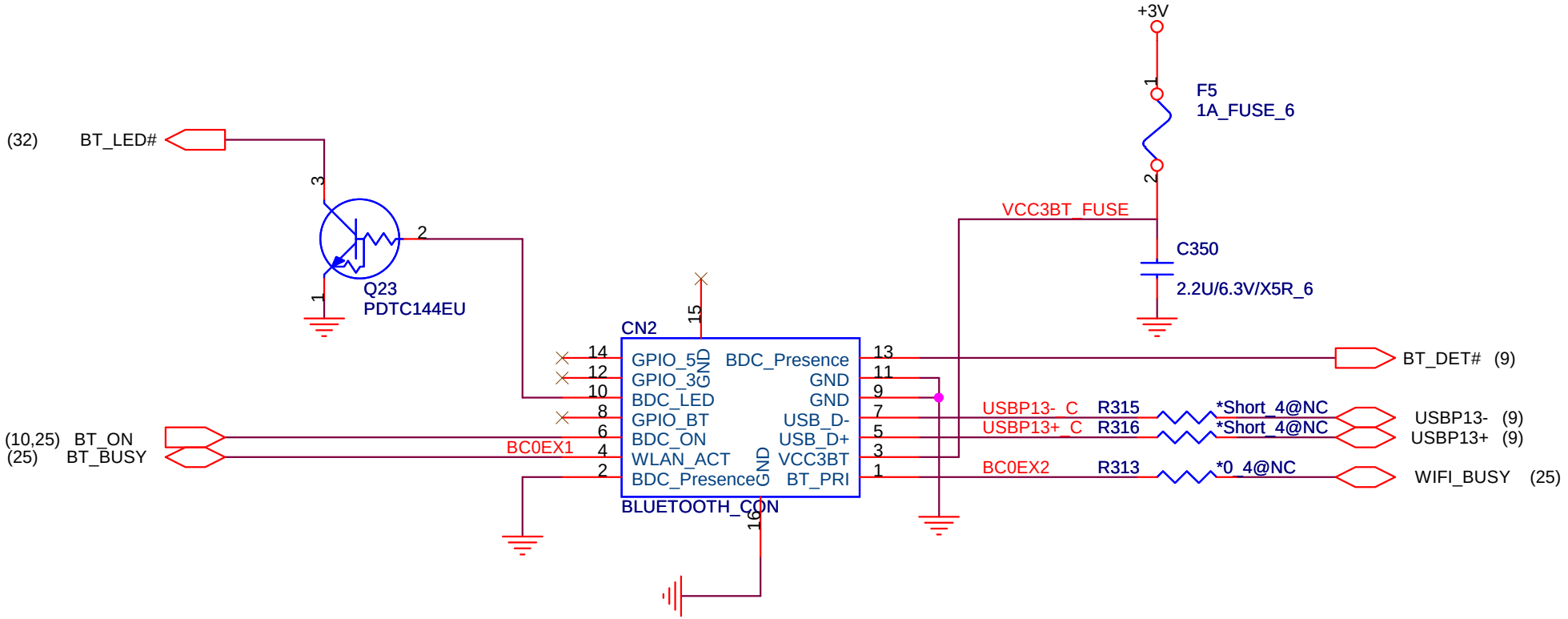
W25X40BVSSIG

Width = 6mils Spacing = 10 mils

BLUETOOTH

(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,25,26,27,30,31,32,33,34,35,36,38,39,40,42,44) +3V

28



Quanta Computer Inc.

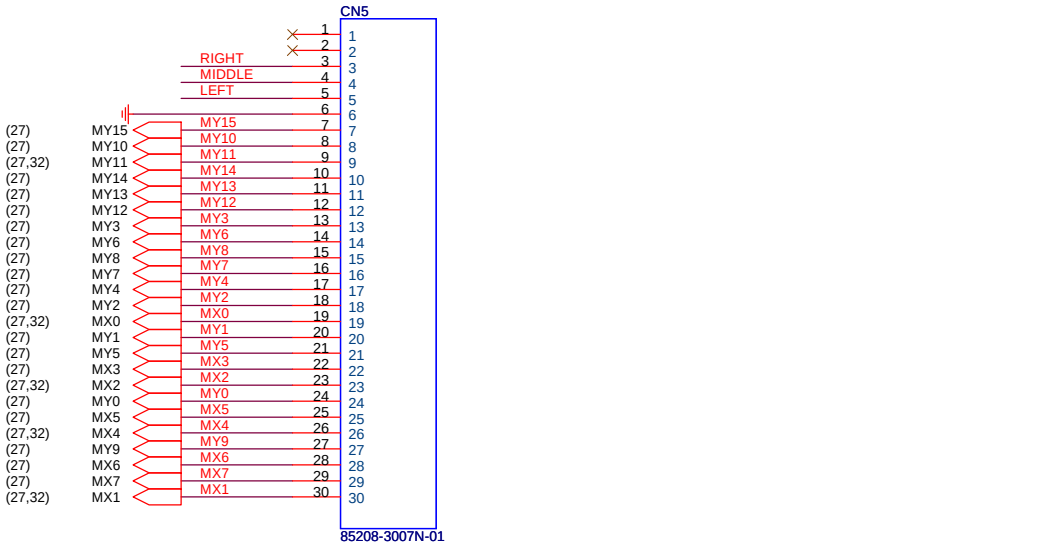
PROJECT : DM4/RB4

Size	Document Number	Rev
	B/T	1A
Date: Friday, December 24, 2010	Sheet 28 of 53	

KEYBOARD

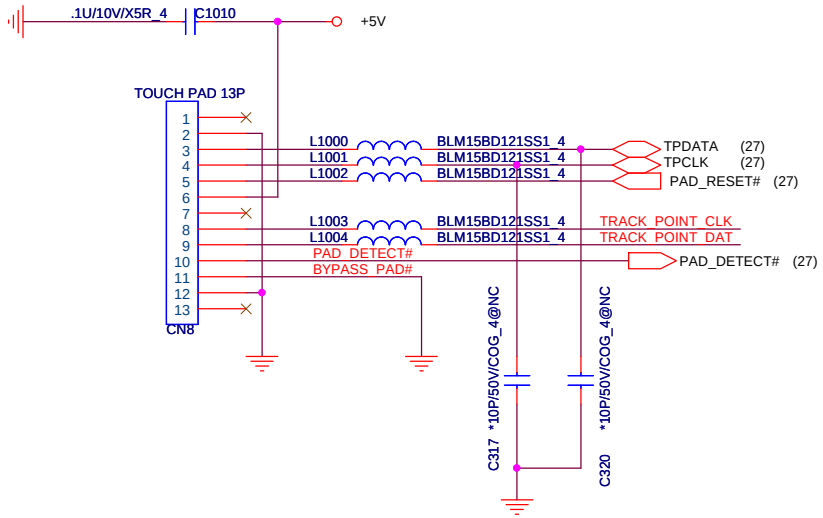
KEYBOARD connector

(7,8,11,16,17,18,21,27,30,42) +5V
(8,15,20,27,32,33,38,39,40,41,42,44) 3VPCU



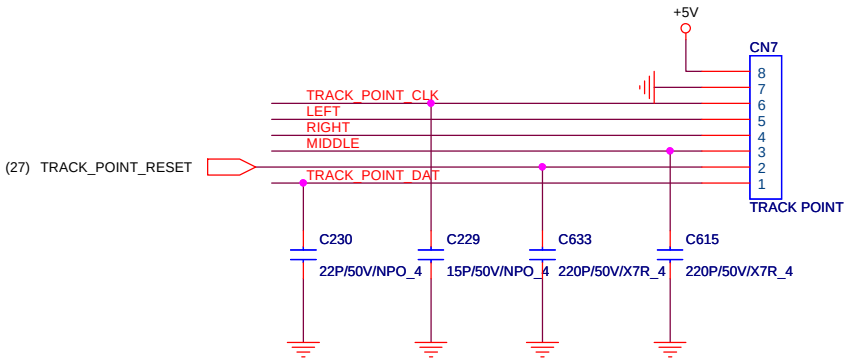
Touch pad

EMI/RF:BEAD NEAR Connector



TRACK POINT

SMBUS ADDRESS: 61



Quanta Computer Inc.

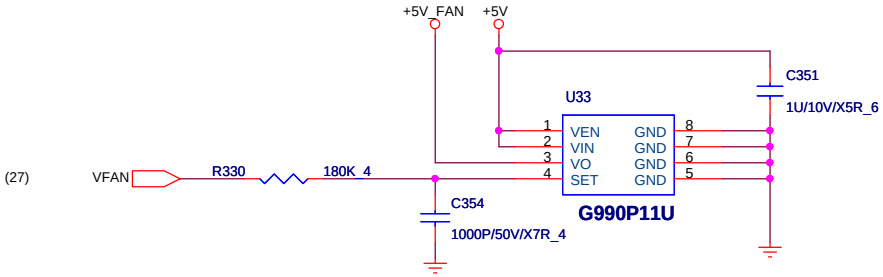
PROJECT : DM4/RB4

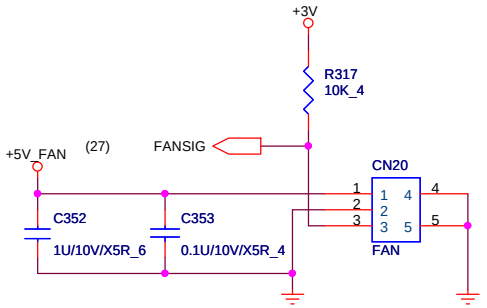
Size	Document Number	Rev
	K/B, T/P	1A
Date: Friday, December 24, 2010	Sheet 29 of 53	

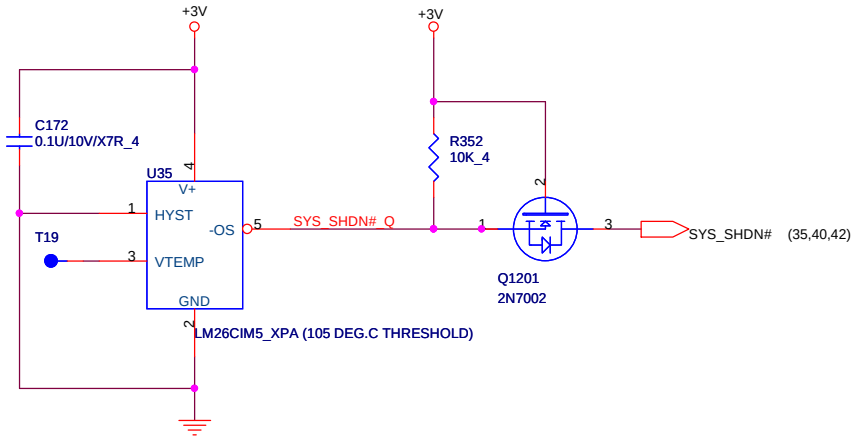
FAN CONTROL

(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,31,32,33,34,35,36,38,39,40,42,44) +3V
(7,8,11,16,17,18,21,27,29,42) +5V

30





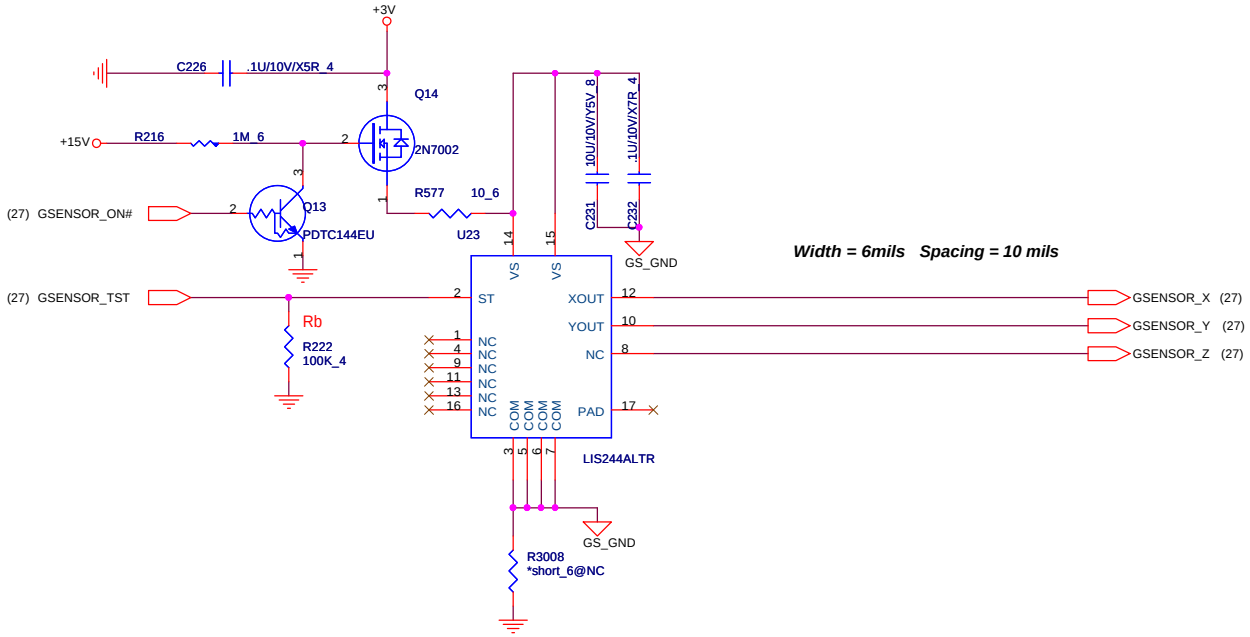


Quanta Computer Inc.

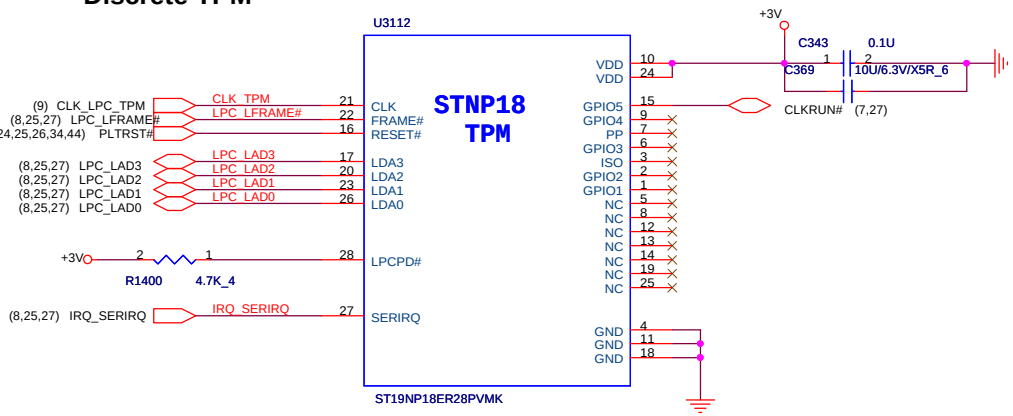
PROJECT : DM4/RB4

Size	Document Number	Rev
	FAN & THERMAL	1A
Date: Friday, December 24, 2010	Sheet 30 of 53	

G-SENSOR (2-Axial)



Discrete TPM

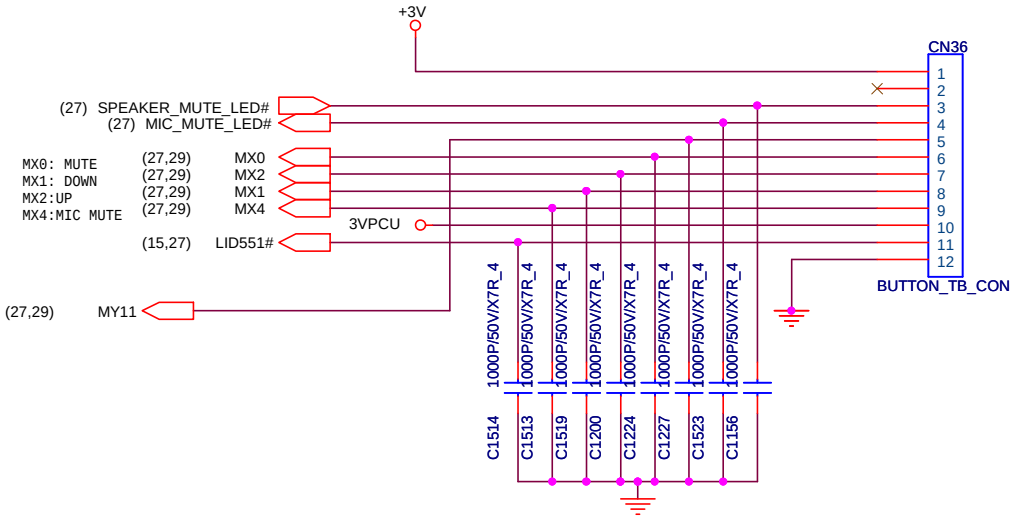


supplier P/N:ST19NP18ER28PVMK
Quanta P/N:AL19NP18K27
F/P:tssop28-6_4-65-1_2h

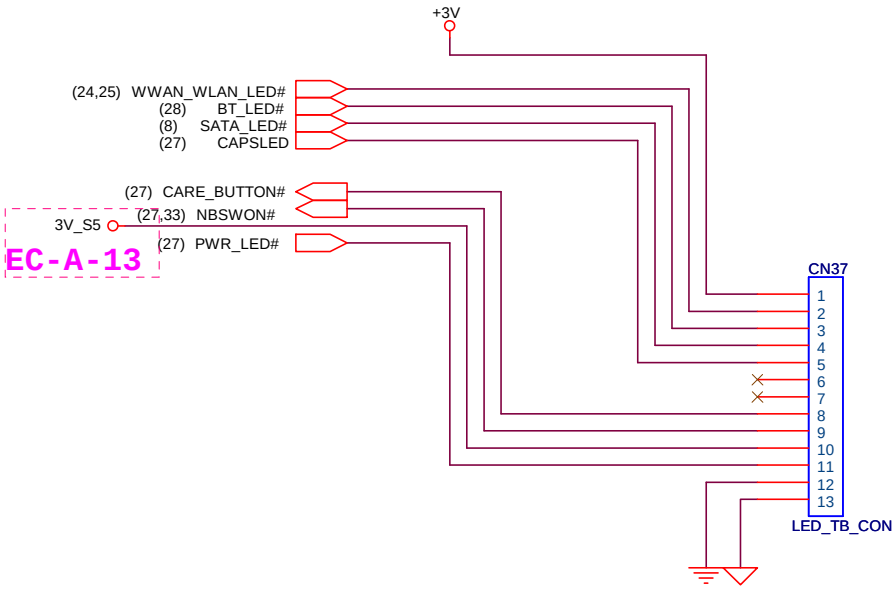
Quanta Computer Inc.		
PROJECT : DM4/RB4		
Size	Document Number: G-SENSOR/Discrete TPM	Rev: 1A
Date: Friday, December 24, 2010	Sheet 31 of 53	

Daughter Boards for LEDs & Ports

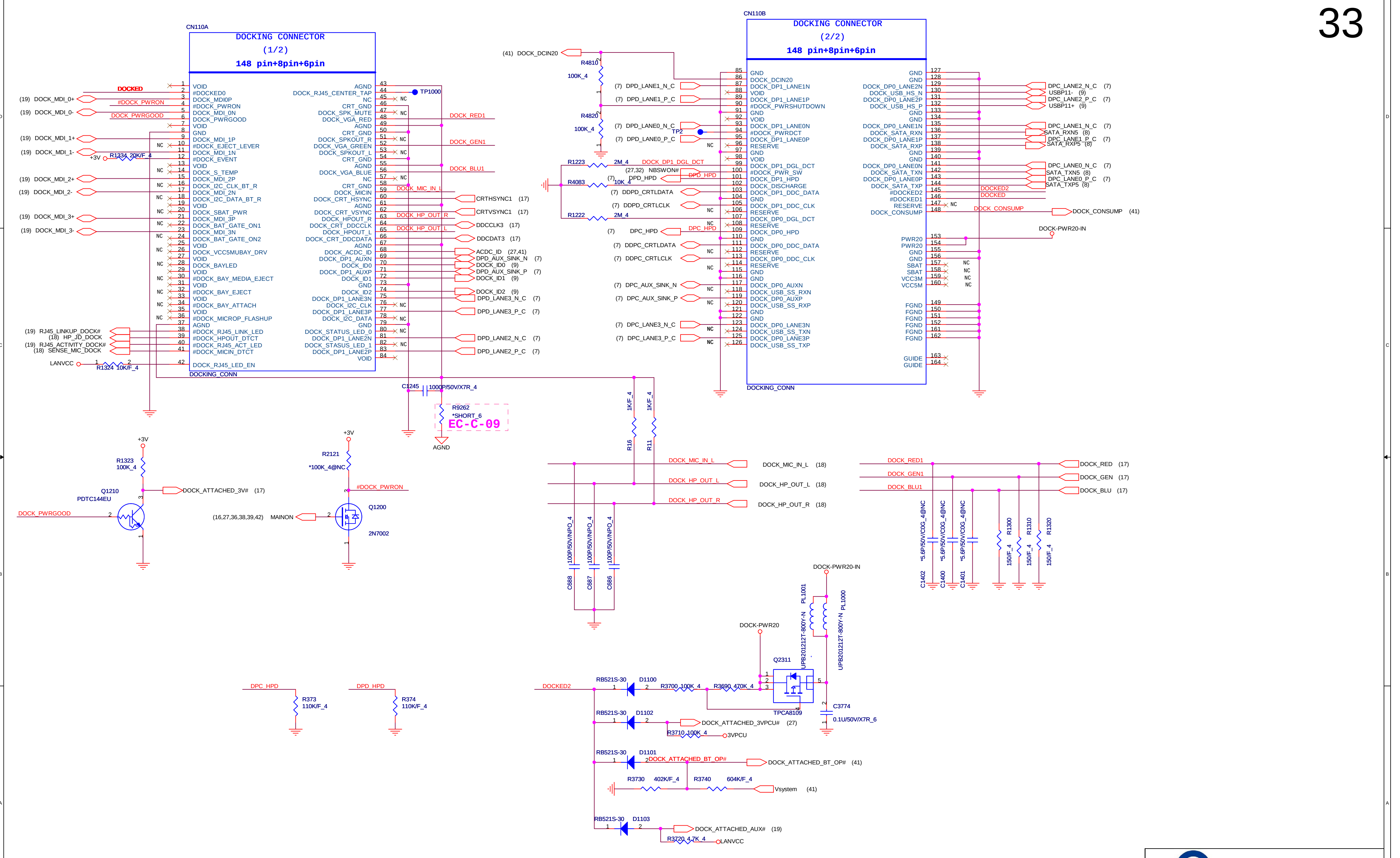
FFC TO KBD LEFT SIDE CONNECTOR



FFC TO LED RIGHT SIDE CONNECTOR



Quanta Computer Inc.		
PROJECT : DM4/RB4		
Size	Document Number: Daughter Boards	Rev: 1A
Date: Friday, December 24, 2010	Sheet 32 of 53	



Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	Docking CON	1A
Date: Friday, December 24, 2010	Sheet 33 of 53	

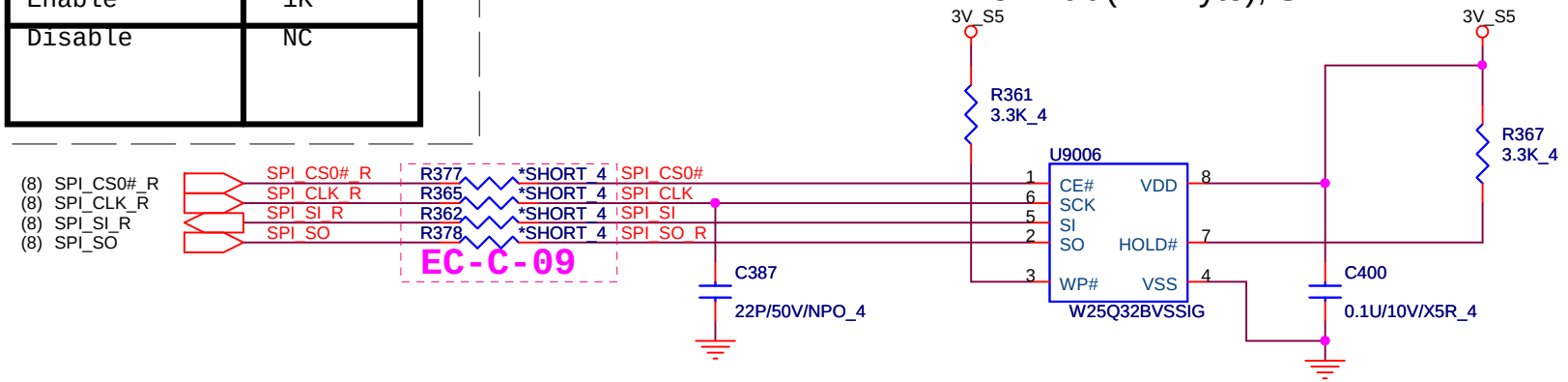
iTPM ENABLE/DISABLE

3V_S5 — R366 *1K_4 — SPI_SI

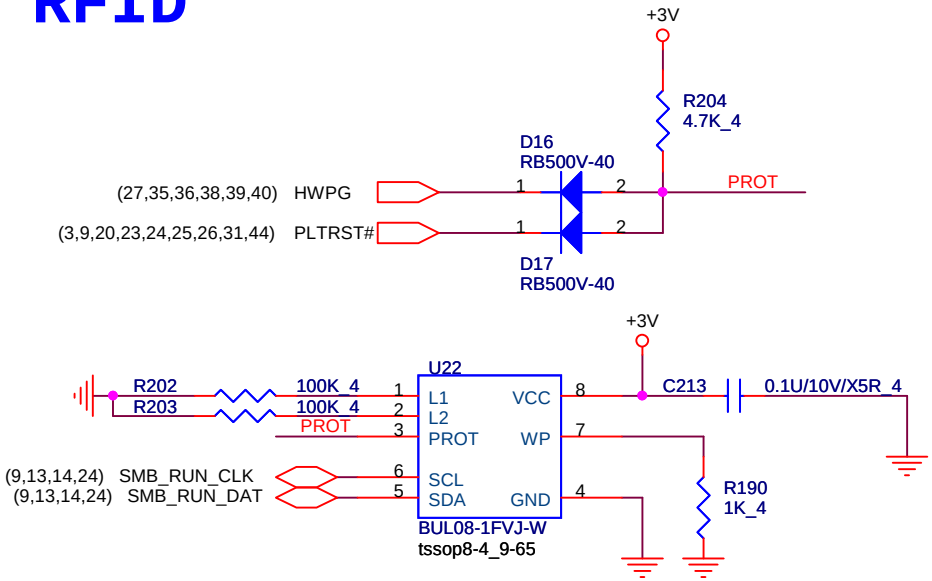
iTPM Function	R366
Enable	1K
Disable	NC

(7,8,9,10,11,13,14,15,16,17,18,20,21,22,23,24,25,26,27,28,30,31,32,33,35,36,38,39,40,42,44) +3V

For PCH
32Mbit (4M Byte), SPI



RFID

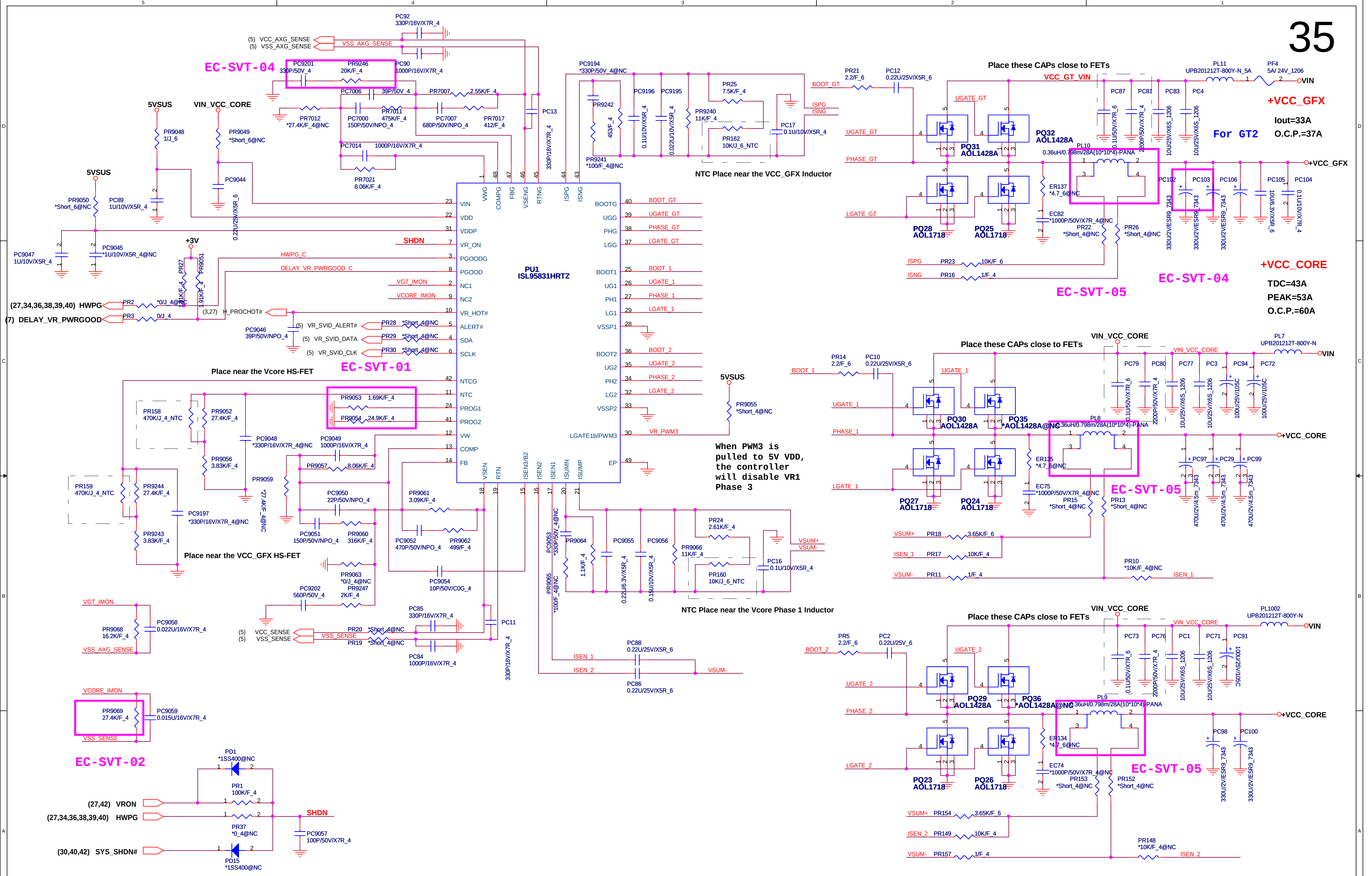


Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	iTPM & RFID EEPROM	1A

Date: Friday, December 24, 2010 Sheet 34 of 53



PU1
ISL95831HRTZ
EC-SVT-04
EC-SVT-05
EC-SVT-01
EC-SVT-02
5VSUS
VIN_VCC_CORE
+3V
SHDN
(27,34,36,38,39,40) HWPG
(7) DELAY_VR_PWRGOOD
(3,27) H_PROCHOT#
(5) VR_SVID_ALERT#
(5) VR_SVID_DATA
(5) VR_SVID_CLK
(5) VCC_AXG_SENSE
(5) VSS_AXG_SENSE
(5) VCC_SENSE
(5) VSS_SENSE
Place near the Vcore HS-FET
Place near the VCC_GFX HS-FET
NTC Place near the VCC_GFX Inductor
NTC Place near the Vcore Phase 1 Inductor
Place these CAPs close to FETs
When PWM3 is pulled to 5V VDD, the controller will disable VR1 Phase 3
+VCC_GFX
For GT2
Iout=33A
O.C.P.=37A
+VCC_CORE
TDC=43A
PEAK=53A
O.C.P.=60A
VIN
VCC_GT_VIN
PQ31 AOL1428A
PQ32 AOL1428A
PQ28 AOL1718
PQ25 AOL1718
PQ30 AOL1428A
PQ35 *AOL1428A@NC
PQ27 AOL1718
PQ24 AOL1718
PQ29 AOL1428A
PQ36 *AOL1428A@NC
PQ23 AOL1718
PQ26 AOL1718
PL10 0.36uH/0.798m/28A(10*10*4)-PANA
PL8 0.36uH/0.798m/28A(10*10*4)-PANA
PL9 0.36uH/0.798m/28A(10*10*4)-PANA
PL11 UPB201212T-800Y-N_5A
PL7 UPB201212T-800Y-N
PL1002 UPB201212T-800Y-N
PF4 5A/ 24V_1206
(27,42) VRON
(27,34,36,38,39,40) HWPG
(30,40,42) SYS_SHDN#
PD1 *1SS400@NC
PD15 *1SS400@NC
PR1 100K/F_4
PR37 *0_4@NC
PC9057 100P/50V/X7R_4

Quanta Computer Inc.

PROJECT :

Size	Document Number	Rev
	+VCC_CORE (ISL95831)	1A
Date: Friday, December 24, 2010	Sheet 35 of 53	

+0.75V_DDR_VTT
TDC : 1A

0.75VSMDDR_VTERM

PC135 *0.1U/10V/X7R_4@NC
PC65 10U/6.3V/X5R_6
PC66 10U/6.3V/X5R_6

+1.5VSUS

PR198 *0_4@NC
PR196 *Short_4@NC

SMDDR_VREF

PR200 *Short_4@NC
PC139 .033U/16V/X7R_4

DDR_V5FILT

PR204 *0_4@NC

(3,7,44) SYS_PWROK

PR9245 100K_4

(16,27,33,38,39,42) MAINON

PR206 *0_4@NC
PD11 DIODE
PC140 *0.1UF/10V/X7R_4@NC

(27,42) SUSON

PR207 *Short_4@NC
PD21 DIODE
PC141 *0.1U/10V/X7R_4@NC

PU8
TPS51116RGER

VTTGND, VTTSNS, GND, MODE, VTTREF, COMP, NC, VDDQSNS, VDDQSET, S3, S5, NC
GND, VTT, VLDOIN, VBST, DRVH, LL, DRVL, PGND, CS_GND, CS, V5IN, V5FILT, PGOOD

+1.5VSUS
PC134 10U/6.3V/X5R_6
PR194 2.2/F_6
PC136 0.1U/50V/X7R_6
DDR_VBST
DRVH
DDR_LL
DRVL
DDR_CS
PR122 4.53K /F_4
DDR_V5IN
DDR_V5FILT
PR197 *10K/F_4@NC
+3V
PR199 *Short_4@NC
HWPG
VIN_DDR
PR203 *620K/F_6@NC
DDR_COMP
PR125 *Short_4@NC

Place these CAPs close to FETs

VIN_DDR
PL16 UPB201212T-800Y-N_5A
PF6 5A/ 24V_1206
VIN

PC132 0.1U/50V/X7R_6
PC130 220P/50V/X7R_4
PC133 10U/25V/X6S_12
PC64 10U/25V/X6S_12
PC9200 10U/25V/X6S_12

PQ45 AOL1428A
PQ17 AOL1718
PQ39 AOL1718

PL15 0.36uH/0.798m/28A(10*10*4)-PANA
ER114 *4.7_6@NC
EC63 *1000P/50V/X7R_4@NC

EC-SVT-05

PR124 10K/F_4
PR126 10K/F_4
PC68 *1000P/50V/X7R_4@NC

PC9043 *10p/50V/C0G_4@NC
PC120 220U/2.5V/ESR15_7343
PC121 220U/4V/ESR25_7343
PC119 100U/6.3V/45m_3528
PC125 *10U/6.3V/X5R_6@NC
PC126 0.1U/10V/X7R_4
PD8 2.4V_ZMM5221B

+1.5VSUS

PR123 5.1_6
PR195 *Short_6@NC
5VPCU
PC138 1U/10V/X5R_4
PC137 1U/10V/X5R_4
(27,34,35,38,39,40)

PR121 *SHORT-1A@NC

+1.5VSUS
Fsw=408KHz
TDC=21A
O.C.P.=25A

5A

PQ81 AOL1428A
+1.5VSUS
+1.5VCPU
PC201 10U/6.3V/X5R_6
PC202 10U/6.3V/X5R_6
PC203 10U/6.3V/X5R_6
PC9199 *100U/6.3V_3528@NC
1.5V_ON
PC204 *0.015U/50V_6@NC

5VPCU
PR212 100K/F_4
MAINON
PQ48 ME2N7002E

+1.5V
PR213 22_8
PQ49 ME2N7002E
PR216 1M_4
PD23 DIODE
(5,42) MAIND
1.5V_ON
PS_S3CNTRL
PQ50 ME2N7002E
PR214 *1M_4@NC

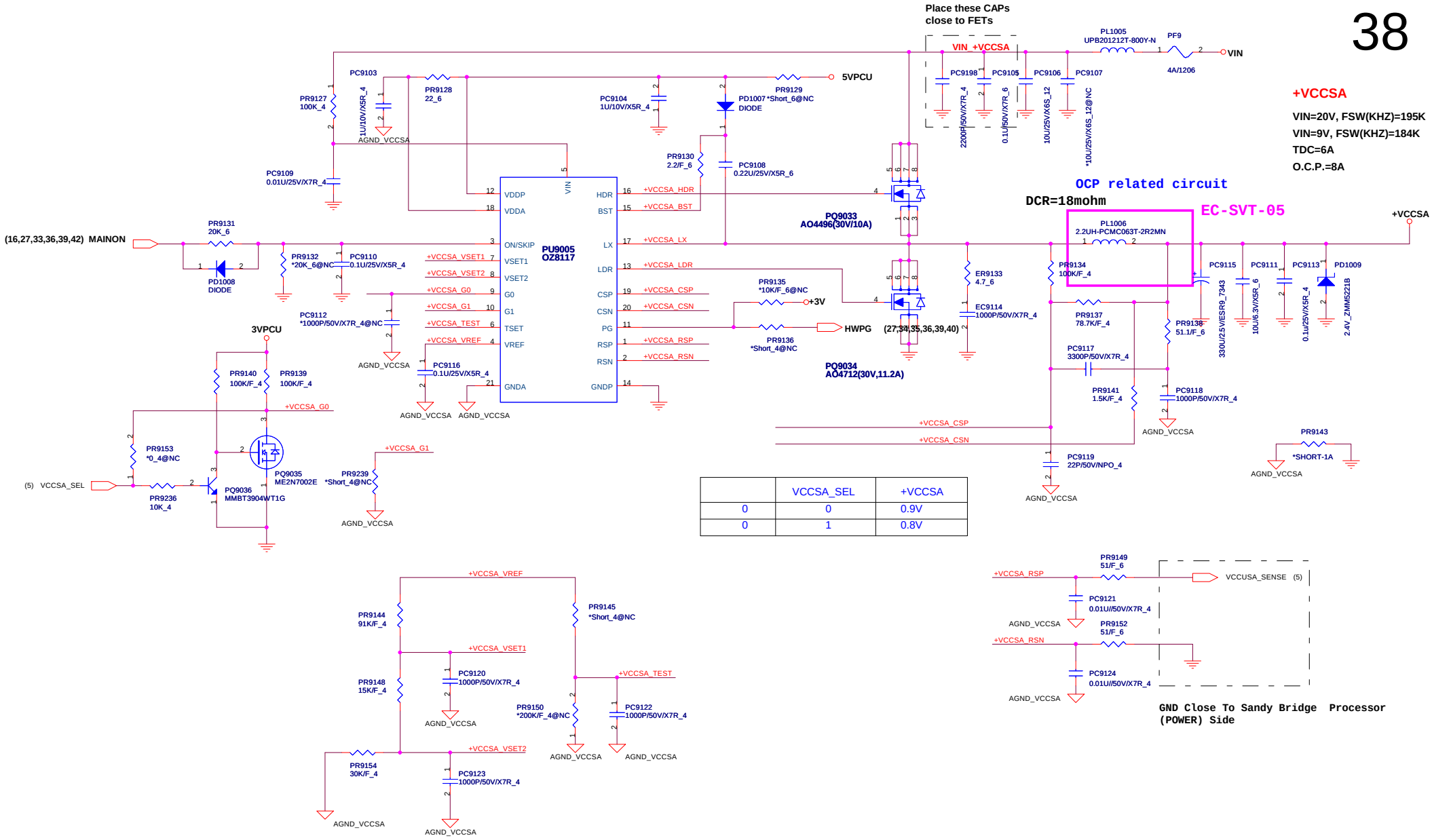
+1.5VSUS
PQ47 AOL1428A
PC146 10U/6.3V/X5R_6
PR211 *0_4@NC
PC147 *0.015U/50V_6@NC
PC150 10U/6.3V/X5R_6
PC149 10U/6.3V/X5R_6
PC148 *100U/6.3V_3528@NC

5A
+1.5V

For S3 Power Saving

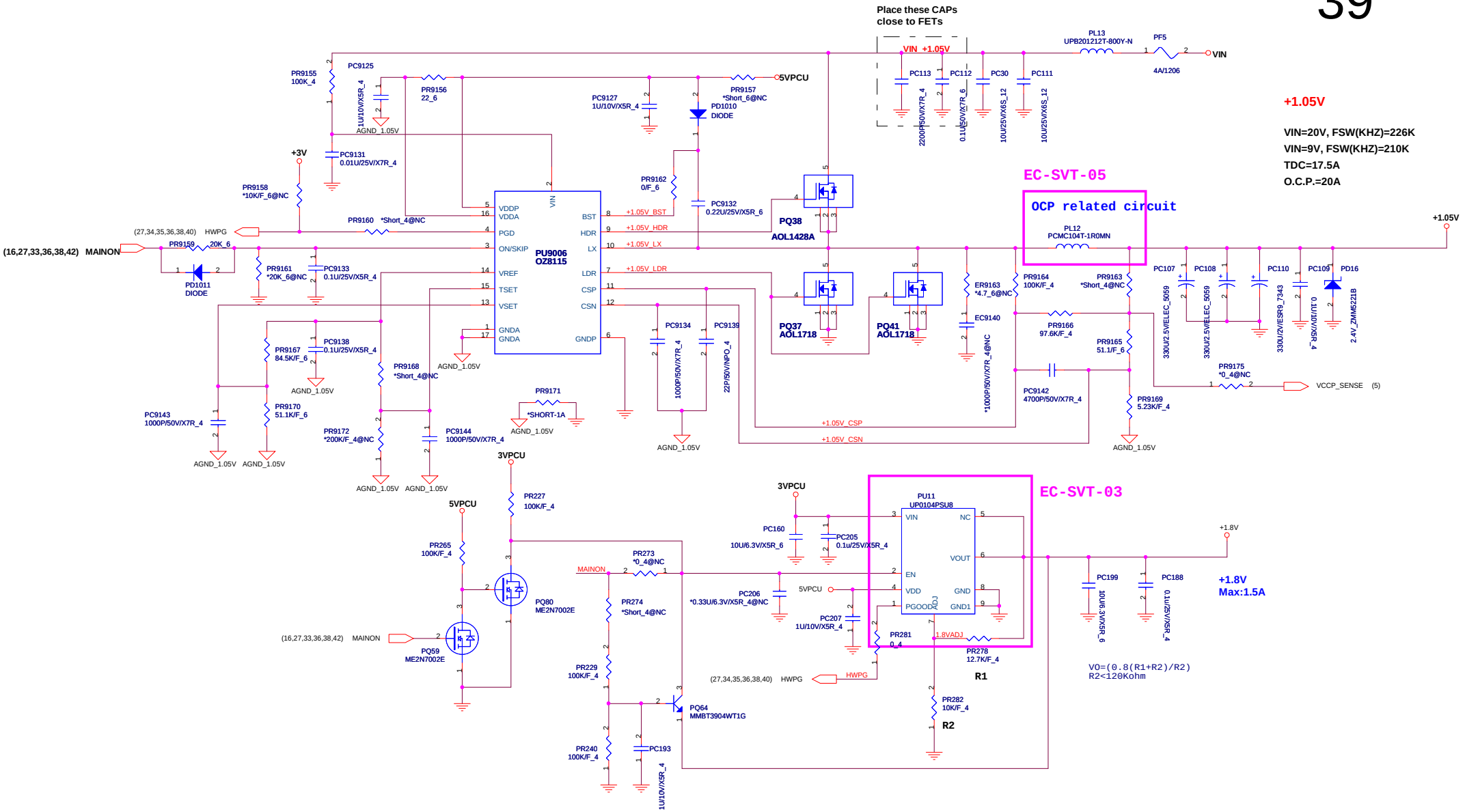
(42) PS_S3CNTRL
PQ82 *ME2N7002E@NC

Quanta Computer Inc.
PROJECT : +1.5SUS (UP6163BQAG)
Size: Document Number: Rev 1A
Date: Friday, December 24, 2010 Sheet 36 of 53



	VCCSA_SEL	+VCCSA
0	0	0.9V
0	1	0.8V

Quanta Computer Inc.			
PROJECT :			
Size	Document Number	+0.85V (OZ8117)	Rev 1A
Date: Friday, December 24, 2010		Sheet 38 of 53	


Place these CAPs close to FETs
+1.05V
VIN=20V, FSW(KHZ)=226K
VIN=9V, FSW(KHZ)=210K
TDC=17.5A
O.C.P.=20A
EC-SVT-05
OCP related circuit
EC-SVT-03
PU9006 OZ8115
PU11 UP0104PSU8
PQ38 AOL1428A
PQ37 AOL1718
PQ41 AOL1718
PQ80 ME2N7002E
PQ59 ME2N7002E
PQ64 MMBT3904WT1G
PD1010 DIODE
PD1011 DIODE
PL13 UPB201212T-800Y-N
PL12 PCMC104T-1R0MN
PF5 4A/1206
VIN +1.05V
5VPCU
3VPCU
+3V
MAINON
HWPG
VCCP_SENSE
+1.8V
Max:1.5A
VO=(0.8(R1+R2)/R2)
R2<120Kohm
R1
R2
Quanta Computer Inc.
PROJECT :
+1.05_PCH (OZ8115)
Size
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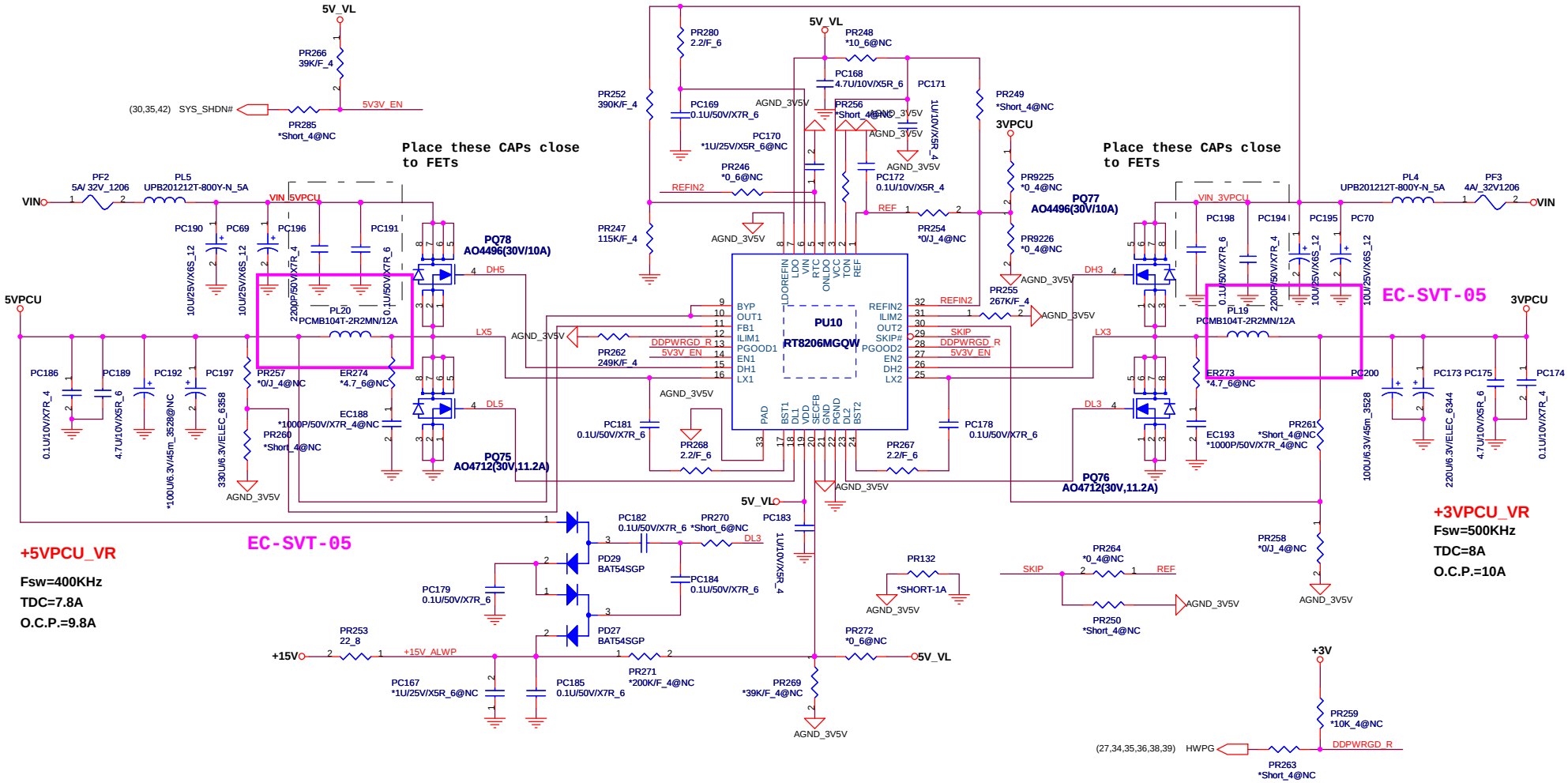
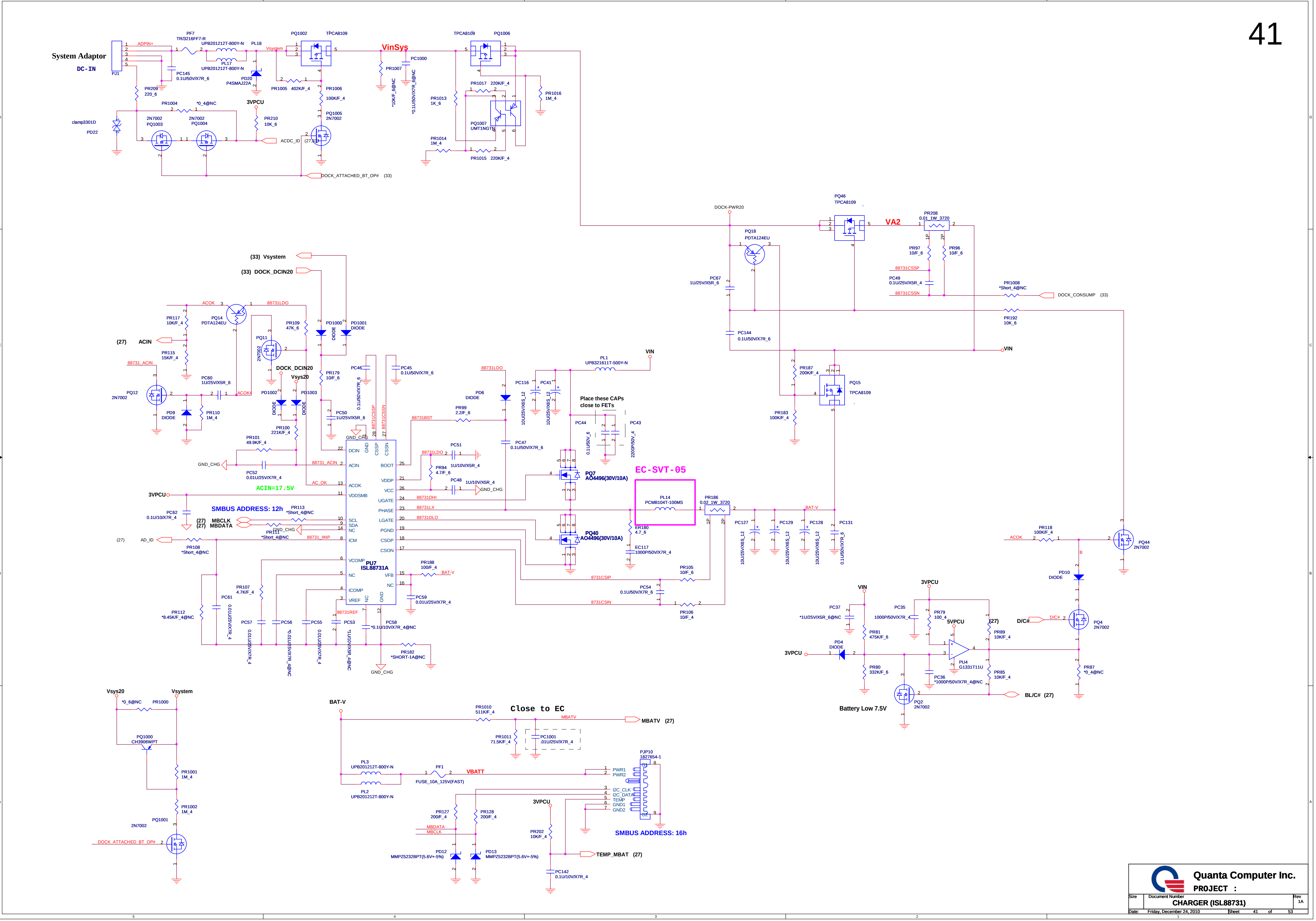
(8,15,20,27,32,33,38,39,41,42,44) 3VPCU
(21,27,36,38,39,41,42) 5VPCU
(15,31,36,42) +15V
(15,35,36,38,39,41,42) VIN




System Adaptor
DC-IN
VinSys
VA2
VIN
EC-SVT-05
ACIN=17.5V
SMBUS ADDRESS: 12h
PU7
ISL88731A
Place these CAPs close to FETs
PQ7 AO4496(30V/10A)
PQ40 AO4496(30V/10A)
PL14 PCMB104T-100MS
PR186 0.02_1W_3720
PR208 0.01_1W_3720
Close to EC
MBATV (27)
PF1 FUSE_10A_125V(FAST)
VBATT
PJP10
SMBUS ADDRESS: 16h
TEMP_MBAT (27)
Battery Low 7.5V
PU4 G1331T11U
BL/C# (27)
D/C#
DOCK_ATTACHED_BT_OP# (33)
DOCK_CONSUMP (33)
ACDC_ID (27)
(33) Vsystem
(33) DOCK_DCIN20
(27) ACIN
(27) MBCLK
(27) MBDATA
3VPCU
5VPCU
Vsys20
Vsystem
BAT-V

Quanta Computer Inc.

PROJECT :

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	CHARGER (ISL88731)	1A

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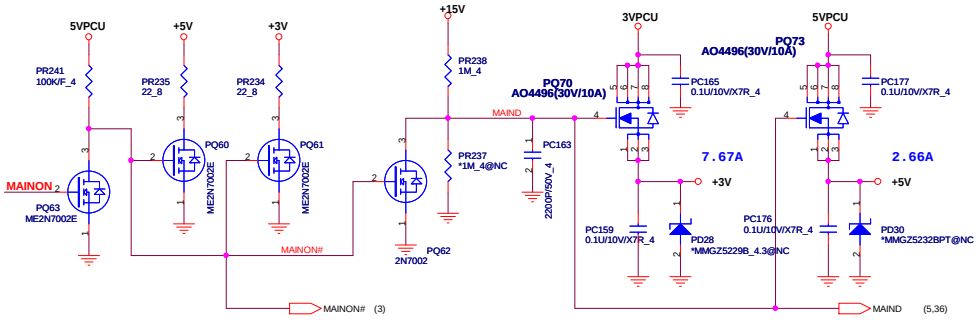
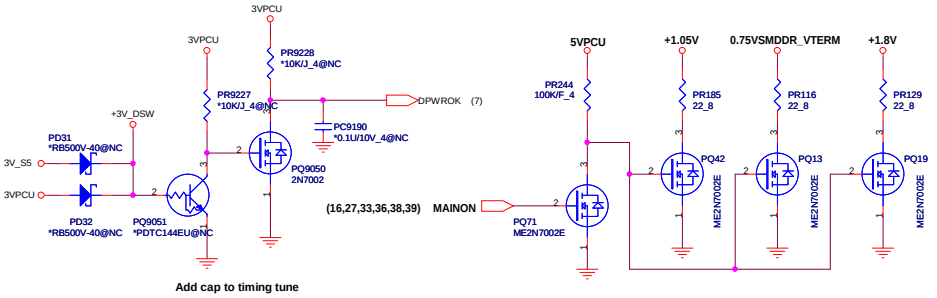
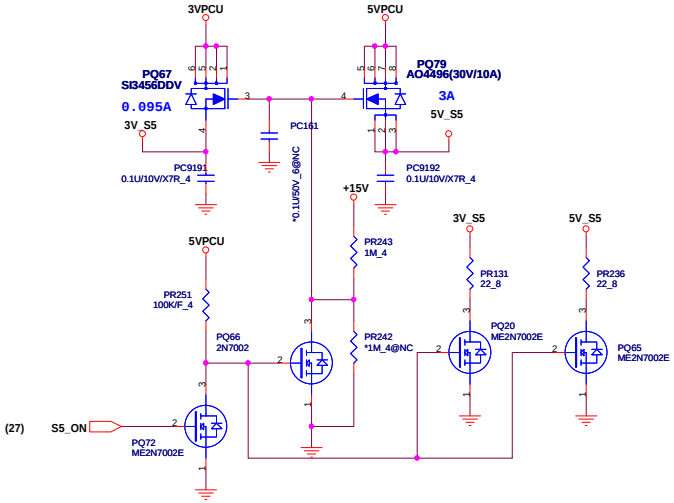
+3.3V, +5V



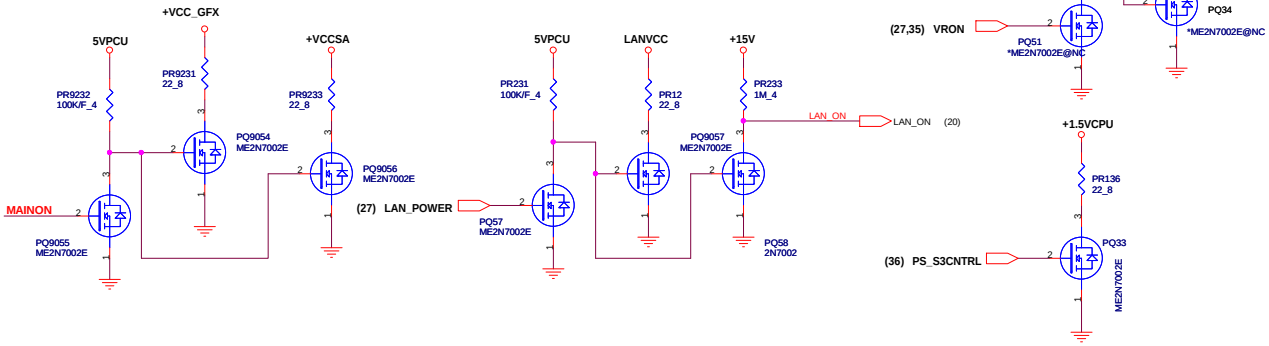
DPWROK FOR DSW



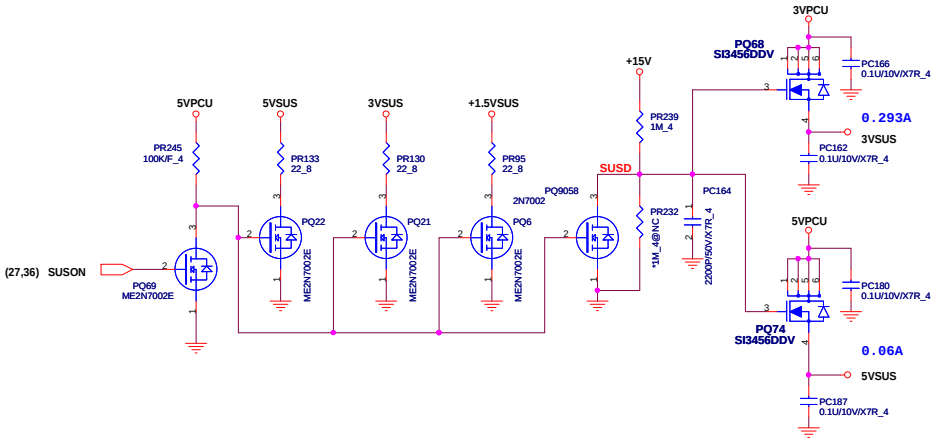
3V_S5, 5V_S5

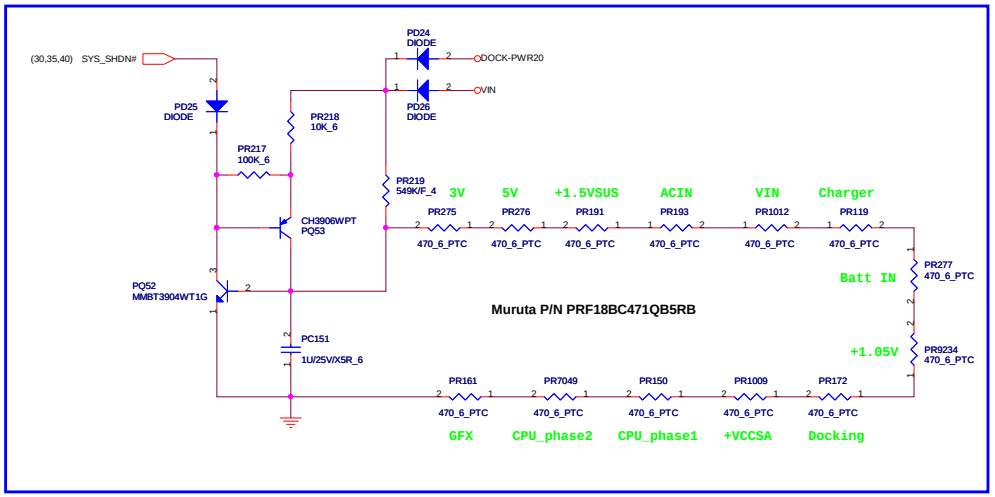


LANVCC



3VSUS, 5VSUS





Quanta Computer Inc.			
PROJECT :			
Size	Document Number		Rev
	Discharge/+3V_MAINON		1A
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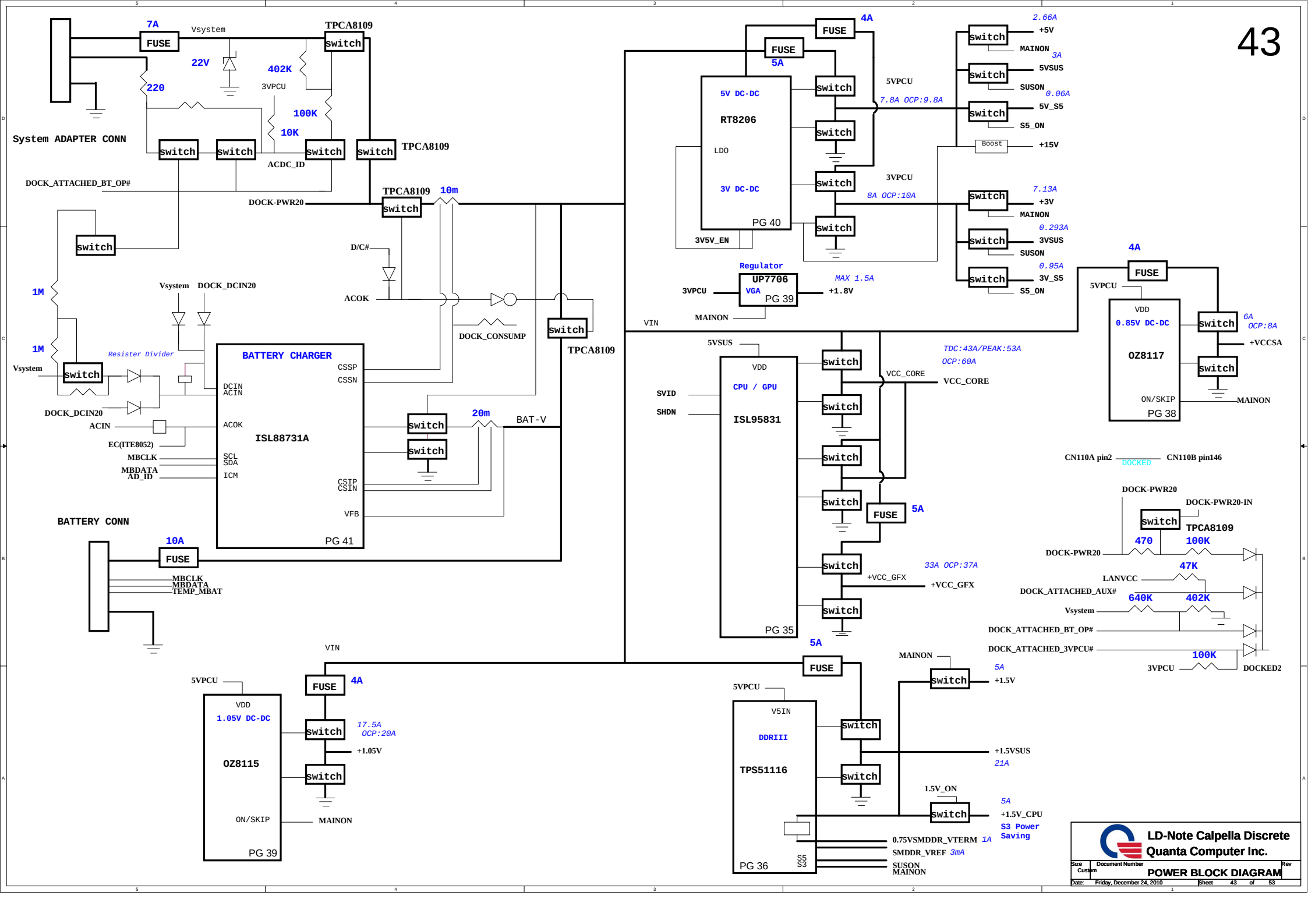
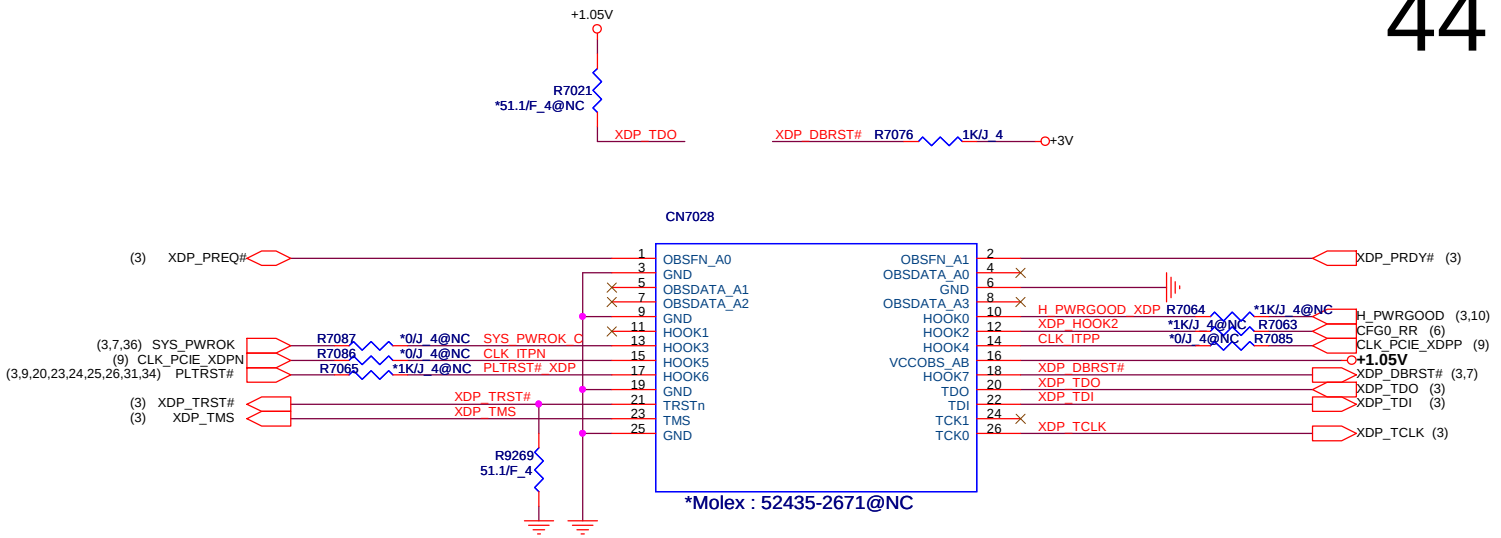


LD-Note Calpella Discrete
Quanta Computer Inc.

Size	Document Number	Rev
Custom	POWER BLOCK DIAGRAM	
Date: Friday, December 24, 2010	Sheet 43 of 53	

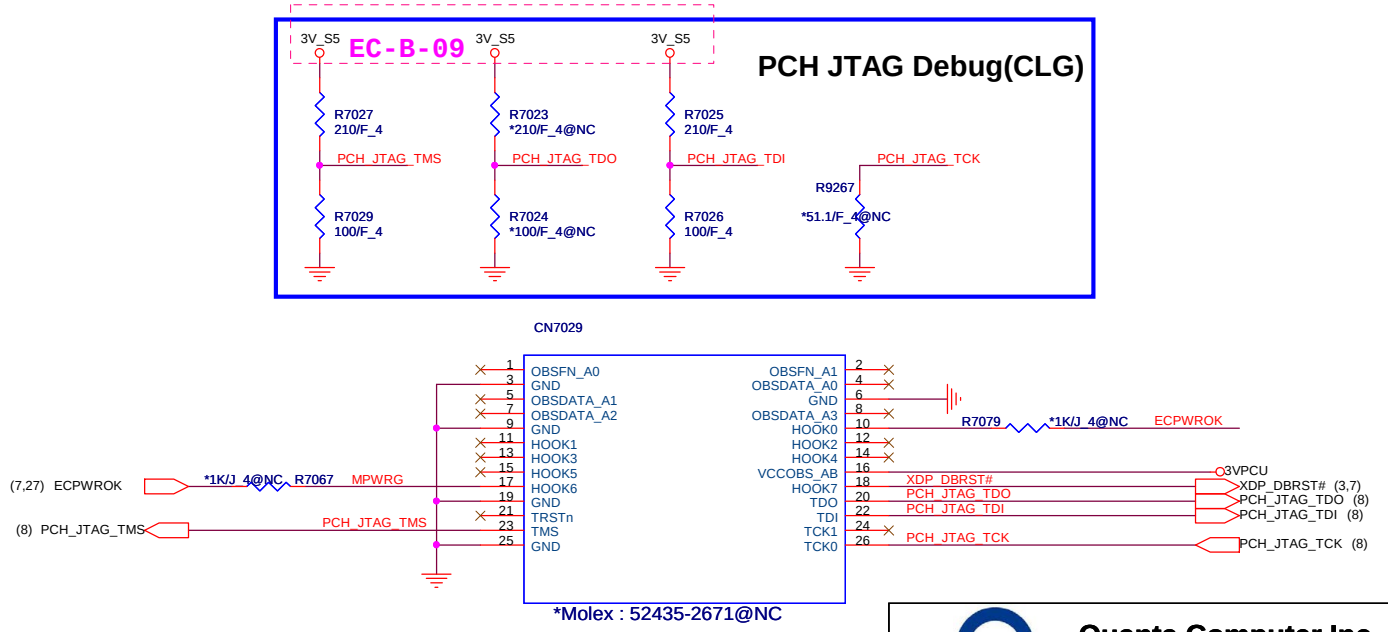
CPU XDP Connector

Signal Ref	Loc	Enable	Disable
TDO	R7021	ASM	NC
TRST#	R9269	ASM	ASM
DBRST#	R7076	ASM	ASM
RESET#	R7065	ASM	NC
CFG0	R7063	ASM	NC
PWRGD	R7064	ASM	NC
SYS_PWROK	R7087	ASM	NC
Conn	CN7028	ASM	NC



PCH XDP Connector

Signal Ref	Loc	Enable	Disable
TDO	R7023/R7024	ASM	NC
TMS	R7027/R7029	ASM	ASM
TDI	R7025/R7026	ASM	ASM
TCK	R9267	ASM	NC
MPWRG	R7067/R7079	ASM	NC
Conn	CN7029	ASM	NC



Quanta Computer Inc.
PROJECT : PD3

Size	Document Number	Rev
	XDP	1A
Date: Friday, December 24, 2010	Sheet 44 of 53	

Revision History

Revision	Date	Phase	Change List	Release Schematic Date	Release Gerber File Date
1A		DV	Initial release		

Schematic Value Explanation Description :

RESISTOR

Value	F	4	6	8	12	1210	*	Description
*1K/F_4	1%	0402 (1005)					DE POP	1K ohm 1% SMD 0402 package and DE POP
1K_6	5%		0603 (1608)				POP	1K ohm 5% SMD 0603 package and POP
1K_8	5%			0805 (2125)			POP	1K ohm 5% SMD 0805 package and POP
1K_12	5%				1206 (3216)		POP	1K ohm 5% SMD 1206 package and POP
1K_1210	5%					1210 (3225)	POP	1K ohm 5% SMD 1210 package and POP

CAPACITOR

Value	Voltage	Material	6				*	Description
*0.1U/10V/X5R_4	10V	X5R	0402 (1005)				DE POP	0.1UF 10V X5R SMD 0402 package DE POP
1U/25V/X7R_6	25V	X7R	0603 (1608)				POP	0.1UF 25V X7R SMD 0603 package POP

MiniCard WLAN

HOLE13 *HG-C276D91P2@NC
HOLE14 *HG-C276D91P2@NC
Top side

MiniCard WWAN

HOLE35 H-TC236BC102D64P2
HOLE36 H-TC236BC102D64P2
Bot side

Hole for PCH support

HOLE34 *HG-C276D91P2@NC
HOLE33 *HG-C276D91P2@NC

Drink Hole

HOLE8 *HG-C276D91P2@NC

Bluetooth nut

HOLE3 H-TC197D118PT
Top side

Hole for CPU support

HOLE29 *H-C142D142N@NC
HOLE31 *H-C142D142N@NC
HOLE30 *H-C142D142N@NC
HOLE32 *H-C142D142N@NC

VGA nut

HOLE27 *HG-C276D91P2@NC
HOLE28 *HG-C276D91P2@NC
HOLE26 H-TC197BC158D122P2

Break Hole

HOLE11 *o-gc4@NC

Boundary Hole

HOLE7 *HG-TC276BC216D91P2
HOLE4 HG-C276D91P2
HOLE5 *H-C86D86N@NC
HOLE15 *HG-TC276BC216D91P2
HOLE10 *H-TC209BC315D209P2
HOLE1 HG-C276D91P2
HOLE9 H-TC197BC158D122P2
HOLE17 HG-C276D91P2
HOLE2 HG-C276D91P2

Card Reader Nut

HOLE18 H-TC197BC158D122P2
HOLE37 H-TC197BC158D122P2
Top side

Boundary Hole

HOLE6 *HG-TSHBC276I2_7D91P2-1@NC
HOLE16 HG-C276D91P2
HOLE25 HG-C276D91P2
HOLE23 *H-C91D91N
HOLE21 *H-C157D91P2
HOLE24 HG-C276D91P2

Boundary Hole (ODD)

HOLE12 HG-C276D91P2

PAD

GP2 *SPAD-SPE1NP
GP3 *SPAD-RE197X217NP
GP1 *RE236X494NP
GP4 *RE270X220NP

HOLE19 O-GC2A-1
HOLE20 O-GC2A-2
HOLE22 *H-TC197BC93D93P2

Quanta Computer Inc.

PROJECT : DM4/RB4

Size	Document Number	Rev
	HOLE & SCREW	1A
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G NOTE SKU TABLE

Location					

G NOTE SKU TABLE

Location					Page

	EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
2010 SDV~SIV	EC-A-01	27	07/05	U15,C135,C136,Y2	Change connection of MIC_MUTE_LED# and SPEAKER_MUTE_LED#, and reserved crystal for IT8518 per EC engineer request.
	EC-A-02	17	07/05	D20,D21,D22,D23, D24,D25,D26,D28, U10,U17	Change ESD protection component per ESD engineer request.
	EC-A-03	14	07/06	R9047,R9048, Q9000,Q9004	Add switch on SMBUS which connect to memory thermal sensor.
	EC-A-04	3,8	07/07	R390	Add connection to PROC_SELECT#
	EC-A-05	13	07/13	R8001	Alert pin have two pullup.R8001set no ASM.
	EC-A-06	18	07/21	R91,R87	NORAM loud beep fix
	EC-A-07	16	07/26	R1740	According to VESA DP interoperability guideline, R1740 value should be 5M or Larger for Dual-mode Device which support both Display port 1.1a and HDMI.
	EC-A-08	27	07/28	C127,R148	Change C127 to 0ohm, change R148 to 0ohm and not stuff for version B KBC(IT8518) per ITE fae suggestion.
	EC-A-09	27	07/28	C135,C136,Y2	Add crystal for EC
	EC-A-10	08	07/30	R9146,R8357	Remove redundant resistor R9146 and replace it by R8357 in PCH Strap Table
	EC-A-11	10	08/02	R9143,R9144, R8357	Remove R8456 and add pull high 10K resistor R9143,R9144 base on INTEL Design Guideline.
	EC-A-12	14	08/02	R8000,R8037	Change CPU FET/DDR3 thermal sensor to EMC1422-1-ACZL-TR which Local/Remote Thermal Shutdown Limit define by Hardware, for DMRB4, default Thermal Shutdown Limit value will be set on 105 degree celcius.
	EC-A-13	27	08/13	R129,Q24,CN37	Change PWR_LED# power rail to 3V_S5 and remove Q24 to prevent LED flash at the fisrt time when insert adapter.
SIV~SIT	EC-B-01	07	09/06	R413	Power good:pull up 200ohm
	EC-B-02	21	09/06		ODD: reserve +5v path
	EC-B-03	18,27	09/06	R184,R192,D18, D19,R376,R375	Audio :change HP jack in circuit for realtek/lenovo recommend Add: R184,R192,D18,D19,R376 Delete: R375
	EC-B-04	15	09/06	CN3,CN13	Merge LCD+Camera connector same as DMRB3.
	EC-B-05	27	09/06		Correct the netname from H_PROCHOT#_EC to H_PROCHOT_EC which cause wrong define on EC setting and result of slow system issue.
	EC-B-06	27	09/06		Correct the netname assign of SUSON and S5_ON
	EC-B-07	03	09/09	U8250	Change U8250 to 74AHC1G09(OD AND gate)
	EC-B-08	24	09/09	CN27	Add AT3.0 hook connection to WWAN connector
	EC-B-09	44	09/27		Change PCH XDP signal pull up power rail from 3VPCU to 3V_S5 according to Intel CRB (Huron River Platform Emerald Lake Revision 1.0 June 2010)
	EC-B-10	07	09/28	R8292	Change connection to RSMRST# due to GC89E do not support the Deep Sx state.
	EC-B-11	16,17, 20,22, 23	09/28	C10,C1411,R45,R46, RV4,U1600, U1900, U2300,U3,U26,U27, U48,U49,C173,	Add for ESD
	EC-B-12	26	09/30	Q5	Change Q5 to 2SK3018 from DTC115
	EC-B-13	7	09/30	R8486,R8342	Add WWAN detection circuit
	EC-B-14	8,9, 20	09/30	C135,C136,C8360, C8362,C8388, C8389	Fine tune crystal shunt capacito Y2(C135=C136=10pF),Y8200(C8360=C8362=15pF),Y8202(C8388,C8389=27pF),Y1 no need modify
	EC-B-15	22	1005	C56,C9222,R630,U53	Change from AUO3 to AUO4(TPS2254)

	EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
2010	EC-B-16	24	10/06	R8549,R8550, R8551	Add 0ohm optional resistor on AT 3.0 hook signals connection.
	EC-B-17	7,8, 11	10/06	R8345,R8393,R8503, R8509,R8341	GC89E didn't support DSW function,change some power rail to non-DSW power.
SIT~SVT	EC-C-01	10	12/06		Add GPIO 39 Dock w/,w/o for Assembly request
	EC-C-02	20	12/06	R8355,R8356,RV8,RV9	ESD team recommend
	EC-C-03	20	12/06	C173	Final solution from ESD,EMI and safety team.
	EC-C-04	27	12/06		Solve issue ODD Drive LED turn on once at Battery pack plugged, change ODD_5V_ON connection from GPIO#86 to GCPIO#98.
	EC-C-05	3	12/06	C8237	Add 0.1u cap for +1.5VCPU per ESD request.
	EC-C-06				Cancel this EC
	EC-C-07	10,24 ,27	12/09	R8331,R638,R8023	Modify for mSATA and WWAN exclusive support design
	EC-C-08	20,27	12/16		Connect U15 pin120 to RJ45_LINKUP# for LAN cable detection under S5 state
	EC-C-09	3,5,7, 8,9, 10,11, 13,14, 18,24, 25,27, 33 34	12/17	R8222,R8225,R8254, R648,R8566,R8291, R8292,R8294,R8295, R8296,R8297,R8298, R8301,R8303,R8344, R8393,R9023,R8564, R7061,R8238,R9141, R8500,R8503,R8504, R8506,R8507,R8510, R8511,R8513,R8514, R8519,R8522,R8523, R8524,R8525,R8526, R8528,R8529,R8530, R8531,R8532,R8533, R8534,R8538,R8542, R8546,R8002,R8022, L17,R629,R635,R636, R644,R8549,R8550,R8551, R309,R318,R319,R320, R321,R322,R323,R324, R325,R478,R9262,R362, R365,R377,R378	Change 0 ohm to shortpad.
	EC-C-10	5,11	12/21	C8541,C8542,C8543,RV10, RV11,RV12,RV13,RV14	Reserve 0.1u and 0402 TVS space for ESD

SIT~SVT

	EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
2010	EC-C-11	27	12/24	R123,R124	Change power rail from 3VPCU to 3V_S5
	EC-C-12	18	12/24	C45	Change from 2.2u to 1u to solve pop noise when resume from S3
	EC-C-13	11,16	12/24	RV15,C8460,C8465,C8466, C8467,C8468,C8469, C8470,C1412	Add for ESD display port CDE solution.

EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
EC-P-01	35	7/6	PR7007	change from 2.37K to 2.32K
EC-P-02	35	7/6	PR9059	change from 27.4K to NC(*)
EC-P-03	35	7/6	PC9058	change from 0.068u to 0.022u
EC-P-04	35	7/6	PC9059	change from 0.068u to 0.015u
EC-P-05	41	7/6	PR107	change from 10K to 4.7K
EC-P-06	36	8/17	PQ82	change to NC(*) for S3 issue
EC-P-07	38	8/17		change 5VPCU to 3VPCU for OZ8117 new version
EC-P-08	40	9/7	PC192	change to NC(*)
EC-P-09	39	9/7	PR278,PR282	change PR278 to 12.7K,change PR282 to 10K for +1.8V ripple
EC-P-10	39	9/7	PR9170	change PR9170 to 51.1K for +1.05V regulation
EC-P-11	39	9/7	PL12	change PL12 to 1uH for +1.05V ripple
EC-P-12	39	9/7	PR9166	change PR9166 to 97.6K for +1.05V OCP
EC-P-13	39	9/7	PC9142	change PC9142 to 4700pF for +1.05V transient
EC-P-14	38	9/7	PR9130	change PR9130 to 2.2ohm for +VCCSA Ringing voltage
EC-P-15	38	9/7	ER9133,EC9114	Add ER9133 to 4.7ohm and add EC9114 to 1000pF for +VCCSA Ringing voltage
EC-P-16	36	9/7	PR124	Change PR124 to 10K for 1.5V regulation
EC-P-17	38	9/7	PR9137	Change PR9137 to 78.7K for +VCCSA OCP
EC-P-18	36	9/7	PR122	Change PR122 to 4.53K for 1.5V OCP
EC-P-19	40	9/7	PR255	Change PR255 to 267K for 3VPCU OCP
EC-P-20	40	9/7	PR262	Change PR262 to 249K for 5VPCU OCP
EC-P-21	36	9/8	PR9245	S3 Function Modify
EC-P-22	35	9/8		Change for CPU transient quality
EC-P-23	35	9/8		Change for GFX transient quality

EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
EC-SIT-01	35	9/28	PR9049,PR9050 PR28,PR29 PR30,PR19 PR20,PR152 PR153,PR15 PR13,PR22 PR26,PR9055	change to short-pad
	36	9/28	PR195,PR207 PR196,PR199 PR200,PR125	change to short-pad
	38	9/28	PR9129,PR9136 PR9145,PR9239	change to short-pad
	39	9/28	PR9160,PR9168 PR274,PR9163 PR9157	change to short-pad
	40	9/28	PR270,PR250 PR263,PR261 PR256,PR285 PR249,PR260	change to short-pad
	41	9/28	PR1008,PR113 PR111,PR108	change to short-pad
EC-SIT-02	42	9/28	PR9228,PC9190 PQ9050,PR9227 PQ9051,PD32	change to NC for HW request
EC-SIT-03	38	9/28	PR9139,PR9140	Reduce leakage current
EC-SIT-04	35	10/1	PR9053,PR2,PR3	Intel VBoot setting to 0V request

EC NO.	PG.	DATE	PART REFERENCE	DESCRIPTION
EC-SVT-01	35	11/24	PR9053 PR9054	change PR9053 to 1.69K for CPU Iccmax change PR9054 to 24.9K for CPU Iccmax
EC-SVT-02	35	11/30	PR9069	change PR9069 to 27.4K for when Iccmax=53A Vimon can within 2.7V
EC-SVT-03	39	11/30	PU11 PR281	change PU11 to UP0104PSU8 change PR281 to 0hm for HW requrst
EC-SVT-04	35	12/10	PC103 PC9201 PR9246	change PC103 to 330uF,change PC9201 to 330pF,change PR9246 to 20k for GFX OVP issue
EC-SVT-05	35 36 38 39 40 41	12/21	PL8,PL9,PL10, PL15,PL12,PL1006 PL19,PL20 PL14	DC to CV inductor p/n change

Quanta Computer Inc.
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