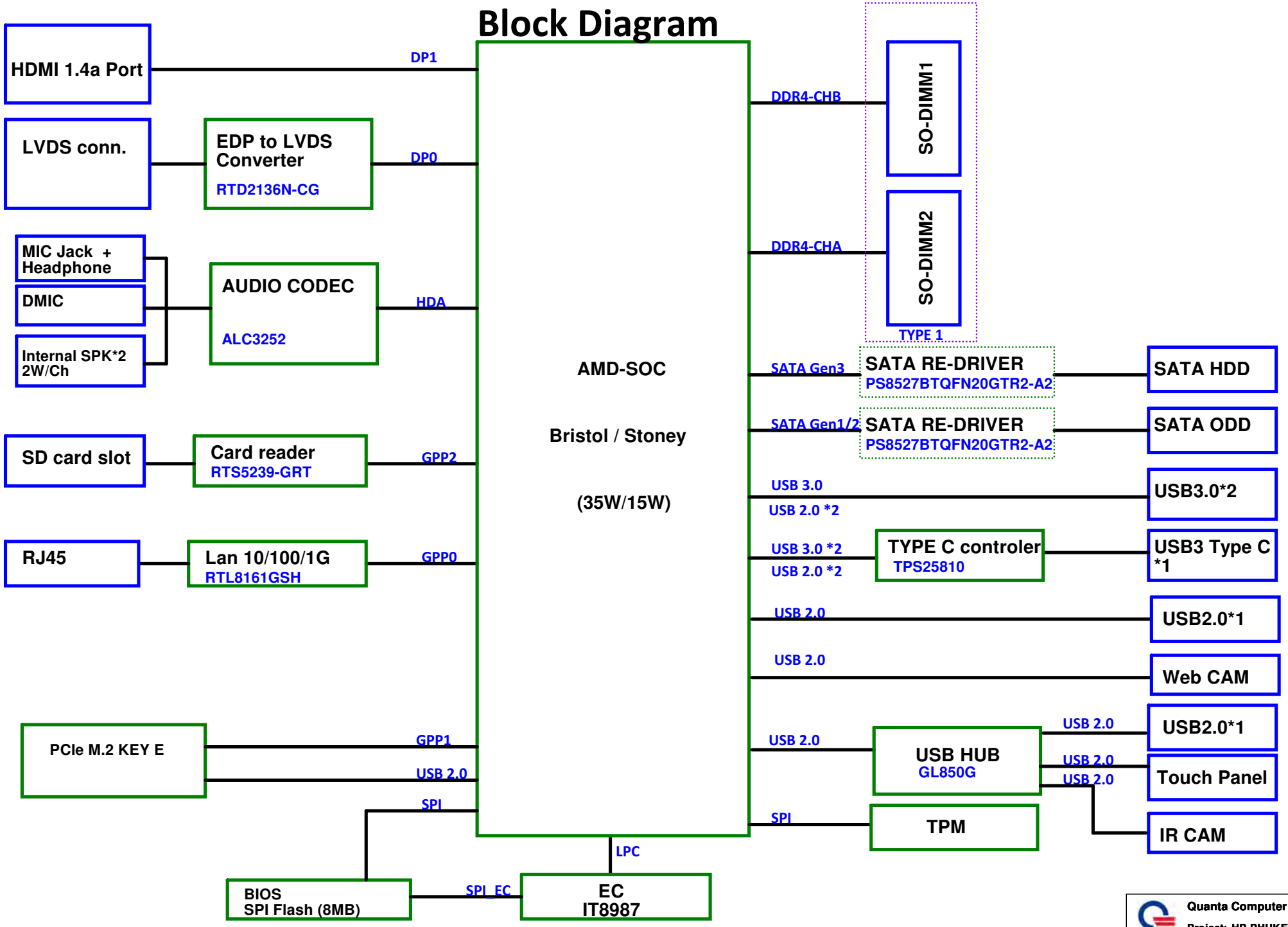
Block Diagram



Quanta Computer Inc.
Project: HP-PHUKET
Title: System Block Diagram
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POWER PLANE	VOLTAGE	CONTROL SIGNAL	Power States ACTIVE IN
+VIN	+19V		Always
VCCRTC	+1.5V		Always
+3V	+3.3V	MAIN_ON1	S0
+3V_S3	+3.3V	S3_ON	S0~S3
+3V_S5	+3.3V	S5_LOAD_CODE	S0~S5
+3V_ALW	+3.3V	AC/DC Insert enable	Always (LDO)
+5V	+5V	MAIN_ON1	S0
+5V_S3	+5V	S3_ON	S0~S3
+5V_S5	+5V	S5_ON	S0~S5
+5V_ALW	+5V	AC/DC Insert enable	Always (LDO)
+3.3V_WLAN	+3.3V	EN_WLAN_PWR	S0~S5
+3.3V_LAN	+3.3V	LAN_PWR_ON	S0~S5
+VDDQ	+1.2V	S3_ON	S0~S3
+2.5V_S3	+2.5V	S3_ON	S0
+1.8V_S5	+1.8V	S5_ON	S0~S5
+1.8V	+1.8V	MAIN_ON2	S0
+VDDP_S5	+1.05V	S5_ON	S0~S5
+VDDP	+1.05V	S0_ON1_D	S0
+VDDCR_FCH_S5	+0.775V	S5_ON	S0~S5
CPU_CORE	~	VRON	S0
NB_CORE	~	VRON	S0
+12V	+12V	MAIN_ON1	S0
+SMDDR_VTERM	+0.6V	S3_ON	S3

Schematic "Value" Definition

Pavilion AMD Platform Phuket and Samui		DB/SI/PV Stage			MP	
By Value format	Description	Auto BOM Control	Phuket	Samui	Phuket	Samui
XX	Install	V	V	V	V	V
*XX	Non-Install	V				
BR@XX	Install AMD Bristol only	V	V		V	
ST@XX	Install AMD Stoney only	V		V		V
PROTO@XX	Install in pre-production only	V	V	V		
MP@XX	Install in MP only	V			V	V

***Board ID by manual control

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7,8,26,37,38 +VDDP
5,6,7,15,26,28,32,37 +1.8V

03

GPP:BR: support GEN3 (1.05V)
ST:support GEN2 (0.95V)
-->current GEN2 only.

LAN
WLAN
CARD READER

U4B
PCIE

LAN	16	PCIE_GLAN_RX_P	U10	P_GPP_RXP[0]	P_GPP_TXP[0]	R1	PCIE_TXP0_C	C15 0.1u/16V/X7R_4	PCIE_GLAN_TX_P 16
	16	PCIE_GLAN_RX_N	U9	P_GPP_RXN[0]	P_GPP_TXN[0]	R2	PCIE_TXN0_C	C17 0.1u/16V/X7R_4	PCIE_GLAN_TX_N 16
WLAN	21	PCIE_WLAN_RX_P	T6	P_GPP_RXP[1]	P_GPP_TXP[1]	R4	PCIE_TXP1_C	C13 0.1u/16V/X7R_4	PCIE_WLAN_TX_P 21
	21	PCIE_WLAN_RX_N	T5	P_GPP_RXN[1]	P_GPP_TXN[1]	R3	PCIE_TXN1_C	C14 0.1u/16V/X7R_4	PCIE_WLAN_TX_N 21
CARD READER	17	PCIE_CR_RX_P	T9	P_GPP_RXP[2]	P_GPP_TXP[2]	N1	PCIE_TXP2_C	C12 0.1u/16V/X7R_4	PCIE_CR_TX_P 17
	17	PCIE_CR_RX_N	T8	P_GPP_RXN[2]	P_GPP_TXN[2]	N2	PCIE_TXN2_C	C10 0.1u/16V/X7R_4	PCIE_CR_TX_N 17
			P7	P_GPP_RXP[3]	P_GPP_TXP[3]	N4			
			P6	P_GPP_RXN[3]	P_GPP_TXN[3]	N3			
		+VDDP	R329 196/F_4 P_ZVDDP	U7 P_ZVDDP	P_ZVSS/P_RX_ZVDDP	U6	P_RX_ZVDDP	R321 196/F_4	
			P10	P_GFX_RXP[0]	P_GFX_TXP[0]	M2			
			P9	P_GFX_RXN[0]	P_GFX_TXN[0]	M1			
			N6	P_GFX_RXP[1]	P_GFX_TXP[1]	L1			
			N5	P_GFX_RXN[1]	P_GFX_TXN[1]	L2			
			N9	P_GFX_RXP[2]	P_GFX_TXP[2]	L4			
			N8	P_GFX_RXN[2]	P_GFX_TXN[2]	L3			
			L7	P_GFX_RXP[3]	P_GFX_TXP[3]	J1			
			L6	P_GFX_RXN[3]	P_GFX_TXN[3]	J2			
			L10	P_GFX_RXP[4]	P_GFX_TXP[4]	J4			
			L9	P_GFX_RXN[4]	P_GFX_TXN[4]	J3			
			K6	P_GFX_RXP[5]	P_GFX_TXP[5]	H2			
			K5	P_GFX_RXN[5]	P_GFX_TXN[5]	H1			
			K9	P_GFX_RXP[6]	P_GFX_TXP[6]	G1			
			K8	P_GFX_RXN[6]	P_GFX_TXN[6]	G2			
			J7	P_GFX_RXP[7]	P_GFX_TXP[7]	G4			
			J6	P_GFX_RXN[7]	P_GFX_TXN[7]	G3			

FP4 REV 1.0
FP4

Cdep : 220 nF for BR(if need support GEN3) and 100nF for Gen2

HDT+ Debug Connector

+1.8V
R294 1K_4
5 APU_TRST#
D47 TVS_AZ5123-01H
C155 PROT@0.01U/50V_4
EC-SI-25

R295 PROTO@33_4 HDT_TRST#
R296 PROTO@10K_4 HDT_DBRDY3
R297 PROTO@10K_4 HDT_DBRDY2
R298 PROTO@10K_4 HDT_DBRDY1

J1

1	CPU_VDDIO1	CPU_TCK	2	APU_TCK	APU_TCK 5
3	GND1	CPU_TMS	4	APU_TMS	APU_TMS 5
5	GND2	CPU_TDI	6	APU_TDI	APU_TDI 5
7	GND3	CPU_TDO	8		APU_TDO 5
9	CPU_TRST_L	CPU_PWROK_BUF	10	APU_PWROK_BUF	
11	CPU_DBRDY3	CPU_RST_L_BUF	12	APU_RST_L_BUF	
13	CPU_DBRDY2	CPU_DBRDY0	14		
15	CPU_DBRDY1	CPU_DBREQ_L	16	DBREQ# R305 PROTO@0_4	APU_DBRDY 5
17	GND4	CPU_PLLTEST0	18		APU_DBREQ# 5
19	CPU_VDDIO2	CPU_PLLTEST1	20		APU_TEST19_PLLTEST0 5
					APU_TEST18_PLLTEST1 5

PROTO@HDT HEADER

+1.8V
R304 PROTO@1K_4
R303 PROTO@1K_4
5 APU_RST#
5 APU_PWRGD
U24 PROTO@SN74LVC2G07DCKR
A1 Y1 GND VCC A2 Y2
APU_RST_L_BUF
APU_PWROK_BUF

APU_TDI R302 PROT@1K_4
APU_TCK R300 PROT@1K_4
APU_TMS R301 PROT@1K_4
APU_DBREQ# R299 PROT@1K_4
+1.8V
C156 PROT@0.1U/16V/X7R_4

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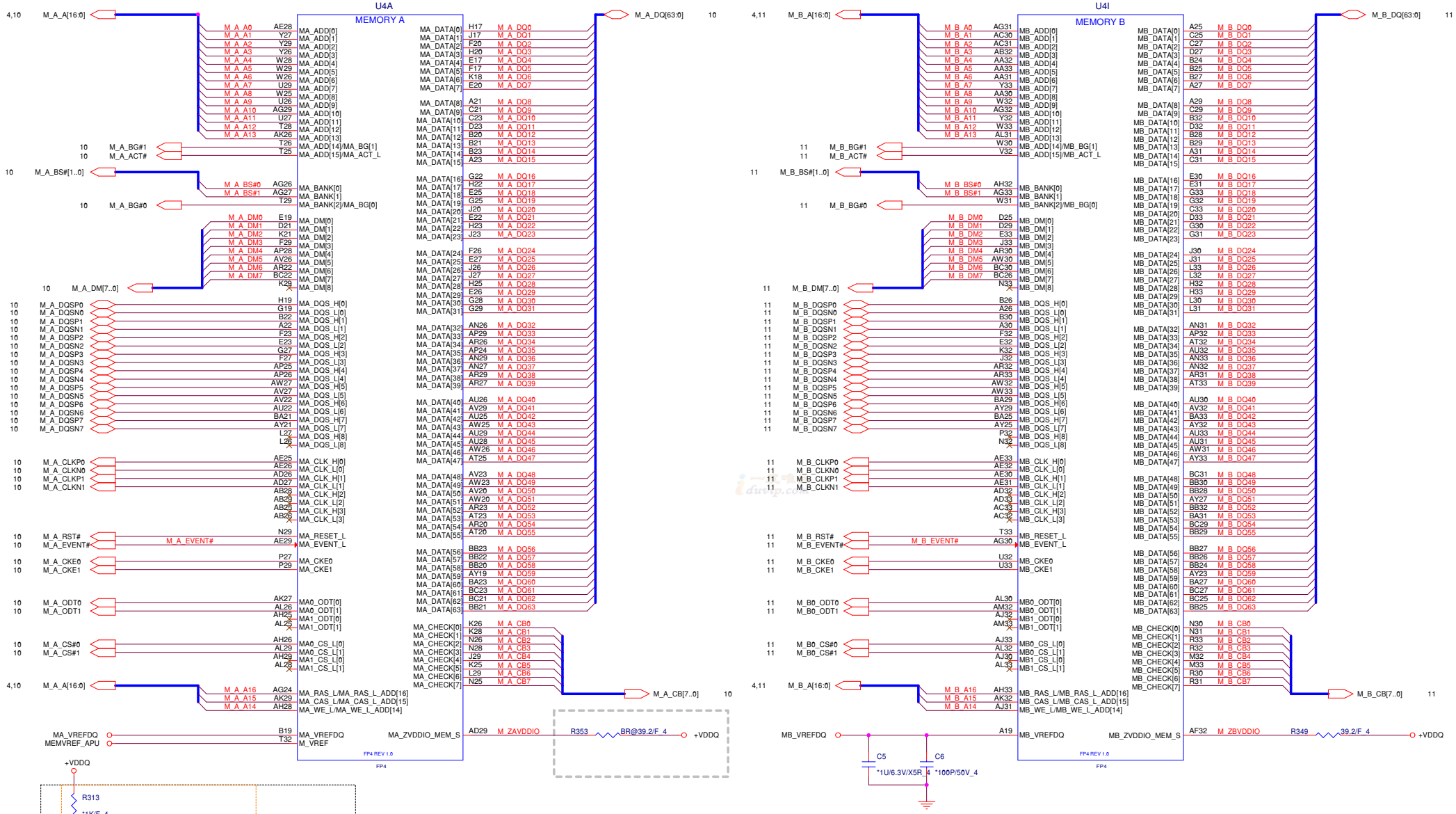
8,10,11,25,34,38 +VDDQ
10 MA_VREFDQ
11 MB_VREFDQ

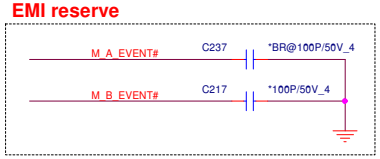
04

U4A
MEMORY A

U4I
MEMORY B



EMI reserve



Quanta Computer Inc.
Project: HP-PHUKET

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6,7,8,10,11,12,14,15,16,17,18,22,23,24,26,28,37 +3V
3,6,7,15,26,28,32,37 +1.8V

U4C

DISPLAY/SVI2/JTAG/TEST

DP1 output to HDMI connector

DP to LVDS out

HDMI

SVT/SVC/SVD : Only Bristol

EC-SI-39

close to APU side

Note:
To override VID,Remove Rd,Re, Rf, Rg, install Rc
set VID via SVC & SVD option RES Ra, Rb

SVC/SVD

SVC	SVD	BOOT VOLTAGE
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8

Quanta Computer Inc.

Project: HP-PHUKET

Title: Display/SVI2/JTAG/Test Pin

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NC,no install by default

TEST2	TEST1	TEST0	Description
0	0	0	FCH TAP accessible from APU when TAPEN is asserted FCH JTAG pins are overloaded for multiple functions, in this configuration the FCH JTAG are used as non-JTAG pins
0	0	1	Reserved
0	1	X	Reserved
1	TMS	0	FCH JTAG multi-function pins are configured as JTAG pins, in this configuration the FCH TAP can be accessed from FCH JTAG pins
1	TMS	1	Use on ATE only Yuba JTAG enabled

PWRGD CIRCUIT

RSMRST_GATE# from EC

CLR_CMOS

Jumper	Pre-production	Production
BOOT_BLK_Recovery	X	X
BOOT_BLK_Enable	O	X

Jumper	Type
Pop	CLR_BIOS_DAT
Pop	CLR_PASSWD
Pop	BOOT_BLK_Recovery
Pop	BOOT_BLK_Enable

Board ID

PCA ID ID3	PCA ID ID2	Model
0	1	AMD Bristol
1	0	AMD Stoney

PCA ID ID4	Model
1	3.5" HDD
0	2.5" HDD

PCA ID ID5	Model
1	SATA
0	eMMC

Board REV ID1	Board REV ID0	Model
0	0	All DB (EVT)
1	0	All SI (DVT)
0	1	PVT1
1	1	PVT2+
0	0	MVB, A
0	1	1st Major ECN
1	0	2nd Major ECN
1	1	3rd Major ECN

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SATA HDD / SATA ODD

U4E — CLK/SATA/USB/SPI/LPC

SATA_TX0_P / SATA_TX0_N	AU3 / AU4	SATA_TX0P / SATA_TX0N
SATA_RX0_N / SATA_RX0_P	AV1 / AV2	SATA_RX0N / SATA_RX0P
SATA_TX1_P / SATA_TX1_N	AY2 / AY1	SATA_TX1P / SATA_TX1N
SATA_RX1_N / SATA_RX1_P	AW4 / AW3	SATA_RX1N / SATA_RX1P
R100 1K/F_4, R99 1K/F_4	AW1	SATA_CALRN / SATA_CALRP
+VDDP	AW2	SATA_ZVSS
	AT17	SATA_ZVDDP
	AT12	DEVSLP_HDD — DEVSLP[0]/EGPIO67 3V
	BB15	DEVSLP_ODD — DEVSLP[1]/EGPIO70 3V
SATA_LED#	AU2	SATA_ACT_L/AGPIO130 3V
	AU1	SATA_X1
	U4	SATA_X2
	U3	GFX_CLKP
		GFX_CLKN

LAN / WLAN / Card reader

CLK_PCIE_LAN_P / CLK_PCIE_LAN_N	U1 / U2	GPP_CLK0P / GPP_CLK0N
CLK_PCIE_WLAN_P / CLK_PCIE_WLAN_N	W4 / W3	GPP_CLK1P / GPP_CLK1N
CLK_PCIE_CR_P / CLK_PCIE_CR_N	W1 / W2	GPP_CLK2P / GPP_CLK2N
	Y2 / Y1	GPP_CLK3P / GPP_CLK3N
TP15	BC10	X25M_48M_OSC
48M_X1	T2	X48M_X1
48M_X2	T1	X48M_X2

EC-SI-05

USB

USBCLK/25M_48M_OSC	AP8	TP43
USB_ZVSS	AP5	USB_RCOMP — R92 11.8K/F_4
USB_HSD0P / USB_HSD0N	AR2 / AR1	USBP0+ / USBP0- — U2B-1
USB_HSD1P / USB_HSD1N	AR3 / AR4	USBP1+ / USBP1- — WEB CAM
USB_HSD2P / USB_HSD2N	AN2 / AN1	USBP2+ / USBP2- — USB HUB
USB_HSD3P / USB_HSD3N	AN3 / AN4	USBP3+ / USBP3- — BT
USB_HSD4P / USB_HSD4N	AM1 / AM2	USBP4+ / USBP4- — USB TYPE C1
USB_HSD5P / USB_HSD5N	AL2 / AL1	USBP5+ / USBP5- — USB TYPE C2
USB_HSD6P / USB_HSD6N	AL3 / AL4	USBP6+ / USBP6- — U3B-1
USB_HSD7P / USB_HSD7N	AK2 / AJ2	USBP7+ / USBP7- — U3B-2

Only Bristol and Stoney

USB_SS_ZVSS / USB_SS_ZVDDP	AD2 USBSS_CALRN R71 1K/F_4, AD1 USBSS_CALRP R74 1K/F_4	+VDDP_S5
USB_SS_0TXP / USB_SS_0TXN	AA3 / AA4	USB30_TX0+ / USB30_TX0- — USB TYPE C1
USB_SS_0RXP / USB_SS_0RXN	W9 / W8	USB30_RX0+ / USB30_RX0-
USB_SS_1TXP / USB_SS_1TXN	AA2 / AA1	USB30_TX1+ / USB30_TX1- — USB TYPE C2
USB_SS_1RXP / USB_SS_1RXN	W5 / W6	USB30_RX1+ / USB30_RX1-
USB_SS_2TXP / USB_SS_2TXN	AC1 / AC2	USB30_TX2+ / USB30_TX2-
USB_SS_2RXP / USB_SS_2RXN	Y6 / Y7	USB30_RX2+ / USB30_RX2-
USB_SS_3TXP / USB_SS_3TXN	AC4 / AC3	USB30_TX3+ / USB30_TX3-
USB_SS_3RXP / USB_SS_3RXN	AB5 / AB6	USB30_RX3+ / USB30_RX3-

LPC / SPI

CK_33M_HEADER / CK_33M_EC	AW14 / AY13	LPCCLK0/EGPIO74 3V / LPCCLK1/EGPIO75 3V
LPC_CLK_DEBUG	BB11	LAD0
F_LAD1	BA11	LAD1
F_LAD2	AY11	LAD2
F_LAD3	BA13	LAD3
L_FRAME#	AV14	LFRAME_L
	BA1	ESPI_ALERT_L/LDRQ0_L
SERIRQ	BC14	SERIRQ/AGPIO87 3V
	BC11	LPC_CLKRUN_L/AGPIO88 3V
LPC_PD_L	AE9	LPC_PD_L/AGPIO21 3V_S5

EC-SI-39

FCH_SPI_CLK / FCH_SPI_CS0#	BC6 / BB8	SPI_CLK/ESPI_CLK/EGPIO117 1.8V / SPI_CS1_L/EGPIO118 1.8V
	AW7	SPI_CS2_L/ESPI_CS_L/EGPIO119 1.8V
FCH_SPI_SI / FCH_SPI_SO	BA9 / AY7	SPI_DI/ESPI_DATA/EGPIO120 / SPI_DO/EGPIO121 1.8V
FCH_SPI_WP	AW11	SPI_WP_L/EGPIO122 1.8V
SPI_HOLD#	BA7	SPI_HOLD_L/EGPIO133 1.8V
TPM_SPI_CS#1	AW12	SPI_TPM_CS_L/AGPIO76

FP4 REV 1.0 — FP4

SPI_CS2_L/ESPI_CS_L/EGPIO119

+1.8V — R162 10K_4 — EGPIO119

STRAPS PINS

3VS5_3VSTRAP 3VS5_3VSTRAP 3VS5_3VSTRAP +3V_S5 +3V_S5 +3V_S5

R166 *10K_4	R161 10K_4	R446 10K_4	R365 10K_4	R407 10K_4	R361 10K_4
R159 2K/F_4	R154 *2K/F_4	R443 *2K/F_4	R367 *2K/F_4	R398 *2K/F_4	

CK_33M_EC
LPC_CLK_DEBUG
L_FRAME#
RTC_CLK
GEVENT2#
SYS_RST#

REQUIRED STRAPS

	CK_33M_EC	LPC_CLK DEBUG	LFRAME#	RTC_CLK	GEVENT2#	SYS_RST#
PULL HIGH	BOOT Fail Timer ENABLE	Internal CLKGEN ENABLED DEFAULT	SPI ROM DEFAULT	Normal Power Timing ENABLE DEFAULT	SPI Voltage 1.8V; Enhanced Reset logic for faster resume from S5 DEFAULT	normal reset mode DEFAULT
PULL LOW	BOOT Fail Timer DISABLE DEFAULT	Internal CLKGEN DISABLED	LPC ROM	Normal Power Timing DISABLE	SPI Voltage 3.3V; Traditional Reset logic	short reset mode

DEVSLP

+3V — R139 10K_4 DEVSLP_HDD — R455 10K_4 DEVSLP_ODD

+3V — R362 10K_4 LPC_PD_L

EMI reserve

C59 *15P_4 CK_33M_EC
C62 *15P_4 CK_33M_HEADER
C60 *15P_4 LPC_CLK_DEBUG
Close to APU

EC-SI-39

+3V_S5 / +3V — R482 *0_4, R477 *0_4S — 3VS5_3VSTRAP

SPI ROM Power

+3V_S5 / +1.8V_ROM — R495 *0_4, R494 *0_4S — 3VS5_1.8V

EC-SI-39

ROM recovery (for pre-production only)

3VS5_1.8V — R191 MP@0_4 — E1 PROTO@HEADER_9P — c13541-11039-1-10p-1dv

FCH_SPI_CS#_R	2	1 FCH_SPI_CS0#
	4	3 FCH_SPI_SO_R
	6	5 FCH_SPI_SI_R
	8	7 FCH_SPI_CLK_R
SPI_HOLD#	10	9 FCH_SPI_WP

C389 0.1u/16V/X7R_4

BIOS ROM(8MB)

3VS5_1.8V — R512 10K_4 — U29 W25Q64FWSSIG

R471 10K_4		
SPI_HOLD#	7 HOLD	
	8 VCC	1 CS — FCH_SPI_CS#_C — R511 33/J_4 — FCH_SPI_CS#_R
		6 CLK — FCH_SPI_CLK_C — R514 33/J_4 — FCH_SPI_CLK_R
		5 DI — FCH_SPI_SO_C — R467 33/J_4 — FCH_SPI_SO_R
		2 DO — FCH_SPI_SI_C — R479 33/J_4 — FCH_SPI_SI_R
	4 GND	3 WP

C403 0.1u/16V/X7R_4 — C408 *22P/50V_4 — LAYOUT: CLOSE TO SOC

FCH_SPI_WP — R483 10K_4 — 3VS5_1.8V

**Daisy-Chain: APU->ROM Header->SPI ROM

AKE5EZN0N00W25Q64FWSSIG / IQ1.8VSOP 8P - 208mil

U700 — 3VS5_1.8V

FCH_SPI_CS#_C 1	CE#	VDD 8
FCH_SPI_CLK_C 6	SCK	
FCH_SPI_SO_C 5	SI	
FCH_SPI_SI_C 2	SO	HOLD# 7 SPI_HOLD#
FCH_SPI_WP 3	WP#	VSS 4

*W25Q64FWSSIG
DFHS08FS023
50960-0084n-001-8p-socket

U29 & U700 footprint 要重疊

MINI_JUMP_2P_FM_2.54MM_BLACK
PROTO
Pinrex 202-H71-01GU0B

FCH_SPI_SO_C	R391 15/1%_4	EC_MOSI	26
FCH_SPI_CS#_C	R377 15/1%_4	EC_CS#	26
FCH_SPI_CLK_C	R389 15/1%_4	EC_SCK	26
FCH_SPI_SI_C	R390 15/1%_4	EC_MISO	26

LAYOUT: CLOSE TO EC

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If P_GFX [7:0] are not used,
VDDP_GFX power balls can be connected to VSS .

VDDP_GFX R355 ST@0_4 +VDDP R358 BR@0_6 EC-SI-E20 VDDP_GFX C253 BR@0.22U/10V/X5R_4 C268 BR@10U/6.3V/X5R_6

+1.5V VDDIO_AUDIO EC-SI-39 R448 *0_4S C342 1U/6.3V/X5R_4 C349 1U/6.3V/X5R_4 C331 1U/6.3V/X5R_4

+3V VDD_33 EC-SI-39 R449 *0_4S C341 10U/6.3V/X5R_6

+1.8V_S5 VDD_18_S5 R454 *0_6S EC-SI-39 C330 10U/6.3V/X5R_6 C318 0.22U/10V/X5R_4

+3V_S5 VDD_33_S5 R513 0_4 C409 10U/6.3V/X5R_6 C303 0.22U/10V/X5R_4

VDDCR_FCH_ALW VDDCR_FCH_S5 R470 *0_6S EC-SI-39 C329 10U/6.3V/X5R_6 C320 10U/6.3V/X5R_6 C301 0.22U/10V/X5R_4

+VDDP_S5 VDDP_S5_R R457 *0_6S EC-SI-39 C298 10U/6.3V/X5R_6 C299 0.22U/10V/X5R_4

+1.8V_ROM VDD_18 R458 *0_8S EC-SI-39 C351 10U/6.3V/X5R_6 C321 0.22U/10V/X5R_4

BAT_RTC_ALW BT1 CONNDIPHOUSING2P

20MIL BAT_RTC_ALW +3V_ALW R47 470/F_4 VCCRTC_2 20MIL D2 BAT54CW-7-F EC-SI-27 20MIL 3VRTC_ALW C9 1U/6.3V/X5R_4

U31 GND VIN VOUT IC AP2138N-1.5TRG1 1.5V_RTC_ALW

1.5V_RTC_ALW R466 1K/F_4 1.5V_RTC_ALW_C C375 1U/6.3V/X5R_4 G1 *OPEN_PAD1

1.5V_RTC_ALW_C Q36 *METR5213-G 26 CLR_CMOS

C314 0.22U/10V/X5R_4 Place close to PIN

+VDDQ 3A

U4F POWER

P25	VDDIO_MEM_S3_1	VDDCR_CPU_1	U8
P28	VDDIO_MEM_S3_2	VDDCR_CPU_2	W7
T24	VDDIO_MEM_S3_3	VDDCR_CPU_3	W12
T27	VDDIO_MEM_S3_4	VDDCR_CPU_4	W15
U25	VDDIO_MEM_S3_5	VDDCR_CPU_5	W18
U28	VDDIO_MEM_S3_6	VDDCR_CPU_6	W21
V30	VDDIO_MEM_S3_7	VDDCR_CPU_7	Y8
V33	VDDIO_MEM_S3_8	VDDCR_CPU_8	Y10
W24	VDDIO_MEM_S3_9	VDDCR_CPU_9	Y13
W27	VDDIO_MEM_S3_10	VDDCR_CPU_10	Y16
Y25	VDDIO_MEM_S3_11	VDDCR_CPU_11	Y19
Y28	VDDIO_MEM_S3_12	VDDCR_CPU_12	Y22
Y30	VDDIO_MEM_S3_13	VDDCR_CPU_13	AB7
AB24	VDDIO_MEM_S3_14	VDDCR_CPU_14	AB9
AB27	VDDIO_MEM_S3_15	VDDCR_CPU_15	AB12
AB30	VDDIO_MEM_S3_16	VDDCR_CPU_16	AB15
AB33	VDDIO_MEM_S3_17	VDDCR_CPU_17	AB18
AD25	VDDIO_MEM_S3_18	VDDCR_CPU_18	AB21
AD28	VDDIO_MEM_S3_19	VDDCR_CPU_19	AD6
AD30	VDDIO_MEM_S3_20	VDDCR_CPU_20	AD10
AE24	VDDIO_MEM_S3_21	VDDCR_CPU_21	AD13
AE27	VDDIO_MEM_S3_22	VDDCR_CPU_22	AD16
AF30	VDDIO_MEM_S3_23	VDDCR_CPU_23	AD19
AF33	VDDIO_MEM_S3_24	VDDCR_CPU_24	AD22
AG25	VDDIO_MEM_S3_25	VDDCR_CPU_25	AE7
AG28	VDDIO_MEM_S3_26	VDDCR_CPU_26	AE12
AH24	VDDIO_MEM_S3_27	VDDCR_CPU_27	AK9
AH27	VDDIO_MEM_S3_28	VDDCR_CPU_28	AG10
AH30	VDDIO_MEM_S3_29	VDDCR_CPU_29	AK10
AK25	VDDIO_MEM_S3_30	VDDCR_CPU_30	AG13
AK28	VDDIO_MEM_S3_31	VDDCR_CPU_31	AK13
AK30	VDDIO_MEM_S3_32	VDDCR_CPU_32	AG16
AK33	VDDIO_MEM_S3_33	VDDCR_CPU_33	AK16
AL27	VDDIO_MEM_S3_34	VDDCR_CPU_34	AG19
AM30	VDDIO_MEM_S3_35	VDDCR_CPU_35	AK19
		VDDCR_CPU_36	AG22
		VDDCR_CPU_37	AK22
		VDDCR_CPU_38	AH7
		VDDCR_CPU_39	AE18
		VDDCR_CPU_40	AE21
		VDDCR_CPU_41	AH21
		VDDCR_CPU_42	AG8
		VDDCR_CPU_43	AH12
		VDDCR_CPU_44	AN6
		VDDCR_CPU_45	AH15
		VDDCR_CPU_46	AH18
		VDDCR_CPU_47	AL7
		VDDCR_CPU_48	AK6
		VDDCR_CPU_49	AE15
		VDDCR_CPU_27	

		VDDCR_GFX_14	L8
		VDDCR_GFX_15	L13
		VDDCR_GFX_16	L16
		VDDCR_GFX_17	L19
		VDDCR_GFX_18	L22
		VDDCR_GFX_19	N7
		VDDCR_GFX_20	N12
		VDDCR_GFX_21	N15
		VDDCR_GFX_22	N18
		VDDCR_GFX_23	N21
		VDDCR_GFX_24	P8
		VDDCR_GFX_25	P13
		VDDCR_GFX_26	P16
		VDDCR_GFX_27	P19
		VDDCR_GFX_28	P22
		VDDCR_GFX_29	T7
		VDDCR_GFX_1	F12
		VDDCR_GFX_2	F15
		VDDCR_GFX_3	G11
		VDDCR_GFX_4	G14
		VDDCR_GFX_5	J8
		VDDCR_GFX_6	J9
		VDDCR_GFX_7	J11
		VDDCR_GFX_8	K7
		VDDCR_GFX_9	K12
		VDDCR_GFX_10	K13
		VDDCR_GFX_11	K15
		VDDCR_GFX_12	K16
		VDDCR_GFX_30	T12
		VDDCR_GFX_31	T15
		VDDCR_GFX_32	T18
		VDDCR_GFX_33	T21
		VDDCR_GFX_34	U13
		VDDCR_GFX_35	U16
		VDDCR_GFX_36	U19
		VDDCR_GFX_37	U22
		VDDCR_GFX_13	K19

FP4 REV 1.0 FP4

VDDIO_AUDIO 0.2A AR19 VDDIO_AUDIO

VDDP_GFX 60mil AE6 AE5 VDDP_GFX_2 VDDP_GFX_1

VDD_33 0.2A AP19 AP21 VDD_33_1 VDD_33_2

VDD_18 1.5A AP16 AP18 VDD_18_1 VDD_18_2

VDD_18_S5 0.5A AP10 AR9 VDD_18_S5_1 VDD_18_S5_2

VDD_33_S5 0.2A AP15 AR15 VDD_33_S5_1 VDD_33_S5_2

VDDP_S5_R 0.8A AN12 AP12 VDDP_S5_1 VDDP_S5_2

VDDCR_FCH_S5 AP13 AR12 VDDCR_FCH_S5_1 VDDCR_FCH_S5_2

+VDDP 7A AW19 AU17 AU19 AV17 AV19 AW17 VDDP_6 VDDP_1 VDDP_2 VDDP_3 VDDP_4 VDDP_5

12A / 12A @ 35W/15W TDP

NB_CORE AL12 AL13 AL15 AL18 AL21 AN13 AN16 AN19 AN22 VDDCR_NB_1 VDDCR_NB_2 VDDCR_NB_3 VDDCR_NB_4 VDDCR_NB_5 VDDCR_NB_6 VDDCR_NB_7 VDDCR_NB_8 VDDCR_NB_9

4.5uA AR17 VDDBT_RTC_G

Place between processor & DIMMS across VDDIO & VSS SPLIT

+VDDQ C181 0.22U/10V/X5R_4 C323 0.22U/10V/X5R_4 C322 0.22U/10V/X5R_4 C187 0.22U/10V/X5R_4 C203 180P/50V/NPO_4 C308 180P/50V/NPO_4

39A / 22A @ 35W/15W TDP

Place under APU

EC-PV-013

CPU_CORE C232 C233 C257 C272 C273 C234 47U/4V/X5R_6

C255 C270 C256 C458 C460 C461 C462 C464 C465 C466 C467 47U/4V/X5R_6 BR@47U/4V/X5R_6

C276 C228 C260 C282 C302 C163 C226 C158 C207 0.22U/10V/X5R_4 180P/50V/NPO_4

+VDDQ

C235 C258 C225 C262 C271 C311 22U/6.3V/X5R_6

C294 C212 C245 C246 C218 C247 22U/6.3V/X5R_6 0.22U/10V/X5R_4

C265 C190 C239 C201 C186 C310 0.22U/10V/X5R_4 180P/50V/NPO_4 *22U/6.3V/X5R_6

RF solution on TOP

C25 10U/6.3V/X5R_6 C26 *8P/50V/COG_4

RF solution on BOT

C161 10U/6.3V/X5R_6 C242 10U/6.3V/X5R_6 C157 10U/6.3V/X5R_6

C250 *8P/50V/COG_4 C224 *8P/50V/COG_4 C229 *8P/50V/COG_4

GFX_CORE

30A / 22A @ 35W/15W TDP

DNI for Stoney FP4 processor

Bristol : Stuff
Stoney: No Stuff

C185 C213 C183 C211 C214 C198 C474 C468 C469 C470 C475 BR@47U/4V/X5R_6

EC-PV-21

C184 C199 C200 C471 C472 C473 BR@47U/4V/X5R_6 C170 C180 C182 BR@0.22U/10V/X5R_4

C175 C169 C189 C195 C173 C172 C171 C174 BR@0.22U/10V/X5R_4 BR@180P/50V/NPO_4

C401 C400 C398 C399 C383 C324 C325 C317 C380 C348 C350 10U/6.3V/X5R_6 0.22U/10V/X5R_4 180P/50V/NPO_4 +VDDP

EC-PV-013

NB_CORE C346 C347 C345 C344 C463 C286 C287 47U/4V/X5R_4 0.22U/10V/X5R_4

C285 C288 C295 C284 C289 C290 C291 C312 0.22U/10V/X5R_4 180P/50V/NPO_4

4,10,11,25,34,38 +VDDQ
28,29 CPU_CORE
6,7,16,19,21,25,26,27,32,34,35,36 +3V_S5
5,6,7,10,11,12,14,15,16,17,18,22,23,24,26,28,37 +3V
26,27 +3V_ALW
3,7,26,37,38 +VDDP
3,5,6,7,15,26,28,32,37 +1.8V
6,26,35,37,38 +1.8V_S5

7,36,37,38 +VDDP_S5
32,33 GFX_CORE
28,30,36 NB_CORE
15,35,38 +1.5V
36 VDDCR_FCH_ALW

Quanta Computer Inc.	
Project: HP-PHUKET	
Title	APU Power
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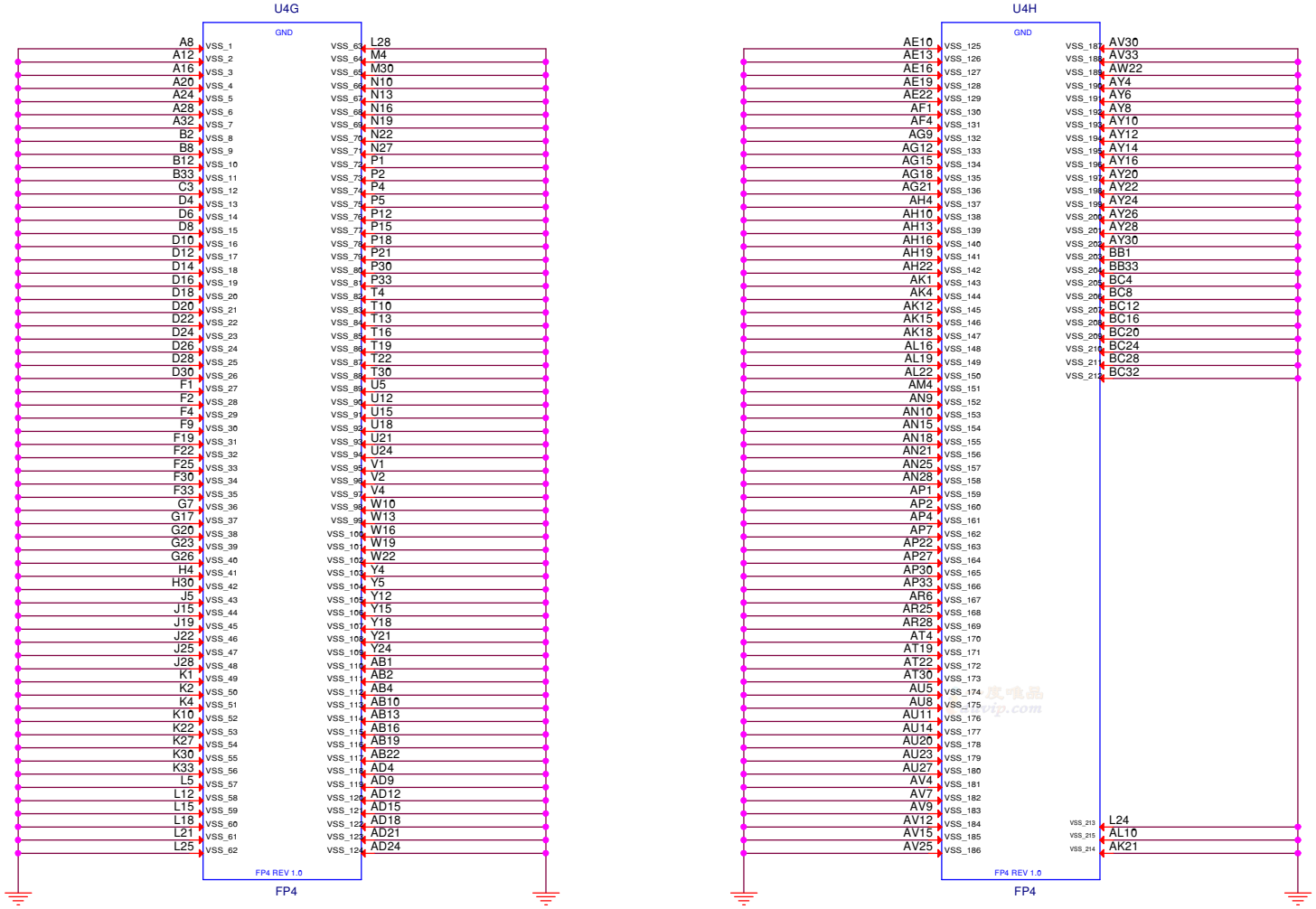
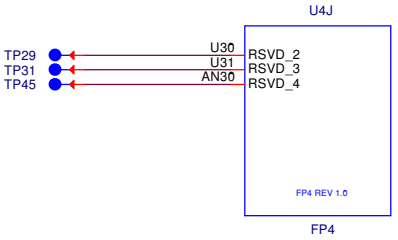
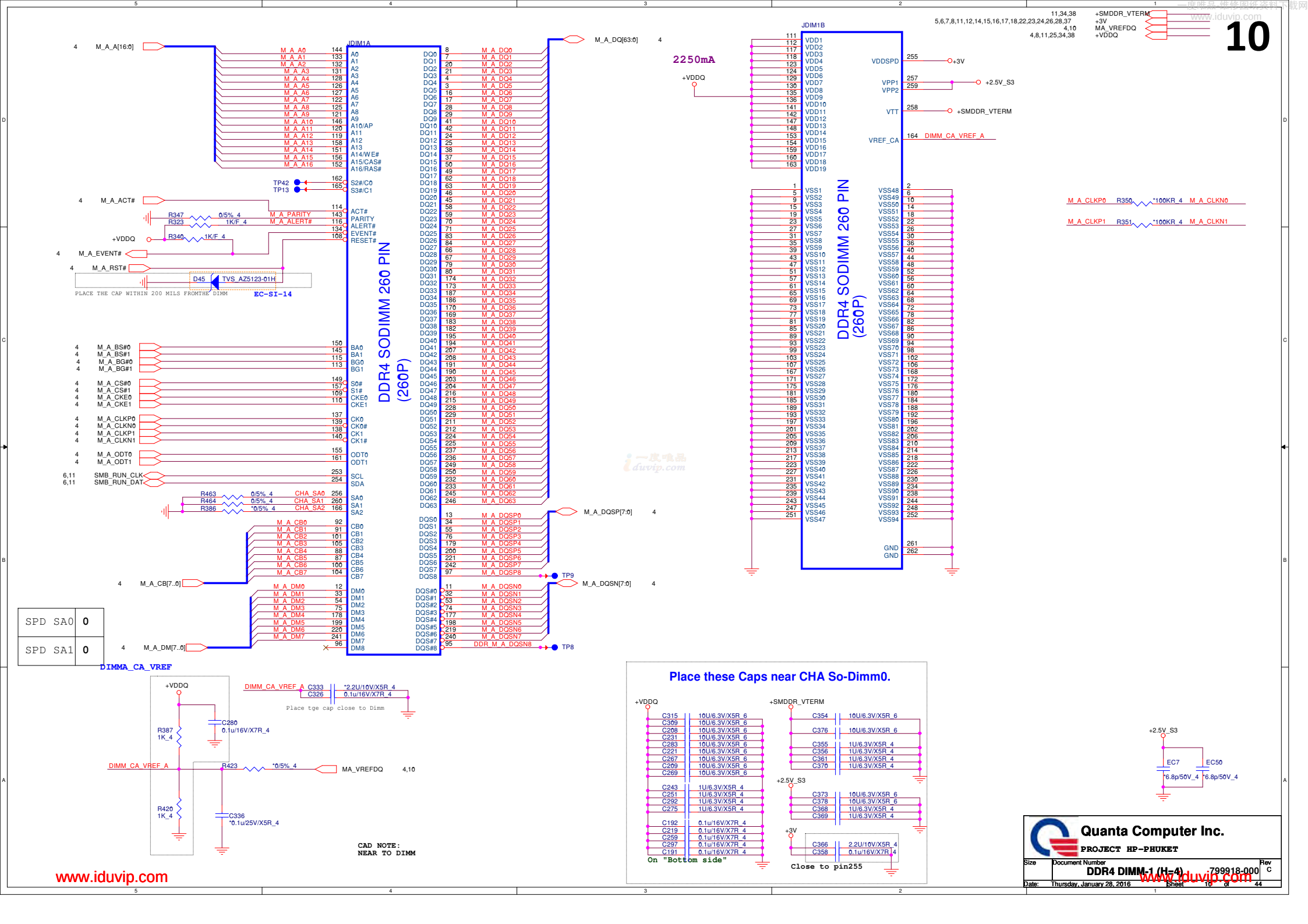




Quanta Computer Inc.

Project: HP-PHUKET

Title: **APU GND**		
Size	Document Number: --	Rev: C
Page Modified: Wednesday, January 27, 2016		Sheet 9 of 44



Quanta Computer Inc.	
PROJECT HP-PHUKET	
Size	Document Number: DDR4 DIMM-1 (H=4) 799918-000 Rev C
Date: Thursday, January 28, 2016	Sheet 10 of 44

5,6,7,8,10,12,14,15,16,17,18,22,23,24,26,28,37
4,8,10,25,34,38
10,34,38
10,34

+3V
+VDDQ
+SMDDR_VTERM
+2.5V_S3

JDIM2A

DDR4 SODIMM 260 PIN (260P)

M_B_A0	144	A0	DQ0	8	M_B_DQ0
M_B_A1	133	A1	DQ1	7	M_B_DQ1
M_B_A2	132	A2	DQ2	20	M_B_DQ2
M_B_A3	131	A3	DQ3	21	M_B_DQ3
M_B_A4	128	A4	DQ4	4	M_B_DQ4
M_B_A5	126	A5	DQ5	3	M_B_DQ5
M_B_A6	127	A6	DQ6	16	M_B_DQ6
M_B_A7	122	A7	DQ7	17	M_B_DQ7
M_B_A8	125	A8	DQ8	28	M_B_DQ8
M_B_A9	121	A9	DQ9	29	M_B_DQ9
M_B_A10	146	A10/AP	DQ10	41	M_B_DQ10
M_B_A11	120	A11	DQ11	42	M_B_DQ11
M_B_A12	119	A12	DQ12	24	M_B_DQ12
M_B_A13	158	A13	DQ13	25	M_B_DQ13
M_B_A14	151	A14/WE#	DQ14	38	M_B_DQ14
M_B_A15	156	A15/CAS#	DQ15	37	M_B_DQ15
M_B_A16	152	A16/RAS#	DQ16	50	M_B_DQ16
			DQ17	49	M_B_DQ17
TP44	162	S2#/C0	DQ18	62	M_B_DQ18
TP46	165	S3#/C1	DQ19	63	M_B_DQ19
			DQ20	46	M_B_DQ20
			DQ21	45	M_B_DQ21
			DQ22	58	M_B_DQ22
			DQ23	59	M_B_DQ23
			DQ24	70	M_B_DQ24
			DQ25	71	M_B_DQ25
			DQ26	83	M_B_DQ26
			DQ27	84	M_B_DQ27
			DQ28	66	M_B_DQ28
			DQ29	67	M_B_DQ29
			DQ30	79	M_B_DQ30
			DQ31	80	M_B_DQ31
			DQ32	174	M_B_DQ32
			DQ33	173	M_B_DQ33
			DQ34	187	M_B_DQ34
			DQ35	186	M_B_DQ35
			DQ36	170	M_B_DQ36
			DQ37	169	M_B_DQ37
			DQ38	183	M_B_DQ38
			DQ39	182	M_B_DQ39
			DQ40	195	M_B_DQ40
			DQ41	194	M_B_DQ41
			DQ42	207	M_B_DQ42
			DQ43	208	M_B_DQ43
			DQ44	191	M_B_DQ44
			DQ45	190	M_B_DQ45
			DQ46	203	M_B_DQ46
			DQ47	204	M_B_DQ47
			DQ48	216	M_B_DQ48
			DQ49	215	M_B_DQ49
			DQ50	228	M_B_DQ50
			DQ51	229	M_B_DQ51
			DQ52	211	M_B_DQ52
			DQ53	212	M_B_DQ53
			DQ54	224	M_B_DQ54
			DQ55	225	M_B_DQ55
			DQ56	237	M_B_DQ56
			DQ57	236	M_B_DQ57
			DQ58	249	M_B_DQ58
			DQ59	250	M_B_DQ59
			DQ60	232	M_B_DQ60
			DQ61	233	M_B_DQ61
			DQ62	245	M_B_DQ62
			DQ63	246	M_B_DQ63
			DQS0	13	M_B_DQSP0
			DQS1	34	M_B_DQSP1
			DQS2	55	M_B_DQSP2
			DQS3	76	M_B_DQSP3
			DQS4	179	M_B_DQSP4
			DQS5	200	M_B_DQSP5
			DQS6	221	M_B_DQSP6
			DQS7	242	M_B_DQSP7
			DQS8	97	M_B_DQSP8
			DQS#0	11	M_B_DQSN0
			DQS#1	32	M_B_DQSN1
			DQS#2	53	M_B_DQSN2
			DQS#3	74	M_B_DQSN3
			DQS#4	177	M_B_DQSN4
			DQS#5	198	M_B_DQSN5
			DQS#6	219	M_B_DQSN6
			DQS#7	240	M_B_DQSN7
			DQS#8	95	DDR_M_B_DQSN8

M_B_A[16:0] 4
M_B_DQ[63:0] 4
M_B_DQSP[7:0] 4
M_B_DQSN[7:0] 4
M_B_CB[7..0] 4
M_B_DM[7..0] 4

TP20
TP21

M_B_ACT# 4
R344 0/5%_4 M_B_PARITY
R317 1K/F_4 M_B_ALERT#
+VDDQ
R327 1K/F_4
M_B_EVENT# 4
M_B_RST# 4
D46 TVS_AZ5123-01H
PLACE THE CAP WITHIN 200 MILS FROMTHE DIMM
EC-SI-15

M_B_BS#0 4
M_B_BS#1 4
M_B_BG#0 4
M_B_BG#1 4
M_B0_CS#0 4
M_B0_CS#1 4
M_B_CKE0 4
M_B_CKE1 4
M_B_CLKP0 4
M_B_CLKN0 4
M_B_CLKP1 4
M_B_CLKN1 4
M_B0_ODT0 4
M_B0_ODT1 4
6,10 SMB_RUN_CLK
6,10 SMB_RUN_DAT
+3V
R462 4.7K_4 CHB_SA0
R468 0/5%_4 CHB_SA1
R370 *0/5%_4 CHB_SA2

SPD	
SA0	1
SA1	0

JDIM2B

DDR4 SODIMM 260 PIN (260P)

	111	VDD1	VSS1	1	
	112	VDD2	VSS2	5	
	117	VDD3	VSS3	9	
	118	VDD4	VSS4	15	
	123	VDD5	VSS5	19	
	124	VDD6	VSS6	23	
	129	VDD7	VSS7	27	
	130	VDD8	VSS8	31	
	135	VDD9	VSS9	35	
	136	VDD10	VSS10	39	
	141	VDD11	VSS11	43	
	142	VDD12	VSS12	47	
	147	VDD13	VSS13	51	
	148	VDD14	VSS14	57	
	153	VDD15	VSS15	61	
	154	VDD16	VSS16	65	
	159	VDD17	VSS17	69	
	160	VDD18	VSS18	73	
	163	VDD19	VSS19	77	
			VSS20	81	
			VSS21	85	
			VSS22	89	
			VSS23	93	
			VSS24	99	
			VSS25	103	
			VSS26	107	
			VSS27	167	
			VSS28	171	
			VSS29	175	
			VSS30	181	
			VSS31	185	
			VSS32	189	
			VSS33	193	
			VSS34	197	
			VSS35	201	
			VSS36	205	
			VSS37	209	
			VSS38	213	
			VSS39	217	
			VSS40	223	
			VSS41	227	
			VSS42	231	
			VSS43	235	
			VSS44	239	
			VSS45	243	
			VSS46	247	
			VSS47	251	
		VDDSPD	VSS48	255	+3V
		VPP1	VSS49	257	+2.5V_S3
		VPP2	VSS50	259	
		VTT	VSS51	258	+SMDDR_VTERM
		VREF_CA	VSS52	164	DIMM_CA_VREF_B
			VSS53	2	
			VSS54	6	
			VSS55	10	
			VSS56	14	
			VSS57	18	
			VSS58	22	
			VSS59	26	
			VSS60	30	
			VSS61	36	
			VSS62	40	
			VSS63	44	
			VSS64	48	
			VSS65	52	
			VSS66	56	
			VSS67	60	
			VSS68	64	
			VSS69	68	
			VSS70	72	
			VSS71	78	
			VSS72	82	
			VSS73	86	
			VSS74	90	
			VSS75	94	
			VSS76	98	
			VSS77	102	
			VSS78	106	
			VSS79	168	
			VSS80	172	
			VSS81	176	
			VSS82	180	
			VSS83	184	
			VSS84	188	
			VSS85	192	
			VSS86	196	
			VSS87	202	
			VSS88	206	
			VSS89	210	
			VSS90	214	
			VSS91	218	
			VSS92	222	
			VSS93	226	
			VSS94	230	
		GND		234	
		GND		238	
				244	
				248	
				252	
				261	
				262	

2250mA
+VDDQ

M_B_CLKP0 R341 *100KR_4 M_B_CLKN0
M_B_CLKP1 R337 *100KR_4 M_B_CLKN1

DIMMA_CA_VREF

+VDDQ
DIMM_CA_VREF_B
C327 *2.2U/10V/X5R_4
C319 0.1u/16V/X7R_4
Place tge cap close to Dimm
C293 0.1u/16V/X7R_4
R373 1K_4
R421 *0/5%_4 MB_VREFDQ 4
R403 1K_4
C332 *0.1u/25V/X5R_4

CAD NOTE:
NEAR TO DIMM

Place these Caps near CHB So-Dimm0.

+VDDQ
C227 10U/6.3V/X5R_6
C210 10U/6.3V/X5R_6
C230 10U/6.3V/X5R_6
C206 10U/6.3V/X5R_6
C266 10U/6.3V/X5R_6
C277 10U/6.3V/X5R_6
C264 10U/6.3V/X5R_6
C316 10U/6.3V/X5R_6
C281 10U/6.3V/X5R_6
C296 1U/6.3V/X5R_4
C274 1U/6.3V/X5R_4
C220 1U/6.3V/X5R_4
C196 1U/6.3V/X5R_4
C193 0.1u/16V/X7R_4
C252 0.1u/16V/X7R_4
C262 0.1u/16V/X7R_4
C263 0.1u/16V/X7R_4
C254 0.1u/16V/X7R_4
On "Bottom side"

+SMDDR_VTERM
C352 10U/6.3V/X5R_6
C374 10U/6.3V/X5R_6
C367 1U/6.3V/X5R_4
C357 1U/6.3V/X5R_4
C353 1U/6.3V/X5R_4
C359 1U/6.3V/X5R_4
+2.5V_S3
C372 10U/6.3V/X5R_6
C381 10U/6.3V/X5R_6
C364 1U/6.3V/X5R_4
C365 1U/6.3V/X5R_4
+3V
C362 2.2U/10V/X5R_4
C363 0.1u/16V/X7R_4
Close to pin255

Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
	DDR3 DIMM-2 (H=8) 799918-000	C
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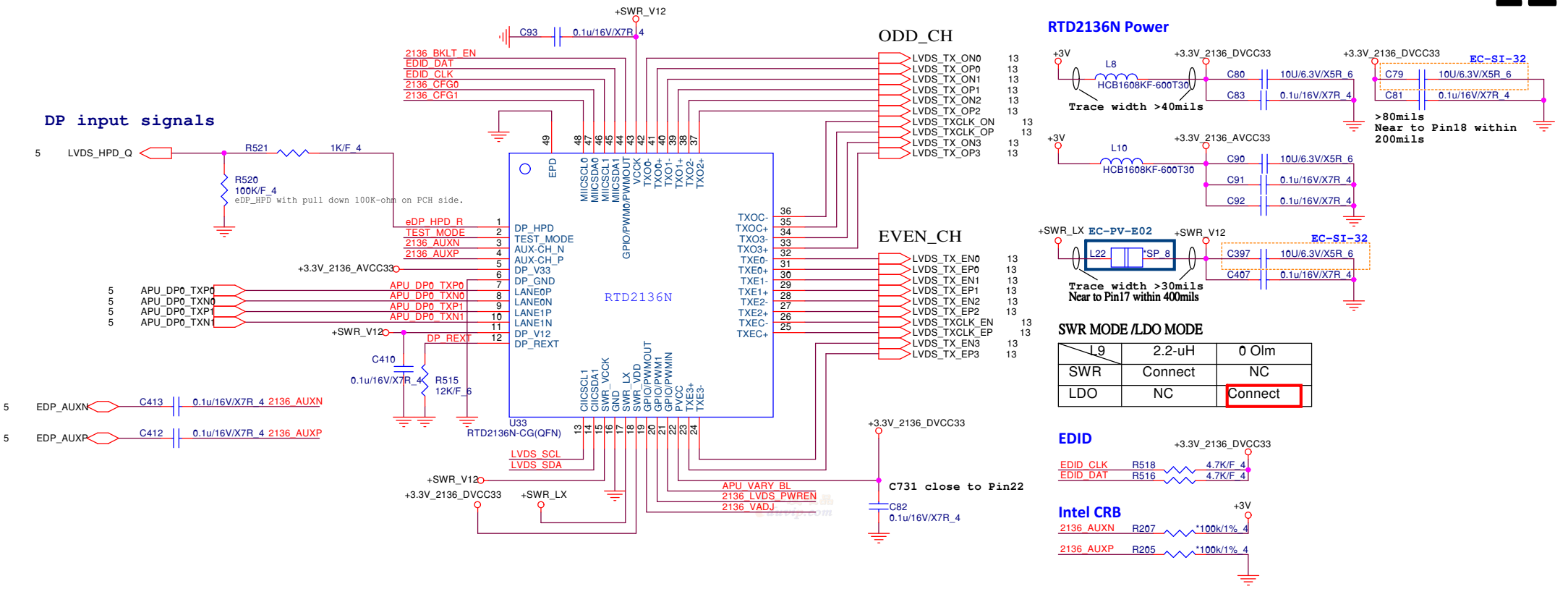
eDP to LVDS (RTD2136N-CG)

5,6,7,8,10,11,14,15,16,17,18,22,23,24,26,28,37 +3V



RTD2136N Power

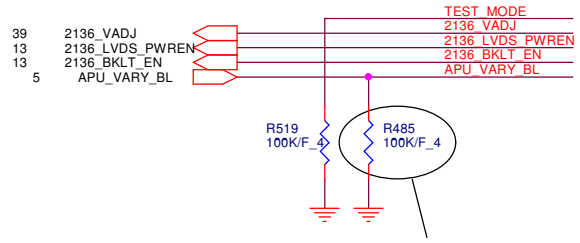
SWR MODE /LDO MODE

L9	2.2-uH	0 Olm
SWR	Connect	NC
LDO	NC	Connect

EDID

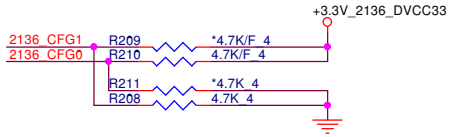
Intel CRB

GPIO & TESTing signals



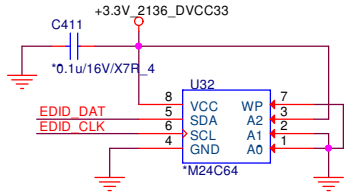
NEED STUFF FOR FHD/QHD

Mode select



2136_CFG1 (PIN48)	2136_CFG0 (PIN47) = 0	2136_CFG0 (PIN47) = 1
0	X	EP MODE
1	ROM ONLY MODE	EEPROM MODE

EEPROM

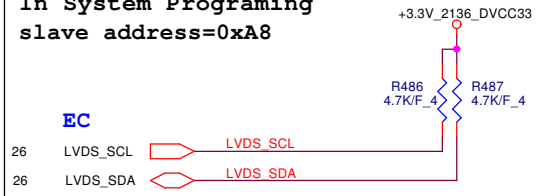


1- EEPROM with a size 8K-Byte

2- EEPROM device should be 2-byte addressing device

3- Slave address should configure as 0xA8

In System Programing slave address=0xA8



Quanta Computer Inc.

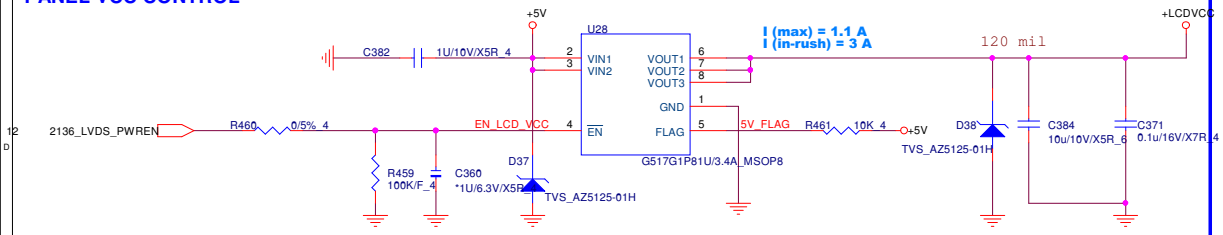
PROJECT HP-PHUKET

Size	Document Number	Rev
--	eDP-LVDS_RTD2136N	C

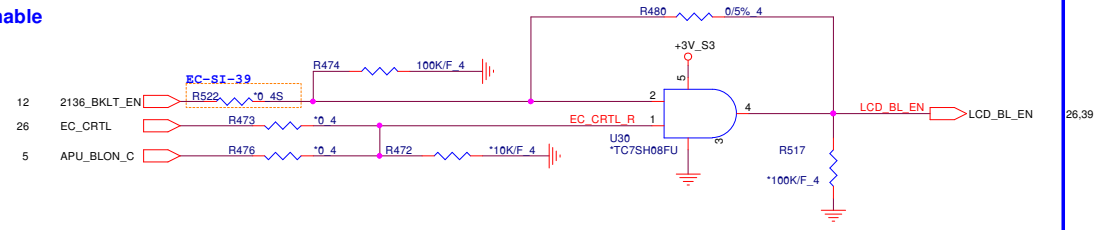
Date: Wednesday, January 27, 2016 Sheet 12 of 44

LED PANEL

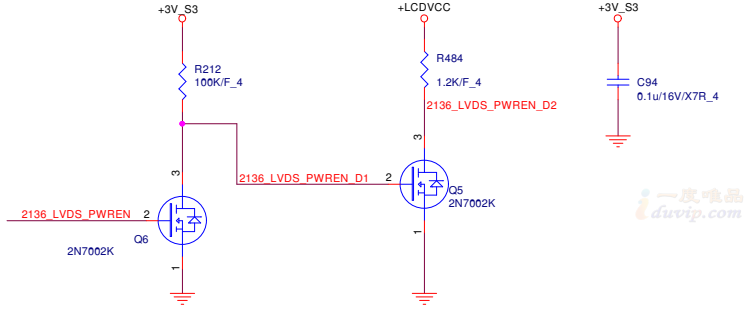
PANEL VCC CONTROL



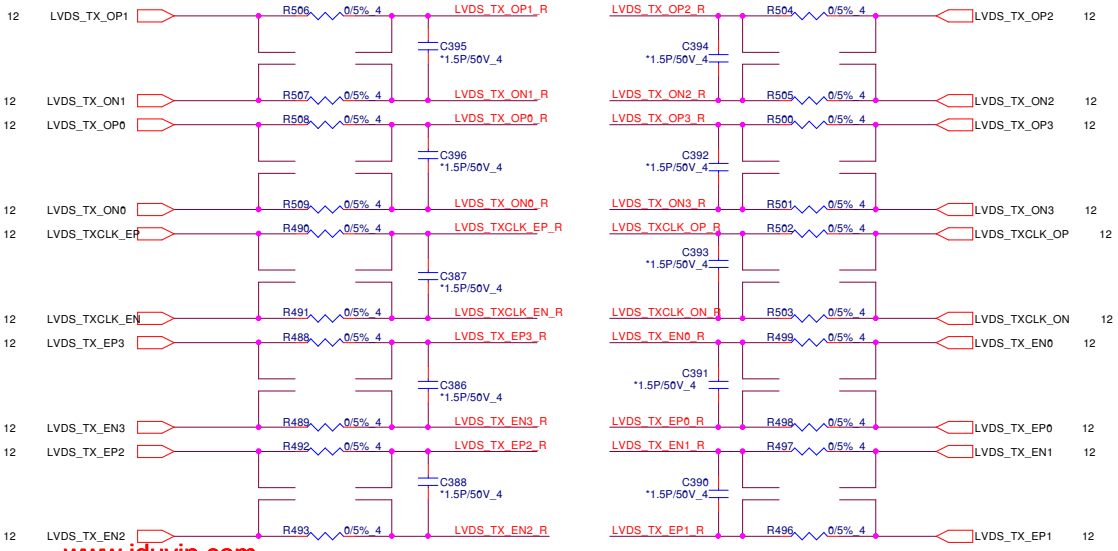
BackLight Enable



LCDVCC Discharge Circuit



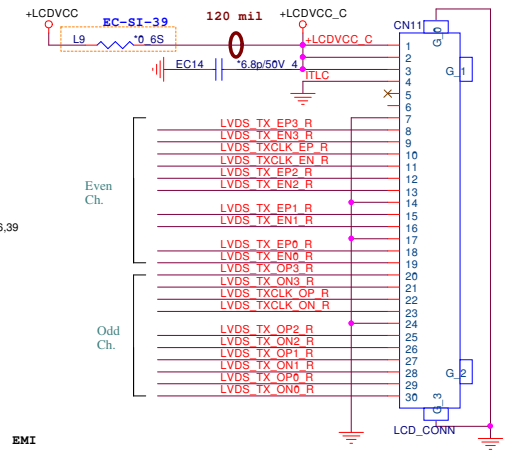
EMI



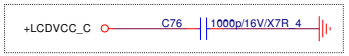
18,25,27,29,30,31,33,34,35,36,38,39 +VIN
25,26,37 +3V_S3
14,15,18,23,25,31,37,38 +5V

13

LVDS Conn



EMI



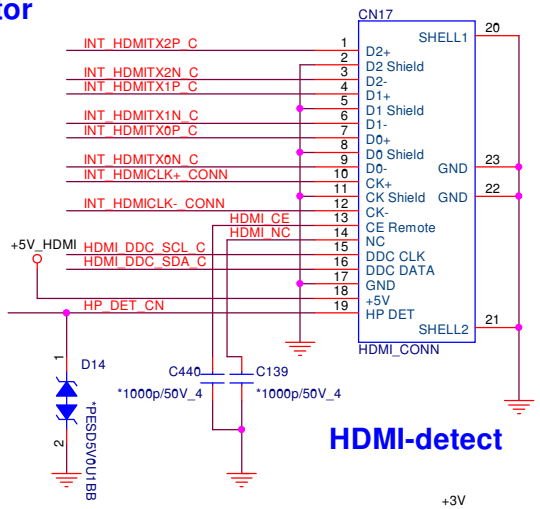
Quanta Computer Inc. PROJECT HP-PHUKET			
Size: --	Document Number: Panel (Control).LCD-Conn.		Rev: C
Date: Friday, January 29, 2016	Sheet 13 of 44		

HDMI

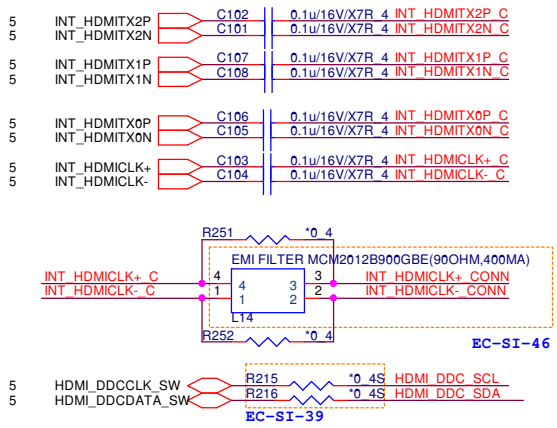
5,6,7,8,10,11,12,15,16,17,18,22,23,24,26,28,37 +3V
13,15,18,23,25,31,37,38 +5V

14

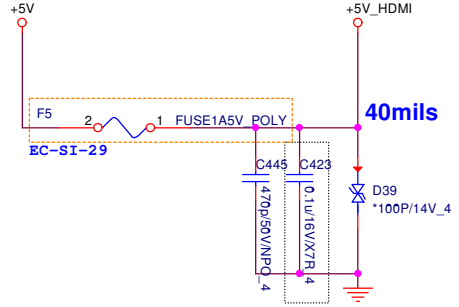
HDMI connector



HDMI INTERFACE

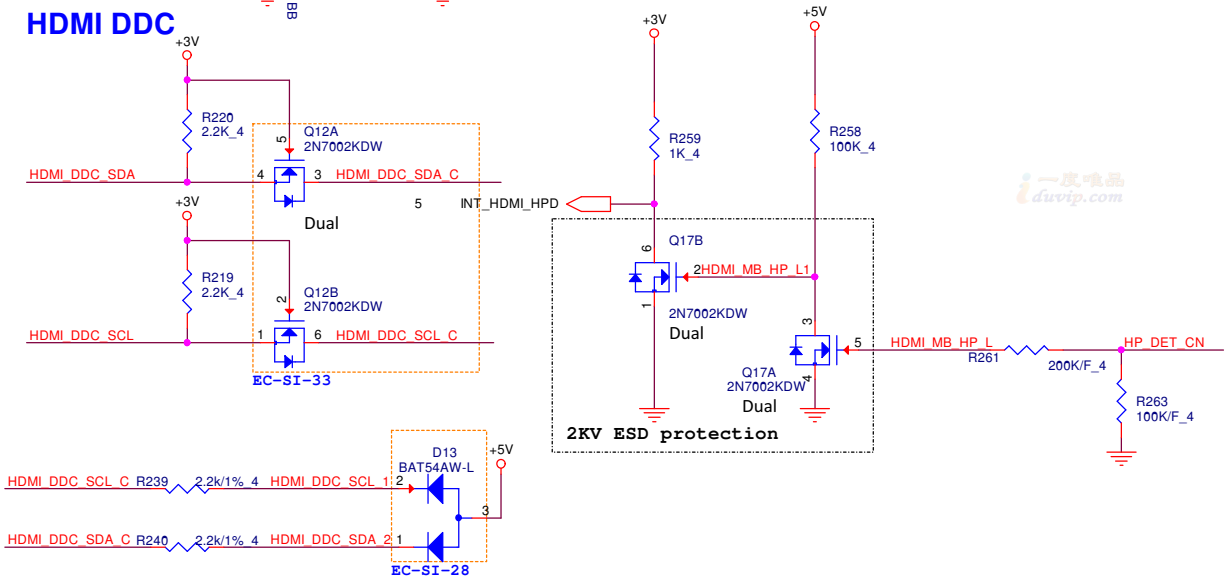


HDMI POWER SUPPLY

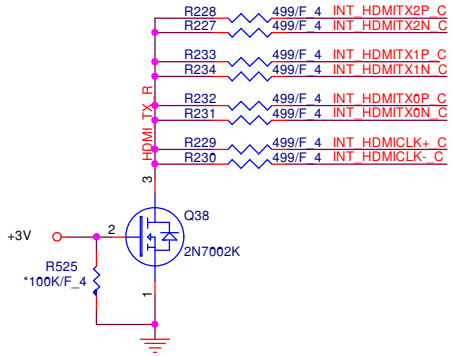


HDMI-detect

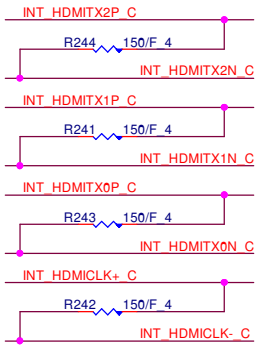
HDMI DDC



HDMI LEVEL SHIFT

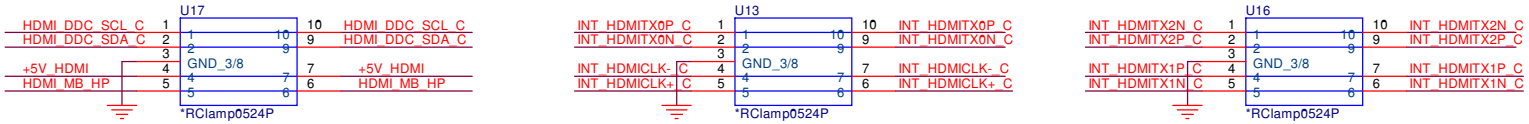


HDMI EMI (EMC)



ESD reserve for HDMI

Layout Notes:
Place decoupling CAPs close to Connector

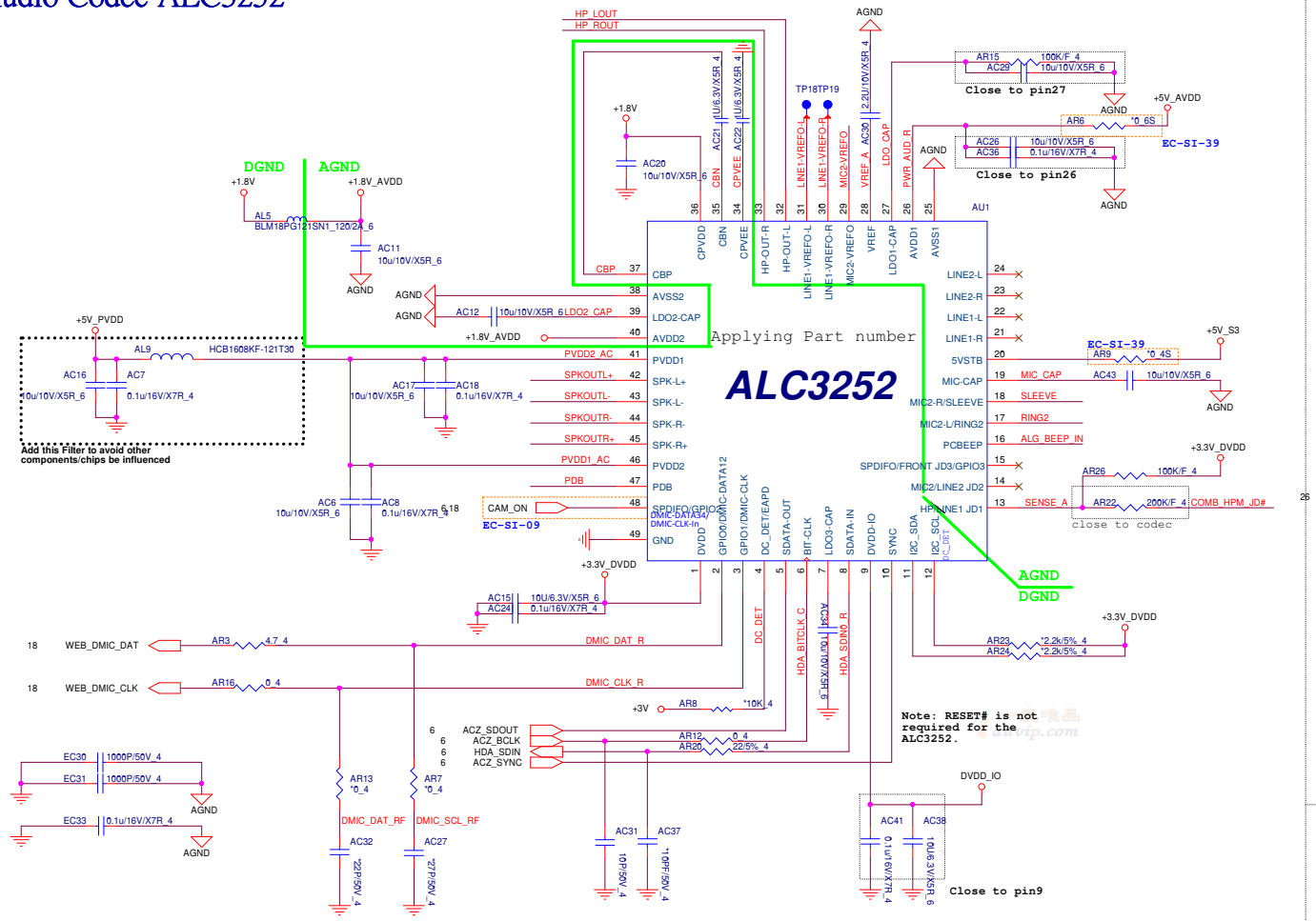


Quanta Computer Inc.
PROJECT HP-PHUKET

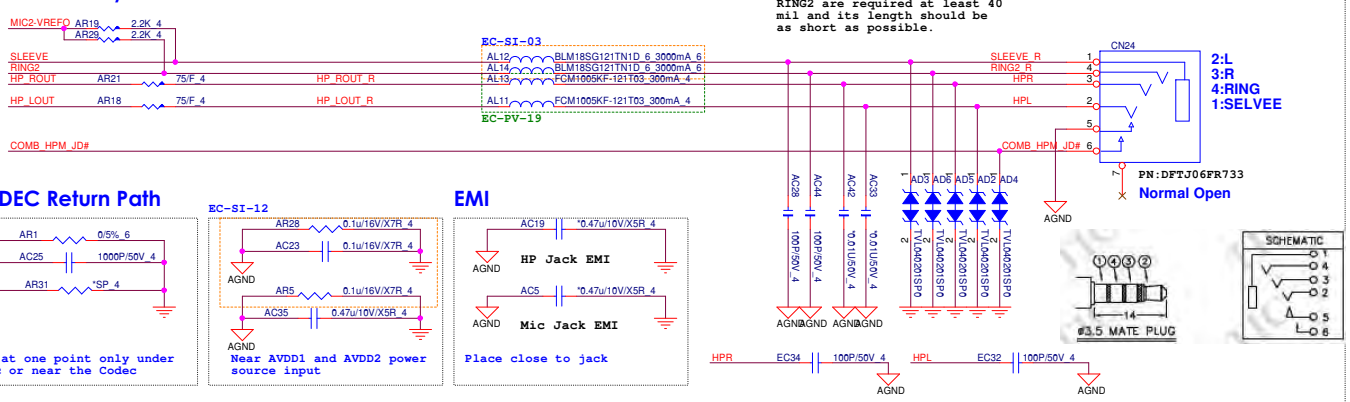
Size	Document Number	Rev
--	HDMI	C

Date: Wednesday, January 27, 2016 Sheet 14 of 44

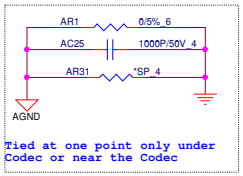
Audio Codec ALC3252



HeadPhone/Mic Combo Conn



CODEC Return Path



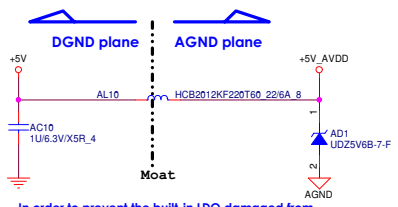
Tied at one point only under Codec or near the Codec

Near AVDD1 and AVDD2 power source input

EMI

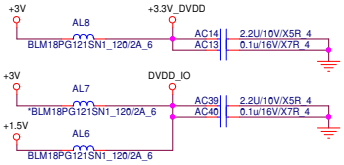
Place close to jack

AUDIO AVDD POWER

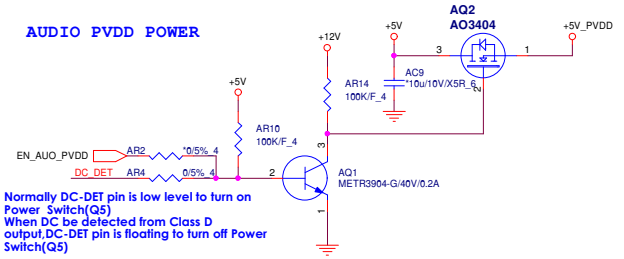


In order to prevent the built-in LDO damaged from over-voltage on +5VSYS or Standby power line, we suggested using this Voltage suppressing device.

AUDIO DVDD/DVDD_IO POWER

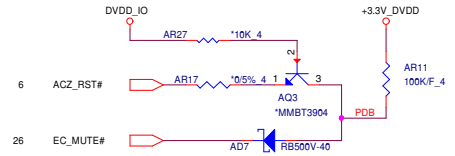


AUDIO PVDD POWER

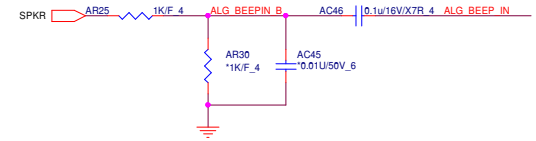


Normally DC-DET pin is low level to turn on Power Switch(Q5)
When DC be detected from Class D output,DC-DET pin is floating to turn off Power Switch(Q5)

EC MUTE

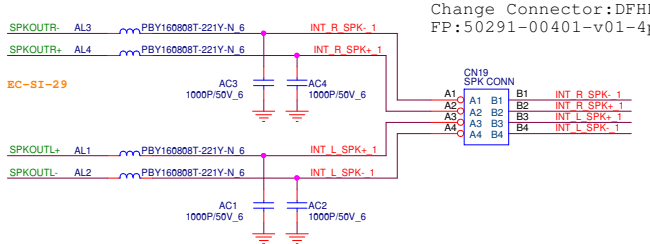


PCBEEP



Internal Speaker (2W, 4 ohm)

Change Connector:DFHD04MR424
FP:50291-00401-v01-4p-ldv_ab



Quanta Computer Inc.		
PROJECT HP-PHUKET		
Size: --	Document Number: Audio ALC3228-CG	Rev: C
Date: Wednesday, January 27, 2016	Sheet 16 of 44	

LAN (RTL8161GSH) 10/100/1000

R412 value should be 2.49K (1%) for all application.

RTL8161GSH-CG

EMI Suggest

3V_LAN

120mil

EVDD10/AVDD33_REG trace width >40mils

Close to Pin32

Close to Pin11

Close to Pin23

X'tal 25MHz

EVDD10/N780946/REGOUT trace width >60mils

Close to PIN3, 8, 22, 30

C136,C128 Close to PIN22

LAN Conn

Quanta Computer Inc.

PROJECT HP-PHUKET

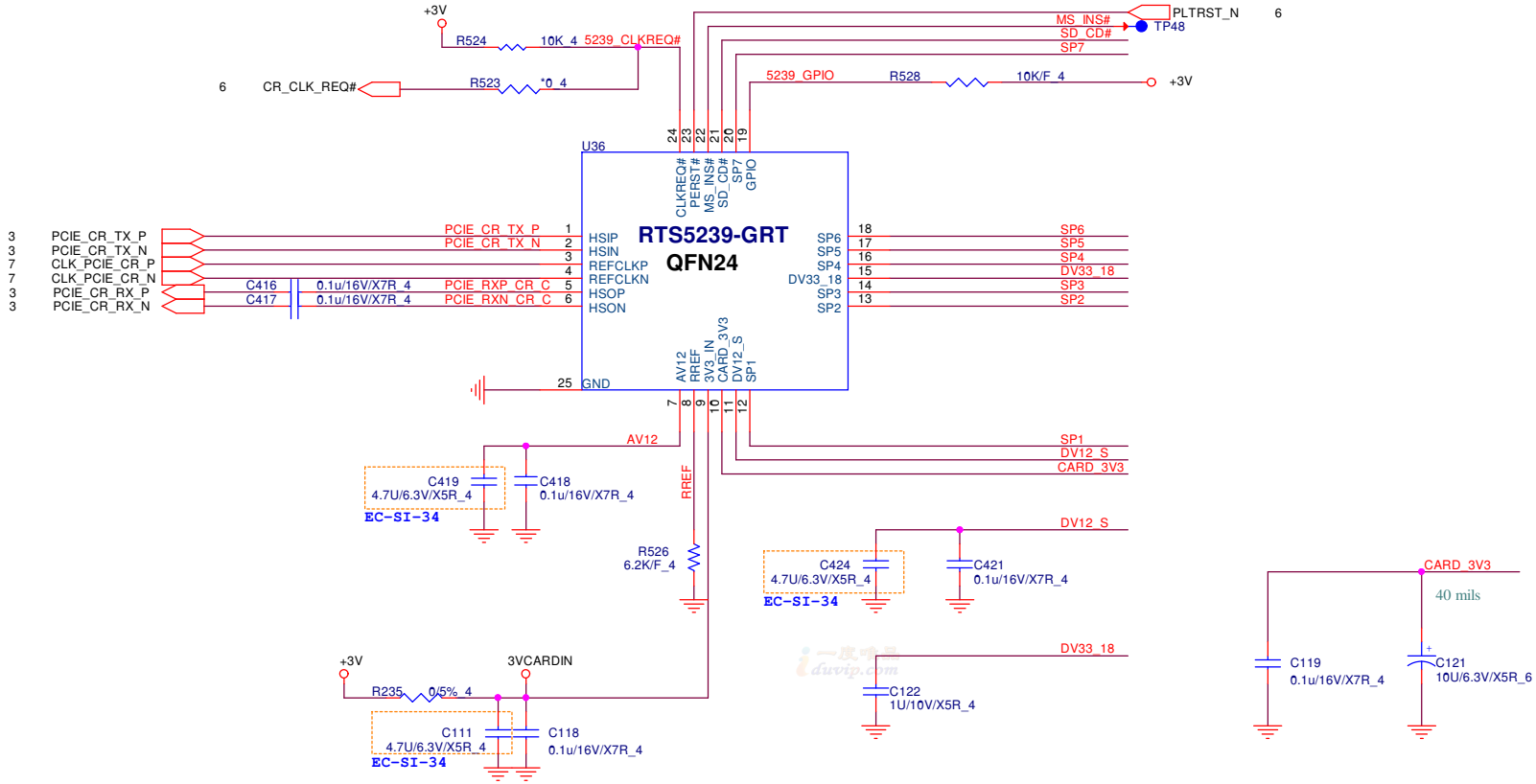
Document Number RTL8161/RJ45

Rev C

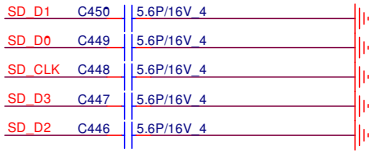
Date: Wednesday, January 27, 2016 Sheet 16 of 44

CARD READER RTD5239-GRT

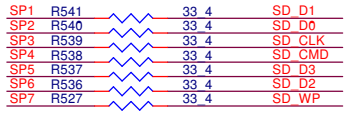
5,6,7,8,10,11,12,14,15,16,18,22,23,24,26,28,37 +3V



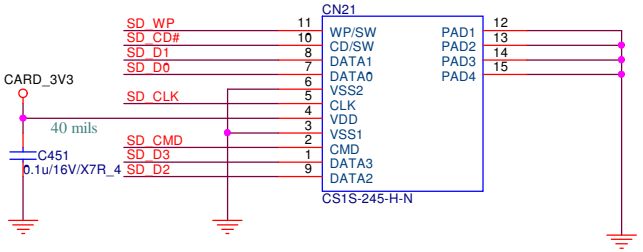
EMI



SD damping resistor



SD connector



Quanta Computer Inc.

PROJECT HP-PHUKET

Size	Document Number	Rev
--	Card Reader (RTS5239)	C

Date: Wednesday, January 27, 2016 Sheet 17 of 44

(Optional 1: 3DCAM+DMIC)

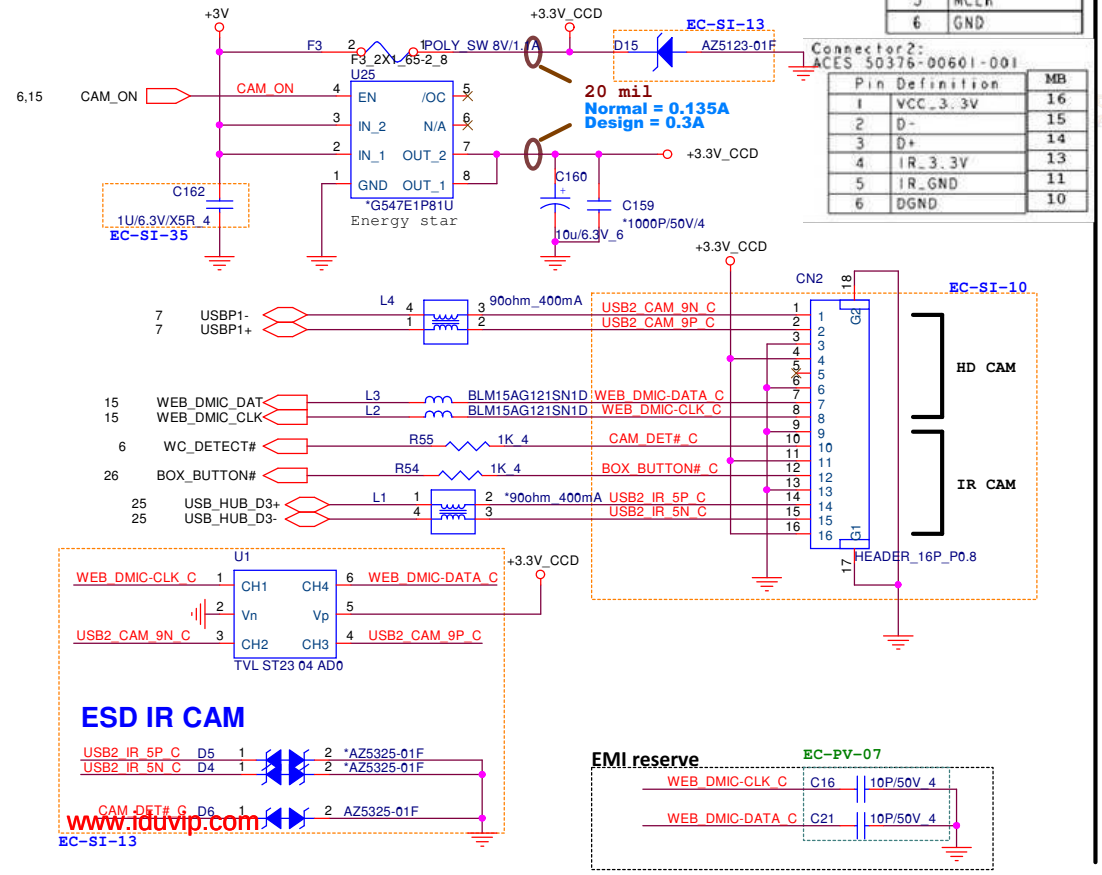
(Optional 2: WEBCAM+DMIC)

Connector1:
ACES 50376-00601-001

Pin	Definition
1	VCC_3.3V
2	D-
3	D+
4	MDATA
5	MCLK
6	GND

Connector2:
ACES 50376-00601-001

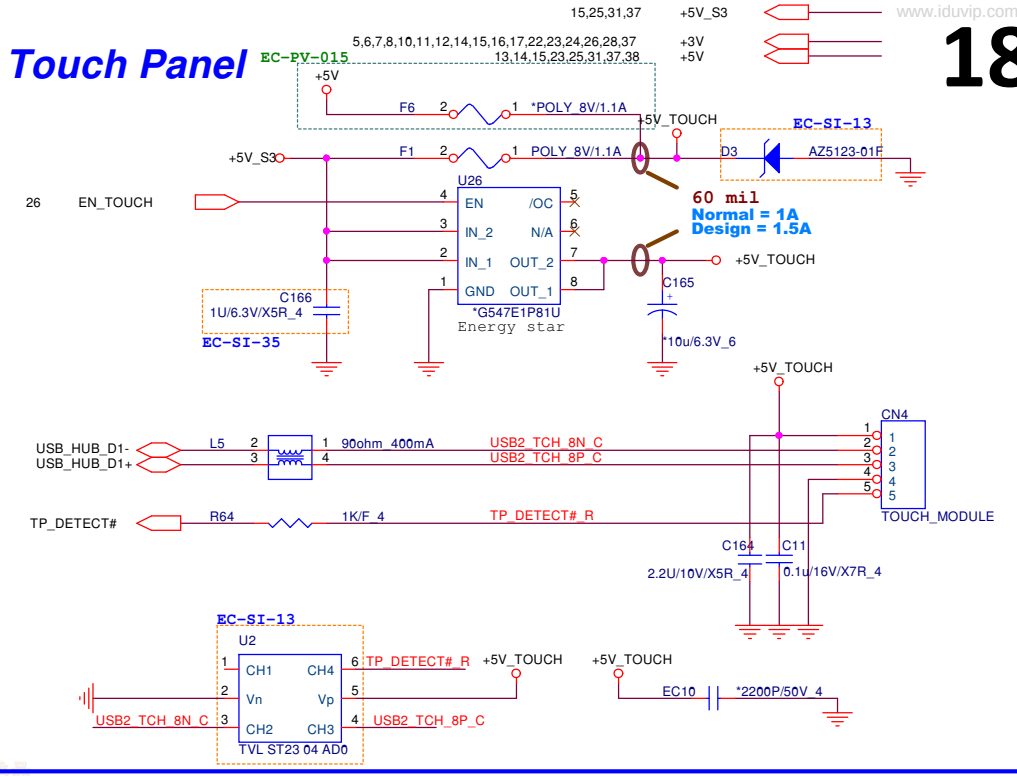
Pin	Definition	MB
1	VCC_3.3V	16
2	D-	15
3	D+	14
4	IR_3.3V	13
5	IR_GND	11
6	DGND	10



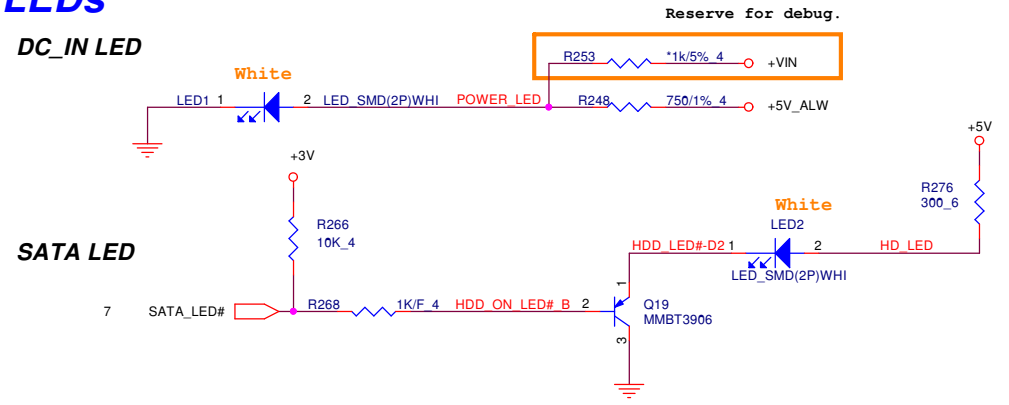
ESD IR CAM

EMI reserve

Touch Panel



LEDs



ESD for 3D CAM

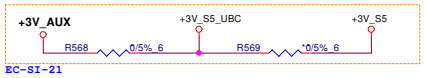
USD protection diodes for ESD.
as close as possible to USB connector pins.

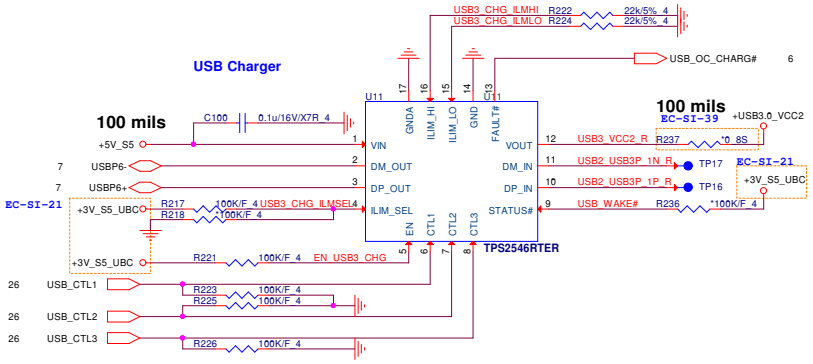
Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
--	eDP-LVDS_RTD2136N	C
Date: Wednesday, January 27, 2016	Sheet 18 of 44	

USB PORT

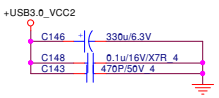
USB3.0 Charging Port

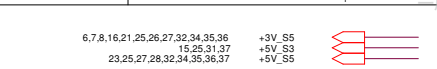




SDP : Standard Downstream Port
CDP : Charging downstream port
DCP : Dedicated Charging Port
Enable/Disable : setting by BIOS

POWER STATE	TPS2546 CHARGING MODE	CTRL1	CTRL2	CTRL3	ILIM
S0	CDP LOAD DETECTION WITH ILIM_LO +60MA THRESHOLDS OR IF A BC1.2 PRIMARY DETECTION OCCURS	1	1	1	1
S3	AUTO MODE, LOAD DETECTION WITH POWER WAKE THRESHOLD	0	1	1	1
S4/S5	AUTO MODE, KEYBOARD/ MOUSE WAKE-UP, LOAD DETECTION WITH ILIM_LO +60MA THRESHOLDS	0	0	1	1





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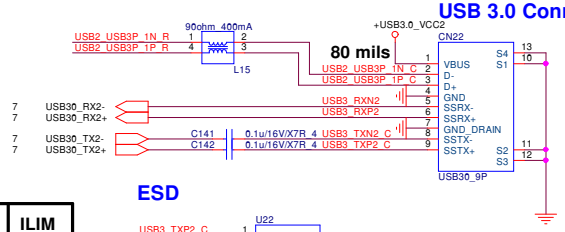
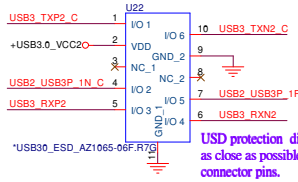
USB 3.0 Conn.



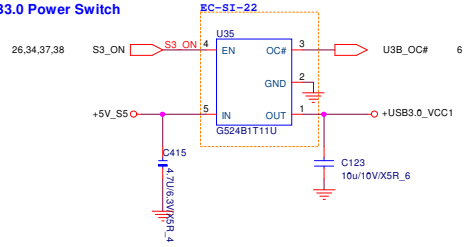
ESD

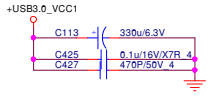


USD protection diodes for ESD. as close as possible to USB connector pins.

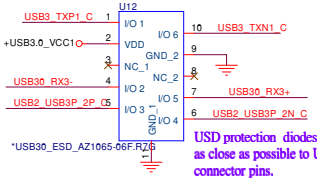
USB3.0 PORT

USB3.0 Power Switch



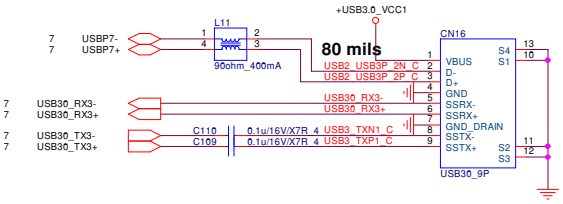


ESD



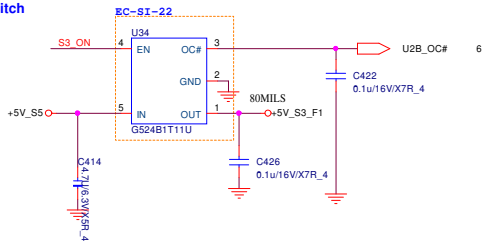
USD protection diodes for ESD. as close as possible to USB connector pins.

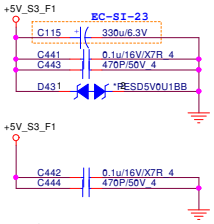
USB3.0 Conn



USB2.0 X 2

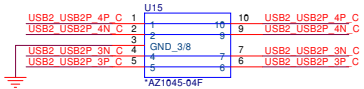
USB3.0 Power Switch





Layout:
1. All caps Near to Connector
2. Place D43 near CN21 and CN22

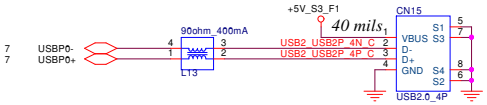
ESD



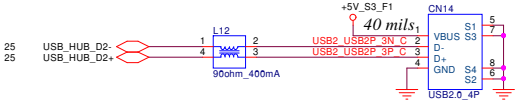
USD protection diodes for ESD.
as close as possible to USB connector pins.

USB2.0 Conn

USB2_Port0



USB2_HUB_Port2



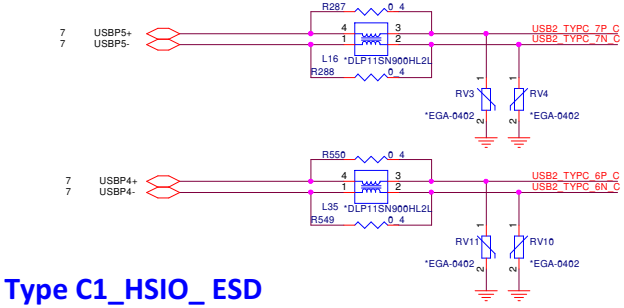
Quanta Computer Inc.
PROJECT HP-14DK1

Size	Document Number	Rev
--	USB2.0/USB3.0 Conn	C
Date: Wednesday, January 27, 2016	Sheet 19 of 44	

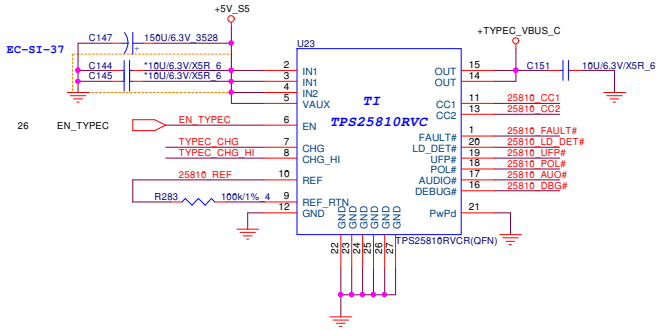
USB TYPE-C

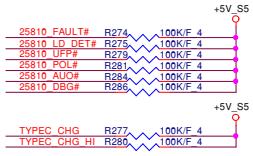
15,25,31,37 +5V_S3
23,25,27,28,32,34,35,36,37 +5V_S5

USB2.0 ESD



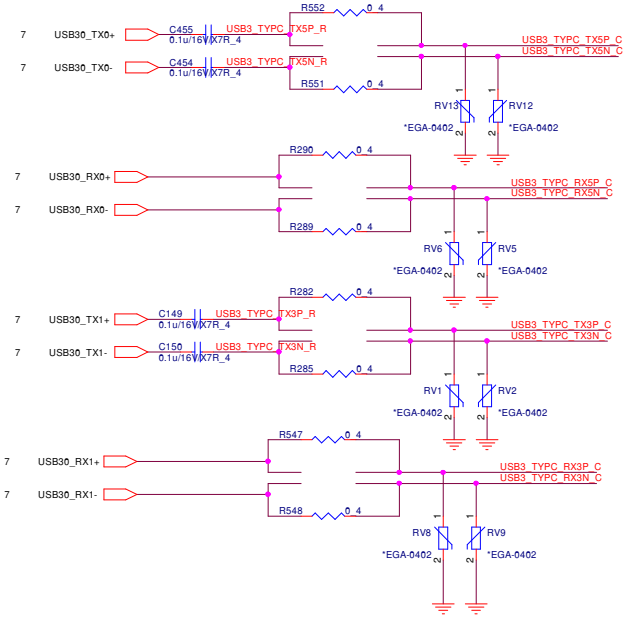
Vendor suggest input cap 120u

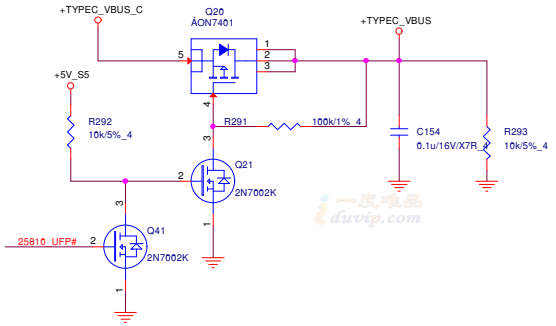


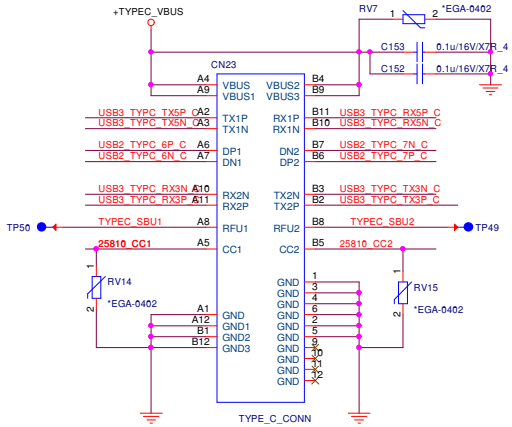


CHG	CHG_HI	CC Capability Broadcast	Current Limit	Load Detect Threshold
0	0	STD	1.67 A	NA
0	1	STD	1.67 A	NA
1	0	1.5 A	1.67 A	NA
1	1	3.0 A	3.34 A	1.77 A

Type C1_HSIO_ ESD







TPS25810 Port	CC1	CC2	OUT	VCONN On CC1 or CC2	TPS25810 Response POLb	UFPb	AUDIOb	DEBUGb
Nothing Attached	OPEN	OPEN	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
UFP Connected	Rd	OPEN	IN1	NO	Hi-Z	LOW	Hi-Z	Hi-Z
UFP Connected	OPEN	Rd	IN1	NO	LOW	LOW	Hi-Z	Hi-Z
Powered Cable/No UFP Connected	OPEN	Ra	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
Powered Cable/No UFP Connected	Ra	OPEN	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
Powered Cable/UFP Connected	Rd	Ra	IN1	CC2	Hi-Z	LOW	Hi-Z	Hi-Z
Powered Cable/UFP Connected	Ra	Rd	IN1	CC1	LOW	LOW	Hi-Z	Hi-Z
Debug Accessory Connected	Rd	Rd	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	LOW
Audio Adapter Accessory Connected	Ra	Ra	OPEN	NO	Hi-Z	Hi-Z	LOW	Hi-Z

Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
--	USB TYPE-C	C

Date: Friday, January 29, 2016 Sheet 20 of 44

NGFF M2 Socket

H=9.0

13,25,26,37 +3V_S3
5,6,7,8,10,11,12,14,15,16,17,18,22,23,24,26,28,37 +3V

CN7 NGFF Slot-A SD

1	GND	3.3Vaux	2
3	USB_D+	3.3Vaux	4
5	USB_D-	LED#1 (OD)	6
7	GND	PCM_CLK (0/1.8V)	8
9	SDIO CLK(O)(0/1.8V)	PCM_SYNC (0/1.8V)	10
11	SDIO CMD(IO)(0/1.8V)	PCM_IN (0/1.8V)	12
13	SDIO DAT0(IO)(0/1.8V)	PCM_OUT (0/1.8V)	14
15	SDIO DAT1(IO)(0/1.8V)	LED#2 (OD)	16
17	SDIO DAT2(IO)(0/1.8V)	GND	18
19	SDIO DAT3(IO)(0/1.8V)	UART Wake(0/3.3V)	20
21	SDIO Wake(I)(0/1.8V)	UART Rx (0/1.8V)	22
23	SDIO Reset(O)(0/1.8V)	Key	24
25	Key	Key	26
27	Key	Key	28
29	Key	Key	30
31	Key	Key	32
33	Key	UART Tx (0/1.8V)	34
35	GND	UART CTS (0/1.8V)	36
37	PERp0	UART RTS (0/1.8V)	38
39	PERn0	RESERVED	40
41	GND	RESERVED	42
43	PETp0	RESERVED	44
45	PETn0	COEX3(?)(0/1.8V)	46
47	GND	COEX2(?)(0/1.8V)	48
49	REFCLKP0	COEX1(?)(0/1.8V)	50
51	REFCLKN0	SUSCLK(32kHz)(0/3.3V)	52
53	GND	PERST0#(0/3.3V)	54
55	CLKREQ0#(0/3.3V)	W_Disable#2(0/3.3V)	56
57	PEWake0#(0/3.3V)	W_Disable#1(0/3.3V)	58
59	GND	I2C DATA(0/3.3)	60
61	Reserved/PETp1	I2C CLK(0/3.3)	62
63	Reserved/PETn1	ALERT(0/3.3)	64
65	GND	RESERVED	66
67	Reserved/PERp1	RESERVED	68
69	Reserved/PERn1	RESERVED	70
71	GND	RESERVED	72
73	RESERVED	3.3Vaux	74
75	RESERVED	3.3Vaux	
	GND		

WiFi/BT_NGFF_CONN

+3.3V_WLAN

7 USBP3+ / 7 USBP3- → L6 (90ohm_400mA) → USB2_WLAN_7P_C / USB2_WLAN_7N_C

3 PCIE_WLAN_TX_P / 3 PCIE_WLAN_TX_N → PCIE_WLAN_TX_P / PCIE_WLAN_TX_N

3 PCIE_WLAN_RX_P / 3 PCIE_WLAN_RX_N → R98 0/5%_4, L7 *90ohm_400mA, R97 0/5%_4 → PCIE_WLAN_RX_P_C / PCIE_WLAN_RX_N_C

7 CLK_PCIE_WLAN_P / 7 CLK_PCIE_WLAN_N

6 PCIE_CLK_WLAN_REQ# → D7 *1SS355 → M.2_WLAN_CLKREQ# / M.2_WLAN_WAKE#

For EMI: C39 *22P/50V_4

7 LPC_CLK_DEBUG / 7,24,26 L_FRAME# → EC-SI-39: R95 *0_4S, R94 33/J_4 → CK_24M_DEBUG_R / L_FRAME#_R

LED#1 → +3.3V_WLAN

LED#2 → +3.3V_WLAN

M.2_WLAN_CLKREQ# R96 10K_4 +3.3V_WLAN

LED#1 R418 *10K_4 +3.3V_WLAN
LED#2 R417 *10K_4

LED1: WLAN_LED_N
LED2: BT_LED_N

CRB

SUSCLK_WLAN R380 33/5%_4 / R392 *0_4S → SUSCLK_WLAN 6 / PLTRST_N 6

EC-SI-39

PLTRST_N_BUF: follow CRB

M.2_WLAN_RST# F_LAD0_D R414 33/J_4 → F_LAD0 7,24,26
M.2_BT_OFF# F_LAD1_D R413 33/J_4 → F_LAD1 7,24,26
M.2_WLAN_OFF# F_LAD2_D R412 33/J_4 → F_LAD2 7,24,26
F_LAD3_D R411 33/J_4 → F_LAD3 7,24,26

M.2 WLAN WAKE#

+3.3V_WLAN, +3.3V_WLAN → R426 10K/F_4 → Q34 DDTC144EUA

M.2_WLAN_WAKE# → Q34 pin 1; Q34 pin 3 → PCIE_WAKE# 6; Q34 pin 2 → R427 *0_4

M.2_BT_OFF#

+3.3V_WLAN → R416 10k/5%_4 → M.2_BT_OFF# → Q33 *PJA138K/50V_0.5A

L : BT ON
H : BT OFF

6 BT_RADIO_DIS#

M.2_WLAN_OFF#

+3.3V_WLAN → R415 10k/5%_4 → M.2_WLAN_OFF# → Q32 *PJA138K/50V_0.5A

L : WLAN ON
H : WLAN OFF

6 WLAN_OFF#

NGFF M2_power(S5)

Normal = 1,100 mA
Peak(MAX) 2,750 mA

+3V_S5, +3V_S5 → R408 *10K/F_4

+3.3V_WLAN → R424 0/5%_8

Q35 *G5243AT11U: IN_1, IN_2, ON/OFF, OUT, GND_1 → 120mil

26 EN_WLAN_PWR

C328 *0.1u/25V/X5R_4
C340 0.1u/16V/X7R_4

+3.3V_WLAN → EC-SI-36:
C36 4.7U/6.3V/X5R_4
C339 *10u/6.3V/X5R_6
C29 0.1u/16V/X7R_4
C30 0.01u/50V/X7R_4
C34 0.01u/50V/X7R_4
Near Pin2 / Pin4

+3.3V_WLAN → EC-SI-36:
C31 4.7U/6.3V/X5R_4
C33 *10u/6.3V/X5R_6
C334 0.1u/16V/X7R_4
C32 0.01u/50V/X7R_4
C335 0.01u/50V/X7R_4
Near Pin72 / Pin74

ESD reserve

M.2_WLAN_RST# → SRV8 *BC5123012O1_6

Quanta Computer Inc.			
PROJECT HP-PHUKET			
Size --	Document Number NGFF M.2 WLAN		Rev C
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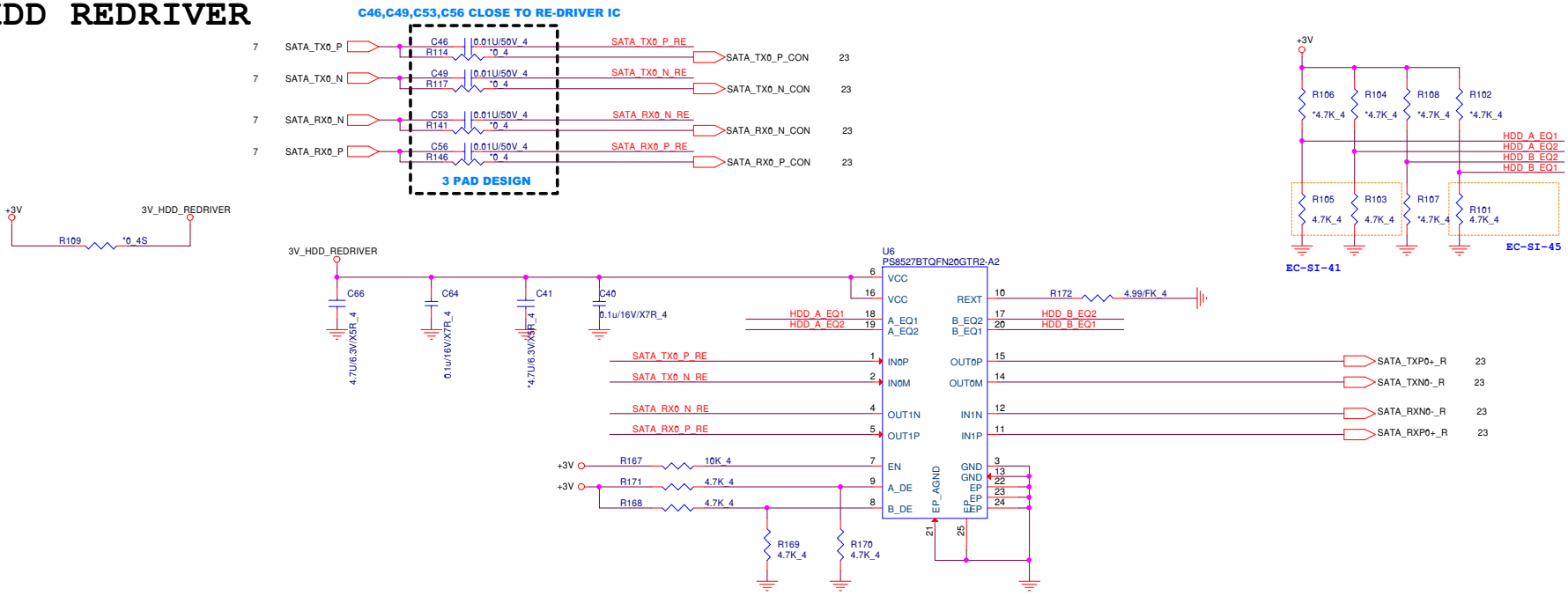
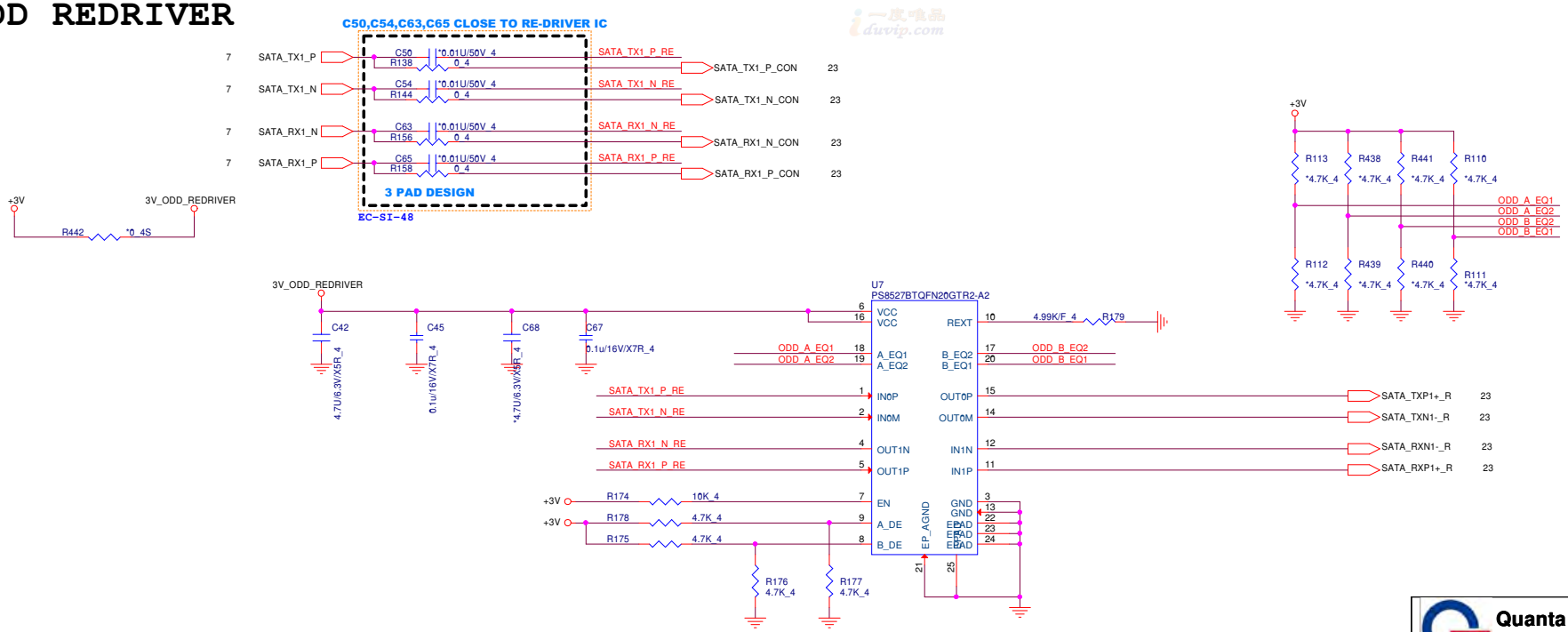
HDD REDRIVER

C46,C49,C53,C56 CLOSE TO RE-DRIVER IC



ODD REDRIVER

C50,C54,C63,C65 CLOSE TO RE-DRIVER IC



Quanta Computer Inc.		
PROJECT HP-PHUKET		
Size	Document Number FAN/HDD/ODD/POWER BUT CONN. 799918-000	Rev C
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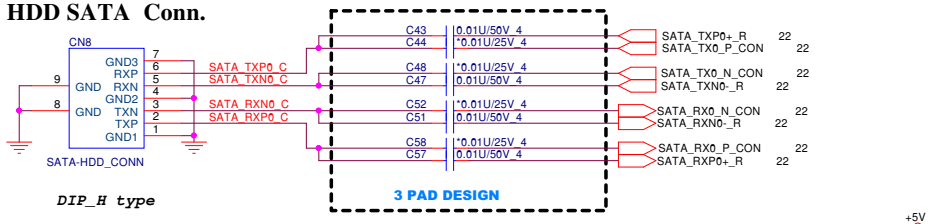
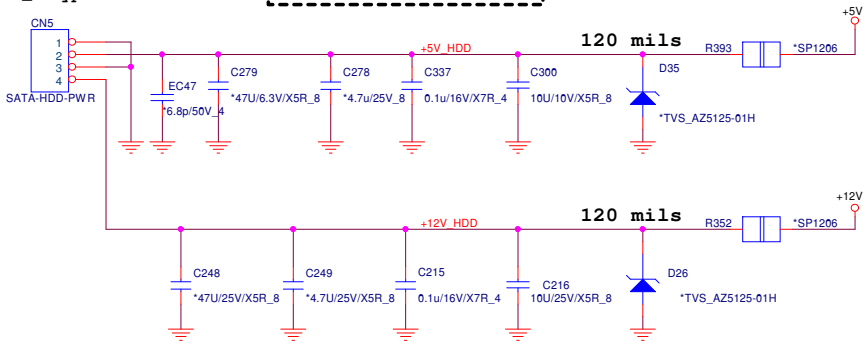
SATA HDD

HDD SATA Conn.

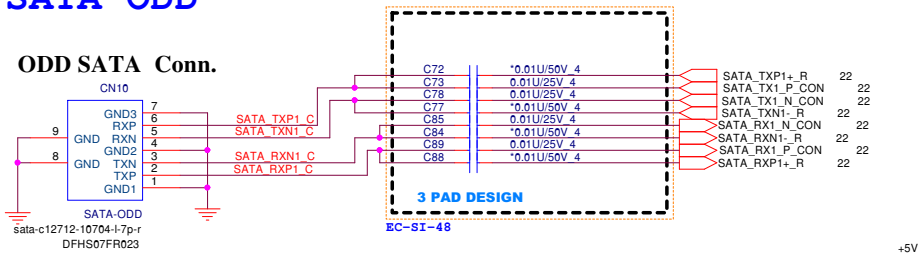


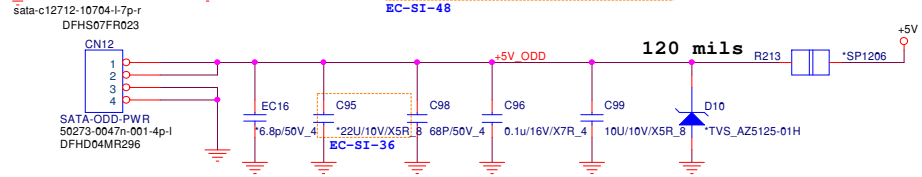
DIP_H type

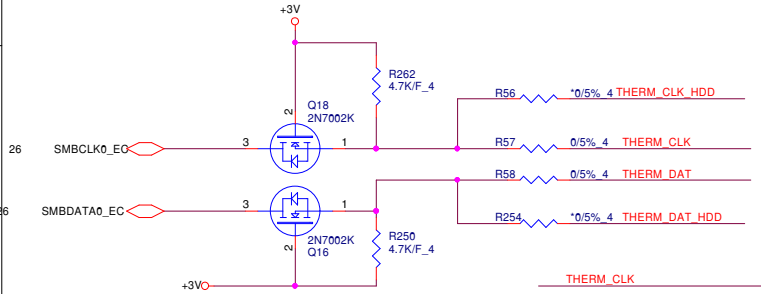


SATA ODD

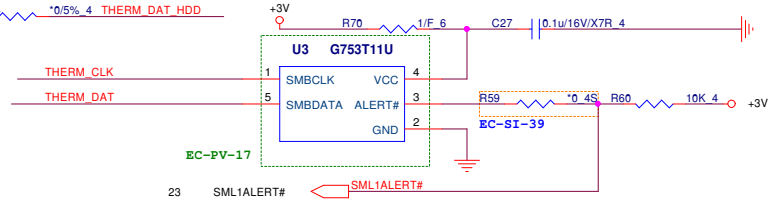
ODD SATA Conn.







Ambient



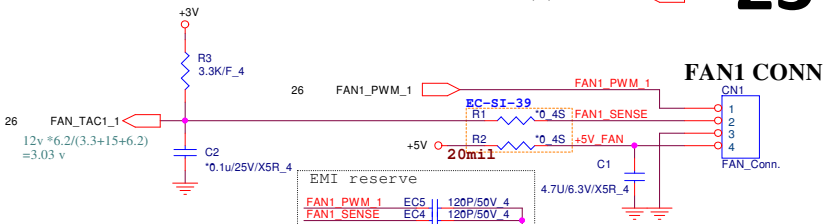
Slave Adress 0x98

A6	A5	A4	A3	A2	A1	A0
1	0	0	1	0	0	0

SYSTEM FAN

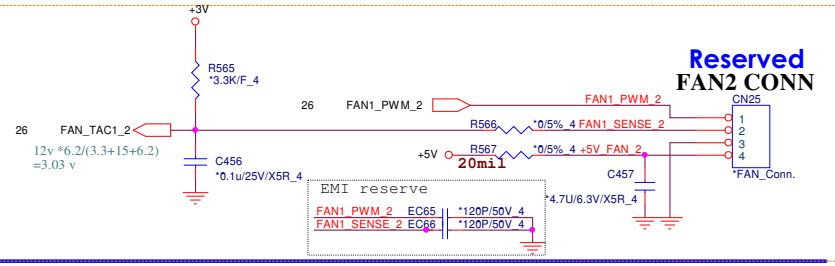
5,6,7,8,10,11,12,14,15,16,17,18,22,24,26,28,37 +3V
15,18,25,31,37 +5V_S3
13,14,15,18,25,31,37,38 +5V
15,35,38 +12V

FAN1 CONN



EC-SI-07

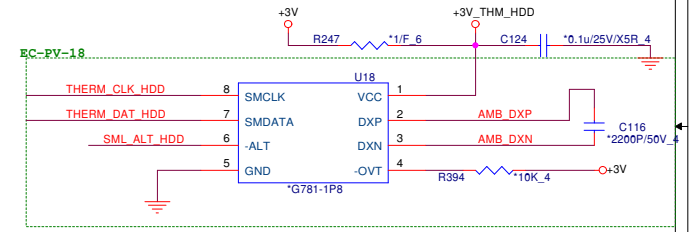
Reserved FAN2 CONN

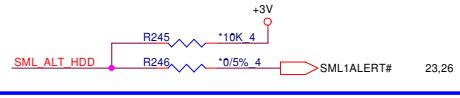


Ambient

THERMAL SENSOR-HDD

Reserved



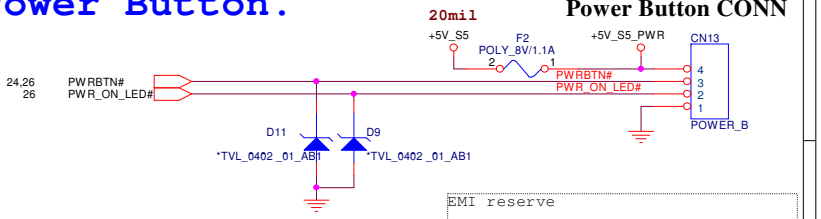


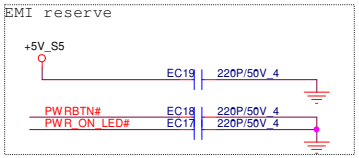
Slave Adress 0x9A

A6	A5	A4	A3	A2	A1	A0
1	0	0	1	0	0	0

Power Button.

Power Button CONN





Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
--	FAN/HDD/ODD/HDD CONN.	C

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EC-PV-01 EMI reserve

+5V: EC67 0.1U/16V/X7R_4, EC68 0.1U/16V/X7R_4, EC69 0.1U/16V/X7R_4
+1.8V_ROM: EC70 0.1U/16V/X7R_4
VDDCR_FCH_ALW: EC71 0.1U/16V/X7R_4, EC72 0.1U/16V/X7R_4, EC73 0.1U/16V/X7R_4
3VRTC_ALW: EC74 0.1U/16V/X7R_4, EC75 0.1U/16V/X7R_4
+3V: EC79 0.1U/16V/X7R_4, EC80 0.1U/16V/X7R_4, EC81 0.1U/16V/X7R_4, EC83 0.1U/16V/X7R_4

+VIN: EC76 0.1u/25V/X5R_4, EC77 0.1u/25V/X5R_4, EC78 0.1u/25V/X5R_4
EC85 82P/50V/NPO_4, EC86 82P/50V/NPO_4, EC87 82P/50V/NPO_4, EC88 82P/50V/NPO_4, EC89 82P/50V/NPO_4
+VDDP: EC82 0.1U/16V/X7R_4, EC84 0.1U/16V/X7R_4

SW1 For Debug.MP will remove it.

23,26 PWRBTN# — SW1 PROTO@MSK-NTC016-AA1G-A160T (2, 4, 1, 3)

TPM2.0

13,25,26,37 +3V_S3
5,6,7,8,10,11,12,14,15,16,17,18,22,23,26,28,37 +3V
13,14,15,18,23,25,31,37,38 +5V
7 3VS5_1.8V

SPI TPM2.0

U9 *SLB9670TT2.0

7 FCH_SPI_CLK — R198 *33_4 — TPM_CLK
7 FCH_SPI_SI — R195 *33_4 — TPM_SI
7 FCH_SPI_SO — R193 *33_4 — TPM_SO
6,24 LPC_RST# — LPC_RST#
TPM_CS#, TPM_PIRQA#, TPM_GPIO, TPM_PP

3VS5_1.8V: C86 *1u/10V/X5R_4, C70 *0.1u/25V/X5R_4, C71 *0.1u/25V/X5R_4
0.1uf near to VDD/GND

TPM_PIRQA# R200 *0_4
TPM_GPIO R196 *4.7K/F_4
TPM_PP R199 *0_4, R201 *4.7K/F_4

SPI TPM2.0 --SPI CS# pin
Bristol / Stoney : 3V (VDD_33)

3V_TPM: C87 *0.1U/16V/X7R_4
3VS5_1.8V: R202 *10K_4
U10 *74AHC1G09
7 TPM_SPI_CS#1 — R203 *0_4
R206 10K_4
TPM_CS#
+3V: R204 *0_4 — 3V_TPM

TPM_SPI_CS#1 Pull Down if no use

LPC HEADER

+3V
7,21,26 L_FRAME# — L_FRAME#
7,21,26 F_LAD3 — F_LAD3
7,21,26 F_LAD0 — F_LAD0
6,24 LPC_RST#
SERIRQ, F_LAD1, F_LAD2

SERIRQ 7,26
F_LAD1 7,21,26
F_LAD2 7,21,26
EC_SMI# 6,26
CK_33M_HEADER 7

CN6 PHOTO@LPC-7Px2_2.54mm-13p

CHECK PCH_SMI#

Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
--	Debug /LPC Header/TPM	C

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USB HUB

typ. 81mA for 2 port full speed.

15 mil

C229 CLOSE TO PIN28

WEB CAM

U2B-2

GL850G-OHY31

GL850G-OHY50

QFN28

52.4mA

NC if Using External Regulator

Pin27 short with PIN28 to prevent internal LDO leakage from PIN28 to PIN27 if no use 5V to HUB IC.

On HUB IC, V33 is generated by V5 if using internalLDO.

USB HUB RESET

USB HUB1 STRAPS

USB HUB1 XTAL

HUB_PSELF
0: GL850G is bus-powered
1: GL850G is self-powered

CPU HOLE

WLAN HOLE

EC-PV-16

EC-SI-08

EC-PV-08

EMI reserve

Quanta Computer Inc.	
PROJECT HP-PHUKET	
Size	Document Number: USB2.0 HUB
Rev	C
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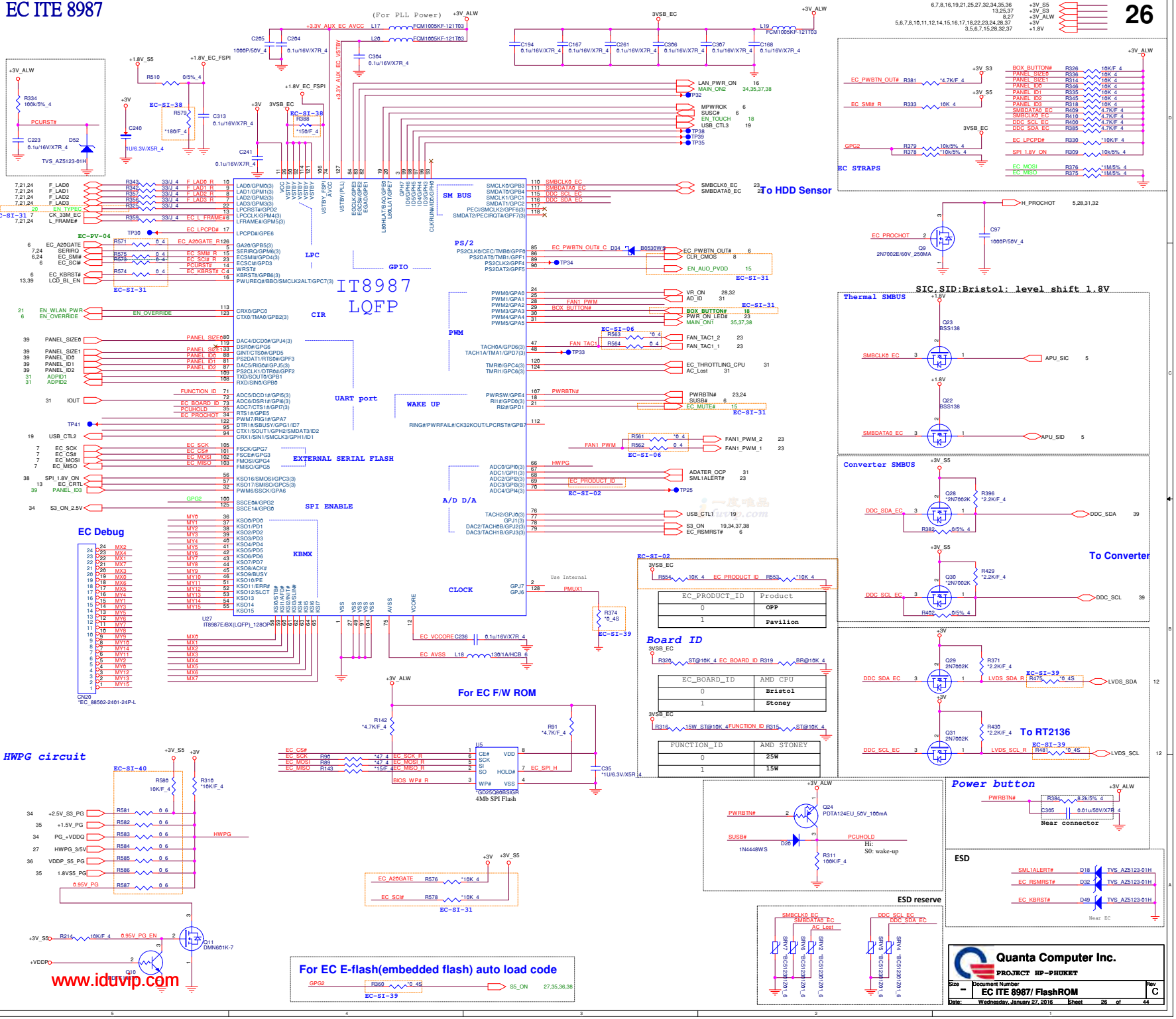
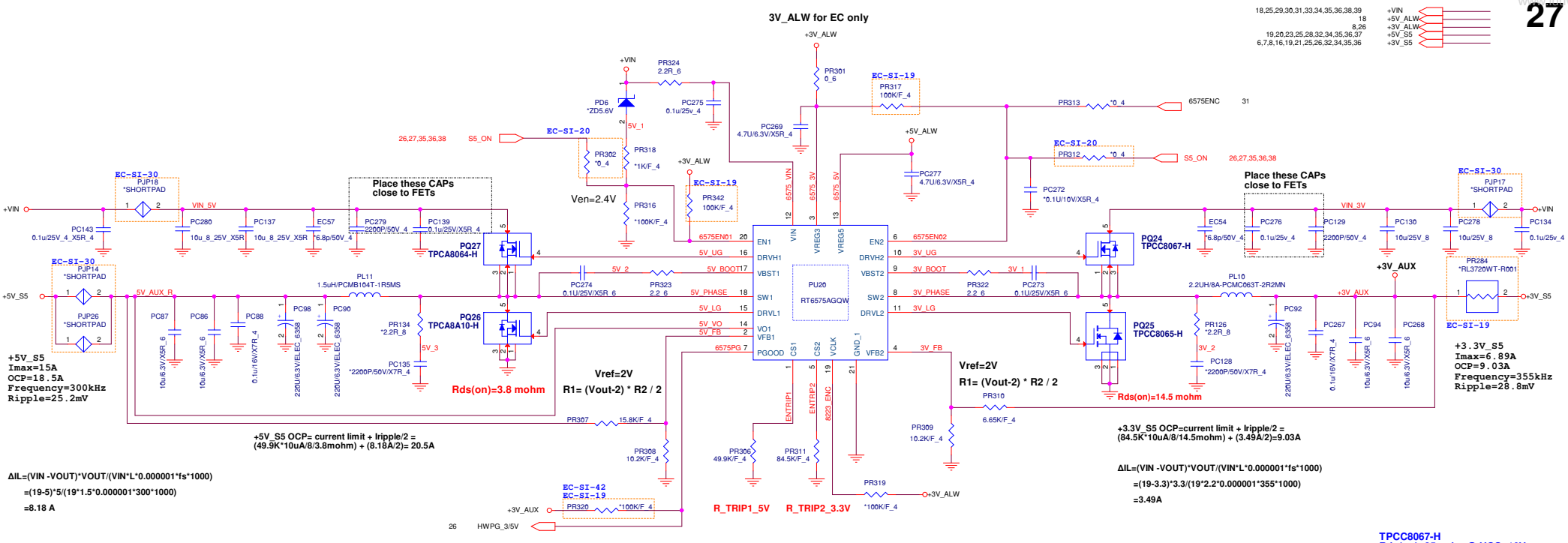
EC ITE 8987





L/S Mosfet parameter

MOSFET	Package	ID (Ta=25C)	Rds_on_max
TPCA8010-H	Power Pack	40A	3.8m
TPCC8065-H	Power Pack	18A	14.5m

Power On sequencing

EN0	ENC	REF	VREG3	VREG5	SMPS1	SMPS2
LOW	LOW	OFF	OFF	OFF	OFF	OFF
> 2.4V	LOW	ON	ON	ON	OFF	OFF
> 2.4V	> 2.4V	ON	ON	ON	ON	ON

Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
--	3V&5V (RT8223PZQW)	C
Date: Wednesday, January 27, 2016	Sheet 27 of 44	

8,29 CPU_CORE
8,30,36 NB_CORE
19,20,23,25,27,32,34,35,36,37 +5V_S5
3,5,6,7,15,26,32,37 +1.8V

Bristol Ridge
PR81=1.43Kohm
PR266=301ohm

Stoney Ridge
PR81=1.78kohm
PR266=340ohm

PU17
ISL62771HRTZ-T

Add 9 GND VIAs for thermal pad

Place NTC close to the VDDNB Hot-Spot.

Place NTC close to the VDDCORE Hot-Spot.

Quanta Computer Inc.	
PROJECT HP-PHUKET	
Size: --	Document Number: CPU_CORE (ISL62771) Rev: C
Date: Wednesday, January 27, 2016	Sheet 28 of 44

Bristol Ridge
CPU_CORE

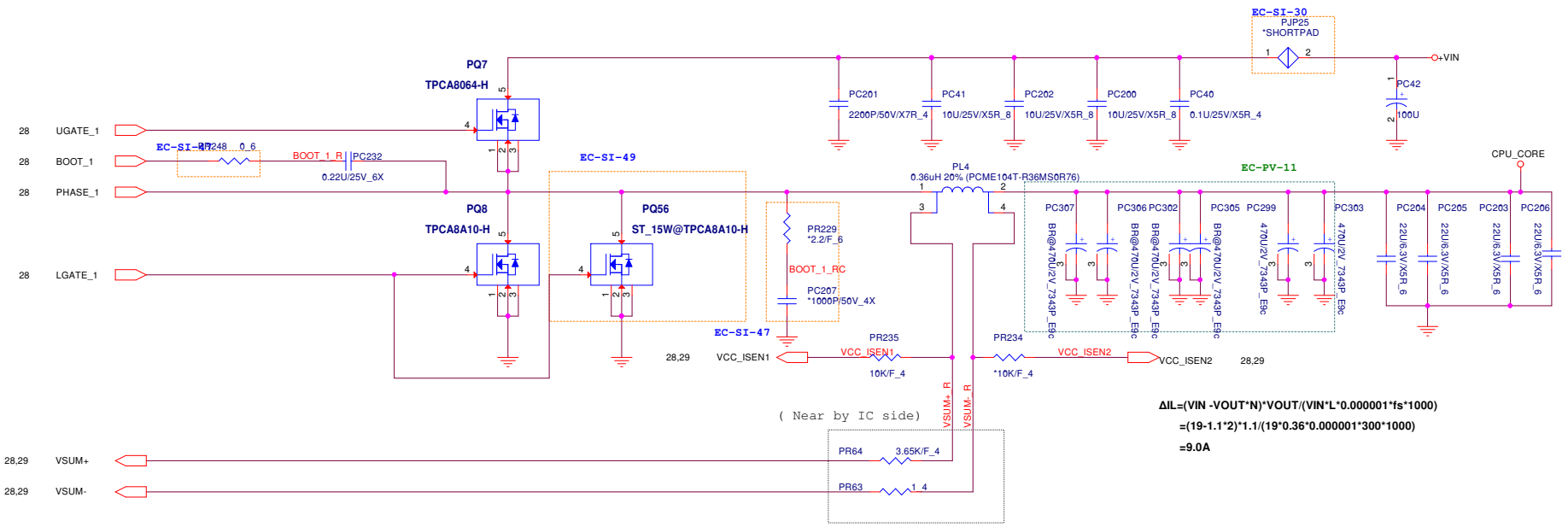
TDC = 39A
EDC = 55A
OCP = 71A

Stoney Ridge 25W
CPU_CORE

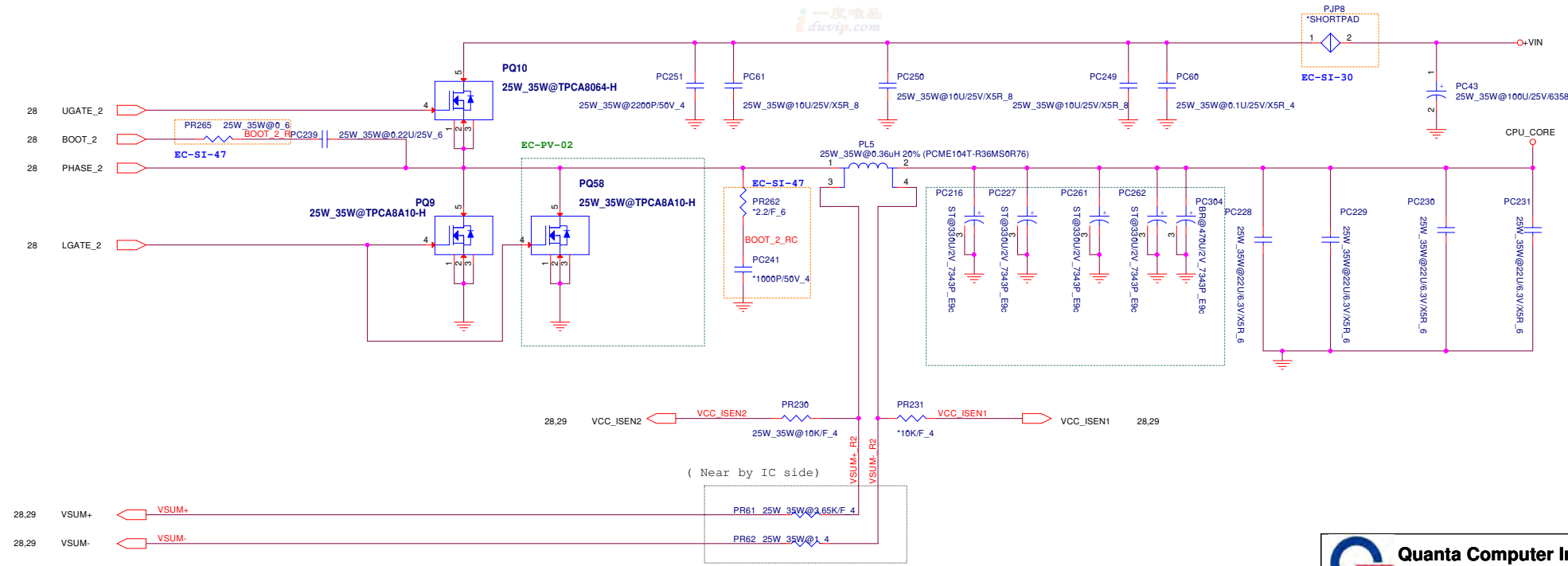
TDC = 31A
EDC = 45A
OCP = 58A

Stoney Ridge 15W
CPU_CORE

TDC = 22A
EDC = 35A
OCP = 45A



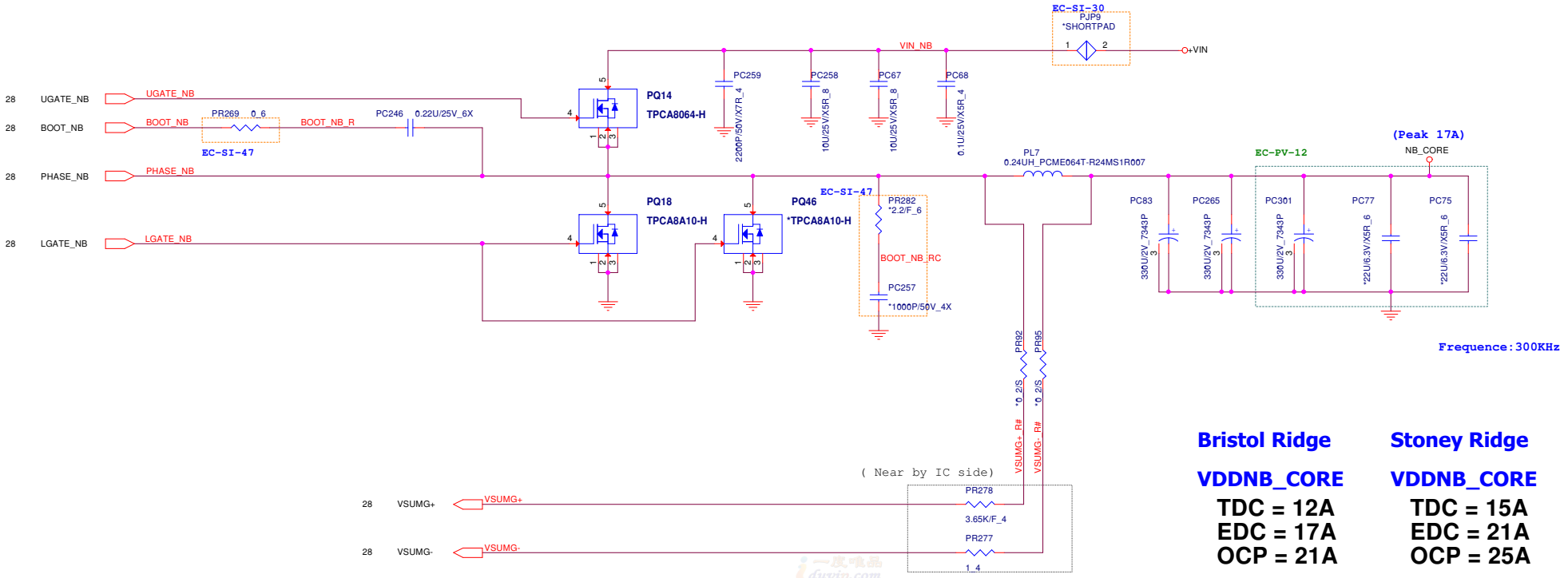
ΔIL=(VIN -VOUT*N)*VOUT/(VIN*L*0.000001*fs*1000)
=(19-1.1*2)*1.1/(19*0.36*0.000001*300*1000)
=9.0A



Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
	CPU 2PHASE	C
Date: Thursday, January 28, 2016	Sheet 29 of 44	

18,25,27,29,31,33,34,35,36,38,39 +VIN
8,28,36 NB_CORE



Frequence:300KHz

Bristol Ridge	Stoney Ridge
VDDNB_CORE	VDDNB_CORE
TDC = 12A	TDC = 15A
EDC = 17A	EDC = 21A
OCP = 21A	OCP = 25A

ΔIL=(VIN -VOUT)*VOUT/(VIN*L*0.000001*fs*1000)
=(19-1.1)*1.1/(19*0.24*0.000001*300*1000)
=14.39A

Quanta Computer Inc.
PROJECT HP-PHUKET

Size	Document Number	Rev
	NB_CORE	C
Date: Thursday, January 28, 2016	Sheet 30 of 44	

Id=16A
Qg=41~58nC
Rdson=6.9~8.5mOHM

18,25,27,29,30,33,34,35,36,38,39
38
6,7,8,16,19,21,25,26,27,32,34,35,36
19,20,23,25,27,28,32,34,35,36,37

+VIN
+15VCPU
+3V_S5
+5V_S5

PJ1 POWER JACK 3P
DCJ-03RHAB
DFTJ03MR003
519V_DC_SOURCE
19V_DC_SOURCE
PD4 *P4SMAJ20A
PL16 HCB2012KF800T50_0805
PL17 HCB2012KF800T50_0805
EC82 22U/25V/X5R_8
EC83 22U/25V/X5R_8
EC25 *2200P/50V/X7R_6
PC297
PC170 0.1u/25V/X5R_4
EC21 *2200P/50V_6
PR210 *13K/F_6
PR211 2.2R_1206
ADP_VIN_SUNB
PC174 1u/25V_6
EC24 *10U/25V/X5R_8
EC23 *10U/25V/X5R_8
EC22 *10U/25V/X5R_8
EC26 *10U/25V/X5R_8
+19V_INPUT
PQ38 AON6413
PC293 0.1u/25V/X5R_4
PR335 200K/F_4
19V_VIN_GATE
PR334 *200K/F_4
PR336 200K/F_4
DC3
PQ37 *ME2N7002E(60V,250MA)
+VIN_S
PC289 *0.1u/25V/X5R_4
PR204 0.01R/F_3720
DC1
DC2
PL14 FCM1005KF-121T03_0402
PL13 FCM1005KF-121T03_0402
+VIN
PC169 0.1u/25V/X5R_4
PR196 200K/F_4
PR186 820K/F_6
+15VCPU
PC151 0.1u/25V_6
3.317V
PR190 113K/F_4
ADATER_ID_R
PR158 *45.3K/F_4
PR162 *45.3K/F_4
PR163 45.3K/F_4
PR171 20.5K/F_4
PU10A AS393MTR-G1
2.994V
PR169 *100K/F_4
PR188 *0_4
PR170 0_4
PR189 100K/F_4
+3V_AUX
PC144 0.1U/25V/X5R_4
PJ4N3KDW/30V_0.1A-SC70
Q8A
Q8B
EC-SI-01
26 ADPID1
26 ADPID2
26 AD_ID
27 6575ENC
PU21 INA213
REF
GND
V+
OUT
IN-
IN+
IN213A OUT
IN213A IN-
IN213A IN+
PC287 0.1U/25V/X5R_4
PC285 0.1U/25V/X5R_4
PC286 0.1u/25V_4
PR328 20K/F_4
PC136 0.1u/25V/X5R_4
PR166 10K/F_4
EC_THROTTLING_CPU 26
H_PROCHOT 5,26,28,32
PR165 *0_4
PR151 *10K/F_4
PR150 10K/F_4
3V_Ref
+5V
EC-SI-39
PR327 *0.4S
IOUT
IOUT_R
PR161 0_4
PR329 20K/F_4
PC281 3900P/50V/X7R_4
PR164 0_4
DC5
DC6
DC7
PU10B AS393MTR-G1
PR159 0_4
PQ35 ME2N7002E(60V,250MA)
throttle_op_out2
PR182 *100K/F_4
PR181 *0_4
PR183 *100K/F_4
PU11B *AS393MTR-G1
PR184 *100K/F_4
PR185 *0_4
ADATER_OCP
PD2 *UDZVTE-1715B
PC141 *0.1u/25V/X5R_4
PR142 *499K/F_4
PR146 *4.7K/F_4
PR140 *0R_4
AC_Lost
PC133 *0.1u/16V_4
PR141 *4.7K/F_4
PR143 *20.5K/F_4
PU11A *AS393MTR-G1
DC8
DC9
DC10
PR147 *0R_4
6575ENC
PR145 0_4
AC_Lost
PR144 100K/F_4
+3V_AUX
+5V_S3
PU13 G9090-300T
IN
VOUT
SD
NC
3V_Ref
DC11
PC142 2.2u/10V/X5R_4
PC150 *0.1U/25V/X5R_4
PC148 1u/6.3V/X5R_4
PR167 182K/F_4
PR193 10M_4
PR180 0_4
throttling
UMA 118W AD
DC12
PR149 *210K/F_4
PR148 *210K/F_4
PR168 210K/F_4
PJ4N3KDW/30V_0.1A-SC70
Q7A
Q7B
PQ34 *ME2N7002E(60V,250MA)
ADPID1
ADPID2
PR136 *100K/J_4
PR139 *133K/F_4
PR138 *80.6K/F_4
PC131 *0.1u/25V/X5R_4
PU12B *AS393MTR-G1
PR137 *604K/F_4
PR135 *10K/F_4
PC132 *0.027u/25V/X7R_6
PU12A *AS393MTR-G1
PR172 *0_4
throttle_op_out2
PR173 *330K_4
ADATER_ID_R
PR194 *0_4
PD3 *MMSZ5235BS-7-F(6.8V)
PR174 *3.9K_4
PR175 *3.9K_4
PC149 *3900P/50V/X7R_4

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+5V_S5
PC25 BR@1U/10V/X5R_4
PR31 BR@0_4
PR27 BR@0_4
PC24 BR@1U/10V/X5R_4
62771_GFX_VDD
62771_GFX_VDDP
+3V_S5
PR18 BR@10K/F_4
PR19 *0_4
GFX_62771_PGD
6 VRM_GFX__PWRGD
VRM_GFX__PWRGD
5 SVC_APUGFX
PR24 1 2 BR@0_4
5,26,28,31 H_PROCHOT
PR28 1 2 BR@0_4
5 SVD_APUGFX
PR216 1 2 BR@0_4
+1.8V
PR30 1 2 BR@0_4
VDDIO_GFX
5 SVT_APUGFX
PR219 1 2 BR@0_4
ISL62771_SVT_GFX
ENABLE_GFX
CPU_PWRGD_SVID_REG
PR17 BR@100K/F_4
GFX_NTC
PR22 BR@100K/F_4
GFX_IMON
COMP_NB
FB_NB
VSEN_NB
VDD
VDDP
ISUMP_NB
ISUMN_NB
PGOOD_NB
PGOOD
SVC
VR_HOT_L
SVD
VDDIO
SVT
ENABLE
PWROK
NTC_NB
NTC
IMON_NB
IMON
PU3
BR@ISL62771HRTZ-T
LGATE_NB
PHASE_NB
UGATE_NB
BOOT_NB
BOOT2
UGATE2
PHASE2
LGATE2
LGATE1
PHASE1
UGATE1
BOOT1
EP
PR20 BR@10K/F_4
PR21 BR@10K/F_4
+5V_S5
GFX_BOOT_2
GFX_UGATE_2
GFX_PHASE_2
GFX_LGATE_2
GFX_LGATE_1
GFX_PHASE_1
GFX_UGATE_1
GFX_BOOT_1
Add 9 GND VIAs for thermal pad
COMP
FB
VSEN
RTN
ISUMN
ISUMP
ISEN1
ISEN2
GFX_ISUMN
GFX_ISEN1
GFX_ISEN2
PR223 *0_4
GFX_ISEN1
GFX_ISEN2
PR29 BR@0_4
26,28 VR_ON
PR33 BR@100K/J_4
PR221 *0_4
6 VDDGFX_PD
PQ43 *DMN601K-7
PC189 *330P/50V/X7R_4
Place NTC close to the VDDNB Hot-Spot.
Place NTC close to the VDDCORE Hot-Spot.
+1.8V
PR32 *10K/F_6
5,28 CPU_PWRGD_SVID_REG
PC27 BR@1000P/50V/X7R_4
PR227 BR@9.76K/F_4
PR226 BR@470K_4/ NTC
GFX_NTC_R
PR57 BR@27.4K/F_4
PR38 BR@130K/F_4
PC28 BR@0.1U/25V/X5R_4
GFX_62771_COMP
PC32 BR@150P/50V/NPO_4
PC35 BR@390P/50V/NPO_6
EC-SI-16
GFX_62771_FB_R3
PR42 BR@137K/F_4
PR47 *0_4
PC34 BR@680P/50V/X7R_4
GFX_62771_FB_R1
PR44 BR@32K.4/F_4
EC-SI-17
PC199 BR@1000P/50V/X7R_4
GFX_62771_FB_R2
PR43 BR@301/F_4
PR228 BR@2.15K/F_4
PC195 BR@330P/50V/X7R_4
GFX_CORE
PR53 BR@10/J_4
PR60 BR@0_4
5 APU_VDDGFX_RUN_FB_H
5 APU_VDDGFX_RUN_FB_L
PR52 BR@0_4
PR225 BR1@10/J_4
PC37 BR@0.01U/25V_4
PR224 *10K/F_4
PC194 BR@0.22U/25V_6
PC193 BR@0.22U/25V_6
GFX_VSUM-
GFX_VSUM+
PC31 BR@0.22U/10V/X5R_4
PC30 BR@0.022U/16V/X7R_4
PR39 BR@11K/F_4
PR45 BR@2.61K/F_4
PR34 BR@NTC_10K_4
PR40 BR@499/F_4
PR41 *267/F_4
GFX_ISUMN_RC
PC36 *0.1U/10V/X7R_4
PC33 BR@0.1U/16V/X7R_4

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--	GFX_CORE (ISL62771)	C
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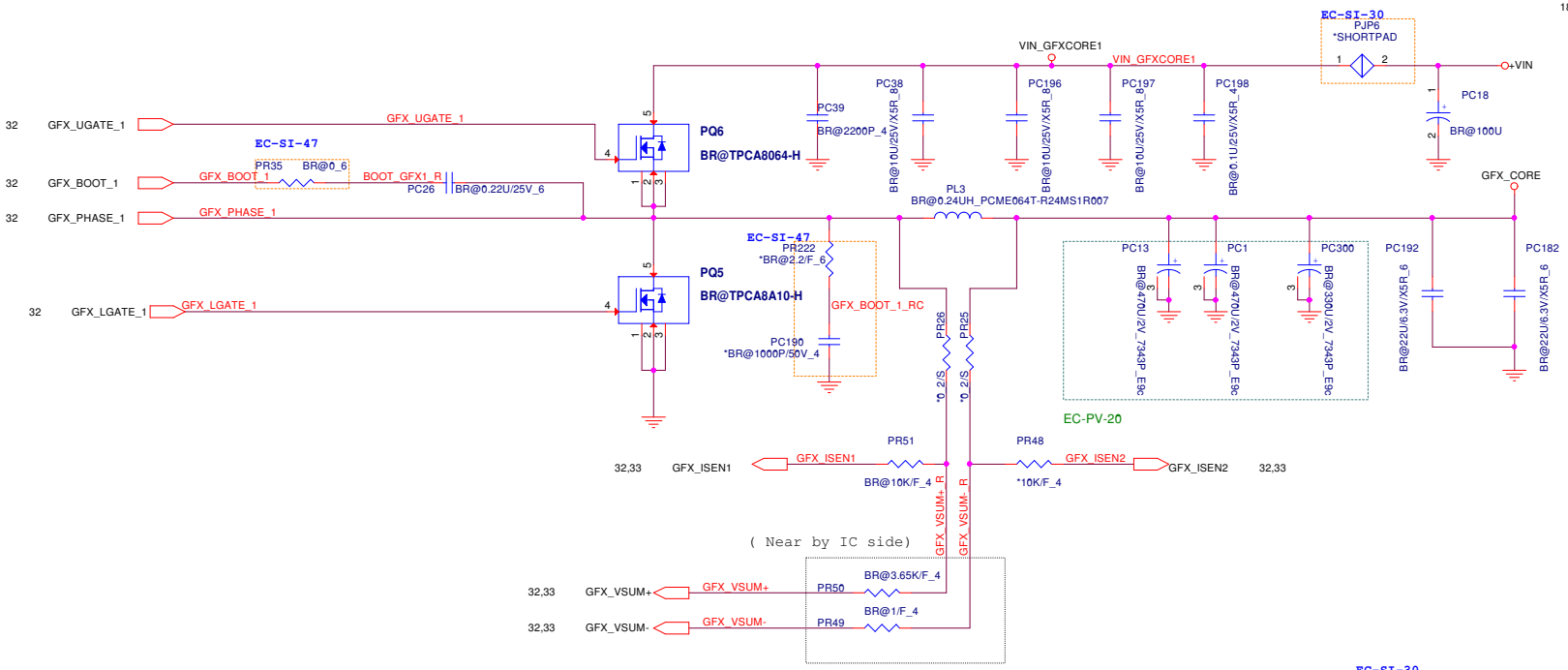
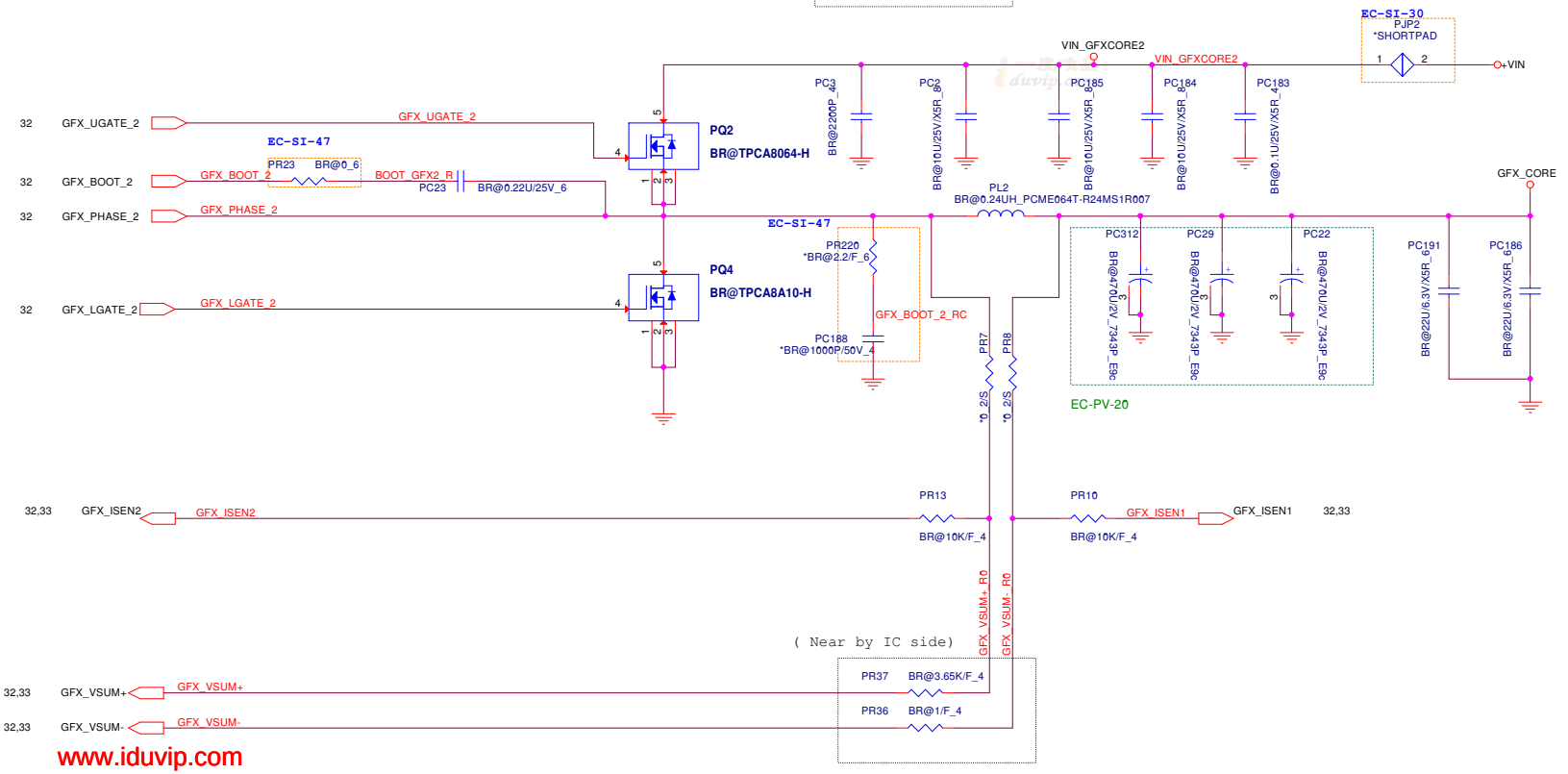
18,25,27,29,30,31,34,35,36,38,39
8,32
+VIN
GFX_CORE

GFX_CORE

TDC = 30A
EDC = 45A
OCP= 58A

ΔIL=(VIN -VOUT*N)*VOUT/(VIN*L*0.000001*fs*1000)
=(19-1.1*2)*1.1/(19*0.24*0.000001*300*1000)
=13.5A





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Size	Document Number	Rev
	CPU 2PHASE	C
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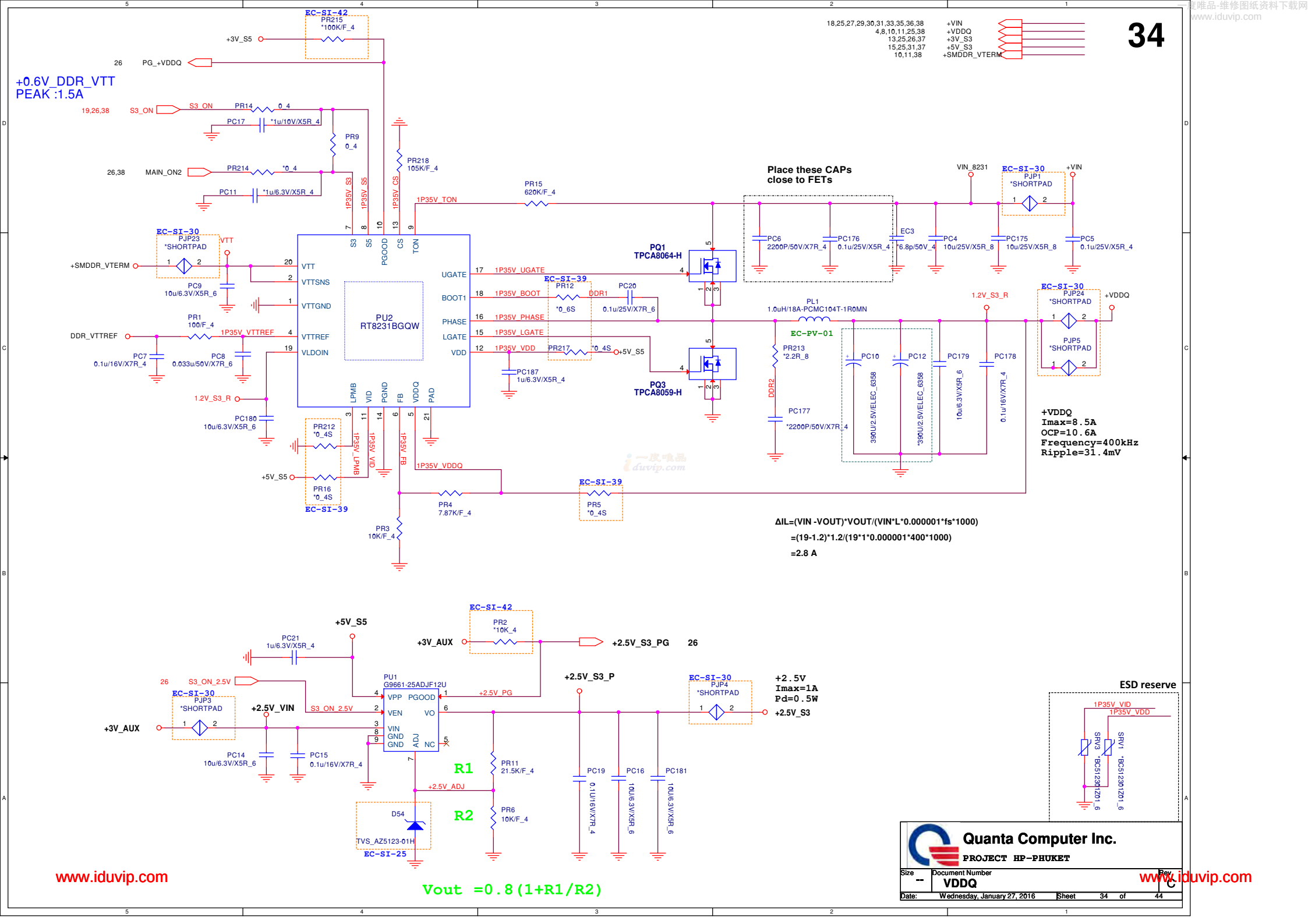

Quanta Computer Inc.	PROJECT HP-PHUKET
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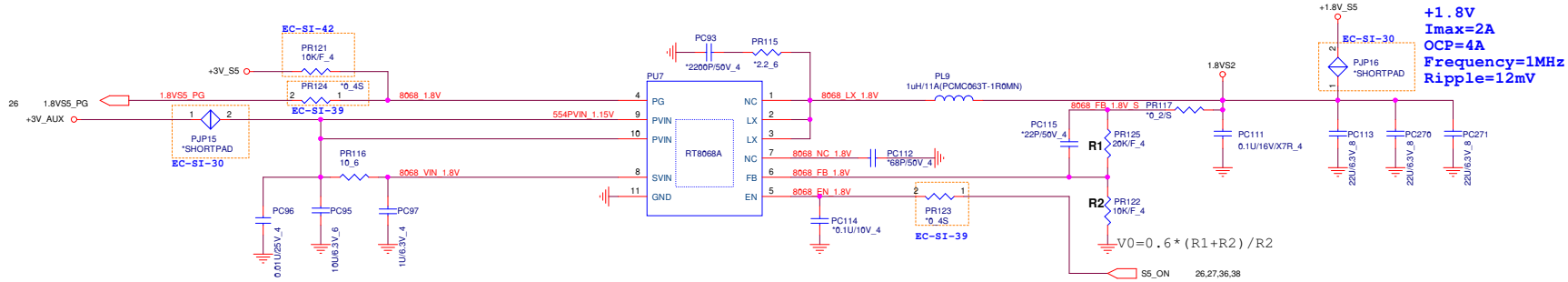
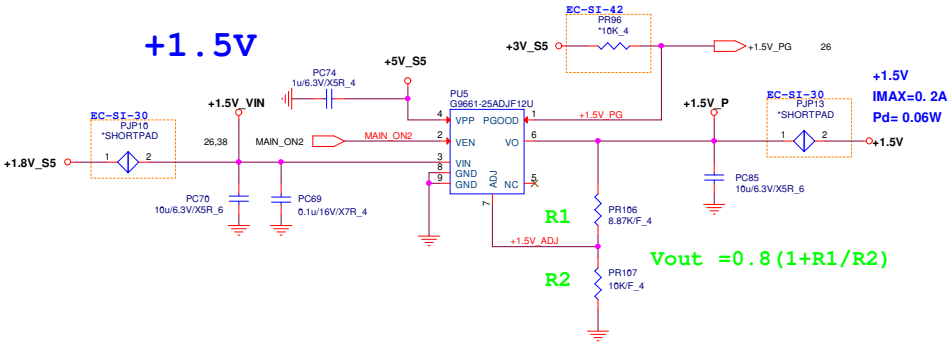
6,7,8,16,19,21,25,26,27,32,34,36
6,8,26,37,38
18,25,27,29,30,31,33,34,36,38,39
15,23,38
+3V_S5
+1.8V_S5
+VIN
+12V

+1.8V_S5



+1.8V
Imax=2A
OCP=4A
Frequency=1MHz
Ripple=12mV

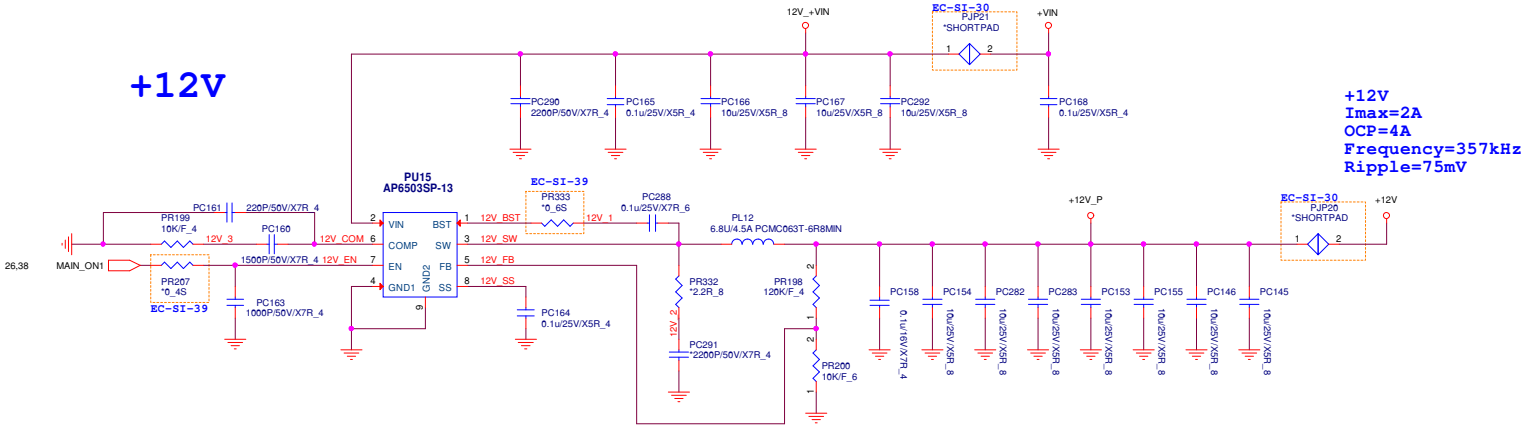
+1.5V



+1.5V
IMAX=0. 2A
Pd= 0.06W

ΔIL=(VIN -VOUT)*VOUT/(VIN*L*0.000001*fs*1000)
=(3.3-1.8)*1.8/3.3*1*0.000001*1000*1000)
=0.72 A

+12V



+12V
Imax=2A
OCP=4A
Frequency=357kHz
Ripple=75mV

ΔIL=(VIN -VOUT)*VOUT/(VIN*L*0.000001*fs*1000)
=(19-12)*12/(19*6.8*0.000001*357*1000)
=1.82A

Vout=0.925*((R1+R2)/R2)

Quanta Computer Inc.
PROJECT : [illegible]

Size	Document Number	Rev
--	+1.8V/12V	C
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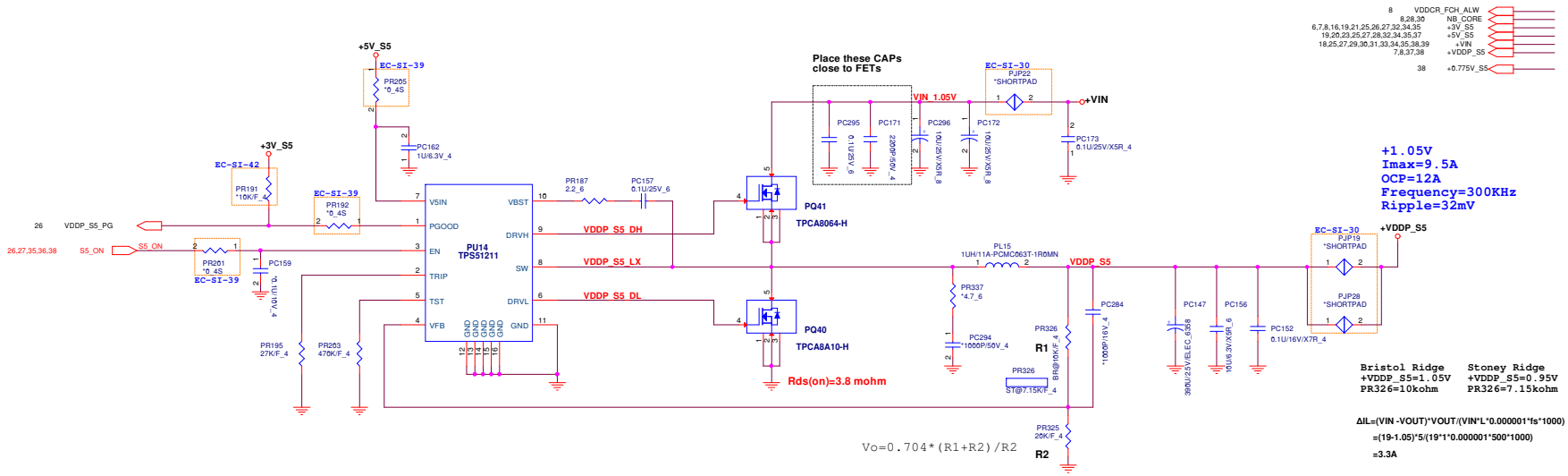
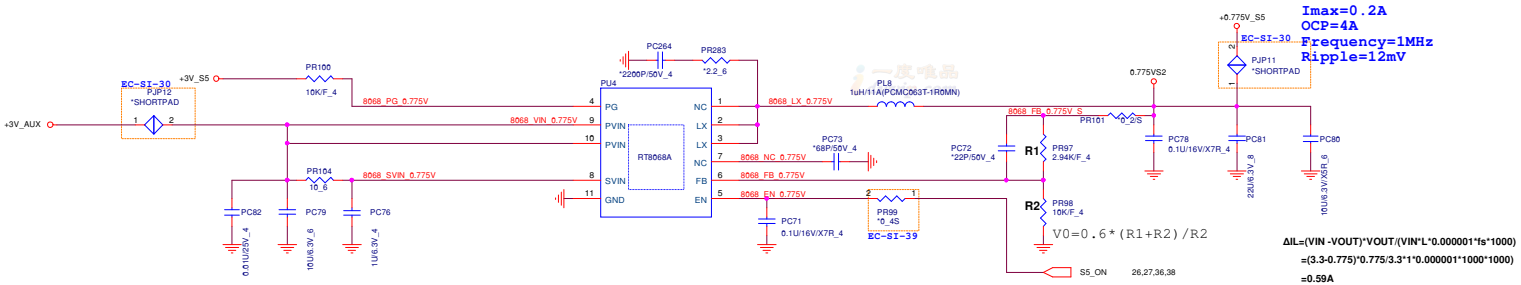
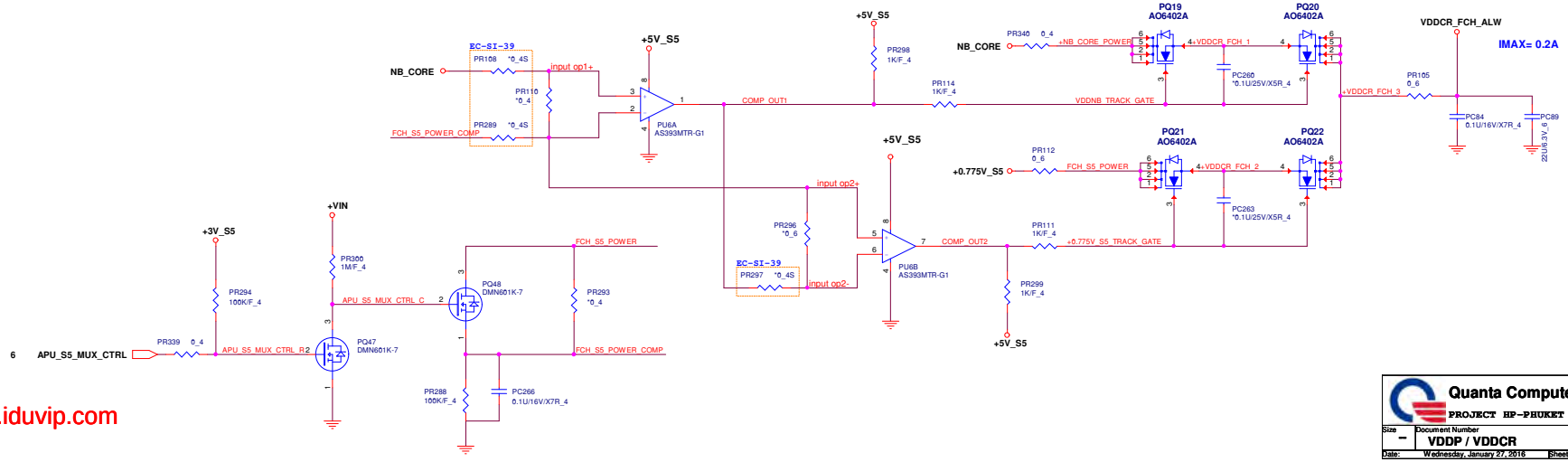


VDDCR_FCH_S5





Quanta Computer Inc.
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Size	Document Number	Rev
-	VDDP / VDDCR	C

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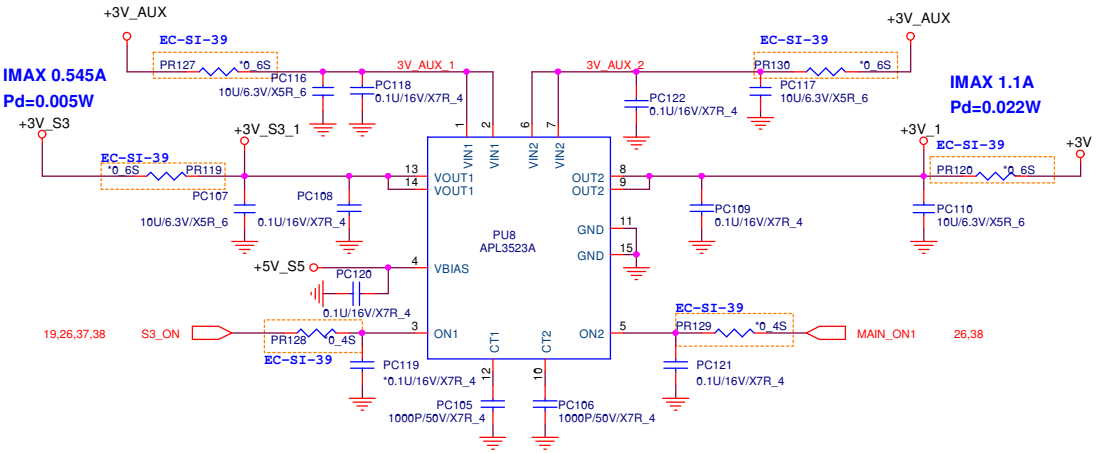
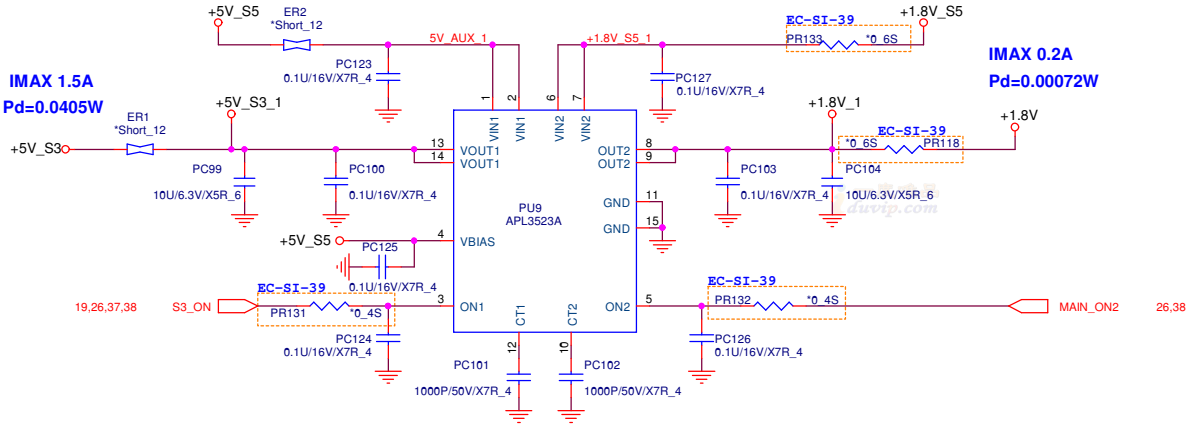
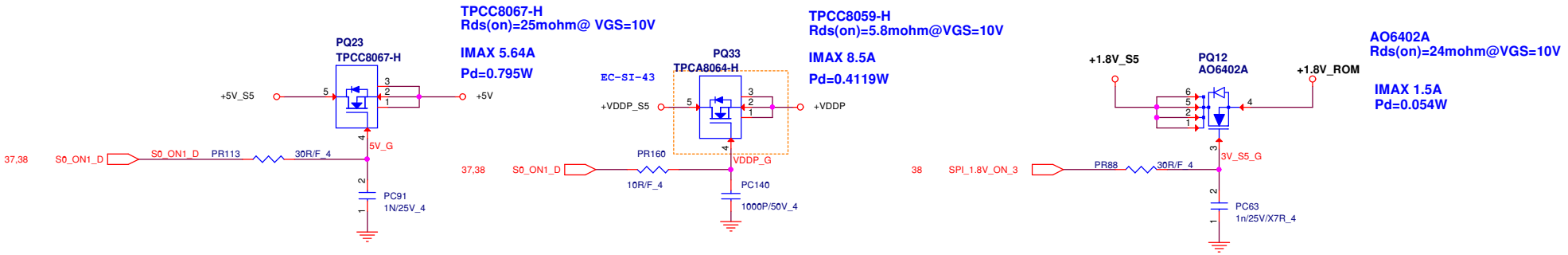
Load Switch

APL3523A
Channel 1 Rds(on)=18ohm
Channel 2 Rds(on)=18ohm





S0 ON_1 Load SW



Quanta Computer Inc.
PROJECT HP-PHUKET

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	Load Switch	C
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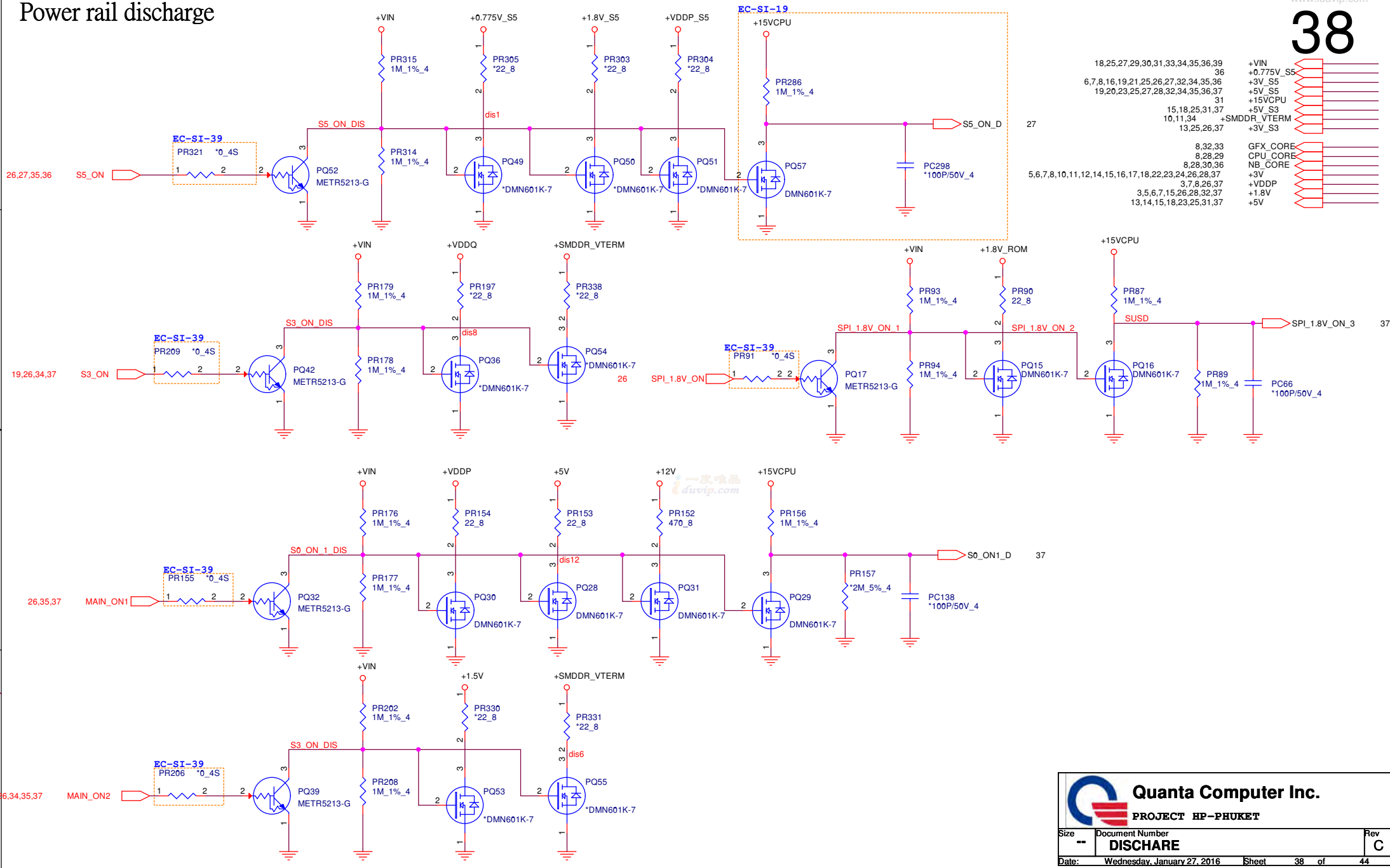
Power rail discharge



Quanta Computer Inc.		
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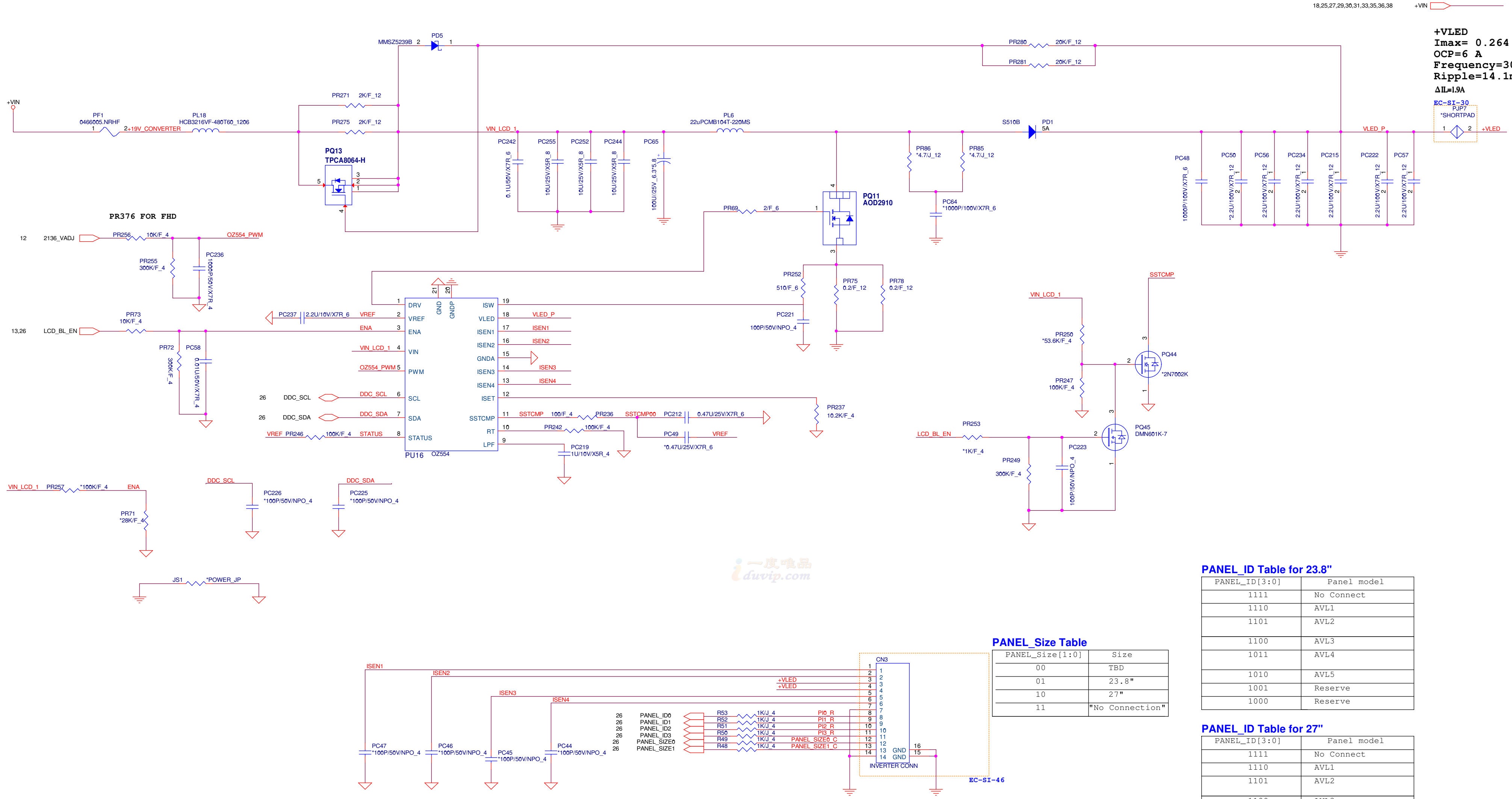
+VLED
Imax= 0.264 A
OCP=6 A
Frequency=300kHz
Ripple=14.1mV
ΔIL=1.9A



PANEL_Size Table

PANEL_Size[1:0]	Size
00	TBD
01	23.8"
10	27"
11	"No Connection"

PANEL_ID Table for 23.8"

PANEL_ID[3:0]	Panel model
1111	No Connect
1110	AVL1
1101	AVL2
1100	AVL3
1011	AVL4
1010	AVL5
1001	Reserve
1000	Reserve

PANEL_ID Table for 27"

PANEL_ID[3:0]	Panel model
1111	No Connect
1110	AVL1
1101	AVL2
1100	AVL3
1011	AVL4
1010	AVL5
1001	Reserve
1000	Reserve

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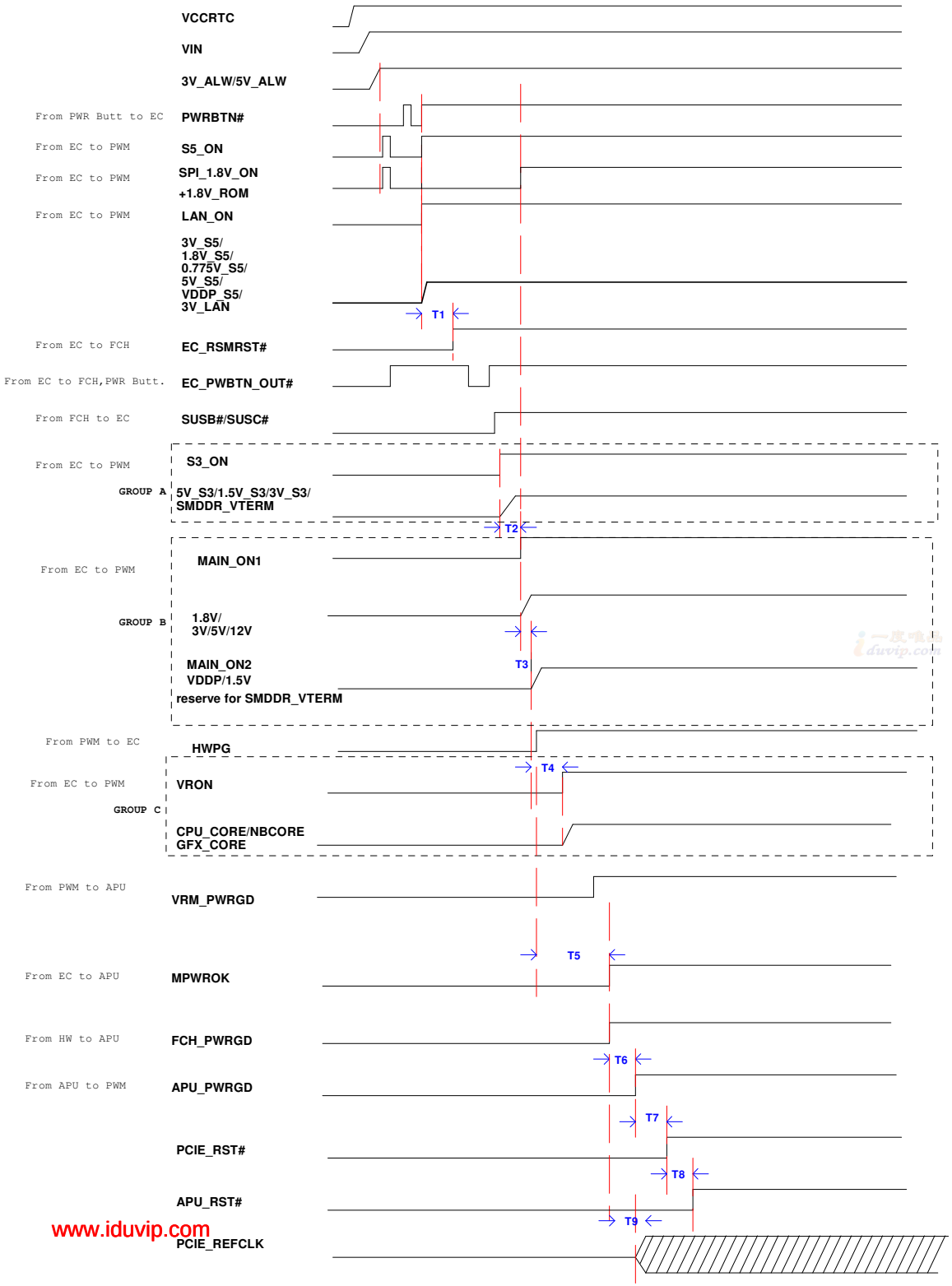

System Power Sequence

EC Control:
T1: S5_ON TO EC_RSMRST# = 20ms
T2: S3_ON TO S0_ON1=10ms
T3: S0_ON1 TO S0_ON2 = 1ms
T4: S0_N2 TO VRON = 10ms
T5: HWPG TO MPWROK =99ms

Timing spec:
T1 Spec:10ms min
Power Up Spec:
Group A > Group B > Group C
T6: FCH_PWRGD TO APU_PWRGD = 108.6~118.6 ms
T7: APU_PWRGD TO PCIE_RST# = 114.2~124.2 ms
T8: PCIE_RST# TO APU_RST# = 111.9~121.9 ms
T9: FCH_PWRGD TO PCIE_REFCLK = 37.6~47.6 ms

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PROJECT HP-PHOKET
Power Sequence
799918-000
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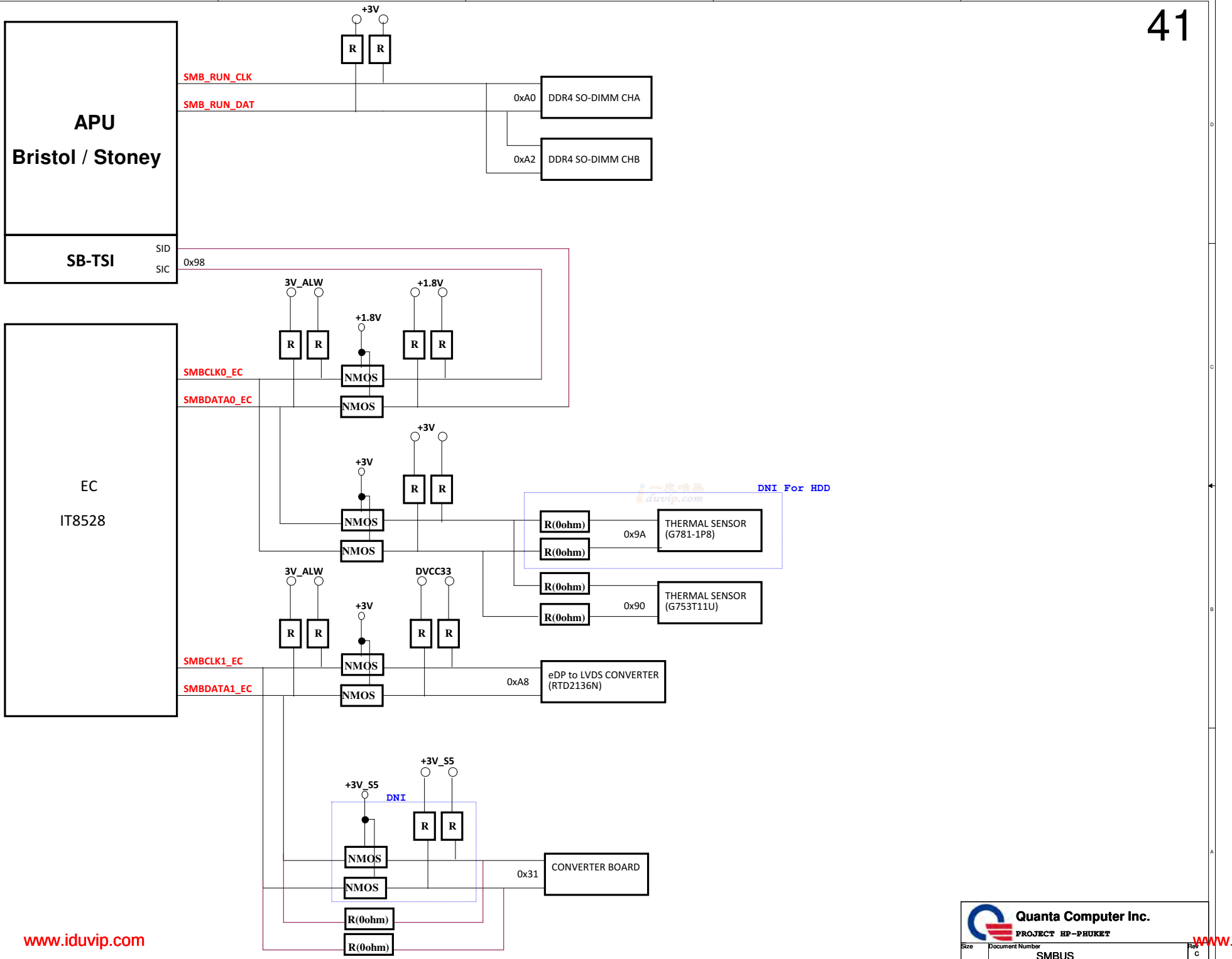

Quanta Computer Inc.
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	SMBUS	C

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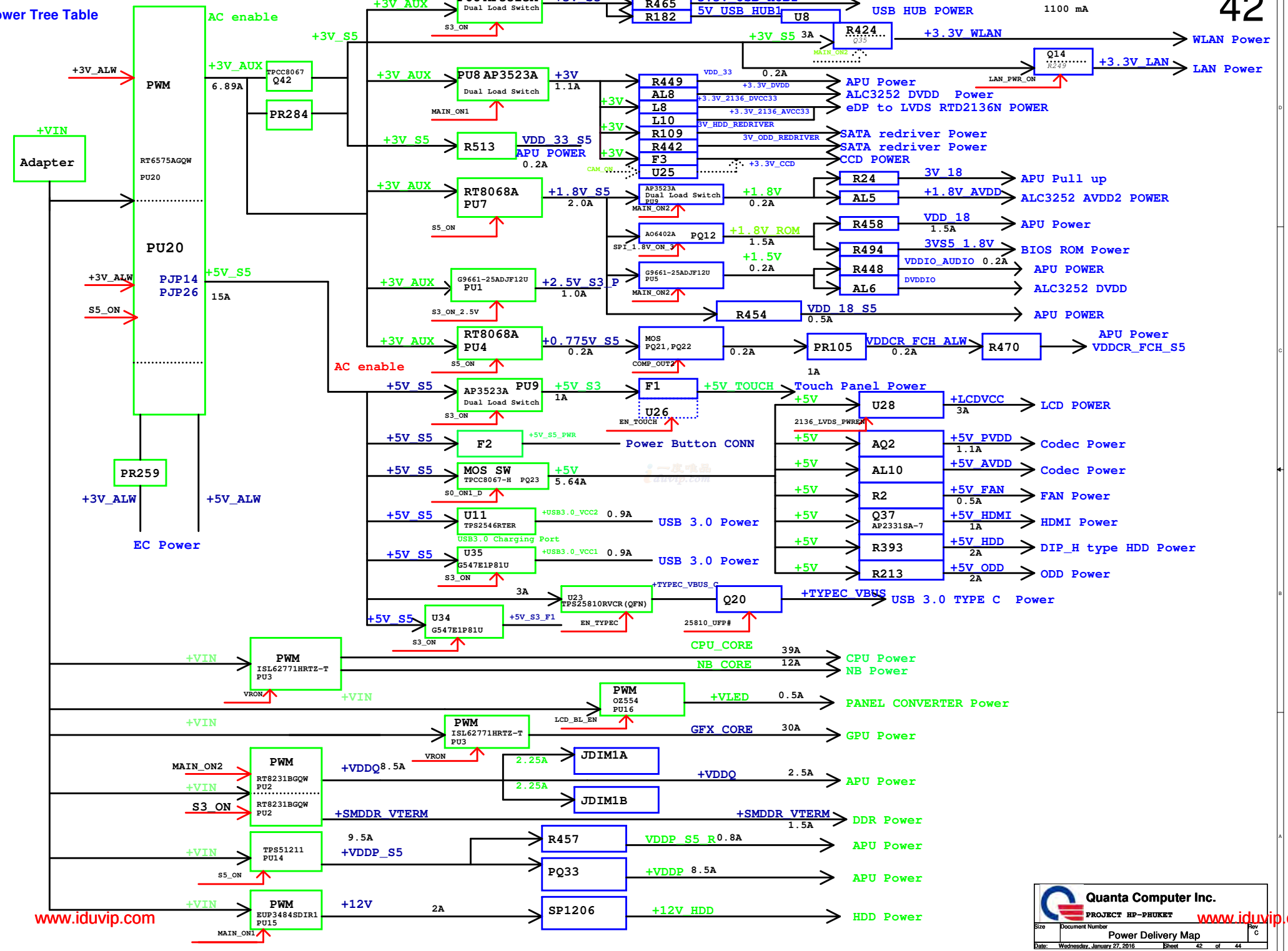
Power Tree Table



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Size | Document Number: Power Delivery Map | Rev C
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EC #	Page	Description	Part Affected
EC-SI-01	31	Change PR163 to 45.3K ohm (CS34532FB18) from 60.4K ohm(CS36042FB10) for Stoney 25W.	PR163
EC-SI-02	26	Add R553 and R554 for Product_ID.	R553, R554
EC-SI-03	15	Change AL12 and AL14 to BEAD (CX8SG121000) from BEAD(CX11B121007) for Vendor suggestion.	AL12,AL14
EC-SI-04	6	Change C37 and C38 to 15pF (CH01506JB06)from 18pF(CH01806JB07) for timer adjust.	C37,C38
EC-SI-05	7	Change R67 and R68 to 33 ohm (CS03302JB29) from 0 ohm(CS00002JB38) for EA test resule.	R67,R68
EC-SI-06	26	Add R561~ R564 for Second FAN control.	R562,R564
EC-SI-07	23	Add R565,R566,R567,C456,C457,EC65,EC66 and CN25 for Second FAN reserved.	
EC-SI-08	23	Change H5 FT change to "spad-re394x315" from "H-SPAN-2-N83" for Second FAN reserved.	
EC-SI-09	15	Add CAM_ON of GPIO for DMIC icon disable.	
EC-SI-10	18	CN2 pin 5 (CAM ON) and pin 9 (IR ON) removed for IR / WEB CAM change	
EC-SI-11	16	Add R469 0 ohm, Stuff C438 and C420 0.1uF for EMI.	R469,C438,C420
EC-SI-12	15	Stuff AR5,AC23 and AR28 0.1uF for EMI.	AR5,AC23,AR28
EC-SI-13	18	Stuff D3,D4,D5,D6,D15,U1 and U2 for ESD.	D3,D4,D5,D6D15,U1,U2
EC-SI-14	10	Change C179 to D45 for ESD.	C179,D45
EC-SI-15	11	Change C188 to D46 for ESD.	C188,D46
EC-SI-16	32	Change PC32 to 150pF (CH11506JB08) from 100pF(CH11006JB00) for transient adjust for Bristol 35W.	PC32
EC-SI-17	32	Change PR44 to 32.4K ohm (CS33242FB19) from 2K ohm(CS22002FB19) for transient adjust for Bristol 35W.	PR44
EC-SI-18	28	Change PR268 to 68K ohm (CS36802FB00) from 137K ohm(CS41372FB12) for loopgain for Stoney 25W.	PR268
EC-SI-19	27	Add Q42,R570,C459,PR342,PR317 and PR320 for +3V_AUX	Q42,R570,C459,PR342,PR317,PR320
EC-SI-20	27	Reserve PR284,PR312 and PR302 for +3V_S5	
EC-SI-21	19	Add R568,R569 and change R236,R217,R221 power rail for +3V_S5 or +3V_AUX optiom	R568,
EC-SI-22	19	U34,U35 change to G5248 from G547E1	U34,U35
EC-SI-23	19	Del C116 and C115 change to 330uF from 150uF	C115
EC-SI-24	6	Del D24 and D28 change to BAT54AW from RB500V	D28
EC-SI-25	3, 6	Add D47,D48,D50 ~D54 TVS AZ5123-01H for ESD	D47,D48,D50,D51
EC-SI-26	6	Unstuff R425 and Stuff R431 10K ohm for Board ID change	R431
EC-SI-27	8	Del D1 and D2 change to BAT54CW from RB500V	D2
EC-SI-28	14	Del D12 and D13 change to BAT54AW from RB500V	D13
EC-SI-29	14	Q37 AP2331SA change to F5 Poly Fuse 1A/5V	F5
EC-SI-30	27,29,30,33, 34,35,36,39	PJP17,PJP18,PJP14,PJP20,PJP25,PJP8,PJP9,PJP6,PJP2,PJP1,PJP24,PJP5,PJP16,PJP10,PJP13,PJP22, ,PJP19,PJP28,PJP7 change to Short PAD	
EC-SI-31	26	D23,D31,D33 change to 0 ohm(R571,R573,R574) from Diode B0530WS. EC pin swap for OPP second FAN.	
EC-SI-32	12	C79 and C397 change to 10uF from 22uF	
EC-SI-33	14	Del Q13 and Q12 change to 2N7002KDW Dual from PJA18K	
EC-SI-34	17	C419,C424 and C111 change to 4.7uF/6.3V from 4.7uF/10V	
EC-SI-35	18	C162 and C166 change to 1uF/6.3V from 4.7uF/10V	
EC-SI-36	21	C31 and C36 change to 4.7uF/6.3V from 10uF/6.3V	
EC-SI-37	20,23	Unstuff C144,C145 10uF/6.3V and C95 22uF/10V	
EC-SI-38	26	Reserve R579 (180ohm) and R388 (150ohm) for EC_FSP pin Alway power reil	
EC-SI-39		Change AR9,R1,R2,SR1~SR13,R24,R34,R35,R36,R39,R81,R83,R136,R324,R348,R394,R405,R422,R448,R449, R477,R494,R360 to short pad from 0 ohm	
EC-SI-40	26	Change D29,D25,D16,D22,D19,D17,D8 to 0ohm(R581~R587) from 1SS355	
EC-SI-41	22,4	Stuff R103,R105 : 4.7K ohm. Unstuff R313,R312,C177,C176	
EC-SI-42	27,34,35	PR2.PR96, PR215, PR320, PR191, PR121no mount	
EC-SI-43	37	PQ33 change to TPCA8064 from TPCA8059	
EC-SI-44	16,20,39	CN18, CN23, CN3 change new P/N & FP for SMT	CN18, CN23, CN3
EC-SI-45	22	Stuff R101	R101
EC-SI-46	14,39	CN3: DFHD14MR054 to DFHD14MS102(old EOL);L14: DC09044A014 to CX900T04000(old EOL)	CN3,L14
EC-SI-47	29,30,33	CPU 1. PR248 & PR265 changed to 0 ohm from 2.2 ohm. 2Delete PR229 ,PC207 and PR262 and PC241. NB. 1. PR269 changed to 0 ohm from 2.2 ohm.2.Delete PR282&PC257 GFX 3. PR23 & PR35 changed to 0 ohm from 2.2 ohm. 4. Delete PR222 ,PC190 and PR220 and PC188.	PR248,PR265,PR229 ,PC207,PR262,PC241. PR269,PR282,PC257,PR23,PR35 PR222 ,PC190,PR220,PC188.
EC-SI-48	22,23	Stuff R138,R144,R156,R158 : 0 ohm. C73,C78,C85,C89 0.01uF. Unstuff C50,C54,C63,C65,C72,C77,C84,C88	R138,R144,R156,R158,C73,C78,C85,C89, C50,C54,C63,C65,C72,C77,C84,C88
EC-SI-49	28,29	Stoney 15W Stuff PR67,PR68,PQ56. Unstuff PC52,PC53,PC251,PC61,PC250,PC249,PC60,PC43,PR230,PC228,PC229,PR265,PC239. PC230,PC231,PR61,PR62,PC216,PC227,PQ9,PQ10,PL5 Change the PR66 from 2.15k to 1.69k CS21692FB01 RES CHIP 1.69K 1/16W +-1%(0402) Change the PC217 to 0.022uF CH3224K1B01 CAP CHIP 0.22U 25V(+-10%,X5R,0402) Change the PR239 from 392 to 487 CS14872FB05 RES CHIP 487 1/16W +-1%(0402)	PR67,PR68,,PC52,PC53 PC52,PC53,PC251,PC61,PC250,PC249,PC60,PC43,PR230,PC228,PC229 PR66,PR239,PC217.

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EC #	Page	Description	Part Affected
EC-PV-01	34	Pop PC10 and non pop PC12 for QCMC request.	
EC-PV-02	29	CPU 2nd phase FET be H1L2 for Imax efficiency.	
EC-PV-03	24	Add EC67 ~ EC82 0.1uF and EC83 ~ EC87 82pF for EMI.	
EC-PV-04	26	D27 change to 0 ohm(R575) from Diode B0530WS.	
EC-PV-05	6	Unstuff R163,R431 and Stuff R149,R425 10K ohm for Board ID change	
EC-PV-06	6	Delete R394 and R348 Change to 0 ohm from short PAD	
EC-PV-07	6	Stuff C16 and C21 10pF for EMI.	
EC-PV-08	25	Stuff EC48,EC52,EC59,EC61,EC53,EC55,EC1,EC2,EC6,EC8,EC9,EC42,EC60,EC35 0.1uF and C36,EC37,EC38,EC39,EC40,EC44,EC45 82pF for EMI.	
EC-PV-09	28	Remove PC254 & PR272 for Stardust dynamic test	
EC-PV-10	28	Add Change PR232 to 41.2 K ohm for Stardust dynamic test	
EC-PV-11	29	CPU_CORE Add PC302 330U*1 + PC299&PC306 470U* 2 for Stardust dynamic test	
EC-PV-12	30	NB_CORE Add PC301 330U*1 & delete PC261,PC262 22U*2 for or Stardust dynamic test	
EC-PV-13	08	CPU_CORE Changed from C232,C233,C257,C272,C273,C234,C255,C270,C256 22U*9 to 47U*9 ADD C462,C461,C460,C458 47U*4 for or Stardust dynamic test	
EC-PV-14	08	NB_CORE CPU_CORE Changed from C346,C347,C345,C344 22U*4 to 47U*4 ADD C463 47U*1 for or Stardust dynamic test	22U*2 for or Stardust dynamic test
EC-PV-15	18	Reserve F6 for Touch power	
EC-PV-16	25	Change H14 FT to "h-tc236ic126bc126d126pt" from "h-tc122ic122bc236d122pb".	
EC-PV-17	23	U3 change to G753 from G781-1, Delete Q4,C28,R69.	
EC-PV-18	23	U18 change to G781-1 from G753, Add C116,R394.	
EC-PV-19	15	Change AL11 and AL13 to BEAD (FCM1005KF-121T03_300mA_4) from BEAD(CX11B121007)	

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