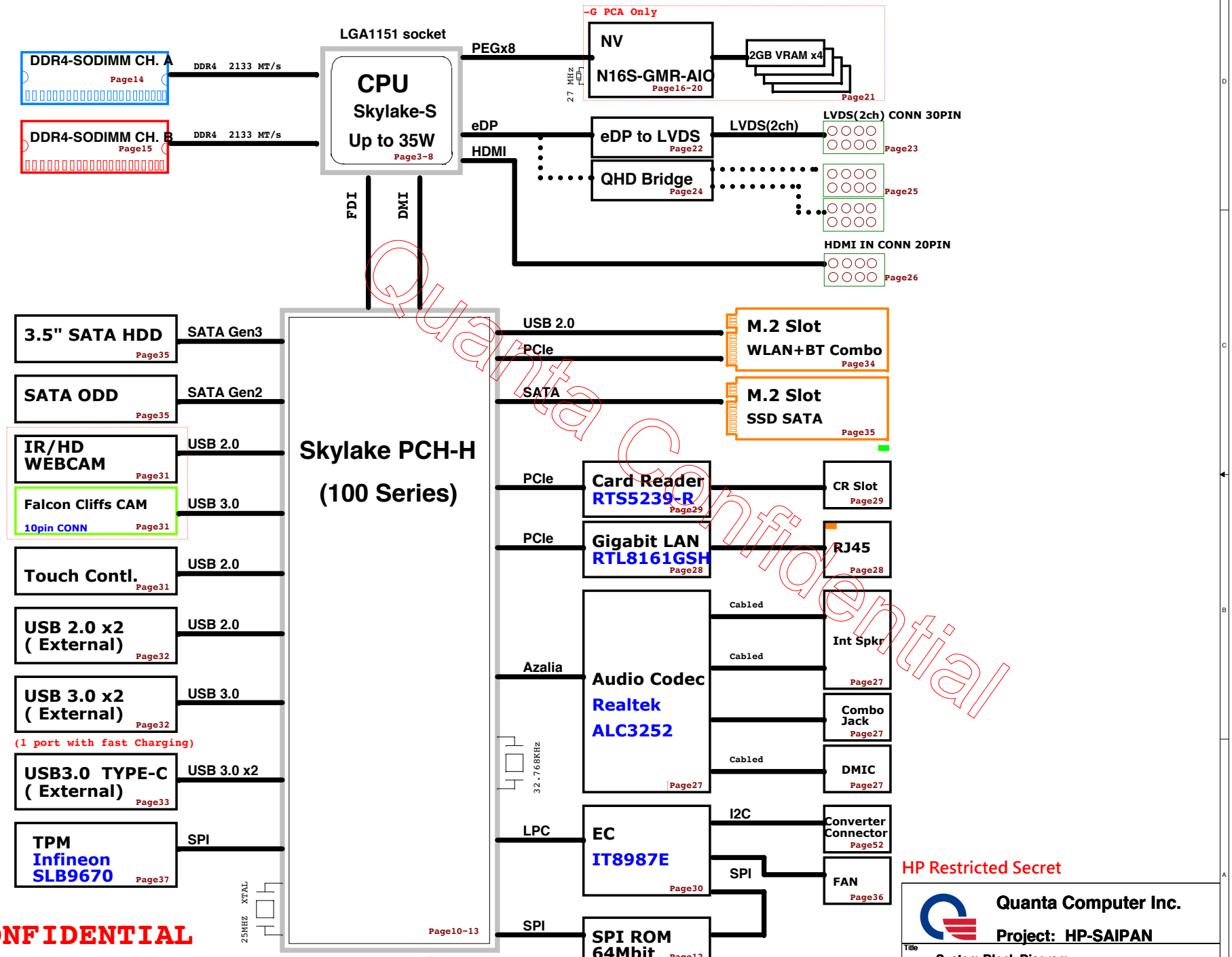
HP Saipan System Block Diagram

01



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Project: HP-SAIPAN

Title: System Block Diagram

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Voltage Rails

Power Rail	Voltage	S0	S3	S4	S5	PCU	G3	Ctl Signal	
+RTC_VCC	3V	ON	ON	ON	ON	ON	ON		RTC Batt, PCH , EC
+VIN	19V	ON	ON	ON	ON	ON	ON	Adapter in	
+5V_ALW	5V	ON	ON	ON	ON	ON	ON	Int. LDO	LED
+3V_ALW	3.3V	ON	ON	ON	ON	ON	ON	Int. LDO	EC
+3V_AUX	3.3V	ON	ON	ON	ON	ON	OFF	LDO	System
+5V_S5	5V	ON	ON	ON	ON	OFF	OFF	S5_ON	PCH, USB, 3D WebCAM, Touch Panel, USB Charger
+3V_S5	3.3V	ON	ON	ON	ON	OFF	OFF	S5_ON	PCH, XDP, SPI flash ROM,NGFF LAN
+1.8V_S5	1.8V	ON	ON	ON	ON	OFF	OFF	S5_ON	PCH, XDP, NGFF LAN
+1V_S5	1.0V	ON	ON	ON	ON	OFF	OFF	PG_+1.8V_S5	PCH
+VCCST_VCCPLL	1.0V	ON	ON	OFF	OFF	OFF	OFF	S3_ON	CPU, PCH, XDP
+VDDQ	1.35V	ON	ON	OFF	OFF	OFF	OFF	S3_ON	DDR4, CPU DDR4 I/O
SMDDR_VTERM	0.75V	ON	ON	OFF	OFF	OFF	OFF	DDR_VTT_CNTL	DDR4
+5V	5V	ON	OFF	OFF	OFF	OFF	OFF	MAIN_ON1	HDD, ODD,Audio AMP,Panel VCC,FAN
+3V	3V	ON	OFF	OFF	OFF	OFF	OFF	MAIN_ON1	PCH, Audio, Card Reader, TPM, FHD CAM
+12V	12V	ON	OFF	OFF	OFF	OFF	OFF	MAIN_ON1	3.5" HDD
+VCCIO	0.95V	ON	OFF	OFF	OFF	OFF	OFF	PG_MAIN	CPU
+VCCSA	1.05V	ON	OFF	OFF	OFF	OFF	OFF	PG_+VCCIO	CPU
+VCCGT	0.65~1.3V	ON	OFF	OFF	OFF	OFF	OFF	VR_ON	CPU
+3.3V_VGA	3.3V	ON	OFF	OFF	OFF	OFF	OFF	EN_+3.3V_VGA	dGPU
+1.05V_VGA	1.05V	ON	OFF	OFF	OFF	OFF	OFF	PG_+3.3V_MAIN	dCPU
+VGA_CORE	0.8~1.15V	ON	OFF	OFF	OFF	OFF	OFF	PG_+3.3V_MAIN	dGPU
+1.35V_VGA	1.35V	ON	OFF	OFF	OFF	OFF	OFF	EN_+1.35V_VGA	dGPU, VRAM
+VCCCORE	0.65~1.3V	ON	OFF	OFF	OFF	OFF	OFF	VR_ON	CPU

Schematic "Value" Definition

Intel Platform Saipan-G and Saipan-U			DB/SI/PV Stage		MP		ALL STAGE	
By Value format	Description	Auto BOM Control	UMA	Discrete N16S GPU	UMA	Discrete N16S GPU	QHD PANEL	FHD PANEL
XX	Install	V	V	V	V	V		
*XX	Non-Install	V						
PROTO@XX	Install in Pre-production only	V	V	V				
MP@XX	Install in MP only	V			V	V		
DIS@xx	Install Discrete (DGPU) only	V		V		V		
UMA@xx	Install UMA	V	V		V			
QHD@xx	QHD panel	V	V	V	V	V	V	
FHD@xx	FHD panel	V	V	V	V	V		V

***Board ID and VRAM ID by manual control

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Title: Power States & Value Definition

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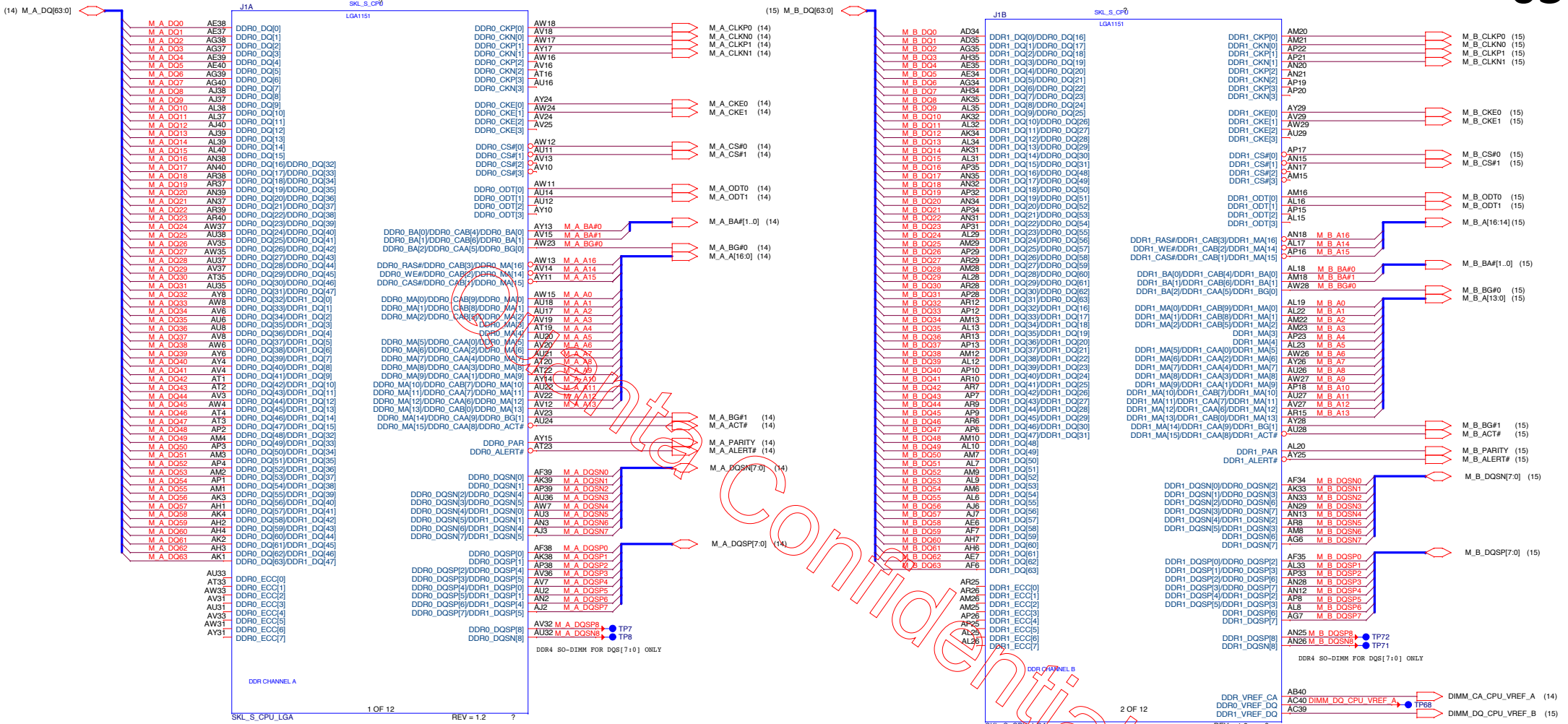

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Project: HP-SAIPAN

Title	CPU_PEG/DISPLAY	
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(7,38,42,47) +VCCIO

J1C SKL_S_CPU ?
LGA1151

(16) PEG_RXP0 B8 PEG_RXP[0] PEG_TXP[0] A5 PEG_TXP0 (16)
(16) PEG_RXN0 B7 PEG_RXN[0] PEG_TXN[0] A6 PEG_TXN0 (16)
(16) PEG_RXP1 C7 PEG_RXP[1] PEG_TXP[1] B4 PEG_TXP1 (16)
(16) PEG_RXN1 C6 PEG_RXN[1] PEG_TXN[1] B5 PEG_TXN1 (16)
(16) PEG_RXP2 D6 PEG_RXP[2] PEG_TXP[2] C3 PEG_TXP2 (16)
(16) PEG_RXN2 D5 PEG_RXN[2] PEG_TXN[2] C4 PEG_TXN2 (16)
(16) PEG_RXP3 E5 PEG_RXP[3] PEG_TXP[3] D2 PEG_TXP3 (16)
(16) PEG_RXN3 E4 PEG_RXN[3] PEG_TXN[3] D3 PEG_TXN3 (16)
F6 PEG_RXP[4] PEG_TXP[4] E1
F5 PEG_RXN[4] PEG_TXN[4] E2
G5 PEG_RXP[5] PEG_TXP[5] F2
G4 PEG_RXN[5] PEG_TXN[5] F3
H6 PEG_RXP[6] PEG_TXP[6] G1
H5 PEG_RXN[6] PEG_TXN[6] G2
J5 PEG_RXP[7] PEG_TXP[7] H2
J4 PEG_RXN[7] PEG_TXN[7] H3
K6 PEG_RXP[8] PEG_TXP[8] J1
K5 PEG_RXN[8] PEG_TXN[8] J2
L5 PEG_RXP[9] PEG_TXP[9] K2
L4 PEG_RXN[9] PEG_TXN[9] K3
M6 PEG_RXP[10] PEG_TXP[10] L1
M5 PEG_RXN[10] PEG_TXN[10] L2
N5 PEG_RXP[11] PEG_TXP[11] M2
N4 PEG_RXN[11] PEG_TXN[11] M3
P6 PEG_RXP[12] PEG_TXP[12] N1
P5 PEG_RXN[12] PEG_TXN[12] N2
R5 PEG_RXP[13] PEG_TXP[13] P2
R4 PEG_RXN[13] PEG_TXN[13] P3
T6 PEG_RXP[14] PEG_TXP[14] R2
T5 PEG_RXN[14] PEG_TXN[14] R1
U5 PEG_RXP[15] PEG_TXP[15] T2
U4 PEG_RXN[15] PEG_TXN[15] T3

EC-DB-E02

EC-DB-E02

PEG_RCOMP
Trace length < 400 mils
Trace width = 12 mils
Trace spacing = 15 mils

+VCCIO
R57 24.9/F_4 PEG_RCOMP L7 PEG_RCOMP
PLACE INSIDE CPU CAVITY

(10) DMI_PCH_CPU_RXP0 Y3 DMI_RXP[0] DMI_TXP[0] AC2 DMI_CPU_PCH_TXP0 (10)
(10) DMI_PCH_CPU_RXN0 Y4 DMI_RXN[0] DMI_TXN[0] AC1 DMI_CPU_PCH_TXN0 (10)
(10) DMI_PCH_CPU_RXP1 AA4 DMI_RXP[1] DMI_TXP[1] AD3 DMI_CPU_PCH_TXP1 (10)
(10) DMI_PCH_CPU_RXN1 AA5 DMI_RXN[1] DMI_TXN[1] AD2 DMI_CPU_PCH_TXN1 (10)
(10) DMI_PCH_CPU_RXP2 AB4 DMI_RXP[2] DMI_TXP[2] AE2 DMI_CPU_PCH_TXP2 (10)
(10) DMI_PCH_CPU_RXN2 AB3 DMI_RXN[2] DMI_TXN[2] AE1 DMI_CPU_PCH_TXN2 (10)
(10) DMI_PCH_CPU_RXP3 AC4 DMI_RXP[3] DMI_TXP[3] AF2 DMI_CPU_PCH_TXP3 (10)
(10) DMI_PCH_CPU_RXN3 AC5 DMI_RXN[3] DMI_TXN[3] AF3 DMI_CPU_PCH_TXN3 (10)

3 OF 12
SKL_S_CPU_LGA REV = 1.2 ?

HDMI

(26) HDMI_TX2P C21 DDI1_TXP[0]
(26) HDMI_TX2N D21 DDI1_TXN[0]
(26) HDMI_TX1P D22 DDI1_TXP[1]
(26) HDMI_TX1N E22 DDI1_TXN[1]
(26) HDMI_TX0P B23 DDI1_TXP[2]
(26) HDMI_TX0N A23 DDI1_TXN[2]
(26) HDMI_CLKP C23 DDI1_TXP[3]
(26) HDMI_CLKN D23 DDI1_TXN[3]
B13 DDI1_AUXP
C13 DDI1_AUXN
B18 DDI2_TXP[0]
A18 DDI2_TXN[0]
D18 DDI2_TXP[1]
E18 DDI2_TXN[1]
C19 DDI2_TXP[2]
D19 DDI2_TXN[2]
D20 DDI2_TXP[3]
E20 DDI2_TXN[3]
A12 DDI2_AUXP
B12 DDI2_AUXN
B14 DDI3_TXP[0]
A14 DDI3_TXN[0]
C15 DDI3_TXP[1]
B15 DDI3_TXN[1]
B16 DDI3_TXP[2]
A16 DDI3_TXN[2]
C17 DDI3_TXP[3]
B17 DDI3_TXN[3]
B11 DDI3_AUXP
C11 DDI3_AUXN

J1D SKL_S_CPU ?
LGA1151

EDP_TXP[0] E10 DDID_TXDP0 (22)
EDP_TXN[0] D10 DDID_TXDN0 (22)
EDP_TXP[1] D9 DDID_TXDP1 (22)
EDP_TXN[1] C9 DDID_TXDN1 (22)
EDP_TXP[2] H10 DDID_TXDN2 (24)
EDP_TXN[2] G10 DDID_TXDP2 (24)
EDP_TXP[3] G9 DDID_TXDN3 (24)
EDP_TXN[3] F9 DDID_TXDP3 (24)
EDP_AUXP D12 EDP_AUXP (22)
EDP_AUXN E12 EDP_AUXN (22)
EDP_DISP_UTIL D14
EDP_RCOMP M9 EDP_COMP R59 24.9/F_4 +VCCIO
Place inside CPU cavity
PROC_AUDIO_CLK V3 AUD_CPU_BCLK AUD_CPU_BCLK (9)
PROC_AUDIO_SDI V2 AUD_CPU_SDO (9)
PROC_AUDIO_SDO U1 AUD_CPU_SDI_R

4 OF 12
SKL_S_CPU_LGA REV = 1.2 ?

AUD_CPU_SDI_R R121 20/1%_4 AUD_CPU_SDI (9)

EMI reserved
AUD_CPU_BCLK C96 *10p/50V/NPO_4

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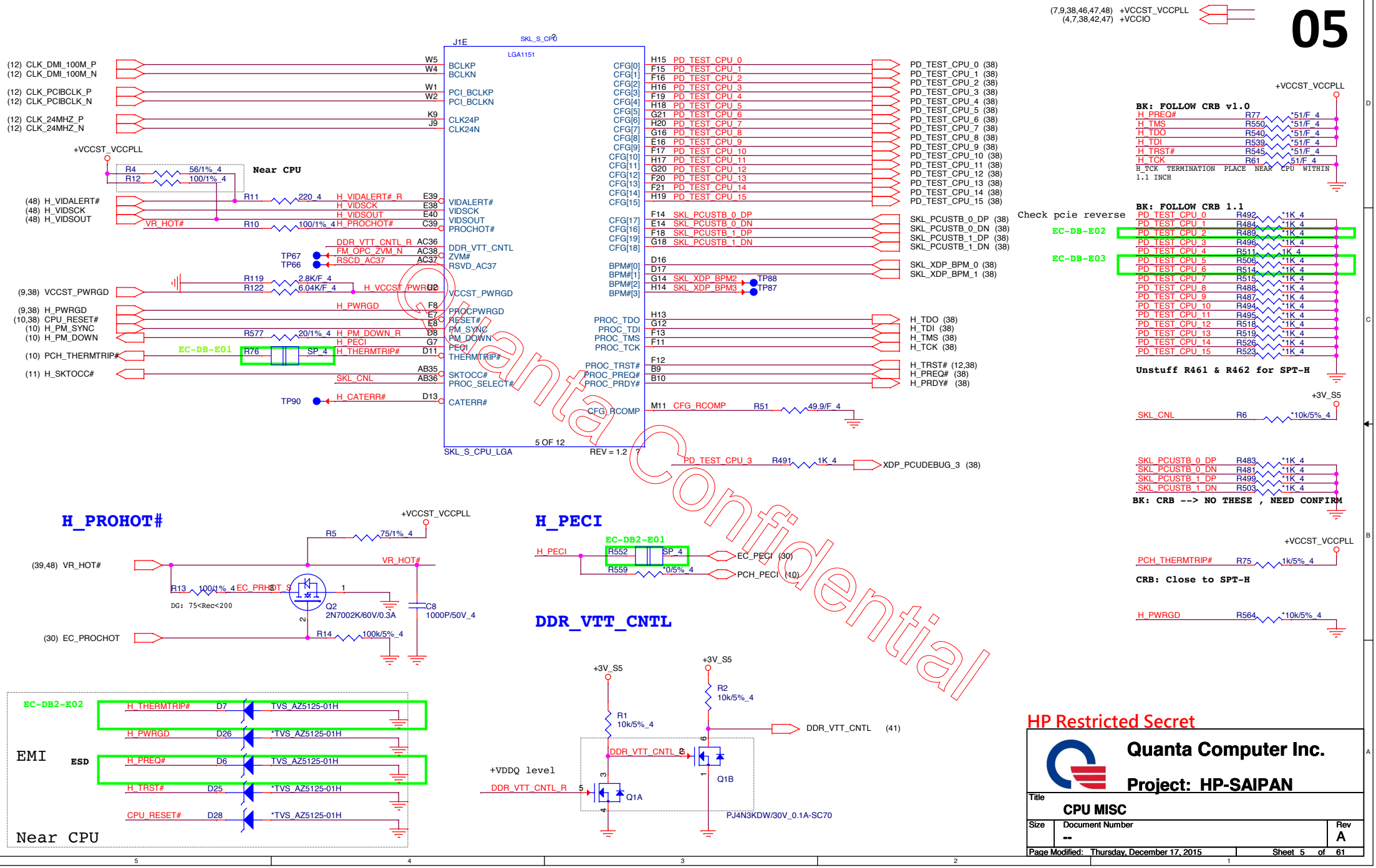

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CPU MISC		
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+VCCCPRE:
Icc (max) : 66A
Icc (PS2) : 35A

Decoupling Capacitors

+VCCCORE

EC-DB2-E03

PC329 DIS@330u/2V_7343
PC330 *DIS@330u/2V_7343

Place caps at top socket edge

+VCCCORE

C45	22U 6.3V	X5R 0603
C323	22U 6.3V	X5R 0603
C50	22U 6.3V	X5R 0603
C329	22U 6.3V	X5R 0603
C51	22U 6.3V	X5R 0603
C360	22U 6.3V	X5R 0603
C44	22U 6.3V	X5R 0603
C362	22U 6.3V	X5R 0603
C56	22U 6.3V	X5R 0603
C42	22U 6.3V	X5R 0603
C61	22U 6.3V	X5R 0603
C58	22U 6.3V	X5R 0603

Place all above caps on top side of CPU cavity

+VCCCORE

C43	22U 6.3V	X5R 0603
C68	22U 6.3V	X5R 0603
C57	22U 6.3V	X5R 0603
C63	22U 6.3V	X5R 0603
C59	22U 6.3V	X5R 0603
C350	22U 6.3V	X5R 0603
C46	22U 6.3V	X5R 0603
C341	22U 6.3V	X5R 0603
C60	22U 6.3V	X5R 0603
C371	22U 6.3V	X5R 0603

Place all below caps on bottom side near CPU socket

+VCCCORE

J1G SKL_S_CPU LGA1151

A25 A26 A27 A28 A29 A30 B25 B27 B29 B31 B32 B33 B34 B35 B36 B37 C25 C26 C27 C28 C29 C30 C32 C34 C36 D25 D27 D29 D31 D32 D33 D34 D35 D36 E24 E25 E26 E27 E28 E29 E30 E32 E34 E36 F23 F24 F25 F27 F29 F31 G30 G32 H22 H23 H25 H27 H29 H31 — VCC

AJ11 AJ13 AJ15 AJ17 AJ19 AJ21 — VCC

H32 J21 F32 F33 F34 G23 G24 G25 G26 G27 G28 G29 J22 J23 J24 J25 J26 J27 J28 J29 J30 J31 K16 K18 K20 K21 K23 K25 K27 K29 K31 L14 L15 L16 L17 L18 L19 L20 L21 L22 L23 L24 L25 L26 L27 L28 L29 L30 M13 M14 M16 M18 M20 M22 M24 M26 M28 M30 — VCC

AJ12 AJ14 AJ16 AJ18 AJ20 AJ22 — VCC

VCC_SENSE C38 → VCCCORE_SENSE (48)
VSS_SENSE D38 → VSSCORE_SENSE (48)

7 OF 12
SKL_S_CPU_LGA REV = 1.2 ?

+VCCCORE

+VCCCPRE:
Icc (max) : 40A
Icc (PS2) : 32A

+VCCGT

J1H SKL_S_CPU LGA1151

AA34 AA35 AA36 AA37 AA38 AB33 AB34 G36 G37 G38 G39 G40 H36 H38 H40 J36 J37 J38 J39 J40 K36 K38 K40 L34 L35 L36 L37 L38 L39 L40 M33 M34 M36 M38 M40 N34 N35 N36 N37 N38 N39 N40 P33 P34 P36 P38 P40 R34 R35 R36 R37 R38 R39 R40 T33 T34 T36 T38 T40 U34 U35 U36 U37 U38 U39 U40 V33 V34 V36 V38 V40 W34 W35 W36 W37 W38 Y33 Y34 Y36 Y38 — VCCGT

VCCGTX F35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32 — VCCGTX

VCCGT_SENSE F39 → VCCGT_SENSE (48)
VSSGT_SENSE F38 → VSSGT_SENSE (48)
VCCGTX_SENSE F37
VSSGTX_SENSE F36

8 OF 12
SKL_S_CPU_LGA REV = 1.2 ?

(7,47,48,49) +VCCCORE
(47,48,50) +VCCGT

Decoupling Capacitors

+VCCGT

C327	47u/6.3V_8
C26	47u/6.3V_8
C36	47u/6.3V_8
C347	47u/6.3V_8
C318	47u/6.3V_8
C35	47u/6.3V_8
C336	47u/6.3V_8

Place caps on top side socket cavity

+VCCGT

C335	47u/6.3V_8
C348	47u/6.3V_8
C32	47u/6.3V_8
C337	47u/6.3V_8
C326	47u/6.3V_8
C325	47u/6.3V_8
C27	47u/6.3V_8
C28	47u/6.3V_8
C37	47u/6.3V_8

Place caps on backside under socket cavity

+VCCGT

C30	47u/6.3V_8
C31	47u/6.3V_8
C320	47u/6.3V_8
C319	47u/6.3V_8

VCCCORE_SENSE R8 *0/5%_4 VSSCORE_SENSE

+VCCCORE

VCCCORE_SENSE R7 100/1%_4
VSSCORE_SENSE R9 100/1%_4

DG: Near CPU

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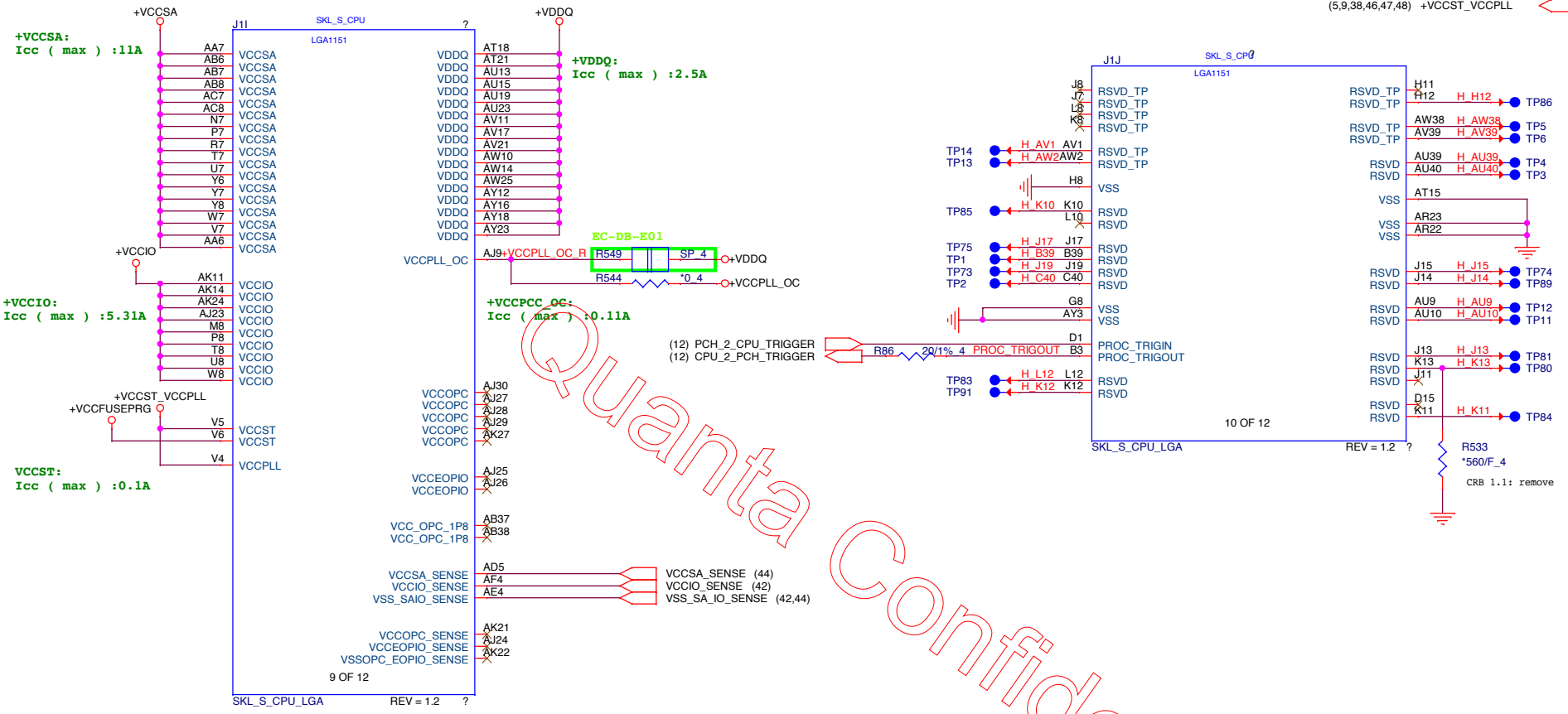
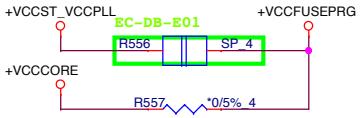
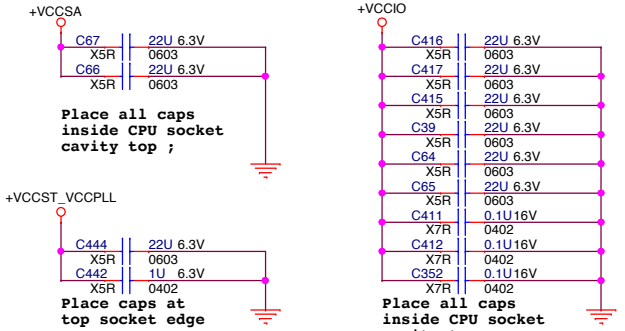
(44,47) +VCCSA
(9,14,15,41,46,47,55) +VDDQ
(4,38,42,47) +VCCIO
(5,9,38,46,47,48) +VCCST_VCCPLL

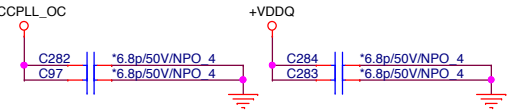




Decoupling Capacitors



RF



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CPU POWER/RSVD		
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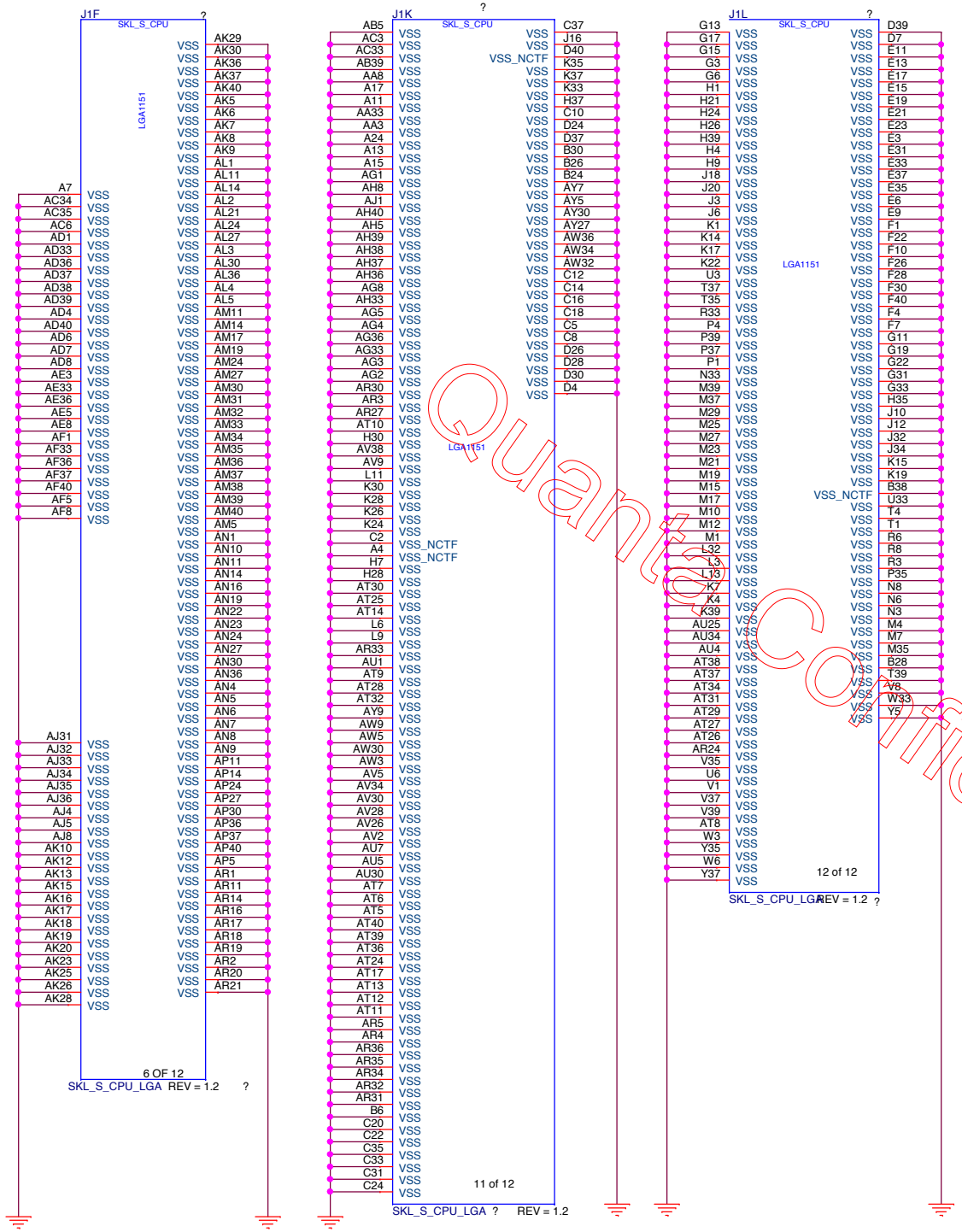

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CPU GND		
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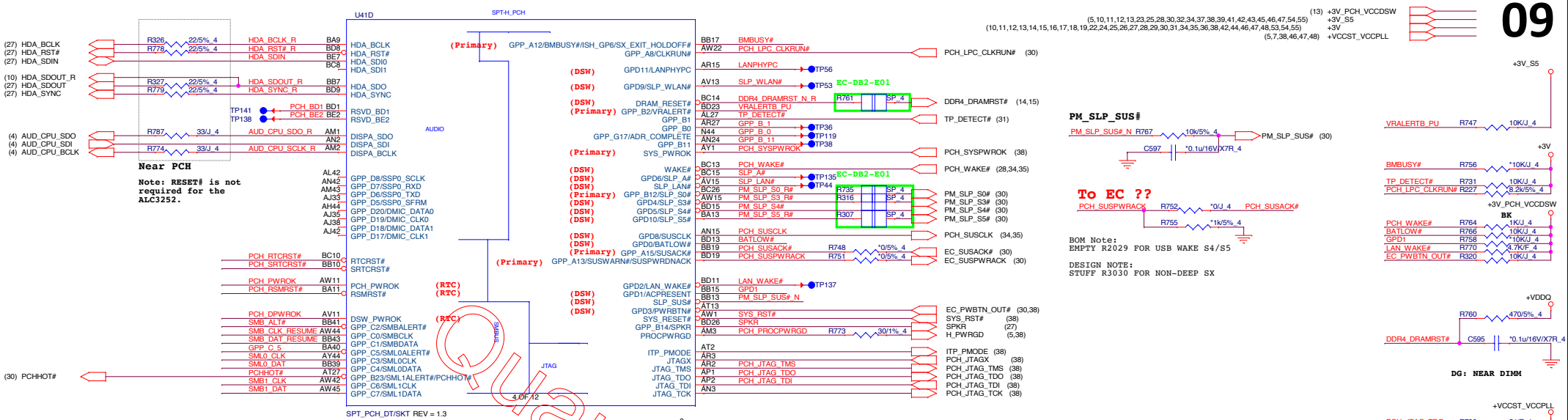
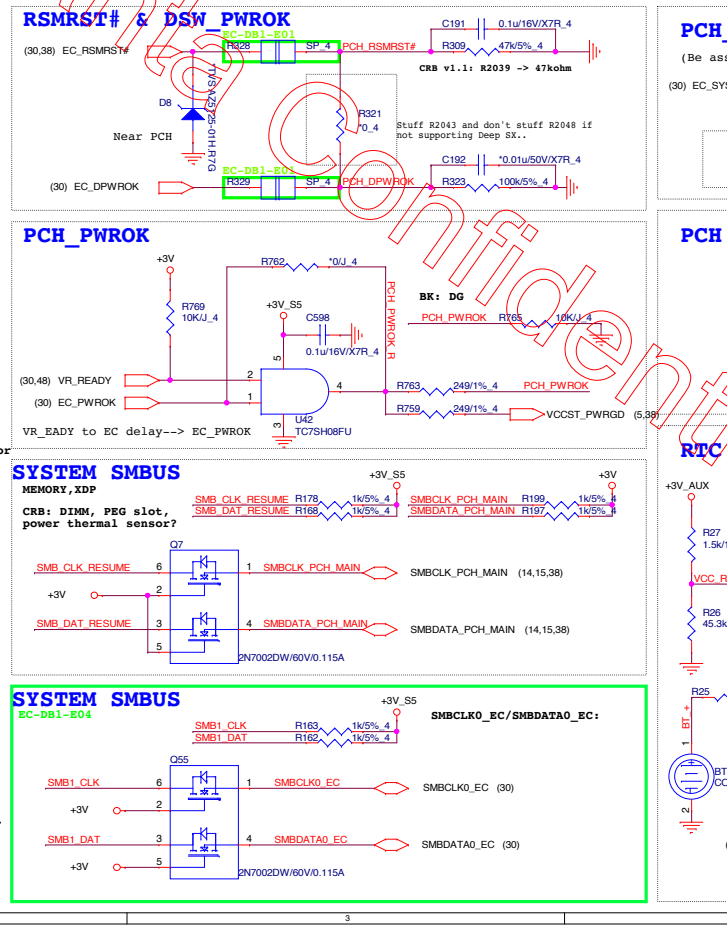


Strap Pin Table

Configuration	Note
"Top swap" mode 0 = Disable, Default (Internal pull-down) 1 = Enable	
"No-Reboot" mode 0 = Disable, Default (Internal pull-down) 1 = Enable	CRB 1.0
Intel ME Crypto TLS cipher suite. 0 = Disable, Default (Internal pull-down) 1 = Enable	
BOOT SELECT STRAP 0 = SPI, Default (Internal pull-down) 1 = LPC	
ESPI/LPC SELECT STRAP (for EC) 0 = LPC (Default, int. pull-down) 1 = ESPI	
BOOT HALT 0 = Enable 1 = PCH has Internal weak pull-up	
JTAG ODT 0 = Enable 1 = PCH has Internal weak pull-up	
CONSENT STRAP 0 = Consent strap is enabled 1 = PCH has Internal weak pull-up	
PERSONALITY STRAP 0 = Enable 1 = PCH has Internal weak pull-up	pull down is needed for pre-ES1/ES1 samples
0 = PCH has Internal weak pull-down 1 = EXI boot stall bypass is enabled	150K PU NEEDED TO DISABLE EXI BOOT STALL BYPASS
SECRUITY MEASURES. 0 = Enable, Defualt (Internal weak pull-down) 1 = Disable. Flash Descriptor Security overrided, pull up for debug only.	
ESPI FLASH SHARING MODE 0 = Master (Internal weak pull-down) 1 = Slave	
DFX TEST MODE XTAL input is single ended if sampled low else differential	
TEST SETUP MENU 0 = Test setup menu enabled 1 = Disabled (Default)	
SV ADVANCE MENU TABLE 0 = SV ADVANCE MENU 1 = Normal Menu (Default)	



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Title: PCH_HDA/SMBUS/MISC
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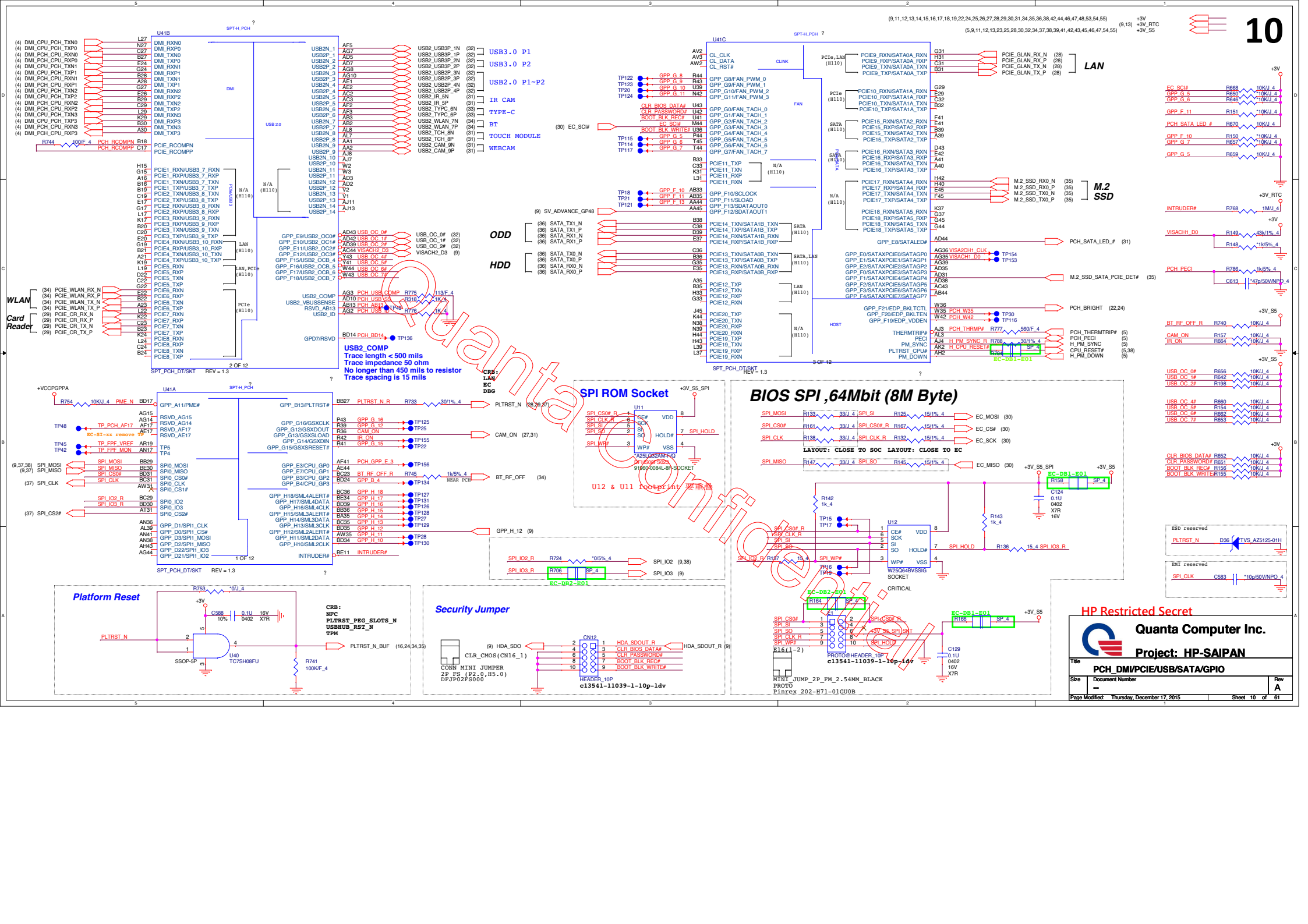
10
USB3.0 P1
USB3.0 P2
USB2.0 P1~P2
IR CAM
TYPE-C
BT
TOUCH MODULE
WEBCAM
LAN
M.2 SSD
ODD
HDD
WLAN
Card Reader
USB2_COMP
Trace length < 500 mils
Trace impedance 50 ohm
No longer than 450 mils to resistor
Trace spacing is 15 mils
SPI ROM Socket
BIOS SPI ,64Bit (8M Byte)
LAYOUT: CLOSE TO SOC LAYOUT: CLOSE TO EC
Platform Reset
Security Jumper
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Project: HP-SAIPAN
PCH_DMI/PCIE/USB/SATA/GPIO
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(9,10,12,13,14,15,16,17,18,19,22,24,25,26,27,28,29,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V
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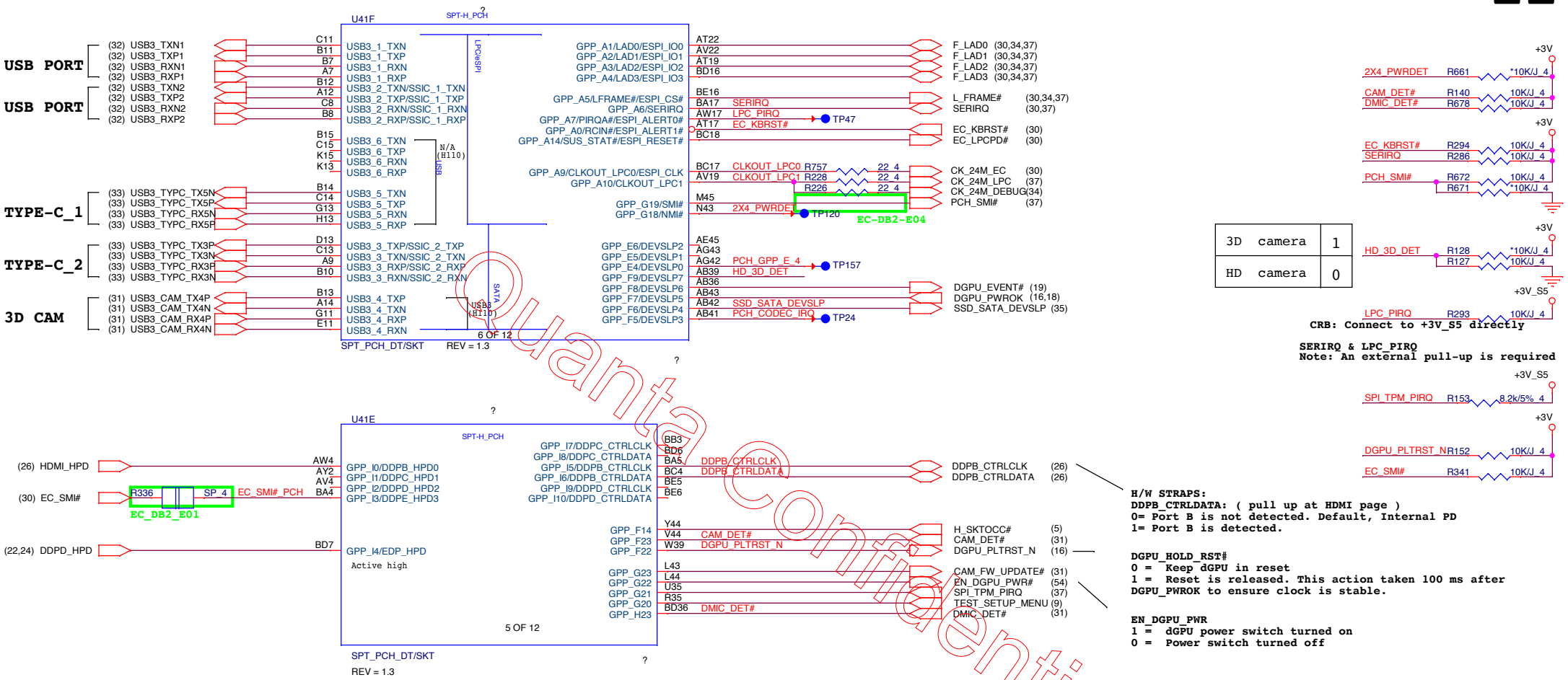

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Project: HP-SAIPAN

Title		
PCH_USB3/LPC		
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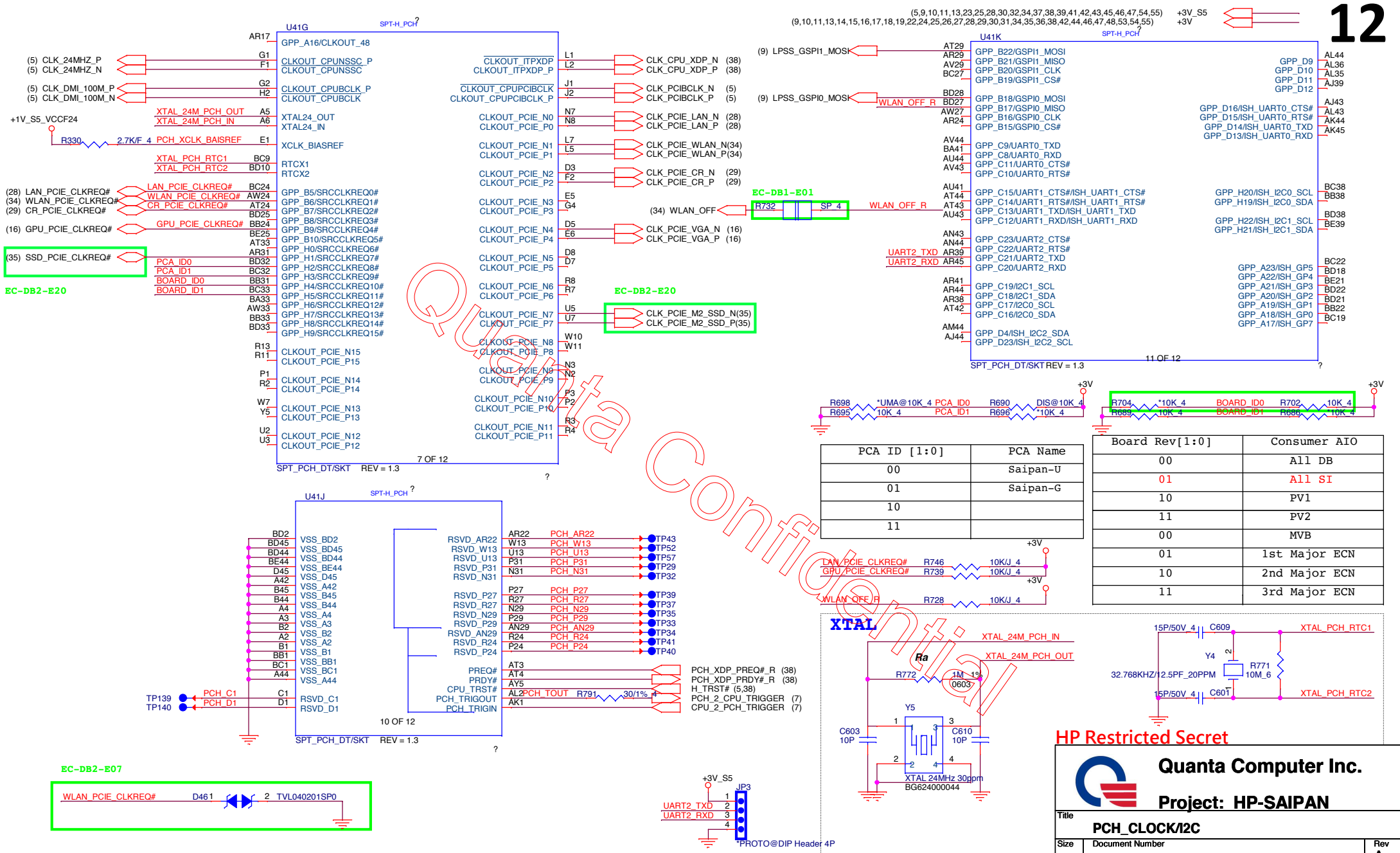

PCA ID [1:0]	PCA Name
00	Saipan-U
01	Saipan-G
10	
11	

Board Rev[1:0]	Consumer AIO
00	All DB
01	All SI
10	PV1
11	PV2
00	MVB
01	1st Major ECN
10	2nd Major ECN
11	3rd Major ECN

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Project: HP-SAIPAN

Title: PCH_CLOCK/I2C

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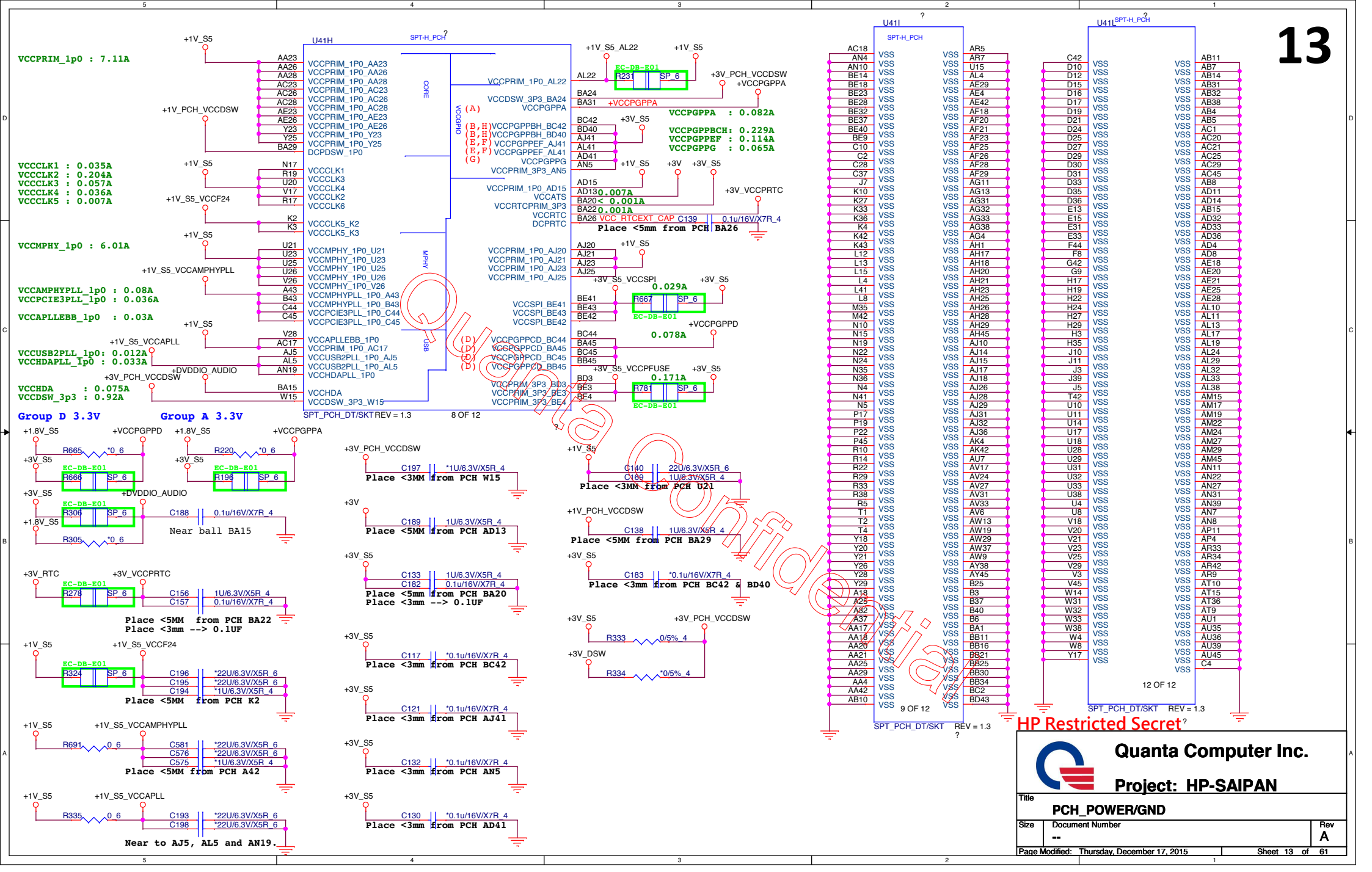
13
VCCPRIM_1p0 : 7.11A
VCCCLK1 : 0.035A
VCCCLK2 : 0.204A
VCCCLK3 : 0.057A
VCCCLK4 : 0.036A
VCCCLK5 : 0.007A
VCCMPHY_1p0 : 6.01A
VCCAMPHYPLL_1p0 : 0.08A
VCCPCIE3PLL_1p0 : 0.036A
VCCAPLLEBB_1p0 : 0.03A
VCCUSB2PLL_1p0: 0.012A
VCCHDAPLL_1p0 : 0.033A
VCCHDA : 0.075A
VCCDSW_3p3 : 0.92A
Group D 3.3V
Group A 3.3V
U41H
SPT-H_PCH
SPT_PCH_DT/SKT REV = 1.3
8 OF 12
U41I
9 OF 12
U41L
12 OF 12
VCCPGPPA : 0.082A
VCCPGPPBCH: 0.229A
VCCPGPPEF : 0.114A
VCCPGPPG : 0.065A
0.007A
< 0.001A
0.001A
0.029A
0.078A
0.171A
Place <5mm from PCH BA26
Place <3MM from PCH W15
Place <3MM from PCH U21
Place <5MM from PCH BA29
Place <3mm from PCH BC42 & BD40
Place <3mm from PCH AD13
Place <5mm from PCH BA20
Place <3mm --> 0.1UF
Place <3mm from PCH BC42
Place <3mm from PCH AJ41
Place <3mm from PCH AN5
Place <3mm from PCH AD41
Near ball BA15
Place <5MM from PCH BA22
Place <3mm --> 0.1UF
Place <5MM from PCH K2
Place <5MM from PCH A42
Near to AJ5, AL5 and AN19.
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HP Restricted Secret
Quanta Computer Inc.
Project: HP-SAIPAN
Title
PCH_POWER/GND
Size
Document Number
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Rev
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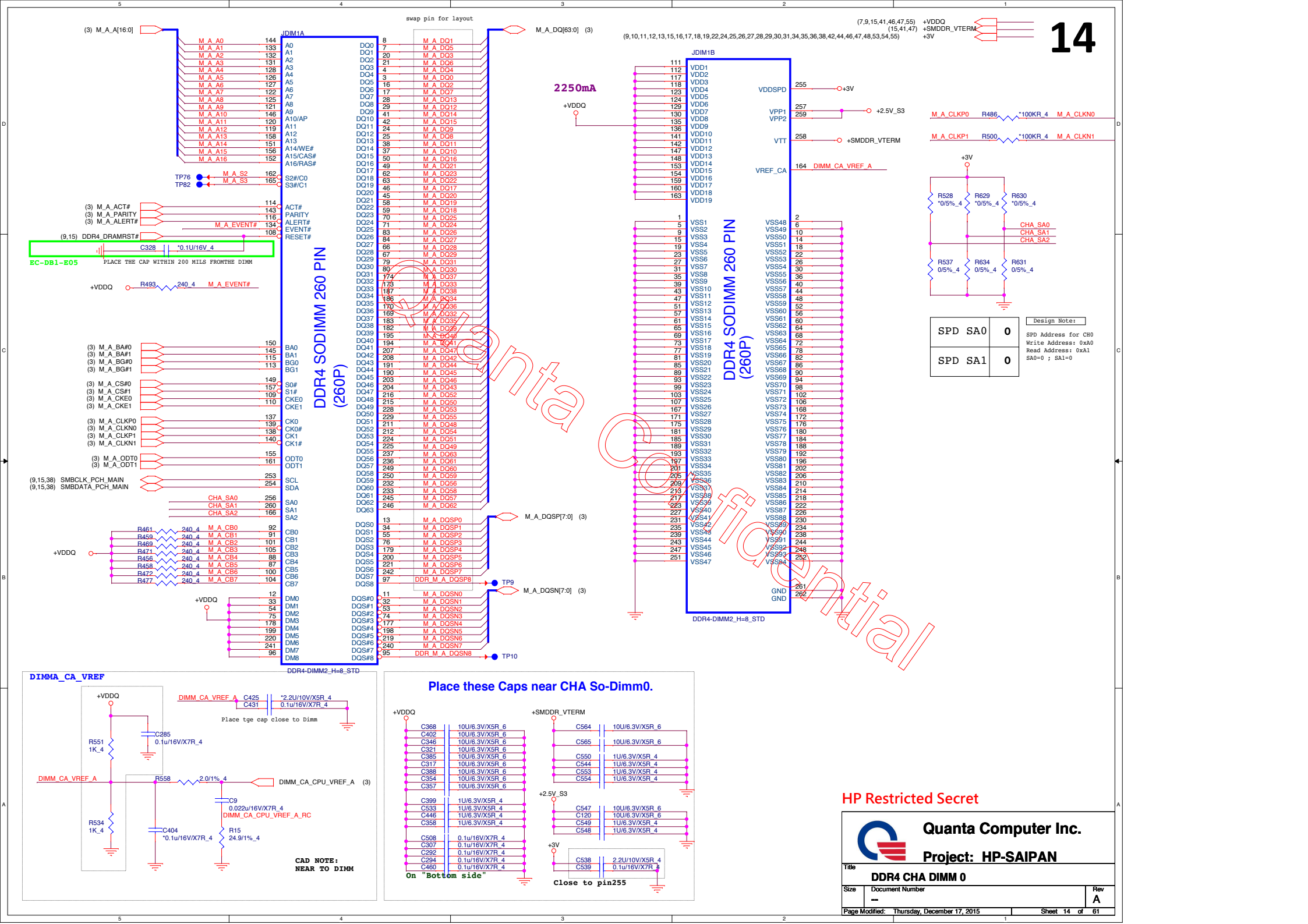

Quanta Computer Inc.

Project: HP-SAIPAN

Title: DDR4 CHA DIMM 0		
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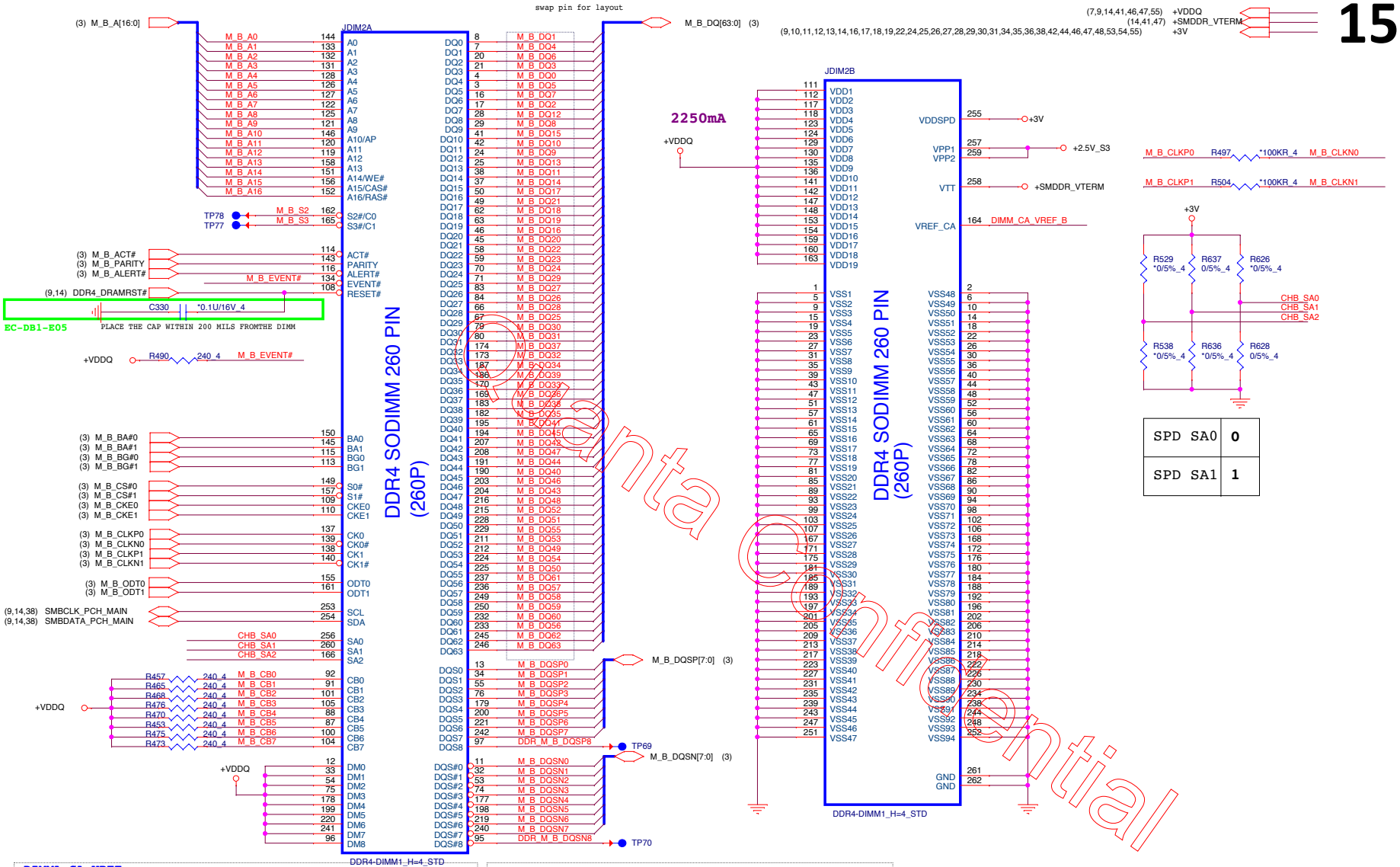

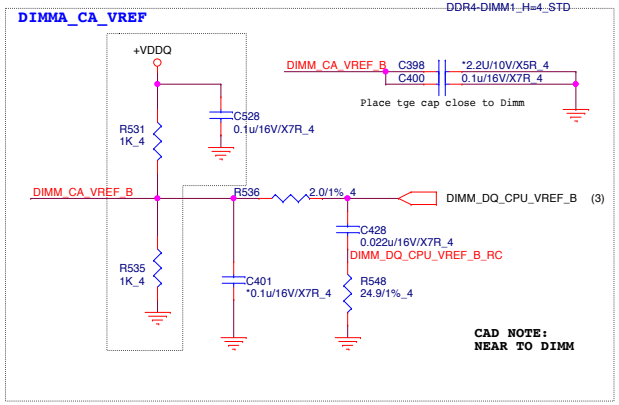

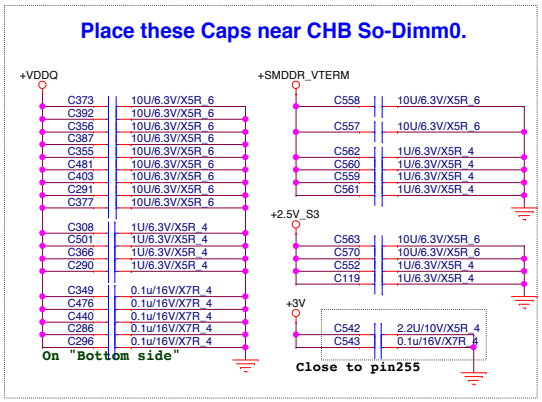

Quanta Computer Inc.

Project: HP-SAIPAN

Title: DDR4 CHB DIMM 1

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(17,18,54) +1.05V_VGA
(18,19,20,53,54) +3.3V_VGA
(9,10,11,12,13,14,15,17,18,19,22,24,25,26,27,28,29,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V
(20,53,54) +VGA_CORE

PEX_IOVDD + PEX_IOVDDQ = 1.042A

+1.05V_VGA

Near GPU
C393 DIS@22u/6.3V/X5R_6
C375 *DIS@22u/6.3V/X5R_6
C376 DIS@10u/6.3V/X5R_6
C433 *DIS@10u/6.3V/X5R_6
C474 DIS@4.7u/6.3V/X5R_4

Under GPU
C408 DIS@1u/6.3V/X5R_4
C462 *DIS@1u/6.3V/X5R_4

U7A
1/14 PCI_EXPRESS

AA22 PEX_IOVDD
AB23 PEX_IOVDD
AC24 PEX_IOVDD
AD25 PEX_IOVDD
AE26 PEX_IOVDD
AE27 PEX_IOVDD

+1.05V_VGA

Near GPU
C396 DIS@22u/6.3V/X5R_6
C374 *DIS@22u/6.3V/X5R_6
C395 DIS@10u/6.3V/X5R_6
C386 *DIS@10u/6.3V/X5R_6
C432 DIS@4.7u/6.3V/X5R_6

Under GPU
C438 DIS@1u/6.3V/X5R_4
C427 *DIS@1u/6.3V/X5R_4

AA10 PEX_IOVDDQ
AA12 PEX_IOVDDQ
AA13 PEX_IOVDDQ
AA16 PEX_IOVDDQ
AA18 PEX_IOVDDQ
AA19 PEX_IOVDDQ
AA20 PEX_IOVDDQ
AA21 PEX_IOVDDQ
AB22 PEX_IOVDDQ
AC23 PEX_IOVDDQ
AD24 PEX_IOVDDQ
AE25 PEX_IOVDDQ
AF26 PEX_IOVDDQ
AF27 PEX_IOVDDQ

PEX_PLL_HVDD + PEX_SVDD_3V3 = 143mA

Place all above caps on top side of CPU cavity

+3.3V_VGA

Near GPU
C519 DIS@4.7u/6.3V/X5R_6
C510 DIS@4.7u/6.3V/X5R_6
C493 DIS@0.1u/16V/X7R_4

AA8 PEX_PLL_HVDD
AA9 PEX_PLL_HVDD
AB8 PEX_SVDD_3V3

(53) VGA_VDD_SEN F2 VDD_SENSE
(53) VGA_GND_SEN F1 GND_SENSE

PEX_PLLVDD = 130mA

+1.05V_VGA
R527 *DIS@200/1% PEX_TSTCLK AF22 PEX_TSTCLK_OUT
PEX_TSTCLK# AE22 PEX_TSTCLK_OUT
CX300730001 Change to 0ohm
R543 DIS@0/5%_6

Near GPU
C441 DIS@4.7u/6.3V/X5R_6
C447 DIS@1u/6.3V/X5R_4
PEX_PLLVDD AA14 PEX_PLLVDD
AA15 PEX_PLLVDD

Under GPU
C456 DIS@0.1u/16V/X7R_4

R579 DIS@10k/5%_4 TESTMODE AD9 TESTMODE

R49 DIS@2.49k/1%_4 PEX_TERMP AF25 PEX_TERMP

bga595-nvidia-n13p-gv2-s-a2

PEX_WAKE AB6
PEX_RST AC7 VGA_RST# R611 DIS@0/5%_4 PEGX_RST# (19)
PEX_CLKREQ AC6 PEG_CLKREQ# R590 DIS@10k/5%_4 +3.3V_VGA
PEX_REFCLK AE8 PEG_REFCLK R589 DIS@0/5%_4 CLK_PCIE_VGA_P (12)
PEX_REFCLK# AD8 PEG_REFCLK# R587 DIS@0/5%_4 CLK_PCIE_VGA_N (12)

C513 *DIS@0.1u/16V/X7R_4

PEX_TX0	AC9	C_PEG_RXP0	C541	DIS@0.22u/10V/X5R_4	PEG_RXP0 (4)
PEX_TX0#	AB9	C_PEG_RXN0	C536	DIS@0.22u/10V/X5R_4	PEG_RXN0 (4)
PEX_RX0	AG6	C_PEG_TXP0	C89	DIS@0.22u/10V/X5R_4	PEG_TXP0 (4)
PEX_RX0#	AG7	C_PEG_TXN0	C88	DIS@0.22u/10V/X5R_4	PEG_TXN0 (4)
PEX_TX1	AB10	C_PEG_RXP1	C531	DIS@0.22u/10V/X5R_4	PEG_RXP1 (4)
PEX_TX1#	AC10	C_PEG_RXN1	C534	DIS@0.22u/10V/X5R_4	PEG_RXN1 (4)
PEX_RX1	AF7	C_PEG_TXP1	C87	DIS@0.22u/10V/X5R_4	PEG_TXP1 (4)
PEX_RX1#	AE7	C_PEG_TXN1	C85	DIS@0.22u/10V/X5R_4	PEG_TXN1 (4)
PEX_TX2	AD11	C_PEG_RXP2	C525	DIS@0.22u/10V/X5R_4	PEG_RXP2 (4)
PEX_TX2#	AC11	C_PEG_RXN2	C529	DIS@0.22u/10V/X5R_4	PEG_RXN2 (4)
PEX_RX2	AE9	C_PEG_TXP2	C84	DIS@0.22u/10V/X5R_4	PEG_TXP2 (4)
PEX_RX2#	AF9	C_PEG_TXN2	C83	DIS@0.22u/10V/X5R_4	PEG_TXN2 (4)
PEX_TX3	AC12	C_PEG_RXP3	C516	DIS@0.22u/10V/X5R_4	PEG_RXP3 (4)
PEX_TX3#	AB12	C_PEG_RXN3	C522	DIS@0.22u/10V/X5R_4	PEG_RXN3 (4)
PEX_RX3	AG9	C_PEG_TXP3	C82	DIS@0.22u/10V/X5R_4	PEG_TXP3 (4)
PEX_RX3#	AG10	C_PEG_TXN3	C81	DIS@0.22u/10V/X5R_4	PEG_TXN3 (4)

PEX_TX4 AB13
PEX_TX4# AC13
PEX_RX4 AF10
PEX_RX4# AE10
PEX_TX5 AD14
PEX_TX5# AC14
PEX_RX5 AE12
PEX_RX5# AF12
PEX_TX6 AC15
PEX_TX6# AB15
PEX_RX6 AG12
PEX_RX6# AG13
PEX_TX7 AB16
PEX_TX7# AC16
PEX_RX7 AF13
PEX_RX7# AE13

EC-DB-E03

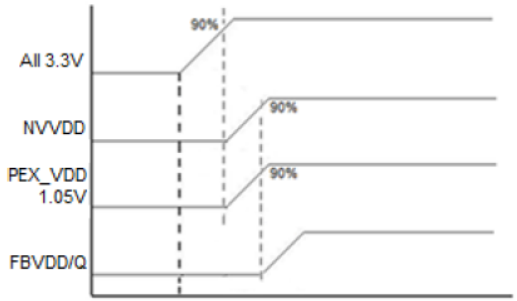
PEX_TX8 AD17
PEX_TX8# AC17
PEX_RX8 AE15
PEX_RX8# AF15
PEX_TX9 AC18
PEX_TX9# AB18
PEX_RX9 AG15
PEX_RX9# AG16
PEX_TX10 AB19
PEX_TX10# AC19
PEX_RX10 AF16
PEX_RX10# AE16
PEX_TX11 AD20
PEX_TX11# AC20
PEX_RX11 AE18
PEX_RX11# AF18
PEX_TX12 AC21
PEX_TX12# AB21
PEX_RX12 AG18
PEX_RX12# AG19
PEX_TX13 AD23
PEX_TX13# AE23
PEX_RX13 AF19
PEX_RX13# AE19
PEX_TX14 AF24
PEX_TX14# AE24
PEX_RX14 AE21
PEX_RX14# AF21
PEX_TX15 AG24
PEX_TX15# AG25
PEX_RX15 AG21
PEX_RX15# AG22

NC

GF117 GF119

COMMON

swap pin for layout



PEG_RST#

NV SUGGEST (for ADP only)
No stuff: U62,
stuff:R614

+3V
C535 DIS@0.1u/16V/X5R_4
(10,24,34,35) PLTRST_N_BUF
(11) DGPU_PLTRST_N
R618 SP_4 DGPU_PLTRST
EC-DB1-E01
U35 DIS@TC7SH08FU
SYS_PEX_RST_MON# R604 *DIS@100K/F_4
EC-DB1-E02
4SYS_PEX_RST R612 *DIS@0/5%_42
(19) GPU_PEX_RST_HOLD#
SYS_PEX_RST_MON# (19)
+3V
C546 DIS@0.1u/16V/X5R_4
PEGX_RST#
U36 *DIS@TC7SH08FU
R624 DIS@100K/F_4
R614 DIS@0/5%_4

PEG_RST#

(11,18) DGPU_PWROK
+3.3V_VGA
EC-DB1-E07
R126 *DIS@10k/5%_4
+3V
EC-DB1-E07
R118 *DIS@10k/5%_4
PEG_CLKREQ#
Q6 DIS@PJA138K/50V_0.5A
GPU_PCIE_CLKREQ# (12)

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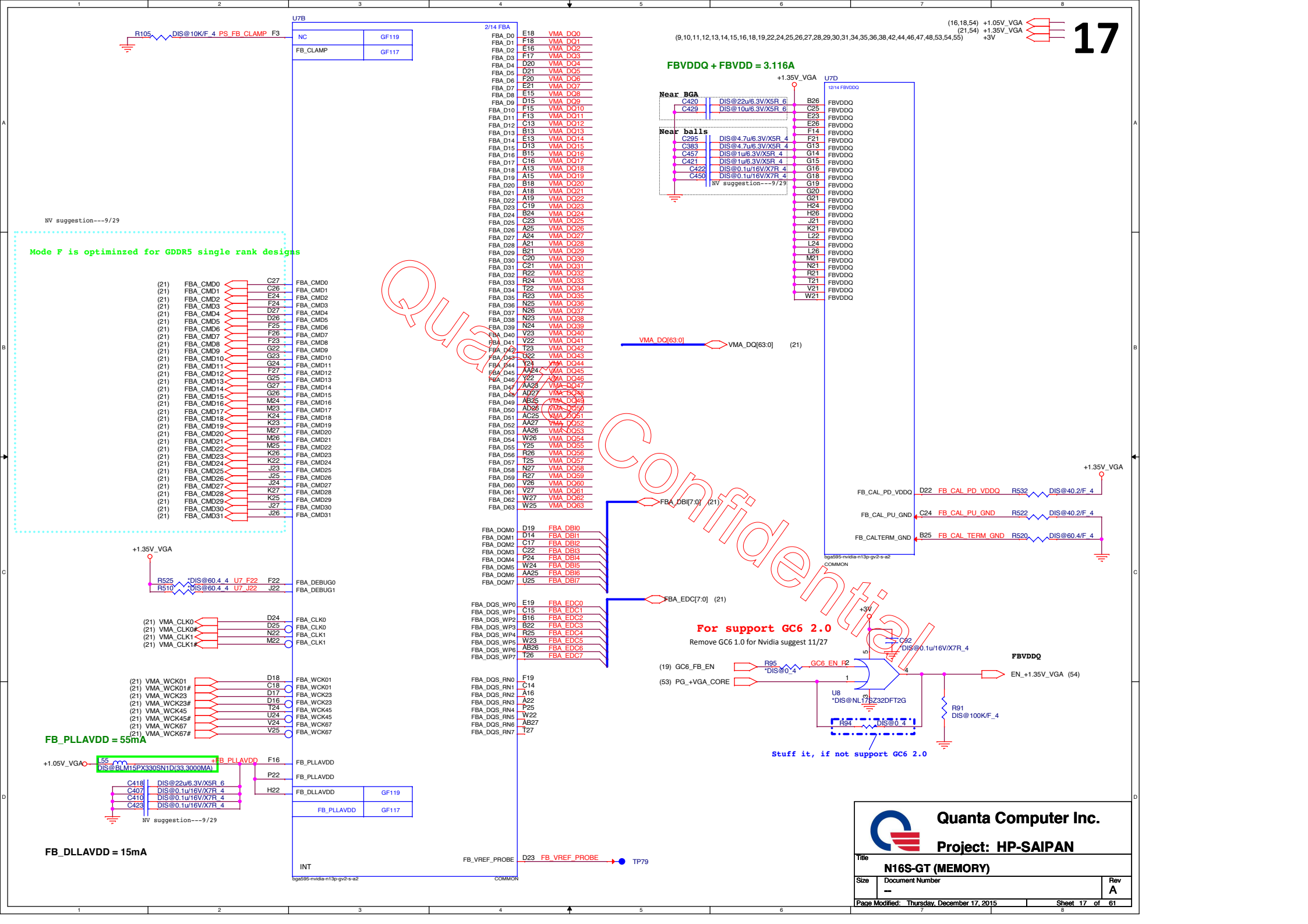

Quanta Computer Inc.

Project: HP-SAIPAN

Title: N16S-GT (MEMORY)

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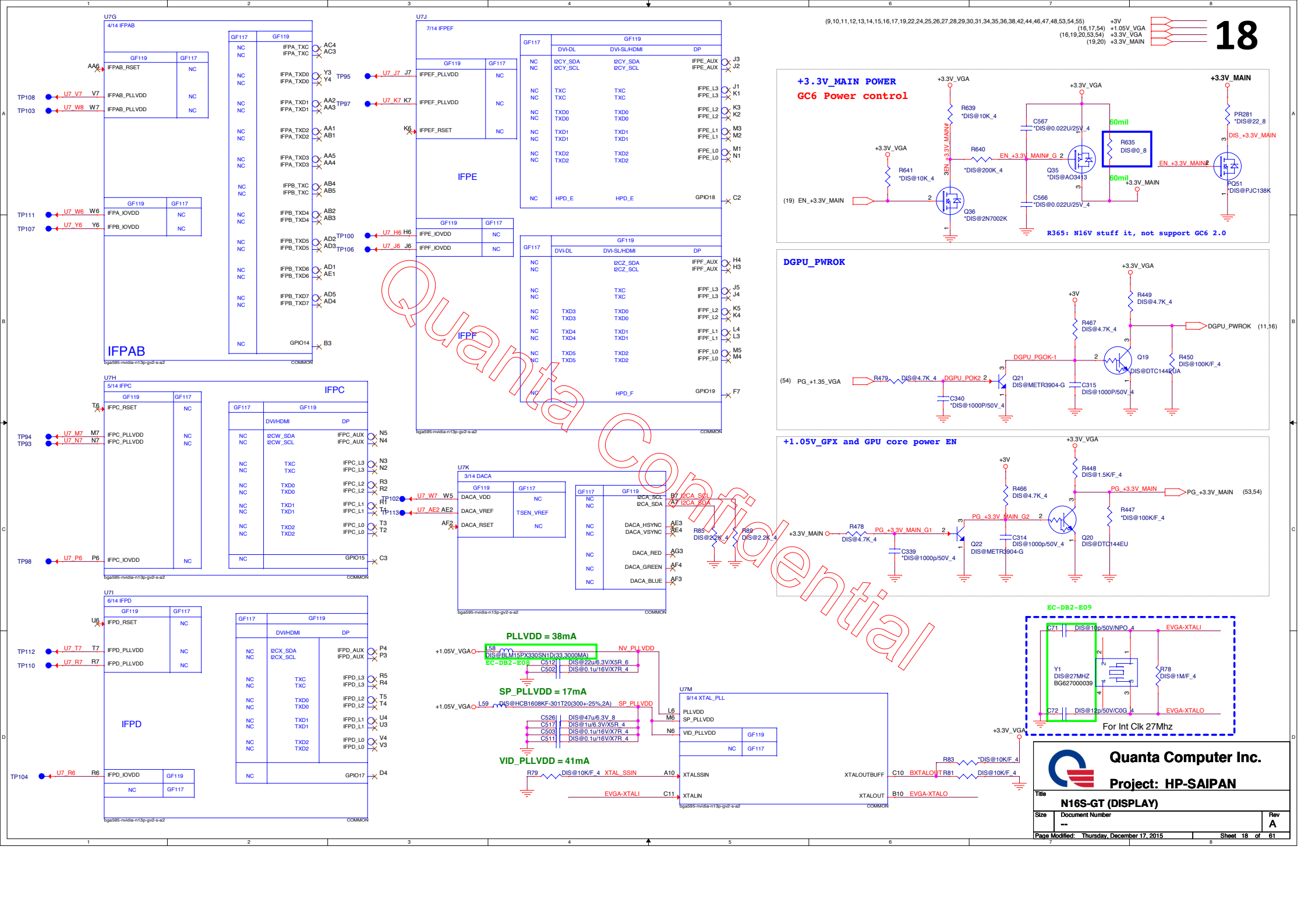
18
IFPAB
IFPE
IFPF
IFPC
IFPD
+3.3V_MAIN POWER
GC6 Power control
R365: N16V stuff it, not support GC6 2.0
DGPU_PWROK
+1.05V_GFX and GPU core power EN
PLLVDD = 38mA
SP_PLLVDD = 17mA
VID_PLLVDD = 41mA
For Int Clk 27Mhz
Quanta Computer Inc.
Project: HP-SAIPAN
N16S-GT (DISPLAY)
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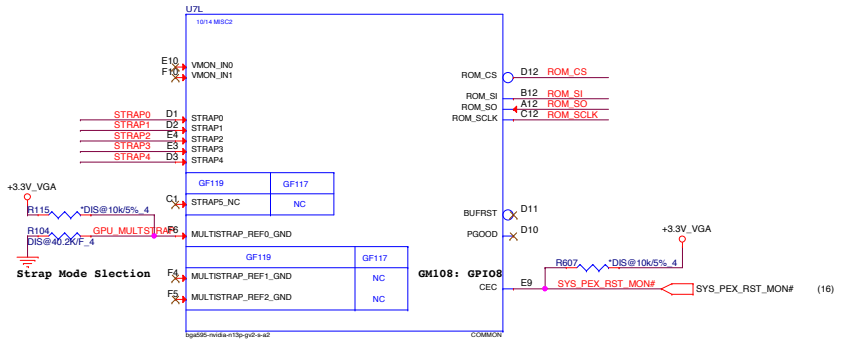
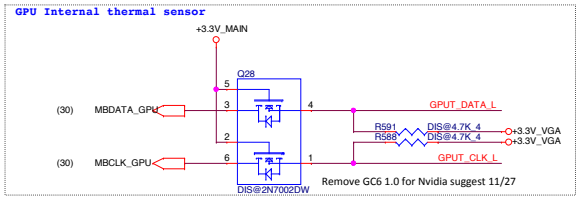
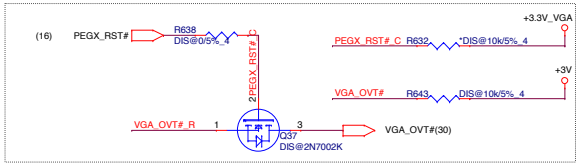
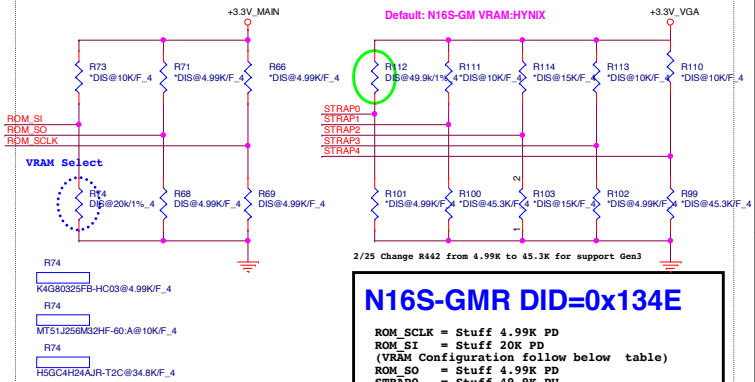




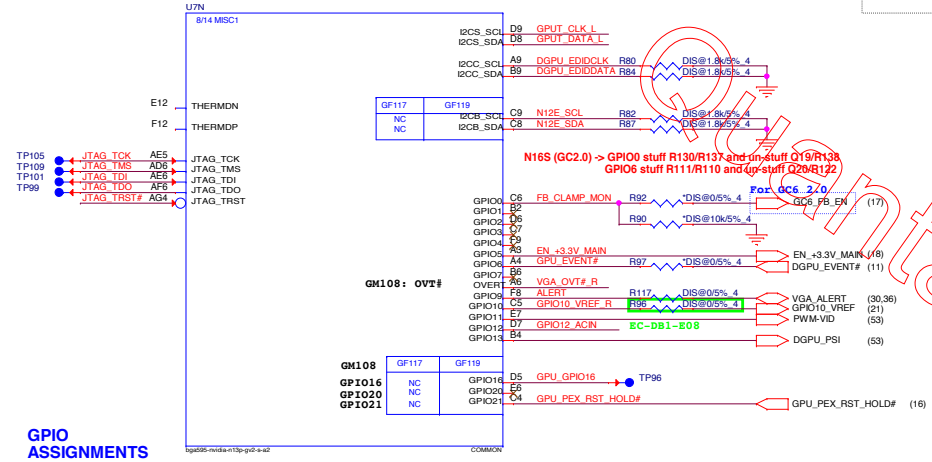




N16S-GMR DID=0x134E

ROM_SCLK = Stuff 4.99K PD
ROM_SI = Stuff 20K PD
(VRAM Configuration follow below table)
ROM_SO = Stuff 4.99K PD
STRAP0 = Stuff 49.9K PU
STRAP1 = NC
STRAP2 = NC
STRAP3 = NC
STRAP4 = NC

GB2B-64



HW STRAPS:

GPIO12 AC detect
AC high
DC low

EC-DB1-E07

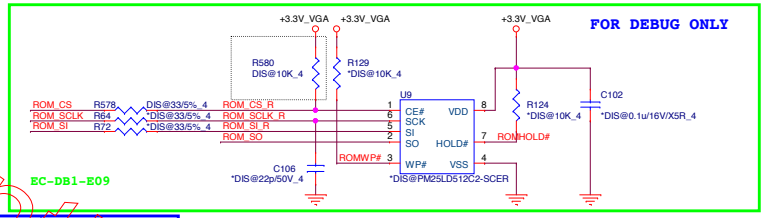
OVT: Active low OD output
Alert: OD Input

For GC6 2.0

Note: GC6 2.0 is supported by N16x GPU in the GB2B ,GB4B-128,and GB3B-256 packages.

Logical Strap Bit Mapping

	PU-VDD	PD	QCI P/N
4.99K	1000	0000	CS24992FB26
10K	1001	0001	CS31002FB26
15K	1010	0010	CS31502FB24
20K	1011	0011	CS32002FB29
24.9K	1100	0100	CS32492FB16
30.1K	1101	0101	CS33012FB18
34.8K	1110	0110	CS33482FB06
45.3K	1111	0111	CS34532FB18



GPIO ASSIGNMENTS

GPIO	I/O	PIN	USAGE
0	IN	FB_CLAMP_MON	FB Clamp monitor (GC6 1.0)
0	OUT	GC6_FB_EN	GC6 FB Enable (GC6 2.0)
5	OUT	+3V_MAIN_EN	Enable GC6 +3V_MAIN
6	OUT	FB_CLAMP_REQ#	Active low FB Clamp toggle request (GC6 1.0)
6	IN	DGPU_EVENT#	DGPU EVENT from CPU (GC6 2.0)
8	OUT	VGA_OVT#	ACTIVE LOW THERMAL OVER TEMP
9	OUT	ALERT	ACTIVE LOW THERMAL ALERT
11	OUT	PWR_VID	GPU CORE_VDD PWM Control signal
12	IN	PWR_LEVEL	AC Power detect or power supply overdraw input
13	OUT	PSI	Phase Shedding

N16S-GM/-GT/-LP VRAM Configuration Table

ROM_SI

RAMCFG [3:0]	DESCRIPTION 1.35V gDDR5	Vendor	Vendor P/N	ROM_SI (R74)	STN B/S	Configuration
0000 0001	512Mx16	SAMSUNG Micron	K4G80325FB-HC03 MT51J256M32HF-60:A	PD 4.99K ohm PD 10K ohm		
0011 0110	256Mx16	SAMSUNG HYNIX	K4G41325FC-HC03 H5GC4H24AJR-T2C	PD 20K ohm PD 34.8K ohm		

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(18,19) +3.3V_MAIN
(16,18,19,53,54) +3.3V_VGA
(53,54) +VGA_CORE

NVDD = 32.22 ~ 26.66 A

VDD33 = 56mA

+VGA_CORE

Under GPU

C473 DIS@1u/6.3V/X5R_4
C461 DIS@1u/6.3V/X5R_4
C430 DIS@1u/6.3V/X5R_4
C439 DIS@1u/6.3V/X5R_4
C453 DIS@4.7u/6.3V/X5R_6
C454 DIS@4.7u/6.3V/X5R_6
C464 DIS@4.7u/6.3V/X5R_6
C435 DIS@4.7u/6.3V/X5R_6
C490 DIS@4.7u/6.3V/X5R_6
C437 DIS@4.7u/6.3V/X5R_6
C463 DIS@4.7u/6.3V/X5R_6
C455 DIS@4.7u/6.3V/X5R_6
C434 DIS@4.7u/6.3V/X5R_6
C452 DIS@4.7u/6.3V/X5R_6

Near GPU

C545 *DIS@330u_2.5V_3528
C105 DIS@390U/2.5V/ELEC_8368

C491 DIS@22u/6.3V/X5R_6
C94 DIS@47u/6.3V_8

C465 DIS@4.7u/6.3V/X5R_6
C436 DIS@4.7u/6.3V/X5R_6
C492 DIS@4.7u/6.3V/X5R_6
C466 DIS@4.7u/6.3V/X5R_6
C451 DIS@4.7u/6.3V/X5R_6

330uf : ESR <=6m ohm

U7E
11/14 NVVDD
K10 K12 K14 K16 K18 L11 L13 L15 L17 M10 M12 M14 M16 M18 N11 N13 N15 N17 P10 P12 P14 P16 P18 R11 R13 R15 R17 T10 T12 T14 T16 T18 U11 U13 U15 U17 V10 V12 V14 V16 V18
VDD
bga595-nvidia-n13p-gv2-s-a2
COMMON

TP92
U7_F11

U7C
14/14 XVDD/VDD33
AD10 NC
AD7 NC
B19 NC
R11 3V3AUX_NC
V5 FERMI_RSVD1_NC
V6 FERMI_RSVD2_NC
VDD33 G10
VDD33 G12
VDD33 G8
VDD33 G9
CONFIGURABLE
POWER CHANNELS
* nc on substrate
G1 XPWR_G1
G2 XPWR_G2
G3 XPWR_G3
G4 XPWR_G4
G5 XPWR_G5
G6 XPWR_G6
G7 XPWR_G7
V1 XPWR_V1
V2 XPWR_V2
W1 XPWR_W1
W2 XPWR_W2
W3 XPWR_W3
W4 XPWR_W4
bga595-nvidia-n13p-gv2-s-a2 COMMON

+3.3V_VGA
Near BGA
C555 DIS@4.7u/6.3V/X5R_6
C458 DIS@1u/6.3V/X5R_4
Near balls
C467 DIS@0.1u/16V/X7R_4

+3.3V_MAIN
Near BGA
C540 DIS@4.7u/6.3V/X5R_6
C484 DIS@1u/6.3V/X5R_4
Near balls
C485 DIS@0.1u/16V/X7R_4
C486 DIS@0.1u/16V/X7R_4

U7F
13/14 GND
A2 AB17 AB20 AB24 AC2 AC22 AC26 AC5 AC8 AD12 AD13 A26 AD15 AD16 AD18 AD19 AD21 AD22 AE11 AE14 AE17 AE20 AB11 AF1 AF11 AF14 AF17 AF20 AF23 AF5 AF8 AG2 AG26 AB14 B1 B11 B14 B17 B20 B23 B27 B5 B8 E11 E14 E17 E2 E20 E22 E25 E5 E8 H2 H23 H25 H5 K11 K13 K15 K17 L10 L12 L14 L16 L18 L2 L23 L25 L5 M11
M13 M15 M17 N10 N12 N14 N16 N18 P11 P13 P15 P17 P2 P23 P26 P5 R10 R12 R14 R16 R18 T11 T13 T15 T17 U10 U12 U14 U16 U18 U2 U23 U26 U5 V11 V13 V15 V17 Y2 Y23 Y26 Y5 AA7 AB7
GND
bga595-nvidia-n13p-gv2-s-a2 COMMON

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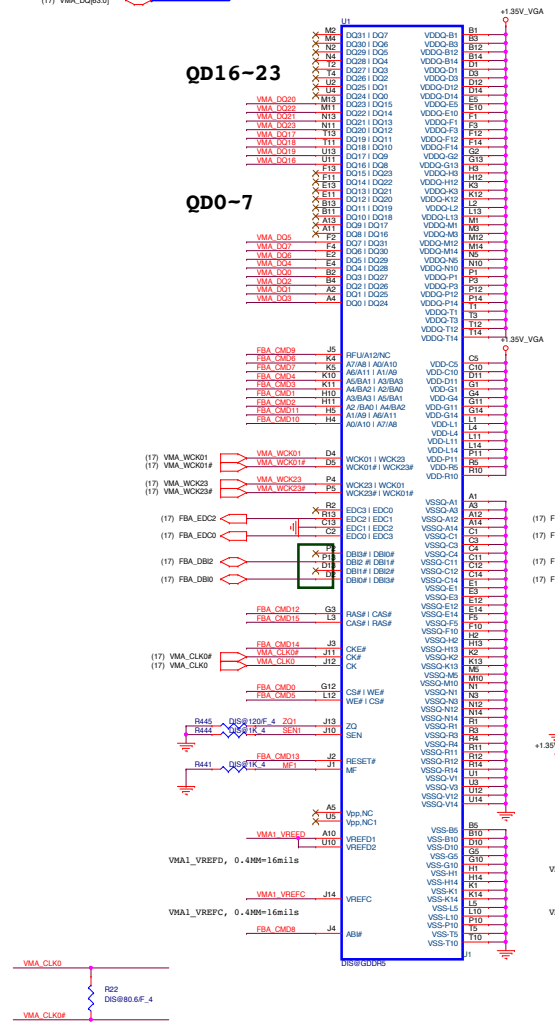
2GB gDDR5

Channel A0

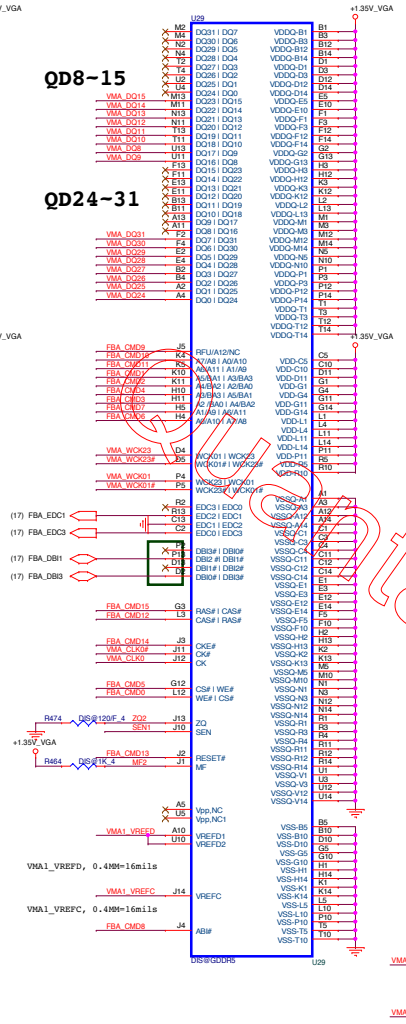
MF=0 Non-mirrored

QD16~23 / QD0~7



MF=1 Mirrored

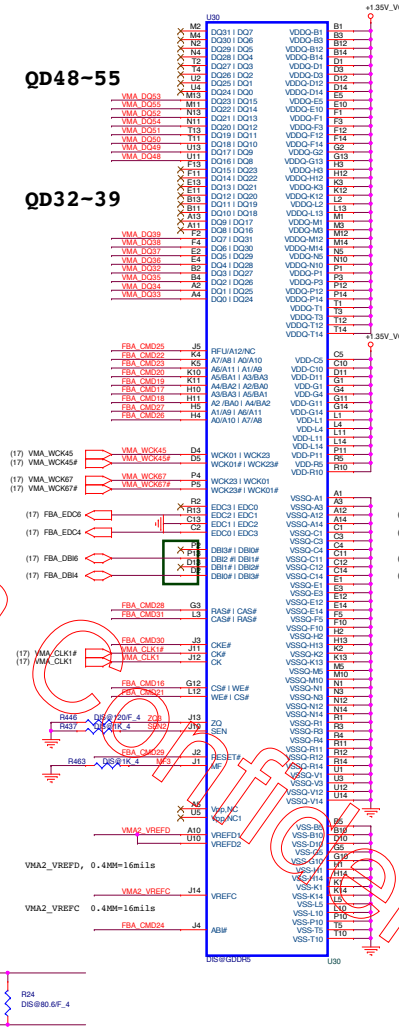
QD8~15 / QD24~31



Channel A1

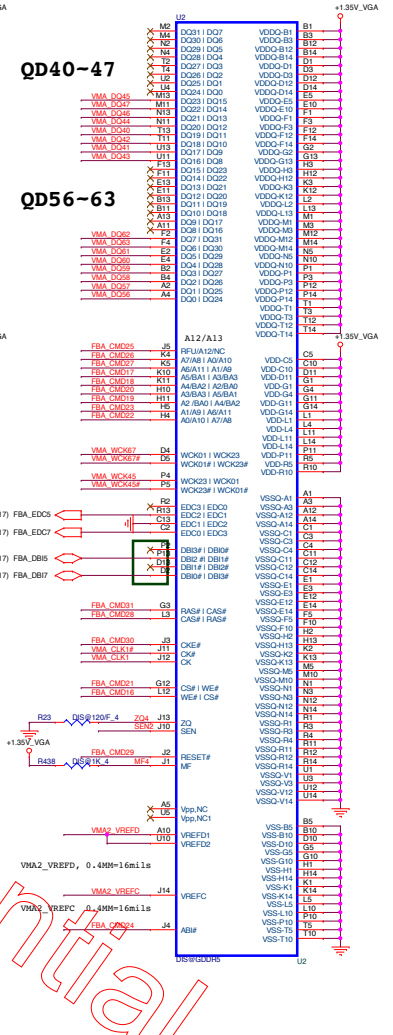
MF=0 Non-mirrored

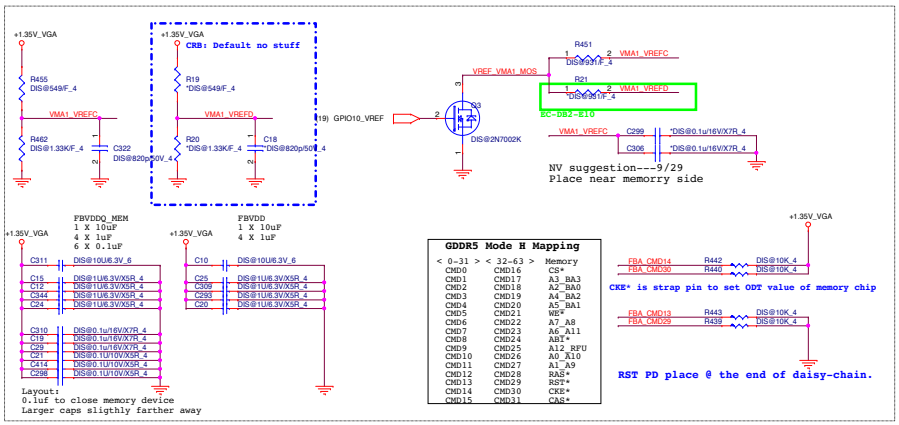
QD48~55 / QD32~39

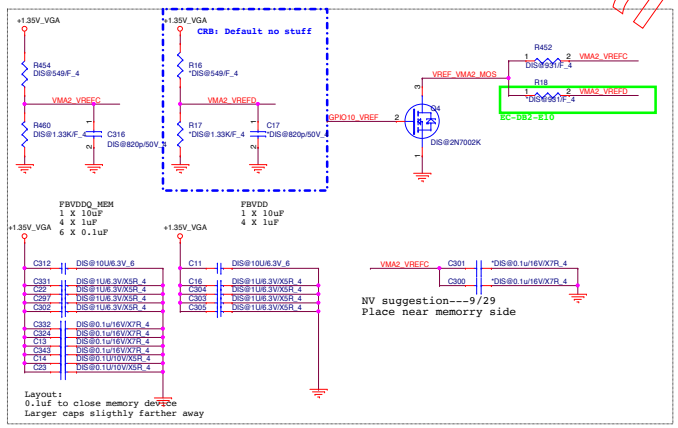


MF=1 Mirrored

QD40~47 / QD56~63







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eDP to LVDS (RTD2136N-CG)

(9,10,11,12,13,14,15,16,17,18,19,24,25,26,27,28,29,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V

DP input signals

(11,24) DDPD_HPD — R693 FHD@1K/F_4 — R688 FHD@100K/F_4

eDP_HPD with pull down 100K-ohm on PCH side.

qHD / FHD co-lay

3 PAD
(4) EDP_AUXN — C573 FHD@0.1u/16V/X7R_4 — C93 *QHD@0.1u/16V/X7R_4 — 2136_AUXN — +SWR_V12 — 7515_AUXN (24)

3 PAD
(4) EDP_AUXP — C572 FHD@0.1u/16V/X7R_4 — C95 *QHD@0.1u/16V/X7R_4 — 2136_AUXP — 7515_AUXP (24)

3 PAD
(4) DDID_TXDP0 — C571 FHD@0.1u/16V/X7R_4 — C112 *QHD@0.1u/16V/X7R_4 — DPD_TXP0_R — 7515_TXP0 (24)

3 PAD
(4) DDID_TXDN0 — C568 FHD@0.1u/16V/X7R_4 — C111 *QHD@0.1u/16V/X7R_4 — DPD_TXN0_R — 7515_TXN0 (24)

3 PAD
(4) DDID_TXDP1 — C556 FHD@0.1u/16V/X7R_4 — C103 *QHD@0.1u/16V/X7R_4 — DPD_TXP1_R — 7515_TXP1 (24)

3 PAD
(4) DDID_TXDN1 — C551 FHD@0.1u/16V/X7R_4 — C100 *QHD@0.1u/16V/X7R_4 — DPD_TXN1_R — 7515_TXN1 (24)

+SWR_V12 — C134 FHD@0.1u/16V/X5R_4

2136_BKLT_EN
EDID_DAT
EDID_CLK
2136_CFG0
2136_CFG1

U37 RTD2136N FHD@RTD2136N-CG(QFN)

DP_HPD, TEST_MODE, AUX-CH_N, AUX-CH_P, DP_V33, DP_GND, LANE0P, LANE0N, LANE1P, LANE1N, DP_V12, DP_REXT

eDP_HPD_R
TEST_MODE
2136_AUXN
2136_AUXP
DPD_TXP0_R
DPD_TXN0_R
DPD_TXP1_R
DPD_TXN1_R

+3.3V_2136_AVCC33

DP_REXT — C125 FHD@0.1u/16V/X5R_4 — R663 FHD@12K/F_6

LVDS_SCL
LVDS_SDA

+SWR_V12 — +3.3V_2136_DVCC33 — +SWR_LX

PCH_BRIGHT
2136_LVDS_PWREN
2136_VADJ

+3.3V_2136_DVCC33 — C731 close to Pin22 — C113 FHD@0.1u/16V/X7R_4

ODD_CH

LVDS_TX_ON0 (23)
LVDS_TX_OP0 (23)
LVDS_TX_ON1 (23)
LVDS_TX_OP1 (23)
LVDS_TX_ON2 (23)
LVDS_TX_OP2 (23)
LVDS_TXCLK_ON (23)
LVDS_TXCLK_OP (23)
LVDS_TX_ON3 (23)
LVDS_TX_OP3 (23)

EVEN_CH

LVDS_TX_EN0 (23)
LVDS_TX_EP0 (23)
LVDS_TX_EN1 (23)
LVDS_TX_EP1 (23)
LVDS_TX_EN2 (23)
LVDS_TX_EP2 (23)
LVDS_TXCLK_EN (23)
LVDS_TXCLK_EP (23)
LVDS_TX_EN3 (23)
LVDS_TX_EP3 (23)

RTD2136N Power

+3V — L10 FHD@HCB1608KF-600T30 — +3.3V_2136_DVCC33
C118 FHD@10U/6.3V/X5R_6
C127 FHD@0.1u/16V/X5R_4
C108 FHD@10U/6.3V/X5R_6
C115 FHD@0.1u/16V/X5R_4
EC-DB2-E13

Trace width >40mils

>80mils
Near to Pin18 within 200mils

+3V — L11 FHD@HCB1608KF-600T30 — +3.3V_2136_AVCC33
C126 FHD@10U/6.3V/X5R_6
C128 FHD@0.1u/16V/X5R_4
C131 FHD@0.1u/16V/X5R_4

+SWR_LX — L60 FHD@0.8 — +SWR_V12
C569 FHD@22U/6.3V/X5R_6
C109 FHD@0.1u/16V/X7R_4

Trace width >30mils
Near to Pin17 within 400mils

SWR MODE /LDO MODE

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

EDID

+3.3V_2136_DVCC33
EDID_CLK — R180 FHD@4.7K/F_4
EDID_DAT — R181 *FHD@4.7K/F_4
R822 FHD@4.7K/F_4
EC-DB2-E12

Intel CRB

+3V
2136_AUXN — R683 *FHD@100k/1%_4
2136_AUXP — R677 *FHD@100k/1%_4

GPIO & TESTing signals

(52) 2136_VADJ
(23) 2136_LVDS_PWREN
(23) 2136_BKLT_EN
(10,24) PCH_BRIGHT

TEST_MODE
2136_VADJ
2136_LVDS_PWREN
2136_BKLT_EN
PCH_BRIGHT

R687 FHD@100K/F_4
R658 100K/F_4

NEED STUFF FOR FHD/QHD

Mode select

+3.3V_2136_DVCC33
2136_CFG1 — R707 *FHD@4.7K/F_4
2136_CFG0 — R710 FHD@4.7K/F_4
R700 *FHD@4.7K_4
R699 FHD@4.7K_4

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

EEPROM

EC-DB2-E11
+3.3V_2136_DVCC33
C116 *FHD@0.1u/16V/X7R_4
U13 *FHD@M24C64
EDID_DAT
EDID_CLK
VCC SDA SCL GND WP A2 A1 A0

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

+3.3V_2136_DVCC33
R647 FHD@4.7K/F_4
R649 FHD@4.7K/F_4

EC

(30) LVDS_SCL — LVDS_SCL
(30) LVDS_SDA — LVDS_SDA

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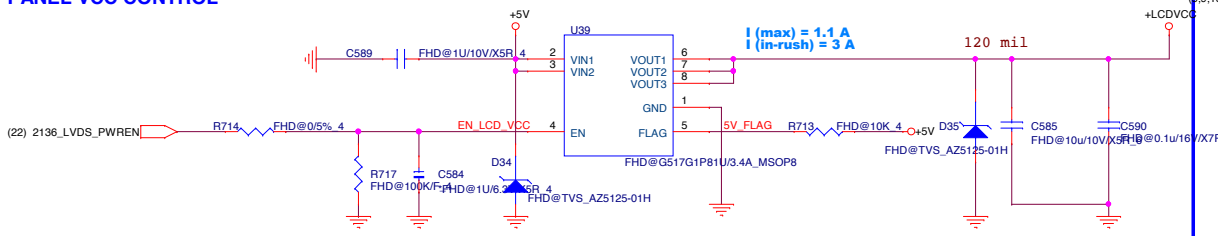
LED PANEL

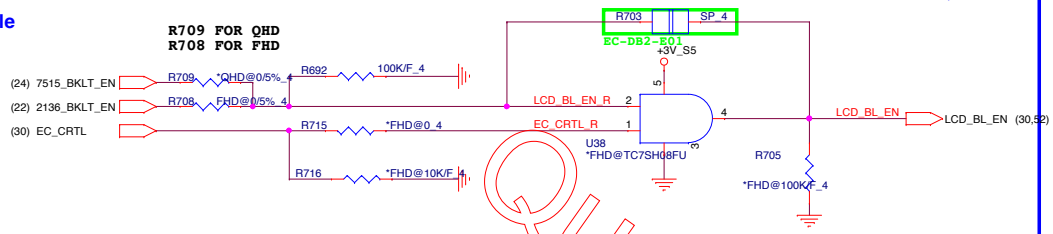
PANEL VCC CONTROL



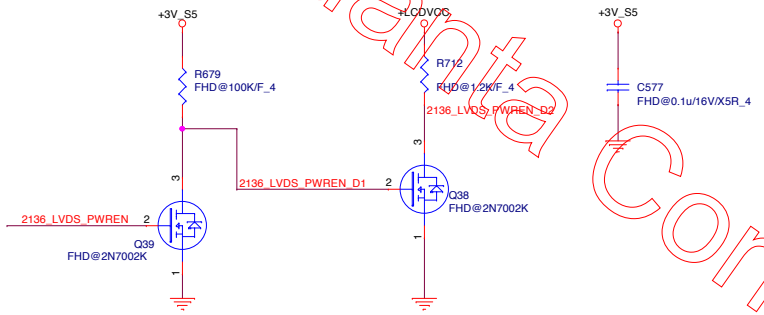
(31,39,40,41,42,43,44,46,47,49,50,51,52,53,54,55) +VIN
(5,9,10,11,12,13,25,28,30,32,34,37,38,39,41,42,43,45,46,47,54,55) +3V_S5
(26,27,31,36,39,46,47,48,49,50,53,55) +5V

23

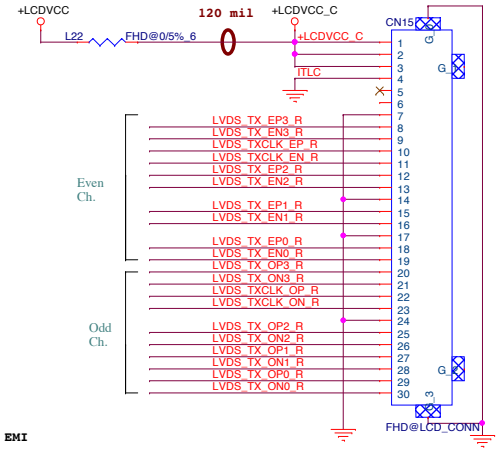
BackLight Enable



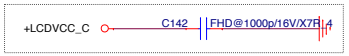
LCDVCC Discharge Circuit



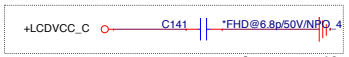
LVDS Conn



EMI

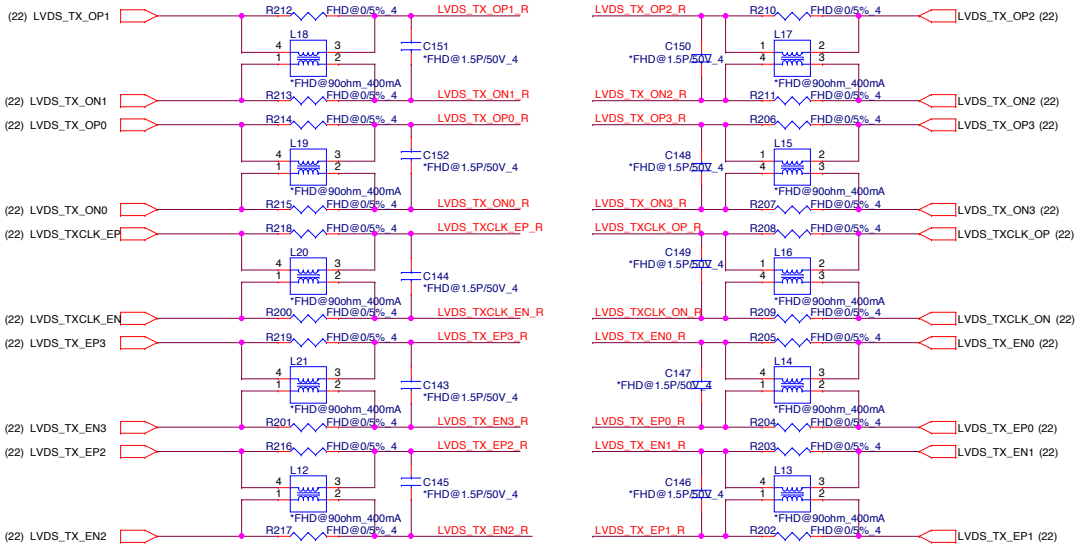


RF



Close to CN18

EMI



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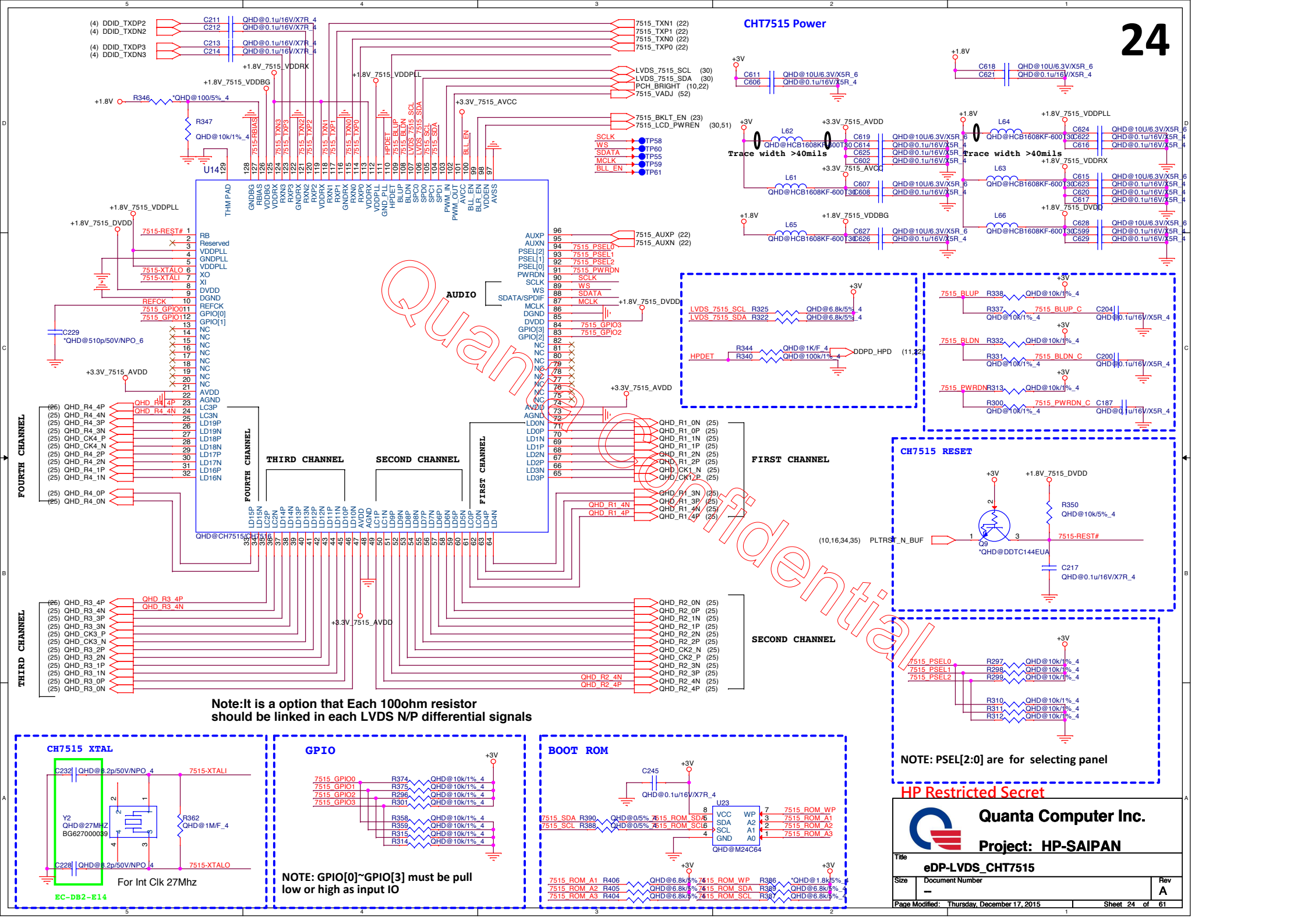
CHT7515 Power
AUDIO
FIRST CHANNEL
SECOND CHANNEL
THIRD CHANNEL
FOURTH CHANNEL
CH7515 RESET
CH7515 XTAL
GPIO
BOOT ROM
Trace width >40mils
Trace width >40mils
Note:It is a option that Each 100ohm resistor should be linked in each LVDS N/P differential signals
NOTE: GPIO[0]~GPIO[3] must be pull low or high as input IO
NOTE: PSEL[2:0] are for selecting panel
For Int Clk 27Mhz
EC-DB2-E14
Quanta Confidential
HP Restricted Secret
Quanta Computer Inc.
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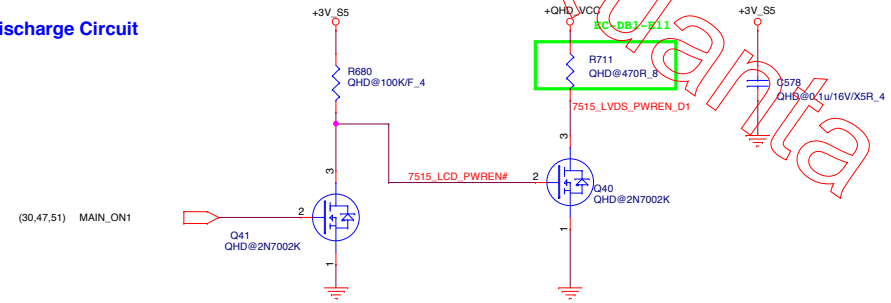
LED PANEL

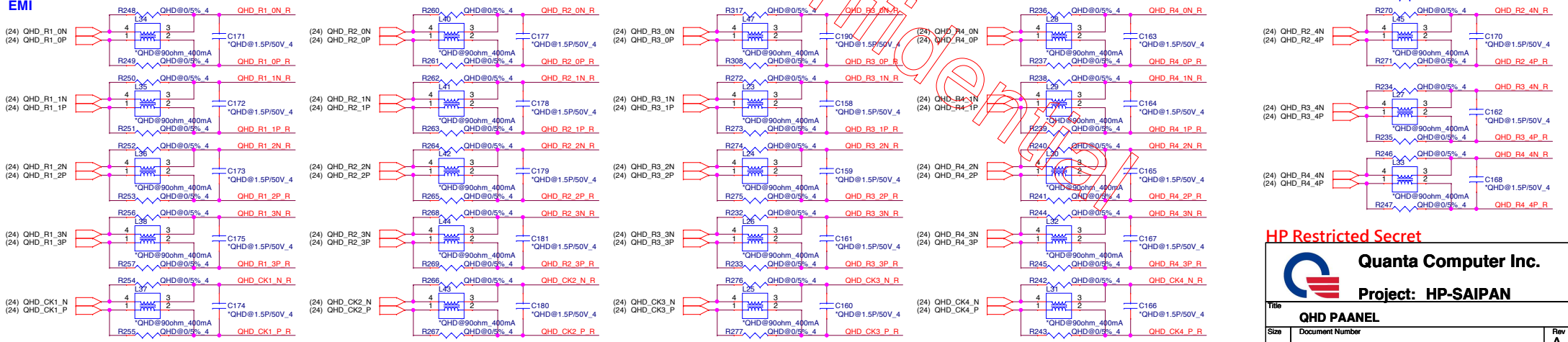
PANEL VCC CONTROL

EC-DB1-E10

LCDVCC Discharge Circuit



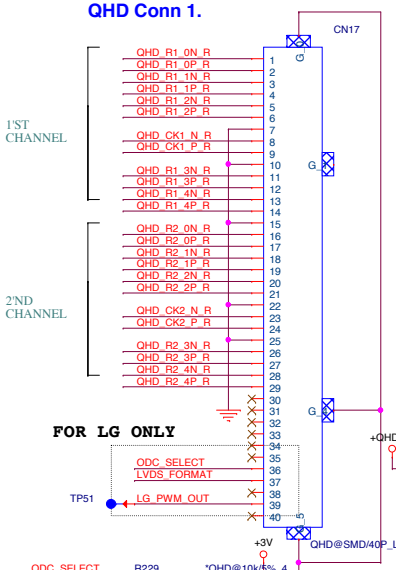
EMI



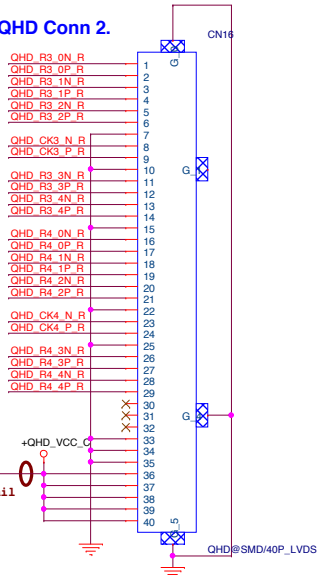
(31,39,40,41,42,43,44,46,47,49,50,51,52,53,54,55) +VIN
(5,9,10,11,12,13,23,28,30,32,34,37,38,39,41,42,43,45,46,47,54,55) +3V_S5
(23,26,27,31,36,39,46,47,48,49,50,53,55) +5V

AUO (default pin to pin)

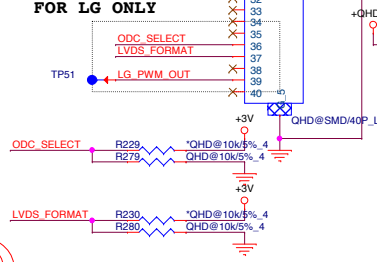
QHD Conn 1.

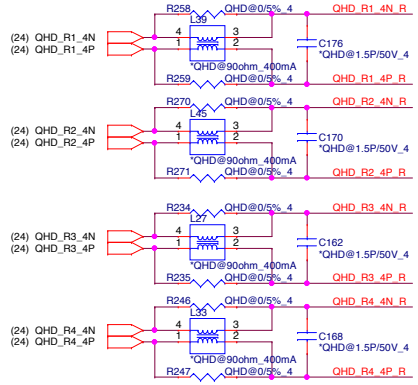


QHD Conn 2.



FOR LG ONLY





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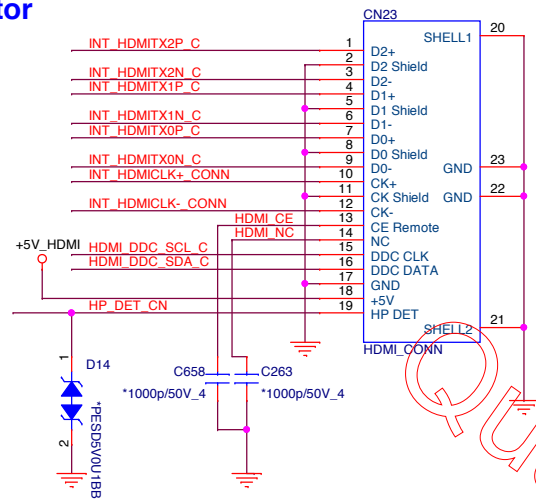
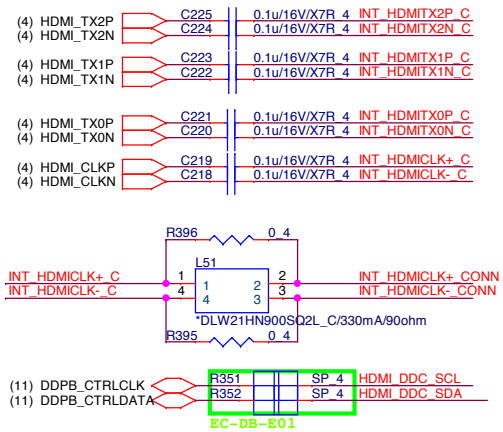
HDMI

(9,10,11,12,13,14,15,16,17,18,19,22,24,25,27,28,29,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V
(23,27,31,36,39,46,47,48,49,50,53,55) +5V

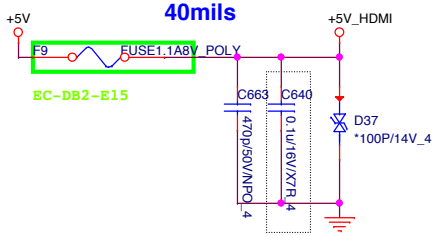
HDMI connector



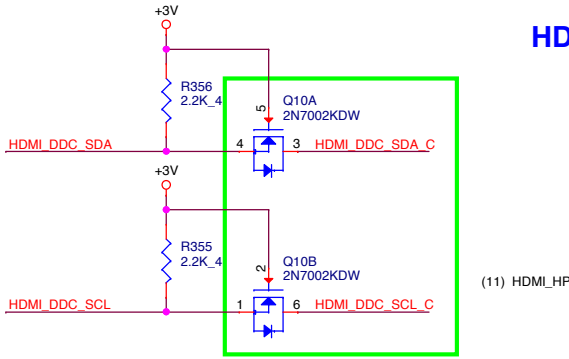
HDMI INTERFACE



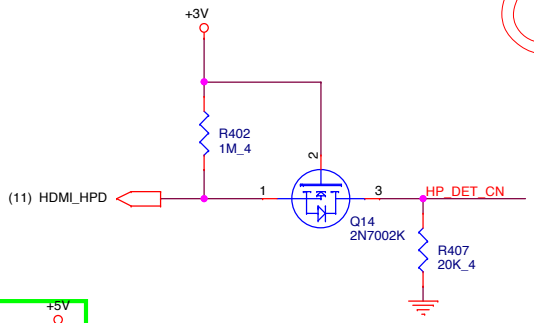
HDMI POWER SUPPLY



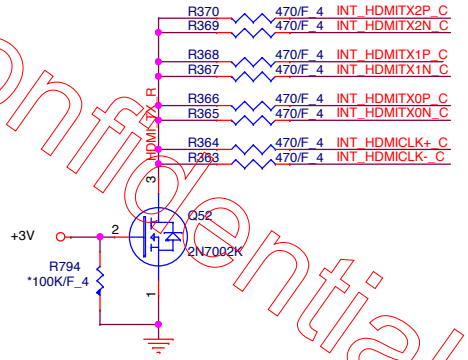
HDMI DDC



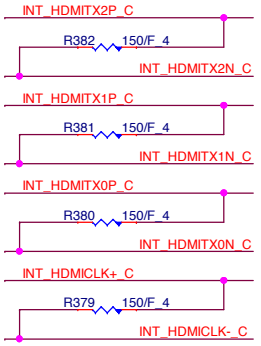
HDMI-detect

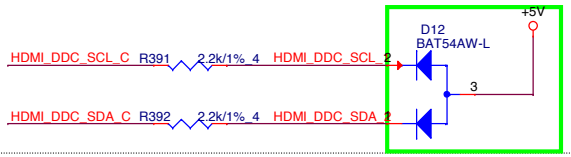


HDMI LEVEL SHIFT



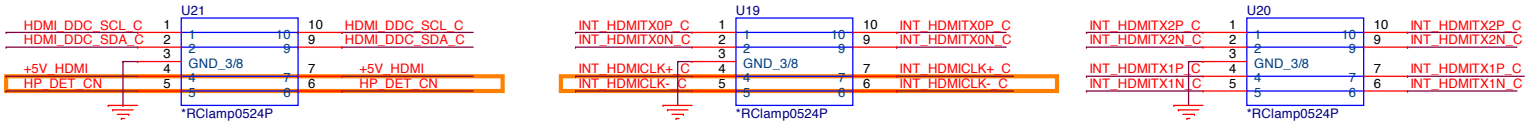
HDMI EMI (EMC)





ESD reserve for HDMI

Layout Notes:
Place decoupling CAPs close to Connector



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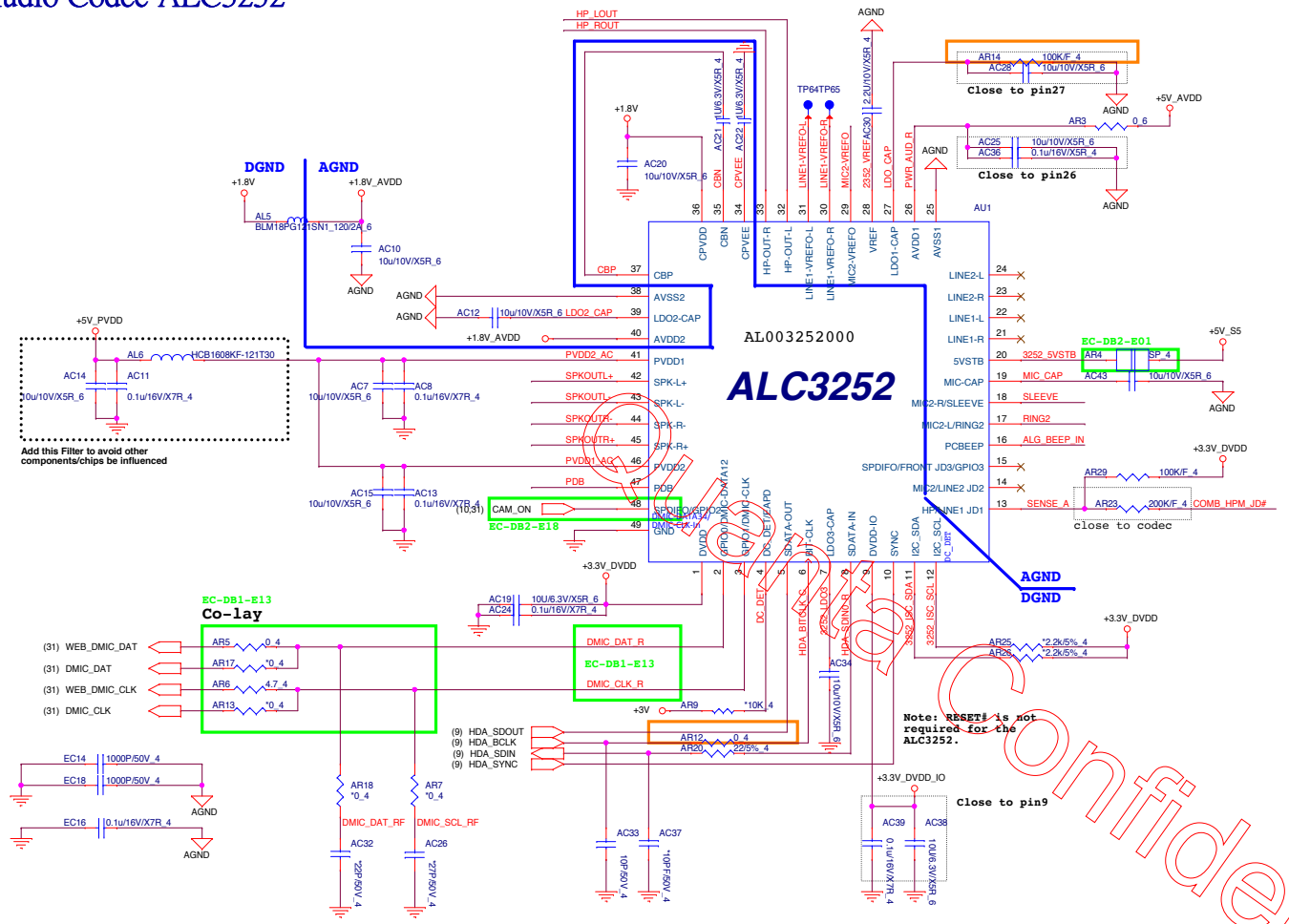
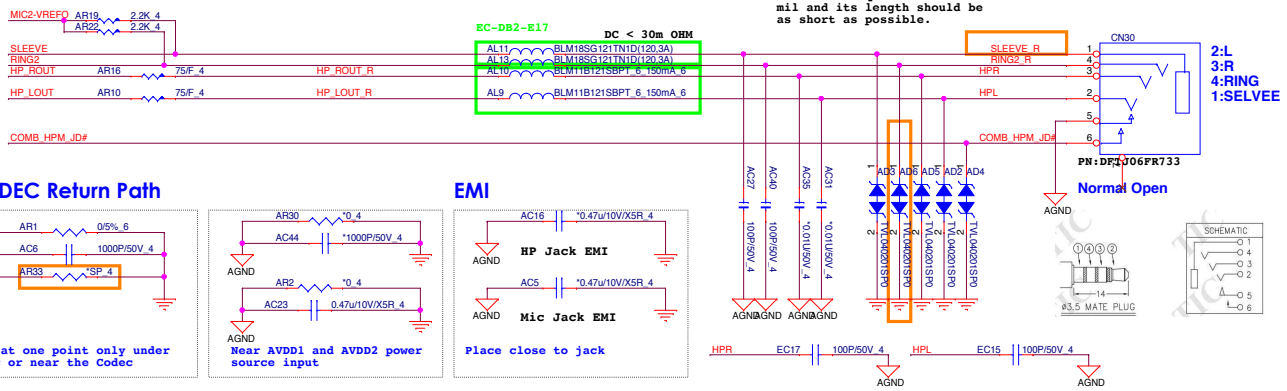
Audio Codec ALC3252

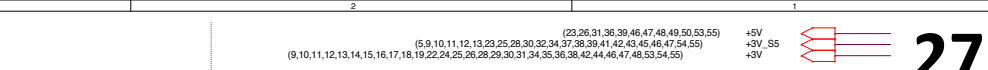


HeadPhone/Mic Combo Conn



CODEC Return Path

EMI



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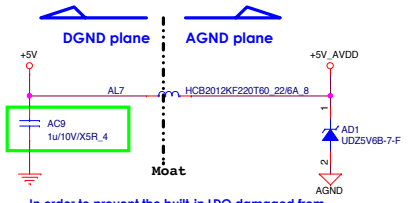
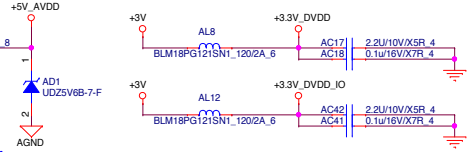
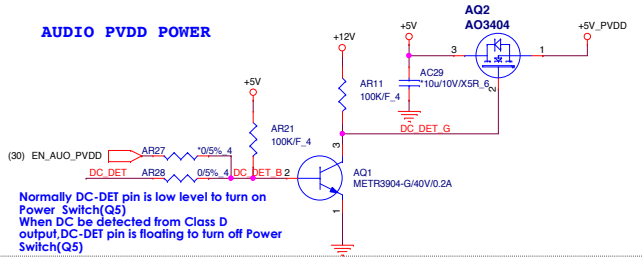
AUDIO AVDD POWER



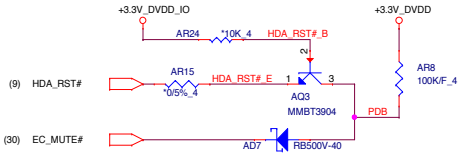
AUDIO DVDD/DVDD_IO POWER



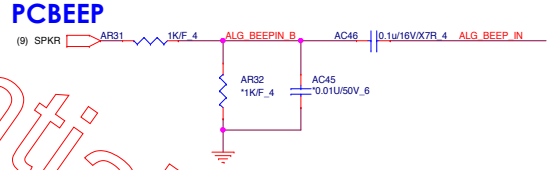
AUDIO PVDD POWER



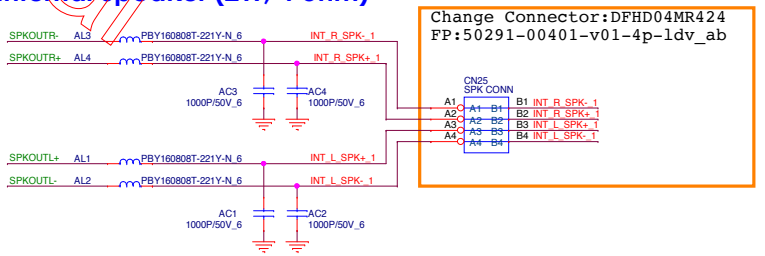
EC MUTE



PCBEEP



Internal Speaker (2W, 4 ohm)



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LAN (RTL8161GSH) 10/100/1000

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

R804 2.49K/F_4 RSET

+3.3V_LAN

VDD10
25MCLKX2
25MCLKX1
LAN_LED0#
LED1/EEDO
LED2/EESK

T2
T1
T3

PCIE_WAKE# LAN R397 1K/F_4 +3.3V_LAN

EC-DB2-E19

CLKREQB R802 *10K/F_4 +3V

LAN_LED0# C656 *220P/50V/X7R_4
LED1/EEDO C650 *220P/50V/X7R_4
LED2/EESK C649 *220P/50V/X7R_4

EMI Suggest

U46

GND 33

AVDD33 32
RSET 31
AVDD10_2 30
CKXTAL2 29
CKXTAL1 28
LED0 27
LED1/GPO 26
LED2(LED1) 25

MDI0+ 1 MDIP0
MDI0- 2 MDIN0
VDD10 3 AVDD10(NC)
MDI1+ 4 MDIP1
MDI1- 5 MDIN1
MDI2+ 6 MDIP2(NC)
MDI2- 7 MDIN2(NC)
VDD10 8 AVDD10_1

REGOUT(NC) 24 REGOUT
VDDREG(VDD33) 23 VDD33_REG
DVDD10(NC) 22 VDD10
LANWAKEB 21 PCIE_WAKE# LAN
ISOLATEB 20 ISOLATEB
PERSTB 19 LAN_RST#
HSON 18 HSON
HSOP 17 HSOP

+3V
R798 1K/F_4
R799 *15K/F_4

C647 0.1u/16V/X7R_4
C648 0.1u/16V/X7R_4

PCIE_GLAN_RX_N (10)
PCIE_GLAN_RX_P (10)

MDIP3(NC) 9
MDIN3(NC) 10
AVDD33(NC) 11
CKXTAL1 12
HSIP 13
HSIN 14
REFCLK_P 15
REFCLK_N 16

RTL8161GSH-CG

MDI3+
MDI3-
+3.3V_LAN
CLKREQB

HSIN C651 0.1u/16V/X7R_4
HSIP C657 0.1u/16V/X7R_4

CLK_PCIE_LAN_N (12)
CLK_PCIE_LAN_P (12)
PCIE_GLAN_TX_N (10)
PCIE_GLAN_TX_P (10)

(12) LAN_PCIE_CLKREQ# R803 0/5%_4 CLKREQB

BK: reserve

EC-DB2-E19

X'tal 25MHz

C255 10P/50V_4 25MCLKX1

Y3
XTAL_25MHz_30ppm
BG625000085

C259 10P/50V_4 25M_R R403 0/5%_4 25MCLKX2

+3.3V_LAN
C237 0.1u/16V/X7R_4

LAN_RST# 4

U17
TC7SH08FU

PLTRST_N (10,29,37)

+3.3V_LAN
Q13
DDTC144EUA

PCIE_WAKE# LAN
R399 *0_4

PCH_WAKE# (9,34,35)

3V_LAN

+3V_S5
Q12
R378 *10K/F_4
(30) LAN_PWR_ON
IN_1 5
IN_2 4
ON/OFF 3
OUT 1
GND 2
G5243AT11U
C231 *0.1u/16V/X7R_4
C234 0.1u/16V/X7R_4

+3.3V_LAN
120mil
R394 *0_6
+3V_S5
C242 *0.1u/16V/X7R_4

EVDD10/AVDD33_REG trace width >40mils

+3.3V_LAN
R398 0_6 VDD33_REG

C262 *4.7U/6.3V/X5R_4
C258 0.1u/16V/X7R_4
Close to Pin32

C257 *4.7U/6.3V/X5R_4
C254 0.1u/16V/X7R_4
Close to Pin11

C249 0.1u/16V/X7R_4
C250 4.7U/6.3V/X5R_4
Close to Pin23

EVDD10/N780946/REGOUT trace width >60mils

VDD10

C261 0.1u/16V/X7R_4
C260 0.1u/16V/X7R_4
C253 0.1u/16V/X7R_4
C256 0.1u/16V/X7R_4
Close to PIN3, 8, 22, 30

C645 0.1u/16V/X7R_4
C646 1U/6.3V/X5R_4
C367,C368
Close to PIN22

L67 4.7uH REGOUT
C252 4.7U/6.3V/X5R_4
C251 0.1u/16V/X7R_4

LAN Conn

U25

NS892407_TCT

MDI0+ R423 1/F_6 MDI0+_R
MDI0- R421 1/F_6 MDI0-_R
MDI1+ R417 1/F_6 MDI1+_R
MDI1- R416 1/F_6 MDI1-_R
MDI2+ R413 1/F_6 MDI2+_R
MDI2- R410 1/F_6 MDI2-_R
MDI3+ R409 1/F_6 MDI3+_R
MDI3- R408 1/F_6 MDI3-_R

TCT0 1
TD0+ 2
TD0- 3
TCT1 4
TD1+ 5
TD1- 6
TCT2 7
TD2+ 8
TD2- 9
TCT3 10
TD3+ 11
TD3- 12

NS892407

MCT0 24 TXCT0 10MIL
TX0+ 23 RJ45-TX0+
TX0- 22 RJ45-TX0-
MCT1 21 TXCT1 10MIL
TX1+ 20 RJ45-TX1+
TX1- 19 RJ45-TX1-
MCT2 18 TXCT2 10MIL
TX2+ 17 RJ45-TX2+
TX2- 16 RJ45-TX2-
MCT3 15 TXCT3 10MIL
TX3+ 14 RJ45-TX3+
TX3- 13 RJ45-TX3-

IN0 10MIL
IN1 10MIL
IN2 10MIL
IN3 10MIL
10MIL

R815 75/F_8 NS892407_MCT
R814 75/F_8
R812 75/F_8
R811 75/F_8

15MIL

C670 10P/3KV_1808
15MIL

LANGND

C671 0.1U/50V/X7R_6

U24
MDI2+ 1 CH1
2 Vn
MDI3+ 3 CH2
CH4 6 MDI2-
Vp 5
CH3 4 MDI3-
+3.3V_LAN
TVL ST23 04 AD0

U26
MDI0+ 1 CH1
2 Vn
MDI1+ 3 CH2
CH4 6 MDI0-
Vp 5
CH3 4 MDI1-
+3.3V_LAN
TVL ST23 04 AD0

TXCT1 1
TXCT0 3
Q54
BS4202N-C
LANGND

TXCT3 1
TXCT2 3
Q53
BS4202N-C
LANGND

+3.3V_LAN
R801 332/F_4

C654 1000P/50V_4
C655 1000P/50V_4
D39 TVL040201SP0
D40 TVL040201SP0
LANGND

LED2/EESK
1000M_LED_R

CN24
Y- 12
Y+ 11
NC/3- 8
NC/3+ 7
RX-/1- 6
NC/2- 5
NC/2+ 4
RX+/1+ 3
TX-/0- 2
TX+/0+ 1
G- 10
G+ 9
GND1 15
GND1 14
GND1 13
RJ45-CONN

RJ45-TX3-
RJ45-TX3+
RJ45-TX1-
RJ45-TX2-
RJ45-TX2+
RJ45-TX1+
RJ45-TX0-
RJ45-TX0+

LANGND

EC-DB2-E21

LED1/EEDO
R800 332/F_4
LED1_R

LAN_LED0#

C653 1000P/50V_4
C652 1000P/50V_4
D38 TVL040201SP0
LANGND

R419 0/5%_8
R813 0/5%_8
L68 HCB1608KF-221T20
C265 0.1U/50V/X7R_6
C264 *0.1u/16V/X7R_4
C269 *0.1u/16V/X7R_4
LANGND

Quanta Computer Inc.

Project: HP-SAIPAN

Title: RTL8161/RJ45

Size: — Document Number: — Rev: A

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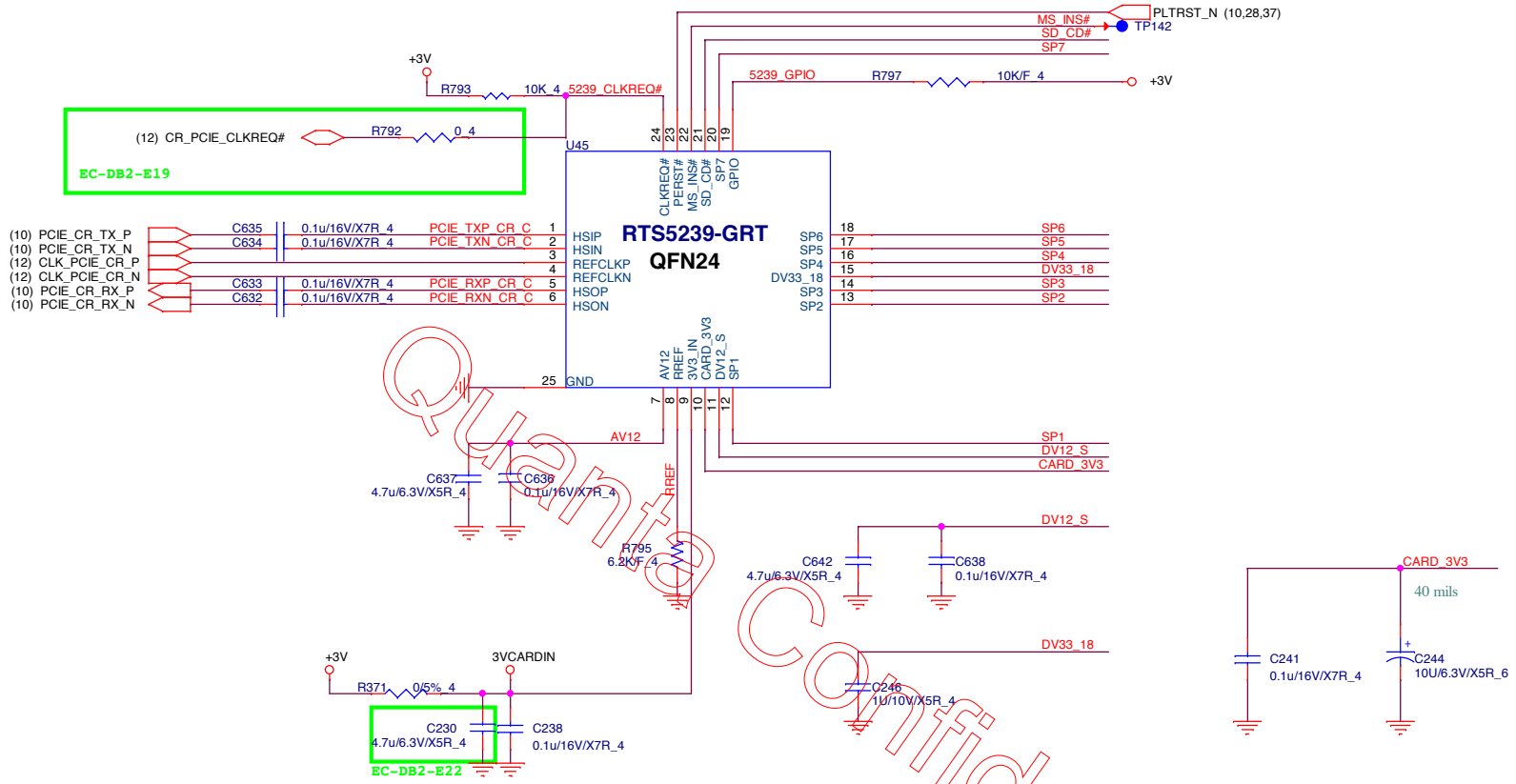
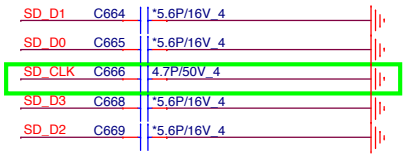
CARD READER RTD5239-GRT

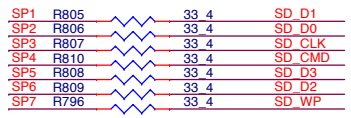
(9,10,11,12,13,14,15,16,17,18,19,22,24,25,26,27,28,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V



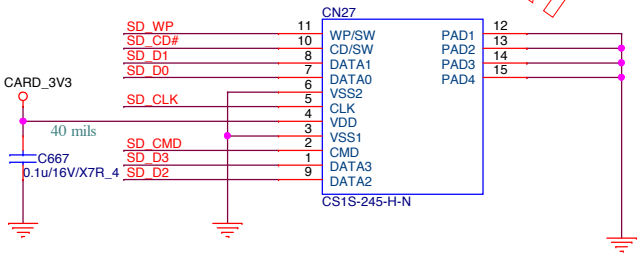
EMI EC-DB2-E23



SD damping resistor



SD connector



HP Restricted Secret

Quanta Computer Inc.

Project: HP-SAIPAN

Title: Card Reader (RTS5239)		
Size	Document Number: --	Rev: A
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EC ITE 8987

(For PLL Power)

IT8987 LQFP

EC Debug

Board ID

EC_BOARD_ID	Consumer AiO
0	SAIPAN-UMA
1	SAIPAN-dGPU

EC_FUNCTION_ID	VRAM
0	4G
1	2G

ALL_SYS_PWRGD circuit

BK: ALL_SYS_PG--> EC --> VR_ON

For EC E-flash(embedded flash) auto load code.

Power button

Near connector

HP Restricted Secret

Quanta Computer Inc.

Project: HP-SAIPAN

Title: EC ITE 8528/ FlashROM

Size: | Document Number: -- | Rev: A

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(Optional 1: 3DCAM+DMIC)

3D CAM

(10,27) CAM_ON

EC-DB2-E34

U32 G524B1T11U

Depth + Color = 0.366A
Design = 0.4A

20 mil

+5V_S5

+5V_CAM

C370 1U/6.3V/X5R_4

C380 10u/6.3V_6

Follow CRB IVCAM

3D CAM Module	
#	Description
1	GND
2	USB3_TX-
3	USB3_TX+
4	GND
5	USB3_RX-
6	USB3_RX+
7	GND
8	FW_UPDATE
9	5V +/- 5%
10	5V +/- 5%

(11) USB3_CAM_RX4N
(11) USB3_CAM_RX4P
(11) USB3_CAM_TX4N
(11) USB3_CAM_TX4P
(11) CAM_FW_UPDATE#

CAM_DET#
D44 *TVL040201SP0
C53 0.1u/16V/X7R_4
R55 0/5%_4
*90ohm_400mA
CML1
R54 0/5%_4
C70 0.1u/16V/X7R_4 USB3_CAM_TX4N_R
C69 0.1u/16V/X7R_4 USB3_CAM_TX4P_R
USB3_CAM_TX4N_C
USB3_CAM_TX4P_C
CN5
3D_CAM
DFHS10FR068
50463-0104a-001-10p-I

+3V
R45 *10K/J_4
R46 *10K/J_4
CAM_FW_UPDATE#
CAM_DET#R47 *0_4
EC-DB1-E17
+3.3V_CCD
CN4

DMIC

(27) DMIC_DAT
(27) DMIC_CLK
(11) DMIC_DET#
L2 BLM15AG121SN1D
L3 BLM15AG121SN1D
C38 4.7U/10V_6
DMIC_DAT_C
DMIC_CLK_C
DMIC_DET#
C41 100p/50V/NPO_4
C52 100p/50V/NPO_4
C49 220p/50V/X7R_4
SMD/Wire/6P_AIO

ESD for DMIC

U3 TVL ST23 04 AD0
EC-DB1-E17
+3.3V_CCD
DMIC_DAT_C
DMIC_CLK_C
DMIC_DET#

ESD for 3D CAM

U5 TVW DF10 04 AD0
USB3_CAM_RX4N
USB3_CAM_RX4P
USB3_CAM_TX4N_C
USB3_CAM_TX4P_C
GND_3/8
EC-DB2-E31

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

(Optional 2: WEBCAM+DMIC)

+3V
+3.3V_CCD
F3 *POLY_SW 6V/1.1A
D15 TVL040201SP0
CAM_ON
U31 G524B1T11U
20 mil
Normal = 0.135A
Design = 0.3A
C342 1U/6.3V/X5R_4 EC-DB2-E34
C333 10u/6.3V_6
C334 *1000P/50V/4

HD

Connector1: ACES 50376-00601-001

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

IR (Reverse for safety)

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

(10) USB2_CAM_9N
(10) USB2_CAM_9P
L7 90ohm_400mA
USB2_CAM_9N_C
USB2_CAM_9P_C

EC-DB2-E30

(27) WEB_DMIC_DAT
(27) WEB_DMIC_CLK
L6 BLM15AG121SN1D
L5 4.7_4
WEB_DMIC-DATA_C
WEB_DMIC-CLK_C
(11) CAM_DET#
R48 1K_4
CAM_DET#_C
(30) BOX_BUTTON#
R512 1K_4
BOX_BUTTON#_C
(10) USB2_IR_5P
(10) USB2_IR_5N
L1 90ohm_400mA
USB2_IR_5P_C
USB2_IR_5N_C

CN2 HEADER_16P_P0.8

HD CAM
IR CAM

ESD IR CAM

USB2_IR_5P_C D3 TVUFB0201AC0
USB2_IR_5N_C D2 TVUFB0201AC0
CAM_DET#_C D5 *TVL040201SP0
BOX_BUTTON#_C D43 *TVL040201SP0

ESD HD CAM

EC-DB2-E31
U4 TVL ST23 04 AD0
WEB_DMIC-CLK_C
WEB_DMIC-DATA_C
USB2_CAM_9N_C
USB2_CAM_9P_C
+3.3V_CCD

EA

WEB_DMIC-CLK_C C674 22P/50V_4

Touch Panel

(27,32,33,36,39,40,41,43,44,45,46,47,54)
(9,10,11,12,13,14,15,16,17,18,19,22,24,25,26,27,28,29,30,34,35,36,38,42,44,46,47,48,53,54,55)
(23,26,27,36,39,46,47,48,49,50,53,55)
+5V_S5
+3V
+5V

+5V_S5
F1 POLY_8V/1.1A
+5V_TOUCH
D4 TVS_AZ5125-01H
(30) EN_TOUCH
U33 *G524B1T11U Energy star
60 mil
Normal = 1A
Design = 1.5A
C372 *1U/6.3V/X5R_4 EC-DB2-E34
C365 *10u/6.3V_6

(10) USB2_TCH_8N
(10) USB2_TCH_8P
L4 90ohm_400mA
USB2_TCH_8N_C
USB2_TCH_8P_C
CN7 TOUCH_MODULE

(9) TP_DETECT#
R56 1K/F_4
TP_DETECT#_R
C369 2.2U/10V/X5R_4
C47 0.1u/16V/X7R_4

U6 TVL ST23 04 AD0
TP_DETECT#_R
EC1 *2200P/50V_4

LEDs

DC_IN LED

R841 0/5%_4
LED1 White
LED_SMD(2P)WHI
POWER_LED
R383 *1k/5%_4
R377 750/1%_4
+VIN
+5V_ALW
IRMT# R842 1K/F_4
Q58 *MMBT3906
EC-DB2-E32
D45 *TVL040201SP0
EC-DB2-E33

SATA LED

+5V
R422 300_6
LED2 White
LED_SMD(2P)WHI
HDD_LED#-D2
HD_LED
(10) PCH_SATA_LED_#
R412 1K/F_4
HDD_ON_LED#_R
Q16 MMBT3906
(30) IRMT#
R840 *1K/F_4
EC-DB2-E32

HP Restricted Secret

Quanta Computer Inc.
Project: HP-SAIPAN

Title		
eDP-LVDS_RTD2136N		
Size	Document Number	Rev
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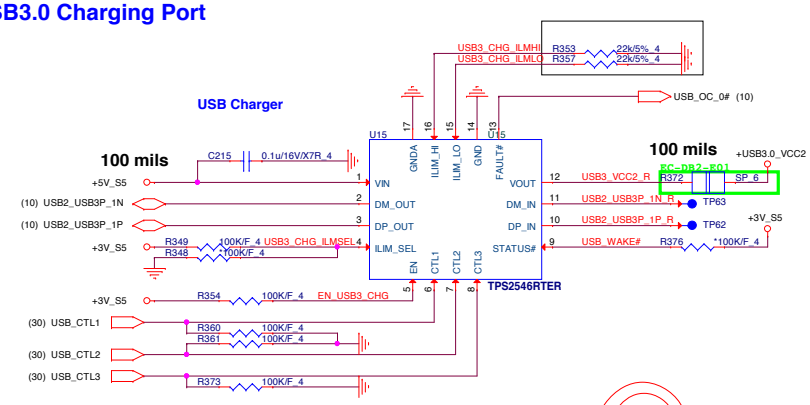
USB PORT

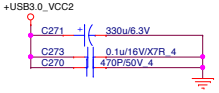
USB3.0 Charging Port

USB Charger

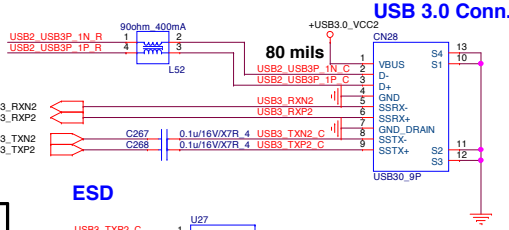


SDP : Standard Downstream Port
CDP : Charging downstream port
DCP : Dedicated Charging Port
Enable/Disable : setting by BIOS

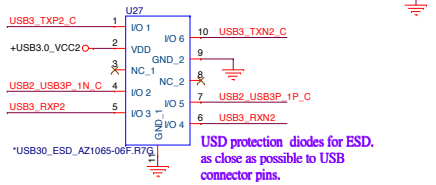
POWER STATE	TPS2546 CHARGING MODE	CTRL1	CTRL2	CTRL3	ILIM
S0	CDP LOAD DETECTION WITH ILIM_LO +60MA THRESHOLDS OR IF A BC1.2 PRIMARY DETECTION OCCURS	1	1	1	1
S3	AUTO MODE, LOAD DETECTION WITH POWER WAKE THRESHOLDS	0	1	1	1
S4/S5	AUTO MODE, KEYBOARD/ MOUSE WAKE-UP, LOAD DETECTION WITH ILIM_LO +60MA THRESHOLDS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



USB 3.0 Conn.



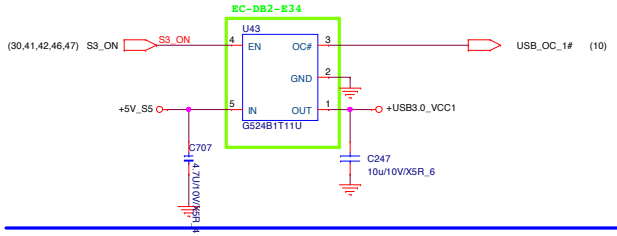
ESD

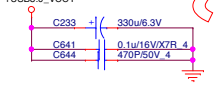


USD protection diodes for ESD. as close as possible to USB connector pins.

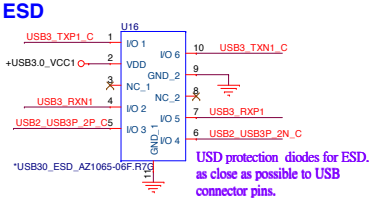
USB3.0 PORT

USB3.0 Power Switch



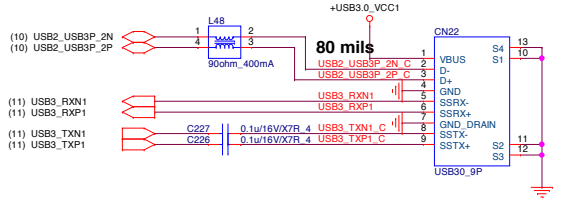


ESD



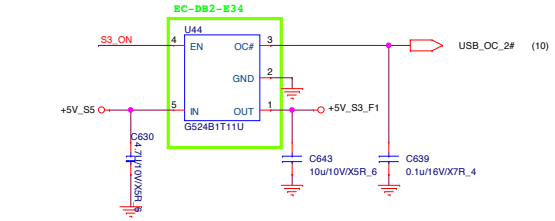
USD protection diodes for ESD. as close as possible to USB connector pins.

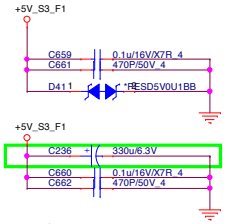
USB3.0 Conn



USB2.0 X 2

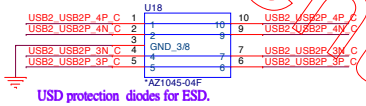
USB3.0 Power Switch





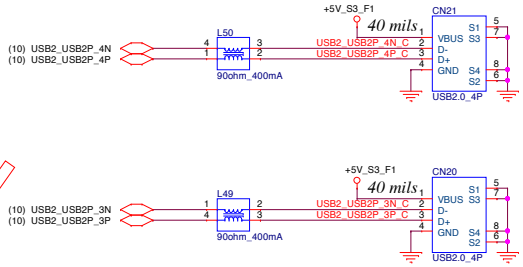
Layout:
1. All caps Near to Connector
2. Place D40 near CN21 and CN22

ESD



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

USB2.0 Conn



Quanta Computer Inc.

Project: HP-SAIPAN

Title		
USB2.0/USB3.0 Conn		
Size	Document Number	Rev
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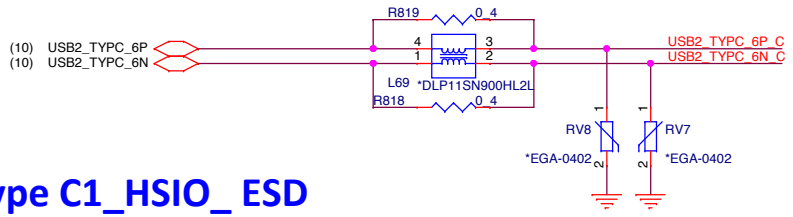
USB TYPE-C

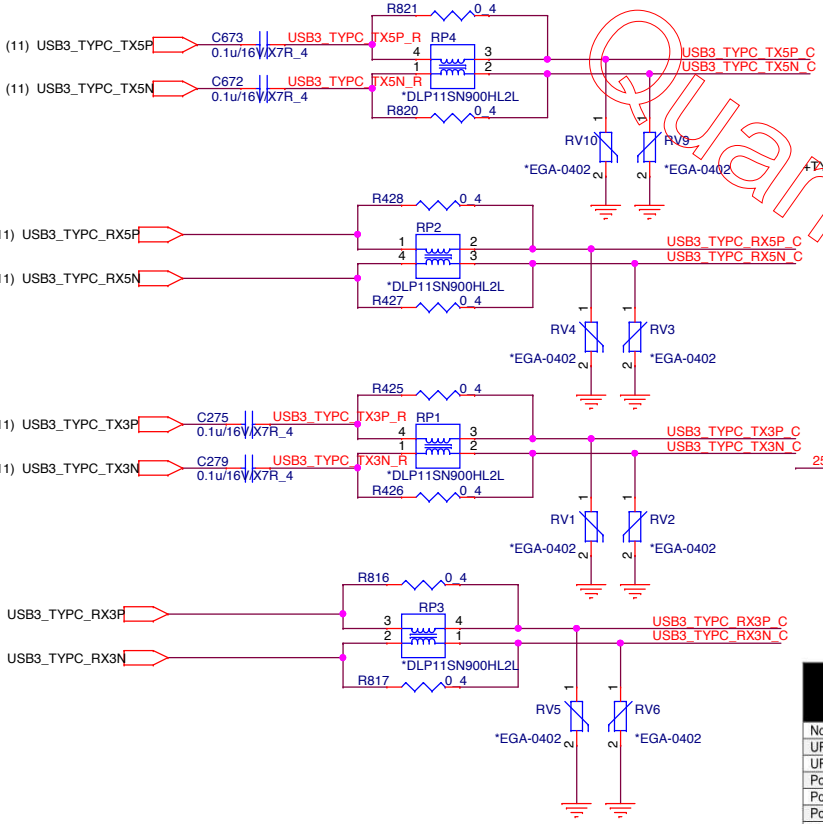
(5,9,10,11,12,13,23,25,28,30,32,34,37,38,39,41,42,43,45,46,47,54,55) +3V_S5
(27,31,32,36,39,40,41,43,44,45,46,47,54) +5V_S5

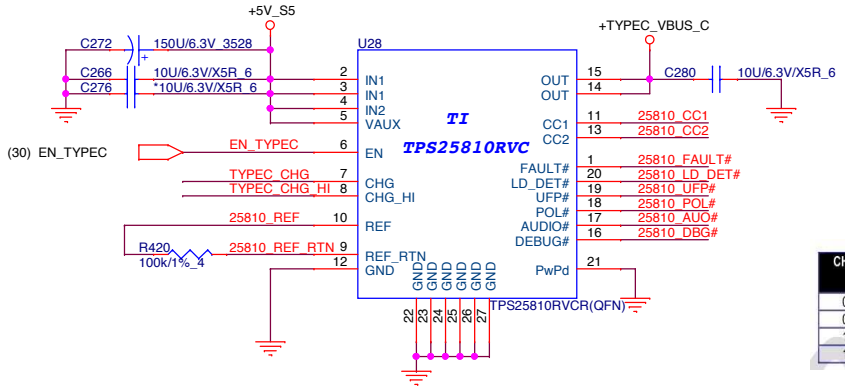
33

USB2.0 ESD

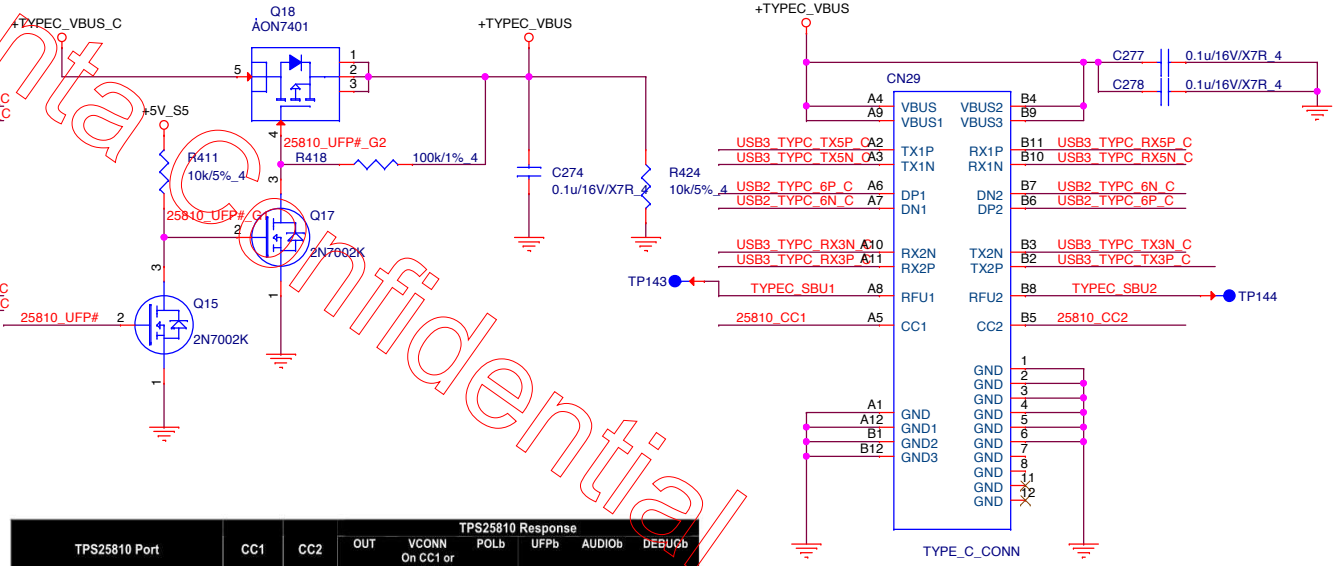


Type C1_HSIO_ ESD





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



TPS25810 Port	CC1	CC2	TPS25810 Response					
			OUT	VCONN On CC1 or CC2	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

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Quanta Computer Inc.

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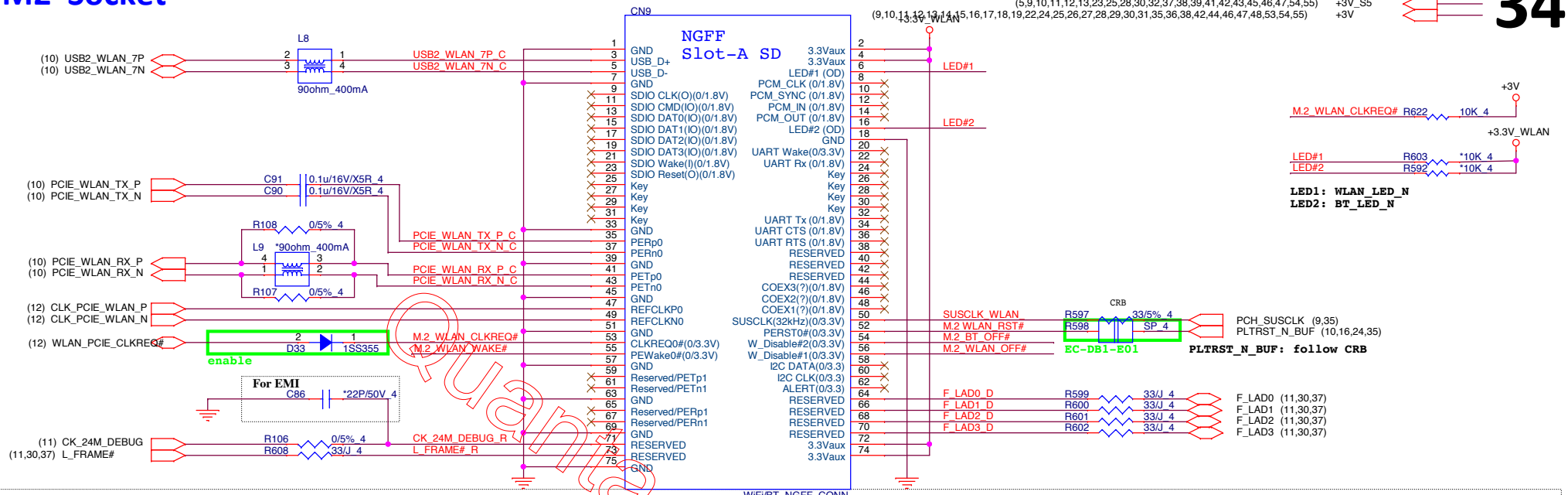
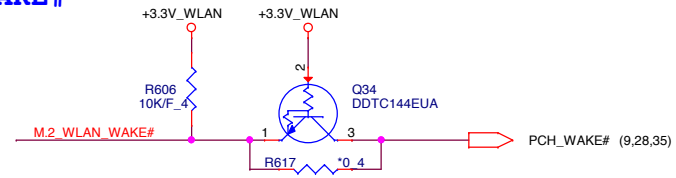
NGFF M2 Socket

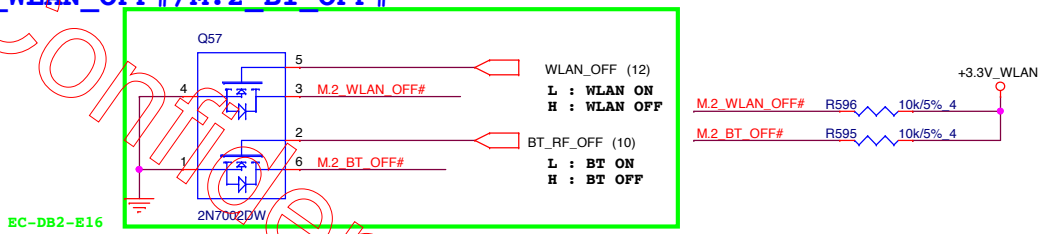
H=9.0



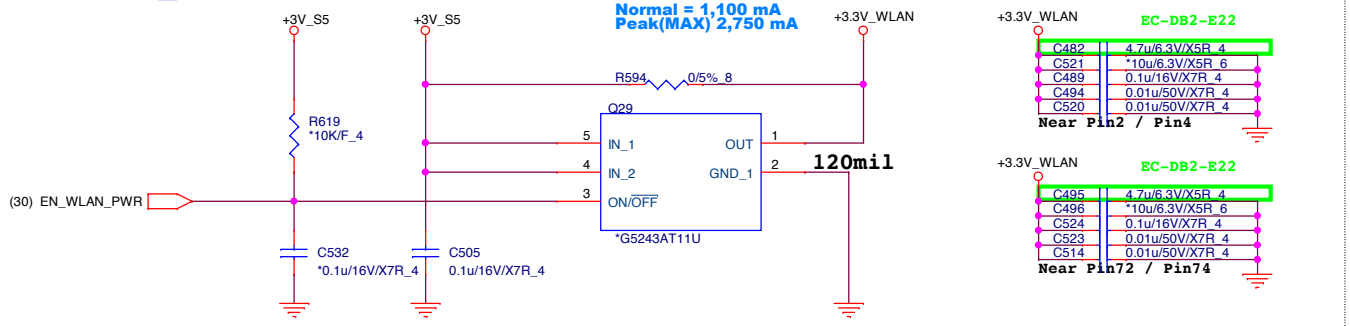
M.2 WLAN WAKE#



M.2_WLAN_OFF#/M.2_BT_OFF#



NGFF M2_power(S5)



Quanta Computer Inc.

Project: HP-SAIPAN

Title: NGFF M.2 WLAN		
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NGFF M2 Socket

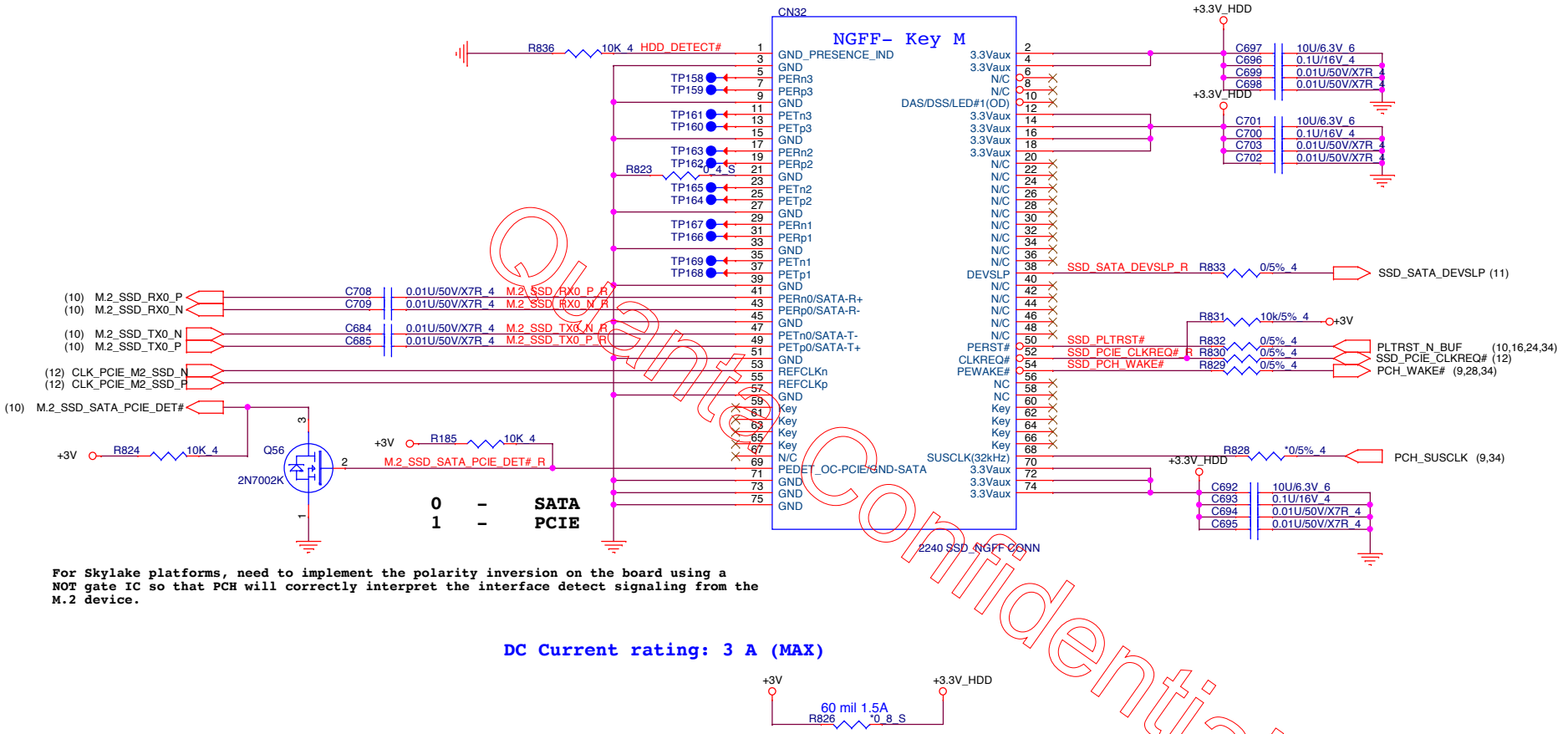
(5,9,10,11,12,13,23,25,28,30,32,34,37,38,39,41,42,43,45,46,47,54,55) +3V_S5
(9,10,11,12,13,14,15,16,17,18,19,22,24,25,26,27,28,29,30,31,34,36,38,42,44,46,47,48,53,54,55) +3V

35

60 mil 1.5A

EC-DB2-E36

H=9.0



For Skylake platforms, need to implement the polarity inversion on the board using a NOT gate IC so that PCH will correctly interpret the interface detect signaling from the M.2 device.

DC Current rating: 3 A (MAX)

+3V — 60 mil 1.5A R826 *0_8_S — +3.3V_HDD

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Quanta Computer Inc.

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NGFF M.2 WLAN		
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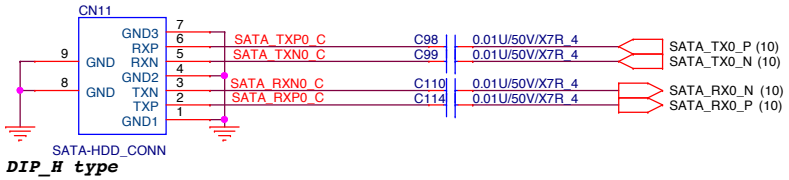
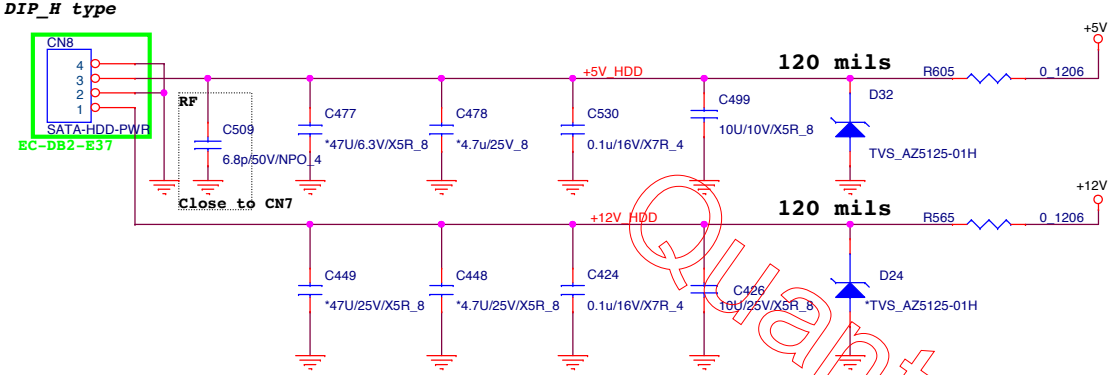
SATA HDD

HDD SATA Conn.

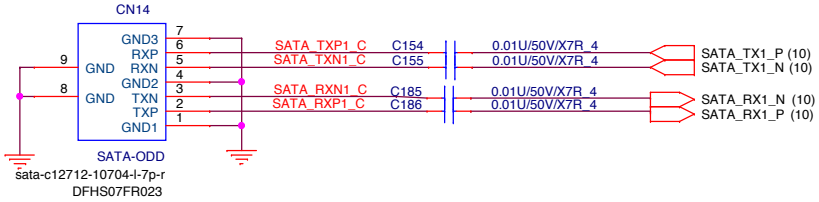


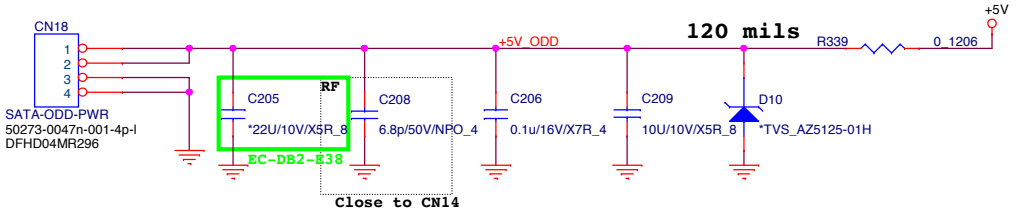
DIP_H type



SATA ODD

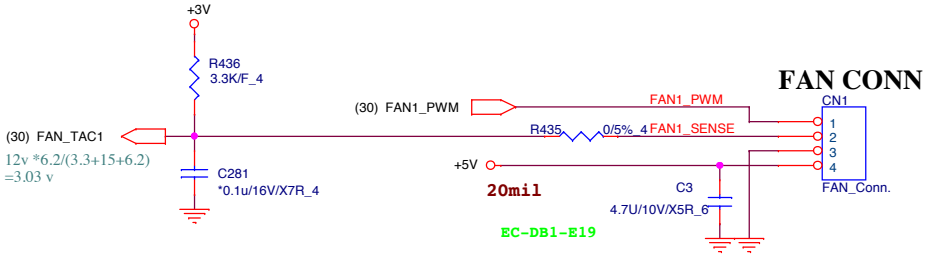
ODD SATA Conn.





SYSTEM FAN

(9,10,11,12,13,14,15,16,17,18,19,22,24,25,26,27,28,29,30,31,34,35,38,42,44,46,47,48,53,54,55) +3V
(27,31,32,33,39,40,41,43,44,45,46,47,54) +5V_S5
(23,26,27,31,39,46,47,48,49,50,53,55) +5V
(27,47,51,55) +12V

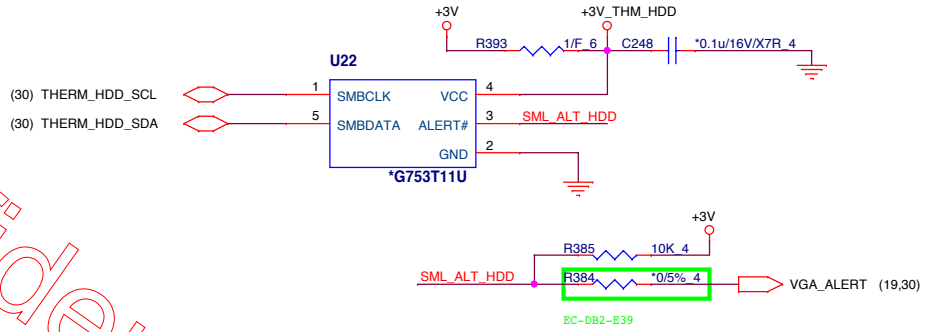


Ambient SENSOR

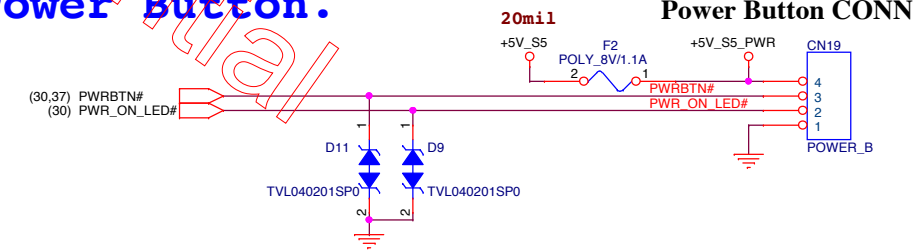
Reserved

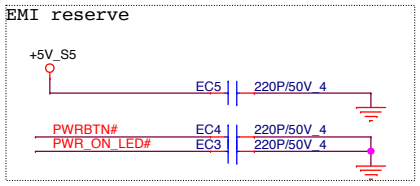
Slave Adress

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



Power Button.





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Quanta Computer Inc.

Project: HP-SAIPAN

Title: FAN/HDD/ODD/HDD CONN.

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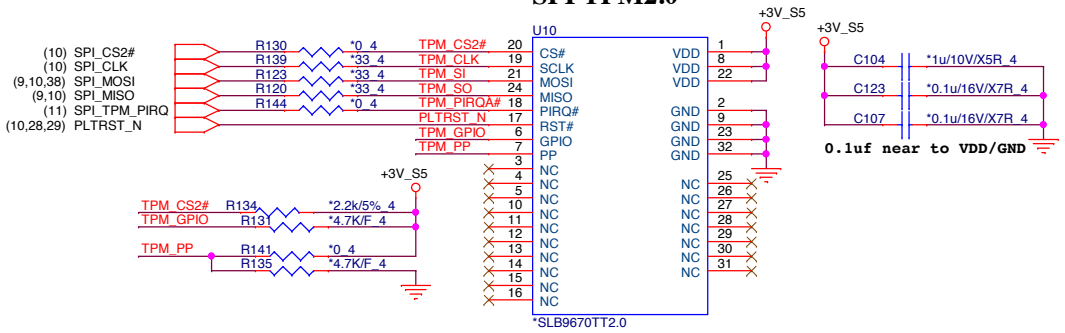
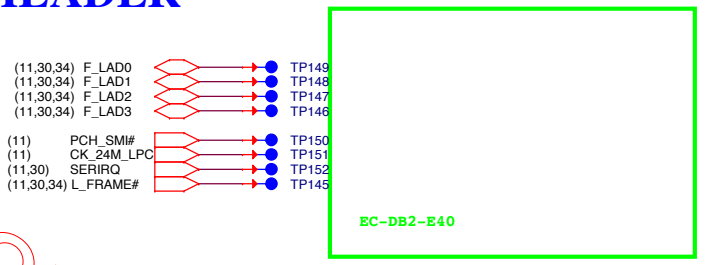
TPM2.0

(5,9,10,11,12,13,23,25,28,30,32,34,38,39,41,42,43,45,46,47,54,55) +3V_S5
(9,10,11,12,13,14,15,16,17,18,19,22,24,25,26,27,28,29,30,31,34,35,36,38,42,44,46,47,48,53,54,55) +3V
(23,26,27,31,36,39,46,47,48,49,50,53,55) +5V
(5,7,9,38,46,47,48) +VCCST_VCCPLL

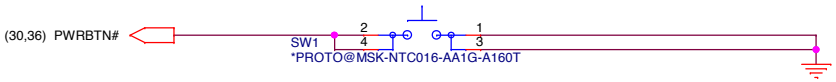
SPI TPM2.0



LPC HEADER



SW1 For Debug.MP will remove it.



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Quanta Computer Inc.

Project: HP-SAIPAN

Title: Debug /LPC Header/TPM

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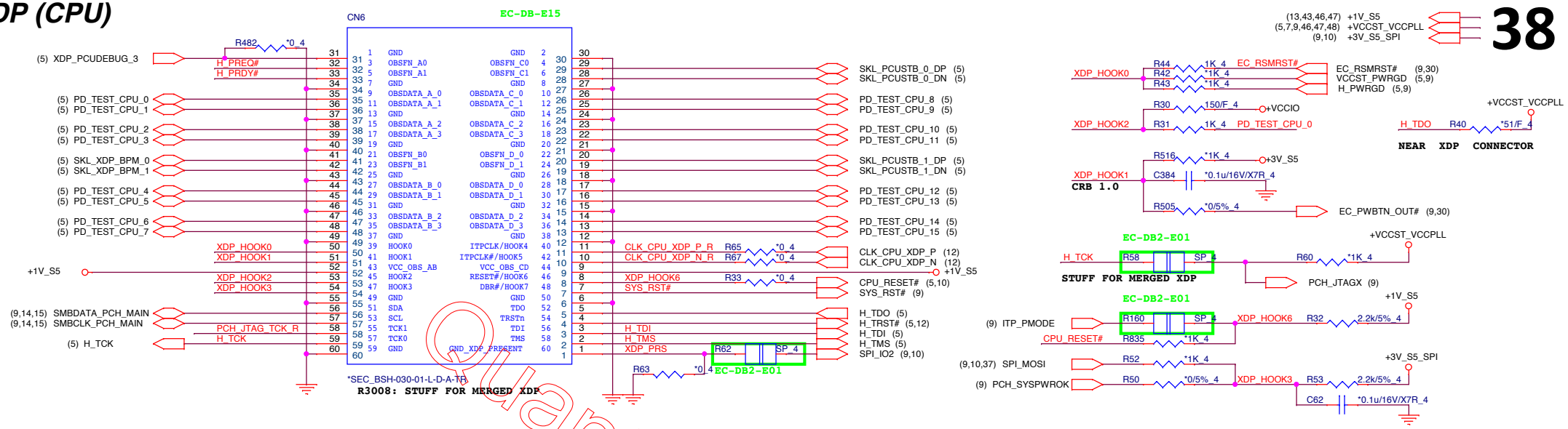
XDP (CPU)

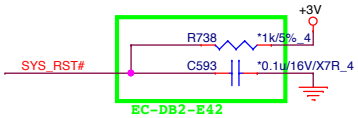


(13,43,46,47) +1V_S5
(5,7,9,46,47,48) +VCCST_VCCPLL
(9,10) +3V_S5_SPI

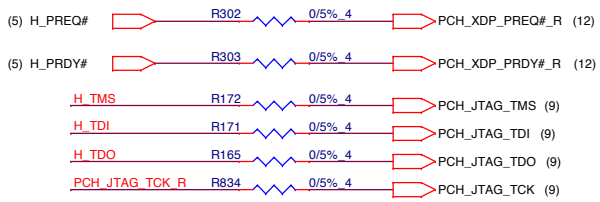
38

XDP (PCH)

EC-DB2-E41



MERGED XDP



stuff for merged XDP

Quanta Computer Inc.
Project: HP-SAIPAN

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XDP DEBUG		
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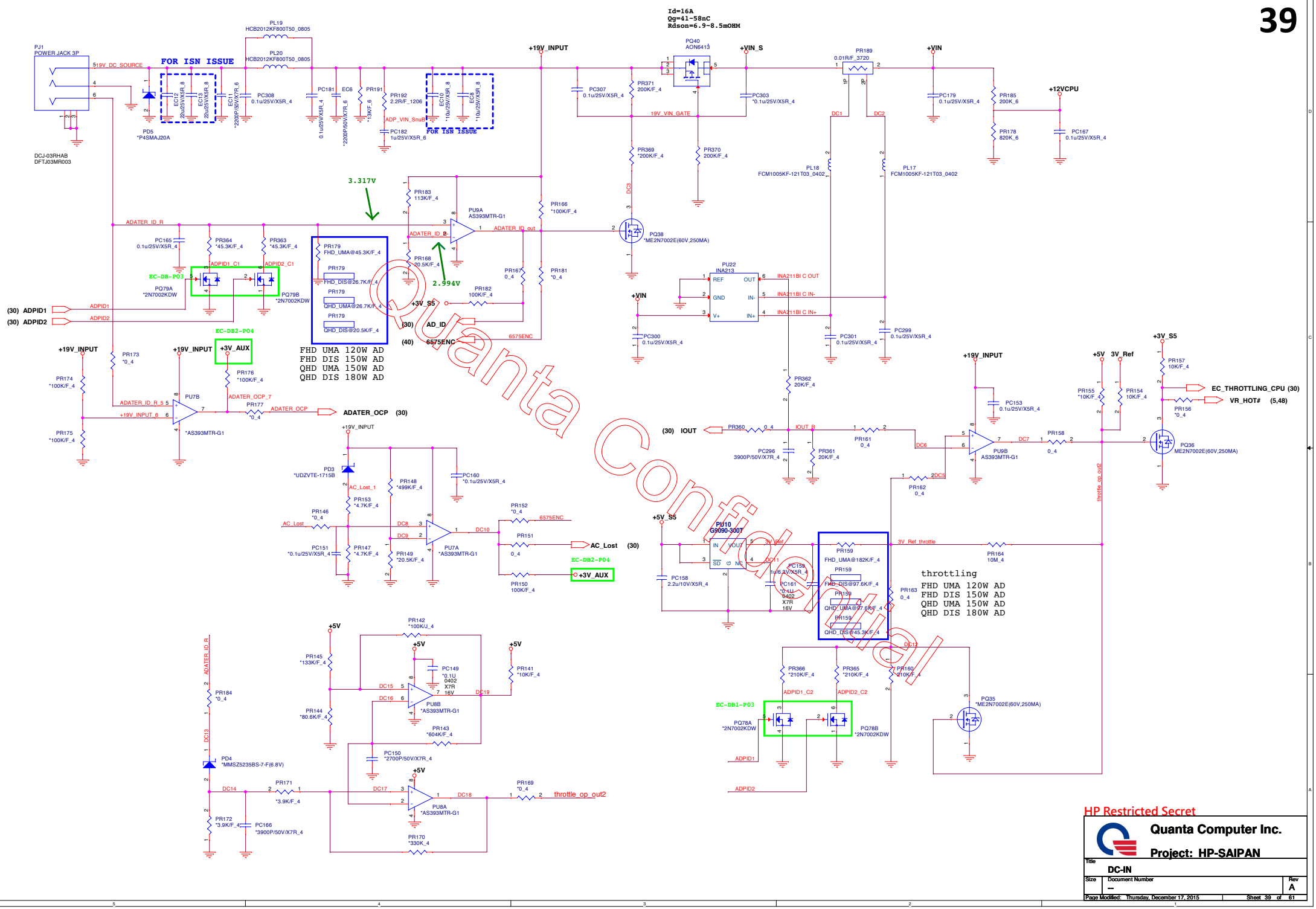
Id=16A
Qg=41-58nC
Rdson=6.9-8.5mOHM
PJ1
POWER JACK 3P
DCJ-03RHAB
DFTJ03MR003
19V_DC_SOURCE
FOR ISN ISSUE
PD5
*P4SMAJ20A
PL19
HCB2012KF800T50_0805
PL20
HCB2012KF800T50_0805
PC308
0.1u/25V/X5R_4
PC181
0.1u/25V/X5R_4
EC6
*2200P/50V/X7R_6
PR191
*13K/F_6
PR192
2.2R/F_1206
ADP_VIN_SnuB
PC182
1u/25V/X5R_6
EC10
*10u/25V/X5R_8
EC8
*10u/25V/X5R_8
+19V_INPUT
PQ40
AON6413
+VIN_S
PR189
0.01R/F_3720
+VIN
PC307
0.1u/25V/X5R_4
PR371
200K/F_4
19V_VIN_GATE
PC303
*0.1u/25V/X5R_4
PR369
*200K/F_4
PR370
200K/F_4
PC179
0.1u/25V/X5R_4
PR185
200K_6
PR178
820K_6
+12VCPU
PC167
0.1u/25V/X5R_4
PL18
FCM1005KF-121T03_0402
PL17
FCM1005KF-121T03_0402
DC1
DC2
DC3
3.317V
2.994V
PR183
113K/F_4
PR168
20.5K/F_4
PU9A
AS393MTR-G1
ADATER_ID_R
ADATER_ID_B
ADATER_ID_out
PR166
*100K/F_4
PR181
*0_4
PR167
0_4
PR182
100K/F_4
PQ38
*ME2N7002E(60V,250MA)
PC165
0.1u/25V/X5R_4
PR364
*45.3K/F_4
PR363
*45.3K/F_4
ADPID1_C1
ADPID2_C1
EC-DB-P03
PQ79A
*2N7002KDW
PQ79B
*2N7002KDW
(30) ADPID1
(30) ADPID2
ADPID1
ADPID2
PR179
FHD_UMA@45.3K/F_4
PR179
FHD_DIS@26.7K/F_4
PR179
QHD_UMA@26.7K/F_4
PR179
QHD_DIS@20.5K/F_4
+3V_S5
(30) AD_ID
(40) 6575ENC
6575ENC
FHD UMA 120W AD
FHD DIS 150W AD
QHD UMA 150W AD
QHD DIS 180W AD
PU22
INA213
REF
GND
V+
OUT
IN-
IN+
INA211BI C OUT
INA211BI C IN-
INA211BI C IN+
PC300
0.1u/25V/X5R_4
PC301
0.1u/25V/X5R_4
PC299
0.1u/25V/X5R_4
PR362
20K/F_4
PR360
0_4
IOUT_B
PR361
20K/F_4
PC296
3900P/50V/X7R_4
PR161
0_4
(30) IOUT
DC6
DC7
PR158
0_4
PU9B
AS393MTR-G1
PC153
0.1u/25V/X5R_4
PR162
0_4
DC5
+5V
3V_Ref
PR155
*10K/F_4
PR154
10K/F_4
PR157
10K/F_4
PR156
*0_4
EC_THROTTLING_CPU (30)
VR_HOT# (5,48)
PQ36
ME2N7002E(60V,250MA)
throttle_op_out2
PR173
*0_4
PR174
*100K/F_4
PR175
*100K/F_4
PU7B
*AS393MTR-G1
ADATER_ID_R_5
+19V_INPUT_6
PR176
*100K/F_4
PR177
*0_4
ADATER_OCP_7
ADATER_OCP
ADATER_OCP (30)
EC-DB2-P04
+3V_AUX
PD3
*UDZVTE-1715B
AC_Lost_1
PR148
*499K/F_4
PR153
*4.7K/F_4
PC160
*0.1u/25V/X5R_4
PR146
*0_4
AC_Lost
PC151
*0.1u/25V/X5R_4
PR147
*4.7K/F_4
PR149
*20.5K/F_4
DC8
DC9
DC10
PU7A
*AS393MTR-G1
PR152
*0_4
6575ENC
PR151
0_4
AC_Lost (30)
PR150
100K/F_4
EC-DB2-P04
+3V_AUX
PU10
G9090-300T
IN
VOUT
SD
G
NC
3V_Ref
DC11
PC158
2.2u/10V/X5R_4
PC159
1u/6.3V/X5R_4
PC161
0.1U
0402
X7R
16V
3V_Ref_throttle
PR164
10M_4
PR159
FHD_UMA@182K/F_4
PR159
FHD_DIS@97.6K/F_4
PR159
QHD_UMA@97.6K/F_4
PR159
QHD_DIS@45.3K/F_4
PR163
0_4
throttling
FHD UMA 120W AD
FHD DIS 150W AD
QHD UMA 150W AD
QHD DIS 180W AD
DC12
PR366
*210K/F_4
PR365
*210K/F_4
PR160
*210K/F_4
ADPID1_C2
ADPID2_C2
EC-DB1-P03
PQ78A
*2N7002KDW
PQ78B
*2N7002KDW
ADPID1
ADPID2
PQ35
*ME2N7002E(60V,250MA)
PR142
*100K/J_4
PR145
*133K/F_4
PR144
*80.6K/F_4
PR141
*10K/F_4
PC149
*0.1U
0402
X7R
16V
PU8B
*AS393MTR-G1
PR143
*604K/F_4
PC150
*2700P/50V/X7R_4
DC15
DC16
DC19
PR184
*0_4
PD4
*MMSZ5235BS-7-F(6.8V)
DC13
DC14
PR171
*3.9K/F_4
PR172
*3.9K/F_4
PC166
*3900P/50V/X7R_4
DC17
DC18
PU8A
*AS393MTR-G1
PR169
*0_4
throttle_op_out2
PR170
*330K_4
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HP Restricted Secret
Quanta Computer Inc.
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DC-IN
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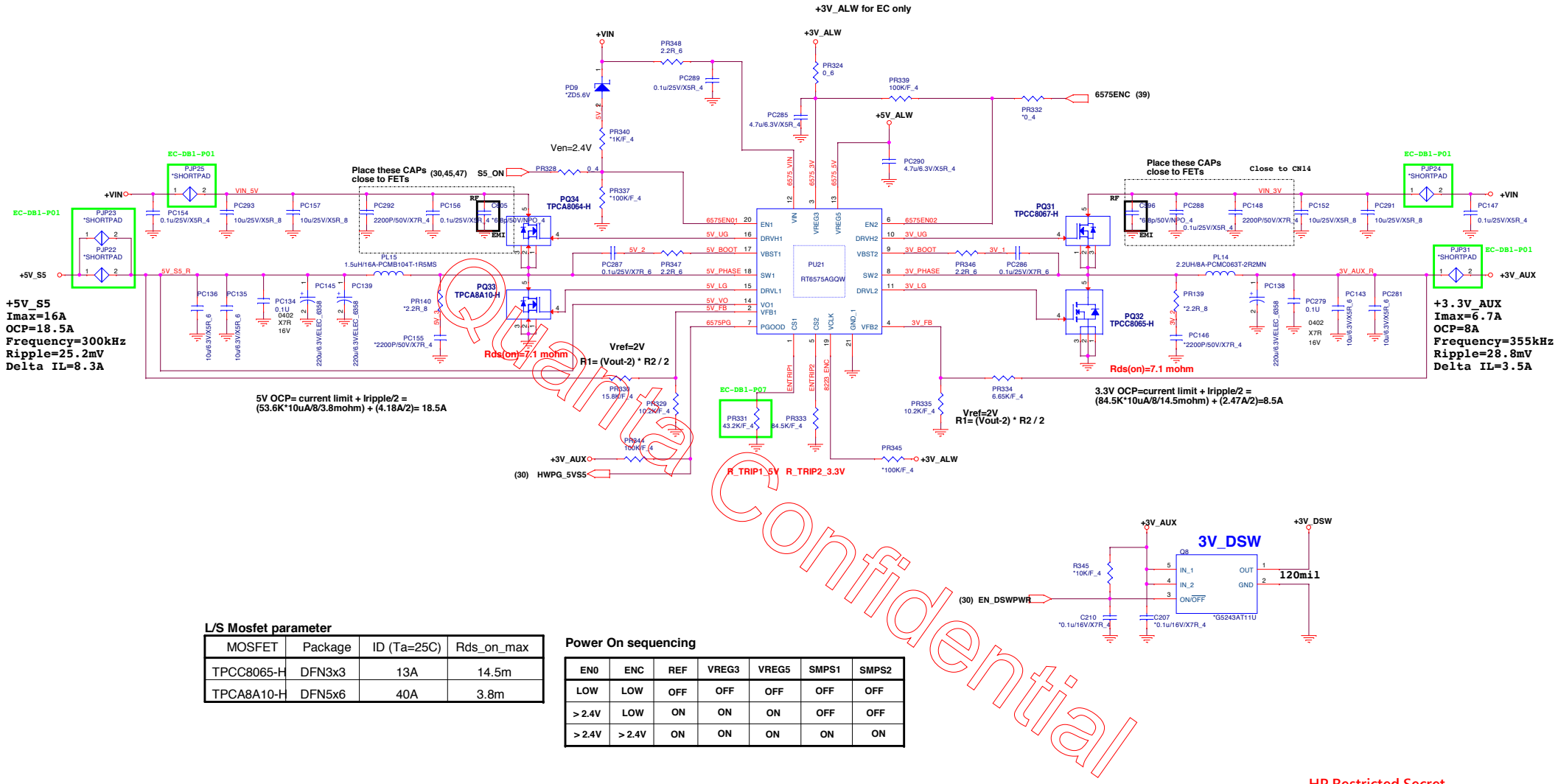

L/S Mosfet parameter

MOSFET	Package	ID (Ta=25C)	Rds_on_max
TPCC8065-H	DFN3x3	13A	14.5m
TPCA8A10-H	DFN5x6	40A	3.8m

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-SAIPAN

Title: 3V_AUX/5V_S5(RT6575AGQW)

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(31,39,40,42,43,44,46,47,49,50,51,52,53,54,55) +VIN
(7,9,14,15,46,47,55) +VDDQ
(5,9,10,11,12,13,23,25,28,30,32,34,37,38,39,42,43,45,46,47,54,55) +3V_S5
(27,31,32,33,36,39,40,43,44,45,46,47,54) +5V_S5
(14,15,47) +SMDDR_VTERM

+3V_S5 PR29 100K/F_4

(30,46) PG_+VDDQ

+VDDQ asserted after +VCCST_PLL asserted

(30,32,42,46,47) S3_ON

PR23 10k/1%_4
PC22 1u/10V/X5R_4

+0.6V_DDR_VTT
PEAK :0.9A

(5) DDR_VTT_CNTL PR207 0_4
(30,47) MAIN_ON2 PR206 *0_4
PC23 *1u/6.3V/X5R_4
PR205 0_4
(47) DIS_SMDDR_VTERM

TPCA8059-H Rdson = 4.8m Ohms
OCP=Current limit + Iripple/2=(105K*5uA/10/4.8mohm)+ (4.18A/2)=13A

PR50 105K/F_4
PR26 620K/F_4
1P35V_TON

Place these CAPs close to FETs

VIN_8231
EC-DB1-P01 PJP2 *SHORTPAD
+VIN
PC19 2200P/50V/X7R_4
PC190 0.1u/25V/X5R_4
PC13 10u/25V/X5R_8
PC186 10u/25V/X5R_8
PC5 0.1u/25V/X5R_4

EC-DB1-P01 PJP5 *SHORTPAD
VTT
+SMDDR_VTERM
PC49 10u/6.3V/X5R_6

PU1 RT8231BGQW
S3 S5 PGOOD CS TON
VTT VTTSNS VTTGND VTTREF VLDOIN
UGATE BOOT1 PHASE LGATE VDD
LPMB VID PGND FB VDDQ PAD

PQ4 TPCA8064-H
PR59 0_6
PC47 0.1u/25V/X7R_6
1P35V_UGATE
1P35V_BOOT
1P35V_PHASE
1P35V_LGATE
1P35V_VDD
PC39 1u/6.3V/X5R_4
PR41 0_4
+5V_S5

PQ8 TPCA8059-H

PL5 1.0uH/18A-PCMC104T-1R0MN
1.35V_S3_R
PR49 *2.2R_8
DDR2
PC30 *2200P/50V/X7R_4
PC53 *390U/2.5V/ELEC_6358
PC54 390U/2.5V/ELEC_6358
PC60 10u/6.3V/X5R_6
PC64 0.1U 0402 X7R 16V

PJP8 *SHORTPAD
PJP7 *SHORTPAD
+VDDQ
EC-DB1-P01

DDR_VTTREF
PR39 100/F_4
1P35V_VTTREF
PC29 0.1U 0402 X7R 16V
PC38 0.033u/50V/X7R_6
1.35V_S3_R
PC48 10u/6.3V/X5R_6
PR51 0_4
+5V_S5
PR38 0_4
1P35V_VDDQ
PR30 7.68K/F_4
PR25 0_4
PR24 10K/F_4

+VDDQ
Imax=9A
OCP=11A
Frequency=400kHz
Ripple=21mV
Delta IL=2.8A

Imax= 0.5A
Pd: 0.4W

PR304 10K_4
+3V_S5
+5V_S5
PC277 1u/6.3V/X5R_4
PU19 G9661-25ADJF12U
VPP PGOOD VO VEN VIN GND GND ADJ NC
PG_+2.5V_S3
+2.5V_S3_P
EC-DB1-P01 PJP20 *SHORTPAD
+2.5V_S3

EC-DB1-P01 PJP30 *SHORTPAD
+3V_S5
+2.5V_VIN
PC272 10u/6.3V/X5R_6
(30) EN_+2.5V_S3
PC273 0.1U 0402 X7R 16V
R1
PR307 21.5K/F_4
+2.5V_ADJ
R2
PR305 10K/F_4
PC275 0.1U 0402 X7R 16V
PC269 10U/6.3V/X5R_6
PC271 10U/6.3V/X5R_6

Vout =0.8(1+R1/R2)

Quanta Computer Inc.
Project: HP-SAIPAN

Title: +VDDQ /SMDDR_VTERM (RT8231BGQW)
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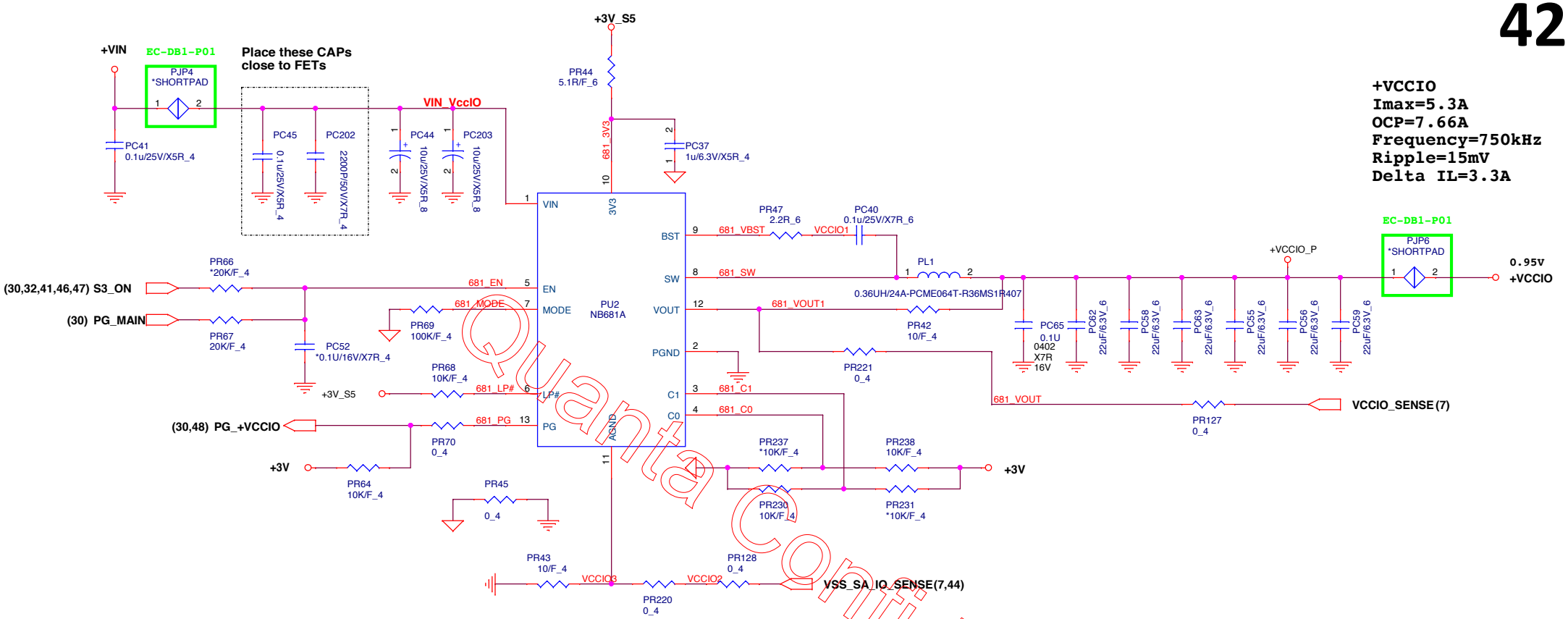
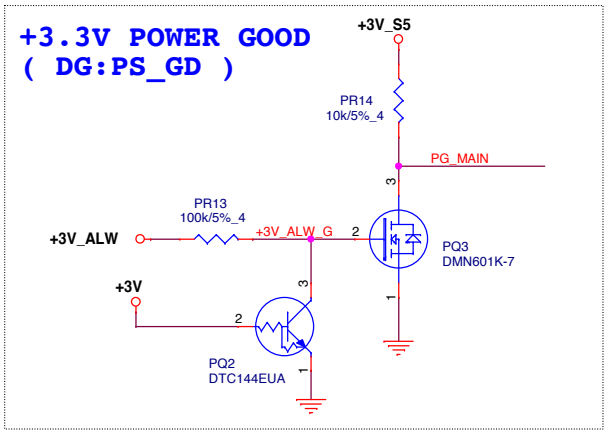
+VCCIO
Imax=5.3A
OCP=7.66A
Frequency=750kHz
Ripple=15mV
Delta IL=3.3A



MODE M2 (100K to GND)

LP#	C1	C0	Vout
0	X	X	0V
1	0	0	0.8V
1	0	1	0.95V
1	1	0	1V
1	1	1	1.05V



Quanta Computer Inc.

Project: HP-SAIPAN

Title: +VCCIO(NB681)

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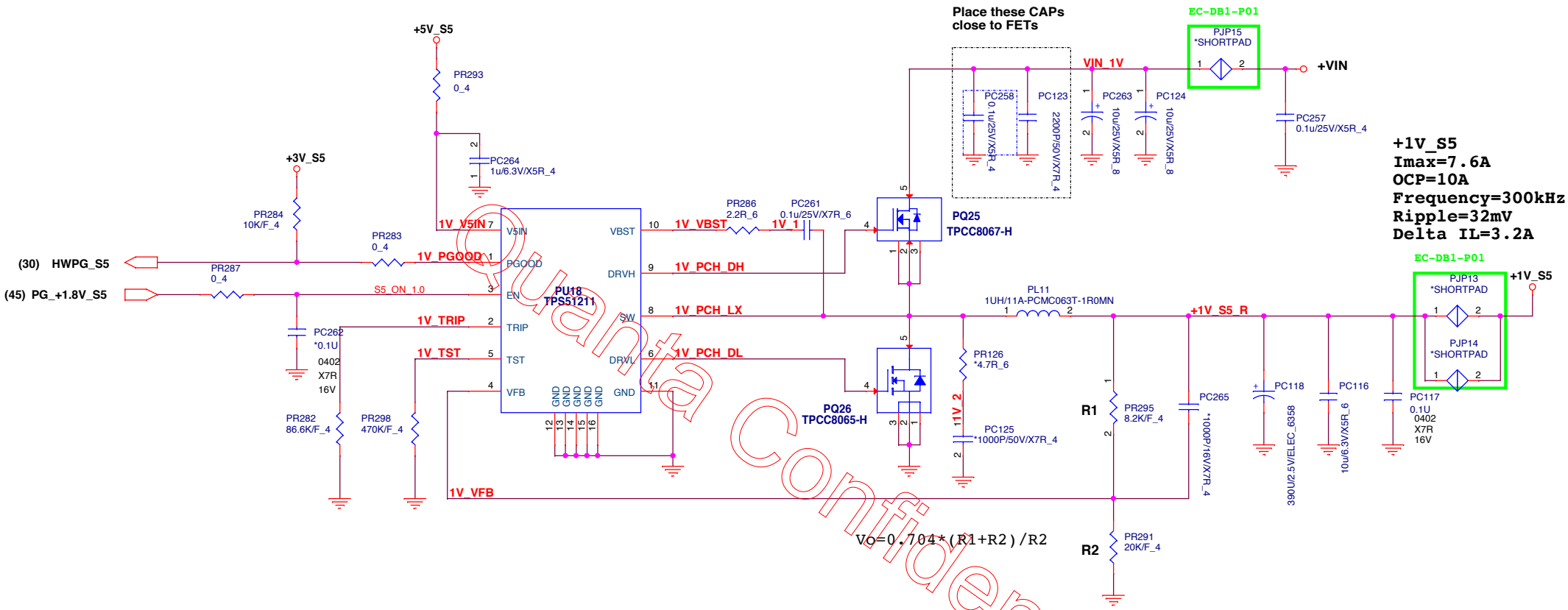

Quanta Computer Inc.		
Project: HP-SAIPAN		
Title: +1V_S5(TPS51211)		
Size	Document Number: --	Rev: A
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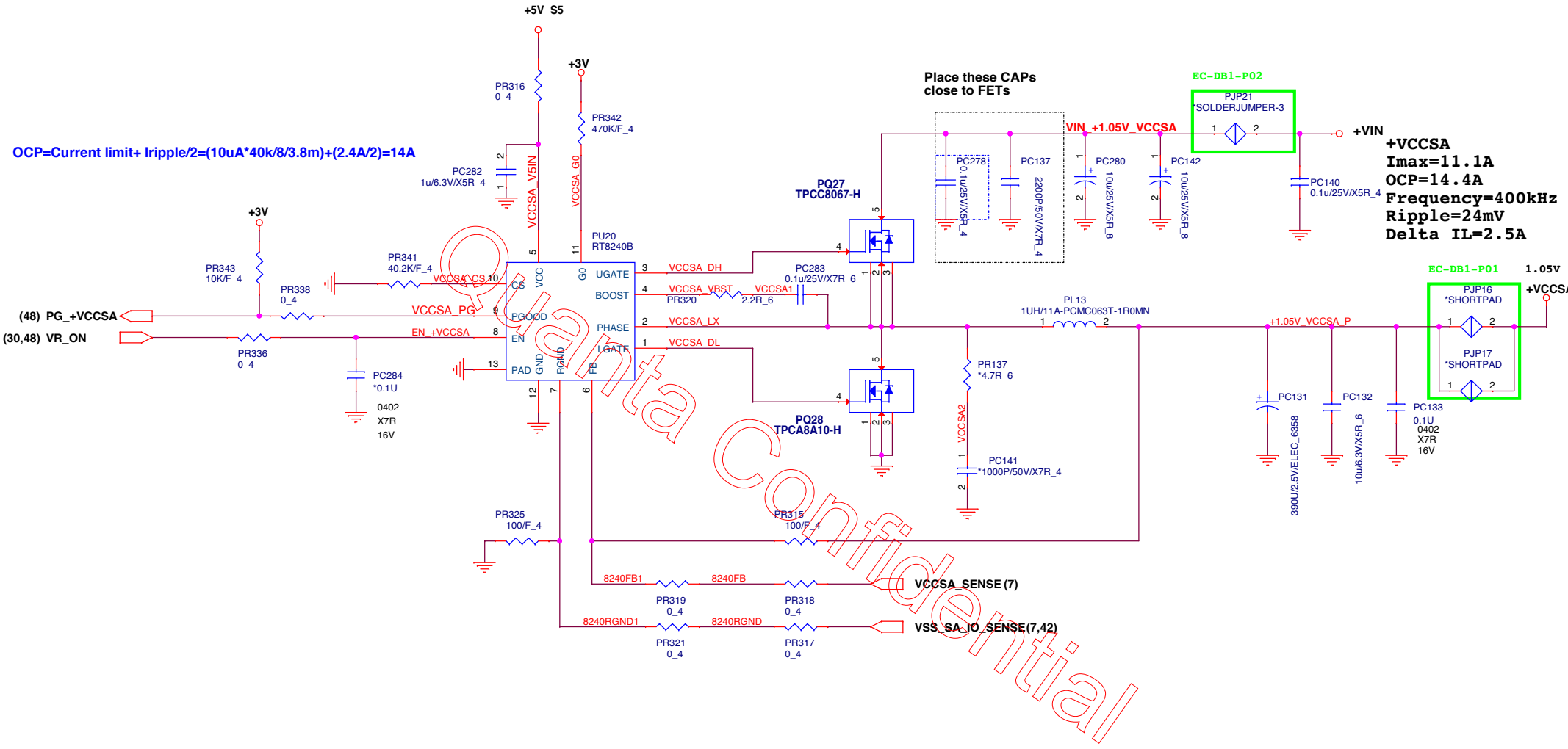

Quanta Computer Inc.

Project: HP-SAIPAN

Title: +VCCSA(RT8240B)

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	--	A

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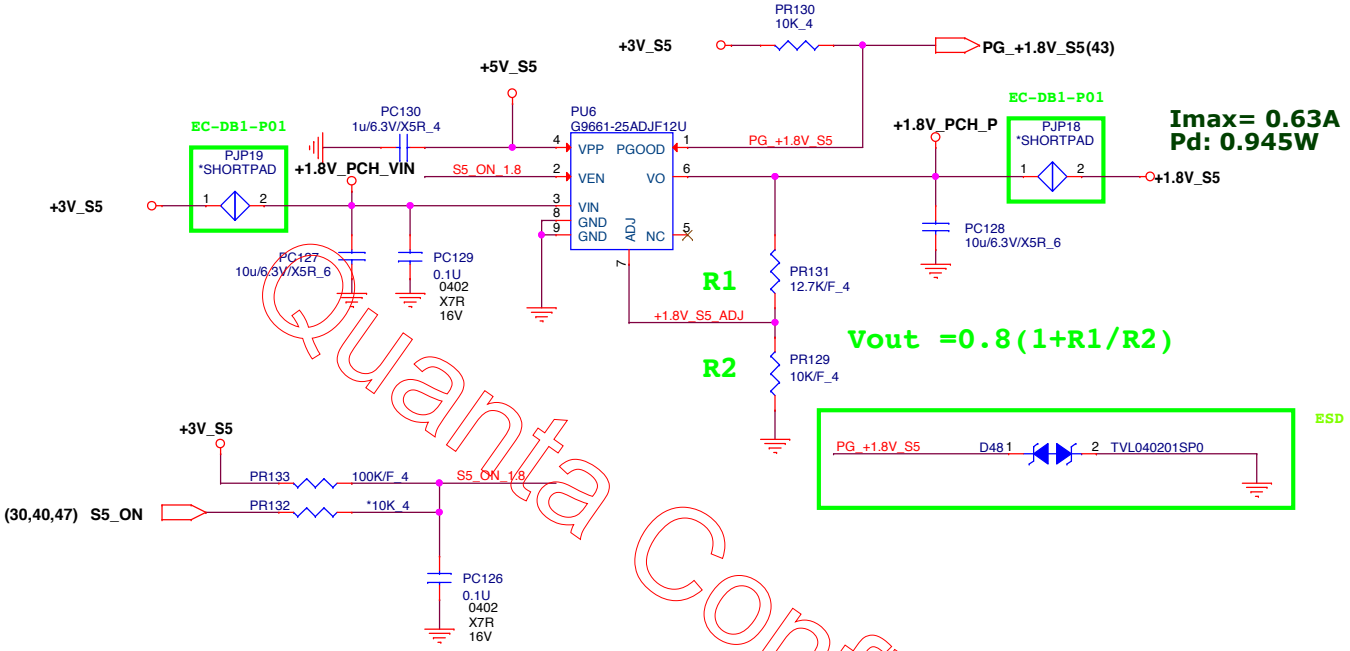

Quanta Computer Inc.

Project: HP-SAIPAN

Title		
+1.8V_S5 (G9661)		
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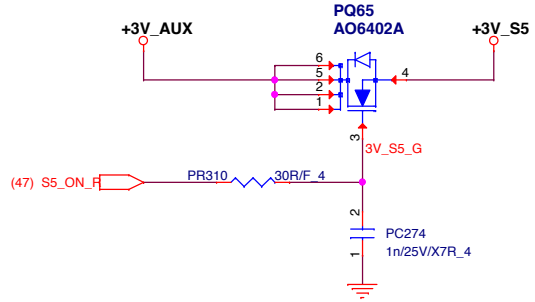
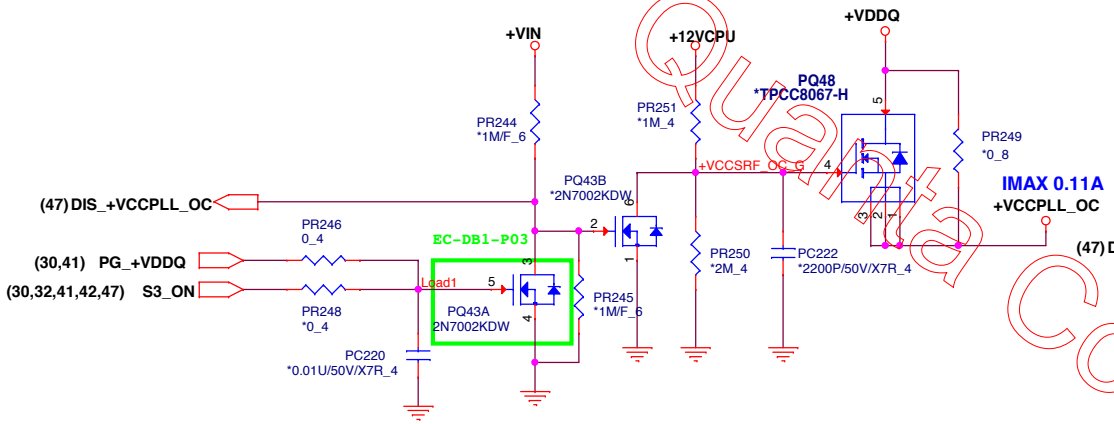
S5 ON Load SW

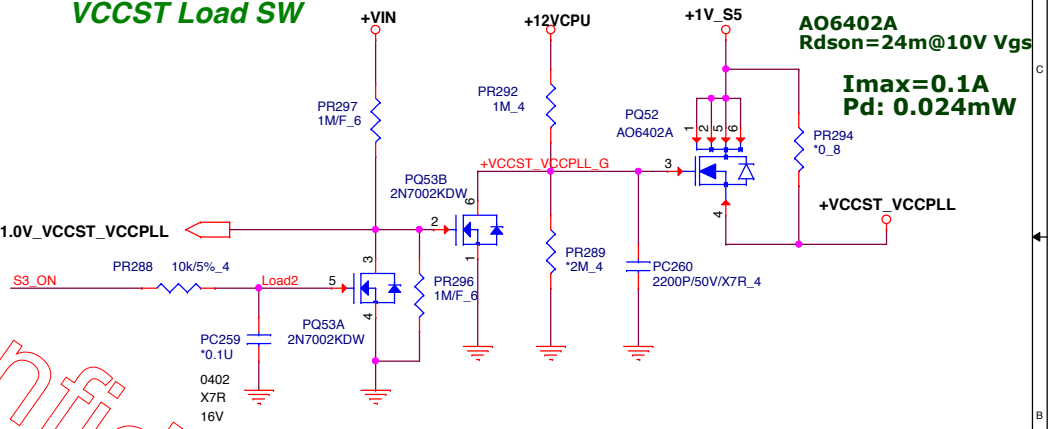
AO6402A
Rdson=24m@10V Vgs
Imax=5.5A
Pd: 0.726W



VCCST Load SW

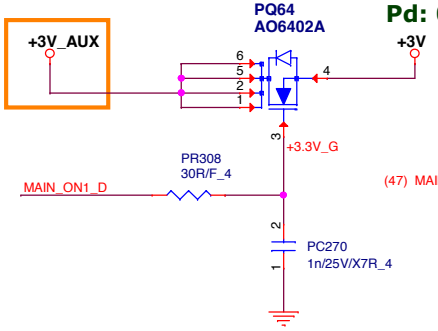


VCCST Load SW

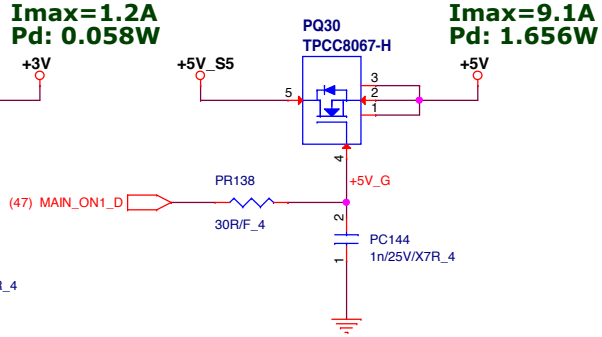


MAIN ON_1 Load SW

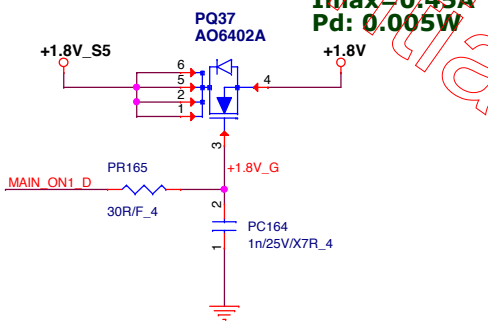
AO6402A
Rdson=24m@10V Vgs
Imax=1.2A
Pd: 0.058W



TPCC8067-H
Rdson=20m@10V Vgs
Imax=9.1A
Pd: 1.656W



AO6402A
Rdson=24m@10V Vgs
Imax=0.45A
Pd: 0.005W



Mosfet parameter

Mosfet	Package	ID(Ta=25C)	Rds_on_max	Vgs_max
ME3424D-G	TSOP-6	5.0A/6.7A	42m	+/- 20V
TPCC8067-H	3x3	9A	26m	+/- 20V
TPCA8064-H	SO-8	20A	7.9m	+/- 20V

Quanta Computer Inc.
Project: HP-SAIPAN

Title: Load Switch
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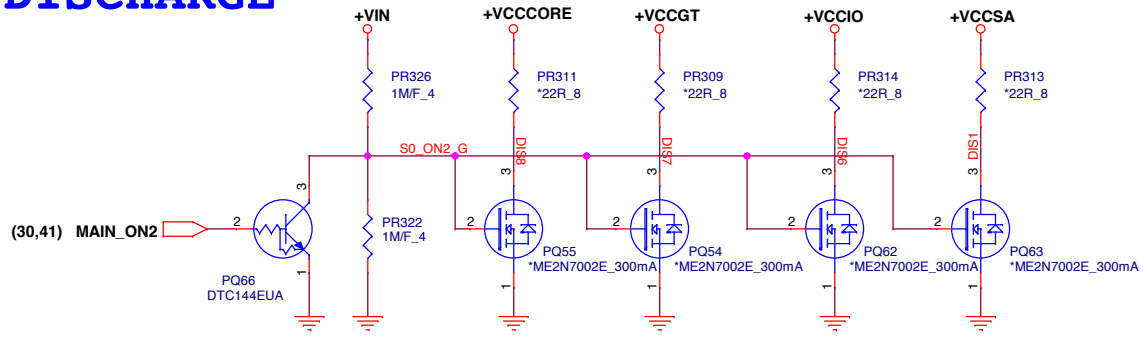
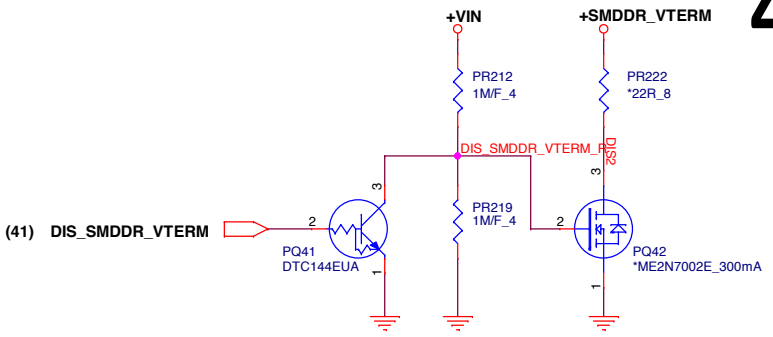
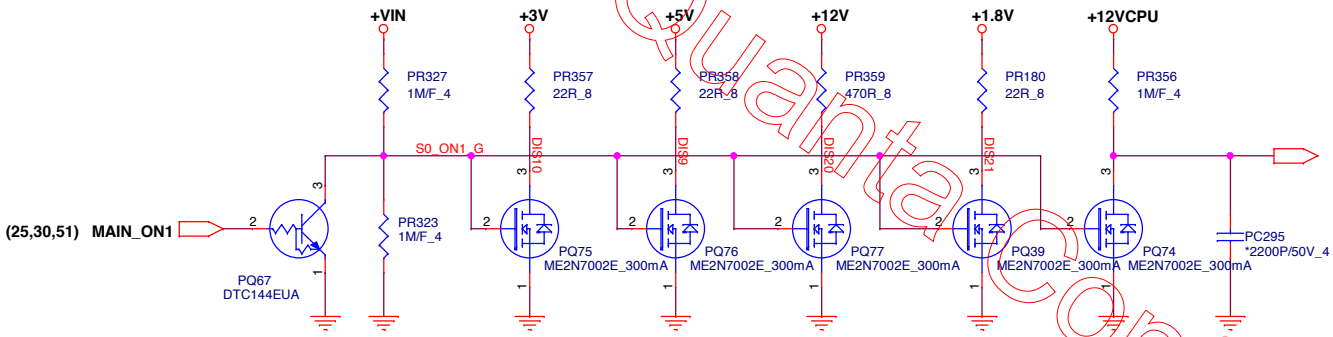
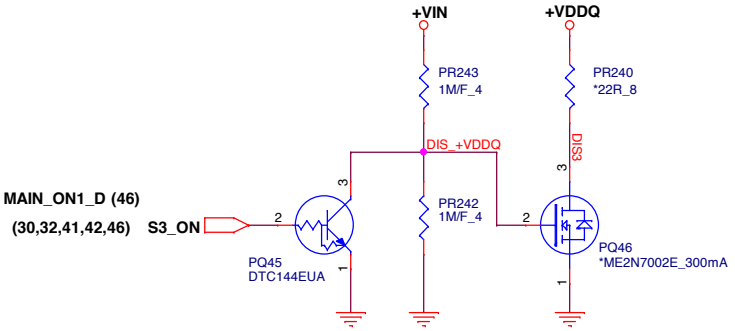
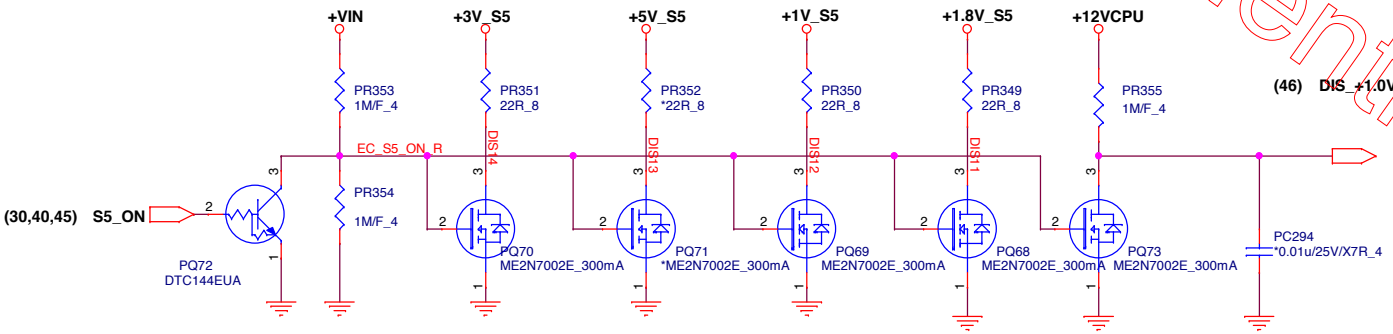
DISCHARGE

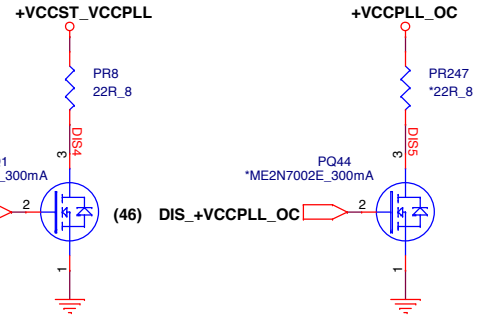












Quanta Computer Inc.

Project: HP-SAIPAN

Title		
Discharge		
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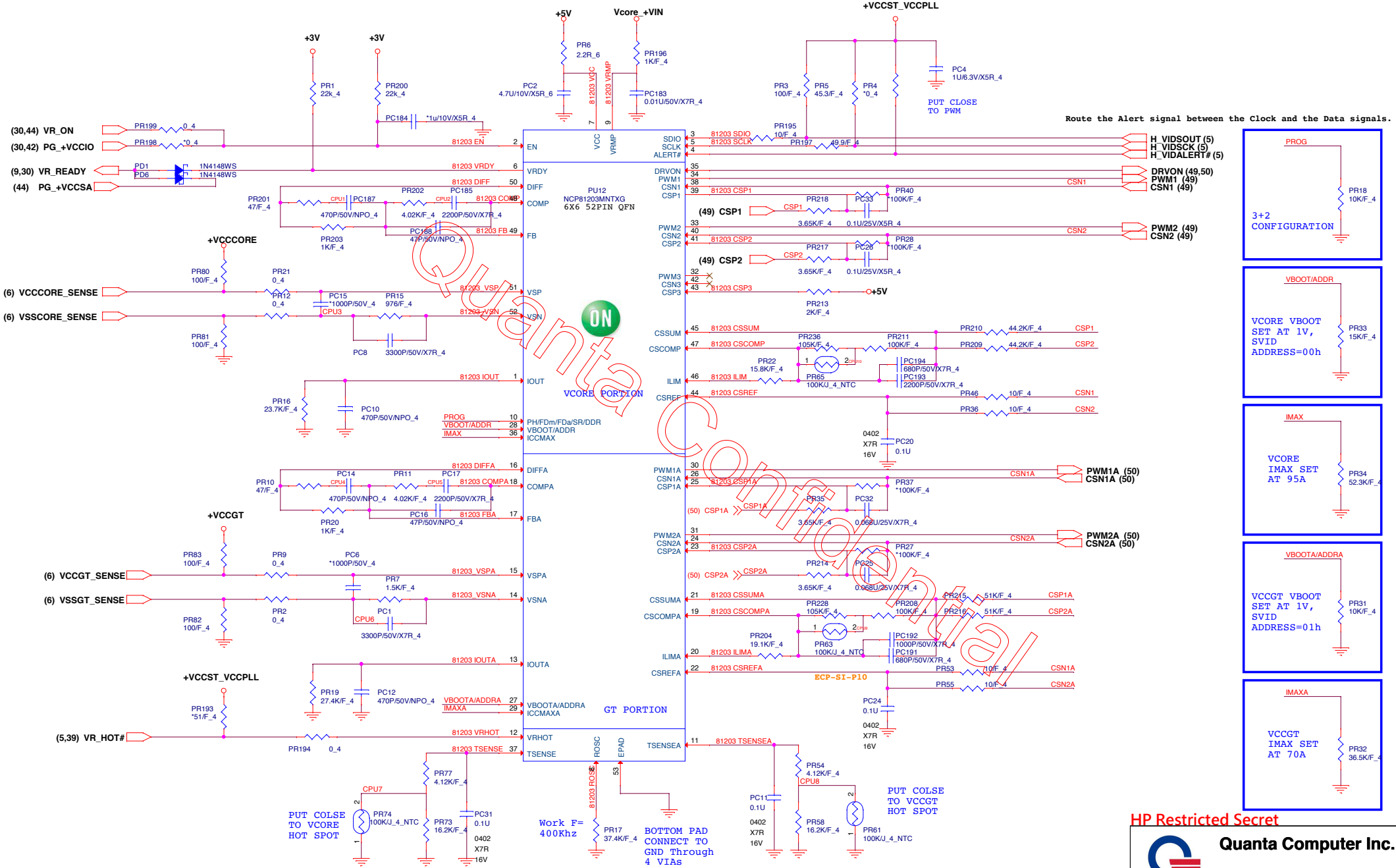
Intel SKYLAKE IMVP8 POWER CKT - 3+2 PHASE



Quanta Computer Inc.

Project: HP-SAIPAN

Title: VCC_CORE & VCC_GT

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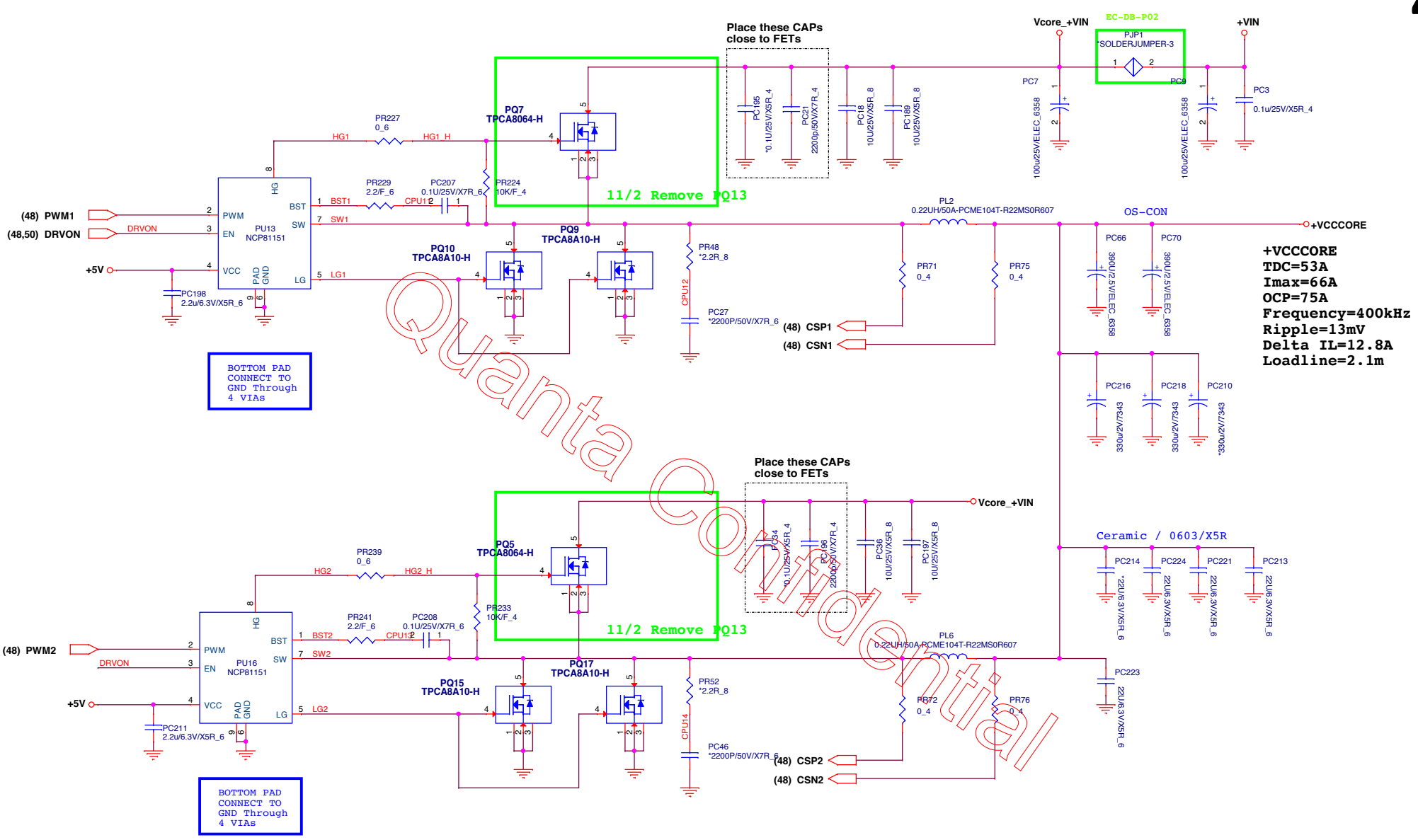

Quanta Computer Inc.

Project: HP-SAIPAN

Title		
VCORE OUT STAGE		
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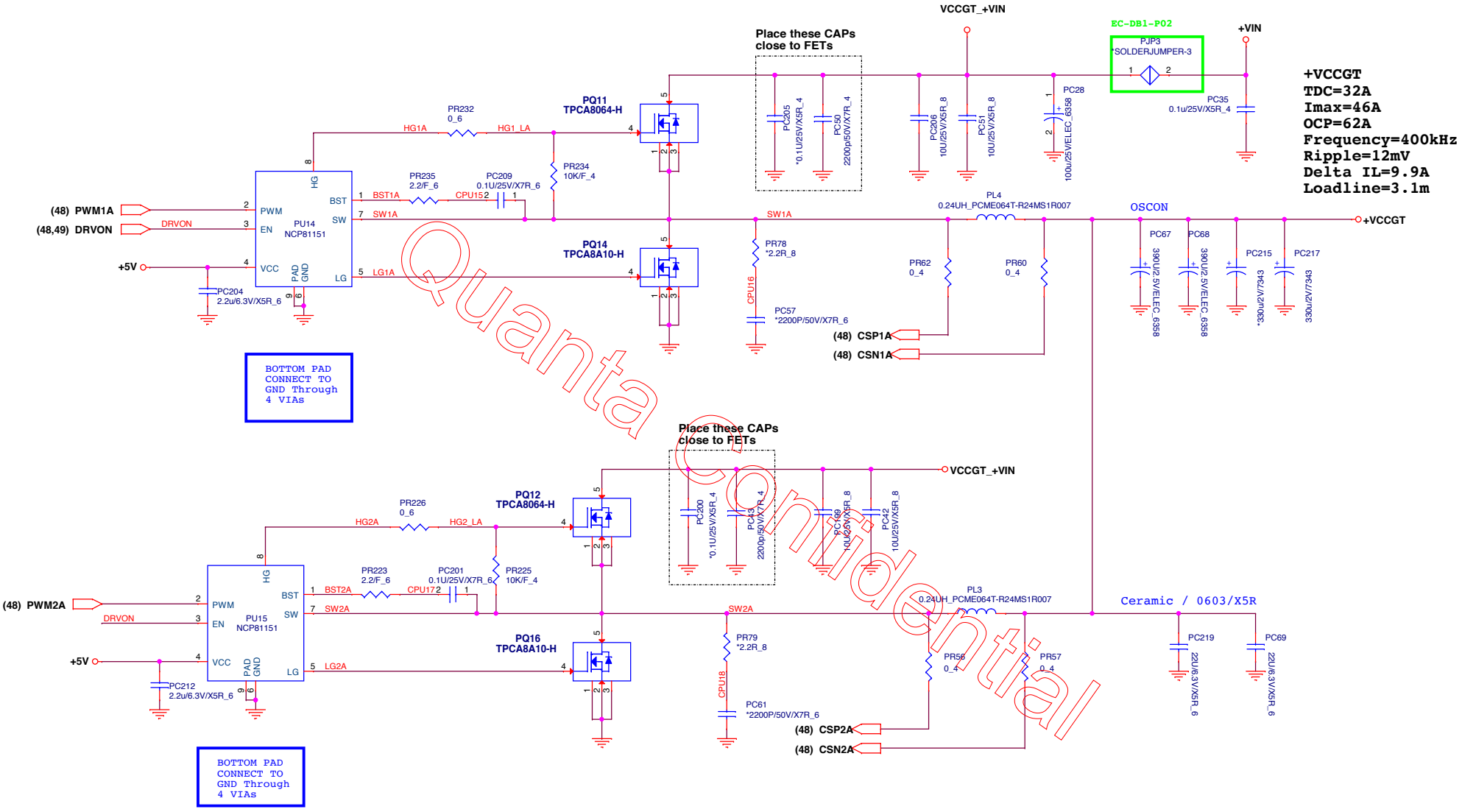

Quanta Computer Inc.

Project: HP-SAIPAN

Title		
VCCGT OUTPUT STAGE		
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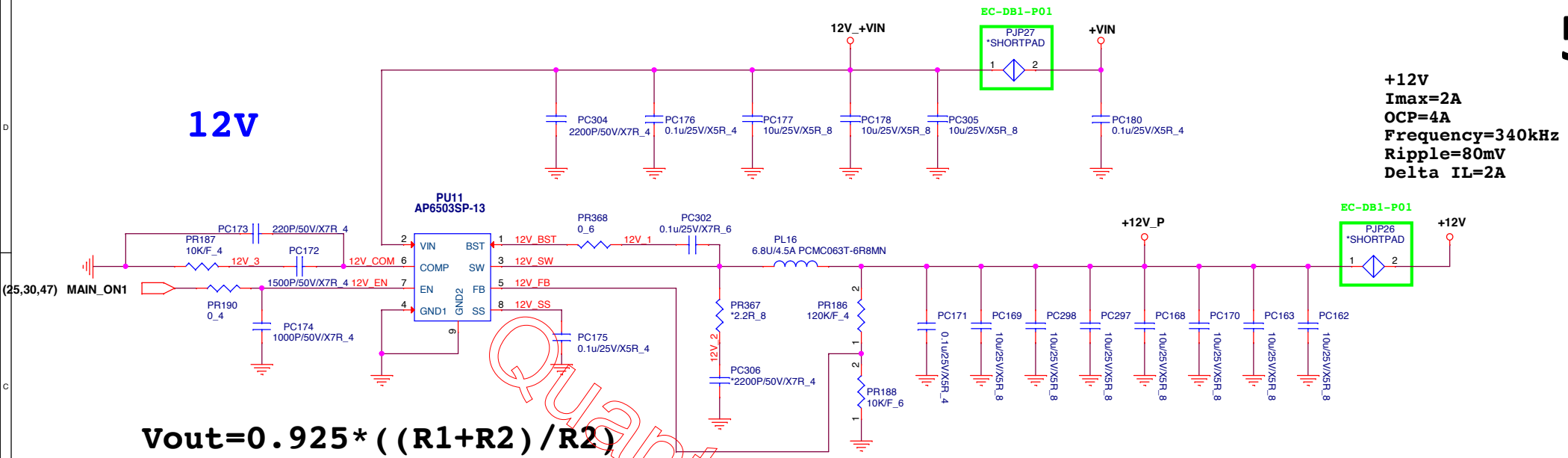
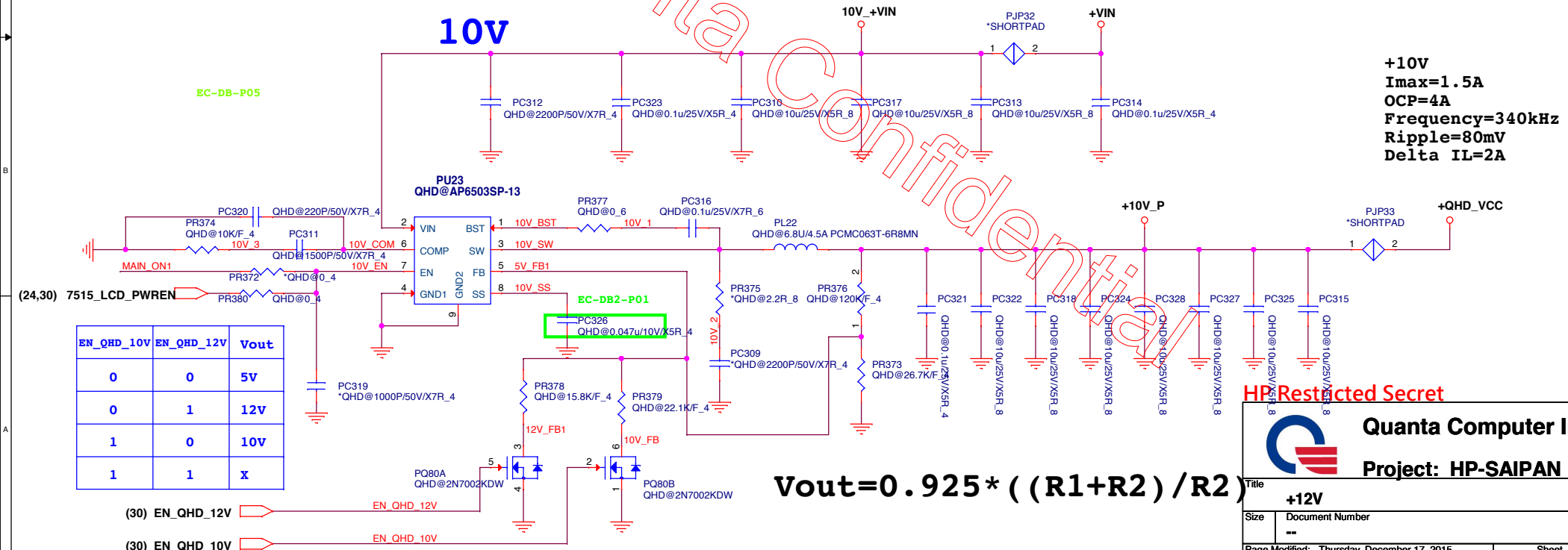
12V



+12V
Imax=2A
OCP=4A
Frequency=340kHz
Ripple=80mV
Delta IL=2A

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

10V



+10V
Imax=1.5A
OCP=4A
Frequency=340kHz
Ripple=80mV
Delta IL=2A

EN_QHD_10V	EN_QHD_12V	Vout
0	0	5V
0	1	12V
1	0	10V
1	1	X

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

Quanta Computer Inc.
Project: HP-SAIPAN
Title: +12V
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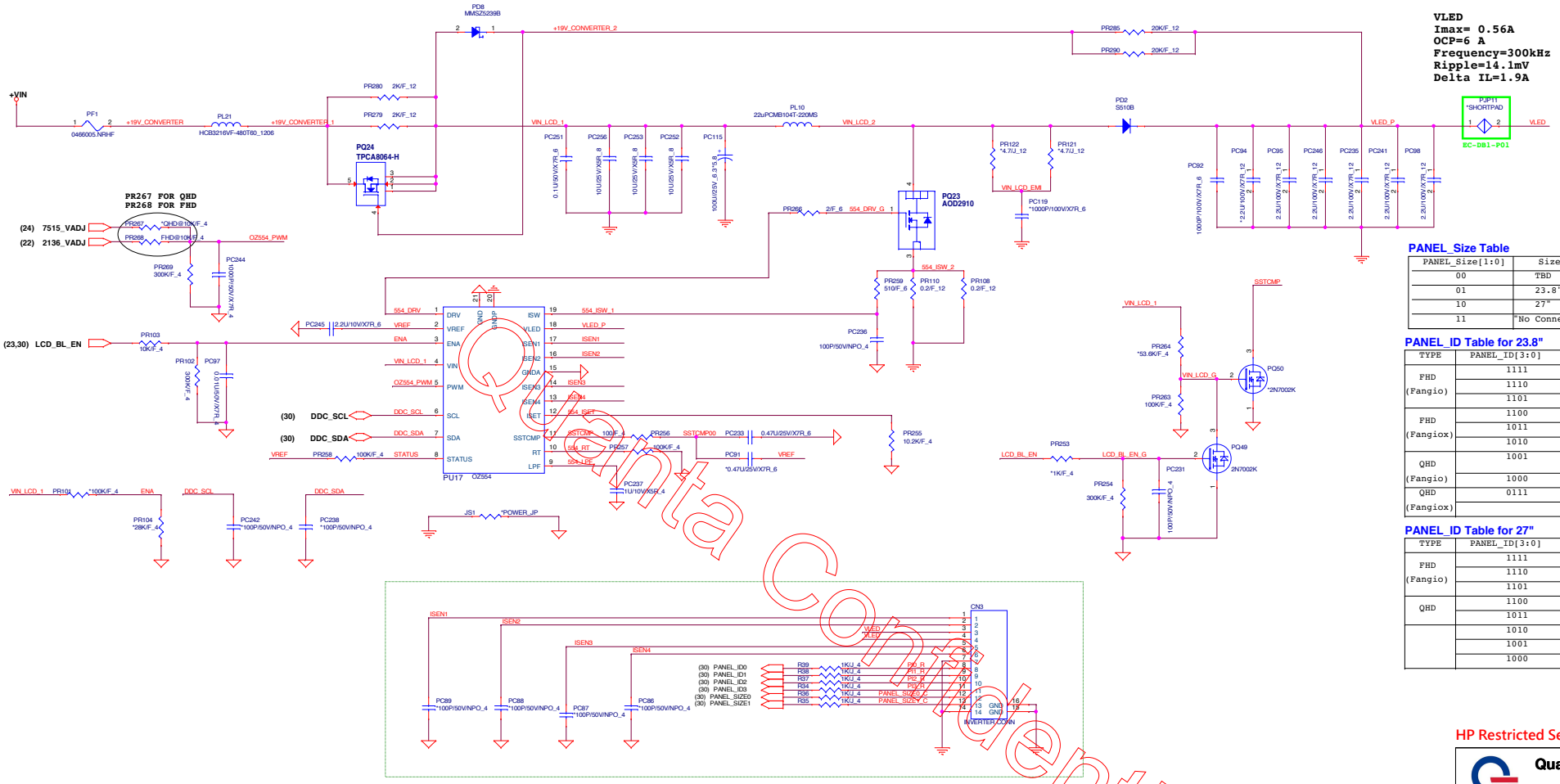

Quanta Computer Inc.

Project: HP-SAIPAN

Title: CONVERTER

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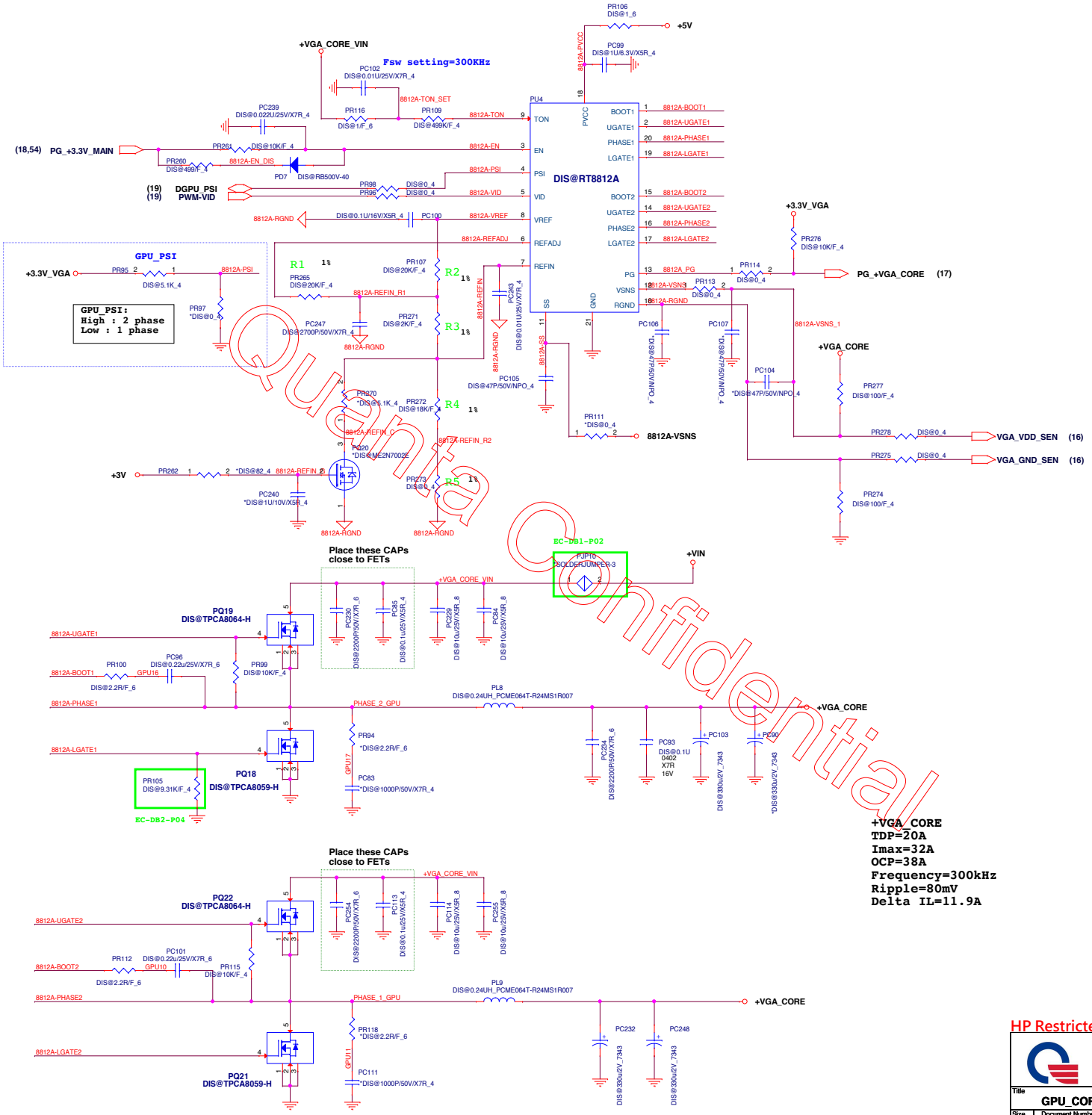

Quanta Computer Inc.

Project: HP-SAIPAN

Title: GPU_CORE (ISL62771)

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VGA POWER

(17,21) +1.35V_VGA
(16,18,19,20,53) +3.3V_VGA
(16,17,18) +1.05V_VGA

3.3V VGA

+3.3V_VGA +VGA_CORE +1.05V_VGA +1.35V_VGA +12VCPU +3V

PR299 DIS@22R_8 PR303 DIS@22R_8 PR300 DIS@22R_8 PR302 DIS@22R_8 PR301 DIS@1M_4 PR306 *DIS@0_6

PQ59 PQ61 PQ57 PQ60 PQ58 PQ56 DIS@AO6402A

DIS@2N7002K_300MA DIS@2N7002K_300MA DIS@2N7002K_300MA DIS@2N7002K_300MA DIS@2N7002K_300MA

PC276 DIS@0.1U 0402 X7R 16V

AO6402A
Rdson=24m@10V Vgs
Imax=0.06A
Pd: 0.086mW

+3V_S5 +3V_S5 +3V_S5

R221 DIS@10k/5%_4 R674 DIS@10k/5%_4 PR134 DIS@1M_4 PR135 *DIS@1M_4

3EN_+3.3V_VGA#_G2 EN_+3.3V_VGA#_G1 PQ29B *2N7002KDW PQ29A *2N7002KDW

(11) EN_DGPU_PWR# PR312 DIS@0_4

EC-DB1-P04

3VGFX_OND

PC266 DIS@1000P/10V/X7R_4 PC268 DIS@0.1U 0402 X7R 16V PC267 DIS@10u/6.3V/X5R_6

+3.3V_VGA

ESD

3VGFX_OND D491 TVL040201SP0

EC-DB1-P01

PJP28 *SHORTPAD

1.35VGFX_VIN +VIN

PC77 DIS@2200p/50V_6 PC226 DIS@0.1u/50V_6 PC78 DIS@10u/25V_8 PC227 DIS@10u/25V_8 PC76 DIS@0.1u/50V_6

VCC

PR88 *DIS@499K/F_4 PR85 DIS@1/F_6

1.35VGFX_BST 1.35VGFX_BST1

PR91 DIS@100K/F_4 PR90 DIS@0_4 PR92 DIS@200K/F_4 PR84 DIS@0_4 PR89 DIS@0_4 PR252 DIS@0_6 PC72 *DIS@0.1U/16V/X5R_4

(18) PG_+1.35_VGA

(17) EN_+1.35V_VGA

PU3 DIS@NB671GQ-Z

EN PG LP# NC1 NC2 AGND VIN BST SW1 SW2 SW3 SW4 VOUT PGND VCC FB

1.35VGFX_EN 1.35VGFX_PG 1.35VGFX_LP# 1.35VGFX_SW

PC71 DIS@0.1u/50V_6 PL7 DIS@1UH/11A-PCMC063T-1R0MN PR93 *DIS@4.7_6 1.35VGFX_SW_EMI PC81 *DIS@680p/50V_6 PC80 DIS@0.1u/16V_4

+1.35V_VGA_P

PC74 DIS@0.1u/50V_6 PC228 DIS@22u/6.3V_6 PC225 DIS@22u/6.3V_6 PC79 DIS@22u/6.3V_6 PC75 DIS@22u/6.3V_6

EC-DB1-P01

PJP9 *SHORTPAD

+1.35V_VGA

PC82 *DIS@390U/2.5V/ELEC_6358

+1.35V_VGA
Imax=4.5A
OCP=8A
Frequency=500kHz
Ripple=20mV
Delta IL=2.5A

VCC PC73 DIS@1u/6.3V_4

1.35VGFX_FB

VREF=0.604V

PR86 DIS@68.1K/F_4 PR87 DIS@54.9K/F_4

+1.05V VGA

+3.3V_VGA

PR125 DIS@100K_4 PR124 DIS@0_4

(30) PG_+1.05V_VGA

40mil

EC-DB1-P01

+5V_S5 PJP29 *SHORTPAD

PR117 DIS@10_6

PC250 DIS@0.01U/50V/X7R_4 PC249 DIS@10U/6.3V/X5R_6 PC110 DIS@1U/6.3V/X5R_4

EC2 *DIS@1000P/50V/X7R_4 ER1 *DIS@4.7_6

PU5 DIS@RT8068A

PG PVIN PVIN SVIN GND NC LX LX NC FB EN

8060_1.0V 8060PVIN_1.0V 8060SVIN_1.0V 8060LX_1.0V 8060NC_1.0V 8060FB_1.0V 8060EN_1.0V

PC108 *DIS@68P/50V/COG_4 PR123 DIS@10K/F_4 PC112 DIS@0.22u/10V/X5R_4

EC-DB1-P06

PL12 DIS@1UH/11A-PCMC063T-1R0MN

+1.05V_VGA_P

PR119 DIS@11.3K/F_4 R1 PR120 DIS@15K/F_4 R2

PC109 *DIS@22P/50V/NPO_4 PC122 DIS@0.1U 0402 X7R 16V PC121 DIS@22u/6.3V/X5R_6

EC-DB1-P01

PJP12 *SHORTPAD

+1.05V_VGA

PC120 *DIS@390U/2.5V/ELEC_6358

+1.05V_VGA
Imax=2.1A
OCP=4A
Frequency=1MHz
Ripple=12mV
Delta IL=0.8A

PG_+3.3V_MAIN (18,53)

V0=0.6*(R1+R2)/R2

Quanta Computer Inc.

Project: HP-SAIPAN

Title: GPU-1.05V / 1.35V

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CPU HOLE

H7 H-C197D150P2 *Hole
H8 H-C197D150P2 *Hole
H11 H-C197D150P2 *Hole

H17 *Hole — HG-SAIPAN-1-N83
H4 *Hole — HG-SAIPAN-33-N83
H10 *Hole — HG-SAIPAN-11-N83
H18 *Hole — hg-saipan-1-N83
H20 *Hole — hg-saipan-3-N83
H19 *Hole — hg-c315d185p2-N83

H16 *Hole — hg-saipan-9-N83
H3 *Hole — hg-c315d138p2-N83
H15 *Hole — hg-saipan-1-N83

H13 *Hole — hg-c276d197p2
H6 *Hole — hg-c276d197p2
H12 *Hole — hg-c276d197p2
H5 *Hole — hg-c276d197p2

EC-DB2-E41

EMI PAD

H22 SPAD-RE158X1181NP PAD
H14 SPAD-RE495X98NP PAD
H21 SPAD-RE197X197NP PAD
H1 SPAD-RE236X79NP PAD
H2 SPAD-RE236X118NP PAD

VGA HOLE

HOLE1 H-C146D146N
HOLE3 H-C146D146N

WLAN HOLE

HOLE2 H-TC236IC126BC126D126PT Hole
EC-DB2-E42

SSD HOLE

HOLE4 H-TC236IC126BC126D126PT Hole
EC-DB2-E42

RF

+VDDQ — C287 *15p/50V/C0G_4
+VDDQ — C359 100p/50V/NPO_4
+VDDQ — C363 100p/50V/NPO_4
+VDDQ — C445 *15p/50V/C0G_4
+VDDQ — C391 *15p/50V/C0G_4
+VDDQ — C361 *15p/50V/C0G_4
RF
+VDDQ — C489 100p/50V/NPO_4

RF
+VDDQ — C466 100p/50V/NPO_4
+VDDQ — C313 *15p/50V/C0G_4
RF
+VDDQ — C55 100p/50V/NPO_4
+VDDQ — C498 100p/50V/NPO_4
+VDDQ — C364 100p/50V/NPO_4
+VDDQ — C382 100p/50V/NPO_4

+VIN — C604 *15p/50V/C0G_4
+VIN — C600 *15p/50V/C0G_4
+VIN — C239 *15p/50V/C0G_4
+VIN — C136 *15p/50V/C0G_4
+VIN — C201 *15p/50V/C0G_4
+VIN — C7 *15p/50V/C0G_4
+VIN — C203 *15p/50V/C0G_4
+VIN — C592 *15p/50V/C0G_4

+12V — C475 *15p/50V/C0G_4
+12V — C612 *15p/50V/C0G_4
+12V — C480 *15p/50V/C0G_4
+3V_S5 — C122 *15p/50V/C0G_4
+3V_S5 — C243 *15p/50V/C0G_4
+3V_S5 — C574 *15p/50V/C0G_4

+3V — C537 *15p/50V/C0G_4
+5V — C582 *15p/50V/C0G_4
+5V — C518 *15p/50V/C0G_4
+5V — C202 *15p/50V/C0G_4

+3V — C101 1000p/16V/X7R_4
+3V — C504 1000p/16V/X7R_4
For SPI_CLK

Place around +VIN trace

+VIN — C240 *0.1U/25V_4_X7R
+VIN — C33 *0.1U/25V_4_X7R
+VIN — C4 *0.1U/25V_4_X7R
+VIN — C5 *0.1U/25V_4_X7R
+VIN — C1 *0.1U/25V_4_X7R

+VIN — C527 *0.1U/25V_4_X7R
+VIN — C135 *0.1U/25V_4_X7R
+VIN — C2 *0.1U/25V_4_X7R
+VIN — C34 *0.1U/25V_4_X7R
+VIN — C199 *0.1U/25V_4_X7R

+VIN — C6 *0.1U/25V_4_X7R
+VIN — C289 *0.1U/25V_4_X7R
+VIN — C288 *0.1U/25V_4_X7R
+VIN — C216 *0.1U/25V_4_X7R

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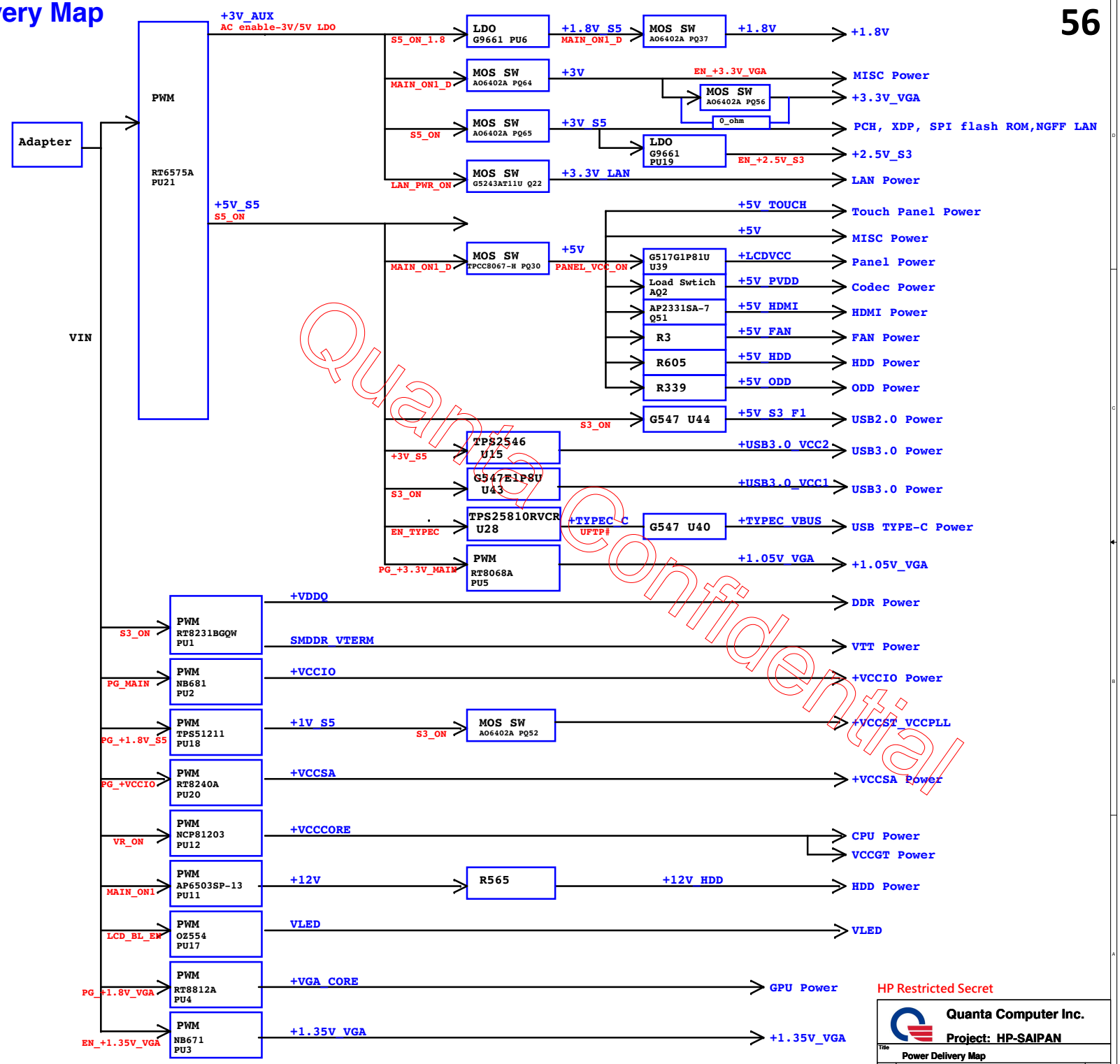
Power Delivery Map



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Title: Power Delivery Map

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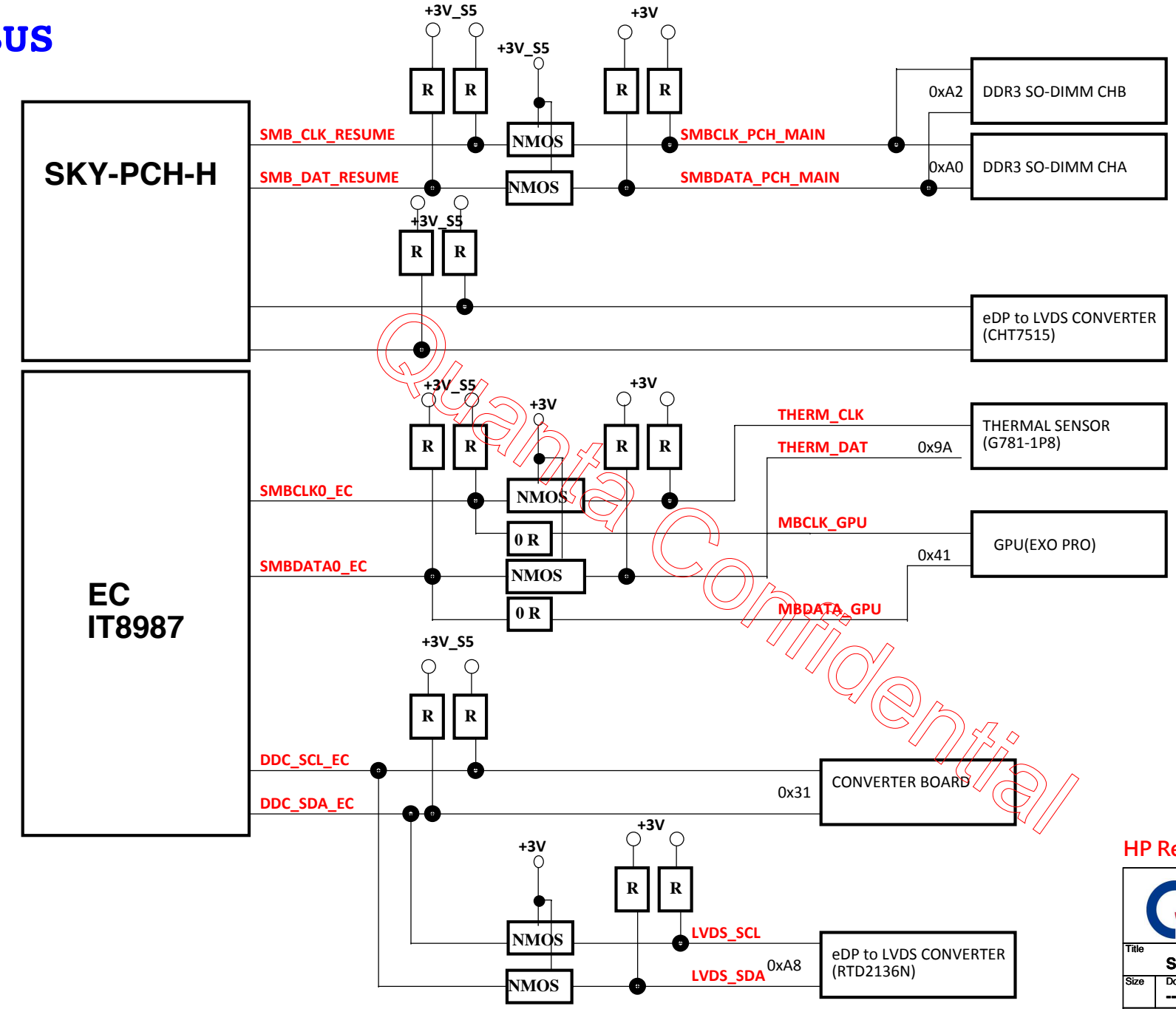
SMBUS



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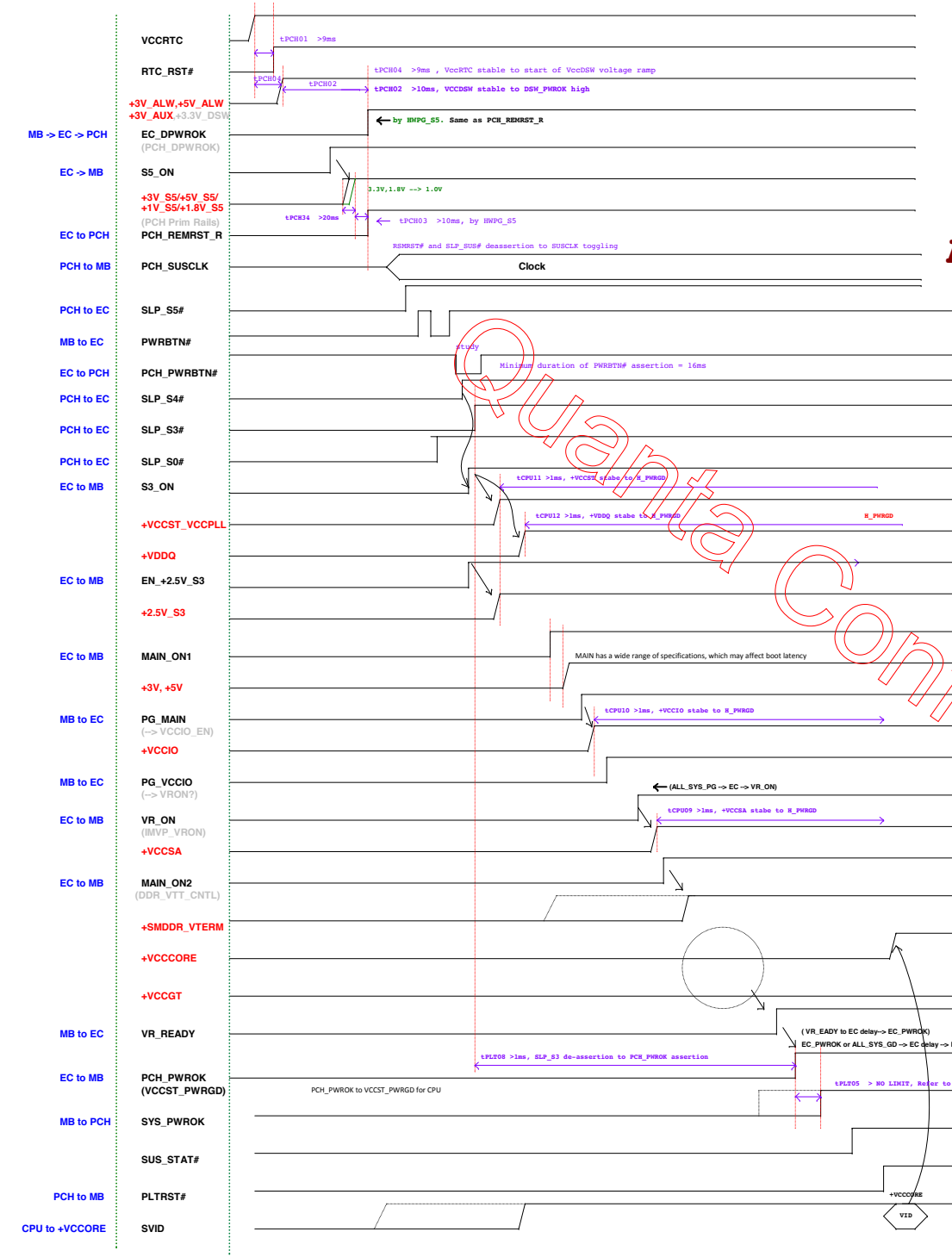
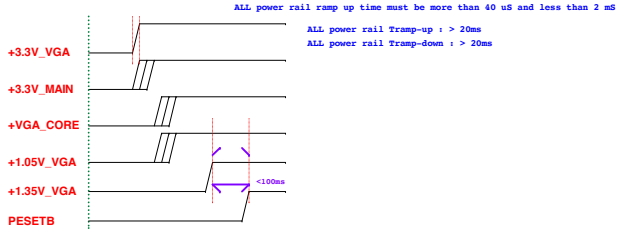
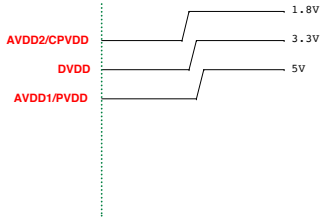
SKY-S POWER SEQUENCE



Nvidia dGPU POWER SEQUENCE



AUDIO POWER SEQUENCE



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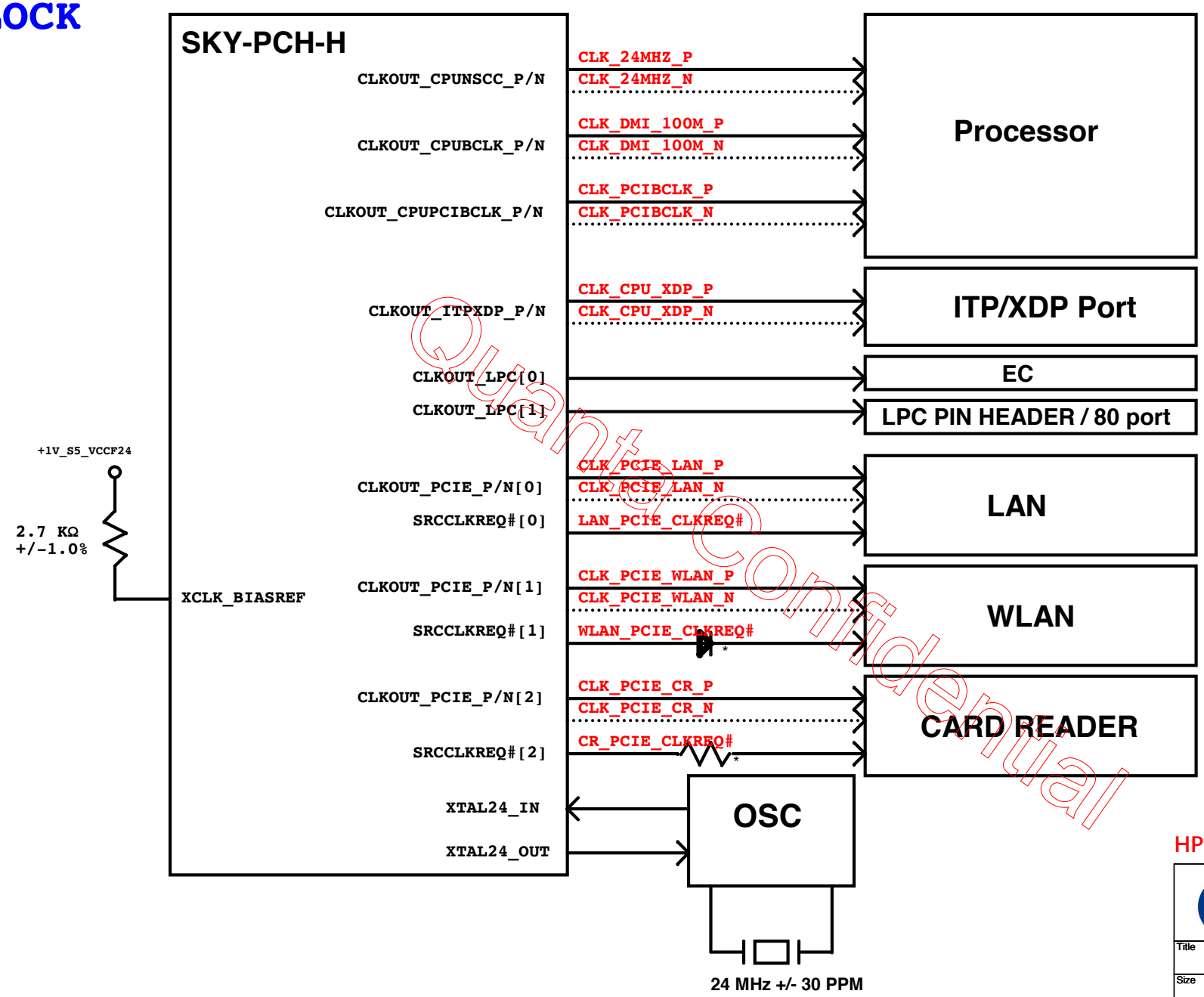
CLOCK



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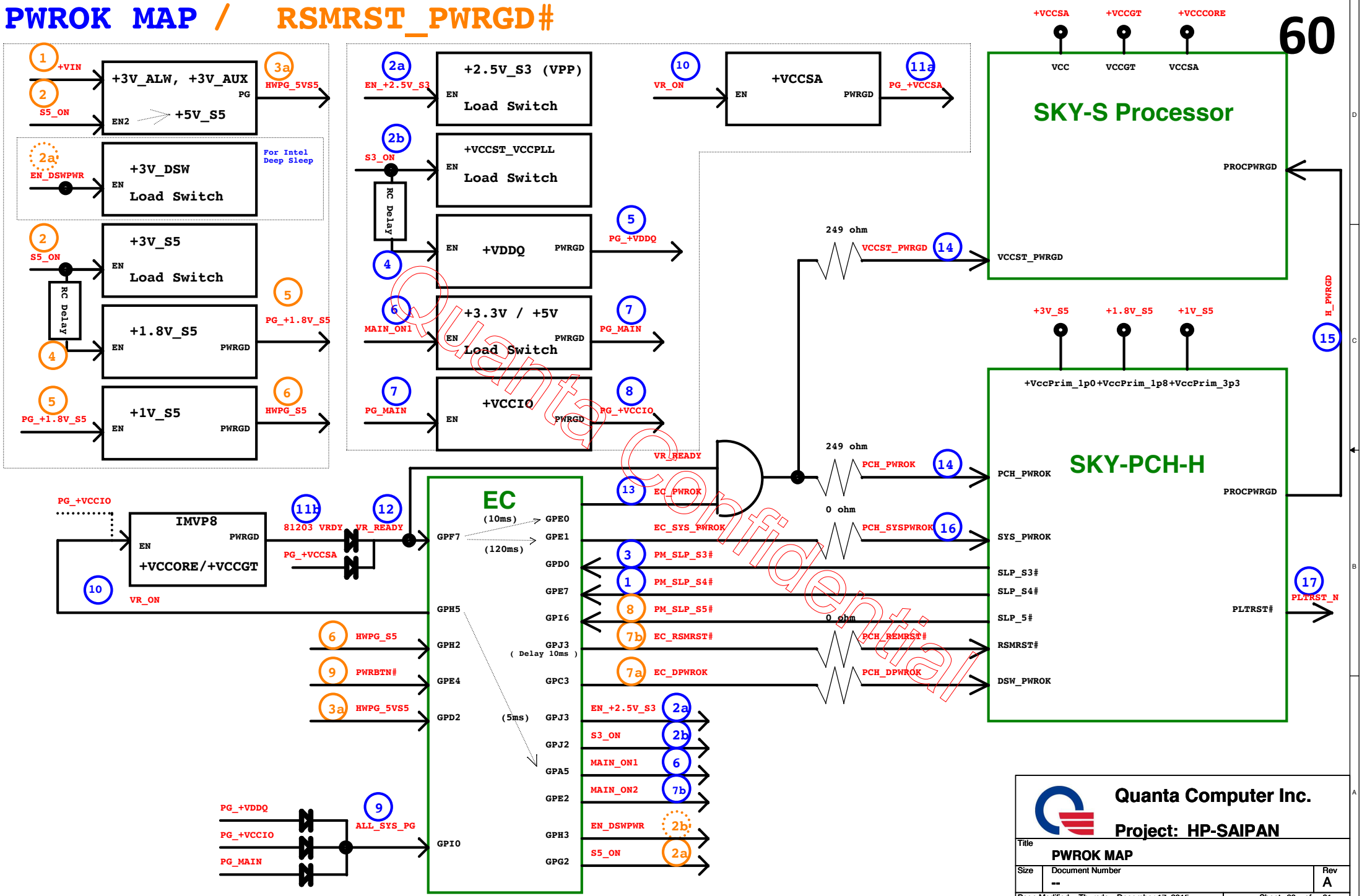
PWROK MAP / RSMRST_PWRGD#



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DB1 Change List

No.	Change details	Location/Description	Page	Change Reason
EC-DB1-E01	Change 0 ohm to shortpad	R76,R328,R329,R785,R166,R158,R732,R618,R351, R352,R598	5,9,10,12,16,26,34	Reduce 0 ohm usage for SMT.
EC-DB1-E02	Modify PEG HW straps	R489,R5106,R514	5	For PEG PCIe x4 Gen3 setting.
EC-DB1-E03	Remove AC caps on PEG [4:7] for N16S	C74,C73,C483,C479,C75,C76,C488,C497,C77,C78,C500 ,C506,C79,C80,C507,C515	16	N16S-GMR support PEG x3 only.
EC-DB1-E04	Add dual mosfet on SMBl_CLK/DAT	Q55	9	I2C power domain.
EC-DB1-E05	Remove C328	C328,C330	14,15	for DDR4 reset timing
EC-DB1-E06	Remove R612	R612	16	Don't support GC6.0
EC-DB1-E07	Remove R126,R118,R109	R126,R118,109	16,19	unnecessary
EC-DB1-E08	stuff R96	R96	9	NV suggest
EC-DB1-E09	De-populate SPI ROM	R64,R72,R129,U9,R124C102	19	De-populate SPI ROM
EC-DB1-E10	Change QHD panel circuit	all page	25	Chage QHD VCC control circuit
EC-DB1-E11	Chage R711 to 470 ohm	R711	25	QHD VCC discharge resistor
EC-DB1-E12	Change part	F9	26	common part
EC-DB1-E13	DMIC I2C circuit wrong	AR5/AR17/AR6/AR13	27	DMIC I2C circuit wrong
EC-DB1-E14	Change EC HW straps power domain to +3V_ALW	'--	30	timing issue
EC-DB1-E15	Stuff R571/R572	R571/R572	30	I2C power domain.
EC-DB1-E16	Remove R70	R70	30	Reduce 0 ohm usage for SMT.
EC-DB1-E17	Change +3.3V to +3.3V_CCD on CN4.1 & U3.5	CN4.1 & U3.5	31	To disable DMIC device in Fangio-x
EC-DB1-E18	Stuff U5,U4	U5,U4	31	ESD
EC-DB1-E19	Remove R3	R3	30	unnecessary

EC-DB-P01	change footprint to short pad.	PJP2,4~9,11~20,22~31	50~54	change footprint to short pad.
EC-DB-P02	change footprint to short pad.	PJP1,3,10,21	50~54	change footprint to short pad.
EC-DB-P03	change part reference for schematic error	PQ43A,PQ78A,PQ78B,PQ79A,PQ79B	50~55	change part reference for schematic error
EC-DB-P04	For Common parts	PQ29A,PQ29B		For Common parts

DB2 Change List

No.	Change details	Location/Description	Page	Change Reason
EC-DB2-E01	Change 0 ohm to shortpad	R552,R761,R735,R316,R307,R706,R164,R336 ,R666,R306,R278,R324,196,R781,R667,R231,R703,R372	5,9,10,11,12 ,13,14,38	Reduce 0 ohm usage for SMT.
EC-DB2-E02	Adding TVS DIODE	D6,D7	5	ESD request
EC-DB2-E03	Change location C378/C379 to PC329/PC330	C378,C379	6	power parts.
EC-DB2-E04	Remove R673	R673	11	simple circuit
EC-DB2-E05	Stuff C594 10pf	C594	11	for CK_24M_EC timing
EC-DB2-E06	Change Board ID to SI (STUFF R702)	R702	12	BOARD ID
EC-DB2-E07	ADD TVS on WLAN_PCIE_CLKREQ#	D46	12	ESD request
EC-DB2-E08	Change part	L58	18	For common part
EC-DB2-E09	Chage c71 to 10pf and C72 to 12pf	C71,C72	18	Xtal accuracy
EC-DB2-E10	Don't stuff R18/R20	R18,R20	21	unnecessary
EC-DB2-E11	Don't stuff C116	C116	22	unnecessary
EC-DB2-E12	Don't stuff R181 and add R822 pull down	R181,R822	22	Reatek recommand
EC-DB2-E13	Chage caps power rating from 16v to 10v	C108,AC9	22	Chage caps power rating
EC-DB2-E14	Chage c232 to and C228 to 8.2pf	C232/C228	24	Xtal accuracy
EC-DB2-E15	Change part	F9	26	For common part
EC-DB2-E16	Change Q10 to dual MOSFET. Q32/33 to Q57	Q10/Q11/Q10, Q32/Q33/Q57	26,34	Simple layout
EC-DB2-E17	Change part	AL9,AL10,AL11,AL13	27	For common part
EC-DB2-E18	adding disable DMIC icon	Au1.48	28	HP request
EC-DB2-E19	Stuff R803/R792/D33, don't stuff R802	R803,R802,R792,D33	12,28,29,34	enable PCie clock request function
EC-DB2-E20	Adding M.2 SSD function	All page	35	HP request
EC-DB2-E21	Change RJ45 part	CN24	28	SMT request
EC-DB2-E22	Chage caps power rating from 10v to 6.3v	C230,C482,C495	29,34	Chage caps power rating
EC-DB2-E23	Stuff C666	C666	29	EMI request
EC-DB2-E24	Change GPIO table in EC	EN_TYPEC,CLR_CMOS,EN_AUO_PVDD,BOX_BUTTON #,PCHHOT#,EC_MUTE#,HWPG_5VS5	30	common design
EC-DB2-E25	Change diode to 0 ohm	R837,R838,R839	30	common design
EC-DB2-E26	Change SMI circuit	R517	30	unnecessary
EC-DB2-E27	Adding iRMT control pin	R843	30	iRMT
EC-DB2-E28	Change QHD I2C control circuit	R627/R633	30	Leakage.
EC-DB2-E29	Remove D17/D19	D17/D19	30	unnecessary
EC-DB2-E30	Change L5 to 4.7ohm. Adding C674	L58,C674	31	DMIC EA timing
EC-DB2-E31	Stuff U5,U4	U5,U4	31	ESD
EC-DB2-E32	Add iRMT control circuit	R842,Q58,R840	31	iRMT
EC-DB2-E33	Reserve D45	D45	31	ESD
EC-DB2-E34	Change USB power switch	U43,U44,U33,U32,C342,C372	31,32	For common part
EC-DB2-E35	Change C235/C236 from 150uf to one 390uf (C236)	C235,C236	32	simple layout
EC-DB2-E36	Add M.2 SSD function	'--	35	HP request
EC-DB2-E37	Change Part	CN8	36	common design
EC-DB2-E38	Reserve C205	C205	36	Reserve only
EC-DB2-E39	Don't populate R384	R384	36	Leakage.
EC-DB2-E40	Remove LPC pin header	CN10	37	no enough layout space.

EC-DB-P01	change footprint to short pad.	PJP2,4~9,11~20,22~31	50~54	change footprint to short pad.
EC-DB-P02	change footprint to short pad.	PJP1,3,10,21	50~54	change footprint to short pad.
EC-DB-P03	change part reference for schematic error	PQ43A,PQ78A,PQ78B,PQ79A,PQ79B	50~55	change part reference for schematic error
EC-DB-P04	For Common parts	PQ29A,PQ29B		For Common parts

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