

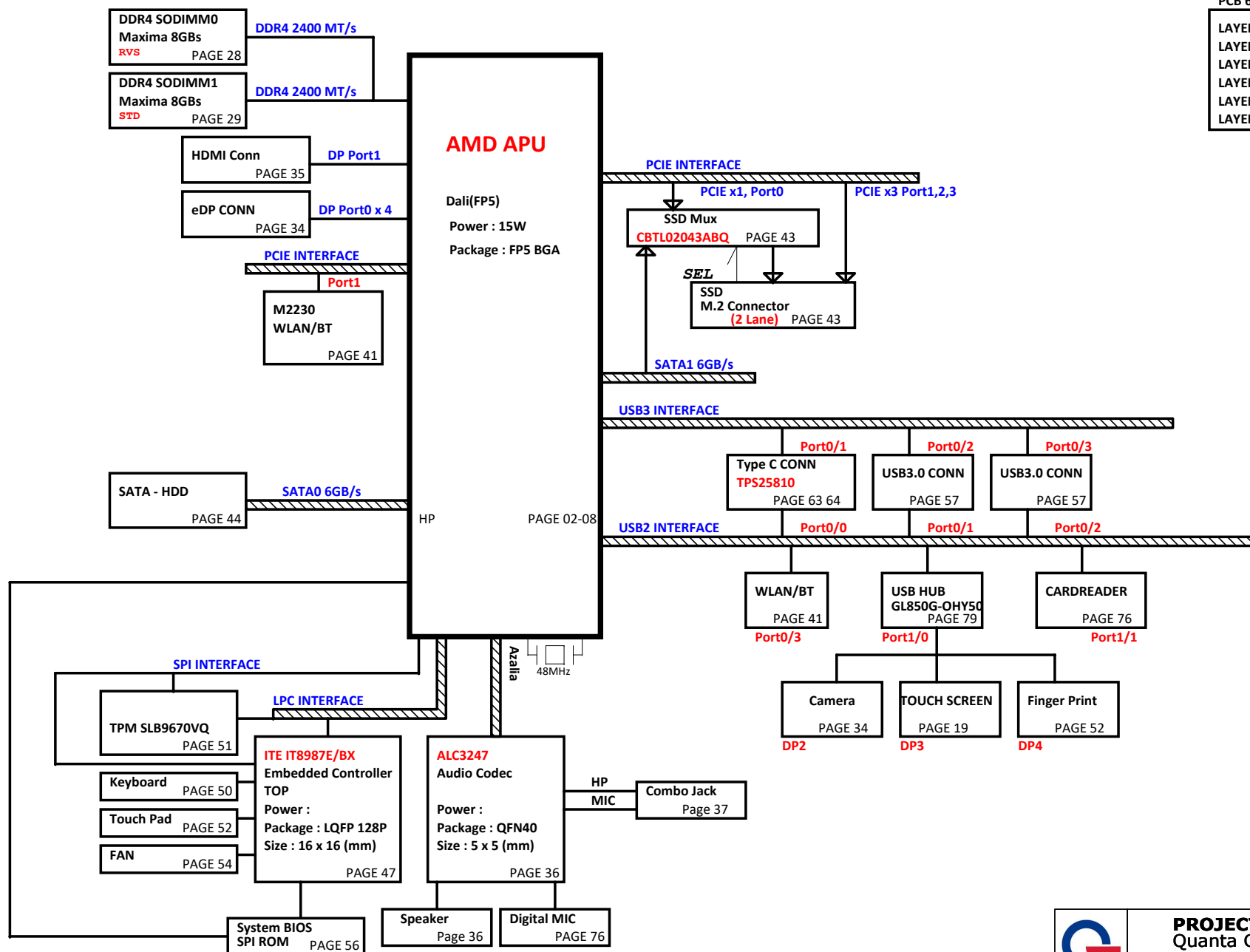
OPP 15"

15" AMD Dali UMA

PCB 6L STACK UP

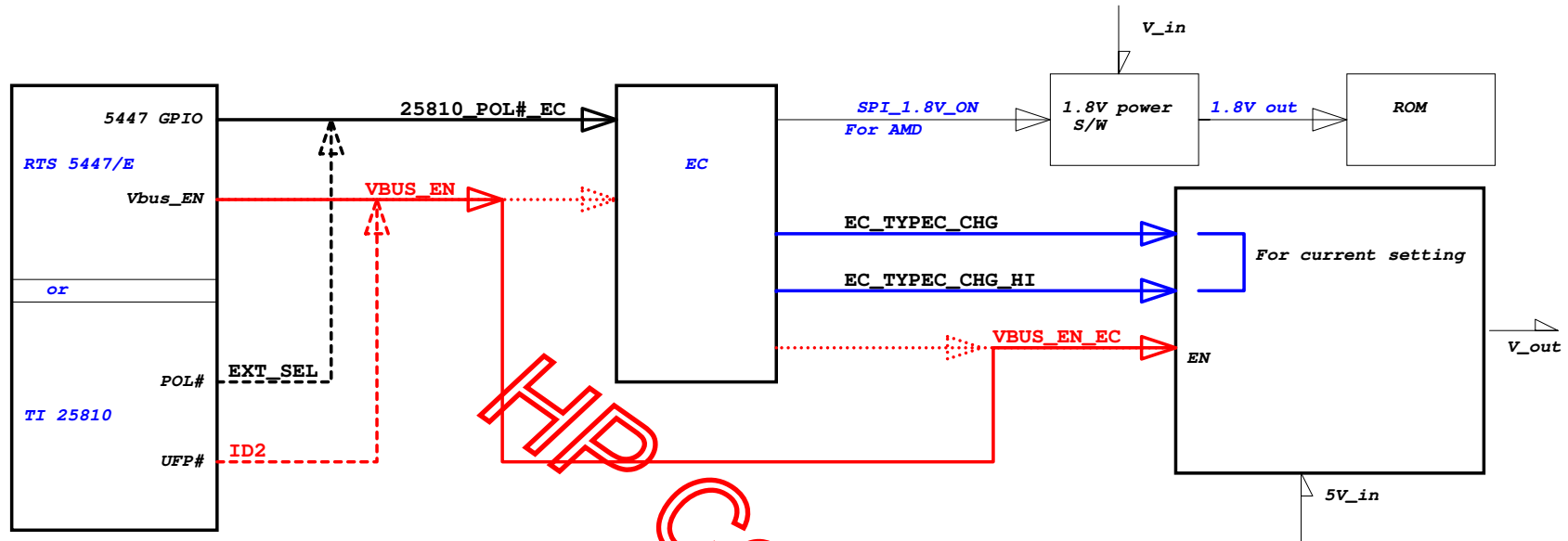
LAYER 1 : TOP
 LAYER 2 : SVCC
 LAYER 3 : IN1
 LAYER 4 : IN2
 LAYER 5 : SGND
 LAYER 6 : BOT

1.1 mm




Power Diagram

02



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Quanta Computer Inc.

Size	Document Number I2C Path	Rev 1A
Date: Friday, August 23, 2019		Sheet 3 of 90

APU PCIE

AMD APU	TOP BSQ	QBCON
R5-3500U		AJ03500UT00
R3-3300U		AJ03300UT00
R3-3200U		AJ03200RT00

For dGPU

For dGPU TX, Gen3 use 0.22u of CAP.

Combo to M.2 SSD

Combo to M.2 SSD

TO SSD M2 CN

TO SSD M2 CN

WLAN

For LAN of TX, Use 0.1 of CAP

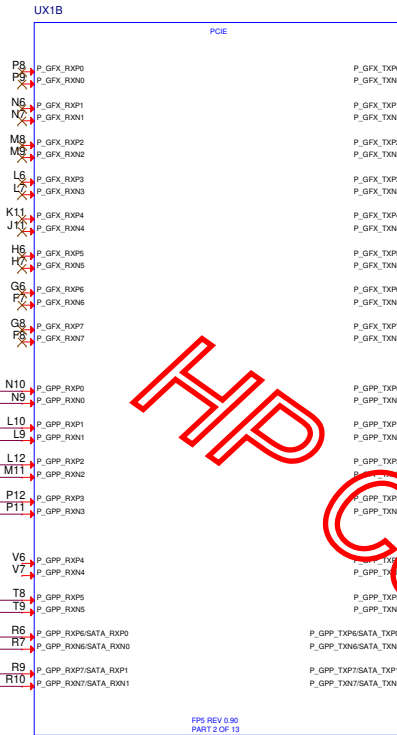
WLAN

HDD

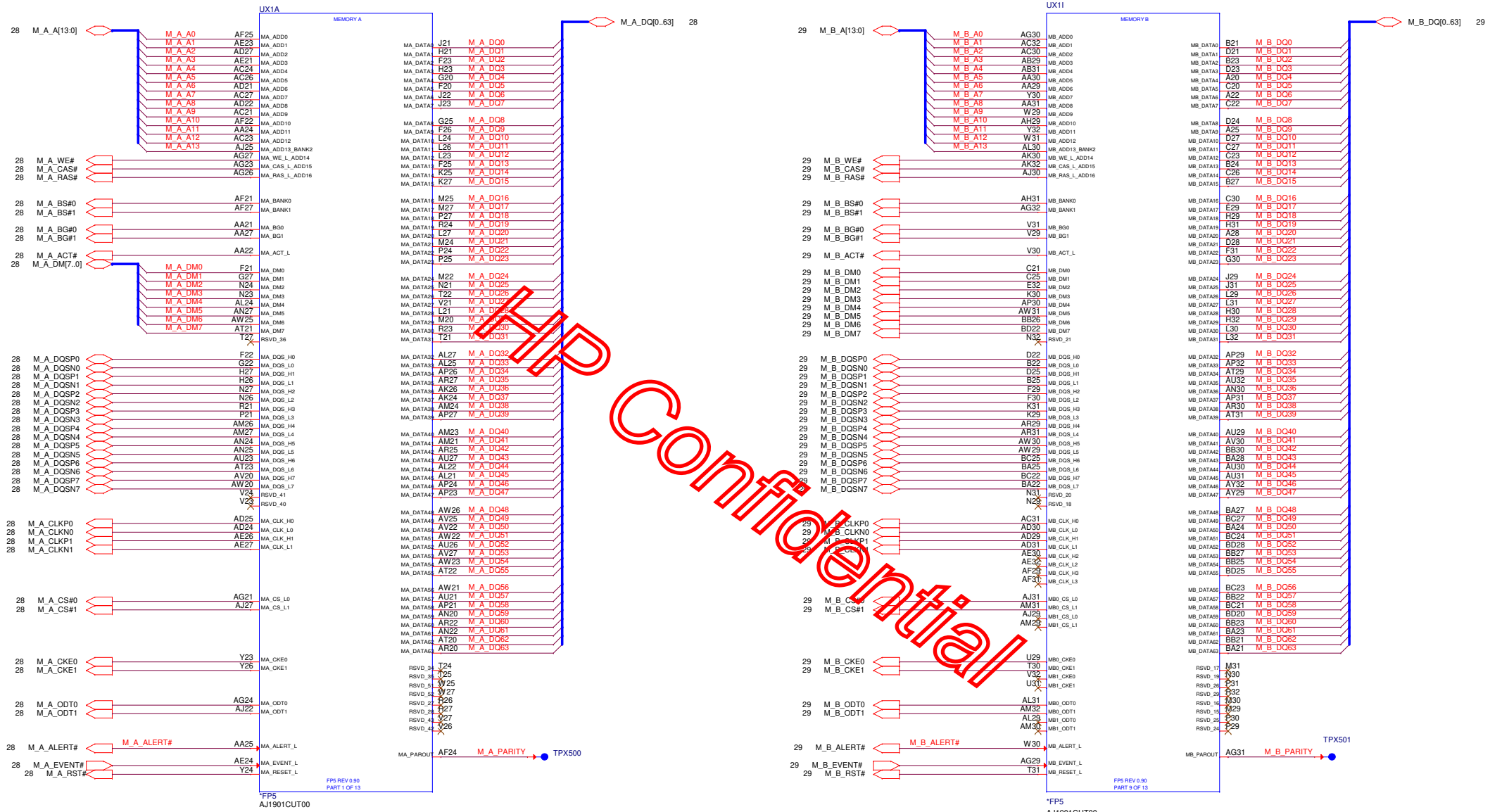
HDD

SSD (SATA)

SSD (SATA)

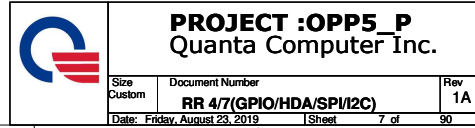
*FP5
AJ1901CUT00

	PROJECT :OPP5_P		
	Quanta Computer Inc.		
	Size Custom	Document Number	Rev 1A
	Date: Friday, August 23, 2019	RR 1/7(PCIE)	Sheet 4 of 90



06





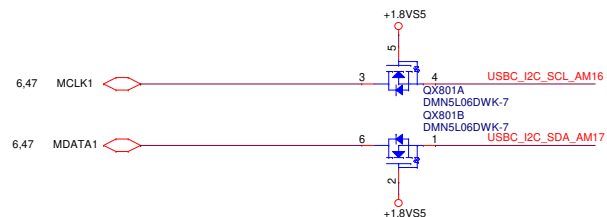
USB2 Port	Function
USB0/0	TYPE-C
USB0/1	TYPE-A Up
USB0/2	TYPE-A Down
USB0/3	BT
USB1/0	HUB
USB1/1	CARD READER

BT

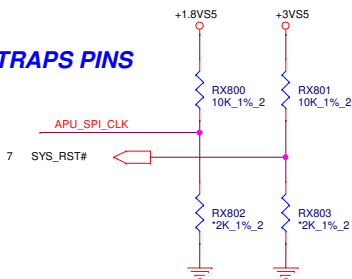
Card Reader

Follow check list

USBC_I2C_SCL_AM16 R859 4.7K 5% 2
USBC_I2C_SDA_AM17 R856 4.7K 5% 2

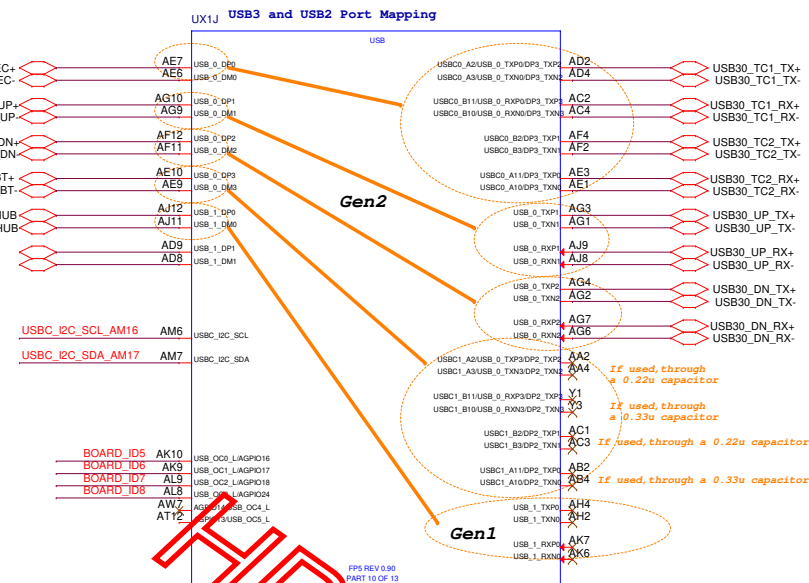


STRAPS PINS



REQUIRED STRAPS

	APU_SPI_CLK	SYS_RST# Int Pull-Up
PULL HIGH	Use 48Mhz crystal clock and generate both internal and external clocks	normal reset mode
	DEFAULT	DEFAULT
PULL LOW	Use 100Mhz PCIe clock as reference clock and generate internal clocks only	short reset mode



USB TYPE C

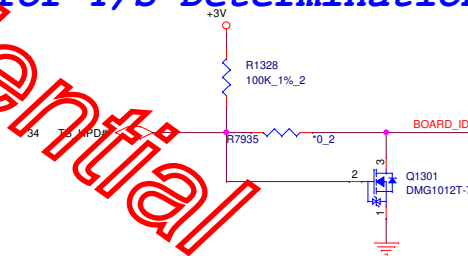
USB Type-A-Up

USB Type-A-Down

USB3 to SATA

USB3 Port	Function
USB0/0	TYPE-C
USB0/1	TYPE-A
USB0/2	TYPE-A
USB0/3	USB TO SATA
USB1/0	NC

for T/S Determination



BOARD ID SETTING

Board ID 0	Definition
0	PCO
1	Dali

Board ID [2:1]	Definition
00	14"
01	15.6" 1SPD
10	17"
11	15.6" 2SPD

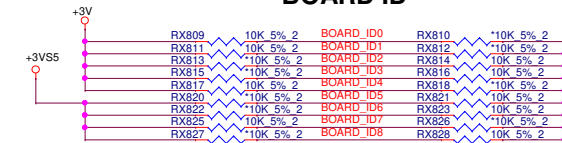
Board ID [5:4:3]	Definition (SATA port option)
000	HDD (p0) +ODD (p1)
001	HDD (p0) +ODD (Hub) +M.2 (p1)
010	HDD (p0) +M.2 (p1)
011	ODD (Hub) +M.2 (p1)
100	NA
101	NA
110	NA
111	NA

Board ID [6]	Definition
0	TS USB
1	TS I2C

Board ID [7]	Definition
0	SM BUS TP
1	I2C TP

Board ID [8]	Definition
0	fTPM
1	dTPM

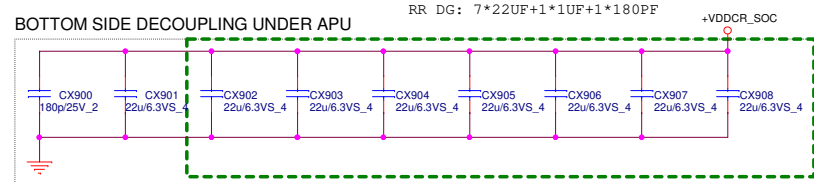
BOARD ID



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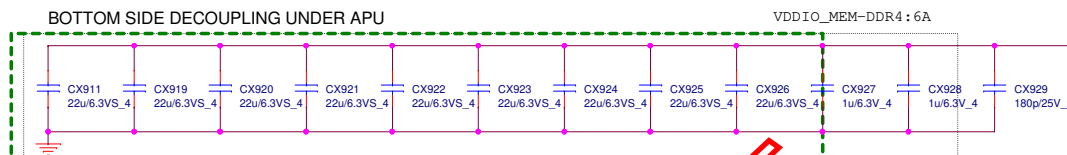
Size Custom	Document Number RR 5/7(USB/STRAP)	Rev 1A
Date: Monday, September 23, 2019	Sheet 8 of	90

APU POWER

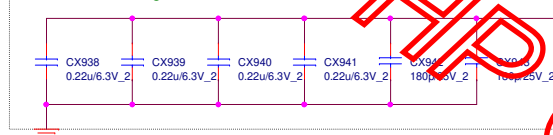


Down Size form 0603 for Hight 0130

RR DG: 9*22UF+2*1UF+4*0.22uf+3*180PF

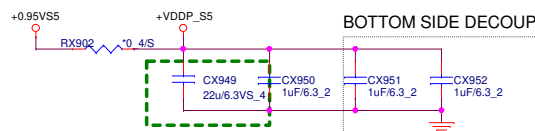


Down Size 22U form 0603 for Hight 0130

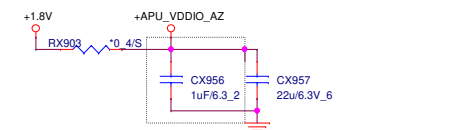


If the VSS plane is cut to create a VDDIO_MEM_S3 plane, ceramic capacitors with NP0 or C0G dielectric are connected across the VDDIO_MEM_S3 and VSS plane split.

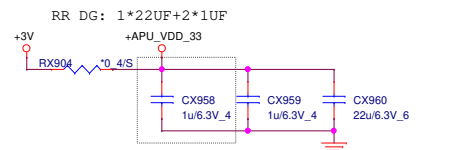
RR DG: 1*22UF+3*1UF



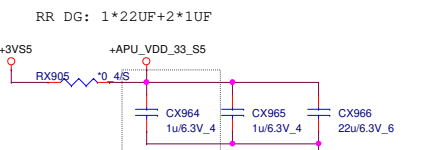
RR DG: 1*22UF+1*1UF



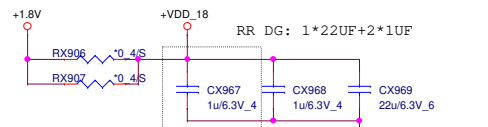
BOTTOM SIDE DECOUPLING UNDER APU



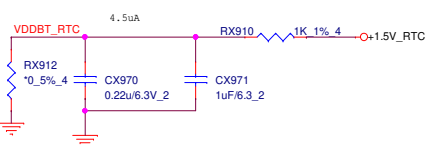
BOTTOM SIDE DECOUPLING UNDER APU



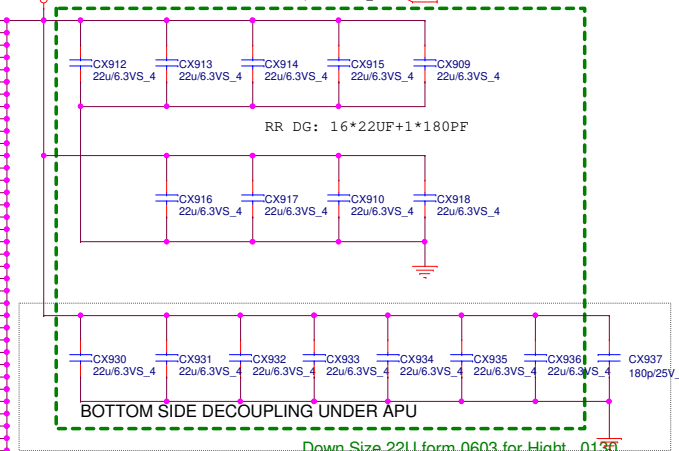
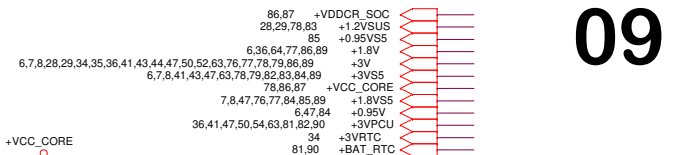
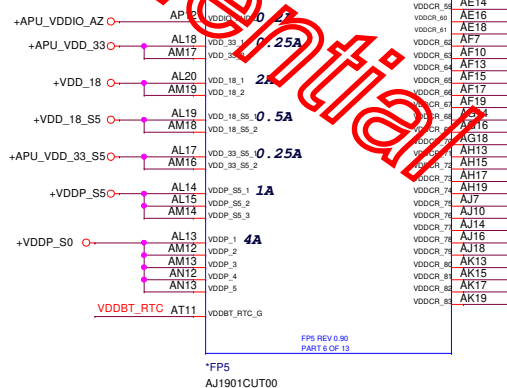
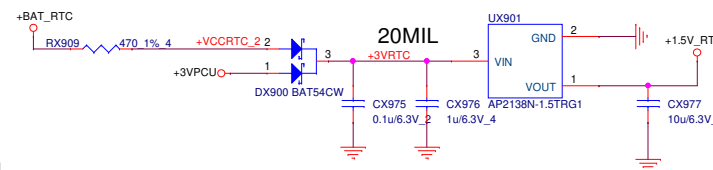
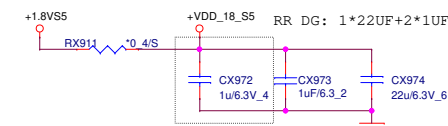
BOTTOM SIDE DECOUPLING UNDER APU



BOTTOM SIDE DECOUPLING UNDER APU

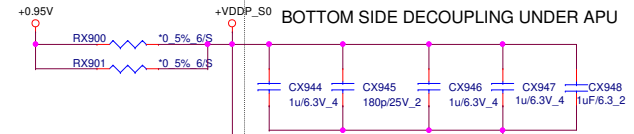


BOTTOM SIDE DECOUPLING UNDER APU

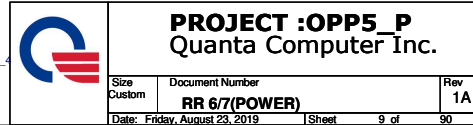
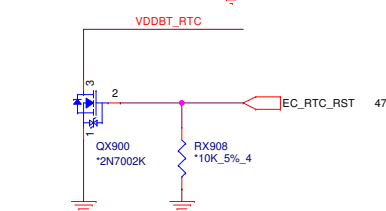
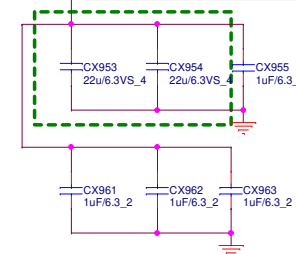


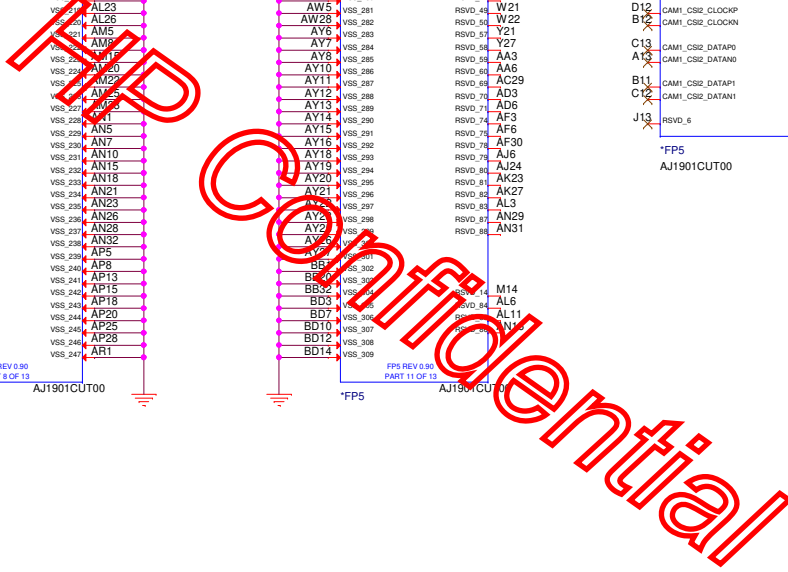
Down Size 22U form 0603 for Hight_0130

RR DG: 2*22UF+8*1UF+1*180PF




S0 BOTTOM SIDE DECOUPLING UNDER APL






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	Size Custom	Document Number WHL-U 8/15 (RSV)
	Date: Friday, August 23, 2019	

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	Size	Document Number			Rev
	Custom	WHL-U 09/15(SPI/LPC/SM)			1A
	Date: Friday, August 23, 2019			Sheet 12 of 90	

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Size Custom	Document Number WHL-U 10/15(HDA)		Rev 1A	
Date: Friday, August 23, 2019		Sheet	13	of 90


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Size Custom	Document Number WHL-U 12/15 (CLK/EMMC)	Rev 1A
Date: Friday, August 23, 2019		Sheet 15 of 90

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Size Custom	Document Number WHL-U 13/15 (GPIO)		Rev 1A	
Date: Friday, August 23, 2019		Sheet	16	of 90

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Size Custom	Document Number WHL-U 14/15(PCH POWER)	Rev 1A
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PCH

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PCH

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Quanta Computer Inc.

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PCH

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			PROJECT :OPP5_P Quanta Computer Inc.		
Size	Document Number			Rev	
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Date: Friday, August 23, 2019		Sheet	23	of	90

PCH

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	Size	Document Number PCH		Rev 1A
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PCH

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Size	Document Number			Rev	
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Date: Friday, August 23, 2019		Sheet	25	of	90

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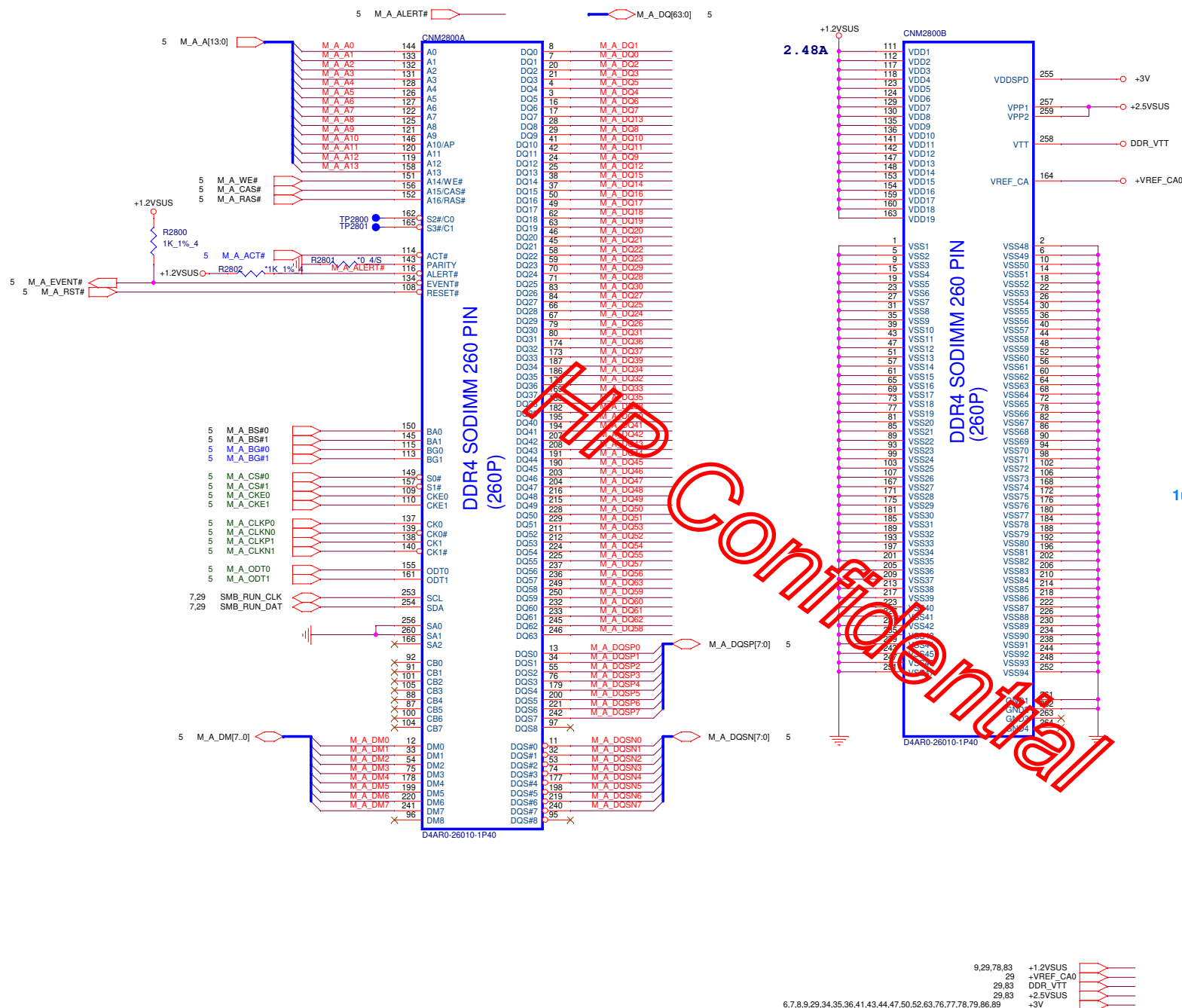
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Size	Document Number			Rev	
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Date: Friday, August 23, 2019		Sheet	26	of	90

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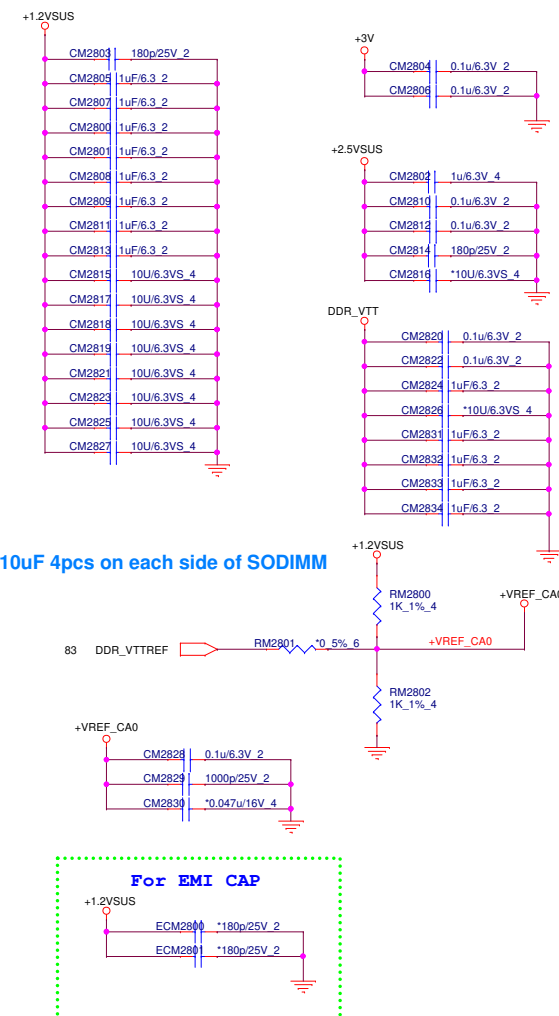


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Quanta Computer Inc.

Size	Document Number PCH STRAP	Rev 1A
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1uF/10uF 4pcs on each side of SODIMM

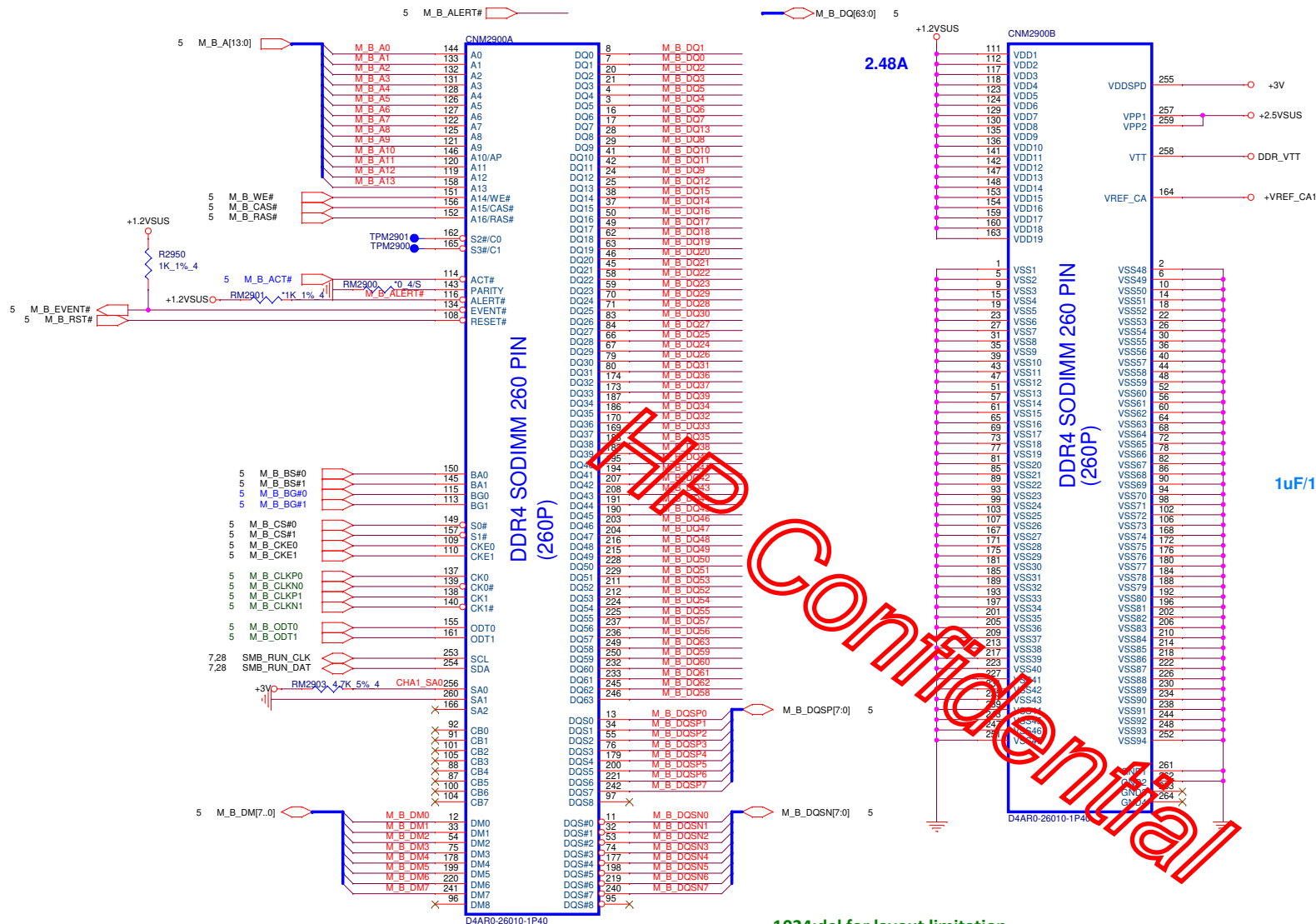


For EMI CAE

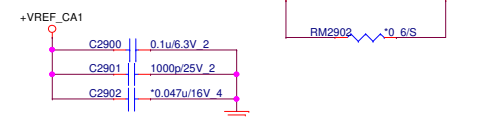
PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number CHA0 DDR4 DIMM0-RVS(4.0H)	Rev 1A
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Place these Caps near SODIMM



1uF/10uF 4pcs on each side of SODIMM



Local Thermal Sensor

9,28,78,83 +1.2VSUS

28,83 DDR_VTT

28,83 +2.5VSUS

6,7,8,9,28,34,35,36,41,43,44,47,50,52,63,76,77,78,79,86,89 +3V




PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number CHA1 DDR4 DIMM1-STD(4.0H)	Rev 1A
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MEMORY

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MEMORY


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	MEMORY	1A
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Size Custom	Document Number DDR4 Memory Down (CH. B)	Rev 1A
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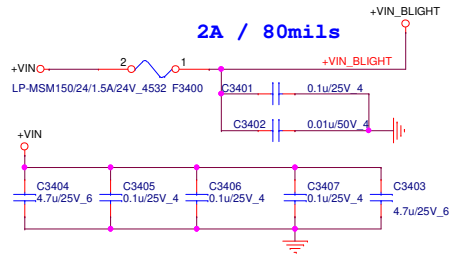
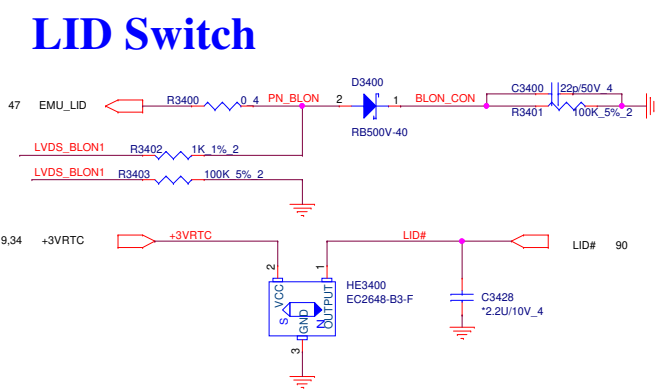
PCH

33

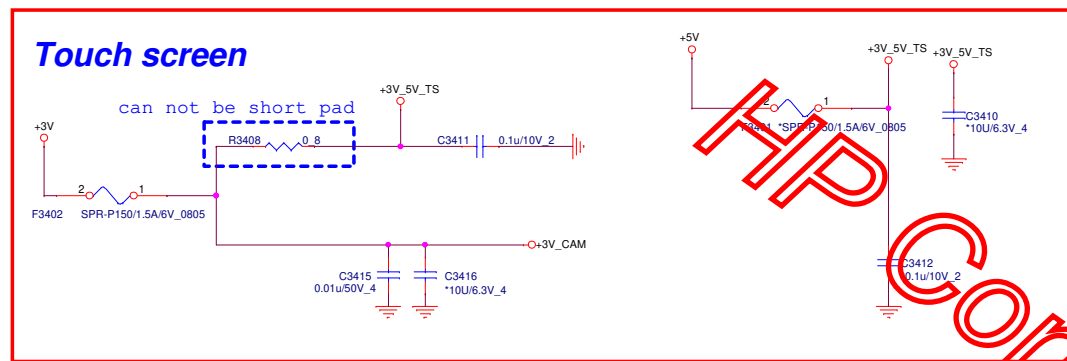
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	PROJECT :OPP5_P Quanta Computer Inc.			
	Size	Document Number		Rev
		I2C Path		1A
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LID Switch

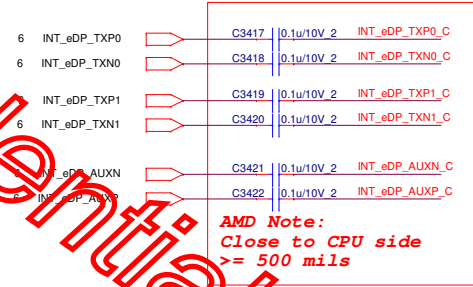
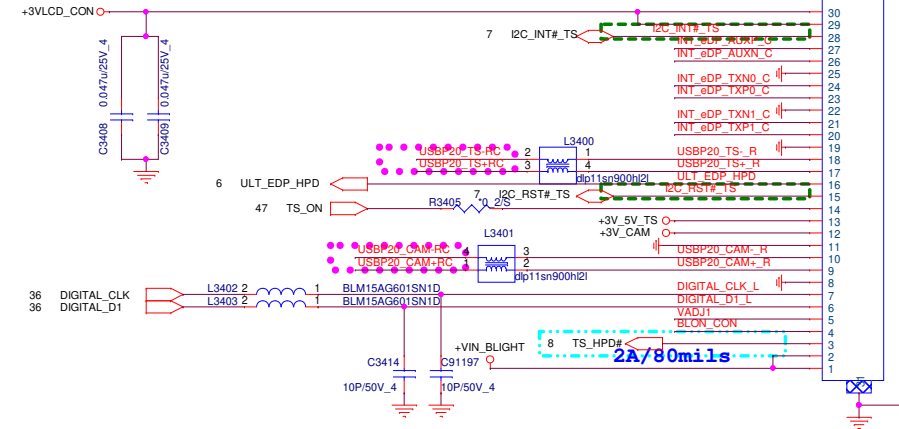
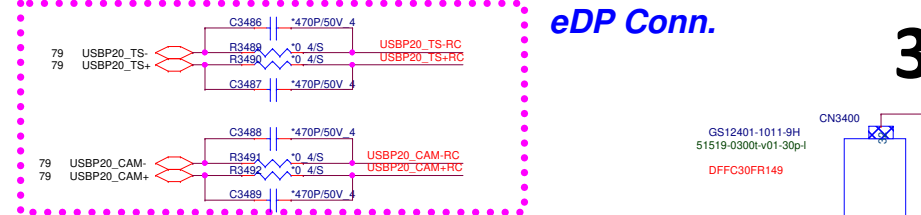


Touch screen

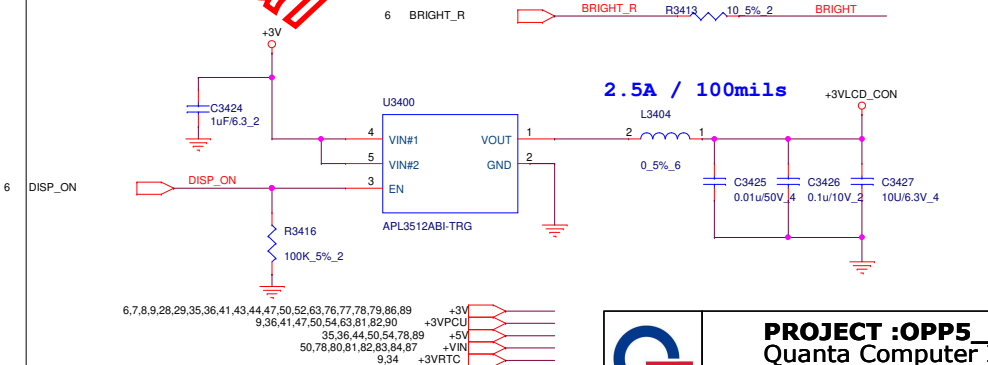


eDP Conn.

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AMD Note:
Close to CPU side
>= 500 mils

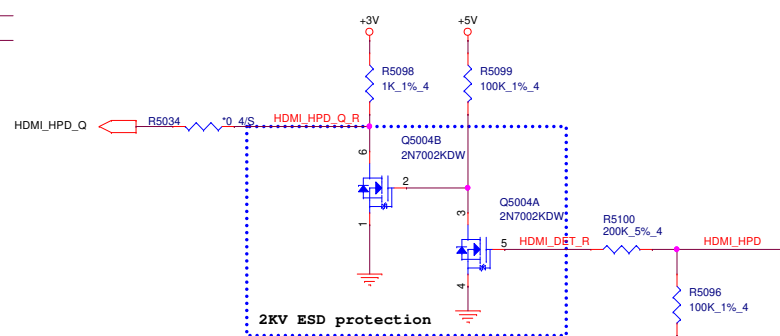
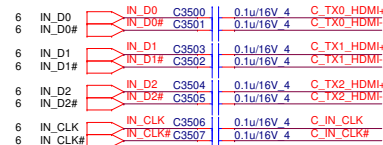


PROJECT :OPP5_P		
Quanta Computer Inc.		
Size	Document Number	Rev
Custom	eDP/IR CAM/LID/CAM/MIC/TS	1A
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HDMI CONN

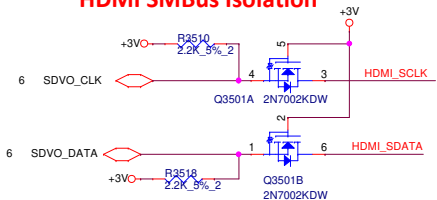
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34,36,44,50,54,78,89

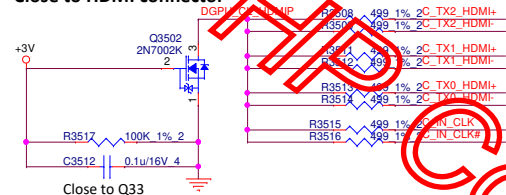


Change design for AMD setting_0108

HDMI SMBus Isolation

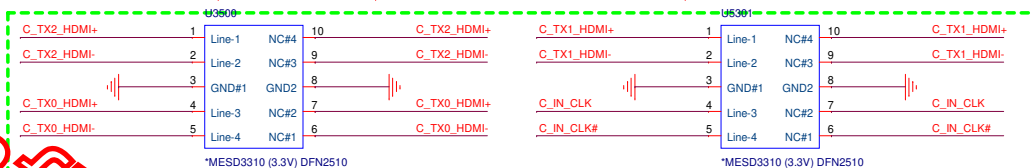
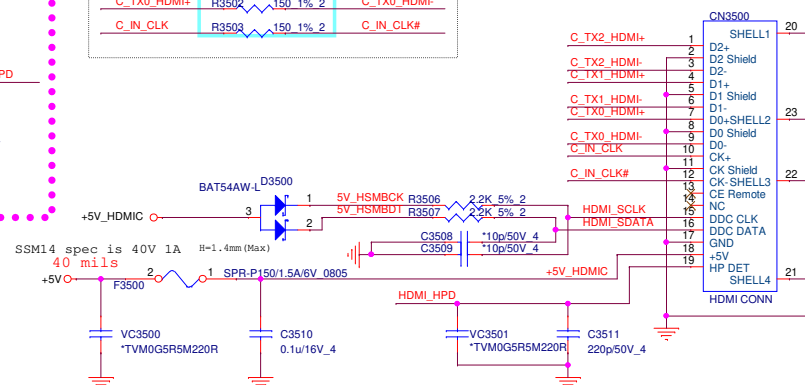


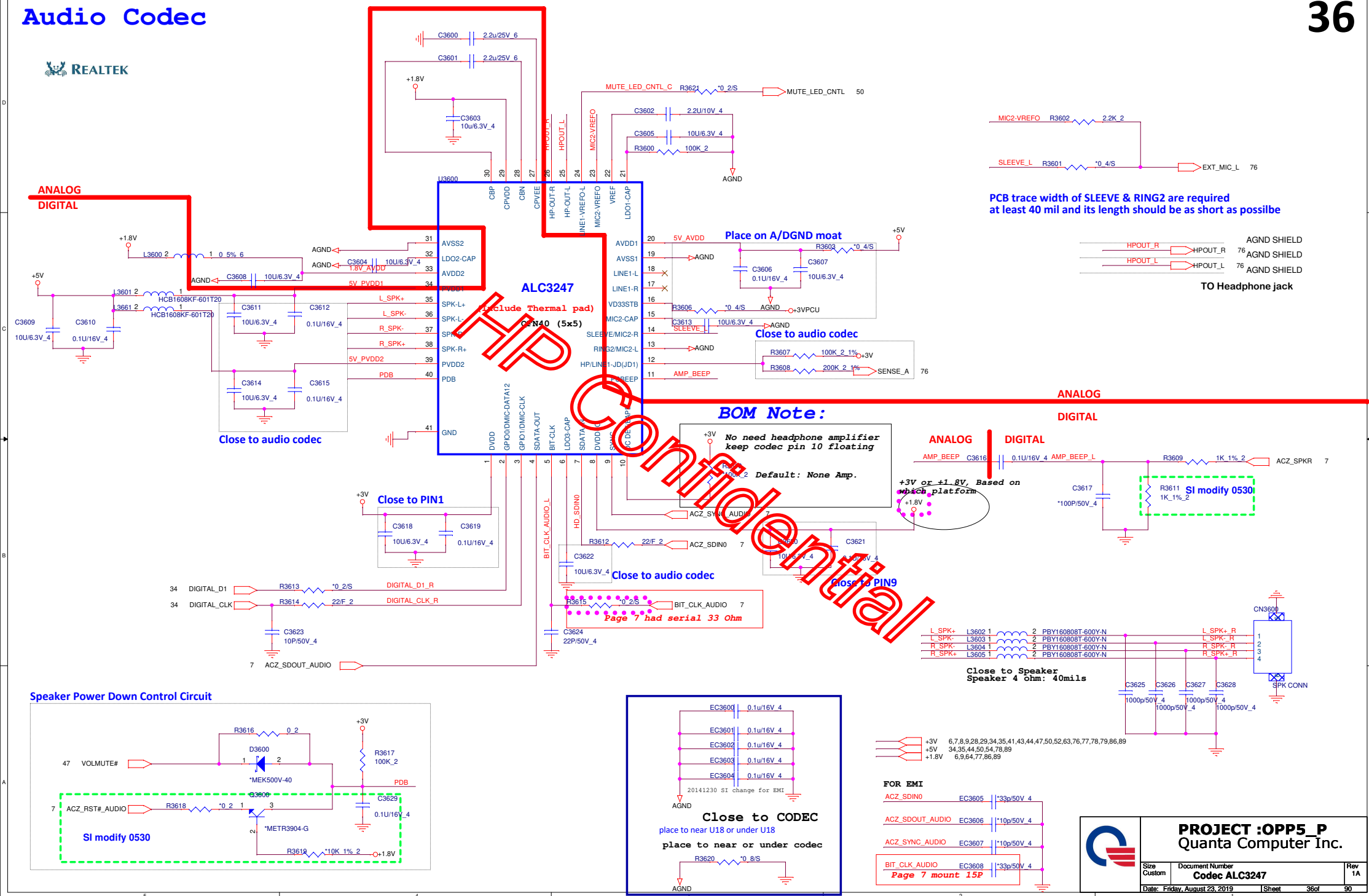
Close to HDMI connector




EMI Solution

C_TX2_HDMI+	R3500	150	1%	2	C_TX2_HDMI-
C_TX1_HDMI+	R3501	150	1%	2	C_TX1_HDMI-
C_TX0_HDMI+	R3502	150	1%	2	C_TX0_HDMI-
C_IN_CLK	R3503	150	1%	2	C_IN_CLK#






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			PROJECT :OPP5_P Quanta Computer Inc.		
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AUDIO

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AUDIO


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Size Custom	Document Number LAN RTL8111HSH	Rev 1A
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www.DeviceDB.XYZ - schematic, boardview, bios dump

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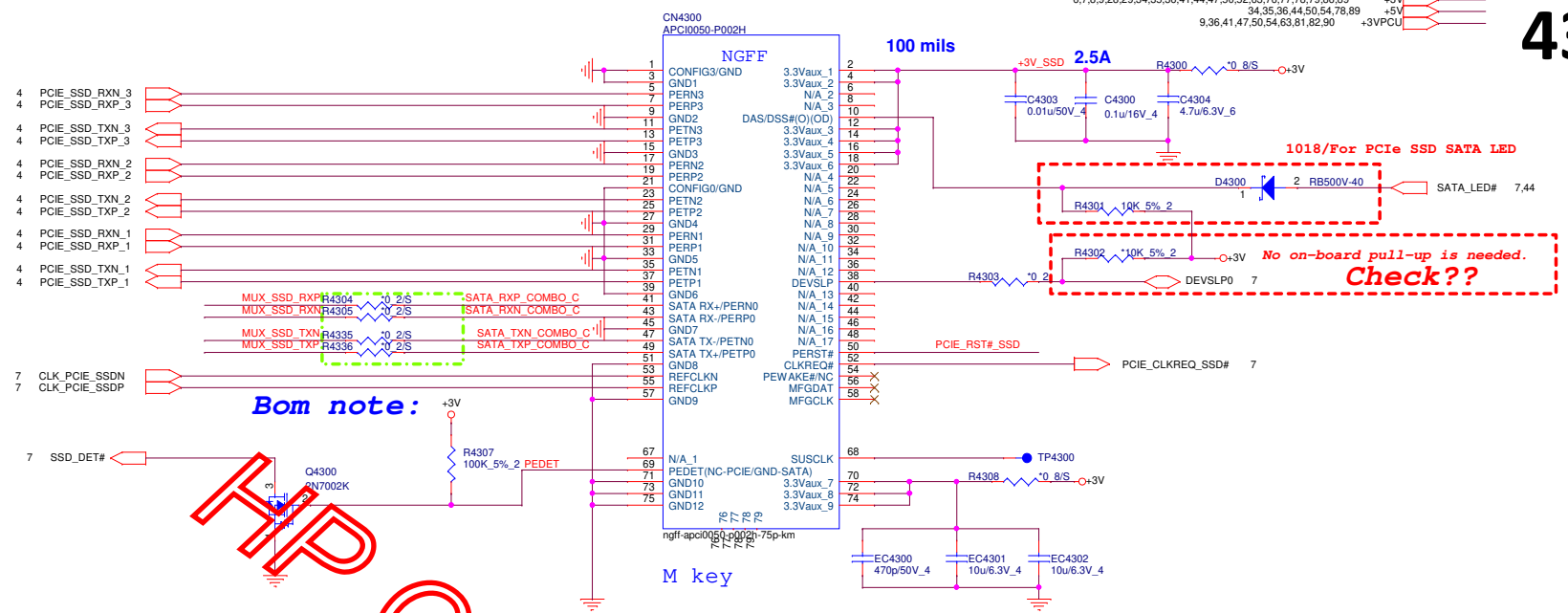


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Quanta Computer Inc.

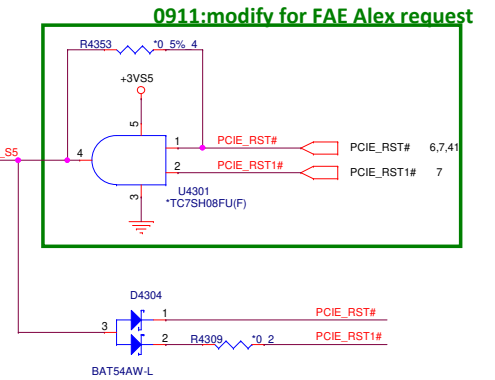
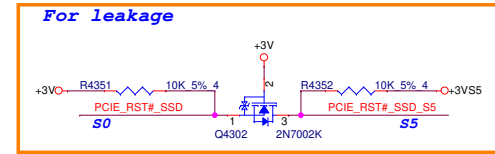
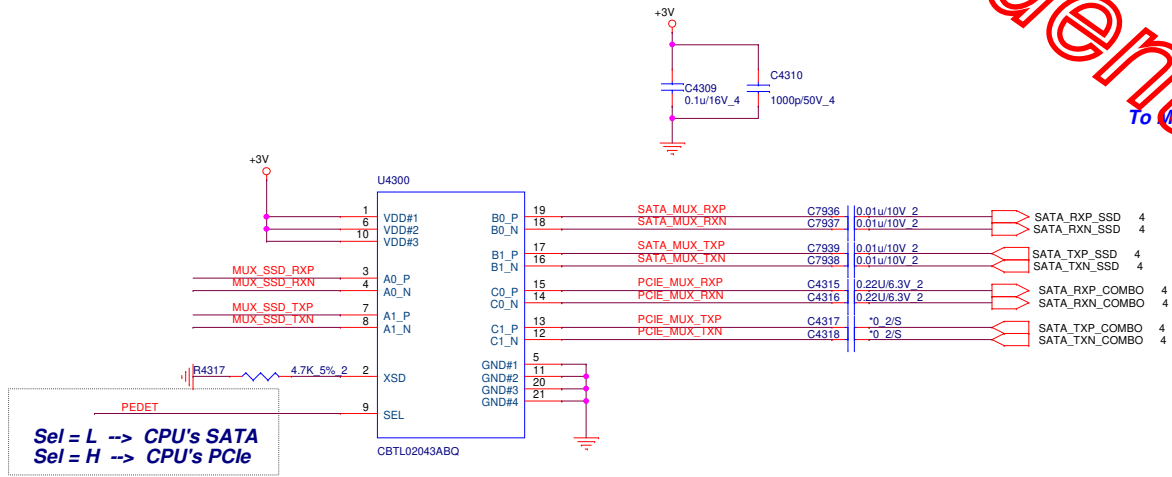
Size Custom	Document Number WWAN	Rev 1A
Date: Friday, August 23, 2019		Sheet 42 of 90

SATA SSD

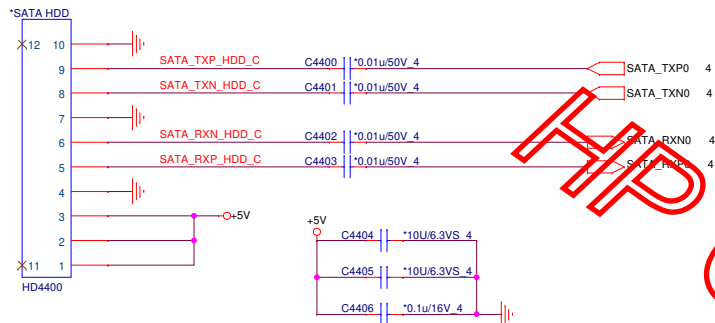
43



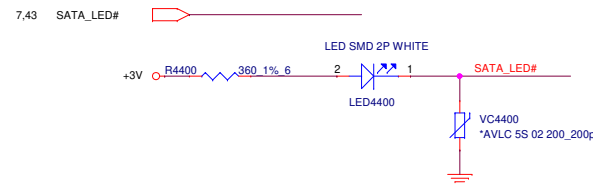
PCIE AND SATA MUX




SATA HDD & LED




SATA LED



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			PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number HDD/ODD			Rev 1A	
Date: Friday, September 27, 2019			Sheet	44of	90


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PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number EMMC	Rev 1A
Date: Friday, August 23, 2019		Sheet 45 of 90

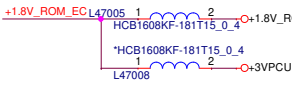
HP Confidential



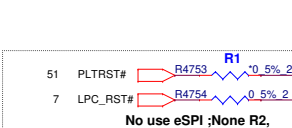
PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number CAMERA	Rev 1A
Date: Friday, August 23, 2019		Sheet 46 of 90

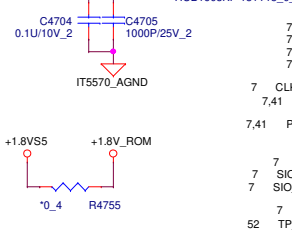
Follow BIOS-ROM power rail 1.8V



For eSPI supprot stuff L2,R2, Remove L1 & R1



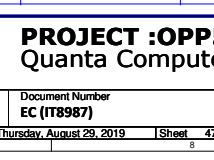
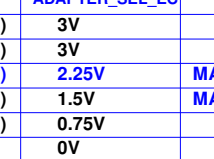
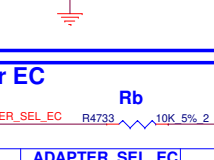
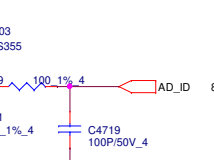
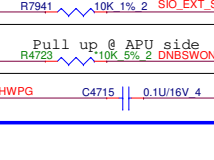
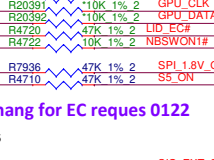
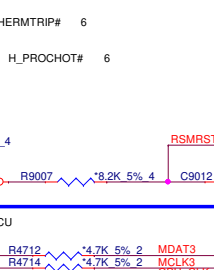
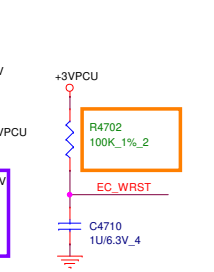
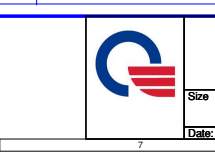
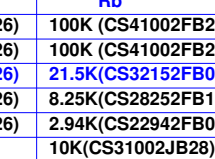
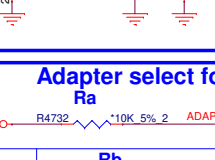
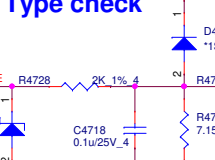
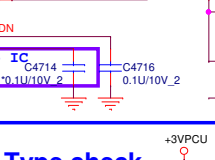
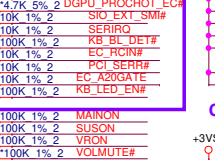
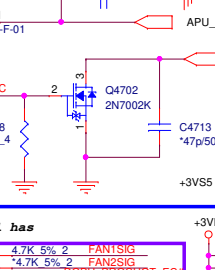
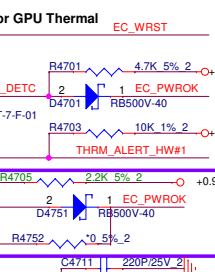
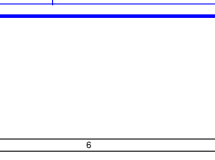
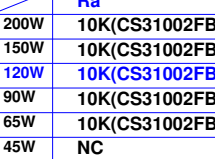
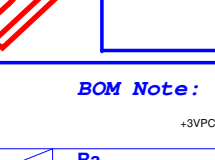
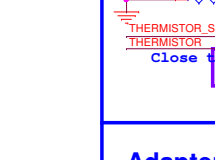
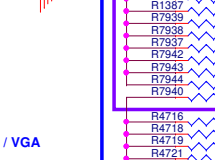
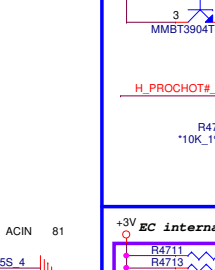
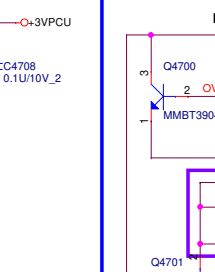
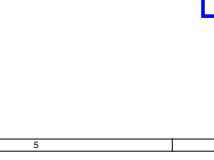
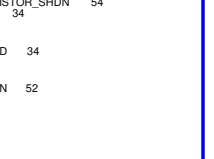
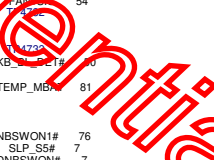
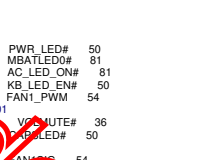
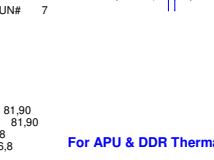
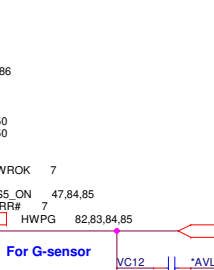
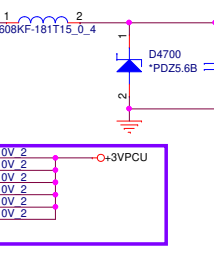
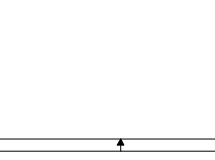
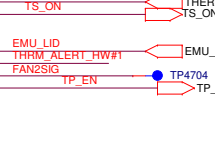
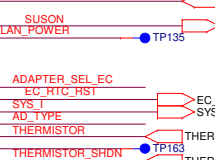
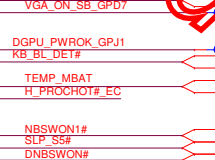
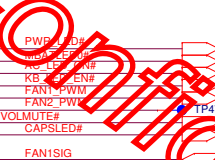
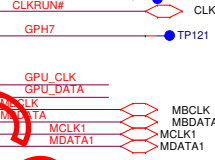
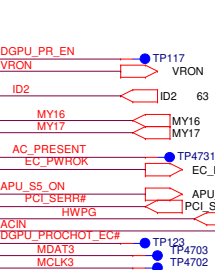
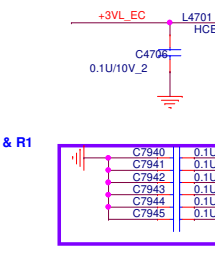
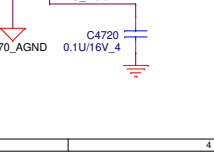
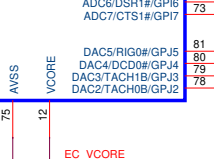
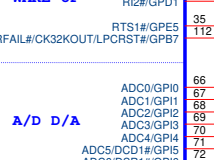
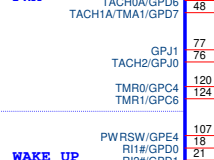
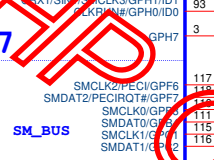
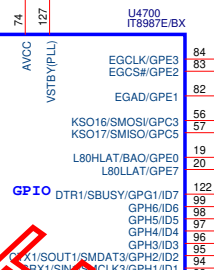
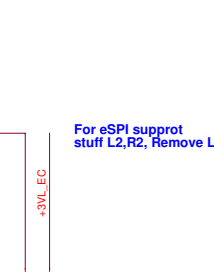
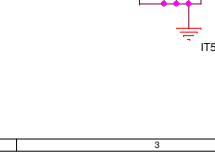
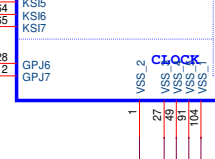
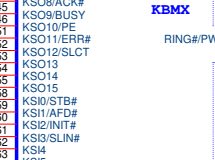
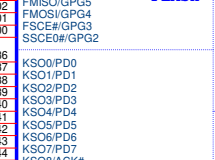
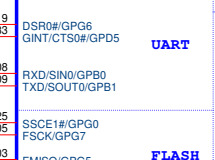
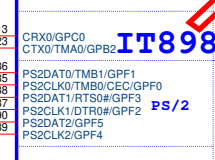
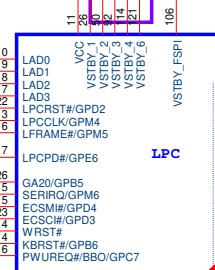
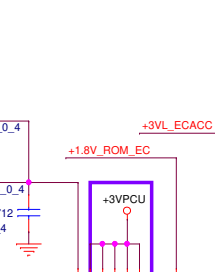
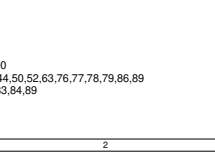
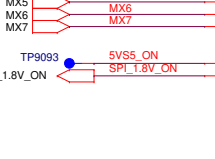
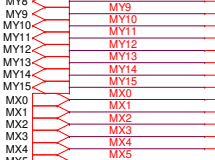
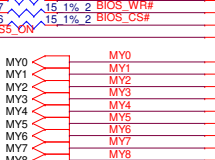
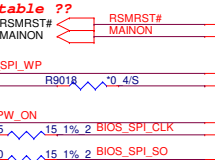
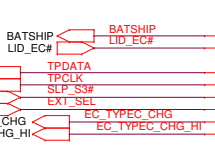
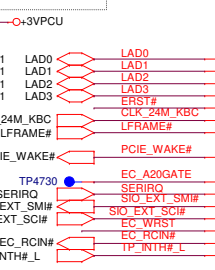
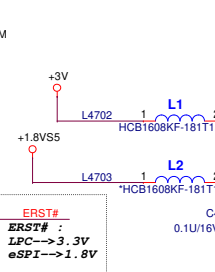
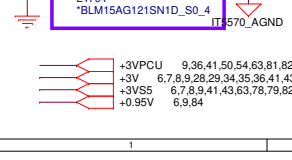
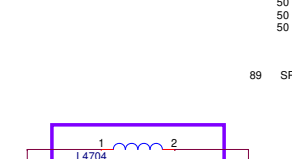
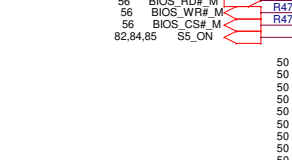
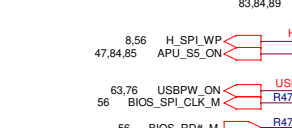
No use eSPI, None R2, eSPI--> 1.8V



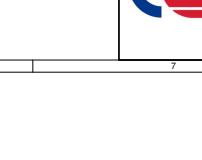
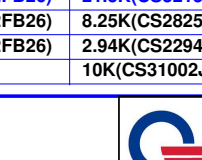
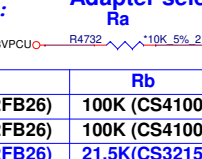
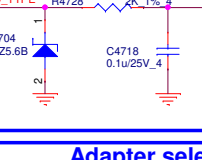
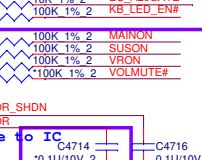
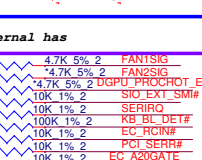
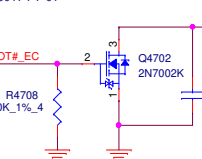
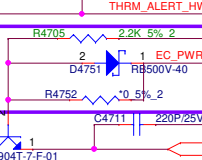
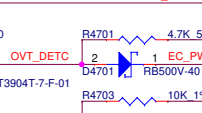
For TouchPad



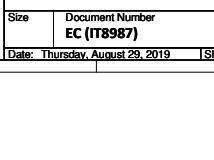
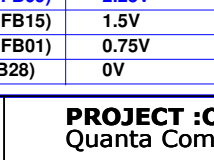
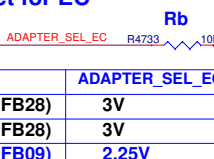
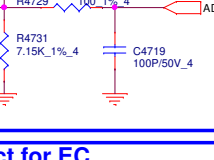
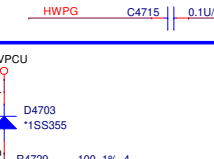
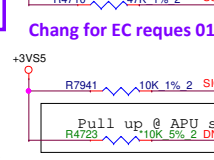
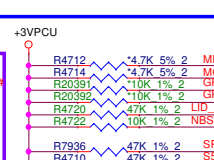
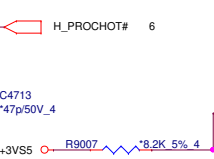
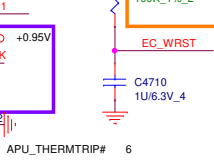
RSMRST# --> 1.8V, check table ??



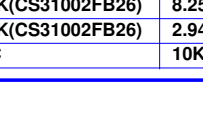
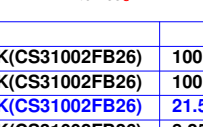
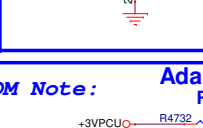
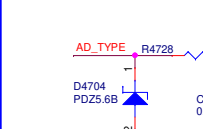
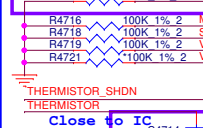
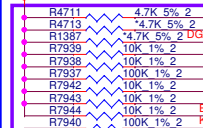
For GPU Thermal



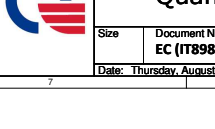
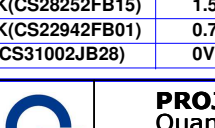
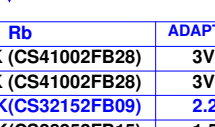
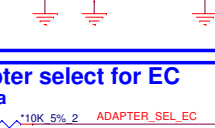
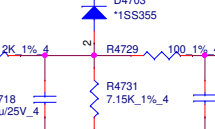
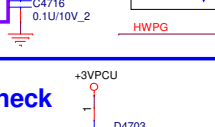
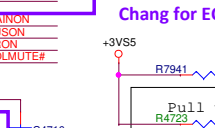
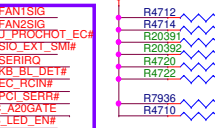
For GPU Thermal



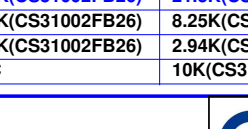
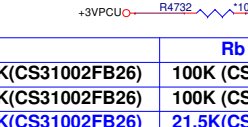
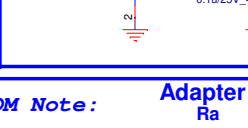
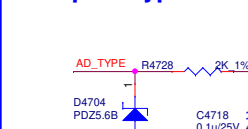
EC internal has



EC internal has



Adapter Type check



BOM Note:

Adapter select for EC

	Ra	Rb	ADAPTER_SEL_EC	BOM
200W	10K(CS31002FB26)	100K (CS41002FB28)	3V	
150W	10K(CS31002FB26)	100K (CS41002FB28)	3V	
120W	10K(CS31002FB26)	21.5K(CS32152FB09)	2.25V	MAXQ DIS T
90W	10K(CS31002FB26)	8.25K(CS28252FB15)	1.5V	MAXQ DIS
65W	10K(CS31002FB26)	2.94K(CS22942FB01)	0.75V	DIS
45W	NC	10K(CS31002JB28)	0V	UMA




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Quanta Computer Inc.

Size	Document Number	Rev
	EC (IT8987)	1A

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PCH


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PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number EC1	Rev 1A
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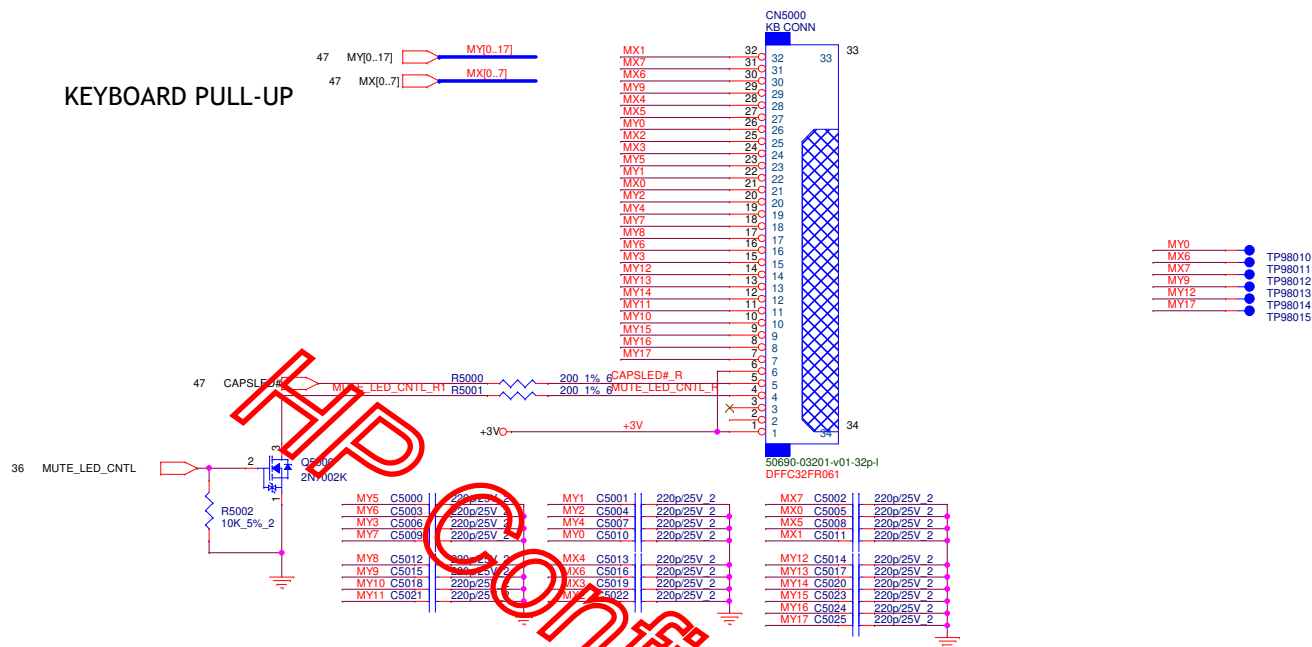


PROJECT :OPP5_P
Quanta Computer Inc.

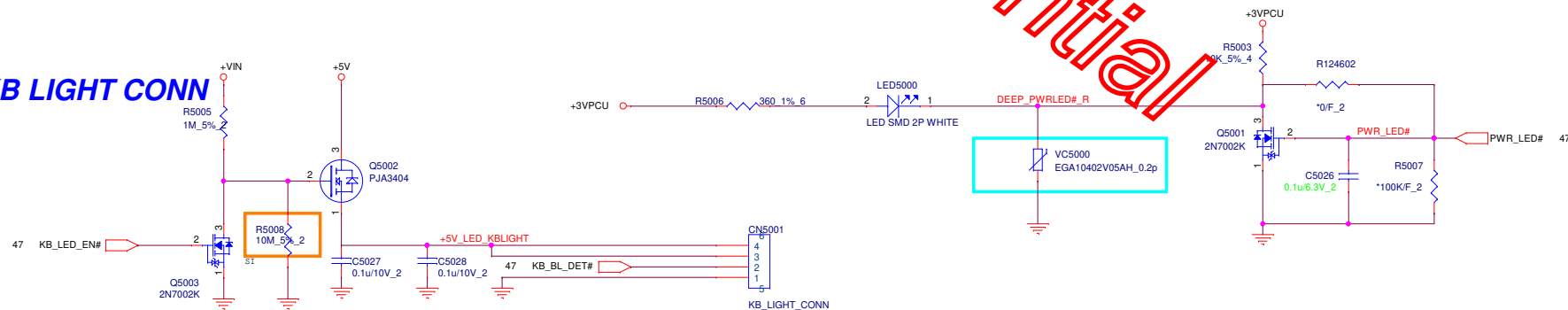
Size Custom	Document Number EC2	Rev 1A
Date: Friday, August 23, 2019		Sheet 49 of 90

KEYBOARD Con.

KEYBOARD PULL-UP



KB LIGHT CONN



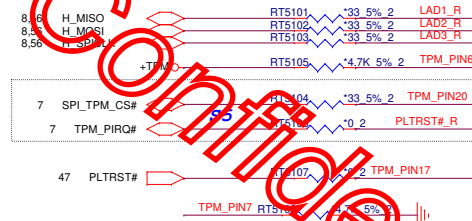
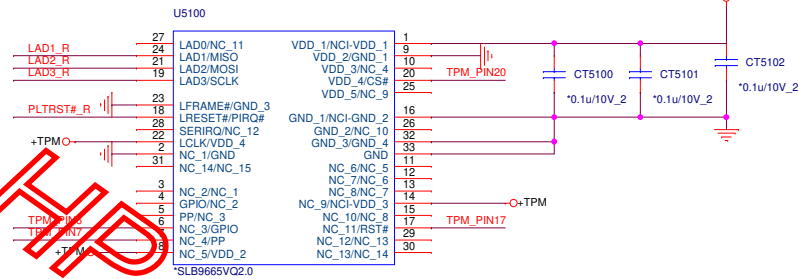
TPM

TPM (2.0)

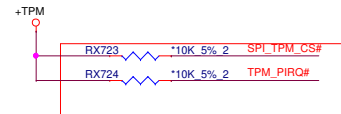


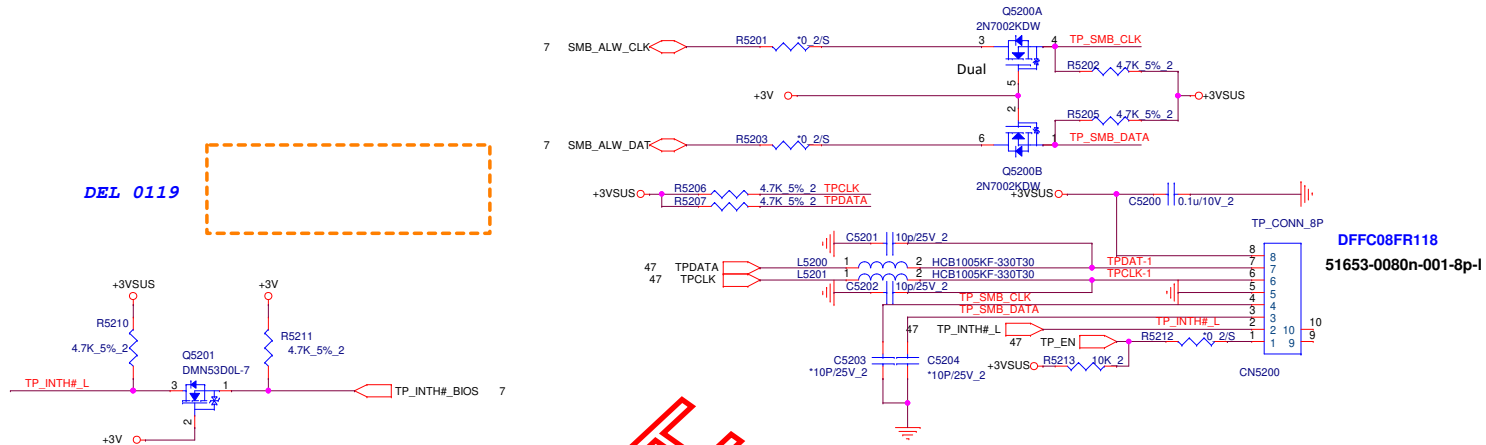
Bom note:

FW 7.6I PN:AL009670018

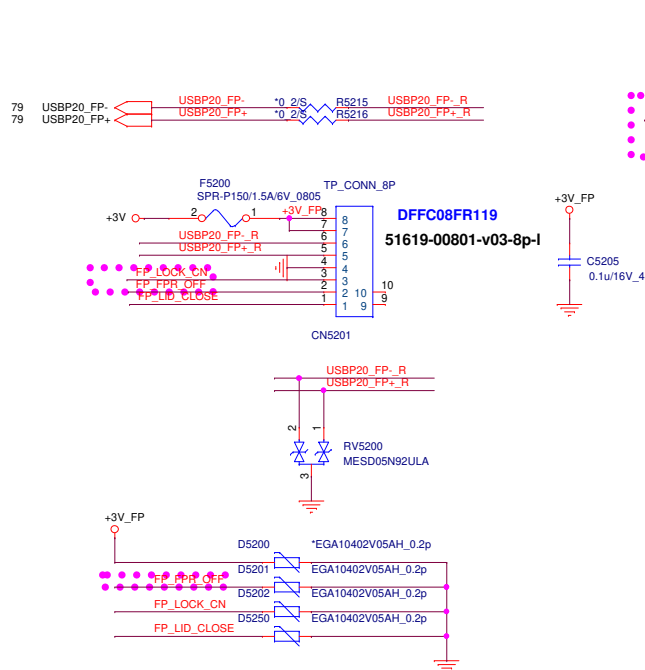


For 9670 stuff






Finger print



	PROJECT :OPP5_P		
	Quanta Computer Inc.		
	Size Custom	Document Number Touch pad/Finger Print	Rev 1A
	Date: Friday, August 23, 2019	Sheet 52 of	90

SENSOR

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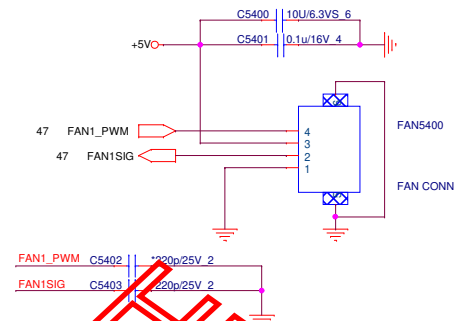


PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number Sensor <G-Sensor>	Rev 1A
Date: Friday, August 23, 2019		Sheet 53 of 90

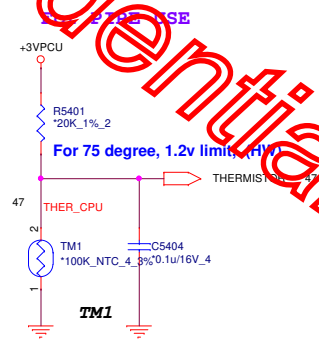
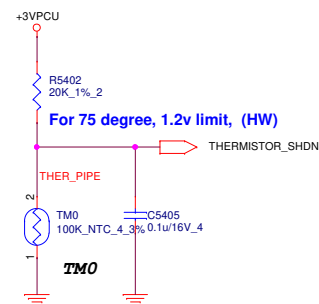
FAN/Thermal


FAN




IO Thrm Protect

For CPU USE



		PROJECT :OPP5_P	
		Quanta Computer Inc.	
Size Custom	Document Number FAN/Thermal	Rev 1A	
Date: Friday, August 30, 2019	Sheet	54of	90

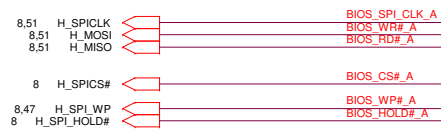
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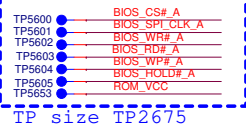
PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number CR	Rev 1A
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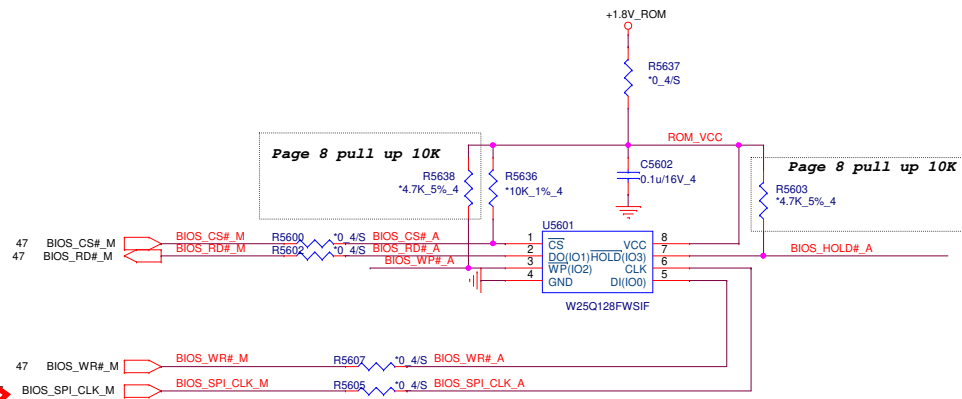
PCH SPI ROM(CLG)



TPs need place to TOP



TP size TP2675

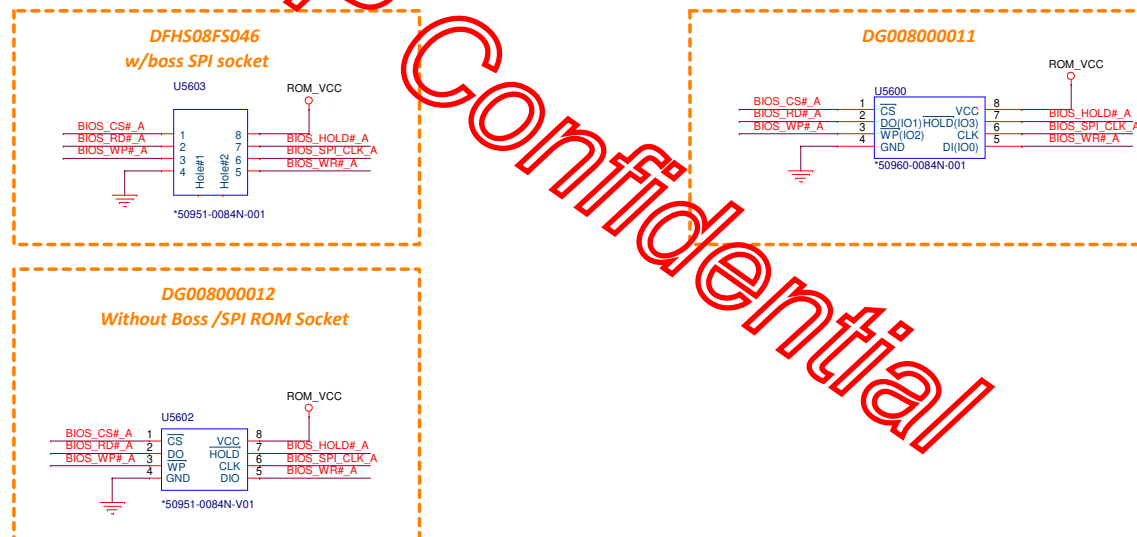


FLASH ROM

Vender	Size	P/N (1.8V)
WND	16M	AKE5DZN0N01 (SOIC)
GGD	16M	AKE5DZN0Q02 (SOP8)
Socket		DG008000011


Vender	Size	P/N (1.8V)
WND	16M	AKE5DFNKN01 (WSOIN)
	16M	
Socket		DFHS08FS046 DG008000012

U5600, U5601, U5602, U5603 co-lay



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Quanta Computer Inc.

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			PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number TBT1				Rev 1A
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			PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number TBT2				Rev 1A
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			PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number TBT3				Rev 1A
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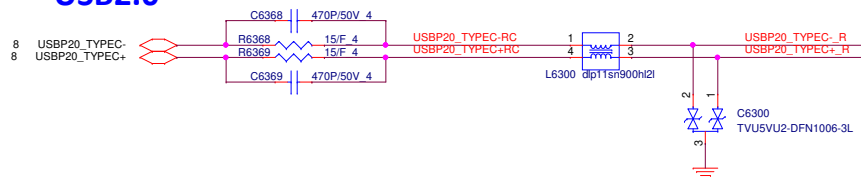
HP Confidential



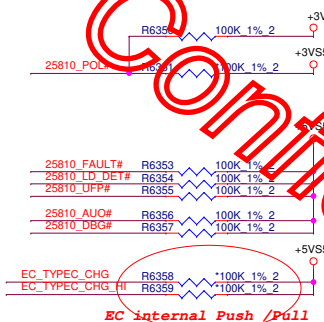
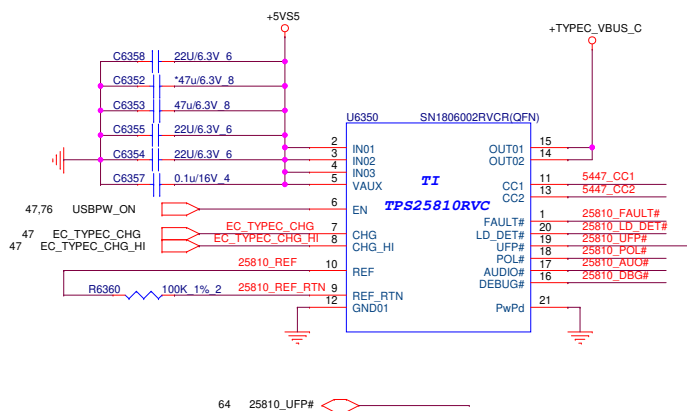
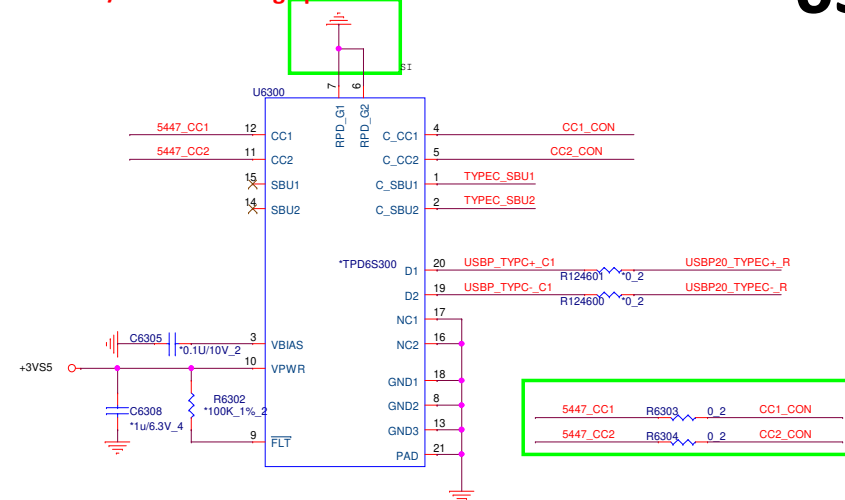
PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number USB TYPEC PD1	Rev 1A
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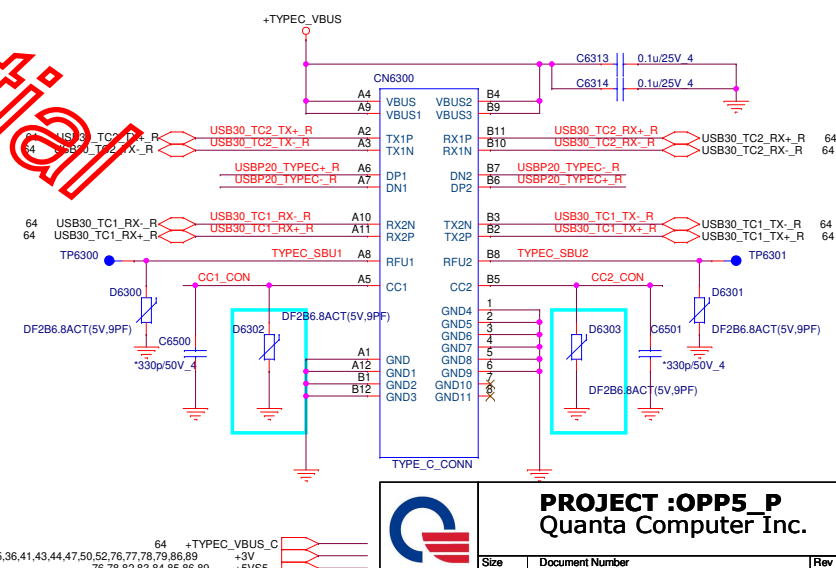
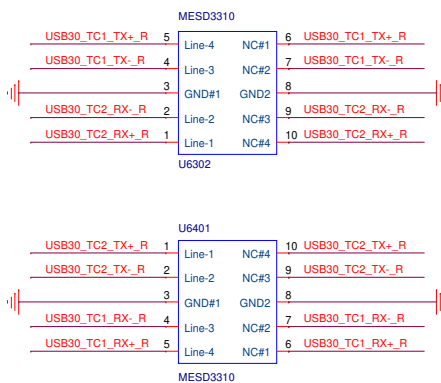
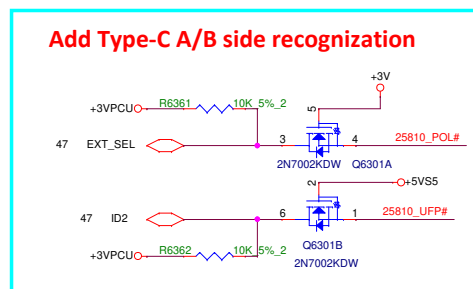
USB2.0



CC/SBU Overvoltage protection




TYPE C USB3.0 ESD



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Quanta Computer Inc.		
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Custom	TYPE-C TPS25810	1A
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Quanta Computer Inc.

Size Custom	Document Number USB TYPE-C #3	Rev 1A
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	PROJECT :OPP5_P Quanta Computer Inc.		
	Size Custom	Document Number dGPU1	Rev 1A
	Date: Friday, August 23, 2019	Sheet 66of	90

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	PROJECT :OPP5_P Quanta Computer Inc.	
	Size Custom	Document Number dGPU2
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	Quanta Computer Inc.		
	Size Custom	Document Number dGPU5	Rev 1A
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Quanta Computer Inc.

Size Custom	Document Number dGPU8	Rev 1A
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PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number dGPU9	Rev 1A
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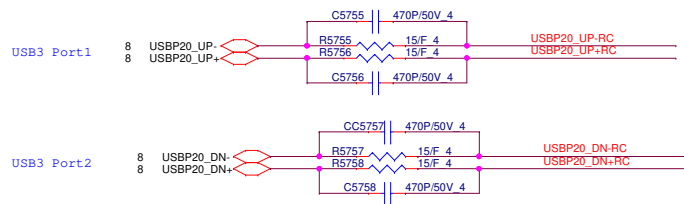
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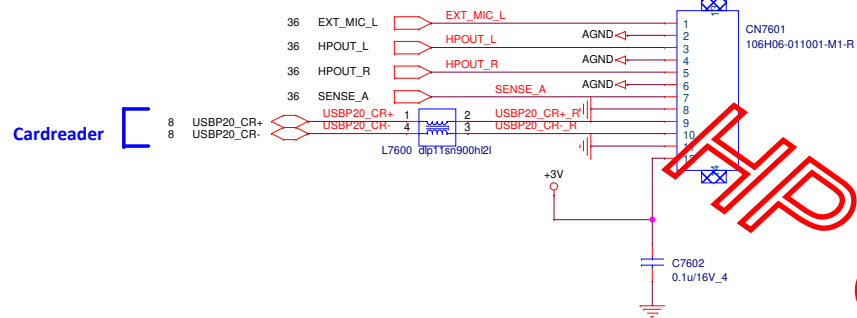
PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number empty	Rev 1A
Date: Friday, August 23, 2019		Sheet 75 of 90

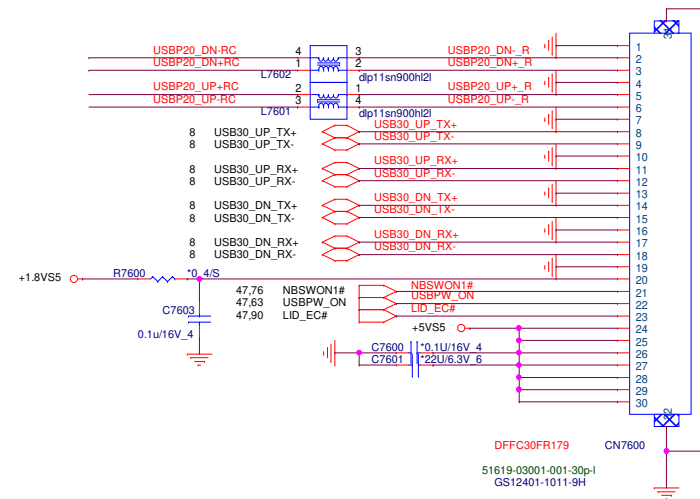
Daughter Board




SD Board

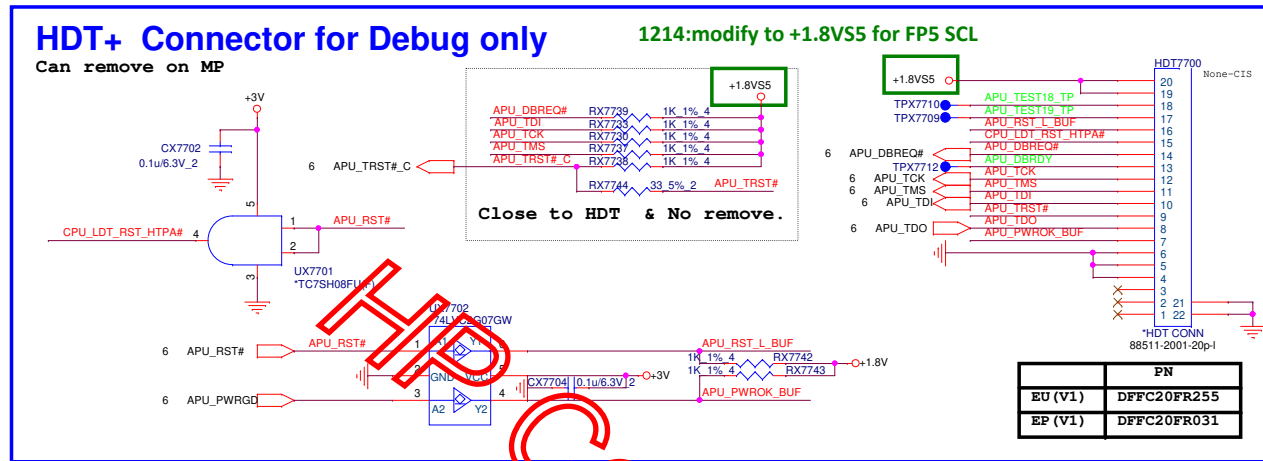


USB Board



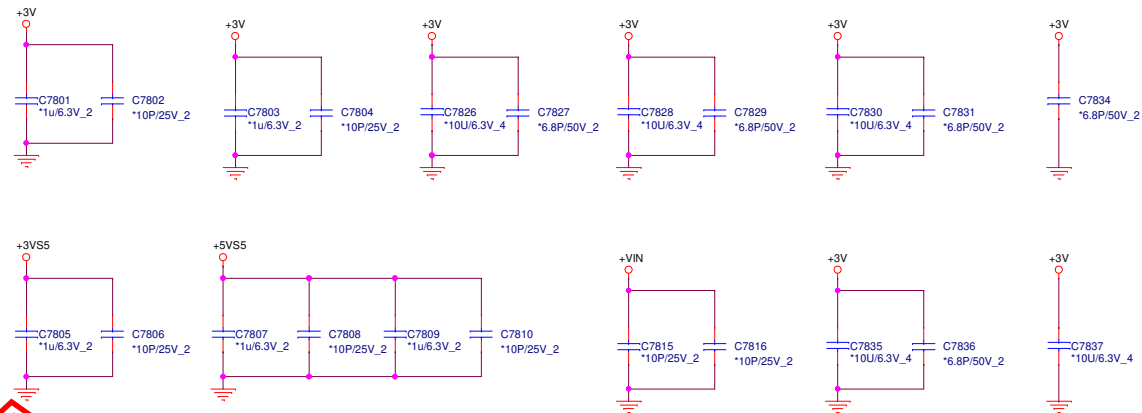
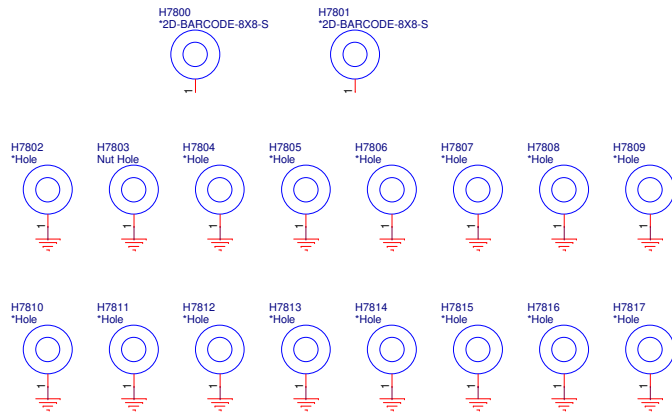
NBSWON1# 47,76
LID# 34,90
+BAT_RTC 9,81,90

 PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number Daughter Board	Rev 1A
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6,9,36,64,86,89 +1.8V
7,8,9,20,29,34,36,37,43,44,47,50,52,63,76,78,79,86,89 +3V
7,8,9,47,76,84,85,89 +1.8VS5

EMI Cap/RF Cap/HOLE



51 level BOM option 電阻

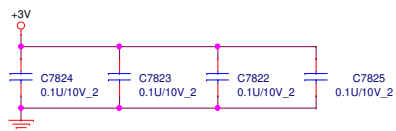
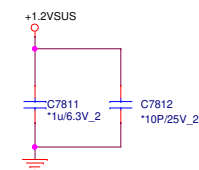
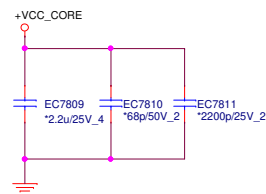
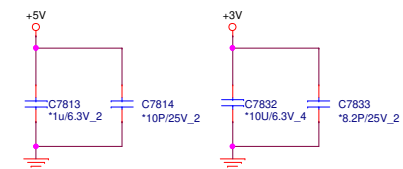
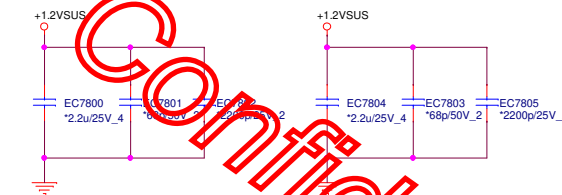
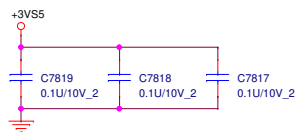
RA stuff TOP

R7802 *10K_5%_2

RB stuff TOP

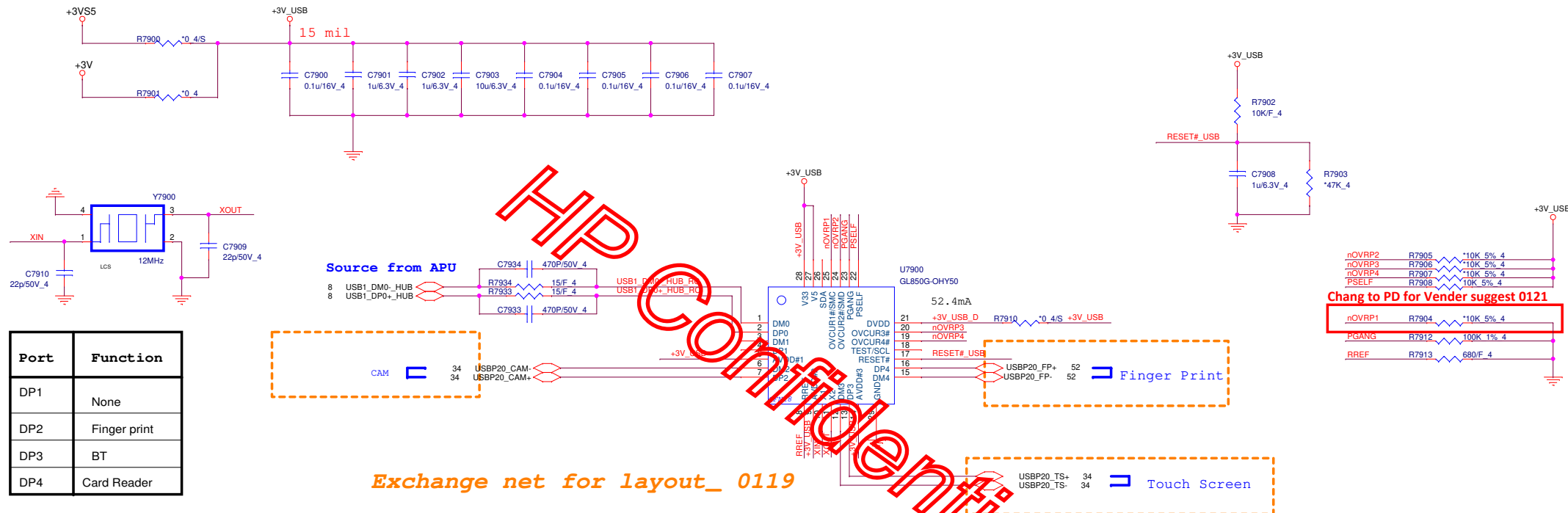
R7803 *10K_5%_2

Johnny suggestion 跨moat cap

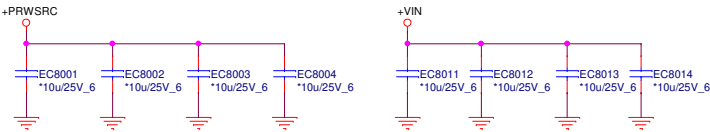


	PROJECT :OPP5_P Quanta Computer Inc.		
	Size Custom	Document Number EMI Cap/RF Cap/HOLE	Rev 1A
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USB2.0 HUB



Reserve for EMI function test



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DC_JACK
45W~90WDo Not add test pad on
BQBATDRV/BATDIS_ID_DOD signalPlace this ZVS close to
Diode away +VIN

ZVS close to DC jack

Do Not add test pad on BATDIS_G signal


Place this ZVS close to
Far-Far away +VIN3S1P 41Whr
TEMP_MBAT [47]Place this cap
close to EC

Set MAX charge I to 5A

ACDET

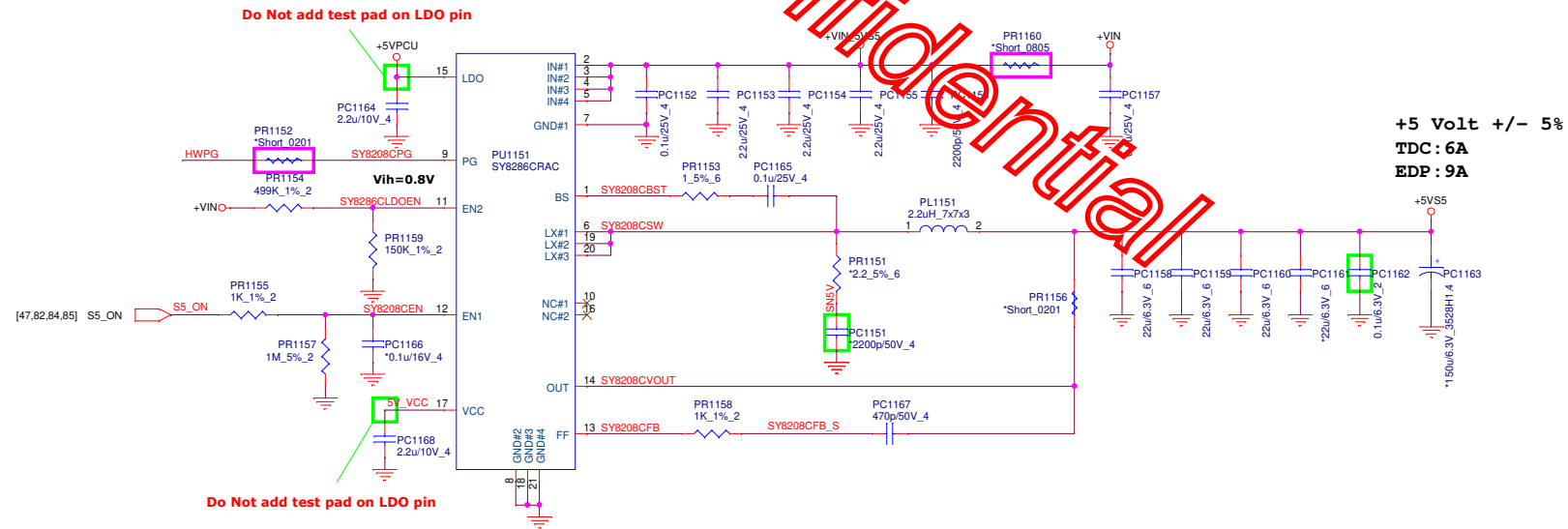
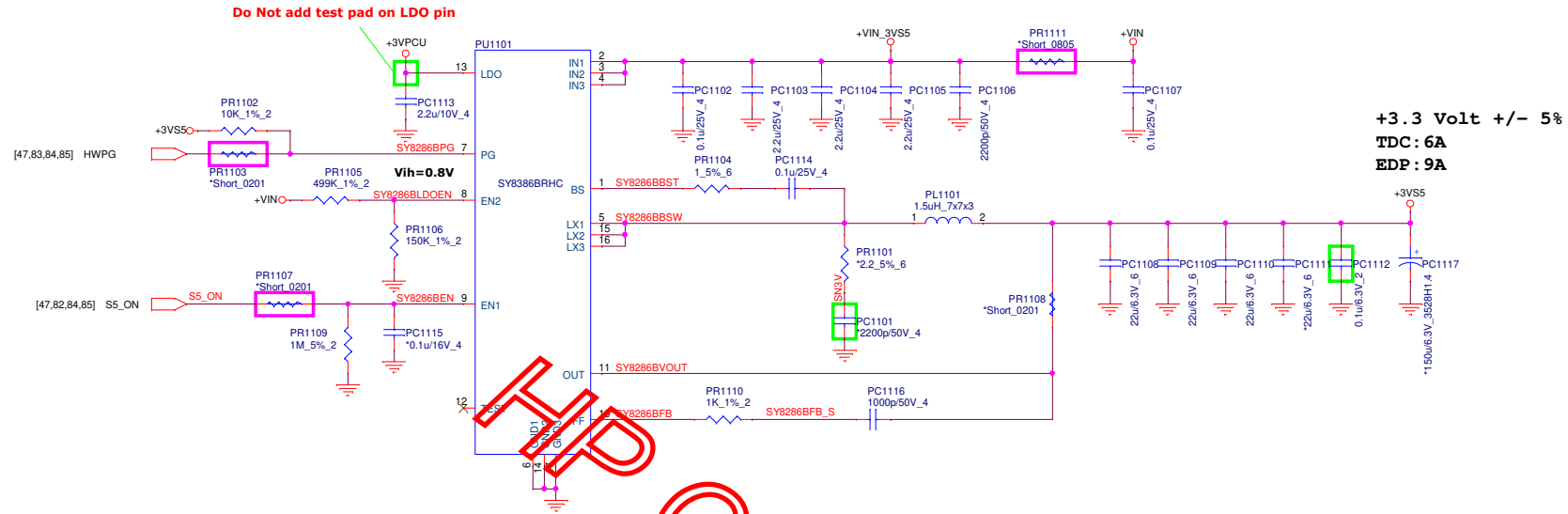
VIN>22.5V (AC OVP)
VIN>17.2V (Enable Charging)
VIN>15.2V (AC present)


ACDET=13V

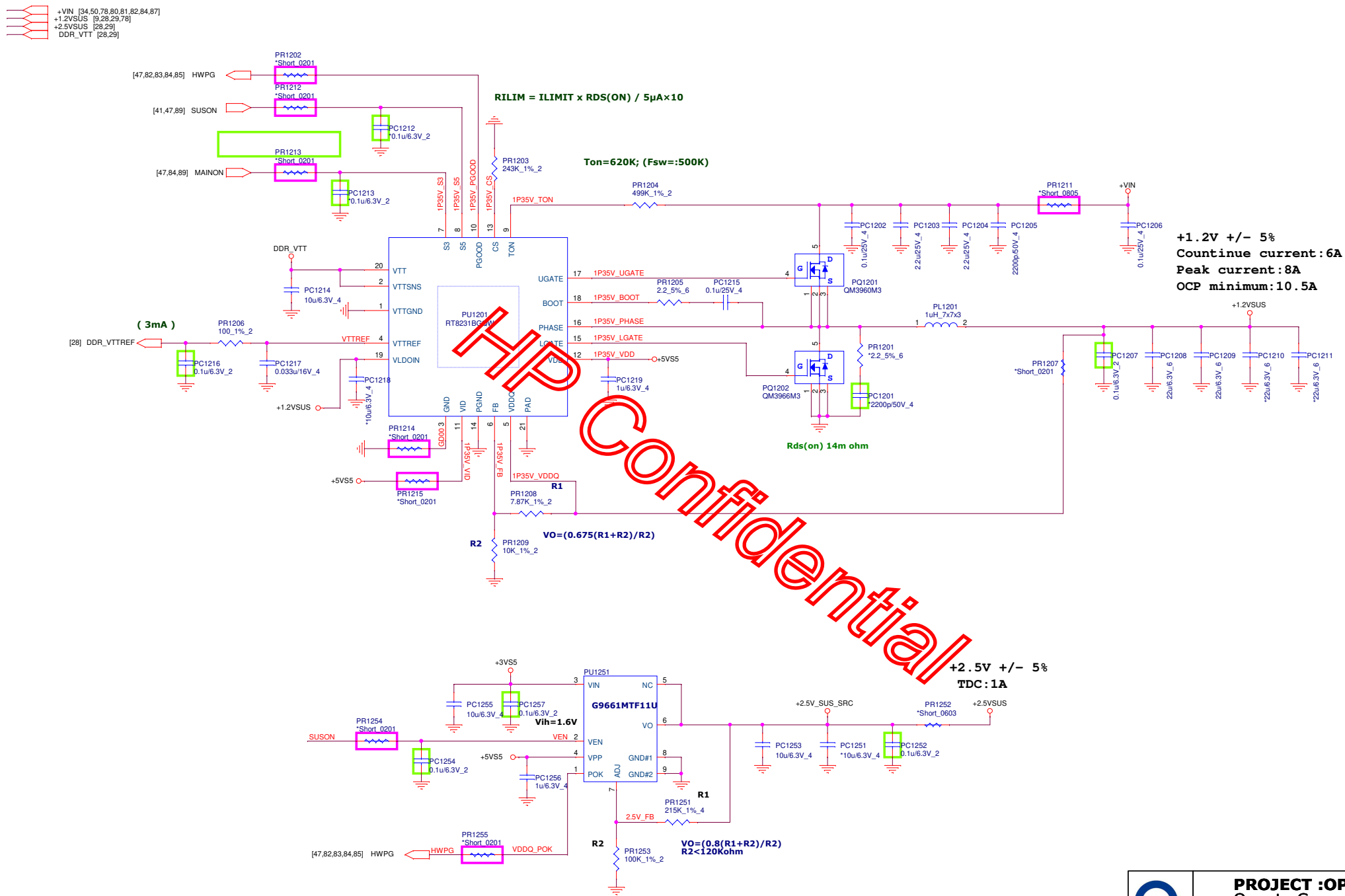
 PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number CHARGER	Rev 1A
Date: Tuesday, December 10, 2019	Sheet	81 of 90


DC/DC +3VS5/+5VS5

+VIN [34,50,78,80,81,83,84,87]
 +3VS5 [6,7,8,9,34,41,43,47,63,78,79,83,84,89]
 +5VS5 [57,63,78,83,84,85,86,89]
 +3VPCU [19,36,41,47,50,54,56,63,81,90]
 +5VPCU [81,89]

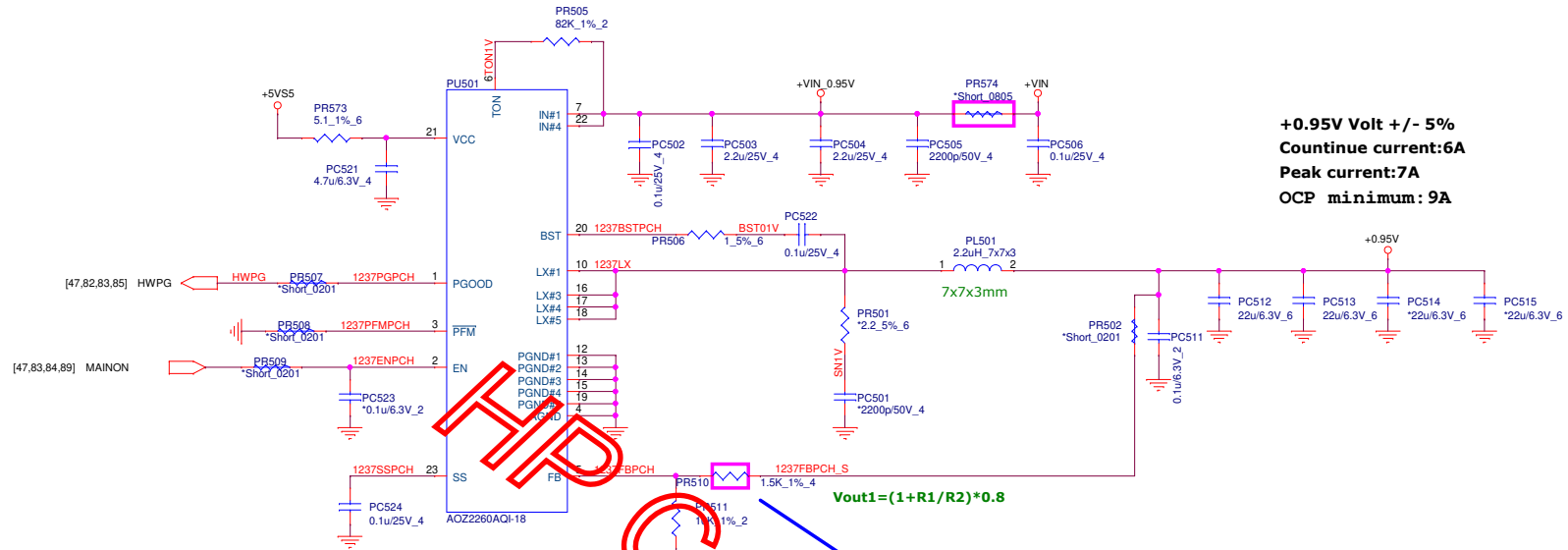


 PROJECT :OPP5_P Quanta Computer Inc.			
Size Custom	Document Number +3/5VS5(SY8286B/SY8286C)	Rev 1A	
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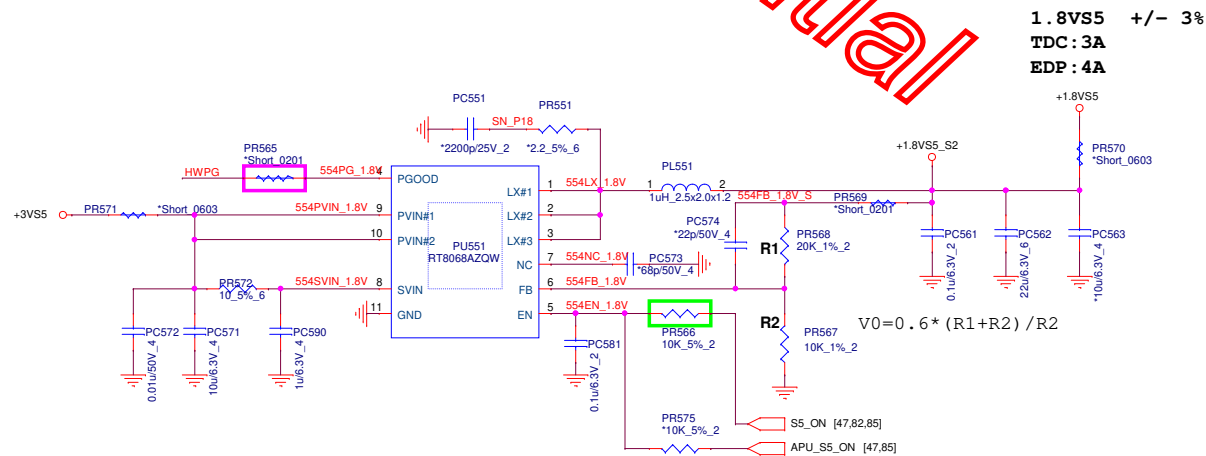
 PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number DDR/2.5VSUS(RT8231B)	Rev 1A
Date: Tuesday, December 10, 2019 Sheet 83 of 90		

+VIN [34.50,78.80,81.82,83.87]
 +3VSS [6.7,8.9,34.41,43.47,63.78,79.82,83.89]
 +5VSS [57.63,78.82,83.85,86.89]
 +0.95V [6.9,47]
 +1.8VSS [7.8,9.34,47.77,85.89]
 MAINON [47.83,84.89]

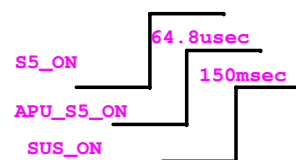
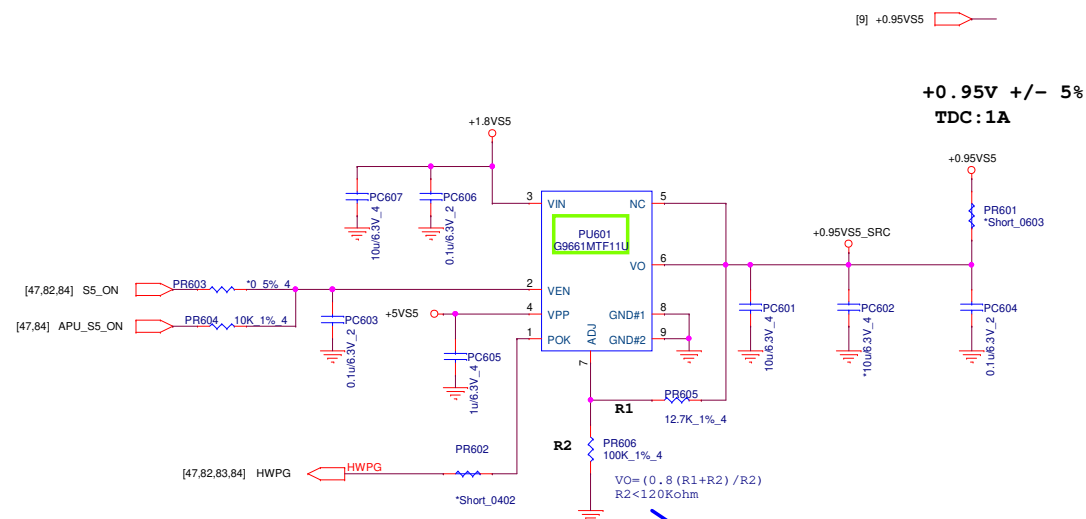


Vo	Rton
0.95V	82k
1V	84.5k
1.05V	95.3k
1.35V	113k
1.5V	127k

	R1		
Paveh	1.27K	CS21272FB15	0.9V
Stone	1.91K	CS21912FB13	0.95V
	16K	CS23162FB04	1.05V

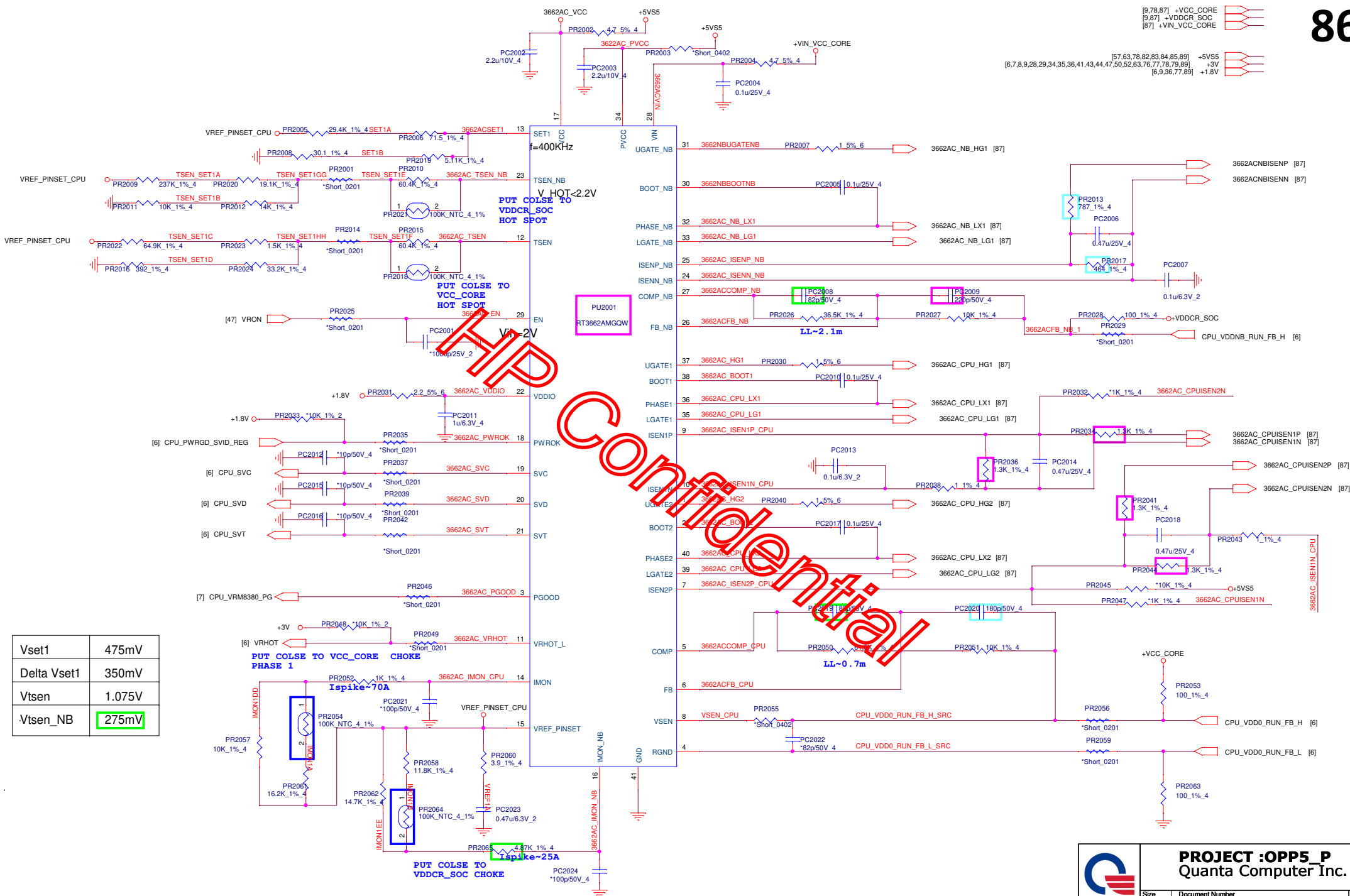


PROJECT :OPP5_P Quanta Computer Inc.		
Size Custom	Document Number +0.95V/+1.8VSS	Rev 1A
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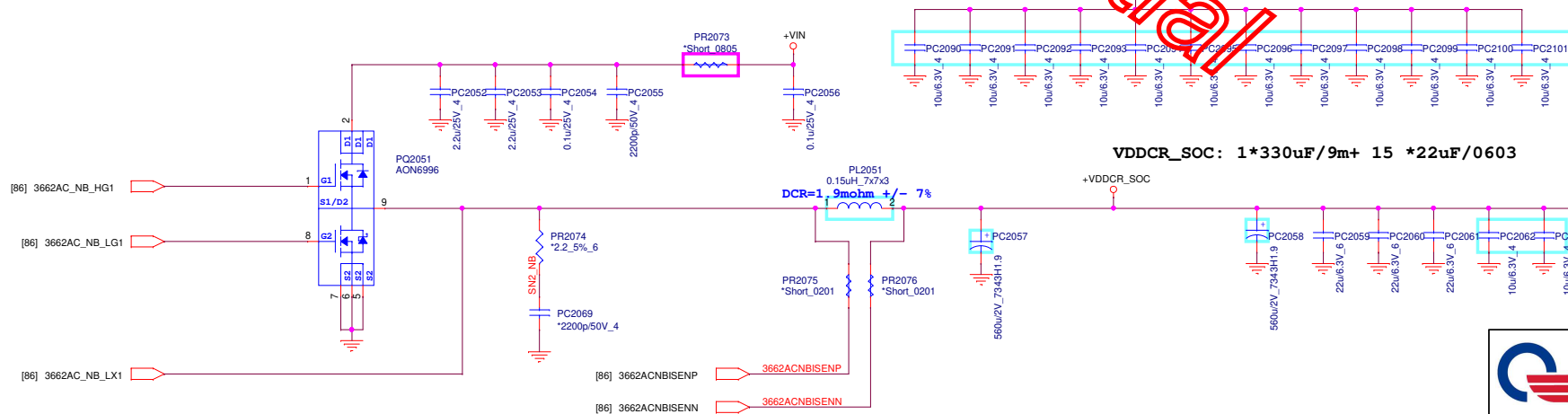
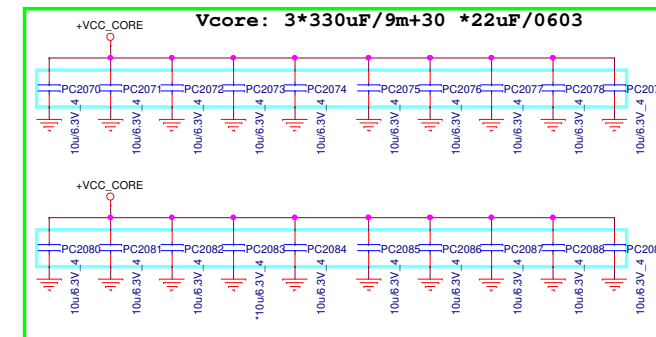
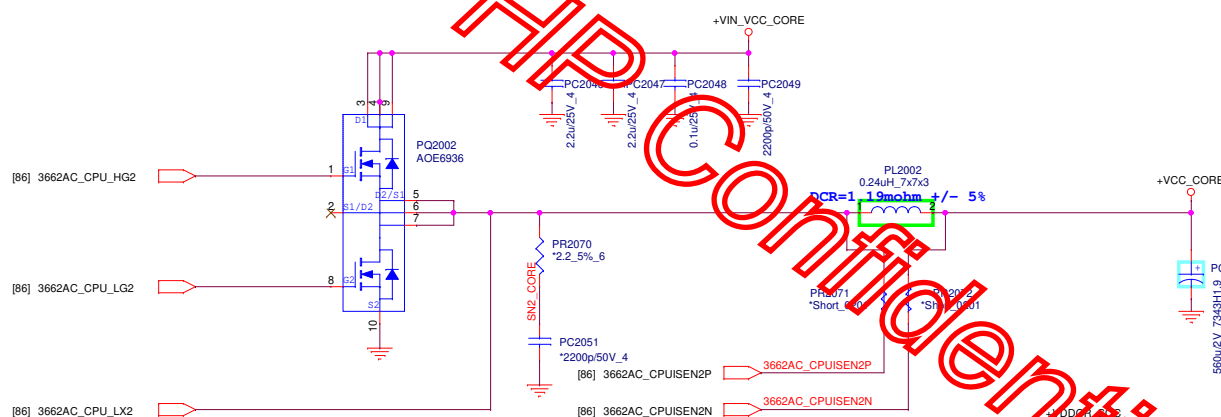
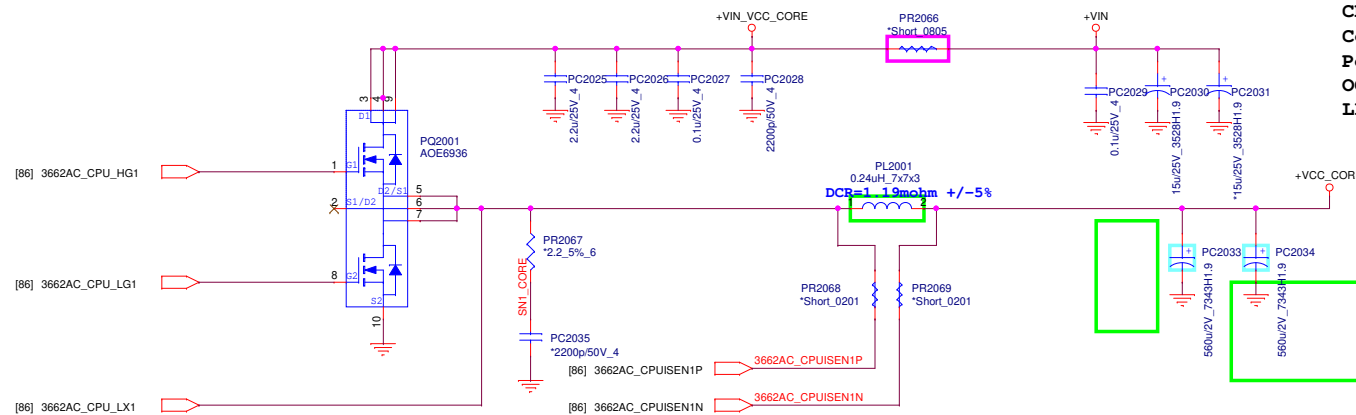


	R1		
Raven	12.7K	CS31272FB17	0.9V
Stoney/Bristol	18.7K	CS31872FB19	0.95V
	31.6K	CS33162FB14	1.05V

Bristol VDDP=1.05V
Stoney VDDP=0.95V



FP5 APU 15W
CPU CORE Volt
Countinue current:35A
Peak current:45A
OCP minimum:70A
LL= -0.7mV/A



FP5 APU 15W
VDDCR_SOC Volt
Countinue current:10A
Peak current:13A
OCP minimum:18A
LL= -2.1mV/A




PROJECT :OPP5_P
Quanta Computer Inc.

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Custom	CORE_NB2	1A
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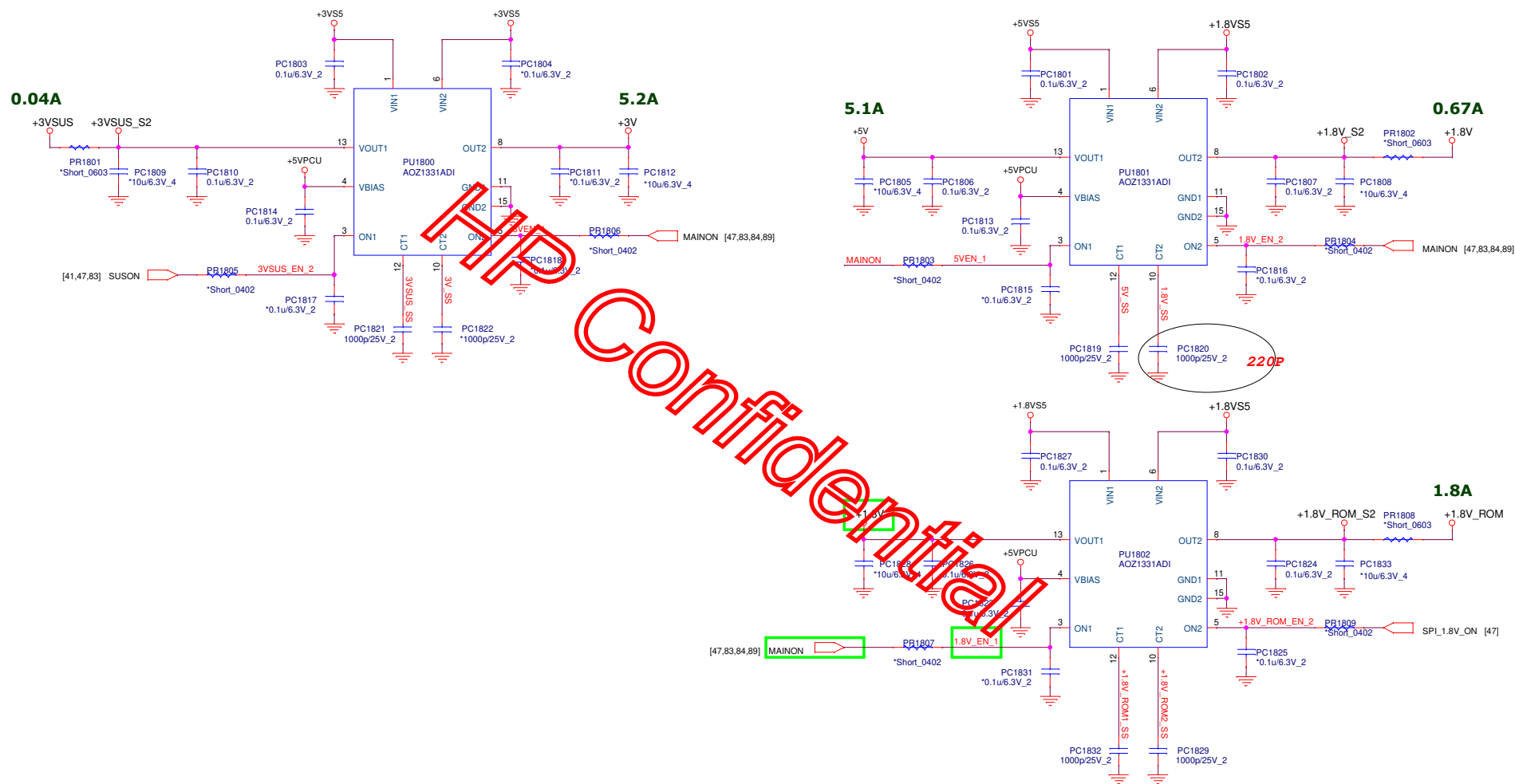
VDDCR_FCH only for Bristol ridge and Stoney Ridge


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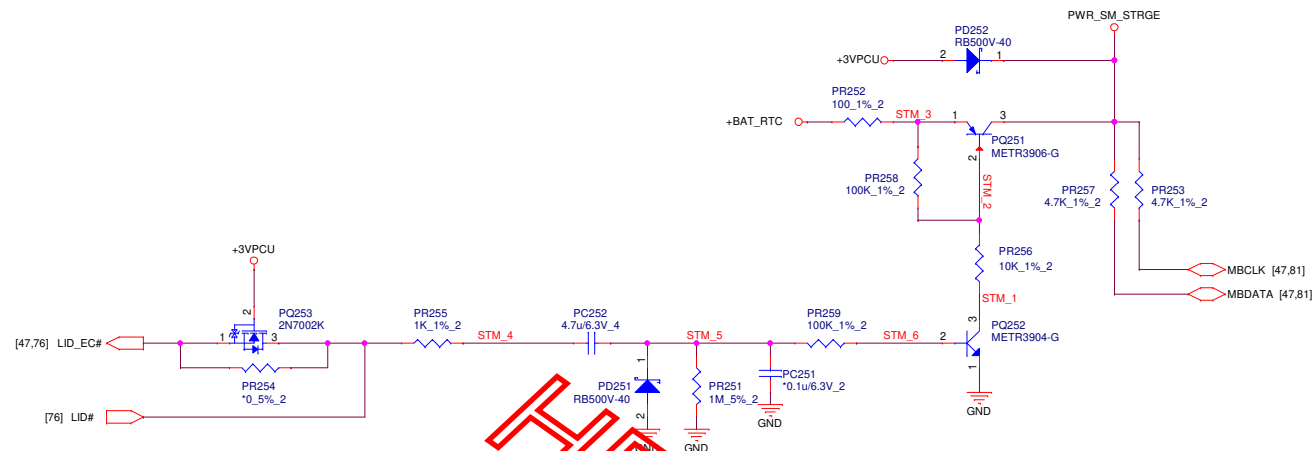



PROJECT :OPP5_P
Quanta Computer Inc.

Size Custom	Document Number VDDCR_FCH/0.775VS5	Rev 1A
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 PROJECT :OPP5_P Quanta Computer Inc.		
Size	Document Number Load switch IC(APL3523A)	Rev 1A
Date: Tuesday, December 10, 2019 Sheet 89 of 90		



	PROJECT :OPP5_P Quanta Computer Inc.			
	Size Custom	Document Number STORAGE MODE		Rev 1A
	Date: Tuesday, December 10, 2019 Sheet 90 of 90			