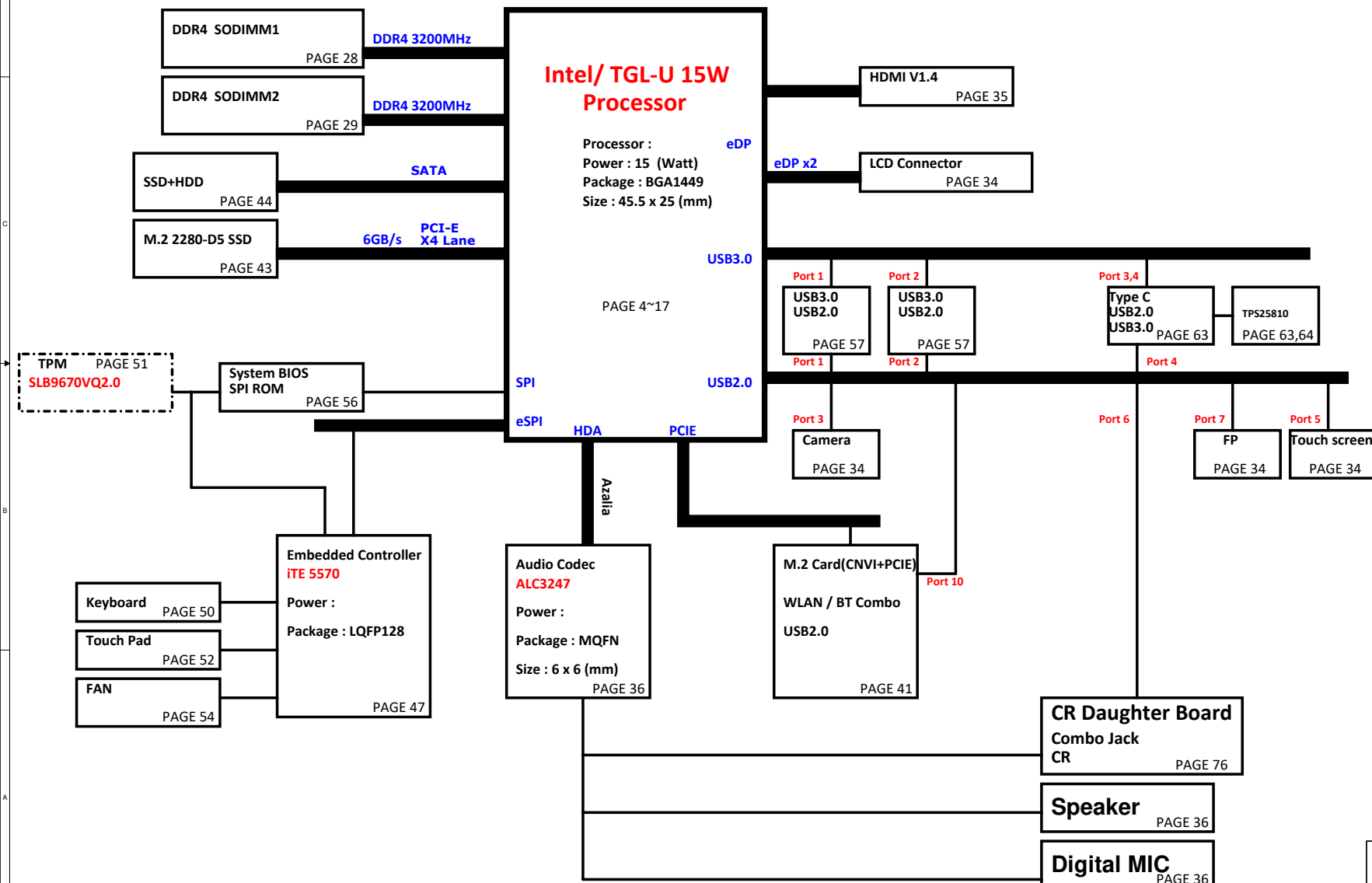
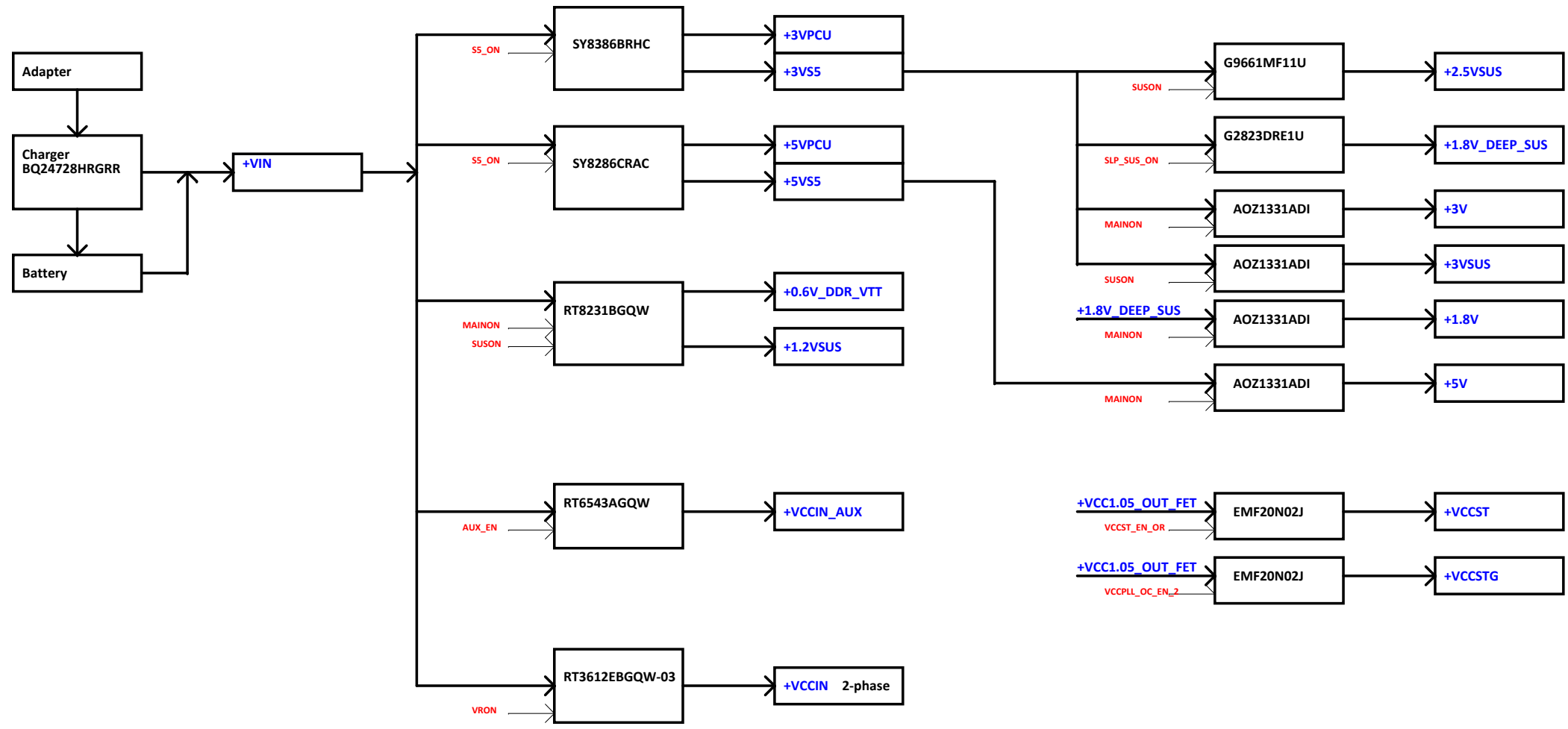


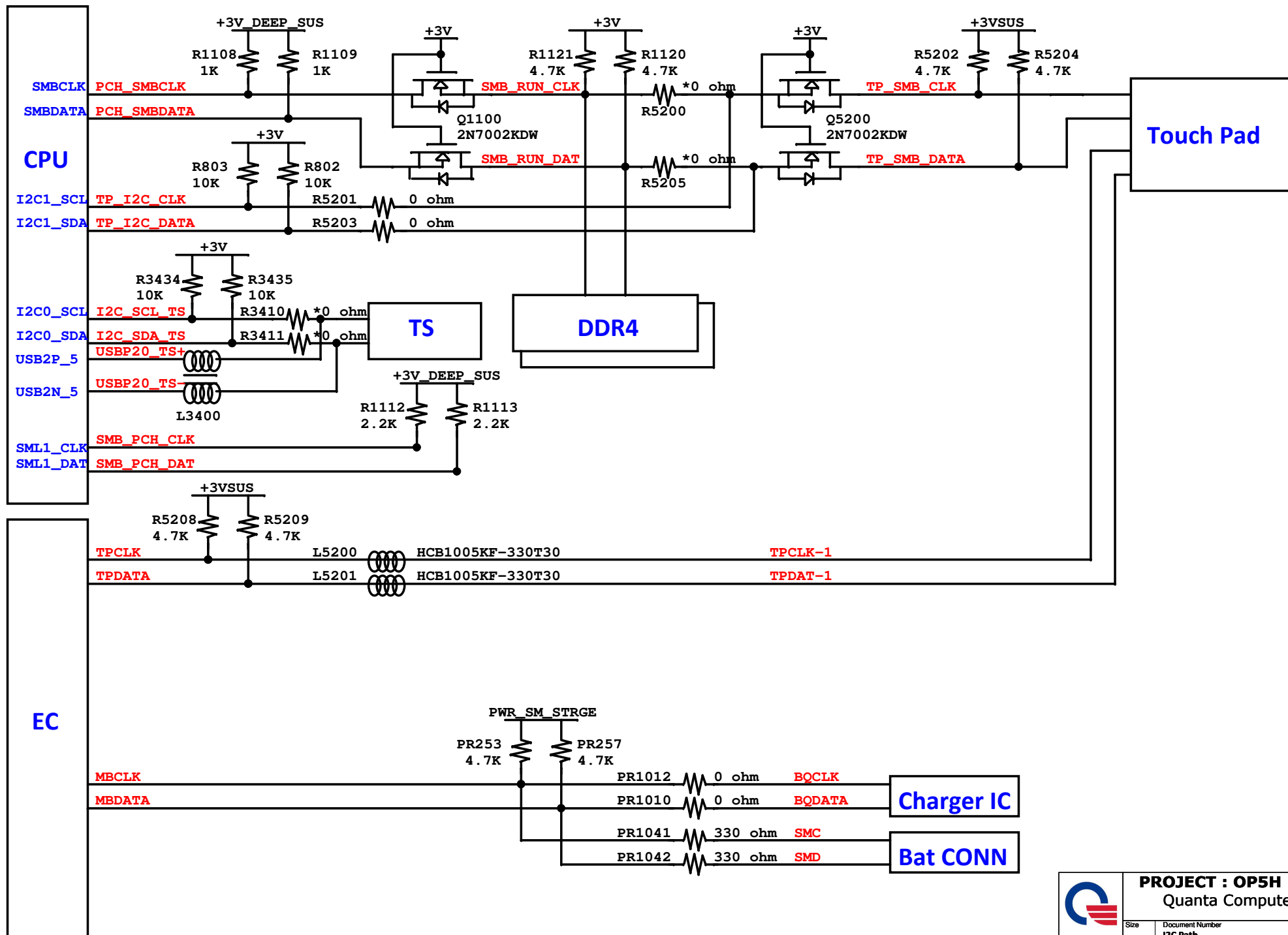
Intel TGL Platform Block Diagram

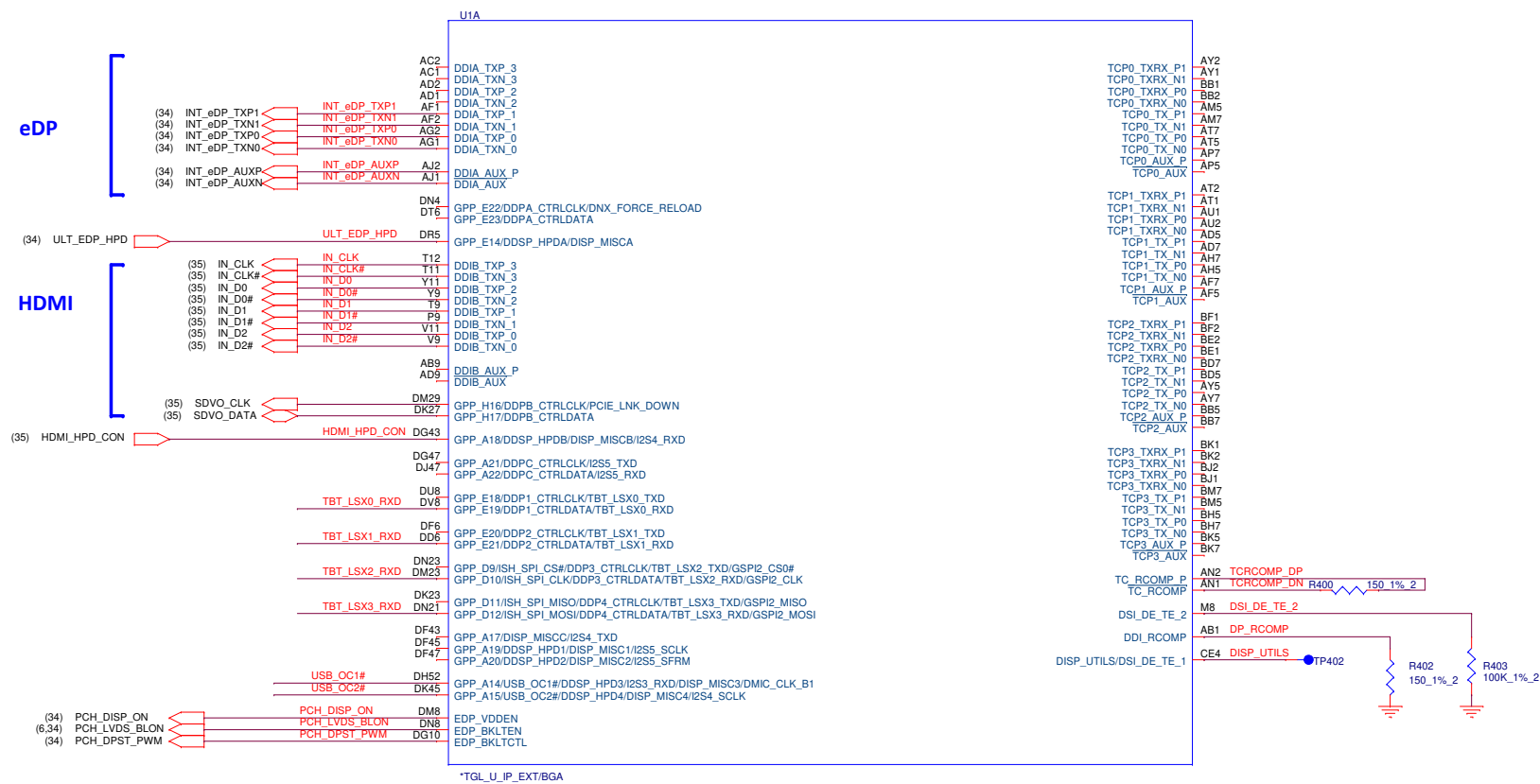
PCB 8L STACK UP

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



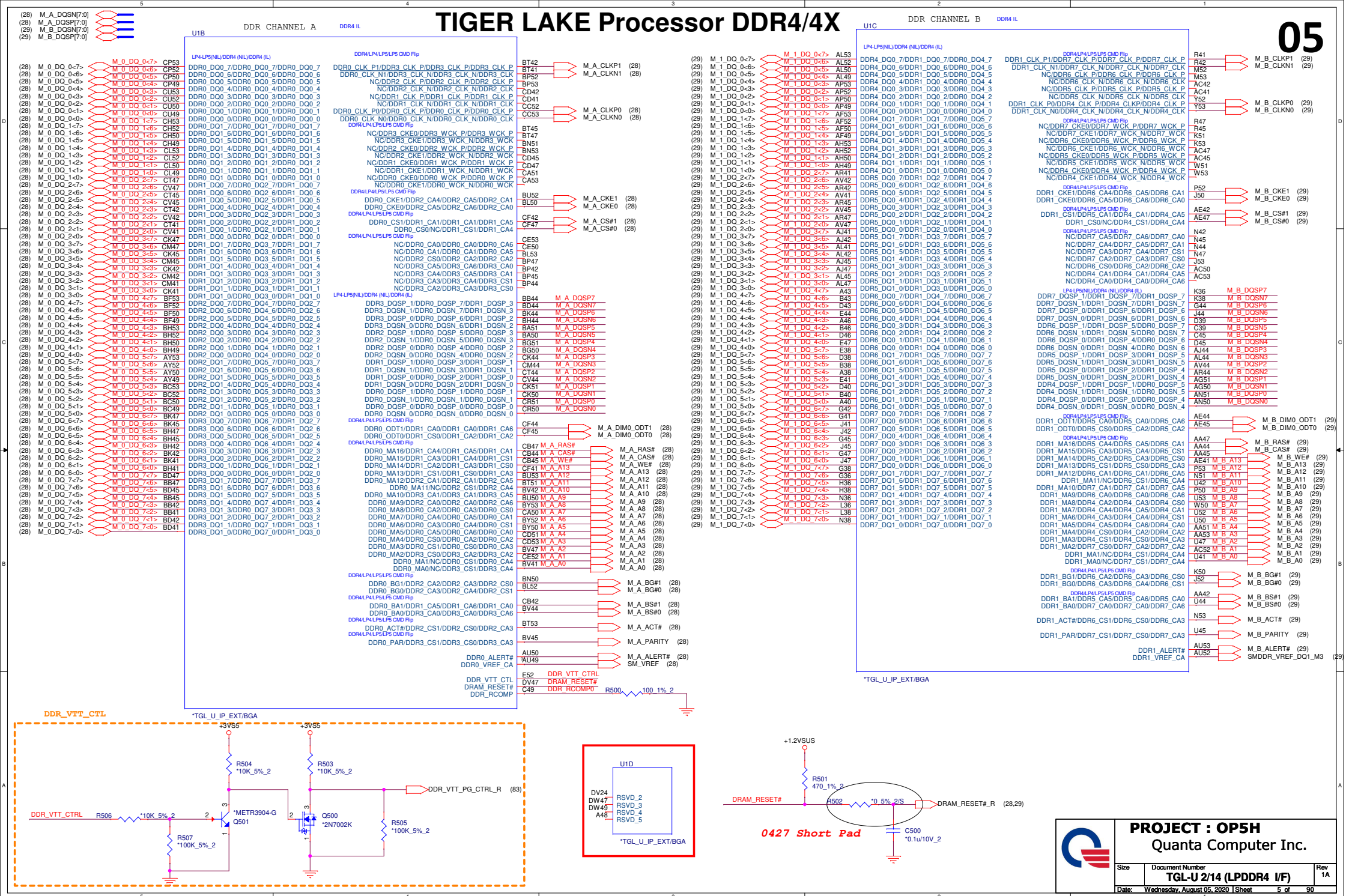






TIGER LAKE Processor DDR4/4X

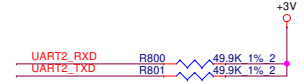
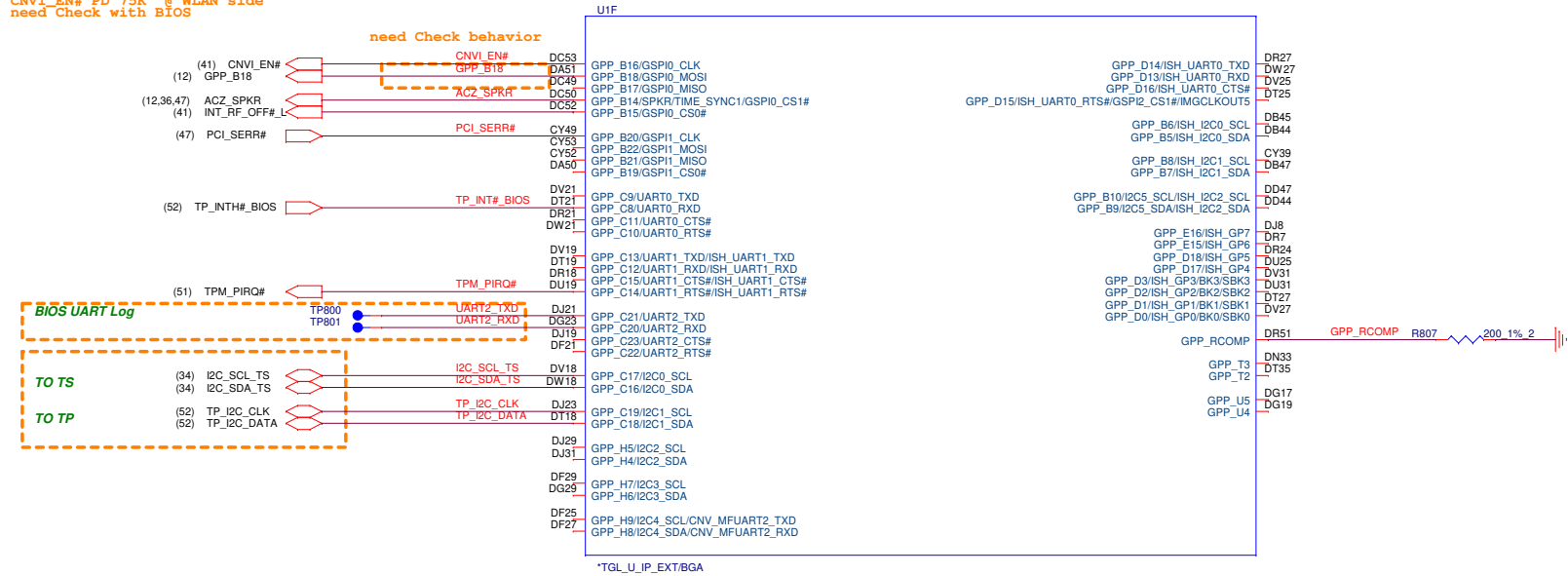
05

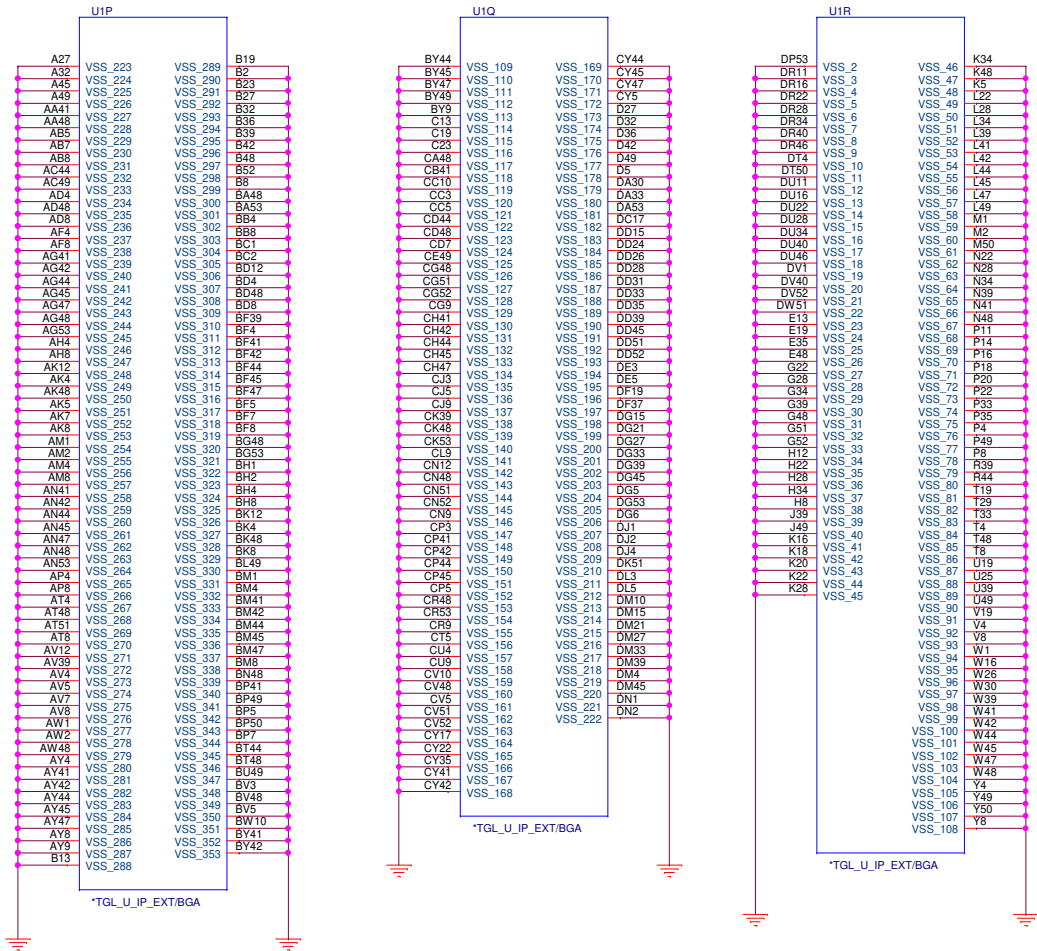


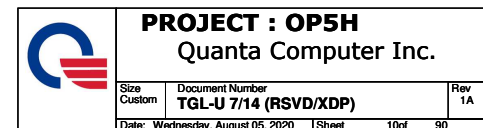


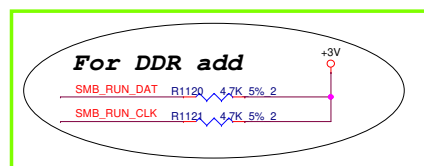
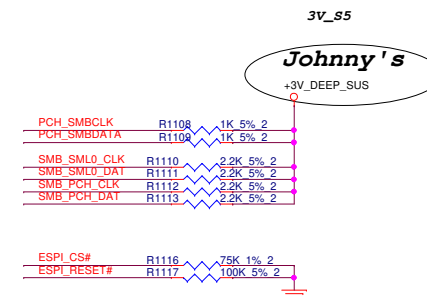
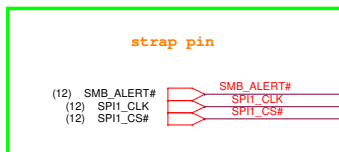
01/17 Add SOC_ENBKL for S5 Turn off the Backlight

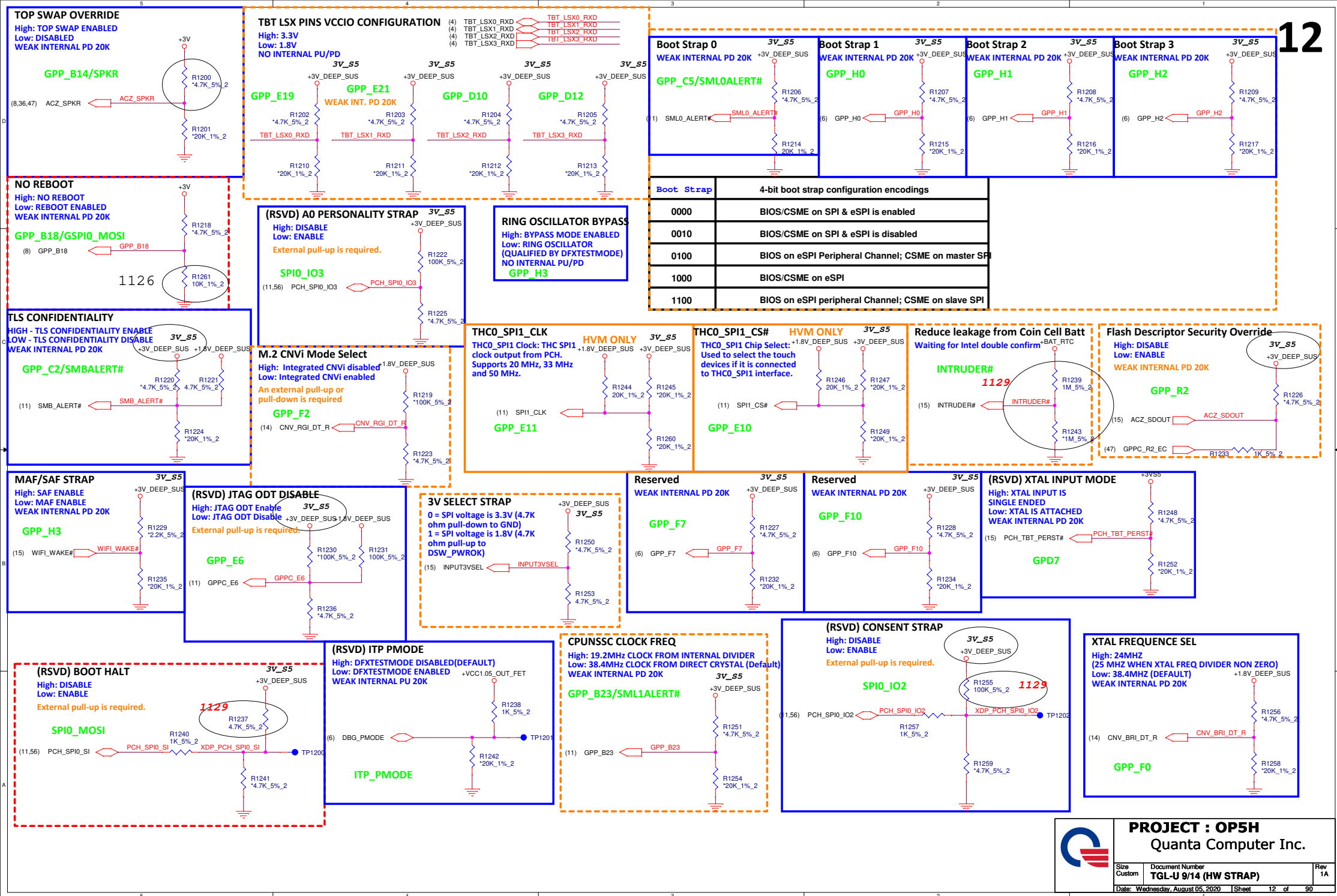
CNVI_EN# PD 75K @ WLAN side
need Check with BIOS

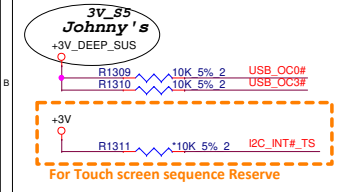












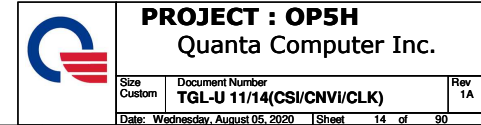
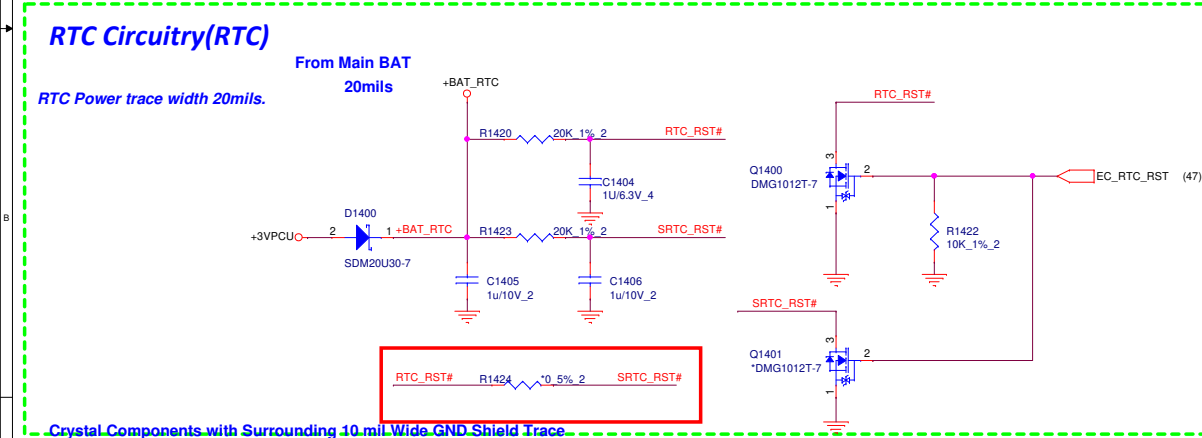
U1H

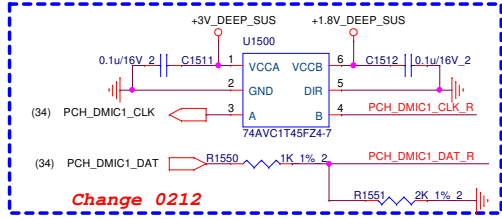
PCIE4_TX_P_3	PCIE4_TX_P_1	V5
PCIE4_TX_N_3	PCIE4_TX_N_1	V7
PCIE4_RX_P_3	PCIE4_RX_P_1	T1
PCIE4_RX_N_3	PCIE4_RX_N_1	T2
PCIE4_TX_P_2	PCIE4_TX_P_0	Y5
PCIE4_TX_N_2	PCIE4_TX_N_0	V7
PCIE4_RX_P_2	PCIE4_RX_P_0	V1
PCIE4_RX_N_2	PCIE4_RX_N_0	V2
PCIE4_RCOMP_P		Y12 PCIE4_RCOMP
PCIE4_RCOMP		V12 PCIE4_RCOMPIN R1312 2.2K 5% 2

*TGL U IP EXT/BGA

USB2.0	Function
PORT-1	Cobime USB3.0 UP
PORT-2	Cobime USB3.0 Down
PORT-3	Camera
PORT-4	Type C
PORT-5	TOUCH screen
PORT-6	Card Reader
PORT-7	Finger Print
PORT-8	NC
PORT-9	NC
PORT-10	BT

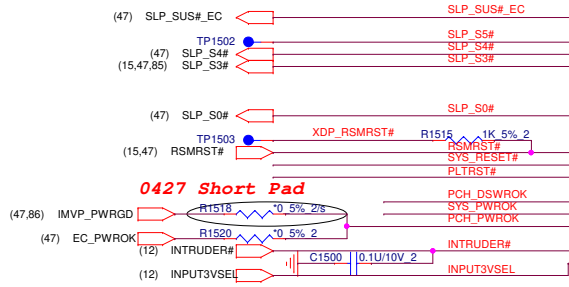
USB3.0	Function
PORT-1	USB3.0 Up
PORT-2	USB3.0 Down
PORT-3	Type-C 1a
PORT-4	Type-C 1b
	NC
	NC (DCI)





Change 0212

Change 0212

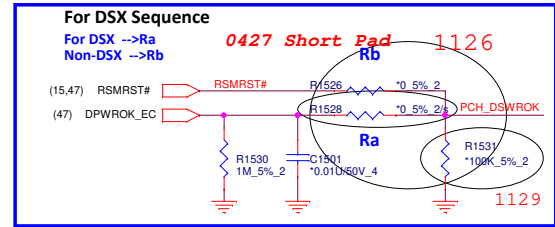


0427 Short Pad

0427 Short Pad

1126

1129



For DSX Sequence

For DSX -->Ra

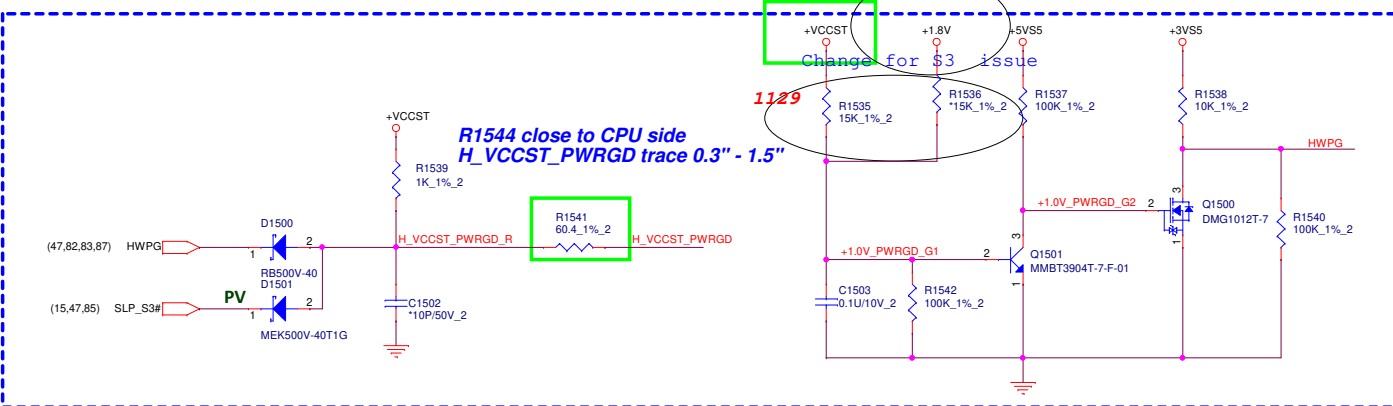
Non-DSX -->Rb

PLTRST#(CLG)

PLTRST# (41,43,47,51)

System PWR_OK(CLG)

0427 Short Pad



R1544 close to CPU side

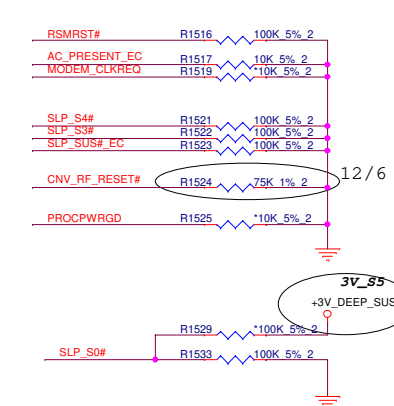
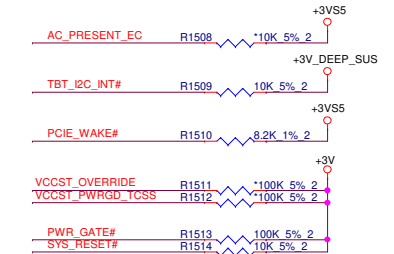
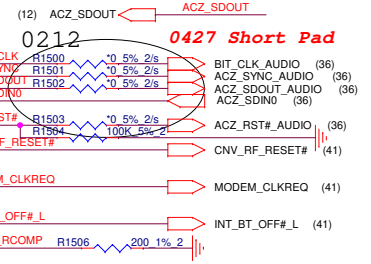
H_VCCST_PWRGD trace 0.3" - 1.5"

1129

Change for S3 issue

For Modern standby

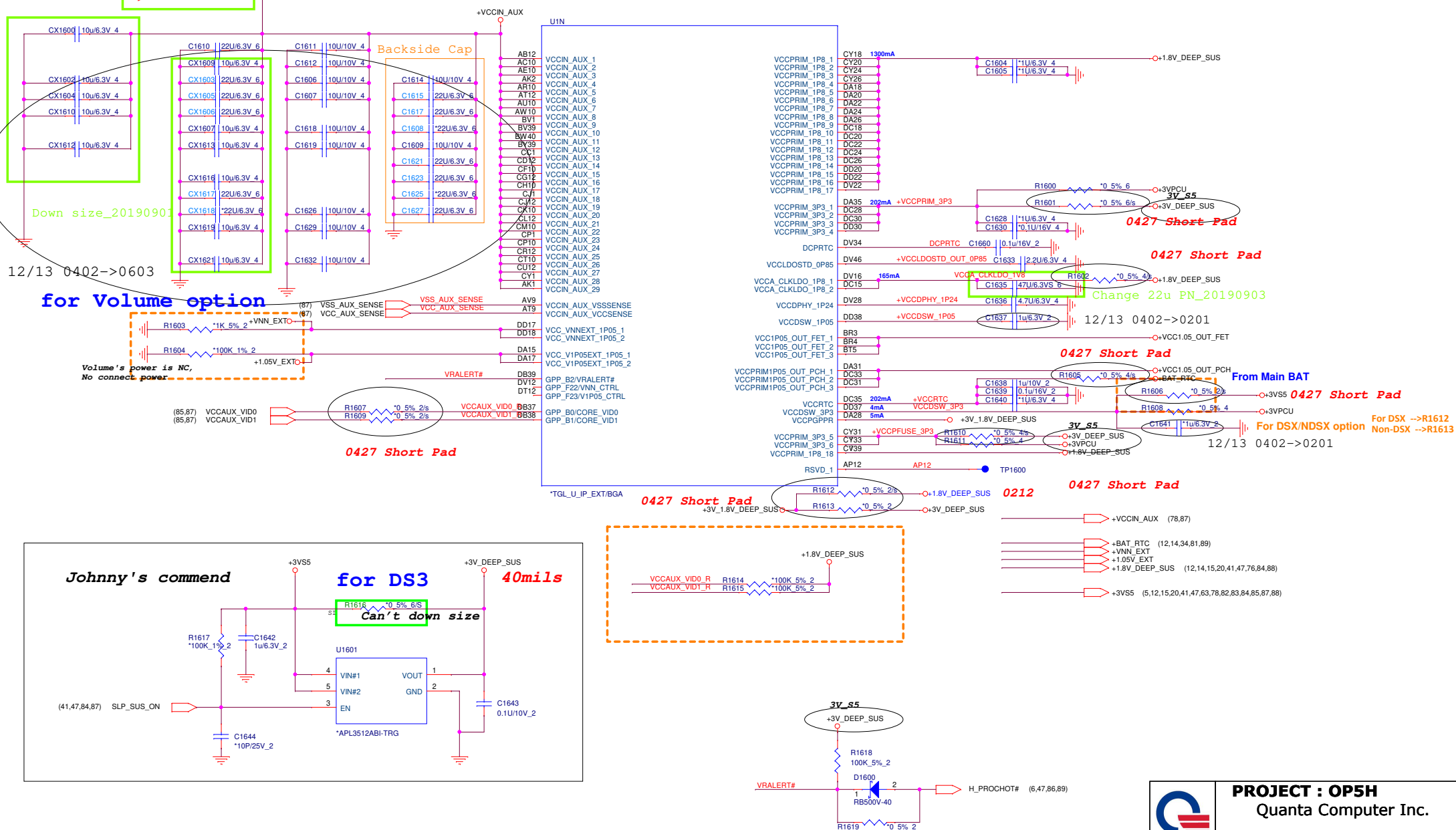
Intel RDG has , 7/30 Add

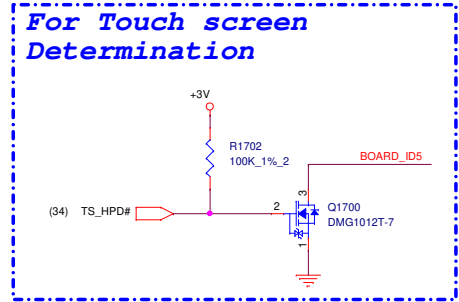
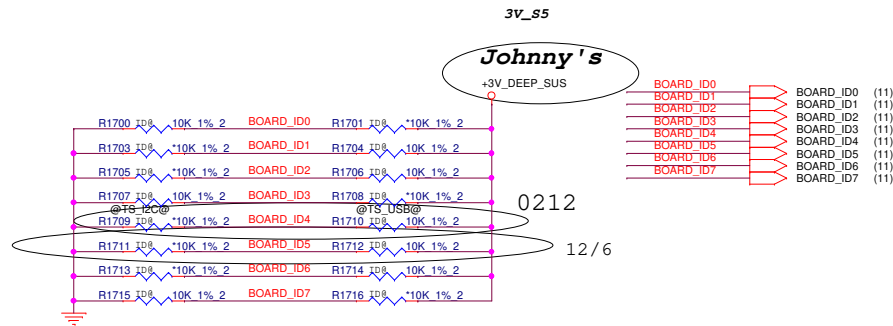


PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number	Rev
Custom	TGL-U 12/14(PM/HDA/SD3.0)	1A
Date:	Wednesday, August 05, 2020	Sheet 15 of 90

Change 22u PN_20190903





GoT ICE	BOARD_ID 7	BOARD_ID 6	Board ID 5	Board ID 4	BOARD_ID[3:1]	Board ID 0
Model	ID7	ID6	ID5	ID4	ID3 ID2 ID1	ID0
Definition GoT ICE	Default : 0 For 6U CPU (W/TPM) : 1	0: 14" 1: 15"	0 : No I2C touch Screen Active By eDP Cable 1 : I2C touch	0: TS (I2C) 1: TS (USB)	000: GoT Mormont 001: GoT Martell 010: GoT Lannister 011: GoT OPP	0: UMA 1: DIS

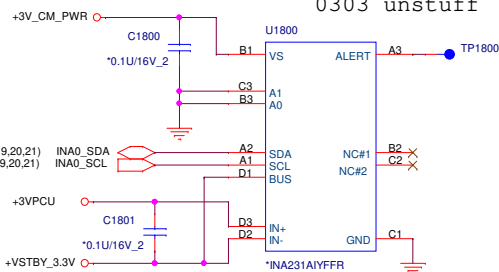
+3V (8,11,12,13,14,15,18,19,20,28,29,34,35,36,43,44,47,50,52,54,63,76,78,86,88)

+3VS5 (5,12,15,16,20,41,47,63,78,82,83,84,85,87,88)

EC_VSTBY0 --> P.47 need to add mirco resistor
Slave Addresses:1000000

Placed close to R4735

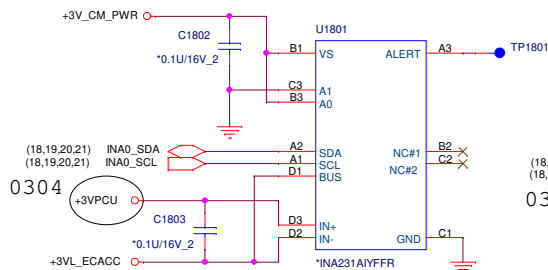
0303 unstuff



EC --> P.47 need to add mirco resistor
Slave Addresses:1000001

Placed close to L4700

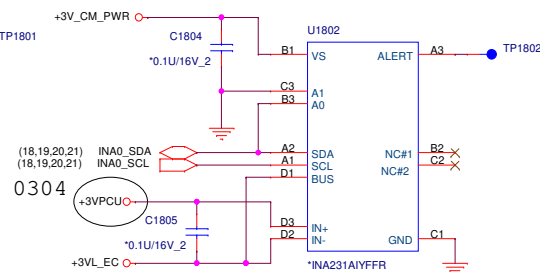
0303 unstuff



EC --> P.47 need to add mirco resistor
Slave Addresses:1000010

Placed close to L4701

0304



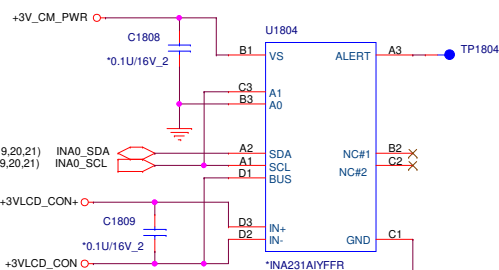
+VNN_EXT --> Power
Slave Addresses:1000000

Placed close to PR8503

eDP --> P.34 need to confirm how to add mirco resistor
Slave Addresses:1001100

Placed close to L3404

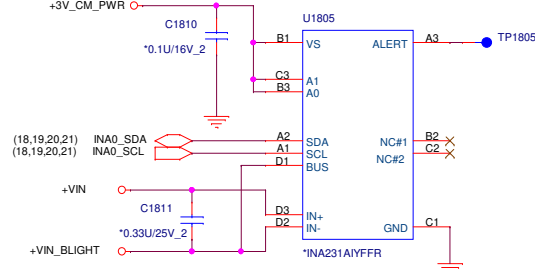
0303 unstuff



LCD Backlight --> P.34 need to confirm how to add mirco resistor
Slave Addresses:1000101

Placed close to F3400

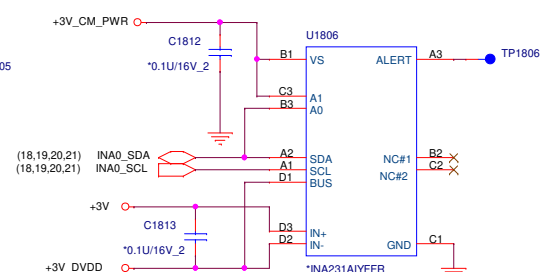
0303 unstuff



Codec --> P.36 need to confirm how to add mirco resistor
Slave Addresses:1000110

Placed close to R3621

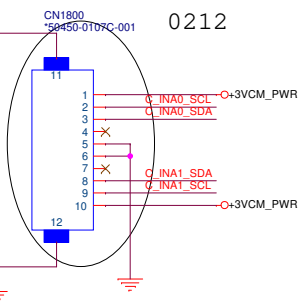
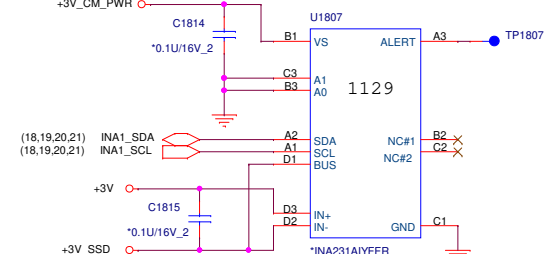
0303 unstuff



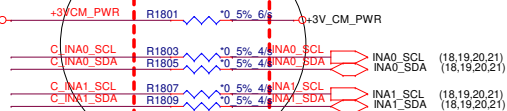
SSD --> P.43 need to add mirco resistor
Slave Addresses:1000000

Placed close to R4300

0303 unstuff



Stuff in Monitor side



0303 short pad

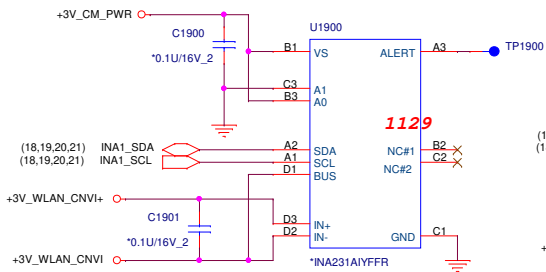
Table 7. INA231 Address Pins and Slave Addresses

A1	A0	SLAVE ADDRESS
GND	GND	1000000
GND	V _S	1000001
GND	SDA	1000010
GND	SCL	1000011
V _S	GND	1000100
V _S	V _S	1000101
V _S	SDA	1000110
V _S	SCL	1000111
SDA	GND	1001000
SDA	V _S	1001001
SDA	SDA	1001010
SDA	SCL	1001011
SCL	GND	1001100
SCL	V _S	1001101
SCL	SDA	1001110
SCL	SCL	1001111

WLAN --> P.41 need to add mirco resistor

Slave Addresses:1000001

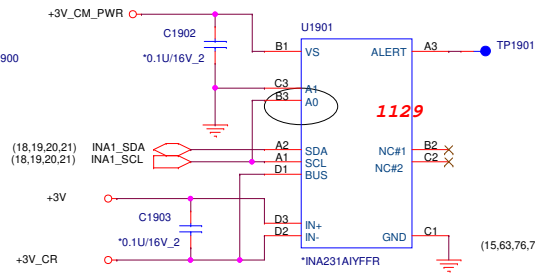
Placed close to R4128



Card Reader --> daughter board need to add

Slave Addresses:1000011

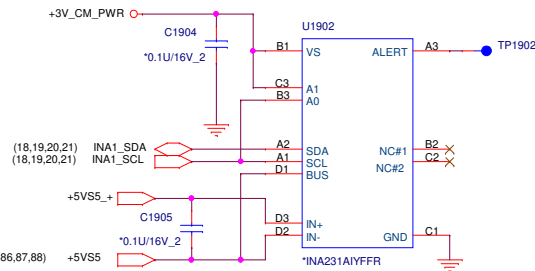
Placed close to R7602



+5VS5 --> Power

Slave Addresses:1000111

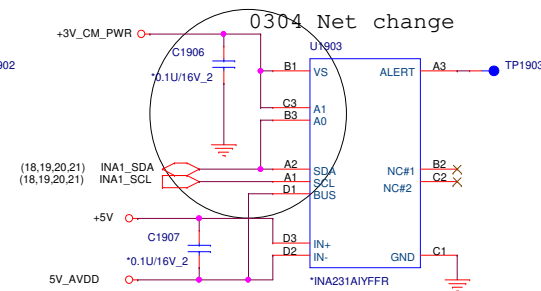
Placed close to PR1162



Codec --> P.36 need to add mirco resistor

Slave Addresses:1000110

Placed close to R3604

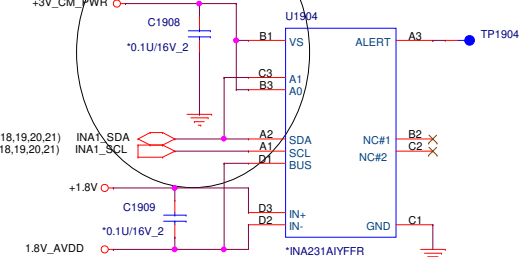


Codec --> P.36 need to add mirco resistor

Slave Addresses:1001001

Placed close to L3600

0304 Net and ads change



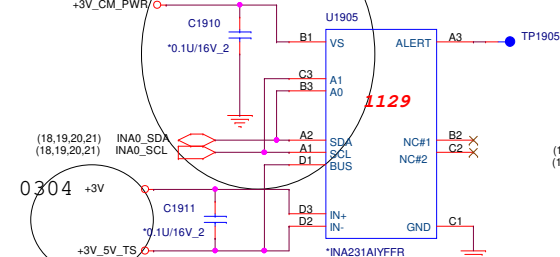
0303 unstuff

CAMERA --> P.34 need to add mirco resistor

Slave Addresses:1001110

Placed close to F3402

0304 Net and ads change



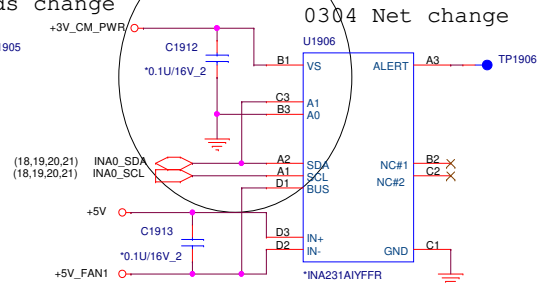
0303 unstuff

FAN1 --> P.54 add mirco resistor

Slave Addresses:1001000

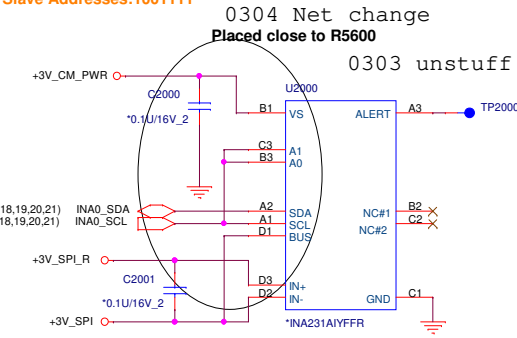
Placed close to R5403

0304 Net change



SPI ROM --> P.56 need to add mirco resistor

Slave Addresses:1001111

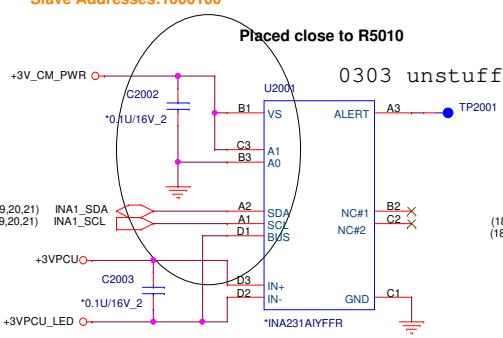


+3VS5 --> Power

Slave Addresses:1000010

AC_LED_PWR

Slave Addresses:1000100

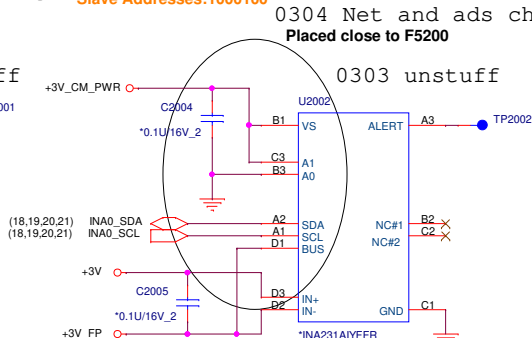


+1.05V_EXT --> Power

Slave Addresses:1000100

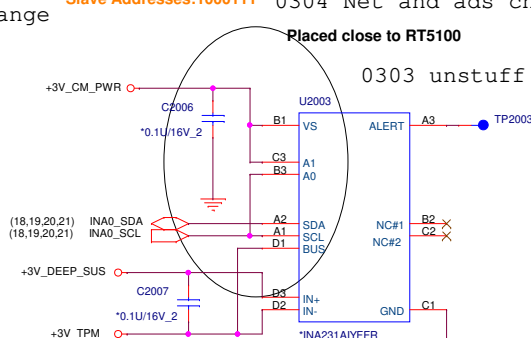
Finger Print --> P.52 need to add mirco resistor

Slave Addresses:1000100



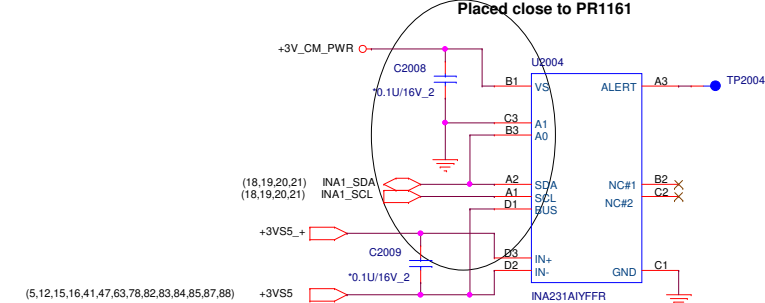
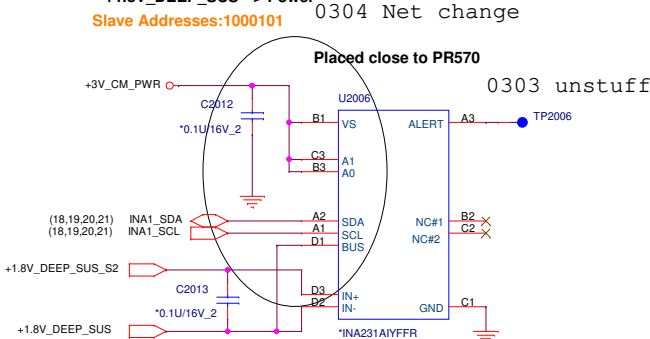
TPM --> P.51 need to add mirco resistor

Slave Addresses:1000111



+1.8V_DEEP_SUS --> Power

Slave Addresses:1000101



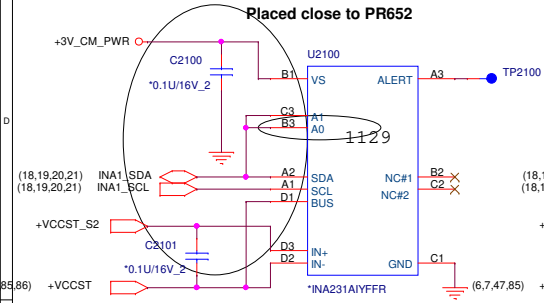
PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number CURRENT SENSOR-3	Rev 1A
Date: Wednesday, August 05, 2020 Sheet 20 of 90		

+VCCST
Slave Addresses:1001010

0304 Net change

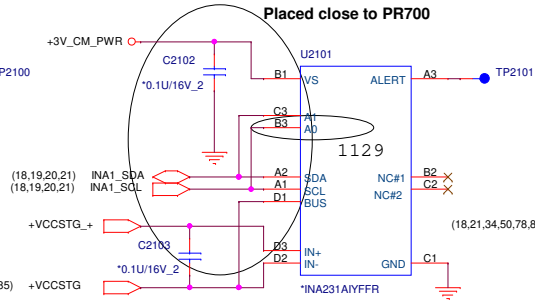
Placed close to PR652



+VCCSTG
Slave Addresses:1001011

0304 Net change

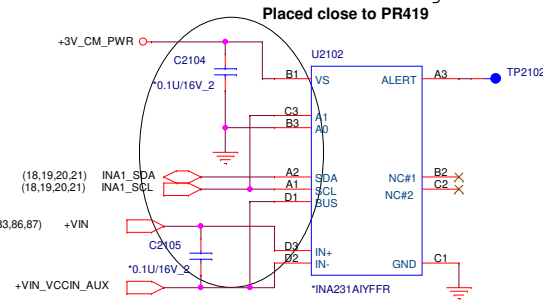
Placed close to PR700



+VCCIN_AUX -> Power
Slave Addresses:1001100

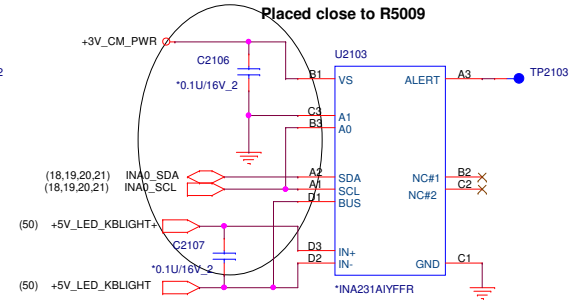
0304 Net change

Placed close to PR419



KB backlight -> P.50 need to add micro resistor
Slave Addresses:1000011 0304 Net and ads change

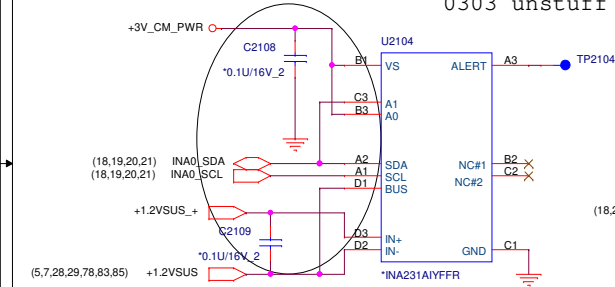
Placed close to R5009



+1.2VSUS -> Power
Slave Addresses:1001001

Placed close to PR1216

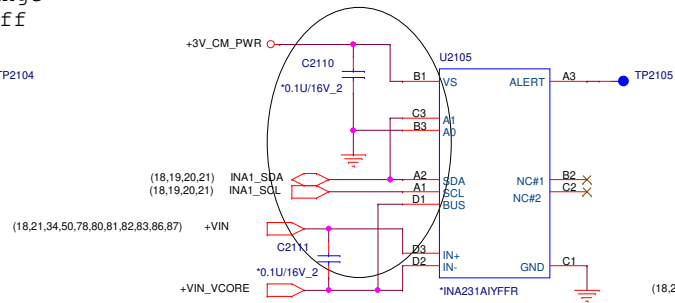
0304 Net and ads change
0303 unstuff



+VCCIN -> Power
Slave Addresses:1001000

Placed close to PR312

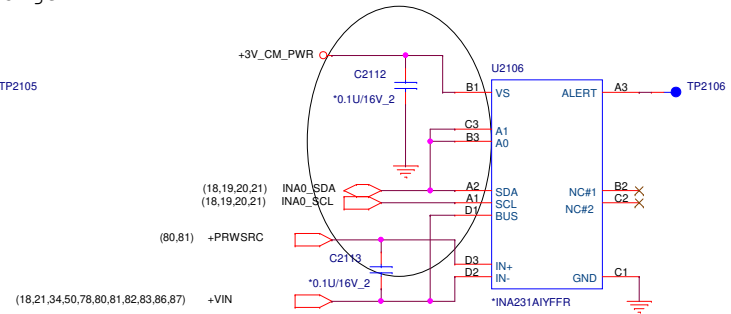
0304 Net and ads change




+VAD & Battery
Slave Addresses:1001010

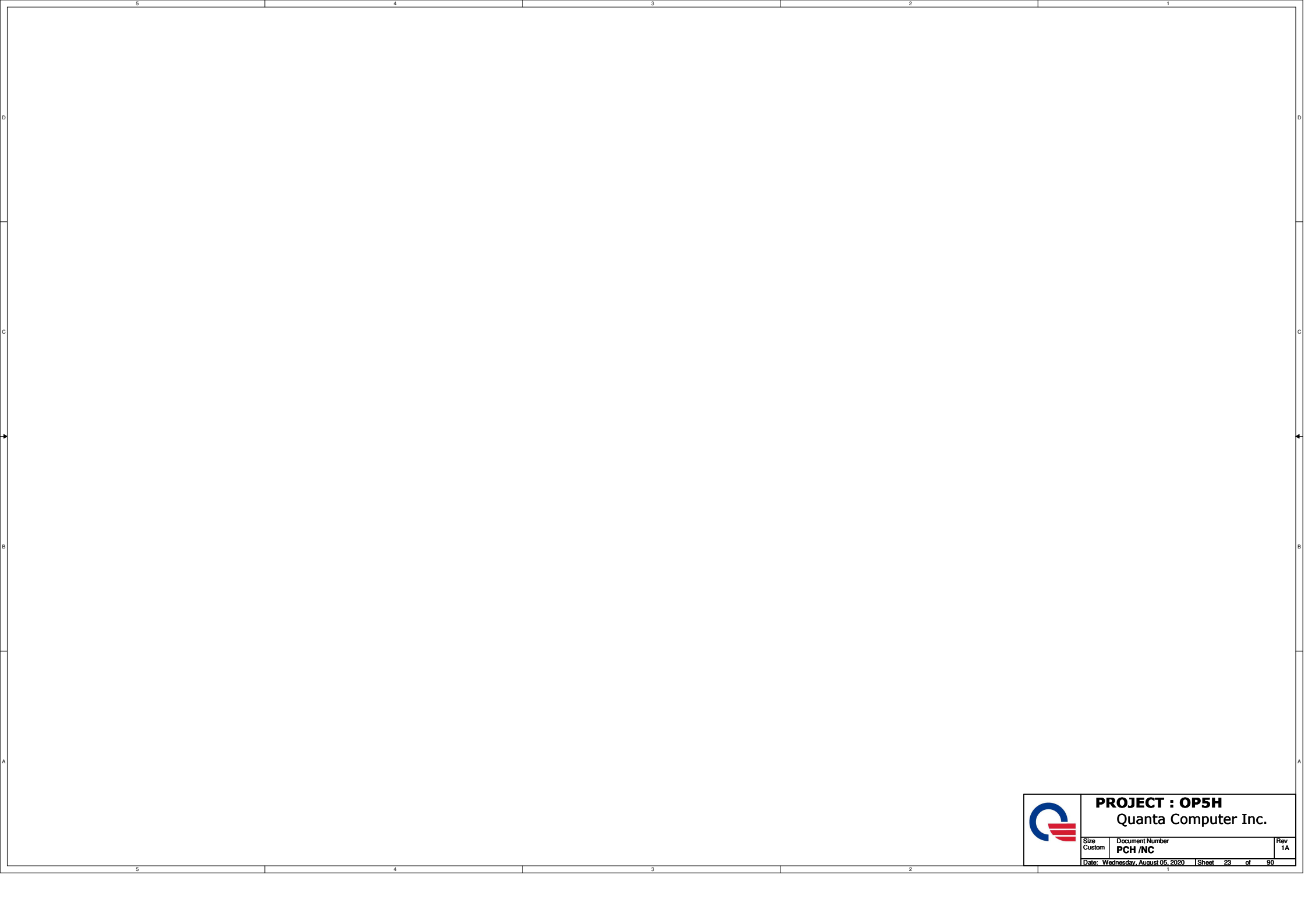
Placed close to PR1001


0304 Net and ads change






	PROJECT : OP5H		
	Quanta Computer Inc.		
	Size Custom	Document Number CURRENT SENSOR-5	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 22 of 90	




	PROJECT : OP5H		
	Quanta Computer Inc.		
	Size Custom	Document Number PCH /NC	Rev 1A
Date: Wednesday, August 05, 2020 Sheet 23 of 90			



	PROJECT : OP5H	
	Quanta Computer Inc.	
	Size Custom	Document Number PCH /NC
Date: Wednesday, August 05, 2020		Rev 1A
Sheet 24 of 90		


PCH



PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number	Rev
	25	1A
Date: Wednesday, August 05, 2020 Sheet 25 of 90		

PCH

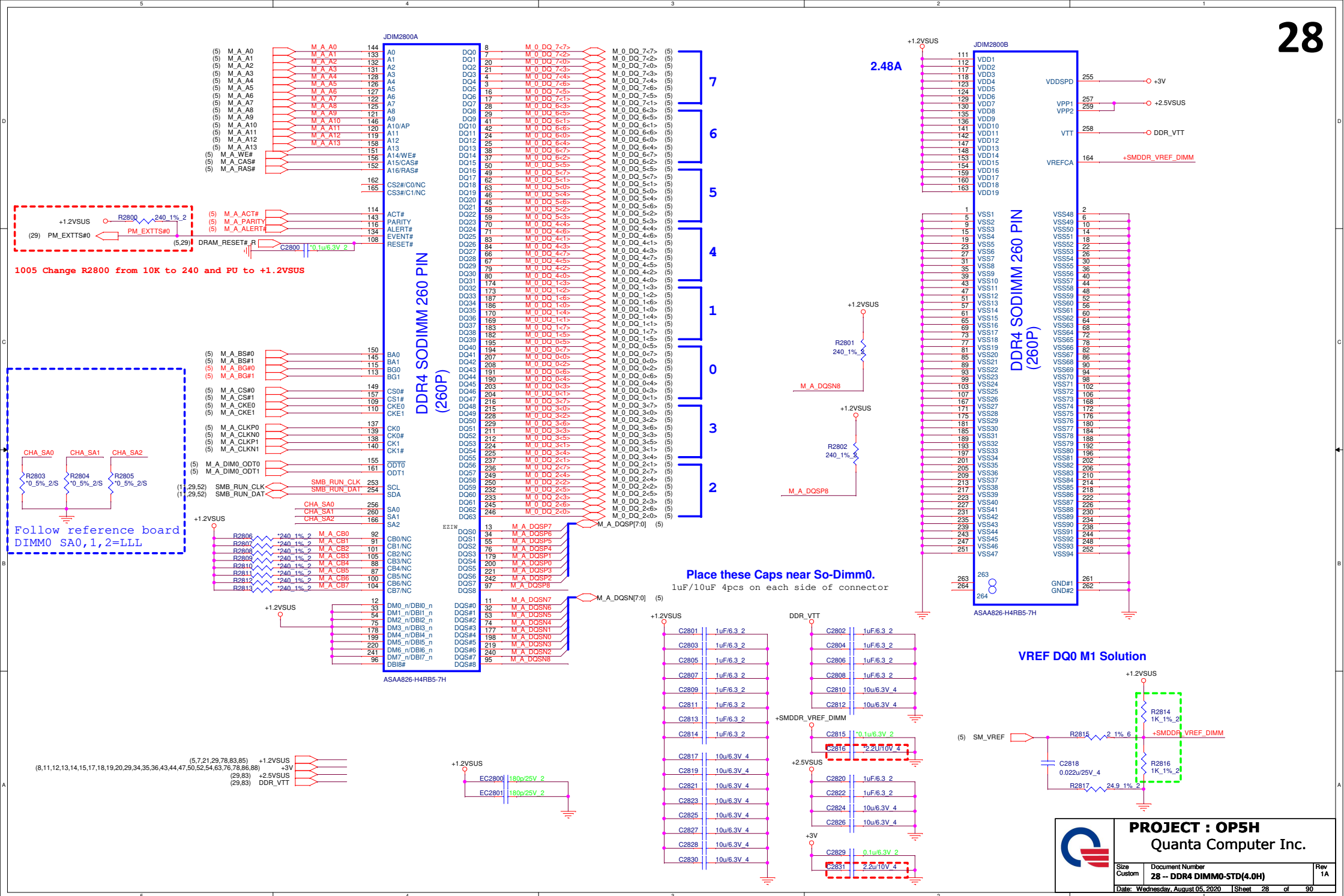


PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number	Rev
	PCH	1A
Date: Wednesday, August 05, 2020 Sheet 26 of 90		


Functional Strap Definitions

From page47






MEMORY



PROJECT : OP5H
Quanta Computer Inc.

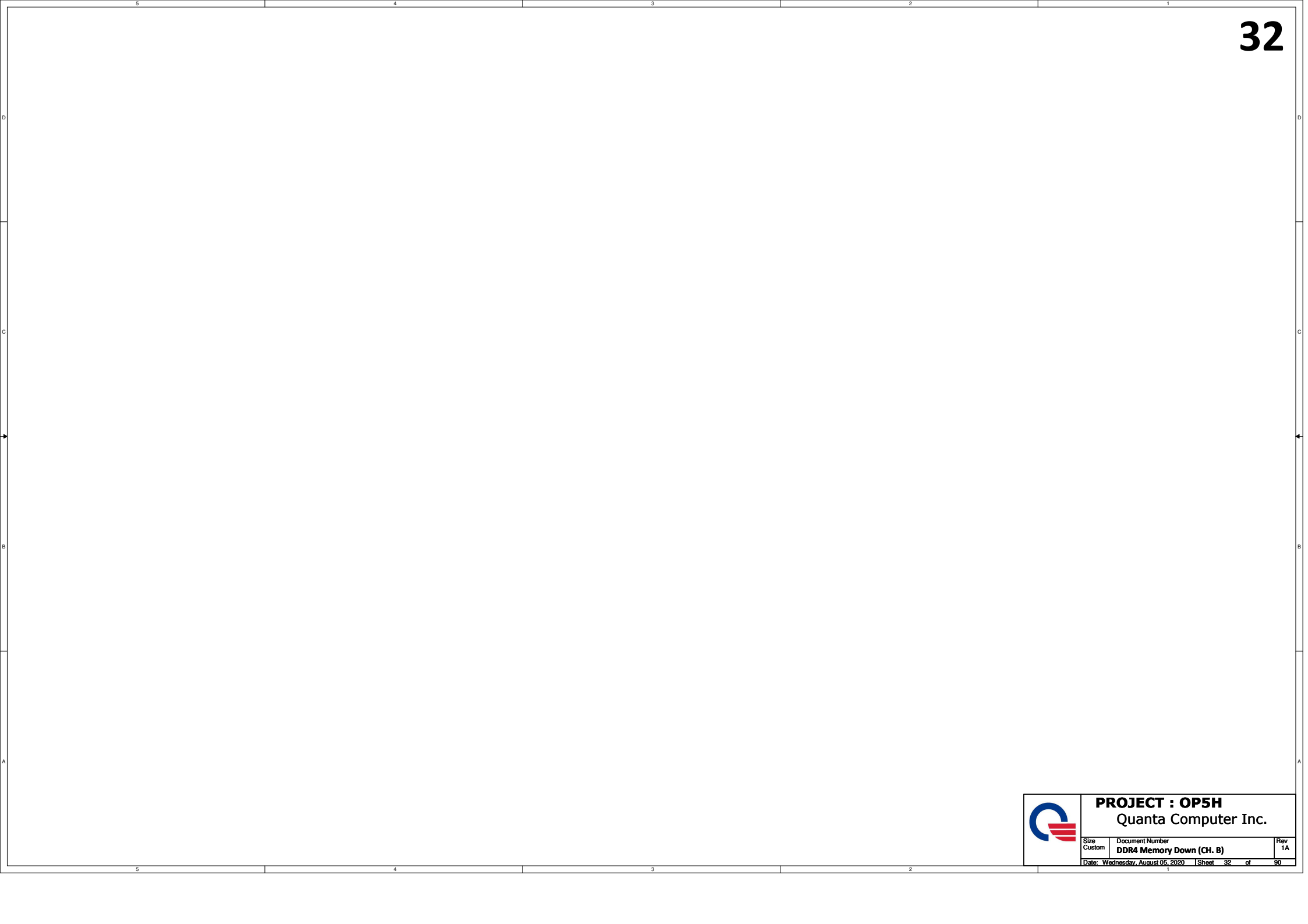
Size	Document Number	Rev
	MEMORY	1A
Date: Wednesday, August 05, 2020 Sheet 30 of 90		


MEMORY




PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number	Rev
	MEMORY	1A
Date: Wednesday, August 05, 2020 Sheet 31 of 90		



	PROJECT : OP5H		
	Quanta Computer Inc.		
	Size Custom	Document Number DDR4 Memory Down (CH. B)	Rev 1A
Date: Wednesday, August 05, 2020 Sheet 32 of 90			

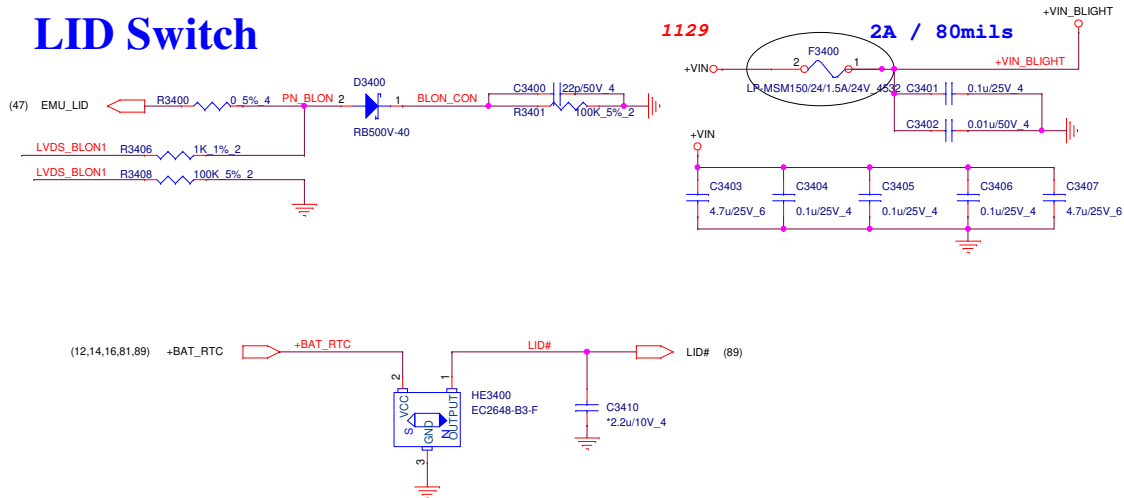
PCH



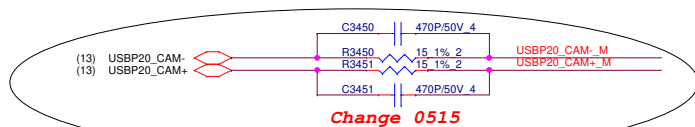
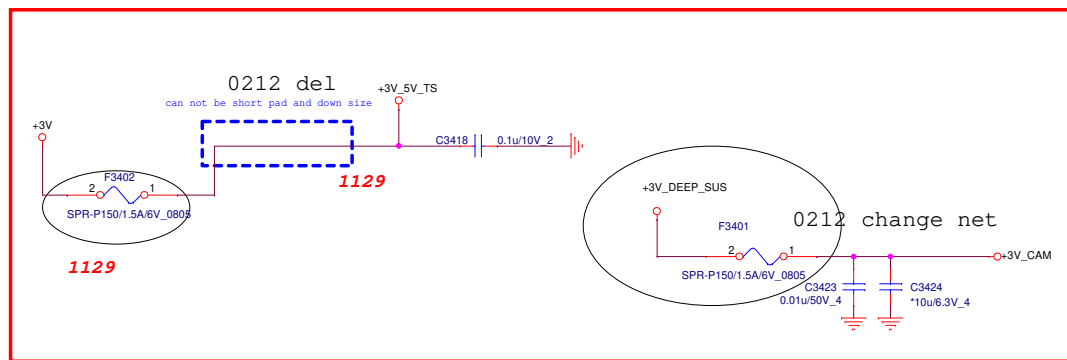
PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number I2C Path	Rev 1A
Date: Wednesday, August 05, 2020 Sheet 33 of 90		

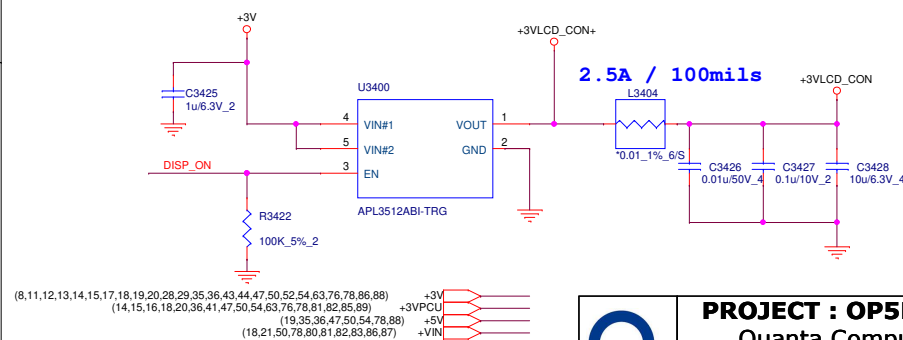
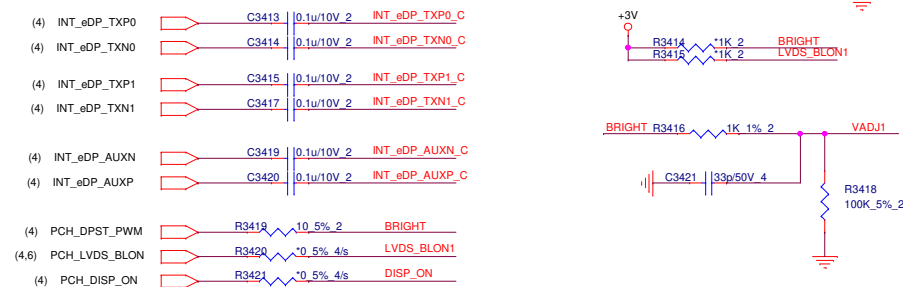
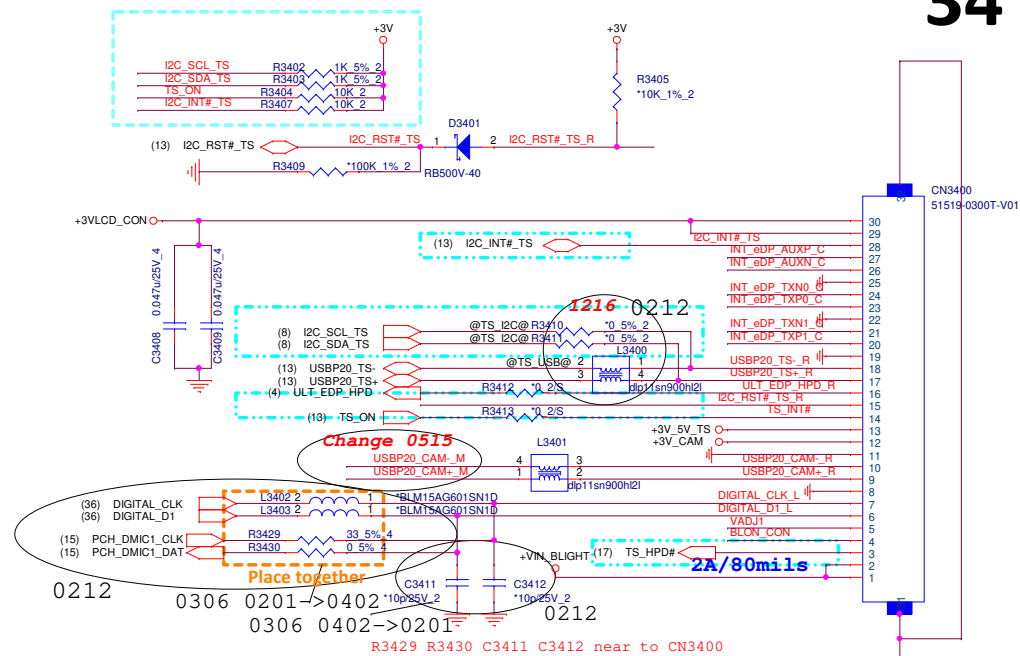
LID Switch



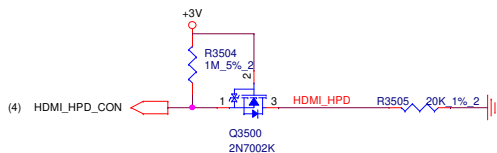
Touch screen



eDP Conn.



(4)	IN_D0	IN_D0	C3501	0.1u/16V	C	TX0	HDMI
(4)	IN_D0#	IN_D0#	C3500	0.1u/16V	C	TX0	HDMI
(4)	IN_D1	IN_D1	C3502	0.1u/16V	C	TX1	HDMI
(4)	IN_D1#	IN_D1#	C3503	0.1u/16V	C	TX1	HDMI
(4)	IN_D2	IN_D2	C3504	0.1u/16V	C	TX2	HDMI
(4)	IN_D2#	IN_D2#	C3505	0.1u/16V	C	TX2	HDMI
(4)	IN_CLK	IN_CLK	C3506	0.1u/16V	C	IN_CLK	
(4)	IN_CLK#	IN_CLK#	C3507	0.1u/16V	C	IN_CLK#	



HDMI SMBus Isolation

(4) SDVO_CLK

(4) SDVO_DATA

3V0 R3510 2.2K 5% 2

3V0 R3518 2.2K 5% 2

Q3501A

Q3501B

2N7002KDW

2N7002KDW

HDMI_SCL

HDMI_SDATA

Close to HDMI connector

3V

Q3502
2N7002K

DGPU_CL_HDMI

R3508 470 1% 2 C_TX2_HDMI+
R3509 470 1% 2 C_TX2_HDMI-

R3511 470 1% 2 C_TX1_HDMI+
R3512 470 1% 2 C_TX1_HDMI-

R3513 470 1% 2 C_TX0_HDMI+
R3514 470 1% 2 C_TX0_HDMI-

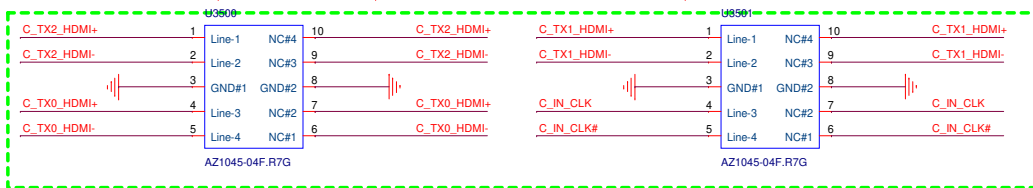
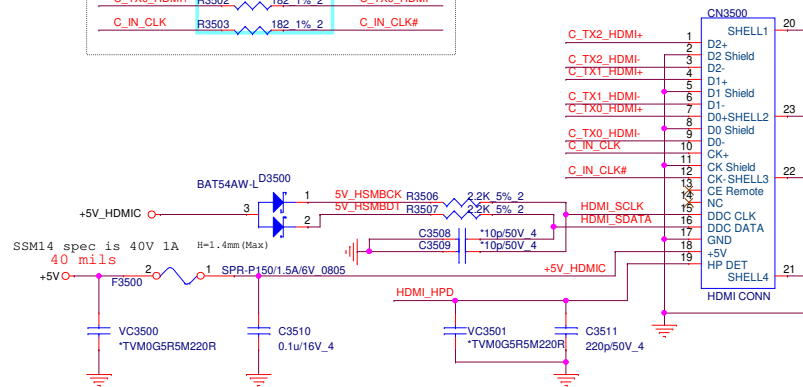
R3515 470 1% 2 C_IN_CLK
R3516 470 1% 2 C_IN_CLK#

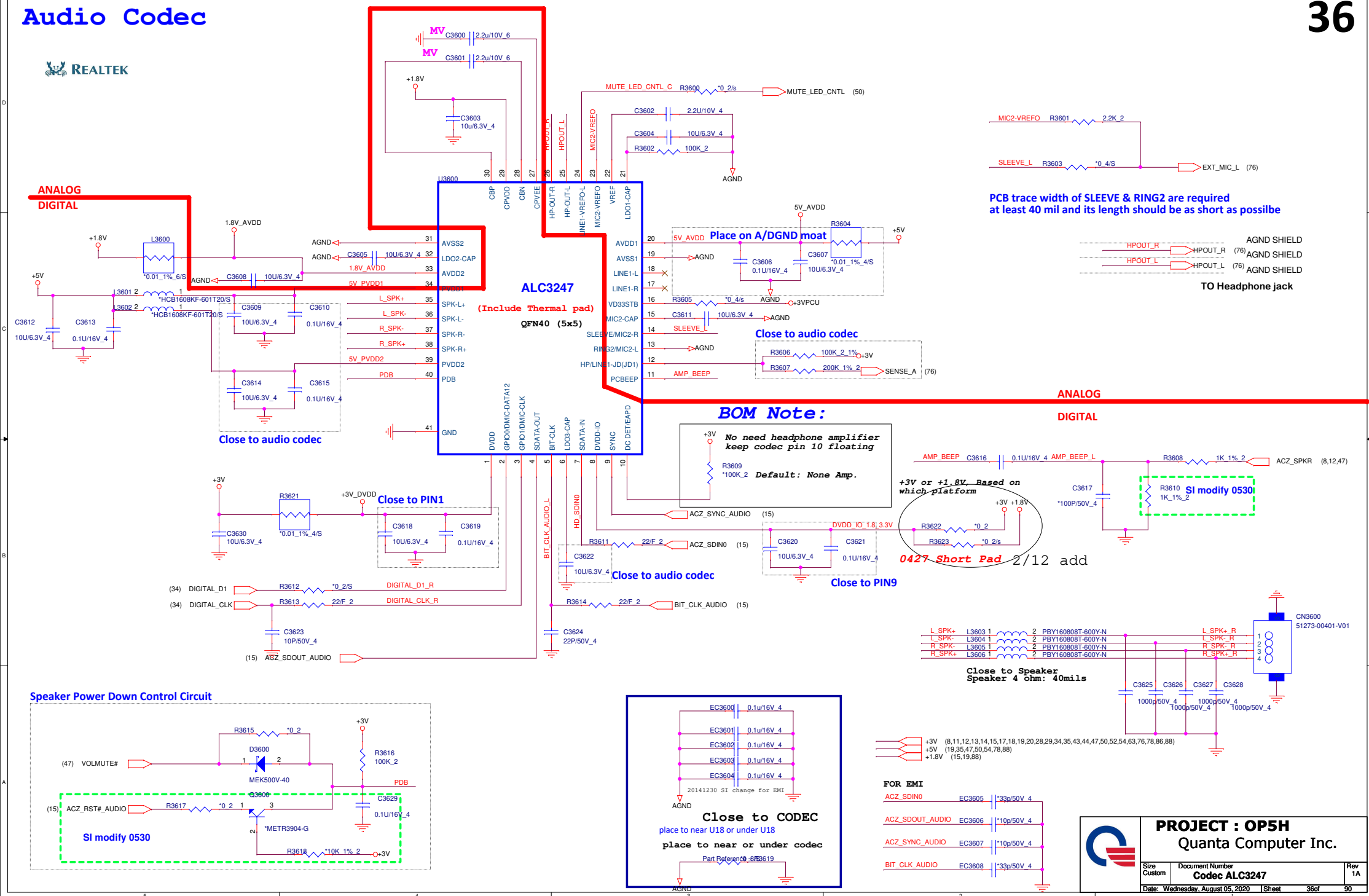
R3516 100K 1% 2

C3512 0.1u/16V 4

Close to Q33


C_TX2_HDMI+	R3500	182	1%	2	C_TX2_HDMI-
C_TX1_HDMI+	R3501	182	1%	2	C_TX1_HDMI-
C_TX0_HDMI+	R3502	182	1%	2	C_TX0_HDMI-
C_IN_CLK	R3503	182	1%	2	C_IN_CLK#






Audio Combo Jack

37

			PROJECT : OP5H Quanta Computer Inc.		
Size Custom	Document Number Audio Jack				Rev 1A
Date: Wednesday, August 05, 2020		Sheet	37 of	90	


AUDIO



PROJECT : OP5H
Quanta Computer Inc.

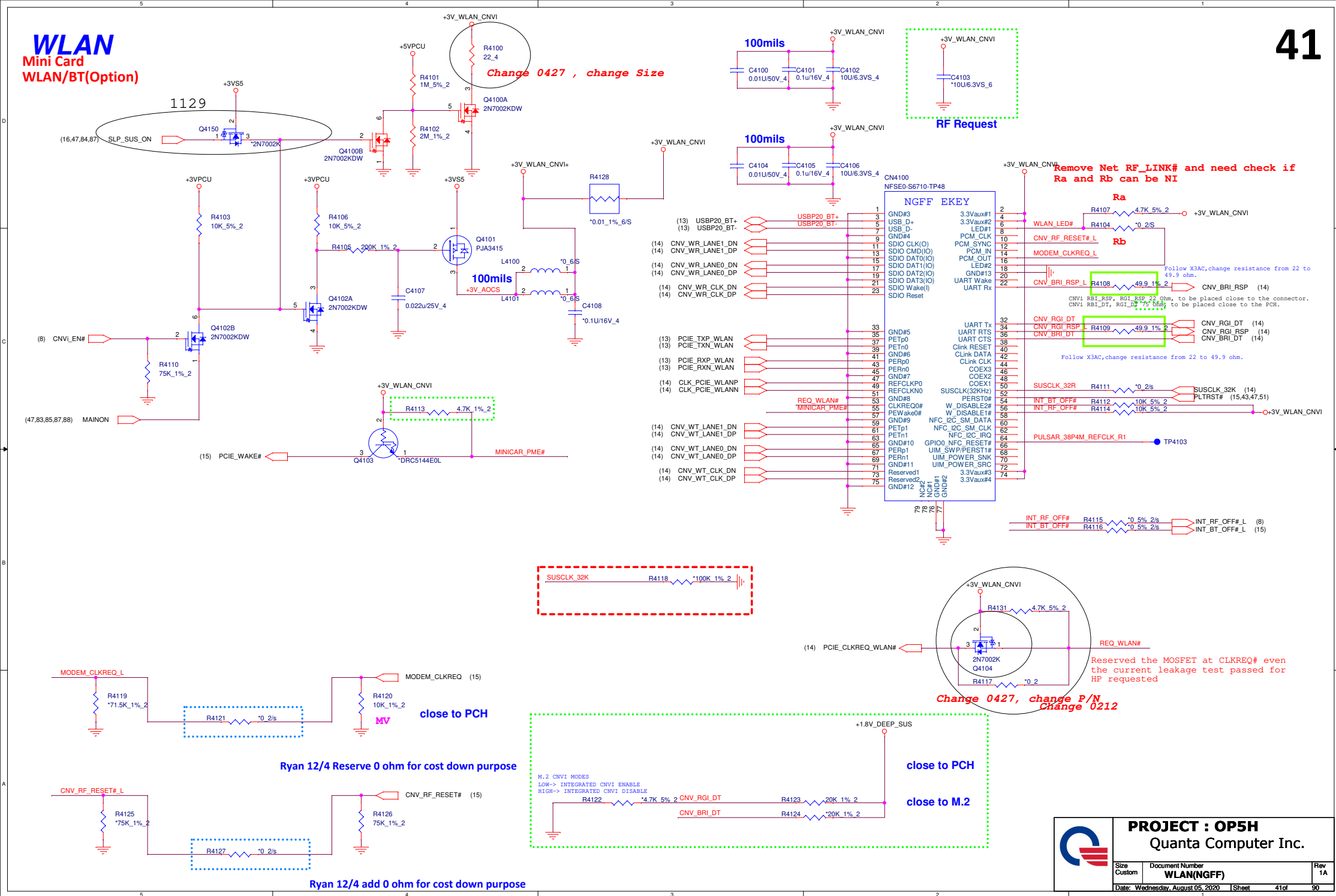
Size Custom	Document Number Audio	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 38 of 90

AUDIO




PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number Audio	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 39 of 90



PCH

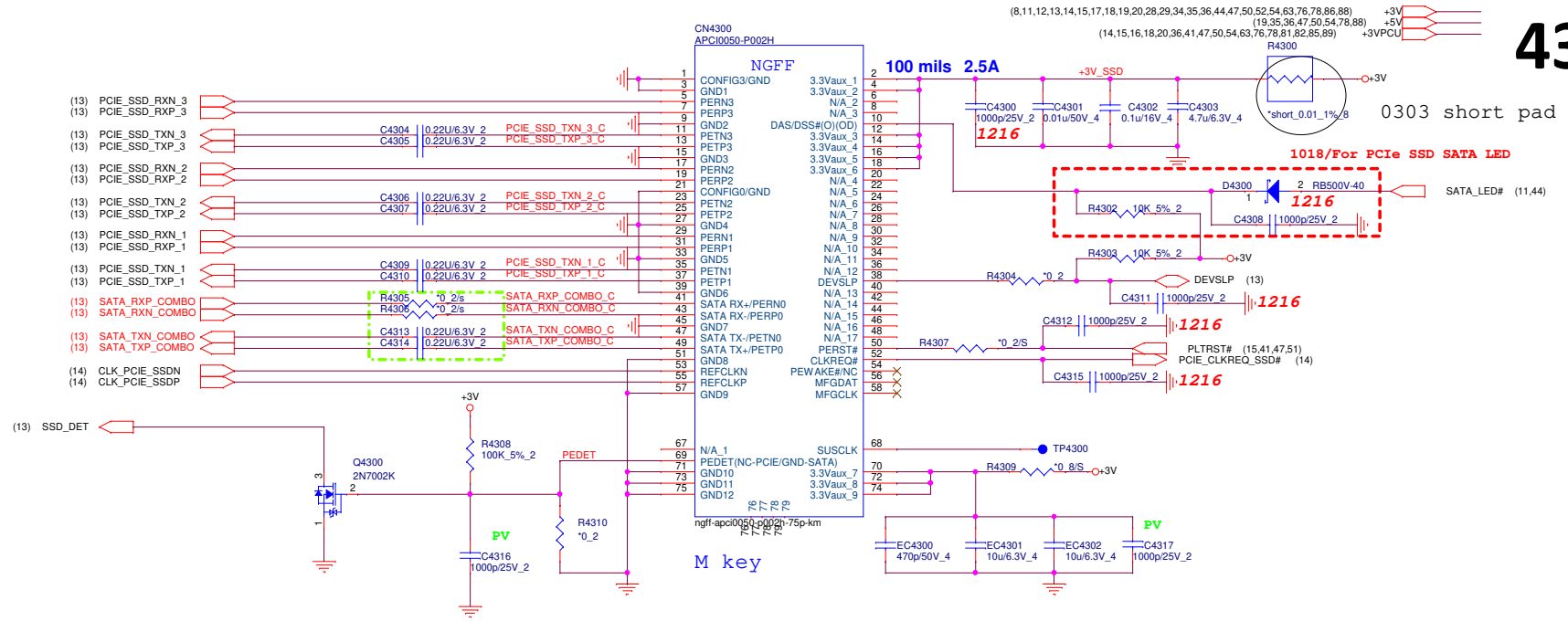


PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number WWAN	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 42 of 90

SATA SSD

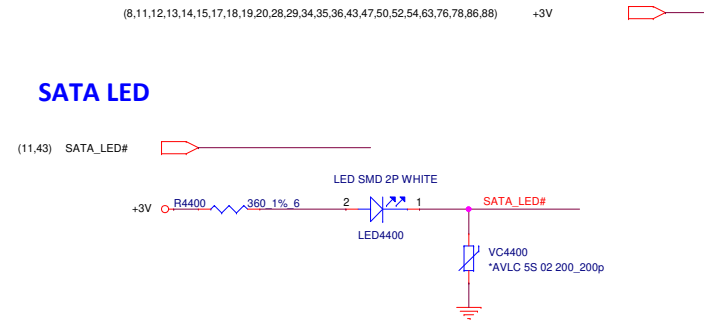
43




SATA HDD & LED

Change 0515

SATA LED




PCH



PROJECT : OP5H
Quanta Computer Inc.

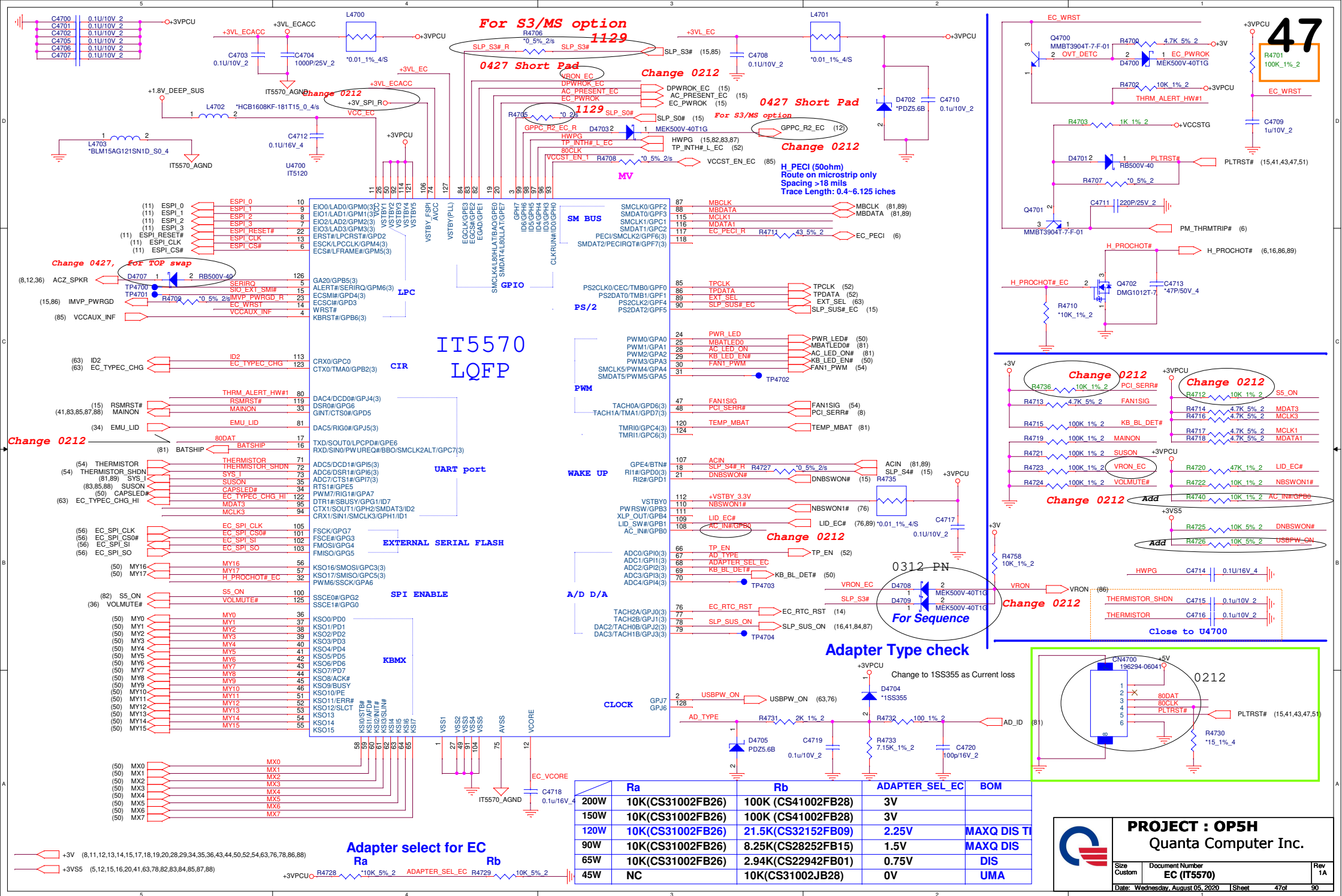
Size Custom	Document Number EMMC	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 45 of 90

CAMERA




PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number CAMERA	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 46 of 90




PCH



PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number EC1	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 48 of 90

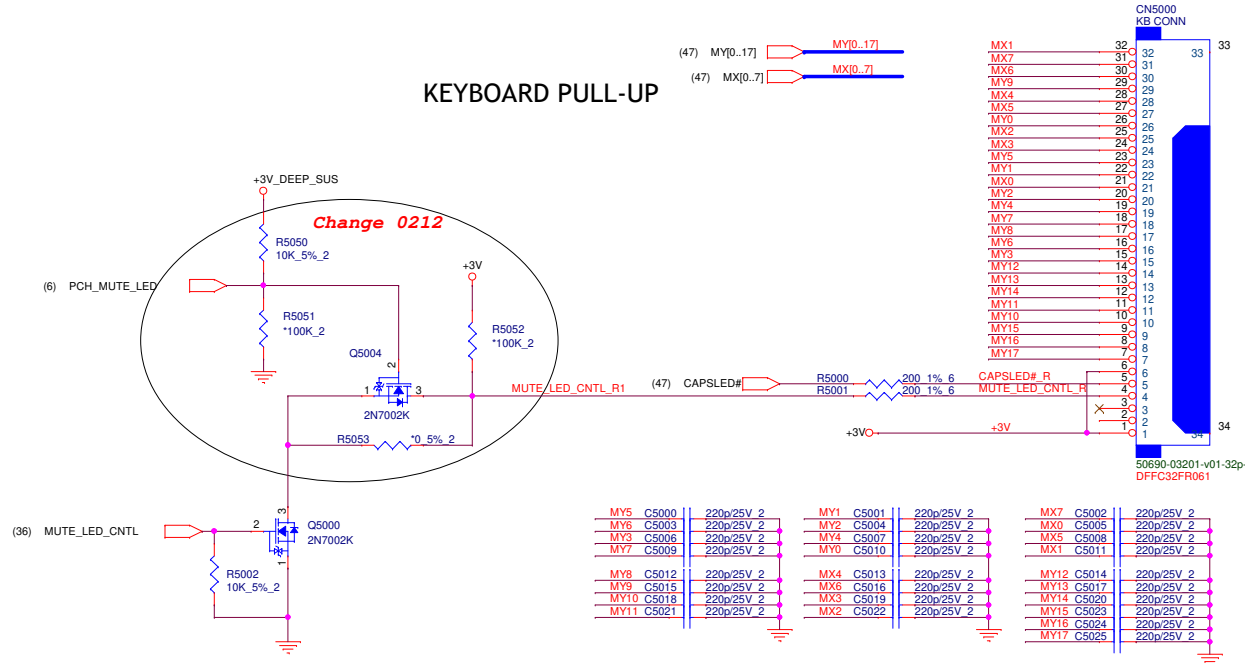
PCH



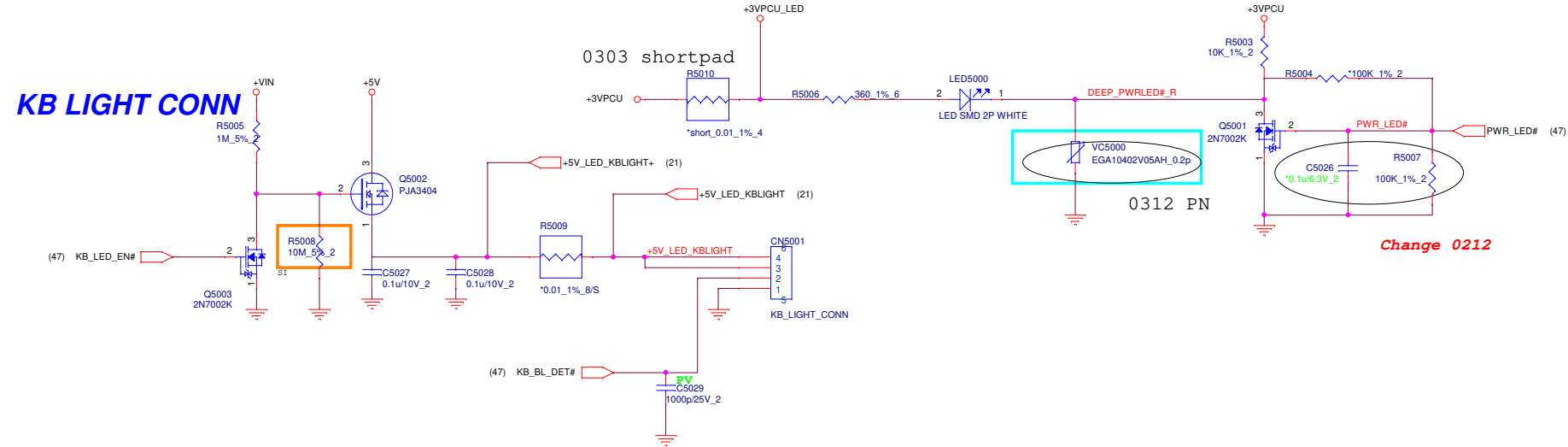
PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number EC2	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 49 of 90

KEYBOARD PULL-UP



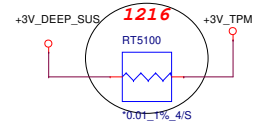
KB LIGHT CONN



(5,12,15,16,20,41,47,63,78,82,83,84,85,87,88) +3VS5
(8,11,12,13,14,15,17,18,19,20,28,29,34,35,36,43,44,47,52,54,63,76,78,86,88) +3V
(15,19,63,76,78,82,83,85,86,87,88) +5VS5
(63,64) +TYPEC_VBUS

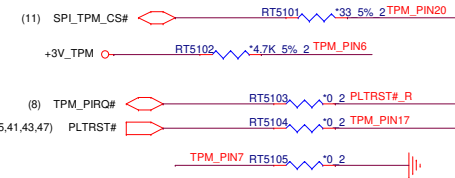
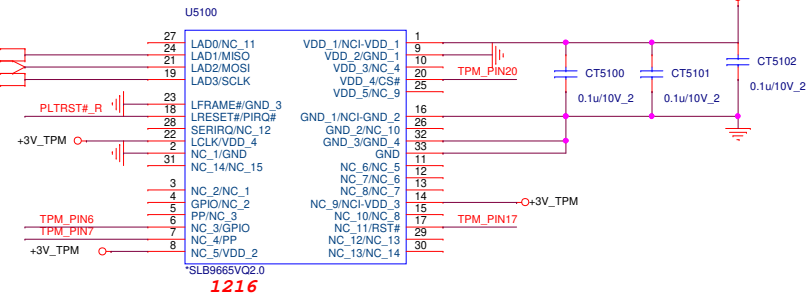
TPM

TPM (2.0)

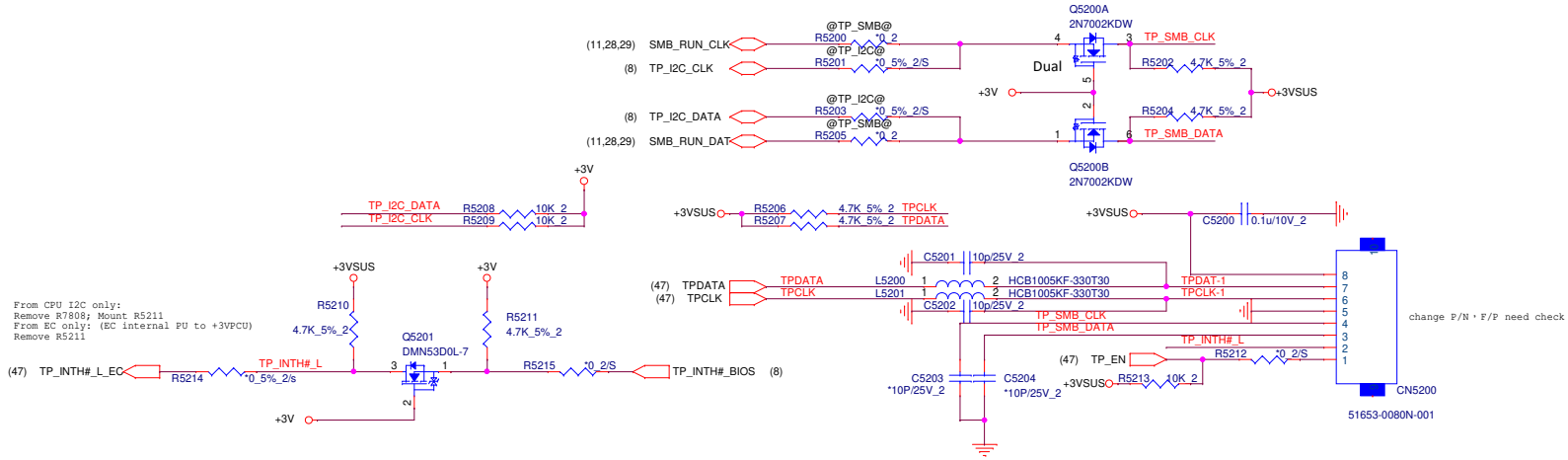


Ra
SLB9665 --> Ra
SLB9670 --> Rb

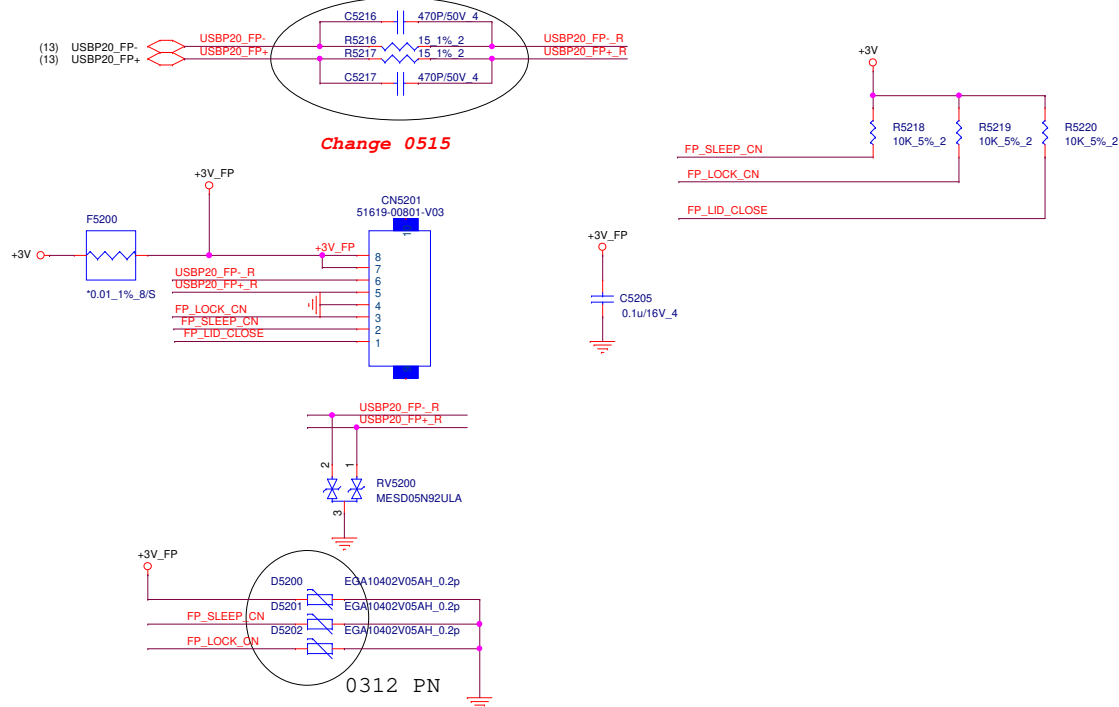
FW 7.83 PN:AL009670037




For 9670 stuff



Finger print



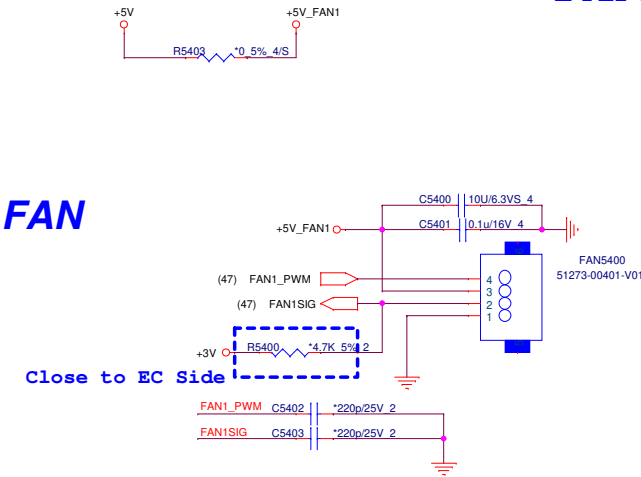
SENSOR



PROJECT : OP5H
Quanta Computer Inc.

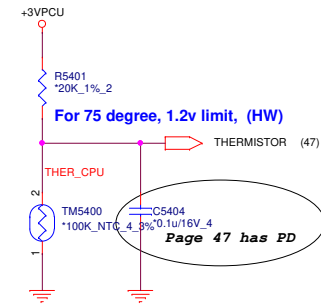
Size Custom	Document Number Sensor <G-Sensor>	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 53 of 90

FAN/Thermal

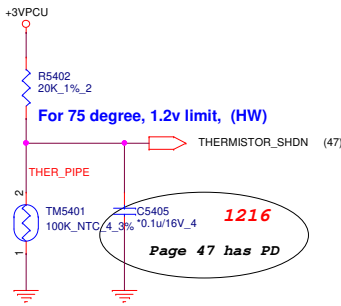


IO Thrm Protect

For PIPE USE



For CPU USE

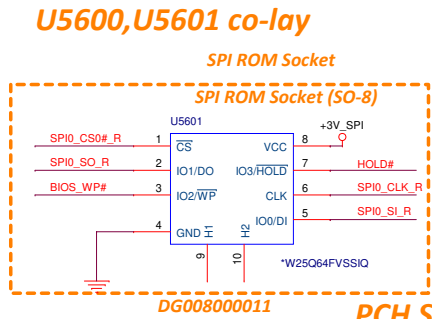


PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number FAN/Thermal	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 54 of 90

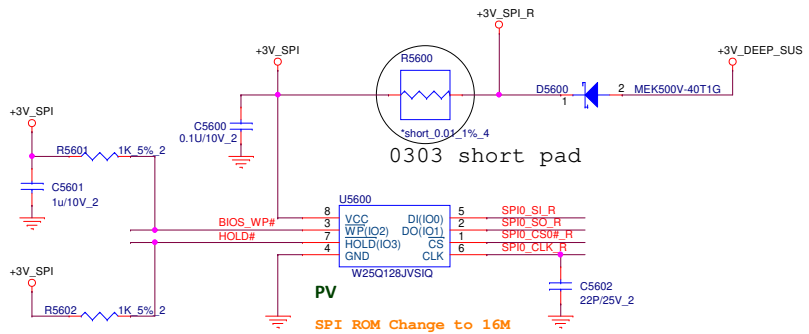
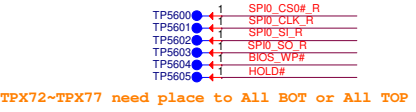
PCH SPI ROM(CLG)

Vender	Size	P/N
	16MB	
	16MB	
GigaDevice	16MB	AKE2EZN0Q00 (GD25B64CSIGR)
Adesto	16MB	AKE3GZN0S01 (AT25QF641)
Socket		DFHS08FS023

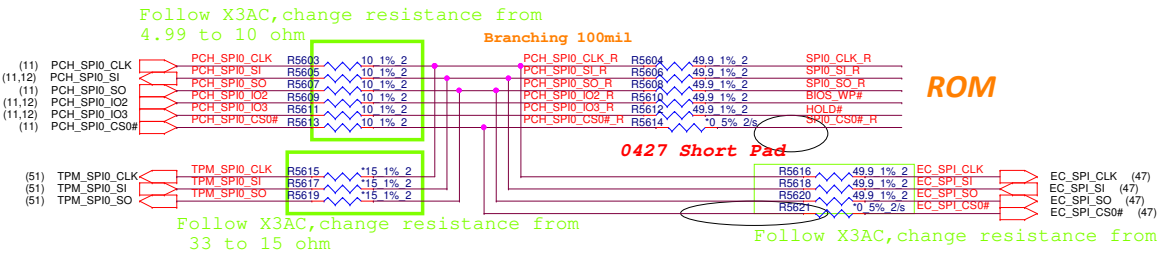


PCH Side

TPM Side

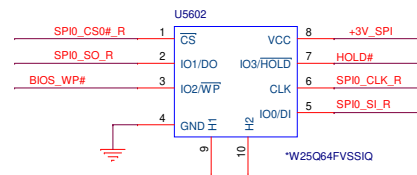
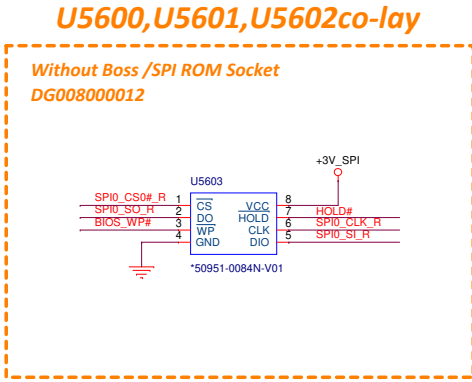



SPI ROM Change to 16M



ROM

EC Side






PROJECT : OP5H
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Size Custom	Document Number USB TYPEA	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 57 of 90


TBT



PROJECT : OP5H
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Size Custom	Document Number TBT1	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 58 of 90


TBT



PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number TBT2	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 59 of 90


TBT



PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number TBT3	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 60 of 90


USB TYPEC PD



PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number USB TYPEC PD	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 61 of 90

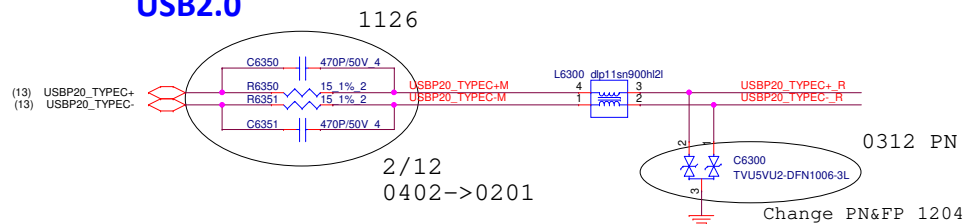
USB TYPEC PD



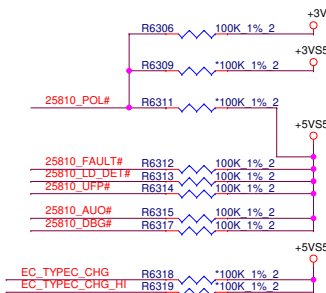
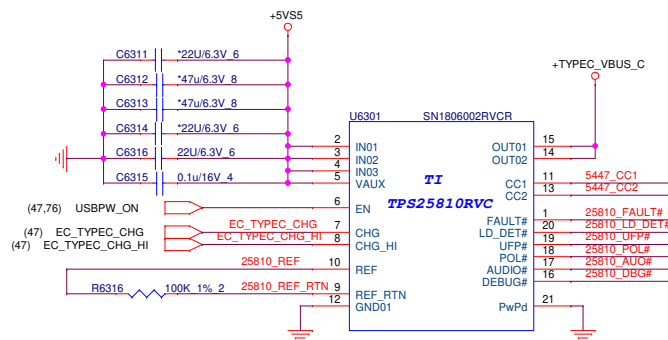
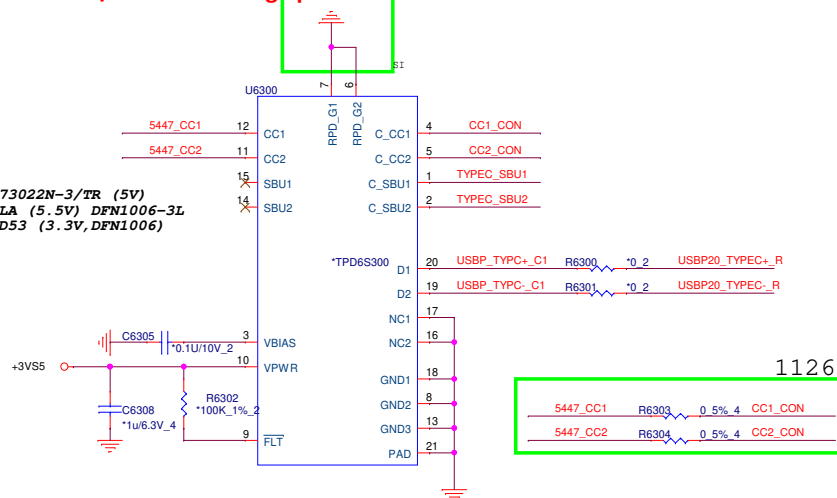
PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number USB TYPEC PD1	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 62 of 90

USB2.0

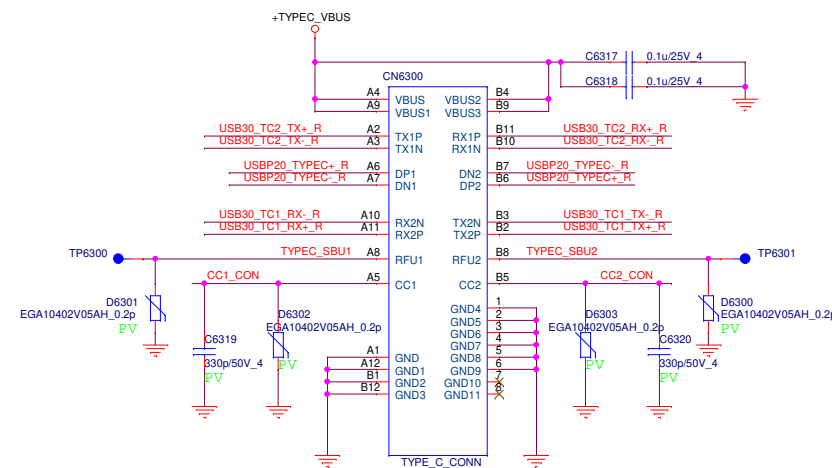
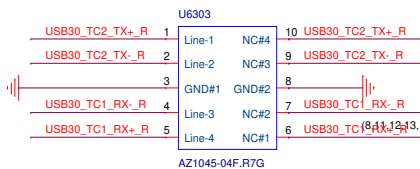
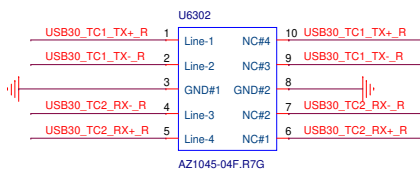
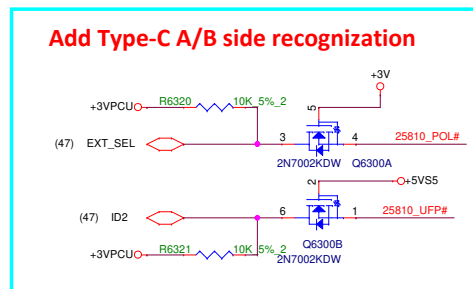


CC/SBU Overvoltage protection



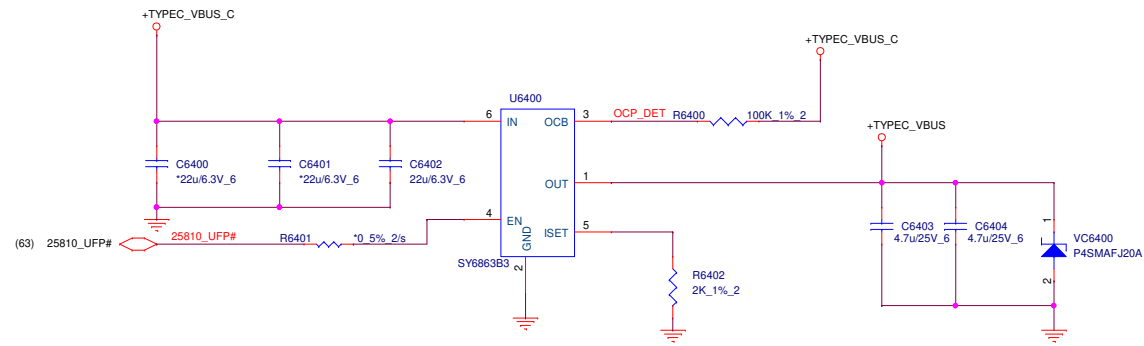
(64) 25810_UFP#

TYPE C USB3.0 ESD




PROJECT : OP5H
Quanta Computer Inc.

Size	Document Number	Rev
Custom	TYPE-C TPS25810	1A
Date: Wednesday, August 05, 2020	Sheet 63 of 90	



PCH



PROJECT : OP5H
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Size Custom	Document Number USB TYPE-C #3	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 65 of 90




PROJECT : OP5H
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Size Custom	Document Number dGPU1	Rev 1A
Date: Wednesday, August 06, 2020 Sheet 66 of 90		




PROJECT : OP5H Quanta Computer Inc.		
Size Custom	Document Number dGPUS	Rev 1A
Date: Wednesday, August 05, 2020 Sheet 70 of 90		




PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number dGPU8	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 73 of 90



PROJECT : OP5H
Quanta Computer Inc.

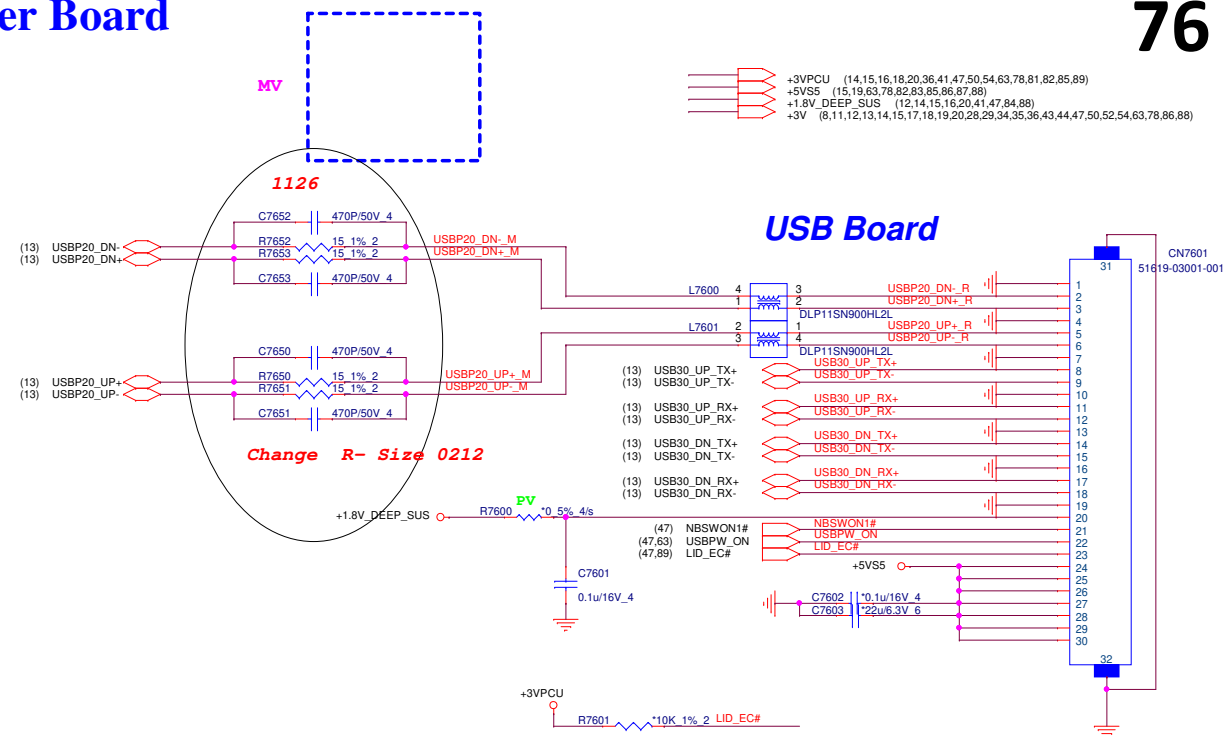
Size Custom	Document Number dGPU9	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 74 of 90



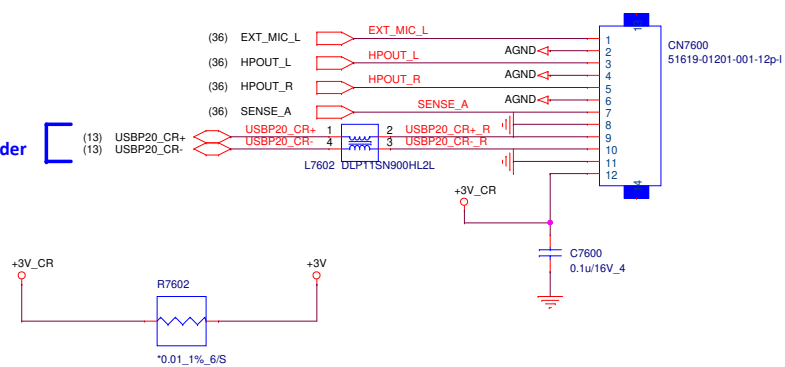
PROJECT : OP5H
Quanta Computer Inc.

Size Custom	Document Number empty	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 75 of 90

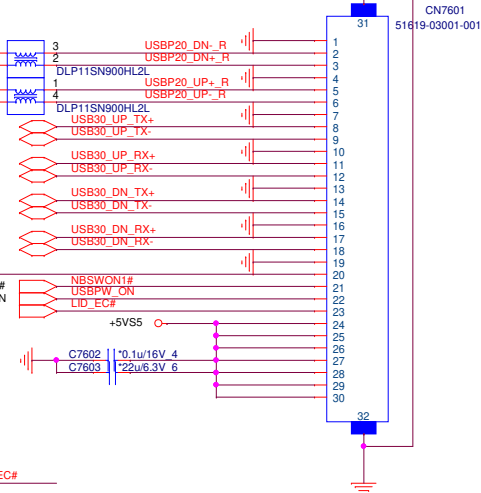
Daughter Board

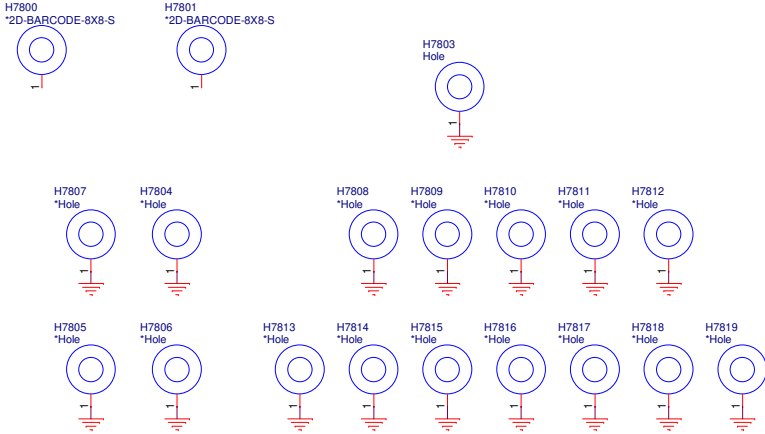


SD Board



USB Board





51 level BOM option 電阻

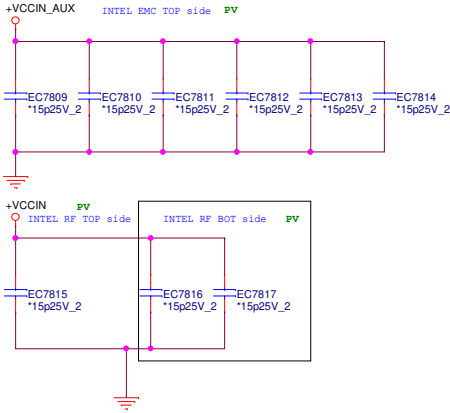
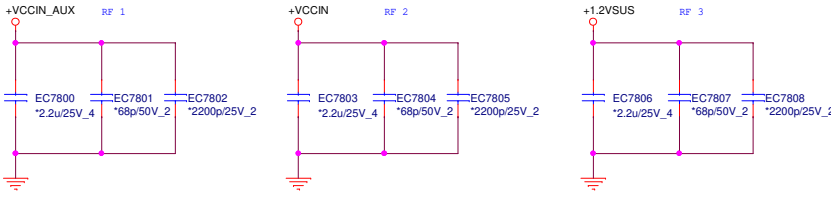
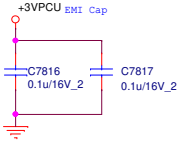
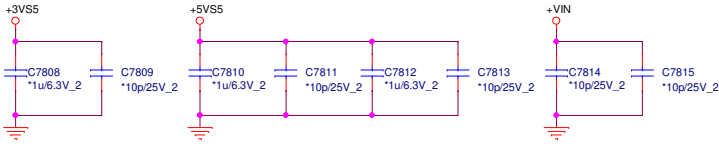
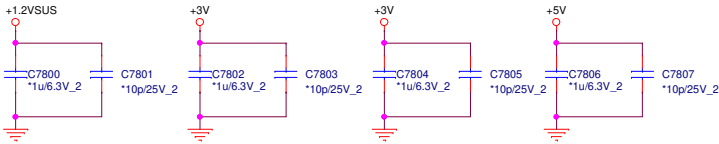
RA stuff TOP


R7800 10K_5%_2

RB stuff TOP

R7801 10K_5%_2

Johnny suggestion 跨moat cap

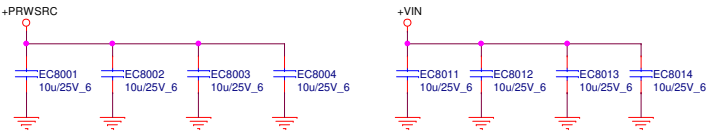


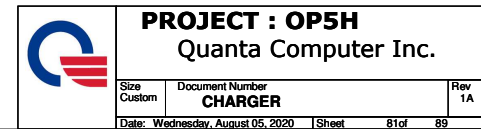


PROJECT : OP5H
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Size Custom	Document Number empty	Rev 1A
Date: Wednesday, August 05, 2020		Sheet 79 of 90

Reserve for EMI function test

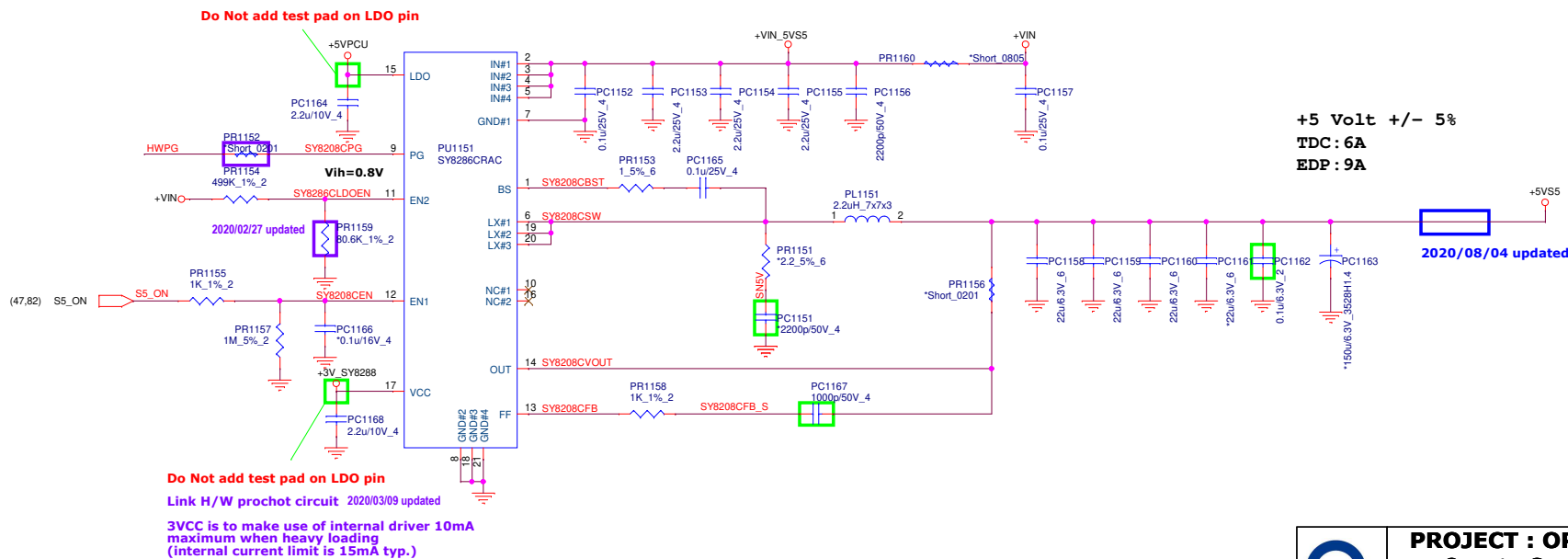
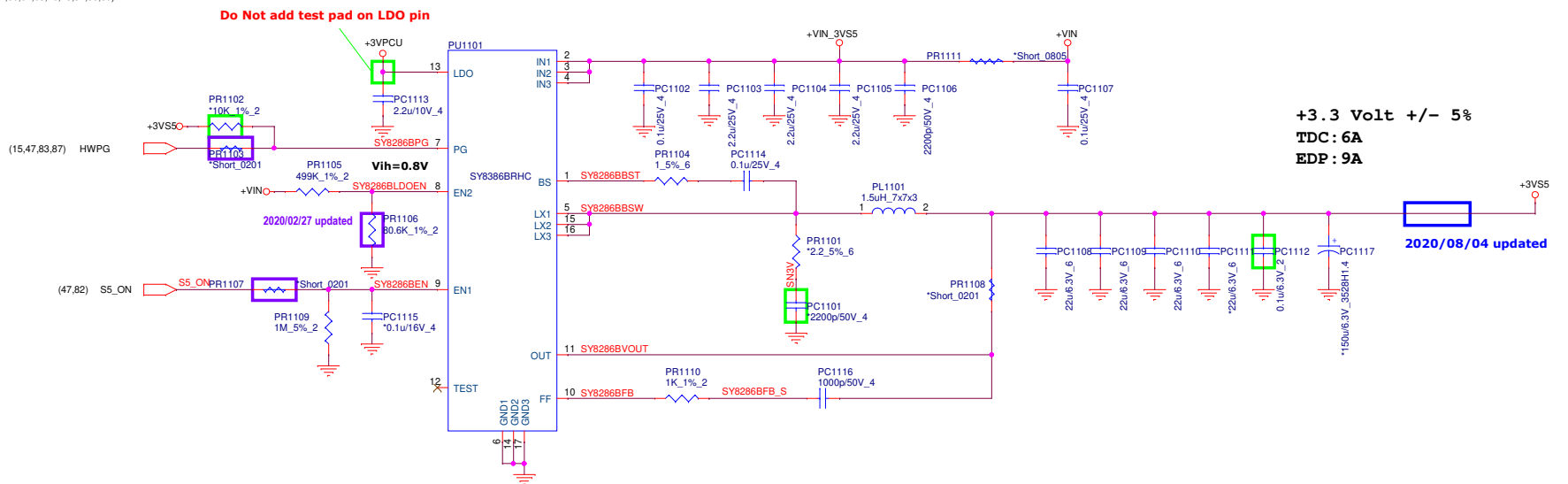




DC/DC +3VS5/+5VS5



Input	Values
+VIN	(18,21,34,50,78,80,81,83,86,87)
+3VS5	(5,12,15,16,20,41,47,63,78,83,84,85,87,88)
+5VS5	(15,19,63,76,78,83,85,86,87,88)
+3VPCU	(14,15,16,18,20,36,41,47,50,54,63,76,78,81,85,89)
+5VPCU	(41,81,88)



Do Not add test pad on LDO pin

Link H/W prohot circuit 2020/03/09 updated

3VCC is to make use of internal driver 10mA maximum when heavy loading (internal current limit is 15mA typ.)



PROJECT : OP5H
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Size Custom	Document Number +3/5VS5(SY8286B/SY8286C)	Rev 1.
Date: Wednesday, August 05, 2020		Sheet 82 of 89

