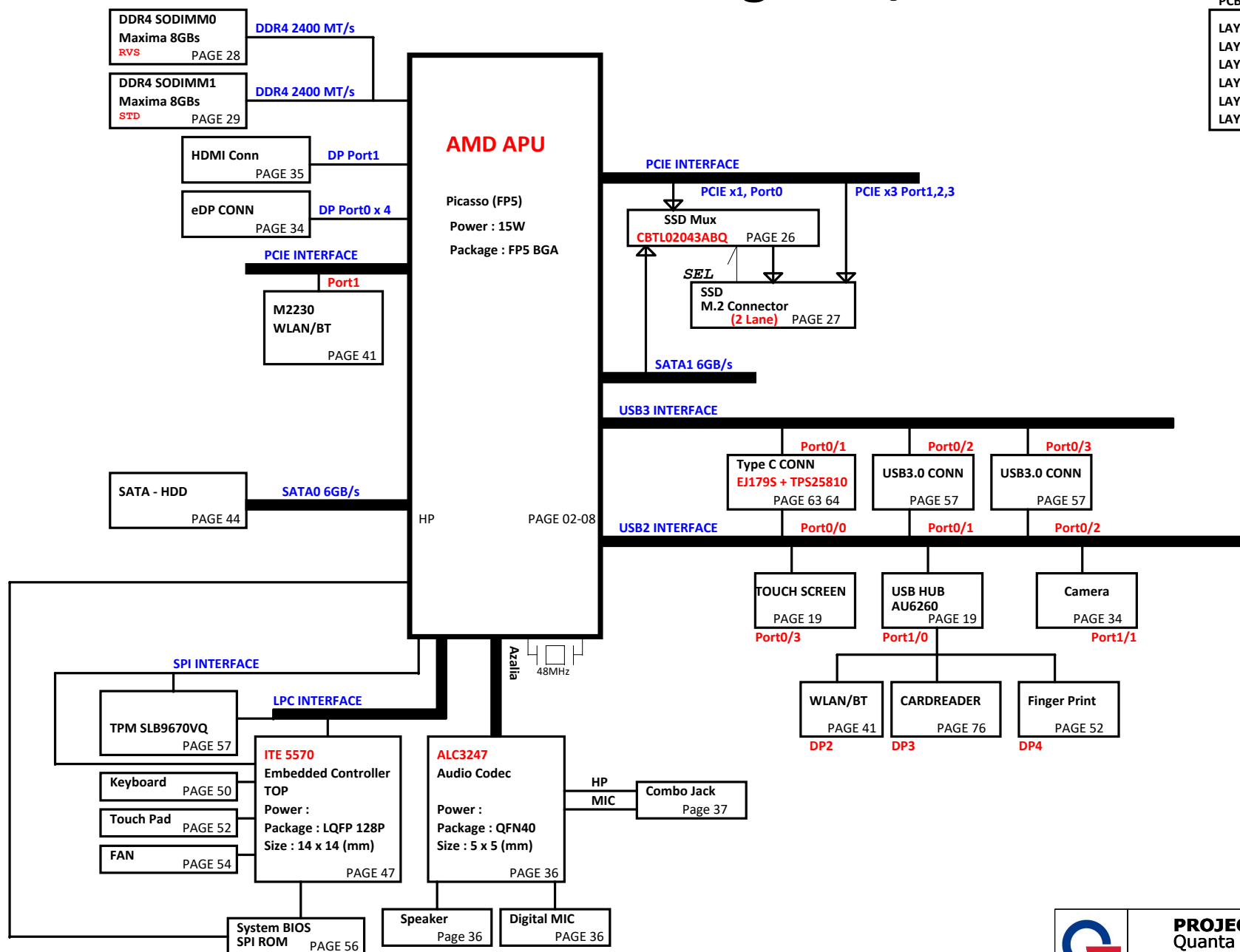


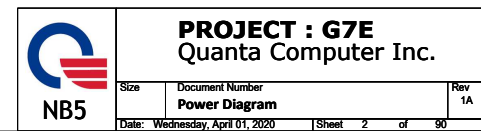
G3 14" 1SPD AMD Picasso Ridge DIS/UMA

PCB 6L STACK UP


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



02



I2C Path



PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		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

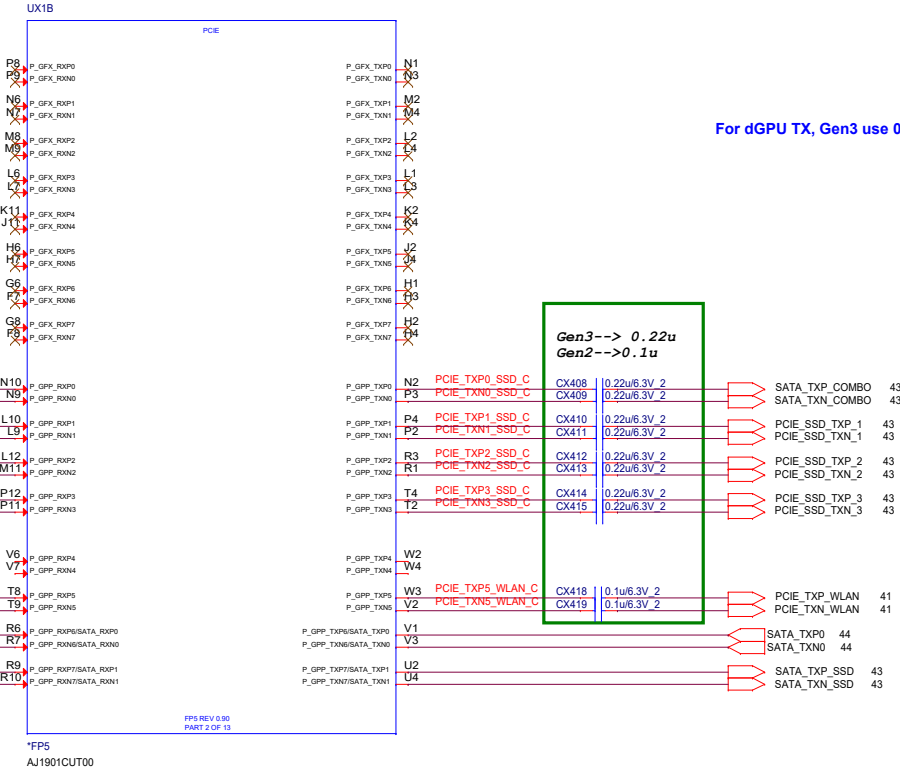
WLAN

HDD

HDD

SSD (SATA)

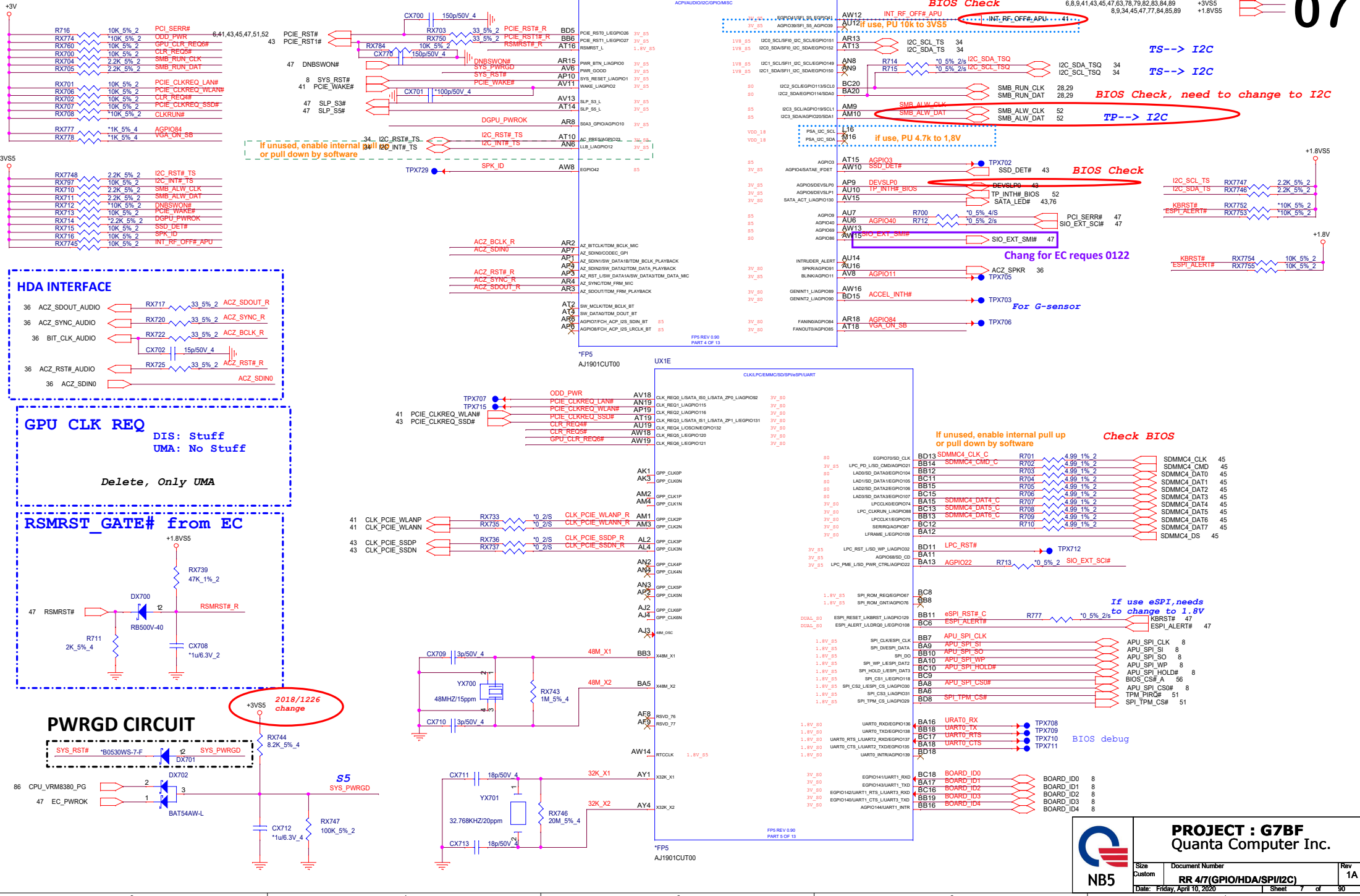
SSD (SATA)



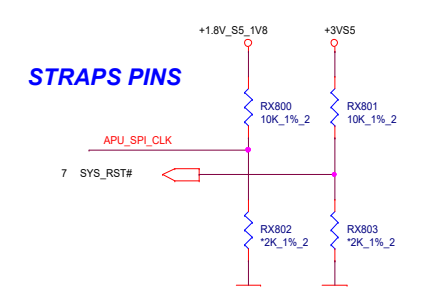
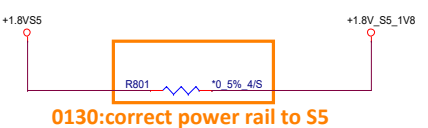


06

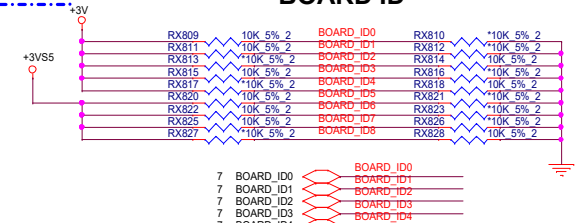
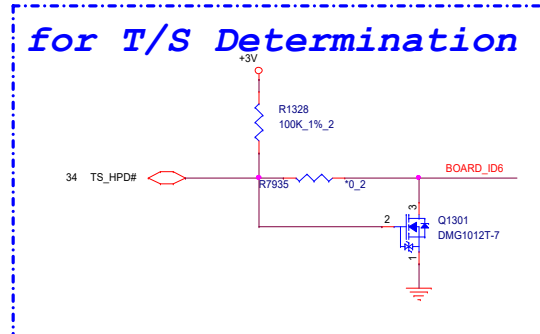
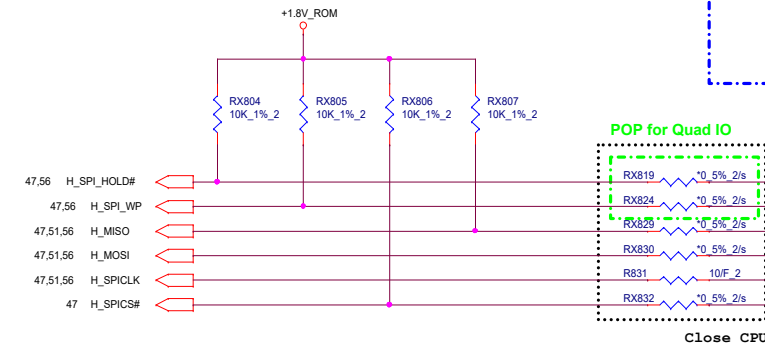
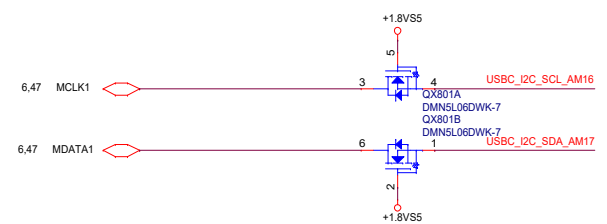
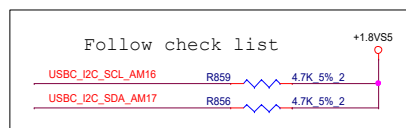
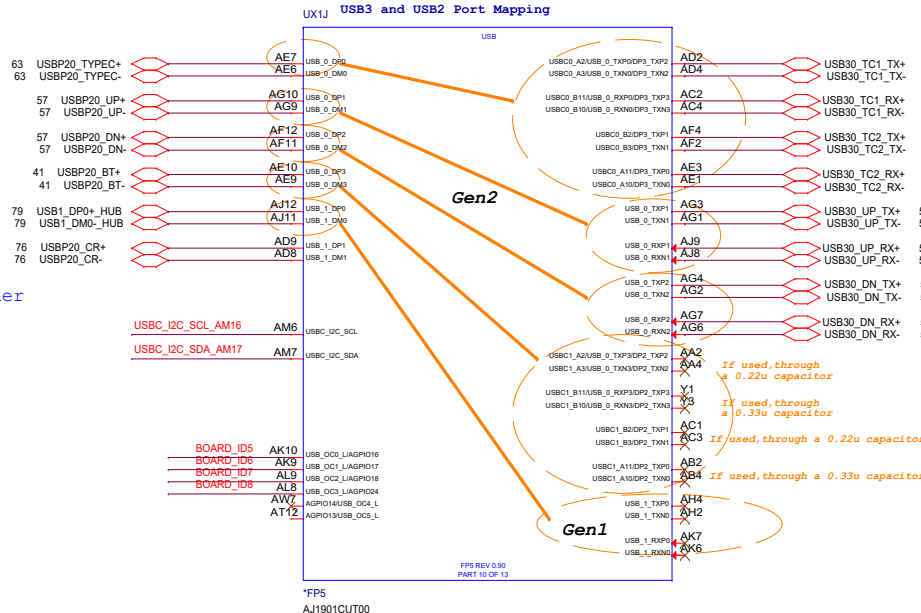




USB2 Port	Function
USB0/0	TYPE-C
USB0/1	TYPE-A Up
USB0/2	TYPE-A Down
USB0/3	BT
USB1/0	HUB
USB1/1	CARD READER



REQUIRED STRAPS		
	APU_SPI_CLK	SYS_RST# <i>internal</i>
PULL HIGH	Use 48Mhz crystal clock and generate both internal and external clocks <i>DEFAULT</i>	normal reset mode <i>DEFAULT</i>
PULL LOW	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	short reset mode



BOARD ID SETTING

Board ID 0	Definition
0	EMMC
1	non-EMMC

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

Board ID [4:3]	Definition (SATA port option)
00	Picasso 15W
01	Dali 15W
10	Dali 6W
11	Reserve


Board ID 5	Definition
0	AGPIO22 (SCI#)
1	AGPIO40 (SCI#)

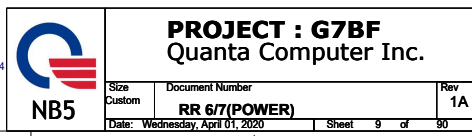
Board ID [6]	Definition	Definition default high (燒過CABLE區分)
0	non TS	
1	TS	Non TS ->TS HPD# (NC) TS ->TS HPD# (GND)

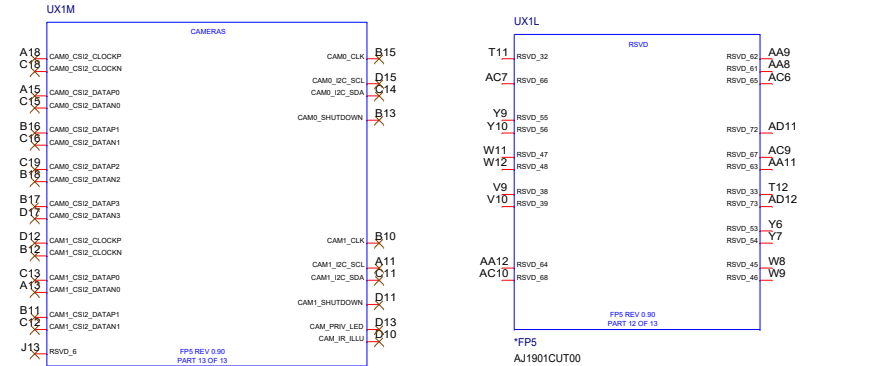
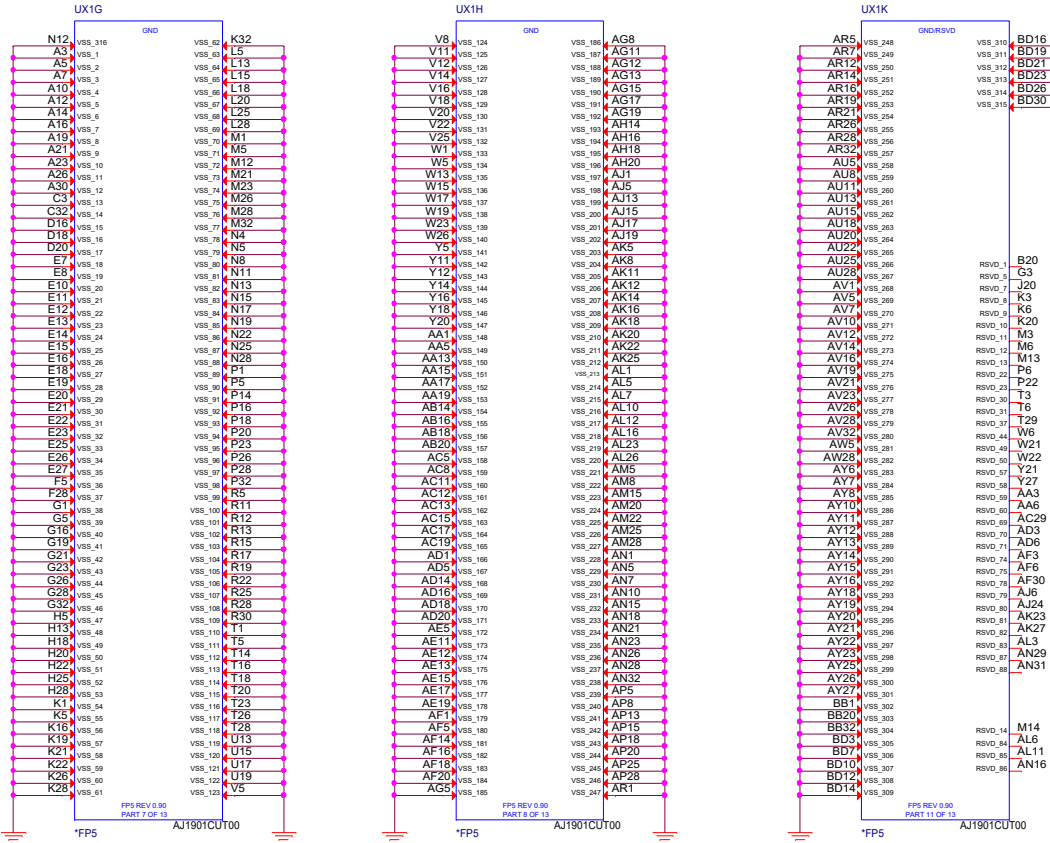
Board ID [7]	Definition
0	<i>SM BUS TP</i>
1	I2C TP

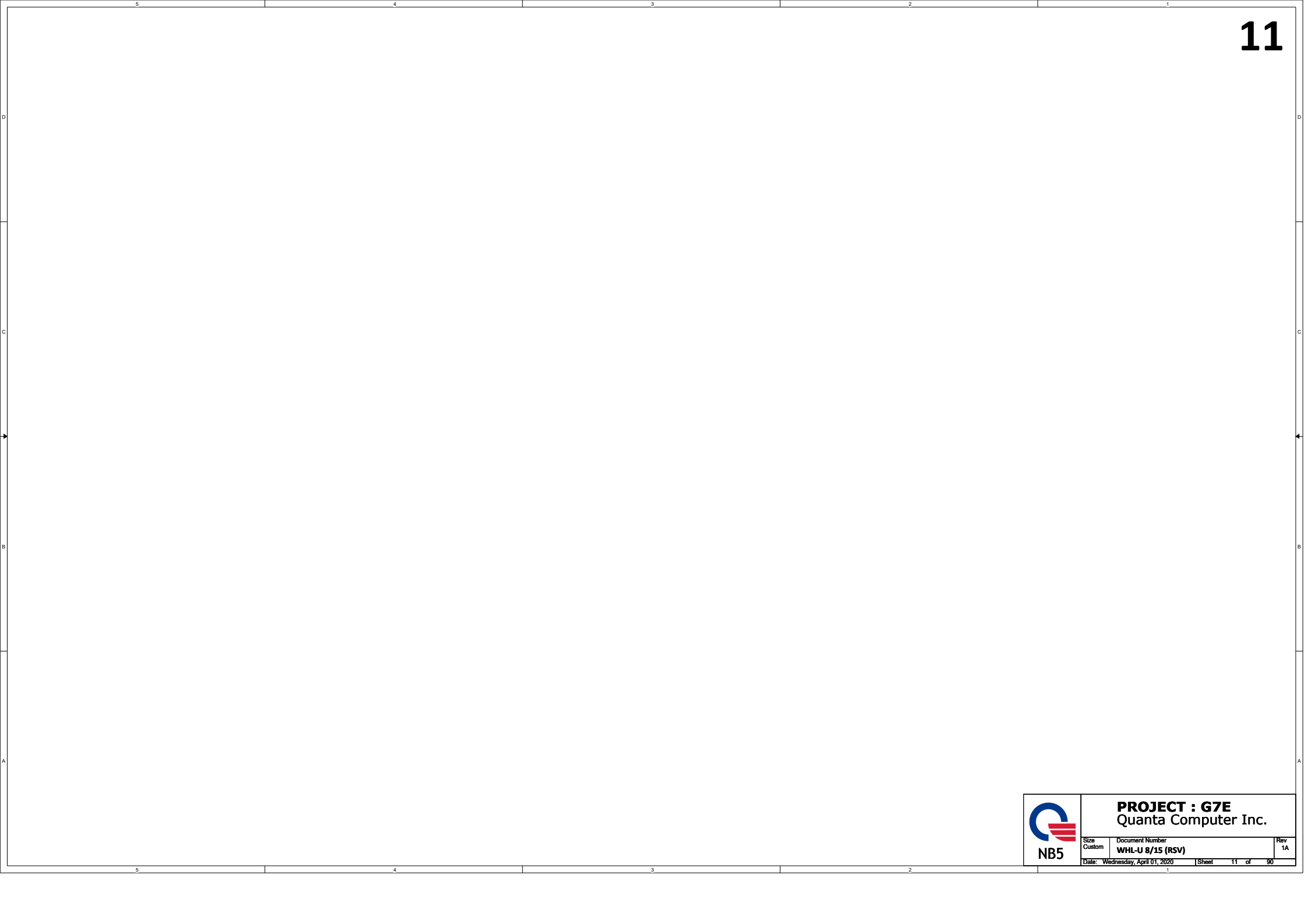
Board ID [8]	Definition
0	FTPM
1	dTPM


BOARD ID

 NB5	PROJECT : G7BF Quanta Computer Inc.		
	Size Custom	Document Number RR 57(USB/STRAP)	Rev 1A
Date: Friday, April 10, 2020		Sheet 8 of 90	




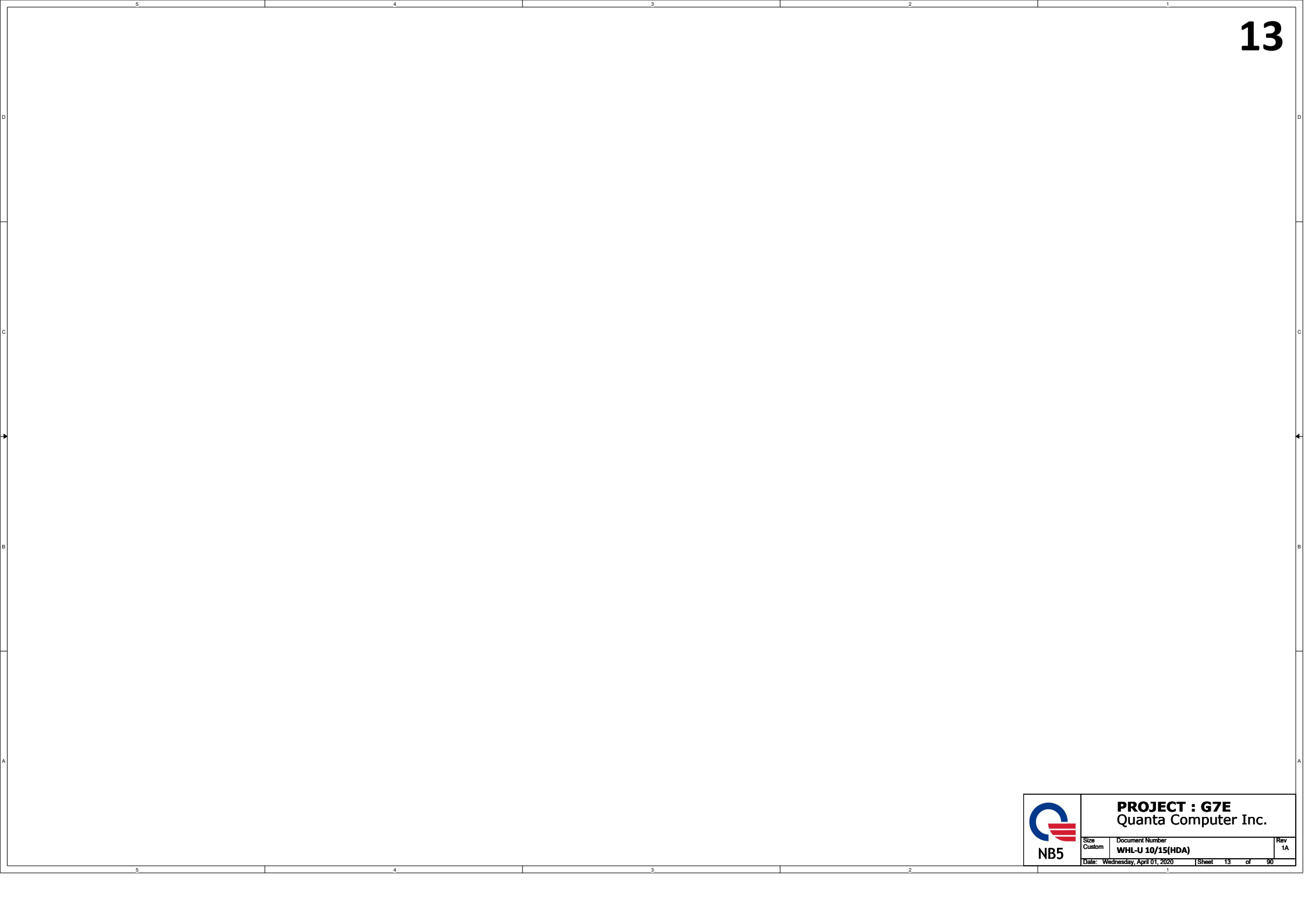





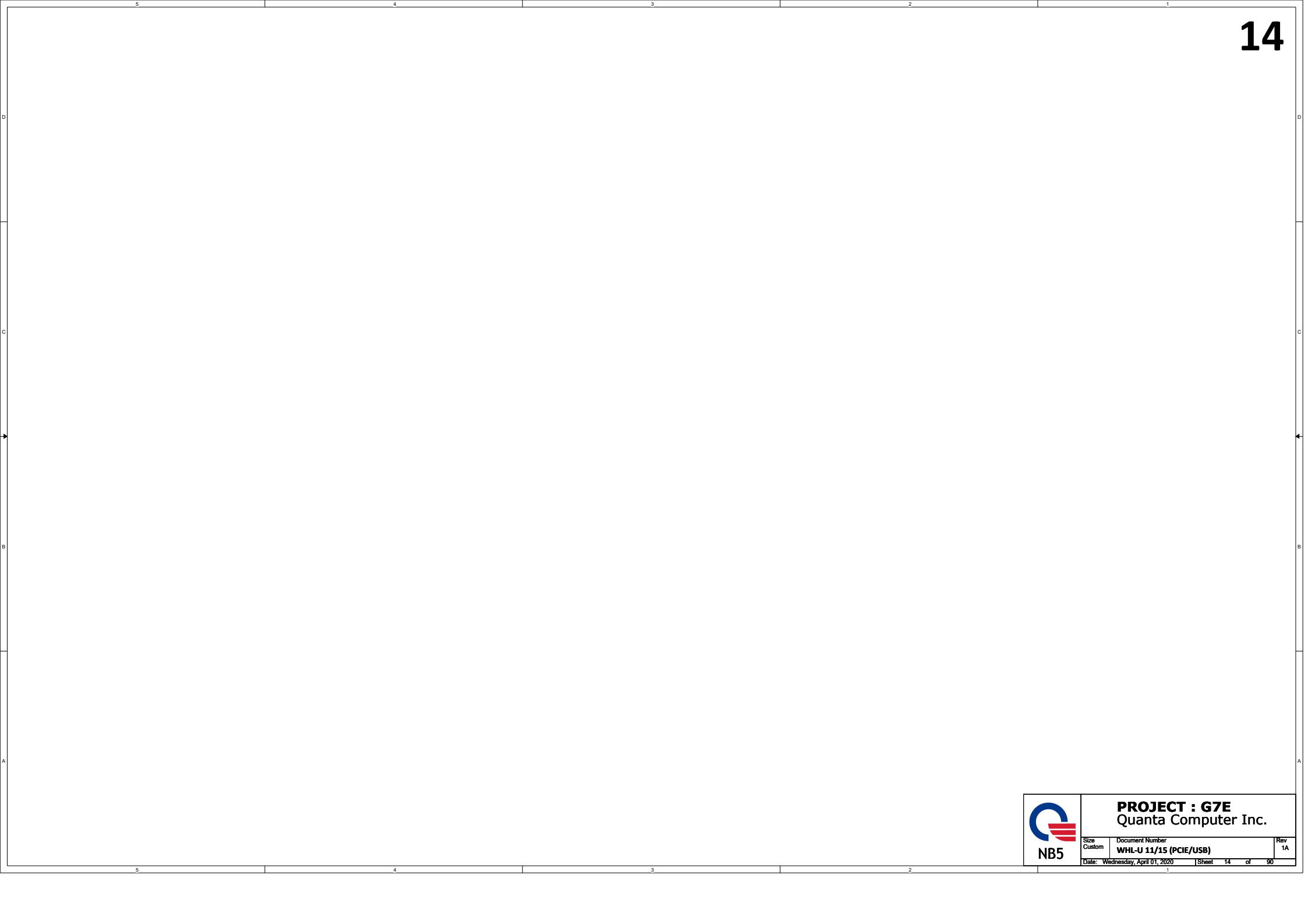
	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 8/15 (RSV)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 11 of 90		




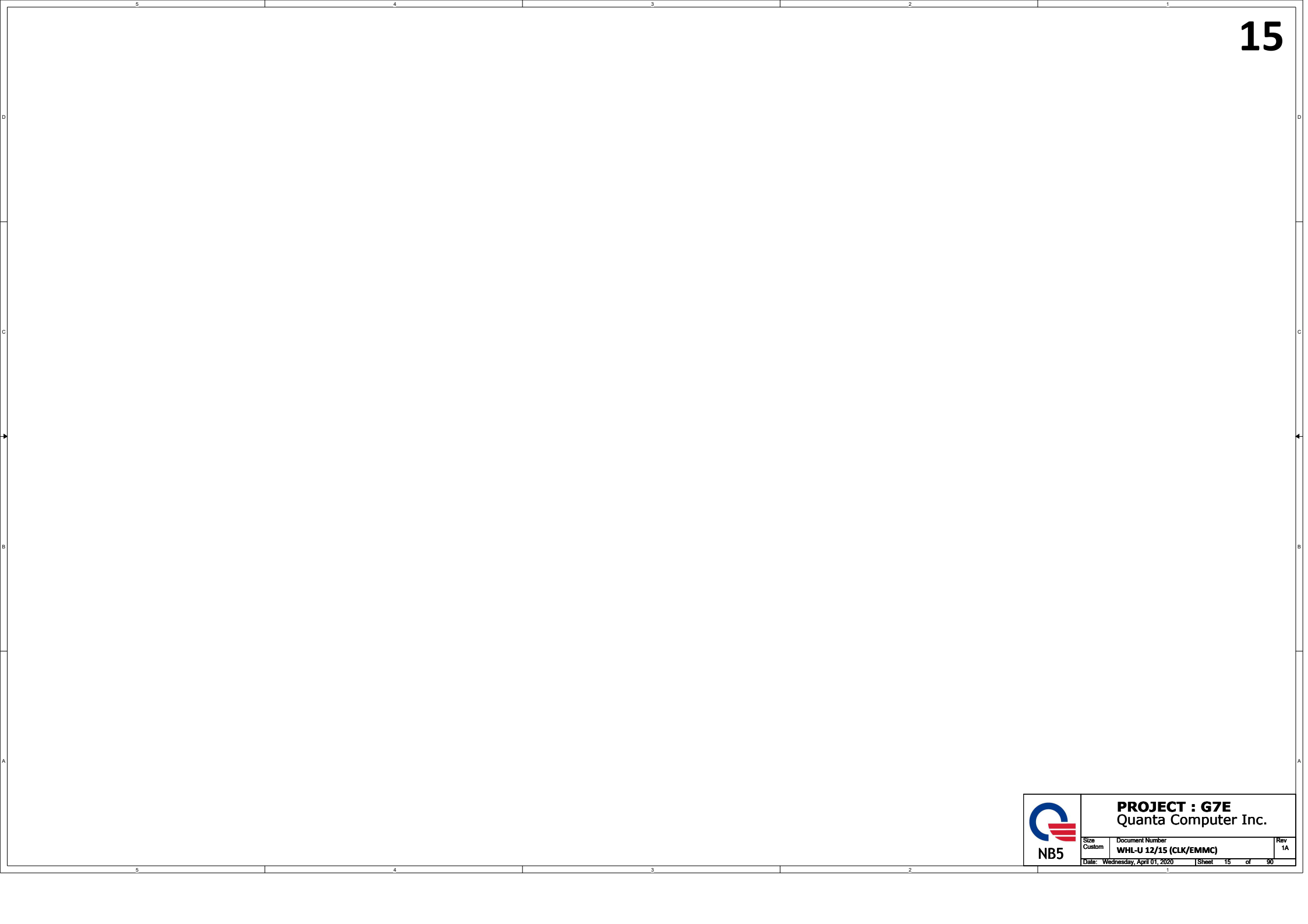
	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 09/15(SPI/LPC/SM)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 12 of 90		




 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 10/15(HDA)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 13 of 90		




 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 11/15 (PCIe/USB)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 14 of 90		




 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 12/15 (CLK/EMMC)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 15 of 90		




 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 13/15 (GPIO)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 16 of 90		



 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number WHL-U 14/15(PCH POWER)	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 17 of 90		


PCH



NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 18 of 90


PCH



NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 19 of 90

PCH




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 20 of 90

PCH




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 21 of 90

PCH




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 22 of 90

PCH




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 23 of 90


PCH



NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 24 of 90


PCH



NB5

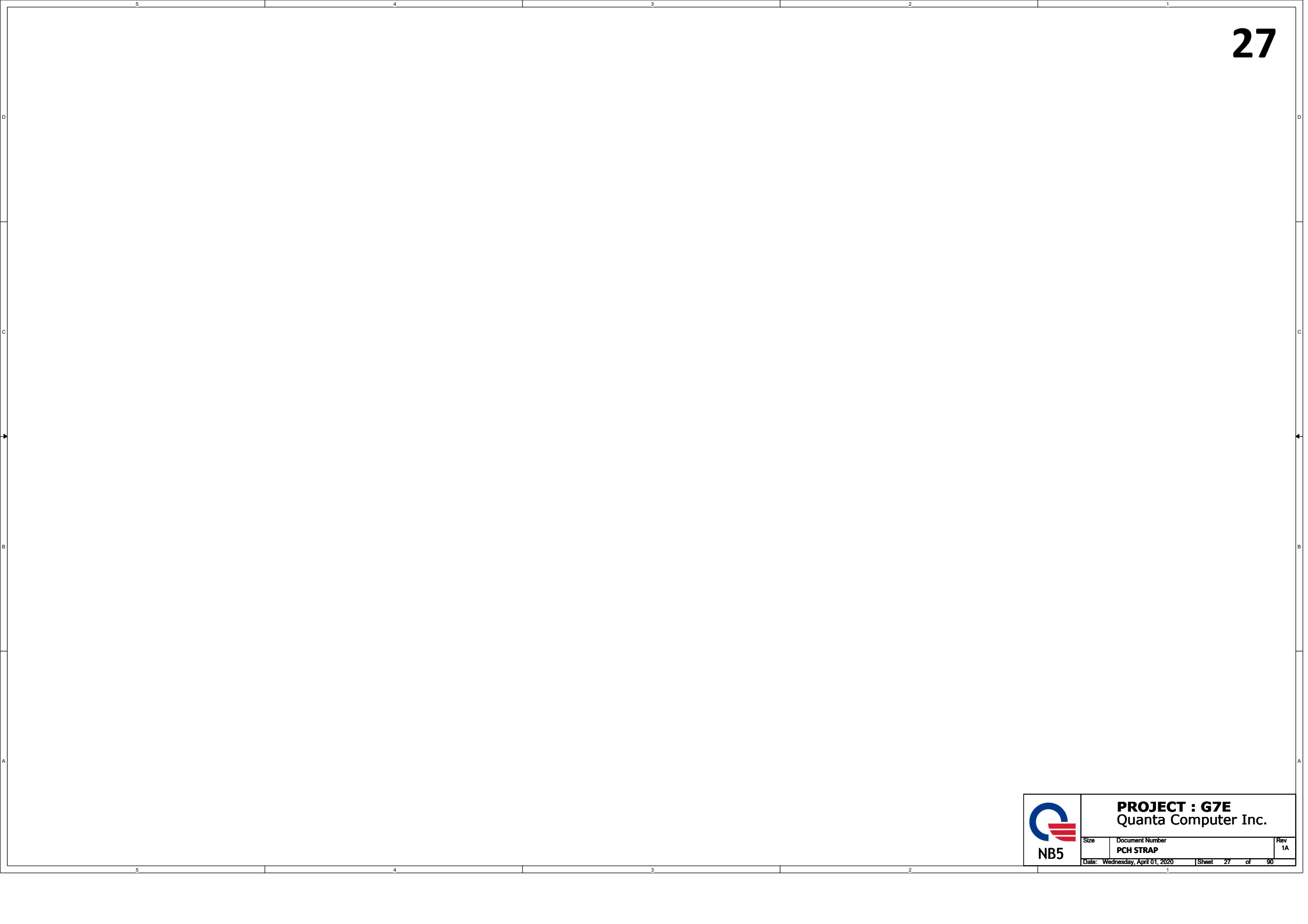
PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	25	1A
Date: Wednesday, April 01, 2020		
Sheet	25	of 90


PCH



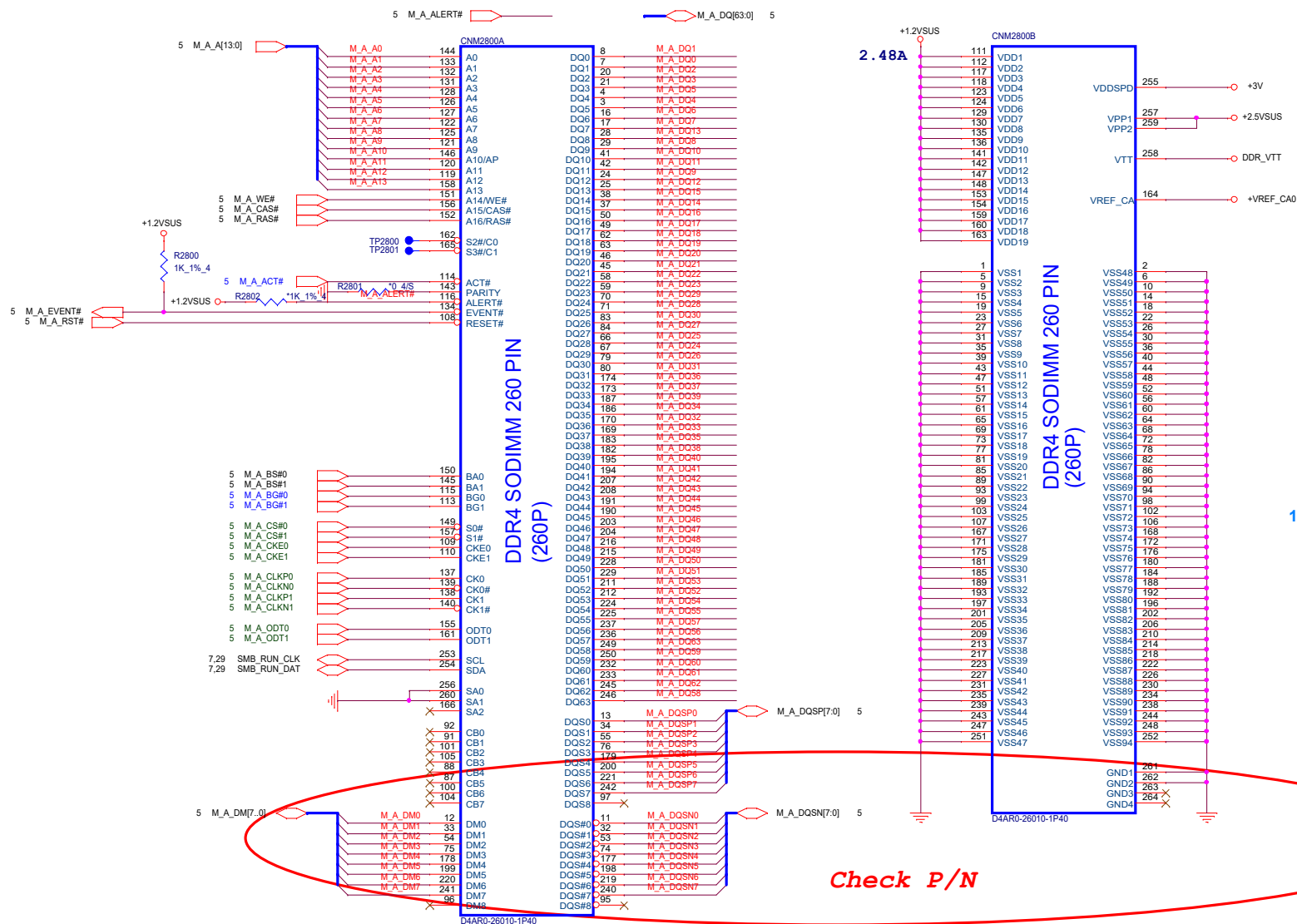
NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	PCH	1A
Date: Wednesday, April 01, 2020		Sheet 26 of 90

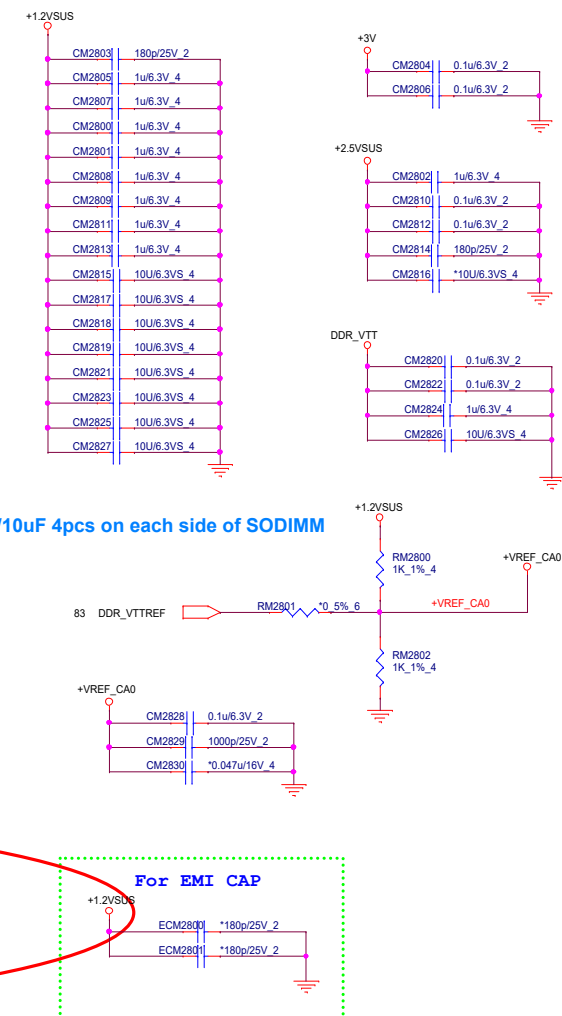


	PROJECT : G7E Quanta Computer Inc.		
	Size	Document Number	Rev
		PCH STRAP	1A
Date: Wednesday, April 01, 2020		Sheet	27 of 90

Place these Caps near SODIMM



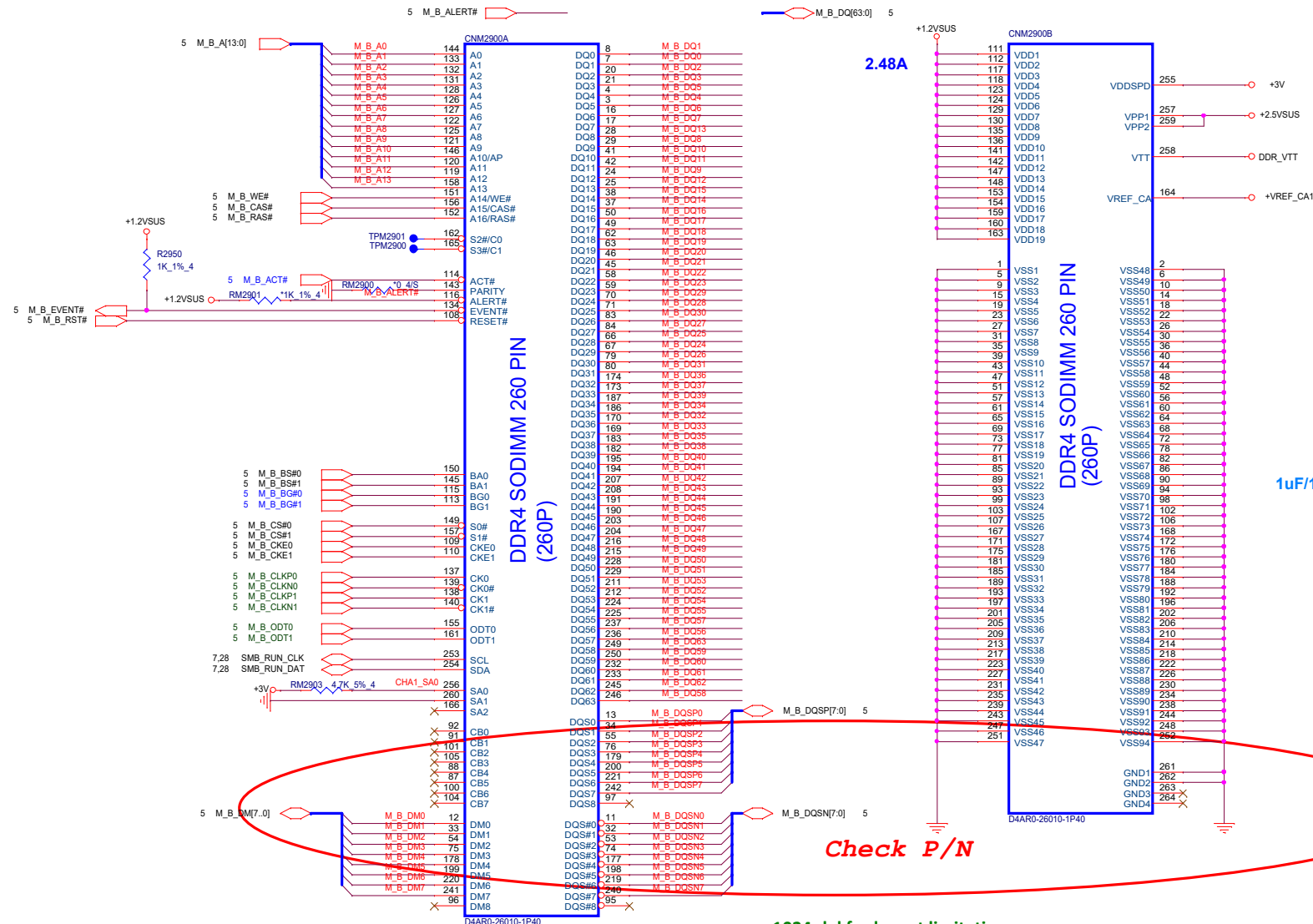
Check P/N



For EMI CAP

9,29,78,83	+1.2VSUS	
29	+VREF_CA0	
29,83	DDR_VTT	
29,83	+2.5VSUS	
9,86,89	+3V	

Place these Caps near SODIMM

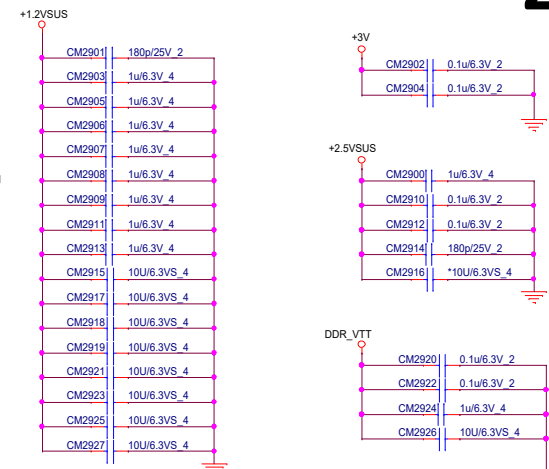


1024:del for layout limitation

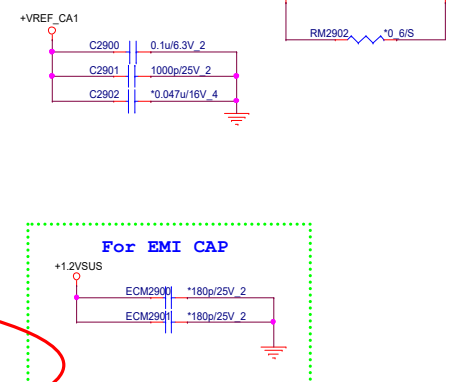
Local Thermal Sensor



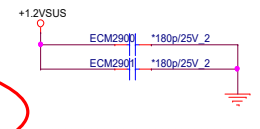
6,7,8,9,28,34,35,36,41,43,45,47,50,52,63,76,77,78,79,86,89



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




For EMI CAP

PROJECT : G7BF
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CHA1 DDR4 DIMM1-STD(4.0H)	1A
Date: Wednesday, April 01, 2020	Sheet 29 of 90	


MEMORY



PROJECT : G7E
Quanta Computer Inc.


Size	Document Number	Rev
	MEMORY	1A
Date: Wednesday, April 01, 2020		Sheet 30 of 90

MEMORY



NB5


PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	MEMORY	1A
Date: Wednesday, April 01, 2020		Sheet 31 of 90



PROJECT : G7E
Quanta Computer Inc.

Size Custom	Document Number DDR4 Memory Down (CH. B)	Rev 1A
Date: Wednesday, April 01, 2020		Sheet 32 of 90

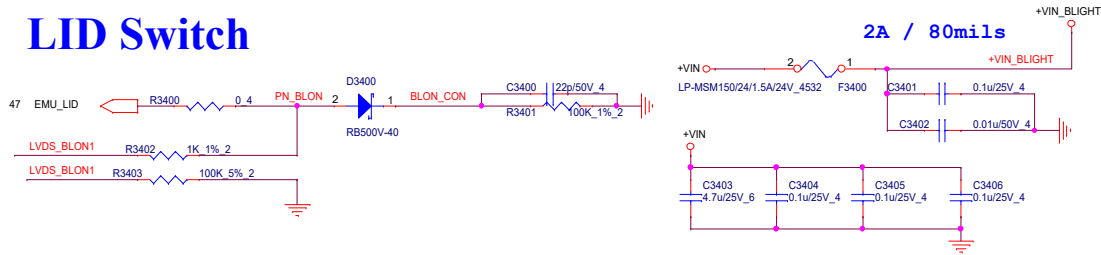
PCH



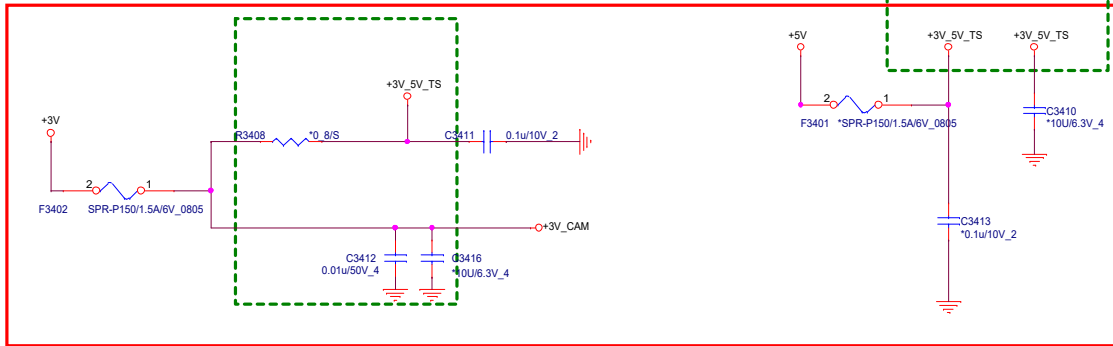
NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 33 of 90

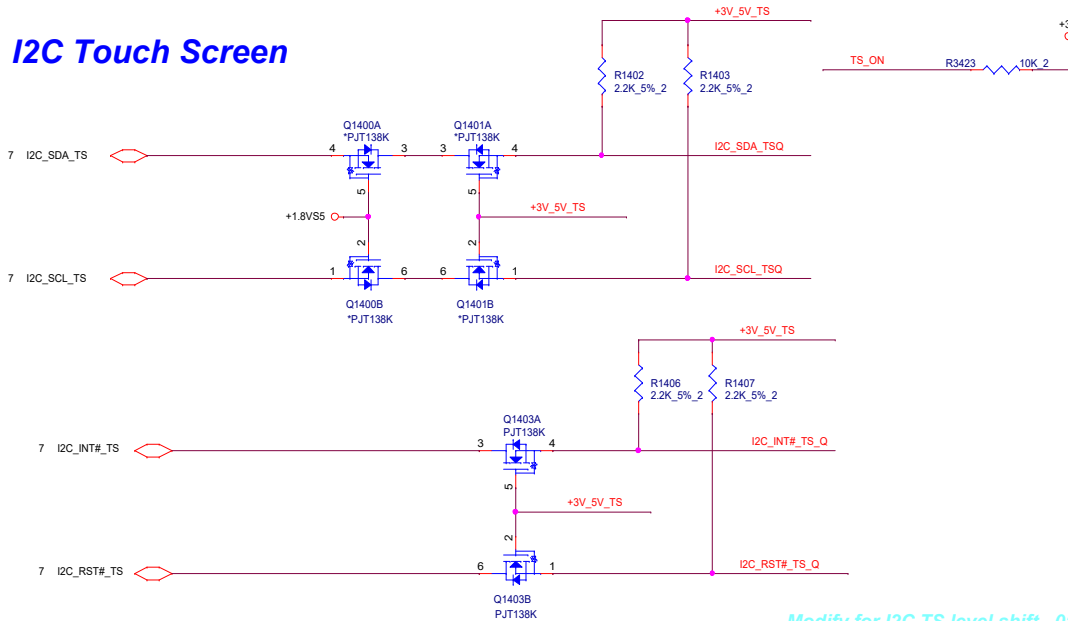
LID Switch



Touch screen



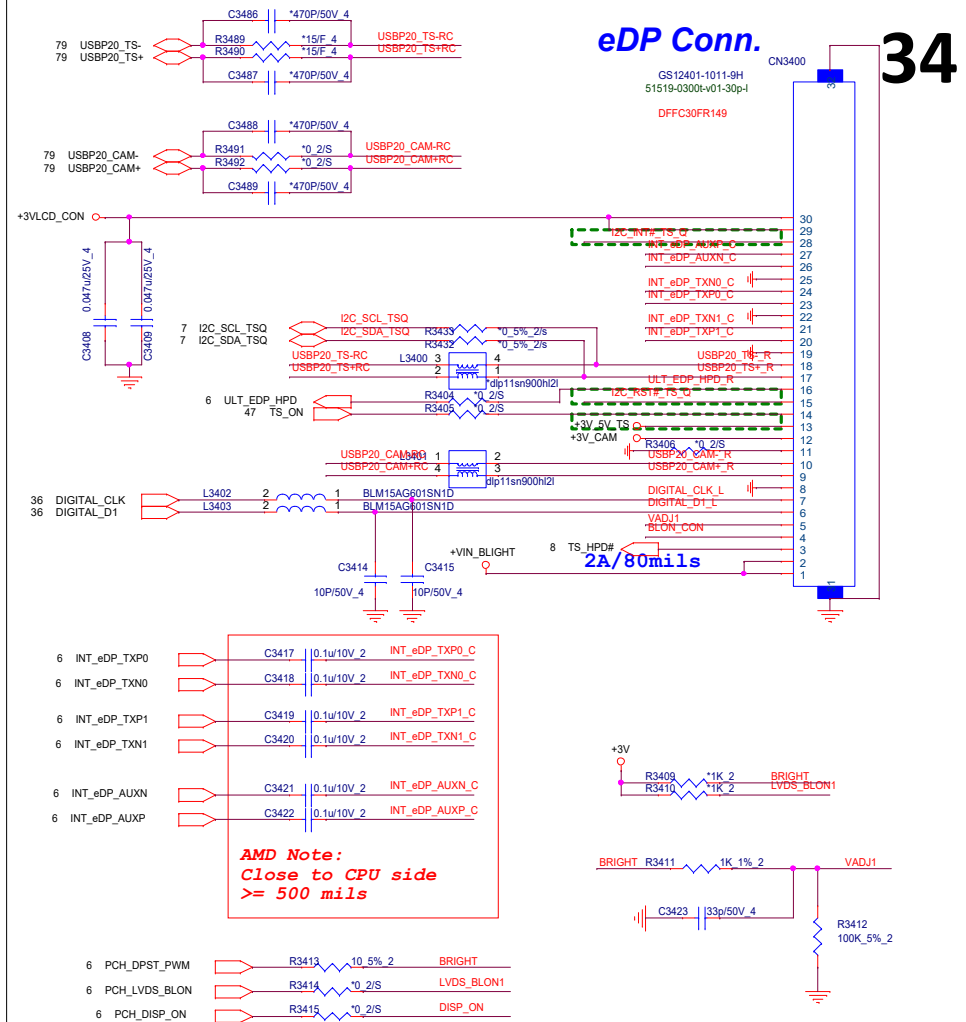
I2C Touch Screen



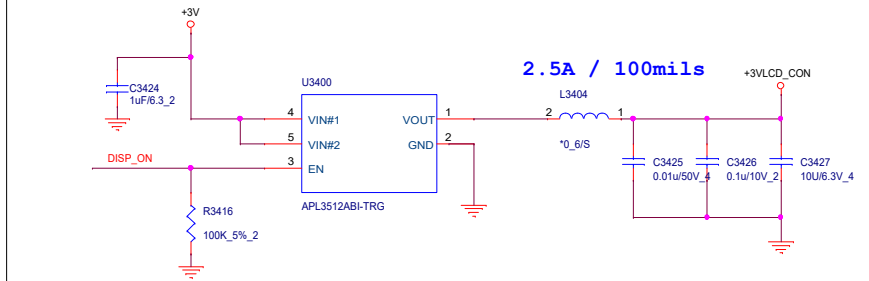
Modify for I2C TS level shift _0119

Follow opp eDP design _0128

eDP Conn.



AMD Note:
Close to CPU side
>= 500 mils

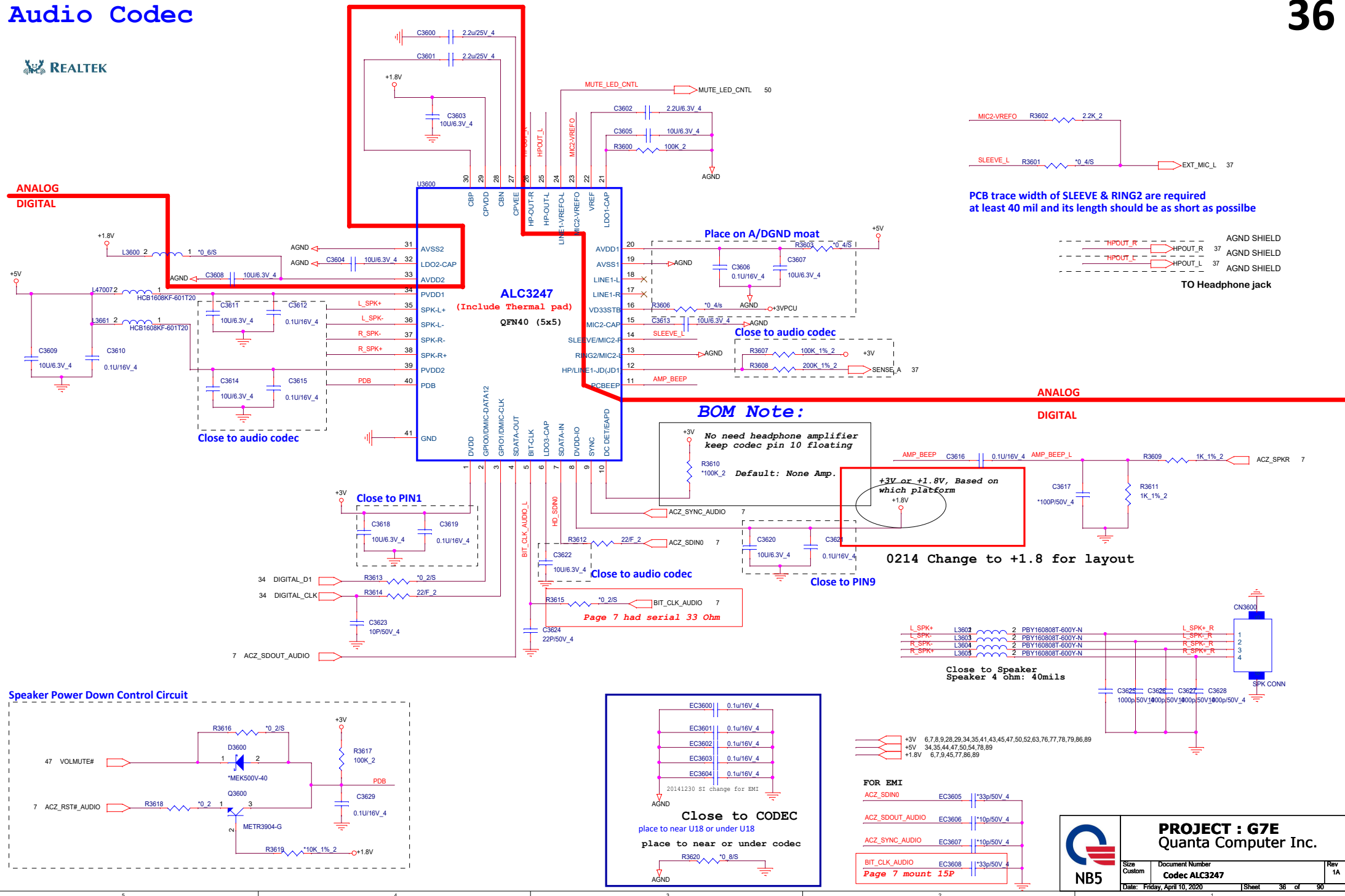


6,7,8,9,28,29,35,36,41,43,45,47,50,52,63,76,77,78,79,86,89
9,36,41,47,54,63,81,82,90
35,36,44,47,50,54,78,89
50,78,80,81,82,83,84,87

Audio Codec



ANALOG
DIGITAL



PCB trace width of SLEEVE & RING2 are required at least 40 mil and its length should be as short as possible

BOM Note:

No need headphone amplifier
keep codec pin 10 floating

Default: None Amp

+3V or +1.8V, Based on
which platform

0214 Change to +1.8 for layout

Close to PIN9

Page 7 had serial 33 Ohm

Close to Speaker
Speaker 4 ohm: 40mils

FOR EMI

ACZ_SDINO	EC3605	*33p/50V 4
ACZ_SDOUT_AUDIO	EC3606	*10p/50V 4
ACZ_SYNC_AUDIO	EC3607	*10p/50V 4
BIT_CLK_AUDIO	EC3608	*33p/50V 4

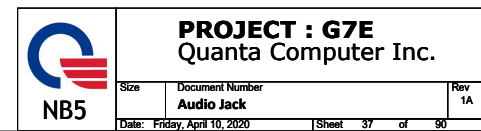
Page 7 mount 15P

PROJECT : G7E
Quanta Computer Inc.




Size Custom	Document Number Codec ALC3247	Rev 1A
Date: Friday, April 10, 2020	Sheet	36 of 90

The diagram illustrates the output stage of the TMS320C6701. It features four parallel branches, each consisting of a MOSFET (VC3700, VC3702, VC3703, VC3701) and a 10M90UR_50pF capacitor connected to ground. The gates of the MOSFETs are connected to EXT_MIC_1, LINEOUT_L_C2, LINEOUT_R_C2, and SENSE_A respectively.



AUDIO




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	AUDIO	1A
Date: Wednesday, April 01, 2020		Sheet 38 of 90


AUDIO

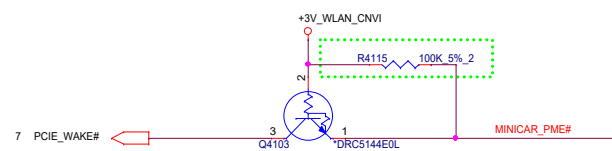
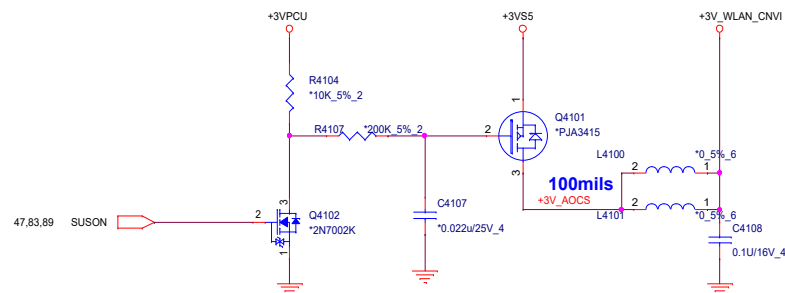


PROJECT : G7E
Quanta Computer Inc.

Size	Document Number	Rev
	AUDIO	1A
Date: Wednesday, April 01, 2020		Sheet 39 of 90



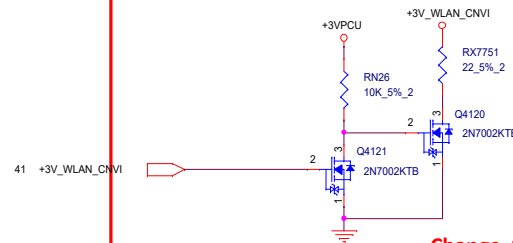
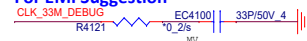
 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size Custom	Document Number 40 – LAN RTL8166EH/RTL8111HSH	Rev 1A
	Date: Wednesday, April 01, 2020 Sheet 40 of 90		



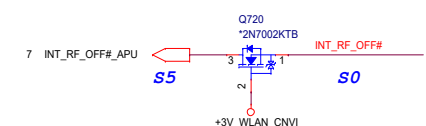
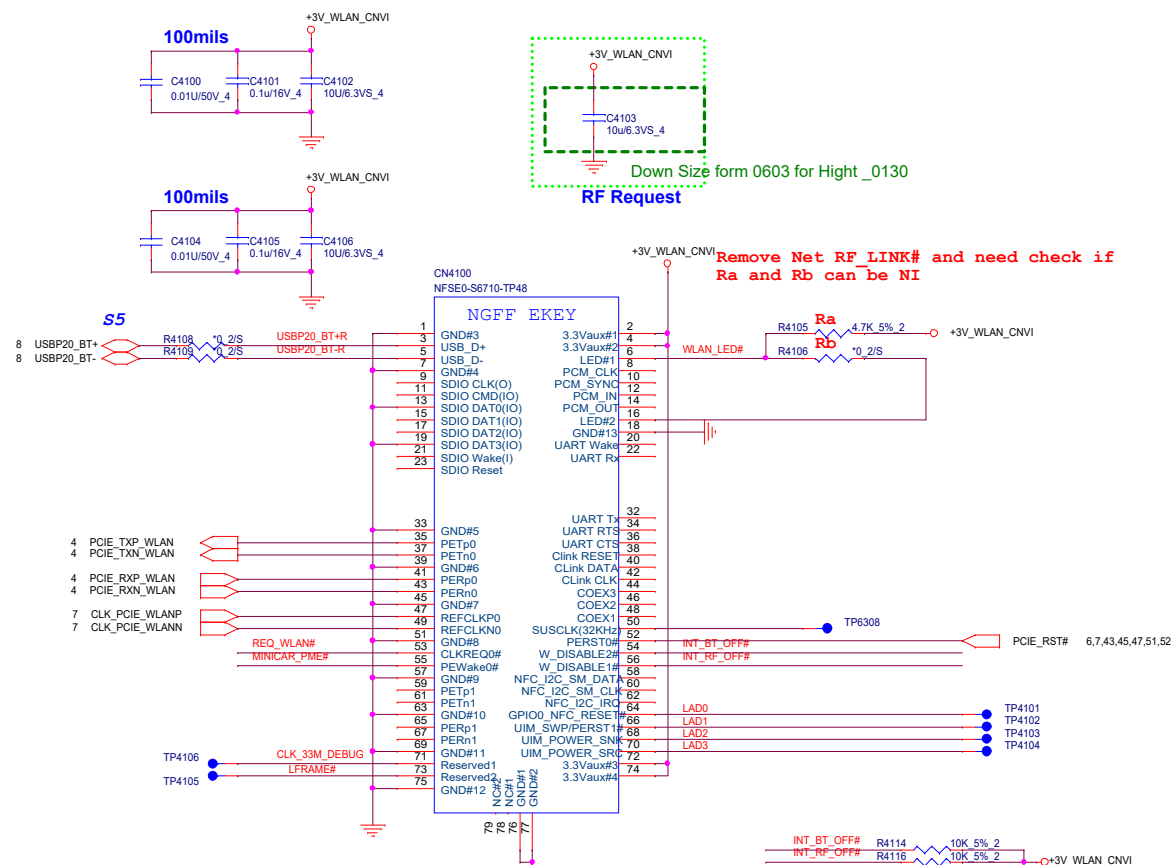
0302 Reserved the MOSFET at CLKREQ#
even the current leakage test passed
for HP requested



For EMI Suggestion




Change 0121



PROJECT : G7E
Quanta Computer Inc.

Size Custom	Document Number WLAN(NGFF)	Rev 1A
Date: Friday, April 10, 2020	Sheet 41 of 90	

PCH



PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 42 of 90

43



VD SATA MUX

0911:modify for FAE Alex request

To M.2 SSD

From CPU's SATA to MUX

From CPU's PCIe to MUX

Change to 0 ohm _ 0212

PROJECT : G7E
Quanta Computer Inc.

Size
Custom

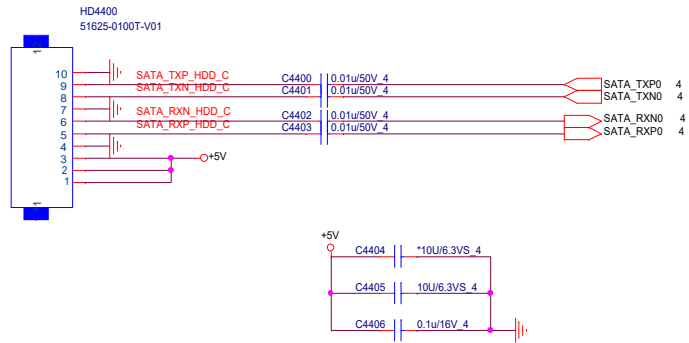
Document Number
SSD(NGFF)

File Name
SSD(NGFF)


Sheet
23 of 24

34,35,36,47,50,54,78,89 +5V

SATA HDD & LED



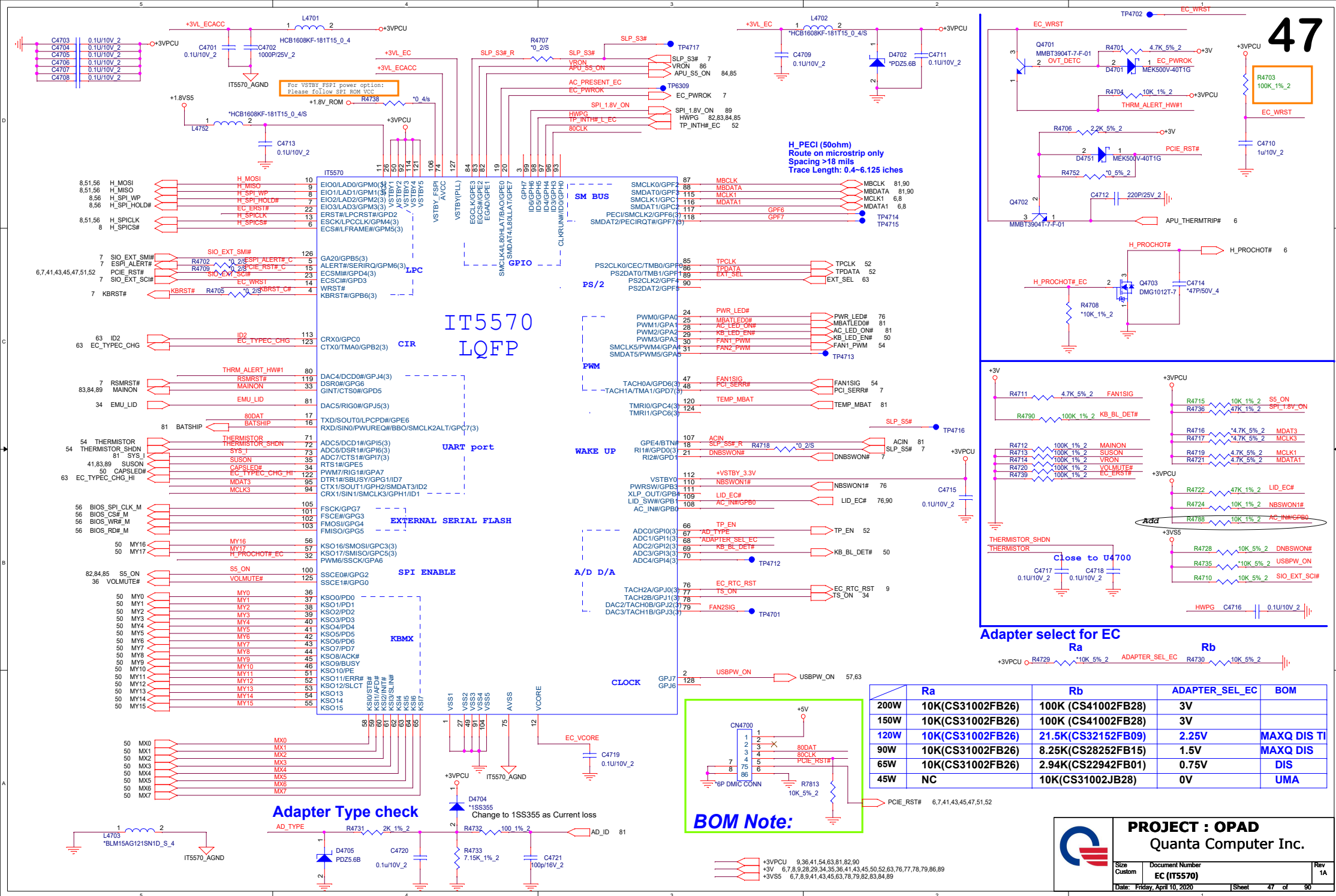
CAMERA




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	CAMERA	1A
Date: Wednesday, April 01, 2020		Sheet 46 of 90



PCH




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 48 of 90

PCH

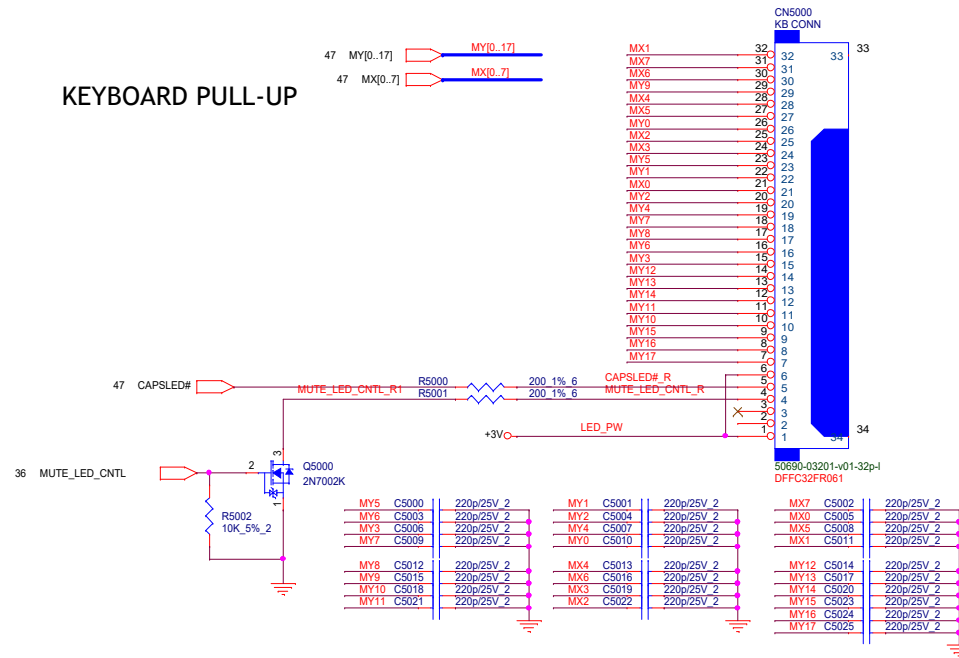


NB5

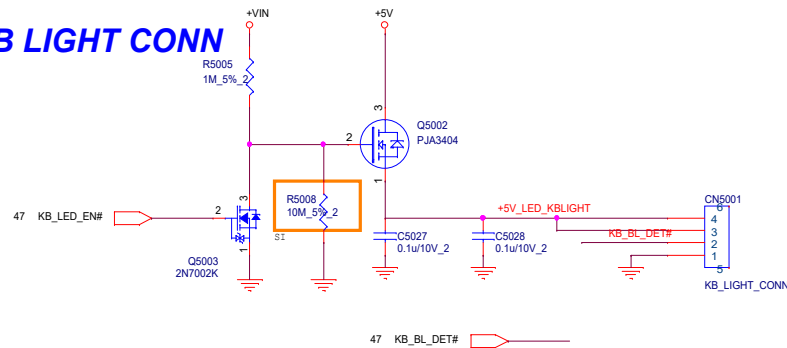
PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 49 of 90

KEYBOARD Con.

KEYBOARD PULL-UP



KB LIGHT CONN



6,7,8,9,28,29,34,35,36,41,43,45,47,52,63,76,77,78,79,86,89
34,35,36,44,47,54,78,89
34,78,80,81,82,83,84,87

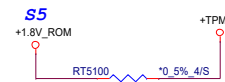
+3VPCU
+3V
+5V
+VIN

	PROJECT : G7E Quanta Computer Inc.	
	Size Custom	Document Number KB/KB LIGHT
	Date: Wednesday, April 01, 2020	Sheet 50 of 90

TPM

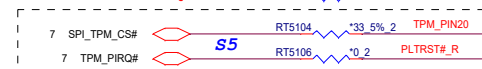
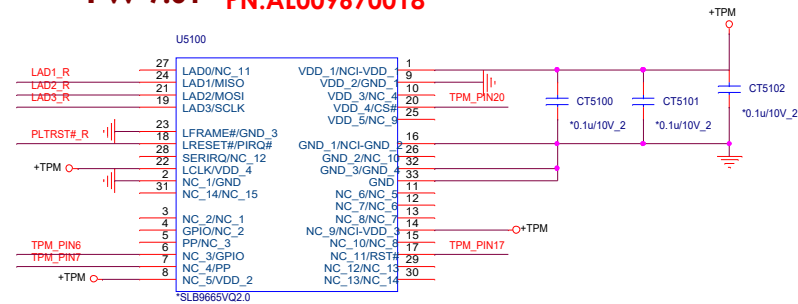
8,47,56,89 +1.8V_ROM

TPM (2.0)

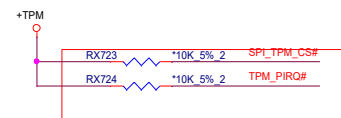


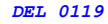
Bom note:

FW 7.61 PN:AL009670018



For 9670 stuff






Reserve



EQ gain R1	
setting	
L0	100 5%
L1	1.8K 5%
L2	3.9K 1%
L3	9.1K 5%

SENSOR

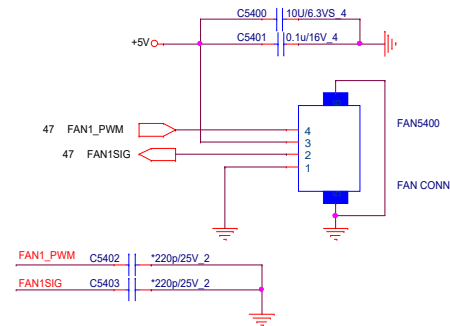


PROJECT : G7E
Quanta Computer Inc.

Size	Document Number	Rev
	SENSOR	1A
Date: Wednesday, April 01, 2020		Sheet 53 of 90

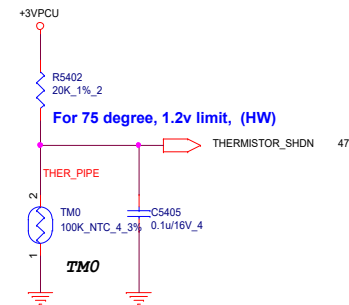
FAN/Thermal

FAN



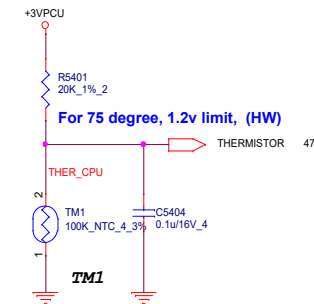
Pipe Thermal Protect
IO Thrm Protect

For CPU USE



CPU Thermal Protect

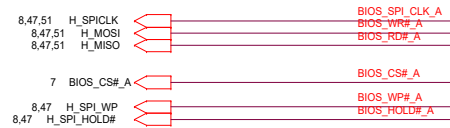
For PIPE USE



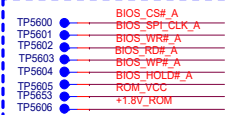
SPI ROM(CLG)

FLASH ROM

FLASH ROM



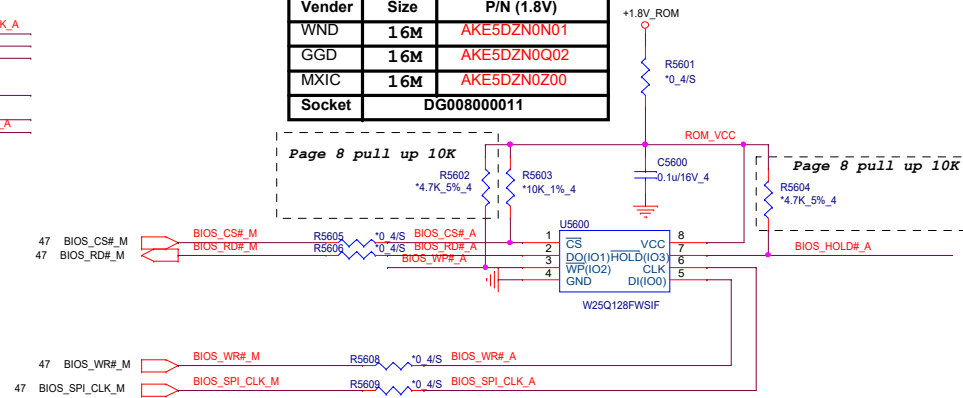
TPs need place to TOP



TP size TP2675

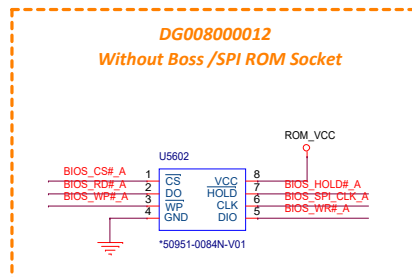
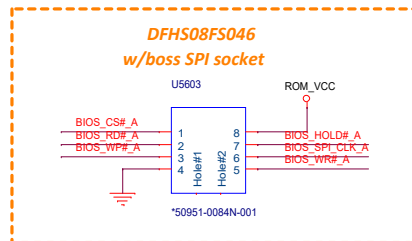
U5600,U5601,U5602,U5603 co-lay

Vender	Size	P/N (1.8V)
WND	16M	AKE5DZN0N01
GGD	16M	AKE5DZN0Q02
MXIC	16M	AKE5DZN0Z00
Socket	DG008000011	

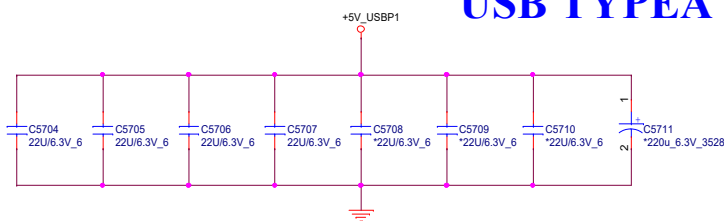
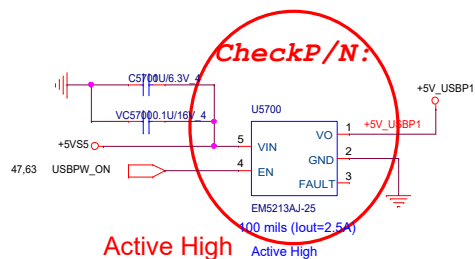


Vender	Size	P/N (1.8V)
WND	16M	AKE5DZN0N01 (SOIC)
GGD	16M	AKE5DZN0Q02 (SOP8)
MXIC	16M	AKE5DZN0Z00
Socket	DG008000011	

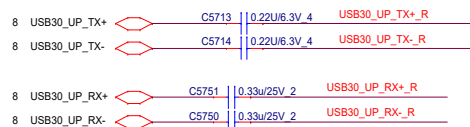
Vender	Size	P/N (1.8V)
WND	16M	AKE5DFNKN01 (WSON)
GGD	16M	AKE5DZN0Q02 (SOP8)
MXIC	16M	AKE5DZN0Z00
Socket	DFHS08FS046 DG008000012	



USB TYPEA



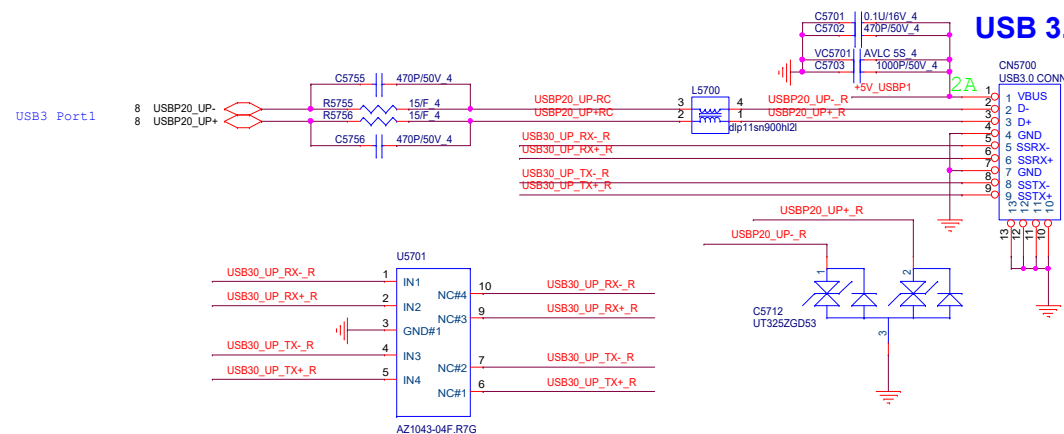
USB3.0 PORT0



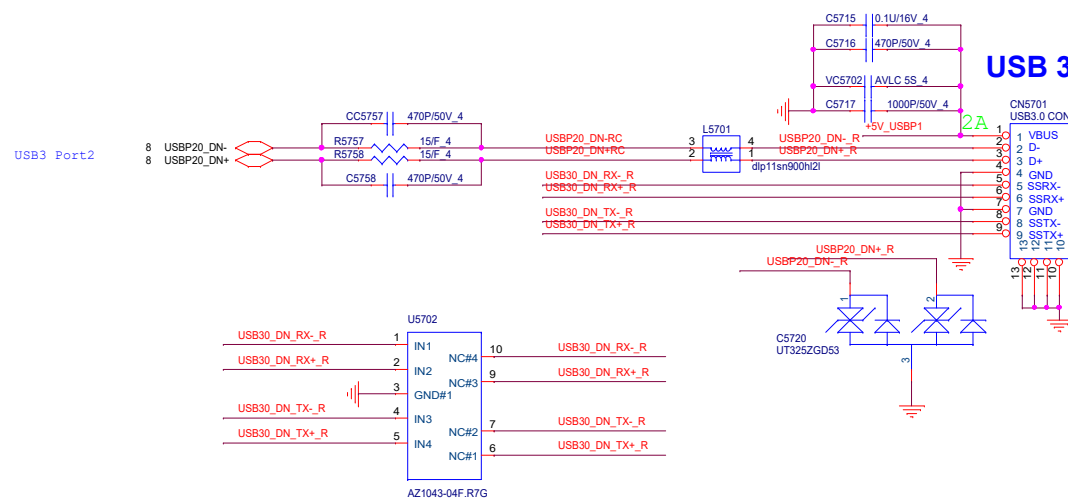
USB3.0 PORT1




USB 3.0



USB 3.0



TBT




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	TBT	1A
Date: Wednesday, April 01, 2020		Sheet 58 of 90

TBT




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	TBT	1A
Date: Wednesday, April 01, 2020		Sheet 59 of 90

TBT




PROJECT : G7E

Quanta Computer Inc.

Size	Document Number	Rev
	TBT	1A
Date: Wednesday, April 01, 2020		Sheet 60 of 90

USB TYPEC PD




NB5

PROJECT : G7E
Quanta Computer Inc.

Size	Document Number	Rev
	USB TYPEC PD	1A
Date: Wednesday, April 01, 2020		Sheet 61 of 90

USB TYPEC PD

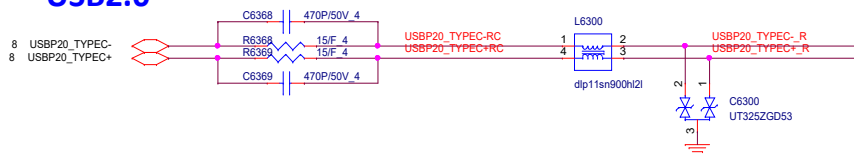


PROJECT : G7E

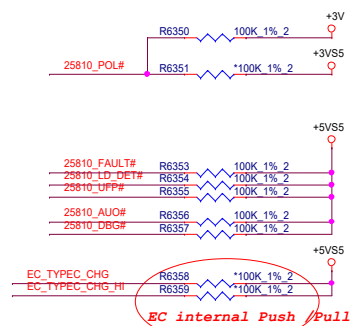
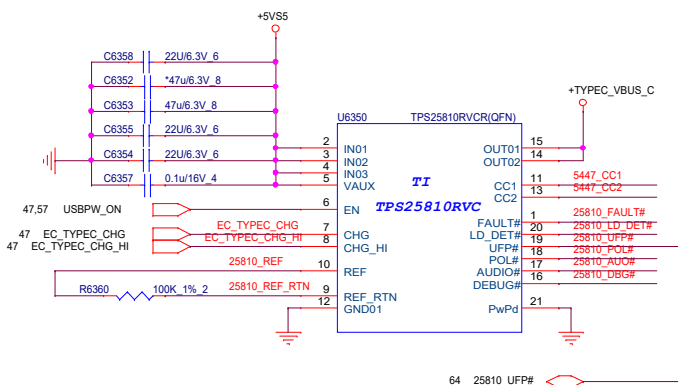
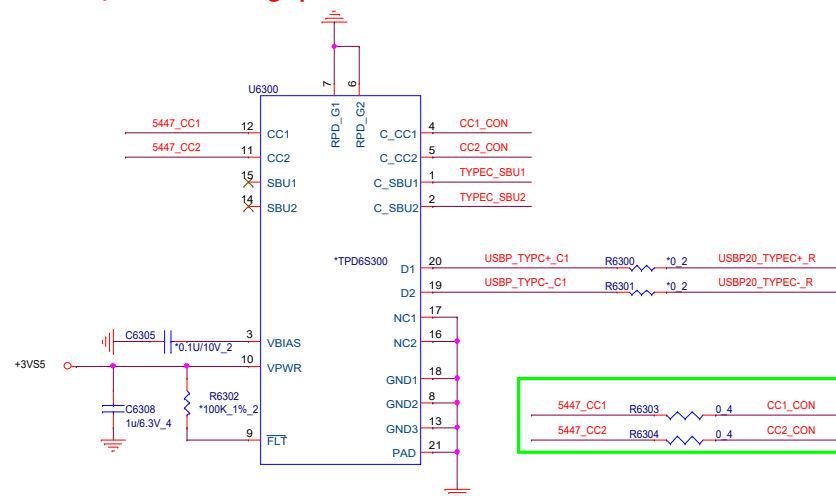
Quanta Computer Inc.

Size	Document Number	Rev
	USB TYPEC PD	1A
Date: Wednesday, April 01, 2020		Sheet 62 of 90

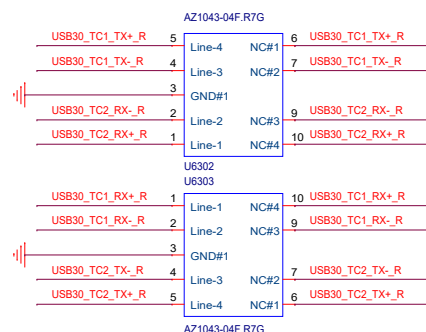
USB2.0



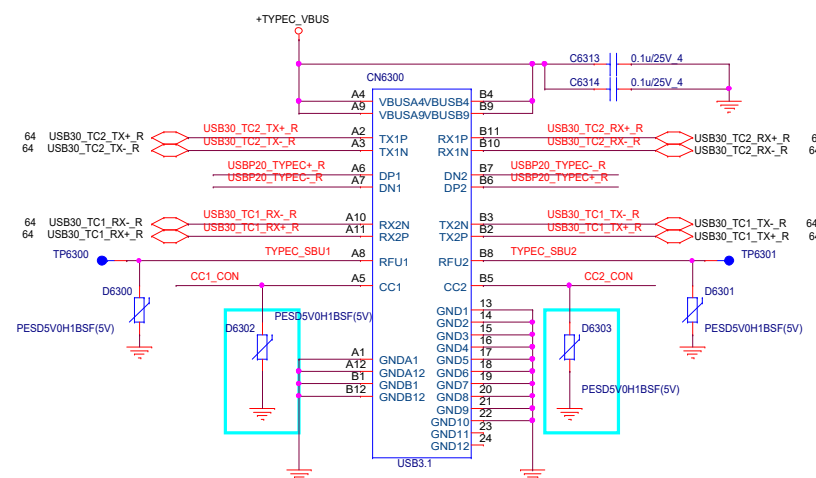
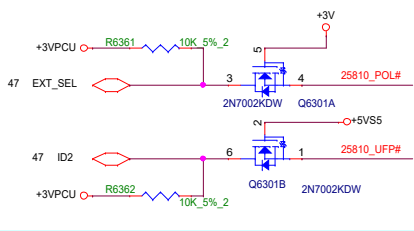
CC/SBU Overvoltage protection



TYPE C USB3.0 ESD



Add Type-C A/B side recognition



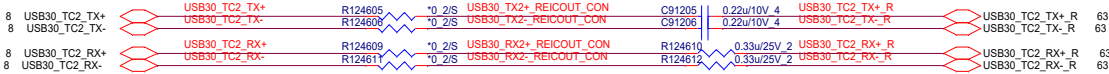
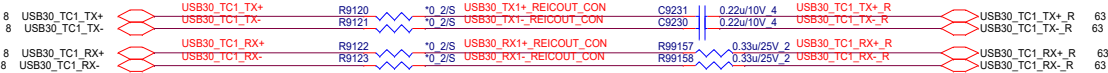
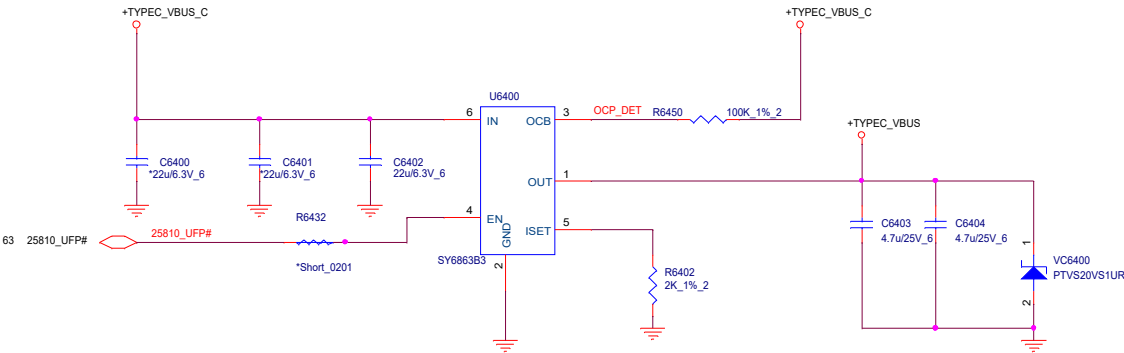
6,7,8,9,28,29,34,35,36,41,43,45,47,50,52,76,77,78,79,86,89
57,78,82,83,84,85,86,89
+3V
+5VSS
+TYPEC_VBUS
+TYPEC_VBUS_C




PROJECT : G7E
Quanta Computer Inc.

Size	Document Number	Rev
Custom	TYPE-C	1A
Date: Wednesday, April 01, 2020	Sheet 63 of 90	

USB3.0 Re-driver IC




PCH



NB5

PROJECT : G7E
Quanta Computer Inc.

Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 65 of 90



PROJECT : G7E
Quanta Computer Inc.

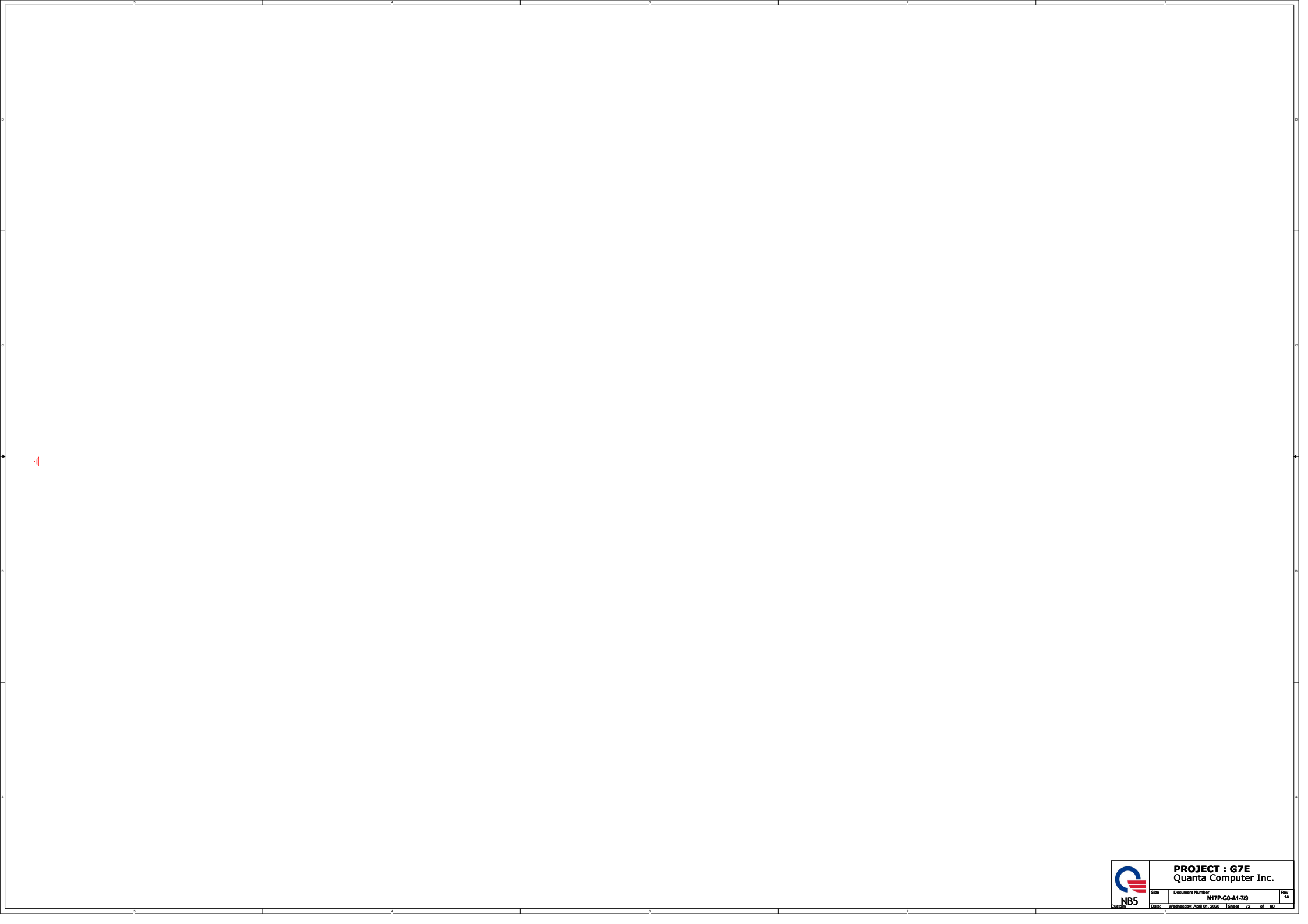
Size	Document Number	Rev
	N17P-G0-A1-1/9	1A
Custom	Date: Wednesday, April 01, 2020	Sheet 06 of 90

HAZOP
D1
D4
D41
D42


Moran R104

Default Sampling






PCH



NB5

PROJECT : G7E Quanta Computer Inc.		
Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 73 of 90

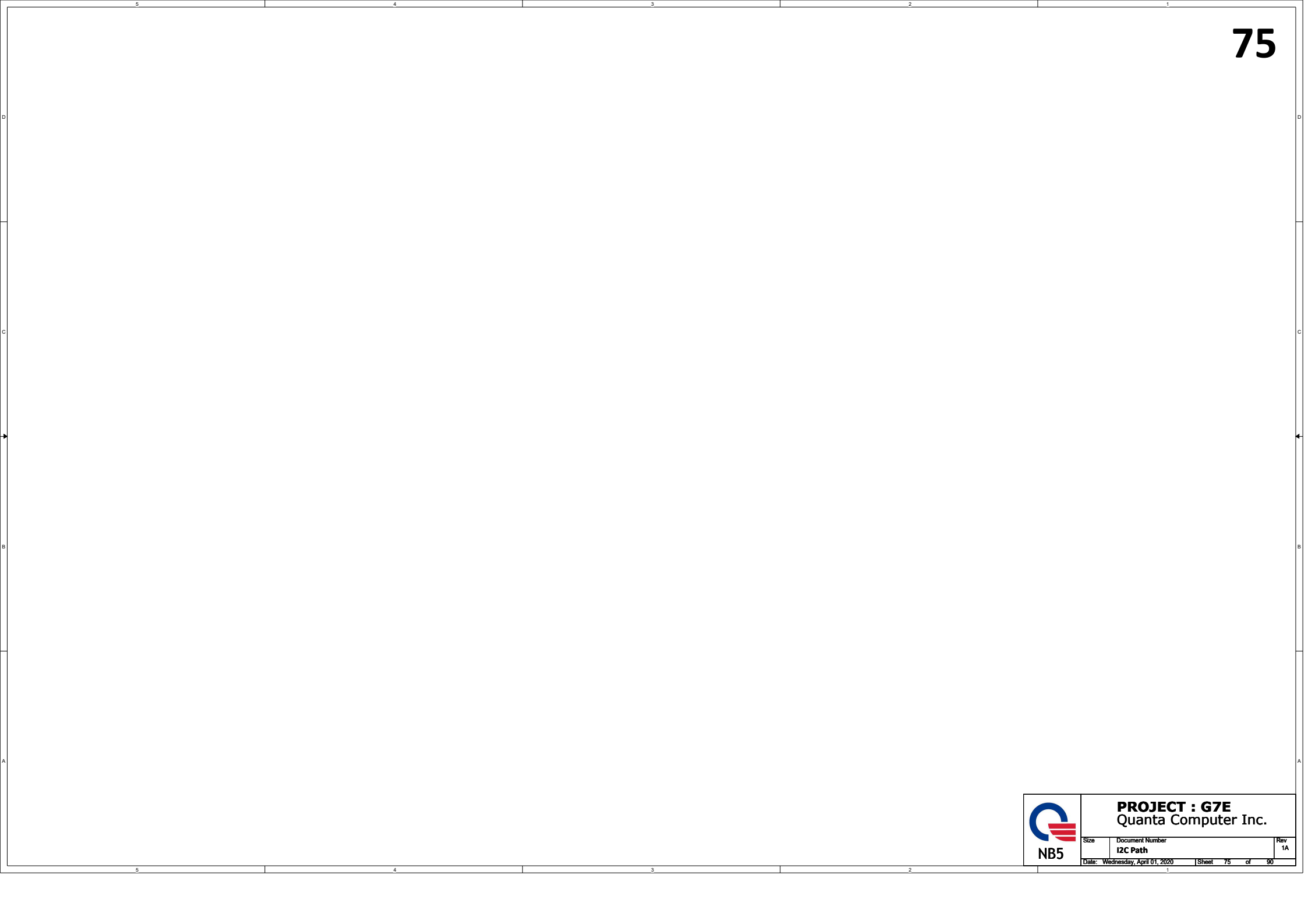
PCH




PROJECT : G7E

Quanta Computer Inc.

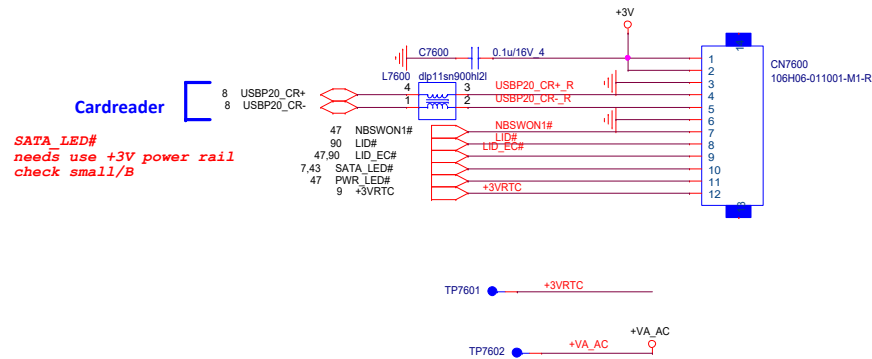
Size	Document Number	Rev
	I2C Path	1A
Date: Wednesday, April 01, 2020		Sheet 74 of 90



 NB5	PROJECT : G7E Quanta Computer Inc.		
	Size	Document Number	Rev
	I2C Path		1A
Date: Wednesday, April 01, 2020		Sheet	75 of 90

Daughter Board

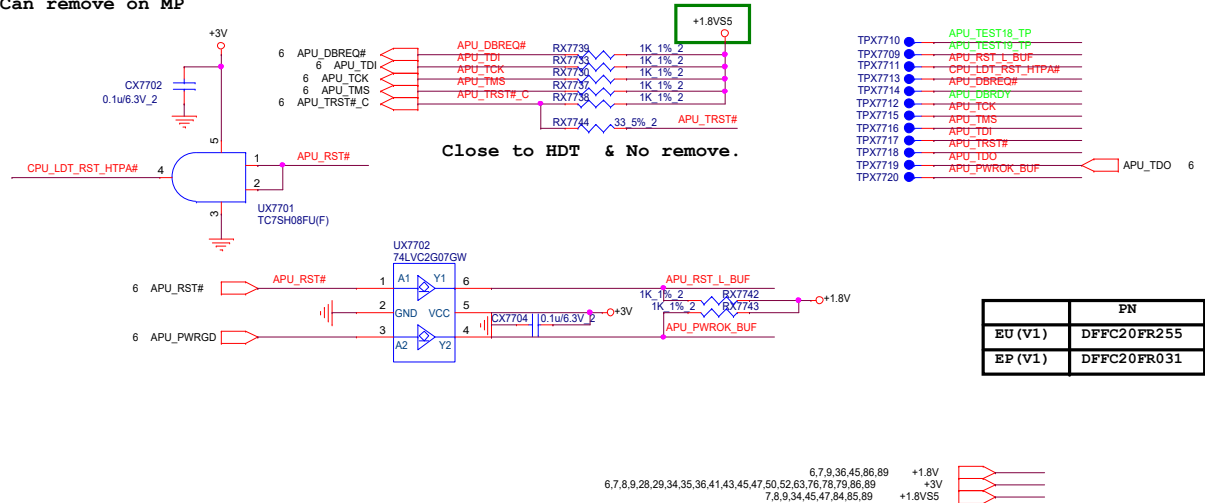
SD only



HDT+ Connector for Debug only

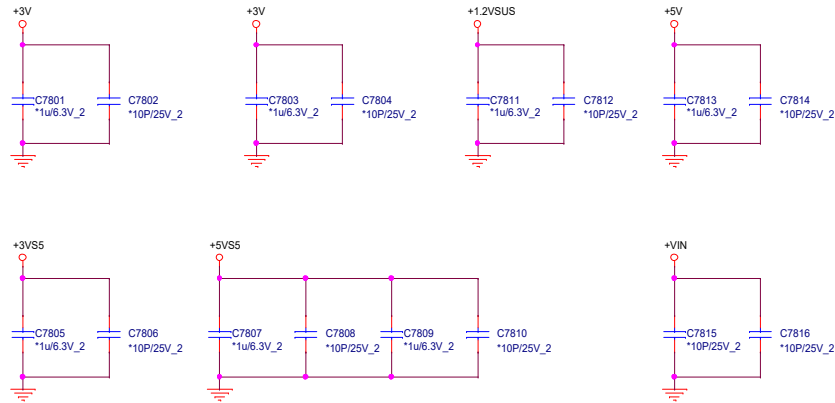
Can remove on MP

1214:modify to +1.8VS5 for FP5 SCL



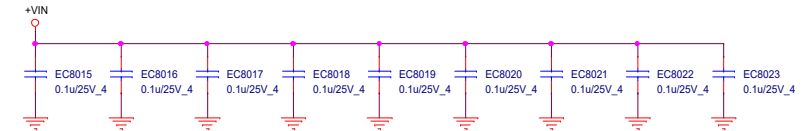
EMI Cap/RF Cap/HOLE

RF CAP



0117 ADD CAP for EMI request

EMI Cap



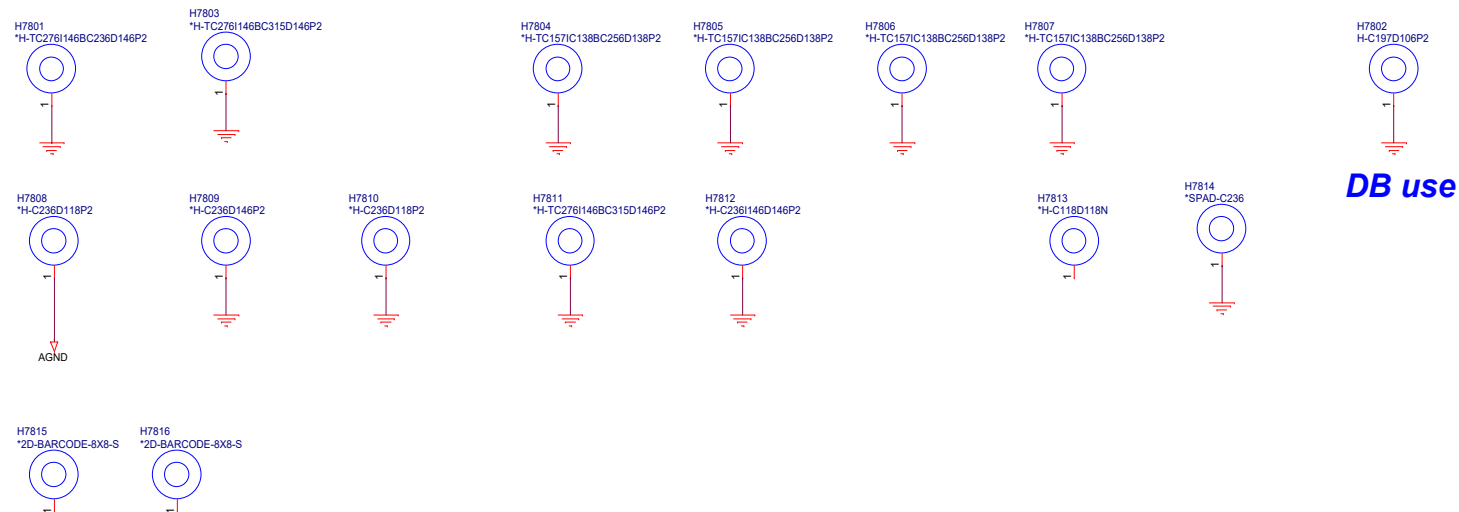
RA stuff TOP

R7802 10K_5%_2

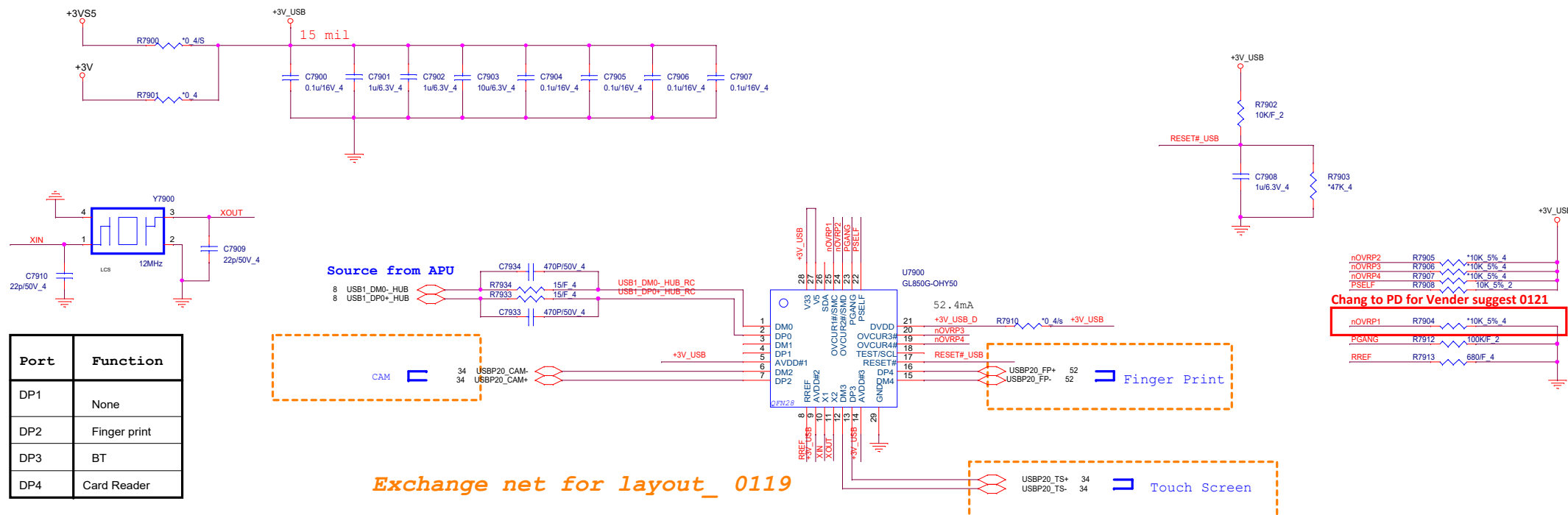
RB stuff TOP

R7803 10K_5%_2

Hole



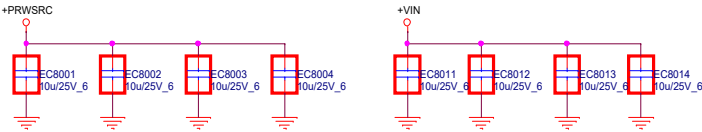
USB2.0 HUB

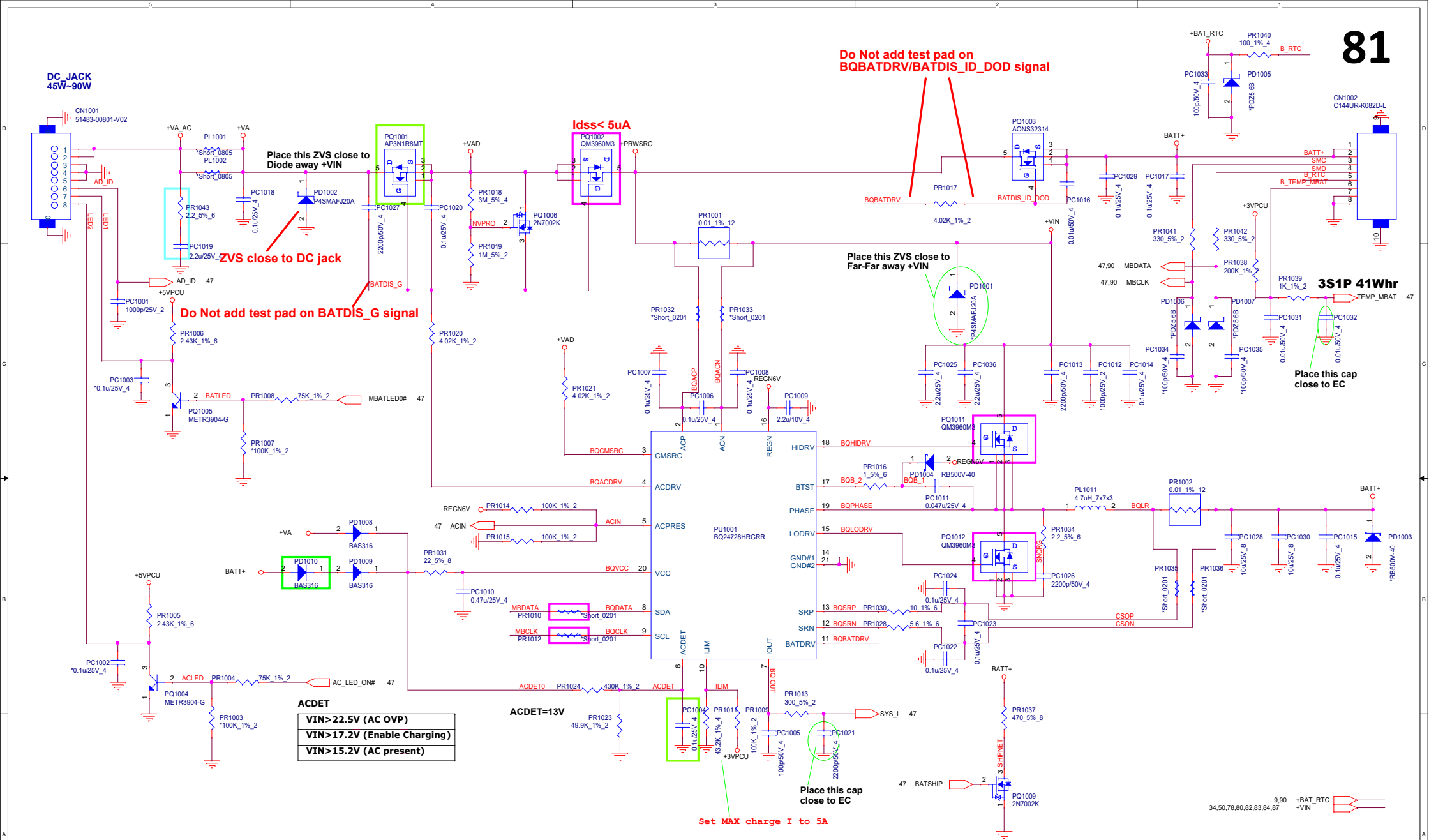


Port	Function
DP1	None
DP2	Finger print
DP3	BT
DP4	Card Reader

Exchange net for layout 0119

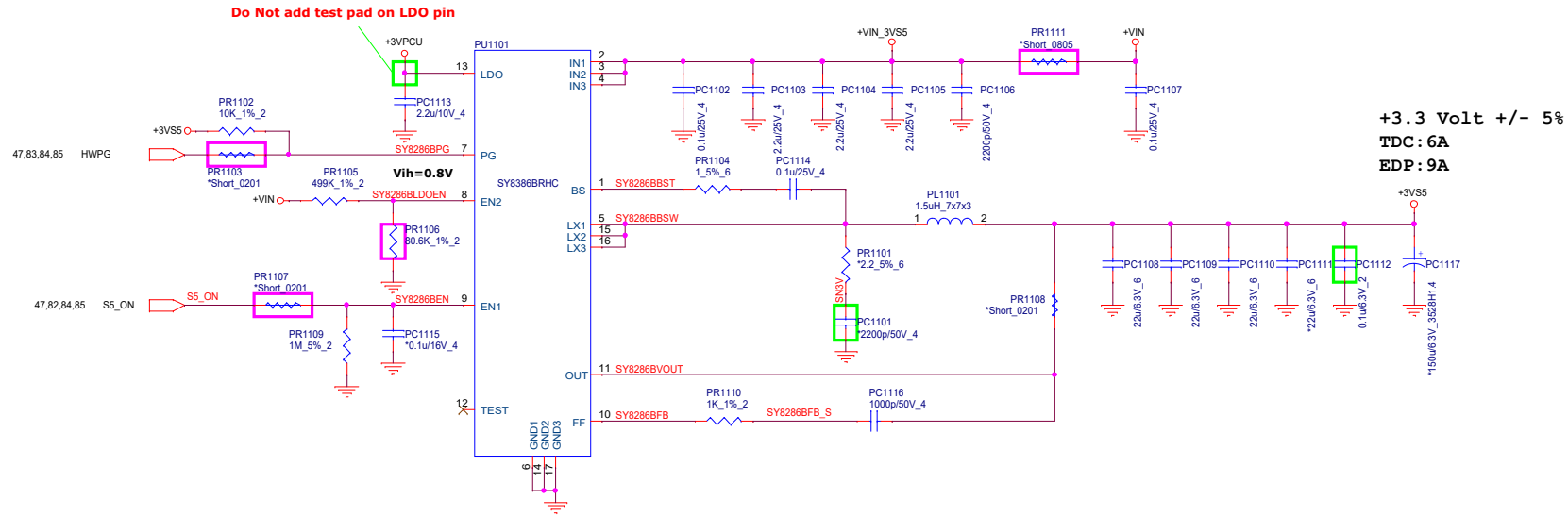
Reserve for EMI function test

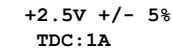
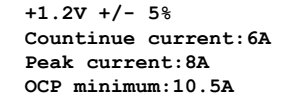




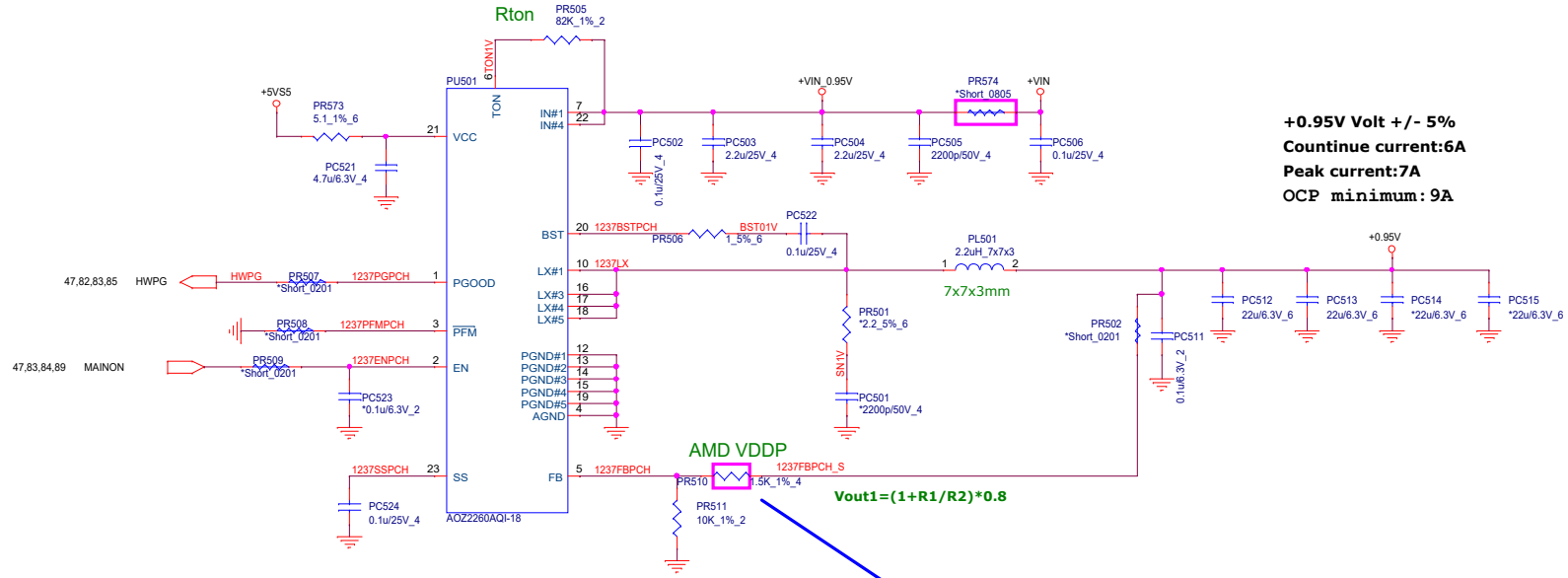
DC/DC +3VS5/+5VS5

+VIN	34,50,78,80,81,83,84,87
+3VS5	6,7,8,9,41,43,45,47,63,78,79,83,84,89
+5VS5	57,63,78,83,84,85,86,89
+3VPCU	9,36,41,47,54,63,81,90
+5VPCU	81,89



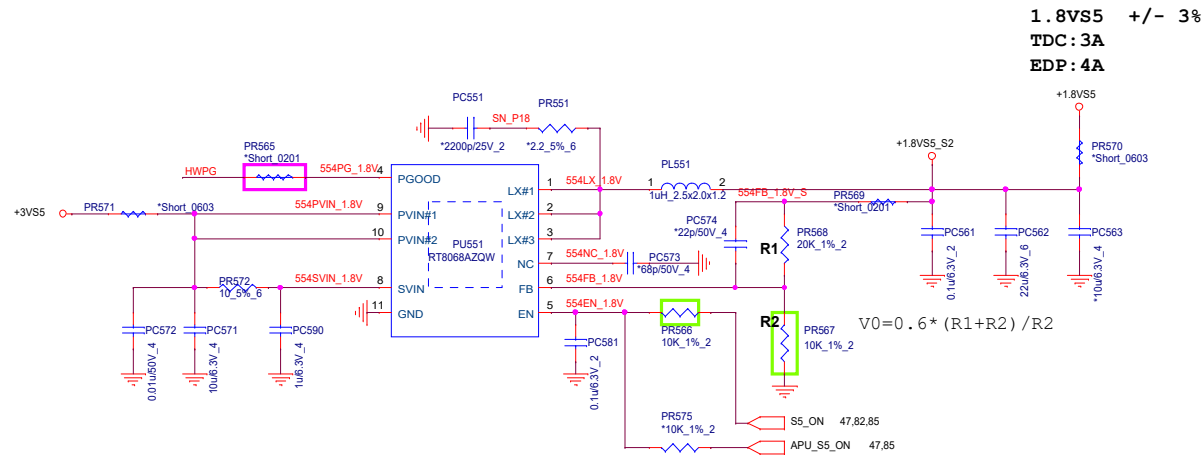


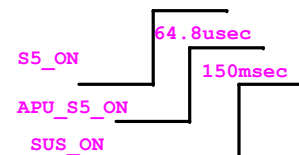
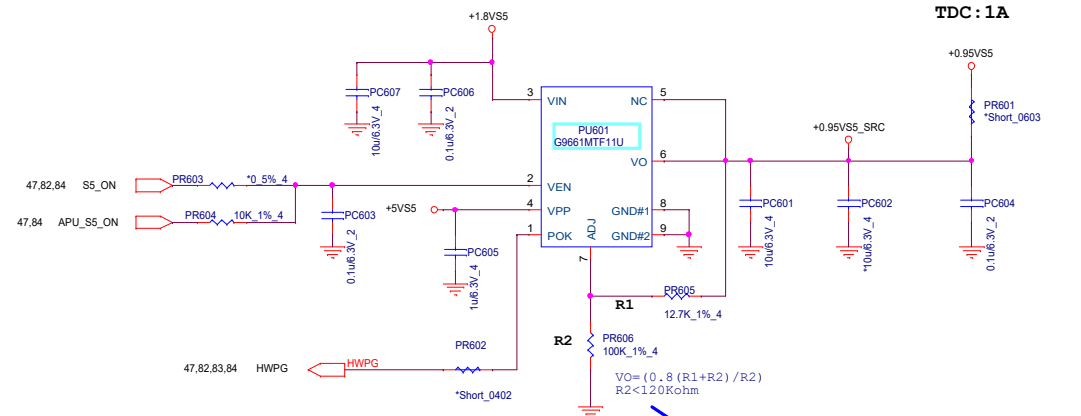
+VIN	34,50,78,80,81,82,83,87
+3VS5	6,7,8,9,41,43,45,47,63,78,79,82,83,89
+5VS5	57,63,78,82,83,85,86,89
+0.95V	6,9
+1.8VS5	7,8,9,34,45,47,77,85,89
MAINON	47,83,84,89



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

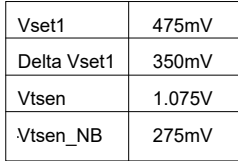
	R1		
Raven	1.27K	CS21272FB15	0.9V
Stoney / Bristol	1.91K	CS21912FB13	0.95V
	3.16K	CS23162FB04	1.05V



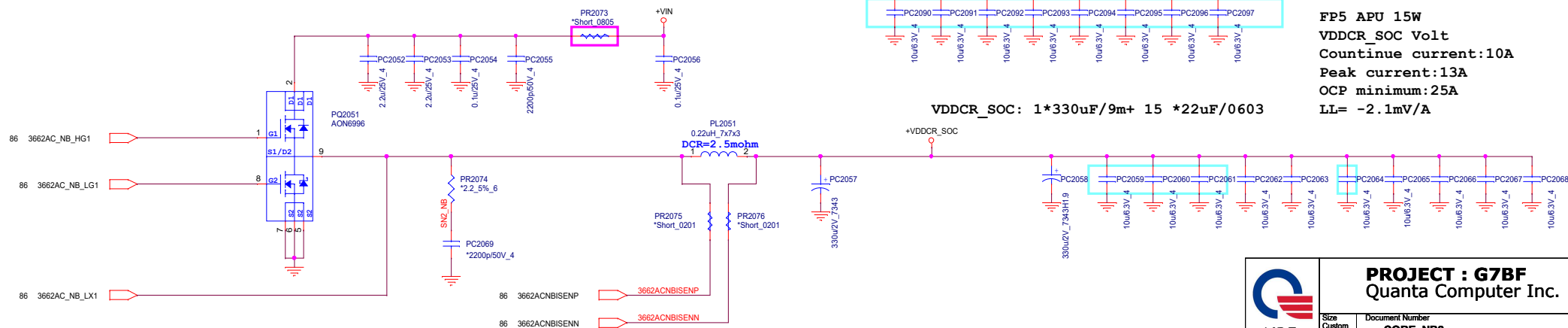
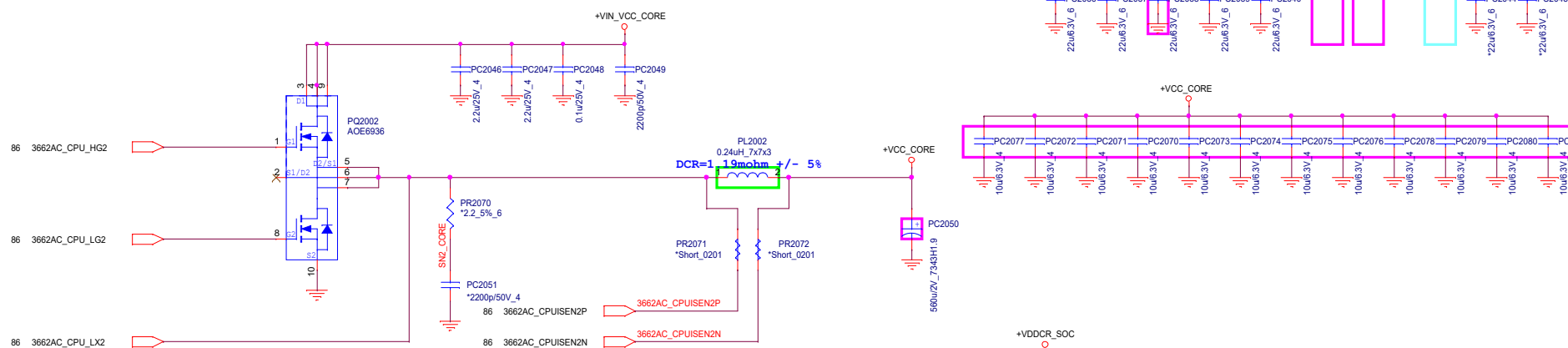
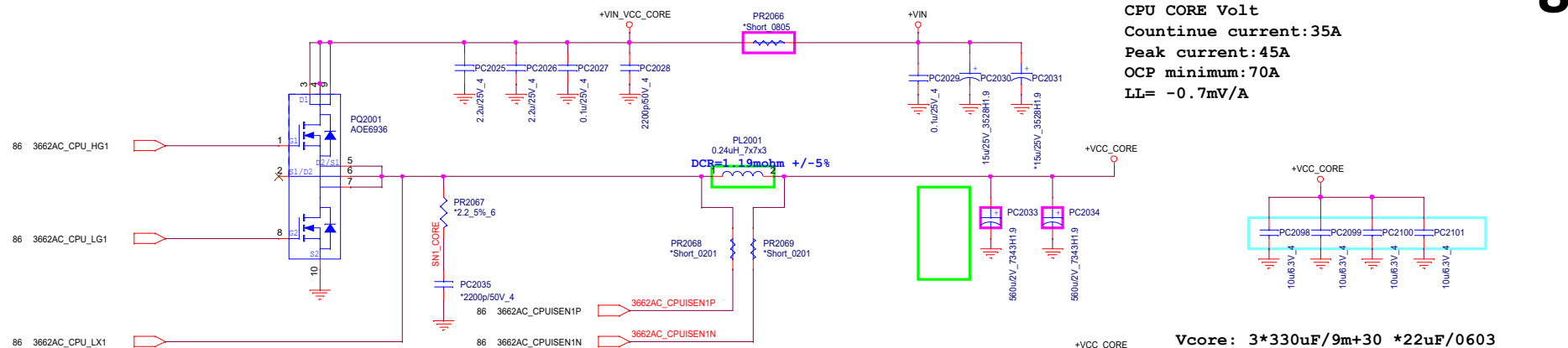


	R1		
Raven	12.7K	CS31272FB17	0.9V
Stoney/Bristol	18.7K	CS31872FB19	0.95V
	31.6K	CS33162FB14	1.05V

Bristol VDDP=1.05V
Stoney VDDP=0.95V



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



FP5 APU 15W
VDDCR_SOC Volt
Continue current:10A
Peak current:13A
OCP minimum:25A
LL= -2.1mV/A

VDDCR_FCH only for Bristol ridge and Stoney Ridge

