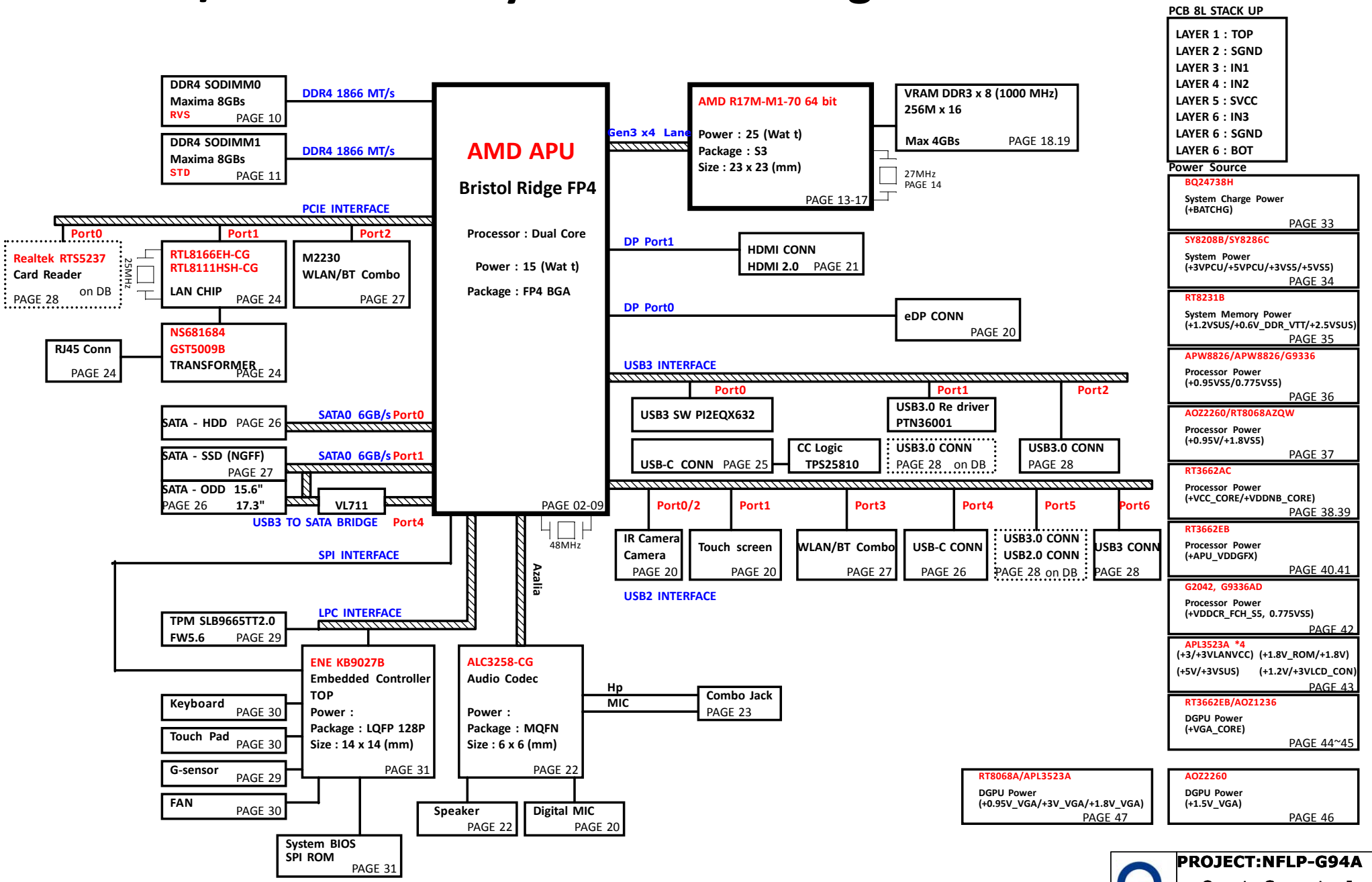
G94A 15.6"/17.3" 2SPD System Block Diagram-AMD Bristol FP4 01



NB5

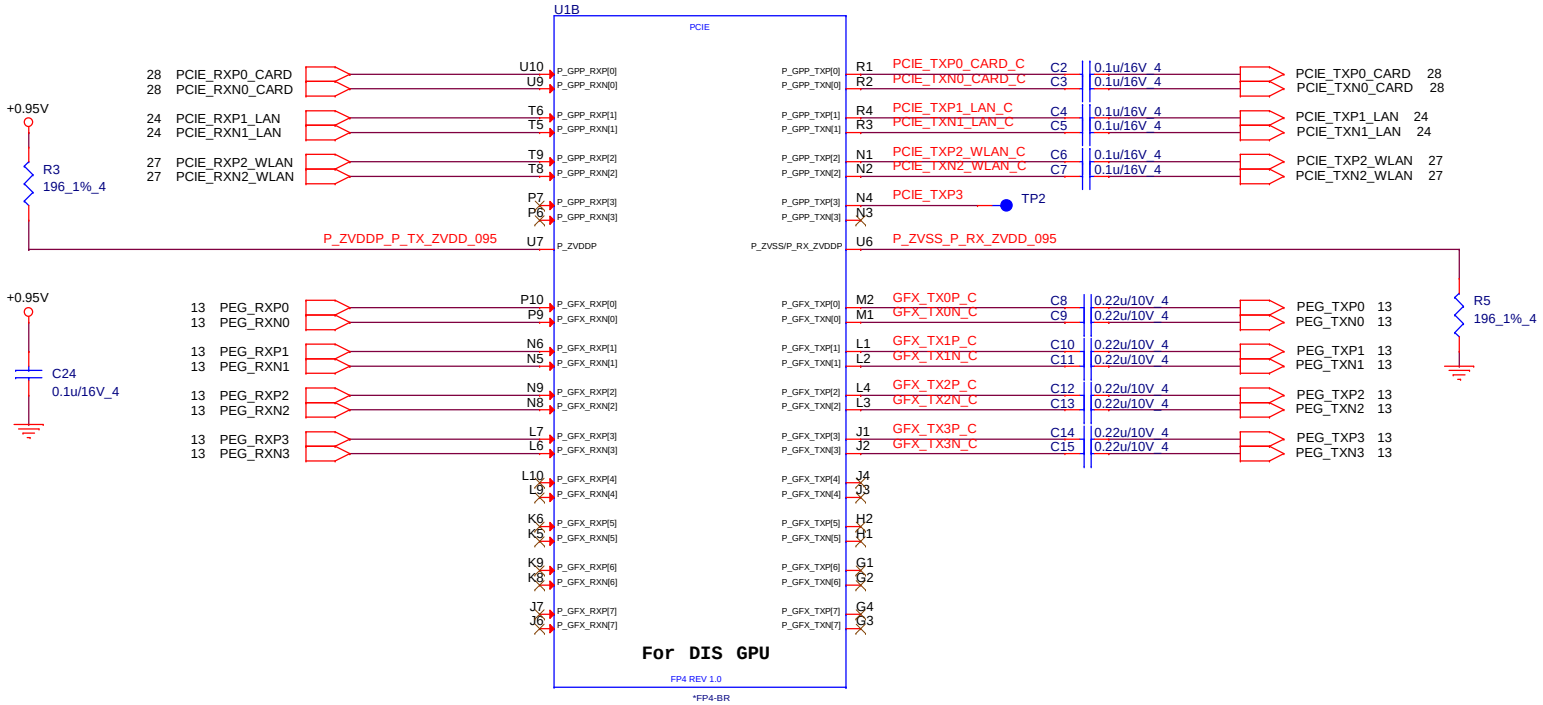
PROJECT:NFLP-G94A

Quanta Computer Inc.

Size	Document Number	Rev
	Block Diagram	1A

Date: Monday, January 16, 2017 Sheet 1 of 48

6,7,37 +0.95V



NB5

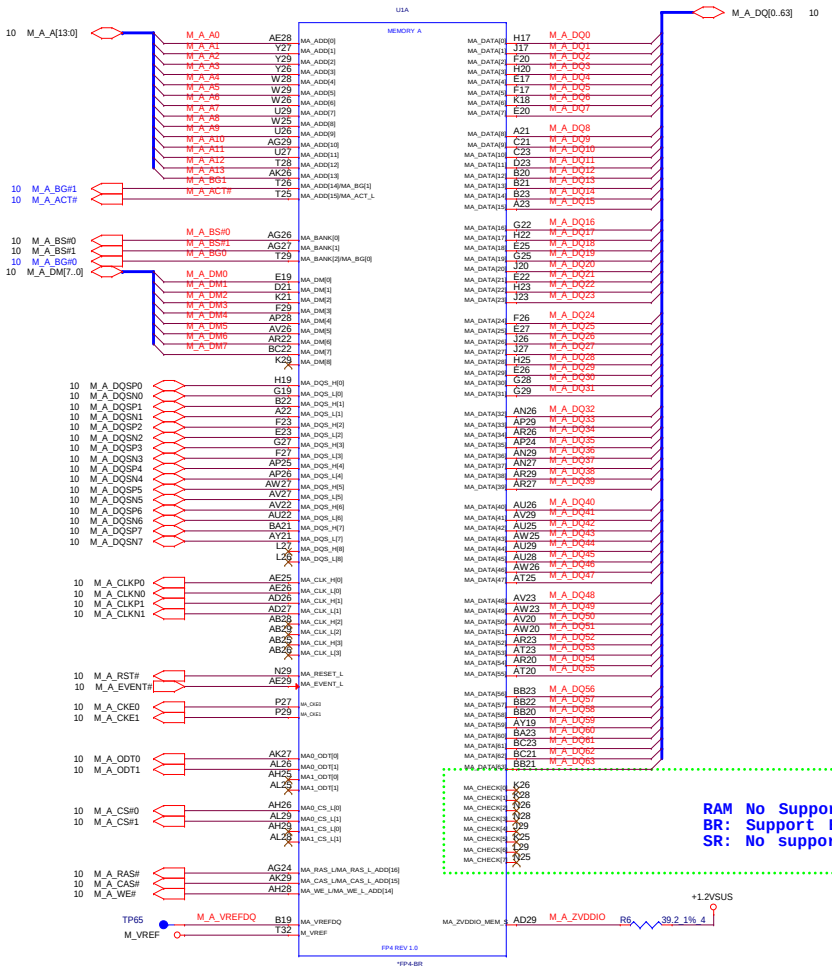
PROJECT:NFLP-G94A

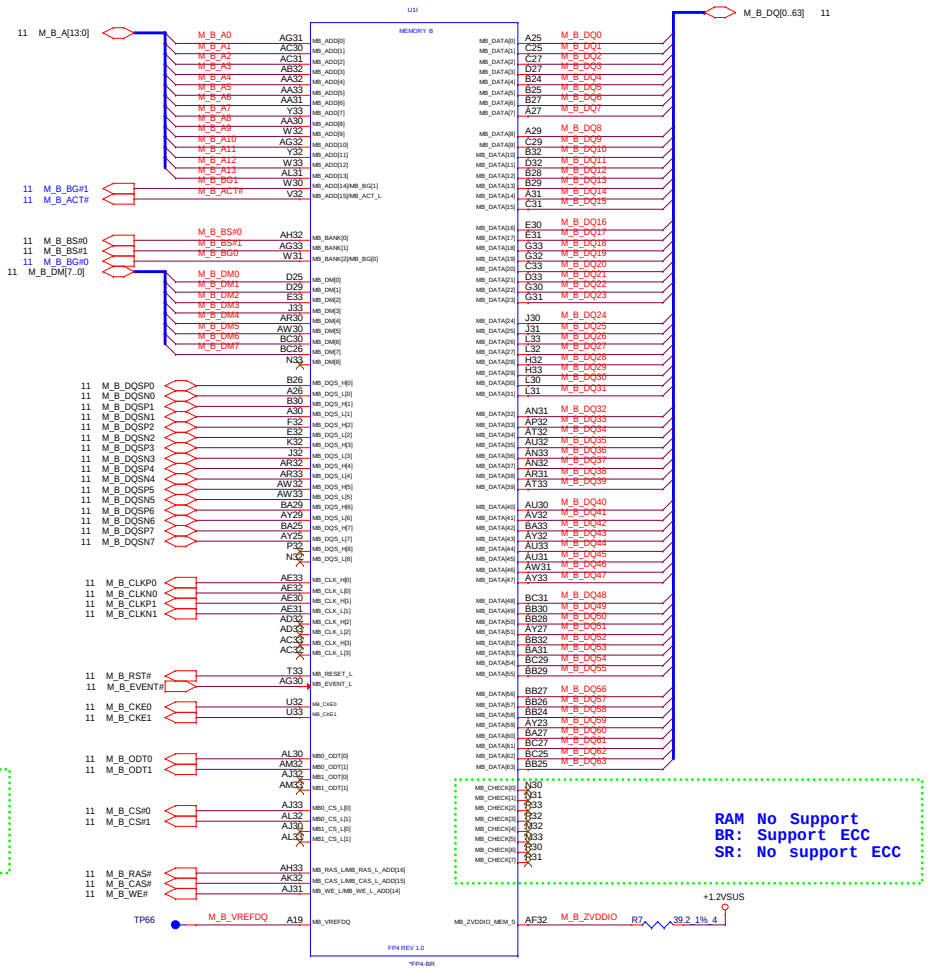
Quanta Computer Inc.

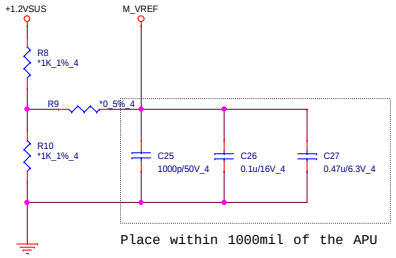
Size	Document Number	Rev
	BR & SR 1/7(PCIE)	1A

Date: Monday, January 16, 2017 Sheet 2 of 48

SB only channel B

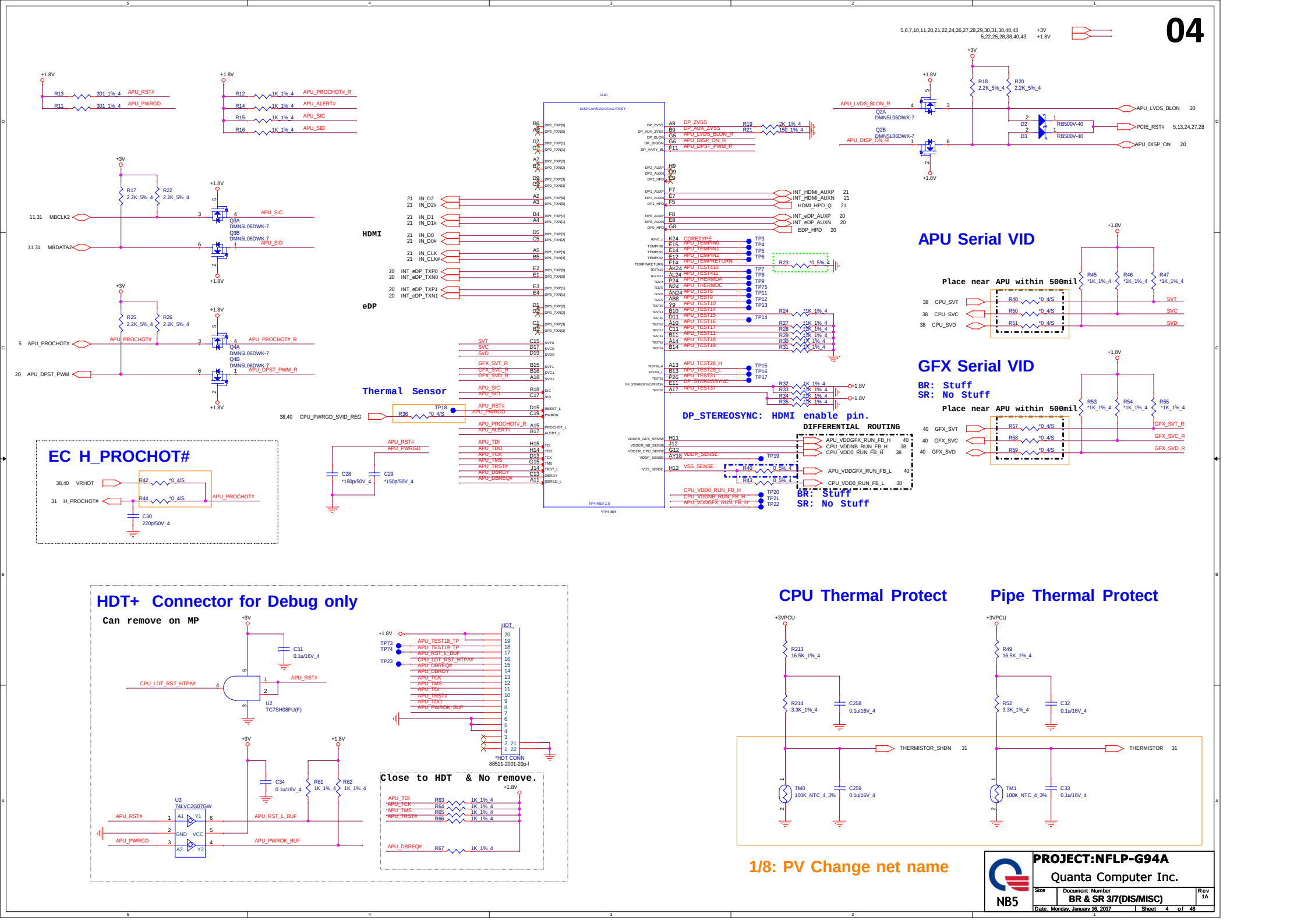






Place within 1000mil of the APU

NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
	Size:	Document Number: BR & SR 2/7(MEM) — Rev: 1A
	Date: Monday, January 16, 2017	Sheet 3 of 48


5,6,7,10,11,20,21,22,24,26,27,28,29,30,31,38,40,43 +3V
5,22,25,28,38,40,43 +1.8V
HDMI
eDP
Thermal Sensor
DP_STEREOSYNC: HDMI enable pin.
DIFFERENTIAL ROUTING
BR: Stuff
SR: No Stuff
APU Serial VID
Place near APU within 500mil
GFX Serial VID
Place near APU within 500mil
EC H_PROCHOT#
HDT+ Connector for Debug only
Can remove on MP
Close to HDT & No remove.
CPU Thermal Protect
Pipe Thermal Protect
1/8: PV Change net name
PROJECT:NFLP-G94A
Quanta Computer Inc.
NB5
BR & SR 3/7(DIS/MISC)
Date: Monday, January 16, 2017
Sheet 4 of 48

4,6,7,10,11,20,21,22,24,26,27,28,29,30,31,38,40,43 +3V
4,22,26,28,38,40,43 +1.8V
6,7,25,27,30,31,34,35,37,42,43,44,47 +3VS5
7,25,36,37,43,47 +1.8VS5

BOARD ID SETTING

Board ID 0	Definition
0	UMA
1	DIS

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

Board ID [4:3]	Definition
00	PORT0 SATA only
01	PORT0 SATA PORT1 SSD
10	PORT0 SATA PORT1 ODD
11	PORT0 SATA PORT1 SSD USB3.0 to ODD

Board ID [5]	Definition
0/1	BR/SR

Board ID [6]	Definition
0/1	VRAM Size X8/ X4

Board ID [7]	GPU
0/1	M1-70/ M1-30

Board ID [9:8]	Definition
00	NFL-P
01	NFL-C
10	VINE-DF
11	Reserve
Board ID [10]	Definition
0/1	Reserve

Power Domain CZ CZ-L

BR: Stuff
SR: No Stuff

to DDR3 SMBUS

to TP SMBUS

HDA INTERFACE

SYS PWRGD

GPU CLK REQ

DIS: Stuff
UMA: No Stuff

GENINT1: Hardware Validated Boot function
Vss: Enabke
NC: Disable

12/7: SI Modify

Follow AMD checklist 53537_1_09 suggestion.

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

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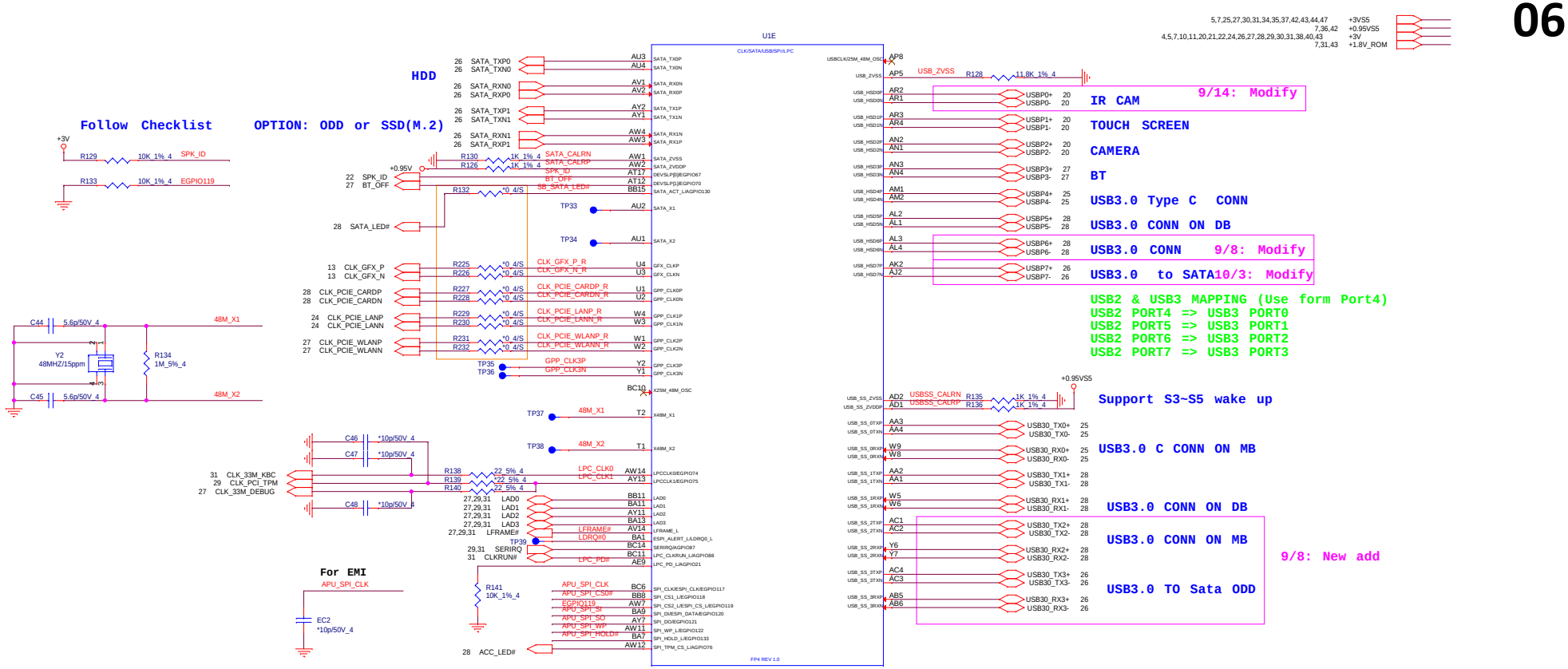
Quanta Computer Inc.
NB5
Size | Document Number: BR & SR 4/7(GPIO/AZ/UART) | Rev 1A
Date: Monday, January 16, 2017 | Sheet 5 of 48

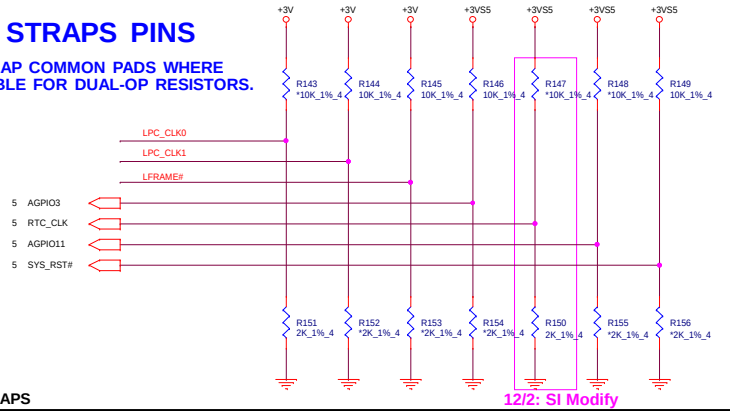


APU SPI ROM

Vender	Size	P/N (1.8V)
WND	8M	AKE5EZN0N00
EON	8M	AKE5EFN0Q00
	8M	
Socket	DFHS08FS023	

STRAPS PINS

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

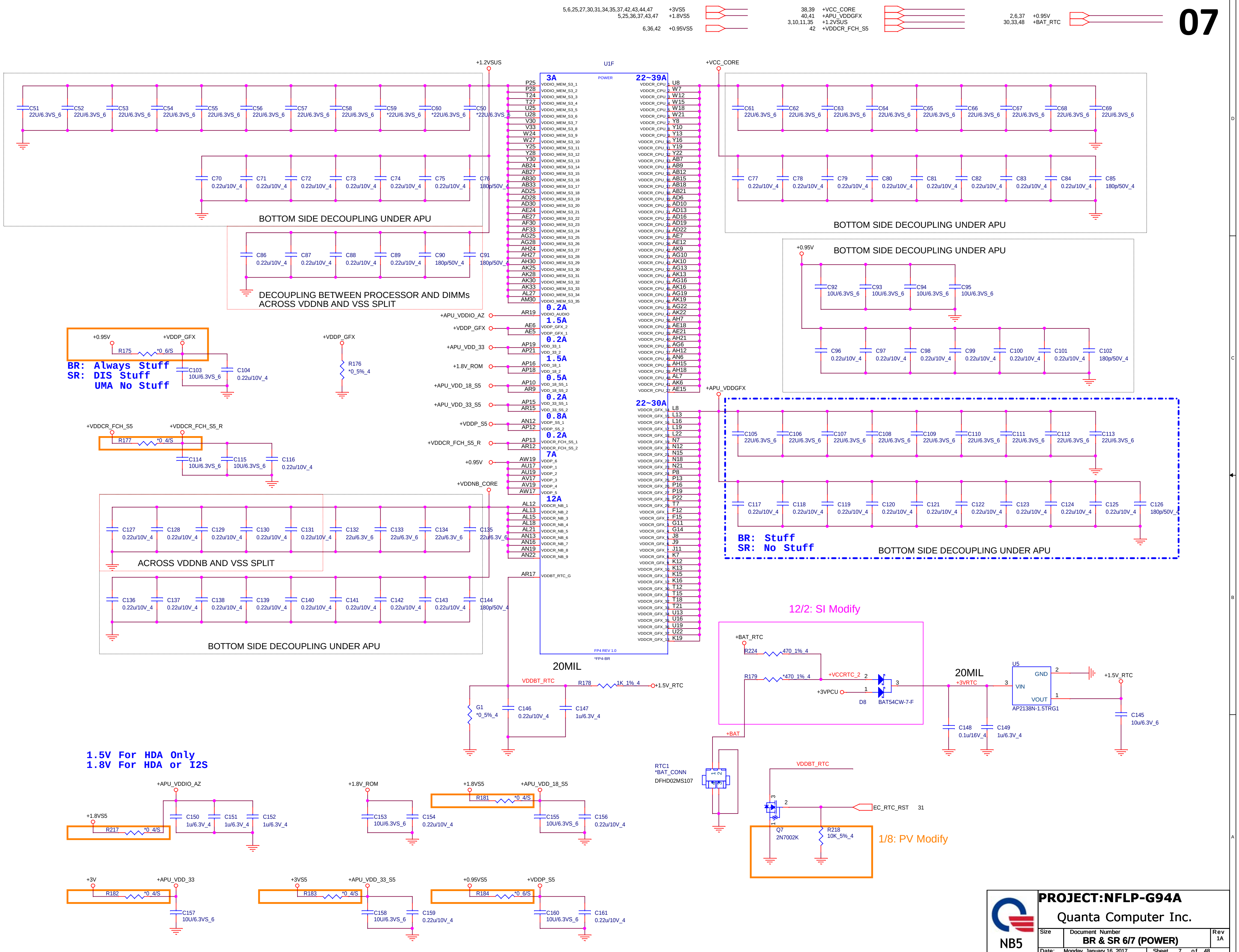


REQUIRED STRAPS

	LPC_CLK0	LPC_CLK1	LFRAME#	AGPIO3 Int Pull-Up CZ-L	AGPIO3 Int Pull-Up BR & SR	RTC_CLK Int Pull-Up	AGPIO11=BLINK Int Pull-Up	SYS_RST# Int Pull-Up
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks DEFAULT	SPI ROM DEFAULT	1.8V SPI ROM	Enhanced reset logic (for quicker S5 resume) DEFAULT	Coin battery is on board. DEFAULT	LDT_RST#/LDT_PWRGD output to APU DEFAULT	normal reset mode DEFAULT
PULL LOW	BOOT FAIL TIMER DISABLED DEFAULT	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	LPC ROM	3.3V SPI ROM DEFAULT	Default to traditional reset logic	Coin battery is not on board.	LDT_RST#/LDT_PWRGD output to Pads	short reset mode

12/2: SI Modify

NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
Size	Document Number: BR & SR 5/7(SATA/USB/SPI)	Rev 1A
Date: Monday, January 16, 2017	Sheet 6 of 48	



5,6,25,27,30,31,34,35,37,42,43,44,47 +3VS5
5,25,36,37,43,47 +1.8VS5
6,36,42 +0.95VS5
38,39 +VCC_CORE
40,41 +APU_VDDGFX
3,10,11,35 +1.2VSUS
42 +VDDCR_FCH_S5
2,6,37 +0.95V
30,33,48 +BAT_RTC
U1F
POWER
+1.2VSUS
+VCC_CORE
3A
22~39A
BOTTOM SIDE DECOUPLING UNDER APU
DECOUPLING BETWEEN PROCESSOR AND DIMMs
ACROSS VDDNB AND VSS SPLIT
BR: Always Stuff
SR: DIS Stuff
UMA No Stuff
BR: Stuff
SR: No Stuff
ACROSS VDDNB AND VSS SPLIT
+APU_VDDIO_AZ
+VDDP_GFX
+APU_VDD_33
+1.8V_ROM
+APU_VDD_18_S5
+APU_VDD_33_S5
+VDDP_S5
+VDDCR_FCH_S5_R
+0.95V
+VDDNB_CORE
+APU_VDDGFX
0.2A
1.5A
0.2A
1.5A
0.5A
0.2A
0.8A
0.2A
7A
12A
22~30A
20MIL
VDDBT_RTC
R178 1K_1%_4
+1.5V_RTC
G1 *0_5%_4
C146 0.22u/10V_4
C147 1u/6.3V_4
12/2: SI Modify
+BAT_RTC
R224 470_1%_4
R179 470_1%_4
+VCCRTC_2
+3VPCU
D8 BAT54CW-7-F
20MIL
+3VRTC
U5 AP2138N-1.5TRG1
GND VIN VOUT
+1.5V_RTC
C148 0.1u/16V_4
C149 1u/6.3V_4
C145 10u/6.3V_6
+BAT
RTC1 *BAT_CONN DFHD02MS107
VDDBT_RTC
EC_RTC_RST 31
Q7 2N7002K
R218 10K_5%_4
1/8: PV Modify
1.5V For HDA Only
1.8V For HDA or I2S
+APU_VDDIO_AZ
+1.8VS5
R217 *0_4/S
C150 1u/6.3V_4
C151 1u/6.3V_4
C152 1u/6.3V_4
+1.8V_ROM
C153 10U/6.3VS_6
C154 0.22u/10V_4
+1.8VS5
+APU_VDD_18_S5
R181 *0_4/S
C155 10U/6.3VS_6
C156 0.22u/10V_4
+3V
+APU_VDD_33
R182 *0_4/S
C157 10U/6.3VS_6
+3VS5
+APU_VDD_33_S5
R183 *0_4/S
C158 10U/6.3VS_6
C159 0.22u/10V_4
+0.95VS5
+VDDP_S5
R184 *0_6/S
C160 10U/6.3VS_6
C161 0.22u/10V_4
R175 *0_6/S
C103 10U/6.3VS_6
C104 0.22u/10V_4
R176 *0_5%_4
+VDDCR_FCH_S5
+VDDCR_FCH_S5_R
R177 *0_4/S
C114 10U/6.3VS_6
C115 10U/6.3VS_6
C116 0.22u/10V_4
FP4 REV 1.0
*FP4-BR
NB5

PROJECT:NFLP-G94A

Quanta Computer Inc.

Size	Document Number	Rev
	BR & SR 6/7 (POWER)	1A

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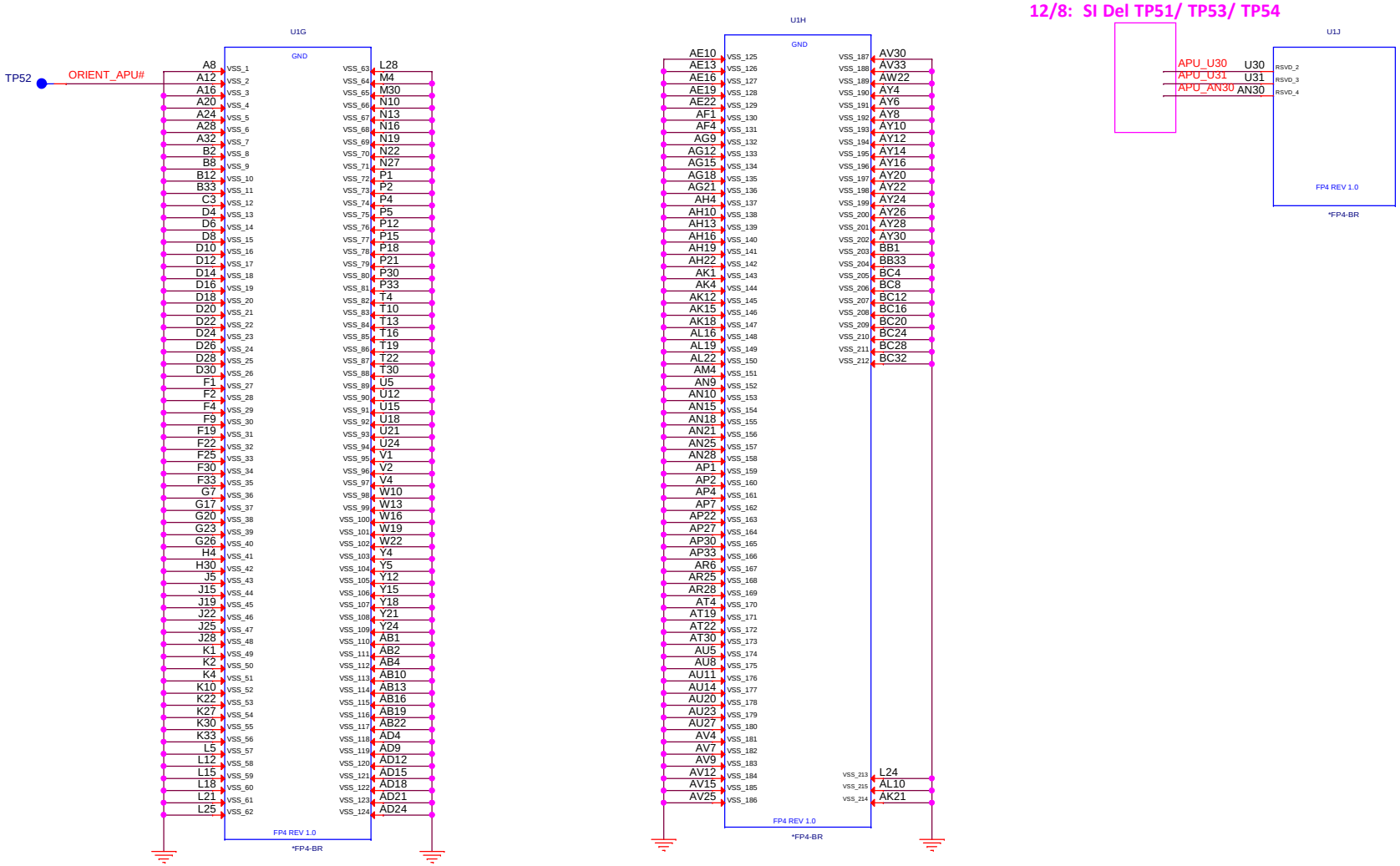
12/8: SI Del TP51/ TP53/ TP54



NB5

PROJECT:NFLP-G94A

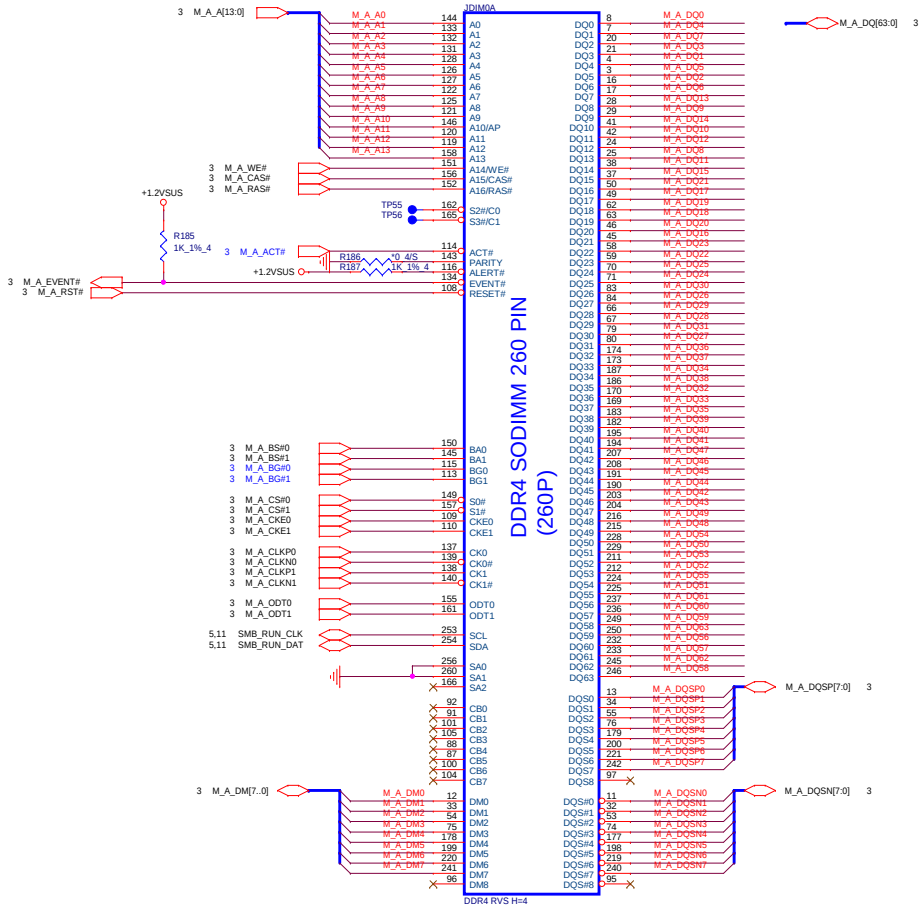
Quanta Computer Inc.

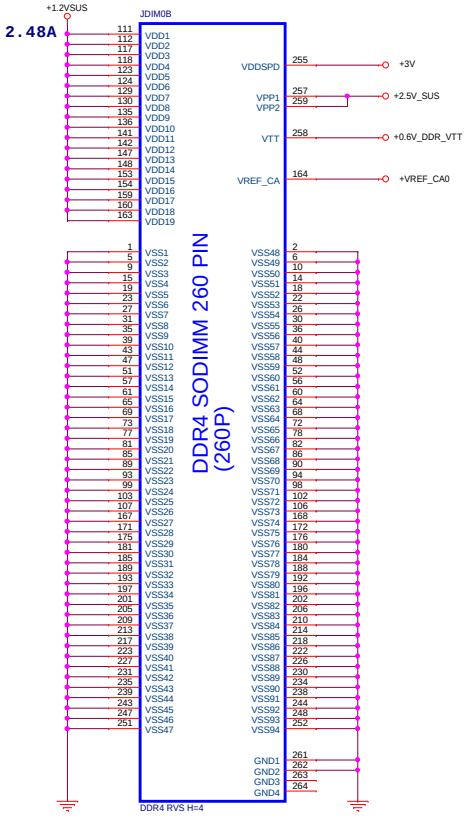
Size	Document Number	Rev
	BR & SR 7/7 (GND)	1A
Date: Monday, January 16, 2017	Sheet 8 of 48	

<Reserved>

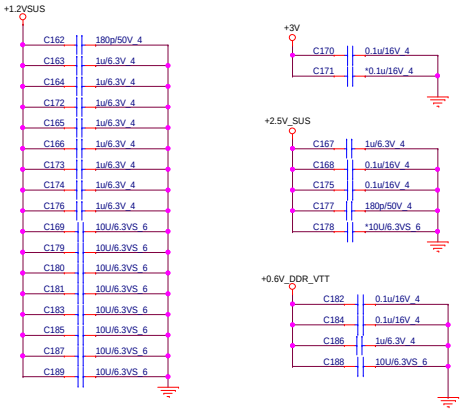
4,5,6,7,11,20,21,22,24,26,27,28,29,30,31,38,40,43 +3V
11,35 +0.6V_DDR_VTT
10,11,35 DDR_VTTREF
+VREF_CA0

11,35 +2.5V_SUS
3,7,11,35 +1.2VSUS

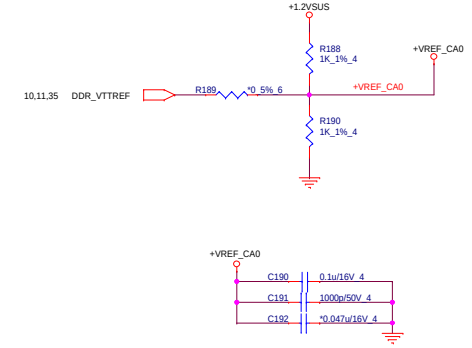




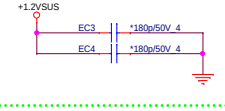
Place these Caps near SODIMM



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



For EMI CAP



NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
Size C	Document Number CHA DDR4 DIMM0-RVS(4.0H)	Rev 1A
Date: Monday, January 16, 2017	Sheet 10 of 48	

4,5,6,7,10,20,21,22,24,26,27,28,29,30,31,38,40,43 +3V
10,35 +0.6V_DDR_VTT
10,11,35 DDR_VTTREF
+VREF_CA1

10,35 +2.5V_SUS
3,7,10,35 +1.2VSUS

3 M_B_A[13:0]

JDIM1A

DDR4 SODIMM 260 PIN (260P)

M_B_A0	144	A0	
M_B_A1	133	A1	
M_B_A2	132	A2	
M_B_A3	131	A3	
M_B_A4	128	A4	
M_B_A5	126	A5	
M_B_A6	127	A6	
M_B_A7	122	A7	
M_B_A8	125	A8	
M_B_A9	121	A9	
M_B_A10	146	A10/AP	
M_B_A11	120	A11	
M_B_A12	119	A12	
M_B_A13	158	A13	
3 M_B_WE#	151	A14/WE#	
3 M_B_CAS#	156	A15/CAS#	
3 M_B_RAS#	152	A16/RAS#	
TP57	162	S2#/C0	
TP58	165	S3#/C1	
3 M_B_ACT#	114	ACT#	
	143	PARITY	
	116	ALERT#	
3 M_B_EVENT#	134	EVENT#	
3 M_B_RST#	108	RESET#	
3 M_B_BS#0	150	BA0	
3 M_B_BS#1	145	BA1	
3 M_B_BG#0	115	BG0	
3 M_B_BG#1	113	BG1	
3 M_B_CS#0	149	S0#	
3 M_B_CS#1	157	S1#	
3 M_B_CKE0	109	CKE0	
3 M_B_CKE1	110	CKE1	
3 M_B_CLKP0	137	CK0	
3 M_B_CLKN0	139	CK0#	
3 M_B_CLKP1	138	CK1	
3 M_B_CLKN1	140	CK1#	
3 M_B_ODT0	155	ODT0	
3 M_B_ODT1	161	ODT1	
5,10 SMB_RUN_CLK	253	SCL	
5,10 SMB_RUN_DAT	254	SDA	
CHB_SA0	256	SA0	
	260	SA1	
	166	SA2	
	92	CB0	
	91	CB1	
	101	CB2	
	105	CB3	
	88	CB4	
	87	CB5	
	100	CB6	
	104	CB7	
3 M_B_DM[7..0]	M_B_DM0 12	DM0	
	M_B_DM1 33	DM1	
	M_B_DM2 54	DM2	
	M_B_DM3 75	DM3	
	M_B_DM4 176	DM4	
	M_B_DM5 199	DM5	
	M_B_DM6 220	DM6	
	M_B_DM7 241	DM7	
	96	DM8	

DDR4 STD H=4

M_B_DQ[63:0] 3

	8	DQ0	M_B_DQ5
	7	DQ1	M_B_DQ4
	20	DQ2	M_B_DQ3
	21	DQ3	M_B_DQ2
	4	DQ4	M_B_DQ0
	3	DQ5	M_B_DQ1
	16	DQ6	M_B_DQ6
	17	DQ7	M_B_DQ7
	28	DQ8	M_B_DQ9
	29	DQ9	M_B_DQ13
	41	DQ10	M_B_DQ14
	42	DQ11	M_B_DQ10
	24	DQ12	M_B_DQ8
	25	DQ13	M_B_DQ12
	38	DQ14	M_B_DQ11
	37	DQ15	M_B_DQ15
	50	DQ16	M_B_DQ20
	49	DQ17	M_B_DQ21
	62	DQ18	M_B_DQ18
	63	DQ19	M_B_DQ22
	46	DQ20	M_B_DQ17
	45	DQ21	M_B_DQ16
	58	DQ22	M_B_DQ19
	59	DQ23	M_B_DQ23
	70	DQ24	M_B_DQ25
	71	DQ25	M_B_DQ29
	83	DQ26	M_B_DQ27
	84	DQ27	M_B_DQ26
	66	DQ28	M_B_DQ28
	67	DQ29	M_B_DQ24
	79	DQ30	M_B_DQ31
	80	DQ31	M_B_DQ30
	174	DQ32	M_B_DQ36
	173	DQ33	M_B_DQ37
	187	DQ34	M_B_DQ35
	186	DQ35	M_B_DQ34
	170	DQ36	M_B_DQ33
	169	DQ37	M_B_DQ32
	183	DQ38	M_B_DQ39
	182	DQ39	M_B_DQ38
	195	DQ40	M_B_DQ44
	194	DQ41	M_B_DQ40
	207	DQ42	M_B_DQ42
	208	DQ43	M_B_DQ43
	191	DQ44	M_B_DQ45
	190	DQ45	M_B_DQ41
	203	DQ46	M_B_DQ46
	204	DQ47	M_B_DQ47
	216	DQ48	M_B_DQ49
	215	DQ49	M_B_DQ48
	228	DQ50	M_B_DQ54
	229	DQ51	M_B_DQ55
	211	DQ52	M_B_DQ52
	212	DQ53	M_B_DQ53
	224	DQ54	M_B_DQ50
	225	DQ55	M_B_DQ51
	237	DQ56	M_B_DQ61
	236	DQ57	M_B_DQ56
	249	DQ58	M_B_DQ63
	250	DQ59	M_B_DQ62
	232	DQ60	M_B_DQ57
	233	DQ61	M_B_DQ60
	245	DQ62	M_B_DQ58
	246	DQ63	M_B_DQ59
	13	DQS0	M_B_DQSP0
	34	DQS1	M_B_DQSP1
	55	DQS2	M_B_DQSP2
	76	DQS3	M_B_DQSP3
	179	DQS4	M_B_DQSP4
	200	DQS5	M_B_DQSP5
	221	DQS6	M_B_DQSP6
	242	DQS7	M_B_DQSP7
	97	DQS8	
	11	DQS#0	M_B_DQSN0
	32	DQS#1	M_B_DQSN1
	53	DQS#2	M_B_DQSN2
	74	DQS#3	M_B_DQSN3
	177	DQS#4	M_B_DQSN4
	198	DQS#5	M_B_DQSN5
	219	DQS#6	M_B_DQSN6
	240	DQS#7	M_B_DQSN7
	95	DQS#8	

M_B_DQSP[7:0] 3
M_B_DQSN[7:0] 3

+1.2VSUS
R191 1K_1%_4
R192 *0_4/S
R193 1K_1%_4
+1.2VSUS
TP57
TP58
+3V
R196 4.7K_5%_4

2.48A

JDIM1B

DDR4 SODIMM 260 PIN (260P)

+1.2VSUS	111	VDD1	
	112	VDD2	
	117	VDD3	
	118	VDD4	
	123	VDD5	
	124	VDD6	
	129	VDD7	
	130	VDD8	
	135	VDD9	
	136	VDD10	
	141	VDD11	
	142	VDD12	
	147	VDD13	
	148	VDD14	
	153	VDD15	
	154	VDD16	
	159	VDD17	
	160	VDD18	
	163	VDD19	
VDDSPD	255		+3V
VPP1	257		+2.5V_SUS
VPP2	259		
VTT	258		+0.6V_DDR_VTT
VREF_CA	164		+VREF_CA1
	1	VSS1	
	5	VSS2	
	9	VSS3	
	15	VSS4	
	19	VSS5	
	23	VSS6	
	27	VSS7	
	31	VSS8	
	35	VSS9	
	39	VSS10	
	43	VSS11	
	47	VSS12	
	51	VSS13	
	57	VSS14	
	61	VSS15	
	65	VSS16	
	69	VSS17	
	73	VSS18	
	77	VSS19	
	81	VSS20	
	85	VSS21	
	89	VSS22	
	93	VSS23	
	99	VSS24	
	103	VSS25	
	107	VSS26	
	167	VSS27	
	171	VSS28	
	175	VSS29	
	181	VSS30	
	185	VSS31	
	189	VSS32	
	193	VSS33	
	197	VSS34	
	201	VSS35	
	205	VSS36	
	209	VSS37	
	213	VSS38	
	217	VSS39	
	223	VSS40	
	227	VSS41	
	231	VSS42	
	235	VSS43	
	239	VSS44	
	243	VSS45	
	247	VSS46	
	251	VSS47	
	2	VSS48	
	6	VSS49	
	10	VSS50	
	14	VSS51	
	18	VSS52	
	22	VSS53	
	26	VSS54	
	30	VSS55	
	36	VSS56	
	40	VSS57	
	44	VSS58	
	48	VSS59	
	52	VSS60	
	56	VSS61	
	60	VSS62	
	64	VSS63	
	68	VSS64	
	72	VSS65	
	78	VSS66	
	82	VSS67	
	86	VSS68	
	90	VSS69	
	94	VSS70	
	98	VSS71	
	102	VSS72	
	106	VSS73	
	168	VSS74	
	172	VSS75	
	176	VSS76	
	180	VSS77	
	184	VSS78	
	188	VSS79	
	192	VSS80	
	196	VSS81	
	202	VSS82	
	206	VSS83	
	210	VSS84	
	214	VSS85	
	218	VSS86	
	222	VSS87	
	226	VSS88	
	230	VSS89	
	234	VSS90	
	238	VSS91	
	244	VSS92	
	248	VSS93	
	252	VSS94	
	261	GND1	
	262	GND2	
	263	GND3	
	264	GND4	

DDR4 STD H=4

Place these Caps near SODIMM

+1.2VSUS
C201 180p/50V_4
C203 1u/6.3V_4
C193 1u/6.3V_4
C194 1u/6.3V_4
C205 1u/6.3V_4
C206 1u/6.3V_4
C196 1u/6.3V_4
C208 1u/6.3V_4
C199 1u/6.3V_4
C209 10U/6.3VS_6
C210 10U/6.3VS_6
C211 10U/6.3VS_6
C212 10U/6.3VS_6
C214 10U/6.3VS_6
C216 10U/6.3VS_6
C218 10U/6.3VS_6
C220 10U/6.3VS_6

+3V
C202 0.1u/16V_4
C204 *0.1u/16V_4

+2.5V_SUS
C195 1u/6.3V_4
C207 0.1u/16V_4
C197 0.1u/16V_4
C198 180p/50V_4
C200 *10U/6.3VS_6

+0.6V_DDR_VTT
C213 0.1u/16V_4
C215 0.1u/16V_4
C217 1u/6.3V_4
C219 10U/6.3VS_6

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

+1.2VSUS
R194 1K_1%_4
+VREF_CA1
10,11,35 DDR_VTTREF
R195 *0_5%_6
+VREF_CA1
R197 1K_1%_4

+VREF_CA1
C221 0.1u/16V_4
C222 1000p/50V_4
C223 *0.047u/16V_4

Local Thermal Sensor

R198 *0_5%_4
Q6A
*2N7002KDW
4,31 MBDATA2
DDR_THRMSEN_DATA
R200 *4.7K_5%_4
+3V
R201 *4.7K_5%_4
4,31 MBCLK2
DDR_THRMSEN_CLK
Q6B
*2N7002KDW
R1 *0_5%_4

U6
*G781-1P8

DDR_THRMSEN_CLK	8	SMBCLK	VCC 1
DDR_THRMSEN_DATA	7	SMBDATA	DXP 2
M_B_EVENT#	6	ALERT	DXN 3
+3V R199 *10K_1%_4	4	THERM	GND 5

C1 *0.01u/50V_4
+3V
DDR_THERMDA
C224 *2200p/50V_4
DDR_THERMDC
Q1 *MTR3904-G

Main:AL000781039 G781-1P8(9Ah)
2nd:AL001412005 EMC1412-2-ACZL-TR(9Ah)

Main:AL001412003 EMC1412-1-ACZL-TR(98h)
2nd:AL000431014 TMP431ADGKR(98h)

For EMI CAP

+1.2VSUS
EC14 *180p/50V_4
EC15 *180p/50V_4

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	Quanta Computer Inc.	
Size C	Document Number CHB DDR4 DIMM1-STD(4.0H)	Rev 1A
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PROJECT:NFLP-G94A

Quanta Computer Inc.

Size	Document Number	Rev
C	**Reserved**	1A

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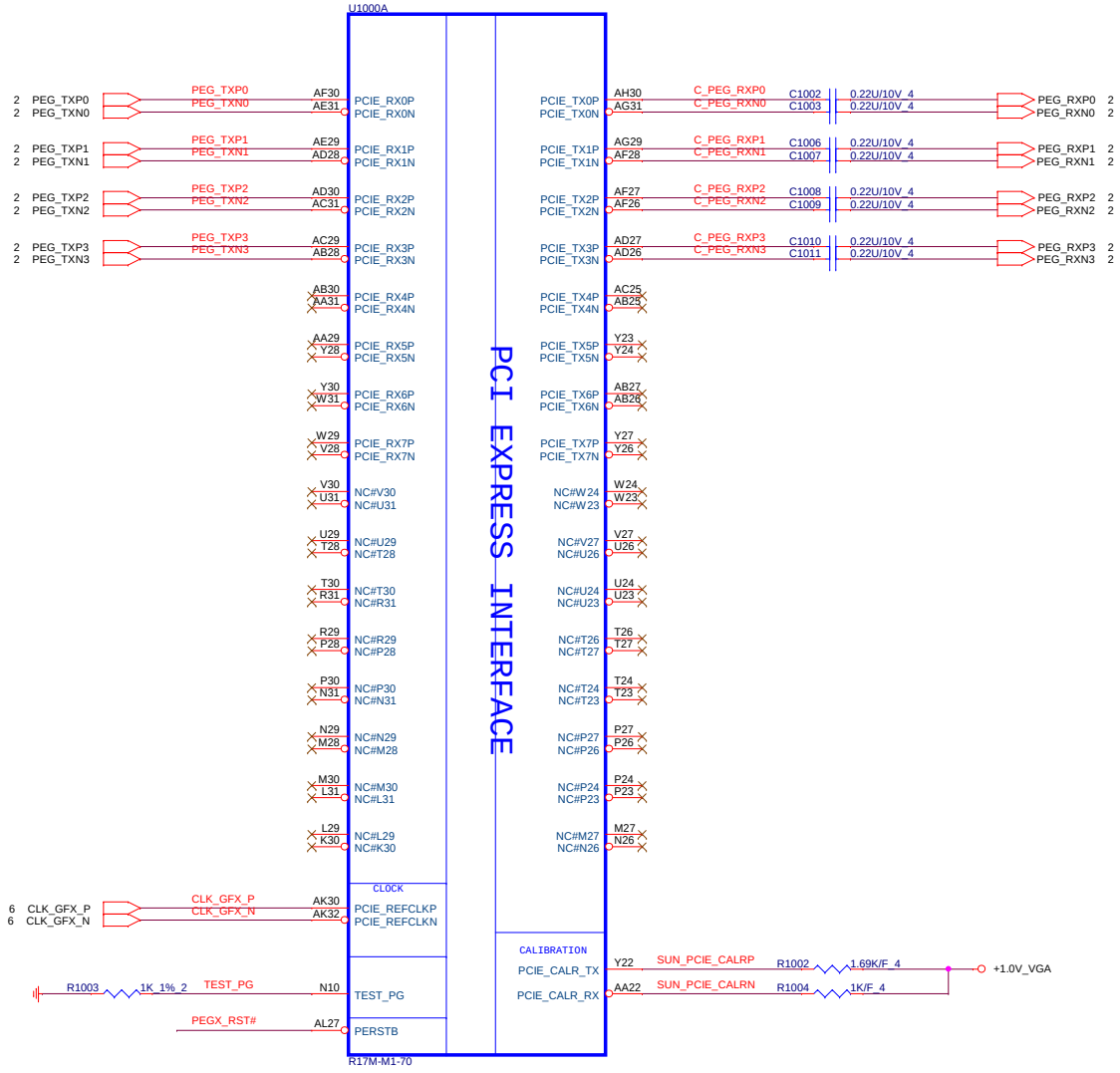
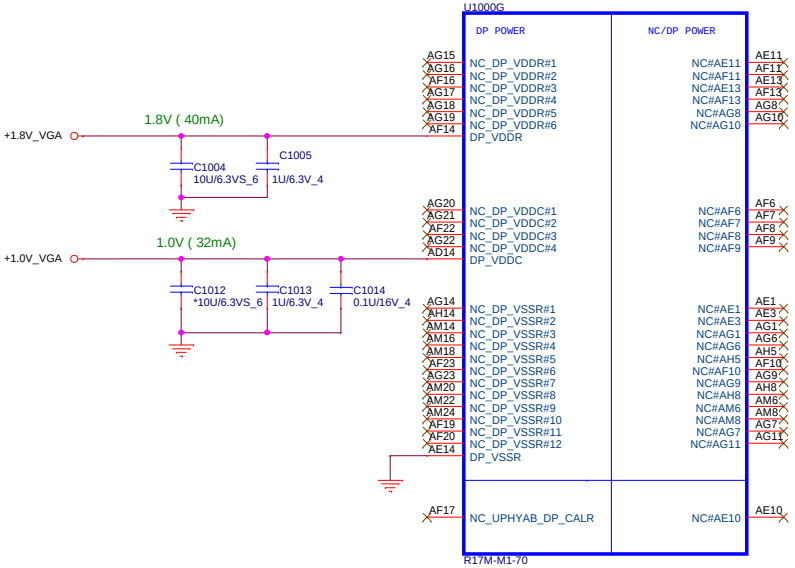
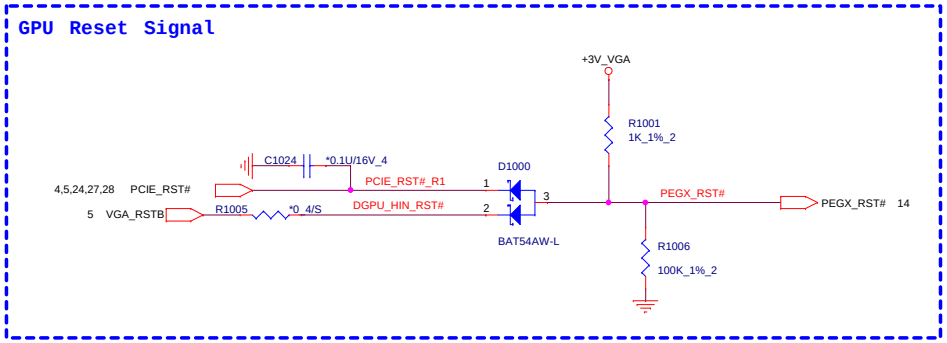
14,16,43,44,47 +3V_VGA
14,16,43,44,47 +1.8V_VGA
16,43,47 +1.0V_VGA







NB5

PROJECT:NFLP-G94A

Quanta Computer Inc.

Size	Document Number	Rev
	M1-70_S3_PCIE/DP POWER	1A
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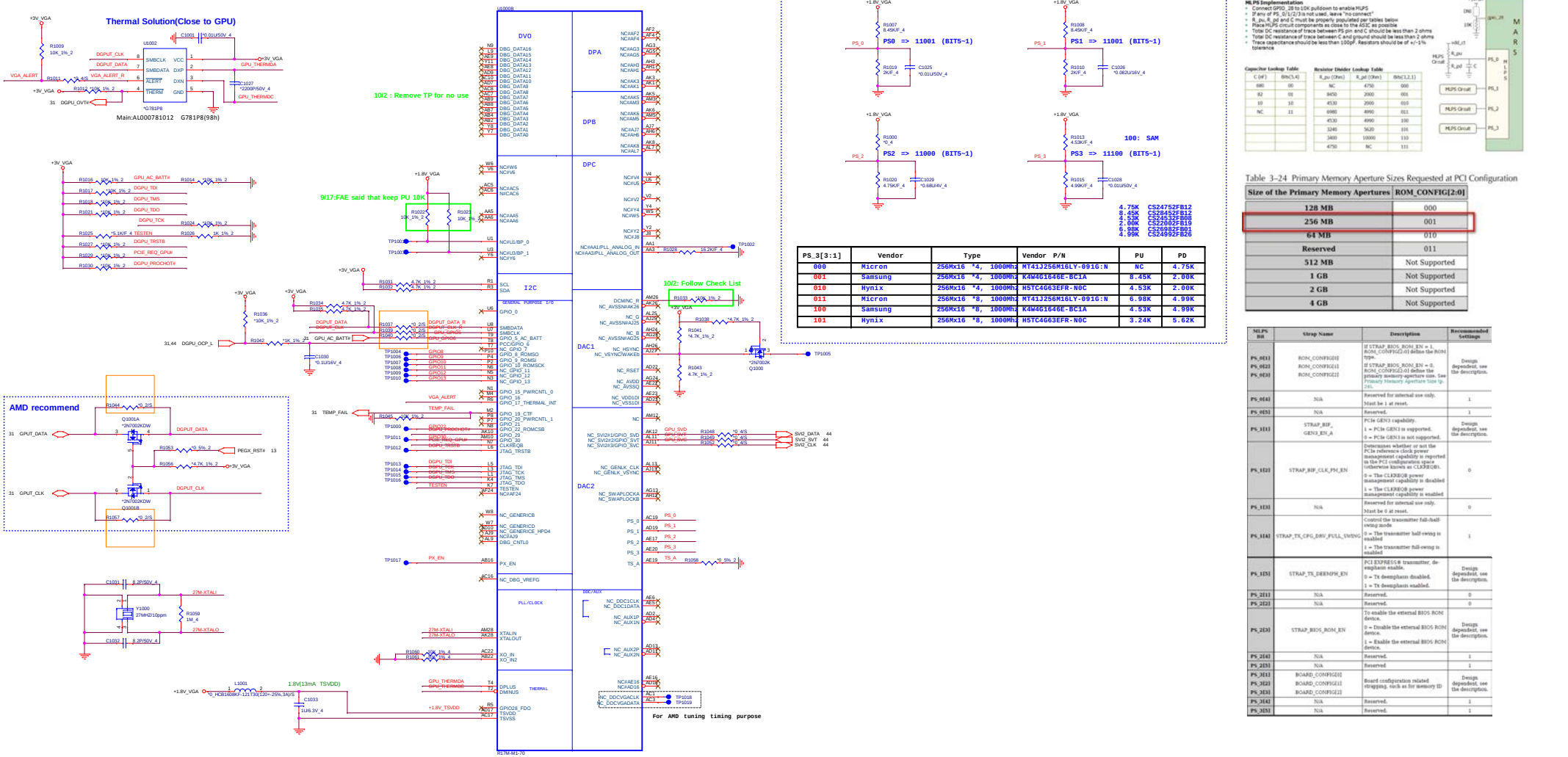

PS_3[3:1]	Vendor	Type	Vendor P/N	PU	PD
000	Micron	256Mx16 *4, 1000Mhz	MT41J256M16LY-091G:N	NC	4.75K
001	Samsung	256Mx16 *4, 1000Mhz	K4W4G1646E-BC1A	8.45K	2.00K
010	Hynix	256Mx16 *4, 1000Mhz	H5TC4G63EFR-N0C	4.53K	2.00K
011	Micron	256Mx16 *8, 1000Mhz	MT41J256M16LY-091G:N	6.98K	4.99K
100	Samsung	256Mx16 *8, 1000Mhz	K4W4G1646E-BC1A	4.53K	4.99K
101	Hynix	256Mx16 *8, 1000Mhz	H5TC4G63EFR-N0C	3.24K	5.62K

MLPS Implementation
- Connect GPIO_28 to 10K pulldown to enable MLPS
- If any of PS_0/1/2/3 is not used, leave "no connect"
- R_pu, R_pd and C must be properly populated per tables below
- Place MLPS circuit components as close to the ASIC as possible
- Total DC resistance of trace between PS pin and C should be less than 2 ohms
- Total DC resistance of trace between C and ground should be less than 2 ohms
- Trace capacitance should be less than 100pF. Resistors should be of +/-1% tolerance

Capacitor Lookup Table

C (nF)	Bits(3,4)
680	00
82	01
10	10
NC	11

Resistor Divider Lookup Table

R_pu (Ohm)	R_pd (Ohm)	Bits(12,11)
NC	4750	000
8450	2000	001
4530	2000	010
6980	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111

Table 3–24 Primary Memory Aperture Sizes Requested at PCI Configuration

Size of the Primary Memory Apertures	ROM_CONFIG[2:0]
128 MB	000
256 MB	001
64 MB	010
Reserved	011
512 MB	Not Supported
1 GB	Not Supported
2 GB	Not Supported
4 GB	Not Supported

MLPS Bit	Strap Name	Description	Recommended Settings
PS_0[1] / PS_0[2] / PS_0[3]	ROM_CONFIG[0] / ROM_CONFIG[1] / ROM_CONFIG[2]	If STRAP_BIOS_ROM_EN = 1, ROM_CONFIG[2:0] define the ROM type. If STRAP_BIOS_ROM_EN = 0, ROM_CONFIG[2:0] define the primary memory-aperture size. See Primary Memory Aperture Size tp. 281.	Design dependent, see the description.
PS_0[4]	N/A	Reserved for internal use only. Must be 1 at reset.	1
PS_0[5]	N/A	Reserved.	1
PS_1[1]	STRAP_BIF_GEN3_EN_A	PCIe GEN3 capability. 1 = PCIe GEN3 is supported. 0 = PCIe GEN3 is not supported.	Design dependent, see the description.
PS_1[2]	STRAP_BIF_CLK_PM_EN	Determines whether or not the PCIe reference clock power management capability is reported in the PCI configuration space (otherwise known as CLKREQB). 0 = The CLKREQB power management capability is disabled 1 = The CLKREQB power management capability is enabled	0
PS_1[3]	N/A	Reserved for internal use only. Must be 0 at reset.	0
PS_1[4]	STRAP_TX_CPG_DRV_FULL_SWING	Control the transmitter full-/half-swing mode 0 = The transmitter half-swing is enabled 1 = The transmitter full-swing is enabled	1
PS_1[5]	STRAP_TX_DEEMPH_EN	PCI EXPRESS® transmitter. de-emphasis enable. 0 = Tx deemphasis disabled. 1 = Tx deemphasis enabled.	Design dependent, see the description.
PS_2[1]	N/A	Reserved.	0
PS_2[2]	N/A	Reserved.	0
PS_2[3]	STRAP_BIOS_ROM_EN	To enable the external BIOS ROM device. 0 = Disable the external BIOS ROM device. 1 = Enable the external BIOS ROM device.	Design dependent, see the description.
PS_2[4]	N/A	Reserved.	1
PS_2[5]	N/A	Reserved.	1
PS_3[1] / PS_3[2] / PS_3[3]	BOARD_CONFIG[0] / BOARD_CONFIG[1] / BOARD_CONFIG[2]	Board configuration related strapping, such as for memory ID	Design dependent, see the description.
PS_3[4]	N/A	Reserved.	1
PS_3[5]	N/A	Reserved.	1

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	Quanta Computer Inc.		
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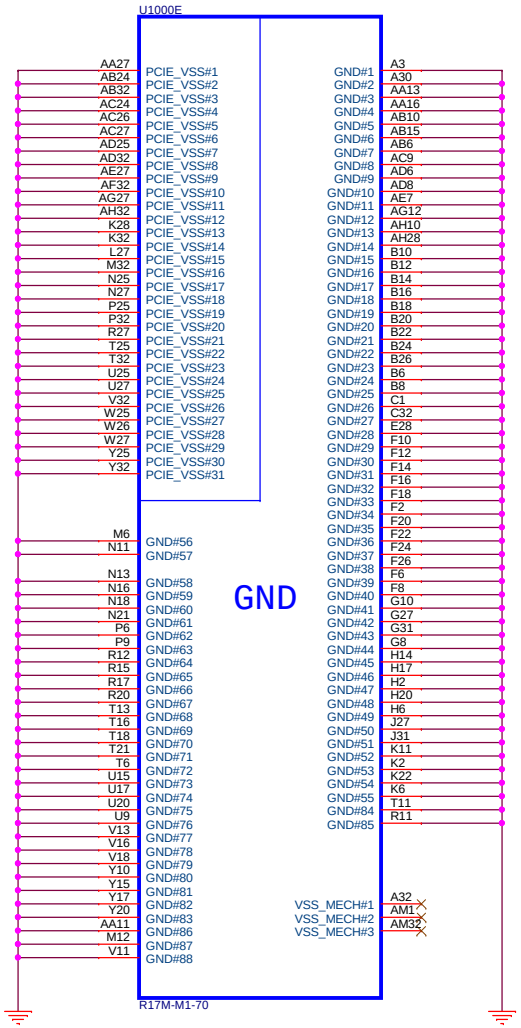


CONFIGURATION STRAPS-- SEE EACH DATABOOK FOR STRAP DETAILS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

RECOMMENDED SETTINGS
0= DO NOT INSTALL RESISTOR
1 = INSTALL 3K RESISTOR
X = DESIGN DEPENDANT
NA = NOT APPLICABLE

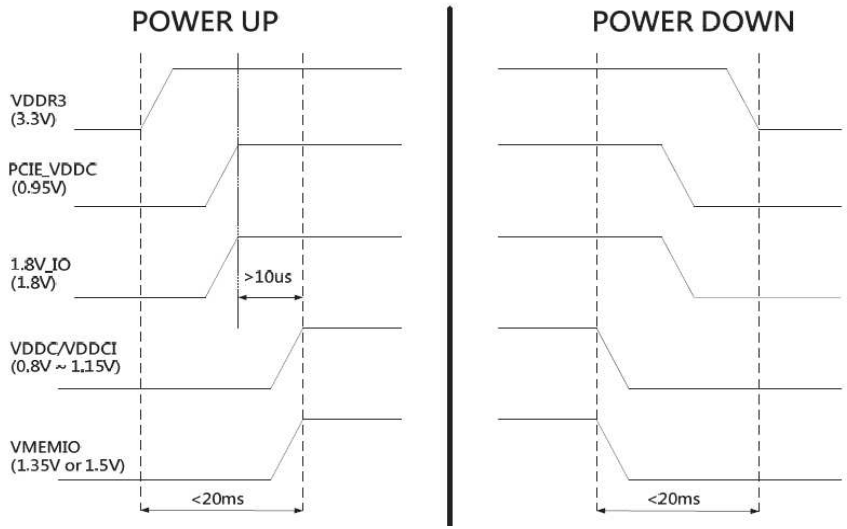
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	0
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	X
RSVD	GPIO2	RESERVED	0
RSVD	GPIO8	RESERVED	0
BIF_VGA_DIS	GPIO9	VGA ENABLED	0
RSVD	GPIO21	RESERVED	0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	0
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	0 0 1
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS (Removed on Seymour/Whistler)	0
RSVD	H2SYNC	RESERVED	0
AUD[1]	HSYNC	SEE DATABOOK FOR DETAIL	0
AUD[0]	VSYNC	SEE DATABOOK FOR DETAIL	0
RSVD	GENERICC	RESERVED	0

NOTE1: AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS BUT DO NOT INSTALL RESISTOR. IF THESE GPIOS ARE USED, THEY MUST KEEP "LOW" AND NOT CONFLICT DURING RESET.

GPIO21 H2SYNC GENERICC GPIO8 GPIO2

POWER UP / POWER DOWN SEQUENCE



NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
	Size: Document Number: M1-70_S3_GND/LVDS/Strap	Rev: 1A
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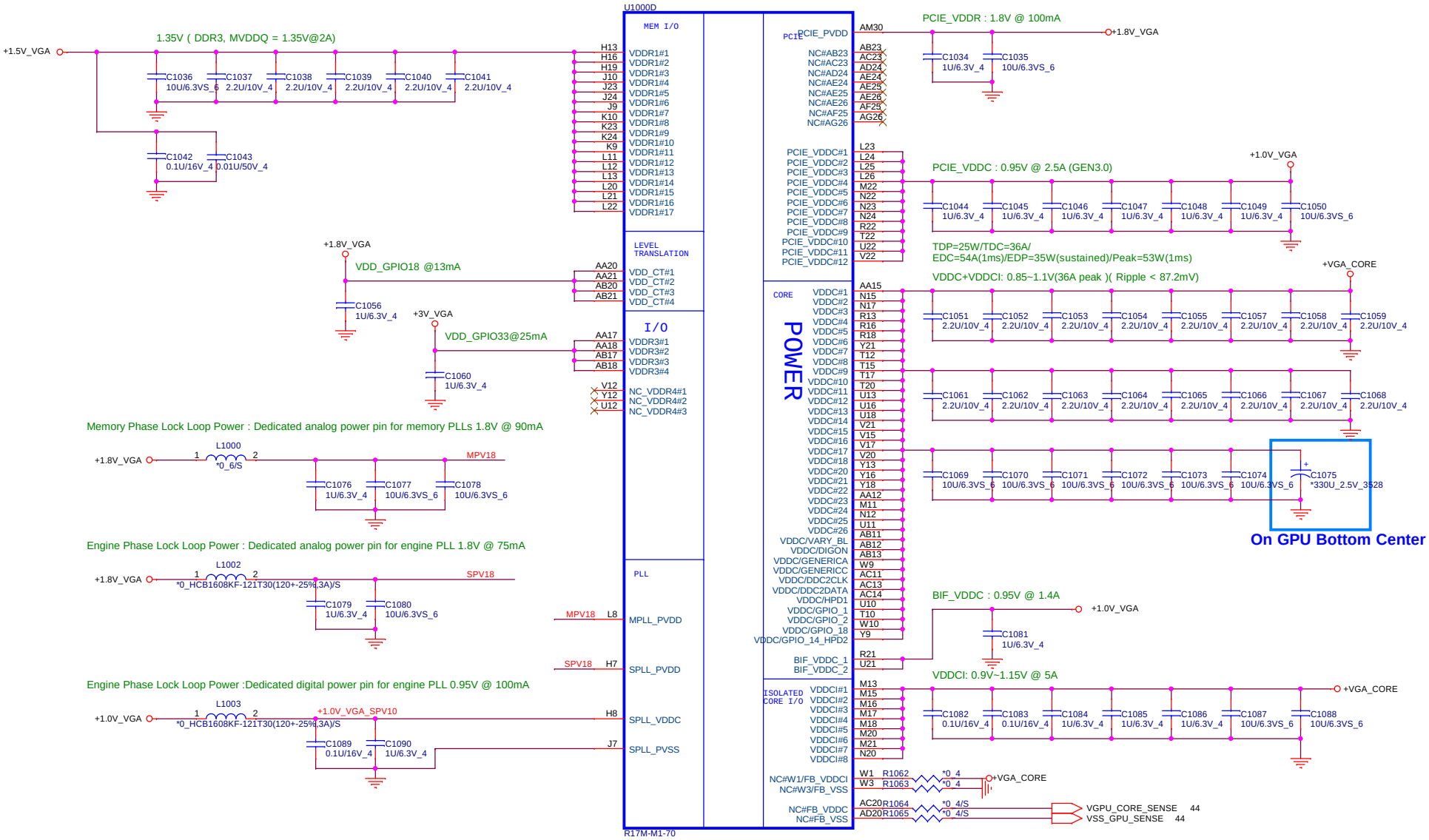
13,14,43,44,47 +3V_VGA
13,14,43,44,47 +1.8V_VGA
17,18,19,43,46 +1.5V_VGA
13,43,47 +1.0V_VGA
43,44,45 +VGA_CORE



NB5	PROJECT:NFLP-G94A	
	Quanta Computer Inc.	
Size	Document Number: M1-70_S3_POWER	Rev 1A
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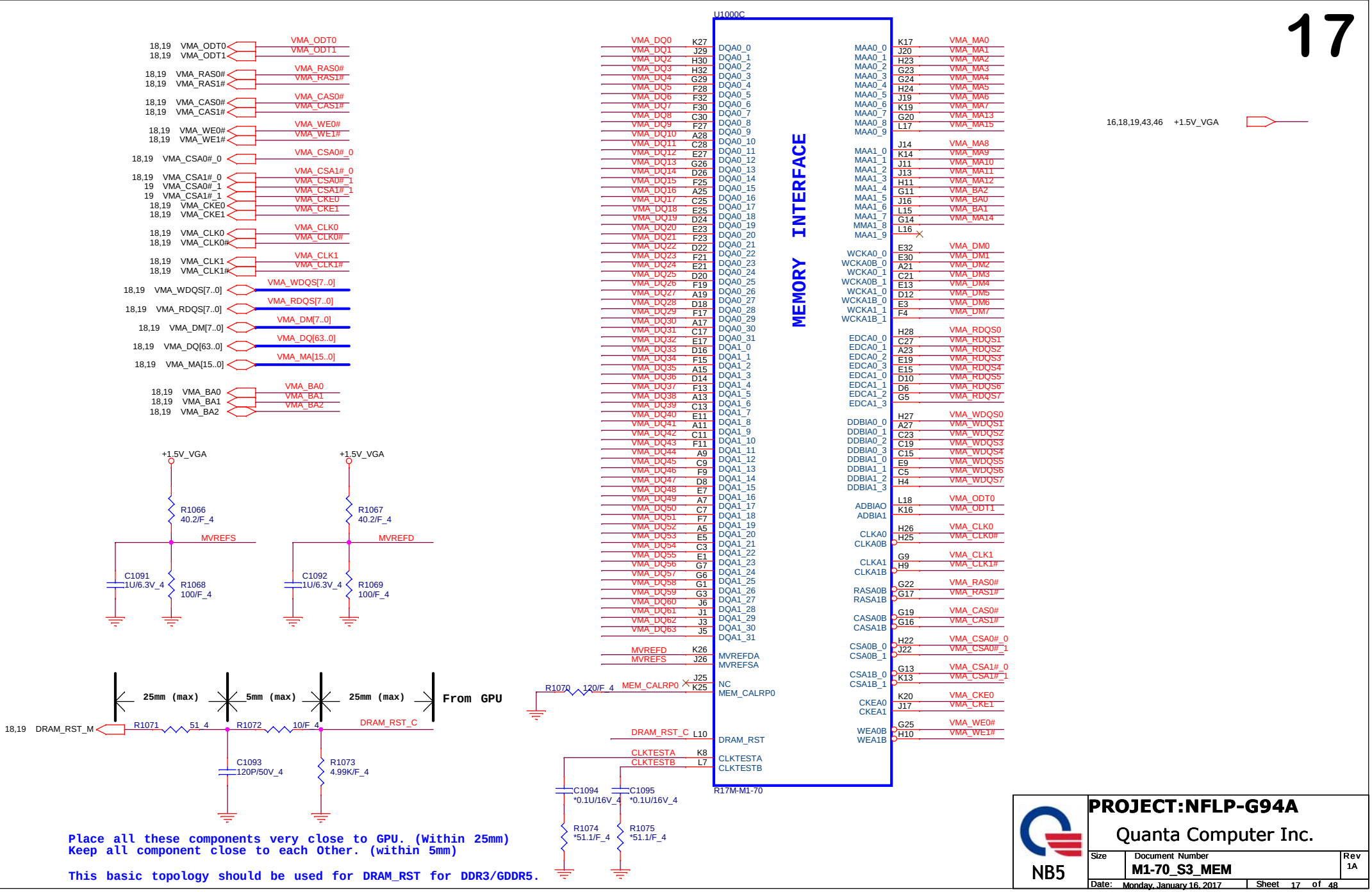

NB5

PROJECT:NFLP-G94A

Quanta Computer Inc.

Size	Document Number	Rev
	M1-70_S3_MEM	1A

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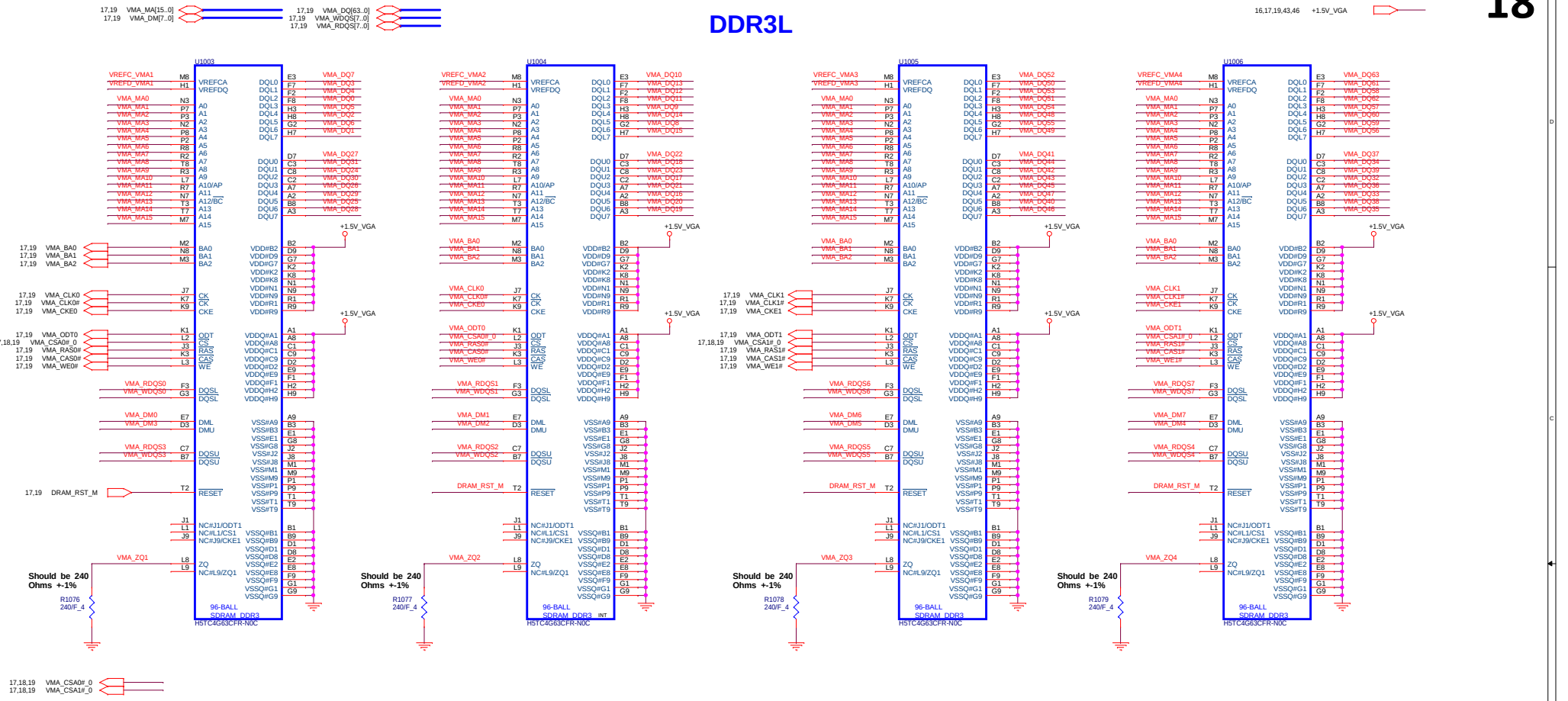
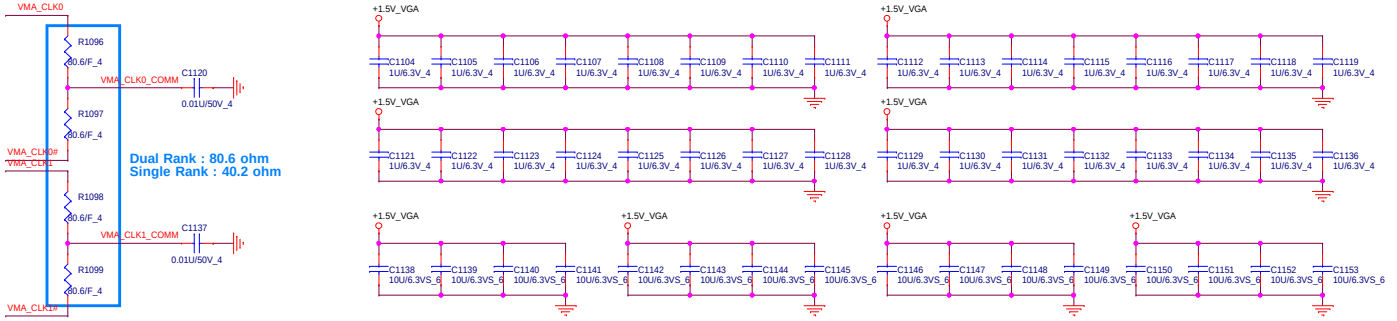
DDR3L





	QBCON PN	TOP BSQ
Micron 4G (SDP)	AKD5QGSTL09	AKD5QGSTL05
Hynix 4G (DDP)	AKD5QFDTW01	AKD5QFDTW00
Hynix 2G	AKD5PZDTW02	AKD5PZDTW01
Micron 2G	AKD59GSTL00	AKD59GSTL01
SAMSUNG 2G	AKD5PGDT501	AKD5PGDT500

NB5

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Quanta Computer Inc.

Size	Document Number	Rev
C	M1-70_S3_VRAM_DDR3L BGA96	1A

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DDR3L

17,18 VMA_MA[15..0]
17,18 VMA_DM[7..0]
17,18 VMA_DQ[63..0]
17,18 VMA_WDQS[7..0]
17,18 VMA_RDQS[7..0]

16,17,18,43,46 +1.5V_VGA

U1008 / U1009 / U1010 / U1007

96-BALL SDRAM_DDR3 H5TC4G63CFR-N0C

Should be 240 Ohms +-1%

R1129 240/F_4
R1114 240/F_4
R1108 240/F_4
R1132 240/F_4

17,18 VMA_CSA0#_0
17,18 VMA_CSA1#_0

R1116 4.99K/F_4 VREFC_VMA5
R1113 4.99K/F_4 VREFD_VMA5
R1133 4.99K/F_4 VREFC_VMA6
R1119 4.99K/F_4 VREFD_VMA6
R1124 4.99K/F_4 VREFC_VMA7
R1112 4.99K/F_4 VREFD_VMA7
R1117 4.99K/F_4 VREFC_VMA8
R1111 4.99K/F_4 VREFD_VMA8

R1134 4.99K/F_4 C1158 0.1U/16V_4
R1130 4.99K/F_4 C1204 0.1U/16V_4
R1115 4.99K/F_4 C1163 0.1U/16V_4
R1110 4.99K/F_4 C1183 0.1U/16V_4
R1135 4.99K/F_4 C1181 0.1U/16V_4
R1126 4.99K/F_4 C1190 0.1U/16V_4
R1107 4.99K/F_4 C1173 0.1U/16V_4
R1118 4.99K/F_4 C1189 0.1U/16V_4

VMA_CLK0
R1123 80.6/F_4
VMA_CLK0_COMM_2 C1168 0.01U/50V_4
R1120 80.6/F_4
VMA_CLK0#
VMA_CLK1
R1109 80.6/F_4
VMA_CLK1_COMM_2 C1179 0.01U/50V_4
R1121 80.6/F_4
VMA_CLK1#

Dual Rank : 80.6 ohm
Single Rank : 40.2 ohm

+1.5V_VGA decoupling: C1205 C1156 C1180 C1196 C1184 C1187 C1155 C1198 C1206 C1210 C1182 C1162 C1170 C1159 C1209 C1186 C1194 C1172 C1203 C1176 C1177 C1160 C1171 C1197 C1191 C1175 C1200 C1178 C1202 C1164 C1211 C1188 C1169 C1195 C1185 C1193 C1174 C1167 C1166 C1207 C1157 C1192 C1199 C1201 C1161 C1154 C1165 C1208 — 1U/6.3V_4 / 10U/6.3VS_6

+1.5V_VGA
R1220 100/F_4 VMA_MA0 100/F_4 R1228
R1239 100/F_4 VMA_MA1 100/F_4 R1227
R1254 100/F_4 VMA_MA2 100/F_4 R1255
R1229 100/F_4 VMA_MA3 100/F_4 R1244
R1271 100/F_4 VMA_MA4 100/F_4 R1280
R1259 100/F_4 VMA_MA5 100/F_4 R1248
R1264 100/F_4 VMA_MA6 100/F_4 R1263
R1233 100/F_4 VMA_MA7 100/F_4 R1232
R1272 100/F_4 VMA_MA8 100/F_4 R1262
R1260 100/F_4 VMA_MA9 100/F_4 R1249
R1209 100/F_4 VMA_MA10 100/F_4 R1221
R1252 100/F_4 VMA_MA11 100/F_4 R1253
R1234 100/F_4 VMA_MA12 100/F_4 R1235
R1217 100/F_4 VMA_MA13 100/F_4 R1231
R1284 100/F_4 VMA_MA14 100/F_4 R1276
R1546 100/F_4 VMA_MA15 100/F_4 R1549
R1216 100/F_4 VMA_BA0 100/F_4 R1215
R1236 100/F_4 VMA_BA1 100/F_4 R1237
R1213 100/F_4 VMA_BA2 100/F_4 R1212
R1550 100/F_4 VMA_CKE0 100/F_4 R1547
R1178 100/F_4 VMA_CKE1 100/F_4 R1179
R1238 100/F_4 VMA_ODT0 100/F_4 R1224
R1524 100/F_4 VMA_ODT1 100/F_4 R1522
R1207 100/F_4 VMA_RAS0# 100/F_4 R1205
R1181 100/F_4 VMA_RAS1# 100/F_4 R1180
R1218 100/F_4 VMA_CAS0# 100/F_4 R1208
R1521 100/F_4 VMA_CAS1# 100/F_4 R1520
R1241 100/F_4 VMA_WE0# 100/F_4 R1230
R1177 100/F_4 VMA_WE1# 100/F_4 R1176
R1247 100/F_4 VMA_CSA0#_0 100/F_4 R1257
R1557 100/F_4 VMA_CSA0#_1 100/F_4 R1559
R1194 100/F_4 VMA_CSA1#_0 100/F_4 R1193
R1191 100/F_4 VMA_CSA1#_1 100/F_4 R1192

9/4: Dual Rank/Single Rank co-lay : Stuff
Single Rank only : Non Stuff

	QBCON PN	TOP BSQ
Micron 4G (SDP)	AKD5QGSTL09	AKD5QGSTL05
Hynix 4G (DDP)	AKD5QFDTW01	AKD5QFDTW00
Hynix 2G	AKD5PZDTW02	AKD5PZDTW01
Micron 2G	AKD59GSTL00	AKD59GSTL01
SAMSUNG 2G	AKD5PGDT501	AKD5PGDT500

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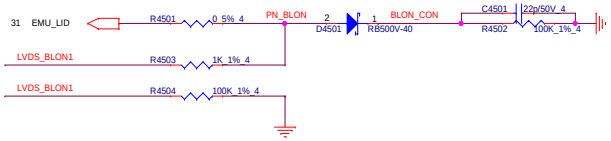
30,32,33,34,35,37,38,39,40,41,44,45,46 +VIN
21,22,26,30,43 +5V

4,5,6,7,10,11,21,22,24,26,27,28,29,30,31,38,40,43 +3VLCD_CON
+3V

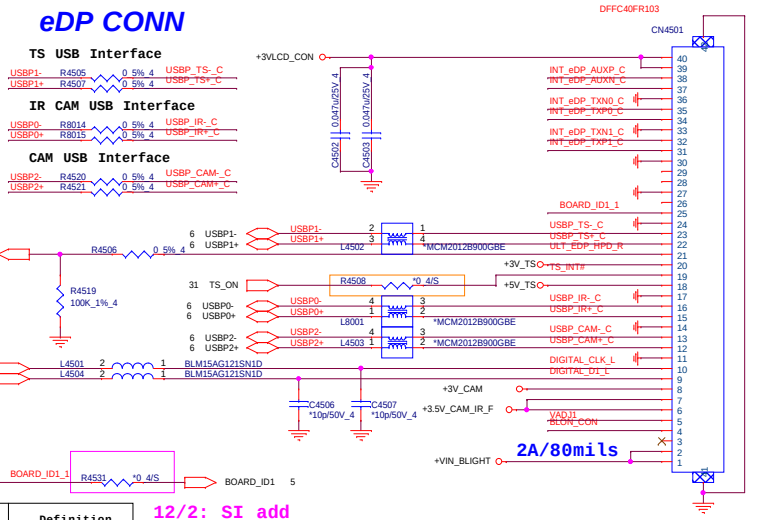
FP is ok, PN wait confirm

GS12401-1011-9H
51519-0400T-V02-40P-L

LID Switch

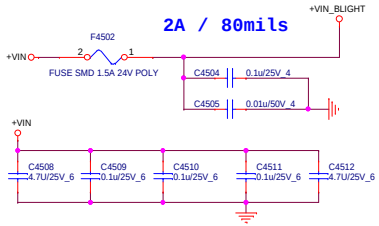


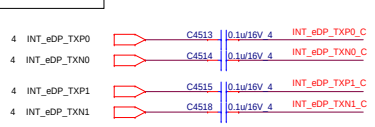
eDP CONN

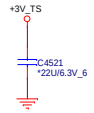


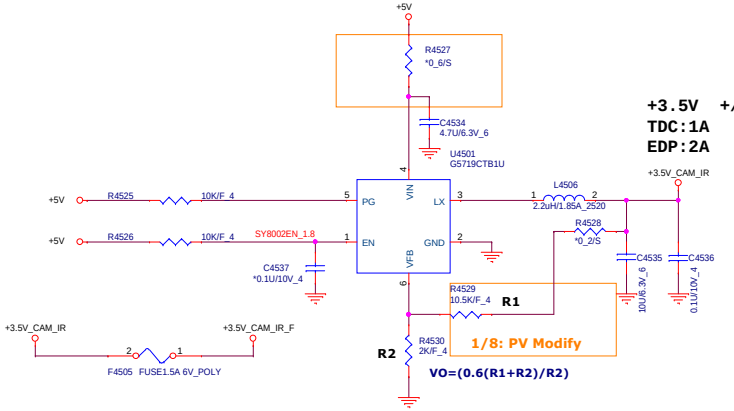
TP_ID	Definition
0	14" 17"
1	15"

12/2: SI add

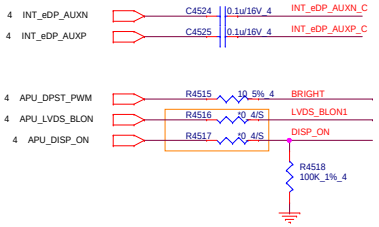


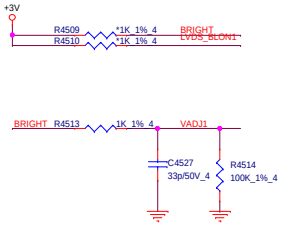




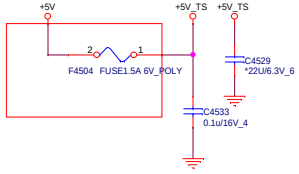


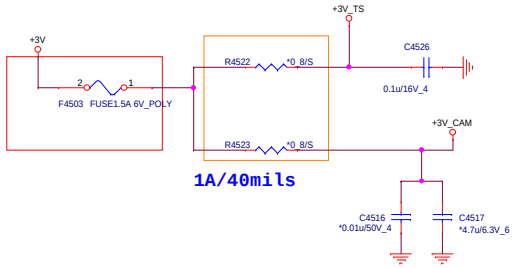
+3.5V +/- 5%
TDC:1A
EDP:2A

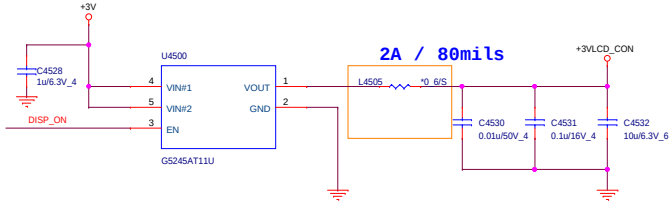




Touch screen



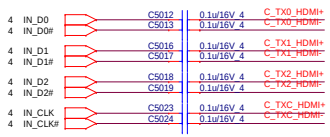




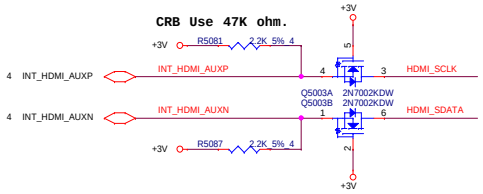
Need change DK150TPU018

NB5	PROJECT:NFLP-G94A	
	Quanta Computer Inc.	
Size C	Document Number EDP CONN/CAM/TS	Rev 1A
Date: Tuesday, January 17, 2017	Sheet 20 of 48	

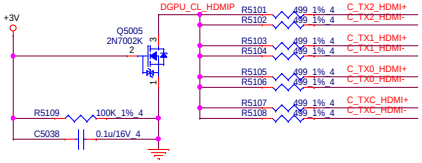
HDMI CONN

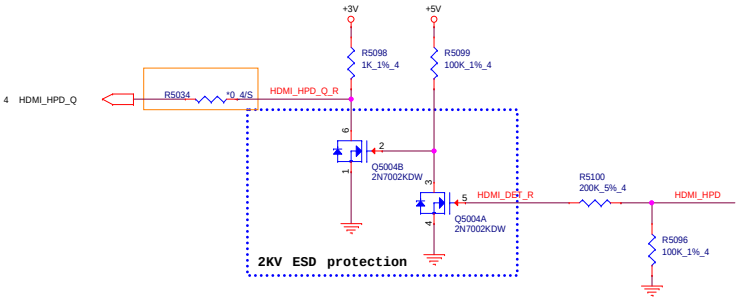


HDMI SMBus isolat i on

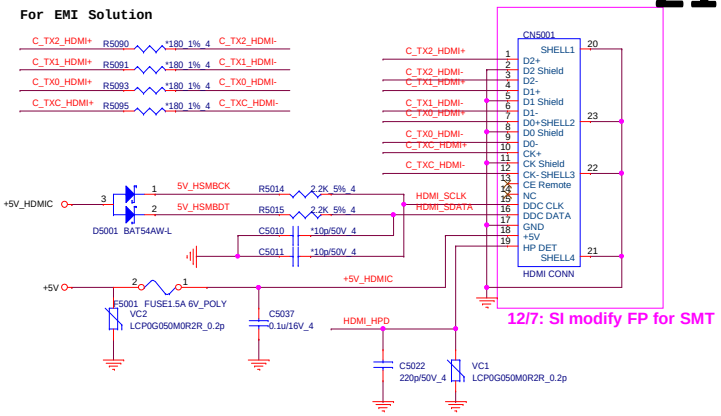


Close to HDMI connector



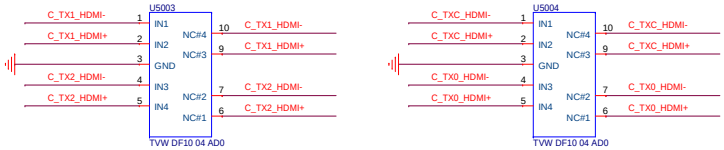


For EMI Solution



12/7: SI modify FP for SMT

For ESD Solution



NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
Size C	Document Number HDMI Re-timer PS8209A	Rev 1A
Date: Tuesday, January 17, 2017	Sheet 21 of 48	

Audio ALC3258-CG

22

20,21,26,30,43 +5V
4,5,6,7,10,11,20,21,24,26,27,28,29,30,31,38,40,43 +3V
4,5,25,28,38,40,43 +1.8V

30mA
+3V → L2001 1 — 2 0_HCB1005KF-181T15_4 → +3V_DVDD
C2001 1u/6.3V_4
C2012 10U/6.3VS_6
C2013 0.1u/16V_4
Close to PIN3

10mA
+1.8V → L2004 1 — 2 0_HCB1005KF-181T15_4 → +1.8V_DVDD-IO
C2017 10U/6.3VS_6
C2018 0.1u/16V_4
Close to PIN18

1000mA
+5V → L2006 1 — 2 0_HCB1005KF-181T15_4 → +5V_DVDD
C2021 10U/6.3VS_6
C2022 0.1u/16V_4
Close to PIN41

C2028 10U/6.3VS_6
C2029 0.1u/16V_4
Close to PIN46

30mA
+5V_AVDD → L2003 1 — 2 0_HCB1005KF-181T15_4 → +5V
C2014 10U/6.3VS_6
C2015 0.1u/16V_4
C2016 *AZ2015-01H
Close to PIN40
AGND

250mA
+1.8V_AVDD → L2005 1 — 2 0_HCB1005KF-181T15_4 → +1.8V
C2019 10U/6.3VS_6
C2020 0.1u/16V_4
Close to PIN20
AGND

U2001 ALC3258-CG x QFN48

Digital

3, 18	+3V_DVDD, +1.8V_DVDD-IO	DVDD, DVDD-IO
41, 46	+5V_DVDD	PVDD1, PVDD2
4	DMIC0	GPIO0/DMIC-DATA12
5	DMIC_CLK_R	GPIO1/DMIC-CLK
14	HD_BCLK / ACZ_SYNC_AUDIO	BCLK
15	ACZ_SYNC_AUDIO	SYNC
16	HD_SDIN0 / ACZ_SDIN0	SDATA-IN
17	ACZ_SDOUT_AUDIO	SDATA-OUT
19	LDO3_CAP	LDO3-CAP
1	HP_EAPD	I2S-EN/SPDIFO/GPIO2
2	PD#	PDB
6	I2C_DATA	I2C_DATA
7	I2C_CLK	I2C_CLK
8	I2S_IN	I2S_IN
9	I2S_OUT	I2S_OUT
10	I2S_BCLK	I2S_BCLK
11	I2S_MCLK	I2S_MCLK
12	I2S_LRCK	I2S_LRCK
13	DC-DET/EAPD	DC-DET/EAPD
47	I2S-IN/I2S-OUT-JD(JD2)	I2S-IN/I2S-OUT-JD(JD2)
48	SENSE_A_R	HP/LINE1-JD(JD1)
42	L_SPK+	SPK-OUT-L+
43	L_SPK-	SPK-OUT-L-
44	R_SPK-	SPK-OUT-R-
45	R_SPK+	SPK-OUT-R+
49		Thermal Pad

Analog

40	+5V_AVDD	AVDD1
20	+1.8V_AVDD	CPVDD/AVDD2
22, 37	AGND	AVSS2, AVSS1
39, 21	AGND	LDO1-CAP, LDO2-CAP
38	AGND	VREF
23	CAP+	CBP
24	CAP-	CBN
25, 32	AGND, AGND	CPVEE, MIC2-CAP
36		LINE1-L(PORT-C-L)
35		LINE1-R(PORT-C-R)
34	AMP_BEEP	PCBEEP
33	5VSTB	5VSTB/AUX MODE
31	EXT_MIC_L	MIC2-R/SLEEVE
30	AGND	MIC2-L/RING2
29	MUTE_LED_CNTL_L	MIC2-VREFO-R
28	VREFOUT_C	MIC2-VREFO-L
27	HPOUT_L 23	HPOUT-L(PORT-I-L)
26	HPOUT_R 23	HPOUT-R(PORT-I-R)

AGND SHIELD

Close to PIN19

DIGITAL_D1 → C2023 10p/50V_4 → R2001 0_5%_4 → DMIC0
DIGITAL_CLK → R2016 22_1%_4 → DMIC_CLK_R
C2030 10p/50V_4
BIT_CLK_AUDIO → R2017 0_5%_4 → HD_BCLK / ACZ_SYNC_AUDIO
ACZ_SYNC_AUDIO → R2018 33_5%_4 → HD_SDIN0 / ACZ_SDOUT_AUDIO
ACZ_SDIN0
ACZ_SDOUT_AUDIO
C2034 10U/6.3VS_6 → LDO3_CAP

Close to PIN38
C2026 0.1u/16V_4
C2027 2.2u/10V_4
R2015 100K_1%_4
C2024 10U/6.3VS_6
C2025 10U/6.3VS_6
C2031 2.2u/10V_4
C2032 2.2u/10V_4
C2033 10U/6.3VS_6

Reserve for codec debug
MUTE_LED_CNTL_L → R2019 *2.2K_5%_4 → EXT_MIC_L
VREFOUT_C → R2020 *0_5%_4 → MUTE_LED_CNTL

Close to Speaker Speaker 4 ohm: 40mils

CN2001
6 SPK_ID
L_SPK+ → L2007 1 — 2 PBY160808T-600Y-N → L_SPK+_R
L_SPK- → L2008 1 — 2 PBY160808T-600Y-N → L_SPK-_R
R_SPK- → L2009 1 — 2 PBY160808T-600Y-N → R_SPK-_R
R_SPK+ → L2010 1 — 2 PBY160808T-600Y-N → R_SPK+_R
C2035 1000p/50V_4
C2036 1000p/50V_4
C2037 1000p/50V_4
C2038 1000p/50V_4
SPEAKER CONN

SPK_ID for Smart amp feature

Speaker 4 ohm: 40mils

TP2001
+3V_DVDD → R2023 *100K_1%_4
23 SENSE_A → R2025 *0_4/S → SENSE_A_R
L_SPK+ / L_SPK- / R_SPK- / R_SPK+

AMP_BEEP → R2021 *0_4/S → +5VS5
5VSTB → R2022 *0_5%_4 → +5VPCU
EXT_MIC_L → AGND
MUTE_LED_CNTL_L → R2026 *0_4/S → MUTE_LED_CNTL → MUTE_LED_CNTL 30
VREFOUT_C → R2024 2.2K_5%_4 / C2039 *1u/6.3V_4 → EXT_MIC_L → EXT_MIC_L 23
AGND
HPOUT_L 23
HPOUT_R 23

EMI solution
EC2001 *1000p/50V_4
EC2002 *1000p/50V_4
EC2003 *1000p/50V_4
EC2004 *1000p/50V_4
AGND

+3V_DVDD
31 VOLMUTE# → D2001 1 — 2 RB500V-40
R2027 100K_1%_4
PD#
5 ACZ_RST#_AUDIO → R2031 *0_4/S → Q2002 METR3904-G
C2042 0.1u/16V_4
R2032 10K_1%_4 → +1.8V_DVDD-IO
Need to match to DVDD-IO
No Stuff: If HP need beep sound when RST# at low state

+5V_AVDD
R2028 10K_1%_4
AMP_BEEP → C2040 0.1u/16V_4 → AMP_BEEP_L → R2029 1K_5%_4 → AMP_BEEP_R2 → C2041 0.1u/16V_4 → AMP_BEEP_R
C2043 100p/50V_4
R2030 1K_5%_4
AGND
Q2001 2N7002K
ACZ_SPKR 5
AGND

place under codec
R2033 *0_8_S
AGND

PROJECT:NFLP-G94A
Quanta Computer Inc.
NB5
Size: Custom
Document Number: Audio ALC3258-CG
Rev: 1A
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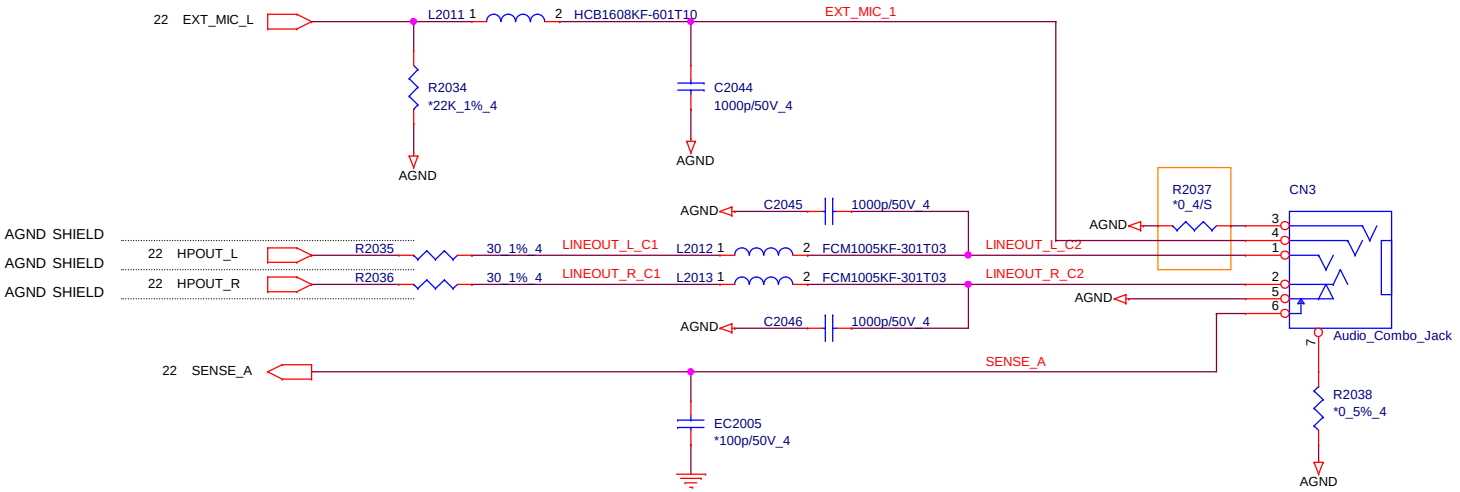
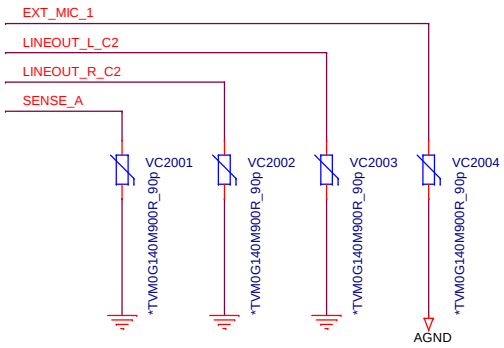
Audio Jack



Audio JACK ESD



NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
	Size: B Document Number: Audio Jack	Rev: 1A
	Date: Monday, January 16, 2017	Sheet 23 of 48

LAN RTL8166EH/RTL8111HSH

4,5,6,7,10,11,20,21,22,26,27,28,29,30,31,38,40,43 — 43 +3VLANVCC +3V

For SWR mode support RTL8111HSH
Stuff: La, Ca ,Cb

For LDO mode support RTL8166EH
NA : La, Ca, Cb

Power trace Layout 寬 > 6 0mil

* Place Cc,Cd,Ce,Cf for RTL8111H(S) close to each VDD10 pin-- 3, 22, 8 , 30
* Place Cg,Ch for RTL8111H(S) close to each VDD10 pin-- 22(reserved)
* Place Cq,Cr for RTL8166EH close to each VDD10 pin-- 30(reserved)
* Place Ce,Cd for RTL8166EH close to each VDD10 pin-- 8 , 30

if ISOLATEB pin pull-low, the LAN chip will not drive it's PCI-E outputs (excluding PCIE_WAKE# pin)

For GbE
* Place Ra
For 10/100
* Place Rb

Add 9 GND VIAs with thermal PAD

For GbE
* Place RTL8111HSH-CG
For 10/100
* Place RTL8166EH-CG

* Place Ci and Ck, close to each VDD33 pin-- 23, 32 for RTL8166EH
* Place Cj and Ck, close to each VDD33 pin-- 11, 32 for RTL8111H(S)
* For surge improvement, place Cm and Cn, close to each VDD33 pin-- 11, 32(optional)

For SWR mode support RTL8111HSH
Stuff Co, Cp

For 10/100 :Ua

1st source :NS681684 DB0LE6LAN20
2nd source :NS0013B LF DB0LE6LAN00

For Giga :Ub

For GiGA
BOT:GST5009B LF,DB0Z06LAN00
FCE :NS892407 ,DB0LL1LAN00

For 10/100 :Ra Rb
For Giga :Ra Rb Rc, Rd

For 10/100 stuff only & Close RJ45

RJ45

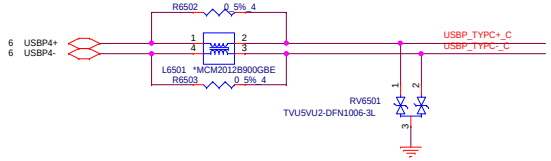
PN change, FP the same

12/2: SI modify For 25 pin conntect GND:

PROJECT:NFLP-G94A	
Quanta Computer Inc.	
Size C	Document Number LAN RTL8166EH/RTL8111HSH
Rev 1A	
Date: Monday, January 16, 2017	Sheet 24 of 48
NB5	

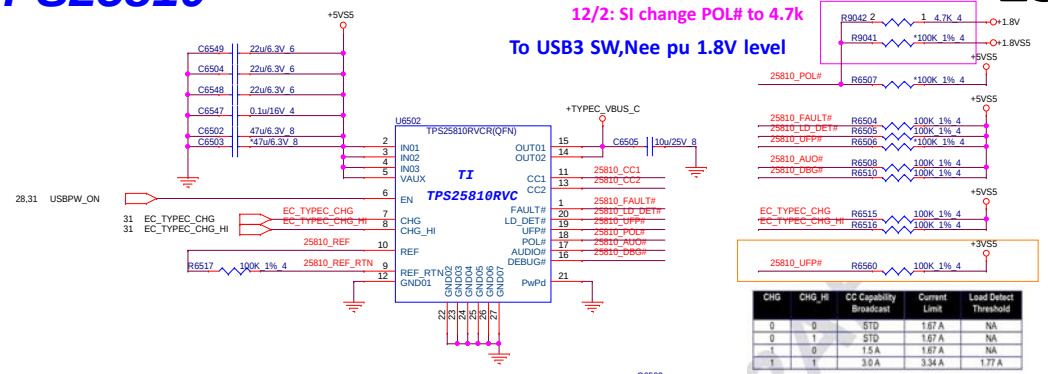
USB3 SW - PI2EQX632 + USB TYPE-C - TPS25810

USB2.0

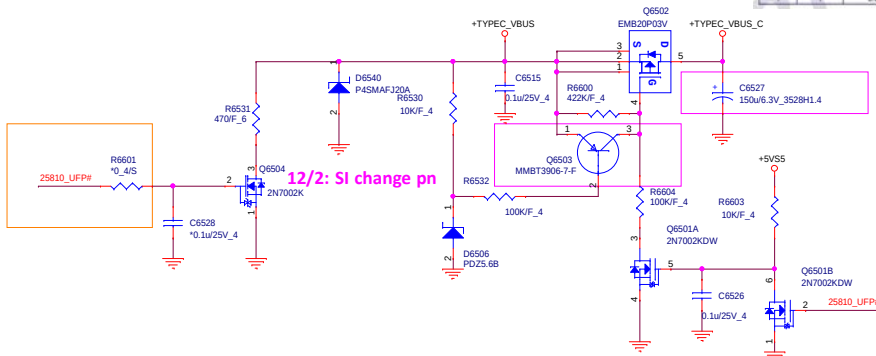


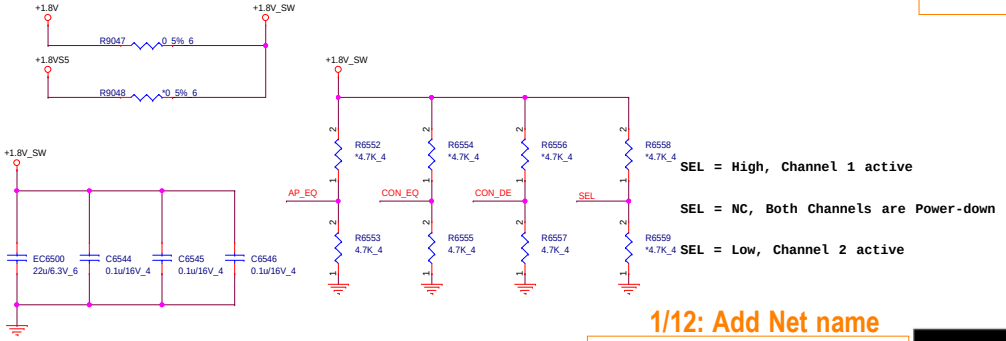
12/2: SI change POL# to 4.7k

To USB3 SW,Nee pu 1.8V level



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





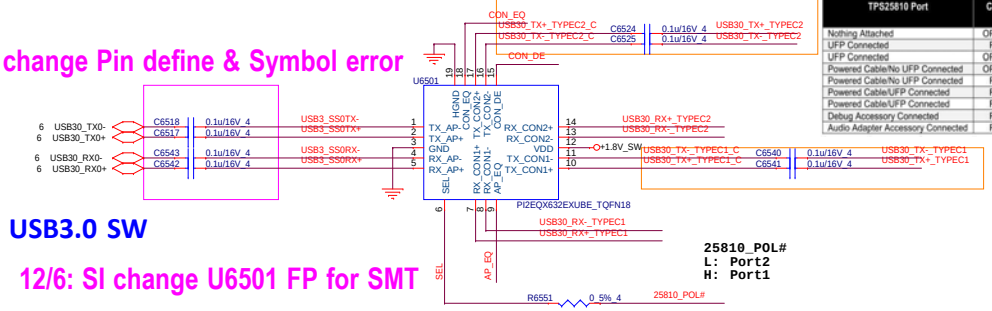
SEL = High, Channel 1 active

SEL = NC, Both Channels are Power-down

SEL = Low, Channel 2 active

1/12: Add Net name

11/27: SI change Pin define & Symbol error



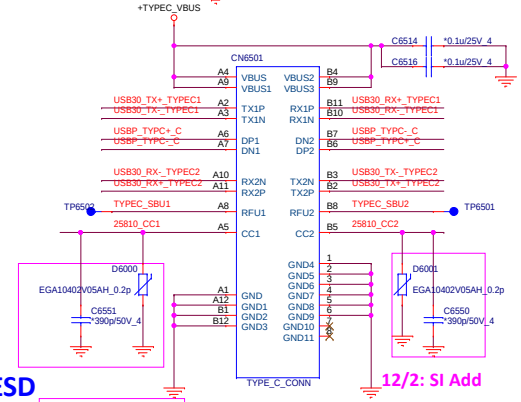
TPS25810 Port	CC1	CC2	TPS25810 Response OUT	VCONN On CC1 or CC2	POLb	UFPb	AUDIOb	DEBUGb
Nothing Attached	OPEN	OPEN	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z
UFP Connected	Rd	OPEN	IN1	NO	Hi-Z	LOW	Hi-Z	Hi-Z
UFP Connected	OPEN	Rd	IN1	NO	LOW	LOW	Hi-Z	Hi-Z
Powered Cable/No UFP Connected	OPEN	Ra	OPEN	NO	Hi-Z	Hi-Z	Hi-Z	Hi-Z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

25810_POL#
L: Port2
H: Port1

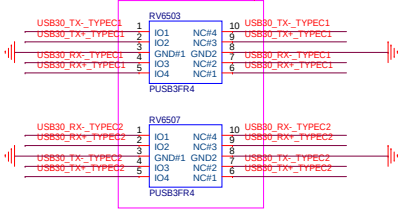
USB3.0 SW

12/6: SI change U6501 FP for SMT

TYPE C USB3.0 ESD

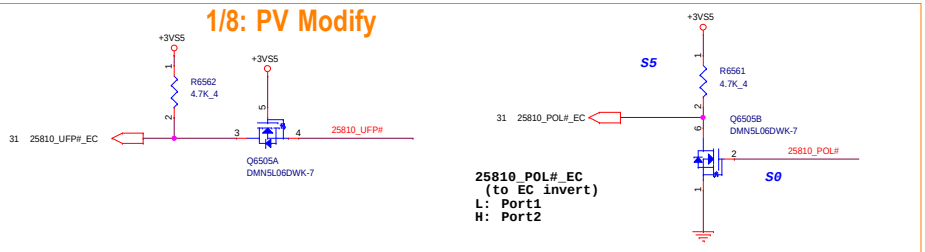


12/2: SI Add



12/6: SI Modify FP/PN

1/8: PV Modify



25810_POL#_EC
(to EC invert)
L: Port1
H: Port2

PROJECT: NFLP-G94A		
Quanta Computer Inc.		
NB5	Size	Document Number: USB SW/TYPE-C TPS25810 — Rev 1A
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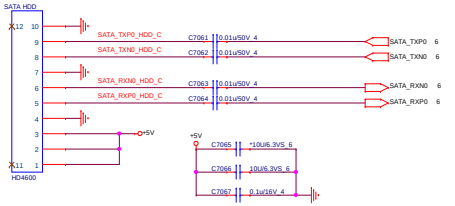
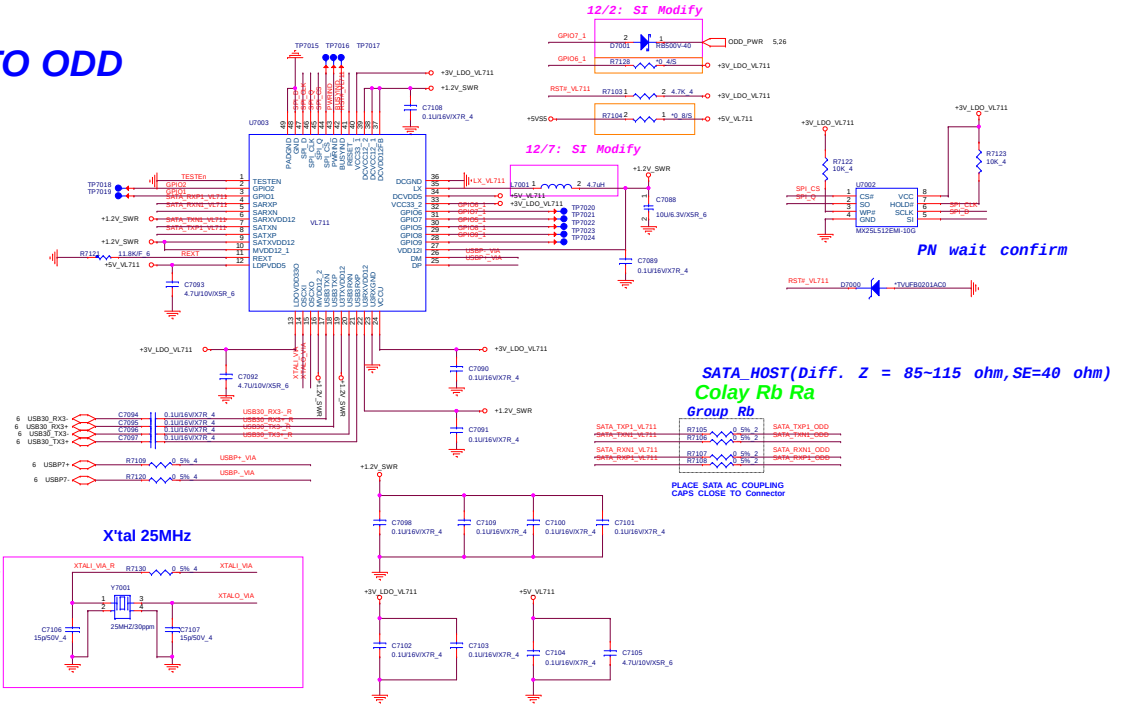
SATA HDD & LED



22,25,28,34,35,36,37,38,40,42,43,44,46 +5VS5
20,21,22,30,43 +5V
4,5,6,7,10,11,20,21,22,24,27,28,29,30,31,38,40,43 +3V

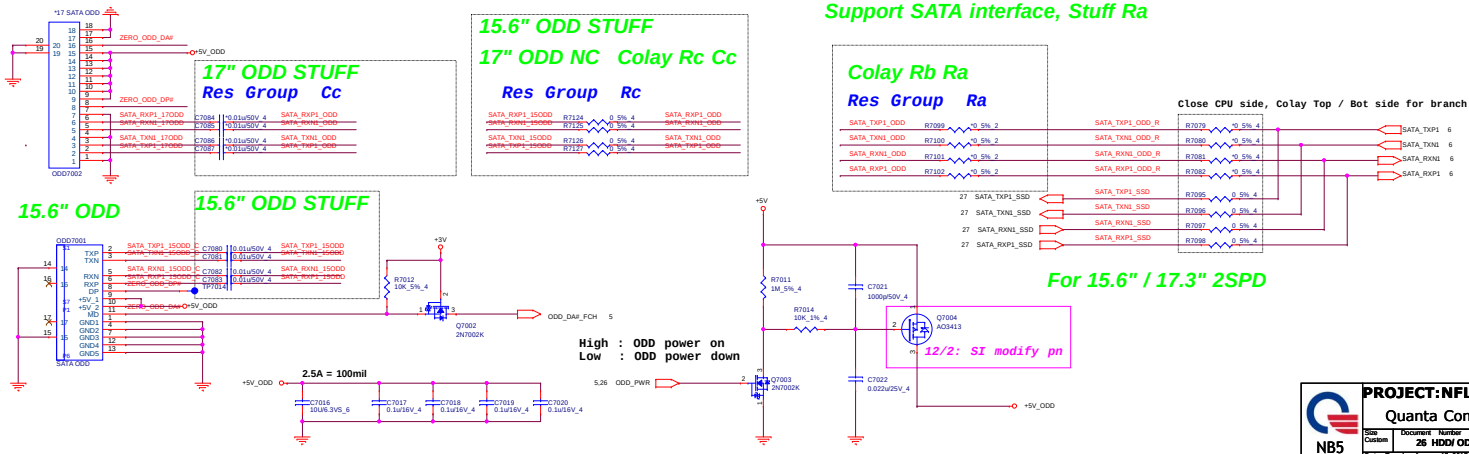
VL711 USB3 TO ODD



SATA ODD

17.3" ODD PN change to DFFC18FR044,FP the same

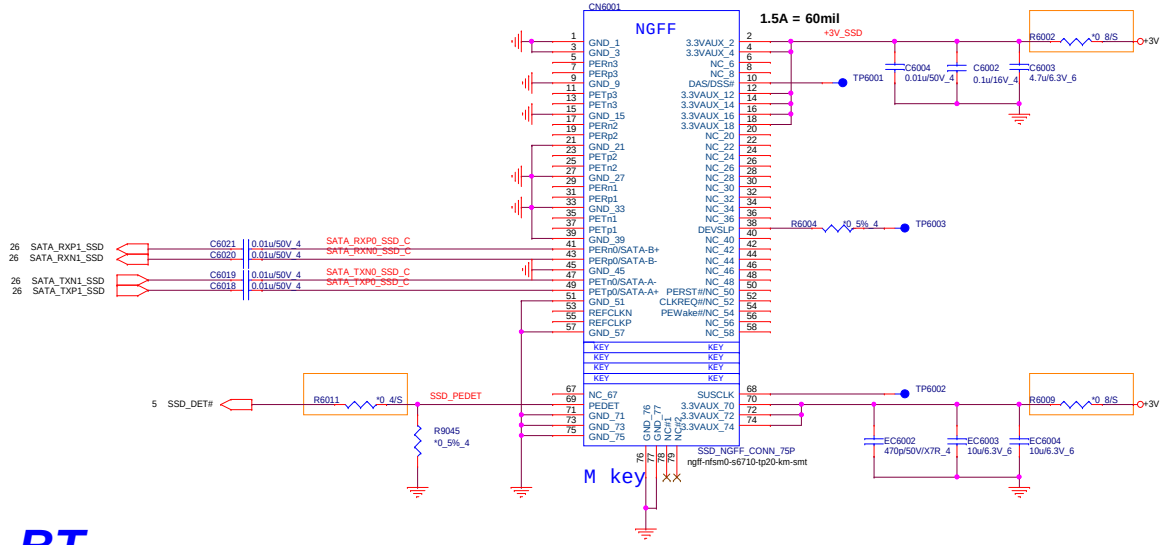
Support SATA interface, Stuff Ra



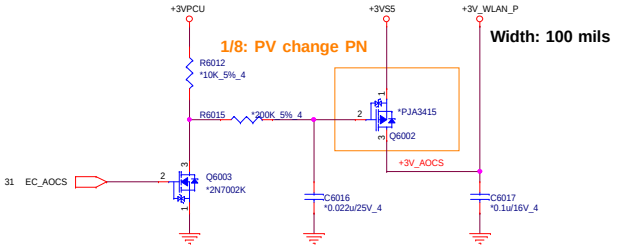
5,6,7,25,30,31,34,35,37,42,43,44,47 +3VS5
4,5,6,7,10,11,20,21,22,24,26,28,29,30,31,38,40,43 +3V

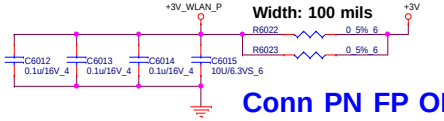
SATA SSD

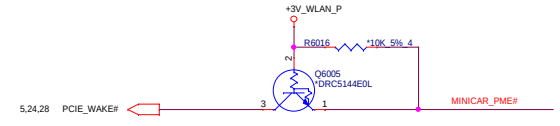
Conn PN FP OK! Libray modify, add Pin78,79

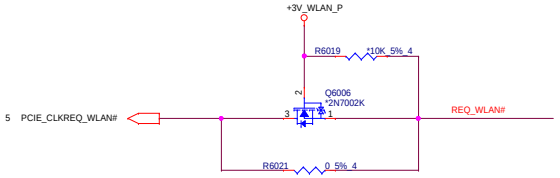


WLAN & BT

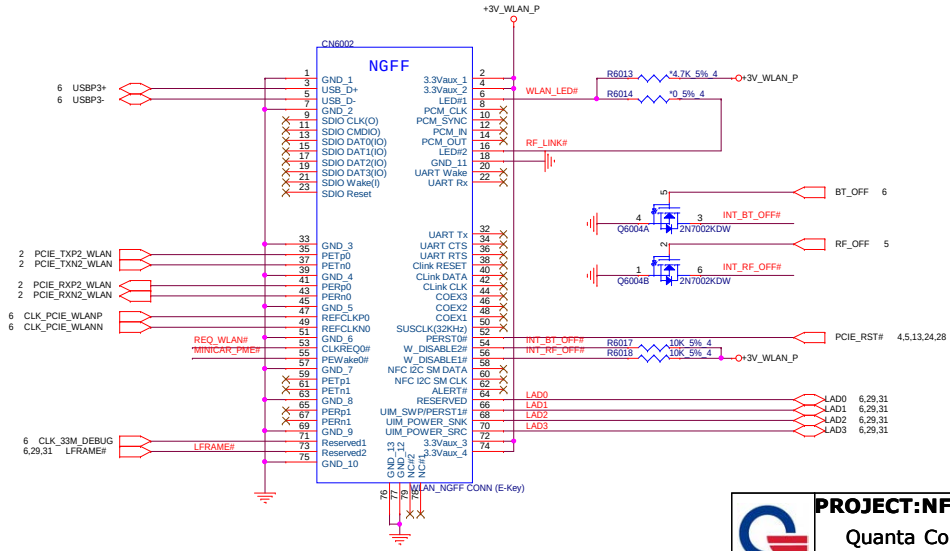






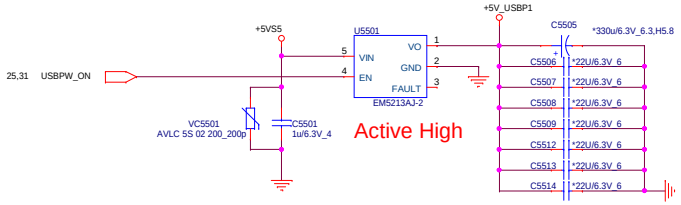


Conn PN FP OK! Library modify, Del 24~31, add Pin78,79



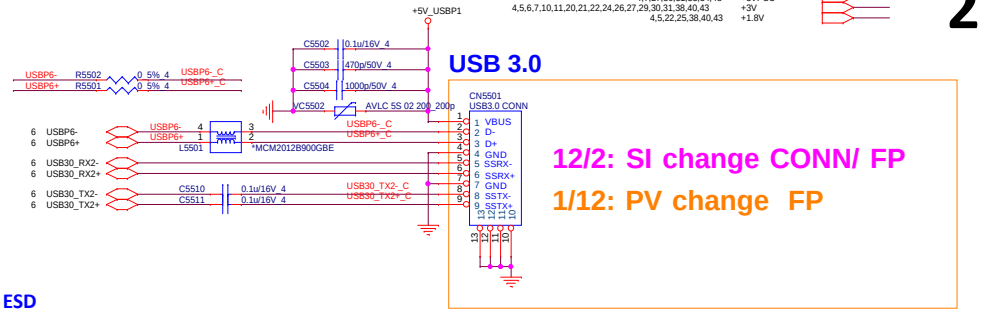
For 15.6" / 17.3" 2SPD

100 mils (Iout=2.5A)

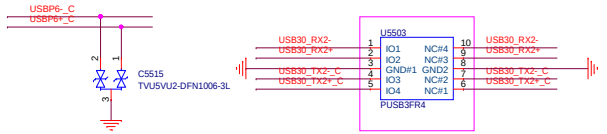


22,25,26,34,35,36,37,38,40,42,43,44,46 +5VS5
4,7,27,30,31,33,34,48 +3VPCU
4,5,6,7,10,11,20,21,22,24,26,27,29,30,31,38,40,43 +3V
4,5,22,25,38,40,43 +1.8V

USB 3.0



ESD

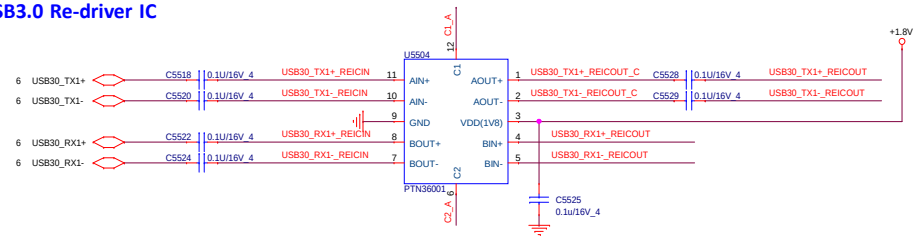


12/6: SI Modify FP/PN

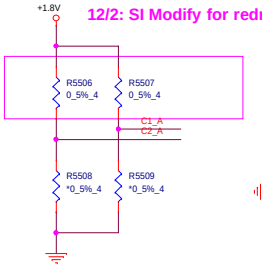
USB3.0

USB3.0 Re-driver IC

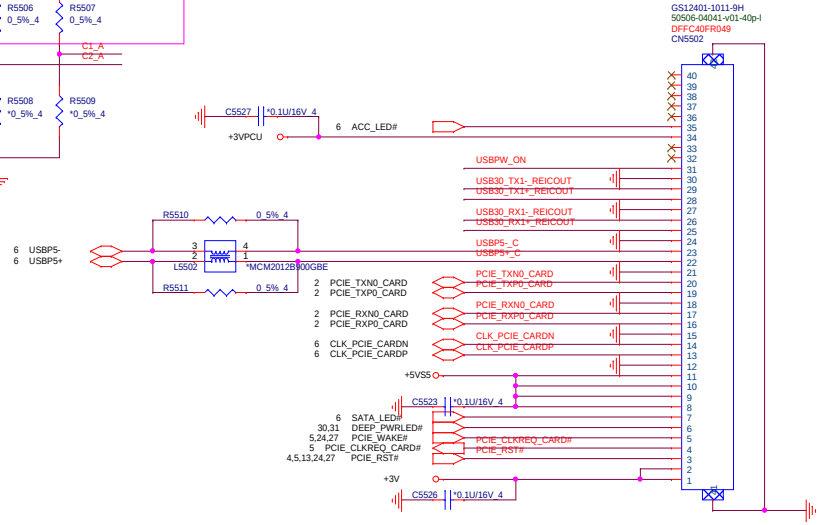
USB3.0 re-driver IC



12/2: SI Modify for redriver setting



Confirm Library!



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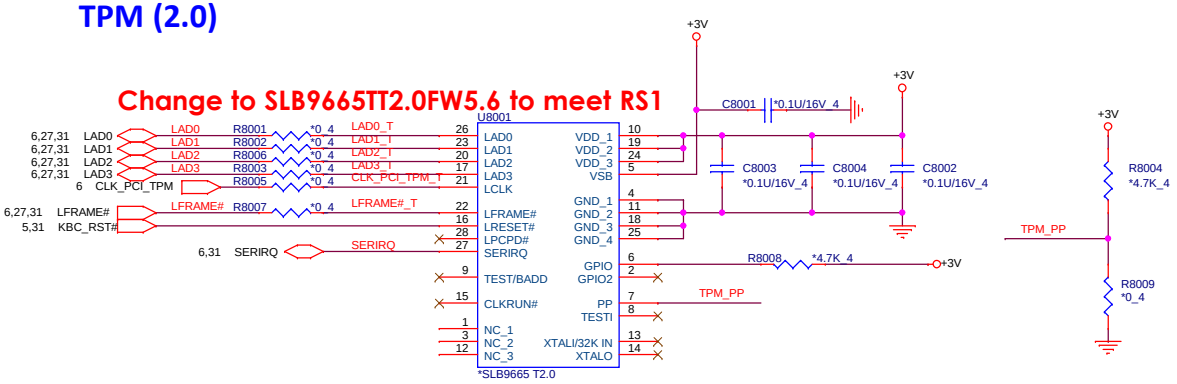
	Size: C Document Number: USB3.0/IO CONN	Rev: 1A
	Date: Monday, January 16, 2017	Sheet 28 of 48

4,5,6,7,10,11,20,21,22,24,26,27,28,30,31,38,40,43 +3V_WLAN_P +3V

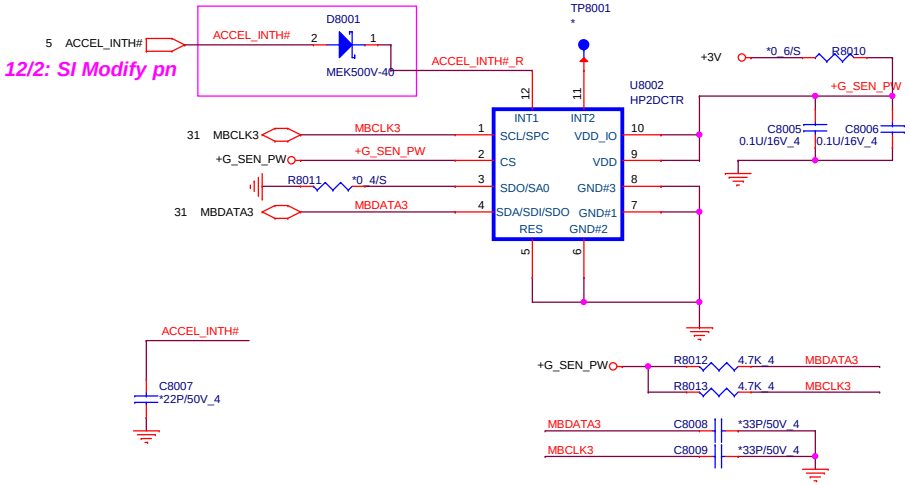
TPM (2.0)

Change to SLB9665TT2.0FW5.6 to meet RS1



Accelerometer Sensor

12/2: SI Modify pn



IR CAM on Page20

NB5	PROJECT:NFLP-G94A Quanta Computer Inc.	
	Size:	Document Number: WLAN/Gsensor/TPM — Rev: 1A
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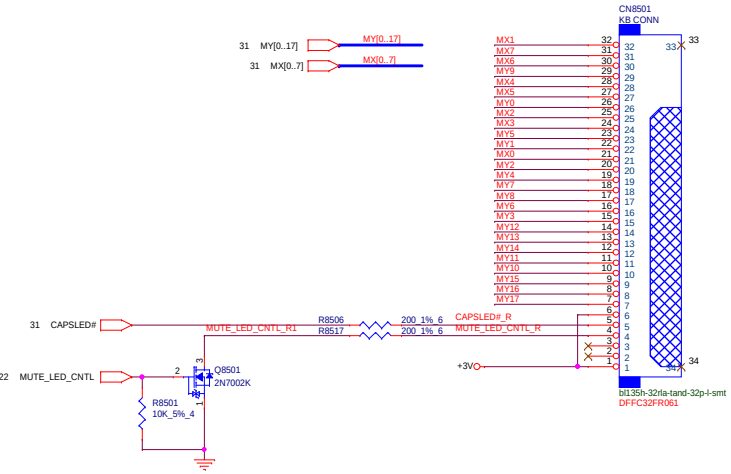
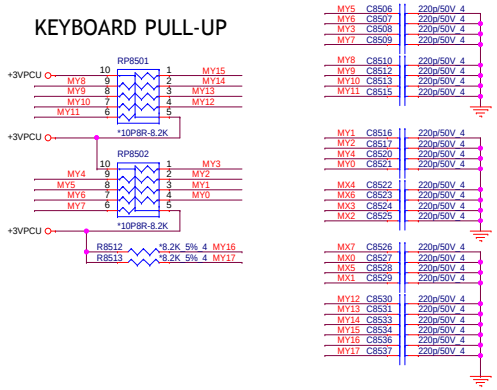
KEYBOARD CONN

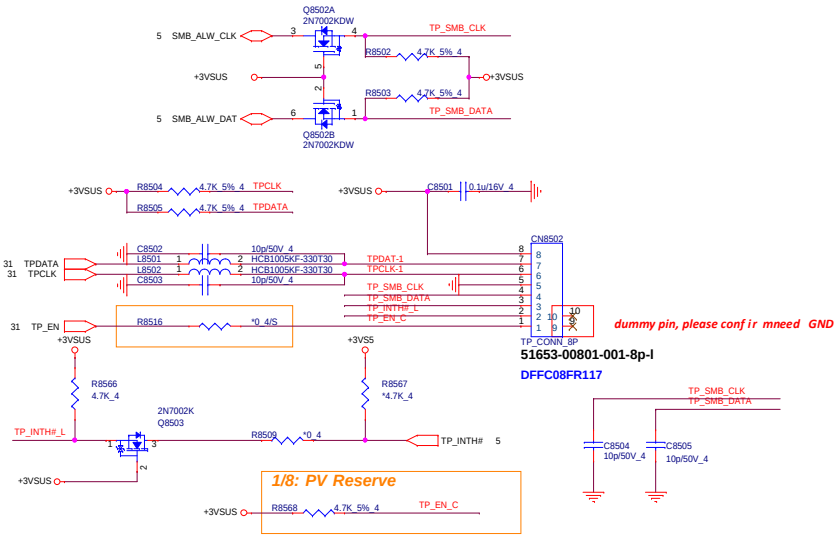
Conn Wait confirm FP!!



KEYBOARD PULL-UP

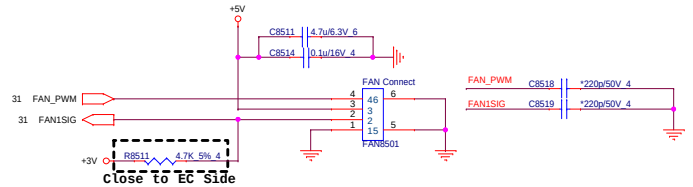


Touch Pad CONN



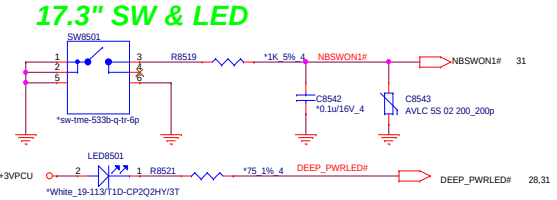
FAN CONN

confirm Library

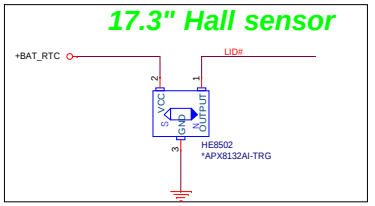


PWR Button & LED & HALL IC

17.3" SW & LED



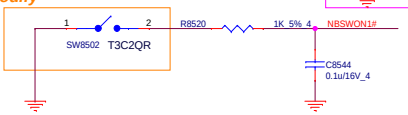
17.3" Hall sensor



12/2: SI Add

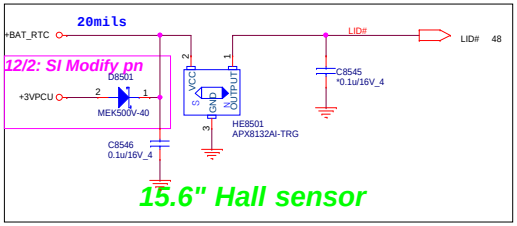
15.6" SW & LED

1/13:PV Modify

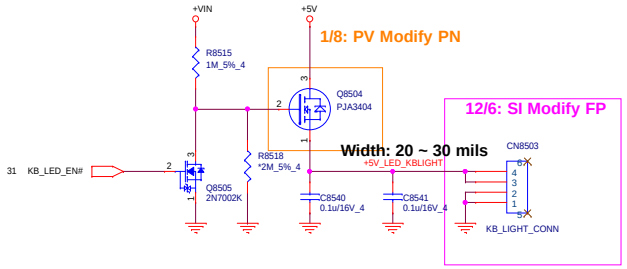


1/16:PV Modify

15.6" Hall sensor



KB LIGHT CONN



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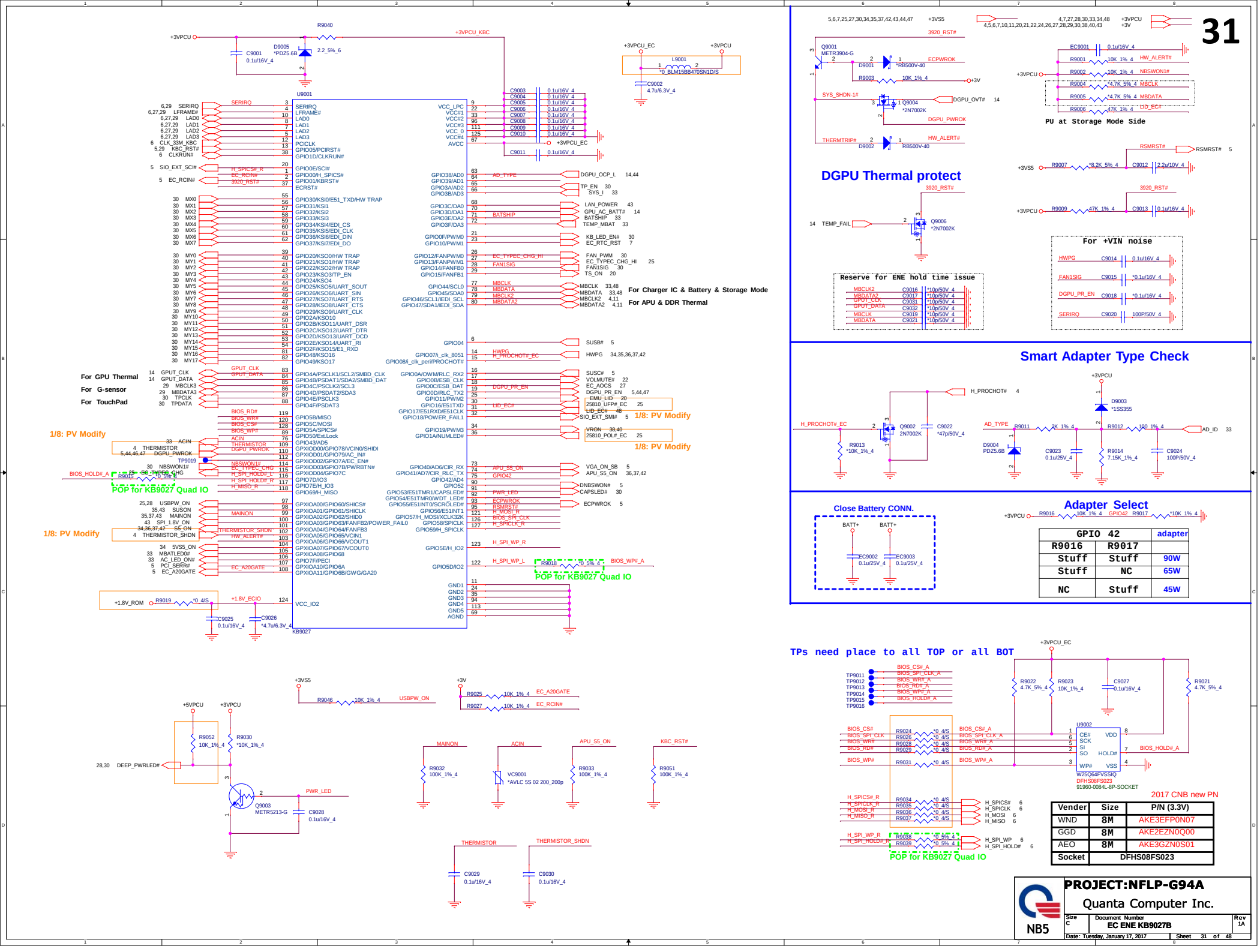
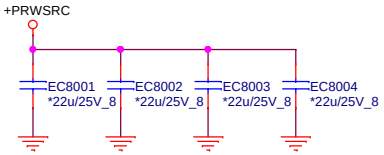

U9001
KB9027
For GPU Thermal
For G-sensor
For TouchPad
1/8: PV Modify
POP for KB9027 Quad IO
For Charger IC & Battery & Storage Mode
For APU & DDR Thermal
DGPU Thermal protect
Reserve for ENE hold time issue
PU at Storage Mode Side
For +VIN noise
Smart Adapter Type Check
Close Battery CONN.
Adapter Select
TPs need place to all TOP or all BOT
2017 CNB new PN
PROJECT:NFLP-G94A
Quanta Computer Inc.
EC ENE KB9027B
NB5

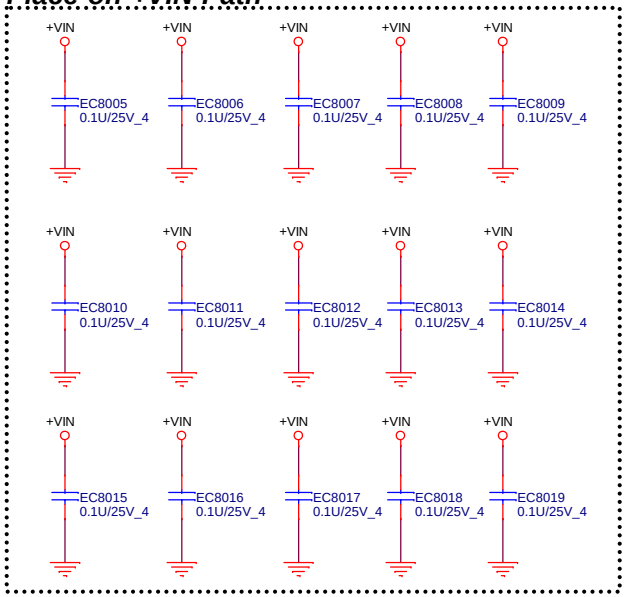
EMI CAPs

33 +PRWSRC
20,30,33,34,35,37,38,39,40,41,44,45,46 +VIN

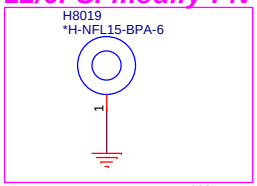
For ISN

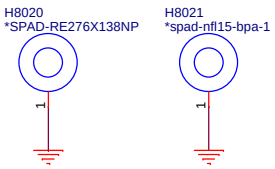


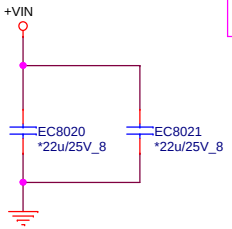
Place on +VIN Path

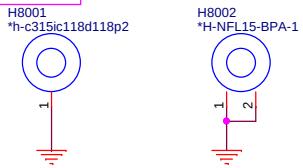


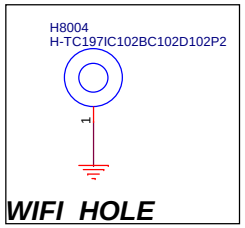
12/6: SI modify PN



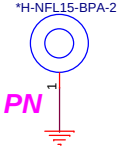


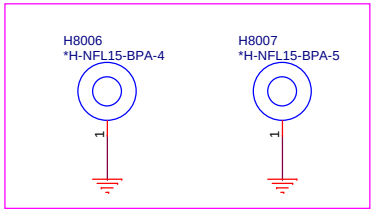


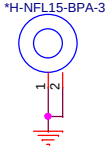


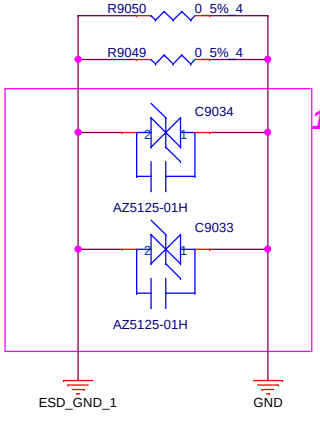


12/6: SI modify PN

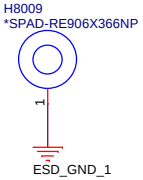


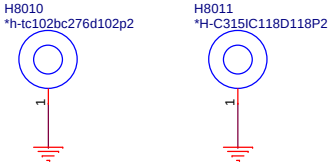


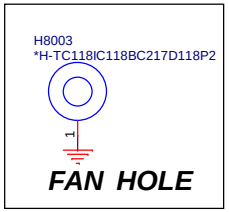


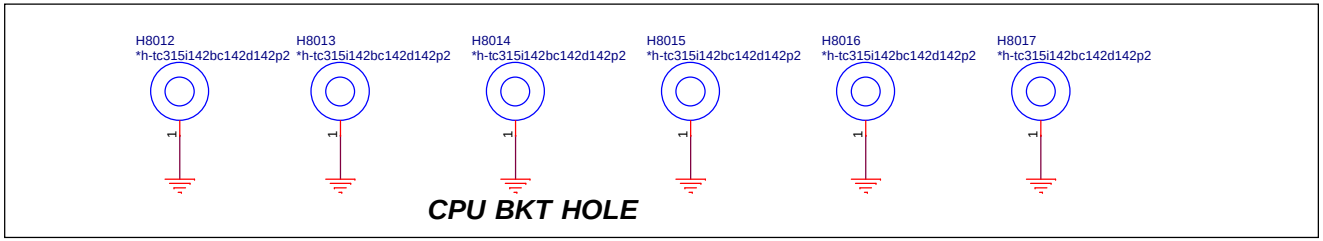


12/2: SI modify PN









NB5

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Quanta Computer Inc.

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B	EMI CAP/HOLES	1A

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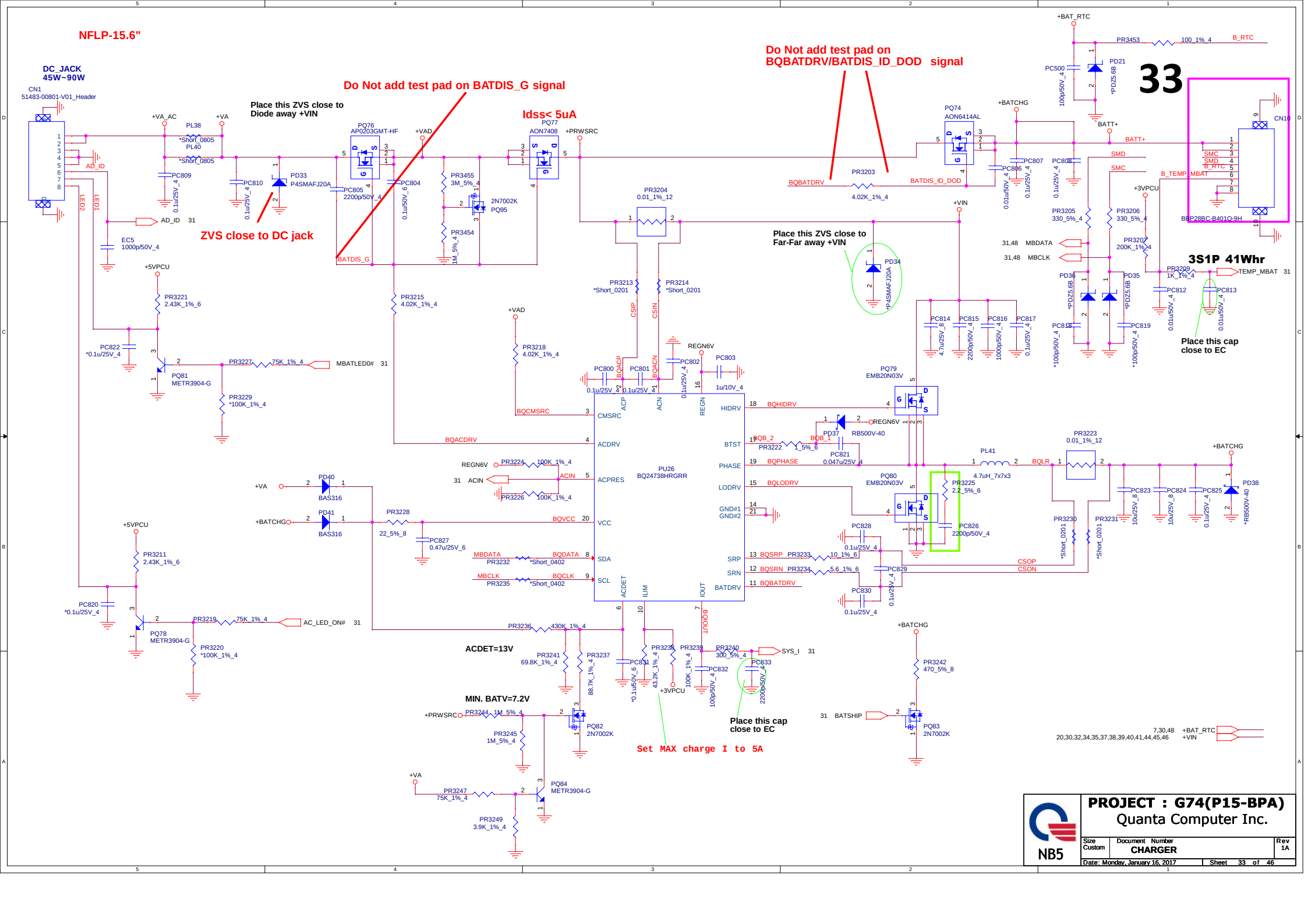
NFLP-15.6"
DC_JACK
45W~90W
CN1
51483-00801-V01_Header
Do Not add test pad on BATDIS_G signal
Idss< 5uA
Place this ZVS close to
Diode away +VIN
ZVS close to DC jack
Do Not add test pad on
BQBATDRV/BATDIS_ID_DOD signal
Place this ZVS close to
Far-Far away +VIN
Place this cap
close to EC
Place this cap
close to EC
3S1P 41Whr
ACDET=13V
MIN. BATV=7.2V
Set MAX charge I to 5A
PU26
BQ24738HRGRR
PQ74
AON6414AL
PQ76
AP0203GMT-HF
PQ77
AON7408
PQ79
EMB20N03V
PQ80
EMB20N03V
PQ81
METR3904-G
PQ78
METR3904-G
PQ82
2N7002K
PQ83
2N7002K
PQ84
METR3904-G
PD33
P4SMAFJ20A
PD34
*P4SMAFJ20A
PD21
*PDZ5.6B
PD35
*PDZ5.6B
PD36
*PDZ5.6B
PD37
RB500V-40
PD38
*RB500V-40
PD40
BAS316
PD41
BAS316
CN10
B8P28BC-B401Q-9H
+BAT_RTC
+VA_AC
+VA
+VAD
+PRWSRC
+VIN
+BATCHG
BATT+
+5VPCU
+3VPCU
REGN6V
SMC
SMD
B_RTC
B_TEMP
MBAT
MBDATA
MBCLK
BQBATDRV
BATDIS_ID_DOD
BATDIS_G
AD_ID
LED1
LED2
ACIN
CSIP
CSIN
BQACP
BQACN
BQACDRV
BQCMSRC
BQVCC
BQDATA
BQCLK
BQHIDRV
BQPHASE
BQLODRV
BQSRP
BQSRN
BQBATDRV
BQLR
CSOP
CSON
SYS_I
BATSHIP
AC_LED_ON#
MBATLED0#
TEMP_MBAT
7,30,48
20,30,32,34,35,37,38,39,40,41,44,45,46
+BAT_RTC
+VIN
PL38
*Short_0805
PL40
*Short_0805
PL41
4.7uH_7x7x3
PR3203
4.02K_1%_4
PR3204
0.01_1%_12
PR3205
330_5%_4
PR3206
330_5%_4
PR3207
200K_1%_4
PR3209
1K_1%_4
PR3211
2.43K_1%_6
PR3213
*Short_0201
PR3214
*Short_0201
PR3215
4.02K_1%_4
PR3218
4.02K_1%_4
PR3219
75K_1%_4
PR3220
*100K_1%_4
PR3221
2.43K_1%_6
PR3222
1_5%_6
PR3223
0.01_1%_12
PR3224
100K_1%_4
PR3225
2.2_5%_6
PR3226
100K_1%_4
PR3227
75K_1%_4
PR3228
22_5%_8
PR3229
*100K_1%_4
PR3230
*Short_0201
PR3231
*Short_0201
PR3232
*Short_0402
PR3233
10_1%_6
PR3234
5.6_1%_6
PR3235
*Short_0402
PR3236
430K_1%_4
PR3237
88.7K_1%_4
PR3238
43.2K_1%_4
PR3239
100K_1%_4
PR3240
300_5%_4
PR3241
69.8K_1%_4
PR3242
470_5%_8
PR3244
1M_5%_4
PR3245
1M_5%_4
PR3247
75K_1%_4
PR3249
3.9K_1%_4
PR3453
100_1%_4
PR3454
1M_5%_4
PR3455
3M_5%_4
PC500
100p/50V_4
PC501
100p/50V_4
PC502
100p/50V_4
PC503
100p/50V_4
PC504
100p/50V_4
PC505
100p/50V_4
PC506
100p/50V_4
PC507
0.01u/50V_4
PC508
0.1u/25V_4
PC509
0.1u/25V_4
PC510
0.1u/25V_4
PC511
0.1u/25V_4
PC512
0.01u/50V_4
PC513
0.01u/50V_4
PC514
4.7u/25V_6
PC515
2200p/50V_4
PC516
1000p/50V_4
PC517
0.1u/25V_4
PC518
100p/50V_4
PC519
100p/50V_4
PC520
100p/50V_4
PC521
100p/50V_4
PC522
100p/50V_4
PC523
10u/25V_8
PC524
10u/25V_8
PC525
0.1u/25V_4
PC526
2200p/50V_4
PC527
0.47u/25V_6
PC528
0.1u/25V_4
PC529
0.1u/25V_4
PC530
0.1u/25V_4
PC531
*0.1u/50V_6
PC532
100p/50V_4
PC533
2200p/50V_4
PC800
0.1u/25V_4
PC801
0.1u/25V_4
PC802
0.01u/25V_4
PC803
1u/10V_4
PC804
0.1u/50V_6
PC805
2200p/50V_4
PC806
0.01u/50V_4
PC807
0.1u/25V_4
PC808
0.1u/25V_4
PC809
0.1u/25V_4
PC810
0.1u/25V_4
PC812
0.01u/50V_4
PC813
0.01u/50V_4
PC814
4.7u/25V_6
PC815
2200p/50V_4
PC816
1000p/50V_4
PC817
0.1u/25V_4
PC818
100p/50V_4
PC819
100p/50V_4
PC820
*0.1u/25V_4
PC821
0.047u/25V_4
PC822
*0.1u/25V_4
PC823
10u/25V_8
PC824
10u/25V_8
PC825
0.1u/25V_4
PC826
2200p/50V_4
PC827
0.47u/25V_6
PC828
0.1u/25V_4
PC829
0.1u/25V_4
PC830
0.1u/25V_4
PC831
*0.1u/50V_6
PC832
100p/50V_4
PC833
2200p/50V_4
EC5
1000p/50V_4
NB5
PROJECT : G74(P15-BPA)
Quanta Computer Inc.
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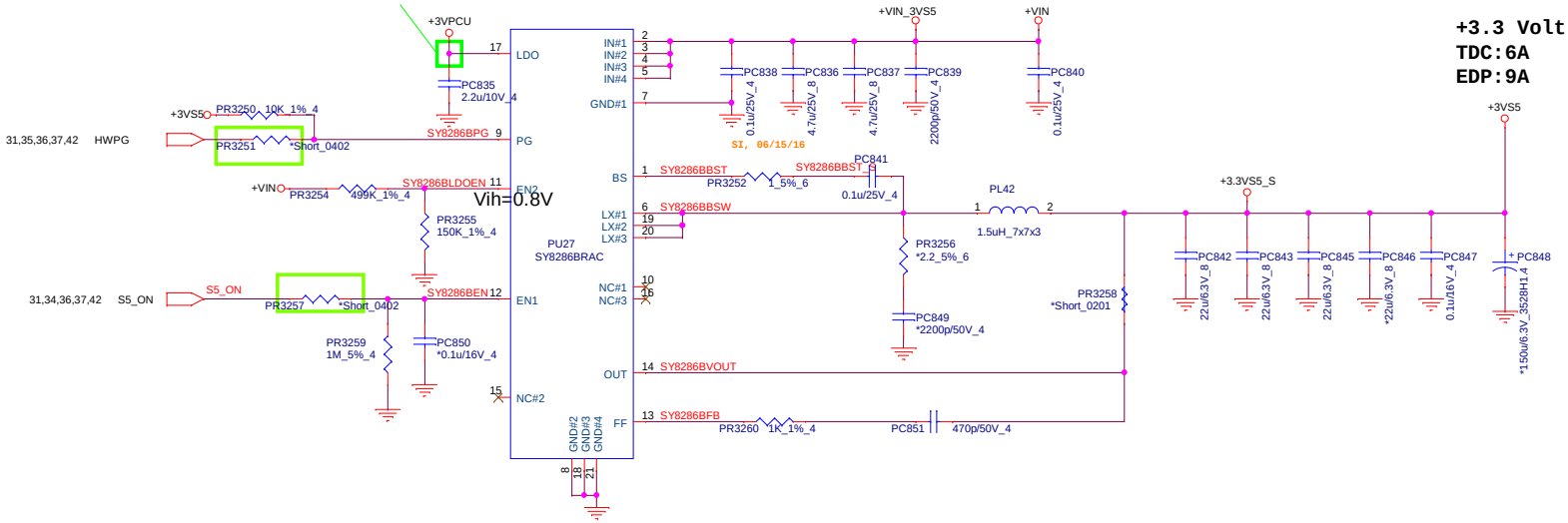
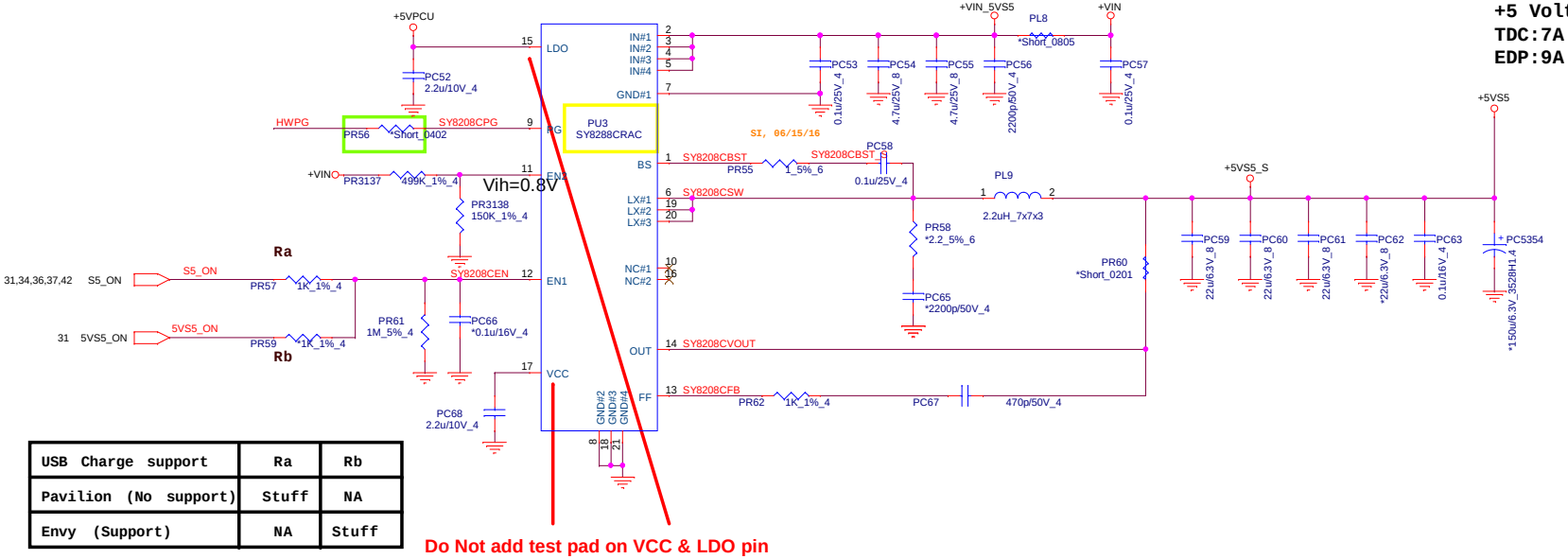
DC/DC +3VS5/+5VS5

4,7,27,28,30,31,33,48 +3VPCU
22,30,31,33,43,47 +5VPCU
20,30,32,33,35,37,38,39,40,41,44,45,46 +VIN
5,6,7,25,27,30,31,35,37,42,43,44,47 +3VS5
22,25,26,28,35,36,37,38,40,42,43,44,46 +5VS5

Do Not add test pad on LDO pin



+3.3 Volt +/- 5%
TDC:6A
EDP:9A



+5 Volt +/- 5%
TDC:7A
EDP:9A

USB Charge support	Ra	Rb
Pavilion (No support)	Stuff	NA
Envy (Support)	NA	Stuff

Do Not add test pad on VCC & LDO pin

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	+3/5VS5(SY8286B/SY8286C)	1A
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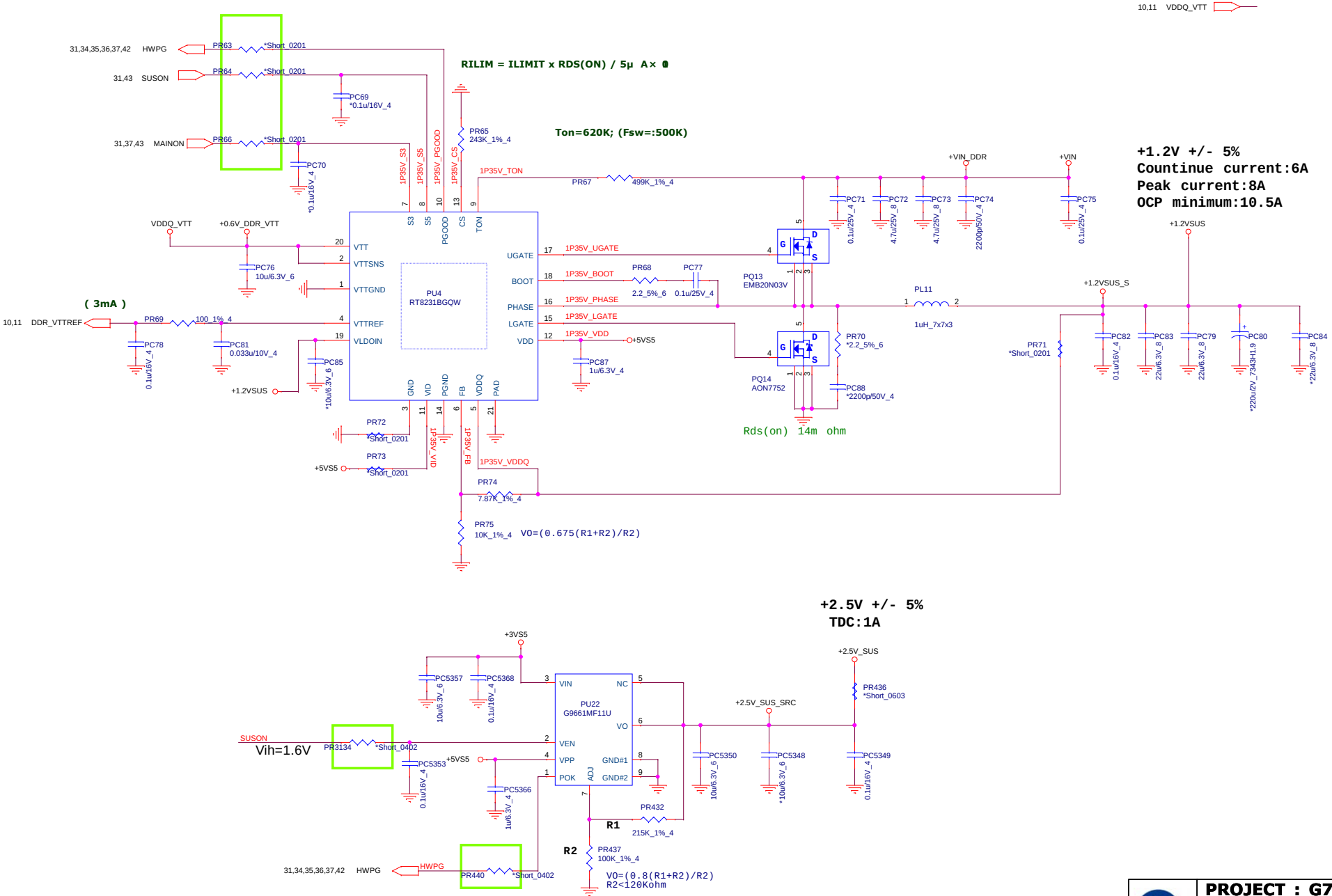
20,30,32,33,34,37,38,39,40,41,44,45,46 +VIN
+2.5VSUS
3,7,10,11 +1.2VSUS
10,11 VDDQ_VTT



Project	PROJECT : G74(P15-BPA)
Quanta	Quanta Computer Inc.
Size	Custom
Document Number	DDR/2.5VSUS(RT8231B)
Rev	1A
Date	Monday, January 16, 2017
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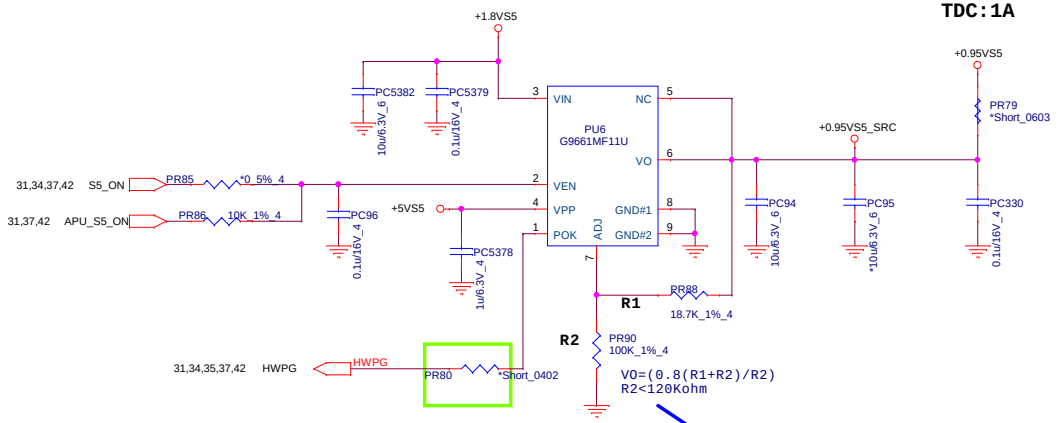
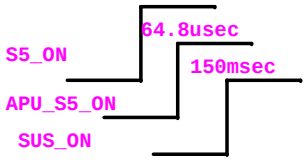
NB5	

6,7,42 +0.95VS5

+0.95V +/- 5%
TDC:1A





R1

	R1		
Stoney/Bristol	18.7K	CS31872FB19	0.95V
	31.6K	CS33162FB14	1.05V

Bristol VDDP=1.05V
Stoney VDDP=0.95V

NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+0.95VS5	1A

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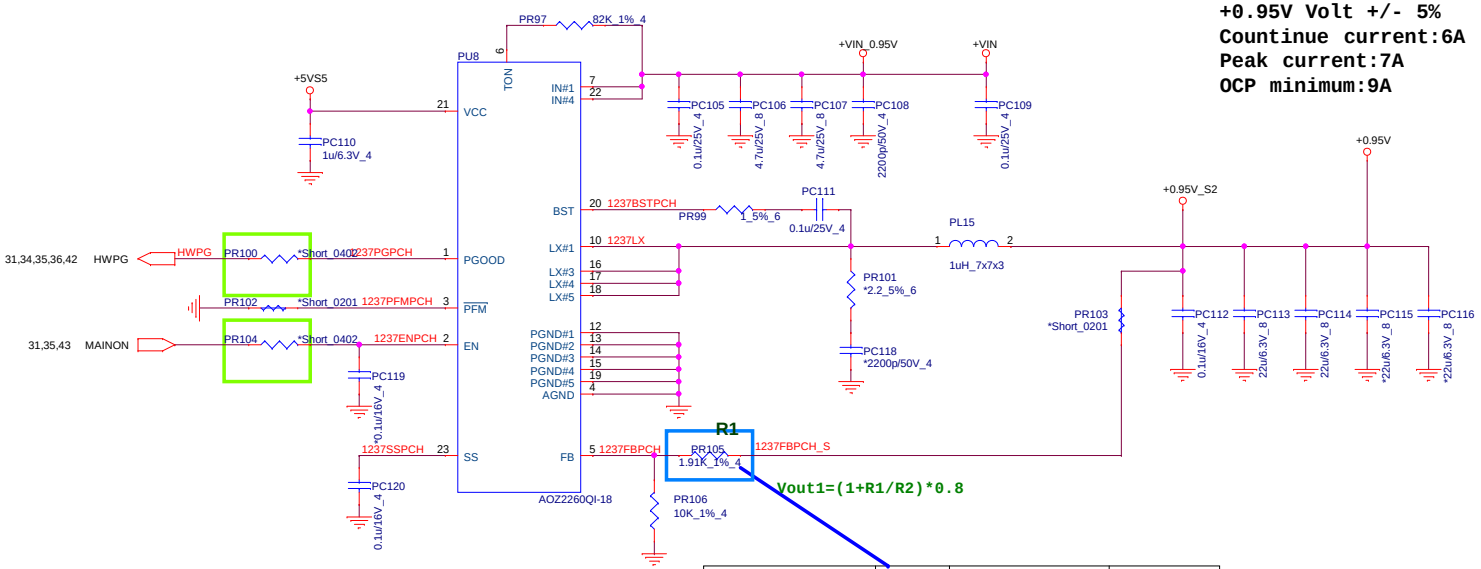
20,30,32,33,34,35,38,39,40,41,44,45,46 +VIN
2,6,7 +0.95V
5,7,25,36,43,47 +1.8VS5

+0.95V Volt +/- 5%
Countinue current:6A
Peak current:7A
OCP minimum:9A

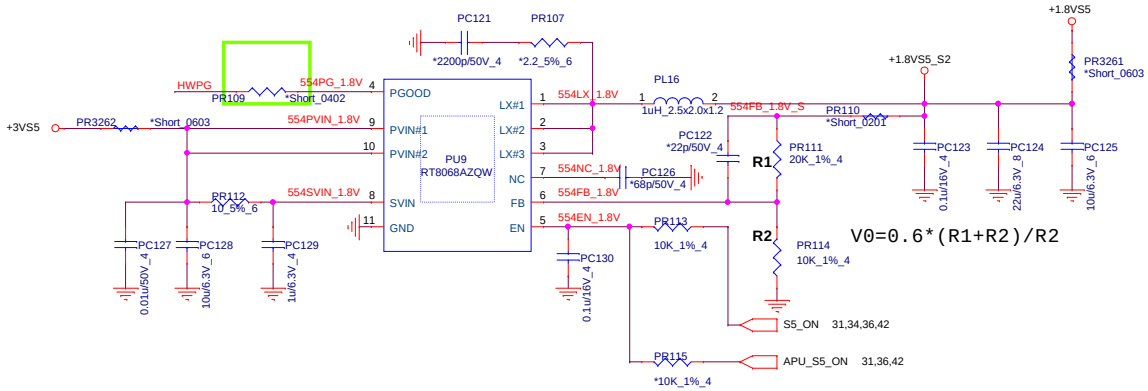
Bristol VDDP=0.95V
Stoney VDDP=0.95V

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



	R1		
Stoney / Bristol	1.91K	CS21912FB13	0.95V
	3.16K	CS23162FB04	1.05V

1.8VS5 +/- 3%
TDC:3A
EDP:4A



PROJECT : G74(P15-BPA)
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	+0.95V(AOZ2260/+1.8VS5)	1A
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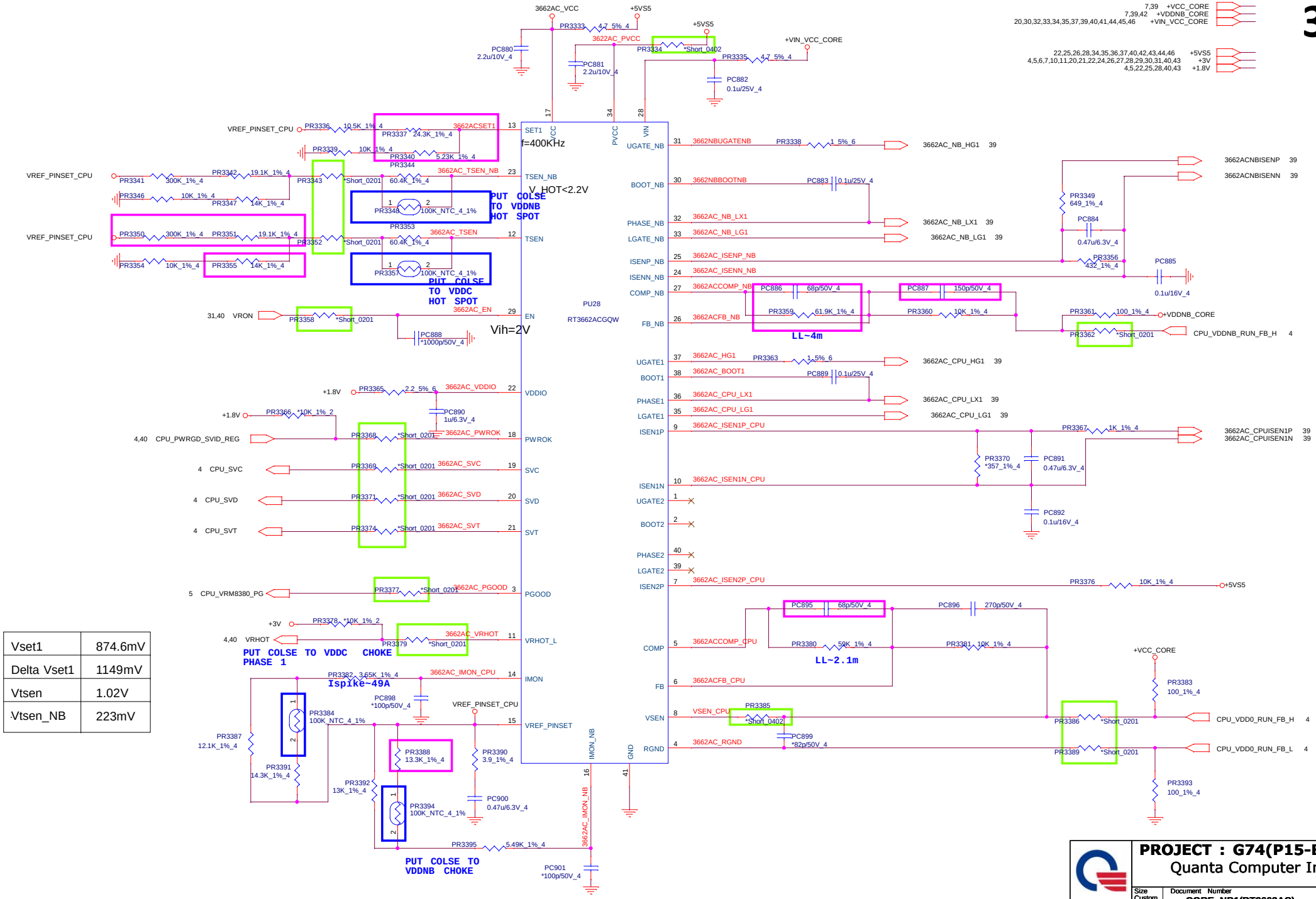


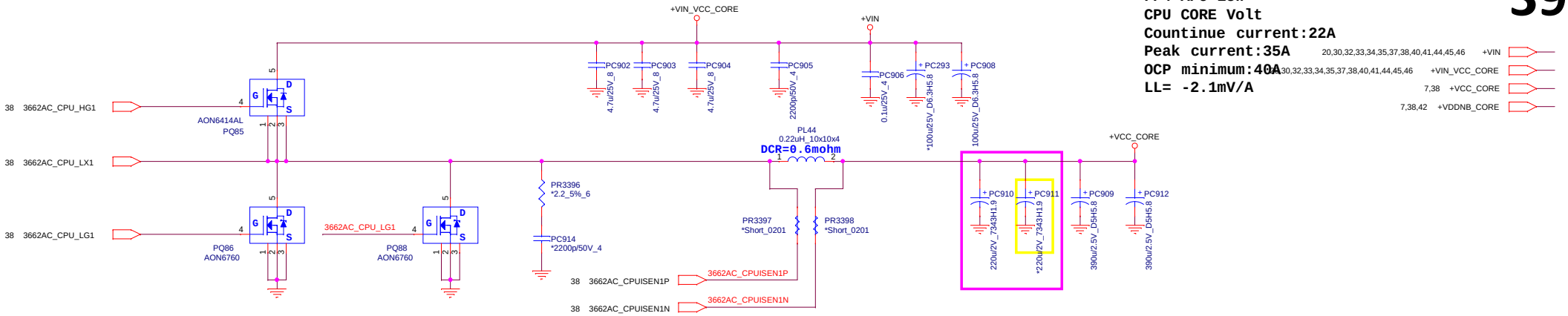
Vset1	874.6mV
Delta Vset1	1149mV
Vtsen	1.02V
Vtsen_NB	223mV

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

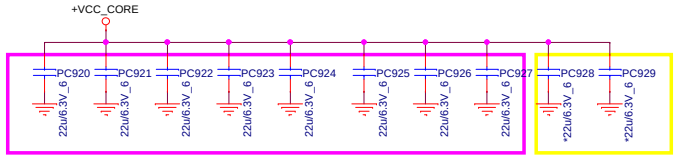
NB5

Size	Document Number	Rev
Custom	CORE_NB1(RT3662AC)	1A
Date: Monday, January 16, 2017	Sheet 38 of 48	

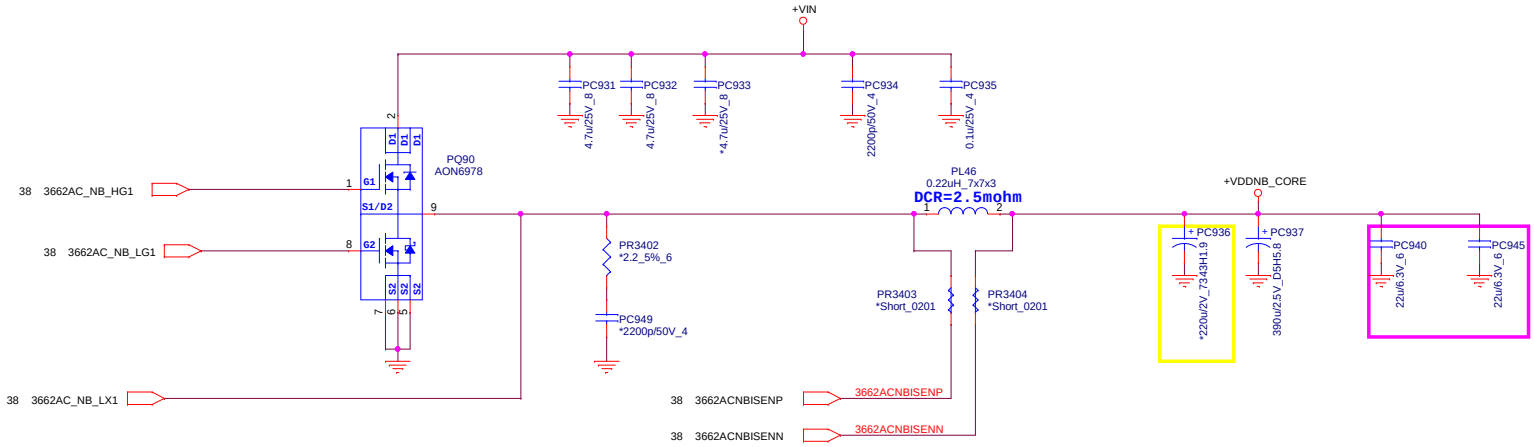
FP4 APU 15W
CPU CORE Volt
Countinue current:22A
Peak current:35A
OCP minimum:40A
LL= -2.1mV/A



20,30,32,33,34,35,37,38,40,41,44,45,46 +VIN
20,30,32,33,34,35,37,38,40,41,44,45,46 +VIN_VCC_CORE
7,38 +VCC_CORE
7,38,42 +VDDNB_CORE



FP4 APU 15W
VDDNB Volt
Countinue current:12A
Peak current:17A
OCP minimum:25A
LL= -4mV/A



NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CORE_NB2	1A
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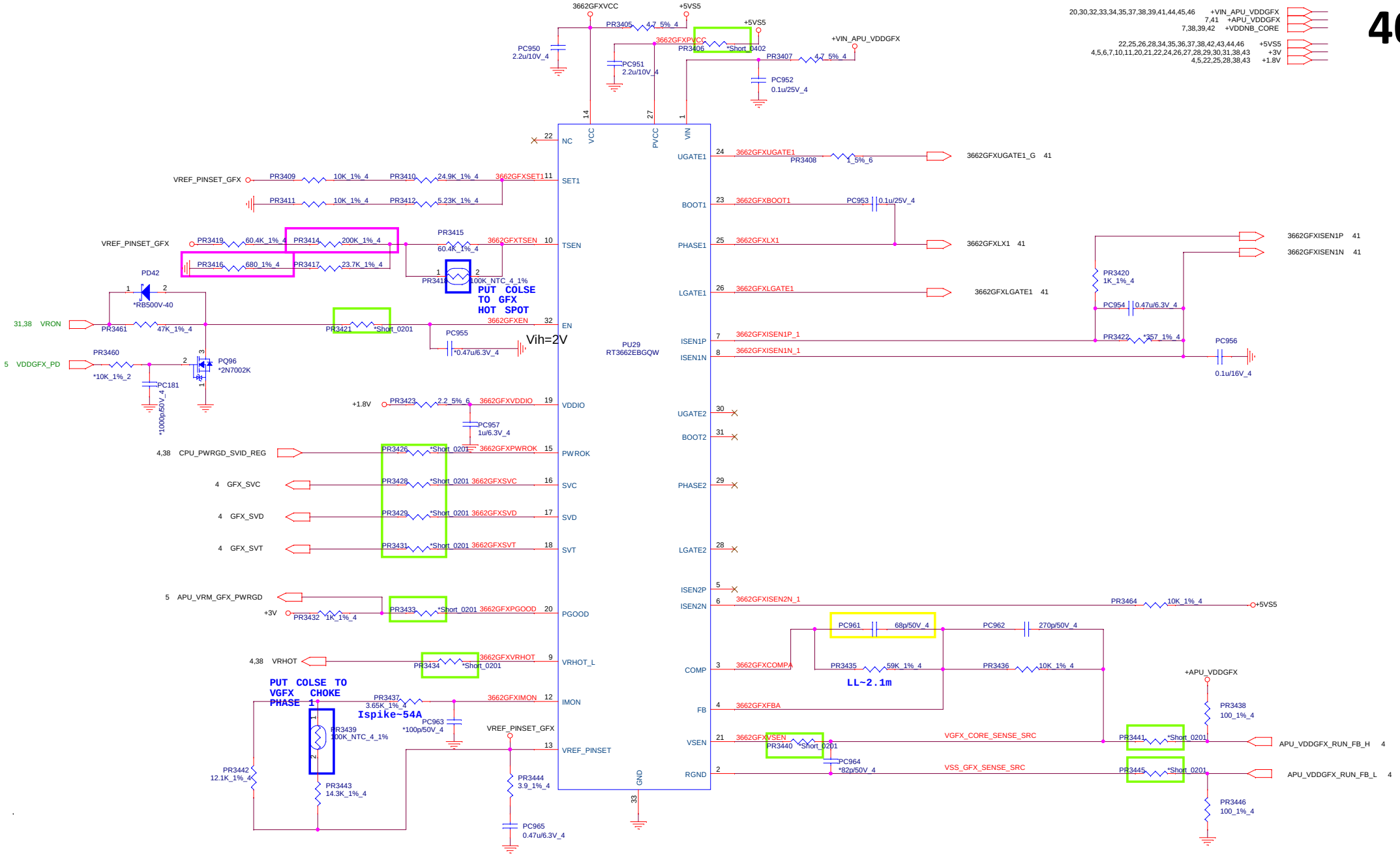

NB5	PROJECT : G74(P15-BPA) Quanta Computer Inc.	
Size Custom	Document Number GFX CORE1(RT3662EB)	Rev 1A
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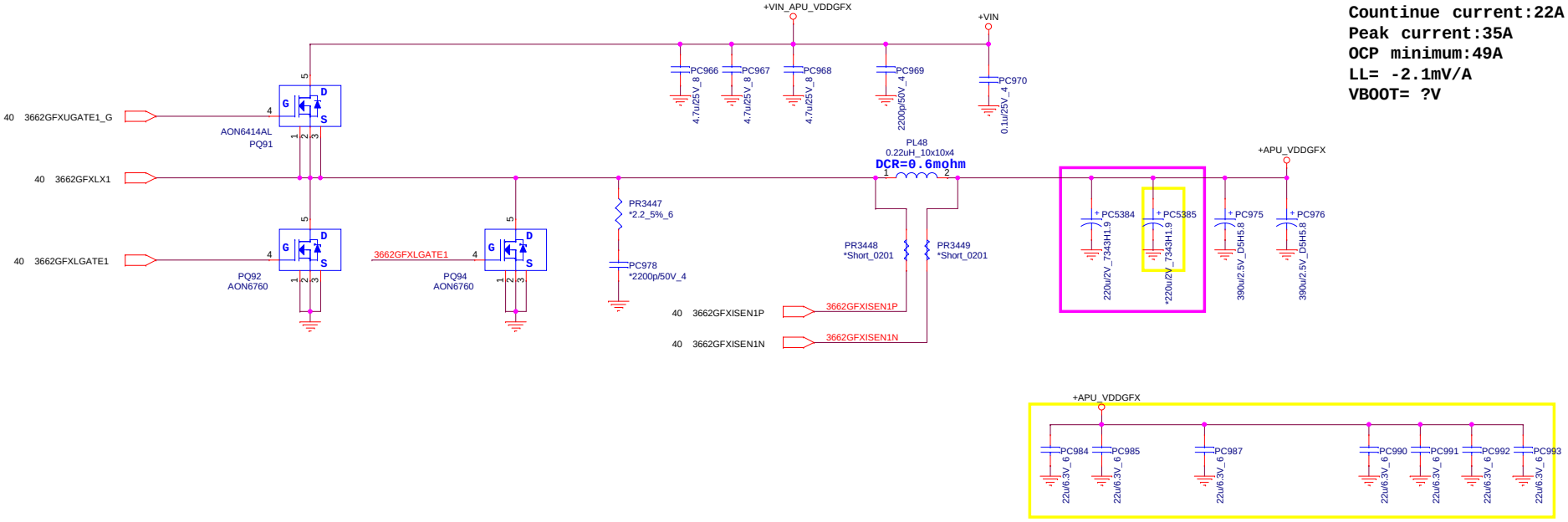
20,30,32,33,34,35,37,38,39,40,44,45,46 +VIN

20,30,32,33,34,35,37,38,39,40,44,45,46 +VIN_APU_VDDGFX

7,40 +APU_VDDGFX

CPU	Page 40 & Page 41
Bristol	Stuff
Stonley FP4,FT4	Unstuff

+APU_VDDGFX Volt
Countine current:22A
Peak current:35A
OCP minimum:49A
LL= -2.1mV/A
VBOOT= ?V



PROJECT : G74(P15-BPA)
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	GFX CORE2	1A

Date: Monday, January 16, 2017 Sheet 41 of 48

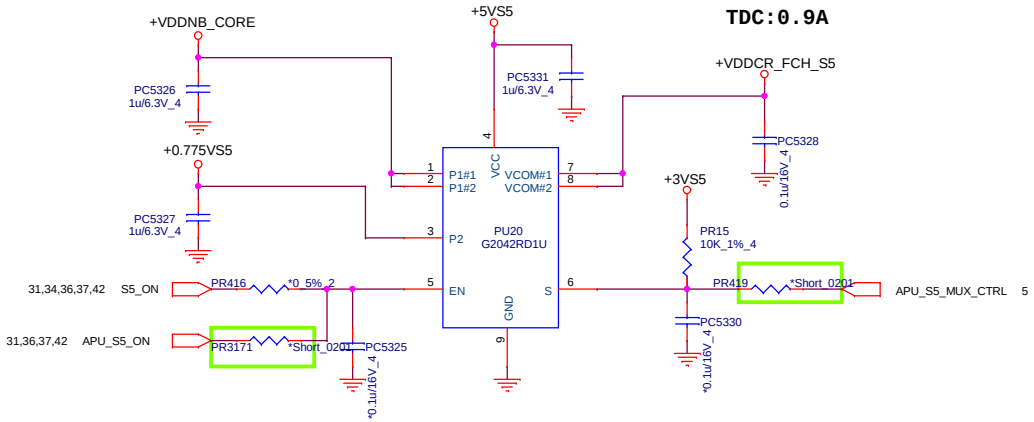
6,7,36 +0.95VS5

5,6,7,25,27,30,31,34,35,37,43,44,47 +3VS5

22,25,26,28,34,35,36,37,38,40,43,44,46 +5VS5

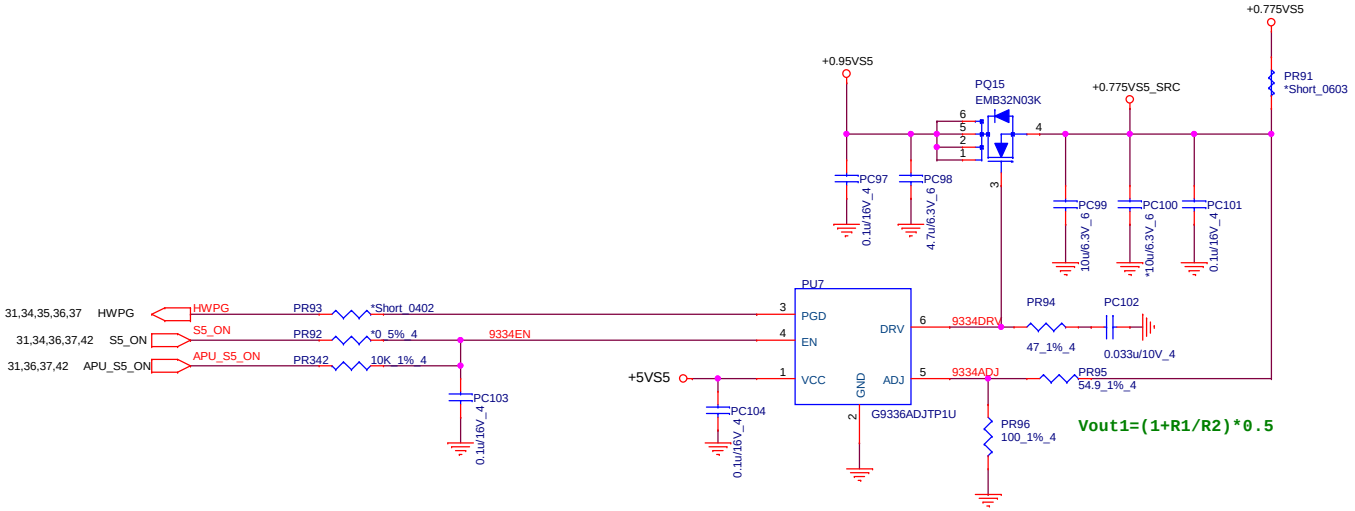
7 +VDDCR_FCH_S5

TDC:0.9A



EN	SEL	VIN1	Vo
0	X	0.775V~1.2V	0V
1	0	<0.775V	0.775V
1	0	>0.775V	VDDNB
1	1	0.775V~1.2V	VDDNB

+0.775 Volt +/- 5%
TDC:1A



NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	VDDCR_FCH/0.775VS5	1A

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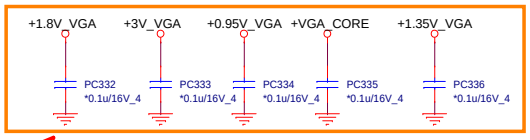
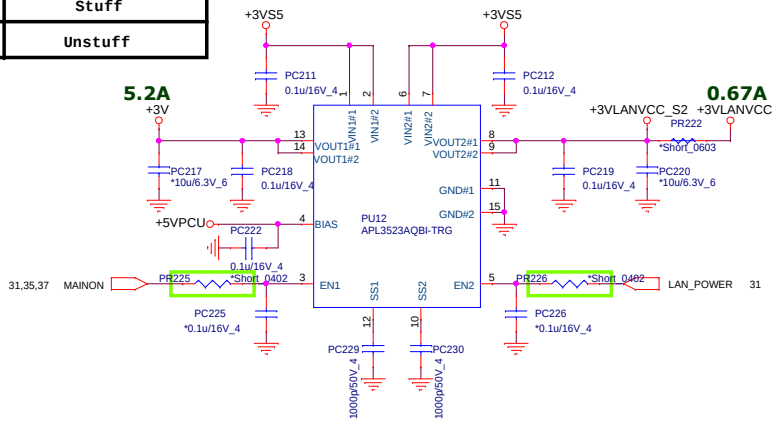
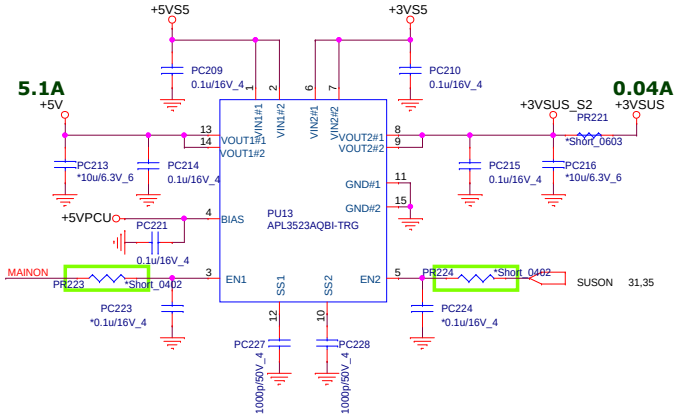
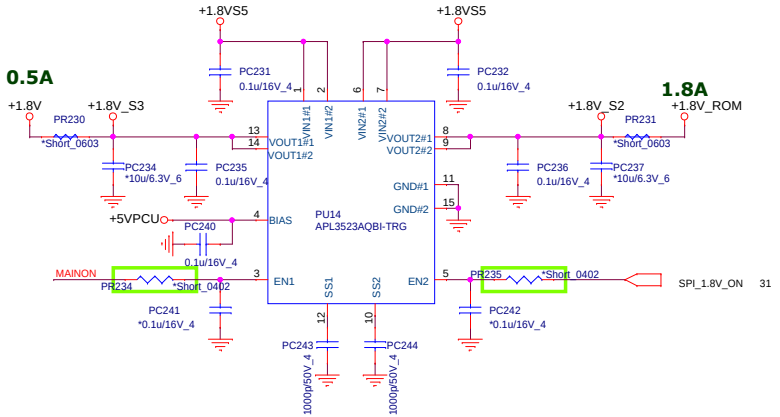


UMA only	Stuff
discrete	Unstuff



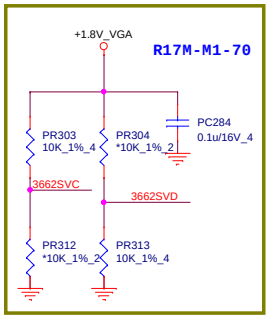




NB5

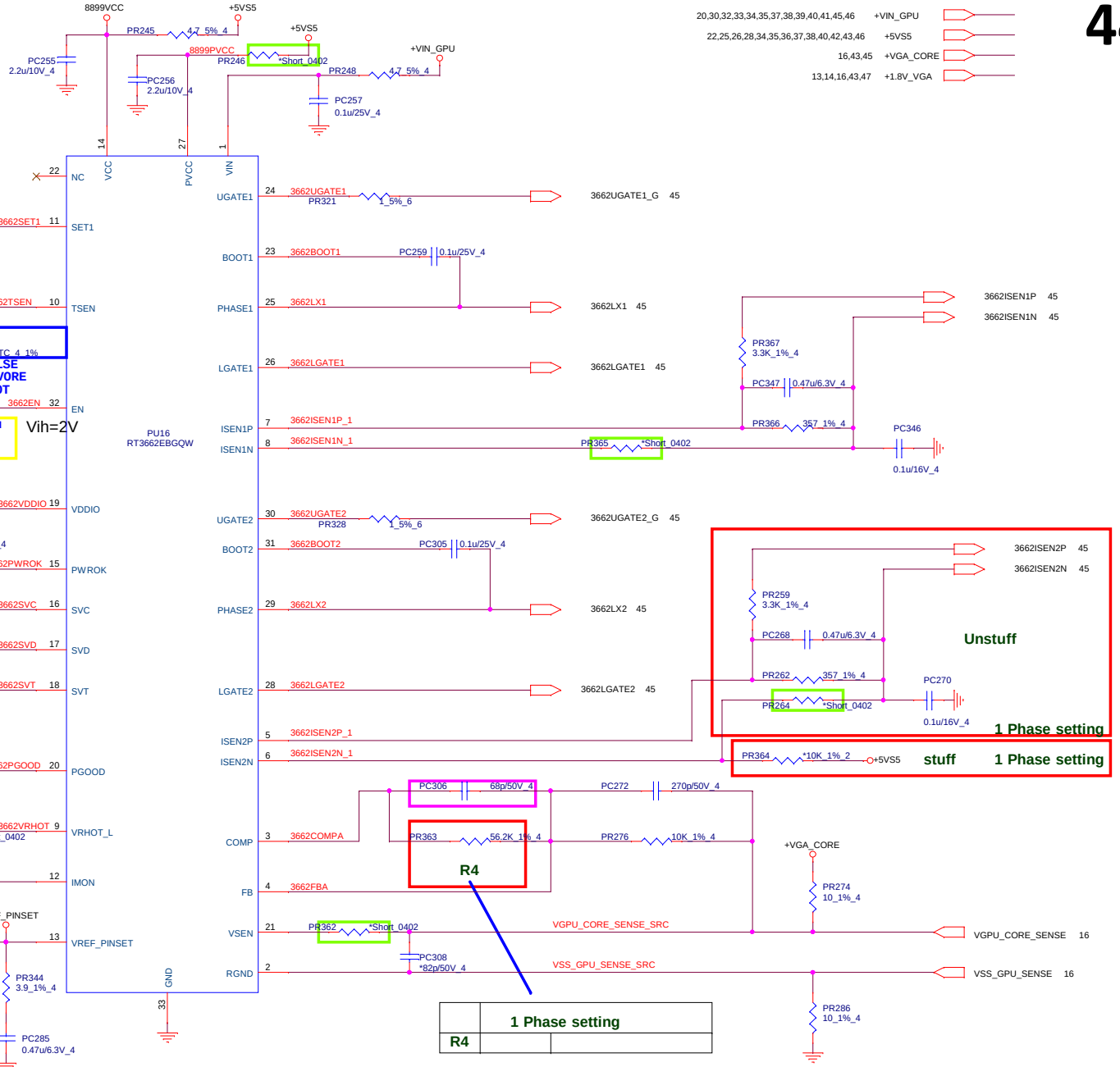
PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LOAD SWITCH IC(APL3523A)	1A
Date: Monday, January 16, 2017	Sheet 43 of 48	



VID Override table (VDD)

SVC	SVD	Boot Voltage
0	0	1.1V
0	1	1.0V
1	0	0.9V
1	1	0.8V



	1 Phase setting	
R1		
R2		
R3		

	1 Phase setting	
R4		

NB5	PROJECT : G74(P15-BPA) Quanta Computer Inc.	
	Size: Custom Document Number: VGACORE1(RT3662EB)	Rev: 1A
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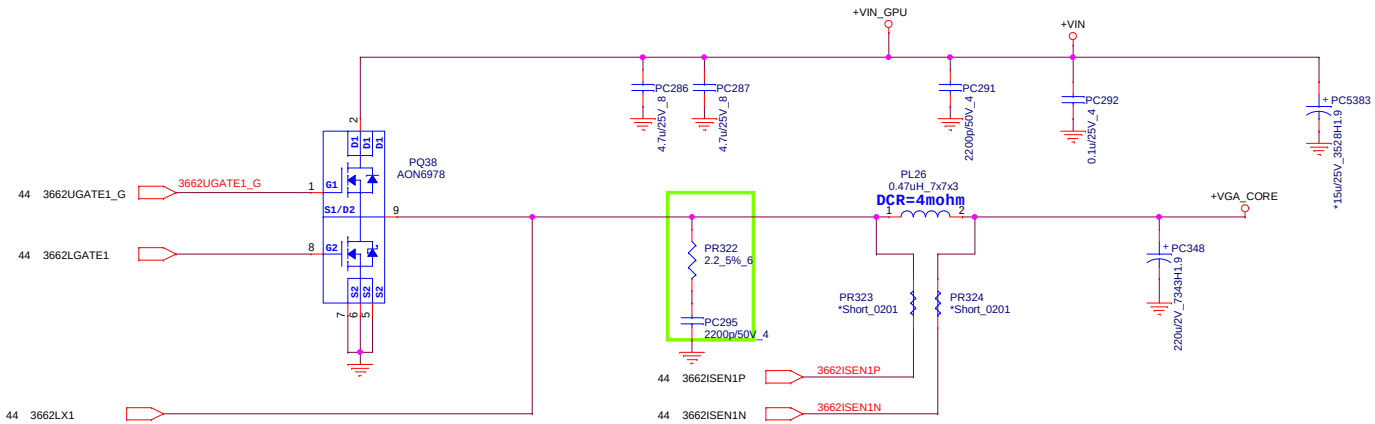
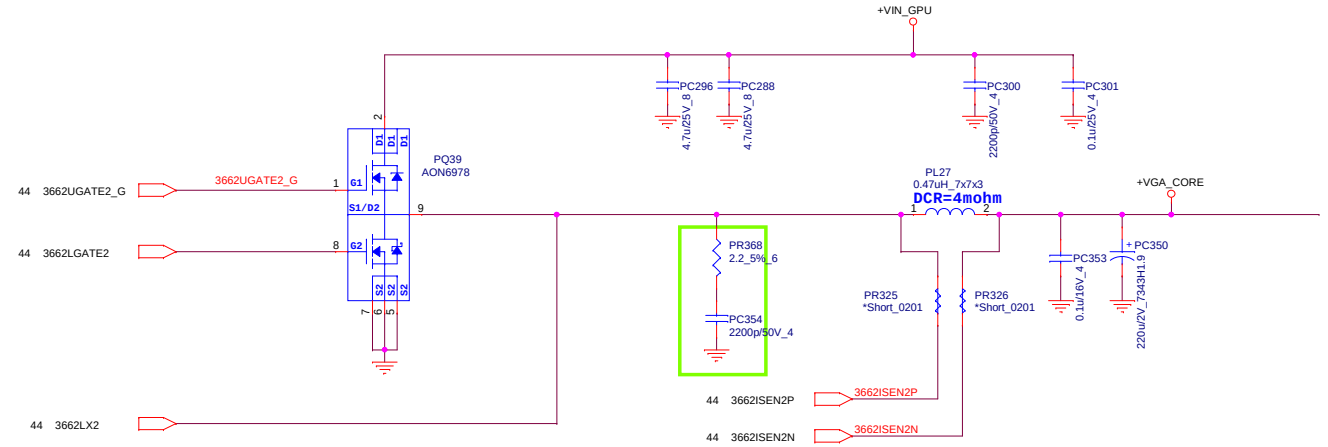
20,30,32,33,34,35,37,38,39,40,41,44,46 +VIN
20,30,32,33,34,35,37,38,39,40,41,44,46 +VIN_GPU
16,43,44 +VGA_CORE

VGACORE (R17M-M1-70_ 25W/38W(1ms))
Countinue current:28A
Peak current=38A (1ms)
PHOCP_TDC=40A (soft-start only)
OCP_SPIKE=55A(1ms)
Boot VID=0.9V
LL=1m V/A



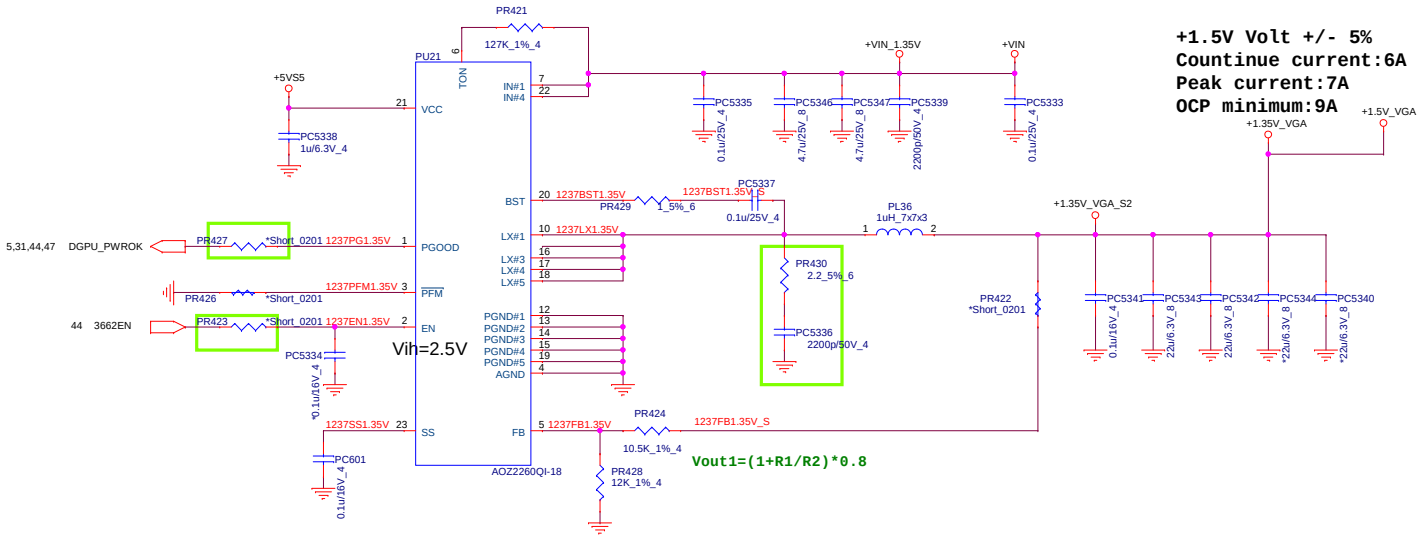


NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	VGACORE2	1A
Date: Monday, January 16, 2017	Sheet 45 of 48	

20,30,32,33,34,35,37,38,39,40,41,44,45 +VIN
22,25,26,28,34,35,36,37,38,40,42,43,44 +5VS5
16,17,18,19,43 +1.5V_VGA



+1.5V Volt +/- 5%
Countinue current:6A
Peak current:7A
OCP minimum:9A

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

NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+1.5V_VAG(AOZ2260)	1A

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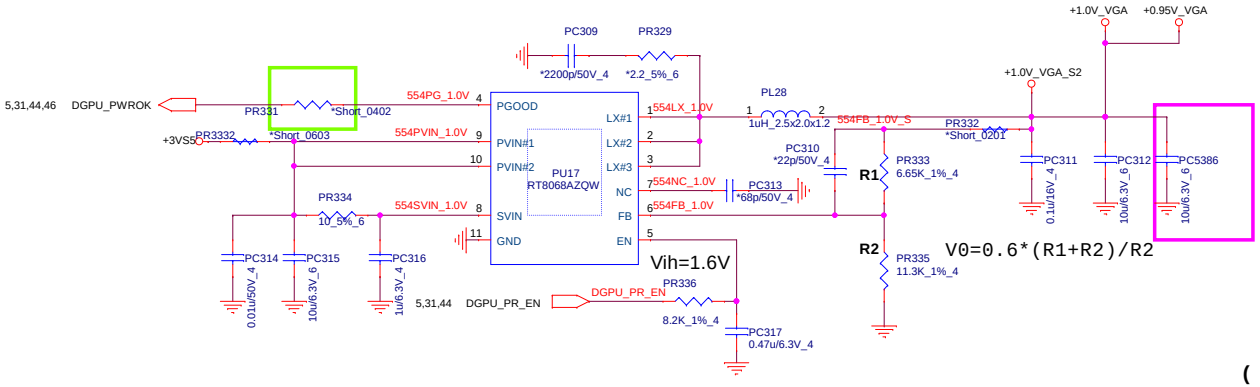
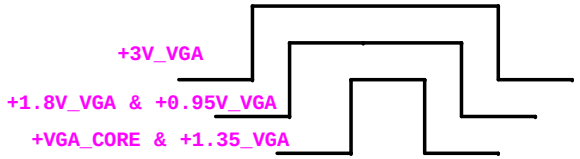
+0.95V +/- 3%
Countinue current:2A
Peak current:3A
OCP minimum:4A



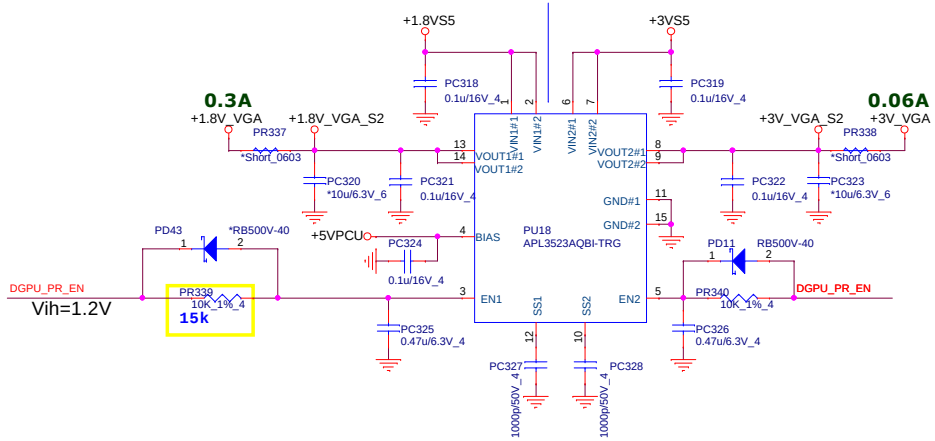
5,6,7,25,27,30,31,34,35,37,42,43,44 +3VS5
5,7,25,36,37,43 +1.8VS5

13,14,16,43,44 +3V_VGA
13,14,16,43,44 +1.8V_VGA
13,16,43 +1.0V_VGA

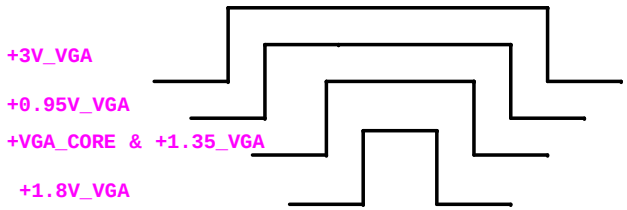
(R17M-M1-70_ 25W}



PUT COLSE TO +1.8V power.



(R17M-M1-30_ 18W}

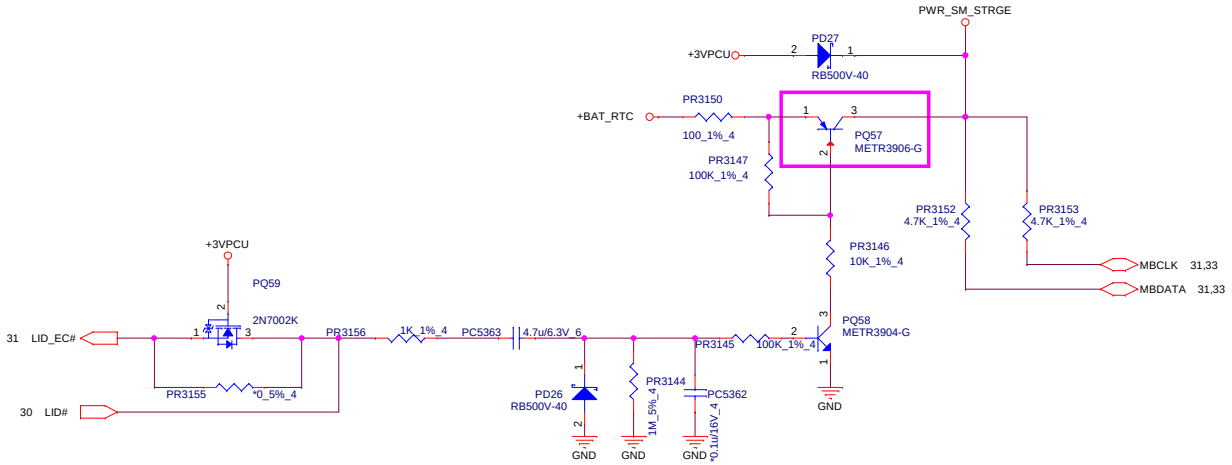


NB5

PROJECT : G74(P15-BPA)
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+1.0V_VGA/1.8V_VGA/3V_VGA	1A
Date: Monday, January 16, 2017	Sheet 47 of 48	

7,30,33 +BAT_RTC
4,7,27,28,30,31,33,34 +3VPCU



NB5	PROJECT : G74(P15-BPA) Quanta Computer Inc.		
Size Custom	Document Number STORAGE MODE		Rev 1A
Date: Monday, January 16, 2017		Sheet 48 of 48	