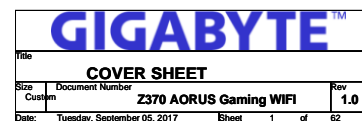


Model Name: Z370 AORUS Gaming WIFI

Rev : 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B_DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A 1,2
09	DDR4 CHANNEL B 1,2
10	PCH_RGB,CLK BUFFER
11	PCH DMI,USB,PCIE
12	PCH MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	PCH_GND
16	PCI EXPRESS X16 SLOT
17	PCI EXPRESS X8 SLOT(CPU)
18	PCI EXPRESS X16 SWITCH
19	PCI EXPRESS X4 SLOT(PCH)
20	PCIEX1 SLOT & PCIEX4 SWITCH
21	M2P_32G
22	M2Q_32G
23	PCI EXPRESS X4 SWITCH
24	SATA PORT
25	Creative VLD8CA0132KA0
26	Audio AMP
27	AUDIO Power
28	AUDIO Connect
29	ITE 8686 LPC IO
30	FAN CTRL--SIO
31	ISL95866 PWM
32	ISL95866 MOS_VCORE
33	ISL95866 MOS_VCCGT
34	VCCSA_VCCIO
35	RT8120_DDR

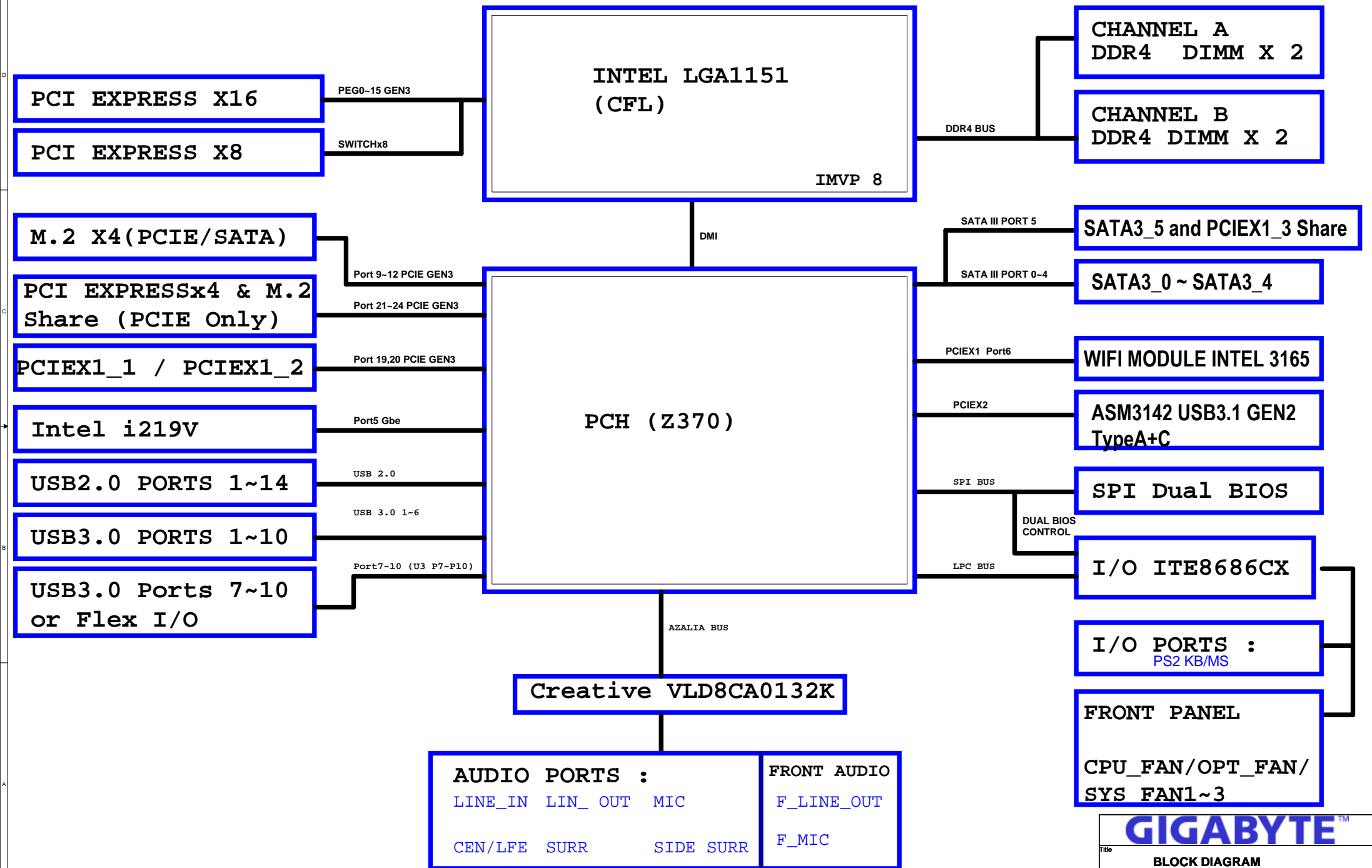
SHEET	TITLE
36	RT8120_VPP
37	RT8120_PCH
38	DISCRETE POWER
39	CPU PWR-RT9018
40	NCT3933
41	ATX POWER , A_-PROCHOT
42	F_PANEL
43	R_USB30
44	F_USB30
45	F_USB20
46	WIFI Module 1x1
47	INTL I219V
48	USB_LAN CONN
49	ASM3142
50	USB3.1 PortA
51	TI HD3SS3220 TYPE C
52	HDMI
53	BLINK
54	DUAL BIOS
55	HWM
56	TPM / THB_C / LED Layout Guide
57	MCU / 燈條 / XMP / DDR /DB_LED
58	AUDIO / PCH LED
59	Digital LED
60	IDT6V41630_CLK BUFFER (Reserve)
61	EMI/ESD
62	NTC MAP
63	POWER MAP
64	POWER零件使用表
65	TABLE LIST



PROJECT Code : ?
TIP/TOP : ?

[illegible][illegible]

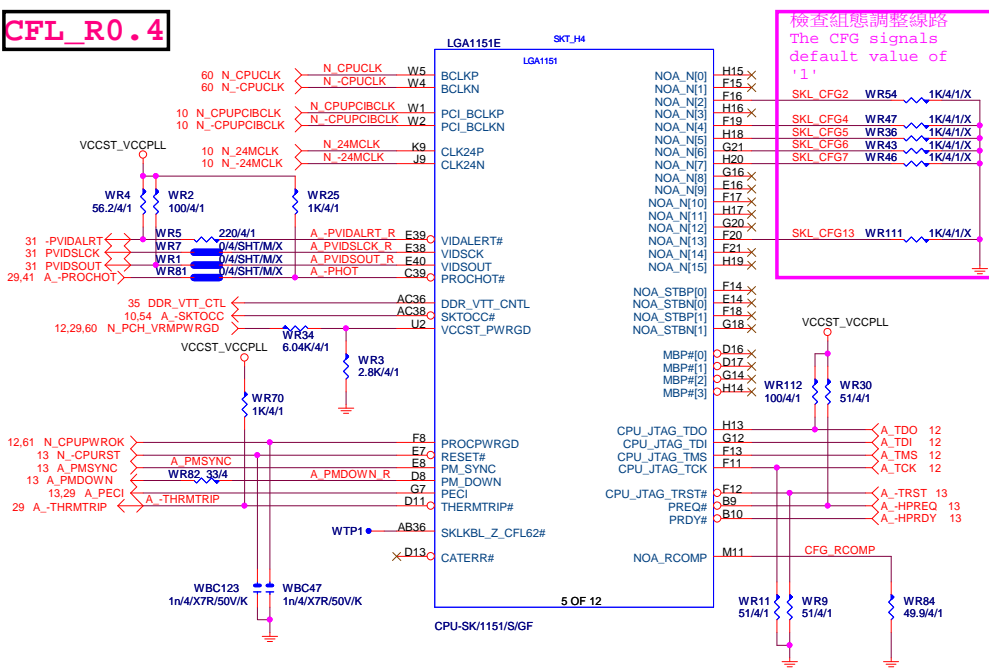
BLOCK DIAGRAM



GIGABYTE™

BLOCK DIAGRAM			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Thursday, July 27, 2017	Sheet	3 of 62

CFL_R0.4



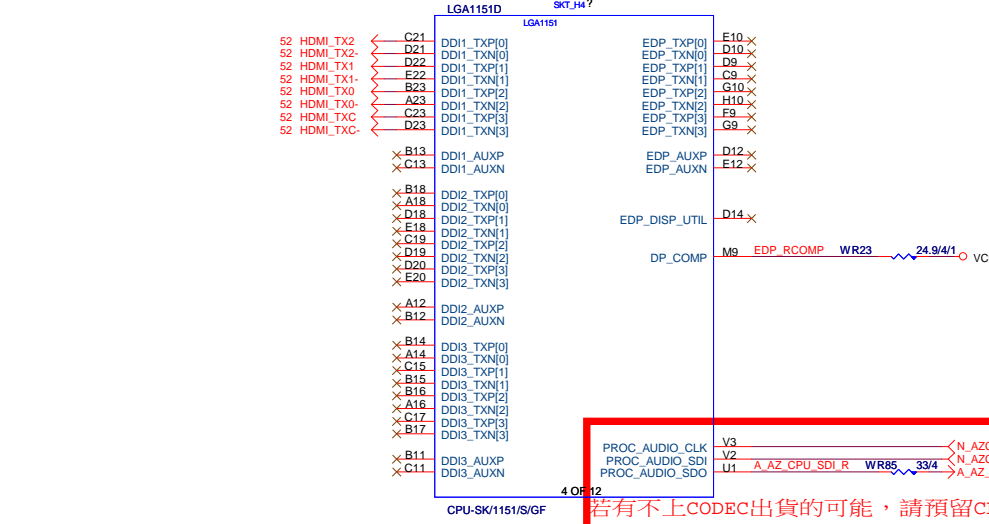
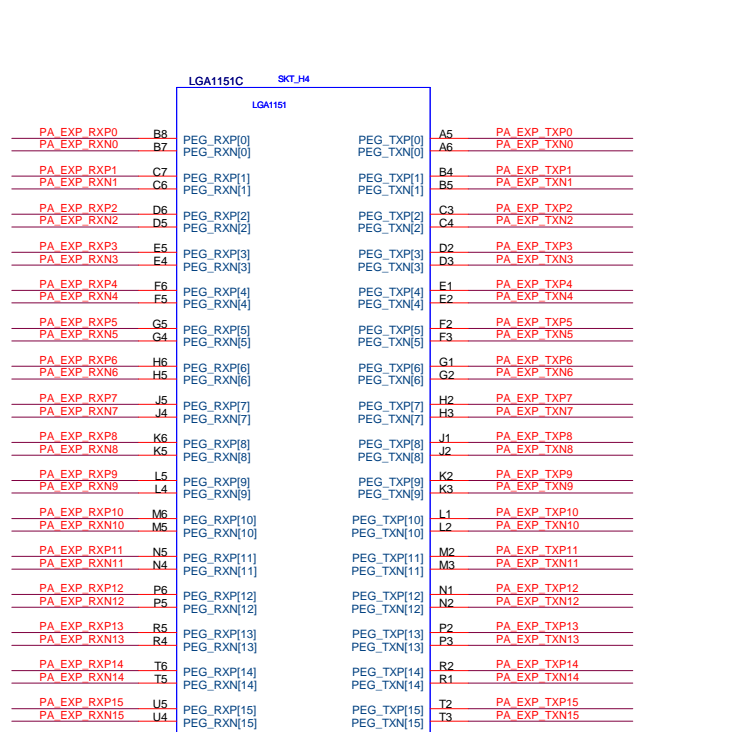
檢查組態調整線路
The CFG signals
default value of
'1'

CFG[4]: 1=eDP enable / 0=eDP disable
CFG[7]: 1=PEG Train immediately following RESET
0=PEG Wait for BIOS

CFG[13]: 1=VCCSA Fixed Mode / 0=SVID Mode

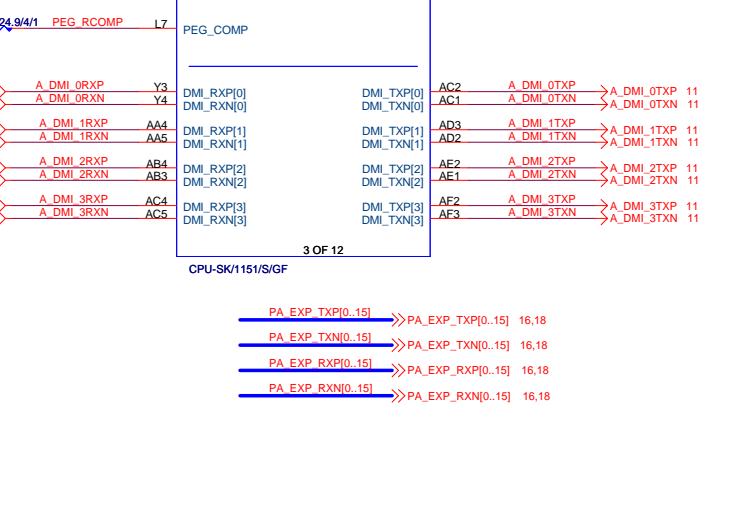
非x8/x4/x4設計的可移除

Bifurcation Config.	Signals Lanes
	CFG[6] CFG[5] CFG[2]
1x36	1 1 1
1x16 Reversed	1 1 0
2x8	1 0 1
2x8 Reversed	1 0 0
1x8+2x4	0 0 1
1x8+2x4 Reversed	0 0 0



CFG[4]: 1=eDP enable / 0=eDP disable
CFG[7]: 1=PEG Train immediately following RESET
0=PEG Wait for BIOS

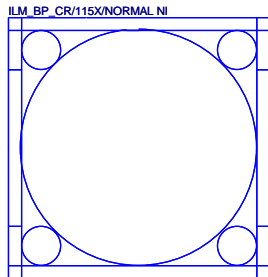
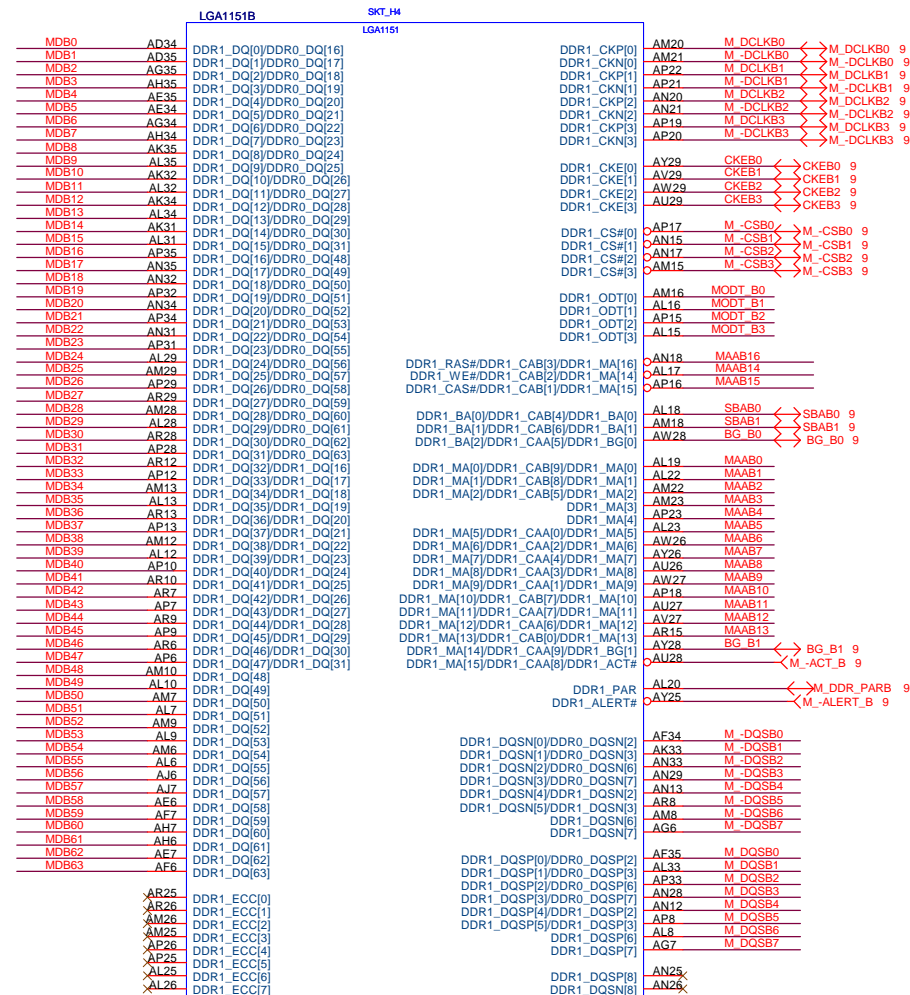
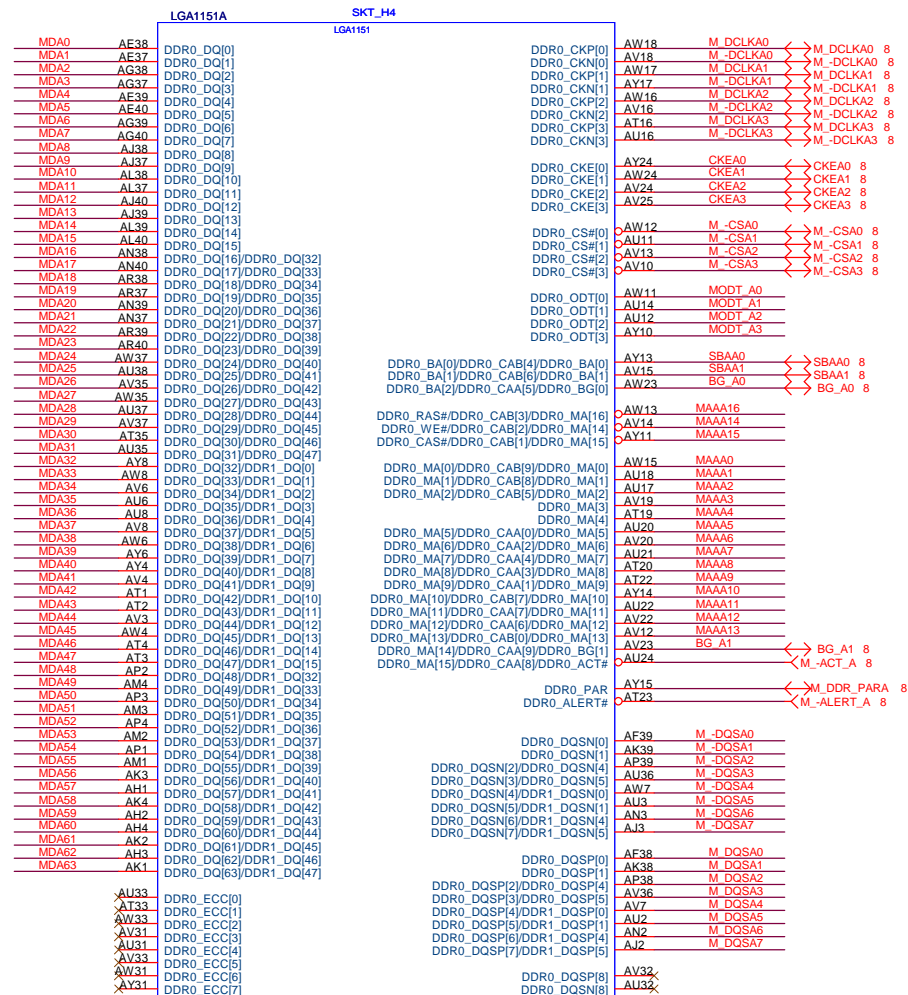
CFG[13]: 1=VCCSA Fixed Mode / 0=SVID Mode



G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R

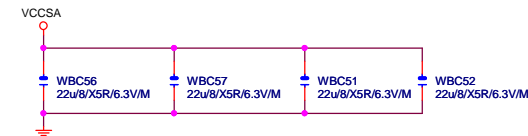
若有不上CODEC出貨的可能，請預留CLK and SDO對地電阻。

PA_EXP_TXP[0..15] >>> PA_EXP_TXP[0..15] 16,18
PA_EXP_TXN[0..15] >>> PA_EXP_TXN[0..15] 16,18
PA_EXP_RXP[0..15] >>> PA_EXP_RXP[0..15] 16,18
PA_EXP_RXN[0..15] >>> PA_EXP_RXN[0..15] 16,18

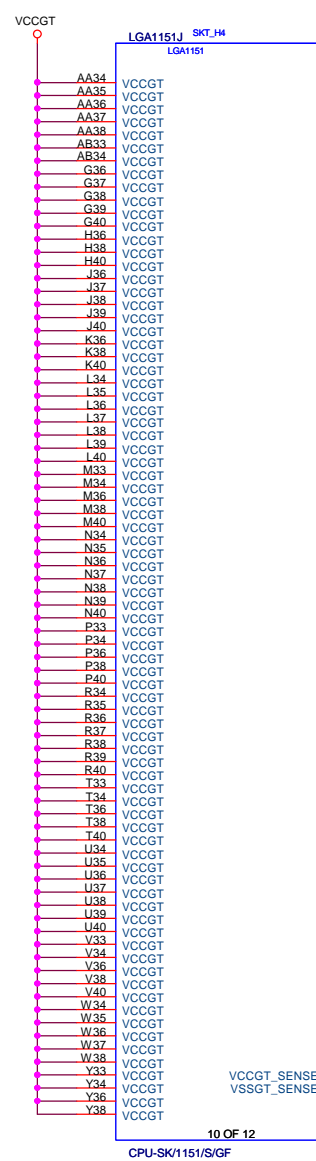
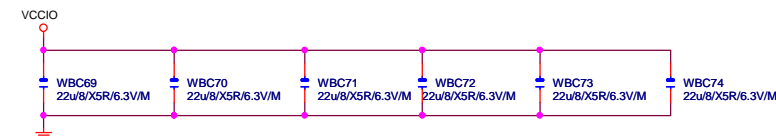


Need check the new CPU ME

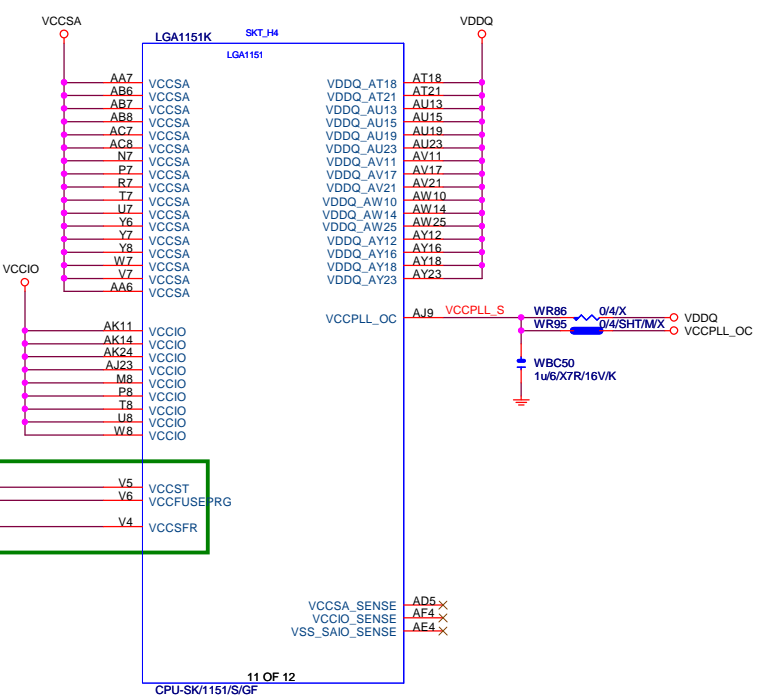
CFL_R0.4



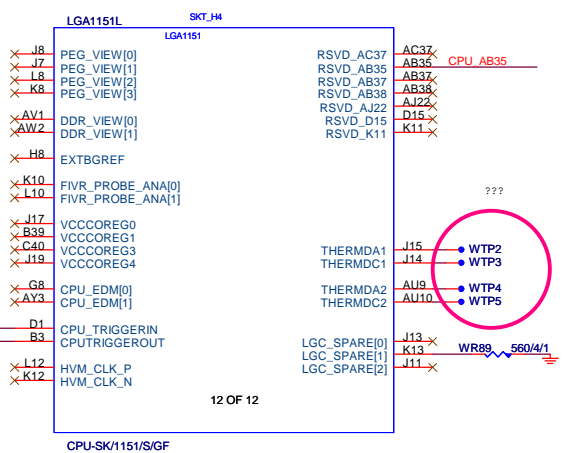
CPU POWER

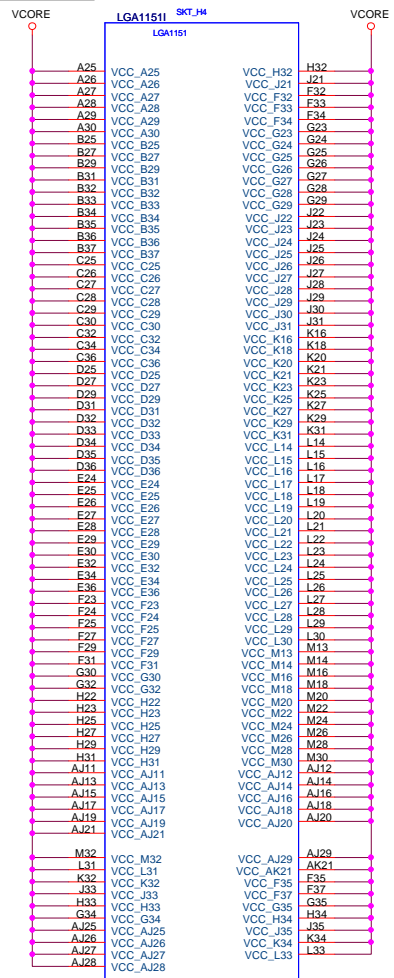


CPU POWER



CPU AB35 WR8 0/4/X CPU AB36_R CPU AB36_R 54

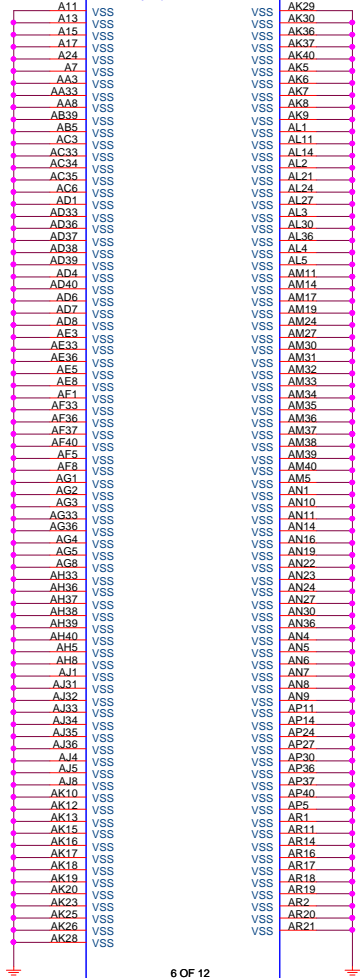




VCC_SENSE
VSS_SENSE

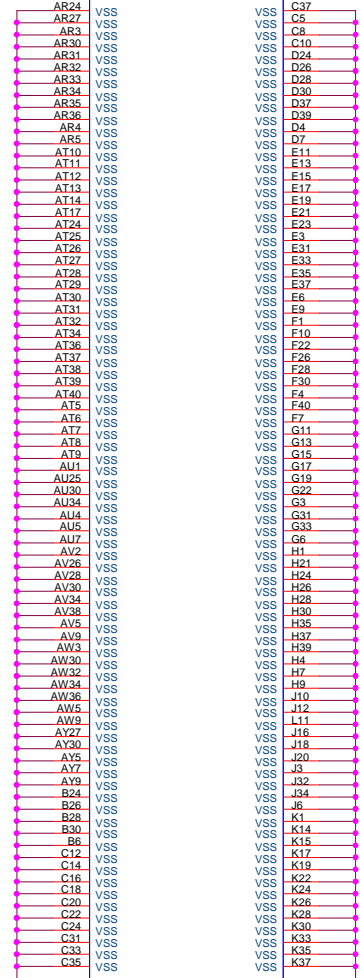
9 OF 12

CPU-SK/1151/S/GF



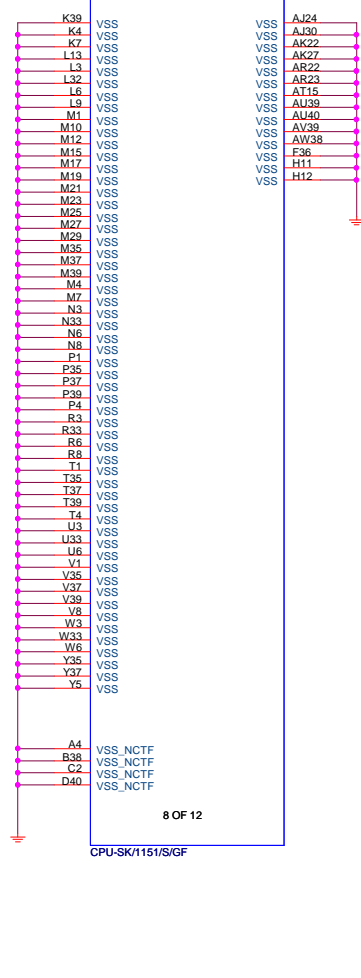
6 OF 12

CPU-SK/1151/S/GF



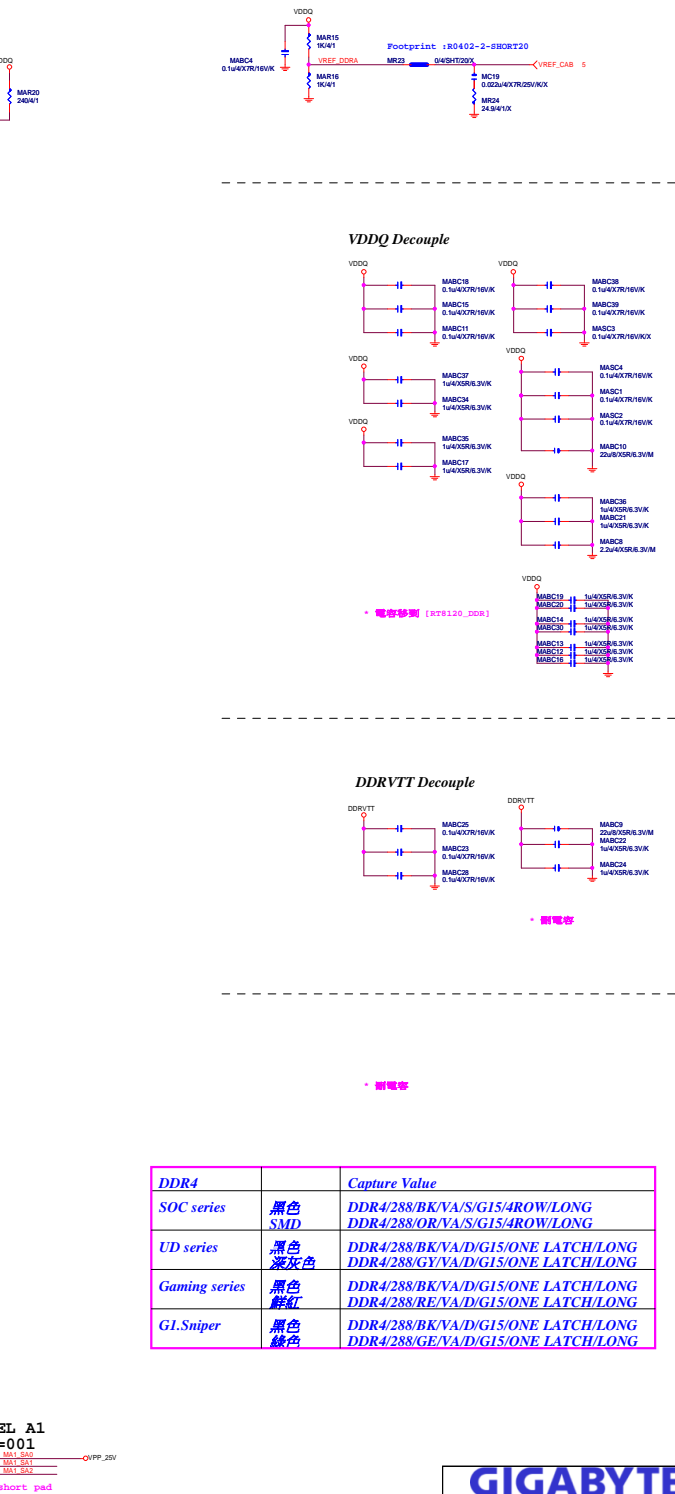
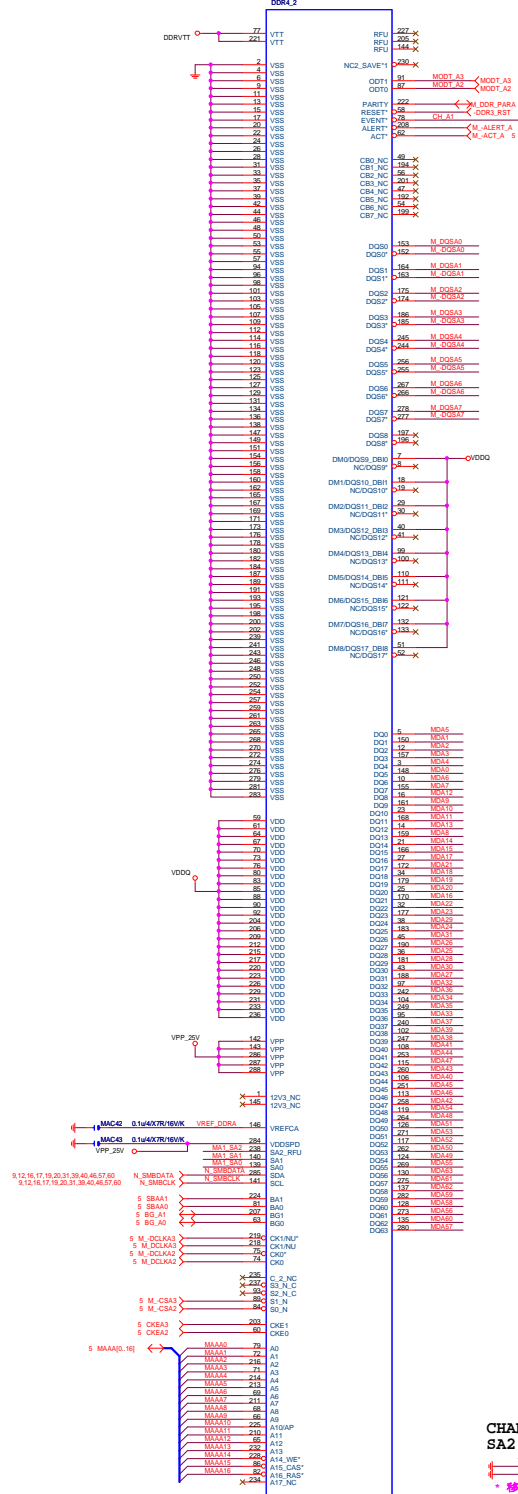
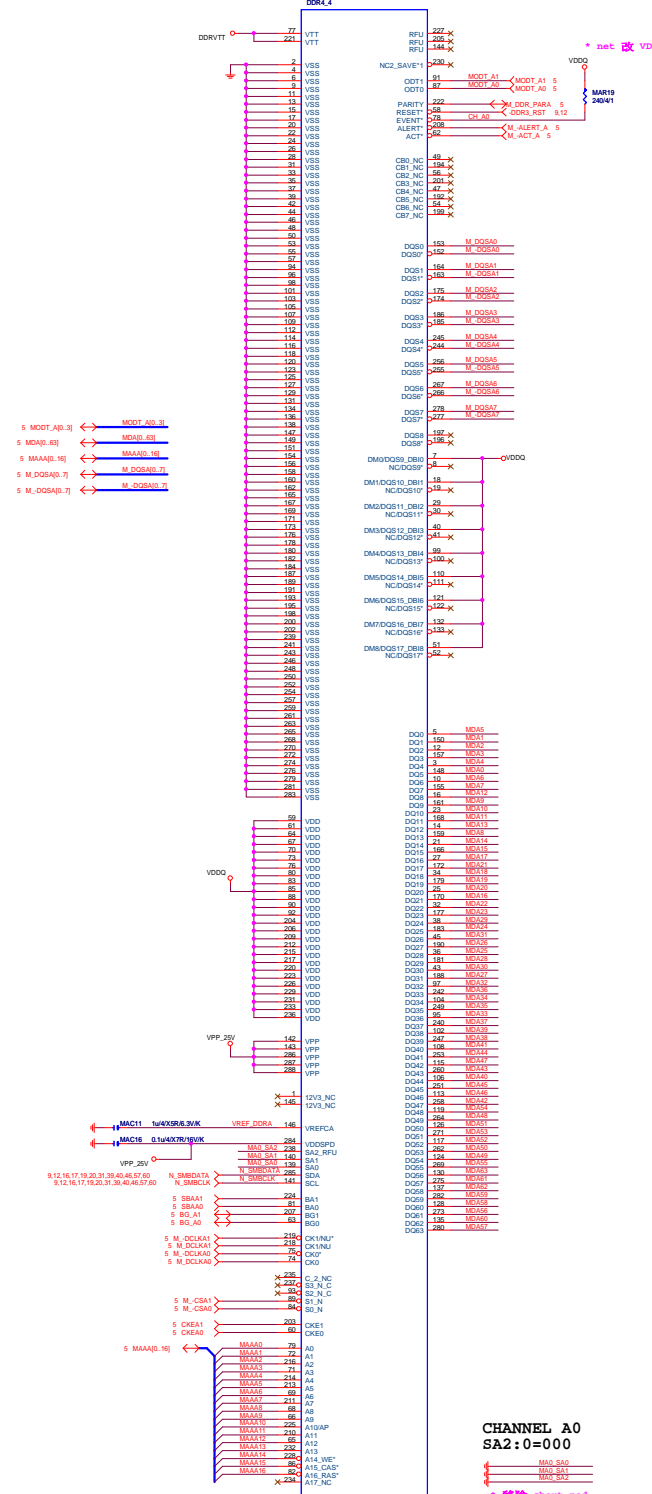
7 OF 12

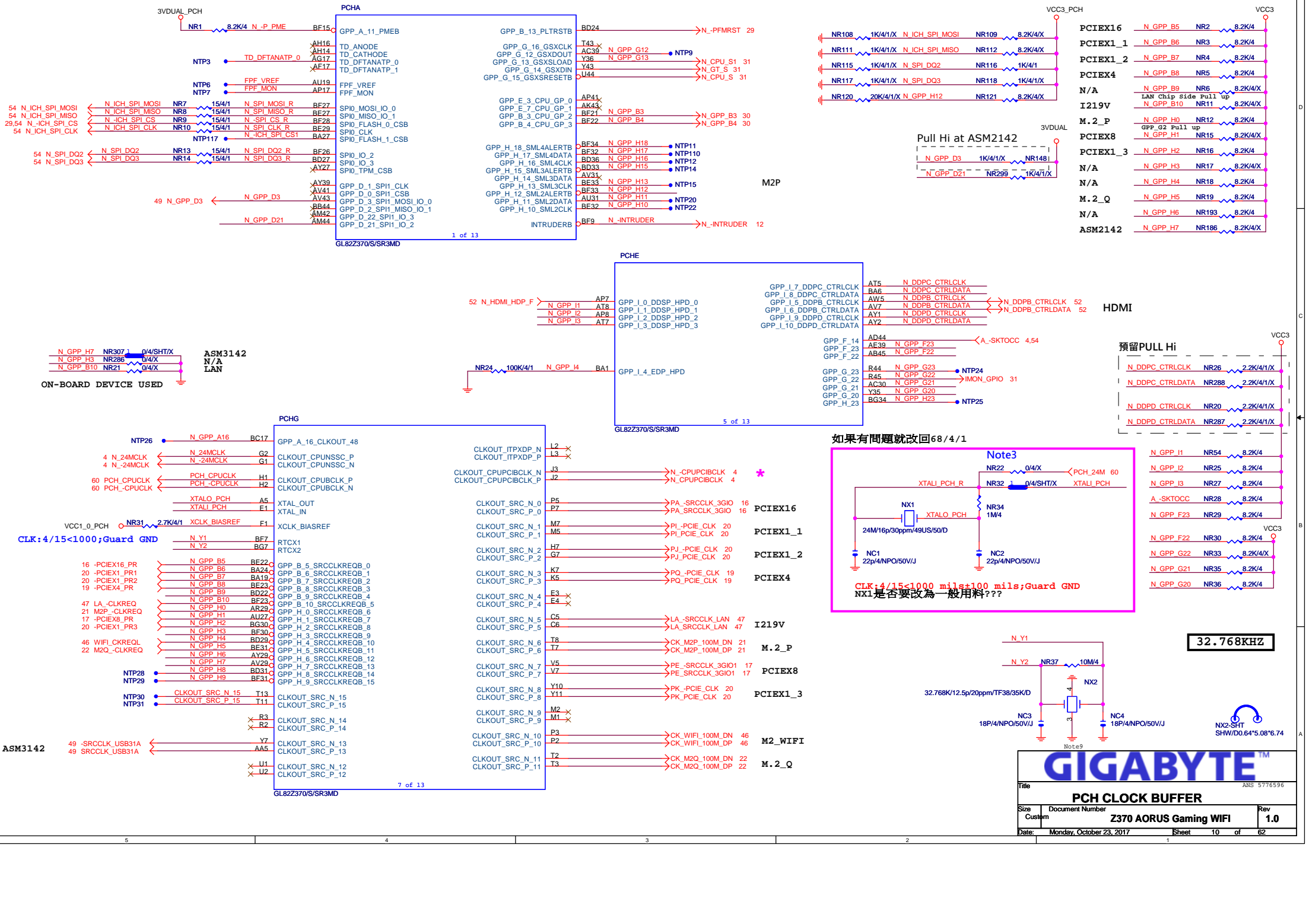
CPU-SK/1151/S/GF

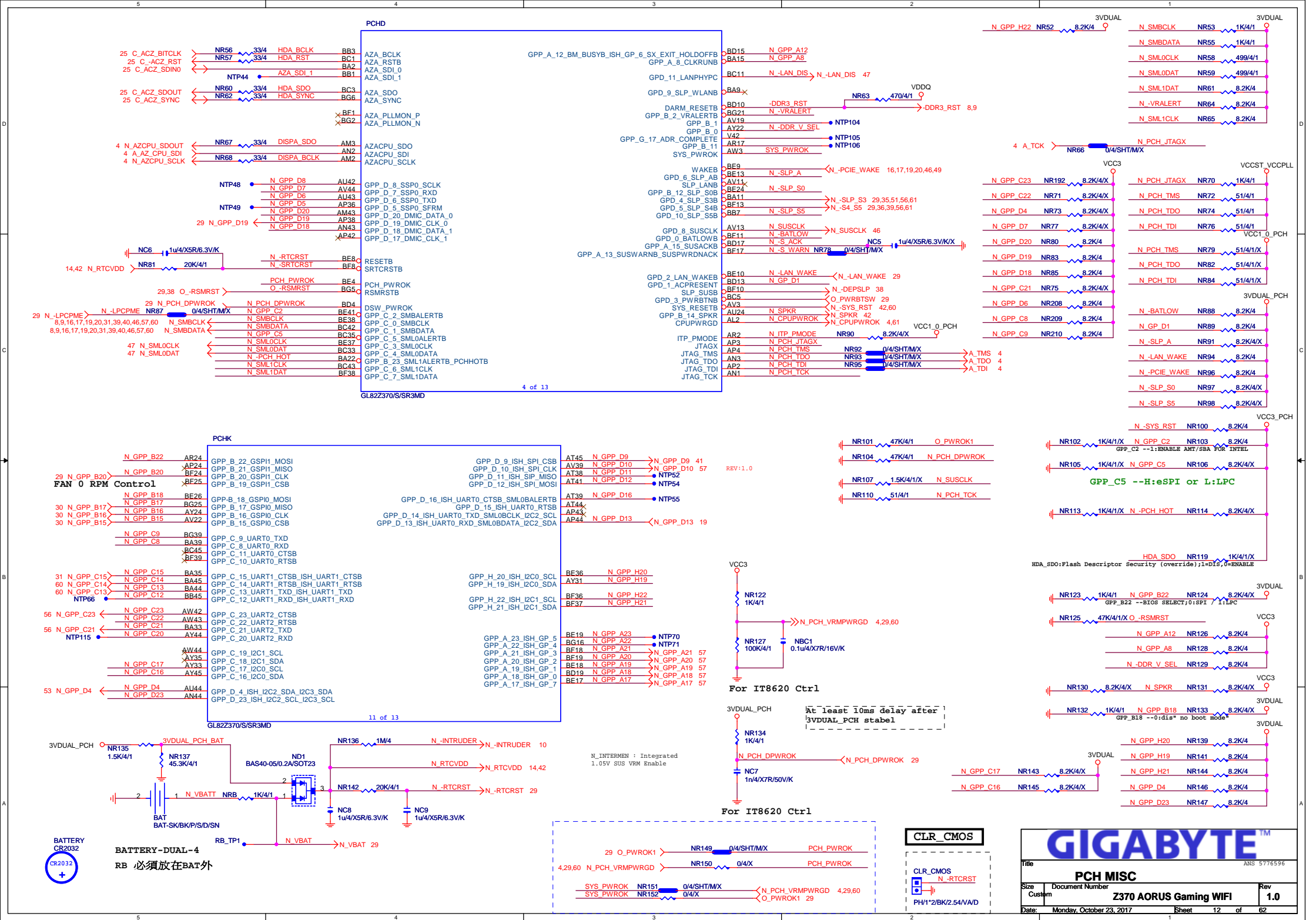


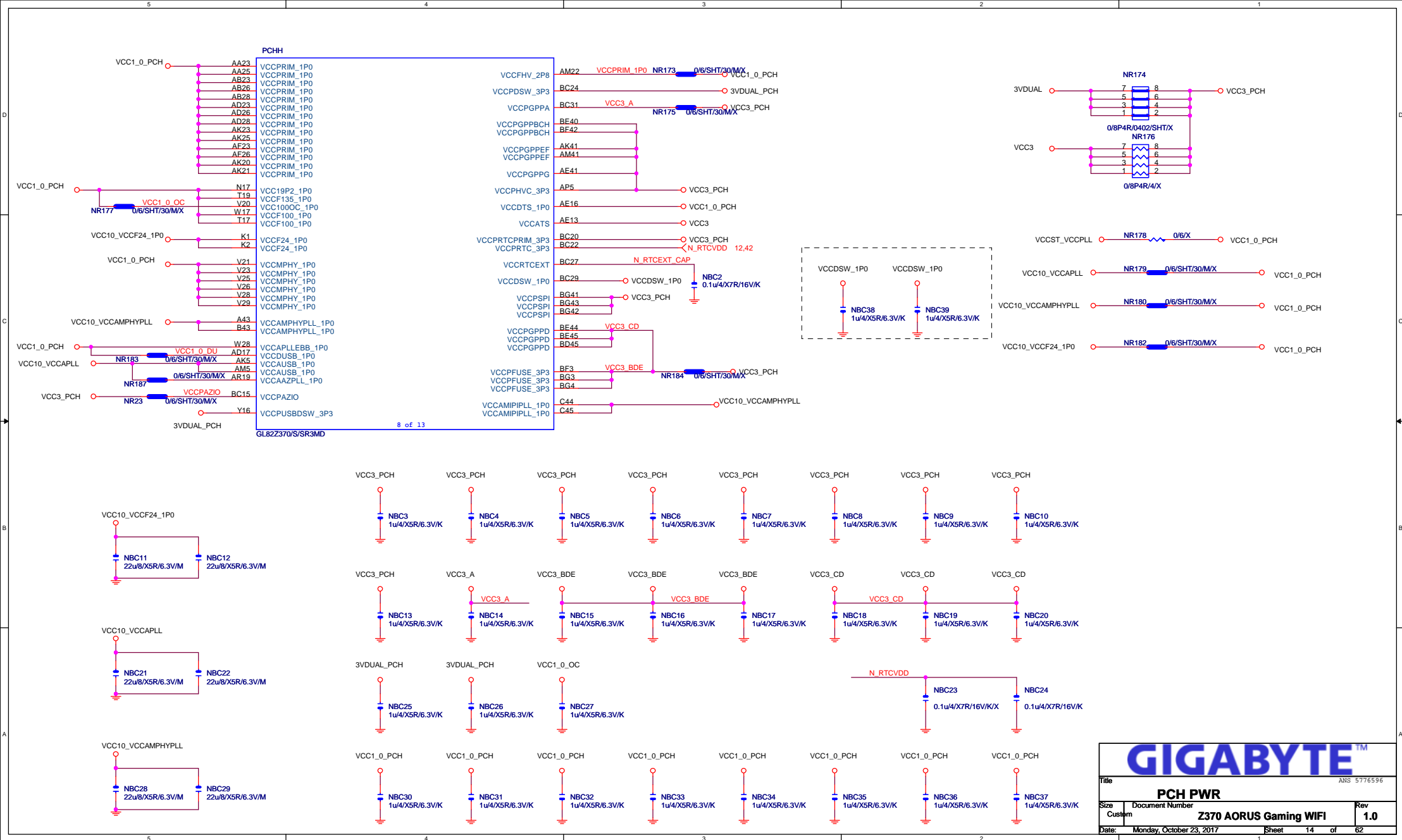
8 OF 12

CPU-SK/1151/S/GF







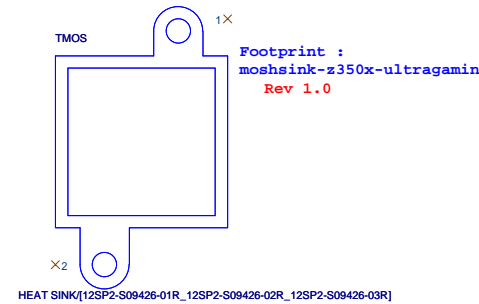


PCHI		
A25	VSS	VSS
A30	VSS	VSS
P22	VSS	VSS
AV38	VSS	VSS
AV45	VSS	VSS
AV8	VSS	VSS
AY11	VSS	VSS
AY19	VSS	VSS
AY37	VSS	VSS
AY4	VSS	VSS
AY42	VSS	VSS
AY8	VSS	VSS
B25	VSS	VSS
B3	VSS	VSS
B30	VSS	VSS
B35	VSS	VSS
B4	VSS	VSS
B41	VSS	VSS
BA13	VSS	VSS
BA17	VSS	VSS
BA37	VSS	VSS
BA29	VSS	VSS
BA31	VSS	VSS
BA37	VSS	VSS
BA4	VSS	VSS
BA42	VSS	VSS
BB40	VSS	VSS
BC38	VSS	VSS
BC40	VSS	VSS
BC9	VSS	VSS
BD11	VSS	VSS
BD16	VSS	VSS
BD2	VSS	VSS
BD21	VSS	VSS
BD25	VSS	VSS
F2	VSS	VSS
F31	VSS	VSS
E6	VSS	VSS
E8	VSS	VSS
F39	VSS	VSS
F43	VSS	VSS
G4	VSS	VSS
G40	VSS	VSS
G42	VSS	VSS
F6	VSS	VSS
G9	VSS	VSS
H11	VSS	VSS
H19	VSS	VSS
H22	VSS	VSS
H24	VSS	VSS
H27	VSS	VSS
H29	VSS	VSS
H33	VSS	VSS
H35	VSS	VSS
H38	VSS	VSS
H4	VSS	VSS
H42	VSS	VSS
H9	VSS	VSS
J4	VSS	VSS
M36	VSS	VSS
M38	VSS	VSS
M4	VSS	VSS
M8	VSS	VSS
M9	VSS	VSS
N13	VSS	VSS
N15	VSS	VSS
N19	VSS	VSS
N22	VSS	VSS
N24	VSS	VSS
N31	VSS	VSS
N42	VSS	VSS
P10	VSS	VSS
P12	VSS	VSS
AV35	VSS	VSS

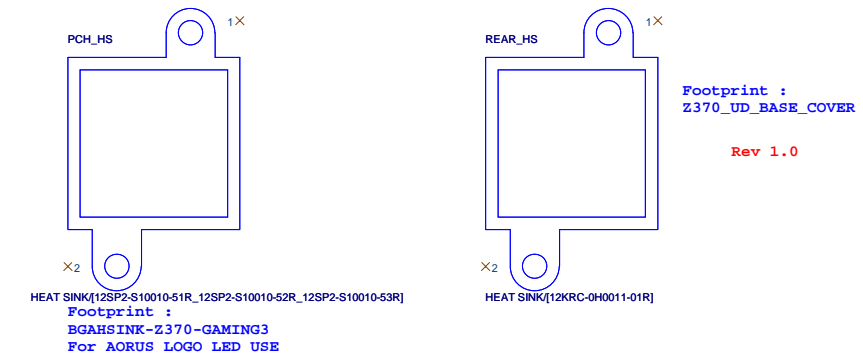
9 of 13
GL82Z370/S/SR3MD

PCHL		
BD34	VSS[70]	VSS[1]
BD39	VSS[71]	VSS[2]
BD7	VSS[72]	VSS[3]
BE2	VSS[73]	VSS[4]
BF43	VSS[74]	VSS[5]
BF2	VSS[75]	VSS[6]
BG18	VSS[76]	VSS[7]
BG23	VSS[77]	VSS[8]
BG28	VSS[78]	VSS[9]
BG32	VSS[79]	VSS[10]
BG37	VSS[80]	VSS[11]
BG40	VSS[81]	VSS[12]
BG9	VSS[83]	VSS[13]
C1	VSS[84]	VSS[14]
A12	VSS[85]	VSS[15]
C2	VSS[86]	VSS[16]
C37	VSS[87]	VSS[17]
A6	VSS[88]	VSS[18]
C9	VSS[89]	VSS[19]
D1	VSS[90]	VSS[20]
AER	VSS[91]	VSS[21]
D10	VSS[92]	VSS[22]
D12	VSS[93]	VSS[23]
D15	VSS[94]	VSS[24]
D16	VSS[95]	VSS[25]
B12	VSS[96]	VSS[26]
AF28	VSS[97]	VSS[27]
AF29	VSS[98]	VSS[28]
D21	VSS[99]	VSS[29]
D24	VSS[100]	VSS[30]
D25	VSS[101]	VSS[31]
D29	VSS[102]	VSS[32]
AG20	VSS[103]	VSS[33]
D33	VSS[104]	VSS[34]
D35	VSS[105]	VSS[35]
D36	VSS[106]	VSS[36]
D39	VSS[107]	VSS[37]
D44	VSS[108]	VSS[38]
D7	VSS[109]	VSS[39]
P13	VSS[110]	VSS[40]
AH13	VSS[111]	VSS[41]
AH30	VSS[112]	VSS[42]
AH32	VSS[113]	VSS[43]
AH33	VSS[114]	VSS[44]
AH38	VSS[115]	VSS[45]
AJ1	VSS[116]	VSS[46]
AJ17	VSS[117]	VSS[47]
P4	VSS[118]	VSS[48]
P42	VSS[119]	VSS[49]
AJ20	VSS[120]	VSS[50]
R1	VSS[121]	VSS[51]
R32	VSS[122]	VSS[52]
T10	VSS[123]	VSS[53]
T14	VSS[124]	VSS[54]
T22	VSS[125]	VSS[55]
T29	VSS[126]	VSS[56]
AJ45	VSS[127]	VSS[57]
AK10	VSS[128]	VSS[58]
T36	VSS[129]	VSS[59]
T38	VSS[130]	VSS[60]
Y38	VSS[131]	VSS[61]
Y4	VSS[132]	VSS[62]
Y8	VSS[133]	VSS[63]
T42	VSS[134]	VSS[64]
T5	VSS[135]	VSS[65]
U4	VSS[136]	VSS[66]
U42	VSS[137]	VSS[67]
V10	VSS[138]	VSS[68]
V14	VSS[139]	VSS[69]
W3	VSS[140]	VSS[70]
AR13	VSS[141]	VSS[71]
AR31	VSS[142]	VSS[72]
AR33	VSS[143]	VSS[73]
AR4	VSS[144]	VSS[74]
AT10	VSS[145]	VSS[75]
AT13	VSS[146]	VSS[76]
AT35	VSS[147]	VSS[77]
AT37	VSS[148]	VSS[78]
AT42	VSS[149]	VSS[79]
AU11	VSS[150]	VSS[80]
AU17	VSS[151]	VSS[81]
BD30	VSS[152]	VSS[82]
W45	VSS[153]	VSS[83]
Y13	VSS[154]	VSS[84]
Y14	VSS[155]	VSS[85]
Y30	VSS[156]	VSS[86]
Y32	VSS[157]	VSS[87]
Y33	VSS[158]	VSS[88]
BG14	VSS[159]	VSS[89]
	VSS[160]	VSS[90]
	VSS[161]	VSS[91]
	VSS[162]	VSS[92]
	VSS[163]	VSS[93]
	VSS[164]	VSS[94]
	VSS[165]	VSS[95]
	VSS[166]	VSS[96]
	VSS[167]	VSS[97]
	VSS[168]	VSS[98]
	VSS[169]	VSS[99]
	VSS[170]	VSS[100]

12 of 13
GL82Z370/S/SR3MD

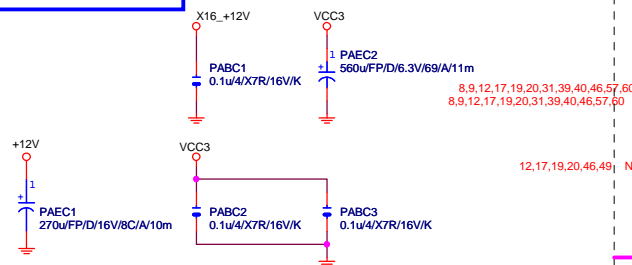


Check Final P/N before PVT

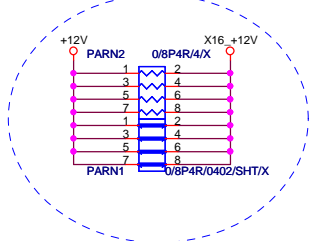


Rev 0.3

PCIEX16 CAP



PCIEX16 PROTECT SHT

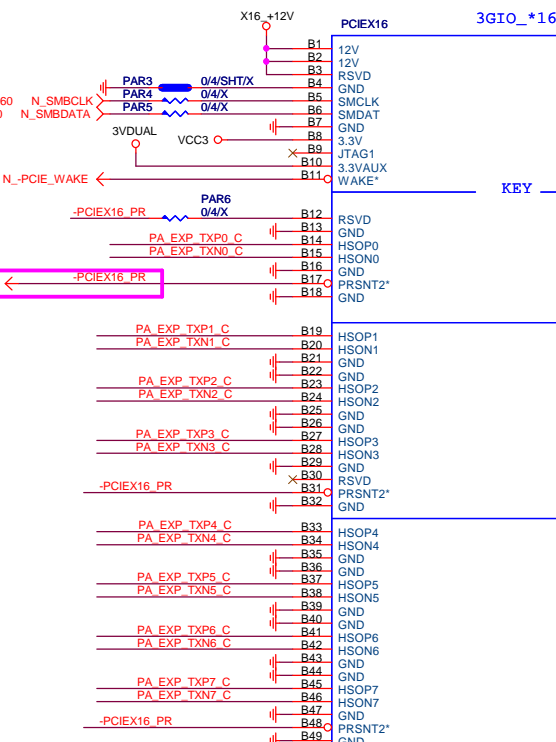


PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0_C
PA EXP TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0_C
PA EXP TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1_C
PA EXP TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1_C
PA EXP TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2_C
PA EXP TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2_C
PA EXP TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3_C
PA EXP TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3_C
PA EXP TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4_C
PA EXP TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4_C
PA EXP TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5_C
PA EXP TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5_C
PA EXP TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6_C
PA EXP TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6_C
PA EXP TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXP7_C
PA EXP TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXN7_C
PA EXP SW TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA EXP SW TXP8_C
PA EXP SW TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA EXP SW TXN8_C
PA EXP SW TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA EXP SW TXP9_C
PA EXP SW TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA EXP SW TXN9_C
PA EXP SW TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA EXP SW TXP10_C
PA EXP SW TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA EXP SW TXN10_C
PA EXP SW TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA EXP SW TXP11_C
PA EXP SW TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA EXP SW TXN11_C
PA EXP SW TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA EXP SW TXP12_C
PA EXP SW TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA EXP SW TXN12_C
PA EXP SW TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA EXP SW TXP13_C
PA EXP SW TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA EXP SW TXN13_C
PA EXP SW TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA EXP SW TXP14_C
PA EXP SW TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA EXP SW TXN14_C
PA EXP SW TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA EXP SW TXP15_C
PA EXP SW TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA EXP SW TXN15_C

PCIEX16 SLOT

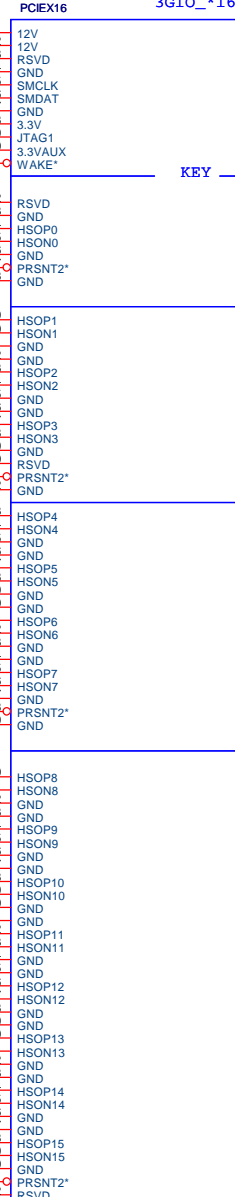
PCIESLOT-1645TH



PA EXP TXP8_C	B50	HSOP8	A50	PA EXP SW TXP8_C
PA EXP SW TXN8_C	B51	HSOP8	A51	PA EXP SW TXN8_C
PA EXP TXP9_C	B52	HSOP9	A52	PA EXP SW TXP9_C
PA EXP SW TXN9_C	B53	HSOP9	A53	PA EXP SW TXN9_C
PA EXP TXP10_C	B54	HSOP10	A54	PA EXP SW TXP10_C
PA EXP SW TXN10_C	B55	HSOP10	A55	PA EXP SW TXN10_C
PA EXP TXP11_C	B56	HSOP11	A56	PA EXP SW TXP11_C
PA EXP SW TXN11_C	B57	HSOP11	A57	PA EXP SW TXN11_C
PA EXP TXP12_C	B58	HSOP12	A58	PA EXP SW TXP12_C
PA EXP SW TXN12_C	B59	HSOP12	A59	PA EXP SW TXN12_C
PA EXP TXP13_C	B60	HSOP13	A60	PA EXP SW TXP13_C
PA EXP SW TXN13_C	B61	HSOP13	A61	PA EXP SW TXN13_C
PA EXP TXP14_C	B62	HSOP14	A62	PA EXP SW TXP14_C
PA EXP SW TXN14_C	B63	HSOP14	A63	PA EXP SW TXN14_C
PA EXP TXP15_C	B64	HSOP15	A64	PA EXP SW TXP15_C
PA EXP SW TXN15_C	B65	HSOP15	A65	PA EXP SW TXN15_C

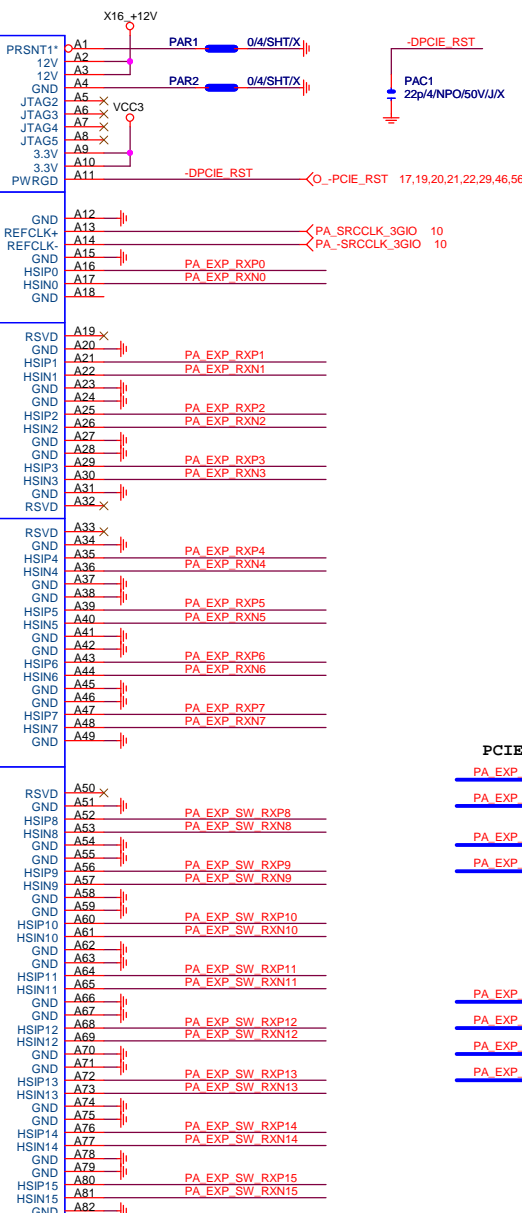
PCIESLOT-1645TH

3GIO_*16



PCI-E/16X-164P/BK/LONG DOUBLE/HK*2/SHELL

黑色金屬加強

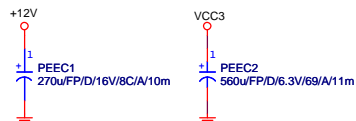


PCIEX16:16/5/5/5/16

PA EXP RXP[0..7]	>>PA_EXP_RXP[0..7]	4
PA EXP RXN[0..7]	>>PA_EXP_RXN[0..7]	4
PA EXP TXP[0..7]	>>PA_EXP_TXP[0..7]	4
PA EXP TXN[0..7]	>>PA_EXP_TXN[0..7]	4
PA EXP SW RXP[8..15]	>>PA_EXP_SW_RXP[8..15]	18
PA EXP SW RXN[8..15]	>>PA_EXP_SW_RXN[8..15]	18
PA EXP SW TXP[8..15]	>>PA_EXP_SW_TXP[8..15]	18
PA EXP SW TXN[8..15]	>>PA_EXP_SW_TXN[8..15]	18

GIGABYTE™		
PCI EXPRESS * 16		
Size	Document Number	Rev
Custom	Z370 AORUS Gaming WIFI	1.0
Date:	Friday, August 18, 2017	Sheet 16 of 62

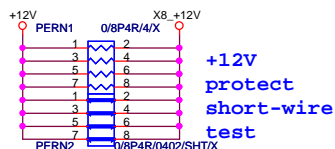
Rev 0.3



8,9,12,16,19,20,31,39,40,46,57,60
8,9,12,16,19,20,31,39,40,46,57,60

N_SMBCLK N_SMBCLK
N_SMBDATA N_SMBDATA

PCIEX8 PROTECT SHT



12,16,19,20,46,49

N_-PCIE_WAKE

PER11

0/4/X

PE EXP SW TXP8 C

PE EXP SW TXN8 C

PE EXP SW TXP9 C

PE EXP SW TXN9 C

PE EXP SW TXP10 C

PE EXP SW TXN10 C

PE EXP SW TXP11 C

PE EXP SW TXN11 C

PE EXP SW TXP12 C

PE EXP SW TXN12 C

PE EXP SW TXP13 C

PE EXP SW TXN13 C

PE EXP SW TXP14 C

PE EXP SW TXN14 C

PE EXP SW TXP15 C

PE EXP SW TXN15 C

+12V

PEBC5
0.1u4/X7R/16V/K

3VDUAL

PEBC6
1u4/X5R/6.3V/K

VCC3

PEBC7
0.1u4/X7R/16V/K

PEBC8
0.1u4/X7R/16V/K/X

18 PE_16_8_SW

4 -8X_EN

BAT54C/SOT23/200mA

13 N_GPP_G2

10 -PCIE8_PR

Pull up @PCH Side

PER10

0/4/SHT/X

PCIESLOT-988TH

3GIO_*8

KEY

PCI-E/8X-99P/BK/LONG DOUBLE/HK/2/SHELL

黑色金屬加強版

PE EXP SW TXP8	PEC7	0.22u4/X5R/6.3V/K	PE EXP SW TXP8 C
PE EXP SW TXN8	PEC8	0.22u4/X5R/6.3V/K	PE EXP SW TXN8 C
PE EXP SW TXP9	PEC9	0.22u4/X5R/6.3V/K	PE EXP SW TXP9 C
PE EXP SW TXN9	PEC10	0.22u4/X5R/6.3V/K	PE EXP SW TXN9 C
PE EXP SW TXP10	PEC11	0.22u4/X5R/6.3V/K	PE EXP SW TXP10 C
PE EXP SW TXN10	PEC12	0.22u4/X5R/6.3V/K	PE EXP SW TXN10 C
PE EXP SW TXP11	PEC13	0.22u4/X5R/6.3V/K	PE EXP SW TXP11 C
PE EXP SW TXN11	PEC14	0.22u4/X5R/6.3V/K	PE EXP SW TXN11 C
PE EXP SW TXP12	PEC15	0.22u4/X5R/6.3V/K	PE EXP SW TXP12 C
PE EXP SW TXN12	PEC16	0.22u4/X5R/6.3V/K	PE EXP SW TXN12 C
PE EXP SW TXP13	PEC17	0.22u4/X5R/6.3V/K	PE EXP SW TXP13 C
PE EXP SW TXN13	PEC18	0.22u4/X5R/6.3V/K	PE EXP SW TXN13 C
PE EXP SW TXP14	PEC19	0.22u4/X5R/6.3V/K	PE EXP SW TXP14 C
PE EXP SW TXN14	PEC20	0.22u4/X5R/6.3V/K	PE EXP SW TXN14 C
PE EXP SW TXP15	PEC21	0.22u4/X5R/6.3V/K	PE EXP SW TXP15 C
PE EXP SW TXN15	PEC22	0.22u4/X5R/6.3V/K	PE EXP SW TXN15 C

PE EXP SW RXP[8..15] >>> PE_EXP_SW_RXP[8..15] 18

PE EXP SW RXN[8..15] >>> PE_EXP_SW_RXN[8..15] 18

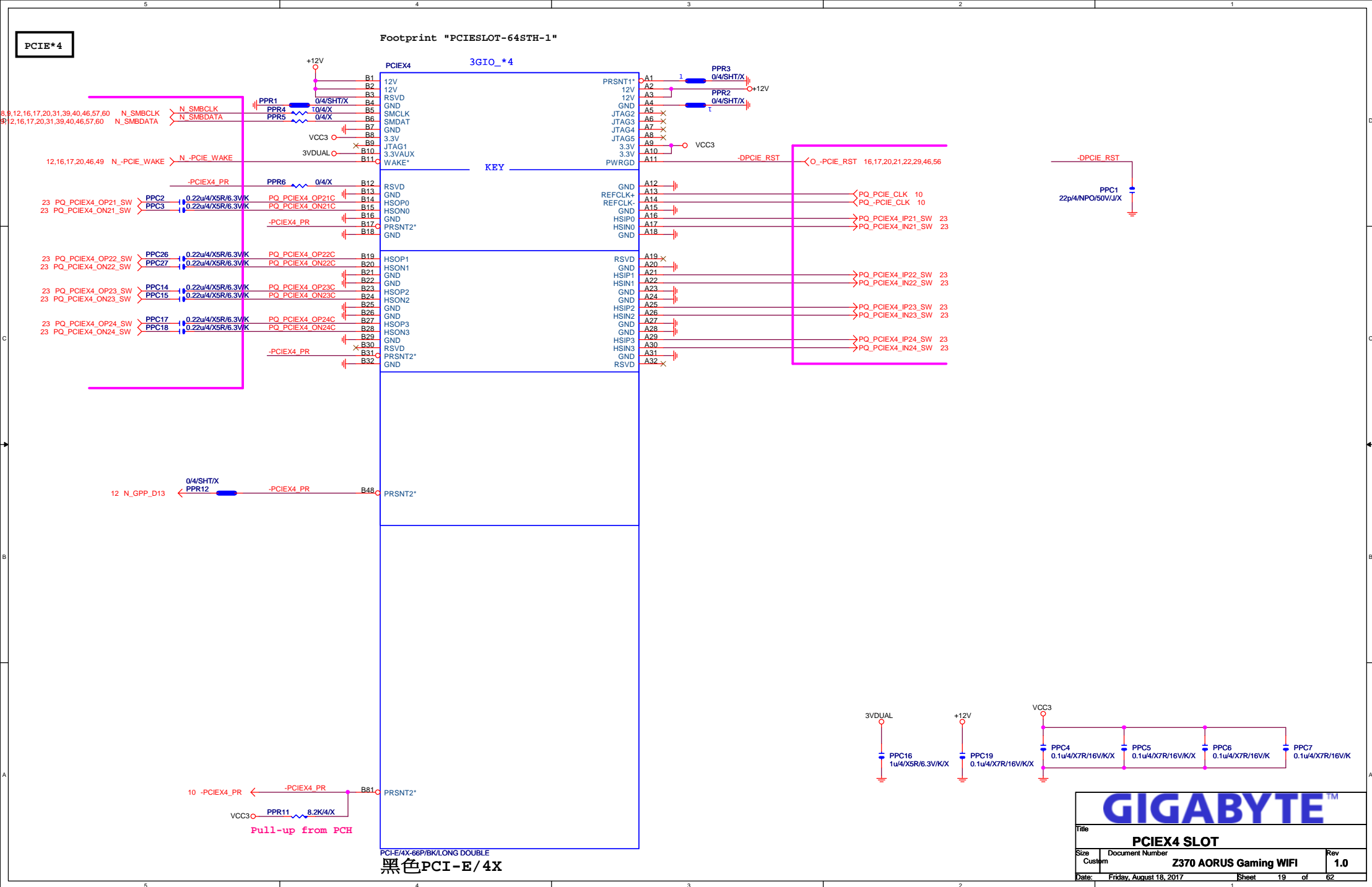
PE EXP SW TXP[8..15] >>> PE_EXP_SW_TXP[8..15] 18

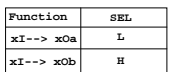
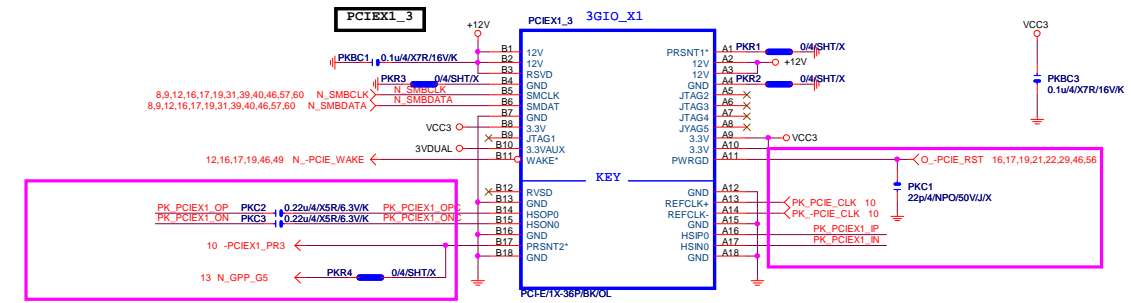
PE EXP SW TXN[8..15] >>> PE_EXP_SW_TXN[8..15] 18

GIGABYTE™

Title			
PCI EXPRESS X8			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	17 of 62







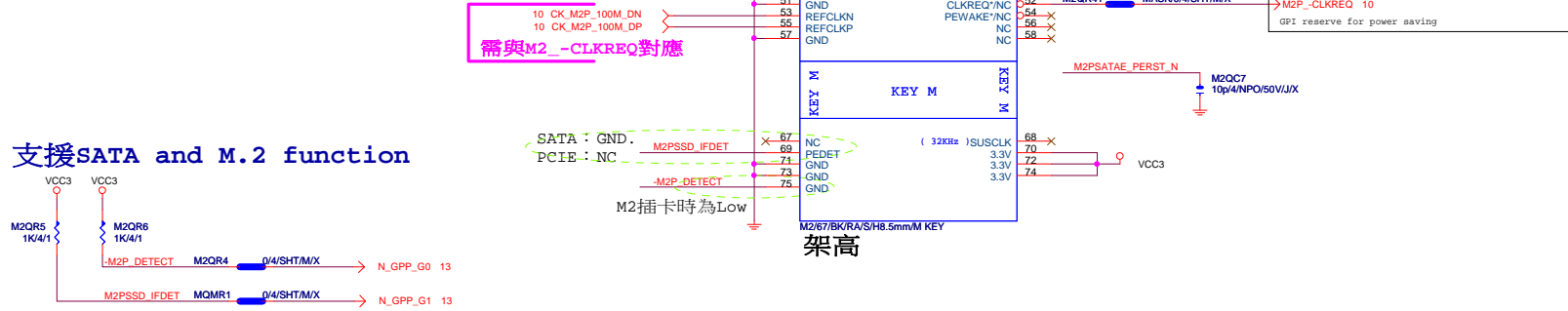
Rev 0.6

M.2 Lane4 from PCH port18

M.2 Lane3 from PCH port17

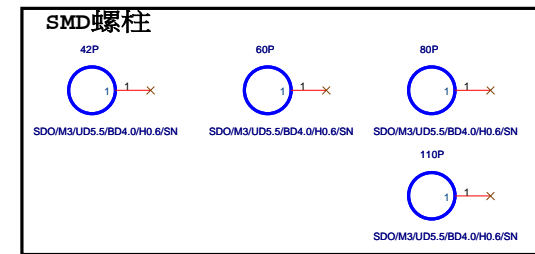
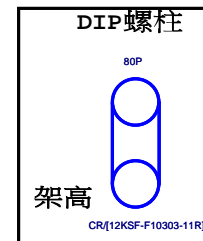
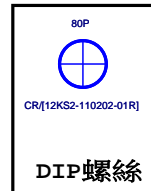
M.2 Lane2 from PCH port16

M.2 Lane2 from PCH port15



支援SATA and M.2 function

M. 2 有插卡 /沒插卡 GPP_G0	M. 2插何種卡？ GPP_G1	SATA Express 插何種硬碟？ GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IP20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M. 2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M. 2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)	PCIE x4 (For M.2)				SATA	SATA
		SATA Express (Low)	PCIE x4 (For M.2)				SATA Express	
沒插卡 (Hi)	Don' t Care (Hi)	SATA (Hi)	PCIE x4				SATA	SATA
		SATA Express (Low)	PCIE x4				SATA Express	



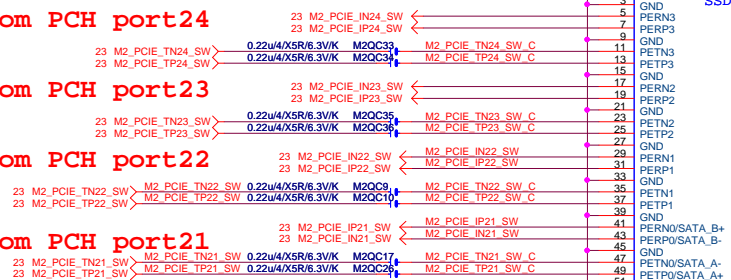
Rev 0.2

M.2 Lane4 from PCH port24

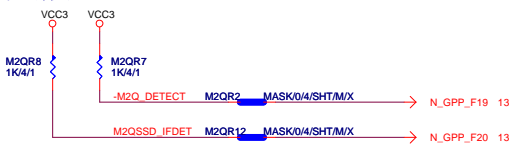
M.2 Lane3 from PCH port23

M.2 Lane2 from PCH port22

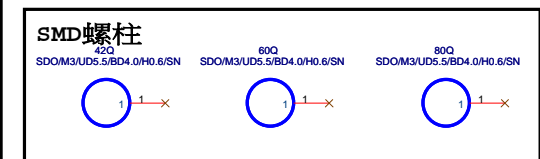
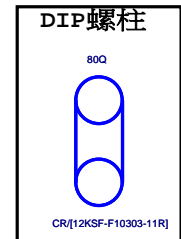
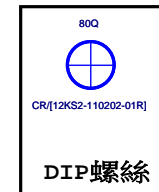
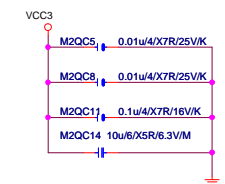
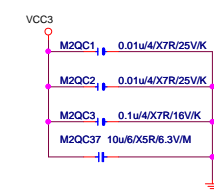
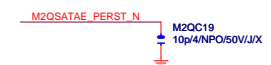
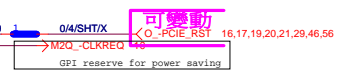
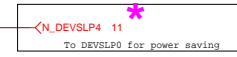
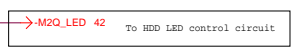
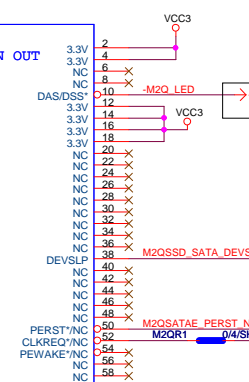
M.2 Lane2 from PCH port21

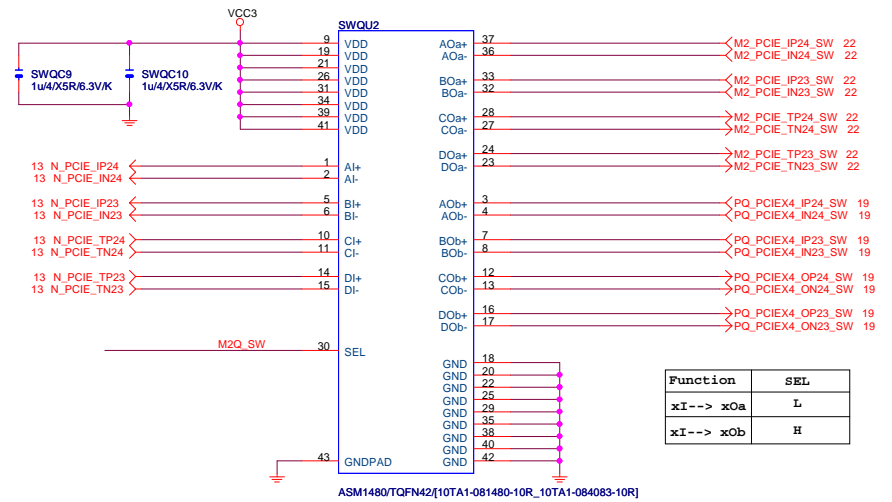
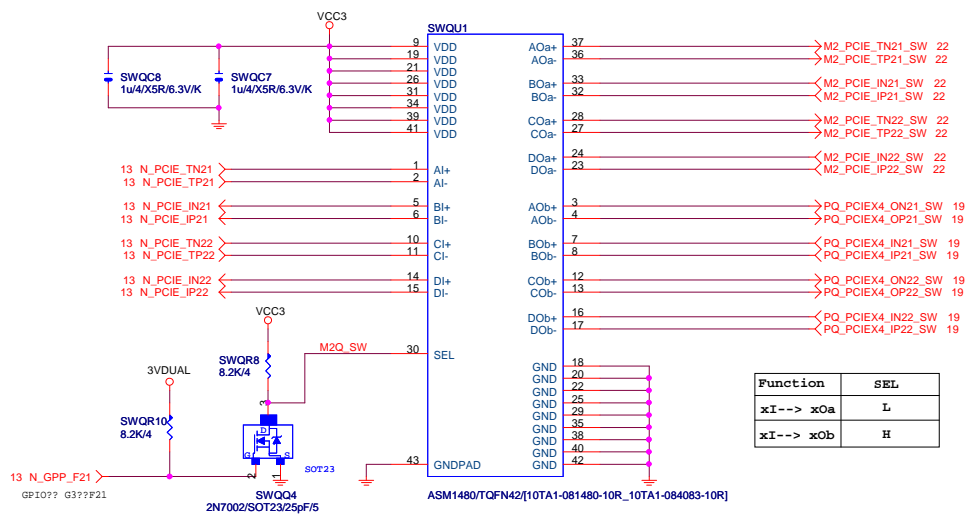


10 CK_M2Q_100M_DN
10 CK_M2Q_100M_DP
需與M2_-CLKREQ對應

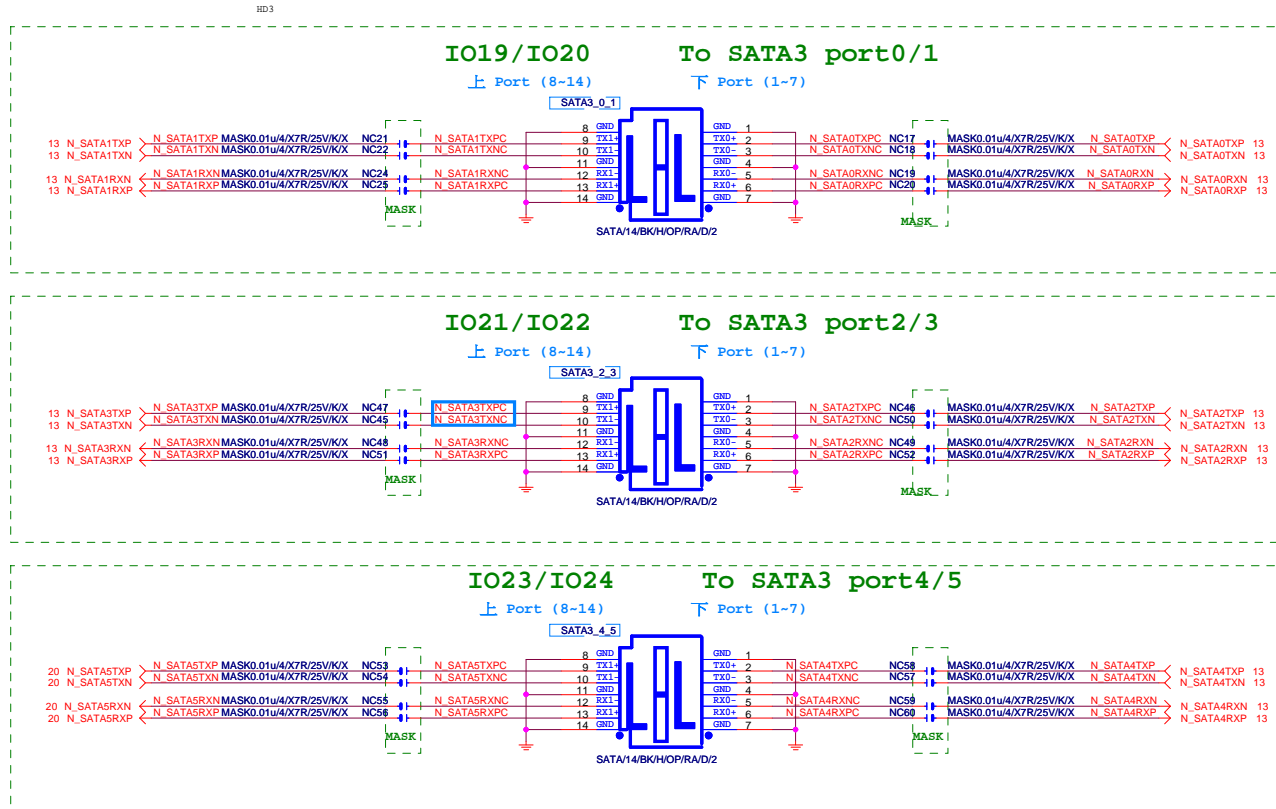


架高

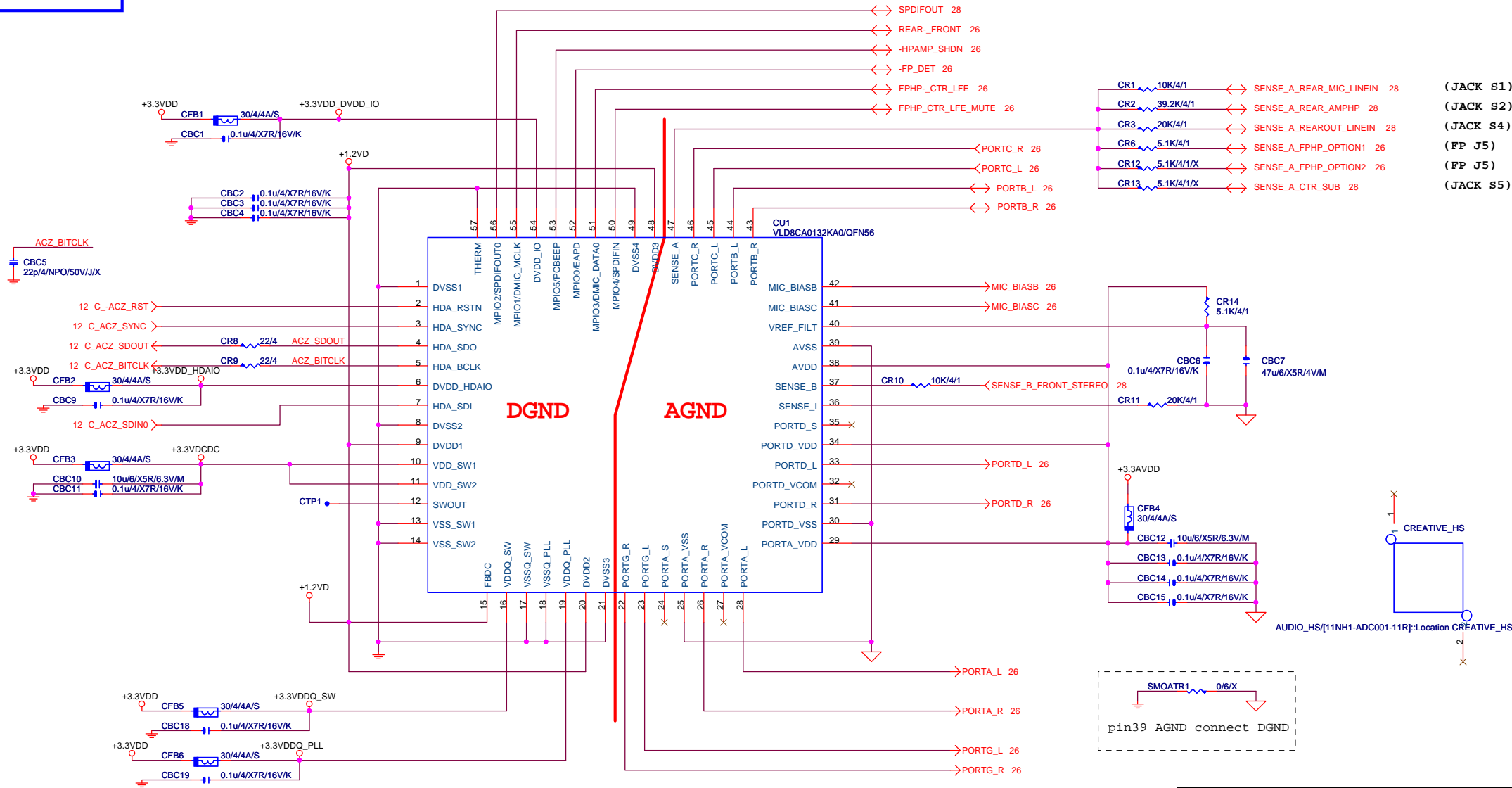




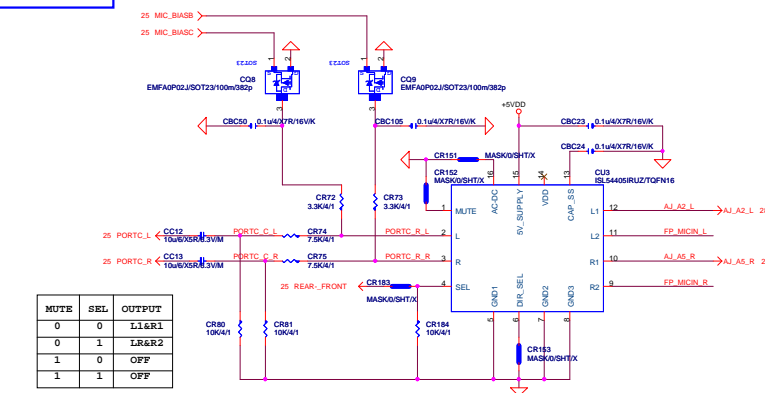
Flex IO priority	M2Q_32G N_GPP_F19	PCIEX4_1 N_GPP_D13	PCH N_GPP_F21
M2Q_32G Only	L	H	H
PCIEX4_2 Only (PCIe Reverse)	H	L	L
M2Q_32G + PCIEX4_2 (M2Q_32G ONLY)	L	L	H



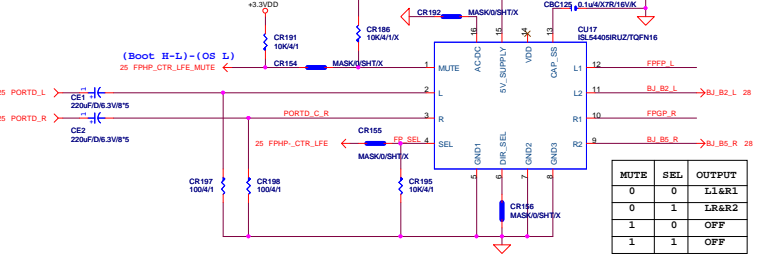
SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)



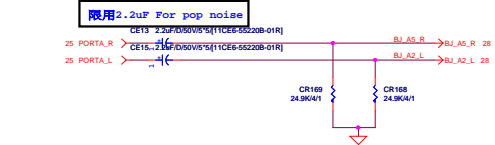
Rear MIC & FP MIC



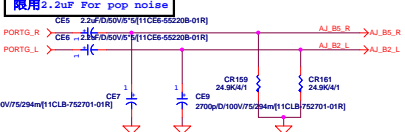
Rear CTR/SUB & FP HP-Out



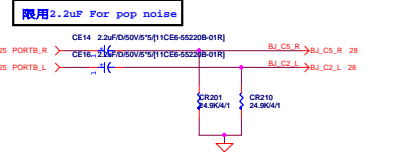
HP-Out



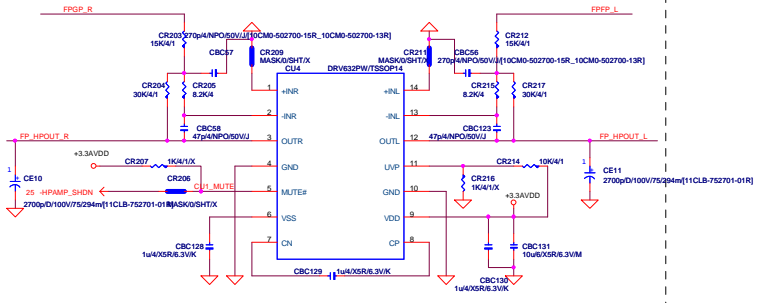
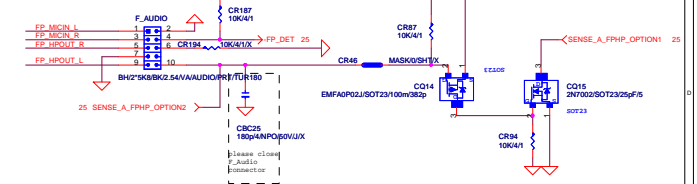
Line-Out



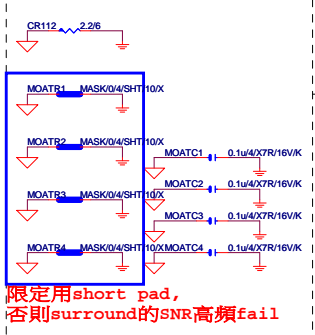
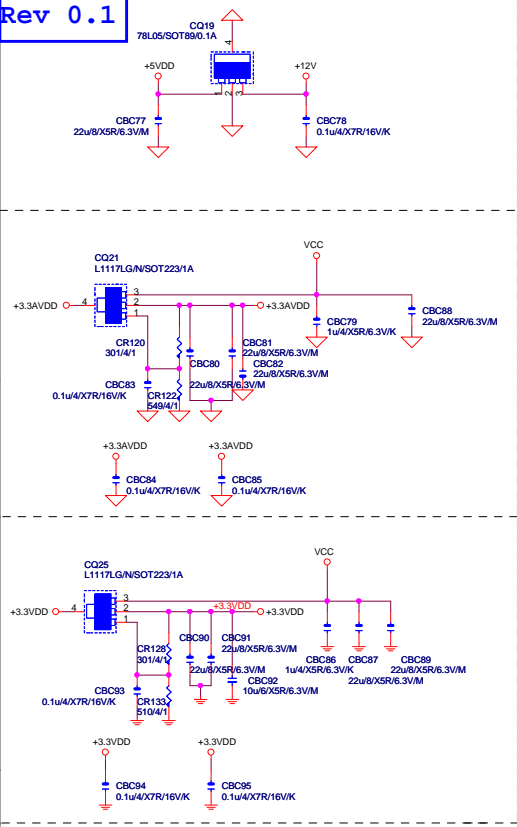
Rear



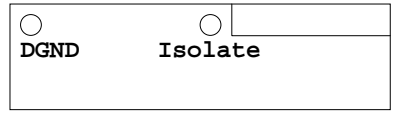
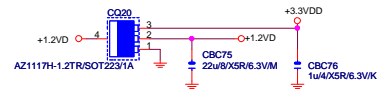
HD_Audio FRONT PANE

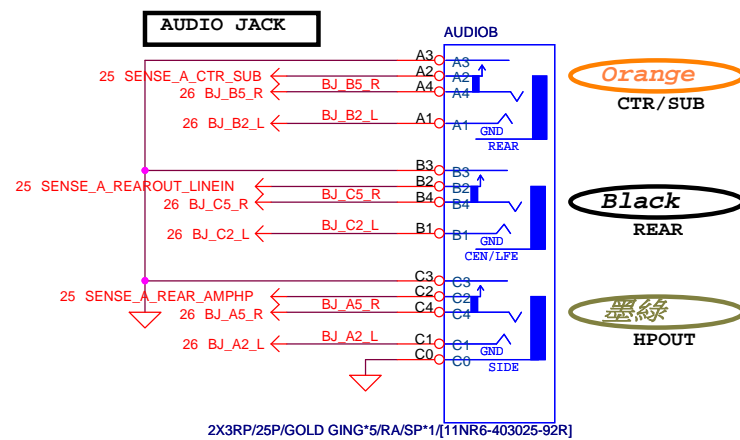
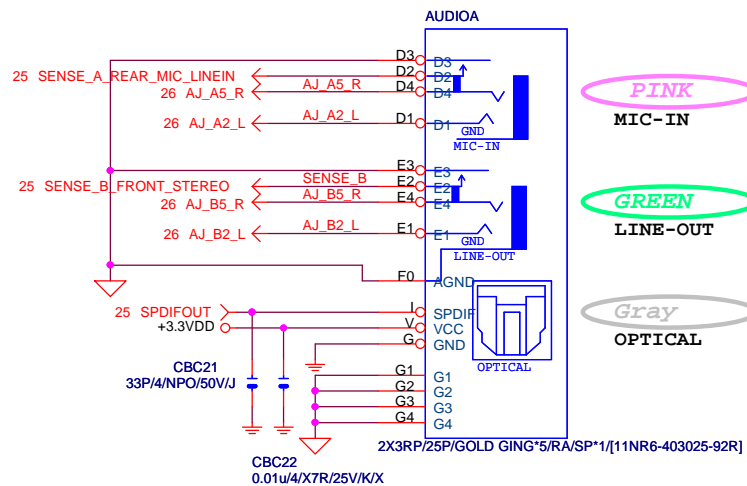


H : ON
L : OFF



限定用short pad,
否則surround的SNR高頻fail



**Gigabyte Technology**

Title

Creative Sound3Di ZxRSize
Custom

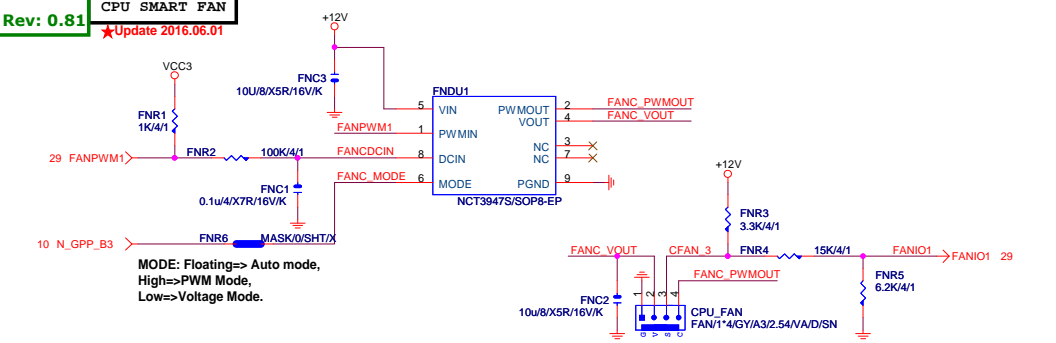
Document Number

Z370 AORUS Gaming WIFIRev
1.0

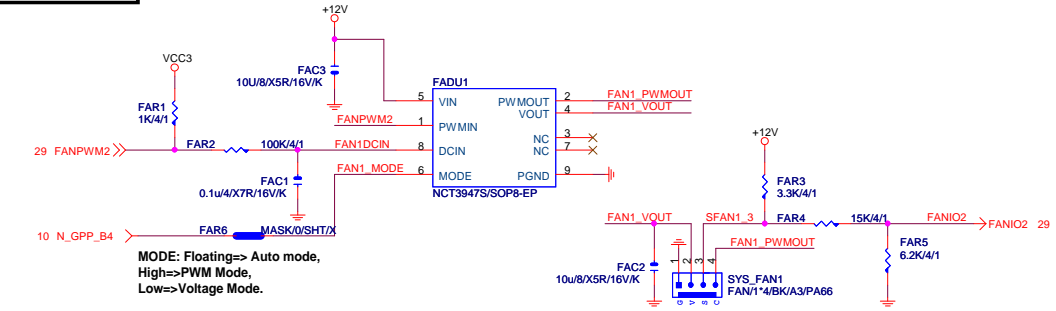
Date: Friday, August 18, 2017

Sheet 28 of 64

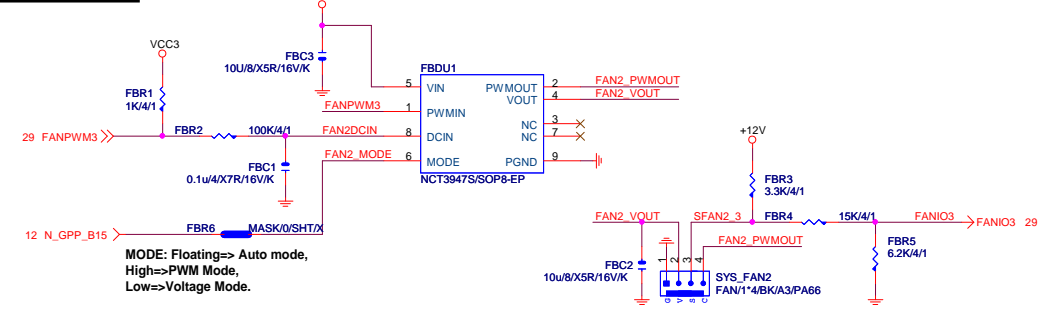
Title			
IT8686			
Size	Document Number		Rev
C	Z370 AORUS Gaming WIFI		1.0
Date	Friday, September 15, 2017	Event	20:24:54



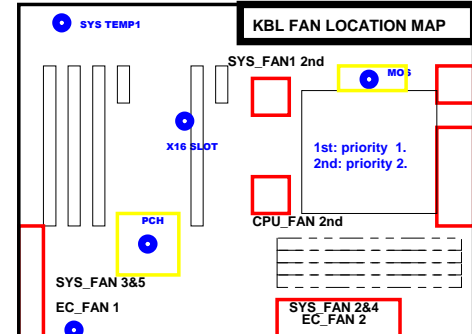
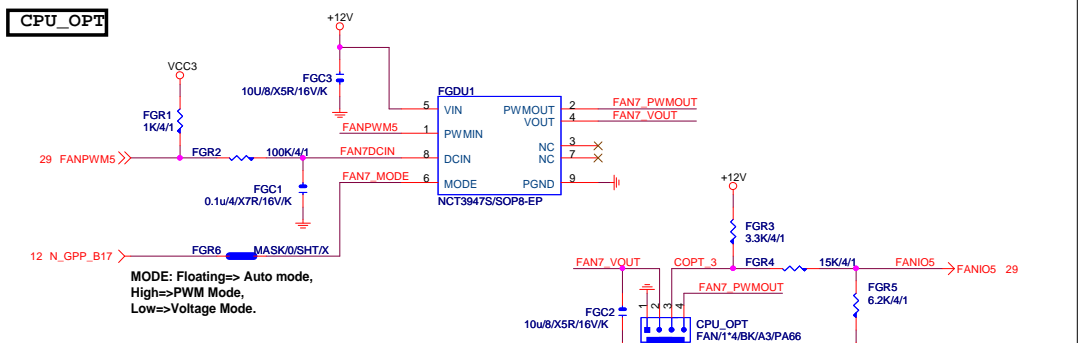
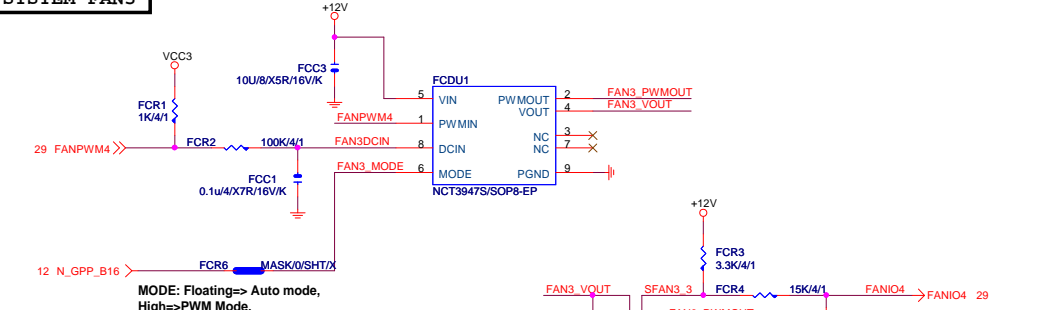
SYSTEM FAN1



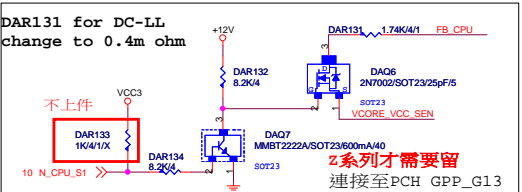
SYSTEM FAN2



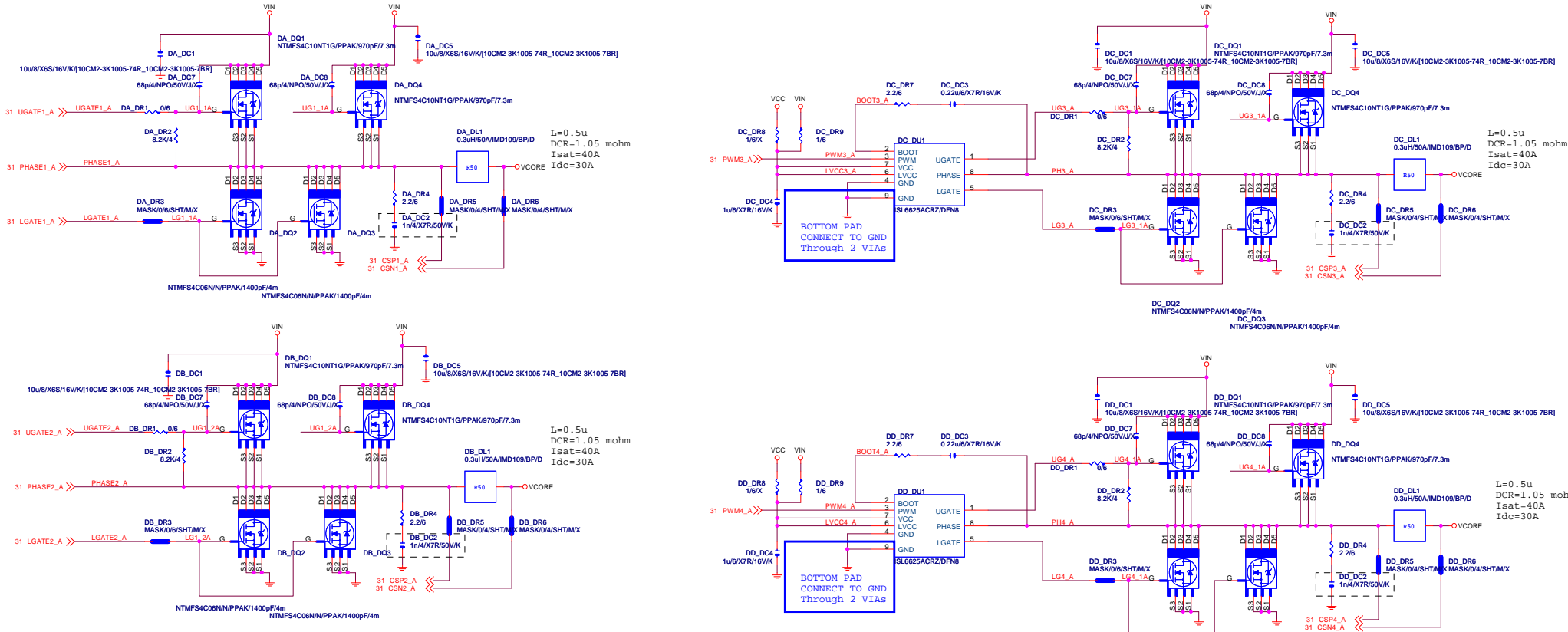
SYSTEM FAN3



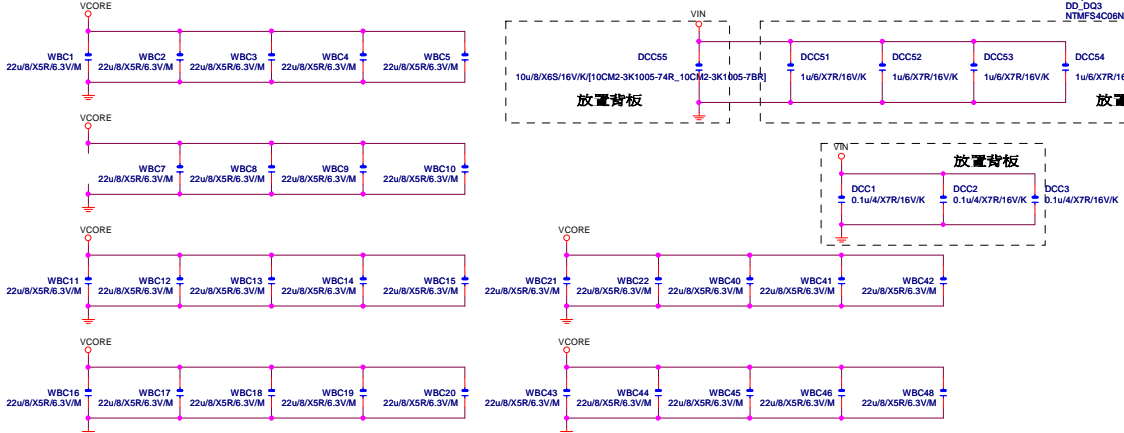
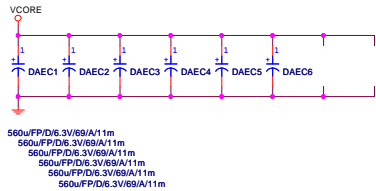
KBL FAN LOCATION MAP REFER TO PAGE.27



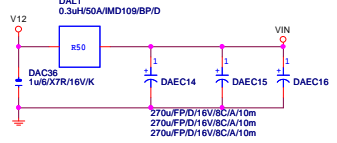
VCORE



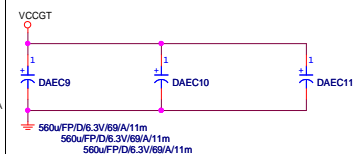
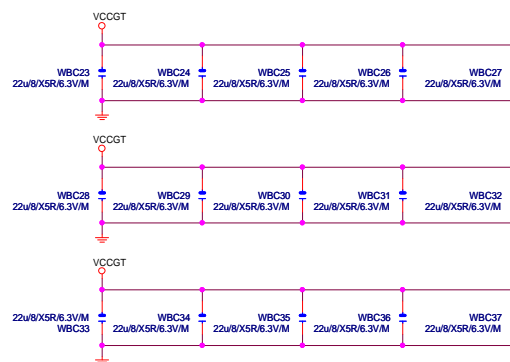
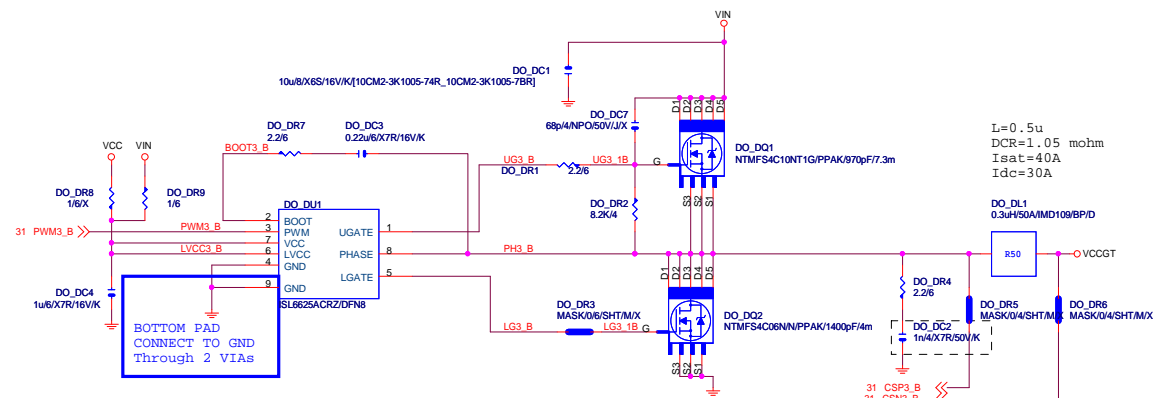
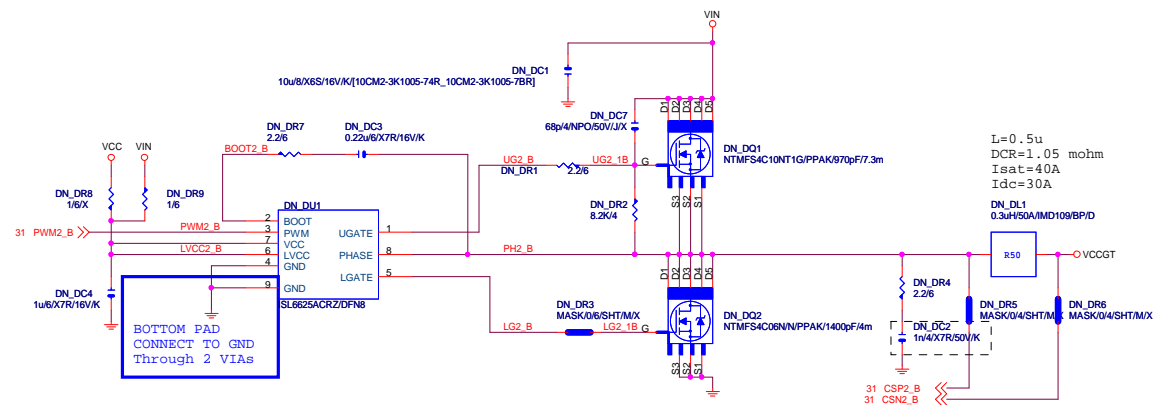
VCORE CAP 560u*6PCS
22u*29PCS



VIN CAP 270u*3PCS



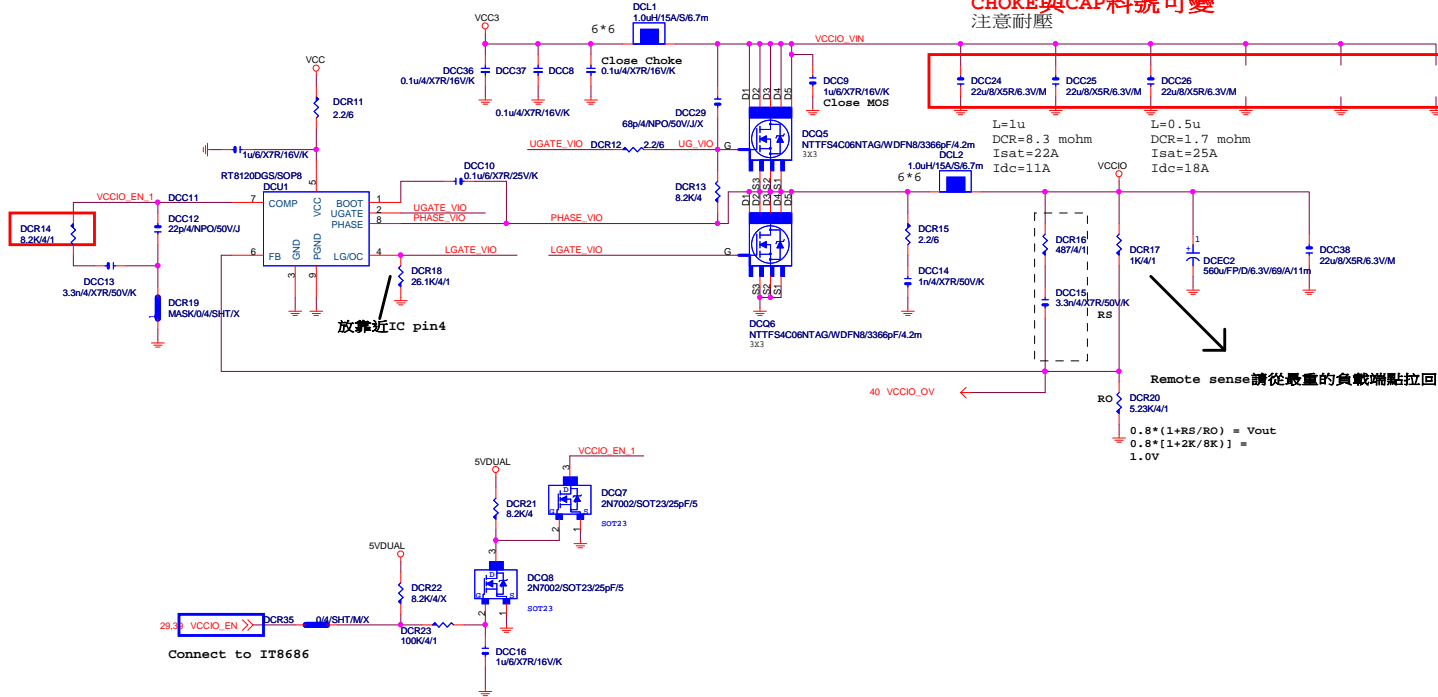
GIGABYTE		
Title: ISL95866 MOS		
Size: Custom	Document Number: Z370 AORUS Gaming WIFI	Rev: 1.0
Date: Monday, September 11, 2017 Sheet 32 of 62		



REV:0.42

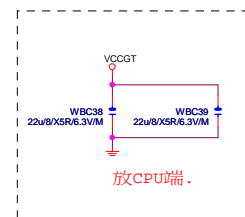
```
L=1u
DCR=8.3 mohm
Isat=22A
Idc=11A
```

CHOKER與CAP料號可變
注意耐壓

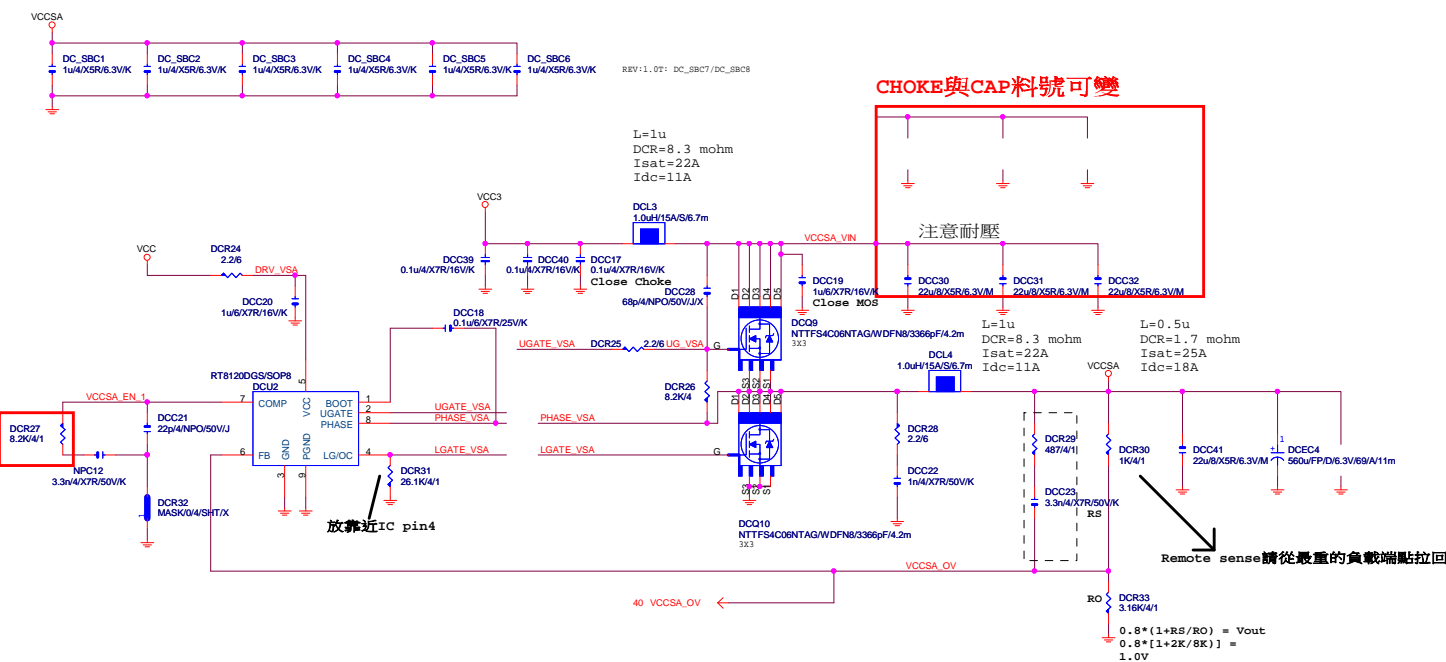


Remote sense 請從最重的負載端點拉回

$$0.8 \cdot (1 + R_S/R_O) = V_{out}$$
$$0.8 \cdot [1 + 2K/8K] =$$
$$1.0V$$

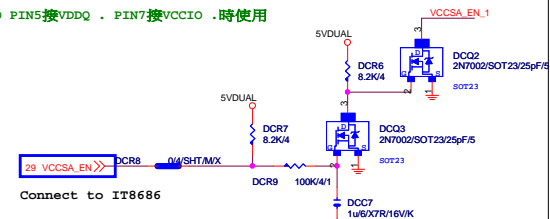


放CPU端.



SIO PIN5 . PIN7 用在其他function時使用

SIO PIN5接VDDQ . PIN7接VCCIO .時使用



Connect to IT8686

VPP_25V

CHOKES與CAP料號可變

$V_{(BR)DSS}$	$R_{DS(on)} \text{ MAX}$	$I_D \text{ MAX}$
30 V	4.2 mΩ @ 10 V	67 A
	6.1 mΩ @ 4.5 V	

放靠近IC pin4

$$= 30 \text{ A}$$
[illegible]

SUPPORT DDR4 2.5V

請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

PWR SEQ

* 删除 MA_DR32

29 VPP25_EN_IO >>
Connect to IT8686

12,29,39,56,61 N_-S4_S5 >

29,35 MA_EN >

5VSB

MAR116 8.2K/4

MAR114 0/4/SHT/M/X

MAR106 8.2K/4/X

MAR109 8.2K/4

MAQ7 2N7002/SOT23/25pF/5

SOT23

MAC8 1u4/X5R/6.3V/K/X

MAQ8 2N7002/SOT23/25pF/5

SOT23

MAR115 0/4/SHT/M/X

MAR14 8.2K/4/X

MAQ9 2N7002/SOT23/25pF/5/X

SOT23

MAC10 1u4/X5R/6.3V/K/X

VPP25_EN

Four circuit diagrams are shown, each representing a different capacitor value connected between VPP 25V and ground:

- MAC49:** 0.1u4/X7R/16V/K
- MAC50:** 0.1u4/X7R/16V/K
- MAC51:** 0.1u4/X7R/16V/K
- MAC52:** 0.1u4/X7R/16V/K

VPP CAP 560u*1PCS

* 大電容 x1

VPP_25V

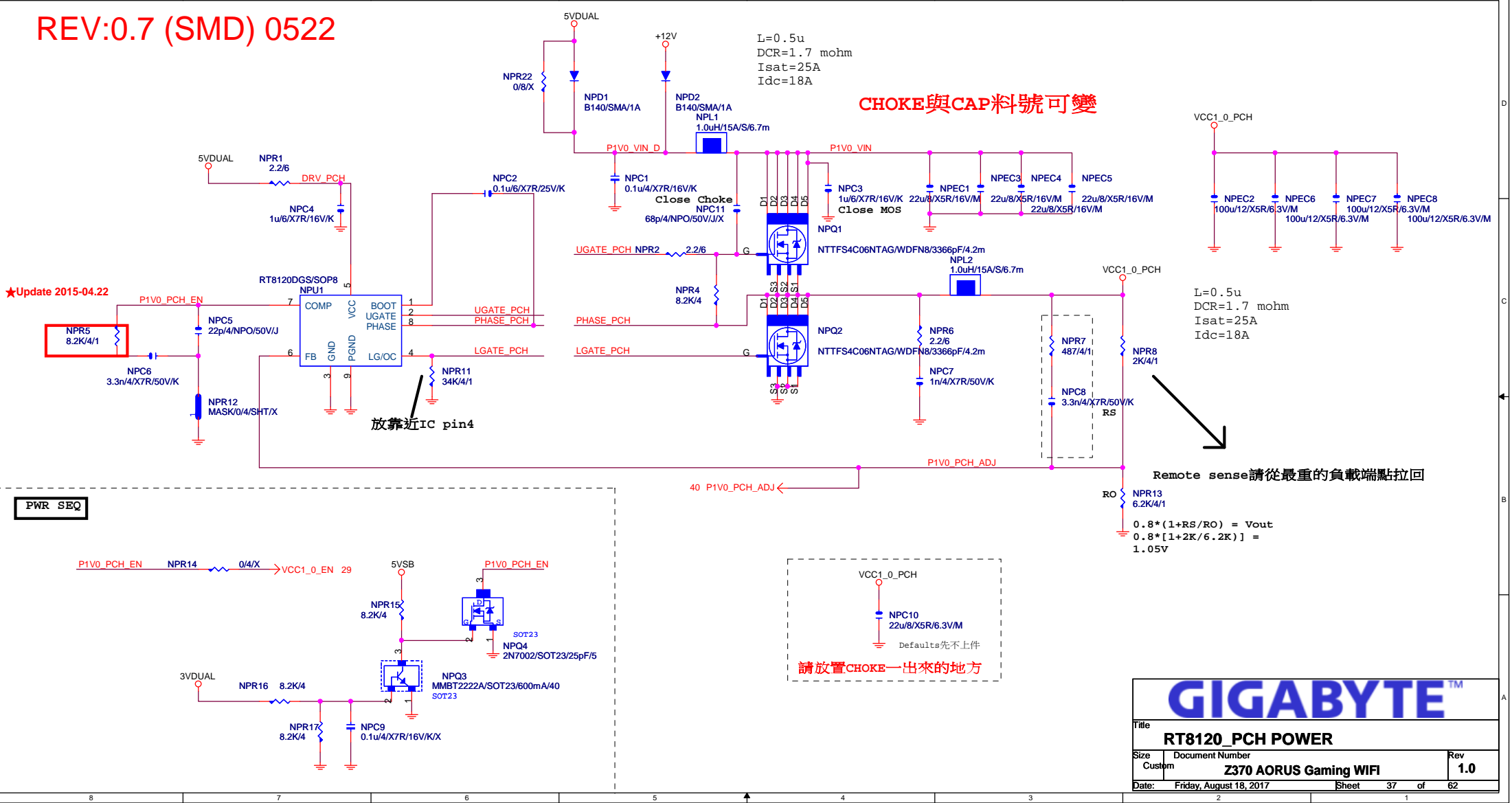
1

MAEC11
560uF/D/6.3V/69A/11m

GIGABYTE™

Title RT8120_VPP25 POWER			
Size Custom	Document Number Z370 AORUS Gaming WIFI		Rev 1.0
Date:	Friday, August 18, 2017	Sheet 36 of 62	

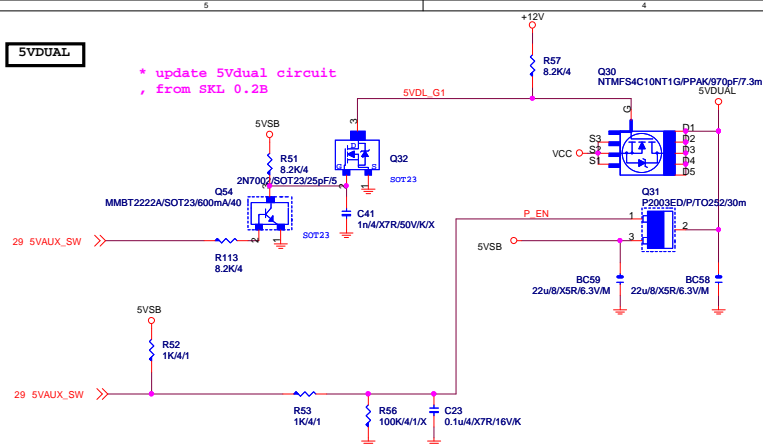
REV:0.7 (SMD) 0522



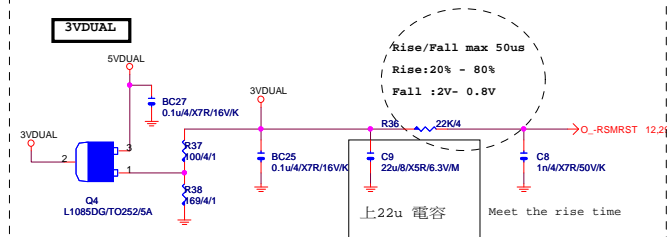
GIGABYTE™			
Title			
RT8120_PCH POWER			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	37 of 62

5VDUAL

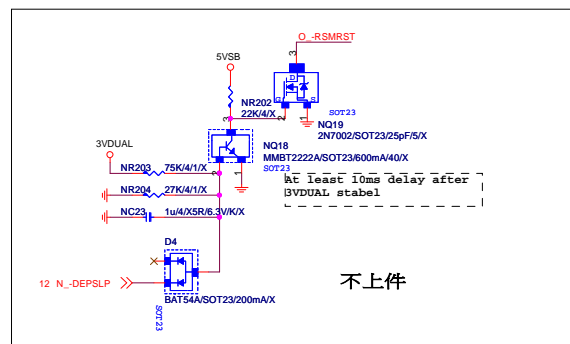
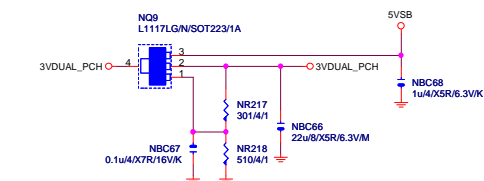
* update 5Vdual circuit
from SKL 0.2B



3VDUAL



3VDUAL_PCH

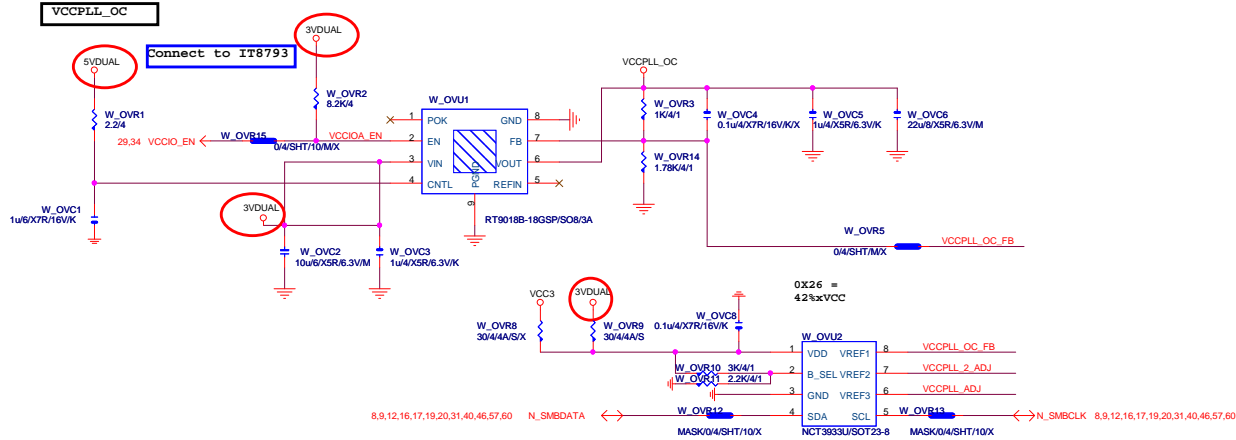
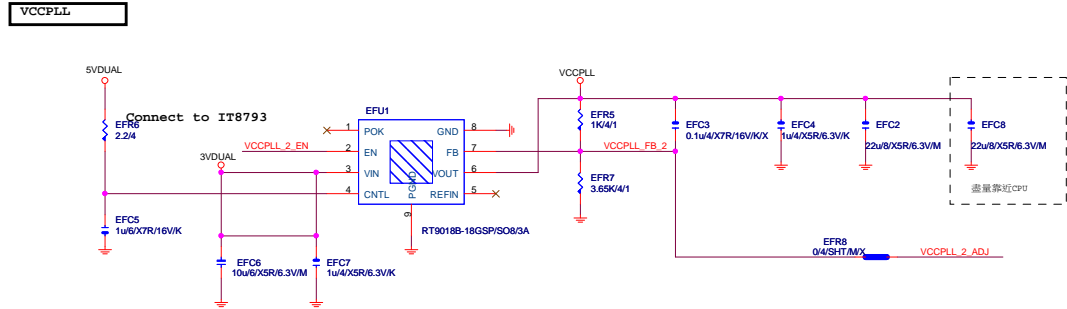
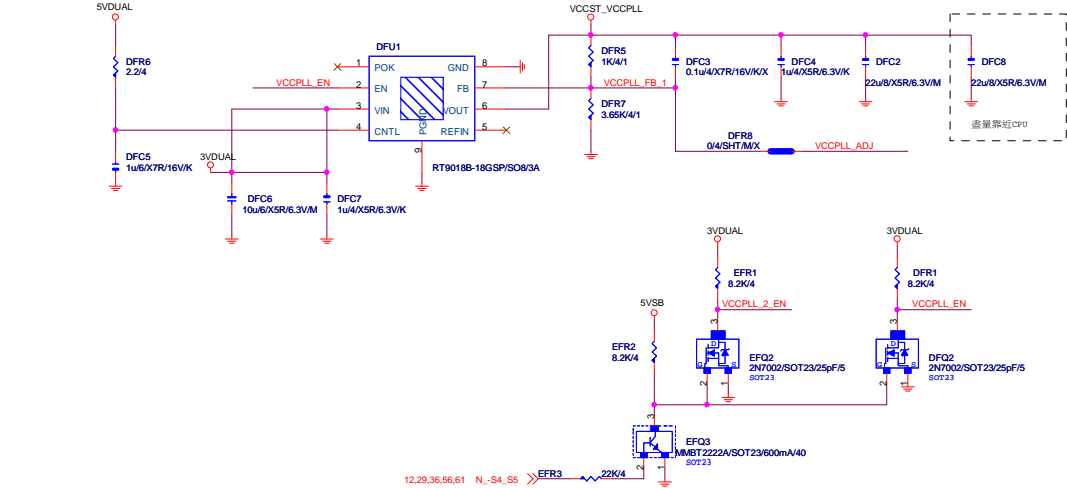


不上件

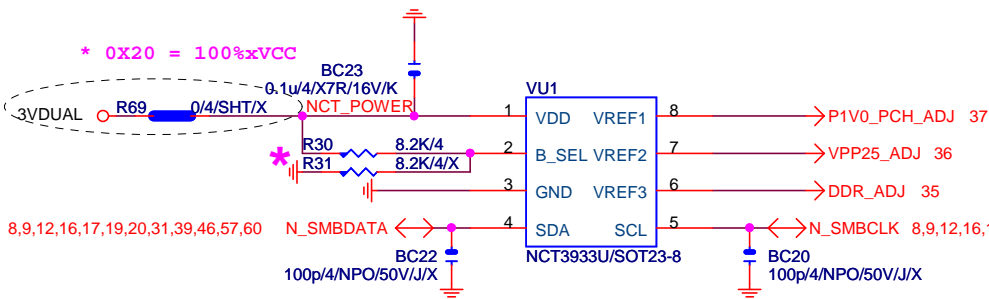
GIGABYTE™

Title		
DISCRETE POWER		
Size	Document Number	Rev
Custom	Z370 AORUS Gaming WIFI	1.0
Date:	Friday, August 18, 2017	Sheet 38 of 62

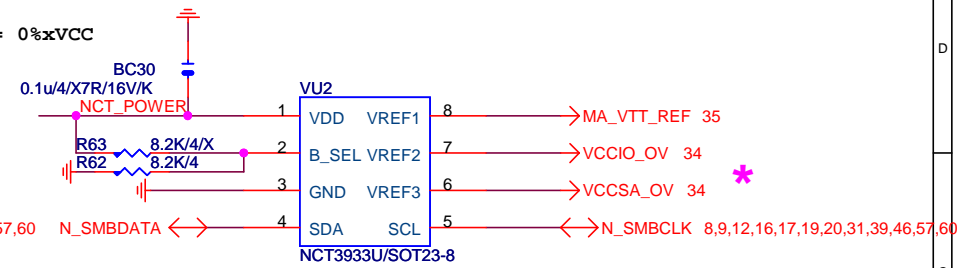
VCCST_VCCPLL 替換原先MOS開關線路



OVER VOLTAGE



0X2A = 0%xVCC



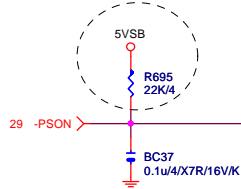
0X22 = 75%xVCC

* 删除 ovu3

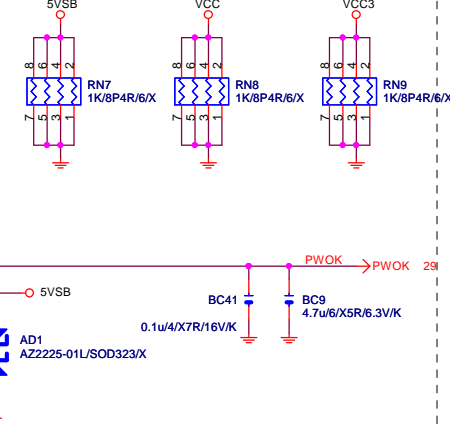
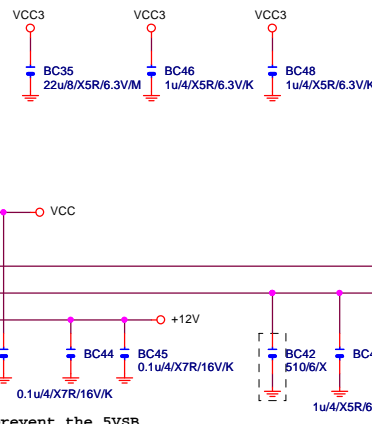
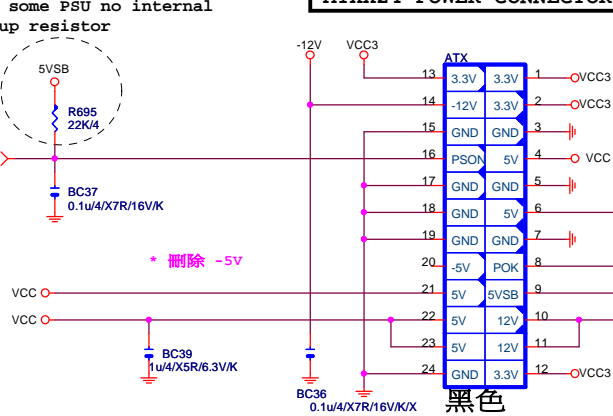
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

GIGABYTE™		
Title CPU CORE VR (NCT3933)		
Size Custom	Document Number Z370 AORUS Gaming WIFI	Rev 1.0
Date: Friday, August 18, 2017	Sheet 40 of 62	

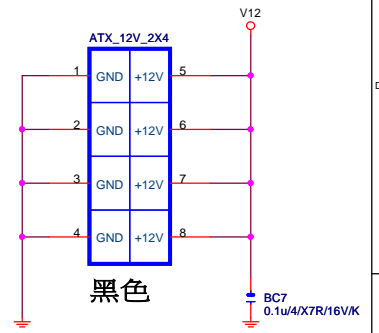
Patch some PSU no internal pull up resistor



ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

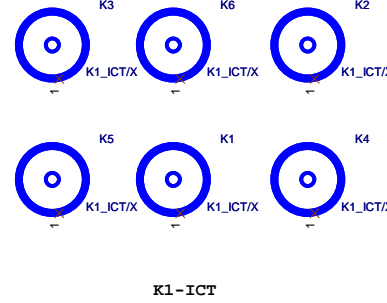
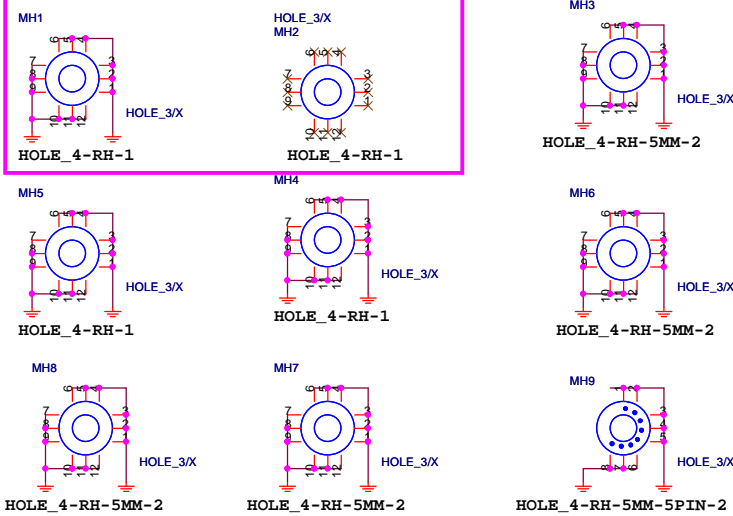


APW/2*12/BK/VA/SN/2SHK/PA66/[11NH4-020024-11R_11NH4-020024-12R]

To prevent the 5VSB under loading when boot

APW/2*/4/BK/OC/P/4.2N/A/SN/OH/[11NH4-020008-B1R_11NH4-020008-B4R] : Location ATX_12V_2X4

FOR AUDIO 切割

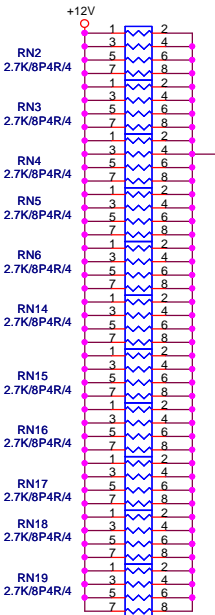


-PROHOT * 保留 ?

4.29 A-PROCHOT <-> A-PROCHOT R2 0/4/SHT/X >-> VR_HOT 31

【技術通報R&D技術通報153】

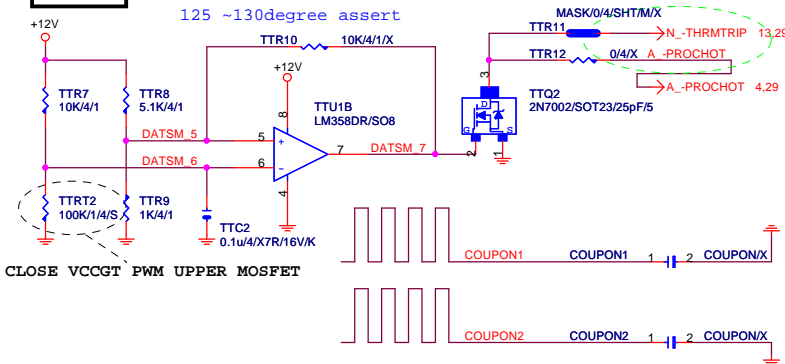
To fix 12V light load abnormal issue



-PROHOT

OTP:130度 / PCB THERMAL TRIP:129 度

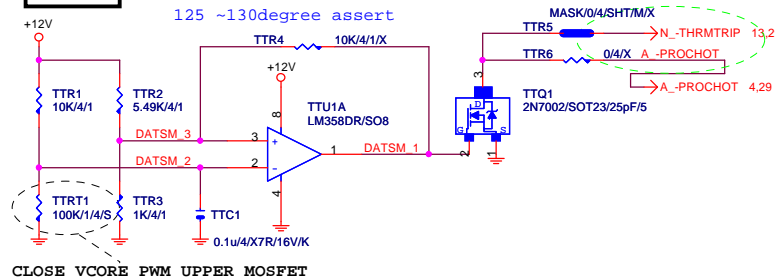
125 ~130degree assert



-PROHOT

OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert



GIGABYTE™			
Title			
ATX POWER CONNECTOR			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	41 of 62

R_USB30

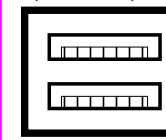
USB3.0/2.0

VBUS	VBUS
D-	D-
D+	D+
GND	GND
SSRX-	SSRX-
SSRX+	SSRX+
GND	GND
SSTX-	SSTX-
SSTX+	SSTX+
AGND	
AGND	
AGND	
AGND	

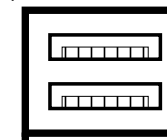


2 port USB 3.0 Capture:

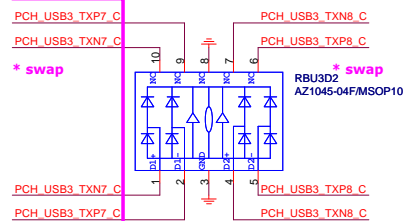
2 port USB 3.0 with TYPE C Capture:



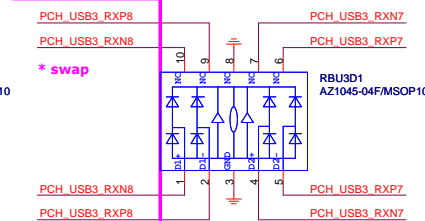
USB/18P/BU/OS/RA/D/2/1U/SE
Footprint:USB30_20



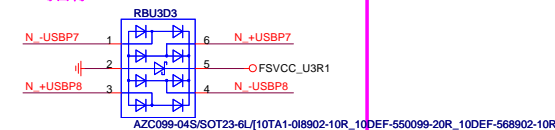
USB/18P/BU/OS/RA/D/2/HR



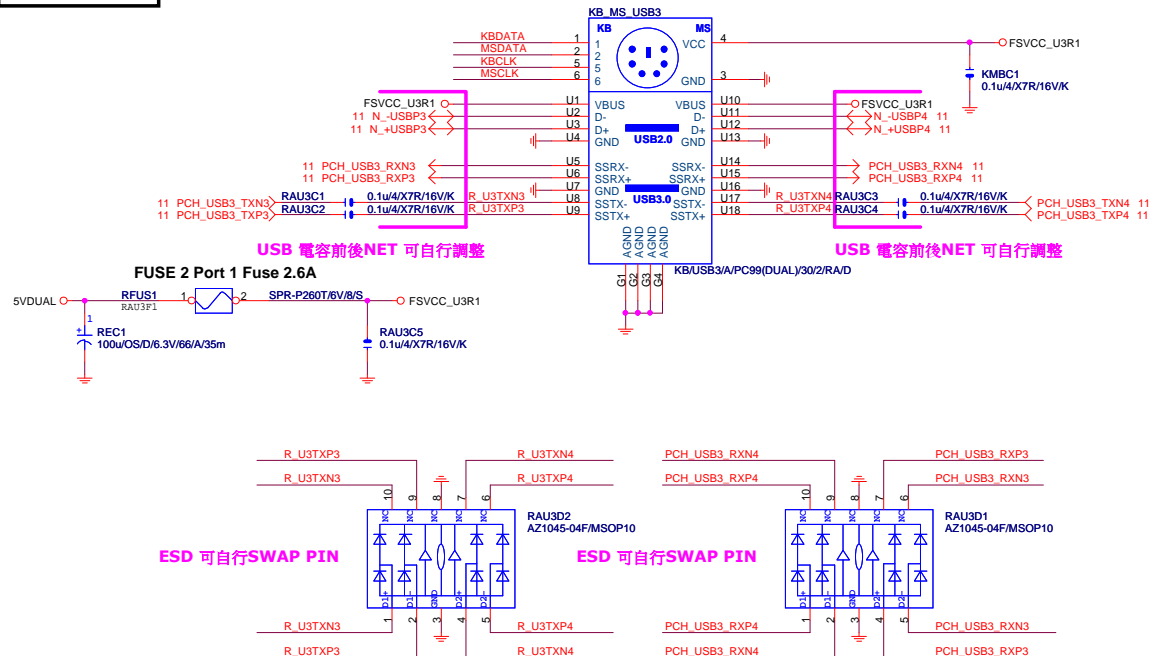
NET 可自行調整



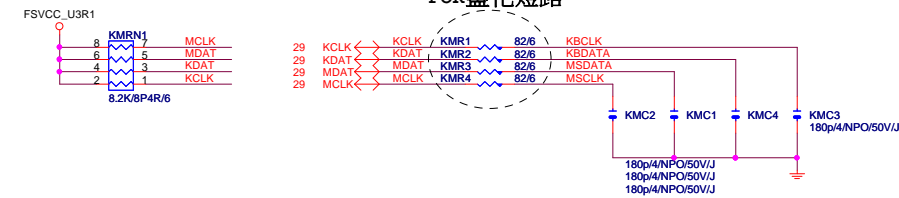
ESD 可自行SWAP PIN



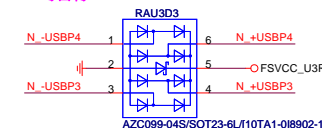
KB_MS_USB3



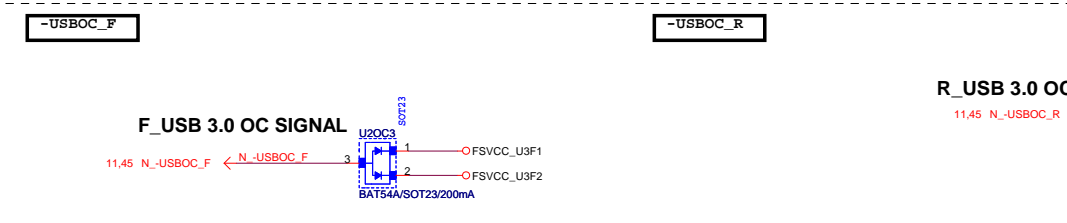
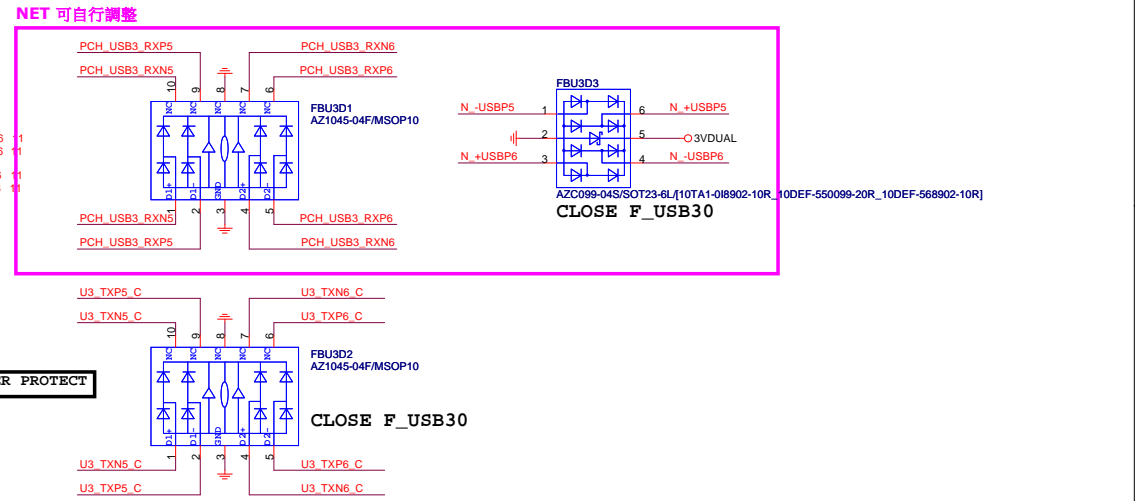
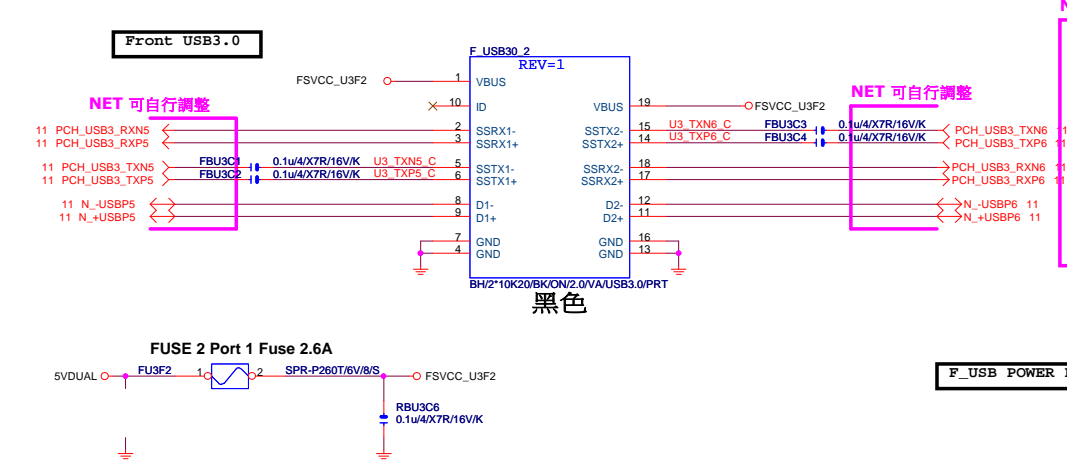
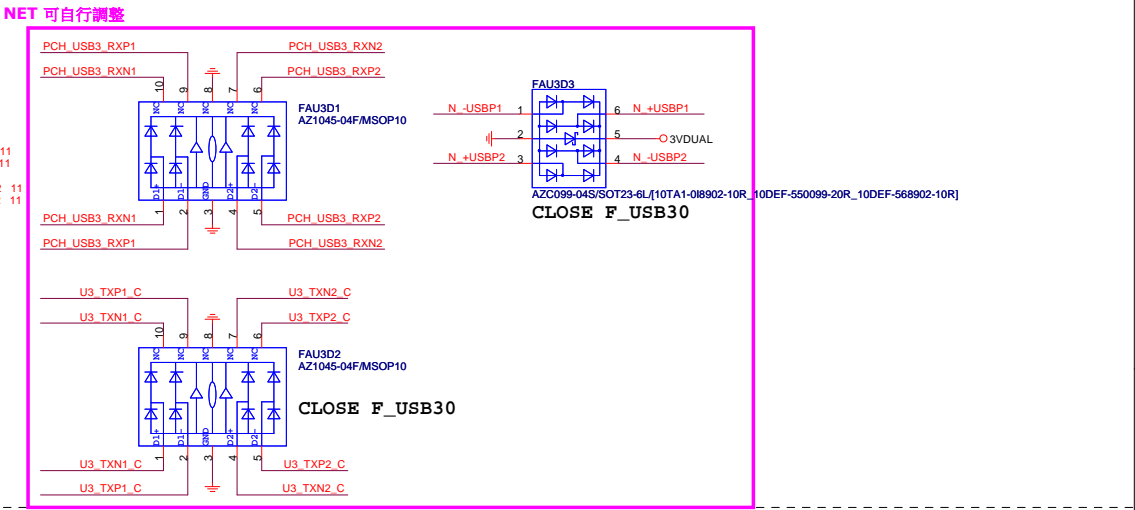
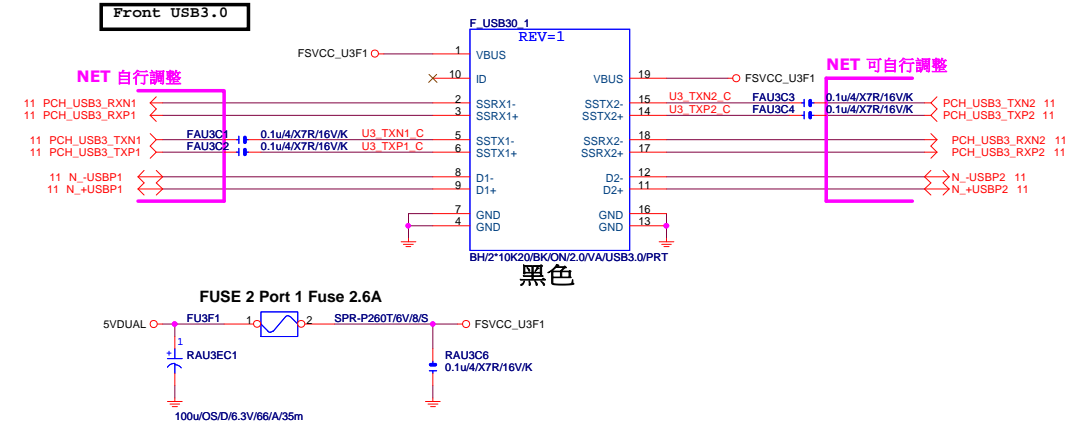
FOR鹽化短路



ESD 可自行SWAP PIN

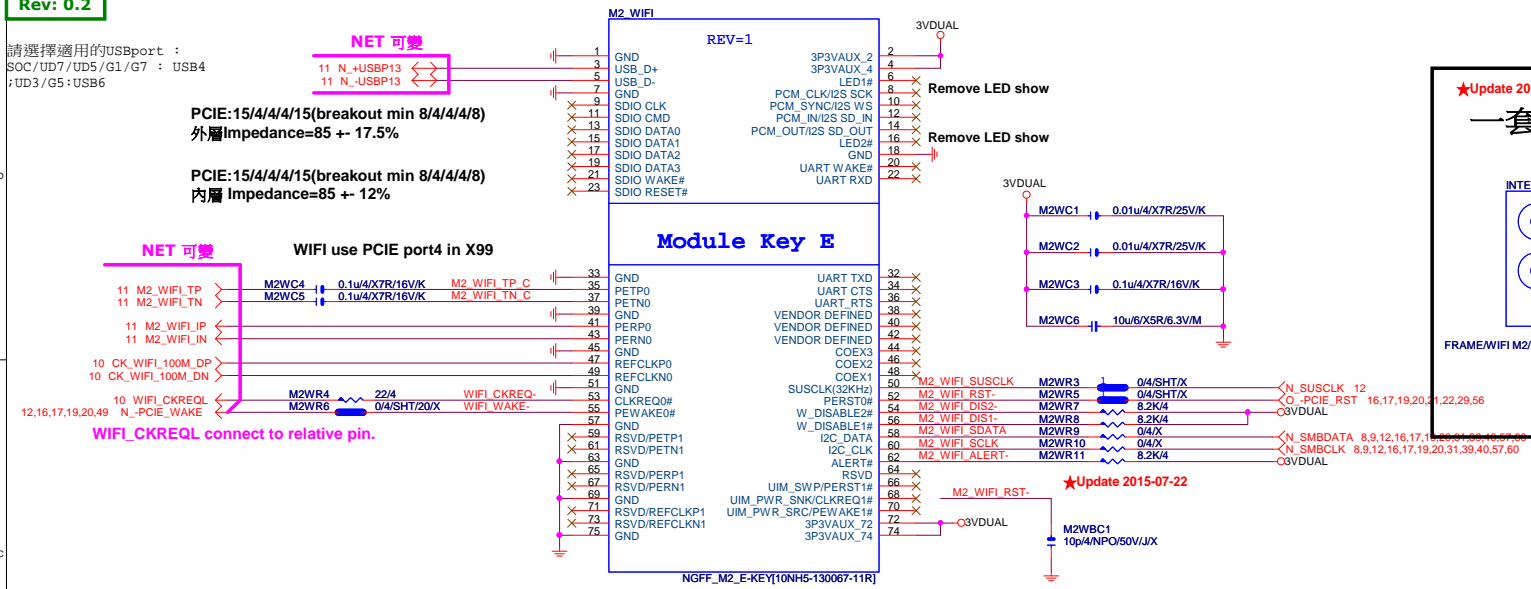


Title			
R_USB30			
Size	Document Number		Rev
00099-20	DEF-568902-10R	Z370 AORUS Gaming WIFI	1.0
Date:	Friday, August 18, 2017	Sheet	43 of 64



Rev: 0.2

請選擇適用的USBport：
SOC/UD7/UD5/G1/G7：USB4
;UD3/G5:USB6



Footprint Notice.

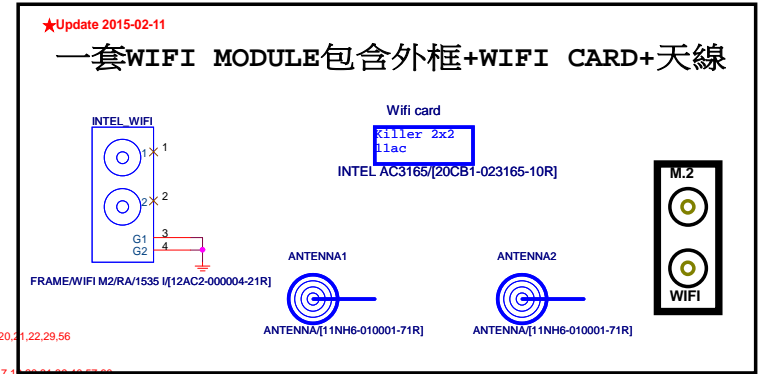
★Update 2015-07-22

★Footprint for 直立式 SMD:
WIFI-EKEY

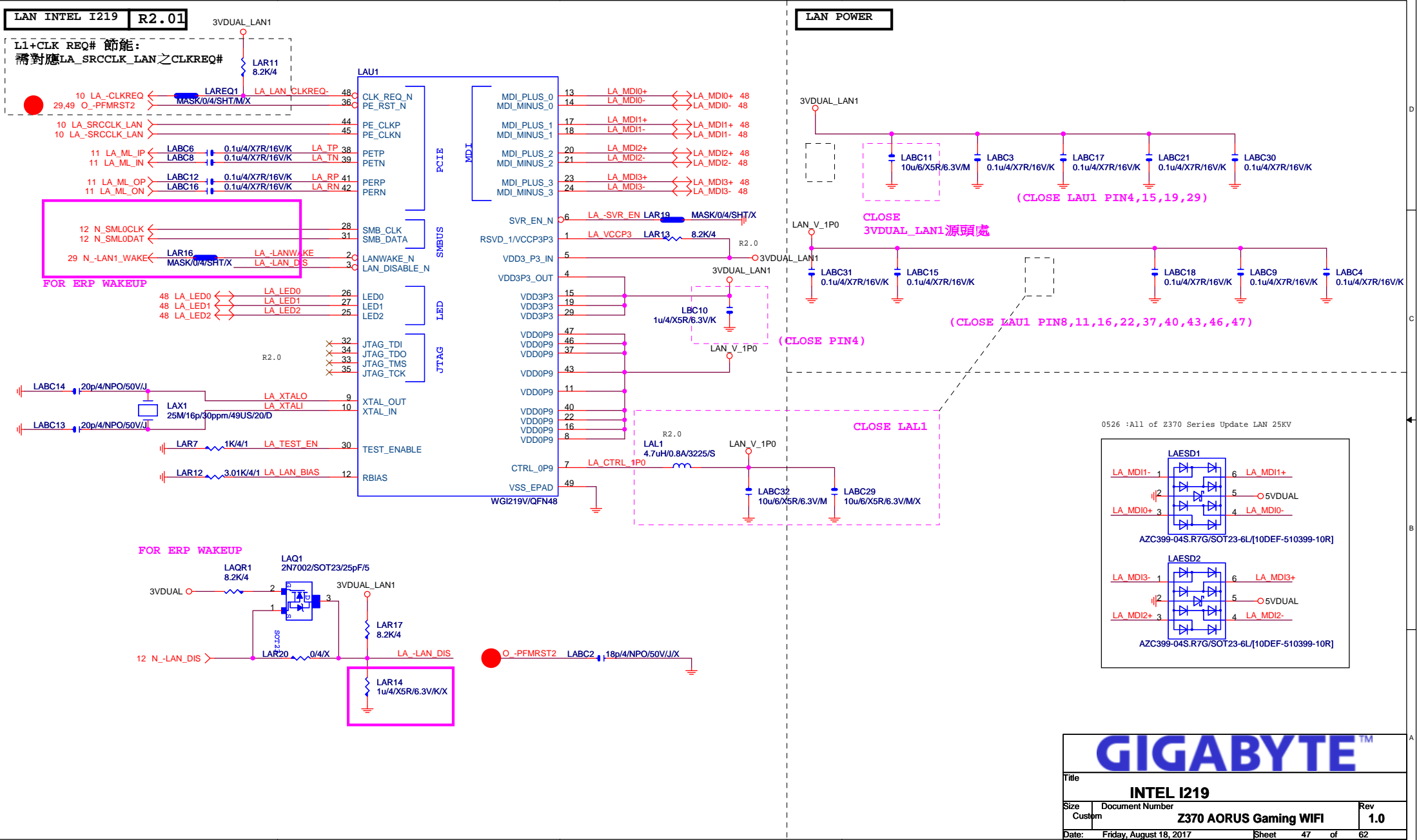
Footprint Notice.

★Update 2015-07-22

★Footprint for 横躺式SMD:
NGFF-E-75P-2



Title			
WIFI_MODULE(3165)			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	46 of 64

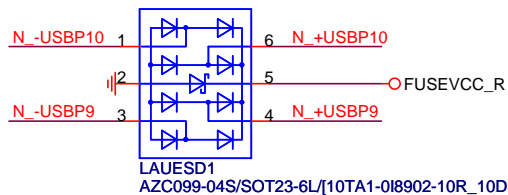


R2.01

RMA ESD PROTECT

note:可變更USB NAME

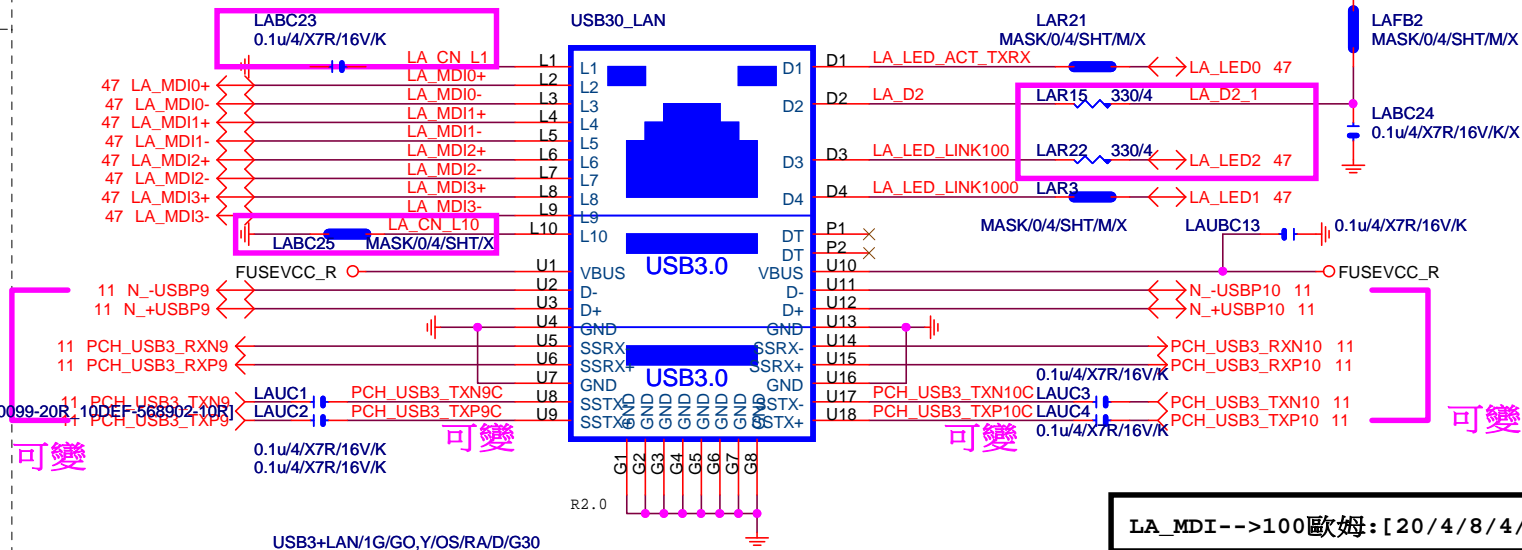
可變



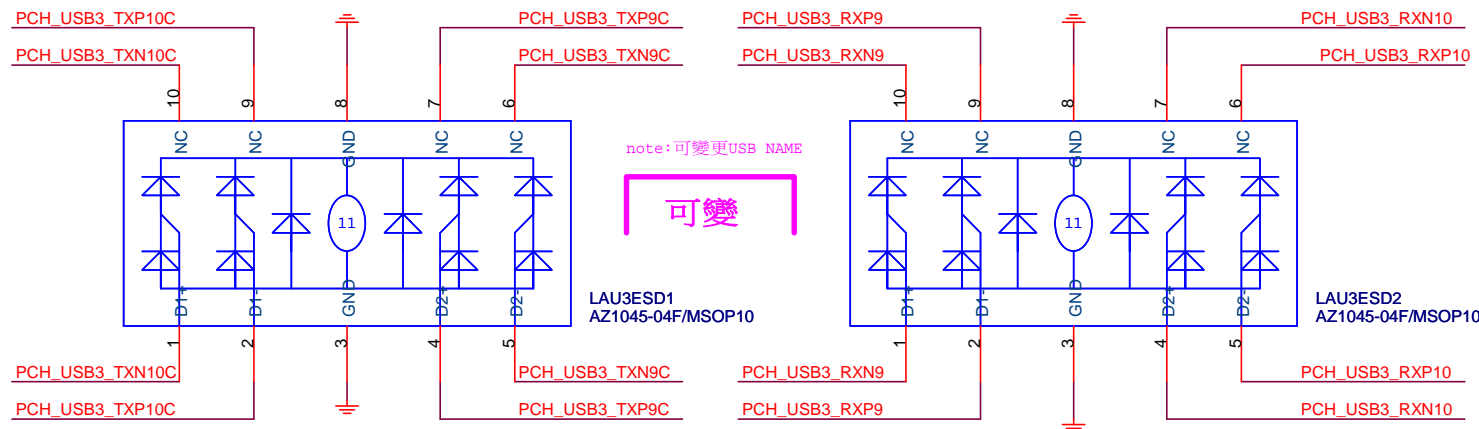
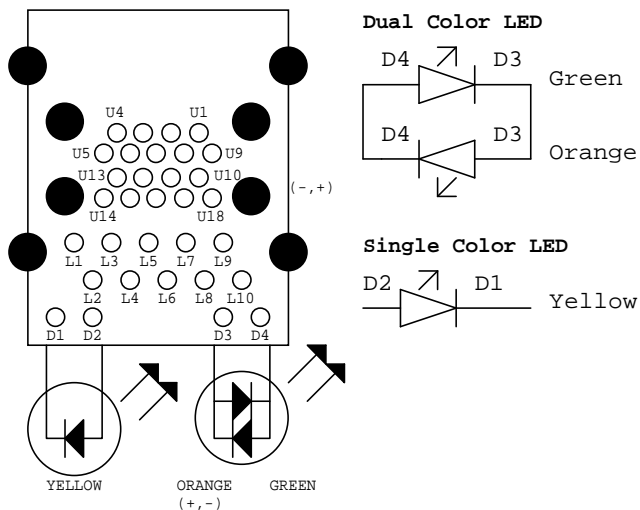
USB_LAN CONNECTOR

note:可變更USB NAME

[I219V]



USB30_LAN LAYOUT示意圖



USB POWER

note:可變更FUSE

可變

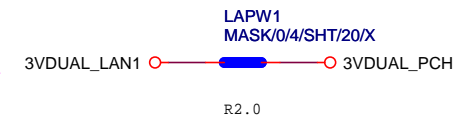


SPR-P260T/6V/8/S

Close to connector
FUSE-0805

LAN POWER

可變



*

*

GIGABYTE™[illegible]

LAN CONNECTOR-I219

Size

Document Number

Z370 AORUS Gaming WIFI

Rev	1.0
-----	-----

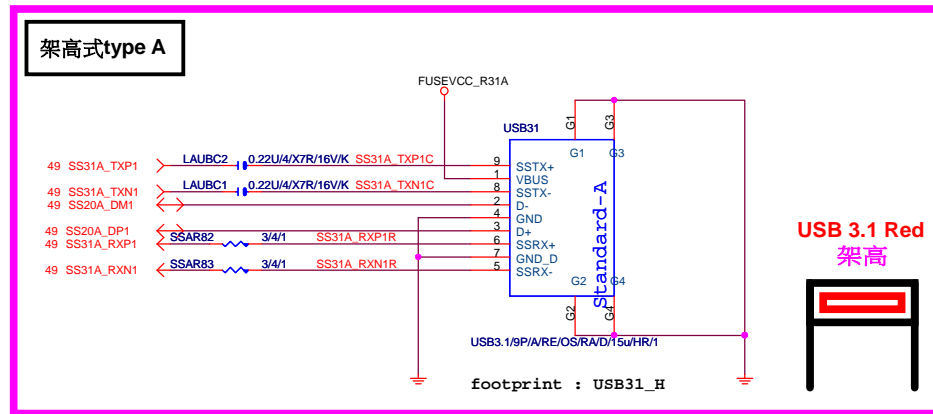
Date: Friday, August 18, 2017

Sheet 48 of 62

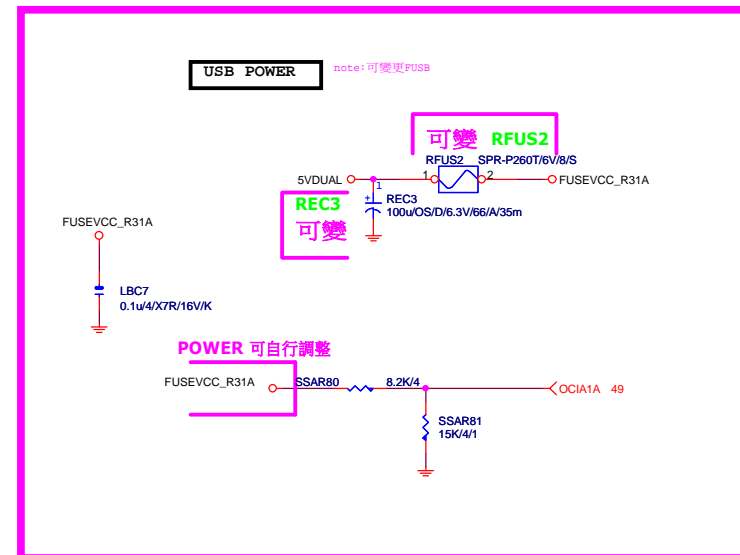
ASM3142 USB3 Host Rev0.2

TI HD3SS3220 + FRONT USB3.1

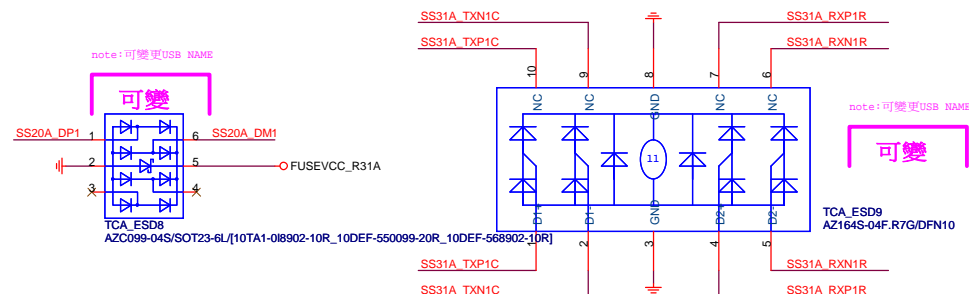
USB31 TYPE A Connector which chooses for project demand



後窗Rule : (後窗由左至右)
DIP電容 : REC1, REC3, REC2
FUSE : RFUS1, RFUS2, RFUS3, RFUS4...

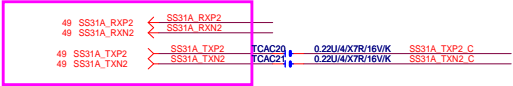


請勿跟USB3.0的ESD做SWAP



ASM3142 USB3 Host Rev0.2
TI HD3SS3220 + FRONT USB3.1

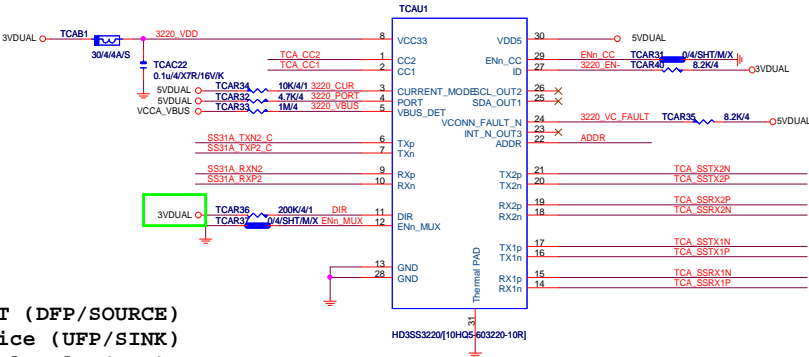
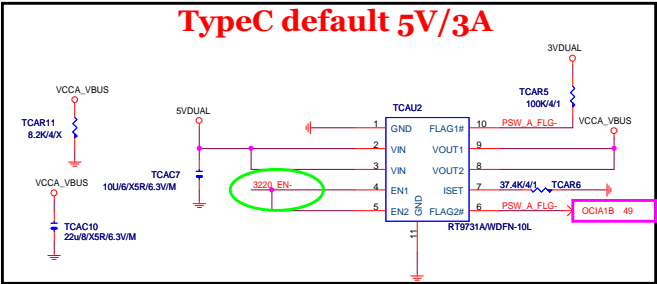
USB 3.x SuperSpeed



For VBUS current limit at 900mA on S3



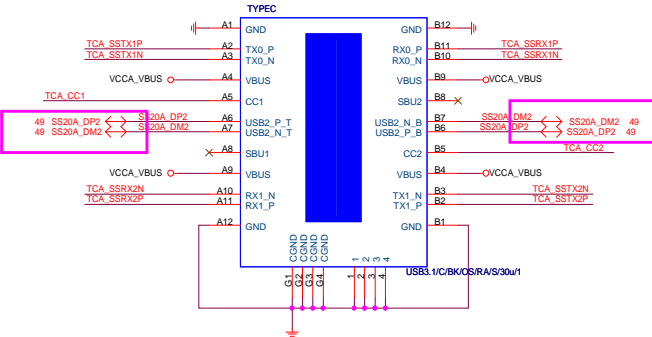
TypeC default 5V/3A



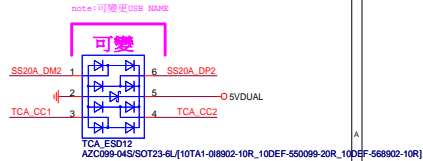
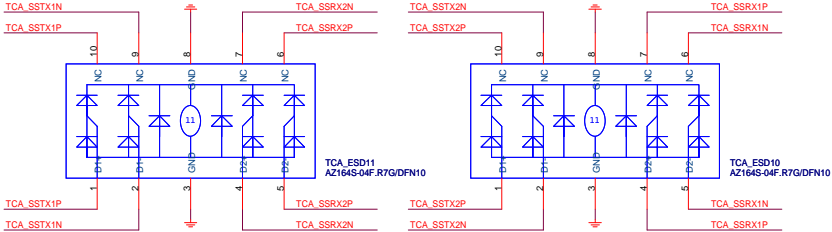
PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

CURRENT MODE
L - Default (900mA) / Pull down to GND or NC
M - Medium (1.5A) / Pull up to VDD 500K
H - High (3.0A) / Pull up to VDD 10K

Color markers can be changed by model



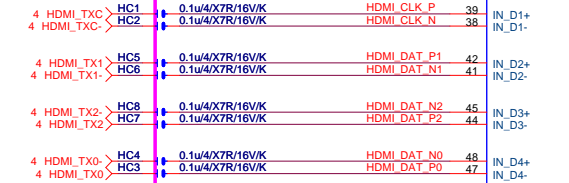
USB2.0 can be used the same source



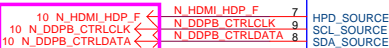
GIGABYTE™			
TI HD3SS3220			
Size C	Document Number	Z370 AORUS Gaming WIFI	
Date:	Friday, August 18, 2017	Sheet	51 of 62

HDMI LEVEL SHIFT

NET 可變

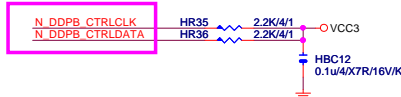


Port 自行調整



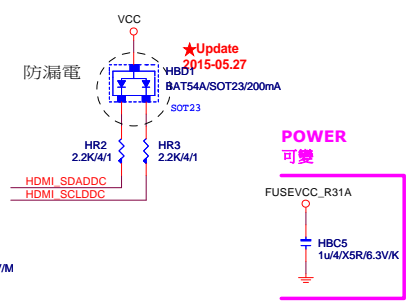
HDMI:20/4/6/4/20
Impedance=85 +/- 17.5%

Port 自行調整

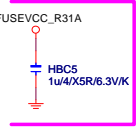


【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

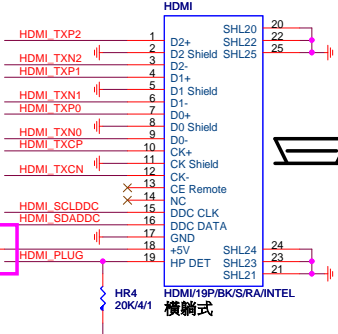
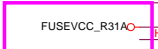
PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K



POWER 可變



POWER 可變



直立式

P/N:11NR6-H01019-K1R

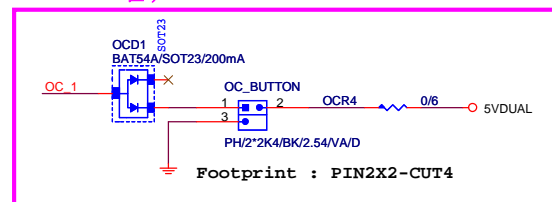
GIGABYTE™

Title			
HDMI			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	52 of 62



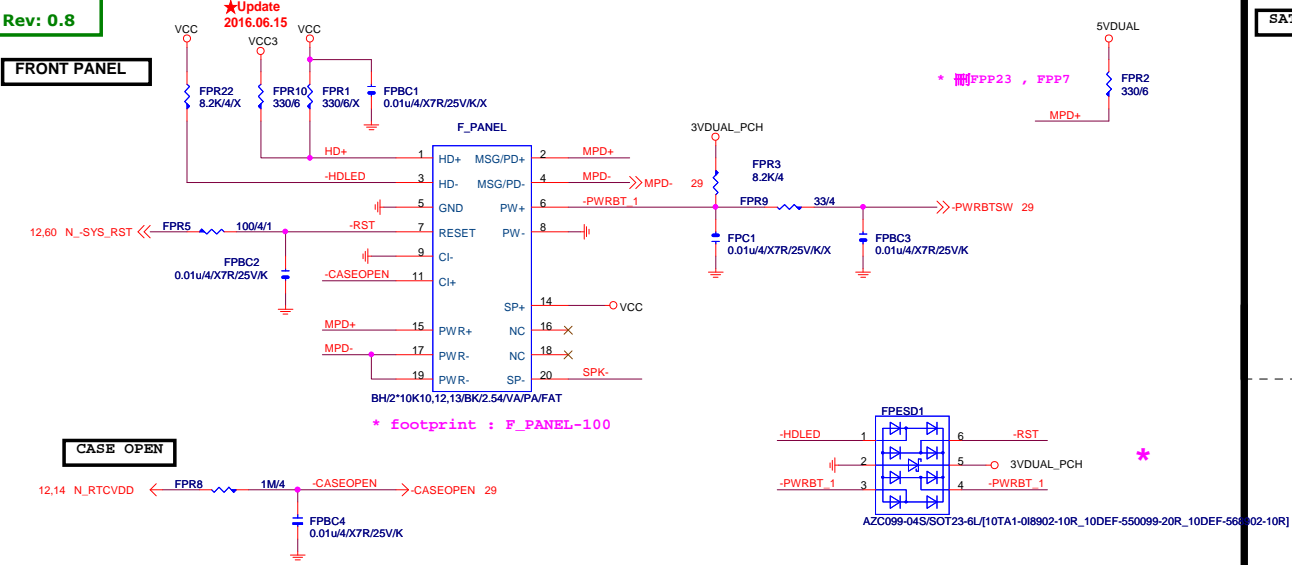
PCH:GPP_D4
(限用SMI gpio)

* FOR 客戶Button



GIGABYTE™			
Title			
BLINK			
Size	Document Number		Rev
Custom	Z370 AORUS Gaming WIFI		1.0
Date:	Friday, August 18, 2017	Sheet 53 of 65	1

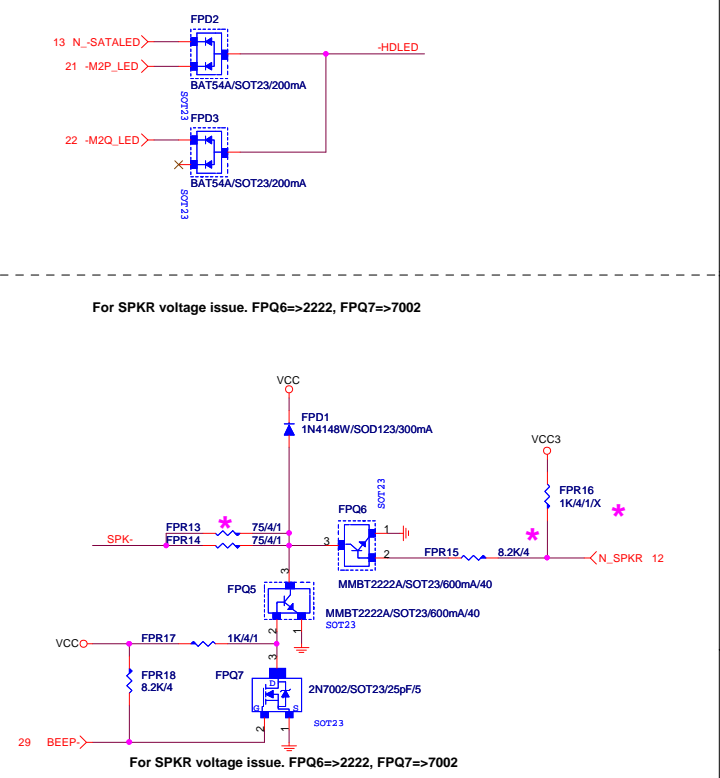
FRONT PANEL



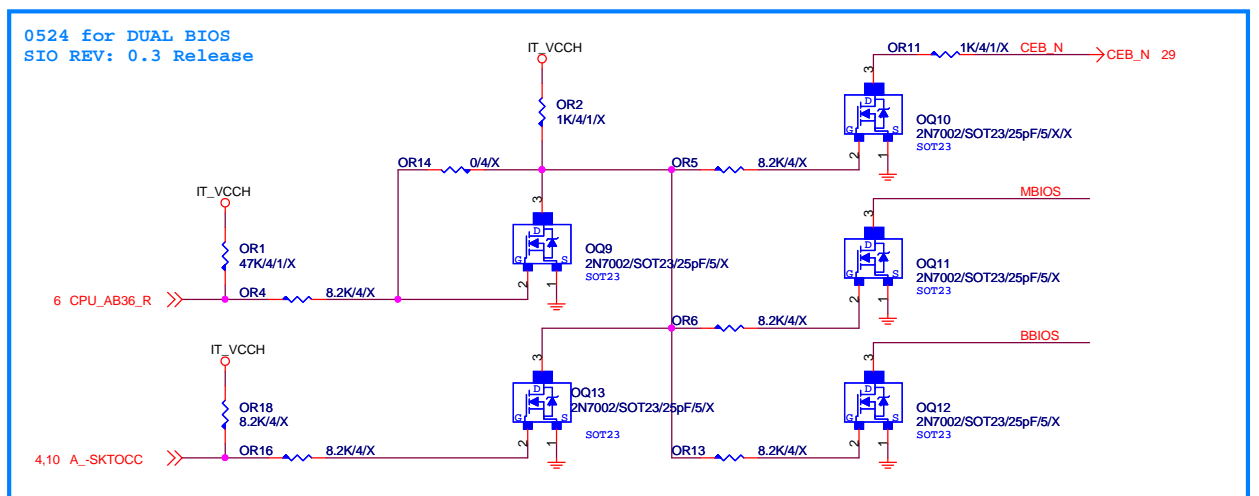
CASE OPEN

SATA LED SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3_3

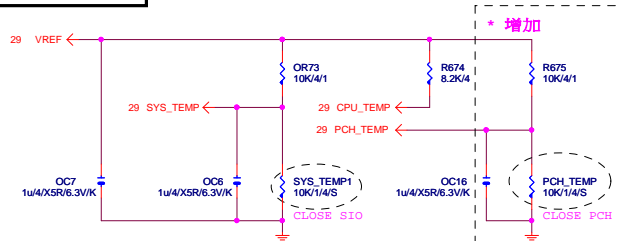
SPEAKER



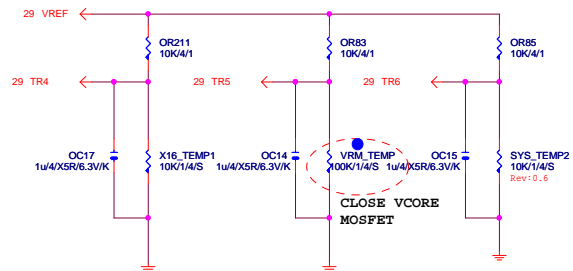
MOSI For DMI RX Termination Voltage



TEMP H/W MONITOR



5個FAN時使用

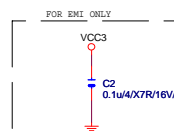
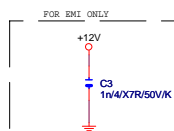
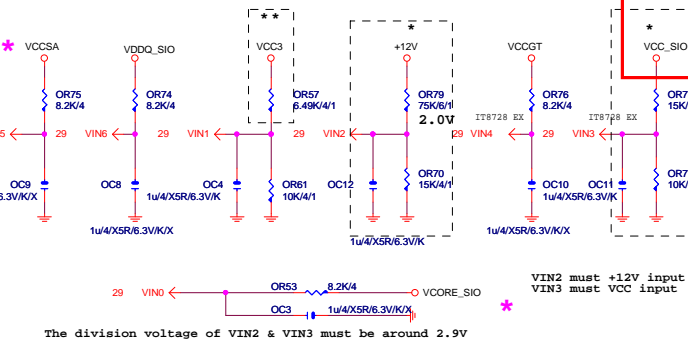


VOLTAGE-- H/W MONITOR

* IT8728 BX
** IT8728 CX

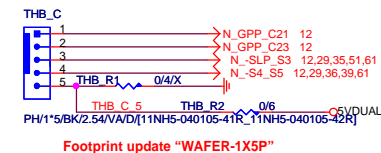
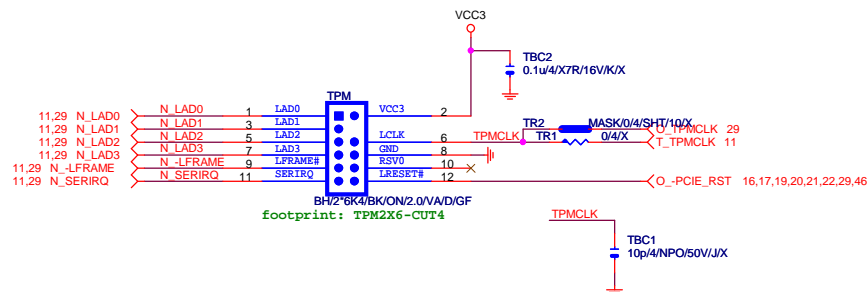
Rev:0.6 No Drop

(靠近ATX CONNECTOR)



★Update 2015-04.24

GIGABYTE™			
Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	55 of 65

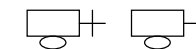


RGB LED LAYOUT 注意事項：

1. Debug LED (各LED依CPU/DRAM/VGA/BOOT個別位置擺放)
2. 背板 RGB LED 方向整板請統一如下
(整板正極可統一朝下或朝上)
3. 正板 RGB LED 統一方向即可
4. MCU_PW & MCU_PW33電源一律走20mils
5. ECF1, ECF2, ECF3, ECF5 兩端電源走80mils或用鋪銅方式加粗
6. MCU LED 出pin的走線4mils, 如: LED_R_1, LED_G_1, LED_B_1
7. LED RGBW rule : W/S=10/5 mils 如: LED_R_11, LED_G_11, LED_B_11, LED_W.....
(包含從晶體到排阻到LED的net)
8. Digital LED NET rule W/S=4/8 mils
GPD0_SDA_B, GPD0_SDA_BB, GPD0_SDA_C, GPD0_SDA_CC

Audio Ground切割線+背面 RGB LED

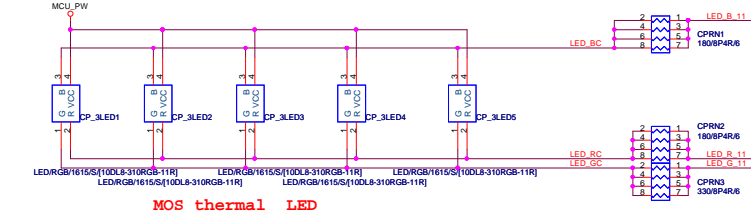
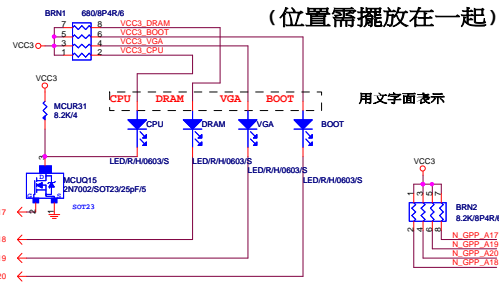
"XMP"字樣鏤空+背面 RGB測發光 LED



XMP

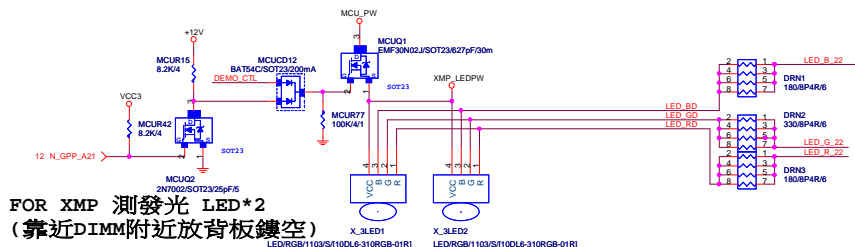
GIGABYTE™			
Title TPM / THB_C / LED Layout Guide			
Size	Document Number	Rev	
Custom	Z370 AORUS Gaming WIFI	1.0	
Date:	Friday, August 18, 2017	Sheet	56 of 65

第一區 LED VRM CHOKE

FOR CPU 正發光 LED*4
(在CPU CHOKE之間,MOS_HS下方,不外露)DEBUG PORT LED *4
(位置需擺放在一起)

N_GPP_A17	CPU DEBUG
N_GPP_A18	DDR DEBUG
N_GPP_A19	VGA DEBUG
N_GPP_A20	BOOT DEVICE DEBUG
N_GPP_A21	XMP LED SWITCH
N_GPP_A22	TURBO LED SWITCH
N_GPP_D12	LED_IO LED SWITCH

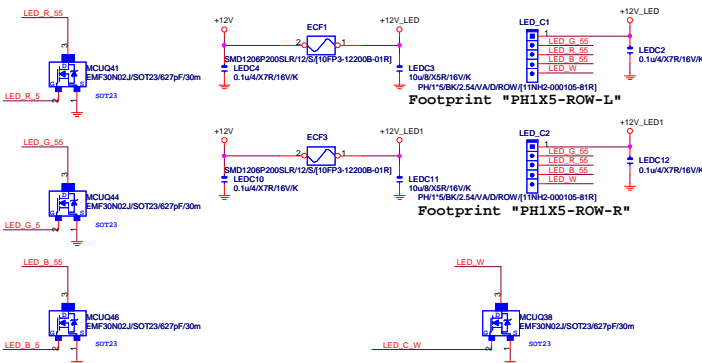
第二區 LED DDR / XMP



第五區 LED

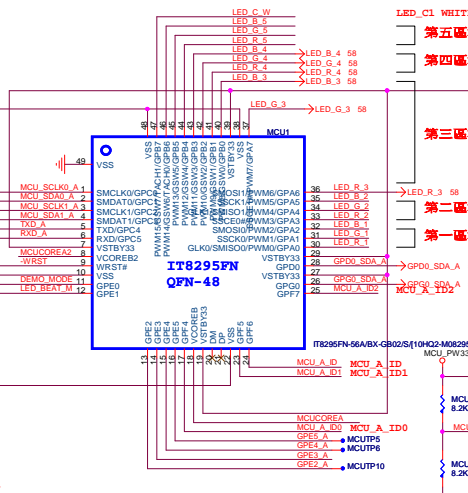
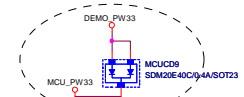
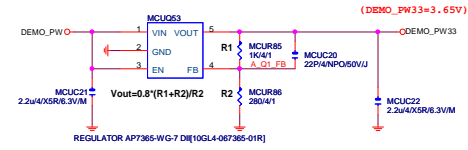
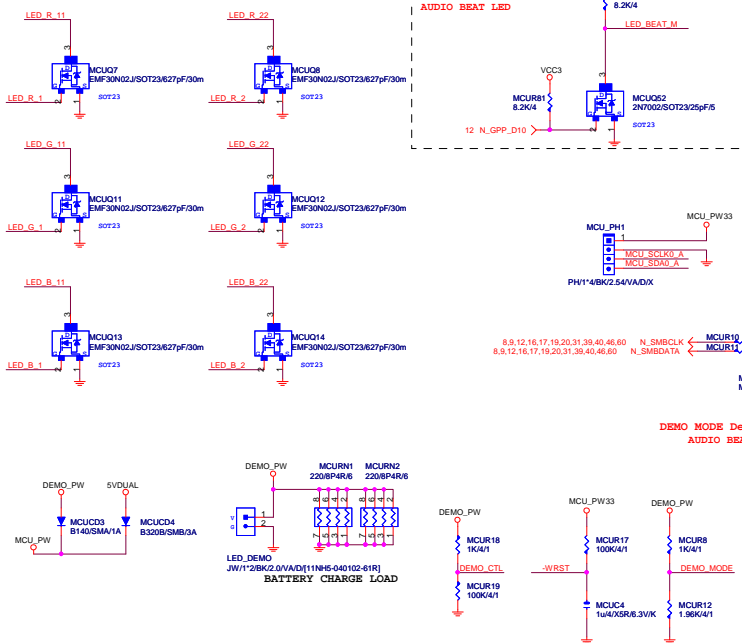
燈條 LED (LED_C1放在PCB左邊板邊位置)
燈條 LED (LED_C2放在PCB右邊板邊位置)

第五區 LED CONTROL



第一區 LED CONTROL

第二區 LED CONTROL



LED_C1 WHITE LED ON/OFF

第五區 LED (外部燈條 LED_C1/LED_C2)

第四區 LED (PCI-E)

第三區 LED (PCI-E)

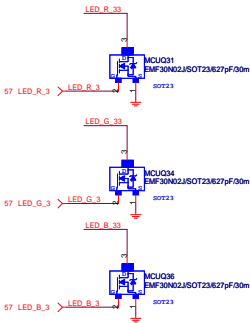
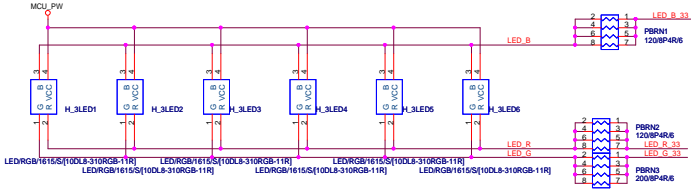
第二區 LED (DDR)

第一區 LED (CPU)

第三區 LED - PCH

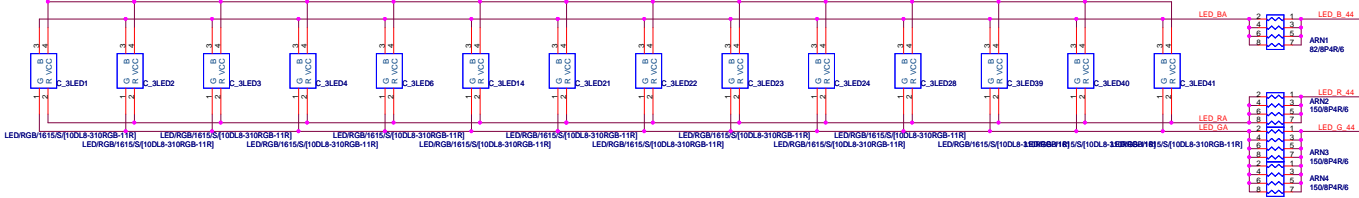
第三區 LED CONTROL

FOR PCH 正發光 LED*4 (位置在正板,依據PCH_HS設計擺放)

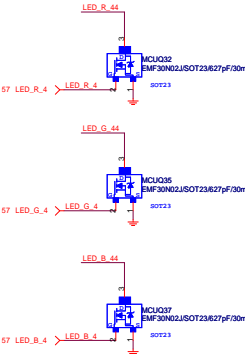


第四區 LED - AUDIO 切割線

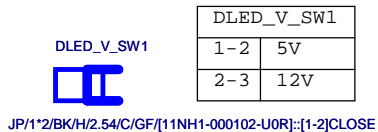
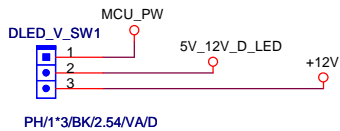
FOR AUDIO 正發光 LED*13 (位置在背板AUDIO切割線)



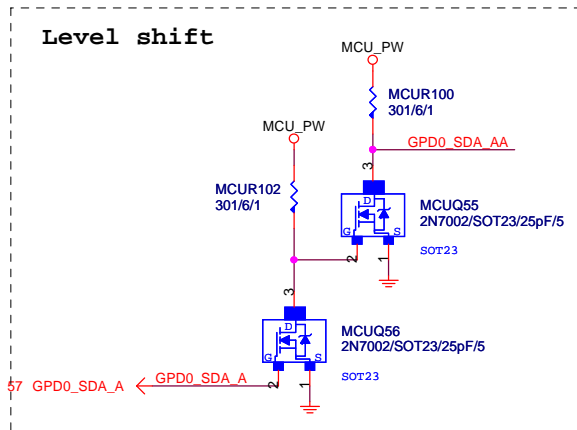
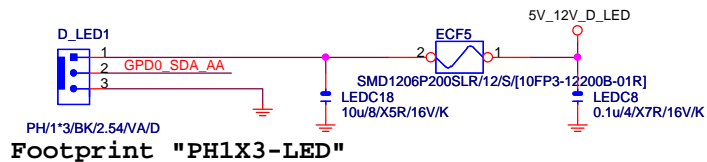
第四區 LED CONTROL



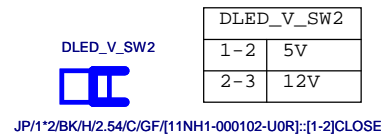
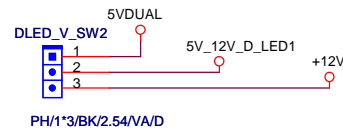
第六區 LED（靠近左上板邊位置）



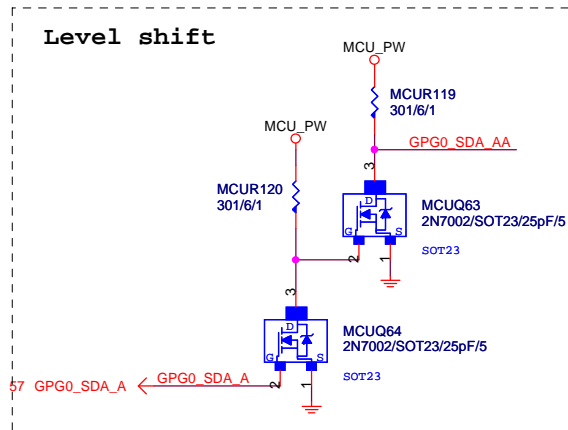
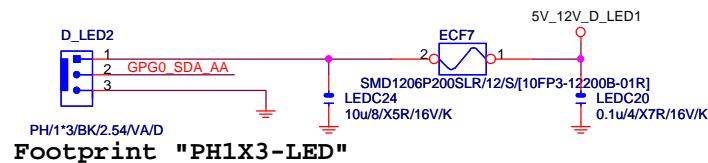
Digital LED Strip1



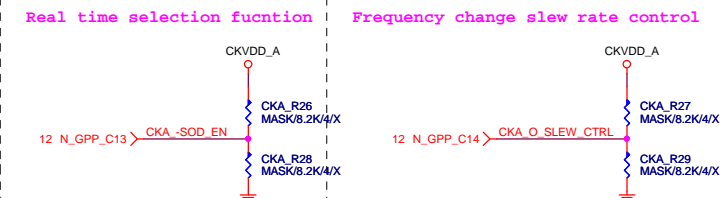
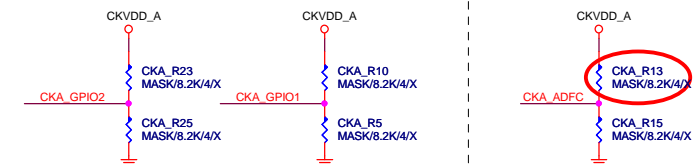
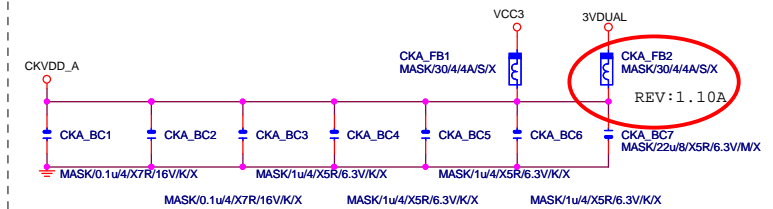
第七區 LED（靠近右下DDR板邊位置）



Digital LED Strip2

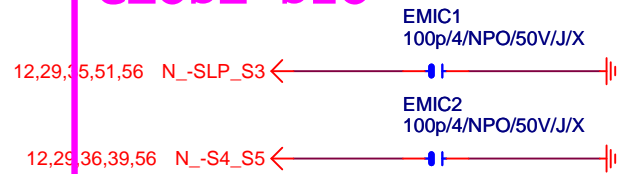


IDT6V41630

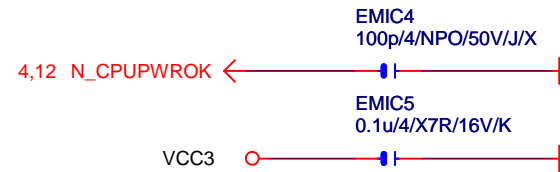


*可變，依需求上件不上件。

CLOSE SIO



CLOSE PCH

**GIGABYTE™**

Title

EMI/ESDSize
A

Document Number

Z370 AORUS Gaming WIFIRev
1.0

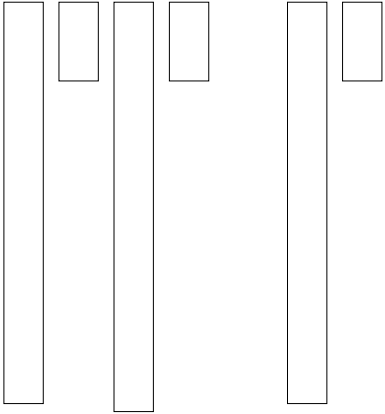
Date: Friday, August 18, 2017

Sheet 61 of 65

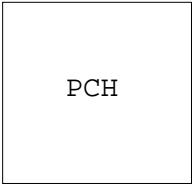
REAR IO

RS_SYS
F_AUDIO

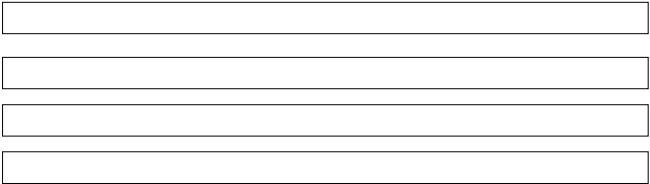
AUDIO



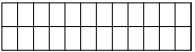
SIO



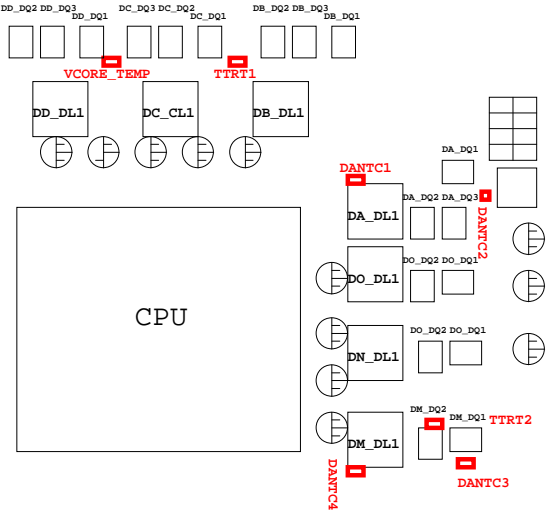
RS_PCH



CPU

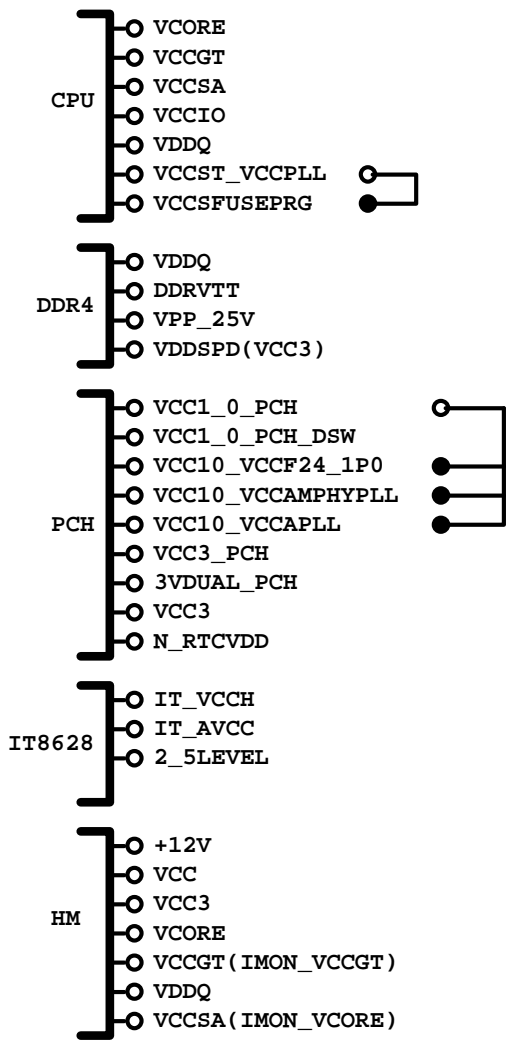


SATA_EXPRESS

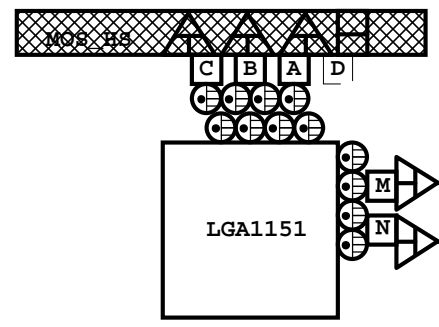
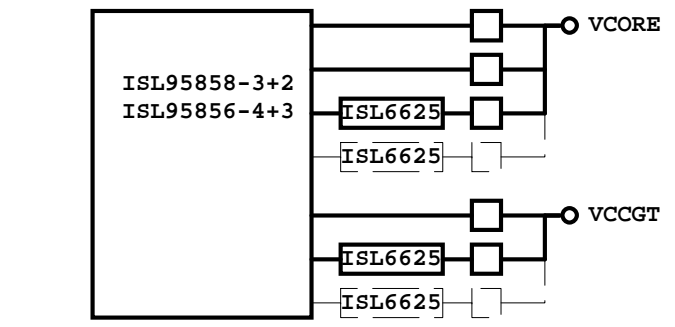


熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

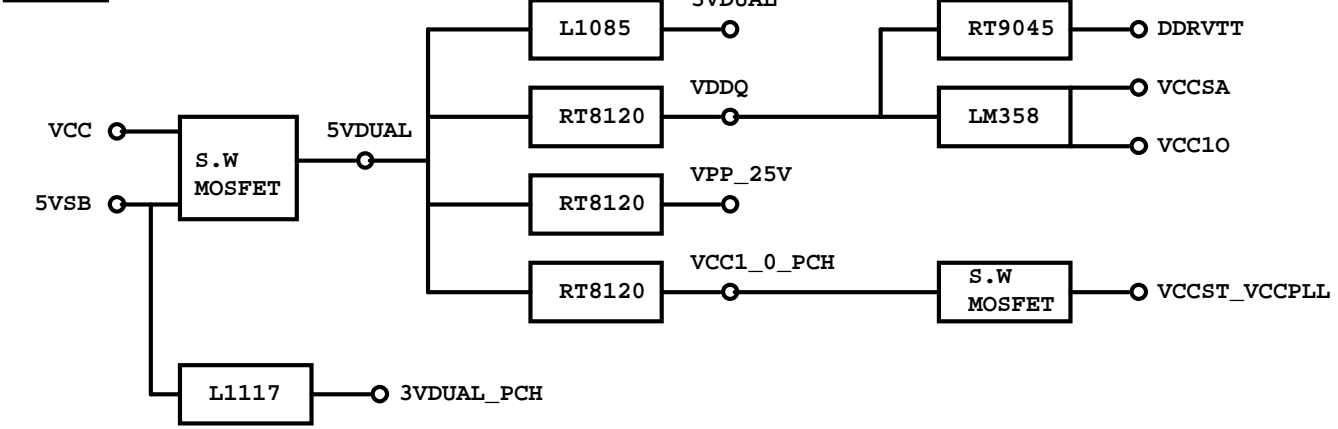
POWER BLOCK MAP



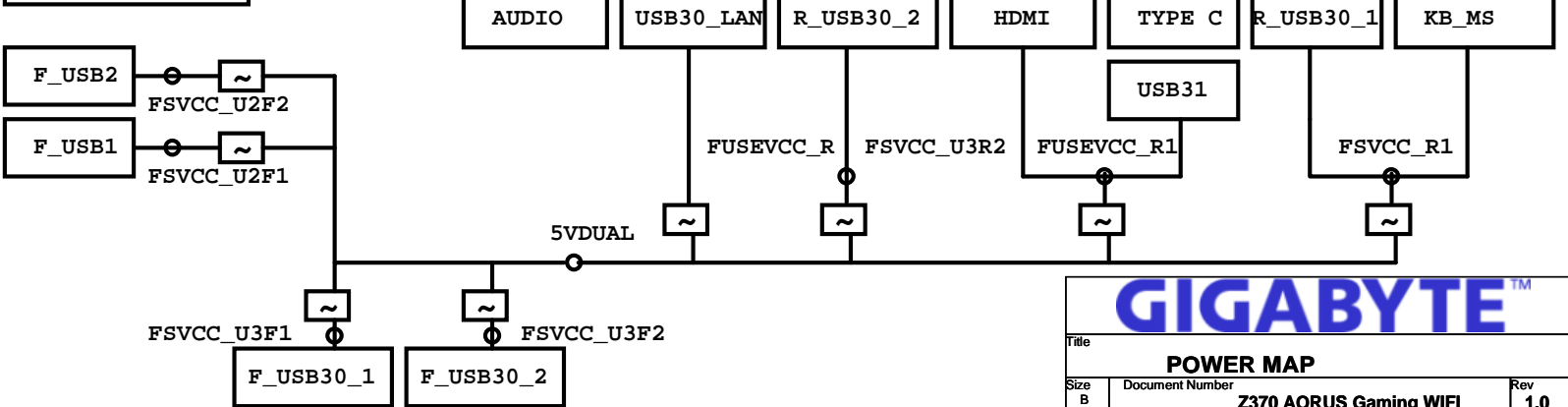
VCORE/VCCGT



POWER



FUSE POWER F/R



GIGABYTE™

Title		
POWER MAP		
Size B	Document Number	Rev
	Z370 AORUS Gaming WIFI	1.0
Date:	Thursday, July 27, 2017	Sheet 63 of 65

固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11C05-C82700-01R	270u/FP/D/16V/88/C/12m
11C05-C61000-01R	100u/OS/D/16V/66/C/30m
11C02-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11C02-685600-01R	560u/FP/D/6.3V/68/8m
11C05-882700-01R	270u/FP/D/16V/88/12m
11C05-661000-03R	100u/OS/D/16V/66/30m
11C02-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11C02-661000-09R	100u/OS/D/6.3V/66/A/35m
11C05-691000-09R	100u/OS/D/16V/69/A/35m
11C05-8C2700-09R	270u/FP/D/16V/8C/A/10m
11C02-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-21R/22R	0.5uH/40A/IMD109/BP/D	10*10	CHOKE05U-40A-1PQ-3	PWM O/P
DIP	11LC5-M4500C-11R	0.5uH/20A/IMD0809/BP/D	8*9	CHOKE1U-R50M-IF	RT8120 I/P
DIP	11LC5-M3100B-21R	1uH/35A/IMD109/BP/D	10*10	CHOKE05U-40A-1PQ-3	DDR O/P
DIP	11LC5-M2500C-11R	1uH/18A/IMD0809/BP/D	8*9	CHOKE1U-R50M-IF	PCH O/P
SMD	10LC4-15100B-02R	1.0uH/15A/S/6.7m	6*6	CHOKE6X6mm_SMD-1	VPP/ CPU PWR

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CHOKE11X8MM-SMD

BEAD

	料號	Capture Value	SIZE	Footprint
DIP	10LFB-15470A-01R	47/4030/15A/S	4*3	BEADC8B-BPH_SMD

PWM料號

		料號	Capture Value	Footprint
PWM	ISL95866	10TA1-695866-01R	ISL95866HRZ-T/QFN52	IC52QFN-6x6-G
PWM	ISL95858	10TA1-695858-01R		IC52QFN-6x6-G
PWM	IR35201	10TA1-635201-00R		IC56QFN-9VRS4339
PWM	IR3570	10TA1-603570-00R		IC40MLFP-ISL95835
PWM	RT8237C/D	10TA1-608237-01R		IC10DFN-NIS5132

REGULATOR

		料號	Capture Value	Footprint
	NCT3103S	10GL2-203103-01R	NCT3103S/SOP8/2A	IC8-EPSOIC



Title		
RT8120_DDR4 POWER		
Size	Document Number	Rev
Custom	Z370 AORUS Gaming WIFI	1.0
Date:	Thursday, July 27, 2017	Sheet 64 of 65

散熱模組料號:

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R