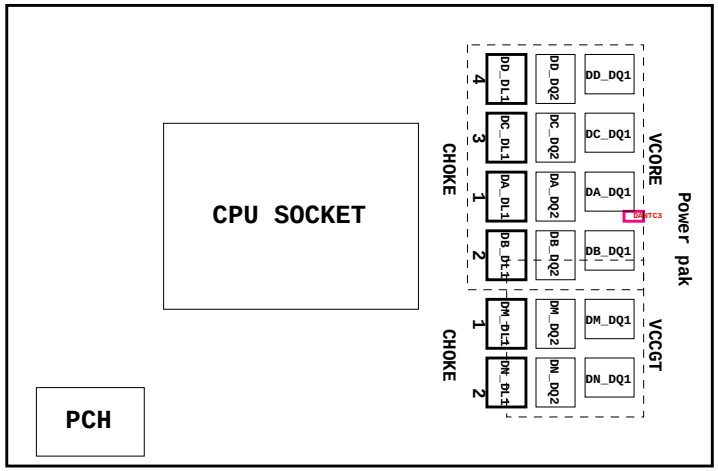
Model Name: GA-Z270P-D3

rev1.0

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-Z系列	(REV0.21)
07	CPU_LGA1151-D	
08	DDR 4 CHANNEL A	(REV0.6)
09	DDR 4 CHANNEL B	
10	PCH CLOCK BUFFER	(REV0.7)
11	PCH DMI,USB,PCIE	
12	PCH MISC	
13	PCH SATA,PCIE,SATA_EXPRESS	
14	PCH PWR	
15	PCH GND	
16	Dual BIOS	(REV0.2)
17	I/O ITE8628	(REV0.2)
18	HWM	
19	FAN CTRL-SIO	(REV0.81)
20	PCIEX16 SLOT	(REV0.2)
21	PCIEX4 SLOT1	(REV0.51)
22	PCIEX4 SLOT2	(REV0.51)
23	PCIEX1*3 SLOT	(REV0.51)
24	M.2 x4	(REV0.6)
25	SATA	
26	VCORE_ ISL95856(PWM)	(REV0.11)
27	VCORE_ ISL95856(Vcore)	(REV0.11)
28	VCORE_ ISL95856(VccGT)	(REV0.11)
29	VCCSA_VCCIO-IRON-Z系列	(REV0.21)
30	RT8120_DDR_CHOKE-IRON-2L	(REV0.1)
31	RT8120_VPP_CHOKE-IRON	(REV0.1)
32	RT8120_PCH	(REV0.1)
33	DISCRETE POWER	(REV0.51)
34	CPU POWER-Z系列	(REV0.21)
35	NCP3933 OVER VOLTAGE	
36	ATX POWER , -PROCHOT	

SHEET	TITLE	
37	KB_MS	(REV0.81)
38	R_USB30	(REV0.81)
39	RT8111G	(REV1.11)
40	USB20_LAN CONNECTOR-8111G	(REV1.11)
41	ALC887-VD2 CODEC	(REV0.1)
42	REAR AUDIO JACK	(REV0.1)
43	F_USB30	(REV0.81)
44	F_USB20	(REV0.81)
45	COM , TPM , THB	(REV0.81)
46	F_PANEL	(REV0.81)
47	IT8892E_JX	(REV0.1)
48	LDO POWER	(REV0.1)
49	HDMI	(REV0.81)
50	IDT6V41630_CLK BUFFER	(REV0.1)
51	OC BUTTON	(REV0.81)
52	Audio / DEBUG / XMP LED	(REV0.3)
53	EMI-ESD	(REV0.1)
54	POWER MAP	
55	TABLE LIST	
56		
57		
58		
59		



Gigabyte Technology		
Title: Cover Sheet		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 1 of 54	

GA-Z270P-D3 *rev 1.0*

Component value change history

Data	Change Item	Reason
2016/08/04	Modify to Z270X-HD3	
2016/11/03	1. DAC10=1.5n(1n) DAC23=1n(1.5n) DAR55=6.04K(4.02K)	rev:1.0
	2. MOS 全部換成ON	
	3. PCIEX16 改成無鐵殼.	

Circuit or PCB layout change

DATE	Change Item	Reason
2014/11/28 PCB:0.1	模組化線路	
	PCB first release	
2016/11/03	1.新增DDC8.9.10(放背板)DDC51.52.53.54.55(放正面)	VISHAY MOS issue
PCB:1.0	2.CPU PCH 部份0ohm改成short pad	
	3. 修該ddr layout 走線線寬4.5mm	

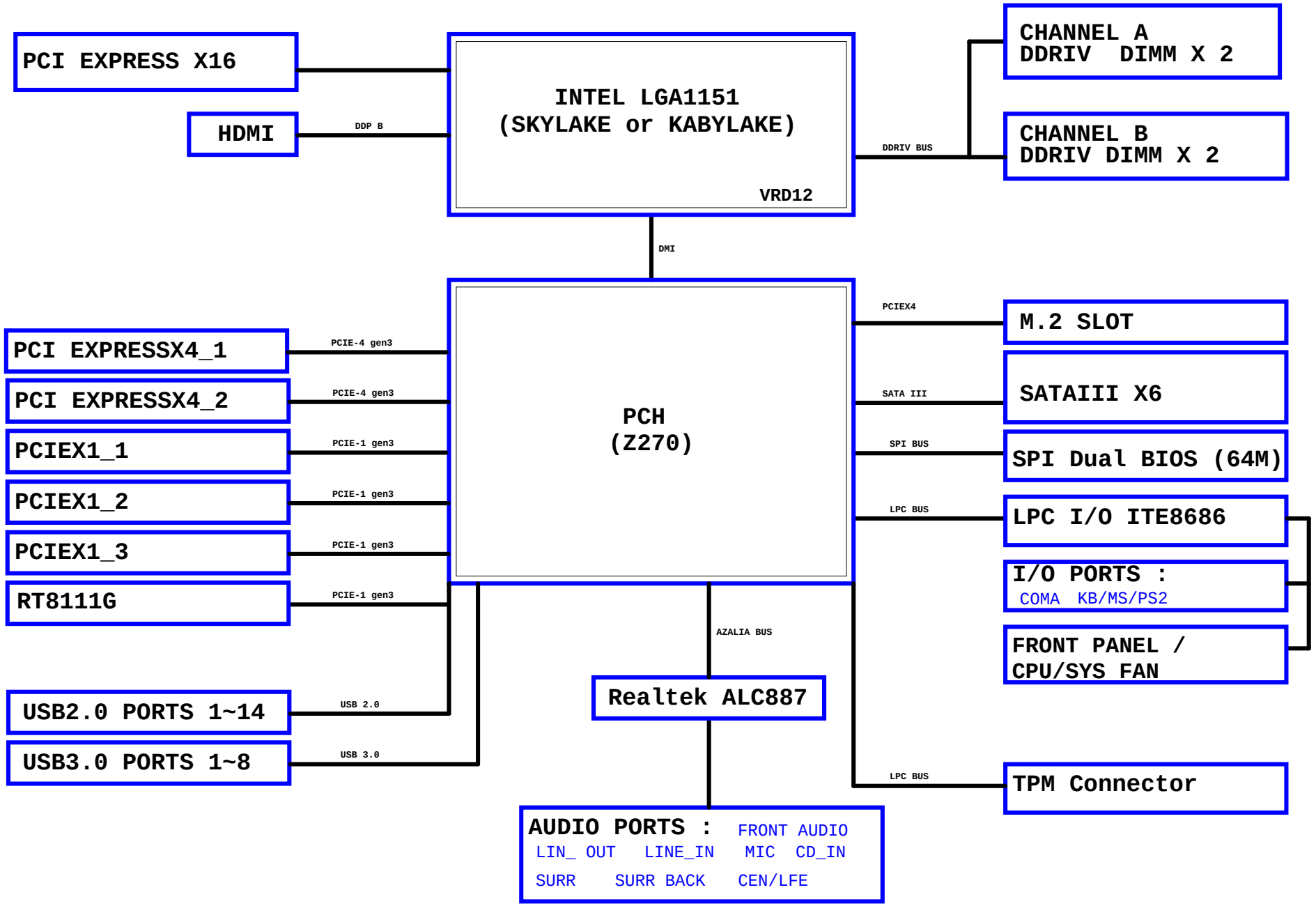
GIGABYTE™

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 2 of 54

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 3 of 54	

From SKL_0.2B

LGA1151E SKT_H4

LGA1151

BCLKP
BCLKN
PCI_BCLKP
PCI_BCLKN
CLK24P
CLK24N
VIDALERT#
VIDSCK
VIDSOUT
PROCHOT#
DDR_VTT_CNTL
ZVM#
RSVD_AC37
VCCST_PWRGD
PROCPWRGD
RESET#
PM_SYNC
PM_DOWN
PECI
THERMTRIP#
SKTOCC#
PROC_SELECT#
CATERR#
CFG_RCOMP
PROC_TDO
PROC_TDI
PROC_TMS
PROC_TCK
PROC_TRST#
PROC_PREQ#
PROC_PRDY#
BPM#[0]
BPM#[1]
BPM#[2]
BPM#[3]

5 OF 12

CPU-SK/1151/S/GF

* WR7 , WR1 , WR81
改 short pad

* 刪 net

LGA1151D SKT_H4

LGA1151

DDI1_TXP[0]
DDI1_TXN[0]
DDI1_TXP[1]
DDI1_TXN[1]
DDI1_TXP[2]
DDI1_TXN[2]
DDI1_TXP[3]
DDI1_TXN[3]
DDI1_AUXP
DDI1_AUXN
DDI2_TXP[0]
DDI2_TXN[0]
DDI2_TXP[1]
DDI2_TXN[1]
DDI2_TXP[2]
DDI2_TXN[2]
DDI2_TXP[3]
DDI2_TXN[3]
DDI2_AUXP
DDI2_AUXN
DDI3_TXP[0]
DDI3_TXN[0]
DDI3_TXP[1]
DDI3_TXN[1]
DDI3_TXP[2]
DDI3_TXN[2]
DDI3_TXP[3]
DDI3_TXN[3]
DDI3_AUXP
DDI3_AUXN
EDP_TXP[0]
EDP_TXN[0]
EDP_TXP[1]
EDP_TXN[1]
EDP_TXP[2]
EDP_TXN[2]
EDP_TXP[3]
EDP_TXN[3]
EDP_AUXP
EDP_AUXN
EDP_DISP_UTIL
EDP_RCOMP
PROC_AUDIO_CLK
PROC_AUDIO_SDI
PROC_AUDIO_SDO

4 OF 12

CPU-SK/1151/S/GF

* 刪 net

* 刪 net

* 刪 WR17 , WR14 , WR10 , WR29 , WR25 , WR56 , WR55

* 刪 WR90

* 刪 WR91

* 刪 net N_CPU_VCCST_PWOK

-CPURST

CFG[2]:x16 Lane Numbering Reversal. 1= NORMAL;0=reversal

CFG[4]: eDP enable:1:disable/0=enable

CFG[6:5]:PCI Express* Bifurcation; 11= 1 x16 PCI Express;10=2x8 PCI Express

CFG[7]: PEG Training:1=(default) PEG Train immediately following RESET#;0=PEG Wait for BIOS

Bifurcation Config.	Signals Lanes CFG[6]	CFG[5]	CFG[2]
1x16	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

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

LGA1151C SKT_H4

LGA1151

PEG_RXP[0]
PEG_RXN[0]
PEG_RXP[1]
PEG_RXN[1]
PEG_RXP[2]
PEG_RXN[2]
PEG_RXP[3]
PEG_RXN[3]
PEG_RXP[4]
PEG_RXN[4]
PEG_RXP[5]
PEG_RXN[5]
PEG_RXP[6]
PEG_RXN[6]
PEG_RXP[7]
PEG_RXN[7]
PEG_RXP[8]
PEG_RXN[8]
PEG_RXP[9]
PEG_RXN[9]
PEG_RXP[10]
PEG_RXN[10]
PEG_RXP[11]
PEG_RXN[11]
PEG_RXP[12]
PEG_RXN[12]
PEG_RXP[13]
PEG_RXN[13]
PEG_RXP[14]
PEG_RXN[14]
PEG_RXP[15]
PEG_RXN[15]
PEG_RCOMP
PEG_TXP[0]
PEG_TXN[0]
PEG_TXP[1]
PEG_TXN[1]
PEG_TXP[2]
PEG_TXN[2]
PEG_TXP[3]
PEG_TXN[3]
PEG_TXP[4]
PEG_TXN[4]
PEG_TXP[5]
PEG_TXN[5]
PEG_TXP[6]
PEG_TXN[6]
PEG_TXP[7]
PEG_TXN[7]
PEG_TXP[8]
PEG_TXN[8]
PEG_TXP[9]
PEG_TXN[9]
PEG_TXP[10]
PEG_TXN[10]
PEG_TXP[11]
PEG_TXN[11]
PEG_TXP[12]
PEG_TXN[12]
PEG_TXP[13]
PEG_TXN[13]
PEG_TXP[14]
PEG_TXN[14]
PEG_TXP[15]
PEG_TXN[15]
DMI_RXP[0]
DMI_RXN[0]
DMI_RXP[1]
DMI_RXN[1]
DMI_RXP[2]
DMI_RXN[2]
DMI_RXP[3]
DMI_RXN[3]
DMI_TXP[0]
DMI_TXN[0]
DMI_TXP[1]
DMI_TXN[1]
DMI_TXP[2]
DMI_TXN[2]
DMI_TXP[3]
DMI_TXN[3]

3 OF 12

CPU-SK/1151/S/GF

PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] 20
PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] 20
PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] 20
PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] 20

4 layer PEG/DMI======4/4/4//15
6 layer PEG/DMI======4/5.5/4//15

Impedance=85 +- 15%

W=12 mil out of CPU
S=15 mil out of CPU

Gigabyte Technology

Title: CPU LGA1151-A

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 4 of 54

* 改DDR4 net

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]					
MDA1	AE37	DDR0_DQ[1]					
MDA2	AG38	DDR0_DQ[2]					
MDA3	AG37	DDR0_DQ[3]					
MDA4	AE39	DDR0_DQ[4]					
MDA5	AE40	DDR0_DQ[5]					
MDA6	AG39	DDR0_DQ[6]					
MDA7	AG40	DDR0_DQ[7]					
MDA8	AJ38	DDR0_DQ[8]					
MDA9	AJ37	DDR0_DQ[9]					
MDA10	AL38	DDR0_DQ[10]					
MDA11	AL37	DDR0_DQ[11]					
MDA12	AJ40	DDR0_DQ[12]					
MDA13	AJ39	DDR0_DQ[13]					
MDA14	AL39	DDR0_DQ[14]					
MDA15	AL40	DDR0_DQ[15]					
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]					
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]					
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]					
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]					
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]					
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]					
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]					
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]					
MDA24	AW37	DDR0_DQ[24]/DDR0_DQ[40]					
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]					
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]					
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]					
MDA28	AU37	DDR0_DQ[28]/DDR0_DQ[44]					
MDA29	AV37	DDR0_DQ[29]/DDR0_DQ[45]					
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]					
MDA31	AU35	DDR0_DQ[31]/DDR0_DQ[47]					
MDA32	AY8	DDR0_DQ[32]/DDR1_DQ[0]					
MDA33	AW8	DDR0_DQ[33]/DDR1_DQ[1]					
MDA34	AV6	DDR0_DQ[34]/DDR1_DQ[2]					
MDA35	AU6	DDR0_DQ[35]/DDR1_DQ[3]					
MDA36	AU8	DDR0_DQ[36]/DDR1_DQ[4]					
MDA37	AV8	DDR0_DQ[37]/DDR1_DQ[5]					
MDA38	AW6	DDR0_DQ[38]/DDR1_DQ[6]					
MDA39	AY6	DDR0_DQ[39]/DDR1_DQ[7]					
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]					
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]					
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]					
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]					
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]					
MDA45	AW4	DDR0_DQ[45]/DDR1_DQ[13]					
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]					
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]					
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]					
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]					
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]					
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[35]					
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[36]					
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[37]					
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[38]					
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[39]					
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[40]					
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[41]					
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[42]					
MDA59	AH2	DDR0_DQ[59]/DDR1_DQ[43]					
MDA60	AH4	DDR0_DQ[60]/DDR1_DQ[44]					
MDA61	AK2	DDR0_DQ[61]/DDR1_DQ[45]					
MDA62	AH3	DDR0_DQ[62]/DDR1_DQ[46]					
MDA63	AK1	DDR0_DQ[63]/DDR1_DQ[47]					
	AU33						
	AT33	DDR0_ECC[0]					
	AW33	DDR0_ECC[1]					
	AV31	DDR0_ECC[2]					
	AU31	DDR0_ECC[3]					
	AV33	DDR0_ECC[4]					
	AW31	DDR0_ECC[5]					
	AY31	DDR0_ECC[6]					
		DDR0_ECC[7]					

		DDR0_CKP[0]					
		DDR0_CKN[0]					
		DDR0_CKP[1]					
		DDR0_CKN[1]					
		DDR0_CKP[2]					
		DDR0_CKN[2]					
		DDR0_CKP[3]					
		DDR0_CKN[3]					
		DDR0_CKE[0]					
		DDR0_CKE[1]					
		DDR0_CKE[2]					
		DDR0_CKE[3]					
		DDR0_CS#[0]					
		DDR0_CS#[1]					
		DDR0_CS#[2]					
		DDR0_CS#[3]					
		DDR0_ODT[0]					
		DDR0_ODT[1]					
		DDR0_ODT[2]					
		DDR0_ODT[3]					
		DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]					
		DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]					
		DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]					
		DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]					
		DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]					
		DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]					
		DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]					
		DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]					
		DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]					
		DDR0_MA[3]					
		DDR0_MA[4]					
		DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]					
		DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]					
		DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]					
		DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]					
		DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]					
		DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]					
		DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]					
		DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]					
		DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]					
		DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]					
		DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#					
		DDR0_PAR					
		DDR0_ALERT#					
		DDR0_DQSN[0]					
		DDR0_DQSN[1]					
		DDR0_DQSN[2]/DDR0_DQSN[4]					
		DDR0_DQSN[3]/DDR0_DQSN[5]					
		DDR0_DQSN[4]/DDR1_DQSN[0]					
		DDR0_DQSN[5]/DDR1_DQSN[1]					
		DDR0_DQSN[6]/DDR1_DQSN[4]					
		DDR0_DQSN[7]/DDR1_DQSN[5]					
		DDR0_DQSP[0]					
		DDR0_DQSP[1]					
		DDR0_DQSP[2]/DDR0_DQSP[4]					
		DDR0_DQSP[3]/DDR0_DQSP[5]					
		DDR0_DQSP[4]/DDR1_DQSP[0]					
		DDR0_DQSP[5]/DDR1_DQSP[1]					
		DDR0_DQSP[6]/DDR1_DQSP[4]					
		DDR0_DQSP[7]/DDR1_DQSP[5]					
		DDR0_DQSP[8]					
		DDR0_DQSN[8]					

AW18	M_DCLKA0	M_DCLKA0	8				
AR18	M_-DCLKA0	M_-DCLKA0	8				
AW17	M_DCLKA1	M_DCLKA1	8				
AY17	M_-DCLKA1	M_-DCLKA1	8				
AW16	M_DCLKA2	M_DCLKA2	8				
AV16	M_-DCLKA2	M_-DCLKA2	8				
AT16	M_DCLKA3	M_DCLKA3	8				
AU16	M_-DCLKA3	M_-DCLKA3	8				
AY24	CKEA0	CKEA0	8				
AW24	CKEA1	CKEA1	8				
AV24	CKEA2	CKEA2	8				
AV25	CKEA3	CKEA3	8				
AW12	M_-CSA0	M_-CSA0	8				
AU11	M_-CSA1	M_-CSA1	8				
AV13	M_-CSA2	M_-CSA2	8				
AV10	M_-CSA3	M_-CSA3	8				
AW11	MODT_A0						
AU14	MODT_A1						
AU12	MODT_A2						
AY10	MODT_A3						
AY13	SBAA0	SBAA0	8				
AV15	SBAA1	SBAA1	8				
AW23	BG_A0	BG_A0	8				
AW13	MAAA16						
AV14	MAAA14						
AY11	MAAA15						
AW15	MAAA0						
AU18	MAAA1						
AU17	MAAA2						
AV19	MAAA3						
AT19	MAAA4						
AU20	MAAA5						
AV20	MAAA6						
AU21	MAAA7						
AT20	MAAA8						
AT22	MAAA9						
AY14	MAAA10						
AU22	MAAA11						
AV22	MAAA12						
AV12	MAAA13						
AV23	BG_A1	BG_A1	8				
AU24		M_-ACT_A	8				
AY15		M_DDR_PARA	8				
AT23		M_-ALERT_A	8				
AF39	M_-DQSA0						
AK39	M_-DQSA1						
AP39	M_-DQSA2						
AU36	M_-DQSA3						
AW7	M_-DQSA4						
AU3	M_-DQSA5						
AN3	M_-DQSA6						
AJ3	M_-DQSA7						
AF38	M_DQSA0						
AK38	M_DQSA1						
AP38	M_DQSA2						
AV36	M_DQSA3						
AV7	M_DQSA4						
AU2	M_DQSA5						
AN2	M_DQSA6						
AJ2	M_DQSA7						
AV32							
AU32							

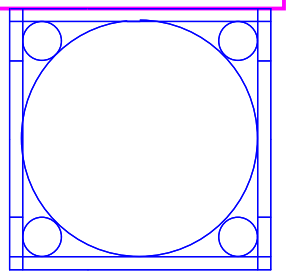
DDR CHANNEL A

LGA1151

1 OF12

CPU-SK/1151/S/GF

ILM_BP_CR/115X/NORMAL NI/[12KRC-0F0001-52R]



Need check the new CPU ME

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]					
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]					
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]					
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]					
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]					
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]					
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]					
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]					
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]					
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]					
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]					
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]					
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]					
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]					
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]					
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]					
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]					
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]					
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]					
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]					
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]					
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]					
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]					
MDB23	AP31	DDR1_DQ[23]/DDR0_DQ[55]					
MDB24	AL29	DDR1_DQ[24]/DDR0_DQ[56]					
MDB25	AM29	DDR1_DQ[25]/DDR0_DQ[57]					
MDB26	AP29	DDR1_DQ[26]/DDR0_DQ[58]					
MDB27	AR29	DDR1_DQ[27]/DDR0_DQ[59]					
MDB28	AM28	DDR1_DQ[28]/DDR0_DQ[60]					
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]					
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]					
MDB31	AP28	DDR1_DQ[31]/DDR0_DQ[63]					
MDB32	AR12	DDR1_DQ[32]/DDR1_DQ[16]					
MDB33	AP12	DDR1_DQ[33]/DDR1_DQ[17]					
MDB34	AM13	DDR1_DQ[34]/DDR1_DQ[18]					
MDB35	AL13	DDR1_DQ[35]/DDR1_DQ[19]					
MDB36	AR13	DDR1_DQ[36]/DDR1_DQ[20]					
MDB37	AP13	DDR1_DQ[37]/DDR1_DQ[21]					
MDB38	AM12	DDR1_DQ[38]/DDR1_DQ[22]					
MDB39	AL12	DDR1_DQ[39]/DDR1_DQ[23]					
MDB40	AP10	DDR1_DQ[40]/DDR1_DQ[24]					
MDB41	AR10	DDR1_DQ[41]/DDR1_DQ[25]					
MDB42	AR7	DDR1_DQ[42]/DDR1_DQ[26]					
MDB43	AP7	DDR1_DQ[43]/DDR1_DQ[27]					
MDB44	AR9	DDR1_DQ[44]/DDR1_DQ[28]					
MDB45	AP9	DDR1_DQ[45]/DDR1_DQ[29]					
MDB46	AR6	DDR1_DQ[46]/DDR1_DQ[30]					
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]					
MDB48	AM10	DDR1_DQ[48]					
MDB49	AL10	DDR1_DQ[49]					
MDB50	AM7	DDR1_DQ[50]					
MDB51	AL7	DDR1_DQ[51]					
MDB52	AM9	DDR1_DQ[52]					
MDB53	AL9	DDR1_DQ[53]					
MDB54	AM6	DDR1_DQ[54]					
MDB55	AL6	DDR1_DQ[55]					
MDB56	AJ6	DDR1_DQ[56]					
MDB57	AJ7	DDR1_DQ[57]					
MDB58	AF6	DDR1_DQ[58]					
MDB59	AF7	DDR1_DQ[59]					
MDB60	AH7	DDR1_DQ[60]					
MDB61	AH6	DDR1_DQ[61]					
MDB62	AF7	DDR1_DQ[62]					
MDB63	AF6	DDR1_DQ[63]					
	AR25						
	AR26	DDR1_ECC[0]					
	AM26	DDR1_ECC[1]					
	AM25	DDR1_ECC[2]					
	AP26	DDR1_ECC[3]					
	AP25	DDR1_ECC[4]					
	AL25	DDR1_ECC[5]					
	AL26	DDR1_ECC[6]					
		DDR1_ECC[7]					

AM20	M_DCLKB0	M_DCLKB0	9				
AM21	M_-DCLKB0	M_-DCLKB0	9				
AP22	M_DCLKB1	M_DCLKB1	9				
AP21	M_-DCLKB1	M_-DCLKB1	9				
AN20	M_DCLKB2	M_DCLKB2	9				
AN21	M_-DCLKB2	M_-DCLKB2	9				
AP19	M_DCLKB3	M_DCLKB3	9				
AP20	M_-DCLKB3	M_-DCLKB3	9				
AY29	CKEB0	CKEB0	9				
AV29	CKEB1	CKEB1	9				
AW29	CKEB2	CKEB2	9				
AU29	CKEB3	CKEB3	9				
AP17	M_-CSB0	M_-CSB0	9				
AN15	M_-CSB1	M_-CSB1	9				
AN17	M_-CSB2	M_-CSB2	9				
AM15	M_-CSB3	M_-CSB3	9				
AM16	MODT_B0						
AL16	MODT_B1						
AP15	MODT_B2						
AL15	MODT_B3						
AN18	MAAB16						
AL17	MAAB14						
AP16	MAAB15						
AL18	SBAB0	SBAB0	9				
AM18	SBAB1	SBAB1	9				
AW28	BG_B0	BG_B0	9				
AL19	MAAB0						
AL22	MAAB1						
AM22	MAAB2						
AM23	MAAB3						
AP23	MAAB4						
AL23	MAAB5						
AW26	MAAB6						
AY26	MAAB7						
AU26	MAAB8						
AW27	MAAB9						
AP18	MAAB10						
AU27	MAAB11						
AV27	MAAB12						
AR15	MAAB13						
AY28	BG_B1	BG_B1	9				
AU28		M_-ACT_B	9				
AL20		M_DDR_PARB	9				
AY25		M_-ALERT_B	9				
AF34	M_-DQSB0						
AK33	M_-DQSB1						
AN33	M_-DQSB2						
AN29	M_-DQSB3						
AN13	M_-DQSB4						
AR8	M_-DQSB5						
AM8	M_-DQSB6						
AG6	M_-DQSB7						
AF35	M_DQSB0						
AL33	M_DQSB1						
AP33	M_DQSB2						
AN28	M_DQSB3						
AN12	M_DQSB4						
AP8	M_DQSB5						
AL8	M_DQSB6						
AG7	M_DQSB7						
AN25							
AN26							
AB40	VREF_CAB	VREF_CAB	8				
AC40							
AC39	VREF_DQB	VREF_DQB	9				

DDR CHANNEL B

2 OF 12

CPU-SK/1151/S/GF

		DDR1_CKP[0]					
		DDR1_CKN[0]					
		DDR1_CKP[1]					
		DDR1_CKN[1]					
		DDR1_CKP[2]					
		DDR1_CKN[2]					
		DDR1_CKP[3]					
		DDR1_CKN[3]					
		DDR1_CKE[0]					
		DDR1_CKE[1]					
		DDR1_CKE[2]					
		DDR1_CKE[3]					
		DDR1_CS#[0]					
		DDR1_CS#[1]					
		DDR1_CS#[2]					
		DDR1_CS#[3]					
		DDR1_ODT[0]					
		DDR1_ODT[1]					
		DDR1_ODT[2]					
		DDR1_ODT[3]					
		DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]					
		DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]					
		DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]					
		DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]					
		DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]					
		DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]					
		DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]					
		DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]					
		DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]					
		DDR1_MA[3]					
		DDR1_MA[4]					
		DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]					
		DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]					
		DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]					
		DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]					
		DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]					
		DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]					
		DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]					
		DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]					
		DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]					
		DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]					
		DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#					
		DDR1_PAR					
		DDR1_ALERT#					
		DDR1_DQSN[0]/DDR0_DQSN[2]					
		DDR1_DQSN[1]/DDR0_DQSN[3]					
		DDR1_DQSN[2]/DDR0_DQSN[6]					
		DDR1_DQSN[3]/DDR0_DQSN[7]					
		DDR1_DQSN[4]/DDR1_DQSN[2]					
		DDR1_DQSN[5]/DDR1_DQSN[3]					
		DDR1_DQSN[6]					
		DDR1_DQSN[7]					
		DDR1_DQSP[0]/DDR0_DQSP[2]					
		DDR1_DQSP[1]/DDR0_DQSP[3]					
		DDR1_DQSP[2]/DDR0_DQSP[6]					
		DDR1_DQSP[3]/DDR0_DQSP[7]					
		DDR1_DQSP[4]/DDR1_DQSP[2]					
		DDR1_DQSP[5]/DDR1_DQSP[3]					
		DDR1_DQSP[6]					
		DDR1_DQSP[7]					
		DDR1_DQSP[8]					
		DDR1_DQSN[8]					

8	MODT_A[0..3]	MODT_A[0..3]	
9	MODT_B[0..3]	MODT_B[0..3]	
8	MDA[0..63]	MDA[0..63]	
9	MDB[0..63]	MDB[0..63]	
8	M_DQSA[0..7]	M_DQSA[0..7]	
8	M_-DQSA[0..7]	M_-DQSA[0..7]	
8	MAAA[0..16]	MAAA[0..16]	
9	MAAB[0..16]	MAAB[0..16]	
9	M_DQSB[0..7]	M_DQSB[0..7]	
9	M_-DQSB[0..7]	M_-DQSB[0..7]	

Gigabyte Technology

Title: CPU LGA1151-B

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 5 of 54

REV:0.21

* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

VCCSA

* WBC51 , WBC52
VDDQ 改 VCCSA

WBC56 22u/8/X5R/6.3V/M
WBC57 22u/8/X5R/6.3V/M
WBC51 22u/8/X5R/6.3V/M
WBC52 22u/8/X5R/6.3V/M

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

* WR94 , WR59 , WR86 , WR60 ,
WR61 , WR62 , WR63 改 short pad

VCCSFUSEPRG
VCCSA
WR94 0/4/X
VCCST_VCCPLL
VCCST_VCCPLL

0624

VCCIO

WBC69 22u/8/X5R/6.3V/M
WBC70 22u/8/X5R/6.3V/M
WBC71 22u/8/X5R/6.3V/M
WBC72 22u/8/X5R/6.3V/M
WBC73 22u/8/X5R/6.3V/M
WBC74 22u/8/X5R/6.3V/M

* 刪 VCCGT 電容

VCCGT

LGA1151J SKT_H4
LGA1151

AA34 AA35 AA36 AA37 AA38 AB33 AB34 G36 G37 G38 G39 G40 H36 H38 H40 J36 J37 J38 J39 J40 K36 K38 K40 L34 L35 L36 L37 L38 L39 L40 M33 M34 M36 M38 M40 N34 N35 N36 N37 N38 N39 N40 P33 P34 P36 P38 P40 R34 R35 R36 R37 R38 R39 R40 T33 T34 T36 T38 T40 U34 U35 U36 U37 U38 U39 U40 V33 V34 V36 V38 V40 W34 W35 W36 W37 W38 Y33 Y34 Y36 Y38 — VCCGT

VCCGTX_F35 VCCGTX_G34 VCCGTX_G35 VCCGTX_H33 VCCGTX_H34 VCCGTX_J33 VCCGTX_J35 VCCGTX_K32 VCCGTX_K34 VCCGTX_L31 VCCGTX_L33 VCCGTX_M32 — F35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32

WR59 0/4

VCCGT_SENSE F39
VSSGT_SENSE F38
VCCGTX_SENSE F37
VSSGTX_SENSE F36

VCCGT_SENSE 26
VSSGT_SENSE 26

10 OF 12

CPU-SK/1151/S/GF

VCCSA

LGA1151K SKT_H4
LGA1151

AA7 AB6 AB7 AB8 AC7 AC8 N7 P7 R7 T7 U7 Y6 Y7 Y8 W7 V7 AA6 — VCCSA

VDDQ_AT18 VDDQ_AT21 VDDQ_AU13 VDDQ_AU15 VDDQ_AU19 VDDQ_AU23 VDDQ_AV11 VDDQ_AV17 VDDQ_AV21 VDDQ_AW10 VDDQ_AW14 VDDQ_AW25 VDDQ_AY12 VDDQ_AY16 VDDQ_AY18 VDDQ_AY23 — AT18 AT21 AU13 AU15 AU19 AU23 AV11 AV17 AV21 AW10 AW14 AW25 AY12 AY16 AY18 AY23

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

CPU_POWER

VCCST_VCCPLL
VCCSFUSEPRG
VCCST_VCCPLL
V5 V6 V4
VCCST_V5 VCCST_V6 VCCPLL

VCCPLL_OC AJ9 VCCPLL_S WR86 0/4 VDDQ

CPU_POWER

* 刪 VCCPLL_OC

VCCOPC_AJ30 VCCOPC_AJ27 VCCOPC_AJ28 VCCOPC_AJ29 VCCOPC_AK27 — AJ30 AJ27 AJ28 AJ29 AK27

WR60 0/4

VCCEOPIO VCCEOPIO — AJ25 AJ26

WR61 0/4

VCC_OPC_1P8_AB37 VCC_OPC_1P8_AB38 — AB37 AB38

WR62 0/4/SHT/M/X
WR63 0/4/SHT/M/X

VCCSA_SENSE AD5
VCCIO_SENSE AF4
VSS_SAIO_SENSE AE4

* 刪 net

VCCOPC_SENSE AK21
VCCEOPIO_SENSE AJ24
VSSOPC_EOPIO_SENSE AK22

10 OF 12

CPU-SK/1151/S/GF

LGA1151L SKT_H4
LGA1151

J8 J7 L8 K8 — RSVD_TP_J8 RSVD_TP_J7 RSVD_TP_L8 RSVD_TP_K8
AV1 AW2 — RSVD_TP_AV1 RSVD_TP_AW2
H8 K10 L10 J17 B39 J19 C40 — RSVD_H8 RSVD_K10 RSVD_L10 RSVD_J17 RSVD_B39 RSVD_J19 RSVD_C40
G8 AY3 — RSVD_G8 RSVD_AY3
D1 B3 — PROC_TRIGIN PROC_TRIGOUT
L12 K12 — RSVD_L12 RSVD_K12

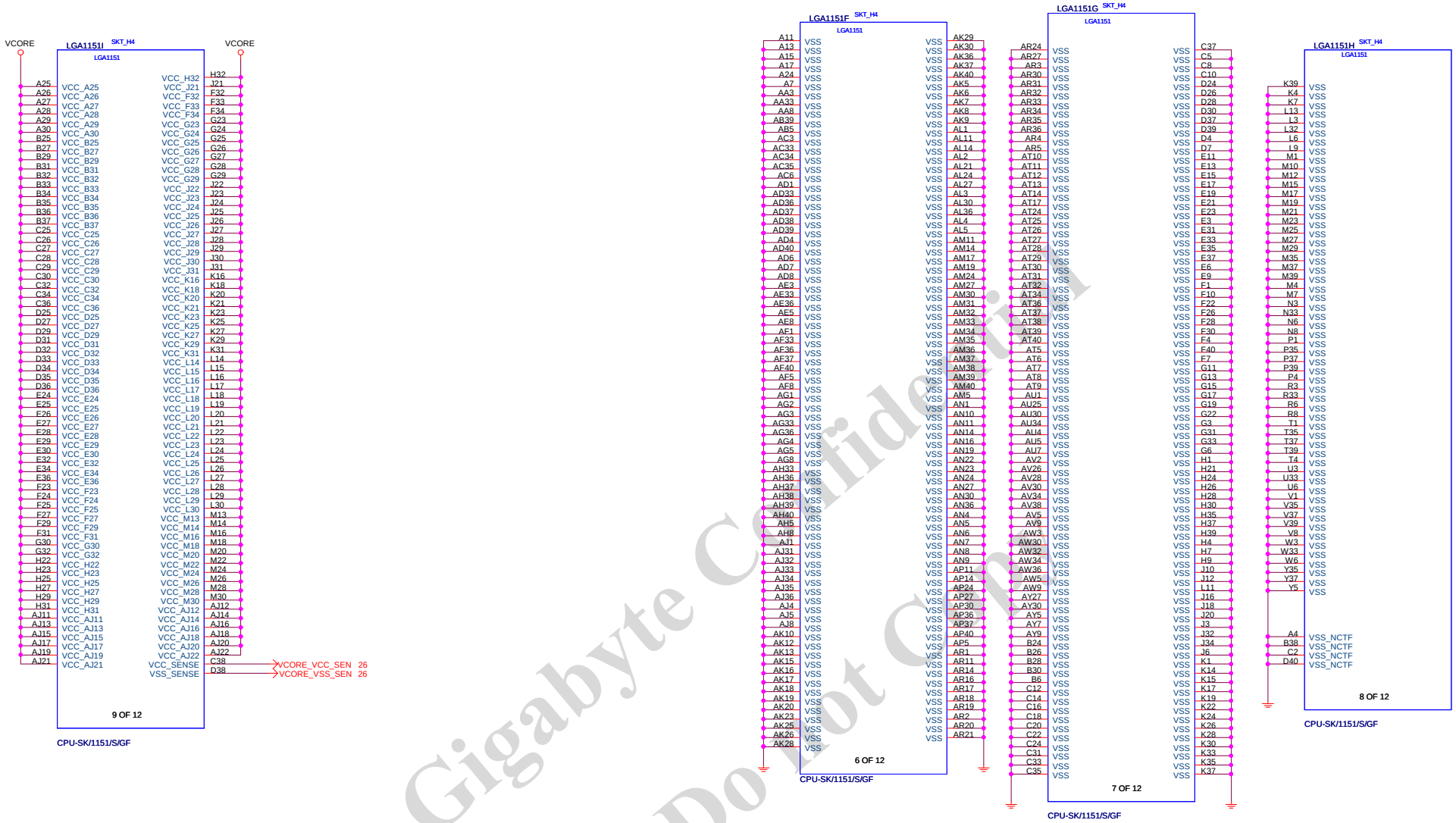
RSVD_TP_H11 RSVD_TP_H12 — H11 H12
RSVD_TP_AW38 RSVD_TP_AV39 — AW38 AV39
RSVD_AU39 RSVD_AU40 — AU39 AU40
VSS_AT15 VSS_AR23 VSS_AR22 — AT15 AR23 AR22
RSVD_J15 RSVD_J14 — J15 J14
RSVD_AU9 RSVD_AU10 — AU9 AU10
RSVD_J13 RSVD_K13 RSVD_J11 — J13 K13 J11
RSVD_D15 RSVD_K11 — D15 K11

13 N_PCH_CPU_TI
13 A_CPU_PCH_TO
WR88 33/4 A_CPU_PCH_TO_R
WR89 560/4/1

12 OF 12

CPU-SK/1151/S/GF

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 6 of 54	



* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 7 of 54	

Rev:0.6

* net 改 VDDQ

DDR4_4

DDR4_2

DDRVTT

VDDQ

VPP_2SV

MDA[0..63]

MAAA[0..17]

M_DQSA[0..7]

M_-DQSA[0..7]

刪除MR22 &VDDSPD SHORT PROTECT

MAC11 1u/4/X5R/6.3V/K

MAC16 0.1u/4/X7R/16V/K

VREF_DDRA

MAC42 0.1u/4/X7R/16V/K

MAC43 0.1u/4/X7R/16V/K

MR19 240/4/1

MR20 240/4/1

MR15 1K/4/1

MR16 1K/4/1

MABC4 0.1u/4/X7R/16V/K

MR23 0/4/SHT/20/X

Footprint :R0402-2-SHORT20

VREF_CAB

MC19 0.022u/4/X7R/25V/K/X

MR24 24.9/4/1/X

DDR12V Decouple

MABC18 0.1u/4/X7R/16V/K

MABC15 0.1u/4/X7R/16V/K

MABC11 0.1u/4/X7R/16V/K

MABC38 0.1u/4/X7R/16V/K

MABC39 0.1u/4/X7R/16V/K

MASC3 0.1u/4/X7R/16V/K/X

MABC37 1u/4/X5R/6.3V/K

MABC34 1u/4/X5R/6.3V/K

MABC35 1u/4/X5R/6.3V/K

MABC17 1u/4/X5R/6.3V/K

MASC4 0.1u/4/X7R/16V/K

MASC1 0.1u/4/X7R/16V/K

MASC2 0.1u/4/X7R/16V/K

MABC10 22u/8/X5R/6.3V/M

MABC36 1u/4/X5R/6.3V/K

MABC21 1u/4/X5R/6.3V/K

MABC8 2.2u/4/X5R/6.3V/M

* 電容移到 [RT8120_DDR]

DDRVTT Decouple

MABC25 0.1u/4/X7R/16V/K

MABC23 0.1u/4/X7R/16V/K

MABC28 0.1u/4/X7R/16V/K

MABC9 22u/8/X5R/6.3V/M

MABC22 1u/4/X5R/6.3V/K

MABC24 1u/4/X5R/6.3V/K

MABC19 1u/4/X5R/6.3V/K

MABC20 1u/4/X5R/6.3V/K

MABC14 1u/4/X5R/6.3V/K

MABC30 1u/4/X5R/6.3V/K

MABC13 1u/4/X5R/6.3V/K

MABC12 1u/4/X5R/6.3V/K

MABC16 1u/4/X5R/6.3V/K

* 新電容

* 新電容

MA0_SA0

MA0_SA1

MA0_SA2

* 移除 short pad

CHANNEL A0

SA2:0=000

MA1_SA0

MA1_SA1

MA1_SA2

* 移除 short pad

CHANNEL A1

SA2:0=001

DDR4/28B/IK/VA/D/GF/TWO LATCH

"DDR4-288P-STH"加強版

check 長邊黑色單耳孔DDR4金屬:11SM1-520288-S1R

Gigabyte Technology

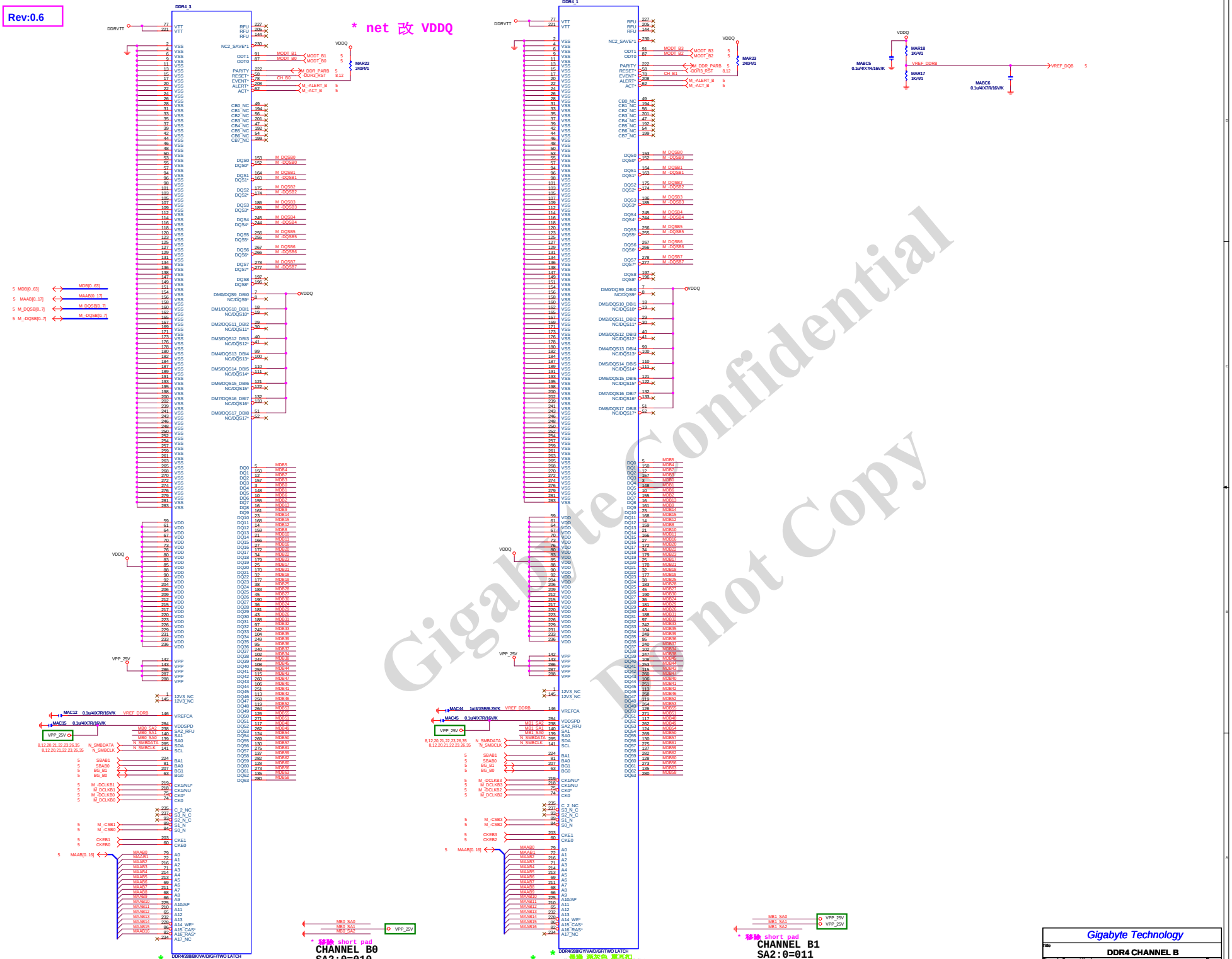
Title: DDR4 CHANNEL A

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: | Sheet 8 of 54

Rev:0.6

* net 改 VDDQ



* 移除 short pad

CHANNEL B0
SA2:0=010

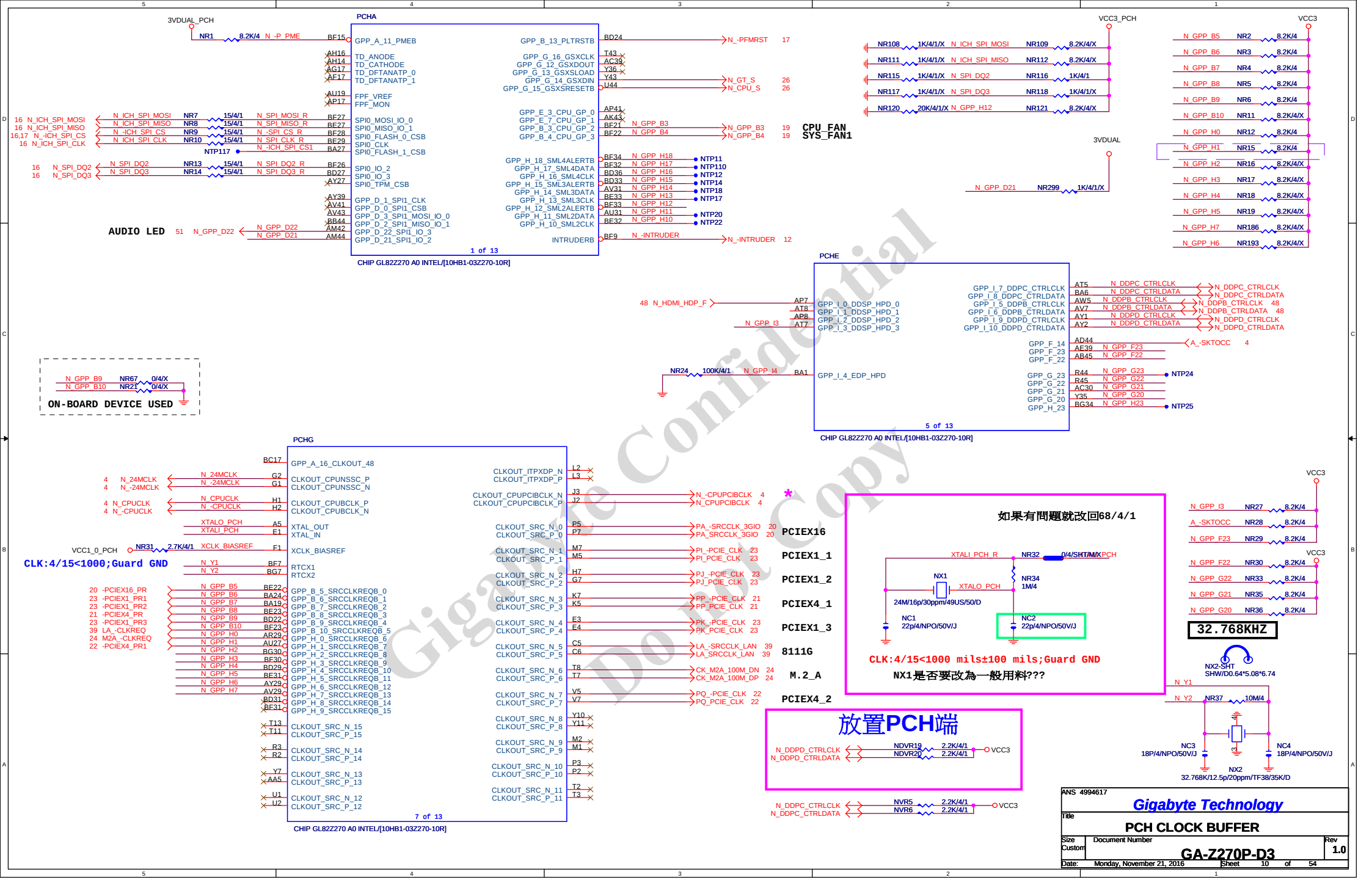
* 移除 short pad

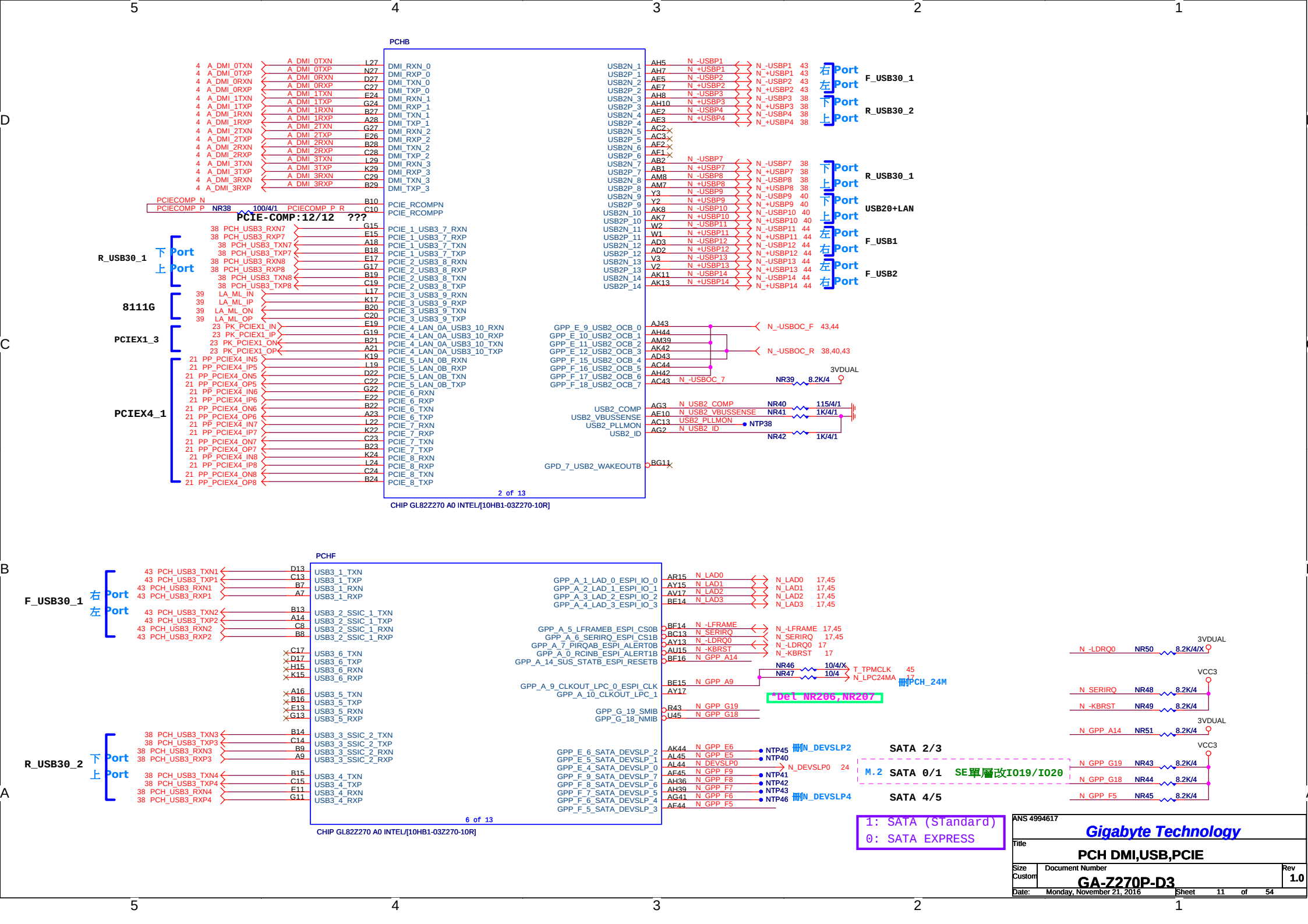
CHANNEL B1
SA2:0=011

check 長邊黑色單直扣 DDR4金屬:11SM1-520288-S1R

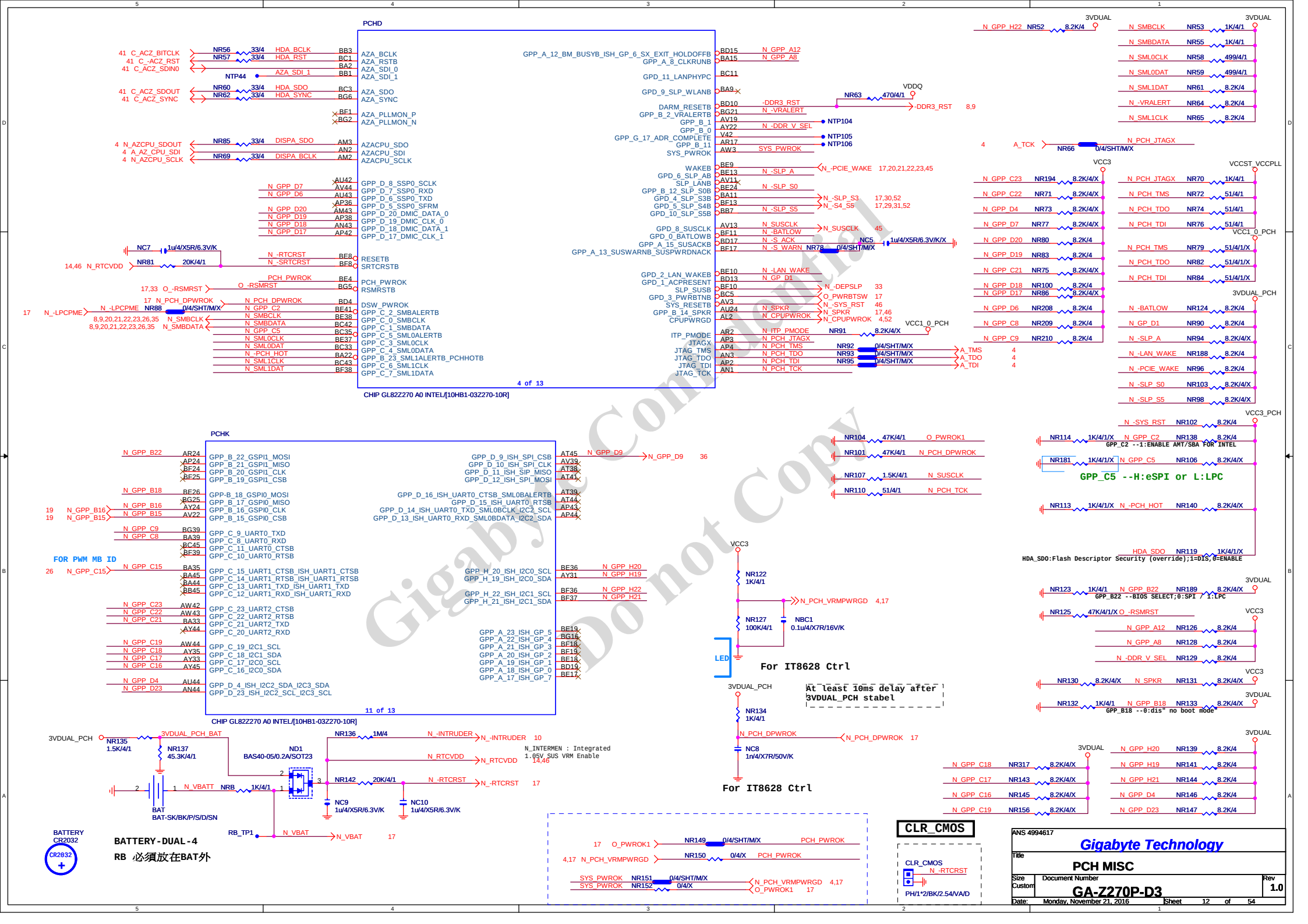
check 長邊黑色單直扣 DDR4金屬:11SM1-520288-S1R

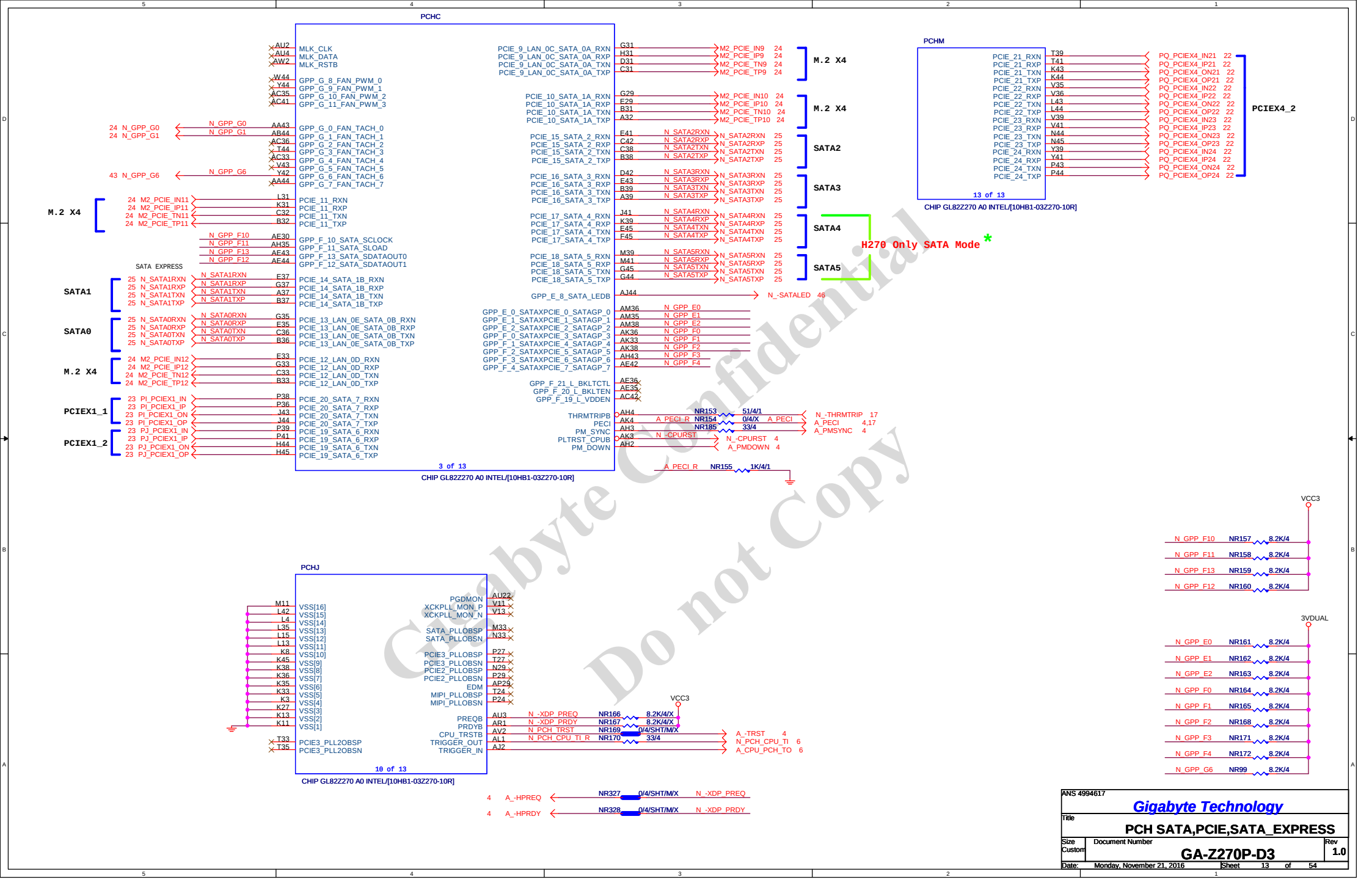
Gigabyte Technology			
Title	DDR4 CHANNEL B		
Size	Document Number		Rev
Custom	GA-Z270P-D3		1.0
Date:	Sheet 9 of 54		



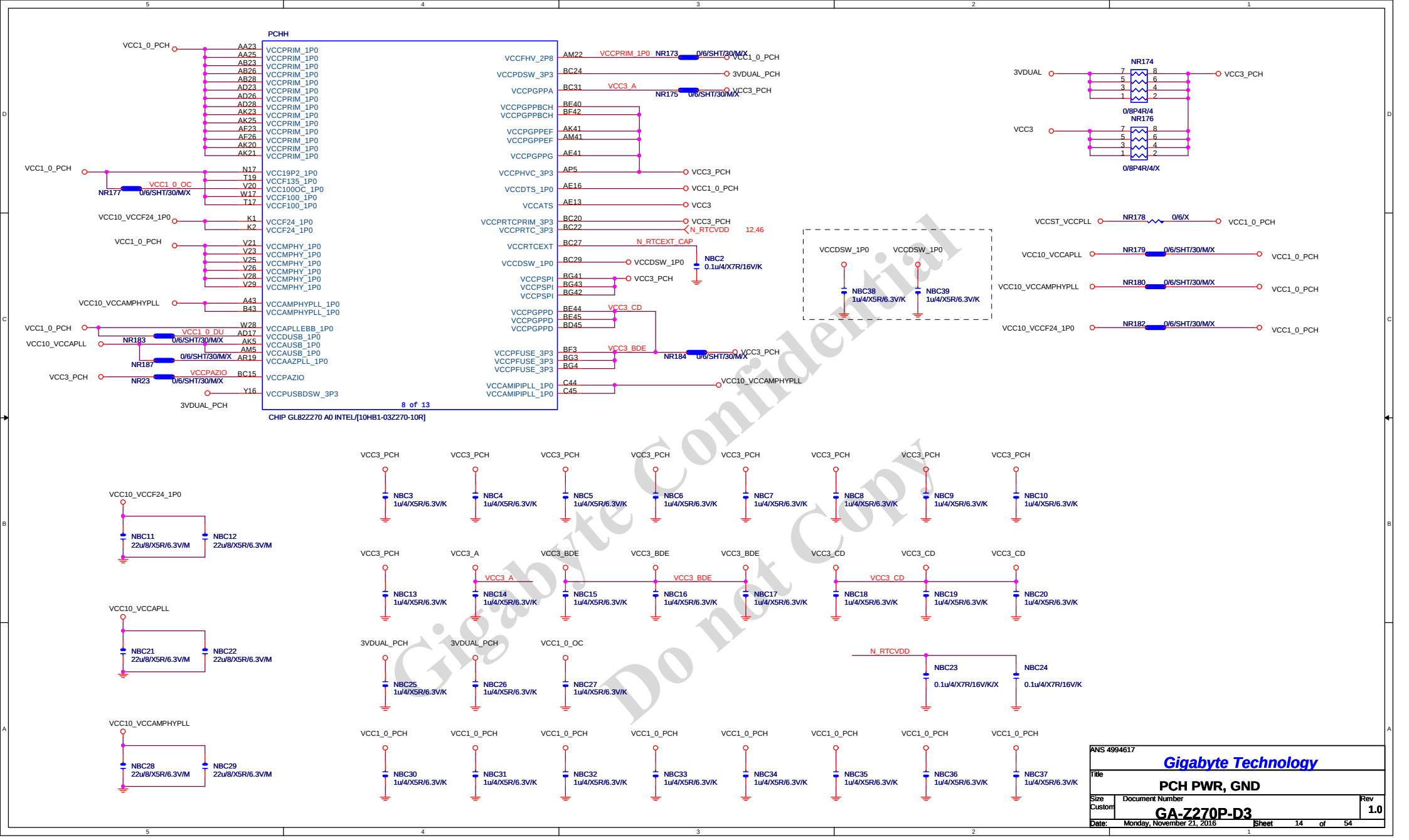


ANS	4994617
Gigabyte Technology	
Title	PCH DMI,USB,PCIE
Size	Custom
Document Number	GA-Z270P-D3
Rev	1.0
Date:	Monday, November 21, 2016
Sheet	11 of 54


PCHD
4 of 13
CHIP GL82Z270 A0 INTEL/[10HB1-03Z270-10R]
PCHK
11 of 13
CHIP GL82Z270 A0 INTEL/[10HB1-03Z270-10R]
Gigabyte Confidential
Do not Copy
FOR PWM MB ID
GPP_C5 --H:eSPI or L:LPC
HDA_SDO:Flash Descriptor Security (override);1=DIS,0=ENABLE
GPP_C2 --1:ENABLE AMT/SBA FOR INTEL
GPP_B22 --BIOS SELECT;0:SPI / 1:LPC
GPP_B18 --0:dis" no boot mode"
At least 10ms delay after 3VDUAL_PCH stabel
For IT8628 Ctrl
For IT8628 Ctrl
LED
BATTERY CR2032
BATTERY-DUAL-4
RB 必须放在BAT外
N_INTERMEN : Integrated 1.05V_SUS VRM Enable
CLR_CMOS
Gigabyte Technology
PCH MISC
ANS 4994617
Size Custom
Document Number GA-Z270P-D3
Rev 1.0
Date: Monday, November 21, 2016
Sheet 12 of 54



ANS 4994617	Gigabyte Technology
Title	PCH SATA,PCIE,SATA_EXPRESS
Size: Custom	Document Number: GA-Z270P-D3
Rev	1.0
Date: Monday, November 21, 2016	Sheet 13 of 54



ANS 4994617

Gigabyte Technology

Title: **PCH PWR, GND**

Size	Document Number	Rev
Custom	GA-Z270P-D3	1.0

Date: Monday, November 21, 2016 Sheet 14 of 54

裝甲HEATSINK 分成四大部份

PCHI

A25	VSS	VSS	A42
A30	VSS	VSS	D45
P22	VSS	VSS	BG44
AV38	VSS	VSS	BF44
AV45	VSS	VSS	BF45
AV8	VSS	VSS	BF2
AY11	VSS	VSS	W29
AY19	VSS	VSS	A35
AY37	VSS	VSS	A40
AY4	VSS	VSS	A41
AY42	VSS	VSS	AA17
AY8	VSS	VSS	AA18
B25	VSS	VSS	AA20
B3	VSS	VSS	AA21
B30	VSS	VSS	AA26
B35	VSS	VSS	AA28
B4	VSS	VSS	AA29
B41	VSS	VSS	AB17
BA13	VSS	VSS	AC32
BA17	VSS	VSS	AE4
BA29	VSS	VSS	AE8
BA31	VSS	VSS	AF18
BA37	VSS	VSS	AF20
BA4	VSS	VSS	AF21
BA42	VSS	VSS	AF25
BB40	VSS	VSS	AF28
BC38	VSS	VSS	AF29
BC40	VSS	VSS	AF4
BC9	VSS	VSS	AF42
BD11	VSS	VSS	AG18
BD16	VSS	VSS	AG20
BD2	VSS	VSS	AG21
BD21	VSS	VSS	AG23
BD25	VSS	VSS	AG25
F2	VSS	VSS	AG26
E31	VSS	VSS	AG28
E6	VSS	VSS	AG29
E8	VSS	VSS	AH11
F39	VSS	VSS	AH13
F43	VSS	VSS	AH30
G4	VSS	VSS	AH32
G40	VSS	VSS	AH33
G42	VSS	VSS	AH38
F6	VSS	VSS	AJ1
G9	VSS	VSS	AJ17
H11	VSS	VSS	AJ18
H13	VSS	VSS	AJ20
H17	VSS	VSS	AJ21
H19	VSS	VSS	AJ23
H22	VSS	VSS	AJ25
H24	VSS	VSS	AJ26
H27	VSS	VSS	AJ28
H29	VSS	VSS	AJ29
H33	VSS	VSS	AJ45
H35	VSS	VSS	AK10
H38	VSS	VSS	AK14
H4	VSS	VSS	AK16
H42	VSS	VSS	AK17
H9	VSS	VSS	AK18
J4	VSS	VSS	AK26
M36	VSS	VSS	AK28
M38	VSS	VSS	AM14
M4	VSS	VSS	AN14
M8	VSS	VSS	AP19
M9	VSS	VSS	AR22
N13	VSS	VSS	AR27
N15	VSS	VSS	AU29
N19	VSS	VSS	AU33
N22	VSS	VSS	AV1
N24	VSS	VSS	AV10
N31	VSS	VSS	AV15
N42	VSS	VSS	AV24
P10	VSS	VSS	AV27
P12	VSS	VSS	AV33
AV35	VSS	VSS	

9 of 13

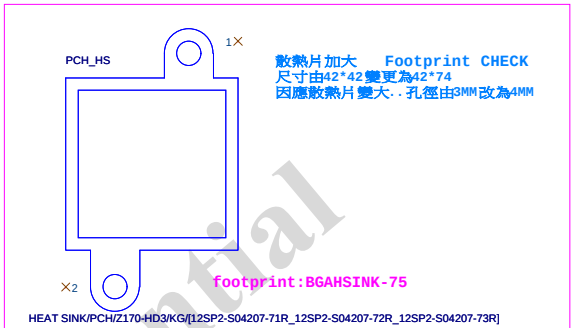
CHIP GL82Z270 A0 INTEL/[10HB1-03Z270-10R]

PCHL

BD34	VSS[70]	VSS[1]	AB18
BD39	VSS[71]	VSS[2]	AB20
BD7	VSS[72]	VSS[3]	AB21
BE2	VSS[73]	VSS[4]	AB25
BF43	VSS[74]	VSS[5]	AB29
BF5	VSS[75]	VSS[6]	AB4
BG18	VSS[76]	VSS[7]	AB42
BG23	VSS[77]	VSS[8]	AC10
BG28	VSS[78]	VSS[9]	AC11
BG32	VSS[79]	VSS[10]	AC14
BG37	VSS[80]	VSS[11]	AC16
BG40	VSS[81]	VSS[12]	AC38
BG9	VSS[83]	VSS[13]	AC4
C1	VSS[84]	VSS[14]	AC5
A12	VSS[85]	VSS[15]	AC7
C2	VSS[86]	VSS[16]	AC8
C37	VSS[87]	VSS[17]	AD1
A6	VSS[88]	VSS[18]	AD18
C9	VSS[89]	VSS[19]	AD20
D1	VSS[90]	VSS[20]	AD21
D10	VSS[91]	VSS[21]	AD25
D12	VSS[92]	VSS[22]	AD29
D15	VSS[93]	VSS[23]	AD45
D16	VSS[94]	VSS[24]	AE11
B12	VSS[95]	VSS[25]	AE14
D19	VSS[96]	VSS[26]	AE32
D21	VSS[97]	VSS[27]	AE33
D24	VSS[98]	VSS[28]	AE38
D25	VSS[99]	VSS[29]	AK29
D29	VSS[100]	VSS[30]	AK30
D30	VSS[101]	VSS[31]	AK32
D33	VSS[102]	VSS[32]	AK35
D35	VSS[103]	VSS[33]	AK39
D36	VSS[104]	VSS[34]	AL4
D39	VSS[105]	VSS[35]	AL42
D44	VSS[106]	VSS[36]	AM10
D7	VSS[107]	VSS[37]	AM11
P13	VSS[108]	VSS[38]	AM13
P15	VSS[109]	VSS[39]	AM17
P17	VSS[110]	VSS[40]	AM19
P19	VSS[111]	VSS[41]	AM24
P31	VSS[112]	VSS[42]	AM27
P33	VSS[113]	VSS[43]	AM29
P35	VSS[114]	VSS[44]	AM32
P4	VSS[115]	VSS[45]	AM33
P42	VSS[116]	VSS[46]	AM4
P8	VSS[117]	VSS[47]	AN45
R1	VSS[118]	VSS[48]	AP10
R32	VSS[119]	VSS[49]	AP11
T10	VSS[120]	VSS[50]	AP13
T14	VSS[121]	VSS[51]	AP15
T22	VSS[122]	VSS[52]	AP22
T29	VSS[123]	VSS[53]	AP27
T32	VSS[124]	VSS[54]	AP31
T36	VSS[125]	VSS[55]	AP33
T38	VSS[126]	VSS[56]	AP34
Y38	VSS[151]	VSS[57]	AP39
Y4	VSS[152]	VSS[127]	T4
Y8	VSS[153]	VSS[143]	W26
T42	VSS[154]	VSS[128]	V16
T5	VSS[155]	VSS[129]	V17
U4	VSS[156]	VSS[130]	V18
U42	VSS[157]	VSS[131]	V30
V10	VSS[158]	VSS[132]	V32
V14	VSS[159]	VSS[133]	V33
W3	VSS[144]	VSS[134]	V38
AR13	VSS[58]	VSS[135]	V4
AR31	VSS[59]	VSS[136]	V8
AR33	VSS[60]		
AR4	VSS[61]	VSS[138]	W18
AT10	VSS[62]	VSS[139]	W20
AT13	VSS[63]	VSS[140]	W21
AT35	VSS[64]	VSS[141]	W23
AT37	VSS[65]	VSS[142]	W25
AT42	VSS[66]		
AU11	VSS[67]	VSS_1	A44
AU17	VSS[68]	VSS_10	BE1
BD30	VSS[69]	VSS_11	BD1
W45	VSS[145]	VSS_14	B1
Y13	VSS[146]	VSS_15	A2
Y14	VSS[147]	VSS_16	B2
Y30	VSS[148]	VSS_17	A3
Y32	VSS[149]	VSS_18	A4
Y33	VSS[150]	VSS_2	B44
BG14	VSS_BG14	VSS_3	B45

12 of 13

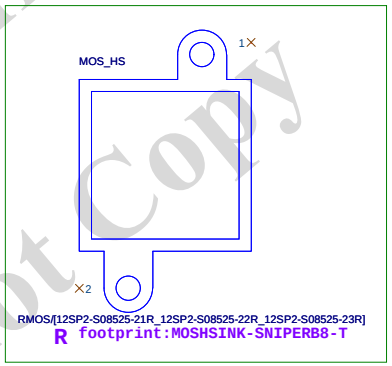
CHIP GL82Z270 A0 INTEL/[10HB1-03Z270-10R]



散熱片加大 Footprint CHECK
尺寸由42*42變更為42*74
因應散熱片變大..孔徑由3MM改為4MM

footprint:BGAHSINK-75

HEAT SINK/PCH/Z170-HD3/KG/[12SP2-S04207-71R_12SP2-S04207-72R_12SP2-S04207-73R]



RMOS/[12SP2-S08525-21R_12SP2-S08525-22R_12SP2-S08525-23R]

R footprint:MOSHSINK-SNIPERB8-T

刪除 -H170-DESIGNARE的mos ,
TMOS(藍白印刷)鐵螺絲
footprint:MOSHSINK-Z170X-TBT3-R
same Z170X-TBT3

重新確認
* 料號
* 圖騰 :

GIGABYTE

刪AUDIO_HS

Footprint :
X99-ARMOR-AUDIO

刪REAR_ARMOR

Footprint :
REAR_ARMOR-Z270X-GAMING7

鐵件裝甲

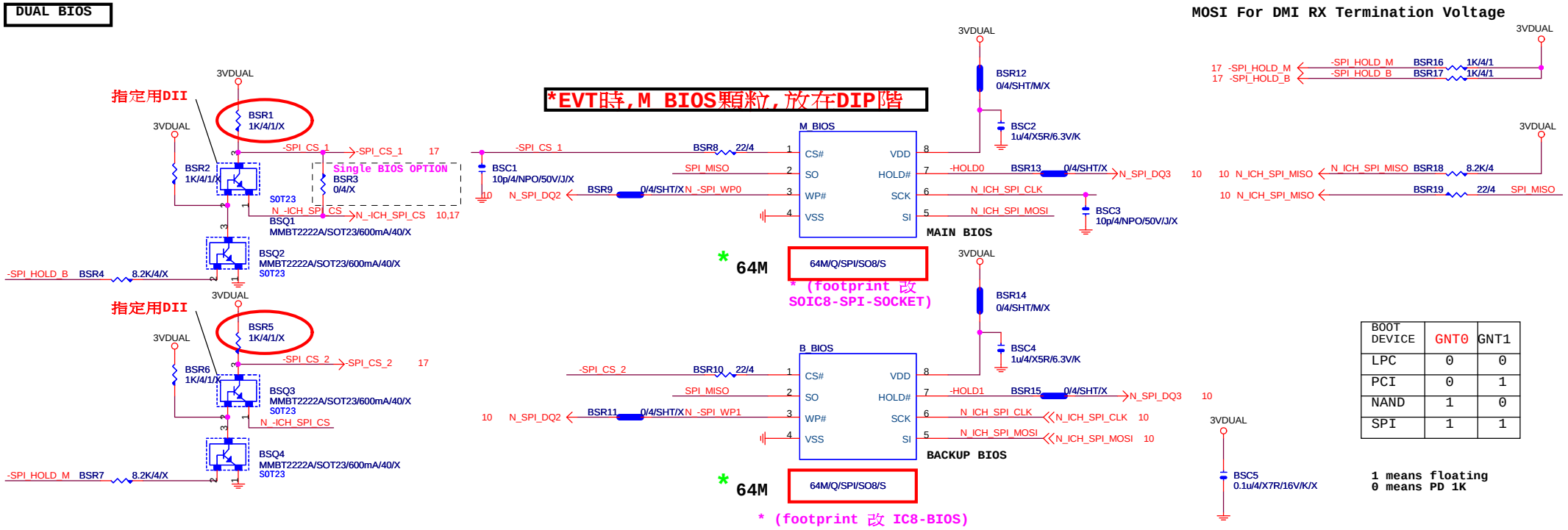
刪REAR_HS

Footprint :
Z270X-GAMING7_ARMOR

塑膠裝甲

ANS 4994617	Gigabyte Technology	
Title	PCH PWR, GND	
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 15 of 54	

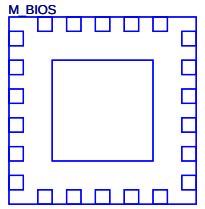
DUAL BIOS



BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

刪除BIOS_SW



LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X

* 試產先上 , PVT 移除

Gigabyte Technology

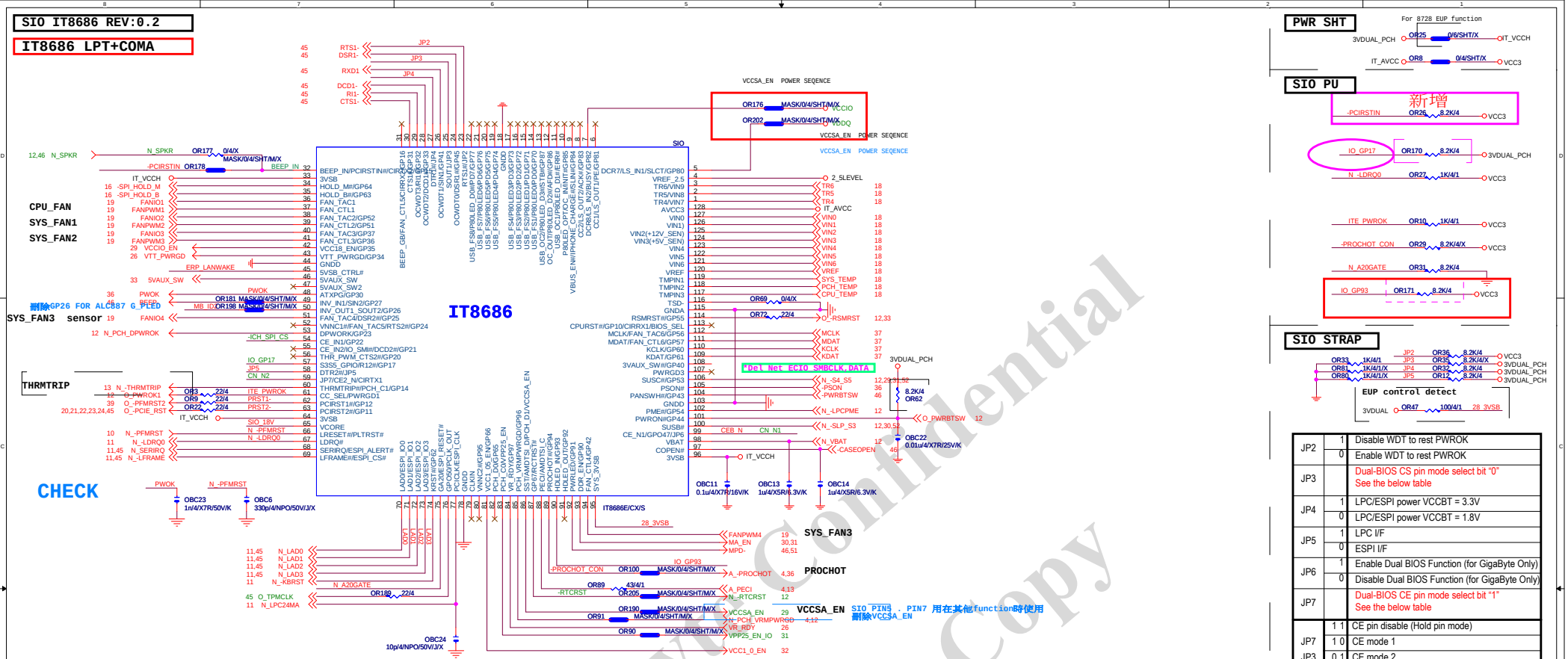
Title: BIOS

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 16 of 54

SIO IT8686 REV:0.2

IT8686 LPT+COMA



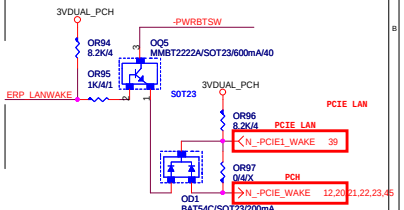
PWR SHT

SIO PU

SIO STRAP

JP2	1	Disable WDT to rest PWROK
	0	Enable WDT to rest PWROK
JP3		Dual-BIOS CS pin mode select bit "0" See the below table
JP4	1	LPC/ESPI power VCCBT = 3.3V
	0	LPC/ESPI power VCCBT = 1.8V
JP5	1	LPC I/F
	0	ESPI I/F
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
	0	Disable Dual BIOS Function (for GigaByte Only)
JP7		Dual-BIOS CE pin mode select bit "1" See the below table
	1 1	CE pin disable (Hold pin mode)
JP7 JP3	1 0	CE mode 1
	0 1	CE mode 2
	0 0	CE mode 3

(組態一)



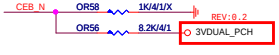
ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN	Atheros+Atheros	組態一
	Intel 219+Atheros	組態三
	Intel 219+Intel 210	
No Support ERP	BOM不上	N/A

Placement CPU

CPU 端 A_-THRMTRIP不可與PCH 及SIO N_-THRMTRIP直接連接。否則會出現無法拉LOW情況。

FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

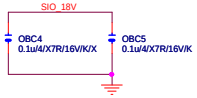
DUAL BIOS OPT STRAP



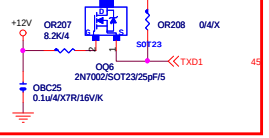
OR58 上件/OR56 不上件 SINGLE BIOS
OR58 不上件/OR56 上件 DUAL BIOS

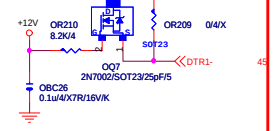
SIO_18V

internal power pin, max 22nF cap

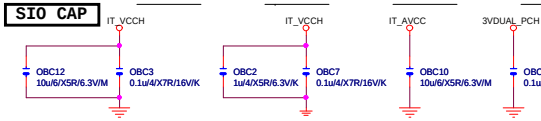


for LPC/eSPI power mode



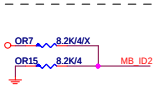


SIO CAP



CLOSE SIO PIN4 2_5LEVEL

MB ID



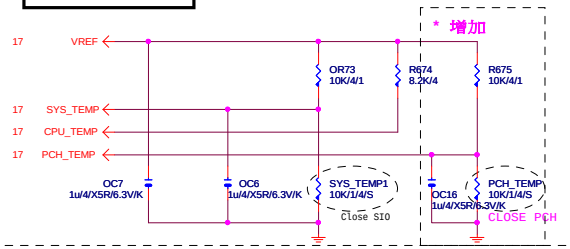
Gigabyte Technology

Title: ITE 8686 LPC IO

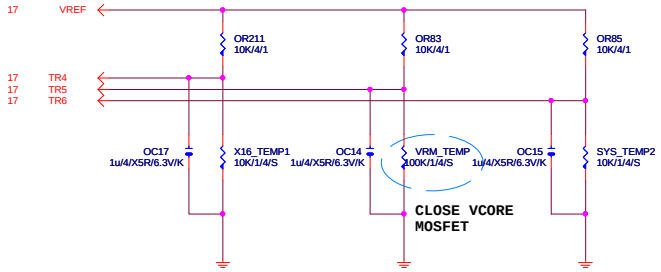
Size: C | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 17 of 54

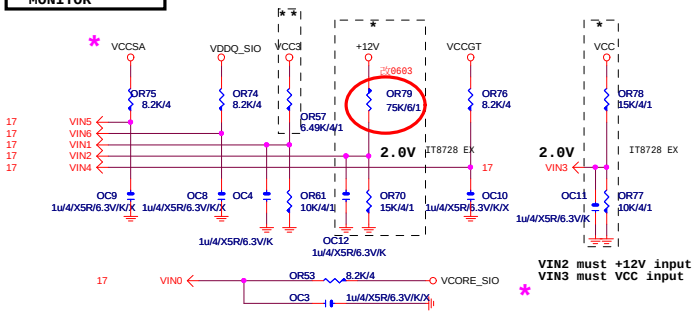
TEMP H/W MONITOR

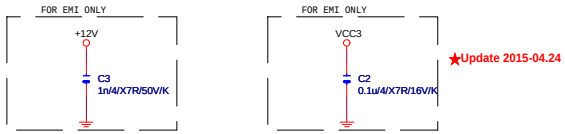


5個FAN時使用



VOLTAGE-- H/W MONITOR





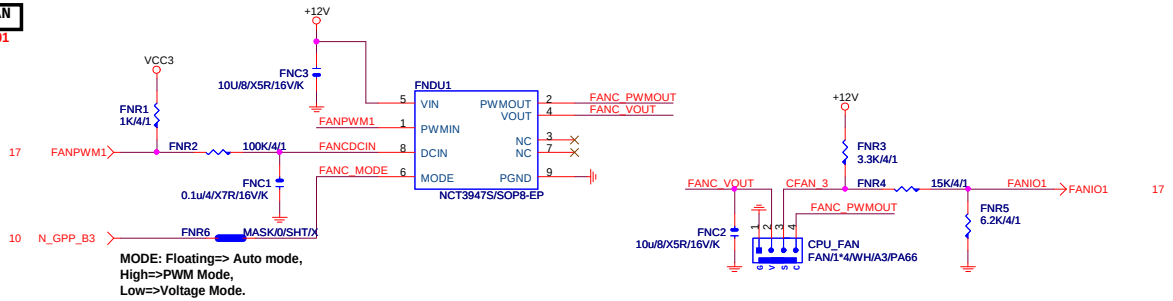
★Update 2015-04.24

Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 18 of 54	

Rev: 0.81

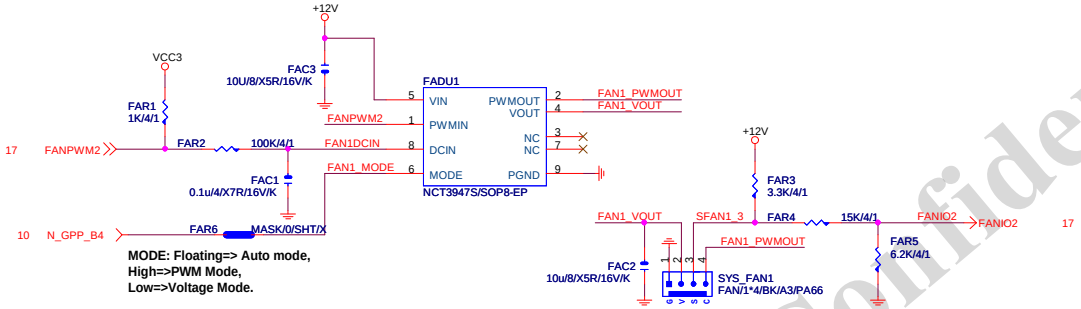
CPU SMART FAN

★Update 2016.06.01



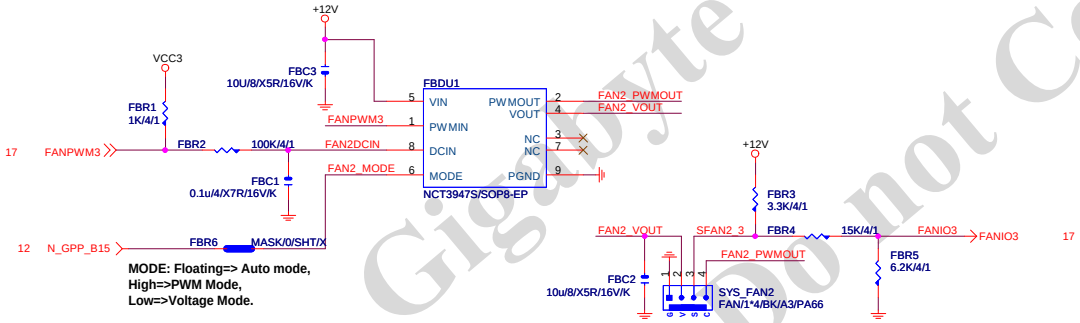
SYSTEM FAN1

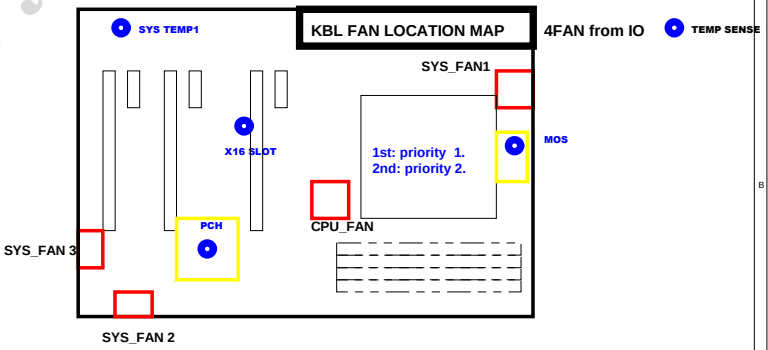
A.



SYSTEM FAN2

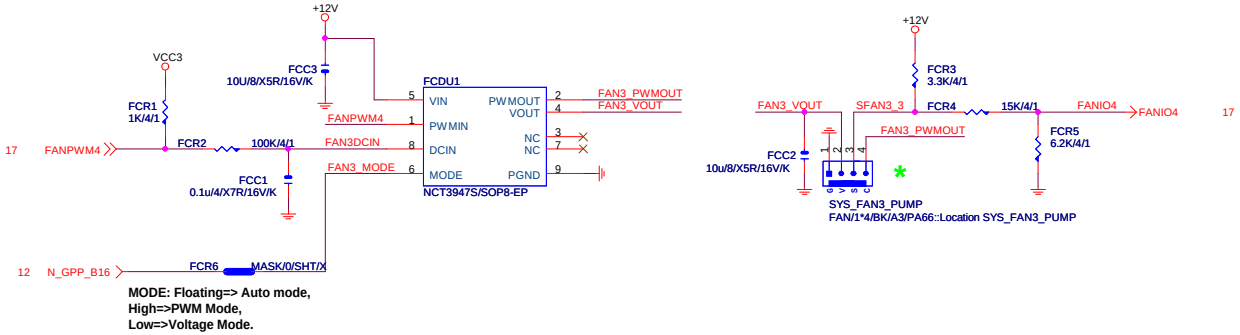
B.





SYSTEM FAN3

C.



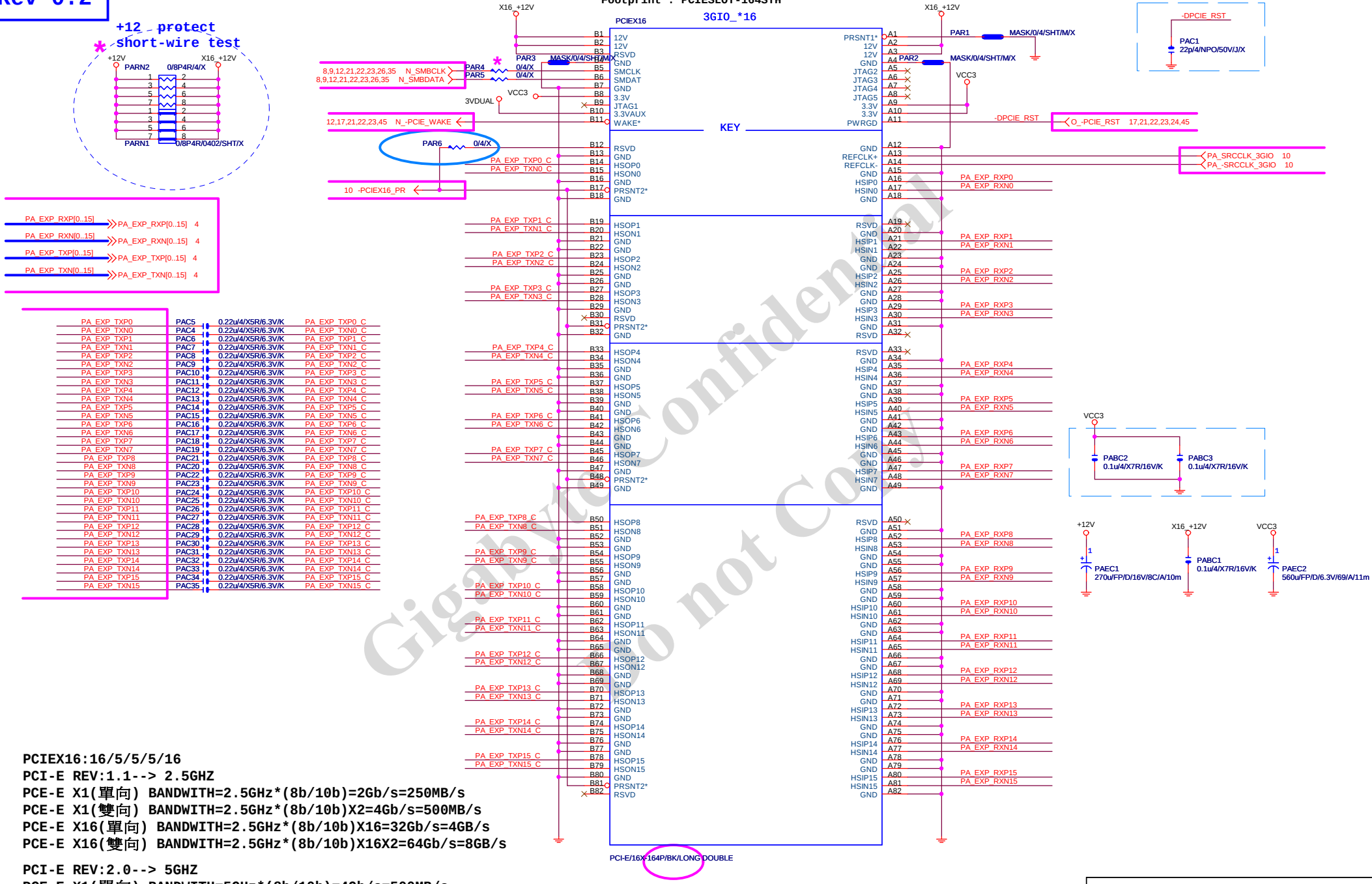
Gigabyte Technology		
Title: FAN CTRL		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 19 of 54	

Rev 0.2

+12 protect short-wire test

Footprint : PCIESLOT-164STH

3GIO_*16



PA_EXP_RXP[0..15] — PA_EXP_RXP[0..15] 4
PA_EXP_RXN[0..15] — PA_EXP_RXN[0..15] 4
PA_EXP_TXP[0..15] — PA_EXP_TXP[0..15] 4
PA_EXP_TXN[0..15] — PA_EXP_TXN[0..15] 4

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_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_TXN15_C

PCIEX16:16/5/5/5/16
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ
PCE-E X1(單向) BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s

PCI-E REV:3.0--> 8GHZ
PCE-E X1(單向) BANDWITH=8GHz*(128b/130b)=8Gb/s=1GB/s

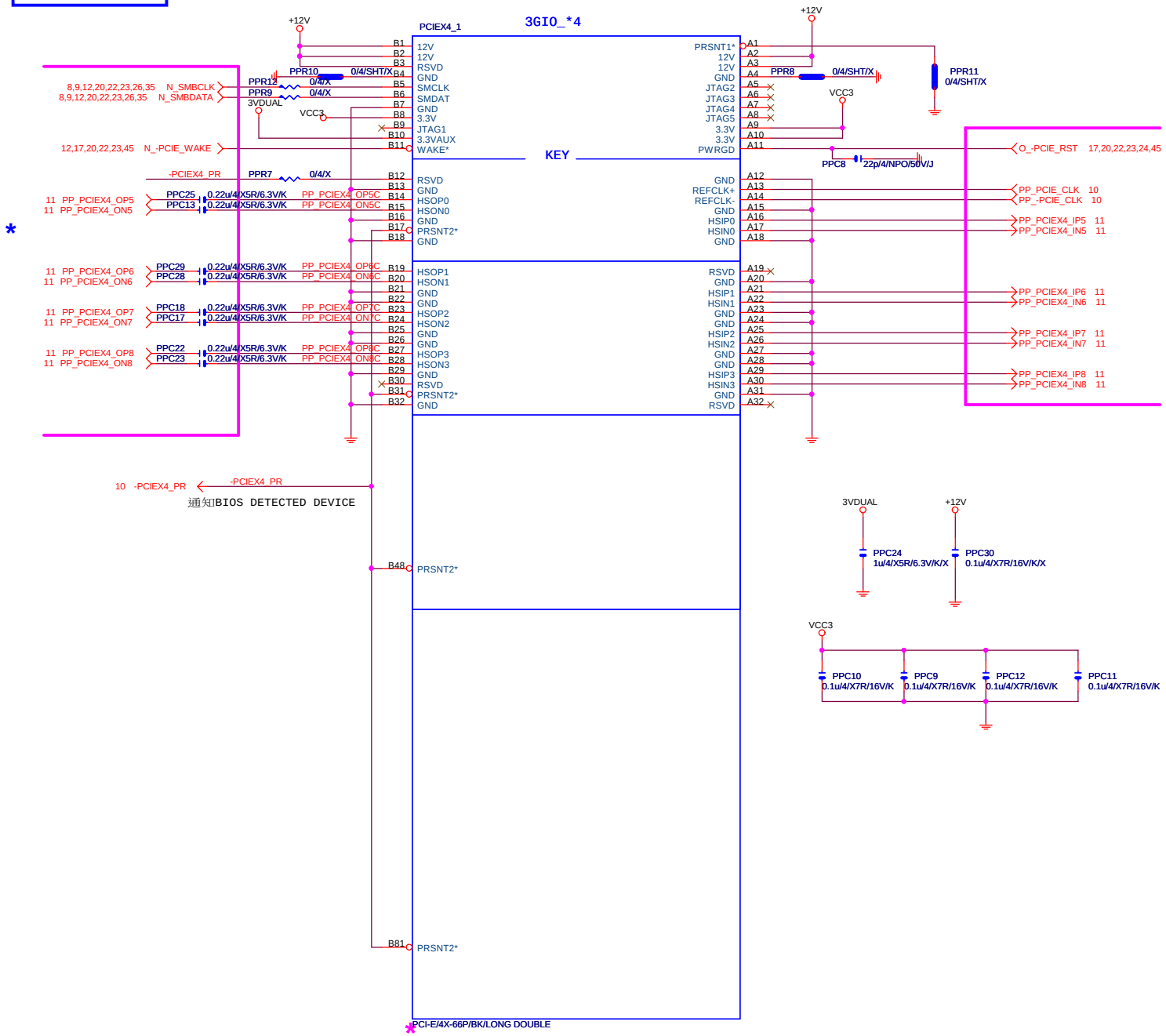
黑色

Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 20 of 54		

Rev 0.51

PCIE*4 *

Footprint "PCIESLOT-64STH-1"



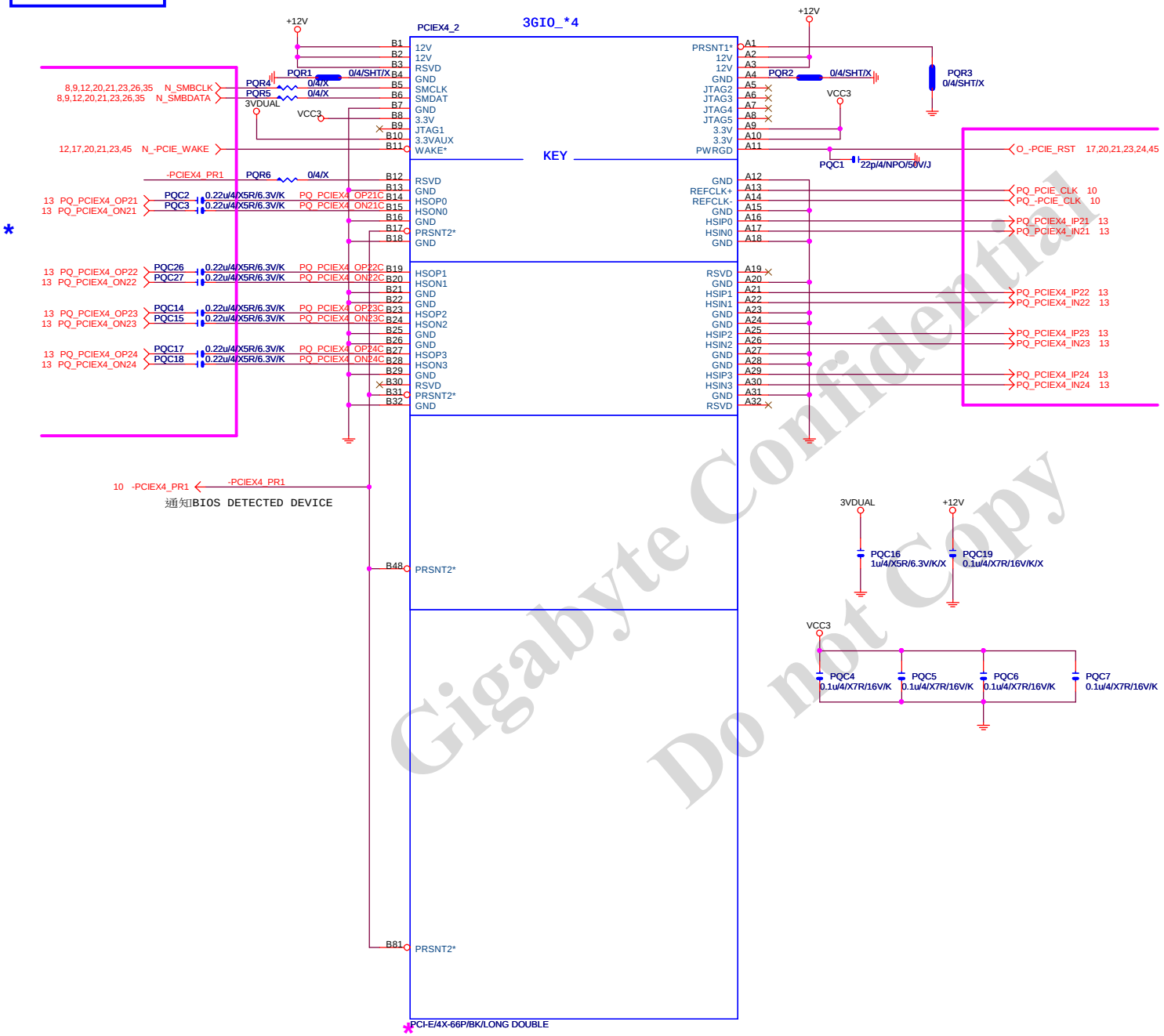
黑色(預留金屬加強,不上)

Title	ASM1142 & ASM2142 co-lay	
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 21 of 54	

Rev 0.51

PCIE*4 *

Footprint "PCIESLOT-64STH-1"



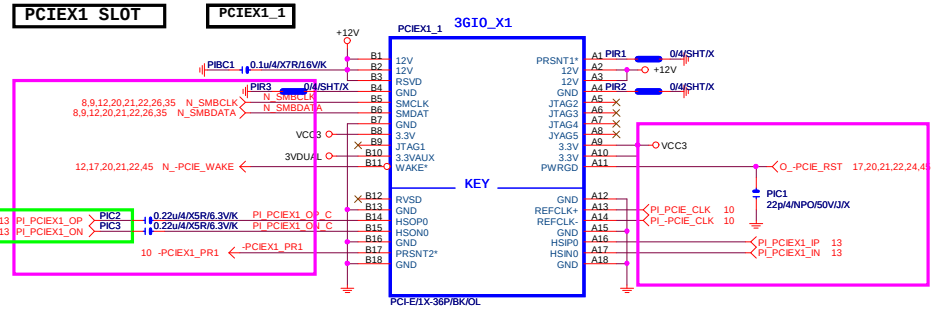
黑色(預留金屬加強,不上)

Gigabyte Technology		
Title: PCIE_X4		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 22 of 54	

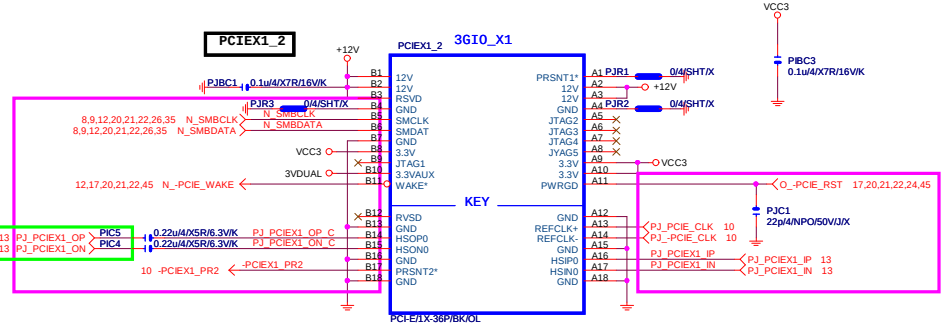
Rev 0.51

PCIEX1 SLOT

PCIEX1_1

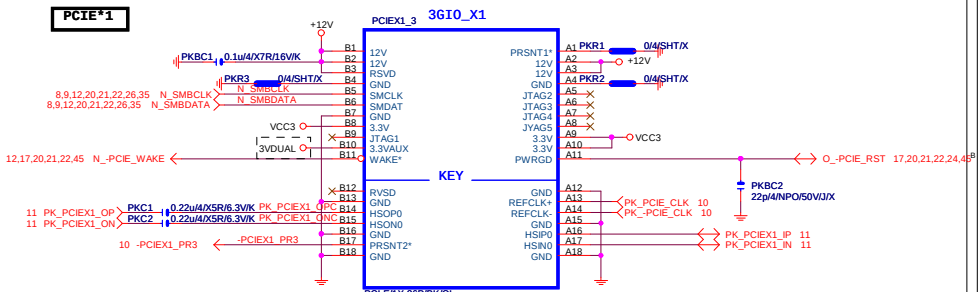


PCIEX1_2



2個X1 ,不用SWITCH

PCIE*1



Gigabyte Technology		
Title: PCIEX1		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 23 of 54	

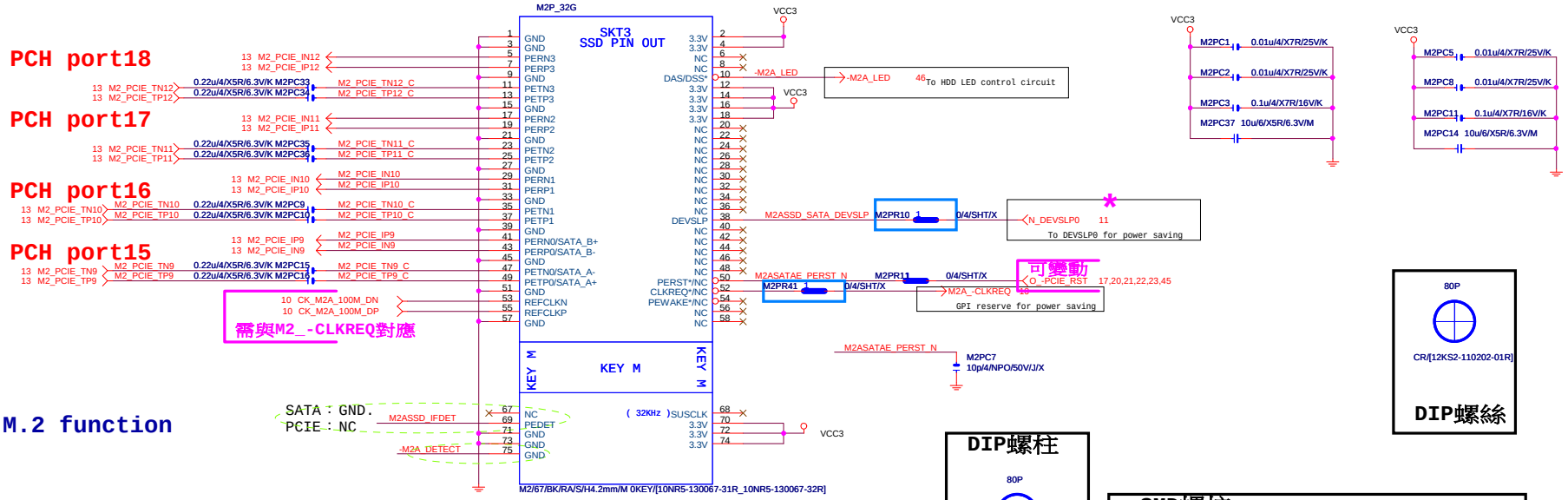
Rev 0.6

M.2 Lane4 from PCH port18

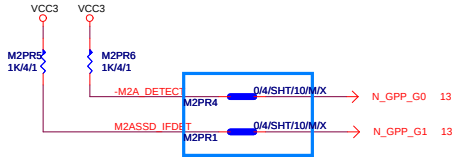
M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

M.2 Lane1 from PCH port15



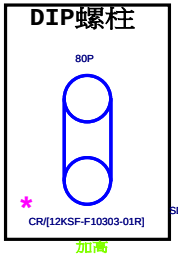
支援SATA and M.2 function



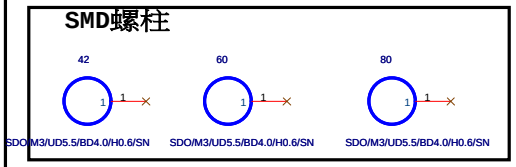
Footprint : NGFF-M-75P-11CM-3-SMD

DIP螺絲

DIP螺柱



SMD螺柱



Footprint : HOLE_C236D165-A

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	

M2插下時為LOW

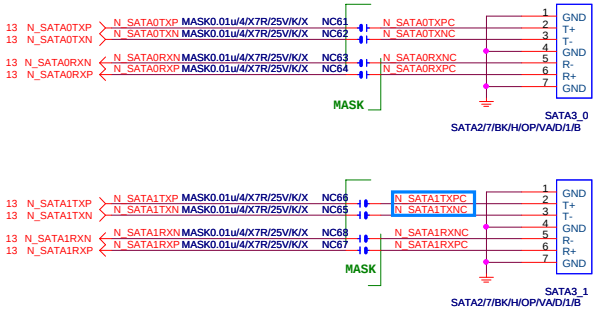
Gigabyte Technology

Title: M.2 X4

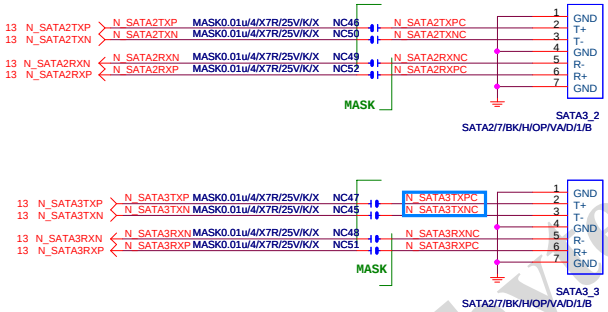
Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 24 of 54

To SATA3 port0/1

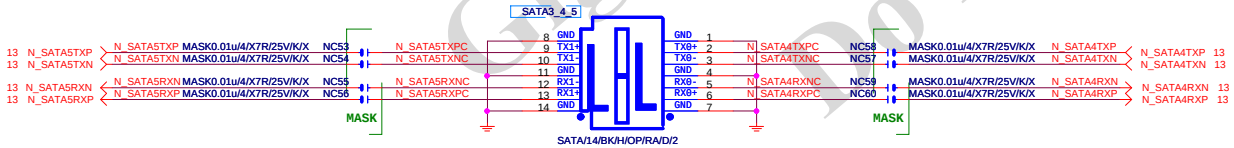


To SATA3 port2/3



IO23/IO24 To SATA3 port4/5

上 Port (8~14) 下 Port (1~7)



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)

Gigabyte Technology		
Title: SATA EXPRESS		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 25 of 54	

REV:0.11 (IRON CHOKE)

VCORE_SIO — VCORE_VS MASK/0/4/SHT/M/X — VCORE

請注意擺放位置

5VDUAL — +12V — DAR128 8.2K/4 — DAQ5 2N7002/SOT23/25pF/5 — SOT23 — V_95856

FOR PWM MB ID

3VDUAL

H:ISL95856 or ISL95858 — NR400 8.2K/4 — N_GPP_C15 12

L:ISL95866 or ISL95868 — NR401 8.2K/4/X

close to PCH

VCCST_VCCPLL — VCCST_VCCPLL — VCC3 — VIN

不上件

DAC40 1u/4/X5R/6.3V/K — DAR12 100/4/1 — DAR13 100/4/1/X — DAR14 45.3/4/1 — DAR17 2K/4/1/X — DAR18 2K/4/1 — DAR19 10K/4/1 — DAR23 3.3K/4/1

*Del DAR135

VCC — VIN — DAR7 2.2/6/X — DAR8 2.2/6/X — DAR9 2.2/6 — DAC2 1u/4/X5R/6.3V/K — DAC3 1u/6/X7R/16V/K — Y_95856 — VDDP

DAC41 0.22u/6/X7R/16V/K — ISL95856_VIN

17 VTT_PWRGD — DAR136 0/4/SHT/M/X

17 VR_RDY — 36 VR_HOT

4 PVIDSLCK — DAR76 49.9/4/1 — PVIDSLCK_R — 5

4 -PVIDALRT — DAR77 MASK/0/4/SHT/M/10/X — -PVIDALRT_R — 6

4 PVIDSOUT — DAR78 10/4 — PVIDSOUT_R — 7

8,9,12,20,21,22,23,35 N_SMBDATA — 43

8,9,12,20,21,22,23,35 N_SMBCLK — 42

VR_ENABLE — VR_READY — VR_HOT# — SCLK — ALERT# — SDA — I2DATA — I2CLK — PSYS

DC-LL --> 2.1mohm

DAR137 0/4 — DAR33 205K/4/1/X — DAR34 8.2K/4 — DAC10 1.5n/4/X7R/50V/K — DAR37 3.74K/4/1 — DAR35 3.3K/4/1 — DAC8 4.7n/4/X7R/25V/K — DAC11 47p/4/NPO/50V/J — DAR138 0/4/X — DAC14 330p/4/NPO/50V/J — DAR40 1K/4/1 — COMP_A — FB_CPU — FB_A — FB2_A — RTN_A

VCORE — DAR39 100/4/1 — DAR41 5.49K/4/1 — DAC15 0.022u/4/X7R/25V/K/X — DAR79 100/4/1/X — DAC38 330p/4/NPO/50V/J — DAR46 100/4/1 — DAC17 330p/4/NPO/50V/J — DAC18 4.7n/4/X7R/25V/K — DAR139 205K/4/1

7 VCORE_VCC_SEN — 7 VCORE_VSS_SEN

close PWM — VCCGT — DAR129 100/4/1 — DAR130 100/4/1

DC-LL --> 3.1mohm

DAR140 0/4 — DAR51 63.4K/4/1/X — DAC23 1n/4/X7R/50V/K — DAR57 2.2K/4/1 — DAR55 6.04K/4/1 — DAC22 4.7n/4/X7R/25V/K — DAC24 47p/4/NPO/50V/J — DAR61 1K/4/1 — DAR141 0/4/X — DAC26 330p/4/NPO/50V/J — COMP_B — FB_GT — FB_B — FB2_B — RTN_B

VCCGT — DAR60 100/4/1 — DAR63 3.83K/4/1 — DAC27 0.01u/4/X7R/25V/K/X — DAR80 100/4/1/X — DAC39 330p/4/NPO/50V/J — DAR66 100/4/1 — DAC29 330p/4/NPO/50V/J — DAC30 4.7n/4/X7R/25V/K — DAR142 63.4K/4/1

6 VCCGT_SENSE — 6 VSSGT_SENSE

PROG_R 10 — DAR70 2.87K/4/1 — PROG — GND_PAD 53 — 8 VIA Connect GND lay

ISL95866HRZ-T/QFN52

VIN — ISL95856_VIN

BOOT1_A — UGATE1_A — PHASE1_A — LGATE1_A — DAR26 2.2/6 — DAC5 0.22u/6/X7R/16V/K — PHASE1_A 27

BOOT2_A — UGATE2_A — PHASE2_A — LGATE2_A — DAR31 2.2/6 — DAC7 0.22u/6/X7R/16V/K — PHASE2_A 27

PWM3_A — PWM4_A — NC/PWM4_A

ISEN1_A — ISEN2_A — ISEN3_A — NC/ISEN4_A

ISUMP_A — ISUMN_A — NTC_A — IMON_A

DAR49 MASK/0/4/SHT/M/10/X — DAC21 330p/4/NPO/50V/J — DAR52 80.6K/4/1 — DAR53 18K/4/1/X — DANTC2 470K/1/4/S/X

BOOT1_B — UGATE1_B — PHASE1_B — LGATE1_B — DAR58 2.2/6 — DAC25 0.22u/6/X7R/16V/K — PHASE1_B 28

PWM2_B — NC/PWM3_B — ISEN1_B — ISEN2_B — NC/ISEN3_B

DAR92 2.2/4 — 0V_95856

for ISL95856 DISABLE PH3

ISUMP_B — ISUMN_B — NTC_B — IMON_B

DAR67 13.7K/4/1 — DAR69 MASK/0/4/SHT/M/10/X — DAC33 330p/4/NPO/50V/J — DAR72 75K/4/1 — DAR73 18K/4/1 — DANTC3 470K/1/4/S — DAR71 499/4/1 — DAR75 1K/4/1 — DAC31 2.2n/4/X7R/50V/K — DAC32 0.22u/4/X5R/6.3V/K — DAC34 0.22u/4/X5R/6.3V/K — DAR74 11K/4/1 — DAC44 0.1u/4/X7R/16V/K/X — DAC35 0.1u/4/X7R/16V/K

VSUMA+ — DAR36 1K/4/1 — DANTC1 10K/1/4/S — VSUMA-

DAC12 0.33u/4/X5R/6.3V/K — DAC13 0.47u/4/X5R/6.3V/K — DAR38 33K/4/1 — DAC16 2.2n/4/X7R/50V/K — DAR42 1K/4/1 — DAC43 0.1u/4/X7R/16V/K — DAR44 604/4/1 — DAR47 18K/4/1/X — DAC19 0.1u/4/X7R/16V/K

DAR44-->604 ohm
OCP-->160A

CLOSE DA_DL1 DC SIDE

CLOSE ?

DAR71-->499 ohm
OCP-->74A

VSUMB+ — DAR68 2.61K/4/1 — DANTC4 10K/1/4/S — VSUMB-

CLOSE DE_DL1 DC SIDE

CLOSE ?

***Del DAR100**

Connect to EC H/W Monitor

VCORE	ISL95856	ISL95866
DAR137	X	V
DAR138	V	X
DAR139	X	V
DAC15	V	X
DAR79	V	X
DAR33	V	X

VCCGT	ISL95856	ISL95866
DAR140	X	V
DAR141	V	X
DAR142	X	V
DAC27	V	X
DAR80	V	X
DAR51	V	X

+12V — DAR127 2.26K/4/1 — FB_GT — DAR125 8.2K/4/1 — DAQ4 2N7002/SOT23/25pF/5 — SOT23 — VCCGT_SENSE

不上件 — VCC3 — DAR123 1K/4/1/X — DAR124 8.2K/4 — DAQ3 MMBT2222A/SOT23/600mA/40 — SOT23 — N_GT_S

連接至PCH:GPP_G14

+12V — DAR126 3.48K/4/1 — FB_CPU — DAR122 8.2K/4/1 — DAQ2 2N7002/SOT23/25pF/5 — SOT23 — VCORE_VCC_SEN

不上件 — VCC3 — DAR120 1K/4/1/X — DAR121 8.2K/4 — DAQ1 MMBT2222A/SOT23/600mA/40 — SOT23 — N_CPU_S

連接至PCH:GPP_G15

VSUMA+ — DAR1 3.65K/4/1 — CSP1_A 27 — ISEN1_A — DAR2 100K/4/1 — DAR3 100K/4/1 V2N_A — DAR4 100K/4/1 V3N_A — DAC1 0.022u/4/X7R/25V/K — DAR5 200K/4/1/X — DAR81 100K/4/1 V4N_A — VSUMA- — DAR6 10/4 V1N_A

VSUMA+ — DAR10 3.65K/4/1 — CSP2_A 27 — ISEN2_A — DAR11 100K/4/1 — DAR20 100K/4/1 V1N_A — DAR21 100K/4/1 V3N_A — DAC4 0.022u/4/X7R/25V/K — DAR22 200K/4/1/X — DAR82 100K/4/1 V4N_A — VSUMA- — DAR24 10/4 V2N_A

VSUMA+ — DAR25 3.65K/4/1 — CSP3_A 27 — ISEN3_A — DAR27 100K/4/1 — DAR28 100K/4/1 V1N_A — DAR29 100K/4/1 V2N_A — DAC6 0.022u/4/X7R/25V/K — DAR30 200K/4/1/X — DAR83 100K/4/1 V4N_A — VSUMA- — DAR32 10/4 V3N_A

VSUMA+ — DAR84 3.65K/4/1 — CSP4_A 27 — ISEN4_A — DAR85 100K/4/1 — DAR86 100K/4/1 V1N_A — DAR87 100K/4/1 V2N_A — DAC42 0.022u/4/X7R/25V/K — DAR89 200K/4/1/X — DAR90 100K/4/1 V3N_A — VSUMA- — DAR91 10/4 V4N_A

V1N_A — CSN1_A 27 — V2N_A — CSN2_A 27 — V3N_A — CSN3_A 27 — V4N_A — CSN4_A 27

CLOSE PWM

VSUMB+ — DAR43 3.65K/4/1 — CSP1_B 28 — ISEN1_B — DAR45 100K/4/1 — DAR48 100K/4/1 V2N_B — DAR50 — DAC20 0.022u/4/X7R/25V/K — DAR54 200K/4/1/X — DAR54 10/4 V1N_B — VSUMB-

VSUMB+ — DAR56 3.65K/4/1 — CSP2_B 28 — ISEN2_B — DAR59 100K/4/1 — DAR62 100K/4/1 V1N_B — DAR64 — DAC28 0.022u/4/X7R/25V/K — DAR64 200K/4/1/X — DAR65 10/4 V2N_B — VSUMB-

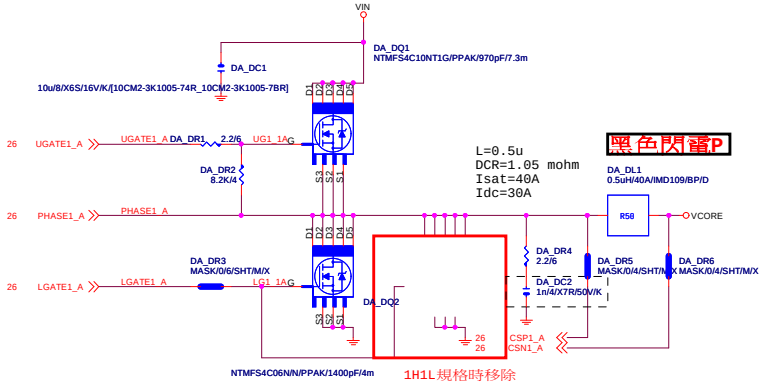
V1N_B — CSN1_B 28 — V2N_B — CSN2_B 28

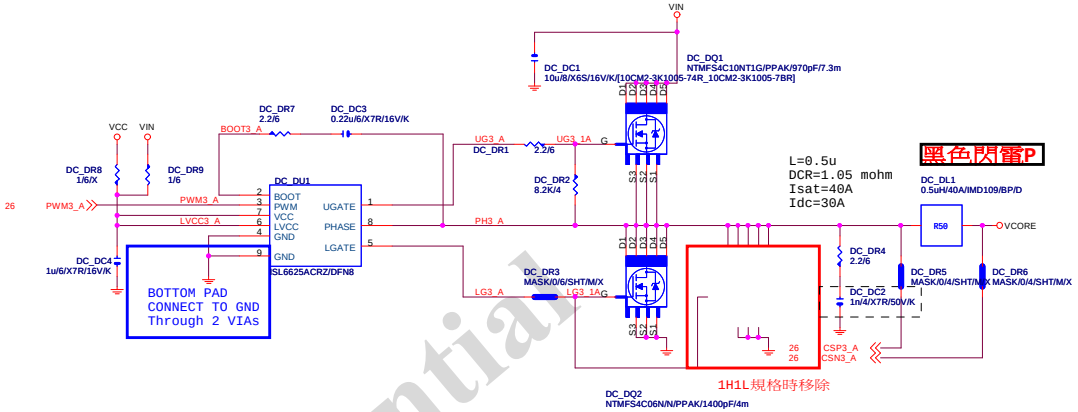
CLOSE PWM

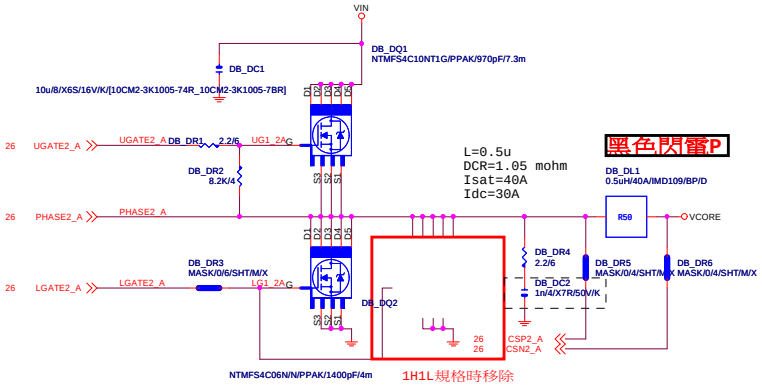
Title	ISL95866_PWM	
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 26 of 54	

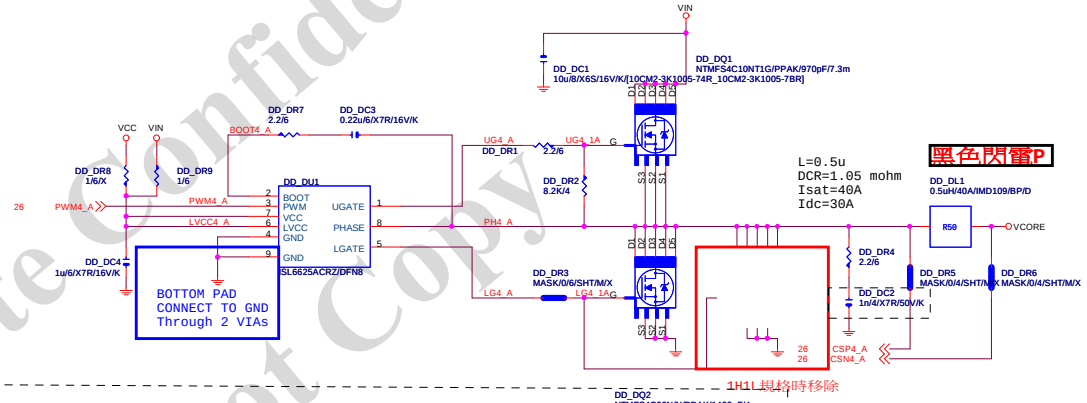
0.11 (IRON CHOKE)

VCORE





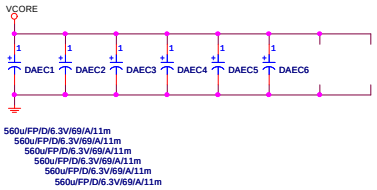


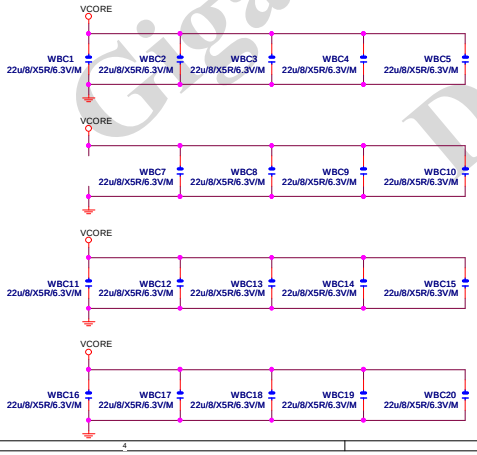


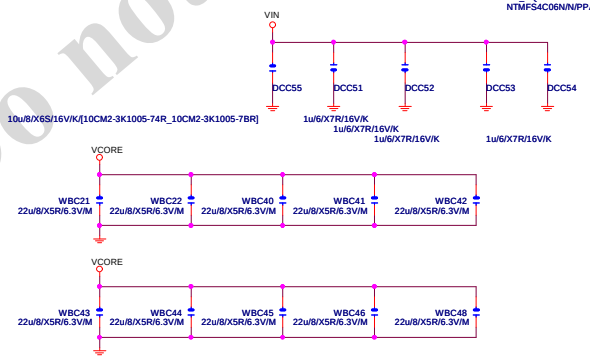
VCORE CAP

* 客戶指定，不拿掉

560u*8PCS
22u*29PCS

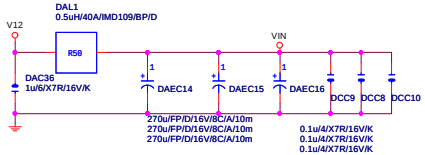






VIN CAP 270u*3PCS

黑色閃電P



GIGABYTE™

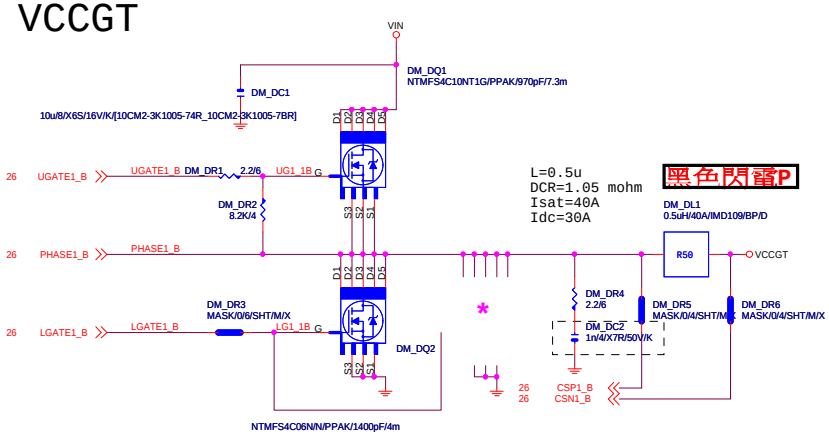
Title: ISL95866_MOS_VCORE

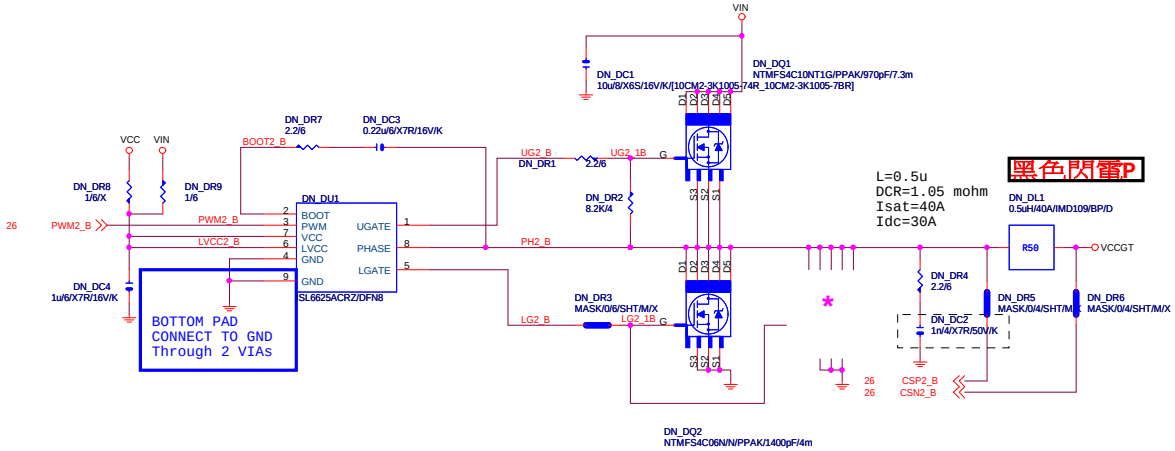
Size	Document Number	Rev
Custom	GA-Z270P-D3	1.0

Date: Monday, November 21, 2016 Sheet 27 of 54

REV::0.11

VCCGT

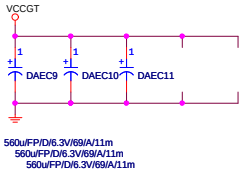


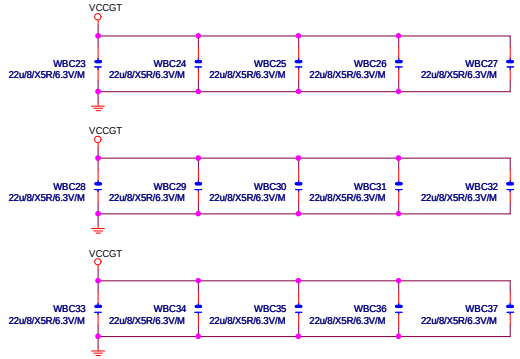


VCCGT CAP

* 客戶指定， 不拿掉

560u*5PCS
22u*15PCS

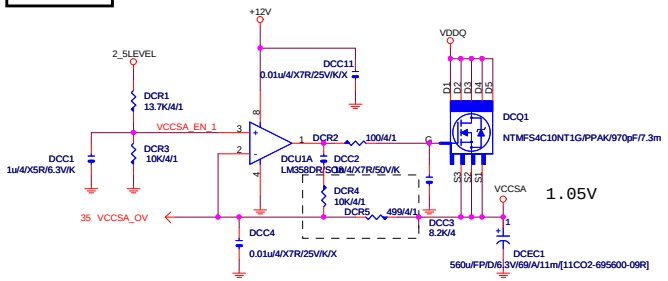


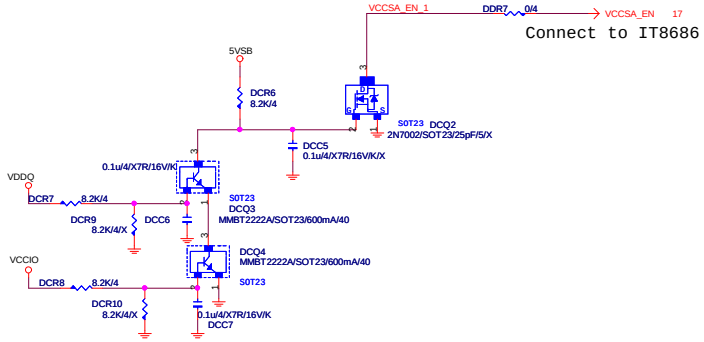


GIGABYTE™

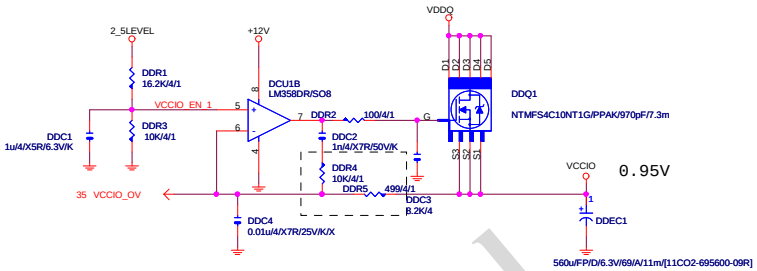
Title: ISL95858_MOS_VCCGT		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 28 of 54	

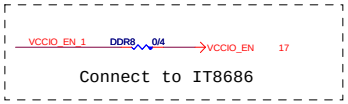
VCCSA

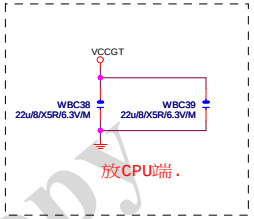




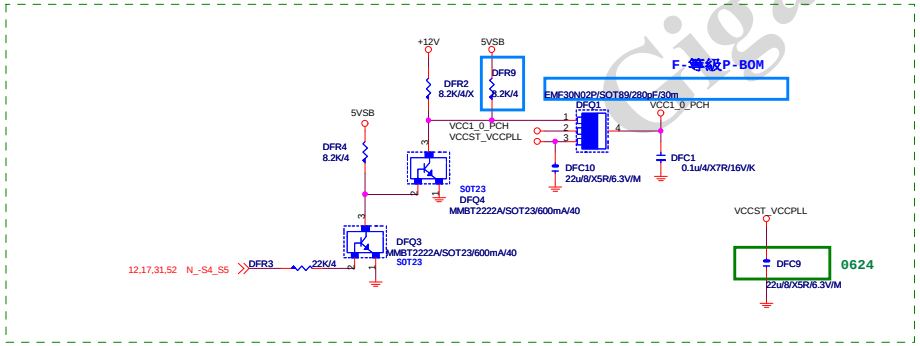
VCCIO







VCCST_VCCPLL



GIGABYTE™

Title	VCCSA_VCCIO	
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 29 of 54	

REV:0.1

DDR4

5VDUAL
+12V
MA_DR10 0/6/X
MA_D1
MA_DR8 2.2/6
DRV_DDR
SDM20E40C/0.4A/SOT23
MA_DC10 1u/6/X7R/16V/K
MA_DC9 0.1u/6/X7R/25V/K

RT8120DGS/SOP8
MAU2
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC
DDR_EN
MA_DR15 27K/4/1
MA_DC15 22p/4/NPO/50V/J
MA_DC16 3.3n/4/X7R/50V/K
MA_DR19 MASK/0/4/SHT/X
MA_UGATE
MA_PHASE
MA_LGATE
MA_DR18 11.8K/4/1
OCP=40A
放靠近IC pin4

VDDQ_SIO VDDQ
DDR_VS MASK/0/4/SHT/M/X
CLOSE TO DDR POWER PLANE

L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A

黑色閃電P

5VDUAL
MA_L2 0.5uH/20A/IMD0809/BP/D
8*8
MA_DC6 0.1u/4/X7R/16V/K Close Choke
MA_DC7 1u/6/X7R/16V/K Close MOS
MA_VIN
MAEC1 560u/FP/D/6.3V/69/A/11m
MAEC2 560u/FP/D/6.3V/69/A/11m

DDR VIN CAP
560u*2PCS

MA_UGATE MA_DR1 2.2/6
MA_DR2 8.2K/4
MA_PHASE
MA_LGATE MA_DR9 2.2/6 MA_LG
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DQ2 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DQ3
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K

黑色閃電P

MA_L1 1uH/35A/IMD109/BP/D
R50
10*10
VDDQ
MA_DR14 487/4/1
MA_DR13 1K/4/1
MA_DC14 3.3n/4/X7R/50V/K RS
RO MA_DR12 2K/4/1

SUPPORT DDR4 1.2V
25A MAX

L=1u
DCR=2.5 mohm
Isat=35A
Idc=28A

VDDQ
MAC60 22u/8/X5R/6.3V/M/X

CHOKE與CAP料號可變

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

DDR_ADJ
MOSFET請依MOSFET使用規則.自行選擇
ON-->10IF9-040406-10R[NTMFS4C06N/N/PPAK/1400pF/4m]
VISHAY-->10IF9-040012-10R[SIRA12DP/PPAKSO8/2070pF/4.3m]
35 DDR_ADJ

PWR SEQ

DDR_EN
5VDUAL
VPP_25V
MAR108 22K/4
MAQ6 2N7002/SOT23/25pF/5
SOT23
MAR9 10K/4/1
MAQ5
SOT23
MMBT2222A/SOT23/600mA/40
MAR107 5.11K/4/1/X
MAC3 0.1u/4/X7R/16V/K

For power sequence require

*Del MAR112

17,31 MA_EN
MAR113 0/4/SHT/M/X
Connect to IT8686

5VDUAL
MAR2 8.2K/4
MAQ11 2N7002/SOT23/25pF/5
SOT23
MAR105 100K/4/1
MAC9 1u/6/X7R/16V/K

DDR_EN
5VDUAL
MAR1 8.2K/4
MAQ10 2N7002/SOT23/25pF/5
SOT23

DDRVTT

VDDQ
NCT3103S/SOP8/2A
MAU1
VIN VREF2 GND ENABLE VREF1 VCNTL VOUT BOOT_SEL
MAC2 1u/4/X5R/6.3V/K
MAR5 1K/4/1
35 MA_VTT_REF
MA_VTT_REF
MAR4 1K/4/1
MAC1 0.01u/4/X7R/25V/K
1.1A MAX
DDRVTT
DDRVTT_EN
DDRVTT_BOOT
5VDUAL
MAC7 10u/6/X5R/6.3V/M

4 DDR_VTT_CTL
12,17,52 N_-SLP_S3
DDR_VTT_CTL MAR110 DDRVTT_EN
N_-SLP_S3 MAR111 DDRVTT_BOOT
0/4/SHT/M/X
MAU1上NCT3103S時上件

DDR CAP

560u*4PCS 22u*2PCS

VDDQ
MAEC3 560u/FP/D/6.3V/69/A/11m
MAEC4 560u/FP/D/6.3V/69/A/11m
MAEC6 560u/FP/D/6.3V/69/A/11m
MAEC7 560u/FP/D/6.3V/69/A/11m
* 大電容 x4

VDDQ
WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M

DDRVTT CAP

* 大電容 x0

DDRVTT
MAC4 22u/8/X5R/6.3V/M
MAC5 22u/8/X5R/6.3V/M

GIGABYTE™

Title: RT8120_DDR4 POWER
Size: Custom
Document Number: GA-Z270P-D3
Rev: 1.0
Date: Monday, November 21, 2016
Sheet 30 of 54

REV:0.1

VPP_25V

4. VPP_25V CHOKE footprint 改CHOKE6X6mm_SMD-1

CHOKE與CAP料號可變

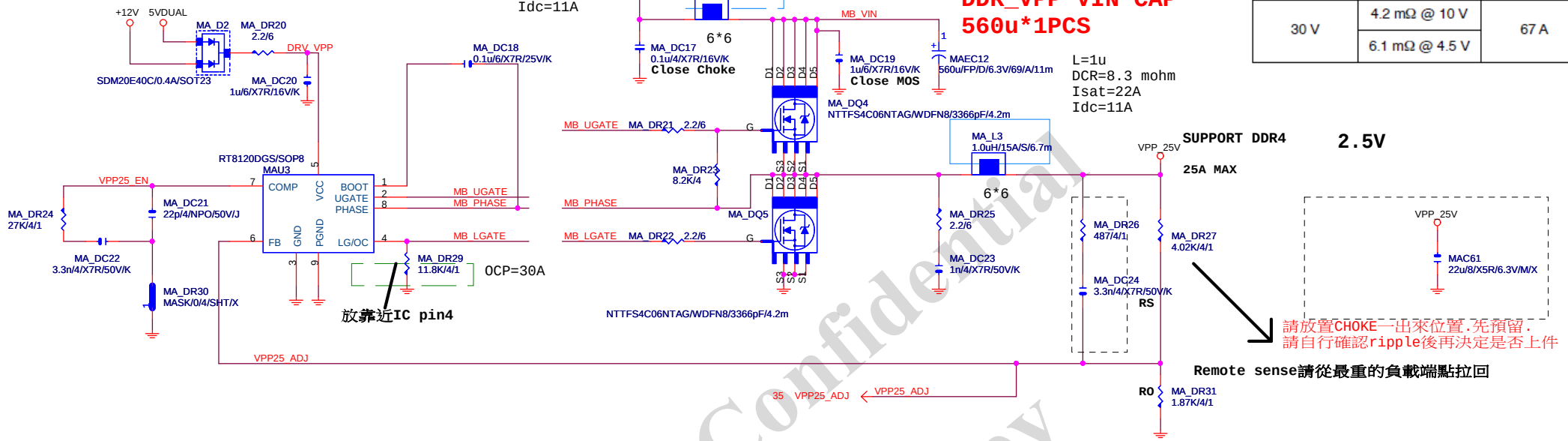
L=1u
DCR=8.3 mohm
Isat=22A
Idc=11A

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

DDR_VPP VIN CAP
560u*1PCS

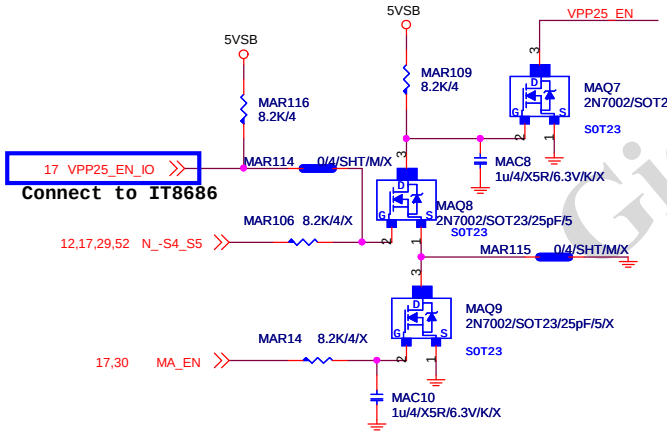
L=1u
DCR=8.3 mohm
Isat=22A
Idc=11A

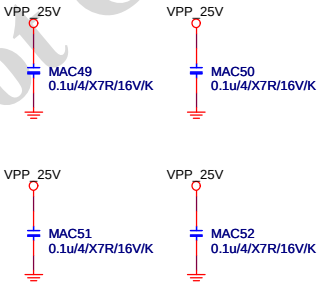
SUPPORT DDR4 2.5V
25A MAX



PWR SEQ

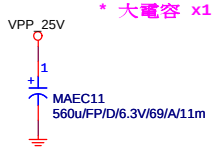
* 刪 MA_DR32





VPP CAP 560u*1PCS

* 大電容 x1

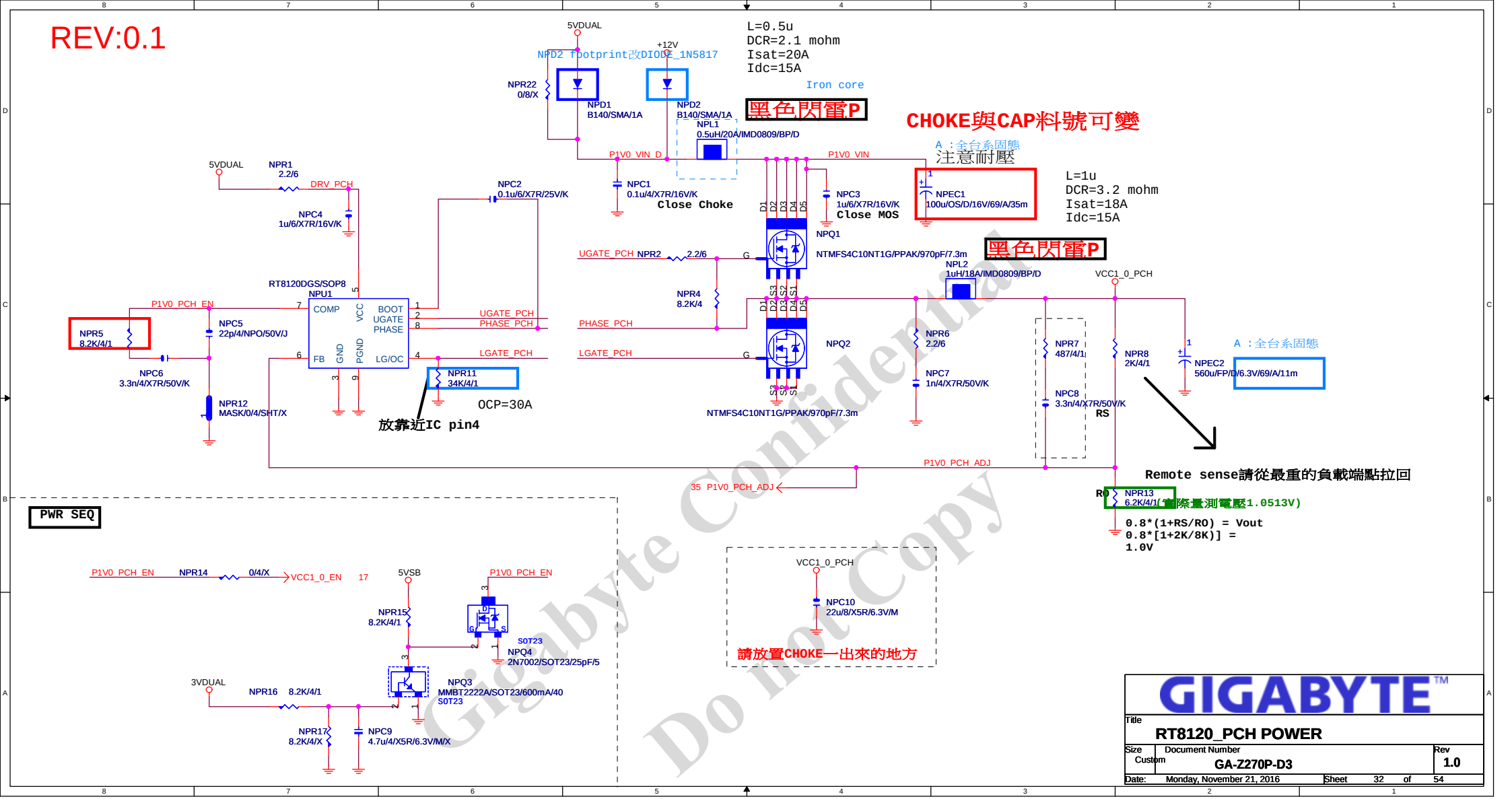


GIGABYTE™

Title: RT8120_VPP25 POWER

Size	Document Number	Rev
Custom	GA-Z270P-D3	1.0

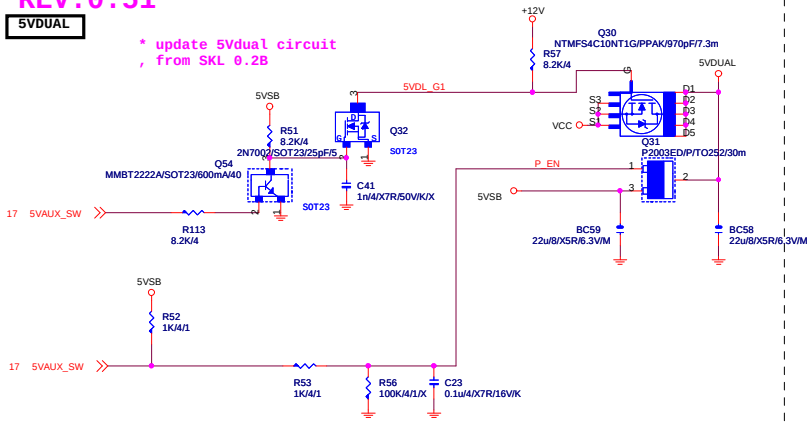
Date: Monday, November 21, 2016 Sheet 31 of 54



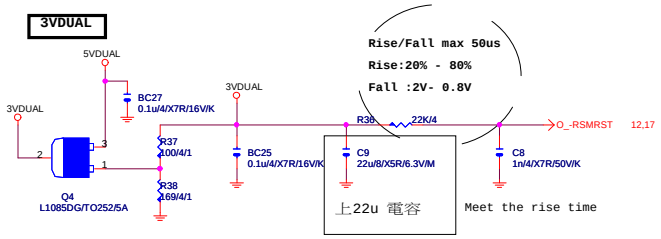
REV:0.51

5VDUAL

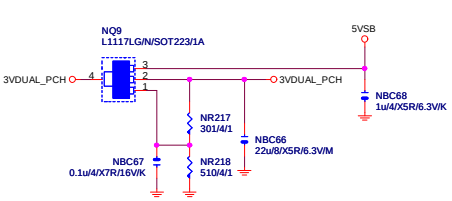
* update 5Vdual circuit
, from SKL 0.2B

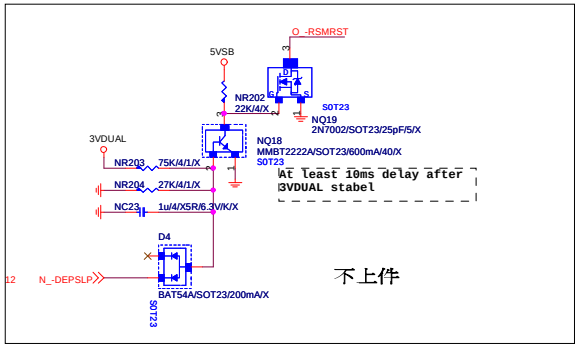


3VDUAL



3VDUAL_PCH



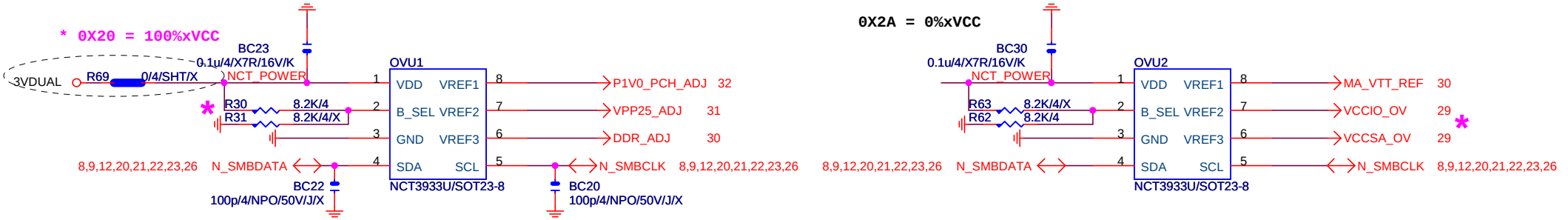


Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-2270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 33 of 54	

GIGABYTE™

Title	CPU POWER-RT9018	
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 34 of 54	

OVER VOLTAGE



NCT3933	0X20	0X2A
VREF1	VCC1_0_PCH	DDRVTT
VREF2	VPP_25V	VCCIO
VREF3	VDDQ	VCCSA

Gigabyte Technology

Title: CPU CORE VR-2

Size: Custom | Document Number: GA-Z270P-D3 | Rev: 1.0

Date: Monday, November 21, 2016 | Sheet 35 of 54

Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

5VSB R695 22K/4

17 -PSON

BC37 0.1u/4/X7R/16V/K

* 刪除 -5V

VCC VCC

BC39 1u/4/X5R/6.3V/K

-12V VCC3 VCC3

BC36 0.1u/4/X7R/16V/K/X

ATX

13	3.3V	3.3V	1
14	-12V	3.3V	2
15	GND	GND	3
16	PSON	5V	4
17	GND	GND	5
18	GND	5V	6
19	GND	GND	7
20	-5V	POK	8
21	5V	5VSB	9
22	5V	12V	10
23	5V	12V	11
24	GND	3.3V	12

APW/2*12/BK/VA/SN/2SHK/PA66 黑色

VCC3 VCC3 VCC3

BC35 22u/8/X5R/6.3V/M BC46 1u/4/X5R/6.3V/K BC48 1u/4/X5R/6.3V/K

BC38 510/6/X BC42 510/6/X BC43 1u/4/X5R/6.3V/K BC44 0.1u/4/X7R/16V/K BC45 0.1u/4/X7R/16V/K BC41 0.1u/4/X7R/16V/K

To prevent the 5VSB under loading when boot

5VSB VCC VCC3

RN7 1K/8P4R/6/X RN8 1K/8P4R/6/X RN9 1K/8P4R/6/X

VCC VCC +12V 5VSB PWOK PWOK

BC9 4.7u/6/X5R/6.3V/K

AD1 AZ2225-01L/SOD323/X

ATX 5VSB ESD Protect BOM移除

ATXX4 POWER CONNECTOR

ATX_12V_2X4

1	GND	+12V	5
2	GND	+12V	6
3	GND	+12V	7
4	GND	+12V	8

17

V12

APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4 黑色

BC7 0.1u/4/X7R/16V/K

MH1 MH2 MH3 MH4 MH5 MH6 HOLE_3/X

for EMI

GND

footprint : HOLE_4-RH-5MM-1

增加螺絲洞for ATX 305x225

K3 K6 K2 K5 K1 K4 K1_ICT/X

K1-ICT

I1 I2 I3 I4 I5 4MMH/X

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

+12V

RN2 2.7K/8P4R/4 RN3 2.7K/8P4R/4 RN4 2.7K/8P4R/4 RN5 2.7K/8P4R/4 RN6 2.7K/8P4R/4

VCC3 R1 1K/4/1 R703 330/4/1 Q9 S0T23

12 N_GPP_D9

MMBT2222A/SOT23/600mA/40

有TYPE-C螺絲洞改半圈,footprint :HOLE_4-RH-5MM-1

螺絲洞 check ~~~~

-PROHOT

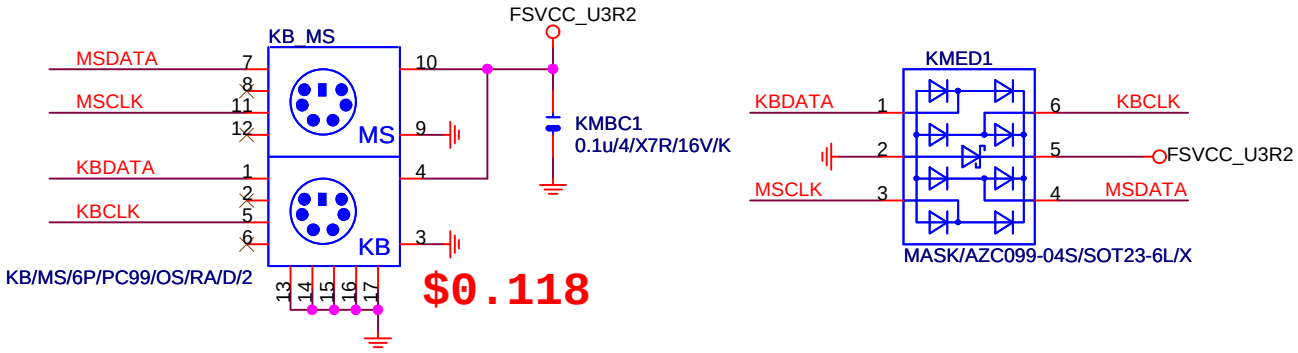
4,17 A_-PROCHOT A_-PROCHOT R2 0/4/SHT/M/X VR_HOT 26

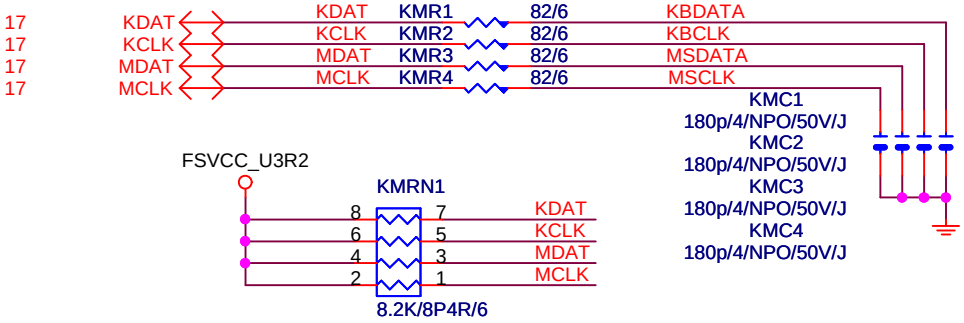
COUPON

COUPON1 COUPON1 1 2 COUPON/X

COUPON2 COUPON2 1 2 COUPON/X

Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: Custom	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 36 of 54		





USB FUSE與HDMI R_USB30_1公用

Gigabyte Technology			
Title: AUDIO JACK			
Size: A	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 37 of 54		

Rev: 0.81

R_USB30

下 Port

上 Port

R_USB30_1

USB3.0/2.0

USB 電容前後NET 可自行調整

FSVCC_U3R1

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

11 N_-USBP7
11 N_+USBP7
11 PCH_USB3_RXN7
11 PCH_USB3_RXP7
11 PCH_USB3_TXN7
11 PCH_USB3_TXP7

RBU3C1 0.1u/4/X7R/16V/K
RBU3C2 0.1u/4/X7R/16V/K

R_U3TXN7
R_U3TXP7

AGND AGND AGND AGND

G1 G2 G3 G4

USB/18P/BU/OS/RA/D/2/1U/SB

FUSE 2 Port 1 Fuse 2.6A

RFUS3

5VDUAL RFUS3 SPR-P260T/6V/8/S FSVCC_U3R1

RBU3EC2 100u/OS/D/6.3V/66/A/35m

RAU3C5 0.1u/4/X7R/16V/K

刪除電容 & HDMI+R_USB30 Fuse

U3OC1 SOT23

11,40,43 N_-USBOC_R

N_-USBOC_R

FSVCC_U3R1

FSVCC_U3R2

BAT54A/SOT23/200mA

R_USB30 & HDMI

USB30_LAN

* Footprint : USB30_20

不鍍銅後蓋 Rear panel
R_USB30 : ?????????????

USB 電容前後NET 可自行調整

FSVCC_U3R1

PCH_USB3_RXN8 11
PCH_USB3_RXP8 11
PCH_USB3_TXN8 11
PCH_USB3_TXP8 11

RBU3C3 0.1u/4/X7R/16V/K
RBU3C4 0.1u/4/X7R/16V/K

R_U3TXN8
R_U3TXP8

NET 可自行調整

* swap

RBU3D2
AZ1045-04F/MSOP10

NET 可自行調整

* swap

RBU3D1
AZ1045-04F/MSOP10

ESD 可自行SWAP PIN

RBU3D3

N_-USBP7 N_+USBP7 FSVCC_U3R1 N_+USBP8 N_-USBP8

AZC099-04S/SOT23-6L

CONNECTOR 自行調整

2 port USB 3.0 Capture:

USB/18P/BU/OS/RA/D/2/1U/SB

2 port USB 3.0 with TYPE C Capture:

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

R_USB30_2

R_USB30_2

USB3.0/2.0

USB 電容前後NET 可自行調整

FSVCC_U3R2

11 N_-USBP3
11 N_+USBP3
11 PCH_USB3_RXN3
11 PCH_USB3_RXP3
11 PCH_USB3_TXN3
11 PCH_USB3_TXP3

RBU3C5 0.1u/4/X7R/16V/K
RBU3C6 0.1u/4/X7R/16V/K

R_U3TXN3
R_U3TXP3

USB/18P/BU/OS/RA/D/2/1U/SB

FUSE 2 Port 1 Fuse 2.6A

5VDUAL RBU3F1 SPR-P260T/6V/8/S FSVCC_U3R2

RBU3EC1 100u/OS/D/6.3V/66/A/35m

RBU3C9 0.1u/4/X7R/16V/K

USB 電容前後NET 可自行調整

FSVCC_U3R2

N_-USBP4 11
N_+USBP4 11
PCH_USB3_RXN4 11
PCH_USB3_RXP4 11
PCH_USB3_TXN4 11
PCH_USB3_TXP4 11

RBU3C7 0.1u/4/X7R/16V/K
RBU3C8 0.1u/4/X7R/16V/K

R_U3TXN4
R_U3TXP4

ESD 可自行SWAP PIN

RBU3D4
AZ1045-04F/MSOP10

ESD 可自行SWAP PIN

RBU3D6
AZ1045-04F/MSOP10

ESD 可自行SWAP PIN

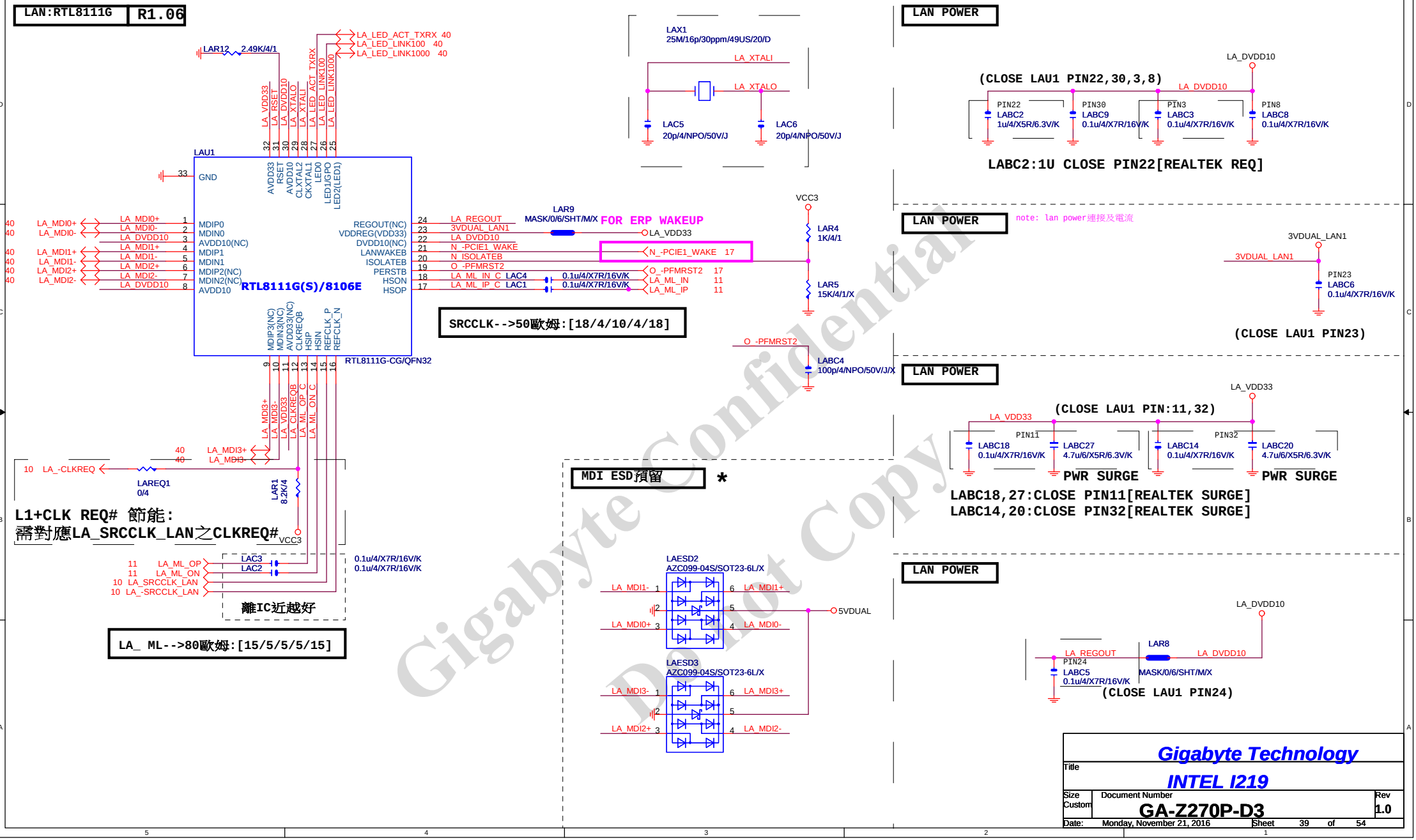
RBU3D5

N_-USBP4 N_+USBP4 FSVCC_U3R2 N_+USBP3 N_-USBP3

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Gigabyte Technology			
Title: KB_MS_USB3, R_USB30			
Size: Custom	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016		Sheet 38 of 54	

LAN:RTL8111G R1.06



LAN POWER

LABC2:1U CLOSE PIN22[REALTEK REQ]

LAN POWER

note: lan power連接及電流

(CLOSE LAU1 PIN23)

LAN POWER

LABC18,27:CLOSE PIN11[REALTEK SURGE]
LABC14,20:CLOSE PIN32[REALTEK SURGE]

LAN POWER

(CLOSE LAU1 PIN24)

Gigabyte Technology		
Title: INTEL I219		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 39 of 54	

USB_LAN CONNECTOR R1.06

RMA ESD PROTECT

note:可變更USB NAME

可變

N_+USBP9 1 — 6 N_-USBP9

2 — 5 FSVCC_U2R3

N_-USBP10 3 — 4 N_+USBP10

LAUESD1
AZC099-04S/SOT23-6L

USB_LAN CONNECTOR

note:可變更USB NAME

[RTL8111G]

USB_LAN

LABC22
0.01u/4/X7R/25V/K/X

LA_CN_L1

39 LA_MDI0+
39 LA_MDI0-
39 LA_MDI1+
39 LA_MDI1-
39 LA_MDI2+
39 LA_MDI2-
39 LA_MDI3+
39 LA_MDI3-

LABC25 LA_CN_L10

MASK/0/4/SHT/M/X

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10

UP

DOWN

D1 LA_LED_ACT_TXRX → LA_LED_ACT_TXRX 39

D2 LA_LED_D2 LAR13 330/4 LAN_3VDUAL_LED

D3 LA_LED_D3 LAR14 330/4 LA_LED_LINK100 39

D4 LA_LED_LINK1000 → LA_LED_LINK1000 39

3VDUAL_LAN1

LAFB2
MASK/0/4/SHT/M/X

LABC24
0.1u/4/X7R/16V/K/X

U1 U2 N_-USBP10 11 N_+USBP10 11 U3 U4 U5 U6 N_-USBP9 11 N_+USBP9 11 U7 U8

LAUBC7
0.1u/4/X7R/16V/K
FSVCC_U2R3

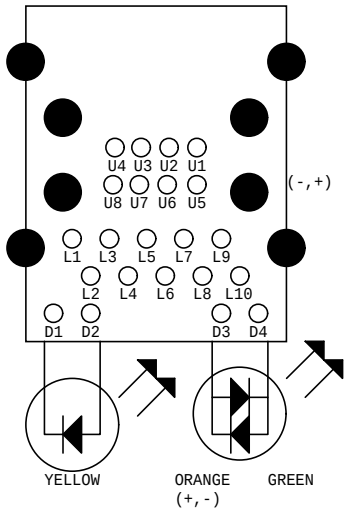
LAUBC23
0.1u/4/X7R/16V/K/X
FSVCC_U2R3

可變

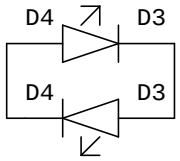
USB+LAN/1G/GO,Y/OS/RA/D/12C/ES/[11NR6-702009-Z1R_11NR6-702009-R2R]

LA_MDI-->100歐姆:[20/4/8/4/20]

USB_LAN LAYOUT示意圖



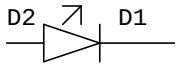
Dual Color LED



Green

Orange

Single Color LED



Yellow

USB POWER

note:可變更FUSE

可變

5VDUAL — 1 LAUF1 2 — FSVCC_U2R3

SPR-P200T/6V/8/S

Close to connector

USB_LAN 2-Port 2.0A

FUSE-0805

11,38,43 N_-USBOC_R ← N_-USBOC_R 3

U3OC4 SOT23 1 — FSVCC_U2R3

2

BAT54A/SOT23/200mA

EMI SHORT PAD

PS:視EMI需求

LAR24 MASK/0/4/SHT/M/X

LAN POWER

note: lan power連接及電流

可變

3VDUAL_LAN1 — LAPW1 0/4 — 3VDUAL_PCH *

LAPW2 0/4/X — 3VDUAL *

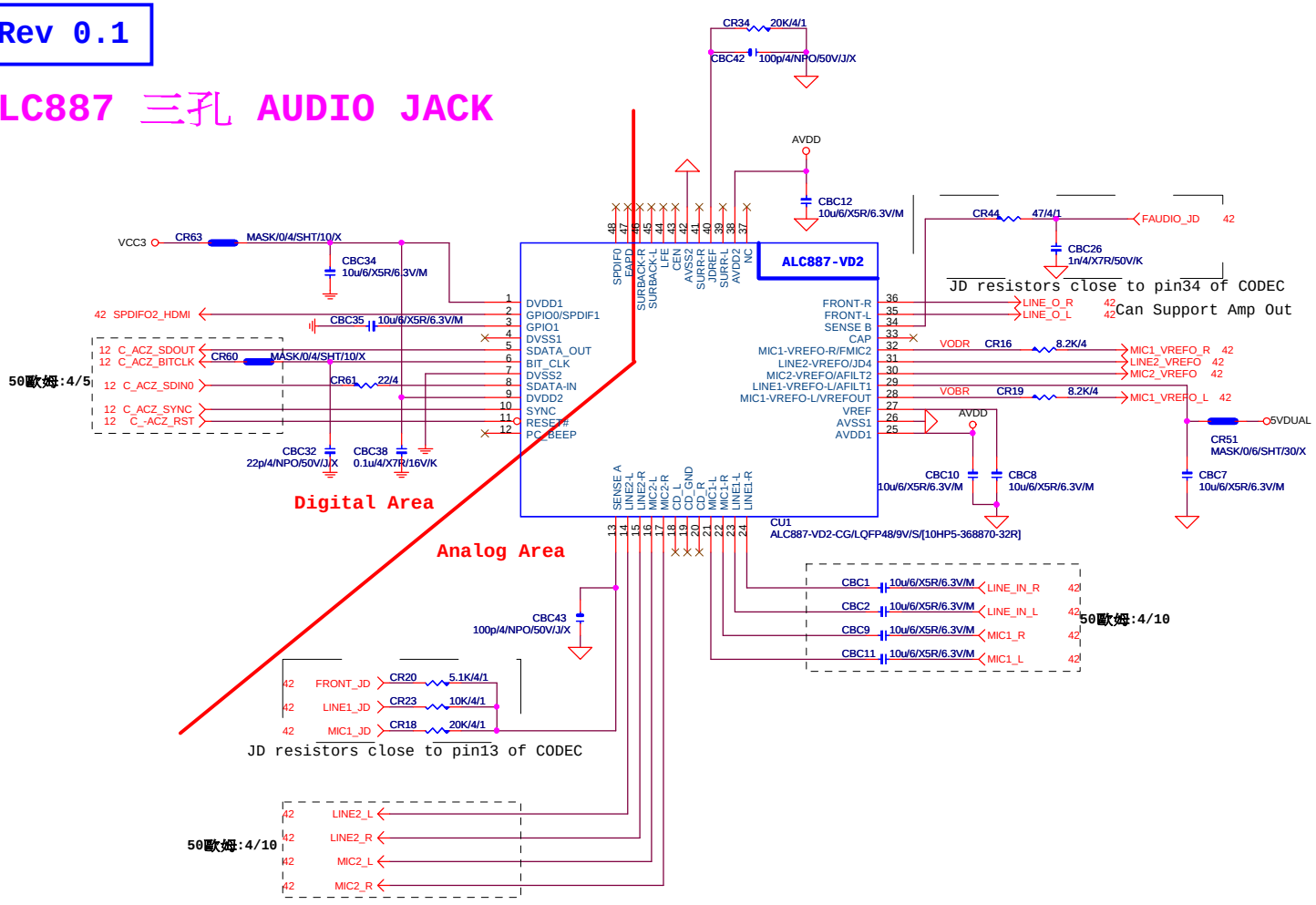
R_USB30 & HDMI

USB30_LAN

Gigabyte Technology		
Title: LAN CONNECTOR-INTEL I219		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 40 of 54	

Rev 0.1

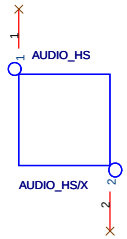
ALC887 三孔 AUDIO JACK



LAYOUT注意:螺絲孔下GND方式

1. MH1空間夠,下DGND
   空間不夠,改為Isolate
2. MH2一律改為Isolate

MH1	MH2
DGND	Isolate



*料號後補
*LAYOUT與否,依照各Model spec

LAYOUT注意:要加

GND切割線

音效區域印刷

BOM OPTION : 1. Chemicon音效電容
2. 金屬外罩 Reserve (上件與否,依照各Model spec)
3. LED Reserve (上件與否和LED顏色,依照各Model spec)

Gigabyte Technology		
Title: HD AUDIO ALC887		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 41 of 54	

Rev 0.1

CR49 MASK/0/6/SHT/30/X → Close F_AUDIO

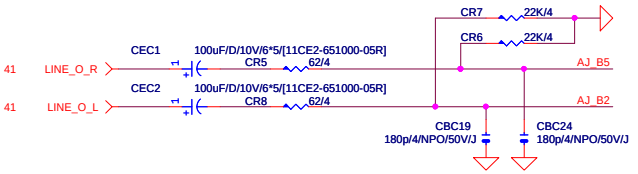
CR50 MASK/0/6/SHT/30/X, MOATC1 0.1u/4/X7R/16V/K/X → Close Codec

CR21 2.2/6 → Audio jack <--> USB_LAN

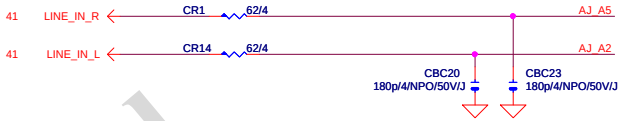
CR24 0/6/X → Under Audio jack

*量產前,0ohm改short pad

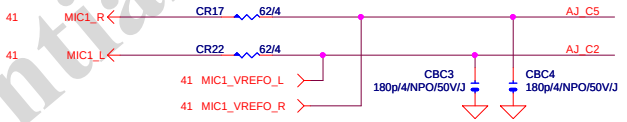
LINE-OUT



LINE-IN



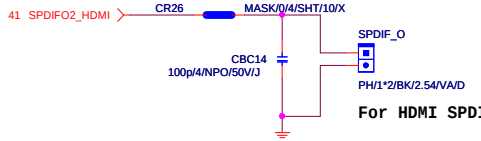
MIC-IN



SURROUND

CEN/LFE

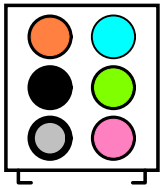
SPDIF_OUT

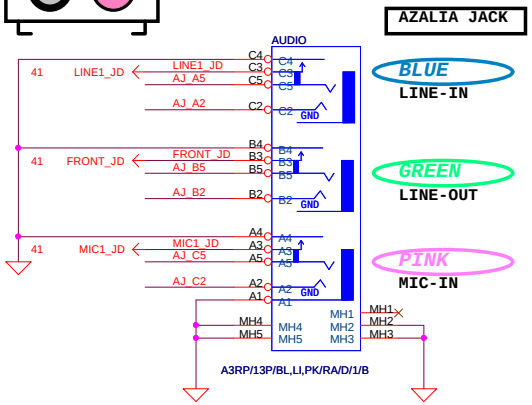


SPDIF_IN

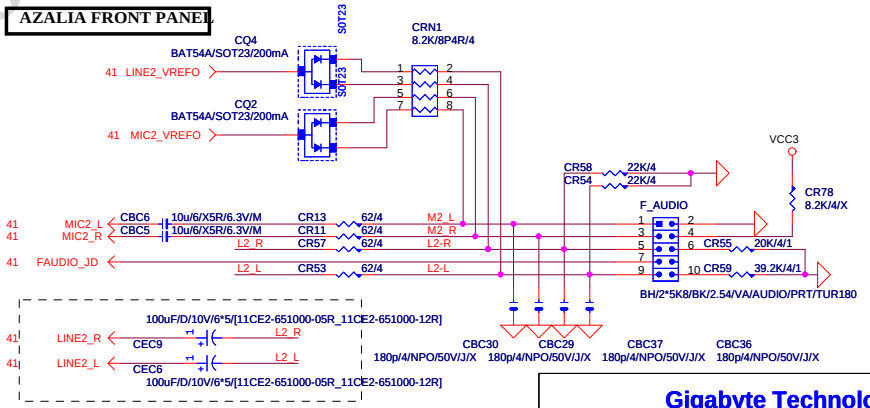
SURR BACK

AZALIA JACK





AZALIA FRONT PANEL



Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 42 of 54	

Rev: 0.81

Front USB3.0

F_USB30
REV=1

NET 自行調整

FSVCC_U3F1
11 PCH_USB3_RXN1
11 PCH_USB3_RXP1
11 PCH_USB3_TXN1
11 PCH_USB3_TXP1
11 N_-USBP1
11 N_+USBP1

FAU3C1 0.1u/4/X7R/16V/K FU30_TXN1
FAU3C2 0.1u/4/X7R/16V/K FU30_TXP1

VBUS ID SSRX1- SSRX1+ SSTX1- SSTX1+ D1- D1+ GND GND
VBUS SSTX2- SSTX2+ SSRX2- SSRX2+ D2- D2+ GND GND

FU30_TXN2 FU30_TXP2
FAU3C3 0.1u/4/X7R/16V/K
FAU3C4 0.1u/4/X7R/16V/K

NET 可自行調整

PCH_USB3_TXN2 11
PCH_USB3_TXP2 11
PCH_USB3_RXN2 11
PCH_USB3_RXP2 11
N_-USBP2 11
N_+USBP2 11

BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT
黑色

F_USB30 PWR

5VDUAL — FU3F1 — SPR-P260T/6V/8/S — FSVCC_U3F1
FAU3EC1 100u/OS/D/6.3V/66/A/35m
FAU3C5 0.1u/4/X7R/16V/K

-USBOC_F

11,44 N_-USBOC_F — U3OC3 SOT23 — FSVCC_U3F1
BAT54A/SOT23/200mA

NET 可自行調整

POWER 可自行調整

5VDUAL — UAR1 8.2K/4 — N_-USBOC_F — N_-USBOC_F 11,44
UAR2 15K/4/1

-USBOC_R

POWER 可自行調整

5VDUAL — UBR1 8.2K/4 — N_-USBOC_R — N_-USBOC_R 11,38,40
UBR2 15K/4/1

NET 可自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1
AZ1045-04F/MSOP10

FAU3D3
AZC099-04S/SOT23-6L

N_+USBP2
N_-USBP1
3VDUAL
N_-USBP2
N_+USBP1

CLOSE F_USB30

FU30_TXP1
FU30_TXN1
FU30_TXN2
FU30_TXP2

FAU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB30 P/N:11NH3-021210-B1R/B2R

Rear window

★Update 2015.10.01

Front USB30 P/N:11NH3-021210-51R/52R

* 接 PCH N_GPP_G6(SMI) & PCH PU 3Vdual

13 N_GPP_G6

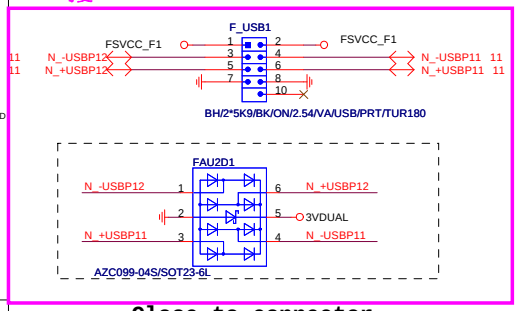
UAD5 SOT23
N_-USBOC_F — N_-USBOC_F 11,44
N_-USBOC_R — N_-USBOC_R 11,38,40
BAT54A/SOT23/200mA

Gigabyte Technology	
Title	R_USB30,F_USB30, USB_OC
Size: Custom	Document Number: GA-Z270P-D3
Rev	1.0
Date:	Monday, November 21, 2016
Sheet	43 of 54

Rev: 0.81

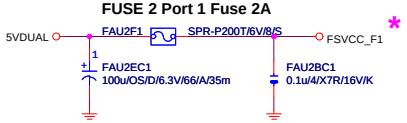
FRONT USB1

NET 可變



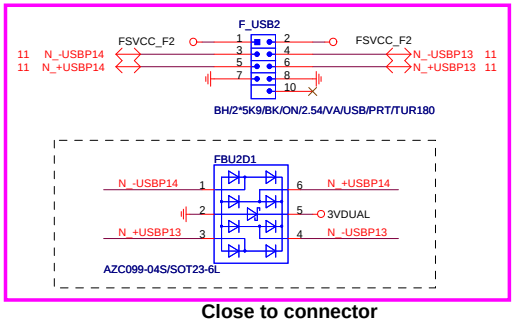
Close to connector

FUSE 2 Port 1 Fuse 2A



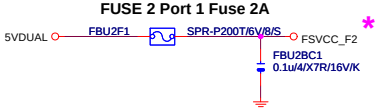
FRONT USB2

NET 可變



Close to connector

FUSE 2 Port 1 Fuse 2A



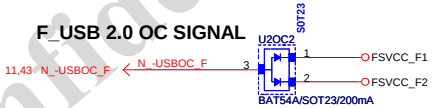
FRONT USB3

FRONT USB4

REAR USB1

REAR USB2

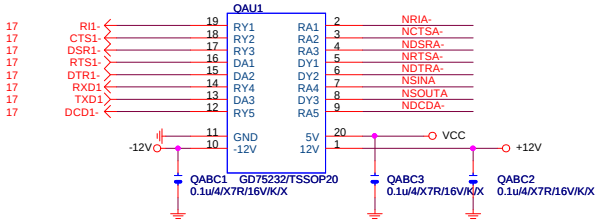
F_USB 2.0 OC SIGNAL

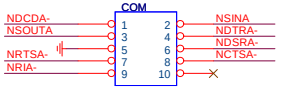


Gigabyte Technology			
Title: F_USB20			
Size: Custom	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 44 of 54		

COM PORT

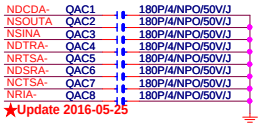
Rev: 0.81





BH/2*5K10/BK/2.54/VA/COM/PRT/TUR180

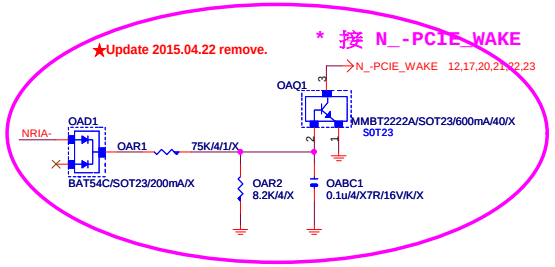
F_COM-HS



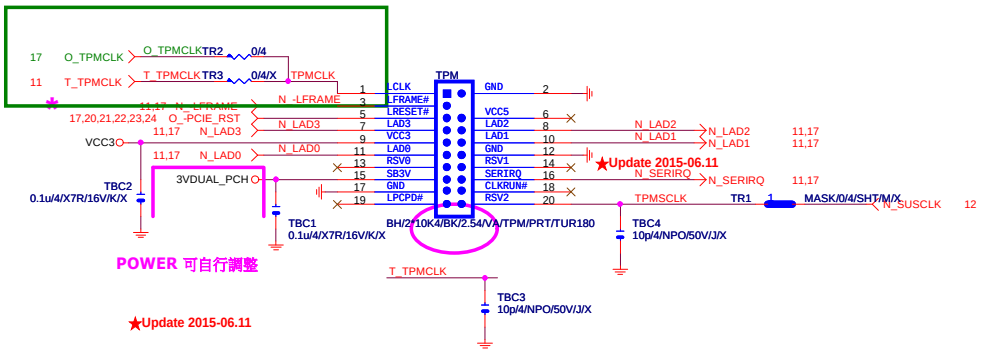
★Update 2016-05-25

COM RI

N/A



TPM CONNECT



★Update 2015-06.11

POWER 可自行調整

★Update 2015-06.11

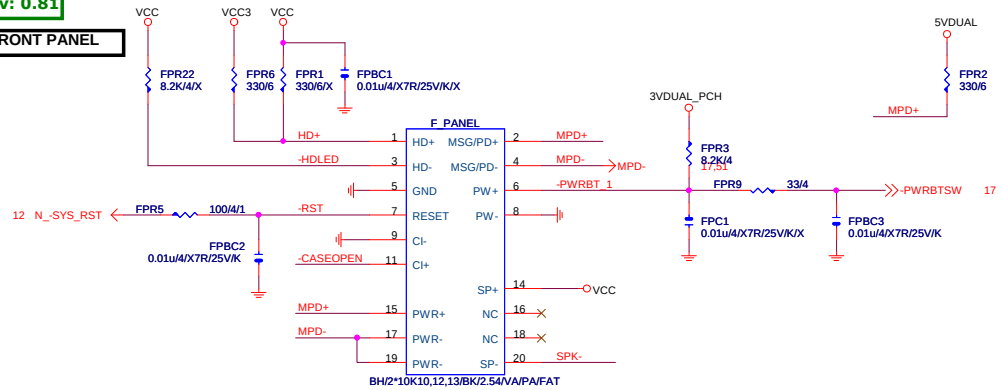
Gigabyte Technology

Title	FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 45 of 54		

Rev: 0.81

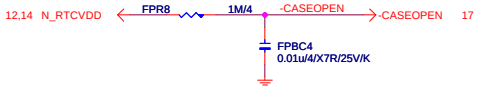
FRONT PANEL

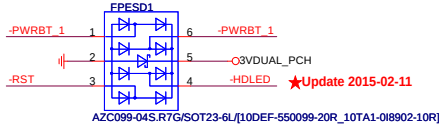
★Update 2016.06.15



Update 2015.01.08
Footprint=F_PANEL-100

CASE OPEN

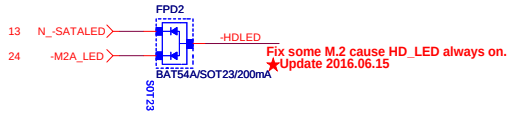




★Update 2015-02-11

FRONT PANEL SHORT

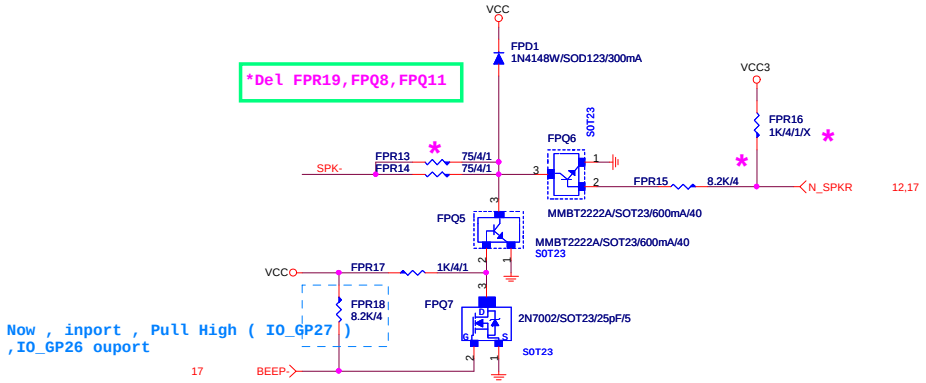
SATA LED



Fix some M.2 cause HD_LED always on.
★Update 2016.06.15

SPEAKER

For SPKR voltage issue. FPQ6=>2222, FPQ7=>7002

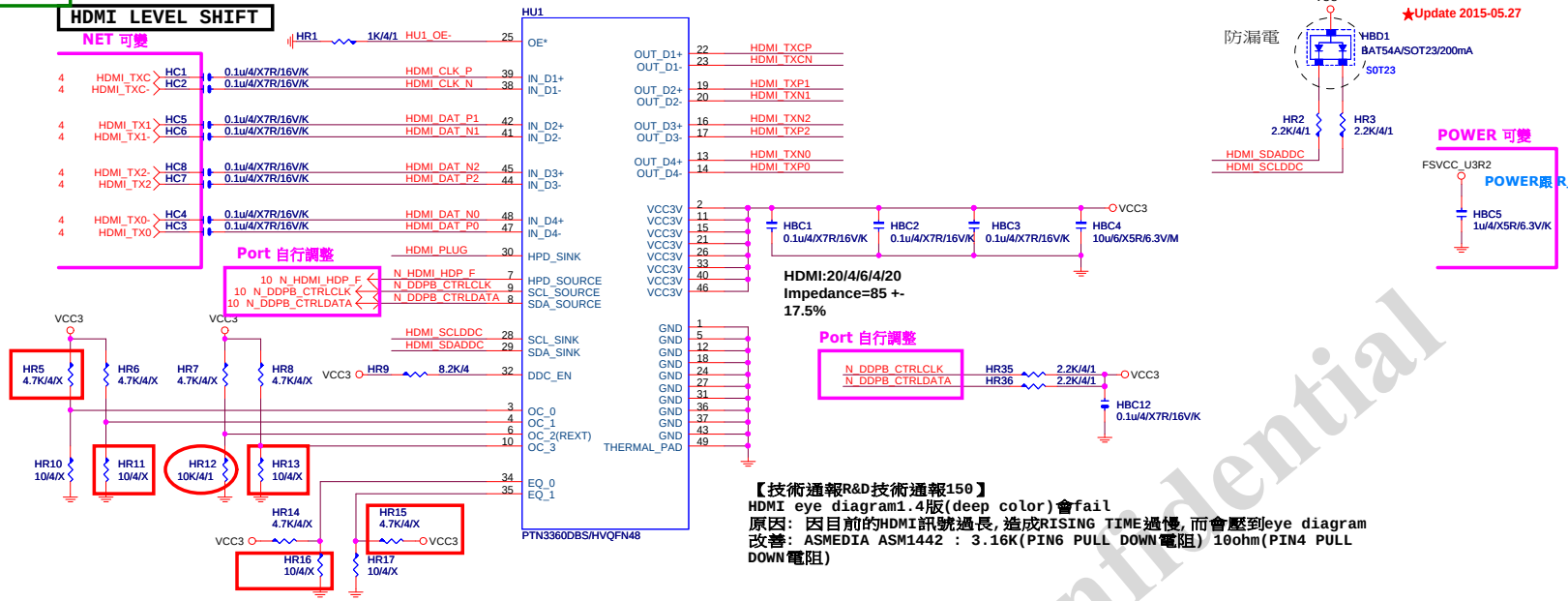


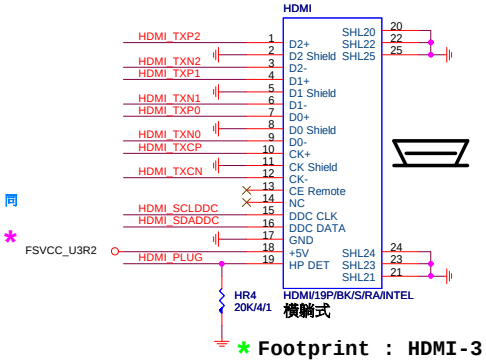
For SPKR voltage issue. FPQ6=>2222, FPQ7=>7002

Gigabyte Technology		
Title: FRONT PANEL		
Size: Custom	Document Number: GA-Z270P-D3	Rev: 1.0
Date: Monday, November 21, 2016	Sheet 46 of 54	

Rev: 0.62

HDMI LEVEL SHIFT





跟R_USB30 不同顆料，所以HDMI要上件

【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

GIGABYTE™

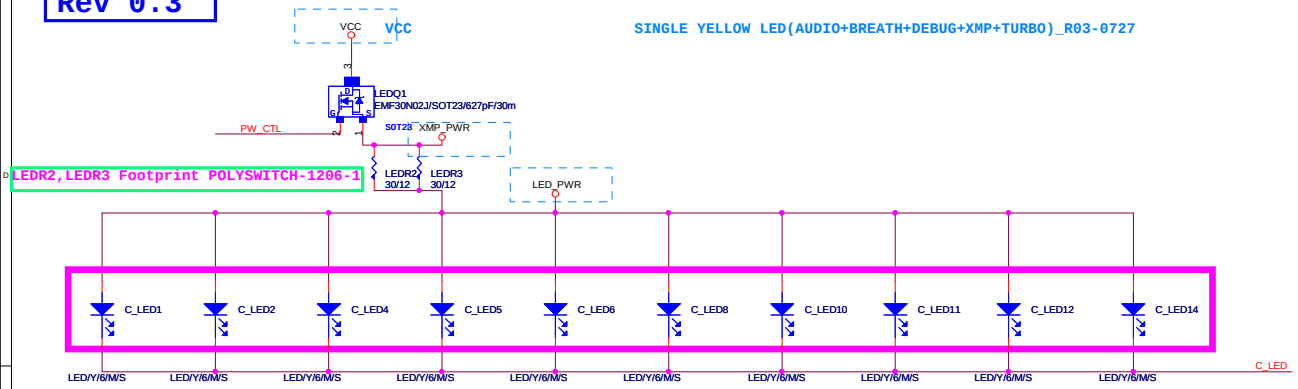
Title: HDMI

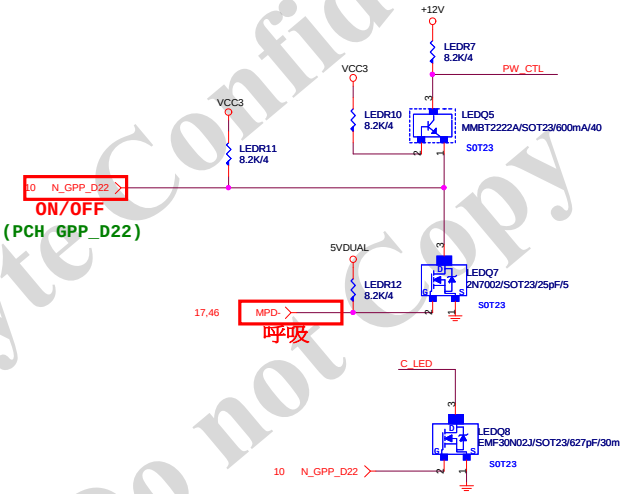
Size	Document Number	Rev
Custom	GA-Z270P-D3	1.0

Date: Monday, November 21, 2016 Sheet 48 of 54

Rev 0.3

SINGLE YELLOW LED(AUDIO+BREATH+DEBUG+XMP+TURBO)_R03-0727





Ambient LED Control

	N_GPP_D22	IO_GP91
Still Mode	H	L
OFF Mode	L	L
Pluse Mode	H	BREATH

GIGABYTE™

Title: Audio / DEBUG LED

Size	Document Number	Rev
Custom	GA-Z270P-D3	1.0

Date: Monday, November 21, 2016 Sheet 51 of 54

EMI/ESD R0.1

CLOSE SIO

EMIC1
100p/4/NPO/50V/J/X

12,17,30 N_-SLP_S3

EMIC2
100p/4/NPO/50V/J/X

12,17,29,31 N_-S4_S5

*Del EMIC3

CLOSE PCH

EMIC4
100p/4/NPO/50V/J/X

4,12 N_CPUPWROK

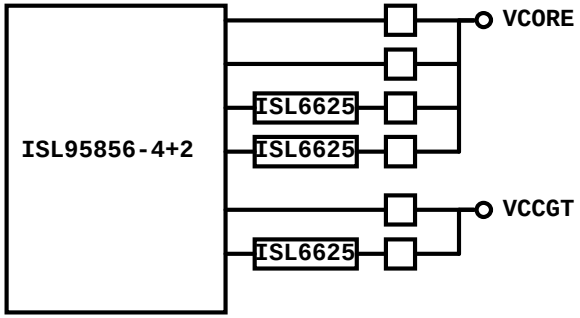
GIGABYTE™

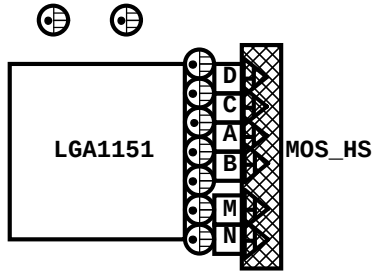
Title	EMI/ESD	
Size A	Document Number GA-Z270P-D3	Rev 1.0
Date: Monday, November 21, 2016	Sheet 52 of 54	

POWER BLOCK MAP

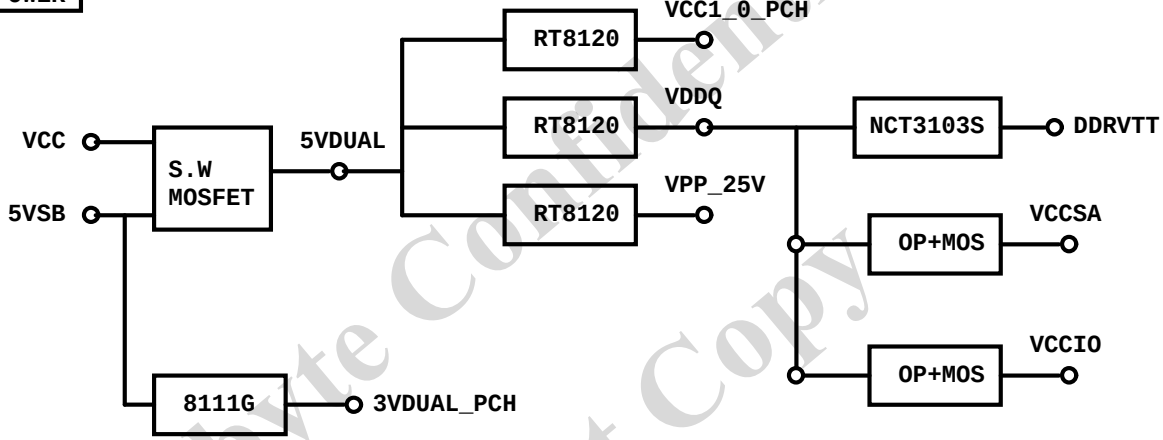
- CPU
  - VCORE
  - VCCGT
  - VCCSA
  - VCCIO
  - VDDQ
  - VCCST_VCCPLL
  - VCCSFUSEPRG
  - VCCPLL
  - VCCPLL_OC
- DDR4
  - VDDQ
  - DDRVTT
  - VPP_25V
- PCH
  - VCC1_0_PCH
  - VCCDSW_1P0
  - VCC10_VCCF24_1P0
  - VCC10_VCCAMPHYPLL
  - VCC10_VCCAPLL
  - VCC3_PCH
  - 3VDUAL_PCH
  - VCC3
  - N_RTCVDD
- IT8628
  - IT_VCCH
  - IT_AVCC
  - 2_5LEVEL
- HM
  - +12V
  - VCC
  - VCC3
  - VCORE
  - VCCGT
  - VDDQ
  - VCCSA

VCORE/VCCGT

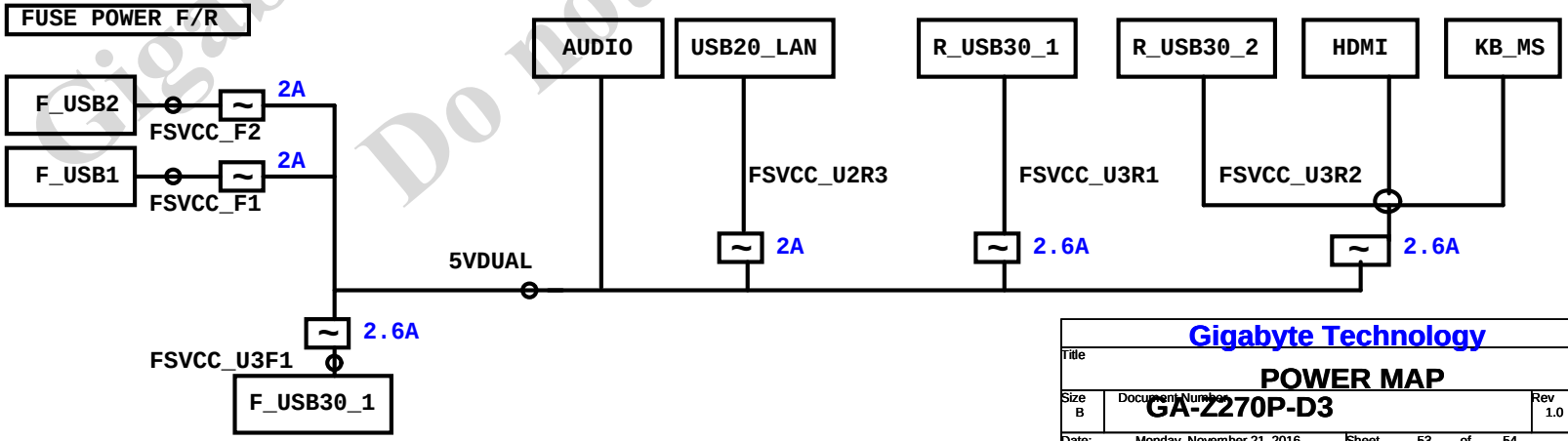




POWER



FUSE POWER F/R



Gigabyte Technology			
Title: POWER MAP			
Size: B	Document Number: GA-Z270P-D3		Rev: 1.0
Date: Monday, November 21, 2016	Sheet 53 of 54		

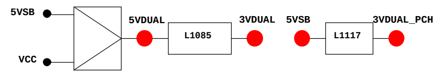
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/ PLTRST	Default	USAGE	NOTE
GPP_A0	MAIN	H-Z	RCIN#	N_-KBRST	P/U 8.2K VCC3
GPP_A1	MAIN	H-Z	LAD0	N_LAD0	N/A
GPP_A2	MAIN	H-Z	LAD1	N_LAD1	N/A
GPP_A3	MAIN	H-Z	LAD2	N_LAD2	N/A
GPP_A4	MAIN	H-Z	LAD3	N_LAD3	N/A
GPP_A5	MAIN	H-Z	LFRAME#	N_-LFRAME	N/A
GPP_A6	MAIN	H-Z	SERIRQ	N_SERIRQ	P/U 8.2K VCC3
GPP_A7	MAIN	H-Z	PIRQA#	N_-LDRQ0	P/U 8.2K VCC3
GPP_A8	MAIN	H-Z	CLKRUN#	N_GPP_A8	P/U 8.2K VCC3
GPP_A9	MAIN	H-Z	CLKOUT	T_TPMCLK/N_LPC24MA	N/A
GPP_A11	MAIN	H-Z	PME#	N_-P_PME	P/U 8.2K 3VDUAL_PCH
GPP_A12	MAIN	H-Z	GPI	N_GPP_A12	P/U 8.2K VCC3
GPP_A13	MAIN	H-Z	WANRN#	N_-S_WARN	N/A
GPP_A14	MAIN	H-Z	STAT#	N_GPP_A14	P/U 8.2K 3VDUAL
GPP_A15	MAIN	H-Z	ACK#	N_-S_ACK	N/A
GPP_B0	MAIN	H-Z	GPO	N_-DDR_V_SEL	P/U 8.2K VCC3
GPP_B2	MAIN	H-Z	GPI	N_-VRALERT	P/U 8.2K 3VDUAL
GPP_B3	MAIN	H-Z	GPI	N_GPP_B3	N/A
GPP_B4	MAIN	H-Z	GPI	N_GPP_B4	N/A
GPP_B5	MAIN	H-Z	GPI	-PCIEX16_PR	P/U 8.2K VCC3
GPP_B6	MAIN	H-Z	GPI	-PCIEX1_PR1	P/U 8.2K VCC3
GPP_B7	MAIN	H-Z	GPI	-PCIEX1_PR2	P/U 8.2K VCC3
GPP_B8	MAIN	H-Z	GPI	-PCIEX4_PR	P/U 8.2K VCC3
GPP_B9	MAIN	H-Z	GPI	N_GPP_B9	P/D GND
GPP_B10	MAIN	H-Z	GPI	LA_-CLKREQ	P/U 8.2K 3VDUAL_LAN1
GPP_B12	MAIN	H-Z	SLP_S0	N_-SLP_S0	N/A
GPP_B13	MAIN	H-Z	PLTRST	N_-PFMRST	N/A
GPP_B14	MAIN		GPO	N_SPKR	N/A
GPP_B15	MAIN	H-Z	GPI	N_GPP_B15	N/A
GPP_B16	MAIN	H-Z	GPI	N_GPP_B16	N/A
GPP_B22	MAIN		GPO	N_GPP_B22	P/D 1K GND
GPP_B23	MAIN	H-Z	GPO	N_-PCH_HOT	N/A
GPP_C0	MAIN	H-Z	SMBCLK	N_SMBCLK	P/U 1K 3VDUAL
GPP_C1	MAIN	H-Z	SMBDATA	N_SMBDATA	P/U 1K 3VDUAL
GPP_C2	MAIN		GPO	N_-LPCPME	N/A
GPP_C3	MAIN	H-Z	SML0CLK	N_SML0CLK	P/U 499 3VDUAL
GPP_C4	MAIN	H-Z	SML0DAT	N_SML0DAT	P/U 499 3VDUAL
GPP_C6	MAIN	H-Z	GPI	N_SML1CLK	P/U 8.2K 3VDUAL
GPP_C7	MAIN	H-Z	GPI	N_SML1DAT	P/U 8.2K 3VDUAL
GPP_C21	MAIN	H-Z	GPI	N_GPP_C21	N/A
GPP_C23	MAIN	H-Z	GPI	N_GPP_C23	N/A
GPP_D4	MAIN	H-Z	GPI	N_GPP_D4	P/U 8.2K 3VDUAL
GPP_D7	MAIN	H-Z	GPI	N_GPP_D7	N/A
GPP_D8	MAIN	H-Z	GPI	N_GPP_D8	N/A
GPP_D9	MAIN	H-Z	GPI	N_GPP_D9	P/U 1K VCC3
GPP_D10	MAIN	H-Z	GPI	N_GPP_D10	N/A
GPP_D13	MAIN	H-Z	GPI	N_GPP_D13	N/A
GPP_D23	MAIN	H-Z	GPI	N_GPP_D23	P/U 8.2K 3VDUAL
GPP_E0	MAIN	H-Z	GPI	N_GPP_E0	P/U 8.2K 3VDUAL
GPP_E1	MAIN	H-Z	GPI	N_GPP_E1	P/U 8.2K 3VDUAL
GPP_E2	MAIN	H-Z	GPI	N_GPP_E2	P/U 8.2K 3VDUAL
GPP_E3	MAIN	H-Z	GPI	N/A	N/A
GPP_E4	MAIN	H-Z	GPI	N_DEVSLP0	N/A
GPP_E6	MAIN	H-Z	GPI	N_GPP_E6	N/A
GPP_E8	MAIN	H-Z	GPI	N_-SATALED	N/A
GPP_E9	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_E12	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_F0	MAIN	H-Z	GPI	N_GPP_F0	P/U 8.2K 3VDUAL
GPP_F1	MAIN	H-Z	GPI	N_GPP_F1	P/U 8.2K 3VDUAL
GPP_F2	MAIN	H-Z	GPI	N_GPP_F2	P/U 8.2K 3VDUAL
GPP_F3	MAIN	H-Z	GPI	N_GPP_F3	P/U 8.2K 3VDUAL
GPP_F4	MAIN	H-Z	GPI	N_GPP_F4	P/U 8.2K 3VDUAL
GPP_F5	MAIN	H-Z	GPI	N_GPP_F5	P/U 8.2K VCC3
GPP_F6	MAIN	H-Z	GPI	N_GPP_F6	N/A
GPP_F10	MAIN	H-Z	GPI	N_GPP_F10	P/U 8.2K VCC3
GPP_F11	MAIN	H-Z	GPI	N_GPP_F11	P/U 8.2K VCC3
GPP_F12	MAIN	H-Z	GPI	N_GPP_F12	P/U 8.2K VCC3
GPP_F13	MAIN	H-Z	GPI	N_GPP_F13	P/U 8.2K VCC3
GPP_F14	MAIN	H-Z	GPI	A_-SKTOCC	P/U 8.2K VCC3
GPP_F15	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_F16	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_F17	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_F18	MAIN	H-Z	GPI	N_-USBOC_7	P/U 8.2K 3VDUAL
GPP_F22	MAIN	H-Z	GPI	N_GPP_F22	P/U 8.2K VCC3
GPP_F23	MAIN	H-Z	GPI	N_GPP_F23	P/U 8.2K VCC3
GPP_G11	MAIN	H-Z	FANPWM2	N_GPP_G11	N/A
GPP_G12	MAIN	H-Z	GPI	N_GPP_G12	N/A
GPP_G13	MAIN	H-Z	GPI	N_CPU_S1	N/A
GPP_G14	MAIN	H-Z	GPI	N_GT_S	N/A
GPP_G15	MAIN	H-Z	GPI	N_CPU_S	N/A
GPP_G18	MAIN	H-Z	GPI	N_GPP_G18	P/U 8.2K VCC3
GPP_G19	MAIN	H-Z	GPI	N_GPP_G19	P/U 8.2K VCC3
GPP_G20	MAIN	H-Z	GPI	N_GPP_G20	P/U 8.2K VCC3
GPP_G21	MAIN	H-Z	GPI	N_GPP_G21	P/U 8.2K VCC3
GPP_G22	MAIN	H-Z	GPI	N_GPP_G22	P/U 8.2K VCC3
GPP_H0	MAIN	H-Z	GPI	M2A_-CLKREQ	P/U 8.2K VCC3
GPP_H12	MAIN		GPO	N_GPP_H12	N/A
GPP_H19	MAIN	H-Z	GPI	N_GPP_H19	P/U 8.2K 3VDUAL
GPP_H20	MAIN	H-Z	GPI	N_GPP_H20	P/U 8.2K 3VDUAL
GPP_H21	MAIN	H-Z	GPI	N_GPP_H21	P/U 8.2K 3VDUAL
GPP_H22	MAIN	H-Z	GPI	N_GPP_H22	P/U 8.2K 3VDUAL
GPP_I0	MAIN	H-Z	GPI	N_HDMI_HDP_F	N/A
GPP_I1	MAIN	H-Z	GPI	N_DVI_HDP	P/U 1M VCC3
GPP_I2	MAIN	H-Z	GPI	N_VGA_HDP_F	N/A

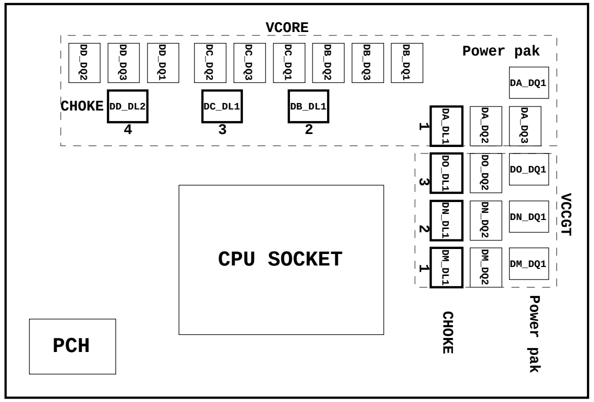
PIN NAME	PWR	AFTER/ PLTRST	Default	USAGE	NOTE
GPP_I3	MAIN	H-Z	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	H-Z	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	H-Z	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN		GPO	N_DDPB_CTRLDATA	P/U 2.2K VCC3
GPP_I7	MAIN	H-Z	GPI	N_DDPC_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN		GPO	N_DDPC_CTRLDATA	P/U 2.2K VCC3
GPP_I9	MAIN	H-Z	GPI	N_DDPD_CTRLCLK	P/U 2.2K VCC3
GPP_I10	MAIN		GPO	N_DDPD_CTRLDATA	P/U 2.2K VCC3
GPD0	STBY		BATLOW	N_-BATLOW	P/U 8.2K 3VDUAL_PCH
GPD1	STBY		ACPRESENT	N_GP_D1	P/U 8.2K 3VDUAL_PCH
GPD2	STBY		LAN_WAKE	N_-LAN_WAKE	P/U 8.2K 3VDUAL_PCH
GPD3	STBY		PWRBTN	O_PWRBTSW	P/U 8.2K 3VDUAL_PCH
GPD4	STBY		SLP_S3	N_-SLP_S3	N/A
GPD5	STBY		SLP_S4	N_-S4_S5	N/A
GPD6	STBY		SLP_A	N_-SLP_A	N/A
GPD8	STBY		SUSCLK	N_SUSCLK	P/D 1.5K GND
GPD10	STBY		SLP_S5	N_-SLP_S5	N/A
GPD11	STBY		LANPHYPC	N_-LAN_DIS	N/A

Super I/O ITE8686 GPIO Table

PIN NAME	USAGE	NOTE
PCIRST3#/GP10/VDIMM_STR_EN	N/A	
PCIRST2#/GP11	O_-PCIE_RST	
PCIRST1#/GP12	O_-PFMRST2	
SVC/PECI_RQT/GP14	N_-THRMTRIP	
SLP_SUS#/PCIRSTIN#/CIRTX2/GP15	-PCIRSTIN	
PSI_L/FAN_CLT5/CIRRX2/GP16	空 PIN	
RI2#/GP17	IO_GP17	
THR_PWM_CTS2#/GP20	空 PIN	
IO_SMI#DCD2#/GP21	空 PIN	
SPI_SI/GP22	-ICH_SPI_CS	
DPWROK/CPU_PG/GP23	N_PCH_DPWROK	
FAN_TAC5/RTS2#/GP24	空 PIN	
FAN_TAC4/DSR2#/GP25	FANIO4	
INV_OUT1_SOUT2/GP26	MB_ID2	
INV_IN1/SIN2/GP27	BEEP-	
ATXPG/GP30	PWOK	
CTS1/GP31	CTS1-	
OCWDT3/RI1#/GP32	RI1-	
OCWDT2/DCD1#/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSBSW#/GP40	空 PIN	
OCWDT1/SIN1/GP41	RXD1	
GP42/SCK/FAN_CTL4	FANPWM4	
PANSWH#/GP43	-PWRBTSW	
PWRON#/GP44	O_PWRBTSW	
OCWDT0/DSR1#/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/JP1	O_TPMCLK	
FAN_CTL2/GP51	FANPWM2	
FAN_TAC2/GP52	FANIO2	
SUSC#/GP53	N_-S4_S5	
PME#/GP54	N_-LPCPME	
RSMRST#/CIRRX1/GP55	O_-RSMRST	
MCLK/FAN_TAC6/GP56	MCLK	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST#/GP62	N_-KBRST	
HOLD_B#/GP63	-SPI_HOLD_B	
HOLD_B#/GP64	-SPI_HOLD_M	
VLDT_EN/PCH_D0/GP65	MB_ID2	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	N_-RTCRST	
USB_FS1/PD0/GP70	PD0	
USB_FS2/PD1/GP71	PD1	
USB_FS3/PD2/GP72	PD2	
USB_FS3/PD3/GP73	PD3	
USB_FS5/PD4/GP74	PD4	
USB_FS6/PD5/GP75	PD5	
USB_FS7/PD7/GP76	PD6	
USB_FS8/PD8/GP77	PD7	
LS-IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#/GP83	ACK-	
IPHONE_CHARGE#/SLIN#/GP84	SLIN-	
OC_IN/INIT#/GP85	INIT-	
OC_OUT/AFD#/GP86	AFD-	
USB_OC2/STB#/GP87	STB-	
DDR_EN/GP90	MA_EN	
PWRLED/GP91	MPD-	
HOLD_OUT/GP92	空 PIN	
HDLED_IN/GP93	IO_GP93	
PROCHOT#/GP94	-PROCHOT_CON	
CPUPWRGD/GP95	空 PIN	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	



PWM各相位的擺法如下:



BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCSA	CPU System Agent Voltage
VCCIO	CPU I/O Voltage
VCC1_0_PCH	PCH core
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Terminatio
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號:

Z270-HD3 :
12SP2-PTH17D-01R

12SP2-PT*表示組合料號(2合一或3合一料件)

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	VCC	FANIO1	IT8686
	FANC_VOUT	N/A	N/A	NCT3947
SYS FAN1	FANPWM2	VCC	FANIO2	IT8686
	FAN1_VOUT	N/A	N/A	NCT3947
SYS FAN2	FANPWM3	VCC	FANIO3	IT8686
	FAN2_VOUT	N/A	N/A	NCT3947
SYS_FAN3_PUMP	FANPWM4	VCC	FANIO4	IT8686
	FAN3_VOUT	N/A	N/A	NCT3947