Model Name: GA-Z270-GAMING K3

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 X4 SLOT(CPU)
18	PCI EXPRESS X16 SWITCH
19	PCI EXPRESS X4 SLOT(PCH)
20	M2P_32G & PCIEX4 SWITCH
21	PCI EXPRESS X1 SLOTs (SATA1/2 SWITCH)
22	SATA EXPRESS
23	M2M_32G
24	M2M_32G & STA4/5 SWITCH
25	M2P_32G
26	U2_32G
27	DUAL BIOS
28	ITE 8686 LPC IO
29	HMW
30	FAN CTRL--SIO
31	ISL95856 PWM
32	ISL95856 MOS_VCORE
33	ISL95856 MOS_VCCGT
34	VCCSA_VCCIO
35	RT8120_DDR

SHEET	TITLE
36	RT8120_VPP
37	RT8120_PCH
38	DISCRETE POWER
39	PCH PWR-VCC18_PCH (N/A)
40	CPU PWR-RT9018
41	USB_DAC POWER
42	NCT3933
43	ATX POWER , A_-PROCHOT
44	KB_MS_USB
45	OC BUTTON
46	F_USB30
47	F_USB20
48	R_USB30
49	DVI
50	HDMI
51	KILLER E2500
52	USB_LAN CONN
53	ASM2142
54	USB3.1 PortA
55	TI HDSS3212&TUSB321
56	Realtek ALC1220
57	Rear Audio Jack
58	AUDIO _ DEBUG LED
59	DDR _ PCIE LED
60	MODEL _ PCB LED
61	TPM, THB_C
62	F_PANEL
63	IDT6V41630_CLK BUFFER (Reserve)
64	EC ITE8793 (Reserve)
65	EMI/ESD
66	NTC MAP
67	POWER MAP
68	POWER零件使用表 TABLE LIST

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 1 of 63

Model Name: GA-Z270-GAMING K3

Component value change history

Data	Change Item	Reason
2016/10/07 PCB:1.0	1.PCB first release	

9.0

Circuit or PCB layout change

DATE	Change Item	Reason
2016/10/07 PCB:1.0	1.PCB first release	
	Spec Modify: 1. PCH HS 2. PCIEX4 from PCH 3. PCIEX4 SW with PCIEX1_2_3 4. Remove U.2 5. LED 6. OC Buttom 7. TypeC single chip solution 8. CLK buffer MASK	

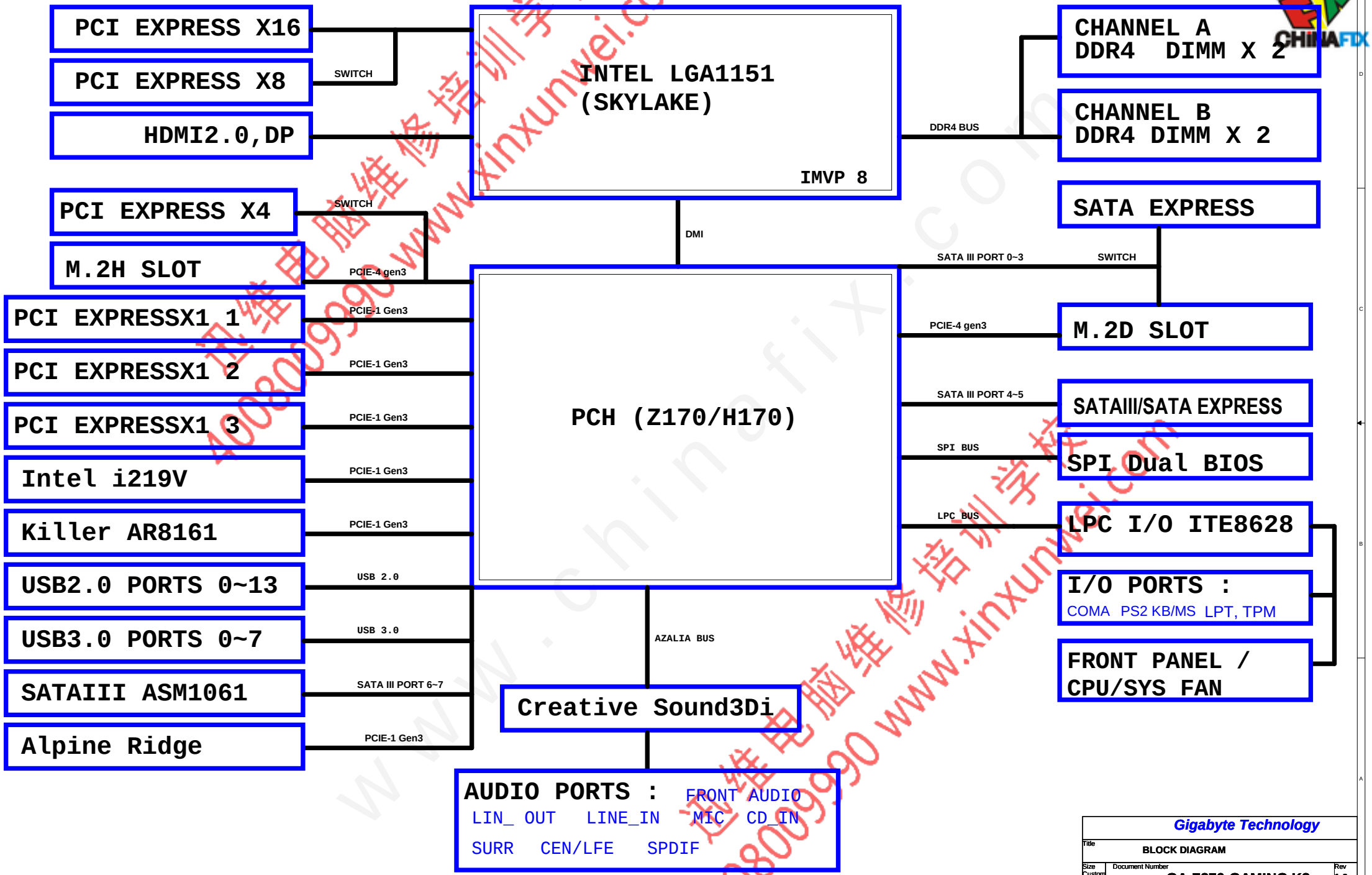
GIGABYTE™

Title: BOM & PCB MODIFY HISTORY

Size	Document Number	Rev
Custom	GA-Z270-GAMING K3	1.0

Date: Wednesday, October 12, 2016 Sheet 2 of 63

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 3 of 63	

檢查組態調整腳位
The CFG signals default value of '1'

* WR7 , WR1 , WR81 改 short pad

* 刪 net

* 刪 net

* 刪 net

* 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

CFG 5/6 for PCIE X8/X4

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

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

Gigabyte Technology

Title: CPU LGA1151-A

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 4 of 63

* 改DDR4 net

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]		AW18	M_DCLKA0	M_DCLKA0	8
MDA1	AE37	DDR0_DQ[1]		AV18	M_-DCLKA0	M_-DCLKA0	8
MDA2	AG38	DDR0_DQ[2]		AW17	M_DCLKA1	M_DCLKA1	8
MDA3	AG37	DDR0_DQ[3]		AY17	M_-DCLKA1	M_-DCLKA1	8
MDA4	AE39	DDR0_DQ[4]		AW16	M_DCLKA2	M_DCLKA2	8
MDA5	AE40	DDR0_DQ[5]		AV16	M_-DCLKA2	M_-DCLKA2	8
MDA6	AG39	DDR0_DQ[6]		AT16	M_DCLKA3	M_DCLKA3	8
MDA7	AG40	DDR0_DQ[7]		AU16	M_-DCLKA3	M_-DCLKA3	8
MDA8	AJ38	DDR0_DQ[8]					
MDA9	AJ37	DDR0_DQ[9]		AY24	CKEA0	CKEA0	8
MDA10	AL38	DDR0_DQ[10]		AW24	CKEA1	CKEA1	8
MDA11	AL37	DDR0_DQ[11]		AV24	CKEA2	CKEA2	8
MDA12	AJ40	DDR0_DQ[12]		AV25	CKEA3	CKEA3	8
MDA13	AJ39	DDR0_DQ[13]					
MDA14	AL39	DDR0_DQ[14]		AW12	M_CSA0	M_CSA0	8
MDA15	AL40	DDR0_DQ[15]		AU11	M_CSA1	M_CSA1	8
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]		AV13	M_CSA2	M_CSA2	8
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]		AV10	M_CSA3	M_CSA3	8
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]					
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]		AW11	MODT_A0		
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]		AU14	MODT_A1		
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]		AU12	MODT_A2		
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]		AY10	MODT_A3		
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]					
MDA24	AW37	DDR0_DQ[24]/DDR0_DQ[40]	DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]	AY13	SBAA0	SBAA0	8
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AV15	SBAA1	SBAA1	8
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]	AW23	BG_A0	BG_A0	8
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]					
MDA28	AU37	DDR0_DQ[28]/DDR0_DQ[44]	DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]	AW13	MAAA16		
MDA29	AV37	DDR0_DQ[29]/DDR0_DQ[45]	DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]	AV14	MAAA14		
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]	DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]	AY11	MAAA15		
MDA31	AU35	DDR0_DQ[31]/DDR0_DQ[47]					
MDA32	AY8	DDR0_DQ[32]/DDR1_DQ[0]	DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]	AW15	MAAA0		
MDA33	AW8	DDR0_DQ[33]/DDR1_DQ[1]	DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]	AU18	MAAA1		
MDA34	AV6	DDR0_DQ[34]/DDR1_DQ[2]	DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]	AU17	MAAA2		
MDA35	AU6	DDR0_DQ[35]/DDR1_DQ[3]	DDR0_MA[3]	AV19	MAAA3		
MDA36	AU8	DDR0_DQ[36]/DDR1_DQ[4]	DDR0_MA[4]	AT19	MAAA4		
MDA37	AV8	DDR0_DQ[37]/DDR1_DQ[5]	DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]	AU20	MAAA5		
MDA38	AW6	DDR0_DQ[38]/DDR1_DQ[6]	DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]	AV20	MAAA6		
MDA39	AY6	DDR0_DQ[39]/DDR1_DQ[7]	DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]	AU21	MAAA7		
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]	DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]	AT20	MAAA8		
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]	DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]	AT22	MAAA9		
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]	DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]	AY14	MAAA10		
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]	DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]	AU22	MAAA11		
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]	DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]	AV22	MAAA12		
MDA45	AW4	DDR0_DQ[45]/DDR1_DQ[13]	DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]	AV12	MAAA13		
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]	DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]	AV23	BG_A1	BG_A1	8
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	AU24		M_-ACT_A	8
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]					
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]	DDR0_PAR	AY15		M_DDR_PARA	8
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]	DDR0_ALERT#	AT23		M_-ALERT_A	8
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[35]					
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[36]					
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[37]	DDR0_DQSN[0]	AF39	M_-DQSA0		
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[38]	DDR0_DQSN[1]	AK39	M_-DQSA1		
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[39]	DDR0_DQSN[2]/DDR0_DQSN[4]	AP39	M_-DQSA2		
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[40]	DDR0_DQSN[3]/DDR0_DQSN[5]	AU36	M_-DQSA3		
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[41]	DDR0_DQSN[4]/DDR1_DQSN[0]	AW7	M_-DQSA4		
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[42]	DDR0_DQSN[5]/DDR1_DQSN[1]	AU3	M_-DQSA5		
MDA59	AH2	DDR0_DQ[59]/DDR1_DQ[43]	DDR0_DQSN[6]/DDR1_DQSN[4]	AN3	M_-DQSA6		
MDA60	AH4	DDR0_DQ[60]/DDR1_DQ[44]	DDR0_DQSN[7]/DDR1_DQSN[5]	AJ3	M_-DQSA7		
MDA61	AK2	DDR0_DQ[61]/DDR1_DQ[45]					
MDA62	AH3	DDR0_DQ[62]/DDR1_DQ[46]	DDR0_DQSP[0]	AF38	M_DQSA0		
MDA63	AK1	DDR0_DQ[63]/DDR1_DQ[47]	DDR0_DQSP[1]	AK38	M_DQSA1		
			DDR0_DQSP[2]/DDR0_DQSP[4]	AP38	M_DQSA2		
AU33			DDR0_DQSP[3]/DDR0_DQSP[5]	AV36	M_DQSA3		
AT33		DDR0_ECC[0]	DDR0_DQSP[4]/DDR1_DQSP[0]	AV7	M_DQSA4		
AW33		DDR0_ECC[1]	DDR0_DQSP[5]/DDR1_DQSP[1]	AU2	M_DQSA5		
AV31		DDR0_ECC[2]	DDR0_DQSP[6]/DDR1_DQSP[4]	AN2	M_DQSA6		
AU31		DDR0_ECC[3]	DDR0_DQSP[7]/DDR1_DQSP[5]	AJ2	M_DQSA7		
AV33		DDR0_ECC[4]					
AW31		DDR0_ECC[5]		AV32			
AY31		DDR0_ECC[6]	DDR0_DQSP[8]	AU32			
		DDR0_ECC[7]	DDR0_DQSN[8]				

DDR CHANNEL A

1 OF12

CPU-SK/1151/S/GF

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]		AM20	M_DCLKB0	M_DCLKB0	9
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]		AP22	M_-DCLKB0	M_-DCLKB0	9
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]		AP21	M_DCLKB1	M_DCLKB1	9
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]		AN20	M_-DCLKB1	M_-DCLKB1	9
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]		AN21	M_DCLKB2	M_DCLKB2	9
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]		AP19	M_-DCLKB2	M_-DCLKB2	9
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]		AP20	M_DCLKB3	M_DCLKB3	9
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]			M_-DCLKB3	M_-DCLKB3	9
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]					
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]		AY29	CKEB0	CKEB0	9
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]		AV29	CKEB1	CKEB1	9
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]		AW29	CKEB2	CKEB2	9
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]		AU29	CKEB3	CKEB3	9
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]					
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]		AP17	M_-CSB0	M_-CSB0	9
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]		AN15	M_-CSB1	M_-CSB1	9
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]		AN17	M_-CSB2	M_-CSB2	9
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]		AM15	M_-CSB3	M_-CSB3	9
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]					
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]		AM16	MODT_B0		
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]		AL16	MODT_B1		
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]		AP15	MODT_B2		
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]		AL15	MODT_B3		
MDB23	AP31	DDR1_DQ[23]/DDR0_DQ[55]					
MDB24	AL29	DDR1_DQ[24]/DDR0_DQ[56]	DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]	AN18	MAAB16		
MDB25	AM29	DDR1_DQ[25]/DDR0_DQ[57]	DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]	AL17	MAAB14		
MDB26	AP29	DDR1_DQ[26]/DDR0_DQ[58]	DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]	AP16	MAAB15		
MDB27	AR29	DDR1_DQ[27]/DDR0_DQ[59]					
MDB28	AM28	DDR1_DQ[28]/DDR0_DQ[60]	DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]	AL18	SBAB0	SBAB0	9
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AM18	SBAB1	SBAB1	9
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]	AW28	BG_B0	BG_B0	9
MDB31	AP28	DDR1_DQ[31]/DDR0_DQ[63]					
MDB32	AR12	DDR1_DQ[32]/DDR1_DQ[16]	DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]	AL19	MAAB0		
MDB33	AP12	DDR1_DQ[33]/DDR1_DQ[17]	DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]	AL22	MAAB1		
MDB34	AM13	DDR1_DQ[34]/DDR1_DQ[18]	DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]	AM22	MAAB2		
MDB35	AL13	DDR1_DQ[35]/DDR1_DQ[19]	DDR1_MA[3]	AM23	MAAB3		
MDB36	AR13	DDR1_DQ[36]/DDR1_DQ[20]	DDR1_MA[4]	AP23	MAAB4		
MDB37	AP13	DDR1_DQ[37]/DDR1_DQ[21]	DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]	AL23	MAAB5		
MDB38	AM12	DDR1_DQ[38]/DDR1_DQ[22]	DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]	AW26	MAAB6		
MDB39	AL12	DDR1_DQ[39]/DDR1_DQ[23]	DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]	AY26	MAAB7		
MDB40	AP10	DDR1_DQ[40]/DDR1_DQ[24]	DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]	AU26	MAAB8		
MDB41	AR10	DDR1_DQ[41]/DDR1_DQ[25]	DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]	AW27	MAAB9		
MDB42	AR7	DDR1_DQ[42]/DDR1_DQ[26]	DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]	AP18	MAAB10		
MDB43	AP7	DDR1_DQ[43]/DDR1_DQ[27]	DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]	AU27	MAAB11		
MDB44	AR9	DDR1_DQ[44]/DDR1_DQ[28]	DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]	AV27	MAAB12		
MDB45	AP9	DDR1_DQ[45]/DDR1_DQ[29]	DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]	AR15	MAAB13		
MDB46	AR6	DDR1_DQ[46]/DDR1_DQ[30]	DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]	AY28	BG_B1	BG_B1	9
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28		M_-ACT_B	9
MDB48	AM10	DDR1_DQ[48]					
MDB49	AL10	DDR1_DQ[49]	DDR1_PAR	AL20		M_DDR_PARB	9
MDB50	AM7	DDR1_DQ[50]	DDR1_ALERT#	AY25		M_-ALERT_B	9
MDB51	AL7	DDR1_DQ[51]					
MDB52	AM9	DDR1_DQ[52]					
MDB53	AL9	DDR1_DQ[53]	DDR1_DQSN[0]/DDR0_DQSN[2]	AF34	M_-DQSB0		
MDB54	AM6	DDR1_DQ[54]	DDR1_DQSN[1]/DDR0_DQSN[3]	AK33	M_-DQSB1		
MDB55	AL6	DDR1_DQ[55]	DDR1_DQSN[2]/DDR0_DQSN[6]	AN33	M_-DQSB2		
MDB56	AJ6	DDR1_DQ[56]	DDR1_DQSN[3]/DDR0_DQSN[7]	AN29	M_-DQSB3		
MDB57	AJ7	DDR1_DQ[57]	DDR1_DQSN[4]/DDR1_DQSN[2]	AN13	M_-DQSB4		
MDB58	AF6	DDR1_DQ[58]	DDR1_DQSN[5]/DDR1_DQSN[3]	AR8	M_-DQSB5		
MDB59	AF7	DDR1_DQ[59]	DDR1_DQSN[6]	AM8	M_-DQSB6		
MDB60	AH7	DDR1_DQ[60]	DDR1_DQSN[7]	AG6	M_-DQSB7		
MDB61	AH6	DDR1_DQ[61]					
MDB62	AF7	DDR1_DQ[62]	DDR1_DQSP[0]/DDR0_DQSP[2]	AF35	M_DQSB0		
MDB63	AF6	DDR1_DQ[63]	DDR1_DQSP[1]/DDR0_DQSP[3]	AL33	M_DQSB1		
			DDR1_DQSP[2]/DDR0_DQSP[6]	AP33	M_DQSB2		
AR25			DDR1_DQSP[3]/DDR0_DQSP[7]	AN28	M_DQSB3		
AR26		DDR1_ECC[0]	DDR1_DQSP[4]/DDR1_DQSP[2]	AN12	M_DQSB4		
AM25		DDR1_ECC[1]	DDR1_DQSP[5]/DDR1_DQSP[3]	AP8	M_DQSB5		
AM26		DDR1_ECC[2]	DDR1_DQSP[6]	AL8	M_DQSB6		
AP25		DDR1_ECC[3]	DDR1_DQSP[7]	AG7	M_DQSB7		
AP26		DDR1_ECC[4]					
AR25		DDR1_ECC[5]		AN25			
AL25		DDR1_ECC[6]	DDR1_DQSP[8]	AN26			
AL26		DDR1_ECC[7]	DDR1_DQSN[8]				

DDR CHANNEL B

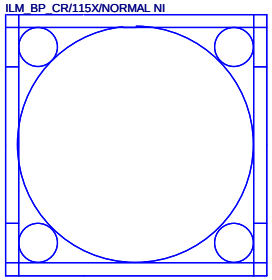
2 OF 12

CPU-SK/1151/S/GF

				AB40	VREF_CAB	VREF_CAB	8
			DDR_VREF_CA	AC40			
			DDR0_VREF_DQ	AC39	VREF_DQB	VREF_DQB	9
			DDR1_VREF_DQ				

LGA1151

ILM_BP_CR/115X/NORMAL NI



Need check the new CPU ME

USE Gold Flash for BOM

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-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 5 of 63

* 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

CPU POWER

* WR94 , WR85 , WR86 , WR60 , WR61 , WR62 , WR63 改 short pad

VCCST_VCCPLL
VCCSFUSEPRG

VCCSA
VCCST_VCCPLL
remove WR94

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

VCCGT_F35 F35
VCCGTX_G34 G34
VCCGTX_G35 G35
VCCGTX_H33 H33
VCCGTX_H34 H34
VCCGTX_J33 J33
VCCGTX_J35 J35
VCCGTX_K32 K32
VCCGTX_K34 K34
VCCGTX_L31 L31
VCCGTX_L33 L33
VCCGTX_M32 M32

WR59 0/4/X

VCCGT_SENSE F39
VSSGT_SENSE F38
VCCGTX_SENSE F37
VSSGTX_SENSE F36

VCCGT_SENSE_26
VSSGT_SENSE_26

13 N_PCH_CPU_N
13 A_CPU_PCH_TO
WR88 33/4 A_CPU_PCH_TO_R

10 OF 12

CPU-SK/1151/S/GF

VCCSA

LGA1151K SKT_H4 LGA1151

VDDQ

WBC50 1u/6/X7R/16V/K

CPU POWER

VCCIO

CPU POWER

VCCST_VCCPLL V5 VCCST_V5
VCCSFUSEPRG V6 VCCST_V6
VCCPLL V4 VCCPLL

VCCPLL_S AJ9 WR86 0/4/X VDDQ
VCCPLL_OC WR95 0/4/SHT/M/X VCCPLL_OC
VCCOPC_AJ30 AJ30 WR60 0/4/X
VCCOPC_AJ27 AJ27
VCCOPC_AJ28 AJ28
VCCOPC_AJ29 AJ29
VCCOPC_AK27 AK27
VCCEOPIO AJ25 WR61 0/4/X
VCCEOPIO AJ26
VCC_OPC_1P8_AB37 AB37 WR62 0/4/SHT/M/X
VCC_OPC_1P8_AB38 AB38 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

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

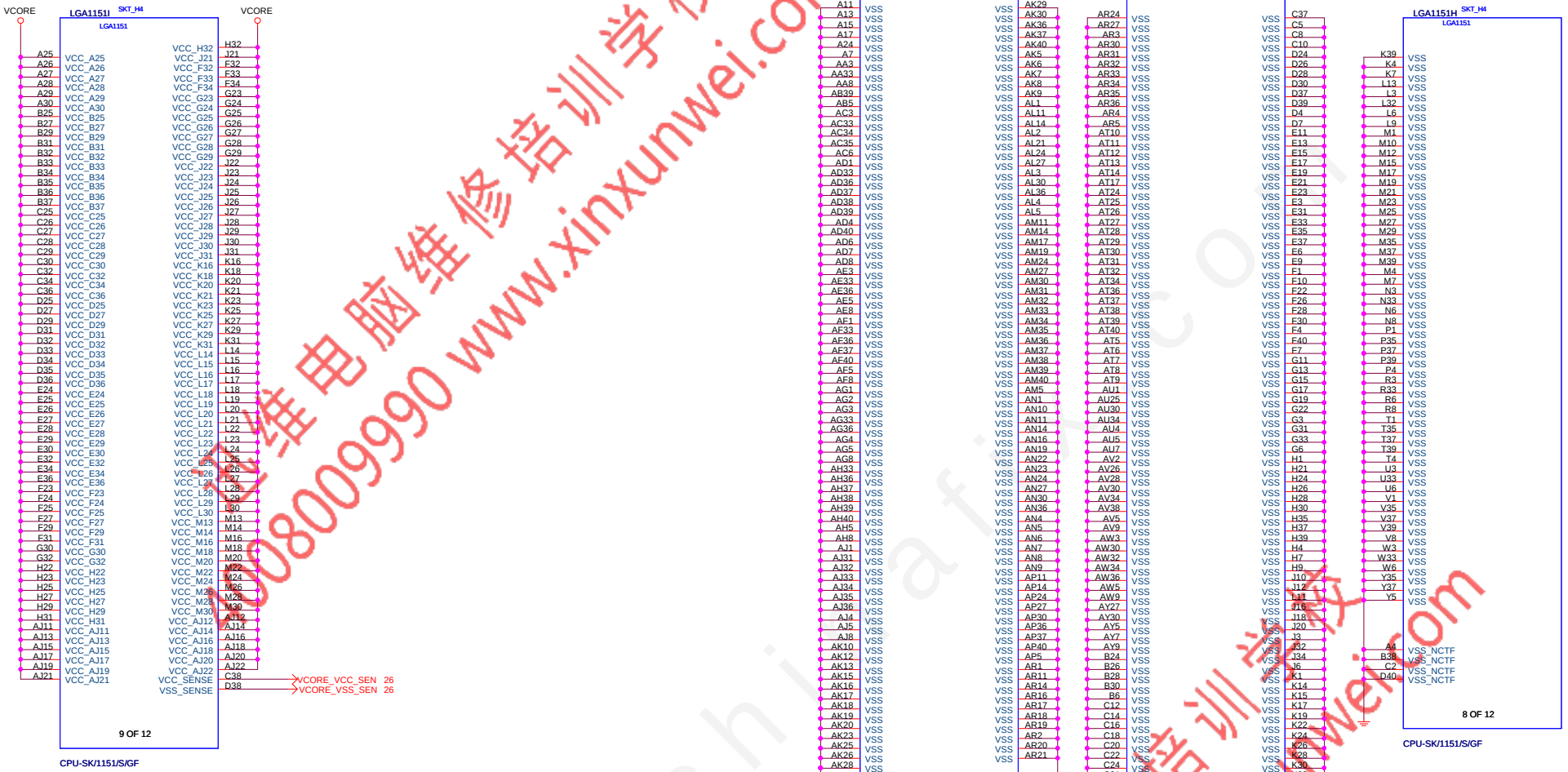
RSVD_TP_H11 H11
RSVD_TP_H12 H12
RSVD_TP_AW38 AW38
RSVD_TP_AV39 AV39
RSVD_AU39 AU39
RSVD_AU40 AU40
VSS_AT15 AT15
VSS_AR23 AR23
VSS_AR22 AR22
RSVD_J15 J15
RSVD_J14 J14
RSVD_AU9 AU9
RSVD_AU10 AU10
RSVD_J13 J13
RSVD_K13 K13
RSVD_J11 J11
RSVD_D15 D15
RSVD_K11 K11

WR89 560/4/1

12 OF 12

CPU-SK/1151/S/GF

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 6 of 63	



* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 7 of 63	

DDR12V Decouple

DDRVTT Decouple

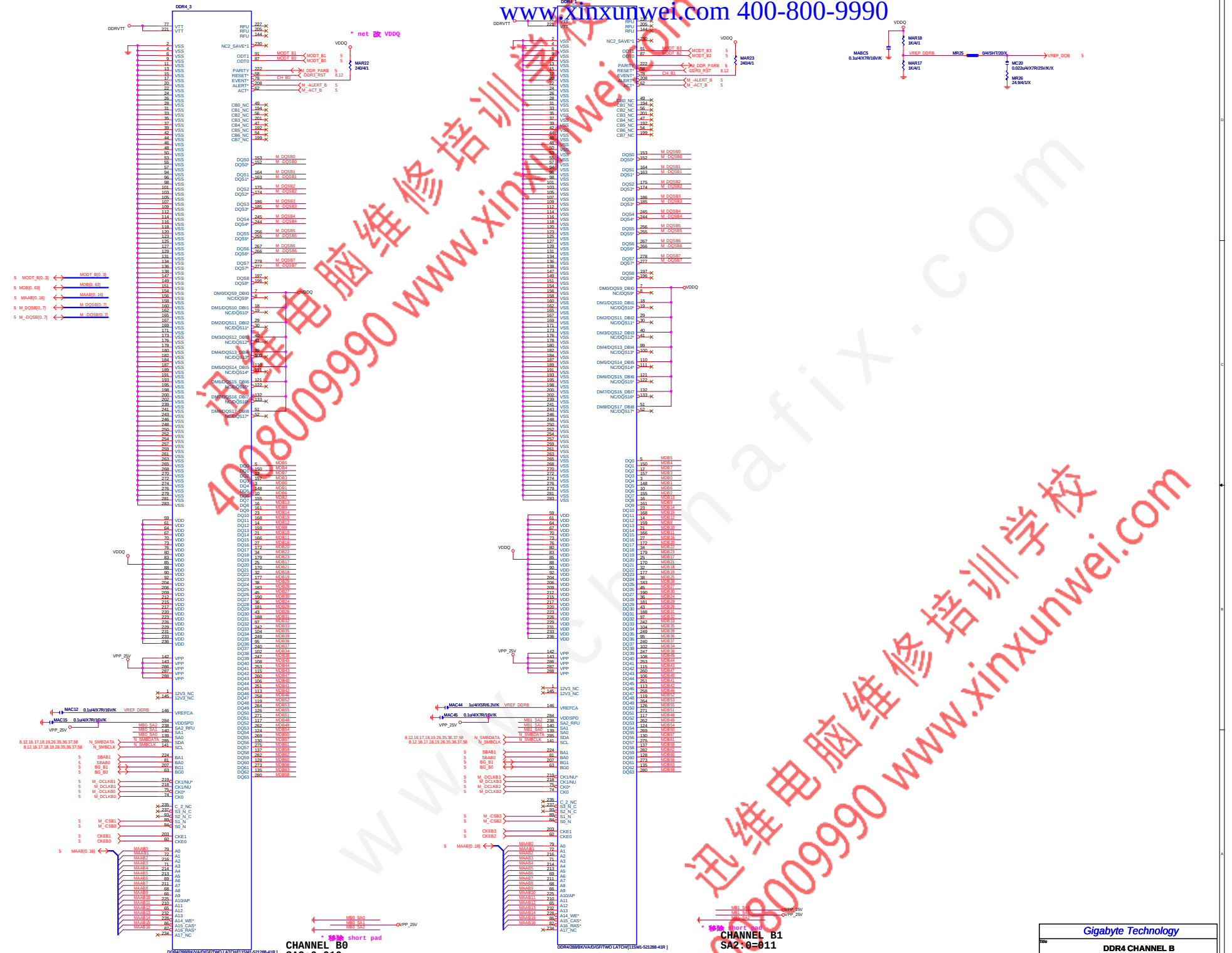
DDR4	Capture Value
SOC series	黑色 / 藍色 — DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	SMD 黑色 / 淺灰色 — DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 / 鮮紅 — DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
G1.Sniper	黑色 / 綠色 — DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GE/VA/D/G15/ONE LATCH/LONG

Gigabyte Technology

Title: DDR4 CHANNEL A

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: | Sheet 8 of 63

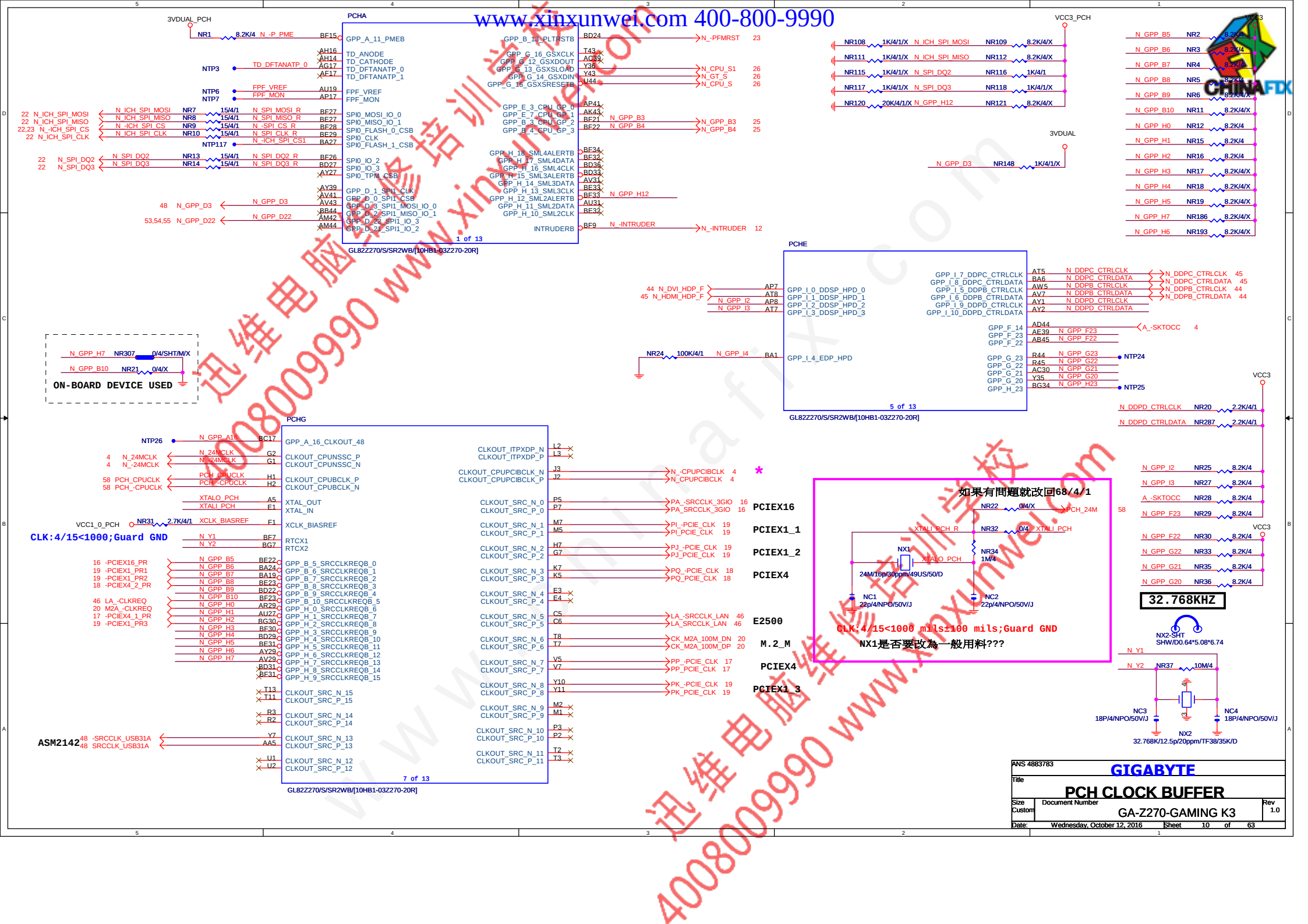


Gigabyte Technology

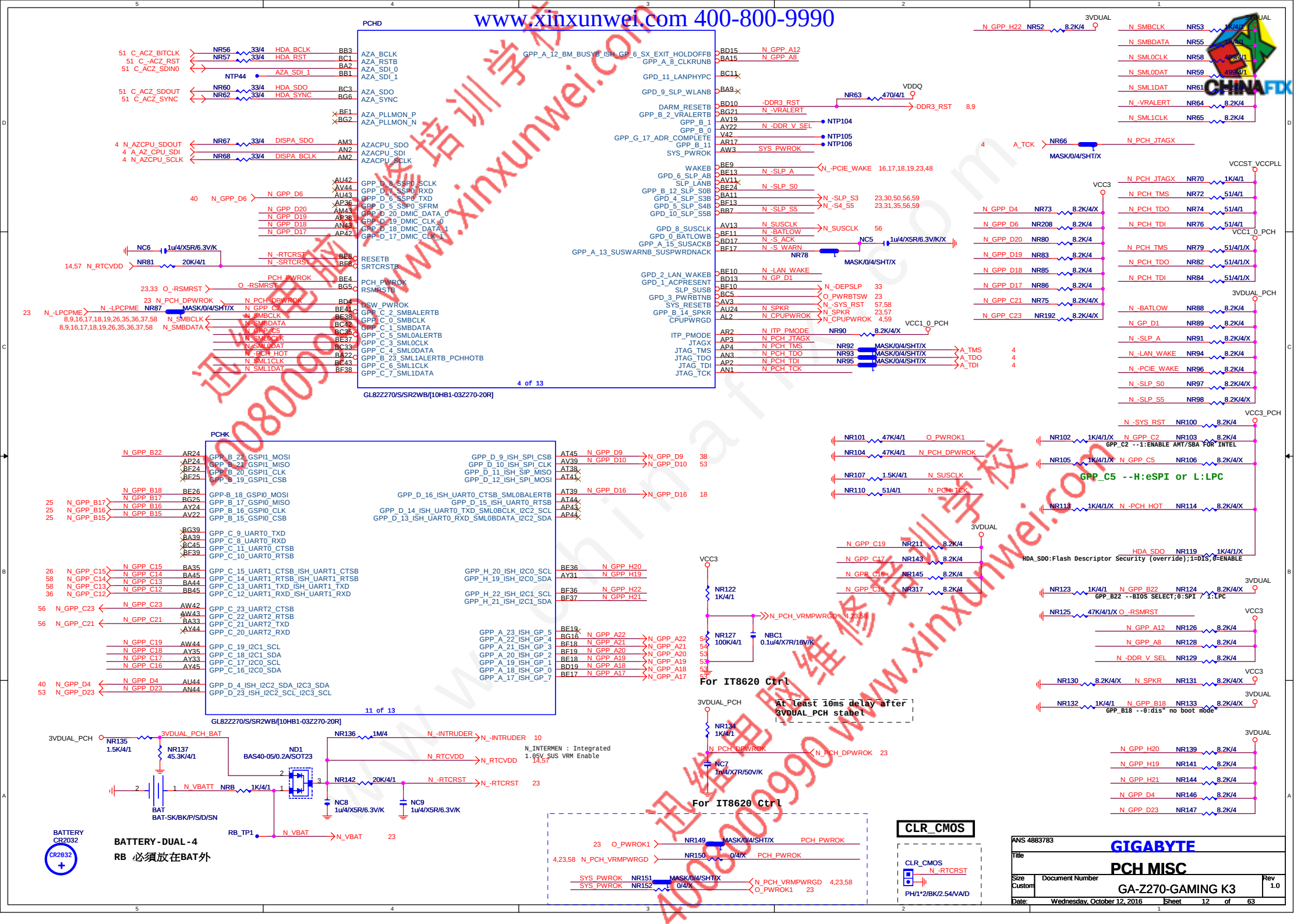
Title: DDR4 CHANNEL B

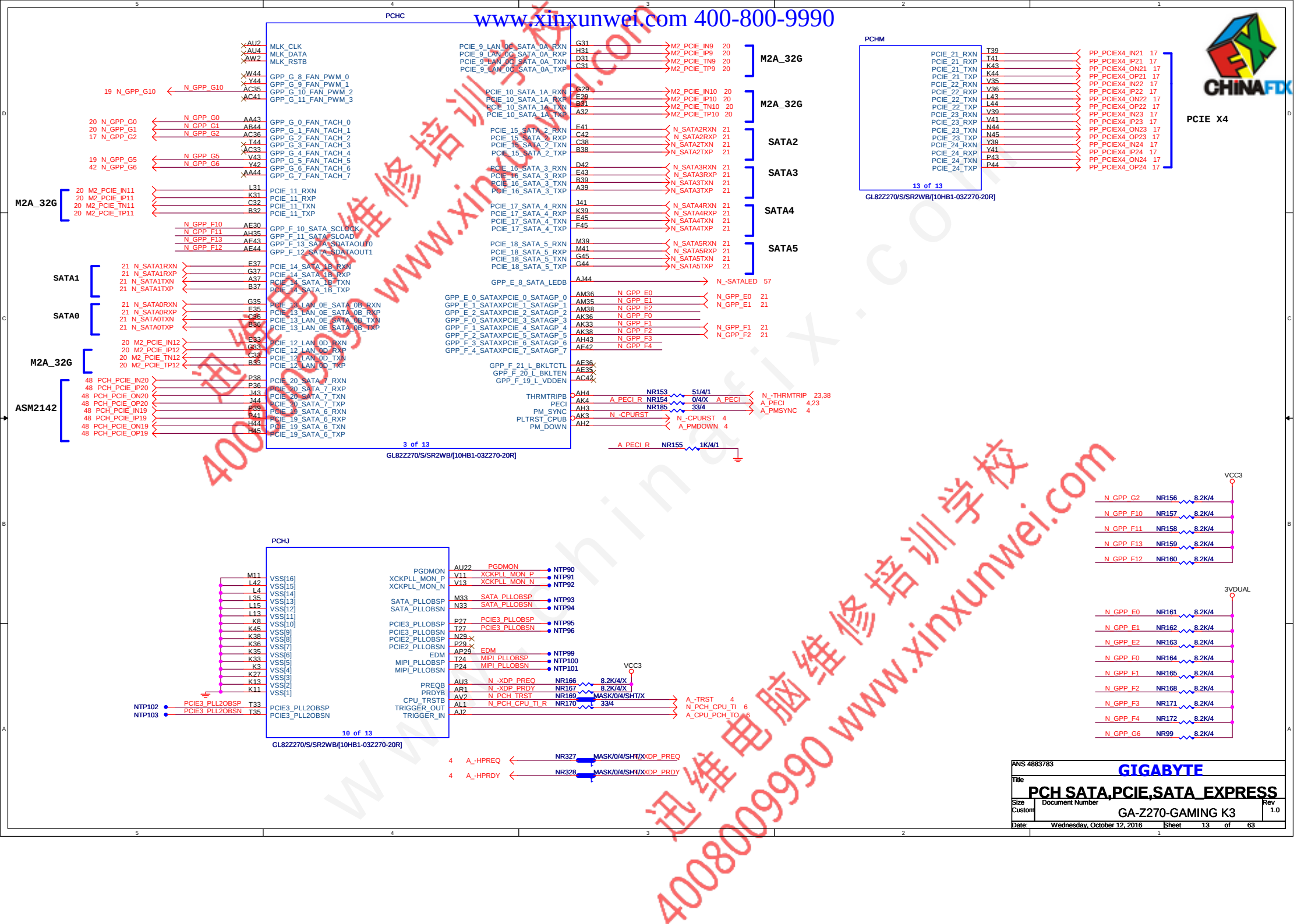
Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: | Sheet 9 of 63

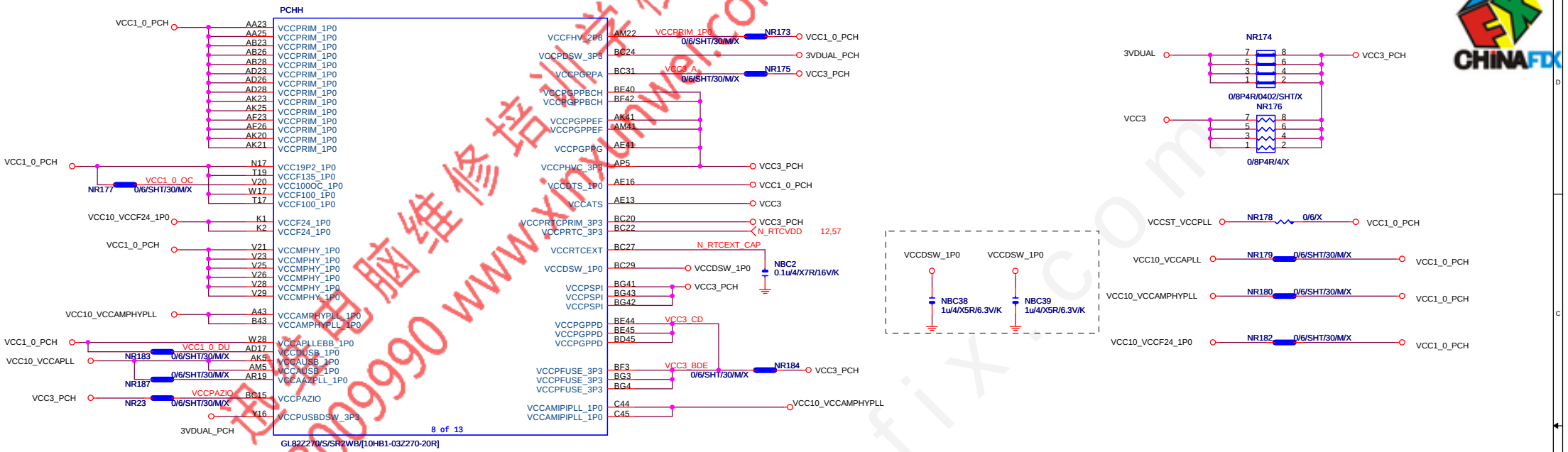


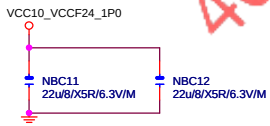
ANS 4883783	GIGABYTE
Title	PCH DMI,USB,PCIE
Size: Custom	Document Number: GA-Z270-GAMING K3
Rev	1.0
Date: Wednesday, October 12, 2016	Sheet 11 of 63

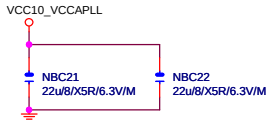


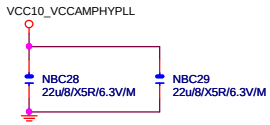


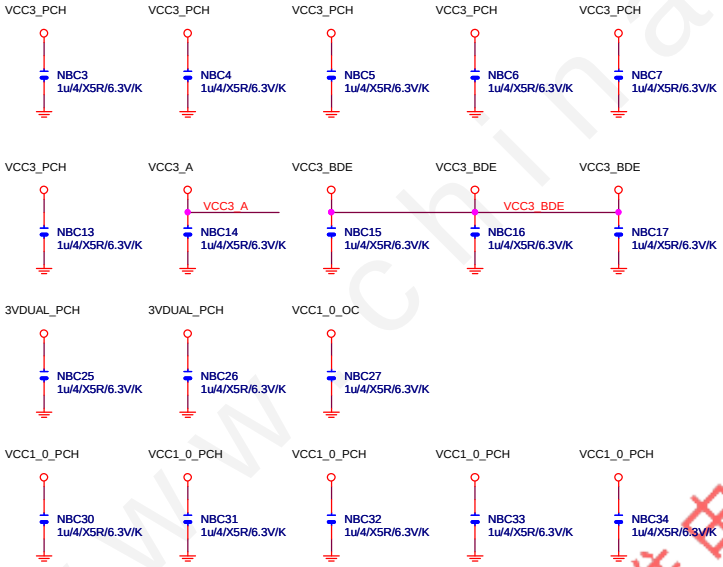
ANS	4883783
Title	PCH SATA,PCIE,SATA_EXPRESS
Size	Custom
Document Number	GA-Z270-GAMING K3
Rev	1.0
Date:	Wednesday, October 12, 2016
Sheet	13 of 63





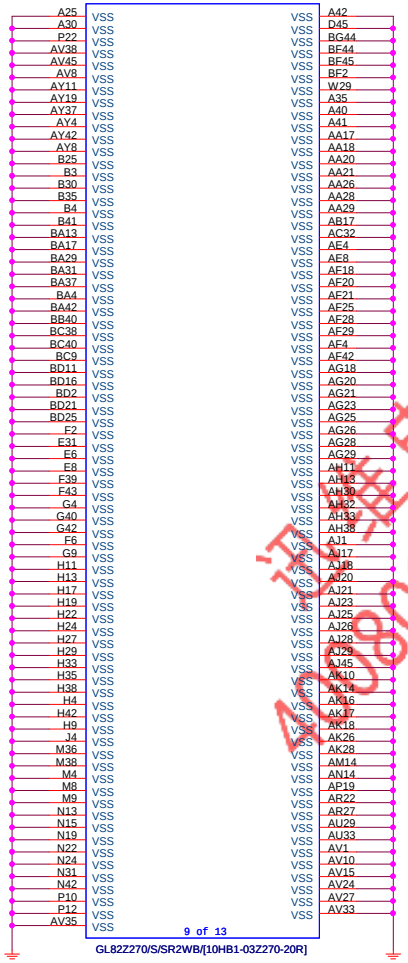




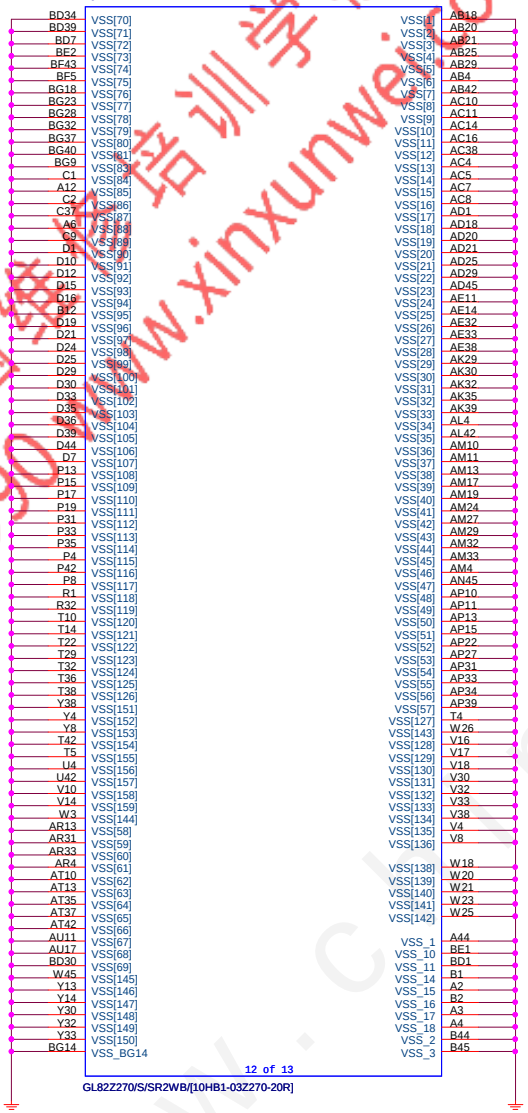


ANS 4883783	GIGABYTE	
Title	PCH PWR	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 14 of 63	

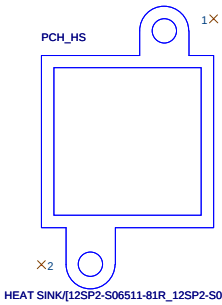
PCHI



PCHL



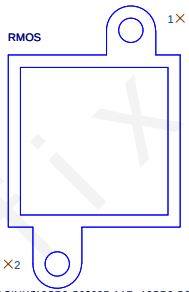
Heatsink



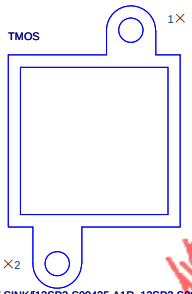
Footprint :
BGAHSINK-Z270-GAMING-K3

HEAT SINK/[12SP2-S06511-81R_12SP2-S06511-82R_12SP2-S06511-83R]

Rear IO remove (Ver. 1.0)



HEAT SINK/[12SP2-S08025-A1R_12SP2-S08025-A2R_12SP2-S08025-A3R]



Footprint :
MOSHSINK-SNIPERB8-R
MOSHSINK-SNIPERB8-T

HEAT SINK/[12SP2-S09425-A1R_12SP2-S09425-A2R_12SP2-S09425-A3R]

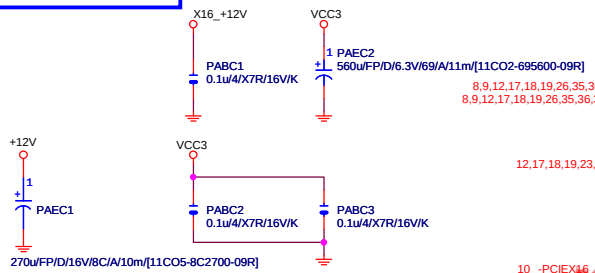
GIGABYTE

CHECK with Mechanical

ANS 4883783	GIGABYTE	
Title	PCH GND	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 15 of 63	

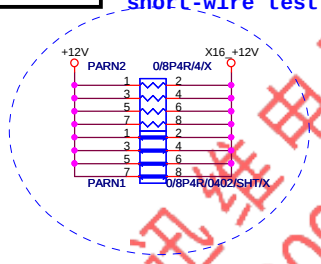
Rev 0.3

PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect
short-wire test



PCIEX16 AC CAP

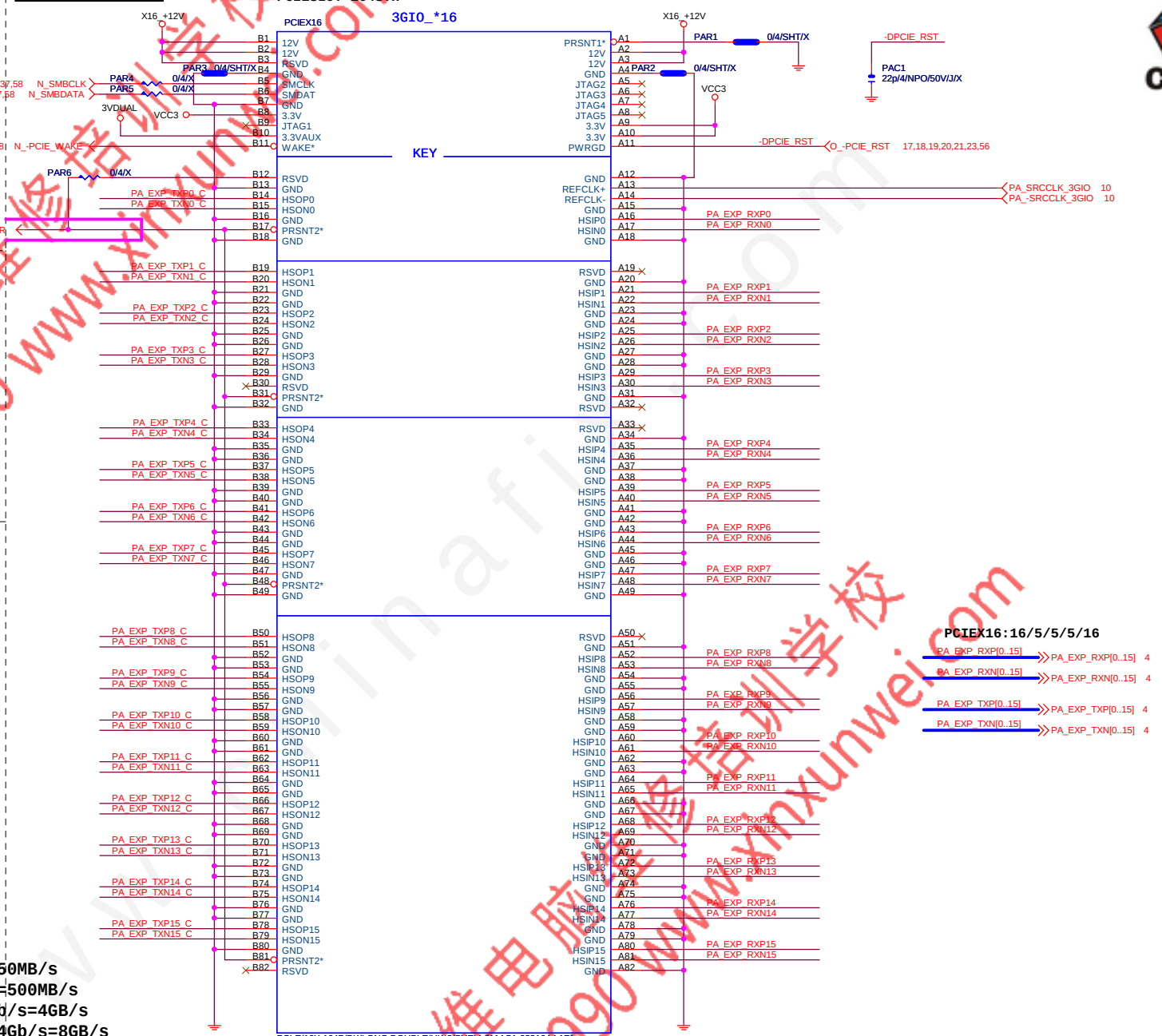
PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	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_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

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

PCIEX16 SLOT



黑色金屬加強

PCIEX16:16/5/5/5/16

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

Gigabyte Technology	
Title	PCI EXPRESS * 16
Size: Custom	Document Number: GA-Z270-GAMING K3
Rev	1.0
Date: Wednesday, October 12, 2016	Sheet 16 of 63

Rev 0.3

PCIESLOT-98STH

PCIEX4_1

3GIO_*4

KEY

+12V PEEC1 270u/FP/D/16V/8C/A/10m/[11CO5-8C2700-09R]

VCC3 PEEC2 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

+12V PEBC5 0.1u/4/X7R/16V/K

3VDUAL PEBC6 1u/4/X5R/6.3V/K

VCC3 PEBC7 0.1u/4/X7R/16V/K PEBC8 0.1u/4/X7R/16V/K/X

PCI-E/4X-66P/BK/LONG DOUBLE/[11AC1-023065-17R]

黑色預留金屬加強

Gigabyte Technology

Title: PCI EXPRESS X4

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 17 of 63

Footprint "PCIESLOT-64STH-1"

PCIE*4

★Update 2016.06.02

PCIEX4_2

3GIO_*4

KEY

Pull-up from PCH

黑色預留金屬加強

PCI-E/4X-66P/BK/LONG DOUBLE/[11AC1-023065-17R]

Gigabyte Technology

Title: PCIE_X4

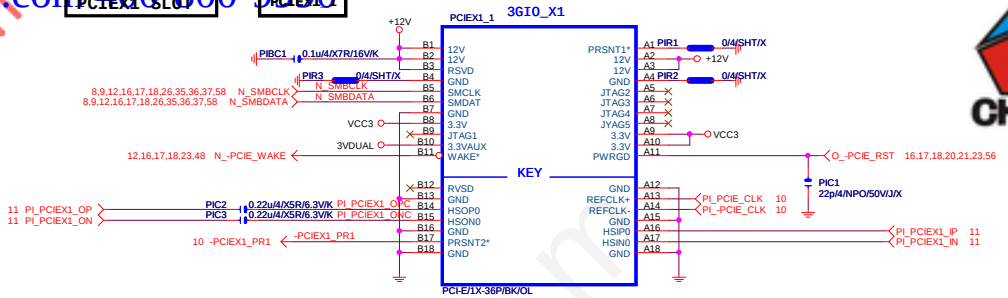
Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 18 of 63

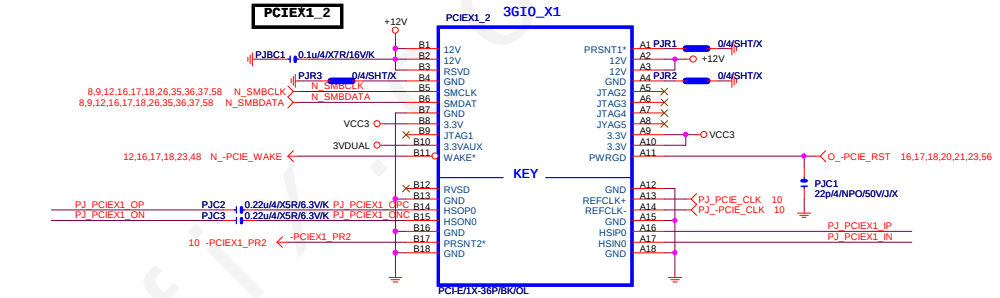
Rev 0.3

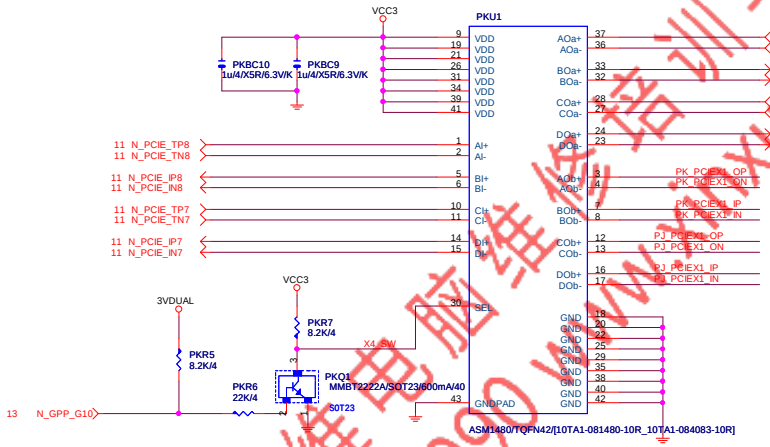
PCIEX1 SLOT

PCIEX1_1

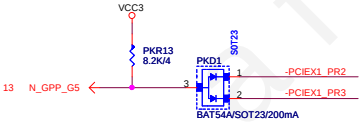


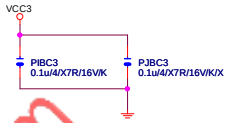
PCIEX1_2



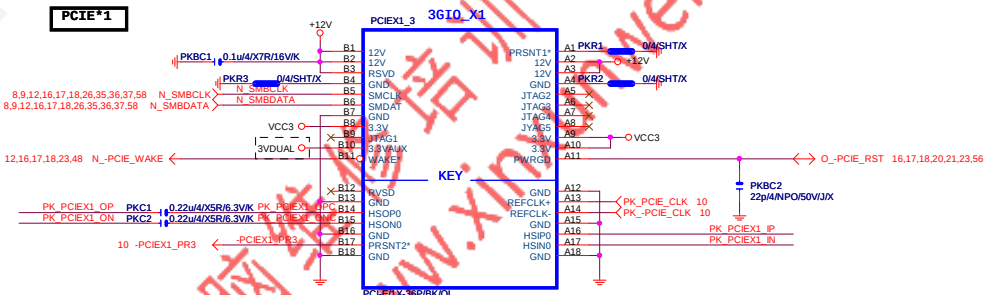


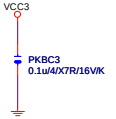
Function	SEL
xI--> xOa	L;PCIEX4 SLOT-->X1
xI--> xOb	H;PCIEX4 SLOT-->X4





PCIE*1





	N_GPP_G3 (PCH_GPP_G3)	PCIEX4_X1 (SIO_GPIO27)
PCIEX4 -> X4 M2_WIFI -> N/A PCIEX1 --> N/A (Default)	H	H
PCIEX4 -> X1 M2_WIFI -> X1 PCIEX1 --> X1	L	L

Gigabyte Technology

Title: PCIE_X1 1,2,3

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 19 of 63

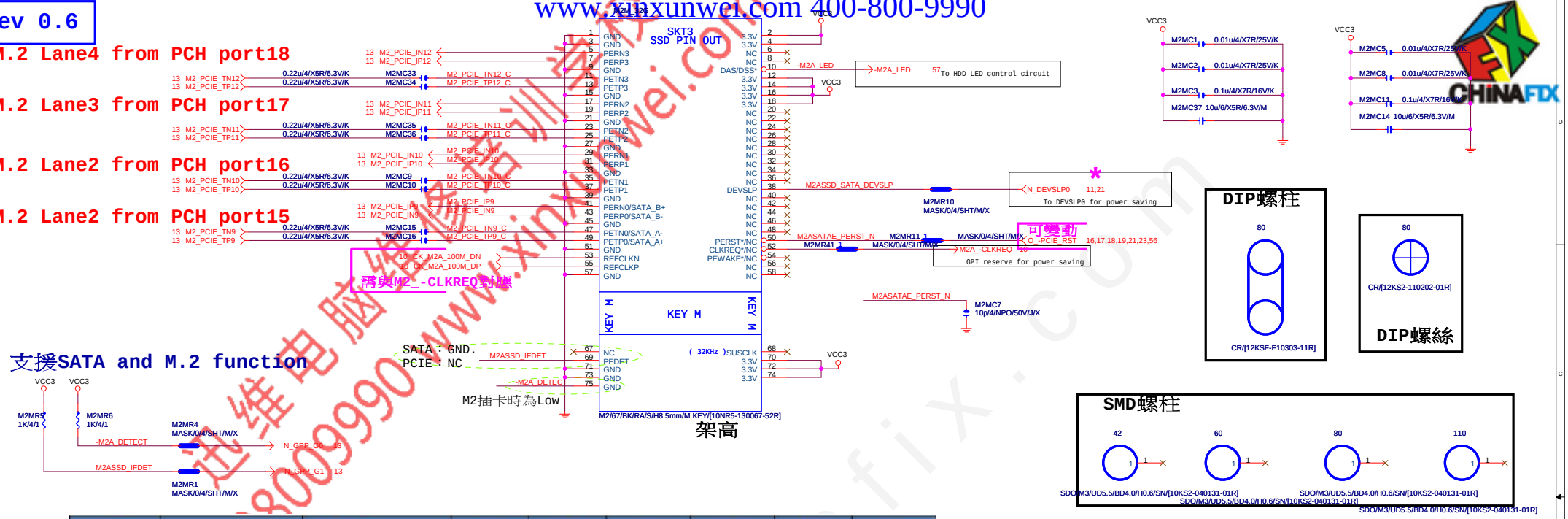
Rev 0.6

M.2 Lane4 from PCH port18

M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

M.2 Lane2 from PCH port15



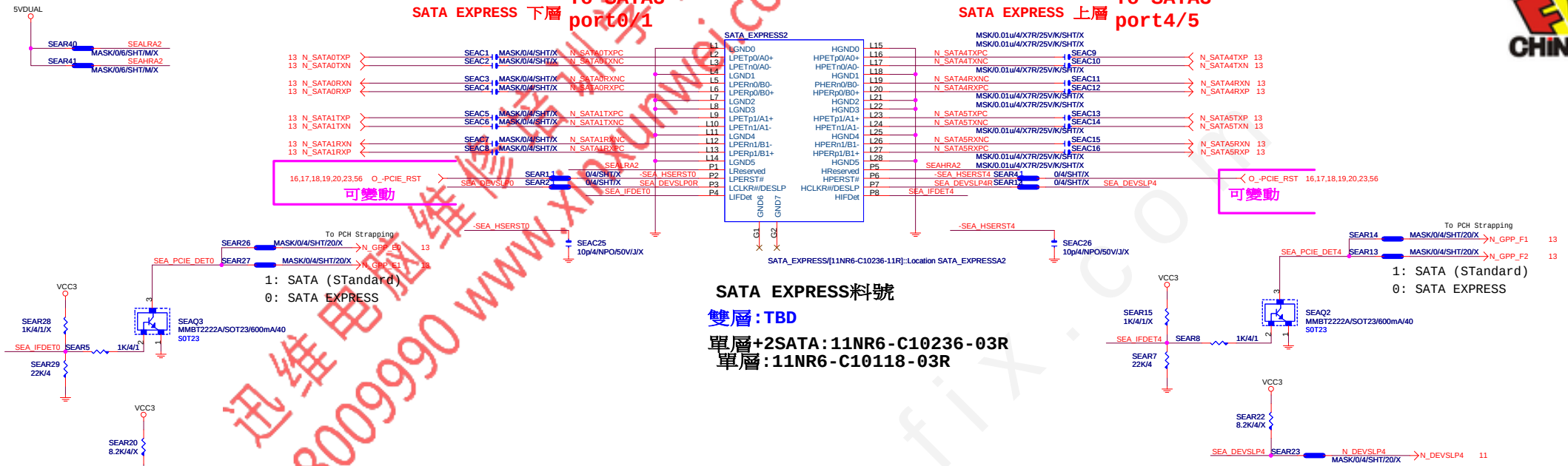
M.2 有插卡/沒插卡 GPP_G0	M.2插何種卡？ GPP_G1	SATA Express 插何種硬碟？ GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IP20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)	PCIE 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	

Gigabyte Technology			
Title: M.2 X4			
Size: Custom	Document Number: GA-Z270-GAMING K3		Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 20 of 63		

Rev 0.5

SATA EXPRESS 下層 To SATA3 port0/1

SATA EXPRESS 上層 To SATA3 port4/5

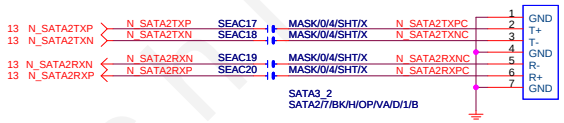


SATA EXPRESS料號

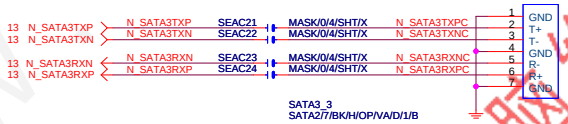
雙層:TBD

單層+2SATA:11NR6-C10236-03R

單層:11NR6-C10118-03R



BLACK CONNECTOR



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)

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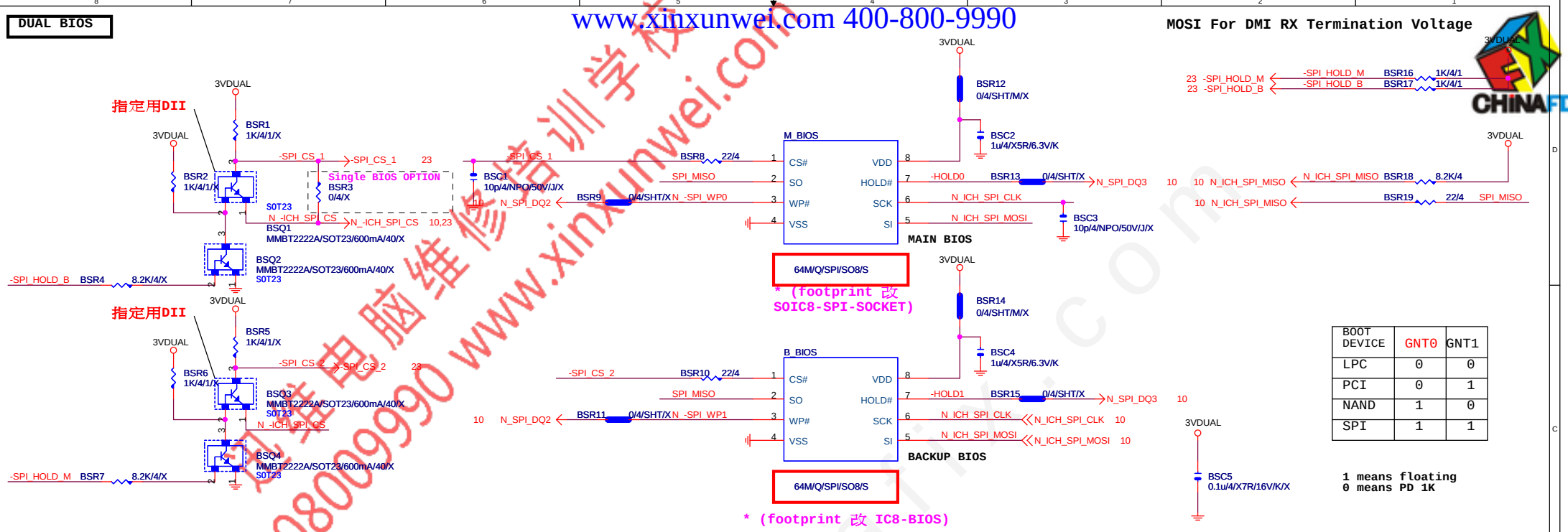
Title: SATA EXPRESS

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 21 of 63

DUAL BIOS



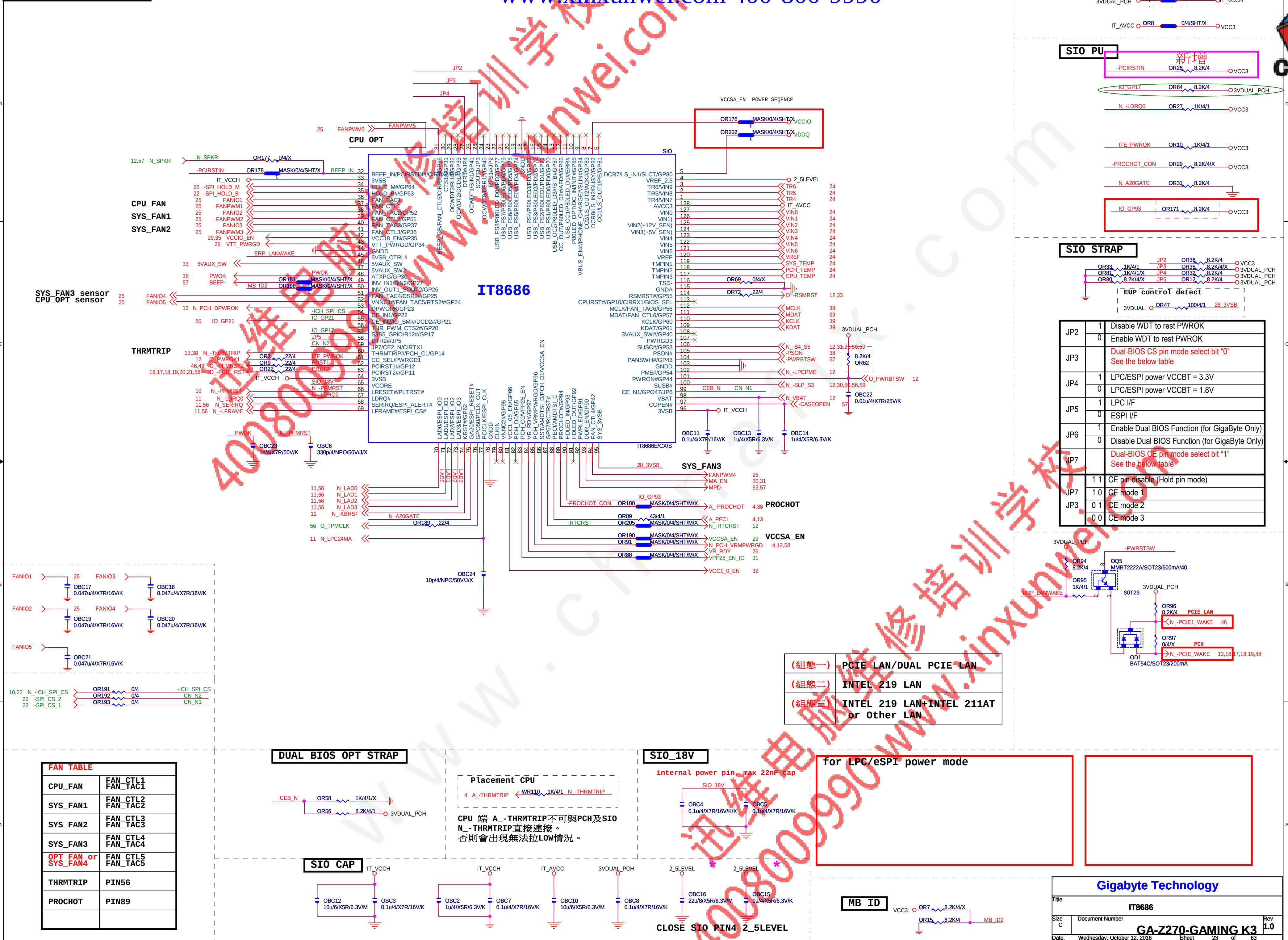
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

* 試產先上 ， PVT 移除

Gigabyte Technology		
Title: BIOS		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 22 of 63	

SIO IT8686 REV:0.1



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
JP7 JP3	1 1	CE pin disable (Hold pin mode)
	1 0	CE mode 1
	0 1	CE mode 2
	0 0	CE mode 3

(組態一)	PCIE LAN/DUAL PCIE LAN
(組態二)	INTEL 219 LAN
(組態三)	INTEL 219 LAN+INTEL 211AT or Other LAN

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

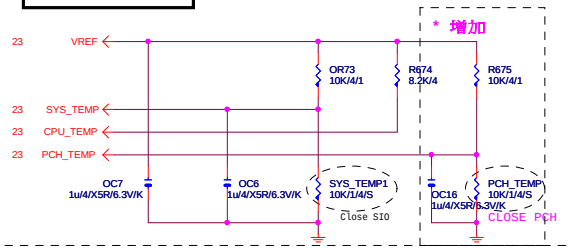
CPU 端 A_-THRMTRIP不可與PCH及SIO N_-THRMTRIP直接連接。
否則會出現無法拉LOW情況。

for LPC/eSPI power mode

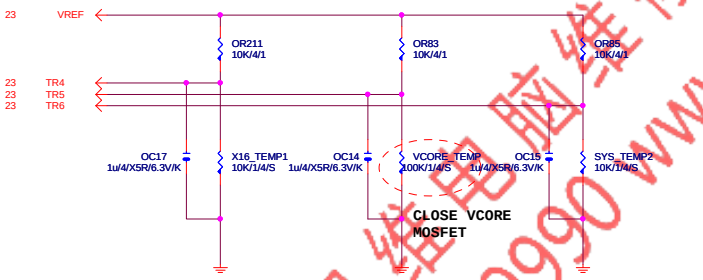
Gigabyte Technology

Title	IT8686	
Size C	Document Number GA-Z270-GAMING K3	Rev 1.0
Date: Wednesday, October 12, 2016	Sheet 23 of 63	

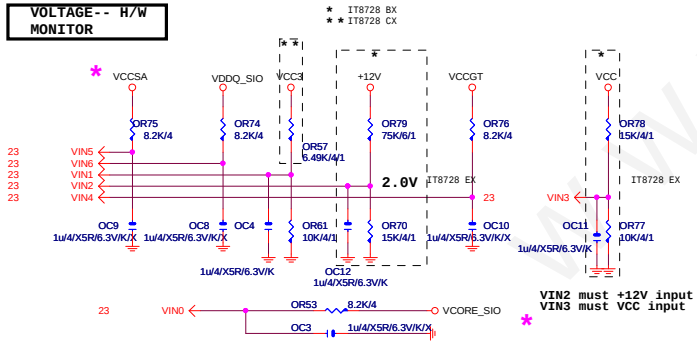
TEMP H/W MONITOR



5個FAN時使用



VOLTAGE-- H/W MONITOR



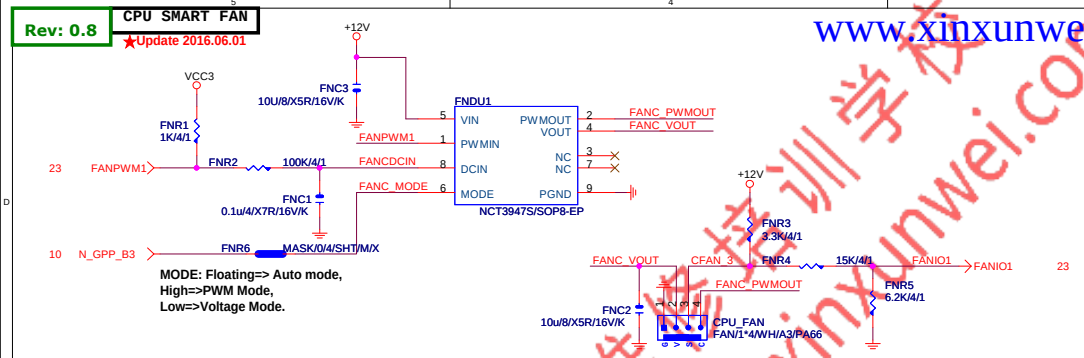
★Update 2015-04.24

Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 24 of 63	

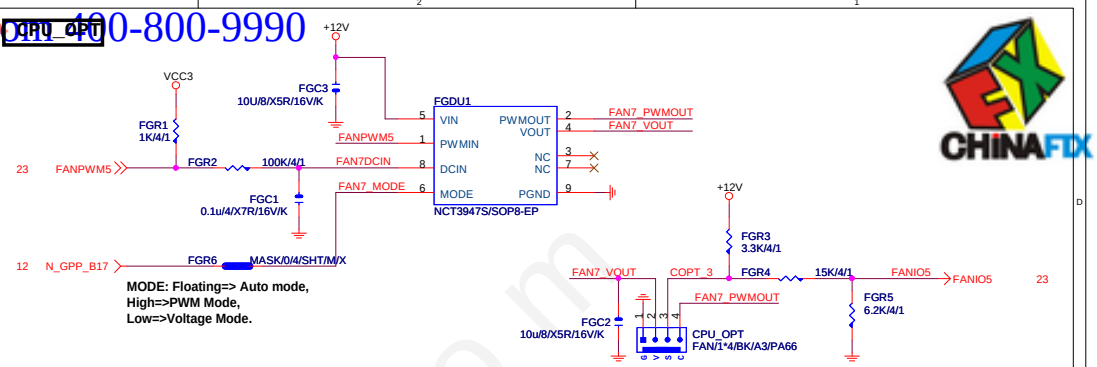
Rev: 0.8

CPU_SMART_FAN

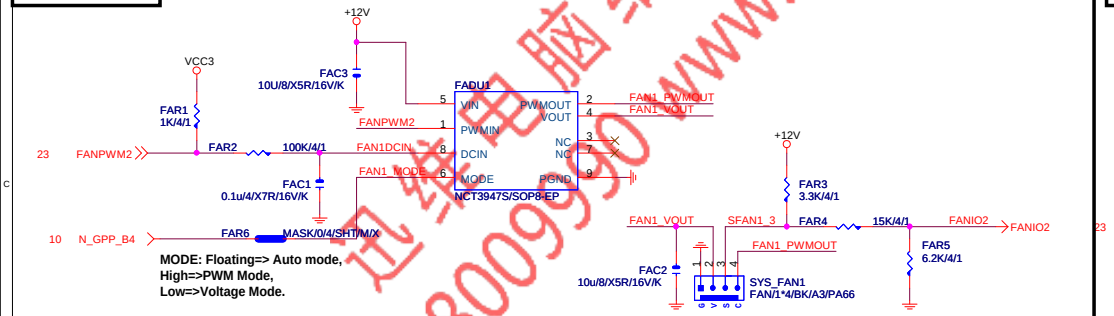
★Update 2016.06.01



CPU_OPT

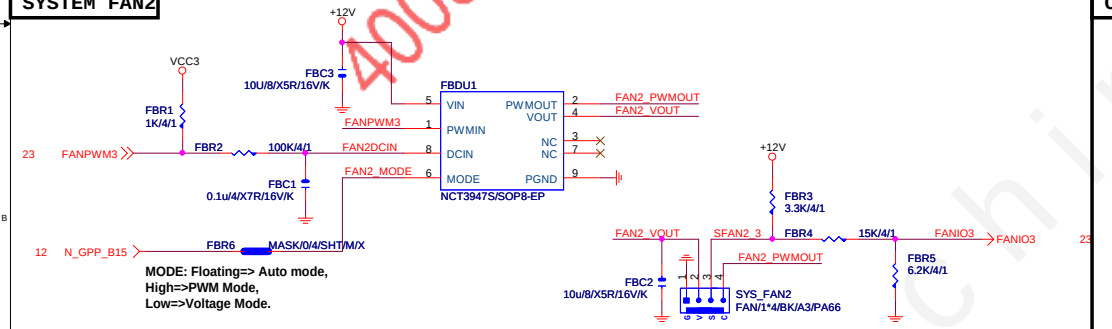


SYSTEM_FAN1



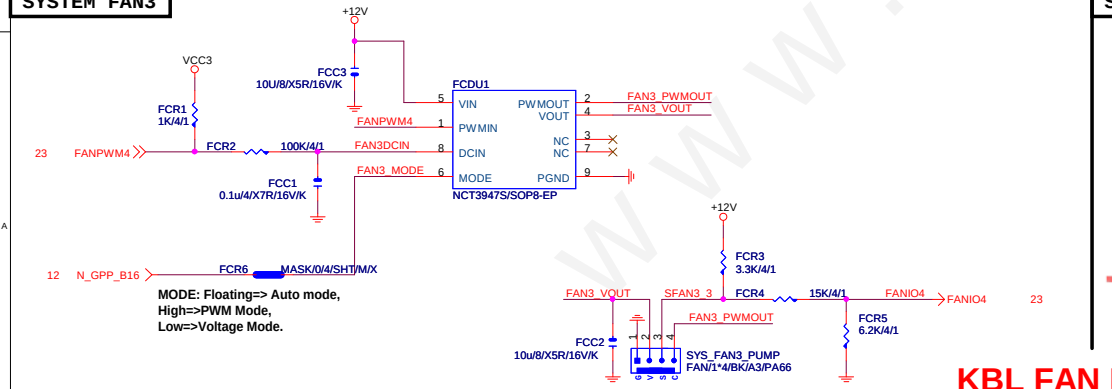
CPU_PUMP1

SYSTEM_FAN2

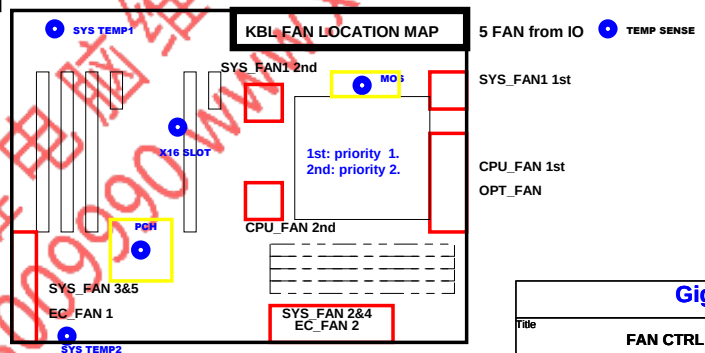


CPU_PUMP2

SYSTEM_FAN3



SYSTEM_FAN4



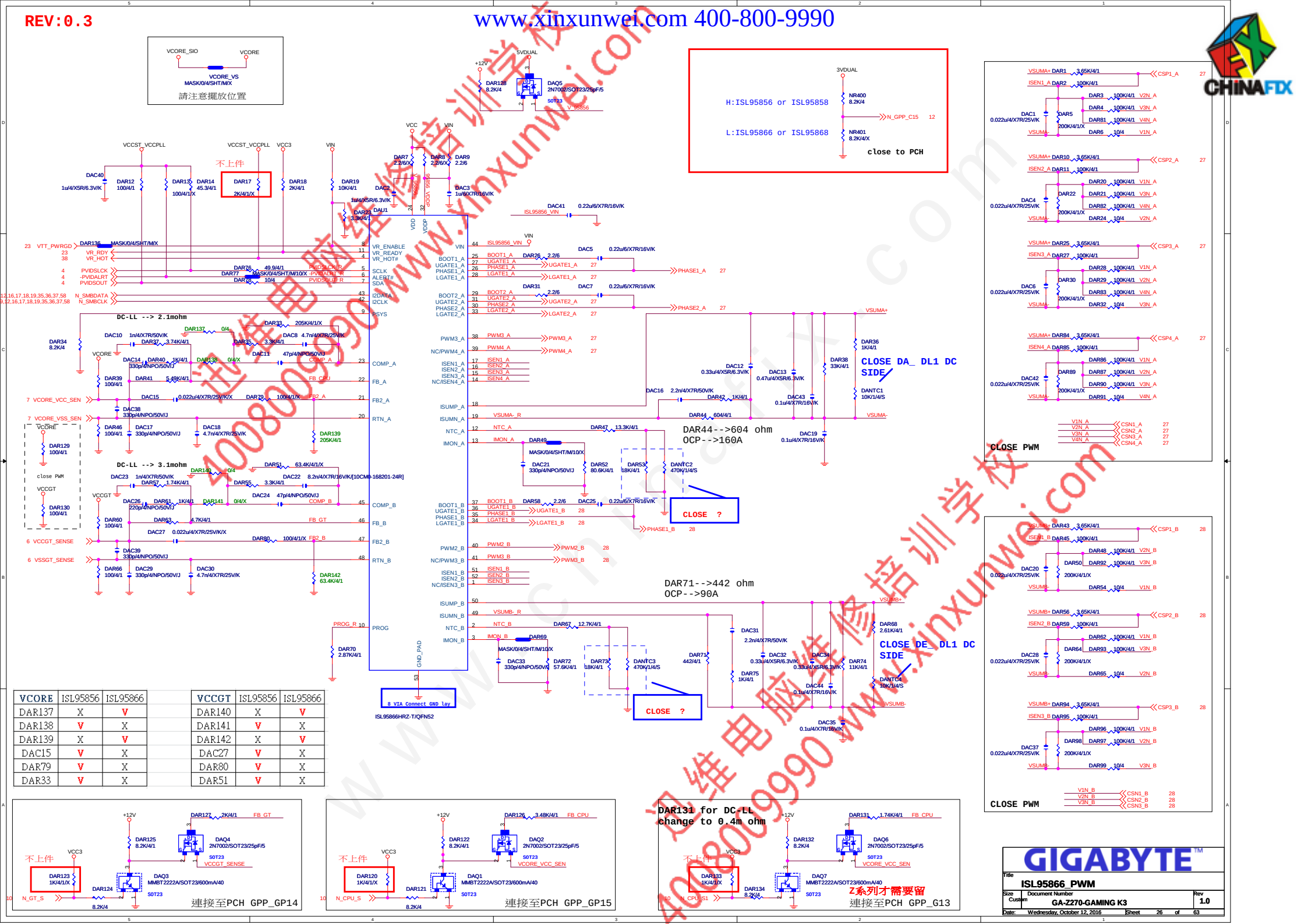
KBL FAN LOCATION MAP REFER TO PAGE.27

Gigabyte Technology

Title: FAN CTRL

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 25 of 63



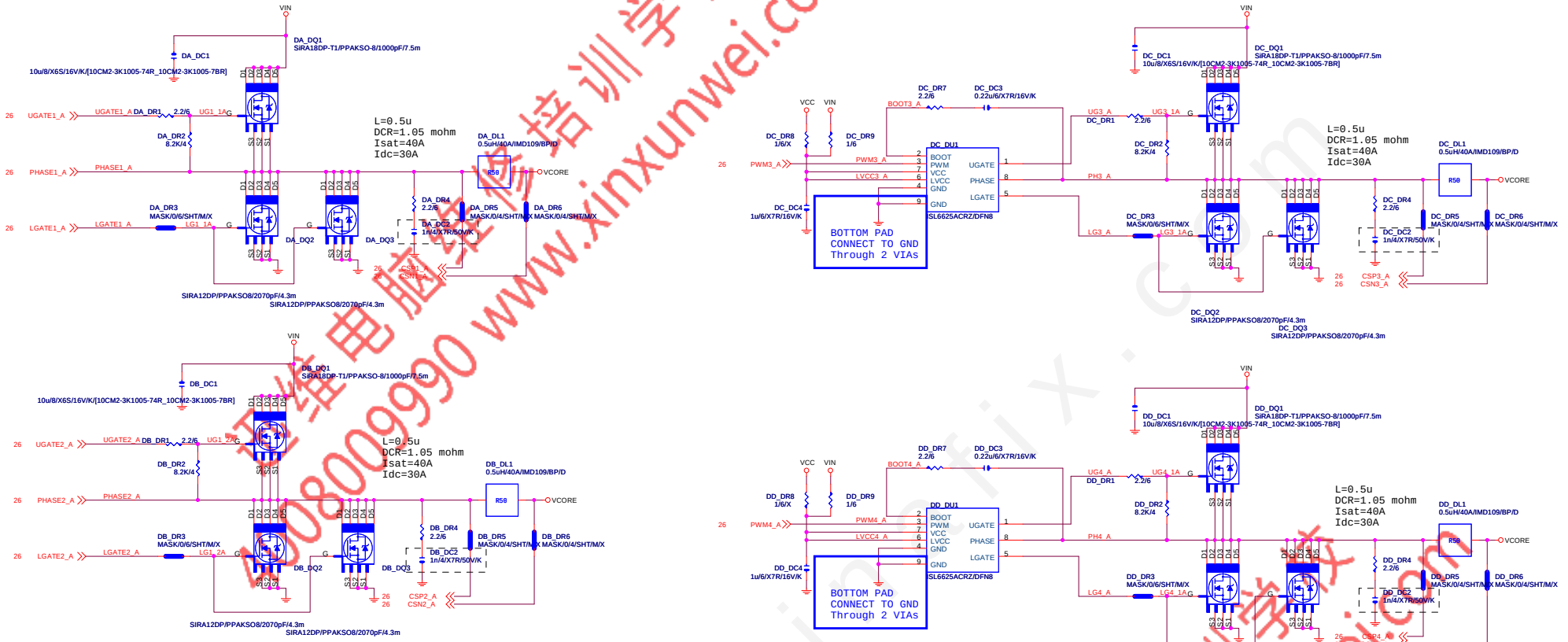
VCORE	ISL95856	ISL95866
DAR137	X	V
DAR138	V	X
DAR139	X	V
DAC15	V	X
DAR79	V	X
DAR33	V	X

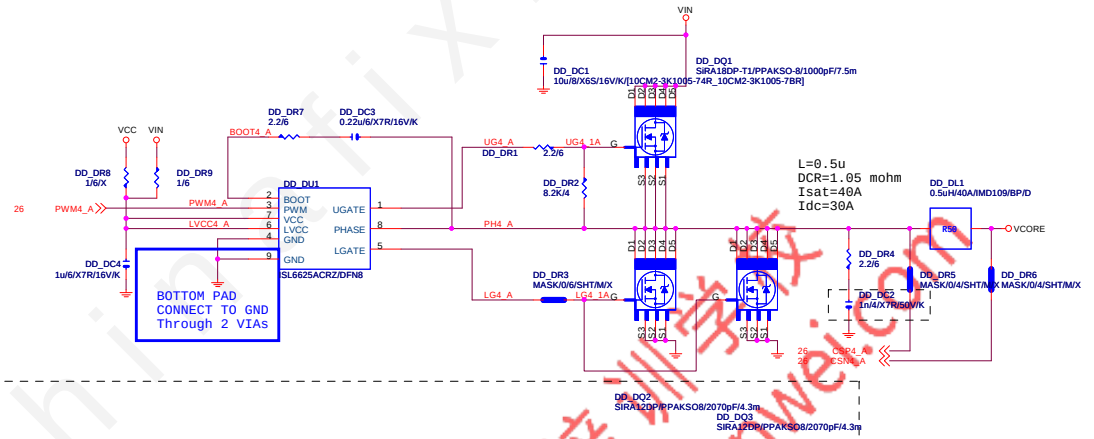
VCCGT	ISL95856	ISL95866
DAR140	X	V
DAR141	V	X
DAR142	X	V
DAC27	V	X
DAR80	V	X
DAR51	V	X

Title	ISL95866_PWM
Size / Custom	Document Number: GA-Z270-GAMING K3
Rev	1.0
Date:	Wednesday, October 12, 2016
Sheet	26 of 63

REV:0.3

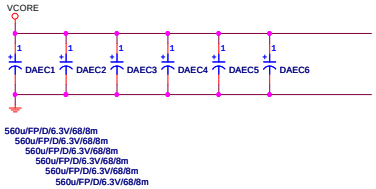
VCORE

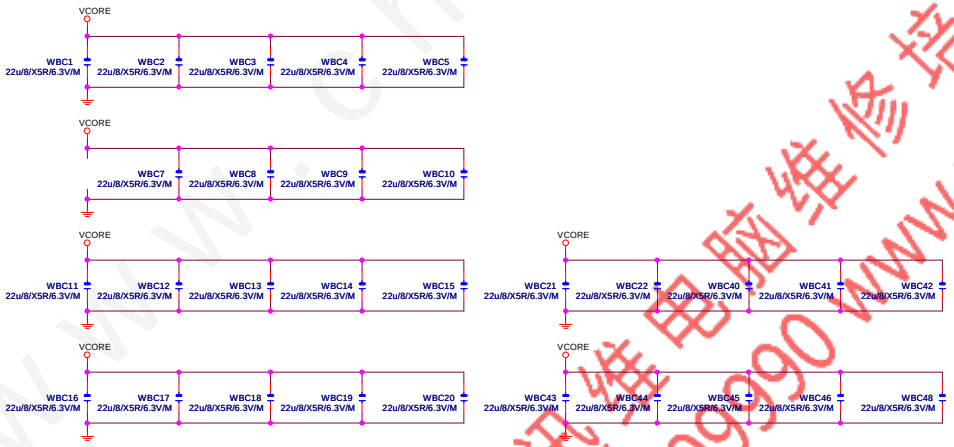




VCORE CAP

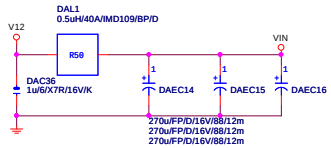
560u*8PCS
22u*29PCS





VIN CAP

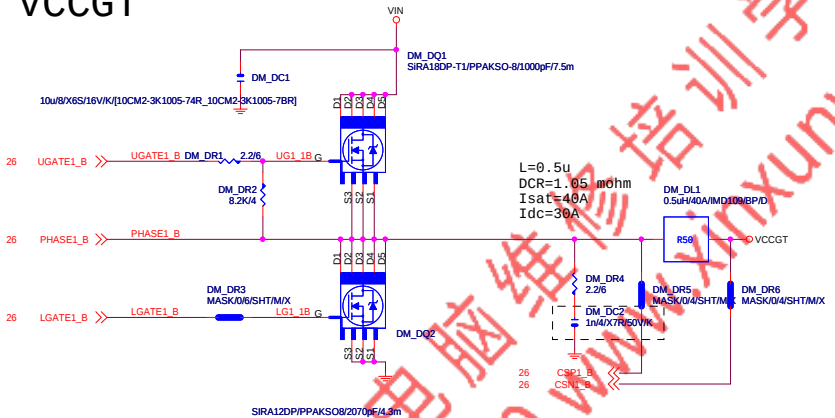
270u*3PCS

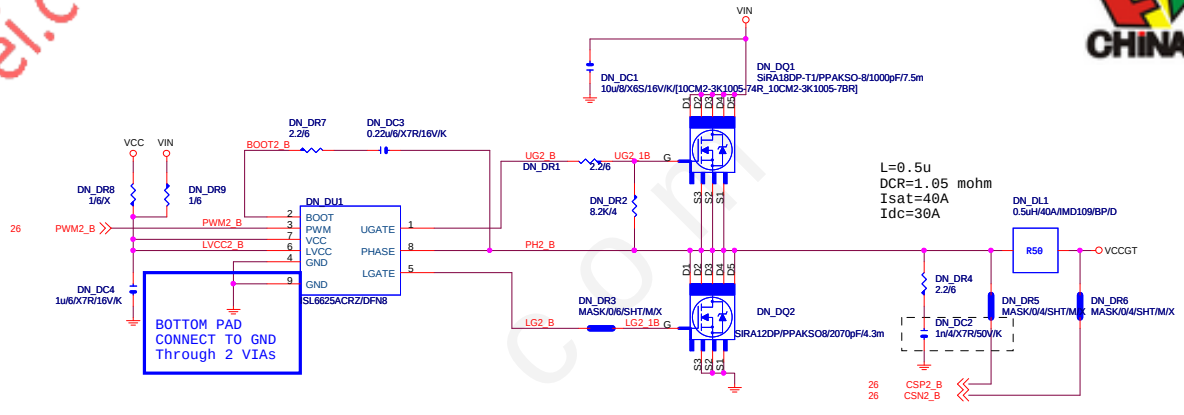


GIGABYTE

Title	ISL95866_MOS	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 27 of 63	

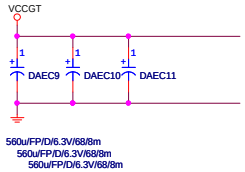
VCCGT

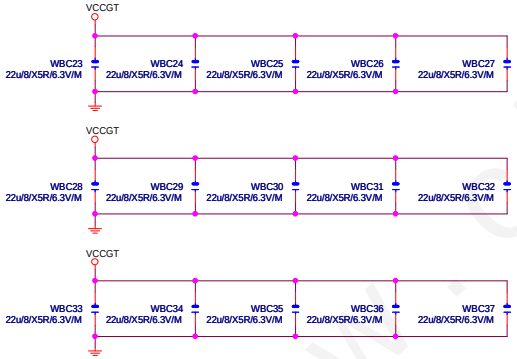


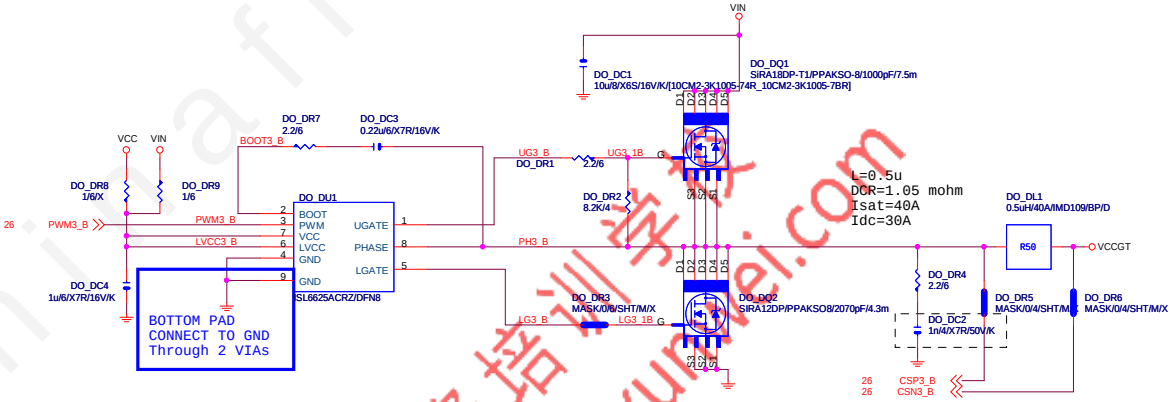


VCCGT CAP

560u*5PCS
22u*15PCS







Title	ISL95866_MOS	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 28 of 63	

VCCIO

REV:0.21

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

CHOKE與CAP料號可變

注意耐壓

6*6

DCL1 1.0uH/15A/S/6.7m

VCC3

VCC

DCR11 2.2/6

DRV_VIO

DCC11 1u/6/X7R/16V/K

DCC10 0.1u/6/X7R/25V/K

DCC36 0.1u/4/X7R/16V/K

DCC37 0.1u/4/X7R/16V/K

DCC8 0.1u/4/X7R/16V/K Close Choke

DCC9 1u/6/X7R/16V/K Close MOS

VCCIO_VIN

DCC24 22u/8/X5R/6.3V/M

DCC25 22u/8/X5R/6.3V/M

DCC26 22u/8/X5R/6.3V/M

DCQ5 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

UGATE_VIO

DCR12 2.2/6

PHASE_VIO

LGATE_VIO

DCR13 8.2K/4

DCQ6 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

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

L=0.5u
DCR=1.7 mohm
Isat=25A
Idc=18A

DCL2 1.0uH/15A/S/6.7m

6*6

VCCIO

DCR15 2.2/6

DCC14 1n/4/X7R/50V/K

DCR16 487/4/1

DCR17 1K/4/1

DCEC2 560u/FP/D/6.3V/68/C/8m/[11CO2-C85600-03R]

DCC38 22u/8/X5R/6.3V/M

DCC15 3.3n/4/X7R/50V/K

RS

RO

DCR20 5.23K/4/1

Remote sense請從最重的負載端點拉回

0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V

VCCIO_OV

37 VCCIO_OV

RT8120DGS/SOP8

DCU1

COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC

VCCIO_EN_1

DCR14 8.2K/4/1

DCC12 22p/4/NPO/50V/J

DCC13 3.3n/4/X7R/50V/K

DCR19 MASK/0/4/SHT/X

DCR18 34K/4/1

放靠近IC pin4

5VDUAL

DCR21 8.2K/4

DCQ7 2N7002/SOT23/25pF/5

SOT23

DCR22 8.2K/4/X

DCQ8 2N7002/SOT23/25pF/5

23,37

VCCIO_EN

DCR35

MASK/0/4/SHT/X

DCR23 100K/4/1

DCC16 1u/6/X7R/16V/K

Connect to IT8686

VCCGT

WBC38 22u/8/X5R/6.3V/M

WBC39 22u/8/X5R/6.3V/M

放CPU端.

VCCSA

DC_SBC1 1u/4/X5R/6.3V/K

DC_SBC2 1u/4/X5R/6.3V/K

DC_SBC3 1u/4/X5R/6.3V/K

DC_SBC4 1u/4/X5R/6.3V/K

DC_SBC5 1u/4/X5R/6.3V/K

DC_SBC6 1u/4/X5R/6.3V/K

DC_SBC7 1u/4/X5R/6.3V/K

DC_SBC8 1u/4/X5R/6.3V/K

DCC30 22u/8/X5R/6.3V/M

DCC31 22u/8/X5R/6.3V/M

DCC32 22u/8/X5R/6.3V/M

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

CHOKE與CAP料號可變

注意耐壓

DCL3 1.0uH/15A/S/6.7m

VCCSA_VIN

DCC39 0.1u/4/X7R/16V/K

DCC40 0.1u/4/X7R/16V/K

DCC17 0.1u/4/X7R/16V/K Close Choke

DCC19 1u/6/X7R/16V/K Close MOS

DCQ9 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

UGATE_VSA

DCR25 2.2/6

PHASE_VSA

LGATE_VSA

DCR26 8.2K/4

DCQ10 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

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

L=0.5u
DCR=1.7 mohm
Isat=25A
Idc=18A

DCL4 1.0uH/15A/S/6.7m

VCCSA

DCR28 2.2/6

DCC22 1n/4/X7R/50V/K

DCR29 487/4/1

DCR30 1K/4/1

DCEC4 560u/FP/D/6.3V/68/C/8m/[11CO2-C85600-03R]

DCC41 22u/8/X5R/6.3V/M

DCC23 3.3n/4/X7R/50V/K

RS

RO

DCR33 3.16K/4/1

Remote sense請從最重的負載端點拉回

0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V

VCCSA_OV

37 VCCSA_OV

RT8120DGS/SOP8

DCU2

COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC

VCCSA_EN_1

DCR27 8.2K/4/1

DCC21 22p/4/NPO/50V/J

NPC12 3.3n/4/X7R/50V/K

DCR32 MASK/0/4/SHT/X

DCR31 34K/4/1

放靠近IC pin4

SIO PIN5 . PIN7 用在其他function時使用

SIO PIN5接VDDQ . PIN7接VCCIO .時使用

Connect to IT8793

23

VCCSA_EN

DCR8

MASK/0/4/SHT/X

DCR9 100K/4/1

DCC7 1u/6/X7R/16V/K

Connect to IT8686

5VDUAL

DCR6 8.2K/4

DCQ2 2N7002/SOT23/25pF/5

SOT23

DCR7 8.2K/4

DCQ3 2N7002/SOT23/25pF/5

SOT23

GIGABYTE

Title: VCCIO_VCCSA

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 29 of 63

REV:0.1

DDR4

CHOKE與CAP料號可變

DDR VIN CAP
560u*2PCS

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

5VDUAL
MA_L2
0.5uH/20A/IMD0809/BP/D
8*8
MA_VIN
MA_DC6
0.1u/4/X7R/16V/K
Close Choke
MA_DC7
1u/6/X7R/16V/K
Close MOS
MAEC1
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]
MAEC2
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

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

MA_DQ1
SIRA12DP/PPAKSO8/2070pF/4.3m
MA_UGATE
MA_DR1
2.2/6
MA_DR2
8.2K/4
MA_PHASE
MA_DQ2
MA_DQ3
MA_DR5
2.2/6
MA_DC5
1n/4/X7R/50V/K
MA_LGATE
MA_DR9
2.2/6
MA_LG
SIRA12DP/PPAKSO8/2070pF/4.3m
SIRA12DP/PPAKSO8/2070pF/4.3m

MA_L1
1uH/35A/IMD109/BP/D
R50
10*10
VDDQ

SUPPORT DDR4 1.2V
25A MAX

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

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

RT8120DGS/SOP8
MAU2
COMP
FB
GND
PGND
VCC
BOOT
UGATE
PHASE
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_DR18
11.8K/4/1
OCP=40A
放靠近IC pin4

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

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

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

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]
37 DDR_ADJ

PWR SEQ

5VDUAL
DDR_EN
MAQ6
2N7002/SOT23/25pF/5
SOT23
MAR108
22K/4
VPP_25V
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

Connect to IT8793
23,31 MA_EN
Connect to IT8686
MAR113
MASK/0/4/SHT/M/X
MAR105 100K/4/1
MAR2
8.2K/4
MAQ11
2N7002/SOT23/25pF/5
MAR1
8.2K/4
MAQ10
2N7002/SOT23/25pF/5
MAC9
1u/6/X7R/16V/K

DDRVTT

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

4 DDR_VTT_CTL
N_-SLP_S3
12,23,50,56,59 N_-SLP_S3
DDR_VTT_CTL
MAR110
MAR111
0/4/SHT/M/X
MAU1上NCT3103S時上件

DDR CAP
560u*4PCS 22u*2PCS

VDDQ
MAEC3
MAEC4
MAEC6
MAEC7
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]
* 大電容 x4
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-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 30 of 63	

REV:0.1

VPP_25V

CHOKE與CAP料號可變

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

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

5VDUAL — MA_L4 1.0uH/15A/S/6.7m (6*6)

MA_DC17 0.1u/4/X7R/16V/K Close Choke

MB_VIN — MA_DC19 1u/6/X7R/16V/K Close MOS — MAEC12 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

MA_DQ4 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

DDR_VPP VIN CAP
560u*1PCS

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

+12V 5VDUAL — MA_D2 SDM20E40C/0.4A/SOT23 — MA_DR20 2.2/6 — DRV_VPP — MA_DC20 1u/6/X7R/16V/K

MA_DC18 0.1u/6/X7R/25V/K

RT8120DGS/SOP8 MAU3

VPP25_EN — MA_DR24 27K/4/1 — MA_DC21 22p/4/NPO/50V/J — MA_DC22 3.3n/4/X7R/50V/K — MA_DR30 MASK/0/4/SHT/X

COMP, VCC, BOOT, UGATE, PHASE, FB, GND, PGND, LG/OC

MB_UGATE — MA_DR21 2.2/6 — G

MB_PHASE — MA_DR23 8.2K/4 — MA_DQ5

MB_LGATE — MA_DR22 2.2/6 — G

MA_DR29 32.4K/4/1 — OCP=30A

放靠近IC pin4

NTTFS4C06NTAG/WDFN8/3366pF/4.2m

MA_L3 1.0uH/15A/S/6.7m (6*6)

VPP_25V — **SUPPORT DDR4** **2.5V** — **25A MAX**

MA_DR25 2.2/6 — MA_DC23 1n/4/X7R/50V/K

MA_DR26 487/4/1 — MA_DC24 3.3n/4/X7R/50V/K **RS**

MA_DR27 4.02K/4/1

VPP_25V — MAC61 22u/8/X5R/6.3V/M/X

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

37 VPP25_ADJ — VPP25_ADJ

RO — MA_DR31 1.87K/4/1

VPP25_ADJ

* 開 MA_DR32

PWR SEQ

5VSB — MAR116 8.2K/4 — MAR114 MASK/0/4/SHT/X

23 VPP25_EN_IO — **Connect to IT8686**

5VSB — MAR109 8.2K/4 — MAQ7 2N7002/SOT23/25pF/5 SOT23 — VPP25_EN

MAC8 1u/4/X5R/6.3V/K/X

MAQ8 2N7002/SOT23/25pF/5 SOT23

12,23,35,56,59 N_-S4_S5 — MAR106 8.2K/4/X

MAR115 MASK/0/4/SHT/X

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

MAR14 8.2K/4/X — 23,30 MA_EN

MAC10 1u/4/X5R/6.3V/K/X

VPP_25V — MAC49 0.1u/4/X7R/16V/K — MAC50 0.1u/4/X7R/16V/K

VPP_25V — MAC51 0.1u/4/X7R/16V/K — MAC52 0.1u/4/X7R/16V/K

VPP CAP 560u*1PCS

* 大電容 x1

VPP_25V — MAEC11 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

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Title: RT8120_VPP25 POWER

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 31 of 63

REV:0.7

5VDUAL
+12V
NPR22 0/8/X
NPD1 B140/SMA/1A
NPD2 B320B/SMB/3A
L=0.5u
DCR=1.7 mohm
Isat=25A
Idc=18A
CHOKE與CAP料號可變
NPL1 0.5uH/20A/IMD0809/BP/D
P1V0_VIN_D
P1V0_VIN
NPC1 0.1u/4/X7R/16V/K
Close Choke
NPC3 1u/6/X7R/16V/K
Close MOS
NPEC1 100u/OS/D/16V/69/A/35m
L=0.5u
DCR=1.7 mohm
Isat=25A
Idc=18A
5VDUAL
NPR1 2.2/6
DRV_PCH
NPC4 1u/6/X7R/16V/K
NPC2 0.1u/6/X7R/25V/K
NPQ1
SiRA18DP-T1/PPAKSO-8/1000pF/7.5m
UGATE_PCH NPR2 2.2/6
NPL2 1uH/18A/IMD0809/BP/D
VCC1_0_PCH
★Update 2015-04.22
RT8120DGS/SOP8
NPU1
P1V0_PCH_EN
COMP
VCC
BOOT
UGATE
PHASE
FB
GND
PGND
LG/OC
UGATE_PCH
PHASE_PCH
LGATE_PCH
NPR4 8.2K/4
PHASE_PCH
LGATE_PCH
NPQ2
SiRA18DP-T1/PPAKSO-8/1000pF/7.5m
NPR6 2.2/6
NPC7 1n/4/X7R/50V/K
NPR5 8.2K/4/1
NPC5 22p/4/NPO/50V/J
NPC6 3.3n/4/X7R/50V/K
NPR12 MASK/0/4/SHT/X
NPR11 34K/4/1
放靠近IC pin4
NPR7 487/4/1
NPC8 3.3n/4/X7R/50V/K
RS
NPR8 2K/4/1
NPEC2 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]
P1V0_PCH_ADJ
37 P1V0_PCH_ADJ
Remote sense請從最重的負載端點拉回
RO
NPR13 6.2K/4/1
0.8*(1+RS/RO) = Vout
0.8*[1+2K/6.2K)] =
1.05V

PWR SEQ

P1V0_PCH_EN
NPR14 0/4/X
VCC1_0_EN
23
5VSB
NPR15 8.2K/4
NPQ4 2N7002/SOT23/25pF/5
S0T23
3VDUAL
NPR16 8.2K/4
NPQ3 MMBT2222A/SOT23/600mA/40
S0T23
NPR17 8.2K/4
NPC9 0.1u/4/X7R/16V/K/X

VCC1_0_PCH
NPC10 22u/8/X5R/6.3V/M
Defaults先不上件
請放置CHOKE一出來的地方

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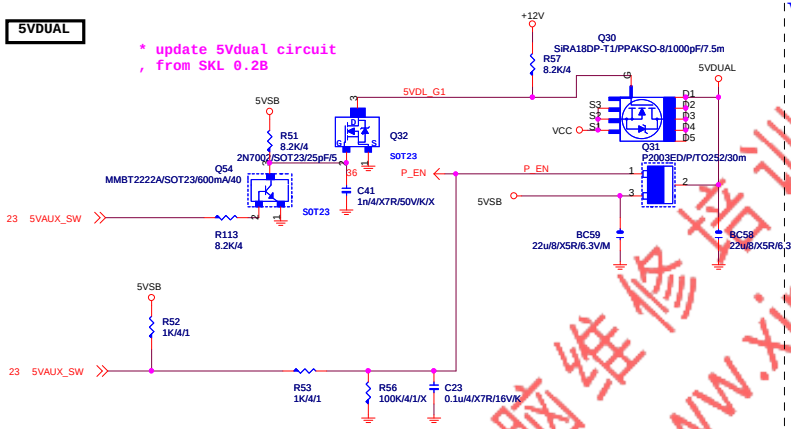
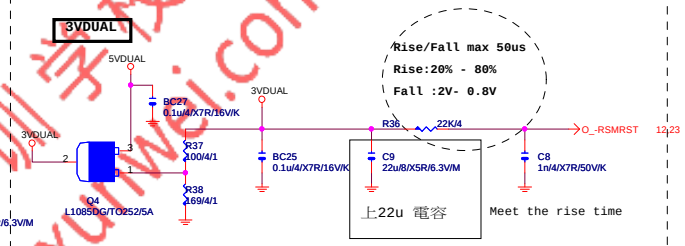
Title	RT8120_PCH POWER	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 32 of 63	

5VDUAL

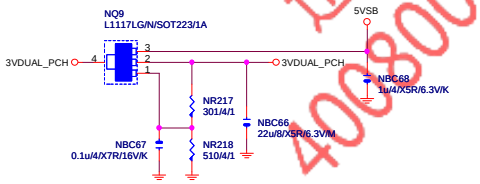
* update 5Vdual circuit
, from SKL 0.2B

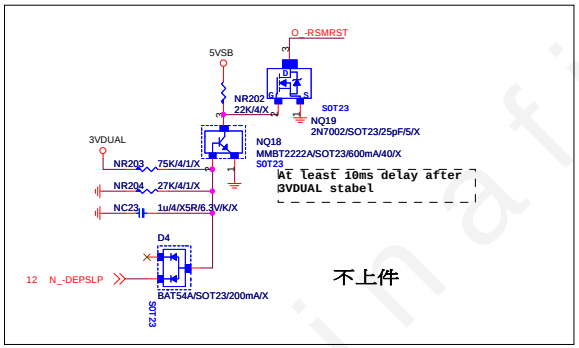


3VDUAL



3VDUAL_PCH





Gigabyte Technology			
Title: DISCRETE POWER			
Size: Custom	Document Number: GA-Z270-GAMING K3		Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 33 of 63		

GIGABYTE

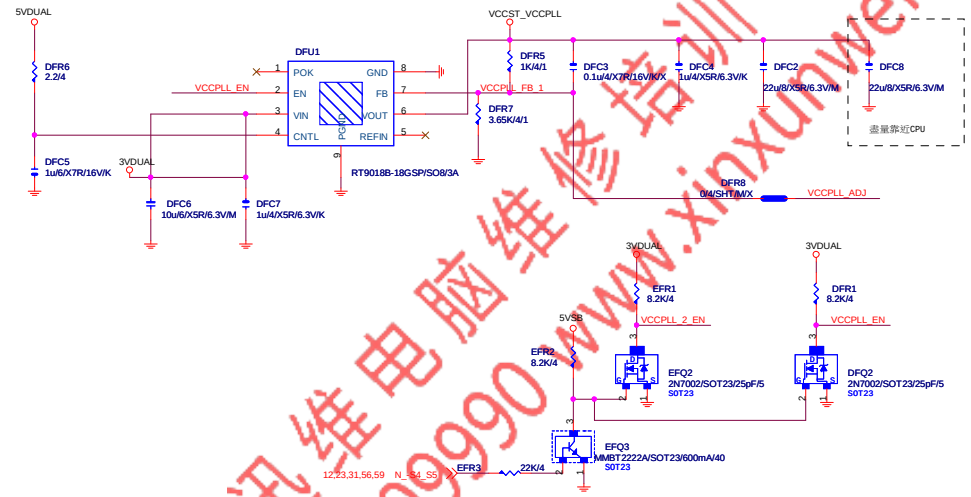
Title

PCH PWR-VCC18_PCH

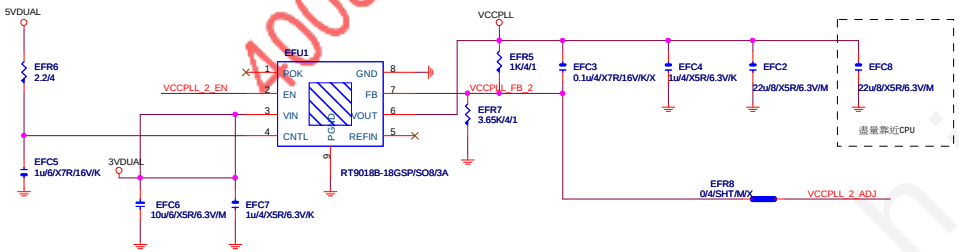
Size	Document Number	Rev
A	GA-Z270-GAMING K3	1.0

Date: Wednesday, October 12, 2016 Sheet 34 of 63

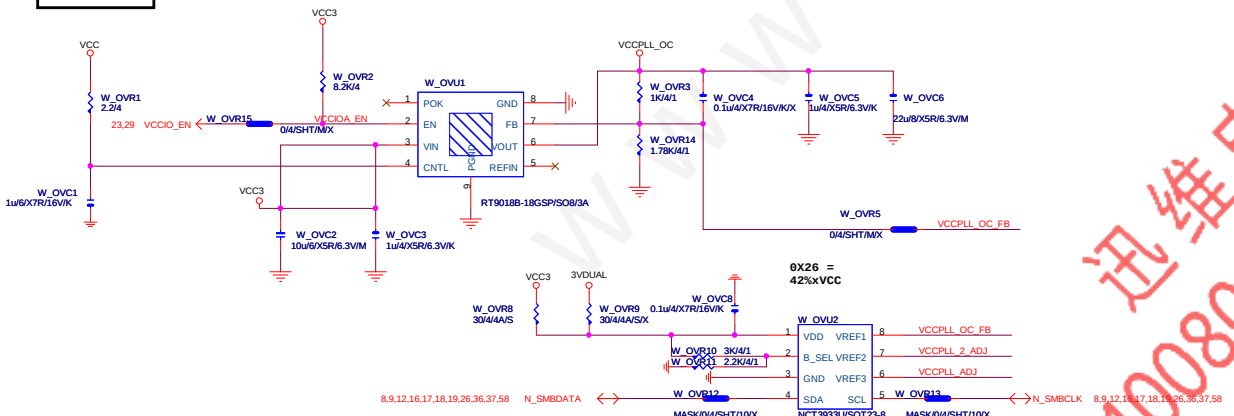
VCCST_VCCPLL 替換原先MOS開關線路



VCCPLL



VCCPLL_OC



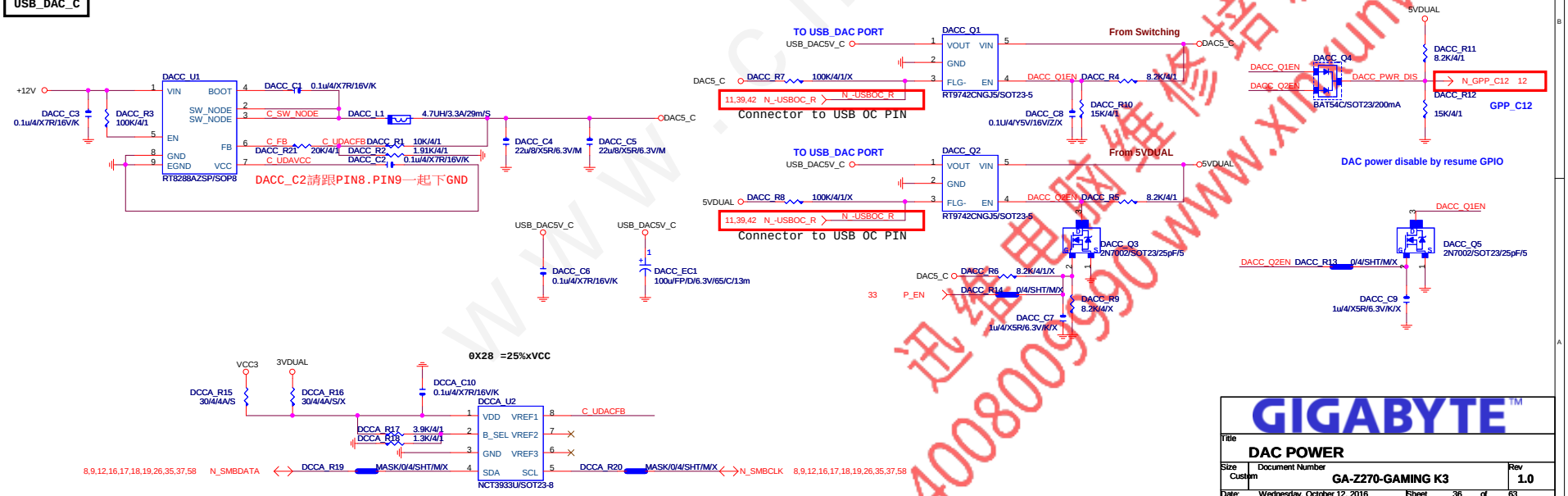
GIGABYTE		
Title	CPU POWER	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 35 of 63	

USB_DAC_A

REV:0.1

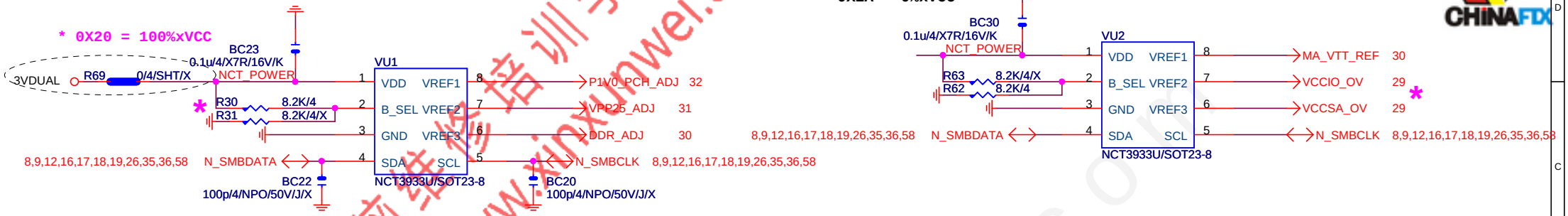
USB_DAC_B

USB_DAC_C



Title	DAC POWER		
Size: Custom	Document Number: GA-Z270-GAMING K3		Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 36 of 63		

OVER VOLTAGE



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 Technology

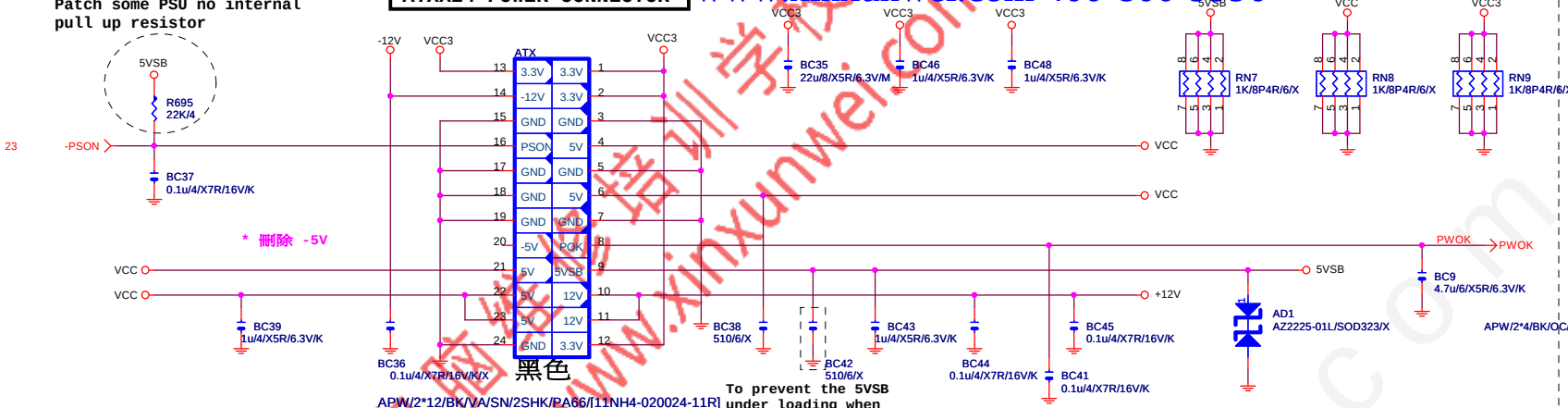
Title: CPU CORE VR

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 37 of 63

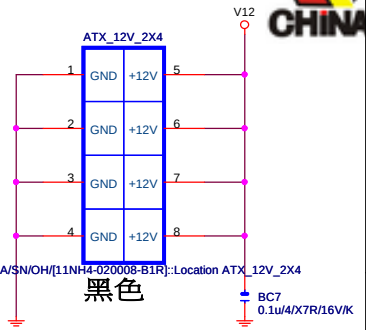
Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

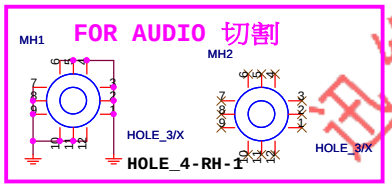


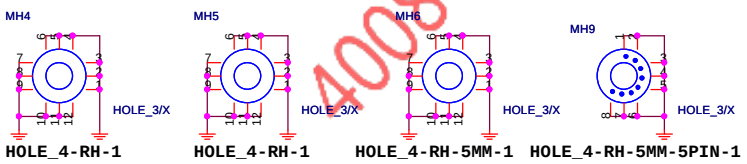
To prevent the 5VSB under loading when boot

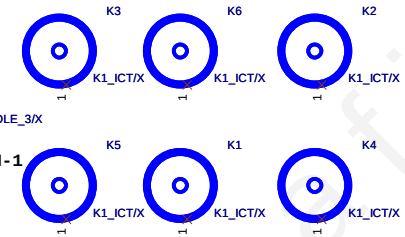
ATXX4 POWER CONNECTOR

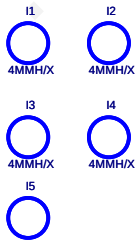


FOR AUDIO 切割



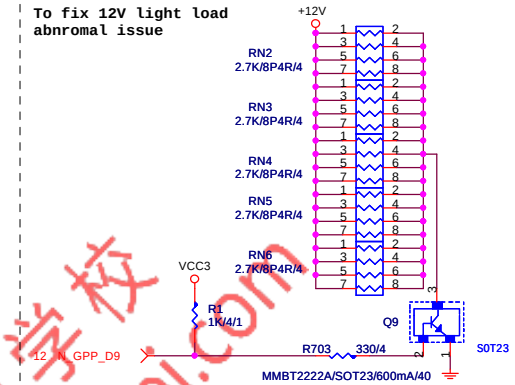






【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

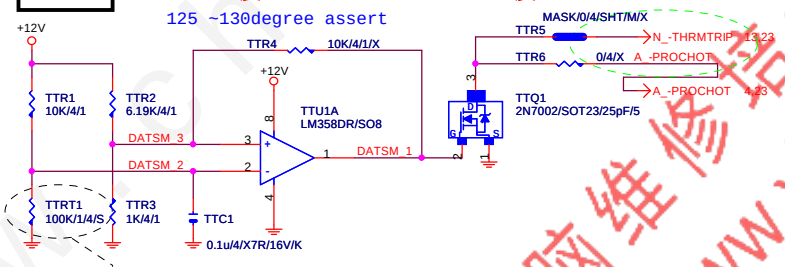


-PROHOT * 保留 ?

-PROHOT

OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert

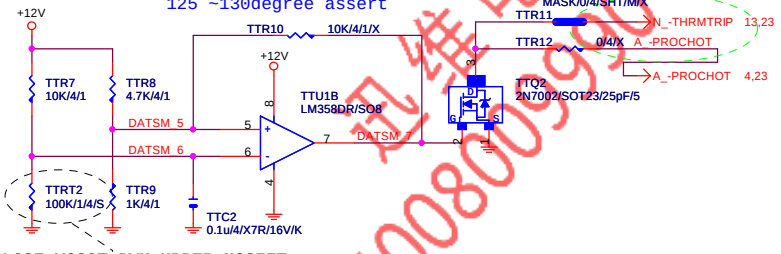


CLOSE VCORE PWM UPPER MOSFET

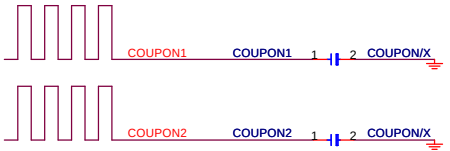
-PROHOT

OTP:130度 / PCB THERMAL TRIP:129 度

125 ~130degree assert



CLOSE VCCGT PWM UPPER MOSFET



Gigabyte Technology

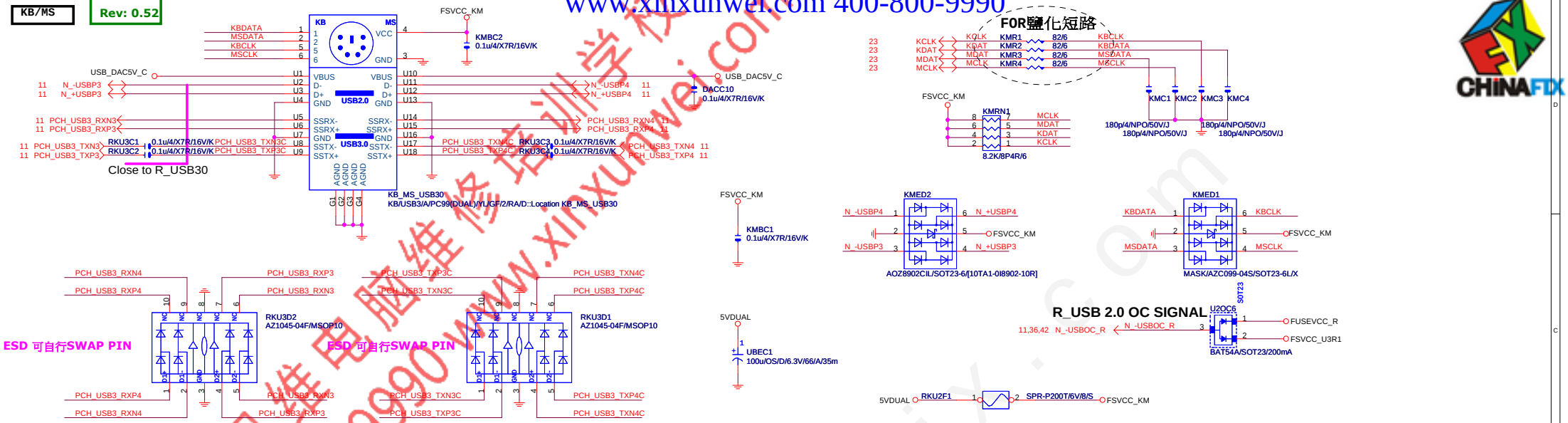
Title: ATX POWER CONNECTOR

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 38 of 63

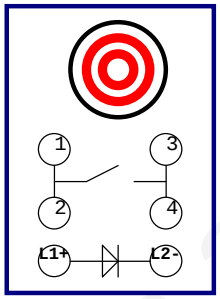
KB/MS

Rev: 0.52



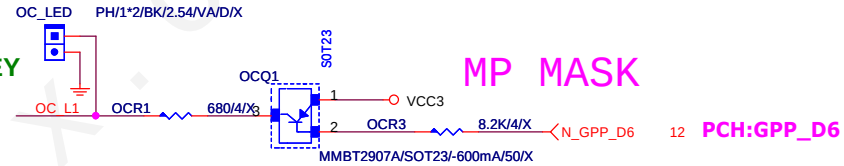
Gigabyte Technology		
Title: KB_MS_USB		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 39 of 63	

Rev: 0.52

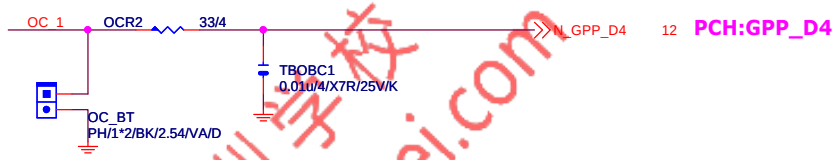


OC KEY

"OC_LED" 1X2pin only for Z270X-GAMING 7



MP MASK



"OC_BT" 1X2pin only for Z270X-GAMING 7

Gigabyte Technology			
Title: OC BUTTOM			
Size: Custom	Document Number: GA-Z270-GAMING K3		Rev: 1.0
Date: Wednesday, October 12, 2016		Sheet 40 of 63	

Rev: 0.52

Front USB3.0

NET 自行調整

F_USB30_1
REV=1

FSVCC_U3F1

	1	VBUS	VBUS	19	FSVCC_U3F1
	10	ID			
11 PCH_USB3_RXN1	2	SSRX1-	SSTX2-	15	U3_TXN2_C
11 PCH_USB3_RXP1	3	SSRX1+	SSTX2+	14	U3_TXP2_C
11 PCH_USB3_TXN1	5	SSTX1-	SSRX2-	18	
11 PCH_USB3_TXP1	6	SSTX1+	SSRX2+	17	
11 N_-USBP1	8	D1-	D2-	12	
11 N_+USBP1	9	D1+	D2+	11	
	7	GND	GND	16	
	4	GND	GND	13	

FAU3C1 0.1u/4/X7R/16V/K U3_TXN1_C
FAU3C2 0.1u/4/X7R/16V/K U3_TXP1_C

FAU3C3 0.1u/4/X7R/16V/K → PCH_USB3_TXN2 11
FAU3C4 0.1u/4/X7R/16V/K → 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

NET 可自行調整

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

NET 自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1
AZ1045-04F/MSOP10

PCH_USB3_RXN1
PCH_USB3_RXP1
PCH_USB3_RXP2
PCH_USB3_RXN2

FAU3D3
N_-USBP1
N_+USBP1
3VDUAL
N_+USBP2
N_-USBP2
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

U3_TXP1_C
U3_TXN1_C
U3_TXN2_C
U3_TXP2_C

FAU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB3.0

NET 可自行調整

F_USB30_2
REV=1

FSVCC_U3F2

	1	VBUS	VBUS	19	FSVCC_U3F2
	10	ID			
11 PCH_USB3_RXN5	2	SSRX1-	SSTX2-	15	U3_TXN6_C
11 PCH_USB3_RXP5	3	SSRX1+	SSTX2+	14	U3_TXP6_C
11 PCH_USB3_TXN5	5	SSTX1-	SSRX2-	18	
11 PCH_USB3_TXP5	6	SSTX1+	SSRX2+	17	
11 N_-USBP5	8	D1-	D2-	12	
11 N_+USBP5	9	D1+	D2+	11	
	7	GND	GND	16	
	4	GND	GND	13	

FBU3C1 0.1u/4/X7R/16V/K U3_TXN5_C
FBU3C2 0.1u/4/X7R/16V/K U3_TXP5_C

FBU3C3 0.1u/4/X7R/16V/K → PCH_USB3_TXN6 11
FBU3C4 0.1u/4/X7R/16V/K → PCH_USB3_TXP6 11

PCH_USB3_RXN6 11
PCH_USB3_RXP6 11
N_-USBP6 11
N_+USBP6 11

BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT

黑色

NET 可自行調整

5VDUAL — FU3F2 — SPR-P260T/6V/8/S — FSVCC_U3F2
FBU3C5 0.1u/4/X7R/16V/K

NET 可自行調整

PCH_USB3_RXP5
PCH_USB3_RXN5
PCH_USB3_RXN6
PCH_USB3_RXP6

FBU3D1
AZ1045-04F/MSOP10

PCH_USB3_RXN5
PCH_USB3_RXP5
PCH_USB3_RXP6
PCH_USB3_RXN6

FBU3D3
N_-USBP5
N_+USBP5
3VDUAL
N_-USBP6
N_+USBP6
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

F_USB POWER PROTECT

U3_TXP5_C
U3_TXN5_C
U3_TXN6_C
U3_TXP6_C

FBU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

U3_TXN5_C
U3_TXP5_C
U3_TXP6_C
U3_TXN6_C

-USBOC_F

-USBOC_R

F_USB 2.0 OC SIGNAL

11,42 N_-USBOC_F — U2OC3 SOT23 — FSVCC_U3F1 / FSVCC_U3F2

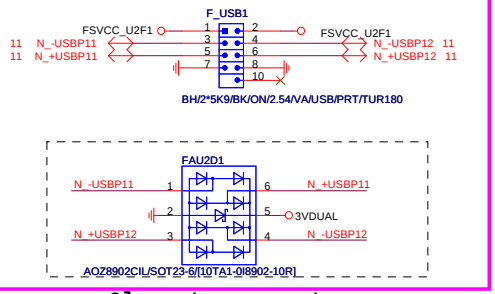
BAT54A/SOT23/200mA

Gigabyte Technology		
Title: F_USB30		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 41 of 63	

Rev: 0.52

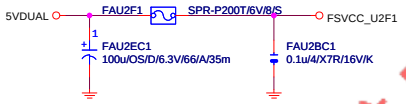
FRONT USB1

NET 可變



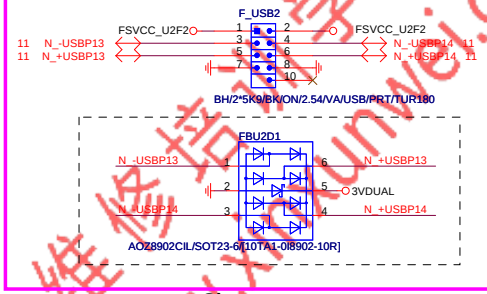
Close to connector

FUSE 2 Port 1 Fuse 2A



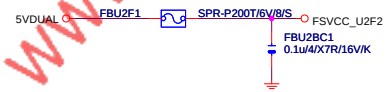
FRONT USB2

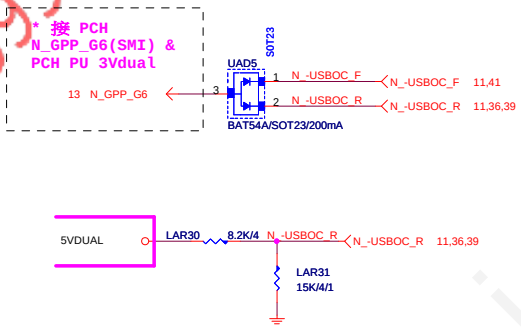
NET 可變



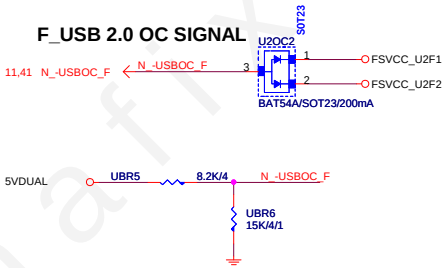
Close to connector

FUSE 2 Port 1 Fuse 2A





F_USB 2.0 OC SIGNAL



Gigabyte Technology		
Title: USB2.0		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 42 of 63	

Rev: 0.52

R_USB30

USB 電容前後NET 可自行調整

R_USB30

USB3.0/2.0

FSVCC_U3R1	U1	VBUS	
11 N_-USBP7	U2	D-	
11 N_+USBP7	U3	D+	
	U4	GND	
11 PCH_USB3_RXN7	U5	SSRX-	
11 PCH_USB3_RXP7	U6	SSRX+	
	U7	GND	
11 PCH_USB3_TXN7	RBU3C1 0.1u/4/X7R/16V/K	SSTX-	PCH_USB3_TXN7_C
11 PCH_USB3_TXP7	RBU3C2 0.1u/4/X7R/16V/K	SSTX+	PCH_USB3_TXP7_C
	U8	AGND	
	U9	AGND	
		AGND	
		AGND	

	U10	VBUS	FSVCC_U3R1
	U11	D-	N_-USBP8 11
	U12	D+	N_+USBP8 11
	U13	GND	
	U14	SSRX-	PCH_USB3_RXN8 11
	U15	SSRX+	PCH_USB3_RXP8 11
	U16	GND	
PCH_USB3_TXN8_C	RBU3C3 0.1u/4/X7R/16V/K	SSTX-	PCH_USB3_TXN8 11
PCH_USB3_TXP8_C	RBU3C4 0.1u/4/X7R/16V/K	SSTX+	PCH_USB3_TXP8 11
	U17	AGND	
	U18	AGND	
		AGND	
		AGND	

USB 電容前後NET 可自行調整

G1 G2 G3 G4

USB3.0+HDMI/18P+19P/BK/OS/RA

FUSE 2 Port 1 Fuse 2.6A

5VDUAL — RBU3F1 1 — 2 SPR-P260T/6V/8/S — FSVCC_U3R1

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

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

2 port USB 3.0 架高with TYPE C Capture:
USB/18P/BU/OS/RA/D/2/HR

NET 可自行調整

PCH_USB3_RXP8 — PCH_USB3_TXN8_C
PCH_USB3_RXN8 — PCH_USB3_TXP8_C
* swap
RBU3D2 AZ1045-04F/MSOP10
PCH_USB3_RXN8 — PCH_USB3_TXP8_C
PCH_USB3_RXP8 — PCH_USB3_TXN8_C

NET 可自行調整

PCH_USB3_TXN7_C — PCH_USB3_RXN7
PCH_USB3_TXP7_C — PCH_USB3_RXP7
* swap
RBU3D1 AZ1045-04F/MSOP10
PCH_USB3_TXP7_C — PCH_USB3_RXP7
PCH_USB3_TXN7_C — PCH_USB3_RXN7

ESD 可自行SWAP PIN

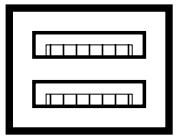
RBU3D3

N_-USBP7	1	6	N_+USBP7
	2	5	FSVCC_U3R1
N_+USBP8	3	4	N_-USBP8

AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

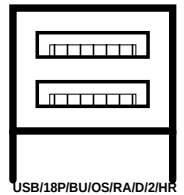
CONNECTOR 自行調整

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

Gigabyte Technology

Title	R_USB30	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 43 of 63	

Rev: 0.62

DVI CONN

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

NET 可變

DVI_TXC / DVI_TXC- — VBC1 0.1u/4/X7R/16V/K, VBC2 0.1u/4/X7R/16V/K — DVITXC+ / DVITXC- — VR1 / VR2 680/4/1
DVI_TX0 / DVI_TX0- — VBC3 / VBC4 0.1u/4/X7R/16V/K — DVITX0+ / DVITX0- — VR3 / VR4 680/4/1
DVI_TX1 / DVI_TX1- — VBC5 / VBC7 0.1u/4/X7R/16V/K — DVITX1+ / DVITX1- — VR7 / VR8 680/4/1
DVI_TX2 / DVI_TX2- — VBC8 / VBC9 0.1u/4/X7R/16V/K — DVITX2+ / DVITX2- — VR9 / VR10 680/4/1
DVI_G

防漏電 ★Update 2015.05.27
VCC — VD1 BAT54A/SOT23/200mA S0T23
VR14 2.2K/4/1, VR13 2.2K/4/1
DVI_SDA, DVI_SCL

VQ1 2N7002/SOT23/25pF/5 S0T23
VCC — VR16 8.2K/4 — VQ1_2

10 N_DDPB_CTRLCLK — VR5 2.2K/4/1 — VCC3
10 N_DDPB_CTRLDATA — VR6 2.2K/4/1
VBC6 0.1u/4/X7R/16V/K/X

VQ2 2N7002/SOT23/25pF/5 S0T23
VCC — VR17 1K/4/1 — VQ2_2 — N_DDPB_CTRLCLK

VQ3 2N7002/SOT23/25pF/5 S0T23
DVI_SDA
VCC — VR18 1K/4/1 — VQ3_2 — N_DDPB_CTRLDATA

VQ4 2N7002/SOT23/25pF/5 S0T23
DVI_HP
VCC — VR19 8.2K/4 — VQ4_2 — N_DVI_HDP_F
VCC3 — VR20 1M/4 — N_DVI_HDP_F 10

NET 可變
FSVCC_KM

DVI-30P-4P-1
DVI-D/24P/SC/RA/D/SH/[11NR6-501024-31R]

DVITX0-	17	TX0-	
DVITX0+	18	TX0+	
DVITX1-	9	TX1-	
DVITX1+	10	TX1+	
DVITX2-	1	TX2-	
DVITX2+	2	TX2+	
	3	SHLD24	
	11	SHLD13	
	19	SHLD05	
	12	TX3-	
	13	TX3+	
	4	TX4-	
	5	TX4+	
	20	TX5-	
	21	TX5+	
DVI_SCL	6	DDCC	
DVI_SDA	7	DDCD	
	14	VDDC	
	15	GND	
	22	SHLDC	
DVITXC-	24	TXC-	
DVITXC+	23	TXC+	
	8	VSYNC	
DVI_HP	16	HPD	

VR15 20K/4/1
M1 SHIELD1, M2 SHIELD2, M5 SHIELD2, M6 SHIELD2, M7 SHIELD2, M8 SHIELD2
COMMON

Close to connector

VESD2 — AZ1045-04F/MSOP10
DVITX1+, DVITX1-, DVITX2+, DVITX2-

VESD1 — AZ1045-04F/MSOP10
DVITXC+, DVITXC-, DVITX0+, DVITX0-

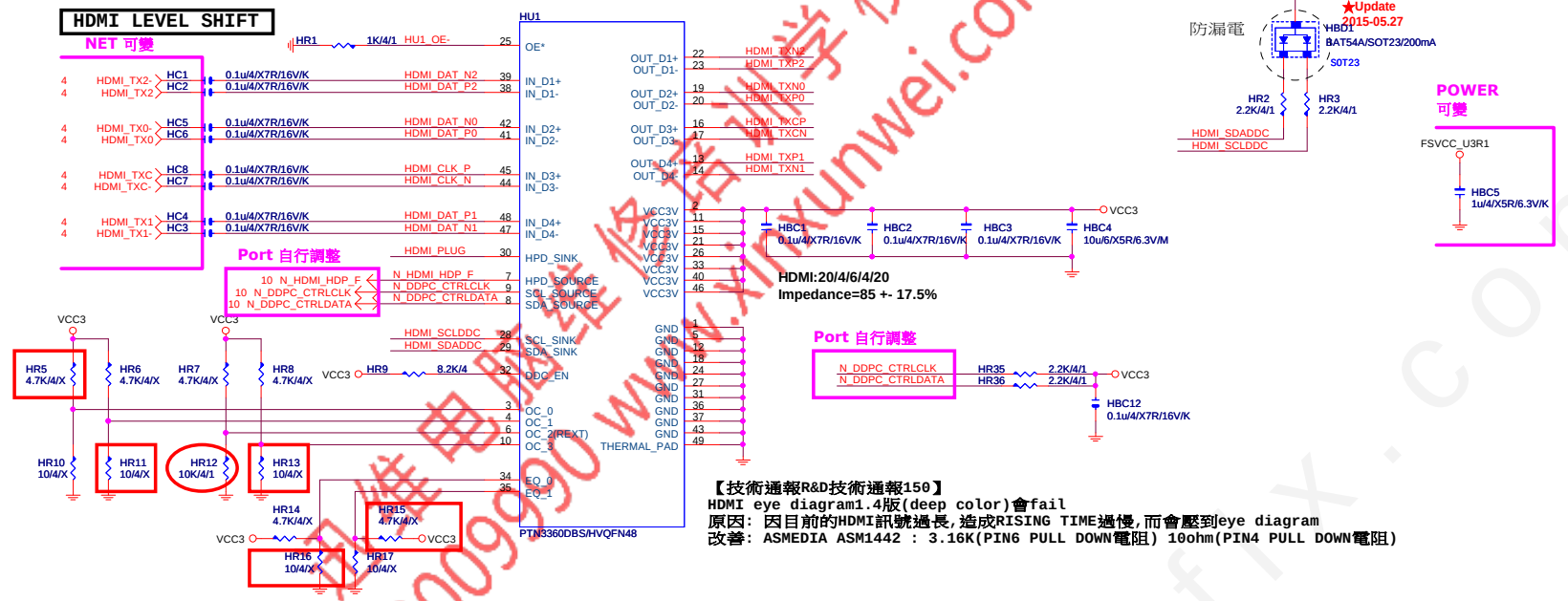
NET 可變
FSVCC_KM
VBC10 0.1u/4/X7R/16V/K

Close to connector

VESD3 — AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]
DVI_HP, DVI_SDA, DVI_SCL, FSVCC_KM
NET 可變

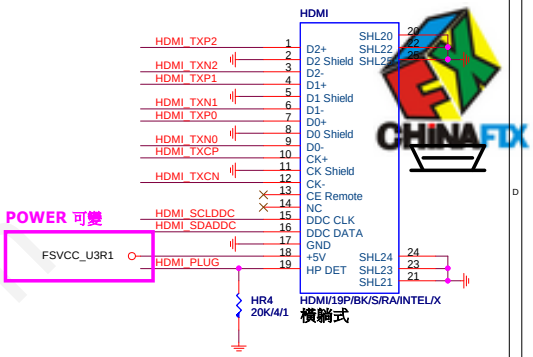
Gigabyte Technology	
Title	DVI
Size: Custom	Document Number: GA-Z270-GAMING K3
Rev	1.0
Date:	Wednesday, October 12, 2016
Sheet	44 of 63

Rev: 0.62



【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



直立式

P/N:11NR6-H01019-K1R

Gigabyte Technology		
Title: HDMI		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 45 of 63	

LAN:E2500(E2400)(E2201) R1.06

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

10 LA_-SRCCLK_LAN
10 LA_SRCCLK_LAN
11 LA_ML_OP
11 LA_ML_ON
LAC1 0.1u/4/X7R/16V/K
LAC2 0.1u/4/X7R/16V/K
LA_ML_OP_C
LA_ML_ON_C

LABC5 0.1u/4/X7R/16V/K
LABC4 1u/4/X5R/6.3V/K
LABC3 0.1u/4/X7R/16V/K
LABC6 0.1u/4/X7R/16V/K/X

47 LA_LED_ACT_TXRX
47 LA_LED_LINK100

LA_AVDDVCO
LABC7 0.1u/4/X7R/16V/K
LABC8 4.7u/6/X5R/6.3V/K
AR8161-->(O)

3VDUAL_LAN1
LABC9 10u/6/X5R/6.3V/M
1u/4/X5R/6.3V/K
LABC10
LABC11 0.1u/4/X7R/16V/K

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

LA_IP_C LAC12 0.1u/4/X7R/16V/K LA_ML_IP 11
LA_IN_C LAC13 0.1u/4/X7R/16V/K LA_ML_IN 11

FOR ERP WAKEUP

10 LA_-CLKREQ
LAREQ1 MASK/0/4/SHT/X
LAR6 8.2K/4
23,48 O_-PFMRST2
28 N_-PCIE1_WAKE
LABC12 1u/4/X5R/6.3V/K/X
LA_-CLKREQ_F
LA_VDDCT
LA_AVDDL
LA_XTALO
LA_XTALI
LA_AVDDH

L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#

LAC33 100p/4/NPO/50V/J/X
LABC15 1u/4/X5R/6.3V/K
LABC16 0.1u/4/X7R/16V/K
LABC18 1u/4/X5R/6.3V/K
LABC19 0.1u/4/X7R/16V/K
LA_RBIAS
LAR10 2.37K/4/1

LAU1

1	VDD3V	TX_P	30
2	PERST#	TX_N	29
3	WAKE#	NC	28
4	CLKREQ#	NC	27
5	DEBUGMODE0	TESTMODE2	26
6	AVDDL_REG	TESTMODE1	25
7	XTLO	TESTMODE0	24
8	XTLI	PPS	23
9	AVDDH_REG	LED2	22
10	RBIAS	AVDDH	21
		TRXN3	

Qualcomm (Atheros) Killer E2500 E2400 E2201

EGND, LX, LED1, LED0, DVDDL_REG, RX_N, RX_P, AVDDL, REFCLKP, REFCLKN, AVDDL

TRXP0, TRXN0, AVDDL, TRXP1, TRXN1, AVDD33, TRXP2, TRXN2, AVDDL, TRXP3

LA_PPS
LA_LED_LINK1000
LA_AVDDH
LA_MDI3-
LAR9 0/4/X
LABC14 0.1u/4/X7R/16V/K/X
LA_DVDDL
LA_LED_LINK1000 47
LA_MDI3- 47
LABC17 0.1u/4/X7R/16V/K

E2500-RIV1-RL/QFN40/[10HP2-402500-10R]

E2400料號:E2400-RIV1-RL/QFN40/[10HP2-402400-10R]
E2201料號:E2201-BL3A-R/S/[10HP2-402201-20R]

LAX1 25M/16p/30ppm/49US/20/D
LA_XTALI
LA_XTALO
LAC31 20p/4/NPO/50V/J
LAC32 20p/4/NPO/50V/J

47 LA_MDI0+
47 LA_MDI0-
47 LA_MDI1+
47 LA_MDI1-
47 LA_MDI2+
47 LA_MDI2-
47 LA_MDI3+

LABC20 0.1u/4/X7R/16V/K/X
LABC21 0.1u/4/X7R/16V/K
LAR19 MASK/0/4/SHT/X
3VDUAL_LAN1
LABC22 1u/4/X5R/6.3V/K

LAN POWER

LAL1 4.7uH/0.8A/3225/S
LA_LX_OUT
LA_LX
CLOSE LA_LX 200mil
LABC1 10u/6/X5R/6.3V/M
LABC2 0.1u/4/X7R/16V/K

LA_DVDDL
LA_AVDDL
LA_AVDDVCO
LAR5 MASK/0/6/SHT/X AR8161-->(O)
LAFB1 30/4/4A/S AR8161-->BEAD
LAFB3 30/4/4A/S AR8161-->BEAD

LA_AVDDH
LAR7 8.2K/4 LA_LED_ACT_TXRX
LAR8 8.2K/4 LA_LED_LINK100

VCC3
LAR11 8.2K/4 LA_VDDCT

CHINAFIX

Gigabyte Technology

Title: KILLER E2500(E2400)(E2201)

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

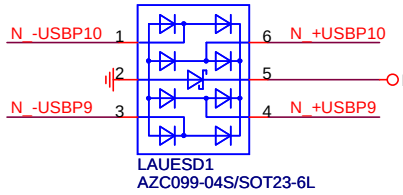
Date: Wednesday, October 12, 2016 | Sheet 46 of 63

USB_LAN CONNECTOR R1.06

RMA ESD PROTECT

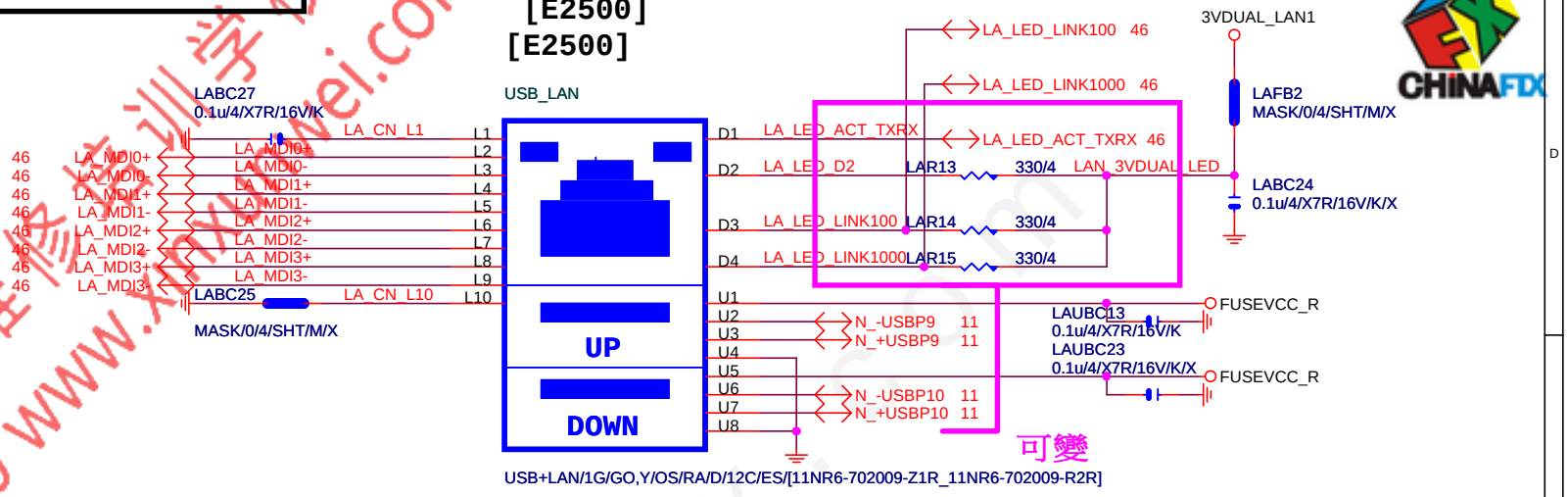
note:可變更USB NAME

可變



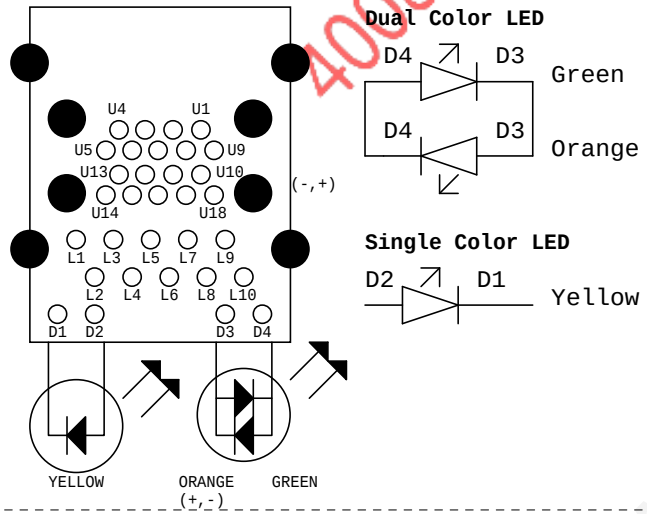
USB_LAN CONNECTOR [E2500]

[E2500]



LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN LAYOUT示意圖



LAN_COVER

FOOT PRINT:LAN_COVER

Cover remove (Ver. 1.0)

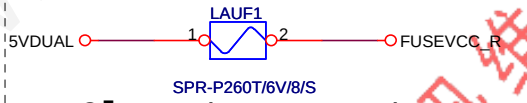
可變

[視SPEC需求]

USB POWER

note:可變更FUSE

可變



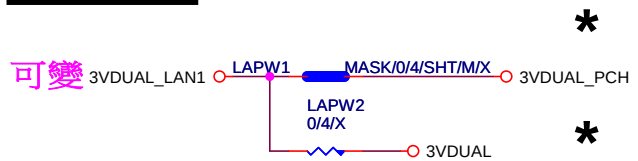
Close to connector

FUSE-0805

EMI SHORT PAD

PS:視EMI需求

LAN POWER



Gigabyte Technology		
Title: LAN CONNECTOR-E2500		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 47 of 63	

ASM2142 USB3 Host Rev0.1
PCIE Gen3 X2
ASM1142 USB3 Host
PCIE Gen3 X1 or PCIE Gen2 X2

Color markers can be changed by model

ASM2142 USB3.1

Base on ASM2142 0.1 Reference SCH

CHINAFIX

PCH PCIe* Controller Lane Reversal / base on spec

To PCIE host.

13 PCH_PCIE_IP19 — 0.22U/4/X7R/16V/K — SSAC1 — PCIE_IP1C
13 PCH_PCIE_IN19 — 0.22U/4/X7R/16V/K — SSAC2 — PCIE_IN1C
13 PCH_PCIE_IP20 — 0.22U/4/X7R/16V/K — SSAC4 — PCIE_IP2C
13 PCH_PCIE_IN20 — 0.22U/4/X7R/16V/K — SSAC3 — PCIE_IN2C
13 PCH_PCIE_OP19 — 0.22U/4/X7R/16V/K — SSAC8 — PCIE_OP1C
13 PCH_PCIE_ON19 — 0.22U/4/X7R/16V/K — SSAC14 — PCIE_ON1C
13 PCH_PCIE_OP20 — 0.22U/4/X7R/16V/K — SSAC15 — PCIE_OP2C
13 PCH_PCIE_ON20 — 0.22U/4/X7R/16V/K — SSAC16 — PCIE_ON2C

From PCIE host.

SSAU1 — ASM2142/QFN64

SSAQ1 — AP7365-WG-7/SOT23-5/600mA — Vout=0.8*(R1+R2)/R2

SSAQ3 — AP7365-WG-7/SOT23-5/600mA — Vout=0.8*(R1+R2)/R2

SSAU2 — 4M/SPI/SO8/200mil/S[10HP4-112540-30R]

SSAU3 — RT9018B-18GSP/SO8/3A/[10GL2-309018-31R_10GL2-305103-01R]

-SRCCLK_USB31A 10 — From PCIE CLK

SRCCLK_USB31A 10 — To USB Conn

SSA120V — To USB Conn

SSA120V — To OC circuit

SSA120V — To USB Conn

SSA120V — BOM ASM1142 or ASM2142

Close to ASM1142 IC

SSAD1 — 1N4148W/SOD123/300mA

SSAR11 — 100K/4/1

SSAC5 — 1u/4/X5R/6.3V/K

SPI_DO=>CSEL0

UART_RX=>CSEL1

*1021

Pin 1/12/33 — SSAC30, SSAC31, SSAC32 — 0.1u/4/X7R/16V/K

Pin 21/34 — SSAC33, SSAC34 — 0.1u/4/X7R/16V/K

Pin 4/32 — SSAC35, SSAC36 — 0.1u/4/X7R/16V/K

Pin 24/20 — SSAC37 — 0.1u/4/X7R/16V/K

VCCSUS_VCCLU — SSAC38 — 0.1u/4/X7R/16V/K

Change to 0402

Pin 35/47/52 — SSAC40, SSAC41, SSAC42 — 2.2u/4/X5R/6.3V/M

Pin 38/44/55/62 — SSAC43, SSAC44, SSAC45, SSAC46 — 2.2u/4/X5R/6.3V/M

SSAC27 — 4.7U/6/X5R/6.3V/K

SSAC19 — 12P/4/NPO/50V/J — SSAX1 — 20M/16p/30ppm/49US/20/D/[11XH5-820000-10R]

ASM 2142 / 1142 Option

VCC25V — SSAR34 — 0/4

3VDUAL — SSAR33 — 0/4/X — VCCSUS_VCCLU

VCC25V — SSAR38 — 0/4

VCC3 — SSAR37 — 0/4/X — VSSA

ASM1142 SSAR33,SSAR37
ASM2142 SSAR34,SSAR38

12.1K/4/1 — SSAR18 — SSA_REXT

3VDUAL — SSAR36 8.2K/4 — SSA_SMI-

VCC3 — SSAR27 8.2K/4, SSAR32 8.2K/4/1/X — SSA_SPICK

VCC3 — SSAR4 8.2K/4, SSAR3 2K/4/1/X — SSA_UARTRX

UART_RX=>CSEL1

VCC3 — SSAR8 8.2K/4, SSAR7 2K/4/1/X — SSA_UARTTX

VCC3 — SSAR1 8.2K/4, SSAR2 2K/4/1/X — SSA_SPIDO

SPI_DO=>CSEL0

CSEL1	CSEL0	
1	1	External 20MHz Crystal (Asynchronous)
0	1	48MHz clock input (Synchronous)
X	0	Reseved for Test

3VDUAL — SSAR22 316/4/1, SSAC25 22P/4/NPO/50V/J, SSAC26 10U/6/X5R/6.3V/M — SSA120V_SUS

SSAC24 2.2u/4/X5R/6.3V/M

R2 SSAR23 1K/4/1

ASM1142 SSAR22=510,1.2V,100mA
ASM2142 SSAR22=316,1.05V,50mA

ASM2142 Option

VCC3 — R1 SSAR41 2.15K/4/1, SSAC47 22P/4/NPO/50V/J, SSAC48 10U/6/X5R/6.3V/M — VCC25V

SSAC49 2.2u/4/X5R/6.3V/M

R2 SSAR40 1K/4/1

ASM1142 ->N/A
ASM2142 2.5V, 300mA

VCC3 — SSAR25 8.2K/4 — SSAU3_EN

SSAR35 8.2K/4/X, SSAC7 1u/4/X5R/6.3V/K

SSAR24 2.2/4, SSAC6 1u/4/X5R/6.3V/K, SSAC10 22u/8/X5R/6.3V/M, SSAC9 1u/4/X5R/6.3V/K

SSAR28 31.6K/4/1, SSAC11 0.1u/4/X7R/16V/K/X, SSAC13 22u/8/X5R/6.3V/M, SSAC12 1u/4/X5R/6.3V/K

SSAR29 100K/4/1

ASM1142 SSAR28=51K,1.2V
ASM2142 SSAR28=31.6K,1.05V,800mA

【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON),
EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份
須做修改為100K以上電阻值

SSA_XI — SSAC19 12P/4/NPO/50V/J — SSA_XO — SSAX1 — 20M/16p/30ppm/49US/20/D/[11XH5-820000-10R]

SSA_SPICS- — SSA_SPIDI — SSA_SPIWP- — SSA_SPIDO — SSA_SPICK

VCC3 — SSAR6 8.2K/4

SSAC21 0.1u/4/X7R/16V/K

4M/SPI/SO8/200mil/S[10HP4-112540-30R]

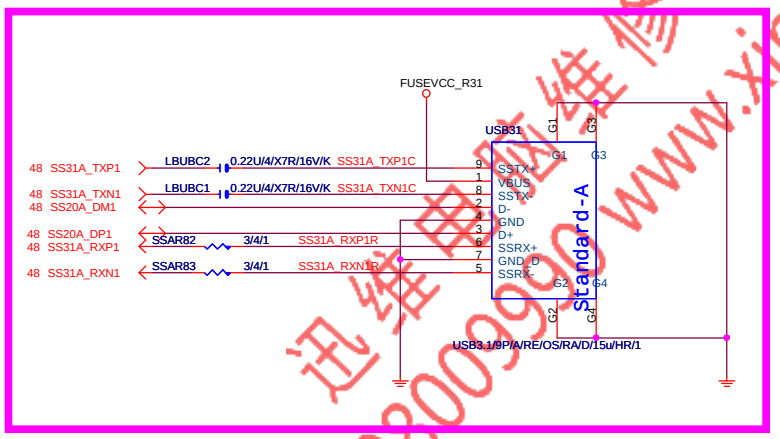
GIGABYTE

Title: ASM1142 & ASM2142 co-lay

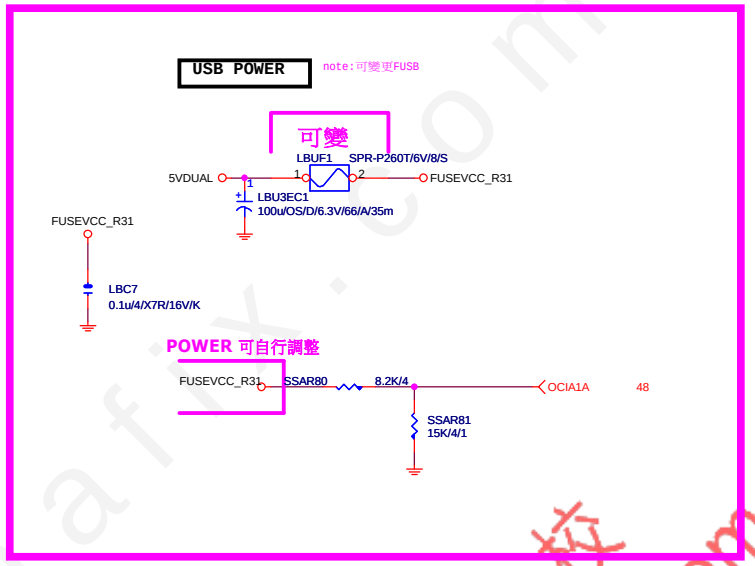
Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

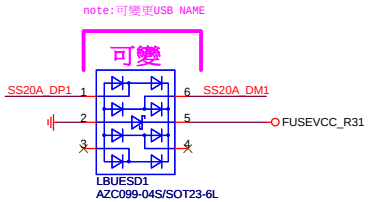
Date: Wednesday, October 12, 2016 | Sheet 48 of 63

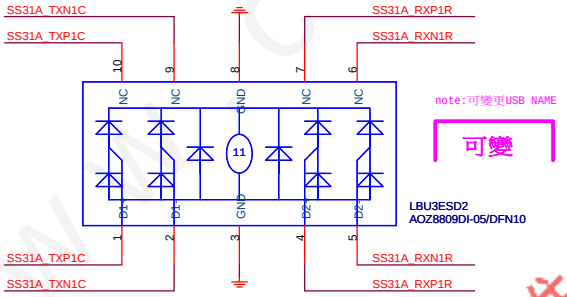
ASM1142 USB31 Host Rev0.8



USB31 TYPE A Connector which chooses for project demand





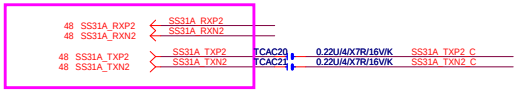


GIGABYTE

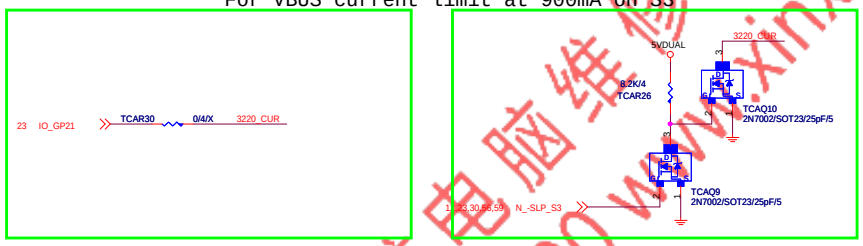
Title: Type C port A		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 49 of 63	

ASM2142 USB31 Host Rev0.2

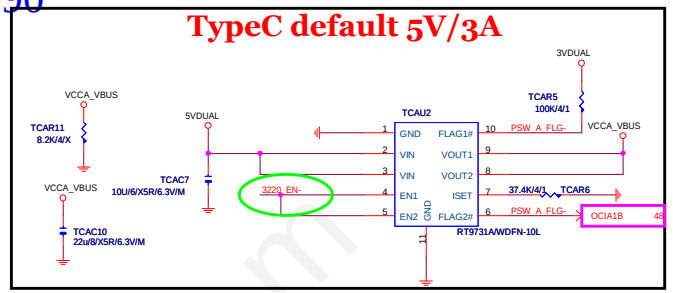
USB 3.x SuperSpeed

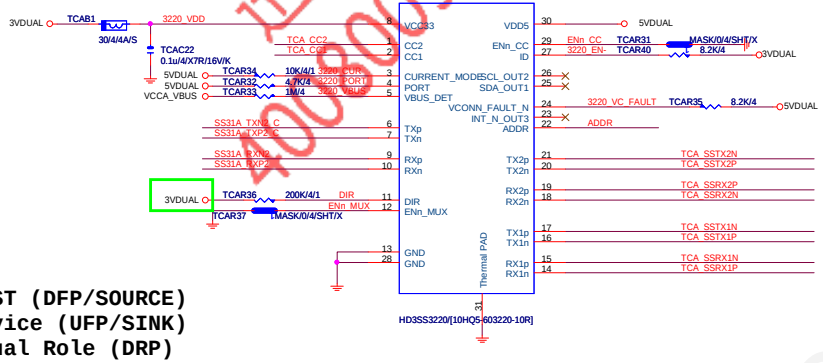


For VBUS current limit at 900mA on S3

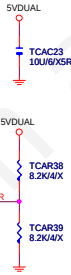


TypeC default 5V/3A





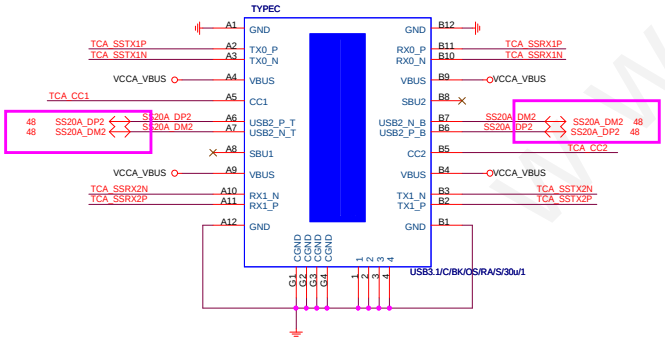
SWAP(check firmware)



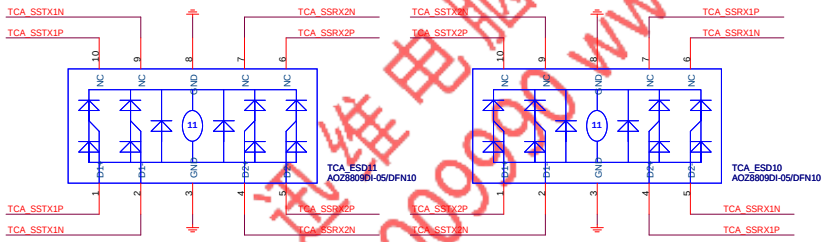
PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

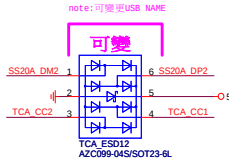
CURRENT MODE
L - Default (900mA) / Pull down to GND or NC
M - Medium (1.5A) / Pull up to VDD 500K
H - High (3.0A) / Pull up to VDD 10K

Color markers can be changed by model



USB2.0 can be used the same source





GIGABYTE™

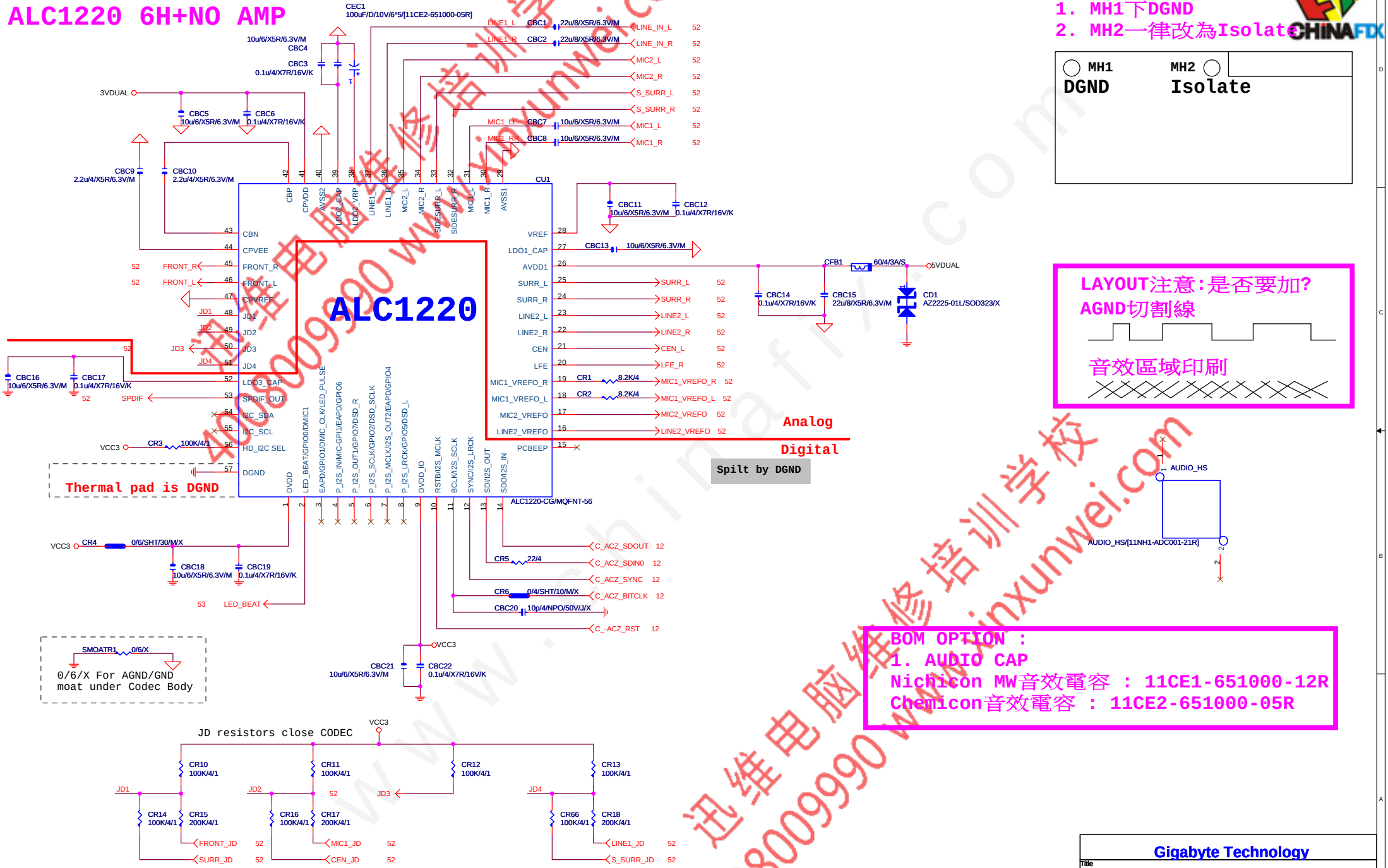
Title	TI HD3SS3212	
Size C	Document Number GA-Z270-GAMING K3	Rev 1.0
Date: Wednesday, October 12, 2016	Sheet 50 of 63	

Rev 0.53

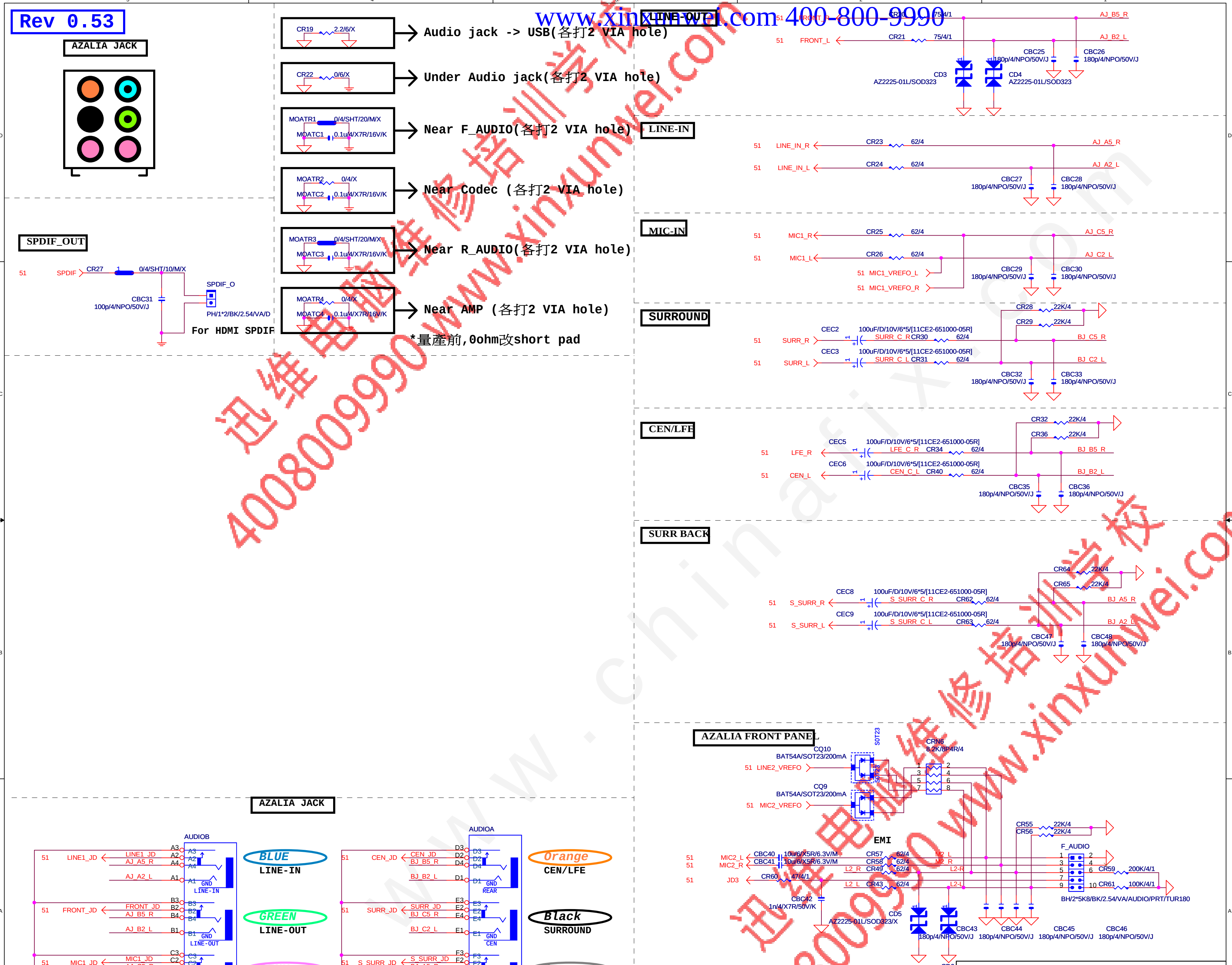
ALC1220 6H+NO AMP

LAYOUT注意:螺絲孔下GND方式
1. MH1下DGND
2. MH2一律改為Isolate

MH1	MH2
DGND	Isolate



Title	ALC1220
Company	Gigabyte Technology
Size / Document Number	Custom / GA-Z270-GAMING K3
Rev	1.0
Date	Wednesday, October 12, 2016
Sheet	51 of 63

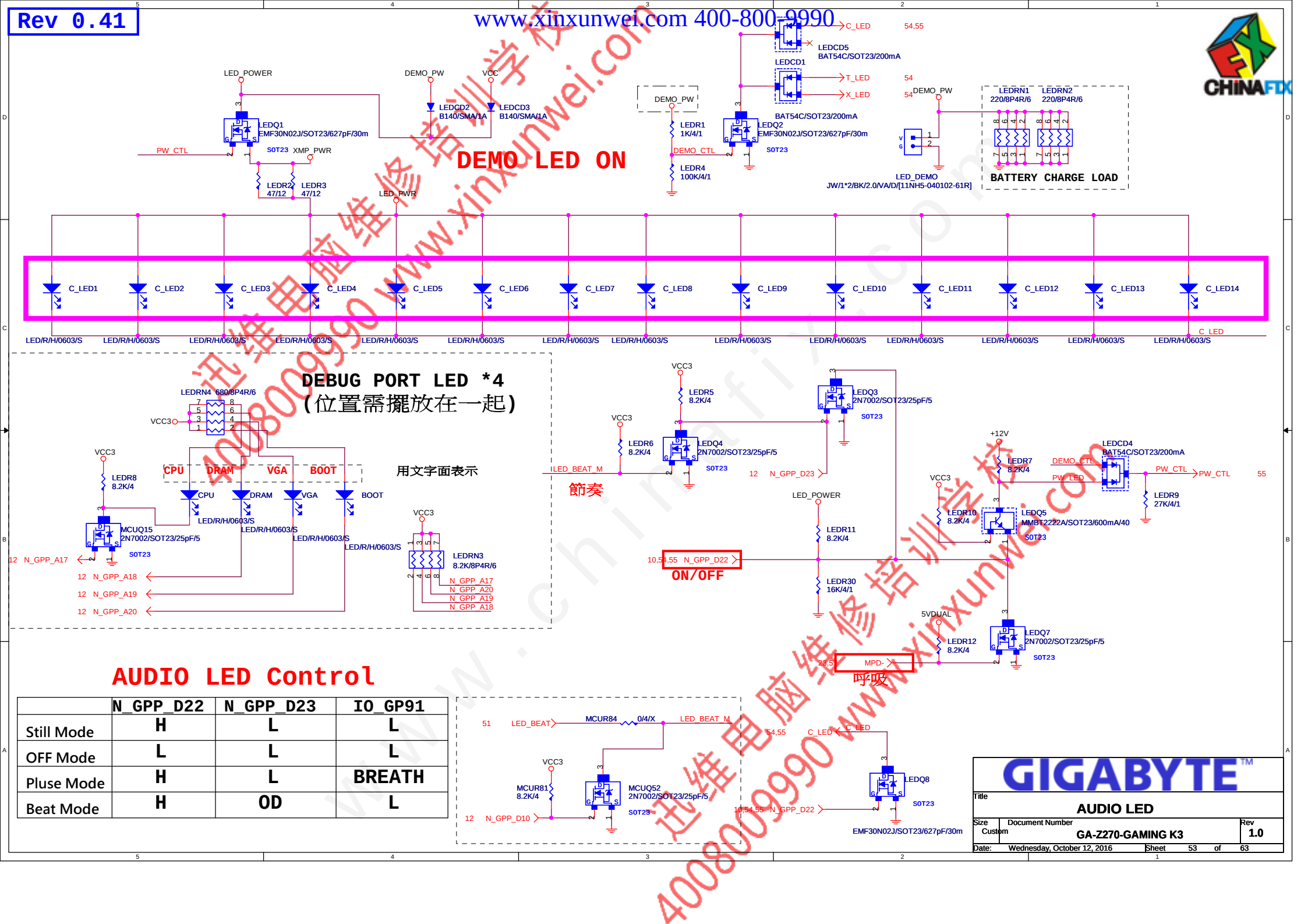


Gigabyte Technology

Title: AUDIO JACK

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 52 of 63



	N_GPP_D22	N_GPP_D23	IO_GP91
Still Mode	H	L	L
OFF Mode	L	L	L
Pluse Mode	H	L	BREATH
Beat Mode	H	OD	L

GIGABYTE™

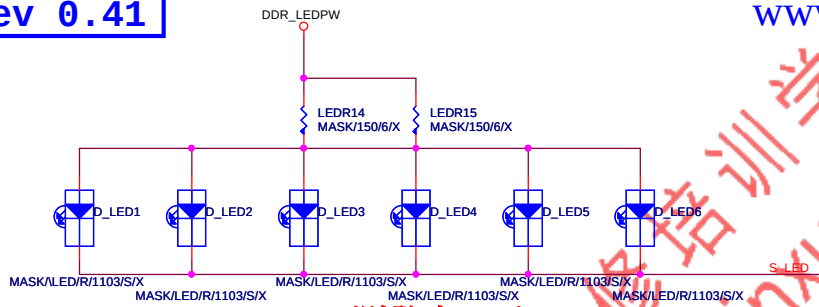
Title: AUDIO LED

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

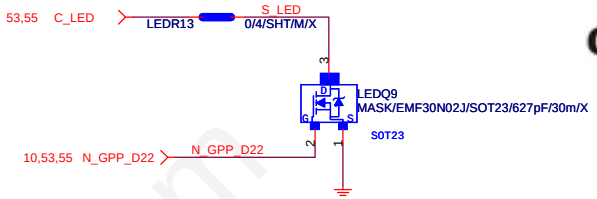
Date: Wednesday, October 12, 2016 | Sheet 53 of 63

Rev 0.41

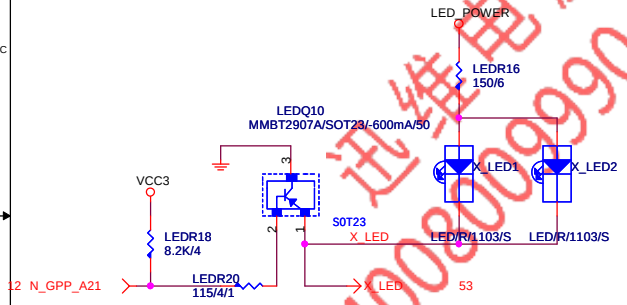
LED BAR remove (Ver. 1.0)



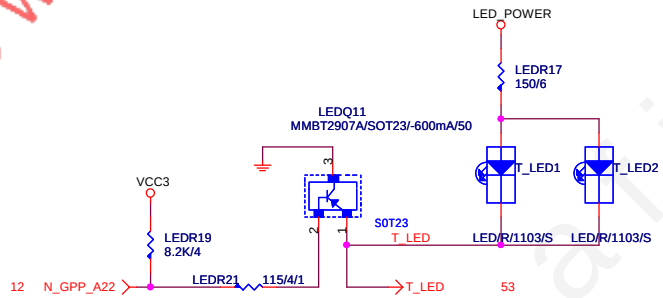
FOR DIMM SLOT測發光LED*6



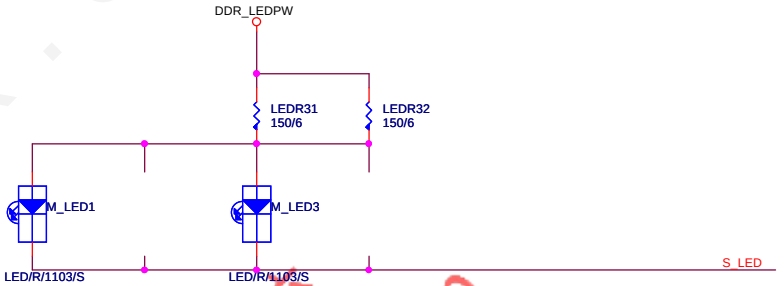
FOR XMP 測發光 LED*2
(靠近DIMM附近放背板鏤空)

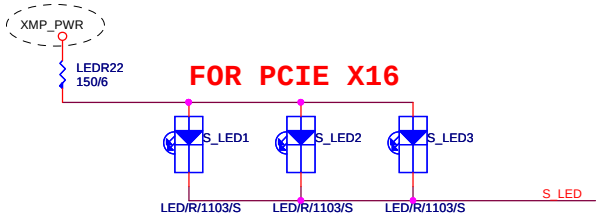


FOR TURBO 測發光 LED*2
(靠近DIMM附近背板鏤空)



FOR MODEL NAME測發光LED*4



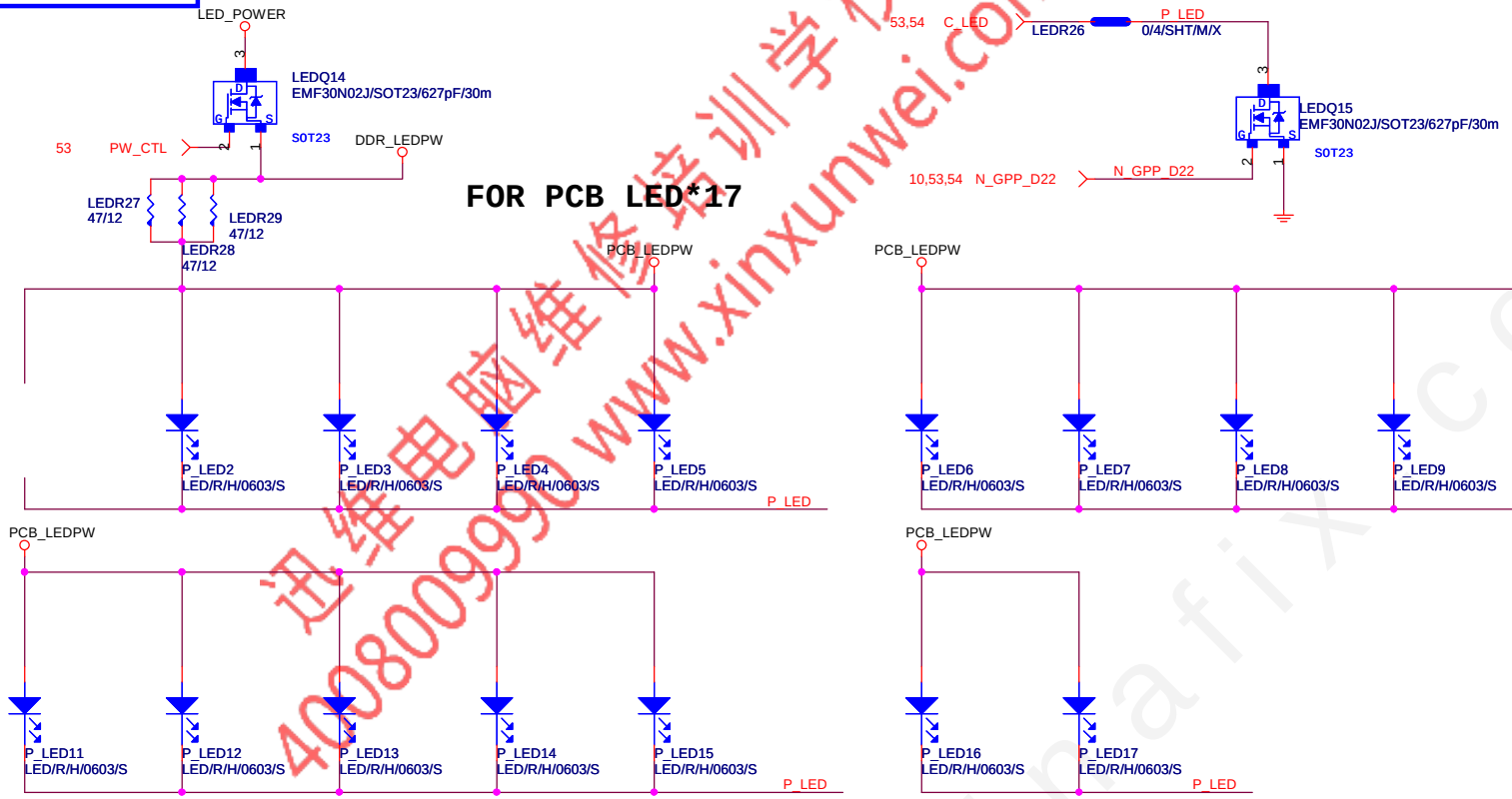


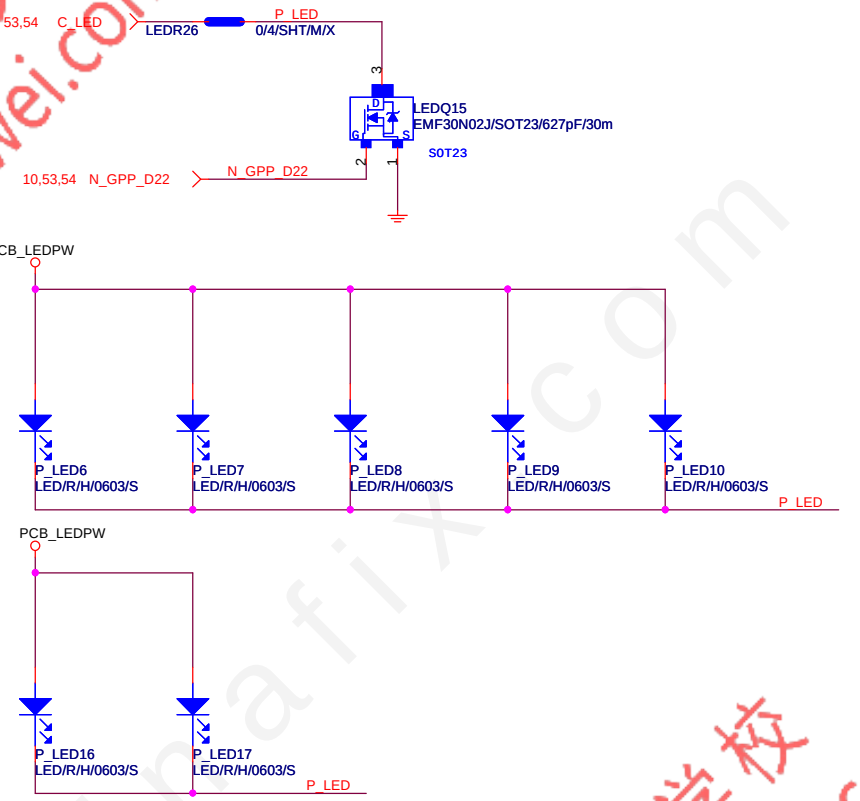
FOR PCIE X16

GIGABYTE

Title	PCIE/DDR LED	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 54 of 63	

Rev 0.41





GIGABYTE™

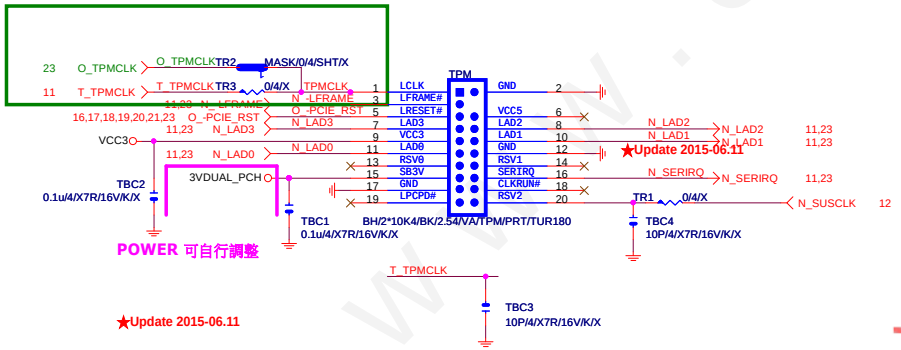
Title	MODEL/PCB LED	
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 55 of 63	

Rev: 0.52

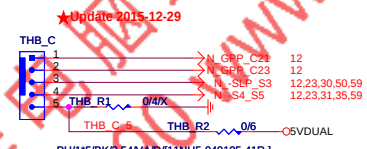
COM PORT

80 PORT

TPM CONNECT



Thunderbolt



Gigabyte Technology

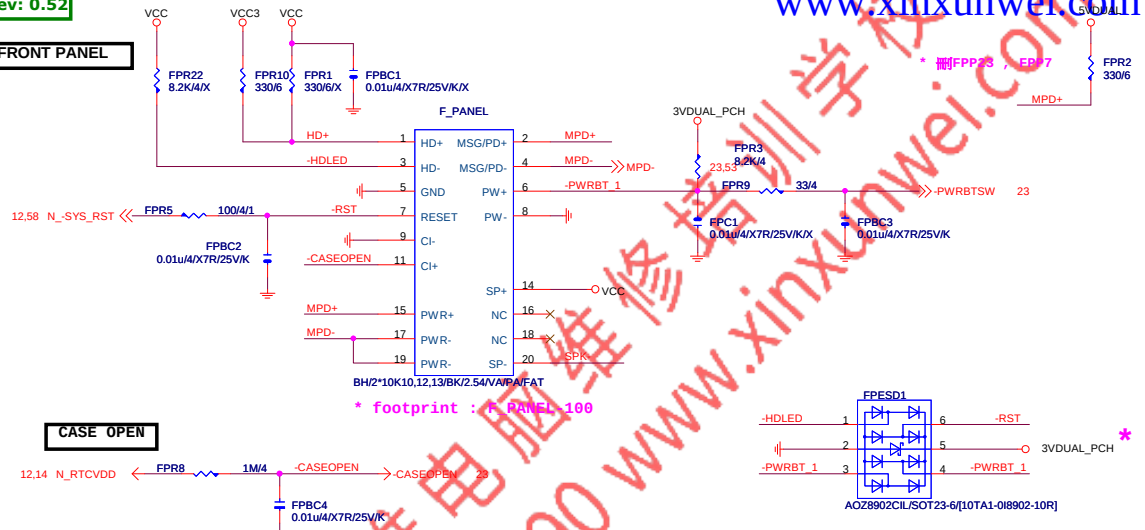
Title: TPM, TBT Conn

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 56 of 63

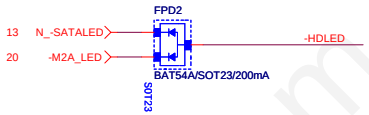
Rev: 0.52

FRONT PANEL



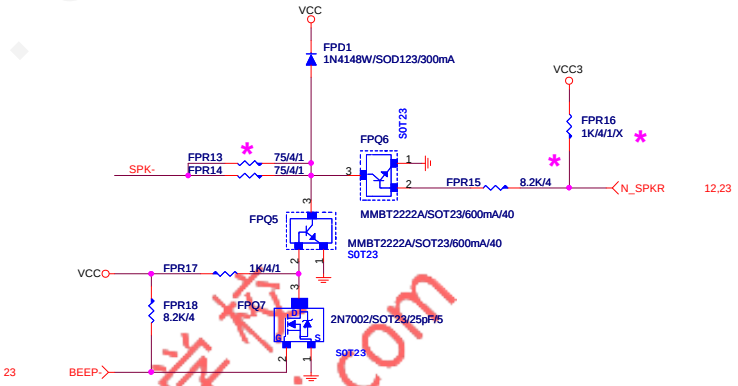
CASE OPEN

SATA LED: SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3.3



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-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 57 of 63	

REV:0.1

IDT6V41630

MP MASK

(靠近cpu)

(靠近PCH)

Reserve CLK Buffer

INP_SEL	Intput
0	Crystal
1	CLK_INP/N

0=25MHz crystal input
1=100MHz differential input

CPU Frequency Selection and output Divider Table

B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	200.00	2.00	100.00	-	OFF
0	1	400.00	4.00	100.00	-	OFF
1	0	1000.00	10.00	100.00	-0.50%	ON
1	1	100.00	1.00	100.00	-	OFF

Cover remove (Ver. 1.0)

Defaults
CKX1.CKBC8.CKBC9.CKR18.CKR19上件
CKR30.CKR31不上件

SMBUS

Real time selection function

Frequency change slew rate control

*可變，依需求上件不上件。

GIGABYTE

Title: IDT6V41530_CLK BUFFER

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 58 of 63

EMI/ESD R0.1

CLOSE SIO

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

12,23,30,50,56 N_-SLP_S3

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

12,23,31,35,56 N_-S4_S5

CLOSE PCH

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

4,12 N_CPUPWROK

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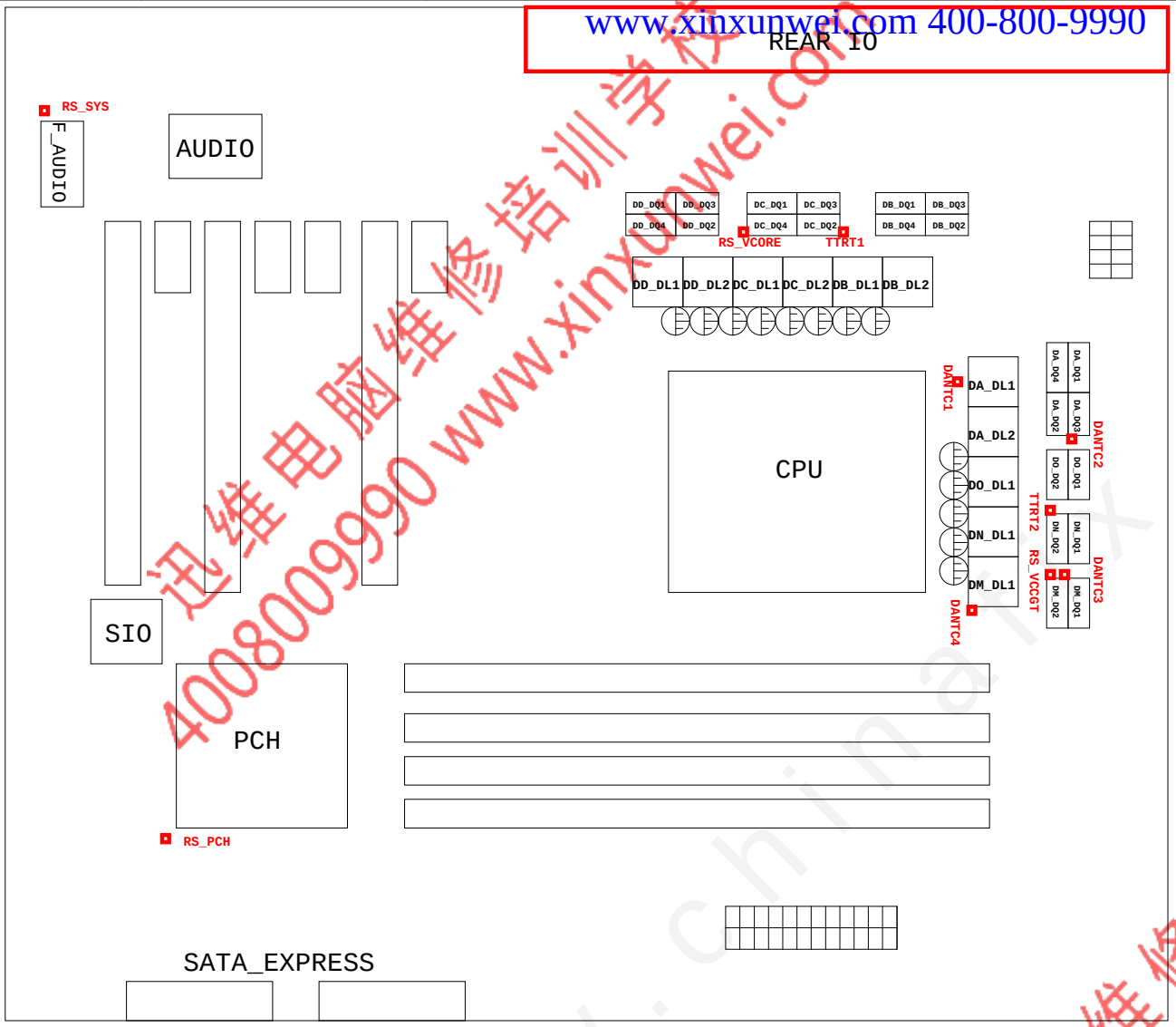
Title: EMI/ESD		
Size: A	Document Number: GA-Z270-GAMING K3	Rev: 1.0
Date: Wednesday, October 12, 2016	Sheet 59 of 63	



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

Gigabyte Technology

Title: NTC MAP

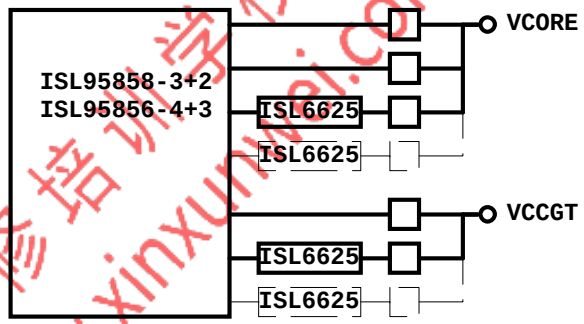
Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

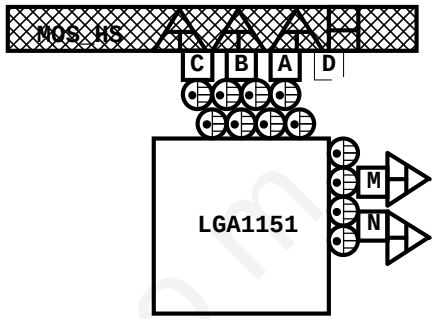
Date: Wednesday, October 12, 2016 | Sheet 60 of 63

POWER BLOCK MAP

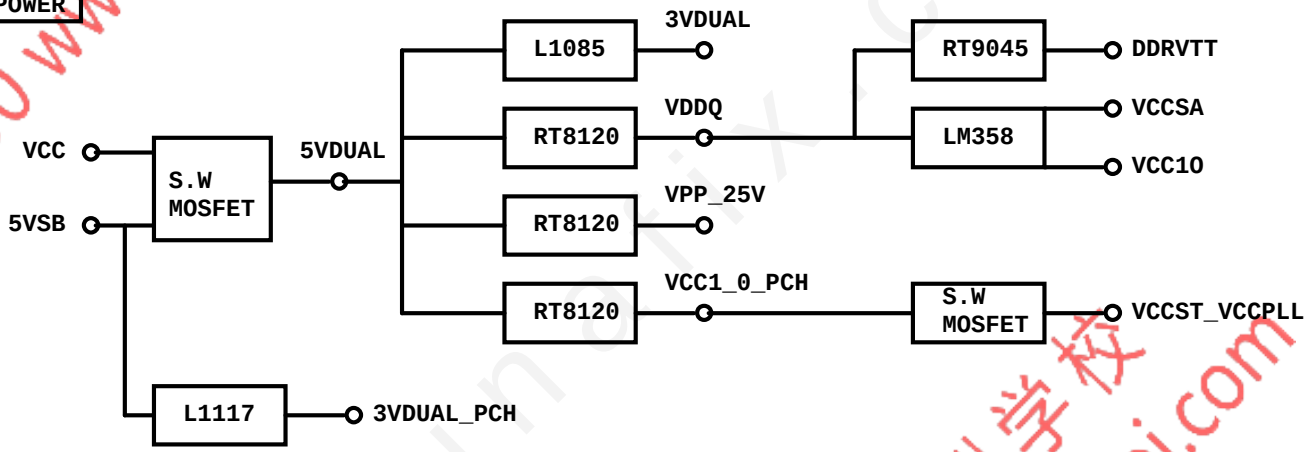
- CPU
  - VCORE
  - VCCGT
  - VCCSA
  - VCCIO
  - VDDQ
  - VCCST_VCCPLL
  - VCCSFUSEPRG
- DDR4
  - VDDQ
  - DDRVTT
  - VPP_25V
  - VDDSPD(VCC3)
- PCH
  - VCC1_0_PCH
  - VCC1_0_PCH_DSW
  - VCC10_VCCF24_1P0
  - VCC10_VCCAMPHYPLL
  - VCC10_VCCAPLL
  - VCC3_PCH
  - 3VDUAL_PCH
  - VCC3
  - N_RTCVDD
- IT8628
  - IT_VCCH
  - IT_AVCC
  - 2_5LEVEL
- HM
  - +12V
  - VCC
  - VCC3
  - VCORE
  - VCCGT(IMON_VCCGT)
  - VDDQ
  - VCCSA(IMON_VCORE)

VCORE/VCCGT

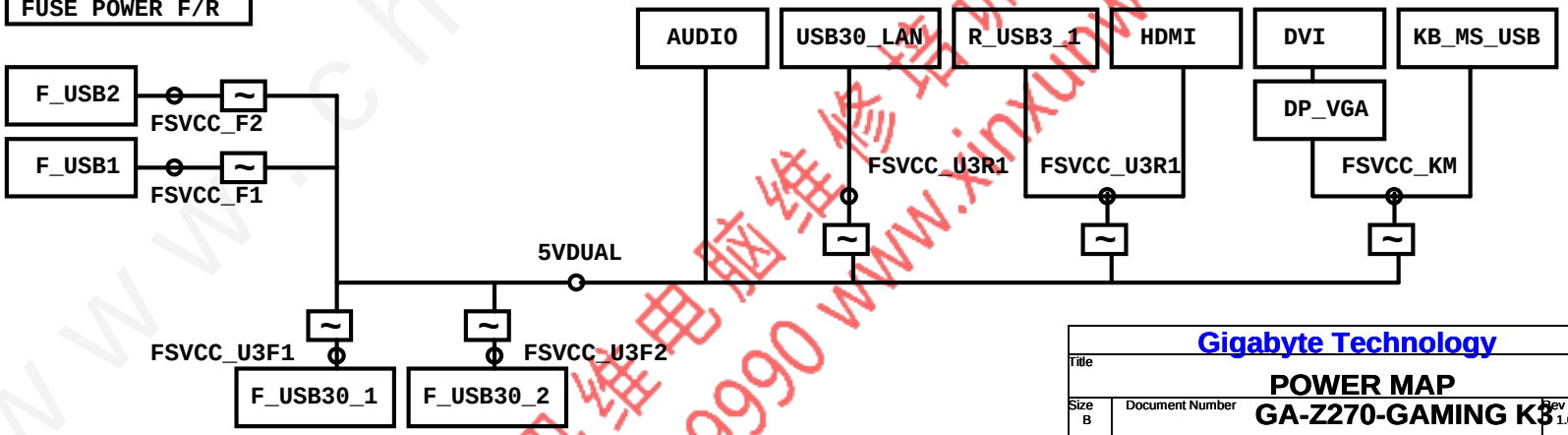




POWER



FUSE POWER F/R



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Title: POWER MAP

Size: B | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 61 of 63

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
11CO5-C82700-01R	270u/FP/D/16V/88/C/12m
11CO5-C61000-01R	100u/OS/D/16V/66/C/30m
11CO2-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11CO2-685600-01R	560u/FP/D/6.3V/68/8m
11CO5-882700-01R	270u/FP/D/16V/88/12m
11CO5-661000-03R	100u/OS/D/16V/66/30m
11CO2-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11CO2-661000-09R	100u/OS/D/6.3V/66/A/35m
11CO5-691000-09R	100u/OS/D/16V/69/A/35m
11CO5-8C2700-09R	270u/FP/D/16V/8C/A/10m
11CO2-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-01R	0.5uH/40A/IMD109/M/D	10*10	CHOKE05U-40A-1PQ-3	閃電P
DIP	11LC5-M4500C-11R	0.5uH/40A/IMD109/M/NP/D	10*10	CHOKE05U-40A-1PQ-3	無閃電P
DIP	11LC5-M2500C-01R	0.5uH/20A/IMD0809/M/D	8*8	CHOKE1U-R50M-IF	

Skylake Iron Choke閃電P導入機種如下:
[1] Z170/H170 機種全部導入
[2] B150/H110Gaming機種導入, 其餘不導入

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	ISL95856	10TA1-695856-01R		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

GIGABYTE™

Title: RT8120_DDR4 POWER

Size: Custom | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 62 of 63

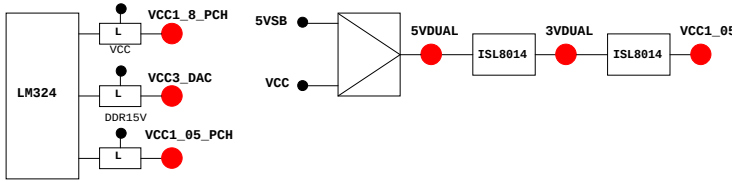
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR_LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

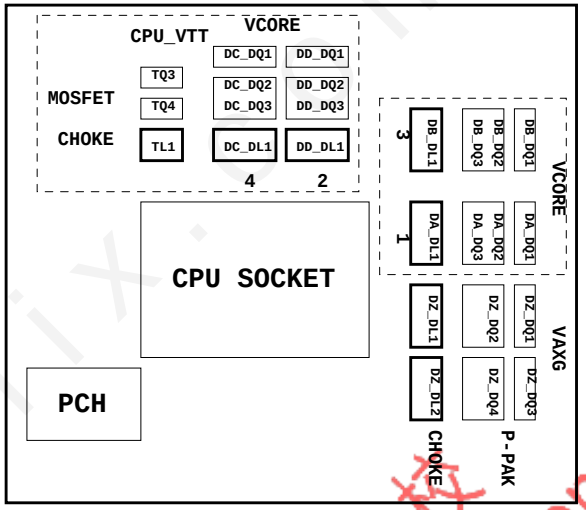
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	SB_LED3_C	



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
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

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

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology

Title: TABLE LIST

Size: C | Document Number: GA-Z270-GAMING K3 | Rev: 1.0

Date: Wednesday, October 12, 2016 | Sheet 63 of 63