Model Name: GA-Z270X-Ultra Gaming

Rev 1.02

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07	CPU_LGA1151-D
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16	ITE 8686 LPC IO
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18	FAN CTRL--SIO
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28	ISL95856 MOS_VCCGT
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31	RT8120_VPP
32	RT8120_PCH
33	DISCRETE POWER1
34	NCT3933
35	ATX POWER , A_-PROCHOT

SHEET	TITLE
36	KB_MS_USB
37	OC , ECO , POWER BUTTON
38	F_USB30
39	F_USB20
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49	COM , TPM , 80 port , THB_C
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58	NA
59	NA
60	M2A_32G (M.2 22110)
61	NA
62	N/A
63	EMI/ESD
64	NTC MAP
65	POWER MAP
66	POWER零件使用表
67	TABLE LIST
68	DUAL BIOS
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Title: Cover Sheet

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Model Name: GA-Z270X-Ultra Gaming

Component value change history

Data	Change Item	Reason
2016/07/05	1. First Release	9MZ27ULGA-00-01
2016/08/15	1. NC2 27P/4 to 22P/4 2. Remove NR17,NR186 8.2K/4 3. OR56 10K/4 to 8.2K/4 4. Remove CD1 AZ2225-01 5. PWM to ISL95866 6. TTR2 5.49K/4/1 to 4.7K/4/1 7. TTR8 4.02K/4/1 to 4.3K/4/1 8. CR20,CR1 0/4 to 75/4/1 9. Remove BSR1,BSR5 1K/4/1	9MZ27ULGA-00-02
2016/09/13	1. Update LED Control Circuit 2. Update Type C to Ti 3220	9MZ27XD3U-00-01
2016/10/06	1. Remove 0 ohm 2. Update H.S. 料號 3. Add Audio beat mode 4. PCB Rev 1.0	9MZ27ULGA-00-10A
2016/10/21	1. PCB Rev 1.01 2.移除DC_SBC7/8, MR25/26,MC20 3.增加DCC1/2/3, MABC6 4.Add DCC51,DCC52,DCC53,DCC55 5.Remove 12pcs LED	9MZ27ULGA-00-10D
2016/10/25	1. R_USB30 connect change to 11NR6-H03037-01R	9MZ27ULGA-00-10E
2016/10/27	1. MOSFET change to ON	9MZ27ULGA-00-10F
2016/11/11	1.PCB to Rev 1.02	9MZ27ULGA-00-10G

2016/11/10 Rev 1.02 1.DDR 4 mils trace to 4.5mils 2.文字面加上Intel Optane Memory Ready	2016/10/19 Rev 1.01 1.由Z270X-Gaming K5 Rev 1.0修改 2.移除DC_SBC7/8, MR25/26,MC20 3.增加DCC1/2/3, MABC6 4.Add DCC51,DCC52,DCC53,DCC55 5.修改DDR O.C. Layout

Circuit or PCB layout change

DATE	Change Item Reason
2016/07/05 Rev 0.1	1. First Release
2016/08/12 Rev 0.2	1.Remove IT8792 2.Add NR85,NR86 3.Remove OC button 4.OR56改接3VDUAL_PCH 5.PCIEX4 slot 改跟PCIEX1 切換 (原本跟M2P_32G) 6.Add PWM ID NR400,NR401 close to PCH 7.F_USB30_1 DAC power,改為FBU2EC1,FBU3F1,FBU3C5 fuse power 8.Audio connect power 改接FUSEVCC_R 9.USB30_LAN 改為USB_LAN 10.M2P_32G改為M2A_32G 11.M2M remove 12.U2_32G pin D6改接GND 13.LED control update(跟Gaming 3一樣) 14.DEBUG LED 文字加粗 15.AUDIO切割靠近AUDIO connect處加LED 或由其他地方移LED過來 16.NX1 背板SHAPE REMOVE 17.統一PCIEx4跟PCIEx1的切換方式 18.XMP/TURBO/Model Name LED 改測發光, 擺放位置請參考Z270X-Gaming 7 Rev 0.2 19.MH1,MH2 改 AGND 18.CR22 改0/6 , MOATR1,MOATR2,MOATR4 改0/4/X , MOATR3改0/4 19.Add CPVDD POWER 20.Add SMOATR1,放在CU1下方背板 21.Model LED改側發光LED 22.C_3LED32, C_3LED33, C_3LED16, C_3LED17移到靠近AUDIO connect 切割線 23.Audio add CD3,CD4,CD5,CD6 24.Delete C_3LED32 25.Add M_3LED4 for "G1 GAMING" model name 26.KABY LAKE模組化線路LED CONTROL Rev0.6 Add MCUCD10~13 27.Remove flex IO 28.COUPON1.2 net改為VCC3 29.Remove Audio 部分正面LED, C_3LED31, C_3LED30, C_3LED29, C_3LED27, C_3LED18, C_3LED26
2016/09/12 Rev 0.1	1.由Z270X-Ultra Gaming Rev 0.2來修改 2.MABC8 0603改為0402 3.LED circuit update a.MCU1 power 改成 MCU_PW33 b.Remove MCU_PH1, test pin c.MCUR13改short-pad d.LEDR3改2.2M/4,VRN3改330/8P4R/6 e.側發光改宏齊LED料號:10DL6-220RGB-51R f.移除背板PCB LED和G1.Gaming鏤空,改成正面雷雕導光燈條設計 g.刪除Audio 正面LED 4.ASM2142 circuit update a.SSAC40,SSAC41,SSAC42,SSAC43,SSAC44,SSAC45, SSAC46,SSAC24,SSAC49 0603改為 0402 Capture Value:2.2u/4/X5R/6.3V/M 5.MH1改GND, MOATR1&MOATC1移到F_AUDIO下方 6.MH2改dummy 7.SYS_TEMP2移到FPR13下方 8.MOATR1&MOATC1移到F_AUDIO下方 9.MOATR3 &MOATC3移到目前 Rev 0.2版MOATR1&MOATC1的位置 10.Debug LED 文字面加框放在下面一點 11.USB31_2改為USB31 12.C_3LED38, C_3LED25, C_3LED20, C_3LED19, C_3LED17, C_3LED16, C_3LED15, C_3LED11, C_3LED10刪除. 13.Remove OC_BT & OC_LED connect 14.SYS3_PUMP rename to SYS_FAN3_PUMP 15.TTRT1跟VRM_TEMP對調位置 (VCORE最熱的MOS是DC_DQ1) 16.TTRT2放在DO_DQ2下方 (VAXG最熱的MOS是DO_DQ2) 17.PCIEX4 slot改為非金屬slot
2016/10/06 Rev 1.0	1.由Z270X-Ultra Gaming Rev 0.1來修改 2.0 ohm改為short pad 3.MOS_HS改為TMOS: MOSHSINK-SNIPERB8-T & RMOS: MOSHSINK-SNIPERB8-R 4.Audio修改 a.Remove ALC1220 pin41 CPVDD LDO POWER , 改成從3VDUAL過來 b.MOATR1, MOATR3 改 SHORT PAD 5.LED修改 a.Add "N_GPP_D10" software beat mode control b.Remove PCIE LED control ON/OFF circuit 6.H_3LED1,H_3LED2,H_3LED3,H_3LED4 MASK 7.PCH_HS改為BGAHSINK-Z270-GAMING-K3 8. Rear IO Footprint Z270_UD_BASE_COVER 9.MASK Clock buffer &週邊零件 10.移除USB_LAN_HS

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Title: BOM & PCB MODIFY HISTORY

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BLOCK DIAGRAM

PCI EXPRESS X16
PCI EXPRESS X8
DVI,HDMI
SWITCH

INTEL LGA1151
(KABYLAKE)
IMVP 8

DDR4 BUS

CHANNEL A
DDR4 DIMM X 2

CHANNEL B
DDR4 DIMM X 2

PCI EXPRESS X4
SWITCH

PCI EXPRESSX1 2&3
PCIE-4 gen3

PCI EXPRESSX1 1
PCIE-1 Gen3

M.2A SLOT
PCIE-1 Gen3

PCI EXPRESSX1 3
PCIE-1 Gen3

Intel i219V
PCIE-1 Gen3

DMI

PCH (Z270/H270/B250)

SATA III PORT 0~5
SATAIII/SATA EXPRESS

SPI BUS
SPI Dual BIOS

LPC BUS
LPC I/O ITE8686

I/O PORTS :
PS2 KB/MS TPM

FRONT PANEL /
CPU/SYS FAN

USB2.0 PORTS 0~13
USB 2.0

USB3.0 PORTS 0~7
USB 3.0

U.2

ASMEDIA ASM2142
PCIE-1 Gen3

AZALIA BUS

Realtek ALC1220

AUDIO PORTS : FRONT AUDIO
LIN_ OUT LINE_IN MIC
SURR CEN/LFE SPDIF

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Title	BLOCK DIAGRAM
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From SKL_0.2B

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

* WR7 , WR1 , WR81 改 short pad

* 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

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

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Title: CPU LGA1151-A

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* 改DDR4 net

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18	M_DCLKA0
MDA1	AE37	DDR0_DQ[1]	DDR0_CKN[0]	AV18	M_-DCLKA0
MDA2	AG38	DDR0_DQ[2]	DDR0_CKP[1]	AW17	M_DCLKA1
MDA3	AG37	DDR0_DQ[3]	DDR0_CKN[1]	AV17	M_-DCLKA1
MDA4	AE39	DDR0_DQ[4]	DDR0_CKP[2]	AW16	M_DCLKA2
MDA5	AE40	DDR0_DQ[5]	DDR0_CKN[2]	AV16	M_-DCLKA2
MDA6	AG39	DDR0_DQ[6]	DDR0_CKP[3]	AT16	M_DCLKA3
MDA7	AG40	DDR0_DQ[7]	DDR0_CKN[3]	AU16	M_-DCLKA3
MDA8	AJ38	DDR0_DQ[8]			
MDA9	AJ37	DDR0_DQ[9]	DDR0_CKE[0]	AY24	CKEA0
MDA10	AL38	DDR0_DQ[10]	DDR0_CKE[1]	AW24	CKEA1
MDA11	AL37	DDR0_DQ[11]	DDR0_CKE[2]	AV24	CKEA2
MDA12	AJ40	DDR0_DQ[12]	DDR0_CKE[3]	AV25	CKEA3
MDA13	AJ39	DDR0_DQ[13]			
MDA14	AL39	DDR0_DQ[14]	DDR0_CS#[0]	AW12	M_-CSA0
MDA15	AL40	DDR0_DQ[15]	DDR0_CS#[1]	AU11	M_-CSA1
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]	DDR0_CS#[2]	AV13	M_-CSA2
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]	DDR0_CS#[3]	AV10	M_-CSA3
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]			
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]	DDR0_ODT[0]	AW11	MODT_A0
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]	DDR0_ODT[1]	AU14	MODT_A1
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]	DDR0_ODT[2]	AU12	MODT_A2
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]	DDR0_ODT[3]	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
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AY15	SBAA1
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]	AW23	BG_A0
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
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	AU24	M_-ACT_A
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]			
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]	DDR0_PAR	AY15	M_DDR_PARA
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]	DDR0_ALERT#	AT23	M_-ALERT_A
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
			DDR0_DQSP[3]/DDR0_DQSP[5]	AV36	M_DQSA3
			DDR0_DQSP[4]/DDR1_DQSP[0]	AV7	M_DQSA4
			DDR0_DQSP[5]/DDR1_DQSP[1]	AU2	M_DQSA5
			DDR0_DQSP[6]/DDR1_DQSP[4]	AN2	M_DQSA6
			DDR0_DQSP[7]/DDR1_DQSP[5]	AJ2	M_DQSA7
AU33					
AT33		DDR0_ECC[0]	DDR0_DQSP[8]	AV32	
AW33		DDR0_ECC[1]	DDR0_DQSN[8]	AU32	
AV33		DDR0_ECC[2]			
AU33		DDR0_ECC[3]			
AV33		DDR0_ECC[4]			
AW33		DDR0_ECC[5]			
AY33		DDR0_ECC[6]			
		DDR0_ECC[7]			

DDR CHANNEL A

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CPU-SK/1151/S/GF

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]	DDR1_CKP[0]	AM20	M_DCLKB0
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]	DDR1_CKN[0]	AM21	M_-DCLKB0
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]	DDR1_CKP[1]	AP22	M_DCLKB1
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]	DDR1_CKN[1]	AP21	M_-DCLKB1
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]	DDR1_CKP[2]	AN20	M_DCLKB2
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]	DDR1_CKN[2]	AN21	M_-DCLKB2
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]	DDR1_CKP[3]	AP19	M_DCLKB3
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]	DDR1_CKN[3]	AP20	M_-DCLKB3
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]			
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]	DDR1_CKE[0]	AY29	CKEB0
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]	DDR1_CKE[1]	AY29	CKEB1
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]	DDR1_CKE[2]	AW29	CKEB2
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]	DDR1_CKE[3]	AU29	CKEB3
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]			
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]	DDR1_CS#[0]	AP17	M_-CSB0
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]	DDR1_CS#[1]	AN15	M_-CSB1
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]	DDR1_CS#[2]	AN17	M_-CSB2
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]	DDR1_CS#[3]	AM15	M_-CSB3
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]			
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]	DDR1_ODT[0]	AM16	MODT_B0
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]	DDR1_ODT[1]	AL16	MODT_B1
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]	DDR1_ODT[2]	AP15	MODT_B2
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]	DDR1_ODT[3]	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
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AM18	SBAB1
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]	AW28	BG_B0
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
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28	M_-ACT_B
MDB48	AM10	DDR1_DQ[48]			
MDB49	AL10	DDR1_DQ[49]	DDR1_PAR	AL20	M_DDR_PARB
MDB50	AM7	DDR1_DQ[50]	DDR1_ALERT#	AY25	M_-ALERT_B
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	AE6	DDR1_DQ[58]	DDR1_DQSN[5]/DDR1_DQSN[3]	AR8	M_-DQSB5
MDB59	AE7	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	AE7	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
AM26		DDR1_ECC[1]	DDR1_DQSP[5]/DDR1_DQSP[3]	AP8	M_DQSB5
AM25		DDR1_ECC[2]	DDR1_DQSP[6]	AL8	M_DQSB6
AP26		DDR1_ECC[3]	DDR1_DQSP[7]	AG7	M_DQSB7
AP25		DDR1_ECC[4]			
AL25		DDR1_ECC[5]			
AL26		DDR1_ECC[6]	DDR1_DQSP[8]	AN25	
		DDR1_ECC[7]	DDR1_DQSN[8]	AN26	

DDR CHANNEL B

2 OF 12

CPU-SK/1151/S/GF

DDR_VREF_CA	AB40	VREF_CAB
DDR0_VREF_DQ	AC40	
DDR1_VREF_DQ	AC39	VREF_DQB

(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]

LGA1151

ILM_BP_CR/115X/NORMAL NI

Need check the new CPU ME

CPU-SK/1151/S/GF

Gigabyte Technology	
Title	CPU LGA1151-B
Size: Custom	Document Number: GA-Z270X-Ultra Gaming
Rev	1.02
Date: Thursday, December 01, 2016	Sheet 5 of 76

* 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 , WR59 , 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

VCCGTX_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

10 OF 12

CPU-SK/1151/S/GF

CPU POWER

VCCST_VCCPLL
VCCSFUSEPRG
VCCPLL

VCCST_V5 V5
VCCST_V6 V6
VCCPLL V4

VCCSA

LGA1151K SKT_H4 LGA1151

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

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 VCCIO

VDDQ

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

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

CPU POWER

VCCPLL_OC AJ9 VCCPLL_S WR86 0/4/X VDDQ
WR95 0/4/SHT/M/X VCCPLL_OC

VCCOPC_AJ30 AJ30
VCCOPC_AJ27 AJ27
VCCOPC_AJ28 AJ28
VCCOPC_AJ29 AJ29
VCCOPC_AK27 AK27
WR60 0/4/X

VCCEOPIO AJ25
VCCEOPIO AJ26
WR61 0/4/X

VCC_OPC_1P8_AB37 AB37
VCC_OPC_1P8_AB38 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

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

(13) N_PCH_CPU_TR
(13) A_CPU_PCH_TO_R
WR88 33/4 A_CPU_PCH_TO_R

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

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CPU-SK/1151/S/GF

Gigabyte Technology

Title: CPU LGA1151-C

Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

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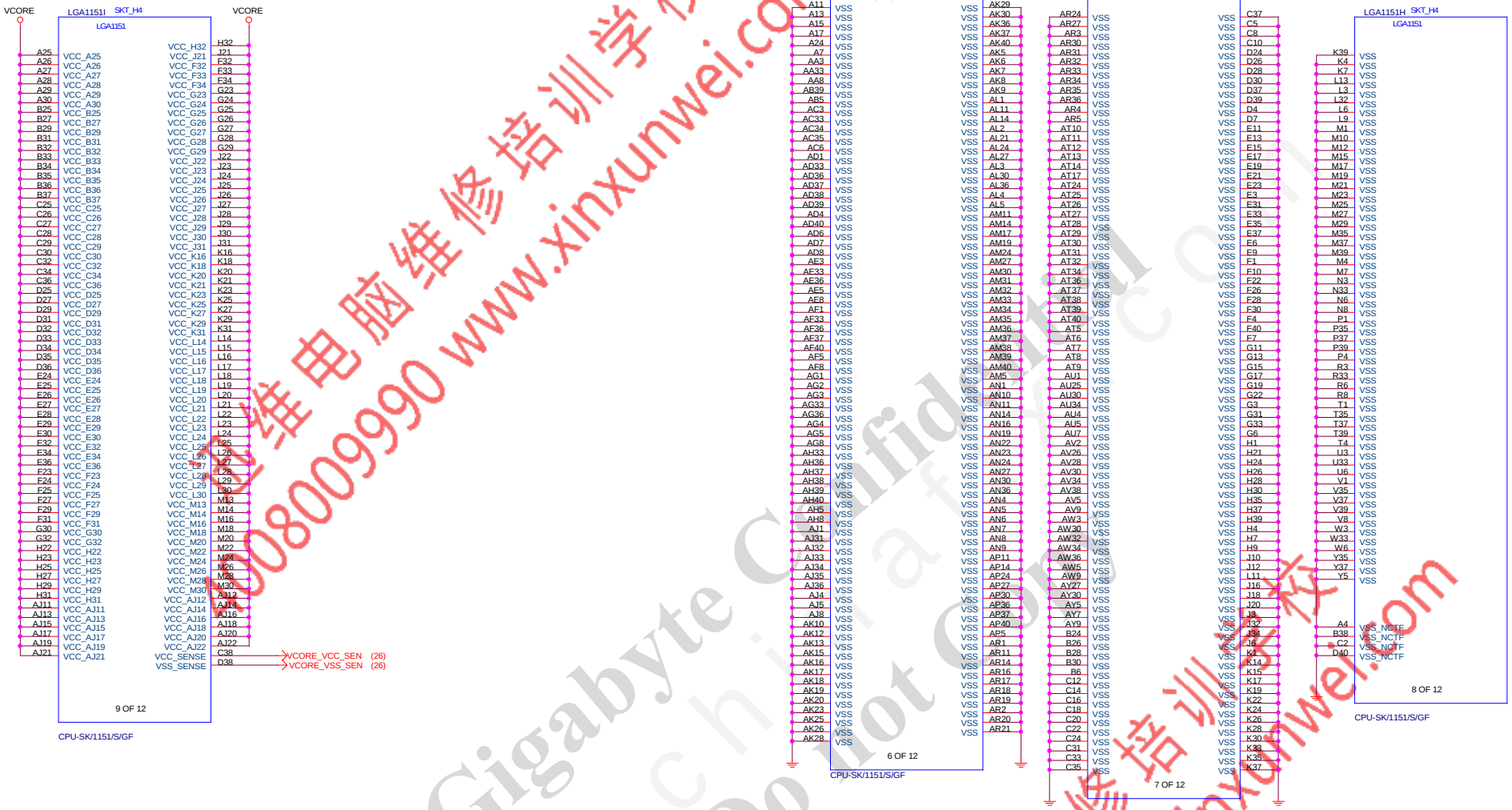
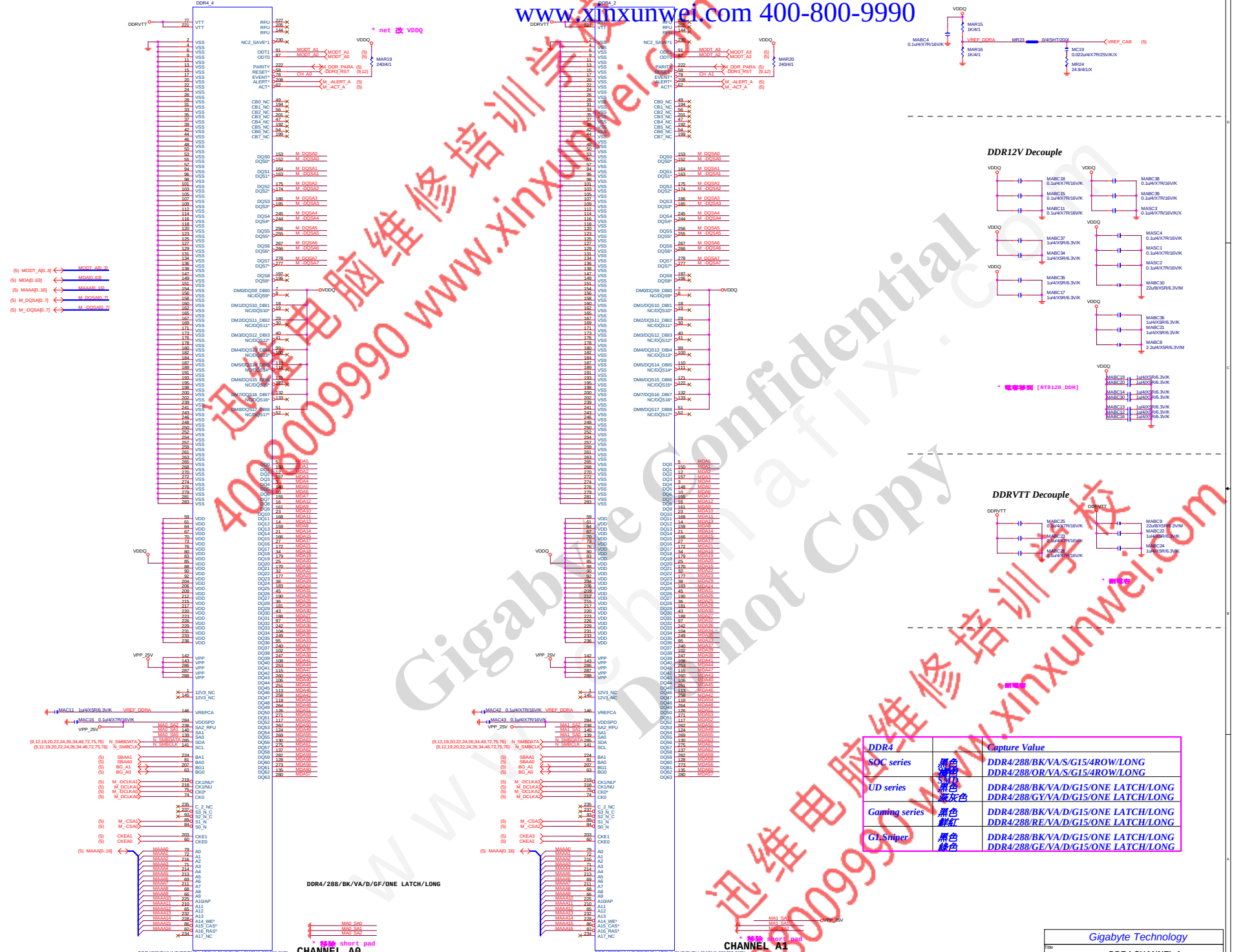


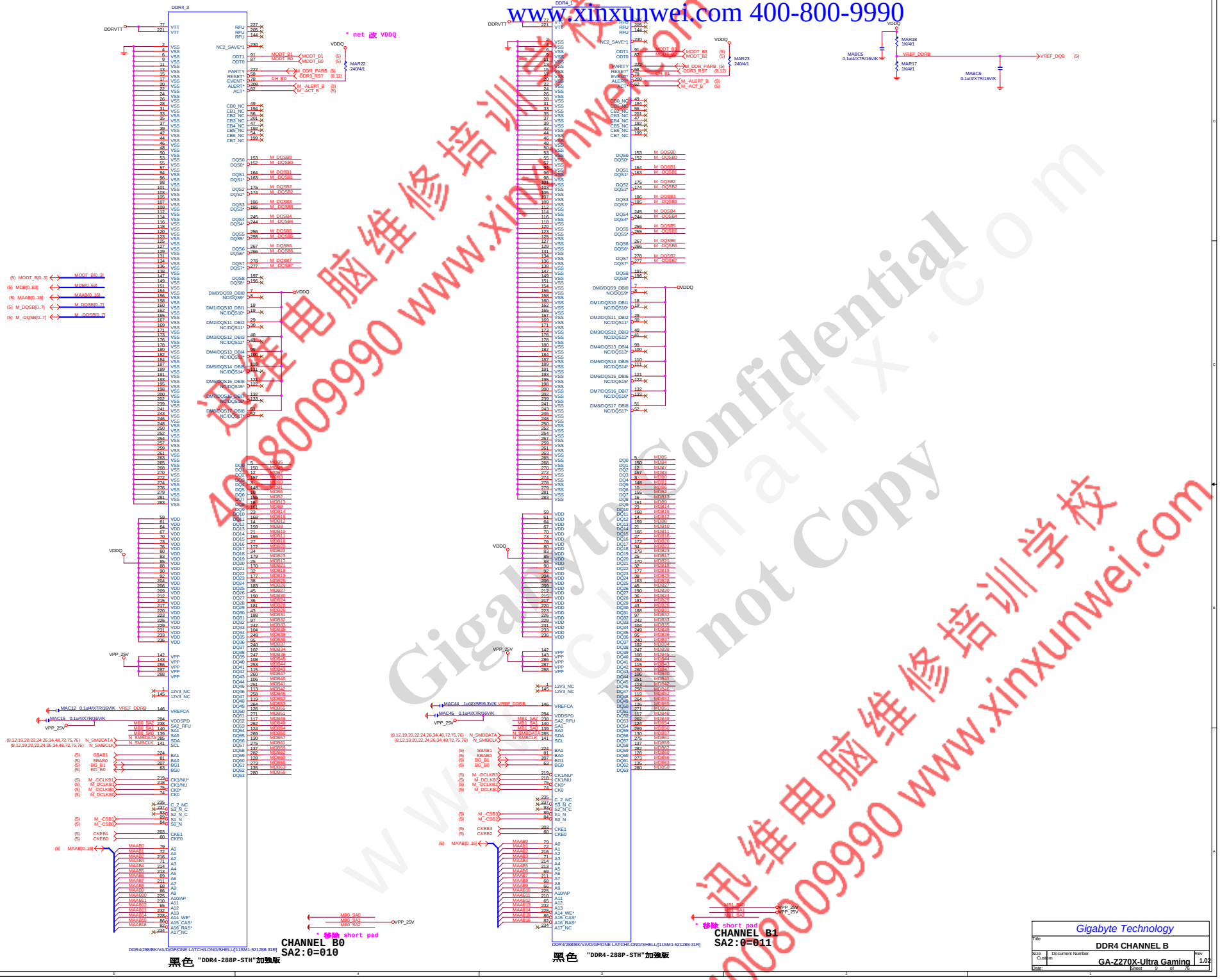
* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 7 of 76	

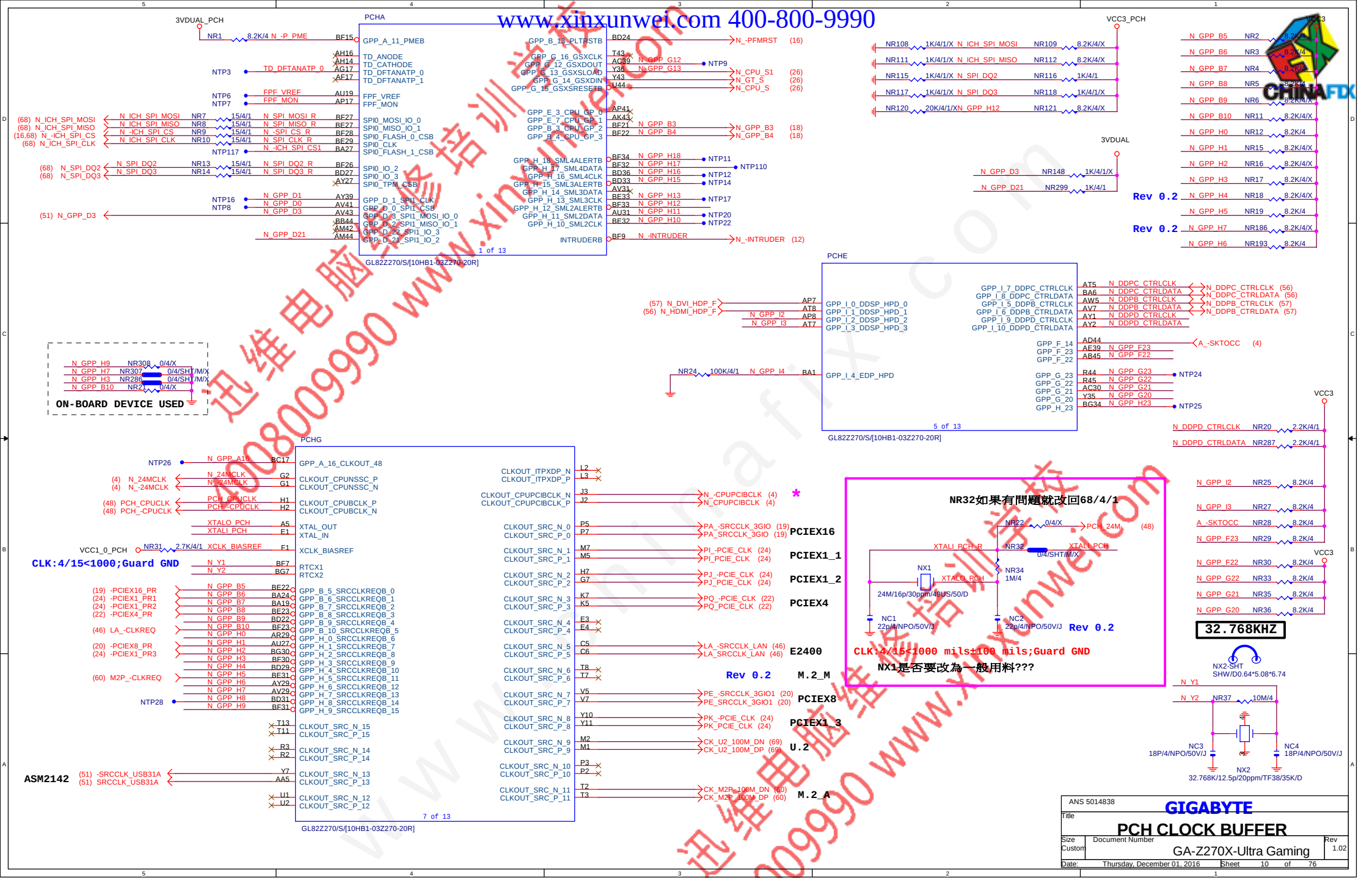


DDR4		Capture Value
SOC series	黑色 灰色	DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	黑色 灰色 淺灰色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 紅色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
G1.Sniper	黑色 綠色	DDR4/288/BK/VA/D/G15/ONE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

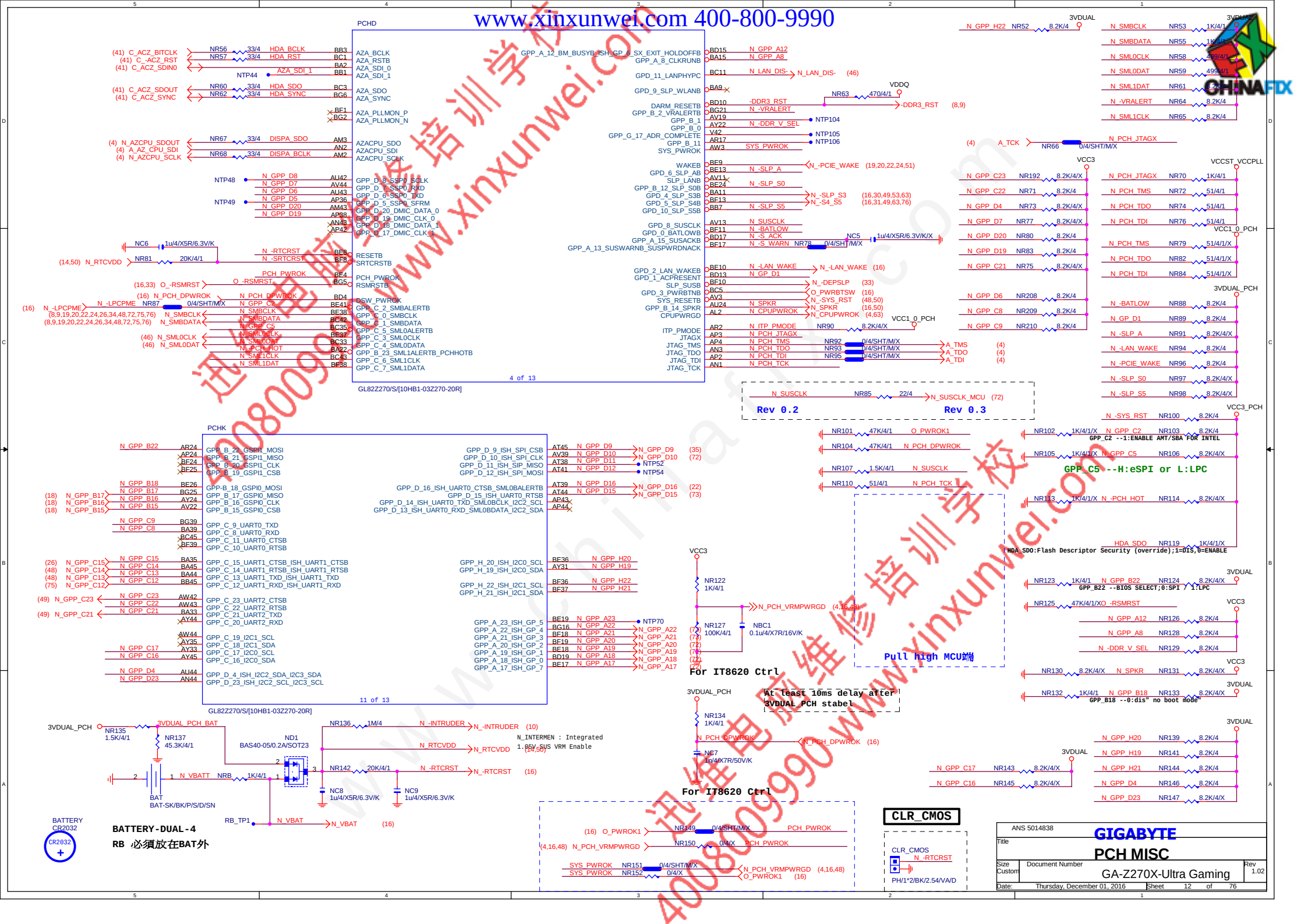
Gigabyte Technology		
Title	DDR4 CHANNEL A	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date:	Sheet 8 of 76	

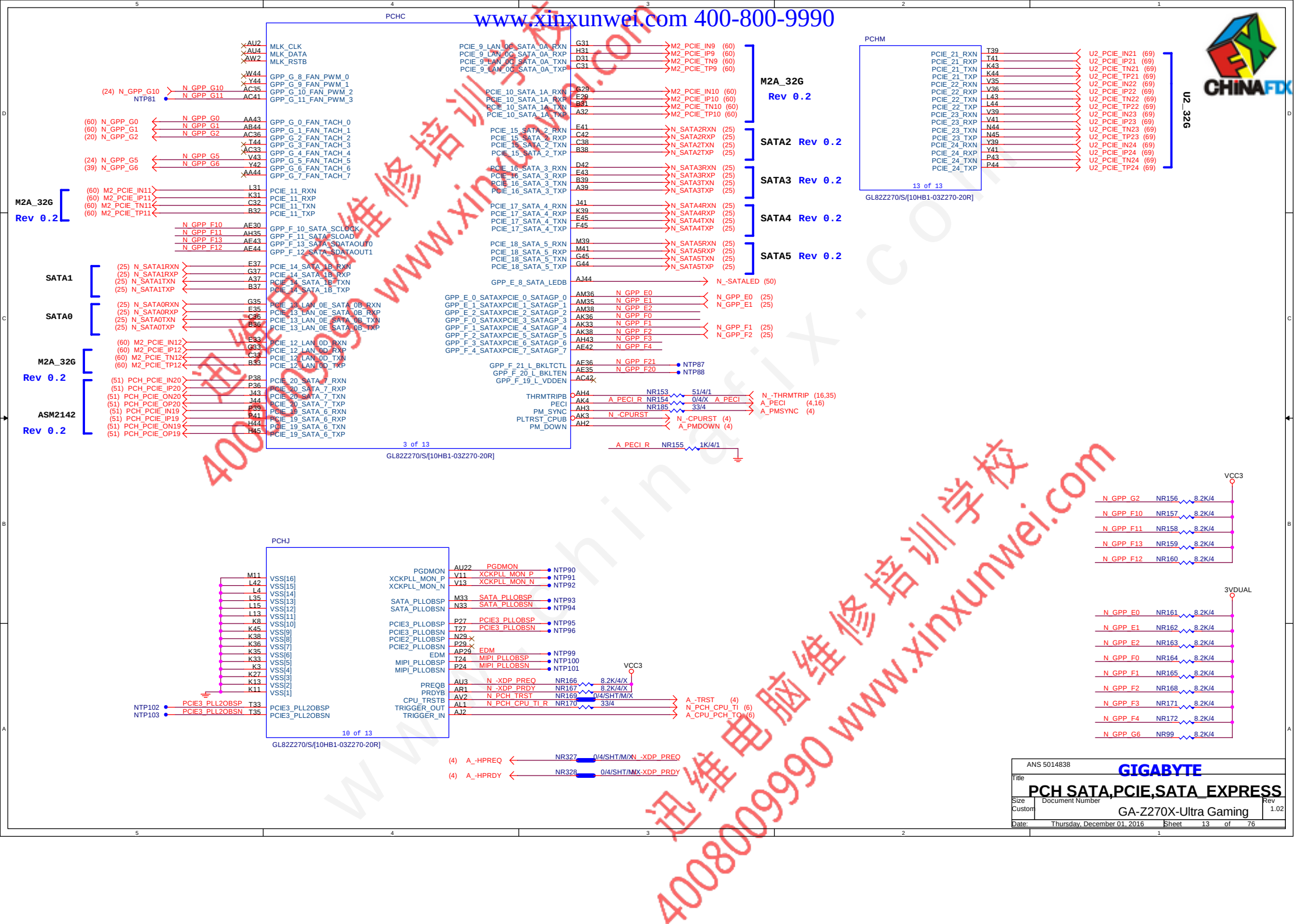


Gigabyte Technology	
Title	DDR4 CHANNEL B
Size / Custom	Document Number: GA-Z270X-Ultra Gaming
Rev	1.02
Date:	Sheet 9 of 76



ANS	5014838
Title	PCH DMI,USB,PCIE
Size	Custom
Document Number	GA-Z270X-Ultra Gaming
Rev	1.02
Date:	Thursday, December 01, 2016
Sheet	11 of 76





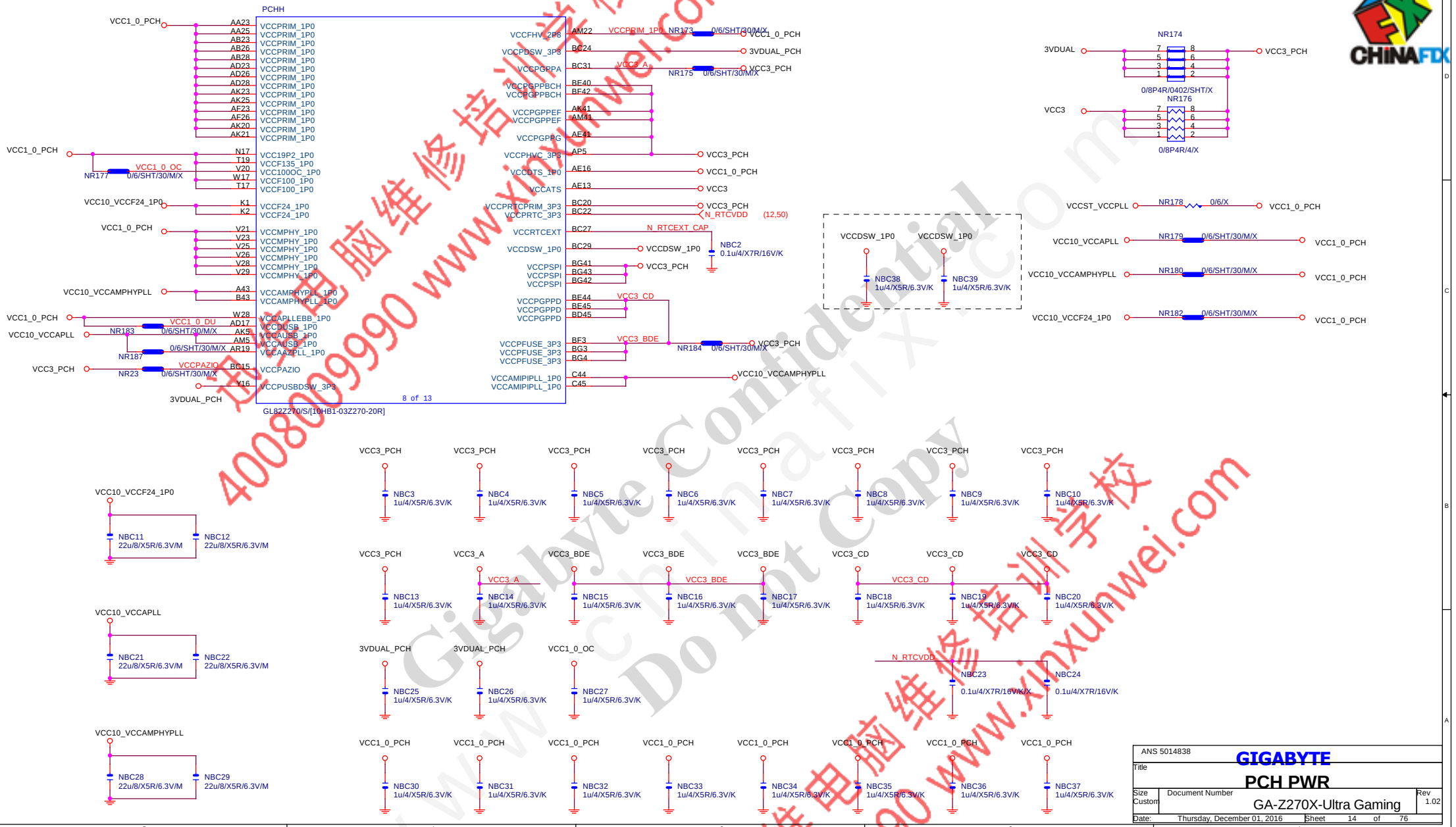
ANS 5014838

GIGABYTE

Title: PCH SATA,PCIE,SATA_EXPRESS

Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

Date: Thursday, December 01, 2016 | Sheet 13 of 76



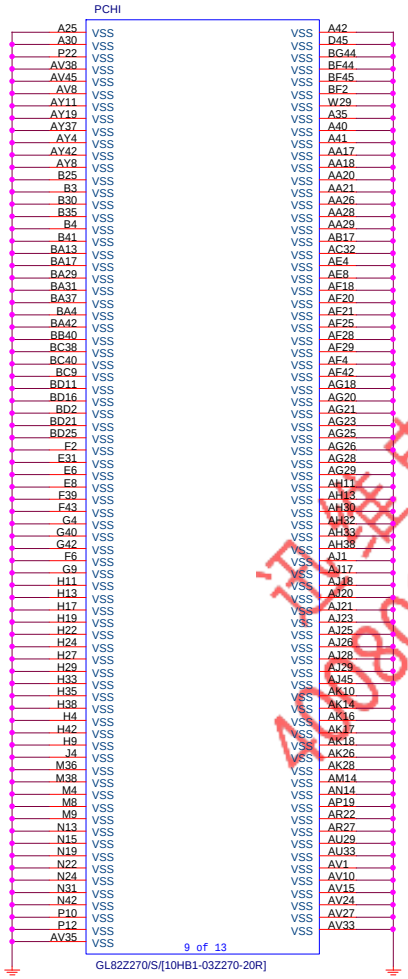
ANS 5014838

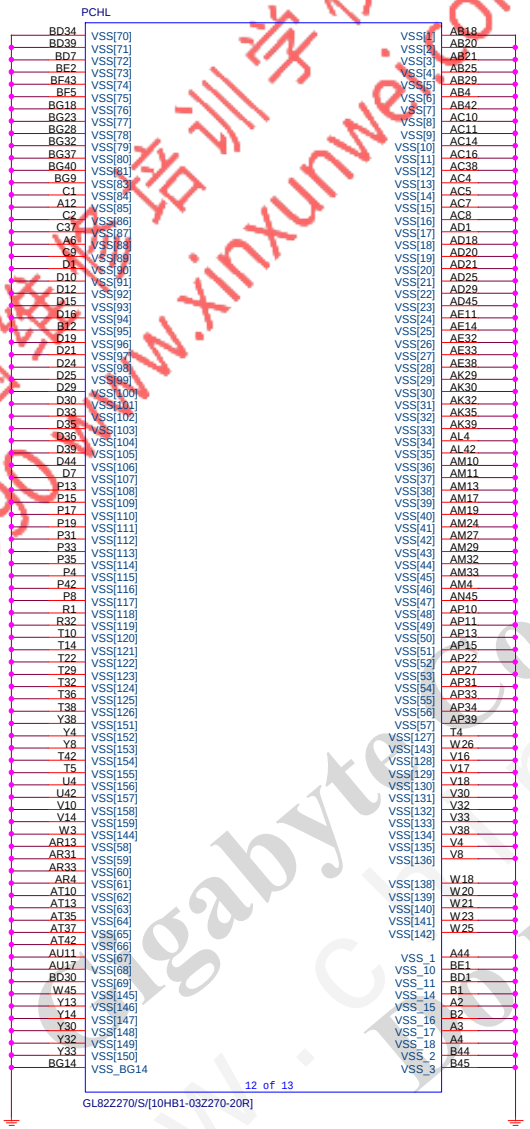
GIGABYTE

Title: PCH PWR

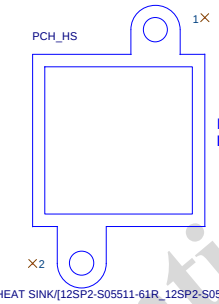
Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

Date: Thursday, December 01, 2016 | Sheet 14 of 76





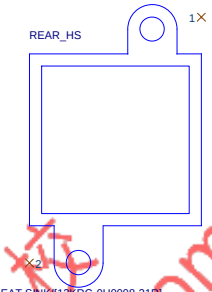
装甲HEATSINK 分成五大部份



Footprint : BGAHSINK-Z270-GAMING-K3

Rev 1.0

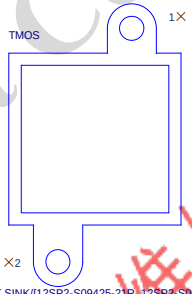
HEAT SINK/[12SP2-S05511-61R_12SP2-S05511-62R_12SP2-S05511-63R]



Footprint : Z270_UD_BASE_COVER

Rev 1.0

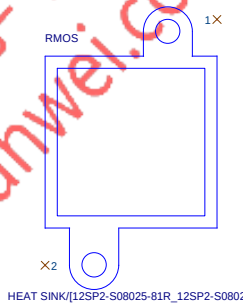
HEAT SINK/[12KRC-0H0008-21R]



Footprint : MOSHSINK-SNIPERB8-T

Rev 1.0

HEAT SINK/[12SP2-S09425-21R_12SP2-S09425-22R_12SP2-S09425-23R]



Footprint : MOSHSINK-SNIPERB8-R

Rev 1.0

HEAT SINK/[12SP2-S08025-81R_12SP2-S08025-82R_12SP2-S08025-83R]

ANS 5014838	**GIGABYTE**	
Title	**PCH GND**	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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SIO IT8686 REV:0.1

PWR SHT

For 8728 EUP function

SIO PU

新增

SIO STRAP

EUP control detect

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

IT8686

CPU_OPT

CPU_FAN

SYS_FAN1

SYS_FAN2

SYS_FAN3 sensor

CPU_OPT sensor

THRMTRIP

PROCHOT

VCCSA_EN

SYS_FAN3

ERP Wake on LAN

Single LAN	Realtek	組態一
	Atheros	組態二
	Intel 219	組態三
Dual LAN (只留一個LAN支援ERP下WAKE UP)	Atheros+Atheros	組態一
	Intel 219+Atheros	組態二
	Intel 219+Intel 210	組態三
No Support ERP	Single LAN BOM只上OR97。 Dual LAN BOM只上OR97、OR99。	

Intel LAN

(組態二)

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

Rev_0.2

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

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。

SIO CAP

CLOSE SIO PIN4 2_5LEVEL

MB ID

Title	IT8686
Size	C
Document Number	GA-Z270X-Ultra Gaming
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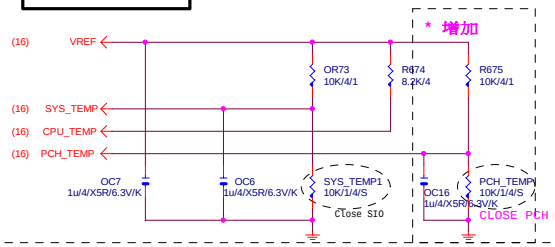
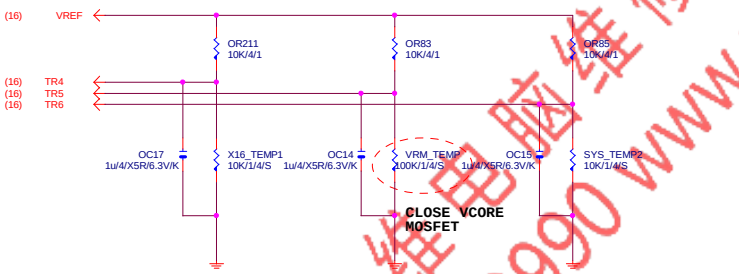
Gigabyte Technology

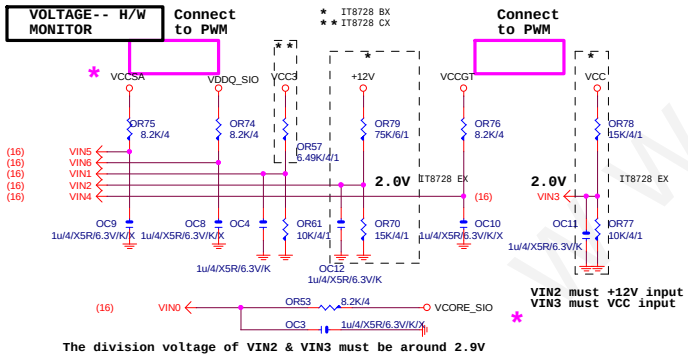
TEMP H/W MONITOR

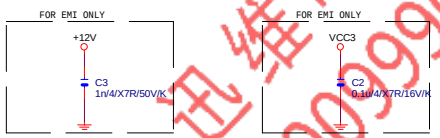


5個FAN時使用



8個FAN時使用





Gigabyte Technology	
Title	HWM,KB/MS, FAN CTRL
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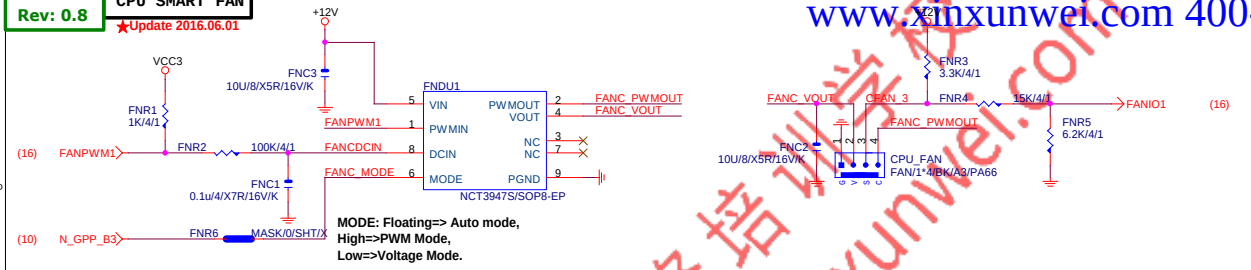
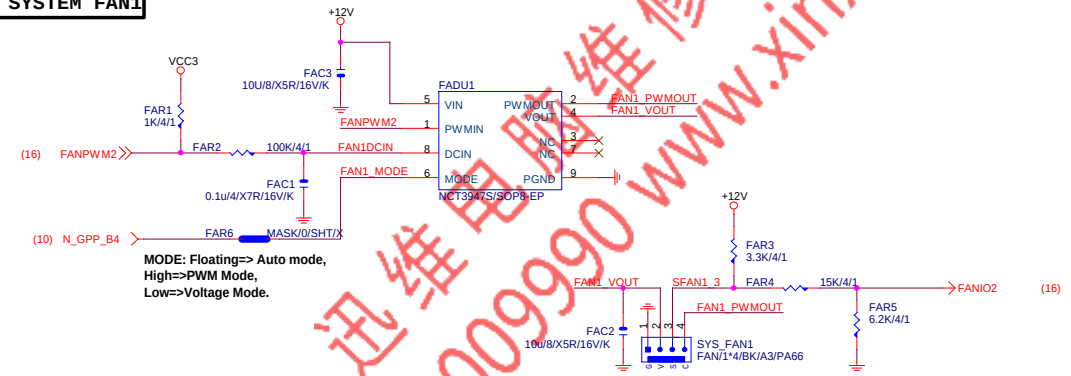
CPU SMART FAN

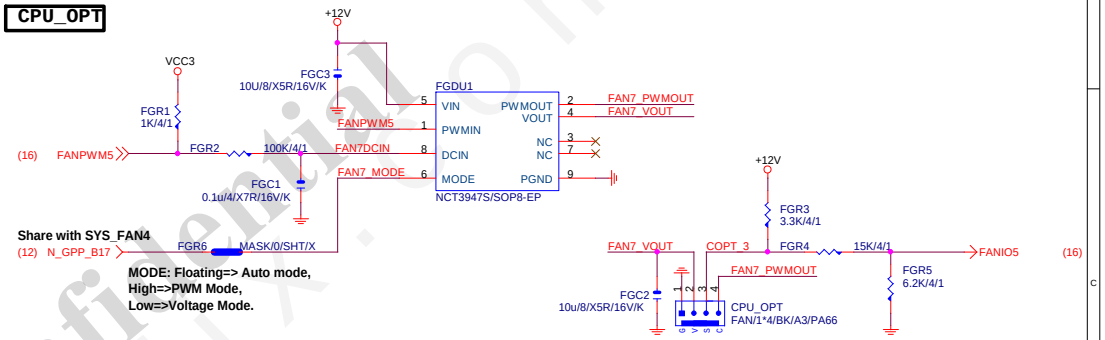
★Update 2016.06.01



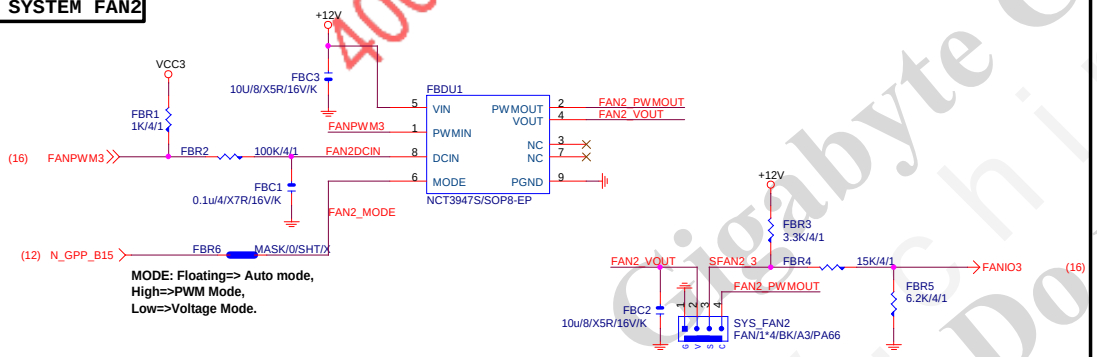
SYSTEM FAN1

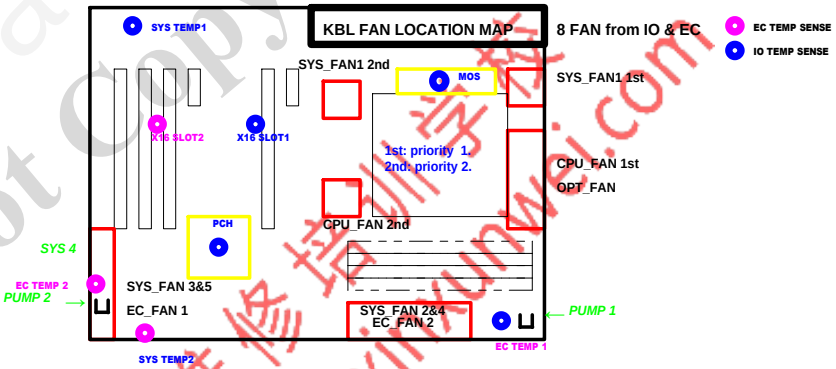


CPU_OPT

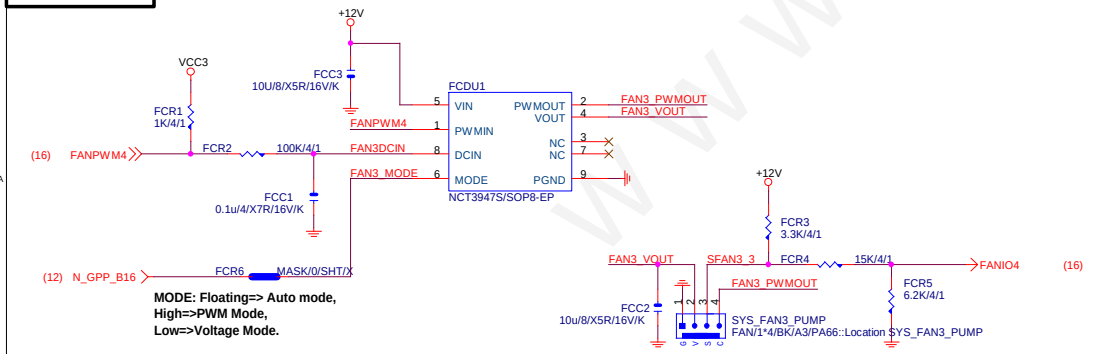


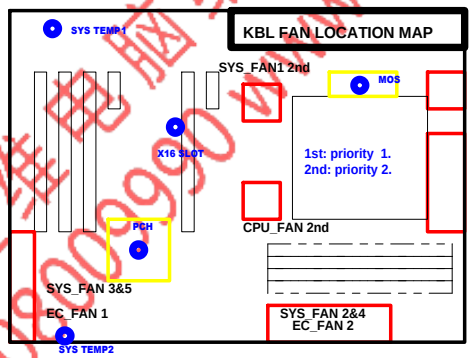
SYSTEM FAN2





SYSTEM FAN3





GIGABYTE

Title: HWM,KB/MS, FAN CTRL

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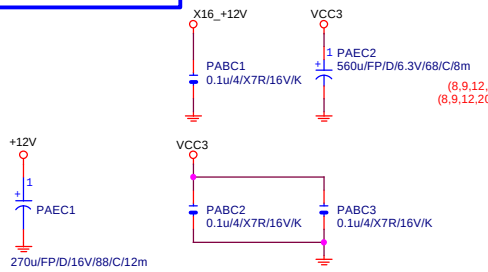
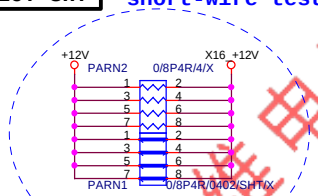
PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

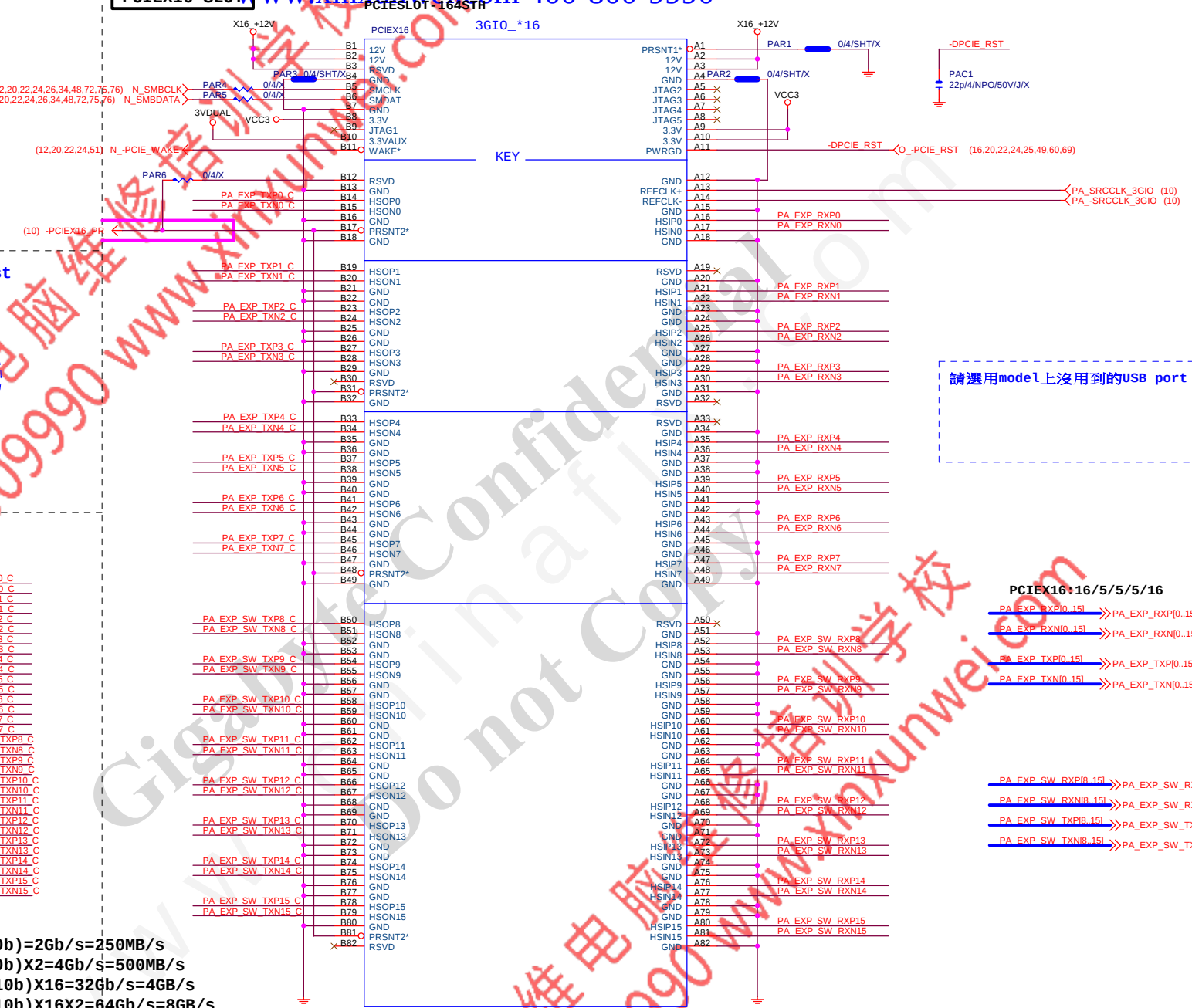
PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	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_SW_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN15_C

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

請選用model上沒用到的USB port

PCIEX16:16/5/5/5/16

PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] (4,21)
PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] (4,21)
PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] (4,21)
PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] (4,21)

PA_EXP_SW_RXP[8..15] → PA_EXP_SW_RXP[8..15] (21)
PA_EXP_SW_RXN[8..15] → PA_EXP_SW_RXN[8..15] (21)
PA_EXP_SW_TXP[8..15] → PA_EXP_SW_TXP[8..15] (21)
PA_EXP_SW_TXN[8..15] → PA_EXP_SW_TXN[8..15] (21)

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PCIESLOT-98STH

3GIO_*8

PCIEX8

KEY

PCIEX8 PROTECT SHT

+12V protect short-wire test

PCI-E/8X-99P/BK/LONG DOUBLE/HK*2/SHELL/(11AC1-023099-F1R)

黑色金屬加強

請選用model上沒用到的USB port

Title	PCI EXPRESS X8
Size	Custom
Document Number	GA-Z270X-Ultra Gaming
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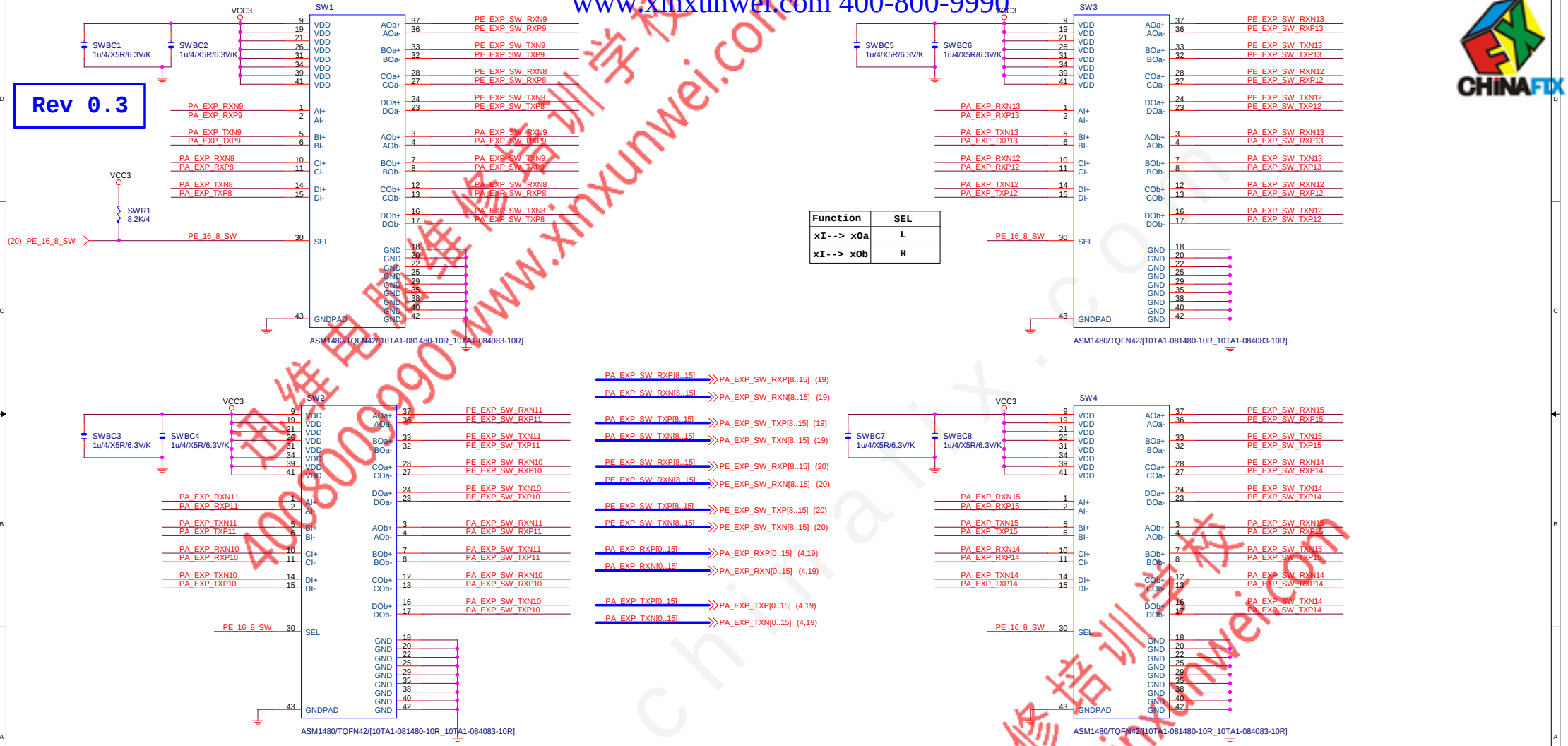
Gigabyte Technology

Rev 0.3



Function	SEL
xI--> xOa	L
xI--> xOb	H

PA_EXP_SW_RXP[8..15] (19)
PA_EXP_SW_RXN[8..15] (19)
PA_EXP_SW_TXP[8..15] (19)
PA_EXP_SW_TXN[8..15] (19)
PE_EXP_SW_RXP[8..15] (20)
PE_EXP_SW_RXN[8..15] (20)
PE_EXP_SW_TXP[8..15] (20)
PE_EXP_SW_TXN[8..15] (20)
PA_EXP_RXP[0..15] (4,19)
PA_EXP_RXN[0..15] (4,19)
PA_EXP_TXP[0..15] (4,19)
PA_EXP_TXN[0..15] (4,19)

Title	PCI EXPRESS X16 SWITCH	
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Gigabyte Technology		
Title: SWITCH		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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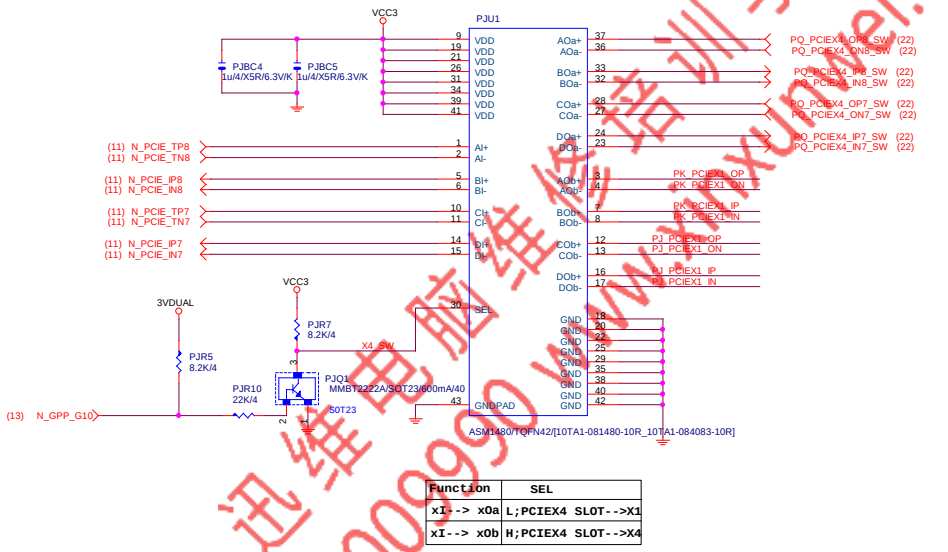
Rev 0.3

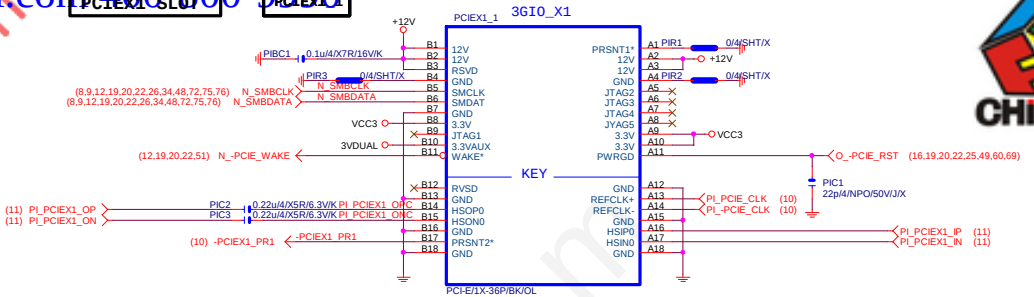
Rev 0.2



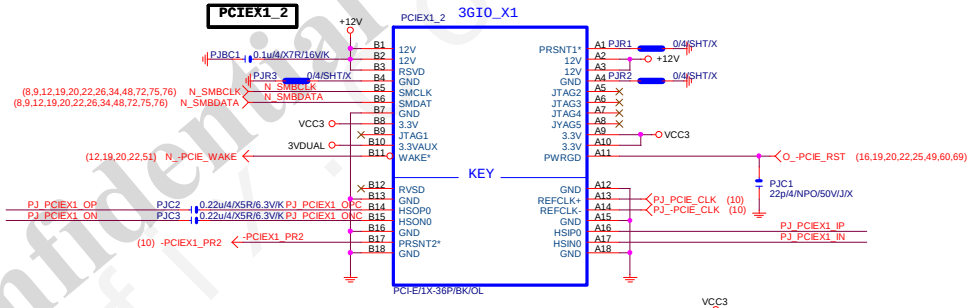
Function	SEL
xI--> xOa	L;PCIEX4 SLOT-->X1
xI--> xOb	H;PCIEX4 SLOT-->X4

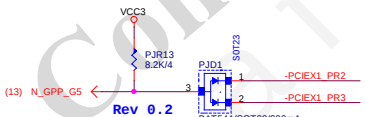
PCIEX1 SLOT

PCIEX1_1

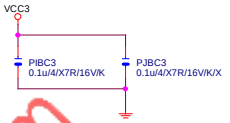


PCIEX1_2

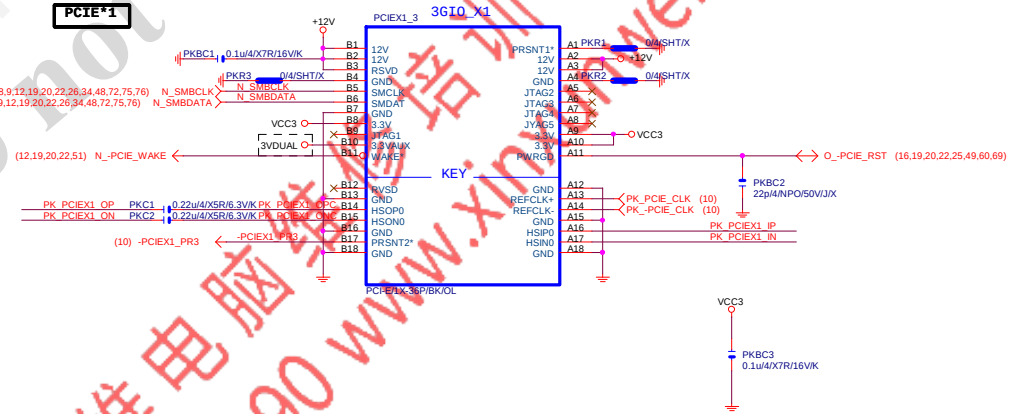




Rev 0.2



PCIE*1



Gigabyte Technology			
Title: PCIE_X1 1,2,3			
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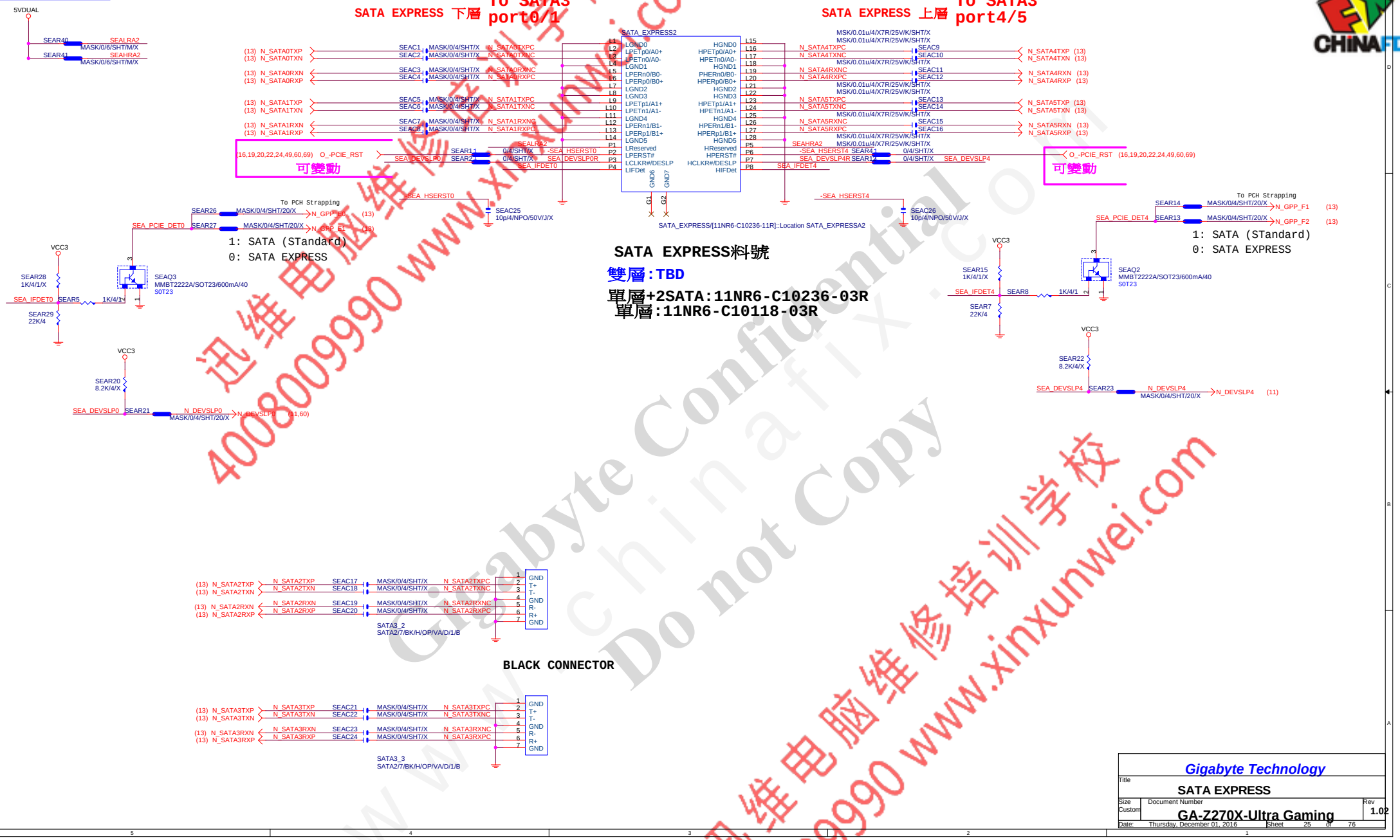
Rev 0.5

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

Gigabyte Technology		
Title: SATA EXPRESS		
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VCORE_SIO — VCORE_VS — VCORE
MASK/0/4/SHT/M/X
請注意擺放位置

Rev 0.2
H:ISL95856 or ISL95858
L:ISL95866 or ISL95868
3VDUAL — NR400 8.2K/4 — N_GPP_C15 (12)
NR401 8.2K/4/X
close to PCH

VCCST_VCCPLL — 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 不上件 — DAR18 2K/4/1
VCCST_VCCPLL — VCC3 — VIN — DAR19 10K/4/1 — DAR23 3.3K/4/1 — DAC1 1u/4/X5R/6.3V/K
VCC — VIN — DAR7 2.2/6 — DAR8 2.2/6 — DAR9 2.2/6 — DAC2 — DAC3 1u/6/X7R/16V/K
+12V — 5VDUAL — DAR128 8.2K/4 — DAQ5 2N7002/SOT23/25pF/5 — S0T23 — V_95856
DAC41 0.22u/6/X7R/16V/K — ISL95856_VIN

(16) VTT_PWRGD — DAR138 0/4/SHT/M/X
(16) VR_RDY — VR_ENABLE
(35) VR_HOT — VR_READY / VR_HOT#
(4) PVIDSLCK — DAR76 49.9/4/1 — PVIDSLCK_R — SCLK
(4) -PVIDALRT — DAR77 MASK/0/4/SHT/M/10/X — -PVIDALRT_R — ALERT#
(4) PVIDSOUT — DAR78 10/4 — PVIDSOUT_R — SDA
(19,20,22,24,34,48,72,75,76) N_SMBDATA — I2DATA
(19,20,22,24,34,48,72,75,76) N_SMBCLK — I2CLK
PSYS

DC-LL --> 2.1mohm
DAR34 8.2K/4 — DAC10 1n/4/X7R/50V/K — DAR37 3.74K/4/1 — DAR137 0/4 — DAR33 205K/4/1/X — DAC8 4.7n/4/X7R/25V/K — DAR35 3.3K/4/1 — DAC11 47p/4/NPO/50V/J — COMP_A
VCORE — DAC14 330p/4/NPO/50V/J — DAR40 1K/4/1 — DAR138 0/4/X — DAR39 100/4/1 — DAR41 5.49K/4/1 — FB_CPU — FB_A
(7) VCORE_VCC_SEN — DAC15 0.022u/4/X7R/25V/K/X — DAR79 100/4/1/X — FB2_A — FB2_A
(7) VCORE_VSS_SEN — DAC38 330p/4/NPO/50V/J — RTN_A
VCORE — DAR46 100/4/1 — DAC17 330p/4/NPO/50V/J — DAC18 4.7n/4/X7R/25V/K — DAR139 205K/4/1
DAR129 100/4/1 — close PWM

DC-LL --> 3.1mohm
VCCGT — DAC23 1n/4/X7R/50V/K — DAR57 1.74K/4/1 — DAR140 0/4 — DAR51 63.4K/4/1/X — DAR55 3.3K/4/1 — DAC22 8.2n/4/X7R/16V/K — DAC24 47p/4/NPO/50V/J — COMP_B
DAC26 220p/4/NPO/50V/J — DAR61 1K/4/1 — DAR141 0/4/X — DAR60 100/4/1 — DAR63 4.7K/4/1 — FB_GT — FB_B
(6) VCCGT_SENSE — DAC27 0.022u/4/X7R/25V/K/X — DAR80 100/4/1/X — FB2_B — FB2_B
(6) VSSGT_SENSE — DAC39 330p/4/NPO/50V/J — RTN_B
VCCGT — DAR130 100/4/1 — DAC29 330p/4/NPO/50V/J — DAC30 4.7n/4/X7R/25V/K — DAR142 63.4K/4/1

PROG_R — DAR70 2.87K/4/1 — PROG
GND_PAD — 8 VIA Connect GND lay
ISL95866HRZ-T/QFN52

Rev 0.2

Connect to EC H/W Monitor

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 — PWM3_A (27)
NC/PWM4_A — PWM4_A (27)
ISEN1_A — ISEN2_A — ISEN3_A — NC/ISEN4_A — ISEN1_A — ISEN2_A — ISEN3_A — ISEN4_A
ISUMP_A — ISUMN_A — VSUMA- R
NTC_A — IMON_A — DAR47 13.7K/4/1 — DAR49 MASK/0/4/SHT/M/10/X — DAC21 330p/4/NPO/50V/J — DAR52 80.6K/4/1 — DAR53 18K/4/1 — DANTC2 470K/1/4/S
DAR44-->604 ohm
OCP-->160A
VSUMA+ — DAR36 1K/4/1 — DANTC1 10K/1/4/S — DAR38 33K/4/1 — DAC12 0.33u/4/X5R/6.3V/K — DAC13 0.47u/4/X5R/6.3V/K — DAC16 2.2n/4/X7R/50V/K — DAR42 1K/4/1 — DAC43 0.1u/4/X7R/16V/K — DAR44 604/4/1 — DAC19 0.1u/4/X7R/16V/K — VSUMA-
CLOSE DA_ DL1 DC SIDE
CLOSE ?

BOOT1_B — UGATE1_B — PHASE1_B — LGATE1_B — DAR58 2.2/6 — DAC25 0.22u/6/X7R/16V/K — PHASE1_B (28)
PWM2_B — PWM2_B (28)
PWM3_B — PWM3_B (28)
ISEN1_B — ISEN2_B — ISEN3_B — NC/ISEN3_B
ISUMP_B — ISUMN_B — VSUMB- R
NTC_B — IMON_B — DAR67 13.3K/4/1 — DAR69 MASK/0/4/SHT/M/10/X — DAC33 330p/4/NPO/50V/J — DAR72 57.6K/4/1 — DAR73 18K/4/1 — DANTC3 470K/1/4/S
DAR71-->442 ohm
OCP-->90A
VSUMB+ — DAR68 2.61K/4/1 — DANTC4 10K/1/4/S — DAR71 442/4/1 — DAC31 2.2n/4/X7R/50V/K — DAC32 0.33u/4/X5R/6.3V/K — DAC34 0.33u/4/X5R/6.3V/K — DAR74 11K/4/1 — DAR75 1K/4/1 — DAC44 0.1u/4/X7R/16V/K — DAC35 0.1u/4/X7R/16V/K — VSUMB-
CLOSE DE_ DL1 DC SIDE
CLOSE ?

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 2K/4/1 — FB_GT — DAR125 8.2K/4/1 — DAQ4 2N7002/SOT23/25pF/5 — S0T23 — VCCGT_SENSE
VCC3 — 不上件 — DAR123 1K/4/1/X — DAR124 8.2K/4 — DAQ3 MMBT2222A/SOT23/600mA/40 — S0T23 — (10) N_GT_S
連接至PCH GPP_GP14

+12V — DAR126 3.48K/4/1 — FB_CPU — DAR122 8.2K/4/1 — DAQ2 2N7002/SOT23/25pF/5 — S0T23 — VCORE_VCC_SEN
VCC3 — 不上件 — DAR120 1K/4/1/X — DAR121 8.2K/4 — DAQ1 MMBT2222A/SOT23/600mA/40 — S0T23 — (10) N_CPU_S
連接至PCH GPP_GP15

DAR131 for DC-LL change to 0.4m ohm
+12V — DAR131 1.74K/4/1 — FB_CPU — DAR132 8.2K/4 — DAQ6 2N7002/SOT23/25pF/5 — S0T23 — VCORE_VCC_SEN
VCC3 — 不上件 — DAR133 1K/4/1/X — DAR134 8.2K/4 — DAQ7 MMBT2222A/SOT23/600mA/40 — S0T23 — (10) N_CPU_S
Z系列才需要留
連接至PCH GPP_G13

VSUMA+ DAR1 3.65K/4/1 — CSP1_A (27) — ISEN1_A DAR2 100K/4/1 — DAC1 0.022u/4/X7R/25V/K — DAR5 200K/4/1/X — DAR3 100K/4/1 V2N_A — DAR4 100K/4/1 V3N_A — 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 — DAC4 0.022u/4/X7R/25V/K — DAR22 200K/4/1/X — DAR20 100K/4/1 V1N_A — DAR21 100K/4/1 V3N_A — 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 — DAC6 0.022u/4/X7R/25V/K — DAR30 200K/4/1/X — DAR28 100K/4/1 V1N_A — DAR29 100K/4/1 V2N_A — 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 — DAC42 0.022u/4/X7R/25V/K — DAR89 200K/4/1/X — DAR86 100K/4/1 V1N_A — DAR87 100K/4/1 V2N_A — 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 — DAC20 0.022u/4/X7R/25V/K — DAR54 200K/4/1/X — DAR48 100K/4/1 V2N_B — DAR50 100K/4/1 V3N_B — DAR92 100K/4/1 V1N_B — VSUMB- — DAR54 10/4 V1N_B
VSUMB+ DAR56 3.65K/4/1 — CSP2_B (28) — ISEN2_B DAR59 100K/4/1 — DAC28 0.022u/4/X7R/25V/K — DAR65 200K/4/1/X — DAR62 100K/4/1 V1N_B — DAR64 100K/4/1 V3N_B — DAR93 100K/4/1 V2N_B — VSUMB- — DAR65 10/4 V2N_B
VSUMB+ DAR94 3.65K/4/1 — CSP3_B (28) — ISEN3_B DAR95 100K/4/1 — DAC37 0.022u/4/X7R/25V/K — DAR99 200K/4/1/X — DAR96 100K/4/1 V1N_B — DAR98 100K/4/1 V2N_B — DAR97 100K/4/1 V3N_B — VSUMB- — DAR99 10/4 V3N_B
V1N_B — CSN1_B (28)
V2N_B — CSN2_B (28)
V3N_B — CSN3_B (28)
CLOSE PWM

GIGABYTE™
Title: ISL95866_PWM
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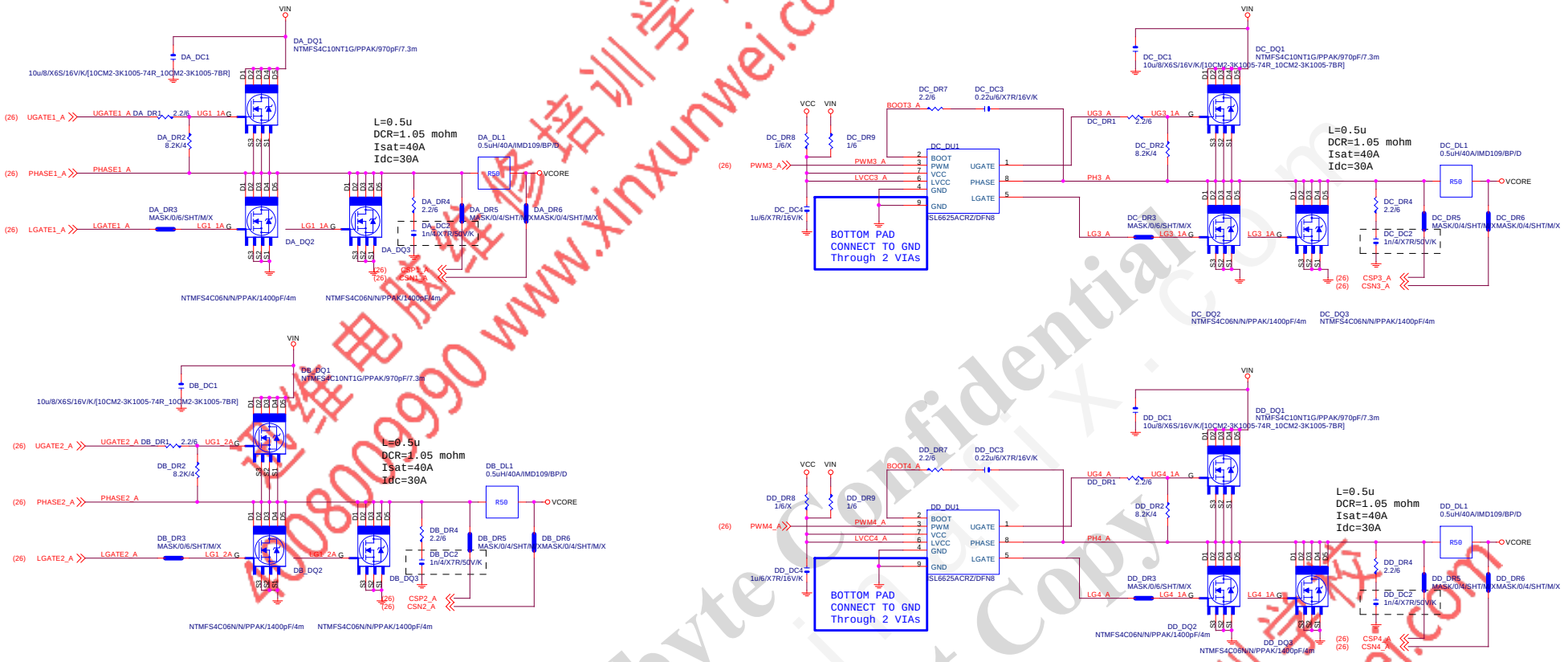
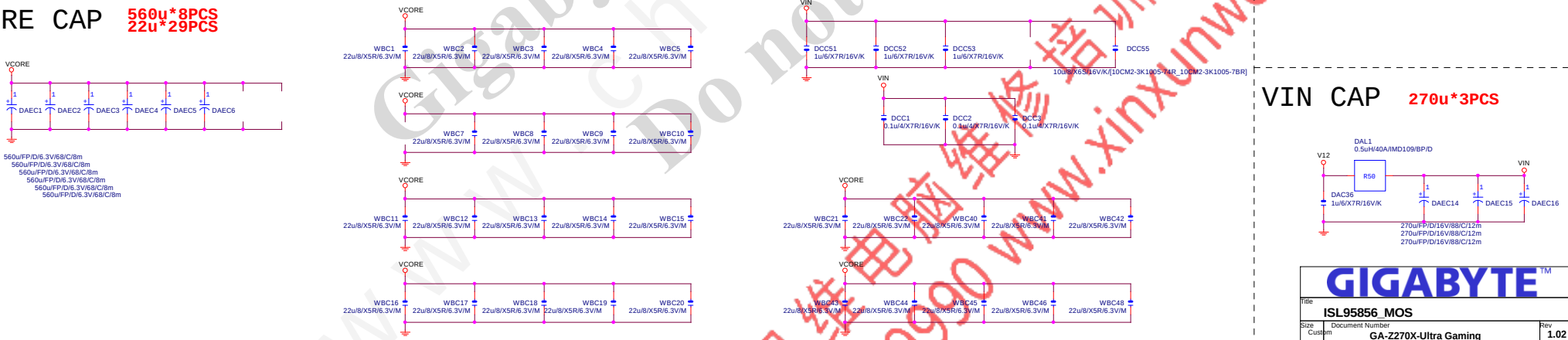
REV:0.96

VCORE



VCORE CAP 560u*8PCS 22u*29PCS

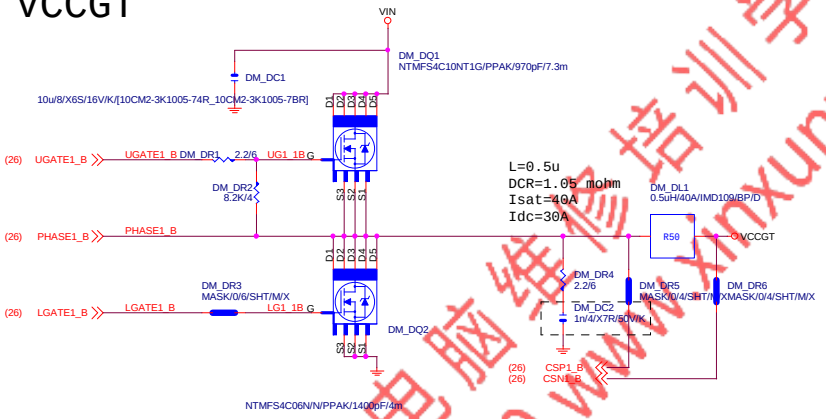


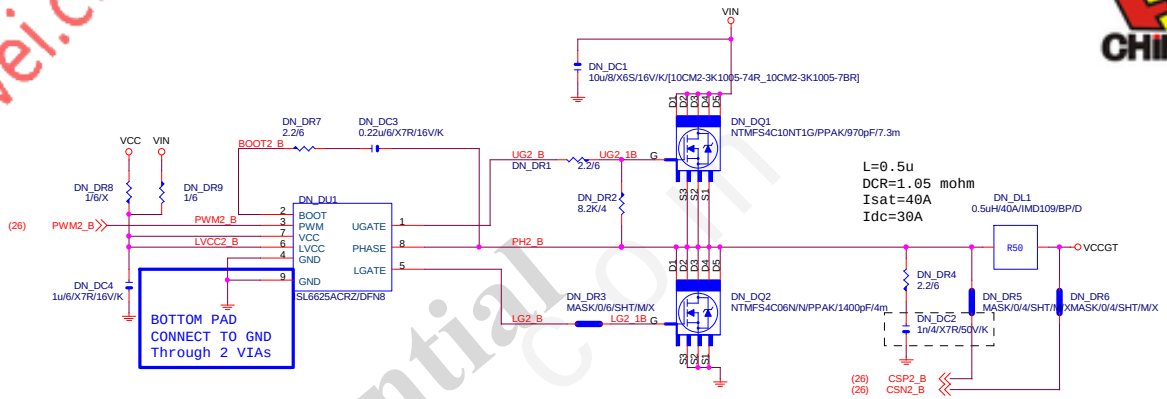
VIN CAP 270u*3PCS

GIGABYTE™

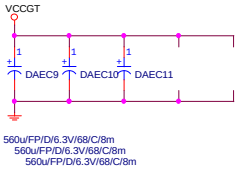
Title	ISL95856_MOS	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 27 of 76	

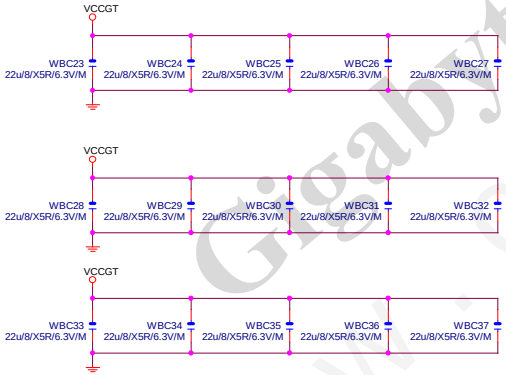
VCCGT

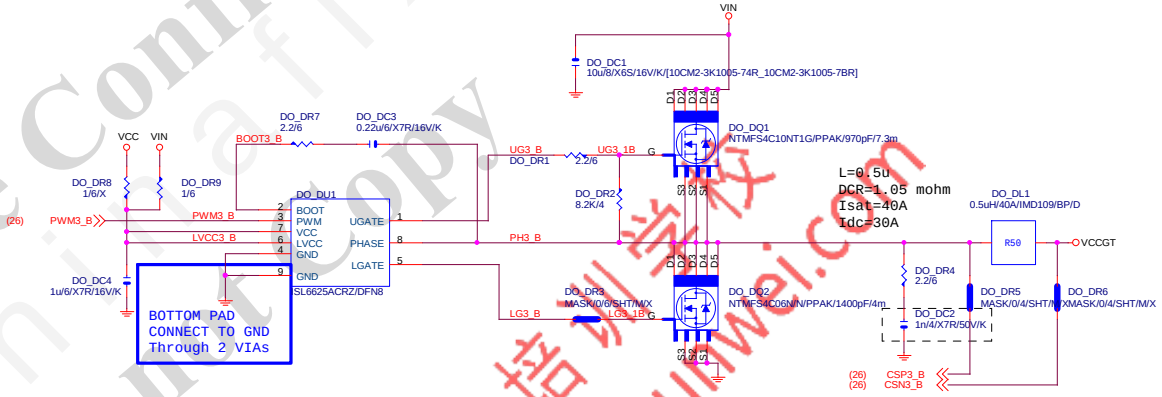




VCCGT CAP 560u*5PCS 22u*15PCS







Title	ISL95856_MOS		
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VCCIO

REV:0.12

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

CHOKE與CAP料號可變

注意耐壓

6*6

Close Choke

Close MOS

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

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

RT8120DGS/SOP8

放靠近IC pin4

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

Connect to IT8793

Connect to IT8686

放CPU端.

SIO PIN5 . PIN7 用在其他function時使用

SIO PIN5接VDDQ . PIN7接VCCIO .時使用

GIGABYTE

Title: VCCIO_VCCSA

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REV:0.1

DDR4

CHOKE與CAP料號可變

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

DDR VIN CAP
560u*2PCS

SUPPORT DDR4 1.2V
25A MAX

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

RT8120DGS/SOP8
MAU2

OCP=40A

放靠近IC pin4

CLOSE TO DDR POWER PLANE

Close Choke
Close MOS

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]

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

Remote sense請從最重的負載端點拉回

PWR SEQ

Connect to IT8793
Connect to IT8686

For power sequence require

DDRVTT

NCT3103S/SOP8/2A

1.1A MAX

MAU1上NCT3103S時上件

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

* 大電容 x4

DDRVTT CAP

* 大電容 x0

Title	RT8120_DDR4 POWER
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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

DDR_VPP VIN CAP
560u*1PCS

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

SUPPORT DDR4 2.5V
25A MAX

+12V 5VDUAL MA_D2 MA_DR20 2.2/6 DRV_VPP
SDM20E40C/0.4A/SOT23
MA_DC20 1u/6/X7R/16V/K
MA_DC18 0.1u/6/X7R/25V/K
RT8120DGS/SOP8 MAU3
VPP25_EN MA_DC21 22p/4/NPO/50V/J
MA_DR24 27K/4/1
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 MB_PHASE MB_LGATE
MA_DR29 11.8K/4/1
OCP=30A
放靠近IC pin4
VPP25_ADJ

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/68/C/8m
MA_DQ4 NTTFS4C06NTAG/WDFN8/3366pF/4.2m
MB_UGATE MA_DR21 2.2/6
MA_DR23 8.2K/4
MB_PHASE
MA_DQ5
MB_LGATE MA_DR22 2.2/6
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
MA_L3 1.0uH/15A/S/6.7m 6*6
MA_DR25 2.2/6
MA_DC23 1n/4/X7R/50V/K
VPP_25V
MA_DR26 487/4/1
MA_DR27 4.02K/4/1
MA_DQ24 3.3n/4/X7R/50V/K RS
RO MA_DR31 1.87K/4/1
(34) VPP25_ADJ VPP25_ADJ

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

VPP_25V MAC61 22u/8/X5R/6.3V/M/X

* 刪 MA_DR32

PWR SEQ

5VSB MAR109 8.2K/4 MAQ7 2N7002/SOT23/25pF/5 SOT23
5VSB MAR116 8.2K/4
VPP25_EN
(16) VPP25_EN_IO Connect to IT8686
MAR114 0/4/SHT/M/X
MAC8 1u/4/X5R/6.3V/K/X
MAQ8 2N7002/SOT23/25pF/5 SOT23
MAR106 8.2K/4/X
(12,16,49,63,76) N_-S4_S5
MAR115 0/4/SHT/M/X
MAQ9 2N7002/SOT23/25pF/5/X SOT23
MAR14 8.2K/4/X
(16,30) MA_EN
MAC10 1u/4/X5R/6.3V/K/X

VPP_25V MAC49 0.1u/4/X7R/16V/K
VPP_25V MAC50 0.1u/4/X7R/16V/K
VPP_25V MAC51 0.1u/4/X7R/16V/K
VPP_25V MAC52 0.1u/4/X7R/16V/K

VPP CAP 560u*1PCS
* 大電容 x1
VPP_25V MAEC11 560u/FP/D/6.3V/68/C/8m

GIGABYTE™

Title		
RT8120_VPP25 POWER		
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REV:0.7

5VDUAL +12V

NPR22 0/8/X

NPD1 B140/SMA/1A

NPD2 B140/SMA/1A

NPL1 0.5uH/20A/IMD0809/BP/D

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

CHOKE與CAP料號可變

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/66/C/30m

NPQ1

NTMFS4C10NT1G/PPAK/970pF/7.3m

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

UGATE_PCH NPR2 2.2/6

NPR4 8.2K/4

NPL2 1uH/18A/IMD0809/BP/D

VCC1_0_PCH

★Update 2015-04.22

RT8120DGS/SOP8

NPU1

P1V0_PCH_EN

NPR5 8.2K/4/1

NPC5 22p/4/NPO/50V/J

NPC6 3.3n/4/X7R/50V/K

NPR12 MASK/0/4/SHT/X

COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC

UGATE_PCH

PHASE_PCH

LGATE_PCH

NPR11 34K/4/1

放靠近IC pin4

PHASE_PCH

LGATE_PCH

NPQ2

NTMFS4C10NT1G/PPAK/970pF/7.3m

NPR6 2.2/6

NPC7 1n/4/X7R/50V/K

NPR7 487/4/1

NPC8 3.3n/4/X7R/50V/K

RS

NPR8 2K/4/1

NPEC2 560u/FP/D/6.3V/68/C/8m

Remote sense請從最重的負載端點拉回

P1V0_PCH_ADJ

(34) P1V0_PCH_ADJ

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 (16)

5VSB

P1V0_PCH_EN

NPR15 8.2K/4

SOT23

NPQ4 2N7002/SOT23/25pF/5

3VDUAL

NPR16 8.2K/4

NPQ3 MMBT2222A/SOT23/600mA/40

SOT23

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

GIGABYTE

Title: RT8120_PCH POWER

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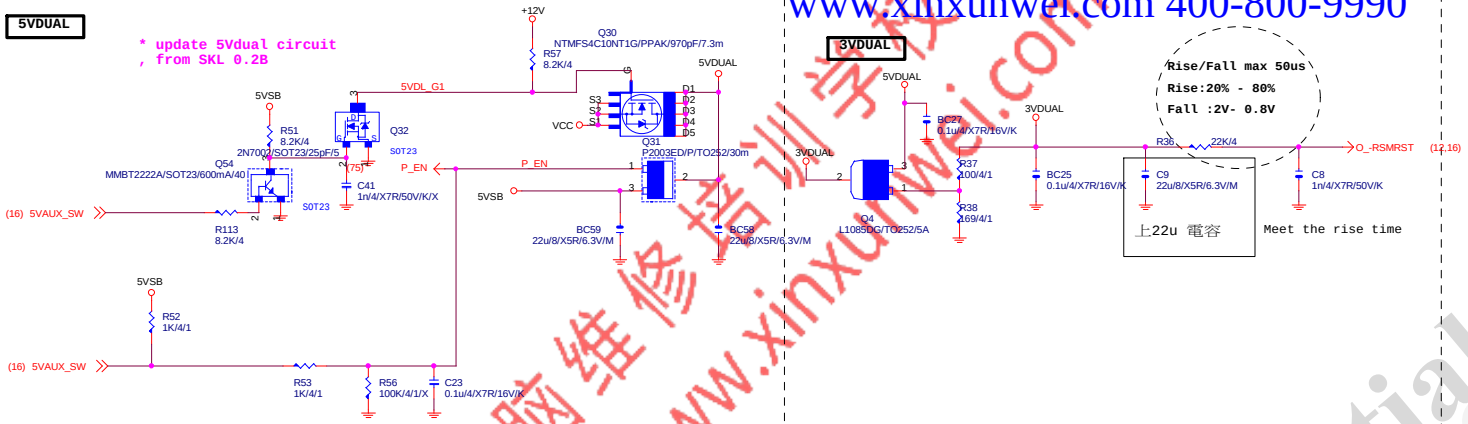
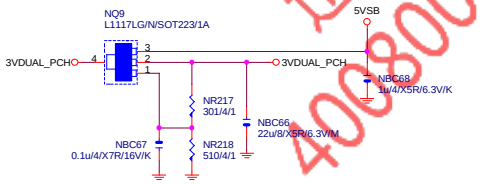
5VDUAL

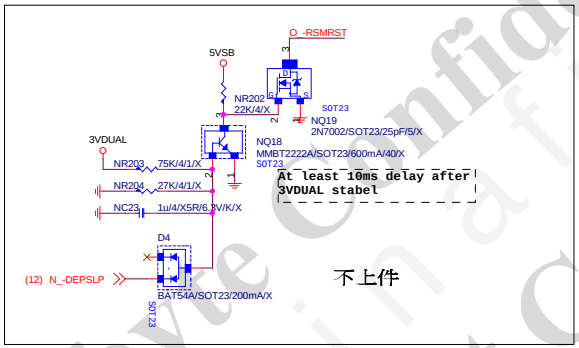
* update 5Vdual circuit
, from SKL 0.2B



3VDUAL

3VDUAL_PCH





Gigabyte Technology		
Title: DISCRETE POWER		
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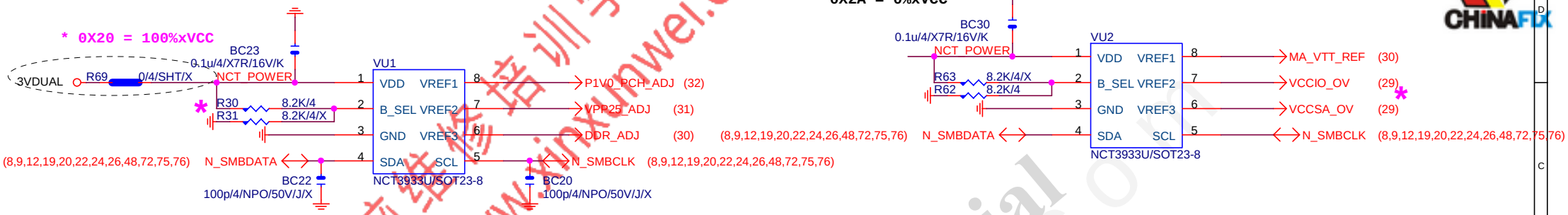
OVER VOLTAGE



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-2

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Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

5VSB R695 22K/4

(16) -PSON

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

* 删除 -5V

-12V VCC3 VCC3

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

VCC VCC

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

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

黑色

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

VCC3 BC35 22u/8/X5R/6.3V/M VCC3 BC46 1u/4/X5R/6.3V/K VCC3 BC48 1u/4/X5R/6.3V/K

5VSB RN7 1K/8P4R/6/X VCC RN8 1K/8P4R/6/X VCC3 RN9 1K/8P4R/6/X

VCC VCC

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

+12V

5VSB AD1 AZ2225-01L/SOD323/X

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

To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

V12

ATX_12V_2X4

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

(16)

APW/2*4/BK/QC/P/4.2/VA/SN/OH/[11NH4-020008-B1R]::Location ATX_12V_2X4

黑色

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

Rev 0.3

FOR AUDIO 切割

Rev 0.2

MH1 MH2 MH3 MH7 MH8

HOLE_3/X HOLE_4-RH-1 HOLE_4-RH-5MM-1

MH4 MH5 MH6 MH9

HOLE_4-RH-1 HOLE_4-RH-5MM-5PIN-1

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

(12) N_GPD_D9 R703 330/4 Q9 S0T23

MMBT2222A/SOT23/600mA/40

-PROHOT * 保留 ?

(4,16) A_-PROCHOT A_-PROCHOT R2 0/4/SHT/X VR_HOT (26)

-PROHOT OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert

Rev 0.2

+12V TTR4 10K/4/1/X TTR1 10K/4/1 TTR2 5.6K/4/1 DATSM_3 DATSM_2 TTU1A LM358DR/SO8 DATSM_1 TTR1 100K/1/4/S TTR3 1K/4/1 TTC1 0.1u/4/X7R/16V/K

MASK/0/4/SHT/M/X TTR5 N_-THRMTRIP (13,16) TTR6 0/4/X A_-PROCHOT A_-PROCHOT (4,16) TTQ1 2N7002/SOT23/25pF/5

CLOSE VCORE PWM UPPER MOSFET

-PROHOT OTP:130度 / PCB THERMAL TRIP:129 度

125 ~130degree assert

Rev 0.2

+12V TTR10 10K/4/1/X TTR7 10K/4/1 TTR8 5.1K/4/1 DATSM_5 DATSM_6 TTU1B LM358DR/SO8 DATSM_7 TTR2 100K/1/4/S TTR9 1K/4/1 TTC2 0.1u/4/X7R/16V/K

MASK/0/4/SHT/M/X TTR11 N_-THRMTRIP (13,16) TTR12 0/4/X A_-PROCHOT A_-PROCHOT (4,16) TTQ2 2N7002/SOT23/25pF/5

CLOSE VCCGT PWM UPPER MOSFET

COUPON1 COUPON1 1 2 COUPON/X

COUPON2 COUPON2 1 2 COUPON/X

Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: Custom	Document Number: GA-Z270X-Ultra Gaming		Rev: 1.02
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KB/MS

Rev: 0.52

FOR鹽化短路

ESD 可自行SWAP PIN

ESD 可自行SWAP PIN

R_USB 2.0 OC SIGNAL

Title	AUDIO JACK
Size	Custom
Document Number	GA-Z270X-Ultra Gaming
Rev	1.0
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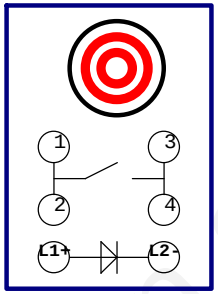
Gigabyte Technology

Rev: 0.52

POWER

Reset

Clear CMOS



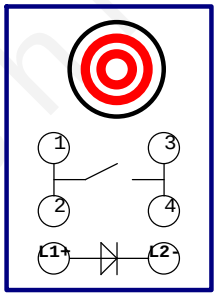
OC KEY

Rev 0.2

Rev 0.3

PCH:GPP_D6

PCH:GPP_D4



ECO KEY

PCH:GPP_C9

PCH:GPP_B20

Gigabyte Technology		
Title: OC BUTTOM		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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Rev: 0.52

Front USB3.0

NET 自行調整

F_USB30_1 REV=1

(11) PCH_USB3_RXN1
(11) PCH_USB3_RXP1
(11) PCH_USB3_TXN1
(11) PCH_USB3_TXP1
(11) N_-USBP1
(11) N_+USBP1

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

FSVCC_U3F2

VBUS ID SSRX1- SSRX1+ SSTX1- SSTX1+ D1- D1+ GND GND

VBUS SSTX2- SSTX2+ SSRX2- SSRX2+ D2- D2+ GND GND

FAU3C3 FAU3C4 0.1u/4/X7R/16V/K U3_TXN2_C U3_TXP2_C

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

NET 可自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1
AZ1045-04F/MSOP10

FAU3D3
N_-USBP1
N_+USBP1
3VDUAL
N_+USBP2
N_-USBP2

AOZ8902CIL/SOT23-6

CLOSE F_USB30

U3_TXP1_C
U3_TXN1_C
U3_TXN2_C
U3_TXP2_C

FAU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

5VDUAL FBU3F1 SPR-P260T/6V/8/S FSVCC_U3F2

FBU3EC1 100u/FP/D/6.3V/65/C/13m

FBU3C5 0.1u/4/X7R/16V/K

Rev 0.2

Front USB3.0

NET 可自行調整

F_USB30_2 REV=1

(11) PCH_USB3_RXN5
(11) PCH_USB3_RXP5
(11) PCH_USB3_TXN5
(11) PCH_USB3_TXP5
(11) N_-USBP5
(11) N_+USBP5

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

FSVCC_U3F1

VBUS ID SSRX1- SSRX1+ SSTX1- SSTX1+ D1- D1+ GND GND

VBUS SSTX2- SSTX2+ SSRX2- SSRX2+ D2- D2+ GND GND

FBU3C3 FBU3C4 0.1u/4/X7R/16V/K U3_TXN6_C U3_TXP6_C

PCH_USB3_TXN6 (11)
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

PCH_USB3_RXP5
PCH_USB3_RXN5
PCH_USB3_RXN6
PCH_USB3_RXP6

FBU3D1
AZ1045-04F/MSOP10

FBU3D3
N_-USBP5
N_+USBP5
3VDUAL
N_-USBP6
N_+USBP6

AOZ8902CIL/SOT23-6

CLOSE F_USB30

U3_TXP5_C
U3_TXN5_C
U3_TXN6_C
U3_TXP6_C

FBU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

FUSE 2 Port 1 Fuse 2.6A

5VDUAL RBU3F2 SPR-P260T/6V/8/S FSVCC_U3F1

RBU3EC2 100u/FP/D/6.3V/65/C/13m

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

F_USB POWER PROTECT

-USBOC_F

-USBOC_R

F_USB 2.0 OC SIGNAL

U2OC3 SOT23

(11,39) N_-USBOC_F

FSVCC_U3F1
FSVCC_U3F2

BAT54A/SOT23/200mA

Rev 0.2

Gigabyte Technology

Title: F_USB30

Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

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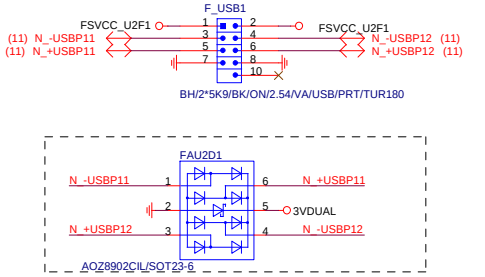
Rev: 0.52

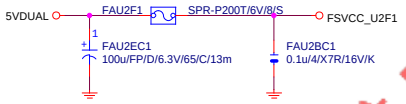
FRONT USB1

NET 可變



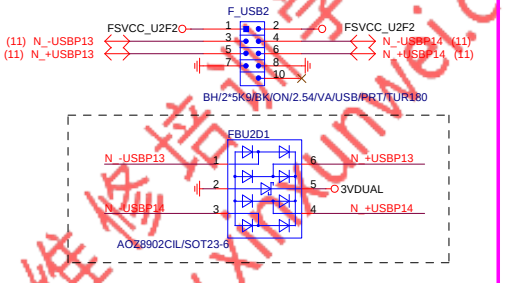
Close to connector

FUSE 2 Port 1 Fuse 2A



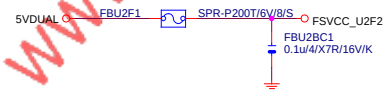
FRONT USB2

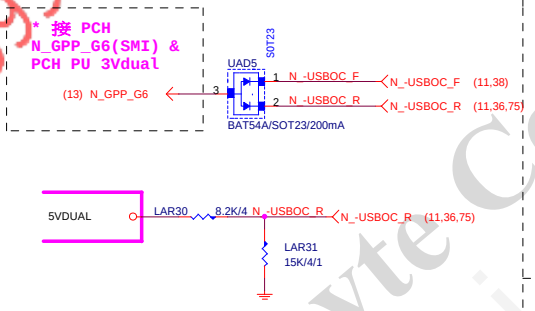
NET 可變



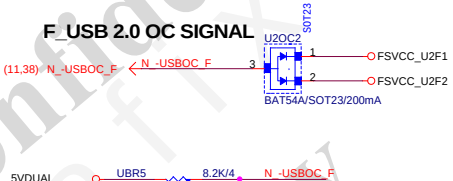
Close to connector

FUSE 2 Port 1 Fuse 2A





F_USB 2.0 OC SIGNAL



Gigabyte Technology

Title: USB2.0

Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

Date: Thursday, December 01, 2016 | Sheet 39 of 76

Rev: 0.52

R_USB30

USB 電容前後NET 可自行調整

R_USB30

USB3.0/2.0

FSVCC_U3R1

(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 R_U3TXN7
RBU3C2 0.1u/4/X7R/16V/K R_U3TXP7

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

G1 G2 G3 G4

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

USB 電容前後NET 可自行調整

FSVCC_U3R1

N_-USBP8 (11)
N_+USBP8 (11)
PCH_USB3_RXN8 (11)
PCH_USB3_RXP8 (11)
PCH_USB3_TXN8 (11)
PCH_USB3_TXP8 (11)

R_U3TXN8 RBU3C3 0.1u/4/X7R/16V/K
R_U3TXP8 RBU3C4 0.1u/4/X7R/16V/K

FUSE 2 Port 1 Fuse 2.6A

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

RBU3EC1 100u/FP/D/6.3V/65/C/13m

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_RXN8
* swap
R_U3TXN8
R_U3TXP8
* swap
RBU3D2
AZ1045-04F/MSOP10
PCH_USB3_RXN8
PCH_USB3_RXP8
R_U3TXP8
R_U3TXN8

NET 可自行調整

R_U3TXN7
R_U3TXP7
* swap
PCH_USB3_RXN7
PCH_USB3_RXP7
* swap
RBU3D1
AZ1045-04F/MSOP10
R_U3TXP7
R_U3TXN7
PCH_USB3_RXP7
PCH_USB3_RXN7

ESD 可自行SWAP PIN

RBU3D3

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

AOZ8902CIL/SOT23-6

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-Z270X-Ultra Gaming | Rev: 1.02

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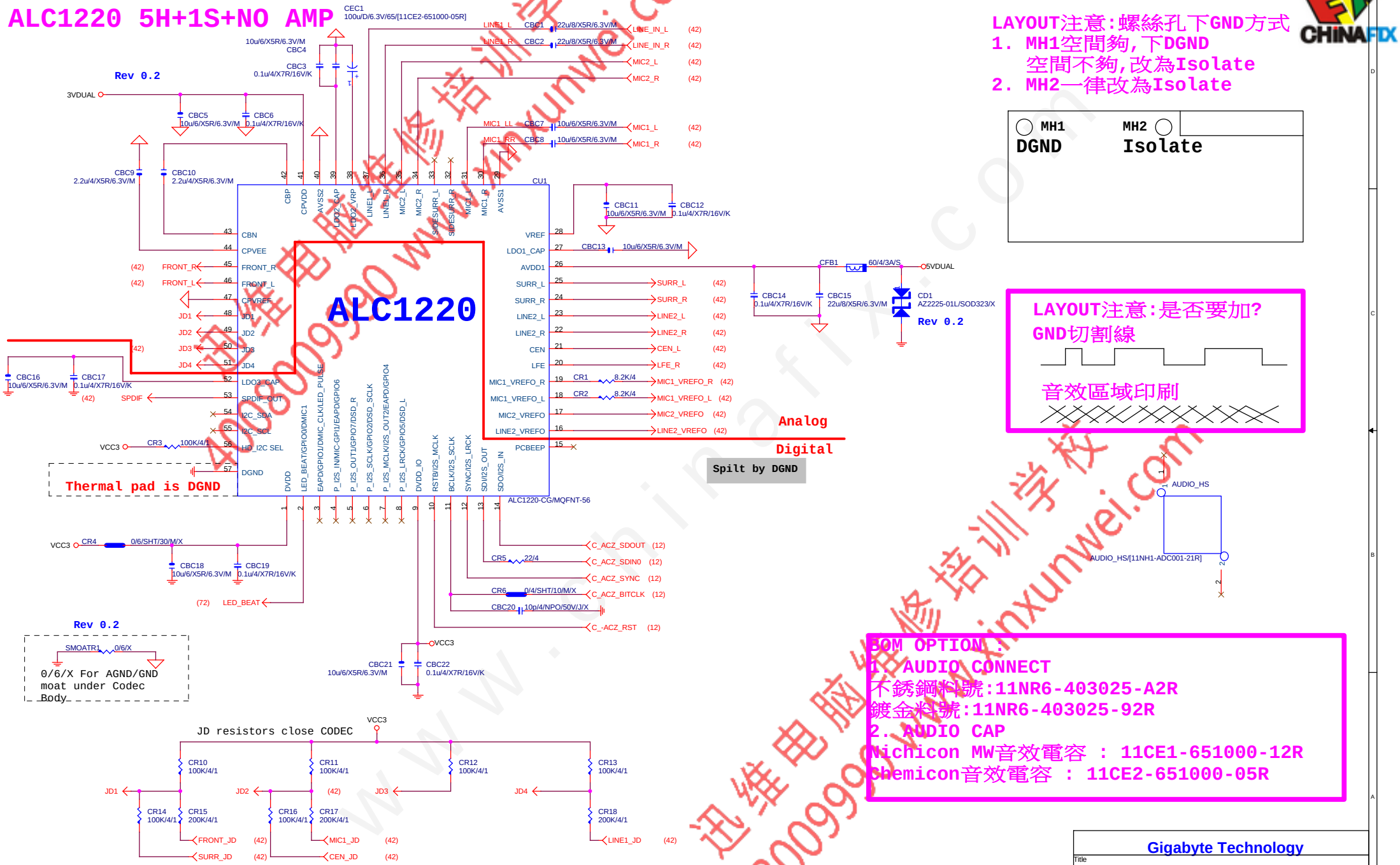
Rev 0.4

11CE2-651000-05R

ALC1220 5H+1S+NO AMP



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

LAYOUT注意:是否要加?
GND切割線

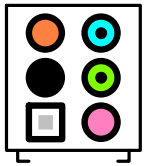
音效區域印刷

BOM OPTION :
1. AUDIO CONNECT
不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R
2. AUDIO CAP
Nichicon MW音效電容 : 11CE1-651000-12R
Chemicon音效電容 : 11CE2-651000-05R

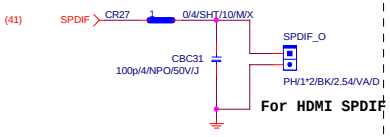
Gigabyte Technology		
Title: ALC1220		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 41 of 76	

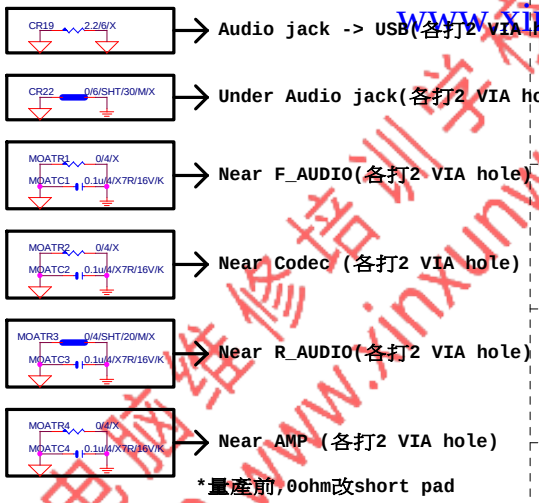
Rev 0.4

AZALIA JACK

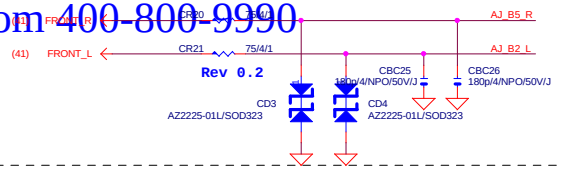


SPDIF_OUT

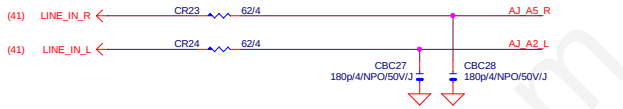




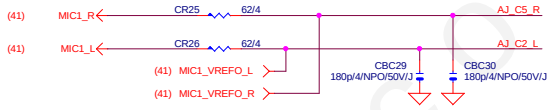
LINE-OUT



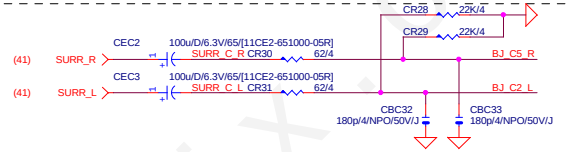
LINE-IN



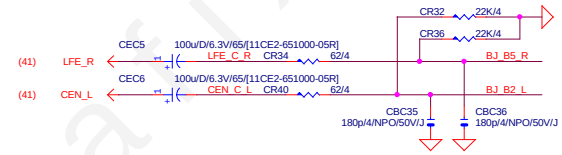
MIC-IN

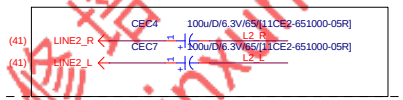


SURROUND

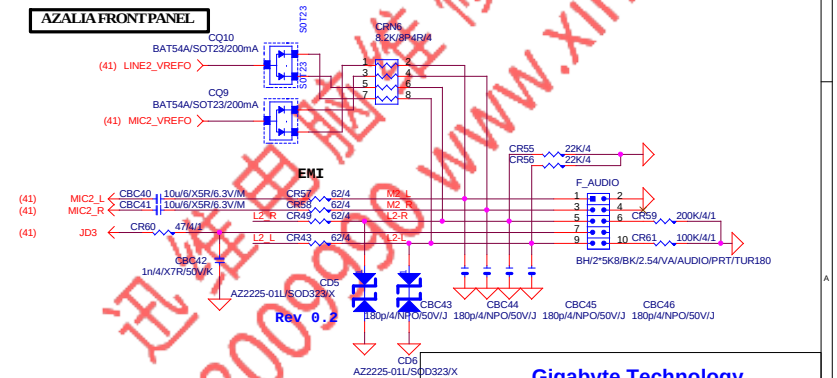


CEN/LFE



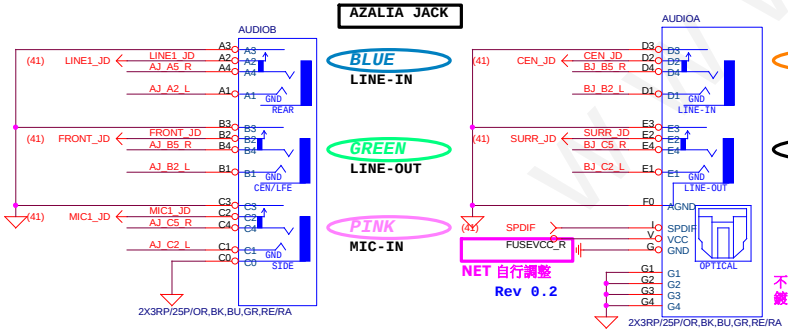


AZALIA FRONT PANEL



2X3RP/25P/OR,BK,BU,GR,RE/RA

AZALIA JACK



BLUE
LINE-IN

GREEN
LINE-OUT

PINK
MIC-IN

Orange
CEN/LFE

Black
SURROUND

SPDIF

NET 自行調整
Rev 0.2

不銹鋼料號:11NR6-403025-A2R
鍍金料號:11NR6-403025-92R

Gigabyte Technology

Title: AUDIO JACK

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GIGABYTE™

Title	Creative Sound3Di ZxR	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 43 of 76	

Gigabyte Technology		
Title: **Creative Sound3Di ZxR**		
Size: Custom	Document Number: **GA-Z270X-Ultra Gaming**	Rev: **1.02**
Date: Thursday, December 01, 2016	Sheet 44 of 76	

	Gigabyte Technology	
Title	KILLER E2500(E2400)(E2201)	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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LAN INTEL I219 R1.11

LAN POWER

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

3VDUAL_LAN1

LAR11 8.2K/4

LAREQ1 MASK/0/4/SHT/M/X

(10) LA_-CLKREQ
(16,51) O_-PFMRST2

LA_LAN_CLKREQ-

LAU1

CLK_REQ_N
PE_RST_N
PE_CLKP
PE_CLKN
PETP
PETN
PERP
PERN
SMB_CLK
SMB_DATA
LANWAKE_N
LAN_DISABLE_N
LED0
LED1
LED2
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
XTAL_OUT
XTAL_IN
TEST_ENABLE
RBIAS

PCIE
SMBUS
LED
JTAG

(10) LA_SRCCLK_LAN
(10) LA_-SRCCLK_LAN

(11) LA_ML_IP
(11) LA_ML_IN
LABC6 0.1u/4/X7R/16V/K
LABC8 0.1u/4/X7R/16V/K
LA_TP
LA_TN

(11) LA_ML_OP
(11) LA_ML_ON
LABC12 0.1u/4/X7R/16V/K
LABC16 0.1u/4/X7R/16V/K
LA_RP
LA_RN

(12) N_SML0CLK
(12) N_SML0DAT

(16) N_-LAN1_WAKE
LAR16 MASK/0/4/SHT/X
LA_-LANWAKE
LA_-LAN_DIS

FOR ERP WAKEUP

(47) LA_LED0
(47) LA_LED1
(47) LA_LED2

3VDUAL_LAN1
LAR6 8.2K/4/X LA_TDI
LAR5 8.2K/4/X LA_TMS
LAR4 8.2K/4/X LA_TCK

LABC14 20p/4/NPO/50V/J
LABC13 20p/4/NPO/50V/J
LAX1 25M/16p/30ppm/49USI/20/D
LA_XTALO
LA_XTALI

LAR7 1K/4/1 LA_TEST_EN
LAR12 3.01K/4/1 LA_LAN_BIAS

MDI_PLUS_0
MDI_MINUS_0
MDI_PLUS_1
MDI_MINUS_1
MDI_PLUS_2
MDI_MINUS_2
MDI_PLUS_3
MDI_MINUS_3

LA_MDI0+ LA_MDI0+ (47)
LA_MDI0- LA_MDI0- (47)
LA_MDI1+ LA_MDI1+ (47)
LA_MDI1- LA_MDI1- (47)
LA_MDI2+ LA_MDI2+ (47)
LA_MDI2- LA_MDI2- (47)
LA_MDI3+ LA_MDI3+ (47)
LA_MDI3- LA_MDI3- (47)

LA_-SVR_EN LAR19 MASK/0/4/SHT/X
LAR18 8.2K/4/X
SVR_EN_N
LA_VCCP3 LAR13 8.2K/4
RSVD_1/VCCP3P3
VDD3_P3_IN
VDD3P3_OUT
VDD3P3
VDD0P9
CTRL_0P9
VSS_EPAD
WGI219V/QFN48

3VDUAL_LAN1
LBC10 1u/4/X5R/6.3V/K
LAN_V_1P0
(CLOSE PIN4)

LA_CTRL_1P0
LAL1 4.7uH/3.3A/29m/S
LABC32 10u/6/X5R/6.3V/M
LABC29 10u/6/X5R/6.3V/M/X
CLOSE LAL1

FOR ERP WAKEUP

LAQR1 8.2K/4
LAQ1 2N7002/SOT23/25pF/5
3VDUAL
3VDUAL_LAN1
LAR17 8.2K/4
(12) N_LAN_DIS-
LAR20 0/4/X
LA_-LAN_DIS
O_-PFMRST2
LABC2 18p/4/NPO/50V/J/X
LAR14 1u/4/X5R/6.3V/K/X

3VDUAL_LAN1
LABC11 10u/6/X5R/6.3V/M
LABC3 0.1u/4/X7R/16V/K
LABC17 0.1u/4/X7R/16V/K
LABC21 0.1u/4/X7R/16V/K
LABC30 0.1u/4/X7R/16V/K
(CLOSE LAU1 PIN4,15,19,29)

CLOSE
3VDUAL_LAN1源頭處

LAN_V_1P0
LABC31 0.1u/4/X7R/16V/K
LABC15 0.1u/4/X7R/16V/K
LABC18 0.1u/4/X7R/16V/K
LABC9 0.1u/4/X7R/16V/K
LABC4 0.1u/4/X7R/16V/K
(CLOSE LAU1 PIN8,11,16,22,37,40,43,46,47)

Gigabyte Technology

Title: INTEL I219

Size: Custom | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.02

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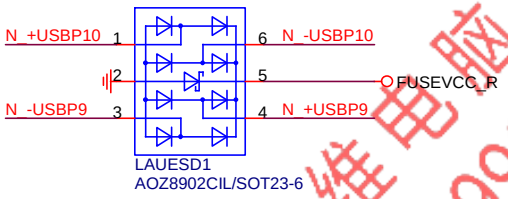
USB_LAN CONNECTOR R1.11

RMA ESD PROTECT

note:可變更USB NAME

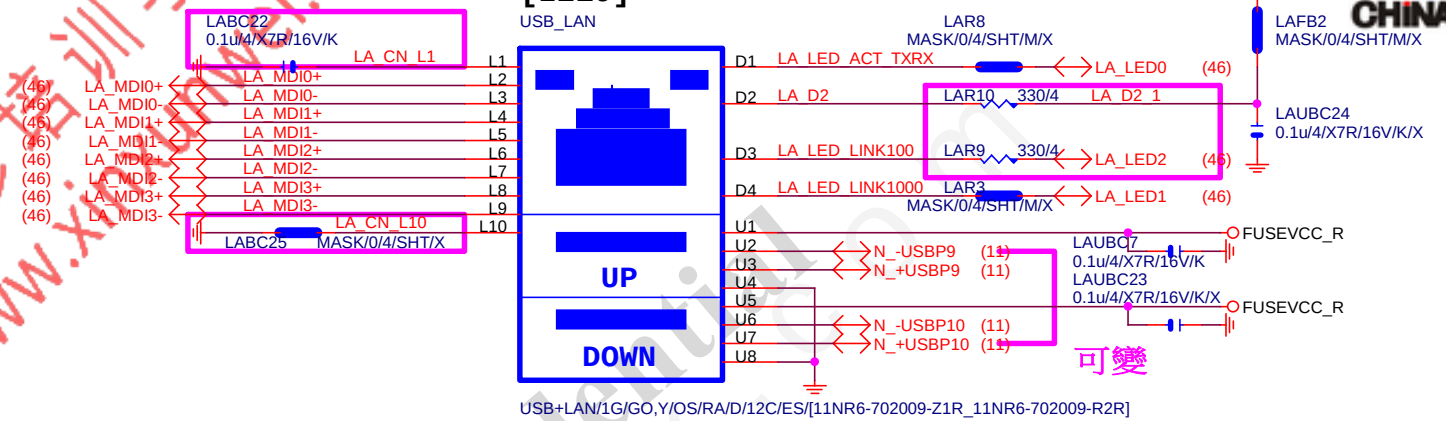
可變



USB_LAN CONNECTOR

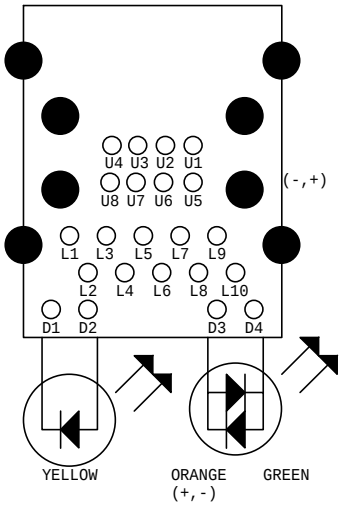
note:可變更USB NAME

[I219] Rev 0.2

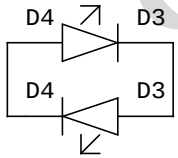


LA_MDI-->100歐姆:[20/4/8/4/20]

USB_LAN LAYOUT示意圖



Dual Color LED



Green

Orange

Single Color LED

Yellow

USB POWER

note:可變更FUSE

可變

Close to connector

USB_LAN 2-Port 2.0A

FUSE-0805

LAN_COVER

FOOT PRINT:LAN_COVER

可變
[視SPEC需求]

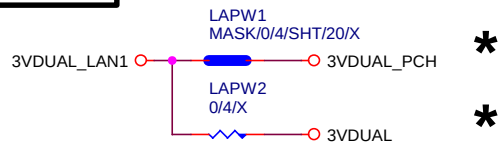
EMI SHORT PAD

PS:視EMI需求

LAN POWER

note: lan power連接及電流

可變



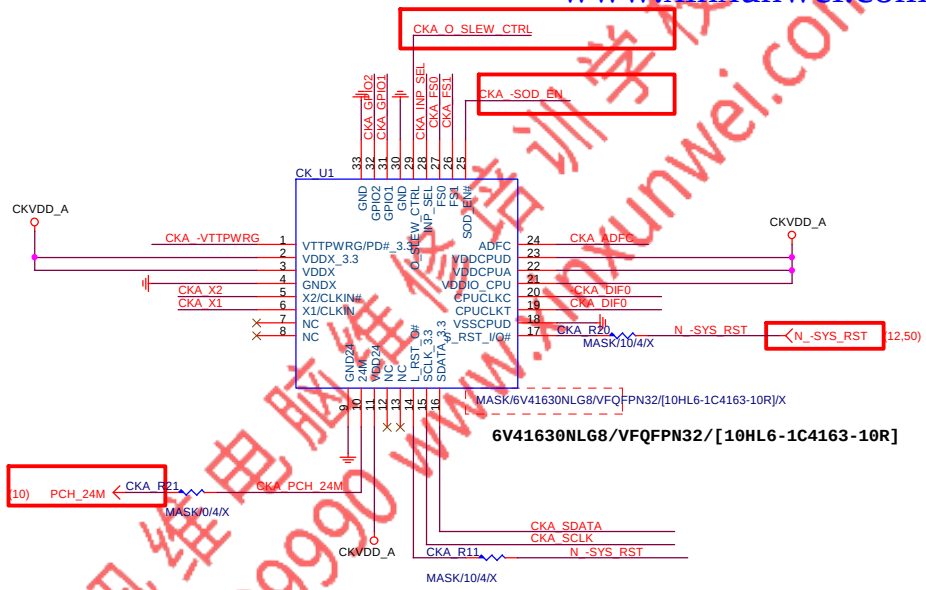
*

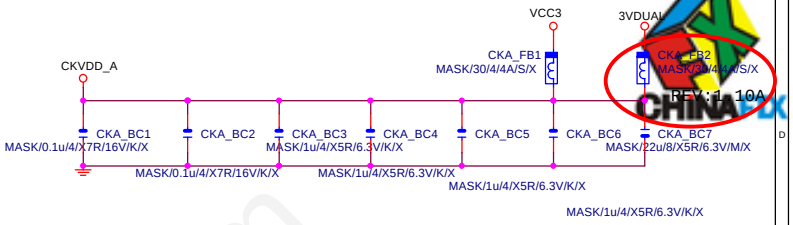
*

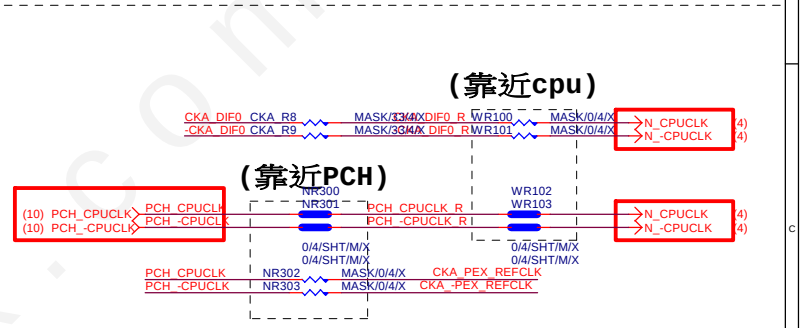
Gigabyte Technology		
Title: LAN CONNECTOR-I219		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 47 of 76	

REV:0.1

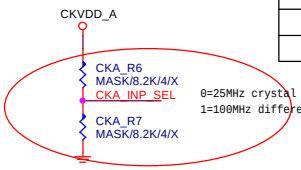
IDT6V41630

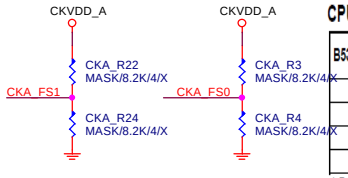






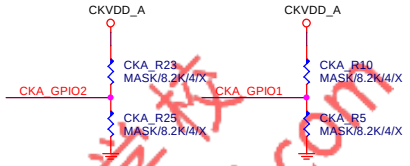
INP_SEL	Intput
0	Crystal
1	CLK_INP/N

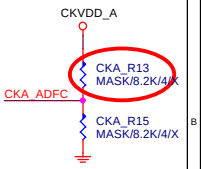


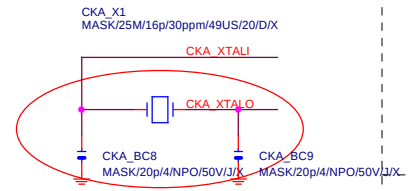


CPU Frequency Selection and output Divider Table

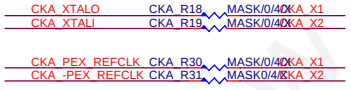
B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	200.00	2.00	100.00	-	OFF
0	1	400.00	4.00	100.00	-	OFF
1	0	1000.00	10.00	100.00	-0.50%	ON
1	1	100.00	1.00	100.00	-	OFF

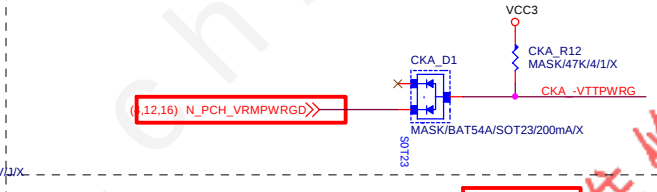




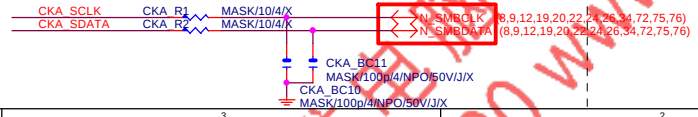


Defaults
CKX1.CKBC8.CKBC9.CKR18.CKR19上件
CKR30.CKR31不上件



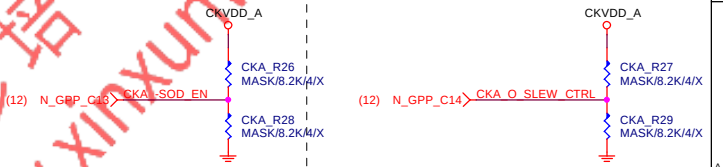


SMBUS



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-Z270X-Ultra Gaming	Rev: 1.02
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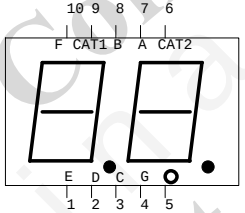
Rev: 0.52

COM PORT

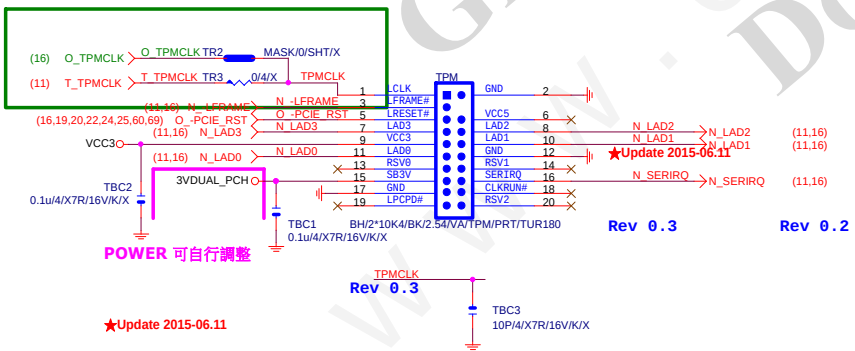
COMA

80 PORT

Physical Package
(TOP VIEW)

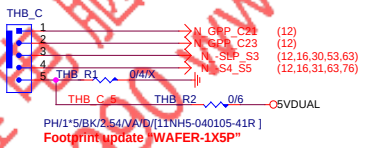


TPM CONNECT



Thunderbolt

Update 2015-12-29

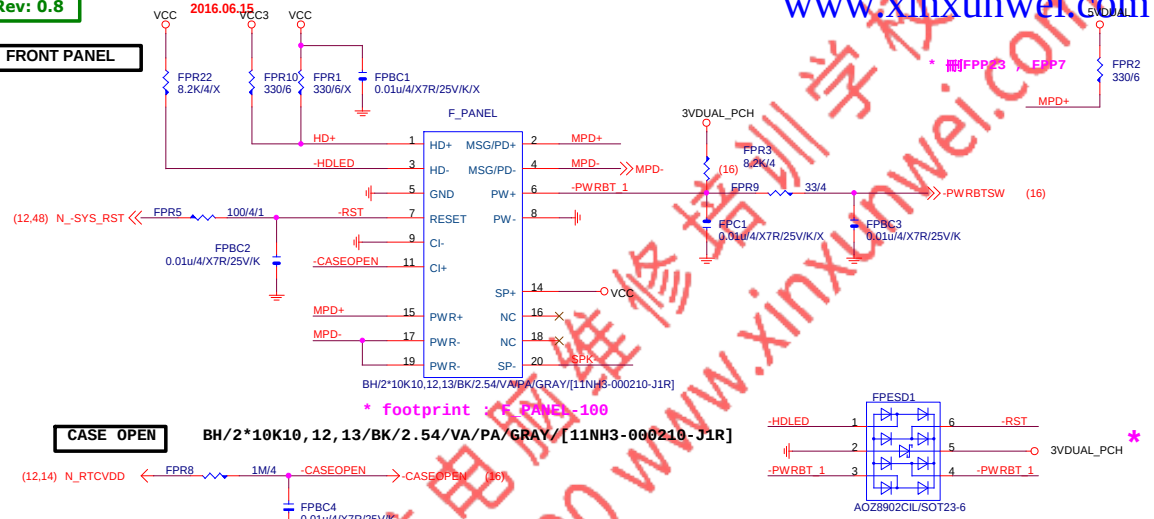


Gigabyte Technology	
Title	FP,F_USB,USB PWR,BZ
Size: Custom	Document Number: GA-Z270X-Ultra Gaming
Rev: 1.02	
Date: Thursday, December 01, 2016	Sheet 49 of 76

Rev: 0.8

★Update
2016.06.15

FRONT PANEL

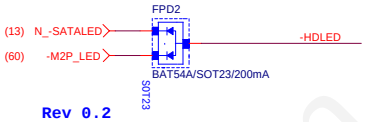


* footprint : F_PANEL-100

CASE OPEN

BH/2*10K10,12,13/BK/2.54/VA/PA/GRAY/[11NH3-000210-J1R]

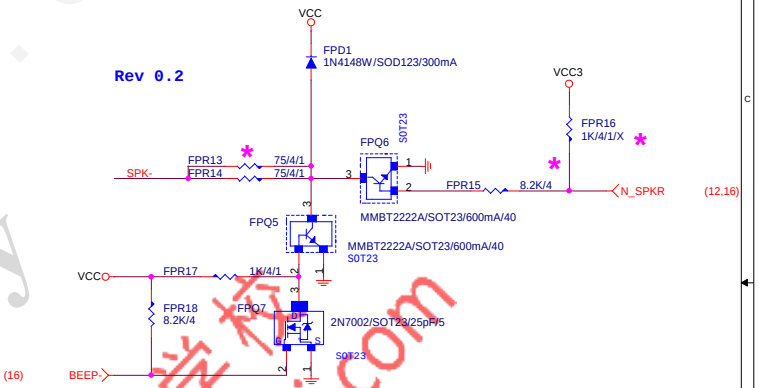
SATA LED#SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3.3



Rev 0.2

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-Z270X-Ultra Gaming | Rev: 1.0

Date: Thursday, December 01, 2016 | Sheet 50 of 76

ASM2142 USB3 Host Rev0.2
PCIE Gen3 X2

Color markers can be changed by model

ASM2142 USB3.

Base on ASM2142 0.1 Reference SCH

Change to 0402

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.

From PCIE CLK

To USB Conn

To OC circuit

To USB Conn

Close to ASM1142 IC

SPI_DO=>CSEL0

UART_RX=>CSEL1

ASM2142/QFN64

Pin 1/12/33

Pin 21/34

Pin 4/32

Pin 24/20

Pin 35/47/52

Pin 38/44/55/62

ASM 2142 Option

ASM2142 SSAR34,SSAR38

ASM2142 Option

ASM2142 2.5V, 300mA

SPI_DO=>CSEL0

UART_RX=>CSEL1

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

ASM2142 SSAR28=31.6K,1.05V,800mA

ASM2142 SSAR22=316,1.05V,50mA

Vout=0.8*(R1+R2)/R2

AP7365-WG-7/SOT23-5/600mA

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

【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

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

GIGABYTE

Title	ASM2142	
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 51 of 76	

ASM2142 USB31 Host Rev0.2

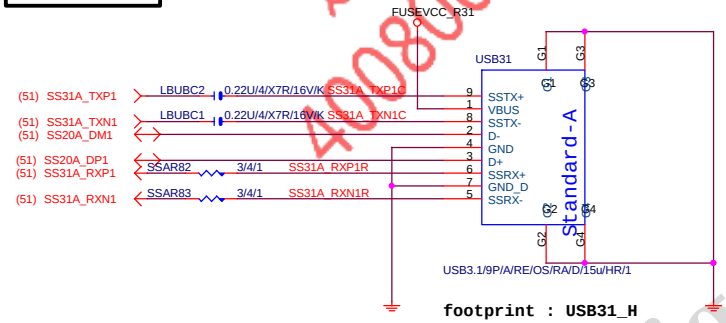
後窗Rule ：（後窗由左至右）
DIP電容 ： REC1, REC3, REC2
FUSE ： RFUS1,RFUS2, RFUS3,RFUS4...

平躺式type A

USB 3.1 Red
平躺

USB31 TYPE A Connector which chooses for project demand

架高式type A



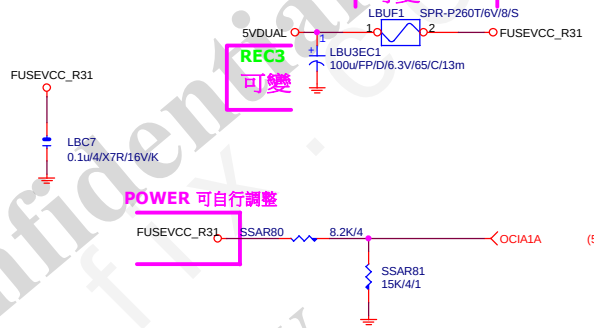
USB 3.1 Red
架高

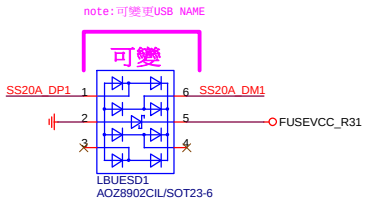
footprint : USB31_H

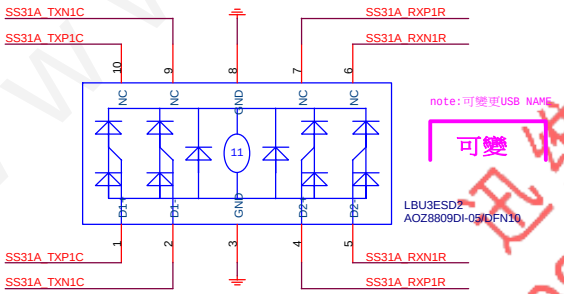
USB POWER

note:可變更FUSB

可變 RFUS2



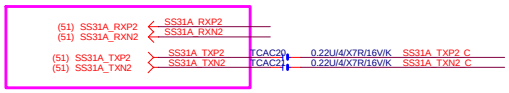




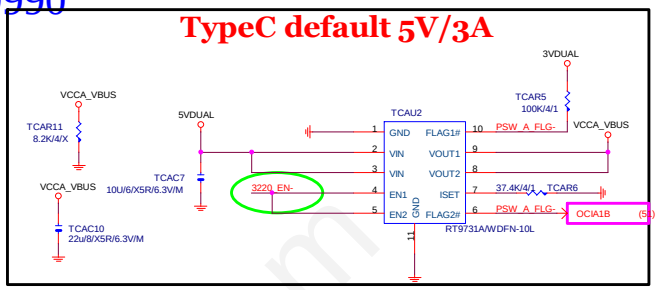
GIGABYTE		
Title: TI Type C port A		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 52 of 76	

ASM2142 USB31 Host Rev0.2

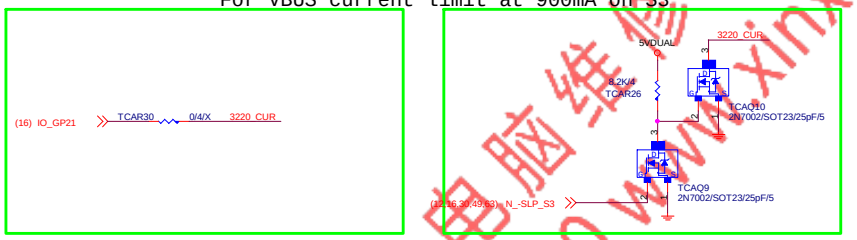
USB 3.x SuperSpeed

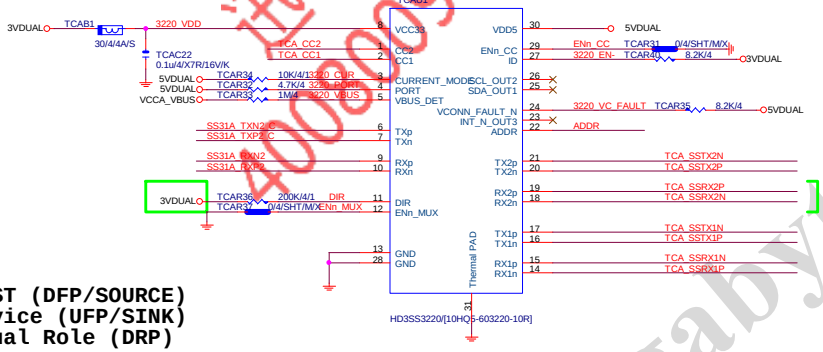


TypeC default 5V/3A

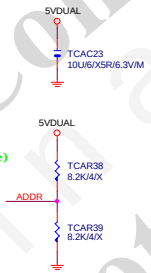


For VBUS current limit at 900mA on S3





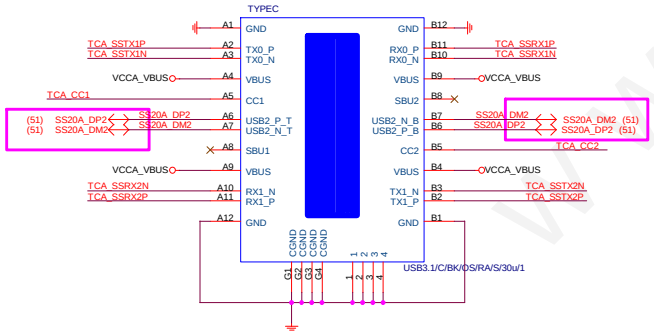
SWAP(check firmware)



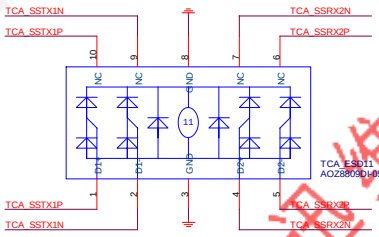
PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

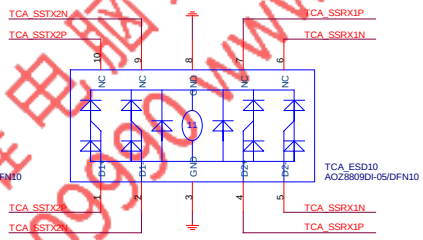
CURRENT MODE
L - Default (900mA) / Pull down to GND or NC
M - Medium (1.5A) / Pull up to VDD 500K
H - High (3.0A) / Pull up to VDD 10K

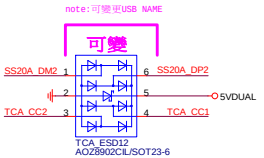
Color markers can be changed by model



USB2.0 can be used the same source







Title	TI HD3SS3212	
Size C	Document Number GA-Z270X-Ultra Gaming	Rev 1.02
Date: Thursday, December 01, 2016	Sheet 53 of 76	

GIGABYTE™

Title: PD 12V3A		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 54 of 76	

GIGABYTE™

Title: DISPLAY PORT IN		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 55 of 76	

Rev: 0.62

HDMI LEVEL SHIFT

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K

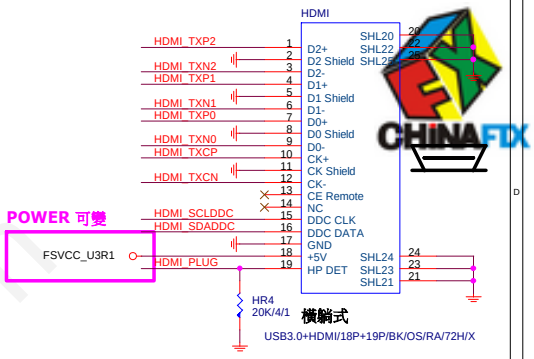
ASM1442:紅色框要上,HR12:3.16K

【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)



直立式

P/N:11NR6-H01019-K1R

Gigabyte Technology		
Title: FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
Date: Thursday, December 01, 2016	Sheet 56 of 76	

Rev: 0.73

DVI CONN

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

NET 可變

(4) DVI_TXC
(4) DVI_TXC-
(4) DVI_TX0
(4) DVI_TX0-
(4) DVI_TX1
(4) DVI_TX1-
(4) DVI_TX2
(4) DVI_TX2-

VBC1 0.1u/4/X7R/16V/K
VBC2 0.1u/4/X7R/16V/K
VBC3 0.1u/4/X7R/16V/K
VBC4 0.1u/4/X7R/16V/K
VBC5 0.1u/4/X7R/16V/K
VBC7 0.1u/4/X7R/16V/K
VBC8 0.1u/4/X7R/16V/K
VBC9 0.1u/4/X7R/16V/K

DVITXC+ VR1 680/4/1
DVITXC- VR2 680/4/1
DVITX0+ VR3 680/4/1
DVITX0- VR4 680/4/1
DVITX1+ VR7 680/4/1
DVITX1- VR8 680/4/1
DVITX2+ VR9 680/4/1
DVITX2- VR10 680/4/1

DVI_G

防漏電
★Update 2015.05.27
VD1 BAT54A/SOT23/200mA SOT23

VR14 2.2K/4/1
VR13 2.2K/4/1
DVI_SDA
DVI_SCL

VQ1 2N7002/SOT23/25pF/5 SOT23

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

VCC VR16 8.2K/4 VQ1_2

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

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

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

Close to connector

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

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

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

Close to connector

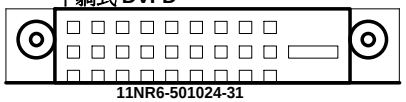
VESD3
DVI_HP
DVI_SDA
DVI_SCL
NET 可變
FSVCC_KM
AOZ8902CIL/SOT23-6

NET 可變
FSVCC_KM

M1 SHIELD1
DVI
DVITX0- DVITX0+ DVITX1- DVITX1+ DVITX2- DVITX2+
DVI_SCL DVI_SDA
DVITXC- DVITXC+
DVI_HP
VR15 20K/4/1
SHIELD2 M5
SHIELD2 M6
SHIELD2 M7
SHIELD2 M8
M2 SHIELD2
COMMON
DVI-30P-4P-1

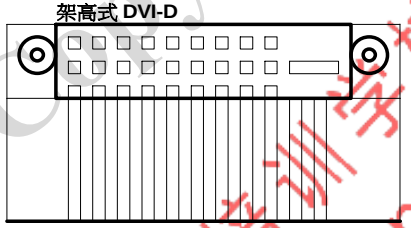
DVI-D/24P/SC/RA/D/SH/[11NR6-501024-31R]

平躺式 DVI-D



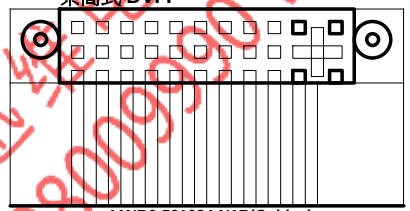
11NR6-501024-31

架高式 DVI-D



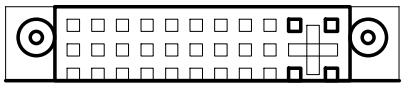
★Update 2015-03.24
11NR6-501024-R1R(Golden),
11NR6-501024-T1R(Normal)

架高式 DVI-I



★Update 2015-03.24
11NR6-501024-N1R(Golden),
11NR6-501024-L2R(Normal)

平躺式 DVI-I



11NR6-501029-K1R

Gigabyte Technology

Title	FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming		Rev: 1.02
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Gigabyte Technology		
Title: M.2 X4		
Size: Custom	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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Gigabyte Technology		
Title: M.2X4_S4~S5 SWITCH		
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Rev 0.1

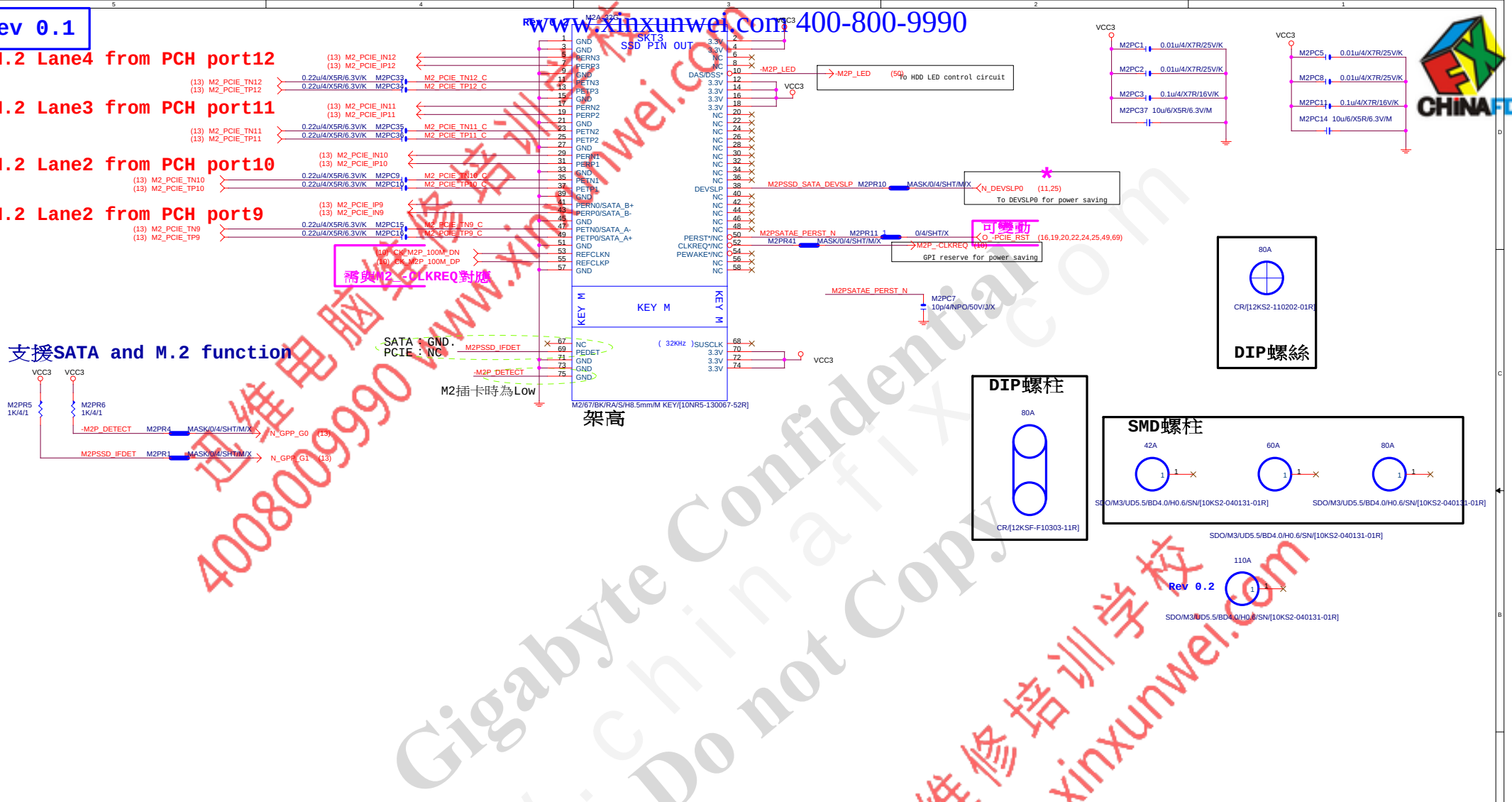
M.2 Lane4 from PCH port12

M.2 Lane3 from PCH port11

M.2 Lane2 from PCH port10

M.2 Lane2 from PCH port9

支援SATA and M.2 function



Gigabyte Technology		
Title: M.2 X4		
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GIGABYTE™

Title: Gensys GL3523_1		
Size: C	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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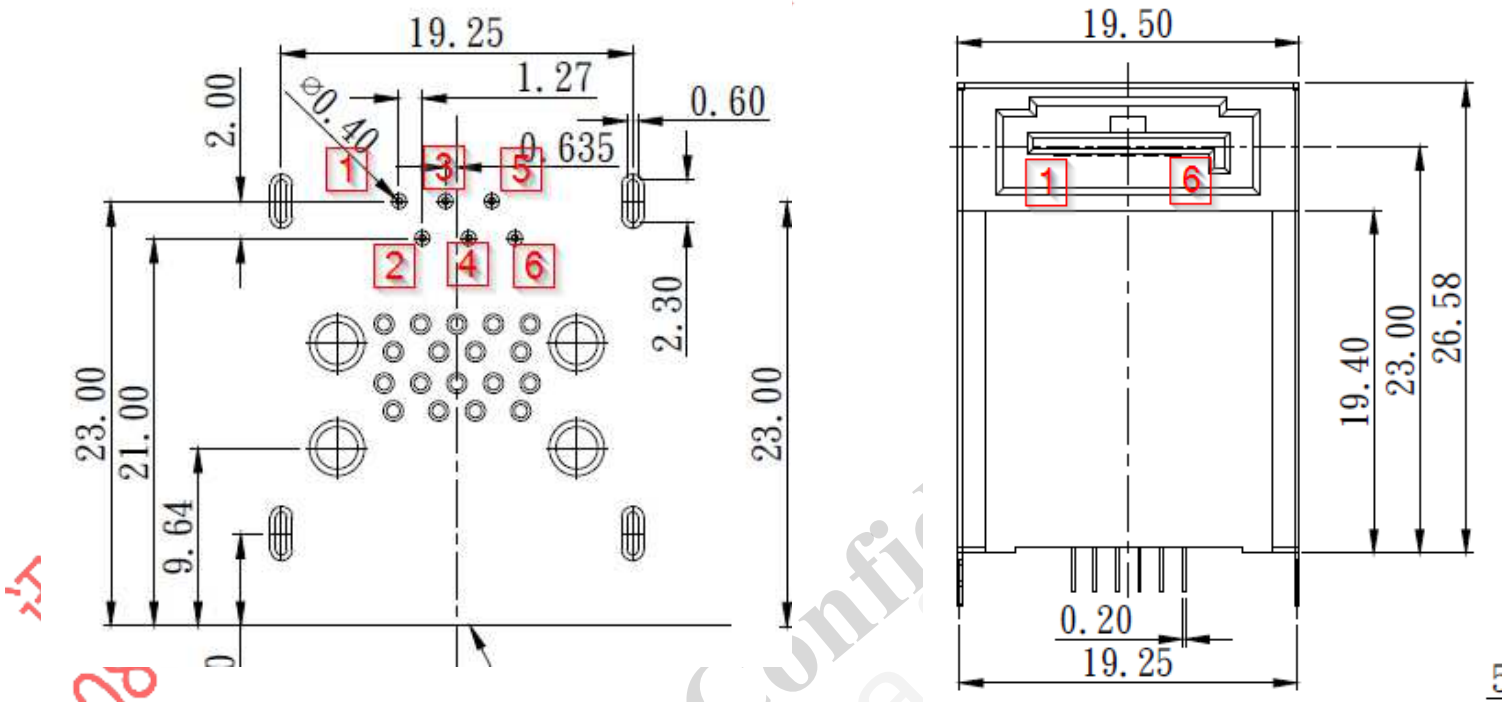
REV:0.1



Rev 0.2

Gigabyte Technology		
Title: Flex IO		
Size: A	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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EMI/ESD R0.1

CLOSE SIO

CLOSE PCH

GIGABYTE™

Title: EMI/ESD		
Size: A	Document Number: GA-Z270X-Ultra Gaming	Rev: 1.02
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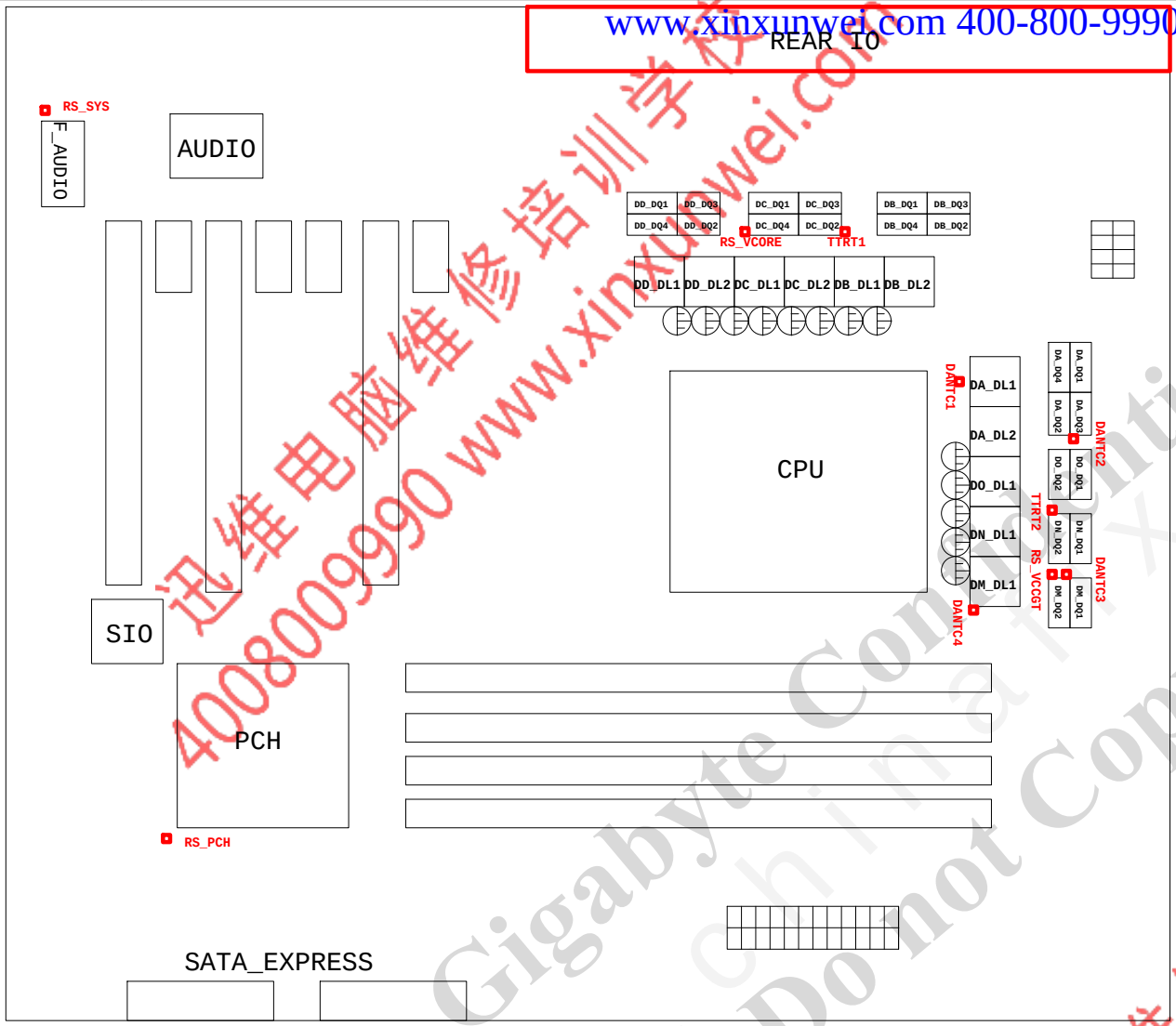


熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

Gigabyte Technology

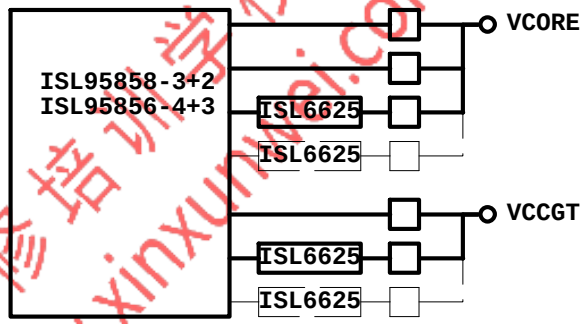
NTC MAP

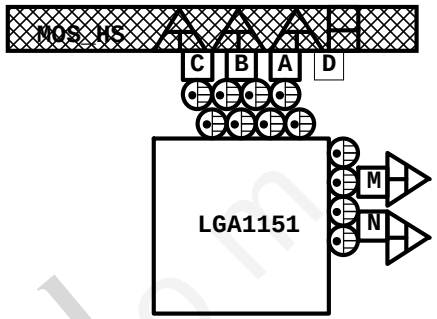
GA-Z270X-Ultra Gaming

POWER BLOCK MAP

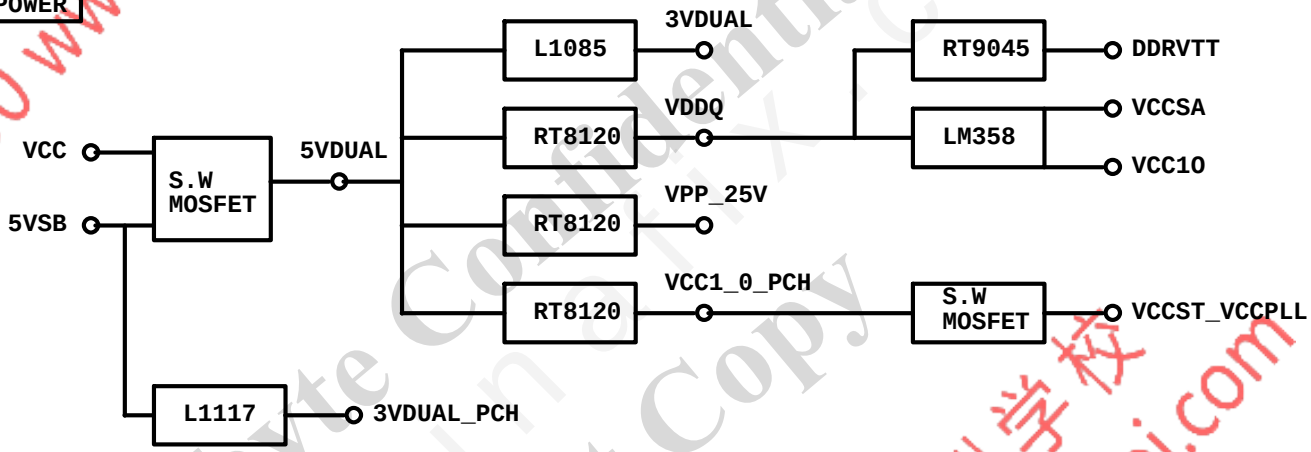
- CPU: VCORE, VCCGT, VCCSA, VCCIO, VDDQ, VCCST_VCCPLL, VCCSFUSEPRG
- DDR4: VDDQ, DDRVTT, VPP_25V, VDDSPD(VCC3)
- PCH: VCC1_0_PCH, VCC1_0_PCH_DSW, VCC10_VCCF24_1P0, VCC10_VCCAMPHYPLL, VCC10_VCCAPLL, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- IT8628: IT_VCCH, IT_AVCC, 2_5LEVEL
- HM: +12V, VCC, VCC3, VCORE,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

VCORE/VCCGT

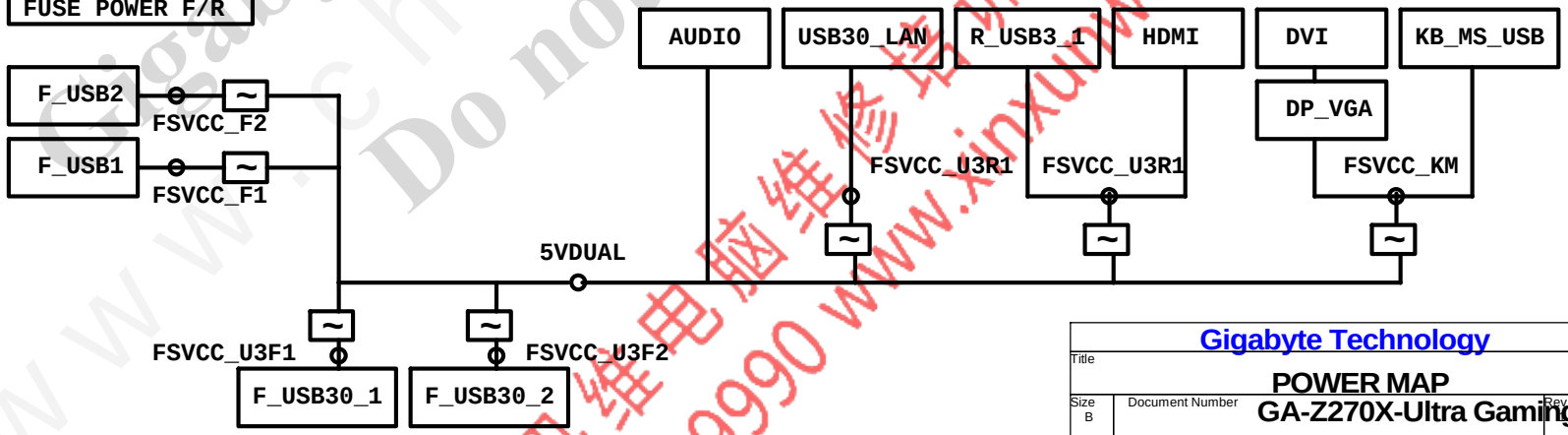




POWER



FUSE POWER F/R



Gigabyte Technology

Title: POWER MAP

Size: B | Document Number: GA-Z270X-Ultra Gaming | Rev: 1.2

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固態電容料號.請自行修改

日系黑色固態	Capture Value
11CO2-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	
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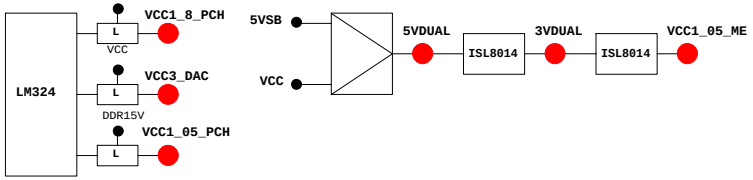
PCH GPIO LIST TABLE

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

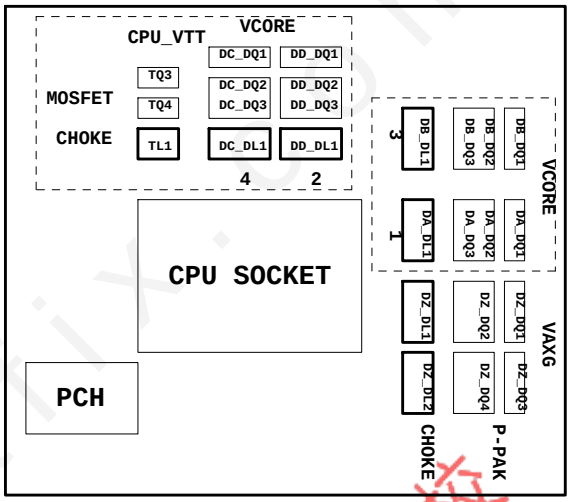
Super I/O ITE8720 GPIO Table

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	
VID03/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	
VID05/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	
VID00/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	
VID01/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	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/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

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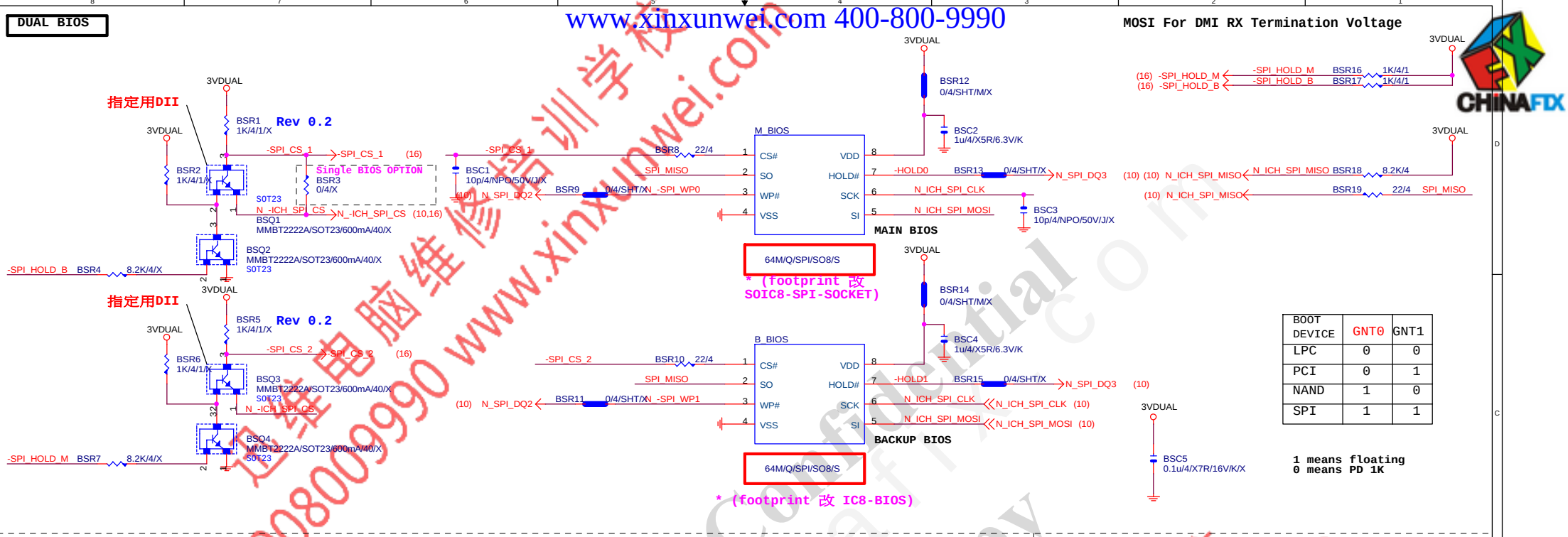
DUAL BIOS

MOSI For DMI RX Termination Voltage

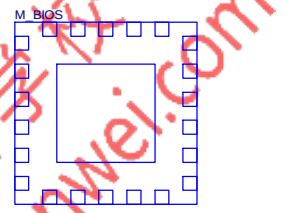


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

BIOS_SW

BIOS_SW	
1	MAIN_BIOS
2	BACKUP_BIOS



* 試產先上 , PVT 移除

SB:Single BIOS	
	Disable
	Enable

Gigabyte Technology

Title: BIOS

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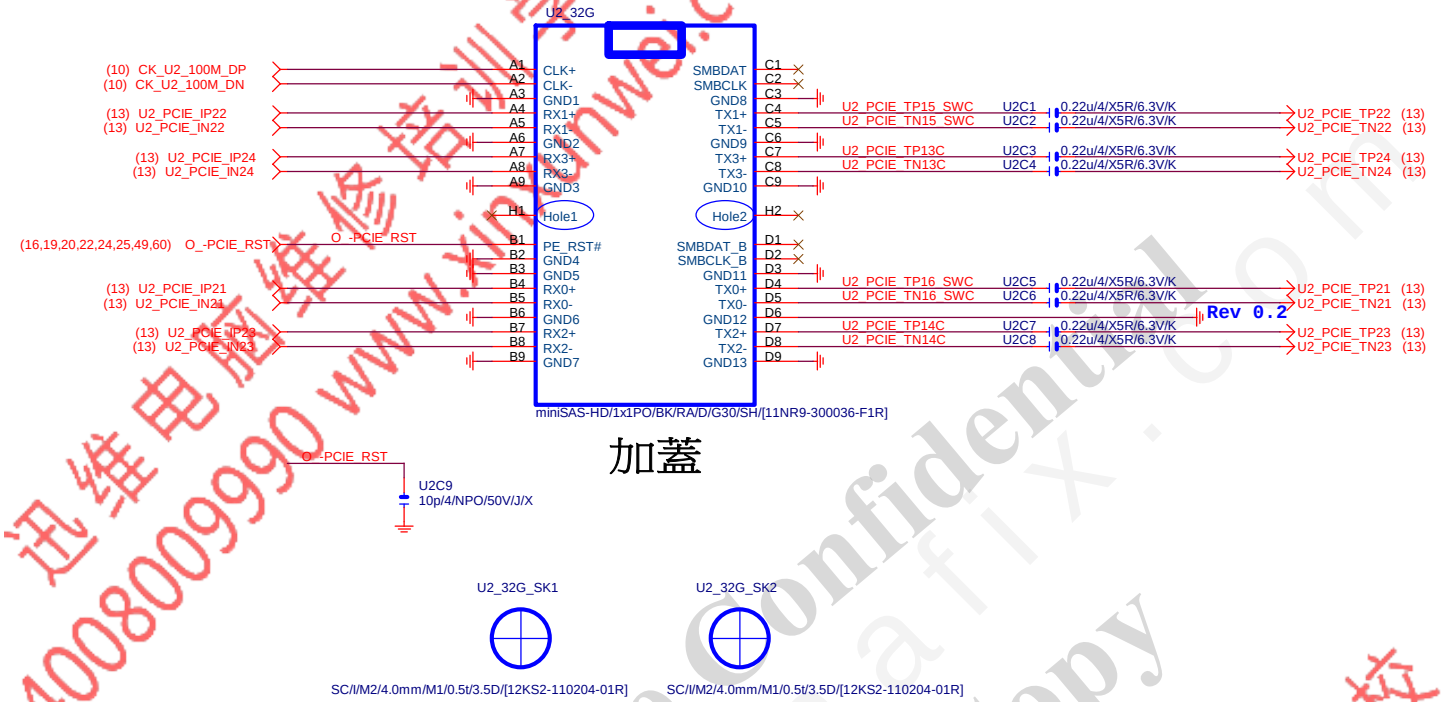
Rev 0.3



加蓋

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第一區 LED

Rev 0.63

LED GPIO PIN DEFINE

N_GPP_A17	CPU DEBUG
N_GPP_A18	DDR DEBUG
N_GPP_A19	VGA DEBUG
N_GPP_A20	BOOT DEBUG
N_GPP_A21	XMP LED SWITCH
N_GPP_A22	TURBO LED SWITCH
N_GPP_D15	LED_C LED SWITCH
N_GPP_D17	PCIEX16 LED SWITCH
N_GPP_D18	PCIEX8 LED SWITCH

DEBUG PORT LED *4
(位置稀擺放在一起)

用文字面表示

CPU DRAM VGA BOOT

FOR AUDIO 正發光 LED*40
(位置在背板AUDIO切割線)

AUDIO_LEDPW

FOR AUDIO 正發光 LED*40
(位置在正板AUDIO切割線)

AUDIO_LEDPW

K5 Rev 1.0

FOR PCIEX16 側發光 LED*3
(位置在PCIEX16 SLOT)

AUDIO_LEDPW

FOR PCIEX8 側發光 LED*3
(位置在PCIEX8 SLOT)

AUDIO_LEDPW

第一區 LED CONTROL

第二區 LED CONTROL

DEMO偵測

AUDIO BEAT LED
LED_C WHITE LED ON/OFF

同步RESET

第二區LED

第一區LED

IC ADDRESS : 50

A_ADDR0 : Pulldown address is 0xBC

BATTERY CHARGE LOAD

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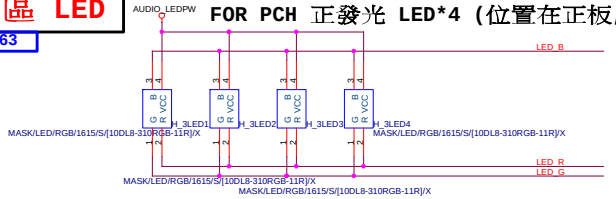
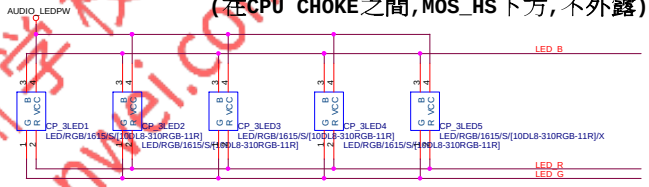
第二區 LED

Rev 0.63

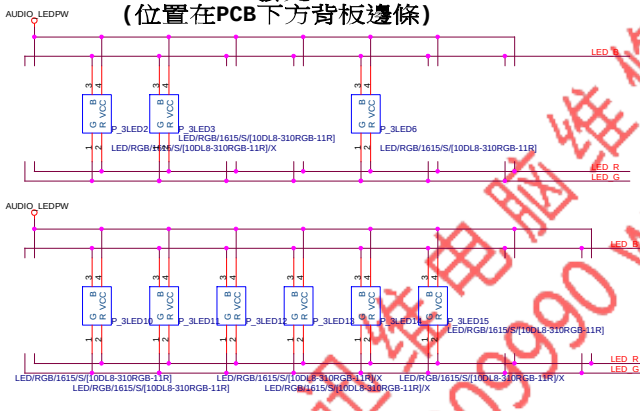
FOR PCH 正發光 LED*4 (位置在正板,依據PCH_HS設計擺放)

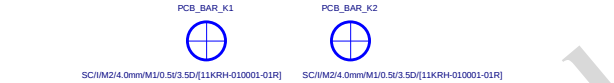


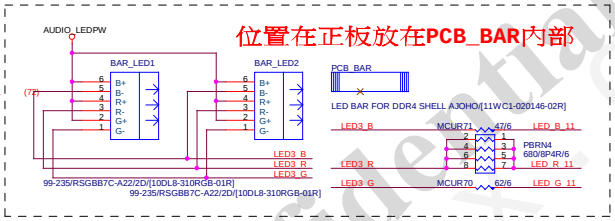
FOR CPU 正發光 LED*8 (在CPU CHOKE之間,MOS_HS下方,不外露)



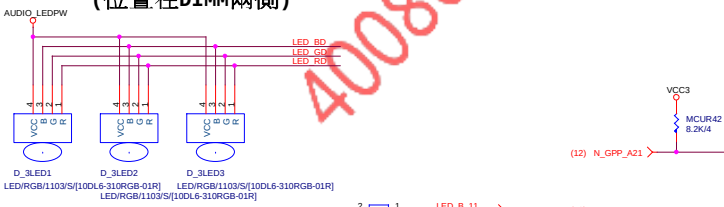
FOR PCB 正發光 LED*16 (位置在PCB下方背板邊條)

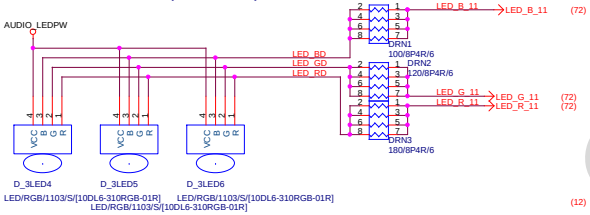




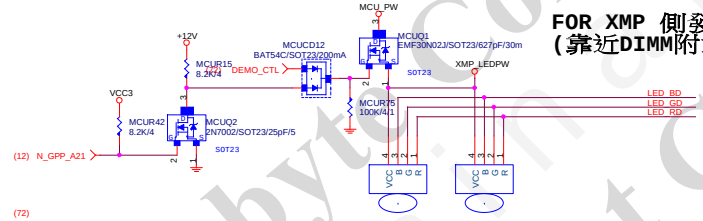


FOR DIMM 側發光 LED*6 (位置在DIMM兩側)

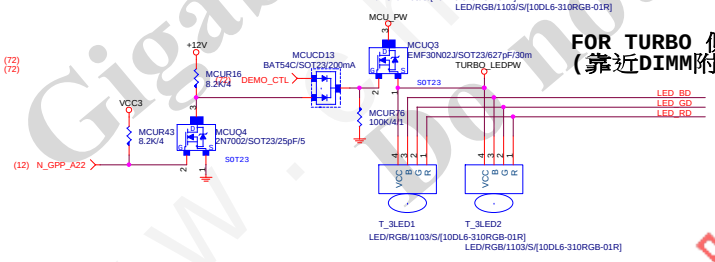




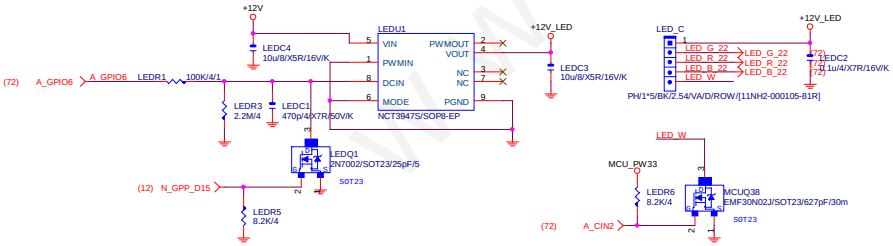
FOR XMP 側發光 LED*2 (靠近DIMM附近放背板鏤空)



FOR TURBO 側發光 LED*2 (靠近DIMM附近放背板鏤空)



FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



DDR燈條*3

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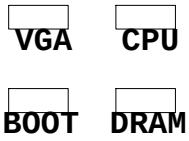
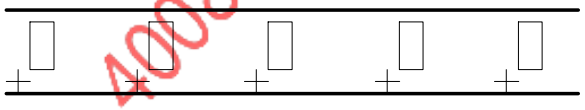
RGB LED LAYOUT 注意事項 :

1. **Debug LED** 文字面表示如右所示 **(LED請擺在一起)**
2. 背板 **RGB LED** 方向整板請統一如下
   (整板正極可統一朝下或朝上)
3. 正板 **RGB LED** 統一方向即可
4. **LED RGB 10PCS** 以上走**20mils**
   LED RGB 10PCS 以下空間問題可以走**10mils**
   LED電源一律走**20mils**
5. **MCU LED** 出**pin**的走線**4mils**,如:**LED_R_1,LED_G_1,LED_B_1 .....**
   過晶體的走線**20mils**,包含過排組到**LED**的走線如:**LED_R_11,LED_G_11,LED_B_11..**
6. **XMP/TURBO/G1.GAMING** 側發光 **LED** 位置如下

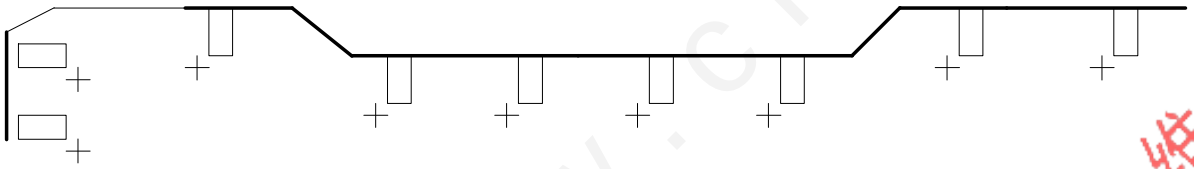
Debug LED 文字面 (單色LED)



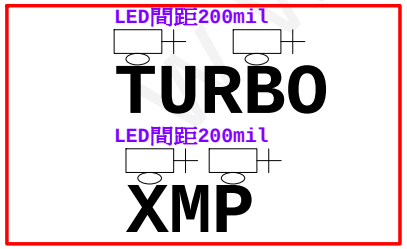
PCB板邊透光model name鏤空+背面 RGB LED



Audio Ground切割線+背面 RGB LED



"Turbo", "XMP"字樣(分開控制) 鏤空+背面 RGB側發光 LED



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USB_DAC_A

F_USB30_1

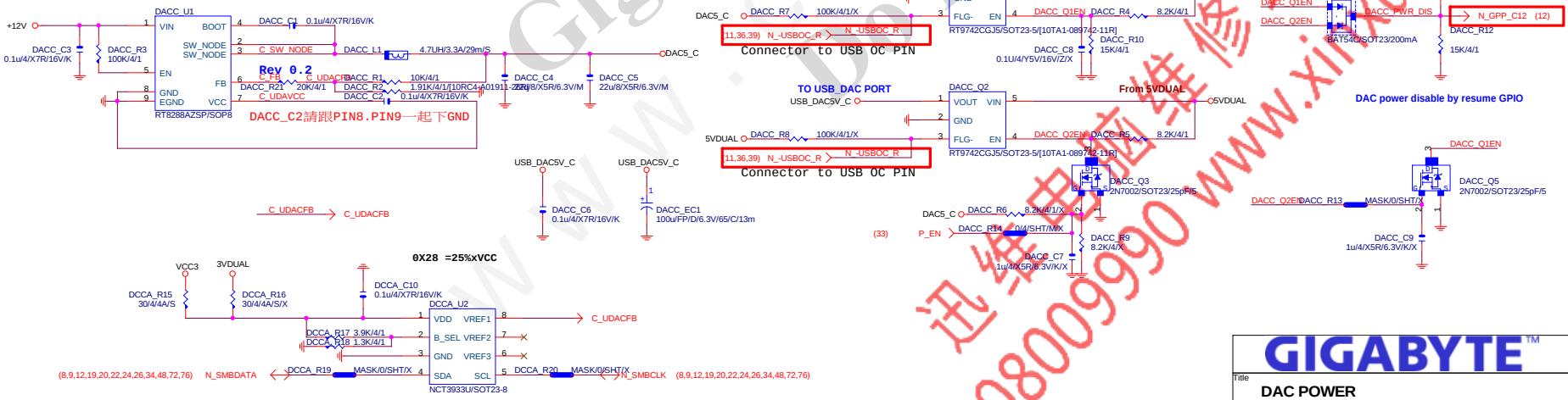
Rev 0.2

USB_DAC_B

F_USB30_2

USB_DAC_C

KB_MS_USB0



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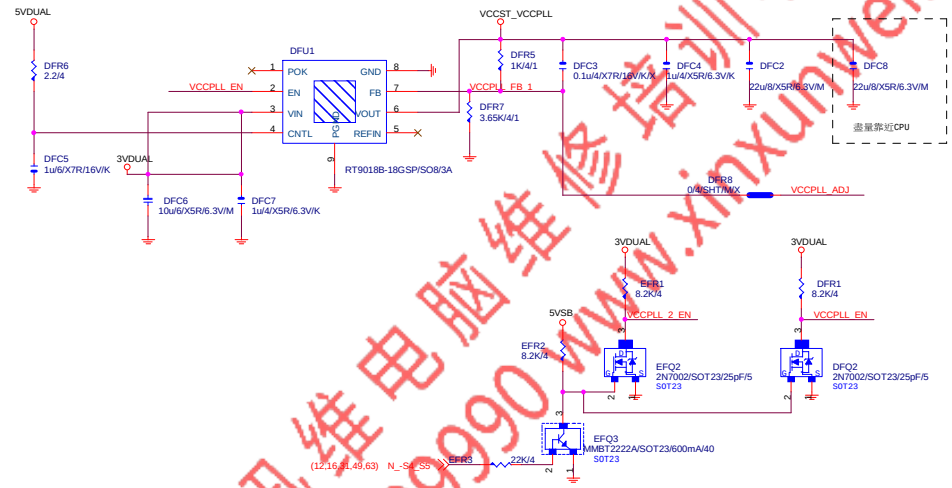
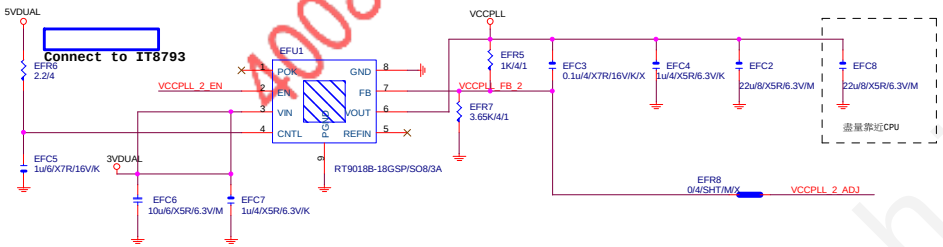
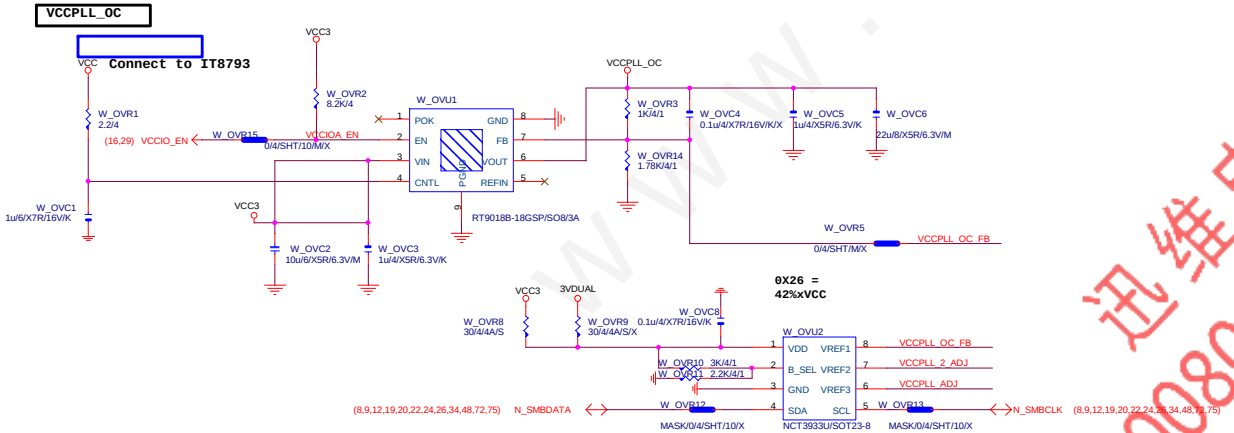
VCCST_VCCPLL 替換原先MOS開關線路



VCCPLL



VCCPLL_OC



Title	CPU POWER		
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