

Model Name: GA-Z270X-Ultra Gaming

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B_DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A 1,2
09	DDR4 CHANNEL B 1,2
10	PCH_RGB,CLK BUFFER
11	PCH_DMI,USB,PCIE
12	PCH_MISC
13	PCH_SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	PCH_GND
16	ITE 8686 LPC_IO
17	HMW
18	FAN_CTRL--SIO
19	PCI_EXPRESS_X16_SLOT
20	PCI_EXPRESS_X8_SLOT
21	PCI_EXPRESS_X16_SWITCH
22	PCI_EXPRESS_X4_SLOT(CPU)
23	NA
24	PCI_EXPRESS_X1_SLOTS (PCIEX4_SWITCH)
25	SATA_EXPRESS
26	ISL95856_PWM
27	ISL95856_MOS_VCORE
28	ISL95856_MOS_VCCGT
29	VCCSA_VCCIO_VCCPLL
30	RT8120_DDR
31	RT8120_VPP
32	RT8120_PCH
33	DISCRETE_POWER1
34	NCT3933
35	ATX_POWER , A_-PROCHOT

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SHEET

TITLE

36	KB_MS_USB
37	OC , ECO , POWER BUTTON
38	F_USB30
39	F_USB20
40	R_USB30
41-42	ALC1220
45	NA
46	LAN~I219
47	USB30_LAN-I219
48	IDT6V41630_CLK_BUFFER
49	COM , TPM , 80 port , THB_C
50	F_PANEL
51~53	ASM2142
55	NA
56	HDMI
57	DVI
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
69	U2_32G
70	NA
71	NA
72~74	MCU_LED
75	USB_DAC_POWER
76	VCCPLL , VCCPLL_OC , VCCST_VCCPLL

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Component value change history

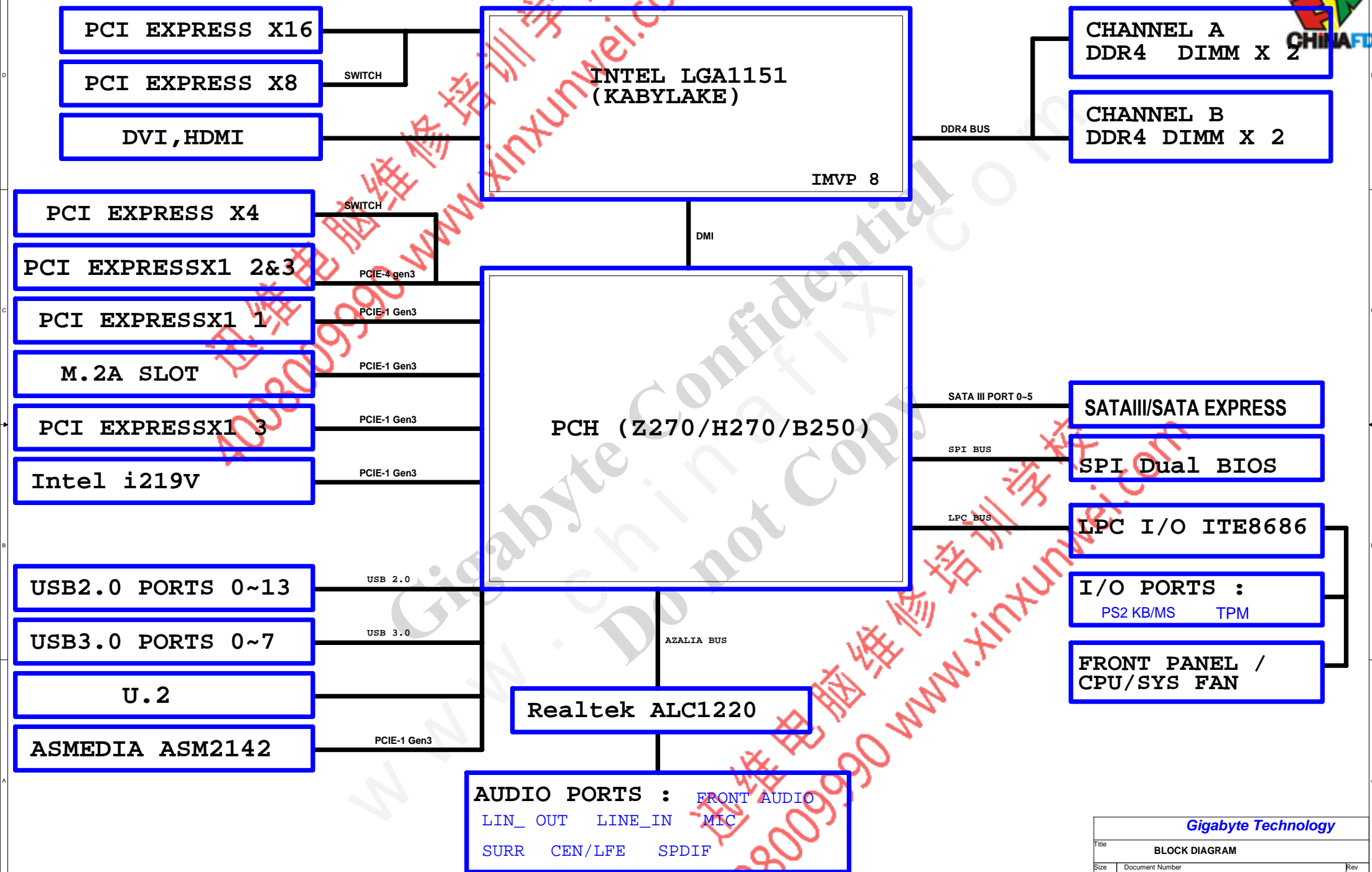
Data	Change Item	Reason
2016/07/05	1. First Release	9MZ27ULGA-00-01
2016/08/15	1. NC2 27P/4 to 22P/4 2. Remove NR17,NR186 8.2K/4 3. OR56 10K/4 to 8.2K/4 4. Remove CD1 AZ2225-01 5. PWM to ISL95866 6. TTR2 5.49K/4/1 to 4.7K/4/1 7. TTR8 4.02K/4/1 to 4.3K/4/1 8. CR20,CR1 0/4 to 75/4/1 9. Remove BSR1,BSR5 1K/4/1	9MZ27ULGA-00-02
2016/09/13	1. Update LED Control Circuit 2. Update Type C to T1 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

2016/10/19 Rev 1.01

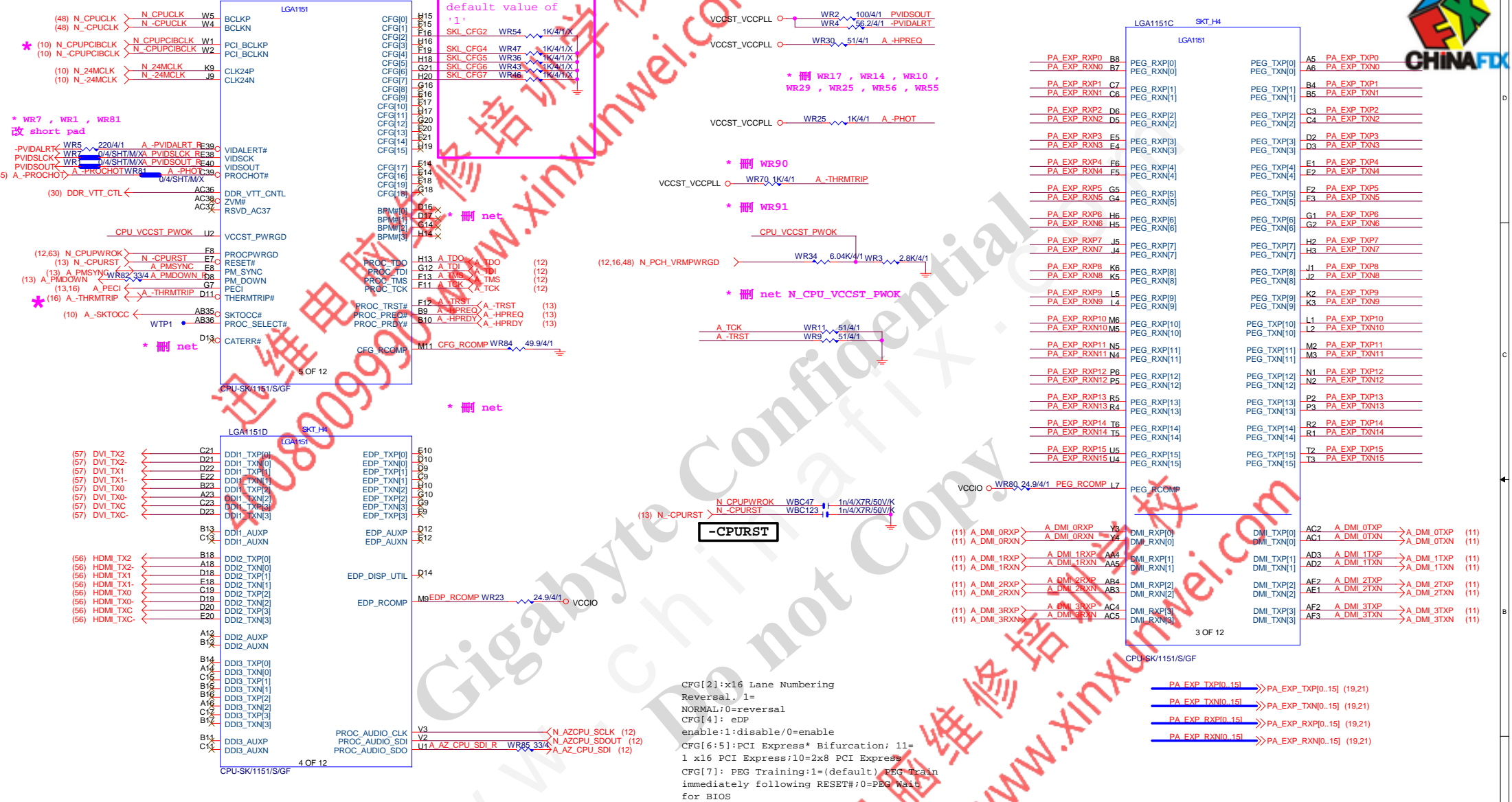
1. 由Z270X-Gaming K5 Rev 1.0修改
2. 移除DC_SBC7/8, MR25/26,MC20
3. 增加DCC1/2/3, MABC6
4. Add DCC51,DCC52,DCC53,DCC55
5. 修改DDR O.C. Layout

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. PCIE X4 slot 改跟 PCIE X1 切换 (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 PCIE x4 跟 PCIE x1 的切换方式 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 SMOATRL 放在 CUI 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_PHL, 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 鑲空, 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, 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 FFR13 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. TTTR1 跟 VRM_TEMP 對調位置 (VCORE 最熱的 MOS 是 DC_DQ1) 16. TTTR2 放在 DO_DQ2 下方 (VAXG 最熱的 MOS 是 DO_DQ2) 17. PCIE X4 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 ALG1220 pin41 CPVDD LDO POWER, 改成從 3VDUAL 過來 b. MOATR1, MOATR3 改 SHORT PAD 5. LED 修改 a. Add "N_GFP_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 BGASHINK-Z270-GAMING-K3 8. Rear Footprint Z270_UD BASE_COVER 9. MASK clock buffer & 通邊零件 10. 移除 USB_LAN_HS	

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



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

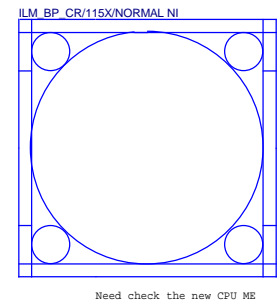
Bifurcation Config.	Signals Lanes		
	CFG[6]	CFG[5]	CFG[4]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

PA EXP TXP[0..15] >>> PA_EXP_TXP[0..15] (19,21)
PA EXP TXN[0..15] >>> PA_EXP_TXN[0..15] (19,21)
PA EXP RXP[0..15] >>> PA_EXP_RXP[0..15] (19,21)
PA EXP RXN[0..15] >>> PA_EXP_RXN[0..15] (19,21)

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CPU LGA1151-A		
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* 改DDR4 net

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CPU-SK-1151/S/GF



(6) MODT[A0..3] <=> MODT A0..3
(9) MODT[B0..3] <=> MODT B0..3
(6) MDA[0..63] <=> MDA0..63
(9) MDB[0..63] <=> MDB0..63
(6) M-DQSA[0..7] <=> M-DQSA0..7
(9) M-DQSA[0..7] <=> M-DQSA0..7
(6) MAA[0..16] <=> MAA0..16
(9) MAA[0..16] <=> MAA0..16
(9) M-DQSB[0..7] <=> M-DQSB0..7
(9) M-DQSB[0..7] <=> M-DQSB0..7

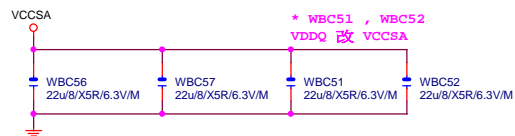
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Title CPU LGA1151-B

Size Custom Document Number GA-Z270X-Ultra Gaming

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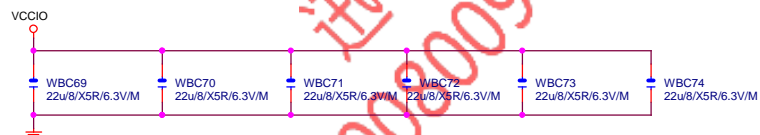
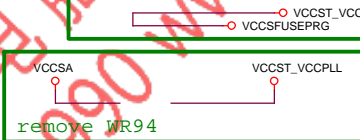
* WBC49 移到 RT8120_DDR
* 删 WBC50 电容



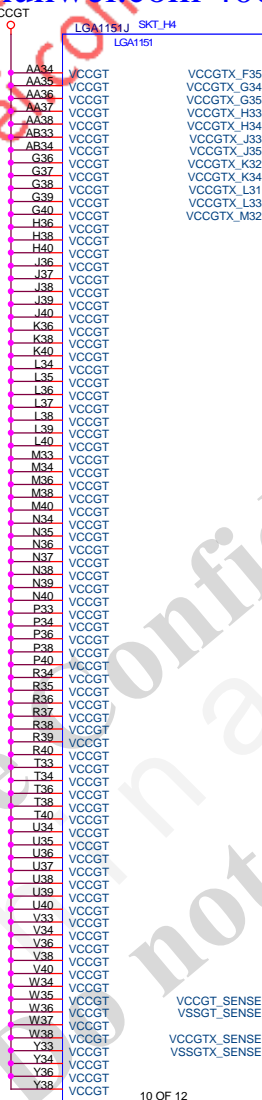
* 删 WBC124, WBC125, WBC126, WBC127 电容

CPU POWER

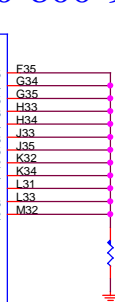
* WR94, WR95, WR86, WR60, WR61, WR62, WR63 改 short pad



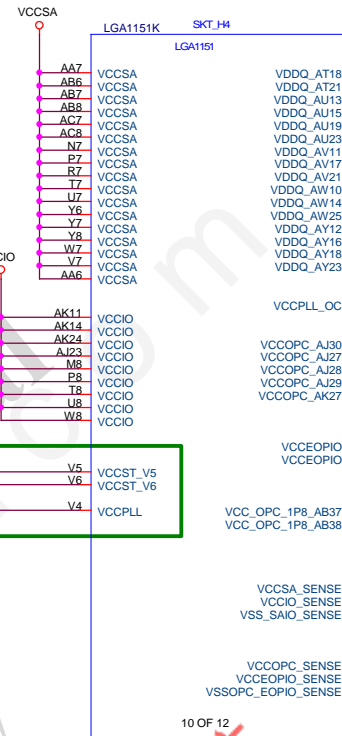
* 删 VCCGT 电容



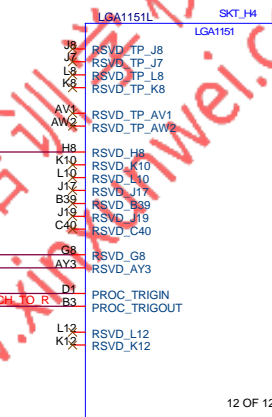
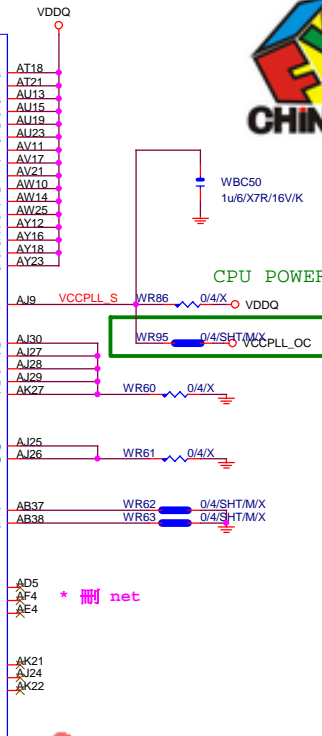
CPU-SK/1151/S/GF



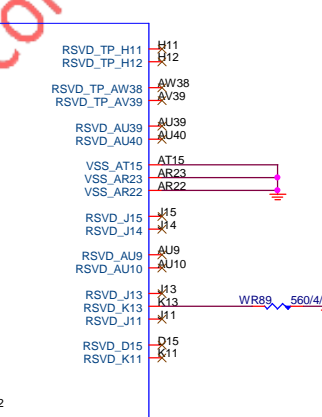
CPU POWER



CPU-SK/1151/S/GF

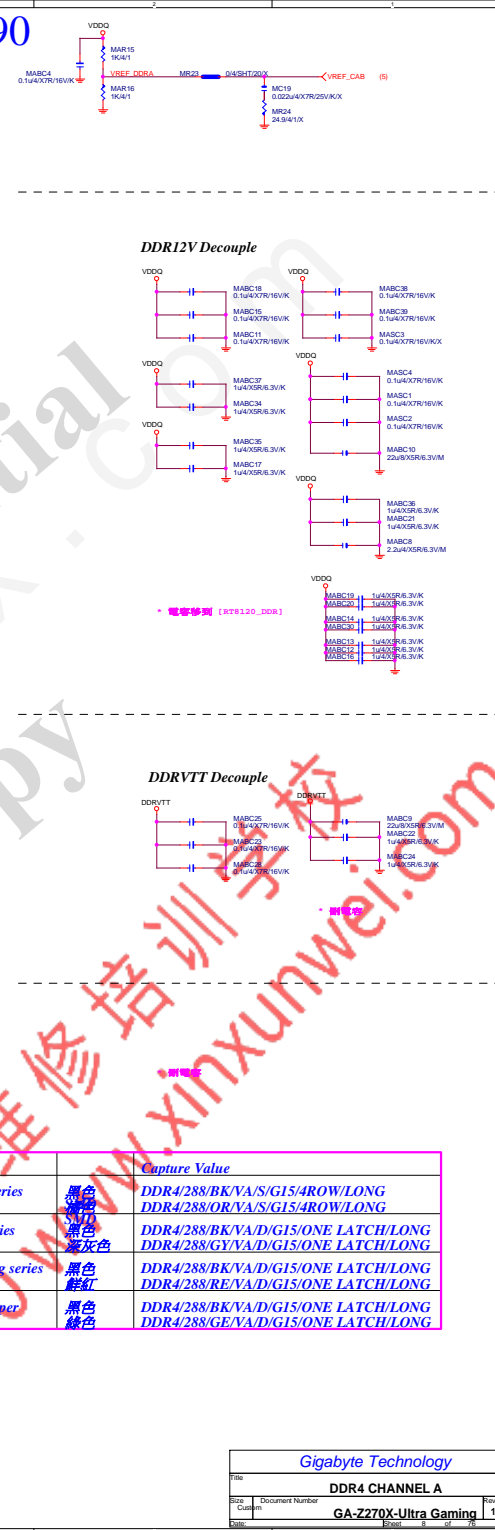
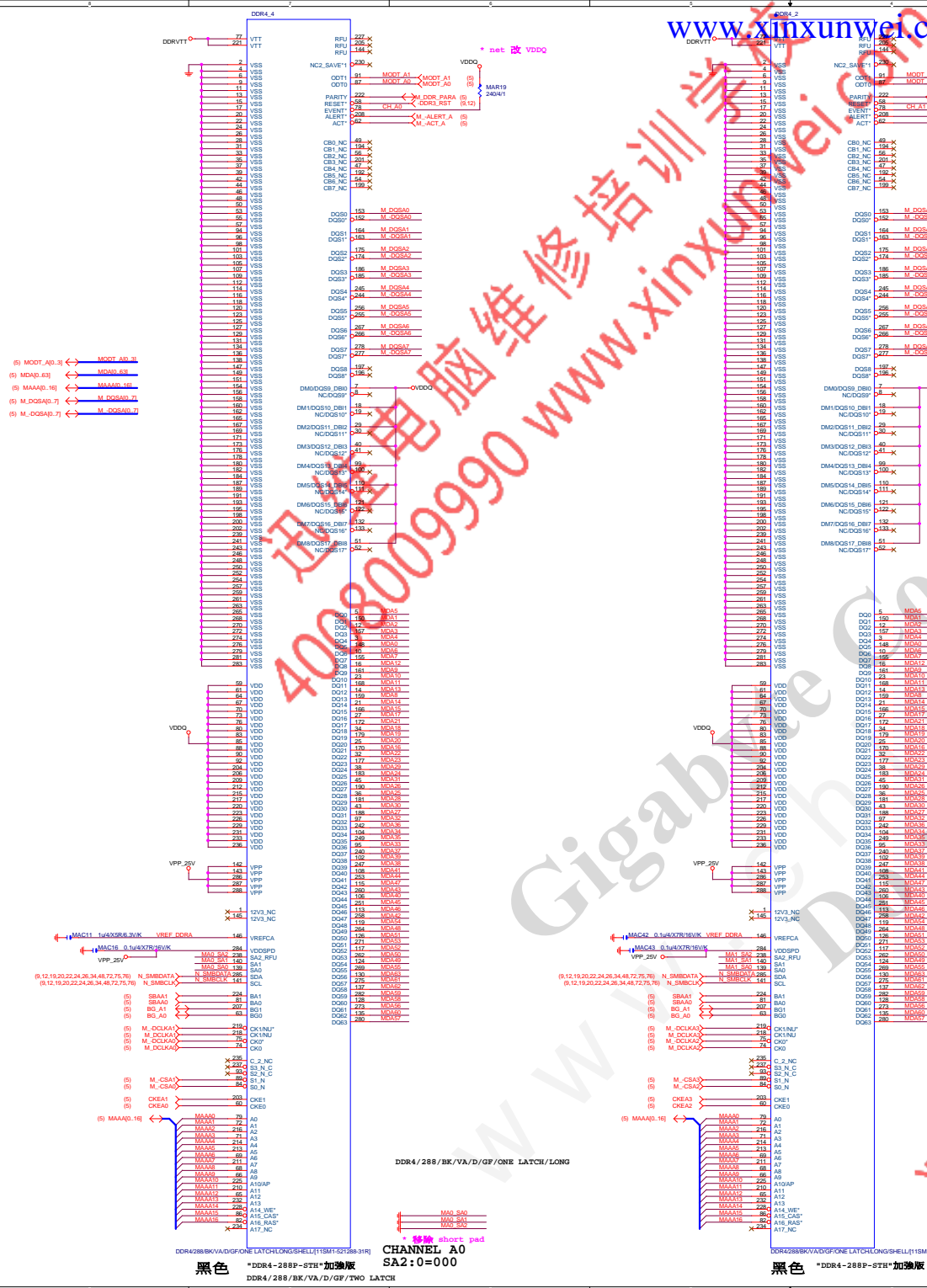


CPU-SK/1151/S/GF



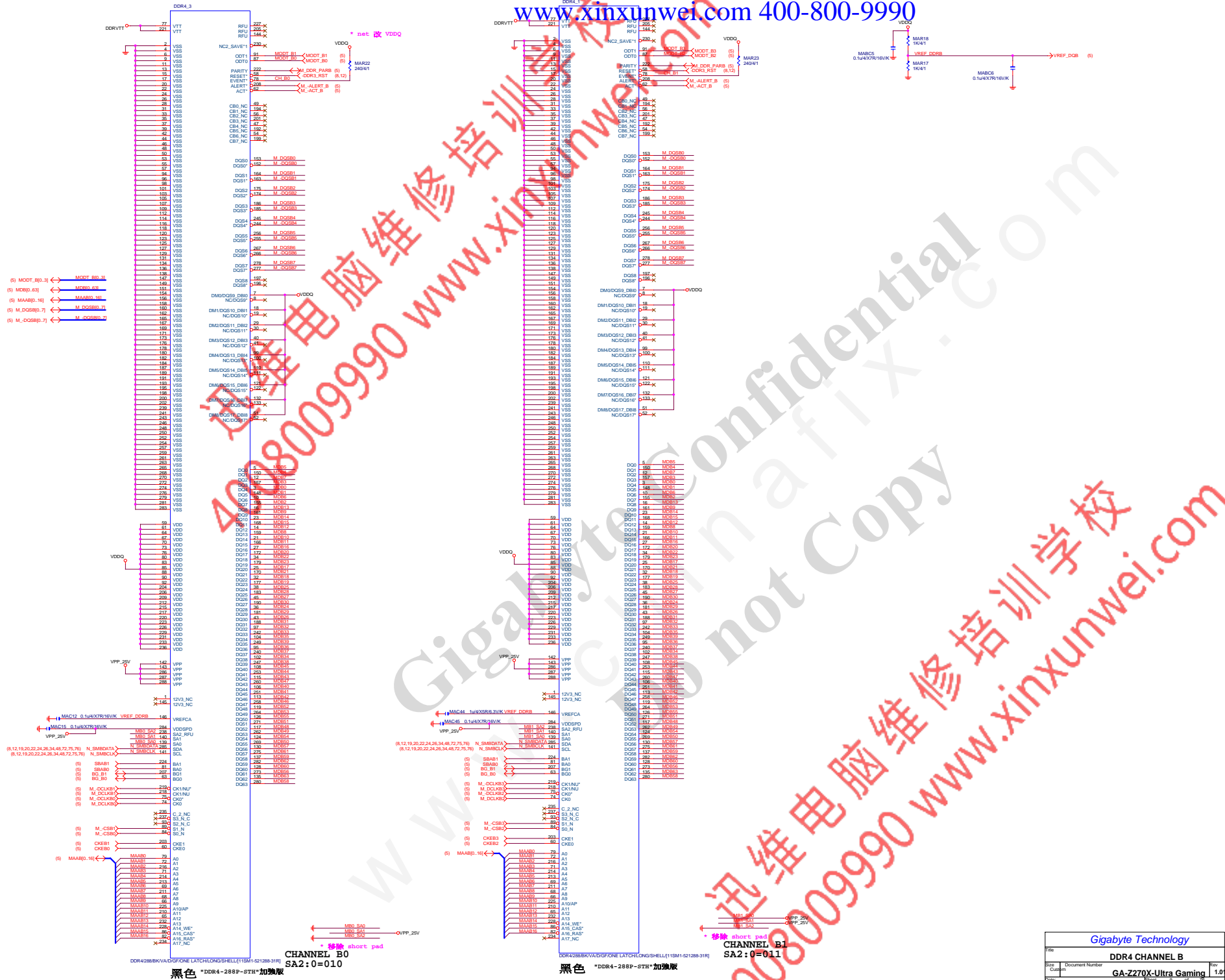
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CPU LGA1151-C			
Title	CPU LGA1151-C		
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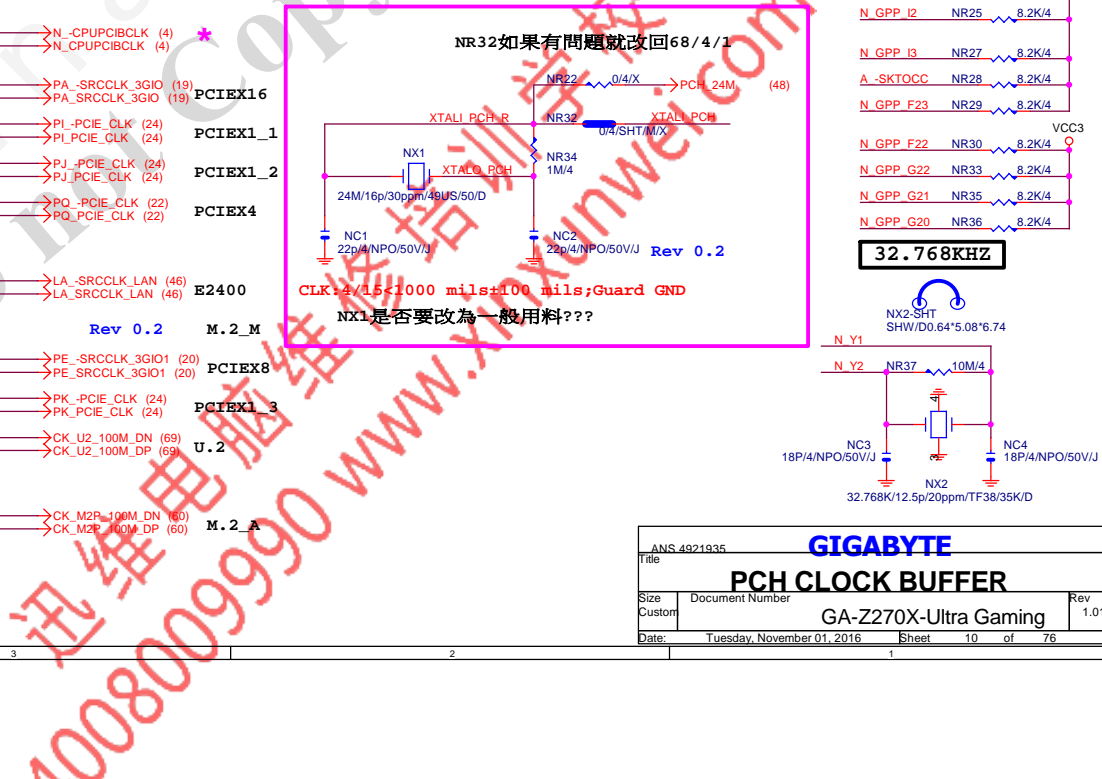


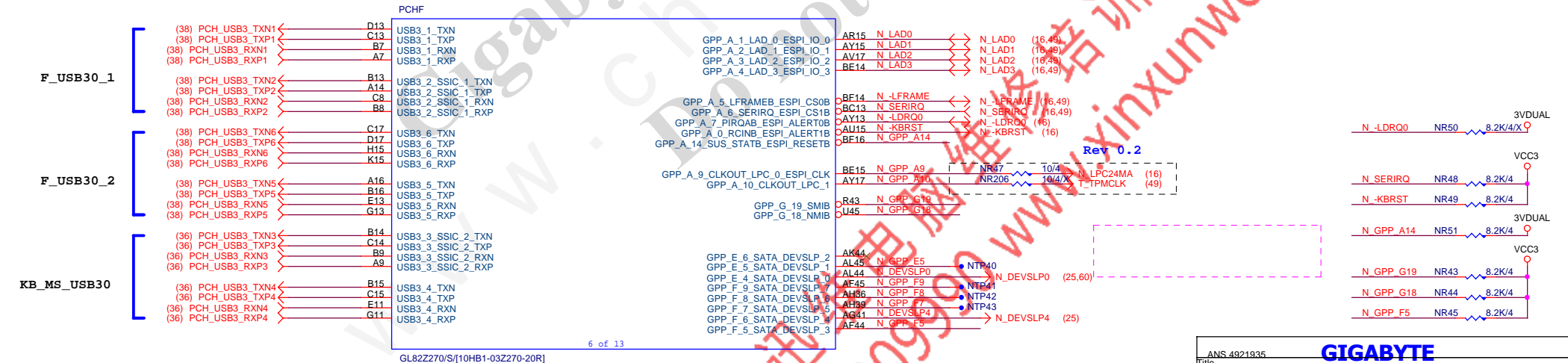


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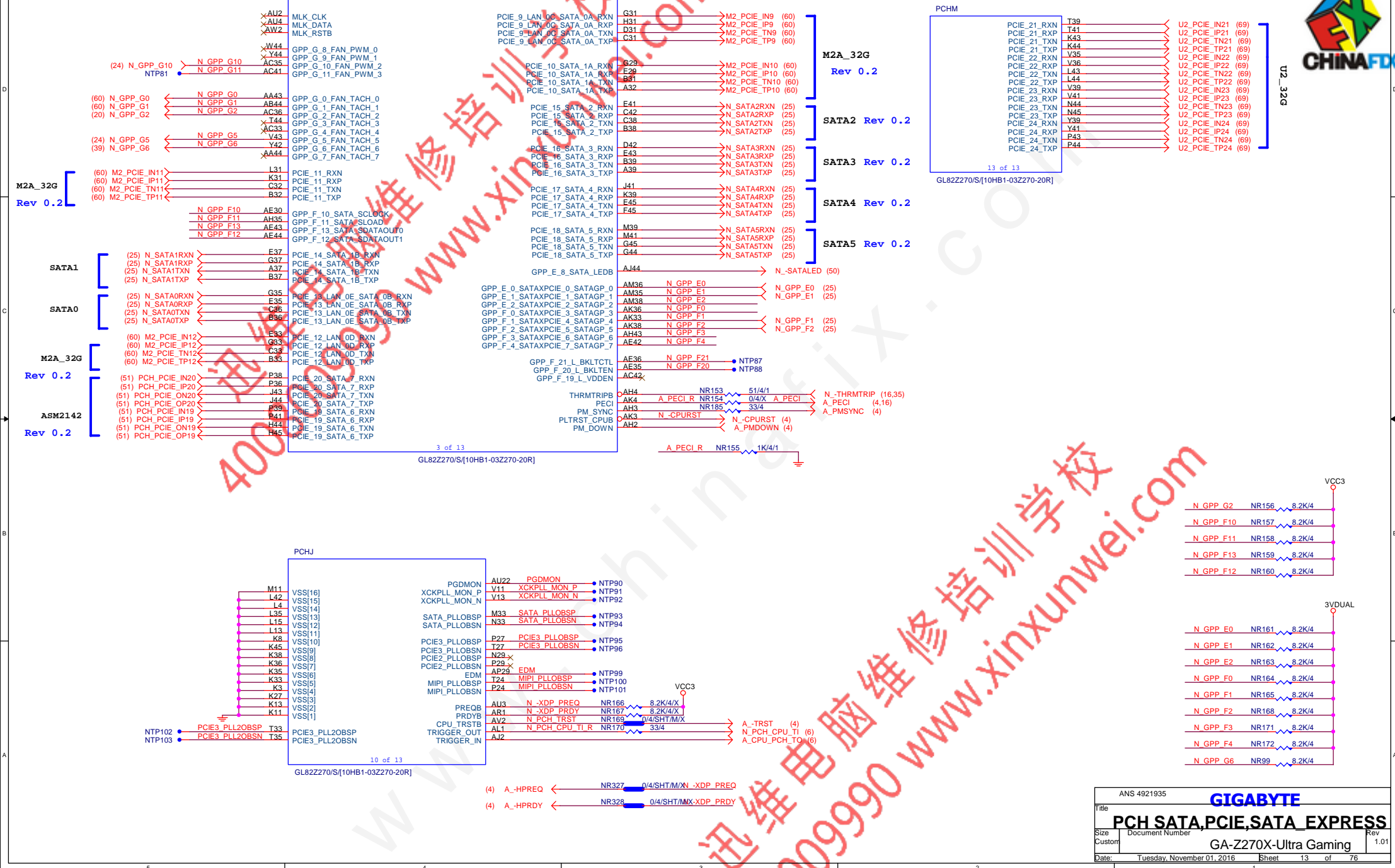


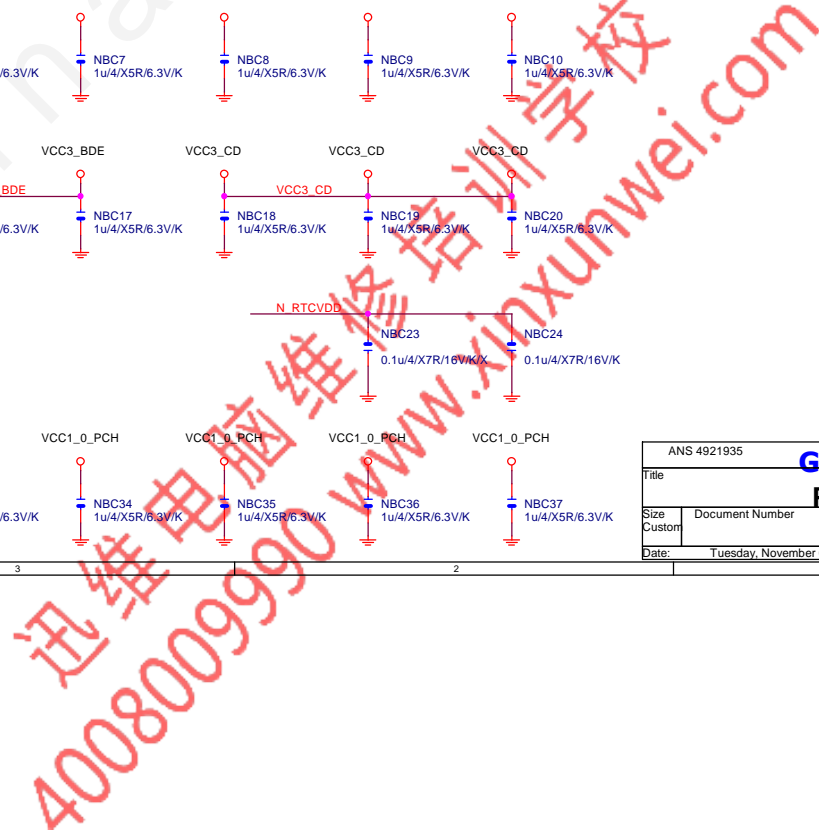
Gigabyte Technology		
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PCHL		
A25	VSS	A42
A30	VSS	D45
P22	VSS	BG44
AV38	VSS	BE44
AV45	VSS	BF43
AV8	VSS	BF2
AY11	VSS	W29
AY19	VSS	A35
AY37	VSS	A40
AY4	VSS	AA1
AY42	VSS	AA17
AY8	VSS	AA18
B25	VSS	AA20
B3	VSS	AA21
B30	VSS	AA26
B35	VSS	AA28
B4	VSS	AA29
B41	VSS	AB17
BA13	VSS	AC32
BA17	VSS	AE4
BA29	VSS	AE8
BA31	VSS	AF18
BA37	VSS	AF20
BA4	VSS	AF21
BA42	VSS	AF25
BB40	VSS	AF28
BC38	VSS	AF29
BC40	VSS	AF4
BC9	VSS	AF42
BD11	VSS	AG18
BD16	VSS	AG20
BD2	VSS	AG21
BD21	VSS	AG23
BD25	VSS	AG25
F2	VSS	AG26
F31	VSS	AG28
E6	VSS	AG29
E8	VSS	AH11
F39	VSS	AH13
F43	VSS	AH15
G4	VSS	AH30
G40	VSS	AH32
G42	VSS	AH33
F6	VSS	AH38
G9	VSS	AJ17
H11	VSS	AJ18
H13	VSS	AJ20
H17	VSS	AJ21
H19	VSS	AJ23
H22	VSS	AJ25
H24	VSS	AJ26
H27	VSS	AJ28
H29	VSS	AJ29
H33	VSS	AJ45
H35	VSS	AK10
H38	VSS	AK14
H4	VSS	AK16
H42	VSS	AK17
H9	VSS	AK18
J4	VSS	AK26
M36	VSS	AK28
M38	VSS	AM14
M4	VSS	AM14
M8	VSS	AP19
M9	VSS	AR22
N13	VSS	AR27
N15	VSS	AU29
N19	VSS	AU33
N22	VSS	AV1
N24	VSS	AV10
N31	VSS	AV15
N42	VSS	AV24
P10	VSS	AV27
P12	VSS	AV33
AV35	VSS	

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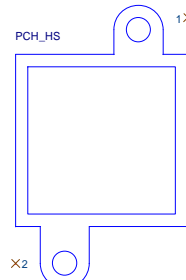
GL82Z270/S/[10HB1-03Z270-20R]

PCHL		
BD34	VSS[70]	AB18
BD39	VSS[71]	AB20
BD7	VSS[72]	AB21
BE2	VSS[73]	AB25
BF43	VSS[74]	AB29
BF2	VSS[75]	AB4
BG18	VSS[76]	AB42
BG23	VSS[77]	AC10
BG28	VSS[78]	AC14
BG32	VSS[79]	AC16
BG37	VSS[80]	AC18
BG40	VSS[81]	AC4
BG9	VSS[82]	AC5
C1	VSS[83]	AC7
A12	VSS[84]	AC8
C2	VSS[85]	AD1
C37	VSS[86]	AD18
A6	VSS[87]	AD20
AC32	VSS[88]	AD21
D1	VSS[89]	AD25
D10	VSS[90]	AD29
D12	VSS[91]	AD45
D15	VSS[92]	AE11
D16	VSS[93]	AE14
D19	VSS[94]	AE32
D21	VSS[95]	AE33
D24	VSS[96]	AE38
D25	VSS[97]	AK29
D29	VSS[98]	AK30
D30	VSS[99]	AK32
D33	VSS[100]	AK35
D35	VSS[101]	AK39
D36	VSS[102]	AL4
D39	VSS[103]	AL42
D44	VSS[104]	AM10
D7	VSS[105]	AM11
P13	VSS[106]	AM13
P15	VSS[107]	AM17
P17	VSS[108]	AM19
P19	VSS[109]	AM24
P31	VSS[110]	AM27
P33	VSS[111]	AM29
P35	VSS[112]	AM32
P4	VSS[113]	AM33
P42	VSS[114]	AM4
P8	VSS[115]	AN45
R1	VSS[116]	AP10
R32	VSS[117]	AP11
T10	VSS[118]	AP13
T14	VSS[119]	AP15
T22	VSS[120]	AP22
T29	VSS[121]	AP27
T32	VSS[122]	AP31
T36	VSS[123]	AP33
T38	VSS[124]	AP34
Y38	VSS[125]	AP39
Y4	VSS[126]	T4
Y8	VSS[127]	W26
T42	VSS[128]	V16
T5	VSS[129]	V17
U4	VSS[130]	V18
U42	VSS[131]	V30
V10	VSS[132]	V32
V14	VSS[133]	V33
W3	VSS[134]	V38
AR13	VSS[135]	V4
AR31	VSS[136]	V8
AR33	VSS[137]	W18
AR4	VSS[138]	W20
AT10	VSS[139]	W21
AT13	VSS[140]	W23
AT35	VSS[141]	W25
AT37	VSS[142]	A44
AT42	VSS[143]	BE1
AU11	VSS[144]	BD1
AU17	VSS[145]	B1
BD30	VSS[146]	B2
W45	VSS[147]	B15
Y13	VSS[148]	B3
Y14	VSS[149]	B4
Y30	VSS[150]	B45
Y32	VSS[151]	
Y33	VSS[152]	
Y3	VSS[153]	
Y33	VSS[154]	
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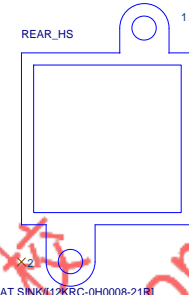
GL82Z270/S/[10HB1-03Z270-20R]

装甲HEATSINK 分成五大部份

Footprint :
BGAHSINK-Z270-GAMING-K3

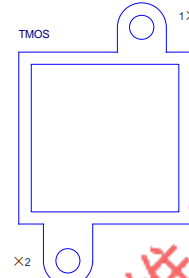
Rev 1.0

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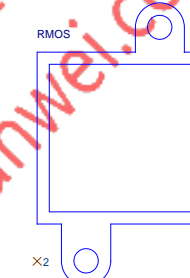
Rev 1.0

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

Footprint :
MOSHHSINK-SNIPERB8-T

Rev 1.0

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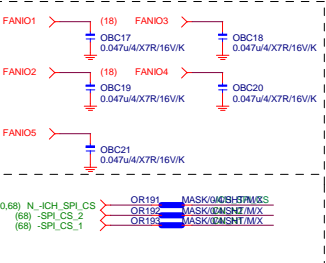
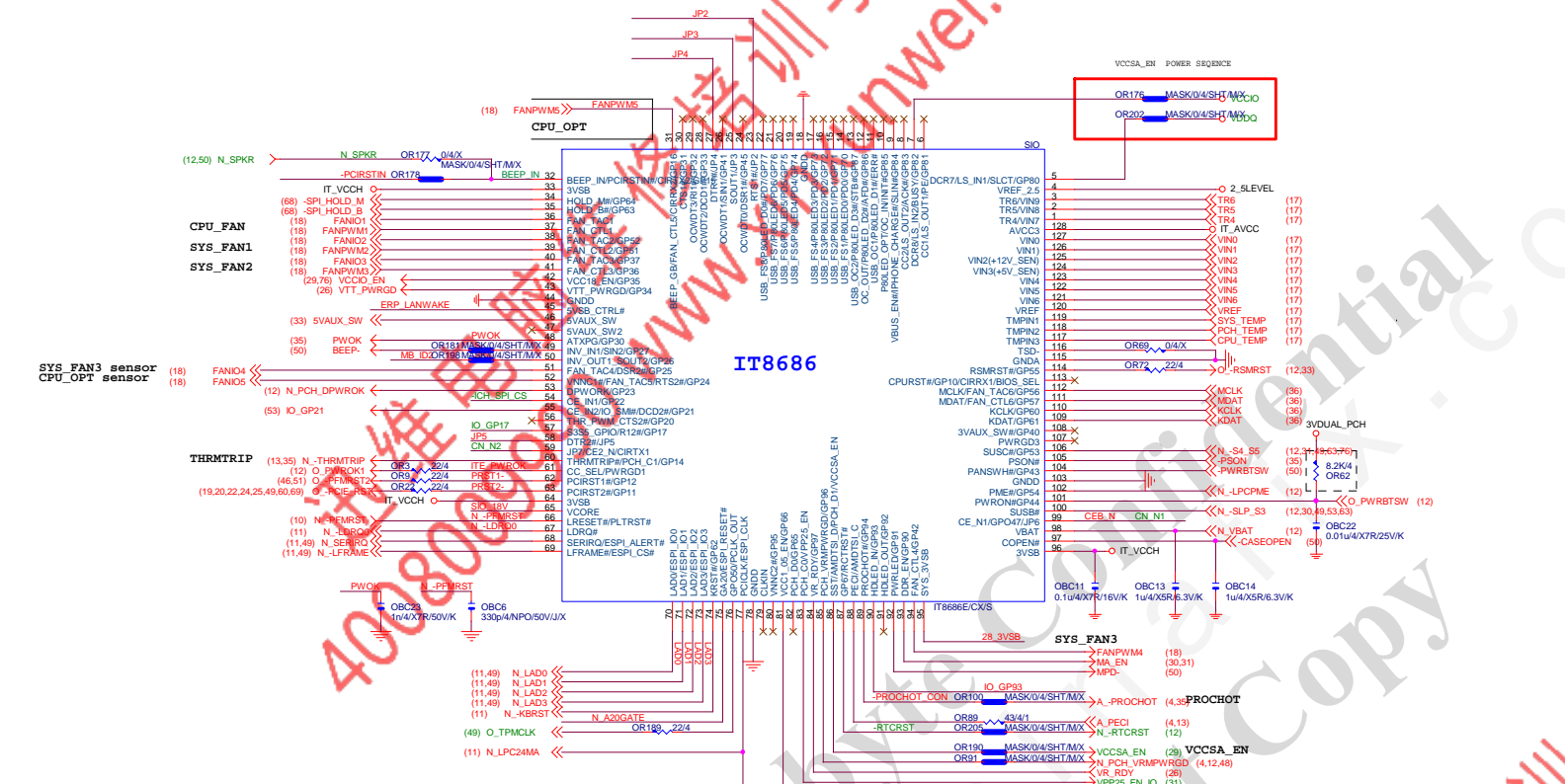
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Rev 1.0

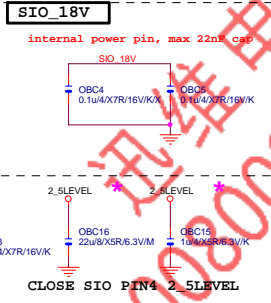
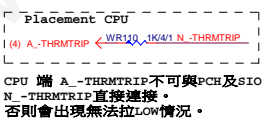
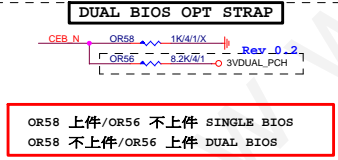
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GIGABYTE

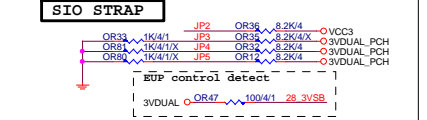
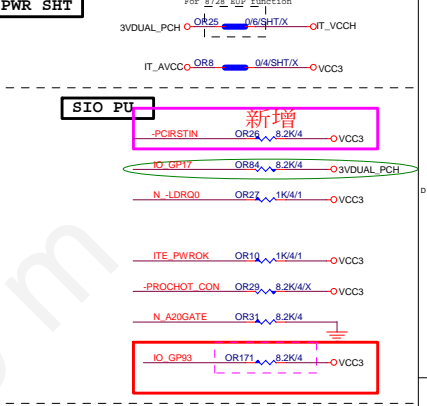
ANS 4921935			
Title			
PCH GND			
Size	Document Number	GA-Z270X-Ultra Gaming	
Custom			Rev 1.01
Date:	Tuesday, November 01, 2016	Sheet	15 of 76



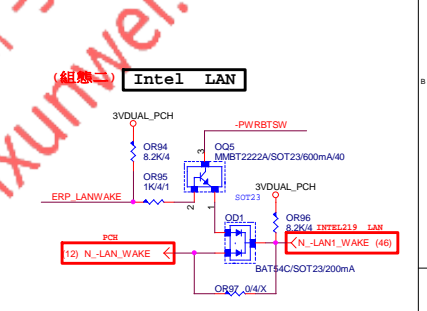
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89



ERP Wake on LAN		
Single LAN	Realtek	組態一
Dual LAN (只留一個 LAN 支援 ERP 下 WAKE UP)	Atheros	組態二
	Intel 219	
	Atheros+Atheros	組態三
	Intel 219+Atheros	
	Intel 219+Intel 210	組態四
	Intel 219+Intel 210	
No Support	Single LAN BOM 只上 OR97	組態五
Dual LAN	BOM 只上 OR97 & OR98	



JP2	1	Disable WDT to rest PWRCK
	0	Enable WDT to rest PWRCK
JP3	1	Dual-BIOS CS pin mode select bit "0"
	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	1	Dual-BIOS CE pin mode select bit "1"
	0	See the below table
JP7	1	CE pin disable (Hold pin mode)
	0	CE mode 1
JP3	0	CE mode 2
	0	CE mode 3



Gigabyte Technology

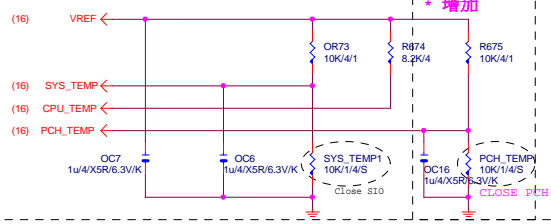
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Size C Document Number: GA-Z270X-Ultra Gaming

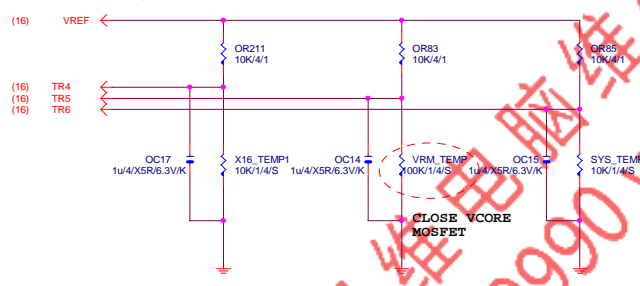
Date: Tuesday, November 01, 2016 Sheet: 16 of 76

Rev: 1.01

TEMP H/W MONITOR

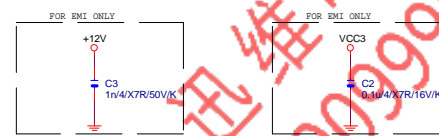
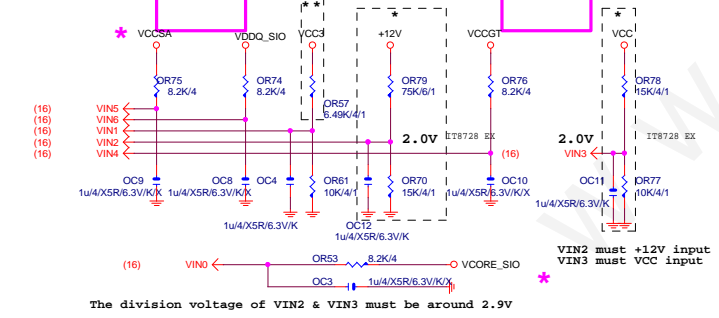


5個FAN時使用



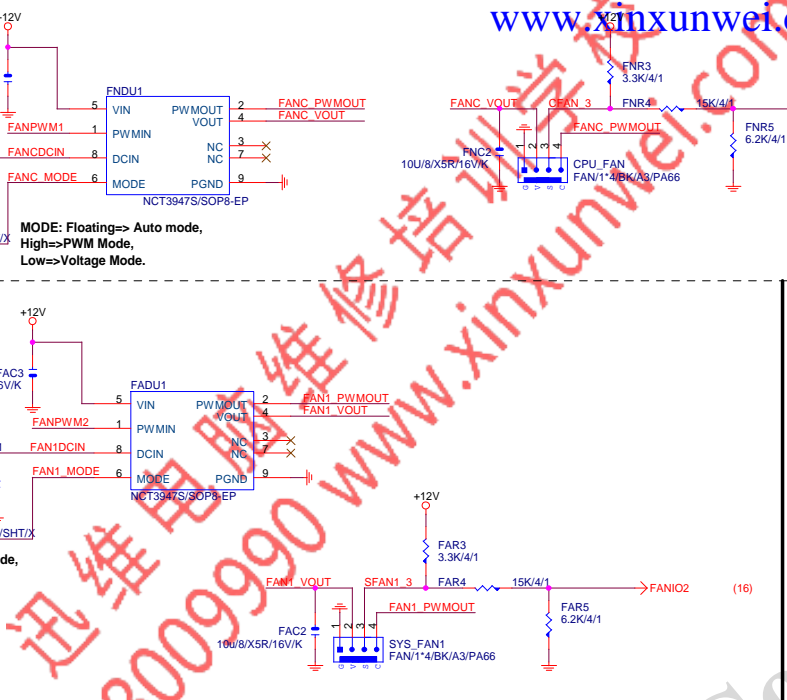
8個FAN時使用

VOLTAGE-- H/W MONITOR

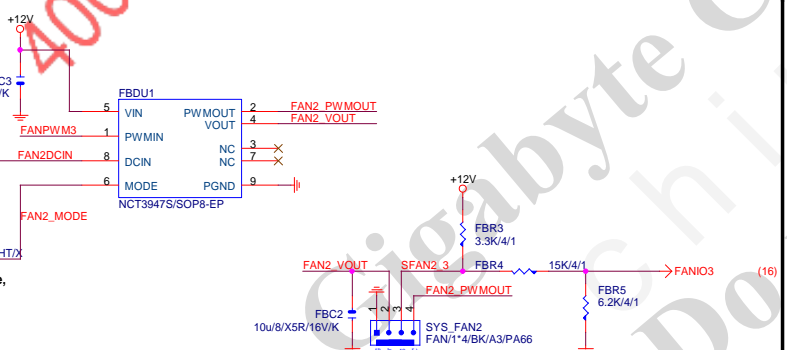
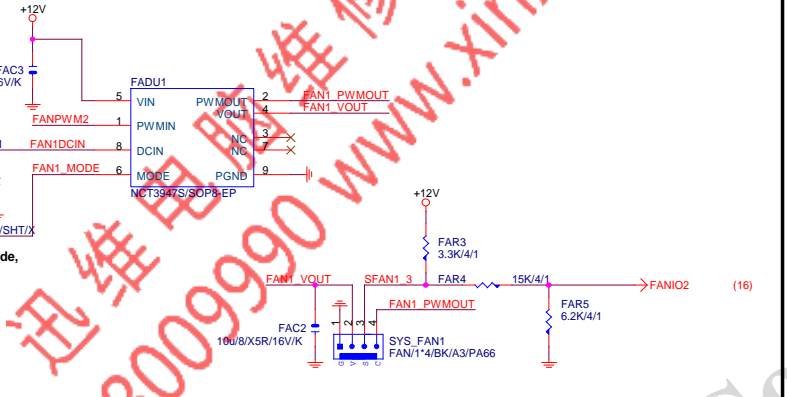


★Update 2015-04.24

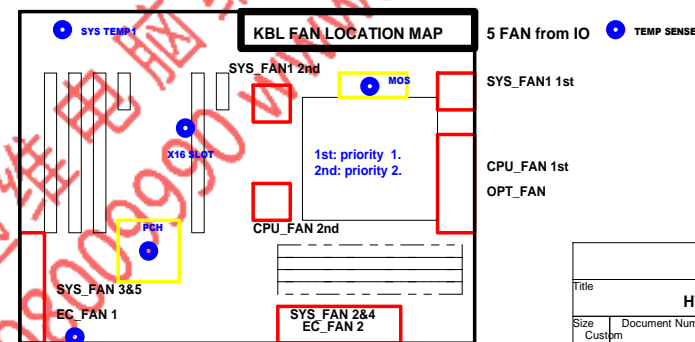
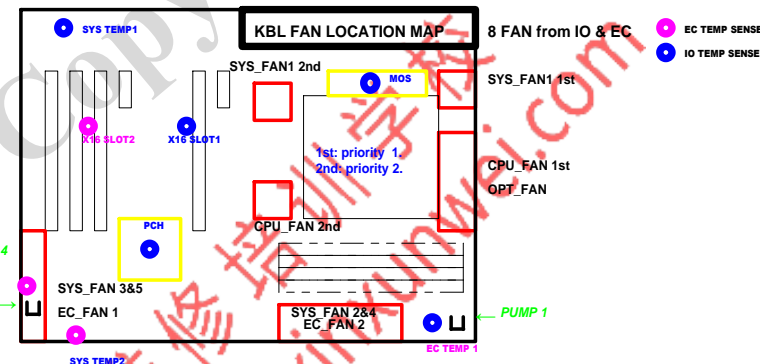
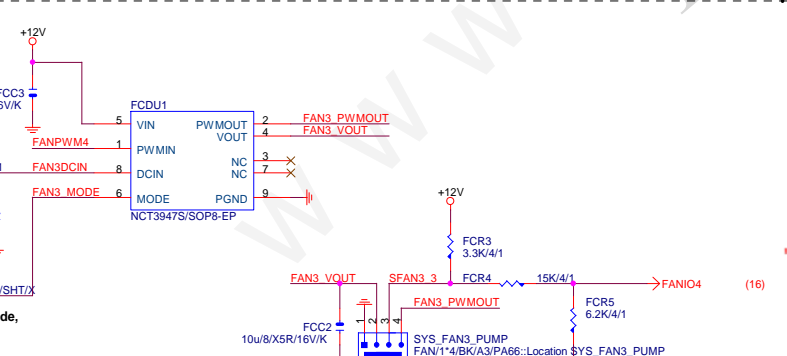
Gigabyte Technology			
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Size	Document Number	Rev	
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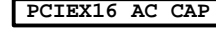


CPU_OPT



.....





PA EXP TXPO	PAC5	0.22u4/X5R6 3V/K	PA EXP TXPO C
PA EXP TXN0	PAC4	0.22u4/X5R6 3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R6 3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R6 3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R6 3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R6 3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R6 3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R6 3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R6 3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R6 3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R6 3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R6 3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R6 3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R6 3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R6 3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22u4/X5R6 3V/K	PA EXP TXN7 C
PA EXP SW TXP8	PAC21	0.22u4/X5R6 3V/K	PA EXP SW TXP8 C
PA EXP SW TXN8	PAC20	0.22u4/X5R6 3V/K	PA EXP SW TXN8 C
PA EXP SW TXP9	PAC22	0.22u4/X5R6 3V/K	PA EXP SW TXP9 C
PA EXP SW TXN9	PAC23	0.22u4/X5R6 3V/K	PA EXP SW TXN9 C
PA EXP SW TXP10	PAC24	0.22u4/X5R6 3V/K	PA EXP SW TXP10 C
PA EXP SW TXN10	PAC25	0.22u4/X5R6 3V/K	PA EXP SW TXN10 C
PA EXP SW TXP11	PAC26	0.22u4/X5R6 3V/K	PA EXP SW TXP11 C
PA EXP SW TXN11	PAC27	0.22u4/X5R6 3V/K	PA EXP SW TXN11 C
PA EXP SW TXP12	PAC28	0.22u4/X5R6 3V/K	PA EXP SW TXP12 C
PA EXP SW TXN12	PAC29	0.22u4/X5R6 3V/K	PA EXP SW TXN12 C
PA EXP SW TXP13	PAC30	0.22u4/X5R6 3V/K	PA EXP SW TXP13 C
PA EXP SW TXN13	PAC31	0.22u4/X5R6 3V/K	PA EXP SW TXN13 C
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PA EXP SW TXN14	PAC33	0.22u4/X5R6 3V/K	PA EXP SW TXN14 C
PA EXP SW TXP15	PAC34	0.22u4/X5R6 3V/K	PA EXP SW TXP15 C
PA EXP SW TXN15	PAC35	0.22u4/X5R6 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
```

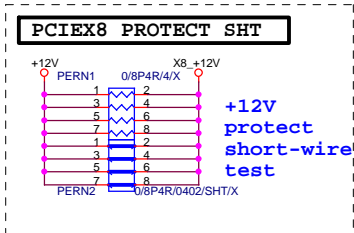
PCI-E REV:2.0--> 5GHZ
PCE-E X1(單向) BANDWIDTH=5GHz*(8b/10b)=4Gb/s=500MB/s

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

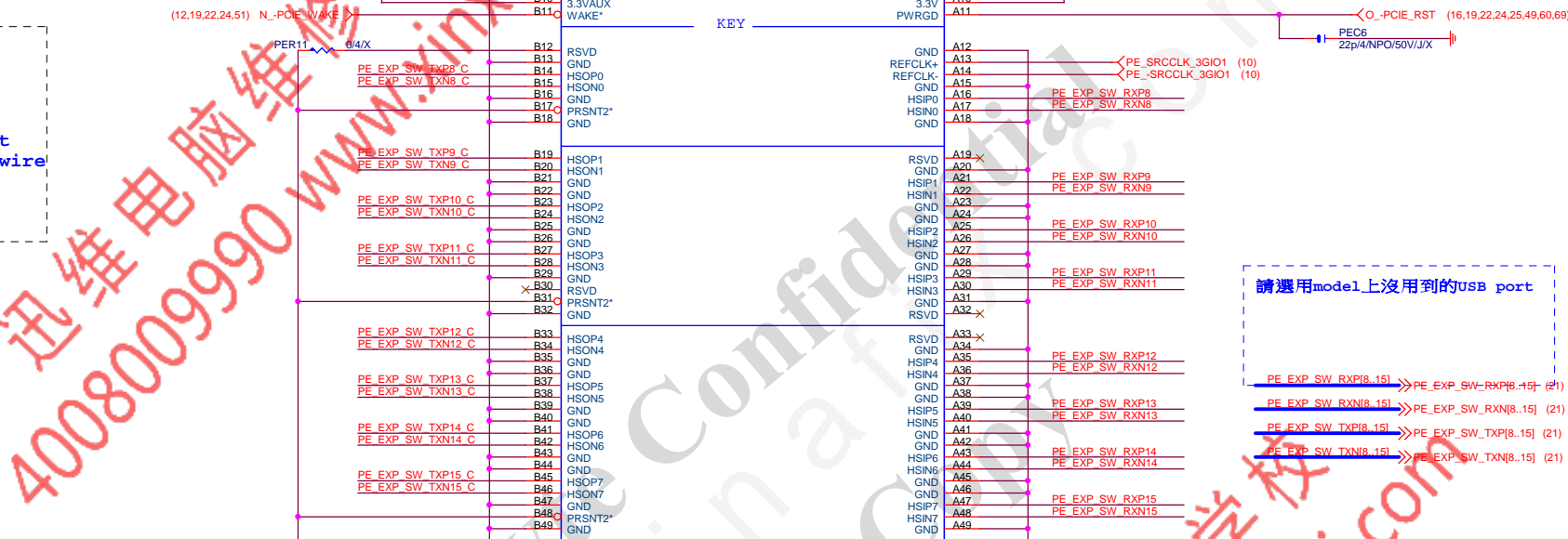
黑色金屬加強

Rev 0.3

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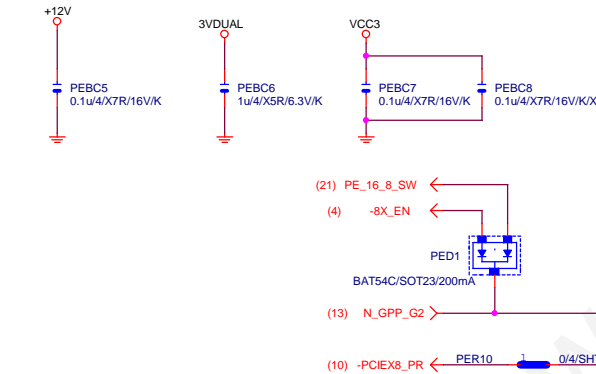


(8,9,12,19,22,24,26,34,48,72,75,76) N_SMBCLK N_SMBCLK PER8 PER9 0/4/X 0/4/X 3V3V VCC3 3V3V WAKE* (12,19,22,24,51) N_-PCIE WAKE* KEY



請選用model上沒用到的USB port

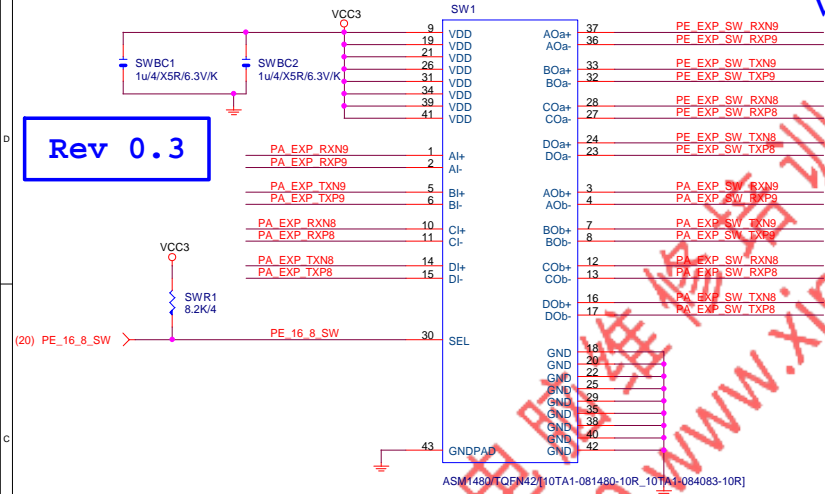
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PE EXP SW RXN8.15] >> PE_EXP_SW_RXN8.15] (21)
PE EXP SW TXP18.15] >> PE_EXP_SW_TXP18.15] (21)
PE EXP SW TXN8.15] >> PE_EXP_SW_TXN8.15] (21)



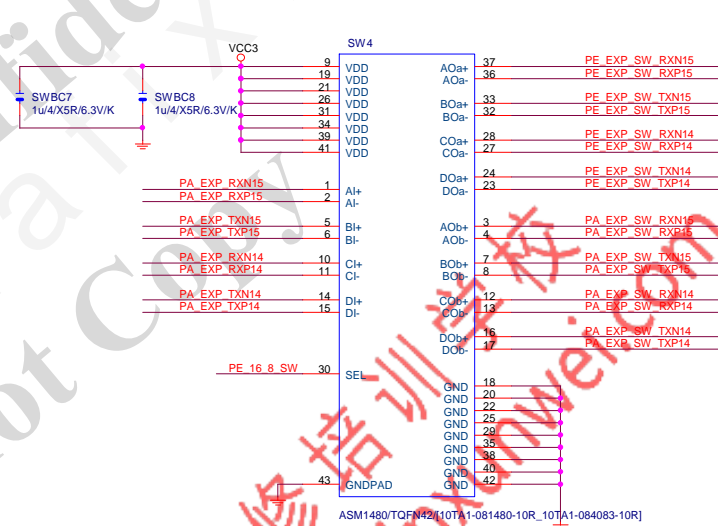
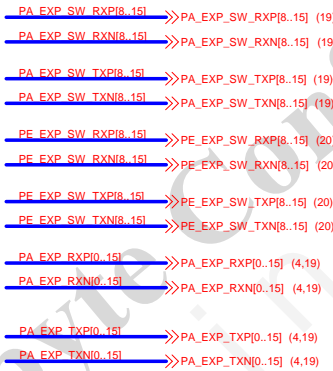
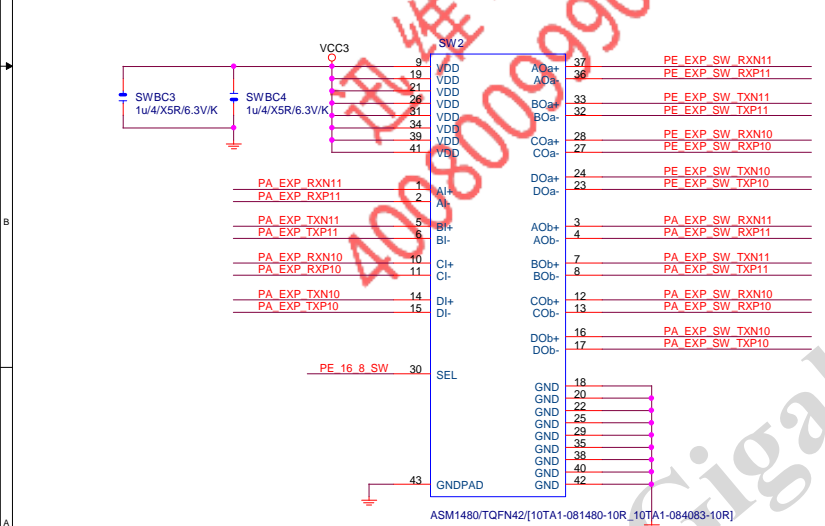
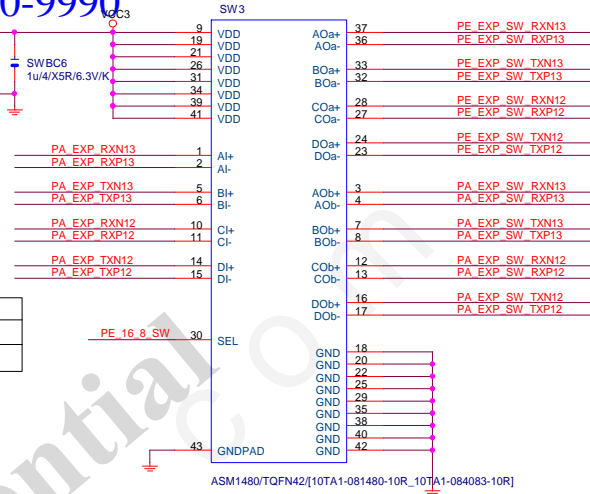
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Gigabyte Technology			
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PCI EXPRESS X8			
Size			
Custom			
Date			
Tuesday, November 01, 2016			
Sheet			
20			
of			
76			

Rev 0.3



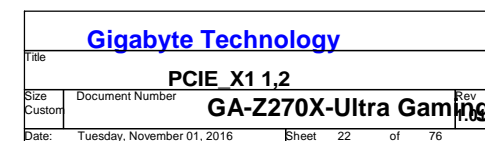
Function	SEL
xI--> xOa	L
xI--> xOb	H



Gigabyte Technology

PCI EXPRESS X16 SWITCH

Title	Document Number	Rev
Size	Custom	GA-Z270X-Ultra Gaming 9.0
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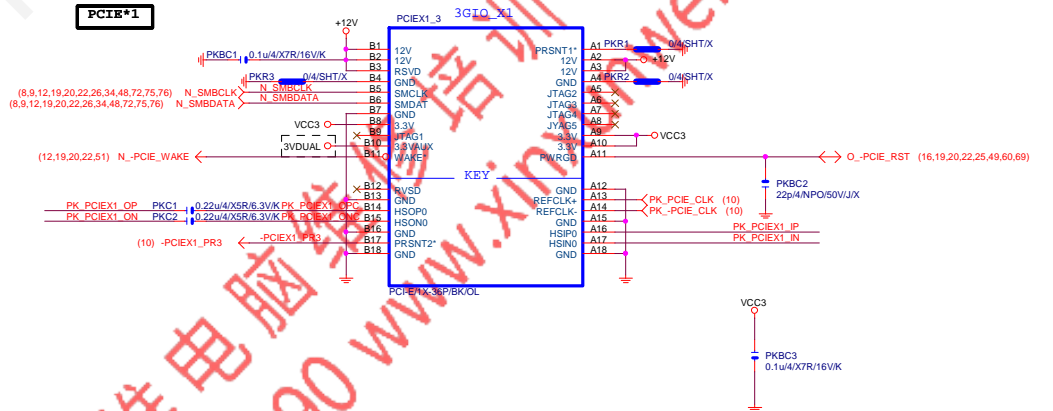
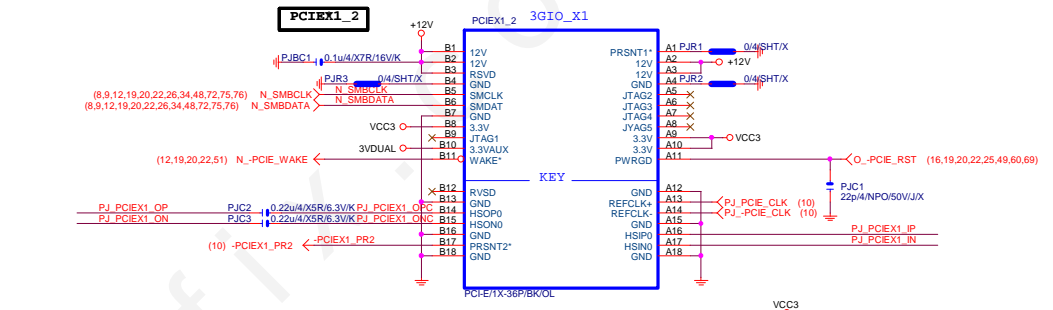


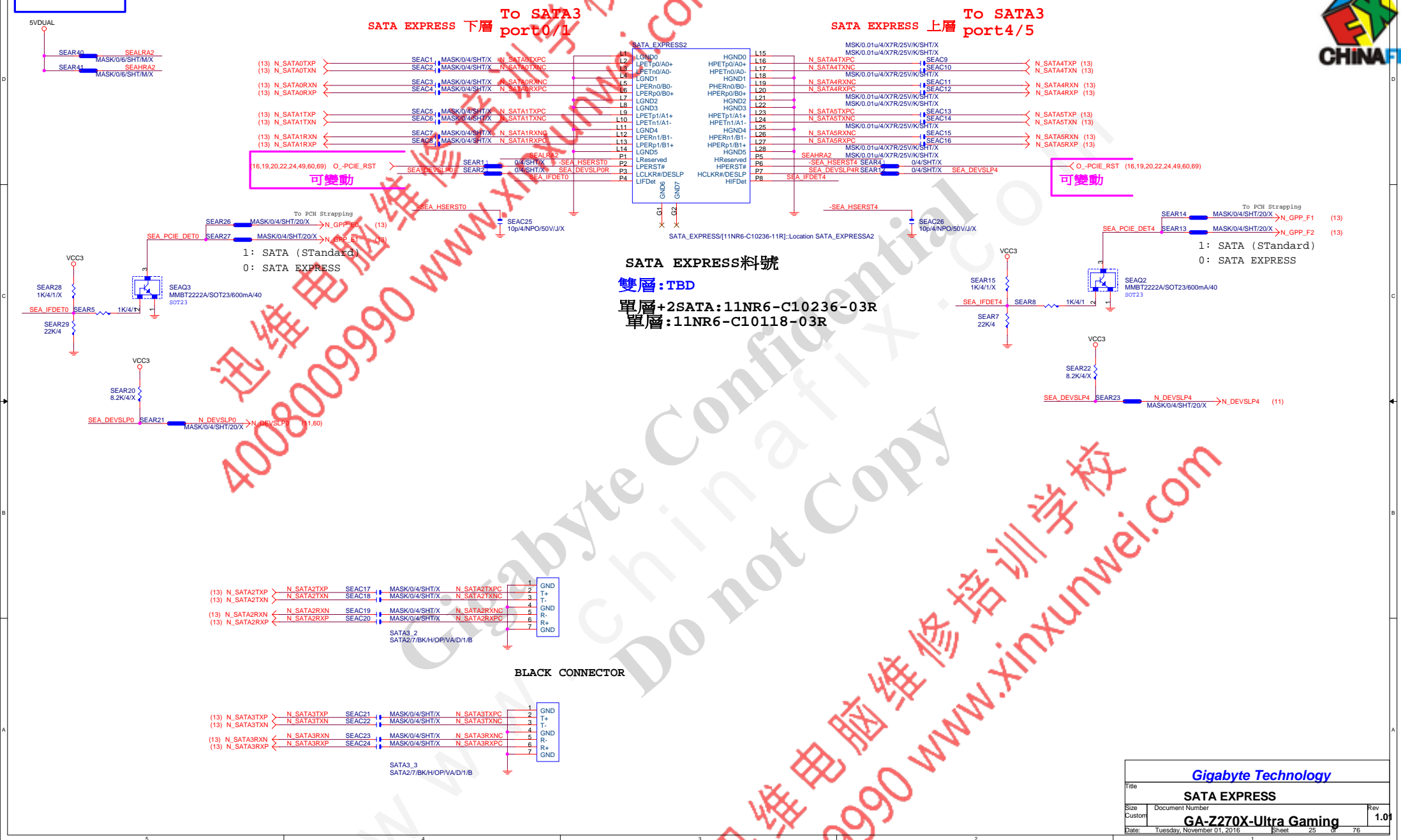
迅维电脑维修培训学校
4008009990 www.xinxunwei.com

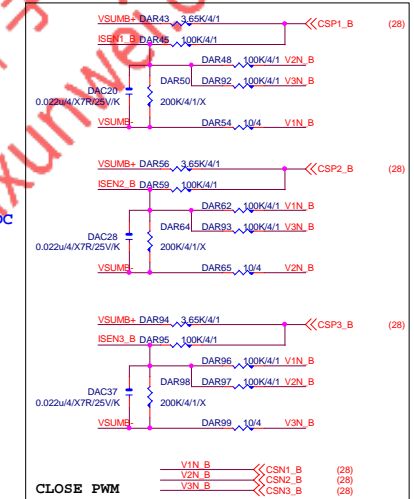
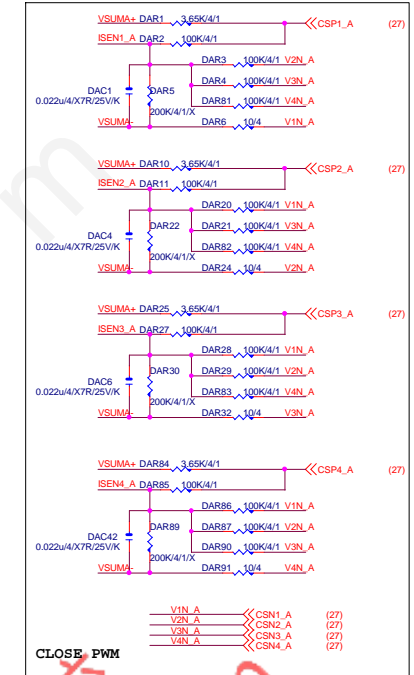
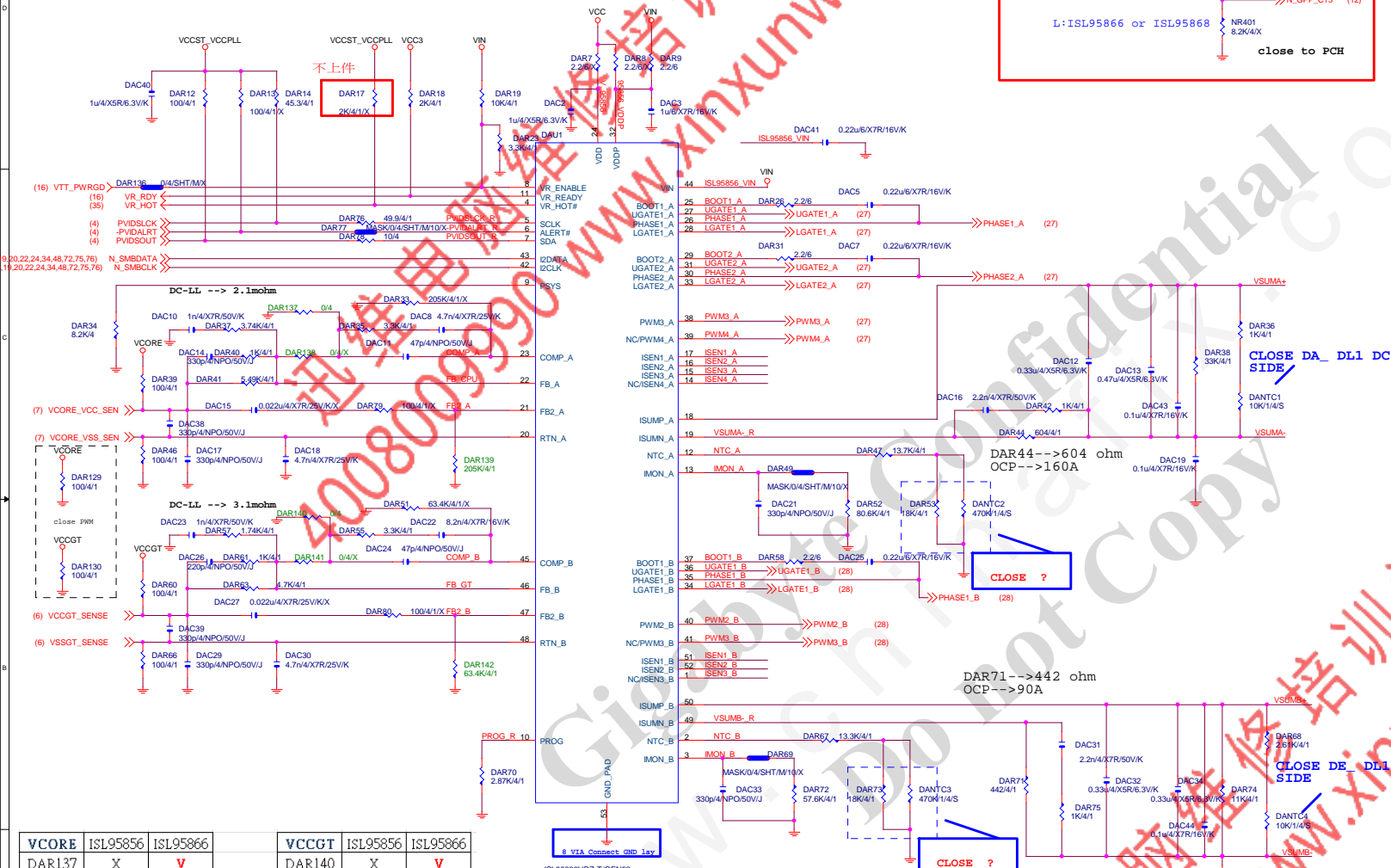
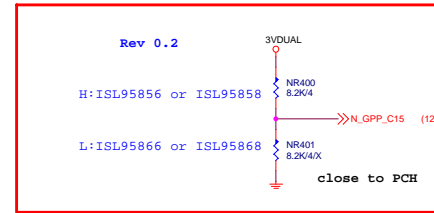
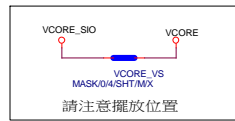
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Gigabyte Technology			
SWITCH			
Title			
Size	Document Number	Rev	
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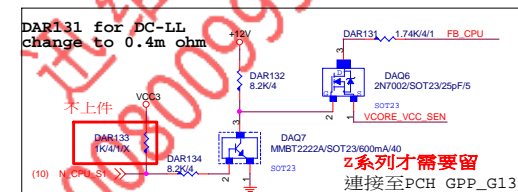
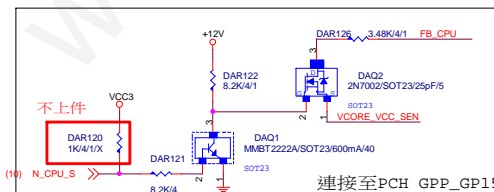
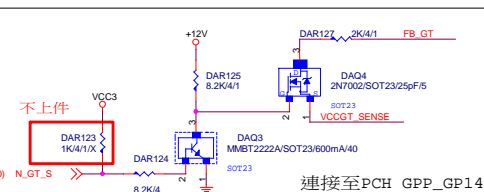




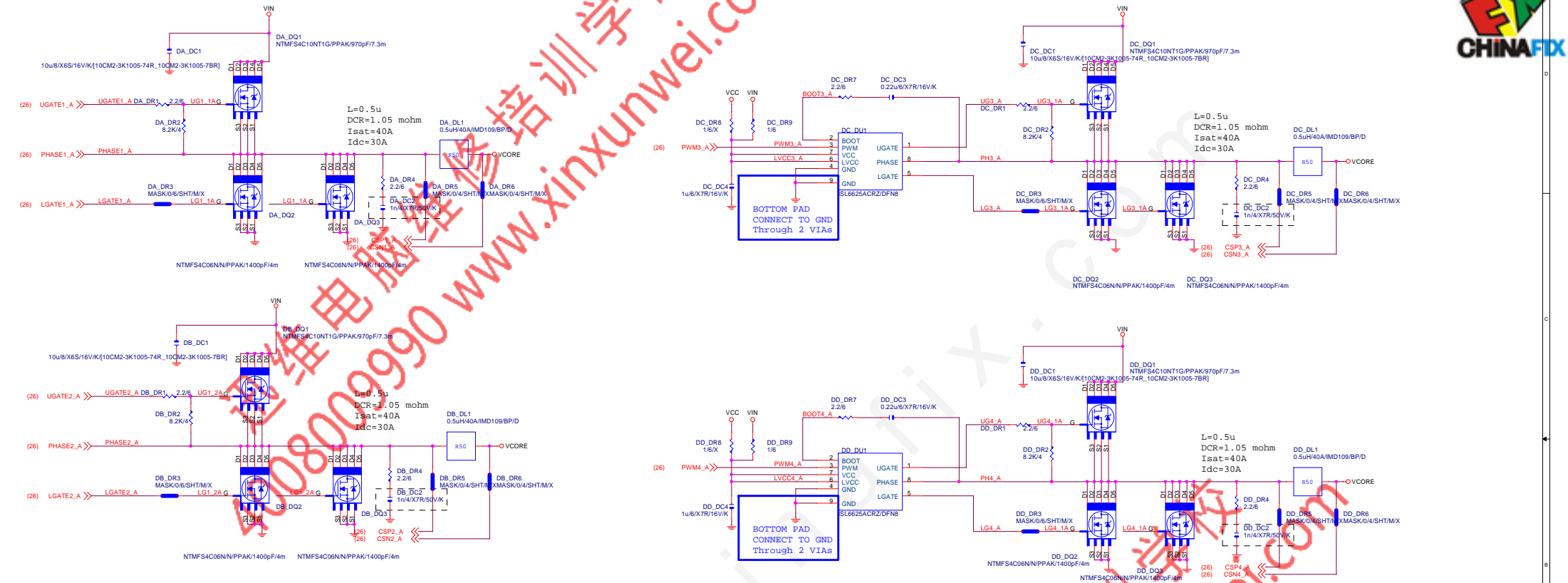


GIGABYTE™			
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Size	Custom	GA-Z270X-Ultra Gaming	
Date	Tuesday, November 01, 2016	Sheet	26 of 76

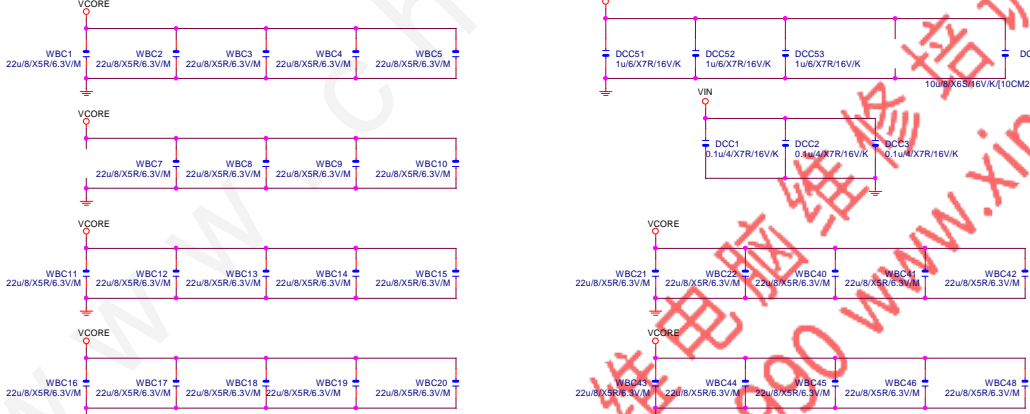
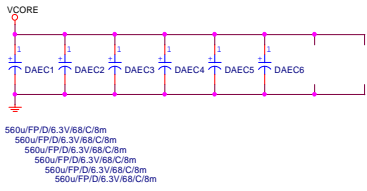
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DAR137	X	V	DAR140	X	V
DAR138	V	X	DAR141	V	X
DAR139	X	V	DAR142	X	V
DAC15	V	X	DAC27	V	X
DAR79	V	X	DAR80	V	X
DAR33	V	X	DAR51	V	X



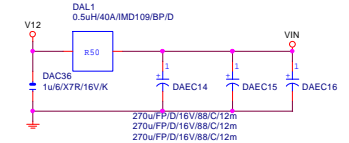
VCORE



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



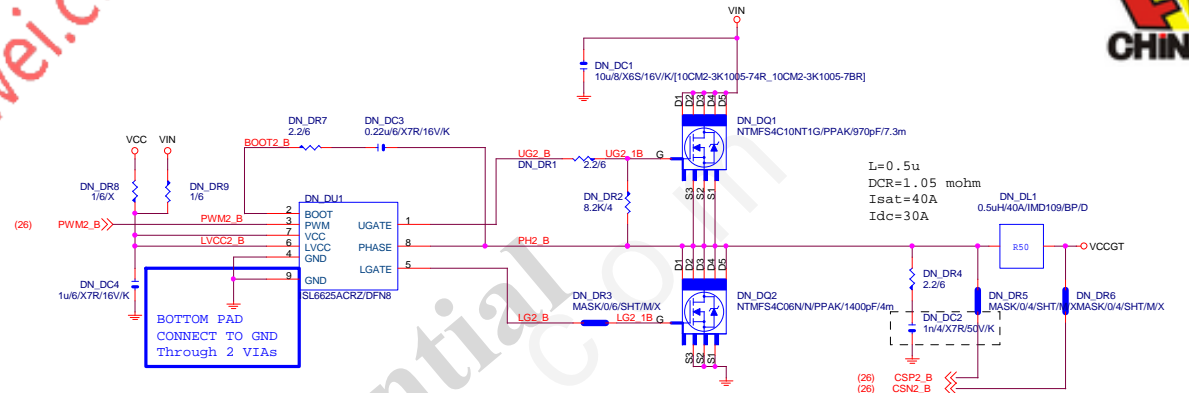
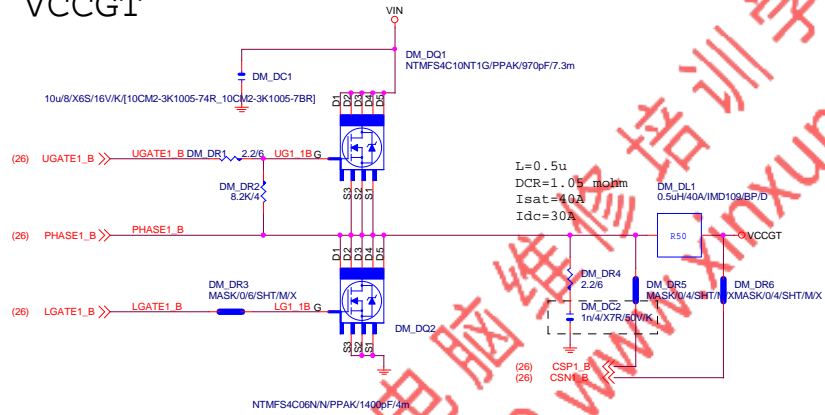
VIN CAP 270u*3PCS



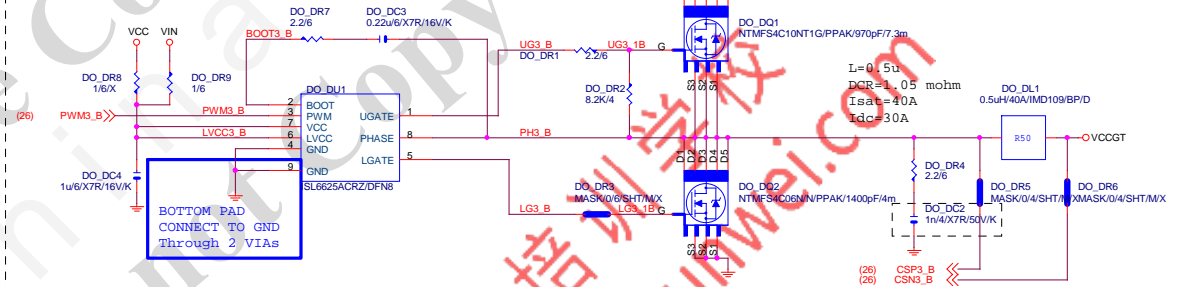
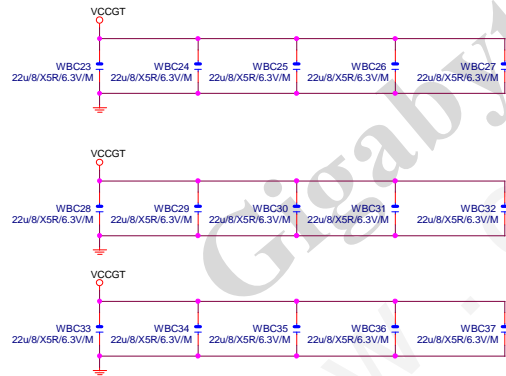
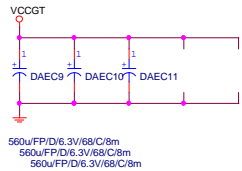
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ISL95856_MOS		
Title	Document Number	Rev
GA-Z270X-Ultra Gaming		1.01
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VCCGT



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

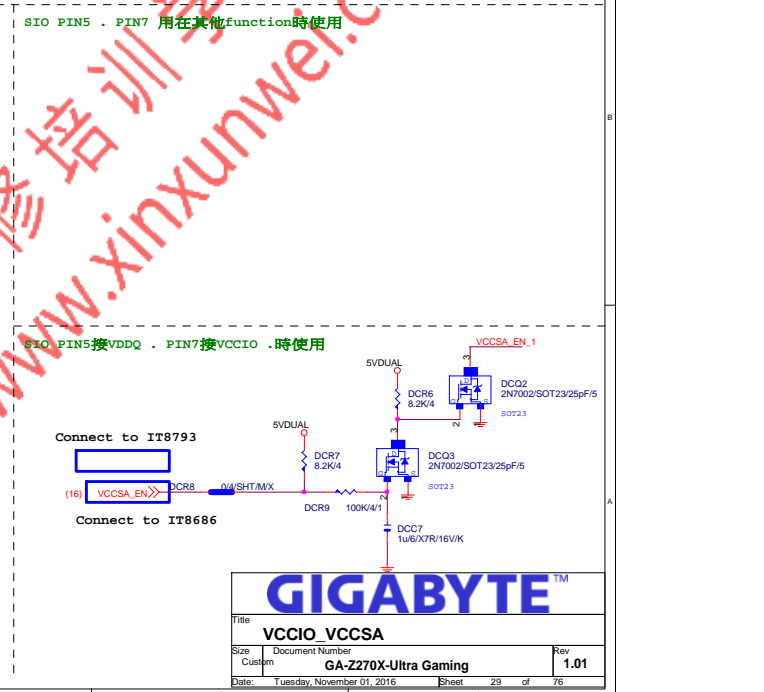
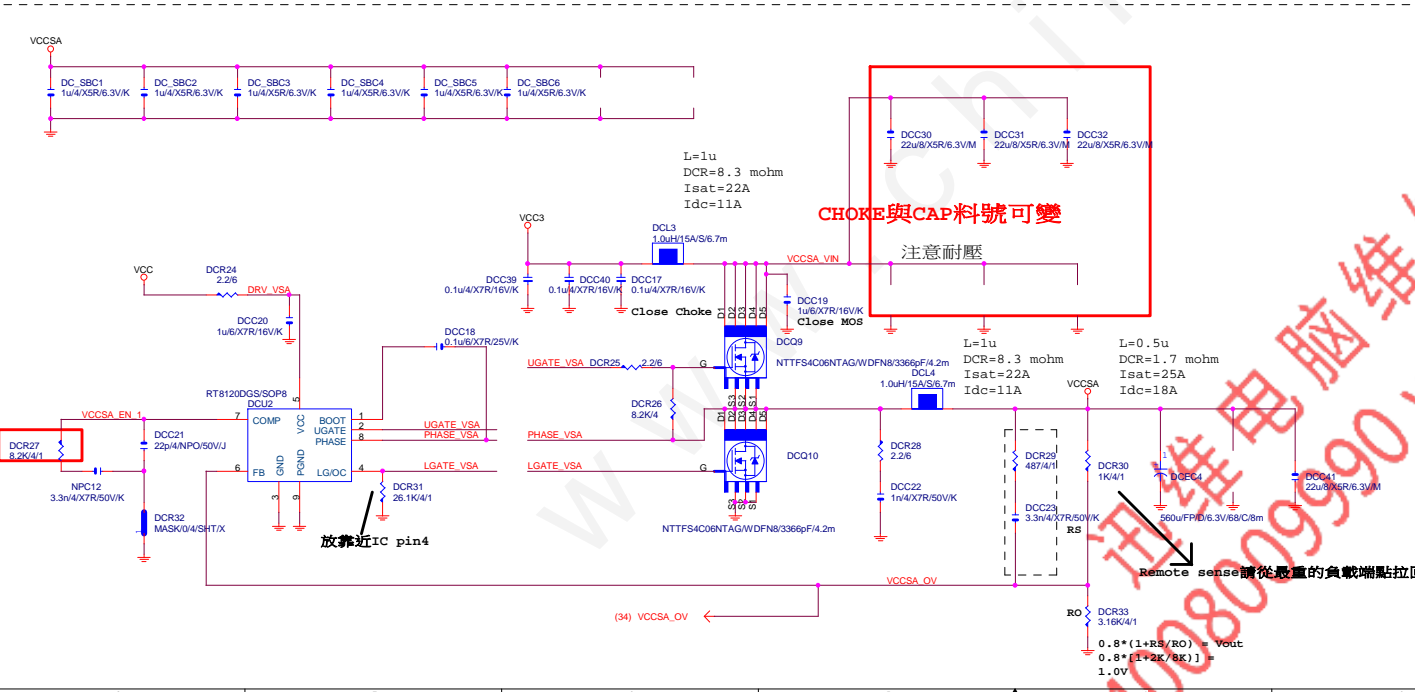
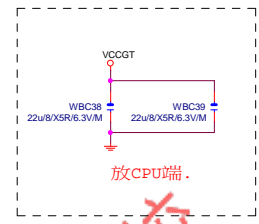
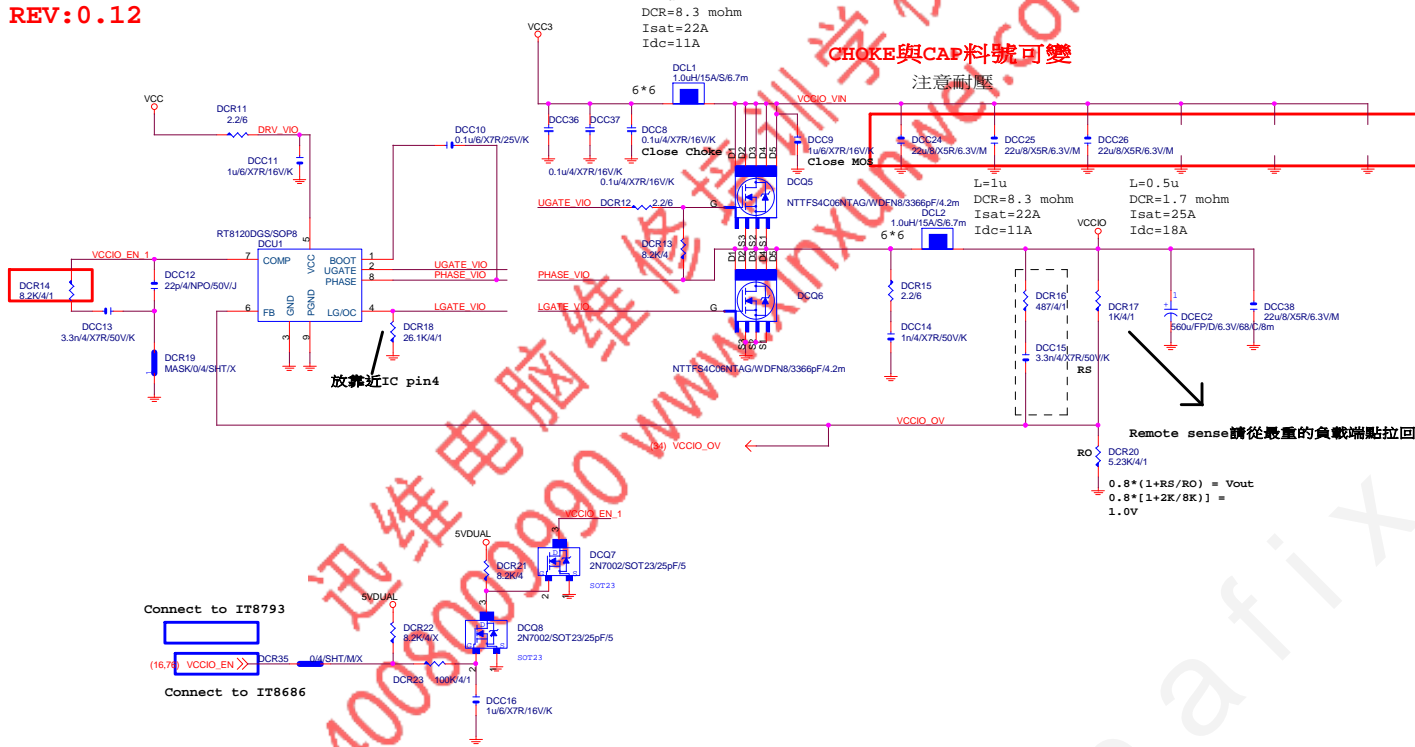


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Custom	GA-Z270X-Ultra Gaming	1.01	
Date:	Tuesday, November 01, 2016	Sheet	28 of 76

VCCIO

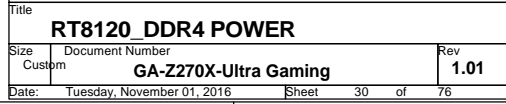
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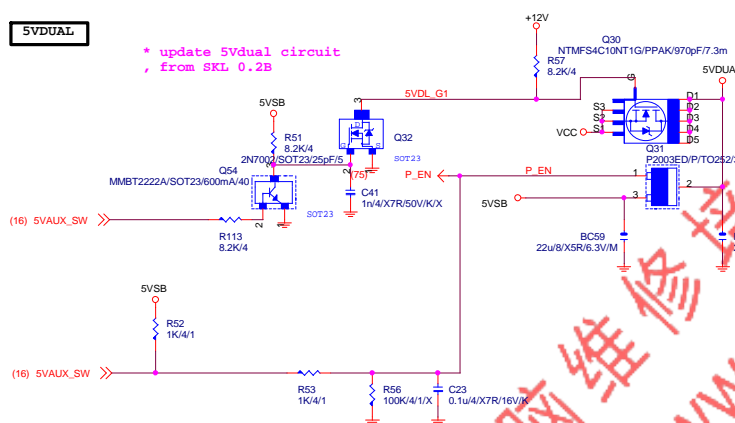
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Title VCCIO_VCCSA		
Size	Document Number	Rev
Custom	GA-Z270X-Ultra Gaming	1.01
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CHOKES與CAP料號可變

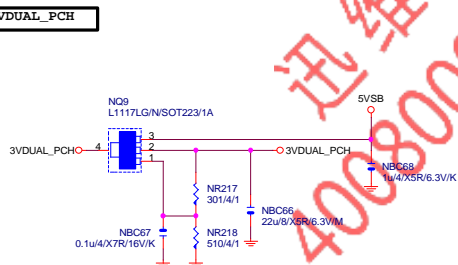


5VDUAL

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* update 5Vdual circuit
, from SKL 0.2B
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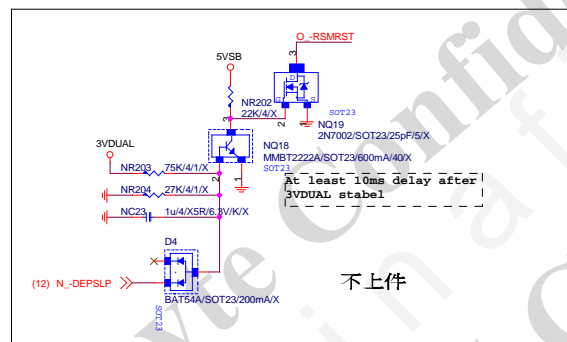
3VDUAL_PCH



3VDUAL



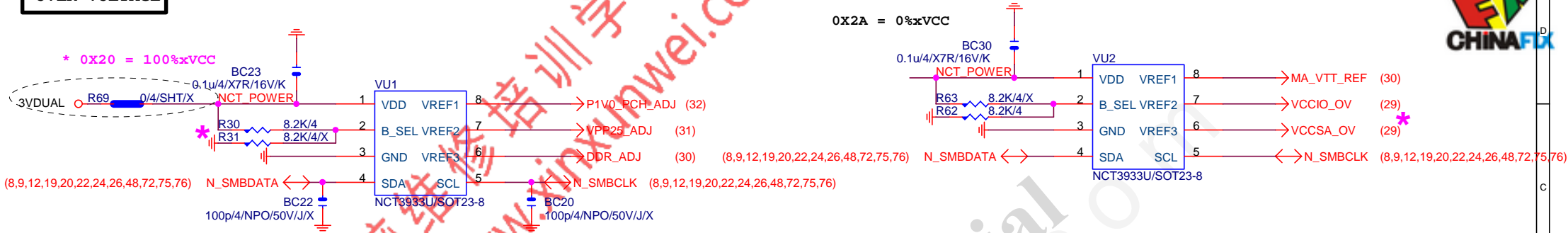
3VDUAL_PCH



不上件



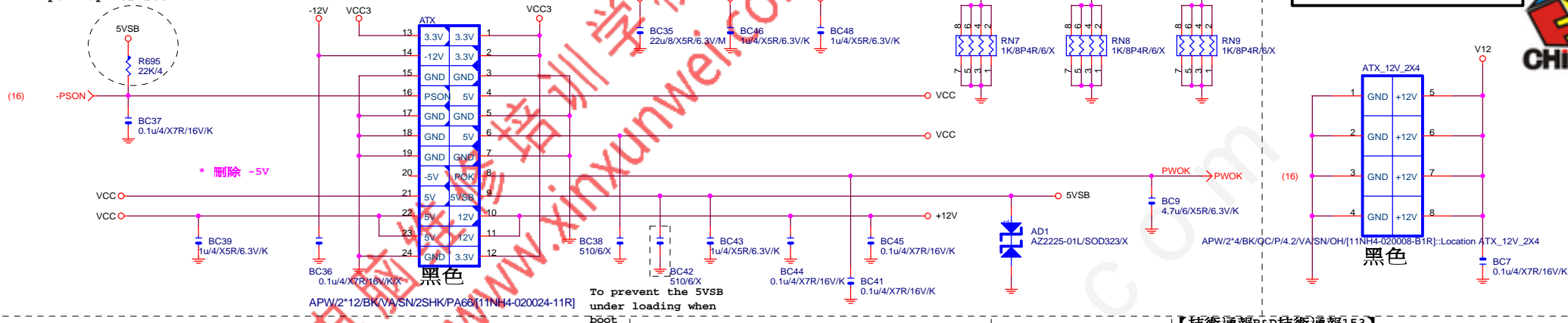
OVER VOLTAGE



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		
Size Custom	Document Number	Rev
GA-Z270X-Ultra Gaming		1.01
Date:	Tuesday, November 01, 2016	Sheet 34 of 76

ATXX4 POWER CONNECTOR

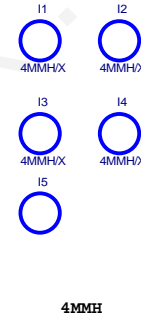
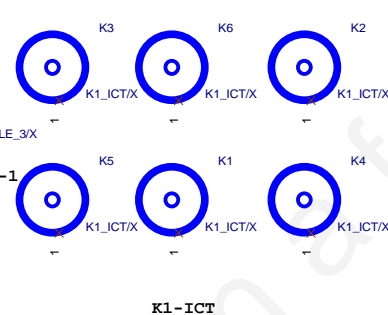
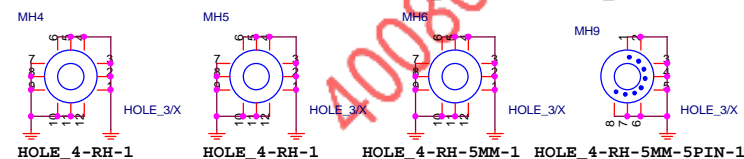


FOR AUDIO 切割

MH1 **Rev 0.2** MH2

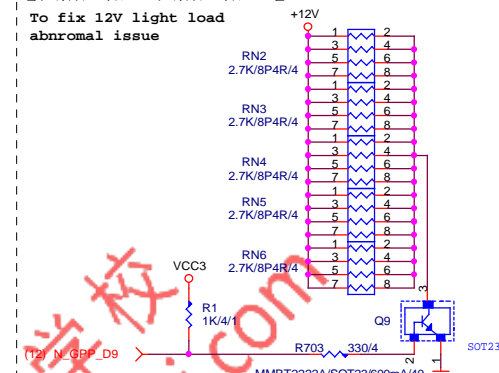
HOLE_3X

HOLE_4-RH-1



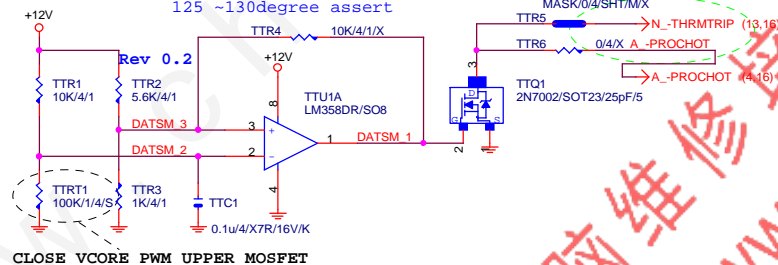
【技術通報R&D技術通報153】

To fix 12V light load
abnromal issue



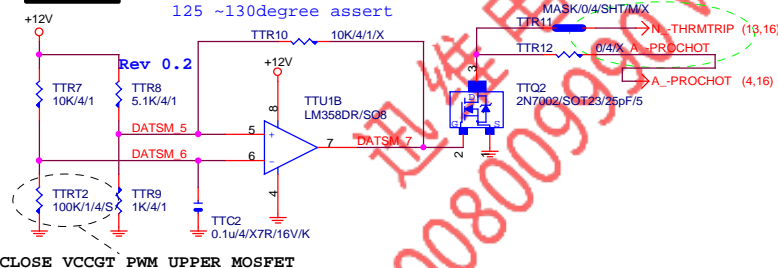
-PROHOT

OTP:130度 / PCB THERMAL TRIP:128 度
125 ~130degree assert



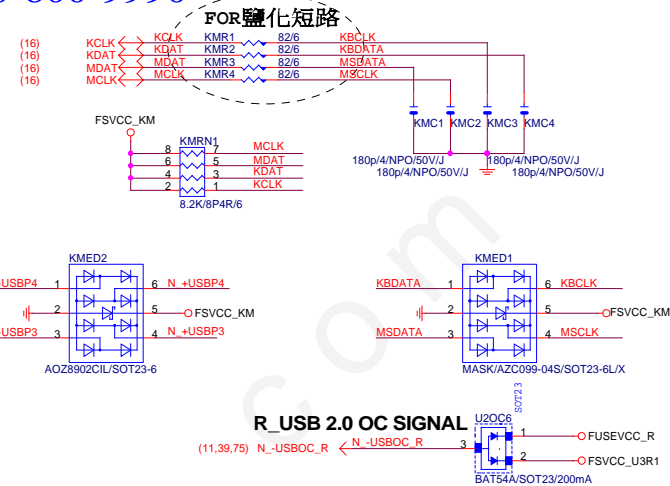
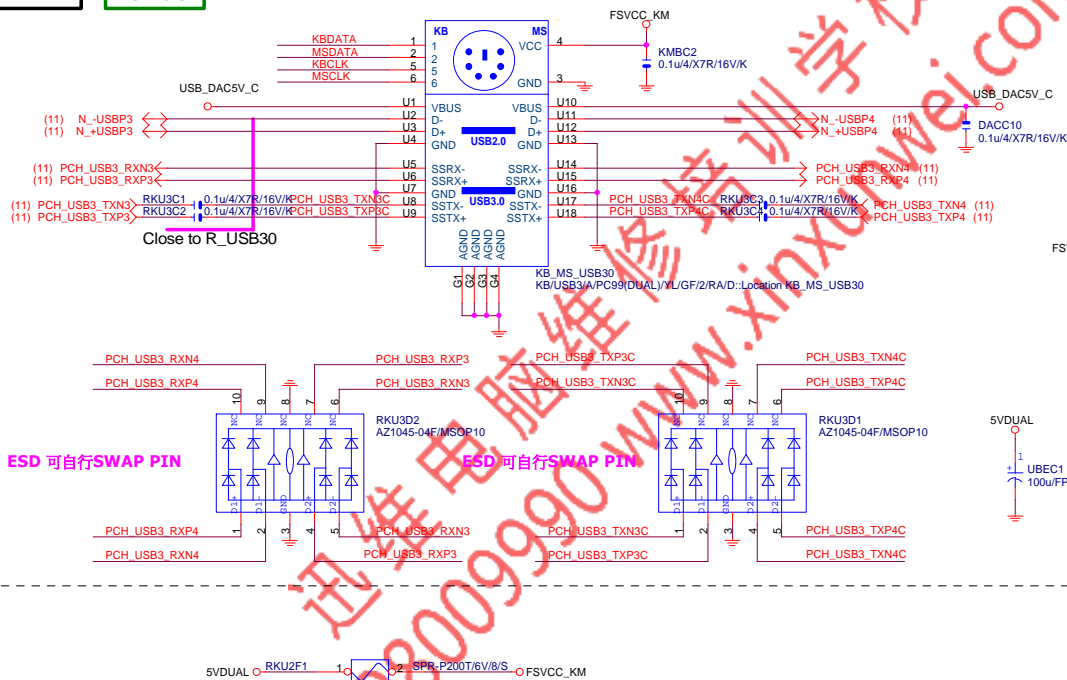
-PROHOT

OTP:130度 / PCB THERMAL TRIP:129 度
125 ~130degree assert



Gigabyte Technology

Title				ATX POWER CONNECTOR				Rev		
Size Custom		Document Number						GA-Z270X-Ultra Gaming		
								001		
Date:		Tuesday, November 01, 2016			Sheet		35 of		76	



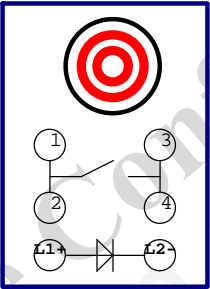
<h1 style="text-align: center;">Gigabyte Technology</h1>			
<p>Title</p> <h2 style="text-align: center;">AUDIO JACK</h2>			
Size Custom	Document Number	<h1 style="text-align: center;">GA-Z270X-Ultra Gaming</h1>	
Date:	Tuesday, November 01, 2016	Sheet	36 of 76



POWER

Reset

Clear CMOS



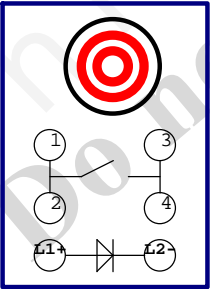
OC KEY

Rev 0.2

Rev 0.3

PCH:GPP_D6

PCH:GPP_D4



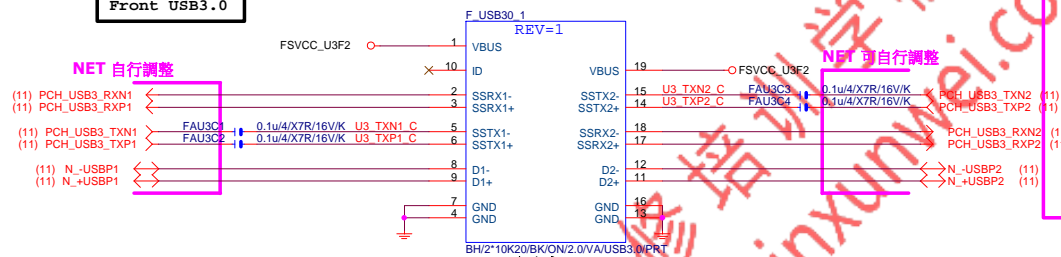
ECO KEY

PCH:GPP_C9

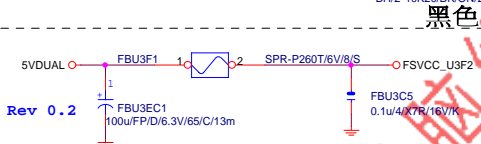
PCH:GPP_B20

Gigabyte Technology			
Title			
OC BOTTOM			
Size	Document Number	Rev	
Custom	GA-Z270X-Ultra Gaming	1.0	
Date:	Tuesday, November 01, 2016	Sheet	37 of 76

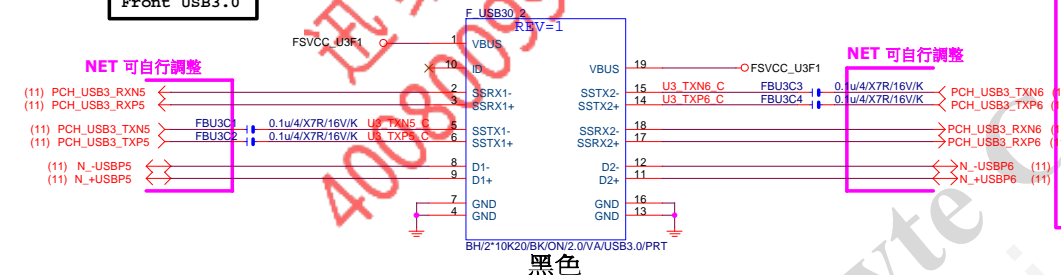
Front USB3.0



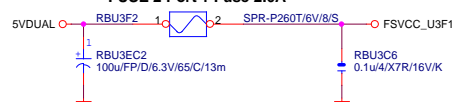
Rev 0.2



Front USB3.0

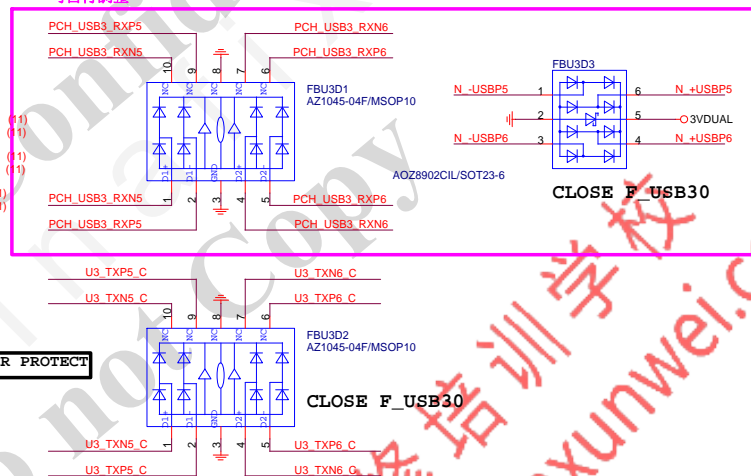


FUSE 2 Port 1 Fuse 2.6A



F_USB POWER PROTECT

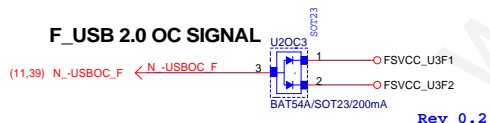
NET 可自行調整



-USBOC_F

-USBOC_R

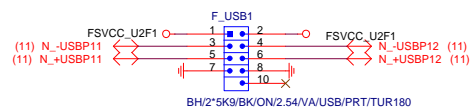
F_USB 2.0 OC SIGNAL



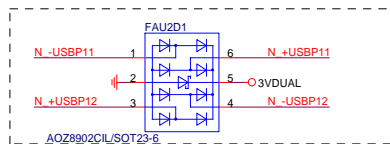
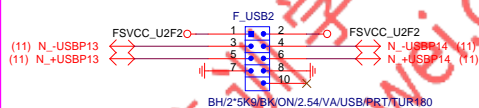
Gigabyte Technology

Title		F_USB30	
Size		Document Number	
Custom		GA-Z270X-Ultra Gaming	
Date		Tuesday, November 01, 2016	
		Sheet 38 of 76	

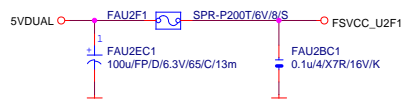
NET 可變



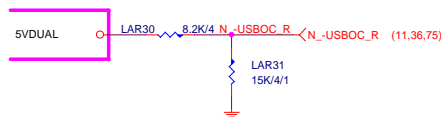
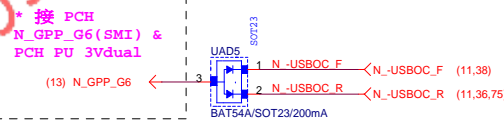
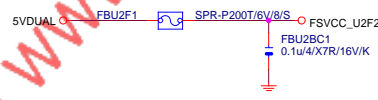
NET 可變



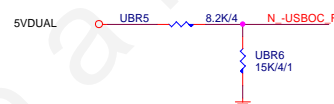
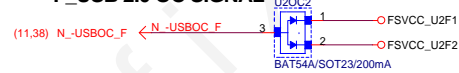
Close to connector
FUSE 2 Port 1 Fuse 2A



Close to connector
FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL

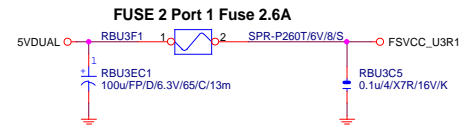
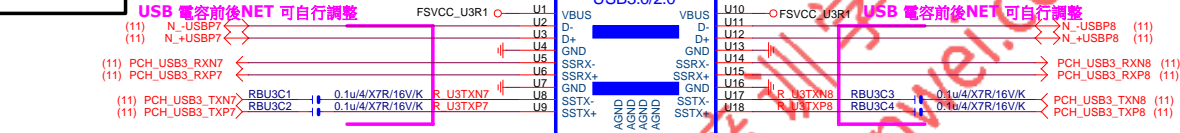


Gigabyte Technology

Title		USB2.0	
Size	Document Number	GA-Z270X-Ultra Gaming	Rev 1.01
Custom	Date	Tuesday, November 01, 2016	Sheet 39 of 76

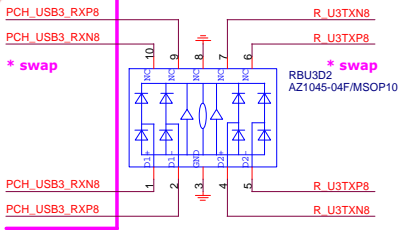


R_USB30

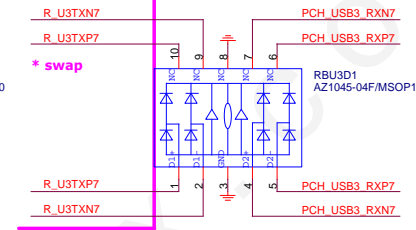


2 port USB 3.0 架構with TYPE C Capture:
USB/18P/BU/OS/RA/D/2/HR

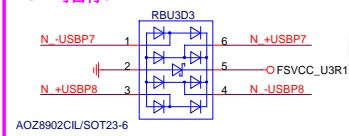
NET 可自行調整



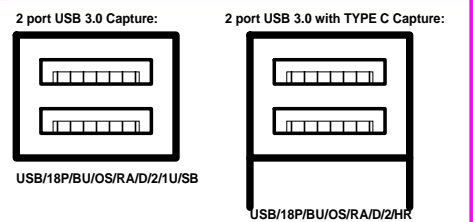
NET 可自行調整



ESD 可自行SWAP PIN

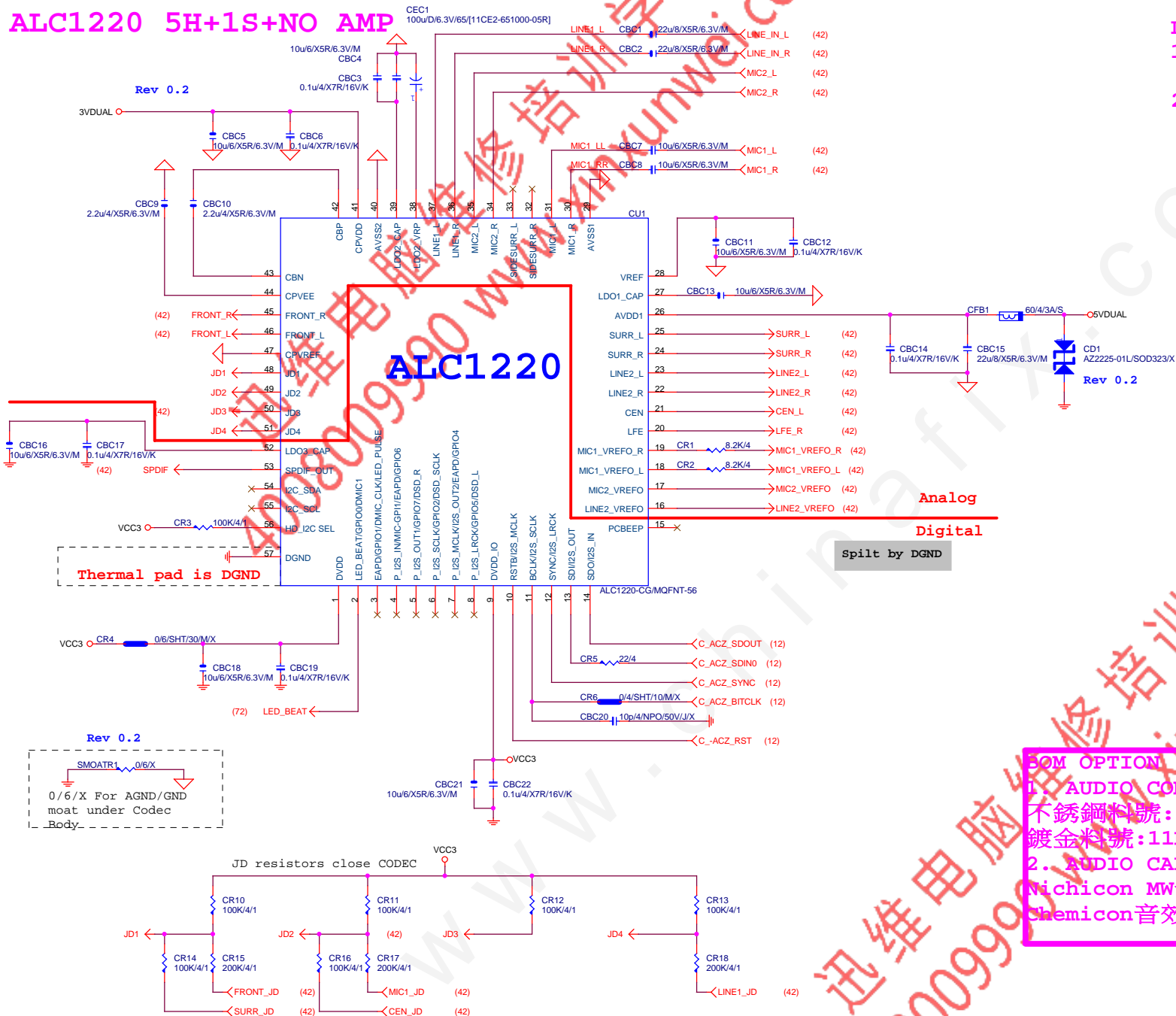


CONNECTOR 自行調整



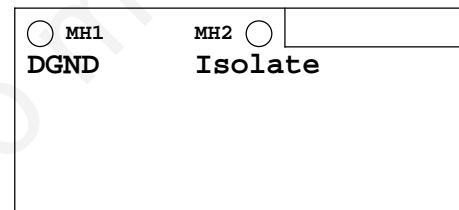
Gigabyte Technology			
Title R_USB30			
Size Custom	Document Number	Rev	
GA-Z270X-Ultra Gaming		1.01	
Date: Tuesday, November 01, 2016	Sheet 40	of 76	

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



LAYOUT注意:是否要加?
GND切割線

音效區域印刷



SOM 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

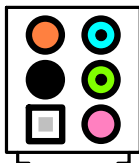
Chemicon音效電容: 11CE2-651000-05R

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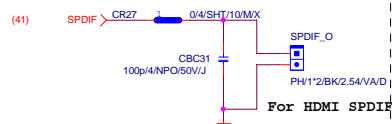
Title			ALC1220		
Size			Rev		
Custom			GA-Z270X-Ultra Gaming 1.01		
Date:			Tuesday, November 01, 2016		
Sheet			41 of 76		

Rev 0.4

AZALIA JACK



SPDIF OUT



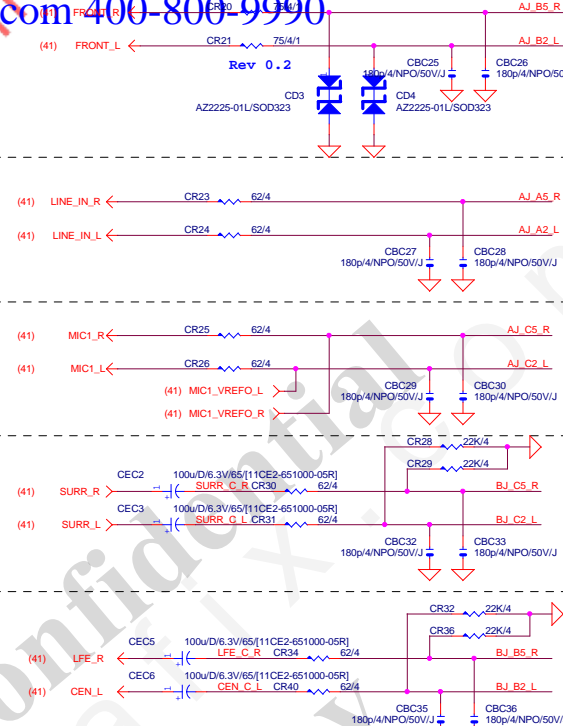
*量產前,0ohm改short pad

LINE-IN

MIC-IN

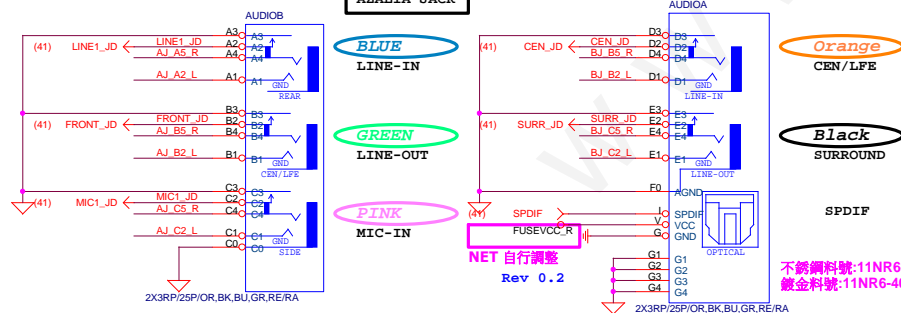
SURROUND

CEN/LFE

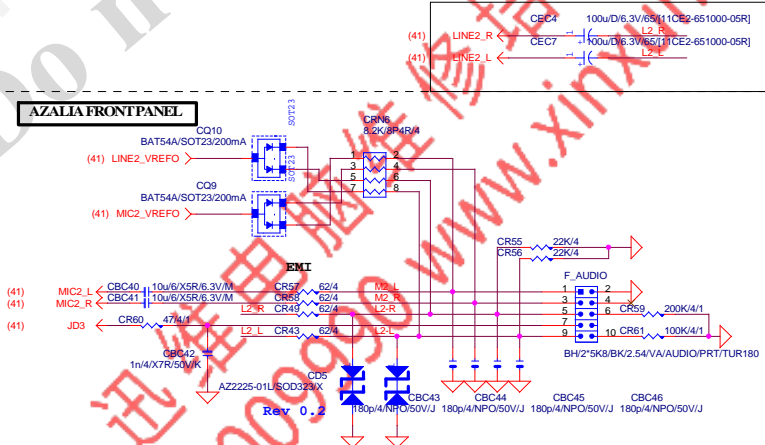


2X3RP/25P/OR,BK,BU,GR,RE/RA

AZALIA JACK



AZALIA FRONT PANEL



Gigabyte Technology

AUDIO JACK

File	Document Number	Rev
Size	Custom	1.01
Date	Tuesday, November 01, 2016	Sheet 42 of 76

GA-Z270X-Ultra Gaming

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GIGABYTE™			
Title Creative Sound3Di ZxR			
Size	Document Number		Rev
Custom	GA-Z270X-Ultra Gaming		1.01
Date	Tuesday, November 01, 2016		Sheet 43 of 76



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4008009990 www.xinxunwei.com

Gigabyte Technology		
Title		
Creative Sound3Di ZxR		
Size	Document Number	Rev
Custom	GA-Z270X-Ultra Gaming	1.01
Date:	Tuesday, November 01, 2016	Sheet 44 of 76



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4008009990 www.xinxunwei.com

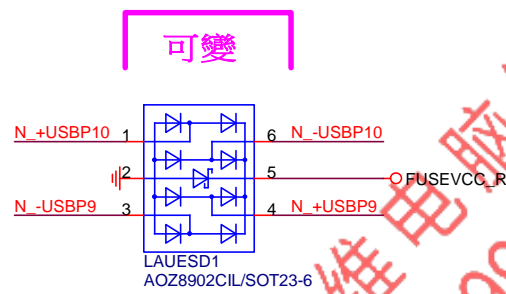
www.chinafix.com

迅维电脑维修培训学校
4008009990 www.xinxunwei.com

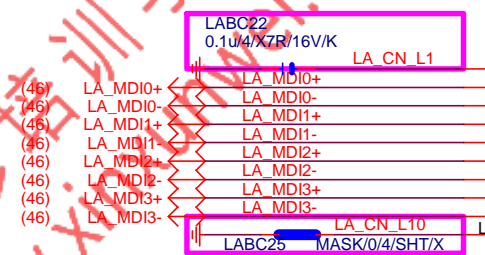
Gigabyte Technology			
Title			
KILLER E2500(E2400)(E2201)			
Size	Document Number		Rev
Custom	GA-Z270X-Ultra Gaming		1.01
Date:	Tuesday, November 01, 2016	Sheet	45 of 76

USB_LAN CONNECTOR R1.11

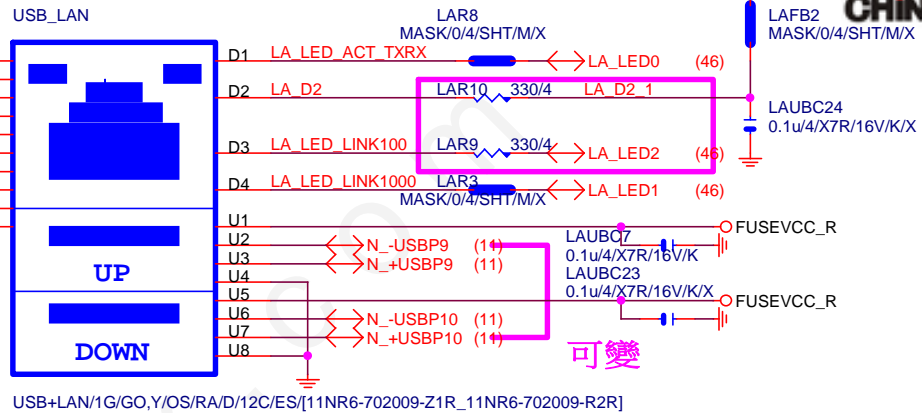
RMA ESD PROTECT note:可變更USB NAME



USB_LAN CONNECTOR

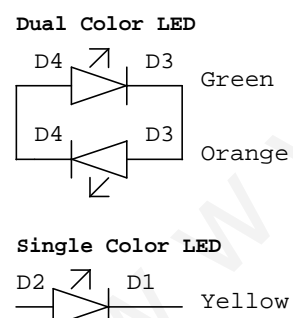
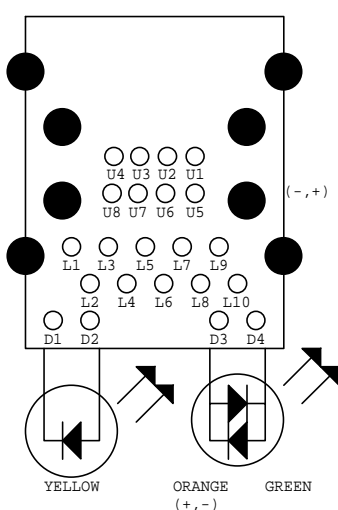


[I219]Rev 0.2

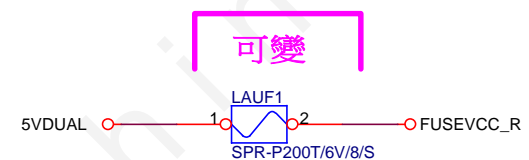


LA_MDI-->100歐姆:[20/4/8/4/20]

USB_LAN LAYOUT示意圖



USB POWER



Close to connector

USB_LAN 2-Port 2.0A

FUSE-0805

LAN COVER

FOOT PRINT:LAN COVER

可變
[視SPEC需求]

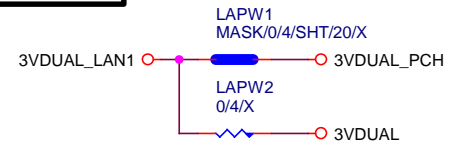
EMI SHORT PAD

PS:視EMI需求



LAN POWER

note: lan power連接及電流

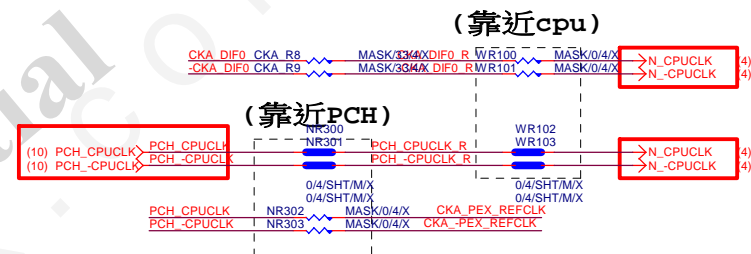
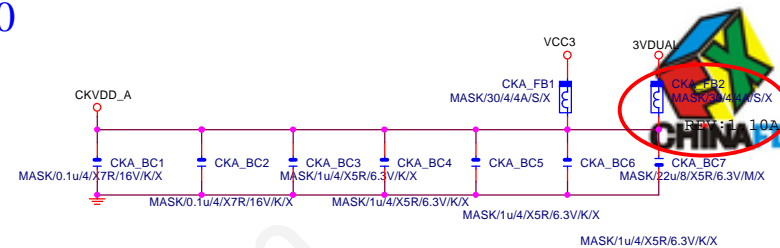


Gigabyte Technology

LAN CONNECTOR-I219

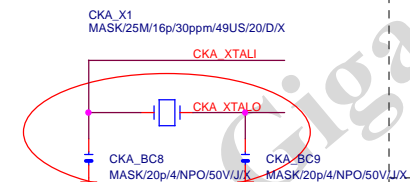
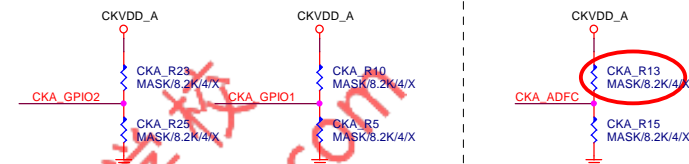
GA-Z270X-Ultra Gaming

Title		Document Number		Rev
Size		Custom		1.01
Date:	Tuesday, November 01, 2016	Sheet	47	of 76



CPU Frequency Selection and output Divider Table

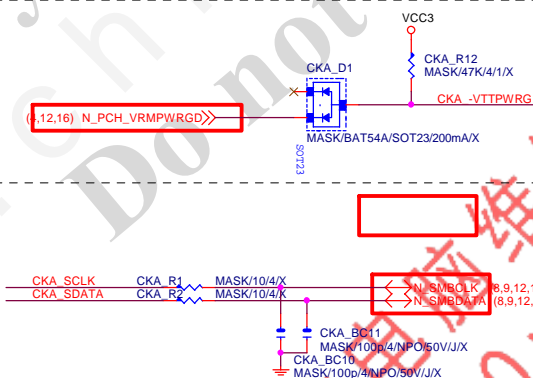
	B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	0	200.00	2.00	100.00	-	OFF
0	0	1	400.00	4.00	100.00	-	OFF
1	0	0	1000.00	10.00	100.00	-0.50%	ON
1	1	1	100.00	1.00	100.00	-	OFF



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

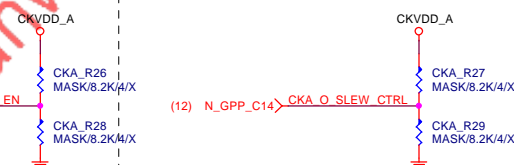


SMBUS



Real time selection function

Frequency change slew rate control



GIGABYTE™

Title	IDT6V41530 CLK BUFFER
-------	-----------------------

Size Custom	Document Number GA-Z270X-Ultra Gaming	Rev 1.01
Date:	Tuesday, November 01, 2016	Sheet 48 of 76

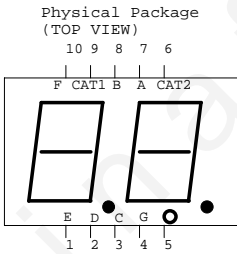
*可變，依需求上件不上件。



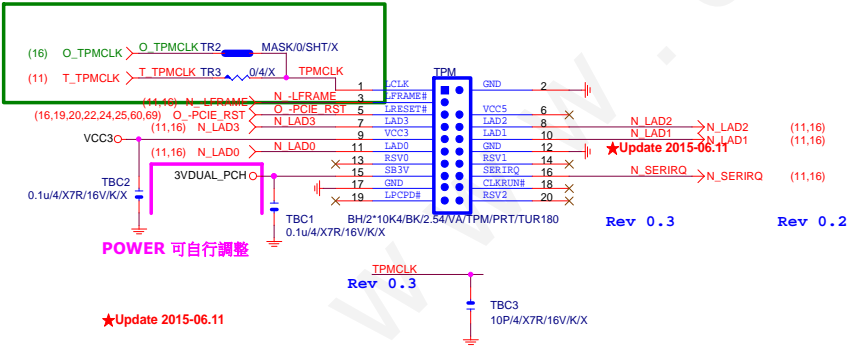
COM PORT

COMA

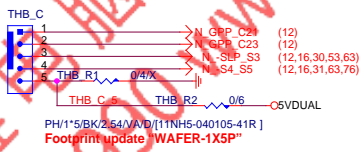
80 PORT



TPM CONNECT



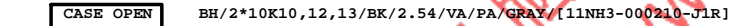
Thunderbolt
★Update 2015-12-29



Gigabyte Technology			
Title			
FP,F_USB,USB PWR,BZ			
Size	Document Number		Rev
Custom	GA-Z270X-Ultra Gaming		1.01
Date:	Tuesday, November 01, 2016	Sheet 49 of 76	



FRONT PANEL



SPEAKER

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



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

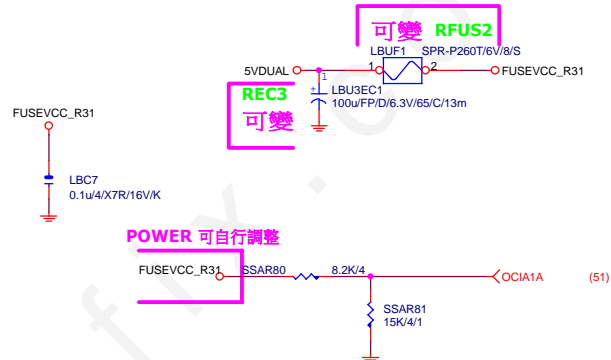
後窗Rule : (後窗由左至右)

DIP電容 : REC1, REC3, REC2

FUSE : RFUS1, RFUS2, RFUS3, RFUS4...

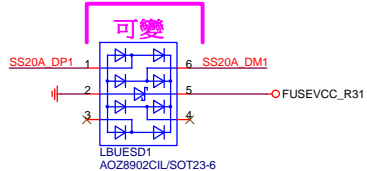
USB POWER

note:可變更FUSB



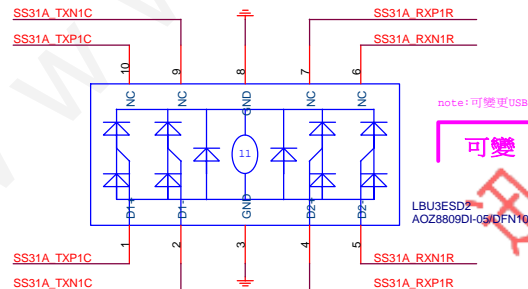
POWER 可自行調整

note:可變更USB NAME



note:可變更USB NAME

可變

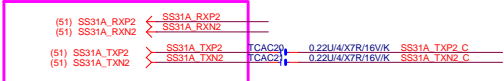


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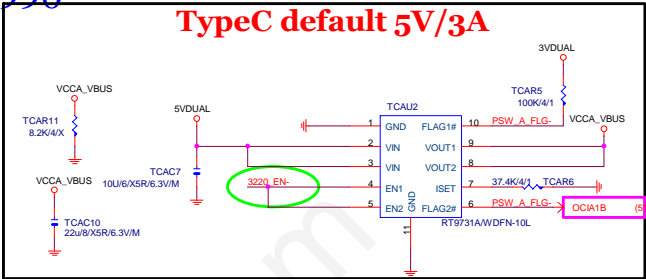
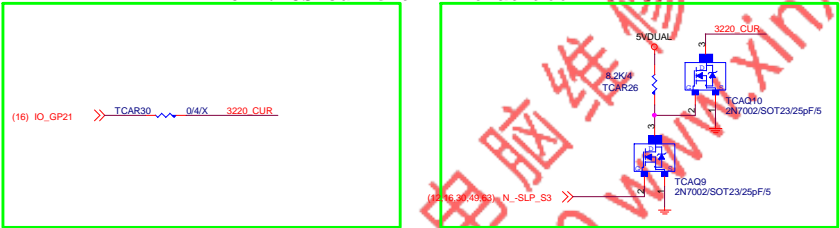
Title			T1 Type C port A
Size	Document Number	Rev	
Custom	GA-Z270X-Ultra Gaming	1.01	
Date:	Tuesday, November 01, 2016	Sheet	52 of 76



USB 3.x SuperSpeed



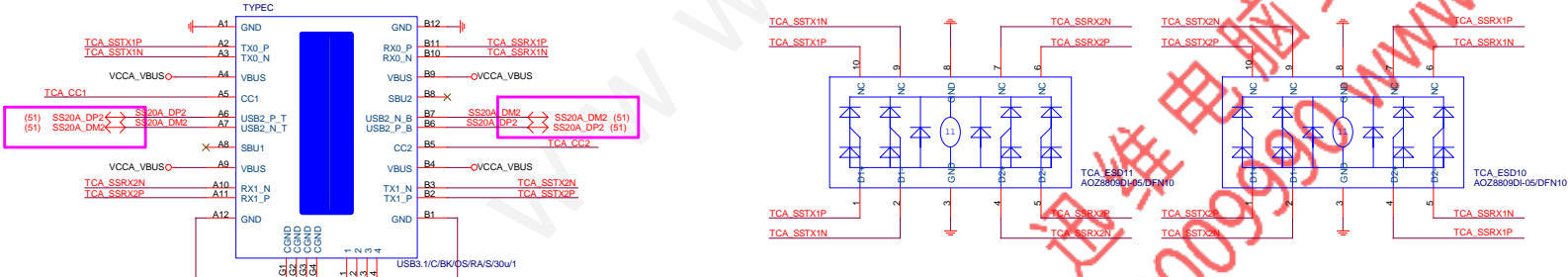
For VBUS current limit at 900mA on S3



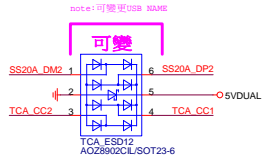
PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

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

Color markers can be changed by model



USB2.0 can be used the same source



GIGABYTE™		
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TI HD3SS3212		
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GIGABYTE™		
Title PD 12V3A		
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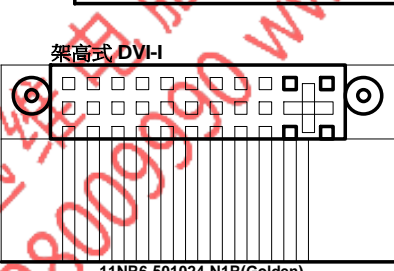
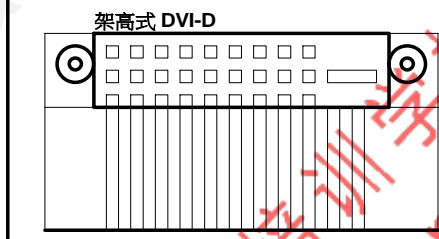
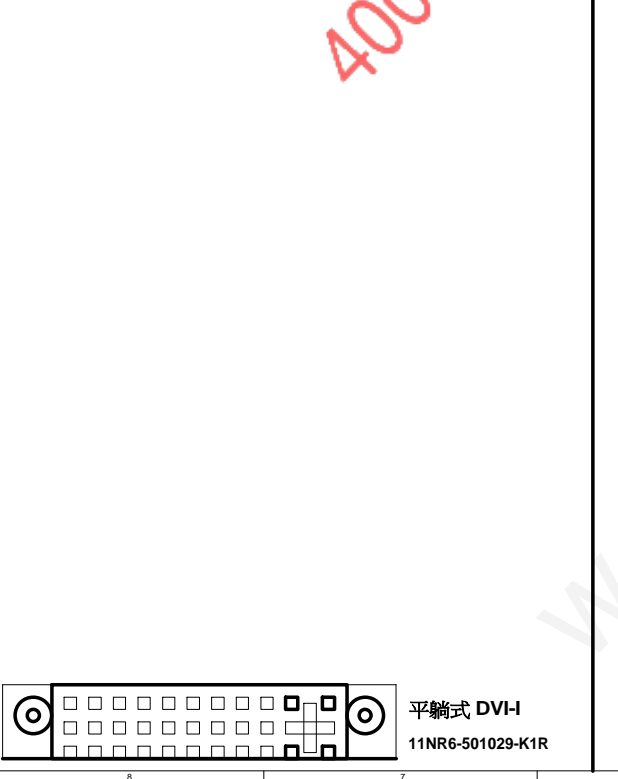
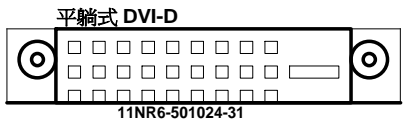
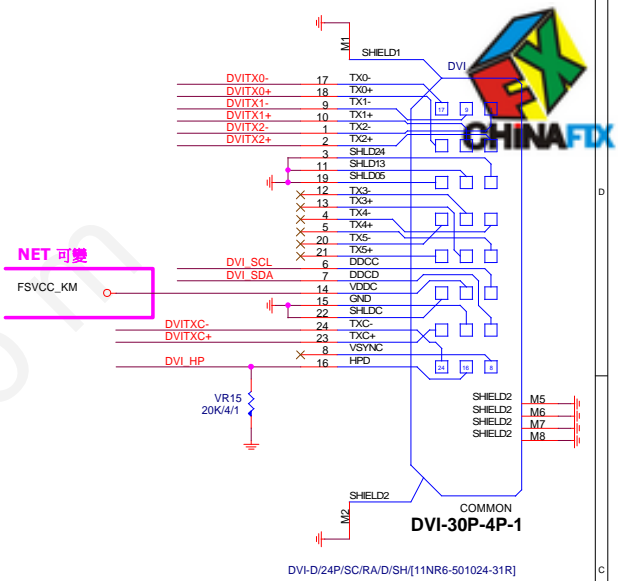
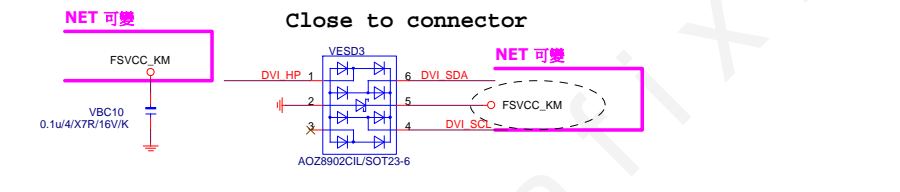
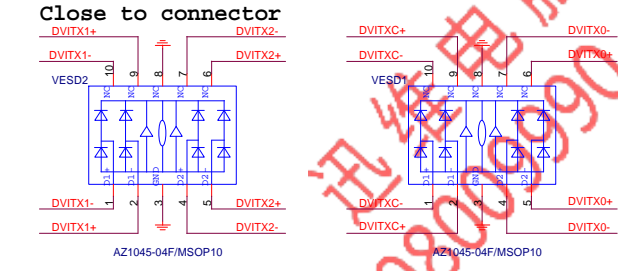
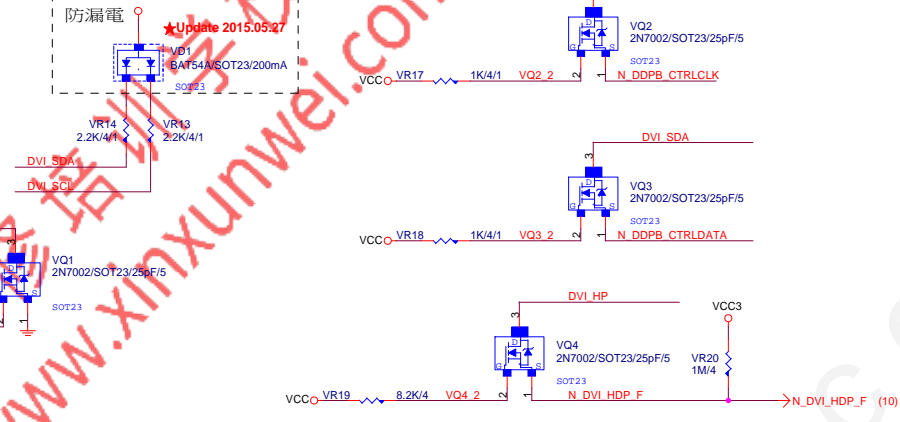
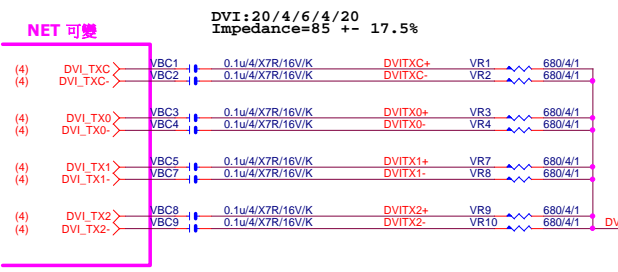


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GIGABYTE™		
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Gigabyte Technology			
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M.2 X4			
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Gigabyte Technology			
M.2X4_S4~S5 SWITCH			
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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

需與M2 CLKREQ對應

架高

可變動

GPI reserve for power saving

DIP螺柱

SMD螺柱

Rev 0.2

Gigabyte Technology			
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M.2 X4			
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Rev 0.2

Gigabyte Technology

Flex IO

Document Number

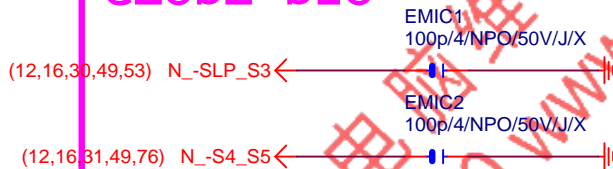
GA-Z270X-Ultra Gaming

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CLOSE SIO



CLOSE PCH



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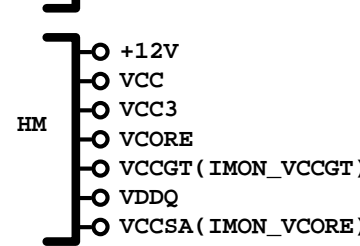
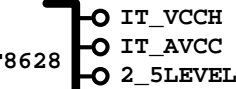
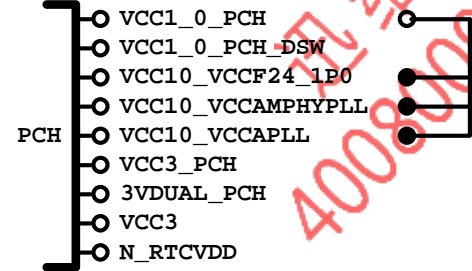
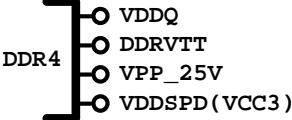
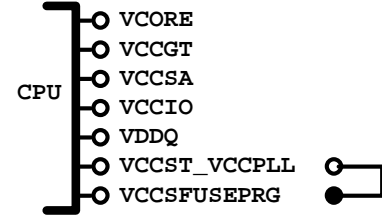
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EM/ESD		
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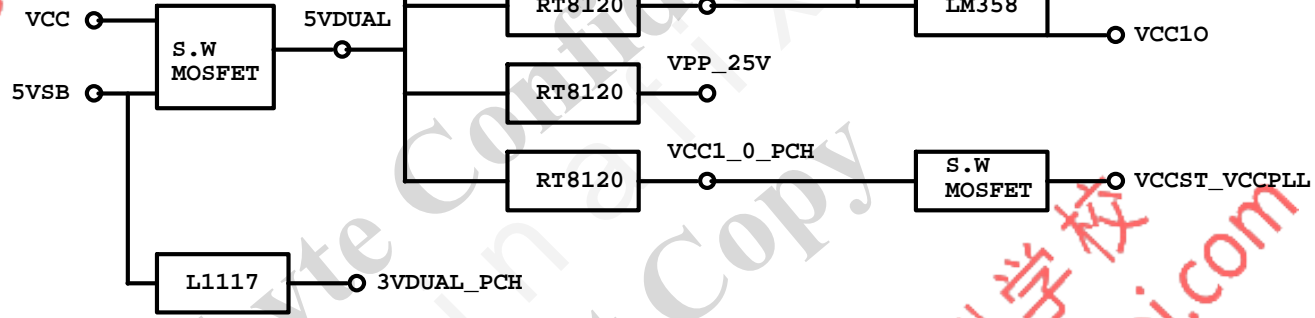
POWER BLOCK MAP

VCORE/VCCGT

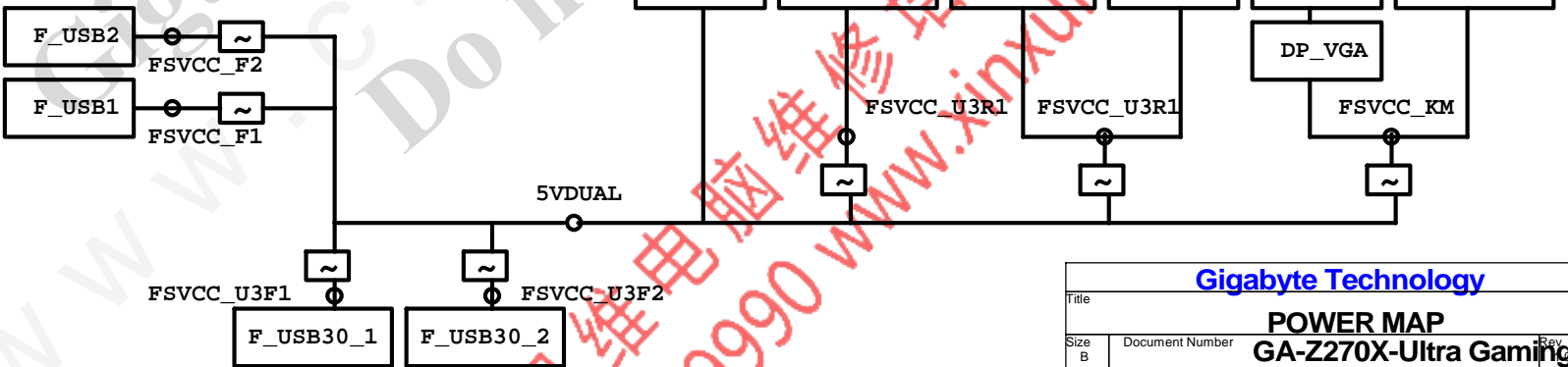
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POWER



FUSE POWER F/R



Gigabyte Technology

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POWER MAP		
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固態電容料號.請自行修改

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

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

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

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-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-EP50IC

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Title RT8120_DDR4 POWER			
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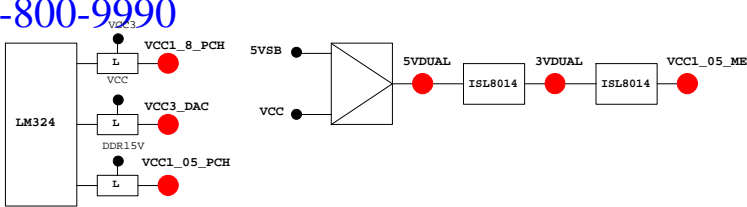


PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI0	GPIO0	N/A
GP1/TACH1	MAIN		GPI0	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		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

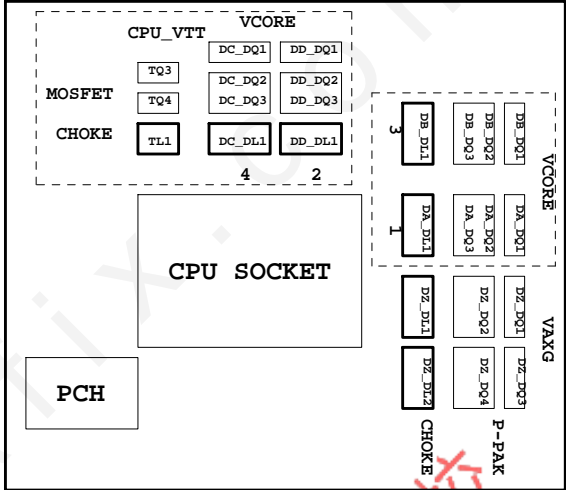
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
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/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VBSBW#/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/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	SEC_PIN	FST_2X8
INIT#/GP85/SMB_D_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWROK#/GP44	VCORE_OV1	
PANSW#/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/SMB_D_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/BUSS00	SB_LED3_C	



PWM各相位的擺法如下:



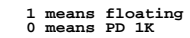
BIOS超電壓對應表:

散熱模組料號:

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 Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

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

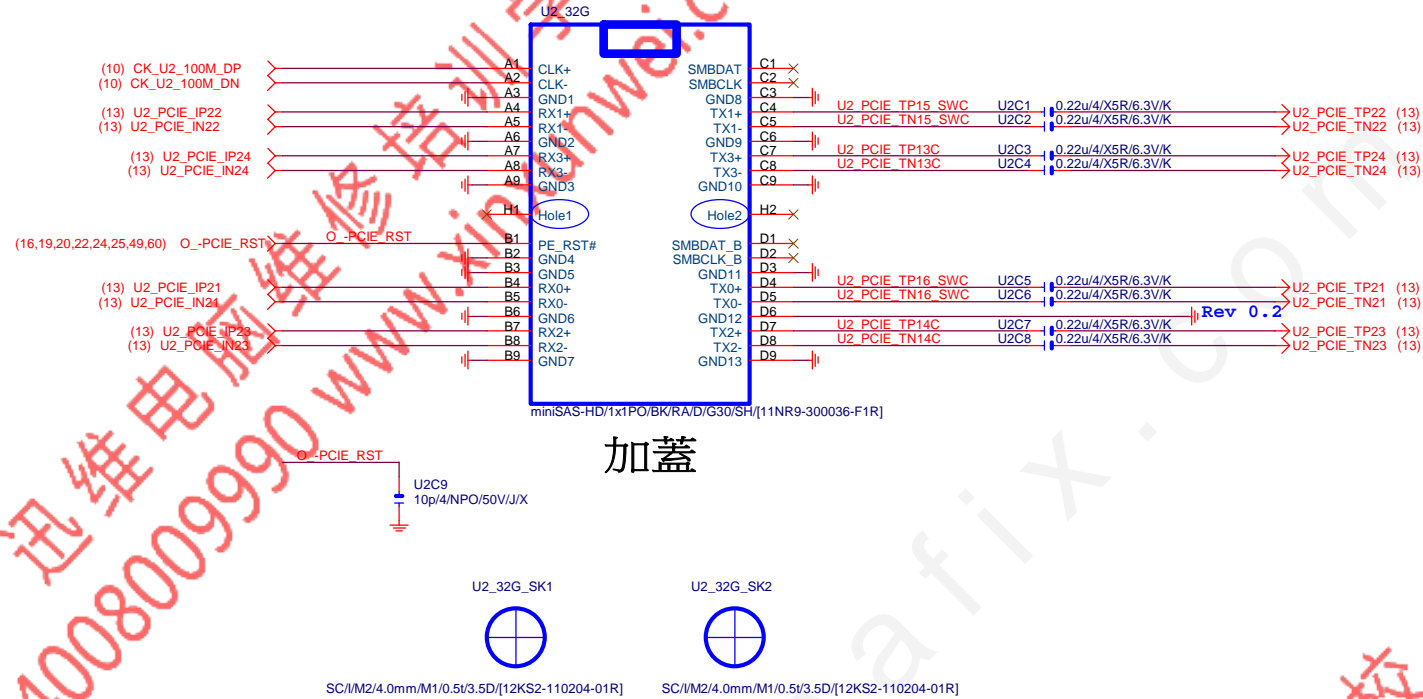
	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH



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PCH PWR-VCC18_PCH		
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5FAN			
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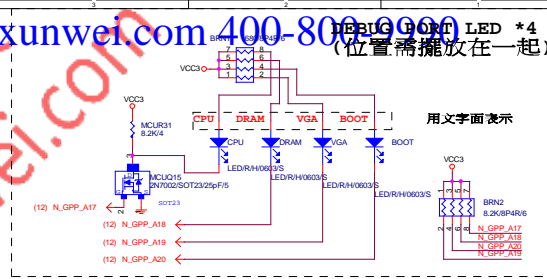


第一區 LED

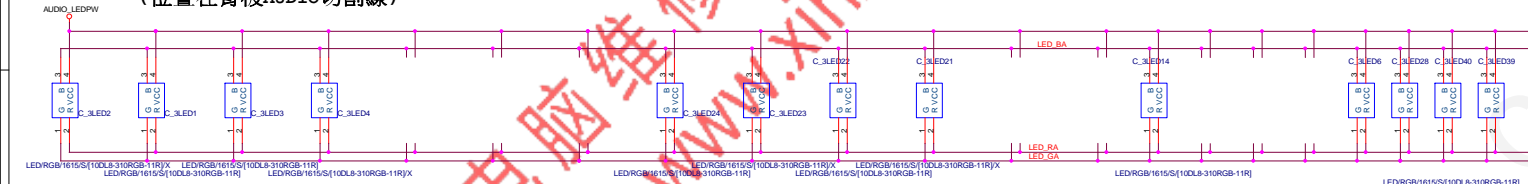
Rev 0.63

LED GPIO PIN DEFINES

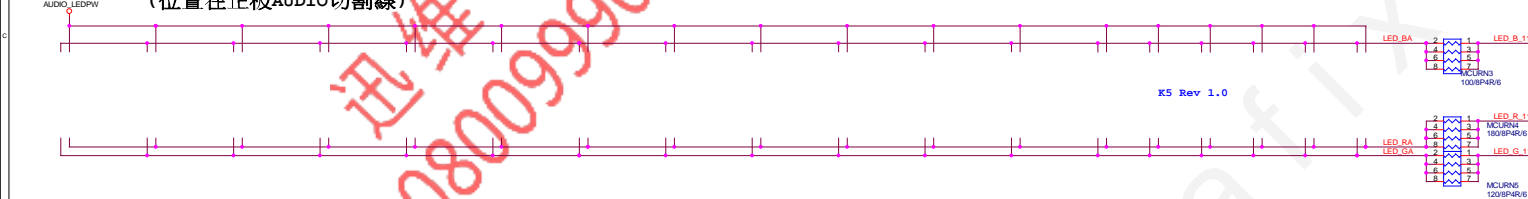
N_GPP_A17	CPU DEBUG
N_GPP_A18	DDR DEBUG
N_GPP_A19	VGA DEBUG
N_GPP_A20	BOOT DEBUG
N_GPP_A21	XMP LED SWITCH
N_GPP_A22	TURBO LED SWITCH
N_GPP_D15	LED_C LED SWITCH
N_GPP_D17	PCIEX16 LED SWITCH
N_GPP_D18	PCIEX8 LED SWITCH



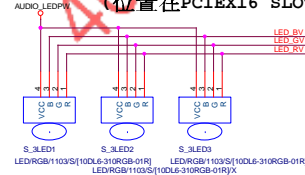
FOR AUDIO 正發光 LED*40
(位置在背板AUDIO切割線)



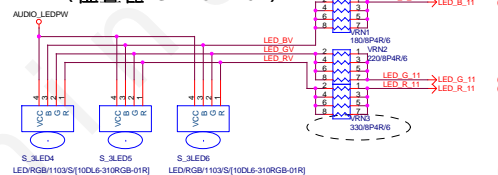
FOR AUDIO 正發光 LED*40
(位置在正板AUDIO切割線)



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

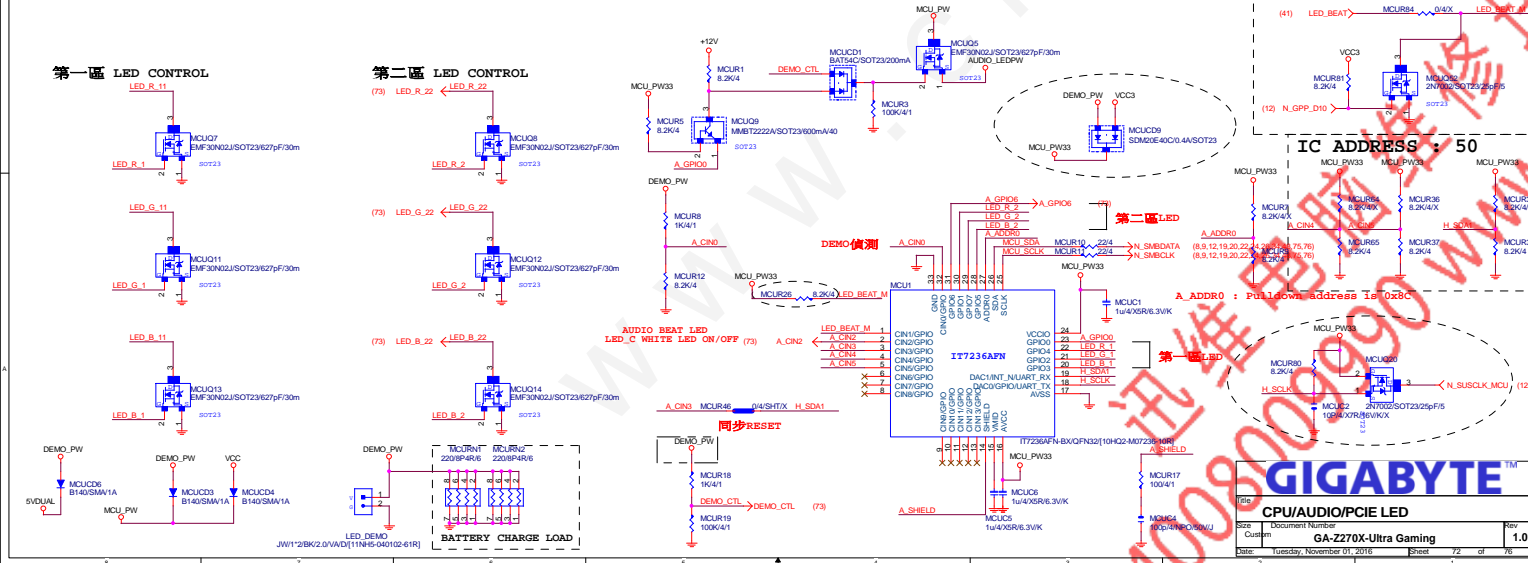


FOR PCIEX8 側發光 LED*3
(位置在PCIEX8 SLOT)



第一區 LED CONTROL

第二區 LED CONTROL

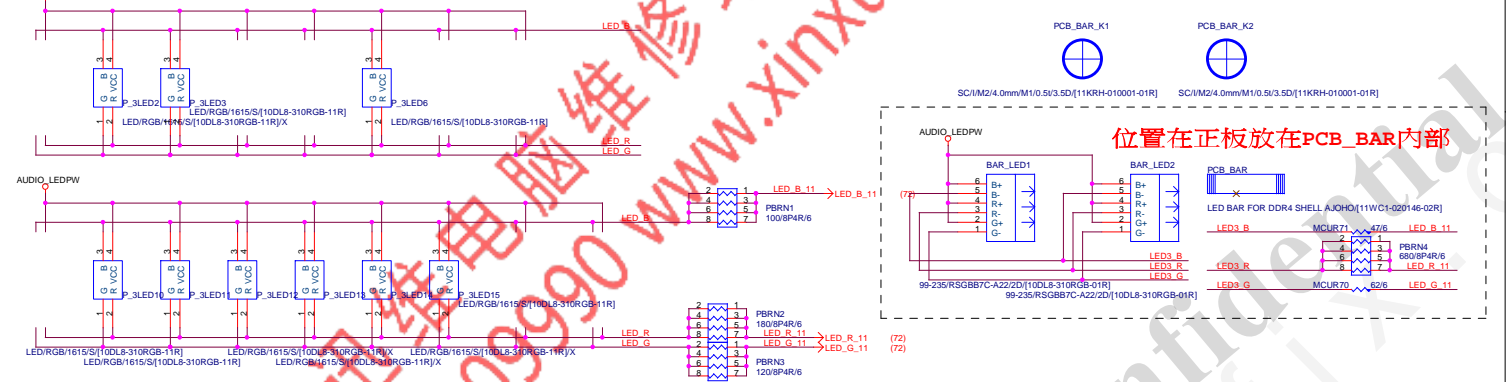


FOR PCH 正發光 LED*4 (位置在正板, 依據PCH 設計擺放)

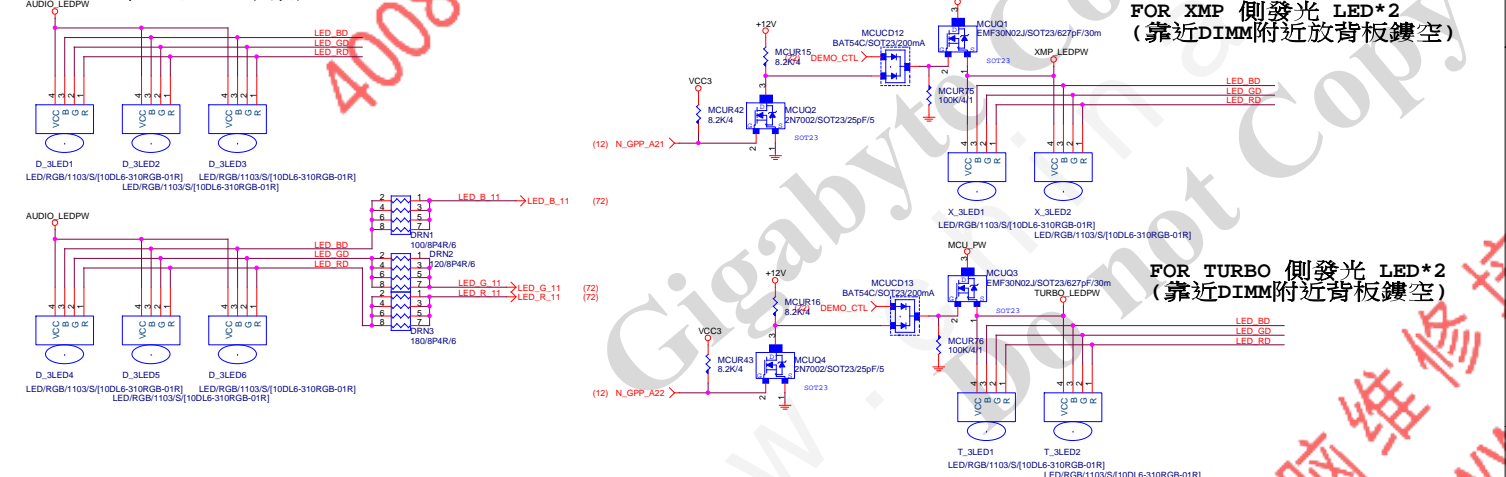
FOR CPU 正發光 LED*5 (在CPU CHOKe之間, MOS_HS下方, 不外露)



FOR PCB 正發光 LED*16 (位置在PCB下方背板邊條)



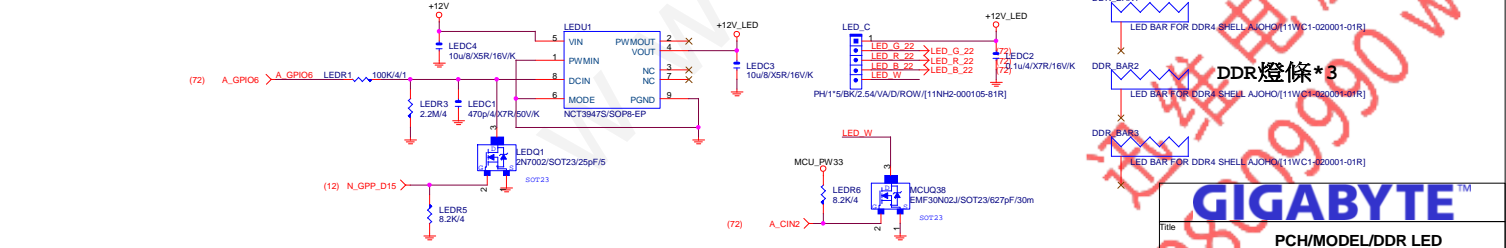
FOR DIMM 側發光 LED*6 (位置在DIMM兩側)



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附近背板鏤空)

FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



RGB LED LAYOUT 注意事項：

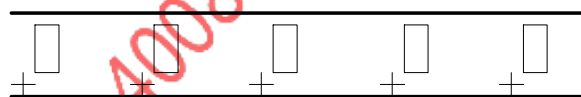
1. Debug LED 文字面表示如右所示 (LED請擺在一起)
2. 背板 RGB LED 方向整板請統一如下 (整板正極可統一朝下或朝上)
3. 正板 RGB LED 統一方向即可
4. LED RGB 10PCS 以上走20mils
LED RGB 10PCS 以下空間問題可以走10mils
LED電源一律走20mils
5. MCU LED 出pin的走線4mils, 如: LED_R_1, LED_G_1, LED_B_1
過晶體的走線20mils, 包含過排組到LED的走線如: LED_R_11, LED_G_11, LED_B_11..
6. XMP/TURBO/G1.GAMING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

Debug LED 文字面 (單色LED)

VGA CPU

BOOT DRAM

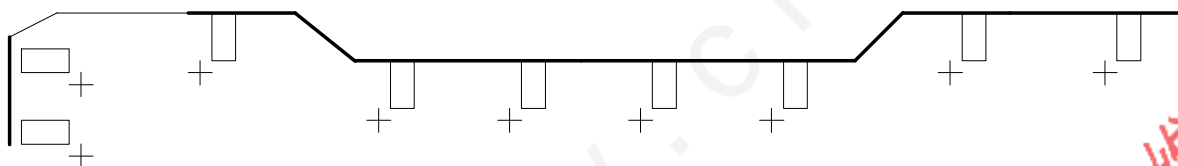
PCB板邊透光model name鏤空+背面 RGB LED



LED間距160mil

G1 GAMING

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

LED間距200mil

TURBO

LED間距200mil

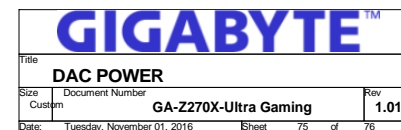
XMP

GIGABYTE™

MODEL/PCB LED		
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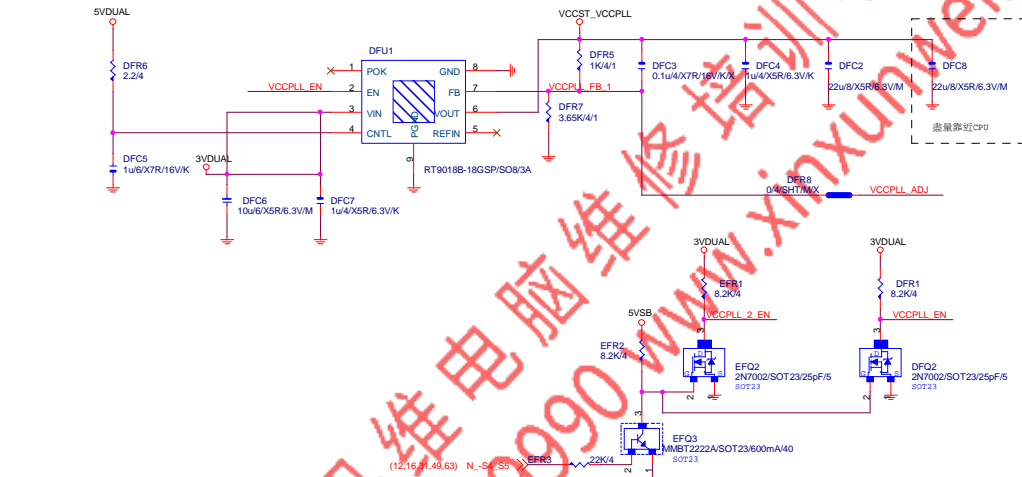
F_USB30_2

KB_MS_USB0

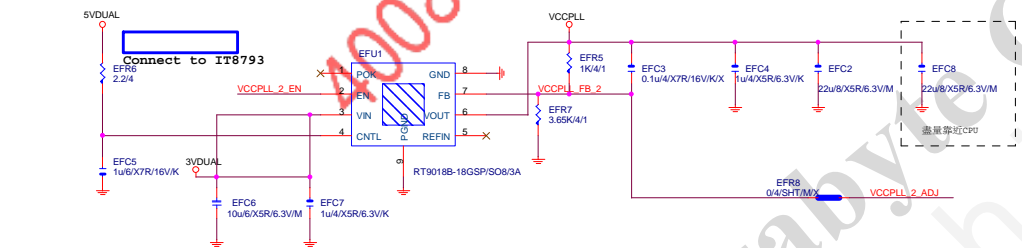




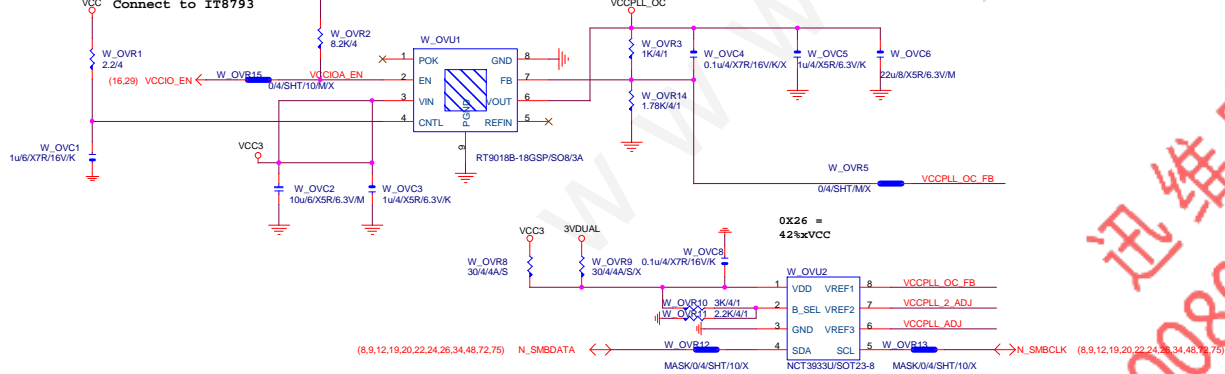
VCCST_VCCPLL 替换原先MOS开关线路



VCCPLL



VCCPLL_OC



GIGABYTE

CPU POWER

Size: Custom Document Number: GA-Z270X-Ultra Gaming Rev: 1.01

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