

Model Name: GA-Z270-GAMING K3  
SHEET TITLE

Rev 1.02

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B_DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A 1,2
09	DDR4 CHANNEL B 1,2
10	PCH_RGB,CLK BUFFER
11	PCH_DMI,USB,PCIE
12	PCH_MISC
13	PCH_SATA,PCIE,SATA EXPRESS
14	PCH_PWR,GND
15	PCH_GND
16	PCI EXPRESS X16 SLOT
17	PCI EXPRESS X4 SLOT(CPU)
18	PCI EXPRESS X16 SWITCH
19	PCI EXPRESS X4 SLOT(PCH)
20	M2P_32G & PCIEX4 SWITCH
21	PCI EXPRESS X1 SLOTS (SATA1/2 SWITCH)
22	SATA EXPRESS
23	M2M_32G
24	M2M_32G & STA4/5 SWITCH
25	M2P_32G
26	U2_32G
27	DUAL BIOS
28	ITE 8686 LPC IO
29	HMW
30	FAN CTRL--SIO
31	ISL95856 PWM
32	ISL95856 MOS_VCORE
33	ISL95856 MOS_VCCGT
34	VCCSA_VCCIO
35	RT8120_DDR

36	RT8120_VPP
37	RT8120_PCH
38	DISCRETE POWER
39	PCH_PWR-VCC18_PCH (N/A)
40	CPU_PWR-RT9018
41	USB_DAC POWER
42	NCT3933
43	ATX POWER , A_-PROCHOT
44	KB_MS_USB
45	OC BUTTON
46	F_USB30
47	F_USB20
48	R_USB30
49	DVI
50	HDMI
51	KILLER E2500
52	USB_LAN CONN
53	ASM2142
54	USB3.1 PortA
55	TI HDSS3212&TUSB321
56	Realtek ALC1220
57	Rear Audio Jack
58	AUDIO _ DEBUG LED
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60	MODEL _ PCB LED
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64	EC ITE8793 (Reserve)
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66	NTC MAP
67	POWER MAP
68	POWER零件使用表

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Cover Sheet

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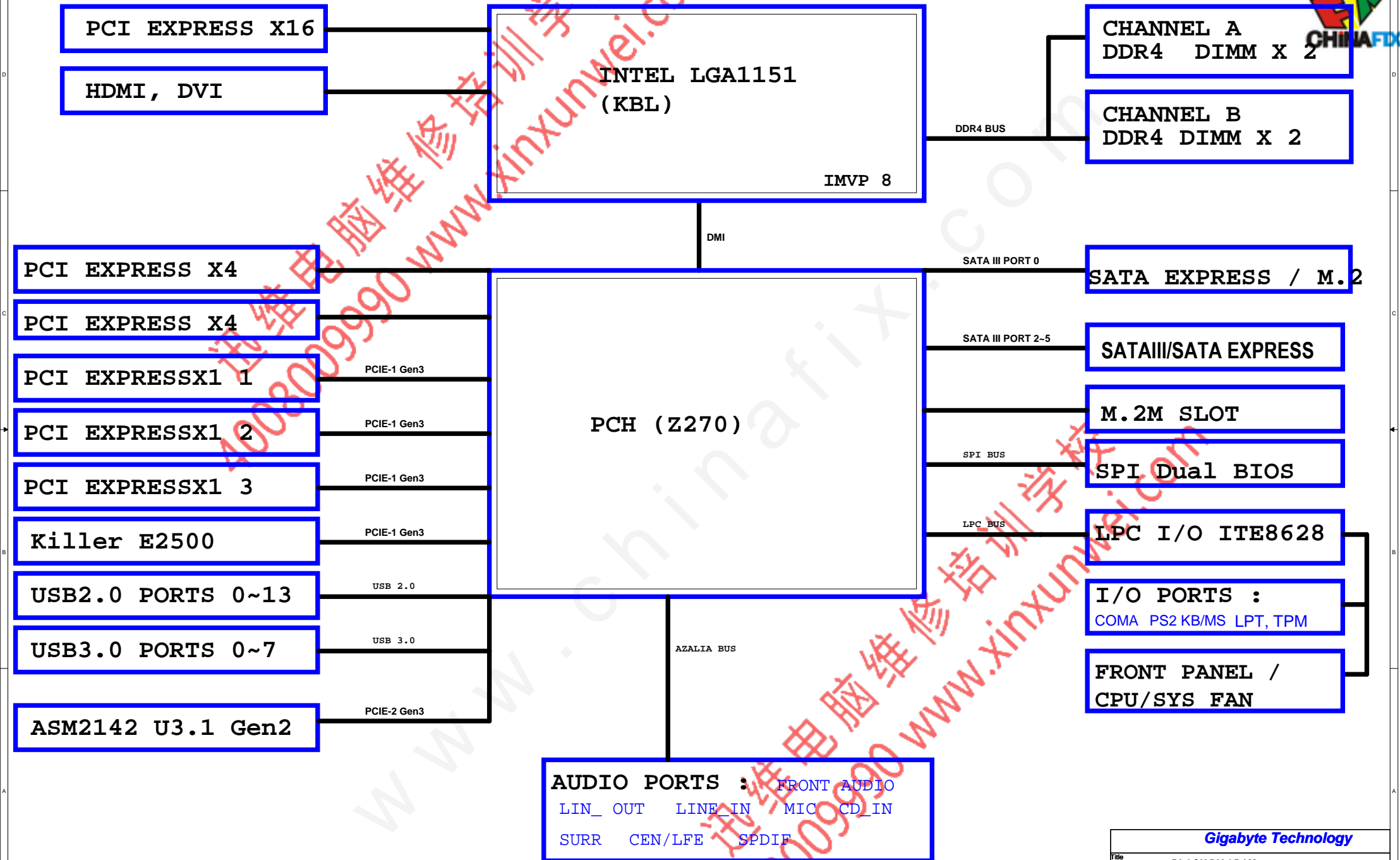


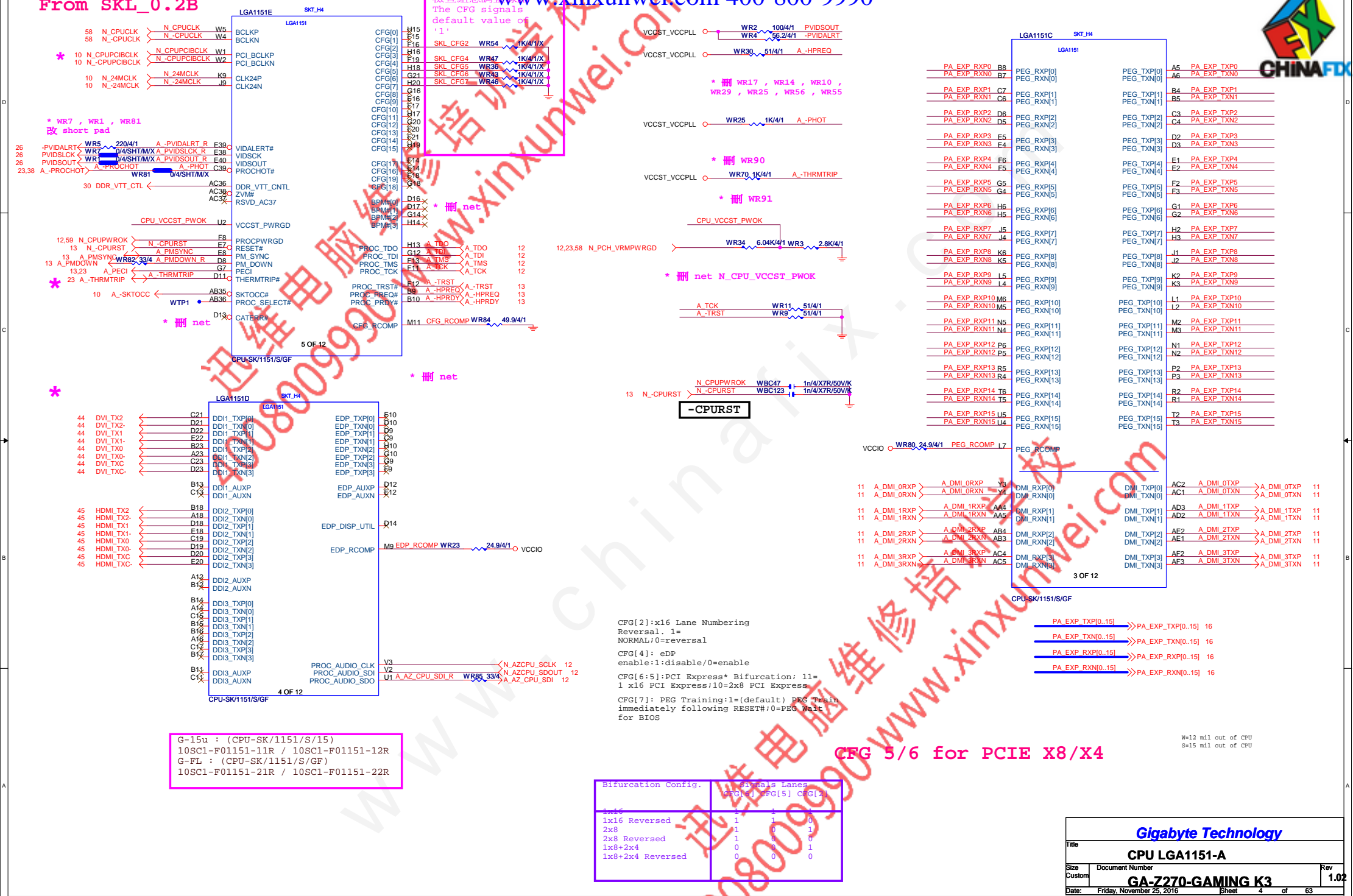
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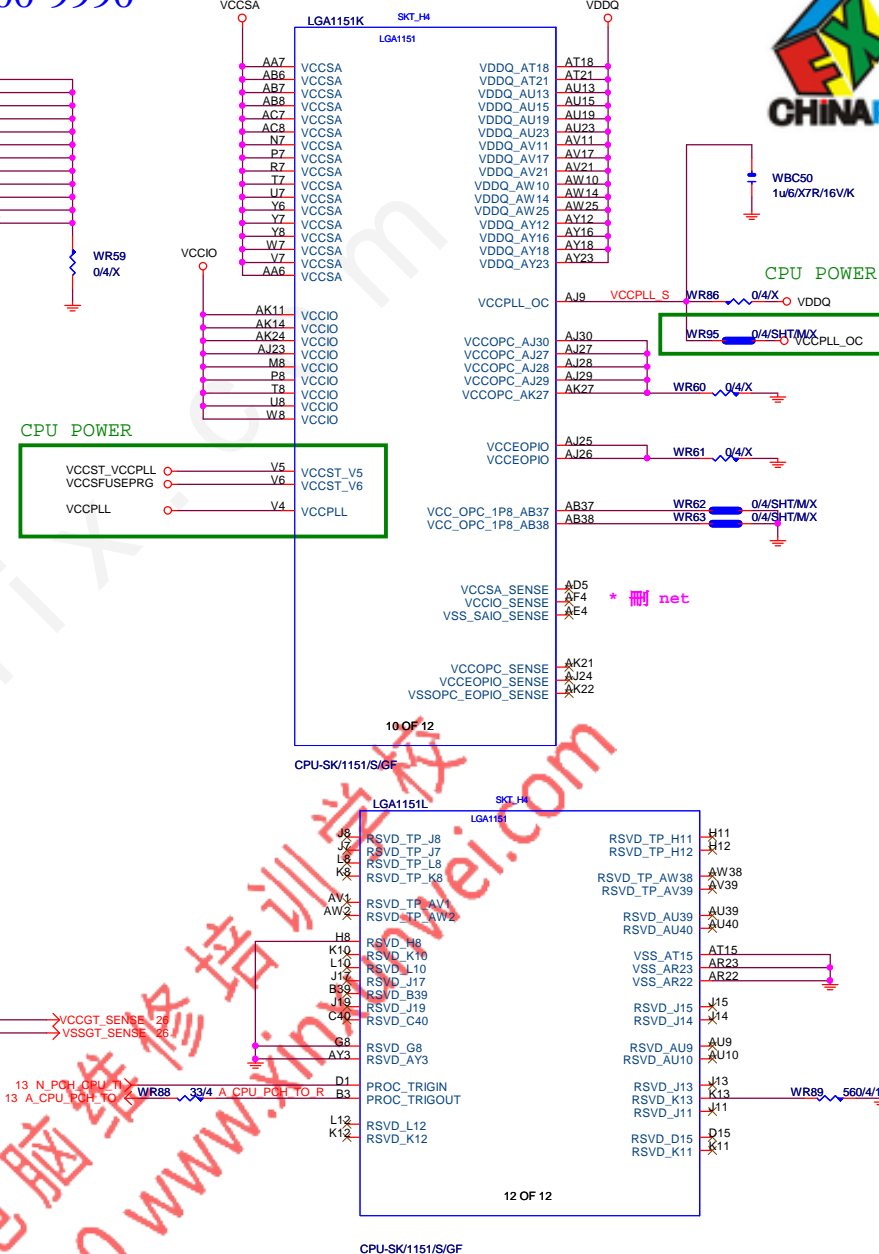
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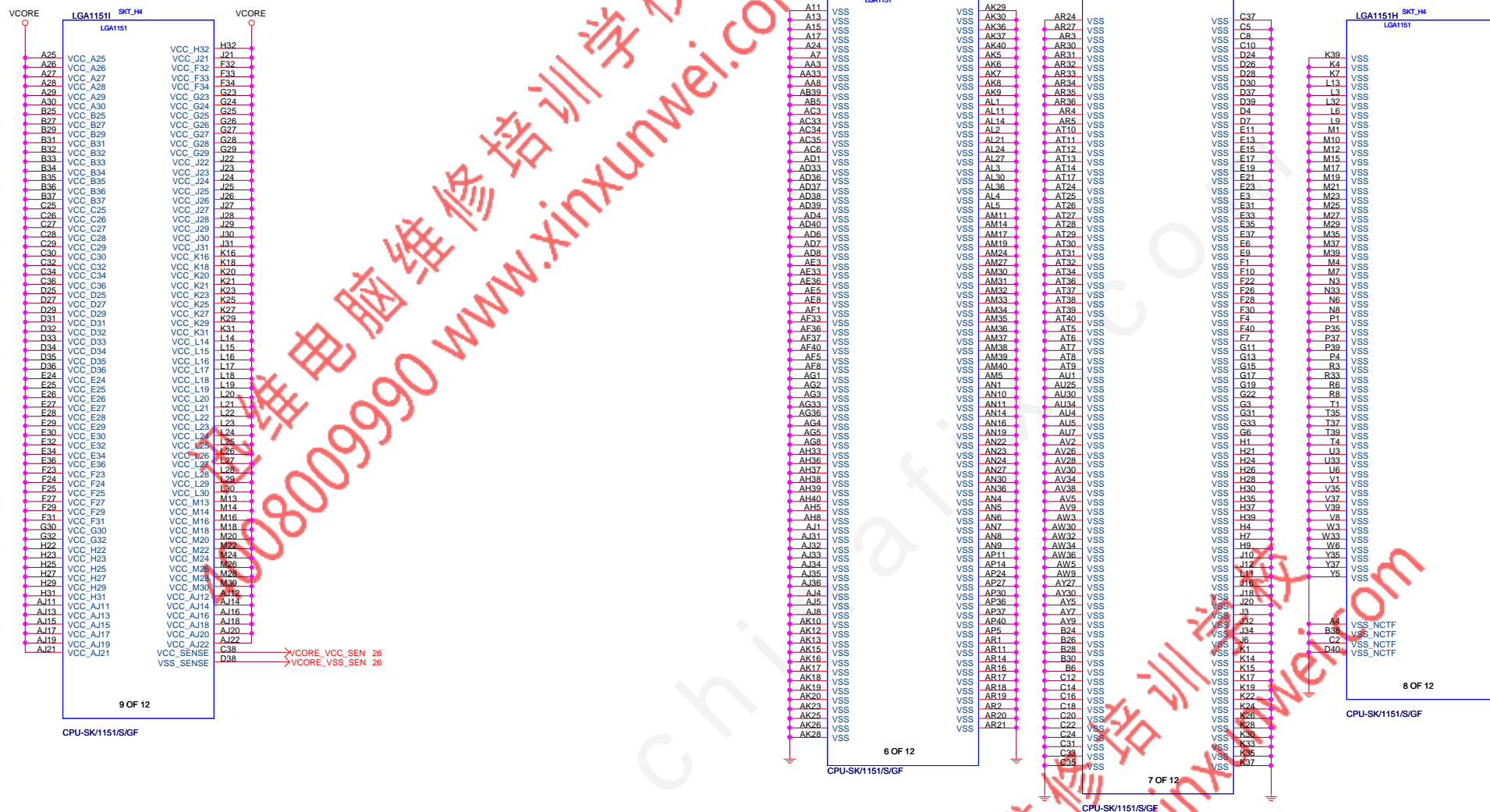






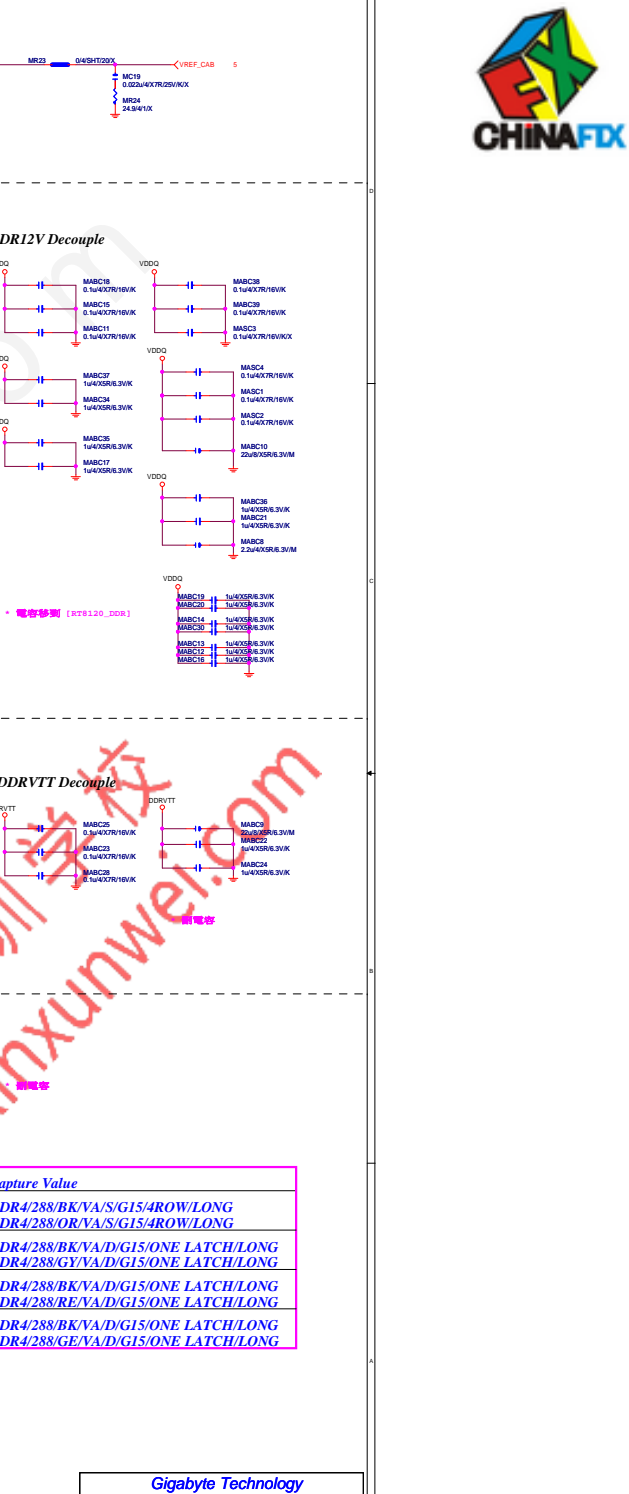
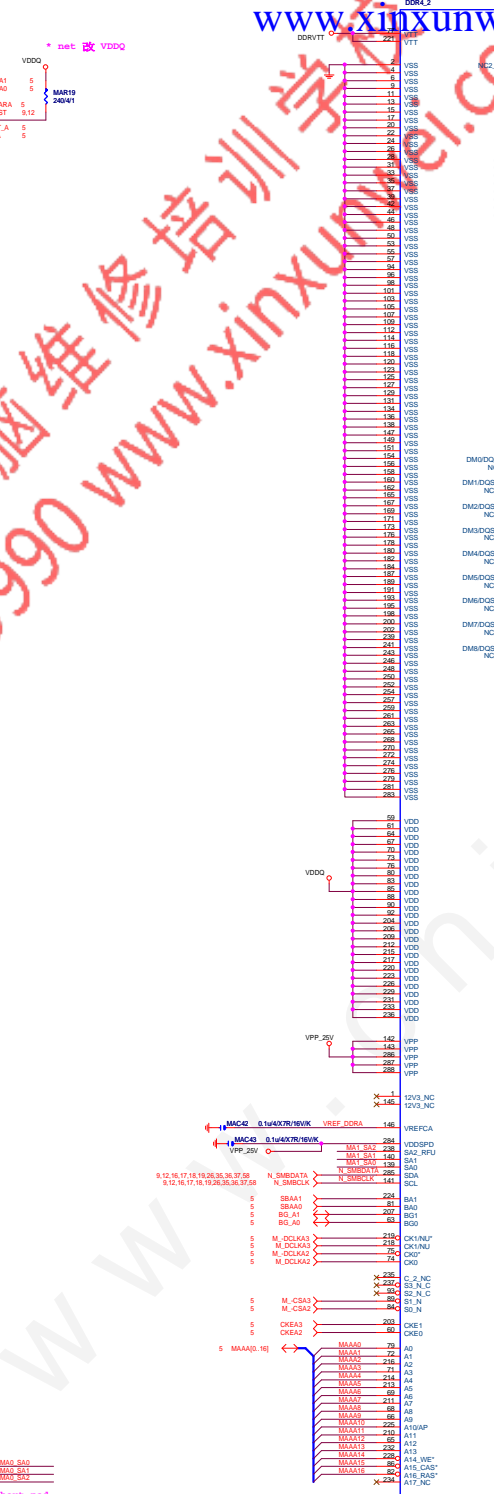






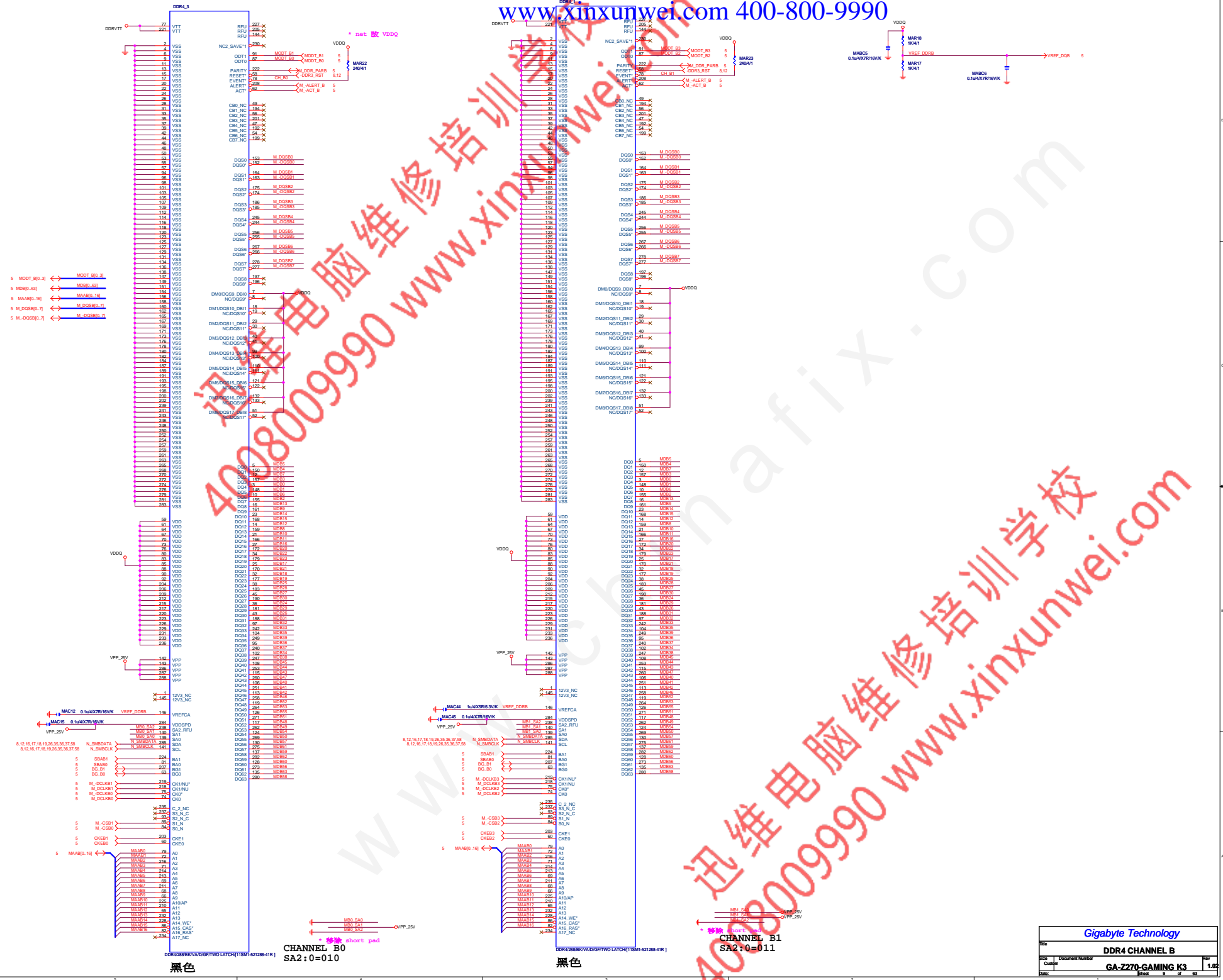
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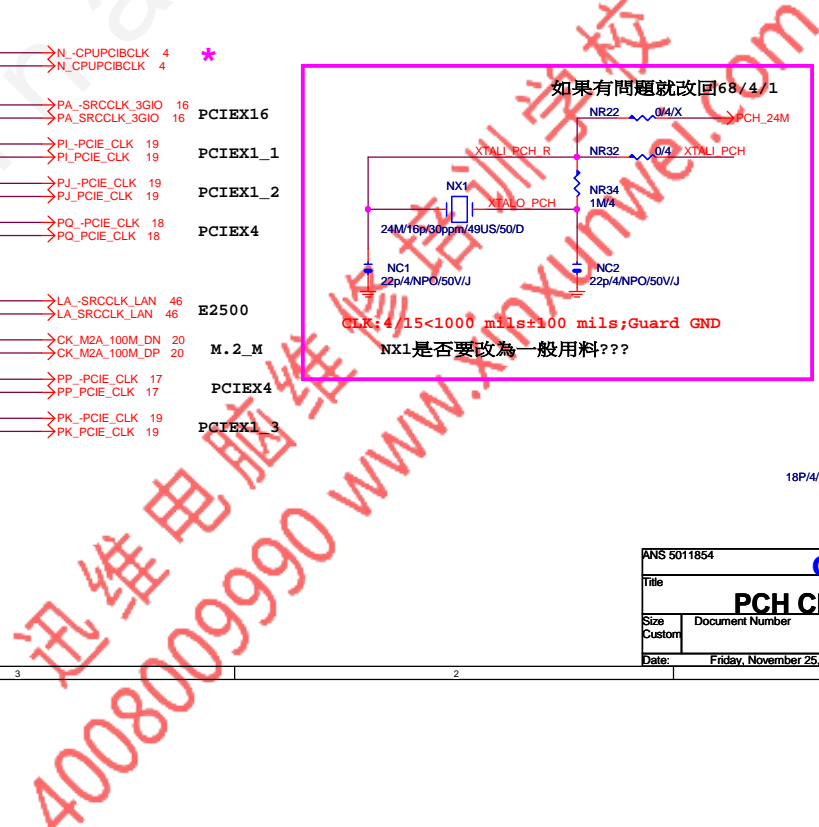




DDR4	Capture Value
SOC series	黑色 DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	黑色 DDR4/288/BK/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
GL.Sniper	黑色 DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG

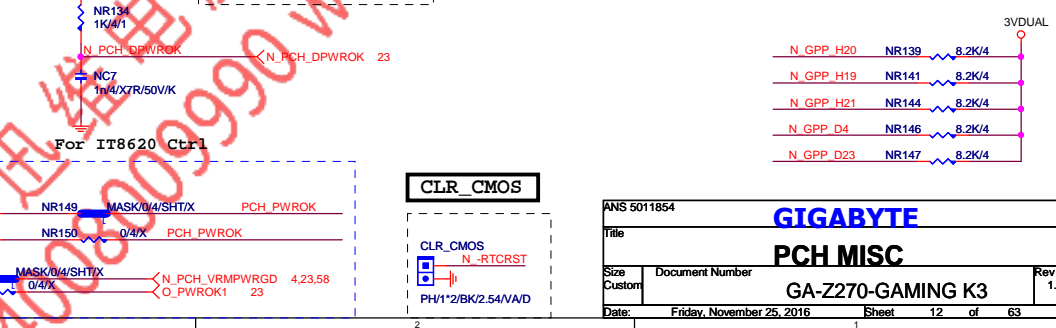
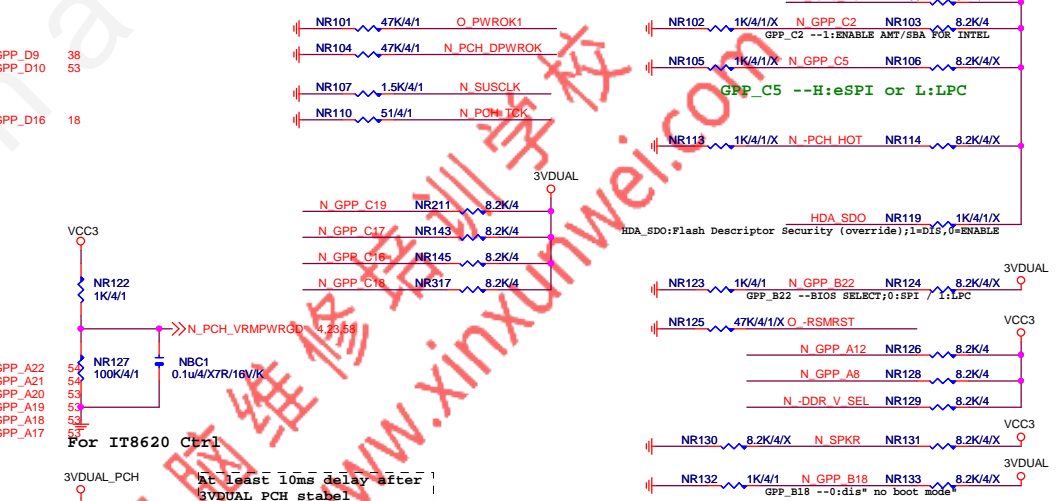
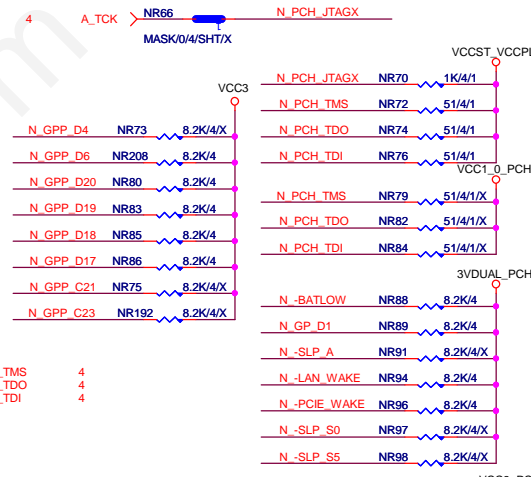










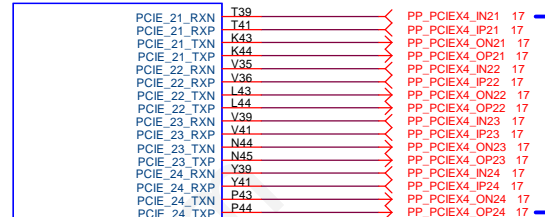
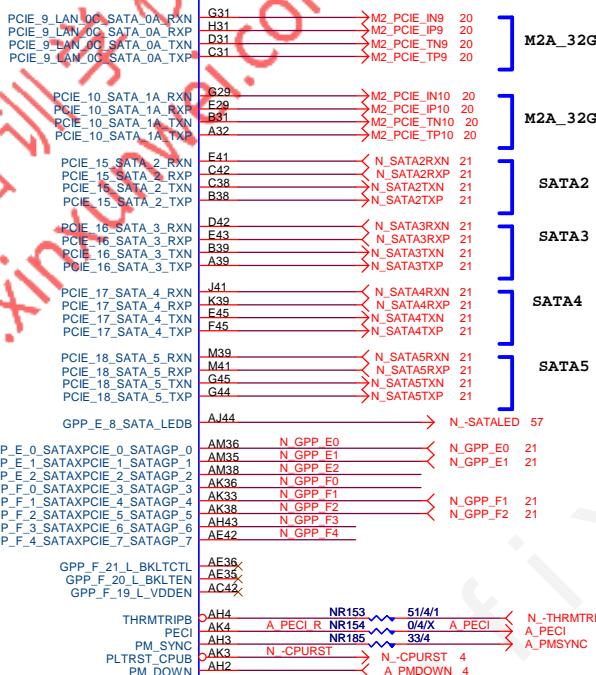




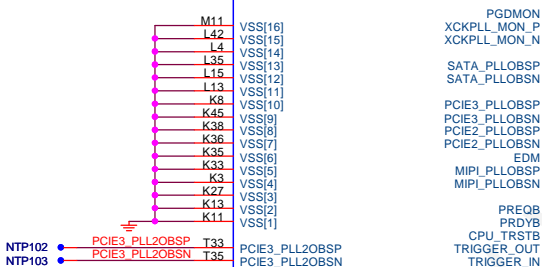
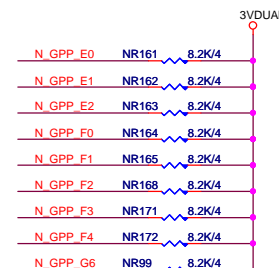
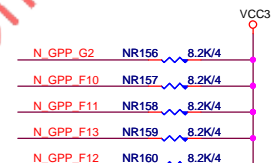


PCIE X4

PCHM

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GL82Z270/S/SR2WB(10HB1-03Z270-20R)3 of 13  
GL82Z270/S/SR2WB(10HB1-03Z270-20R)

PCHJ

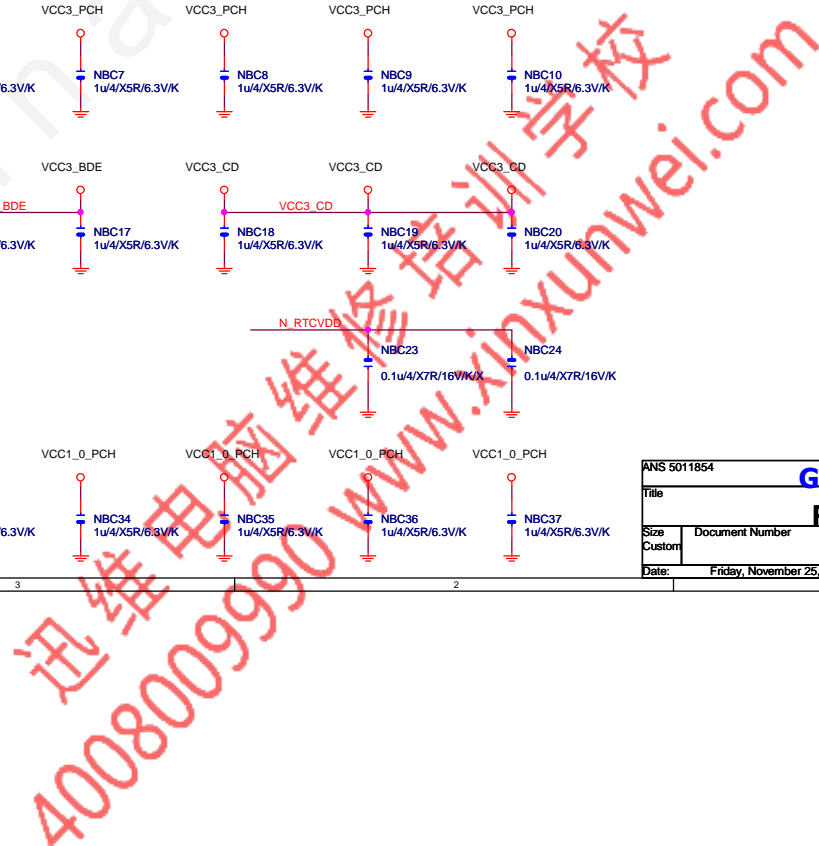
10 of 13  
GL82Z270/S/SR2WB(10HB1-03Z270-20R)

ANS 5011854

GIGABYTE

Title  
PCH SATA, PCIE, SATA EXPRESSSize Custom Document Number  
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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	AH30
G4	VSS	AH32
G40	VSS	AH33
G42	VSS	AH38
F6	VSS	AJ1
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	AN14
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	

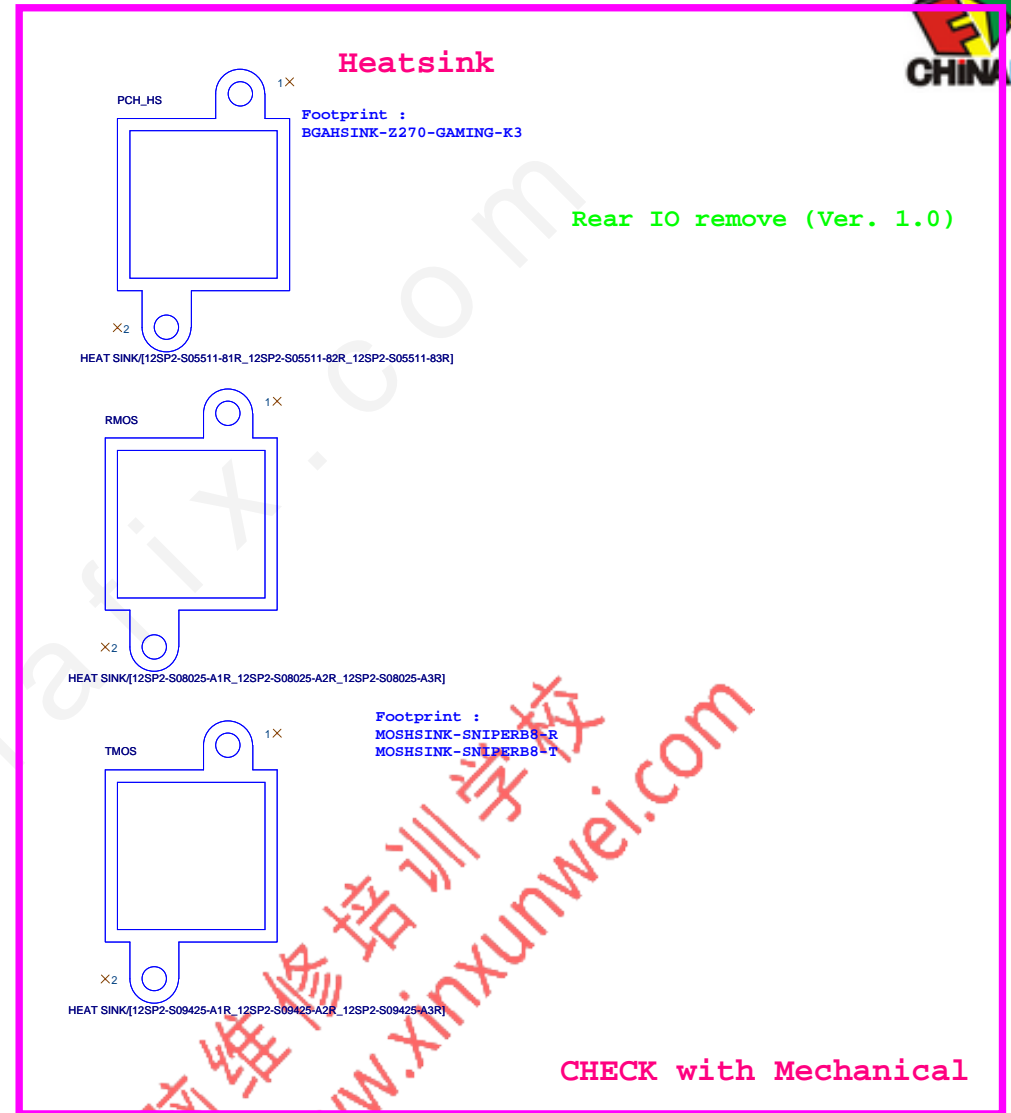
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GL82Z270/S/SR2WB[10HB1-03Z270-20R]

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]	AC11
BG32	VSS[79]	AC14
BG37	VSS[80]	AC16
BG40	VSS[81]	AC38
BG9	VSS[82]	AC4
C1	VSS[83]	AC5
A12	VSS[84]	AC7
C2	VSS[85]	AC8
A6	VSS[86]	AD1
AG	VSS[87]	AD18
AG32	VSS[88]	AD20
D1	VSS[89]	AD21
D10	VSS[90]	AD25
D12	VSS[91]	AD29
D15	VSS[92]	AD45
D16	VSS[93]	AE11
D19	VSS[94]	AE14
D21	VSS[95]	AE32
D24	VSS[96]	AE33
D25	VSS[97]	AE38
D29	VSS[98]	AK29
D30	VSS[99]	AK30
D33	VSS[100]	AK32
D35	VSS[101]	AK35
D36	VSS[102]	AK39
D39	VSS[103]	AL4
D44	VSS[104]	AL42
D7	VSS[105]	AM10
P13	VSS[106]	AM11
P15	VSS[107]	AM13
P17	VSS[108]	AM17
P19	VSS[109]	AM19
P31	VSS[110]	AM24
P33	VSS[111]	AM27
P35	VSS[112]	AM29
P4	VSS[113]	AM32
P42	VSS[114]	AM33
P8	VSS[115]	AM4
R1	VSS[116]	AN45
R32	VSS[117]	AP10
T10	VSS[118]	AP11
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]	
AT42	VSS[143]	A44
AU11	VSS[144]	BE1
AU17	VSS[145]	BD1
BD30	VSS[146]	B1
W45	VSS[147]	B2
Y13	VSS[148]	B15
Y14	VSS[149]	B2
Y30	VSS[150]	A3
Y32	VSS[151]	A4
Y33	VSS[152]	B44
BG14	VSS[153]	B45

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GL82Z270/S/SR2WB[10HB1-03Z270-20R]



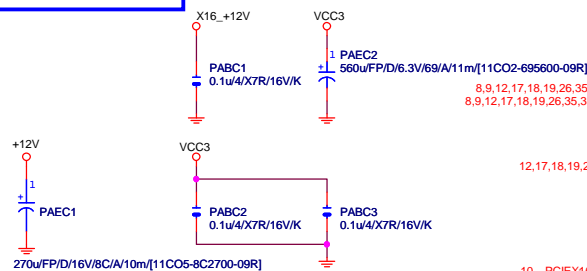
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PCIEX16 CAP

PCIEX16 SLOT

www.xinxiunwei.com 400-800-9990

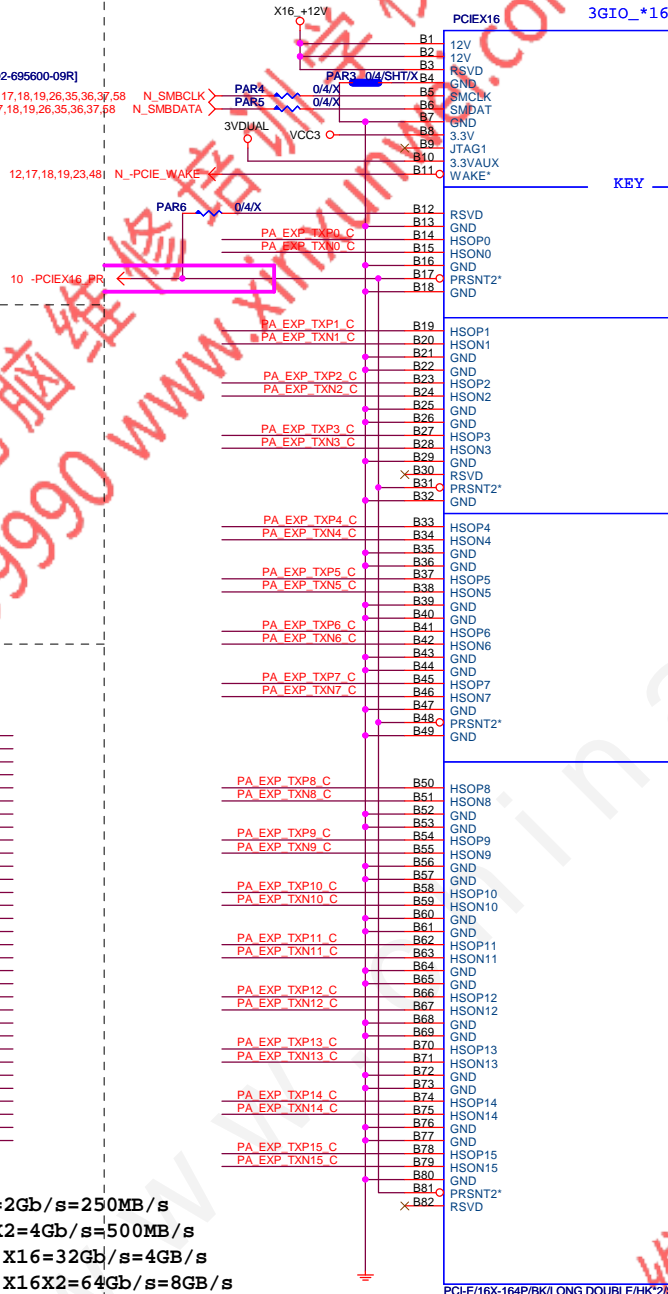


PCIEX16 PROTECT SHT

+12 protect short-wire test

PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u/4X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u/4X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u/4X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u/4X5R/6.3V/K	PA EXP TXP2 C
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PA EXP TXP3	PAC10	0.22u/4X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u/4X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u/4X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u/4X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u/4X5R/6.3V/K	PA EXP TXP5 C
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PA EXP TXN7	PAC19	0.22u/4X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC21	0.22u/4X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC20	0.22u/4X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u/4X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u/4X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u/4X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u/4X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u/4X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u/4X5R/6.3V/K	PA EXP TXN11 C
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PA EXP TXP13	PAC30	0.22u/4X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u/4X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u/4X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u/4X5R/6.3V/K	PA EXP TXN14 C
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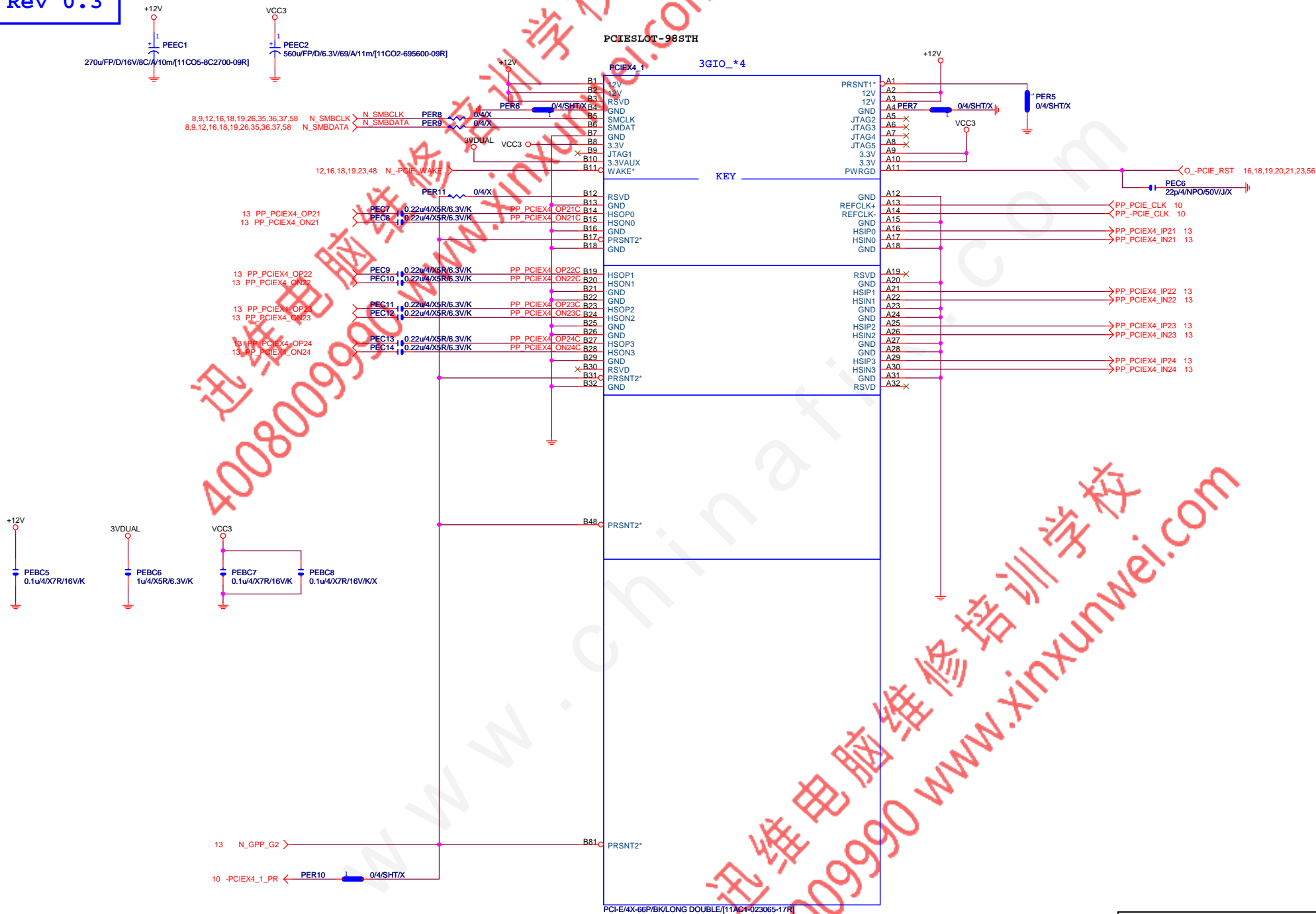
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PCI EXPRESS \* 16

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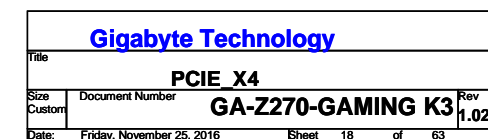




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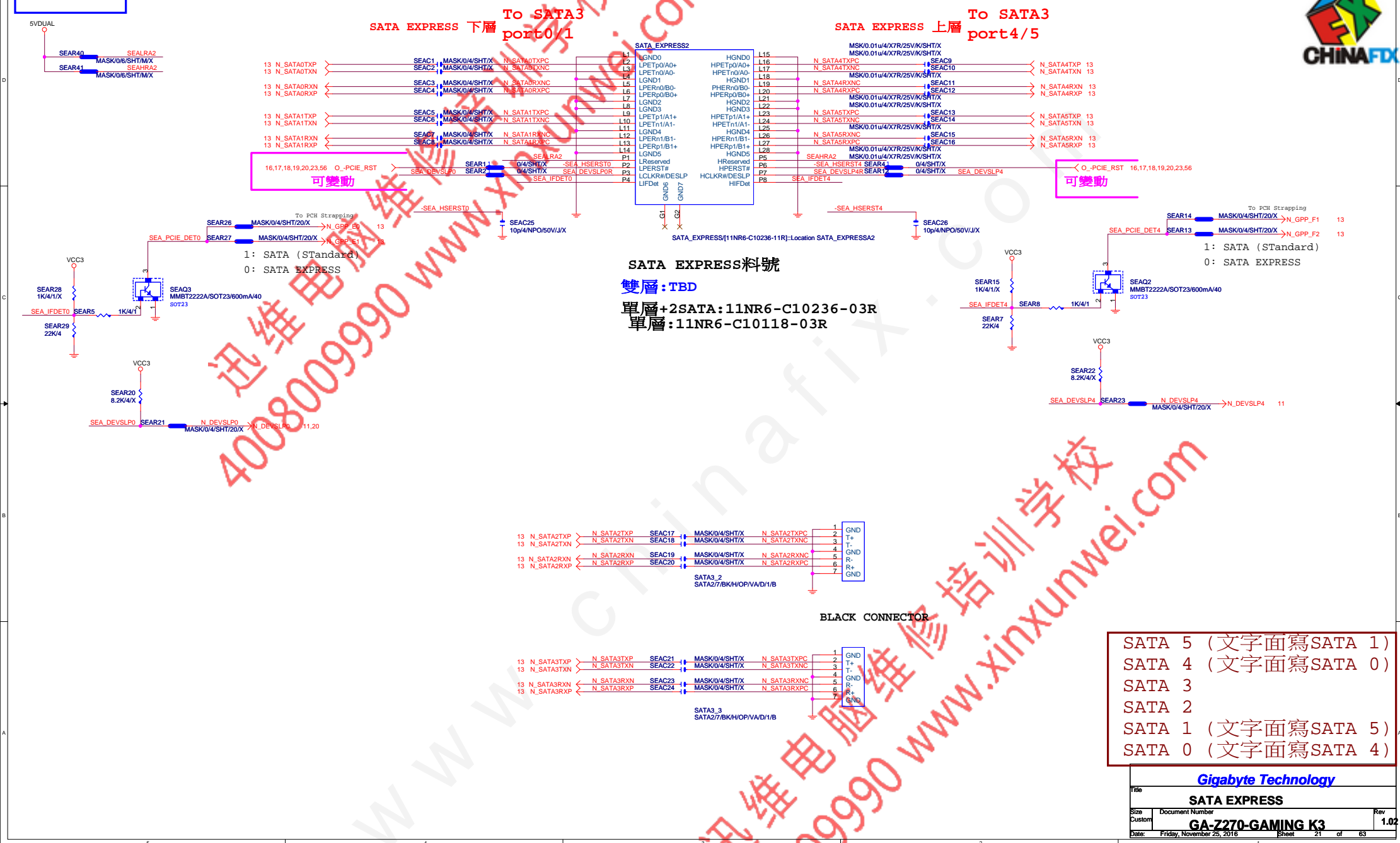


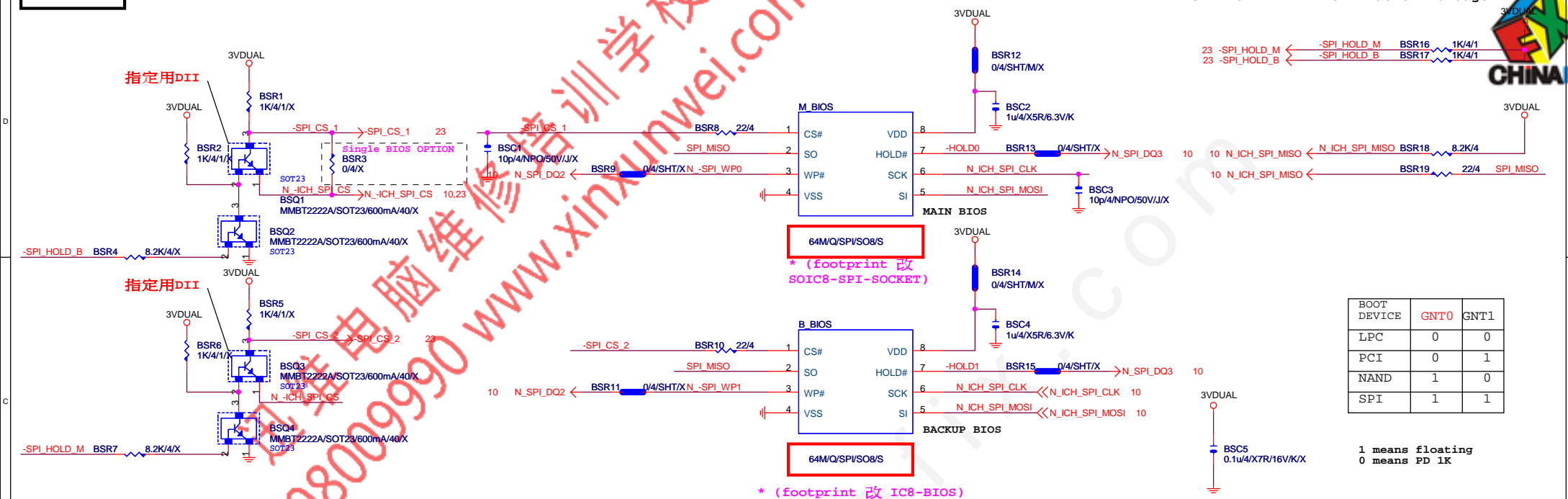
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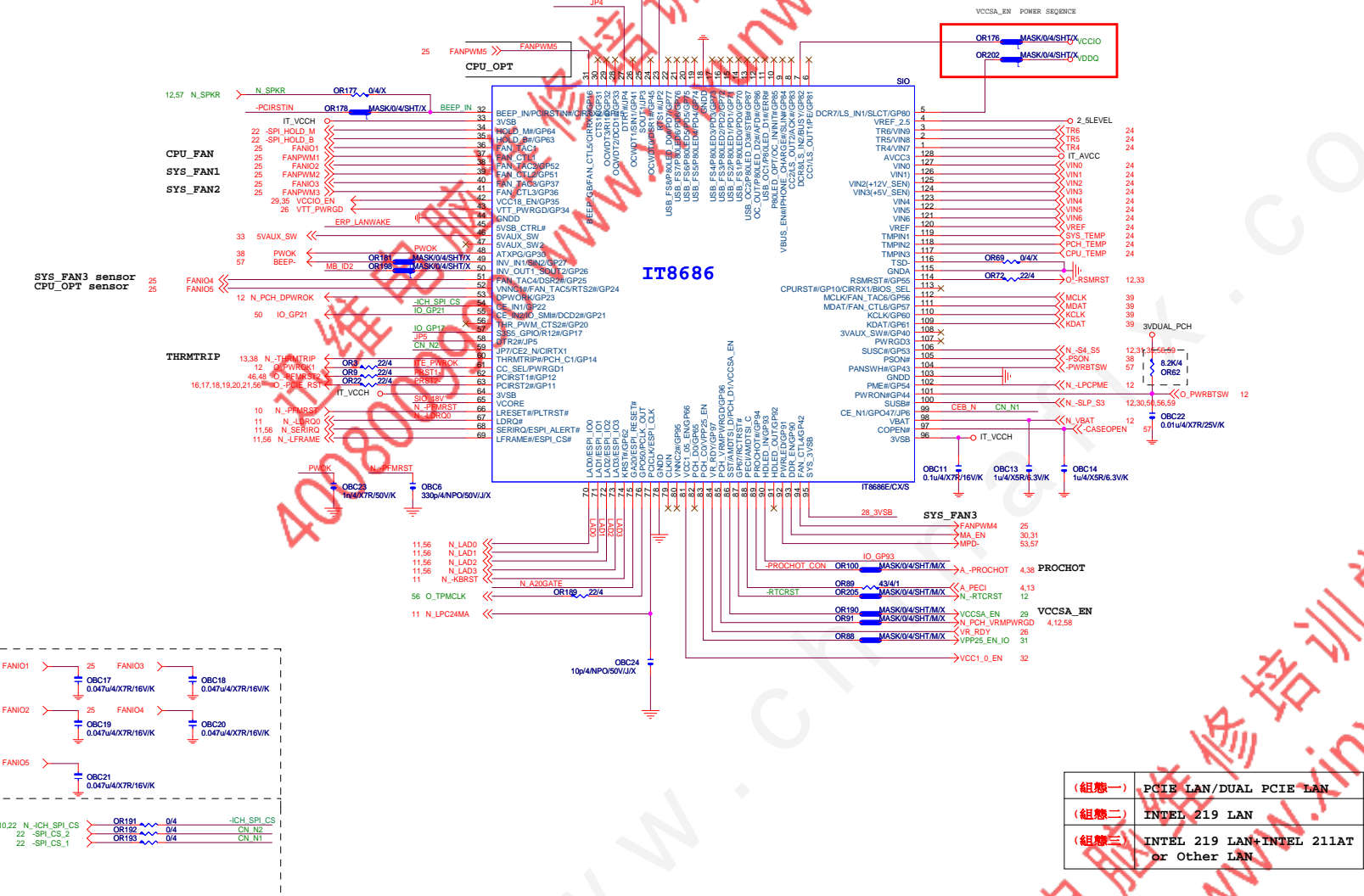






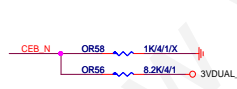
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FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTrip	PIN56
PROCHOT	PIN89

DUAL BIOS OPT STRAP



Placement CPU  
4 A.-THRMTrip <WR10 1K/41 N.-THRMTrip  
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\_18V

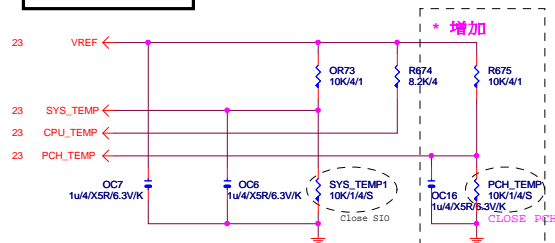


for LPC/eSPI power mode

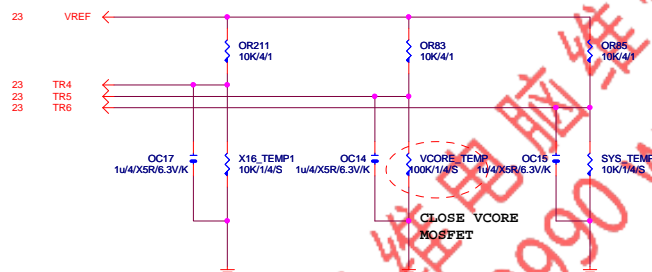
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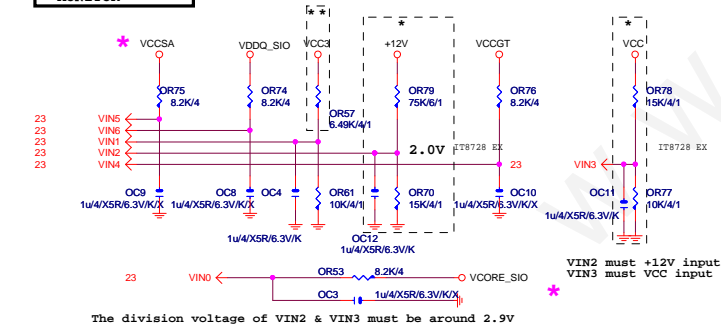
# TEMP H/W MONITOR



## 5個FAN時使用



# VOLTAGE-- H/W MONITOR

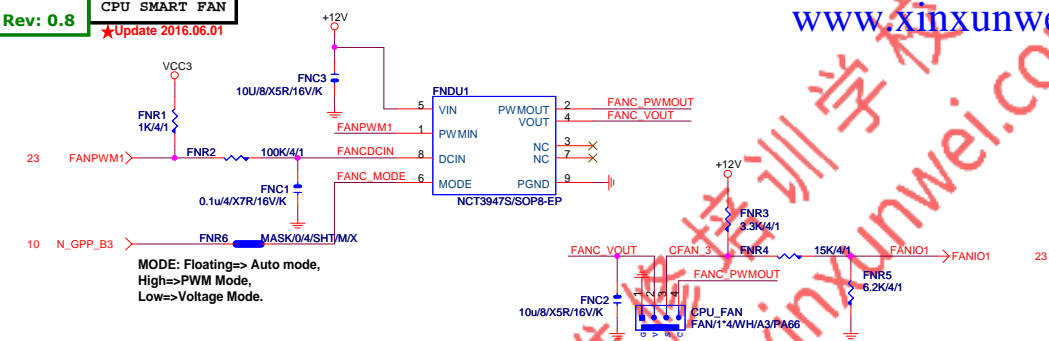


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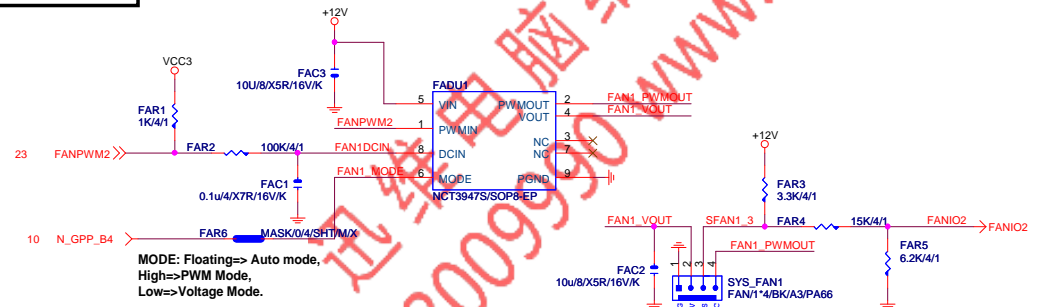
## Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL
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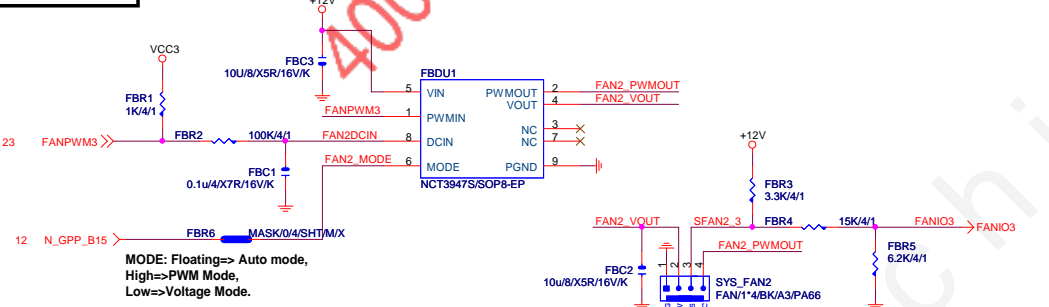




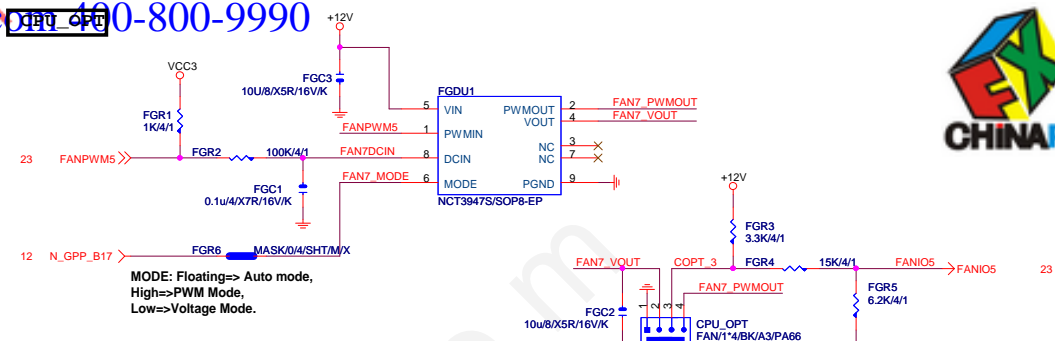
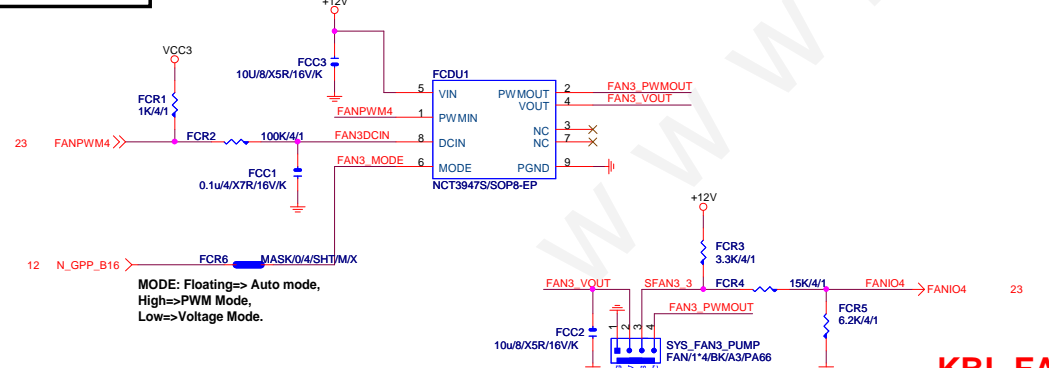
SYSTEM FAN1



SYSTEM FAN2



SYSTEM FAN3

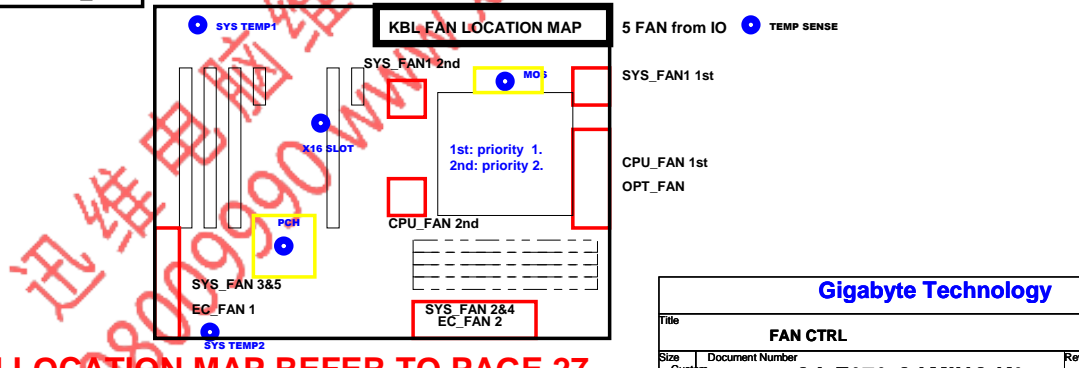


CPU\_PUMP1

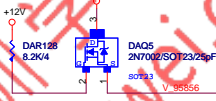
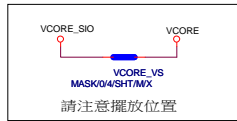
CPU\_PUMP2



SYSTEM\_FAN4

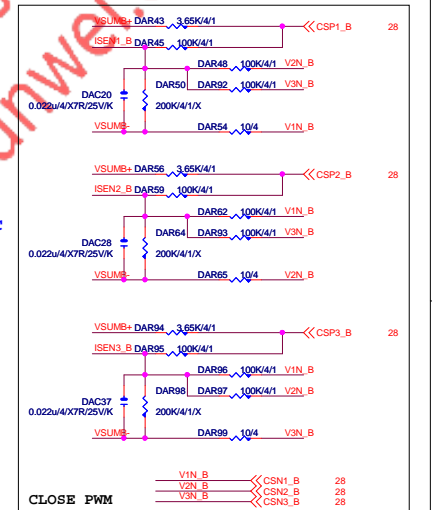
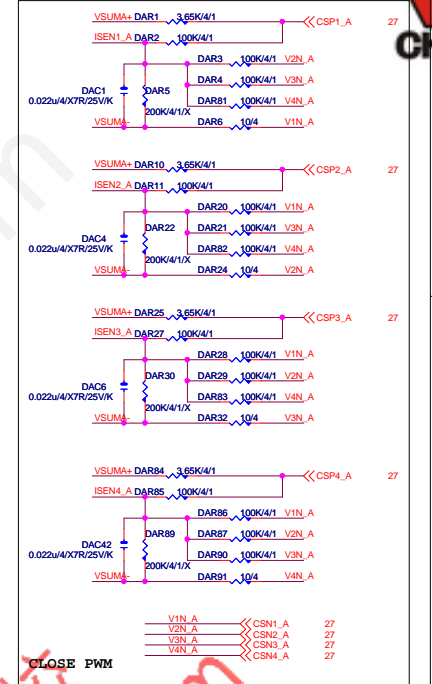
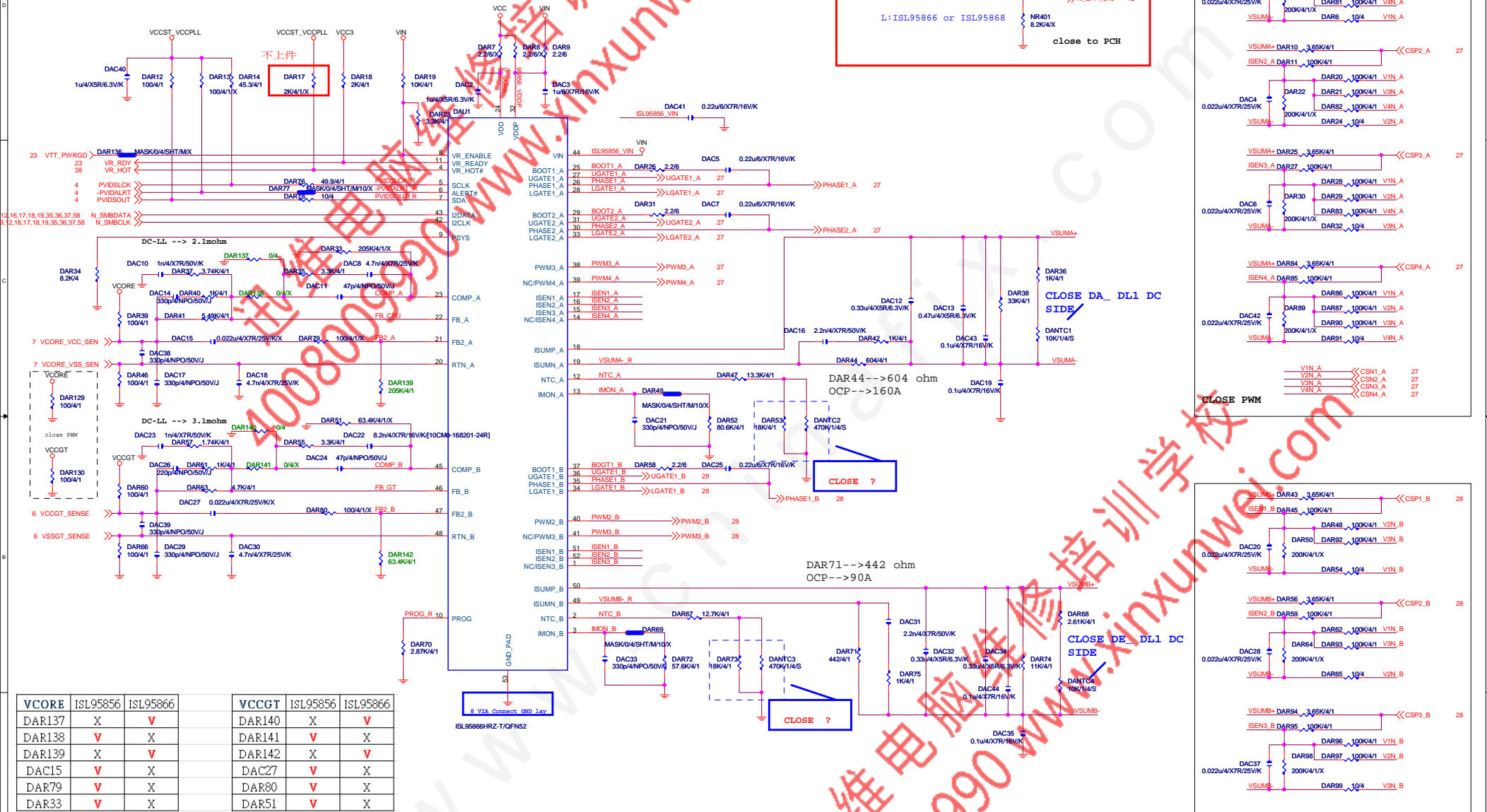


**KBL FAN LOCATION MAP REFER TO PAGE.27**



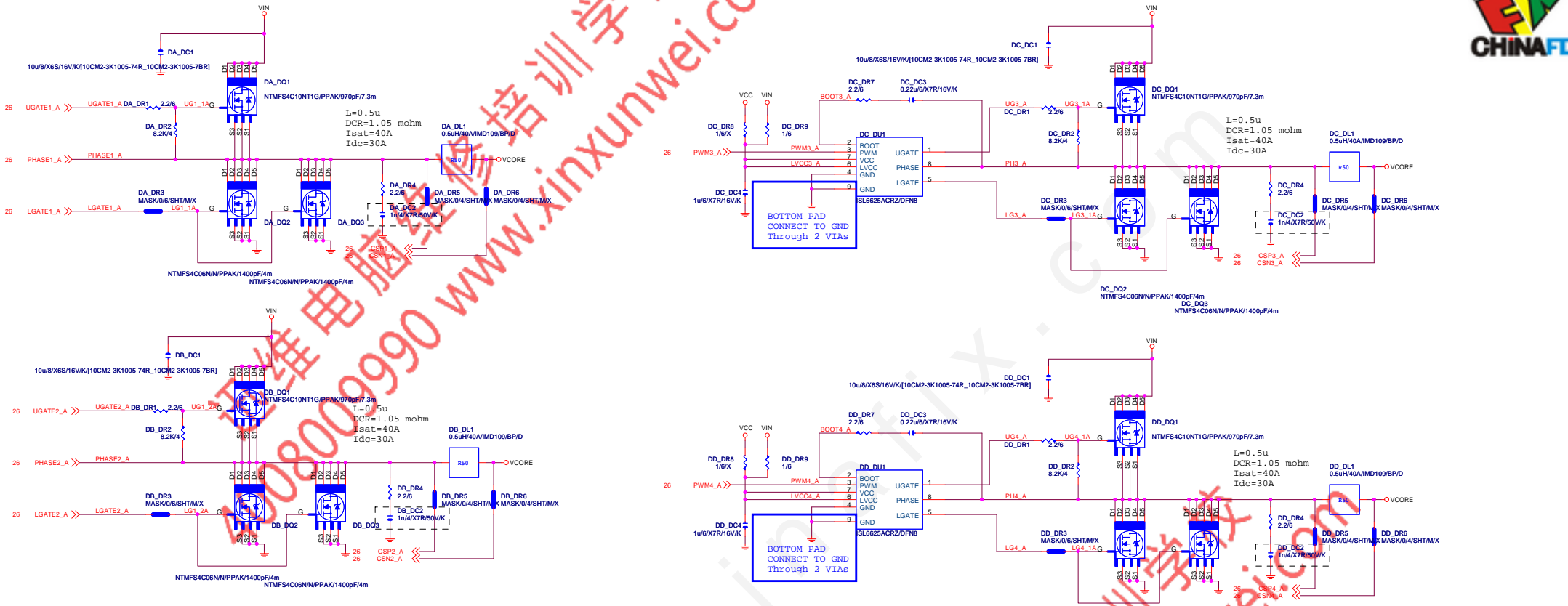
H: ISL95856 or ISL95858  
L: ISL95866 or ISL95868

close to PCH

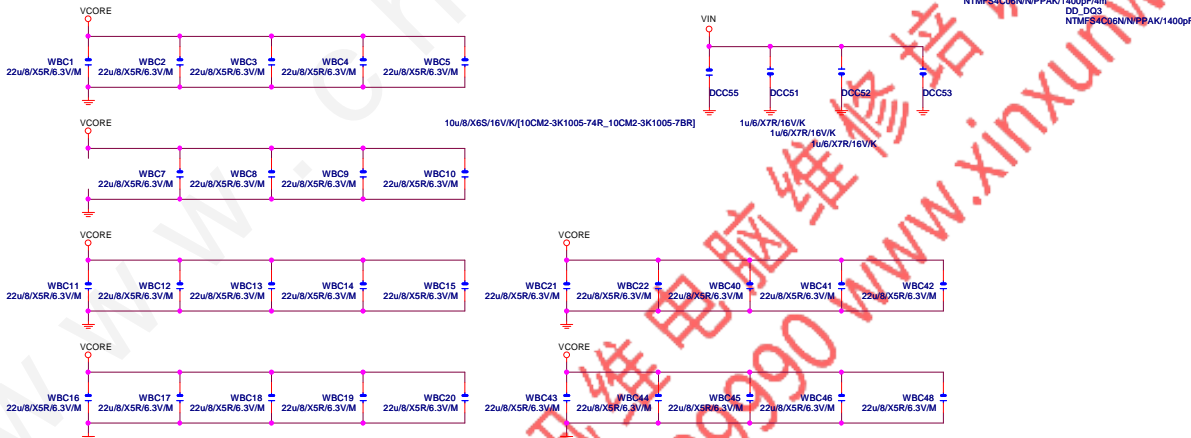
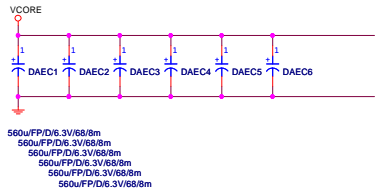




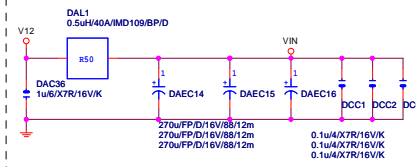
VCORE



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



VIN CAP 270u\*3PCS

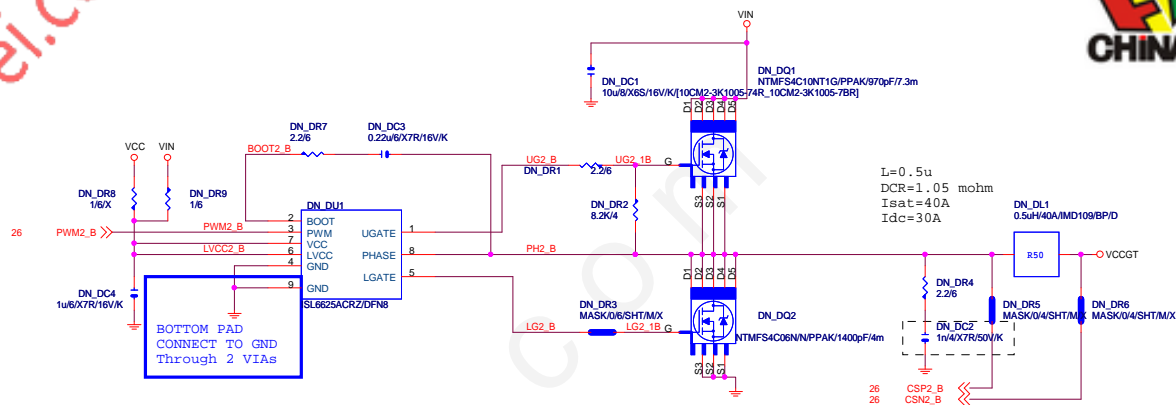
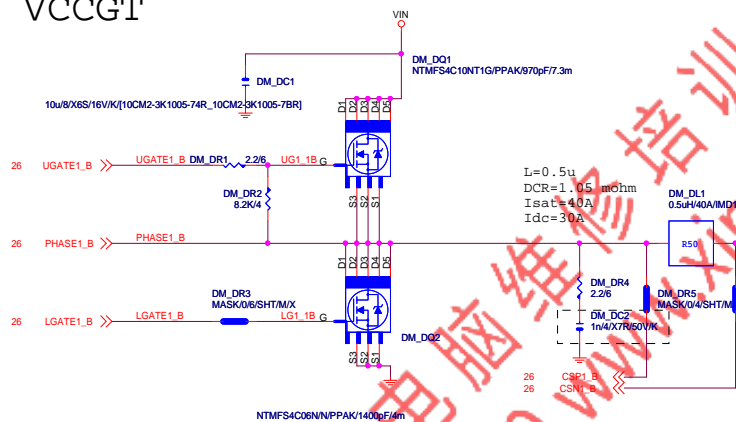
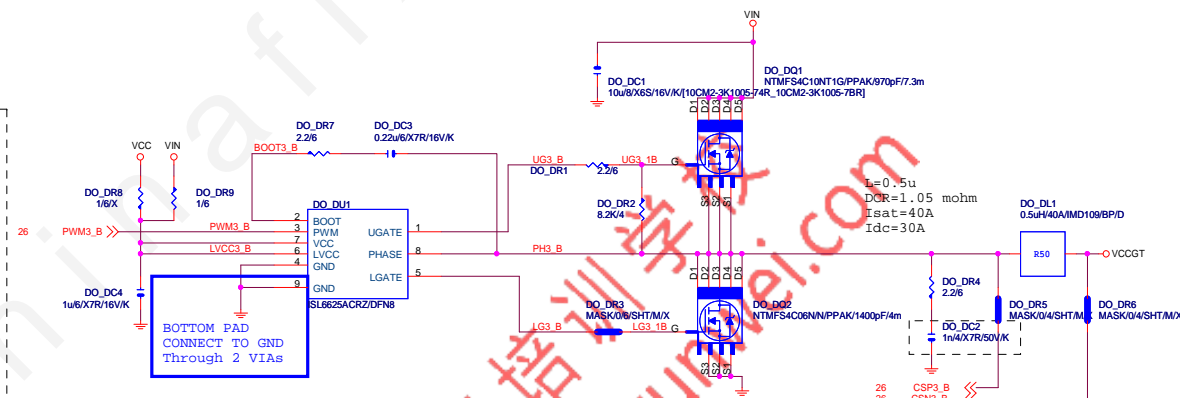
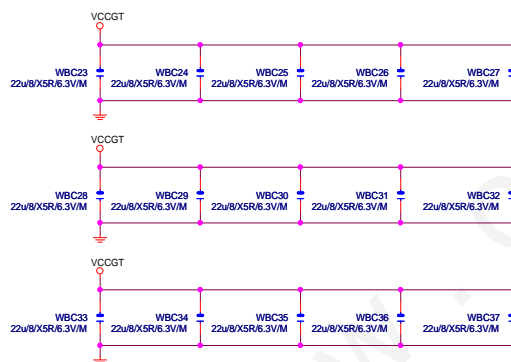
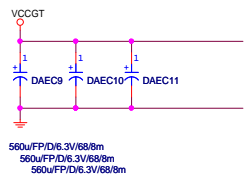


**GIGABYTE**

Title: ISL95866 MOS		
Size: Custom	Document Number: GA-Z270-GAMING K3	Rev: 1.02
Date: Friday, November 25, 2016 Sheet 27 of 63		

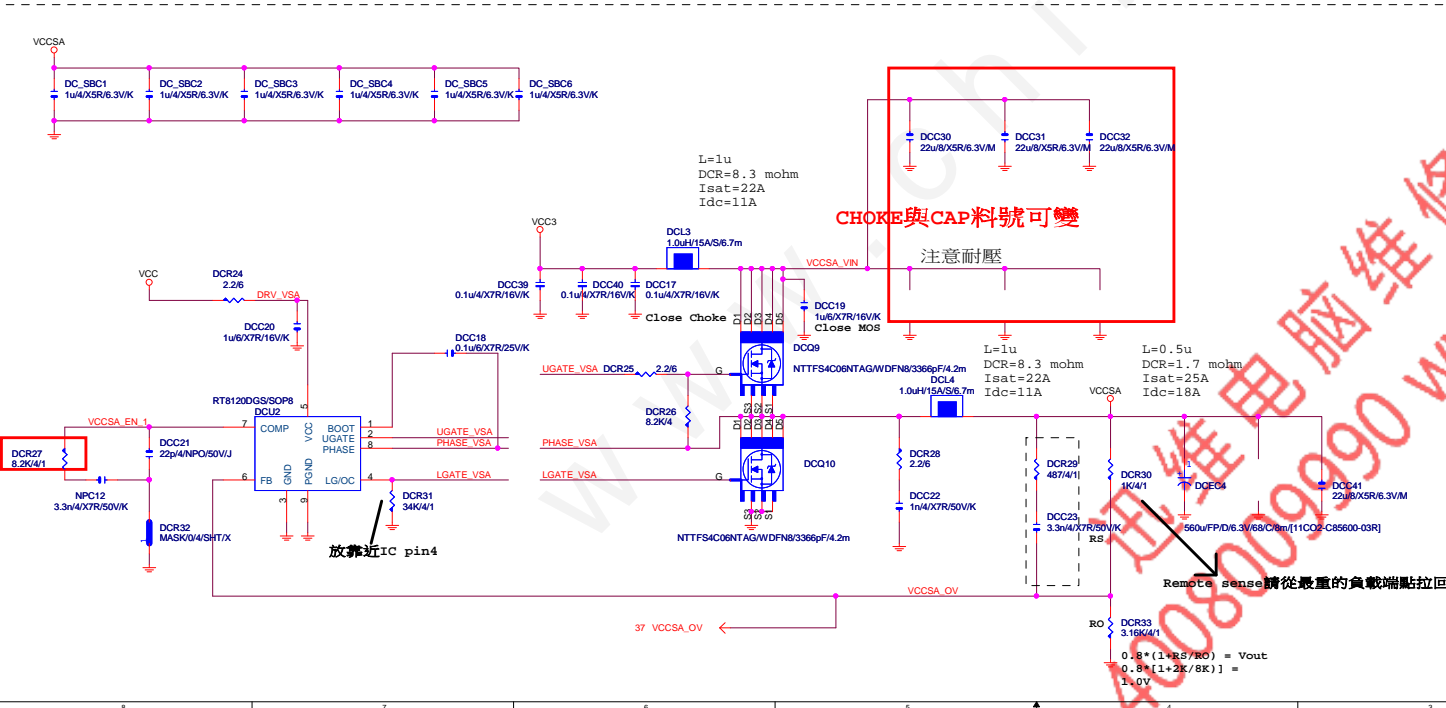
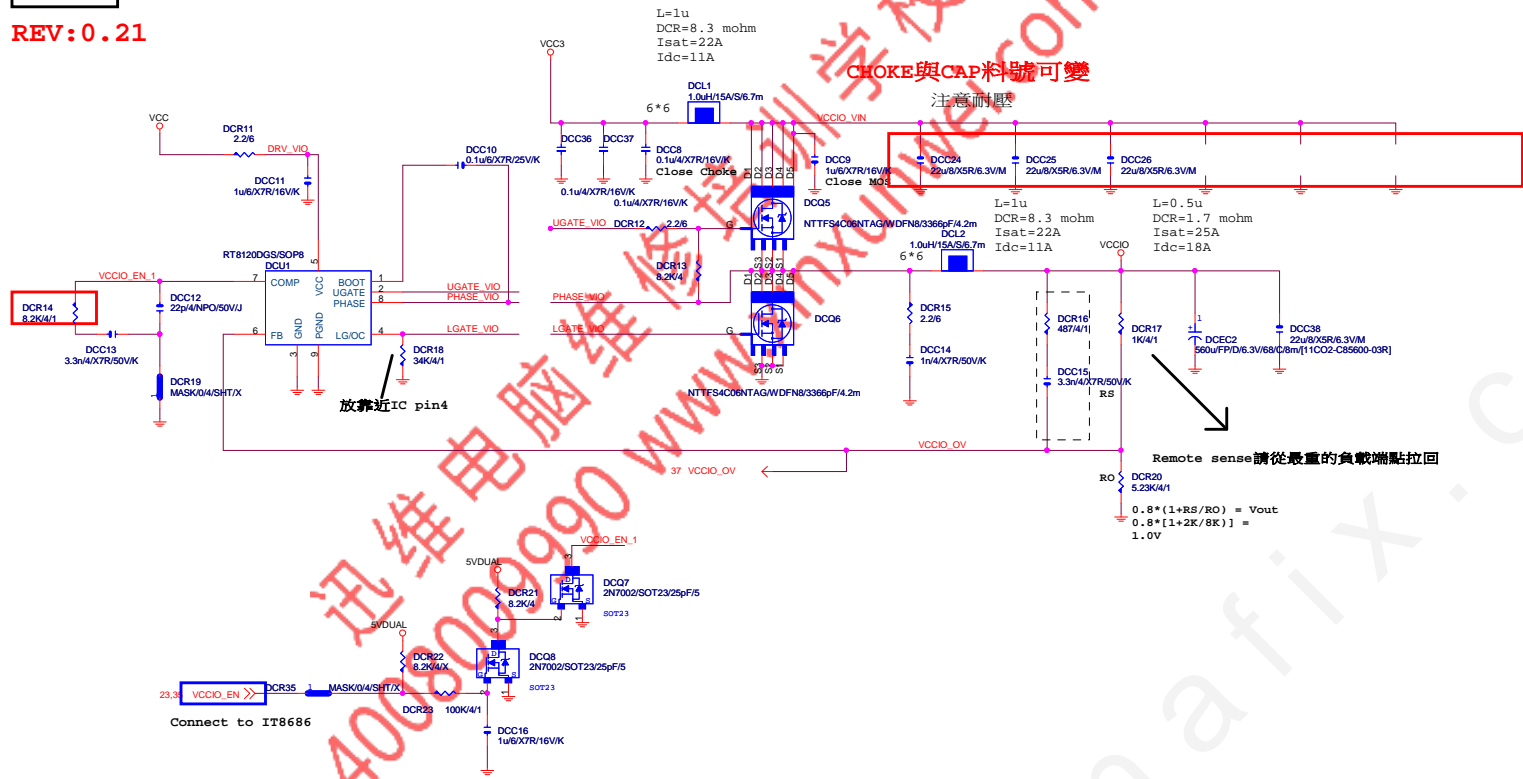


## VCCGT

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

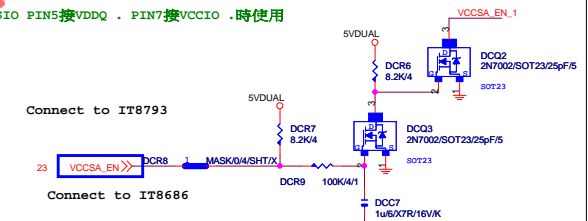
GIGABYTE™			
Title	ISL95866_MOS		
Size	Document Number	Rev	
Custpm	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	28 of 63





SIO PIN5 . PIN7 用在其他function時使用

SIO PIN5接VDDQ . PIN7接VCCIO .時使用



GIGABYTE™			
File	VCCIO_VCCSA		
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	29 of 63



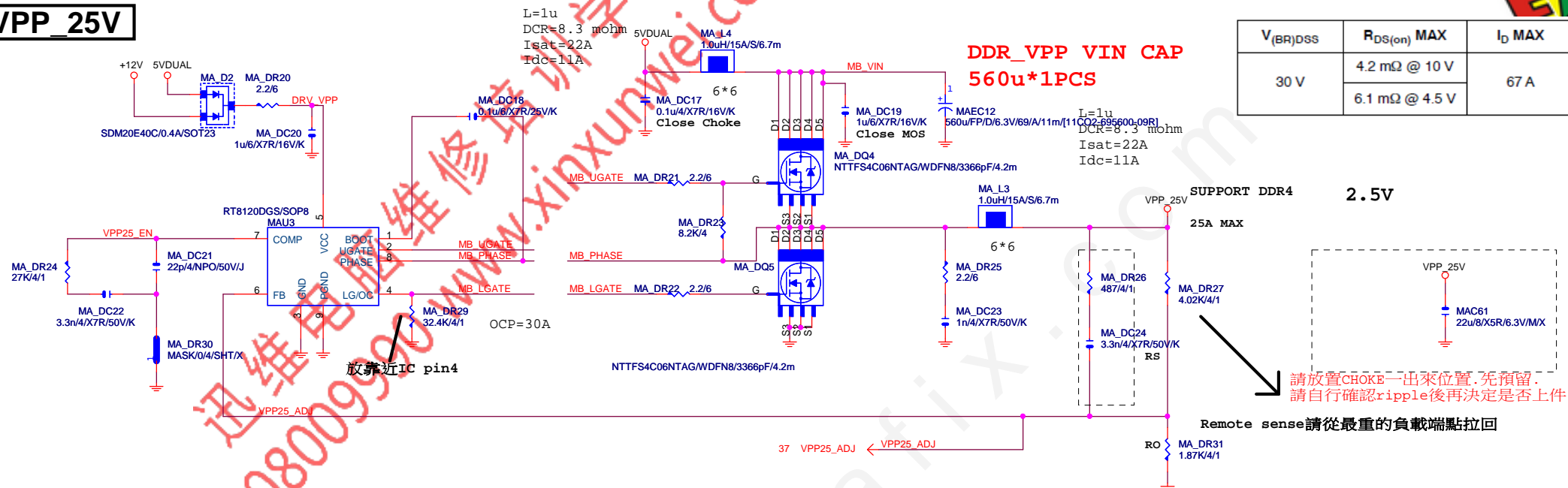
REV:0.1

www.xinxunwei.com 400-800-9990

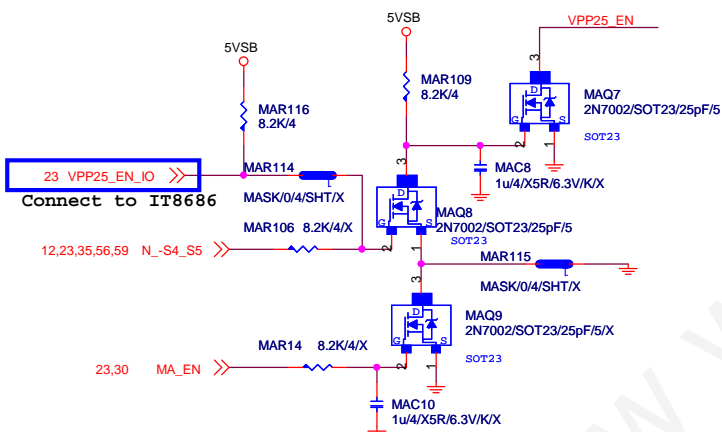
CHOKE與CAP料號可變



VPP\_25V



PWR\_SEQ



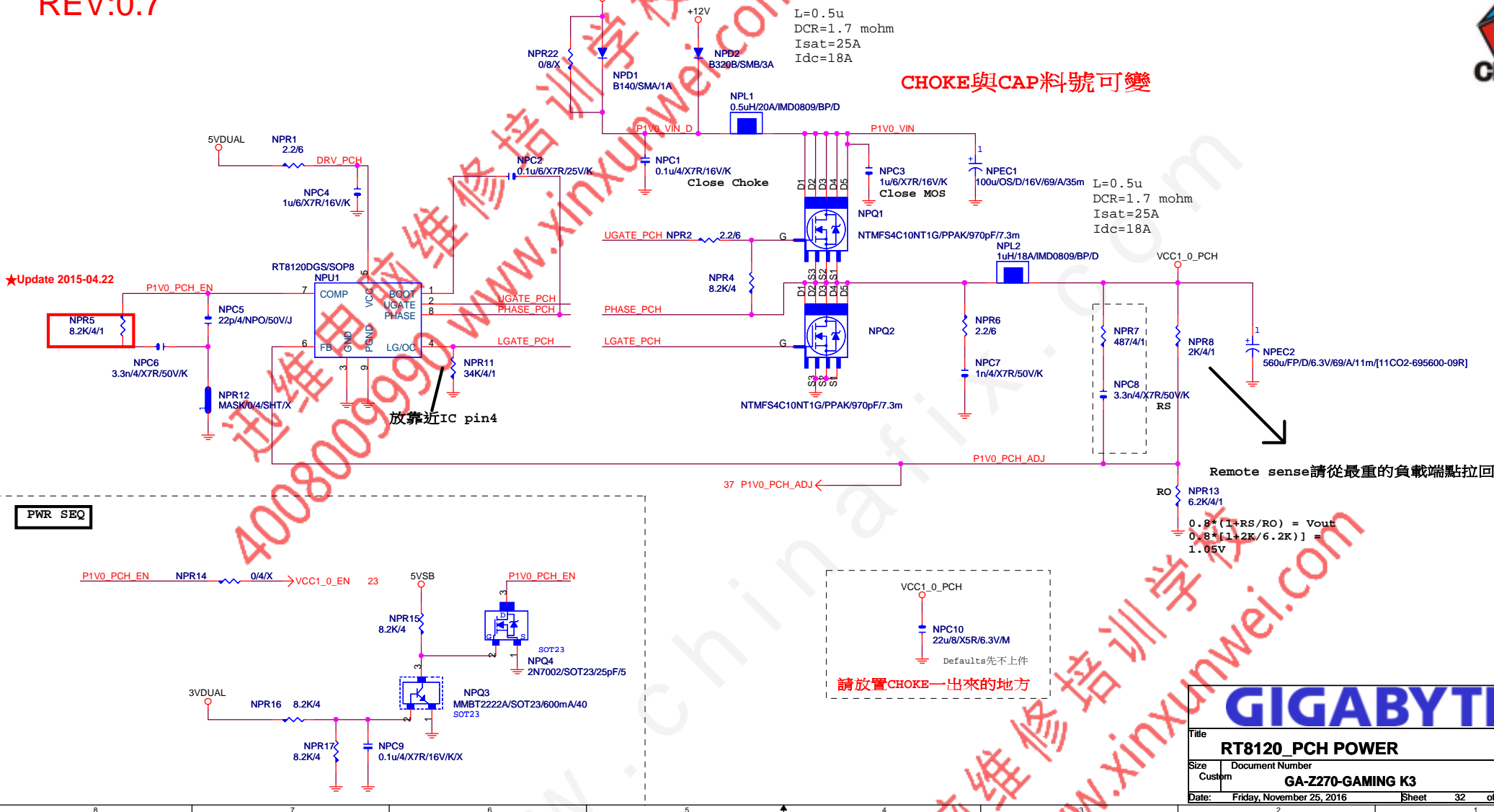
VPP CAP 560u\*1PCS

\* 大電容 x1



GIGABYTE™

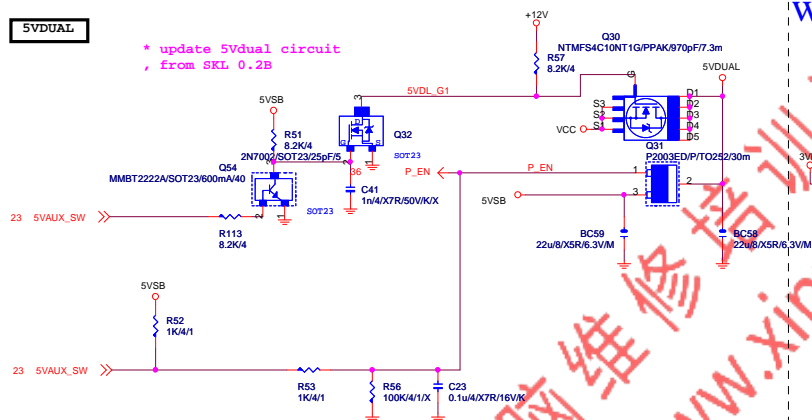
Title			
RT8120_VPP25 POWER			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	31 of 63



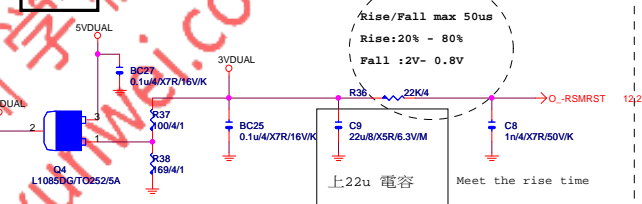


# 5VDUAL

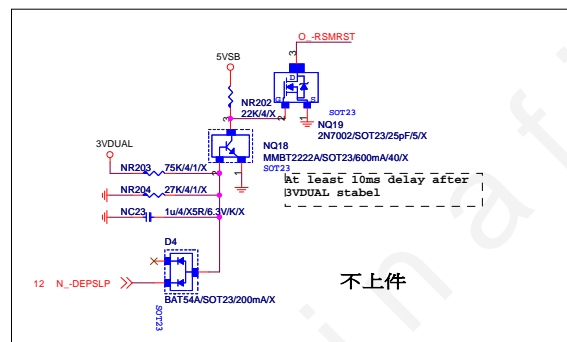
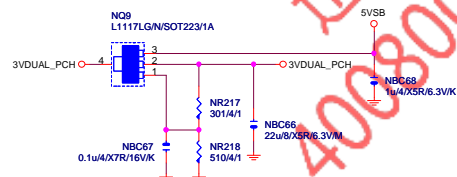
\* update 5VDual circuit  
from SKL 0.2B



# 3VDUAL



# 3VDUAL\_PCH



Gigabyte Technology

Title			
DISCRETE POWER			
Size	Document Number	GA-Z270-GAMING K3	Rev
Custom			1.02
Date:	Friday, November 25, 2016	Sheet	33 of 63



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

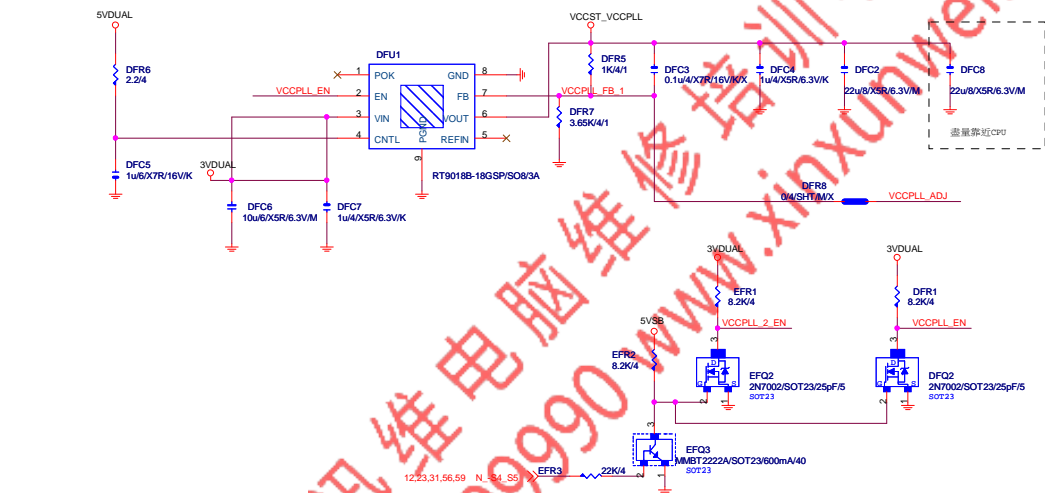
www.chinafix.com

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

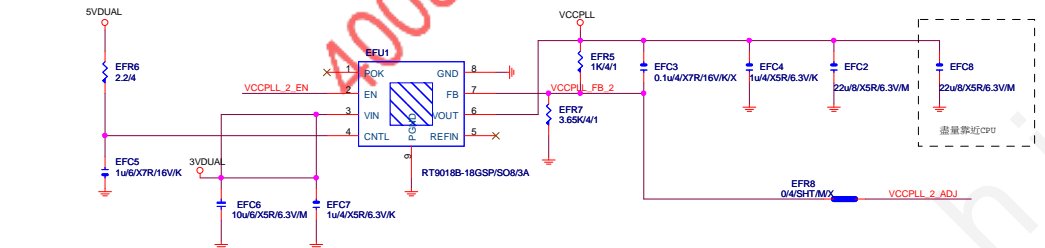
GIGABYTE			
Title			
PCH PWR-VCC18_PCH			
Size	Document Number		Rev
A	GA-Z270-GAMING K3		1.02
Date:	Friday, November 25, 2016	Sheet	34 of 63



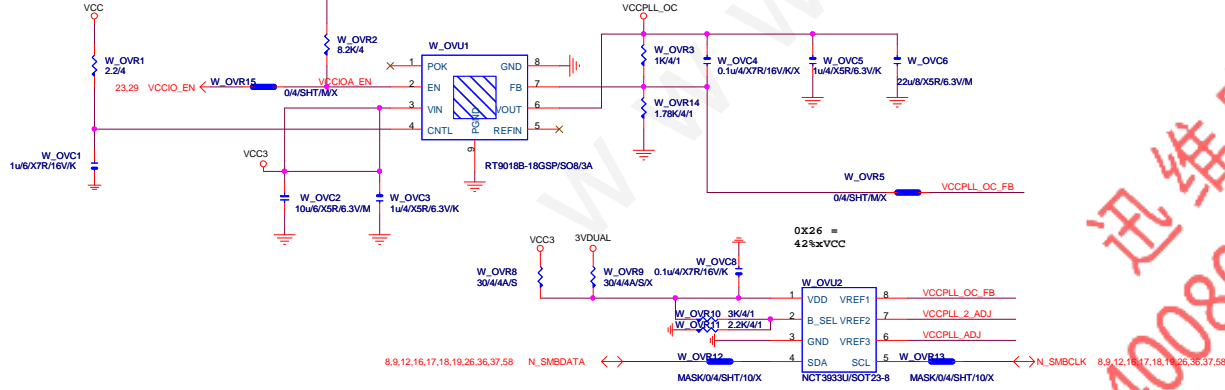
VCCST\_VCCPLL 替換原先MOS開關線路



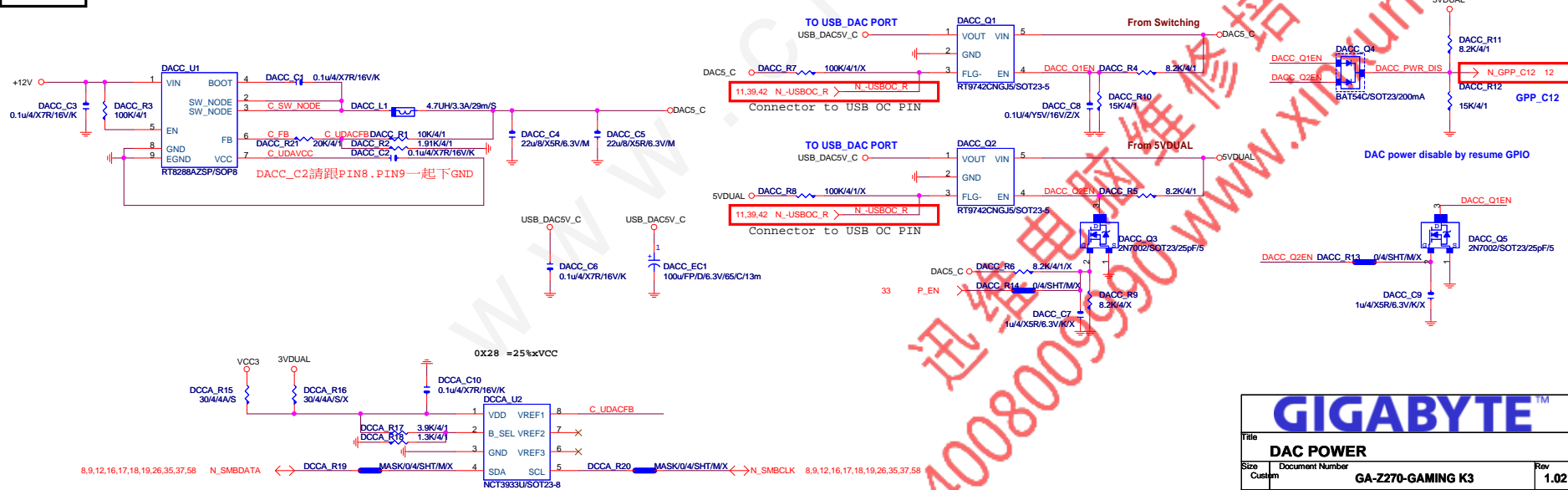
VCCPLL



VCCPLL\_OC



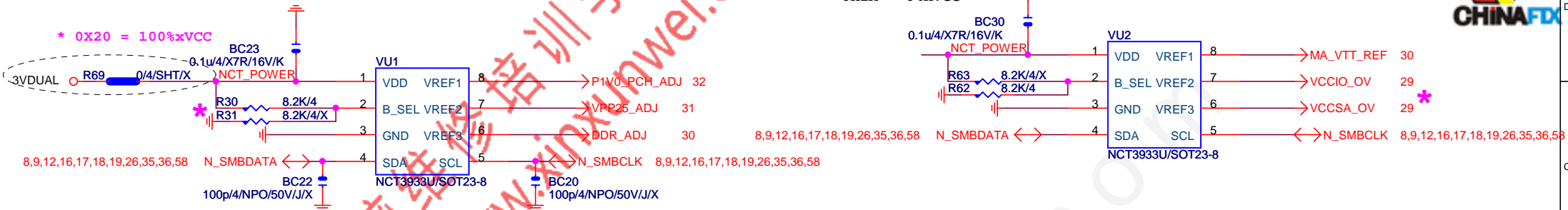
File		CPU POWER	
Size	Document Number	GA-Z270-GAMING K3	
Custom		Rev	1.02
Date	Friday, November 25, 2016	Sheet	35 of 63





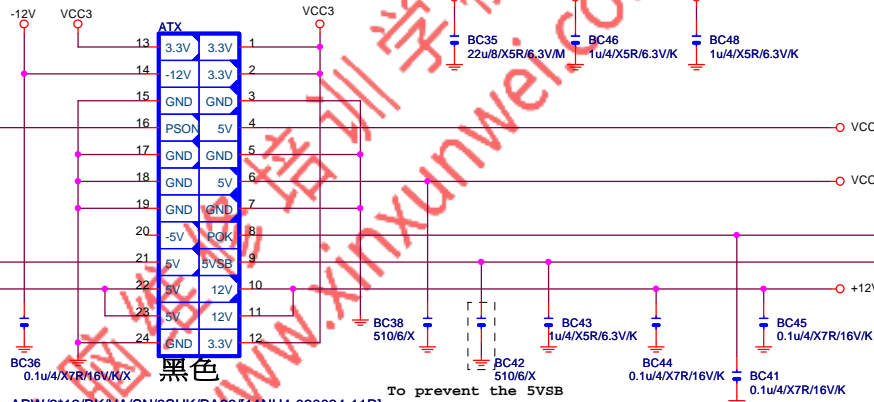
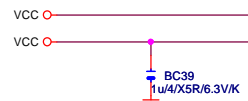


## OVER VOLTAGE



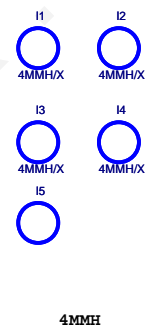
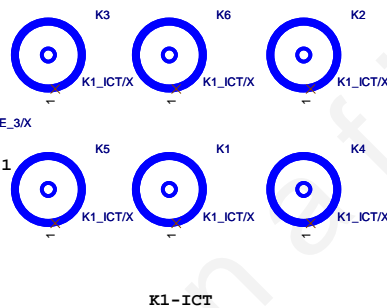
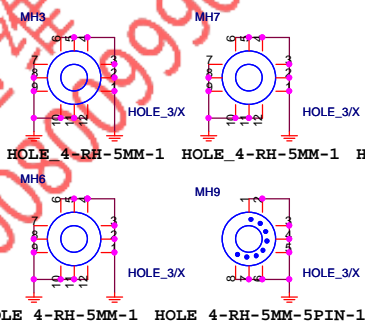
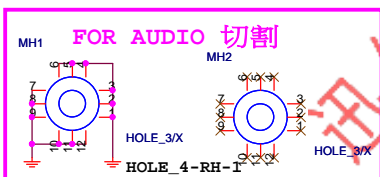
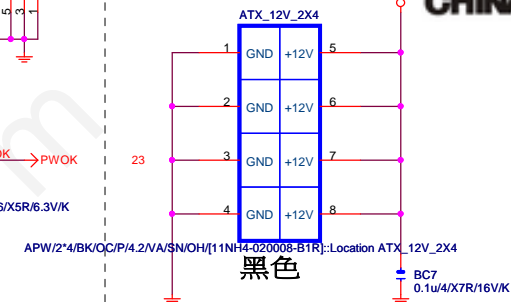
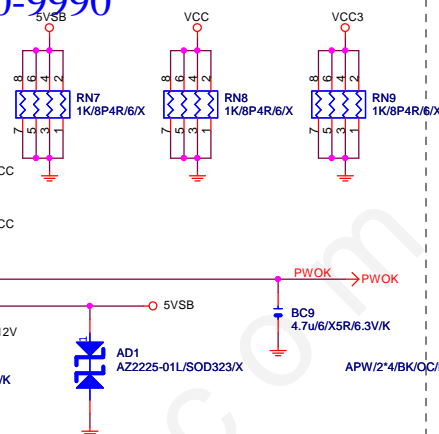
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology			
Title			
CPU CORE VR			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	37 of 63



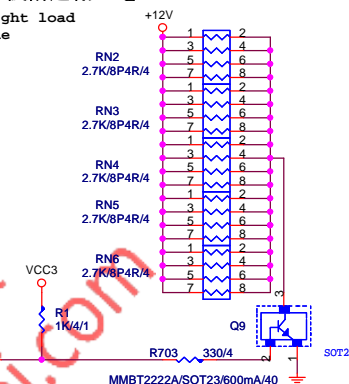
APW/2\*12/BK/VA/SN/2SHK/PA66/[11NH4-020024-11R]

To prevent the 5VSR  
under loading when  
boot - - - - -



【技術通報R&amp;D技術通報153】

To fix 12V light load  
abnromal issue



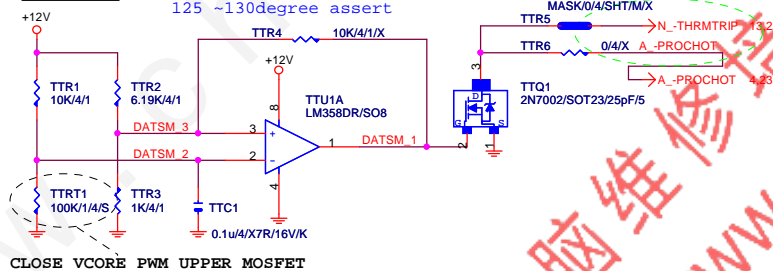
**-PROHOT** \* 保留？



**-PROHOT**

OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert

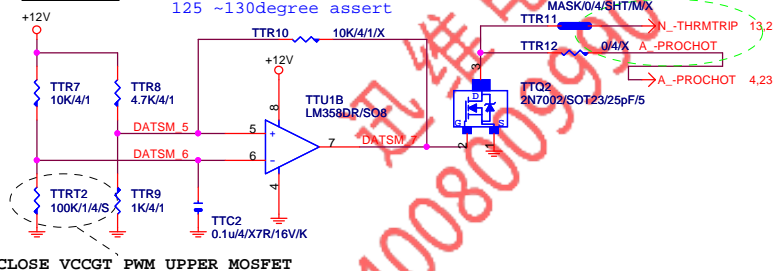


CLOSE VCORE PWM UPPER MOSFET

**-PROHOT**

OTP:130度 / PCB THERMAL TRIP:129 度

125 ~130degree assert

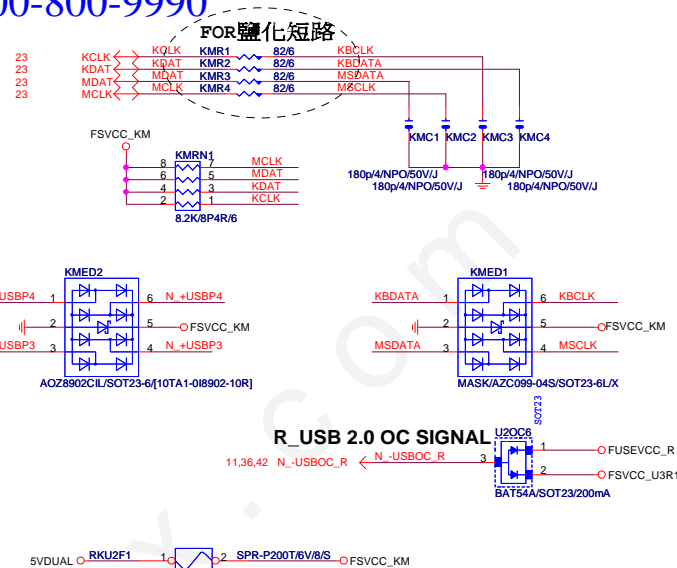
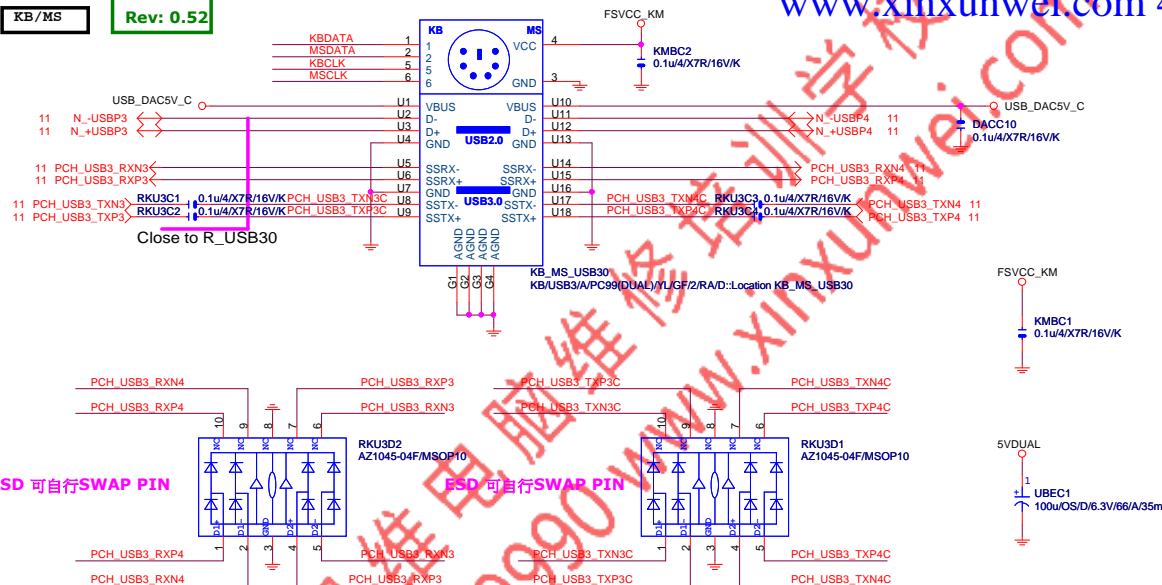


CLOSE VCCGT PWM UPPER MOSFET

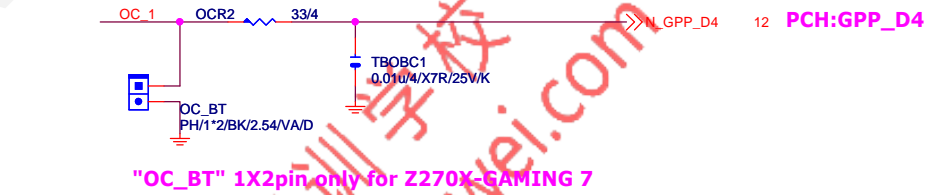
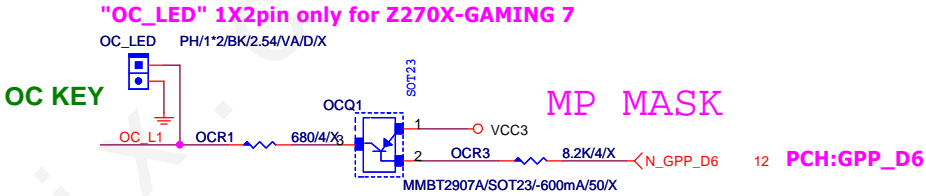
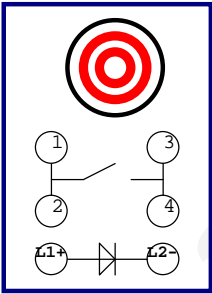


## Gigabyte Technology

Title			
<b>ATX POWER CONNECTOR</b>			
Size Custom	Document Number	<b>GA-Z270-GAMING K3</b>	Rev <b>1.02</b>
Date:	Friday, November 25, 2016	Sheet 38 of 63	



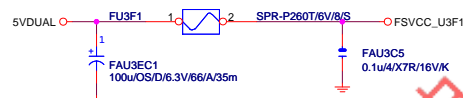
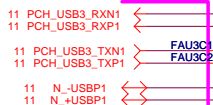
<div>Gigabyte Technology</div>				
Title				
KB_MS_USB				
Size	Document Number			Rev
Custom	GA-Z270-GAMING K3			1.02
Date:	Friday, November 25, 2016	Sheet	39 of 63	



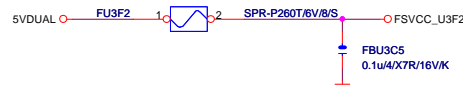
Gigabyte Technology			
Title			
OC BUTTOM			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	40 of 63



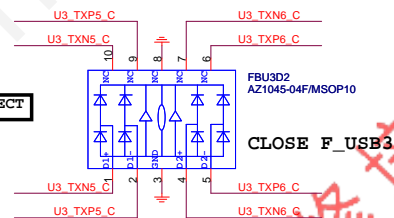
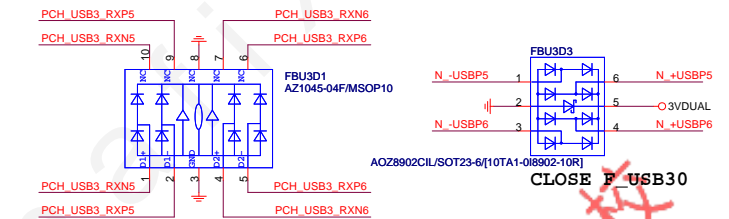
黑色



F USB30 2		REV=1
VBUS		
ID	VBUS	
S5RX1-	S5TX2-	
S5RX1+	S5TX2+	
S5TX1-	S5RX2-	
S5TX1+	S5RX2+	
D1-	D2-	
D1+	D2+	
GND	GND	
GND	GND	



## -USB0C\_R



**F\_USB POWER PROTECT**

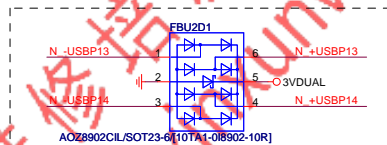
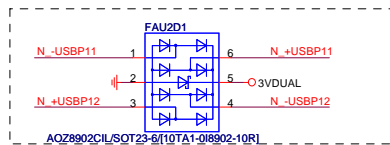
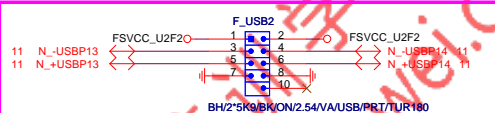
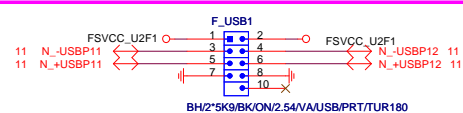
Rev: 0.52

FRONT USB1

FRONT USB2

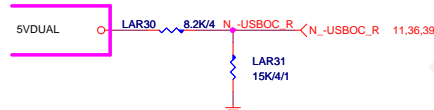
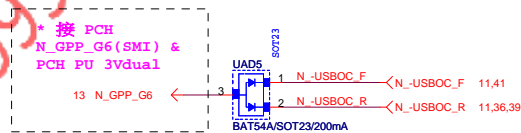
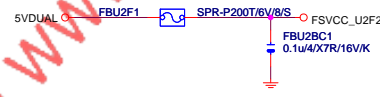
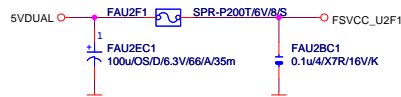
NET 可變

NET 可變

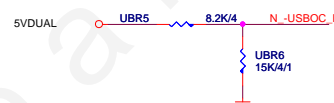
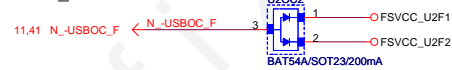


Close to connector  
FUSE 2 Port 1 Fuse 2A

Close to connector  
FUSE 2 Port 1 Fuse 2A

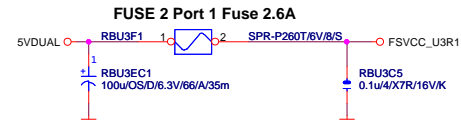
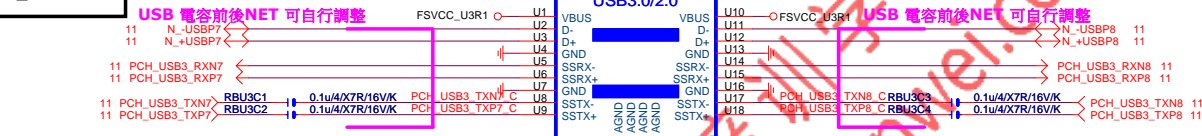


F\_USB 2.0 OC SIGNAL



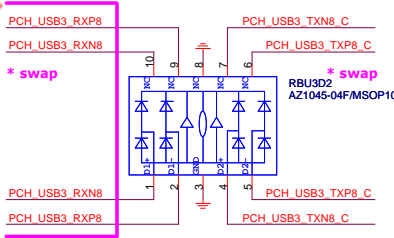


R\_USB30

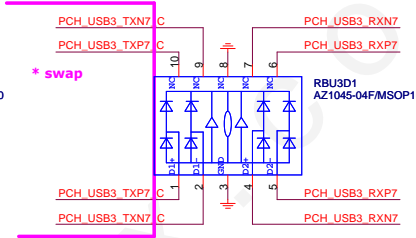


2 port USB 3.0 架構with TYPE C Capture:  
USB/18P/BU/OS/RA/D/2/HR

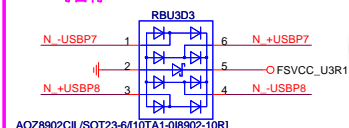
NET 可自行調整



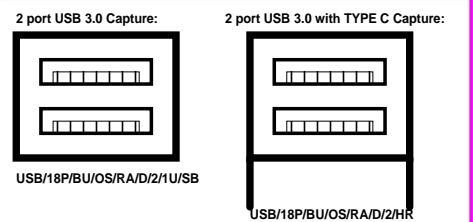
NET 可自行調整



ESD 可自行SWAP PIN



CONNECTOR 自行調整



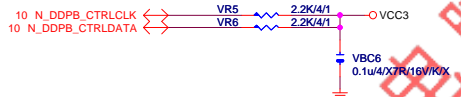
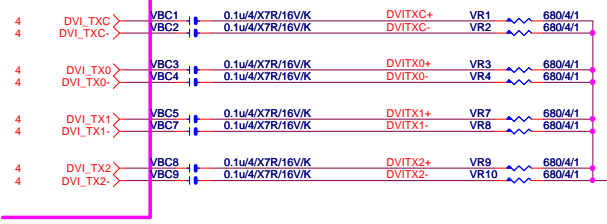
Gigabyte Technology			
R_USB30			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	43 of 63

Rev: 0.62

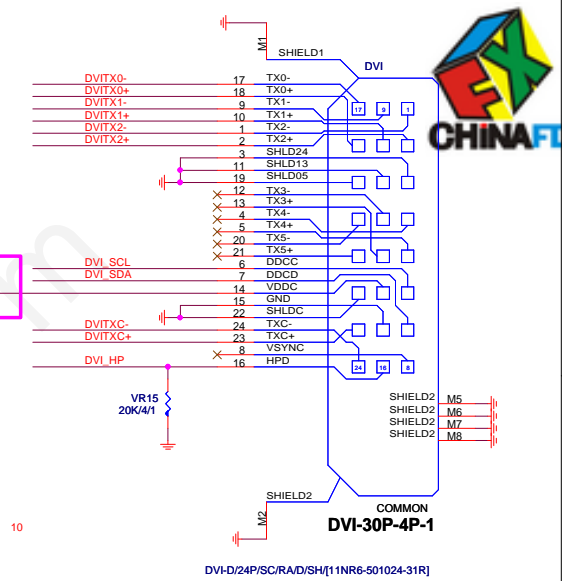
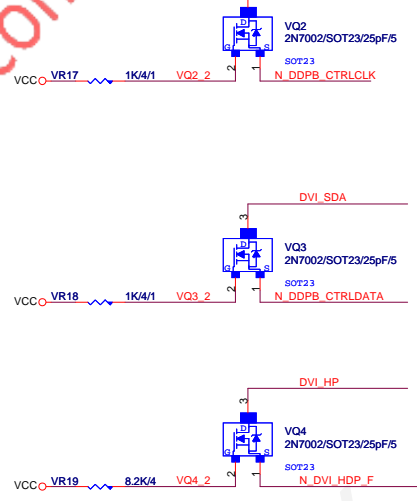
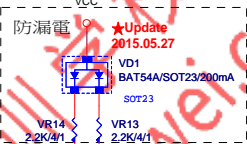
DVI\_CONN

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

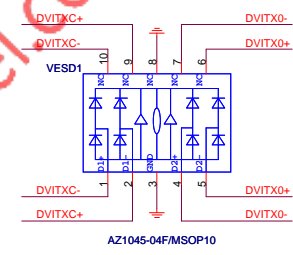
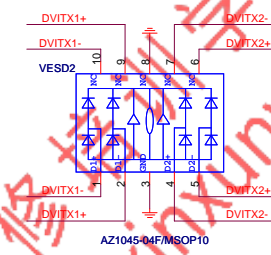
NET 可變



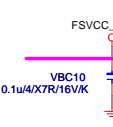
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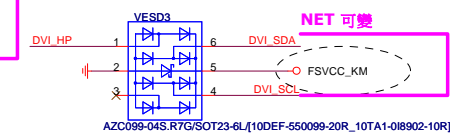
Close to connector



NET 可變



Close to connector



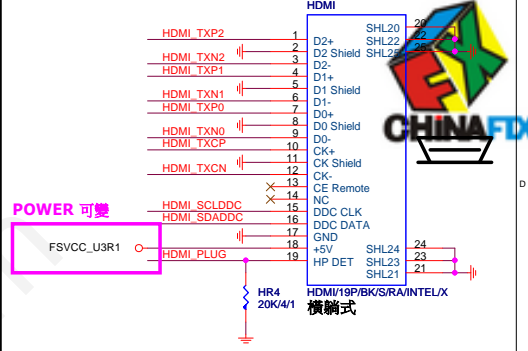
Gigabyte Technology			
Title			
DVI			
Size	Document Number	GA-Z270-GAMING K3	
Custom			Rev 1.02
Date:	Friday, November 25, 2016	Sheet	44 of 63



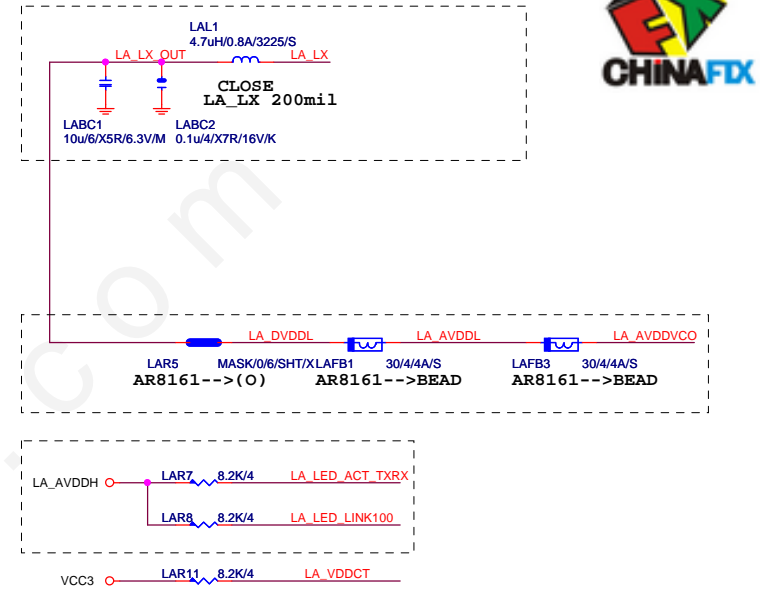
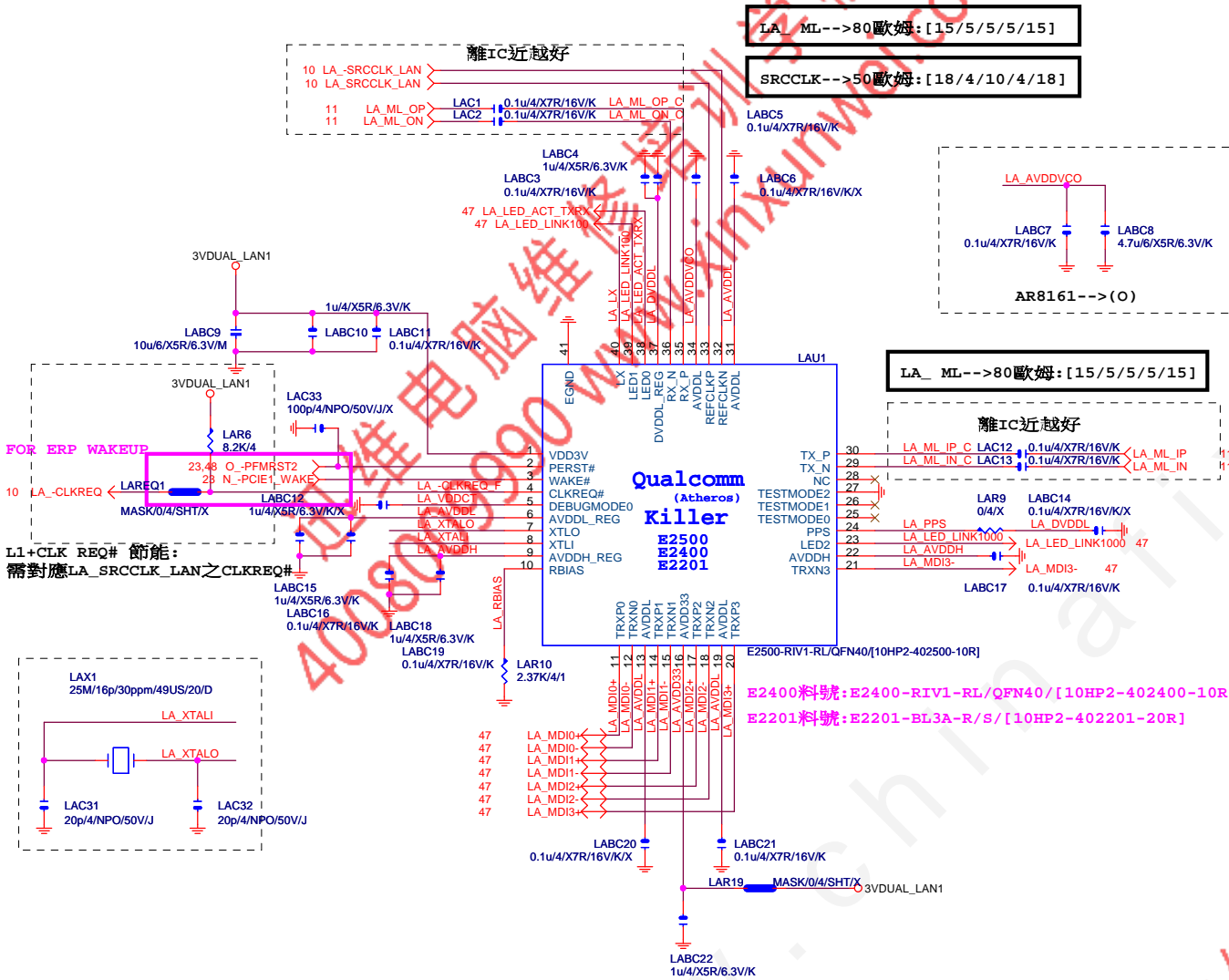


PTN3360: PIN 4/10/34/35 NC, 都不上值; 只上HR12: 10K  
ASM1442: 紅色框要上, HR12: 3.16K

【技術通報R&D技術通報150】  
HDMI eye diagram 1.4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			
KILLER E2500(E2400)(E2201)			
Size	Document Number	Rev	
Custom		GA-Z270-GAMING 143	
Date:	Friday, November 25, 2016	Sheet	46 of 63



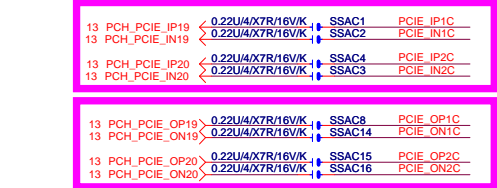
**ASM2142 USB3 Host Rev0.1**  
**PCIE Gen3 X2**  
**ASM1142 USB3 Host**  
**PCIE Gen3 X1 or PCIE Gen2 X2**

[www.xinxiunwei.com](http://www.xinxiunwei.com) 400-800-9990  
 Color markers can be changed by model

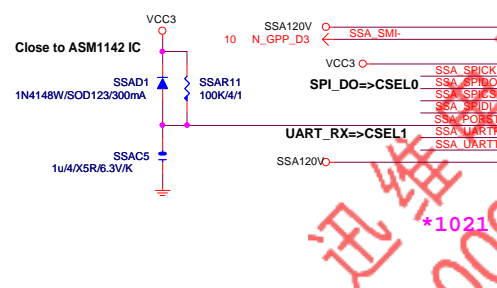


Base on ASM2142 0.1 Reference SCH

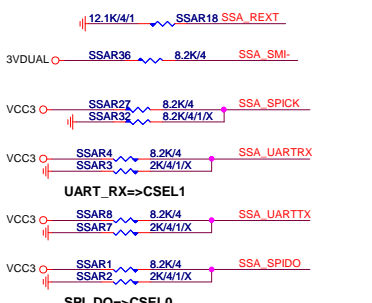
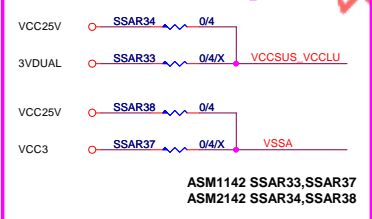
**PCH PCIe\* Controller Lane Reversal / base on spec**  
**To PCIE host.**



**From PCIE host.**

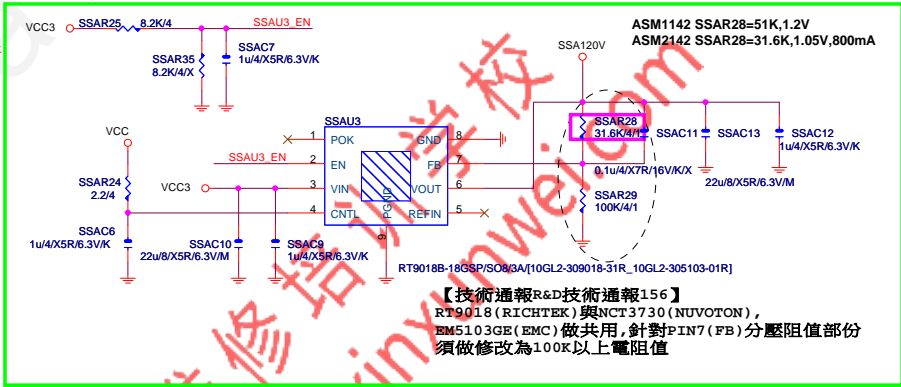
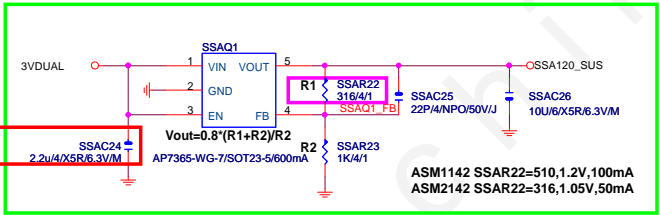
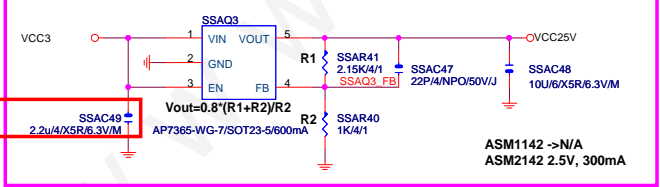


**ASM 2142 / 1142 Option**



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

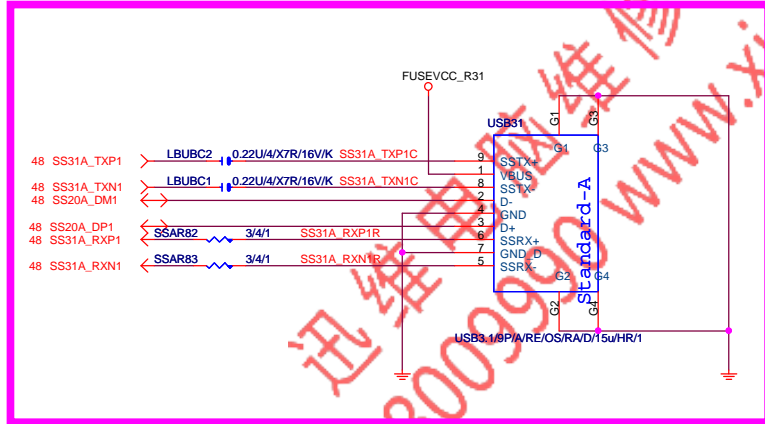
**ASM2142 Option**



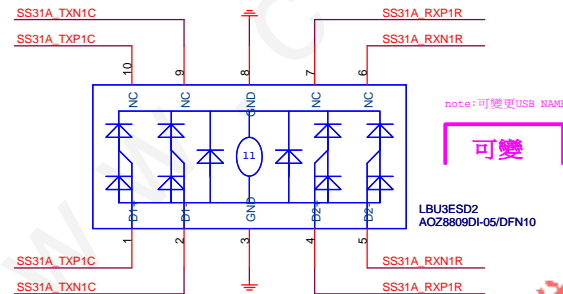
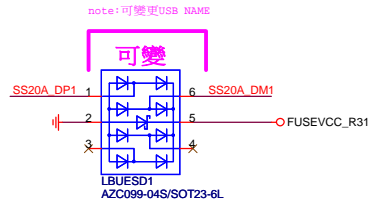
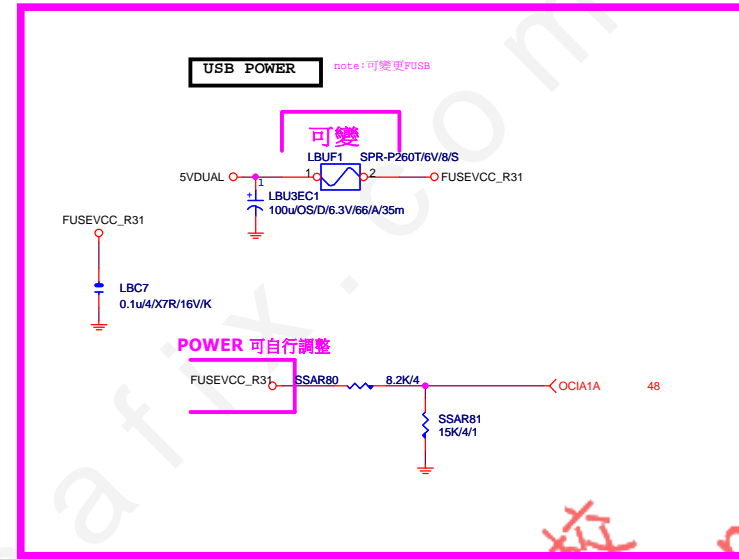
【技術通報R&D技術通報156】  
 RT9018 (RICHTEK) 與 NCT3730 (NUVOTON),  
 BM5103GE (EMC) 做共用, 針對 PIN7 (FB) 分壓阻值部份  
 須做修改為 100K 以上電阻值

GIGABYTE™			
Title <b>ASM1142 &amp; ASM2142 co-lay</b>			
Size	Document Number	Rev	
Custom	<b>GA-Z270-GAMING K3</b>	<b>1.02</b>	
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USB31 TYPE A Connector which chooses for project demand

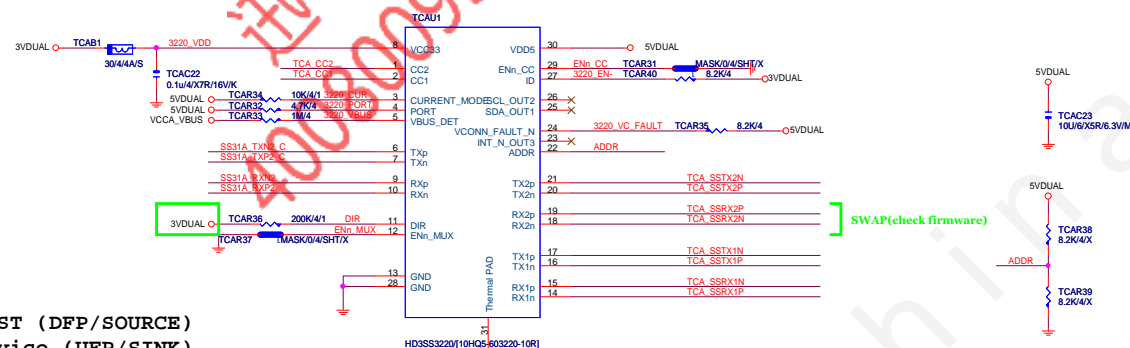
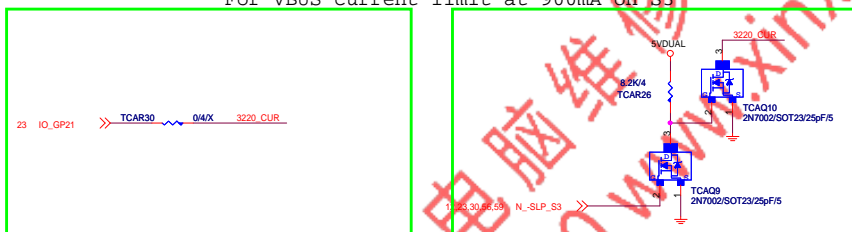


www.xinxunwei.com 400-800-9990

48 SS31A\_RXP2      SS31A\_RXP2  
48 SS31A\_RXN2      SS31A\_RXN2

48 SS31A\_TXP2      SS31A\_TXP2      TCAC20      0.22UJ4/X7R/16V/K      SS31A\_TXP2 C  
48 SS31A\_TXN2      SS31A\_TXN2      TCAC21      0.22UJ4/X7R/16V/K      SS31A\_TXN2 C

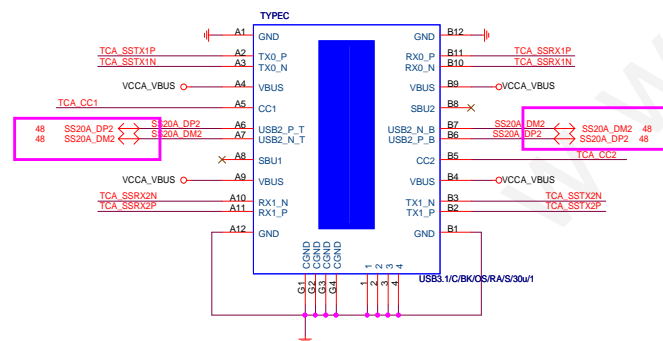
For VBUS current limit at 900mA on S3



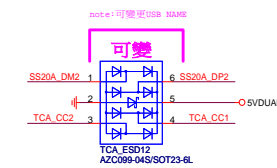
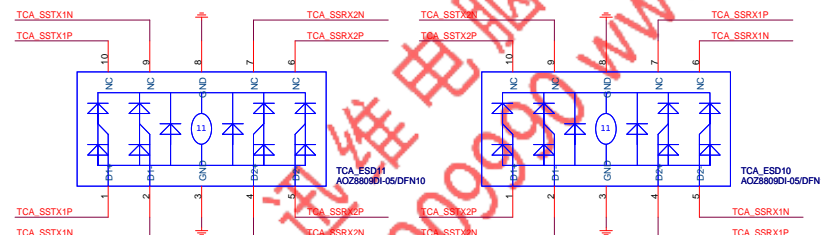
```
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)
```

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

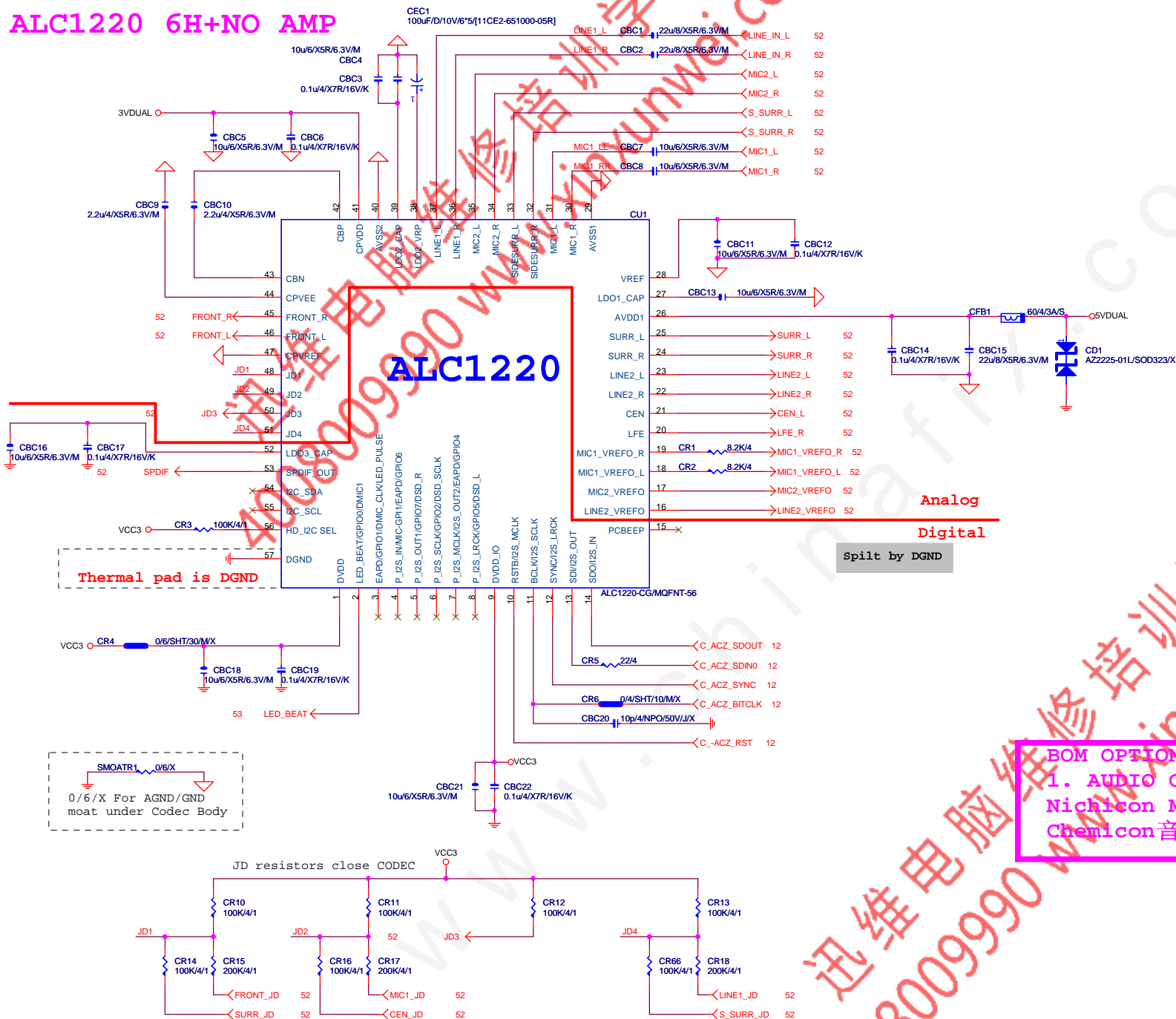
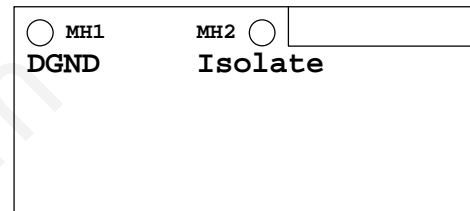


				
Title				
<b>TI HD3SS3212</b>				
Size C	Document Number			Rev
	<b>GA-Z270-GAMING K3</b>			<b>1.02</b>
Date	Edition		Month	Page
	<b>October, November 2016</b>		<b>03</b>	<b>of 03</b>

## ALC1220 6H+NO AMP

LAYOUT注意: 螺絲孔下GND方式

1. MH1下DGND
2. MH2一律改為Isolate



LAYOUT注意: 是否要加?

AGND切割線

音效區域印刷



Analog

Digital

Spilt by DGND

BOM OPTION :

1. AUDIO CAP

Nichicon MW音效電容 : 11CE1-651000-12R

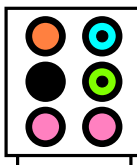
Chemicon音效電容 : 11CE2-651000-05R

Gigabyte Technology

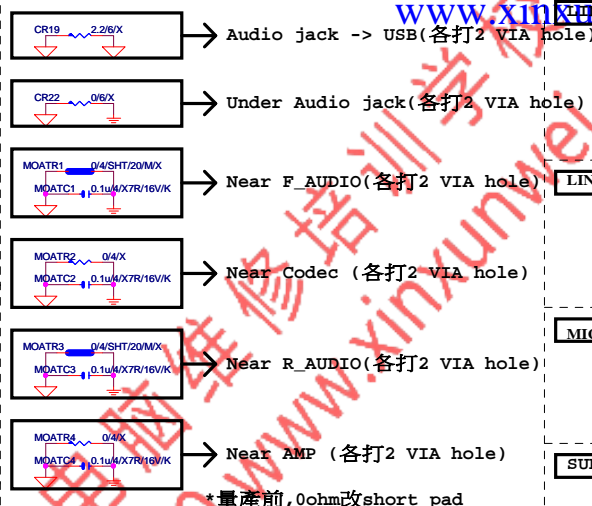
Title			ALC1220
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	51 of 63

Rev 0.53

AZALIA JACK



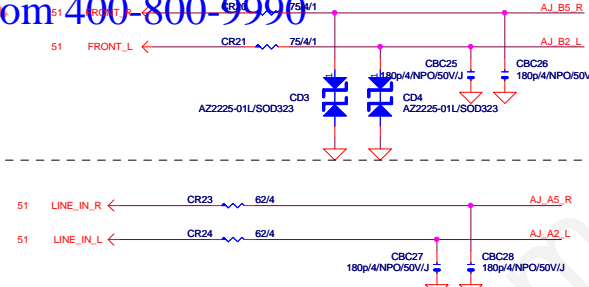
SPDIF\_OUT



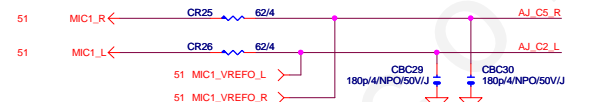
\*量產前,0ohm改short pad

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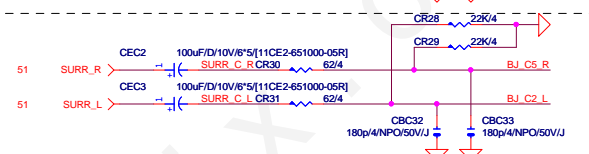
LINE-IN



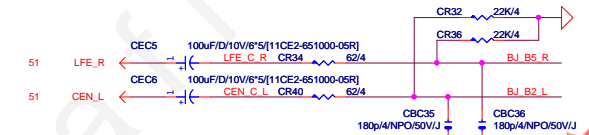
MIC-IN



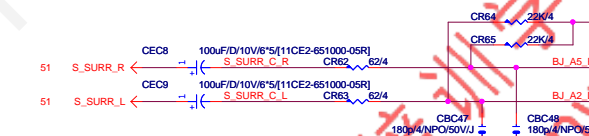
SURROUND



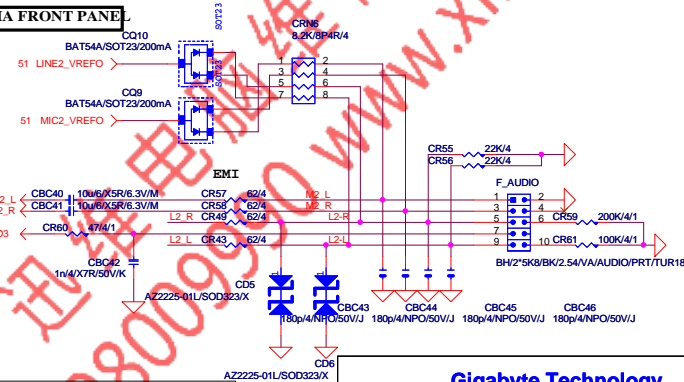
CEN/LFE



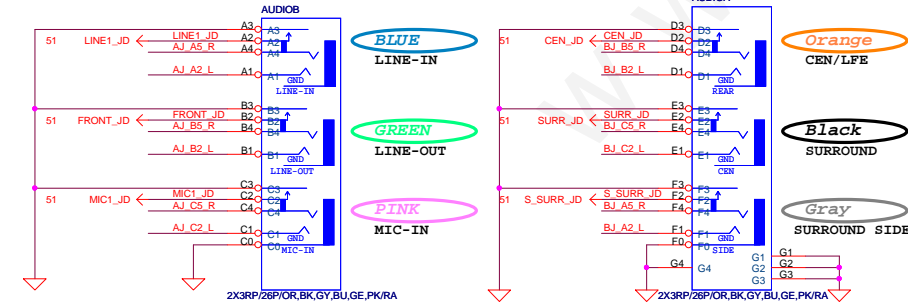
SURR BACK



AZALIA FRONT PANE



AZALIA JACK



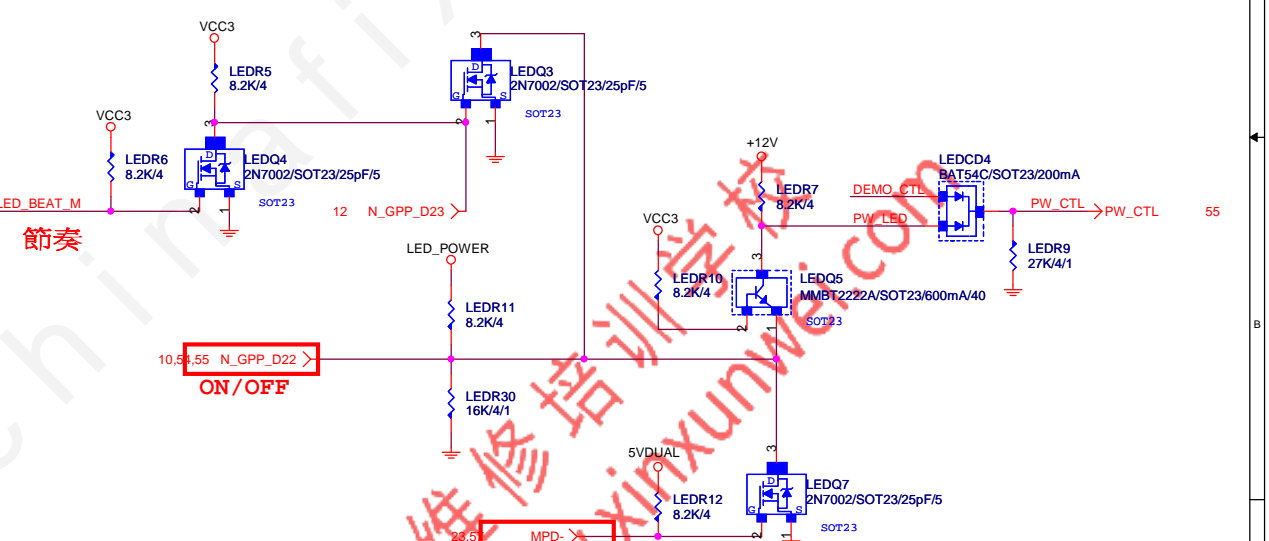
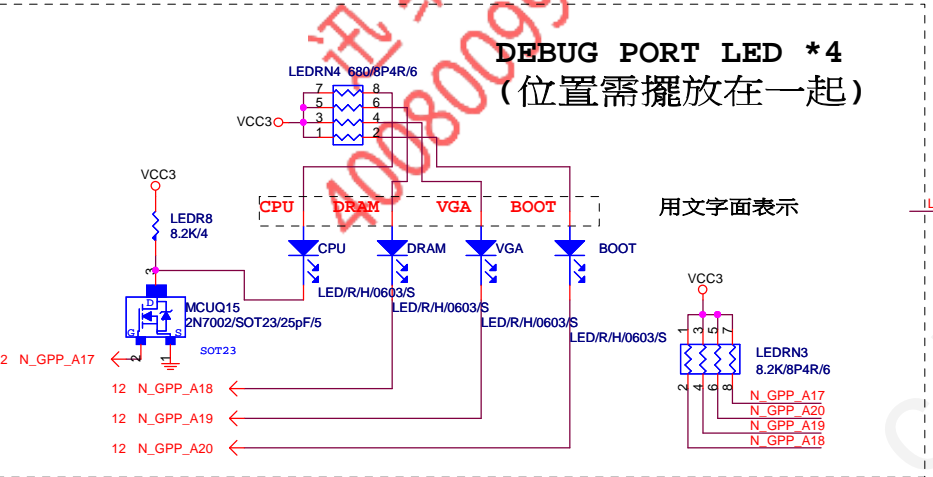
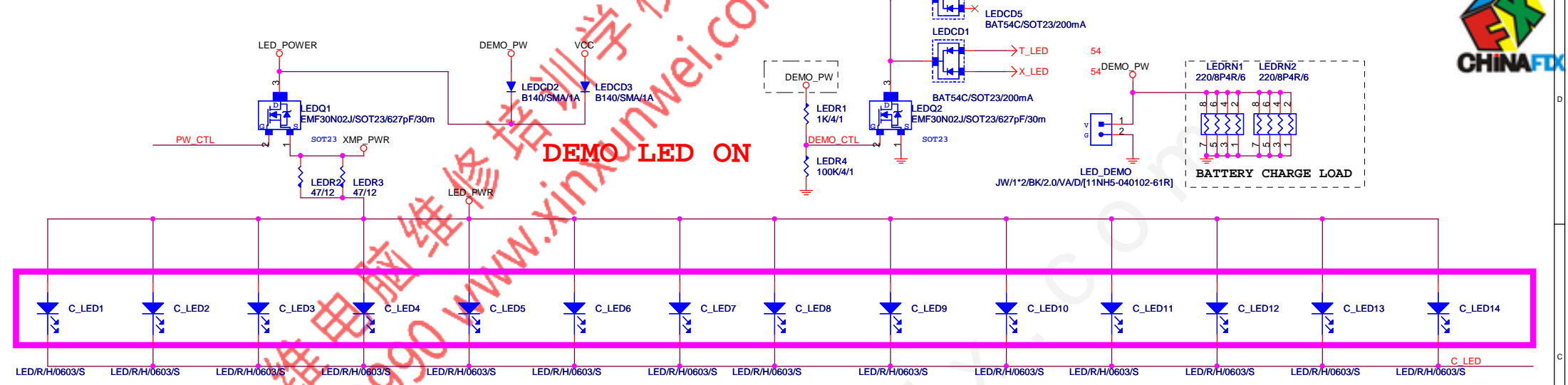
Gigabyte Technology

AUDIO JACK

GA-Z270-GAMING K3

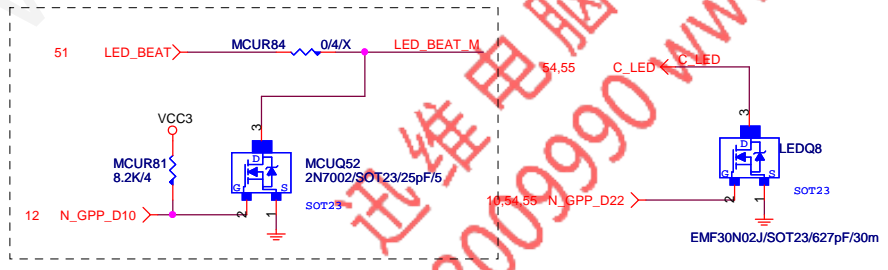
Rev 1.02





AUDIO LED Control

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



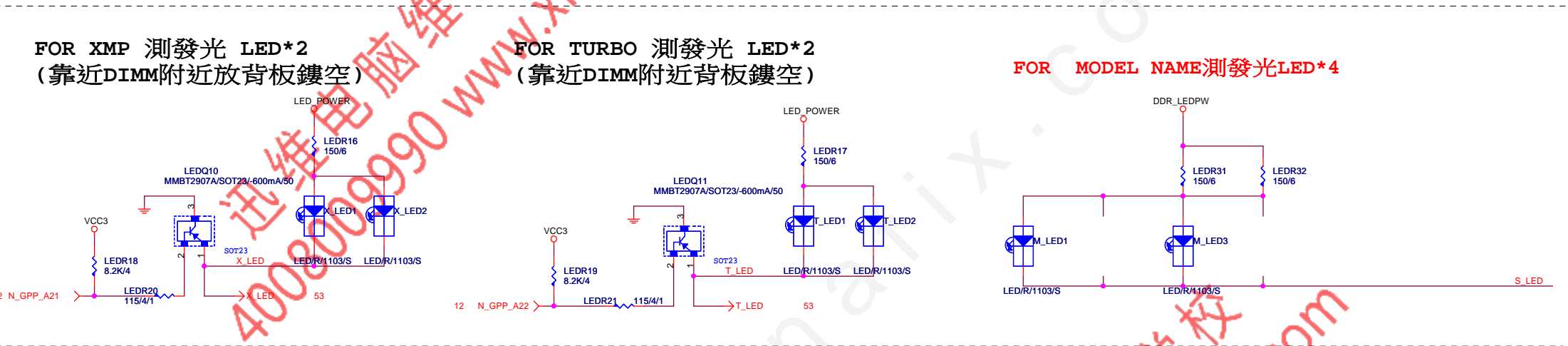
GIGABYTE

Title

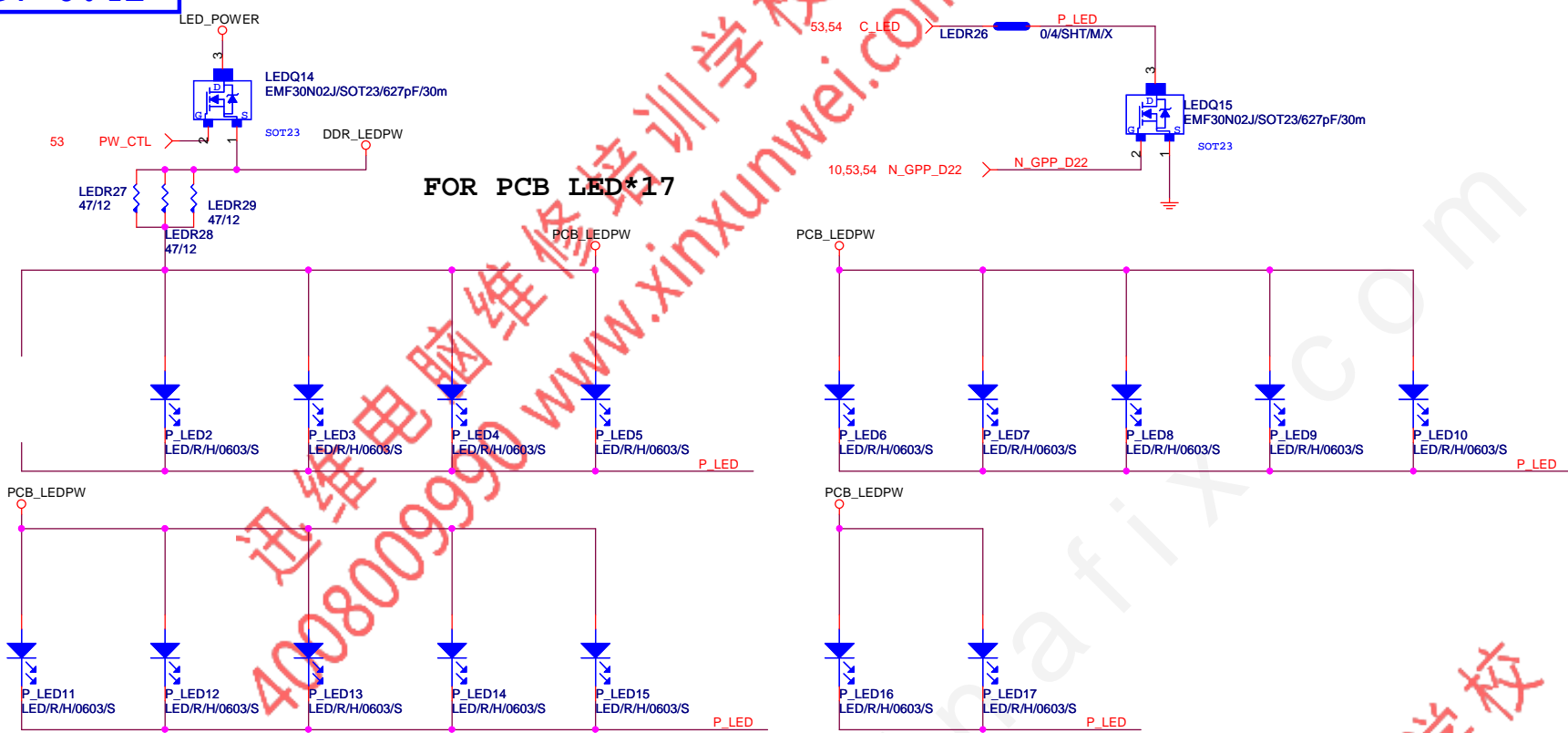
AUDIO LED

Size CustomDocument NumberGA-Z270-GAMING K3Rev1.02

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GIGABYTE™			
Title PCIE/DDR LED			
Size Custom	Document Number GA-Z270-GAMING K3		Rev 1.02
Date: Friday, November 25, 2016	Sheet 54	of 63	



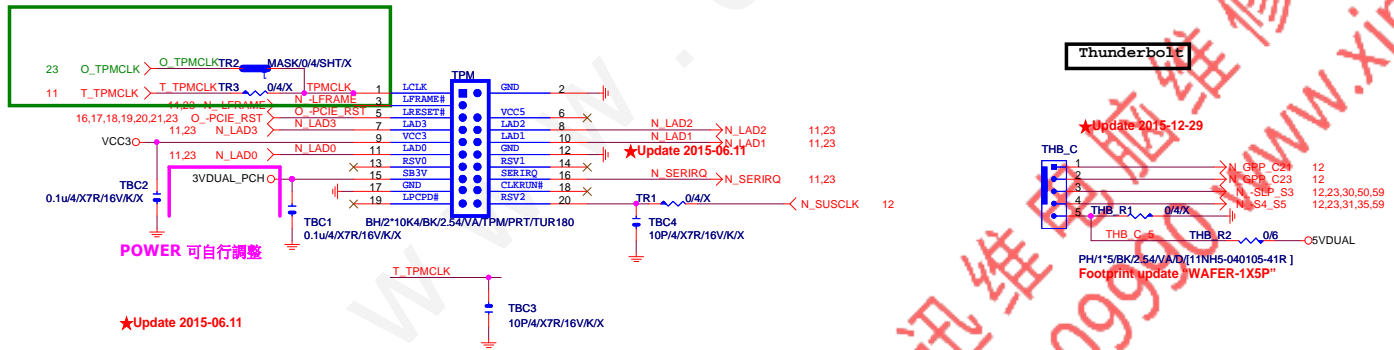


COM PORT

80 PORT

TPM CONNECT

Thunderbolt

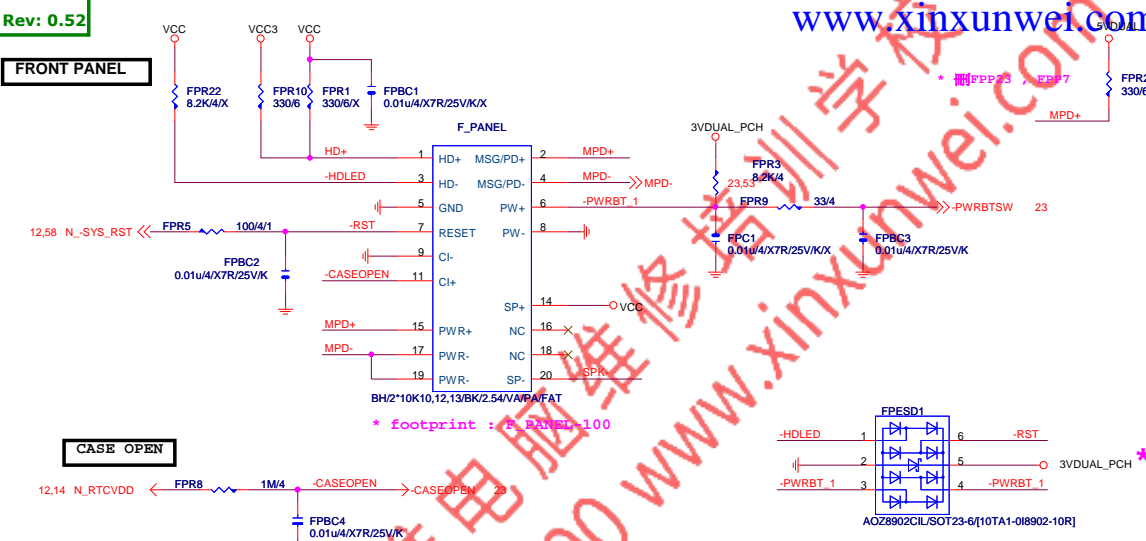


Gigabyte Technology			
Title			
TPM, TBT Conn			
Size	Document Number	GA-Z270-GAMING K3	Rev
Custom			1.02
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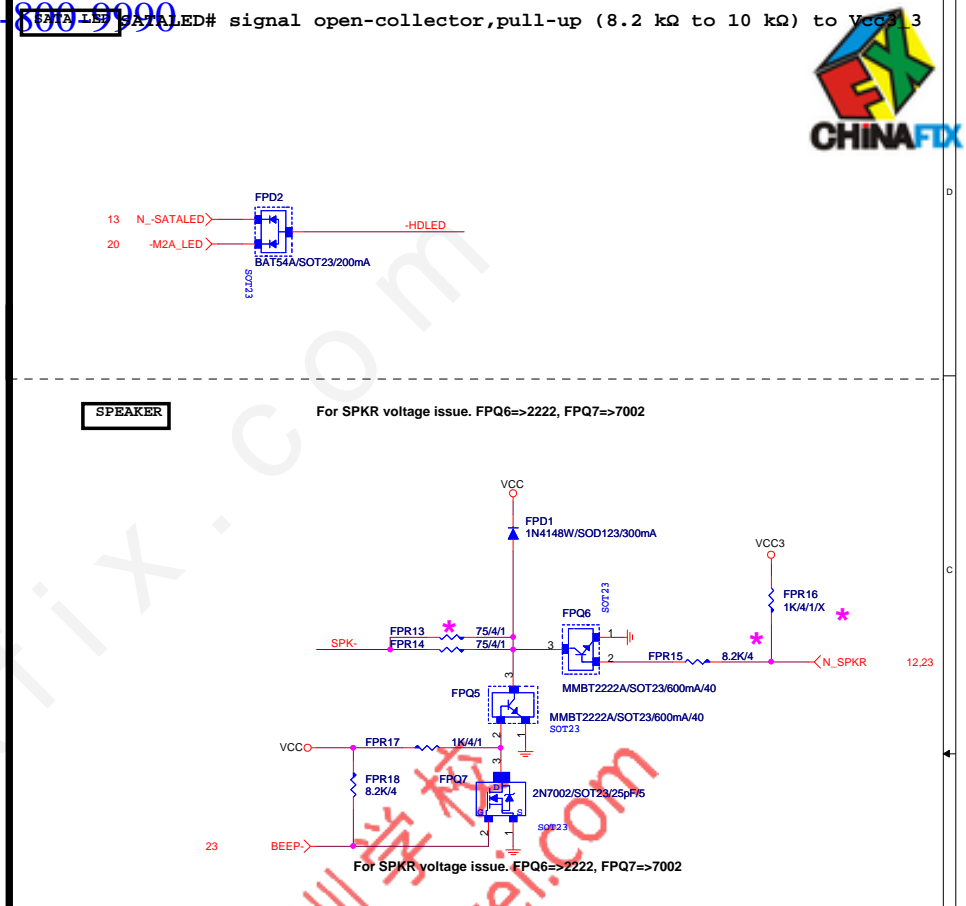
FRONT PANEL



CASE OPEN



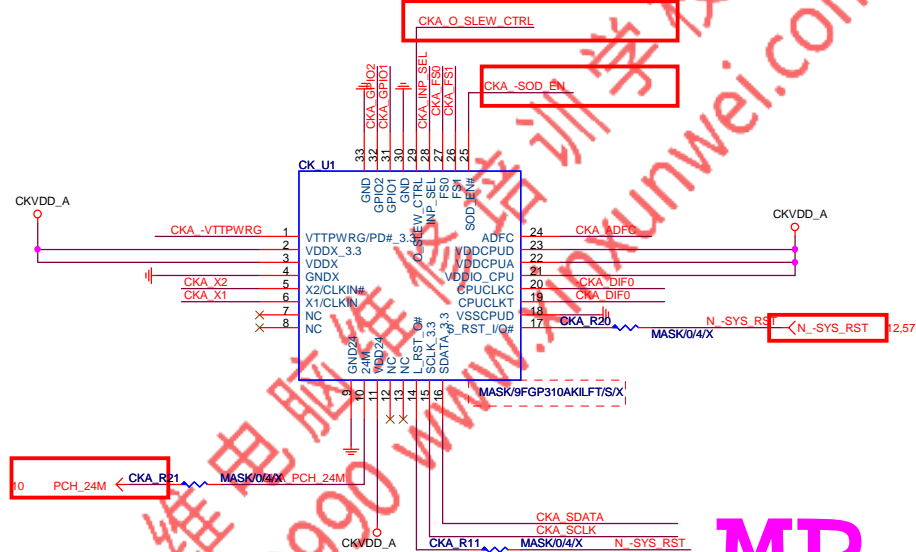
SPEAKER



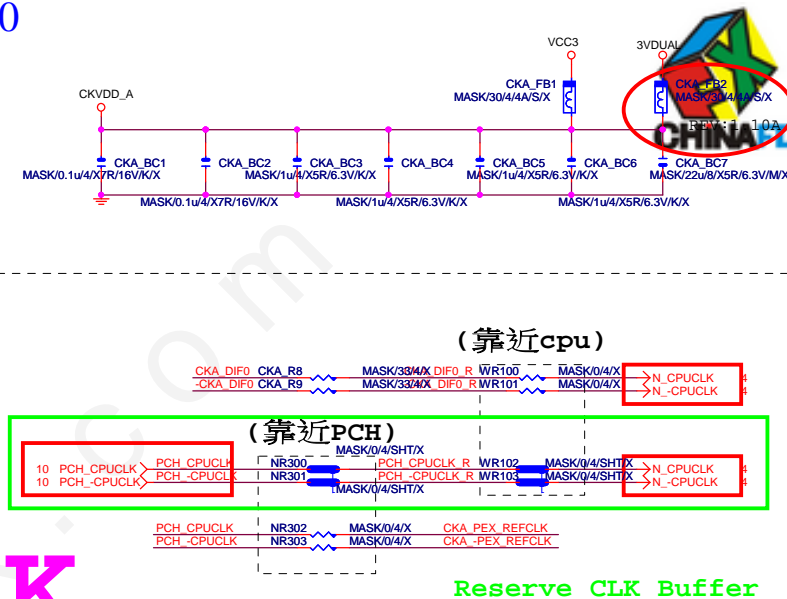
REV:0.1

IDT6V41630

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MP MASK



(靠近cpu)

(靠近PCH)

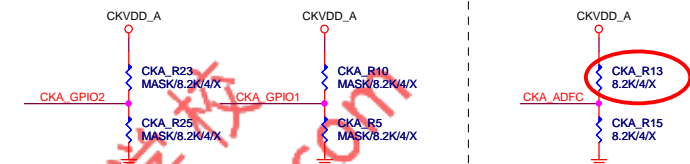
Reserve CLK Buffer

INP_SEL	Input
0	Crystal
1	CLK_INP/N

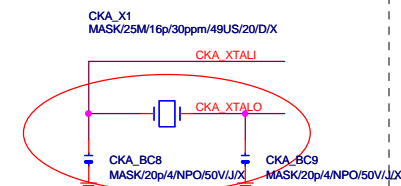
0=25MHz crystal input  
1=100MHz differential input

CPU Frequency Selection and output Divider Table

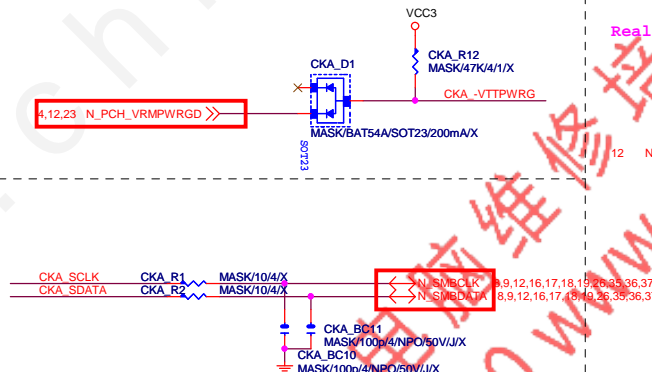
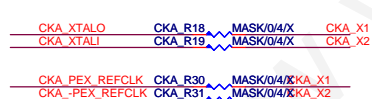
B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	200.00	2.00	100.00	-	OFF
0	1	400.00	4.00	100.00	-	OFF
1	0	1000.00	10.00	100.00	-0.50%	ON
1	1	100.00	1.00	100.00	-	OFF



Cover remove (Ver. 1.0)

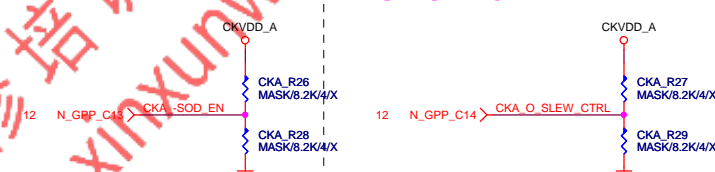
Defaults  
CKX1.CKBC8.CKBC9.CKR18.CKR19上件  
CKR30.CKR31不上件

SMBUS



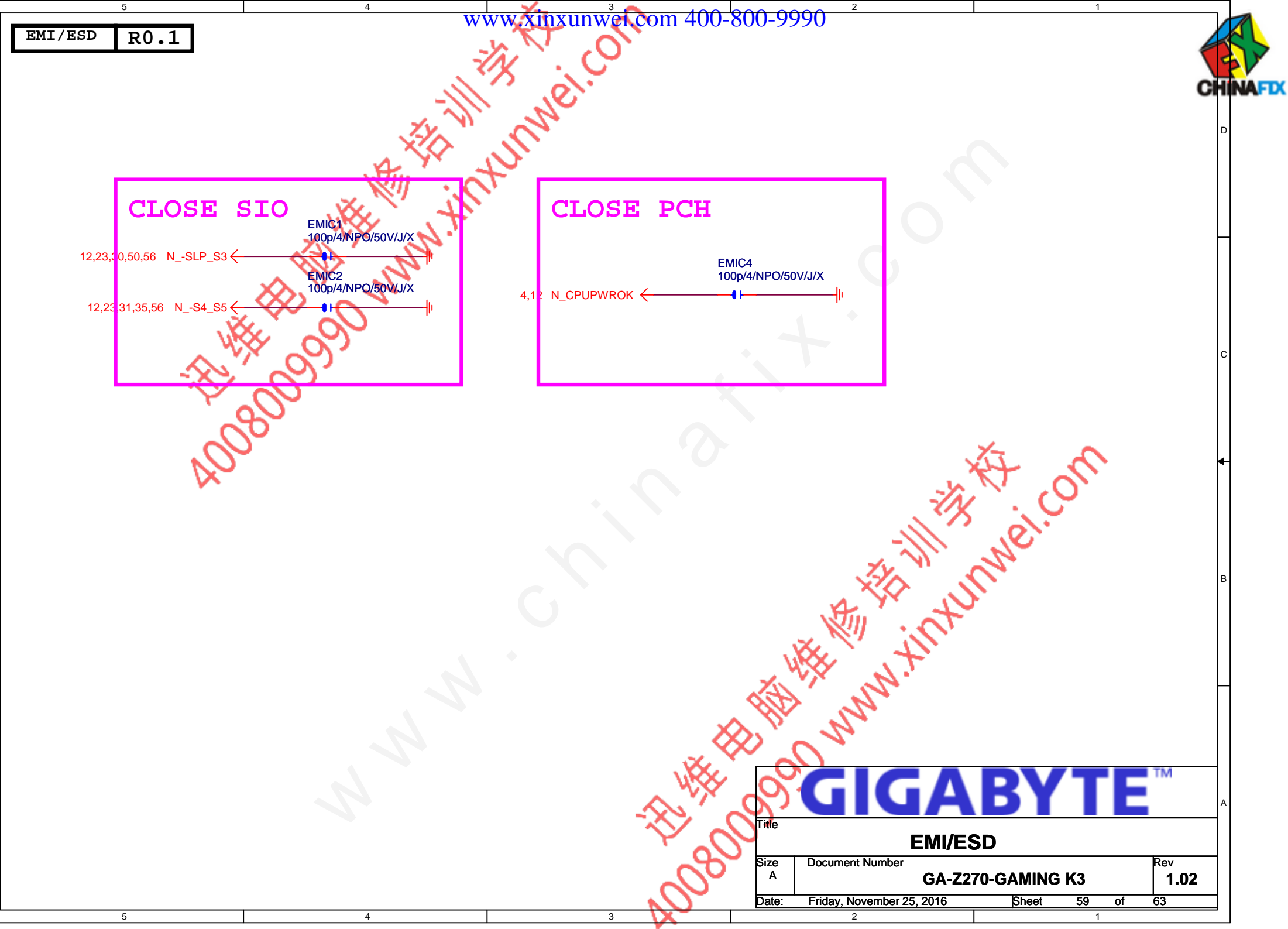
Real time selection function

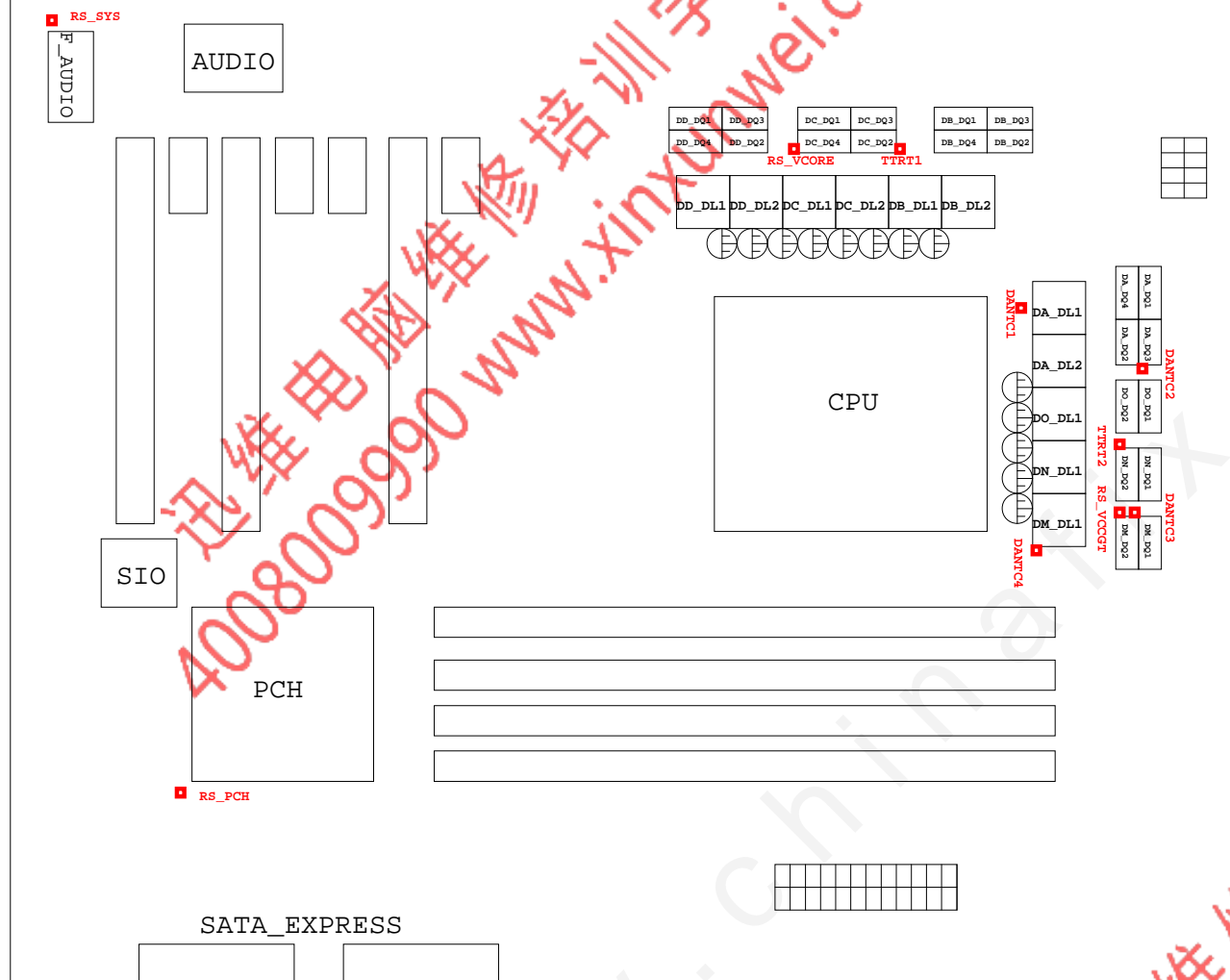
Frequency change slew rate control



GIGABYTE™		
Title IDT6V41530_CLK BUFFER		
Size	Document Number	Rev
Custom	GA-Z270-GAMING K3	1.02
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\*可變，依需求上件不上件。

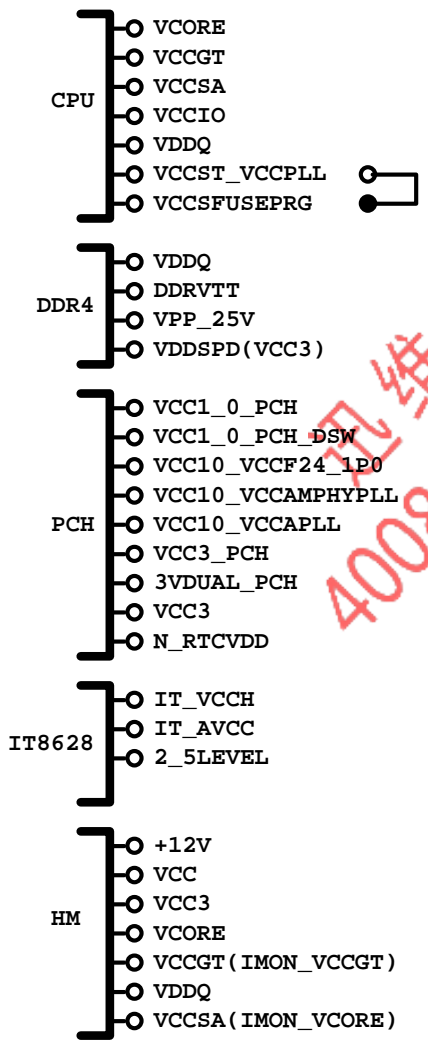




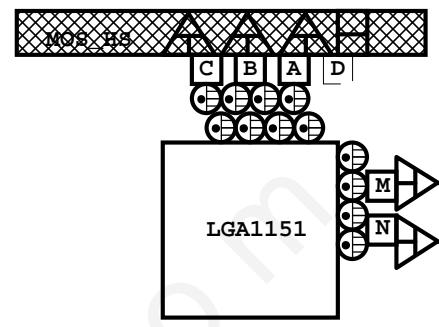
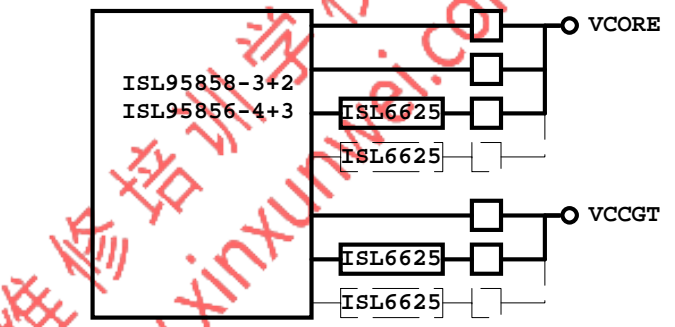
熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A



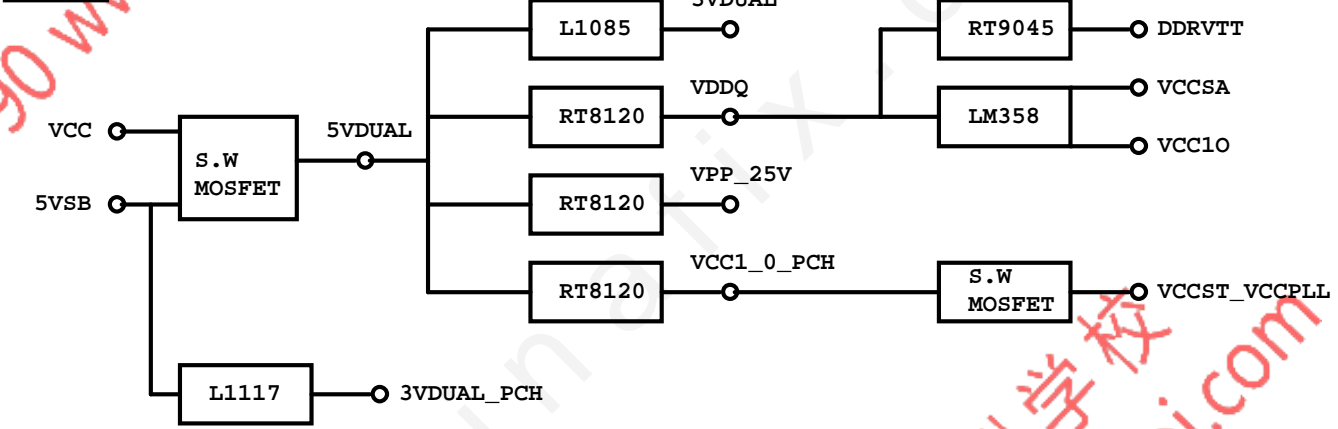
POWER BLOCK MAP



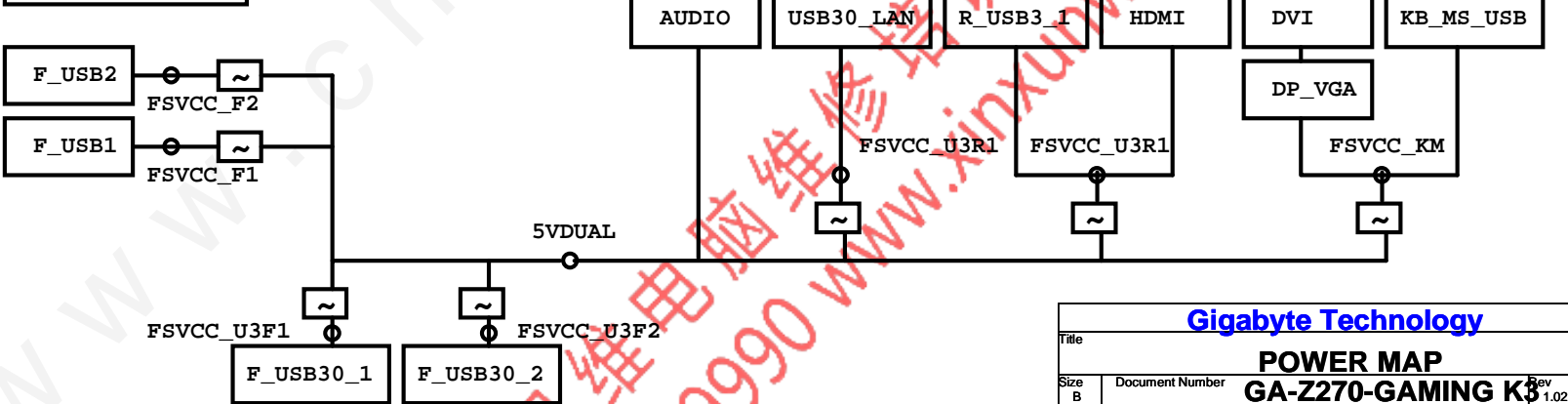
VCORE/VCCGT



POWER



FUSE POWER F/R



Gigabyte Technology	
Title	
POWER MAP	
Size B	Document Number
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Date:	Friday, November 25, 2016
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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

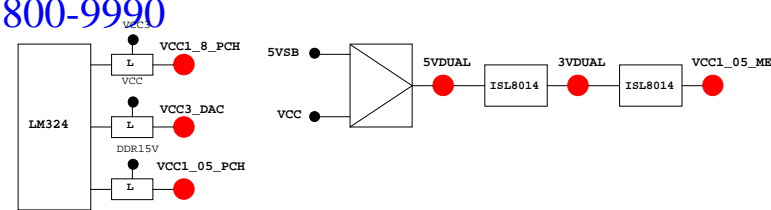
## PWM料號

		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

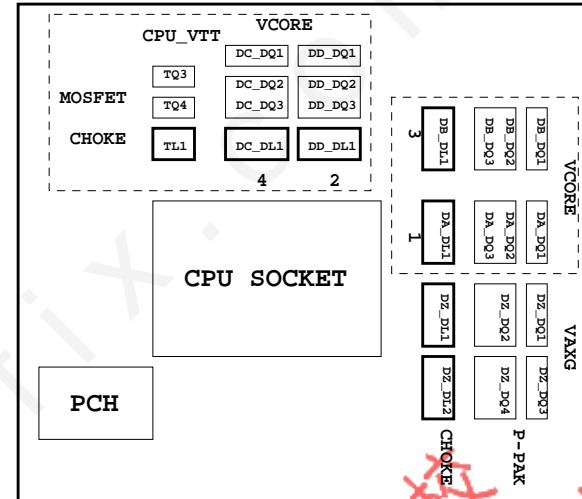
## REGULATOR

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

GIGABYTE™			
Title RT8120_DDR4 POWER			
Size Custom	Document Number GA-Z270-GAMING K3		Rev 1.02
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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

	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			
TABLE LIST			
Size C	Document Number	Rev	
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Super I/O ITE8720 chip 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/GP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PMR#/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/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	SE PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRST1N#/CIRT2X/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT15/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI00	N/A
GP1/TACH1	MAIN	GPI	GPI01	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	GPI07	P/U 8.2K VCC3
GP8	STBY	H	GPI08	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	GPI012	N/A
GP13	STBY	L	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI015(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN	GPI	GPI016	P/U 8.2K VCC3
GP17/TACH0	MAIN	GPI	GPI017	P/U 8.2K VCC3
GP18	MAIN	GPI	Mobile Only	N/A
GP19	MAIN	GPI	GPI019	P/U 8.2K VCC3
GP20	MAIN	GPI	GPI020	P/U 8.2K VCC3
GP21	MAIN	GPI	GPI021	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI022	P/U 8.2K VCC3
GP23	MAIN	GPI	GPI023	N/A
GP24	STBY	L	SKTOCC#	N/A
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPI027	P/U 8.2K 3VDUAL
GP28	STBY	H	PWR_LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI029	N/A
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP
GP35	MAIN	L	GPO	-ACZ_DBT
GP36	MAIN	GPI	N/A	N/A
GP37	MAIN	GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect
GP39	MAIN	H-Z	GPI	GPI039
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	GPI044
GP45	STBY	NATIVE	GPI045	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPI046
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPI048
GP49	MAIN	H-Z	IN	GPI049
GP50	MAIN	NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1
GP52	MAIN	NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2
GP54	MAIN	NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	-SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPI063
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)