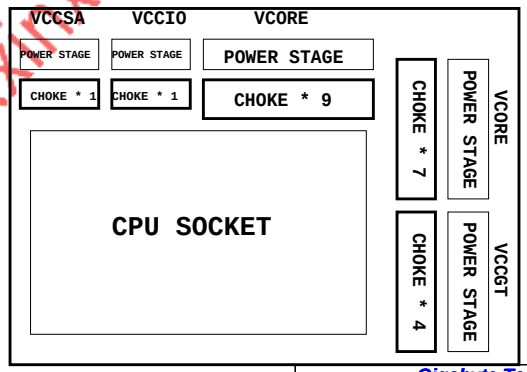
Model Name: GA-Z270X-Gaming 9

Rev 1.03

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	LGA1151_A
05	LGA1151_B-DDR4
06	LGA1151_C
07	LGA1151_D
08	DDR4 CHANNEL A 1,2
09	DDR4 CHANNEL B 1,2
10	PCH CLOCK BUFFER
11	PCH DMI,USB,PCIE
12	PCH MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH PWR
15	PCH GND
16	SATA EXPRESS 1
17	SATA EXPRESS 2
18	U2_32G_2 X4
19	Creative Sound3Di
20	I2S , REAR DAC
21	Audio Amp
22	Audio Power
23	AUDIO Connect
24	ALPINE RIDGE CIO & DP
25	ALPINE RIDGE POWER
26	TBT TYPE C
27	PD 20V profile
28	DISPLAY PORT IN
29	DISPLAY PORT OUT
30	IT8951
31	ITE 8686 LPC IO
32	ATX POWER , HWM
33	IT8792_8FAN
34	FAN CTRL-KBL_SIO_879X

SHEET	TITLE
35	DUAL LAN-A~KILLER E2500
36	DUAL LAN-B~KILLER E2500
37	DUAL USB30_LAN-CONNECTOR
38	M2_WIFI
39	HDMI 20 MCDP2800-BC
40	Dual BIOS
41	PEX8747S UPSTREAM & MISC
42	PEX8747S DOWNSTREAM SLOTS
43	PEX8747S STRAP & CPLD INTF
44	PEX8747S POWER
45	PEX8747 POWER (SMD choke)
46	PCI EXPRESS X16_1
47	PCI EXPRESS X16 SWITCH_1
48	PCI EXPRESS X8_1
49	PCI EXPRESS X16_2
50	PCI EXPRESS X16 SWITCH_2
51	PCI EXPRESS X8_2
52	PCIE X1 slot * 2
53	RTS5411 4port Hub (Chip)
54	F_USB20
55	F_USB30
56	R_USB30
57	KB_MS_USB
58	USB_DAC
59	NCT3933
60	IR3570 PWM
61	IR3553-DDR MOS
62	IR3553-VPP MOS
63	CPU POWER-RT9018
64	IR35201 PWM-VCORE
65	IR3553_MOS_1-VCORE
66	IR3553_MOS_2-VCORE
67	IR3553_MOS_3-VCORE
68	IR3553_MOS_4-VCORE

SHEET	TITLE
69	IR35201 PWM-VCCGT
70	IR3553_MOS_1-VCCGT
71	RT8120_PCH
72	IR3570 PWM
73	IR3553-VCCSA
74	IR3553-VCCIO
75	DISCRETE POWER
76	M2.P X4
77	M2.P SWITCH
78	M2.P SWITCH U2 X4
79	ASM1184
80	ASM1061
81	FP,BZ,TPM,THB
82	M.2 X4 (M)
83	M.2X4_S4~S5 SWITCH
84	IDT6V41630_CLK BUFFER
85	RST, PWR, CLR_CMOS, 80 PORT
86	CPU / IO / DDR LED
87	PCB / PCH / PCIEX16 LED
88	REAR / AUDIO LED
89	LED_C1 / LED_C2 LED
90	EMI-ESD
91	TABLE LIST



Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 1 of 91

Model Name: GA-Z270X-Gaming 9

Component value change history

Data	Change Item	Reason
2016/08/31 EBOM:02	First Release BOM 01	
	1.修正PCB BAR /Heat SINK料號 2.修正PCH CORE與3VDUAL ,阻值修正NPR16/NPR15/NPC9,DEL NPR17 3.修正MAU40(DDR PWM) 料號 ARR --->ASR 4.修正PCIEX16/X8料號 ---->改黑鎳強化版	
2016/09/29 EBOM:1.0	1.FOR PVT BOM	
2016/10/17 EBOM:1.01	1.增加 LED_AUDIO connector給audio機甲使用	
2016/10/31 PBOM:1.02	1.THESD3,THESD4,THESD5,THESD6,THESD10,THESD7,THESD8,THESD9,變更為ESD5V0H1BSF/DSN0603-2 2.NPQ1,NPQ2,YQ1,YQ2,Q30,YQ9變更為NTMFS4C10NT1G/PPAK/970pF/7.3m 3.ADD AUDIO_HS 料號	
2016/11/10 PBOM:10D	1.FOR PCB 1.03	

Data	Change Item	Reason

Circuit or PCB layout change

DATE	Change Item	Reason
2015/01/15 PCB:0.1	First Release BOM 01	
2015/03/10 PCB:0.2	1.SPEC ADD THUNDER BALL 2.ASM106SE 變更為1061 3.UPDATE I/O,POWER,ASM1061,PLX8747,AUDIO,DUAL BIOS,ERP,PCH,5VDUAL/3VDUAL 變更為	
2015/05/15 PCB:0.2	1.FNR6 ,MR22 UPDATE FOOTPRINT,CHECK LAYOUT? 2.DEL HDMI DIODE 3.UPDATE THUNDERBOLT 模組 4.UPDATE 1061 模組	
2015/05/22 PCB:0.21	1.DIP DDR 改成SMD DDR	
2015/07/8 PCB:1.0	1.ADD THR19,THR77不上件 2.ADD DFR4 pull hi 5VSB,ADD MAC10 FOR DDRVPP POWER 3.NR262/NR263/YR115/DAR48/DBR48 0 ohm---->short pad 4.ADD YC165 FOR PLX8747 POWER RIPPLE	
2016/08/17 PCB:01	1.由Z270X-GAMING G1-0.1 修改 2.spec變更,Del DP_In / THB3 PD 100W 改為36W,R_USB30	
2016/09/26 PCB:1.0	1. MCU模組修正,ADD MCUCD12/MCUCD13/MCUR77/MCUR78 2. Add "N_GPP_D10" software beat mode control 3. Remove PCIE LED control ON/OFF circuit 4. VRN3 330/8P4R/6 改成 180/8P4R/6 5. ADD CR113/CR114/CR115/CR116 FOR AUDIO (CU12) POWER RIPPLE ISSUE(DISABLE POWER SAVING MODE) 6.0 OHM ------->SHORT WIRE 7.ECO KEY GPIO	
2016/10/14 PCB:1.01	1.將LED_REAR 移至 MEGACHIP 附近&再增加 LED_AUDIO connector給audio機甲使用	
2016/10/28 PCB:1.02	1.修改文字面,ADD"Intel Optane Memory Ready	
2016/11/09 PCB:1.03	1.修改DDR DIMM signal width加粗4 mils ---->4.5mils	

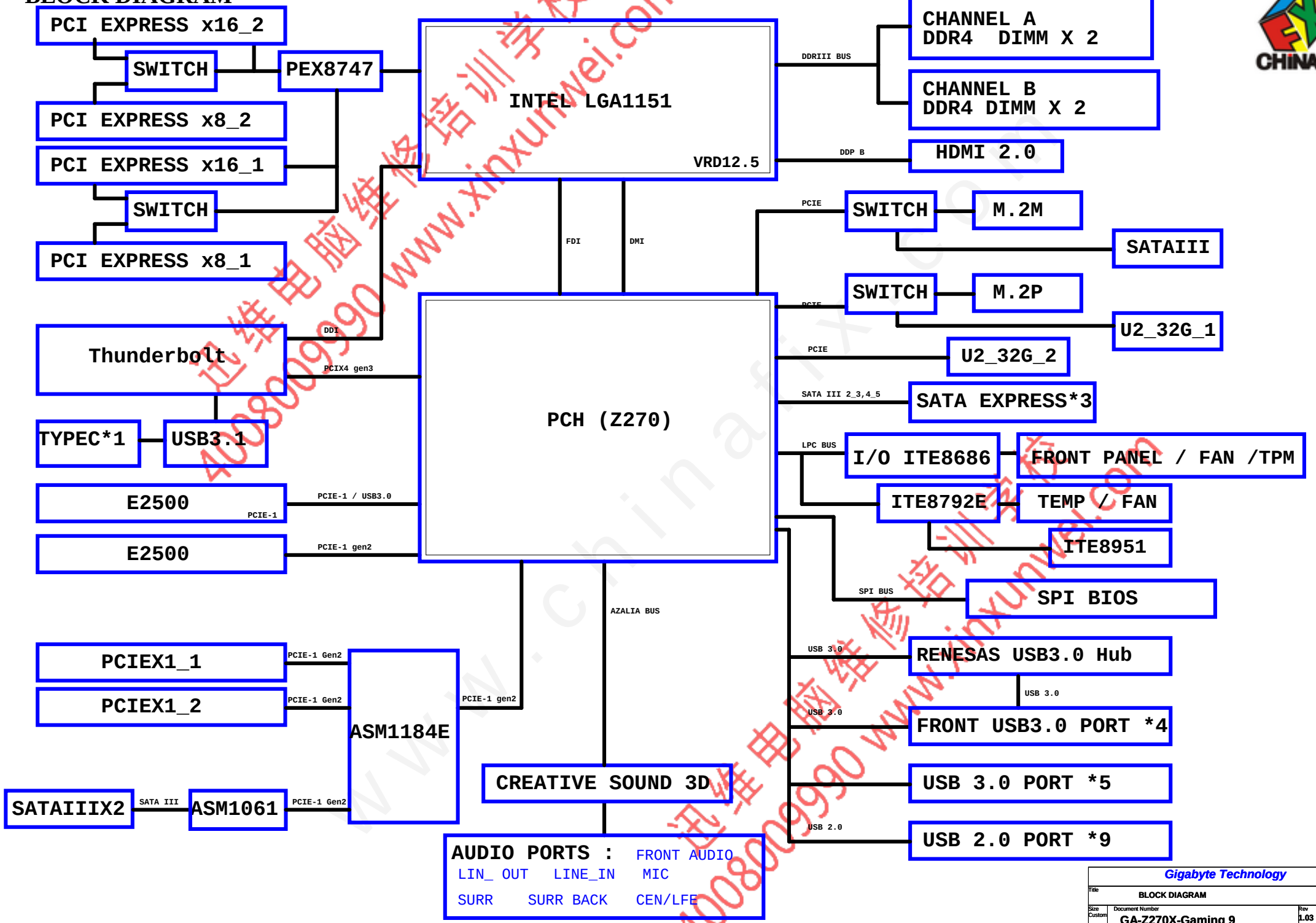
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Tuesday, December 20, 2016 | Sheet 2 of 91

BLOCK DIAGRAM



Gigabyte Technology

Title	BLOCK DIAGRAM	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 3 of 91	

* Rev0.2B

SVID:4/15 ;clk=sout length

* 删 net

* 删 WR17 , WR14 , WR10 , WR29 , WR16 , WR56 , WR55

* 删 WR91

* 删 net N_CPU_VCCST_PWOK

-CPURST

PEG-COMP:12/15 <400 mils

E-COMP:12/20 <100 mils

THB_DP_IN

HDMI2.0

DP_OUT

6 layer HDMI/DP/eDP/======4/4/4//15
6 DSL layer HDMI/DP/eDP/======4/5.5/4//15
Impedance=85 +- 15%

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

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

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

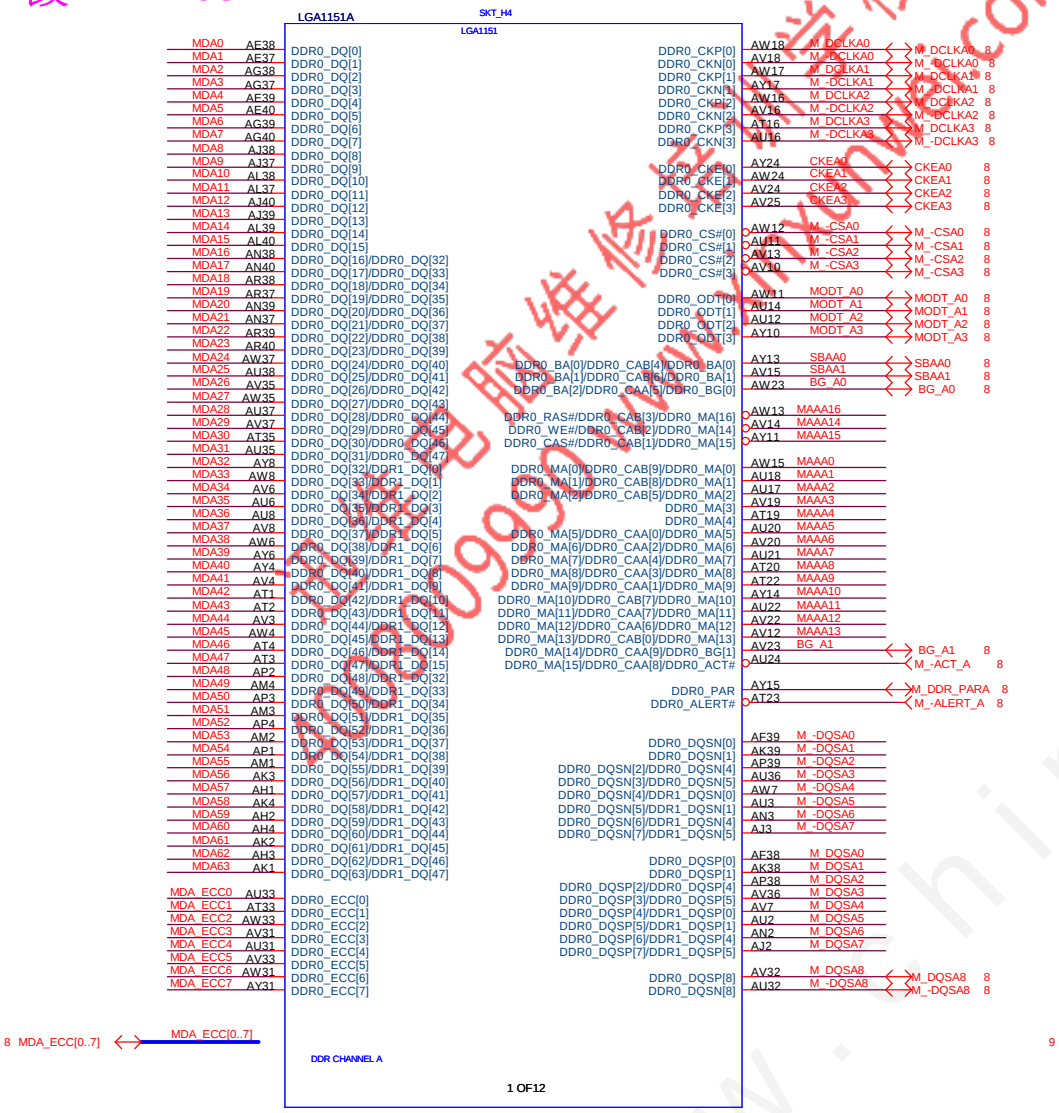
CFG[7]: PEG Training:1=(default) PEG Train immediately following RESET#;0=PEG Wait for BIOS

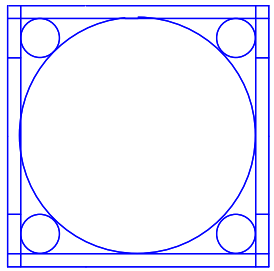
Bifurcation Config.	Signals Lanes CFG[6]	CFG[5]	CFG[2]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

6 layer PEG/DMI======4/4/4//15
6 DSL layer PEG/DMI======4/5.5/4//15
Impedance=85 +- 15%

Title	CPU LGA1151-A
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	4 of 91

Gigabyte Technology

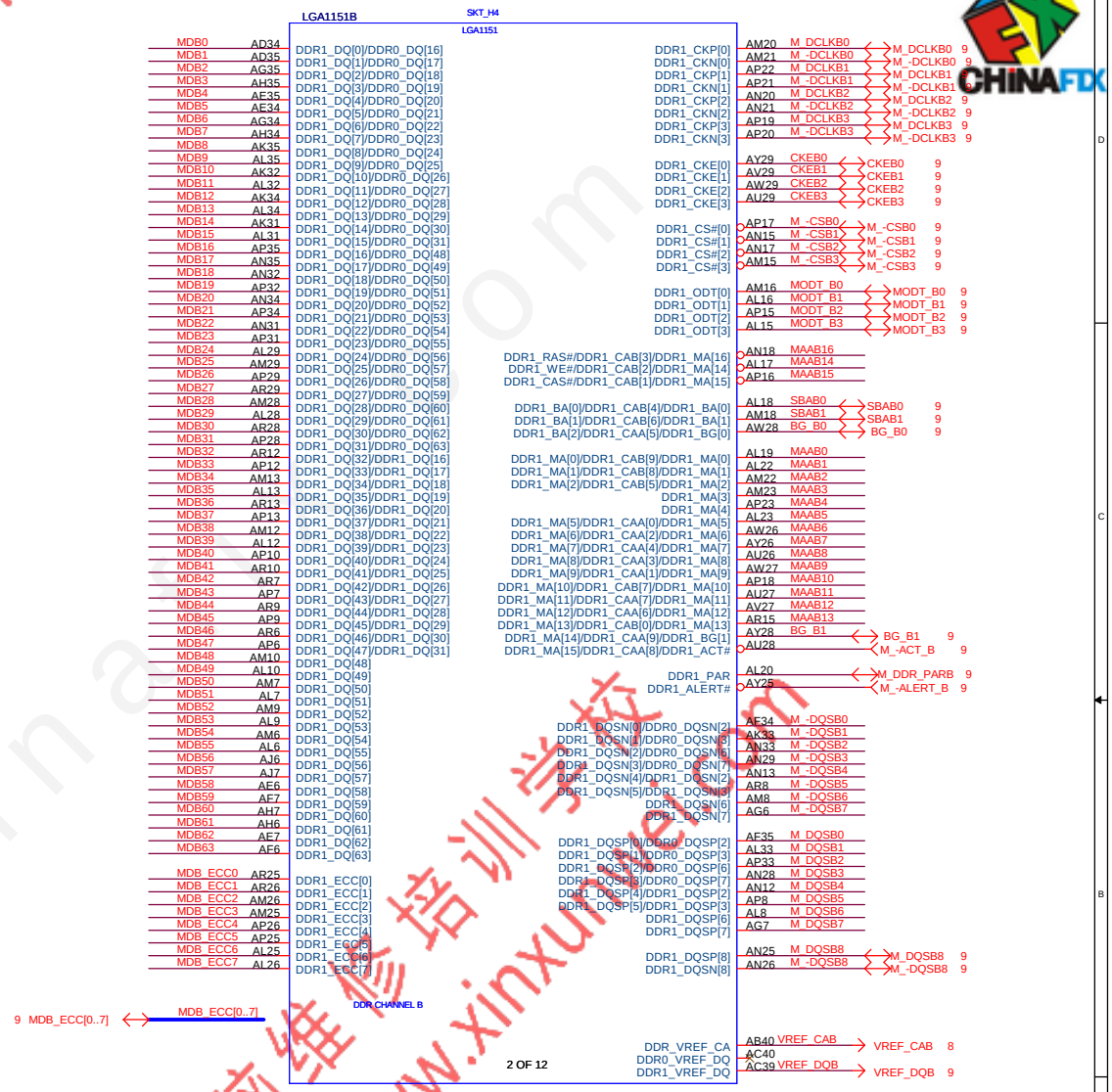




LGA1151
ILM_BP/1156/CSP/[12KRC-0F0001-61R]

黑色cover

Need check the new CPU ME



Gigabyte Technology			
Title: CPU LGA1151-B			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 5 of 91		

REV:0.22

* 刪 WBC49/50 電容

* WBC51 , WBC52
VDDQ 改 VCCSA

VCCSA

WBC56 22u/8/X5R/6.3V/M
WBC57 22u/8/X5R/6.3V/M
WBC51 22u/8/X5R/6.3V/M
WBC52 22u/8/X5R/6.3V/M
WBC53 22u/8/X5R/6.3V/M
WBC54 22u/8/X5R/6.3V/M

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

CPU POWER

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

VCCST_VCCPLL
VCCSFUSEPRG

VCCSA
VCCST_VCCPLL
remove WR94

VCCIO

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

VCCIO

* 刪 VCCGT 電容

WBC75 22u/8/X5R/6.3V/M
WBC76 22u/8/X5R/6.3V/M
WBC77 22u/8/X5R/6.3V/M

VCCGT

WBC38 22u/8/X5R/6.3V/M
WBC39 22u/8/X5R/6.3V/M

放CPU端.

VCCGT

LGA1151J SKT_H4 LGA1151

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

WR59 0/4/X

VCCGT_SENSE F39
VSSGT_SENSE F38
VCCGTX_SENSE F37
VSSGTX_SENSE F36

VCCGT_VCC_SEN 69
VCCGT_VSS_SEN 69

10 OF 12

CPU-SK/1151/S/15

VCCSA

LGA1151K SKT_H4 LGA1151

VDDQ

VCCIO

CPU POWER

VCCST_VCCPLL
VCCSFUSEPRG
VCCPLL

VCCST_V5
VCCST_V6
VCCPLL

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

CPU POWER

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

VCCOPC_AJ30
VCCOPC_AJ27
VCCOPC_AJ28
VCCOPC_AJ29
VCCOPC_AK27
WR60 0/4/X

VCCEOPIO
WR61 0/4/X

VCC_OPC_1P8_AB37
VCC_OPC_1P8_AB38
WR62 0/4/SHT/M/X
WR63 0/4/SHT/M/X

VCCSA_SENSE 72
VCCIO_SENSE 72
VSSAIO_SENSE 72

VCCOPC_SENSE
VCCEOPIO_SENSE
VSSOPC_EOPIO_SENSE

10 OF 12

CPU-SK/1151/S/15

LGA1151L SKT_H4 LGA1151

RSVD_TP_J8
RSVD_TP_J7
RSVD_TP_L8
RSVD_TP_K8
RSVD_TP_AV1
RSVD_TP_AW2
RSVD_H8
RSVD_K10
RSVD_L10
RSVD_J17
RSVD_B39
RSVD_J19
RSVD_C40
RSVD_G8
RSVD_AY3
PROC_TRIGIN
PROC_TRIGOUT
RSVD_L12
RSVD_K12

RSVD_TP_H11
RSVD_TP_H12
RSVD_TP_AW38
RSVD_TP_AV39
RSVD_AU39
RSVD_AU40
VSS_AT15
VSS_AR23
VSS_AR22
RSVD_J15
RSVD_J14
RSVD_AU9
RSVD_AU10
RSVD_J13
RSVD_K13
RSVD_J11
RSVD_D15
RSVD_K11

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

12 OF 12

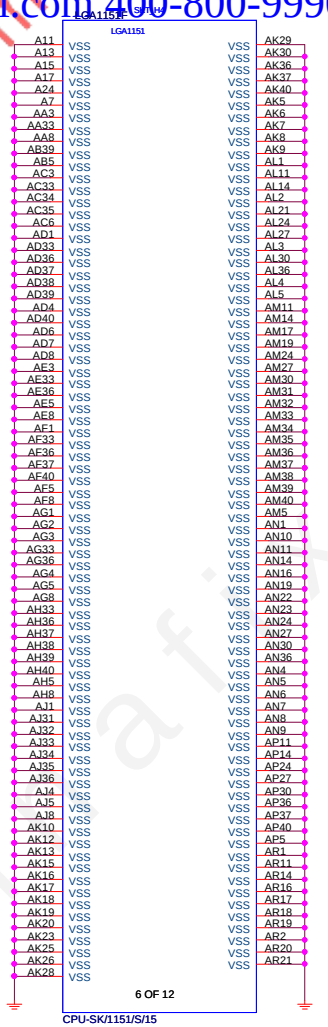
CPU-SK/1151/S/15

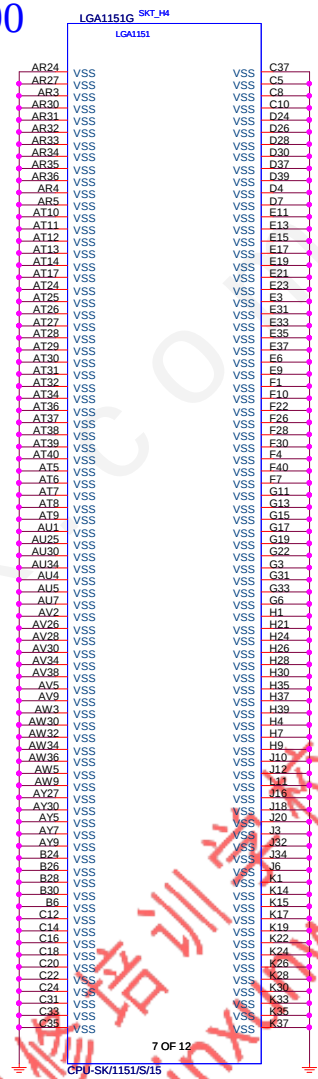
Gigabyte Technology

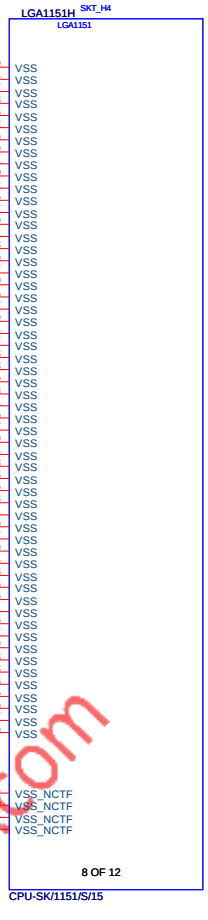
Title: CPU LGA1151-C

Size: Custom
Document Number: GA-Z270X-Gaming 9
Rev: 1.03

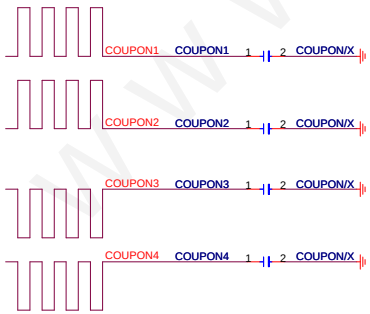
Date: Wednesday, November 09, 2016 Sheet 6 of 91



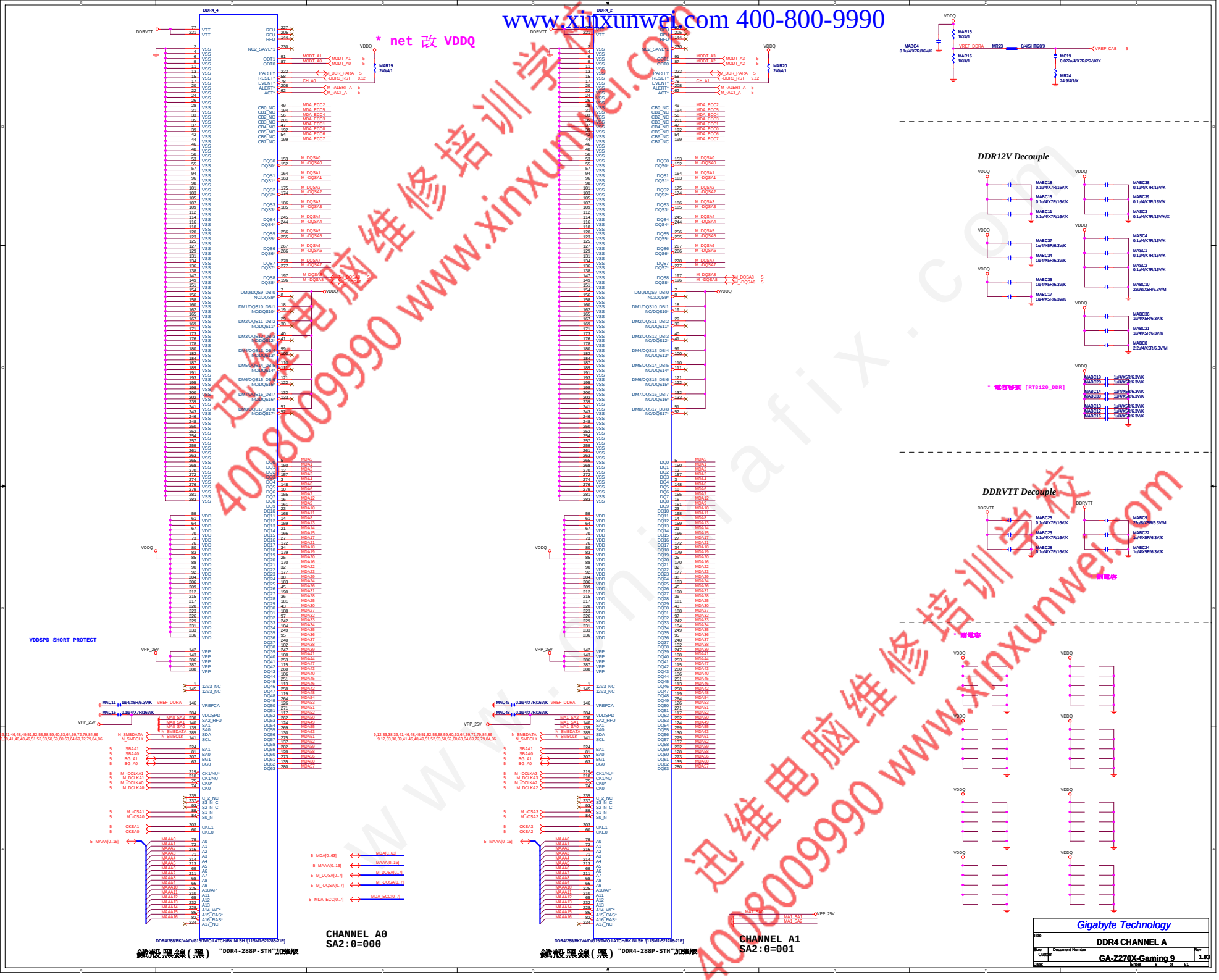




* 刪 Vcore 電容



Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 7 of 91	

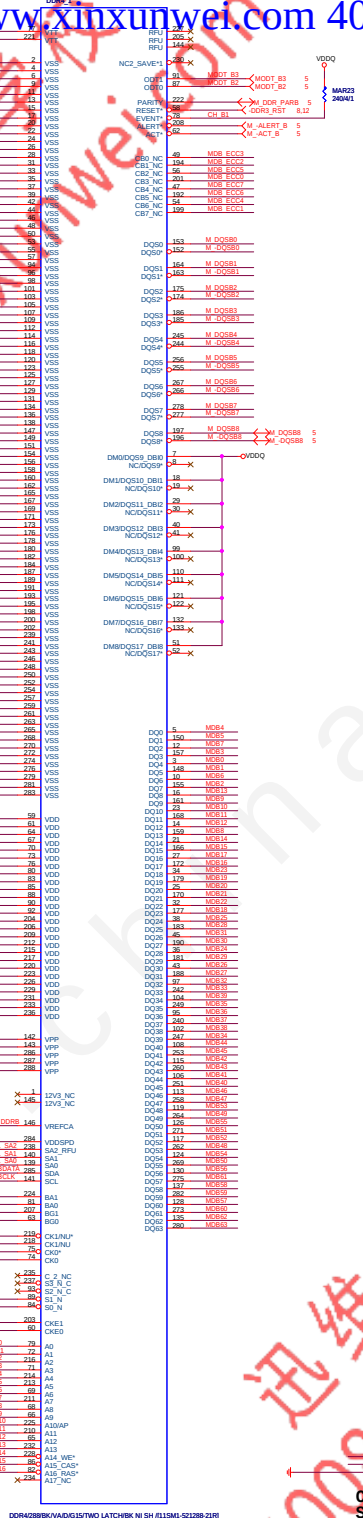


Gigabyte Technology			
Title: DDR4 CHANNEL A			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date:	Sheet 8 of 91		

* net 改 VDDQ

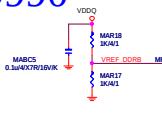
CHANNEL B0
SA2:0=010

鐵殼黑鎳(黑) "DDR4-288P-STH"加強版

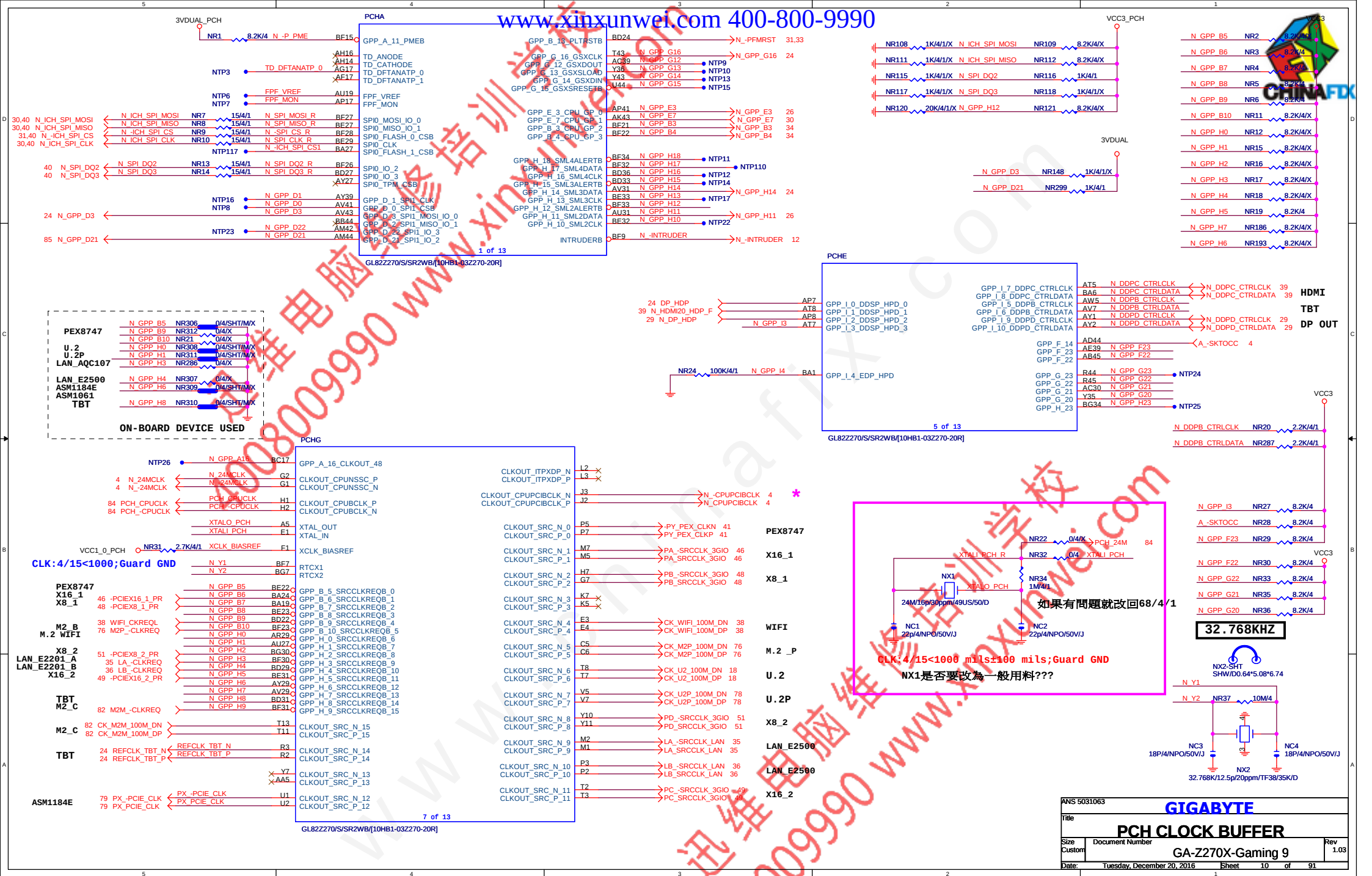


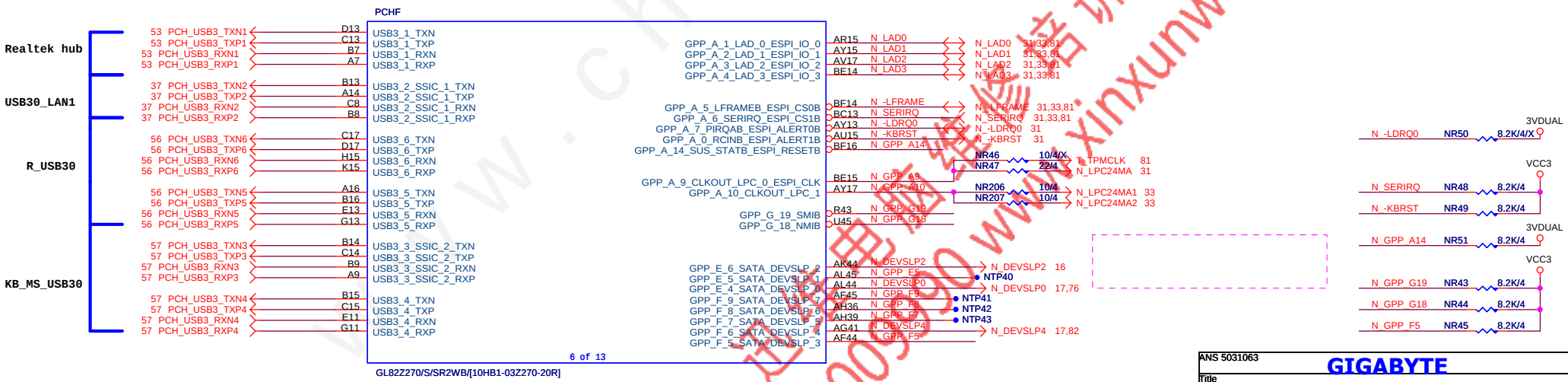
CHANNEL B1
SA2:0=011

鐵殼黑鎳(黑) "DDR4-288P-STH"加強版



Gigabyte Technology			
Title: DDR4 CHANNEL B			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date:	Sheet 9 of 91		





ANS 5031063

GIGABYTE

Title

PCH DMI,USB,PCIE

Size	Document Number	Rev
Custom	GA-Z270X-Gaming 9	1.03

Date: Tuesday, December 20, 2016 Sheet 11 of 91

PCHD

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

4 of 13

PCHK

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

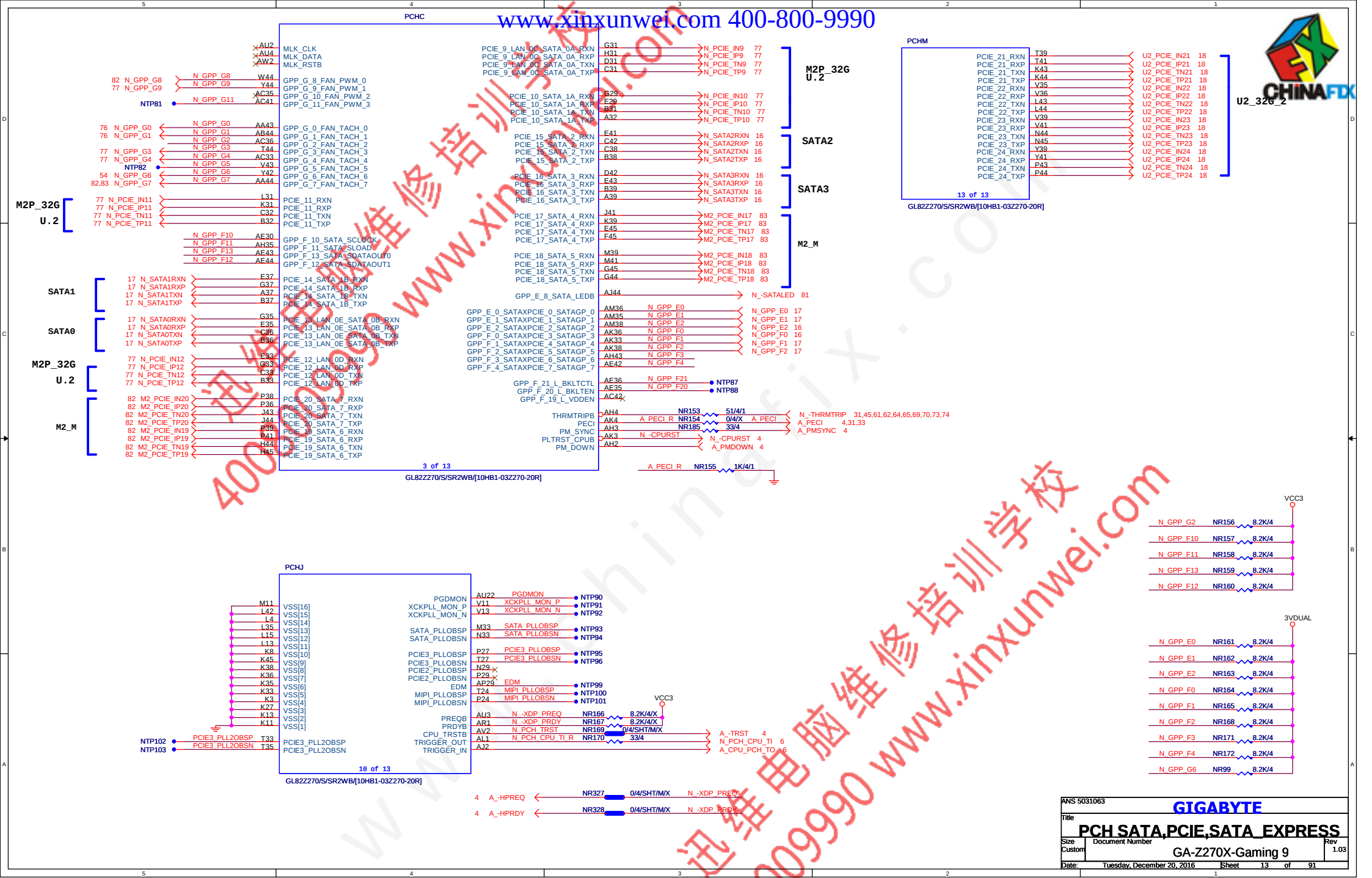
11 of 13

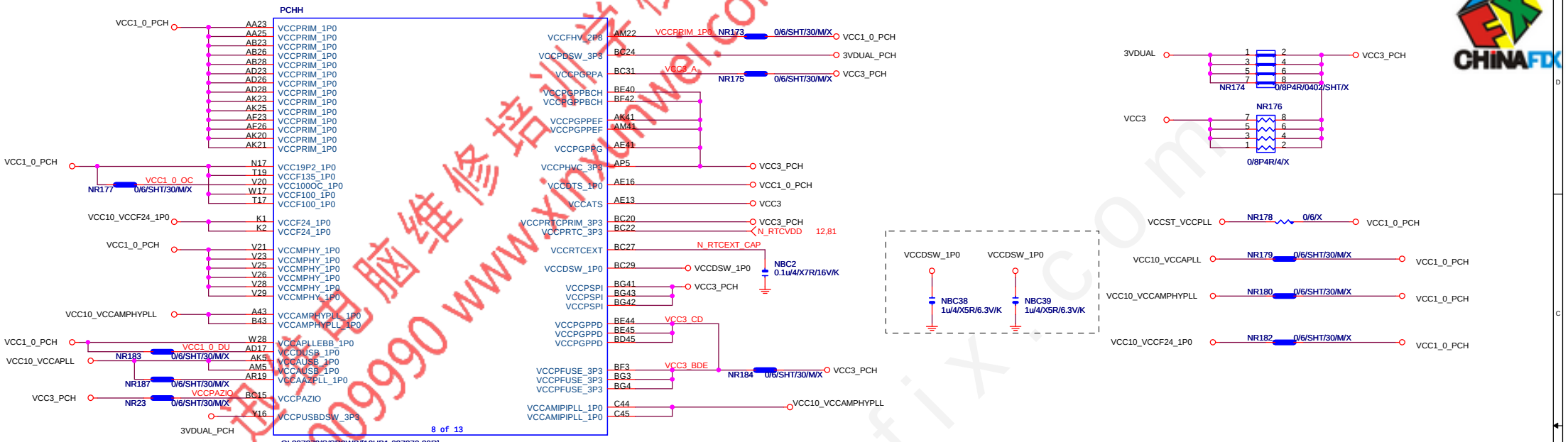
BATTERY-DUAL-4

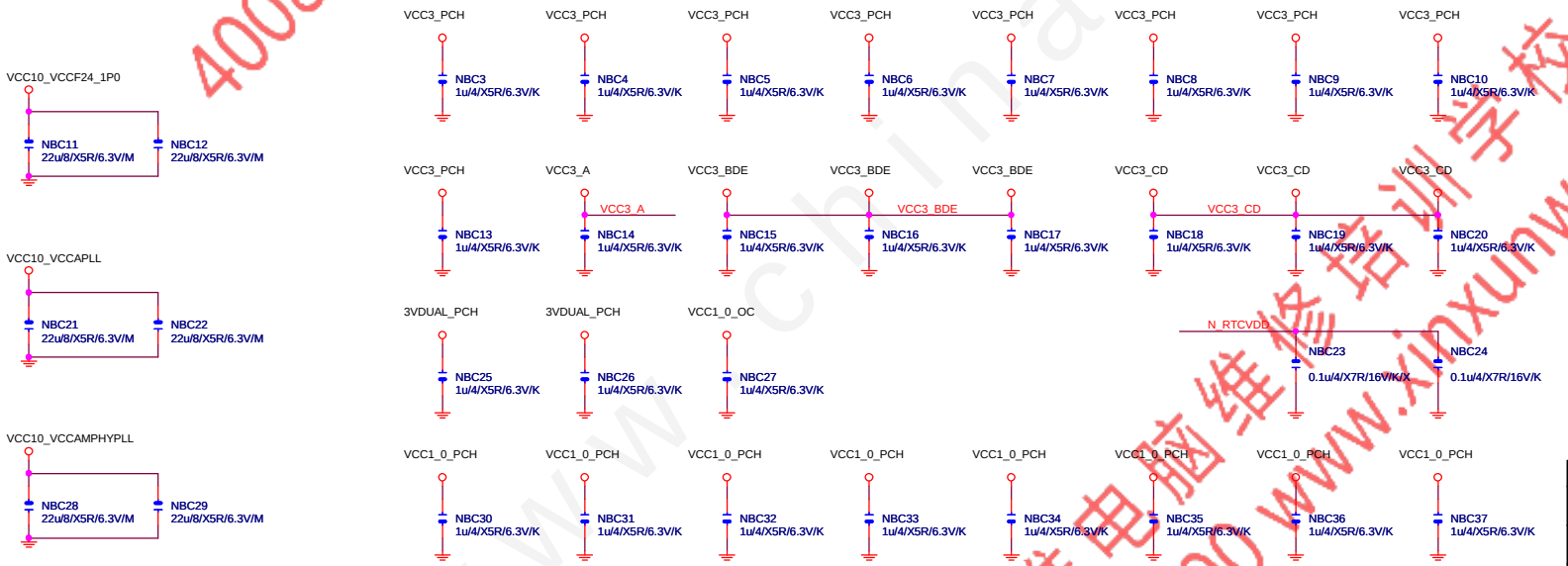
RB 必须放在BAT外

CLR_CMOS

ANS	5031063
Title	PCH MISC
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Tuesday, December 20, 2016
Sheet	12 of 91





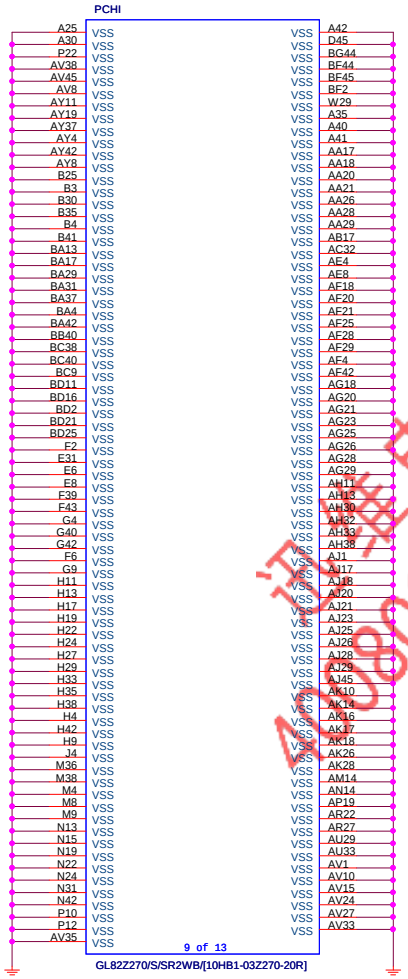


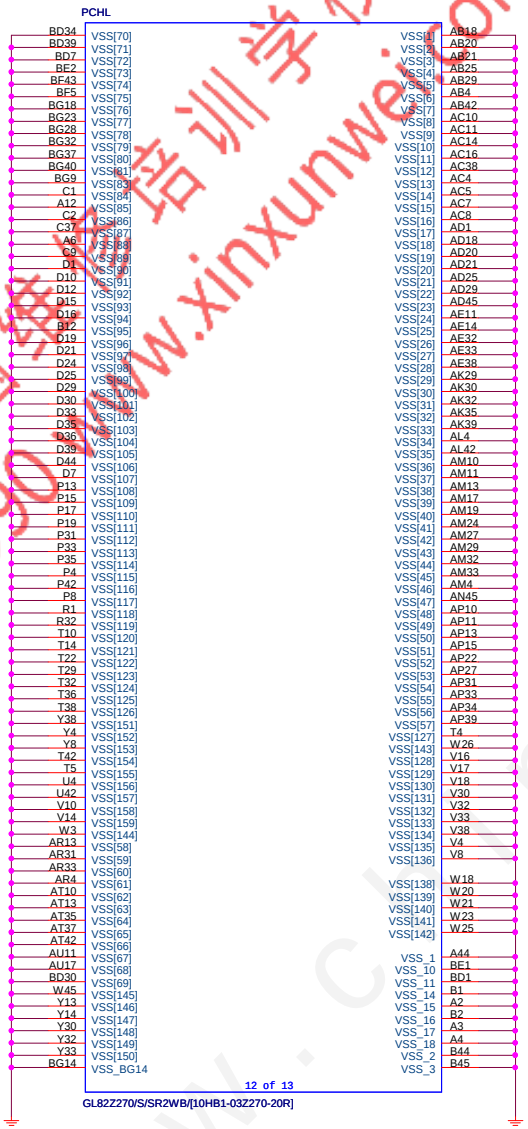
ANS 5031063

GIGABYTE

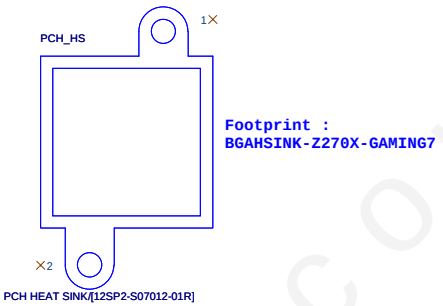
Title: **PCH PWR**

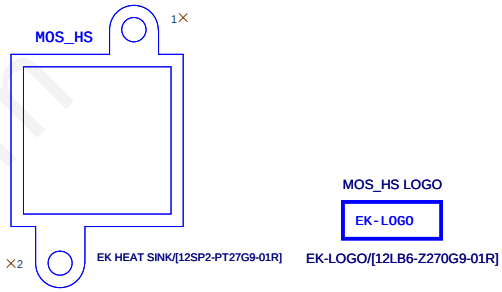
Size	Document Number	Rev
Custom	GA-Z270X-Gaming 9	1.03
Date: Tuesday, December 20, 2016	Sheet 14 of 91	

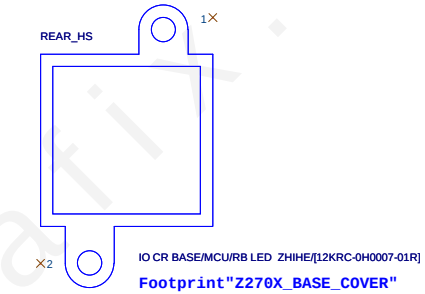


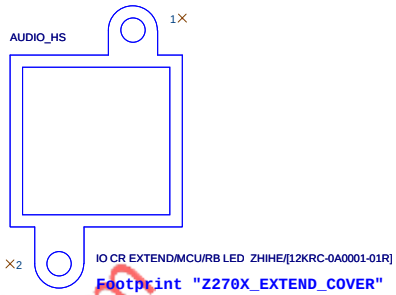


装甲HEATSINK 分成四大部份;暫用GAMING G1

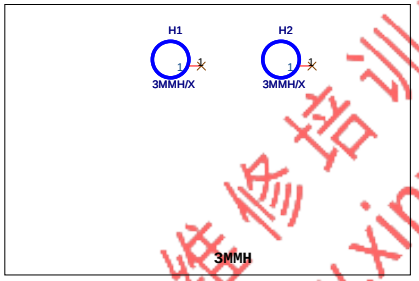








Z270X-Gaming 9 (白殼)

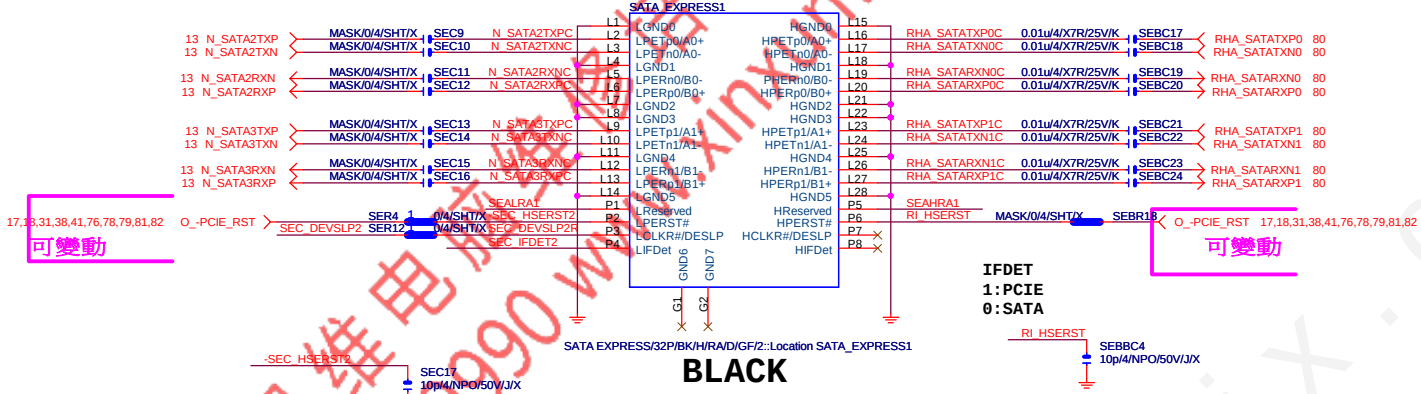


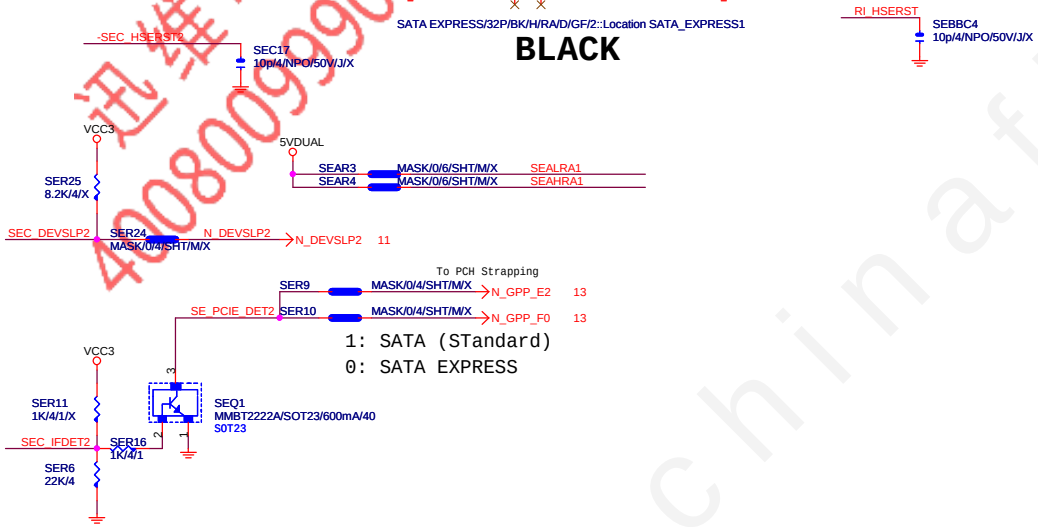
ANS 5031063	Gigabyte Technology	
Title	PCH GND	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Tuesday, December 20, 2016	Sheet 15 of 91	

Rev 0.4

SATA EXPRESS 下層 To SATA3 port2/3

SATA EXPRESS 上層 To ASM1061 port6/7





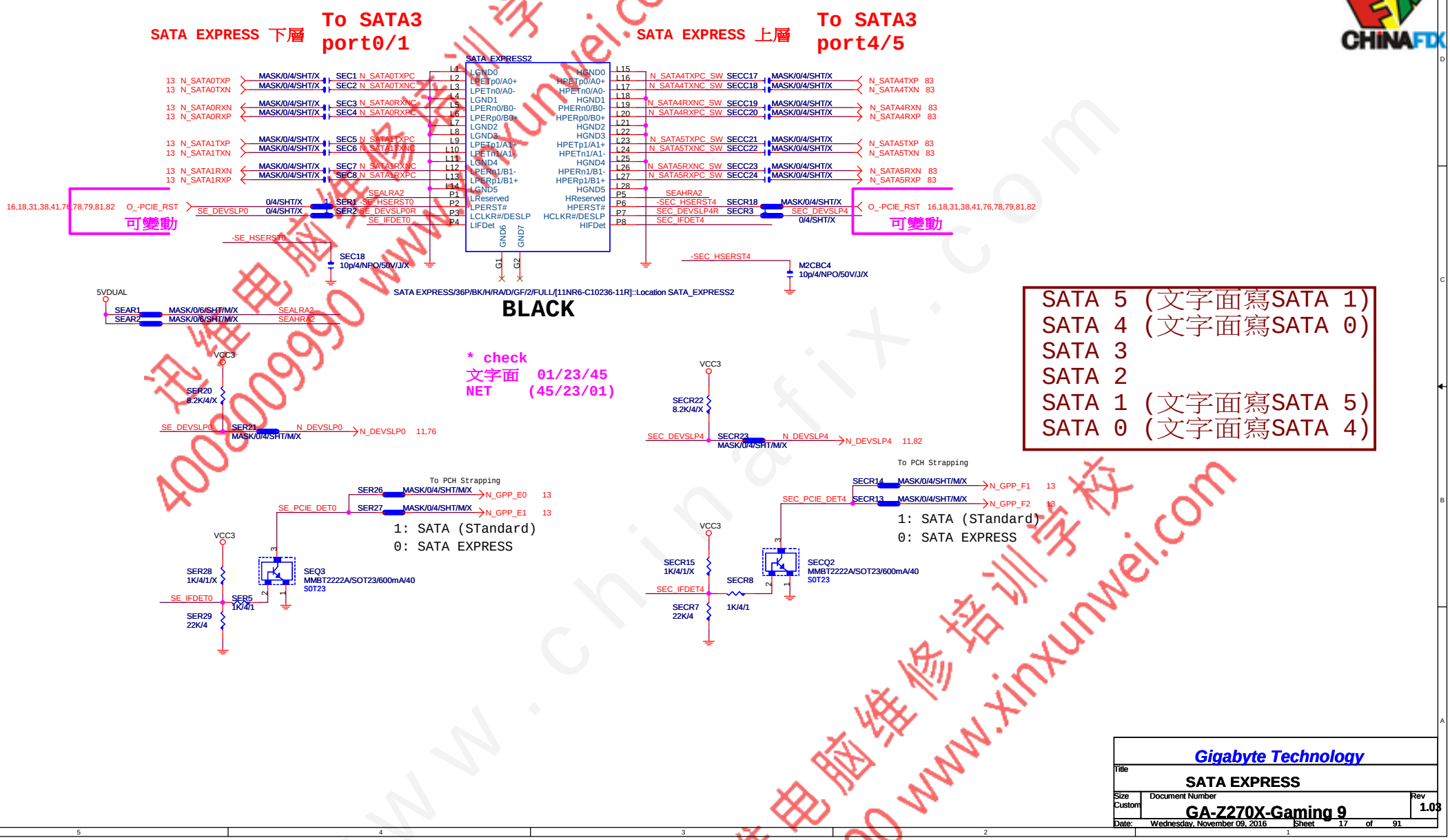
SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)

GIGABYTE Technology

Title: SATA EXPRESS 1

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

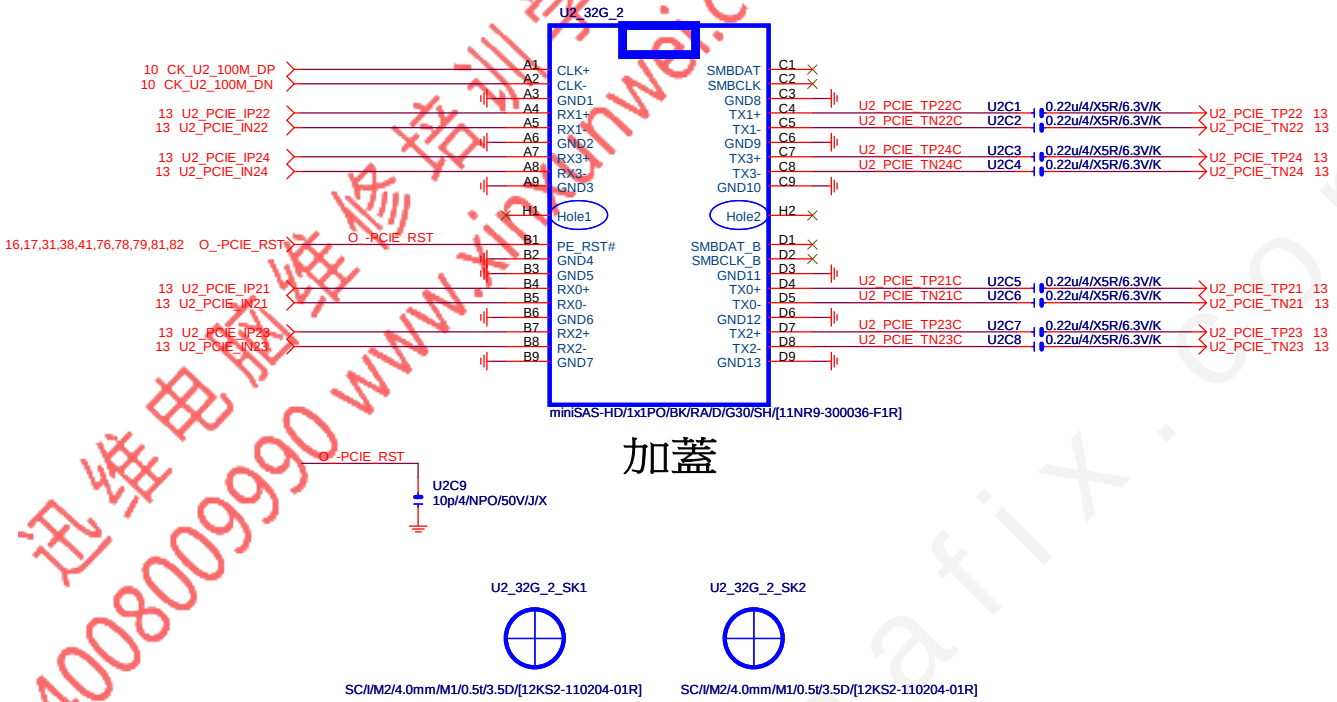
Date: Wednesday, November 09, 2016 | Sheet 16 of 91



SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)

Gigabyte Technology		
Title: SATA EXPRESS		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 17 of 91	

Rev 0.3

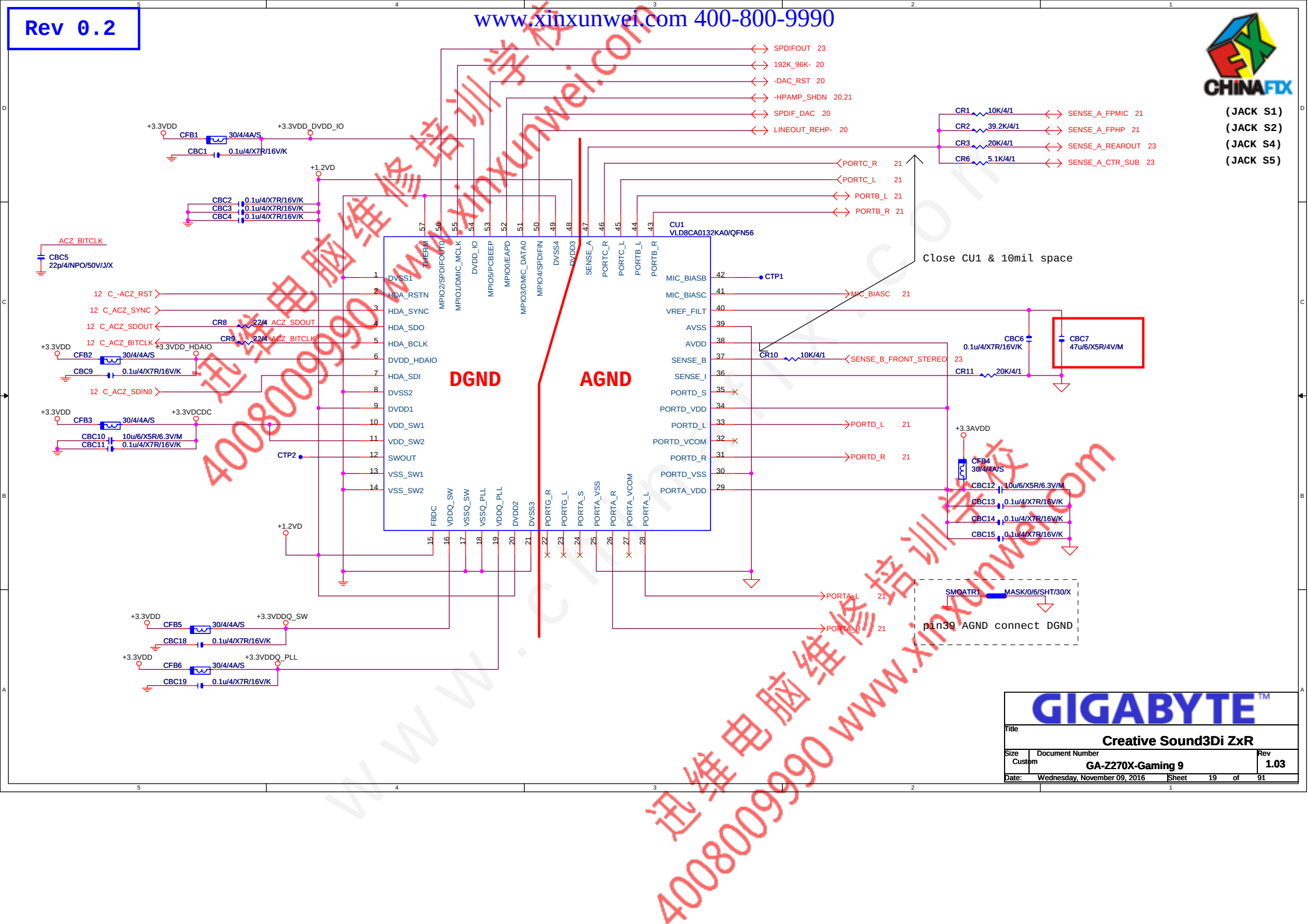


加蓋

GIGABYTE™

Title: M.2 to MINISAS		
Size: B	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 18 of 91	

Rev 0.2

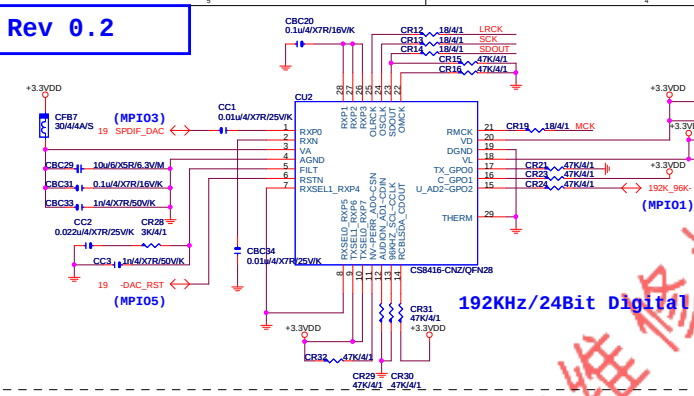


GIGABYTE™

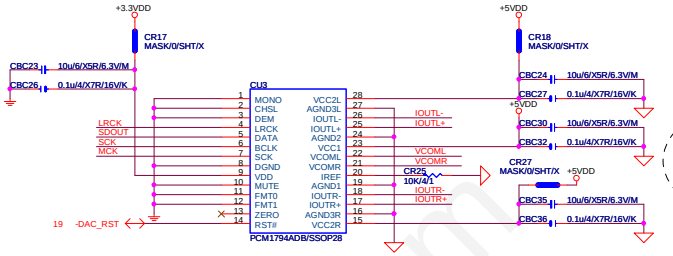
Title	Creative Sound3Di ZxR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 19 of 91	

Rev 0.2

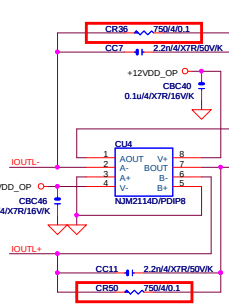
192KHz/24Bit Digital AUDIO Interface Receiver



192KHz/24Bit Digital-To-Analog Converter

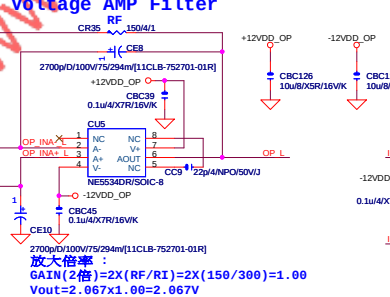


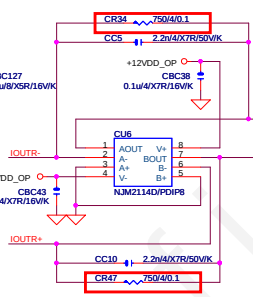
7.8 mAp-p Current TO Voltage Converter

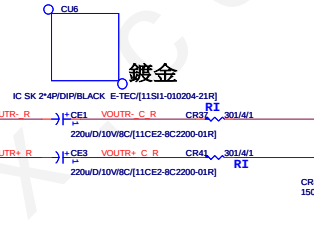


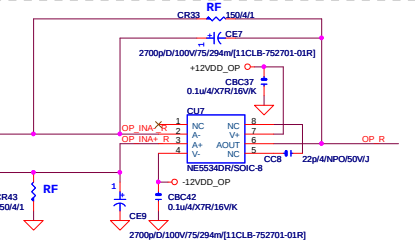
The voltage output level of the I/V concerter(Vi)
Vi = 7.8mAp-p X 750 = 5.85 Vp-p = 2.067Vrms

Voltage AMP Filter



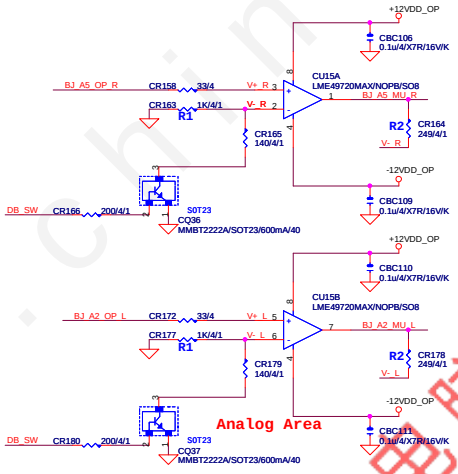


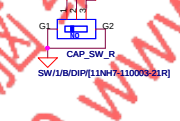


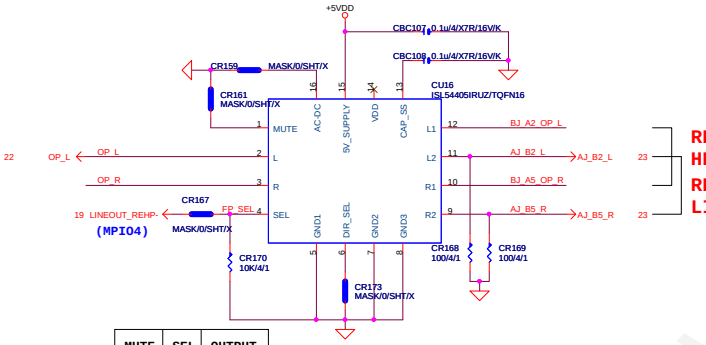


AMPLIFIED

OP AMP. Rate = (R2/R1)+1

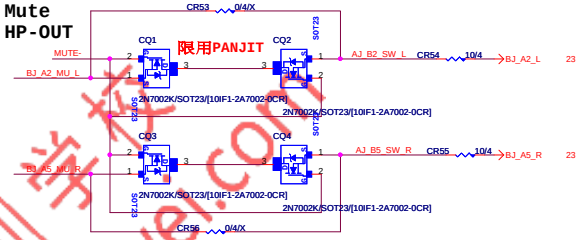






MUTE	SEL	OUTPUT
0	0	L1&R1
0	1	L2&R2
1	0	OFF
1	1	OFF

Mute HP-OUT



Close to Audio

GIGABYTE

Title	Creative Sound3Di ZxR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 20 of 91	

Rev 0.2

Rear MIC & FP MIC

FRONT HP

Mute HP-OUT

限用PANJIT

AMPLIFIED

OP AMP. Rate = (R2/R1)+1

Analog Area

鍍金

Rear CTR/SUB

OP AMP. Rate = (R2/R1)+1=2.3

Rear SURROUND

OP AMP. Rate = (R2/R1)+1=2.3

HD_Audio FRONT PANEL

PORT C

PORT A

AMP +/-12V DC POWER

Digital Area

Analog Area

PSP/PSN:LO FOR POWER SAVE MODE DISABLE

Title	Creative Sound3Di ZxR
Size / Document Number	Custom / GA-Z270X-Gaming 9
Rev	1.03
Date	Wednesday, November 09, 2016
Sheet	21 of 91

Rev 0.2

CQ19 78L05/SOT89/0.1A
+5VDD
+12V
CBC77 22u/8/X5R/6.3V/M
CBC78 0.1u/4/X7R/16V/K

CQ21 L1117LG/N/SOT223/1A
VCC
+3.3AVDD
CBC79 1u/4/X5R/6.3V/K
CBC88 22u/8/X5R/6.3V/M
CR120 301/4/1
CBC80
CBC81 22u/8/X5R/6.3V/M
CBC82 22u/8/X5R/6.3V/M
CBC83 0.1u/4/X7R/16V/K
CR122 510/4/1
CBC84 0.1u/4/X7R/16V/K
CBC85 0.1u/4/X7R/16V/K

CQ25 L1117LG/N/SOT223/1A
CR128 301/4/1
CBC90
CBC91 22u/8/X5R/6.3V/M
CBC86 1u/4/X5R/6.3V/K
CBC87 22u/8/X5R/6.3V/M
CBC89 22u/8/X5R/6.3V/M
CBC92 10u/6/X5R/6.3V/M
CBC93 0.1u/4/X7R/16V/K
CR132 510/4/1
CBC94 0.1u/4/X7R/16V/K
CBC95 0.1u/4/X7R/16V/K

CR112 2.2/6/X
MOATR1 0/4/X
MOATR2 0/4/X
MOATR3 MASK/0/4/SHT/20/X
MOATR4 0/4/X
MOATC1 MASK/0/4/SHT/20/X
MOATC2 0.1u/4/X7R/16V/K/X
MOATC3 0.1u/4/X7R/16V/K/X
MOATC4 0.1u/4/X7R/16V/K/X

RGB LED CONTROL

CQ20 AZ1117H-1.2TR/SOT223/1A
+1.2VD
+1.2VD
+3.3VDD
CBC75 22u/8/X5R/6.3V/M
CBC76 1u/4/X5R/6.3V/K

Rear Panel LED ON/OFF

CHINAFIX

CR134 20K/4/1/X
+12V
3.5V
CR135 8.2K/4
CR137 0/4/X
LED_BEAT 86
CR136 8.2K/4/X
CQ26 2N7002/SOT23/25pF/5/X
SOT23
CU11B KA393D/SO8

L OFF
ITE8620 GP82

LINE OUT L
20 OP_L
CU14A LM358DR/SO8/X
+12V
-12V
R
CR142 8.2K/4/X
CBC97 0.1u/4/X7R/16V/K/X
C
CU14B LM358DR/SO8/X
CD5 BAT54C/SOT23/200mA/X
CR140 1M/4/1/X
CR144 100K/4/1/X
Rn
CR145 1K/4/1/X
Rf

上限截止頻率
fH=1/[2pi*(R*C)]=194Hz

電壓增益
Av=1+(Rf/Rn)=100倍

ITE8620 GP83
(可以和MPD-不同步)

L
ITE8620 GP91

AUDIO LED Control

	IO_GP82	IO_GP83	IO_GP91
Still Mode	L	H	L
OFF Mode	L	L	L
Pluse Mode	L	H	BREATH
Beat Mode	OD	H	L

三色 LED Control

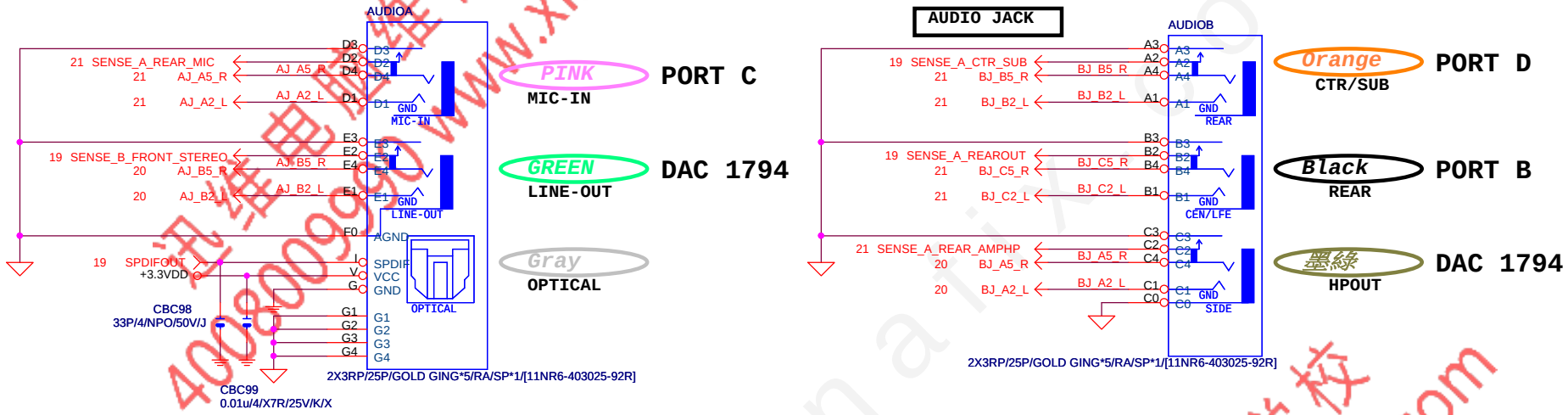
	N_GPPD0(R)	N_GPPD2(G)	N_GPPD1(B)
OFF	L	L	L
藍	L	L	H
綠	L	H	L
淺綠	L	H	H
紅	H	L	L
粉紅	H	L	H
黃	H	H	L
白光	H	H	H

DGND
Isolate

GIGABYTE

Title	Creative Sound3Di ZxR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 22 of 91	

Rev 0.2



Gigabyte Technology		
Title: Creative Sound3Di ZxR		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 23 of 91	

INTEL AR C version module (TBT + U31A) SCH 0.3 (2016/07/17) 4 Layers

Base on INTEL AR reference SCH 1.7 (2016/05/24)

PCIE X4

PCIe GEN3

PCIE_RBIAS THR20 should be placed as close as Alpine Ridge and keep traces as short as possible.

DP differential 100 ohm

CLKREQ should be checked again

EX DP Input (DP + AUX)

PCH DP Input (DP + AUX)

SINK PORT 0

SINK PORT 1

SOURCE PORT 0

LC GPIO

POC GPIO

Assemble THR72 if DPSRC NOT in USE

Assemble THR25 if DPSRC NOT in USE

TBT_CIO_PLUG_EVENT_N uses PCH GPIO with SMI#

GPIO Link for
- Plug Event
- Force Power

Board Link for
- PCIE Wake
- S3

* 0717

MISC

TBT PORTS

PORT A

PORT B

POC

DEBUG

THU1A
DSL6540/S/C1

For INTEL IDC Certification uesd, MP remove!!

JTAG

PH/1*5/BK/2.54/VA/D/X

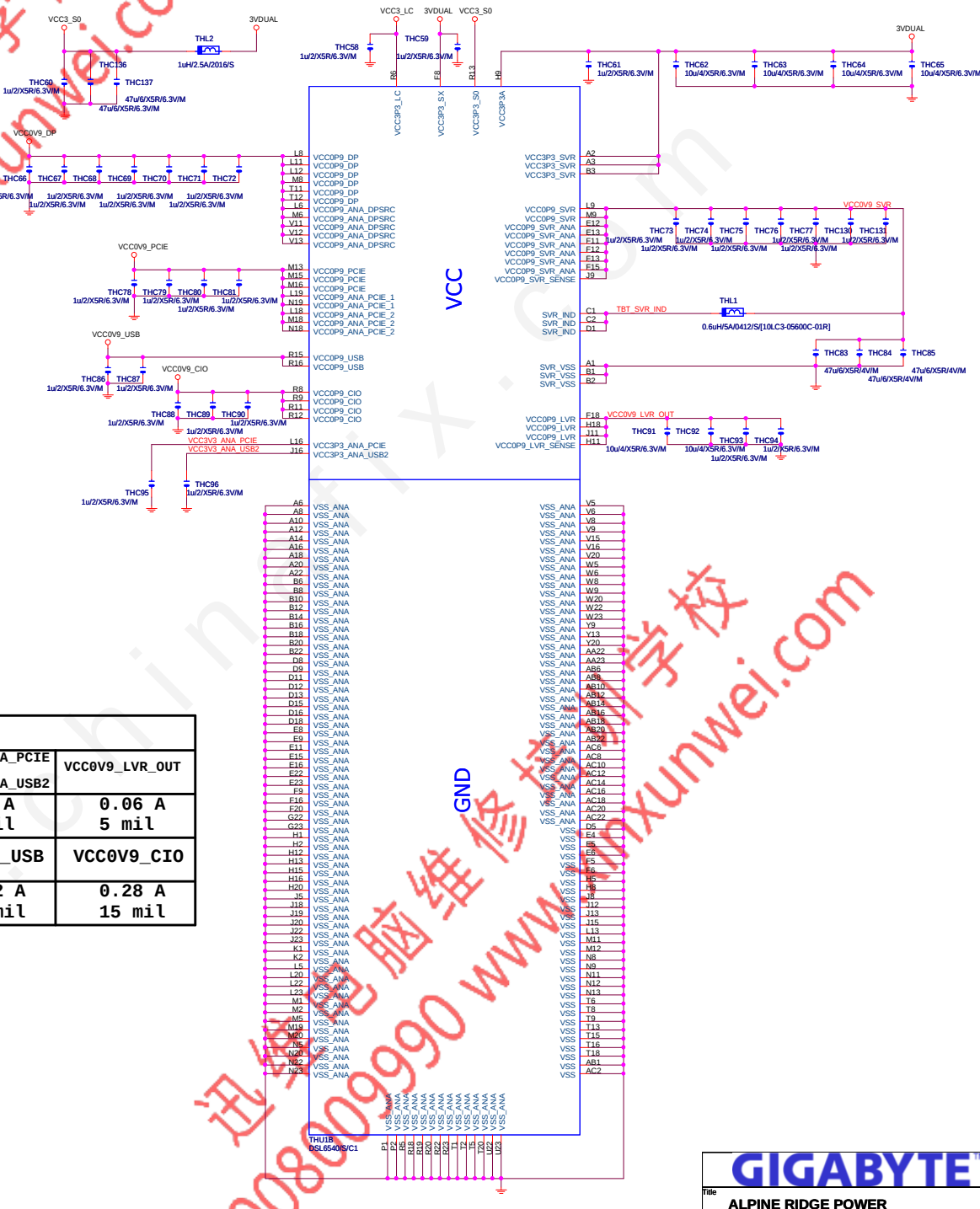
* 0811

* 0717

Title	ALPINE RIDGE CIO & DP		
Size C	Document Number GA-Z270X-Gaming 9		Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 24 of 91		

INTEL AR C version module (TBT + U31A) SCH 0.3 (2016/07/17) 4 Layers

Base on INTEL AR reference SCH 1.7 (2016/05/24)



Power Consumption Table					
	VCC3	3VDUAL	VCC3_LC	VCC3V3_ANA_PCIE VCC3V3_ANA_USB2	VCC0V9_LVR_OUT
Max Current(A)	1.05 A 40 mil	0.19 A 10 mil	0.03 A 5 mil	0.1 A 5 mil	0.06 A 5 mil
	VCC0V9_SVR	VCC0V9_DP	VCC0V9_PCIE	VCC0V9_USB	VCC0V9_CIO
Max Current(A)	1.83 A 80 mil	0.7 A 30 mil	0.58 A 30 mil	0.22 A 15 mil	0.28 A 15 mil

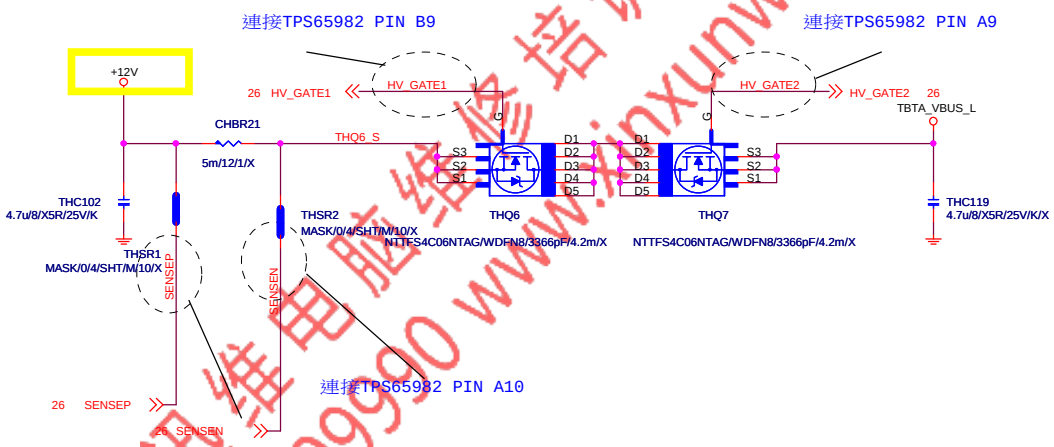
GIGABYTE			
Title	ALPINE RIDGE POWER		
Size C	Document Number GA-Z270X-Gaming 9		Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 25 of 91		

INTEL AR C version module (TBT + U31A) SCH 0.3 (2016/07/17) 4 Layers

Base on INTEL AR reference SCH 1.7 (2016/05/24)

TypeC Foxconn Dual Row SMD

Title	TPS65982 Type C
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date	Wednesday, November 09, 2016
Sheet	26 of 91



GIGABYTE

Title: TPS65982D Co-lay		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 27 of 91	

SINGLE Display Port

Dx_SEL=L DC=DA
Dx_SEL=H DC=DB

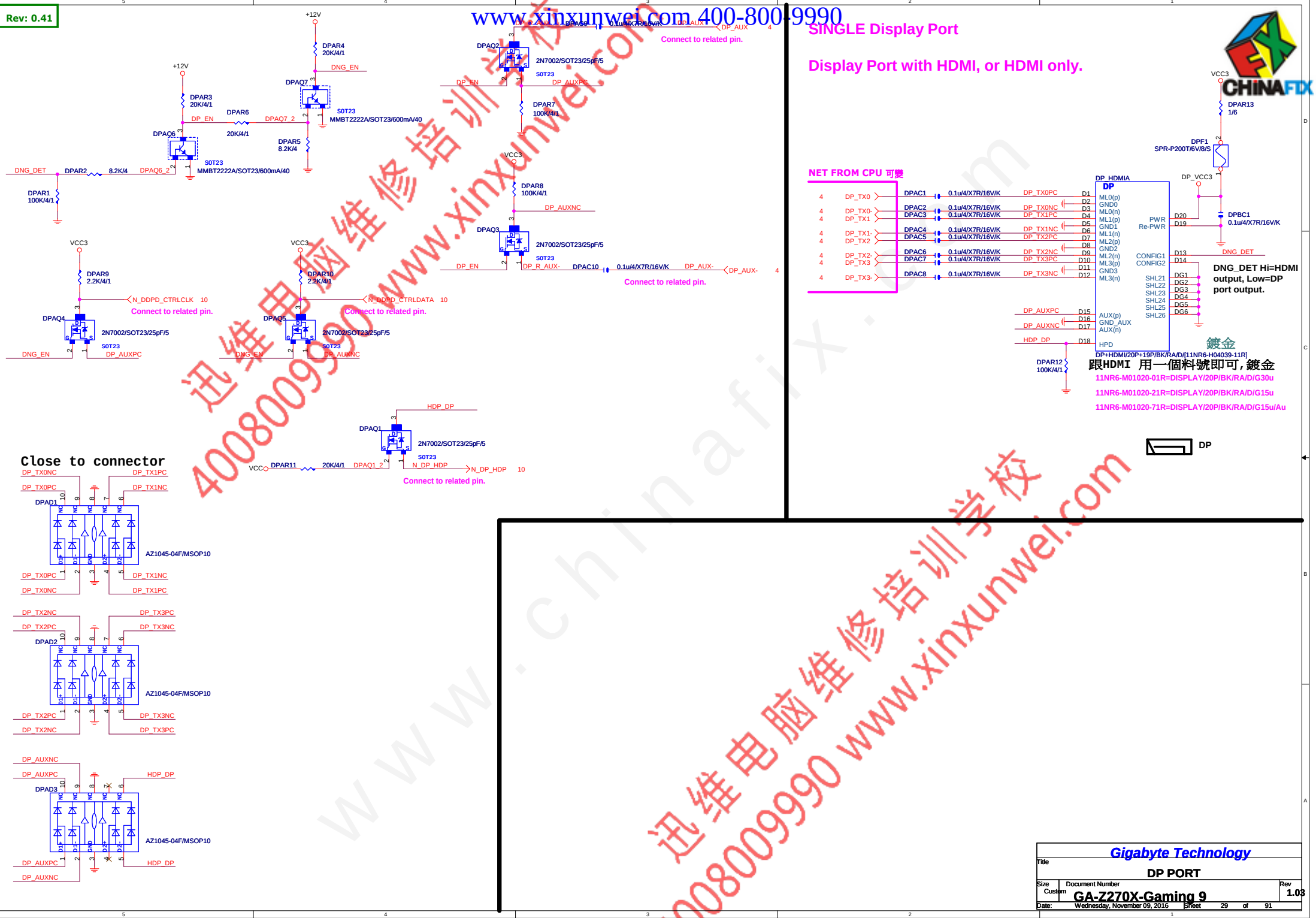
GIGABYTE™

Title: DISPLAY PORT IN		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 28 of 91	

Rev: 0.41

SINGLE Display Port

Display Port with HDMI, or HDMI only.



NET FROM CPU 可變

DNG_DET Hi=HDMI output, Low=DP port output.

鍍金

跟HDMI 用一個料號即可，鍍金

11NR6-M01020-01R=DISPLAY/20P/BK/RA/D/G30u

11NR6-M01020-21R=DISPLAY/20P/BK/RA/D/G15u

11NR6-M01020-71R=DISPLAY/20P/BK/RA/D/G15u/Au

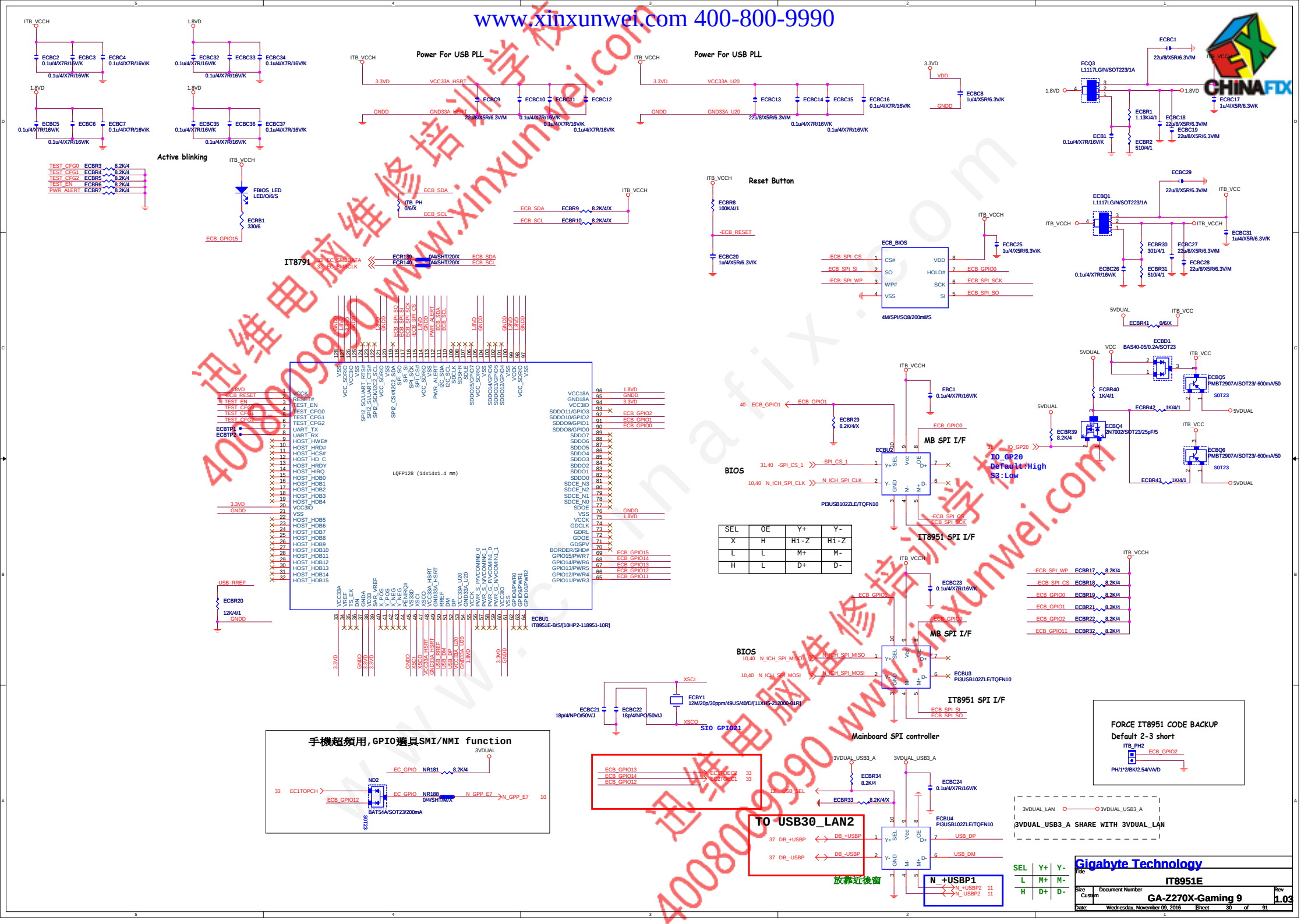
DP

Gigabyte Technology

Title: DP PORT

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 29 of 91



SEL	OE	Y+	Y-
X	H	Hi-Z	Hi-Z
L	L	M+	M-
H	L	D+	D-

SIO IT8686 REV:0.1

IT8686

CPU_OPT

CPU_FAN
SYS_FAN1
SYS_FAN2
SYS_FAN3 sensor
CPU_OPT sensor

2016-06-27 for ASM2142
2016-08-15 for Q-FLASH PLUS

THRMTRIP

SIO

SYS_FAN3

PROCHOT

VCCSA_EN

PWR SHT

SIO PU

SIO STRAP

EUP control detect

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

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

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

DUAL BIOS OPT STRAP

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

Placement CPU

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

SIO_18V

internal power pin, max 22nF cap

SIO CAP

CLOSE SIO PIN4 2_5LEVEL

MB ID

Gigabyte Technology

Title: IT8686
Size: C
Document Number: GA-Z270X-Gaming 9
Rev: 1.03
Date: Wednesday, November 09, 2016
Sheet 31 of 91

ATX POWER CONNECTOR

Title R&D 155

APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

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

For CHINA Power issue

FOR AUDIO 切割

REV:1.07

HOT MOS H/W MONITOR

RS_VCORE、RS_VCCGT CLOSE CPU VCORE & VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function

8個FAN時使用

126~133 degree

TEMP H/W MONITOR

Close SIO

CLOSE PCH

KBL FAN LOCATION MAP

8 FAN from IO & EC

EC TEMP SENSE

IO TEMP SENSE

SYS_FAN1 2nd

SYS_FAN1 1st

CPU_FAN 1st

OPT_FAN

CPU_FAN 2nd

1st: priority 1.
2nd: priority 2.

SYS_FAN 3&5

EC_FAN 1

SYS_FAN 2&4
EC_FAN 2

PUMP 1

PUMP 2

To fix 12V light load abnromal issue

VOLTAGE-- H/W MONITOR

* IT8728 BX
* * IT8728 CX

2.0V IT8728 EX

VIN2 must +12V_input
VIN3 must VCC input

The division voltage of VIN2 & VIN3 must be around 2.9V

FOR EMI ONLY

★Update 2015-04.24

Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: C	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 32 of 91		

REV:0.1

FOR Q-FLASH PLUS FUNCTION

IT8792E

IT8792E/LQFP64

IT8951

IT8686

FOR Q-FLASH PLUS FUNCTION

FOR DUAL BIOS SWITCH FUNCTION

手機超頻用，發EVENT 通知BIOS

EUP control detect

CLK Buffer

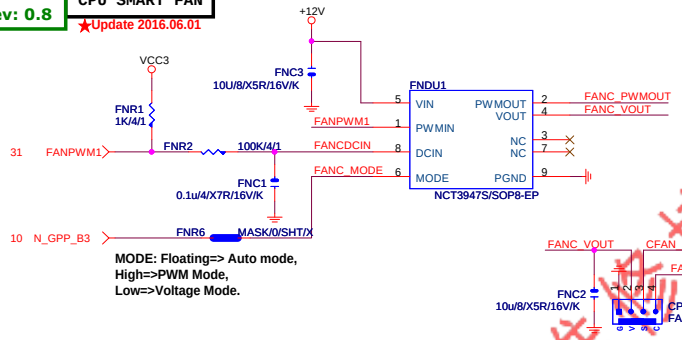
internal power pin, max 22nF cap

Title	8FAN
Size / Document Number	Custom / GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	33 of 91

Rev: 0.8

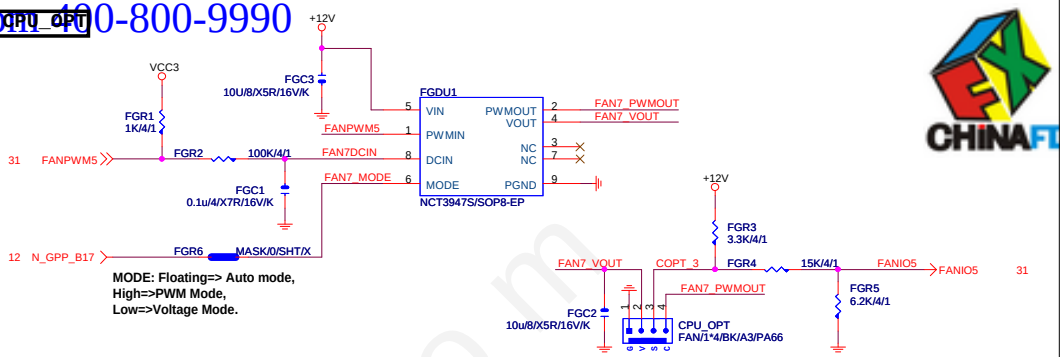
CPU_SMART_FAN

★Update 2016.06.01



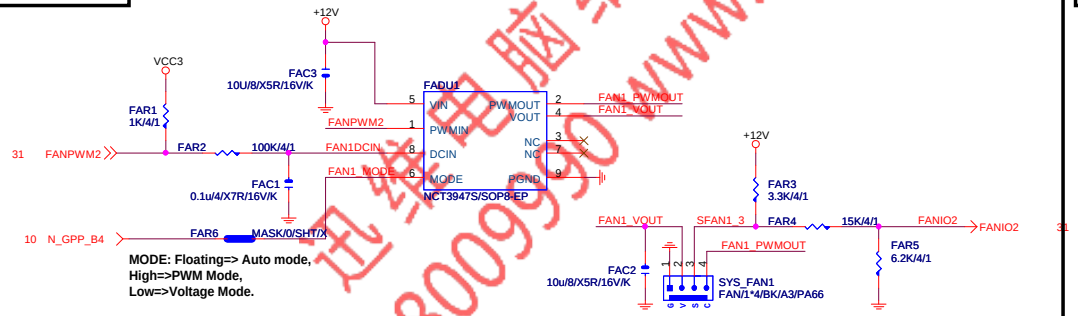
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

CPU_OPT



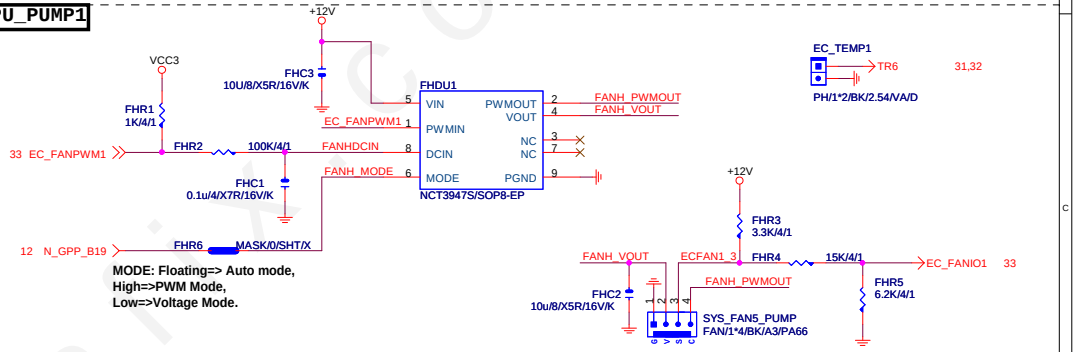
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM_FAN1



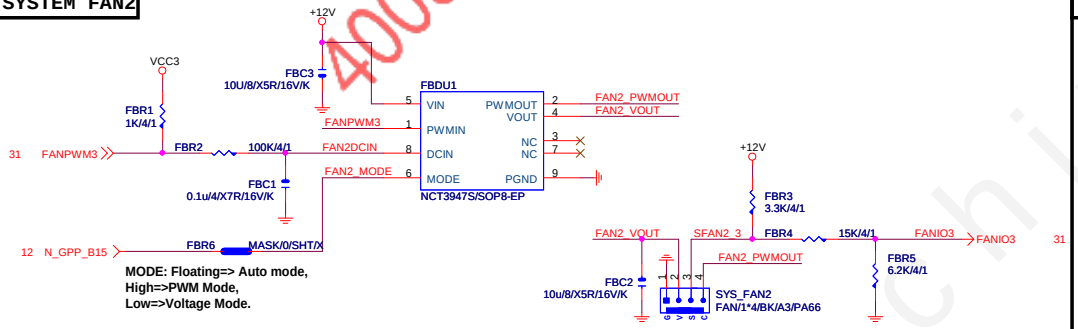
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

CPU_PUMP1



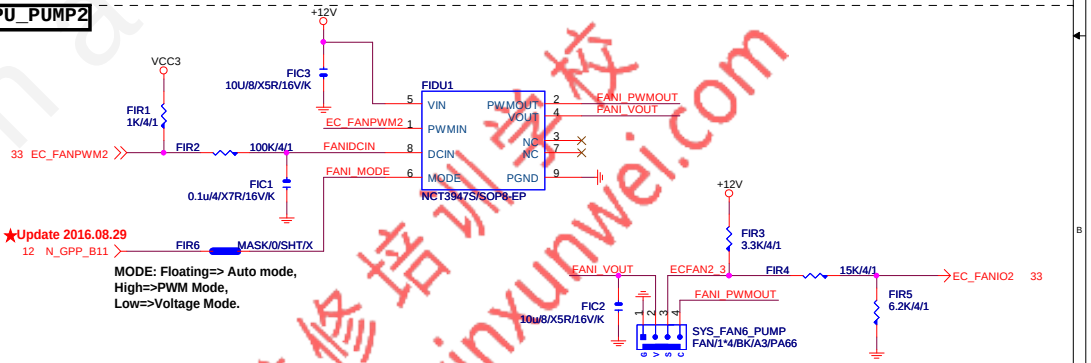
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM_FAN2



MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

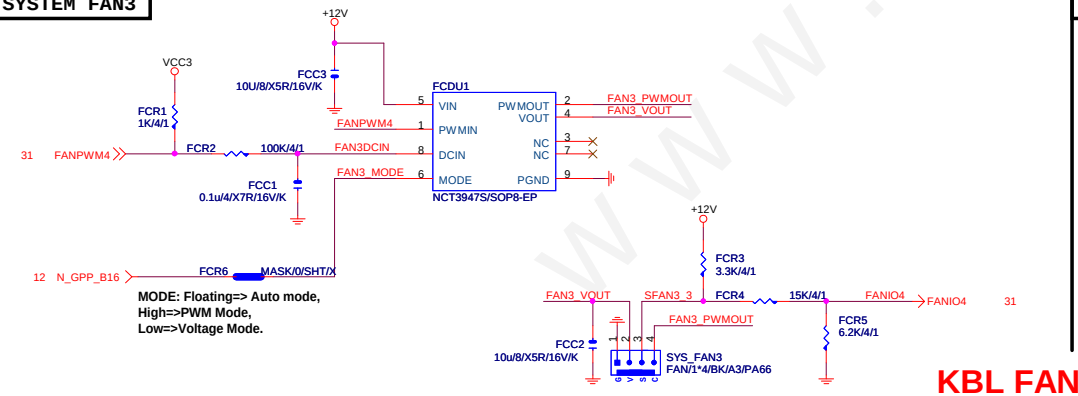
CPU_PUMP2



★Update 2016.08.29

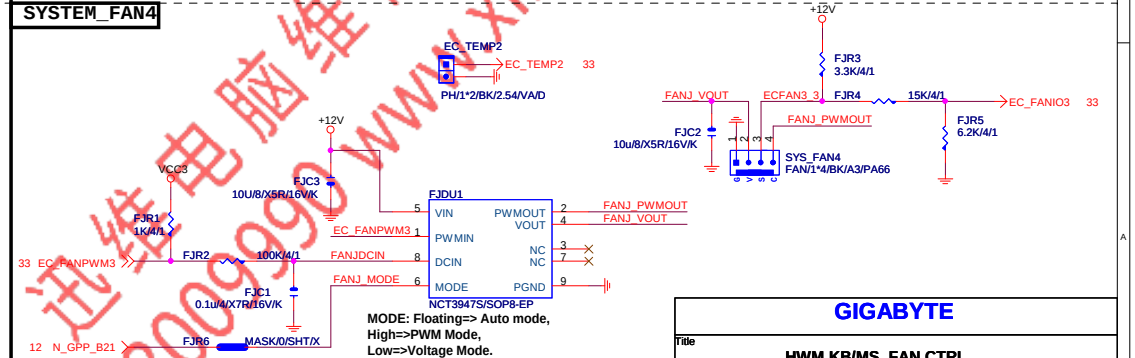
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM_FAN3



MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM_FAN4



MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

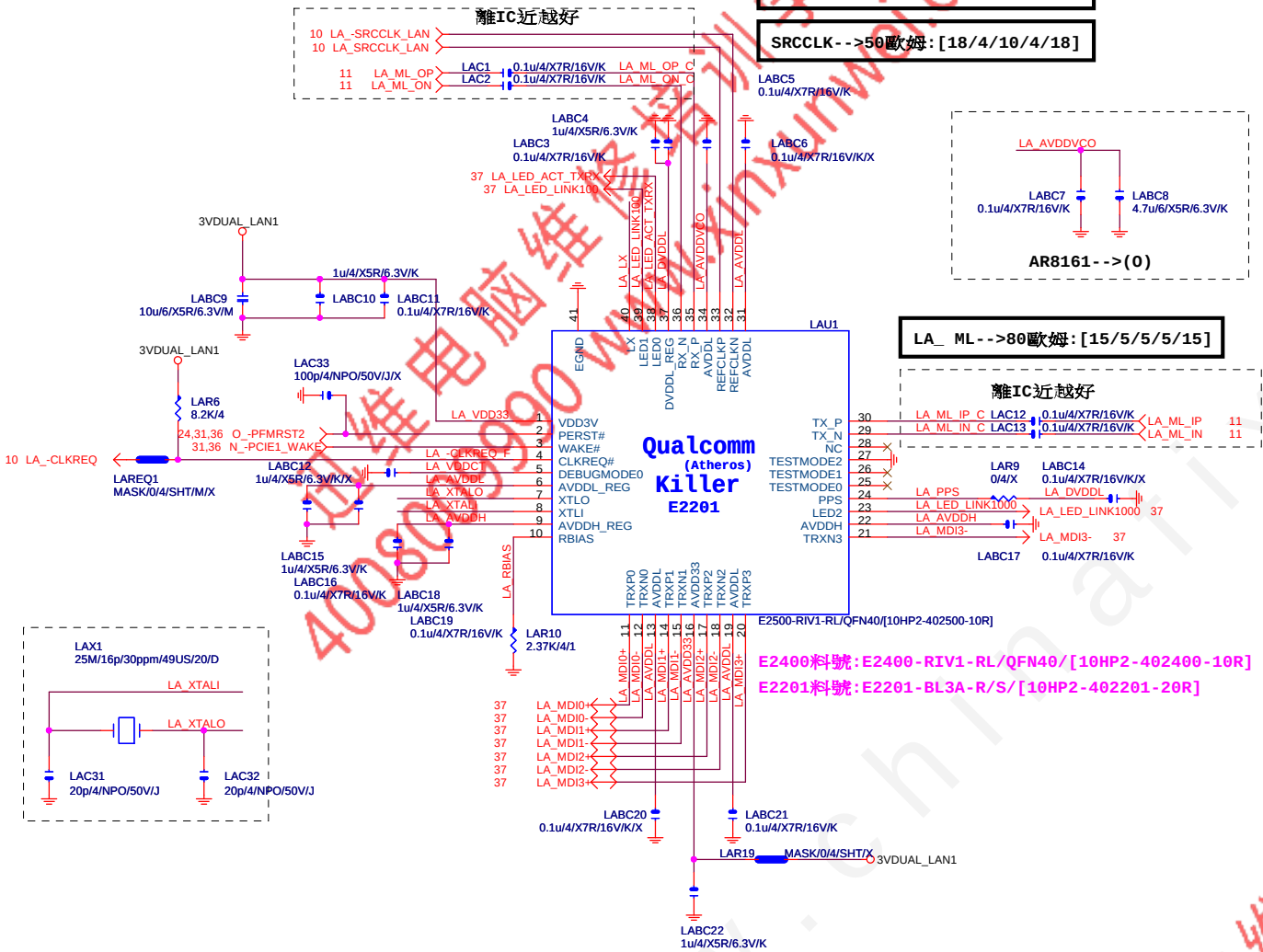
KBL FAN LOCATION MAP REFER TO PAGE.27

GIGABYTE		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 34 of 91	

LAN:E2201~A | R1.05

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]



LA_ ML-->80歐姆:[15/5/5/5/15]

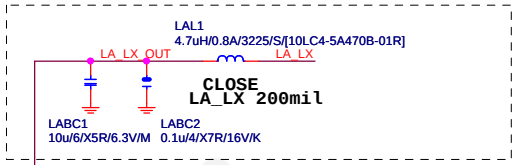
離IC近越好

LA_ML_IP_C LAC12 0.1u/4/X7R/16V/K
LA_ML_IN_C LAC13 0.1u/4/X7R/16V/K
LA_ML_IP 11
LA_ML_IN 11

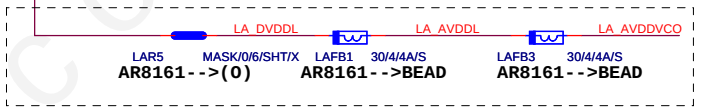
E2400料號:E2400-RIV1-RL/QFN40/[10HP2-402400-10R]

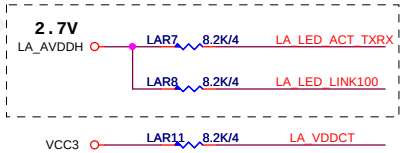
E2201料號:E2201-BL3A-R/S/[10HP2-402201-20R]

LAN POWER



1.1V





LAN POWER

note: lan power理論及電流

NOTE:

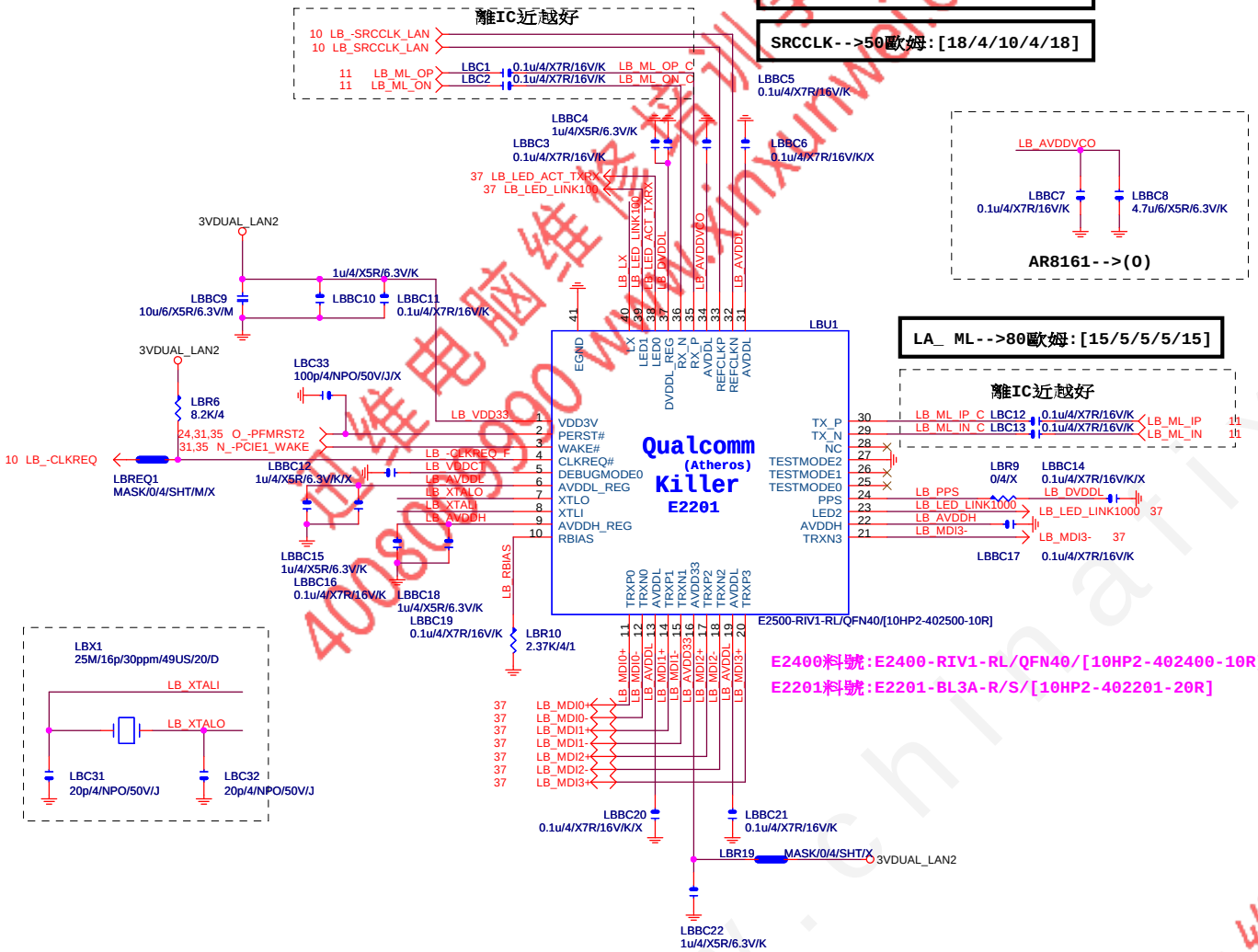
1. 3VDUAL_LAN1,3VDUAL_LAN2
   對接POWER供應電流
   [目前暫接3VDUAL]

Gigabyte Technology		
Title: DUAL LAN~ E2201+E2201		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 35 of 91	

LAN:E2201~A | R1.05

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

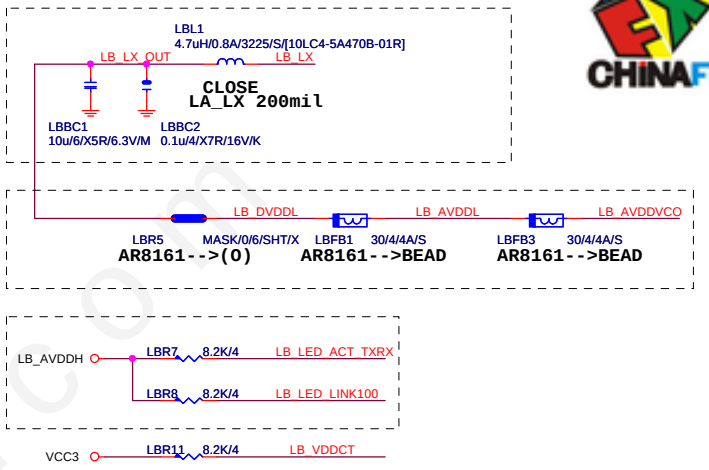


LA_ ML-->80歐姆:[15/5/5/5/15]

E2400料號:E2400-RIV1-RL/QFN40/[10HP2-402400-10R]

E2201料號:E2201-BL3A-R/S/[10HP2-402201-20R]

LAN POWER



3VDUAL_LAN

NOTE:

1. 3VDUAL_LAN1,3VDUAL_LAN2
   對接POWER供應電流
   [目前暫接3VDUAL]

Gigabyte Technology		
Title: DUAL LAN~ E2201+E2201		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 36 of 91	

USB_LAN CONNECTOR-A R1.05

note:可變更USB NAME

[AQC107]

USB31_LAN1

0.1u/4/X7R/16V/K

LABC27 LA_CN_L1

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

LABC25 LA_CN_L10 MASK/0/4/SHT/M/X

FUSEVCC_R1

TBTB_USB2_D_N TBTB_USB2_D_P

TBTB_CA2HD_0_N TBTB_CA2HD_0_P

TBTB_HD2CA_0_N TBTB_HD2CA_0_P

USB3.0 USB3.0

USB3.1+LAN/1G/WH,RE/GO,Y/OS/RA/D/1/15KV/[11NR6-706009-31R]

LA_LED_LINK100 LA_LED_LINK1000 LA_LED_ACT_TXRX LA_LED_D2

LAR13 LAR14 LAR15 330/4

LAN_3VDUAL_LED1 LAN_3VDUAL_LED2

3VDUAL_LAN1

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

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

LABC38 0.1u/4/X7R/16V/K

Q-FLASH

DB_-USBP DB_+USBP

PCH_USB3_RXN2 PCH_USB3_RXP2 PCH_USB3_TXN2 PCH_USB3_TXP2

LBUBC3 LBUBC2 0.1u/4/X7R/16V/K

可變

SUPPORT Q-FLASH CAPTURE要變更

SUPPORT USB3.1

USB_POWER

note:可變更FUSE

可變

UAF1 SPR-P260T/6V/8/S

5VDUAL FUSEVCC_R1

LAU3EC1 100u/FP/D/6.3V/65/C/13m

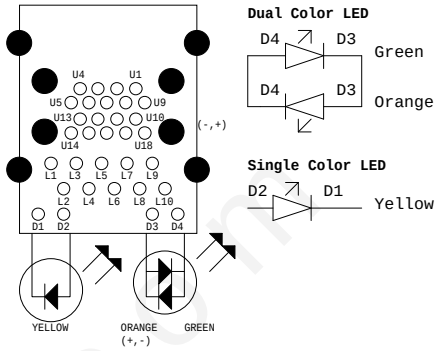
Close to connector FUSE-0805

EMI SHORT PAD

PS:視EMI需求

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

USB30_LAN LAYOUT示意圖



LAN_COVER

可變

[視SPEC需求]

POWER 可自行調整

RMA ESD PROTECT

LAU3ESD1 AZ164S-04F.R7G/DFN10

LAU3ESD2 AZ1045-04F/MSOP10

LAUESD1 AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

DB_+USBP DB_-USBP 5VDUAL TBTB_USB2_D_P TBTB_USB2_D_N

可變

USB_LAN CONNECTOR-B

note:可變更USB NAME

[E2500]

LAN2

LBBC27 0.1u/4/X7R/16V/K

LB_MDI0+ LB_MDI0- LB_MDI1+ LB_MDI1- LB_MDI2+ LB_MDI2- LB_MDI3+ LB_MDI3-

LBBC25 LB_CN_L10 MASK/0/4/SHT/M/X

LB_LED_LINK100 LB_LED_LINK1000 LB_LED_ACT_TXRX LB_LED_D2

LBR13 LBR14 LBR15 330/4

3VDUAL_LAN2

LBFB2 MASK/0/4/SHT/M/X

LBBC24 0.1u/4/X7R/16V/K/X

EMI

LAN/1G/GO,Y/OS/RA/D/1/HR/15KV/[11NR6-701110-11R]

USB30-TYPE C 架高1G

LAN:FOOTPRINT~RJ45-HIGH_RISE

USB_POWER

note:可變更FUSE

EMI SHORT PAD

PS:視EMI需求

LBR24 MASK/0/4/SHT/M/X

RMA ESD PROTECT

NOTE:

1. 3VDUAL_LAN1,3VDUAL_LAN2
   對接POWER供應電流
   [目前暫接3VDUAL]
2. USB2.0/3.0對應USB PORT
   [目前暫接USB_0,1,2,3 PORT]
3. USB DROOP/DROP E-CAP
4. USB OC線路

~USB30_LAN1設定在ERP可LAN WAKEUP

~USB30_LAN2由獨立LAN_POWER_L1117供給

LAN_POWER

note: lan power供應及電流

可變

LAPW1 0/4/SHT/20/X 3VDUAL_LAN1 3VDUAL_PCH

LAPW2 0/4/X 3VDUAL_LAN2

3VDUAL_LAN 3VDUAL_LAN2

5VDUAL

LBC34 22u/8/X5R/6.3V/M

LBC35 0.1u/4/X7R/16V/K

3VDUAL_LAN

LR2 301/4/1

LBC36 LBC37 LBC39 22u/8/X5R/6.3V/M 0.1u/4/X7R/16V/K

LQ1 L1085DG/TO252/5A

LBC40 0.1u/4/X7R/16V/K/X

LR3 510/4/1

Gigabyte Technology			
Title: LAN CONNECTOR-E2201+E2201			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 37 of 91		

Rev: 0.4

請選擇適用的USBport :
SOC/UD7/UD5/G1/G7 : USB4
;UD3/G5:USB6

NET 可變
11 N_+USBP11
11 N_-USBP11

PCIE:15/4/4/4/15(breakout min 8/4/4/4/8)
外層Impedance=85 +- 17.5%

PCIE:15/4/4/4/15(breakout min 8/4/4/4/8)
內層 Impedance=85 +- 12%

NET 可變

WIFI use PCIE port4 in X99

M2_WIFI

REV=1

1	GND	3P3VAUX_2	2
3	USB_D+	3P3VAUX_4	4
5	USB_D-	LED1#	6
7	GND	PCM_CLK/I2S SCK	8
9	SDIO CLK	PCM_SYNC/I2S WS	10
11	SDIO CMD	PCM_IN/I2S_SD_IN	12
13	SDIO DATA0	PCM_OUT/I2S SD_OUT	14
15	SDIO DATA1	LED2#	16
17	SDIO DATA2	GND	18
19	SDIO DATA3	UART WAKE#	20
21	SDIO WAKE#	UART RXD	22
23	SDIO RESET#		

3VDUAL

Remove LED show

Remove LED show

Module Key E

33	GND	UART TXD	32
35	PETP0	UART CTS	34
37	PETN0	UART_RTS	36
39	GND	VENDOR DEFINED	38
41	PERP0	VENDOR DEFINED	40
43	PERN0	VENDOR DEFINED	42
45	GND	COEX3	44
47	REFCLKP0	COEX2	46
49	REFCLKN0	COEX1	48
51	GND	SUSCLK(32KHz)	50
53	CLKREQ0#	PERST0#	52
55	PEWAKE0#	W_DISABLE2#	54
57	GND	W_DISABLE1#	56
59	RSVD/PETP1	I2C_DATA	58
61	RSVD/PETN1	I2C_CLK	60
63	GND	ALERT#	62
65	RSVD/PERP1	RSVD	64
67	RSVD/PERN1	UIM_SWP/PERST1#	66
69	GND	UIM_PWR_SNK/CLKREQ1#	68
71	RSVD/REFCLKP1	UIM_PWR_SRC/PEWAKE1#	70
73	RSVD/REFCLKN1	3P3VAUX_72	72
75	GND	3P3VAUX_74	74

NGFF_M2_E-KEY[10NH5-130067-11R]

3VDUAL

M2WC1 0.01u/4/X7R/25V/K
M2WC2 0.01u/4/X7R/25V/K
M2WC3 0.1u/4/X7R/16V/K
M2WC6 10u/6/X5R/6.3V/M

11 M2_WIFI_TP → M2WC4 0.1u/4/X7R/16V/K → M2_WIFI_TP_C
11 M2_WIFI_TN → M2WC5 0.1u/4/X7R/16V/K → M2_WIFI_TN_C
11 M2_WIFI_IP
11 M2_WIFI_IN
10 CK_WIFI_100M_DP
10 CK_WIFI_100M_DN
10 WIFI_CKREQL
12,24,31,46,48,49,51,52 N_-PCIE_WAKE

3VDUAL → M2WR1 MASK/0/4/SHT/MX → WIFI_CKREQ-
M2WR4 8.2K/4/X
M2WR6 0/4/SHT/20/X → WIFI_WAKE-

M2_WIFI_SUSCLK → M2WR3 1 0/4/SHT/X → N_SUSCLK_WIFI 12
M2_WIFI_RST- → M2WR5 1 0/4/SHT/X → O_-PCIE_RST 16,17,18,31,41,76,78,79,81,82
M2_WIFI_DIS2- → M2WR7 8.2K/4 → 3VDUAL
M2_WIFI_DIS1- → M2WR8 8.2K/4
M2_WIFI_SDATA → M2WR9 10/4/X → N_SMBDATA 8,9,12,33,39,41,46,48,49,51,52,53,58,59,60,63,64,69,72,79,84,86
M2_WIFI_SCLK → M2WR10 10/4/X → N_SMBCLK 8,9,12,33,39,41,46,48,49,51,52,53,58,59,60,63,64,69,72,79,84,86
M2_WIFI_ALERT- → M2WR11 8.2K/4 → 3VDUAL

M2_WIFI_RST- → M2WBC1 10p/4/NPO/50V/J/X

一套WIFI MODULE包含外框+WIFI CARD+天線

M.2
WIFI

KILLER_WIFI
G1
G2
FRAME/WIFI M2/RA/1535 I/[12AC2-000004-11R]

Wifi card
Killer 2x2 11ac
WI-FI WITH BT M.2 CARD QUALCOM/[20CB1-021535-00R]

Wifi sticker 安規貼紙
Killer 2x2 11ac
Wifi sticker/[12LB6-T01252-00R]

ANTENNA
ANTENNA/[11NH6-010001-61R]

ANTENNA1
ANTENNA/[11NH6-010001-61R]

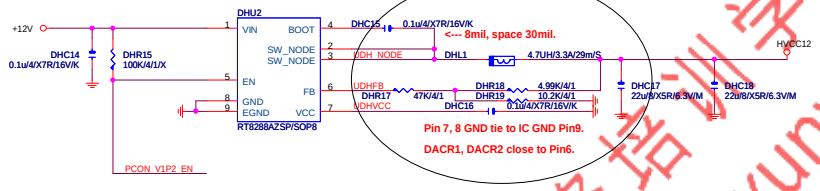
Footprint WIFI-EKEY+ WIFI-EKEY-MODULE should be a package.

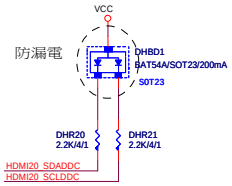
GIGABYTE

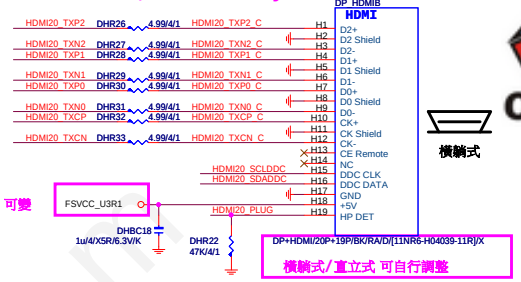
Title	M2_WIFI_E_KEY	
Size B	Document Number GA-Z270X-Gaming 9	Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 38 of 91	

Rev:1.09

Display Port with HDMI, or HDMI only.

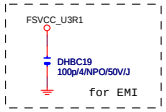






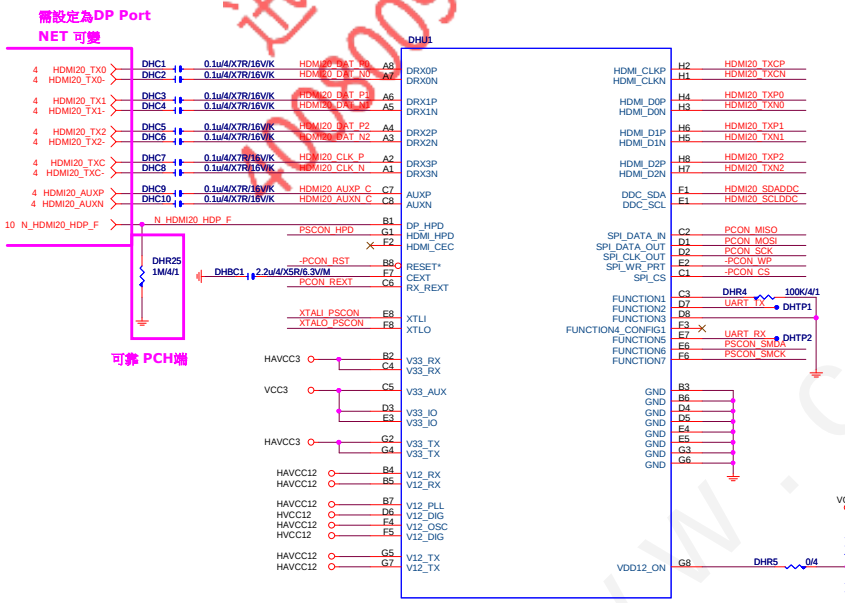
Power 可變

跟DP 用一個料號即可，鍍金

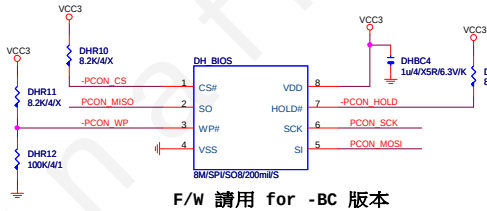


需設定為DP Port

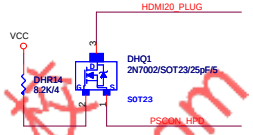
NET 可變

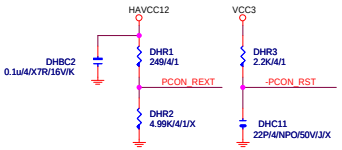


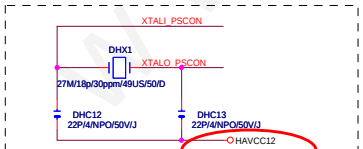
可靠 PCH端



F/W 請用 for -BC 版本





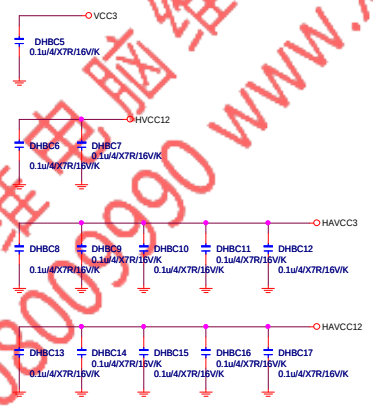


X'TAL 25MHz須參考GND

CRYSTAL/TRACE

週邊不要有訊號,VIA靠近

走線遠離其他40mil以上



Gigabyte Technology	
Title	HDMI20 MCDP2800-BA
Size: C	Document Number: GA-Z270X-Gaming 9
Rev	1.03
Date: Wednesday, November 09, 2016	Sheet 39 of 91

DUAL BIOS

MOSI For DMI RX Termination Voltage

指定用DII

3VDUAL

BSR1 330/4

BSR2 1K/4/1

DIS_DB1

S0T23

-SPI_CS_1 → -SPI_CS_1 30,31

Single BIOS OPTION

BSR3 0/4/X

N_-ICH_SPI_CS → N_-ICH_SPI_CS 10,31

BSQ1 MMBT2222A/SOT23/600mA/40

BSQ2 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_BSW BSR4 8.2K/4

指定用DII

BSR5 330/4

BSR6 1K/4/1

-SPI_CS_2 → SPI_CS_2 31

BSQ3 MMBT2222A/SOT23/600mA/40 S0T23

DIS_DB2

N_-ICH_SPI_CS

BSQ4 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_MSW BSR7 8.2K/4

M_BIOS

-SPI_CS_1 BSR8 22/4

BSC1 10p/4/NPO/50V/J/X

SPI_MISO

10 N_SPI_DQ2 BSR9 0/4/SHT/X N_-SPI_WP0

CS# SO WP# VSS VDD HOLD# SCK SI

BSR12 0/4/SHT/M/X

BSC2 1u/4/X5R/6.3V/K

-HOLD0 BSR13 0/4/SHT/X N_SPI_DQ3 10

N_ICH_SPI_CLK

N_ICH_SPI_MOSI

BSC3 10p/4/NPO/50V/J/X

MAIN BIOS

128M/Q/SPI/SO8/S

* (footprint 改 SOIC8-SPI-SOCKET)

B_BIOS

-SPI_CS_2 BSR10 22/4

SPI_MISO

10 N_SPI_DQ2 BSR11 0/4/SHT/X N_-SPI_WP1

CS# SO WP# VSS VDD HOLD# SCK SI

BSR14 0/4/SHT/M/X

BSC4 1u/4/X5R/6.3V/K

-HOLD1 BSR15 0/4/SHT/X N_SPI_DQ3 10

N_ICH_SPI_CLK N_ICH_SPI_CLK 10,30

N_ICH_SPI_MOSI N_ICH_SPI_MOSI 10,30

BACKUP BIOS

128M/Q/SPI/SO8/S

* (footprint 改 IC8-BIOS)

31 -SPI_HOLD_M → -SPI_HOLD_M BSR16 1K/4/1

31 -SPI_HOLD_B → -SPI_HOLD_B BSR17 1K/4/1

10,30 N_ICH_SPI_MISO → N_ICH_SPI_MISO BSR18 8.2K/4

BSR19 22/4 SPI_MISO

-SPI_HOLD_MSW BSR36 1K/4/1

-SPI_HOLD_BSW BSR37 1K/4/1

BSC5 0.1u/4/X7R/16V/K/X

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

1 means floating
0 means PD 1K

BSR20 100/4/1 -DUAL_BIOSDIS 31,33

SB SW/1/B/DIP/[11NH7-110003-21R]

SB:Single BIOS	
	Disable
	Enable

VCC

BSR23 680/4/1

MBIOS_LED LED/O/6/S 橘

BSQ5 2N7002/SOT23/25pF/5

-SPI_HOLD_MSW BSR24 8.2K/4

BSR25 680/4/1

BBIOS_LED LED/O/6/S 橘

BSQ6 2N7002/SOT23/25pF/5

-SPI_HOLD_BSW BSR26 8.2K/4

DIS_DB1

DIS_DB2

SD1 BAT54C/SOT23/200mA

ECB_GPIO1 30

M_BIOS

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

* 試產先上 , PVT 移除

5VDUAL

33 EC_B_SW

31,33 B_SW

BSR35 0/4/X

BSR27 1K/4/1

BSR30 8.2K/4

BSQ8 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_M 31

BSR29 8.2K/4

BSQ7 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_B 31

BIOS_SW SW/1/B/DIP/[11NH7-110003-21R]

BSR31 1K/4/1

BSR33 8.2K/4

BSQ10 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_B 31

BSR32 8.2K/4

BSQ9 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_M 31

BSR34 1K/4/1

BSQ11 2N7002/SOT23/25pF/5

BIOS_SW	
1	MAIN_BIOS
2	BACKUP_BIOS

Gigabyte Technology

Title: BIOS

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 40 of 91

可變動

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

可變動
電容靠近CPU

PA_EXP_TXP15	YC169	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP15	AD1	PA_EXP_RXP15	YC1	0.22u/4/X5R/6.3V/K
PA_EXP_TXN15	YC170	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN15	AE1	PA_EXP_RXN15	YC2	0.22u/4/X5R/6.3V/K
PA_EXP_TXP14	YC171	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP14	AD2	PA_EXP_RXP14	YC3	0.22u/4/X5R/6.3V/K
PA_EXP_TXN14	YC172	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN14	AE2	PA_EXP_RXN14	YC4	0.22u/4/X5R/6.3V/K
PA_EXP_TXP13	YC173	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP13	AD4	PA_EXP_RXP13	YC5	0.22u/4/X5R/6.3V/K
PA_EXP_TXN13	YC174	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN13	AE4	PA_EXP_RXN13	YC6	0.22u/4/X5R/6.3V/K
PA_EXP_TXP12	YC175	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP12	AD5	PA_EXP_RXP12	YC7	0.22u/4/X5R/6.3V/K
PA_EXP_TXN12	YC176	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN12	AE5	PA_EXP_RXN12	YC8	0.22u/4/X5R/6.3V/K
PA_EXP_TXP11	YC177	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP11	AD7	PA_EXP_RXP11	YC9	0.22u/4/X5R/6.3V/K
PA_EXP_TXN11	YC178	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN11	AE7	PA_EXP_RXN11	YC10	0.22u/4/X5R/6.3V/K
PA_EXP_TXP10	YC179	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP10	AD8	PA_EXP_RXP10	YC11	0.22u/4/X5R/6.3V/K
PA_EXP_TXN10	YC180	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN10	AE8	PA_EXP_RXN10	YC12	0.22u/4/X5R/6.3V/K
PA_EXP_TXP9	YC181	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP9	AD10	PA_EXP_RXP9	YC13	0.22u/4/X5R/6.3V/K
PA_EXP_TXN9	YC182	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN9	AE10	PA_EXP_RXN9	YC14	0.22u/4/X5R/6.3V/K
PA_EXP_TXP8	YC183	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP8	AD11	PA_EXP_RXP8	YC15	0.22u/4/X5R/6.3V/K
PA_EXP_TXN8	YC184	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN8	AE11	PA_EXP_RXN8	YC16	0.22u/4/X5R/6.3V/K
PA_EXP_TXP7	YC185	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP7	AD13	PA_EXP_RXP7	YC17	0.22u/4/X5R/6.3V/K
PA_EXP_TXN7	YC186	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN7	AE13	PA_EXP_RXN7	YC18	0.22u/4/X5R/6.3V/K
PA_EXP_TXP6	YC187	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP6	AD14	PA_EXP_RXP6	YC19	0.22u/4/X5R/6.3V/K
PA_EXP_TXN6	YC188	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN6	AE14	PA_EXP_RXN6	YC20	0.22u/4/X5R/6.3V/K
PA_EXP_TXP5	YC189	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP5	AD16	PA_EXP_RXP5	YC21	0.22u/4/X5R/6.3V/K
PA_EXP_TXN5	YC190	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN5	AE16	PA_EXP_RXN5	YC22	0.22u/4/X5R/6.3V/K
PA_EXP_TXP4	YC191	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP4	AD17	PA_EXP_RXP4	YC23	0.22u/4/X5R/6.3V/K
PA_EXP_TXN4	YC192	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN4	AE17	PA_EXP_RXN4	YC24	0.22u/4/X5R/6.3V/K
PA_EXP_TXP3	YC193	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP3	AD19	PA_EXP_RXP3	YC25	0.22u/4/X5R/6.3V/K
PA_EXP_TXN3	YC194	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN3	AE19	PA_EXP_RXN3	YC26	0.22u/4/X5R/6.3V/K
PA_EXP_TXP2	YC195	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP2	AD20	PA_EXP_RXP2	YC27	0.22u/4/X5R/6.3V/K
PA_EXP_TXN2	YC196	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN2	AE20	PA_EXP_RXN2	YC28	0.22u/4/X5R/6.3V/K
PA_EXP_TXP1	YC197	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP1	AD22	PA_EXP_RXP1	YC29	0.22u/4/X5R/6.3V/K
PA_EXP_TXN1	YC198	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN1	AE22	PA_EXP_RXN1	YC30	0.22u/4/X5R/6.3V/K
PA_EXP_TXP0	YC199	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXP0	AD23	PA_EXP_RXP0	YC31	0.22u/4/X5R/6.3V/K
PA_EXP_TXN0	YC200	0.22u/4/X5R/6.3V/K	PY_EXP_A_TXN0	AE23	PA_EXP_RXN0	YC32	0.22u/4/X5R/6.3V/K

可變動

YU1A

PEX_PERP0	AA1	PEX_PETP0	TX15p
PEX_PERN0	AB1	PEX_PETN0	TX15n
PEX_PERP1	AA2	PEX_PETP1	TX14p
PEX_PERN1	AB2	PEX_PETN1	TX14n
PEX_PERP2	AA4	PEX_PETP2	TX13p
PEX_PERN2	AB4	PEX_PETN2	TX13n
PEX_PERP3	AA5	PEX_PETP3	TX12p
PEX_PERN3	AB5	PEX_PETN3	TX12n
PEX_PERP4	AA7	PEX_PETP4	TX11p
PEX_PERN4	AB7	PEX_PETN4	TX11n
PEX_PERP5	AA8	PEX_PETP5	TX10p
PEX_PERN5	AB8	PEX_PETN5	TX10n
PEX_PERP6	AA10	PEX_PETP6	TX9p
PEX_PERN6	AB10	PEX_PETN6	TX9n
PEX_PERP7	AA11	PEX_PETP7	TX8p
PEX_PERN7	AB11	PEX_PETN7	TX8n
PEX_PERP8	AA13	PEX_PETP8	TX7p
PEX_PERN8	AB13	PEX_PETN8	TX7n
PEX_PERP9	AA14	PEX_PETP9	TX6p
PEX_PERN9	AB14	PEX_PETN9	TX6n
PEX_PERP10	AA16	PEX_PETP10	TX5p
PEX_PERN10	AB16	PEX_PETN10	TX5n
PEX_PERP11	AA17	PEX_PETP11	TX4p
PEX_PERN11	AB17	PEX_PETN11	TX4n
PEX_PERP12	AA19	PEX_PETP12	TX3p
PEX_PERN12	AB19	PEX_PETN12	TX3n
PEX_PERP13	AA20	PEX_PETP13	TX2p
PEX_PERN13	AB20	PEX_PETN13	TX2n
PEX_PERP14	AA22	PEX_PETP14	TX1p
PEX_PERN14	AB22	PEX_PETN14	TX1n
PEX_PERP15	AA23	PEX_PETP15	TX0p
PEX_PERN15	AB23	PEX_PETN15	TX0n

PEX_REFCLKP	G11	JTAG_TCK	Y_JTAG_TCK
PEX_REFCLKN	J6	JTAG_TDI	Y_JTAG_TDI
PEX_PERST#	F11	JTAG_TDO	
	H11	JTAG_TMS	Y_JTAG_TMS
STRAP_RESERVED0	F3	JTAG_TRST#	Y_JTAG_TSRT-
NCB09	B9		
	F7	I2C_SCL0	I2C_SCL0
	F2	I2C_SDA0	I2C_SDA0
PEX_REFCLK_SSCP0	V8		
PEX_REFCLK_SSCN0	W8		
STRAP_RESERVED14	AD12		
STRAP_RESERVED15	W14		
EE_CS#	K19		
EE_DI	F19		
EE_DO	R18		
EE_SK	F22		

PEX8747BA80FBCG/BGA575[10TA1-088747-20R]

10 PY_PEX_CLKP
10 PY_PEX_CLKN
-PERST
1.8VCC
YR111 8.2K/4 STRAP_RESERVED0
YR1 1K/4/1
YR2 1K/4/1
YR3 1K/4/1

Y_JTAG_TCK
Y_JTAG_TDI
Y_JTAG_TMS
1.8VCC
YRN1 1K/8P4R/4

1.8VCC
YR109 8.2K/4 I2C_SCL0
YR110 8.2K/4 I2C_SDA0
VCC3
YBC2 1u/4/X5R/6.3V/K
YU3
VCCA VCCB A1 A2 B1 B2 GND EN
YR4 0/4/SHT/M/X
YR5 0/4/SHT/M/X
N_SMBCLK 8,9,12,33,38,39,46,48,49,51,52,53,5
N_SMBDATA 8,9,12,33,38,39,46,48,49,51,52,53,5
YR6 8.2K/4
PCA9509[10TA1-0A9509-10R]

YU2
VCC HOLD# WP# GND CS# SI SO SCK
YR7 8.2K/4
YR9 8.2K/4/X
YR8 8.2K/4
-Y_EE_CS
Y_EE_DI
Y_EE_DO
Y_EE_SK
512K/SPI/SO8/150mil/S/[10HP4-175128-20R]

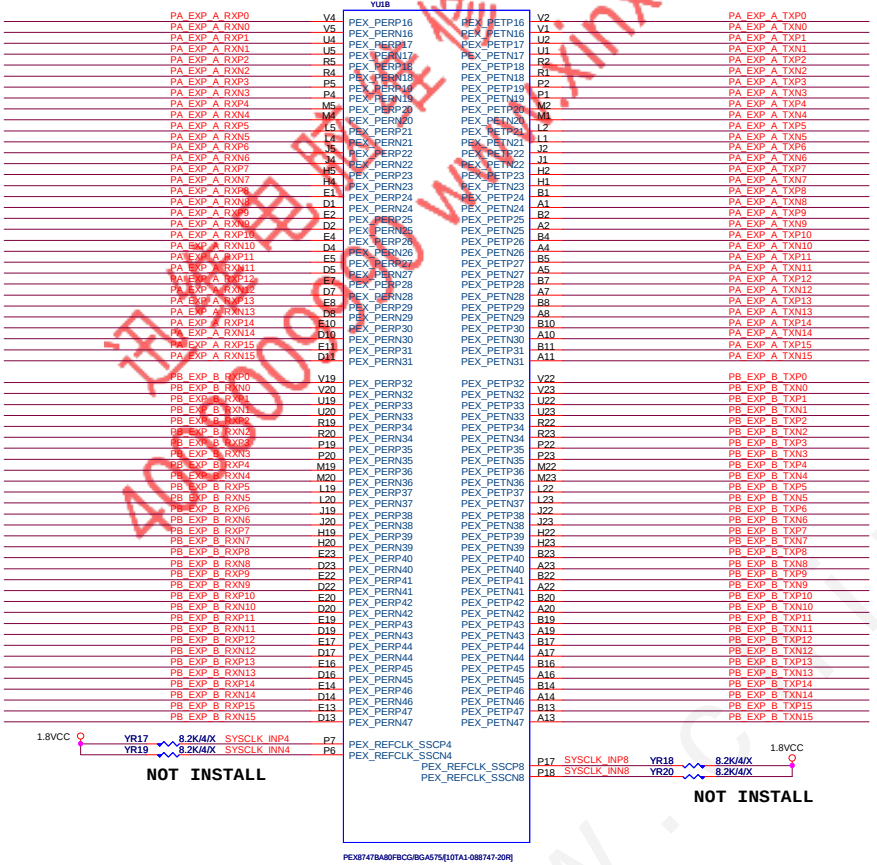
可變動

可變動
16,17,18,31,38,76,78,79,81,82 O_-PCIE_RST
YR14 8.2K/4
YR10 8.2K/4
-PERST
YC160 100P/4/NPO/50V/J/X
VCC3
YR11 1K/4/1
YR13 8.2K/4
YQ3 MMBT2222A/SOT23/600mA/40
SOT23
YR12 1K/4/1
O_-PCIEBRIDGE_RST
O_-PCIEBRIDGE_RST 48,48,49,51
YC168 0.1u/4/X7R/16V/K/X
YQ4 2N7002/SOT23/25pF/5
SOT23
YQ5
SOT23
MMBT2222A/SOT23/600mA/40
YR15 8.2K/4
YC33 0.1u/4/X7R/16V/K/X
YC34 0.1u/4/X7R/16V/K

(rev CA) O_-PCIE_RST -> (PLX8747) -> delay 1ms -> (PCIe slot)

GIGABYTE

Title	PEX8747S UPSTREAM & MISC	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 41 of 91	



PA_EXP_A_RXP[0..7] >> PA_EXP_A_RXP[0..7] 50
PA_EXP_A_RXN[0..7] >> PA_EXP_A_RXN[0..7] 50
PA_EXP_A_TXP[0..7] >> PA_EXP_A_TXP[0..7] 50
PA_EXP_A_TXN[0..7] >> PA_EXP_A_TXN[0..7] 50
PA_EXP_A_RXP[8..15] >> PA_EXP_A_RXP[8..15] 49
PA_EXP_A_RXN[8..15] >> PA_EXP_A_RXN[8..15] 49
PA_EXP_A_TXP[8..15] >> PA_EXP_A_TXP[8..15] 49
PA_EXP_A_TXN[8..15] >> PA_EXP_A_TXN[8..15] 49

PB_EXP_B_RXP[0..7] >> PB_EXP_B_RXP[0..7] 46
PB_EXP_B_RXN[0..7] >> PB_EXP_B_RXN[0..7] 46
PB_EXP_B_TXP[0..7] >> PB_EXP_B_TXP[0..7] 46
PB_EXP_B_TXN[0..7] >> PB_EXP_B_TXN[0..7] 46
PB_EXP_B_RXP[8..15] >> PB_EXP_B_RXP[8..15] 47
PB_EXP_B_RXN[8..15] >> PB_EXP_B_RXN[8..15] 47
PB_EXP_B_TXP[8..15] >> PB_EXP_B_TXP[8..15] 47
PB_EXP_B_TXN[8..15] >> PB_EXP_B_TXN[8..15] 47

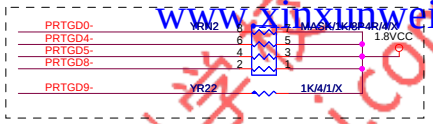
GIGABYTE™

Title: PEX8747S DOWNSTREAM SLOTS

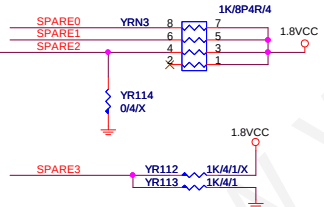
Size	Document Number	Rev
Custom	GA-Z270X-Gaming 9	1.03

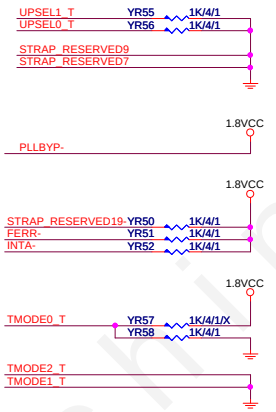
Date: Wednesday, November 09, 2016 Sheet 42 of 91

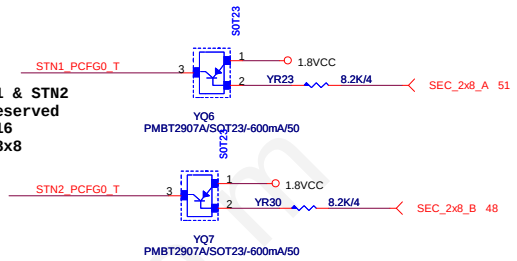
PLX PEX8747 | R1.05

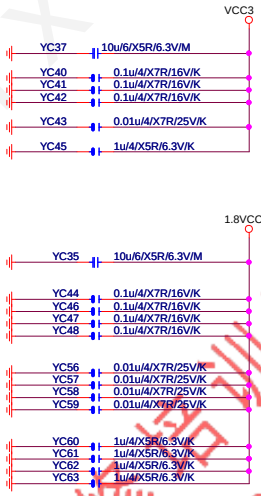


Resistors should be placed close to YU1





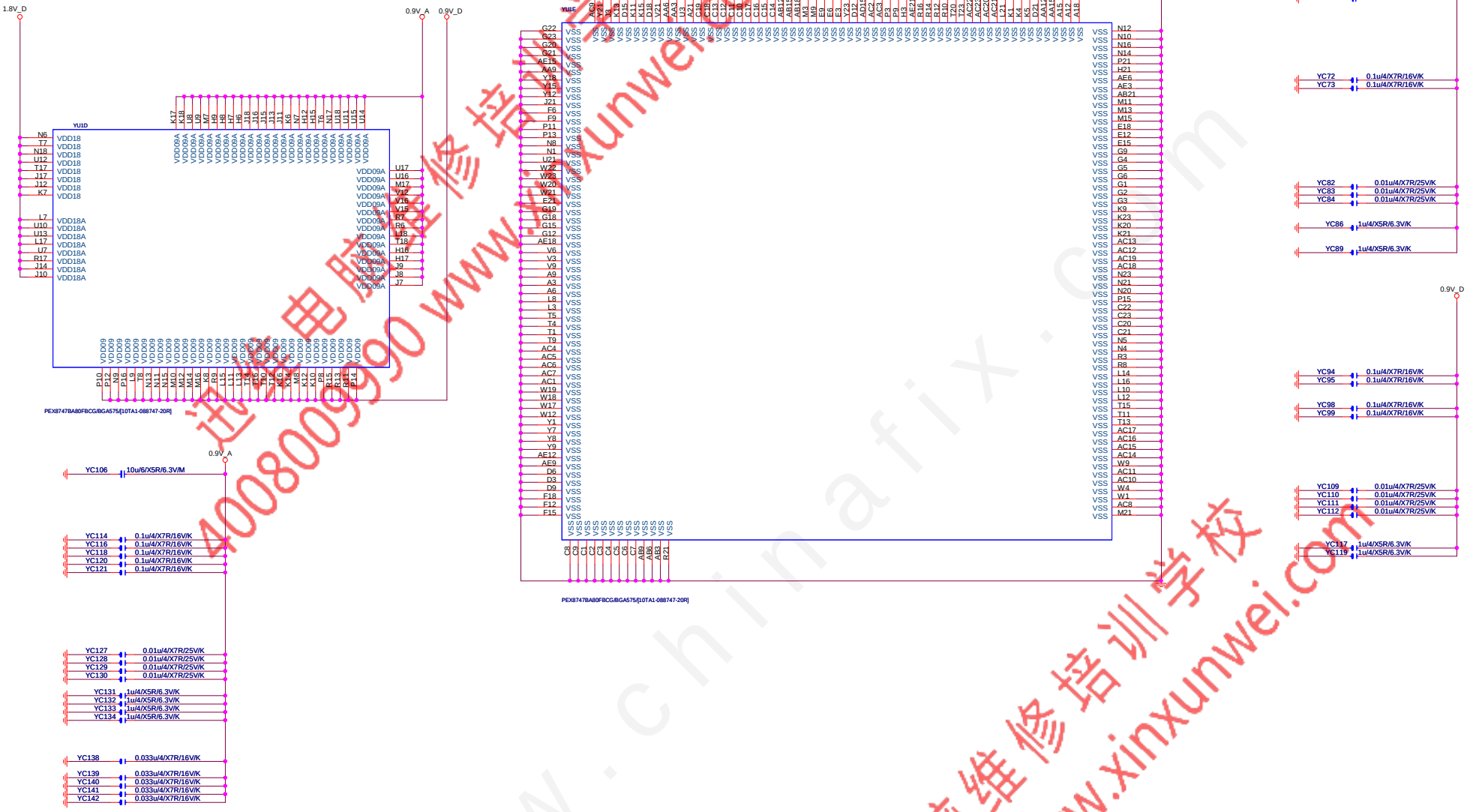




GIGABYTE™

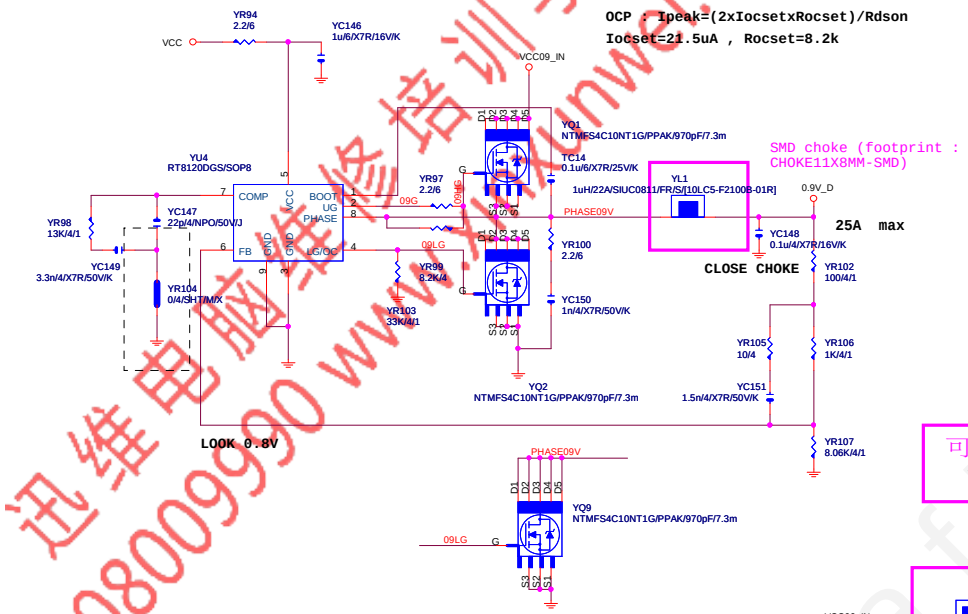
Title	PEX8747S STRAP & CPLD INTF	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 43 of 91	

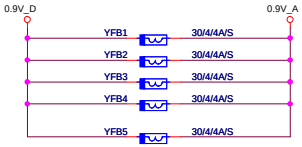
PLX PEX8747 R1.05

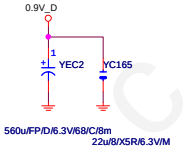


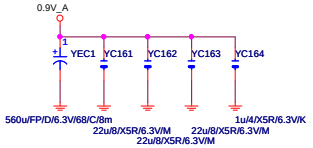
GIGABYTE™

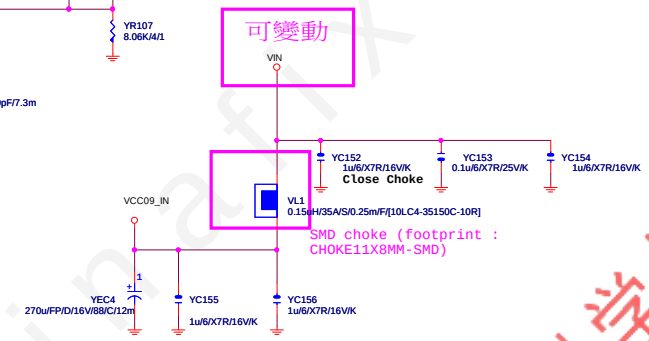
Title	PEX8747S POWER	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 44 of 91	

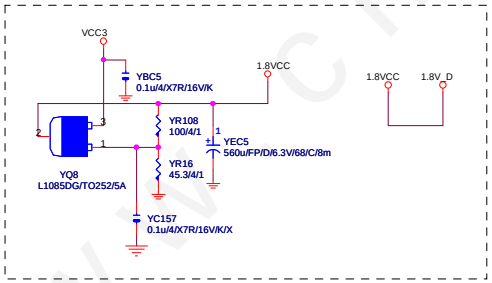


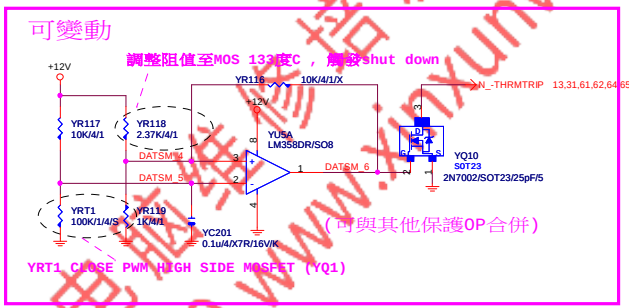












GIGABYTE™

Title	PEX8747 POWER DESIGN	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 45 of 91	

PLX PEX8747 R1.05

PCIESLOT-164DN-2

3GIO_*16

PCIEX16_1

KEY

可變動

請選用model上沒用到的USB port

可變動

黑色 PCIE 16X 鍍黑鎳強化版

PCI-E/16X-164P/BK/LONG DOUBLE/HK*2/BK NI SH/[11AC1-023164-Q1R]

Title	PCI EXPRESS X16 PORT_2
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	46 of 91

PLX PEX8747 R1.05

PBU2

PBBC11 0.1u/4/X7R/16V/K
PBBC12 0.1u/4/X7R/16V/K
PBR4 8.2K/4
PBR5 8.2K/4
PBQ1 MMBT2222A/SOT23/600mA/40
S0T23
48 PE_16_8_SWB
PCIE_16_SWB

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

Function	SEL
A--> B	L
A--> C	H

PBU4

PBBC15 0.1u/4/X7R/16V/K
PBBC16 0.1u/4/X7R/16V/K

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

PBBC17 PBBC18 PBBC19 PBBC20 PBBC21 PBBC22 PBBC23
0.1u/4/X7R/16V/K

PABC1 10u/6/X5R/6.3V/M
PABC2 10u/6/X5R/6.3V/M

PBU1

PBBC9 0.1u/4/X7R/16V/K
PBBC10 0.1u/4/X7R/16V/K

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

PBU3

PBBC13 0.1u/4/X7R/16V/K
PBBC14 0.1u/4/X7R/16V/K

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

Title	PCI EXPRESS X16 SWITCH_1
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	47 of 91

PLX PEX8747 R1.03

VCC3
PFBC1 0.1u/4/X7R/16V/K
PFBC2 0.1u/4/X7R/16V/K
PFBC3 0.1u/4/X7R/16V/K
PFBC4 0.1u/4/X7R/16V/K

+12V
PFBC5 0.1u/4/X7R/16V/K

VCC3
PFEC1 560u/FP/D/6.3V/68/C/8m
+12V
PFEC2 270u/FP/D/16V/88/C/12m

8,9,12,33,38,39,41,46,49,51,52,53,58,59,60,63,64,69,72,79,84,86
8,9,12,33,38,39,41,46,49,51,52,53,58,59,60,63,64,69,72,79,84,86
N_SMBCLK
N_SMBDATA
PFR2 0/4/SHT/X
PFR4 0/4/X
PFR5 0/4/X
VCC3
3VDUAL
12,24,31,38,46,49,51,52 N_PCIE_WAKE

PCIEX8_1 3GIO_*8

B1	12V	PRSNT1*	A1
B2	12V	12V	A2
B3	RSVD	12V	A3
B4	GND	GND	A4
B5	SMCLK	JTAG2	A5
B6	SMDAT	JTAG3	A6
B7	GND	JTAG4	A7
B8	3.3V	JTAG5	A8
B9	JTAG1	3.3V	A9
B10	3.3VAUX	3.3V	A10
B11	WAKE*	PWRGD	A11
	KEY		
B12	RSVD	GND	A12
B13	GND	REFCLK+	A13
B14	HSOP0	REFCLK-	A14
B15	HSON0	GND	A15
B16	GND	HSIP0	A16
B17	PRSNT2*	HSIN0	A17
B18	GND	GND	A18
B19	HSOP1	RSVD	A19
B20	HSON1	GND	A20
B21	GND	HSIP1	A21
B22	GND	HSIN1	A22
B23	HSOP2	GND	A23
B24	HSON2	GND	A24
B25	GND	HSIP2	A25
B26	GND	HSIN2	A26
B27	HSOP3	GND	A27
B28	HSON3	GND	A28
B29	GND	HSIP3	A29
B30	RSVD	HSIN3	A30
B31	PRSNT2*	GND	A31
B32	GND	RSVD	A32
B33	HSOP4	RSVD	A33
B34	HSON4	GND	A34
B35	GND	HSIP4	A35
B36	GND	HSIN4	A36
B37	HSOP5	GND	A37
B38	HSON5	GND	A38
B39	GND	HSIP5	A39
B40	GND	HSIN5	A40
B41	HSOP6	GND	A41
B42	HSON6	GND	A42
B43	GND	HSIP6	A43
B44	GND	HSIN6	A44
B45	HSOP7	GND	A45
B46	HSON7	GND	A46
B47	GND	HSIP7	A47
B48	PRSNT2*	HSIN7	A48
B49	GND	GND	A49

+12V
PFR3 0/4/SHT/X
PFR1 0/4/SHT/X
VCC3

O_-PCIEBRIDGE_RST 41,46,49,51
PFC1 22P/4/NPO/50V/J

可變動
PB_SRCCLK_3GIO 10
PB_-SRCCLK_3GIO 10

PF_EXP_B2_TXP[8..15] → PF_EXP_B2_TXP[8..15] 47
PF_EXP_B2_TXN[8..15] → PF_EXP_B2_TXN[8..15] 47

PF_EXP_B2_RXP[8..15] → PF_EXP_B2_RXP[8..15] 47
PF_EXP_B2_RXN[8..15] → PF_EXP_B2_RXN[8..15] 47

PF_EXP_B2_TXP8	PFC2	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP8C
PF_EXP_B2_TXN8	PFC3	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN8C
PF_EXP_B2_TXP9	PFC4	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP9C
PF_EXP_B2_TXN9	PFC5	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN9C
PF_EXP_B2_TXP10	PFC6	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP10C
PF_EXP_B2_TXN10	PFC7	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN10C
PF_EXP_B2_TXP11	PFC8	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP11C
PF_EXP_B2_TXN11	PFC9	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN11C
PF_EXP_B2_TXP12	PFC10	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP12C
PF_EXP_B2_TXN12	PFC11	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN12C
PF_EXP_B2_TXP13	PFC12	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP13C
PF_EXP_B2_TXN13	PFC13	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN13C
PF_EXP_B2_TXP14	PFC14	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP14C
PF_EXP_B2_TXN14	PFC15	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN14C
PF_EXP_B2_TXP15	PFC16	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXP15C
PF_EXP_B2_TXN15	PFC17	0.22u/4/X5R/6.3V/K PF_EXP_B2_TXN15C

可變動
VCC3
PFR6 8.2K/4
10 -PCIEX8_1_PR
47 PE_16_8_SWB
PFR7 0/4/SHT/X
PFR8 0/4/SHT/X
B81 PRSNT2*
SEC_2x8_B 43

PCI-E/8X-99P/BK/LONG DOUBLE/HK*2/BK NI SH/[11AC1-023099-H1R]

黑色 PCIE 8X 鍍黑鎳強化版

Gigabyte Technology

Title: PCI EXPRESS X8_1
Size: Custom
Document Number: GA-Z270X-Gaming 9
Rev: 1.03
Date: Wednesday, November 09, 2016
Sheet 48 of 91

PLX PEX8747 R1.03

PCIESLOT-164DN-2

3GIO_*16

PCIEX16_2

KEY

VCC3 PAEC1 560u/FP/D/6.3V/68/C/8m

+12V PAEC2 270u/FP/D/16V/88/C/12m

+12V PABC3 0.1u/4/X7R/16V/K

PAR1 0/4/SHT/X

PAR2 0/4/SHT/X

PAR6 0/4/X

PAR7 0/4/X

PAC1 22p/4/NPO/50V/J

O_-PCIEBRIDGE_RST

N_SMBCLK

N_SMBDATA

N_PCIE_WAKE

O_-PCIEBRIDGE_RST 41,46,48,51

可變動

PC_SRCCLK_3GIO 10

PC_-SRCCLK_3GIO 10

請選用model上沒用到的USB port

PAC2–PAC33 0.22u/4/X5R/6.3V/K

PA_EXP_A_RXP[8..15] 42

PA_EXP_A_RXN[8..15] 42

PA_EXP_A_TXP[8..15] 42

PA_EXP_A_TXN[8..15] 42

PA_EXP_A1_RXP[0..7] 50

PA_EXP_A1_RXN[0..7] 50

PA_EXP_A1_TXP[0..7] 50

PA_EXP_A1_TXN[0..7] 50

可變動 PAR3 8.2K/4 10 -PCIEX16_2_PR

PABC4 0.1u/4/X7R/16V/K

PABC5 0.1u/4/X7R/16V/K

PABC6 0.1u/4/X7R/16V/K

PABC7 0.1u/4/X7R/16V/K

PABC8 0.1u/4/X7R/16V/K/X

PCI-E/16X-164P/BK/LONG DOUBLE/HK*2/BK NI SH/[11AC1-023164-Q1R]

黑色 PCIE 16X 鍍黑鎳強化版

GIGABYTE

Title: PCI EXPRESS X16 PORT_2

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 49 of 91

PLX PEX8747 R1.03

PAU2

PABC11 0.1u/4/X7R/16V/K
PABC12 0.1u/4/X7R/16V/K
VCC3

PAR4 8.2K/4
PAR5 8.2K/4
PAQ1 MMBT2222A/SOT23/600mA/40 S0T23
51 PE_16_8_SWA

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

Function	SEL
A--> B	L
A--> C	H

PAU1

PABC9 0.1u/4/X7R/16V/K
PABC10 0.1u/4/X7R/16V/K

PAU3

PABC13 0.1u/4/X7R/16V/K
PABC14 0.1u/4/X7R/16V/K

PAU4

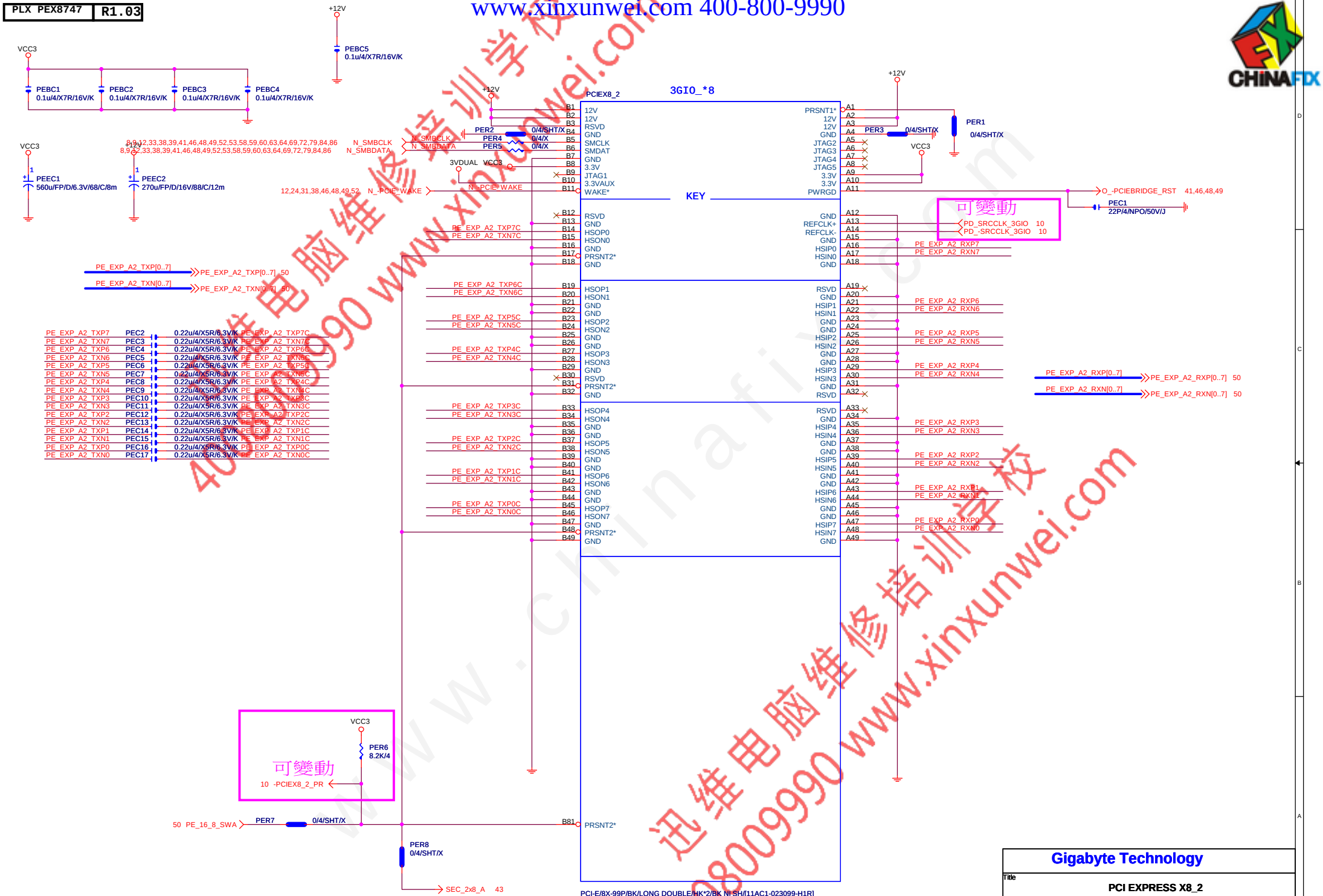
PABC15 0.1u/4/X7R/16V/K
PABC16 0.1u/4/X7R/16V/K

PABC17 10u/6/X5R/6.3V/M
PABC18 10u/6/X5R/6.3V/M

PABC19 PABC20 PABC21 PABC22 PABC23 PABC24 PABC25
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

Title	PCI EXPRESS X16 SWITCH_2
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	50 of 91

PLX PEX8747 R1.03



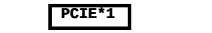
黑色 PCIE 8X 鍍黑鎳強化版

Gigabyte Technology			
Title: PCI EXPRESS X8_2			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 51 of 91		

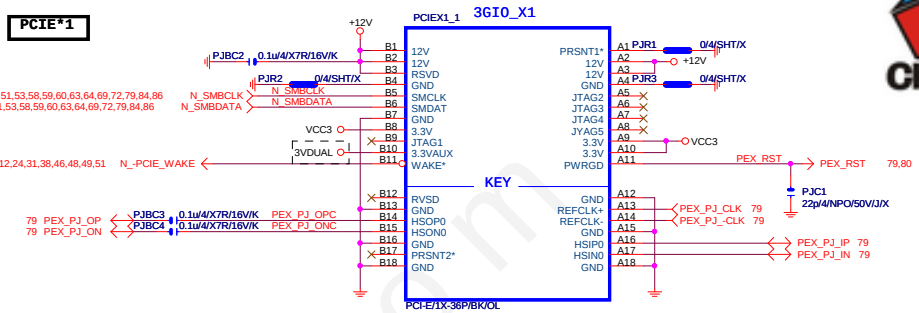
Rev 0.1

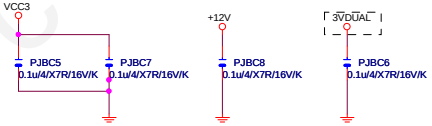
PLX PEX8605 R1.0

PCIE*1

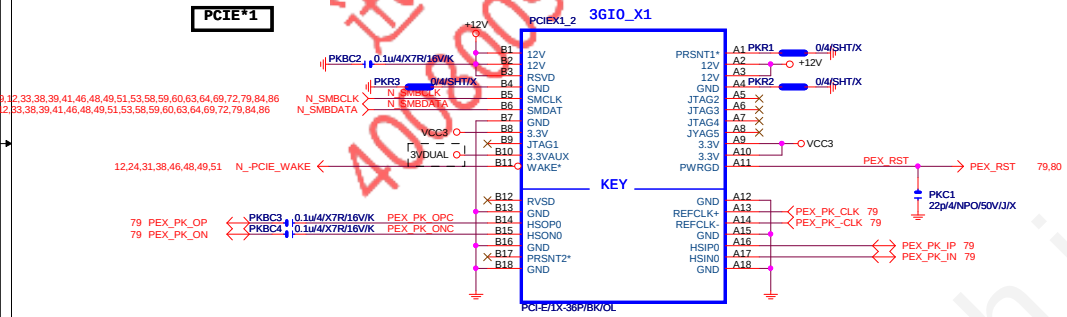


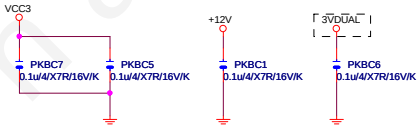
PCIE*1



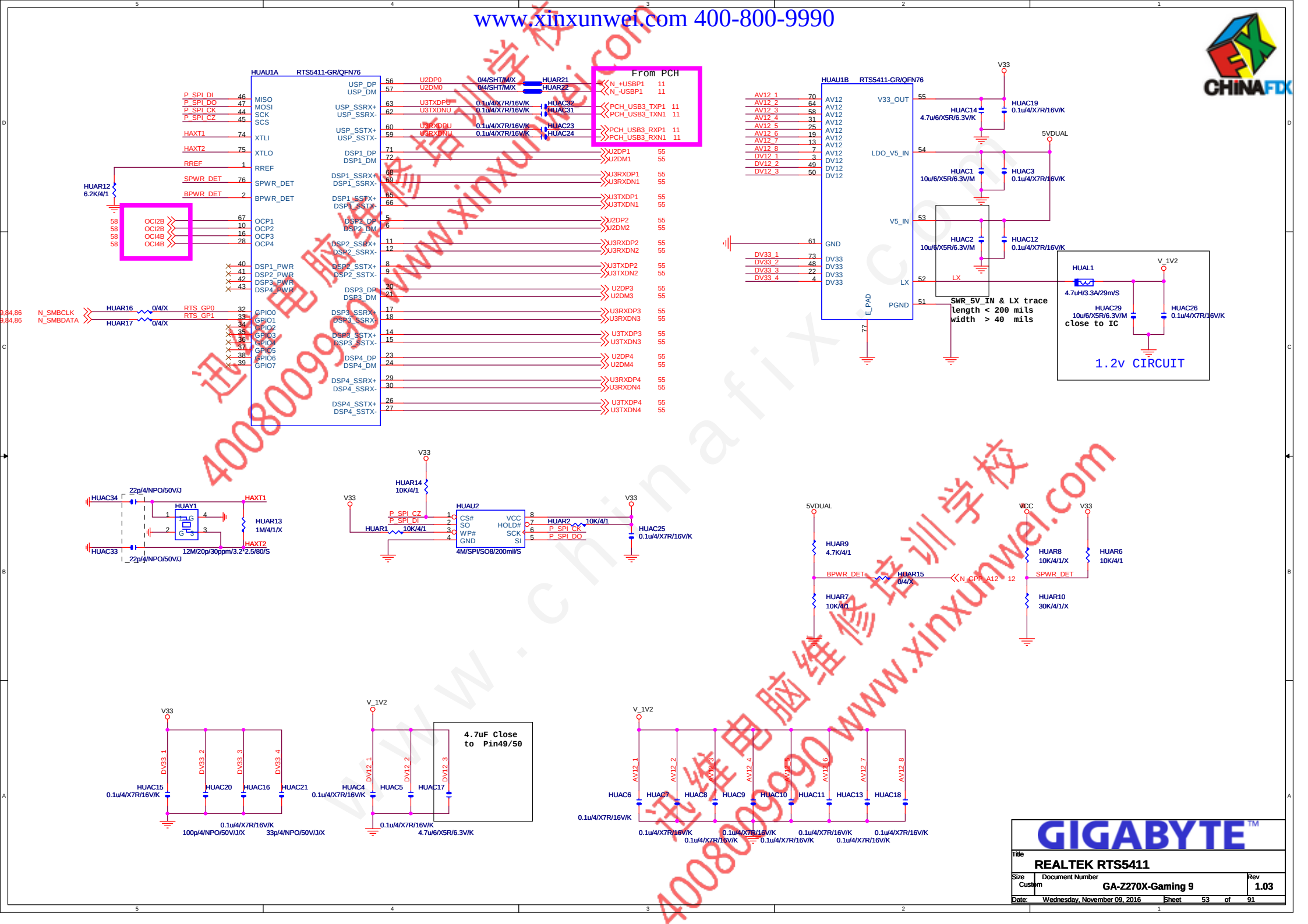


PCIE*1





Gigabyte Technology		
Title: PCI EXPRESS X1 SLOT		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 52 of 91	

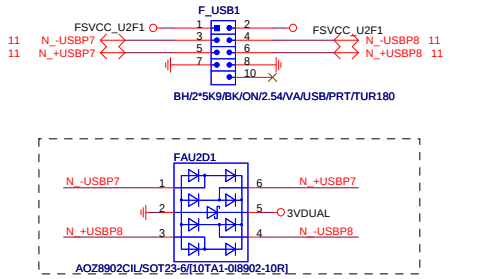


Title	REALTEK RTS5411
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	53 of 91

Rev: 0.52

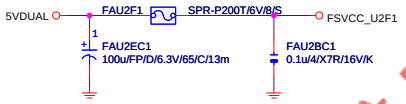
FRONT USB1

NET 可變



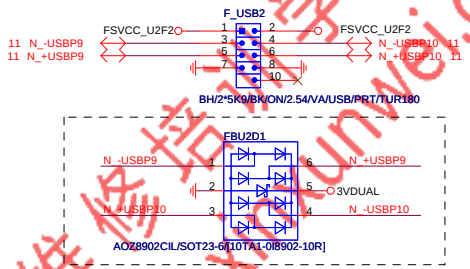
Close to connector

FUSE 2 Port 1 Fuse 2A



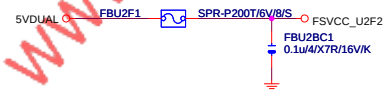
FRONT USB2

NET 可變

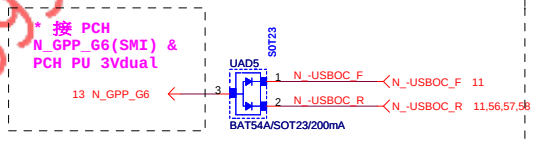


Close to connector

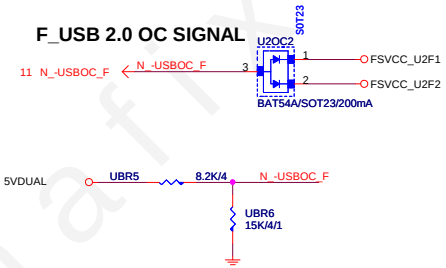
FUSE 2 Port 1 Fuse 2A



* 接 PCH N_GPP_G6(SMI) & PCH PU 3Vdual



F_USB 2.0 OC SIGNAL



Gigabyte Technology		
Title: USB2.0		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 54 of 91	

Rev: 0.52

Front USB3.0

F_USB30_1
REV=1

USB_DAC5V_A

NET 可自行調整

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

黑色

NET 可自行調整

F_USB POWER PROTECT

FBU3D1
AZ1045-04F/MSOP10

FBU3D3
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

FBU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB3.0

F_USB30_2
REV=1

USB_DAC5V_B

NET 自行調整

NET 可自行調整

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

黑色

FAU3D1
AZ1045-04F/MSOP10

FAU3D3
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

FAU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Gigabyte Technology

Title: R_USB30,F_USB30, USB_OC

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 55 of 91

Rev: 0.52

R_USB30

USB 電容前後NET 可自行調整

R_USB30
USB3.0/2.0

FSVCC_U3R1	U1	VBUS	VBUS	U10	FSVCC_U3R1
11 N_-USBP5	U2	D-	D-	U11	N_-USBP6 11
11 N_+USBP5	U3	D+	D+	U12	N_+USBP6 11
	U4	GND	GND	U13	
11 PCH_USB3_RXN5	U5	SSRX-	SSRX-	U14	PCH_USB3_RXN6 11
11 PCH_USB3_RXP5	U6	SSRX+	SSRX+	U15	PCH_USB3_RXP6 11
	U7	GND	GND	U16	
11 PCH_USB3_TXN5 RBU3C1 0.1u/4/X7R/16V/K	U8	SSTX-	SSTX-	U17	R_U3TXN6 RBU3C3 0.1u/4/X7R/16V/K PCH_USB3_TXN6 11
11 PCH_USB3_TXP5 RBU3C2 0.1u/4/X7R/16V/K R_U3TXP5	U9	SSTX+	SSTX+	U18	R_U3TXP6 RBU3C4 0.1u/4/X7R/16V/K PCH_USB3_TXP6 11
		AGND AGND AGND AGND			
		G1 G2 G3 G4			

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

USB 電容前後NET 可自行調整

ESD 可自行SWAP PIN

RBU3D3

N_-USBP5	1	6	N_+USBP5
	2	5	FSVCC_U3R1
N_+USBP6	3	4	N_-USBP6

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

FUSE 2 Port 1 Fuse 2.6A

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

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

2 port USB 3.0 架高with 大DP 料號:
11NR6-302009-41R

後窗改不銹鋼(耐鹽霧72hrs)

NET 可自行調整

R_U3TXP5			R_U3TXN6
R_U3TXN5			R_U3TXP6
* swap			* swap
	10 NC	9 NC	
	8 NC	7 NC	
	6 NC		
	D1+	D2+	
	D1-	D2-	
	1 GND	2 GND	
	3	4	
	5		
R_U3TXN5			R_U3TXP6
R_U3TXP5			R_U3TXN6

RBU3D2
AZ1045-04F/MSOP10

NET 可自行調整

PCH_USB3_RXP6			PCH_USB3_RXN5
PCH_USB3_RXN6			PCH_USB3_RXP5
* swap			* swap
	10 NC	9 NC	
	8 NC	7 NC	
	6 NC		
	D1+	D2+	
	D1-	D2-	
	1 GND	2 GND	
	3	4	
	5		
PCH_USB3_RXN6			PCH_USB3_RXP5
PCH_USB3_RXP6			PCH_USB3_RXN5

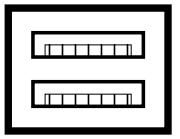
RBU3D1
AZ1045-04F/MSOP10

5VDUAL — LAR35 8.2K/4 — N_-USBOC_R — N_-USBOC_R 11,54,57,58

LAR36
15K/4/1

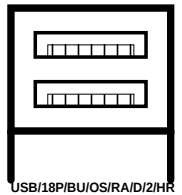
CONNECTOR 自行調整

2 port USB 3.0 Capture:



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

2 port USB 3.0 with TYPE C Capture:



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

Gigabyte Technology

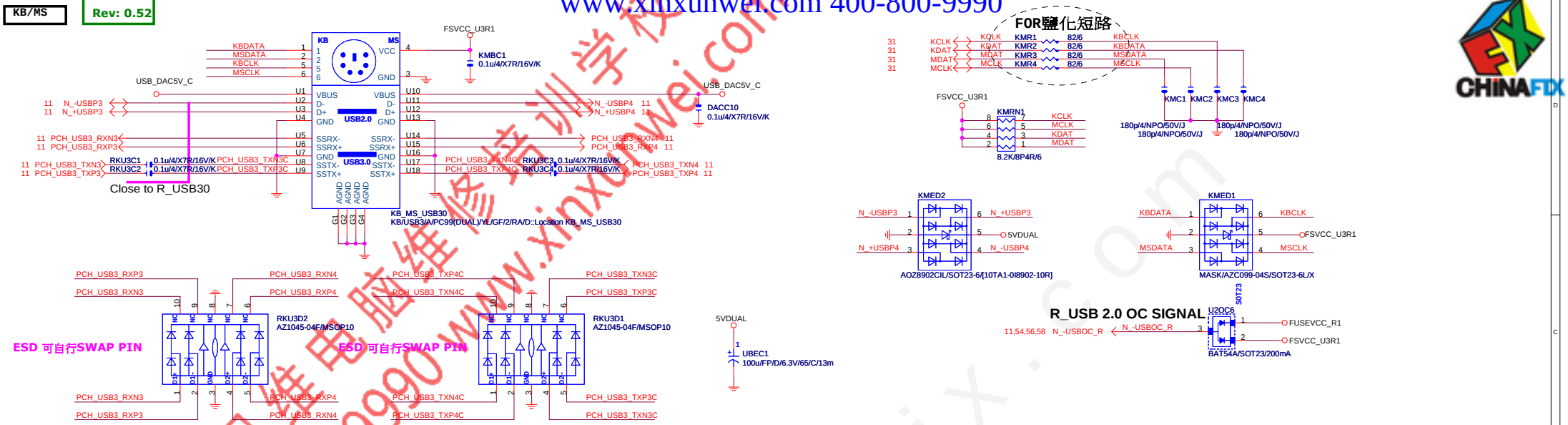
Title: KB_MS_USB3, R_USB30

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 56 of 91

KB/MS

Rev: 0.52



FOR鹽化短路

R_USB 2.0 OC SIGNAL

Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 57 of 91	

USB_DAC_A

F_USB30_1

REV:0.12

DACA_U1 RT8288AZSP/SOP8

DACA_C2請跟PIN8.PIN9一起下GND

0X22 = 75%xVCC

DACA_U2 NCT3933U/SOT23-8

TO USB_DAC PORT

Connector to USB OC PIN

DACA_Q1 RT9742CNGJ5/SOT23-5 From Switching

DACA_Q2 RT9742CNGJ5/SOT23-5 From 5VDUAL

DAC power disable by resume GPIO

USB_DAC_B

F_USB30_2

DACB_U1 RT8288AZSP/SOP8

DACB_C2請跟PIN8.PIN9一起下GND

DACB_U2 NCT3933U/SOT23-8

TO USB_DAC PORT

Connector to USB OC PIN

DACB_Q1 RT9742CNGJ5/SOT23-5 From Switching

DACB_Q2 RT9742CNGJ5/SOT23-5 From 5VDUAL

DAC power disable by resume GPIO

USB_DAC_C

KB_MS_USB0

DACC_U1 RT8288AZSP/SOP8

DACC_C2請跟PIN8.PIN9一起下GND

0X28 =25%xVCC

DCCA_U2 NCT3933U/SOT23-8

TO USB_DAC PORT

Connector to USB OC PIN

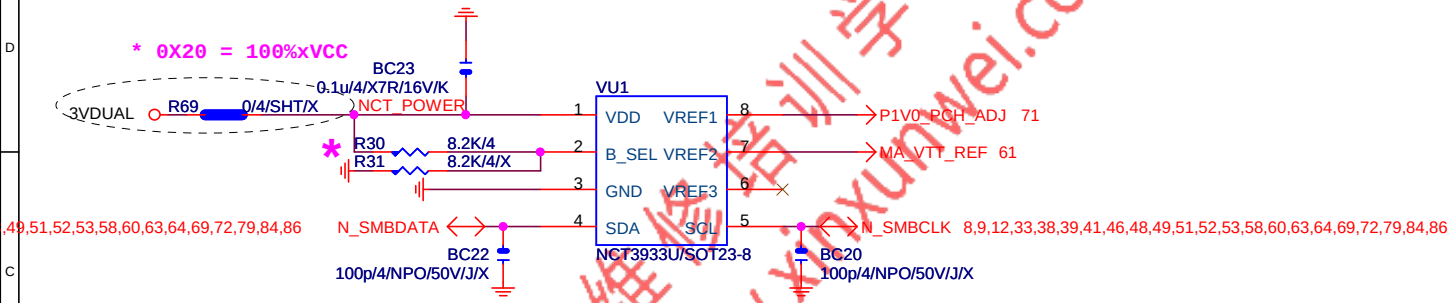
DACC_Q1 RT9742CNGJ5/SOT23-5 From Switching

DACC_Q2 RT9742CNGJ5/SOT23-5 From 5VDUAL

DAC power disable by resume GPIO

Title	DAC POWER
Size	Custom
Document Number	GA-Z270X-Gaming 9
Rev	1.03
Date:	Wednesday, November 09, 2016
Sheet	58 of 91

OVER VOLTAGE



0X22 = 75%xVCC

* 删除 0VU2

* 删除 0VU3

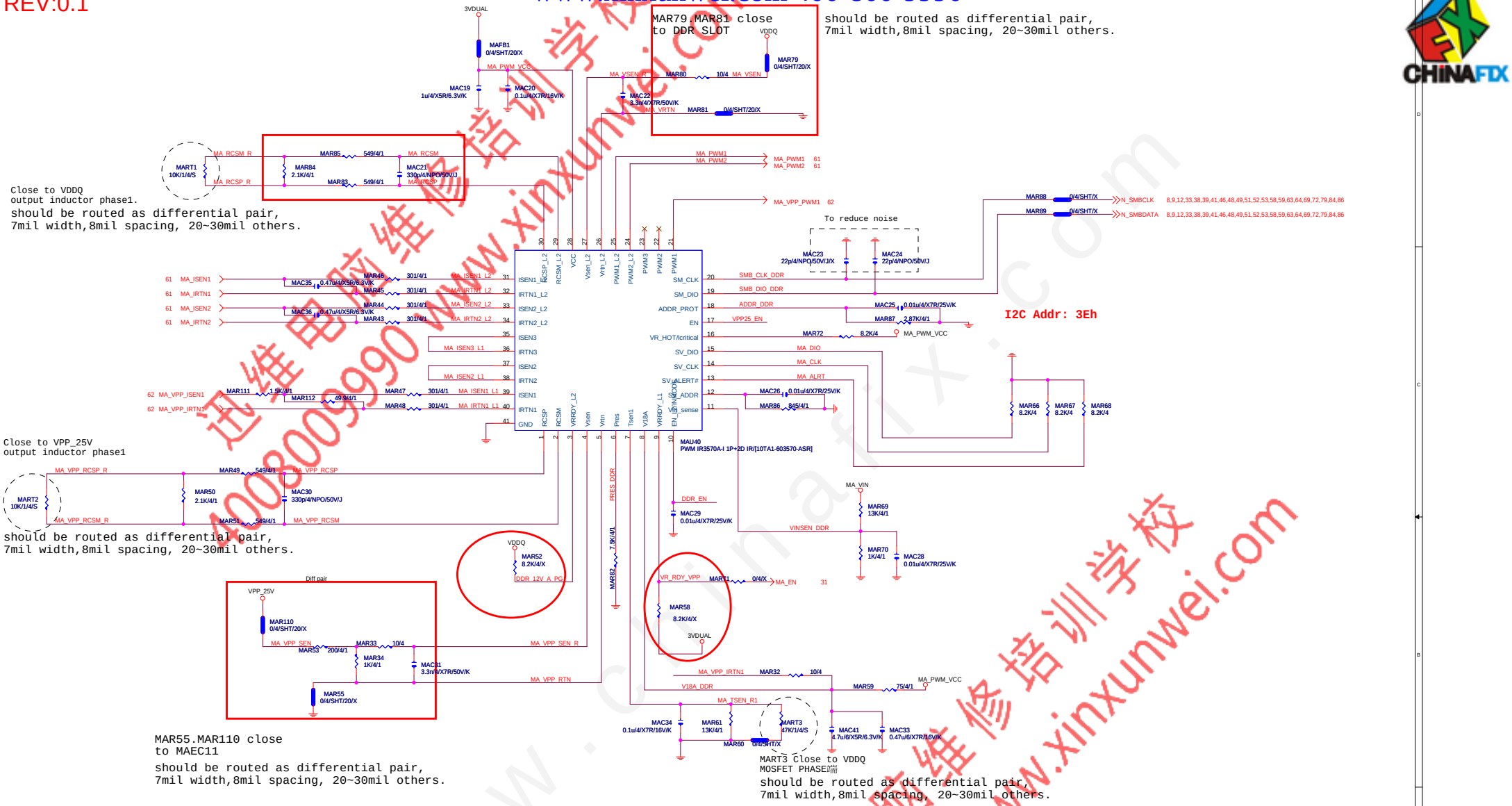
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

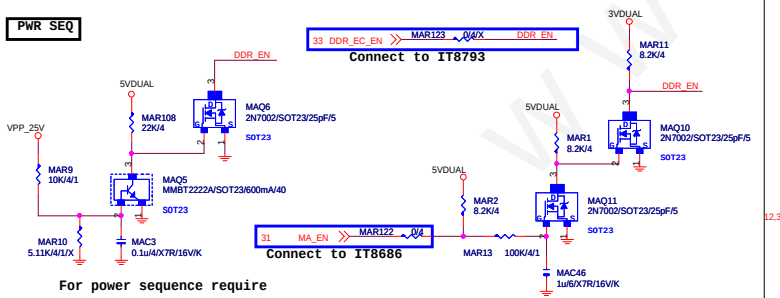
Gigabyte Technology

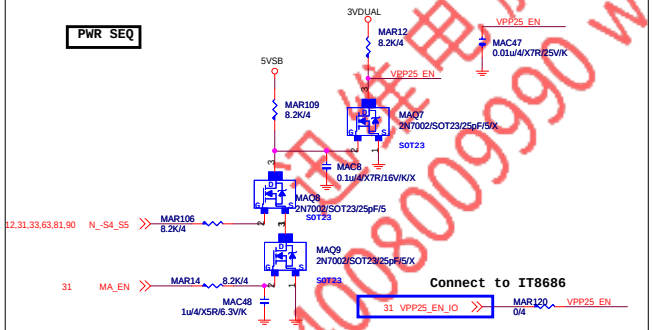
Title: NCT3933

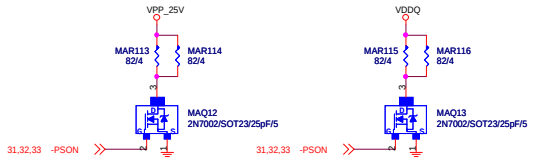
Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 59 of 91



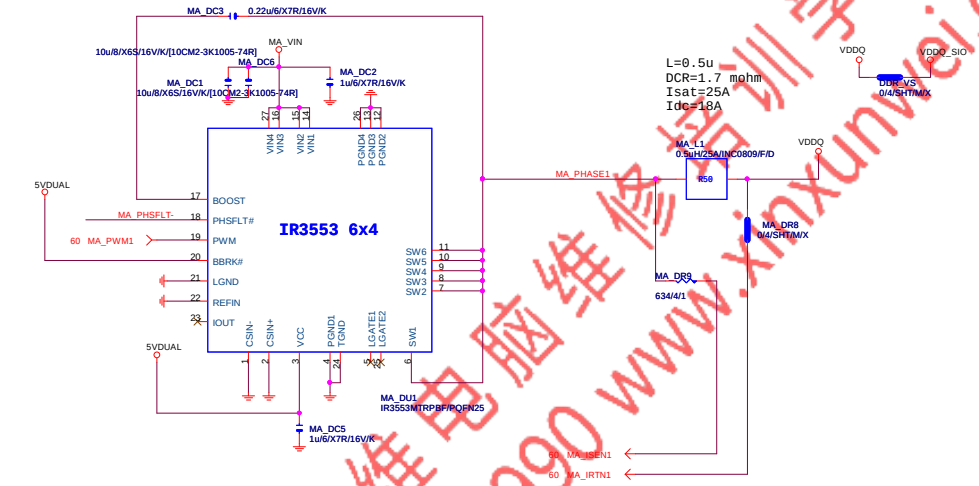


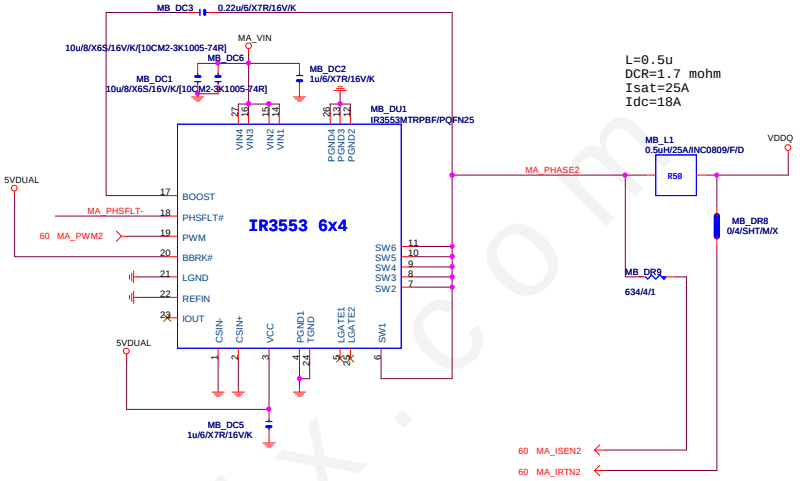




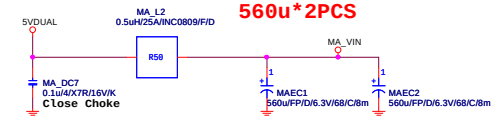
Title	DDR& VPP POWER IR3570	
Size C	Document Number GA-Z270X-Gaming 9	Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 60 of 91	

DDR REV:0.1

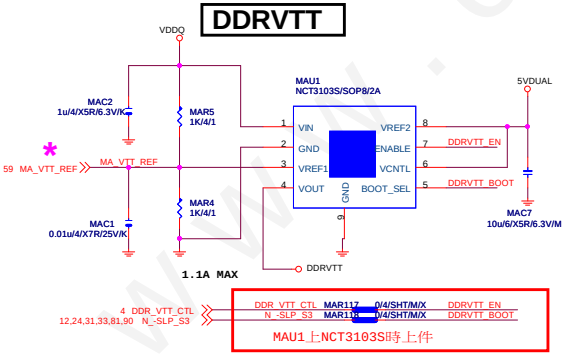




DDR VIN CAP
560u*2PCS



DDRVTT

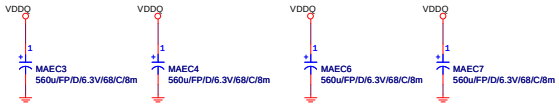


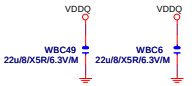
DDRVTT CAP

* 大電容 x0

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

* 大電容 x4





Gigabyte Technology

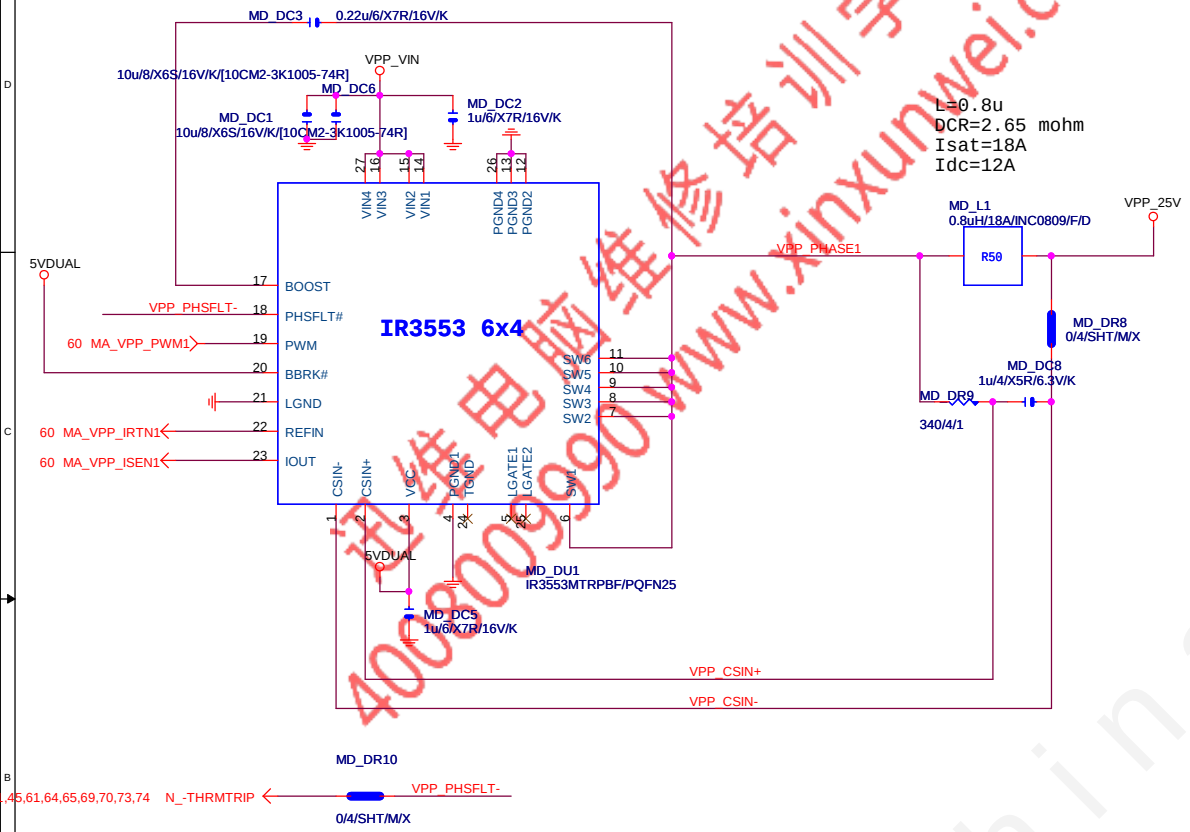
Title: DDR MOS_IR3553

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

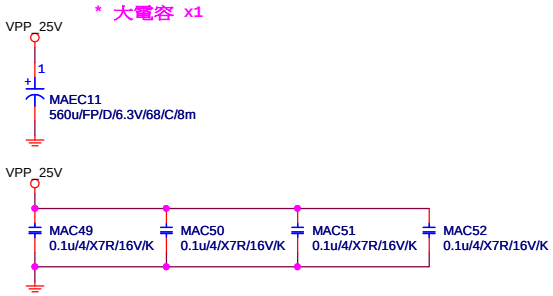
Date: Wednesday, November 09, 2016 | Sheet 61 of 91

DDR_VPP

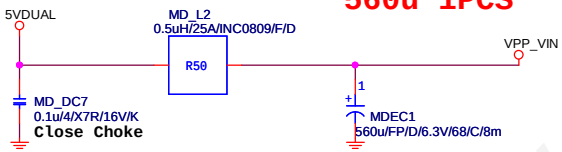
REV:0.1



VPP CAP 560u*1PCS

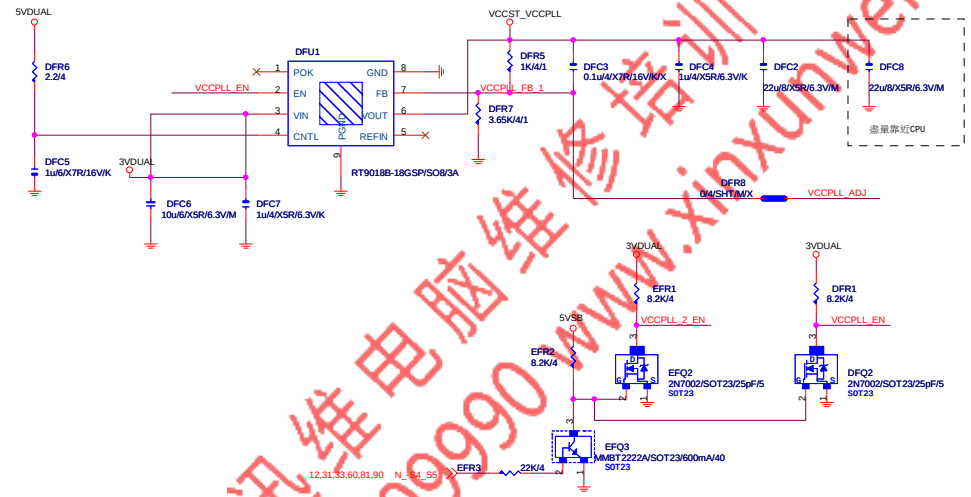


DDR_VPP VIN CAP 560u*1PCS

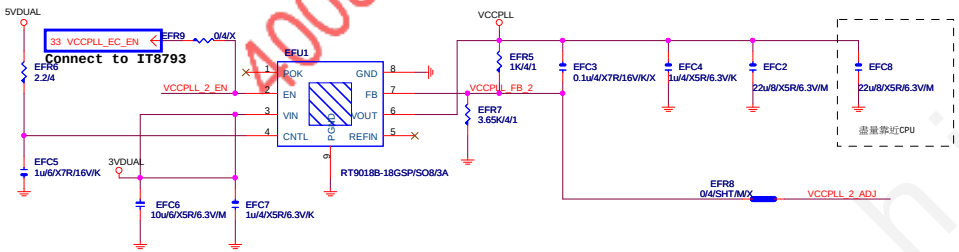


Gigabyte Technology		
Title: VPP_MOS IR3553		
Size: B	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 62 of 91	

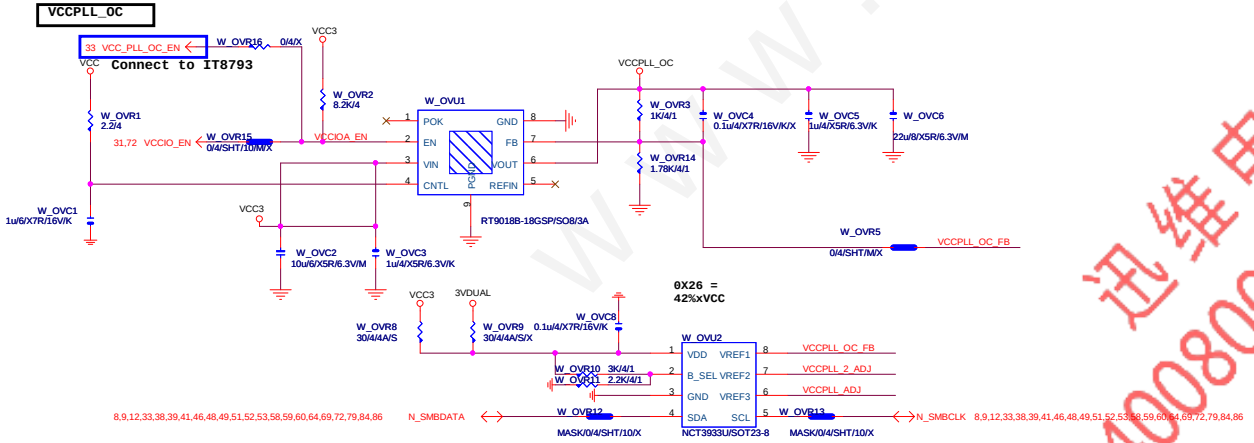
VCCST_VCCPLL 替換原先MOS開關線路



VCCPLL

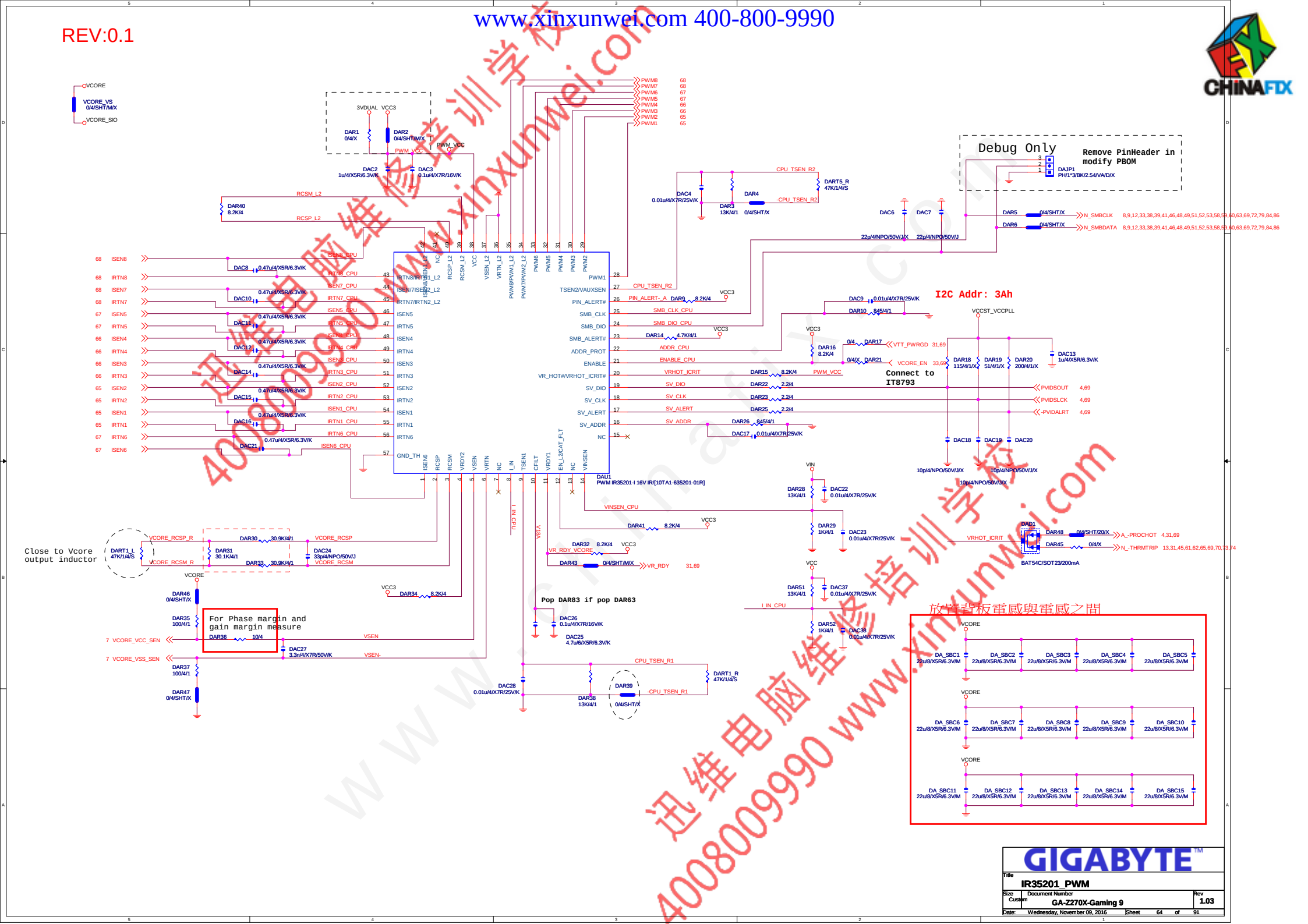


VCCPLL_OC



Title	VCCSA_VCCIO		
Size	Document Number		Rev
Custom	GA-Z270X-Gaming 9		1.03
Date:	Wednesday, November 09, 2016	Sheet 63 of 91	

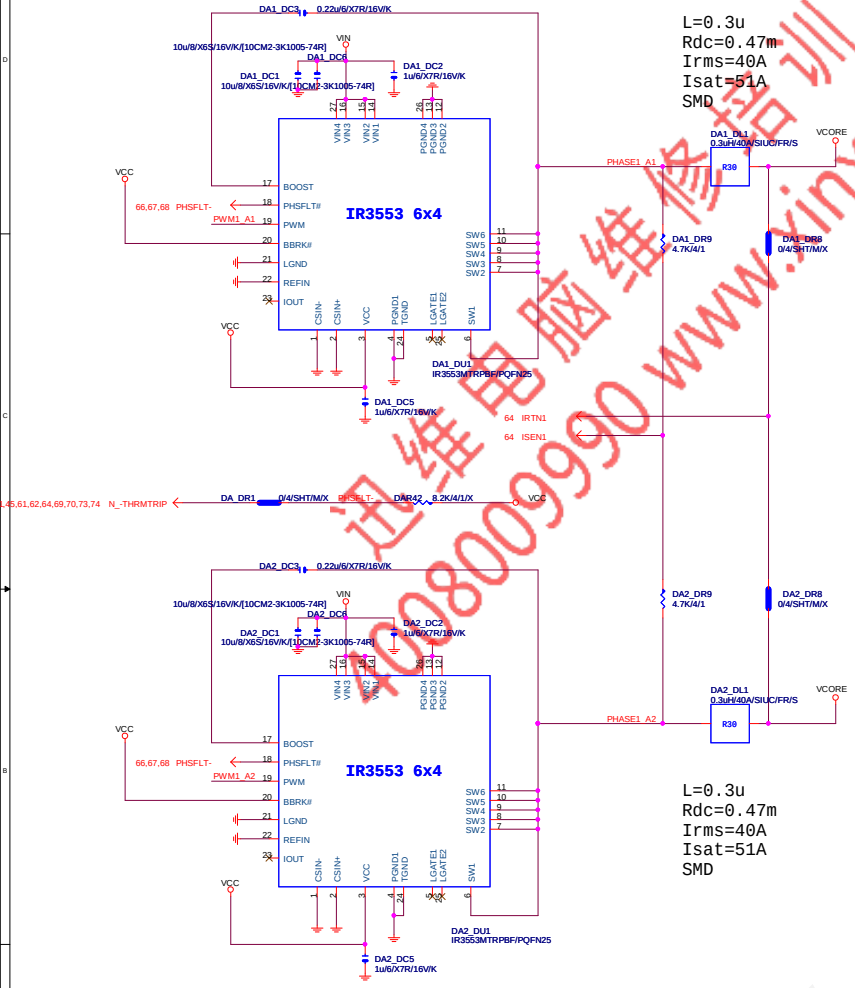
REV:0.1



GIGABYTE™

Title	IR35201_PWM	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 64 of 91	

VCORE PHASE1_2

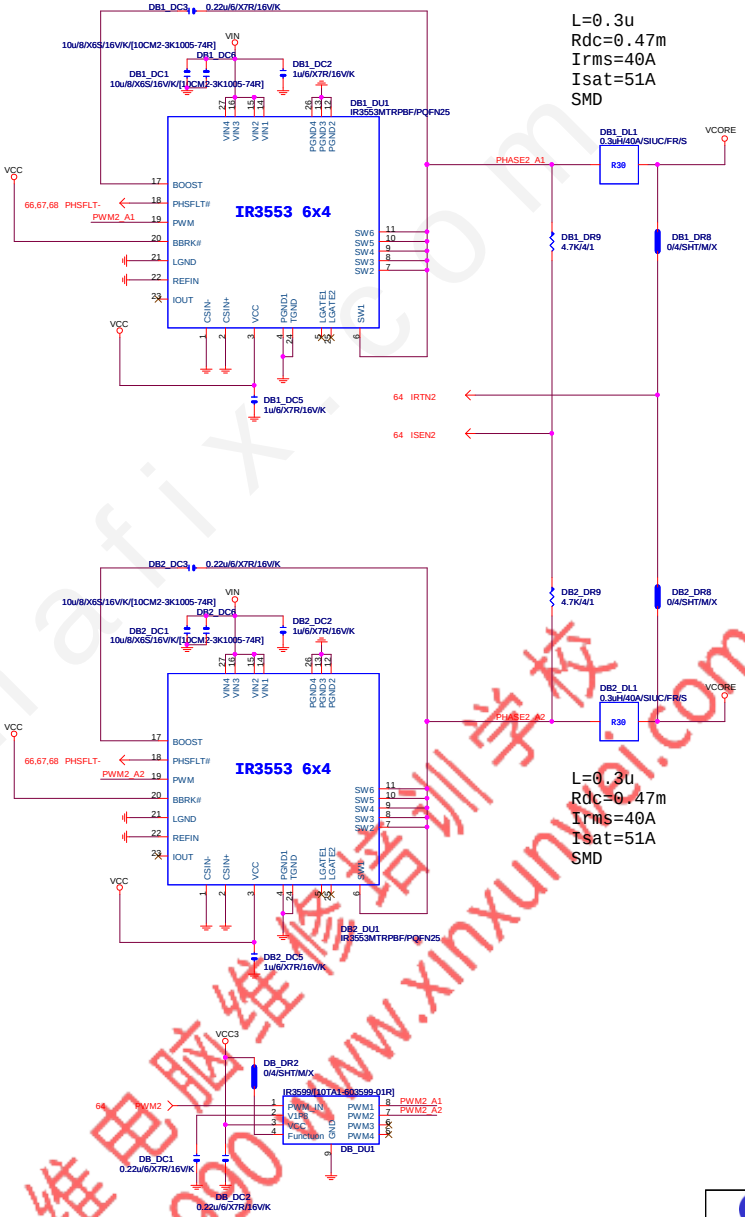


L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

function = 0 --> Quad mode
function = 1 --> Doubled mode

VCORE PHASE3_4



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

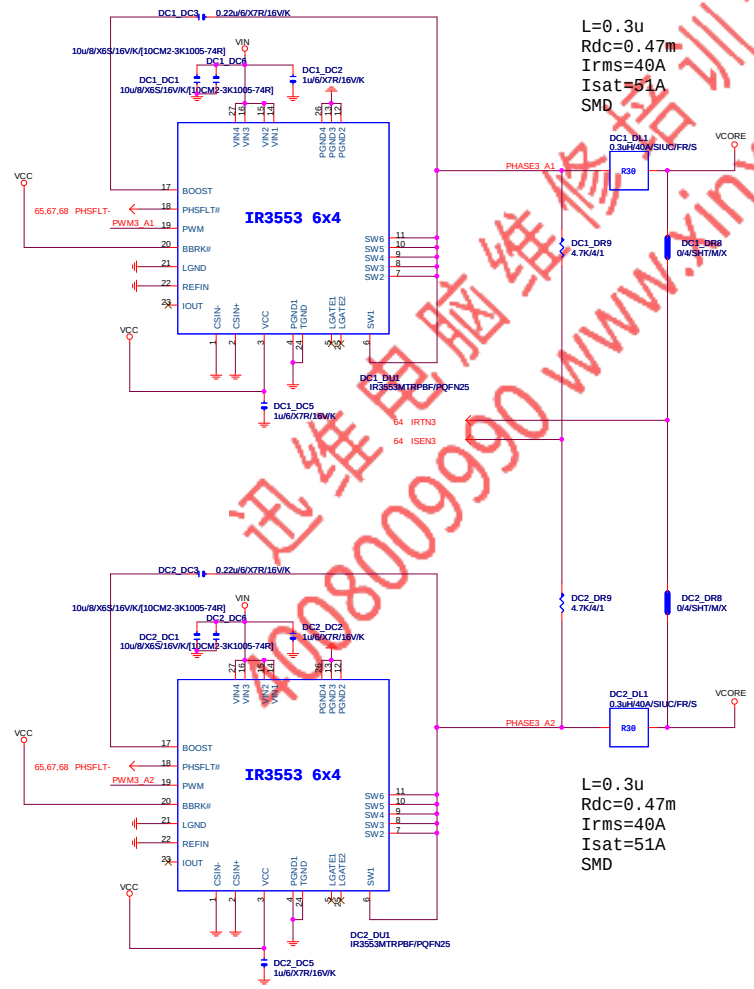
L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

function = 0 --> Quad mode
function = 1 --> Doubled mode

GIGABYTE

Title	CPU CORE VR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 65 of 91	

VCORE PHASE5_6

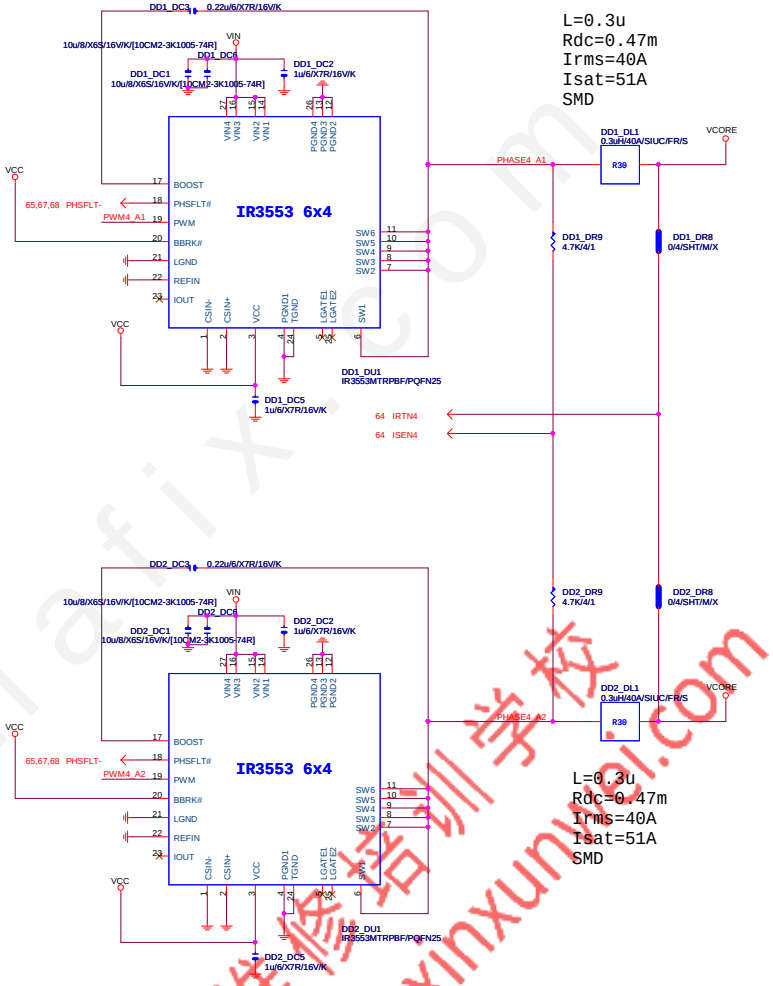


L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

function = 0 --> Quad mode
function = 1 --> Doubled mode

VCORE PHASE7_8



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

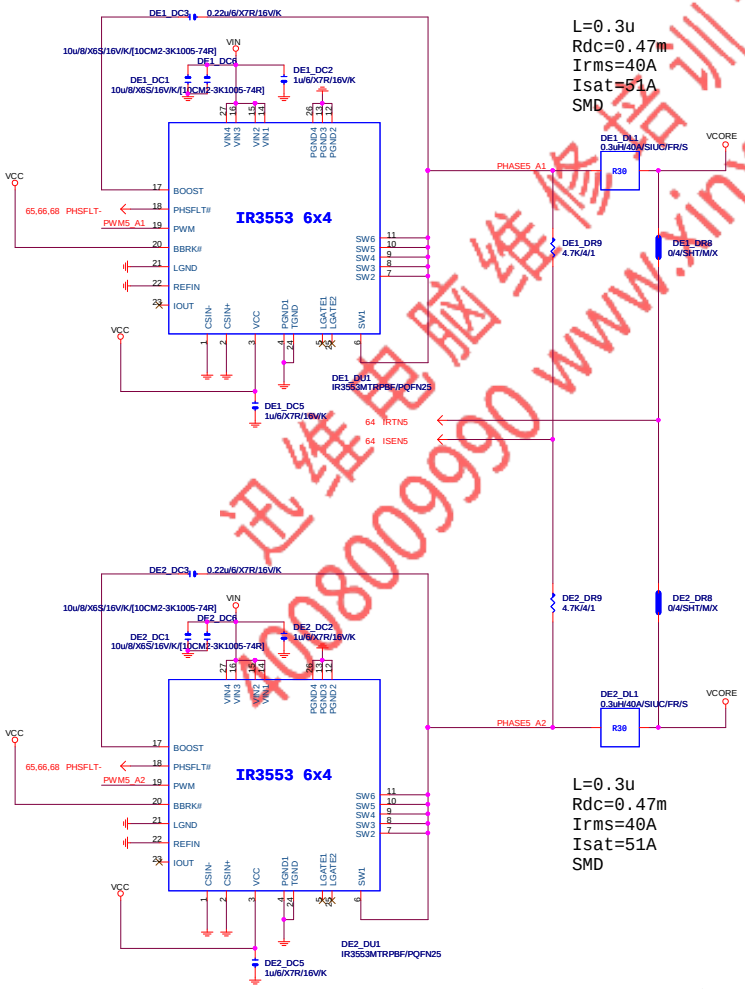
L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

function = 0 --> Quad mode
function = 1 --> Doubled mode

GIGABYTE

Title	CPU CORE VR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 66 of 91	

VCORE PHASE9_10

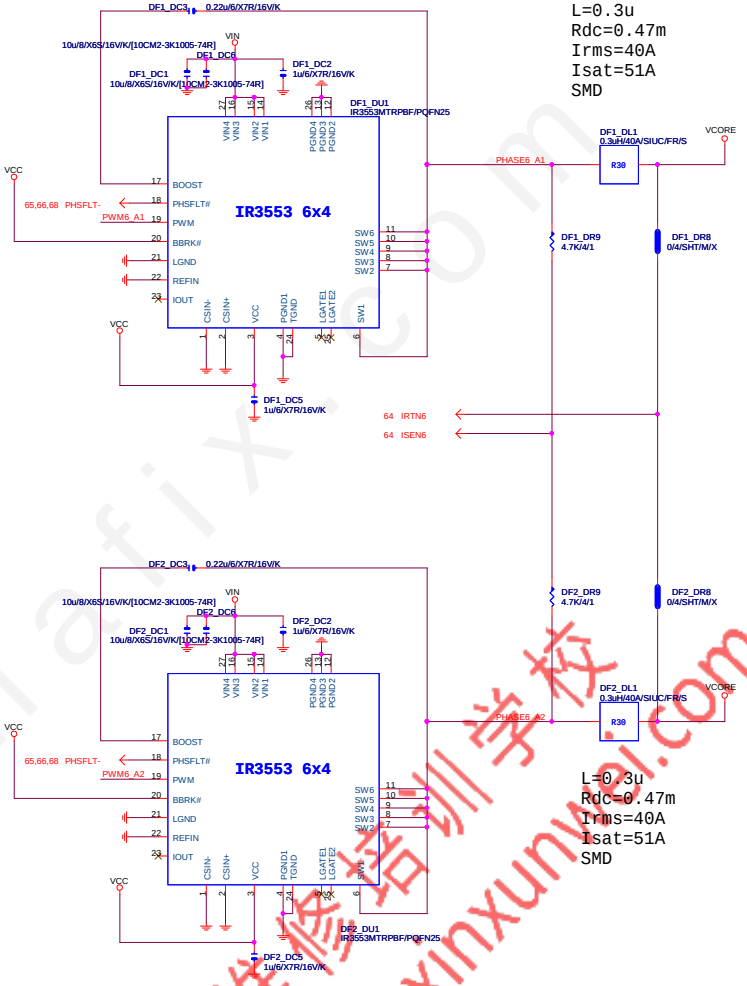


L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

function = 0 --> Quad mode
function = 1 --> Doubled mode

VCORE PHASE11_12



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

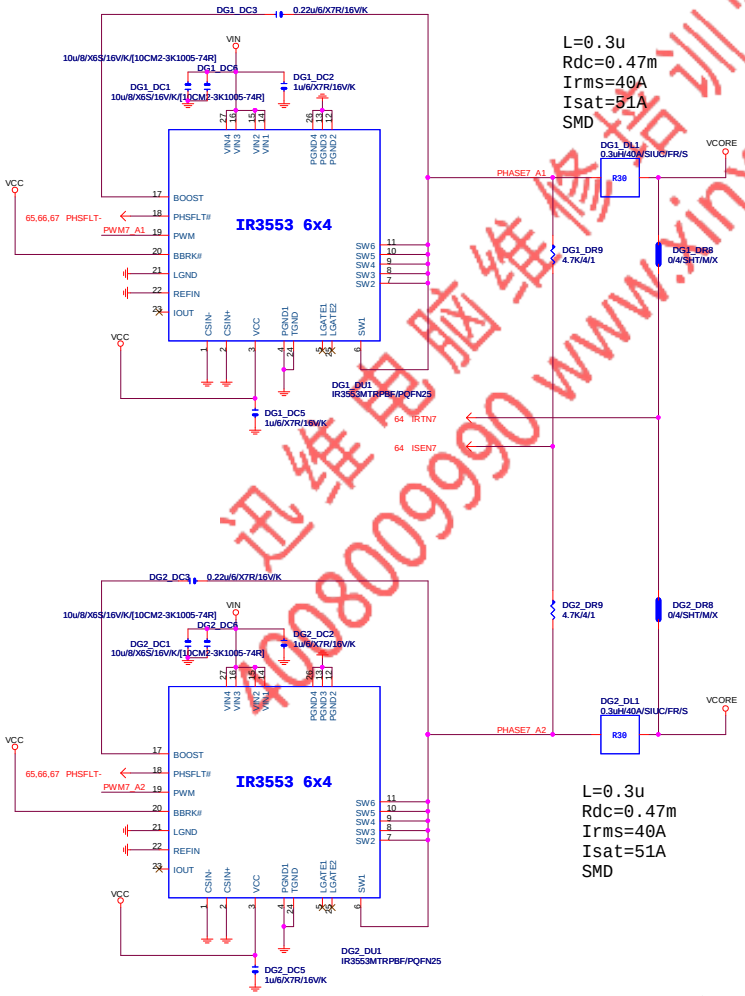
function = 0 --> Quad mode
function = 1 --> Doubled mode

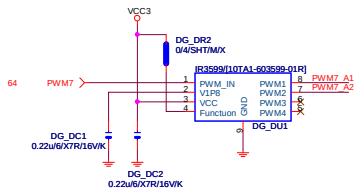
GIGABYTE

Title	CPU CORE VR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 67 of 91	

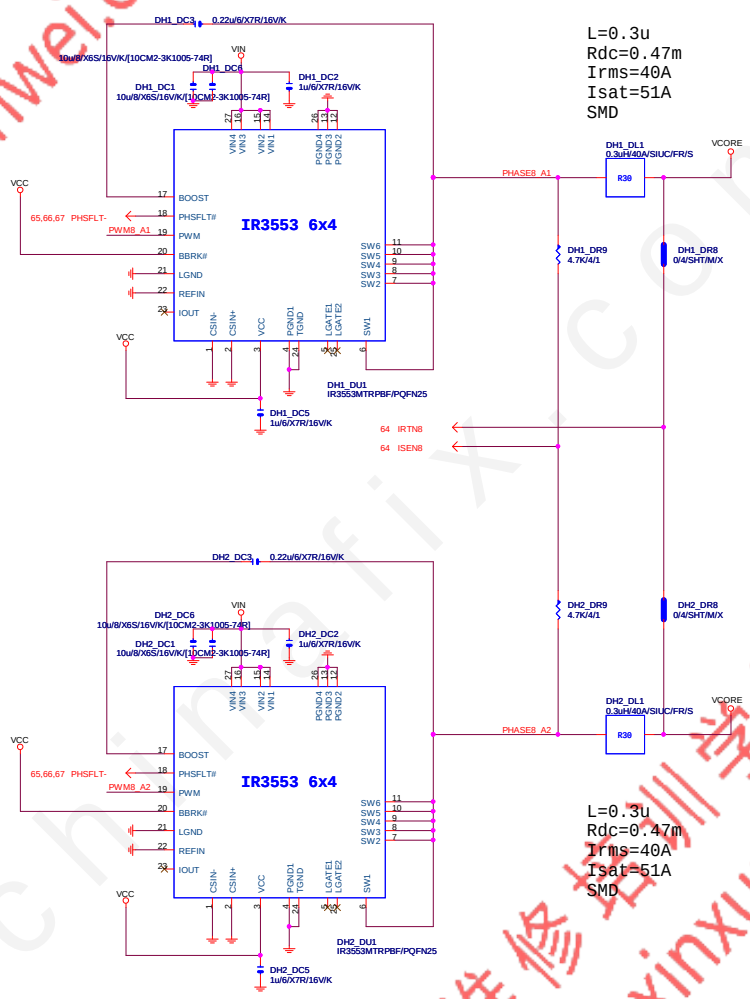
REV:0.1

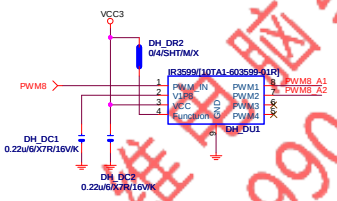
VCORE PHASE13_14



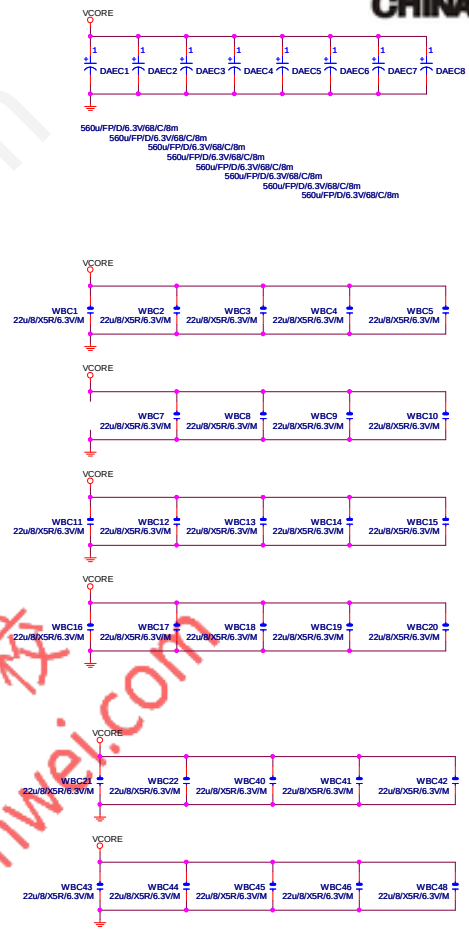


VCORE PHASE15_16

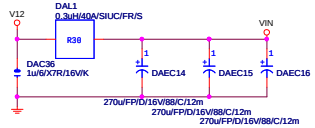




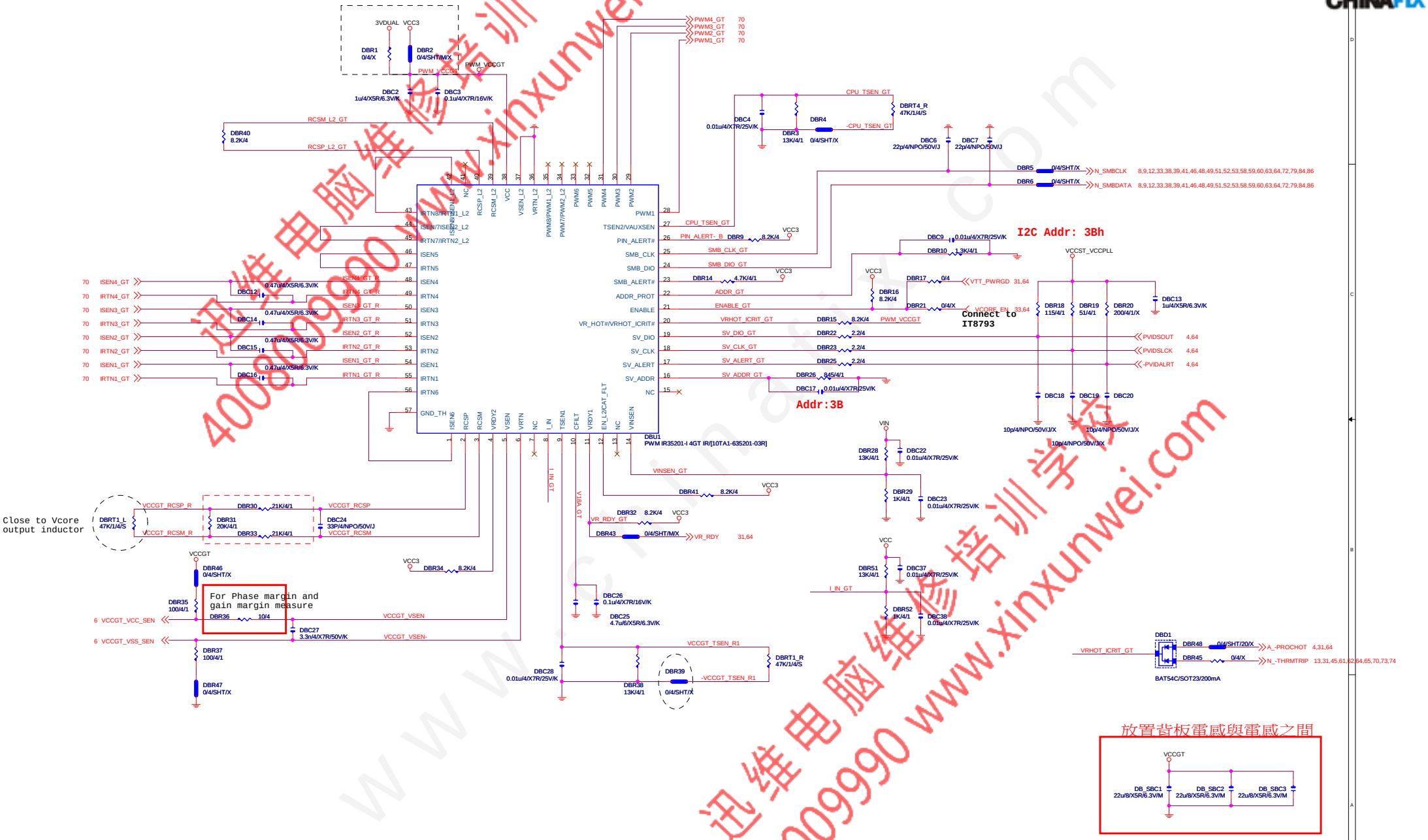
VCORE CAP 560u*8PCS 22u*30PCS



VIN CAP 270u*3PCS

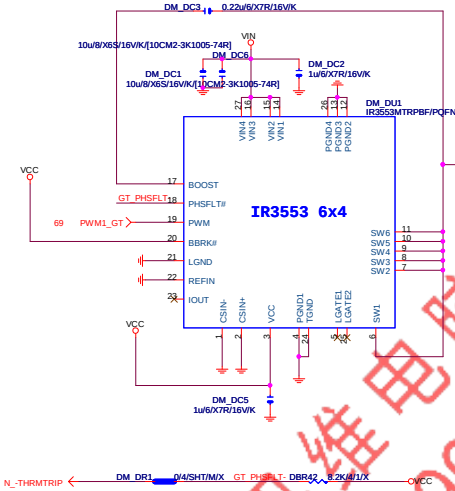


GIGABYTE		
Title: CPU CORE VR		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 68 of 91	



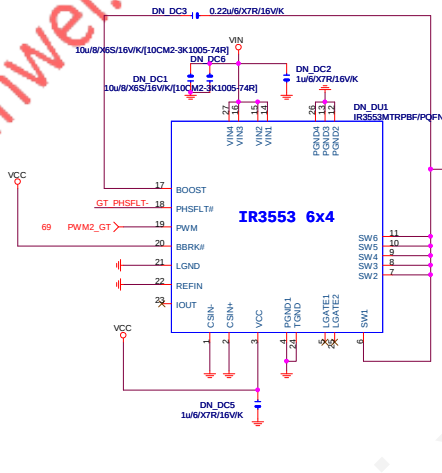
REV:0.1

VCCGT-PHASE1



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

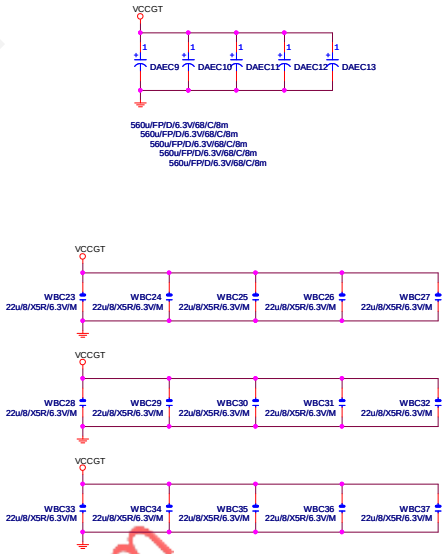
VCCGT-PHASE2



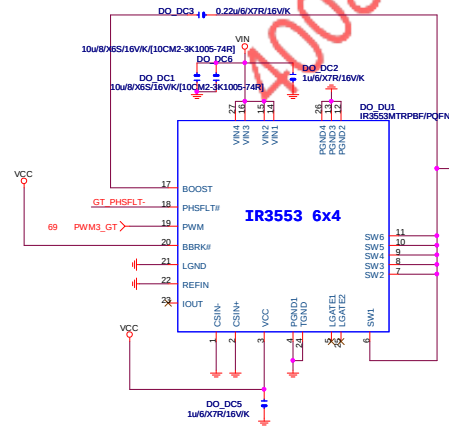
L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

VCCGT CAP

560u*5PCS
22u*15PCS

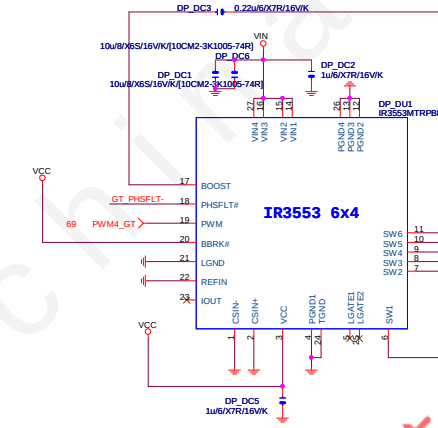


VCCGT-PHASE3



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

VCCGT-PHASE4



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

GIGABYTE

Title	CPU CORE VR	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 70 of 91	

REV:0.67

5VDUAL
+12V
NPR22 0/8/X
NPD1 B140/SMA/1A
NPD2 B140/SMA/1A
L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A
CHOKE與CAP料號可變
共用CHOKE footprint
NPL1 0.5uH/20A/IMD0809/BP/D
P1V0_VIN_D
P1V0_VIN
注意耐壓
NPC1 0.1u/4/X7R/16V/K
NPC3 1u/6/X7R/16V/K
Close MOS
NPEC1 100u/OS/D/16V/66/C/30m
Close Choke
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A
NPR1 2.2/6 DRV_PCH
NPC4 1u/6/X7R/16V/K
NPQ1 NTMFS4C10NT1G/PPAK/970pF/7.3m
UGATE_PCH NPR2 2.2/6
NPR4 8.2K/4
NPL2 1uH/18A/IMD0809/BP/D
VCC1_0_PCH
Imax:7.31A
NPU1 RT8120DGS/SOP8
NPC2 0.1u/6/X7R/25V/K
P1V0_PCH_EN
NPR5 8.2K/4/1
NPC5 22p/4/NPO/50V/J
NPC6 3.3n/4/X7R/50V/K
NPR12 MASK/0/4/SHT/X
UGATE_PCH
PHASE_PCH
LGATE_PCH
NPR11 34K/4/1
OCP=30A
放靠近IC pin4
OCP:14.6A=Roset*Iocset / Rds(on)
=11K*10uA / 7.5
NPR6 2.2/6
NPC7 1n/4/X7R/50V/K
NPQ2 NTMFS4C10NT1G/PPAK/970pF/7.3m
NPR7 487/4/1
NPC8 3.3n/4/X7R/50V/K
RS
NPR8 2K/4/1
NPEC2 560u/FP/D/6.3V/68/C/8m
P1V0_PCH_ADJ
59 P1V0_PCH_ADJ
Remote sense請從最重的負載端點拉回
RO
NPR13 6.2K/4/1
0.8*(1+RS/RO) = Vout
0.8*[1+2K/7.87K)] =
1.003V

PWR SEQ

P1V0_PCH_EN
NPR14 0/4/X
VCC1_0_EN 31
5VSB
NPR15 8.2K/4
NPQ4 2N7002/SOT23/25pF/5
SOT23
3VDUAL
NPR16 8.2K/4
NPQ3 MMBT2222A/SOT23/600mA/40
SOT23
NPR17 8.2K/4
NPC9 4.7u/4/X5R/6.3V/M/X

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

GIGABYTE™

Title	RT8120_PCH POWER	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 71 of 91	

REV:0.1

Close to Vcore output inductor

should be routed as differential pair, 7mil width,8mil spacing

Diff pair

I2C Addr: 3Ch

To reduce noise

Differential pair, 7mil for VCCSA_sense, 8mil spacing between VCCSA_sense and VSSSAIO_sense, and 8mil spacing between VCCIO_sense and VSSSAIO_sense. 20-30mil to others.

DCU40
PWM IR3570A-I 1SA+1IO IR/[10TA1-603570-AQR]

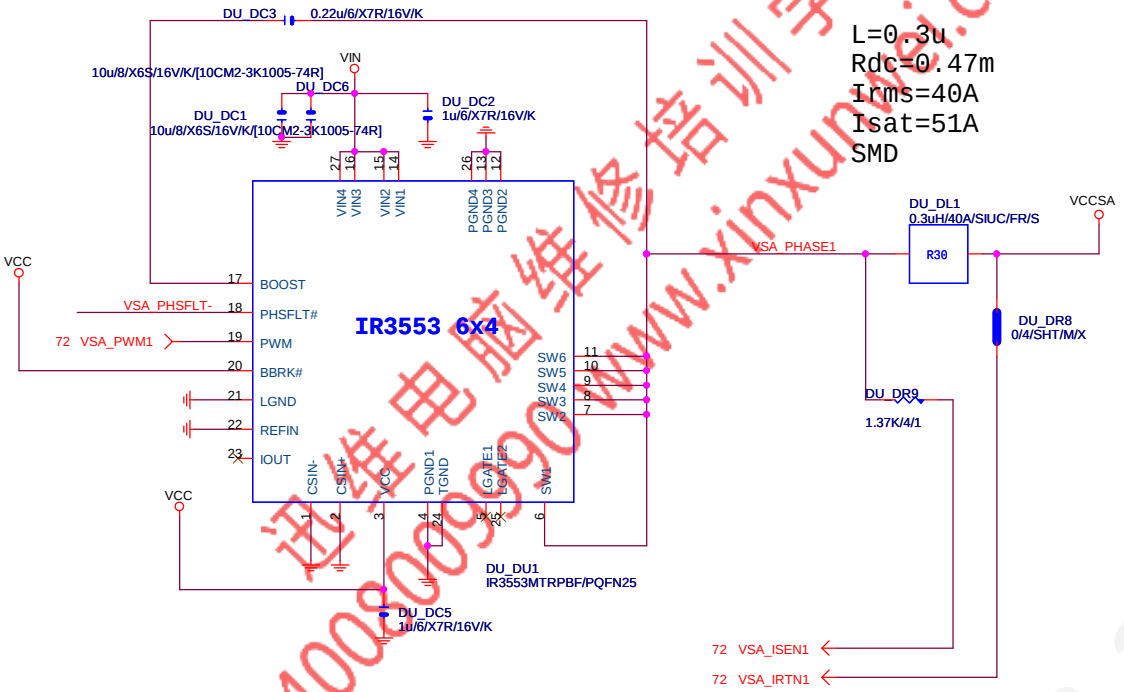
SIO PIN5接VDDQ . PIN7接VCCIO時DCR94上件.DCQ2不上件
SIO PIN5 . PIN7 用在其他function時.DCR94不上件.DCQ2上件

Connect to IT8793
Connect to IT8686

Connect to IT8686
Connect to IT8793

Title	VSA& VIO POWER IR3570		
Size C	Document Number GA-Z270X-Gaming 9		Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 72	of 91	

VCCSA REV:0.1

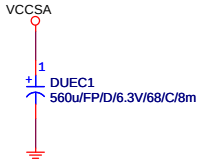


L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

1.05V/ICCMAX:13A

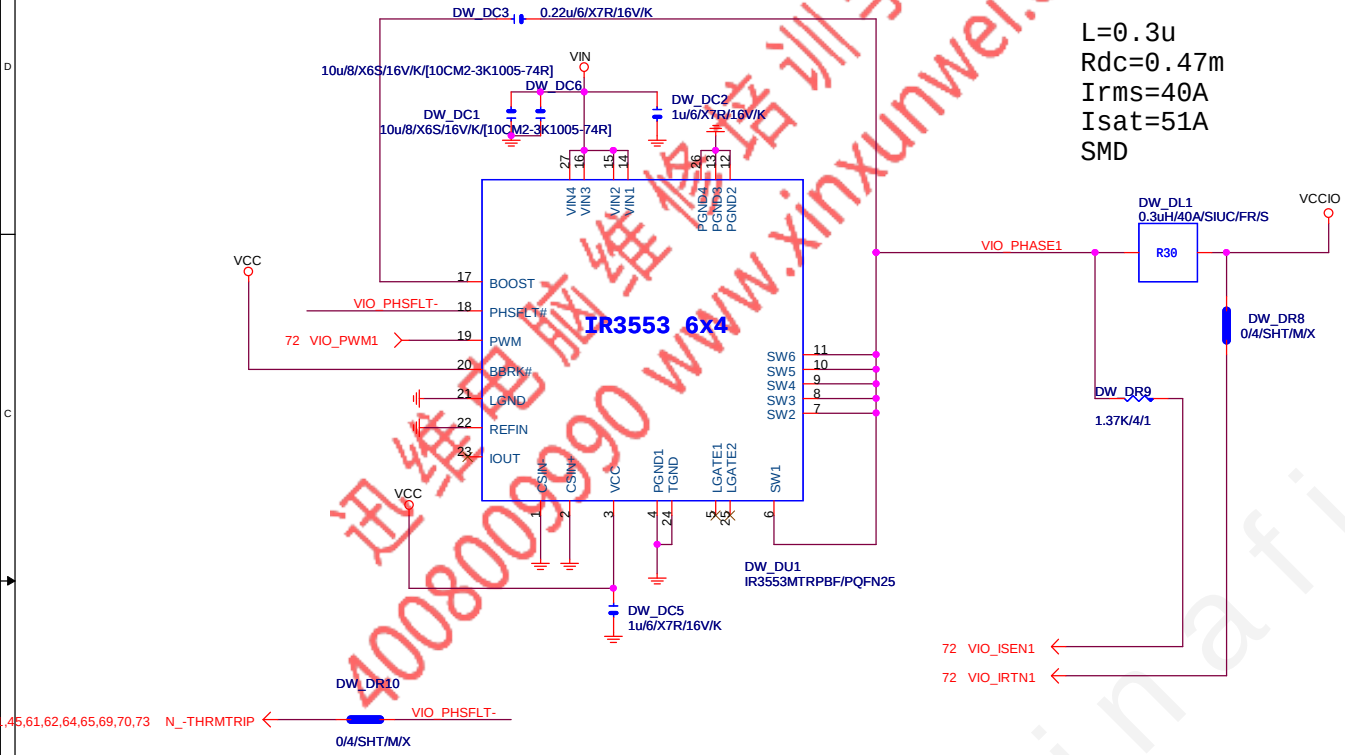
DU_DR10
,45,61,62,64,65,69,70,74 N_-THRMTRIP
VSA_PHSFLT-
0/4/SHT/M/X

VCCSA CAP **560u*1PCS**



Gigabyte Technology		
Title: VCCSA MOS_IR3553		
Size: B	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 73 of 91	

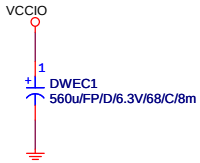
VCCIO REV:0.1



L=0.3u
Rdc=0.47m
Irms=40A
Isat=51A
SMD

0.95V/ICCMAX:5.5A

VCCIO CAP **560u*1PCS**

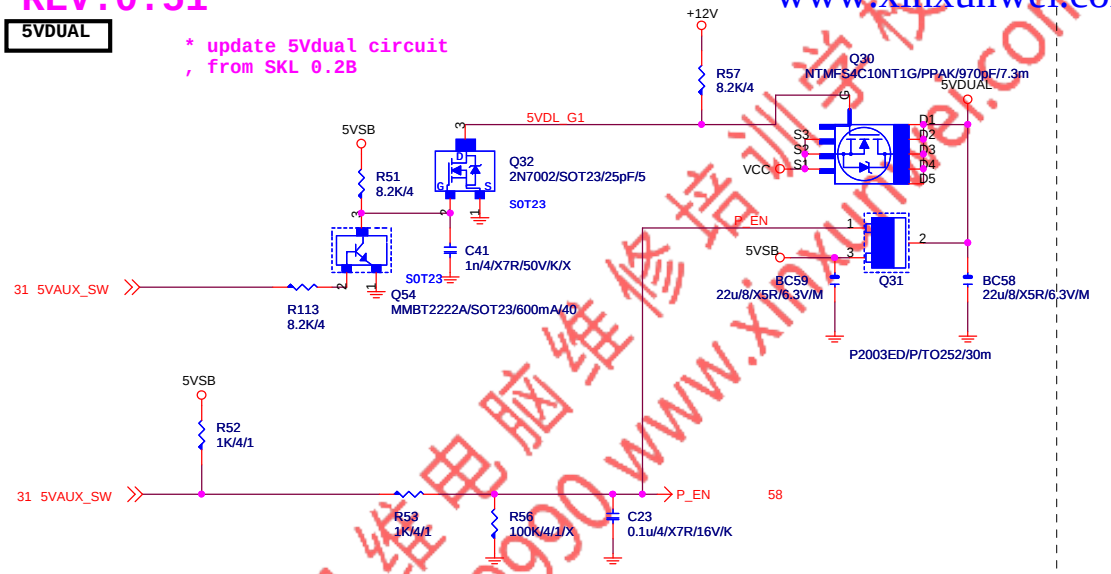


Gigabyte Technology		
Title: VCCIO_MOS IR3553		
Size: B	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 74 of 91	

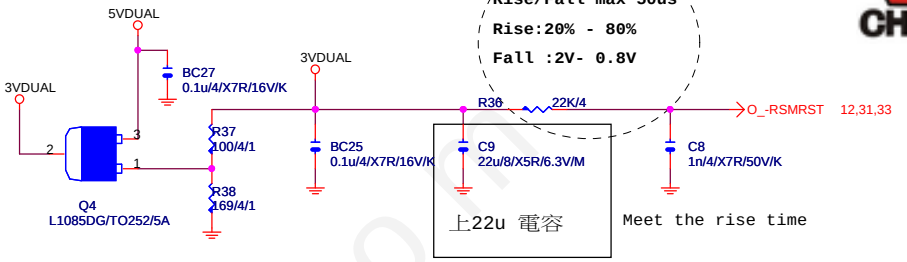
REV:0.51

5VDUAL

* update 5Vdual circuit
, from SKL 0.2B

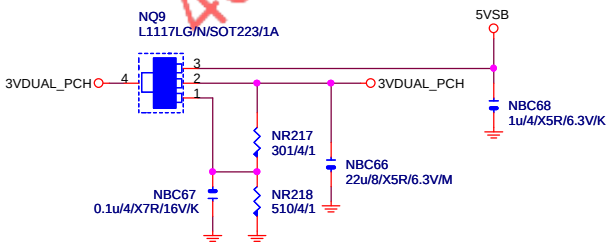


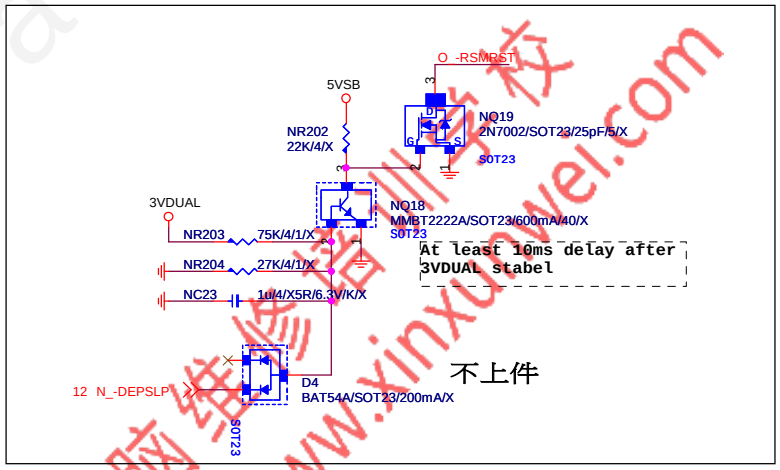
3VDUAL



Rise/Fall max 50us
Rise:20% - 80%
Fall :2V- 0.8V

3VDUAL_PCH





Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 75 of 91	

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

SATA : GND.
PCIE : NC

M2插卡時為Low

需要M2_CLKREQ對應

可變動

架高

架高

DIP螺絲

DIP螺柱

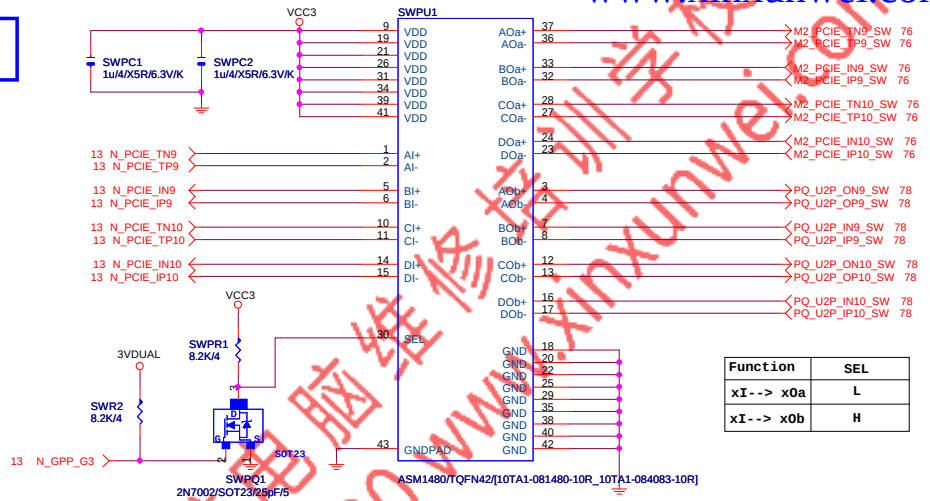
SMD螺柱

M2P_32G
SKT3
SSD PIN OUT
KEY M
M2/67/BK/RA/S/H8.5mm/M KEY/[10NR5-130067-52R]

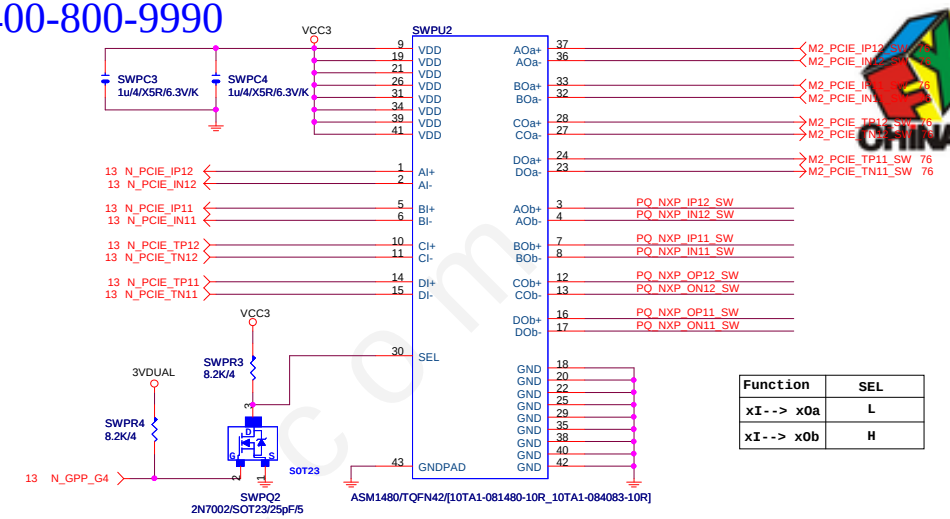
CR/[12KS2-110202-01R]
CR/[12KSF-F10303-11R]
SDO/M3/UD5.5/BD4.0/H0.6/SN/[10KS2-040131-01R]

Gigabyte Technology			
Title: M.2 X4			
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 76 of 91		

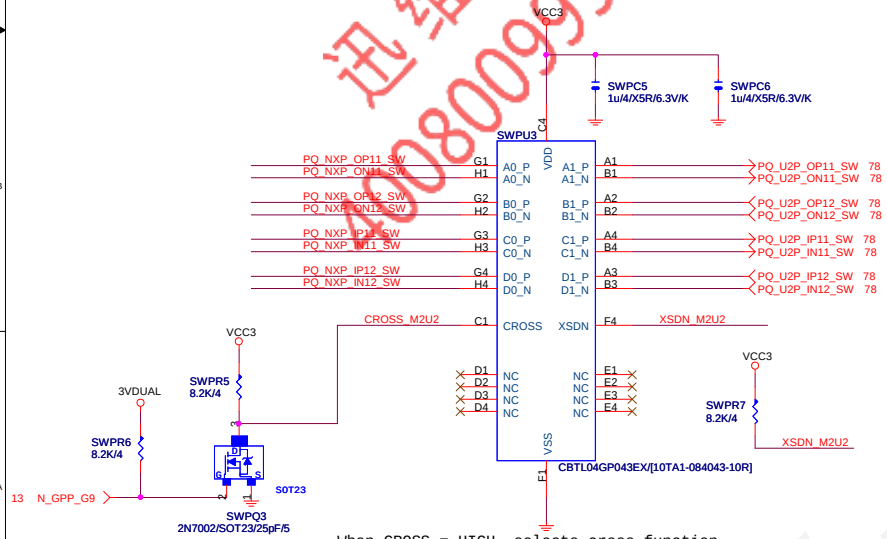
Rev 0.1



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



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



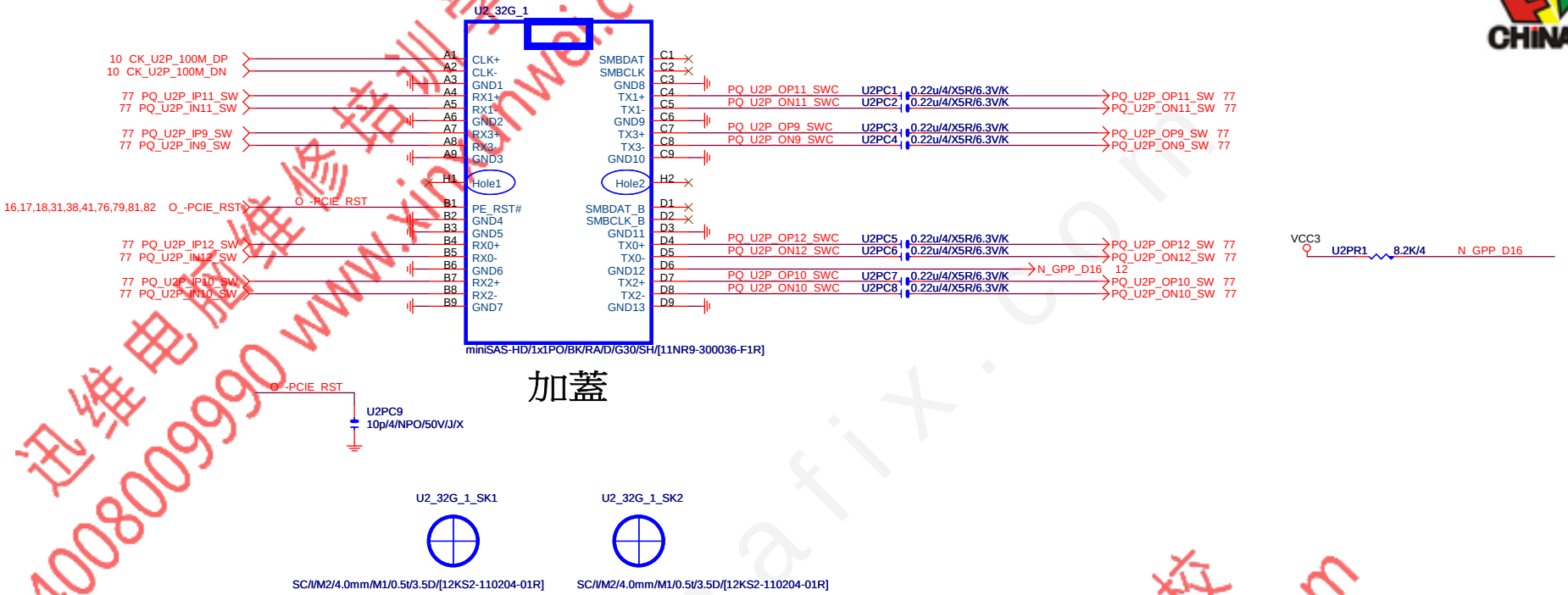
When CROSS = HIGH, selects cross function
When CROSS = LOW, selects pass-through function.

Flex IO priority	N_GPP_G0(M2) (PCH GPP_G0)	N_GPP_D16(U2) (PCH GPP_D16)
M2P_32G Only	L	H
U2_32G_1 Only (PCIE Reverse)	H	L
M2P_32G + U2_32G_1 (M2P_32Gx2+U2_x2)	L	L

N_GPP_G3 (PCH GPP_G3)	N_GPP_G4 (PCH GPP_G4)	N_GPP_G9 (PCH GPP_G9)
H	H	H
L	L	H
H	L	L

Title	Gigabyte Technology SWITCH	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 77 of 91	

Rev 0.3



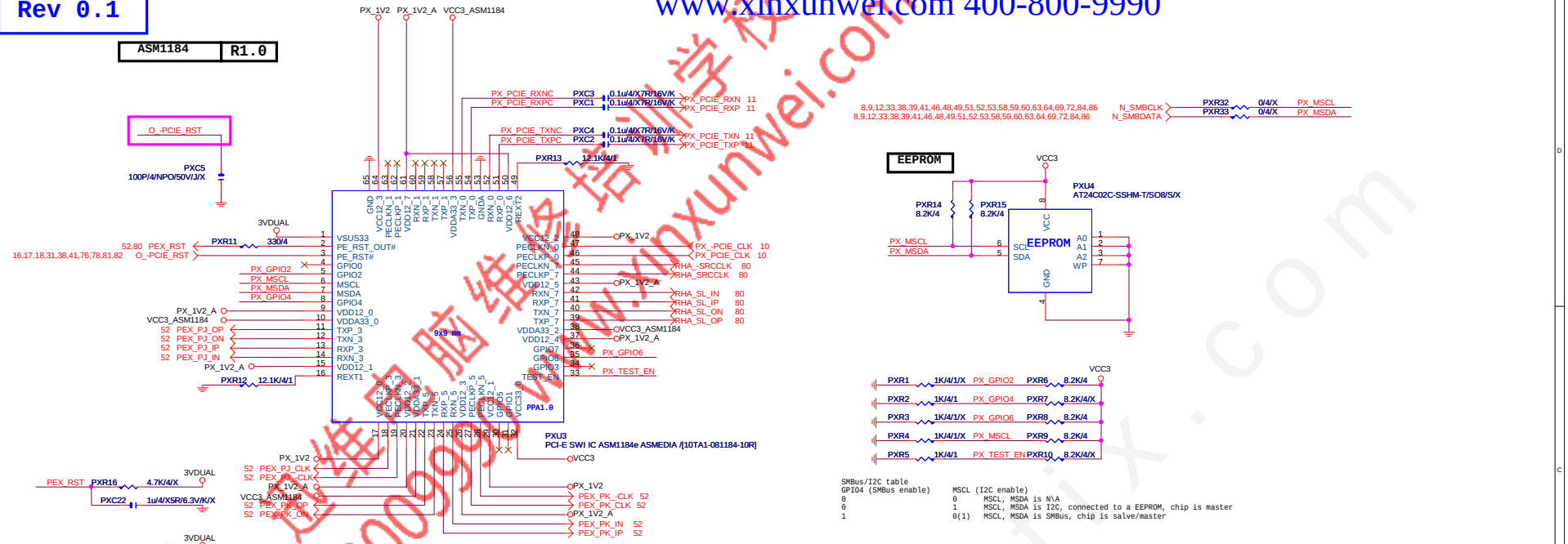
加蓋

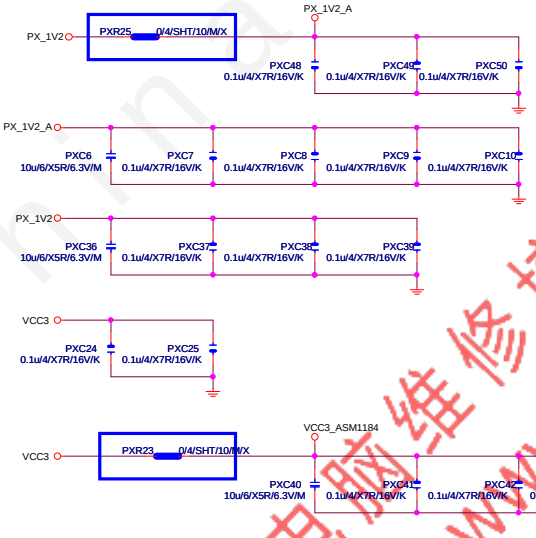
GIGABYTE™

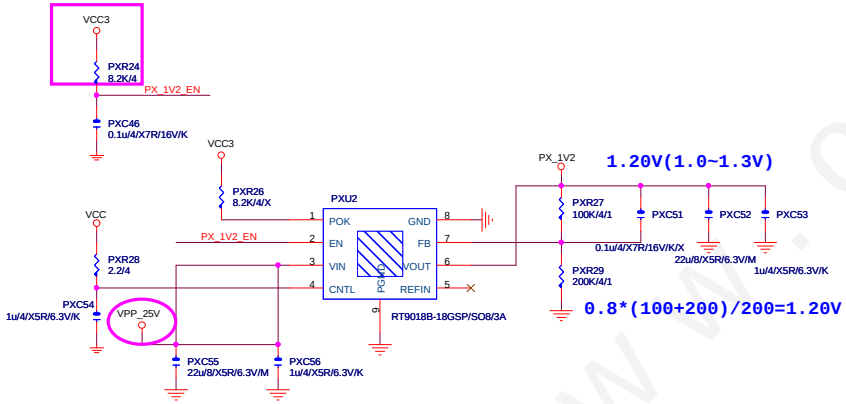
Title	M.2 to MINISAS	
Size B	Document Number GA-Z270X-Gaming 9	Rev 1.03
Date: Wednesday, November 09, 2016	Sheet 78 of 91	

Rev 0.1

ASM1184 | R1.0







DEL YQ11/YQ12/YR126/YR128/YC165/YC166

Gigabyte Technology		
Title: ASM1184E		
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 79 of 91	

Rev: 0.2

Near to PIN

RHA_VDD1_2
RHA_VDD10
RHAC1 RHAC2 RHAC3 RHAC4 RHAC5 RHAC6 RHAC7
0.1u/4/X7R/16V/K

Near to PIN

VCC3
RHAC11 RHAC12 RHAC13 RHAC14
0.1u/4/X7R/16V/K

RHA_VDD1_2 >40mil RHAFB1 4.7uH/3.3A/29m/S RHA_EXTL
RHAC15 0.1u/4/X7R/16V/K
RHAC16 10u/6/X5R/6.3V/M

Cout is mandatory.
close to pin

VCC3 RHAR3 MASK/0/6/SHT/X RHA_VCC3IN
RHAC17 10u/6/X5R/6.3V/M

可變

79 RHA_SL_OP
79 RHA_SL_ON
RHAC24 RHAC25 0.1u/4/X7R/16V/K

79 RHA_SL_IP
79 RHA_SL_IN
RHAC26 RHAC27 0.1u/4/X7R/16V/K

可變

RHA_-SRCCLK 79
RHA_SRCCLK 79

RHA_VDD1_2
VCC3

RHA_PREXT
RHA_SPI_CLK
RHA_SPI_DO
RHA_SPI_CS
RHA_SPI_DI
RHA_-PERST
81 RHA_LED
RHA_TP1

PREXT SPI_CK SPI_DO SPI_CS# SPI_DI GND3 VCC12_3 VCC33_2 PERST# LED TESTMODE VCC12_4 GND4

SRXP_A SRXN_A GNDA2 STXN_A STXP_A VCC33S SREXT STXP_B STXN_B GNDA1 SRXN_B SRXP_B

RHA_SATARXP0 RHA_SATARXN0 RHA_SATATXN0 RHA_SATATXP0 RHA_SREXT RHA_SATATXP1 RHA_SATATXN1 RHA_SATARXN1 RHA_SATARXP1

RHAU1 ASM1061/S

SWITCH POWER
RHA_EXTL
RHA_VCC3IN
RAH_TP2 RHA_TP3 RHA_TP4

RHA_XTALI
RHAC9 15P/4/NPO/50V/J
RHA_XTALO
RAIX2 20M/20p/20ppm/49US/40/D

RHA_SREXT RHAR1 12.1K/4/1
RHA_PREXT RHAR2 12.1K/4/1

SATA PORT 0

SATA PORT 1

Power up sequence
+3.3V & +1.2V
96%
PERST
T>0ms

(驗証完畢可移除)

RHAR4 0/4/X
VCC3
RHAR5 100K/4/1
RHA_-PERST
RHAR6 1K/4/1
RHAQ1 SOT23 2N7002/SOT23/25pF/5
RHAC22 0.1u/4/X7R/16V/K
RHAC23 0.1u/4/X7R/16V/K/X
RHAQ2 2N7002/SOT23/25pF/5 SOT23

可變動
52,79 PEX_RST

★Update 2015-03-27
移除RH_VDD1_2 external power

VCC3
RHAR7 1K/4/1/X
RHA_SPI_CS
RHA_SPI_DI
RHAU2
CS# SO WP# VSS VDD HOLD# SCK SI
RHAR8 1K/4/1/X
RHAC28 1u/4/X5R/6.3V/K/X
RHA_SPI_CLK
RHA_SPI_DO
4M/SPI/SO8/200mil/S[10HP4-112540-30R]/X

RHA_SPI_DI RHAR9 1K/4/1/X
RHA_SPI_CLK RHAR10 1K/4/1/X
HOLD#-
0:Operation Lock
1:Normal Operation

RHA_SPI_DO RHAR16 1K/4/1/X
SPI_D0
0: Spin up by H/W
1: Spin up by S/W

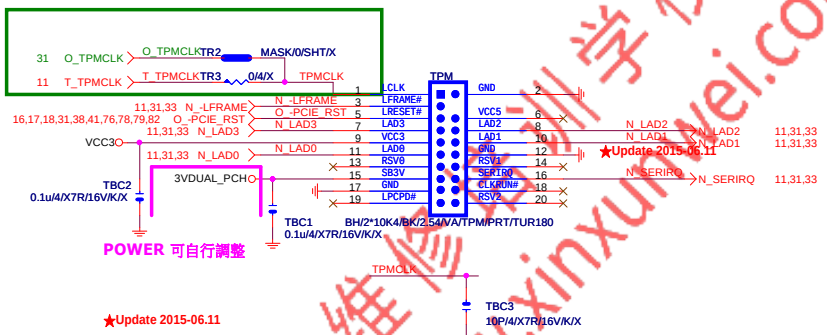
H/W Strapping
refer to datasheet:

SATA EXPRESS料號
雙層:11NR6-C10236-01R
單層+2SATA:11NR6-C10236-02R
單層:11NR6-C10118-01R

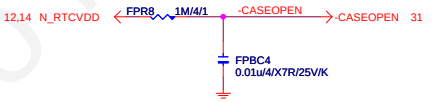
GIGABYTE
Title: Asmedia ASM1061
Size: Custom
Document Number: GA-Z270X-Gaming 9
Rev: 1.03
Date: Wednesday, November 09, 2016
Sheet 80 of 91

Rev: 0.7

TPM CONNECT

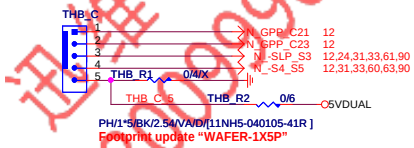


CASE OPEN



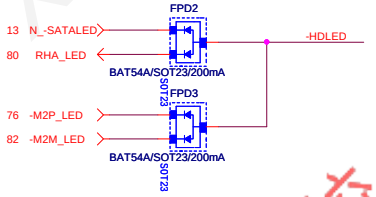
Thunderbolt

★Update 2015-12-29



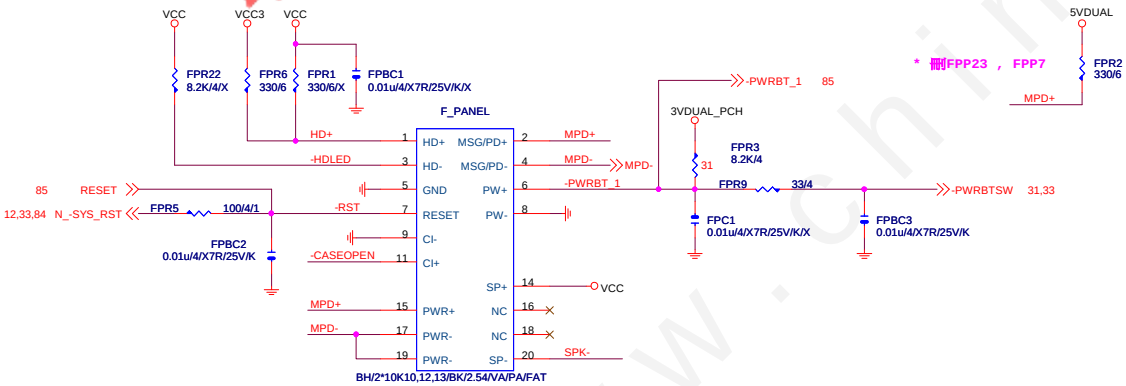
SATA LED

SATA LED

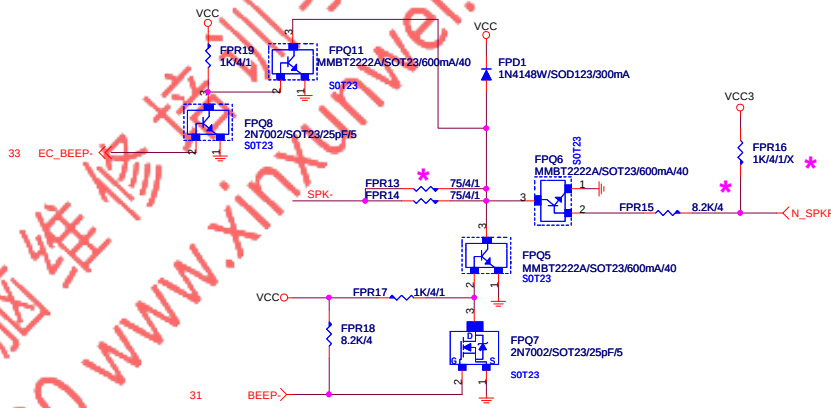


Rev: 0.52

INTEL FRONT PANEL



SPEAKER



Gigabyte Technology

Title	FP,F_USB,USB PWR,FDD,BZ,TB_C	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 81 of 91	

Rev 0.1

M.2 Lane4 from PCH port26

M.2 Lane3 from PCH port25

M.2 Lane2 from PCH port24

M.2 Lane2 from PCH port23

支援SATA and M.2 function

SATA：GND.
PCIE：HIGH

M2插卡時為Low

需與M2_-CLKREQ對應

可變動

架高

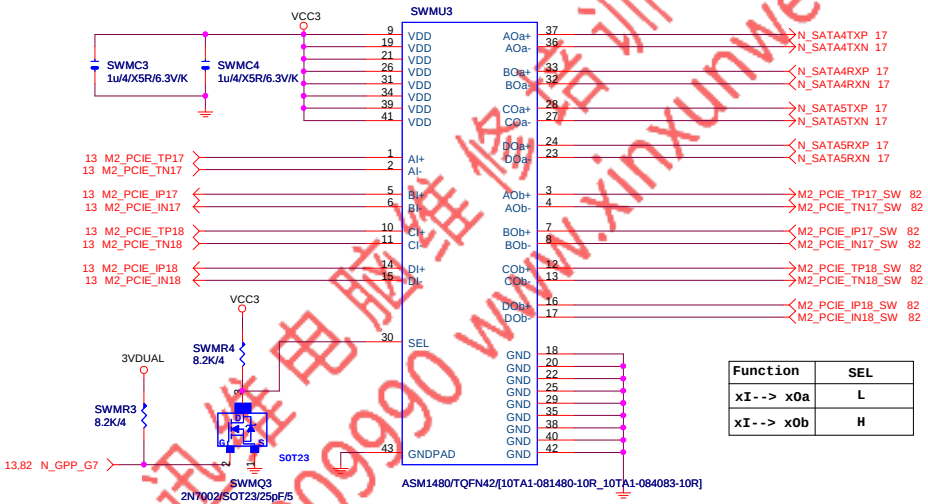
DIP螺柱

DIP螺絲

SMD螺柱

Gigabyte Technology	
Title	M.2 X4
Size: Custom	Document Number: GA-Z270X-Gaming 9
Rev	1.03
Date: Wednesday, November 09, 2016	Sheet 82 of 91

Rev 0.1 (M)TYPE



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

M.2 Detect N_GPP_G7	M.2 MODE N_GPP_G8	PCIE17	PCIE18	PCIE19	PCIE20
HIGH	X	切回 SATA4	切回 SATA5	N\A	N\A
LOW	HIGH(PCIE)	PCIEX4 FOR M.2(最優先)			
LOW	LOW(SATA)	SATA FOR M.2	N\A	N\A	N\A

Title	Gigabyte Technology M.2X4_S4~S5 SWITCH		
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 83 of 91		

REV:0.2

IDT6V41630

CKA_O_SLEW_CTRL

CKA -SOD_EN

CK_U1

CKVDD_A

CKA -VTTPWRG

CKA_X2

CKA_X1

CKA_ADFC

CKA_DIF0

CKA_DIF0

10/4 N_-SYS_RST

N_-SYS_RST 12,33,81

6V41630NLG8/VFQFPN32/[10HL6-1C4163-10R]

10 PCH_24M

CKA_R21 0/4/X CKA_PCH_24M

CKA_SDATA

CKA_SCLK

CKA_R11 10/4 N_-SYS_RST

CKVDD_A

CKA_R6 8.2K/4/X

CKA_INP_SEL

CKA_R7 8.2K/4

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

INP_SEL	Intput
0	Crystal
1	CLK_INP/N

CKA_R22 8.2K/4/X

CKA_FS1

CKA_R24 8.2K/4

CKA_R3 8.2K/4

CKA_FS0

CKA_R4 8.2K/4/X

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

CK_HS

CK_HS/[11NH1-CBC001-01R]

*可變，依需求上件不上件。

CKA_X1
25M/16p/30ppm/49US/20/D

CKA_XTALI

CKA_XTALO

CKA_BC8 20p/4/NPO/50V/J

CKA_BC9 20p/4/NPO/50V/J

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

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

CKA_XTALO CKA_R18 CKA_X1
CKA_XTALI CKA_R19 CKA_X2

CKA_PEX_REFCLK CKA_R30 0/4/X CKA_X1
CKA_-PEX_REFCLK CKA_R31 0/4/X CKA_X2

VCC3

CKA_D1

CKA_R12 47K/4/1

CKA_-VTTPWRG

4,12,31 N_PCH_VRMPWRGD

BAT54A/SOT23/200mA

SOT23

SMBUS

CKA_R16 10/4
CKA_R17 10/4

IT_SMBCLK 33
IT_SMBDATA 33

CKA_SCLK
CKA_SDATA

CKA_R1 10/4
CKA_R2 10/4

N_SMBCLK 9,12,33,38,39,41,46,48,49,51,52,53,58,59,60,63,64,69,72,79,86
N_SMBDATA 8,9,12,33,38,39,41,46,48,49,51,52,53,58,59,60,63,64,69,72,79,86

CKA_BC11 100p/4/NPO/50V/J/X

CKA_BC10 100p/4/NPO/50V/J/X

VCC3

3VDUAL

CKA_FB1 30/4/4A/S/X

CKA_FB2 30/4/4A/S/X

REV:1.10A

CKVDD_A

CKA_BC1 0.1u/4/X7R/16V/K

CKA_BC2 0.1u/4/X7R/16V/K

CKA_BC3 1u/4/X5R/6.3V/K

CKA_BC4 1u/4/X5R/6.3V/K

CKA_BC5 1u/4/X5R/6.3V/K

CKA_BC6 1u/4/X5R/6.3V/K

CKA_BC7 22u/8/X5R/6.3V/M

(靠近cpu)

CKA_DIF0 CKA_R8 33/4 CKA_DIF0_R WR100
CKA_DIF0 CKA_R9 33/4 -CKA_DIF0_R WR101

N_CPUCLK 4
N_-CPUCLK 4

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

(靠近PCH)

10 PCH_CPUCLK PCH_CPUCLK NR300 0/4/X PCH_CPUCLK_R WR102 0/4/X
10 PCH_-CPUCLK PCH_-CPUCLK NR301 0/4/X PCH_-CPUCLK_R WR103 0/4/X

N_CPUCLK 4
N_-CPUCLK 4

PCH_CPUCLK NR302 0/4/X CKA_PEX_REFCLK
PCH_-CPUCLK NR303 0/4/X CKA_-PEX_REFCLK

CKA_R23 8.2K/4/X

CKA_GPIO2

CKA_R25 8.2K/4

CKA_GPIO1

CKA_R10 8.2K/4

CKA_R5 8.2K/4/X

CKA_ADFC

CKA_R13 8.2K/4

CKA_R15 8.2K/4/X

Real time selection function

12 N_GPP_C15 CKA_-SOD_EN

CKA_R26 8.2K/4

CKA_R28 8.2K/4/X

Frequency change slew rate control

12 N_GPP_C14 CKA_O_SLEW_CTRL

CKA_R27 8.2K/4

CKA_R29 8.2K/4/X

GIGABYTE™

Title: IDT6V41530_CLK BUFFER

Size: Custom | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 84 of 91

Rev: 0.81

For dual 80 ports

VCCGT / VAXG — PH/1*2/BK/2.54/VA/D/X

VPP_25V / VPP_25V — PH/1*2/BK/2.54/VA/D/X

VCC1_0_PCH / PCHIO — PH/1*2/BK/2.54/VA/D/X

VCCSA / VSA — PH/1*2/BK/2.54/VA/D/X

VCCIO / VCCIO — PH/1*2/BK/2.54/VA/D/X

VCORE / VCORE — PH/1*2/BK/2.54/VA/D/X

VDDQ / VDIMM — PH/1*2/BK/2.54/VA/D/X

DDRVTT / DDRVTT — PH/1*2/BK/2.54/VA/D/X

VCC

80P_SEGF 80P_SEGB 80P_SEGA 80P0_DL — DB_PRN3 — 1K/8P4R/4

80P_SEGG 80P_SEGC 80P_SEGD 80P_SEGE — DB_PRN4 — 1K/8P4R/4

80P0_DH 80P1_DL DOT 80P1_DH — DB_PRN5 — 1K/8P4R/4

★Update 2016-06-27

Physical Package
(TOP VIEW)
10 9 8 7 6
F CAT1 B A CAT2
E D C G
1 2 3 4 5
COMMON CATHODE

POWER

81 -PWRBT_1 — PSWR1 33/4 — PSWC1 0.01u/4/X7R/25V/K/X

PSWR2 330/6 — 5VDUAL

★Update 2016.06.06

PW_SW — TACTILE SW 6 PIN POWER HIGHLY/[11NH7-030006-21R]

PSWR3 2.2/4/X — -N_LED

★Update 2016.06.20

PSWQ1 MMBT2222A/SOT23/600mA/40 S0T23

GPIO 自行調整

10 N_GPP_D21 — PSWR4 8.2K/4

★Update 2016-06-27

DB_PORT_L

31 80P1_DL — CATH2 DOT — 31 DOT
31 80P_SEGA — A G — 31 80P_SEGG
31 80P_SEGB — B C — 31 80P_SEGC
31 80P1_DH — CATH1 D — 31 80P_SEGD
31 80P_SEGF — F E — 31 80P_SEGE

LDD2055-20-PF/B/D
COMMON CATHODE
高位元

★Update 2016-06-27

DB_PORT_R

31 80P0_DL — CATH2 DOT — 31 DOT
31 80P_SEGA — A G — 31 80P_SEGG
31 80P_SEGB — B C — 31 80P_SEGC
31 80P0_DH — CATH1 D — 31 80P_SEGD
31 80P_SEGF — F E — 31 80P_SEGE

LDD2055-20-PF/B/D
COMMON CATHODE
低位元

注意LAYOUT的位置擺放

Reset

RST_SW — RSWR1 33/4 — RESET — RESET 81

RSWC1 0.01u/4/X7R/25V/K/X

TS/BU/4.3/VA/[11NH7-030001-B1R]
白色

Clear CMOS

CMOS_SW — CSWR1 33/4 — N_-RTCRST 12,31,33

CSWC1 0.01u/4/X7R/25V/K/X

TS/BK/4.3/VA
黑色

OC BUTTON
紅燈

OCQ1 S0T23

OC_L1 — OCR1 680/4 — VCC3

OCR3 8.2K/4 — N_GPP_D6 12 — PCH:GPP_D6

MMBT2907A/SOT23/-600mA/50

OC_1 — OCR2 33/4 — SMI ONLY — N_GPP_D4 12 — PCH:GPP_D4

TBOBC1 0.01u/4/X7R/25V/K

OC
TACTILE SW 6 PIN OC HIGHLY/[11NH7-030006-11R]

ECO BUTTON
綠燈

ECOQ1 S0T23

ECO_L1 — ECOR1 680/4 — VCC3

ECOR3 8.2K/4 — N_GPP_C9 12 — PCH:GPP_C9

MMBT2907A/SOT23/-600mA/50

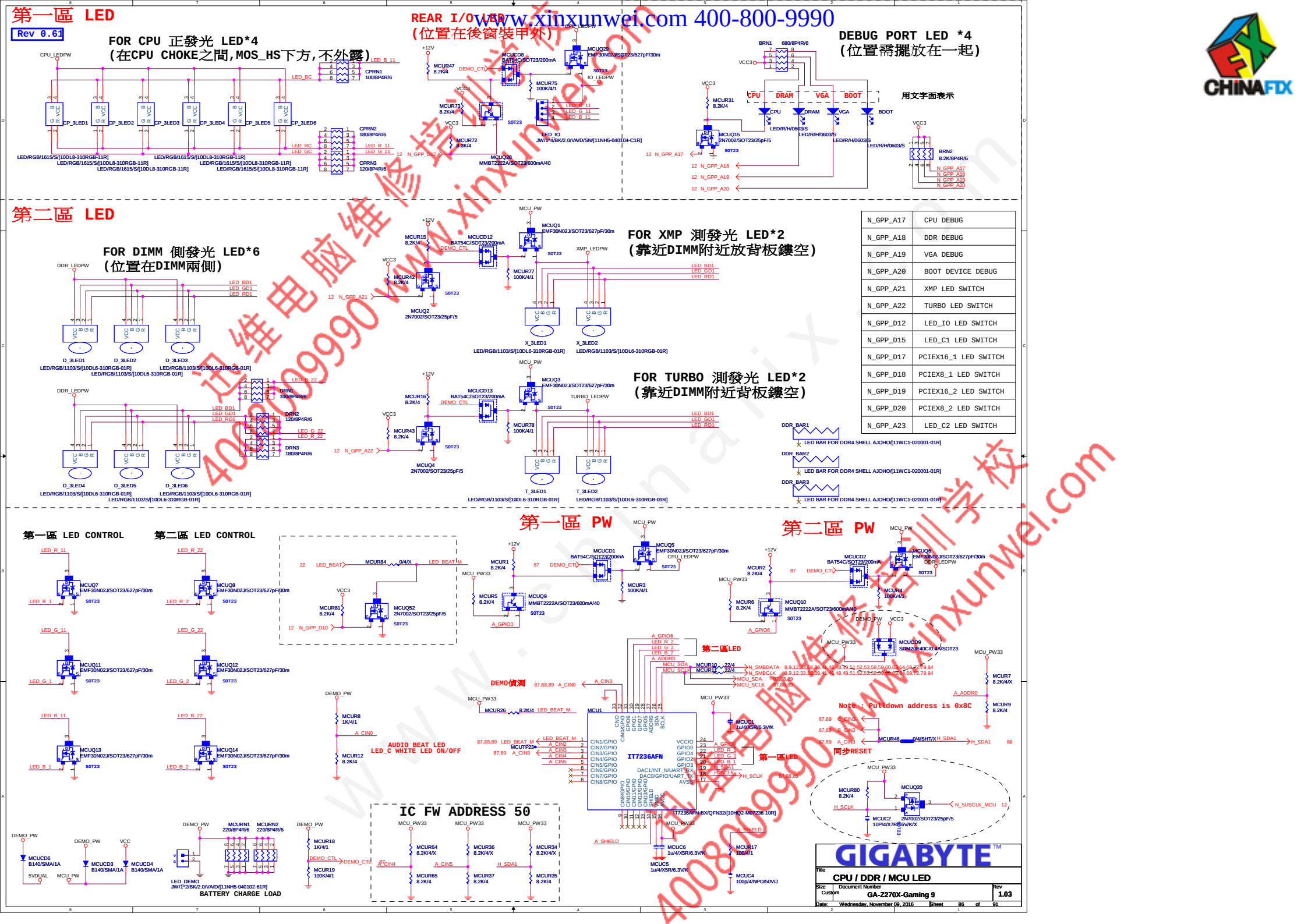
ECO_1 — ECOR2 33/4 — SMI ONLY — N_GPP_B20 12 — PCH:GPP_B20

ECO
SW 6 PIN ECO /[11NH7-030006-01R]

ECOBC1 0.01u/4/X7R/25V/K

GIGABYTE™

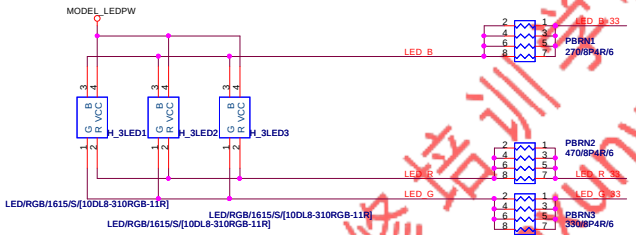
Title	RST, PWR, CLR_CMOS	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 85 of 91	



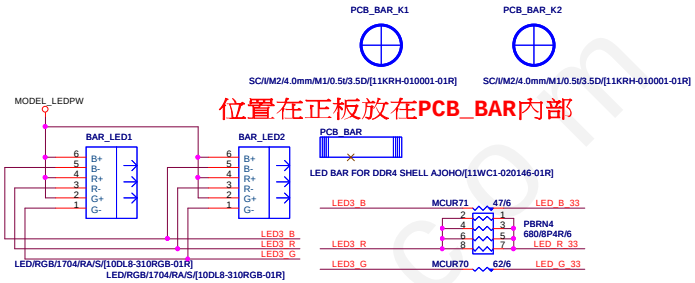
第三區 LED

Rev 0.61

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

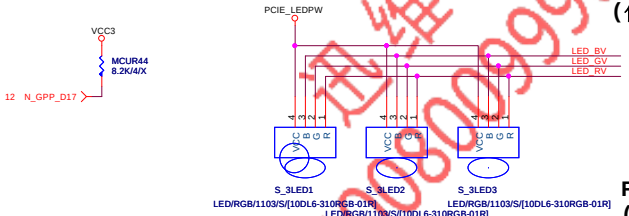


FOR PCB 正發光 LED*12
(位置在PCB下方背板邊條)

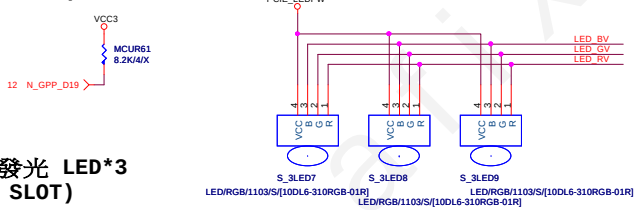


第四區 LED

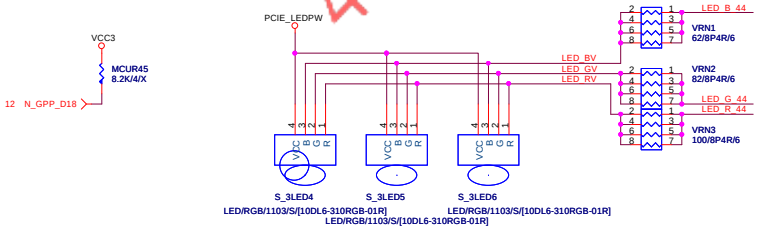
FOR PCIEX16_1 側發光 LED*3
(位置在PCIEX16_1 SLOT)



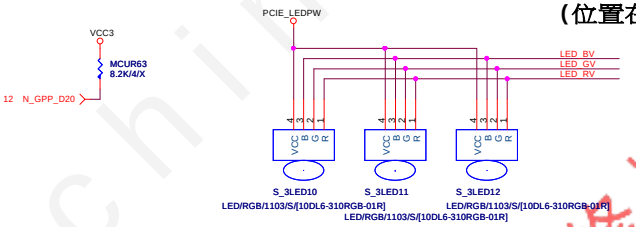
FOR PCIEX16_2 側發光 LED*3
(位置在PCIEX16_2 SLOT)



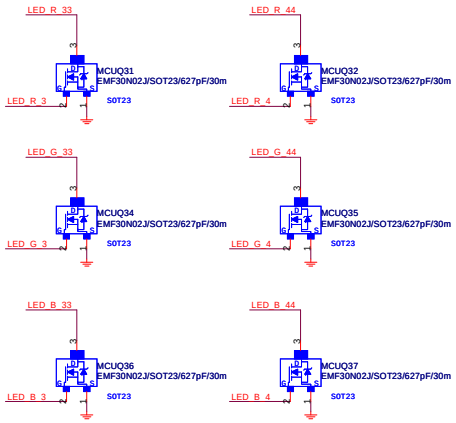
FOR PCIEX8_1 側發光 LED*3
(位置在PCIEX8_1 SLOT)



FOR PCIEX8_2 側發光 LED*3
(位置在PCIEX8_2 SLOT)

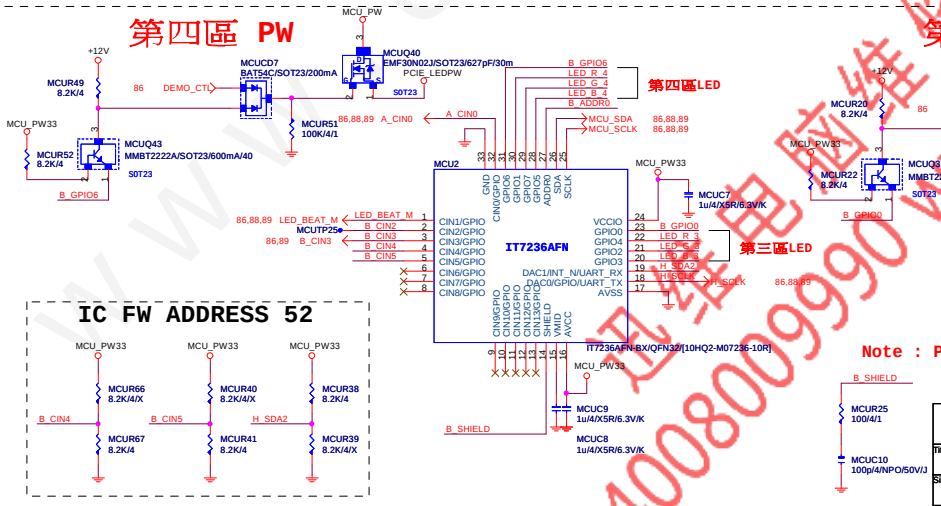


第三區 LED CONTROL



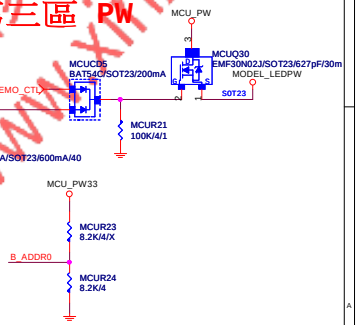
第四區 LED CONTROL

第四區 PW



IC FW ADDRESS 52

第三區 PW



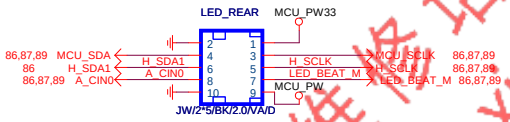
Note : Pullhigh address is 0x8C

Title	MODEL / PCB /AUDIO/PCIE LED		
Size: Custom	Document Number: GA-Z270X-Gaming 9		Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 87 of 91		

Rev 0.3

第五區 LED

LED_REAR
(位置靠近後窗裝甲內)

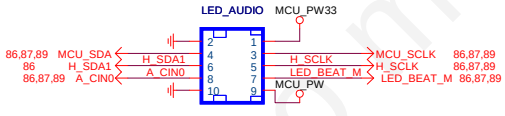


Footprint:pin2x5-2mm-h110tn

第六區 LED

第七區 LED

LED_AUDIO
(位置靠近AUDIO裝甲內)



Footprint:PIN2X5-2MM-R

第八區 LED

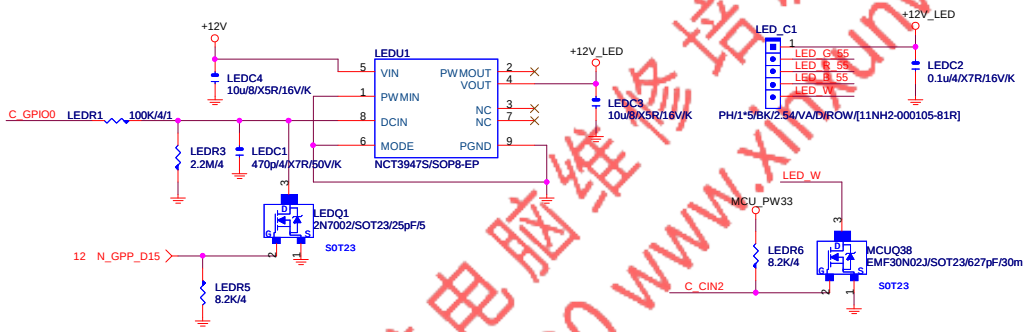
GIGABYTE™

Title	PCH / IO / HS / LED_C LED	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 88 of 91	

Rev 0.3

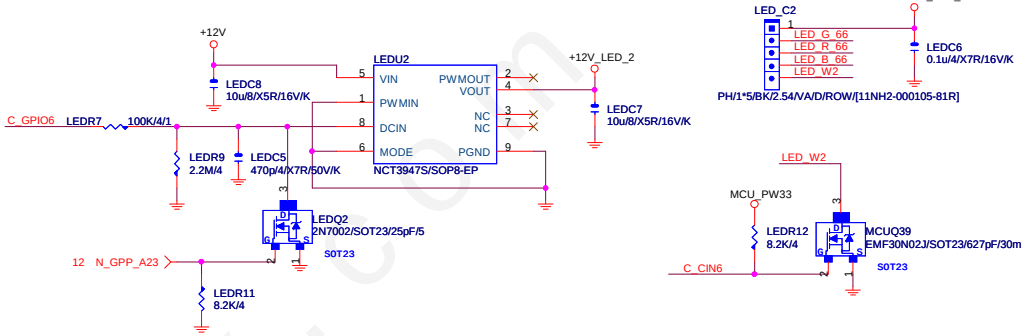
第九區 LED

FOR 燈條 LED (LED_C1放在PCB左邊板邊位置)

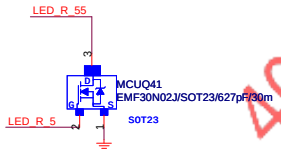


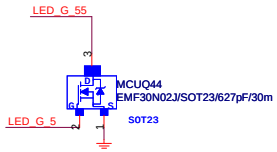
第十區 LED

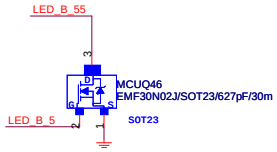
FOR 燈條 LED (LED_C2放在PCB左邊板邊位置)



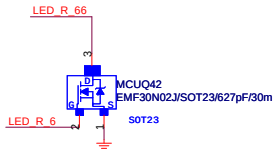
第九區 LED CONTROL

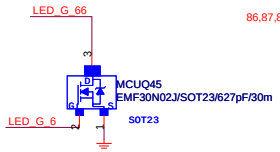


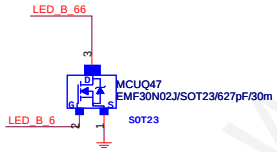


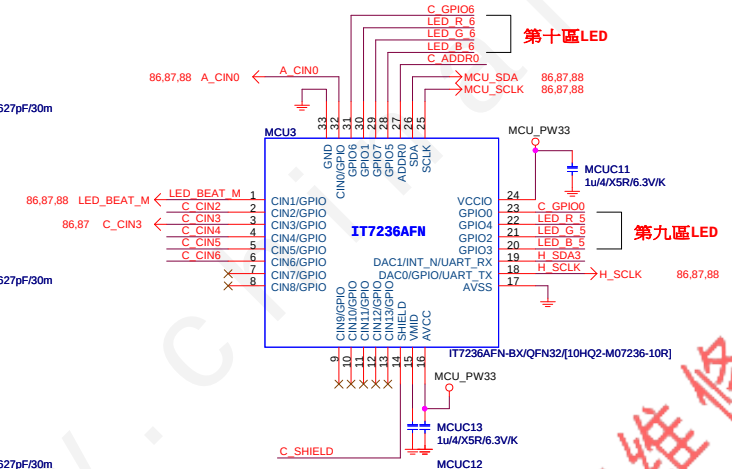


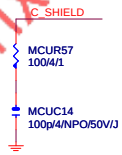
第十區 LED CONTROL



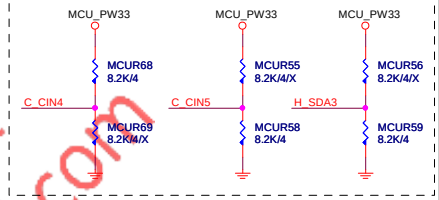


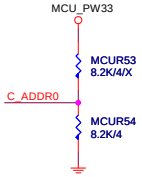






IC FW ADDRESS 58





Note : Pullhigh address is 0x8C

GIGABYTE™

Title	PCH / IO / HS / LED_C LED	
Size: Custom	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 89 of 91	

EMI/ESD R0.1

CLOSE SIO

EMIC1
100p/4/NPO/50V/J/X
12,24,31,33,61,81 N_-SLP_S3

EMIC2
100p/4/NPO/50V/J/X
12,31,33,60,63,81 N_-S4_S5

EMIC3
100p/4/NPO/50V/J/X
4,12 N_CPUPWROK

CLOSE PCH

EMIC4
100p/4/NPO/50V/J/X
4,12 N_CPUPWROK

GIGABYTE™

Title: EMI/ESD		
Size: A	Document Number: GA-Z270X-Gaming 9	Rev: 1.03
Date: Wednesday, November 09, 2016	Sheet 90 of 91	

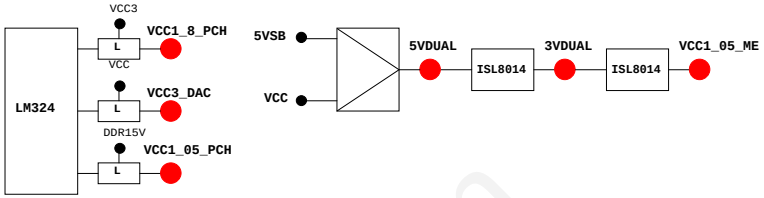
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	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	ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#	N/A
GP10/OC6#	STBY		NATIVE	OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	OC7#	N/A
GP15	STBY	L	GPO	GPIO15	N/A
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL
GP26	STBY		NATIVE	-ACZ_DET	P/U 8.2K 3VDUAL
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3
GP40	STBY		NATIVE	OC1#	N/A
GP41	STBY		NATIVE	OC2#	N/A
GP42	STBY		NATIVE	OC3#	N/A
GP43	STBY		NATIVE	OC4#	N/A
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	-LPCPME	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL
GP47	STBY		NATIVE	PSI LED	P/U 8.2K 3VDUAL
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3
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	N/A(Reverse)	P/U 8.2K 3VDUAL
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		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

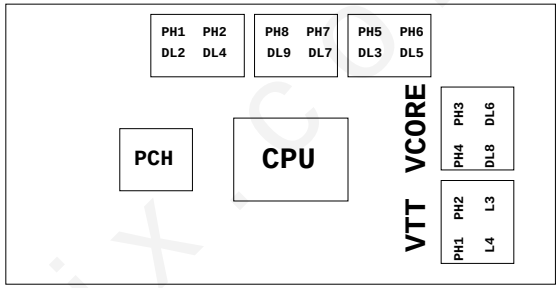
Super I/O ITE8720 GPIO Table

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

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VID03/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

8IBP:
1.12SP2-01A001-Y1R/Y2R
2.12SP2-01A001-Z1R/Z2R
(HIBRID模組)包材階

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

Gigabyte Technology

Title: TABLE LIST

Size: C | Document Number: GA-Z270X-Gaming 9 | Rev: 1.03

Date: Wednesday, November 09, 2016 | Sheet 91 of 91