Model Name: GA-Z270X-GAMING 7

Rev 1.0

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12	PCH MISC
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SHEET	TITLE
36	KB_MS_USB
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56	HDMI CONN
57	DP_OUT
58	M2M_32G
59	M2M_32G & STA4/5 SWITCH
60	M2P_32G
61	Realtek RTS5411 4port Hub-FRONT
62	N/A
63	EMI/ESD
64	NTC MAP
65	POWER MAP
66	POWER零件使用表
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68	DUAL BIOS
69	U2_32G
70	N/A
71	EC ITE8792
72~74	MCU LED
75	USB_DAC POWER
76	VCCPLL , VCCPLL_OC , VCCST_VCCPLL

Gigabyte Technology

Title: Cover Sheet

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Model Name: GA-Z270X-GAMING 7

Component value change history

Data	Change Item	Reason
2014/11/28 PCB:0.1	1.PCB first release	
	1. 高速訊號測點移除	
	2. 0 OHM SHORT PAD	
	3. M_BIOS SOCKET移除	
	4. Remove JTAG	
0.2	1. 移除抗琉電阻替料 (重新轉NEW BOM for 抗琉電阻)	
	2. Update PCH_HS,MOS_HS,AUDIO_HS,REAR_HS	
	3. BTL1 UPDATE to "2.2uH/40A/CINC1310/FW/D"	
	4. 80P螺柱改12KSF-F10303-11R	
	5. LED_C 料號:11NH2-000105-81R	
	6. CC12,CC13改10uF For LINE-IN Thd+N	
	7. NC2 27p --> 22p	
	8. ISL95856 load-line修改組值	
1.0A	1. 移除抗琉電阻替料 (重新轉NEW BOM for 抗琉電阻)	
	2. Update PCH_HS,MOS_HS,AUDIO_HS,REAR_HS	
	3. MCU_PH1不上或移除	
	4. SMD CHOKE改合金料號	
	5. 改ISL95866(包含R/C修改)	
	6. 背板PCB LED是否移除?	
	7. THU8上TPS65982 Rev.D (MOSFET要上件)	
	8. VCC1_0_PCH POWER SEQUENCY	
	9. Remove IO_LED CONTROL	
	10. M_BIOS SOCKET移除	
1.0B-0929	1. ECR31要上33/4/1	
	2. Modify VCC1_0_PCH POWER SEQUENCY	
1.0C	1. PCH 改量產料號:10HB1-03Z270-20R	
1.0D	1. Change MOSFET vendor Vishay --> ON 2. THESD3, THESD5, THESD7, THESD9,THESD4, THESD6, THESD8, THESD10 change to "10DET-510501-10R / NXP/PESD5V0H1BSF"	

Circuit or PCB layout change

DATE	Change Item	Reason
2014/11/28 PCB:0.1	1.PCB first release 2.線路由GA-Z1704-SLI-01-1128B.DSN來修改	
2016/08/02 PCB:0.2	1. MCU_PH1 移除 2. Add logo "KILLER 2500" 3. BIOS_SW & SB 文字說明對調位置 4. Add NR85,NR86 for N_SUSCLK 5. SWPU3 SWAP pin 6. U2_32G pin.D6 connect "GND" 7. +12V切割線再往左移,增加+12V通道 8. DDR POWER INT1 remove DDR_VIN","DDR_PHASE","DDR_GND" 9. DDR POWER VCC 層 DDR_VIN","DDR_PHASE","DDR_GND"改空的 10. DAC_POWER CHOKE PHASE 改內層DUMMY (包含F_USB/R_USB) 11. 需要增加邊條測發光LEDx2pcs? (兩個定位孔請參考G1擺放) 12. DUAL BIOS模組線路修改 13. Debug LED位置請參考Note 14. BTBC16,18,19,20,THC146 改footprint "C0805" 15. 移除"PCB圖騰" 16. BSR21,BSR22對調 17. UPDATE LED CONTROL 18. DAR9 改走20mils , DAR39 從OUTPUT VCORE回來 , 19. A.R ADD N_GPP_H11 20. HUA17,29 SWAP , HAXT1,HAXT2 走等長 21. TTRT2移至DN_DQ2 22. 移除HDMI 2.0, DP-IN for Thunderbolt, PD 100W -> 27W 23. DD_DU1在POWER層包GND , DD_DC3的PH4_A VIA遠離DP訊號	
2016/08/04 PCB:0.3	1. MCU_PH1 移除 2. ADD LED MCUCD10~13 3. Update MCU LED control 4. 邊條LED是否有文字面擋住 5. UPDATE DUAL BIOS CONTROL (IO_GP84 --> B_SW) 6. PCB短路,MCU_LED和GND 7. 文字面修改:取消亮白和USB3.1_GEN2文字修改 8. REAR & AUDIO 裝甲UPDATE footprint 9. THFB1 footprint update "FB0402-RH" 10. Update REAR_HS , AUDIO_HS footprint 11. Add VPP_25V ECR161 , MABC8 change "R0402-2" 12. Remove LED_PCH 13. Add "THB3" logo 14. ECO pin "N_GPP_C8 --> N_GPP_B20" , PUMP2 "N_GPP_B20--> N_GPP_B11" 15. 0 OHM change to short pad 16. Remove NR86 , TPM pin20 change to N.C.	
2016/09/14 PCB:1.0	1. 0 ohm short pad (R0402/R0603/排阻) 2. WR59,WR60,WR61 改"R0402-2" 3. PUMP1 --> SYS_FAN5_PUMP , PUMP2 --> SYS_FAN6_PUMP 4. PCB圖騰增加斜紋灰色 5. OC/ECO/PW_SW文字面擺設修改 (變小) 6. EC_TEMP2/CLR_CMOS文字面修改, 7. LED_C pin1說明 8. AMP +12V / -12V disable save mode 9. LED Beat ADD "N_GPP_D10" , Remove PCIE SLOT CONTROL	
2016/ PCB:1.01	1. RST_SW & CMOS_SW 文字位置調整 2. ITE8792 GP73 add "N_-RSMRST" 3. Add VIN CAP DCC1,DCC2,DCC3,DCC51,DCC52,DCC53,DCC54,DCC55 4. DDR 的T型訊號請由4mils改成4.5mils 線?	

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Title: BOM & PCB MODIFY HISTORY

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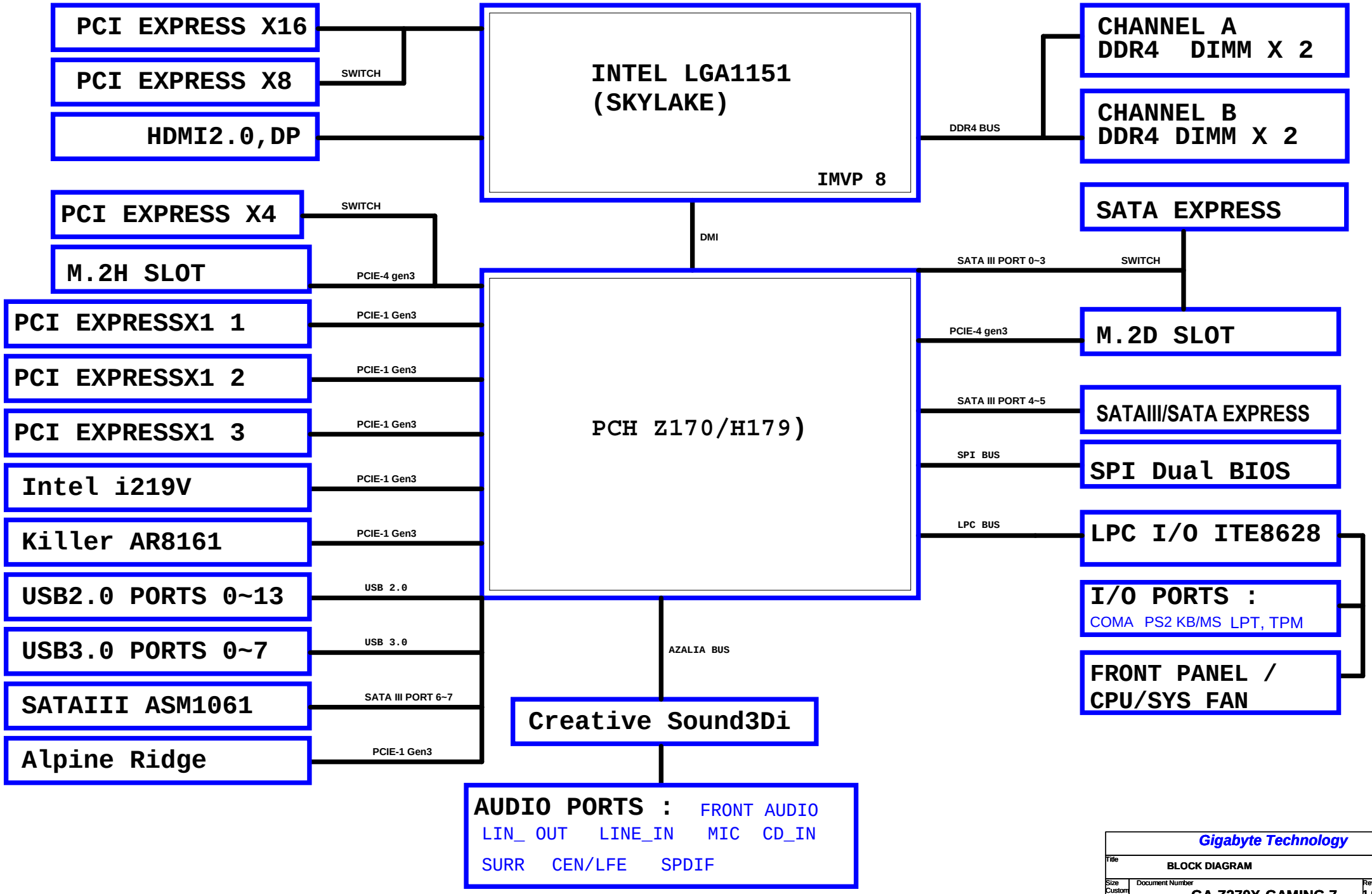
BLOCK DIAGRAM



Gigabyte Technology		
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From SKL_0.2B

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

LGA1151E SKT_H4

LGA1151

BCLKP BCLKN PCI_BCLKP PCI_BCLKN CLK24P CLK24N VIDALERT# VIDSCK VIDSOUT PROCHOT# DDR_VTT_CNTL ZVM# RSVD_AC37 VCCST_PWRGD PROCPWRGD RESET# PM_SYNC PM_DOWN PECI THERMTRIP# SKTOCC# PROC_SELECT# CATERR#

CFG[0] CFG[1] CFG[2] CFG[3] CFG[4] CFG[5] CFG[6] CFG[7] CFG[8] CFG[9] CFG[10] CFG[11] CFG[12] CFG[13] CFG[14] CFG[15] CFG[17] CFG[16] CFG[19] CFG[18]

SKL_CFG2 WR54 1K/4/1/X
SKL_CFG4 WR47 1K/4/1/X
SKL_CFG5 WR36 1K/4/1/X
SKL_CFG6 WR43 1K/4/1/X
SKL_CFG7 WR46 1K/4/1/X

BPM#[0] BPM#[1] BPM#[2] BPM#[3]

PROC_TDO PROC_TDI PROC_TMS PROC_TCK PROC_TRST# PROC_PREQ# PROC_PRDY#

CFG_RCOMP WR84 49.9/4/1

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CPU-SK/1151/S/15

* 刪 net

* WR7 , WR1 , WR81 改 short pad

* 刪 net

LGA1151D SKT_H4

LGA1151

DDI1_TXP[0] DDI1_TXN[0] DDI1_TXP[1] DDI1_TXN[1] DDI1_TXP[2] DDI1_TXN[2] DDI1_TXP[3] DDI1_TXN[3] DDI1_AUXP DDI1_AUXN

DDI2_TXP[0] DDI2_TXN[0] DDI2_TXP[1] DDI2_TXN[1] DDI2_TXP[2] DDI2_TXN[2] DDI2_TXP[3] DDI2_TXN[3] DDI2_AUXP DDI2_AUXN

DDI3_TXP[0] DDI3_TXN[0] DDI3_TXP[1] DDI3_TXN[1] DDI3_TXP[2] DDI3_TXN[2] DDI3_TXP[3] DDI3_TXN[3] DDI3_AUXP DDI3_AUXN

EDP_TXP[0] EDP_TXN[0] EDP_TXP[1] EDP_TXN[1] EDP_TXP[2] EDP_TXN[2] EDP_TXP[3] EDP_TXN[3] EDP_AUXP EDP_AUXN EDP_DISP_UTIL EDP_RCOMP WR23 24.9/4/1 VCCIO

PROC_AUDIO_CLK PROC_AUDIO_SDI PROC_AUDIO_SDO

4 OF 12

CPU-SK/1151/S/15

THB_DP_IN

HDMI

DP_OUT

* 刪 net

G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R

* 刪 WR17 , WR14 , WR10 , WR29 , WR25 , WR56 , WR55

* 刪 WR90

* 刪 WR91

* 刪 net N_CPU_VCCST_PWOK

-CPURST

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

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

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

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

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

LGA1151C SKT_H4

LGA1151

PEG_RXP[0] PEG_RXN[0] PEG_RXP[1] PEG_RXN[1] PEG_RXP[2] PEG_RXN[2] PEG_RXP[3] PEG_RXN[3] PEG_RXP[4] PEG_RXN[4] PEG_RXP[5] PEG_RXN[5] PEG_RXP[6] PEG_RXN[6] PEG_RXP[7] PEG_RXN[7] PEG_RXP[8] PEG_RXN[8] PEG_RXP[9] PEG_RXN[9] PEG_RXP[10] PEG_RXN[10] PEG_RXP[11] PEG_RXN[11] PEG_RXP[12] PEG_RXN[12] PEG_RXP[13] PEG_RXN[13] PEG_RXP[14] PEG_RXN[14] PEG_RXP[15] PEG_RXN[15] PEG_RCOMP

PEG_TXP[0] PEG_TXN[0] PEG_TXP[1] PEG_TXN[1] PEG_TXP[2] PEG_TXN[2] PEG_TXP[3] PEG_TXN[3] PEG_TXP[4] PEG_TXN[4] PEG_TXP[5] PEG_TXN[5] PEG_TXP[6] PEG_TXN[6] PEG_TXP[7] PEG_TXN[7] PEG_TXP[8] PEG_TXN[8] PEG_TXP[9] PEG_TXN[9] PEG_TXP[10] PEG_TXN[10] PEG_TXP[11] PEG_TXN[11] PEG_TXP[12] PEG_TXN[12] PEG_TXP[13] PEG_TXN[13] PEG_TXP[14] PEG_TXN[14] PEG_TXP[15] PEG_TXN[15]

DMI_RXP[0] DMI_RXN[0] DMI_RXP[1] DMI_RXN[1] DMI_RXP[2] DMI_RXN[2] DMI_RXP[3] DMI_RXN[3]

DMI_TXP[0] DMI_TXN[0] DMI_TXP[1] DMI_TXN[1] DMI_TXP[2] DMI_TXN[2] DMI_TXP[3] DMI_TXN[3]

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CPU-SK/1151/S/15

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

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

Gigabyte Technology

Title: CPU LGA1151-A

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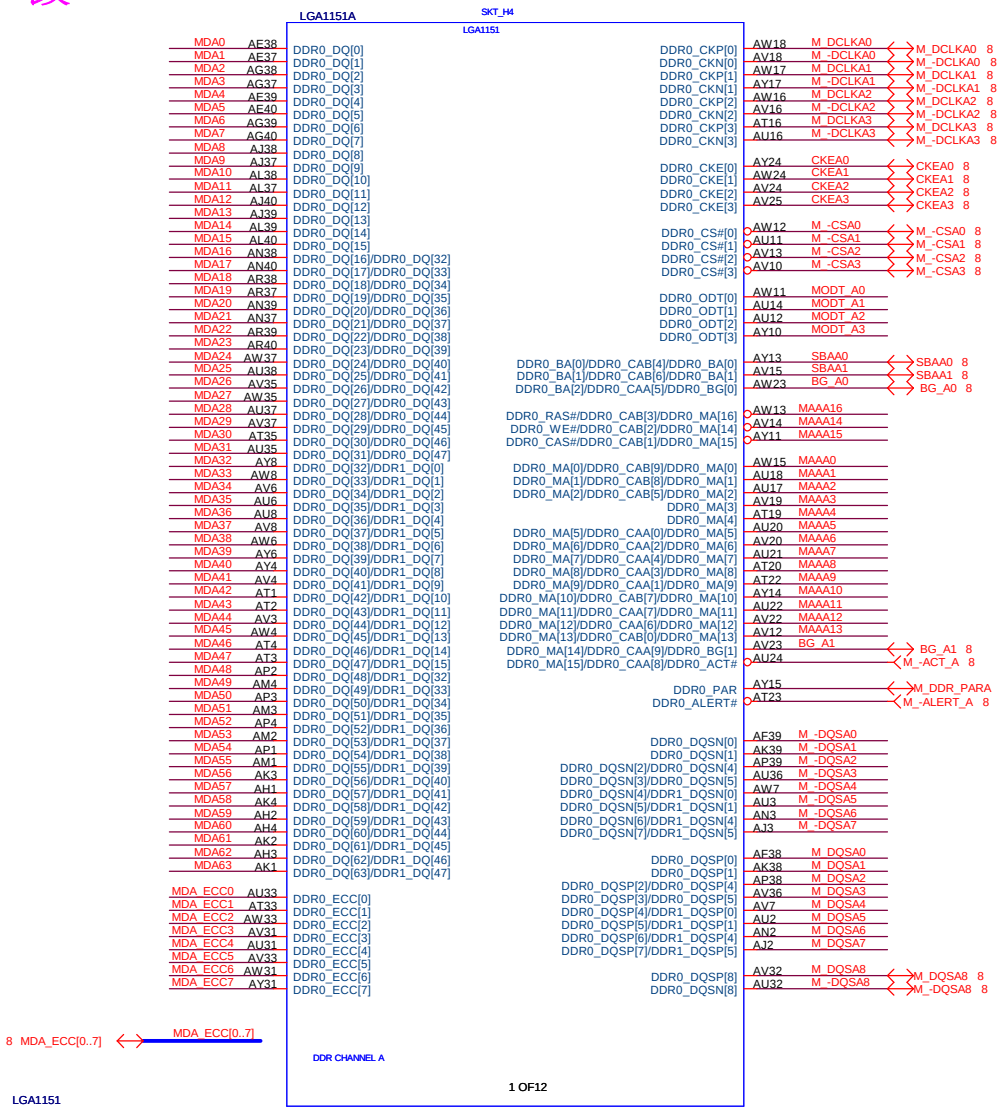
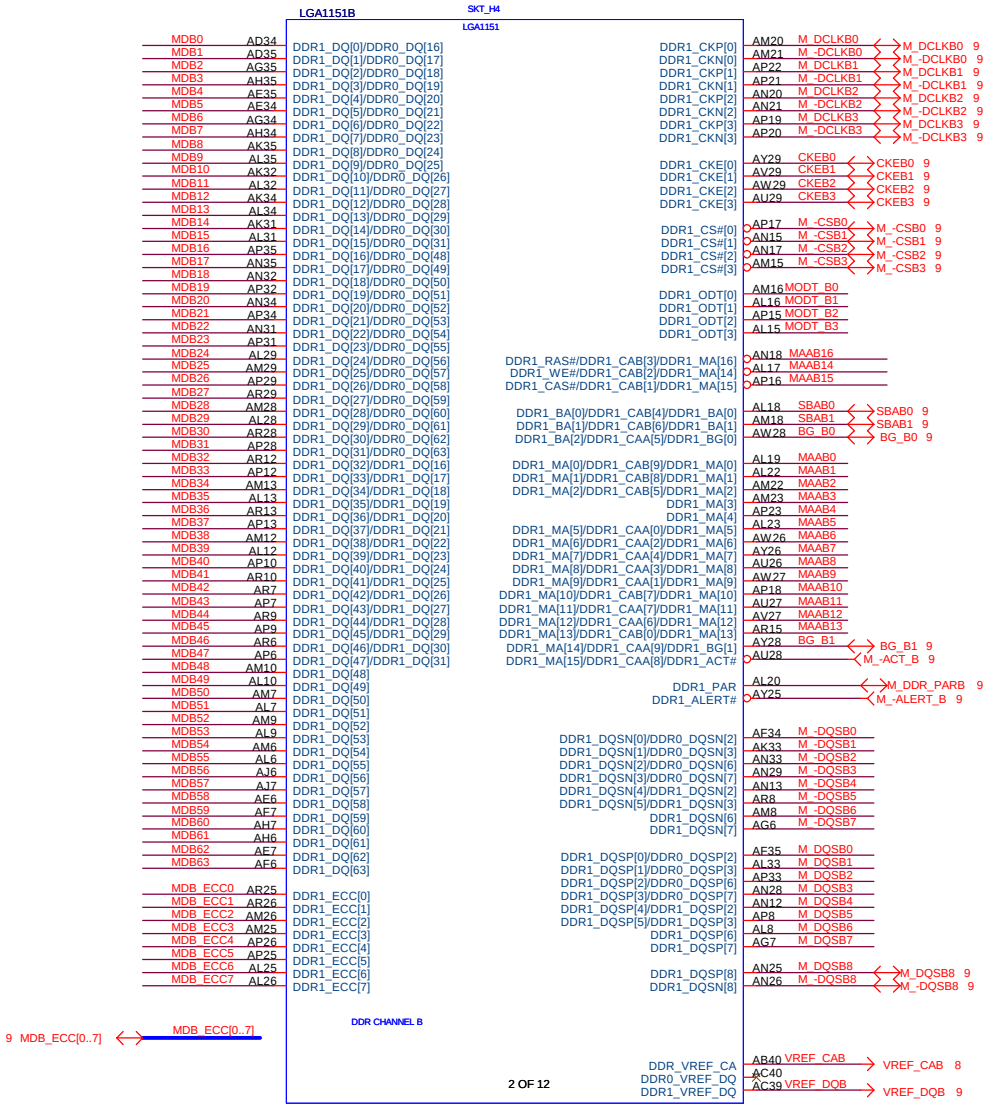
* 改DDR4 net



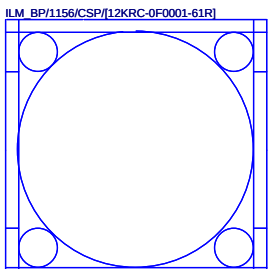


LGA1151

CPU-SK/1151/S/15

CPU-SK/1151/S/15

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



Need check the new CPU ME

8 MODT_A[0..3] MODT_A[0..3]
9 MODT_B[0..3] MODT_B[0..3]
8 MDA[0..63] MDA[0..63]
9 MDB[0..63] MDB[0..63]
8 M_DQSA[0..7] M_DQSA[0..7]
8 M_-DQSA[0..7] M_-DQSA[0..7]
8 MAAA[0..16] MAAA[0..16]
9 MAAB[0..16] MAAB[0..16]
9 M_DQSB[0..7] M_DQSB[0..7]
9 M_-DQSB[0..7] M_-DQSB[0..7]

Gigabyte Technology			
Title: CPU LGA1151-B			
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* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

VCCSA

* WBC51 , WBC52 VDDQ 改 VCCSA

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

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

CPU POWER

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

VCCST_VCCPLL

VCCSFUSEPRG

VCCSA

VCCST_VCCPLL

remove WR94

VCCIO

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

* 刪 VCCGT 電容

VCCGT

LGA1151J SKT_H4 LGA1151

AA34 AA35 AA36 AA37 AA38 AB33 AB34 G36 G37 G38 G39 G40 H36 H38 H40 J36 J37 J38 J39 J40 K36 K38 K40 L34 L35 L36 L37 L38 L39 L40 M33 M34 M36 M38 M40 N34 N35 N36 N37 N38 N39 N40 P33 P34 P36 P38 P40 R34 R35 R36 R37 R38 R39 R40 T33 T34 T36 T38 T40 U34 U35 U36 U37 U38 U39 U40 V33 V34 V36 V38 V40 W34 W35 W36 W37 W38 Y33 Y34 Y36 Y38 — VCCGT

VCCGTX_F35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32 — VCCGTX_F35 … VCCGTX_M32

WR59 0/4/X

VCCGT_SENSE F39 — VCCGT_SENSE 26

VSSGT_SENSE F38 — VSSGT_SENSE 26

VCCGTX_SENSE F37

VSSGTX_SENSE F36

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CPU-SK/1151/S/15

VCCSA

LGA1151K SKT_H4 LGA1151

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

VDDQ

VDDQ_AT18 AT21 AU13 AU15 AU19 AU23 AV11 AV17 AV21 AW10 AW14 AW25 AY12 AY16 AY18 AY23 — AT18 … AY23

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

CPU POWER

VCCPLL_OC AJ9 — VCCPLL_S — WR86 0/4/X — VDDQ

WR95 0/4/SHT/M/X — VCCPLL_OC

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VCCOPC_AJ30 AJ27 AJ28 AJ29 AK27 — AJ30 … AK27

WR60 0/4/X

CPU POWER

VCCST_VCCPLL — V5 — VCCST_V5

VCCSFUSEPRG — V6 — VCCST_V6

VCCPLL — V4 — VCCPLL

VCCEOPIO AJ25 AJ26 — WR61 0/4/X

VCC_OPC_1P8_AB37 AB37 — WR62 0/4/SHT/M/X

VCC_OPC_1P8_AB38 AB38 — WR63 0/4/SHT/M/X

VCCSA_SENSE AD5

VCCIO_SENSE AF4

VSS_SAIO_SENSE AE4

* 刪 net

VCCOPC_SENSE AK21

VCCEOPIO_SENSE AJ24

VSSOPC_EOPIO_SENSE AK22

10 OF 12

CPU-SK/1151/S/15

LGA1151L SKT_H4 LGA1151

J8 J7 L8 K8 — RSVD_TP_J8 … RSVD_TP_K8

AV1 AW2 — RSVD_TP_AV1 RSVD_TP_AW2

H8 K10 L10 J17 B39 J19 C40 — RSVD_H8 … RSVD_C40

G8 AY3 — RSVD_G8 RSVD_AY3

D1 — PROC_TRIGIN

B3 — PROC_TRIGOUT

L12 K12 — RSVD_L12 RSVD_K12

13 N_PCH_CPU_TI — WR88 33/4 — A_CPU_PCH_TO_R — 13 A_CPU_PCH_TO

RSVD_TP_H11 H11 RSVD_TP_H12 H12

RSVD_TP_AW38 AW38 RSVD_TP_AV39 AV39

RSVD_AU39 AU39 RSVD_AU40 AU40

VSS_AT15 AT15 VSS_AR23 AR23 VSS_AR22 AR22

RSVD_J15 J15 RSVD_J14 J14

RSVD_AU9 AU9 RSVD_AU10 AU10

RSVD_J13 J13 RSVD_K13 K13 RSVD_J11 J11 — WR89 560/4/1

RSVD_D15 D15 RSVD_K11 K11

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CPU-SK/1151/S/15

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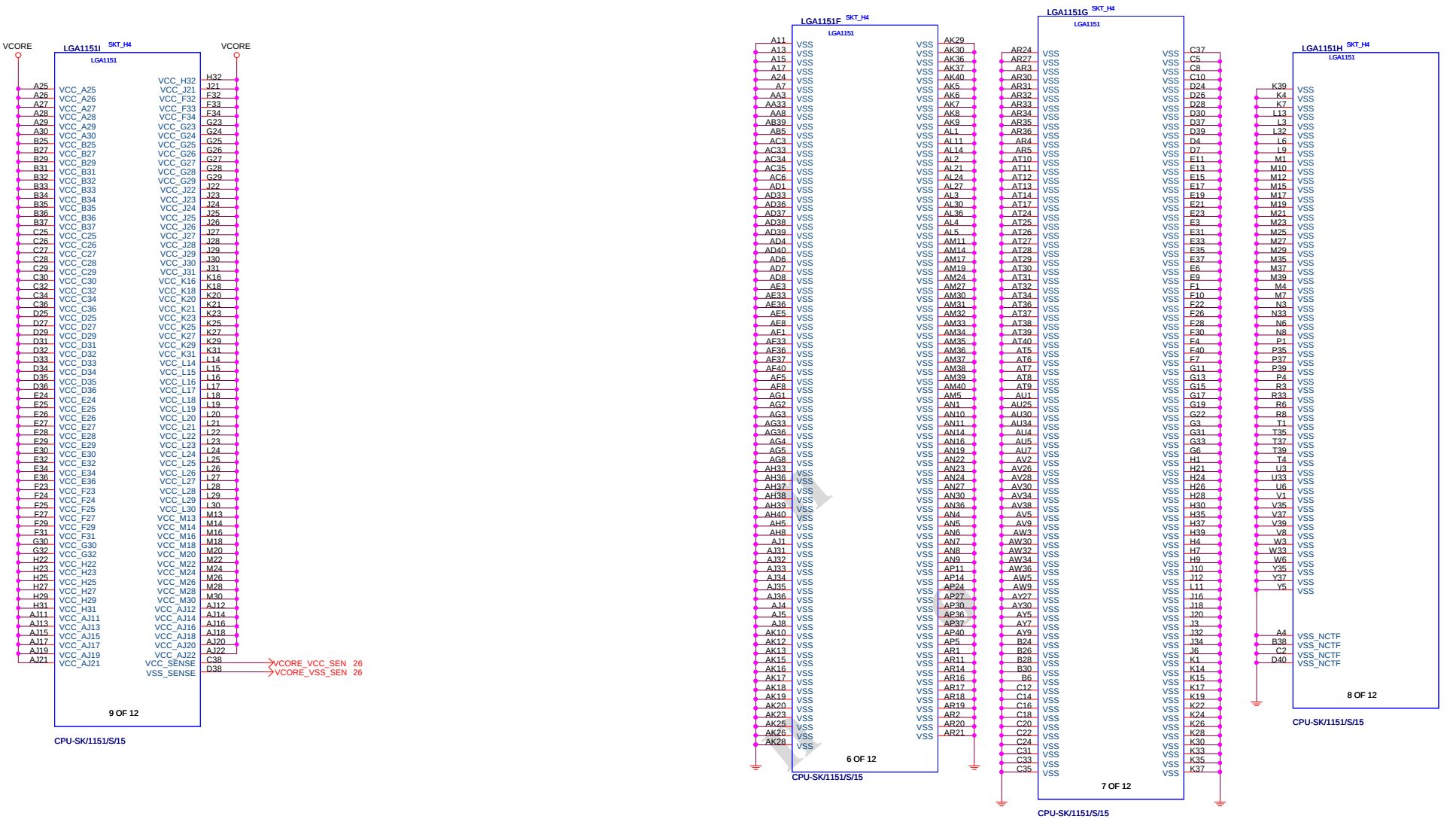

* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
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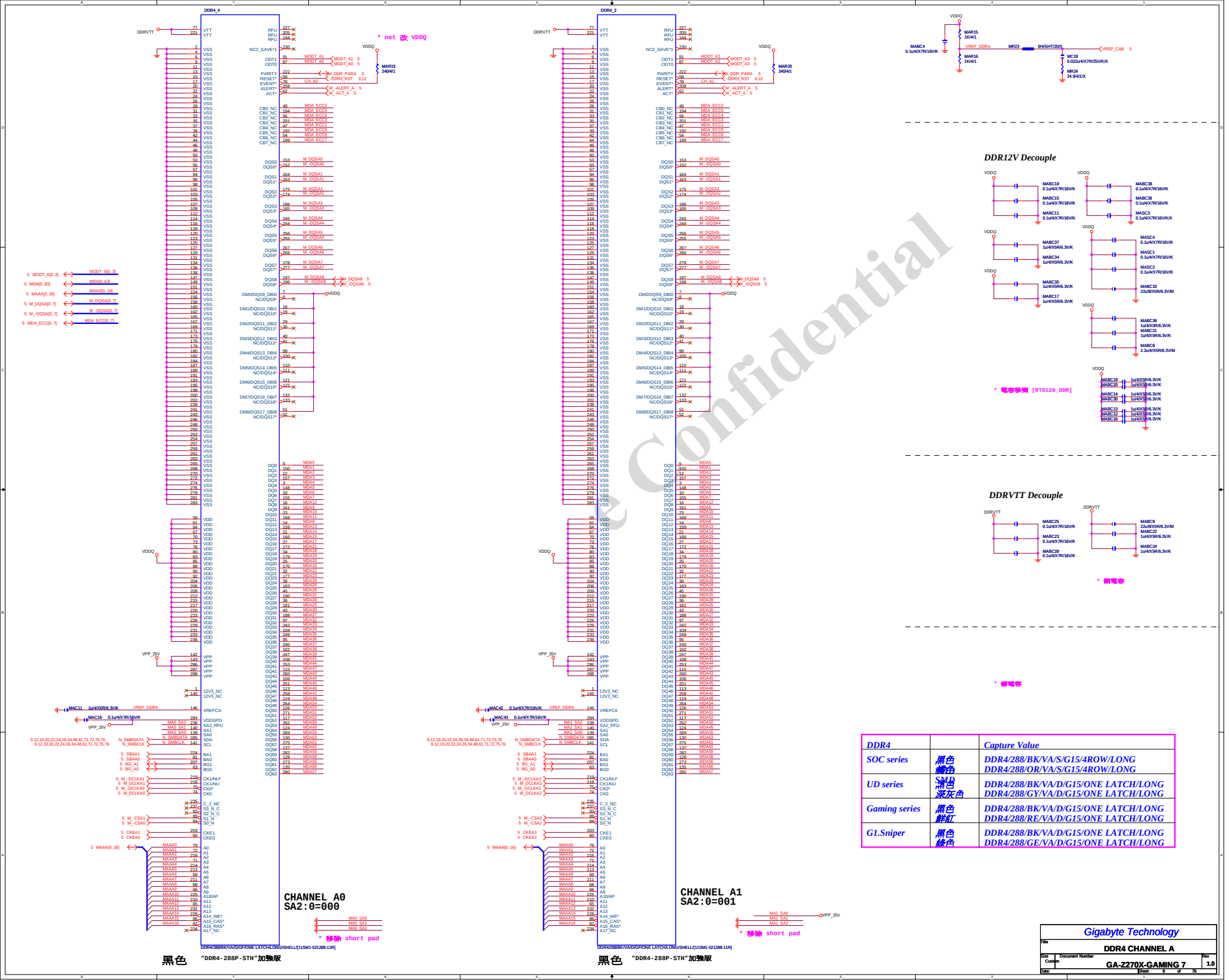

DDR4		Capture Value
SOC series	黑色 綠色	DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	SMD 黑色 深灰色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 鮮紅	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
G1.Sniper	黑色 綠色	DDR4/288/BK/VA/D/G15/ONE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

Gigabyte Technology

Title: DDR4 CHANNEL A

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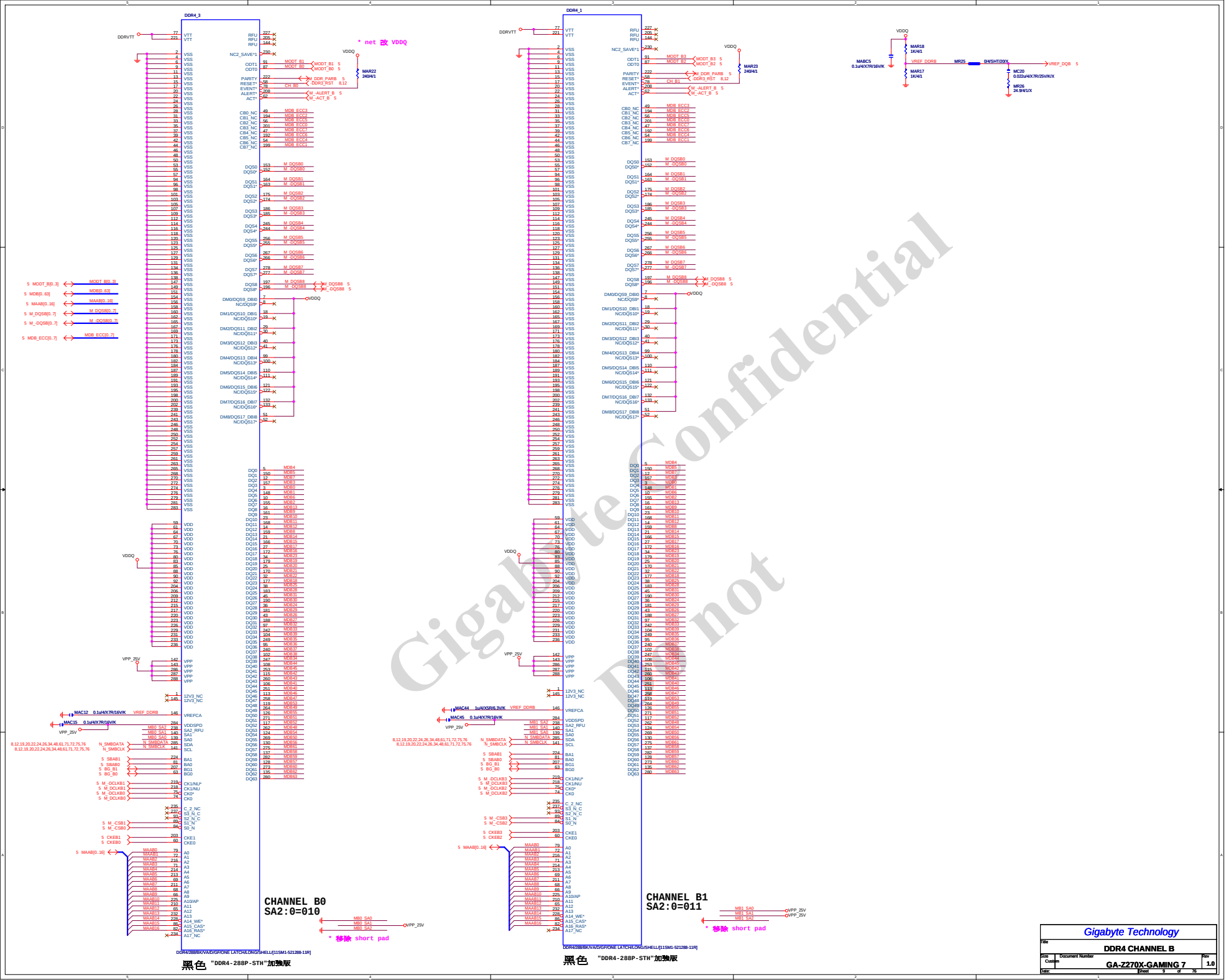
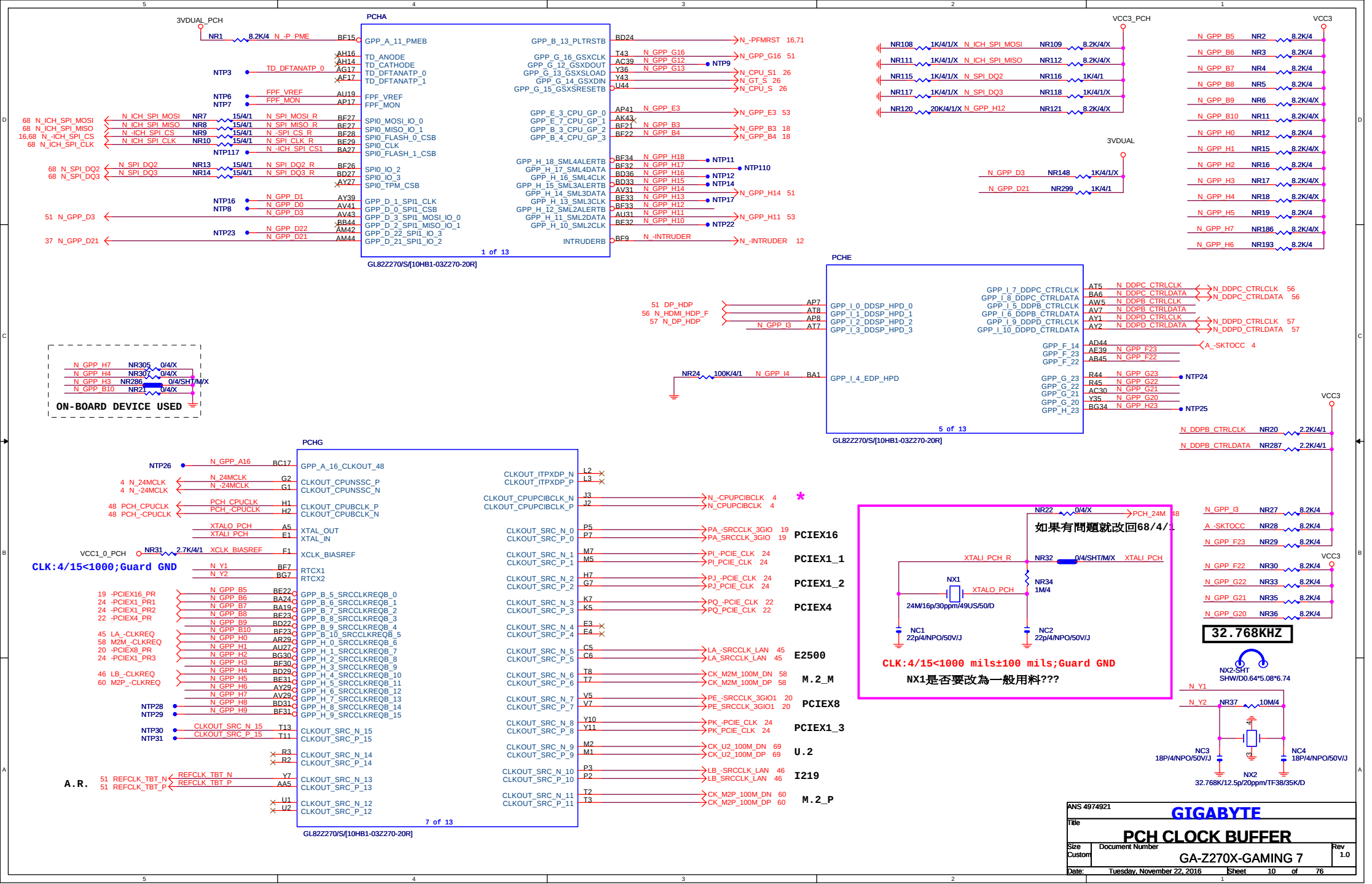
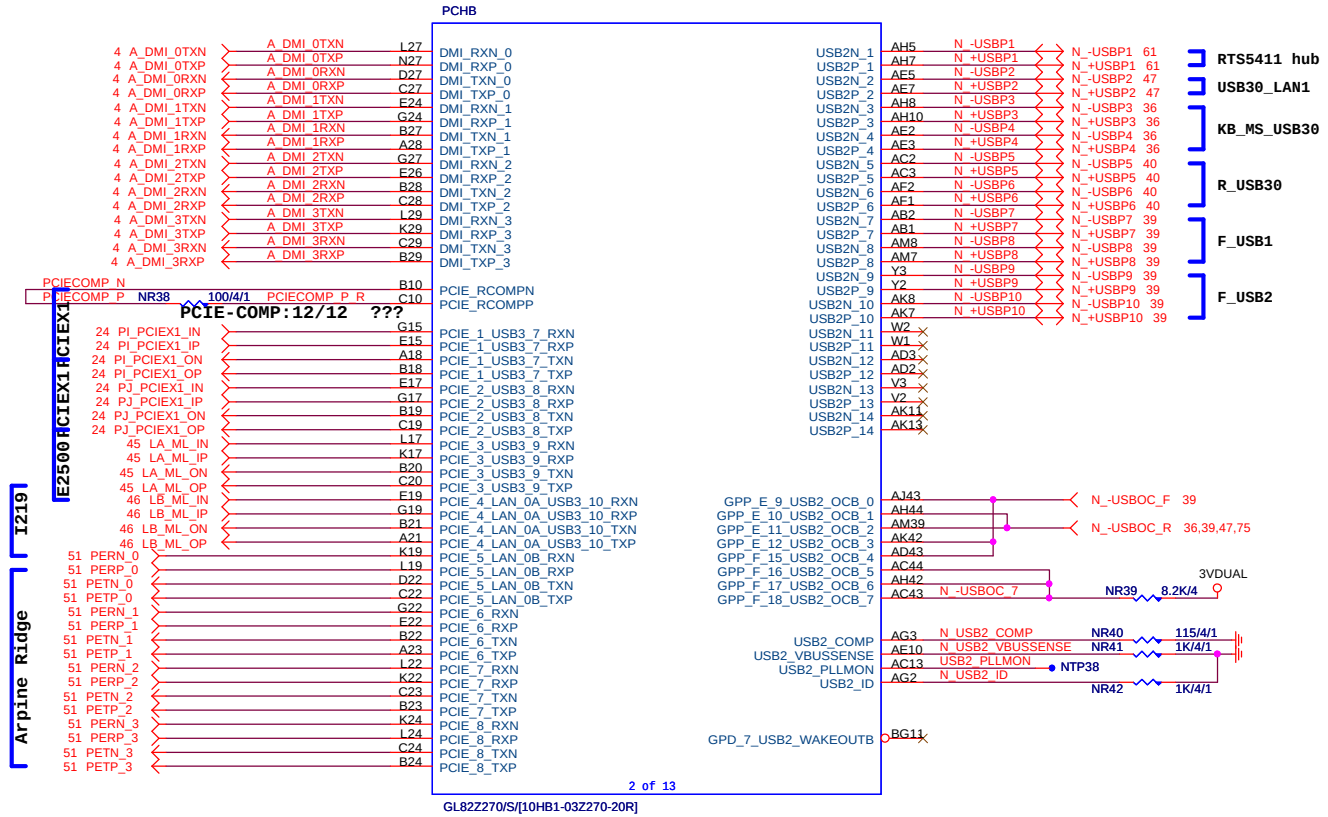
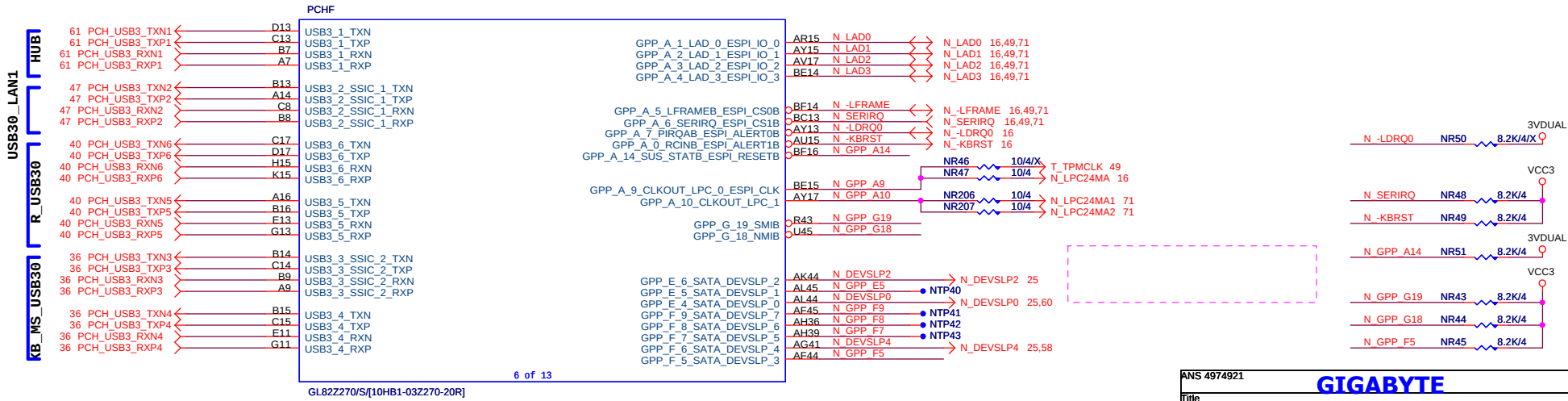

DDR4_3
DDR4_1
CHANNEL B0
SA2:0=010
CHANNEL B1
SA2:0=011
* net 改 VDDQ
* 移除 short pad
黑色 "DDR4-288P-STH"加強版
DDR4/288/BK/VA/D/GP/ONE LATCH/LONG/SHELL/[11SM1-521288-11R]
Gigabyte Technology
DDR4 CHANNEL B
GA-Z270X-GAMING 7
1.0
Do not
Confidential


PCHA
3VDUAL_PCH
GPP_A_11_PMEB
TD_ANODE
TD_CATHODE
TD_DFTANATP_0
TD_DFTANATP_1
FPF_VREF
FPF_MON
SPI0_MOSI_IO_0
SPI0_MISO_IO_1
SPI0_FLASH_0_CSB
SPI0_CLK
SPI0_FLASH_1_CSB
SPI0_IO_2
SPI0_IO_3
SPI0_TPM_CSB
GPP_D_1_SPI1_CLK
GPP_D_0_SPI1_CSB
GPP_D_3_SPI1_MOSI_IO_0
GPP_D_2_SPI1_MISO_IO_1
GPP_D_22_SPI1_IO_3
GPP_D_21_SPI1_IO_2
GPP_B_13_PLTRSTB
GPP_G_16_GSXCLK
GPP_G_12_GSXDOUT
GPP_G_13_GSXSLOAD
GPP_G_14_GSXDIN
GPP_G_15_GSXSRESETB
GPP_E_3_CPU_GP_0
GPP_E_7_CPU_GP_1
GPP_B_3_CPU_GP_2
GPP_B_4_CPU_GP_3
GPP_H_18_SML4ALERTB
GPP_H_17_SML4DATA
GPP_H_16_SML4CLK
GPP_H_15_SML3ALERTB
GPP_H_14_SML3DATA
GPP_H_13_SML3CLK
GPP_H_12_SML2ALERTB
GPP_H_11_SML2DATA
GPP_H_10_SML2CLK
INTRUDERB
1 of 13
GL82Z270/S/[10HB1-03Z270-20R]
PCHE
GPP_I_0_DDSP_HPD_0
GPP_I_1_DDSP_HPD_1
GPP_I_2_DDSP_HPD_2
GPP_I_3_DDSP_HPD_3
GPP_I_4_EDP_HPD
GPP_I_7_DDPC_CTRLCLK
GPP_I_8_DDPC_CTRLDATA
GPP_I_5_DDPB_CTRLCLK
GPP_I_6_DDPB_CTRLDATA
GPP_I_9_DDPD_CTRLCLK
GPP_I_10_DDPD_CTRLDATA
GPP_F_14
GPP_F_23
GPP_F_22
GPP_G_23
GPP_G_22
GPP_G_21
GPP_G_20
GPP_H_23
5 of 13
GL82Z270/S/[10HB1-03Z270-20R]
PCHG
GPP_A_16_CLKOUT_48
CLKOUT_CPUNSSC_P
CLKOUT_CPUNSSC_N
CLKOUT_CPUBCLK_P
CLKOUT_CPUBCLK_N
XTAL_OUT
XTAL_IN
XCLK_BIASREF
RTCX1
RTCX2
GPP_B_5_SRCCLKREQB_0
GPP_B_6_SRCCLKREQB_1
GPP_B_7_SRCCLKREQB_2
GPP_B_8_SRCCLKREQB_3
GPP_B_9_SRCCLKREQB_4
GPP_B_10_SRCCLKREQB_5
GPP_H_0_SRCCLKREQB_6
GPP_H_1_SRCCLKREQB_7
GPP_H_2_SRCCLKREQB_8
GPP_H_3_SRCCLKREQB_9
GPP_H_4_SRCCLKREQB_10
GPP_H_5_SRCCLKREQB_11
GPP_H_6_SRCCLKREQB_12
GPP_H_7_SRCCLKREQB_13
GPP_H_8_SRCCLKREQB_14
GPP_H_9_SRCCLKREQB_15
CLKOUT_SRC_N_15
CLKOUT_SRC_P_15
CLKOUT_SRC_N_14
CLKOUT_SRC_P_14
CLKOUT_SRC_N_13
CLKOUT_SRC_P_13
CLKOUT_SRC_N_12
CLKOUT_SRC_P_12
CLKOUT_ITPXDP_N
CLKOUT_ITPXDP_P
CLKOUT_CPUPCIBCLK_N
CLKOUT_CPUPCIBCLK_P
CLKOUT_SRC_N_0
CLKOUT_SRC_P_0
CLKOUT_SRC_N_1
CLKOUT_SRC_P_1
CLKOUT_SRC_N_2
CLKOUT_SRC_P_2
CLKOUT_SRC_N_3
CLKOUT_SRC_P_3
CLKOUT_SRC_N_4
CLKOUT_SRC_P_4
CLKOUT_SRC_N_5
CLKOUT_SRC_P_5
CLKOUT_SRC_N_6
CLKOUT_SRC_P_6
CLKOUT_SRC_N_7
CLKOUT_SRC_P_7
CLKOUT_SRC_N_8
CLKOUT_SRC_P_8
CLKOUT_SRC_N_9
CLKOUT_SRC_P_9
CLKOUT_SRC_N_10
CLKOUT_SRC_P_10
CLKOUT_SRC_N_11
CLKOUT_SRC_P_11
PCIEX16
PCIEX1_1
PCIEX1_2
PCIEX4
E2500
M.2_M
PCIEX8
PCIEX1_3
U.2
I219
M.2_P
7 of 13
GL82Z270/S/[10HB1-03Z270-20R]
ON-BOARD DEVICE USED
CLK:4/15<1000;Guard GND
A.R.
VCC3_PCH
3VDUAL
VCC3
如果有問題就改回68/4/1
CLK:4/15<1000 mils±100 mils;Guard GND
NX1是否要改為一般用料???
24M/16p/30ppm/49US/50/D
32.768KHZ
NX2-SHT
SHW/D0.64*5.08*6.74
32.768K/12.5p/20ppm/TF38/35K/D
ANS 4974921
GIGABYTE
PCH CLOCK BUFFER
GA-Z270X-GAMING 7
Rev 1.0
Tuesday, November 22, 2016
Sheet 10 of 76





ANS 4974921	GIGABYTE		
Title	PCH DMI,USB,PCIE		
Size: Custom	Document Number: GA-Z270X-GAMING 7		Rev: 1.0
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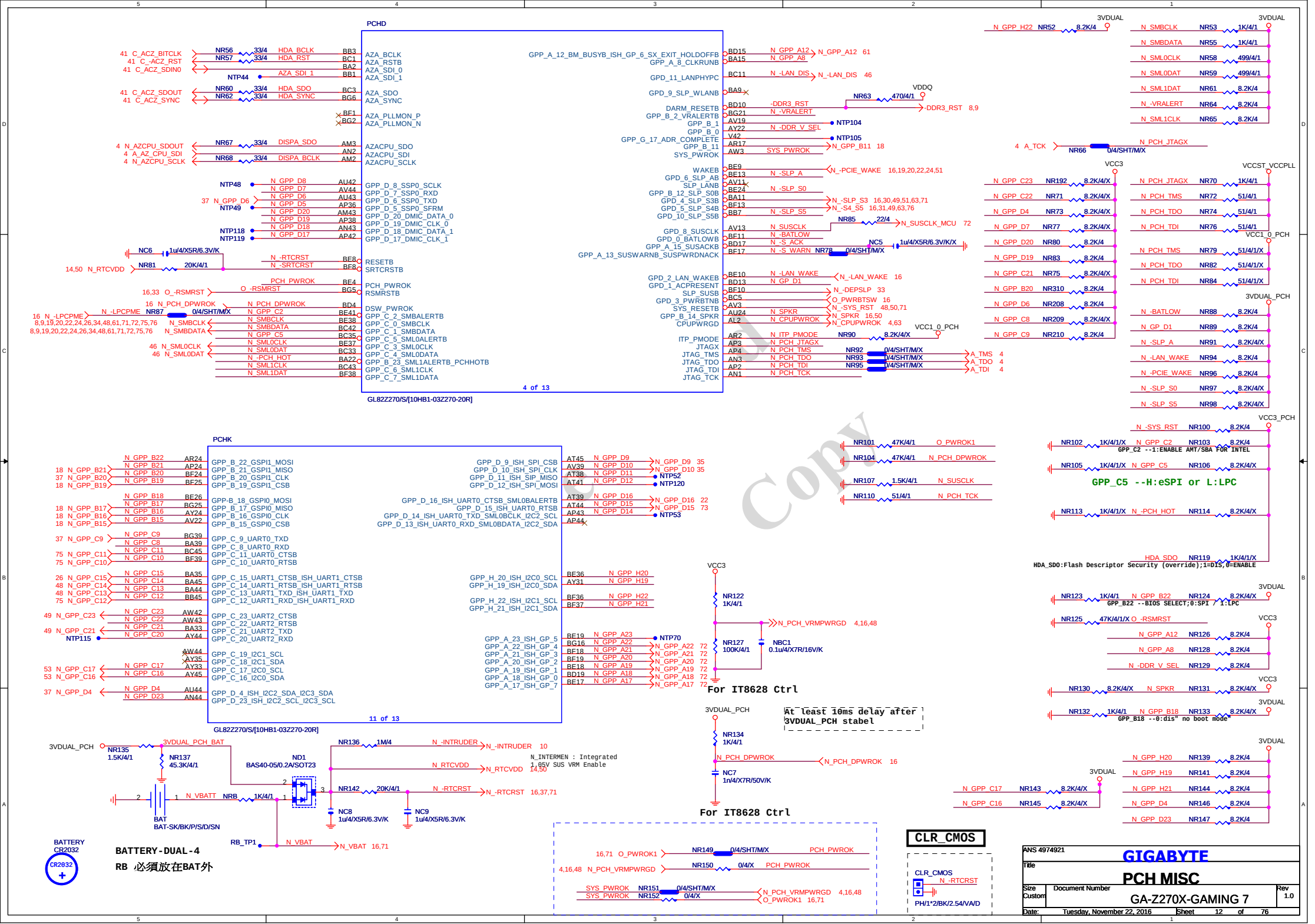

ANS	4974921
Title	PCH MISC
Size	Custom
Document Number	GA-Z270X-GAMING 7
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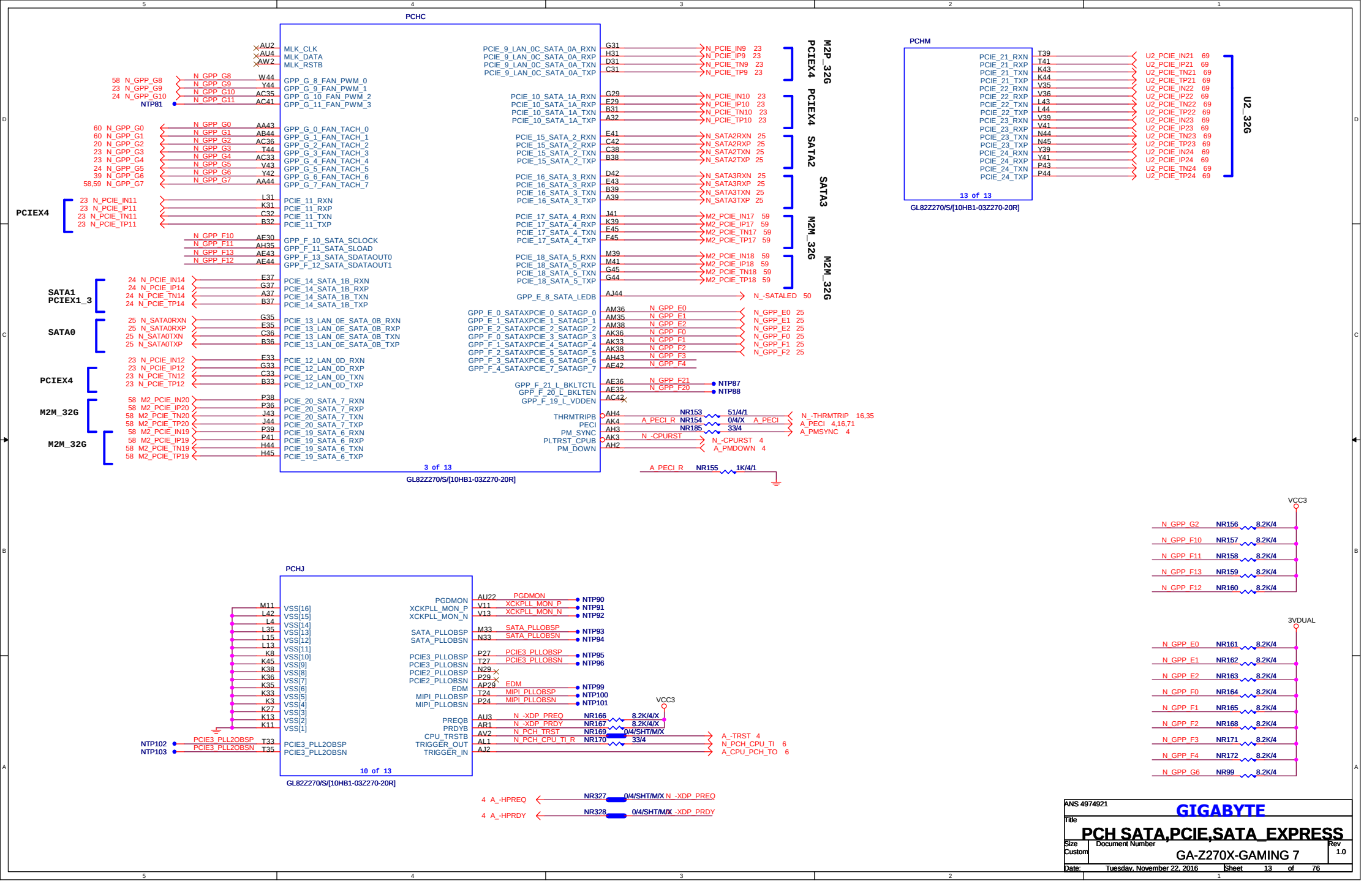
PCHC
AU2 MLK_CLK
AU4 MLK_DATA
AW2 MLK_RSTB
58 N_GPP_G8 N_GPP_G8 W44 GPP_G_8_FAN_PWM_0
23 N_GPP_G9 N_GPP_G9 Y44 GPP_G_9_FAN_PWM_1
24 N_GPP_G10 N_GPP_G10 AC35 GPP_G_10_FAN_PWM_2
NTP81 N_GPP_G11 AC41 GPP_G_11_FAN_PWM_3
60 N_GPP_G0 N_GPP_G0 AA43 GPP_G_0_FAN_TACH_0
60 N_GPP_G1 N_GPP_G1 AB44 GPP_G_1_FAN_TACH_1
20 N_GPP_G2 N_GPP_G2 AC36 GPP_G_2_FAN_TACH_2
23 N_GPP_G3 N_GPP_G3 T44 GPP_G_3_FAN_TACH_3
23 N_GPP_G4 N_GPP_G4 AC33 GPP_G_4_FAN_TACH_4
24 N_GPP_G5 N_GPP_G5 V43 GPP_G_5_FAN_TACH_5
39 N_GPP_G6 N_GPP_G6 Y42 GPP_G_6_FAN_TACH_6
58,59 N_GPP_G7 N_GPP_G7 AA44 GPP_G_7_FAN_TACH_7
PCIEX4
23 N_PCIE_IN11 L31 PCIE_11_RXN
23 N_PCIE_IP11 K31 PCIE_11_RXP
23 N_PCIE_TN11 C32 PCIE_11_TXN
23 N_PCIE_TP11 B32 PCIE_11_TXP
N_GPP_F10 AE30 GPP_F_10_SATA_SCLOCK
N_GPP_F11 AH35 GPP_F_11_SATA_SLOAD
N_GPP_F13 AE43 GPP_F_13_SATA_SDATAOUT0
N_GPP_F12 AE44 GPP_F_12_SATA_SDATAOUT1
SATA1
PCIEX1_3
24 N_PCIE_IN14 E37 PCIE_14_SATA_1B_RXN
24 N_PCIE_IP14 G37 PCIE_14_SATA_1B_RXP
24 N_PCIE_TN14 A37 PCIE_14_SATA_1B_TXN
24 N_PCIE_TP14 B37 PCIE_14_SATA_1B_TXP
SATA0
25 N_SATA0RXN G35 PCIE_13_LAN_0E_SATA_0B_RXN
25 N_SATA0RXP E35 PCIE_13_LAN_0E_SATA_0B_RXP
25 N_SATA0TXN C36 PCIE_13_LAN_0E_SATA_0B_TXN
25 N_SATA0TXP B36 PCIE_13_LAN_0E_SATA_0B_TXP
PCIEX4
23 N_PCIE_IN12 E33 PCIE_12_LAN_0D_RXN
23 N_PCIE_IP12 G33 PCIE_12_LAN_0D_RXP
23 N_PCIE_TN12 C33 PCIE_12_LAN_0D_TXN
23 N_PCIE_TP12 B33 PCIE_12_LAN_0D_TXP
M2M_32G
58 M2_PCIE_IN20 P38 PCIE_20_SATA_7_RXN
58 M2_PCIE_IP20 P36 PCIE_20_SATA_7_RXP
58 M2_PCIE_TN20 J43 PCIE_20_SATA_7_TXN
58 M2_PCIE_TP20 J44 PCIE_20_SATA_7_TXP
M2M_32G
58 M2_PCIE_IN19 P39 PCIE_19_SATA_6_RXN
58 M2_PCIE_IP19 P41 PCIE_19_SATA_6_RXP
58 M2_PCIE_TN19 H44 PCIE_19_SATA_6_TXN
58 M2_PCIE_TP19 H45 PCIE_19_SATA_6_TXP
3 of 13
GL82Z270/S/[10HB1-03Z270-20R]
PCIE_9_LAN_0C_SATA_0A_RXN G31 N_PCIE_IN9 23
PCIE_9_LAN_0C_SATA_0A_RXP H31 N_PCIE_IP9 23
PCIE_9_LAN_0C_SATA_0A_TXN D31 N_PCIE_TN9 23
PCIE_9_LAN_0C_SATA_0A_TXP C31 N_PCIE_TP9 23
M2P_32G
PCIEX4
PCIE_10_SATA_1A_RXN G29 N_PCIE_IN10 23
PCIE_10_SATA_1A_RXP E29 N_PCIE_IP10 23
PCIE_10_SATA_1A_TXN B31 N_PCIE_TN10 23
PCIE_10_SATA_1A_TXP A32 N_PCIE_TP10 23
PCIEX4
PCIE_15_SATA_2_RXN E41 N_SATA2RXN 25
PCIE_15_SATA_2_RXP C42 N_SATA2RXP 25
PCIE_15_SATA_2_TXN C38 N_SATA2TXN 25
PCIE_15_SATA_2_TXP B38 N_SATA2TXP 25
SATA2
PCIE_16_SATA_3_RXN D42 N_SATA3RXN 25
PCIE_16_SATA_3_RXP E43 N_SATA3RXP 25
PCIE_16_SATA_3_TXN B39 N_SATA3TXN 25
PCIE_16_SATA_3_TXP A39 N_SATA3TXP 25
SATA3
PCIE_17_SATA_4_RXN J41 M2_PCIE_IN17 59
PCIE_17_SATA_4_RXP K39 M2_PCIE_IP17 59
PCIE_17_SATA_4_TXN E45 M2_PCIE_TN17 59
PCIE_17_SATA_4_TXP F45 M2_PCIE_TP17 59
M2M_32G
PCIE_18_SATA_5_RXN M39 M2_PCIE_IN18 59
PCIE_18_SATA_5_RXP M41 M2_PCIE_IP18 59
PCIE_18_SATA_5_TXN G45 M2_PCIE_TN18 59
PCIE_18_SATA_5_TXP G44 M2_PCIE_TP18 59
M2M_32G
GPP_E_8_SATA_LEDB AJ44 N_-SATALED 50
GPP_E_0_SATAXPCIE_0_SATAGP_0 AM36 N_GPP_E0 N_GPP_E0 25
GPP_E_1_SATAXPCIE_1_SATAGP_1 AM35 N_GPP_E1 N_GPP_E1 25
GPP_E_2_SATAXPCIE_2_SATAGP_2 AM38 N_GPP_E2 N_GPP_E2 25
GPP_F_0_SATAXPCIE_3_SATAGP_3 AK36 N_GPP_F0 N_GPP_F0 25
GPP_F_1_SATAXPCIE_4_SATAGP_4 AK33 N_GPP_F1 N_GPP_F1 25
GPP_F_2_SATAXPCIE_5_SATAGP_5 AK38 N_GPP_F2 N_GPP_F2 25
GPP_F_3_SATAXPCIE_6_SATAGP_6 AH43 N_GPP_F3
GPP_F_4_SATAXPCIE_7_SATAGP_7 AE42 N_GPP_F4
GPP_F_21_L_BKLTCTL AE36 N_GPP_F21 NTP87
GPP_F_20_L_BKLTEN AE35 N_GPP_F20 NTP88
GPP_F_19_L_VDDEN AC42
THRMTRIPB AH4 NR153 51/4/1 N_-THRMTRIP 16,35
PECI AK4 A_PECI_R NR154 0/4/X A_PECI A_PECI 4,16,71
PM_SYNC AH3 NR185 33/4 A_PMSYNC 4
PLTRST_CPUB AK3 N_-CPURST N_-CPURST 4
PM_DOWN AH2 A_PMDOWN 4
A_PECI_R NR155 1K/4/1
PCHM
PCIE_21_RXN T39 U2_PCIE_IN21 69
PCIE_21_RXP T41 U2_PCIE_IP21 69
PCIE_21_TXN K43 U2_PCIE_TN21 69
PCIE_21_TXP K44 U2_PCIE_TP21 69
PCIE_22_RXN V35 U2_PCIE_IN22 69
PCIE_22_RXP V36 U2_PCIE_IP22 69
PCIE_22_TXN L43 U2_PCIE_TN22 69
PCIE_22_TXP L44 U2_PCIE_TP22 69
PCIE_23_RXN V39 U2_PCIE_IN23 69
PCIE_23_RXP V41 U2_PCIE_IP23 69
PCIE_23_TXN N44 U2_PCIE_TN23 69
PCIE_23_TXP N45 U2_PCIE_TP23 69
PCIE_24_RXN Y39 U2_PCIE_IN24 69
PCIE_24_RXP Y41 U2_PCIE_IP24 69
PCIE_24_TXN P43 U2_PCIE_TN24 69
PCIE_24_TXP P44 U2_PCIE_TP24 69
U2_32G
13 of 13
GL82Z270/S/[10HB1-03Z270-20R]
VCC3
N_GPP_G2 NR156 8.2K/4
N_GPP_F10 NR157 8.2K/4
N_GPP_F11 NR158 8.2K/4
N_GPP_F13 NR159 8.2K/4
N_GPP_F12 NR160 8.2K/4
3VDUAL
N_GPP_E0 NR161 8.2K/4
N_GPP_E1 NR162 8.2K/4
N_GPP_E2 NR163 8.2K/4
N_GPP_F0 NR164 8.2K/4
N_GPP_F1 NR165 8.2K/4
N_GPP_F2 NR168 8.2K/4
N_GPP_F3 NR171 8.2K/4
N_GPP_F4 NR172 8.2K/4
N_GPP_G6 NR99 8.2K/4
PCHJ
M11 VSS[16]
L42 VSS[15]
L4 VSS[14]
L35 VSS[13]
L15 VSS[12]
L13 VSS[11]
K8 VSS[10]
K45 VSS[9]
K38 VSS[8]
K36 VSS[7]
K35 VSS[6]
K33 VSS[5]
K3 VSS[4]
K27 VSS[3]
K13 VSS[2]
K11 VSS[1]
NTP102 PCIE3_PLL2OBSP T33 PCIE3_PLL2OBSP
NTP103 PCIE3_PLL2OBSN T35 PCIE3_PLL2OBSN
PGDMON AU22 PGDMON NTP90
XCKPLL_MON_P V11 XCKPLL_MON_P NTP91
XCKPLL_MON_N V13 XCKPLL_MON_N NTP92
SATA_PLLOBSP M33 SATA_PLLOBSP NTP93
SATA_PLLOBSN N33 SATA_PLLOBSN NTP94
PCIE3_PLLOBSP P27 PCIE3_PLLOBSP NTP95
PCIE3_PLLOBSN T27 PCIE3_PLLOBSN NTP96
PCIE2_PLLOBSP N29
PCIE2_PLLOBSN P29
EDM AP29 EDM NTP99
MIPI_PLLOBSP T24 MIPI_PLLOBSP NTP100
MIPI_PLLOBSN P24 MIPI_PLLOBSN NTP101
PREQB AU3 N_-XDP_PREQ NR166 8.2K/4/X
PRDYB AR1 N_-XDP_PRDY NR167 8.2K/4/X
CPU_TRSTB AV2 N_PCH_TRST NR169 0/4/SHT/M/X
TRIGGER_OUT AL1 N_PCH_CPU_TI_R NR170 33/4 A_-TRST 4
TRIGGER_IN AJ2 N_PCH_CPU_TI 6
A_CPU_PCH_TO 6
VCC3
10 of 13
GL82Z270/S/[10HB1-03Z270-20R]
4 A_-HPREQ NR327 0/4/SHT/M/X N_-XDP_PREQ
4 A_-HPRDY NR328 0/4/SHT/M/X N_-XDP_PRDY
ANS 4974921
GIGABYTE
Title
PCH SATA,PCIE,SATA_EXPRESS
Size Custom
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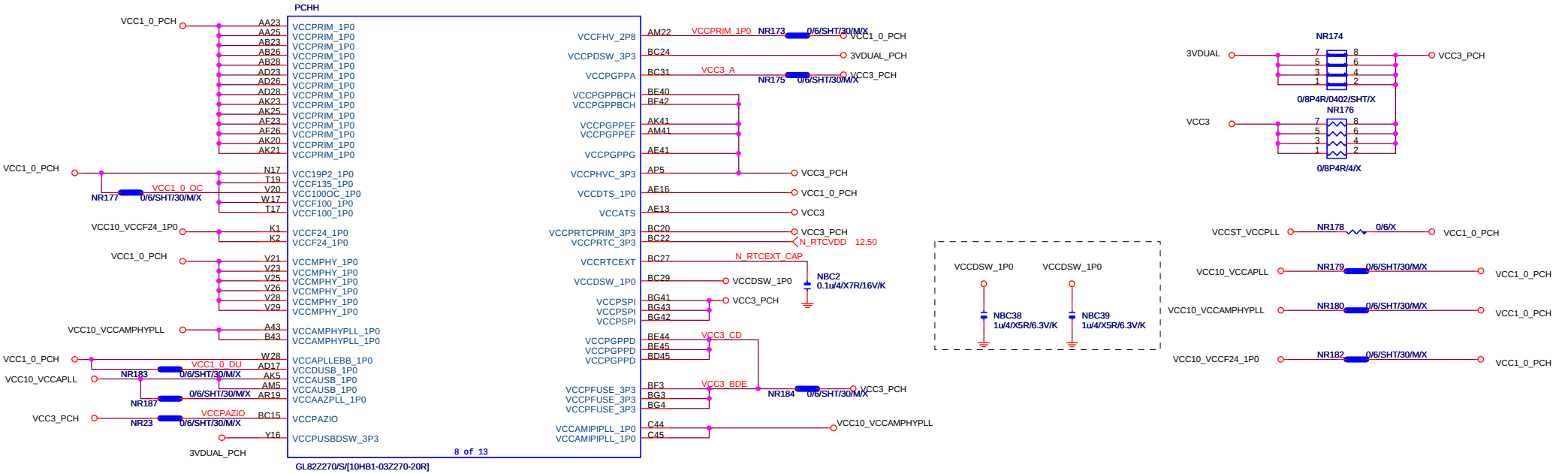

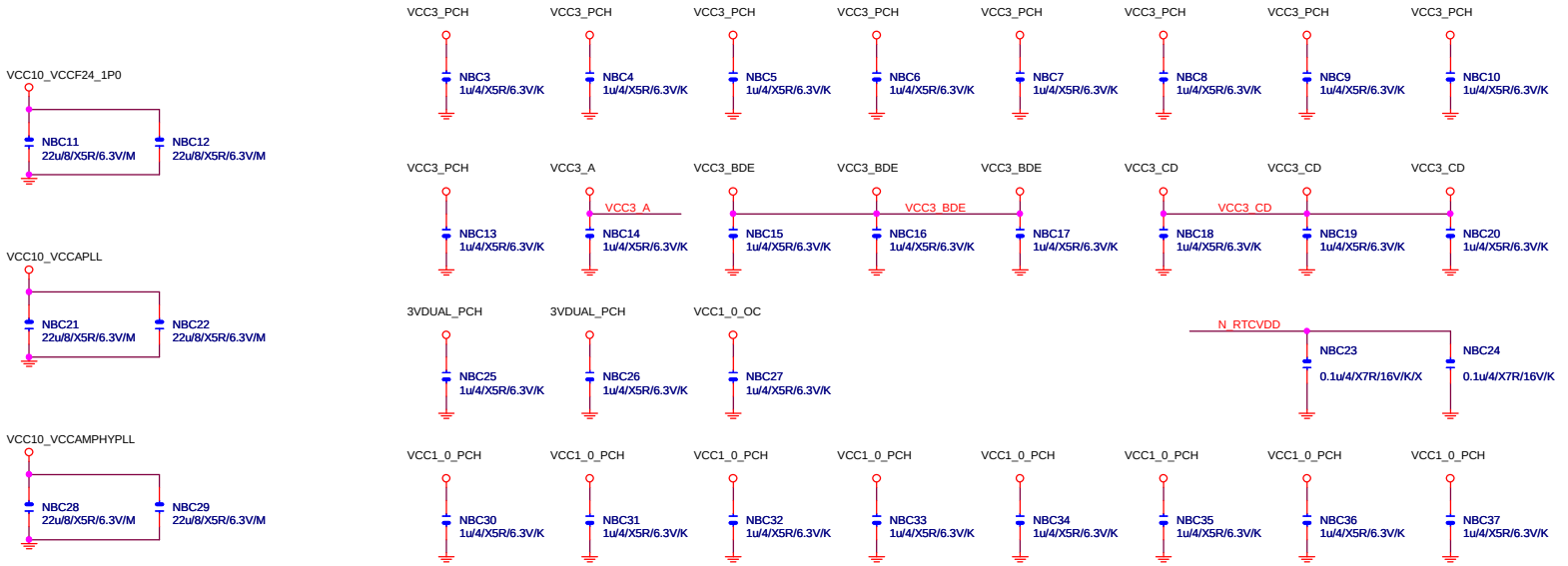

ANS 4974921

GIGABYTE

Title

PCH PWR

Size	Document Number	Rev
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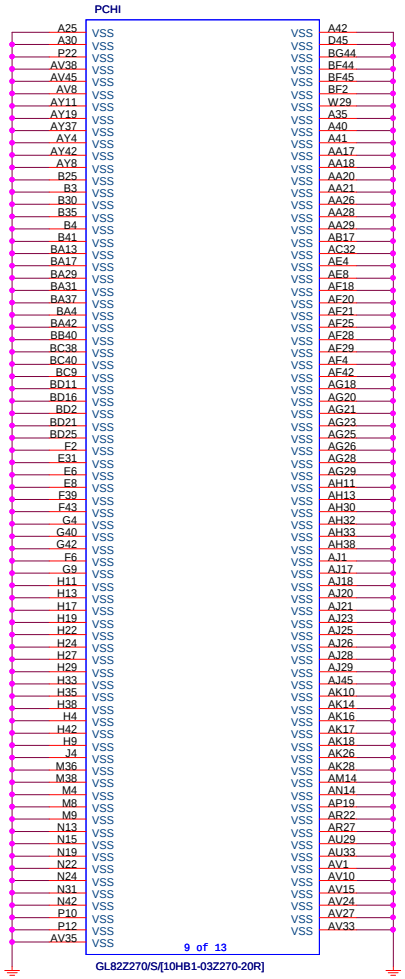
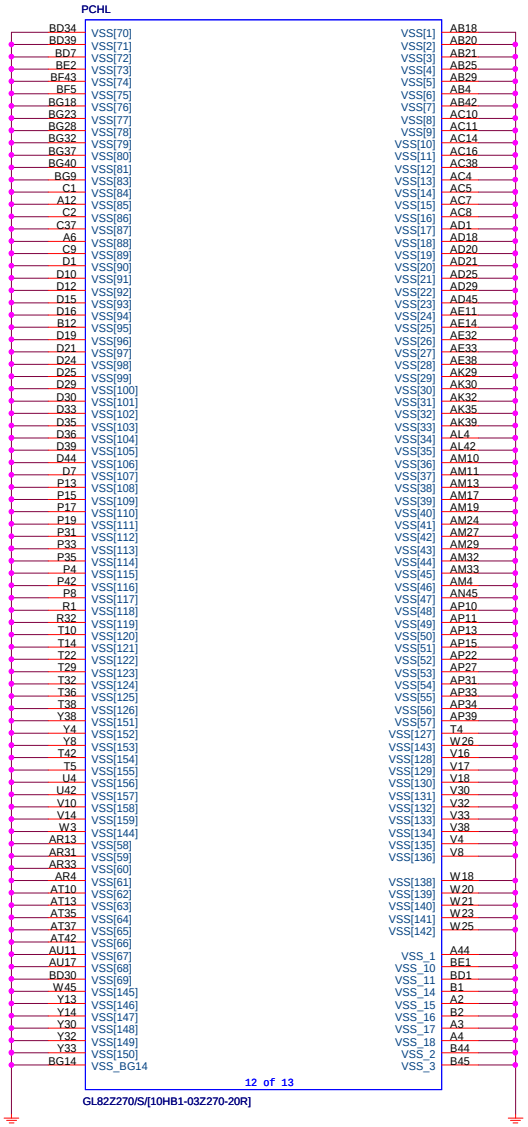
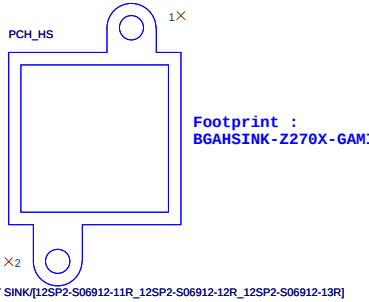


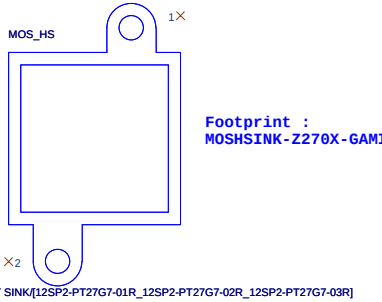


装甲HEATSINK 分成四大部份



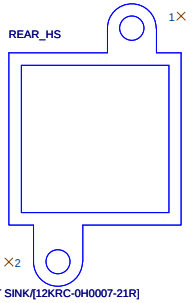
Footprint :
BGAHSINK-Z270X-GAMING7

HEAT SINK/[12SP2-S06912-11R_12SP2-S06912-12R_12SP2-S06912-13R]



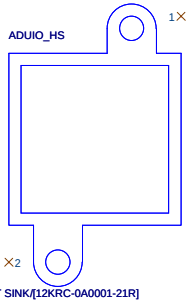
Footprint :
MOSHSINK-Z270X-GAMING7

HEAT SINK/[12SP2-PT27G7-01R_12SP2-PT27G7-02R_12SP2-PT27G7-03R]



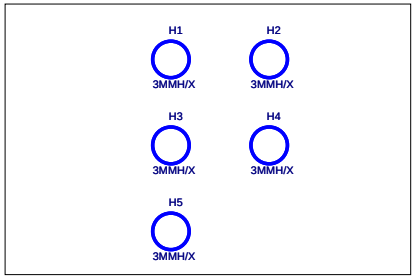
HEAT SINK/[12KRC-0H0007-21R]

Footprint"Z270X_BASE_COVER"



HEAT SINK/[12KRC-0A0001-21R]

Footprint "Z270X_EXTEND_COVER"



3MMH

ANS 4974921	GIGABYTE	
Title	PCH GND	
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
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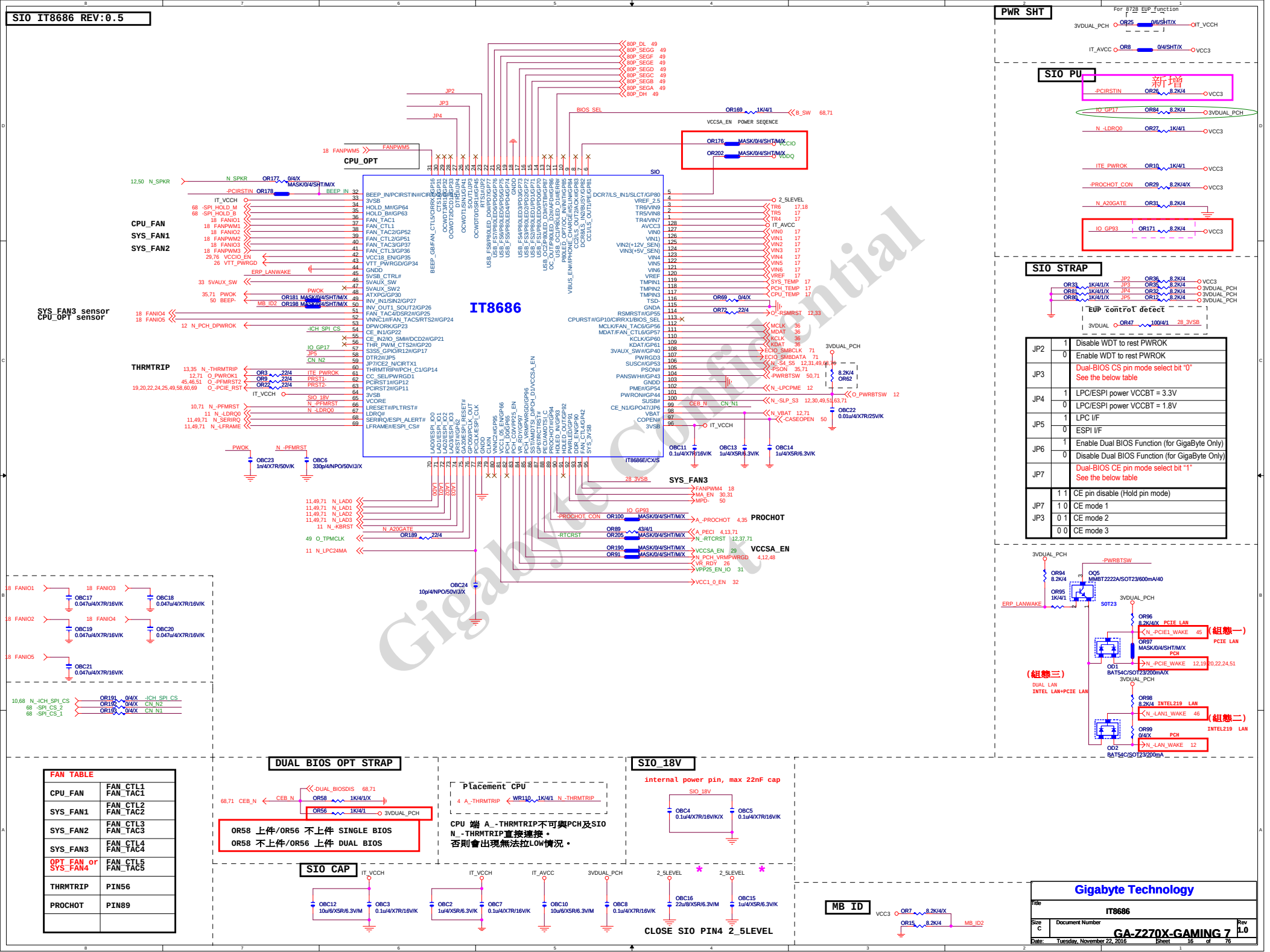
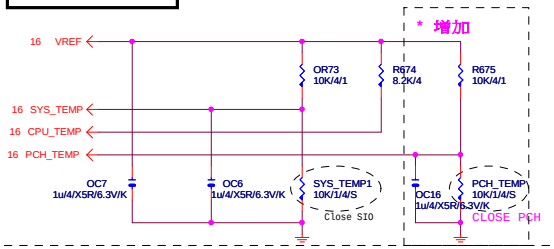
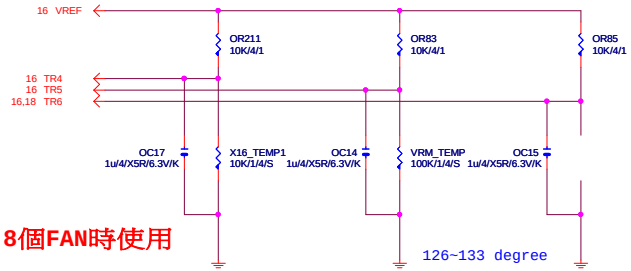
SIO IT8686 REV:0.5



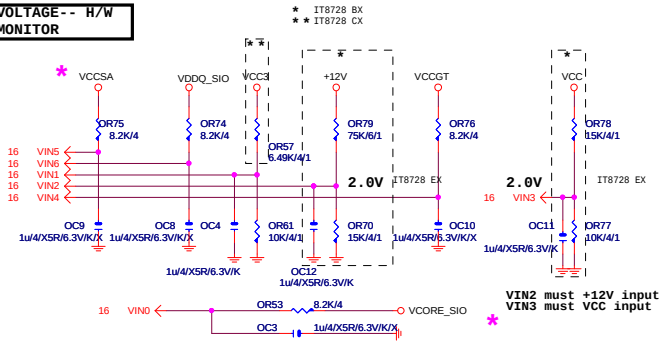
TEMP H/W MONITOR



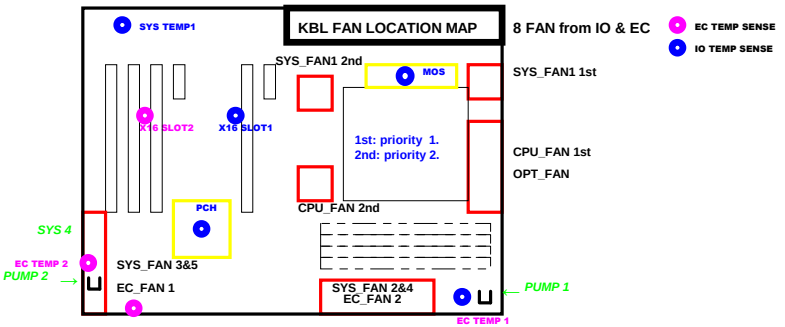


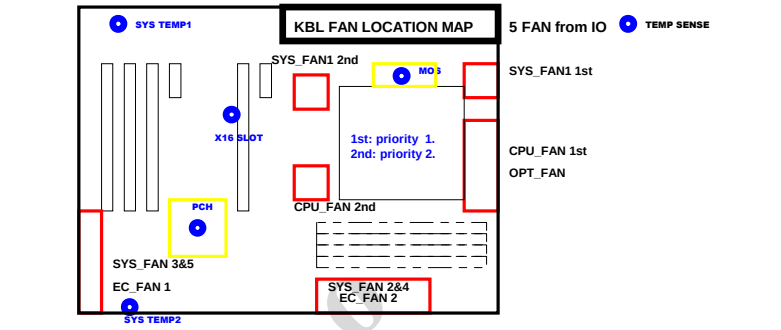
8個FAN時使用

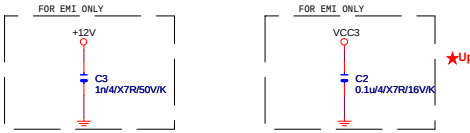
VOLTAGE-- H/W MONITOR



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







★Update 2015-04.24

Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
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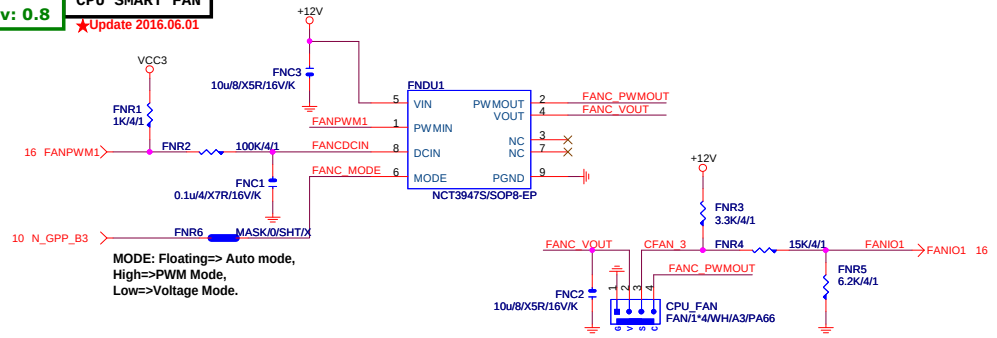
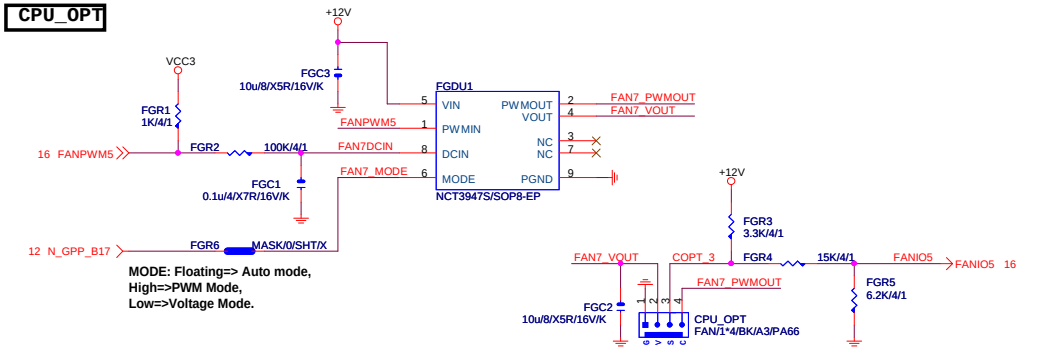
CPU_SMART_FAN

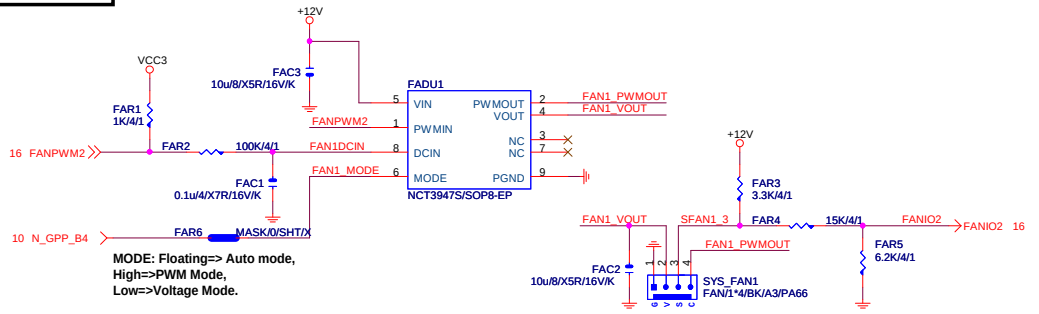
★Update 2016.06.01



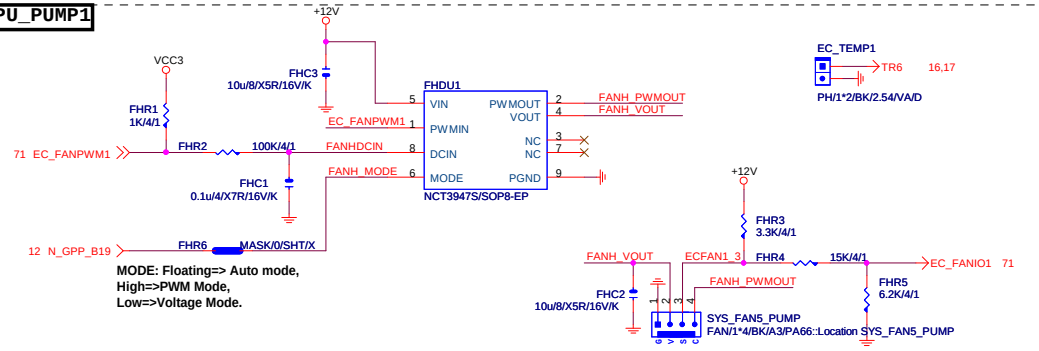
CPU_OPT



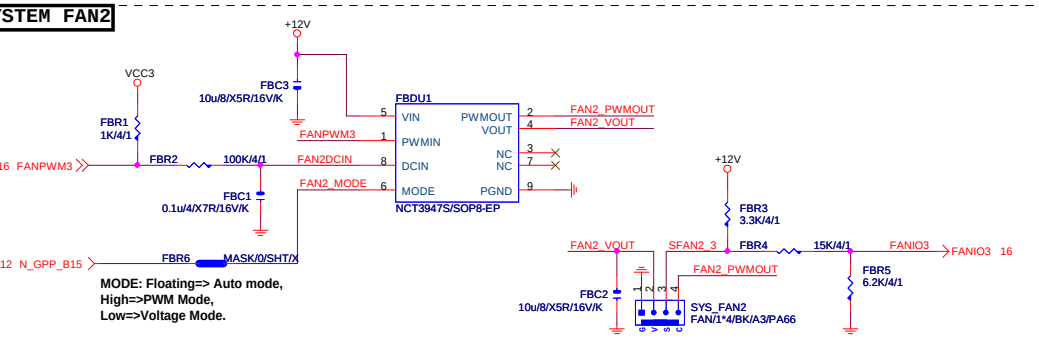
SYSTEM_FAN1



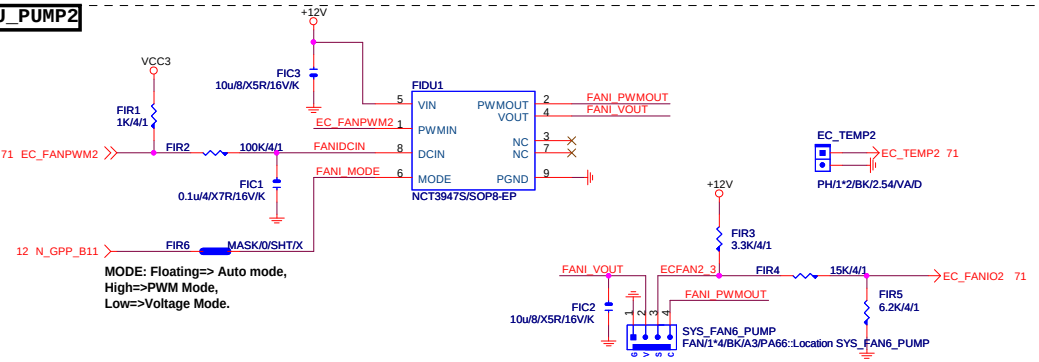
CPU_PUMP1



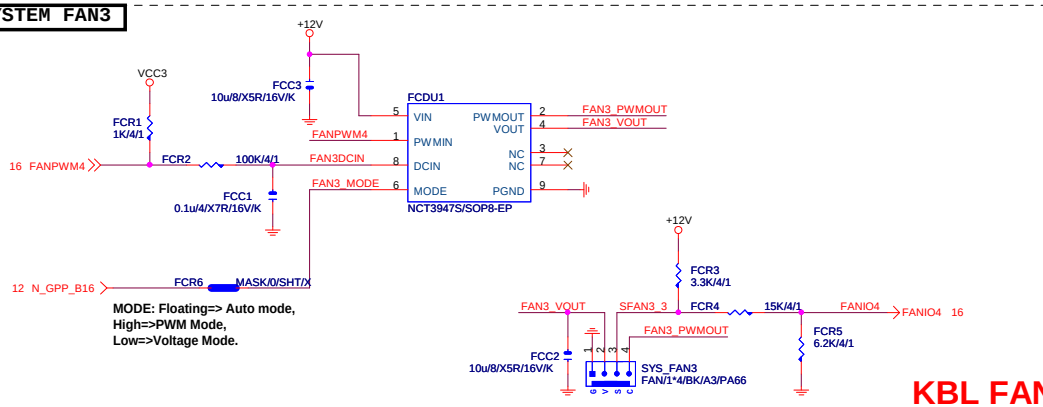
SYSTEM_FAN2



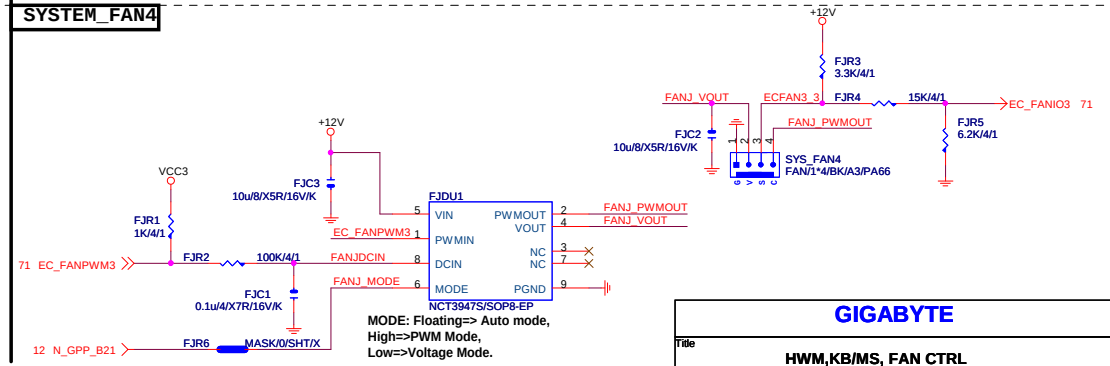
CPU_PUMP2



SYSTEM_FAN3



SYSTEM_FAN4



KBL FAN LOCATION MAP REFER TO PAGE.27

GIGABYTE

Title	HWM,KB/MS, FAN CTRL	
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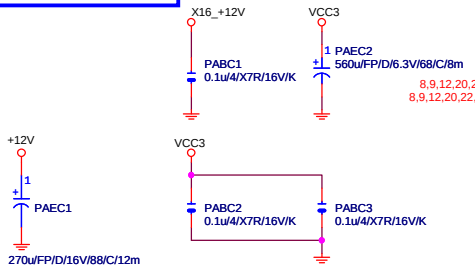
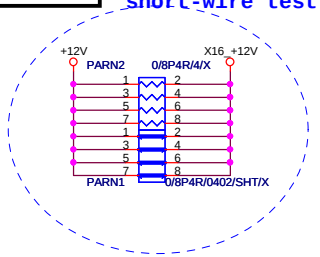
PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN15_C

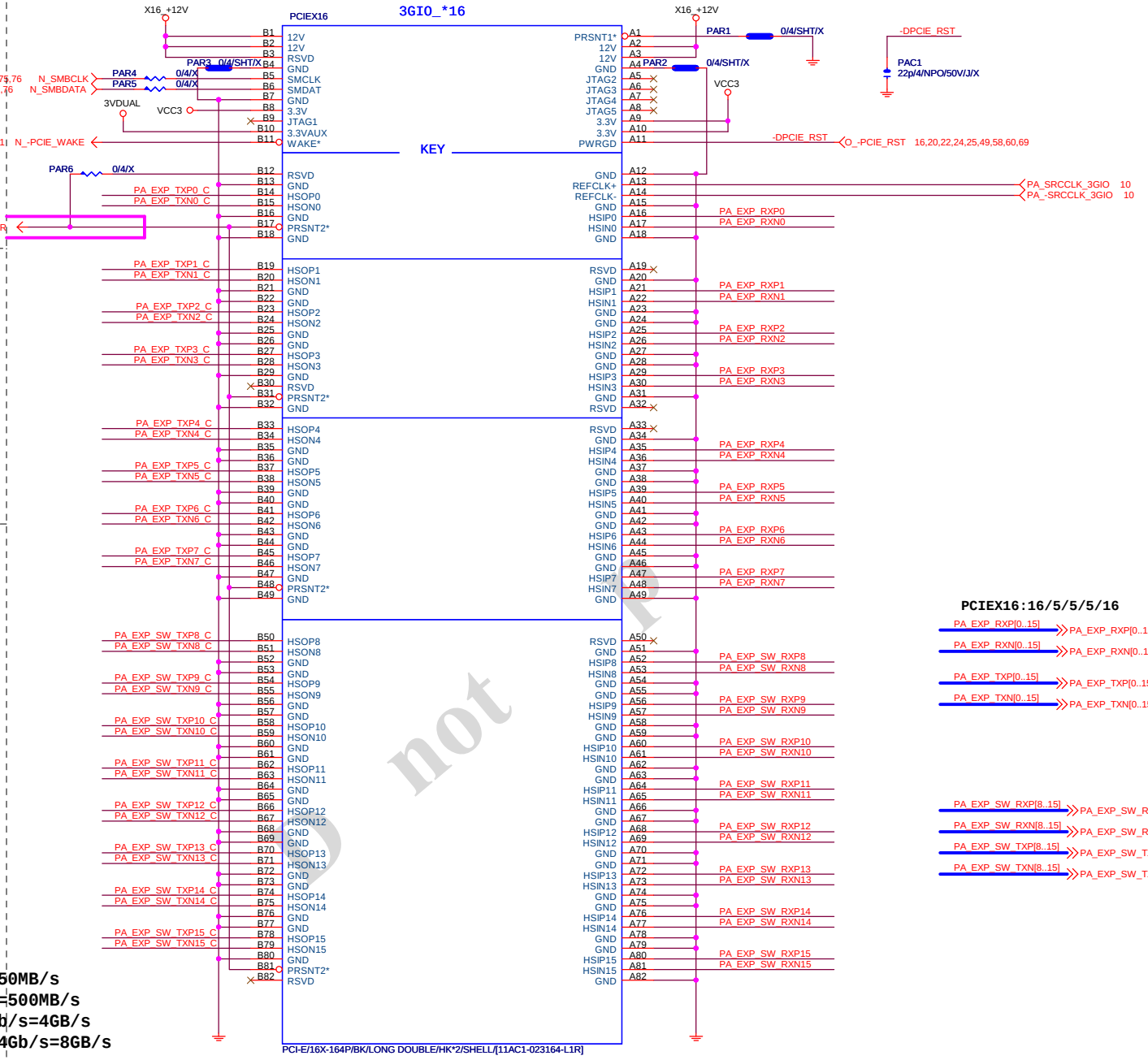
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

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

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

PCIEX16 SLOT

PCIESLOT-164STH



黑色金屬加強

PCIEX16:16/5/5/5/16

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

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

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PCIESLOT-98STH

3GIO_*8

PCIEX8

KEY

PCIEX8 PROTECT SHT

+12V protect short-wire test

請選用model上沒用到的USB port

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

黑色金屬加強

Gigabyte Technology

PCI EXPRESS X8

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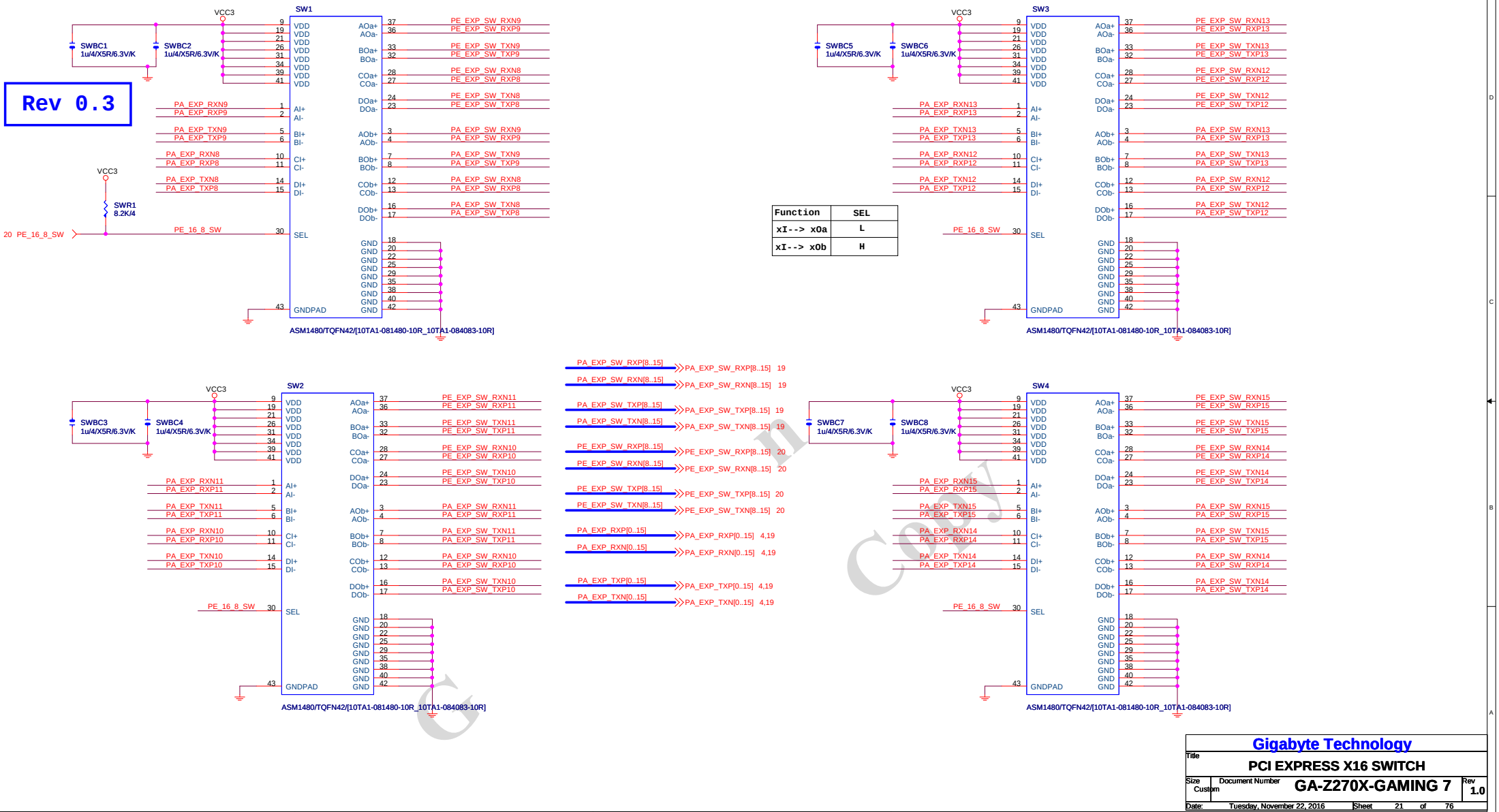

Title	PCI EXPRESS X16 SWITCH
Size	Custom
Document Number	GA-Z270X-GAMING 7
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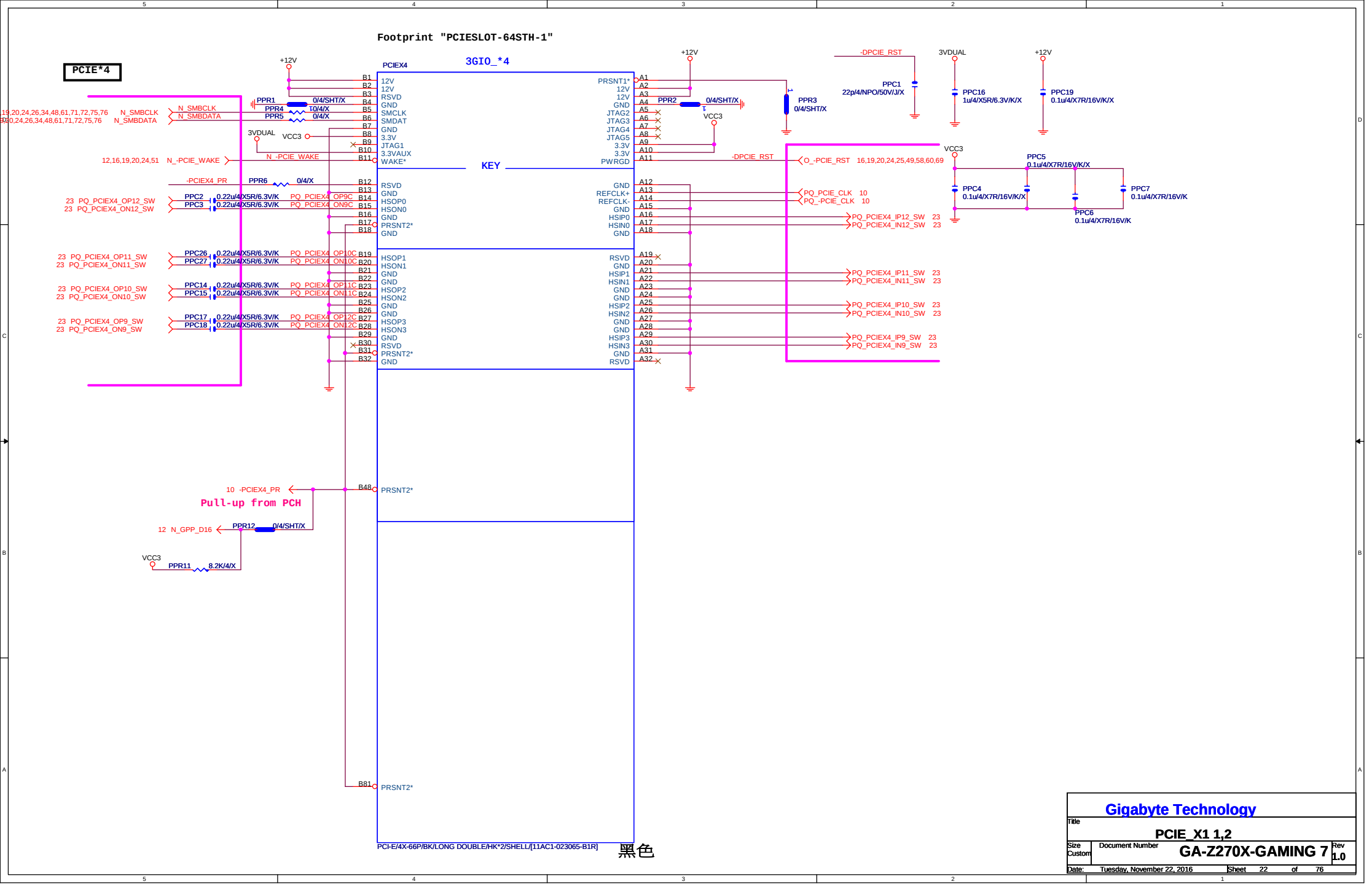
Gigabyte Technology


Footprint "PCIESLOT-64STH-1"
PCIE*4
PCIEX4
3GIO_*4
KEY
+12V
3VDUAL
VCC3
-DPCIE_RST
-PCIEX4_PR
Pull-up from PCH
PRSNT2*
PPR1 0/4/SHT/X
PPR2 0/4/SHT/X
PPR3 0/4/SHT/X
PPR4 0/4/X
PPR5 0/4/X
PPR6 0/4/X
PPR12 0/4/SHT/X
PPR11 8.2K/4/X
PPC1 22p/4/NPO/50V/J/X
PPC16 1u/4/X5R/6.3V/K/X
PPC19 0.1u/4/X7R/16V/K/X
PPC5 0.1u/4/X7R/16V/K/X
PPC4 0.1u/4/X7R/16V/K/X
PPC7 0.1u/4/X7R/16V/K
PPC6 0.1u/4/X7R/16V/K
PCI-E/4X-66P/BK/LONG DOUBLE/HK*2/SHELL/[11AC1-023065-B1R]
黑色
Gigabyte Technology
PCIE_X1 1,2
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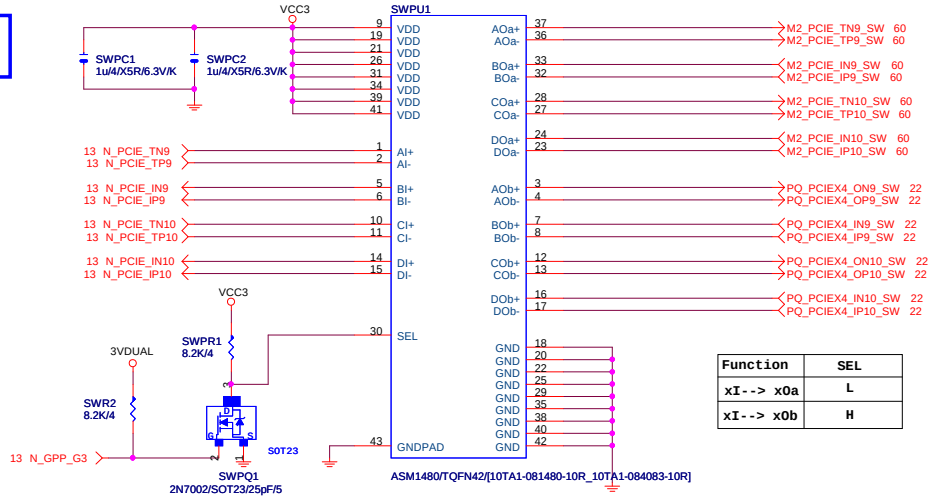
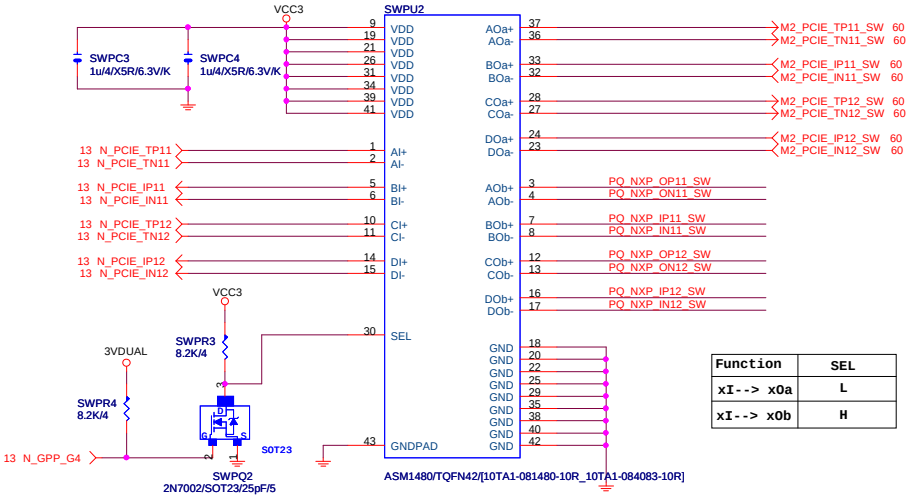
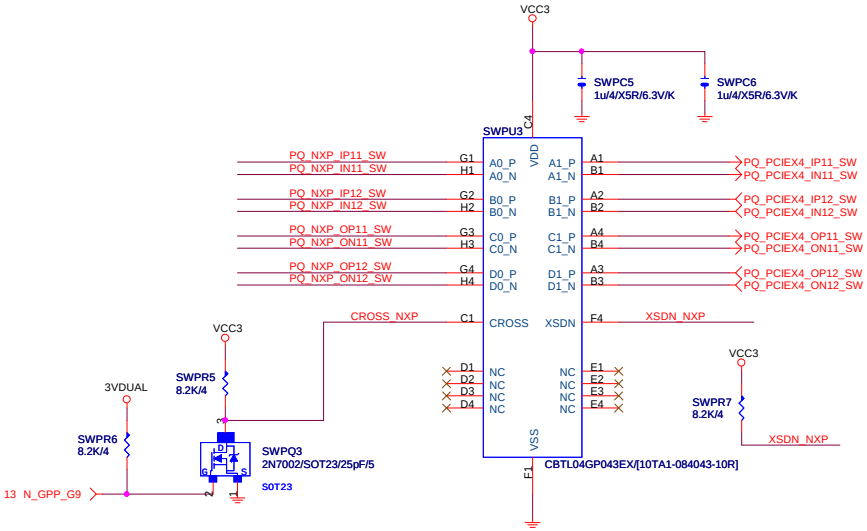
Rev 0.1



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 (PCH GPP_G0)	N_GPP_D16 (PCH GPP_D16)	N_GPP_G3 (PCH GPP_G3)	N_GPP_G4 (PCH GPP_G4)	N_GPP_G9 (PCH GPP_G9)
M2P_32G Only	L	H	H	H	H
PCIEX4 Only (PCIE Reverse)	H	L	L	L	H
M2P_32G + PCIEX4 (M2P_32Gx2+PCIEX4_x2)	L	L	H	L	L

Title	Gigabyte Technology SWITCH
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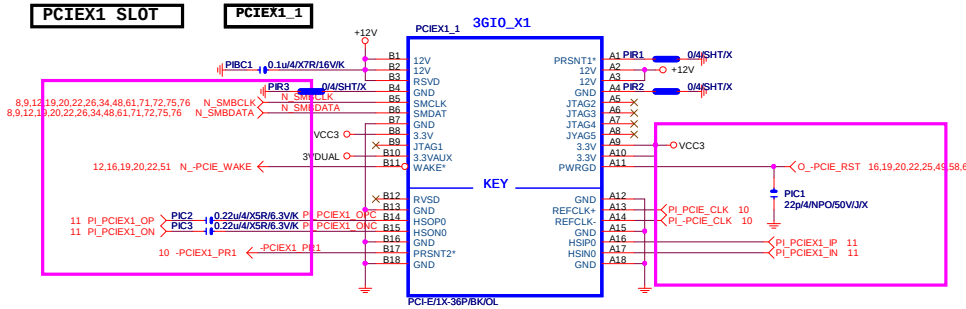
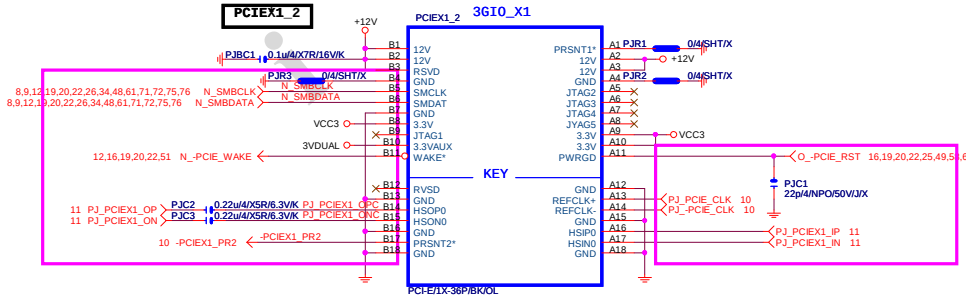
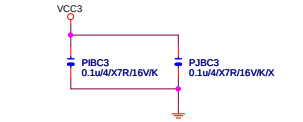
PCIEX1 SLOT

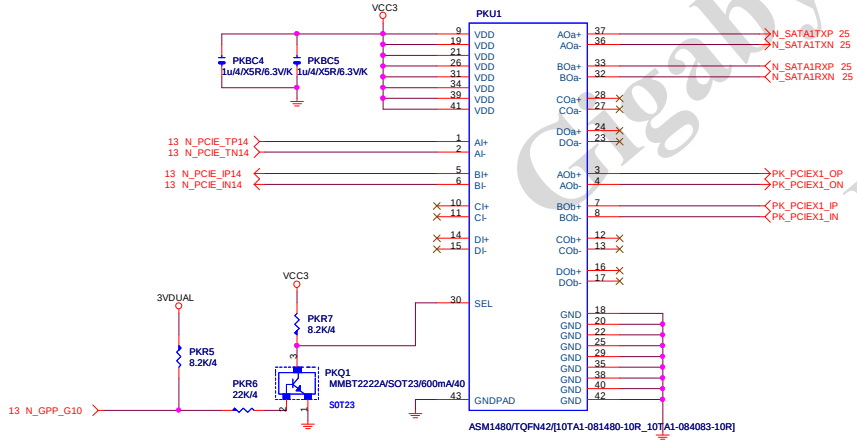
PCIEX1_1



PCIEX1_2

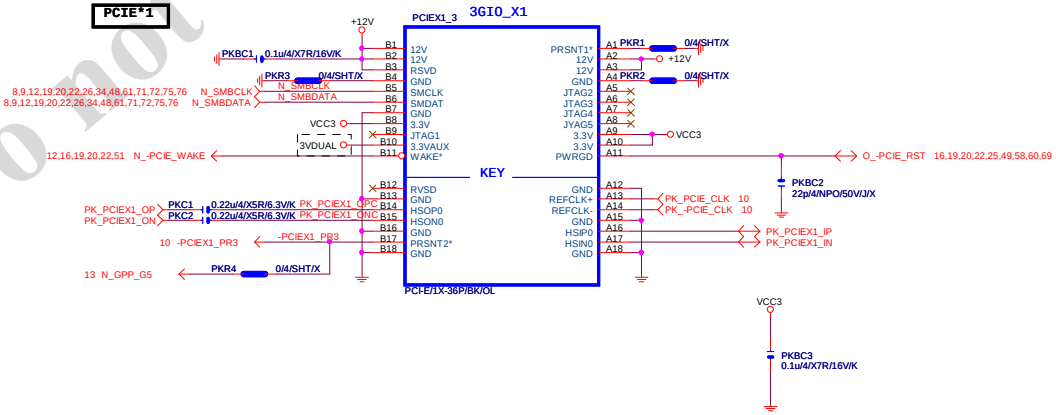






Function	SEL
xI--> xOa	L
xI--> xOb	H

PCIE*1



Gigabyte Technology

Title: PCIE_X1 1,2

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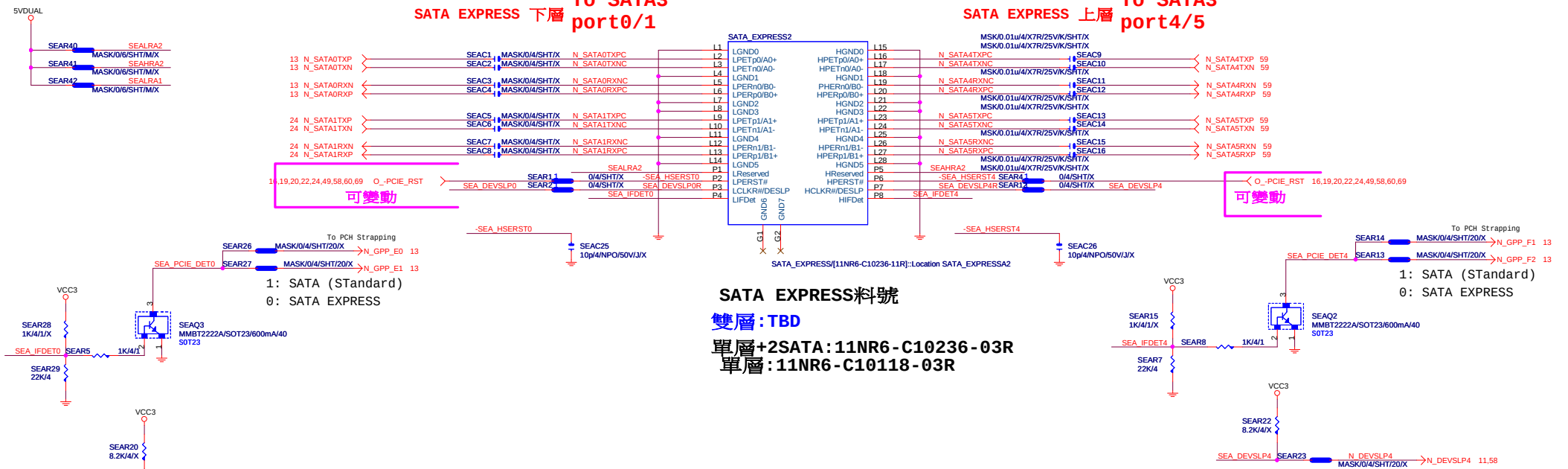
SATA EXPRESS 下層 To SATA3 port0/1

SATA EXPRESS 上層 To SATA3 port4/5



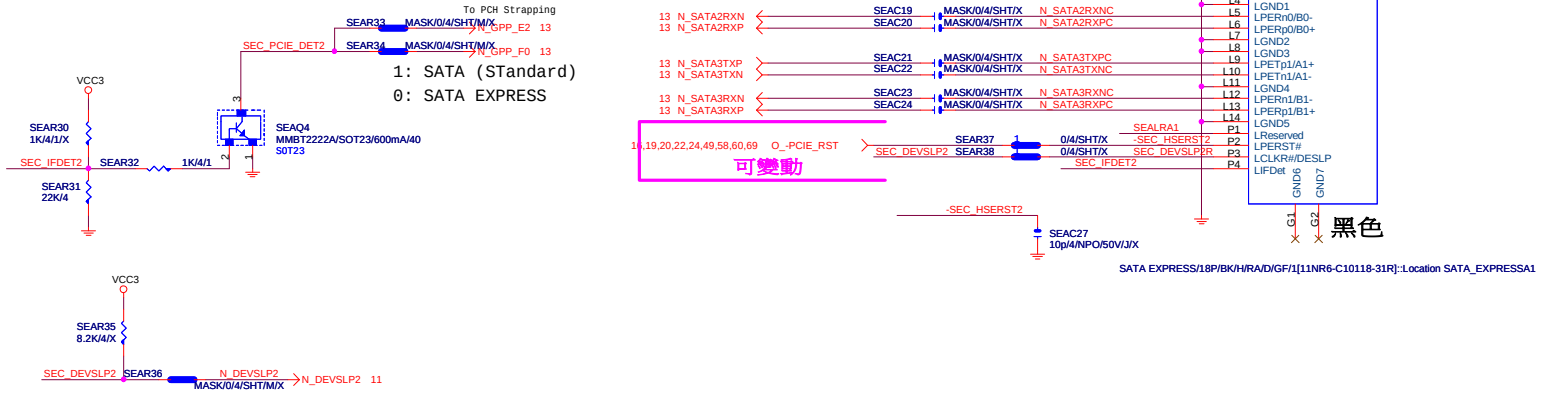
SATA EXPRESS料號

雙層:TBD

單層+2SATA:11NR6-C10236-03R

單層:11NR6-C10118-03R

SATA EXPRESS 單層 To SATA3 port2/3



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

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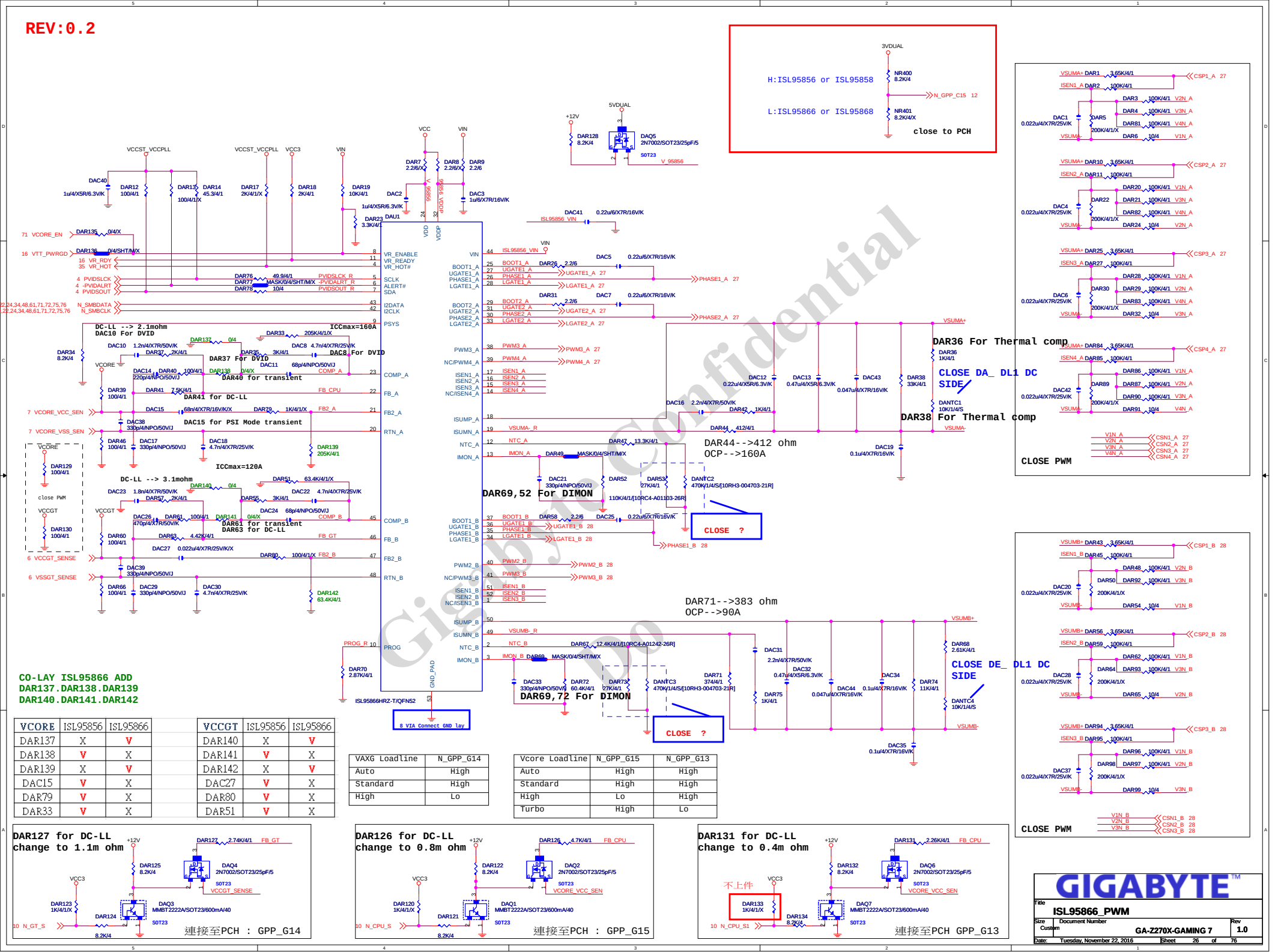
REV:0.2



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

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

VAXG Loadline	N_GPP_G14
Auto	High
Standard	High
High	Lo

Vcore Loadline	N_GPP_G15	N_GPP_G13
Auto	High	High
Standard	High	High
High	Lo	High
Turbo	High	Lo

Title	ISL95866_PWM
Size	Custom
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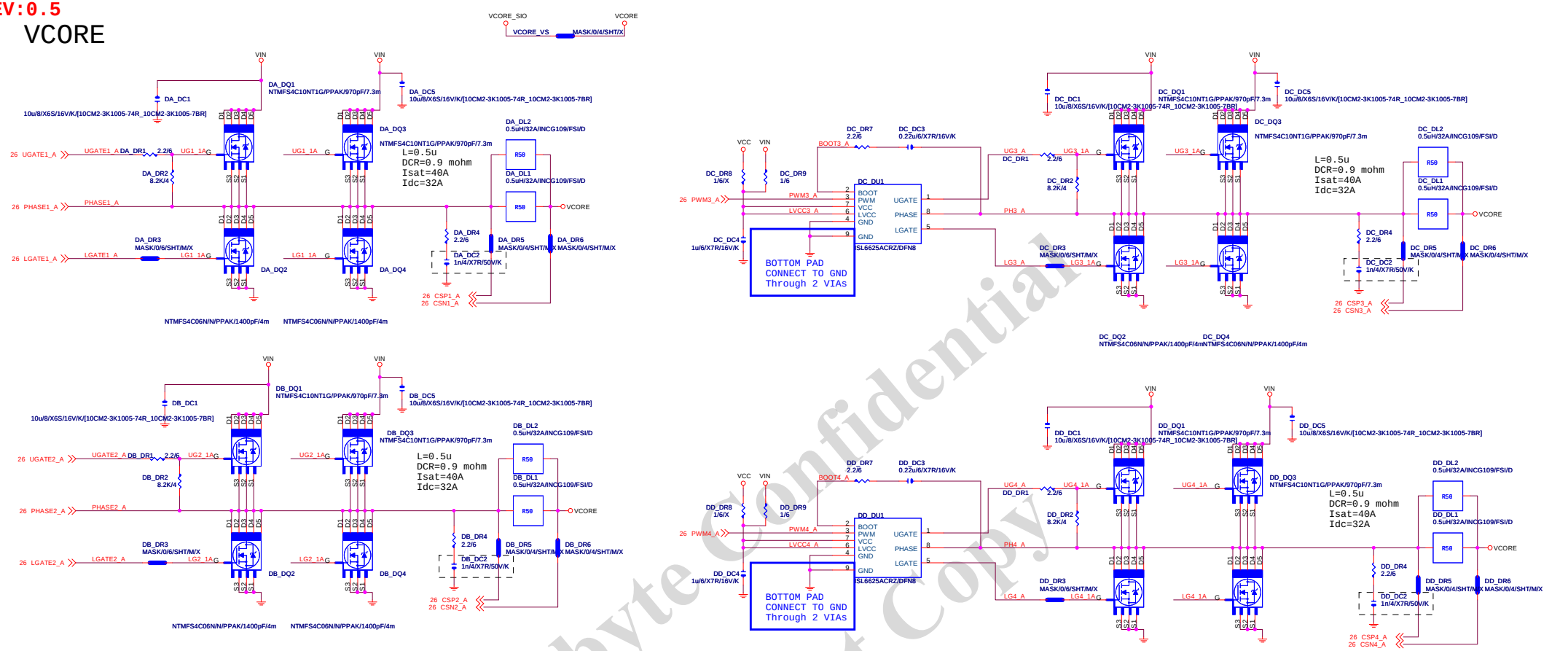
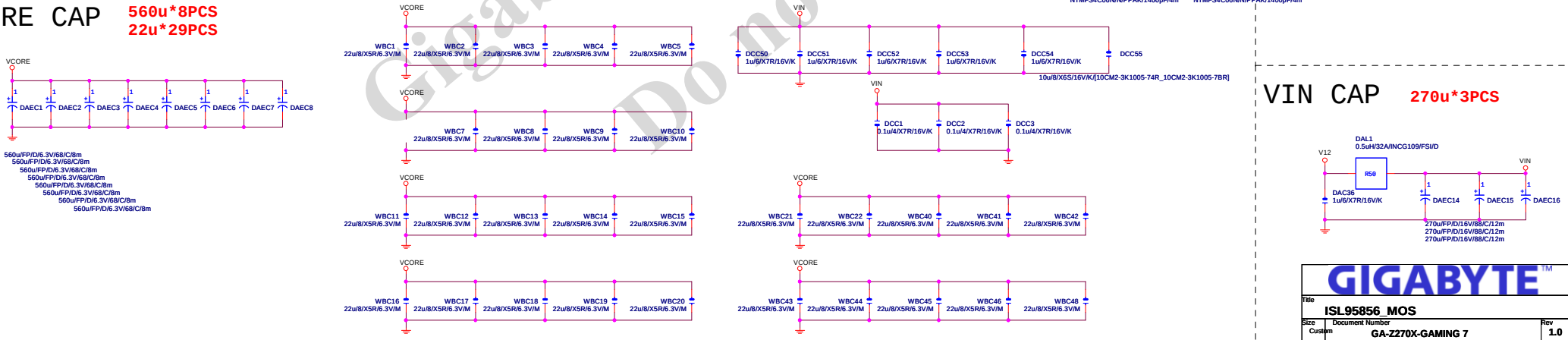
REV:0.5

VCORE



VCORE CAP

560u*8PCS
22u*29PCS



VIN CAP

270u*3PCS

GIGABYTE™

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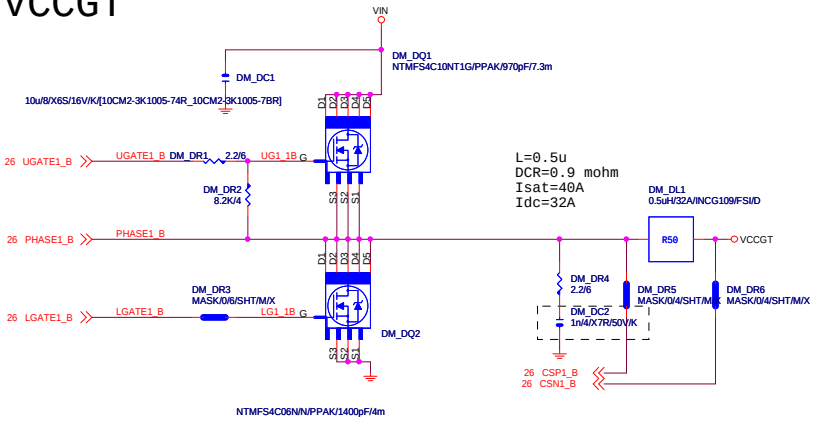
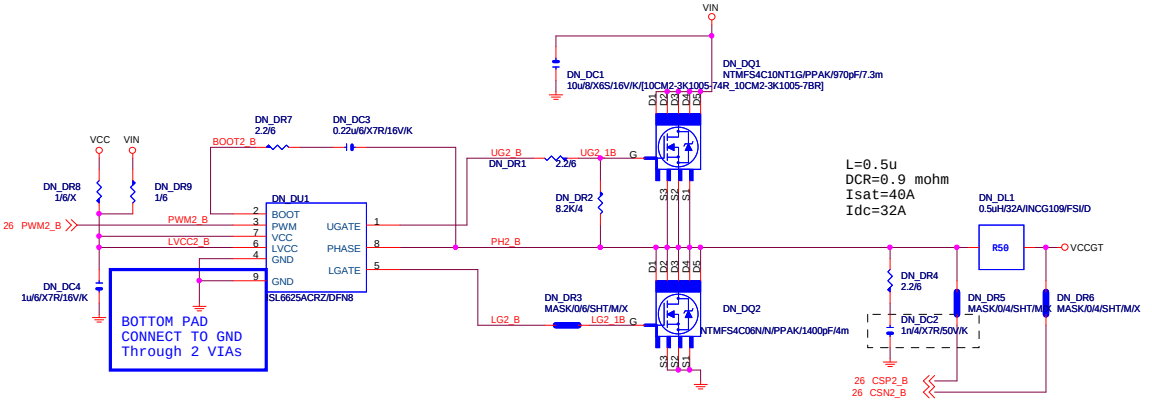
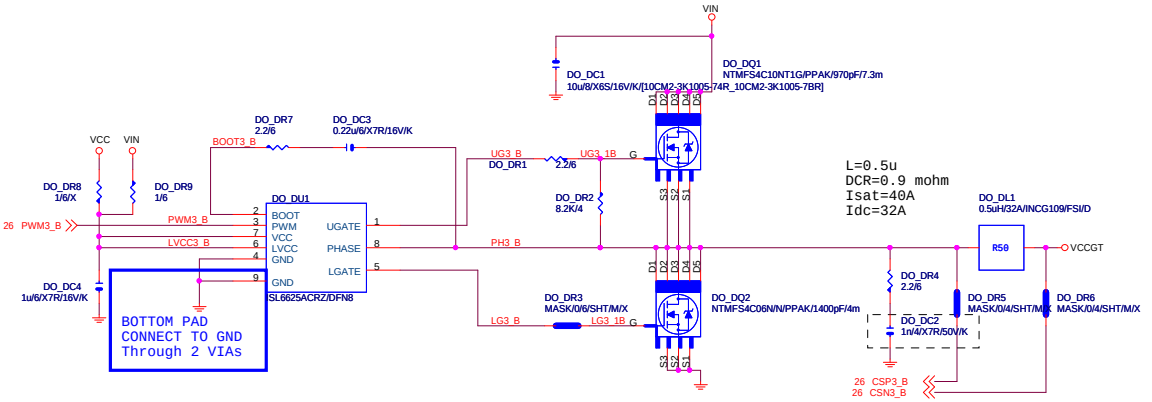
REV:0.5

VCCGT

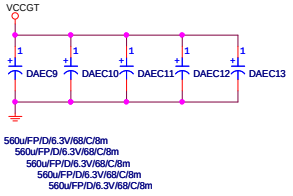


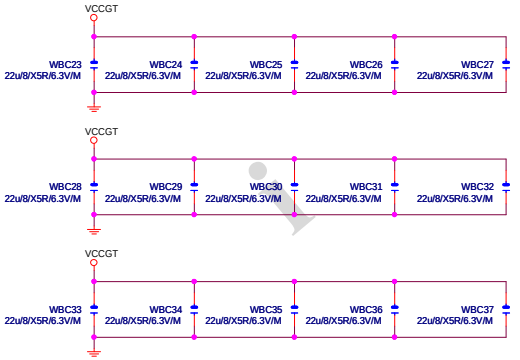




VCCGT CAP

560u*5PCS
22u*15PCS





GIGABYTE™

Title	ISL95856_MOS	
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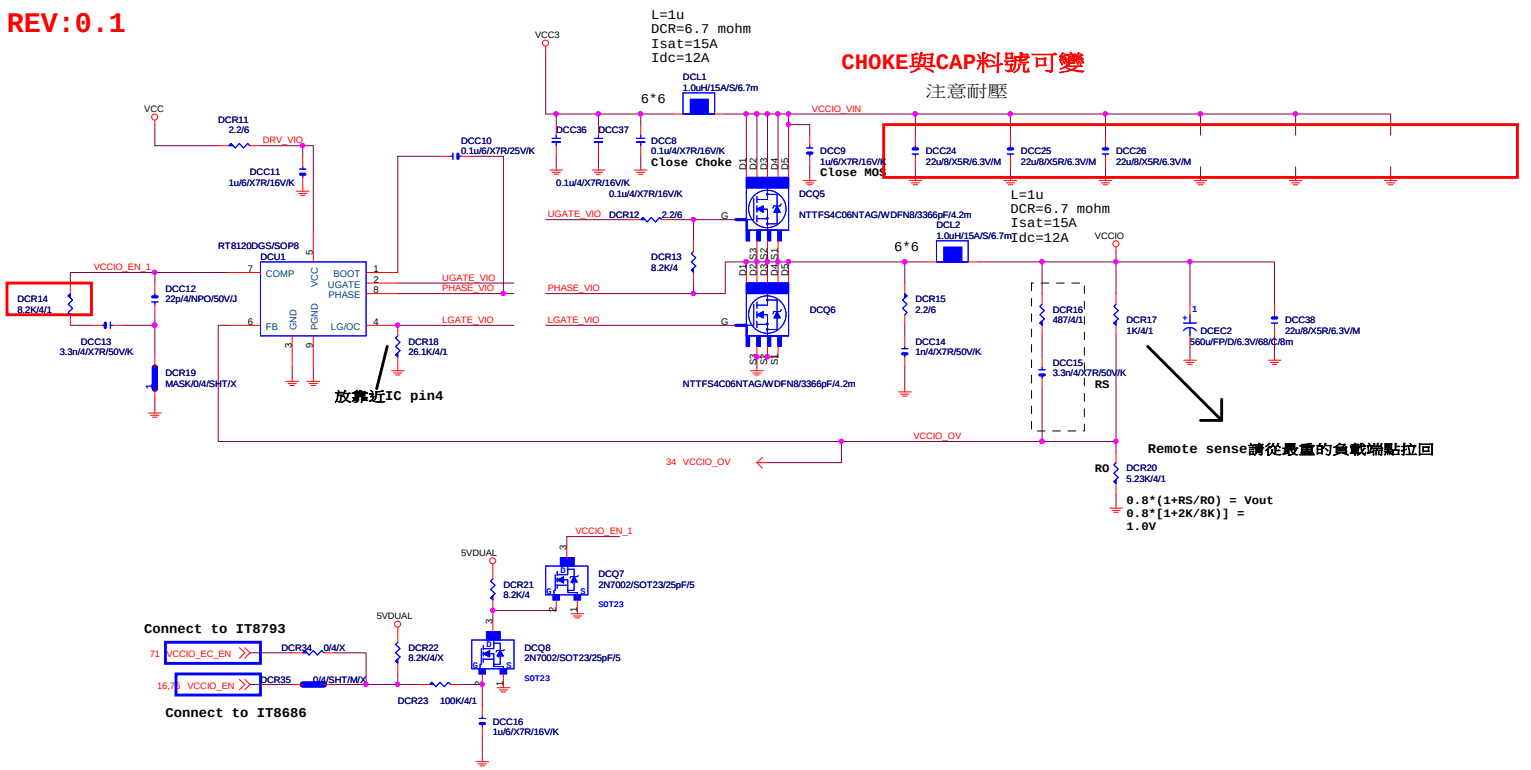
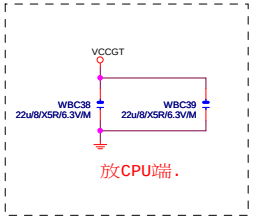
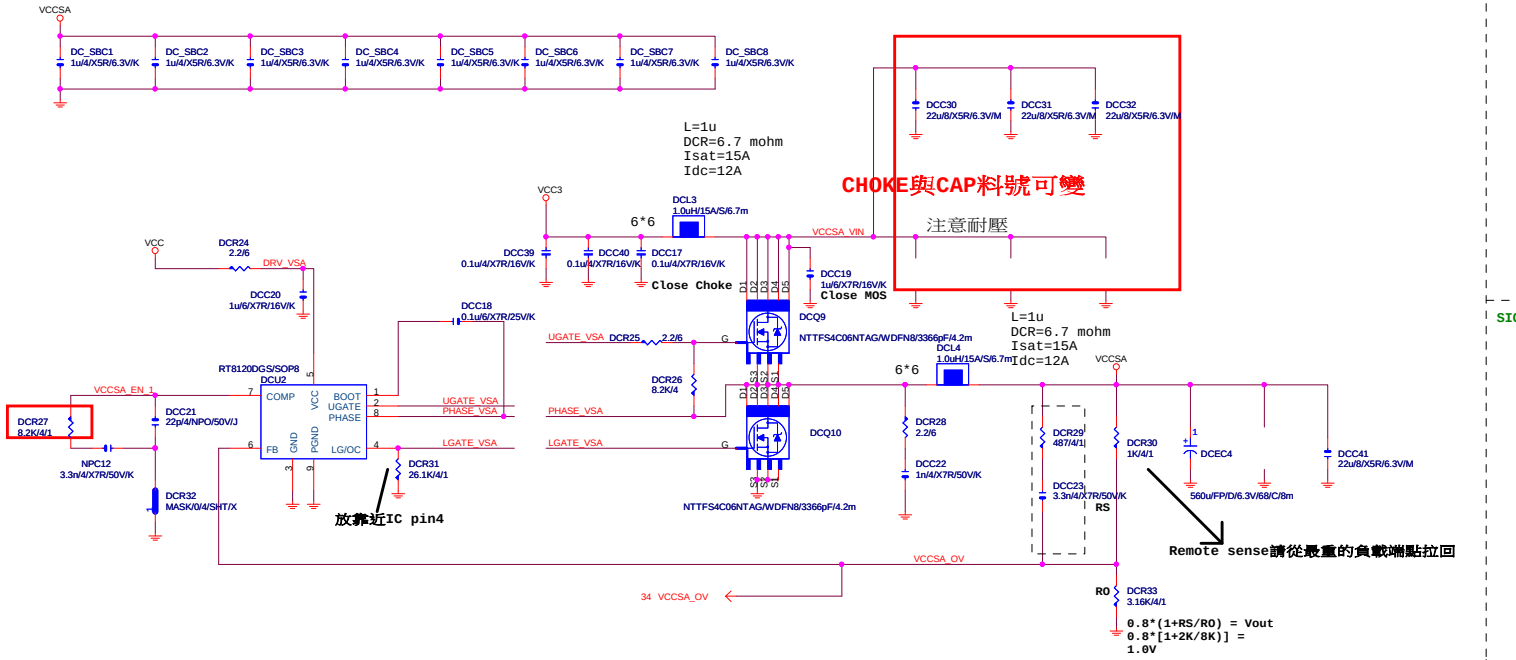
VCCIO

REV:0.1



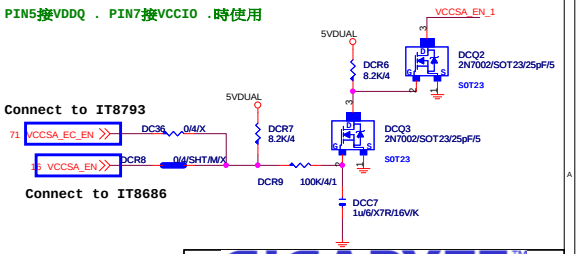
$V_{(BR)DSS}$	$R_{DS(on)}$ MAX	I_D MAX
30 V	4.2 mΩ @ 10 V	67 A
	6.1 mΩ @ 4.5 V	





SIO PIN5 . PIN7 用在其他function時使用

SIO PIN5接VDDQ . PIN7接VCCIO .時使用



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Title: VCCIO_VCCSA		
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REV:0.1

DDR4

5VDUAL
+12V
MA_DR10 0/6/X
MA_D1
MA_DR8 2.2/6
DRV_DDR
SDM20E40C/0.4A/SOT23
MA_DC10 1u/6/X7R/16V/K
MA_DC9 0.1u/6/X7R/25V/K

L=0.5u
DCR=2.35 mohm
Isat=25A
Idc=15A

5VDUAL
MA_L2 0.5uH/20A/IMD0809/BP/D
8*8
MA_VIN
MA_DC6 0.1u/4/X7R/16V/K
Close Choke
MA_DC7 1u/6/X7R/16V/K
Close MOS
MAEC1 560u/FP/D/6.3V/68/C/8m
MAEC2 560u/FP/D/6.3V/68/C/8m

DDR VIN CAP
560u*2PCS

CHOKE與CAP料號可變

RT8120DGS/SOP8
MAU2
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC
DDR_EN
MA_DR15 27K/4/1
MA_DC15 22p/4/NPO/50V/J
MA_DC16 3.3n/4/X7R/50V/K
MA_DR19
MASK/0/4/SHT/X
MA_UGATE
MA_PHASE
MA_LGATE
MA_DR18 11.8K/4/1
OCP=40A
放靠近IC pin4

MA_UGATE MA_DR1 2.2/6
MA_DR2 8.2K/4
MA_PHASE
MA_LGATE MA_DR9 2.2/6 MA_LG
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DQ2 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DQ3 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K

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

SUPPORT DDR4 1.2V
25A MAX

L=0.8u
DCR=1.4 mohm
Isat=?A
Idc=28A

MA_DR14 487/4/1
MA_DR13 1K/4/1
MA_DR14 3.3n/4/X7R/50V/K
RS
RO MA_DR12 2K/4/1

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

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

Remote sense請從最重的負載端點拉回

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

DDR_ADJ
34 DDR_ADJ
MOSFET請依MOSFET使用規則.自行選擇
ON-->10IF9-040406-10R[NTMFS4C06N/N/PPAK/1400pF/4m]
VISHAY-->10IF9-040012-10R[SIRA12DP/PPAKSO8/2070pF/4.3m]

PWR SEQ

DDR_EN
5VDUAL
VPP_25V
MAR108 22K/4
MAQ6 2N7002/SOT23/25pF/5
SOT23
MAR9 10K/4/1
MAQ5
SOT23
MMBT2222A/SOT23/600mA/40
MAR107 5.11K/4/1/X
MAC3 0.1u/4/X7R/16V/K
For power sequence require

Connect to IT8793
71 DDR_EC_EN
MAR112 0/4/X
16,31 MA_EN
MAR113 0/4/SHT/M/X
Connect to IT8686

5VDUAL
MAR2 8.2K/4
MAR105 100K/4/1
MAR1 8.2K/4
MAQ10 2N7002/SOT23/25pF/5
MAQ11 2N7002/SOT23/25pF/5
MAC9 1u/6/X7R/16V/K

DDRVTT

VDDQ
NCT3103S/SOP8/2A
MAU1
VIN GND VREF1 VOUT VREF2 ENABLE VCNTL BOOT_SEL
MAC2 1u/4/X5R/6.3V/K
MAR5 1K/4/1
34 MA_VTT_REF
MA_VTT_REF
MAR4 1K/4/1
MAC1 0.01u/4/X7R/25V/K
1.1A MAX
DDRVTT
5VDUAL
DDRVTT_EN
DDRVTT_BOOT
MAC7 10u/6/X5R/6.3V/M

4 DDR_VTT_CTL
N_SLP_S3
DDR_VTT_CTL MAR110 0/4/SHT/M/X
N_SLP_S3 MAR111 0/4/SHT/M/X
DDRVTT_EN
DDRVTT_BOOT
MAU1上NCT3103S時上件

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

VDDQ
MAEC3 560u/FP/D/6.3V/68/C/8m
MAEC4 560u/FP/D/6.3V/68/C/8m
MAEC6 560u/FP/D/6.3V/68/C/8m
MAEC7 560u/FP/D/6.3V/68/C/8m
* 大電容 x4
WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M

DDRVTT CAP

* 大電容 x0
DDRVTT
MAC4 22u/8/X5R/6.3V/M
MAC5 22u/8/X5R/6.3V/M

GIGABYTE

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REV:0.1

VPP_25V

CHOKE與CAP料號可變

L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A

DDR_VPP VIN CAP
560u*1PCS

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

+12V 5VDUAL MA_D2 MA_DR20 2.2/6 DRV_VPP
SDM20E40C/0.4A/SOT23
MA_DC20 1u/6/X7R/16V/K
MA_DC18 0.1u/6/X7R/25V/K

RT8120DGS/SOP8
MAU3
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC

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

MB_UGATE
MB_PHASE
MB_LGATE
MA_DR29 11.8K/4/1
OCP=30A

放靠近IC pin4

VPP25_ADJ

5VDUAL MA_L4 1.0uH/15A/S/6.7m
6*6
MA_DC17 0.1u/4/X7R/16V/K Close Choke
MB_VIN
MA_DC19 1u/6/X7R/16V/K Close MOS
MAEC12 560u/FP/D/6.3V/68/C/8m

MB_UGATE MA_DR21 2.2/6
MA_DR23 8.2K/4
MB_PHASE
MB_LGATE MA_DR22 2.2/6
MA_DQ4 NTTFS4C06NTAG/WDFN8/3366pF/4.2m
MA_DQ5 NTTFS4C06NTAG/WDFN8/3366pF/4.2m

L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A

MA_L3 1.0uH/15A/S/6.7m
6*6
VPP_25V
MA_DR25 2.2/6
MA_DC23 1n/4/X7R/50V/K
MA_DR26 487/4/1
MA_DC24 3.3n/4/X7R/50V/K RS
MA_DR27 4.02K/4/1
RO MA_DR31 1.87K/4/1

SUPPORT DDR4 2.5V
25A MAX

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

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

34 VPP25_ADJ
Remote sense請從最重的負載端點拉回

PWR SEQ

* 刪 MA_DR32

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

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

VPP CAP 560u*1PCS

* 大電容 x1

VPP_25V MAEC11 560u/FP/D/6.3V/68/C/8m

GIGABYTE™

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REV:0.1

5VDUAL
+12V
NPR22 0/8/X
NPD1 B140/SMA/1A
NPD2 B140/SMA/1A
NPL1 0.5uH/20A/IMD0809/BP/D
P1V0_VIN_D
P1V0_VIN
NPC1 0.1u/4/X7R/16V/K
NPC3 1u/6/X7R/16V/K
NPEC1 100u/OS/D/16V/66/C/30m

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

CHOKE與CAP料號可變

Close Choke
Close MOS

NPQ1
NTMFS4C10NT1G/PPAK/970pF/7.3m

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

5VDUAL NPR1 2.2/6
DRV_PCH
NPC4 1u/6/X7R/16V/K
NPC2 0.1u/6/X7R/25V/K

RT8120DGS/SOP8
NPU1
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC

UGATE_PCH NPR2 2.2/6
PHASE_PCH
LGATE_PCH
NPR4 8.2K/4

NPL2 1uH/18A/IMD0809/BP/D
VCC1_0_PCH

★Update 2015-04.22

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
NPR11 34K/4/1

放靠近IC pin4

NPQ2
NTMFS4C10NT1G/PPAK/970pF/7.3m
NPR6 2.2/6
NPC7 1n/4/X7R/50V/K
NPR7 487/4/1
NPC8 3.3n/4/X7R/50V/K
RS
NPR8 2K/4/1
NPEC2 560u/FP/D/6.3V/68/C/8m

P1V0_PCH_ADJ
34 P1V0_PCH_ADJ

Remote sense請從最重的負載端點拉回

RO NPR13 6.2K/4/1

0.8*(1+RS/RO) = Vout
0.8*[1+2K/6.2K)] =
1.05V

PWR SEQ

P1V0_PCH_EN NPR14 0/4/X VCC1_0_EN 16
Connect to IT8686

5VSB
NPR15 8.2K/4
P1V0_PCH_EN
SOT23
NPQ4 2N7002/SOT23/25pF/5

3VDUAL
NPR16 8.2K/4
NPQ3 MMBT2222A/SOT23/600mA/40
SOT23
NPR17 8.2K/4
NPC9 0.1u/4/X7R/16V/K/X

VCC1_0_PCH
NPC10 22u/8/X5R/6.3V/M
Defaults先不上件

請放置CHOKE一出來的地方

GIGABYTE

Title: RT8120_PCH POWER

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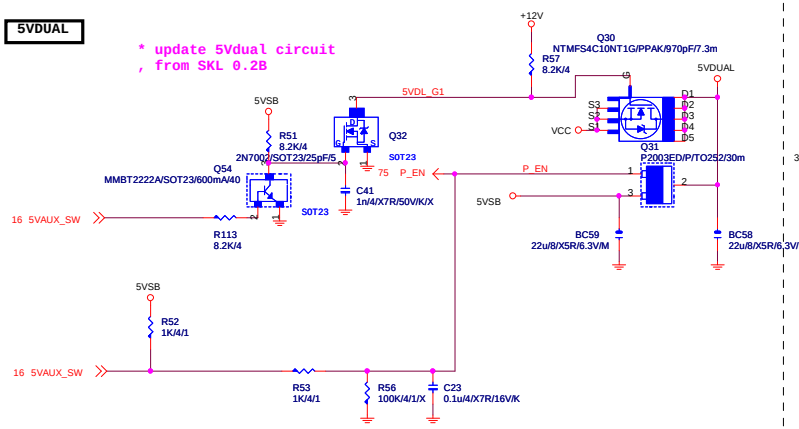
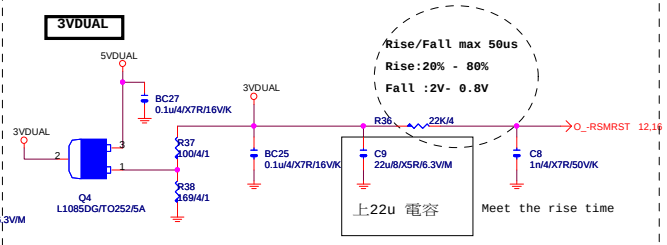
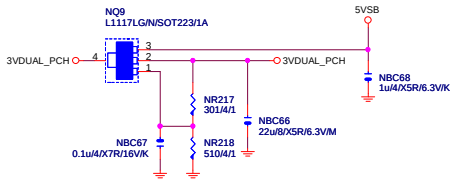
5VDUAL

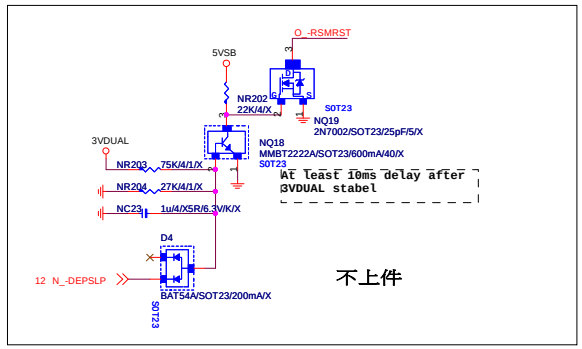


3VDUAL



3VDUAL_PCH





Gigabyte Technology			
Title: DISCRETE POWER			
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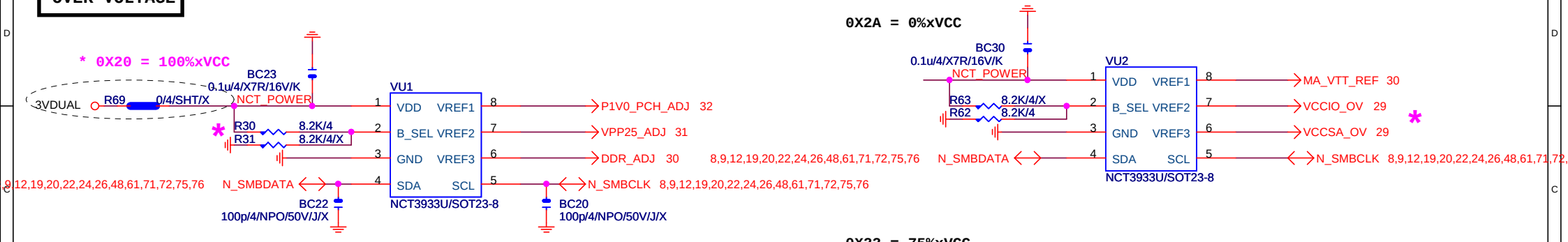
OVER VOLTAGE



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

Gigabyte Technology

Title: CPU CORE VR-2

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Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

5VSB R695 22K/4

16,71 -PSON

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

* 刪除 -5V

-12V VCC3 VCC3

ATX

13	3.3V	3.3V	1
14	-12V	3.3V	2
15	GND	GND	3
16	PSON	5V	4
17	GND	GND	5
18	GND	5V	6
19	GND	GND	7
20	-5V	POK	8
21	5V	5VSB	9
22	5V	12V	10
23	5V	12V	11
24	GND	3.3V	12

VCC3 VCC3 VCC3

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

5VSB VCC VCC3

RN7 1K/8P4R/6/X RN8 1K/8P4R/6/X RN9 1K/8P4R/6/X

VCC VCC VCC

VCC VCC

BC39 1u/4/X5R/6.3V/K BC36 0.1u/4/X7R/16V/K/X

黑色

BC38 510/6/X BC42 510/6/X BC43 1u/4/X5R/6.3V/K BC44 0.1u/4/X7R/16V/K BC45 0.1u/4/X7R/16V/K BC41 0.1u/4/X7R/16V/K

+12V 5VSB PWOK PWOK 16,71

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

AD1 AZ2225-01L/SOD323/X

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

To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

V12

ATX_12V_2X4

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

黑色

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

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

FOR AUDIO 切割

MH1 MH2 MH3 MH7 MH8

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

MH4 MH5 MH6 MH9

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

K3 K6 K2 K5 K1 K4

K1_ICT/X

K1-ICT

I1 I2 I3 I4 I5

4MMH/X

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

+12V

RN2 2.7K/8P4R/4 RN3 2.7K/8P4R/4 RN4 2.7K/8P4R/4 RN5 2.7K/8P4R/4 RN6 2.7K/8P4R/4

VCC3 R1 1K/4/1 Q9

12 N_GPP_D9 R703 330/4 S0T23

MMBT2222A/SOT23/600mA/40

-PROHOT * 保留 ?

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

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

125 ~130degree assert

+12V TTR1 10K/4/1 TTR2 4.53K/4/1 TTR4 10K/4/1/X

DATSM_3 DATSM_2 TTU1A LM358DR/SO8 DATSM_1

TTRT1 100K/1/4/S TTR3 1K/4/1 TTC1 0.1u/4/X7R/16V/K

MASK/0/4/SHT/M/X TTR5 N_-THRMTRIP 13,16 TTR6 0/4/X A_-PROCHOT A_-PROCHOT 4,16

TTQ1 2N7002/SOT23/25pF/5

CLOSE VCORE PWM UPPER MOSFET

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

125 ~130degree assert

+12V TTR7 10K/4/1 TTR8 4.3K/4/1 TTR10 10K/4/1/X

DATSM_5 DATSM_6 TTU1B LM358DR/SO8 DATSM_7

TTRT2 100K/1/4/S TTR9 1K/4/1 TTC2 0.1u/4/X7R/16V/K

MASK/0/4/SHT/M/X TTR11 N_-THRMTRIP 13,16 TTR12 0/4/X A_-PROCHOT A_-PROCHOT 4,16

TTQ2 2N7002/SOT23/25pF/5

CLOSE VCCGT PWM UPPER MOSFET

COUPON1 COUPON1 1 2 COUPON/X VCC3

COUPON2 COUPON2 1 2 COUPON/X VCC3

COUPON3 COUPON3 1 2 COUPON/X

COUPON4 COUPON4 1 2 COUPON/X

Gigabyte Technology

Title: ATX POWER CONNECTOR

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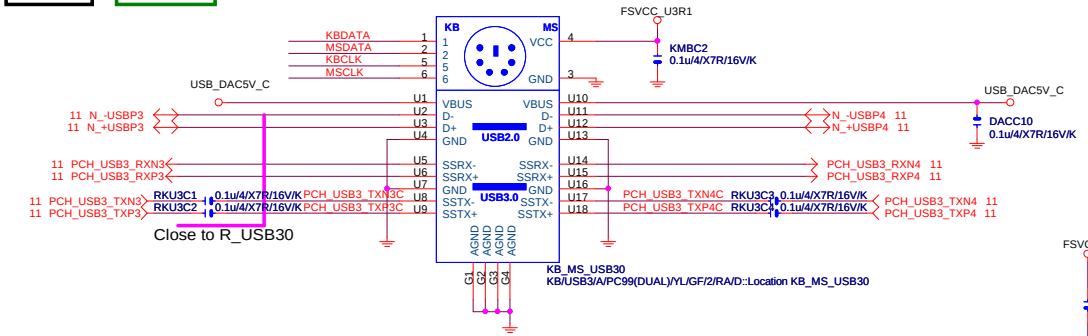
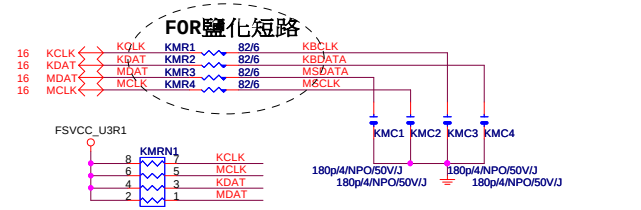
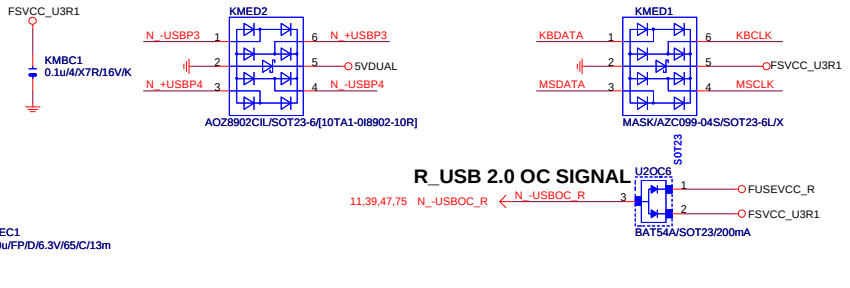
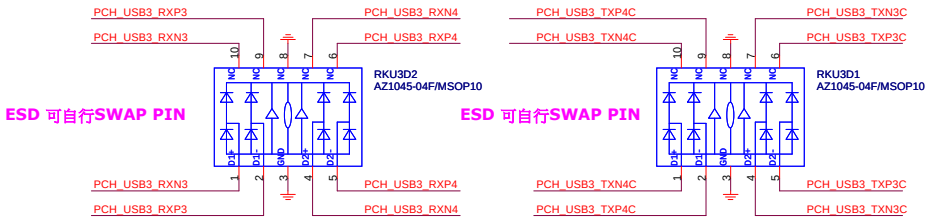
KB/MS

Rev: 0.52









Gigabyte Technology			
Title: AUDIO JACK			
Size: Custom	Document Number: GA-Z270X-GAMING 7		Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 36 of 76		

Rev: 0.8

POWER

50 -PWRBT_1 -PWRBT_1 PSWR1 33/4 PSWR2 330/6 5VDUAL

PSWC1 0.01u/4/X7R/25V/K/X

★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/4/1 FPQ1_2

Reset

RST_SW RSWR1 33/4 RESET RESET 50

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

TS/BU/4.3/VA/[11NH7-030001-B1R]

White

★Update 2016.06.20

Clear CMOS

CMOS_SW CSWR1 33/4 N_-RTCRST 12,16,71

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

TS/BK/4.3/VA

★Update 2016.06.20

VCORE PH/1*2/BK/2.54/VA/D/X

VCCIO PH/1*2/BK/2.54/VA/D/X

VSA PH/1*2/BK/2.54/VA/D/X

VCCSA

VAXG PH/1*2/BK/2.54/VA/D/X

VCCGT

VDIMM PH/1*2/BK/2.54/VA/D/X

VDDQ

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

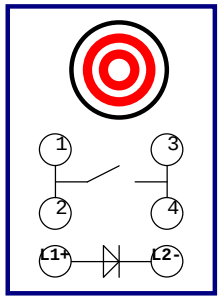
VPP_25V

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

DDRVTT

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

VCC1_0_PCH



"OC_LED" 1X2pin by model

OC KEY

OC_LED PH/1*2/BK/2.54/VA/D/X

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 N_GPP_D4 12 PCH:GPP_D4 (限用SMI gpio)

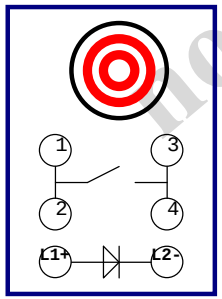
OC

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

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

OC_BT PH/1*2/BK/2.54/VA/D/X

"OC_BT" 1X2pin by model



ECO KEY

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 N_GPP_B20 12 PCH:GPP_B23 (限用SMI gpio)

ECO

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

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

Gigabyte Technology		
Title: OC BUTTOM		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 37 of 76	

Rev: 0.52

Front USB3.0

F_USB30_1
REV=1

USB_DAC5V_A

NET 可自行調整

61 U3RXDN1
61 U3RXDP1
61 U3TXDN1
61 U3TXDP1
61 U2DM1
61 U2DP1

FBU3C1 0.1u/4/X7R/16V/K U3TXDN1_C
FBU3C2 0.1u/4/X7R/16V/K U3TXDP1_C

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

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

U3TXDN2_C
U3TXDP2_C

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

USB_DAC5V_A

NET 可自行調整

U3TXDN2 61
U3TXDP2 61
U3RXDN2 61
U3RXDP2 61
U2DM2 61
U2DP2 61

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

黑色

NET 可自行調整

U3RXDP1
U3RXDN1
U3RXDN2
U3RXDP2

FBU3D1
AZ1045-04F/MSOP10

FBU3D3
U2DM1
U2DP1
3VDUAL
U2DP2
U2DM2

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

CLOSE F_USB30

F_USB POWER PROTECT

U3TXDP1_C
U3TXDN1_C
U3TXDN2_C
U3TXDP2_C

FBU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB3.0

F_USB30_2
REV=1

USB_DAC5V_B

NET 自行調整

61 U3RXDN3
61 U3RXDP3
61 U3TXDN3
61 U3TXDP3
61 U2DM3
61 U2DP3

FAU3C1 0.1u/4/X7R/16V/K U3TXDN3_C
FAU3C2 0.1u/4/X7R/16V/K U3TXDP3_C

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

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

U3TXDN4_C
U3TXDP4_C

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

USB_DAC5V_B

NET 可自行調整

U3TXDN4 61
U3TXDP4 61
U3RXDN4 61
U3RXDP4 61
U2DM4 61
U2DP4 61

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

黑色

NET 可自行調整

U3RXDP3
U3RXDN3
U3RXDN4
U3RXDP4

FAU3D1
AZ1045-04F/MSOP10

FAU3D3
U2DM3
U2DP3
3VDUAL
U2DP4
U2DM4

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

CLOSE F_USB30

U3TXDP3_C
U3TXDN3_C
U3TXDN4_C
U3TXDP4_C

FAU3D2
AZ1045-04F/MSOP10

CLOSE F_USB30

Gigabyte Technology

Title: R_USB30,F_USB30, USB_OC

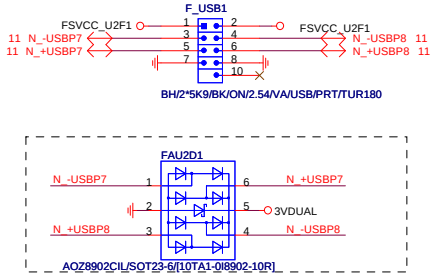
Size: Custom | Document Number: GA-Z270X-GAMING 7 | Rev: 1.0

Date: Tuesday, November 22, 2016 | Sheet 38 of 76

Rev: 0.52

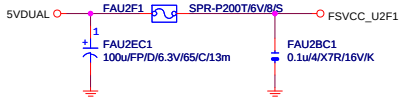
FRONT USB1

NET 可變



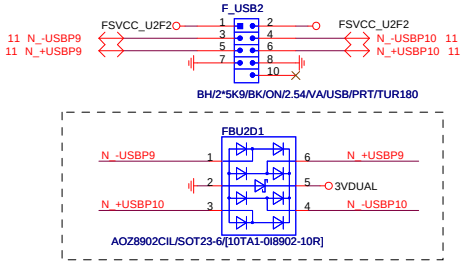
Close to connector

FUSE 2 Port 1 Fuse 2A



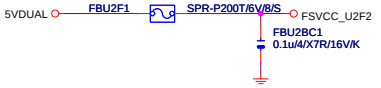
FRONT USB2

NET 可變

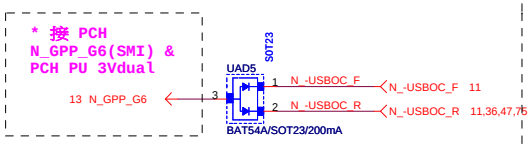


Close to connector

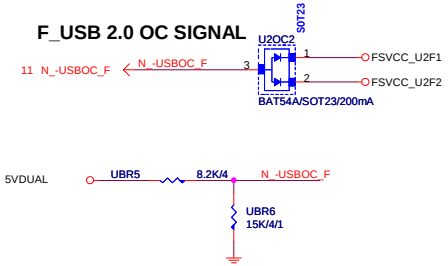
FUSE 2 Port 1 Fuse 2A



* 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 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 39 of 76	

Rev: 0.52

R_USB30

USB 電容前後NET 可自行調整

R_USB30
USB3.0/2.0

FSVCC_U3R1 U1 VBUS
11 N_-USBP5 U2 D-
11 N_+USBP5 U3 D+
U4 GND
11 PCH_USB3_RXN5 U5 SSRX-
11 PCH_USB3_RXP5 U6 SSRX+
U7 GND
11 PCH_USB3_TXN5 RBU3C1 0.1u/4/X7R/16V/K R_U3TXN5 U8 SSTX-
11 PCH_USB3_TXP5 RBU3C2 0.1u/4/X7R/16V/K R_U3TXP5 U9 SSTX+
AGND AGND AGND AGND
G1 G2 G3 G4

U10 VBUS FSVCC_U3R1
U11 D- N_-USBP6 11
U12 D+ N_+USBP6 11
U13 GND
U14 SSRX- PCH_USB3_RXN6 11
U15 SSRX+ PCH_USB3_RXP6 11
U16 GND
U17 SSTX- R_U3TXN6 RBU3C3 0.1u/4/X7R/16V/K PCH_USB3_TXN6 11
U18 SSTX+ R_U3TXP6 RBU3C4 0.1u/4/X7R/16V/K PCH_USB3_TXP6 11

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

USB 電容前後NET 可自行調整

FUSE 2 Port 1 Fuse 2.6A

5VDUAL RBU3F1 1 2 SPR-P260T/6V/8/S FSVCC_U3R1
RBU3EC1 100u/FP/D/6.3V/65/C/13m
RBU3C5 0.1u/4/X7R/16V/K

後窗改不銹鋼(耐鹽霧72hrs)

NET 可自行調整

R_U3TXP5
R_U3TXN5
* swap
R_U3TXN5
R_U3TXP5

R_U3TXN6
R_U3TXP6
* swap
R_U3TXP6
R_U3TXN6

RBU3D2
AZ1045-04F/MSOP10

NET 可自行調整

PCH_USB3_RXP6
PCH_USB3_RXN6
* swap
PCH_USB3_RXN6
PCH_USB3_RXP6

PCH_USB3_RXN5
PCH_USB3_RXP5
PCH_USB3_RXP5
PCH_USB3_RXN5

RBU3D1
AZ1045-04F/MSOP10

ESD 可自行SWAP PIN

RBU3D3
N_-USBP5 1
2
N_+USBP6 3
6 N_+USBP5
5 FSVCC_U3R1
4 N_-USBP6
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CONNECTOR 自行調整

2 port USB 3.0 Capture:
USB/18P/BU/OS/RA/D/2/1U/SB

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

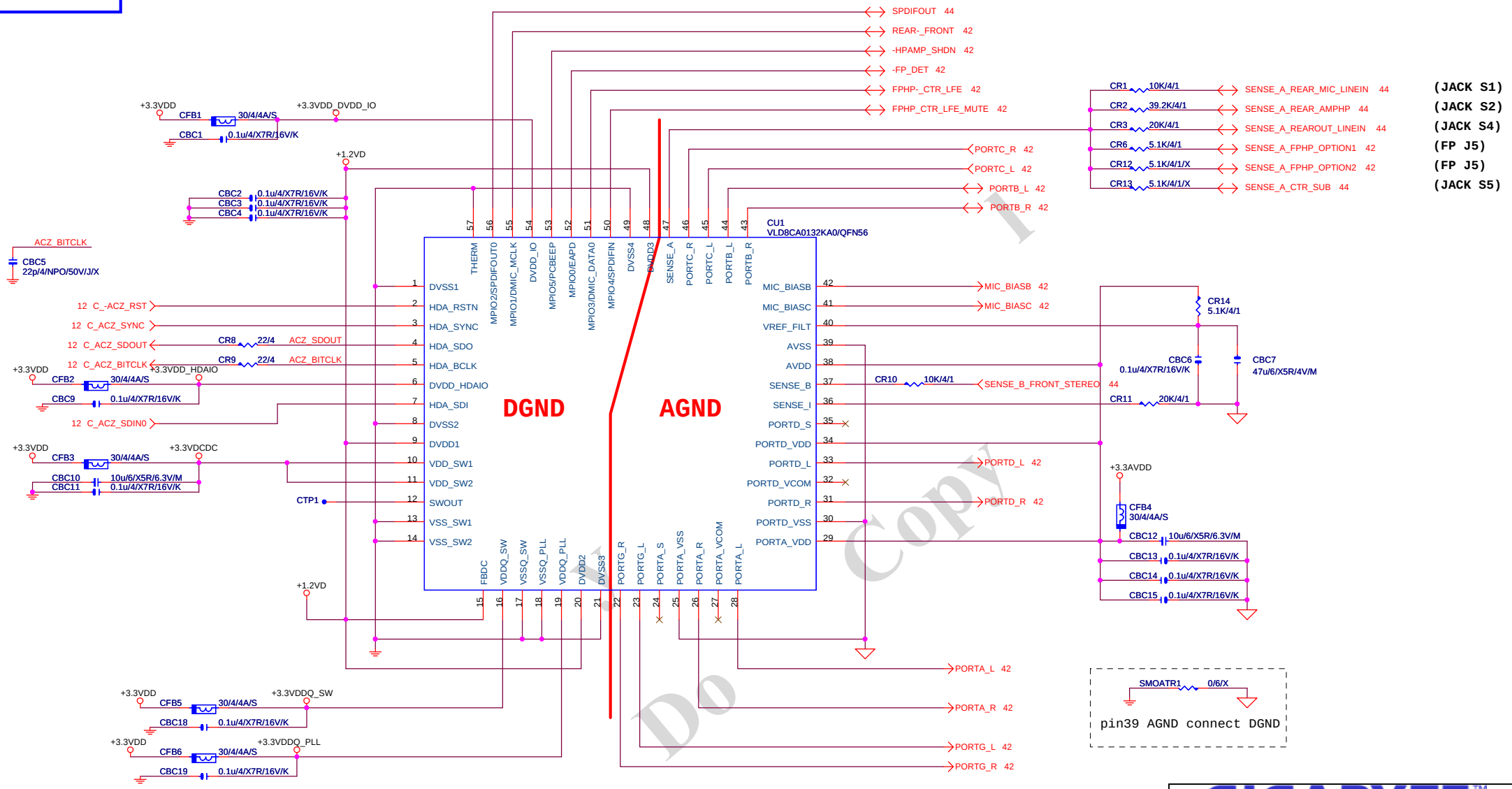
Gigabyte Technology

Title: KB_MS_USB3, R_USB30

Size: Custom | Document Number: GA-Z270X-GAMING 7 | Rev: 1.0

Date: Tuesday, November 22, 2016 | Sheet 40 of 76

Rev 0.1



GIGABYTE™

Title	Creative Sound3Di	
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 41 of 76	

Rev 0.1

Rear MIC & FP MIC

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

Line-Out

限用2.2uF For pop noise

Rear

限用2.2uF For pop noise

HD_Audio FRONT PANEL

Rear CTR/SUB & FP HP-Out

(Boot H-L)-(OS L)

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

OP反相防燒

AMPLIFIED

OP AMP. Rate = (CR118/CR117)+1

限用2.2uF For pop noise

限用2.2uF For pop noise

Analog Area

鍍金

IC SK 2*4P/DIP/BLACK E-TEC(11S11-010204-21R)

SLIDE SW/1 P/BK/D/(11NH7-110003-21R)

Default open

限用PANJIT

H : ON
L : OFF
(Boot L) - (OS L-H)
(shut down H-L)

H : ON
L : OFF

Close to Audio

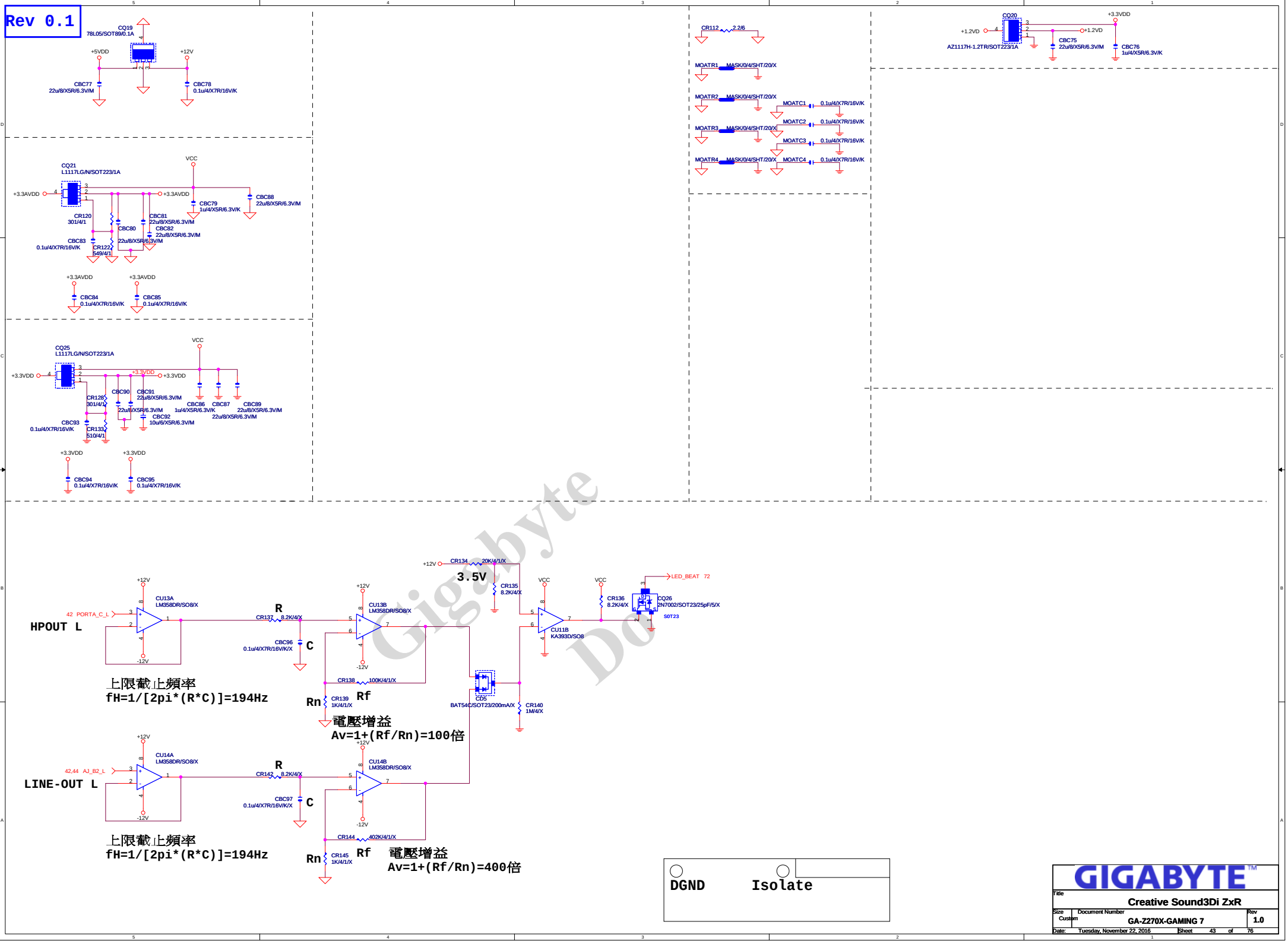
please close AMP connector

please close F_Audio connector

GIGABYTE

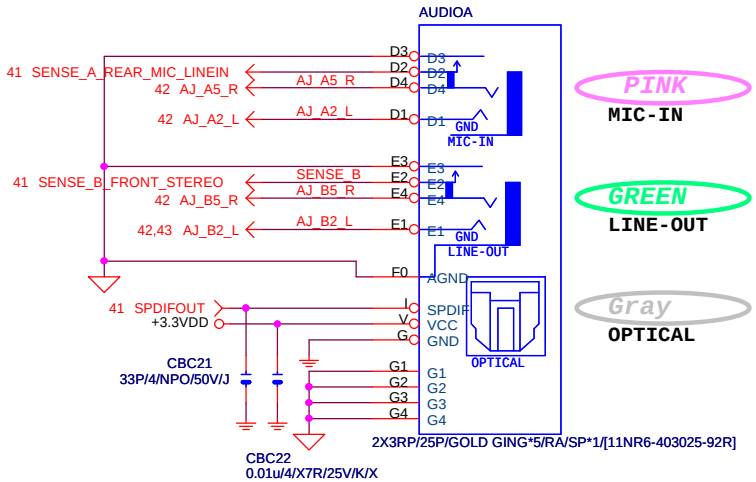
Title	Creative Sound3Di	
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 42 of 76	

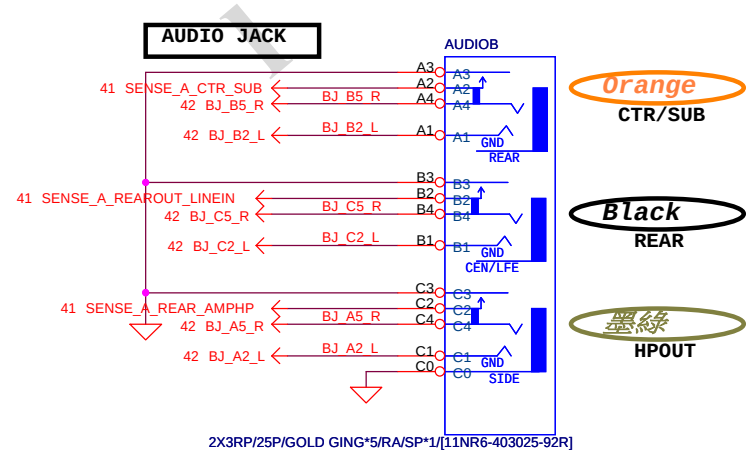
Rev 0.1



Title	Creative Sound3Di ZxR		
Size: Custom	Document Number: GA-Z270X-GAMING 7		Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 43 of 76		

Rev 0.1





Gigabyte Technology		
Title: Creative Sound3Di ZxR		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 44 of 76	

LAN:E2201(E2400) R1.06

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

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

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

47 LA_LED_ACT_TXRX
47 LA_LED_LINK100

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

3VDUAL_LAN2
LABC9 10u/6/X5R/6.3V/M
1u/4/X5R/6.3V/K
LABC10
LABC11 0.1u/4/X7R/16V/K

LAU1
Qualcomm (Atheros) Killer E2201
E2500-RIV1-RL/QFN40/[10HP2-402500-10R]
E2500料號:E2500-RIV1-RL/QFN40/[10HP2-402500-10R]

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_IP 11
LA_ML_IN_C LAC13 0.1u/4/X7R/16V/K LA_ML_IN 11

LAC33 100p/4/NPO/50V/J/X
LAR6 8.2K/4
16,46,51 O_-PFMRST2
15 N_-PCIE1_WAKE
10 LA_-CLKREQ
LAREQ1 MASK/0/4/SHT/M/X
LA_-CLKREQ_F
LABC12 1u/4/X5R/6.3V/K/X
LA_VDDCT
LA_AVDDL
LA_XTALO
LA_XTALI
LA_AVDDH
LABC15 1u/4/X5R/6.3V/K
LABC16 0.1u/4/X7R/16V/K
LABC18 1u/4/X5R/6.3V/K
LABC19 0.1u/4/X7R/16V/K
LAR10 2.37K/4/1
LA_RBIAS

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

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

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

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

LABC20 0.1u/4/X7R/16V/K/X
LABC21 0.1u/4/X7R/16V/K
LAR19 MASK/0/4/SHT/X
3VDUAL_LAN2
LABC22 1u/4/X5R/6.3V/K

LAN POWER

LAL1 4.7uH/0.8A/3225/S/[10LC4-5A470B-01R]
LA_LX_OUT
LA_LX
CLOSE LA_LX 200mil
LABC1 10u/6/X5R/6.3V/M
LABC2 0.1u/4/X7R/16V/K

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

LA_AVDDH
LAR7 8.2K/4 LA_LED_ACT_TXRX
LAR8 8.2K/4 LA_LED_LINK100
VCC3
LAR11 8.2K/4 LA_VDDCT

Gigabyte Technology
Title: DUAL LAN~ E2201+I219
Size: Custom
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Rev: 1.0
Date: Tuesday, November 22, 2016
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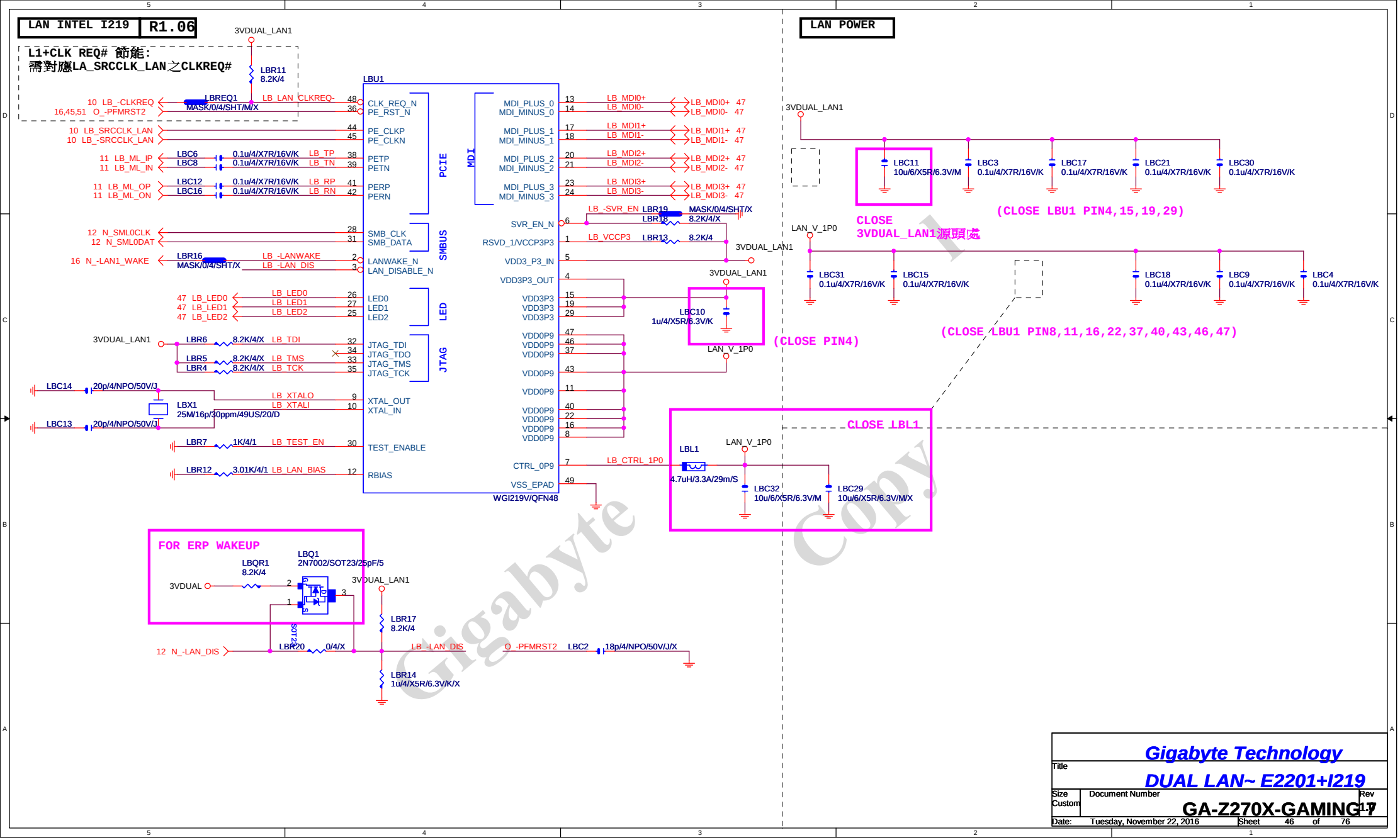
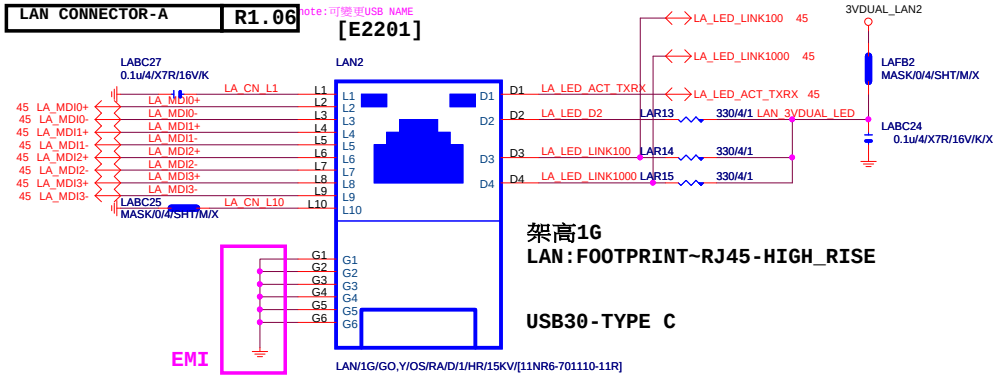


LAN CONNECTOR-A R1.06

note:可變更USB NAME

[E2201]



架高1G

LAN:FOOTPRINT~RJ45-HIGH_RISE

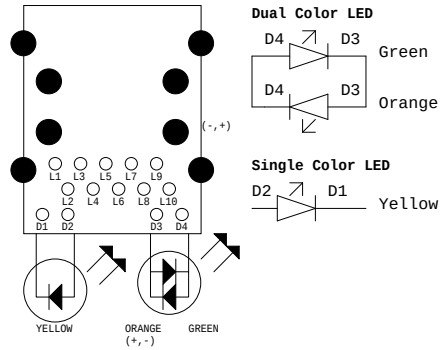
USB30-TYPE C

LA_MDI-->100歐姆:[20/4/8/4/20]

EMI SHORT PAD

PS:視EMI需求

架高LAN LAYOUT示意圖

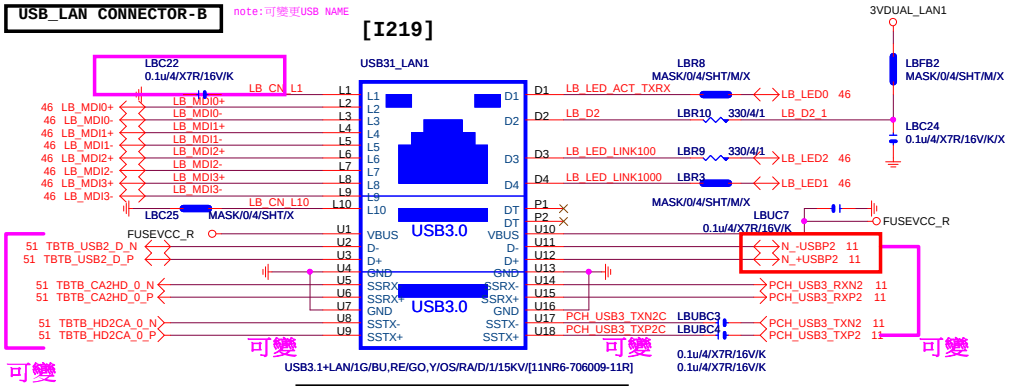


RMA ESD PROTECT

USB_LAN CONNECTOR-B

note:可變更USB NAME

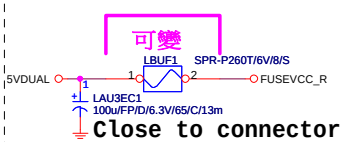
[I219]



LA_MDI-->100歐姆:[20/4/8/4/20]

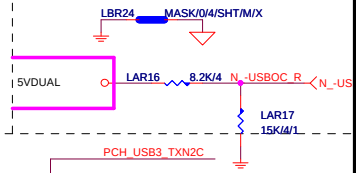
USB POWER

note:可變更FUSE

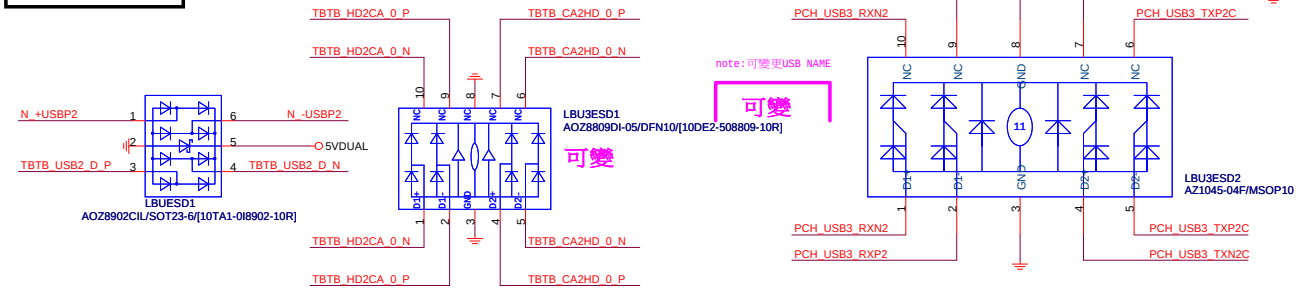


EMI SHORT PAD

PS:視EMI需求

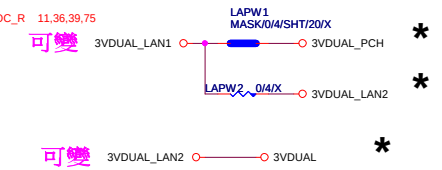


RMA ESD PROTECT



LAN POWER

note: lan power連接及電流



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

Gigabyte Technology		
Title: LAN CONNECTOR-E2201+I219		
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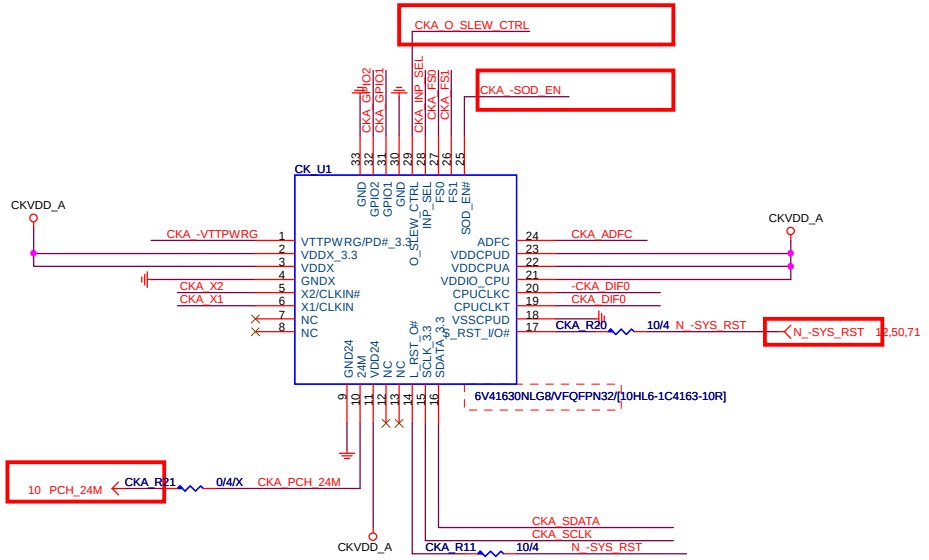
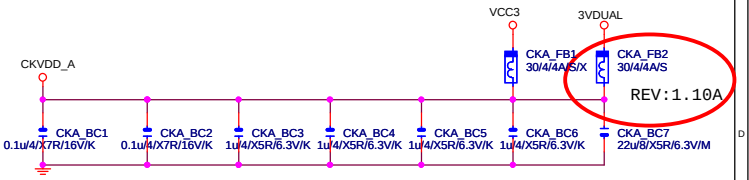
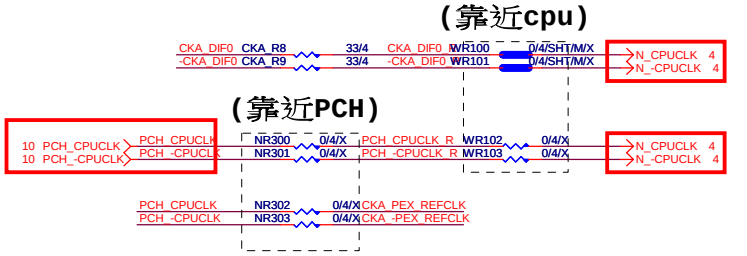
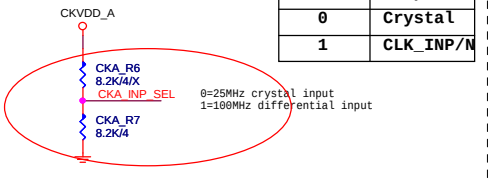
REV:0.1

IDT6V41630

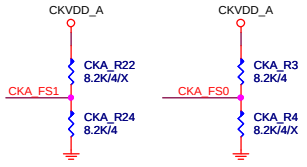






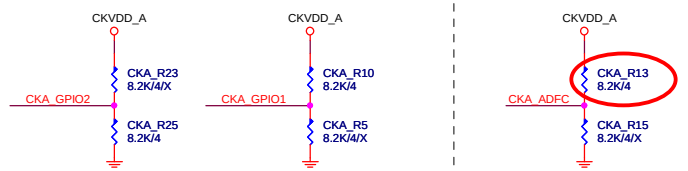


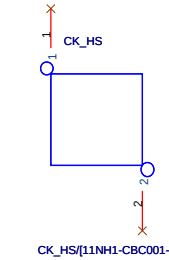
INP_SEL	Intput
0	Crystal
1	CLK_INP/N



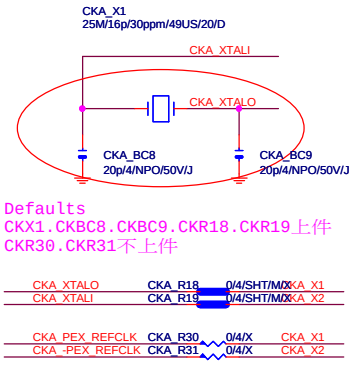
CPU Frequency Selection and output Divider Table

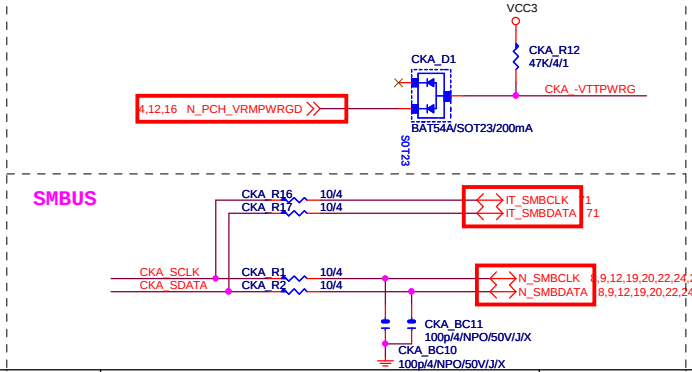
B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	200.00	2.00	100.00	-	OFF
0	1	400.00	4.00	100.00	-	OFF
1	0	1000.00	10.00	100.00	-0.50%	ON
1	1	100.00	1.00	100.00	-	OFF



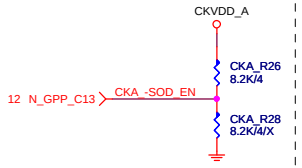


*可變，依需求上件不上件。

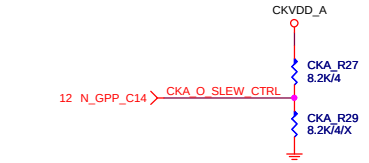




Real time selection fucntion



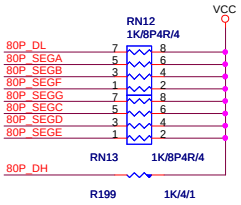
Frequency change slew rate control

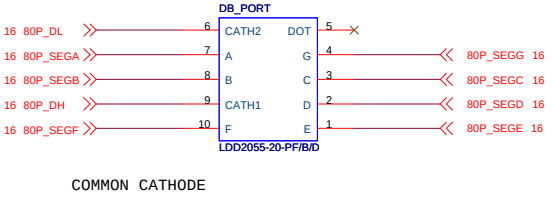


GIGABYTE™

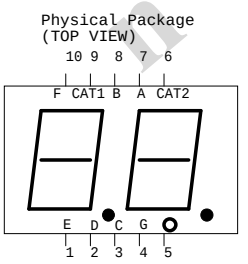
Title	IDT6V41530_CLK BUFFER	
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 48 of 76	

80 PORT

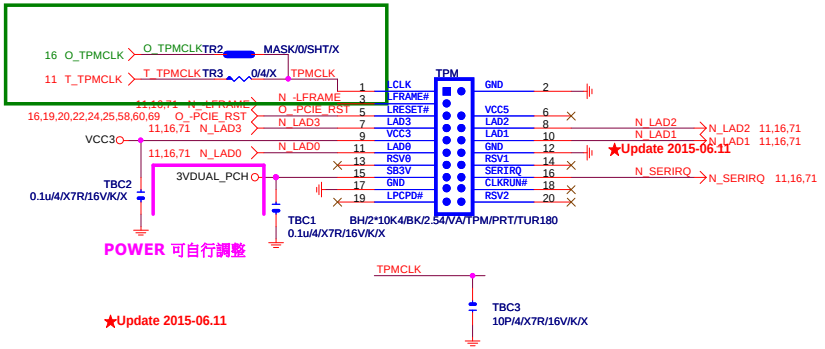




COMMON CATHODE



TPM CONNECT

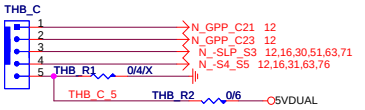


★Update 2015-06.11

★Update 2015-06.11

Thunderbolt

★Update 2015-12-29



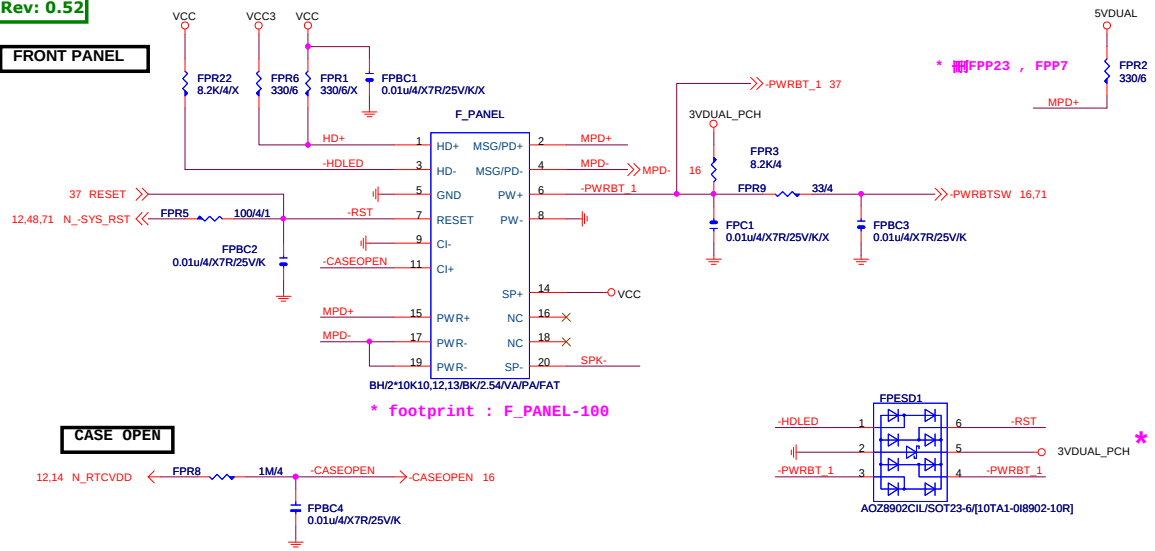
PH/1*5/BK/2.54/VA/D/[11NH5-040105-41R]

Footprint update "WAFER-1X5P"

Gigabyte Technology		
Title: FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
Date: Tuesday, November 22, 2016	Sheet 49 of 76	

Rev: 0.52

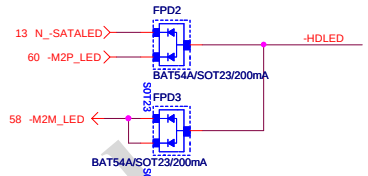
FRONT PANEL



CASE OPEN

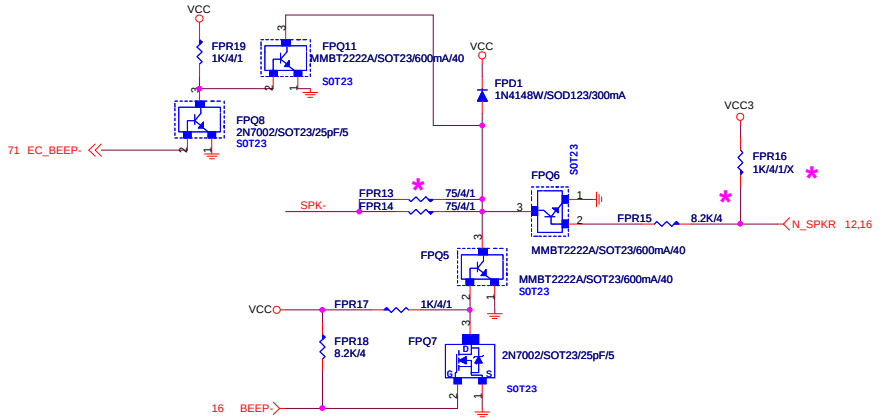
SATA LED

SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3_3



SPEAKER

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



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

Gigabyte Technology		
Title: FRONT PANEL		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
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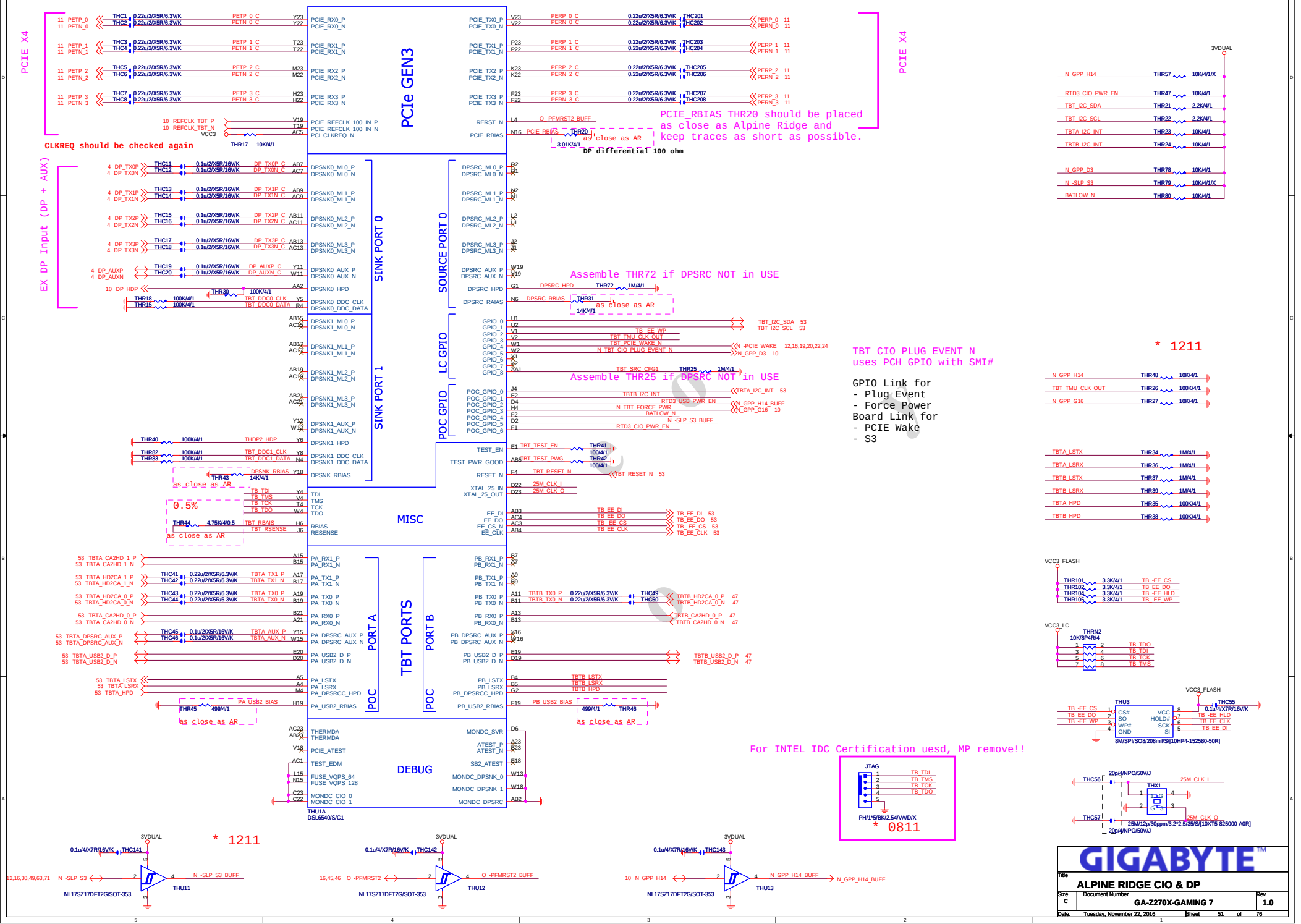
INTEL AR module (TBT + U31A) SCH 1.2 (2016/03/28) 4 Layers

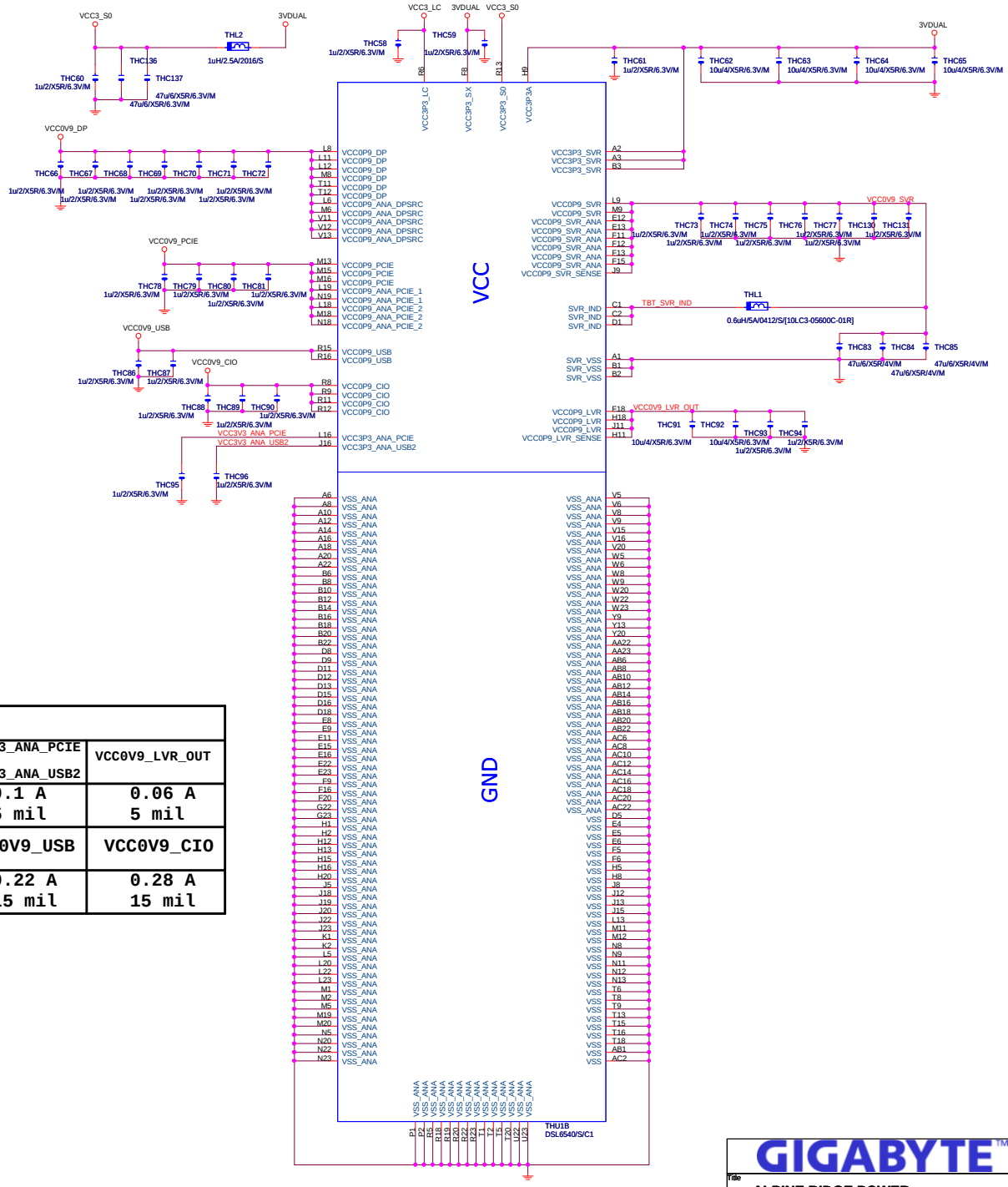
Base on INTEL AR reference SCH 1.4 (2015/11/25)



Title	ALPINE RIDGE CIO & DP
Size	C
Document Number	GA-Z270X-GAMING 7
Rev	1.0
Date:	Tuesday, November 22, 2016
Sheet	51 of 76

INTEL AR module (TBT + U31A) SCH 1.2 (2016/03/28) 4 Layers

Base on INTEL AR reference SCH 1.4 (2015/11/25)



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	Document Number	Rev
C	GA-Z270X-GAMING 7	1.0

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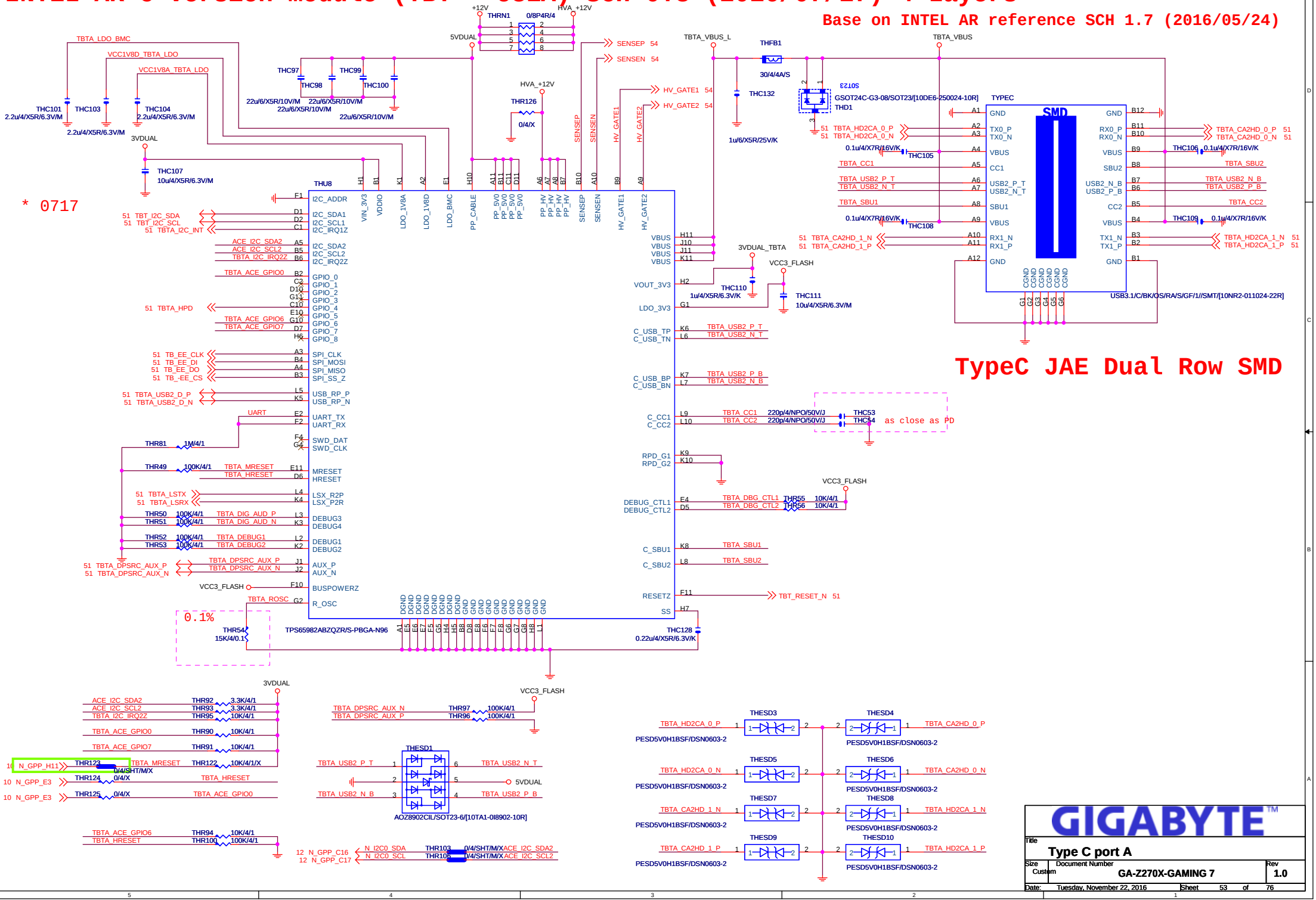
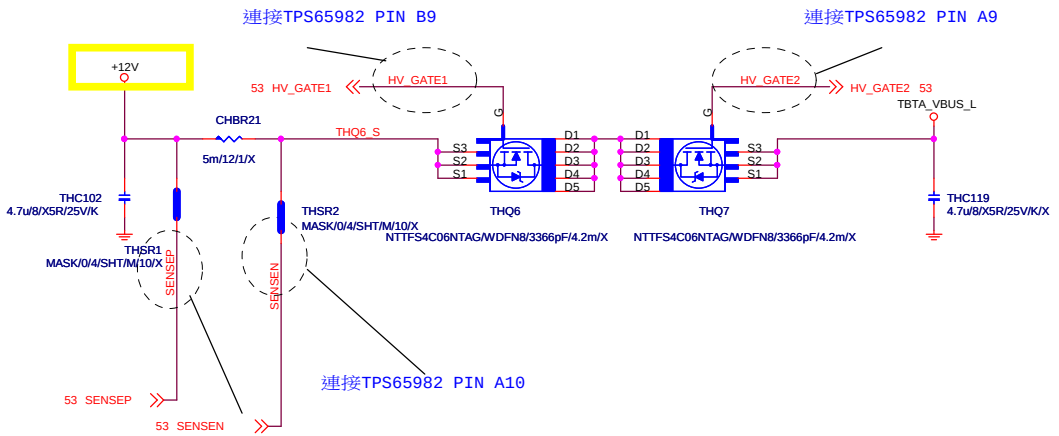
INTEL AR C version module (TBT + U31A) SCH 0.3 (2016/07/17) 4 Layers

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





GIGABYTE™

Title: TPS65982D Co-lay		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
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GIGABYTE™

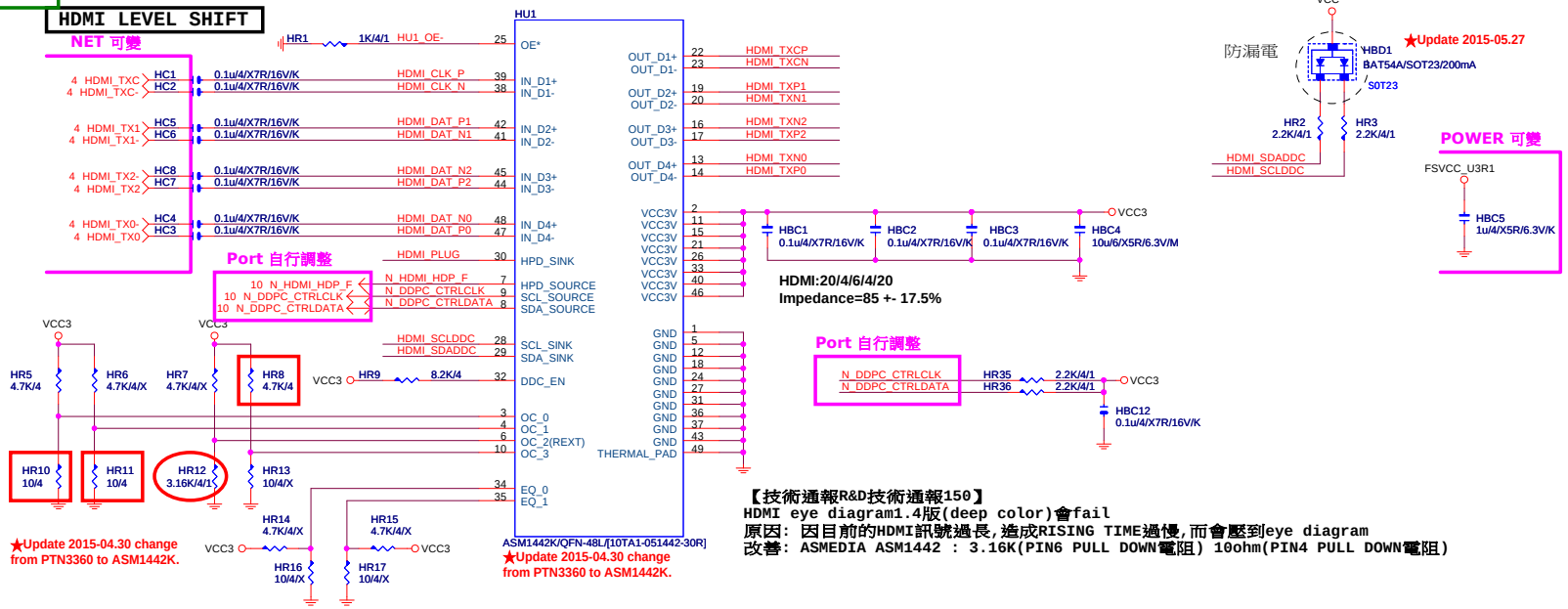
Title
DISPLAY PORT IN

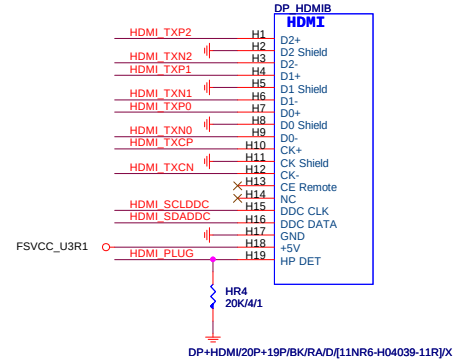
Size	Document Number	Rev
Custom	GA-Z270X-GAMING 7	1.0

Date:	Sheet	of
Tuesday, November 22, 2016	55	76

Rev: 0.73

HDMI LEVEL SHIFT





【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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

GIGABYTE		
Title: HDMI		
Size: Custom	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
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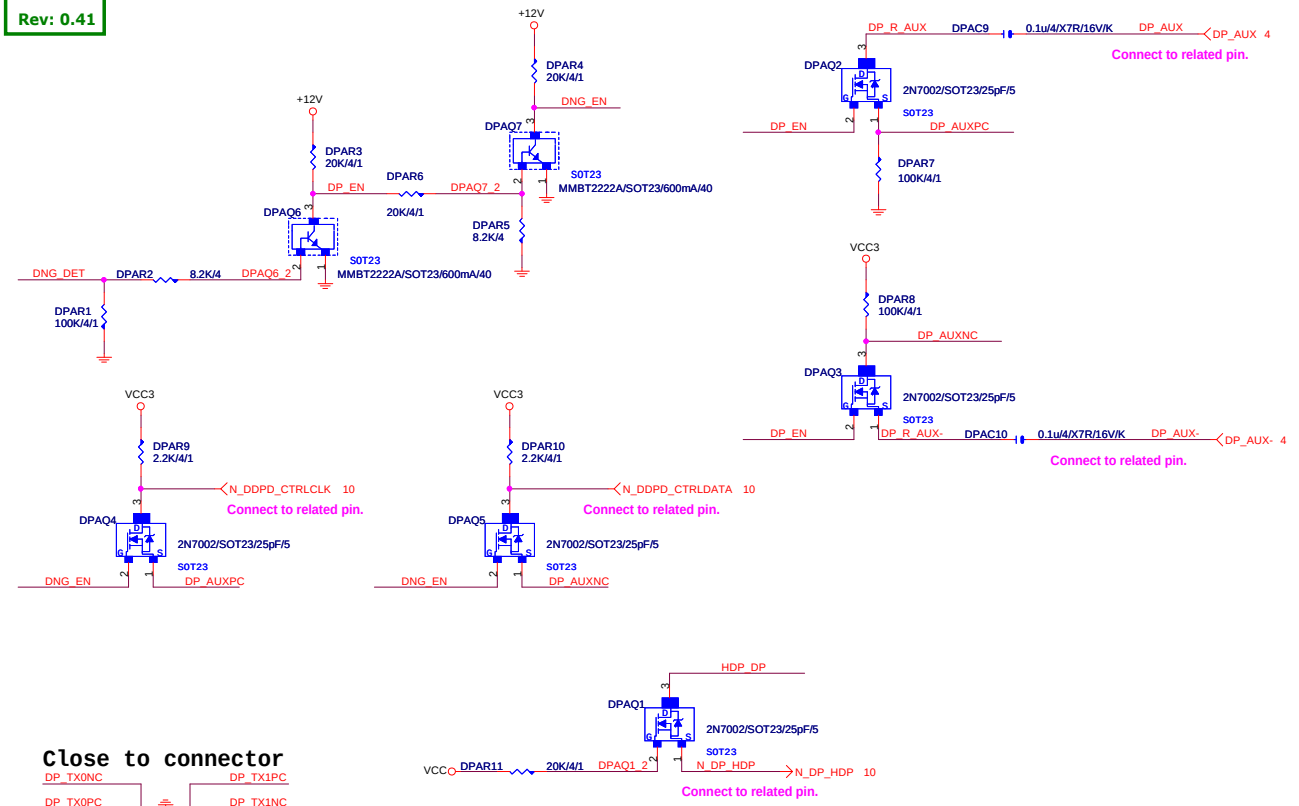
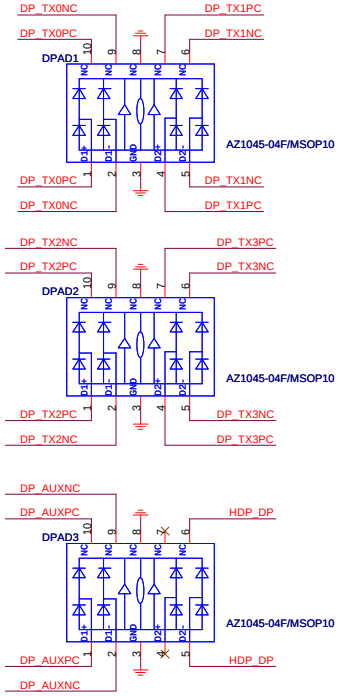
Rev: 0.41



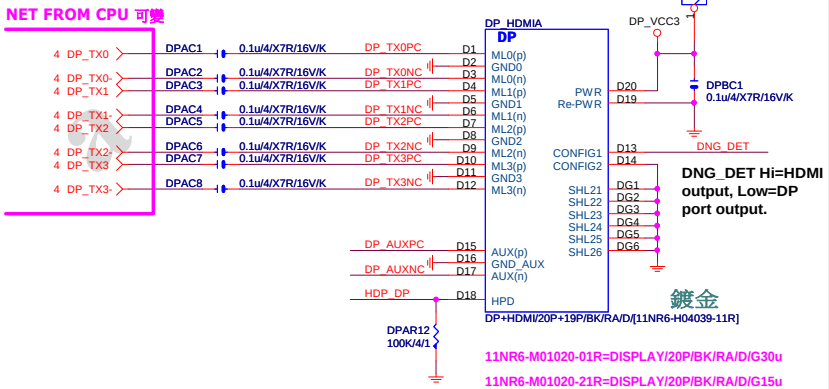
Close to connector



SINGLE Display Port

Display Port with HDMI, or HDMI only.

NET FROM CPU 可變



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

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 7		Rev: 1.0
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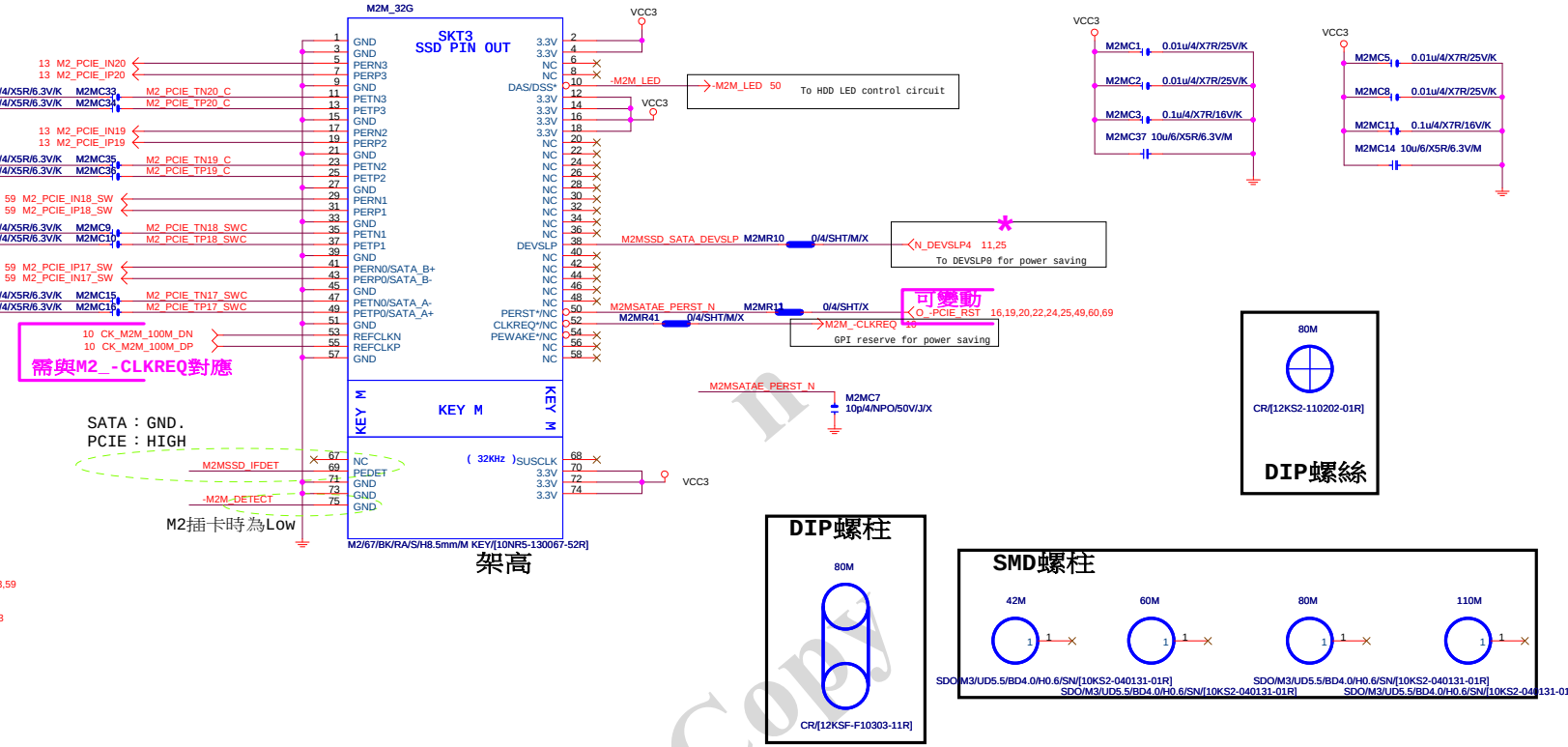
Rev 0.1

M.2 Lane4 from PCH port26

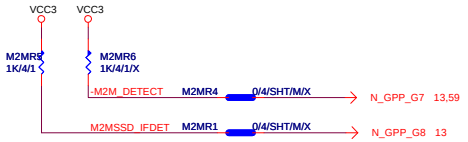
M.2 Lane3 from PCH port25

M.2 Lane2 from PCH port24

M.2 Lane2 from PCH port23



支援SATA and M.2 function



Gigabyte Technology	
Title	M.2 X4
Size: Custom	Document Number: GA-Z270X-GAMING 7
Rev	1.0
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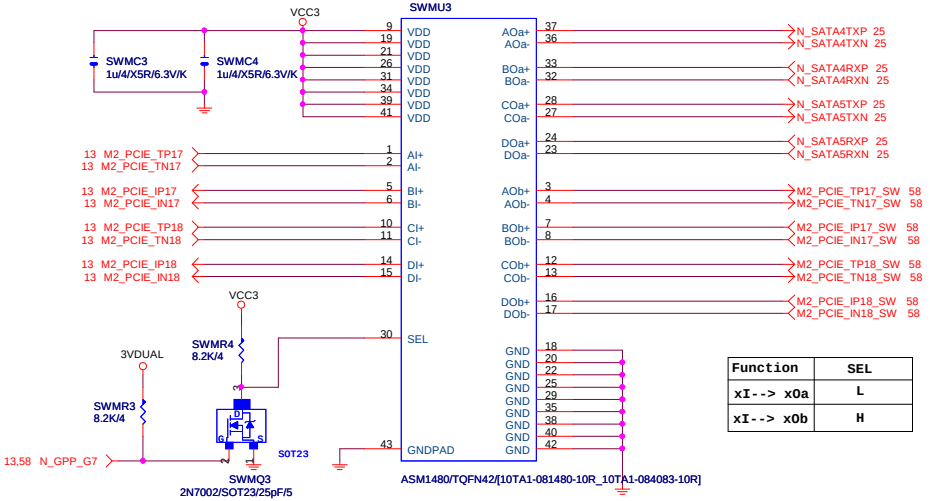
Rev 0.1 (M)TYPE



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

Gigabyte Technology

Title: M.2X4_S4~S5 SWITCH

Size: Custom | Document Number: GA-Z270X-GAMING 7 | Rev: 1.0

Date: Tuesday, November 22, 2016 | Sheet 59 of 76

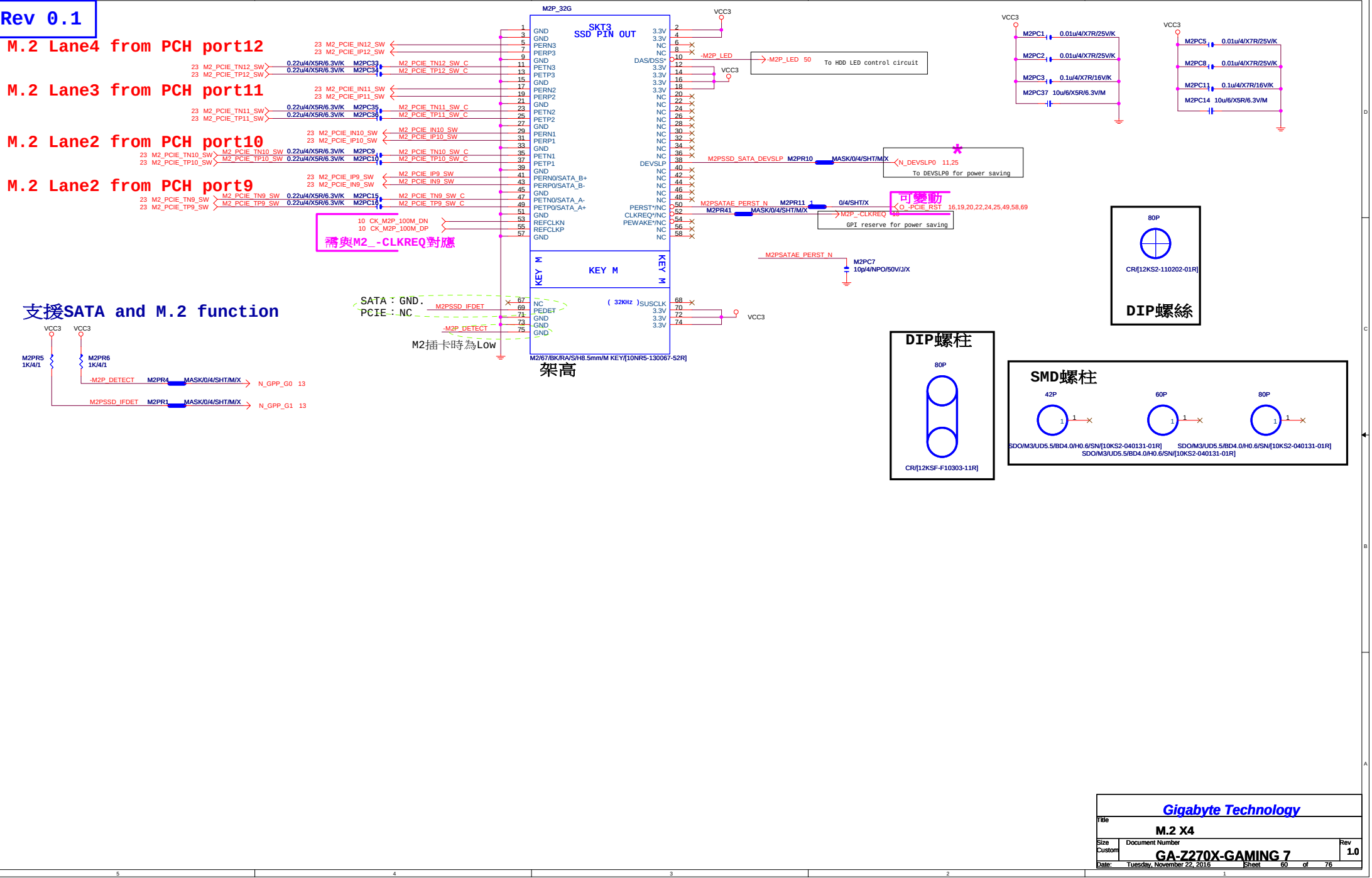
Rev 0.1

M.2 Lane4 from PCH port12

M.2 Lane3 from PCH port11

M.2 Lane2 from PCH port10

M.2 Lane2 from PCH port9



支援SATA and M.2 function

Gigabyte Technology	
Title	M.2 X4
Size: Custom	Document Number: GA-Z270X-GAMING 7
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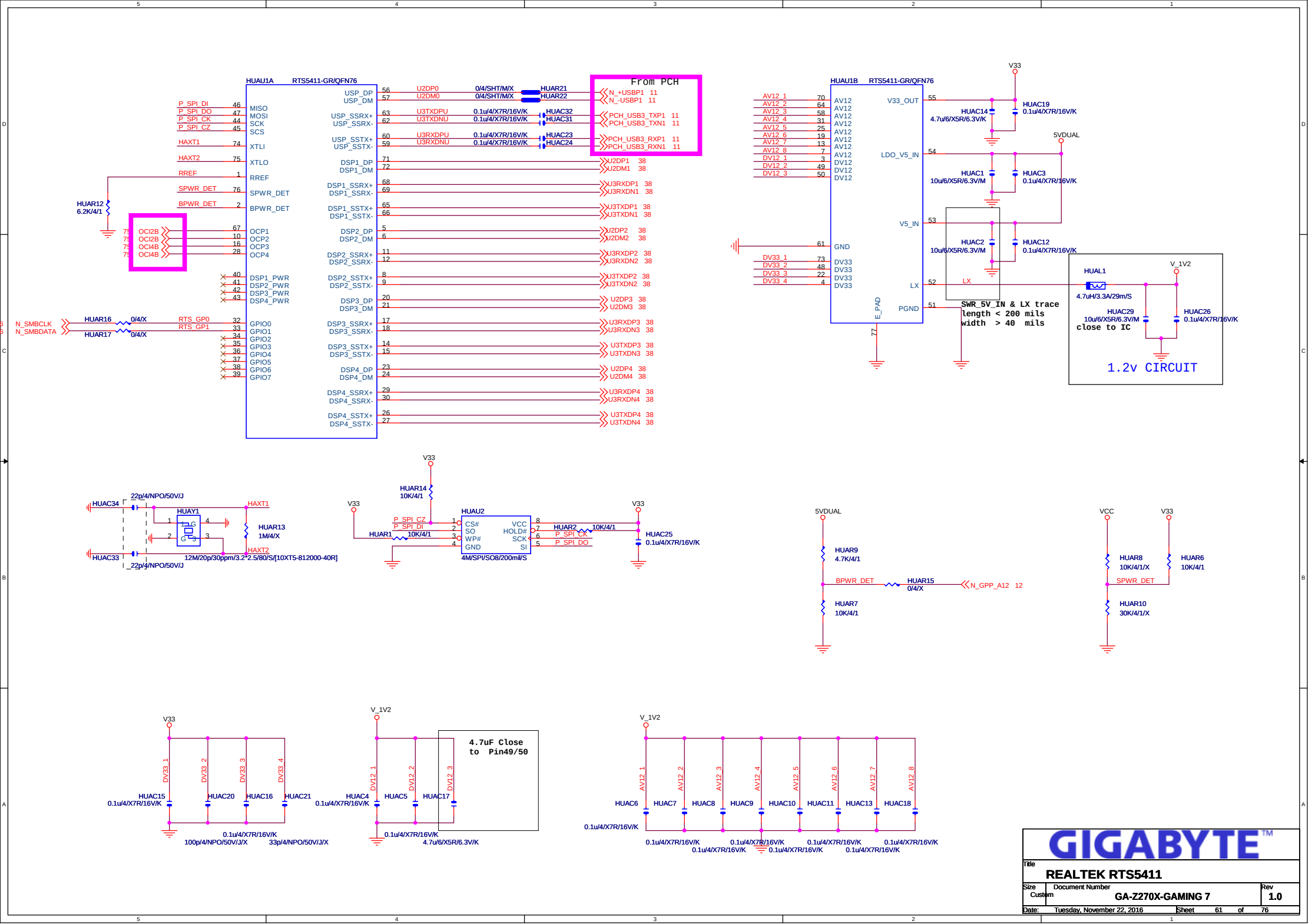
Date: Tuesday, November 22, 2016	Sheet 60 of 76


HUAU1A RTS5411-GR/QFN76
From PCH
HUAU1B RTS5411-GR/QFN76
V33
5VDUAL
V_1V2
HUAU2
4M/SPI/SO8/200mil/S
SWR_5V_IN & LX trace length < 200 mils width > 40 mils close to IC
1.2v CIRCUIT
12M/20p/30ppm/3.2*2.5/80/S/[10XT5-812000-40R]
4.7uF Close to Pin49/50
GIGABYTE
REALTEK RTS5411
GA-Z270X-GAMING 7
Tuesday, November 22, 2016
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GIGABYTE™

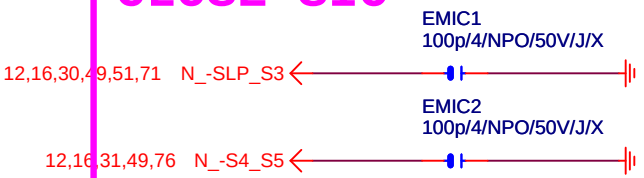
Title: Renesas uPD720210_1

Size	Document Number	Rev
Custom	GA-Z270X-GAMING 7	1.0

Date: Tuesday, November 22, 2016 Sheet 62 of 76

EMI/ESD R0.1

CLOSE SIO



CLOSE PCH

GIGABYTE™

Title: EMI/ESD		
Size: A	Document Number: GA-Z270X-GAMING 7	Rev: 1.0
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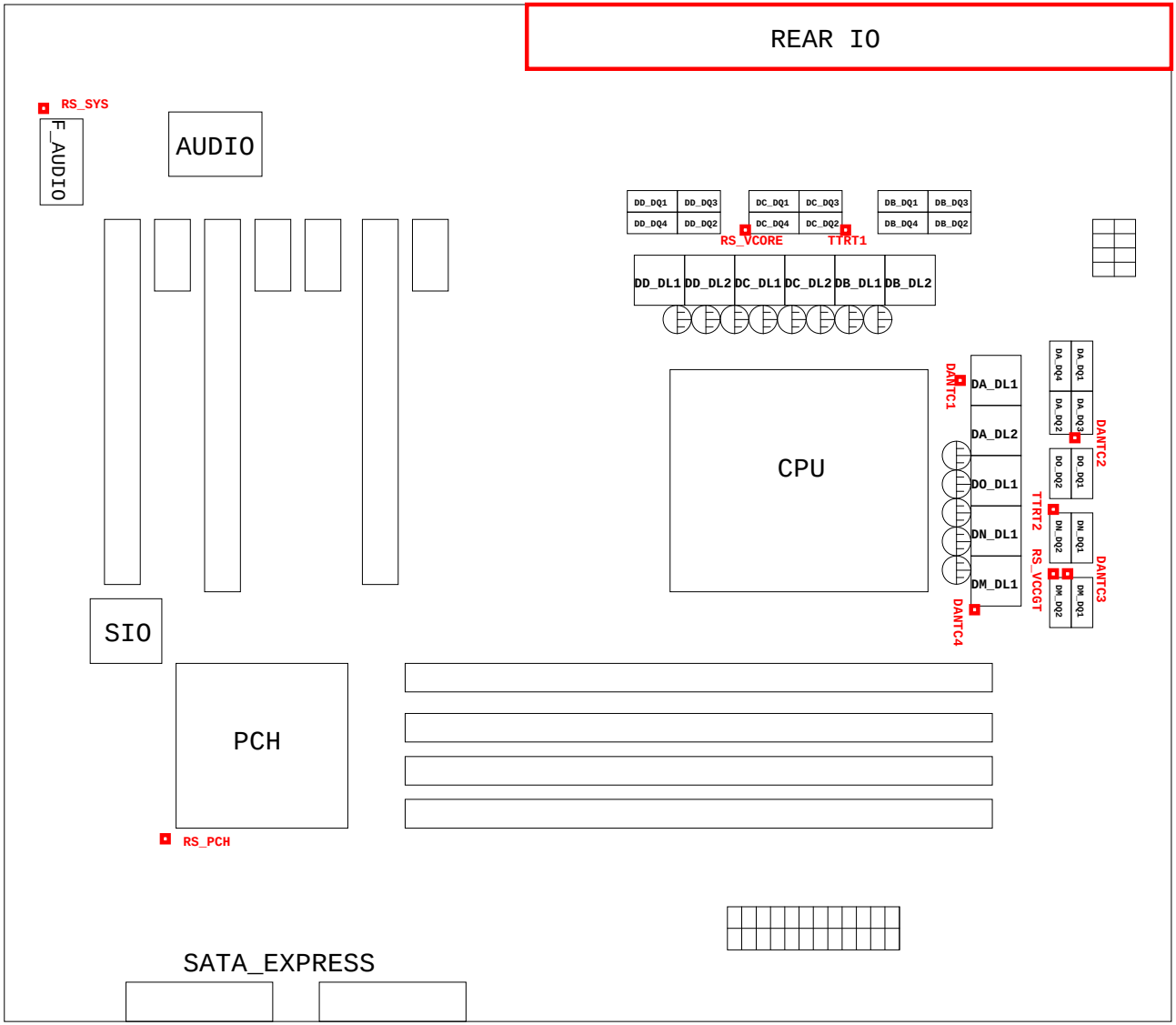

熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

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Title: NTC MAP

Size: Custom | Document Number: GA-Z270X-GAMING 7 | Rev: 1.0

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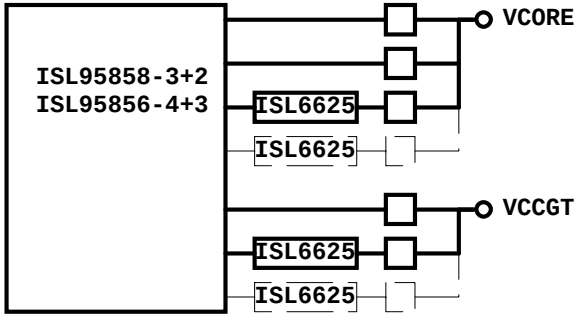
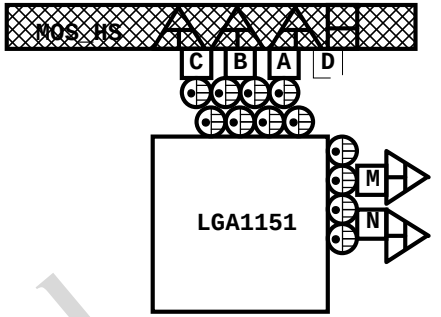
POWER BLOCK MAP

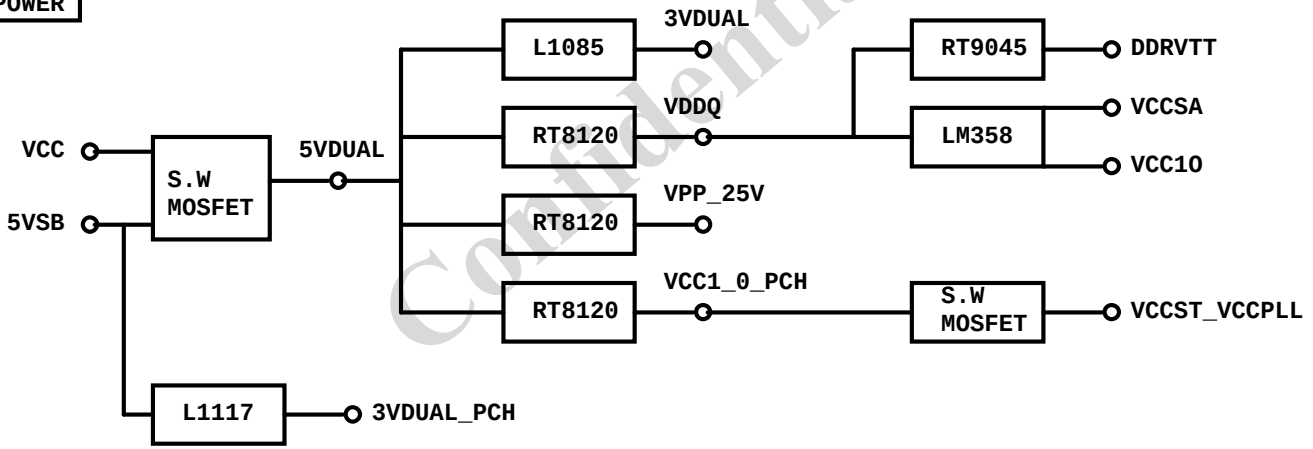
- **CPU**: VCORE, VCCGT, VCCSA, VCCIO, VDDQ, VCCST_VCCPLL, VCCSFUSEPRG
- **DDR4**: VDDQ, DDRVTT, VPP_25V, VDDSPD(VCC3)
- **PCH**: VCC1_0_PCH, VCC1_0_PCH_DSW, VCC10_VCCF24_1P0, VCC10_VCCAMPHYPLL, VCC10_VCCAPLL, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- **IT8628**: IT_VCCH, IT_AVCC, 2_5LEVEL
- **HM**: +12V,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

VCORE/VCCGT

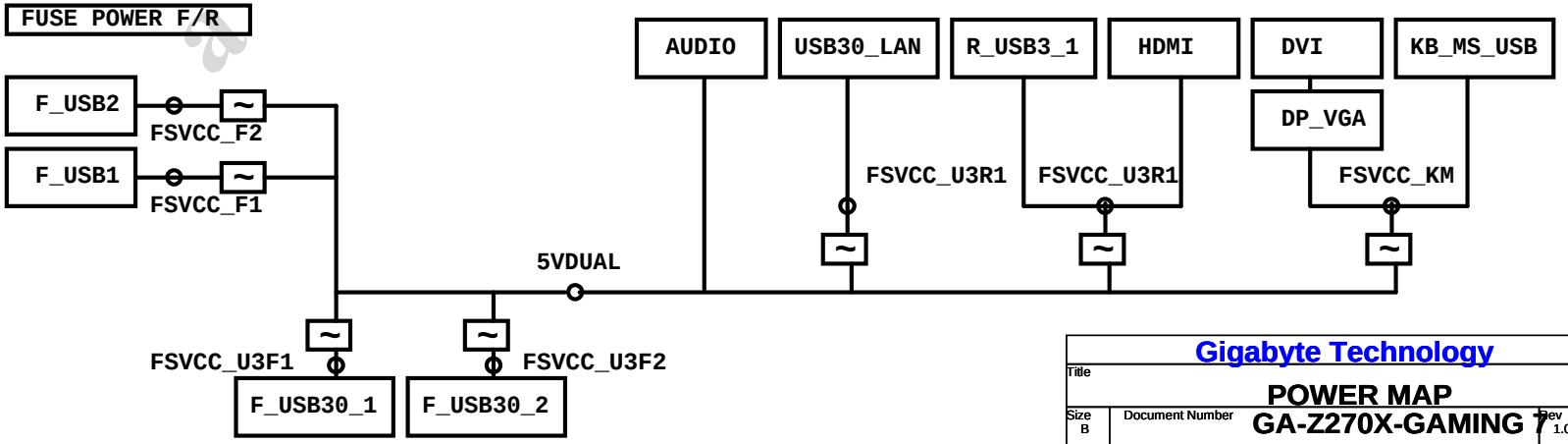




POWER



FUSE POWER F/R



Gigabyte Technology

Title	POWER MAP	
Size B	Document Number GA-Z270X-GAMING 7	Rev 1.0
Date: Tuesday, November 22, 2016	Sheet 65 of 76	

固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11CO5-C82700-01R	270u/FP/D/16V/88/C/12m
11CO5-C61000-01R	100u/OS/D/16V/66/C/30m
11CO2-C51000-01R	100u/FP/D/6.3V/65/C/13m

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

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

IRON CHOKE

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

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

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CHOKE11X8MM-SMD

BEAD

	料號	Capture Value	SIZE	Footprint
DIP	10LFB-15470A-01R	47/4030/15A/S	4*3	BEADC8B-BPH_SMD

PWM料號

		料號	Capture Value	Footprint
PWM	ISL95856	10TA1-695856-01R		IC52QFN-6x6-G
PWM	ISL95858	10TA1-695858-01R		IC52QFN-6x6-G
PWM	IR35201	10TA1-635201-00R		IC56QFN-9VRS4339
PWM	IR3570	10TA1-603570-00R		IC40MLFP-ISL95835
PWM	RT8237C/D	10TA1-608237-01R		IC10DFN-NIS5132

REGULATOR

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

GIGABYTE™

Title: RT8120_DDR4 POWER

Size: Custom | Document Number: GA-Z270X-GAMING 7 | Rev: 1.0

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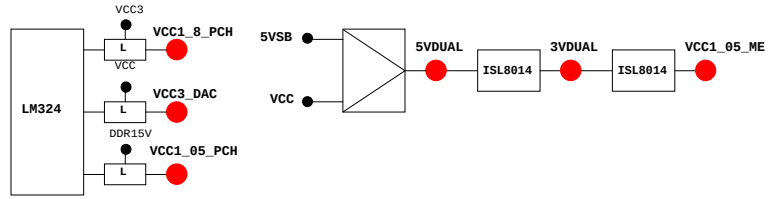
PCH GPIO LIST TABLE

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

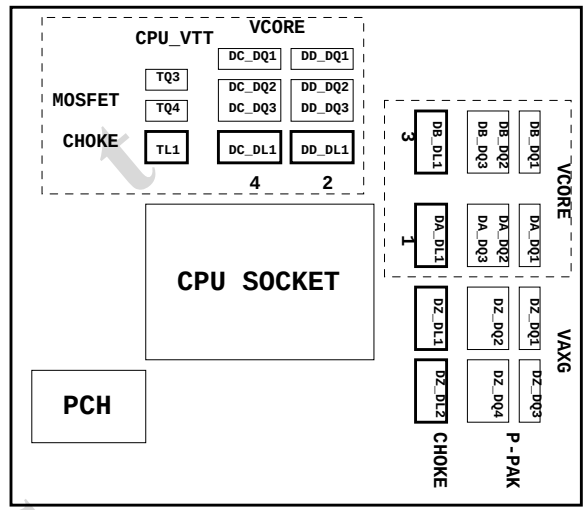
Super I/O ITE8720 GPIO Table

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

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



PWM各相位的擺法如下：



BIOS超電壓對應表：

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

散熱模組料號：

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

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

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Title: TABLE LIST
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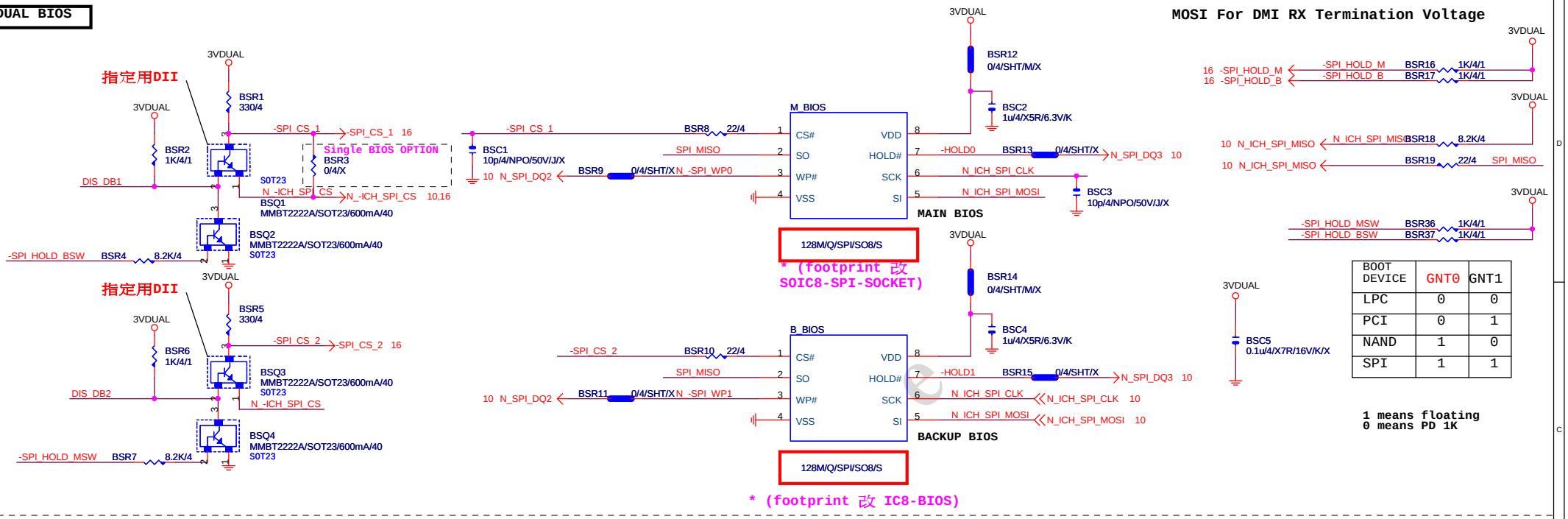
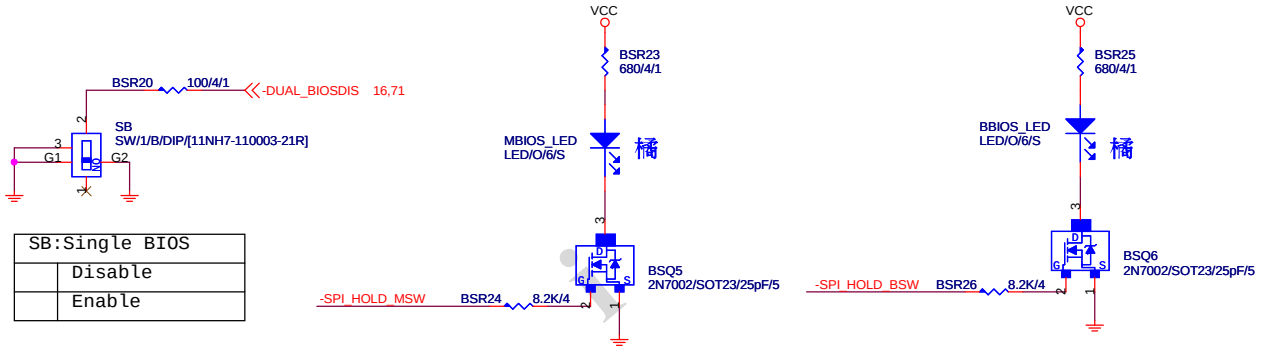
DUAL BIOS



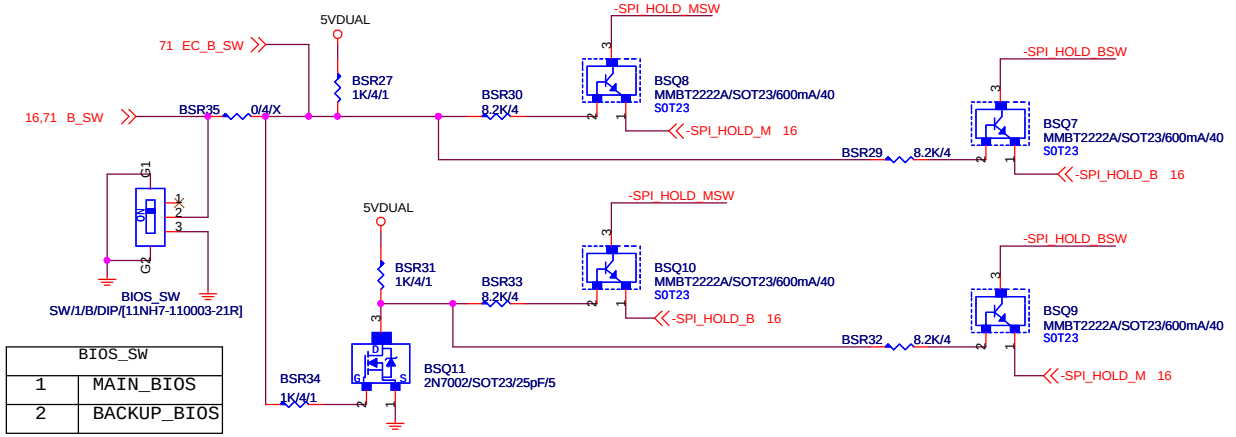
MOSI For DMI RX Termination Voltage

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

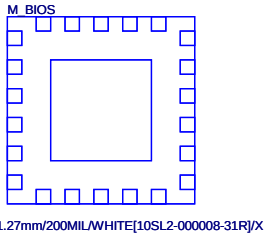
1 means floating
0 means PD 1K



SB:Single BIOS	
	Disable
	Enable



BIOS_SW	
1	MAIN_BIOS
2	BACKUP_BIOS



* 試產先上 , PVT 移除

Gigabyte Technology			
Title: BIOS			
Size: Custom	Document Number: GA-Z270X-GAMING 7		Rev: 1.0
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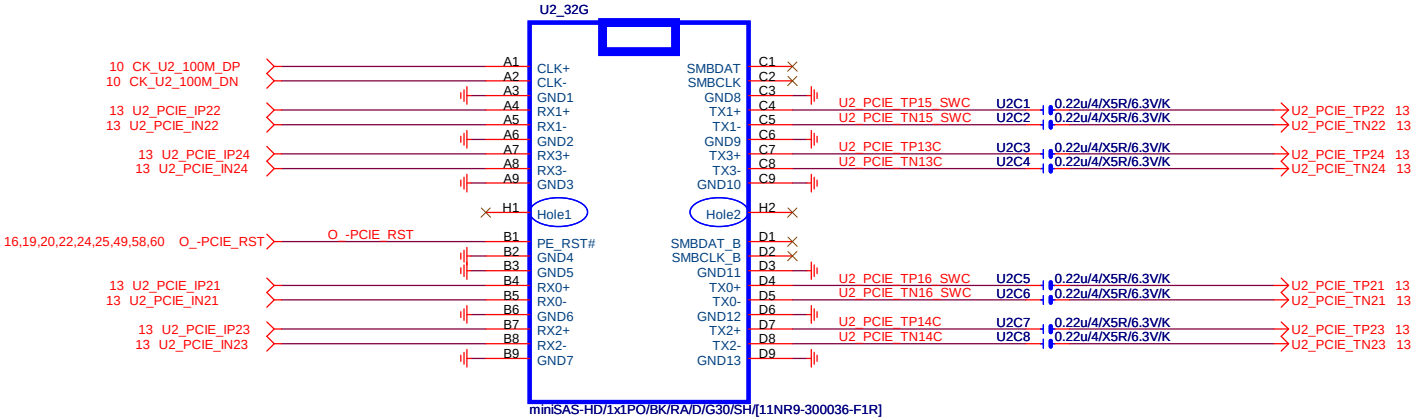
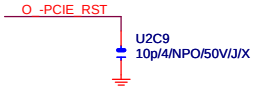
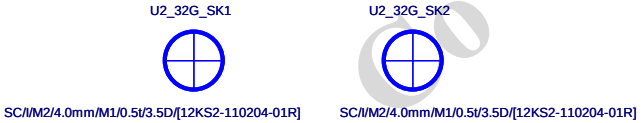
Rev 0.3



加蓋





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Title: M.2 to MINISAS		
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Title

PCH PWR-VCC18_PCH

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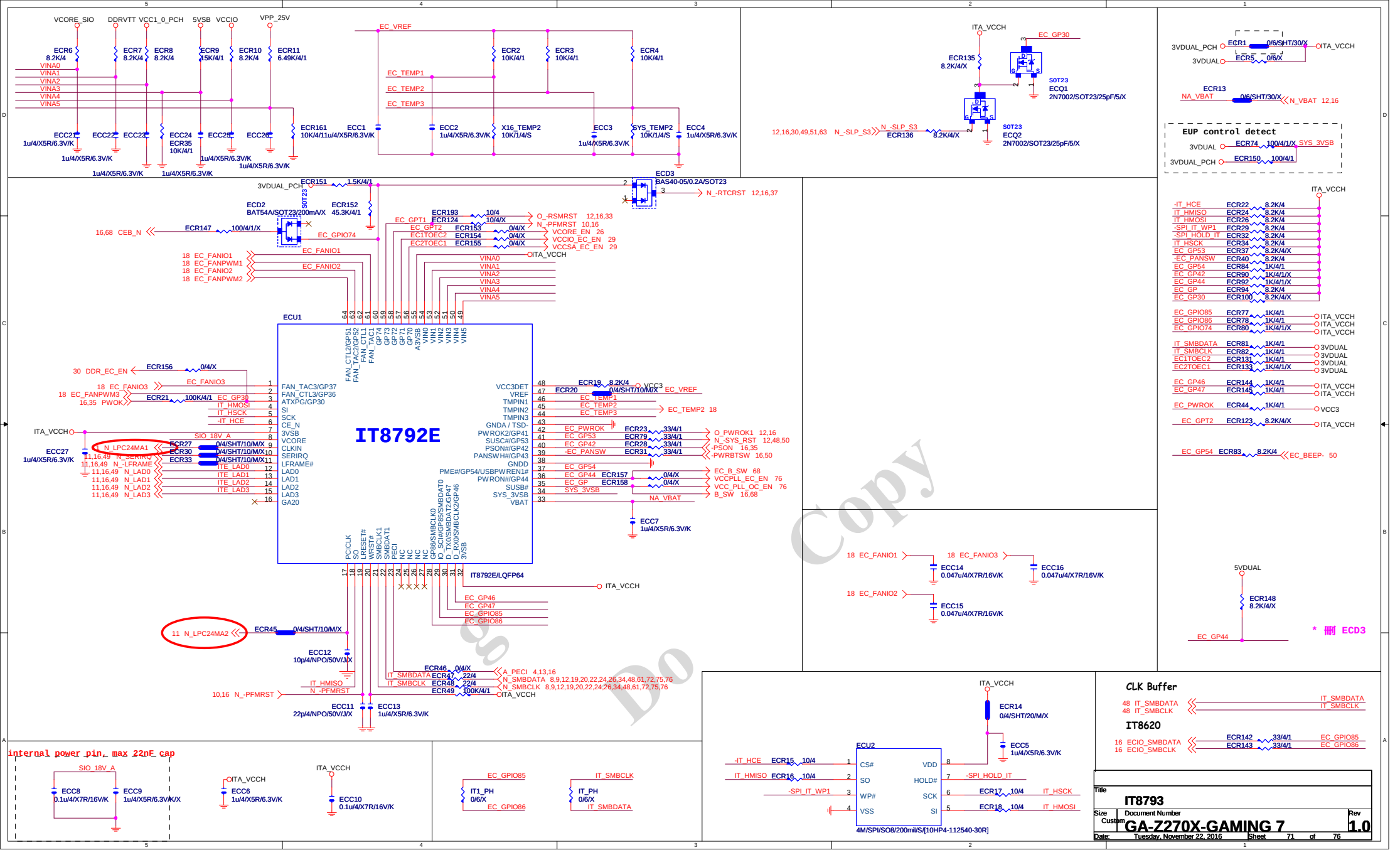
IT8792E
ECU1
IT8792E/LQFP64
ECU2
4M/SPI/SO8/200mil/S/[10HP4-112540-30R]
EUP control detect
CLK Buffer
IT8620
internal power pin, max 22nF cap
IT8793
GA-Z270X-GAMING 7
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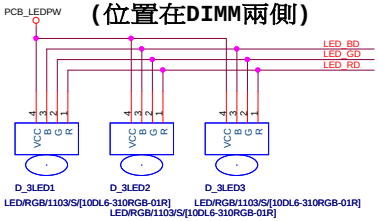
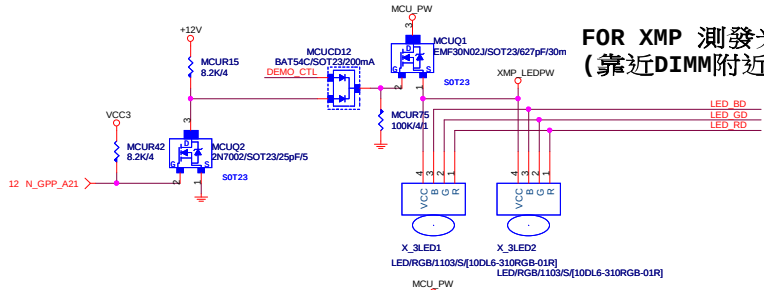
Do Not Copy

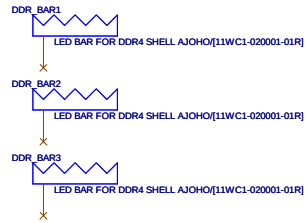
第一區 LED

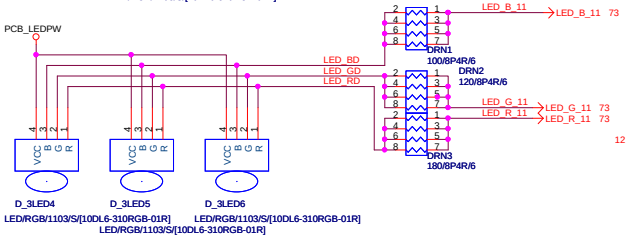
FOR DIMM 側發光 LED*6
(位置在DIMM兩側)



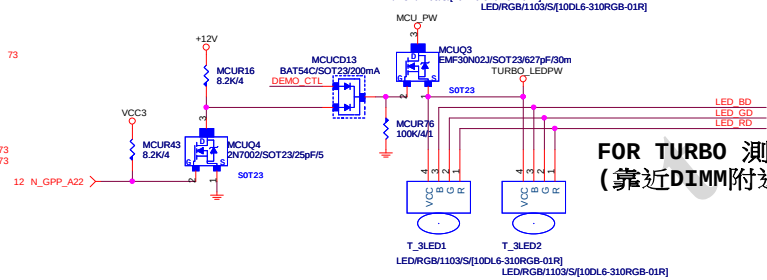
FOR XMP 測發光 LED*2
(靠近DIMM附近放背板鏤空)



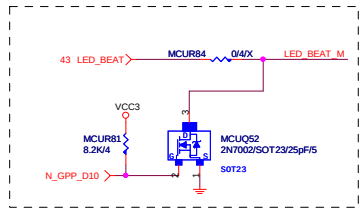




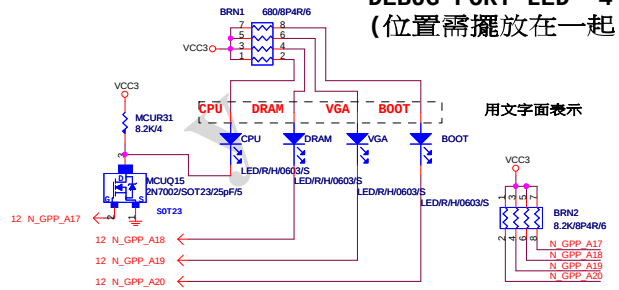
FOR TURBO 測發光 LED*2
(靠近DIMM附近背板鏤空)



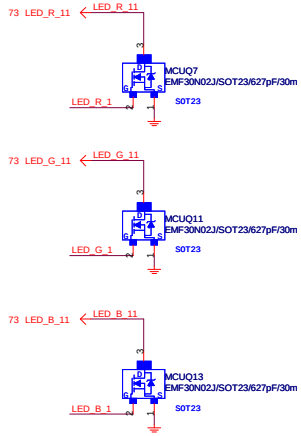
N_GPP_A17	CPU DEBUG
N_GPP_A18	DDR DEBUG
N_GPP_A19	VGA DEBUG
N_GPP_A20	BOOT DEBUG
N_GPP_A21	XMP LED SWITCH
N_GPP_A22	TURBO LED SWITCH
N_GPP_D12	LED_IO LED SWITCH
N_GPP_D15	LED_C LED SWITCH
N_GPP_D17	PCIEX16 LED SWITCH
N_GPP_D18	PCIEX8 LED SWITCH



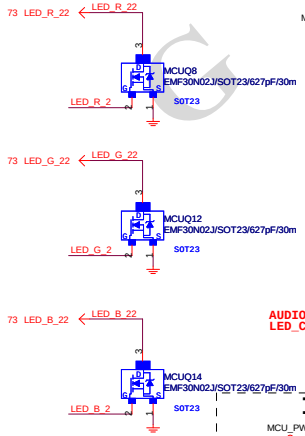
DEBUG PORT LED *4
(位置需擺放在一起)

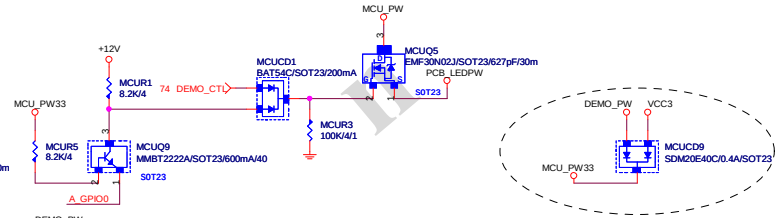


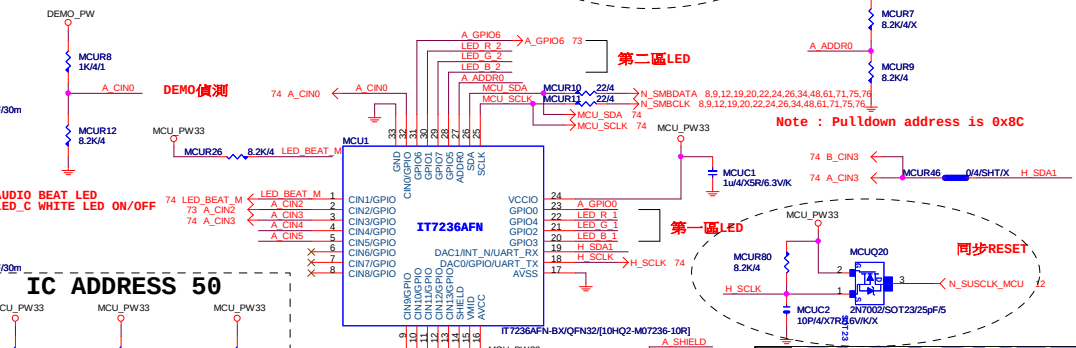
第一區 LED CONTROL

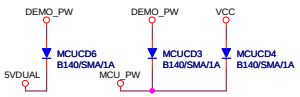


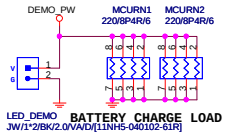
第二區 LED CONTROL

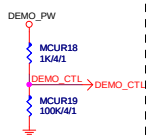


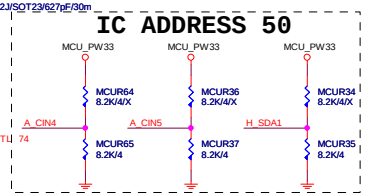












Title	CPU / DDR / DEBUG LED		
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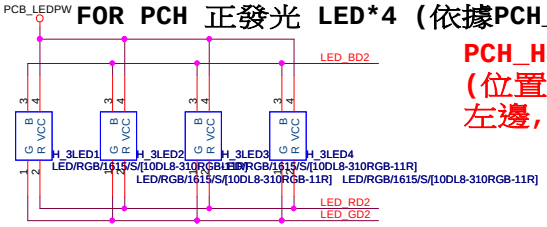
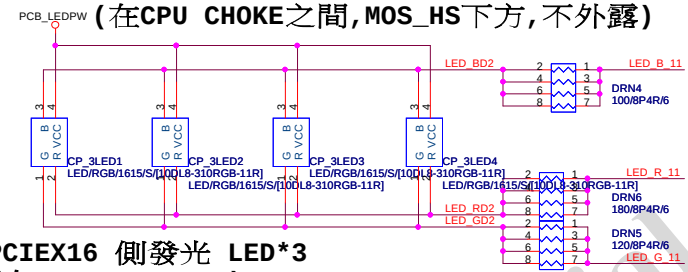
第一區 LED

FOR PCH 正發光 LED*4 (依據PCH_HS設計擺放)

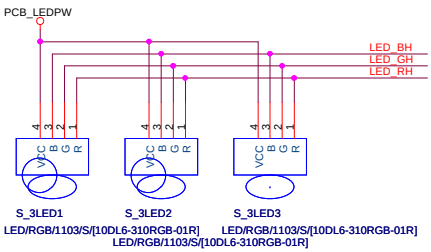
PCH_HS LED
(位置靠近PCH_HS
左邊,放在PCH_HS外面)



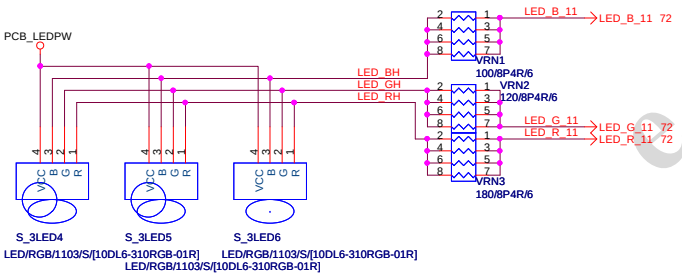
FOR CPU 正發光 LED*4
(在CPU CHOKE之間,MOS_HS下方,不外露)



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

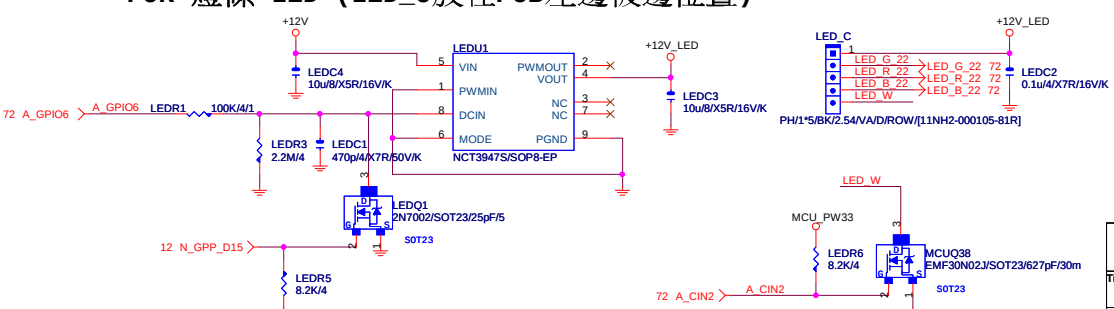


FOR PCIEX8 側發光 LED*3
(位置在PCIEX8 SLOT)



第二區 LED

FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



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Title: MODEL / PCB /AUDIO/PCIE LED

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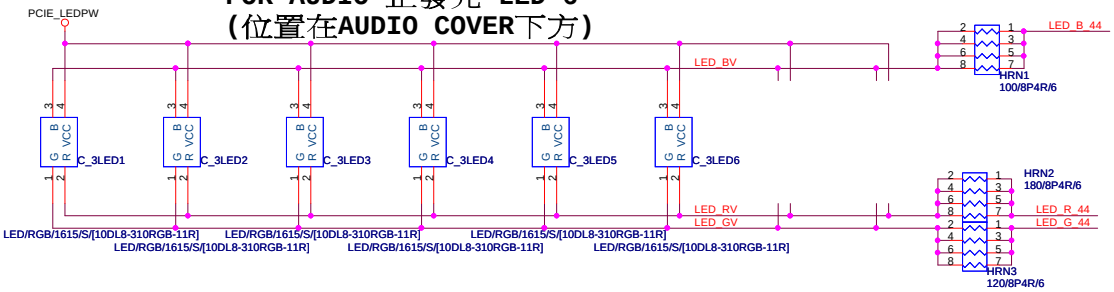
第三區 LED

第四區 LED

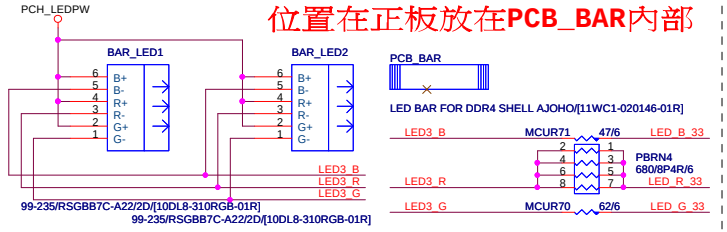
FOR AUDIO 正發光 LED*6
(位置在AUDIO COVER下方)



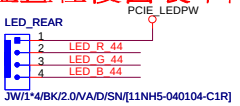
PCB_BAR_K1 PCB_BAR_K2

SC/I/M2/4.0mm/M1/0.5t/3.5D/[11KRH-010001-01R] SC/I/M2/4.0mm/M1/0.5t/3.5D/[11KRH-010001-01R]

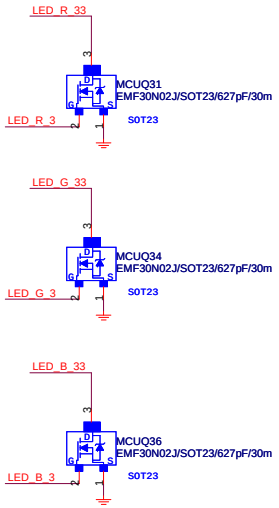
位置在正板放在PCB_BAR內部



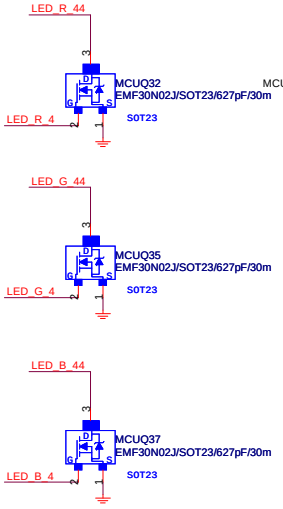
REAR 裝甲LED
(位置在後窗裝甲內)

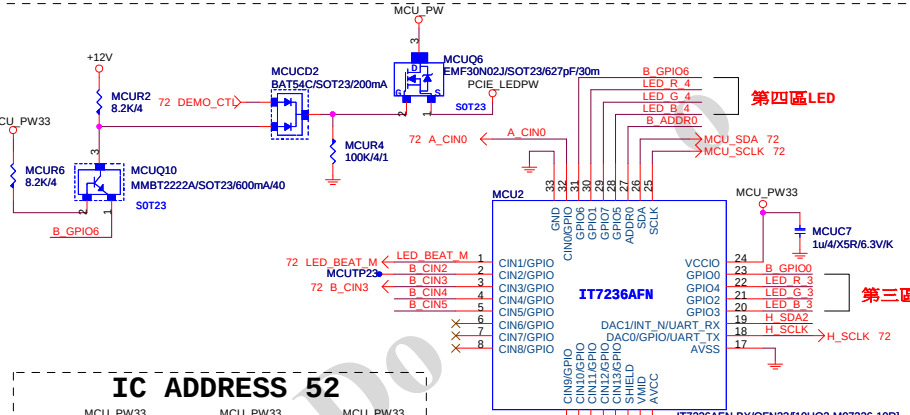


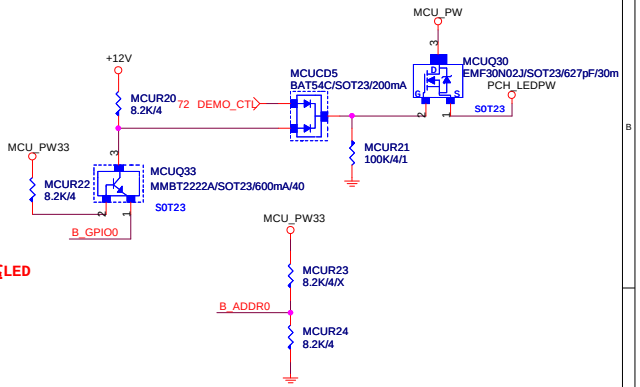
第三區 LED CONTROL



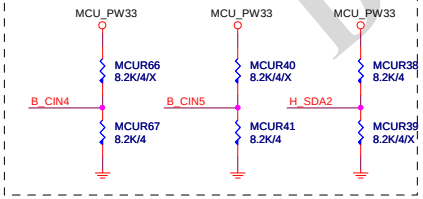
第四區 LED CONTROL



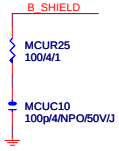




IC ADDRESS 52



Note : Pullhigh address is 0x8C



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Title: PCH / IO / HS / LED_C LED

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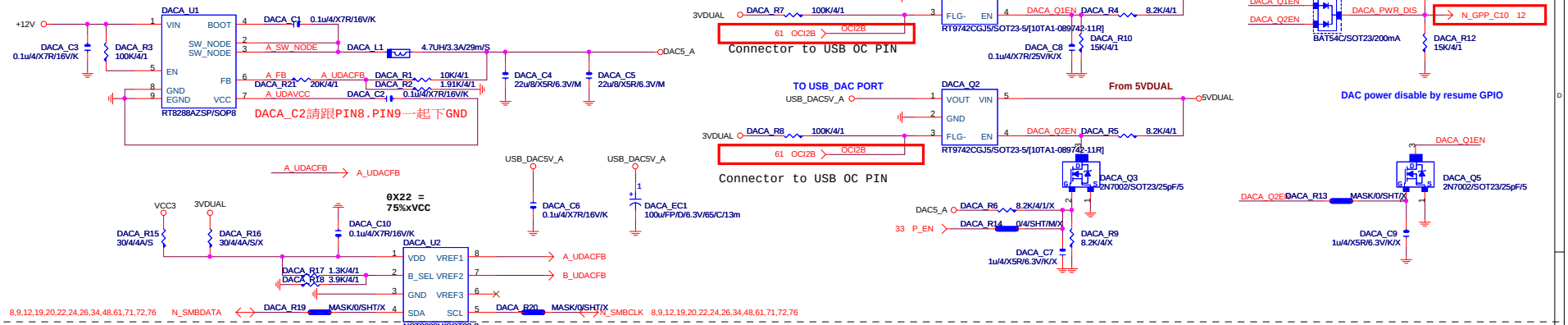
USB_DAC_A

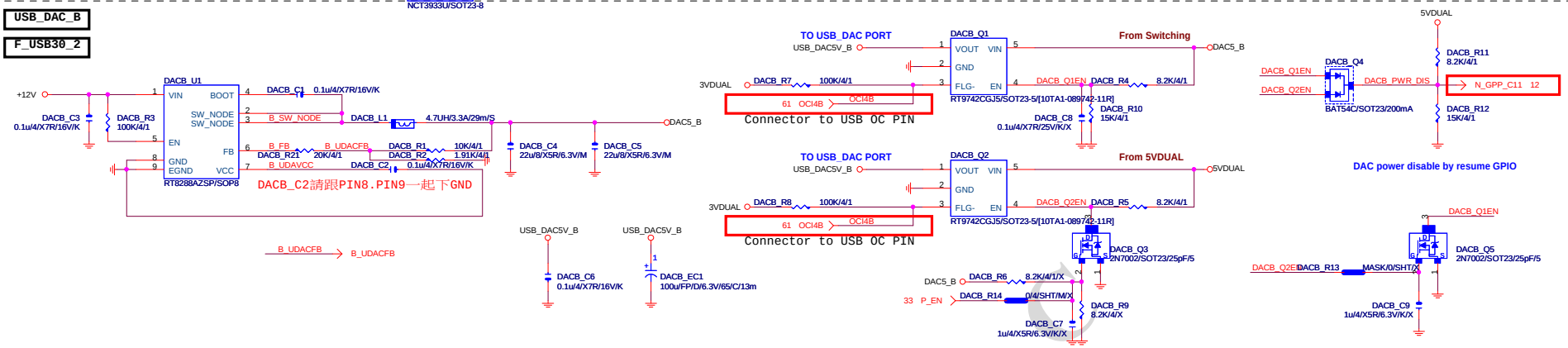
F_USB30_1

REV:0.1



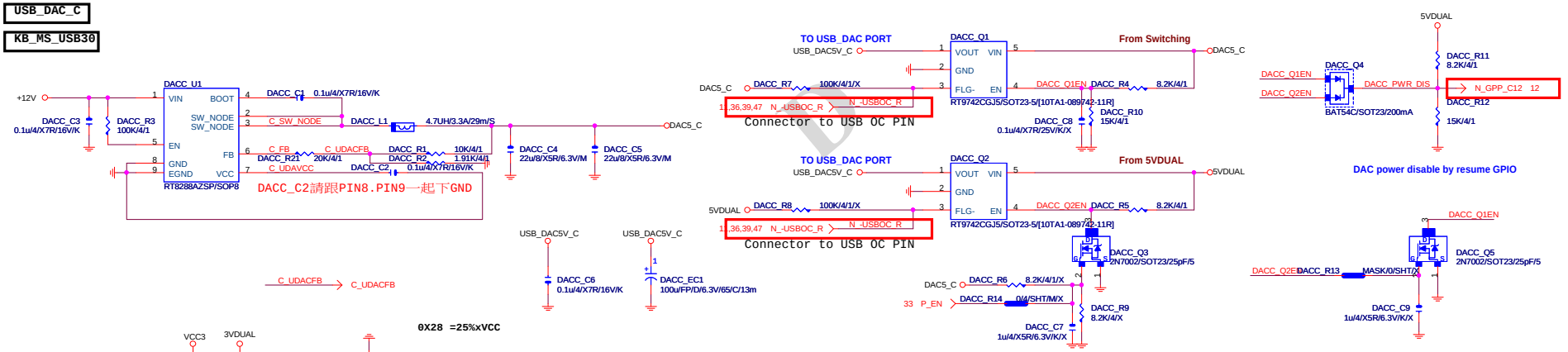
USB_DAC_B

F_USB30_2



USB_DAC_C

KB_MS_USB30



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Title: DAC POWER		
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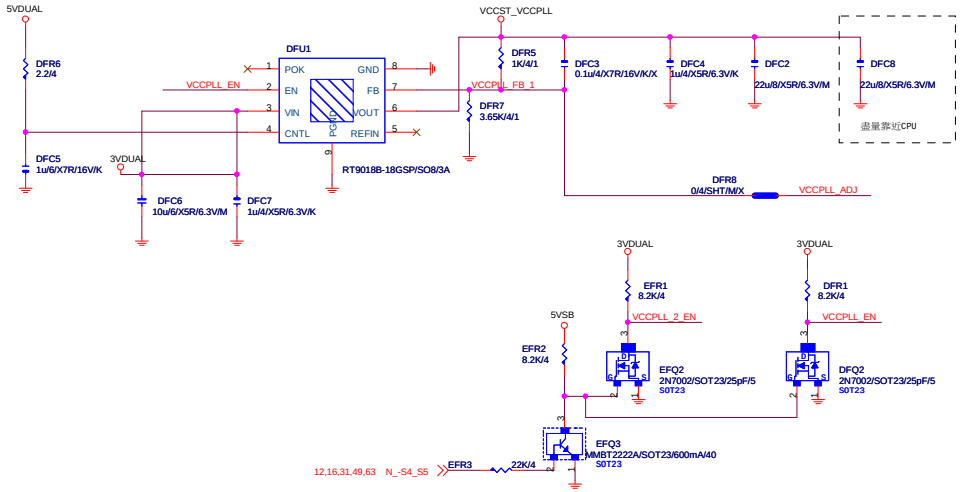
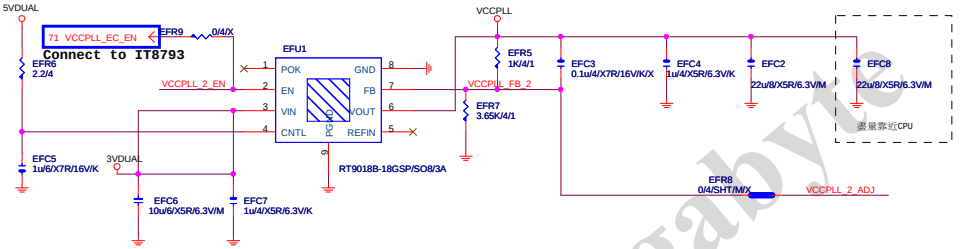
REV:0.1

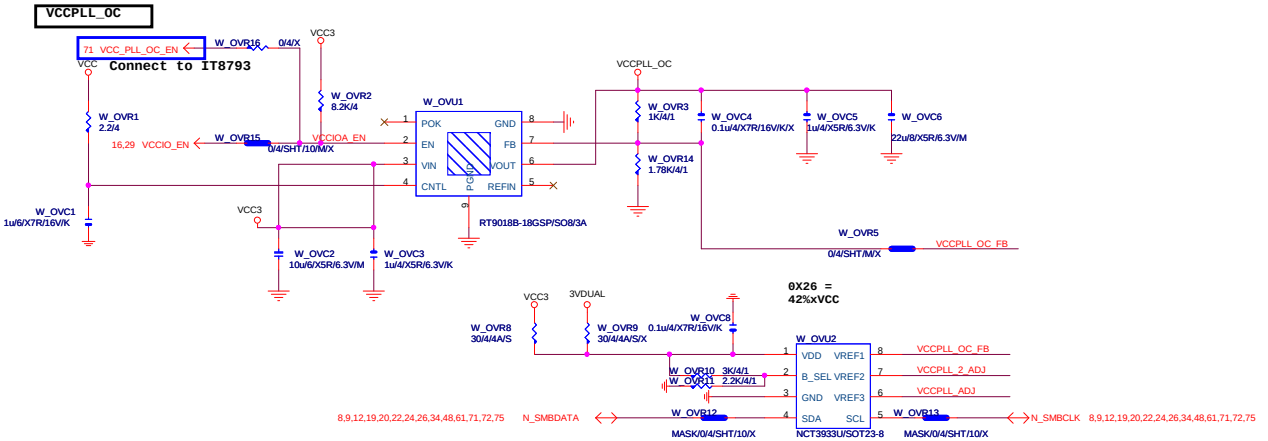
VCCST_VCCPLL 替換原先MOS開關線路



VCCPLL



VCCPLL_OC



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Title	VCCSA_VCCIO	
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