



**SHEET**

**TITLE**

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|    |                              |
|----|------------------------------|
| 01 | COVER SHEET                  |
| 02 | BOM & PCB MODIFY HISTORY     |
| 03 | BLOCK DIAGRAM                |
| 04 | CPU_LGA1151-A                |
| 05 | CPU_LGA1151-B_DDR4           |
| 06 | CPU_LGA1151-C                |
| 07 | CPU_LGA1151-D                |
| 08 | DDR4 CHANNEL A 1,2           |
| 09 | DDR4 CHANNEL B 1,2           |
| 10 | PCH CLK BUFFER               |
| 11 | PCH DMI,USB,PCIE             |
| 12 | PCH MISC                     |
| 13 | PCH SATA,PCIE,SATA_EXPRESS   |
| 14 | PCH_PWR                      |
| 15 | PCH_GND                      |
| 16 | ITE 8686 LPC IO              |
| 17 | HMW                          |
| 18 | Dual BIOS                    |
| 19 | FAN CTRL-KBL-SIO_OPT         |
| 20 | PCI EXPRESS X16 SLOT         |
| 21 | PCI EXPRESS X4 SLOT_1        |
| 22 | PCI EXPRESS X1 SLOTS/ SWITCH |
| 23 | PCI EXPRESS X4 SLOT_2        |
| 24 | SATA                         |
| 25 | ISL95856 PWM                 |
| 26 | ISL95856 MOS_VCORE           |
| 27 | ISL95856 MOS_VCCGT           |
| 28 | VCCSA_VCCIO_VCCPLL           |
| 29 | CPU POWER                    |
| 30 | RT8120_DDR                   |
| 31 | RT8120_VPP                   |
| 32 | RT8120_PCH                   |
| 33 | DISCRETE POWER               |
| 34 | NCT3933                      |
| 35 | ATX POWER , A -PROCHOT       |

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**Gigabyte Technology**

Cover Sheet

Size

Document Number

Custom

GA-

70-Pk

## Phoenix Gar

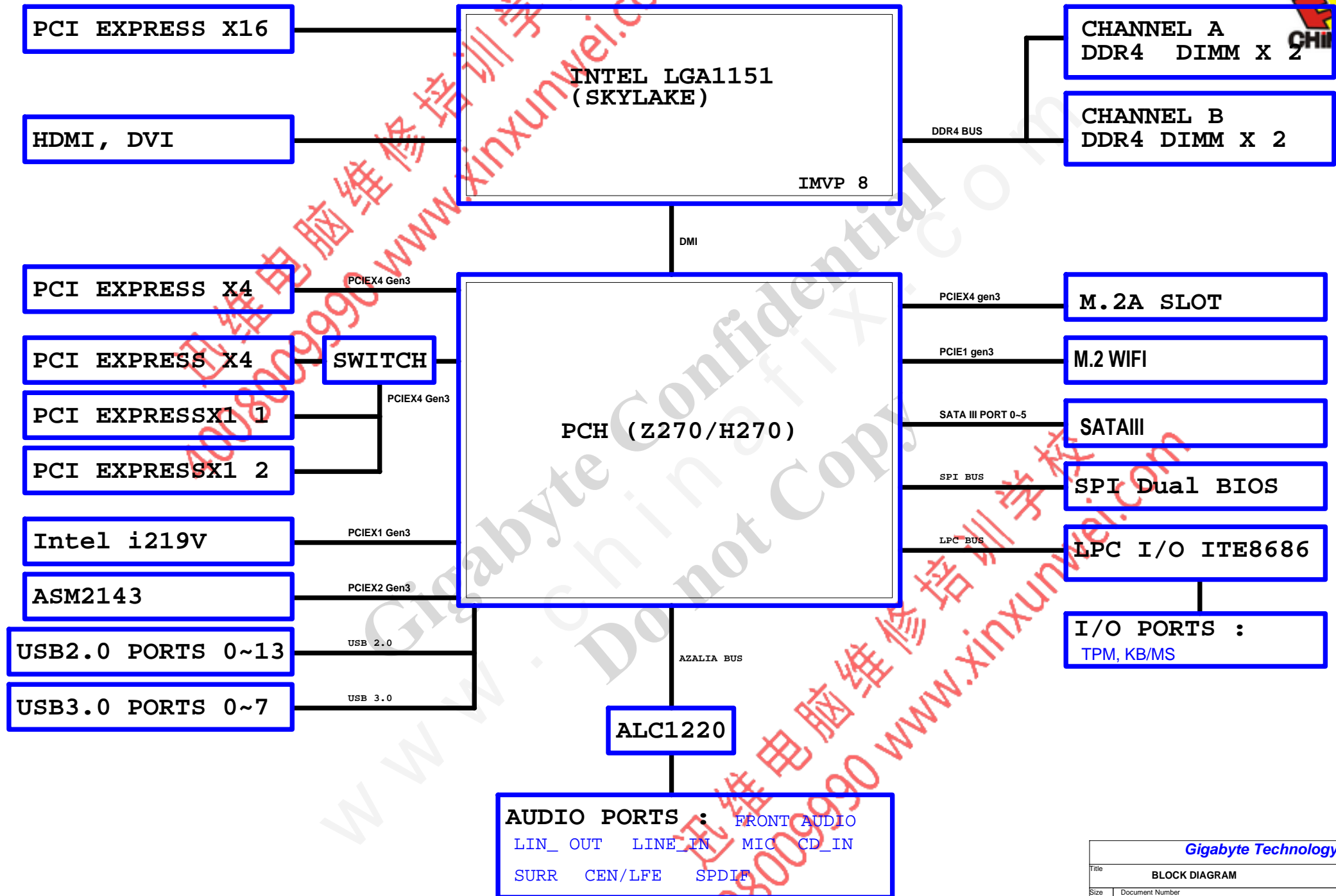
GA-Z270-Phoenix Gaming

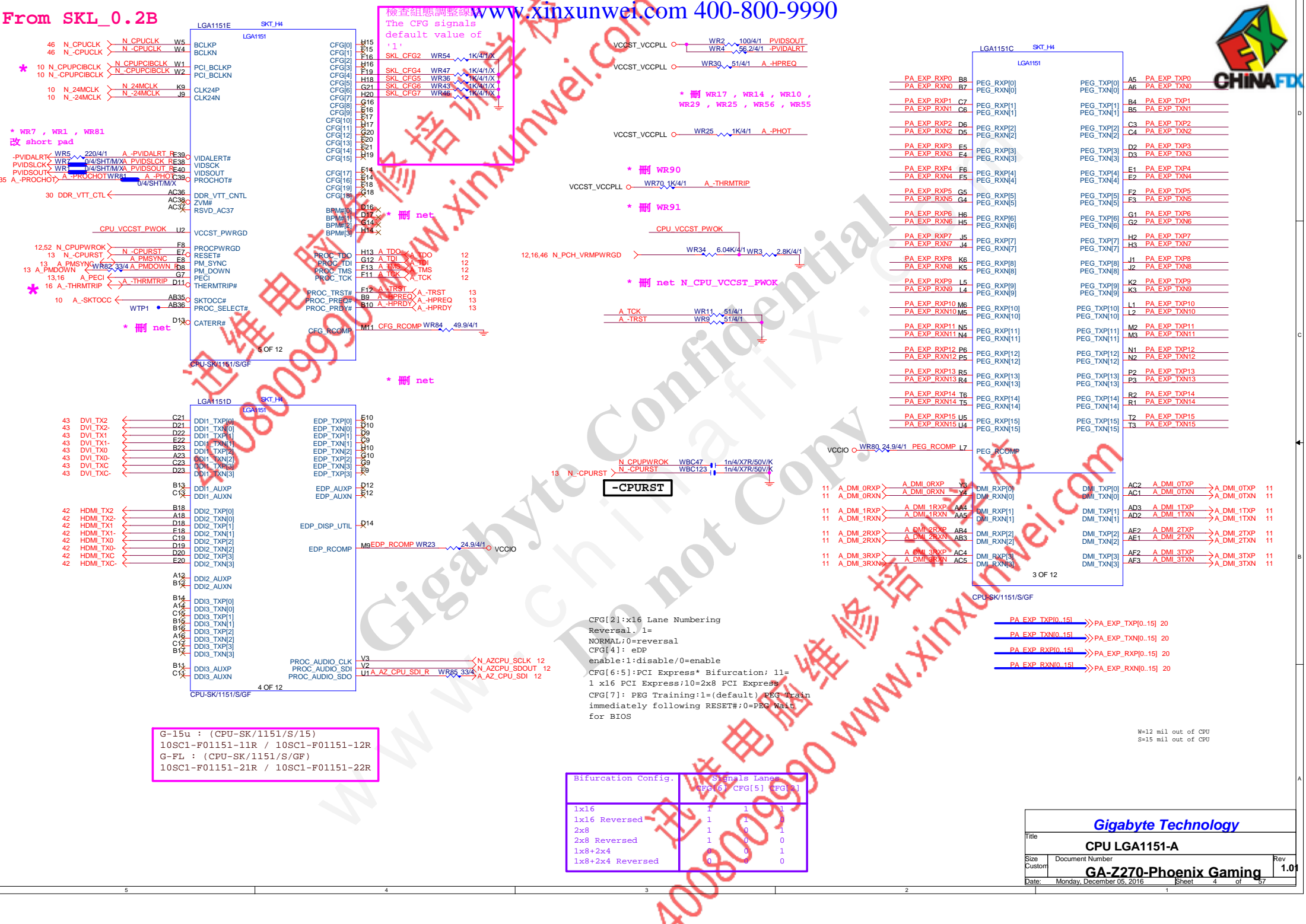
### Component value change history

[illegible]

| DATE               | Change Item   | Reason |
|--------------------|---|--------|
| 2016/08/12<br>0.1  | 1. 從Z270X-ULTRA Gaming 0.1改<br>2. VCore power改假8<br>3. Add M.2 WIFI<br>4. add ITE 7236<br>5. PCIeX16不切X8<br>6. Remove SATA Express<br>7. remove OC button<br>8. remove EC   |        |
| 2016/10/11<br>0.2  | 1. 改IO裝甲、MOSFET Heatsink footprint<br>2. 移除裝甲<br>3. TR1, WR59-61 改0歐姆<br>4. MH1改GND, MH2改dummy<br>5. TBC3改接TPMCLK<br>6. 更新LED模組 <ul style="list-style-type: none"> <li>a. MCU1 power 改成 MCU_PW33</li> <li>b. Remove MCU_PH1, test pin</li> <li>c. 改光條設計</li> <li>d. Add MCUCD9,MCUQ20,MCUR80</li> <li>e. AUDIO背面LED減少</li> </ul> 7. CKR_R18-19, DCCA_R19-20, DACC_R13-14, DCR8, DCR35, CR22, MOATR1, MOATR3改short pad<br>8. SSAC40, SSAC41, SSAC42, SSAC43, SSAC44, SSAC45, SSAC46, SSAC24, SSAC49 0603改為0402<br>9. 改TI3220<br>10. add MCUR81, MCUQ52 and N_GPP_D10<br>11. N_DDPB_CTRLCLK/data跟N_DDFC_CTRLCLK/data訊號對調<br>12. 改圖騰<br>13. 移除CQ11相關元件<br>14. SWAP BRN2, TCA_ESD12<br>15. GPP_G7, GPP_G8改GPP_G0, GPP_G1<br>16. MABC8 改0402<br>18. M.2螺絲孔改ref |        |
| 2016/11/01<br>1.0  | 1. Add DCC1-3, DCC51-55 Intersil今日會來check擺放位置<br>2. MOATR1, MOATR3, CR22改0歐姆,<br>3. 0歐姆改short pad<br>4. CLK_BUFFER 改MASK<br>5. PPR8改接3VDUAL<br>6. 刪除TET header<br>7. 刪除MR25, MC20, MR26, 增加MABC6<br>MABC5, MAR18, MAC44, MAR17, MAC12, MABC6請比照ultra gaming擺放<br>8. VDDQ, VPP_25V, VCC1_0_PCH, VCCSA, VCCIO的VCC層PHASE VIN改dummy請比照ultra Gaming<br>9. 刪除DC_SBC7, DC_SBC8<br>10. 改ref M2PR41, A2PR10 to M2AR41, A2AR10<br>11. 刪除CLK_BUFFER COVER  |        |
| 2016/11/24<br>1.01 | 1. DDR T線寬度 4mil 改為 4.5mil<br>2. 增加DCC50電容  |        |

## BLOCK DIAGRAM





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

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

Gigabyte Technology

CPU LGA1151-A

Title

Document Number

Size Custom

Date: Monday, December 05, 2016

Rev 1.01

Sheet 4 of 57

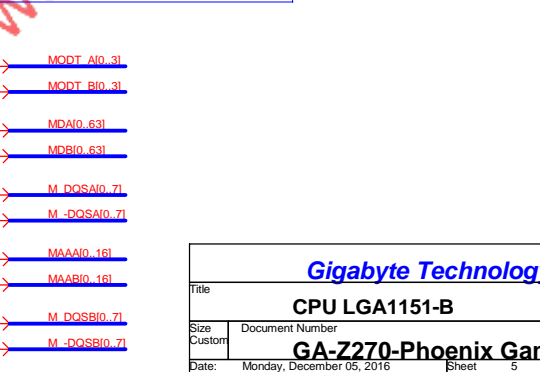
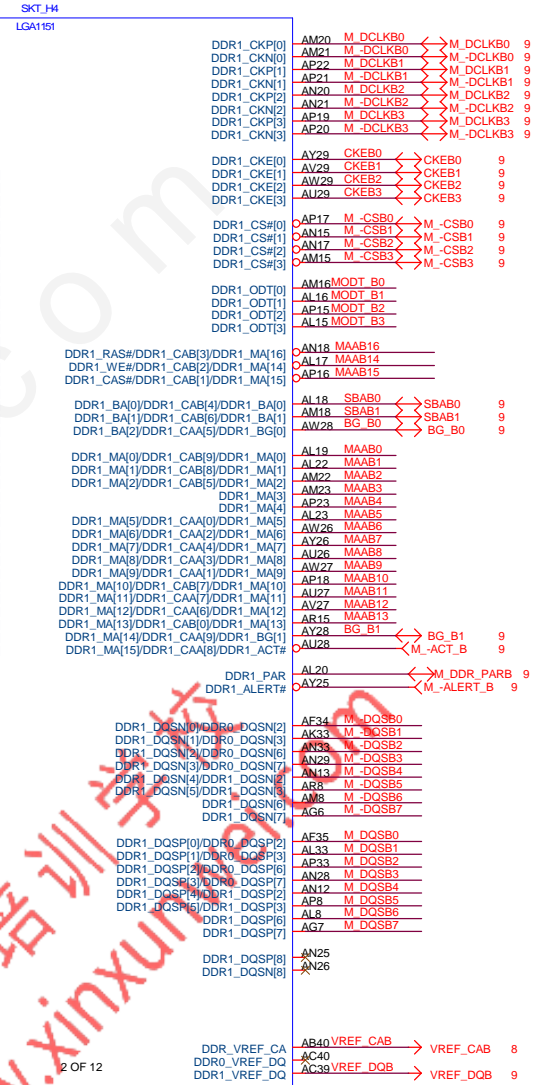
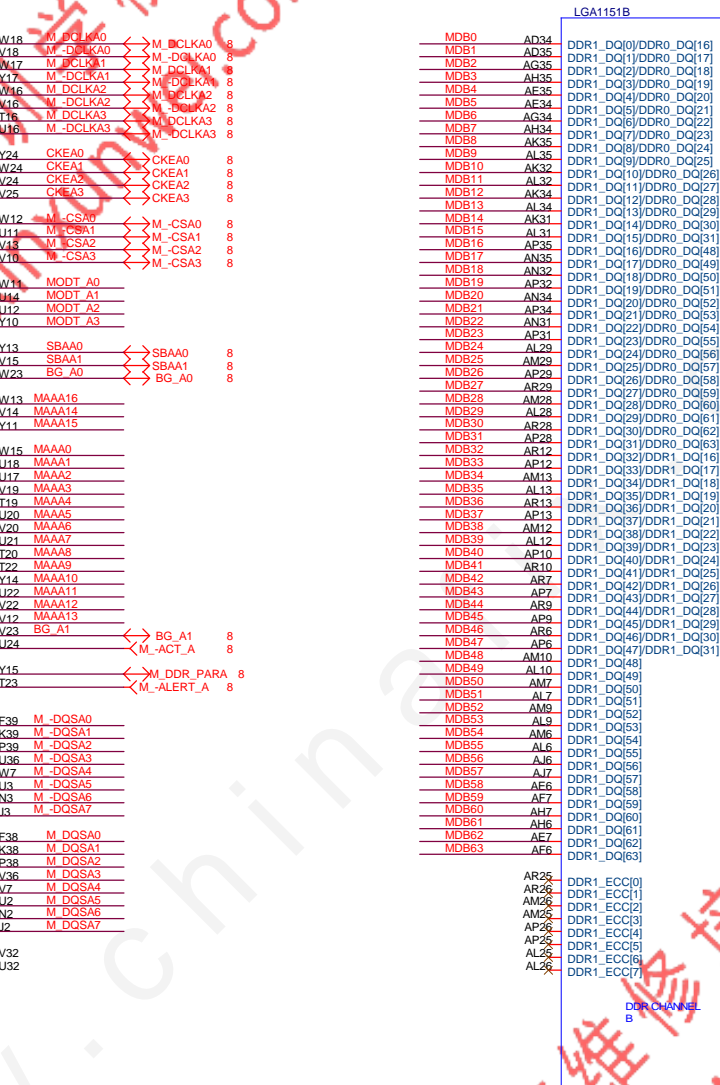
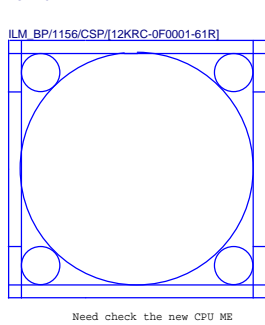
GA-Z270-Phoenix Gaming





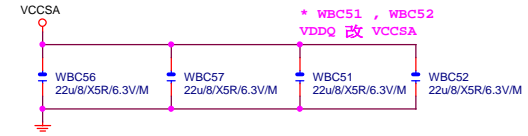
# \* 改DDR4 net

www.xinxunwei.com 400-800-9990

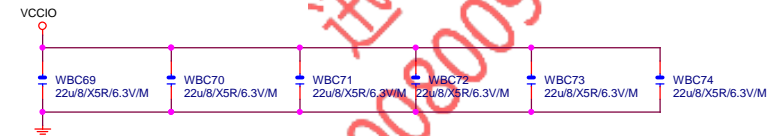
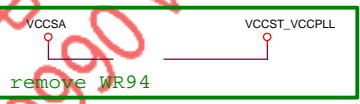
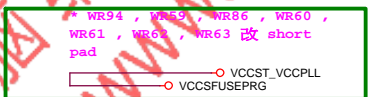




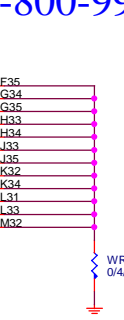
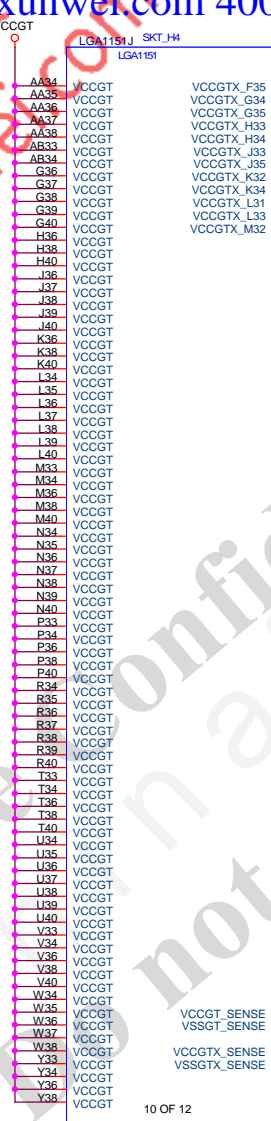
\* WBC49 移到 RT8120\_DDR  
\* 删 WBC50 电容



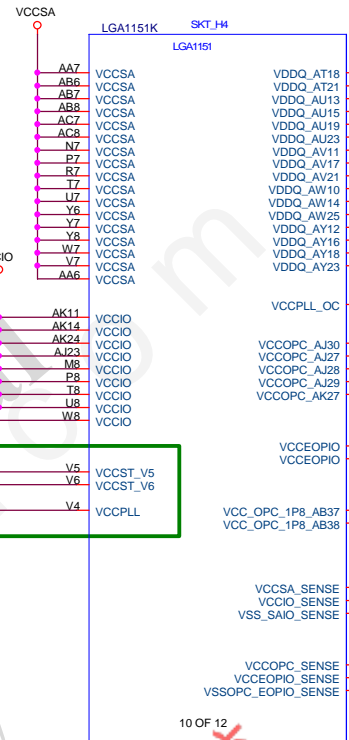
CPU POWER



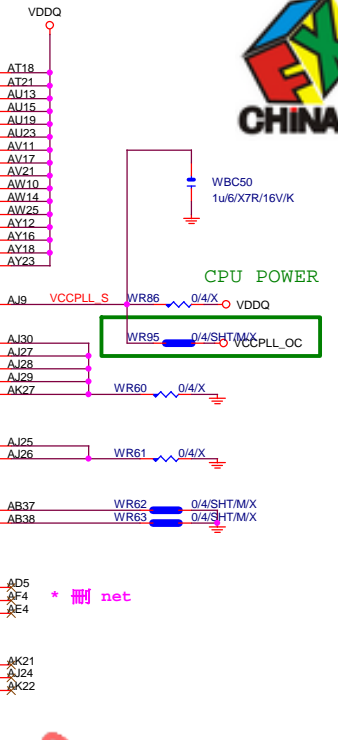
\* 删 VCCGT 电容



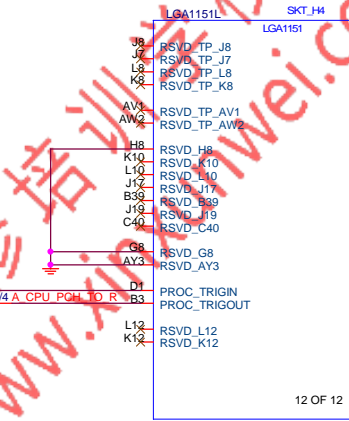
CPU POWER



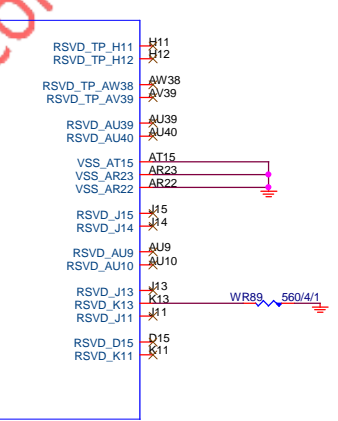
CPU-SK/1151/S/15



CPU-SK/1151/S/15



CPU-SK/1151/S/15

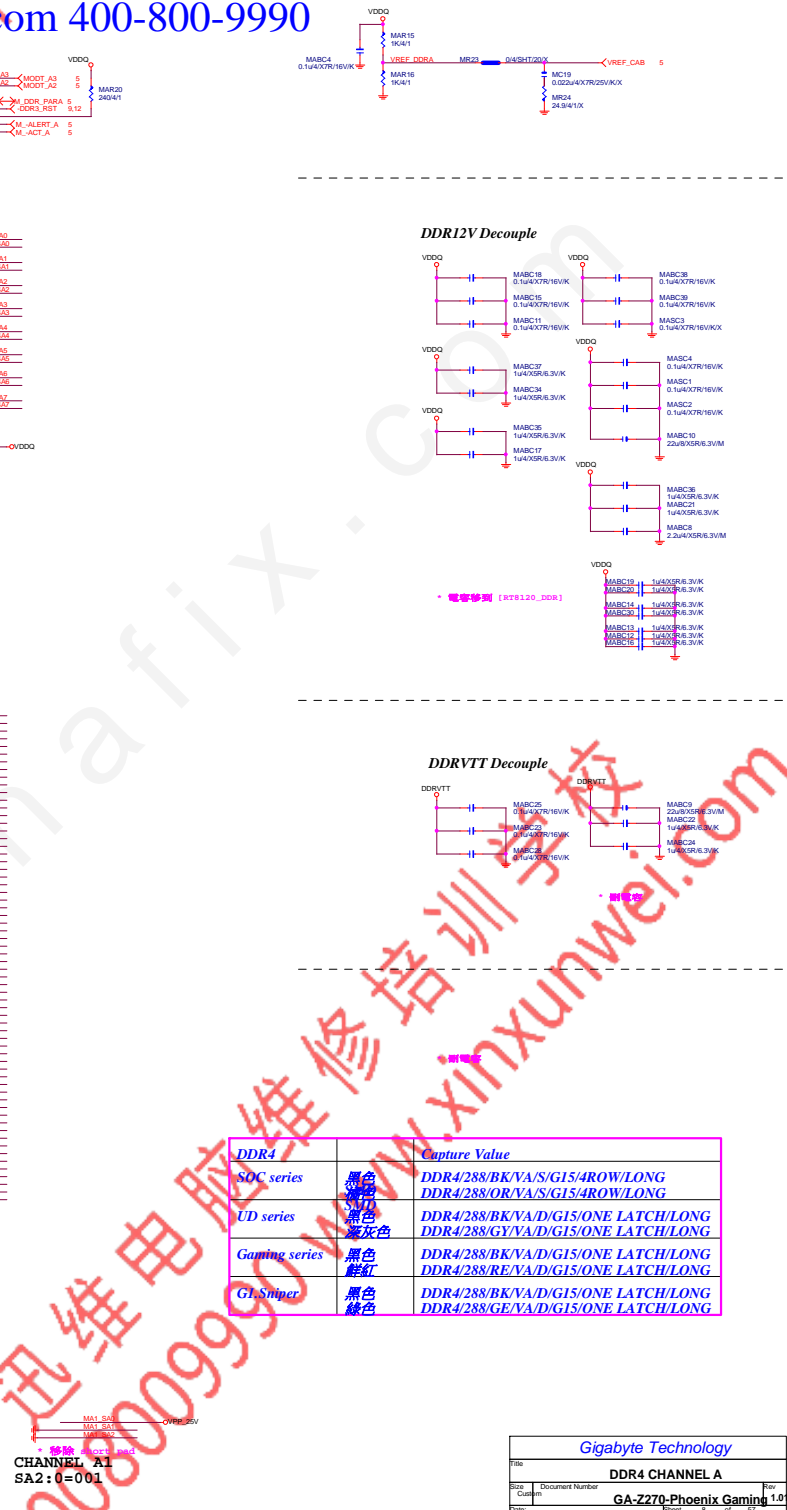
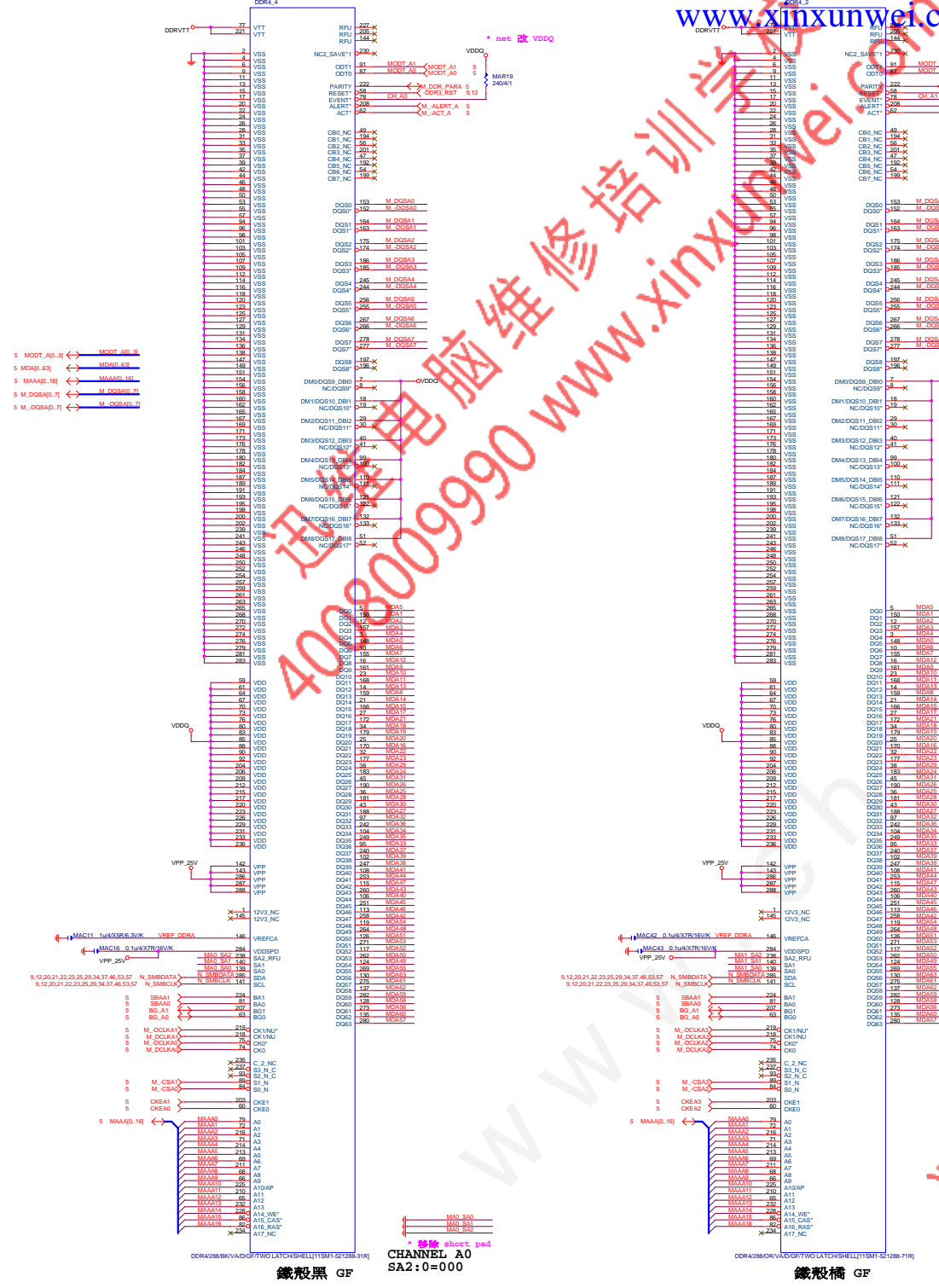


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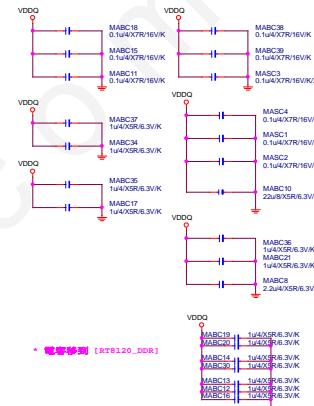
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| CPU LGA1151-C       |                           |       |         |
| Size                | Document Number           | Rev   |         |
| Custom              | GA-Z270-Phoenix Gaming    | 1.01  |         |
| Date:               | Monday, December 05, 2016 | Sheet | 6 of 57 |







### DDR12V Decouple



### DDRVTT Decouple



| DDR4          | Capture Value  |
|---------------|--|
| SOC series    | DDR4/288/BK/VA/S/G15/4ROW/LONG<br>DDR4/288/OR/VA/S/G15/4ROW/LONG           |
| UD series     | DDR4/288/BK/VA/D/G15/ONE LATCH/LONG<br>DDR4/288/GY/VA/D/G15/ONE LATCH/LONG |
| Gaming series | DDR4/288/BK/VA/D/G15/ONE LATCH/LONG<br>DDR4/288/KE/VA/D/G15/ONE LATCH/LONG |
| GI Sniper     | DDR4/288/BK/VA/D/G15/ONE LATCH/LONG<br>DDR4/288/GE/VA/D/G15/ONE LATCH/LONG |

Gigabyte Technology

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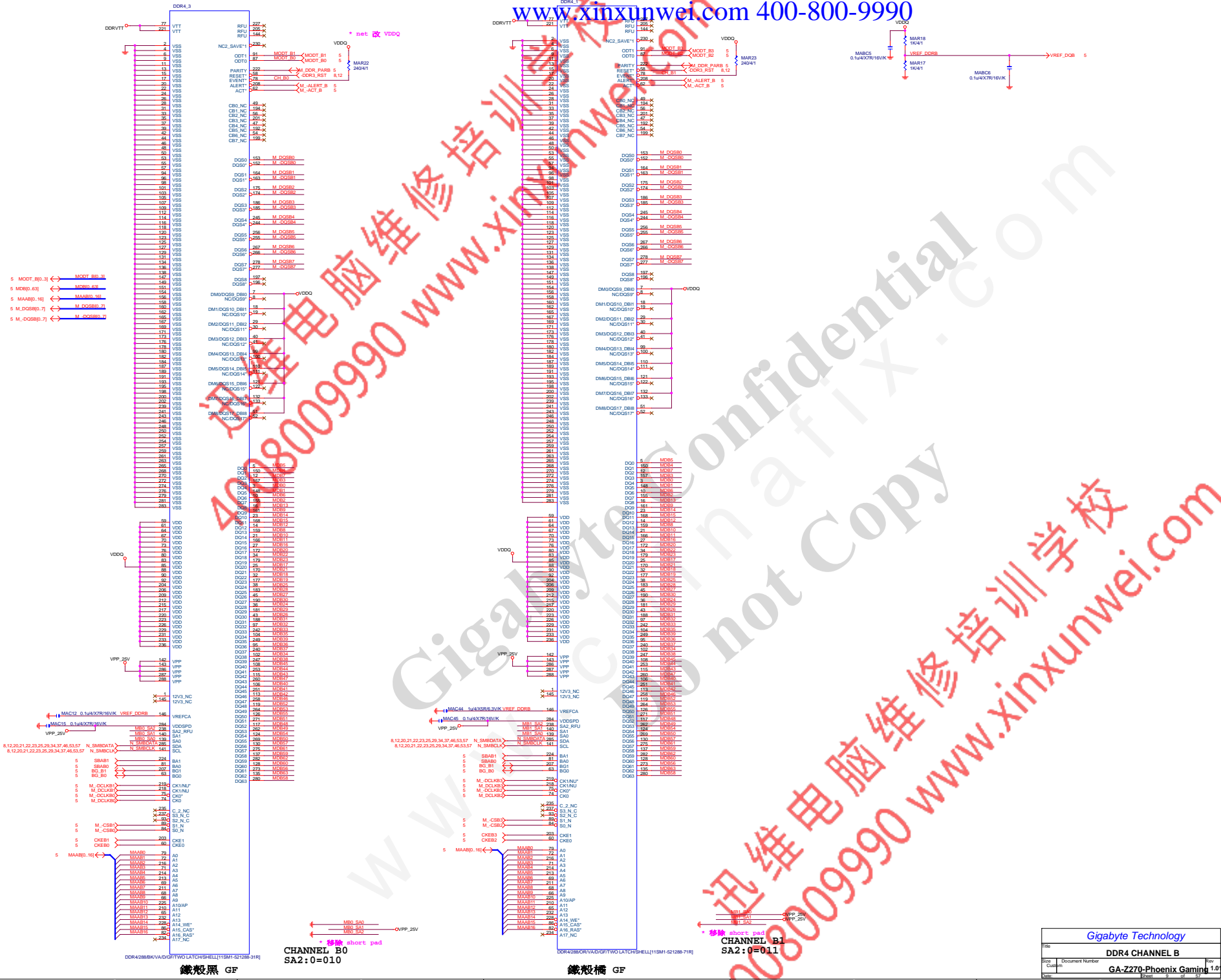
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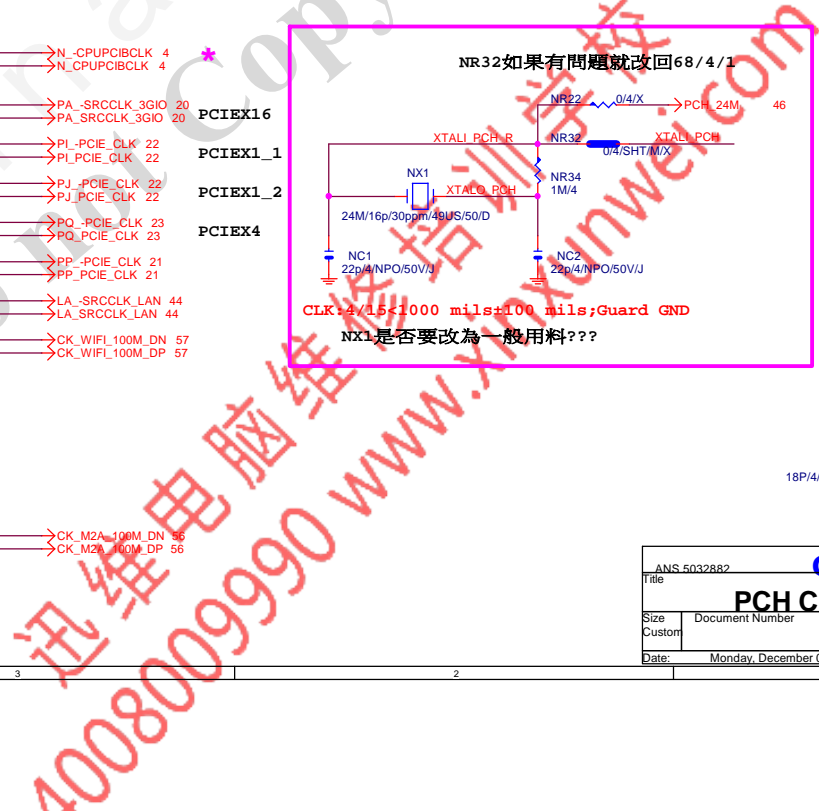
Rev: 1.0

GA-Z270-Phoenix Gaming 1.0





|                            |                |     |
|----------------------------|----------------|-----|
| Gigabyte Technology        |                |     |
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| Size                       | 1000           | Rev |
| Date                       | 2018-01-11     | 1.0 |
| GA-Z270-Phoenix Gaming 1.0 |                |     |

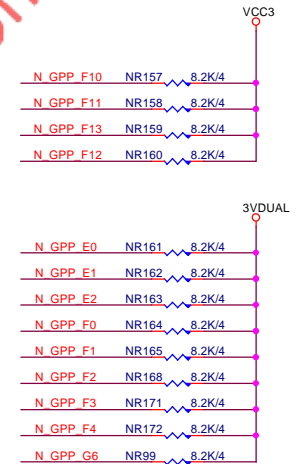
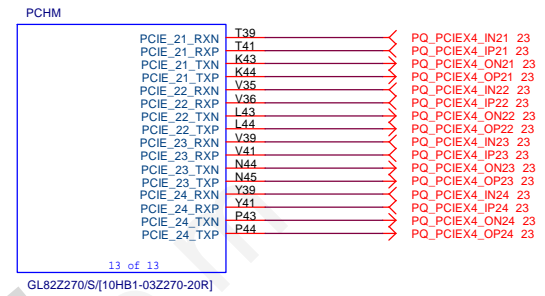


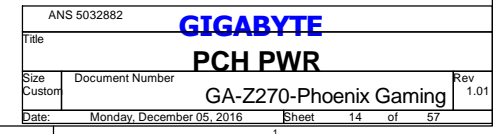








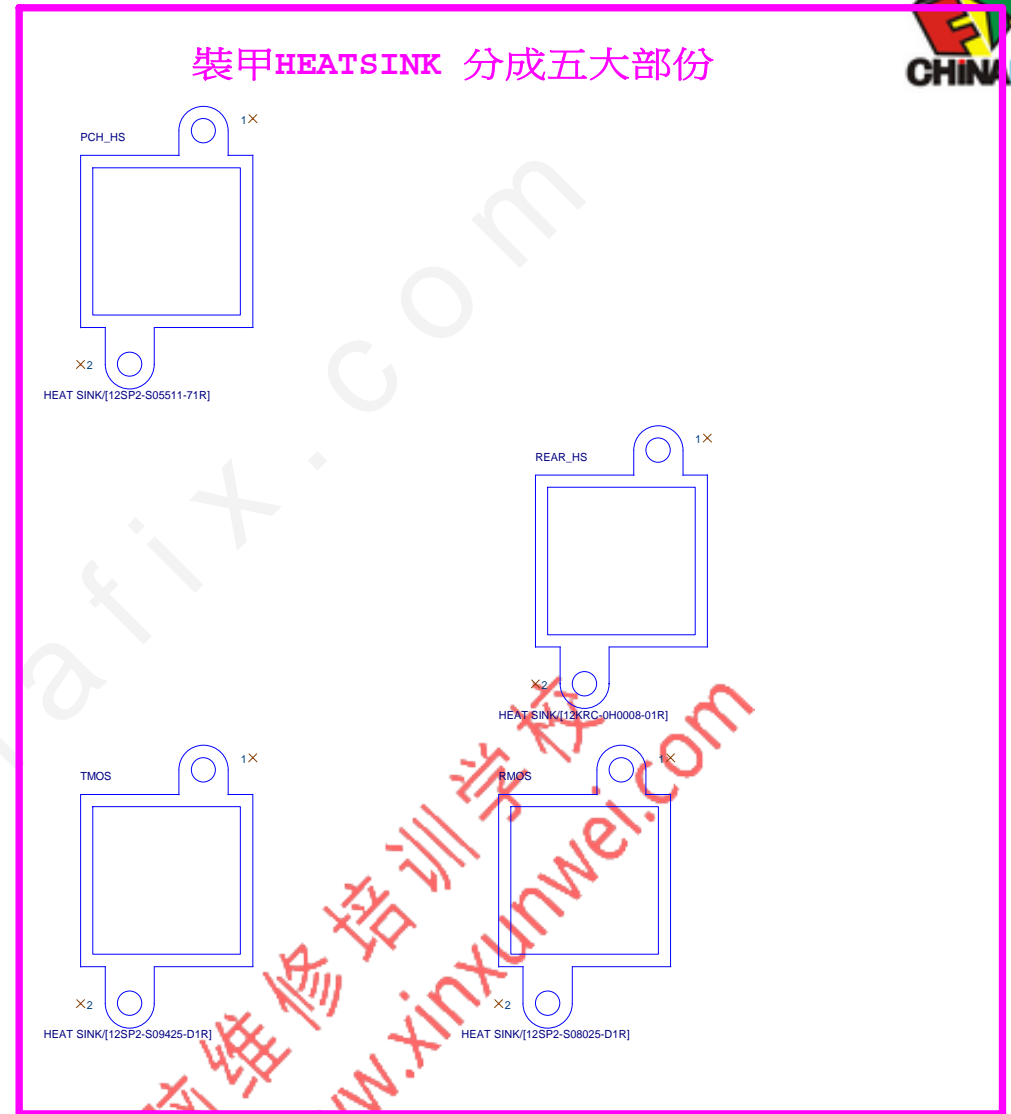




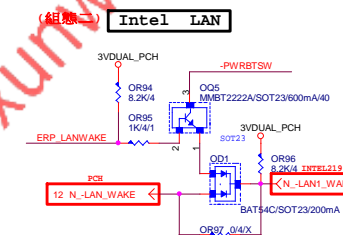
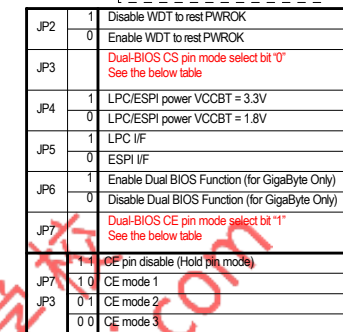
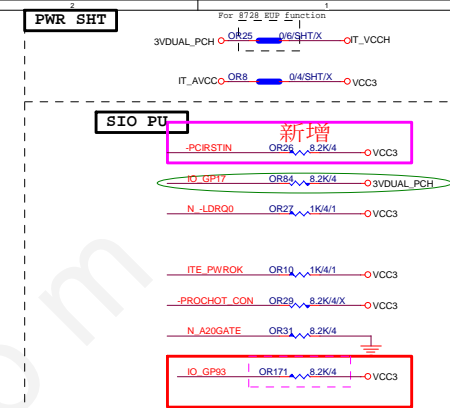
| PCHL |     |      |
|------|-----|------|
| A25  | VSS | A42  |
| A30  | VSS | D45  |
| P22  | VSS | BG44 |
| AV38 | VSS | BE44 |
| AV45 | VSS | BF43 |
| AV8  | VSS | BF2  |
| AY11 | VSS | W29  |
| AY19 | VSS | A35  |
| AY37 | VSS | AG23 |
| AY4  | VSS | A40  |
| AY42 | VSS | AA1  |
| AY8  | VSS | AA17 |
| B25  | VSS | AA18 |
| B3   | VSS | AA20 |
| B30  | VSS | AA21 |
| B35  | VSS | AA26 |
| B4   | VSS | AA28 |
| B41  | VSS | AA29 |
| BA13 | VSS | AB17 |
| BA17 | VSS | AC32 |
| BA37 | VSS | AE4  |
| BA29 | VSS | AE8  |
| BA31 | VSS | AF18 |
| BA37 | VSS | AF20 |
| BA4  | VSS | AF21 |
| BA42 | VSS | AF25 |
| BB40 | VSS | AF28 |
| BC38 | VSS | AF29 |
| BC40 | VSS | AF4  |
| BC9  | VSS | AF42 |
| BD11 | VSS | AG18 |
| BD16 | VSS | AG20 |
| BD2  | VSS | AG21 |
| BD21 | VSS | AG23 |
| BD25 | VSS | AG25 |
| F2   | VSS | AG26 |
| F31  | VSS | AG28 |
| E6   | VSS | AG29 |
| E8   | VSS | AH11 |
| F39  | VSS | AH13 |
| F43  | VSS | AH30 |
| G4   | VSS | AH62 |
| G40  | VSS | AH33 |
| G42  | VSS | AH38 |
| F6   | VSS | AJ1  |
| G9   | VSS | AJ17 |
| H11  | VSS | AJ18 |
| H13  | VSS | AJ20 |
| H17  | VSS | AJ21 |
| H19  | VSS | AJ23 |
| H22  | VSS | AJ25 |
| H24  | VSS | AJ26 |
| H27  | VSS | AJ28 |
| H29  | VSS | AJ29 |
| H33  | VSS | AJ45 |
| H35  | VSS | AK10 |
| H38  | VSS | AK14 |
| H4   | VSS | AK16 |
| H42  | VSS | AK17 |
| H9   | VSS | AK18 |
| J4   | VSS | AK26 |
| M36  | VSS | AK28 |
| M4   | VSS | AM14 |
| M8   | VSS | AN14 |
| M9   | VSS | AP19 |
| N13  | VSS | AR22 |
| N15  | VSS | AR27 |
| N19  | VSS | AU29 |
| N22  | VSS | AU33 |
| N24  | VSS | AV1  |
| N31  | VSS | AV10 |
| N42  | VSS | AV15 |
| P10  | VSS | AV24 |
| P12  | VSS | AV27 |
| AV35 | VSS | AV33 |

9 of 13  
GL82Z270/S/[10HB1-03Z270-20R]

| PCHL |          |      |
|------|----------|------|
| BD34 | VSS[70]  | AB18 |
| BD39 | VSS[71]  | AB20 |
| BD7  | VSS[72]  | AB21 |
| BE2  | VSS[73]  | AB25 |
| BF43 | VSS[74]  | AB29 |
| BF2  | VSS[75]  | AB4  |
| BG18 | VSS[76]  | AB42 |
| BG23 | VSS[77]  | AC10 |
| BG28 | VSS[78]  | AC14 |
| BG32 | VSS[79]  | AC16 |
| BG37 | VSS[80]  | AC18 |
| BG40 | VSS[81]  | AC4  |
| BG9  | VSS[83]  | AC5  |
| C1   | VSS[84]  | AC7  |
| A12  | VSS[85]  | AC8  |
| C2   | VSS[86]  | AD1  |
| AG2  | VSS[87]  | AD18 |
| A6   | VSS[88]  | AD20 |
| AG32 | VSS[89]  | AD21 |
| D1   | VSS[90]  | AD25 |
| D10  | VSS[91]  | AD29 |
| D12  | VSS[92]  | AD45 |
| D15  | VSS[93]  | AE11 |
| D16  | VSS[94]  | AE14 |
| D19  | VSS[95]  | AE32 |
| D21  | VSS[96]  | AE33 |
| D24  | VSS[97]  | AE38 |
| D25  | VSS[98]  | AK29 |
| D39  | VSS[99]  | AK30 |
| D39  | VSS[100] | AK32 |
| D39  | VSS[101] | AK35 |
| D39  | VSS[102] | AK39 |
| D39  | VSS[103] | AL4  |
| D39  | VSS[104] | AL42 |
| D39  | VSS[105] | AM10 |
| D44  | VSS[106] | AM11 |
| D7   | VSS[107] | AM13 |
| P13  | VSS[108] | AM17 |
| P15  | VSS[109] | AM19 |
| P17  | VSS[110] | AM24 |
| P19  | VSS[111] | AM27 |
| P31  | VSS[112] | AM29 |
| P33  | VSS[113] | AM32 |
| P35  | VSS[114] | AM33 |
| P4   | VSS[115] | AM4  |
| P42  | VSS[116] | AN45 |
| P8   | VSS[117] | AP10 |
| R1   | VSS[118] | AP11 |
| R32  | VSS[119] | AP15 |
| T10  | VSS[120] | AP22 |
| T14  | VSS[121] | AP27 |
| T22  | VSS[122] | AP31 |
| T29  | VSS[123] | AP33 |
| T32  | VSS[124] | AP34 |
| T36  | VSS[125] | AP39 |
| T38  | VSS[126] | T4   |
| Y38  | VSS[127] | W26  |
| Y4   | VSS[128] | V16  |
| Y8   | VSS[129] | V17  |
| Y8   | VSS[130] | V18  |
| T42  | VSS[131] | V30  |
| T5   | VSS[132] | V32  |
| U4   | VSS[133] | V33  |
| U42  | VSS[134] | V38  |
| V10  | VSS[135] | V4   |
| V14  | VSS[136] | V8   |
| V159 | VSS[137] | W18  |
| W3   | VSS[138] | W20  |
| W3   | VSS[139] | W21  |
| W3   | VSS[140] | W23  |
| W3   | VSS[141] | W25  |
| W3   | VSS[142] | W25  |
| W3   | VSS[143] | W25  |
| W3   | VSS[144] | W25  |
| W3   | VSS[145] | W25  |
| W3   | VSS[146] | W25  |
| W3   | VSS[147] | W25  |
| W3   | VSS[148] | W25  |
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| W3   | VSS[150] | W25  |
| W3   | VSS[151] | W25  |
| W3   | VSS[152] | W25  |
| W3   | VSS[153] | W25  |
| W3   | VSS[154] | W25  |
| W3   | VSS[155] | W25  |
| W3   | VSS[156] | W25  |
| W3   | VSS[157] | W25  |
| W3   | VSS[158] | W25  |
| W3   | VSS[159] | W25  |
| W3   | VSS[160] | W25  |
| W3   | VSS[161] | W25  |
| W3   | VSS[162] | W25  |
| W3   | VSS[163] | W25  |
| W3   | VSS[164] | W25  |
| W3   | VSS[165] | W25  |
| W3   | VSS[166] | W25  |
| W3   | VSS[167] | W25  |
| W3   | VSS[168] | W25  |
| W3   | VSS[169] | W25  |
| W3   | VSS[170] | W25  |
| W3   | VSS[171] | W25  |
| W3   | VSS[172] | W25  |
| W3   | VSS[173] | W25  |
| W3   | VSS[174] | W25  |
| W3   | VSS[175] | W25  |
| W3   | VSS[176] | W25  |
| W3   | VSS[177] | W25  |
| W3   | VSS[178] | W25  |
| W3   | VSS[179] | W25  |
| W3   | VSS[180] | W25  |
| W3   | VSS[181] | W25  |
| W3   | VSS[182] | W25  |
| W3   | VSS[183] | W25  |
| W3   | VSS[184] | W25  |
| W3   | VSS[185] | W25  |
| W3   | VSS[186] | W25  |
| W3   | VSS[187] | W25  |
| W3   | VSS[188] | W25  |
| W3   | VSS[189] | W25  |
| W3   | VSS[190] | W25  |
| W3   | VSS[191] | W25  |
| W3   | VSS[192] | W25  |
| W3   | VSS[193] | W25  |
| W3   | VSS[194] | W25  |
| W3   | VSS[195] | W25  |
| W3   | VSS[196] | W25  |
| W3   | VSS[197] | W25  |
| W3   | VSS[198] | W25  |
| W3   | VSS[199] | W25  |
| W3   | VSS[200] | W25  |

12 of 13  
GL82Z270/S/[10HB1-03Z270-20R]

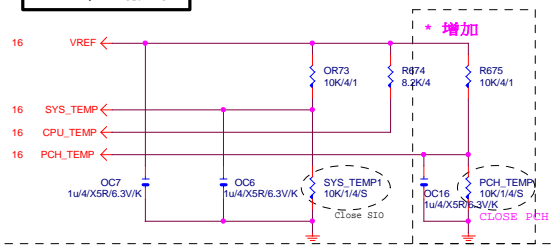
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|-------------|---------------------------|------------------------|-----------------|----------|
| ANS 5032882 |                           |                        | <b>GIGABYTE</b> |          |
| Title       |                           |                        | <b>PCH GND</b>  |          |
| Size        | Document Number           | GA-Z270-Phoenix Gaming |                 | Rev 1.01 |
| Custom      |                           |                        |                 |          |
| Date:       | Monday, December 05, 2016 | Sheet                  | 15              | of 57    |



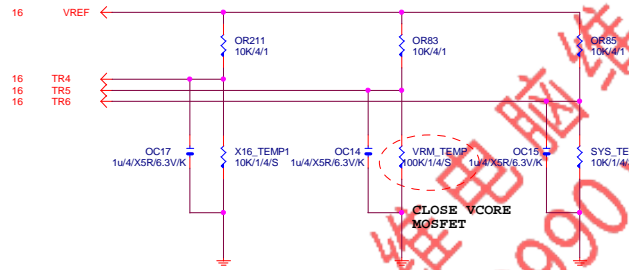
|                            |                               |       |          |
|----------------------------|-------------------------------|-------|----------|
| <b>Gigabyte Technology</b> |                               |       |          |
| Title                      |                               |       |          |
| <b>IT8686</b>              |                               |       |          |
| Size<br>C                  | Document Number               |       |          |
|                            | <b>GA-Z270-Phoenix Gaming</b> |       |          |
| Date:                      | Monday, December 05, 2016     | Sheet | 16 of 57 |



# TEMP H/W MONITOR

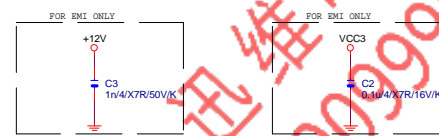
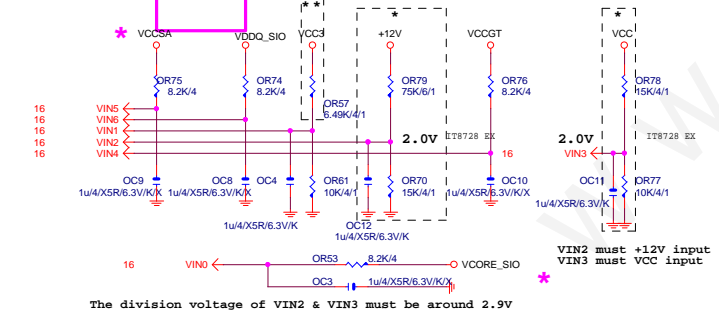


## 5個FAN時使用



## 8個FAN時使用

# VOLTAGE-- H/W MONITOR



★Update 2015-04.24

| Gigabyte Technology |                           |                |
|---------------------|---------------------------|----------------|
| Title               | HWM,KB/MS, FAN CTRL       |                |
| Size                | Document Number           | Rev            |
| Custom              | GA-Z270-Phoenix Gaming    | 1.01           |
| Date:               | Monday, December 05, 2016 | Sheet 17 of 57 |



指定用DII

指定用DII

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

1 means floating  
0 means PD 1K

BIOS\_SW

| BIOS_SW |             |
|---------|-------------|
| 1       | MAIN_BIOS   |
| 2       | BACKUP_BIOS |

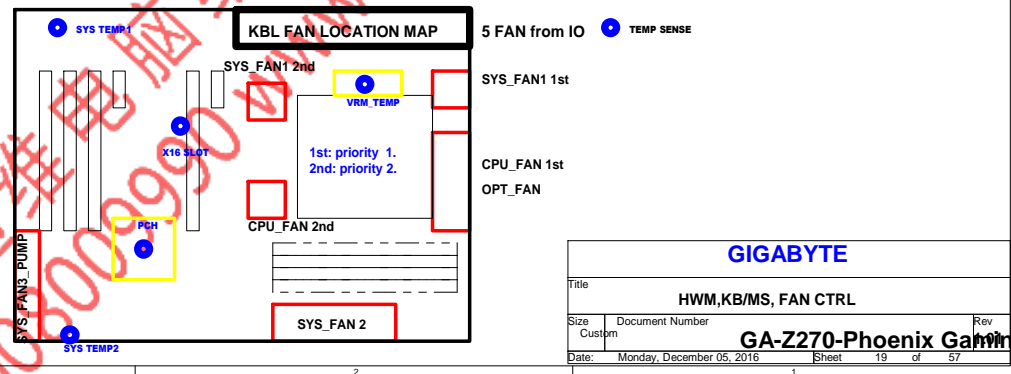
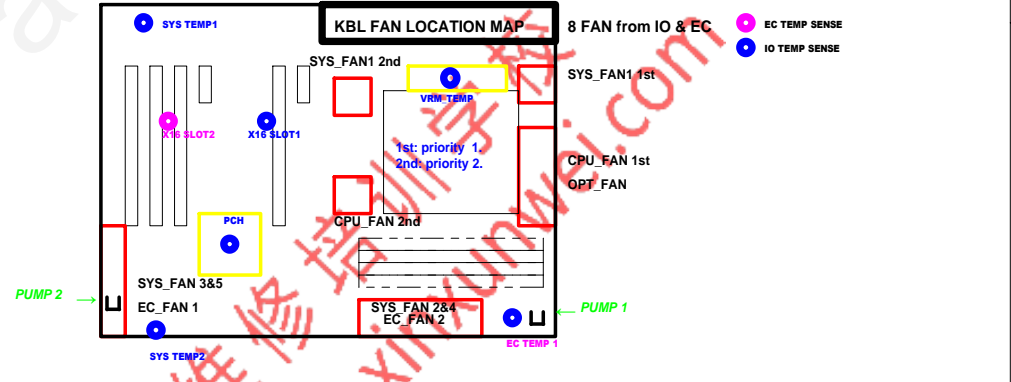
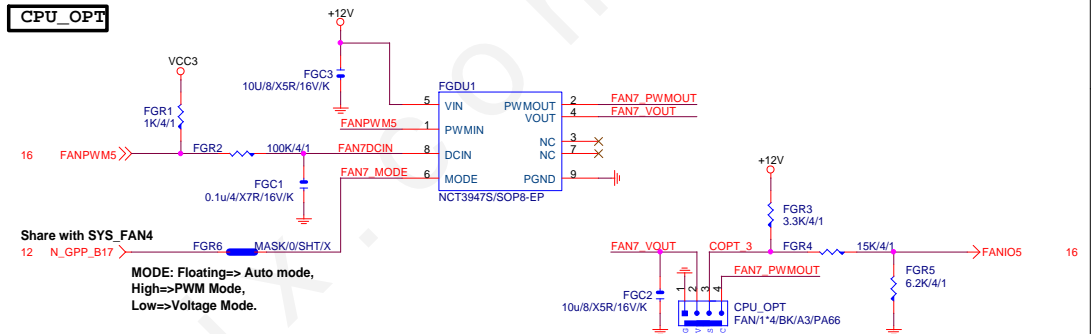
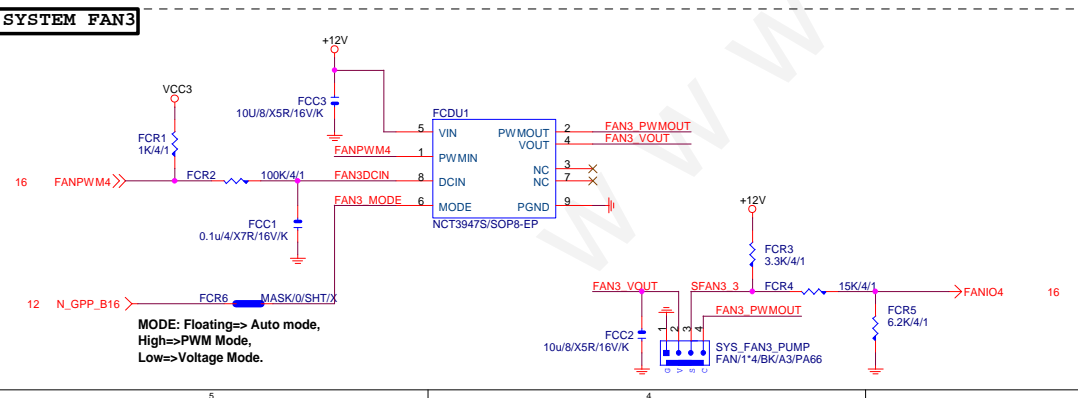
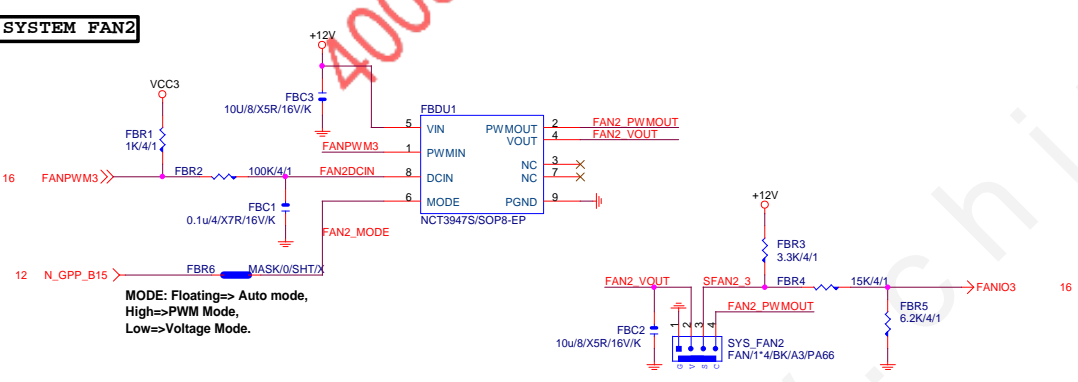
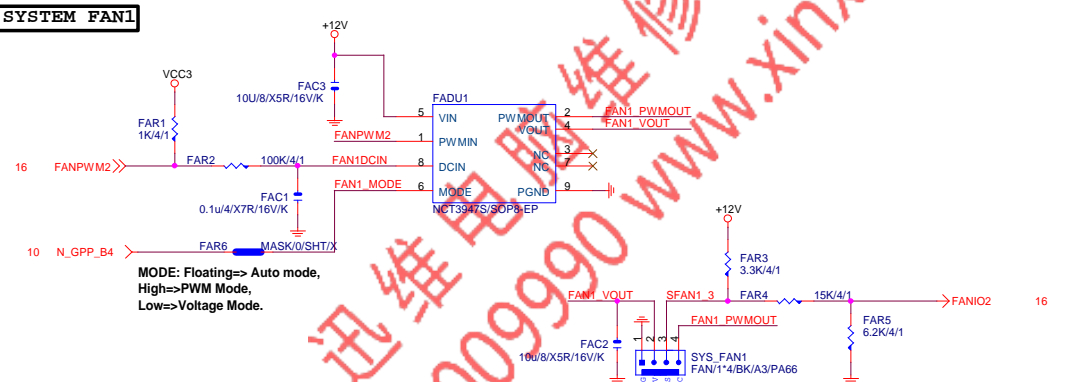
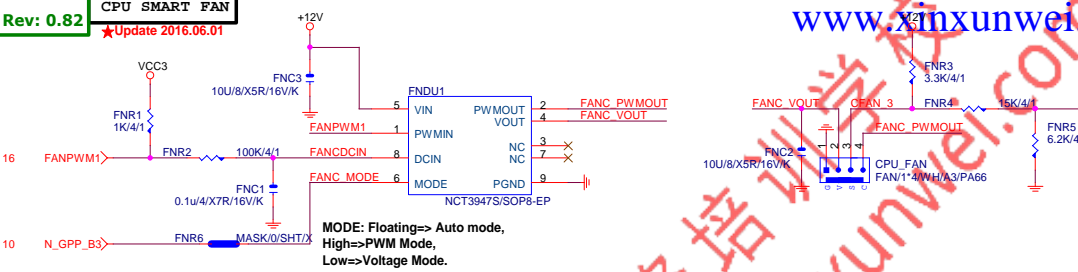
SB:Single BIOS  
Disable  
Enable

Gigabyte Technology

| Title  |                           | BIOS                   |
|--------|---------------------------|------------------------|
| Size   | Document Number           | GA-Z270-Phoenix Gaming |
| Custom |                           | Rev 1.01               |
| Date:  | Monday, December 05, 2016 | Sheet 18 of 57         |



Rev: 0.82  
★Update 2016.06.01

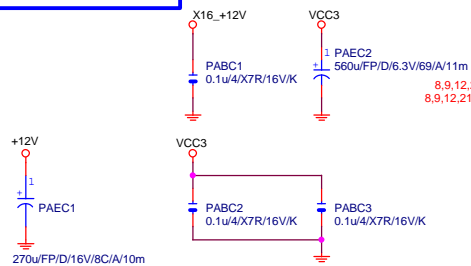


Rev 0.3

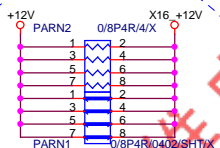
PCIEX16 CAP

PCIEX16 SLOT

www.xinxunwei.com 400-800-9990

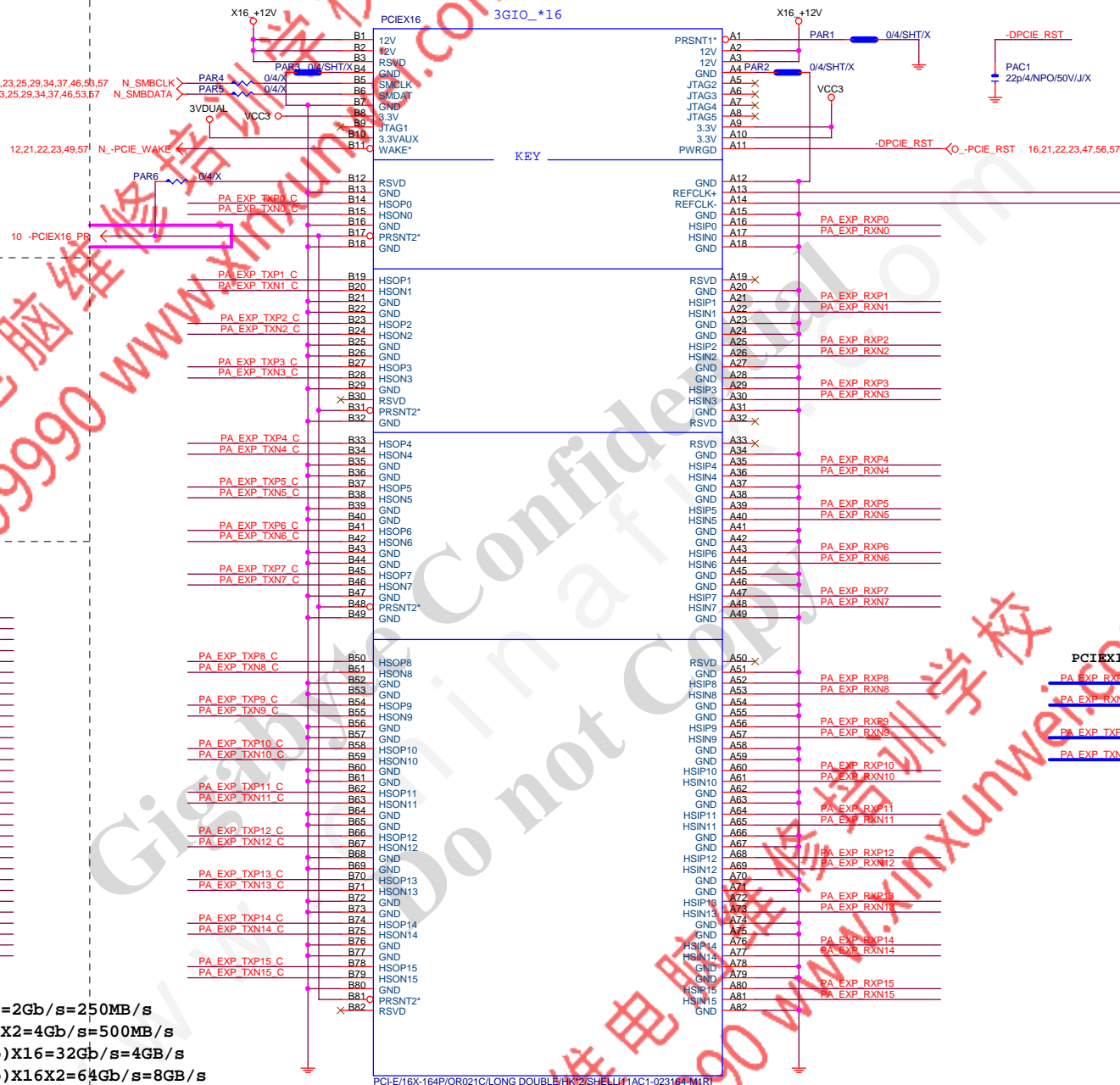


PCIEX16 PROTECT SHT

+12 protect  
short-wire  
test

PCIEX16 AC CAP

|              |       |                  |                |
|--------------|-------|------------------|----------------|
| PA EXP TXP0  | PAC5  | 0.22u/4X5R6.3V/K | PA EXP TXP0 C  |
| PA EXP TXN0  | PAC4  | 0.22u/4X5R6.3V/K | PA EXP TXN0 C  |
| PA EXP TXP1  | PAC6  | 0.22u/4X5R6.3V/K | PA EXP TXP1 C  |
| PA EXP TXN1  | PAC7  | 0.22u/4X5R6.3V/K | PA EXP TXN1 C  |
| PA EXP TXP2  | PAC8  | 0.22u/4X5R6.3V/K | PA EXP TXP2 C  |
| PA EXP TXN2  | PAC9  | 0.22u/4X5R6.3V/K | PA EXP TXN2 C  |
| PA EXP TXP3  | PAC10 | 0.22u/4X5R6.3V/K | PA EXP TXP3 C  |
| PA EXP TXN3  | PAC11 | 0.22u/4X5R6.3V/K | PA EXP TXN3 C  |
| PA EXP TXP4  | PAC12 | 0.22u/4X5R6.3V/K | PA EXP TXP4 C  |
| PA EXP TXN4  | PAC13 | 0.22u/4X5R6.3V/K | PA EXP TXN4 C  |
| PA EXP TXP5  | PAC14 | 0.22u/4X5R6.3V/K | PA EXP TXP5 C  |
| PA EXP TXN5  | PAC15 | 0.22u/4X5R6.3V/K | PA EXP TXN5 C  |
| PA EXP TXP6  | PAC16 | 0.22u/4X5R6.3V/K | PA EXP TXP6 C  |
| PA EXP TXN6  | PAC17 | 0.22u/4X5R6.3V/K | PA EXP TXN6 C  |
| PA EXP TXP7  | PAC18 | 0.22u/4X5R6.3V/K | PA EXP TXP7 C  |
| PA EXP TXN7  | PAC19 | 0.22u/4X5R6.3V/K | PA EXP TXN7 C  |
| PA EXP TXP8  | PAC21 | 0.22u/4X5R6.3V/K | PA EXP TXP8 C  |
| PA EXP TXN8  | PAC20 | 0.22u/4X5R6.3V/K | PA EXP TXN8 C  |
| PA EXP TXP9  | PAC22 | 0.22u/4X5R6.3V/K | PA EXP TXP9 C  |
| PA EXP TXN9  | PAC23 | 0.22u/4X5R6.3V/K | PA EXP TXN9 C  |
| PA EXP TXP10 | PAC24 | 0.22u/4X5R6.3V/K | PA EXP TXP10 C |
| PA EXP TXN10 | PAC25 | 0.22u/4X5R6.3V/K | PA EXP TXN10 C |
| PA EXP TXP11 | PAC26 | 0.22u/4X5R6.3V/K | PA EXP TXP11 C |
| PA EXP TXN11 | PAC27 | 0.22u/4X5R6.3V/K | PA EXP TXN11 C |
| PA EXP TXP12 | PAC28 | 0.22u/4X5R6.3V/K | PA EXP TXP12 C |
| PA EXP TXN12 | PAC29 | 0.22u/4X5R6.3V/K | PA EXP TXN12 C |
| PA EXP TXP13 | PAC30 | 0.22u/4X5R6.3V/K | PA EXP TXP13 C |
| PA EXP TXN13 | PAC31 | 0.22u/4X5R6.3V/K | PA EXP TXN13 C |
| PA EXP TXP14 | PAC32 | 0.22u/4X5R6.3V/K | PA EXP TXP14 C |
| PA EXP TXN14 | PAC33 | 0.22u/4X5R6.3V/K | PA EXP TXN14 C |
| PA EXP TXP15 | PAC34 | 0.22u/4X5R6.3V/K | PA EXP TXP15 C |
| PA EXP TXN15 | PAC35 | 0.22u/4X5R6.3V/K | PA EXP TXN15 C |



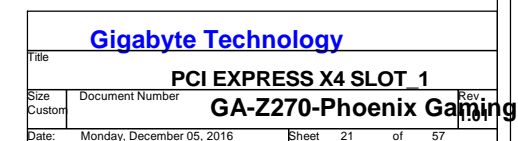
橘色金屬加強

PCIEX16:16/5/5/16

|                  |                  |   |
|------------------|------------------|---|
| PA EXP TXP0.15]  | PA EXP RXP0.15]  | 4 |
| PA EXP TXN0.15]  | PA EXP RXN0.15]  | 4 |
| PA EXP TXP10.15] | PA EXP TXP10.15] | 4 |
| PA EXP TXN10.15] | PA EXP TXN10.15] | 4 |

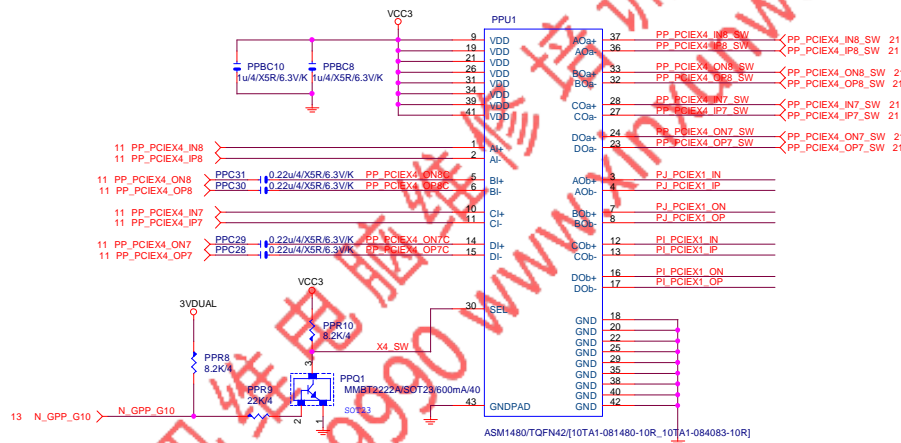
|                  |                           |       |          |
|------------------|---------------------------|-------|----------|
| GIGABYTE         |                           |       |          |
| PCI EXPRESS * 16 |                           |       |          |
| Size             | Document Number           | Rev   | 1.0      |
| Custom           | GA-Z270-Phoenix Gaming    |       |          |
| Date:            | Monday, December 05, 2016 | Sheet | 20 of 57 |



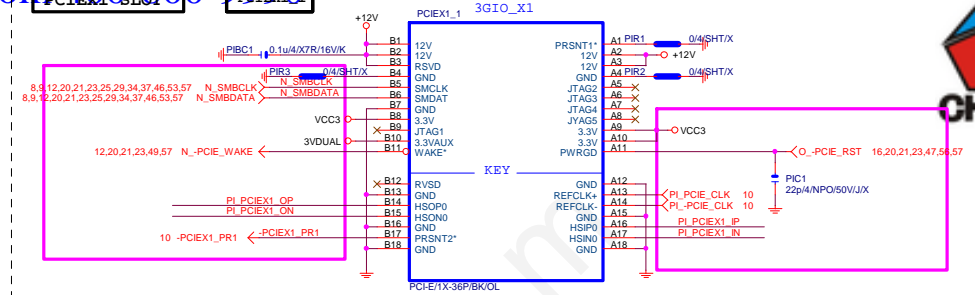




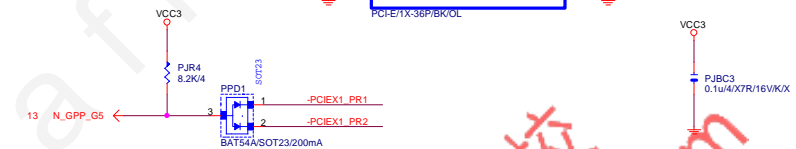
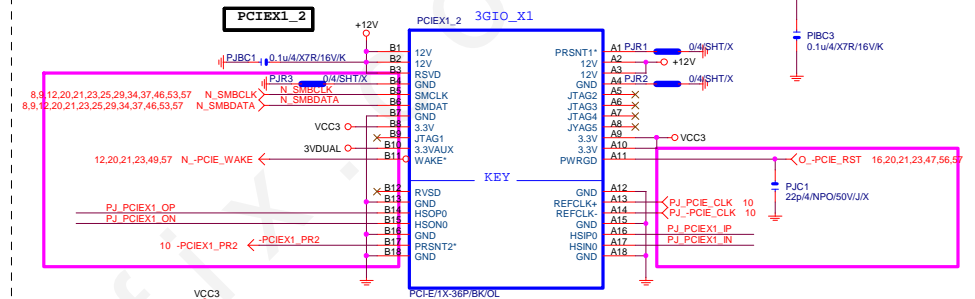
PCIEX4/X1 SWITCH



PCIEX1 SLOT



## PCIEX1\_2

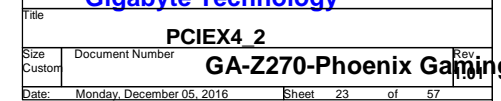


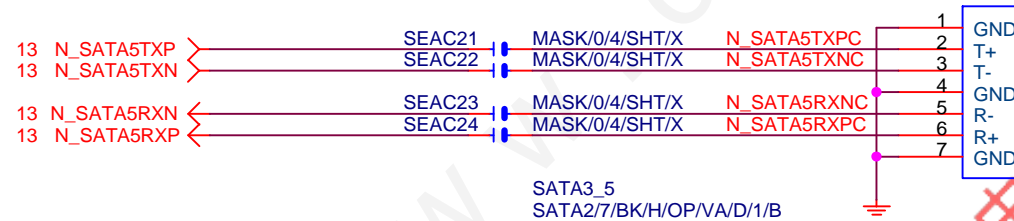
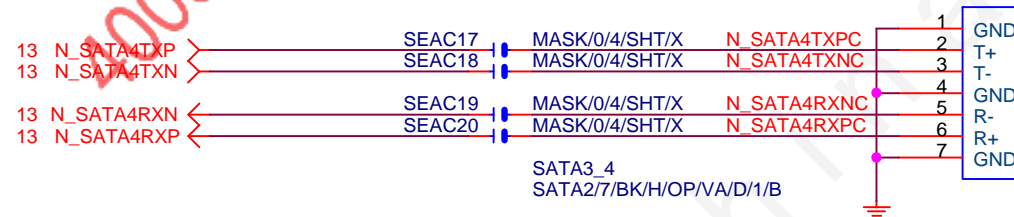
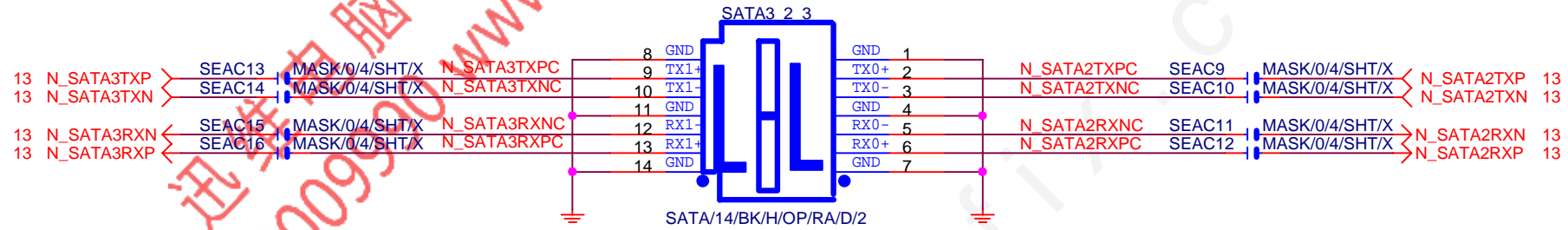
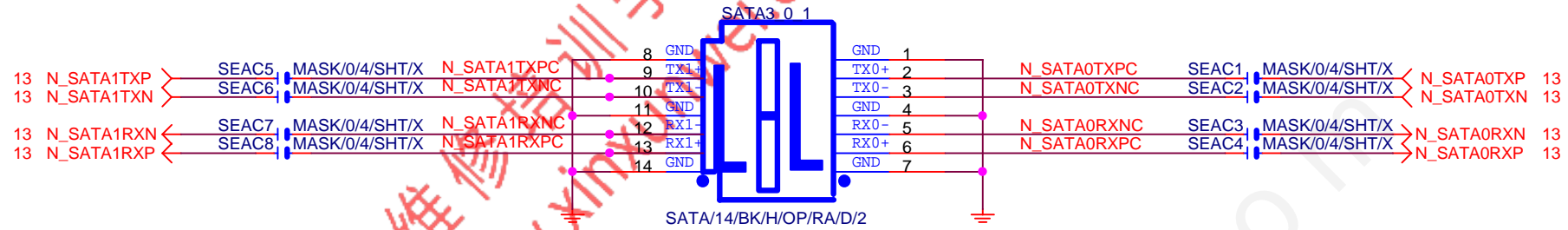
|                   | GPI         |            |
|-------------------|-------------|------------|
|                   | PCH GPP_D16 | PCH GPP_G5 |
| PCIEX4 ONLY       | 0           | 1          |
| PCIEx2 + PCIEx1*2 | 0           | 0          |

|             |
|-------------|
| GPO         |
| PCH GPP_G10 |
| 1           |
| 0           |

| M.E. Config |    |        |        |
|-------------|----|--------|--------|
| P5          | P6 | P7     | P8     |
| PCIEx4      |    |        |        |
| PCIEx2      |    | PCIEx1 | PCIEx1 |

PCIE\*4



**Gigabyte Technology**

Title

**SATA EXPRESS**

Size

Document Number

Rev

**GA-Z270-Phoenix Gaming****1.01**

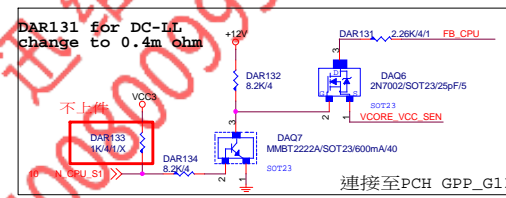
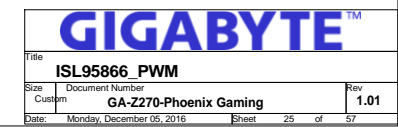
Date:

Monday, December 05, 2016

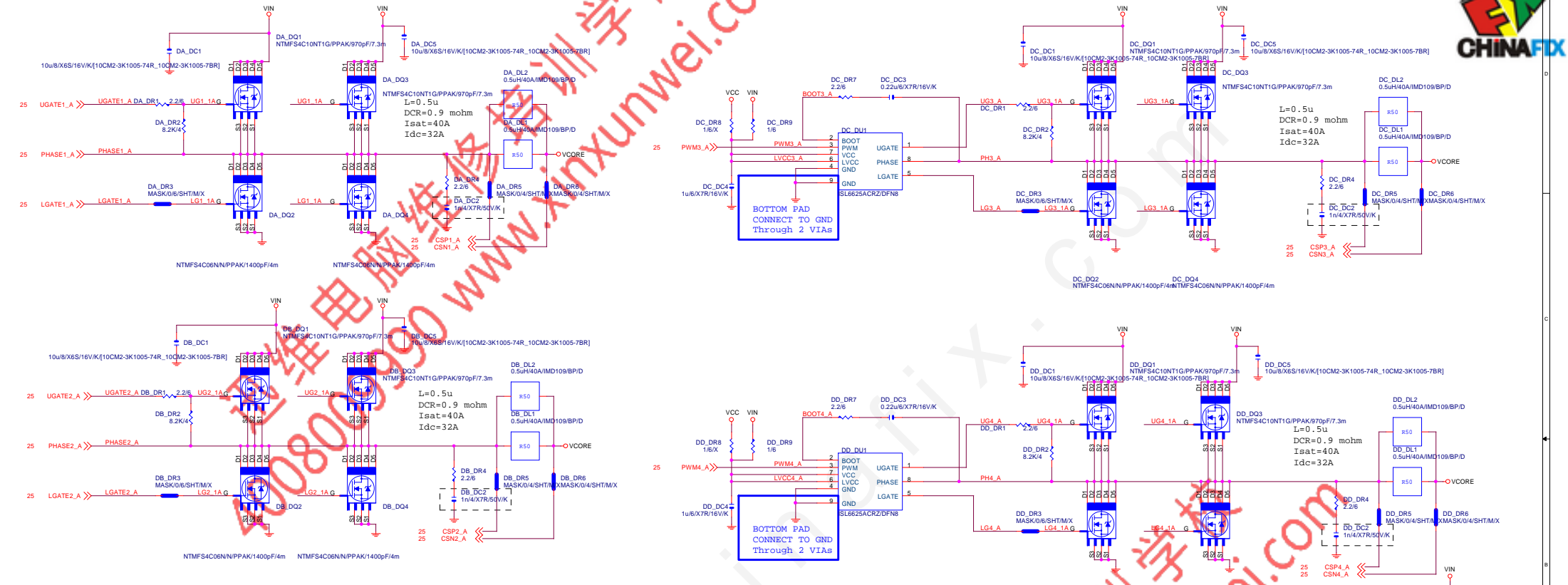
Sheet

24 of 57

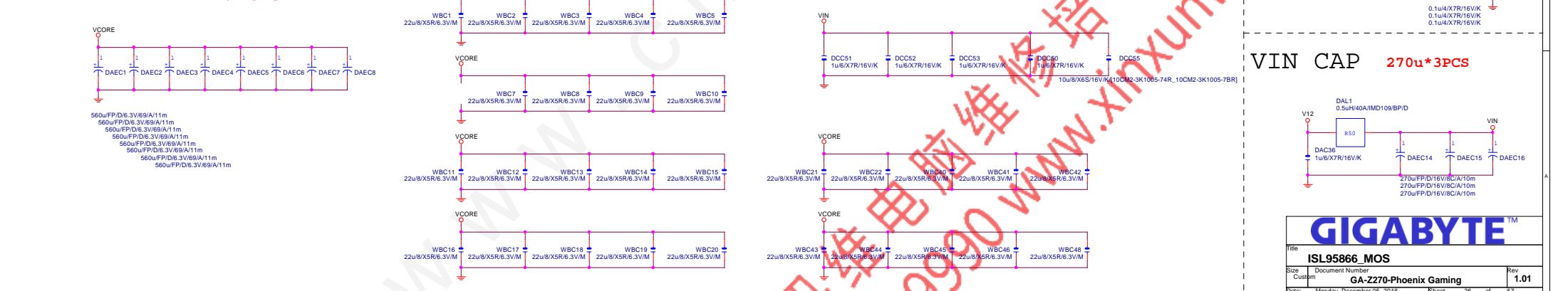




VCORE



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



**GIGABYTE™**

ISL95866\_MOS

Size: Custom Document Number

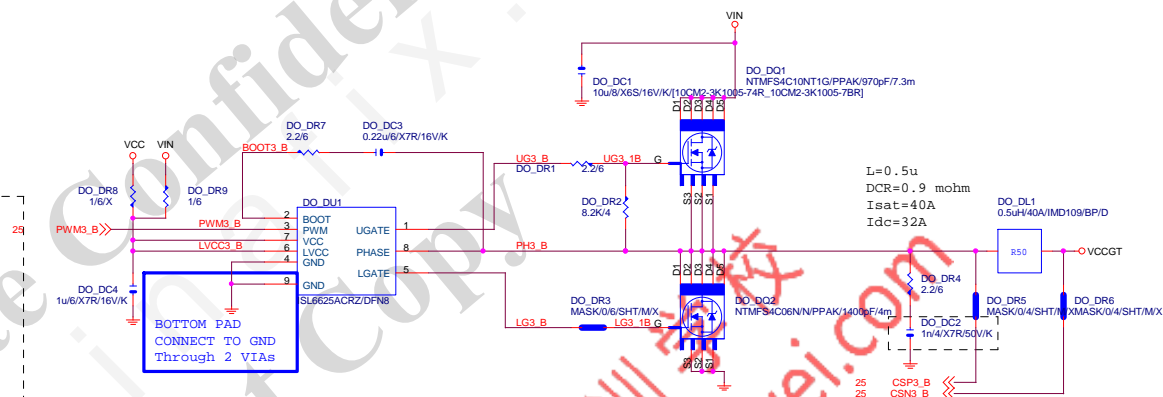
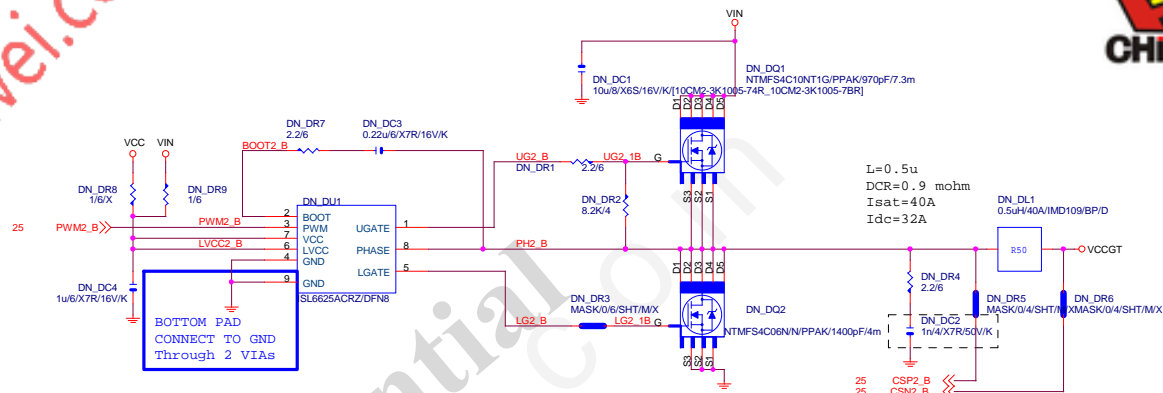
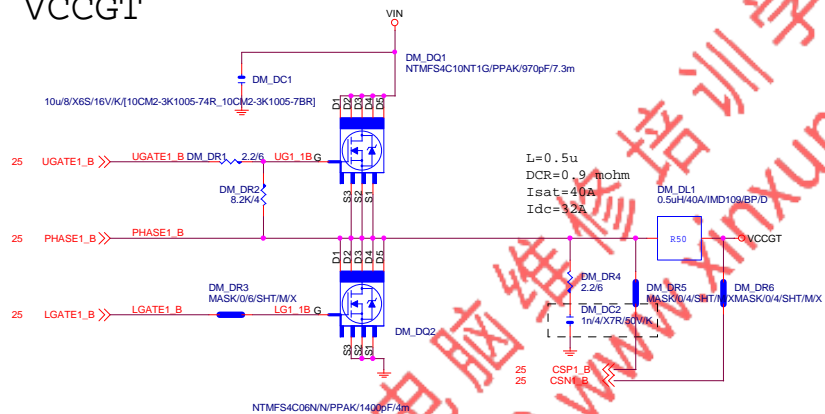
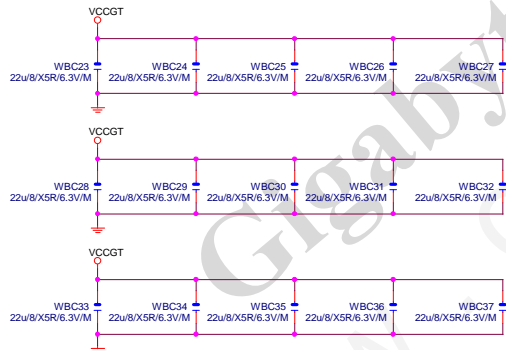
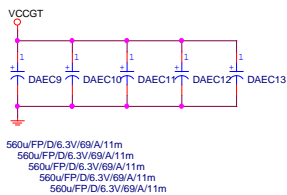
GA-Z270-Phoenix Gaming

Date: Monday, December 05, 2016 Sheet 28 of 57

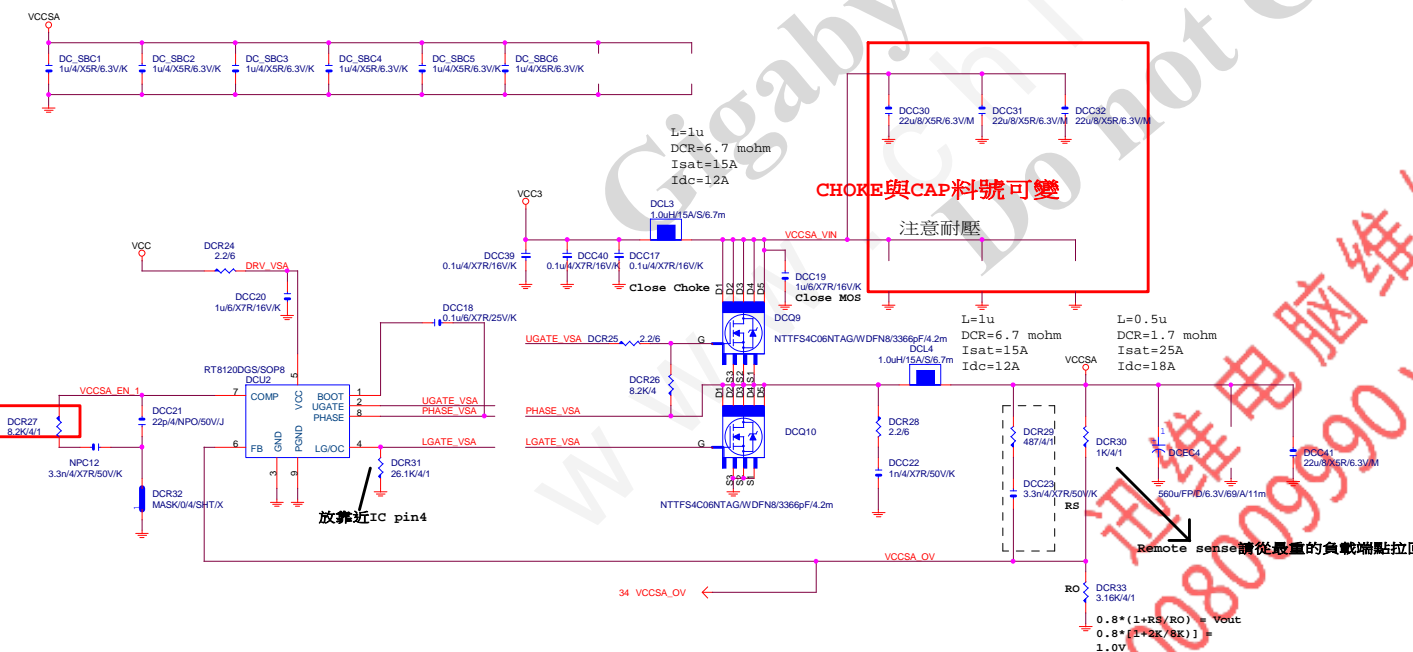
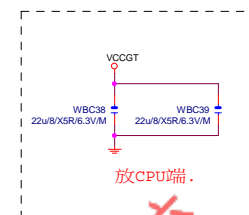
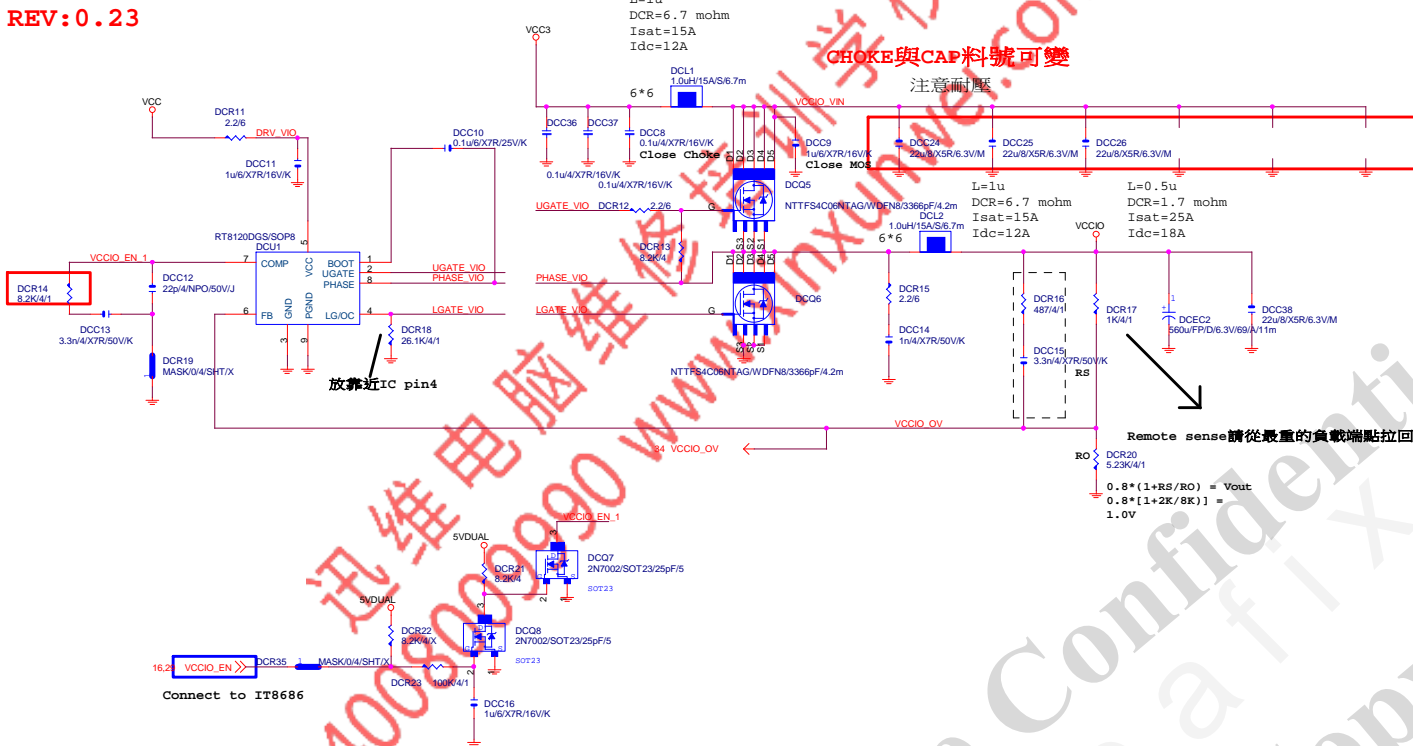
Rev: 1.01



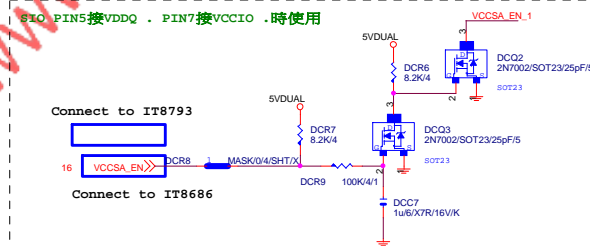
## VCCGT


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

| GIGABYTE™    |                           |       |          |
|--------------|---------------------------|-------|----------|
| Title        |                           |       |          |
| ISL95866 MOS |                           |       |          |
| Size         | Document Number           | Rev   |          |
| Custom       | GA-Z270-Phoenix Gaming    | 1.01  |          |
| Date:        | Monday, December 05, 2016 | Sheet | 27 of 57 |



SIO PIN5 . PIN7 用在其他function時使用

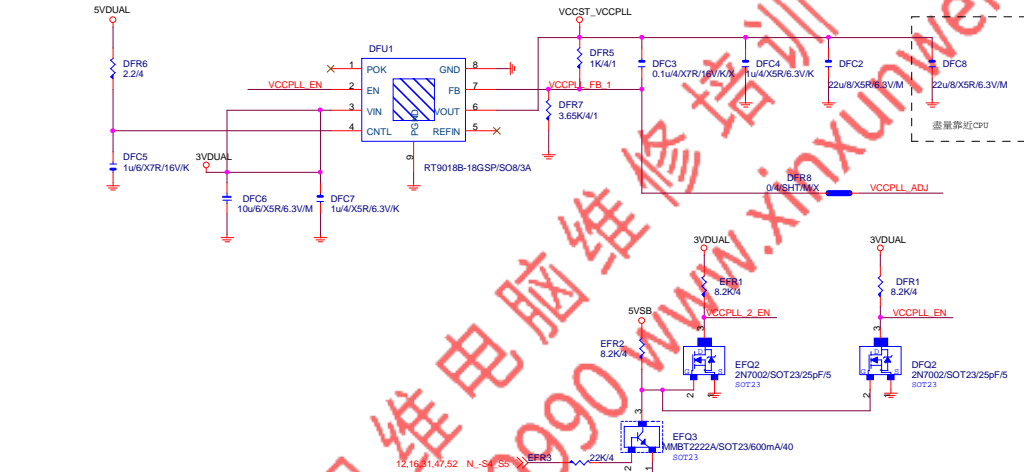


|   |                           |             |      |
|---|---------------------------|-------------|------|
|  |                           |             |      |
| Title VCCIO_VCCSA   |                           |             |      |
| Size  | Document Number           |             | Rev  |
| Custom  | GA-Z270-Phoenix Gaming    |             | 1.01 |
| Date:   | Monday, December 05, 2016 | Sheet 28 of | 57   |

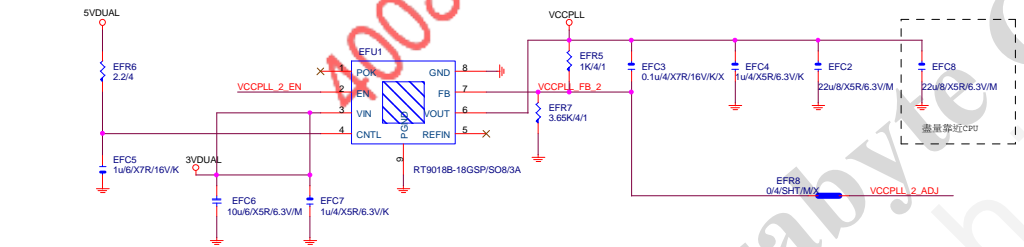




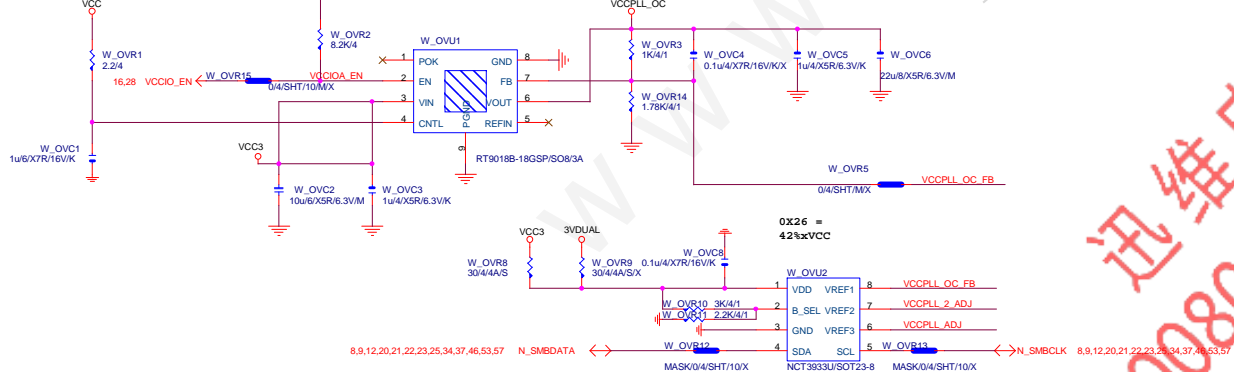
VCCST\_VCCPLL 替换原先MOS開關線路



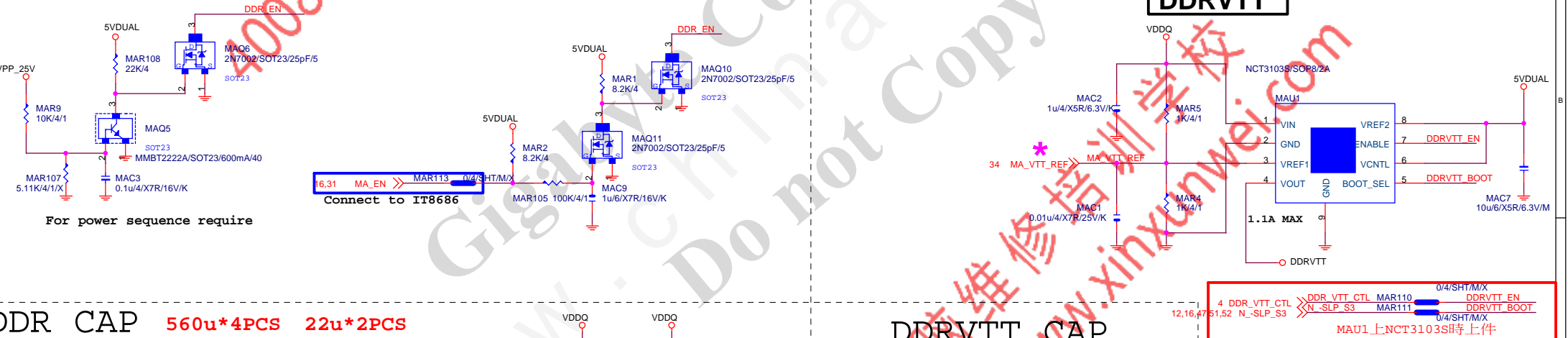
VCCPLL



VCCPLL\_OC



DDR VIN CAP  
560u\*2PCS

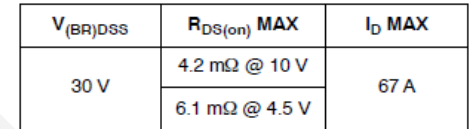
**GIGABYTE™**

## RT8120\_DDR4 POWER

|                        |      |
|------------------------|------|
| Document Number        | Rev  |
| GA-3370-Phoenix Gaming | 1.01 |

|                           |                |
|---------------------------|----------------|
| GA-ZZ70-Phoenix Gaming    | 1.01           |
| Monday, December 05, 2016 | Sheet 30 of 57 |

|   |   |
|---|---|
| 2 | 1 |
|---|---|

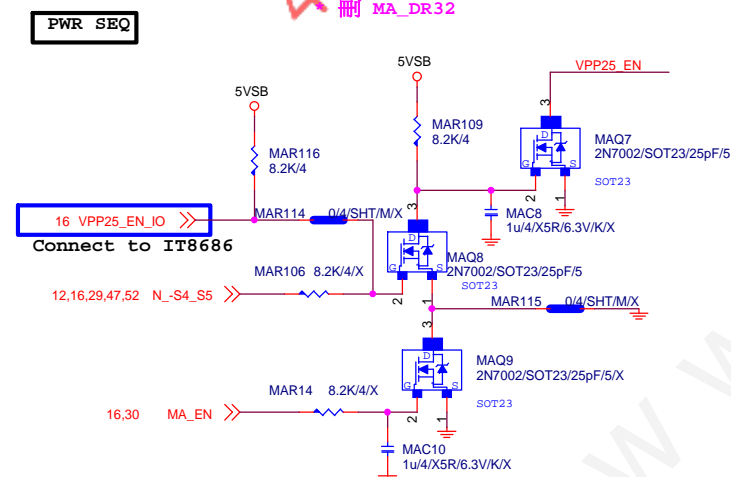



2.5V

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

VPP CAP 560u\*1PCS

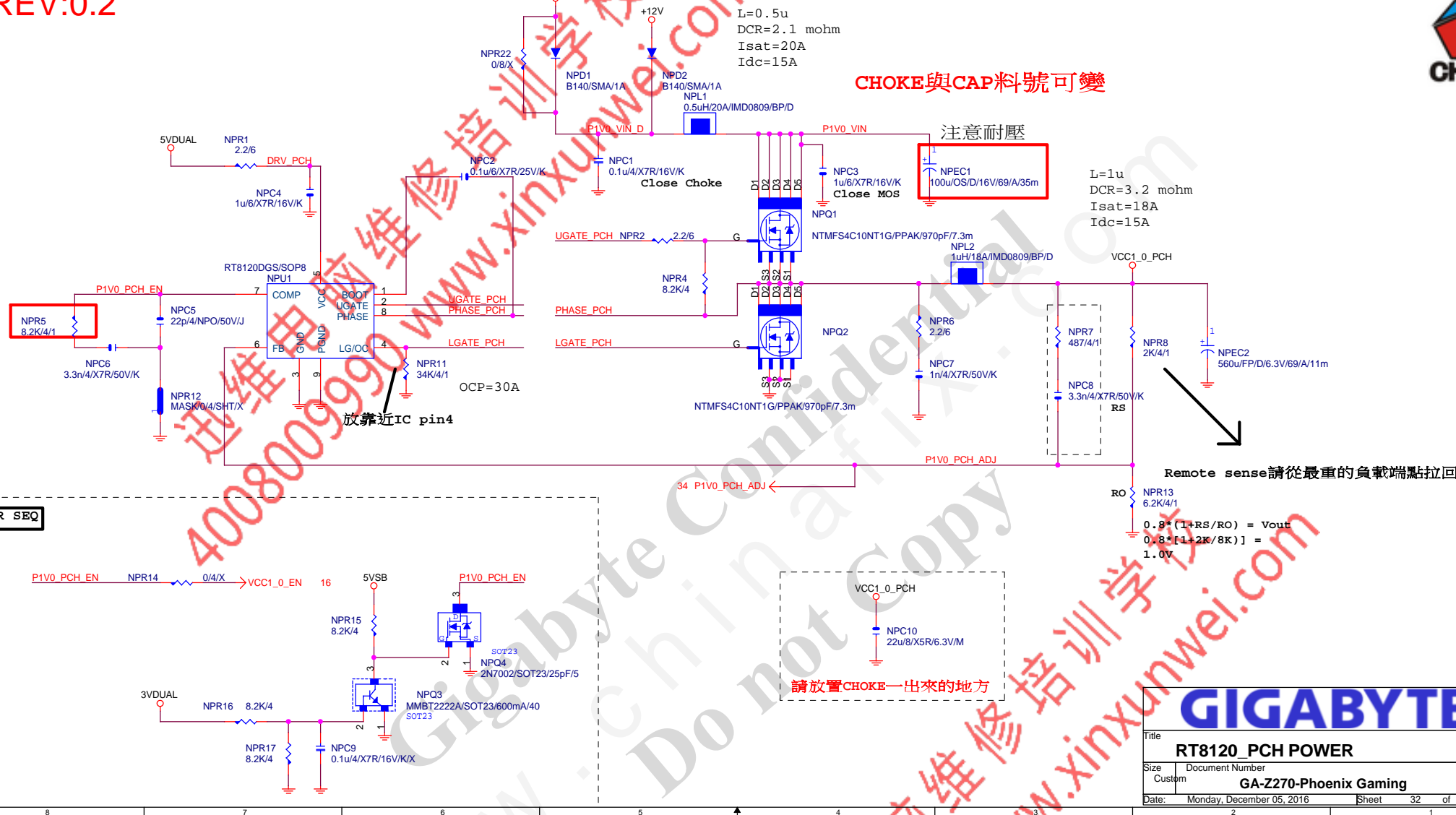
\* 大電容 x1



|   |                           |                |      |
|---|---------------------------|----------------|------|
|  |                           |                |      |
| Title   |                           |                |      |
| RT8120_VPP25 POWER  |                           |                |      |
| Size  | Document Number           |                | Rev  |
| Custom  | GA-Z270-Phoenix Gaming    |                | 1.01 |
| Date:   | Monday, December 05, 2016 | Sheet 31 of 57 |      |

REV:0.2

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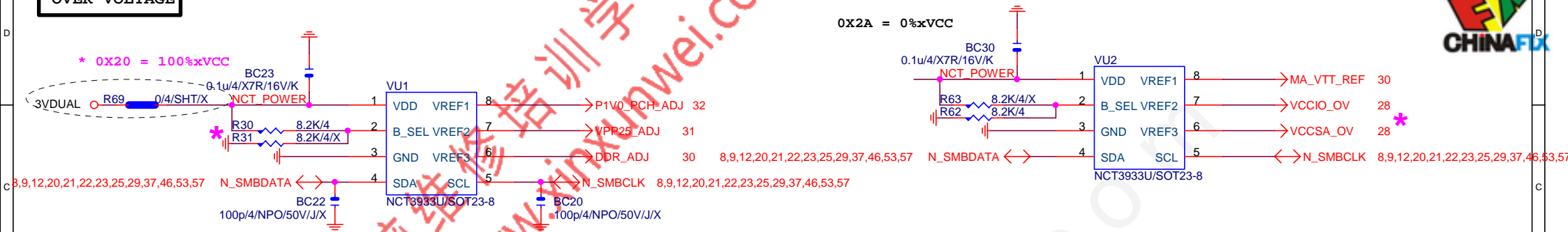








## OVER VOLTAGE



| 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      |

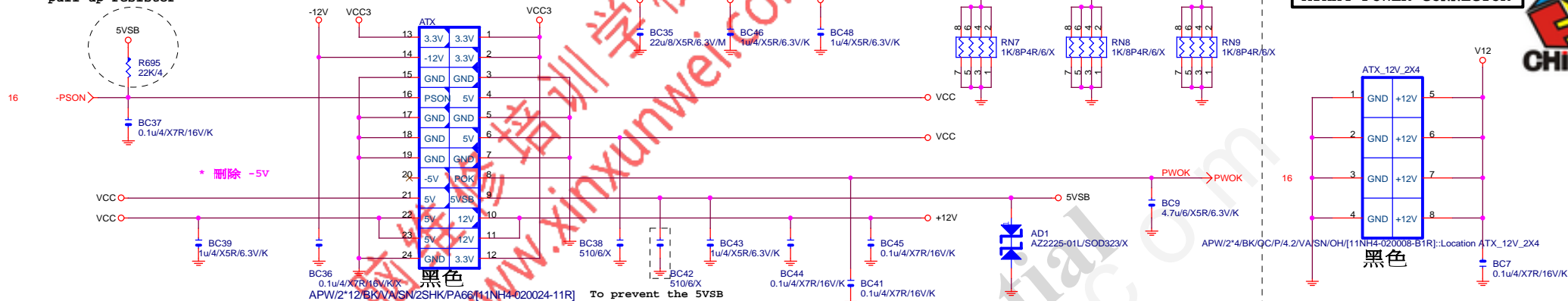
|                     |                           |                |
|---------------------|---------------------------|----------------|
| Gigabyte Technology |                           |                |
| Title               |                           |                |
| CPU CORE VR-2       |                           |                |
| Size                | Document Number           | Rev            |
| Custom              | GA-Z270-Phoenix Gaming    | 01             |
| Date:               | Monday, December 05, 2016 | Sheet 34 of 57 |

Patch some PSU no internal pull up resistor

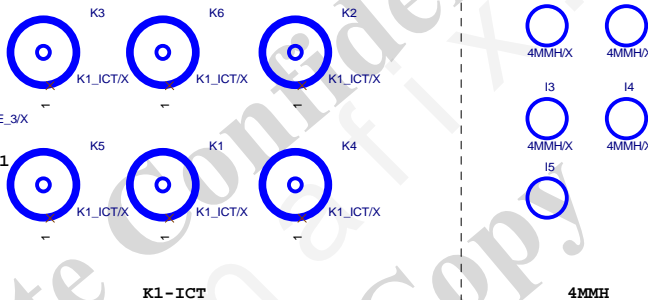
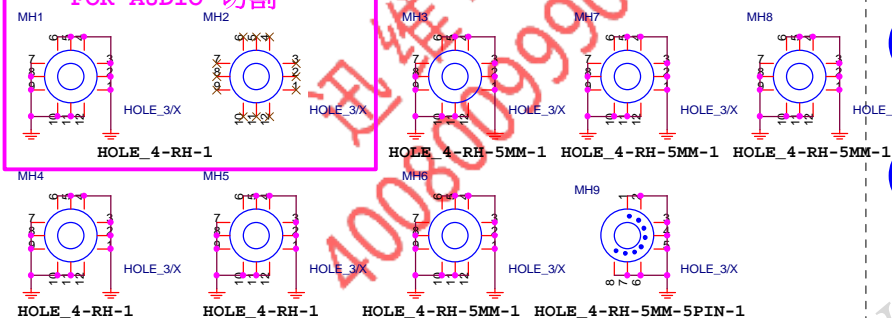
## ATXX24 POWER CONNECTOR

www.xinxunwei.com 400-800-9990

## ATXX4 POWER CONNECTOR

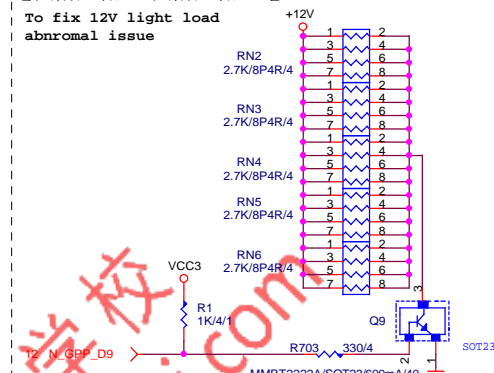


### FOR AUDIO 切割

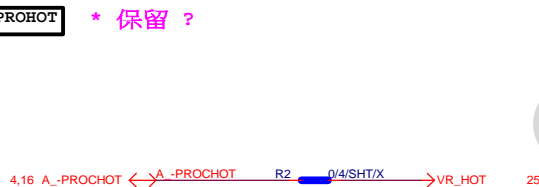


### 【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

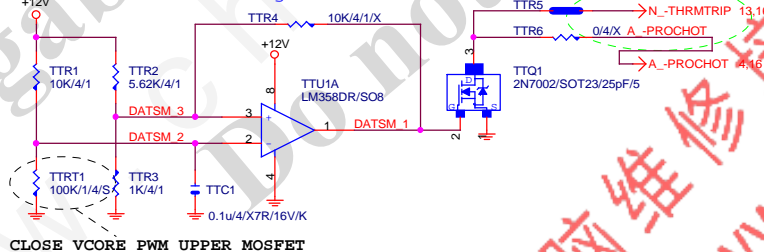


### -PROHOT \* 保留 ?



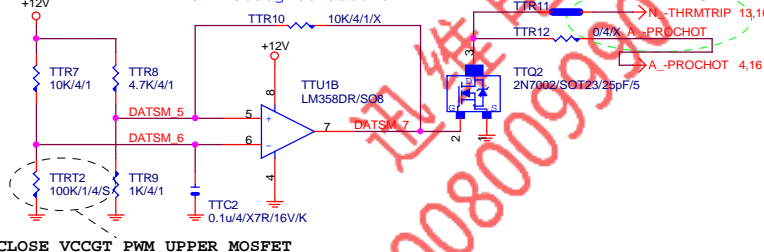
### -PROHOT

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



### -PROHOT

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

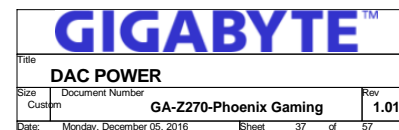


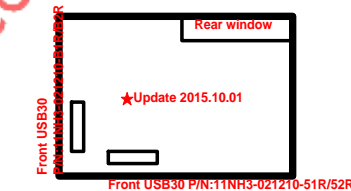
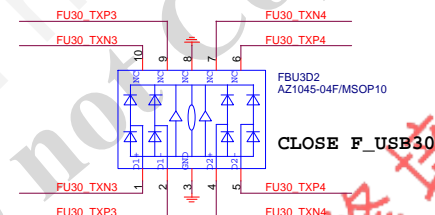
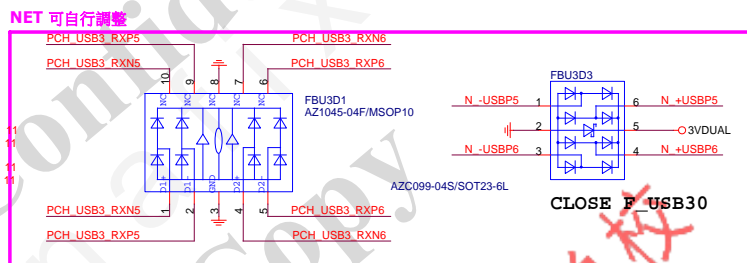
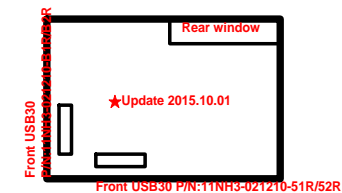
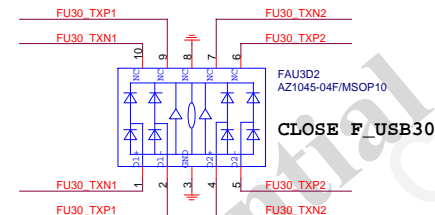
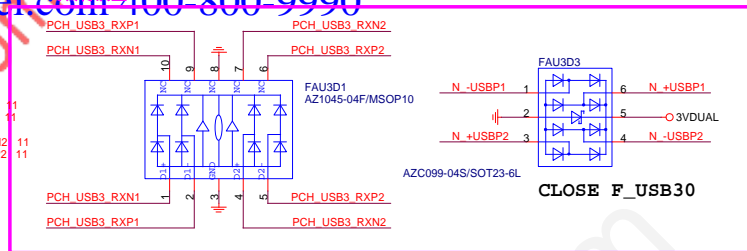
### Gigabyte Technology

|                           |  |  |                        |  |
|---------------------------|--|--|------------------------|--|
| Title                     |  |  | ATX POWER CONNECTOR    |  |
| Size                      |  |  | Document Number        |  |
| Date:                     |  |  | GA-Z270-Phoenix Gaming |  |
| Monday, December 05, 2016 |  |  | Sheet 35 of 57         |  |









-USB\_OC\_F

-USB0C\_R

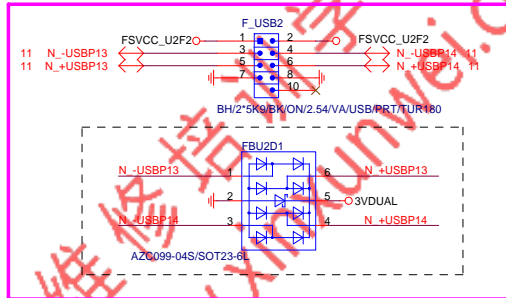
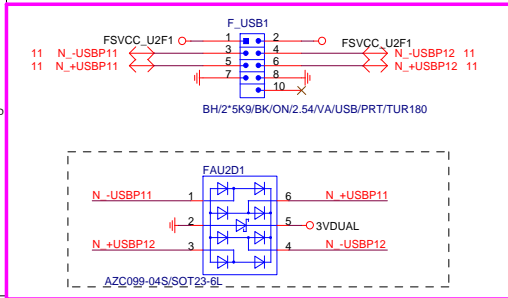
Rev: 0.52

FRONT USB1

FRONT USB2

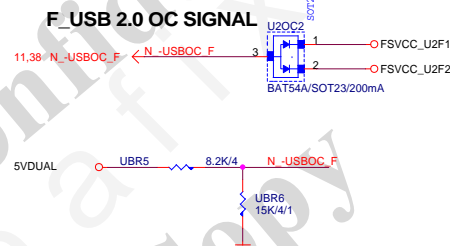
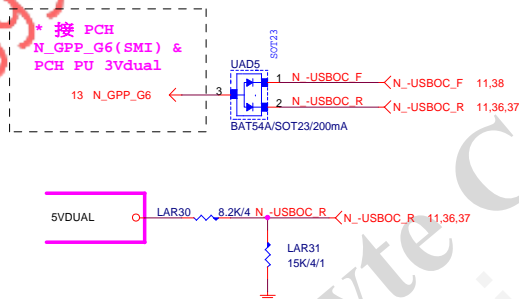
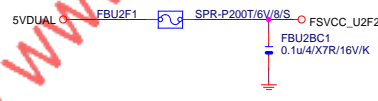
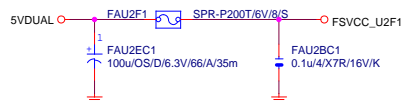
NET 可變

NET 可變



Close to connector  
FUSE 2 Port 1 Fuse 2A

Close to connector  
FUSE 2 Port 1 Fuse 2A



F\_USB 2.0 OC SIGNAL

## ALC1220 5H+1S+NO AMP

LAYOUT注意:螺絲孔下GND方式

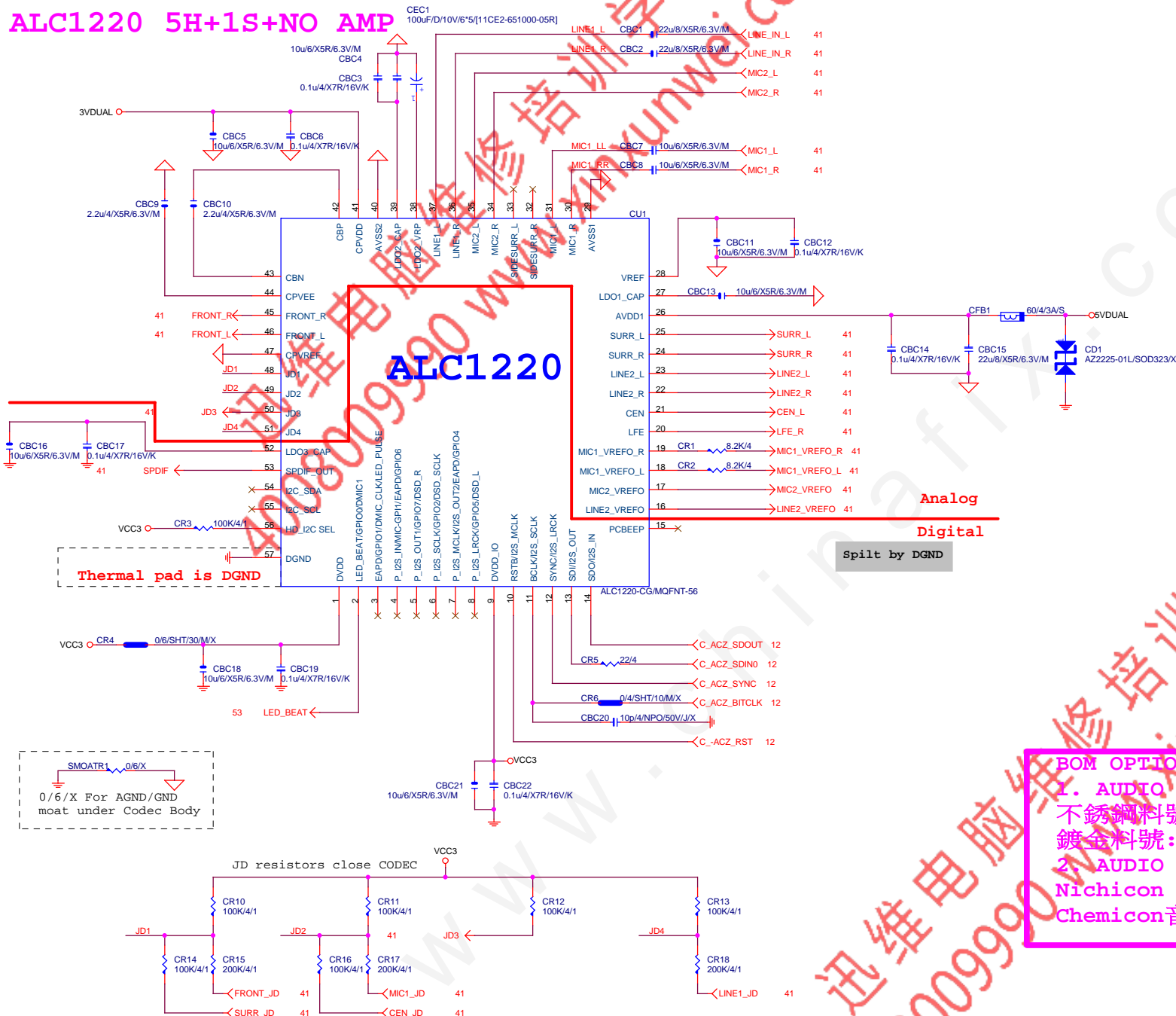
1. MH1下DGND

2. MH2一律改為Isolate



○ MH1  
DGND

○ MH2  
Isolate



LAYOUT注意:是否要加?

AGND切割線

音效區域印刷

## BOM OPTION :

1. AUDIO CONNECT

不銹鋼料號:11NR6-403025-A2R

鍍金料號:11NR6-403025-92R

2. AUDIO CAP

Nichicon MW音效電容 : 11CE1-651000-12R

Chemicon音效電容 : 11CE2-651000-05R

Gigabyte Technology

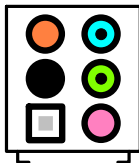
|        |  |  |                           |  |  |
|--------|--|--|---------------------------|--|--|
| Title  |  |  | ALC1220                   |  |  |
| Size   |  |  | Document Number           |  |  |
| Custom |  |  | GA-Z270-Phoenix Gaming    |  |  |
| Date:  |  |  | Monday, December 05, 2016 |  |  |
| Sheet  |  |  | 40 of 57                  |  |  |



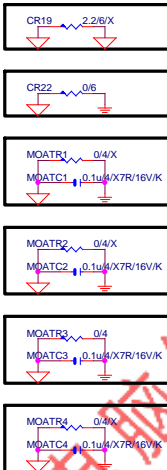
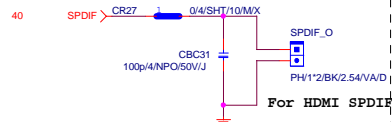


Rev 0.53

AZALIA JACK



SPDIF OUT



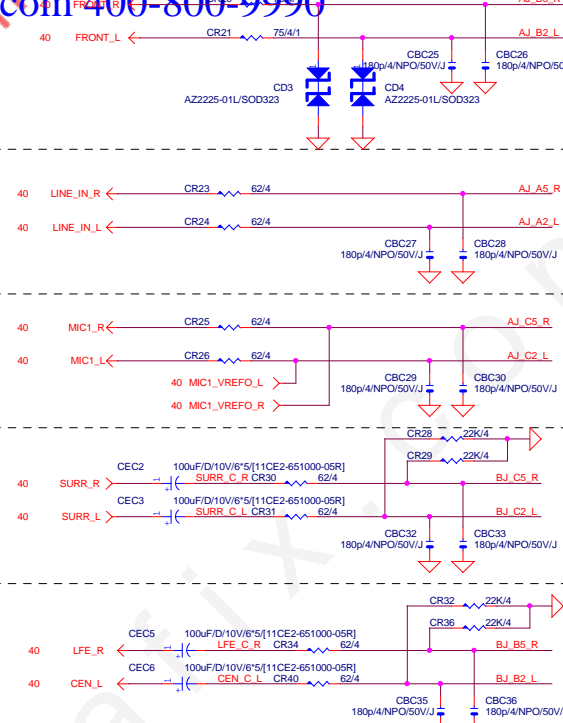
Audio jack -> USB (各打2 VIA hole)  
Under Audio jack (各打2 VIA hole)  
Near F\_AUDIO (各打2 VIA hole)  
Near Codec (各打2 VIA hole)  
Near R\_AUDIO (各打2 VIA hole)  
Near AMP (各打2 VIA hole)  
\*量產前, 0ohm改short pad

LINE-IN

MIC-IN

SURROUND

CEN/LFE



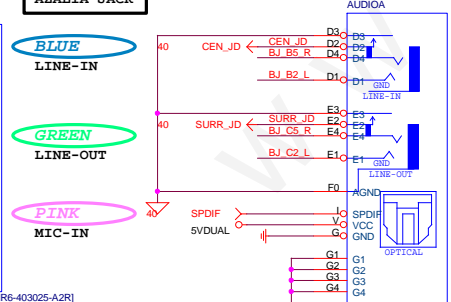
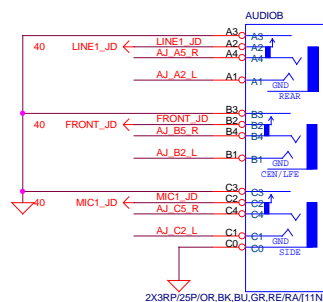
迅维电脑维修培训学校  
4008009990  
www.xinxunwei.com

AZALIA JACK

BLUE  
LINE-IN

GREEN  
LINE-OUT

PINK  
MIC-IN



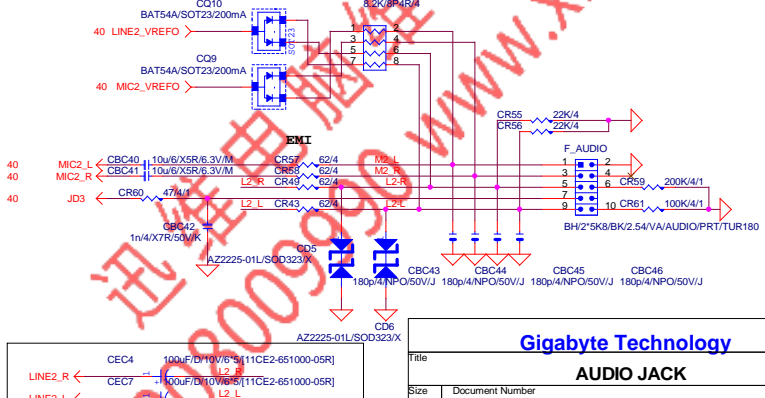
Orange  
CEN/LFE

Black  
SURROUND

SPDIF

不锈钢料: 11NR6-403025-A2R  
鍍金料: 11NR6-403025-92R

AZALIA FRONT PANEL



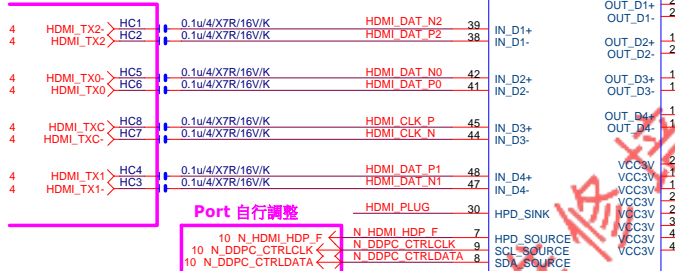
Gigabyte Technology

AUDIO JACK

|      |                           |                |
|------|---------------------------|----------------|
| File | Document Number           | Rev            |
| Size | Custom                    | 1.01           |
| Date | Monday, December 05, 2016 | Sheet 41 of 57 |

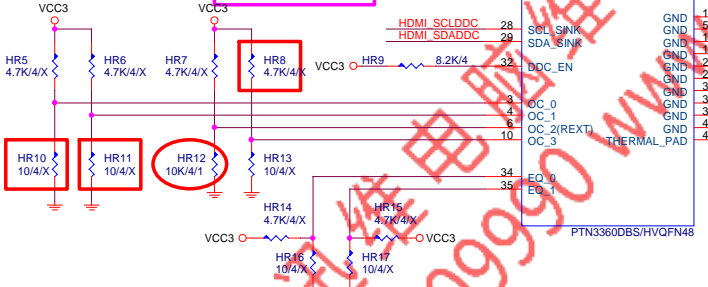
HDMI LEVEL SHIFT

NET 可變



Port 自行調整

10 N\_HDMI\_HDP\_F  
10 N\_DDPC\_CTRLCLK  
10 N\_DDPC\_CTRLDATA

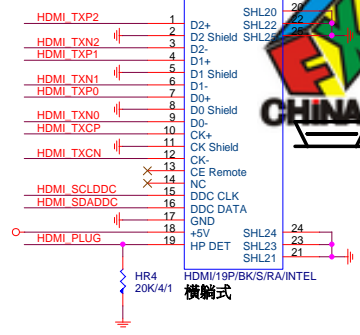
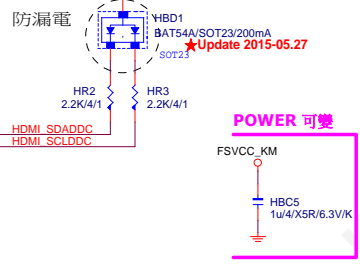


PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K  
ASM1442:紅色框要上,HR12:3.16K

Port 自行調整

N\_DDPC\_CTRLCLK  
N\_DDPC\_CTRLDATA

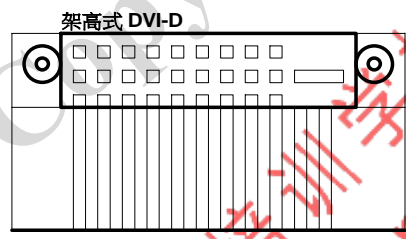
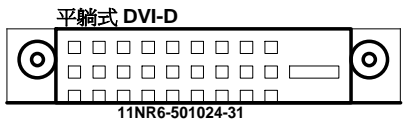
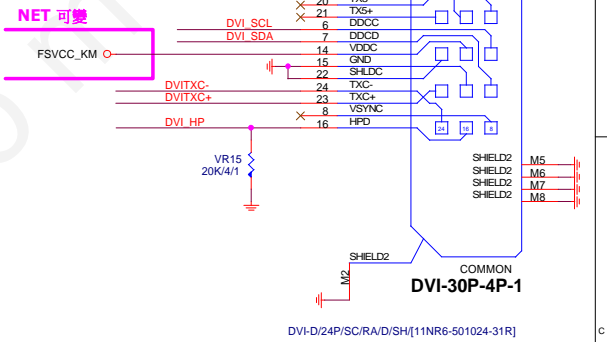
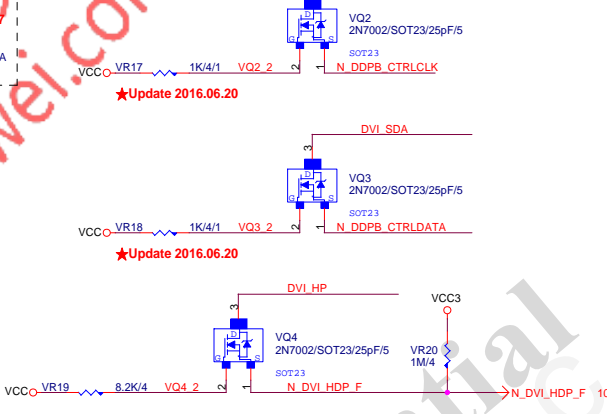
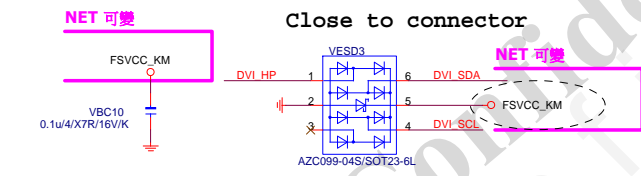
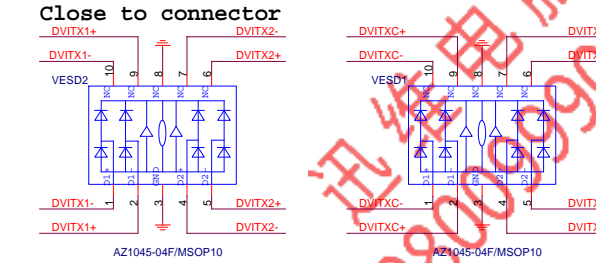
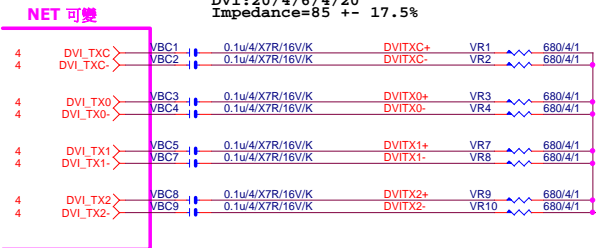
【技術通報R&D技術通報150】  
HDMI eye diagram 1.4版(deep color)會fail  
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram  
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)



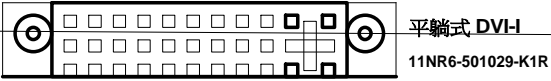
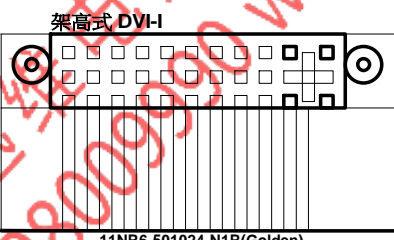
直立式

P/N:11NR6-H01019-K1R

| GIGABYTE |                           |
|----------|---------------------------|
| Title    | FP,F_USB,USB PWR,BZ       |
| Size     | Document Number           |
| Custom   | GA-Z270-Phoenix Gaming    |
| Date:    | Monday, December 05, 2016 |
| Sheet    | 42 of 57                  |



★Update 2015-03-24 11NR6-501024-R1R(Golden), 11NR6-501024-T1R(Normal)

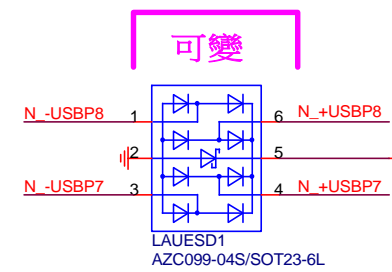




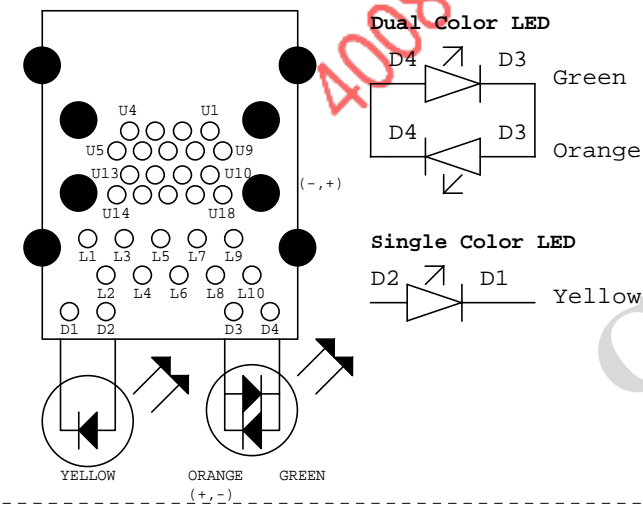


# USB\_LAN CONNECTOR R1.11

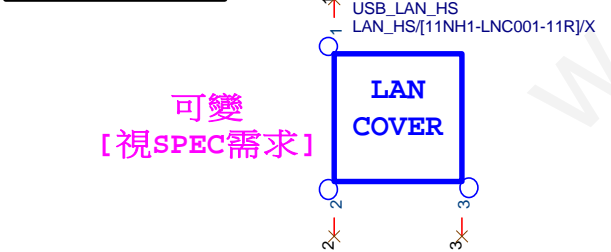
## RMA ESD PROTECT note:可變更USB NAME



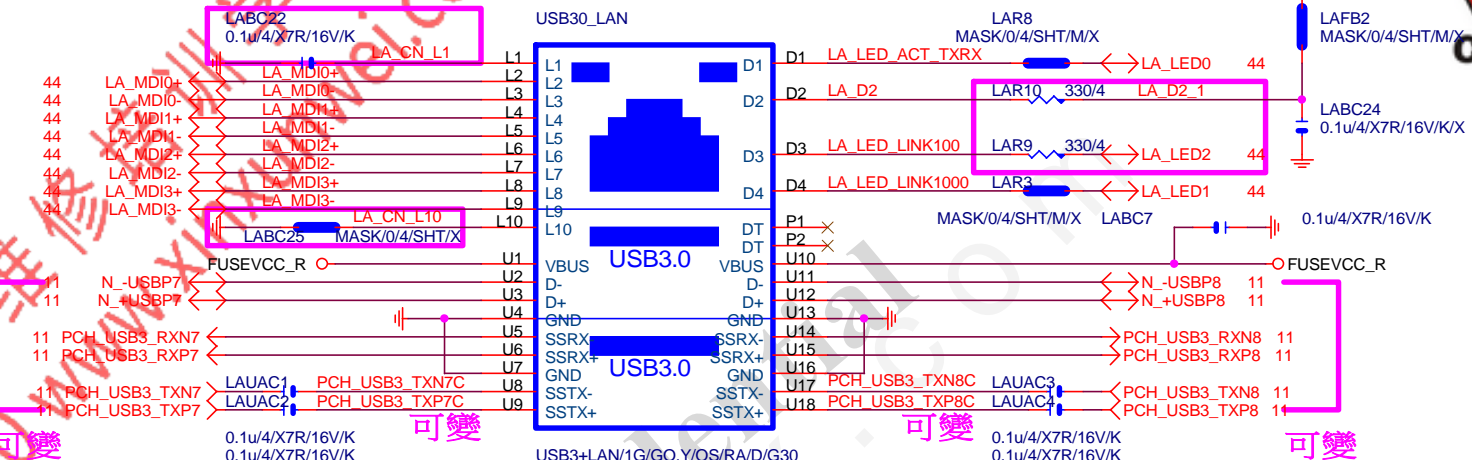
## USB30 LAN LAYOUT示意圖



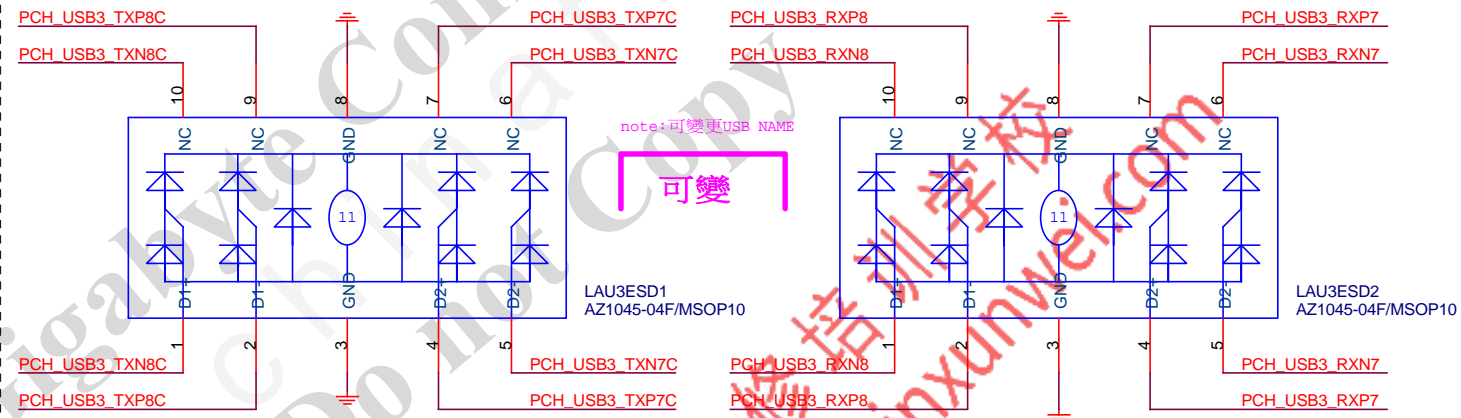
## LAN COVER FOOT PRINT:LAN COVER



# USB\_LAN CONNECTOR [I219]



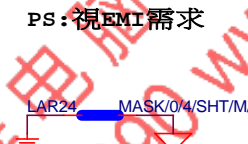
LA MDI-->100歐姆:[20/4/8/4/20] USB3+LAN/1G/GO,Y/OS/RA/D/G30



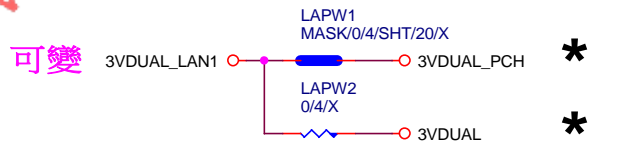
## USB POWER note:可變更FUSE



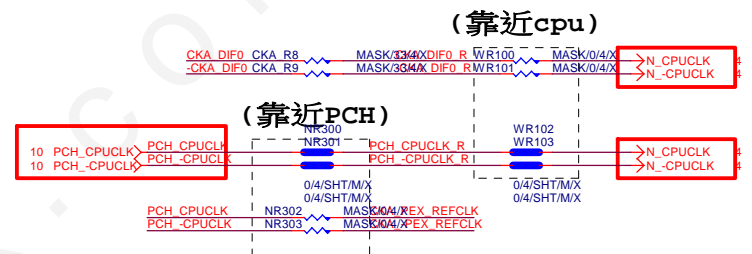
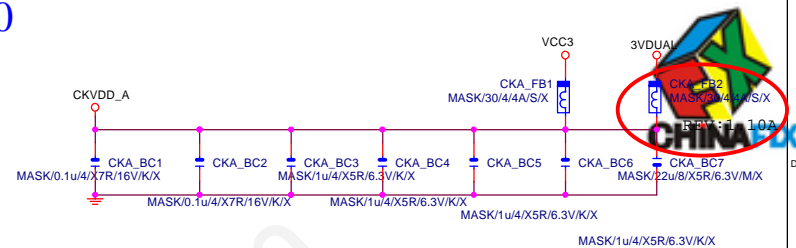
## EMI SHORT PAD PS:視EMI需求



## LAN POWER note:lan power連接及電流



| Gigabyte Technology    |                           |       |          |
|------------------------|---------------------------|-------|----------|
| LAN CONNECTOR-I219     |                           |       |          |
| Title                  | Document Number           | Rev   | 1.0      |
| Size                   | Custom                    |       |          |
| Date:                  | Monday, December 05, 2016 | Sheet | 45 of 57 |
| GA-Z270-Phoenix Gaming |                           |       |          |



CKVDD\_A

0.1µF

CKVDD\_A\_PU = 0

CKVDD\_A\_PD = 1

CKVDD\_A\_SEL = 1

CKVDD\_A\_MASK = 0.2K/4X

CKVDD\_A\_MASK = 1.00MHz

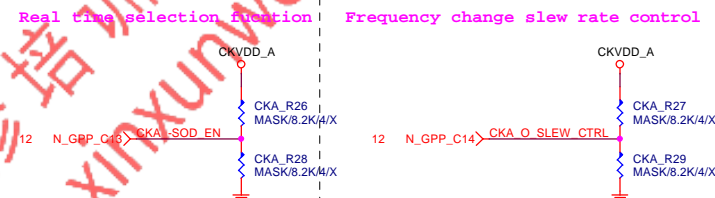
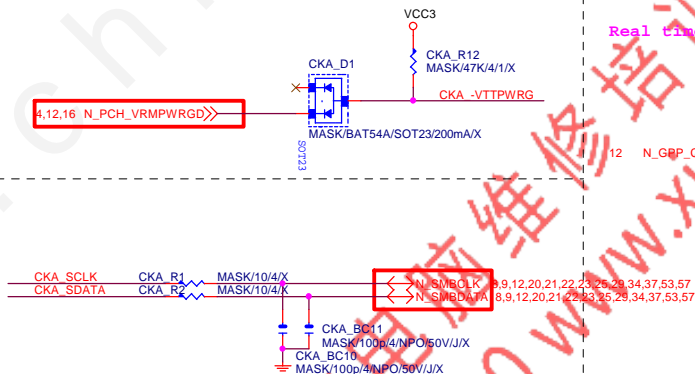
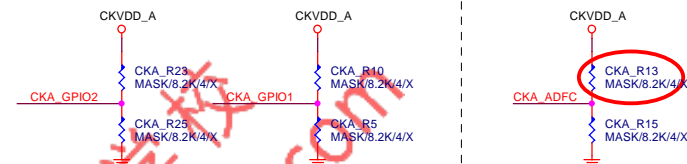
CKVDD\_A\_MASK = 0.2K/4X

CKVDD\_A\_MASK = 1.00MHz

|   |  |
|---|--|
| 0 |  |
| 1 |  |

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

| B53b1(FS1) | B53b0(FS0) | VCO<br>(MHz) | CPU<br>Divider | CPU<br>(MHz) | Typ SS% | Typ SS<br>ON/OFF |
|------------|------------|--------------|----------------|--------------|---------|------------------|
| 0          | 0          | 200.0        | 2.00           | 100.0        | -       | OFF              |
| 0          | 1          | 400.0        | 4.00           | 100.0        | -       | OFF              |
| 1          | 0          | 1000.0       | 10.00          | 100.0        | -0.50%  | ON               |
| 1          | 1          | 100.0        | 1.00           | 100.0        | -       | OFF              |

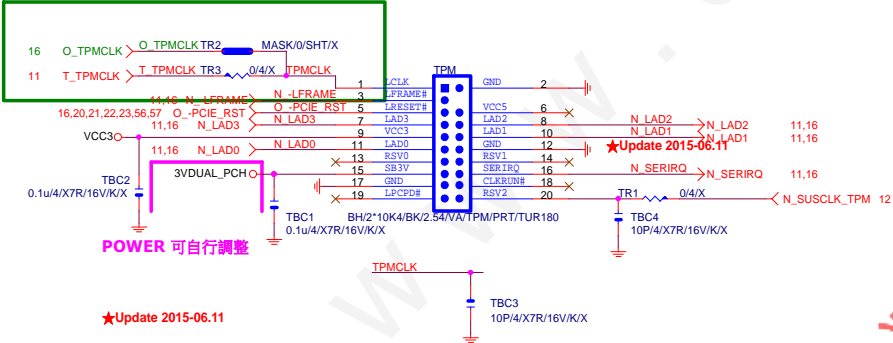
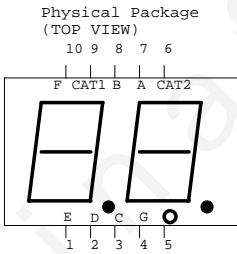


# GIGABYTE™

|       |                       |
|-------|-----------------------|
| Title | IDT6V41530_CLK BUFFER |
|-------|-----------------------|

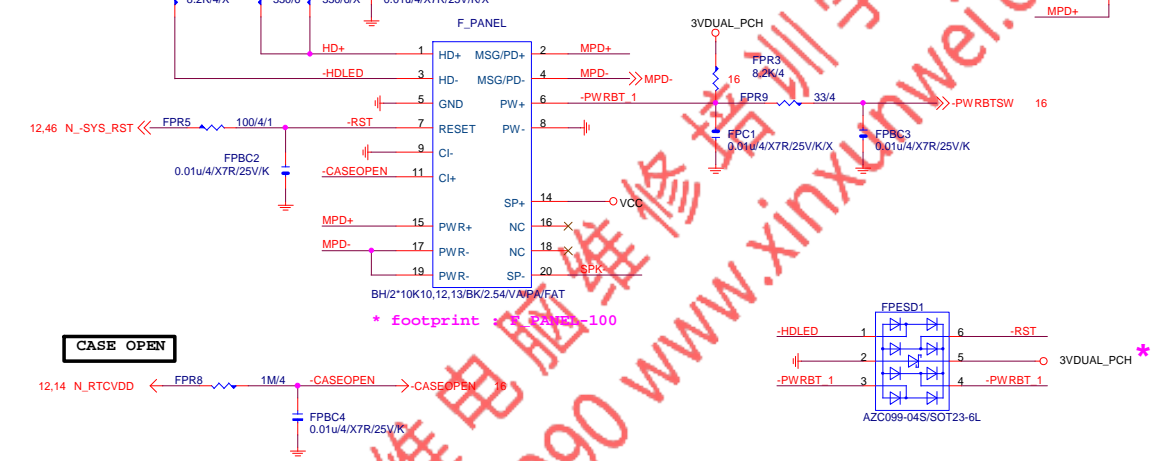
|        |                               |                |
|--------|-------------------------------|----------------|
| Size   | Document Number               | Rev            |
| Custom | <b>GA-Z270-Phoenix Gaming</b> | <b>1.01</b>    |
| Date:  | Monday, December 05, 2016     | Sheet 46 of 57 |

\*可變，依需求上件不上件。

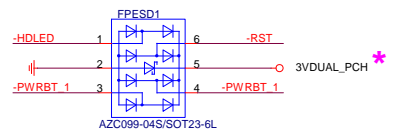




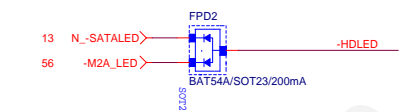
FRONT PANEL



CASE OPEN

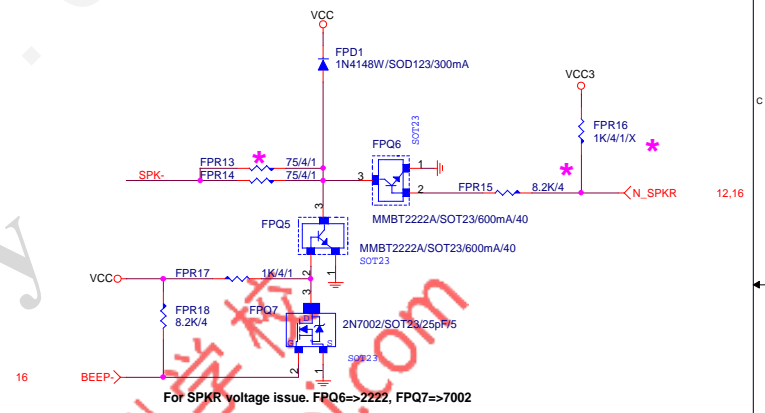


signal open-collector, pull-up (8.2 kΩ to 10 kΩ) to Vcc3\_3



SPEAKER

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



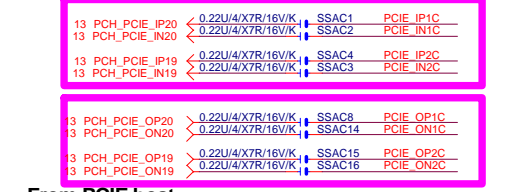


ASM2142 USB3 Host Rev0.3  
PCIe Gen3 X2

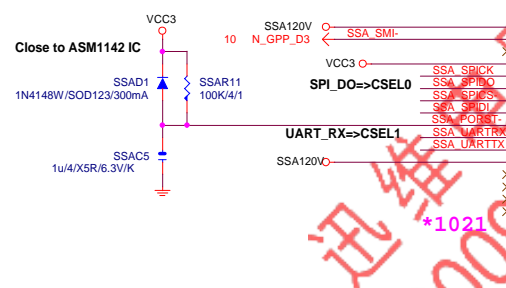
Color markers can be changed by model



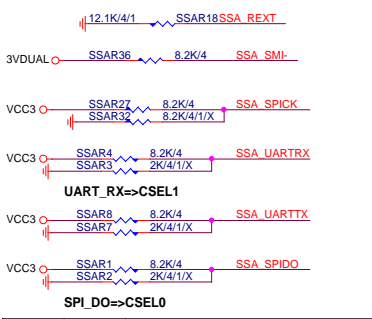
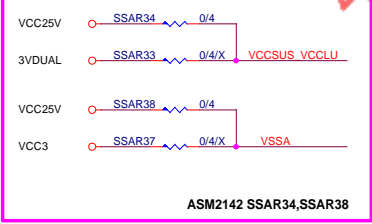
PCH PCIe\* Controller Lane Reversal / base on spec To PCIe host.



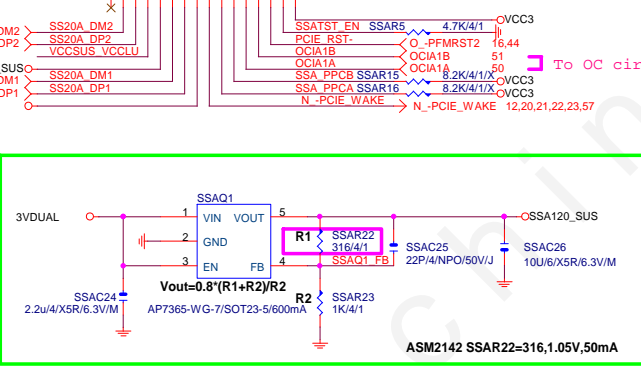
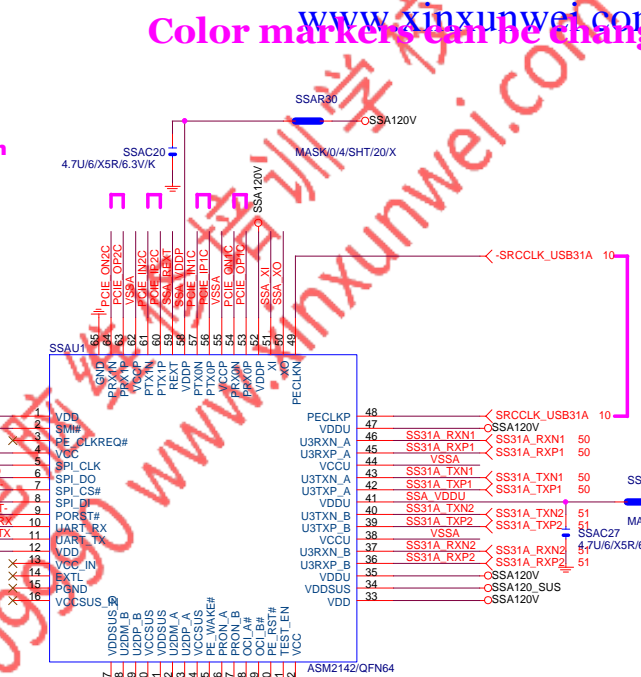
From PCIe host.



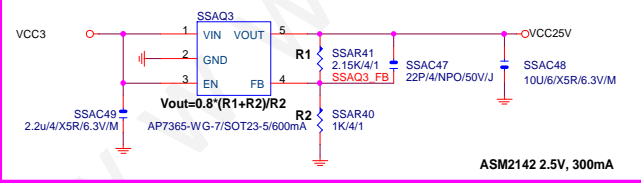
ASM 2142 Option



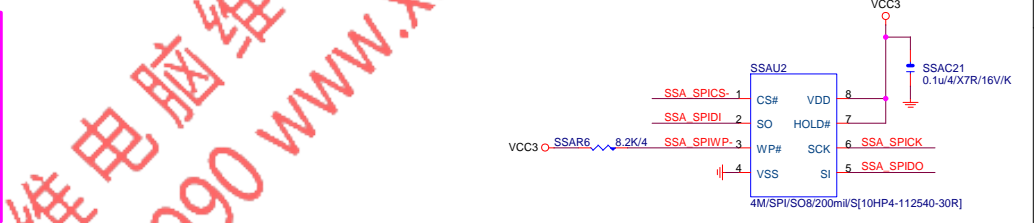
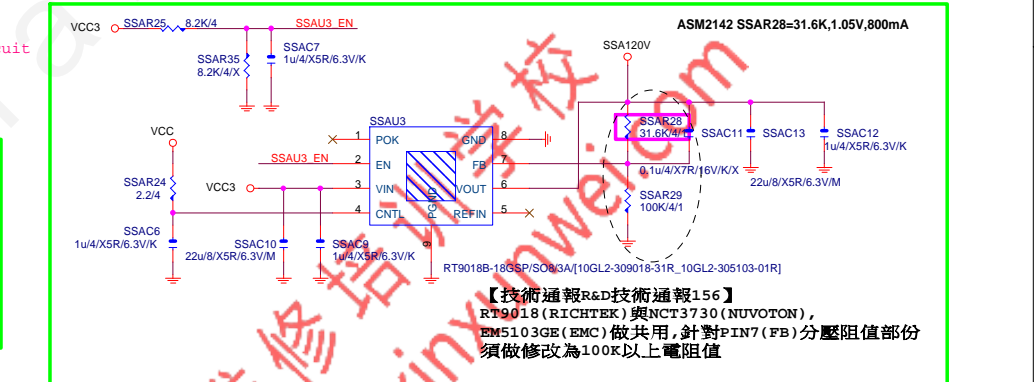
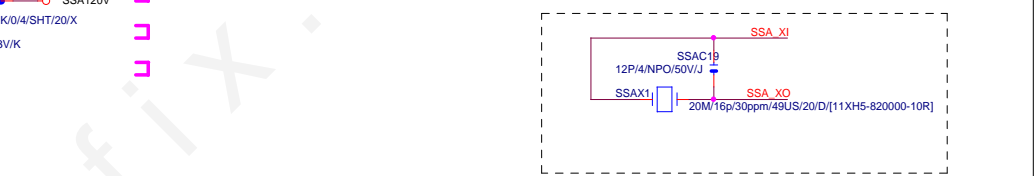
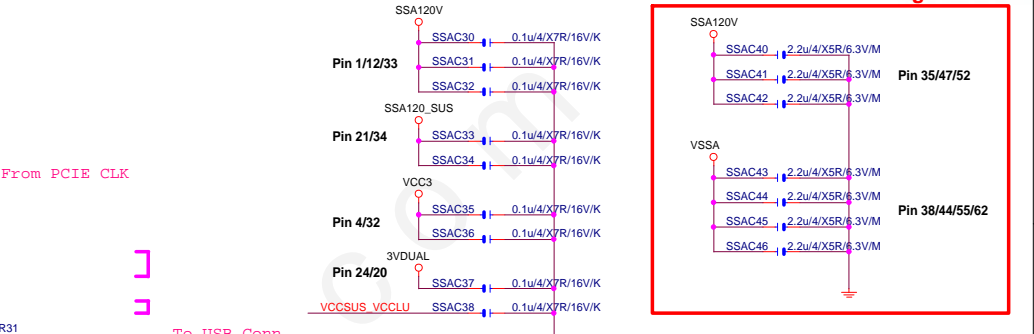
| CSEL1 | CSEL0 |                                       |
|-------|-------|---------------------------------------|
| 1     | 1     | External 20MHz Crystal (Asynchronous) |
| 0     | 1     | 48MHz clock input (Synchronous)       |
| X     | 0     | Reserved for Test                     |



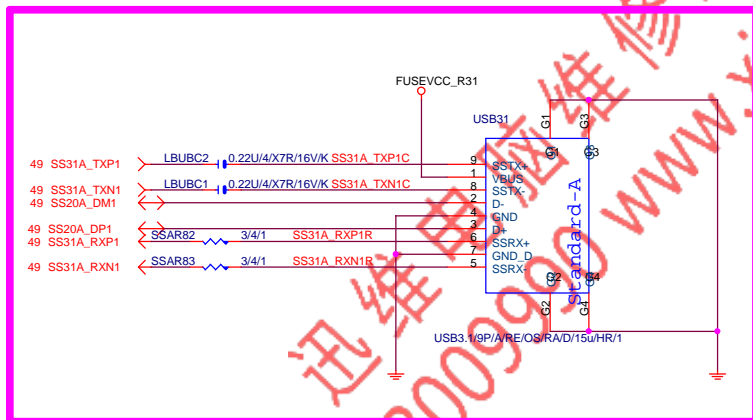
ASM2142 Option



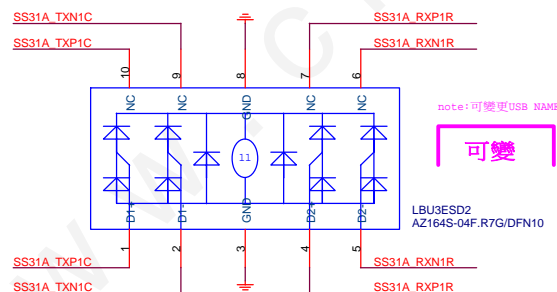
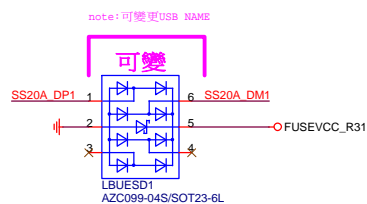
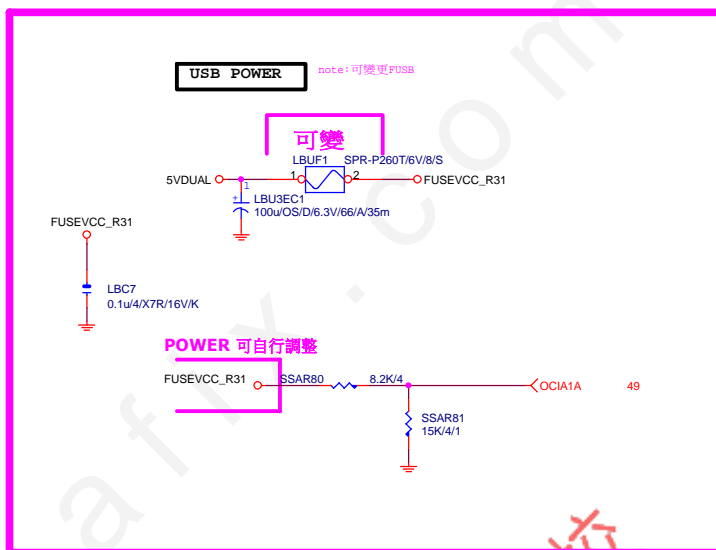
Base on ASM2142 0.1 Reference SCH



| GIGABYTE™ |                           |                |
|-----------|---------------------------|----------------|
| Title     |                           |                |
| ASM2142   |                           |                |
| Size      | Document Number           | Rev            |
| Custom    | GA-Z270-Phoenix Gaming    | 1.01           |
| Date:     | Monday, December 05, 2016 | Sheet 49 of 57 |

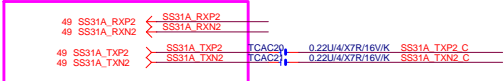


USB31 TYPE A Connector which chooses for project demand

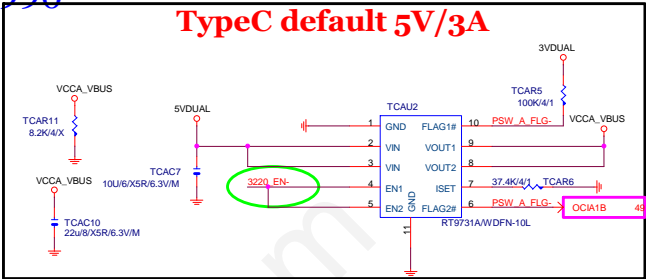
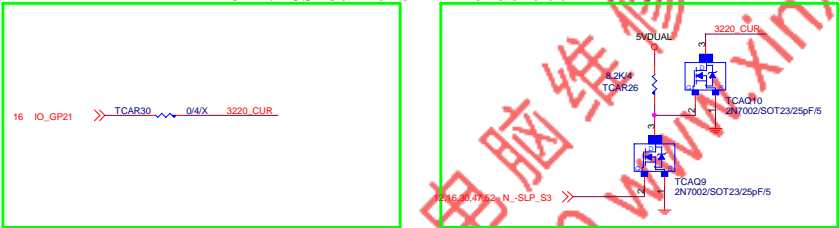




USB 3.x SuperSpeed



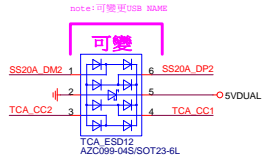
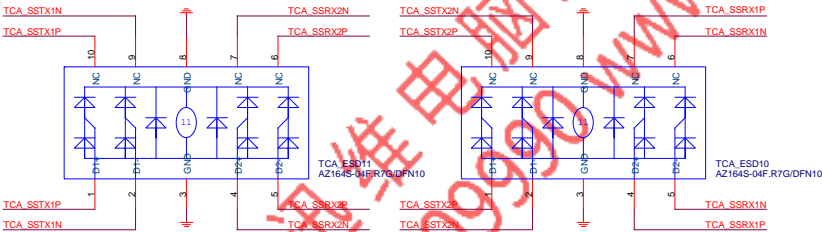
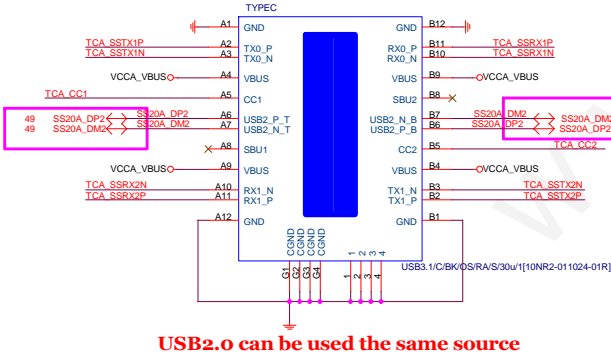
For VBUS current limit at 900mA on S3



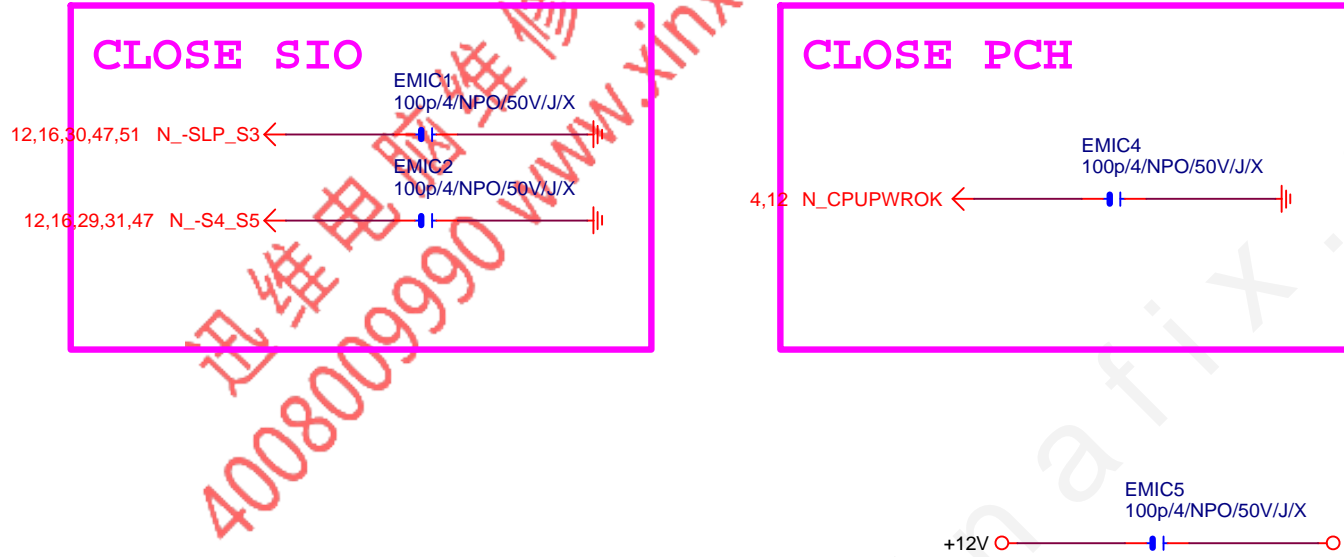
PORT  
H - HOST (DFP/SOURCE)  
L - Device (UFP/SINK)  
NC - Dual Role (DRP)

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

Color markers can be changed by model



|                        |                           |                |
|------------------------|---------------------------|----------------|
| GIGABYTE™              |                           |                |
| TI HD3SS3212           |                           |                |
| Size C                 | Document Number           | Rev 1.01       |
| GA-Z270-Phoenix Gaming |                           |                |
| Date:                  | Monday, December 05, 2016 | Sheet 51 of 57 |



|           |                           |                |
|-----------|---------------------------|----------------|
| GIGABYTE™ |                           |                |
| Title     |                           |                |
| EMI/ESD   |                           |                |
| Size      | Document Number           | Rev            |
| A         | GA-Z270-Phoenix Gaming    | 1.01           |
| Date:     | Monday, December 05, 2016 | Sheet 52 of 57 |



## Rev 0.63

|           |                    |
|-----------|--------------------|
| N_GPP_A17 | CPU DEBUG          |
| N_GPP_A18 | DDR DEBUG          |
| N_GPP_A19 | VGA DEBUG          |
| N_GPP_A20 | BOOT DEBUG         |
| N_GPP_A21 | XMP LED SWITCH     |
| N_GPP_A22 | TURBO LED SWITCH   |
| N_GPP_D15 | LED_C LED SWITCH   |
| N_GPP_D17 | PCIEX16 LED SWITCH |
| N_GPP_D18 | PCIEX18 LED SWITCH |



LED RV  
LED OV  
LED RV

VCC GND

VCC GND

VCC GND

S\_3LE01 S\_3LE02 S\_3LE03

LED RV 1/103[S1006-310RGB-01R] LED RV 1/103[S1006-310RGB-01R] LED RV 1/103[S1006-310RGB-01R]

Wiring diagram for three S3 LEDs (S\_3LED4, S\_3LED5, S\_3LED6) connected to a common ground and three power lines (LED\_BV, LED\_GV, LED\_RV).

Connections:

- LED\_BV (Blue) connects to VCC of all three LEDs.
- LED\_GV (Green) connects to GND of all three LEDs.
- LED\_RV (Red) connects to GND of all three LEDs.

LED Labels:

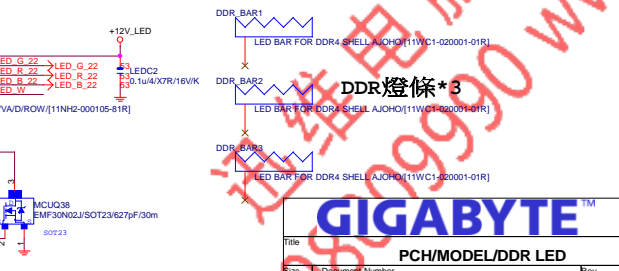
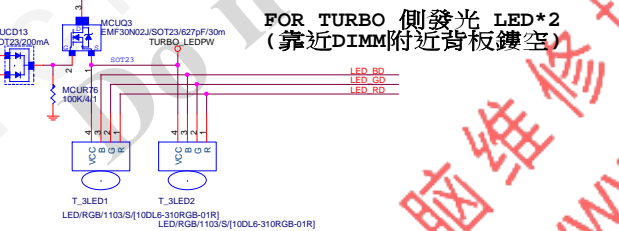
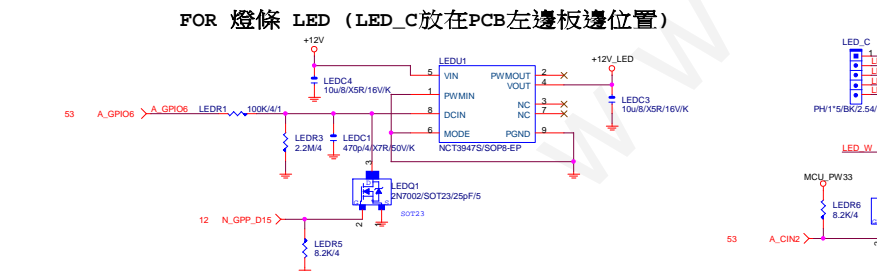
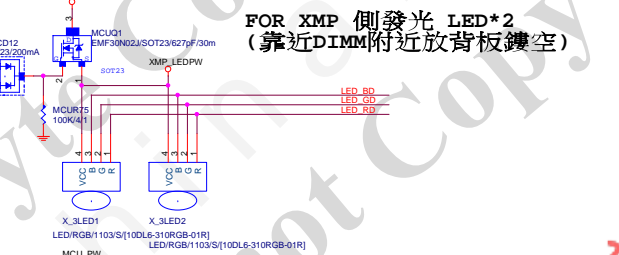
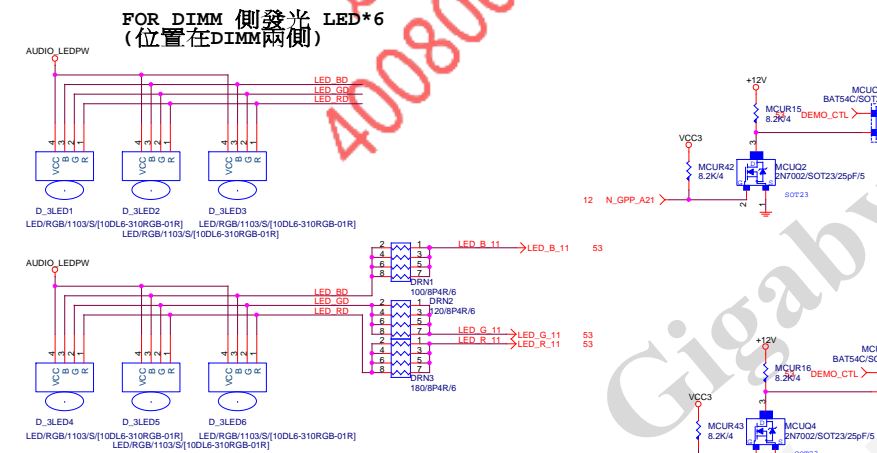
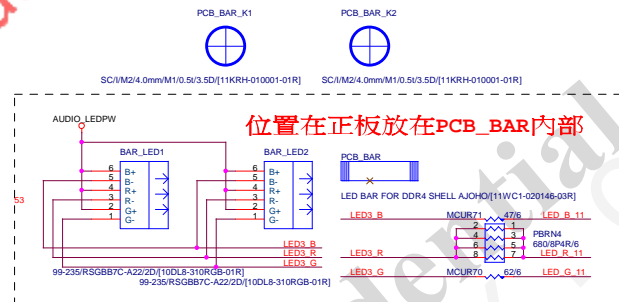
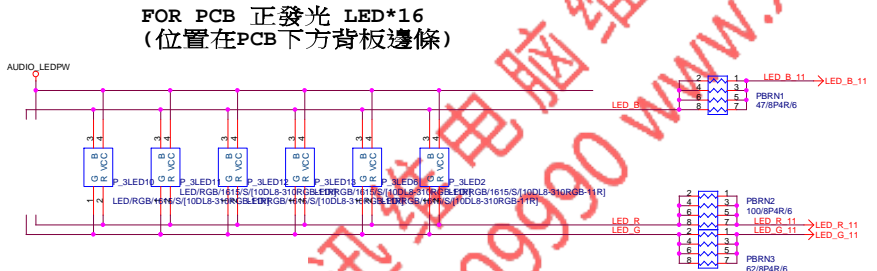
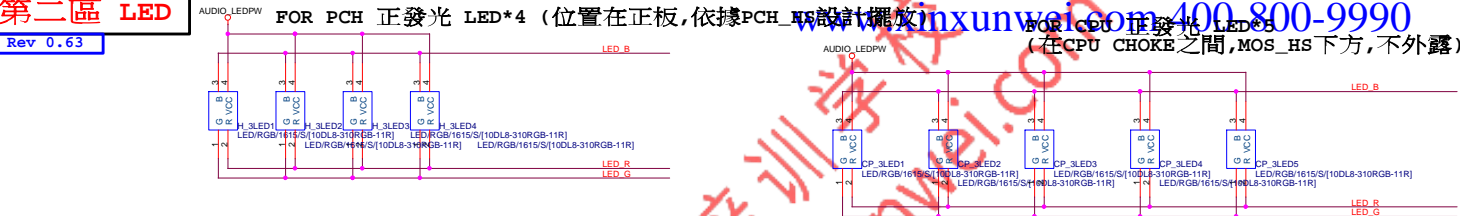
- S\_3LED4: LED\_RGB1103/S(10DL6-310R-01R)
- S\_3LED5: LED\_RGB1103/S(10DL6-310R-01R)
- S\_3LED6: LED\_RGB1103/S(10DL6-310R-01R)

[illegible]

|        |                               |  |                           |  |            |
|--------|-------------------------------|--|---------------------------|--|------------|
| Title  |                               |  | <b>CPU/AUDIO/PCIE LED</b> |  |            |
| Size   | Document Number               |  |                           |  | Rev        |
| Custom | <b>GA-Z770-Phoenix Gaming</b> |  |                           |  | <b>1.0</b> |

# 第二區 LED

Rev 0.63



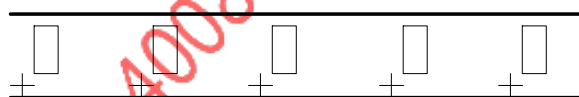
## RGB LED LAYOUT 注意事項：

1. Debug LED 文字面表示如右所示 (LED請擺在一起)
2. 背板 RGB LED 方向整板請統一如下 (整板正極可統一朝下或朝上) Debug LED 文字面 (單色LED)
3. 正板 RGB LED 統一方向即可
4. LED RGB 10PCS 以上走20mils  
LED RGB 10PCS 以下空間問題可以走10mils  
LED電源一律走20mils
5. MCU LED 出pin的走線4mils, 如: LED\_R\_1, LED\_G\_1, LED\_B\_1 .....  
過晶體的走線20mils, 包含過排組到LED的走線如: LED\_R\_11, LED\_G\_11, LED\_B\_11..
6. XMP/TURBO 測發光 LED 位置如下

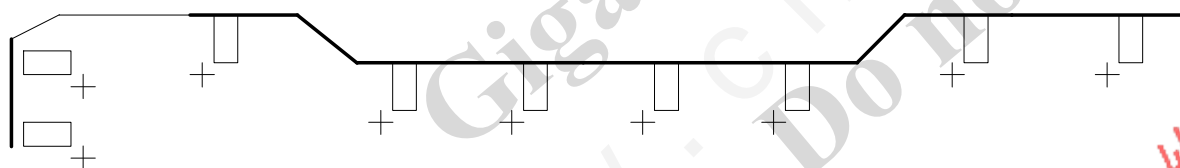
VGA CPU

BOOT DRAM

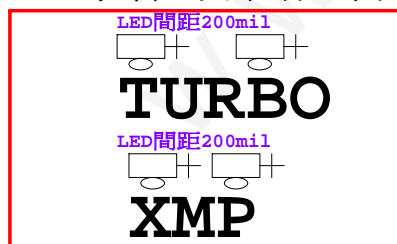
PCB板邊透光model name鏤空+背面 RGB LED



Audio Ground切割線+背面 RGB LED

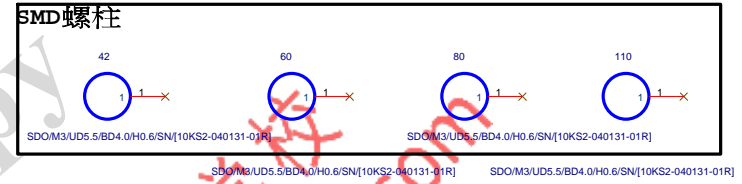
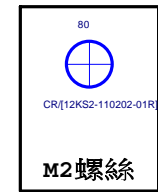
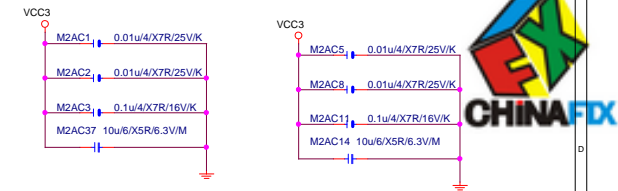


"Turbo", "XMP"字樣(分開控制) 鏤空+背面 RGB測發光 LED



|               |                           |                        |          |
|---------------|---------------------------|------------------------|----------|
| GIGABYTE™     |                           |                        |          |
| MODEL/PCB LED |                           |                        |          |
| Docu          | Document Number           | Rev                    |          |
| Sign          | Customer                  | GA-Z270-Phoenix Gaming | 1.01     |
| Date          | Monday, December 05, 2016 | Sheet                  | 55 of 57 |

支援SATA and M.2 function





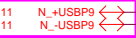
FOR M.2 WIFI MODULE AT REAR PANEL



請選擇適用的USBport :

SOC/UD7/UD5/G1/G7 : USB4  
;UD3/G5:USB6

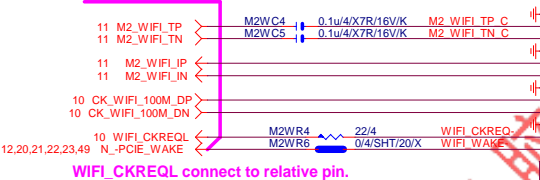
NET 可變



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

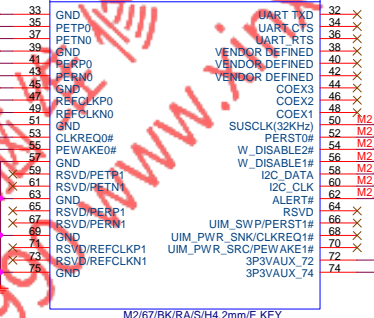
PCIE:15/4/4/15(breakout min 8/4/4/8)  
內層Impedance=85 + 12%

WIFI use PCIE port4 in X99

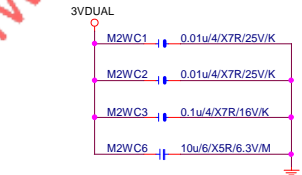


WIFI\_CKREQL connect to relative pin.

Module Key E



M2/67/BK/RA/S/H4.2mm/E KEY



★Update 2015-07-22



Footprint Notice.

★Update 2015-07-22  
★Footprint for 直立式 SMD:  
WIFI-EKEY

Footprint Notice.

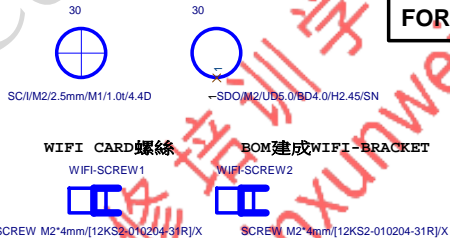
★Update 2015-07-22  
★Footprint for 橫躺式 SMD:  
NGFF-E-75P-2

★Update 2015-02-11

一套WIFI MODULE包含外框+WIFI CARD+天線



FOR M.2 WIFI MODULE ON BOARD



透明CAP

★Update 2015-07-22

MODULE 可變



ANTENNA\_BRACKET  
BRACKET[12AC2-000001-01R]:Location ANTENNA\_BRACKET

WIFI支線架料號包含螺絲

12AC2-000003-02R  
FIX  
螺絲鎖附平面過大

P/N, FOOTPRINT 未定

GIGABYTE™

|        |                           |       |               |
|--------|---------------------------|-------|---------------|
| Title  |                           |       | M2_WIFI_E_KEY |
| Size   | Document Number           | Rev   | 1.01          |
| Custom | GA-Z270-Phoenix Gaming    |       |               |
| Date:  | Monday, December 05, 2016 | Sheet | 57 of 57      |