

# B450 | AORUS PRO WIFI

| PAGE | TITLE                             | Revision :1.01 |
|------|-----------------------------------|----------------|
| 01   | COVER SHEET                       |                |
| 02   | BOM & PCB MODIFY HISTORY          |                |
| 03   | BLOCK DIAGRAM                     |                |
| 04   | CPU DDR4 MEMORY                   |                |
| 05   | CPU DDI, CONTROL                  |                |
| 06   | CPU GFX, GPP, SB, GND             |                |
| 07   | CPU MISC                          |                |
| 08   | CPU POWER                         |                |
| 09   | CPU CLK, USB3, SPI ,LPC           |                |
| 10   | DDR4 CHANNEL A                    |                |
| 11   | DDR4 CHANNEL B                    |                |
| 12   | PM CLK, SPI, MISC                 |                |
| 13   | PM USB                            |                |
| 14   | PM SATA, GPP                      |                |
| 15   | PM POWER, GND                     |                |
| 16   | PCIEx16 ,PCIEx1 Slot              |                |
| 17   | M.2 SLOT 2280 PCI EXPRESS GEN3 x4 |                |
| 18   | SIO IT8686                        |                |
| 19   | Front & Rear USB20_USB30_USB31    |                |
| 20   | A_VDD1V8, A_VDDPS5                |                |
| 21   | REALTEK ALC1220                   |                |
| 22   | REALTEK AUDIO JACK 3+2            |                |
| 23   | POWER SEQUENCE / POWER - A_VDDP   |                |
| 24   | PWM IR35201 4+2                   |                |
| 25   | PowlRstage IR3556 4+2 PHASE       |                |

[illegible]

**Version: 1.01**

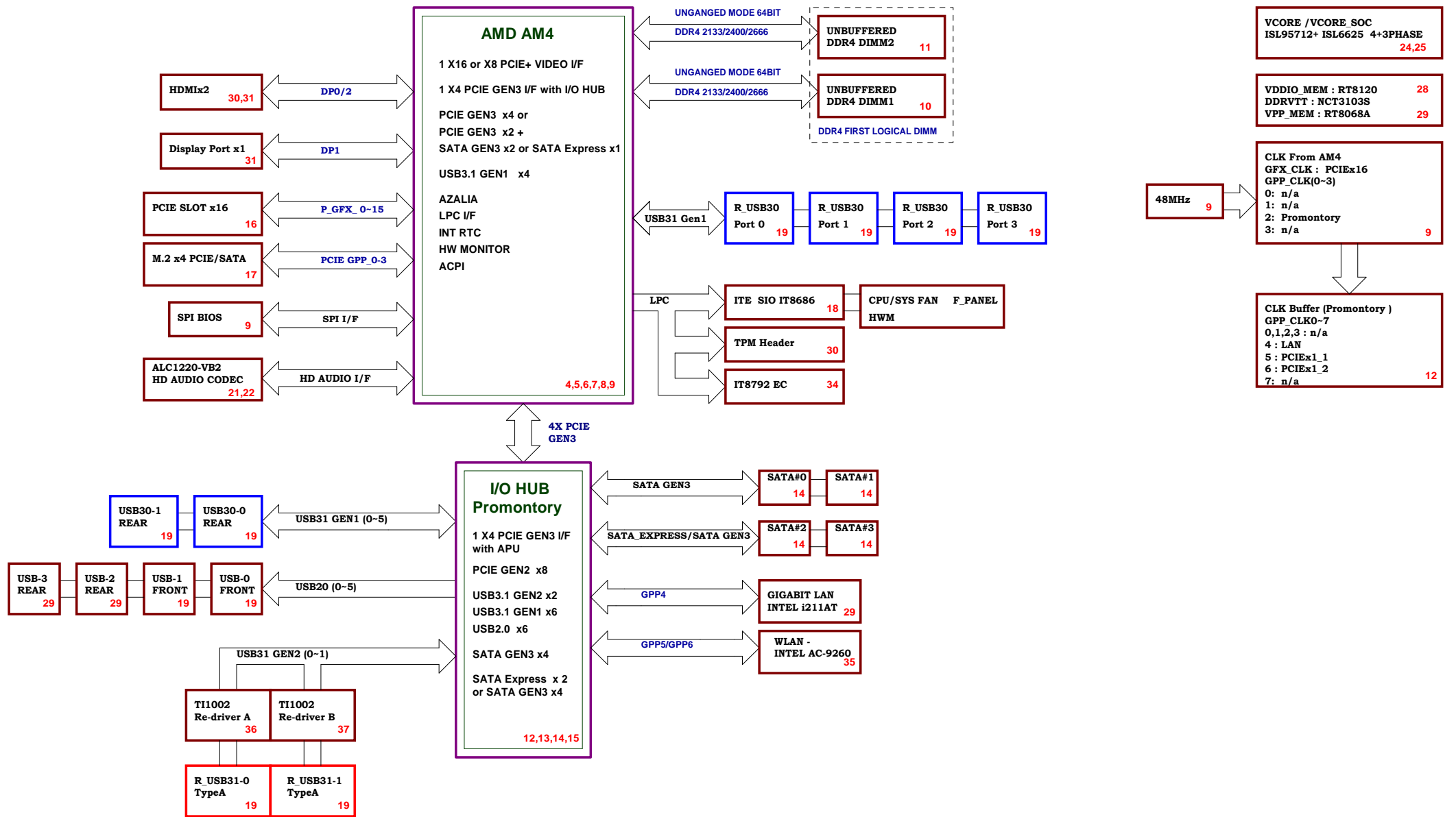
## Component Value Change History

**P-Code: U18038-0**  
**TIP/TOP: 9MB45IAPW-00-10F**

[illegible]

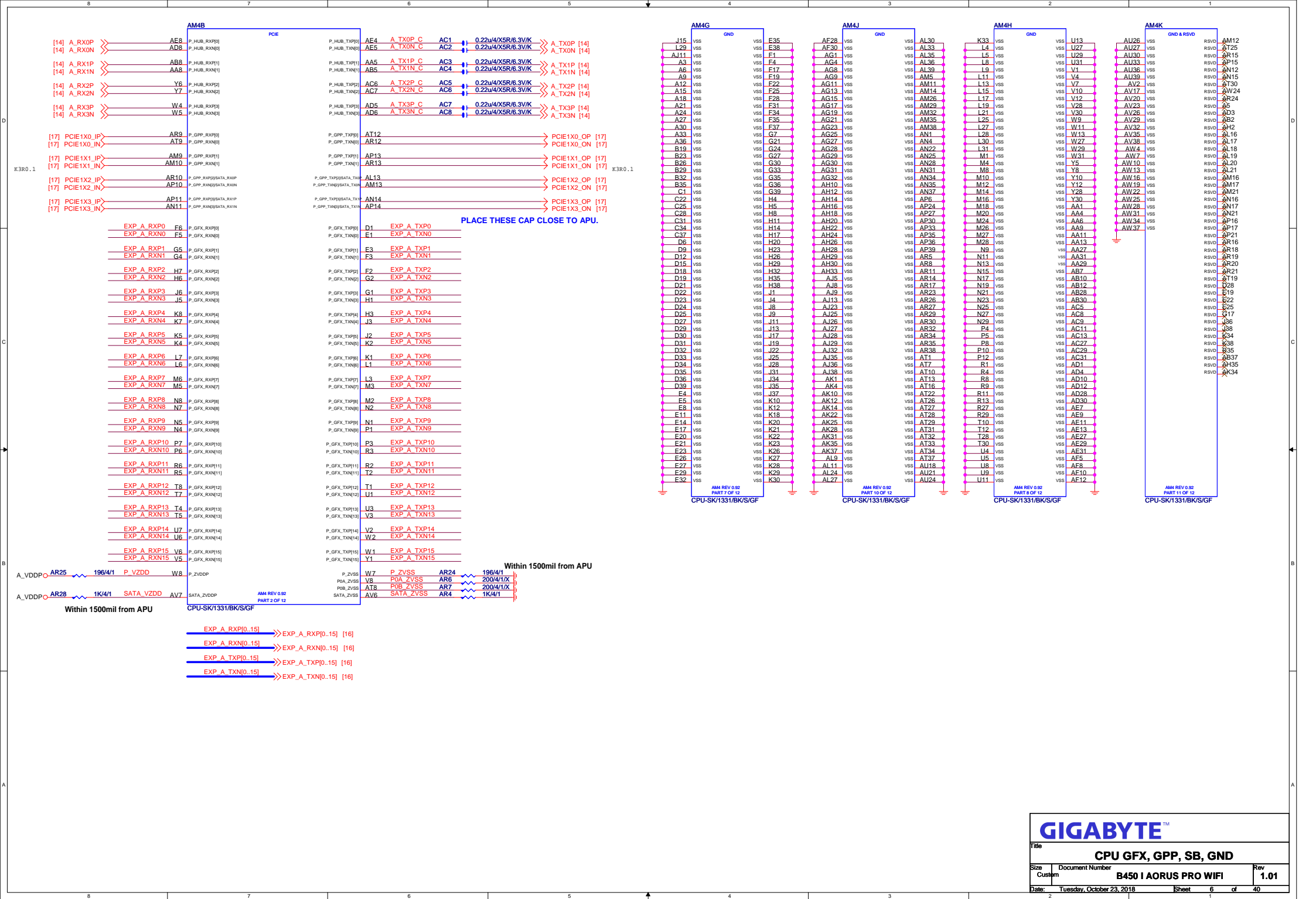
### Circuit or PCB Layout Change For Next Version

[illegible]









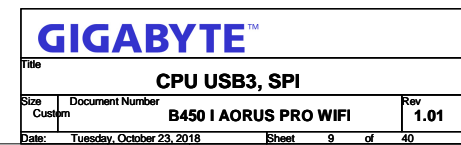
GIGABYTE™

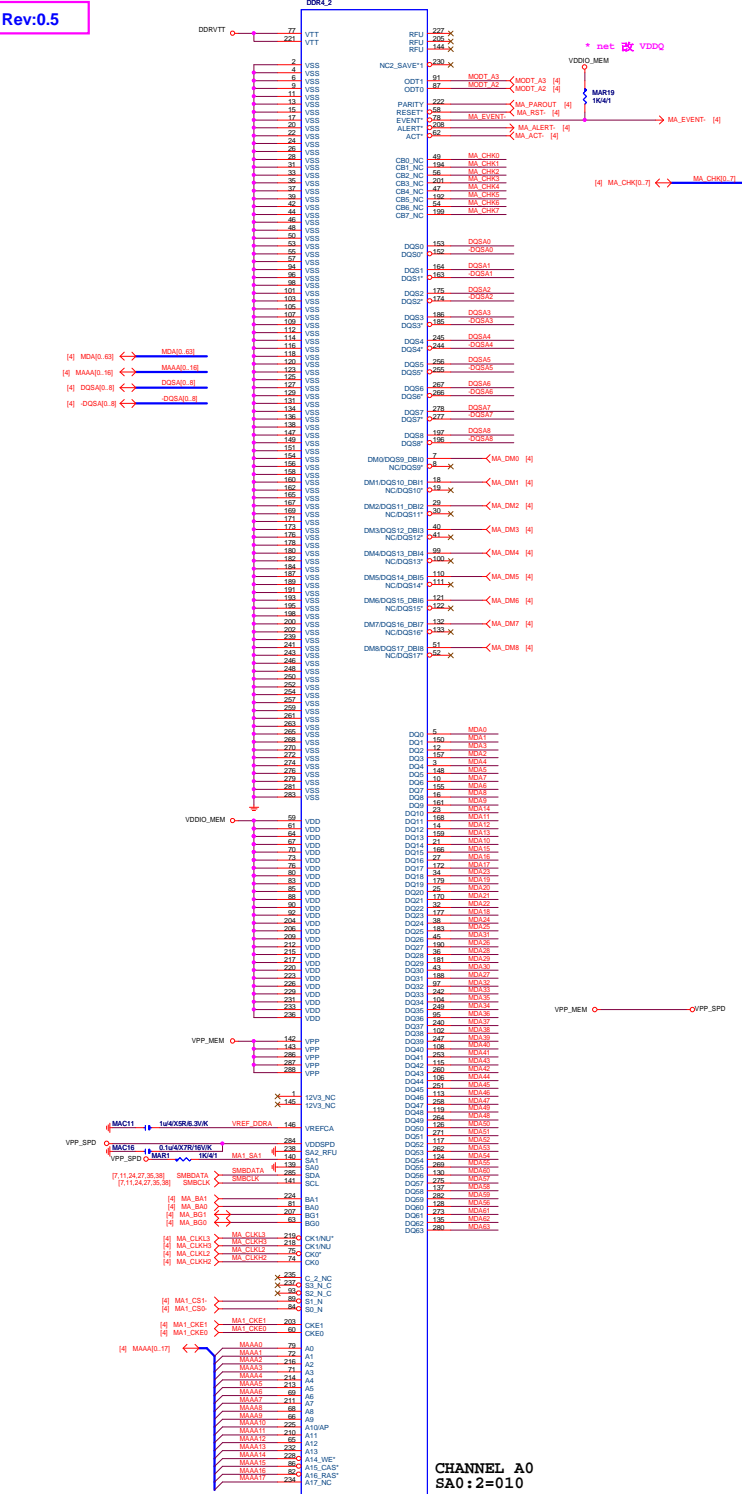
|                 |  |  |                           |  |  |
|-----------------|--|--|---------------------------|--|--|
| Title           |  |  | CPU GFX, GPP, SB, GND     |  |  |
| Size            |  |  | Custom                    |  |  |
| Document Number |  |  | B450 I AORUS PRO WIFI     |  |  |
| Rev             |  |  | 1.01                      |  |  |
| Date            |  |  | Tuesday, October 23, 2018 |  |  |
| Sheet           |  |  | 1 of 40                   |  |  |



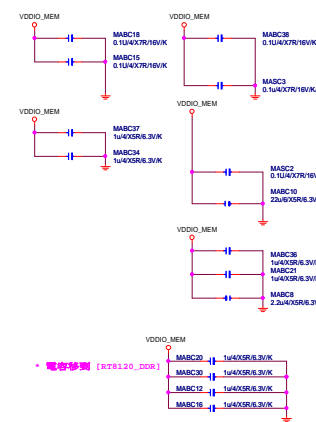




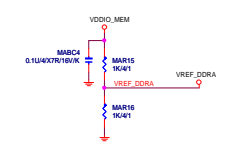
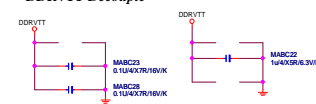


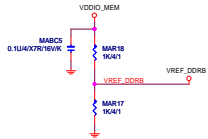


DDR12V Decouple

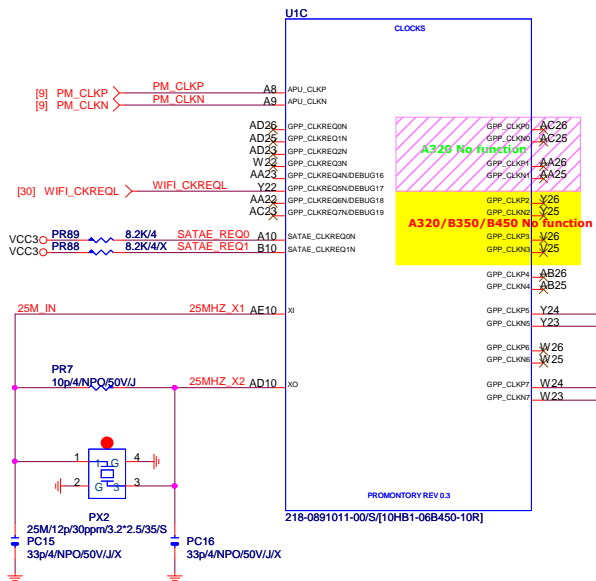


DDRVT Decouple





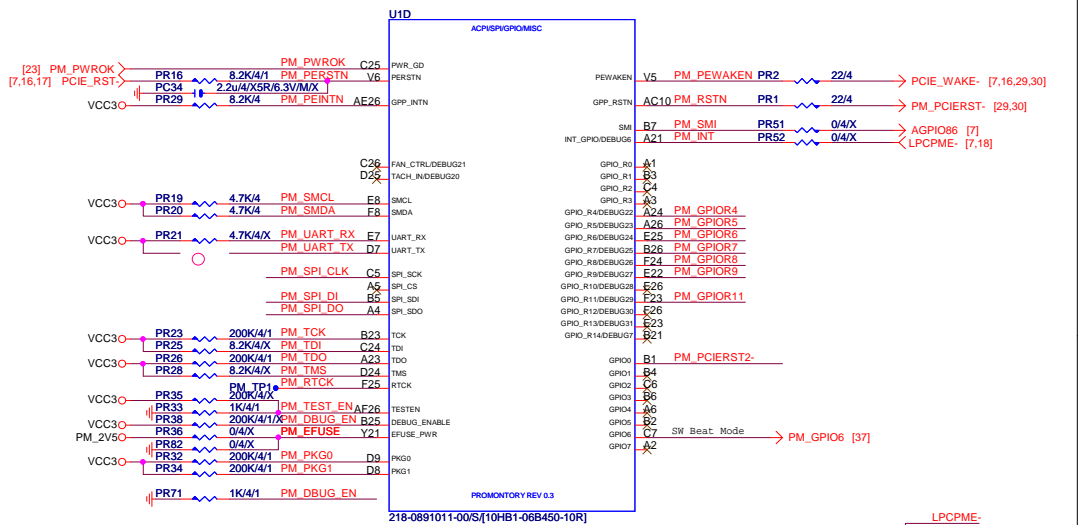
DDR4/288/BK/VA/D/G/F/ONE LATCH/LONG/11SM1-520288-J3R\_11SM1-520288-J3R  
11SM1-520288-J1R/J3R  
黑色單耳扣-GF



+3.3V\_RUN = PM\_3V3\_S0\_B (Through 60R choke/bead)  
+3.3V\_ALW = PM\_3V3\_S5\_B (Through 60R choke/bead)  
1.05V\_PROM\_S5 = PM\_1V05\_S5\_B (Through 60R choke/bead)  
2.5V\_PROM = PM\_2V5\_RUN\_B (Through 60R choke/bead)  
1.05\_PROM\_RUN = PM\_1V05\_RUN\_B (Through 60R choke/bead)

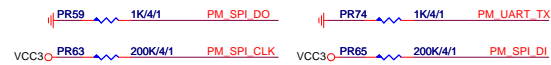
M.2 WIFI LAN

PCIE LAN

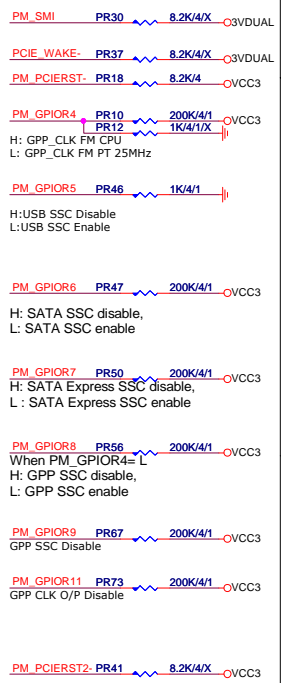


GPP GROUP 0 - 4 PCIE x1

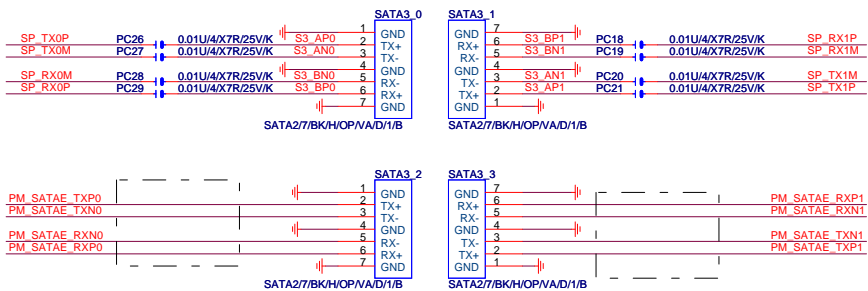
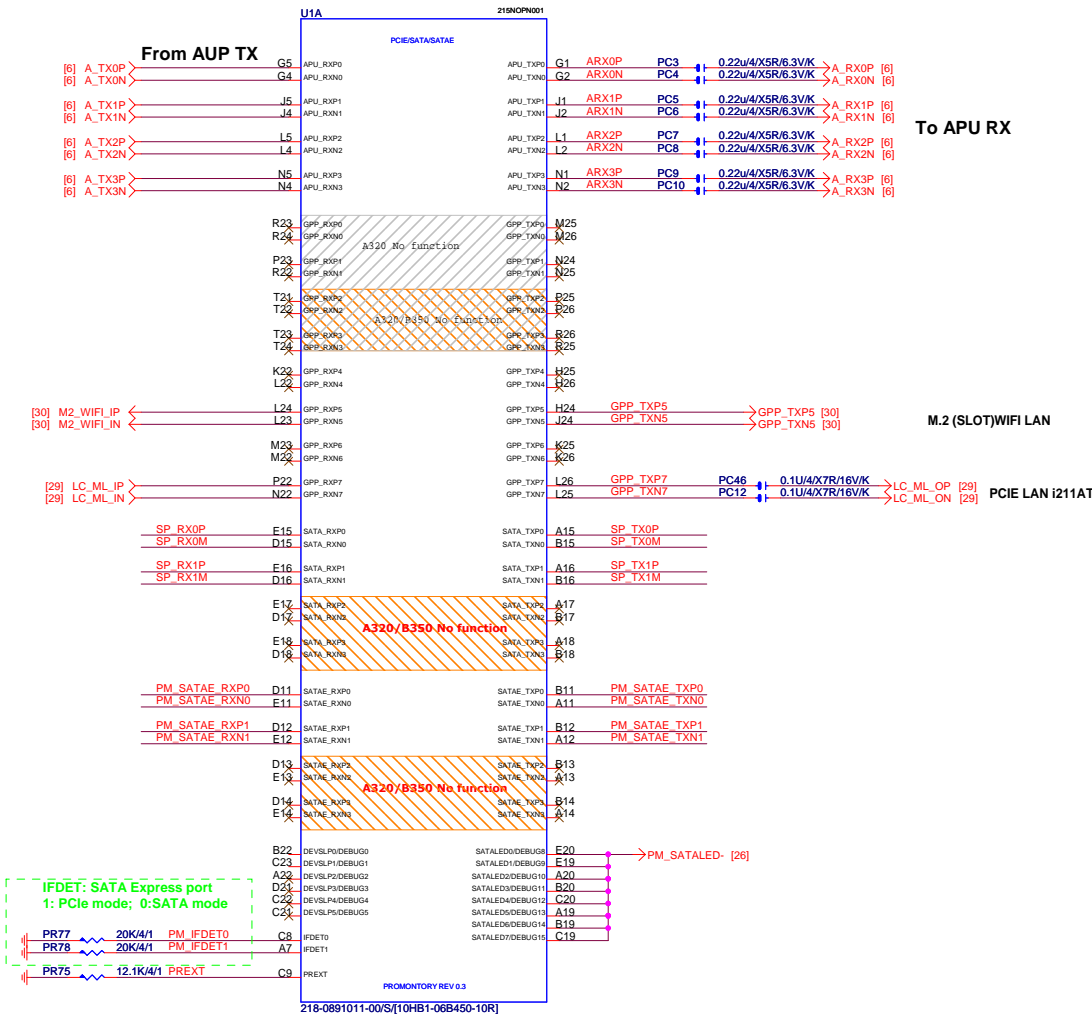
GPP GROUP1 STRAP (4 PCIE x1)



| Group 0 | PM_SMI_DO  | PM_SMI_CLK | GPP                  |
|---------|------------|------------|----------------------|
| Group 1 | PM_UART_TX | PM_SMI_DI  |                      |
|         | 0          | 0          | Reserved             |
|         | 0          | 1          | 4 PCIE x1;           |
|         | 1          | 0          | 1 PCIE x2+2 PCIE x1; |
|         | 1          | 1          | 1 PCIE x4            |





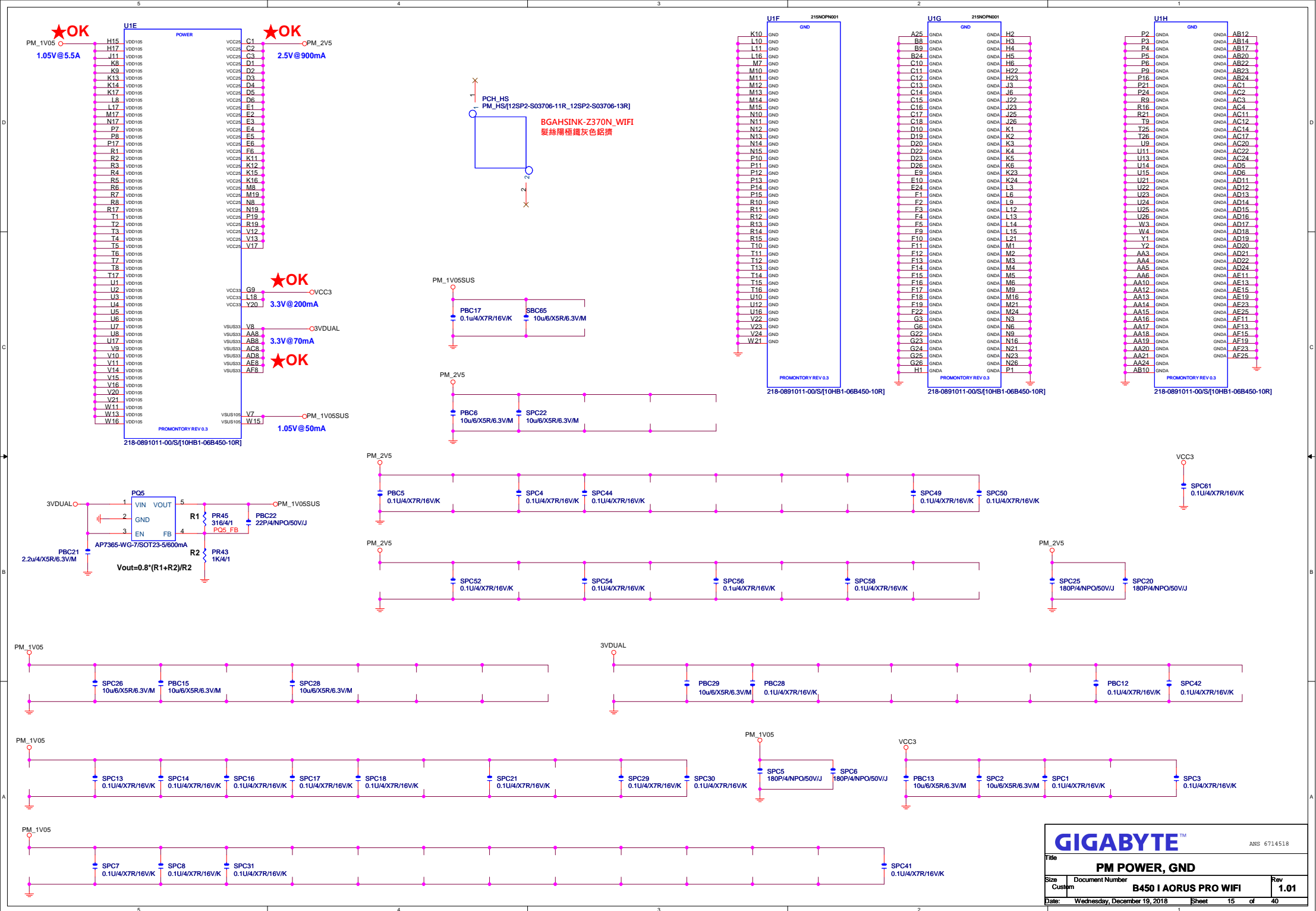


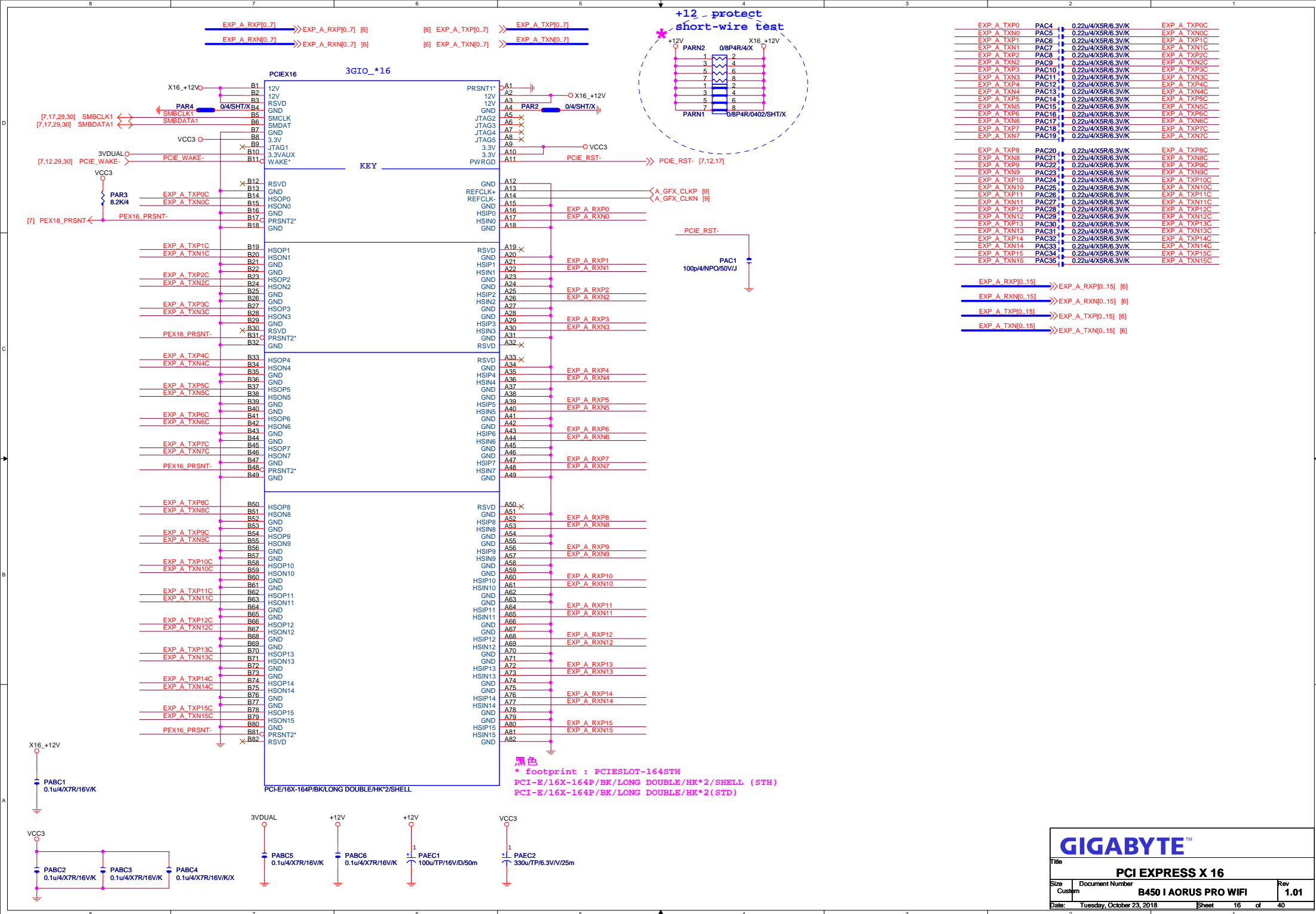
| BUS Model | SATA 3.0     | SATA Express  | PCI Express® Gen2 GPP      | PCI Express® CLK |
|-----------|--------------|---------------|----------------------------|------------------|
| PROM4     | SATA port0~3 | SATAE port0~3 | GPP lane0~7                | CLK0~7           |
| PROM3     | SATA port0~3 | SATAE port0~3 | GPP lane0~7                | CLK0~7           |
| PROM2     | SATA port0~1 | SATAE port0~1 | GPP lane0~1<br>GPP lane4~7 | CLK0~1<br>CLK4~7 |
| PROM1     | SATA port0~1 | SATAE port0~1 | GPP lane4~7                | CLK4~7           |

**GIGABYTE** ANIS 6714518

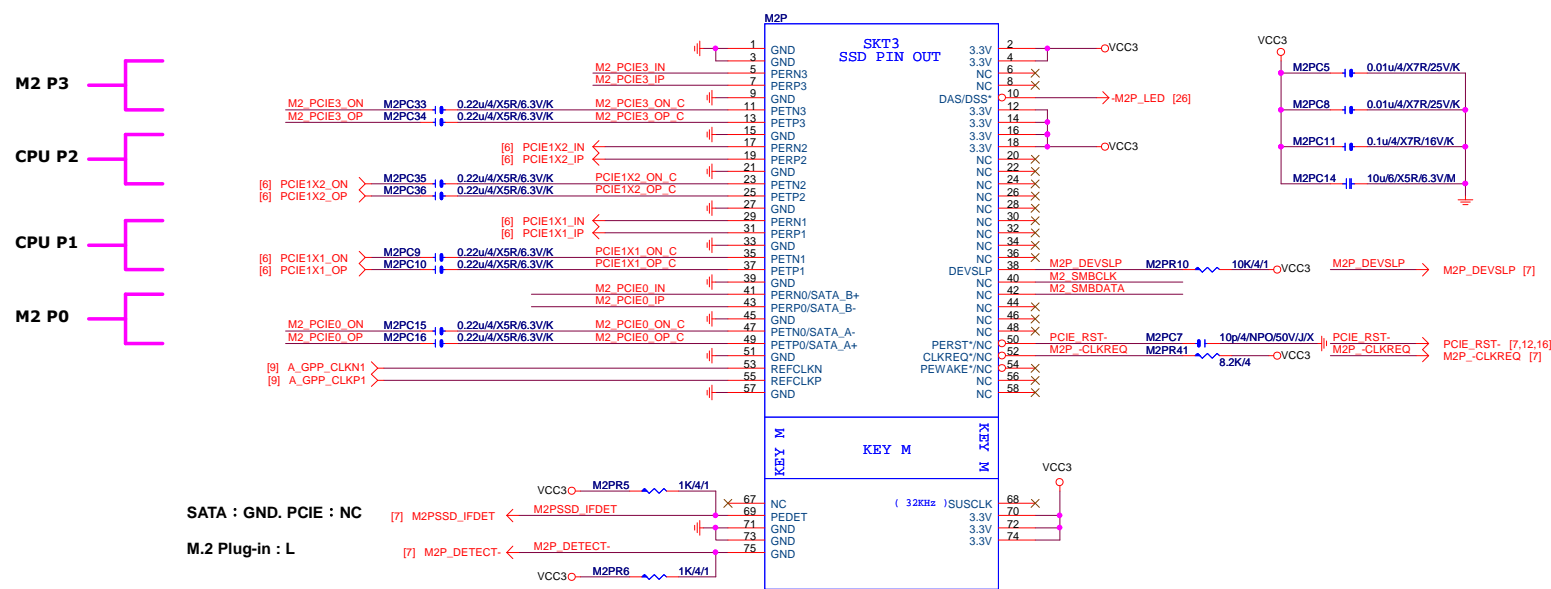
Title **PM SATA, GPP**

|       |                              |                              |             |
|-------|------------------------------|------------------------------|-------------|
| Size  | Customer                     | Document Number              | Rev         |
|       |                              | <b>B450 I AORUS PRO WIFI</b> | <b>1.01</b> |
| Date: | Wednesday, December 19, 2018 | Sheet                        | 14 of 40    |

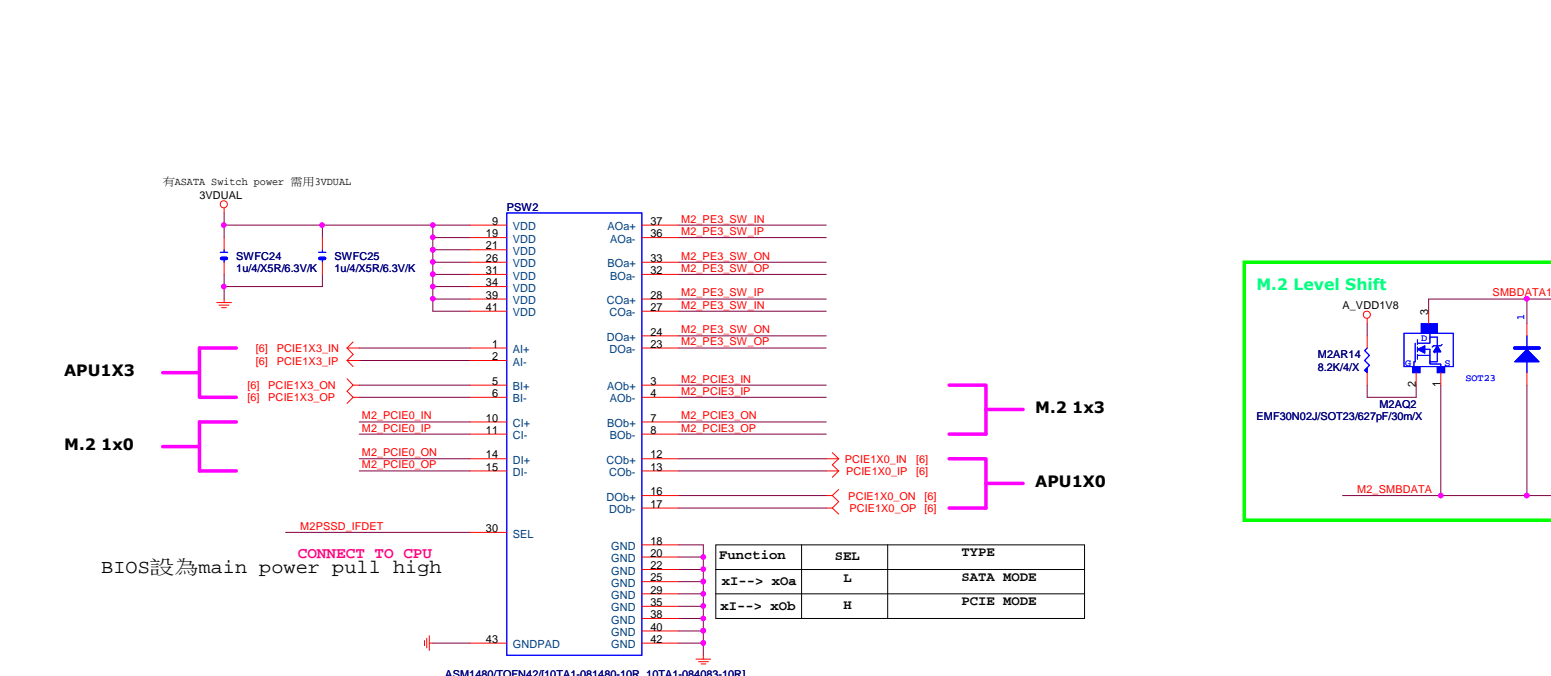




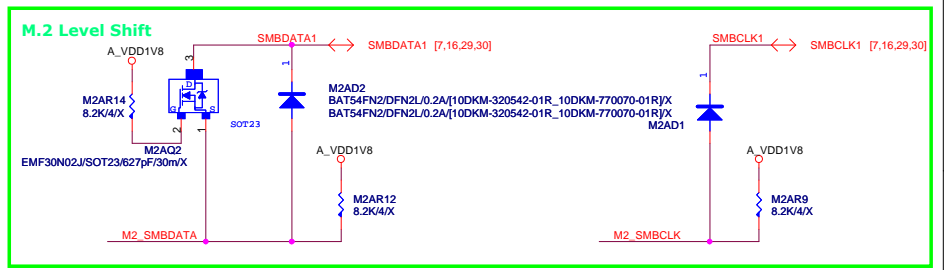
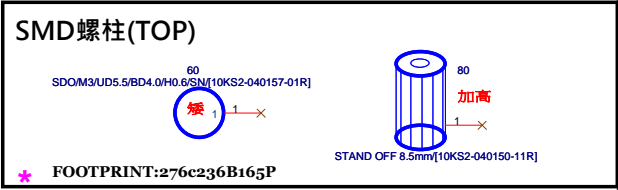
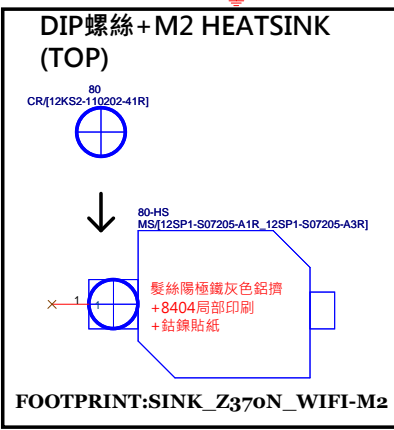


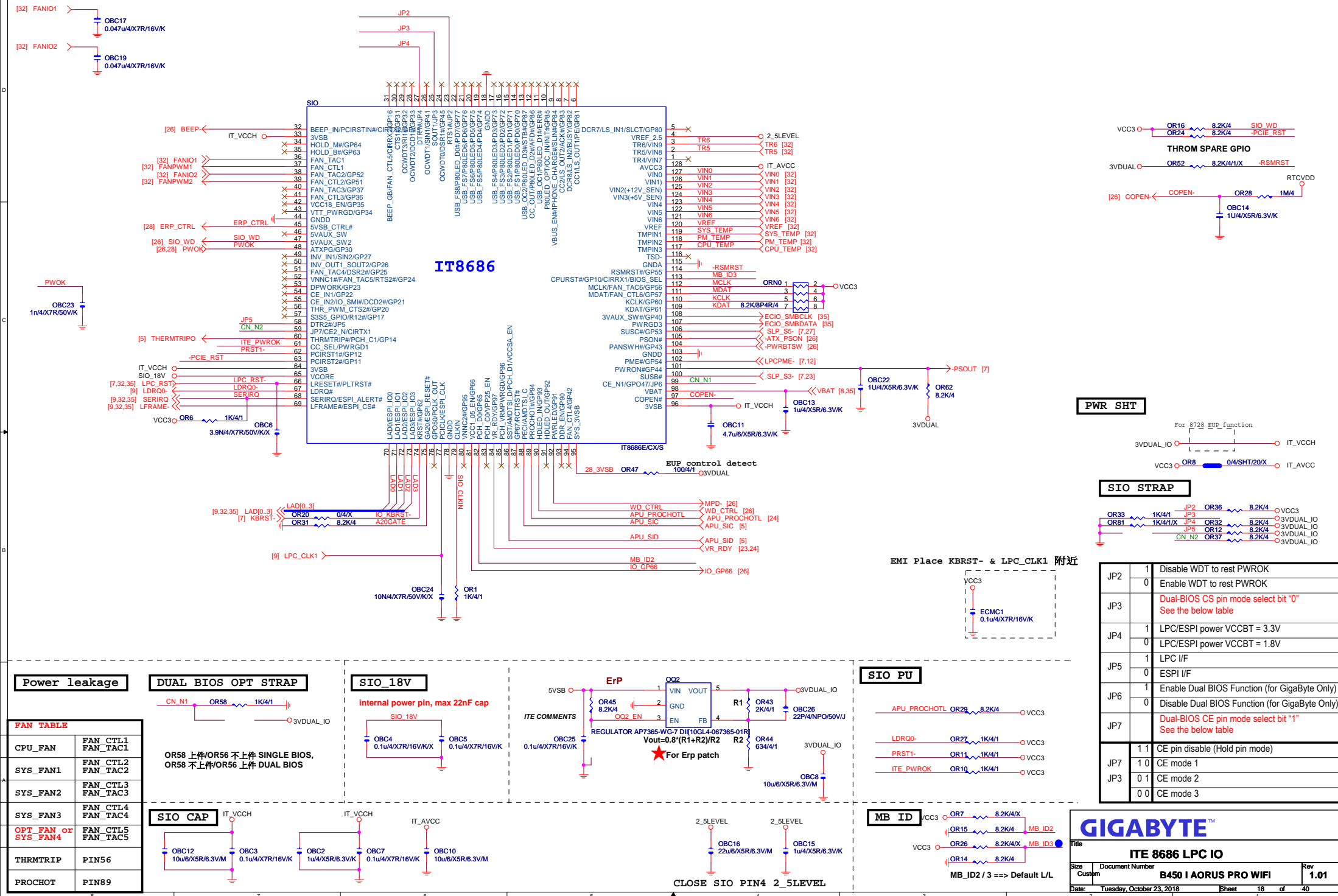


**Bot 60/80 HOLE only NGFF-M-75P-CUT42**  
**PN: 10NR5-130M67-01R(4.8mm)**

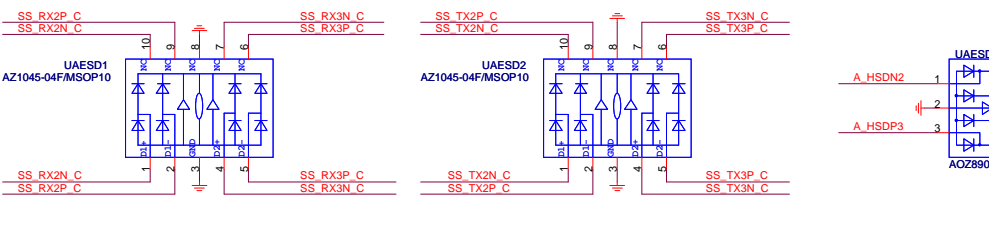
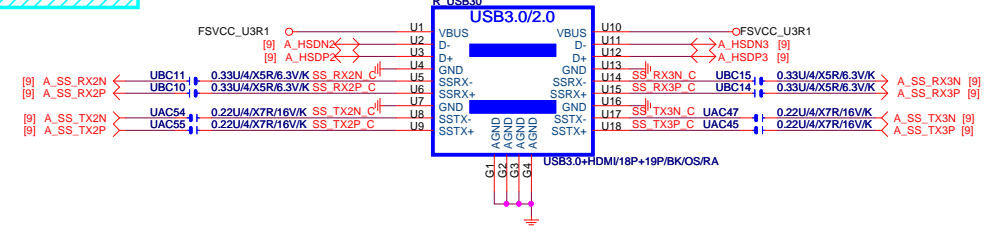


| Function  | SEL | TYPE      |
|-----------|-----|-----------|
| xI--> xOa | L   | SATA MODE |
| xI--> xOb | H   | PCIE MODE |

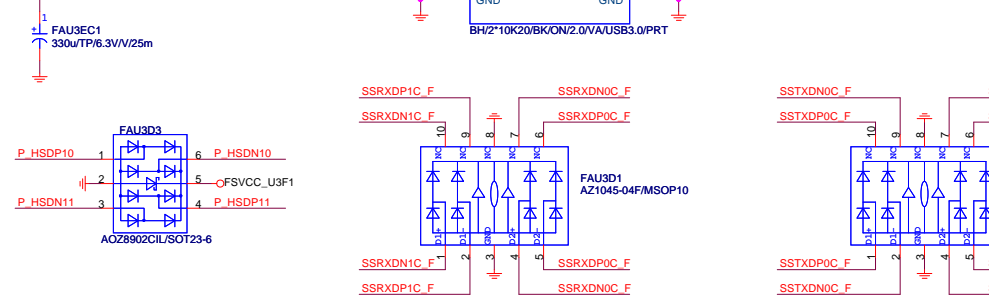
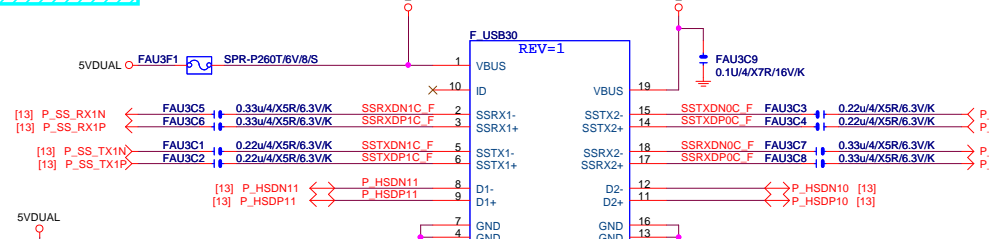




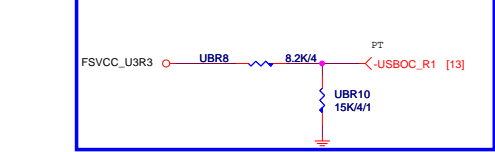
R\_USB30



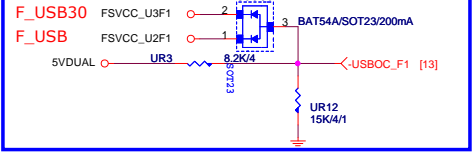
F\_USB30



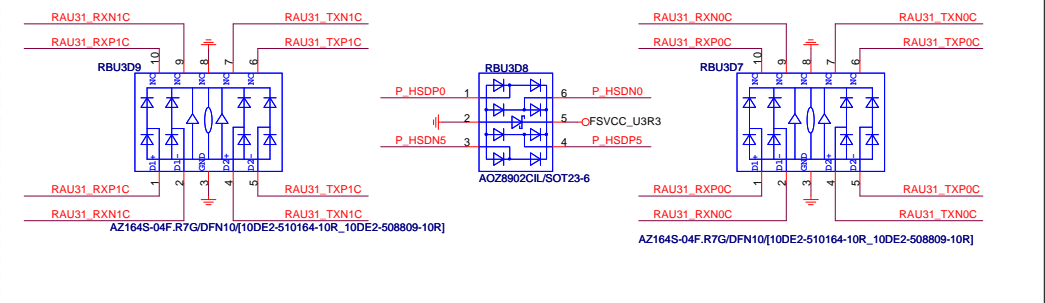
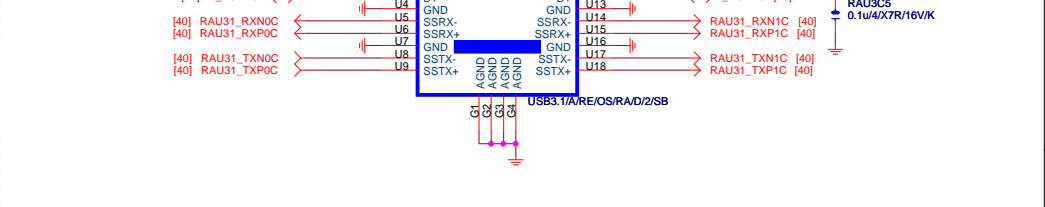
B450 REAR OC



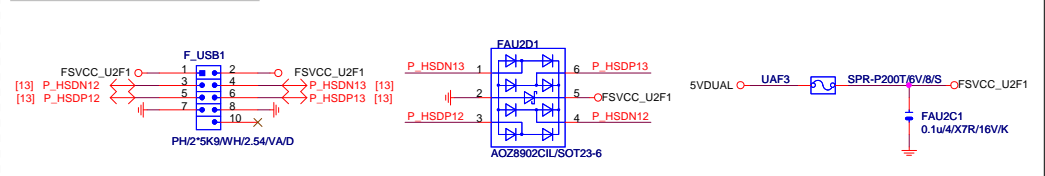
B450 Front OC

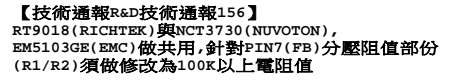


R\_USB31  
RE-Driver



FRONT SIDE USB1





| CORETYPE1 | CORETYPE0 | VPPD_ALW |
|-----------|-----------|----------|
| 1         | X         | 0.9V     |
| 0         | X         | 1.05V    |

**A\_VDD1V8**



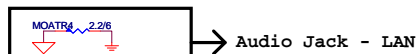
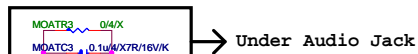
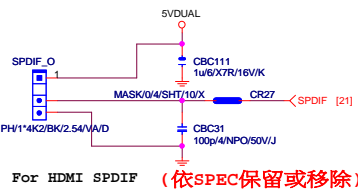
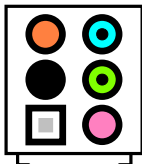
\* 大電容 x0

22u\*2PCS

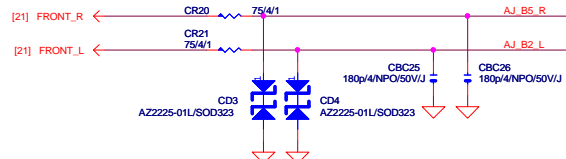


Rev 3.0

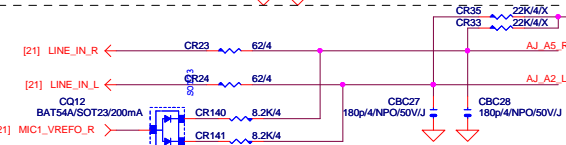
AZALIA JACK



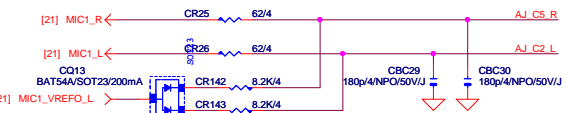
## LINE-OUT



## LINE-IN



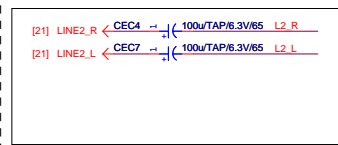
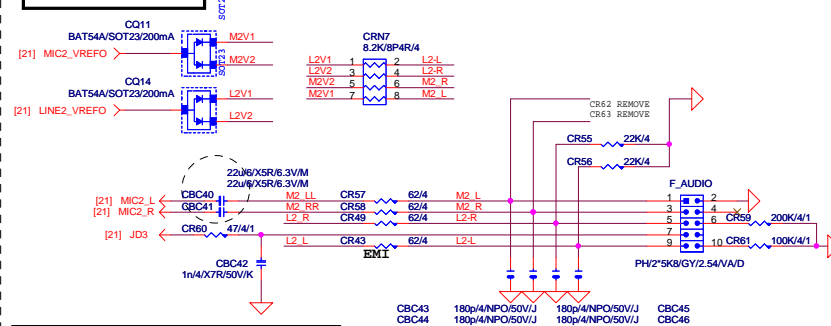
## MIC-IN



## SURROUND

## CEN/LFE

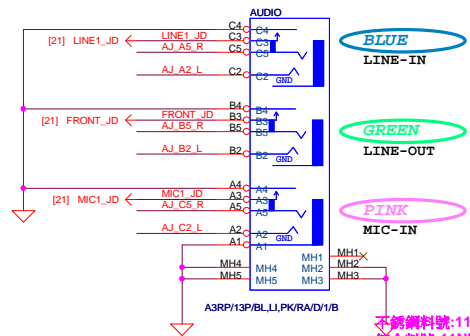
## AZALIA FRONT PANEL



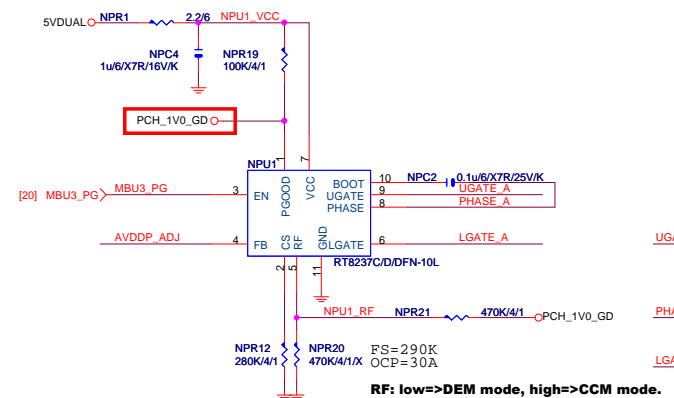
GIGABYTE™

AUDIO JACK

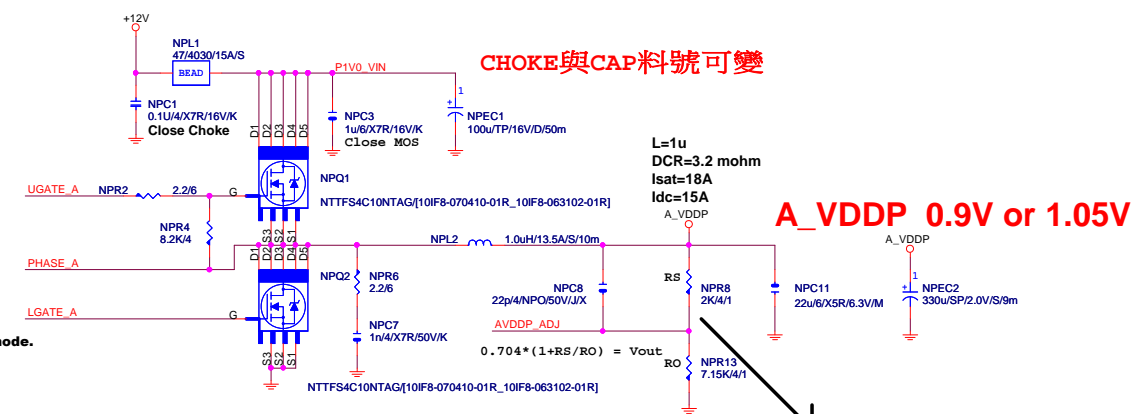
|       |                           |                 |                       |     |      |
|-------|---------------------------|-----------------|-----------------------|-----|------|
| Size  | Custom                    | Document Number | B450 I AORUS PRO WIFI | Rev | 1.01 |
| Date: | Tuesday, October 23, 2018 | Sheet           | 22                    | of  | 40   |

BLUE  
LINE-INGREEN  
LINE-OUTPINK  
MIC-IN

不銹鋼料號:11NR6-403025-A3R  
鍍金料號:11NR6-403025-92R



RF: low=>DEM mode, high=>CCM mode.

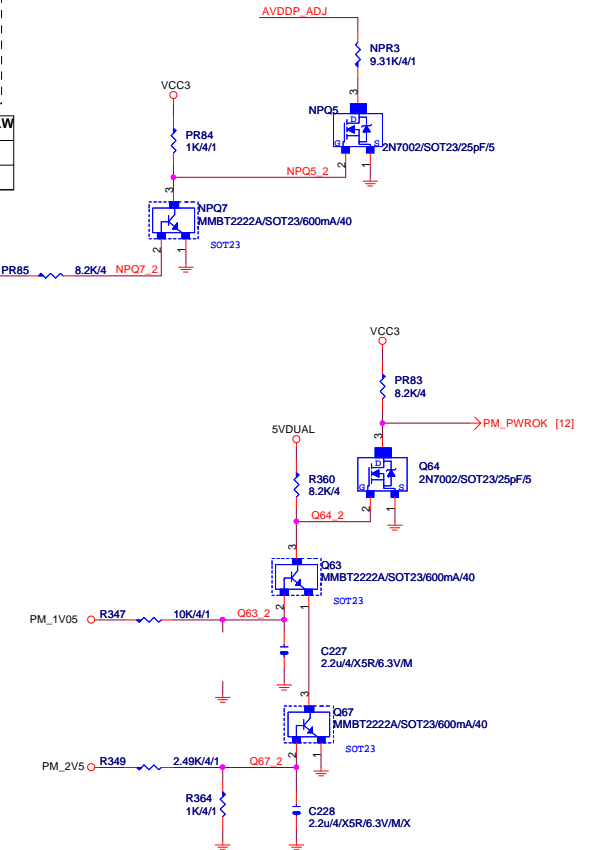
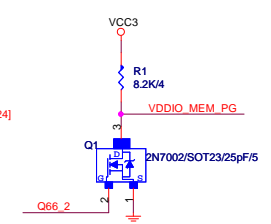
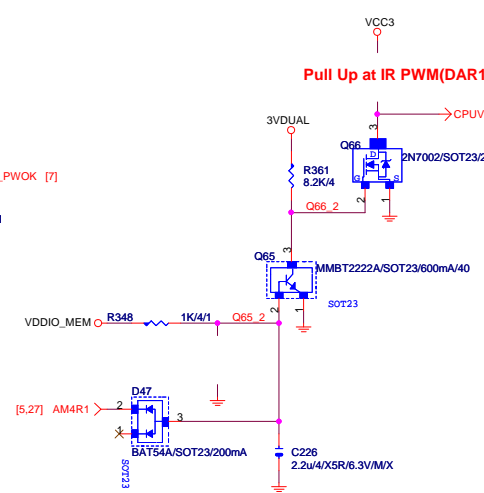
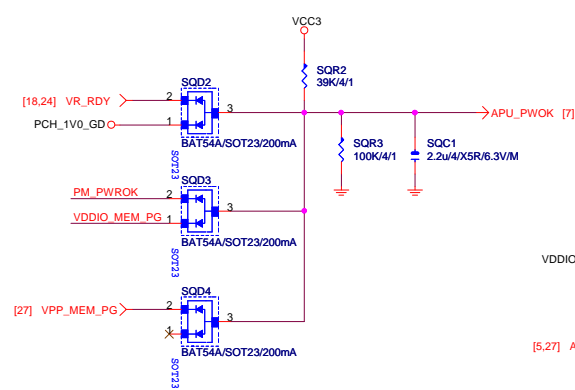
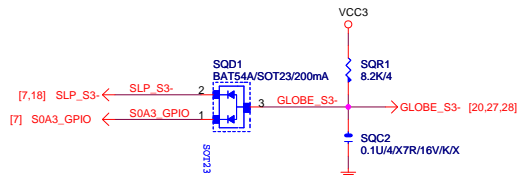


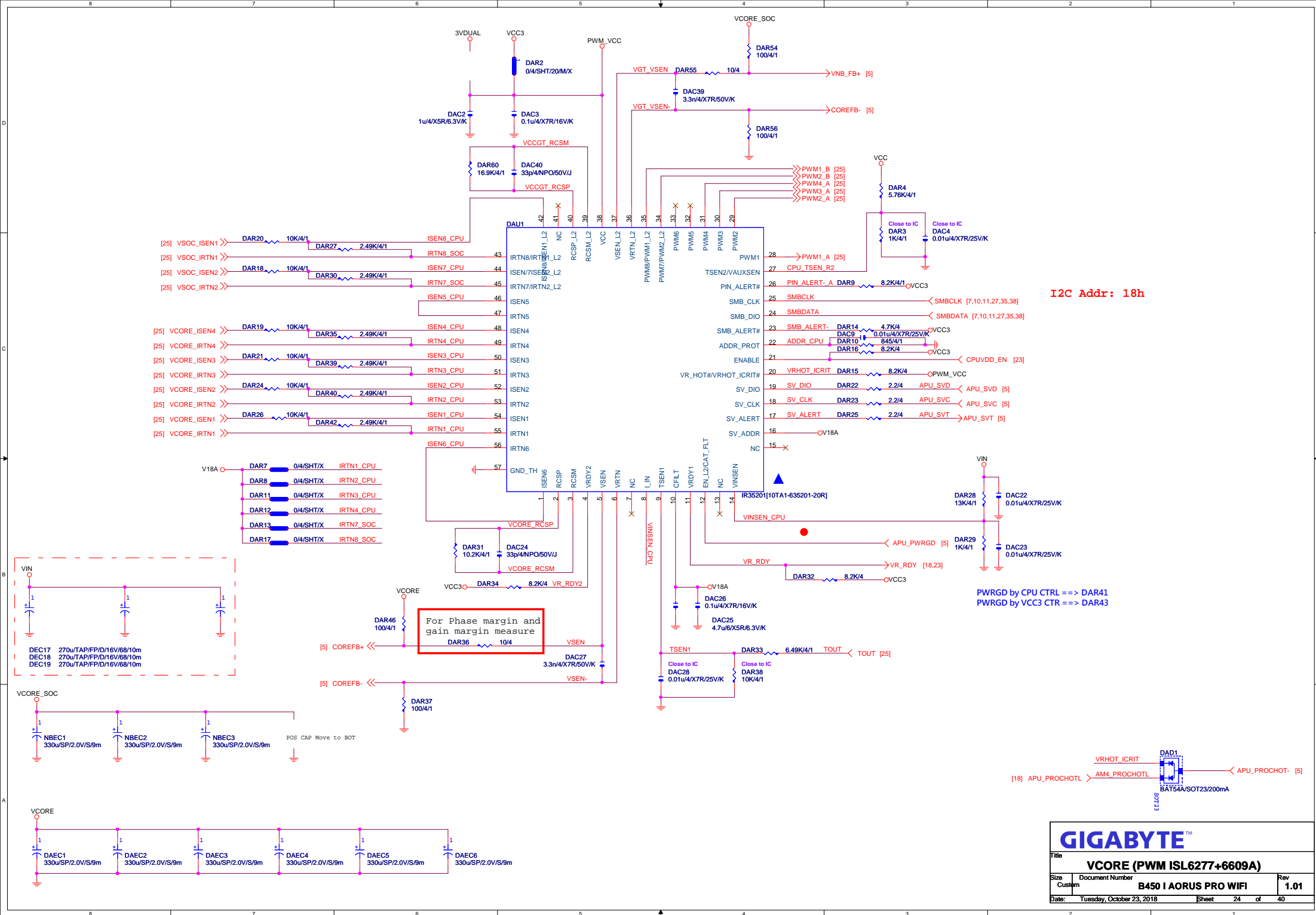
CHOKE與CAP料號可變

A\_VDDP 0.9V or 1.05V

Remote sense 請從最重的負載端點拉回

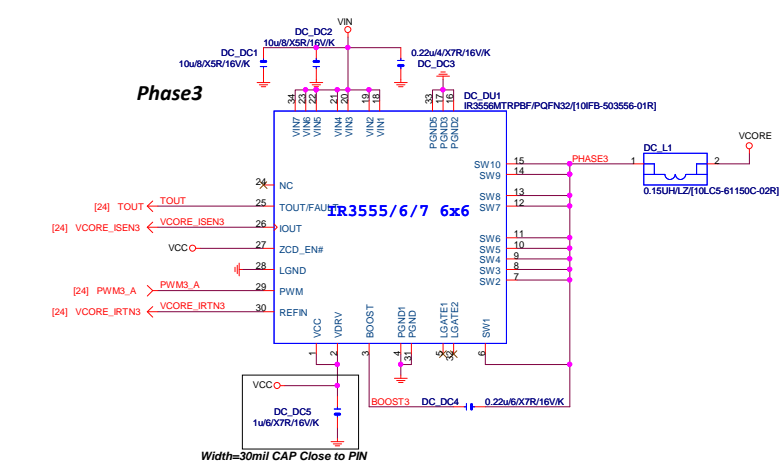
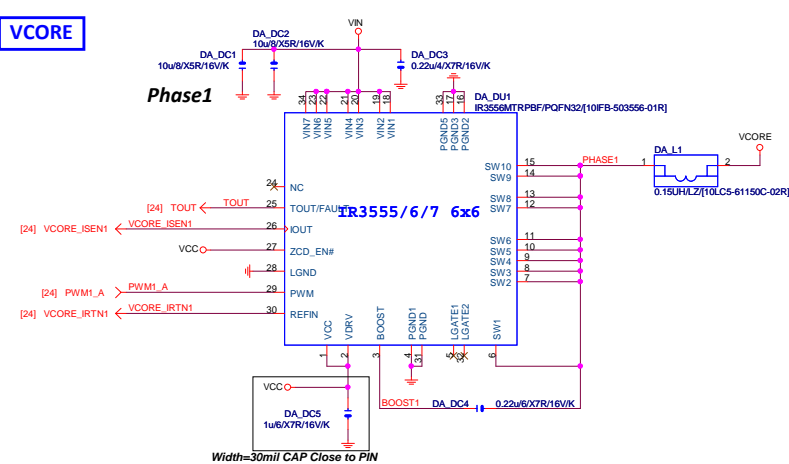
| CORETYPE1 | CORETYPE0 | VPPD_ALW |
|-----------|-----------|----------|
| 1         | X         | 0.9V     |
| 0         | X         | 1.05V    |



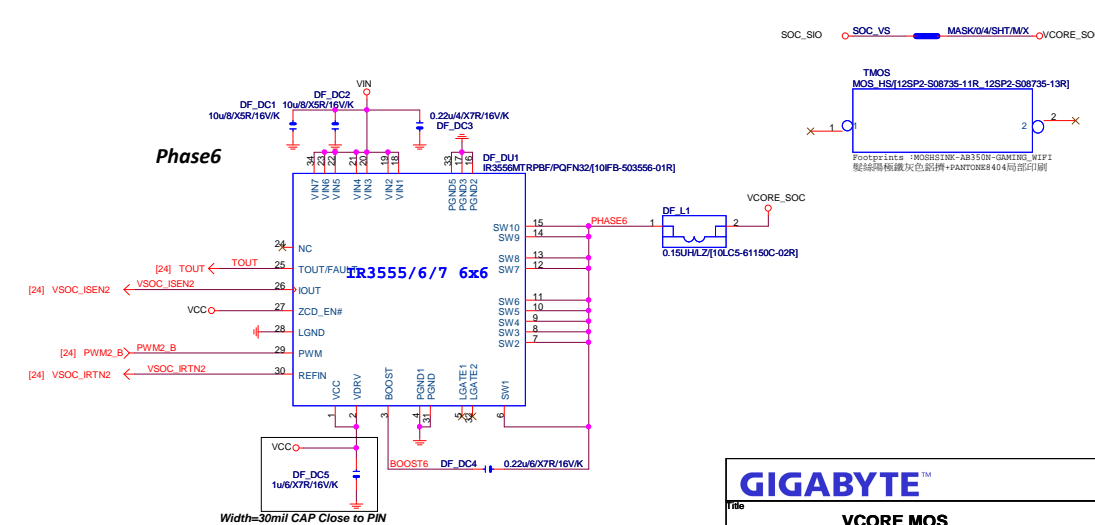
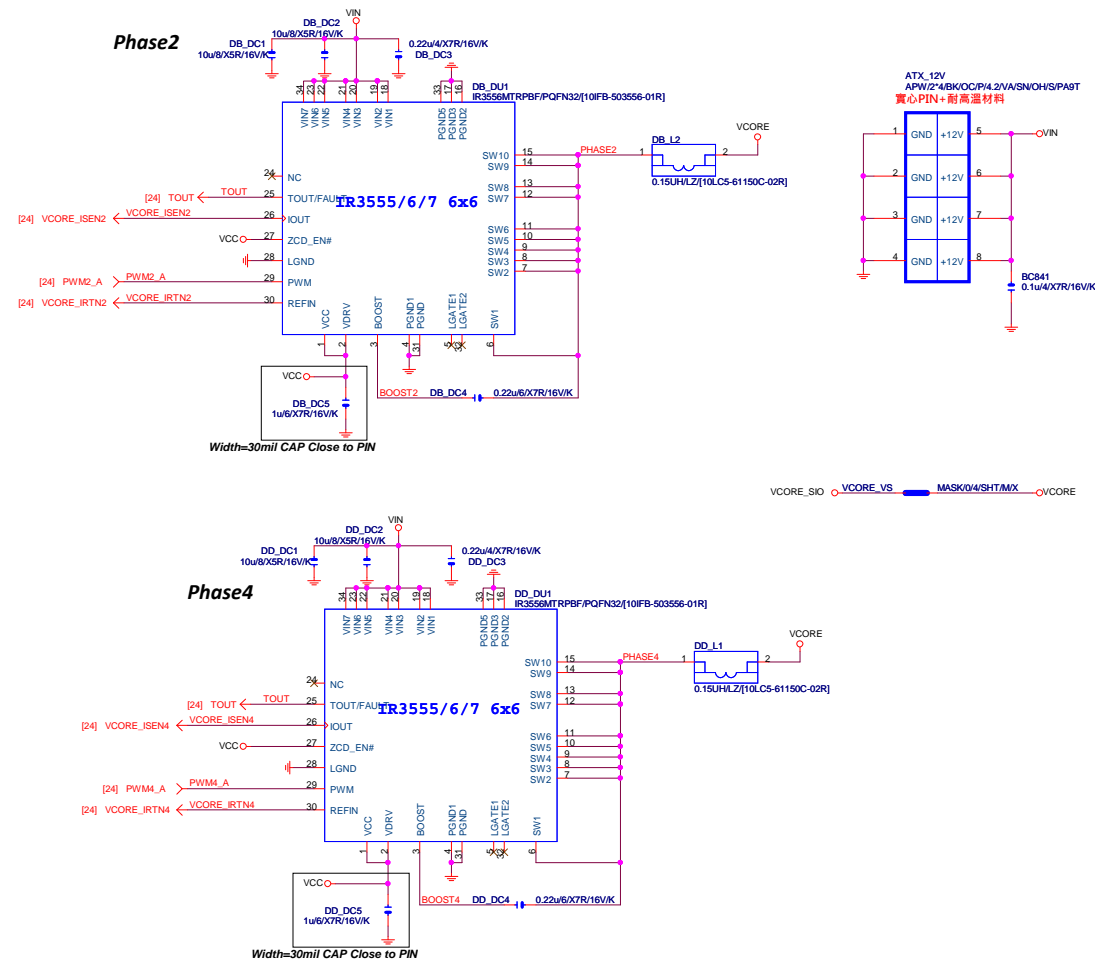
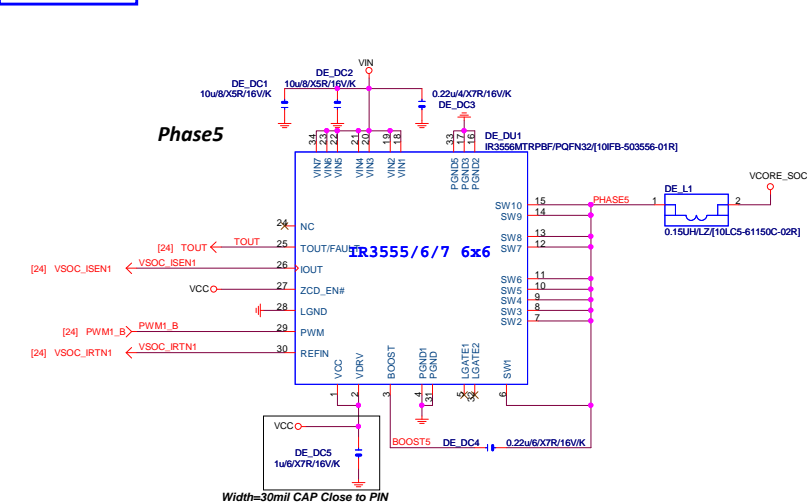




## VCORE

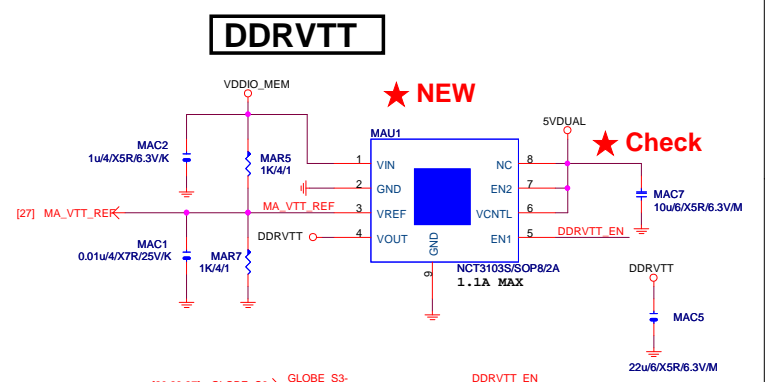
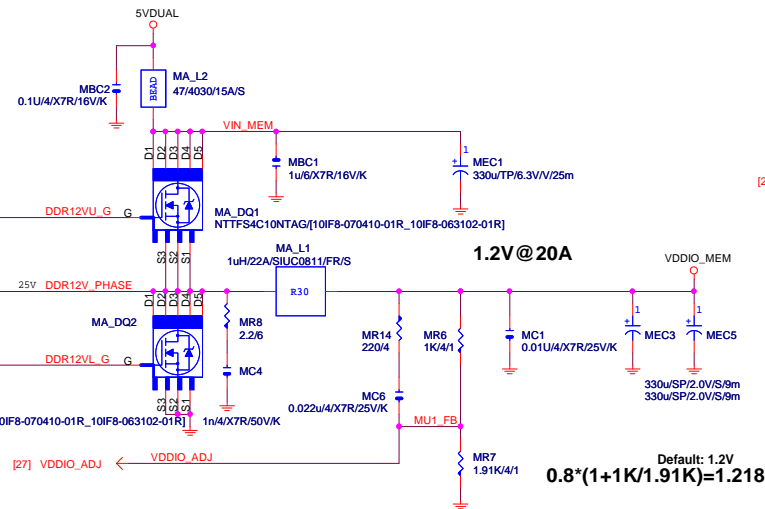
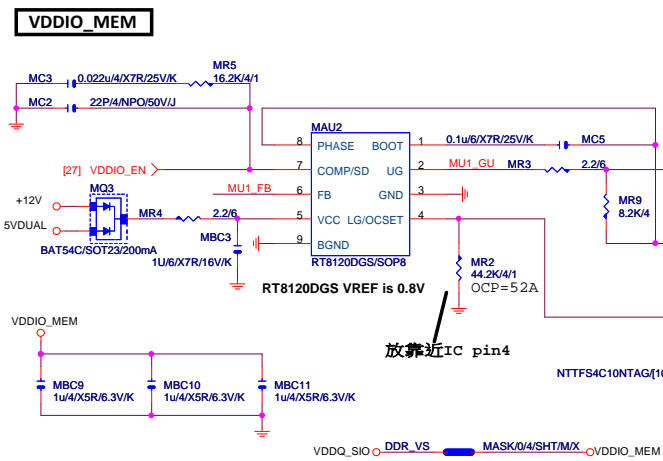
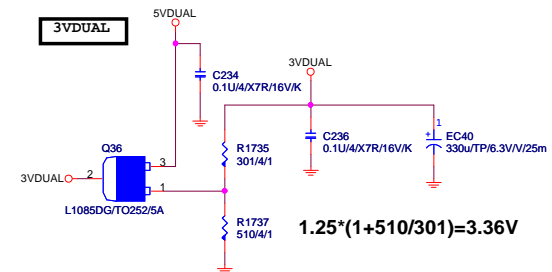
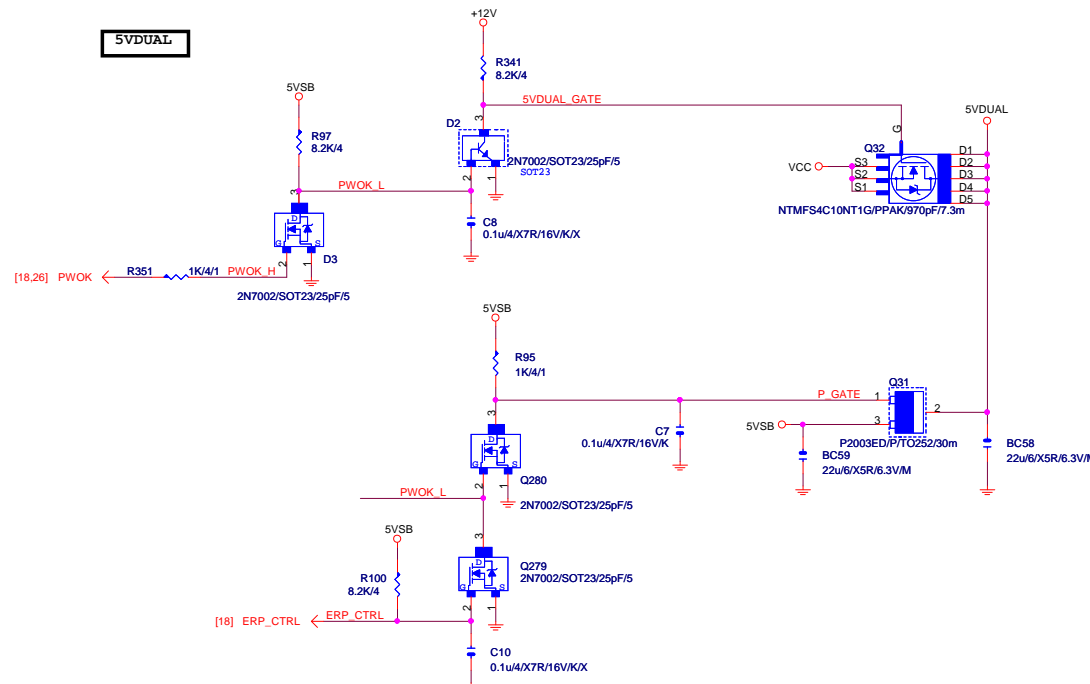


## VCORE SOC

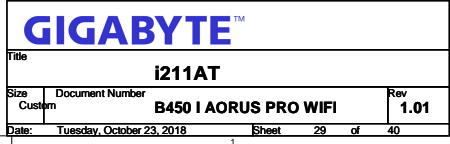








|                          |                              |                |
|--------------------------|------------------------------|----------------|
| <b>GIGABYTE™</b>         |                              |                |
| <b>DDR POWER ,5VDUAL</b> |                              |                |
| Title                    | Document Number              | Rev            |
| Custom                   | <b>B450 I AORUS PRO WIFI</b> | <b>1.01</b>    |
| Date:                    | Thursday, October 25, 2018   | Sheet 28 of 40 |



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

NET 可變

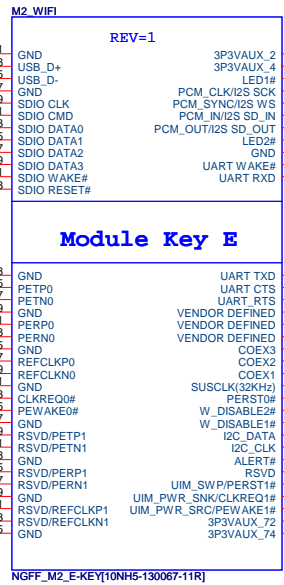
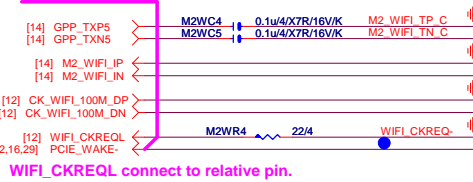
[13] P\_HSDP1 <->  
[13] P\_HSDN1 <->

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

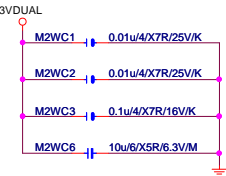
PCIe:15/4/4/15(breakout min 8/4/4/4/8)  
內層 Impedance=85 +- 12%

NET 可變

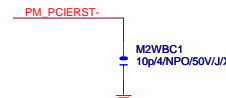
WIFI use PCIe port4 in X99



Remove LED show  
Remove LED show



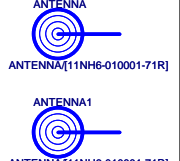
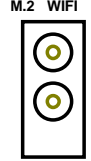
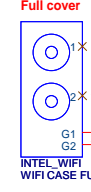
★Update 2015-07-22



## FOR M.2 WIFI MODULE @ REAR PANEL

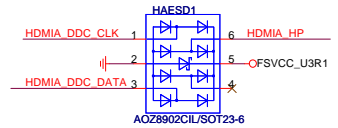
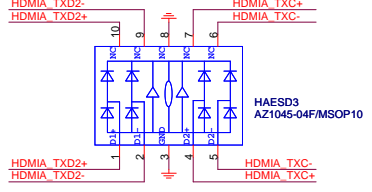
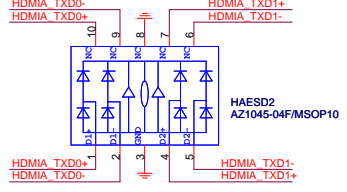
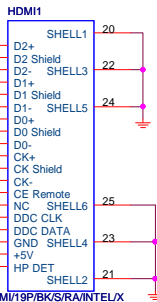
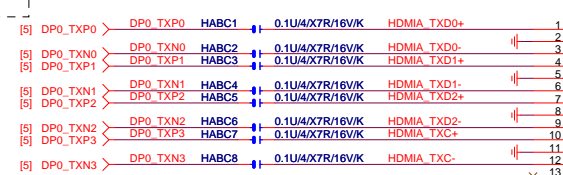
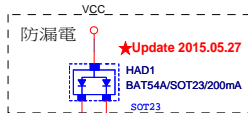
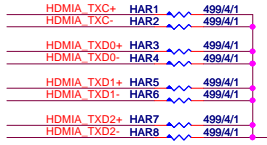
一套WIFI MODULE包含全罩鐵殼+WIFI CARD+天線+ 安規貼紙

Wificard  
INTEL AC9260[20CB1-029260-00R]:M2\_WIFI

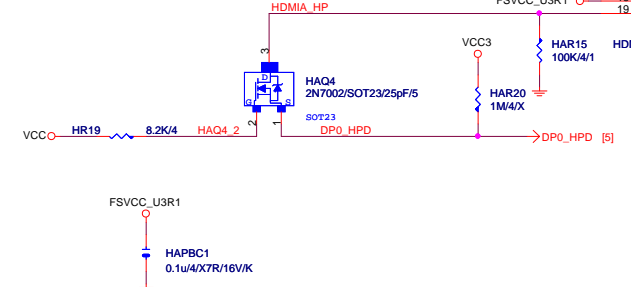


INTEL\_WIFI AC9260 STICKER[12LB6-TAC9260-00R]

INTEL\_WIFI WIFI GASE FULL[12AC2-S00004-21R]

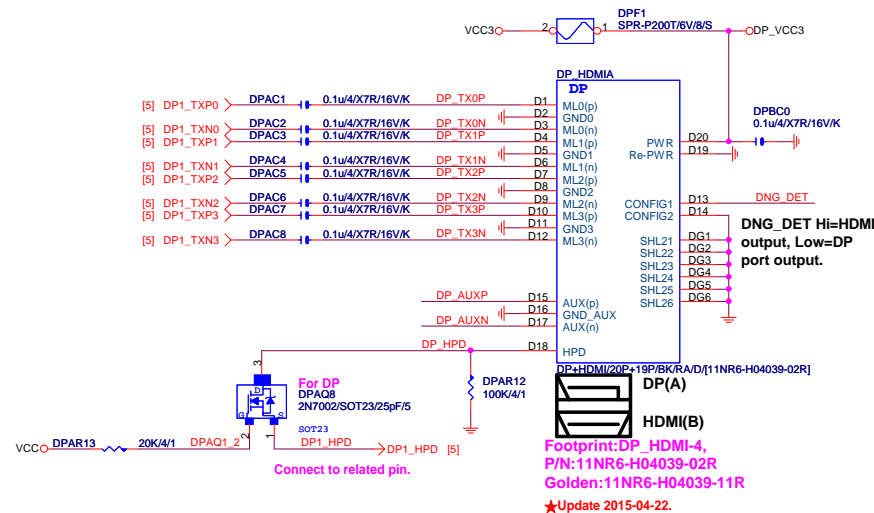
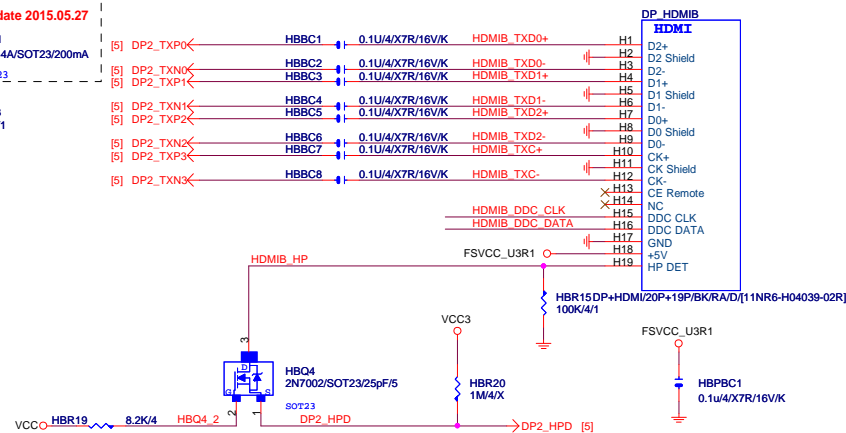
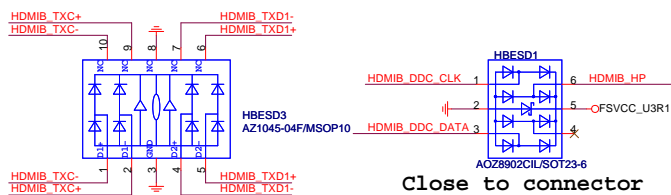
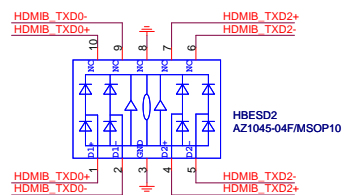
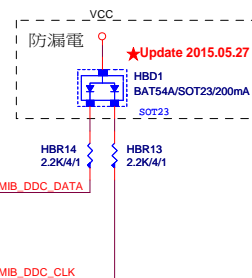
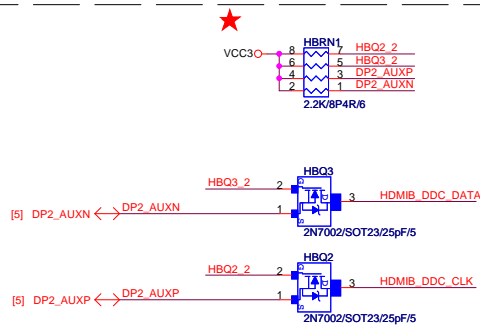
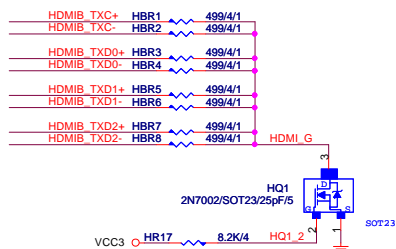
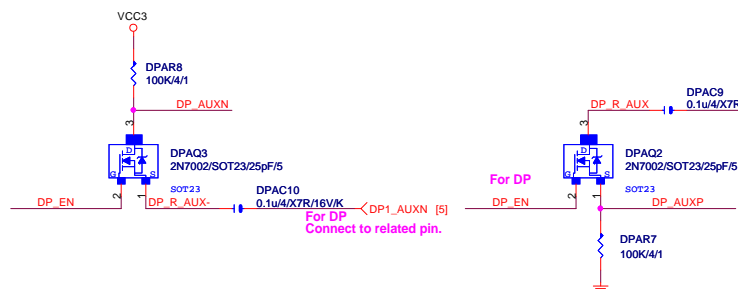
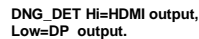


Close to connector



GIGABYTE™

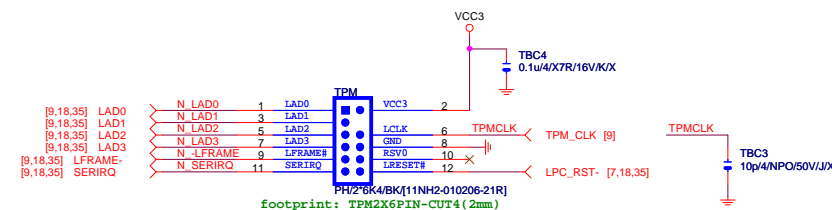
| M2_WIFI_E_KEY |                           |                       |          |
|---------------|---------------------------|-----------------------|----------|
| Size          | Document Number           | B450 I AORUS PRO WIFI | Rev 1.01 |
| Custom        |                           |                       |          |
| Date:         | Tuesday, October 23, 2018 | Sheet                 | 30 of 40 |



★Update 2016.06.01



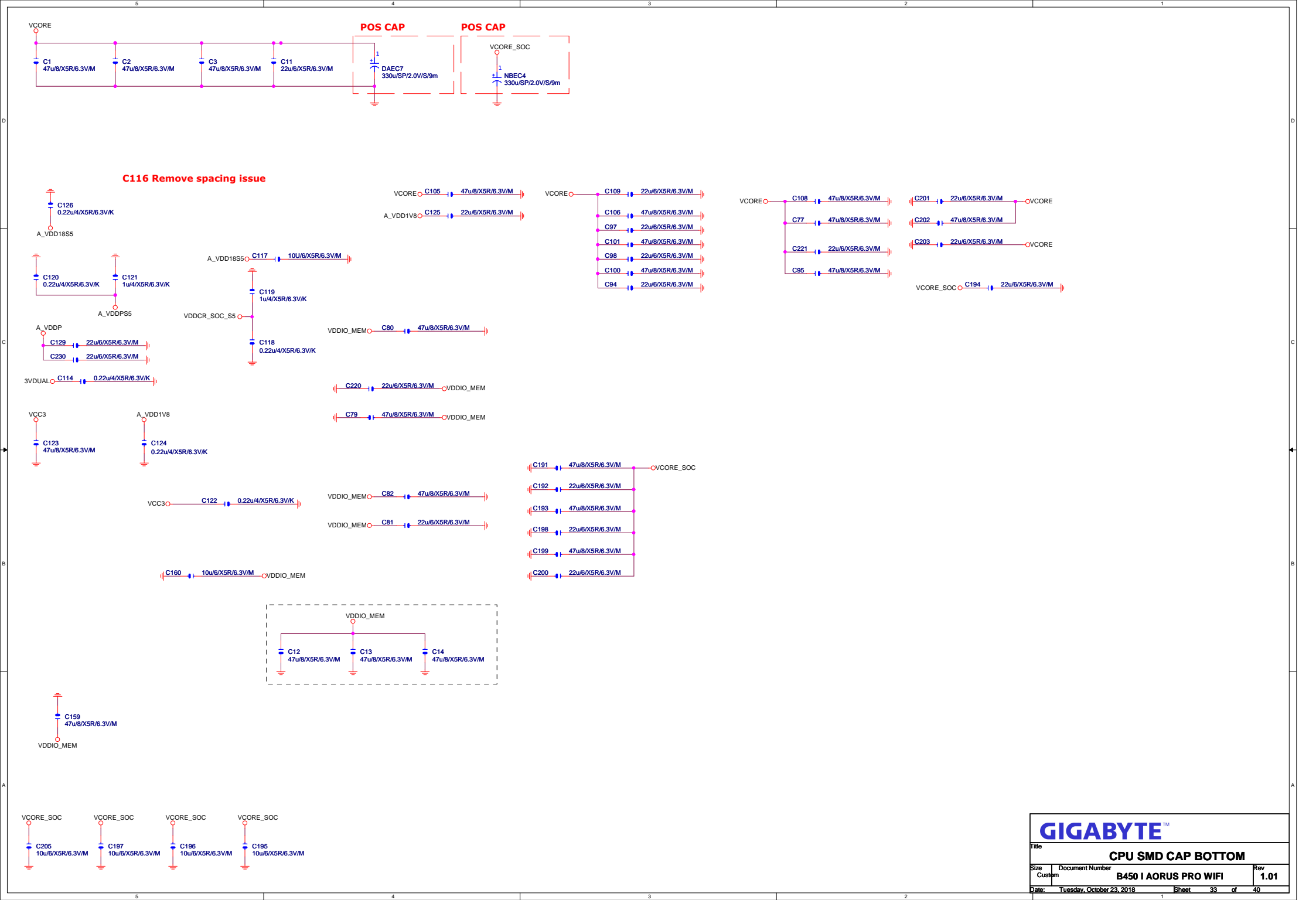
## TPM CONNECT



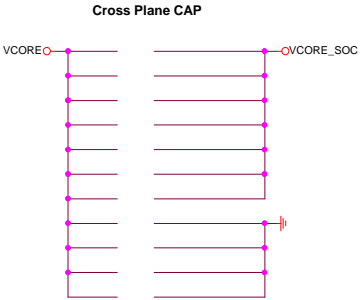
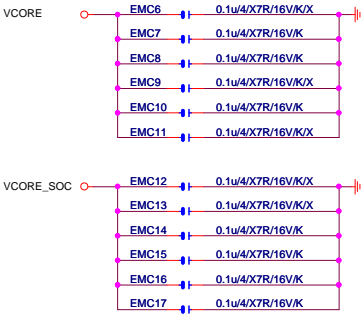
**GIGABYTE™**

|                    |                           |       |          |
|--------------------|---------------------------|-------|----------|
| Title              |                           |       |          |
| FAN, LPT, COM ,HWM |                           |       |          |
| Size               | Document Number           | Rev   |          |
| Custom             | B450 I AORUS PRO WIFI     | 1.01  |          |
| Date:              | Tuesday, October 23, 2018 | Sheet | 32 of 40 |



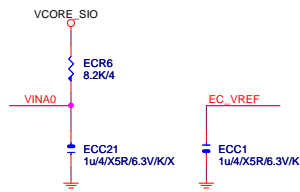


CPU TOP CAVITY

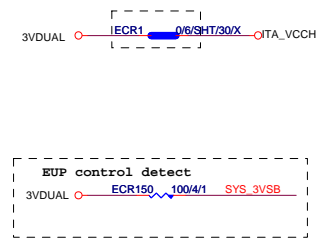
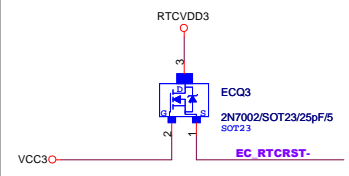


**GIGABYTE™**

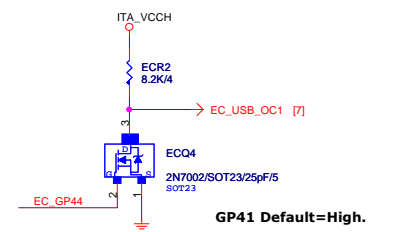
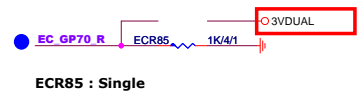
|                 |                           |                |
|-----------------|---------------------------|----------------|
| Title           |                           |                |
| CPU SMD CAP TOP |                           |                |
| Size            | Document Number           | Rev            |
| Custom          | B450 I AORUS PRO WIFI     | 1.01           |
| Date:           | Tuesday, October 23, 2018 | Sheet 34 of 40 |



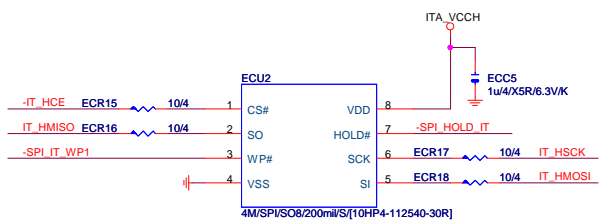
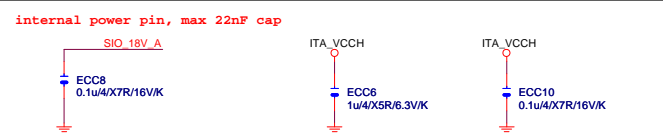
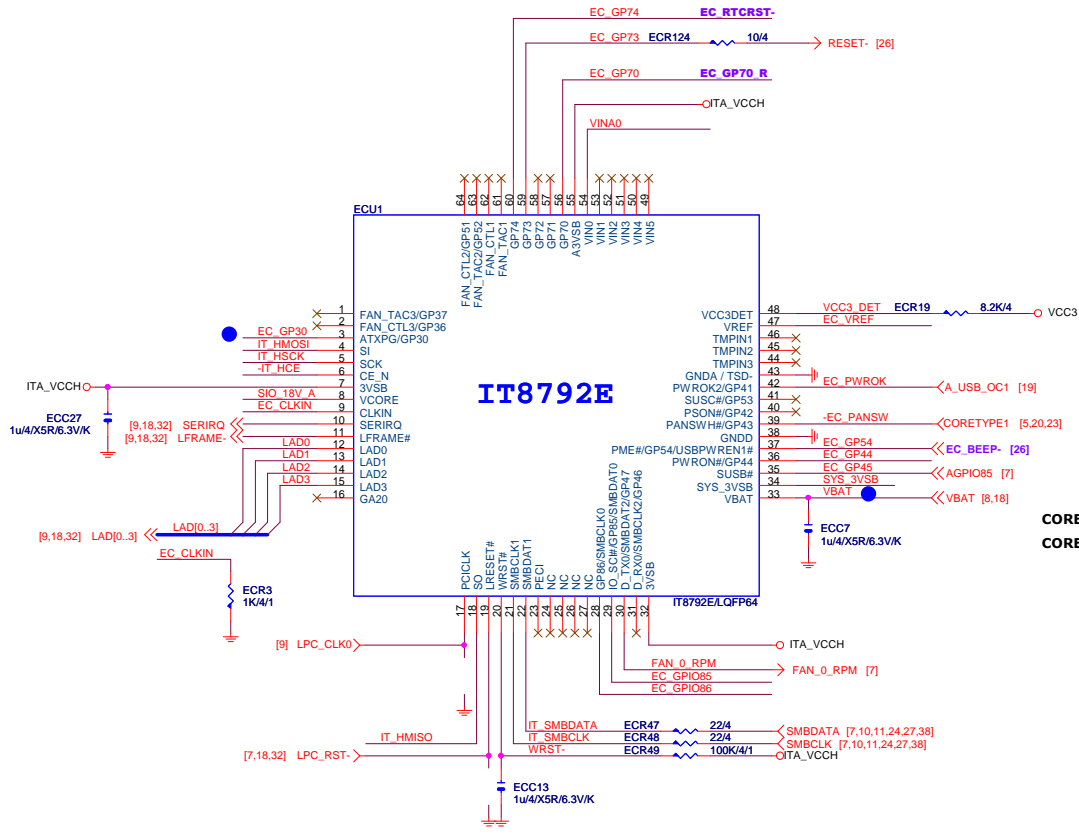
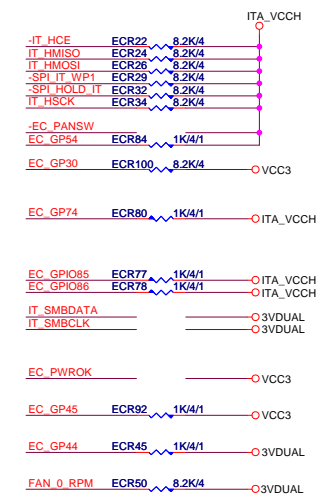
### Watch Dog



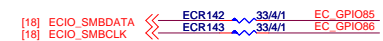
### DUAL BIOS Strap



CORETYPE1(GP43)=Low(BR), EC\_GP44 Default:Low, when GP41=Low, GP44=High.  
CORETYPE1(GP43)=High(ST), EC\_GP44 Default:High, when GP41=Low, GP44=Low.



### IT8686



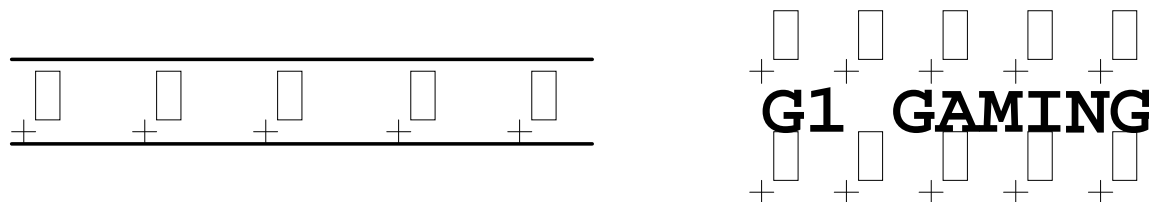
**GIGABYTE™**

|           |                           |                |
|-----------|---------------------------|----------------|
| Title     |                           |                |
| IT8792 EC |                           |                |
| Size      | Document Number           | Rev            |
| Custom    | B450 I AORUS PRO WIFI     | 1.01           |
| Date:     | Tuesday, October 23, 2018 | Sheet 35 of 40 |

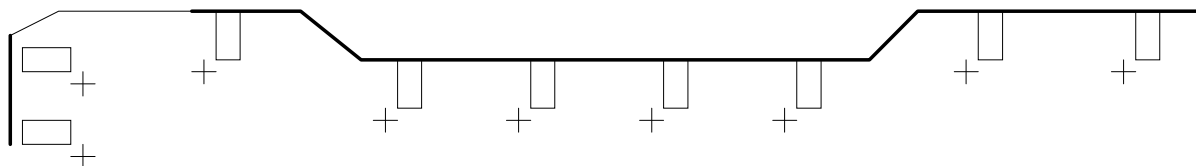
## RGB LED LAYOUT 注意事項：

1. Debug LED (各LED依CPU/DRAM/VGA/BOOT個別位置擺放)
2. 背板 RGB LED 方向整板請統一如下  
(整板正極可統一朝下或朝上)
3. 正板 RGB LED 統一方向即可
4. MCU\_PW & MCU\_PW33電源一律走20mils
5. ECF1,ECF2,ECF3,ECF5 兩端電源走80mils或用鋪銅方式加粗
6. MCU LED 出pin的走線4mils,如:LED\_R\_1,LED\_G\_1,LED\_B\_1 .....
7. LED RGBW rule :W/S=10/5 mils 如:LED\_R\_11,LED\_G\_11,LED\_B\_11,LED\_W.....  
(包含從晶體到排阻到LED的net)
8. Digital LED NET rule W/S=4/8 mils  
GPD0\_SDA\_B,GPD0\_SDA\_BB,GPD0\_SDA\_C,GPD0\_SDA\_CC

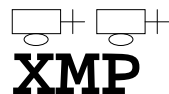
PCB板邊透光model name鏤空+背面 RGB LED



Audio Ground切割線+背面 RGB LED



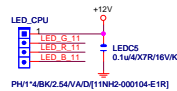
"XMP"字樣鏤空+背面 RGB測發光 LED



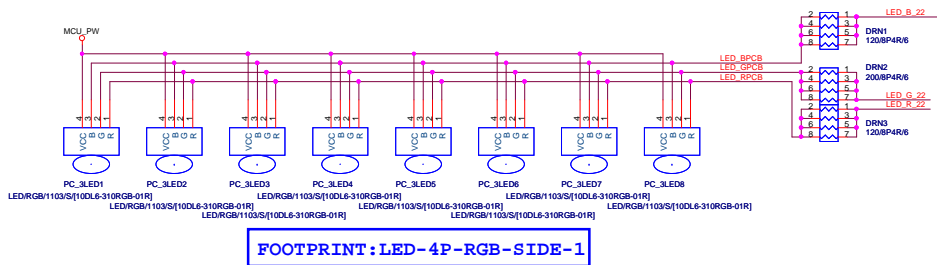
|                                 |                                       |          |  |
|---------------------------------|---------------------------------------|----------|--|
| <b>GIGABYTE™</b>                |                                       |          |  |
| Title LAYOUT GUIDE              |                                       |          |  |
| Size Custom                     | Document Number B450 I AORUS PRO WIFI | Rev 1.01 |  |
| Date: Tuesday, October 23, 2018 | Sheet 36                              | of 40    |  |

## 第一區 LED

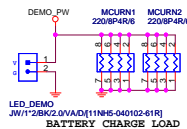
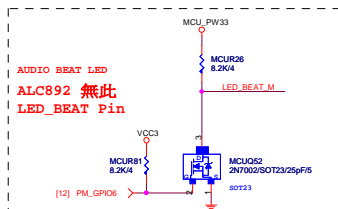
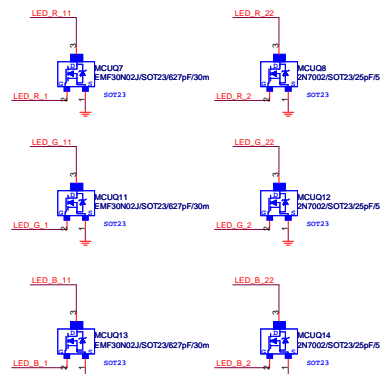
AMD CPU\_FAN LED connector



## 第二區 LED



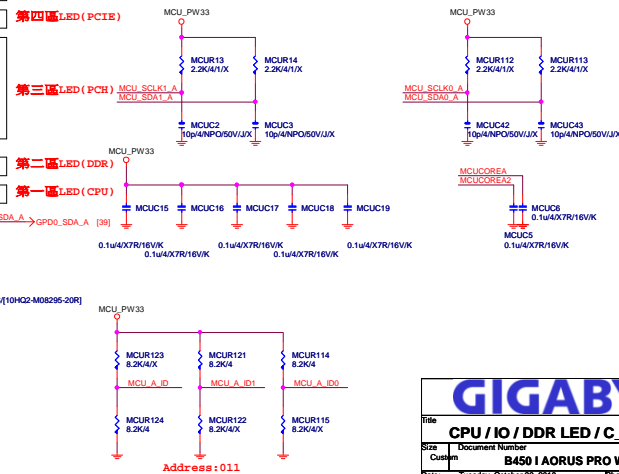
第一區 LED CONTROL      第二區 LED CONTROL



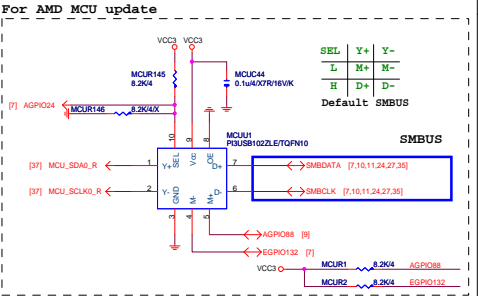
LED\_C1 WHITE LED ON/OFF

第五區LED (外部燈條 LED\_C1/LED\_C2)

第四區LED (PCIE) MCU\_PW33



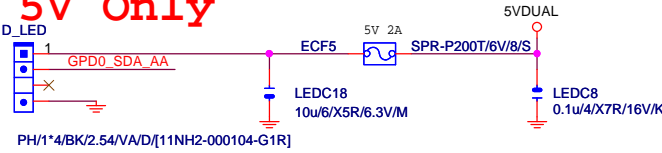
第三區 LED



第六區 LED（靠近左上板邊位置）

第七區 LED（靠近右下DDR板邊位置）

Digital LED Strip1  
5V Only



FOR WIFI\_ITX, 文字面無反白.  
Footprint "PH1X4-CUT3-LED"

