



SHEET

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Rev 1.0

SHEET

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Gigabyte Technology

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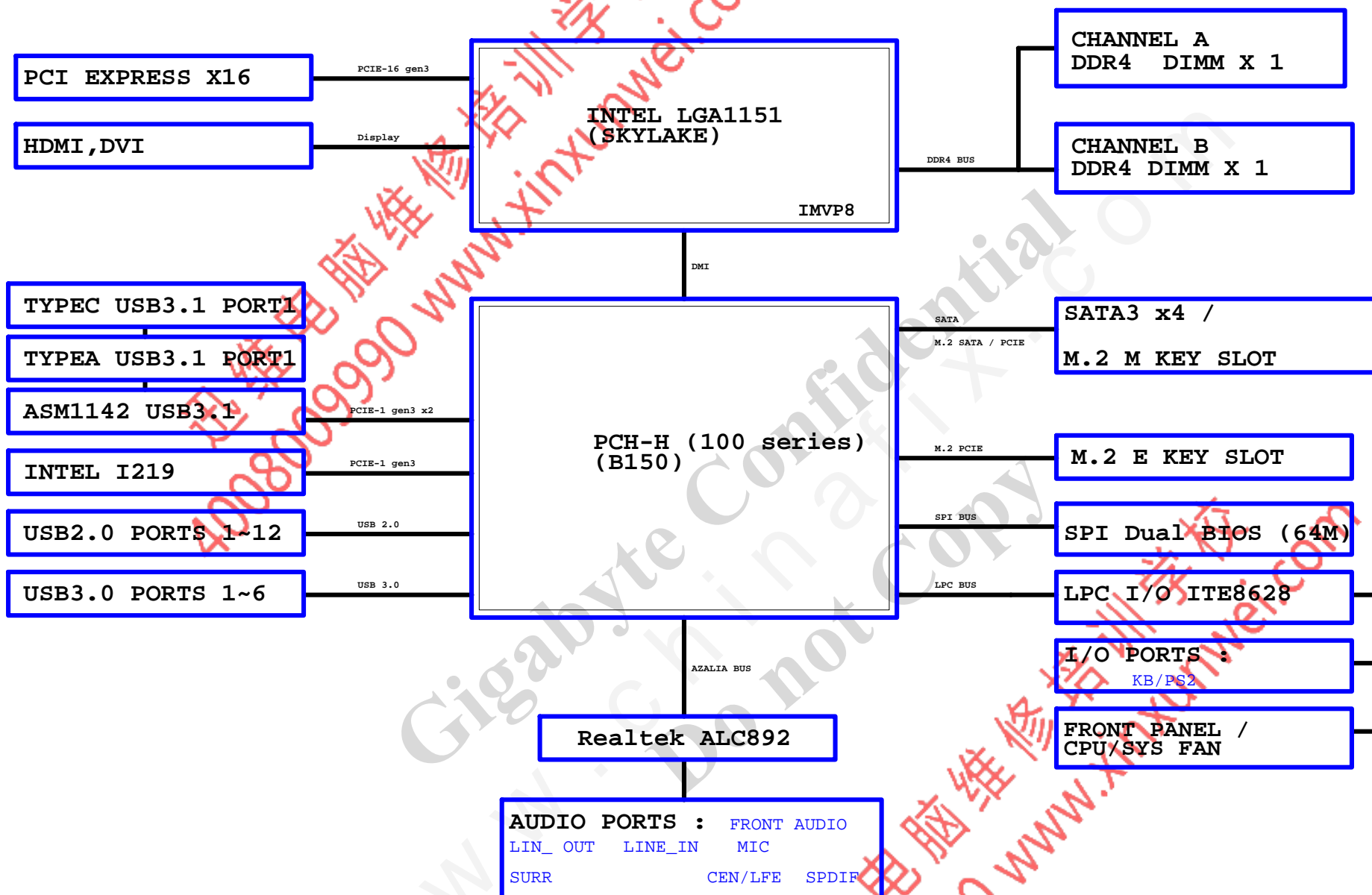
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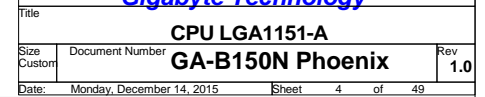
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[illegible]

# BLOCK DIAGRAM

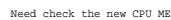
www.xinxunwei.com 400-800-9990

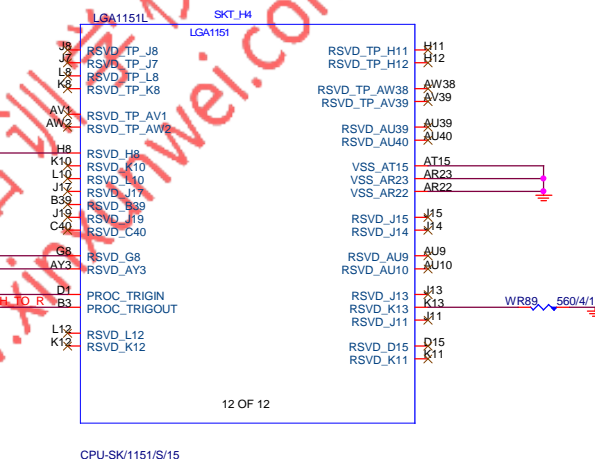
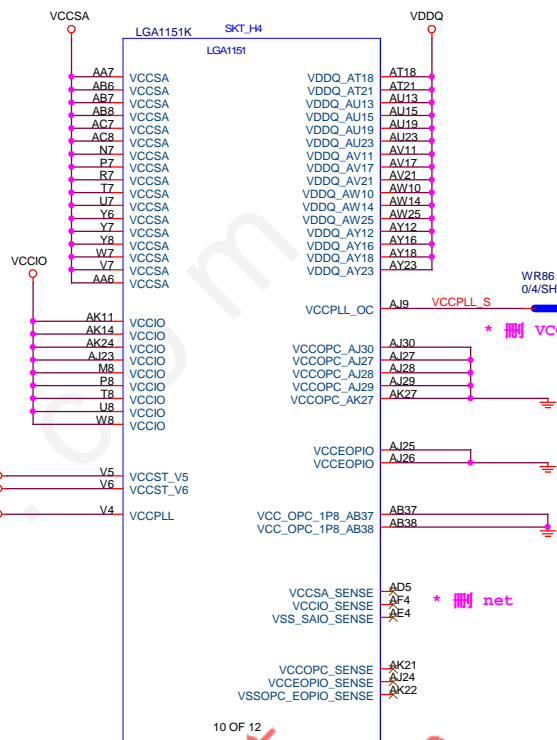
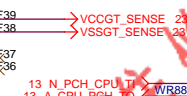
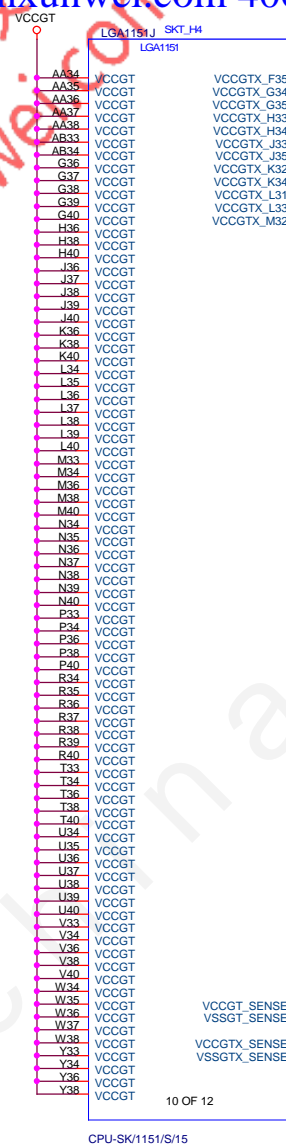
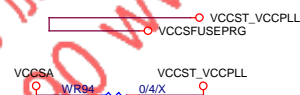




Bifurcation Config.	Signals Lane	CFG[6]	CFG[5]	CFG[4]
1x16		1	1	1
1x16 Reversed		1	1	0
2x8		1	0	0
2x8 Reversed		1	0	0
1x8+2x4		0	0	1
1x8+2x4 Reversed		0	0	0



1.0

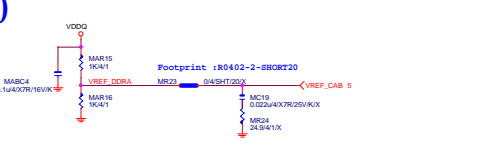
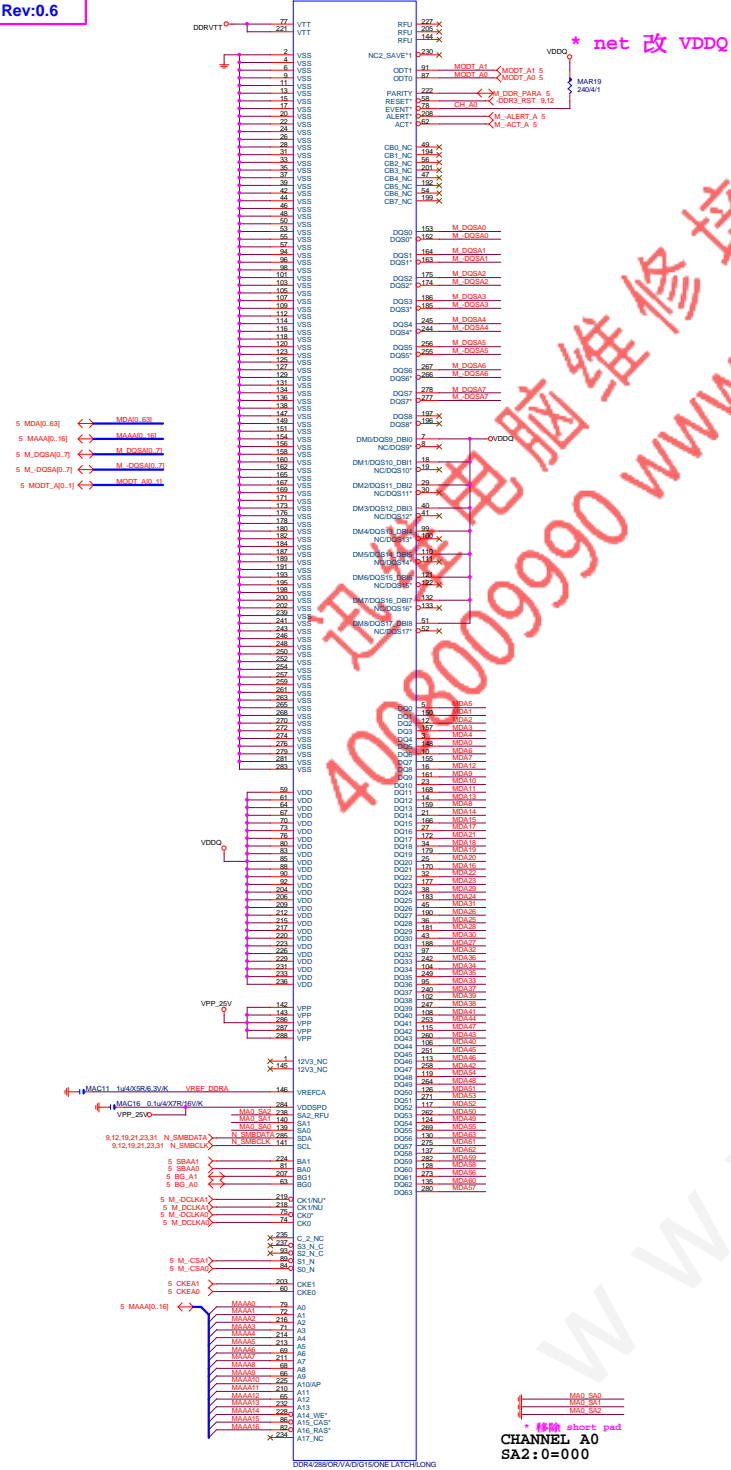




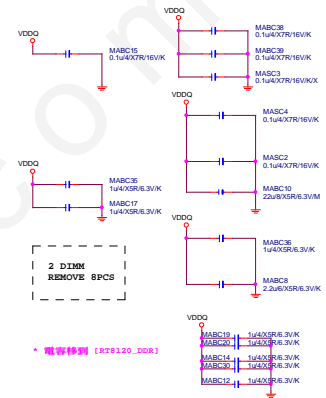
Gigabyte Technology

Title				
CPU LGA1151-D				
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DDR12V Decouple



DDRVT Decouple

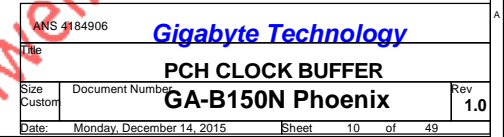


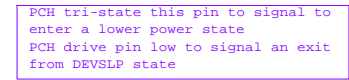
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SOC series	DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
GI.Sniper	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GE/VA/D/G15/ONE LATCH/LONG

Gigabyte Technology		
DDR4 CHANNEL A		
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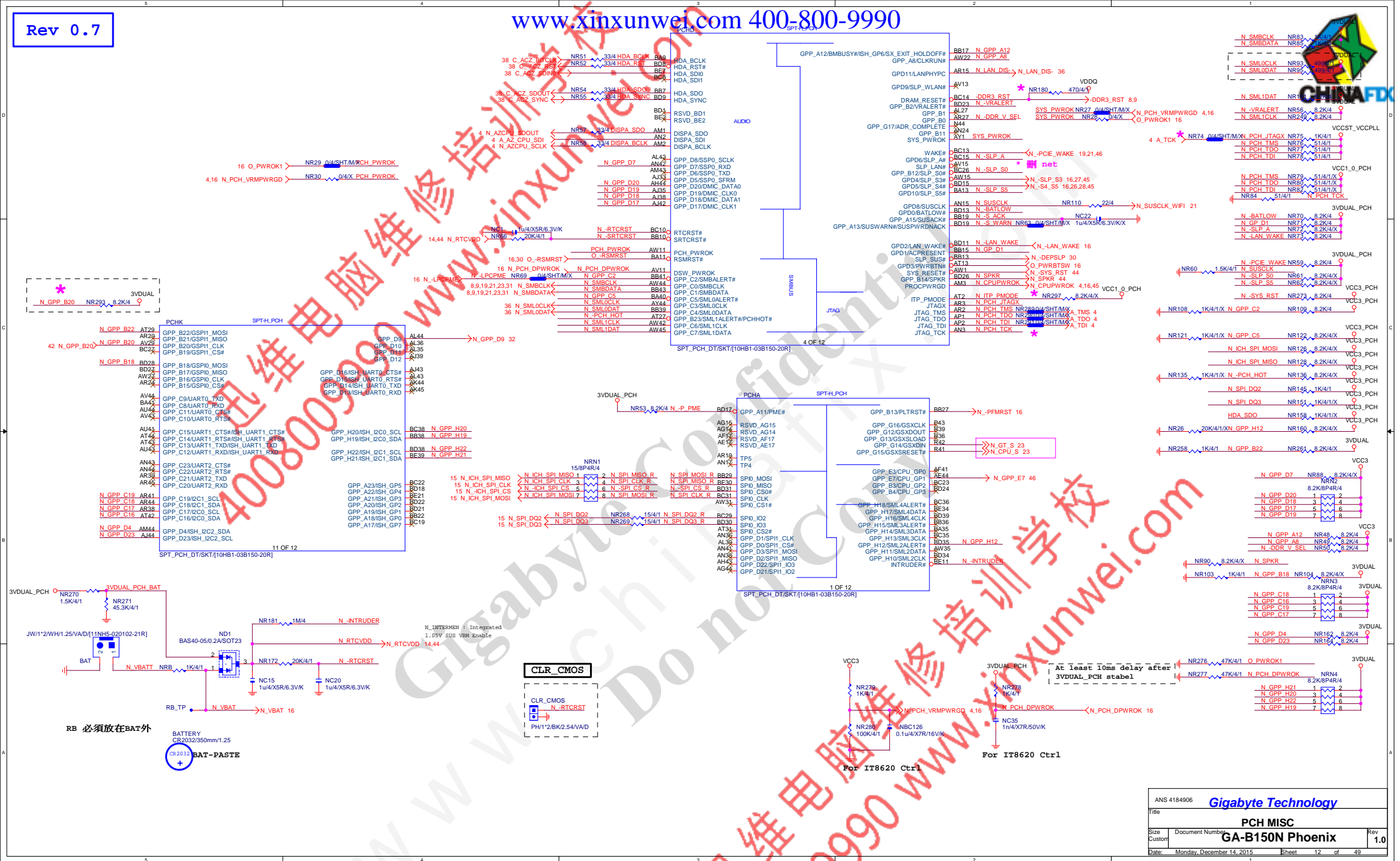




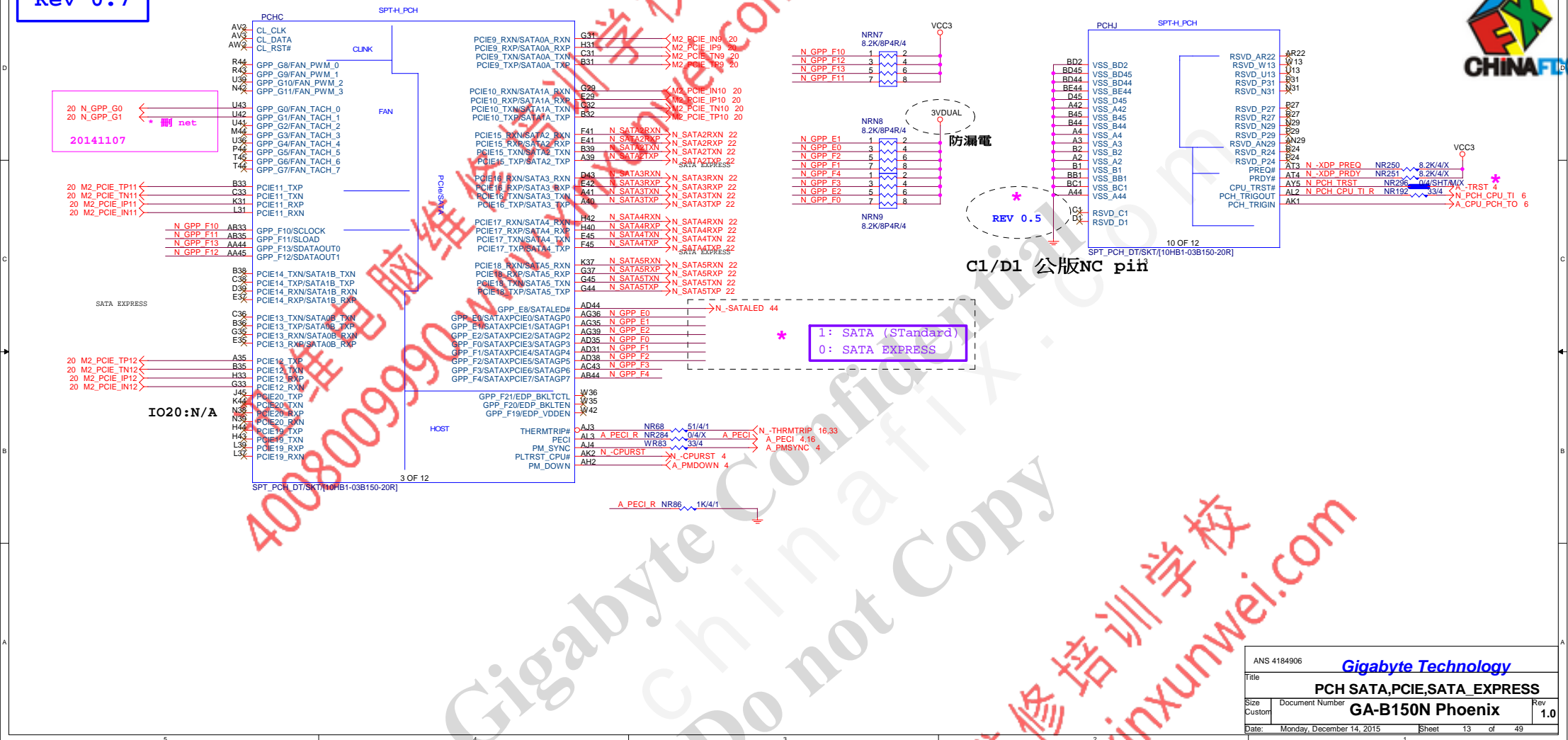


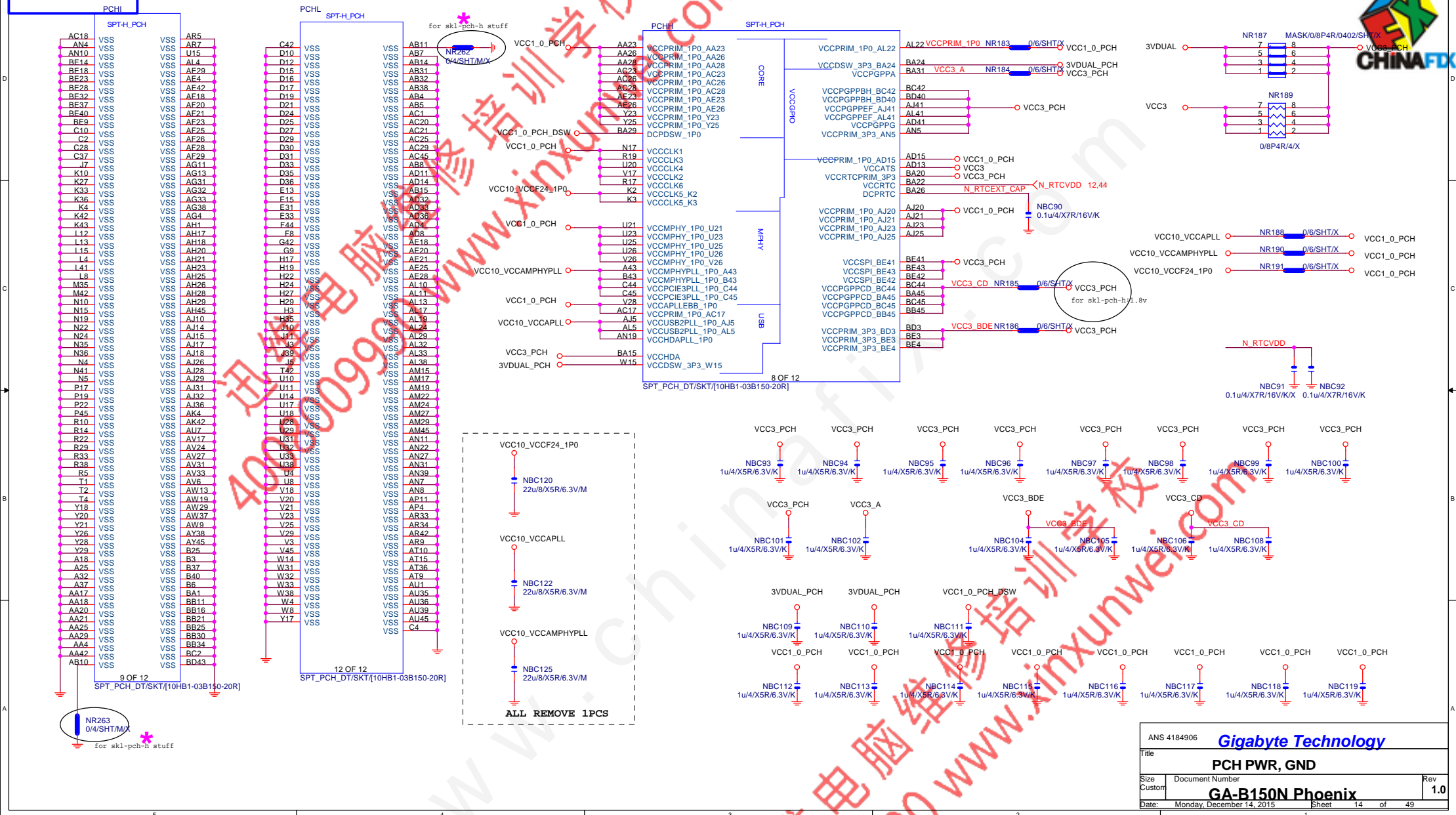
```
4 layer USB3/USB2/SATA/PCH PCIe=====4/4/4//15
6 layer USB3/USB2/SATA/PCH PCIe=====4/5.5/4//15
```

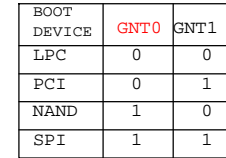
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Title			
<b>PCH DMI,USB,PCIE</b>			
Size	Document Number		Rev
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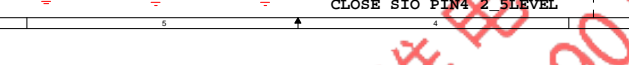
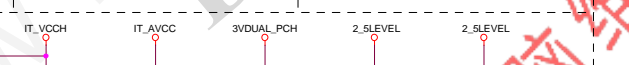
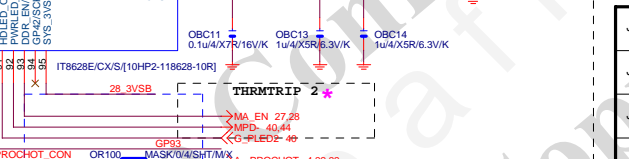
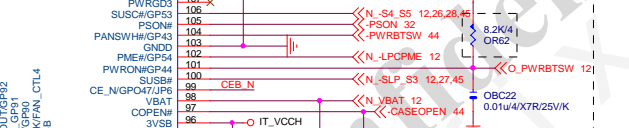
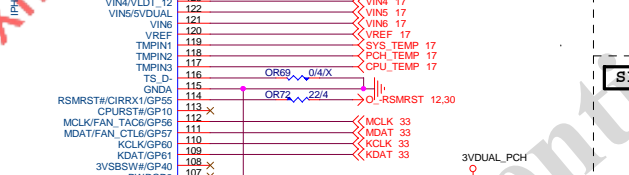
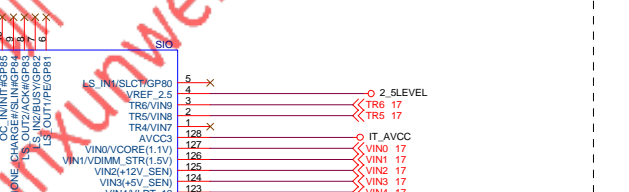
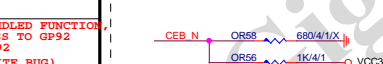
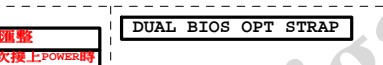
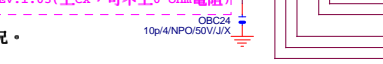
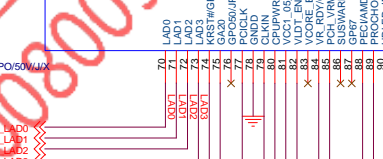
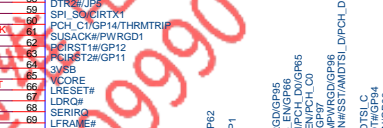
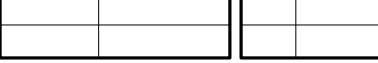
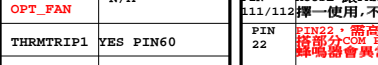
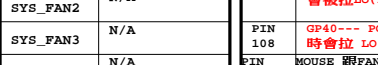
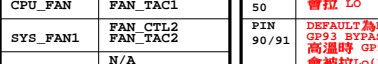
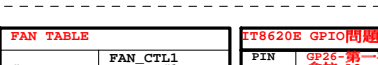
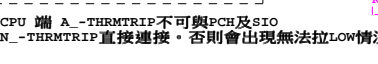
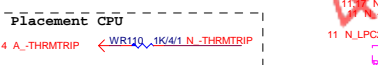
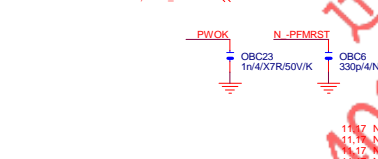
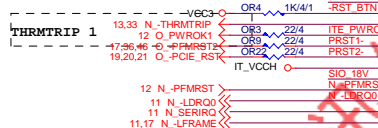
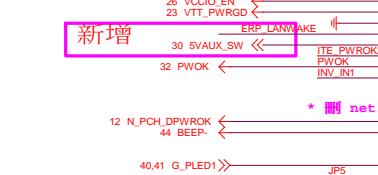
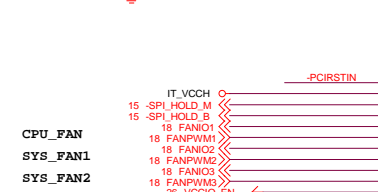
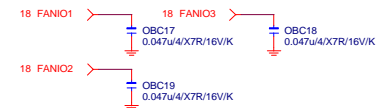




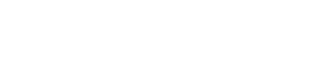
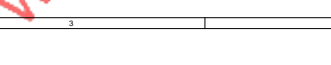
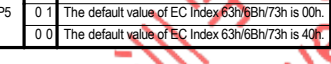
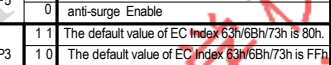
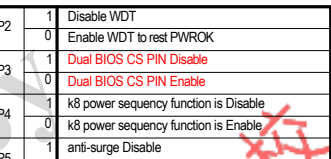
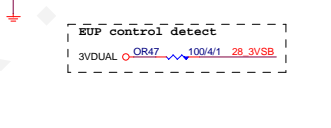
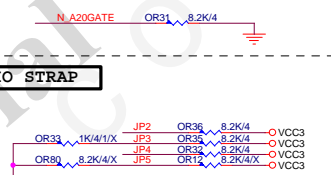
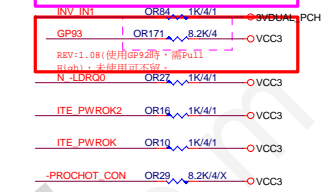
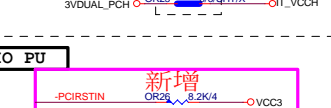
\* 試產先上，PVT 移除



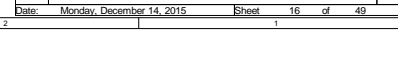
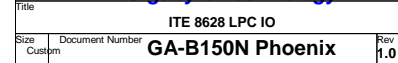
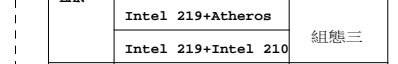
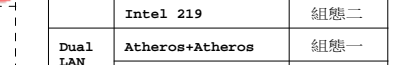
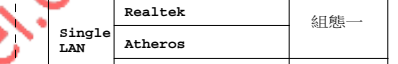
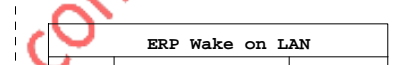
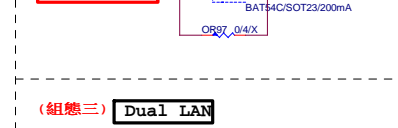
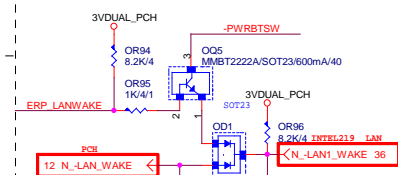
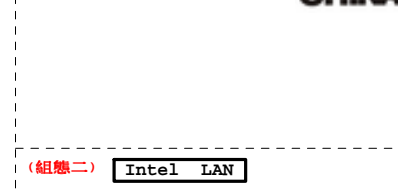
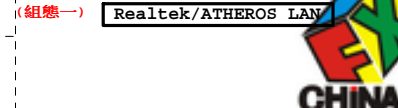
## SIO IT8628CX REV:1.08



## SIO PU



## ERP WAKE on LAN (依LAN組態選擇)



Placement CPU  
4 A\_THRMTRIP <WR1> 1K/4 1 N\_THRMTRIP

CPU 端 A\_THRMTRIP 不可與PCH及SIO  
N\_THRMTRIP直接連接。否則會出現無法拉LOW情況。

FAN TABLE

CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	N/A
SYS_FAN3	N/A
SYS_FAN4	N/A
OPT_FAN	N/A
THRMTRIP1	YES PIN60

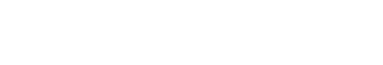
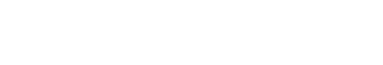
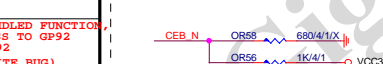
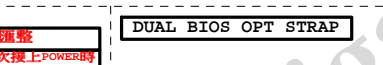
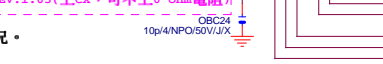
IT8620E GPIO問題匯整

PIN	GP26-第一次接上POWER時 會拉 LO
PIN	DEFAULT為HDLER FUNCTION, GP93 BYPASS TO GP92 高阻時 GP92 會被拉Lo(ITE BUG)
PIN	GP40--- POWER ON 時會拉 LO
PIN	MOUSE 跟PAN6 FUNCTION 111/112擇一使用, 不然會互相干擾
PIN	PIN22, 需高於3V, 若低於 該部分COM PORT及LPT裝置 蜂鳴器會異常動作。

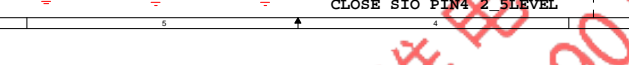
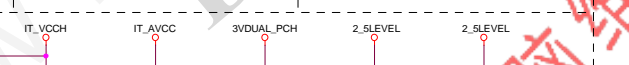
DUAL BIOS OPT STRAP



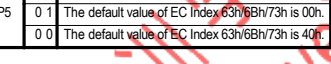
Power leakage



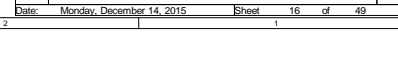
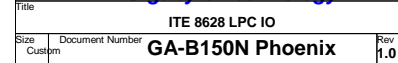
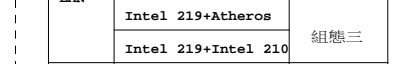
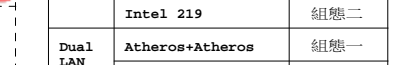
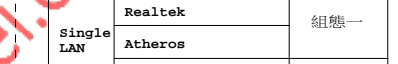
SIO 18V



MB ID



Dual LAN



Single LAN	Realtek	組態一
Dual LAN	Atheros	組態二
Dual LAN	Intel 219	組態一
Dual LAN	Atheros+Atheros	組態二
Dual LAN	Intel 219+Atheros	組態三
Dual LAN	Intel 219+Intel 210	組態三
No Support ERP	BOM不上	N/A

Gigabyte Technology

ITE 8628 LPC IO

GA-B150N Phoenix

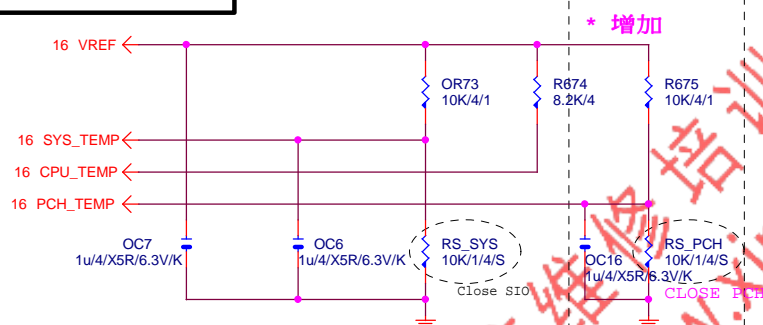
Rev 1.0

Date: Monday, December 14, 2015

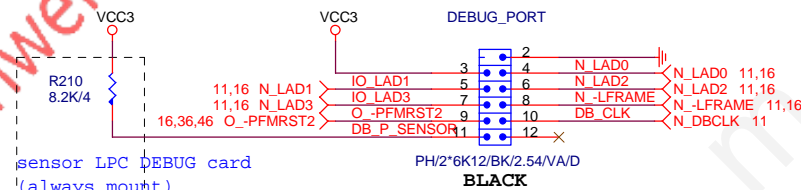
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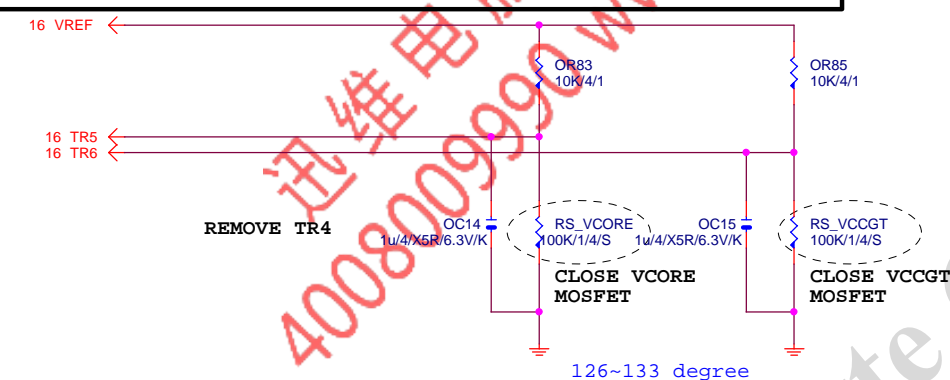
## TEMP H/W MONITOR



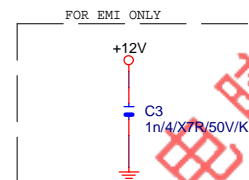
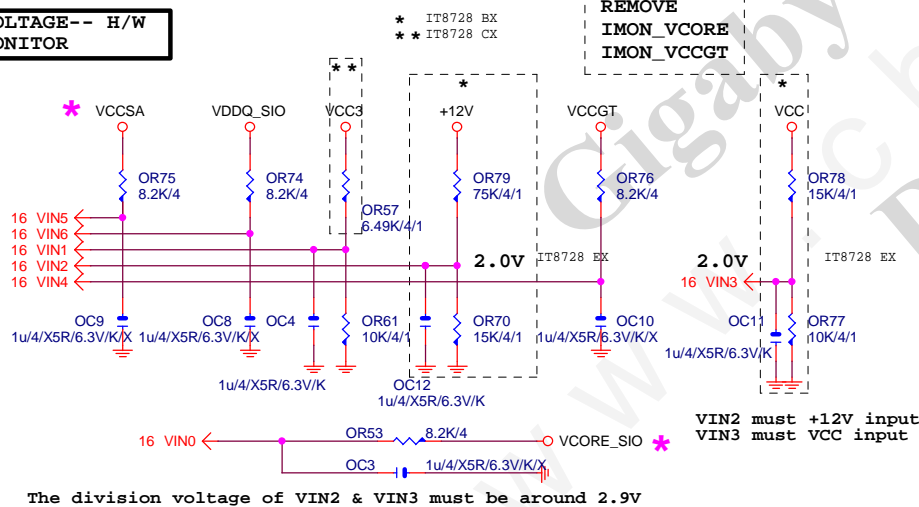
## PIN2X6-CUT1



## RS\_VCORE, RS\_VCCGT, CLOSE CPU\_VCORE &amp; VCCGT MOSFET



## VOLTAGE-- H/W MONITOR



Gigabyte Technology

HWM,KB/MS, FAN CTRL

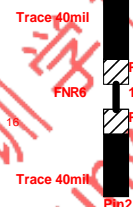
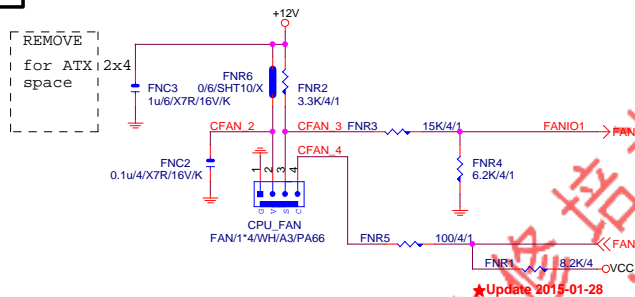
Title	Document Number	Rev
Size	Custom	1.0
Date	Monday, December 14, 2015	Sheet 17 of 49

GA-B150N Phoenix



# CPU SMART FAN

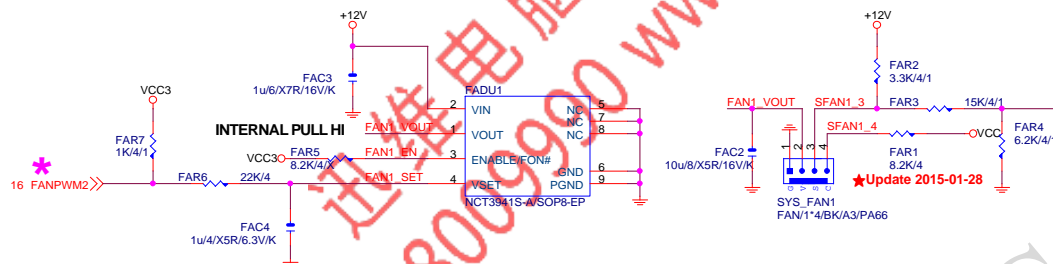
Rev: 0.6



# SYSTEM FAN1

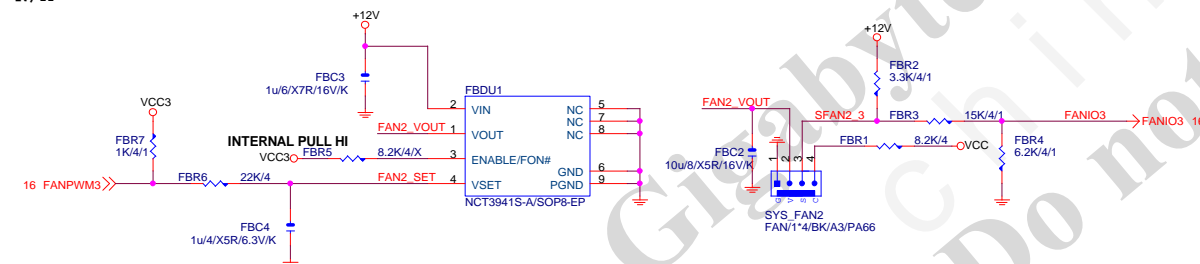
## Linear SYS\_FAN

Enable Function (NCT3941S)  
Full Turn On Function (NCT3941S-A)



# SYSTEM FAN2

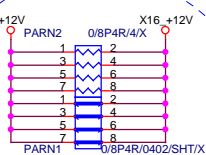
N/A



# SYSTEM FAN3

N/A

Gigabyte Technology		
Title FAN CTRL		
Size Custom	Document Number GA-B150N Phoenix	Rev 1.0
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**+12V protect short-wire test**

PA\_EXP\_RXP0\_15I >> PA\_EXP\_RXP[0..15] 4  
PA\_EXP\_RXN0\_15I >> PA\_EXP\_RXN[0..15] 4  
PA\_EXP\_TXP0\_15I >> PA\_EXP\_TXP[0..15] 4  
PA\_EXP\_TXN0\_15I >> PA\_EXP\_TXN[0..15] 4

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_TXN15_C

PCIEX16:16/5/5/5/16

PCI-E REV:1.1--&gt; 2.5GHZ

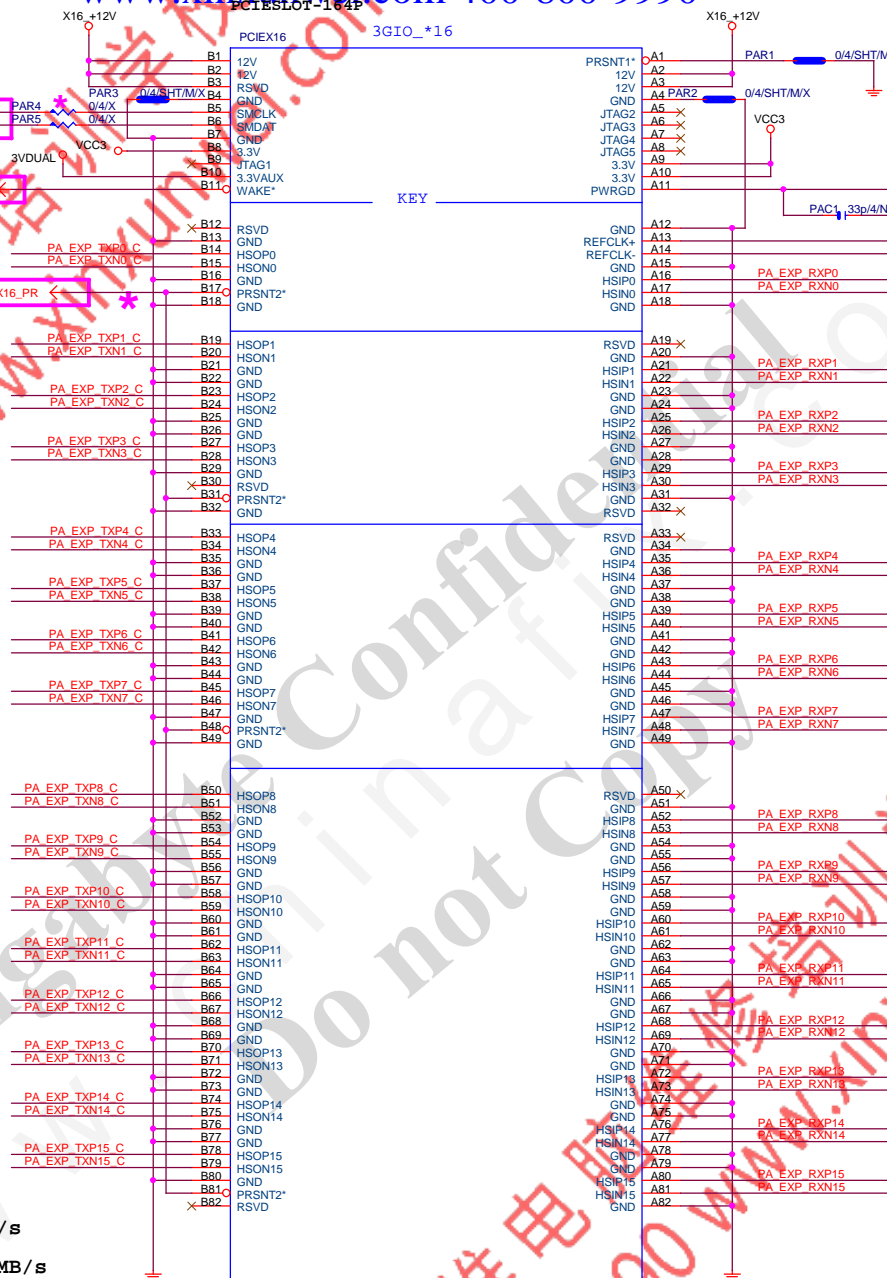
PCE-E X1(單向) BANDWIDTH=2.5GHz\*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWIDTH=2.5GHz\*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWIDTH=2.5GHz\*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWIDTH=2.5GHz\*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--&gt; 5GHZ



PCI-E/16X-164P/OR/LONG DOUBLE/HK\*2

橘色

NPA雙魚叉

Gigabyte Technology		
Title		
PCI EXPRESS * 16		
Size		
Custom		
Document Number		
GA-B150N Phoenix		
Date:		
Monday, December 14, 2015		
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19		
of		
49		
Rev		
1.0		

M.2 Lane2 from PCH port15



M.2上在背板須修改:

1. DIP螺絲背板上件
2. DIP螺柱背板上件,須修改料號
3. SMD螺柱正面上件,須修改料號及FOOTPRINT正反共用.



**FOR M.2 WIFI MODULE ON BOARD**

WIFI\_MODULE  
WI-FI WITH BT MINI CARD INTEL/[20CB1-028260-20R]::WIFI\_MODULE/X

WIFI-BRACKET    WIFI支架料號包含螺絲

$1 \times 1$   $2 \times 2$  **Mask footprint**

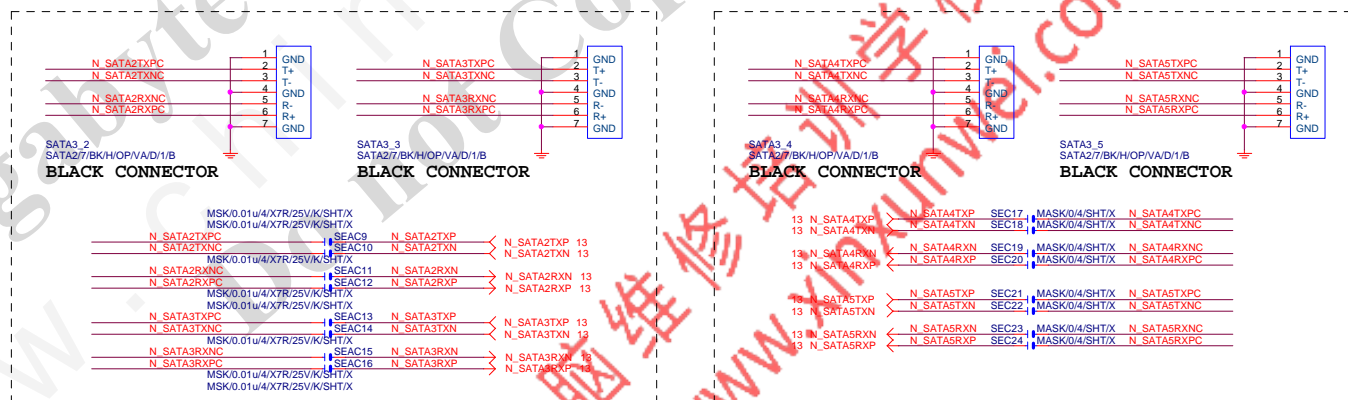
12AC2-000003-02R  
FIX 螺絲鎖附平面過大

FOOTPRINT:  
M2-WIFI-BRACKEY

**GIGABYTE™**

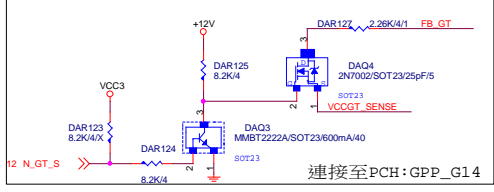
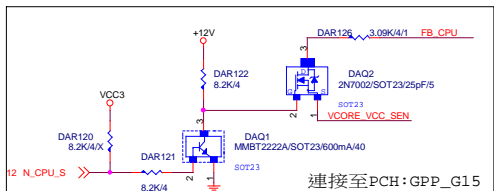
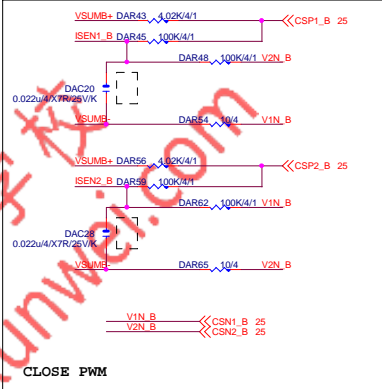
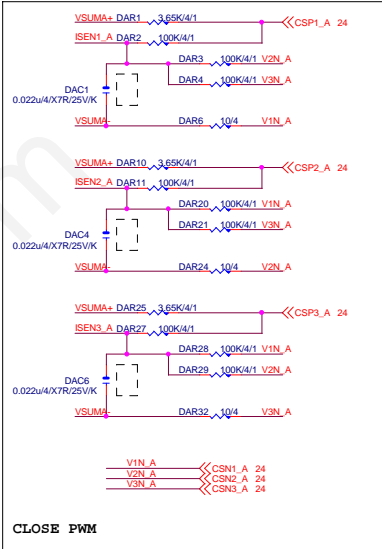
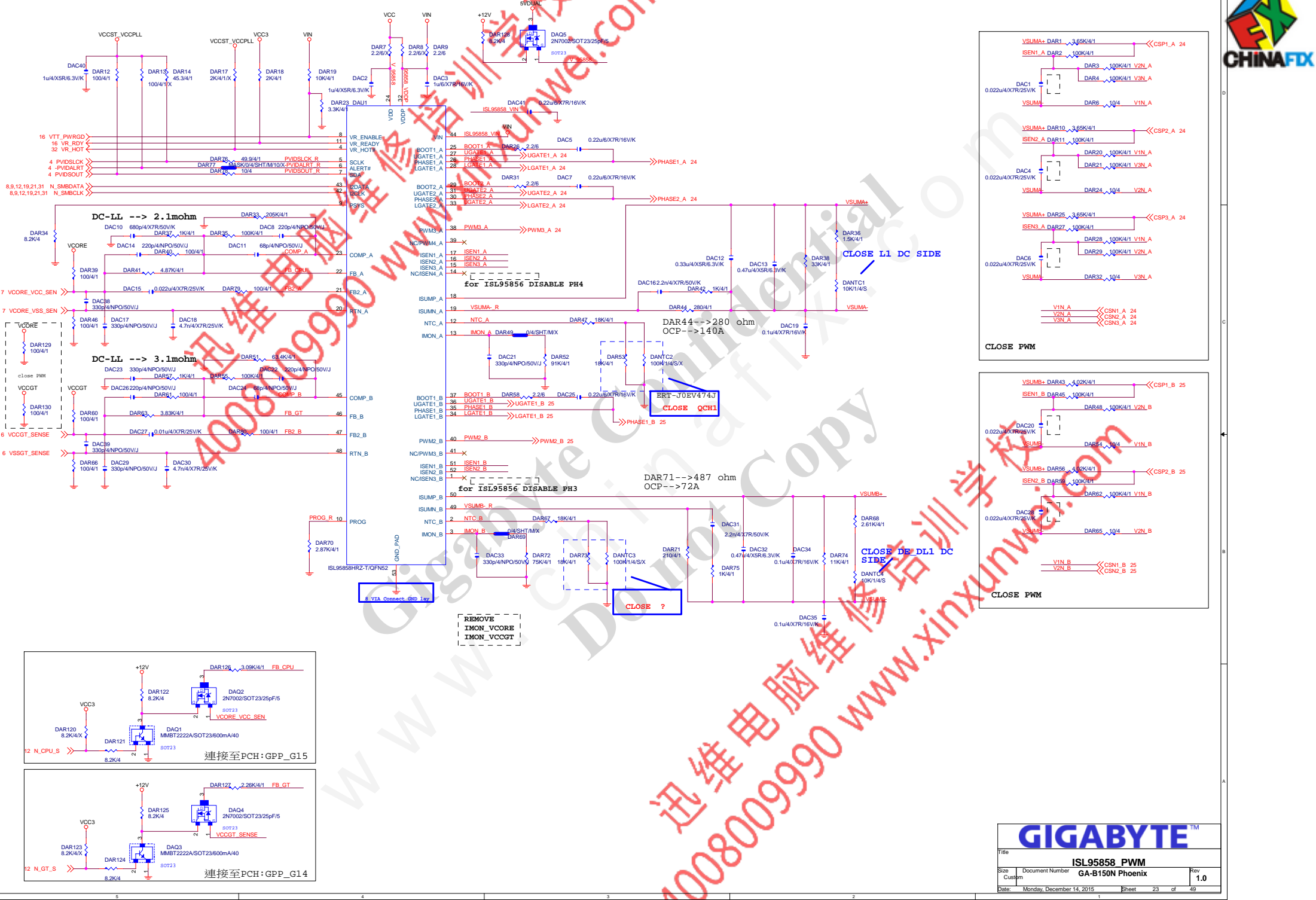
Title			
<b>M2_WIFI_E_KEY</b>			
Size	Document Number	Rev	
Custom	<b>GA-B150N Phoenix</b>	<b>1.0</b>	
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SATA 5 (文字面寫SATA 1)  
SATA 4 (文字面寫SATA 0)  
SATA 3  
SATA 2  
SATA 1 (文字面寫SATA 5)  
SATA 0 (文字面寫SATA 4)



Gigabyte Technology

SATA		
Title	SATA	
Size	Document Number	Rev
Custom	GA-B150N Phoenix	1.0
Date:	Monday, December 14, 2015	Sheet 22 of 49

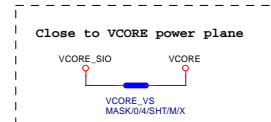
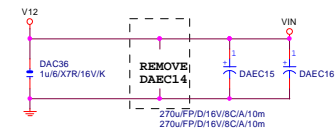


GIGABYTE™		
ISL9585B PWM		
GA-B150N Phoenix		
Rev	1.0	
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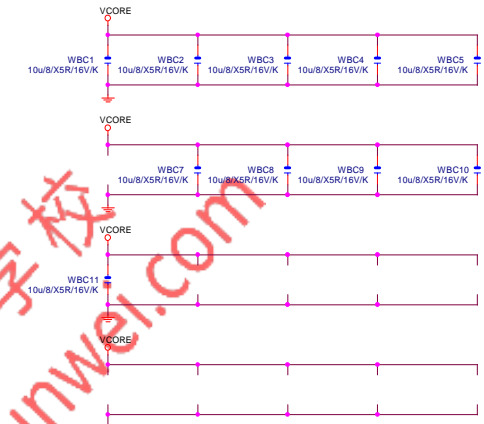
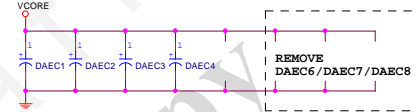
VCORE



VIN CAP 270u\*2PCS



VCORE CAP 560u\*5PCS 22u\*29PCS



GIGABYTE™			
ISL95858 MOS			
Size	Document Number	GA-B150N Phoenix	Rev
Custm			1.0
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10uB/X6S/16V/K/[10CM2-3K1005-74R\_10C42-3K1005-74R]

23 UGATE1\_B > UGATE1\_B\_DM\_DR1 2/6 U31\_1B G

DM\_DR2 8.2K/4

23 PHASE1\_B > PHASE1\_B

23 LGATE1\_B > LGATE1\_B

DM\_DR3 MASK/0/6/SHT/MX

DM\_DQ2 NTMF54C06N/NPPAK/1400pF/4m

DM\_DQ3 REMOVE DM\_DQ3

DM\_DR4 2/6

DM\_DR5 MASK/0/6/SHT/MX

DM\_DR6 MASK/0/4/SHT/MX

23 CS1\_B

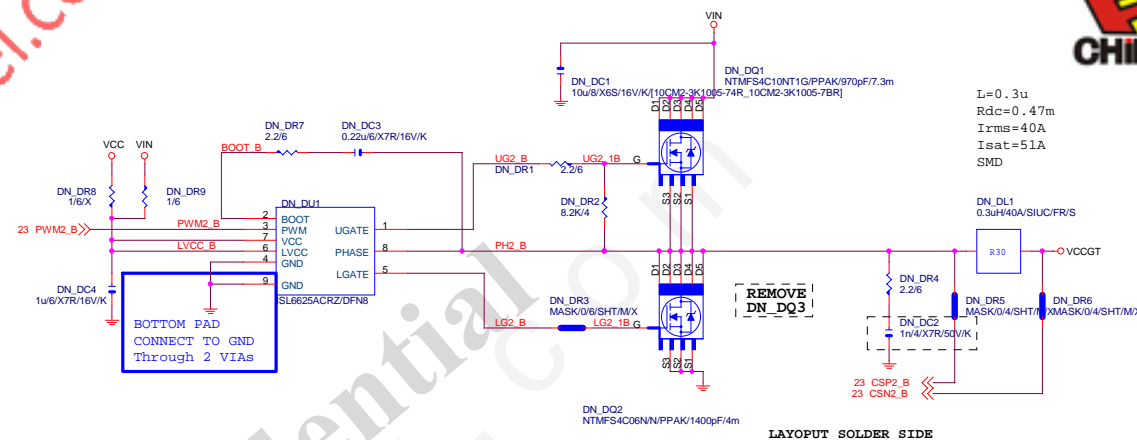
23 CSN1\_B

R30

O VCCGT

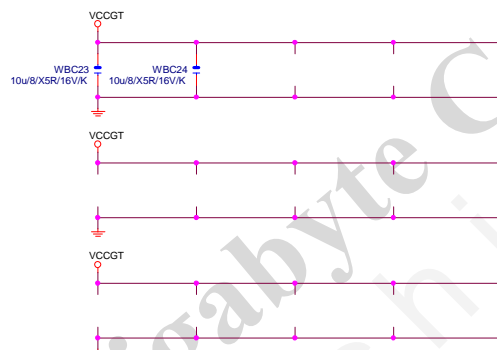
Edc=0.47m  
Irrms=40A  
Teat=51A  
SMD

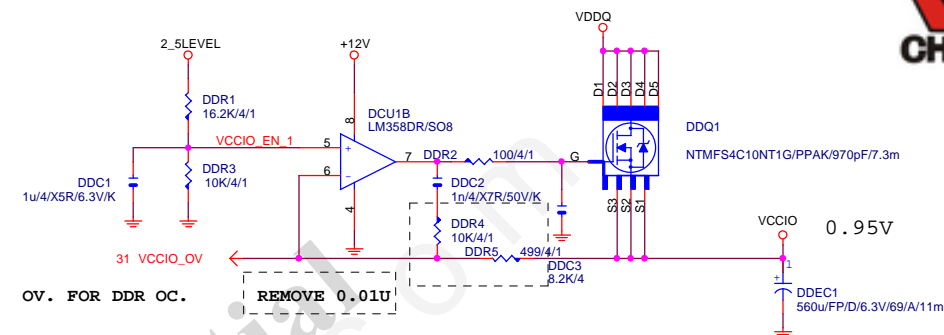
LAYOUT SOLDER SIDE



REMOVE  
DAEC12/DAEC13

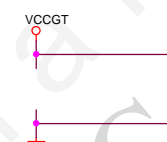
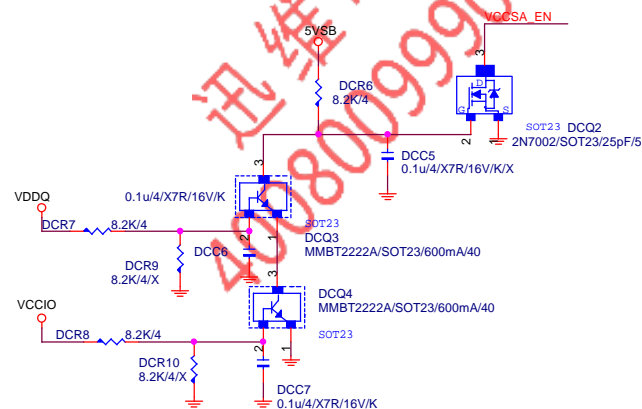
560uF/D6.3V/69A/11m  
560uF/D6.3V/69A/11m



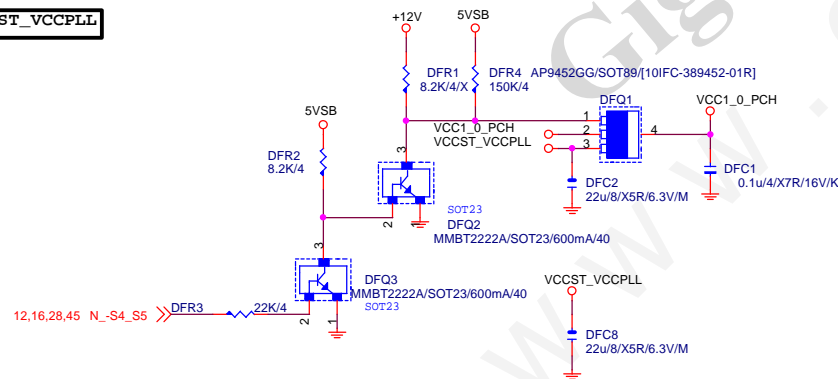



REMOVE 0.01U

Connect to IT8620



放CPU端

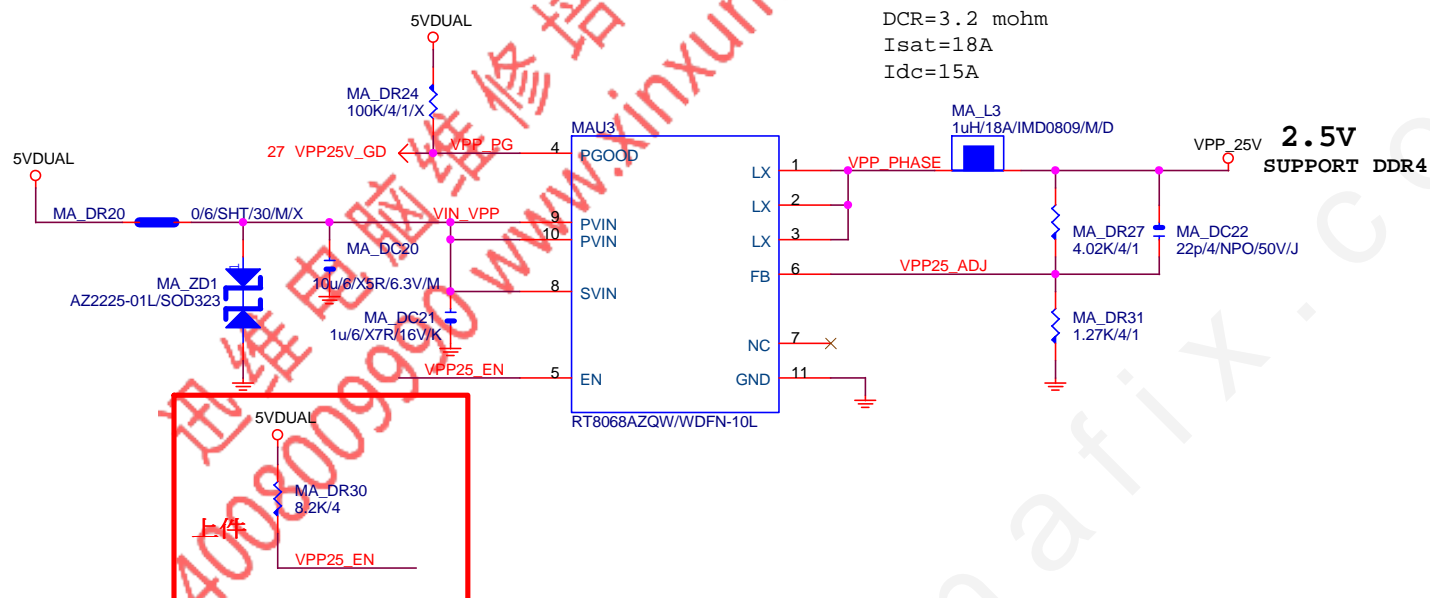


			
Title <b>VCCSA_VCCIO</b>			
Size	Document Number		Rev
Custom	<b>GA-B150N Phoenix</b>		<b>1.0</b>
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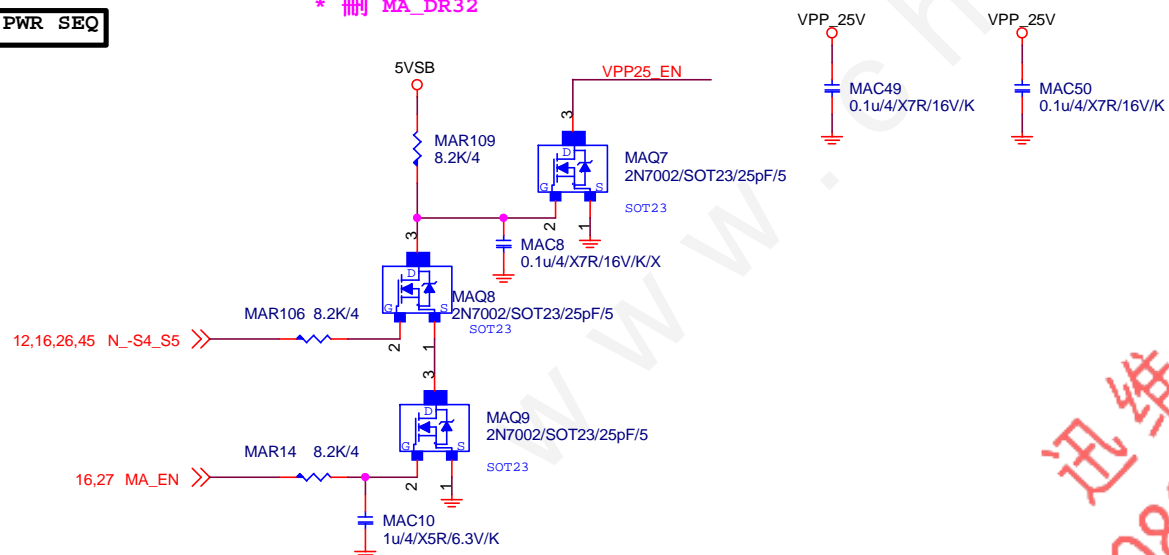
**VPP 25V**

L=1u  
DCR=3.2 mohm  
Isat=18A  
Idc=15A



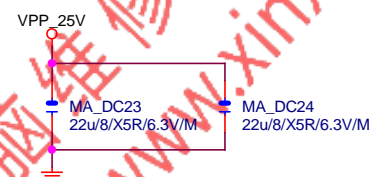
PWR SEQ

\* 冊 MA\_DR32



VPP CAP 22u\*1PCS

\* 大電容 x0



# GIGABYTE™

## RT8068A\_VPP25 POWER

Size	Document Number
Custom	<b>GA-B150N Phoenix</b>

Rev	1.0
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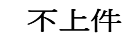




Title			
RT8237_PCH POWER			
Size	Document Number	Rev	
Custom	GA-B150N Phoenix	1.0	
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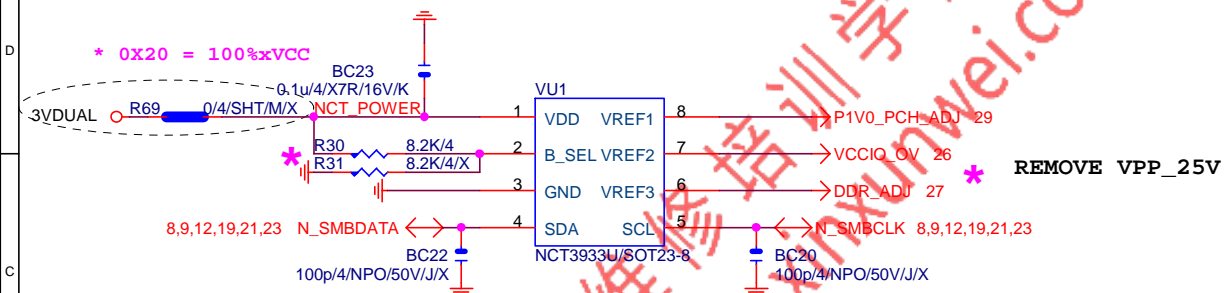


16 5VAUX\_SW

Q\_-RSMRST

Title			
<b>DISCRETE POWER</b>			
Size	Document Number		Rev
Custom	<b>GA-B150N Phoenix</b>		<b>1.0</b>
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```
* 0X20 = 100%xVCC
```



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

## Gigabyte Technology

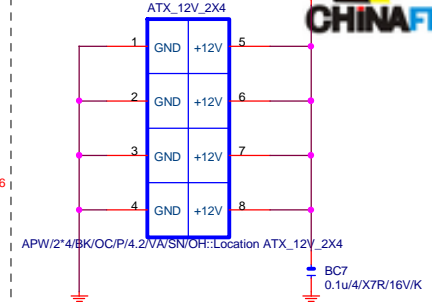
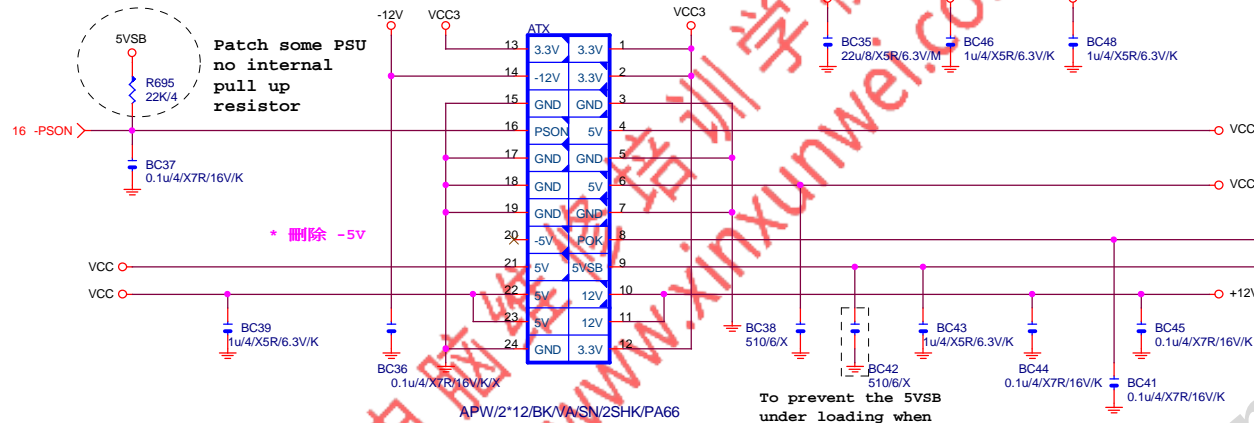
**CPU CORE VR-2**

Size Custom	Document Number <b>GA-B150N Phoenix</b>	Rev <b>1.0</b>
Date: Monday, December 14, 2015	Sheet 31 of 49	

# ATXX24 POWER CONNECTOR

www.xinxunwei.com 400-800-9990

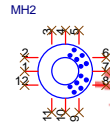
# ATXX4 POWER CONNECTOR



## 螺絲孔

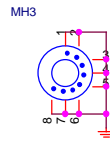
MH1:GND-T  
FOR EMI  
TEST驗證

MB LOCATION

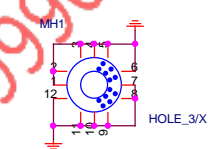


2015/04/22 Realtek Jason recommend NC  
for Mini-ITX ALC1150 AP SNR test

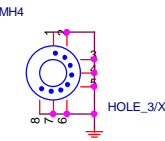
HOLE\_4-RH-5MM-1



HOLE\_4-RH-5MM-5PIN-1

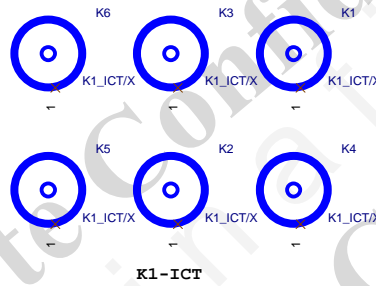


HOLE\_4-RH-5MM-1



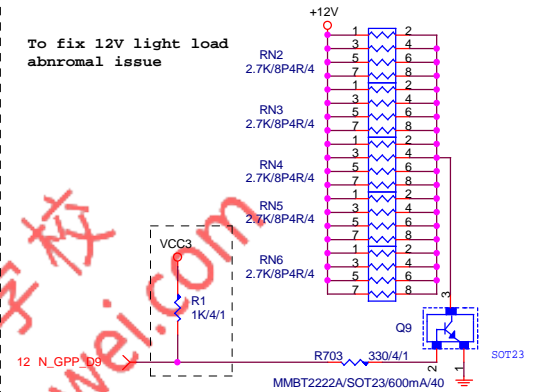
HOLE\_4-RH-5MM-5PIN-1

## 固定孔/光學點



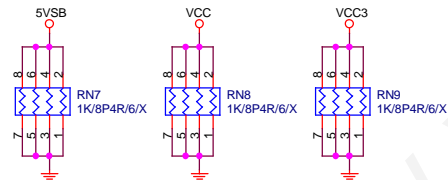
## +12V DUMMY LOAD

To fix 12V light load  
abnormal issue



【技術通報R&D技術通報153】

## DUMMY LOAD



## -PROHOT

4.16.33 A.-PROCHOT <-> A.-PROCHOT R2 0/4/SHT/X VR\_HOT 23

## COUPON



Gigabyte Technology

ATX POWER CONNECTOR

GA-B150N Phoenix

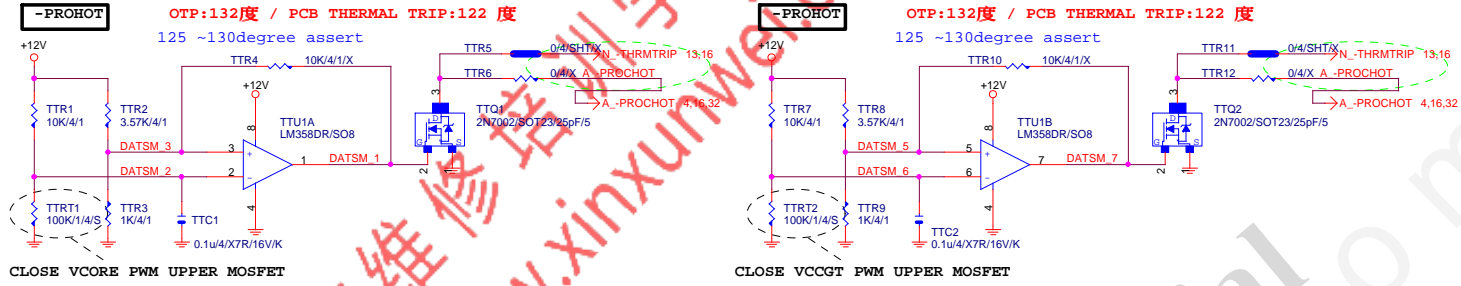
Rev 1.0

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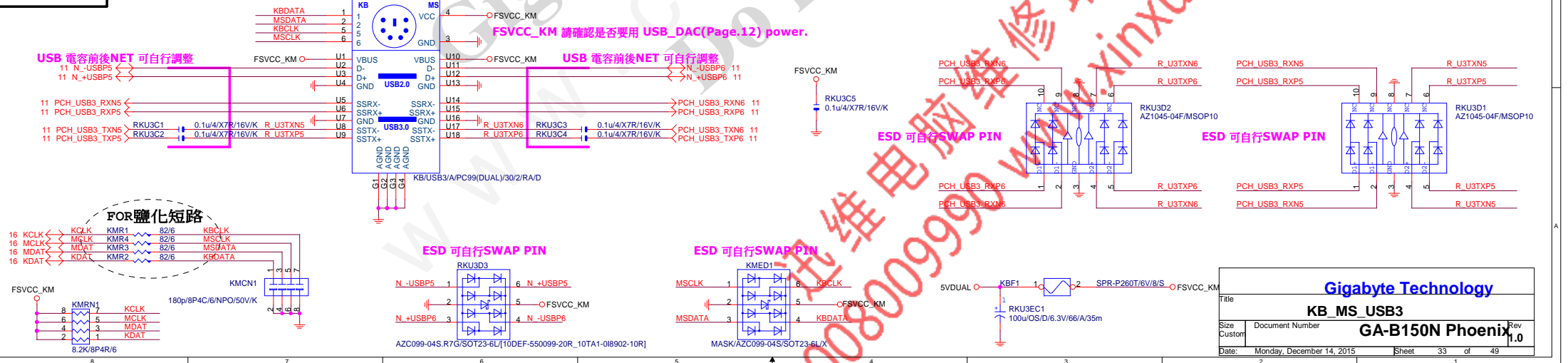


R\_USB30\_1



USB\_DAC

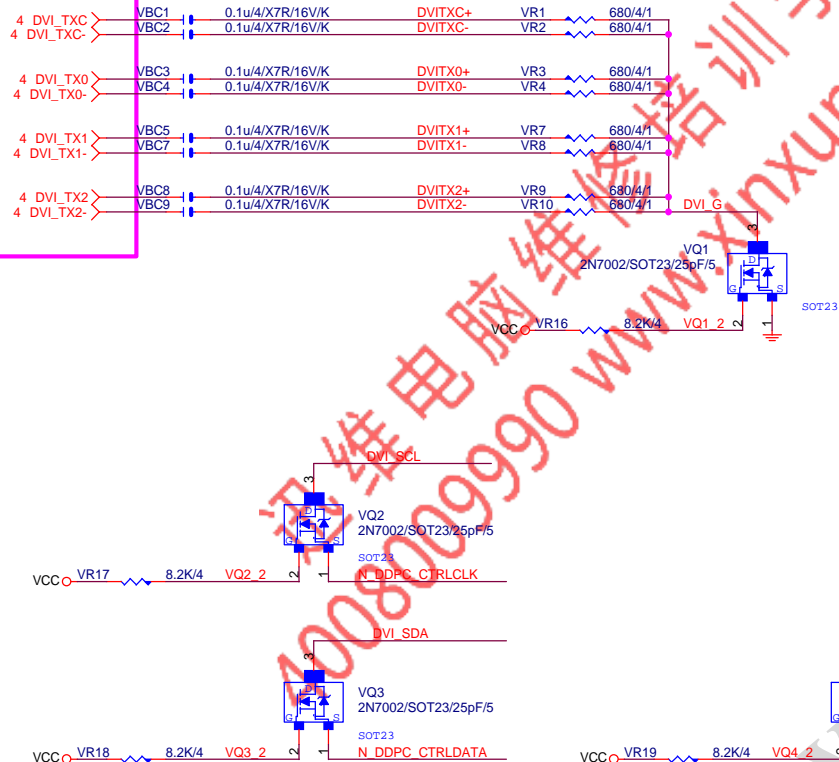
KB\_MS\_USB3



Gigabyte Technology	
KB_MS_USB3	
GA-B150N Phoenix	
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NET 可變

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

防漏電

VCC

★Update 2015.05.27

VD1

BAT54A/SOT23/200mA

SOT23

VR14

2.2K/4/1

VR13

2.2K/4/1

DVI\_SDA

DVI\_SCL

10\_N\_DDPC\_CTRLCLK

10\_N\_DDPC\_CTRLDATA

VR5

2.2K/4/1

VR6

2.2K/4/1

VBC6

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

DVI\_HP

VCC3

VQ4

2N7002/SOT23/25pF/5

SOT23

N\_DVI\_HDP\_F

10

VCC

VR19

8.2K/4

VQ4\_2

SOT23

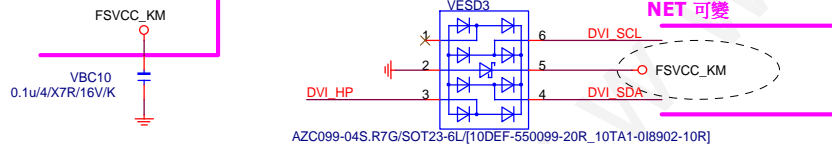
N\_DVI\_HDP\_F

10

ESD

NET 可變

NET 可變



AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R\_10TA1-018902-10R]

Close to connector

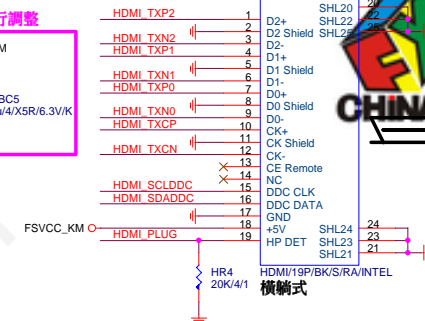
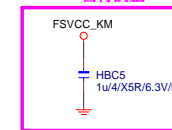
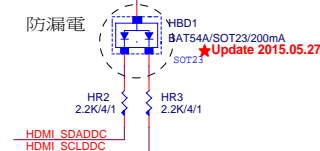
Close to connector

Close to connector

Gigabyte Technology

Title			DVI CONN	
Size			GA-B150N Phoenix	
Date:			Monday, December 14, 2015	
Sheet			34 of 49	
Rev			1.0	

HDMI LEVEL SHIFTER



改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

ASM1442:紅色框要上,HR12:3.16K





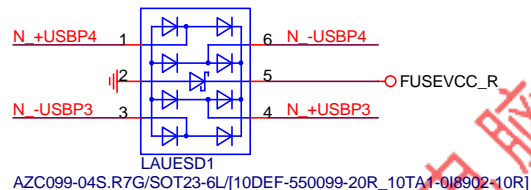
USB\_LAN CONNECTOR

R1.11

RMA ESD PROTECT

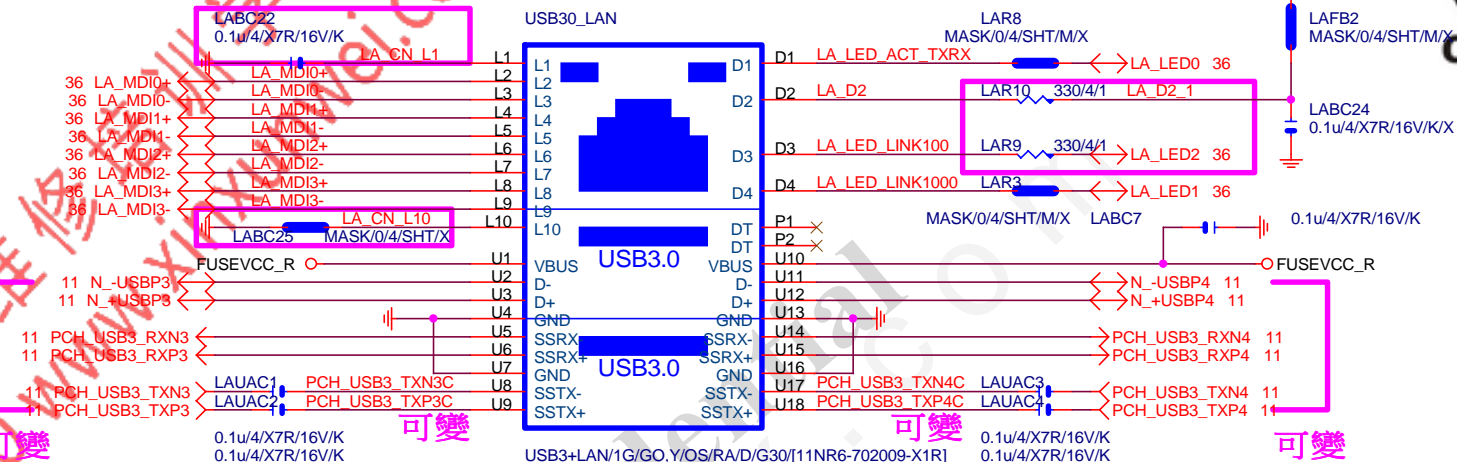
note:可變更USB NAME

可變



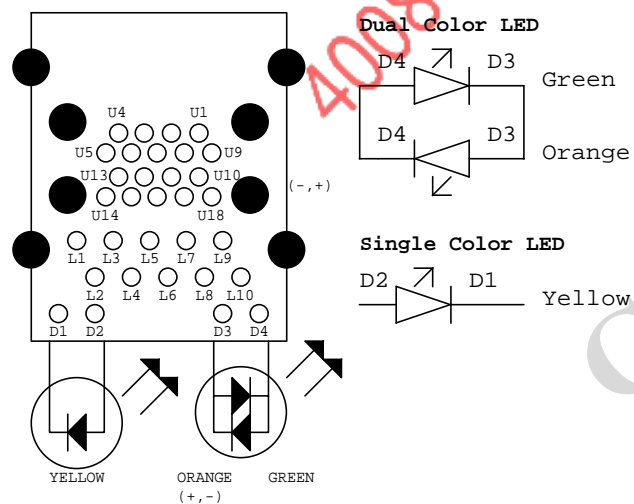
USB\_LAN CONNECTOR

[I219]



LA MDI---&gt;100歐姆:[20/4/8/4/20]

USB30 LAN LAYOUT示意圖



LAN\_COVER

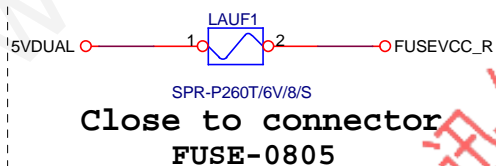
FOOT PRINT:LAN\_COVER

可變  
[視SPEC需求]

USB POWER

note:可變更FUSE

可變

Close to connector  
FUSE-0805

EMI SHORT PAD

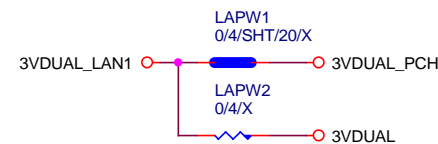
PS:視EMI需求



LAN POWER

note:lan power連接及電流

可變



Gigabyte Technology

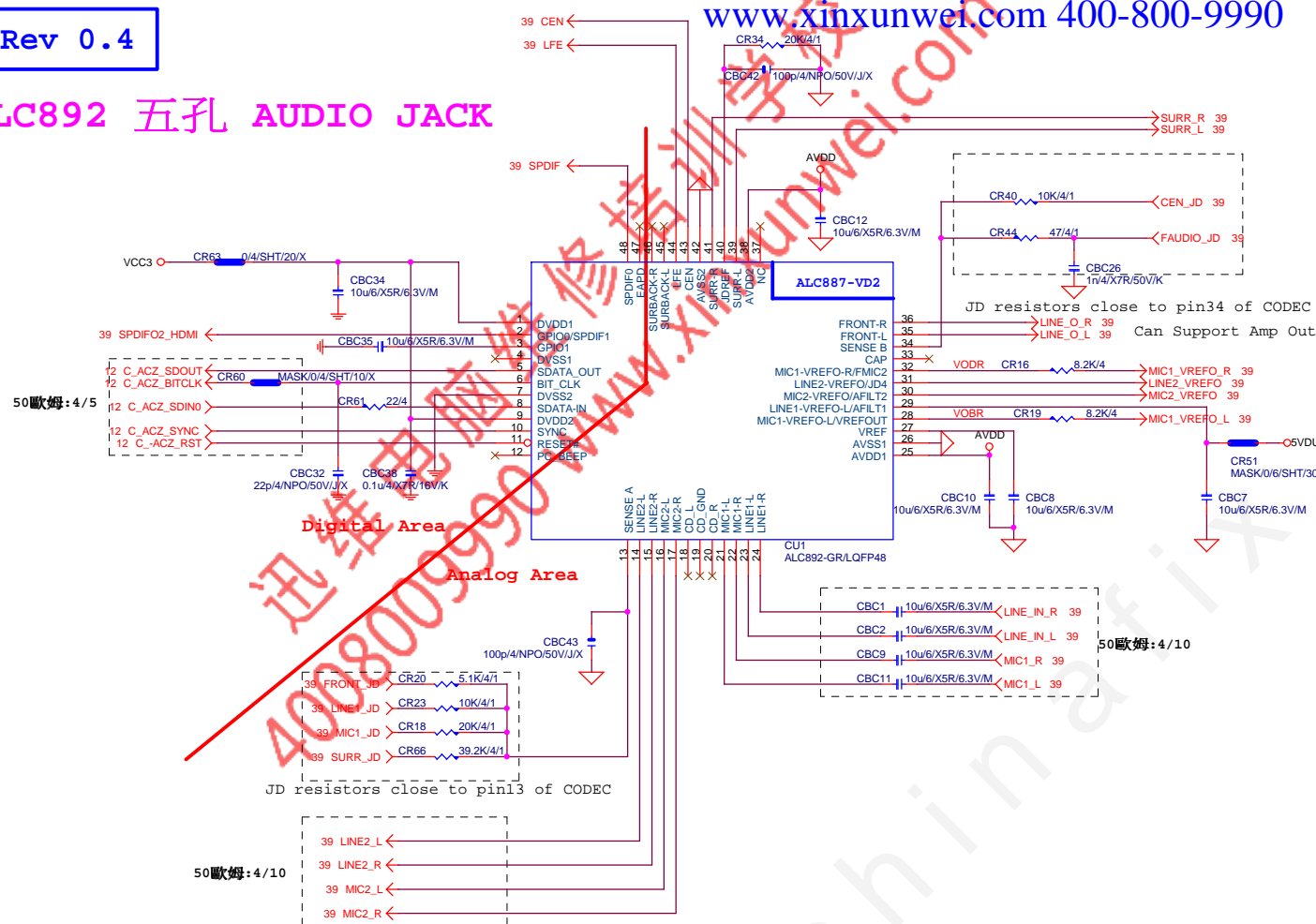
LAN CONNECTOR-I219

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GA-B150N Phoenix

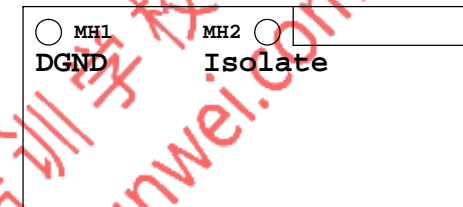


## ALC892 五孔 AUDIO JACK



## LAYOUT注意:螺絲孔下GND方式

1. MH1空間夠, 下DGND  
空間不夠, 才改為Isolate
2. MH2一律改為Isolate
3. Codec下方✗第二層必須參考GND




LAYOUT注意:要加

## GND切割線

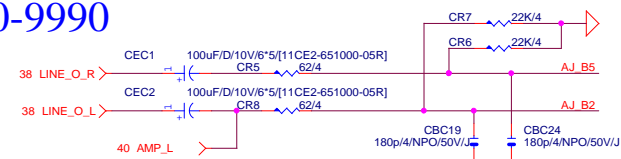


**LAYOUT注意:**  
CQ5, CQ6必須擺放在一起

BOM OPTION : 1. Chemicon音效電容  
2. 金屬外罩 Reserve (LAYOUT上件與否,依照各Model spec)  
3. LED Reserve (上件與否和LED顏色,依照各Model spec)

<div style="text-align: center;">  </div>			
<div style="text-align: center;"> <b>Title</b>  <b>HD AUDIO ALC887</b> </div>			
<b>Size</b> Custom	<b>Document Number</b> <b>GA-B150N Phoenix</b>		<b>Rev</b> 1.0
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LINE-OUT



38 LINE\_IN\_R ← CR1 62/4

38 LINE\_IN\_L ← CR14 62/4

AJ\_A5

AJ\_A2

CBC20 180p/4/NPO/50V/J

CBC23 180p/4/NPO/50V/J

38 MIC1\_R

38 MIC1\_L

CR17 62/4

CR22 62/4

38 MIC1\_VREF\_O\_L

38 MIC1\_VREF\_O\_R

CBC3 180pF/4/NPO/50V/J

CBC4 180pF/4/NPO/50V/J

AJ\_C5

AJ\_C2

38 SURR\_R CEC10 100µF/D/10V/65H11CE2-651000-05R CR73 62/4

38 SURR\_L CEC11 100µF/D/10V/65H11CE2-651000-05R CR74 62/4

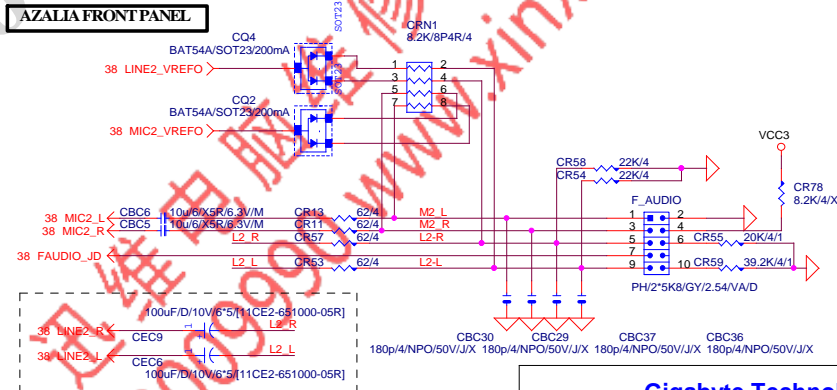
CR67 22K/4 CR68 22K/4

Bjt C5 Bjt C2

CBC44 180pF/4NPO/50V/J CBC45 180pF/4NPO/50V/J

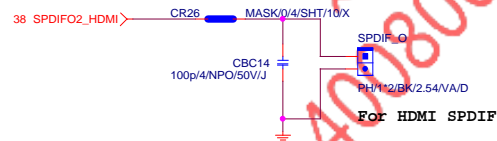
CBC13 10u8/X5R/16V/M [10CM2-011005-S4R] CR75 62uH  
 38 LFE ←  
 CBC15 10u8/X5R/16V/M [10CM2-011005-S4R] CR76 62uH  
 38 CEN ←  
 ★Update 2015-04-10  
 CB13/15/16/17 10u6 → 10u8/  
 For THD+N Low frequency  
 CBC46 180pF/4NPO/50V/J  
 CBC47 180pF/4NPO/50V/J

## AZALIA FRONT PANEL

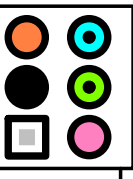


Rev
1.0

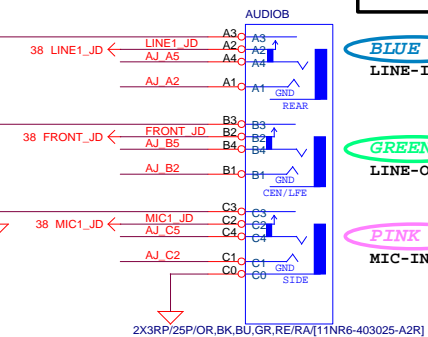
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AUDIO JACK			
Size Custom	Document Number	GA-B150N Phoenix	Rev 1.0
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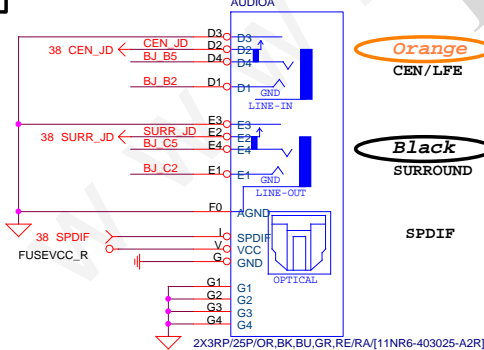
**AZALIA JACK**



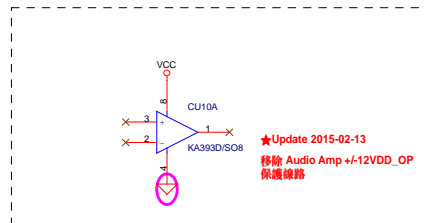
**PINK**  
**MIC-IN**



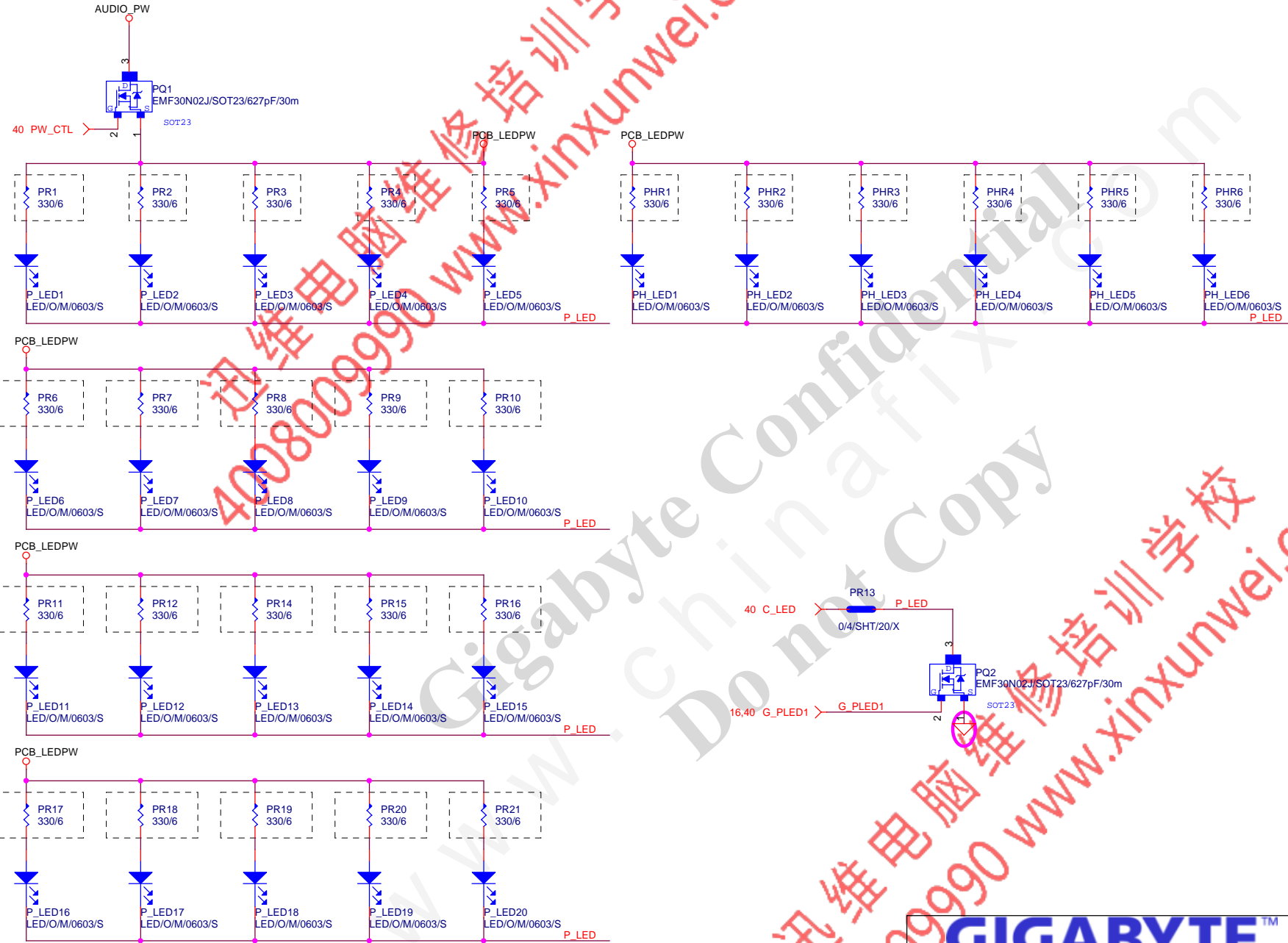
AUDIOA



SPDIF

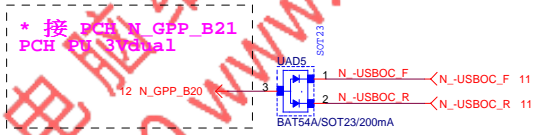
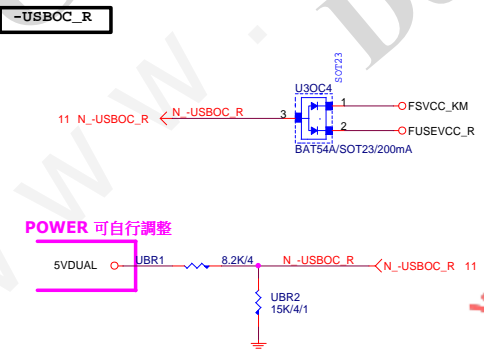
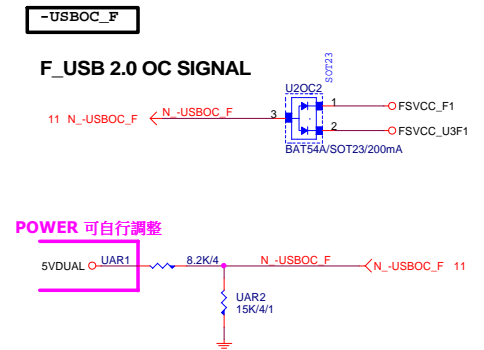
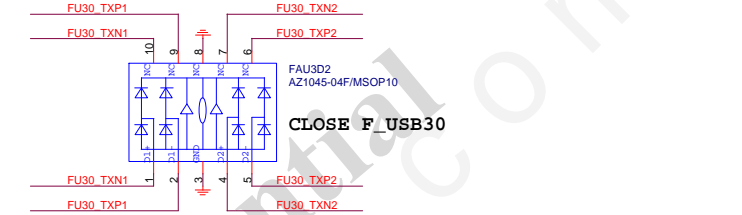
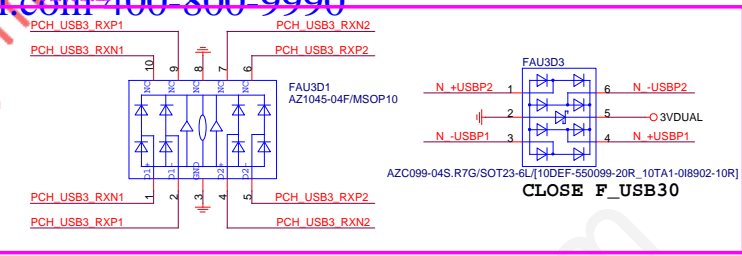
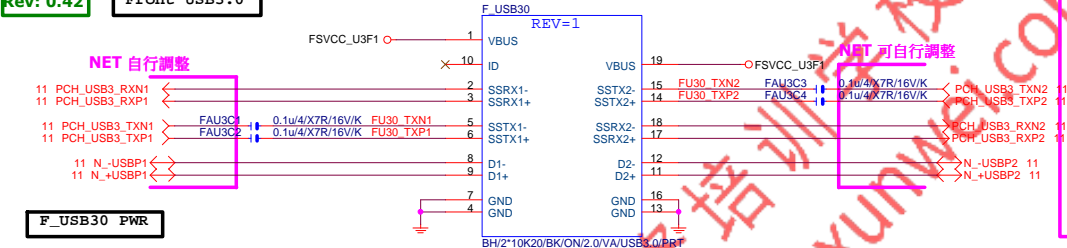






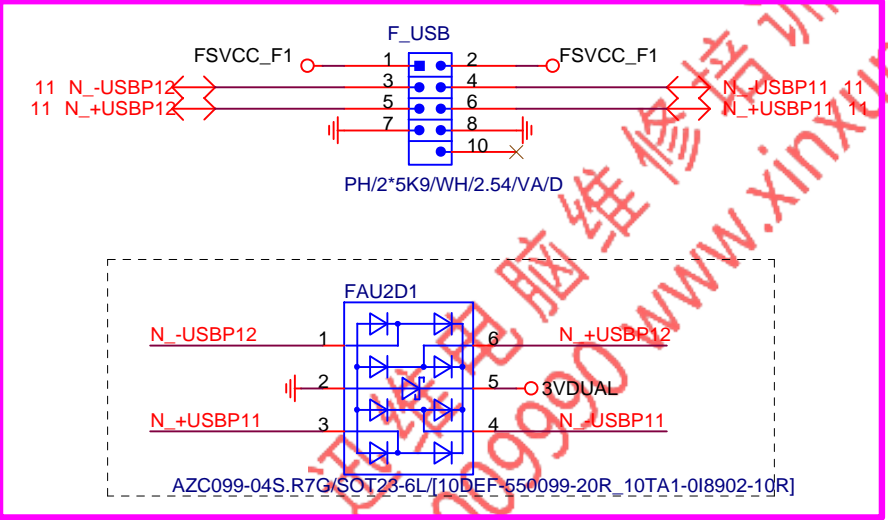
GIGABYTE™		
Title		
MODEL NAME LED		
Size	Document Number	Rev
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Rev: 0.42 Front USB3.0

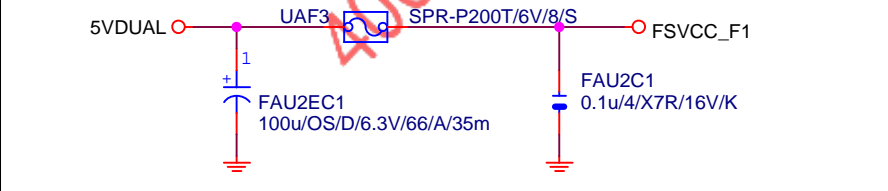




NET 可變

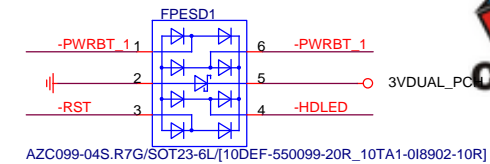


Close to connector  
FUSE 2 Port 1 Fuse 2A



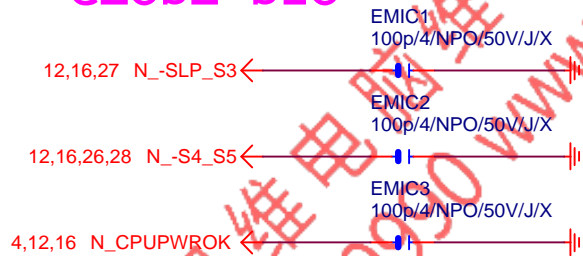
F\_USB 2.0 OC SIGNAL-->SCH IN F\_USB30  
PAGE

Gigabyte Technology			
Title			
USB2.0			
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CLOSE SIO



CLOSE PCH



GIGABYTE™

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EMI/ESD		
Size A	Document Number GA-B150N Phoenix	Rev 1.0
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www.xinxunwei.com 400-800-9990  
Color markers can be changed by model

**Base on ASM1142 0.3 Reference SCH**



Pin 1 to 32 connection diagram for the ASM1142-A/S. The diagram shows a 32-pin package with pins 1-32 on the left. A blue box highlights pins 1-32 and their internal functions. Connections to external components are shown on the right. A red watermark 'www.digchip.com' is overlaid diagonally.

Pin	Internal Function	External Connection
1	VDD	
2	SRCS1A	
3	SRCS1A	
4	SRCS1A	
5	SRCS1A	
6	SRCS1A	
7	SRCS1A	
8	SRCS1A	
9	SRCS1A	
10	SRCS1A	
11	SRCS1A	
12	SRCS1A	
13	SRCS1A	
14	SRCS1A	
15	SRCS1A	
16	SRCS1A	
17	SRCS1A	
18	SRCS1A	
19	SRCS1A	
20	SRCS1A	
21	SRCS1A	
22	SRCS1A	
23	SRCS1A	
24	SRCS1A	
25	SRCS1A	
26	SRCS1A	
27	SRCS1A	
28	SRCS1A	
29	SRCS1A	
30	SRCS1A	
31	SRCS1A	
32	SRCS1A	

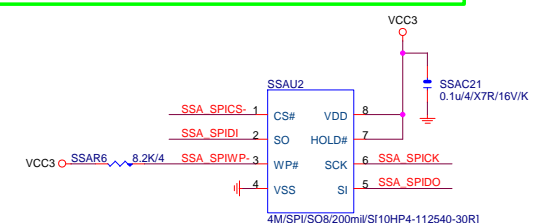
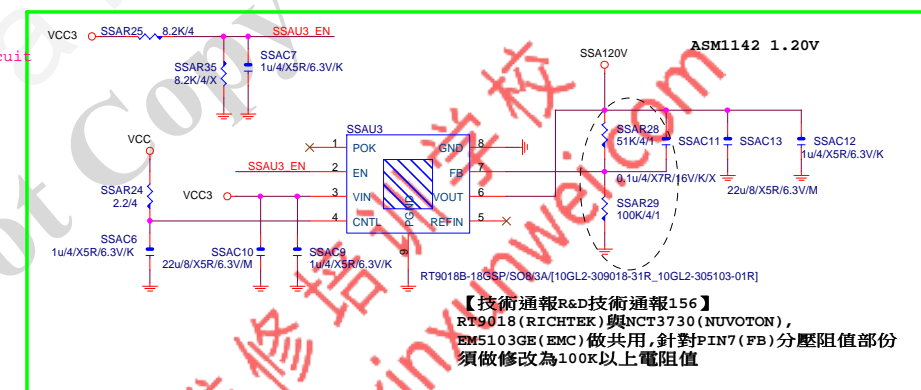
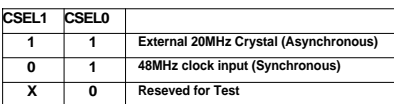
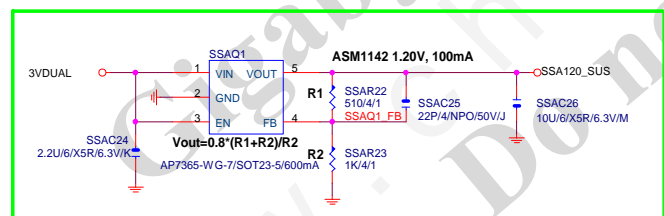
External Connections:


- SRCS1A USB31A 10
- SSA120V
- SS31A RXN1 48
- SS31A RXN1 48
- SS31A RXP1 48
- SS31A RXP1 48
- SS31A TXN1 48
- SS31A TXN1 48
- SS31A TXP1 48
- SS31A TXP1 48
- SSA VDDU 41
- SS31A TXN2 47
- SS31A TXN2 47
- SS31A TXP2 47
- SS31A TXP2 47
- SS31A RXN2 47
- SS31A RXN2 47
- SS31A RXP2 47
- SS31A RXP2 47
- SSA120V
- SSA120V\_SUS
- SSA120V

Internal Functions (Pins 1-32):

- PECLCK
- VDDU
- U3RXN\_A
- U3RXP\_A
- VCCU
- U3TXN\_A
- U3TXP\_A
- SSA VDDU
- U3TXN\_B
- U3TXP\_B
- VCCU
- U3RXN\_B
- U3RXP\_B
- VDDU
- VDDUSUS
- VDD
- WAKE#
- PRON\_B
- OCL AF
- OC1 BF
- TEST\_EN
- VCC

ASM1142-A/S

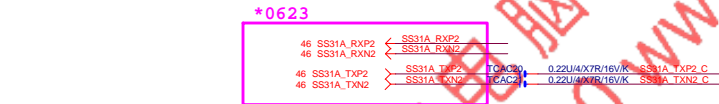
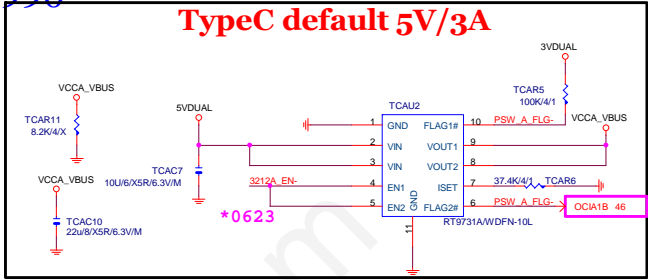
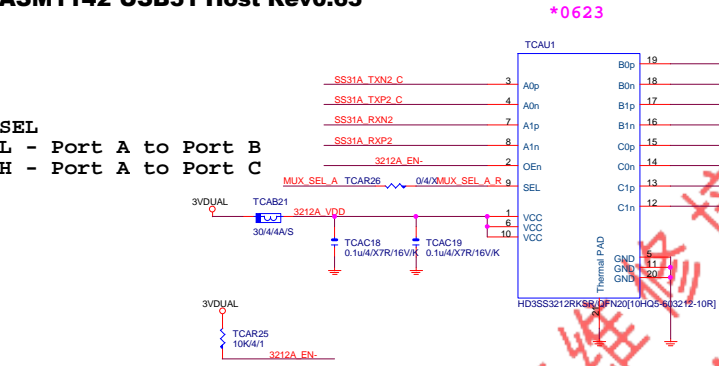


				
Title				
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Size	Document Number			Rev
Custom	<b>GA-B150N Phoenix</b>			<b>1.0</b>
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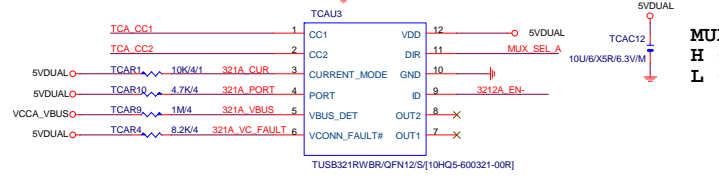
ASM1142 USB31 Host Rev0.63



SEL  
L - Port A to Port B  
H - Port A to Port C



USB 3.x SuperSpeed

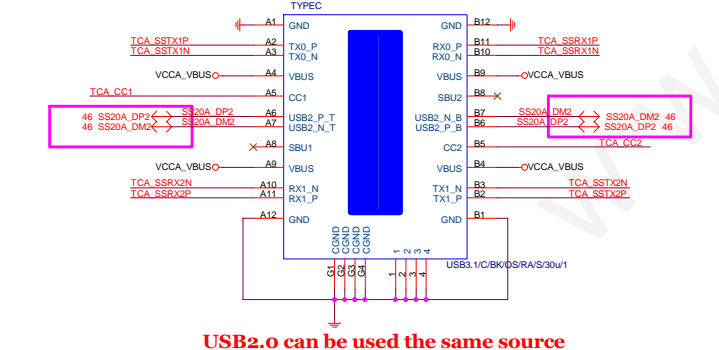


MUX\_SEL  
H - TypeC plug position 2  
L - TypeC plug position 1

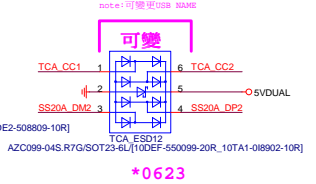
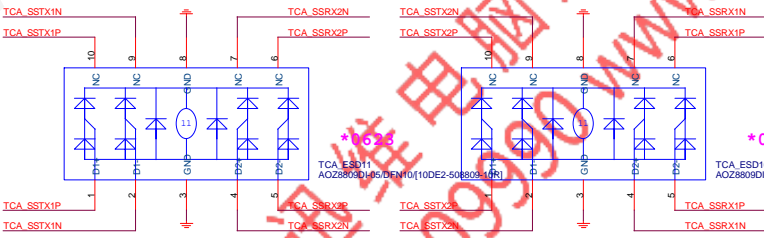
CURRENT MODE  
L - Default current / Pull down to GND or NC  
M - Medium (1.5A) current / Pull up to VDD 500K  
H - High (3.0A) current / Pull up to VDD 10K

PORT  
H - HOST  
L - Device  
NC - Dual Role

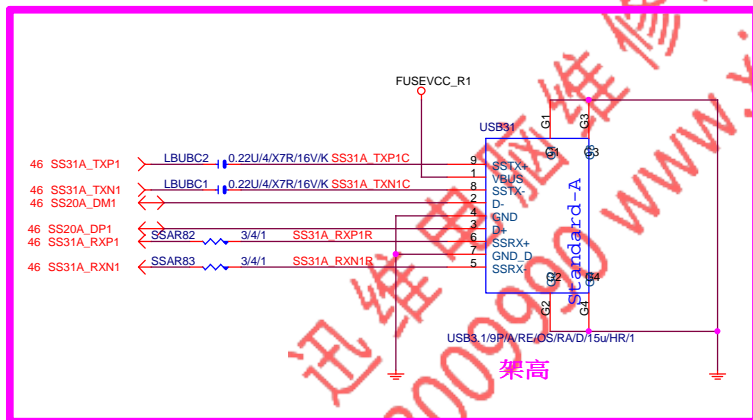
Color markers can be changed by model



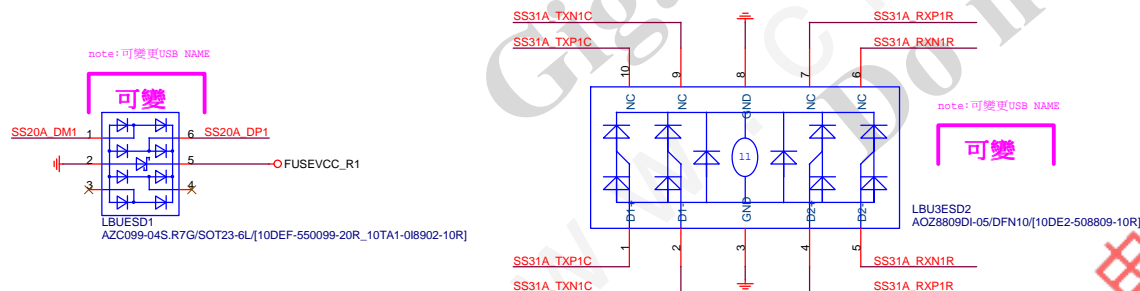
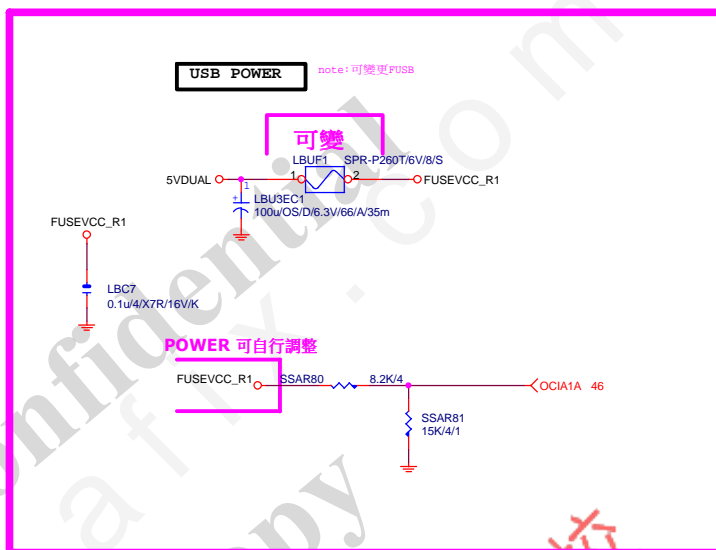
USB2.o can be used the same source



GIGABYTE™		
Title		
TI HD3SS3212		
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USB31 TYPE A Connector which chooses for project demand





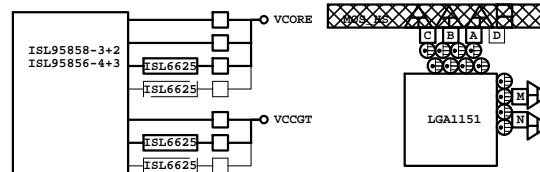
PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GPP_A0	MAIN	NATIVE	N_KBRST	P/U 8.2K VCC3	
GPP_A1	MAIN	NATIVE	N_LAD0	N/A	
GPP_A2	MAIN	NATIVE	N_LAD1	N/A	
GPP_A3	MAIN	NATIVE	N_LAD2	N/A	
GPP_A4	MAIN	NATIVE	N_LAD3	N/A	
GPP_A5	MAIN	NATIVE	N_LFRAME	N/A	
GPP_A6	MAIN	NATIVE	N_SBR1RQ	P/U 8.2K VCC3	
GPP_A7	MAIN	NATIVE	N_LDNRQ	P/U 8.2K 3VDUAL	
GPP_A8	MAIN	NATIVE	N_GPP_A8	P/U 8.2K VCC3	
GPP_A9	MAIN	NATIVE	N_LPC24MB	N/A	
GPP_A10	MAIN	NATIVE	N_LPC24MA	N/A	
GPP_A11	MAIN	NATIVE	N_P_FMR	P/U 8.2K 3VDUAL_PCH	
GPP_A12	MAIN	GPI	N_GPP_A12	P/U 8.2K VCC3	
GPP_A13	MAIN	NATIVE	N_S_WARN	N/A	
GPP_A14	MAIN	NATIVE	N_GPP_A14	P/U 8.2K 3VDUAL	
GPP_A15	MAIN	NATIVE	N_S_ACK	N/A	
GPP_B0	MAIN	CORE_V1D0	N_DDR_V_SEL	P/U 8.2K VCC3	
GPP_B1	MAIN	CORE_V1D1	N/A	N/A	
GPP_B2	MAIN	GPI	N_VREALST	P/U 8.2K 3VDUAL	
GPP_B5	MAIN	GPI	-PCIE1_6_PR	P/U 8.2K VCC3	
GPP_B6	MAIN	GPI	-PCIE1_1_PR1	P/U 8.2K VCC3	
GPP_B7	MAIN	GPI	-PCIE1_1_PR2	P/U 8.2K VCC3	
GPP_B8	MAIN	GPI	-PCIE1_4_PR	P/U 8.2K VCC3	
GPP_B9	MAIN	GPI	N/A	N/A	
GPP_B10	MAIN	GPI	N/A	N/A	
GPP_B11	MAIN	GPO	N/A	N/A	
GPP_B12	MAIN	SLP_00	N_SLP_00	N/A	
GPP_B13	MAIN	PLTRST	N_PFRMST	N/A	
GPP_B14	MAIN	H-Z	GPO	N_SFRK	N/A
GPP_B18	MAIN	H-Z	GPO	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN	GPI	N_GPP_B20	P/U 8.2K 3VDUAL	
GPP_B22	MAIN	GPI	N_GPP_B22	P/D 1K GND	
GPP_C0	MAIN	SMCLK	N/A	N/A	
GPP_C1	MAIN	SMMDATA	N/A	N/A	
GPP_C2	MAIN	H-Z	GPO	N_LPCVME	N/A
GPP_C3	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C4	MAIN	SMCLK	N_SMLDATA	P/U 499 3VDUAL	
GPP_C5	MAIN	H-Z	GPO	N_GPP_C5	N/A
GPP_C6	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_C7	MAIN	GPI	N_SMLDATA	P/U 8.2K 3VDUAL	
GPP_D4	MAIN	GPI	N_GPP_D4	P/U 8.2K 3VDUAL	
GPP_D7	MAIN	GPI	N_GPP_D7	N/A	
GPP_D9	MAIN	GPI	N_GPP_D9	N/A	
GPP_D17	MAIN	GPI	N_GPP_D17	P/U 8.2K VCC3	
GPP_D18	MAIN	GPI	N_GPP_D18	P/U 8.2K VCC3	
GPP_D19	MAIN	GPI	N_GPP_D19	P/U 8.2K VCC3	
GPP_D20	MAIN	GPI	N_GPP_D20	P/U 8.2K VCC3	
GPP_D23	MAIN	GPI	N_GPP_D23	P/U 8.2K 3VDUAL	
GPP_E0	MAIN	NATIVE	N_GPP_E0	P/U 8.2K VCC3	
GPP_E1	MAIN	NATIVE	N_GPP_E1	P/U 8.2K VCC3	
GPP_E2	MAIN	NATIVE	N_GPP_E2	P/U 8.2K VCC3	
GPP_E3	MAIN	GPI	N_CPU_S	P/U 8.2K VCC3	
GPP_E4	MAIN	GPI	N_DEVS1P0	P/U 8.2K VCC3	
GPP_E6	MAIN	GPI	N_DEVS1P2	P/U 8.2K VCC3	
GPP_E7	MAIN	GPI	N_GT_S	P/U 8.2K VCC3	
GPP_E8	MAIN	GPI	N_SATALED	N/A	
GPP_E9	MAIN	H-Z	GPI	N_USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E12	MAIN	H-Z	GPI	N_USBOC_F	N/A
GPP_F0	MAIN	NATIVE	N_GPP_F0	P/U 8.2K VCC3	
GPP_F1	MAIN	NATIVE	N_GPP_F1	P/U 8.2K VCC3	
GPP_F2	MAIN	NATIVE	N_GPP_F2	P/U 8.2K VCC3	
GPP_F3	MAIN	GPI	N_GPP_F3	P/U 8.2K VCC3	
GPP_F4	MAIN	GPI	N_GPP_F4	P/U 8.2K VCC3	
GPP_F5	MAIN	GPI	N_GPP_F5	P/U 8.2K VCC3	
GPP_F6	MAIN	GPI	N_DEVS1P4	P/U 8.2K VCC3	
GPP_F10	MAIN	GPI	N_GPP_F10	P/U 8.2K VCC3	
GPP_F11	MAIN	GPI	N_GPP_F11	P/U 8.2K VCC3	
GPP_F12	MAIN	GPI	N_GPP_F12	P/U 8.2K VCC3	
GPP_F13	MAIN	GPI	N_GPP_F13	P/U 8.2K VCC3	
GPP_F14	MAIN	GPI	A_SKT0CC	P/U 8.2K VCC3	
GPP_F15	MAIN	GPI	N_USBOC_F	N/A	
GPP_F16	MAIN	GPI	N_USBOC_F	N/A	
GPP_F17	MAIN	GPI	N_USBOC_R	N/A	
GPP_F18	MAIN	GPI	N_USBOC_F	P/U 8.2K 3VDUAL	
GPP_F22	MAIN	GPI	N_GPP_F22	P/U 8.2K VCC3	
GPP_F23	MAIN	GPI	N_GPP_F23	P/U 8.2K VCC3	
GPP_G0	MAIN	GPI	N_GPP_G0	P/U 1K VCC3	
GPP_G1	MAIN	GPI	N_GPP_G1	P/U 1K VCC3	
GPP_G12	MAIN	GPI	N_GPP_G12	P/U 3.3K VCC3	
GPP_G16	MAIN	GPI	N_GPP_G16	N/A	
GPP_G18	MAIN	GPI	N_GPP_G18	P/U 8.2K VCC3	
GPP_G19	MAIN	GPI	N_GPP_G19	P/U 8.2K VCC3	
GPP_G20	MAIN	GPI	N_GPP_G20	P/U 8.2K VCC3	
GPP_G21	MAIN	GPI	N_GPP_G21	P/U 8.2K VCC3	
GPP_G22	MAIN	GPI	N_GPP_G22	P/U 8.2K VCC3	
GPP_H0	MAIN	GPI	M2_CLKREQ	P/U 8.2K VCC3	
GPP_H12	MAIN	GPO	N_GPP_H12	P/U 8.2K VCC3	
GPP_H19	MAIN	GPI	N_GPP_H19	P/U 8.2K 3VDUAL	
GPP_H20	MAIN	GPI	N_GPP_H20	P/U 8.2K 3VDUAL	
GPP_H21	MAIN	GPI	N_GPP_H21	P/U 8.2K 3VDUAL	
GPP_H22	MAIN	GPI	N_GPP_H22	P/U 8.2K 3VDUAL	
GPP_I0	MAIN	GPI	N_HDMI_HDP_F	N/A	
GPP_I1	MAIN	GPI	N_DVI_HDP_F	P/U 1M VCC3	
GPP_I2	MAIN	GPI	N_VGA_HDP_F	N/A	

PIN NAME	PWR	Default	USAGE	NOTE
GPP_13	MAIN	GPI	N_GPP_13	P/U 8.2K VCC3
GPP_14	MAIN	GPI	N_GPP_14	P/D 100K GND
GPP_15	MAIN	GPI	N_DDBP_CTRLCLK	P/U 2.2K VCC3
GPP_16	MAIN	GPO	N_DDBP_CTRLDATA	P/U 2.2K VCC3
GPP_17	MAIN	GPI	N_DDBP_CTRLCLK	P/U 2.2K VCC3
GPP_18	MAIN	GPI	N_DDBP_CTRLDATA	P/U 2.2K VCC3
GPP_19	MAIN	GPI	N_DDBP_CTRLCLK	P/U 2.2K VCC3
GPP_110	MAIN	GPI	N_DDBP_CTRLDATA	P/U 2.2K VCC3
GPD0	STBY	BATLOW	N_-BATLOW	P/U 8.2K 3VDUAL_PCH
GPD1	STBY	APRESST	N_GFP_D1	P/U 8.2K 3VDUAL_PCH
GPD2	STBY	LAM_MAKE	N_-LAM_MAKE	N/A
GPD3	STBY	PWRSTN	O_PWRSTN	P/U 8.2K 3VDUAL_PCH
GPD4	STBY	SLP_03	N_-SLP_03	N/A
GPD5	STBY	SLP_04	N_-SLP_04	N/A
GPD6	STBY	SLP_A	N_-SLP_A	P/U 8.2K 3VDUAL
GPD7	STBY	NATIVE	N_-R_ACK	N/A
GPD8	STBY	SUSCLE	N_SUSCLK	N/A
GPD10	STBY	SLP_05	N_-SLP_05	N/A

Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
PCIRSTF3#/GP10/VDPMN_ATRK_EN	N/A	
PCIRSTF2#/GP11	O_-PCIE_RSR	
PCIRSTF1#/GP12	O_-PFRMST	
SVC/REQ_H07/GP14	TPM_GP14	
SLP_00#/PCIRSTF1#/GIRT2/GP15	-PCIRSTN	
PSI_L/FAN_CTL3/GIRT2/GP16	N_THERMTRIP	
R12#/GP17	MB_ID0	
TRM_FHM_CTS2#/GP20	N_THERMTRIP	
IO_SMIWCD2#/GP21	IO FIN	
SPI_S1/GP22	BEEP-	
DPWRKOK/CPU_F0/GP23	N_PCH_DPWRKOK	
FAN_TACS/RTS2#/GP24	IO FIN	
FAN_TAC4/DSR2#/GP25	FANIO4	
INV_OUT1_S00T2/GP26	Q_PLED	
INV_IN1_S1N2/GP27	INV_IN1	
ATAP0/GP30	FWOK	
CT81/GP31	CT81-	
OCWD13/R113#/GP32	R11-	
OCWD12/D0D18/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSB5W#/GP40	IO FIN	
OCWD11/S1N1/GP41	RXD1	
GP42/SCK/FAN_CTL4	IO FIN	
PANSW8#/GP43	-PWRSTW	
PWRGN8/GP44	O_PWRSTW	
OCWD10/DSR18/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/GP1	IO FIN	
FAN_CTL4/GP51	FANPWM2	
FAN_TAC3/GP52	FANIO2	
SUSON/GP53	N_-SA_S5	
PWR8/GP54	N_-LPCVME	
RSMBST7/CT8X1/GP55	O_-RSMRST	
MCLE/FAN_TAC5/GP56	MCLE	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST8/GP62	N_-KRST	
HOLD_B#/GP63	-SPI_HOLD_B	
HOLD_M#/GP64	-SPI_HOLD_M	
VLD1T_EN/PCH_D0/GP65	IO FIN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	IO FIN	
USB_F01/PD0/GP70	PD0	
USB_F02/PD1/GP71	PD1	
USB_F03/PD2/GP72	PD2	
USB_F03/PD3/GP73	PD3	
USB_F05/PD4/GP74	PD4	
USB_F06/PD5/GP75	PD5	
USB_F07/PD7/GP76	PD6	
USB_F08/PD8/GP77	PD7	
LS_IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#/GP83	ACK-	
IPHONE_CHARGE#/SLIN#/GP84	SLIN-	
OC_IN/INIT8/GP85	INIT-	
OC_OUT/AFD8/GP86	AFD-	
USB_OC4/STB#/GP87	STB-	
DOR_EN/GP90	NA_EN	
PWRLED/GP91	HPD-	
HOLD_OUT/GP92	IO FIN	
HOLD_IN/GP93	IO FIN	
PROCHOT8/GP94	-PROCHOT_CON	
CPUPWRGD/GP95	IO FIN	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	

PWM各相位的擺法如下:



BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCSA	CPU System Agent Voltage
VCCIO	CPU I/O Voltage
VCC1_0_PCH	PCH core
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDR_VTT	DRAM Terminatio
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

散熱模組料號:

Z1704M-D3H :  
PCH :  
MOSFET :

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	+12V	FANPWM1	FANIO1	IT8628
SYS FAN1	FANPWM2	VCC	FANIO2	IT8628
	FAN1_VOUT	N/A	N/A	NCT3941
SYS FAN2	FANPWM3	VCC	FANIO3	IT8628
	FAN2_VOUT	N/A	N/A	NCT3941
SYS FAN3	FANPWM4	VCC	FANIO4	IT8628
	FAN3_VOUT	N/A	N/A	NCT3941

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TABLE LIST		
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