

Model Name: GA-Gaming B8
SHEET TITLE

Rev 1.01

SHEET

TITLE

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_RGB,CLK BUFFER
11	PCH DMI,USB,PCIE
12	PCH MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	PCH_GND
16	ITE 8686 LPC IO
17	HMW
18	FAN CTRL--SIO
19	PCI EXPRESS X16 SLOT
20	PCI EXPRESS X1 SLOT
21	ISL95856 PWM
22	ISL95856 MOS_VCORE
23	ISL95856 MOS_VCCGT
24	VCCSA_VCCIO_VCCPLL
25	RT8120_DDR
26	RT8120_VPP
27	RT8120_PCH
28	DISCRETE POWER
29	NCT3933
30	ATX POWER , A_-PROCHOT
31	M2S 32G
32	PCI EXPRESS X4_1 SLOT
33	M2S 32G/PCIEX4_1 SWITCH
34	N/A
35	PCI EXPRESS X4_2 SLOT

36	N/A
37	KB_MS_USB
38	F_USB30
39	F_USB20
40	R_USB
41	ALC1120
42	AUDIO JACK
43	LAN-B~I219
44	LAN CONNECTOR-I219
45	ASM2142
46	TI Type A
47	TI HD3SS3212
48	IDT9FG310_CLK
49	TPM, THB_C
50	F_PANEL
51	HDMI
52	DVI
53	N/A
54	DUAL BIOS
55	USB_DAC POWER
56	CPU/AUDIO/PCIE LED
57	PCH/MODEL/DDR LED
58	LAYOUT RULE
59	EMI-ESD
60	NTC MAP
61	POWER MAP
62	POWER
63	TABLE LIST

Model Name: GA-Gaming B8

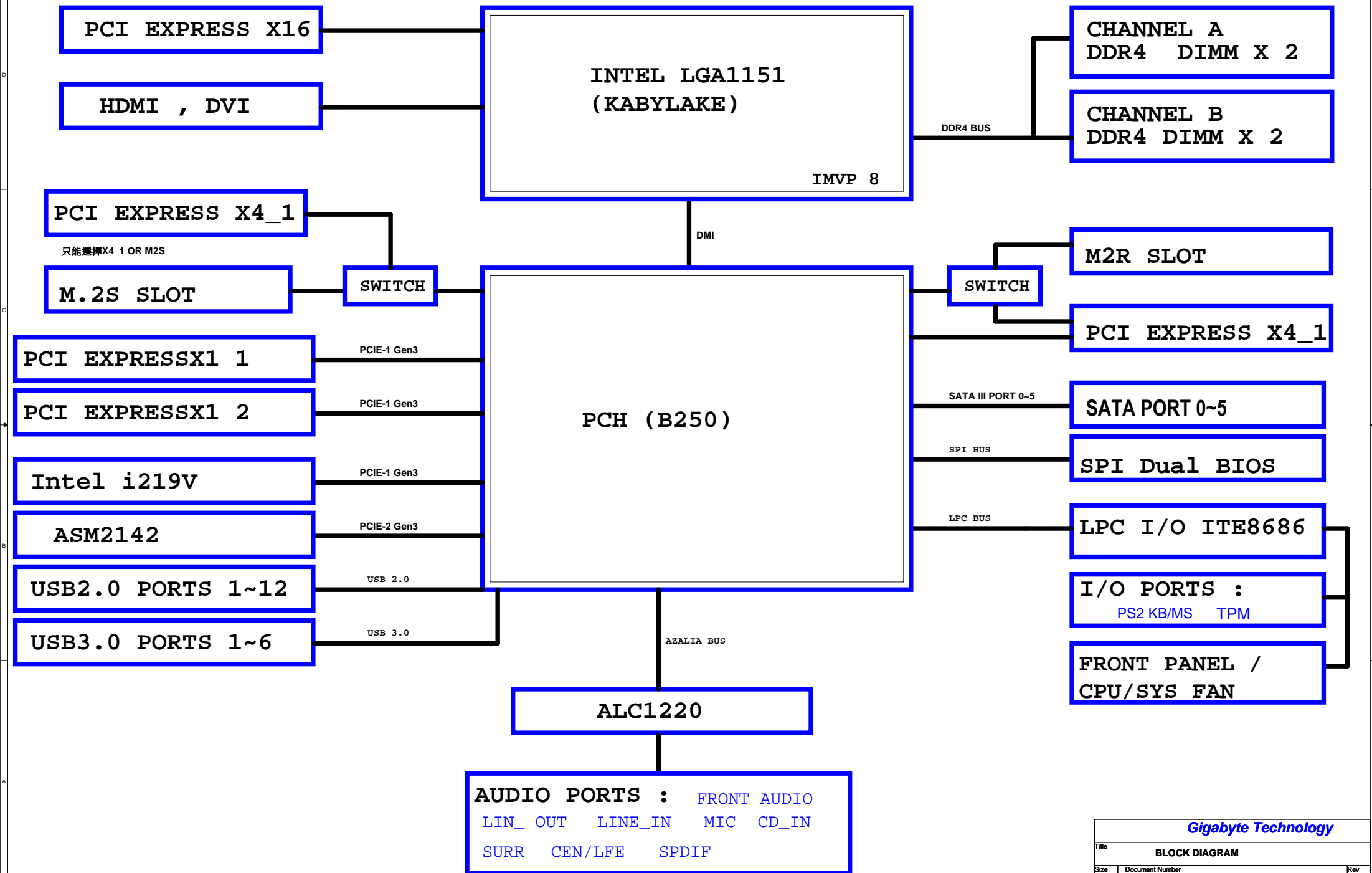
Component value change history

[illegible]

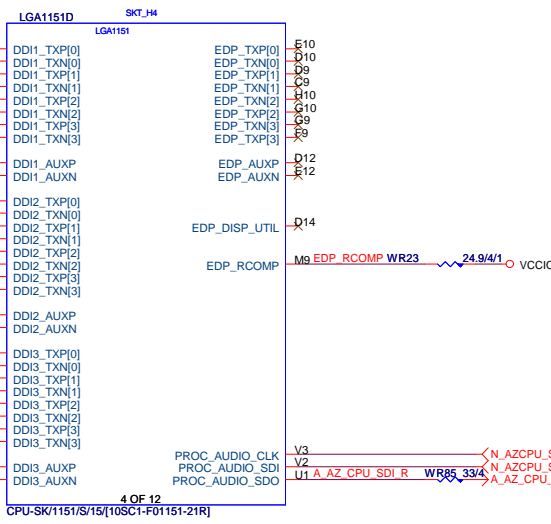
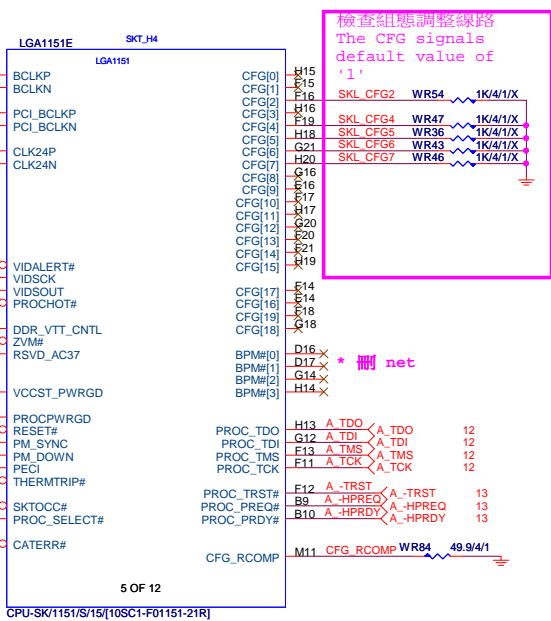
Circuit or PCB layout change

[illegible]

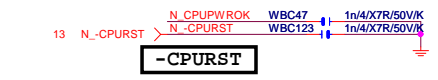
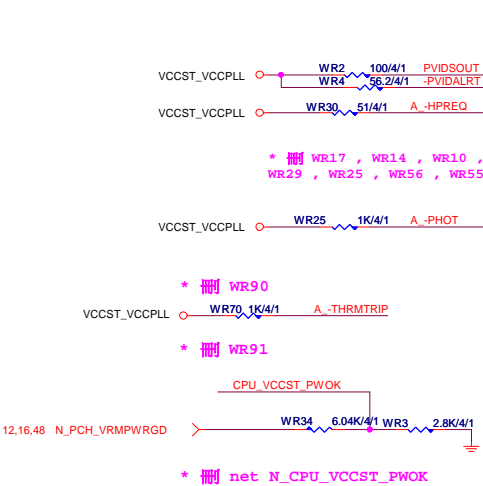
BLOCK DIAGRAM



From SKL_0.2B



```
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
```



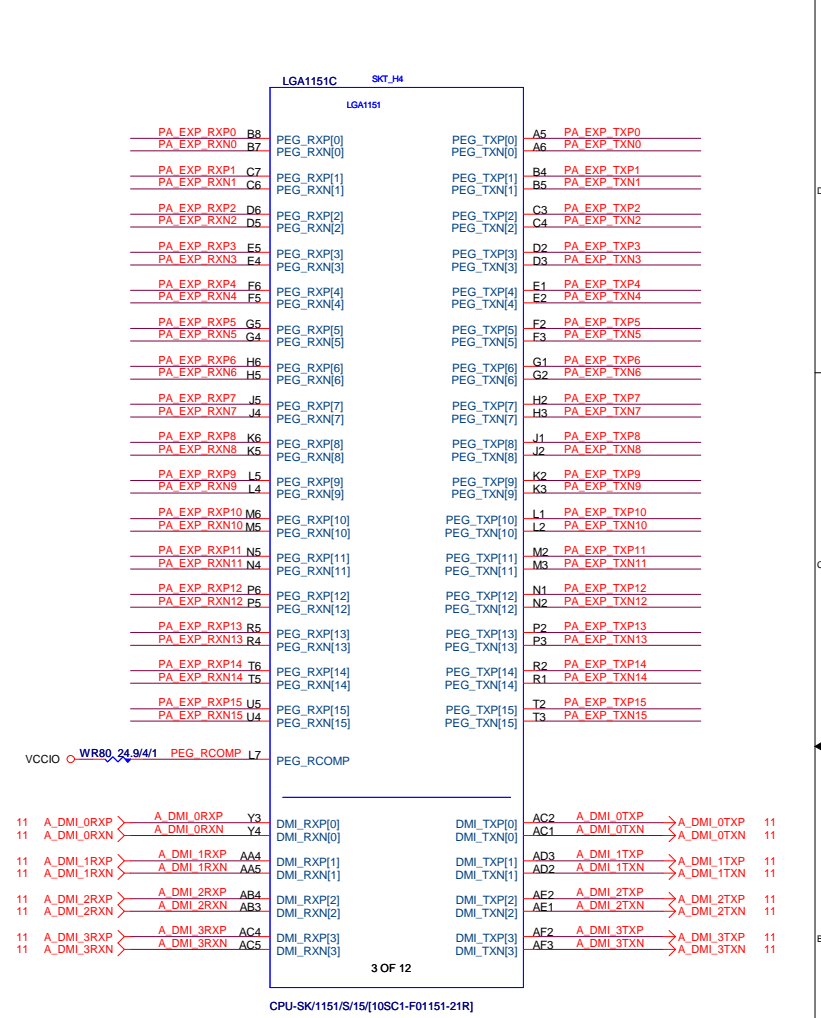
```
CFG[2]:x16 Lane Numbering
Reversal_1=
NORMAL;0=reversal

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

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

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

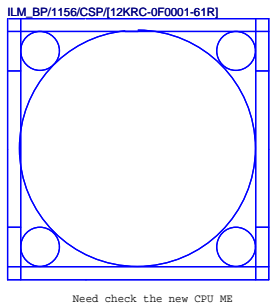
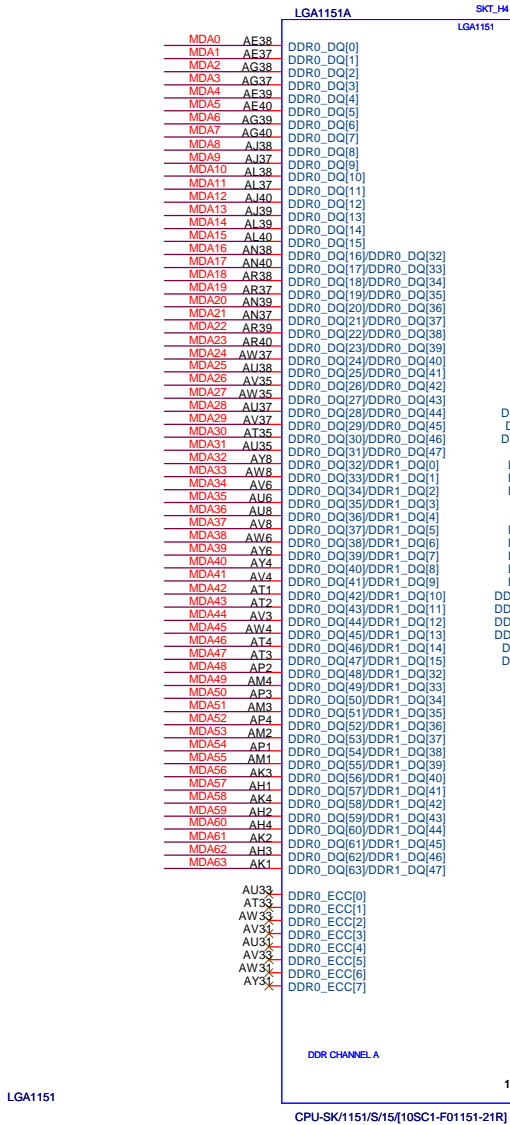
Bifurcation Config.	Signals Lanes		
	CFG[6]	CFG[5]	CFG[2]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0



```
PA_EXP_TXP[0..15]    >>> PA_EXP_TXP[0..15]  19
PA_EXP_TXN[0..15]    >>> PA_EXP_TXN[0..15]  19
PA_EXP_RXP[0..15]    >>> PA_EXP_RXP[0..15]  19
PA_EXP_RXN[0..15]    >>> PA_EXP_RXN[0..15]  19
```

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

Gigabyte Technology			
Title			
CPU LGA1151-A			
Size Custom	Document Number		Rev 1.0
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Need check the new CPU ME

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CPU-SK/1151/S/15(10SC1-F01151-21R)

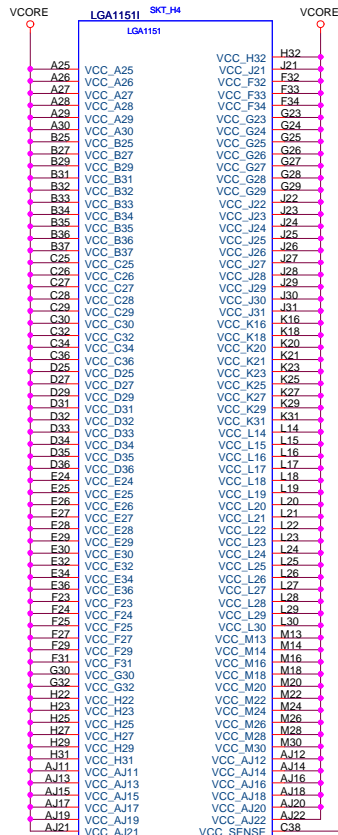


2 OF 12

CPU-SK/1151/S/15(10SC1-F01151-21R)

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

Intel CRB		
CPU LGA1151-B		
Size	Document Number	Rev
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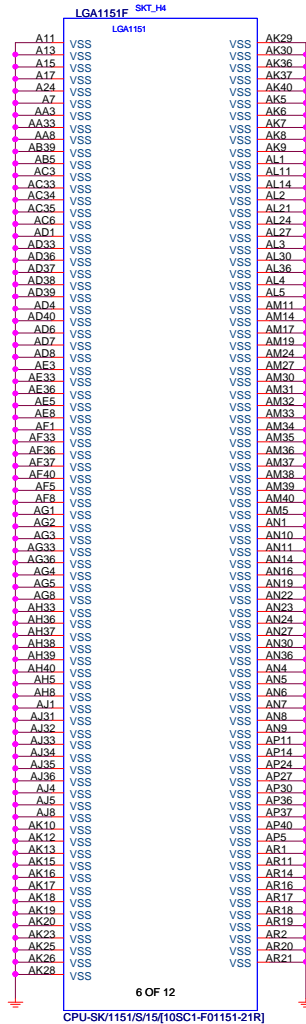


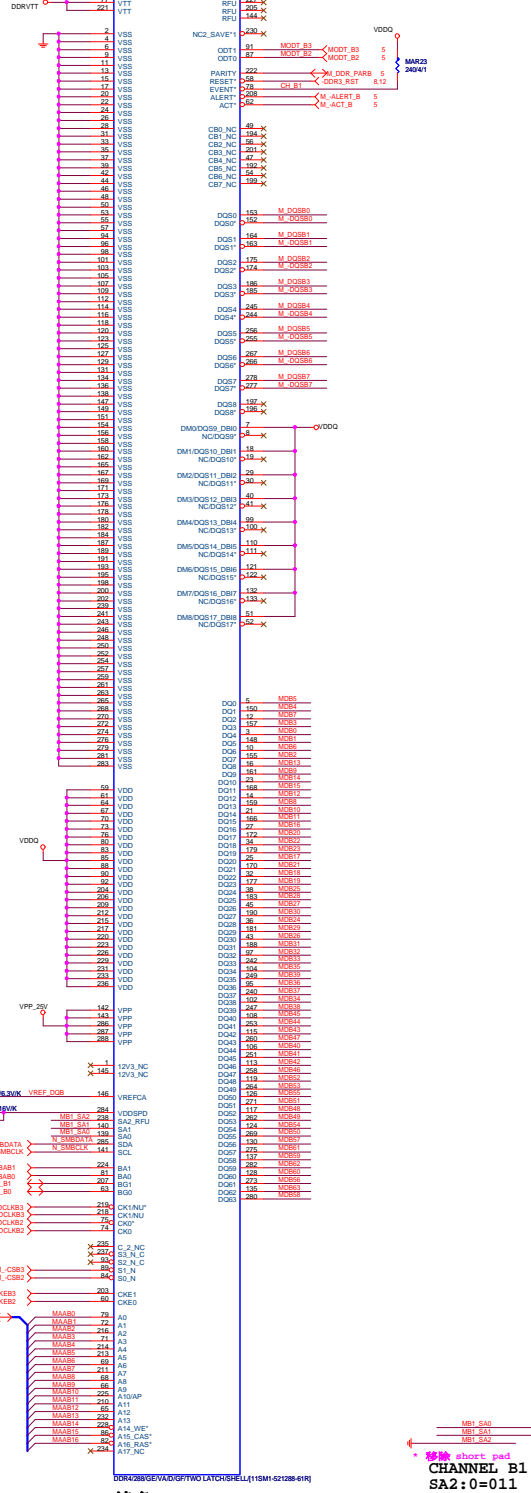
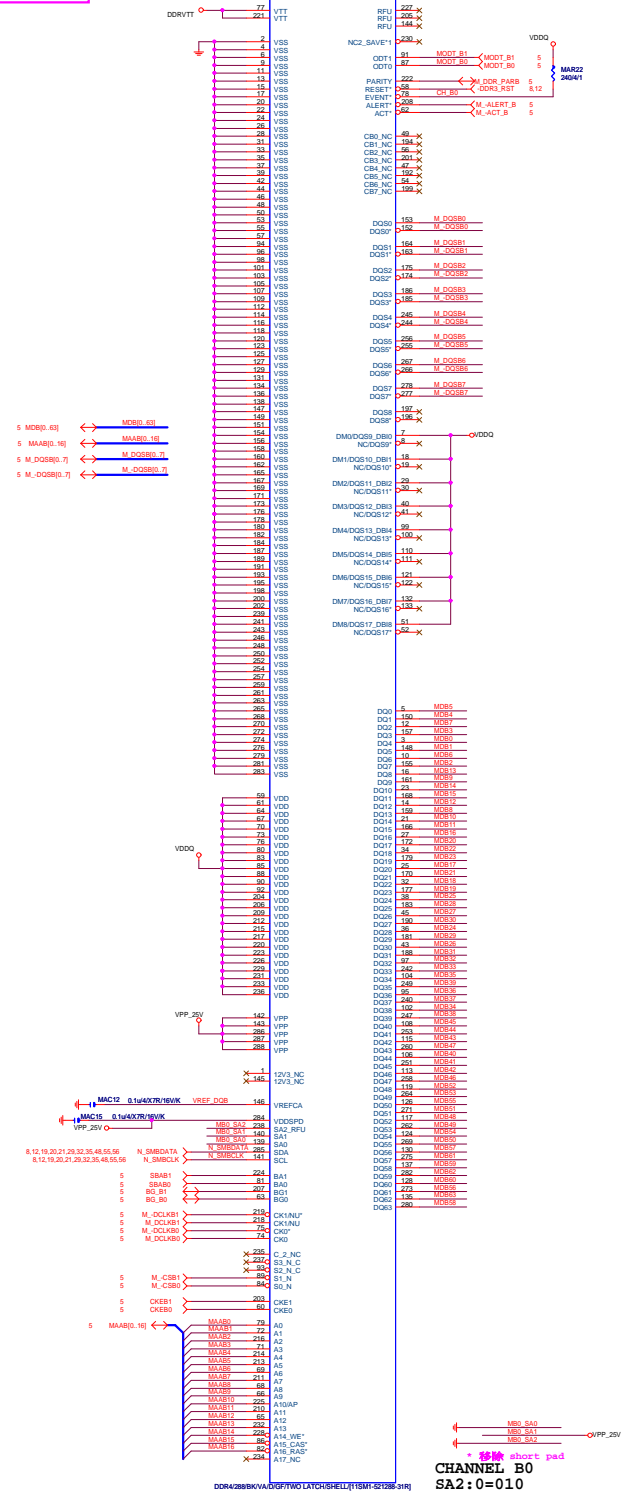
CPU-SK/1151/S/15[10SC1-F01151-21R]

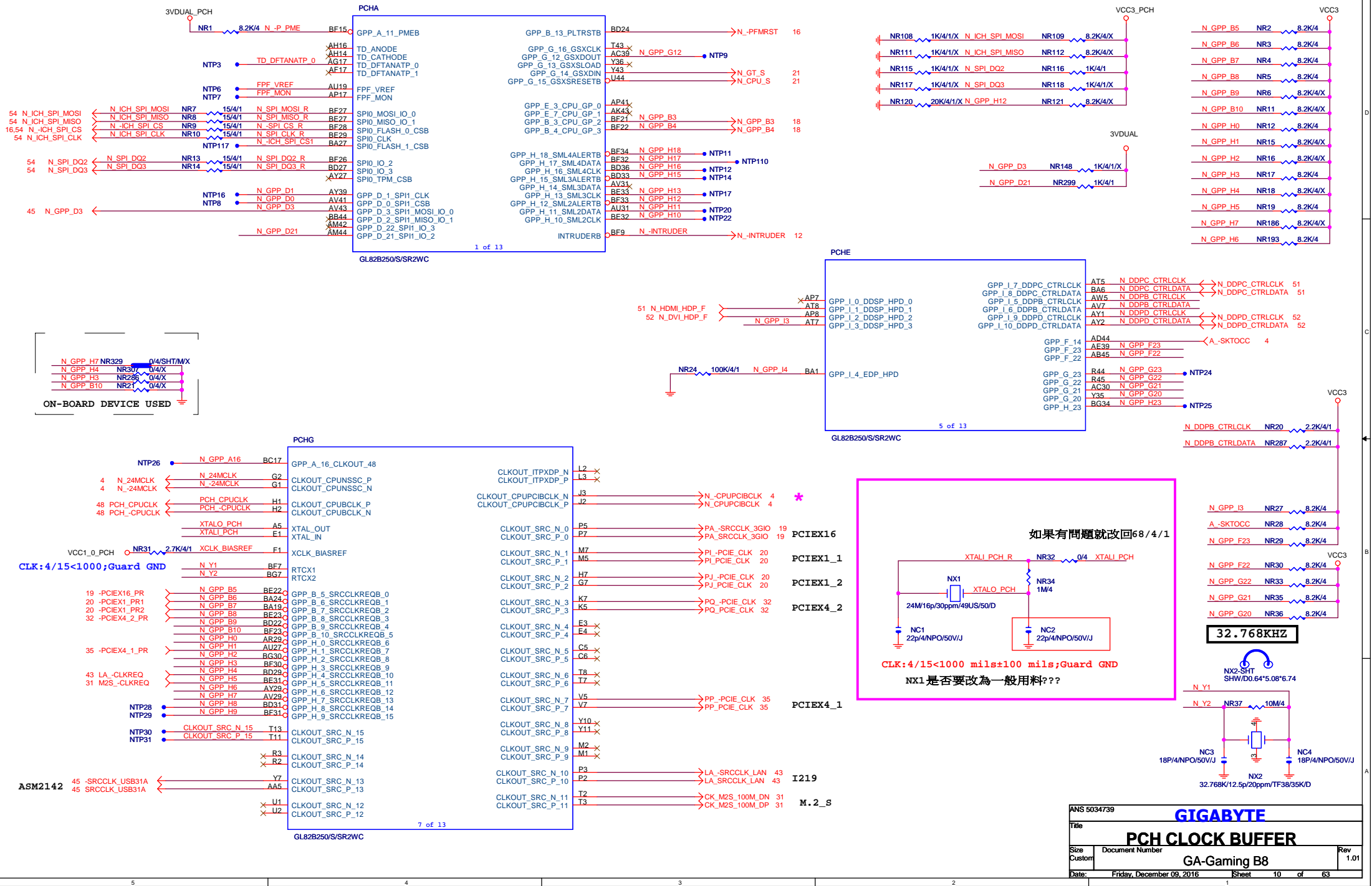
9 OF 12

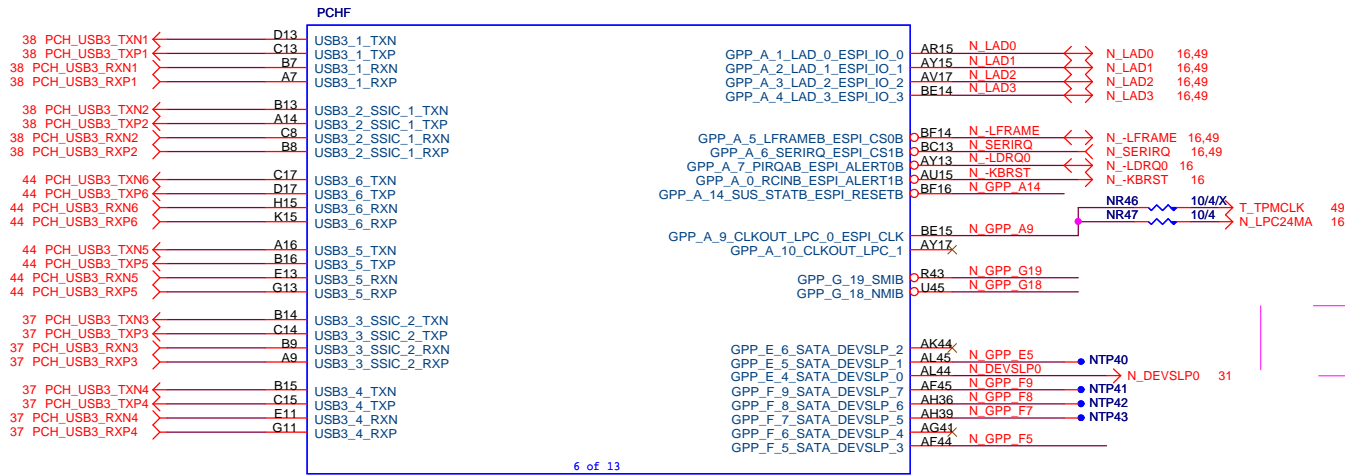
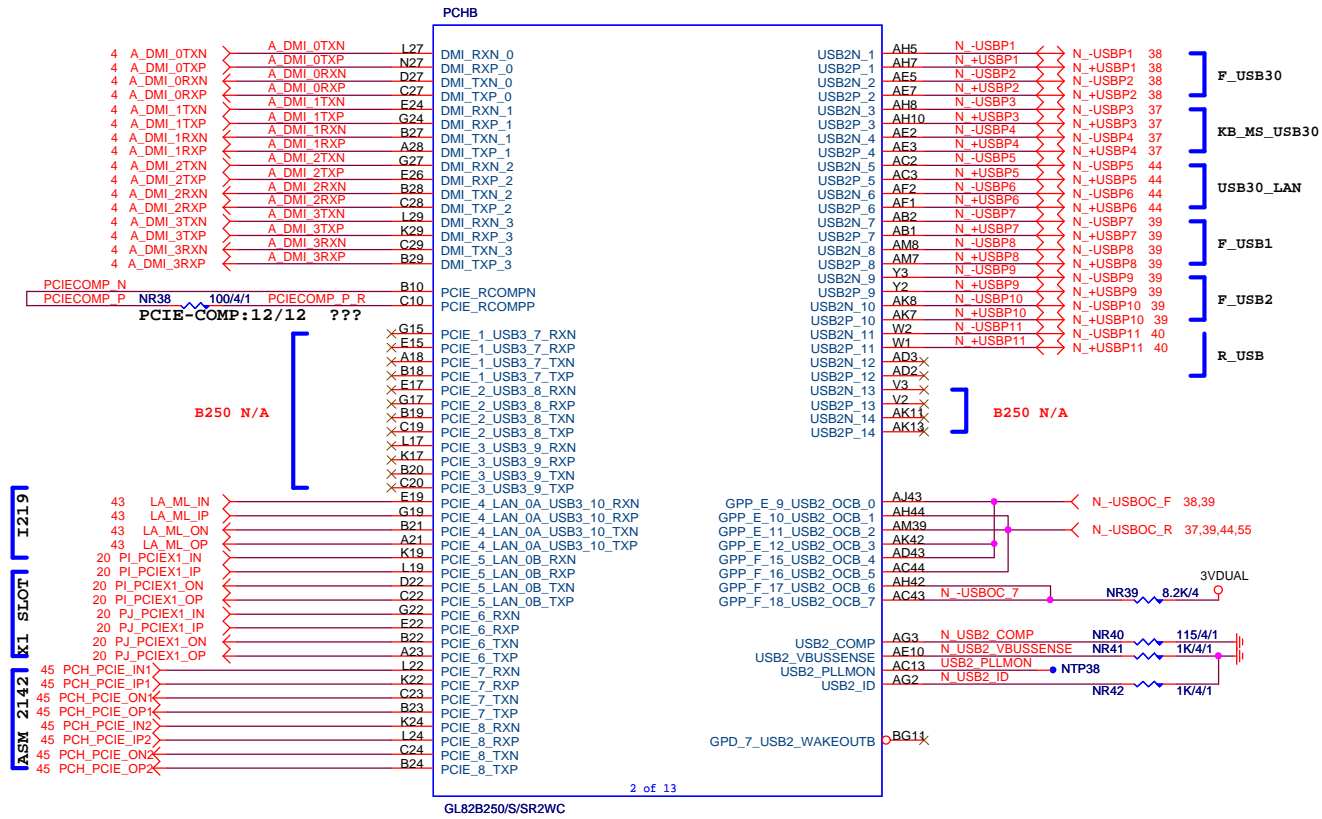
VCCORE_VCC_SEN 21
VCCORE_VSS_SEN 21

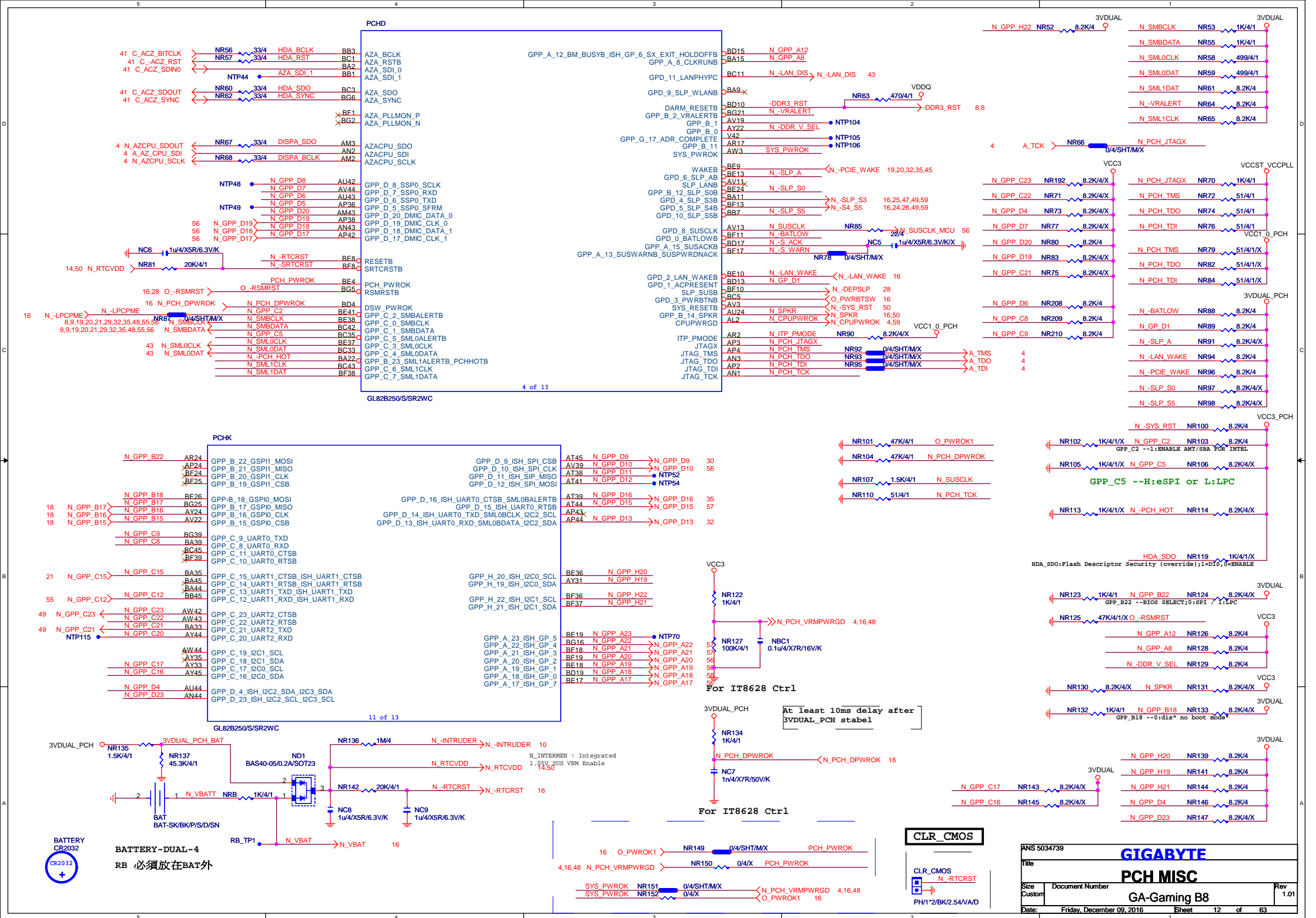
* 刪 Vcore 電容

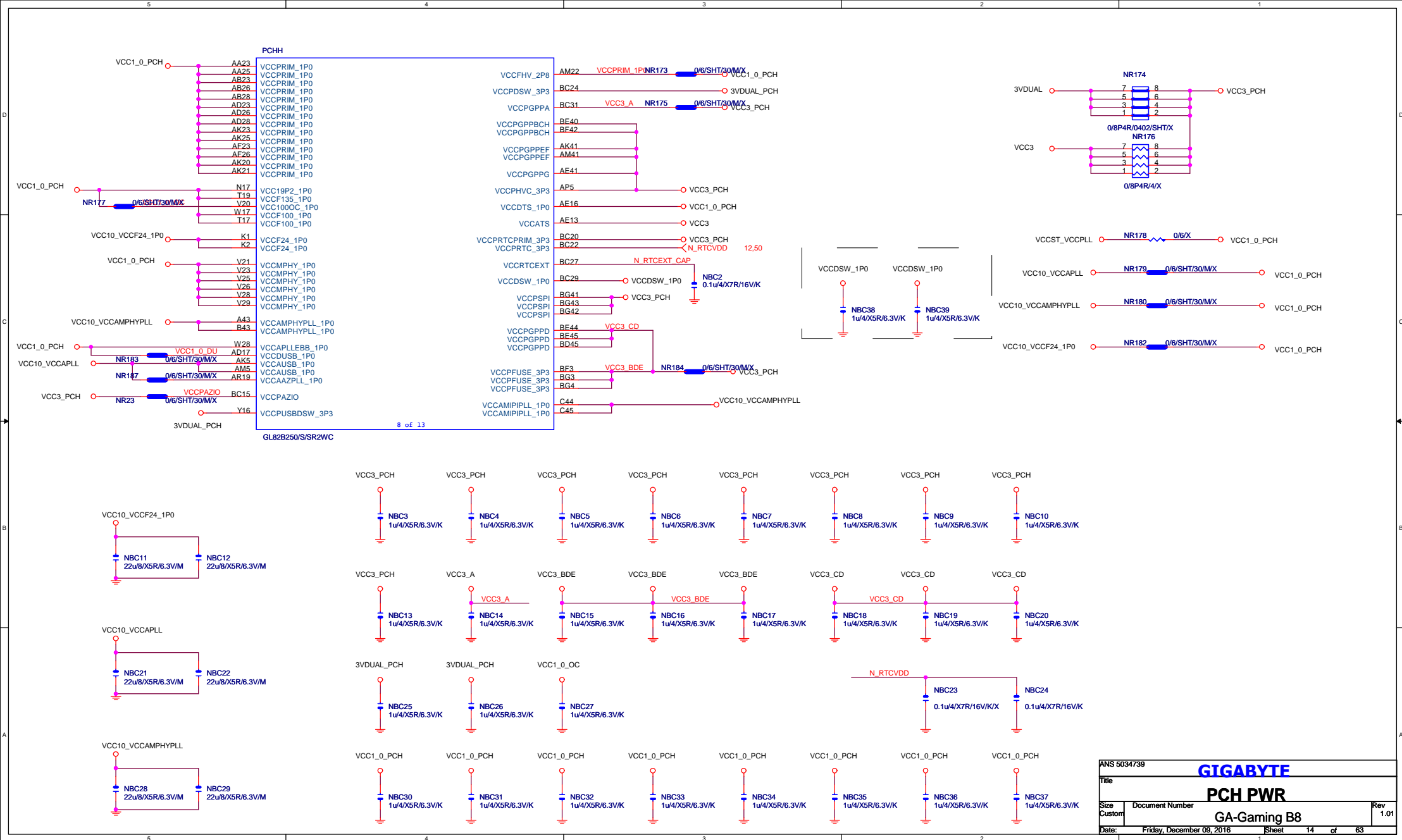


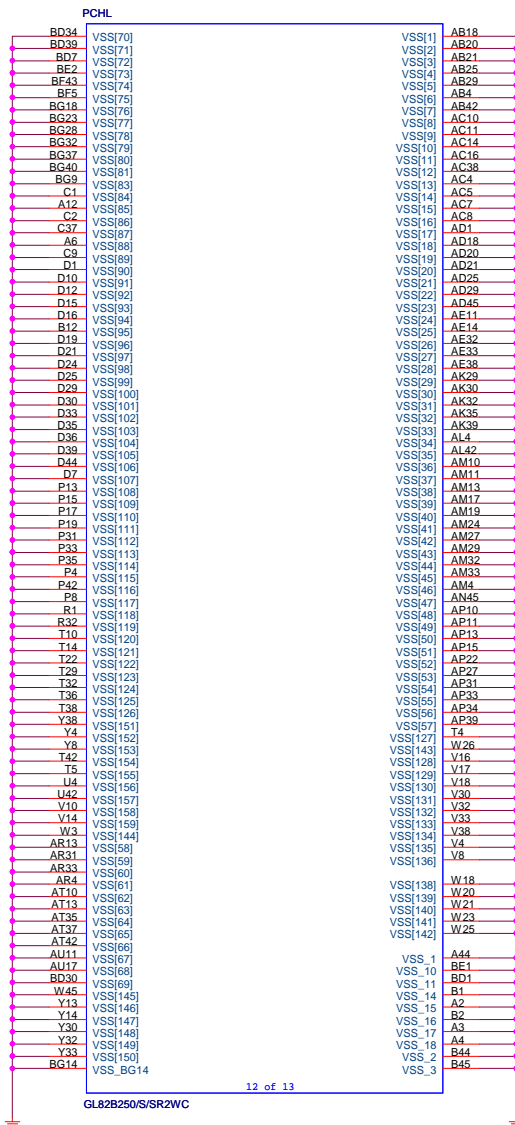
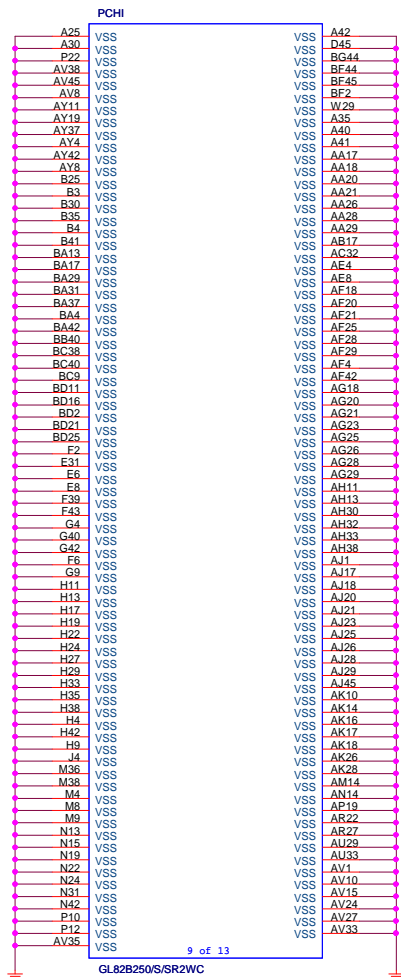




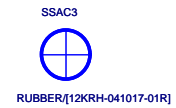
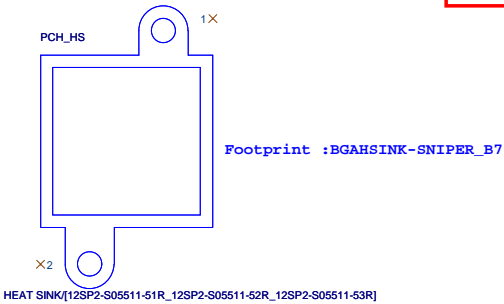
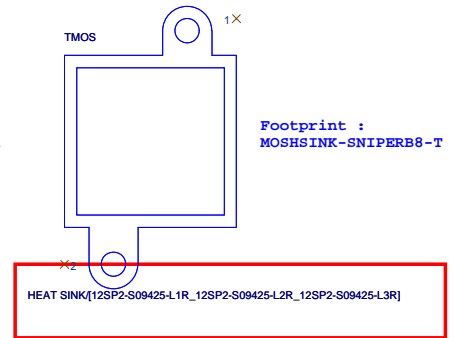
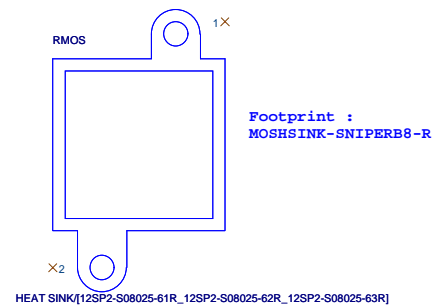






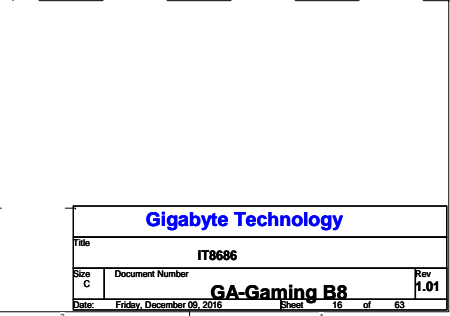


装甲HEATSINK 分成四大部份



Footprint :
Z270X-AUDIO_COVER

ANS 5034739			GIGABYTE	
Title			PCH GND	
Size			GA-Gaming B8	
Custom	Document Number			Rev 1.01
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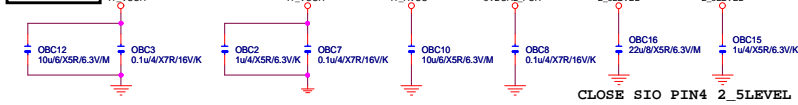


FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

DUAL BIOS OPT STRAP



SIO CAP	IT VCCH
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SIO_18V



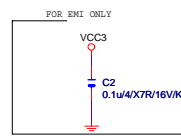
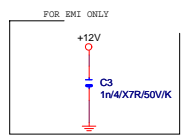
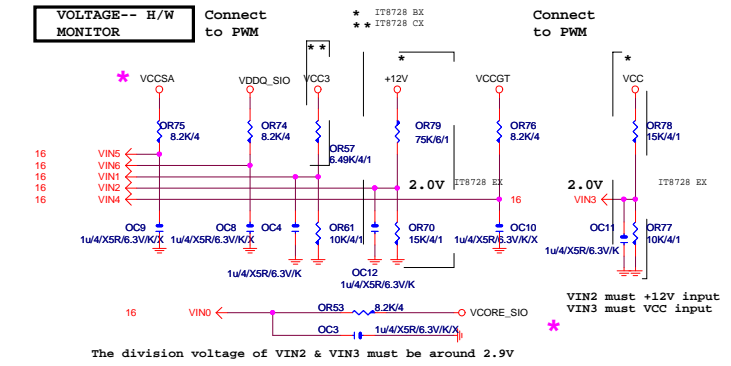
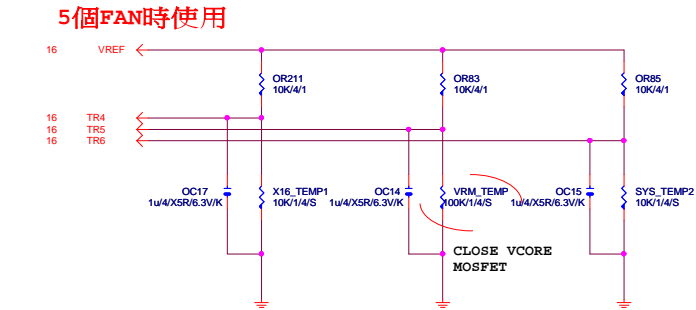
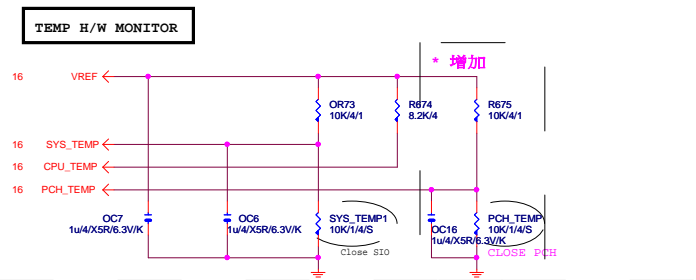
Placement CPU

4 A_-THRMTRIP ← WR10 1K/41 N_-THRMTRIP

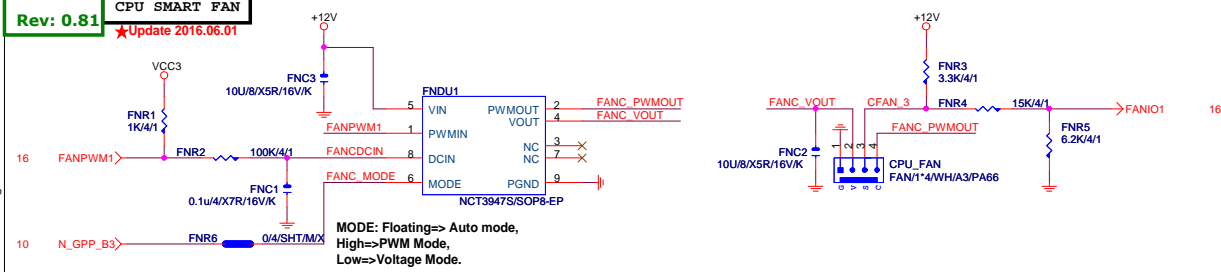
CPU 端 A_-THRMTRIP不可與PCH及SIO N_-THRMTRIP直接連接。
否則會出現無法拉LOW情況。

MB ID

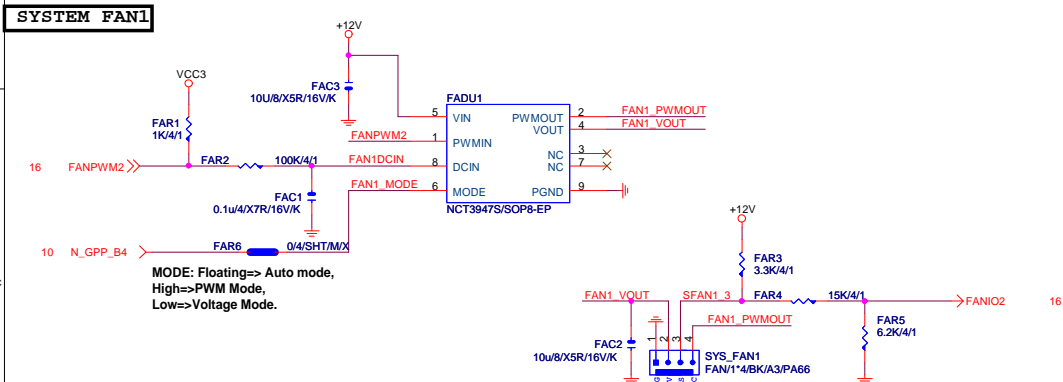




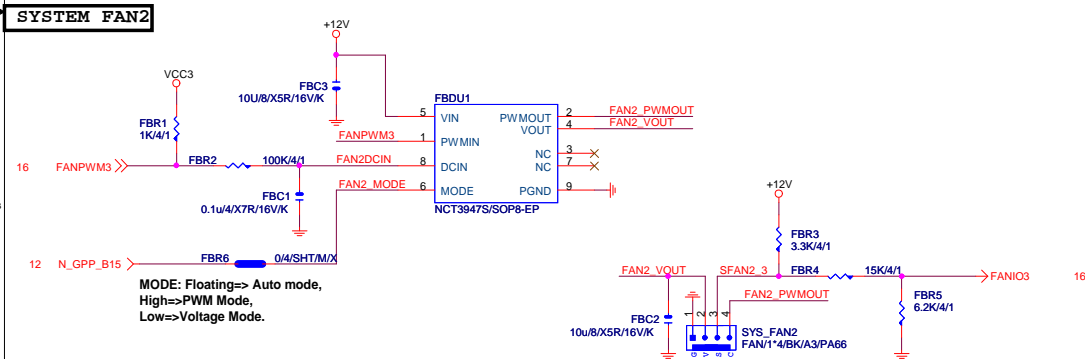
★Update 2015-04.24



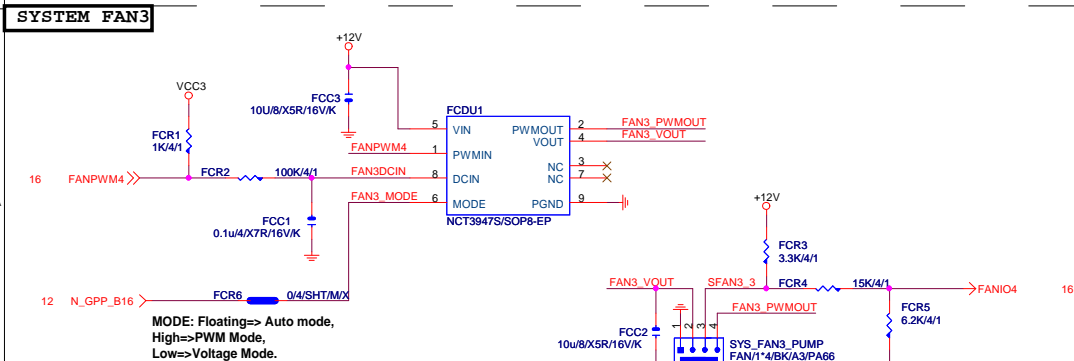
SYSTEM FAN1



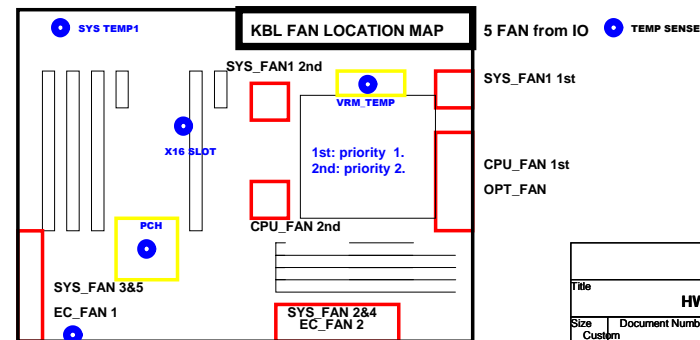
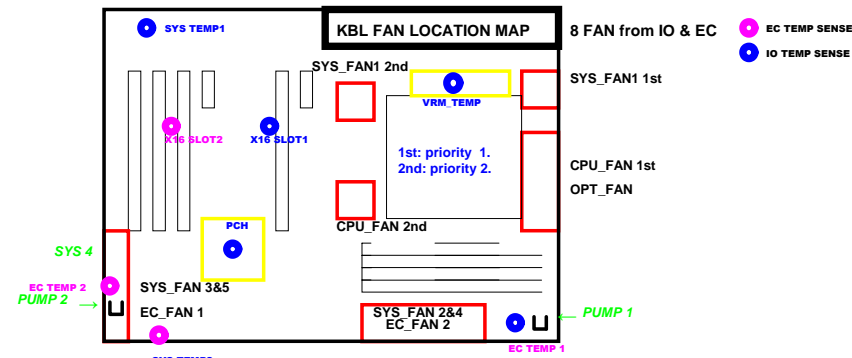
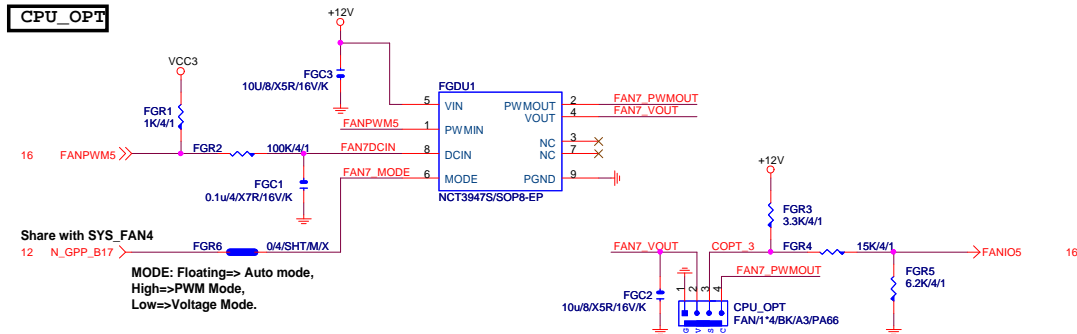
SYSTEM FAN2



SYSTEM FAN3



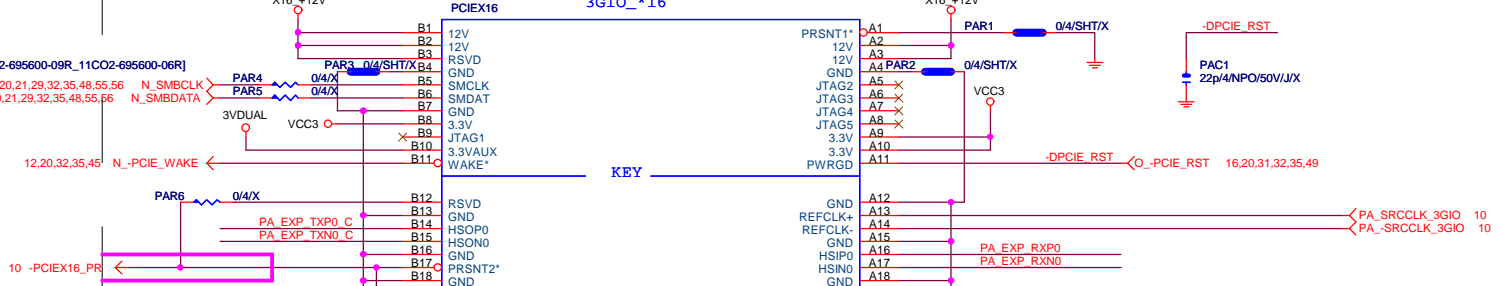
CPU_OPT



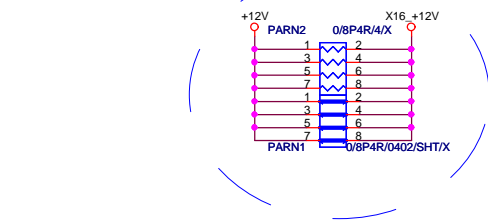
PCIEX16 CAP

PCIEX16 SLOT

3GIO_*16



```
+12  protect
short-wire test
```



PA EXP TXP0	PAC5	0.22u4/X5R6/6.3VK	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R6/6.3VK	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R6/6.3VK	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R6/6.3VK	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R6/6.3VK	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R6/6.3VK	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R6/6.3VK	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R6/6.3VK	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R6/6.3VK	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R6/6.3VK	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R6/6.3VK	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R6/6.3VK	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R6/6.3VK	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R6/6.3VK	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R6/6.3VK	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22u4/X5R6/6.3VK	PA EXP TXN7 C
PA EXP TXP8	PAC21	0.22u4/X5R6/6.3VK	PA EXP TXP8 C
PA EXP TXN8	PAC20	0.22u4/X5R6/6.3VK	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R6/6.3VK	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R6/6.3VK	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R6/6.3VK	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R6/6.3VK	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R6/6.3VK	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R6/6.3VK	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R6/6.3VK	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R6/6.3VK	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R6/6.3VK	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R6/6.3VK	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R6/6.3VK	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R6/6.3VK	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R6/6.3VK	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R6/6.3VK	PA EXP TXN15 C

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

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

PCE-E X1(單向) BANDWIDTH=5GHz*(8b/10b)=4Gb/s=500MB/s

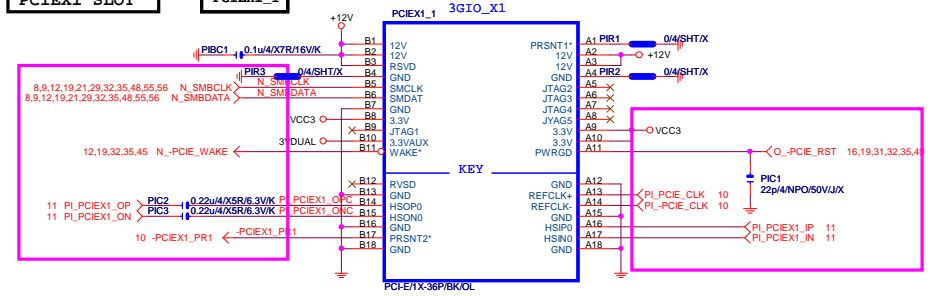
PCE-E X1(單向) BANDWIDTH=8GHz*(128b/130b)=8Gb/s=1GB/s

綠色金屬加強

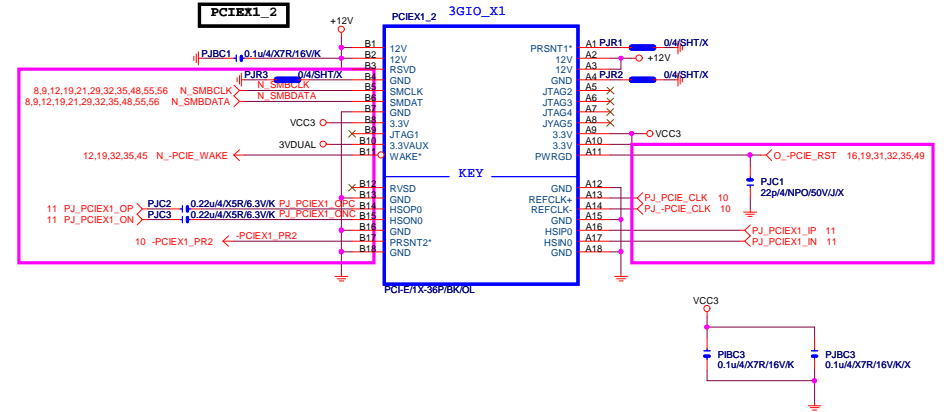
Gigabyte Technology			
Title			
PCI EXPRESS * 16			
Size Custom	Document Number	GA-Gaming B8	
		Rev 1.0	
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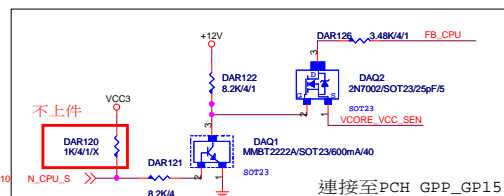
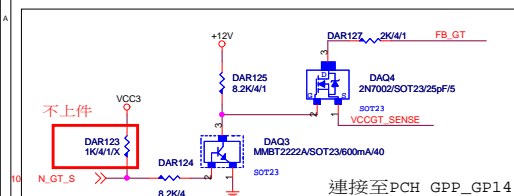
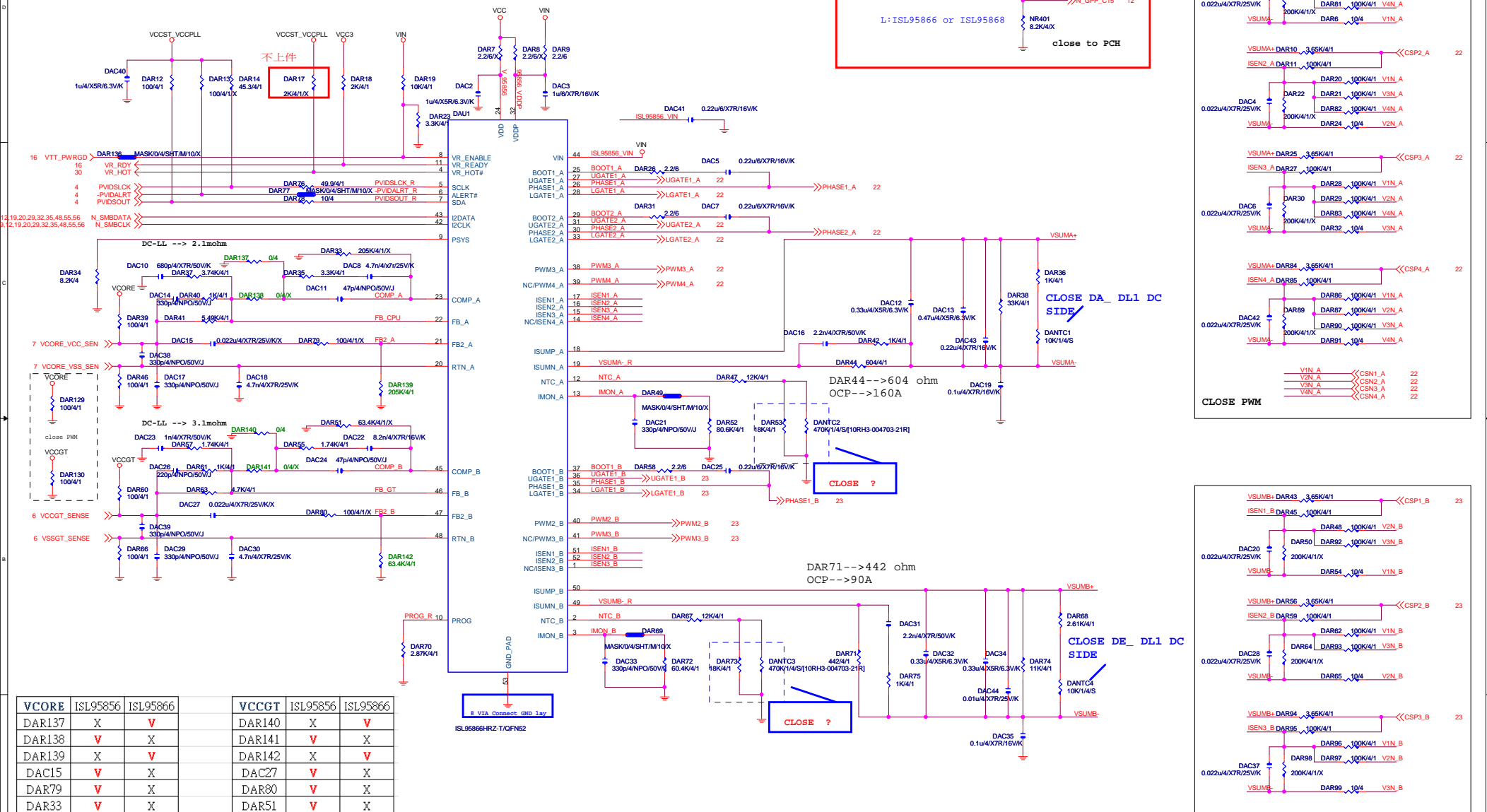
PCIE1 SLOT

PCIE1_1

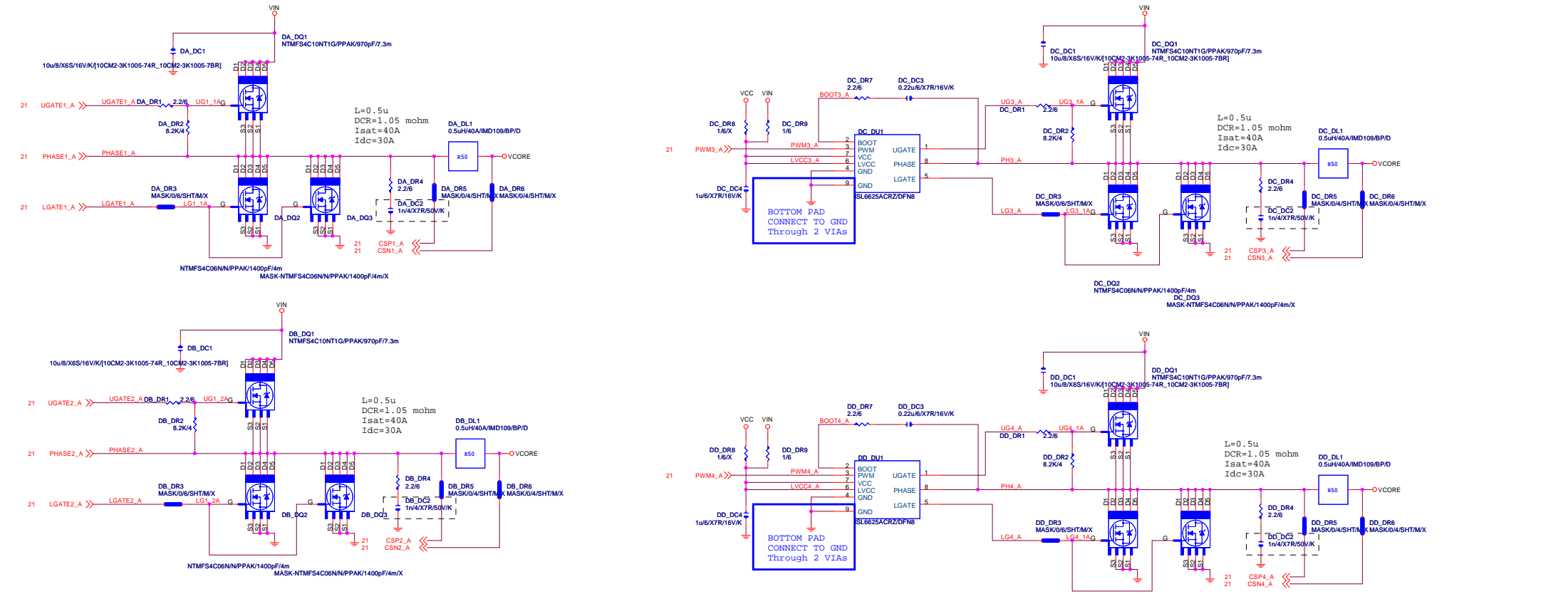


PCIE1_2

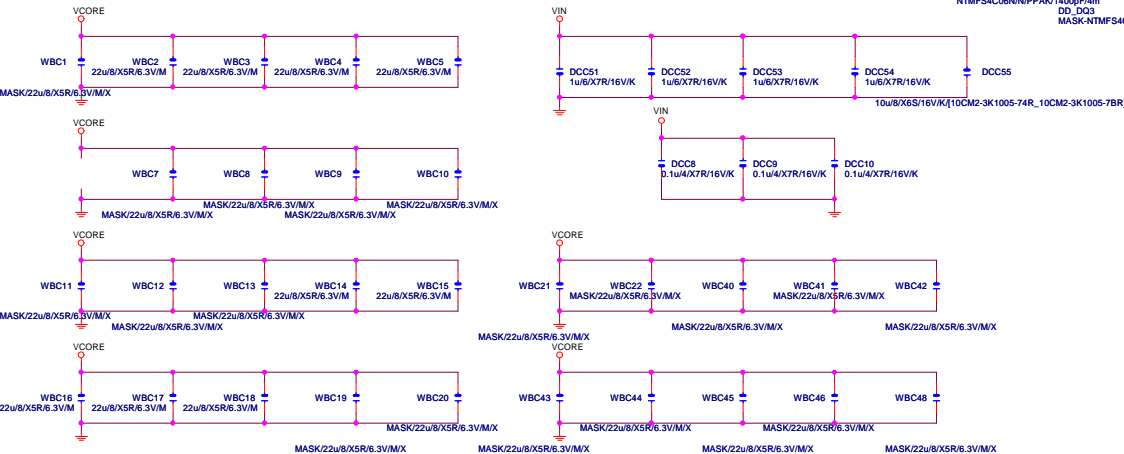
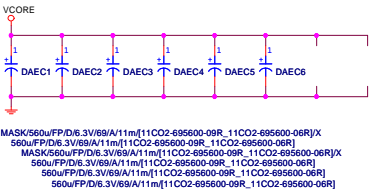




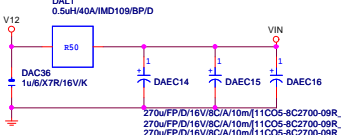
VCORE



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



VIN CAP 270u*3PCS



File
ISL95866 MOS

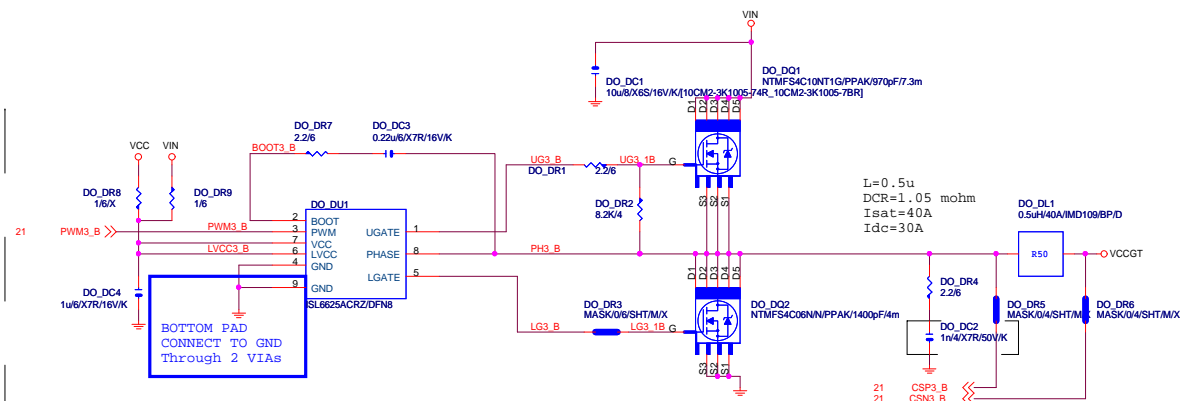
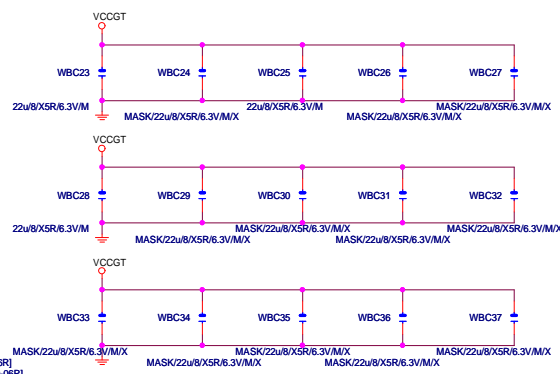
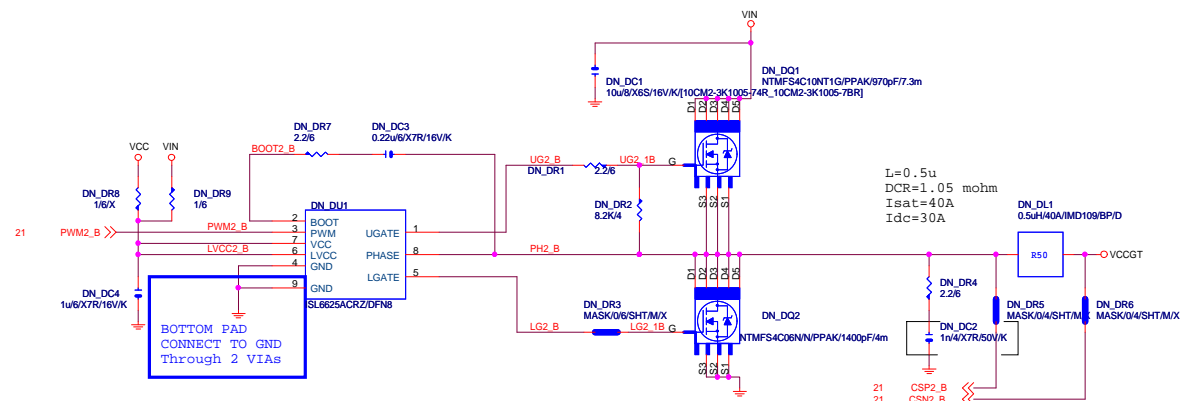
Size
Custom

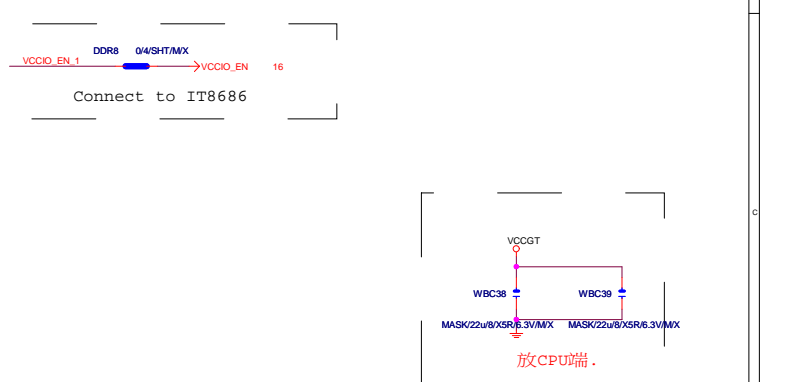
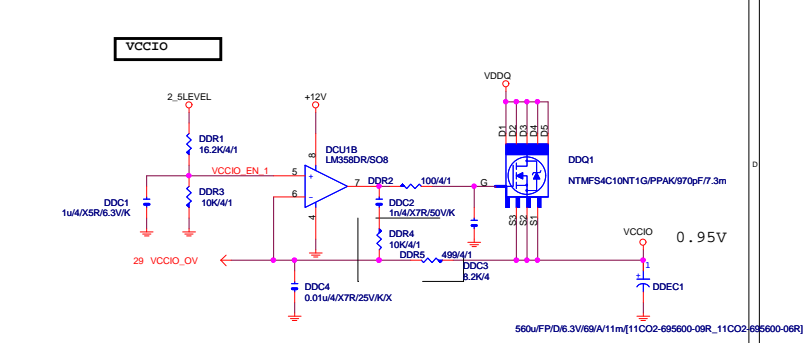
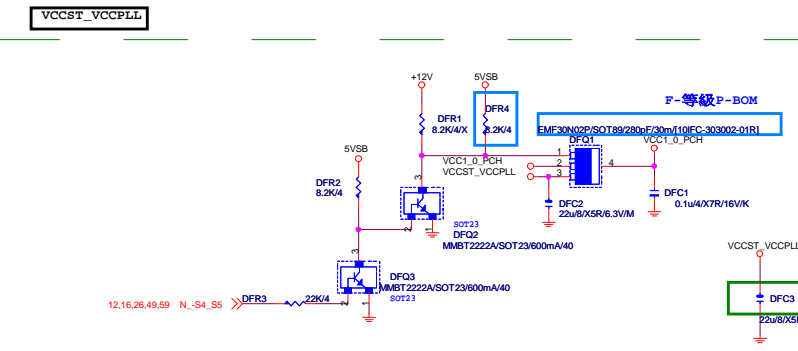
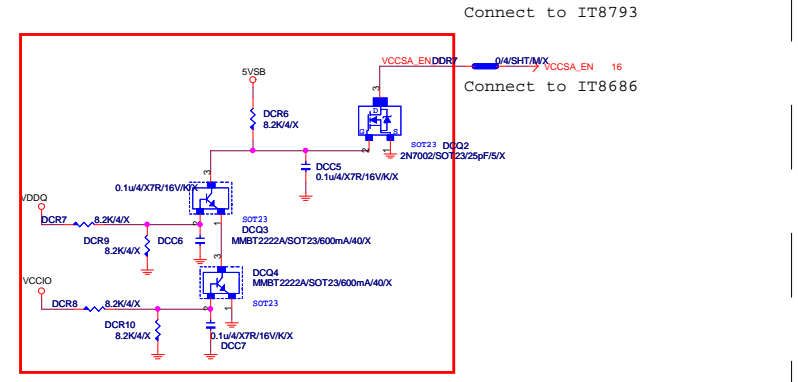
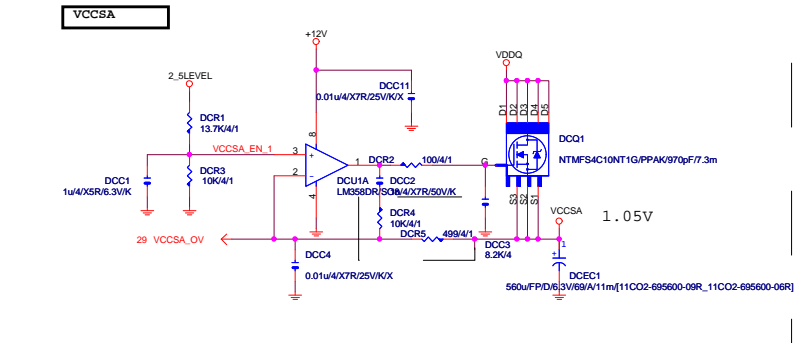
Date: Friday, December 09, 2016

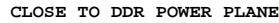
Document Number
GA-Gaming B8

Rev
1.01

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For power sequence require

1.1A MAX

* 大電容 x4

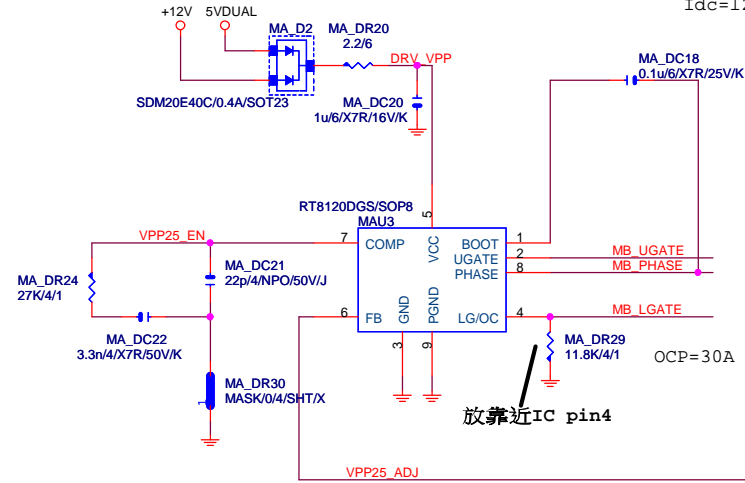
* 大電容 x0

			
Title			
RT8120_DDR4 POWER			
Size	Document Number		Rev
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Date:	Friday, December 09, 2016	Sheet	25 of 63

REV:0.2

VPP_25V

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



放靠近IC pin4

OCP=30A

NTTFS4C06NTAG/WDFN8/3366pF/4.2m

DDR_VPP VIN CAP
560u*1PCS

DCR=6.7 mohm
Isat=15A
Idc=12A

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

SUPPORT DDR4 2.5V

25A MAX

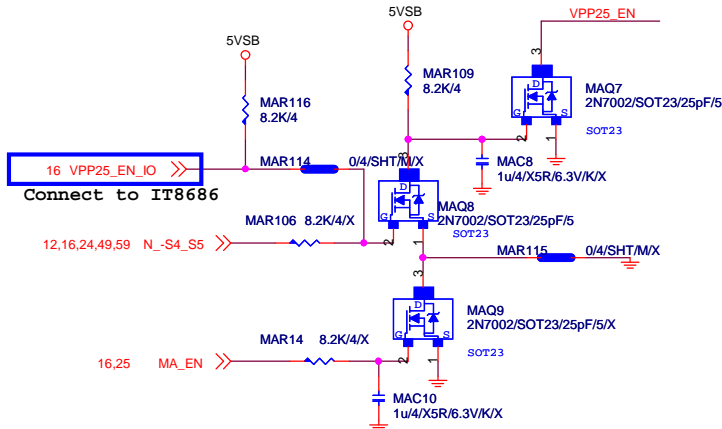
請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

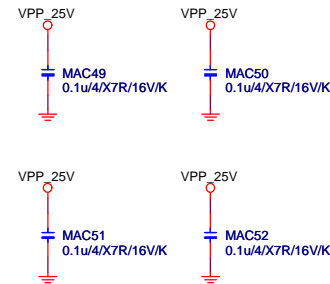
29 VPP25_ADJ ← VPP25_ADJ

PWR SEQ

* 刪 MA_DR32

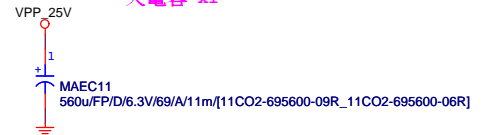


Connect to IT8686



VPP CAP 560u*1PCS

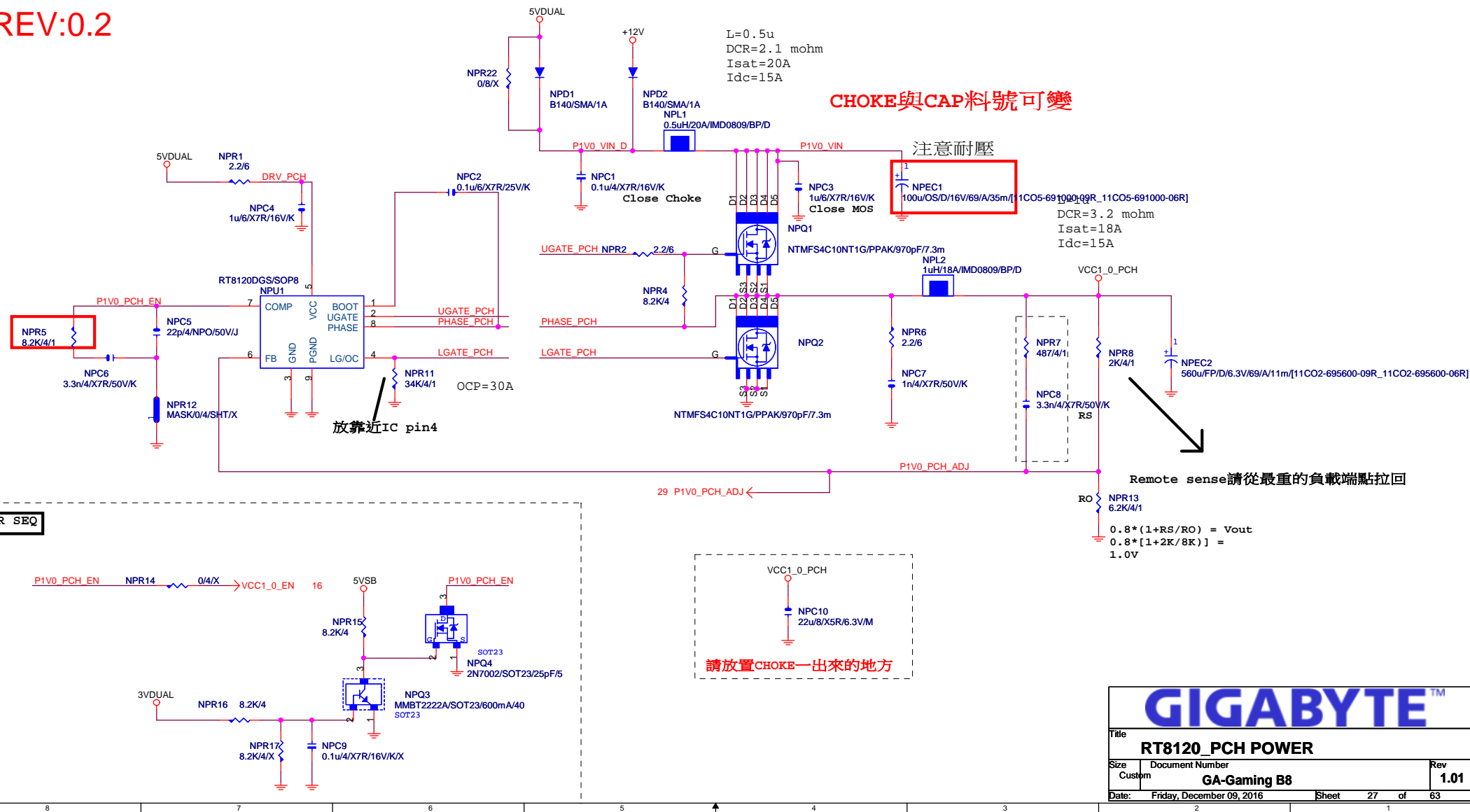
* 大電容 x1



GIGABYTE™

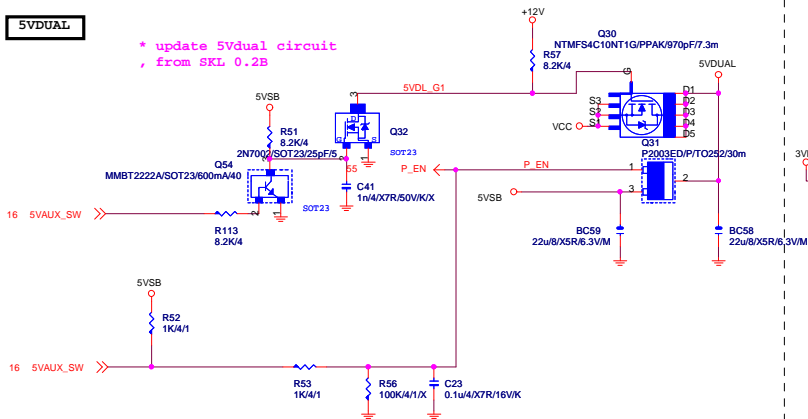
RT8120_VPP25 POWER			
Title			
Size	Document Number	Rev	
Custom	GA-Gaming B8	1.01	
Date:	Friday, December 09, 2016	Sheet	26 of 63

REV:0.2

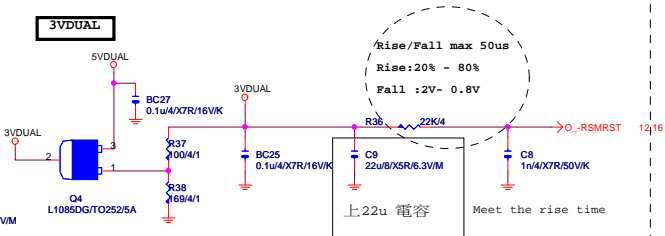


5VDUAL

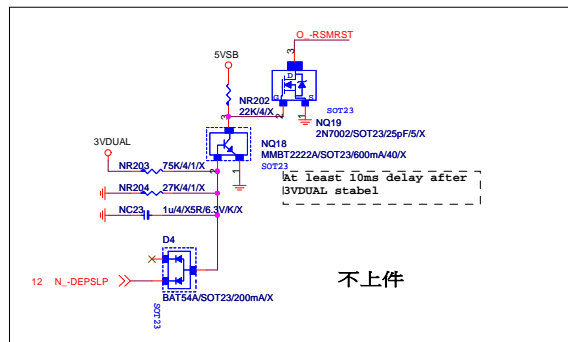
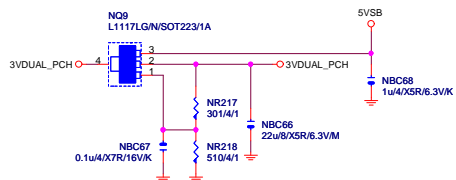
* update 5Vdual circuit
from SKL 0.2B



3VDUAL



3VDUAL_PCH

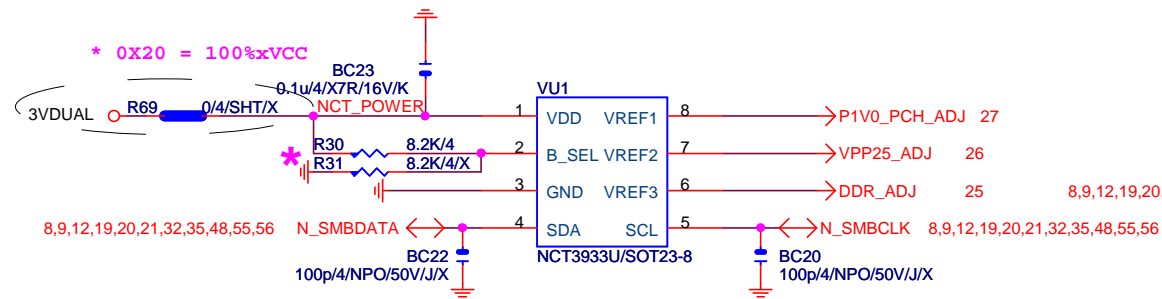


不上件

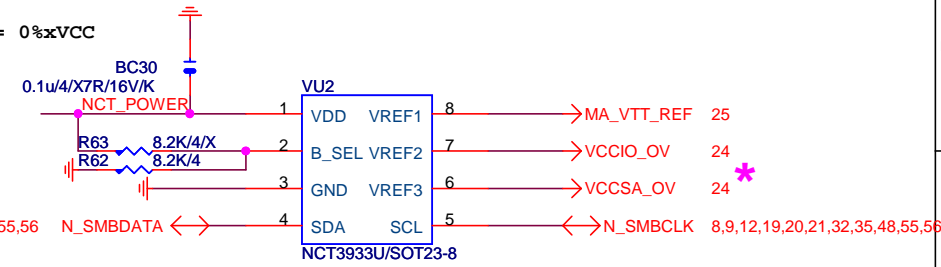
Gigabyte Technology

File			
DISCRETE POWER			
Size	Document Number	Rev	
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OVER VOLTAGE



0X2A = 0%xVCC



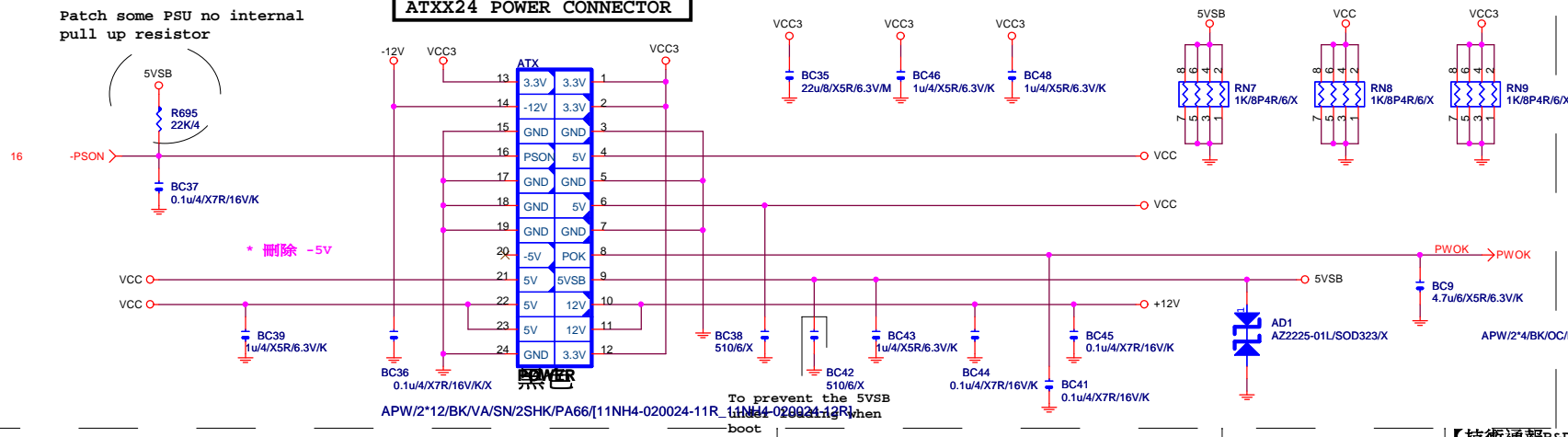
0X22 = 75%xVCC

* 删除 ovu3

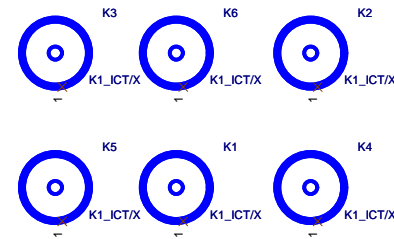
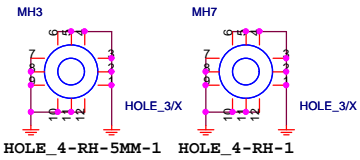
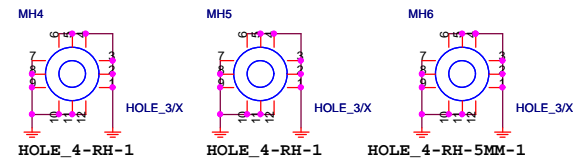
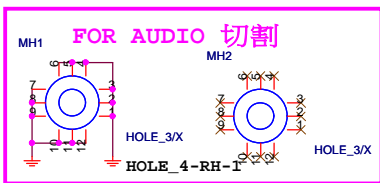
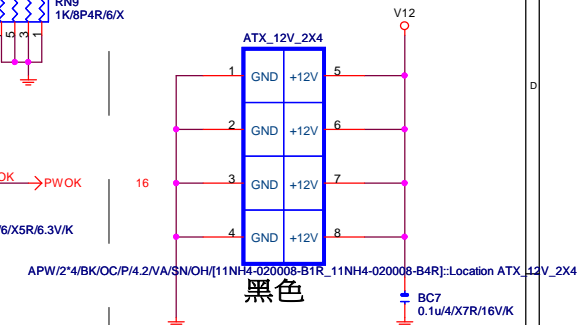
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology		
CPU CORE VR-2		
Size Custom	Document Number	Rev
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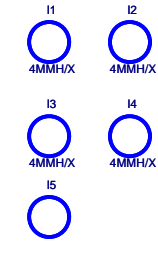
ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

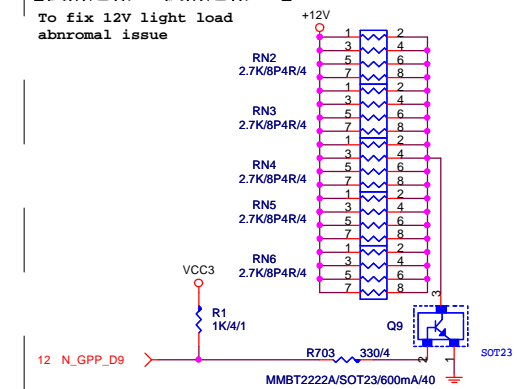


K1-ICT



4MMH

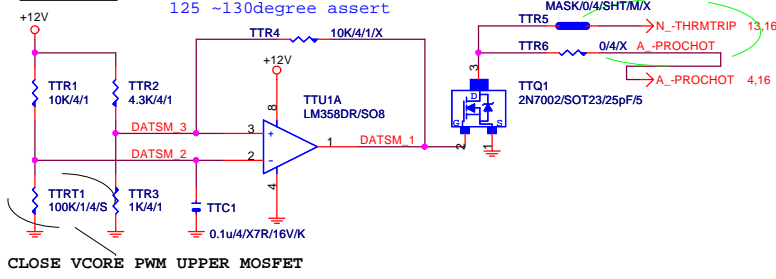
【技術通報R&D技術通報153】
To fix 12V light load abnormal issue



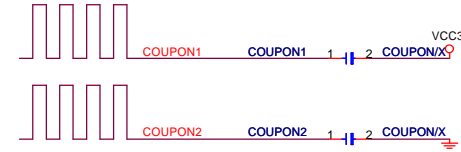
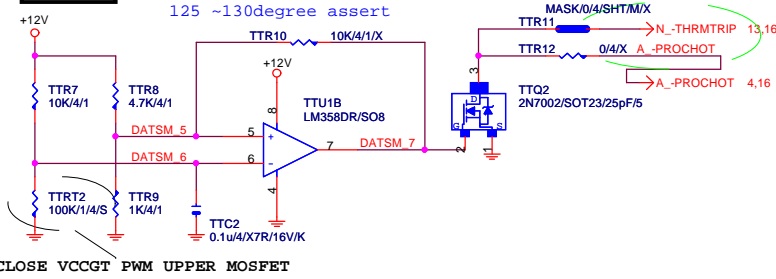
-PROHOT * 保留 ?



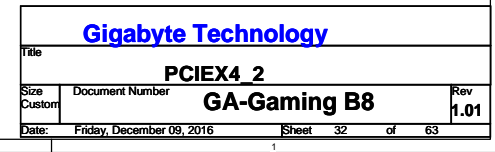
-PROHOT



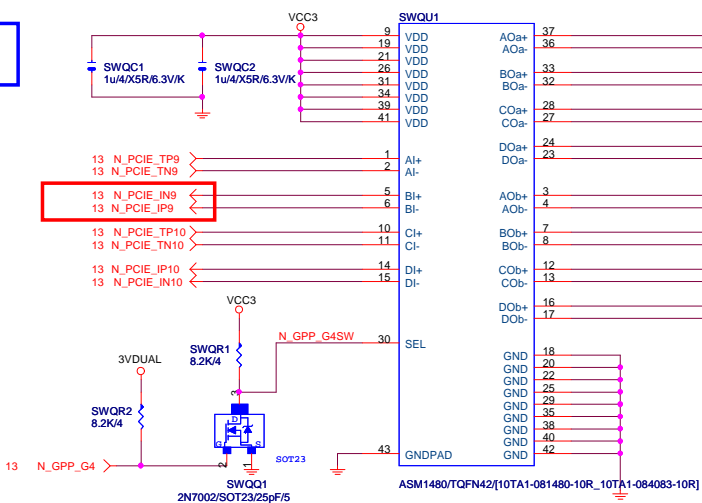
-PROHOT



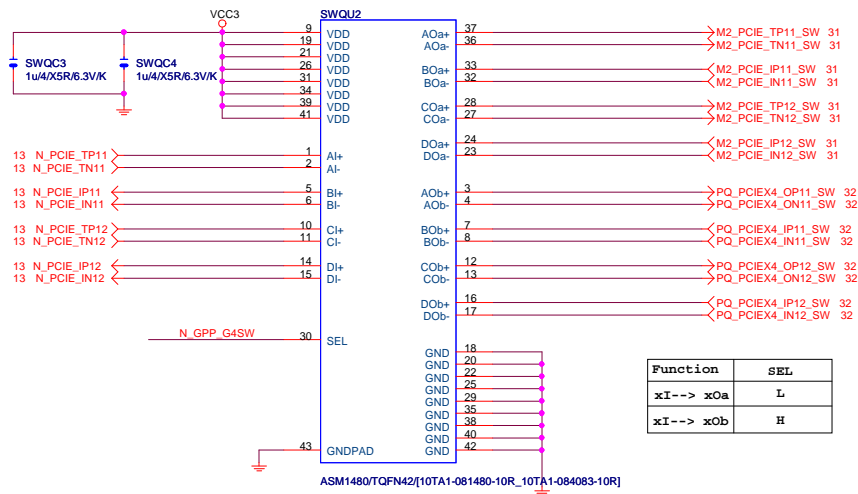
Gigabyte Technology			
Title			
ATX POWER CONNECTOR			
Size			
Custom	Document Number	GA-Gaming B8	
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			Rev 1.01



Rev 0.1



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

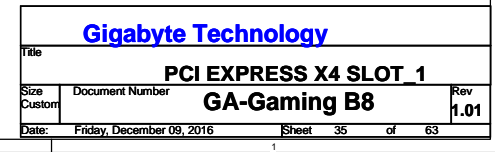


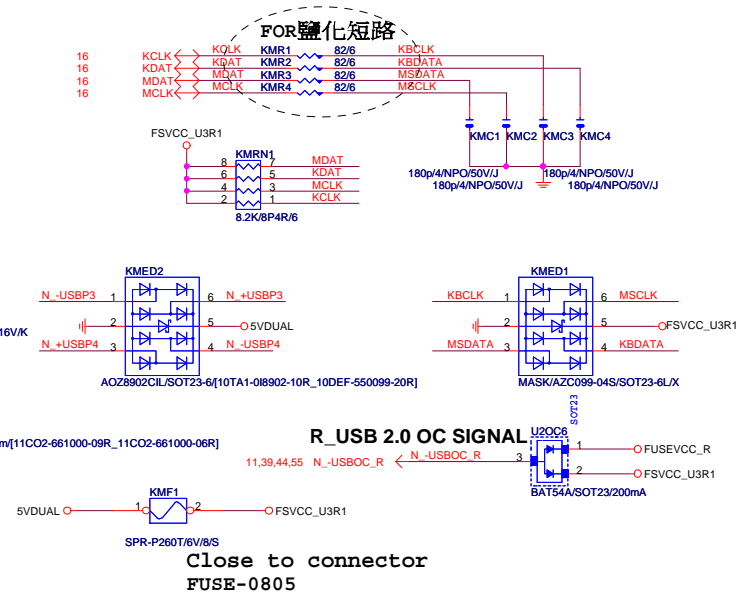
Function	SEL
xI--> xOa	L
xI--> xOb	H

Switch

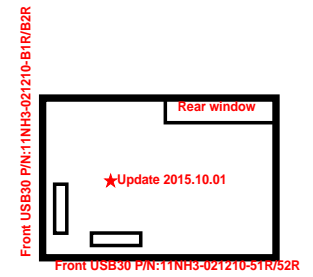
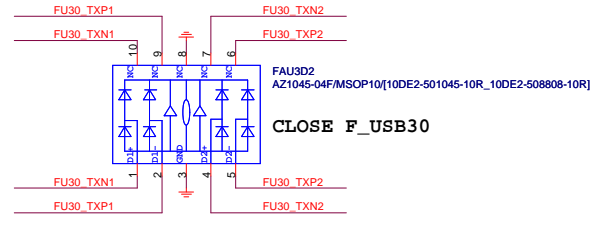
Flex IO priority	N_GPP_G7 (PCH GPP_G7)	N_GPP_D13 (PCH GPP_D13)
M2S_32G Only	L	H
PCIEX4 Only	H	L
M2S_32G First	L	L

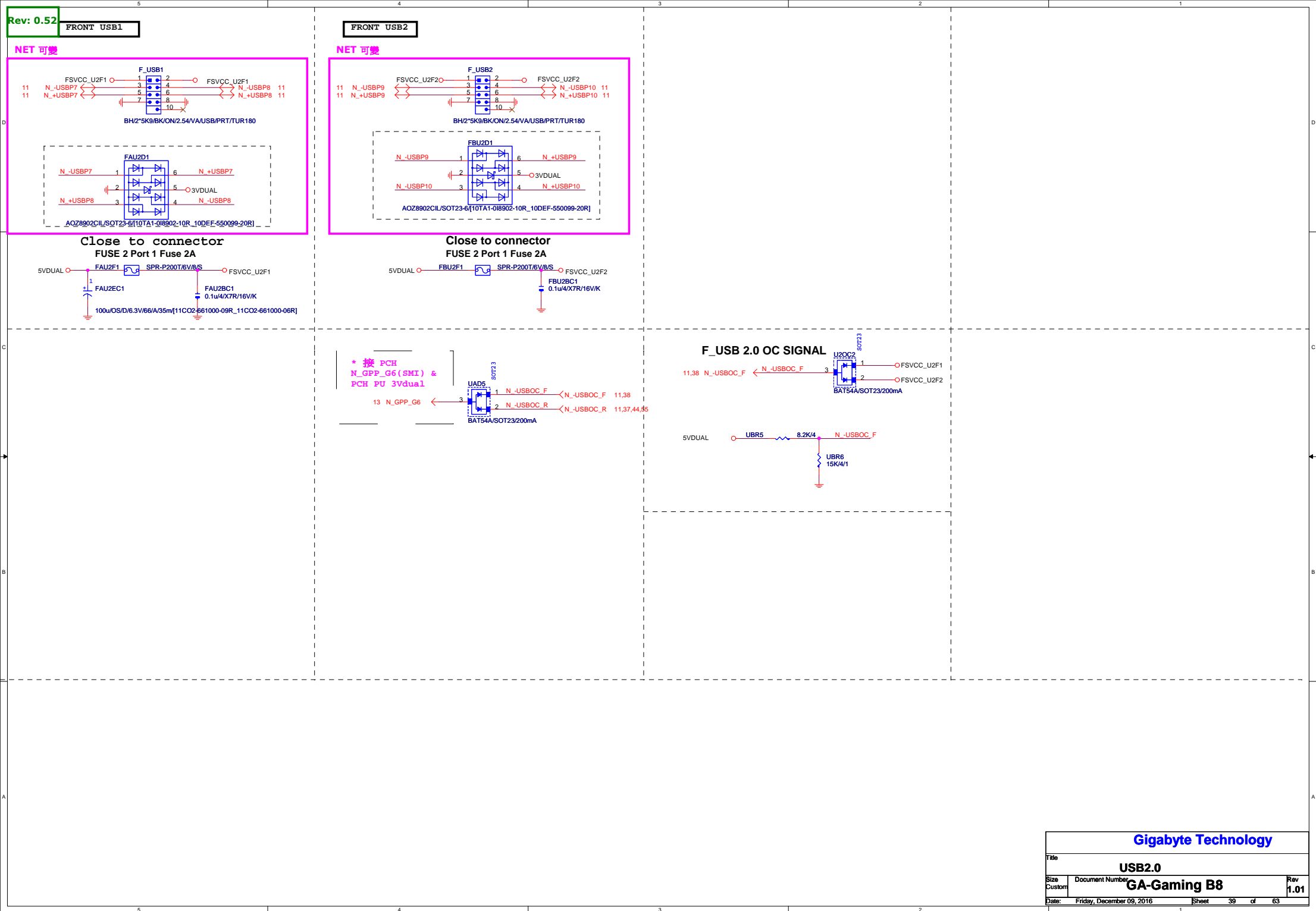
N_GPP_G4 (PCH GPP_G4)
H
L
H





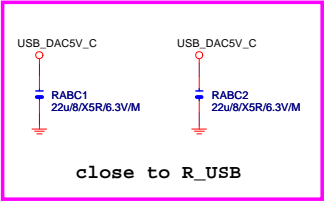
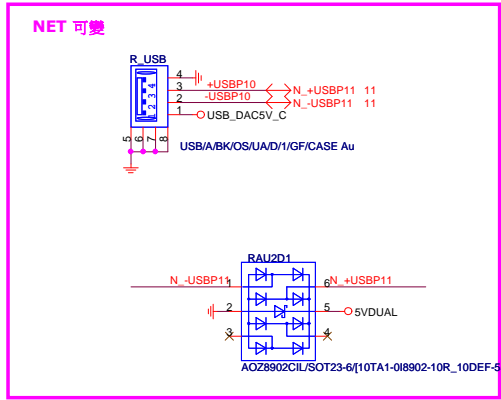
Front USB3.0





Gigabyte Technology

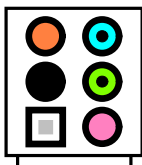
Title				
USB2.0				
Size	Document Number			Rev
Custom	GA-Gaming B8			1.01
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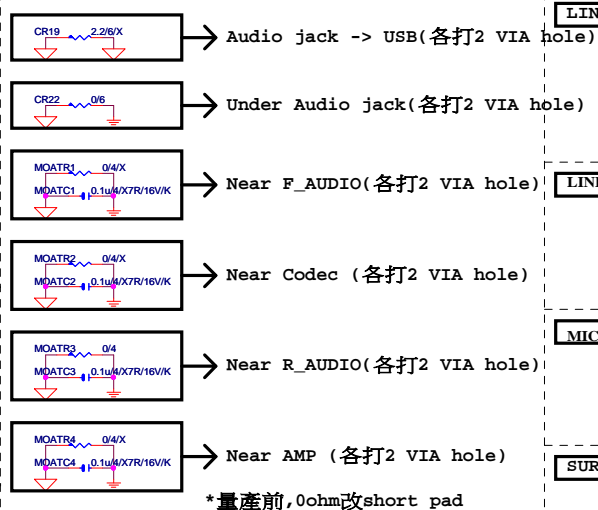
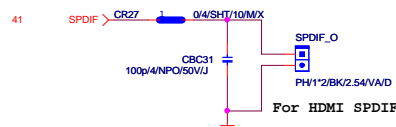
Gigabyte Technology			
Title			
KB_MS_USB3, R_USB30			
Size	Document Number		Rev
Custom	GA-Gaming B8		1.01
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Rev 0.52

AZALIA JACK



SPDIF_OUT



LINE-OUT

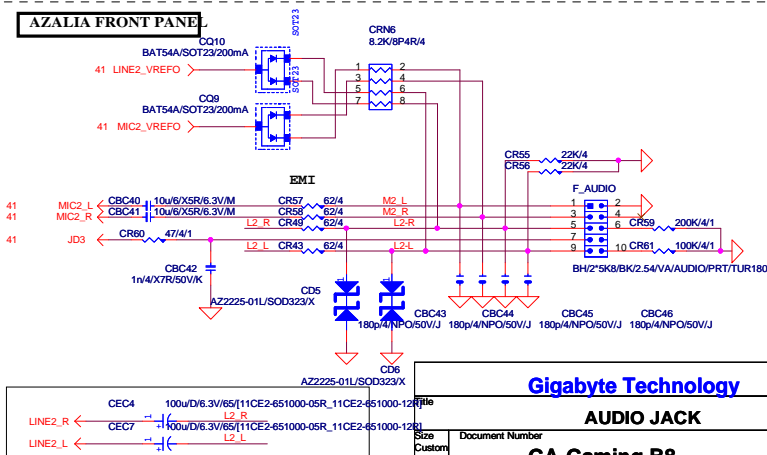
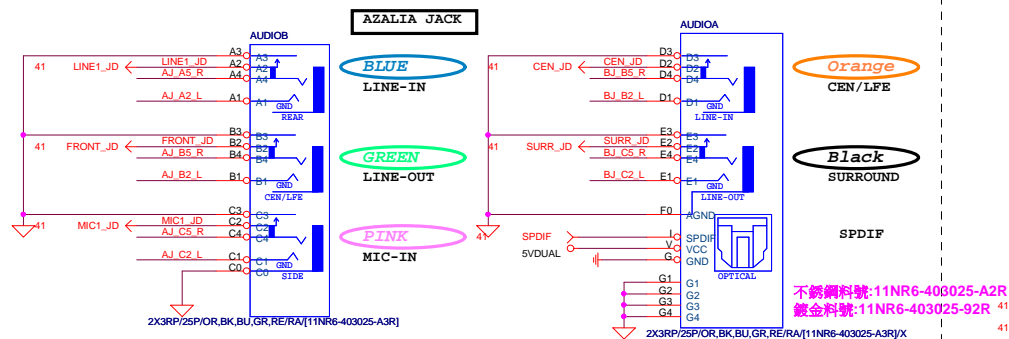
LINE-IN

MIC-IN

SURROUND

CEN/LFE

AZALIA FRONT PANE

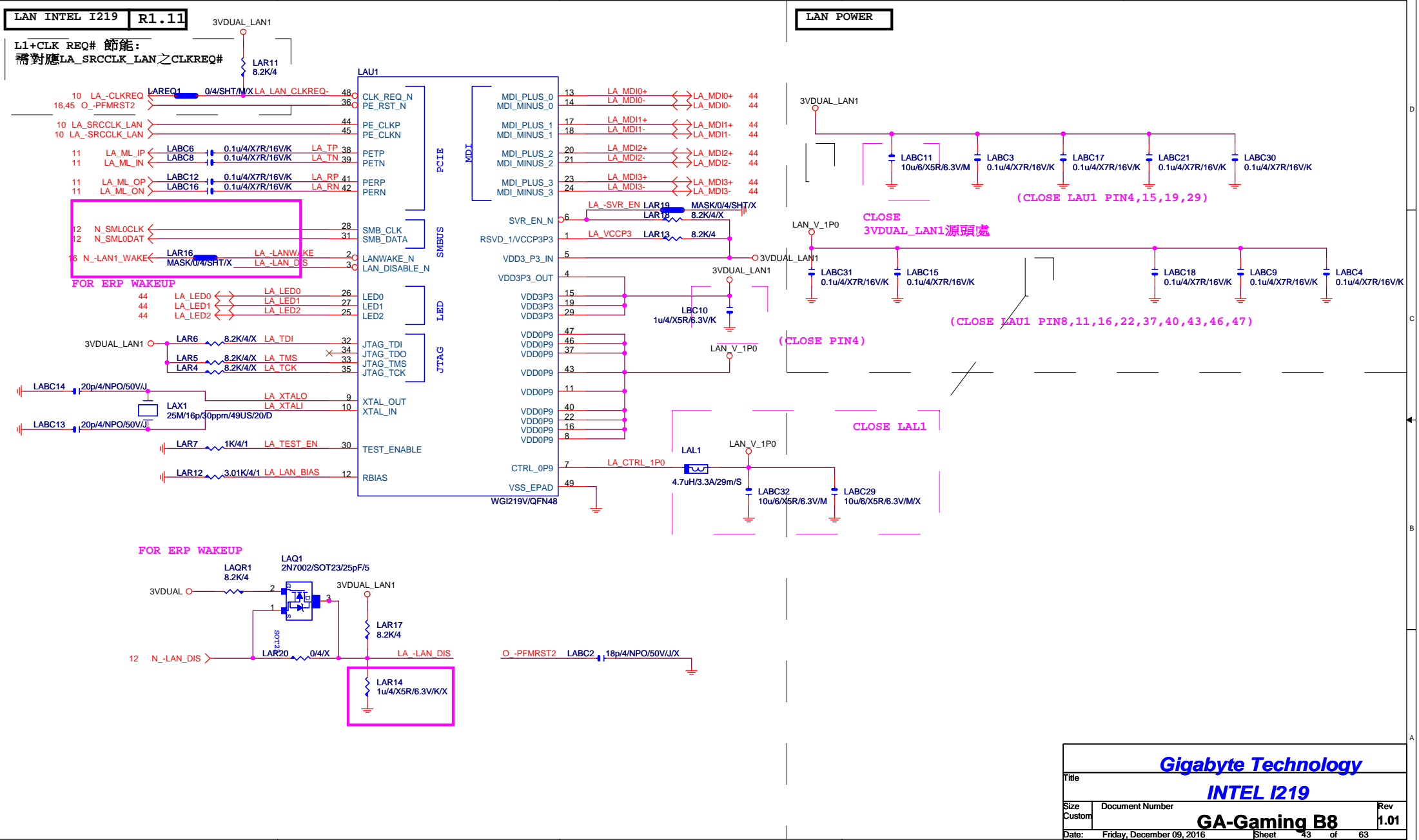


Gigabyte Technology

AUDIO JACK

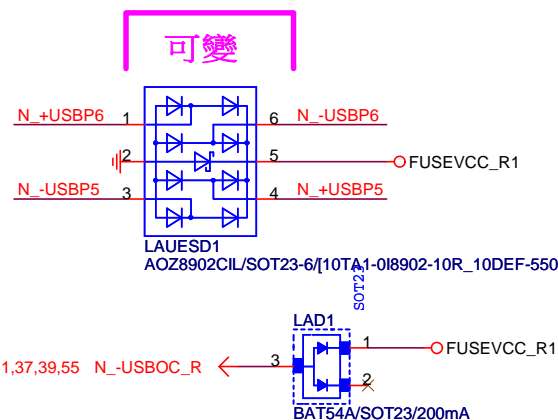
GA-Gaming B8

Rev 1.01

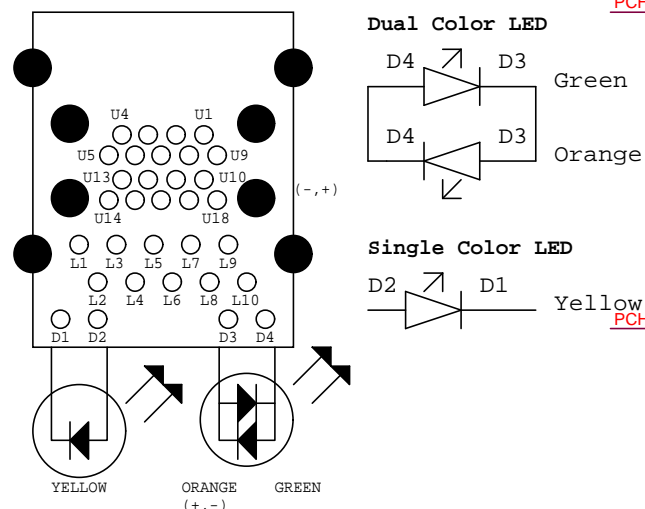


R1.11

note:可變更USB NAME



Dual Color LED



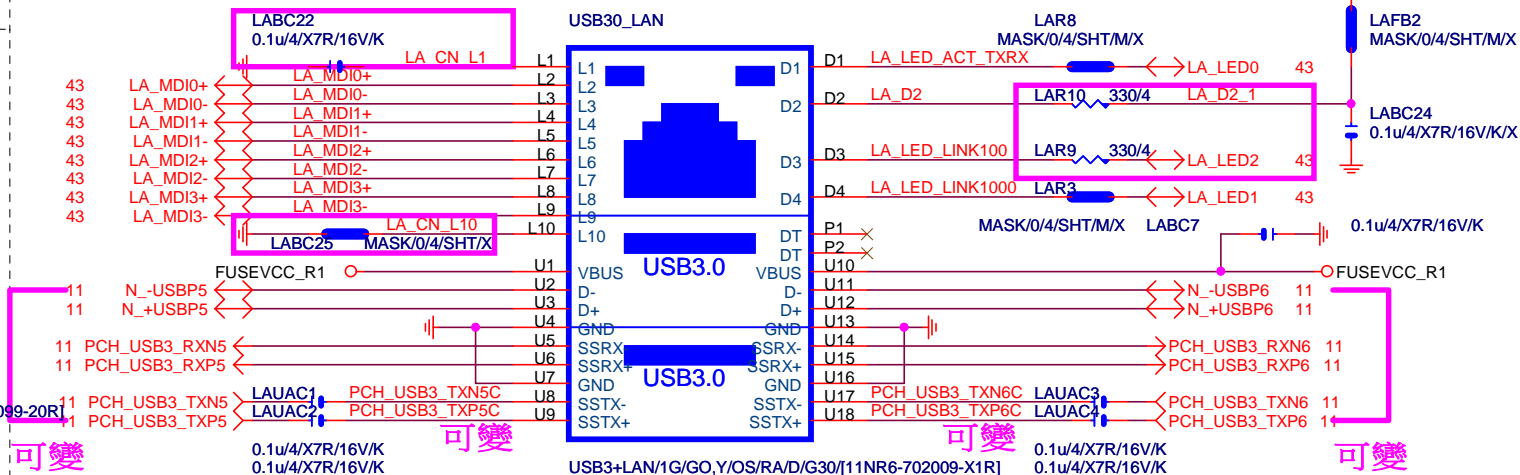
FOOT PRINT:LAN COVER

可變
[視SPEC需求]

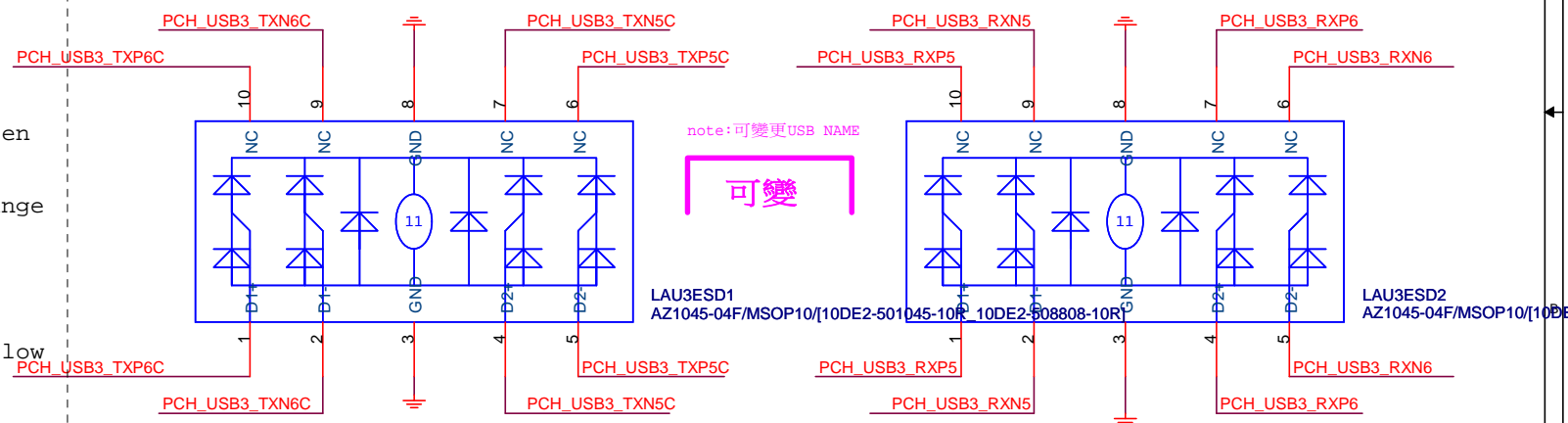
REV:1.0 REMOVE

note:可變更USB NAME

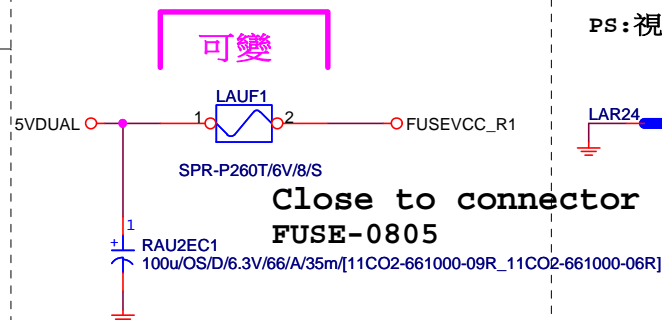
[I219]



LA MDI-->100歐姆:[20/4/8/4/20]



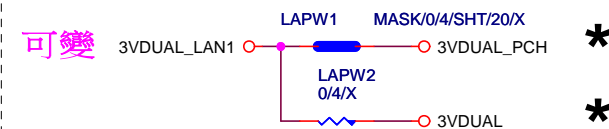
note:可變更FUSE



PS:視EMI需求



note: lan power連接及電流



Gigabyte Technology

LAN CONNECTOR-I219

GA-Gaming B8

Rev	1.01
-----	------

Title

Size

Document Number

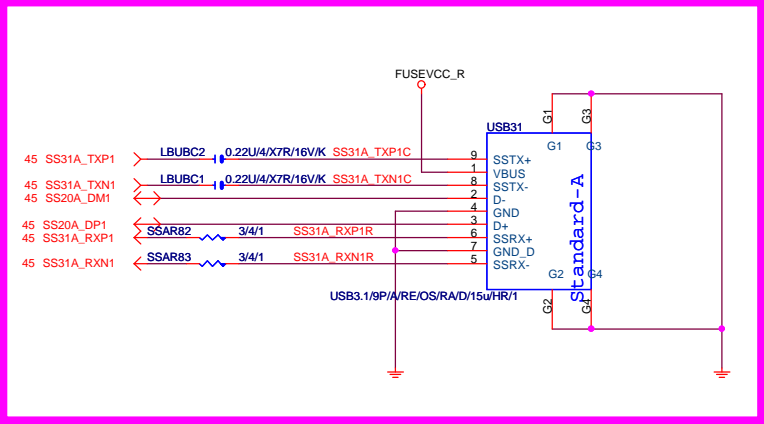
Date: Friday, December 09, 2016

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ASM2142 USB3.1

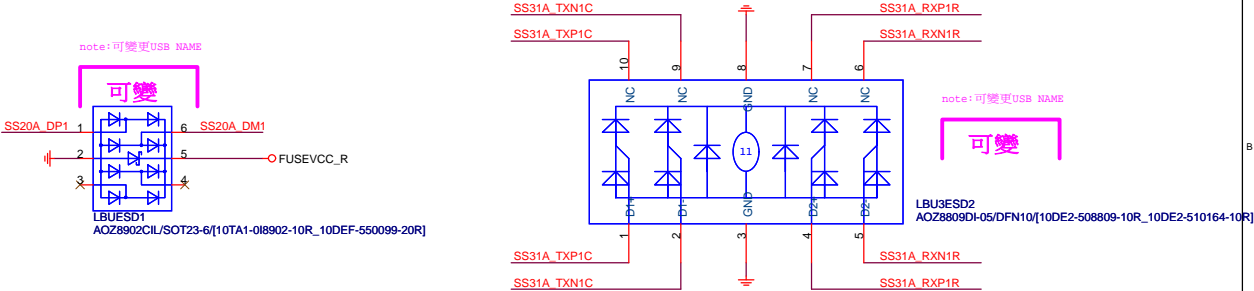
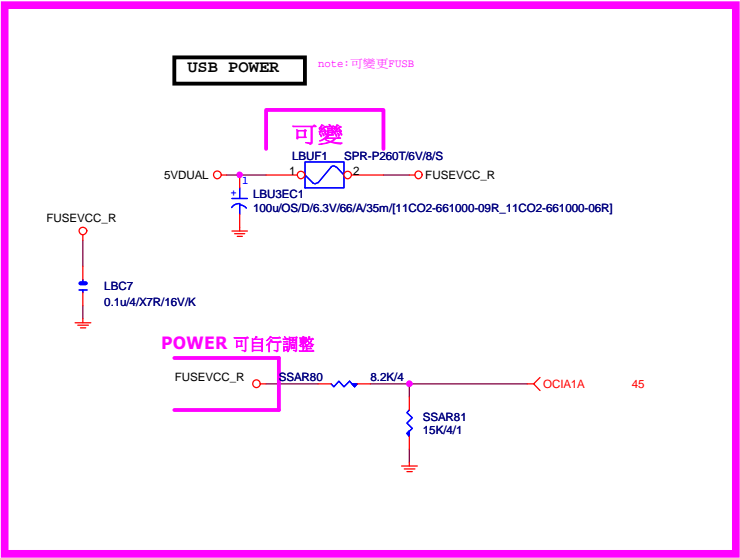
Title			
ASM2142			
Size	Document Number	Rev	
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ASM2142 USB31 Host Rev0.3

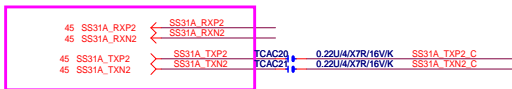


USB31 TYPE A Connector which chooses for project demand

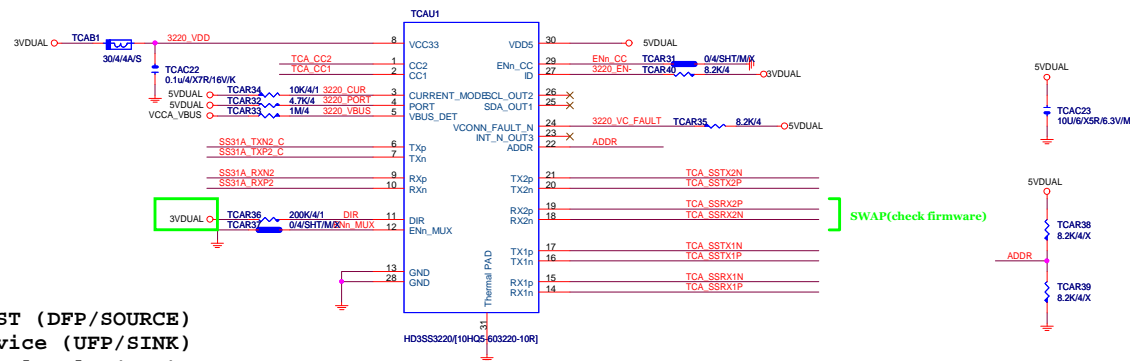
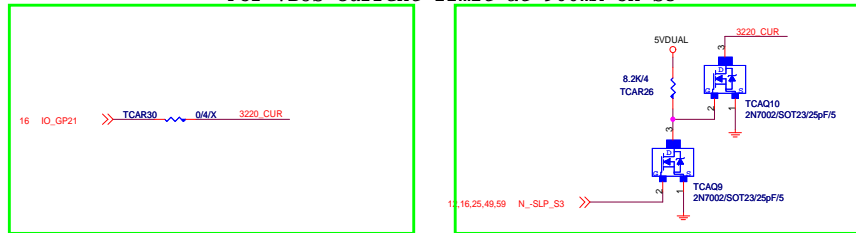
USB 3.1 Red
架高, Lotus.



USB 3.x SuperSpeed



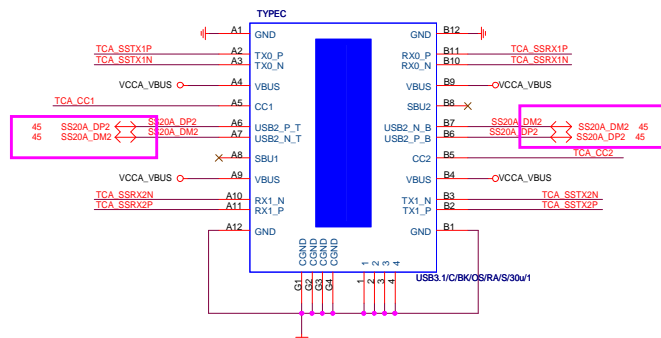
For VBUS current limit at 900mA on S3



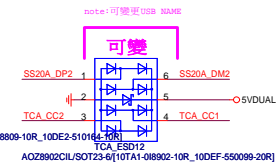
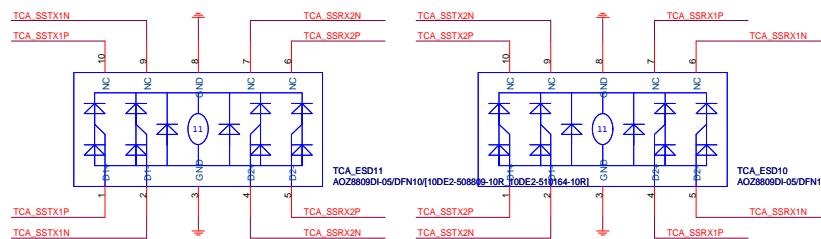
```
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)
```

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

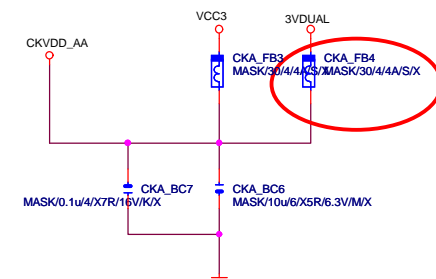
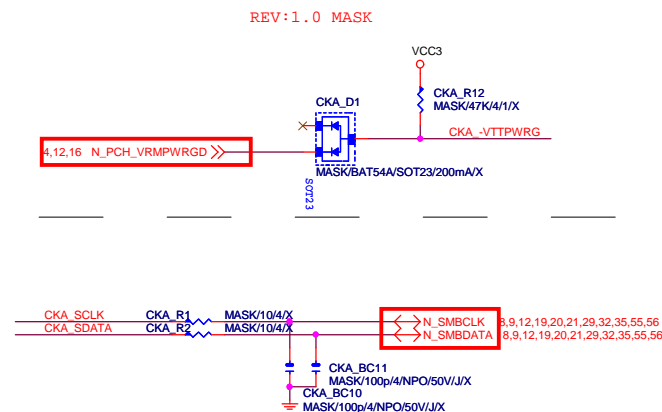
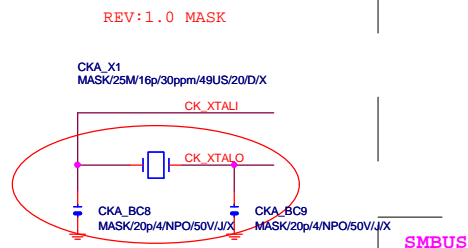
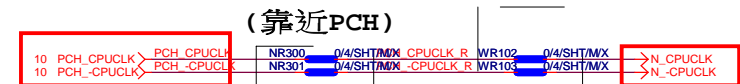
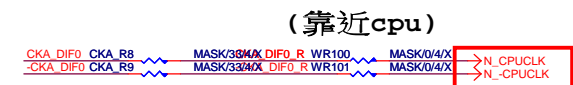
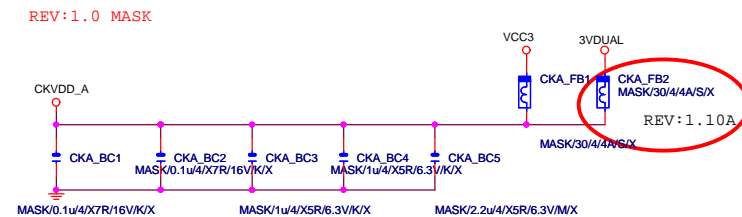
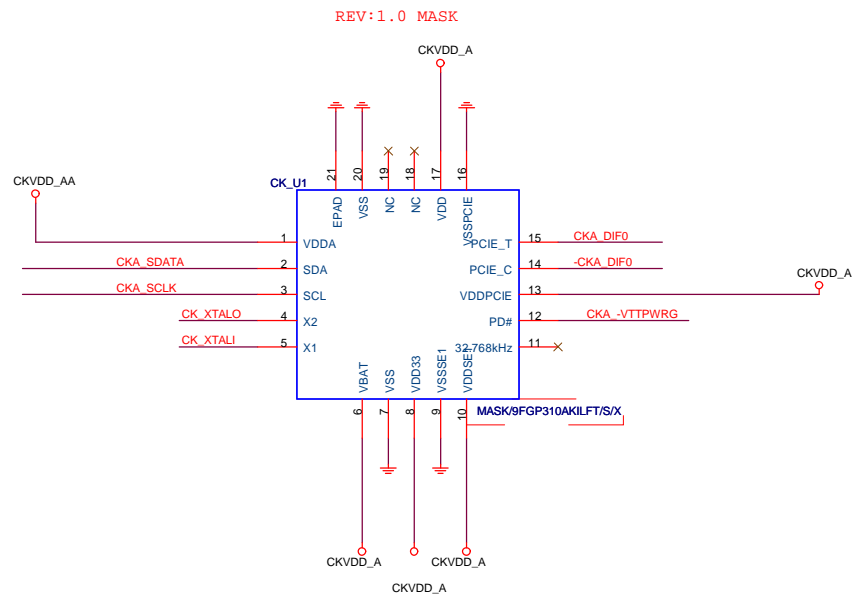
Color markers can be changed by model



USB2.0 can be used the same source

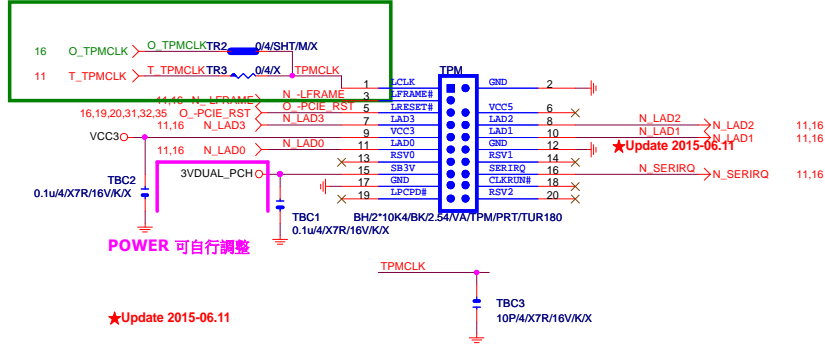


IDT9FGP310



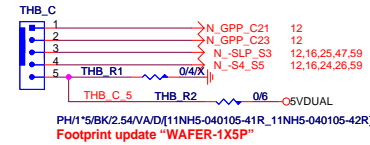
*可變，依需求上件不上件。

TPM CONNECT



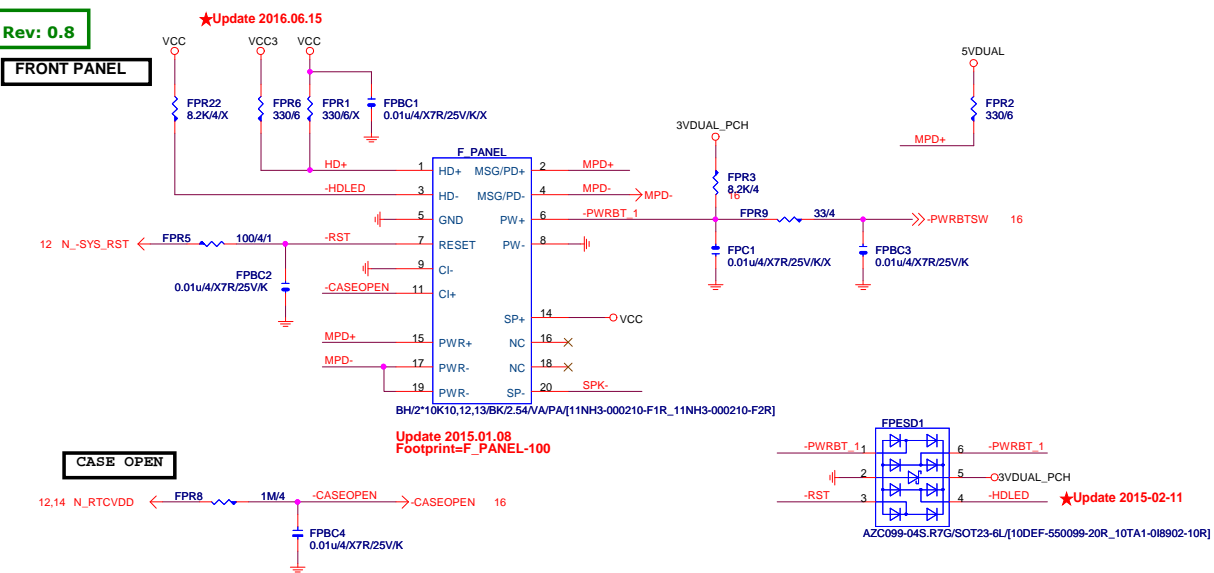
Thunderbolt

★Update 2015-12-29

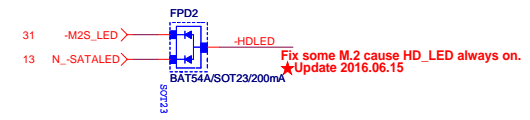


Rev: 0.8

FRONT PANEL

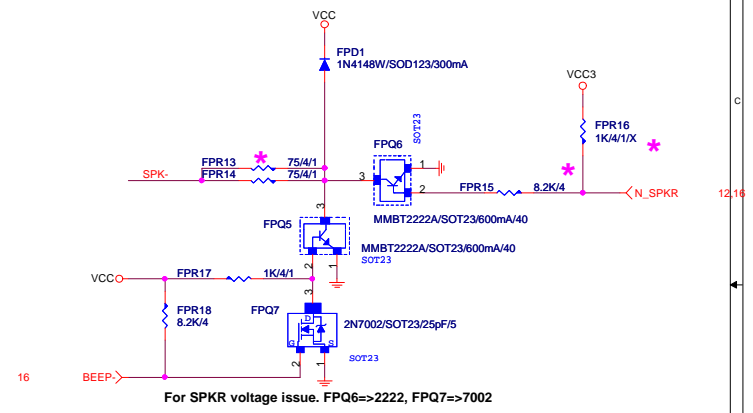


SATA/M.2 LED



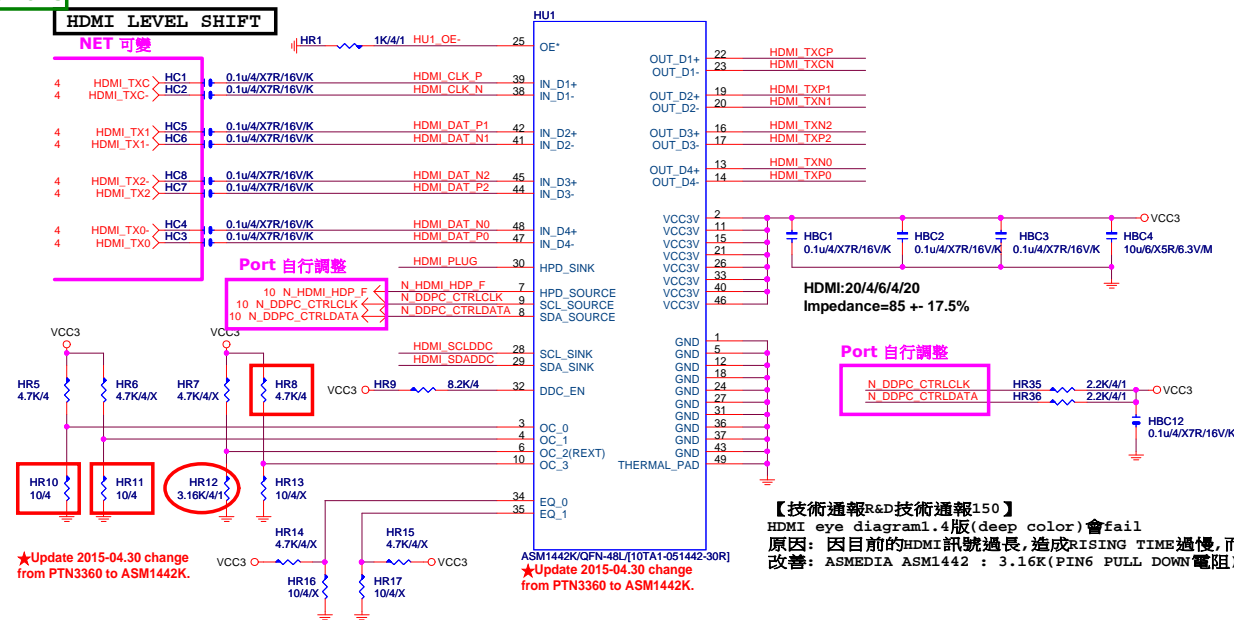
SPEAKER

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

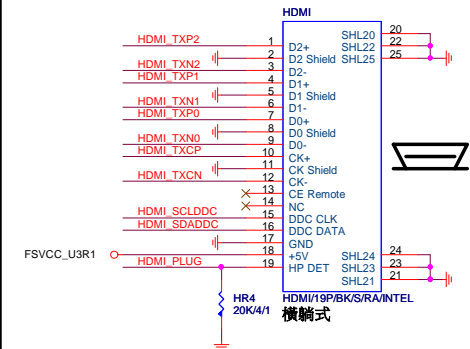
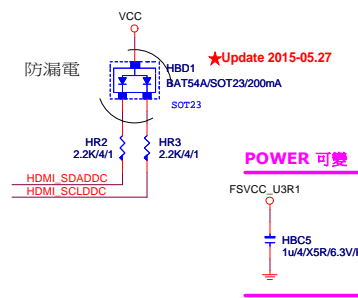


Gigabyte Technology

Title			
FRONT PANEL			
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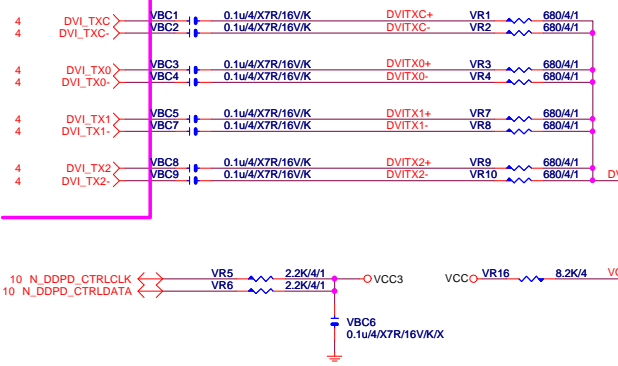


PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

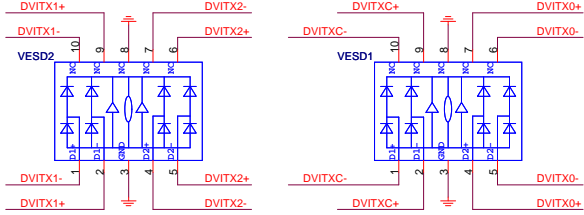


DVI:20/4/6/4/20
Impedance=85 +- 17.5%

NET 可變



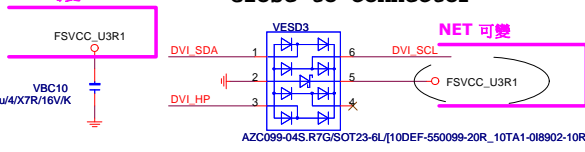
Close to connector



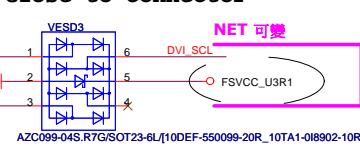
AZ1045-04FMSOP10[10DE2-501045-10R_10DE2-508808-10R]

AZ1045-04FMSOP10[10DE2-501045-10R_10DE2-508808-10R]

NET 可變

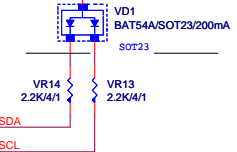


Close to connector

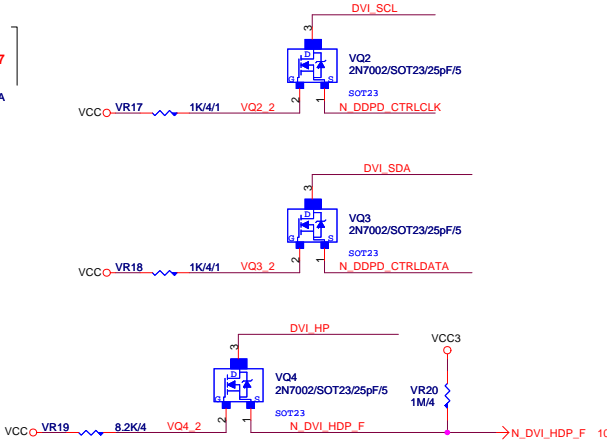


AZC099-04S.R7G/SOT23-6L[10DEF-550099-20R_10TA1-018902-10R]

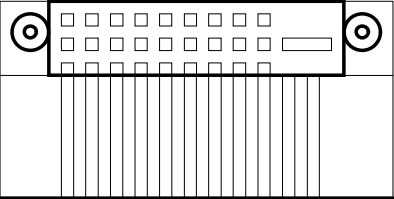
防漏電



★Update 2015.05.27

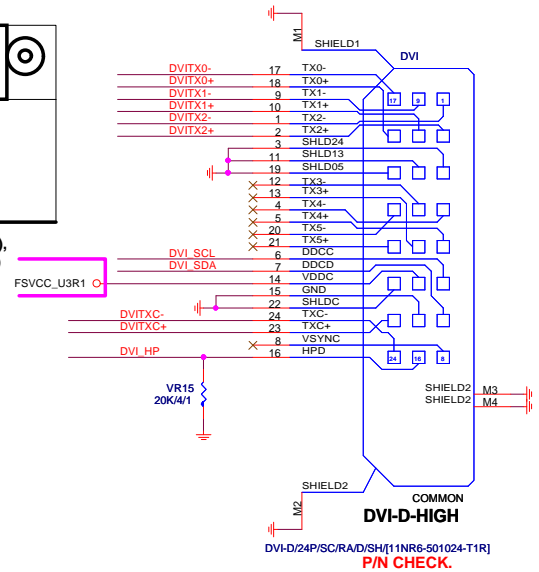


架高式 DVI-D



★Update 2015-03.24

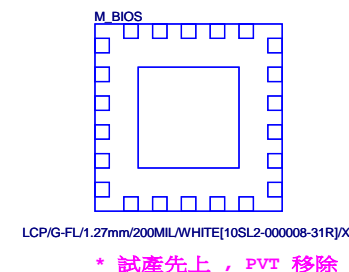
11NR6-501024-R1R(Golden),
11NR6-501024-T1R(Normal)

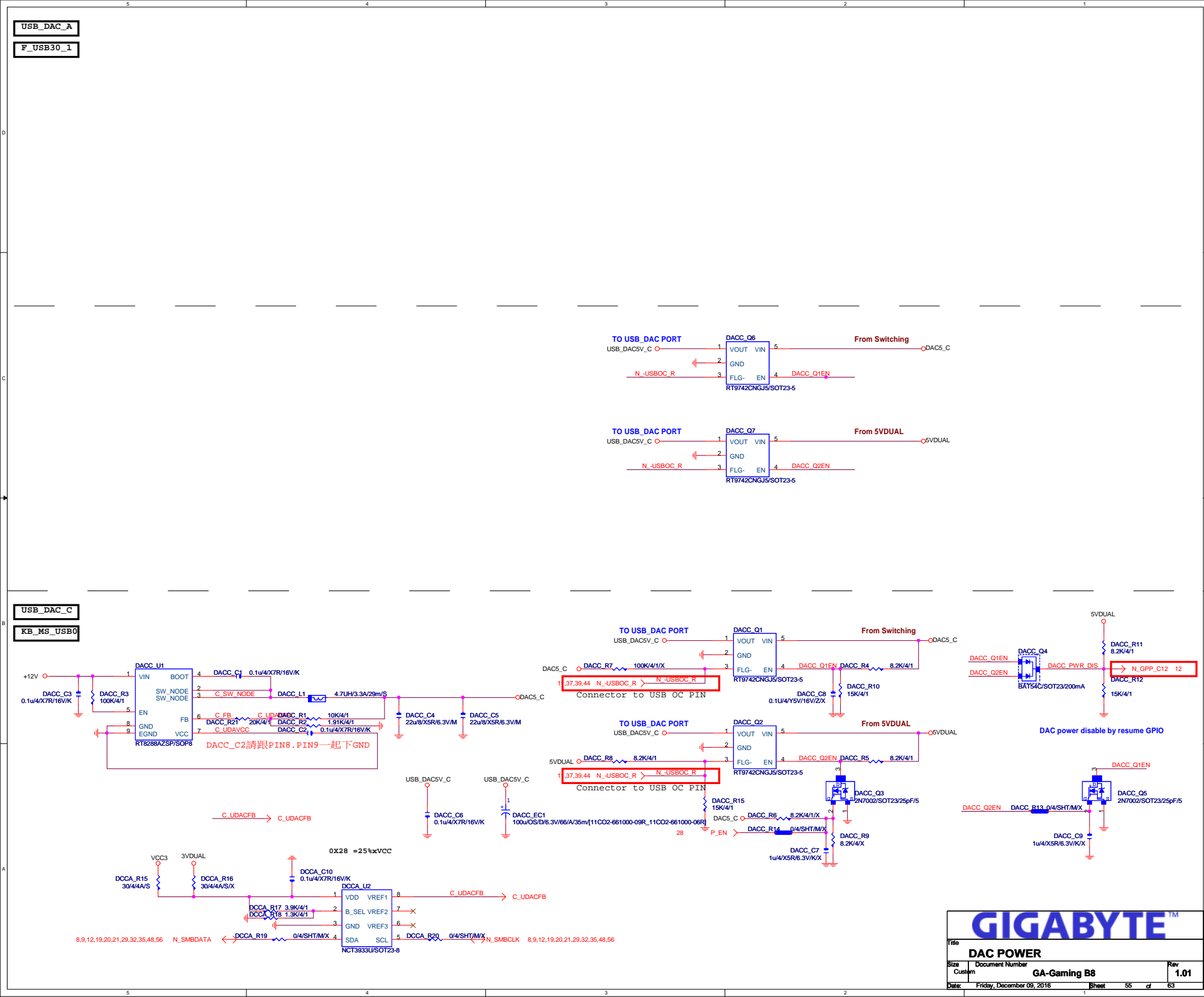


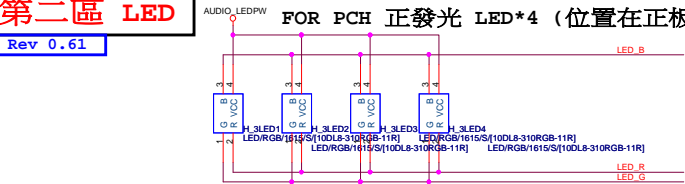
GIGABYTE

Title			
DVI			
GA-Gaming B8			
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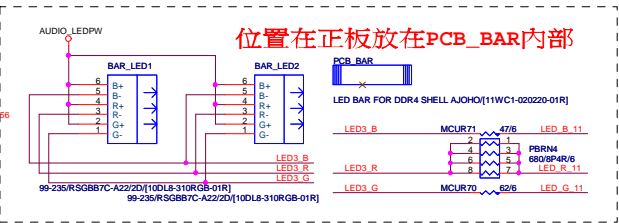
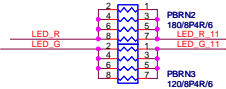
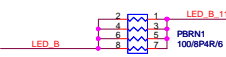
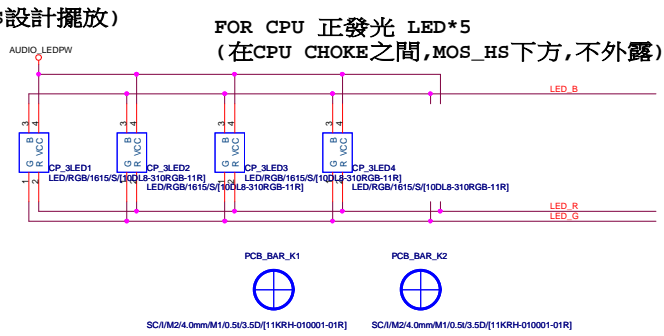
MOSI For DMI RX Termination Voltage



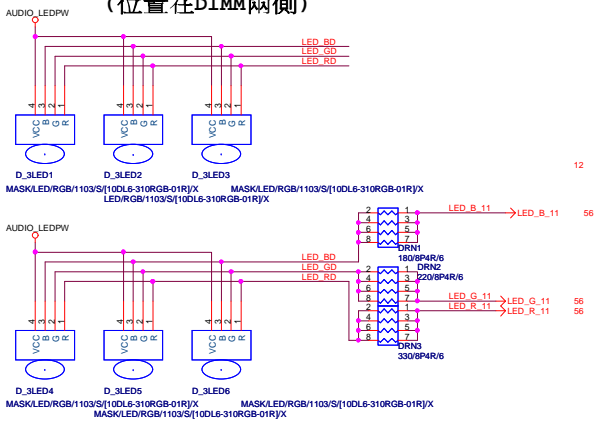




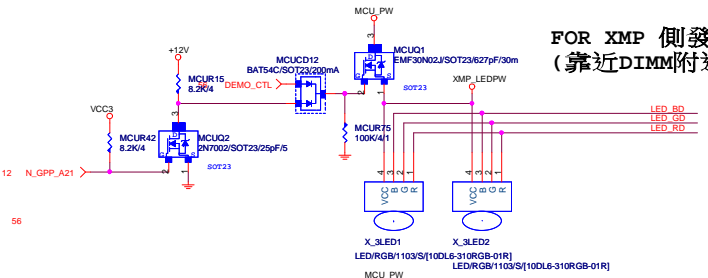
FOR PCB 正發光 LED*16
(位置在PCB下方背板邊條)



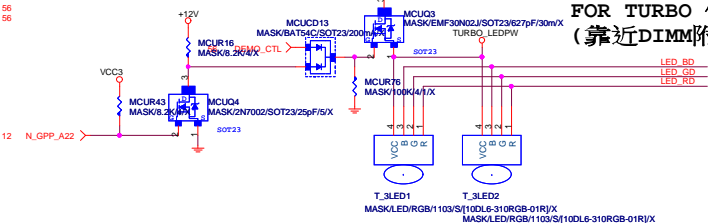
FOR DIMM 側發光 LED*6
(位置在DIMM兩側)



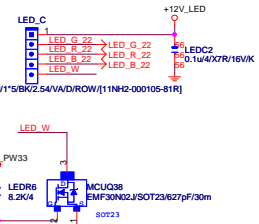
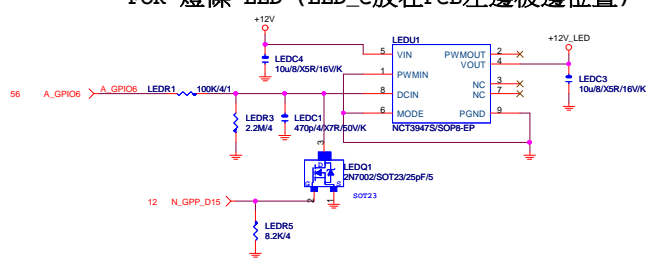
FOR XMP 側發光 LED*2
(靠近DIMM附近放背板鑲空)



FOR TURBO 側發光 LED*2
(靠近DIMM附近放背板鑲空)



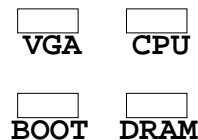
FOR 燈條 LED (LED_C放在PCB左邊板邊位置)



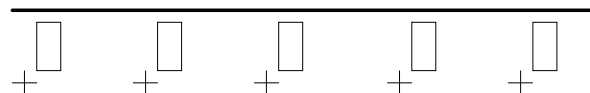
RGB LED LAYOUT 注意事項：

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)
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/G1.GAMING 側發光 LED 位置如下

Debug LED 文字面 (單色LED)

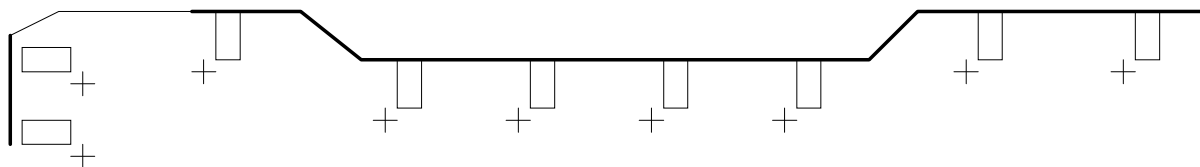


PCB板邊透光model name鏤空+背面 RGB LED



LED間距160mil
G1 GAMING

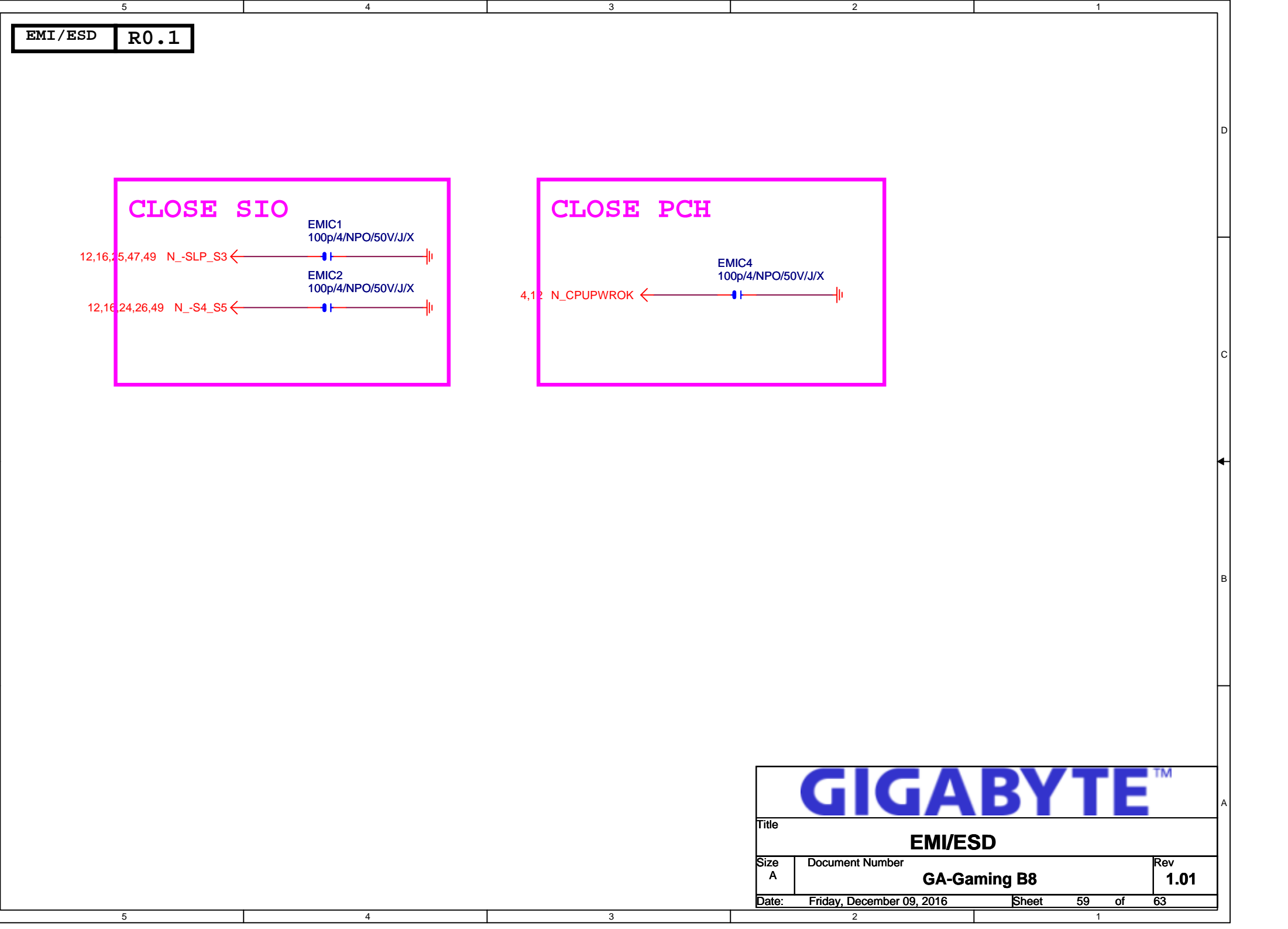
Audio Ground切割線+背面 RGB LED

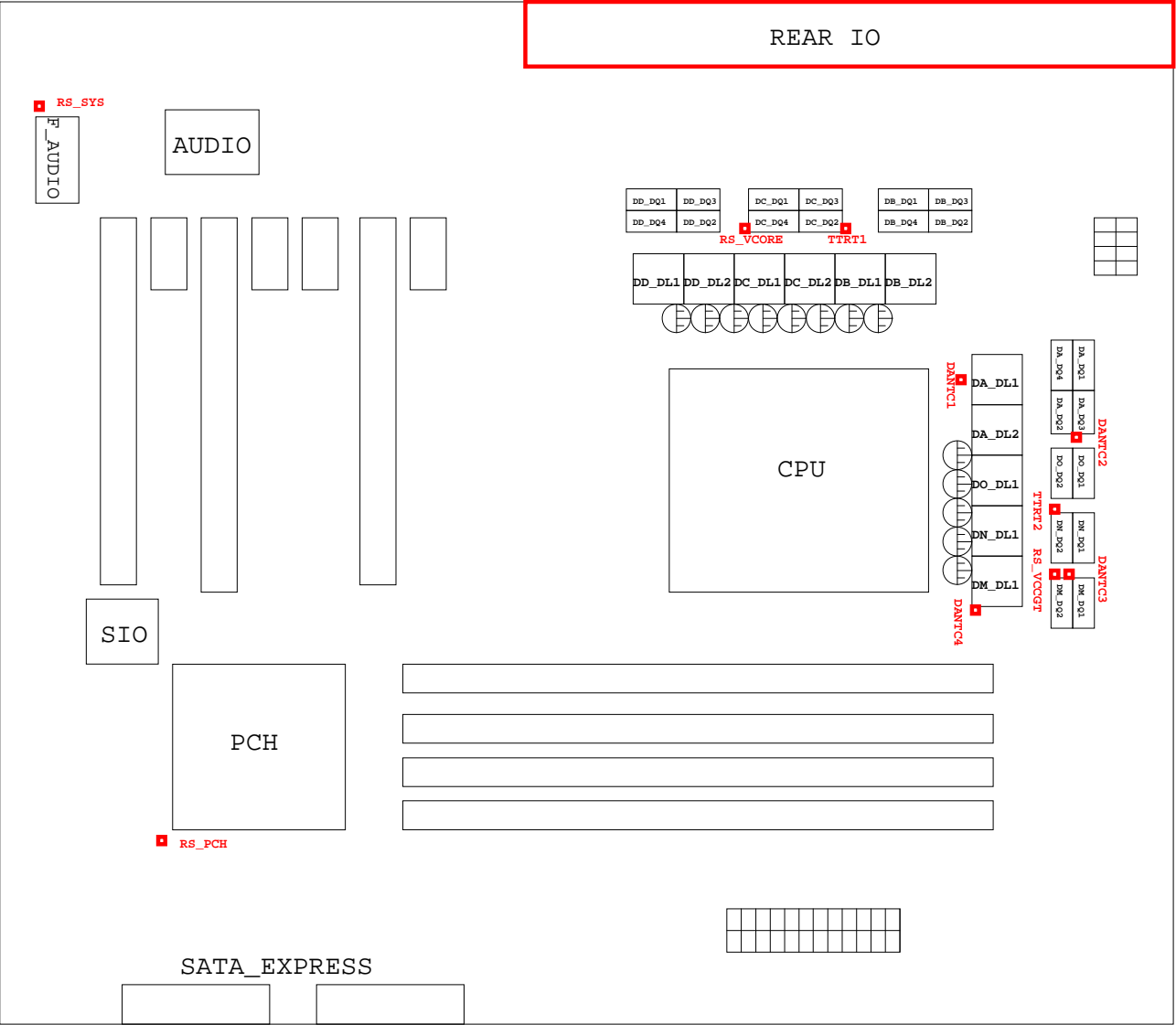


"Turbo", "XMP"字樣(分開控制) 鏤空+背面 RGB側發光 LED

LED間距200mil
TURBO
LED間距200mil
XMP

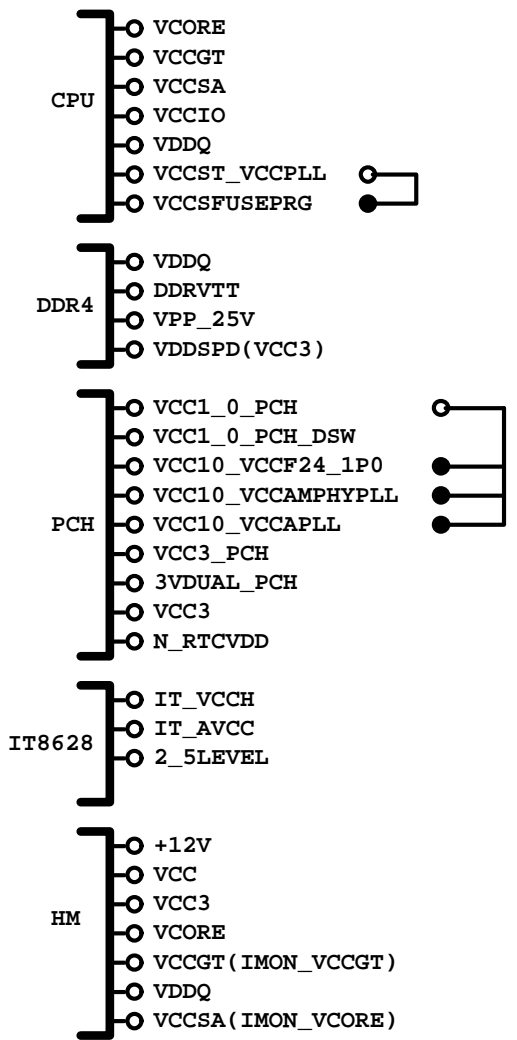
GIGABYTE™			
Title MODEL/PCB LED			
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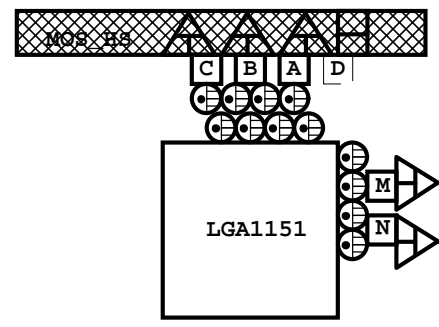
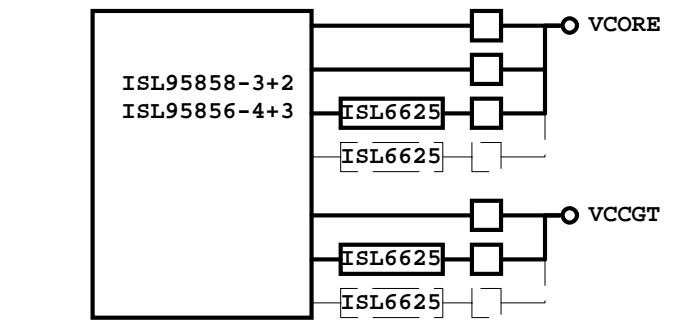


熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

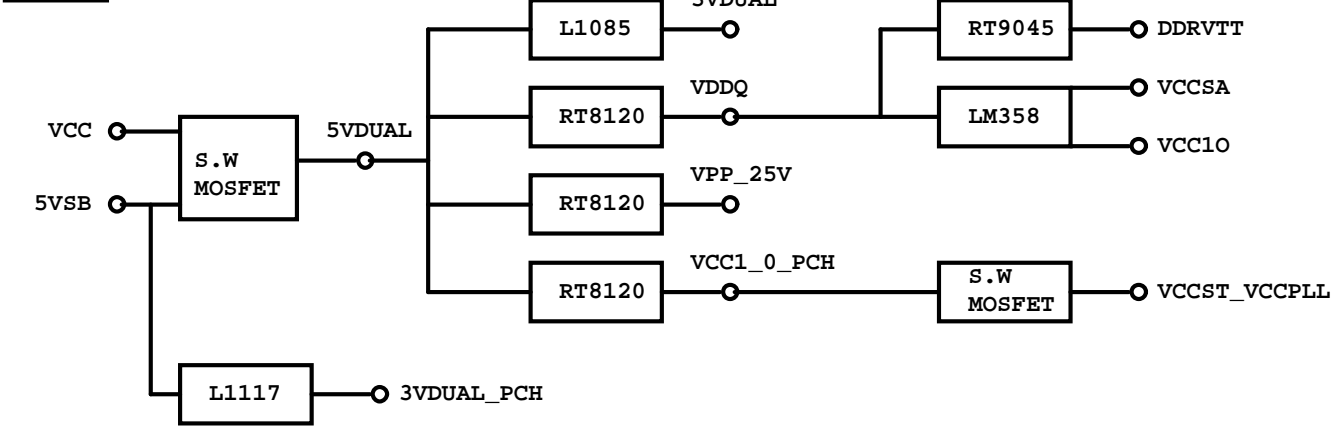
POWER BLOCK MAP



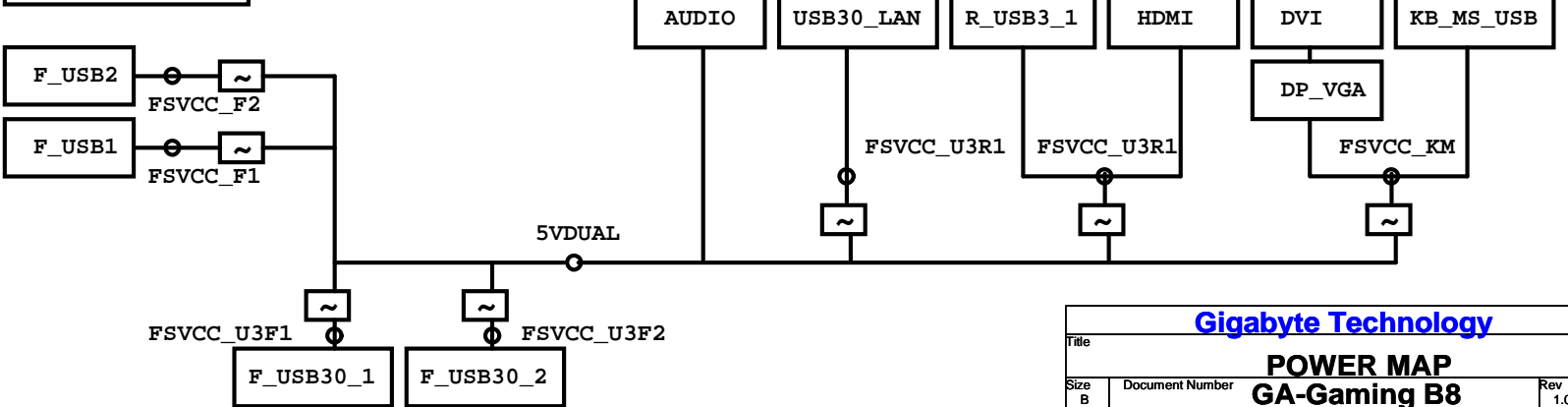
VCORE/VCCGT



POWER



FUSE POWER F/R



固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11C05-C82700-01R	270u/FP/D/16V/88/C/12m
11C05-C61000-01R	100u/OS/D/16V/66/C/30m
11C02-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11C02-685600-01R	560u/FP/D/6.3V/68/8m
11C05-882700-01R	270u/FP/D/16V/88/12m
11C05-661000-03R	100u/OS/D/16V/66/30m
11C02-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11C02-661000-09R	100u/OS/D/6.3V/66/A/35m
11C05-691000-09R	100u/OS/D/16V/69/A/35m
11C05-8C2700-09R	270u/FP/D/16V/8C/A/10m
11C02-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

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

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

Ferrite

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

BEAD

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

PWM料號

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

REGULATOR

		料號	Capture Value	Footprint
	NCT3103S	10GL2-203103-01R	NCT3103S/SOP8/2A	IC8-EP5OIC

GIGABYTE™			
Title RT8120_DDR4 POWER			
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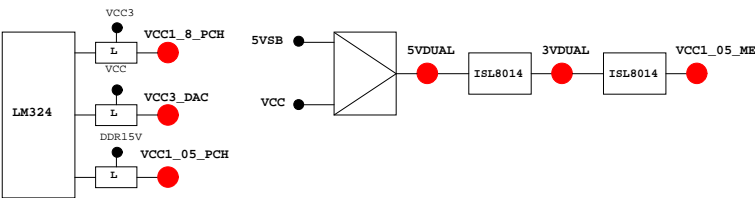
PCB GPIO LIST TABLE

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

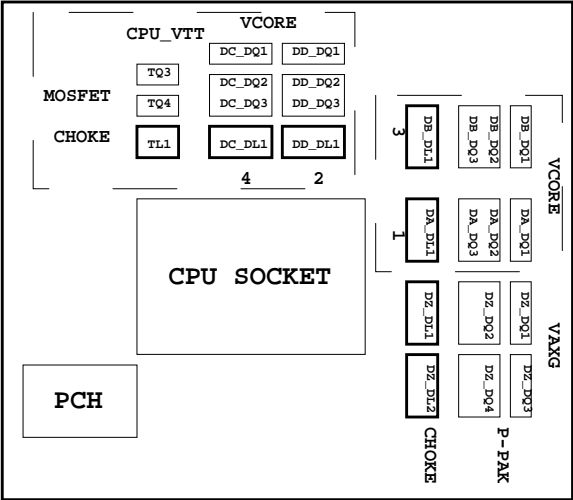
Super I/O ITE8720 GPIO Table

PIN NAME	USAG	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRXL/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAG	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	SW_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRR2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

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

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

散熱模組料號：

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

Gigabyte Technology			
TABLE LIST			
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