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53	ASM2142
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56	Realtek ALC1220
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Component value change history

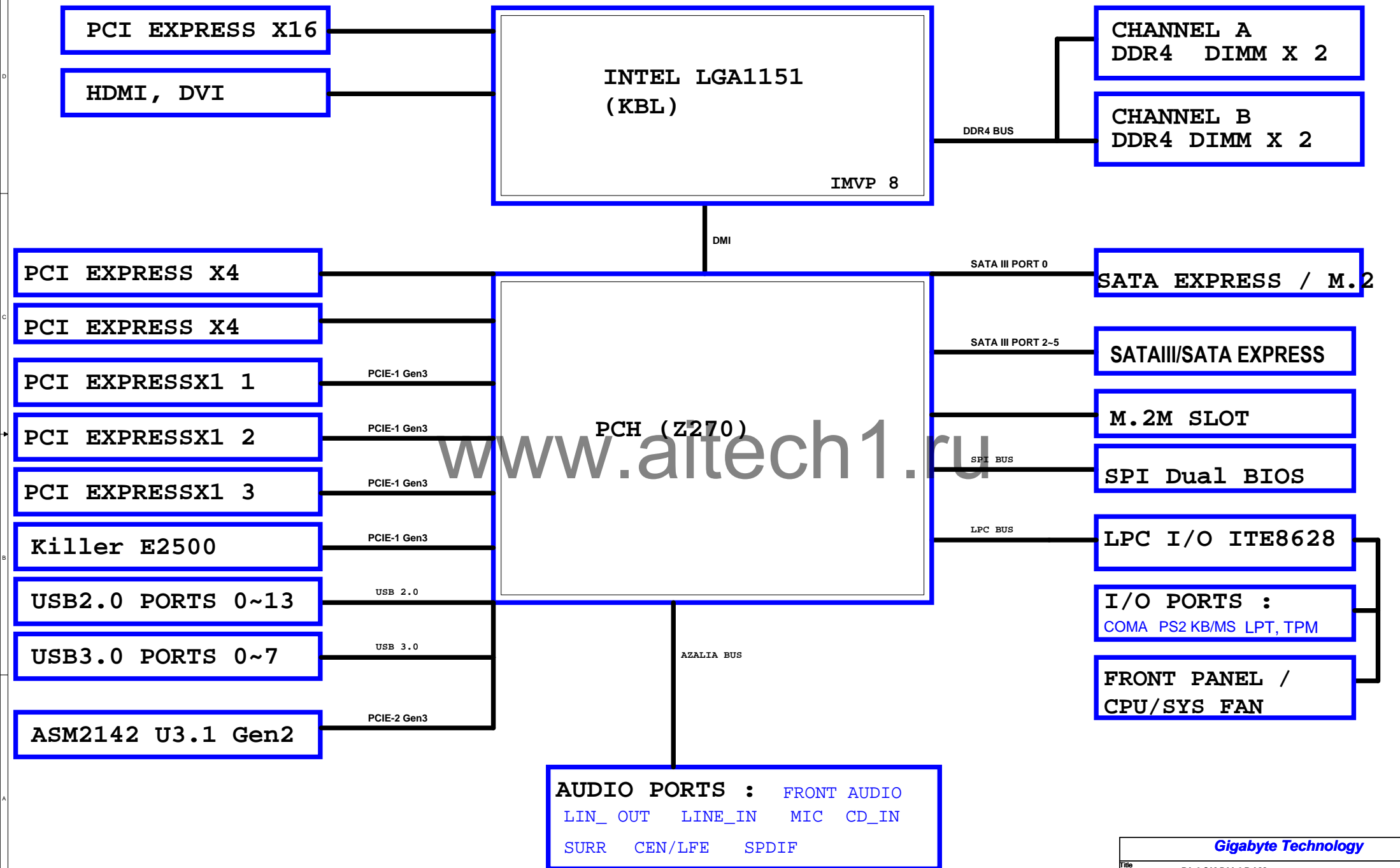
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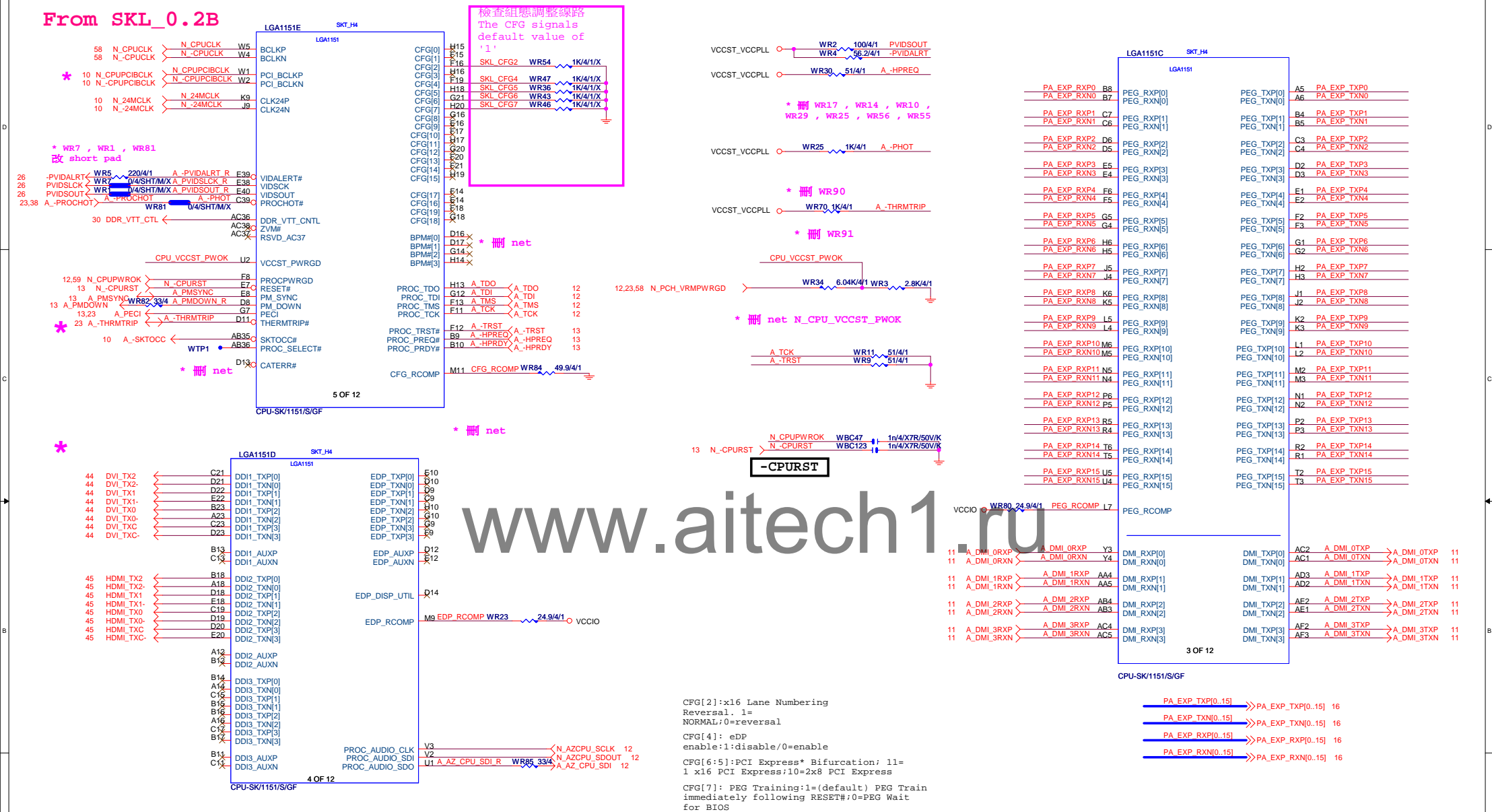
Circuit or PCB layout change

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BLOCK DIAGRAM



From SKL_0.2B



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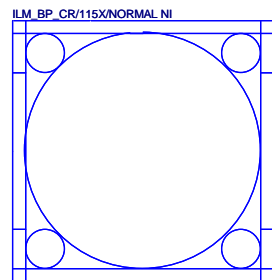
Bifurcation Config.	Signals Lanes		
	CFG[6]	CFG[5]	CFG[2]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

CFG 5/6 for PCIE X8/X4

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

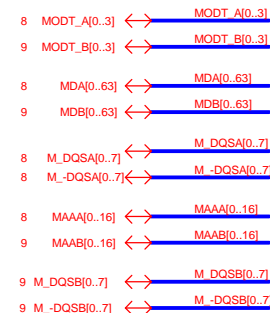
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Size Custom	Document Number GA-Z770-GAMING K3		Rev 1.02
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* 改DDR4 net

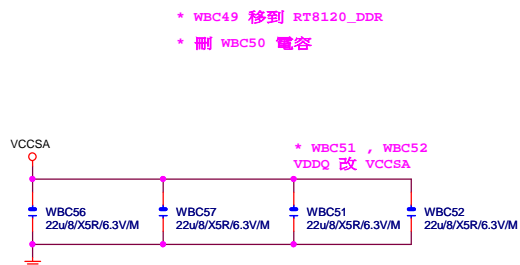


Need check the new CPU ME

USE Gold Flash for BOM



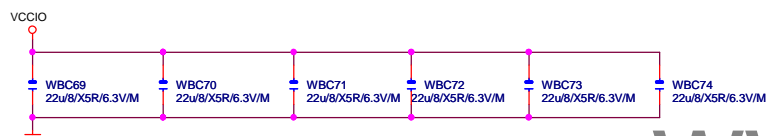
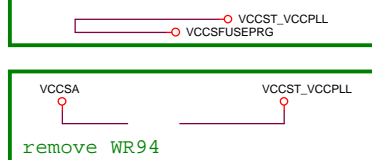
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CPU LGA1151-B			
Title			
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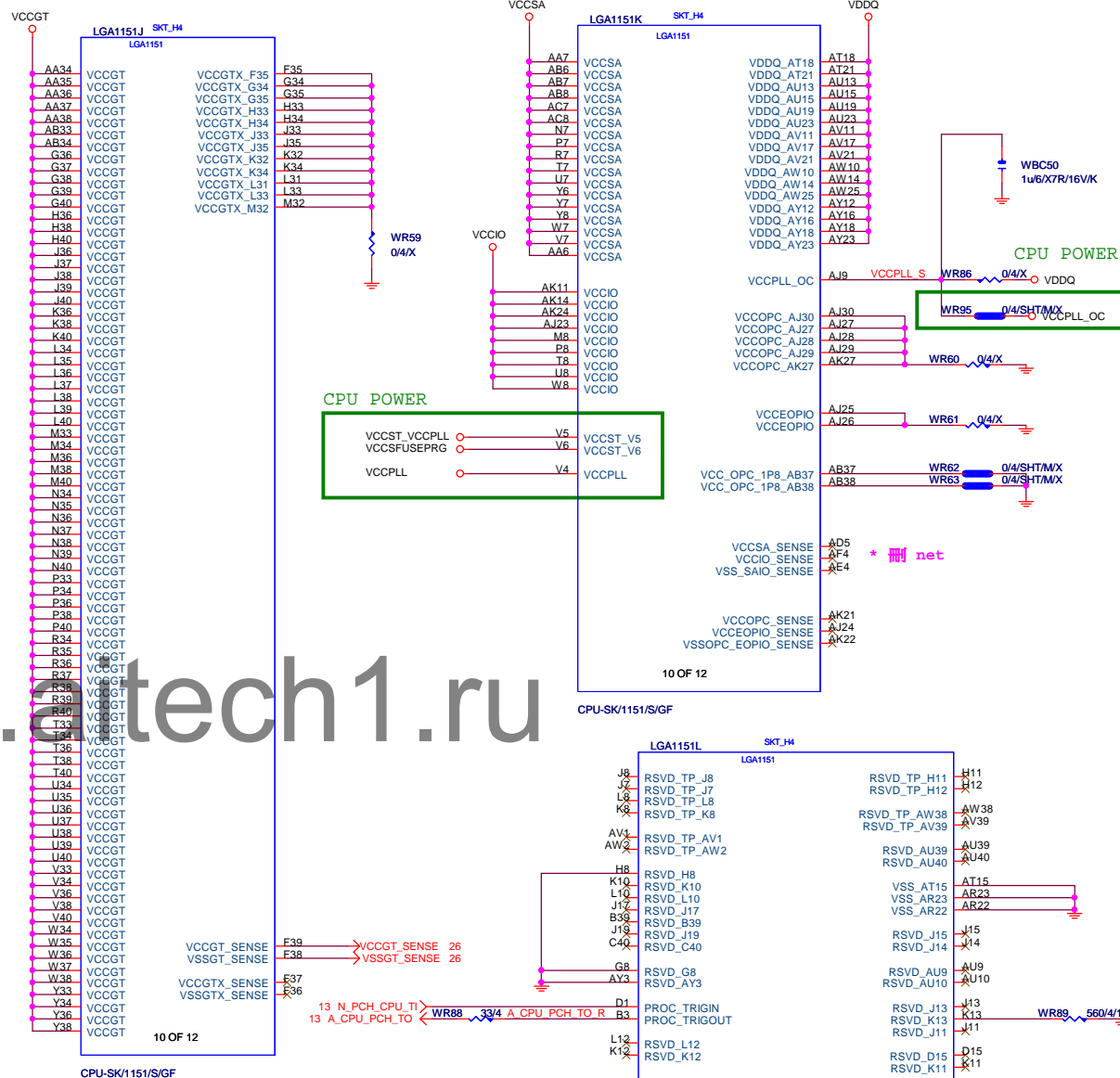
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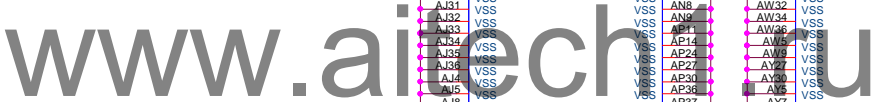


* WR94 , WR59 , WR86 , WR60 ,
WR61 , WR62 , WR63 改 short
pad

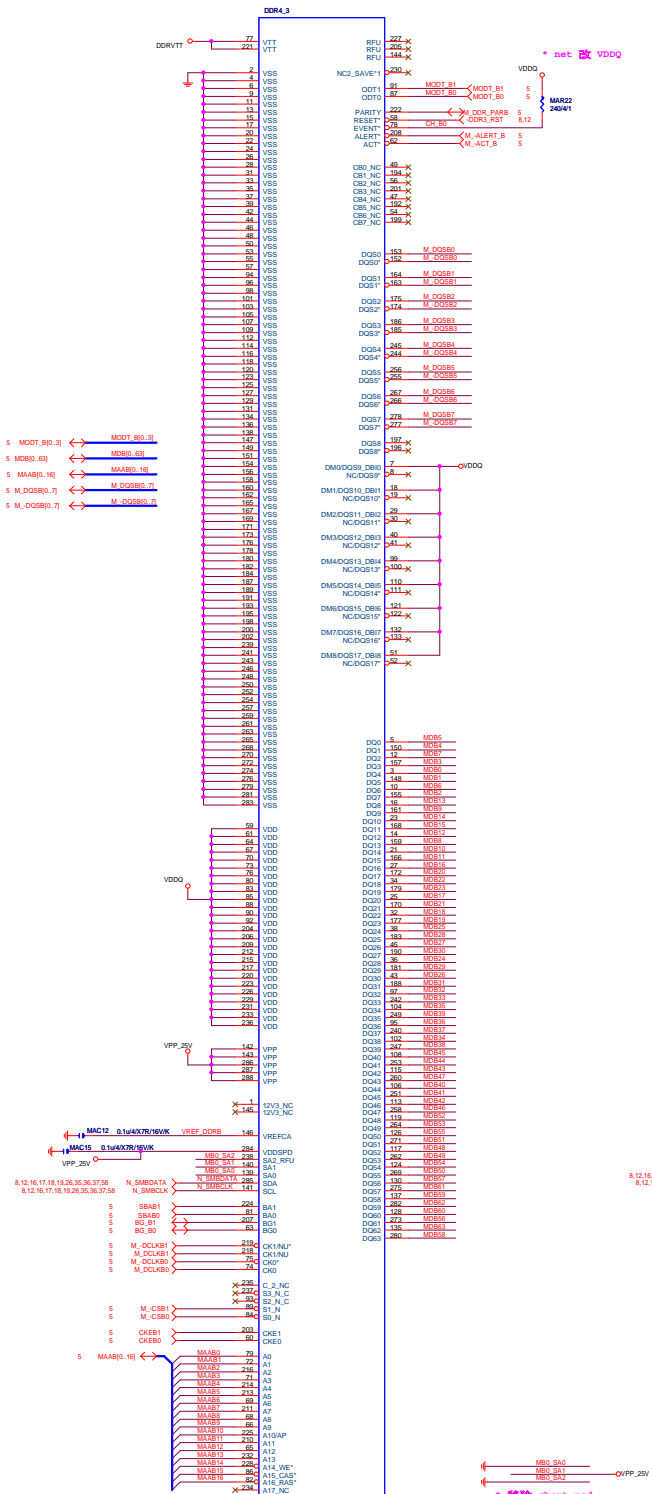


* 刪 VCCGT 電容

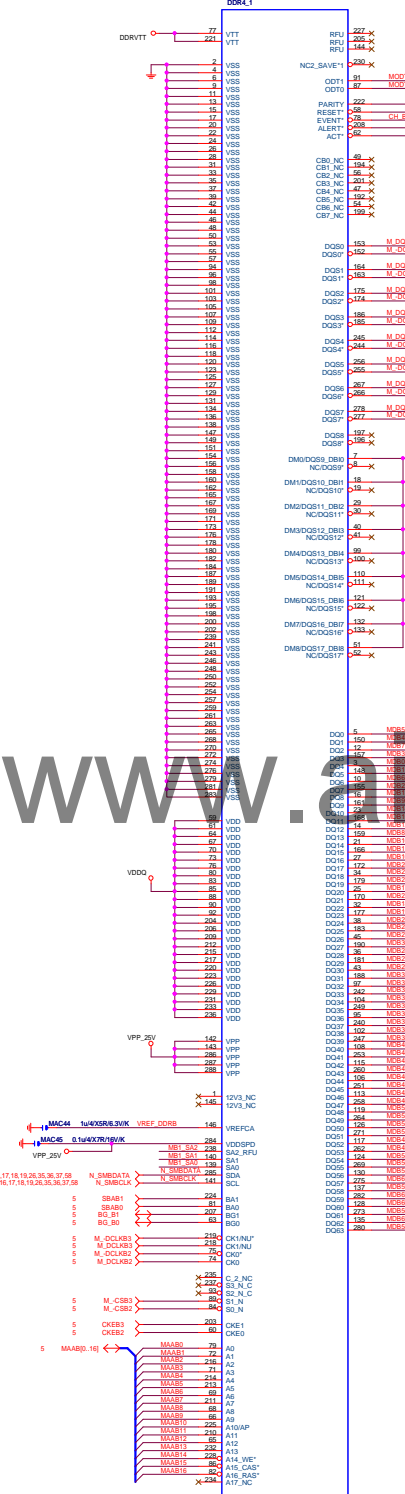




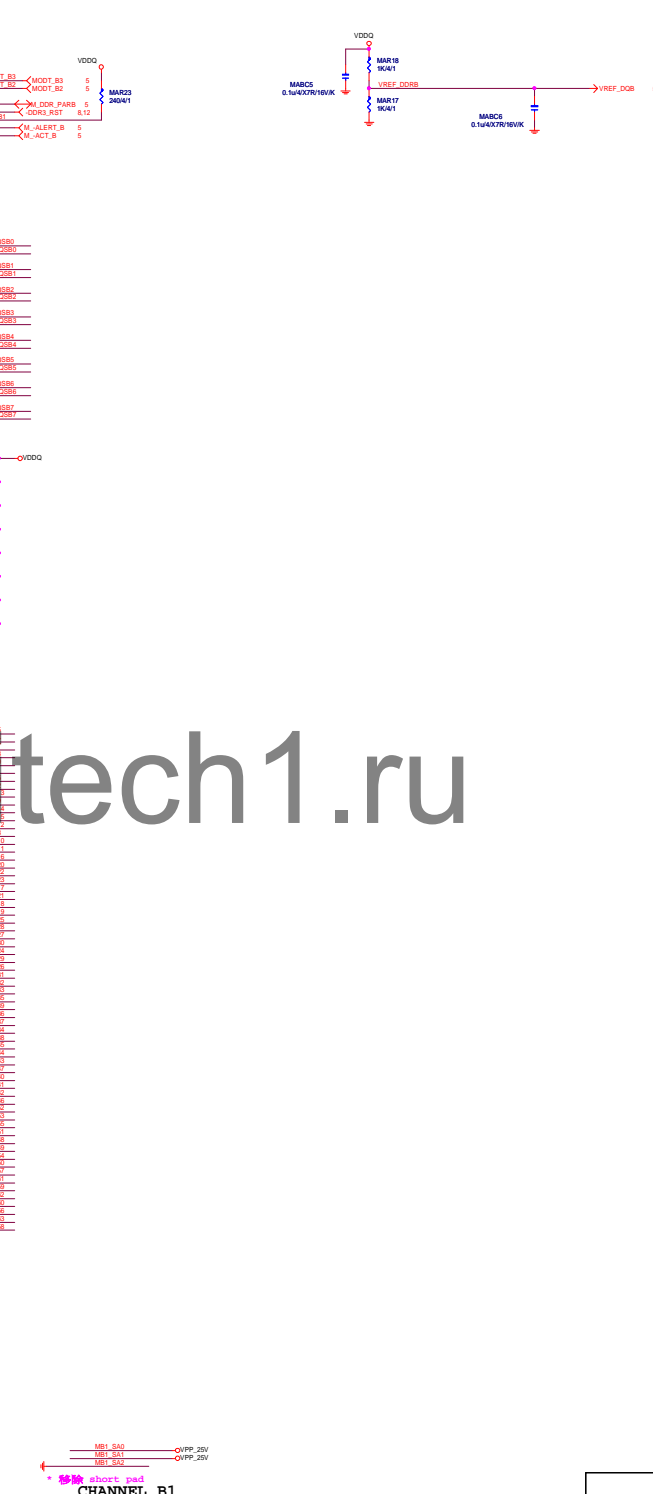
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CPU LGA1151-C			
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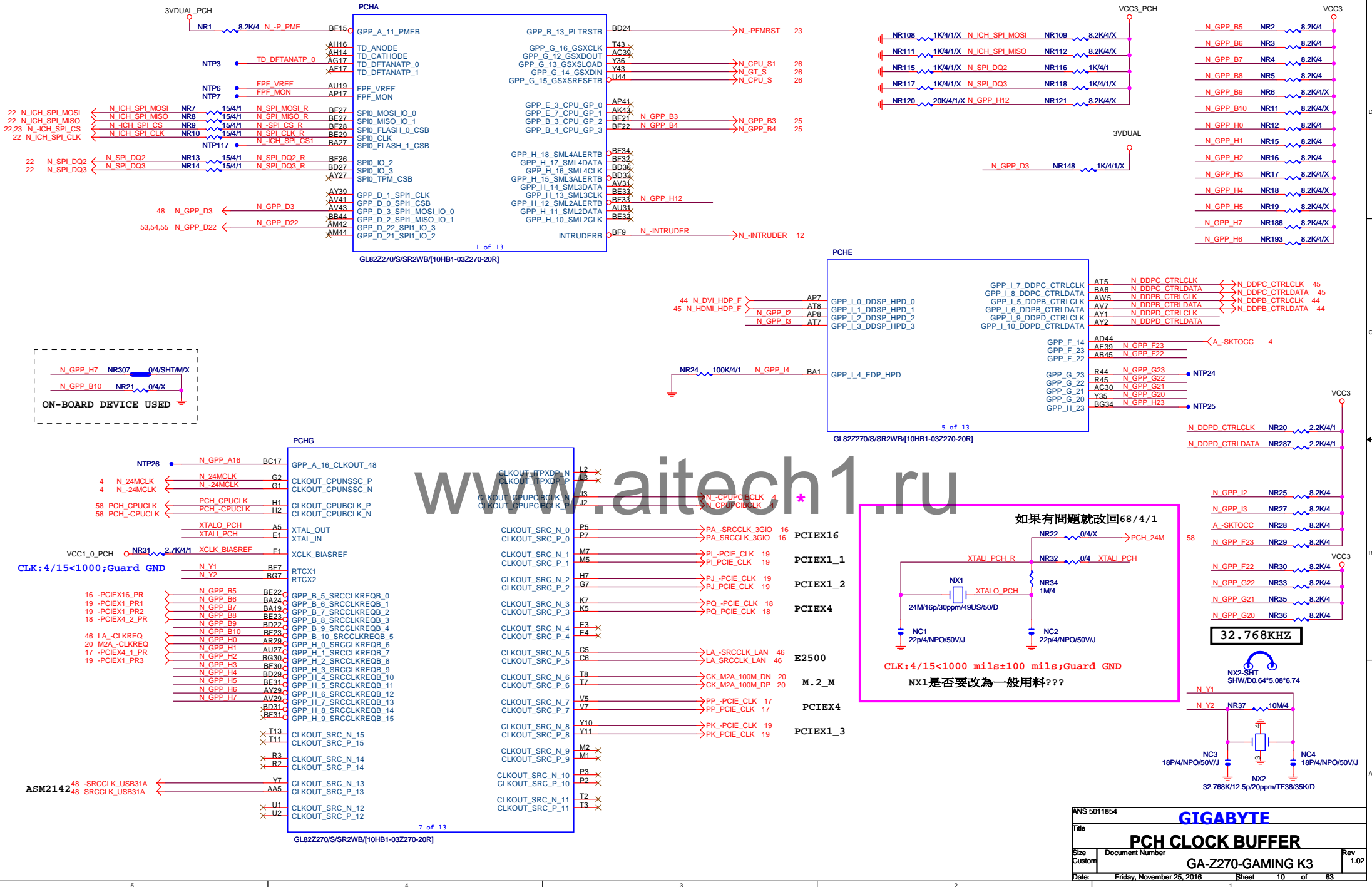


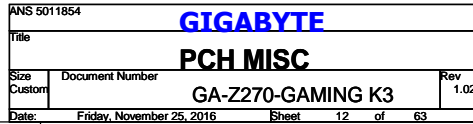
CHANNEL B0
SA2:0=010

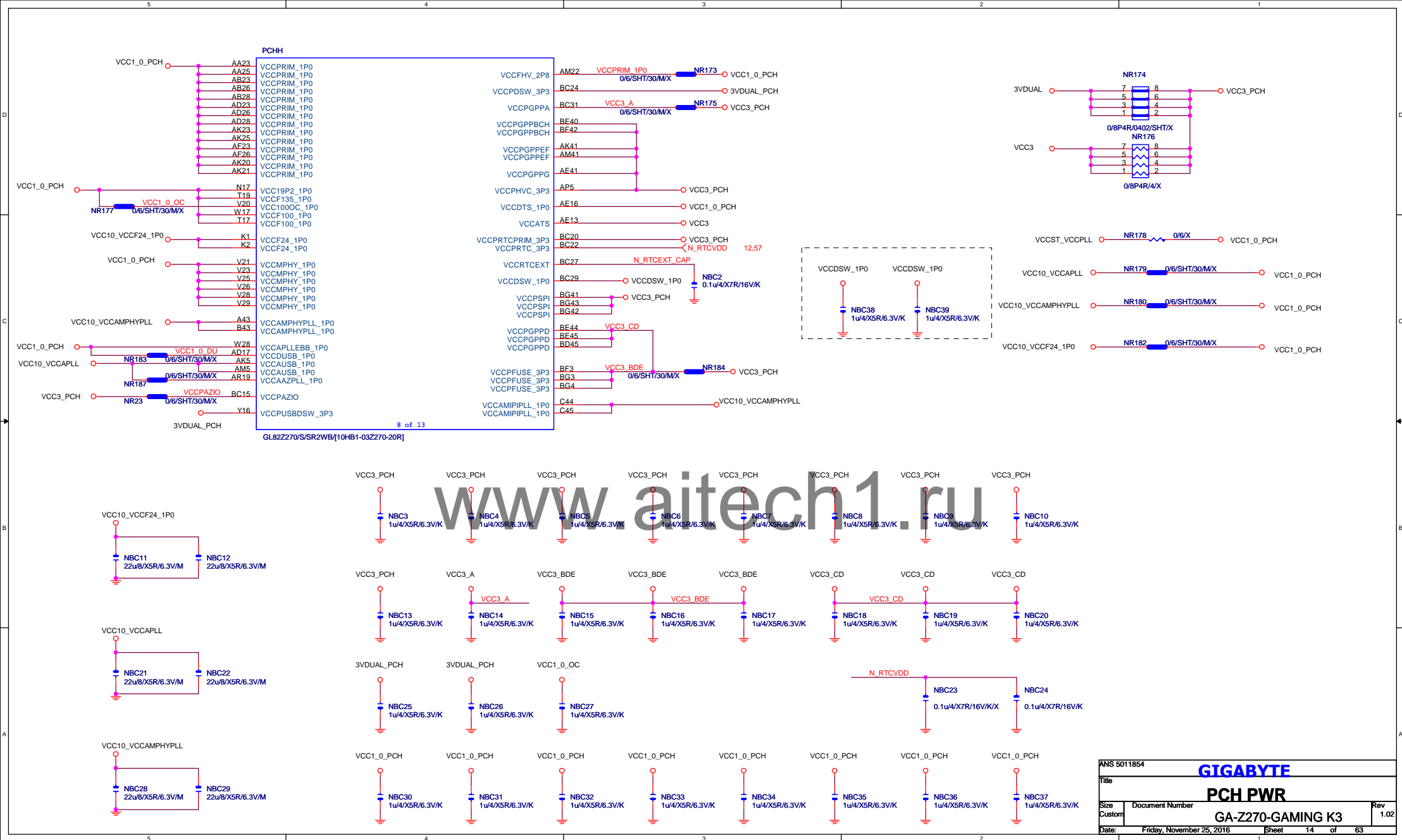


CHANNEL B1
SA2:0=011









A25	VSS	A42	VSS
A30	VSS	D45	VSS
P22	VSS	BG44	VSS
AV38	VSS	BE44	VSS
AV45	VSS	BF45	VSS
AV8	VSS	BF2	VSS
AY11	VSS	W29	VSS
AY19	VSS	A35	VSS
AY37	VSS	A40	VSS
AY4	VSS	AA1	VSS
AY42	VSS	AA17	VSS
AY8	VSS	AA18	VSS
B25	VSS	AA20	VSS
B3	VSS	AA21	VSS
B30	VSS	AA26	VSS
B35	VSS	AA28	VSS
B4	VSS	AA29	VSS
B41	VSS	AB17	VSS
BA13	VSS	AC32	VSS
BA17	VSS	AE4	VSS
BA29	VSS	AE8	VSS
BA31	VSS	AF18	VSS
BA37	VSS	AF20	VSS
BA4	VSS	AF21	VSS
BA42	VSS	AF25	VSS
BB40	VSS	AF28	VSS
BC38	VSS	AF29	VSS
BC40	VSS	AF4	VSS
BC9	VSS	AF42	VSS
BD11	VSS	AG18	VSS
BD16	VSS	AG20	VSS
BD2	VSS	AG21	VSS
BD21	VSS	AG23	VSS
BD25	VSS	AG25	VSS
F2	VSS	AG26	VSS
F31	VSS	AG28	VSS
E6	VSS	AG29	VSS
E8	VSS	AH11	VSS
F39	VSS	AH13	VSS
F43	VSS	AH30	VSS
G4	VSS	AH32	VSS
G40	VSS	AH33	VSS
G42	VSS	AH38	VSS
F6	VSS	AJ1	VSS
G9	VSS	AJ17	VSS
H11	VSS	AJ18	VSS
H13	VSS	AJ20	VSS
H17	VSS	AJ21	VSS
H19	VSS	AJ23	VSS
H22	VSS	AJ26	VSS
H24	VSS	AJ26	VSS
H27	VSS	AJ28	VSS
H29	VSS	AJ29	VSS
H33	VSS	AJ45	VSS
H35	VSS	AK10	VSS
H38	VSS	AK14	VSS
H4	VSS	AK16	VSS
H42	VSS	AK17	VSS
H9	VSS	AK18	VSS
J4	VSS	AK26	VSS
M36	VSS	AK28	VSS
M38	VSS	AM14	VSS
M4	VSS	AN14	VSS
M8	VSS	AP19	VSS
M9	VSS	AR22	VSS
N13	VSS	AR27	VSS
N15	VSS	AU29	VSS
N19	VSS	AU33	VSS
N22	VSS	AV1	VSS
N24	VSS	AV10	VSS
N31	VSS	AV15	VSS
N42	VSS	AV24	VSS
P10	VSS	AV27	VSS
P12	VSS	AV33	VSS
AV35	VSS		

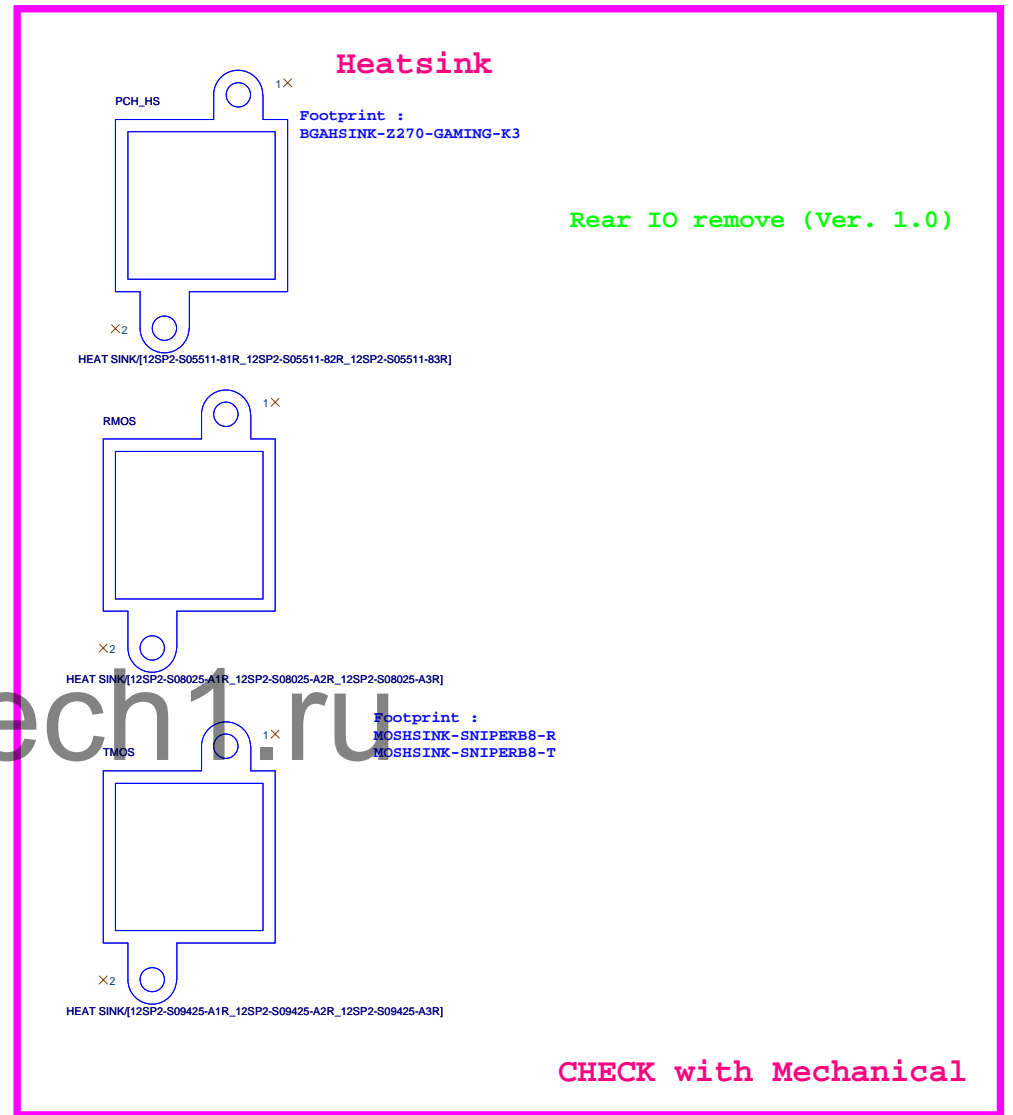
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GL82Z270/S/SR2WB[10HB1-03Z270-20R]

BD34	VSS[70]	AB18	VSS[1]
BD39	VSS[71]	AB20	VSS[71]
BD7	VSS[72]	AB21	VSS[3]
BE2	VSS[73]	AB25	VSS[4]
BF43	VSS[74]	AB29	VSS[5]
BF2	VSS[75]	AB4	VSS[6]
BG18	VSS[76]	AB42	VSS[7]
BG23	VSS[77]	AC10	VSS[8]
BG28	VSS[78]	AC11	VSS[9]
BG32	VSS[79]	AC14	VSS[10]
BG37	VSS[80]	AC16	VSS[11]
BG40	VSS[81]	AC38	VSS[12]
BG9	VSS[83]	AC4	VSS[13]
C1	VSS[84]	AC5	VSS[14]
A12	VSS[85]	AC7	VSS[15]
C2	VSS[86]	AC8	VSS[16]
C37	VSS[87]	AD1	VSS[17]
A6	VSS[88]	AD18	VSS[18]
AC32	VSS[89]	AD20	VSS[19]
D1	VSS[90]	AD21	VSS[20]
D10	VSS[91]	AD25	VSS[21]
D12	VSS[92]	AD29	VSS[22]
D15	VSS[93]	AD45	VSS[23]
D16	VSS[94]	AE11	VSS[24]
B12	VSS[95]	AE14	VSS[25]
D19	VSS[96]	AE32	VSS[26]
D21	VSS[97]	AE33	VSS[27]
D24	VSS[98]	AE38	VSS[28]
D25	VSS[99]	AK29	VSS[29]
D29	VSS[100]	AK30	VSS[30]
D30	VSS[101]	AK32	VSS[31]
D33	VSS[102]	AK35	VSS[32]
D35	VSS[103]	AK39	VSS[33]
D36	VSS[104]	AL4	VSS[34]
D39	VSS[105]	AL42	VSS[35]
D44	VSS[106]	AM10	VSS[36]
D7	VSS[107]	AM11	VSS[37]
P13	VSS[108]	AM13	VSS[38]
P15	VSS[109]	AM17	VSS[39]
P17	VSS[110]	AM19	VSS[40]
P19	VSS[111]	AM24	VSS[41]
P31	VSS[112]	AM27	VSS[42]
P33	VSS[113]	AM29	VSS[43]
P35	VSS[114]	AM32	VSS[44]
P4	VSS[115]	AM33	VSS[45]
P42	VSS[116]	AM4	VSS[46]
P8	VSS[117]	AN45	VSS[47]
R1	VSS[118]	AP10	VSS[48]
R32	VSS[119]	AP11	VSS[49]
T10	VSS[120]	AP13	VSS[50]
T14	VSS[121]	AP15	VSS[51]
T22	VSS[122]	AP22	VSS[52]
T29	VSS[123]	AP27	VSS[53]
T32	VSS[124]	AP31	VSS[54]
T36	VSS[125]	AP33	VSS[55]
T38	VSS[126]	AP34	VSS[56]
Y38	VSS[127]	AP39	VSS[57]
Y4	VSS[128]	V16	VSS[127]
Y8	VSS[129]	V16	VSS[128]
T42	VSS[130]	V17	VSS[129]
T5	VSS[131]	V18	VSS[130]
U4	VSS[132]	V30	VSS[131]
U42	VSS[133]	V32	VSS[132]
V10	VSS[134]	V33	VSS[133]
V14	VSS[135]	V38	VSS[134]
W3	VSS[136]	V4	VSS[135]
AR13	VSS[137]	V8	VSS[136]
AR31	VSS[138]	W18	VSS[138]
AR33	VSS[139]	W20	VSS[139]
AR4	VSS[140]	W21	VSS[140]
AT10	VSS[141]	W23	VSS[141]
AT13	VSS[142]	W25	VSS[142]
AT35	VSS[143]		
AT37	VSS[144]		
AT42	VSS[145]		
AT45	VSS[146]		
AU11	VSS[147]		
AU17	VSS[148]		
BD30	VSS[149]		
W45	VSS[150]		
Y13	VSS[151]		
Y14	VSS[152]		
Y30	VSS[153]		
Y32	VSS[154]		
Y33	VSS[155]		
BG14	VSS[156]		

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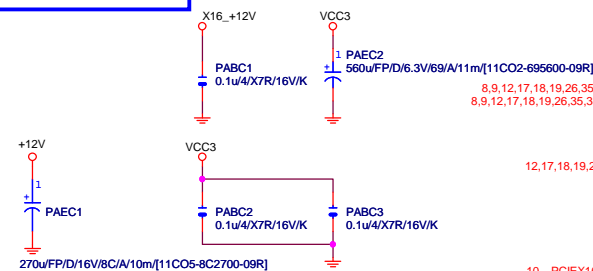
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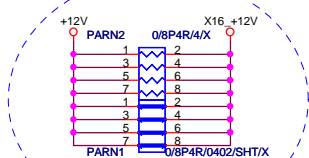
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PCIEX16 CAP



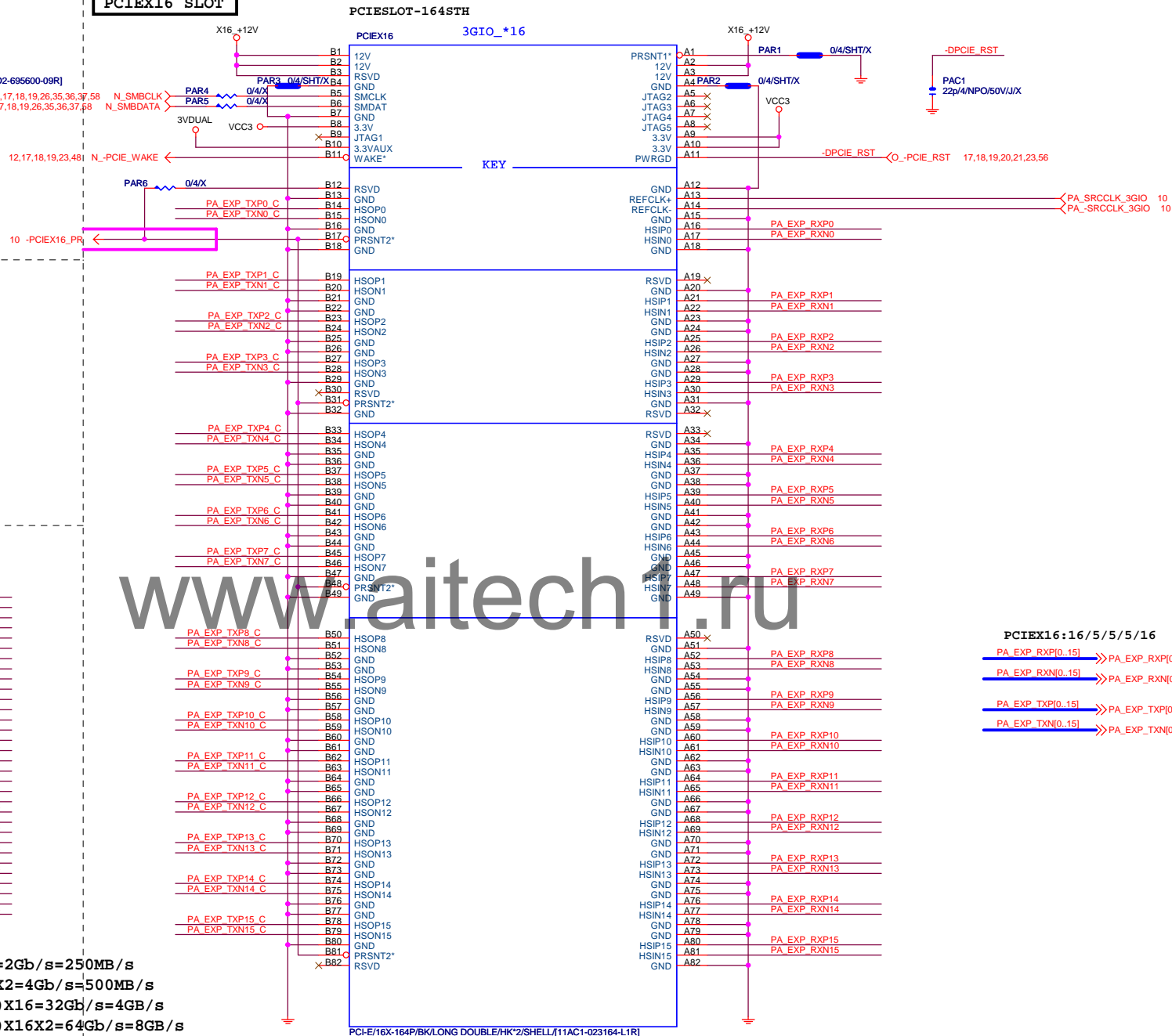
PCIEX16 PROTECT SHT

+12 protect short-wire test

PCIEX16 AC CAP

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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
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PCIEX16 SLOT

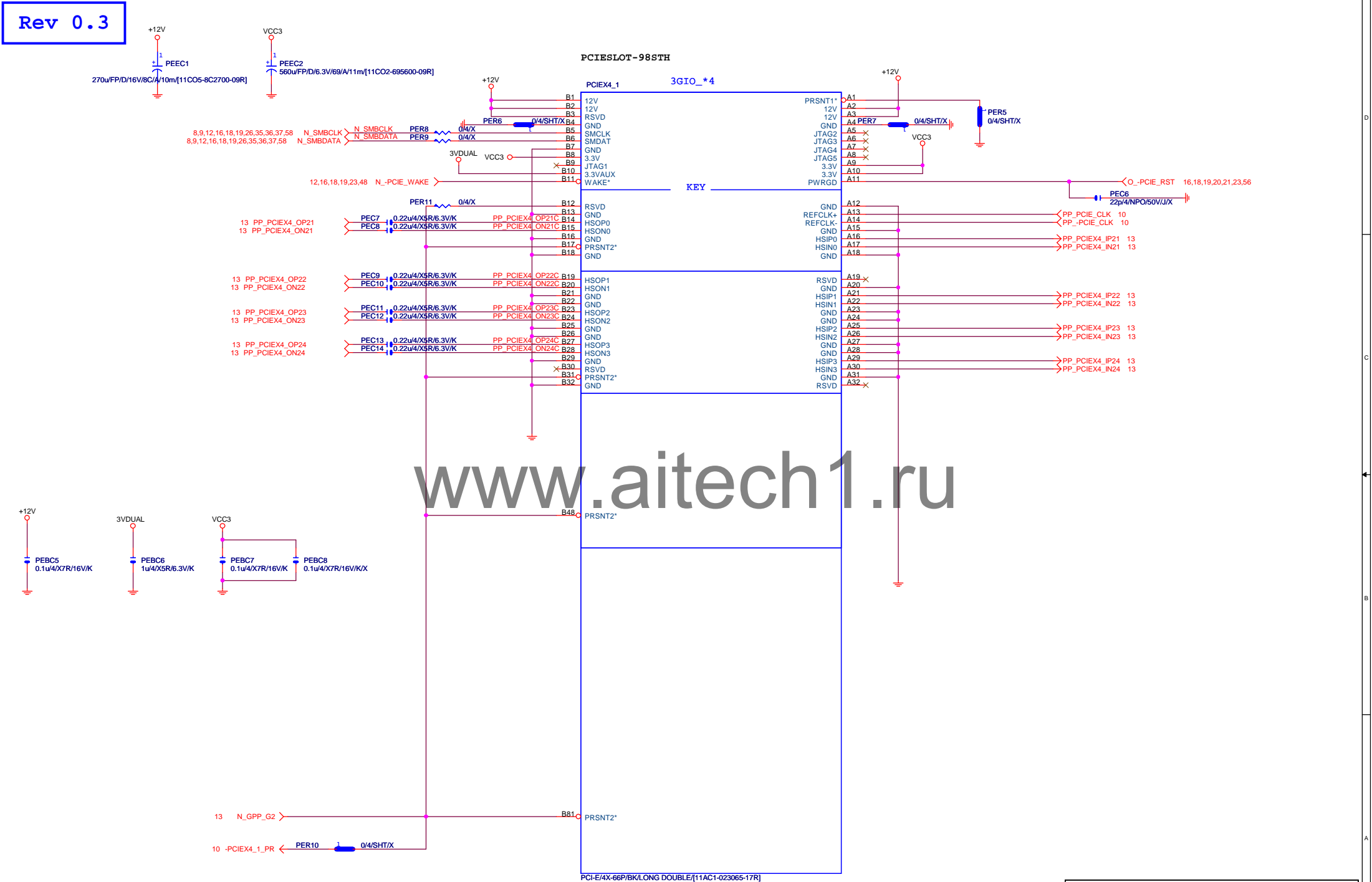


黑色金屬加強

Gigabyte Technology

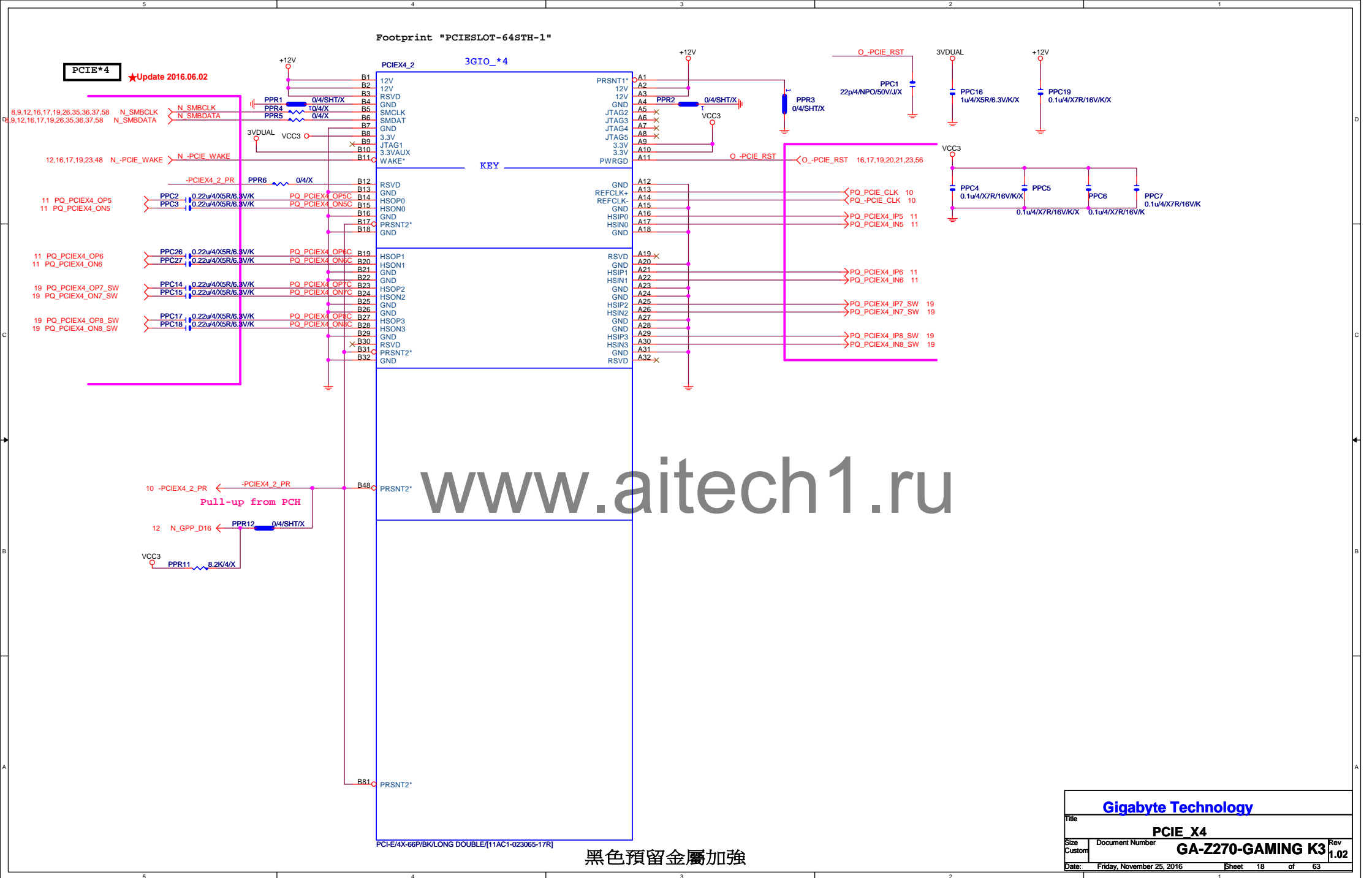
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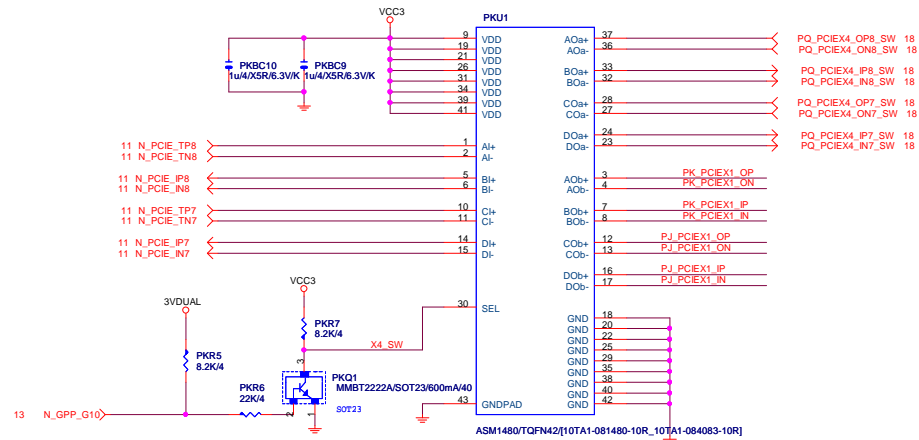


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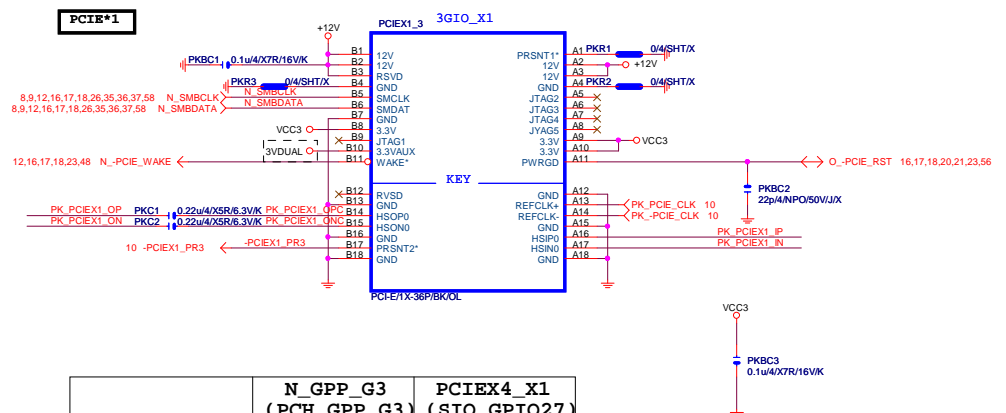
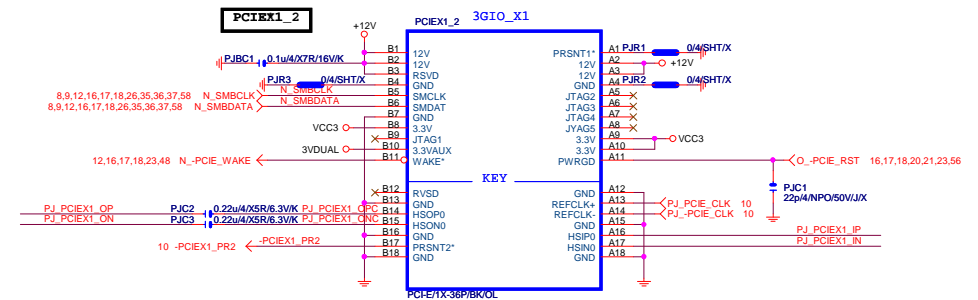
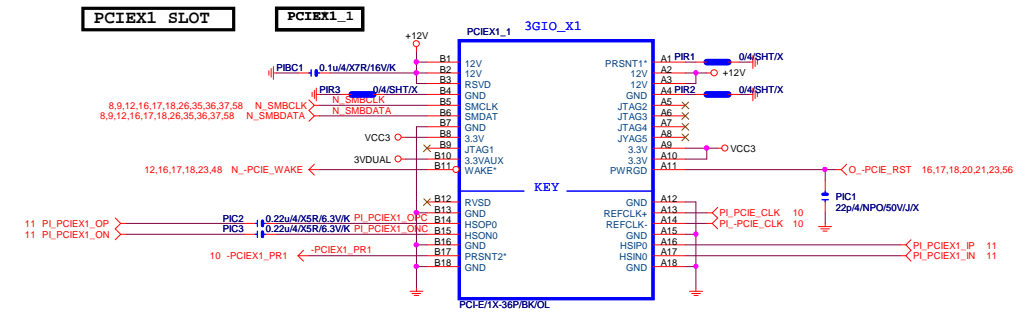
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PCI EXPRESS X4			
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Gigabyte Technology			
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Function	SEL
xI--> x0a	L;PCIEX4 SLOT-->X1
xI--> x0b	H;PCIEX4 SLOT-->X4



	N_GPP_G3 (PCH_GPP_G3)	PCIEX4_X1 (SIO_GPIO27)
PCIEX4 -> X4 M2_WIFI -> N/A PCIEX1 --> N/A (Default)	H	H
PCIEX4 -> X1 M2_WIFI -> X1 PCIEX1 --> X1	L	L

M.2 Lane4 from PCH port18



M.2 Lane3 from PCH port17



M.2 Lane2 from PCH port16

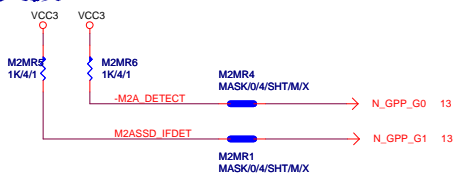


M.2 Lane2 from PCH port15



需與M2_-CLKREQ對應

支援SATA and M.2 function

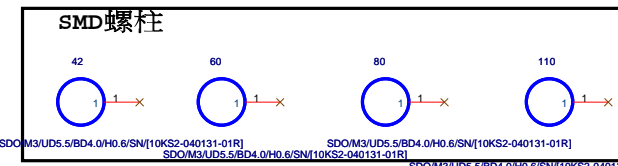
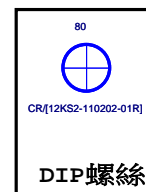
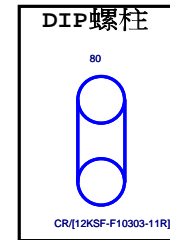
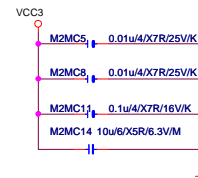
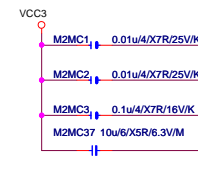
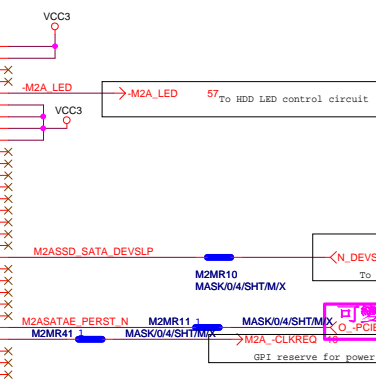
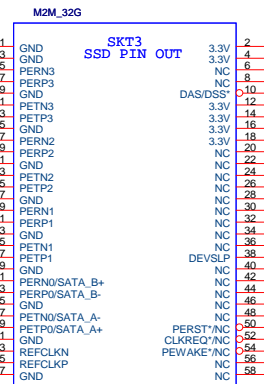
SATA : GND.
PCIE : NC

M2插卡時為Low

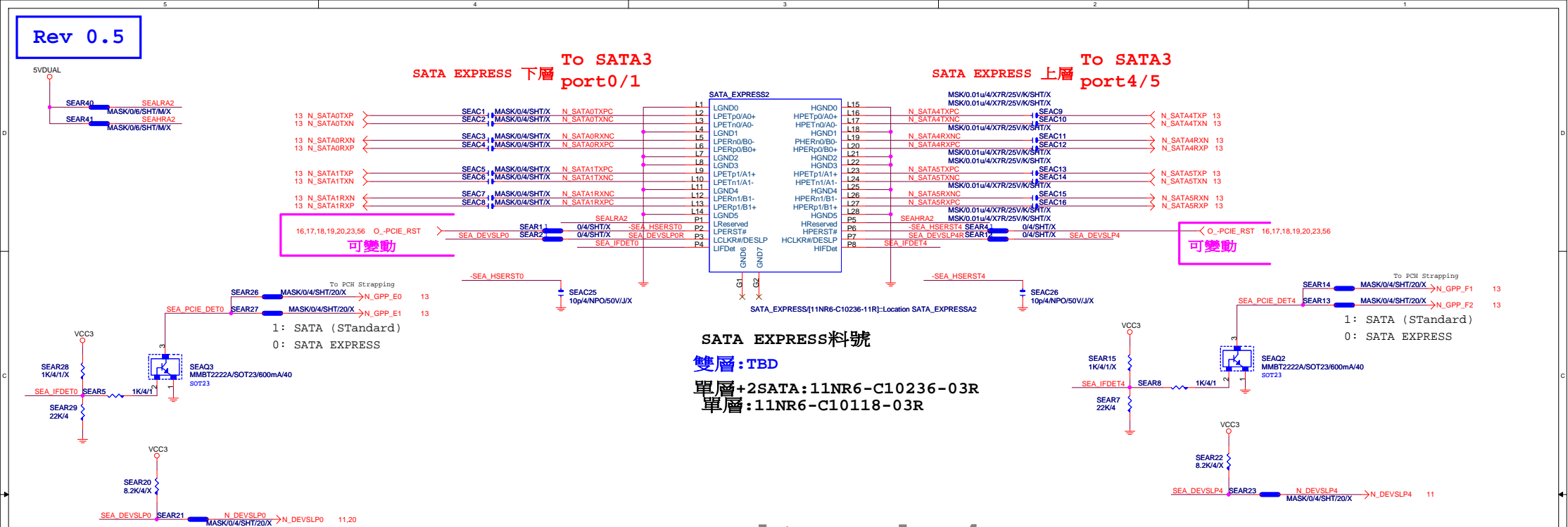
M2/67/BK/RA/SH8.5mm/M KEY(10NR5-130067-52R)

架高

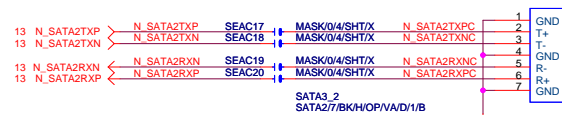
M.2 有插卡/ 沒插卡 GPP_G0	M.2插何種卡? GPP_G1	SATA Express 插何種硬碟? GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IO20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)		PCIE x4 (For M.2)			SATA	SATA
		SATA Express (Low)		PCIE x4 (For M.2)			SATA Express	
沒插卡 (Hi)	Don't Care (Hi)	SATA (Hi)		PCIE x4			SATA	SATA
		SATA Express (Low)		PCIE x4			SATA Express	



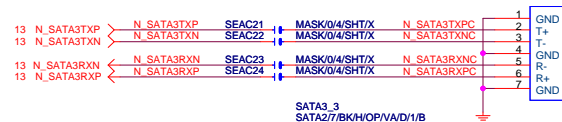
Rev 0.5



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BLACK CONNECTOR



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)

指定用DII

指定用DII

23 -SPL_HOLD_M ← -SPL_HOLD_M BSR16 1K/4/1
23 -SPL_HOLD_B ← -SPL_HOLD_B BSR17 1K/4/1

10 N_ICH_SPI_MISO ← N_ICH_SPI_MISO BSR18 8.2K/4
10 N_ICH_SPI_MISO ← N_ICH_SPI_MISO BSR19 22/4 SPI_MISO

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

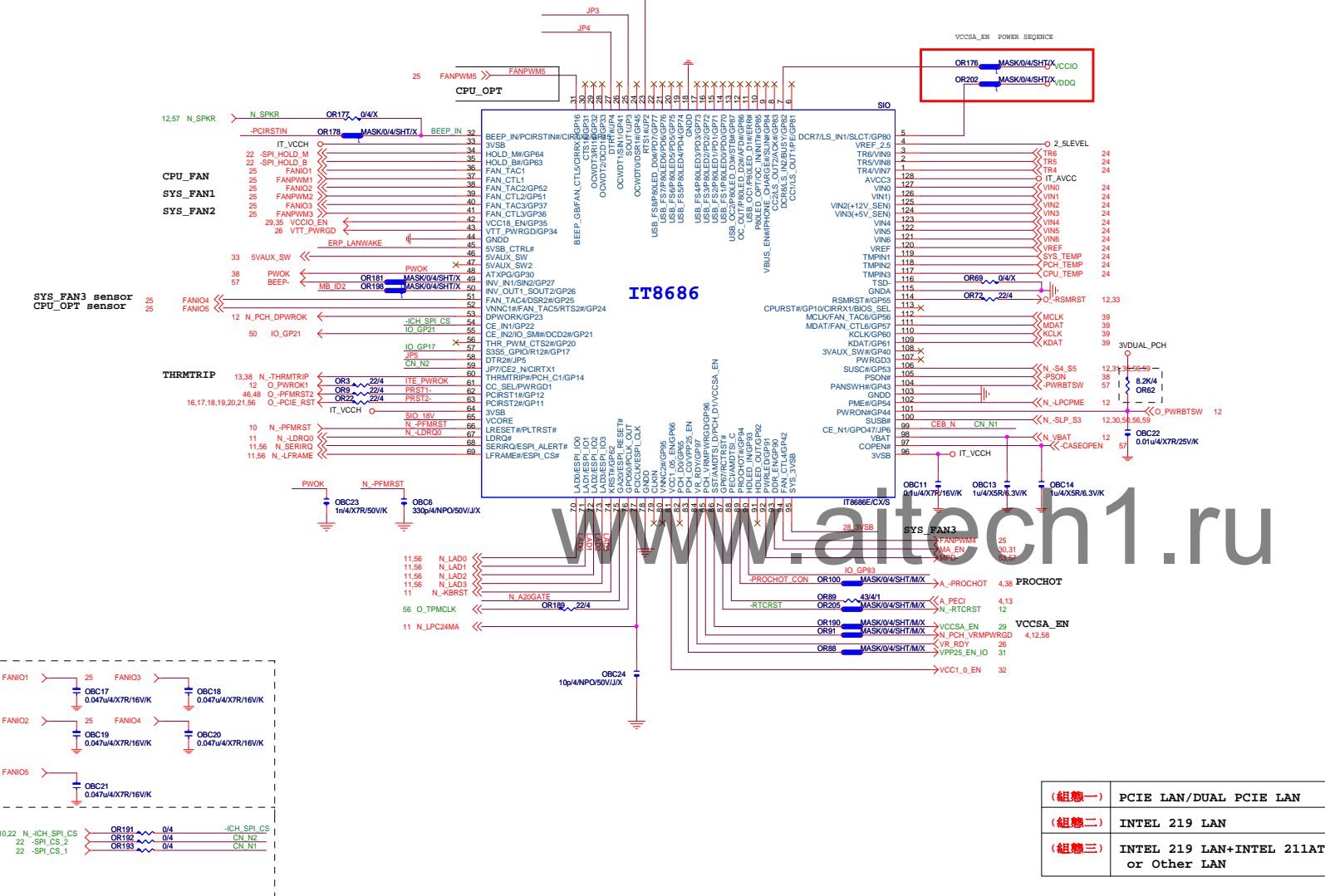
1 means floating
0 means PD 1K

* 試産先上 , PVT 移除

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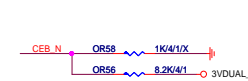
Gigabyte Technology

Title		BIOS
Size	Document Number	GA-Z270-GAMING K3
Custom		1.02
Date:	Friday, November 25, 2016	Sheet 22 of 63

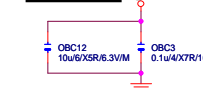


FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTrip	PIN56
PROCHOT	PIN89

DUAL BIOS OPT STRAP

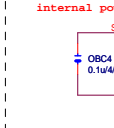


SIO CAP



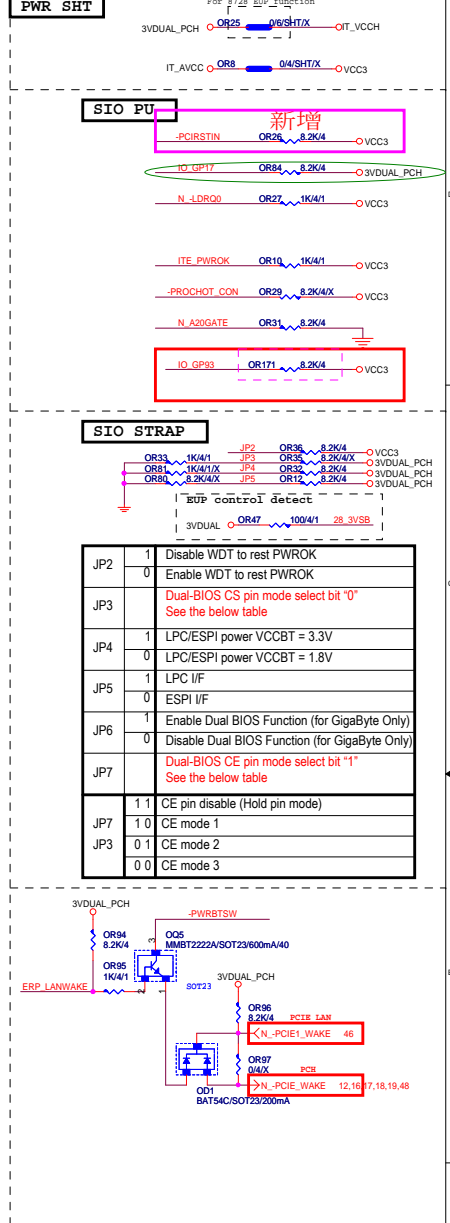
Placement CPU
4 A_THRMTRIP ← WR10 1K/4/1 N_THRMTRIP
CPU 端 A_THRMTRIP不可與PCH及SIO
N_THRMTRIP直接連接。
否則會出現無法拉LOW情況。

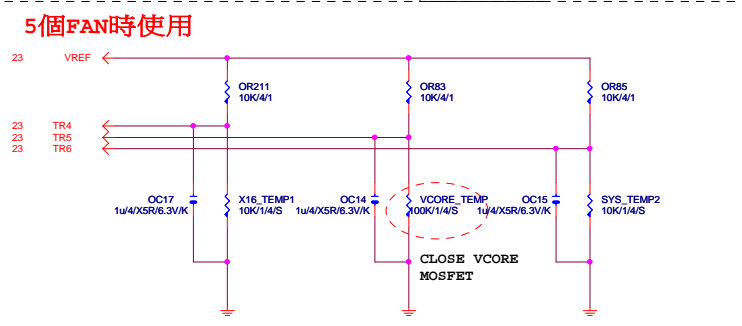
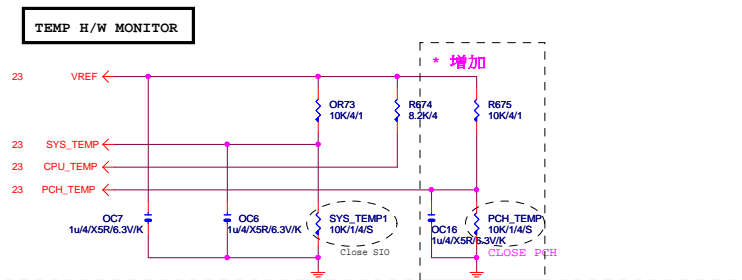
SIO_18V



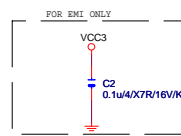
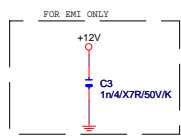
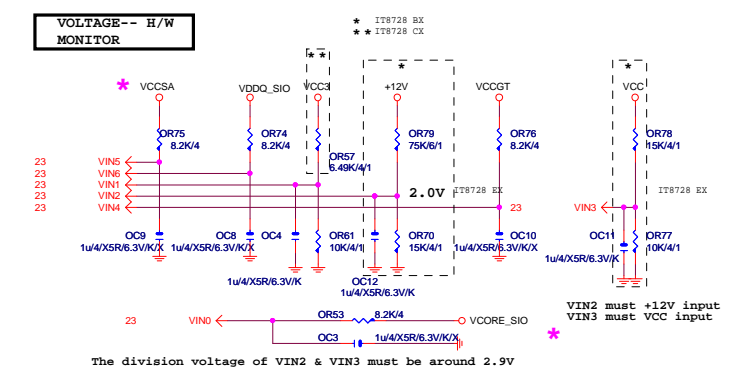
(組態一)	PCIE LAN/DUAL PCIE LAN
(組態二)	INTEL 219 LAN
(組態三)	INTEL 219 LAN+INTEL 211AT or Other LAN

for LPC/eSPI power mode



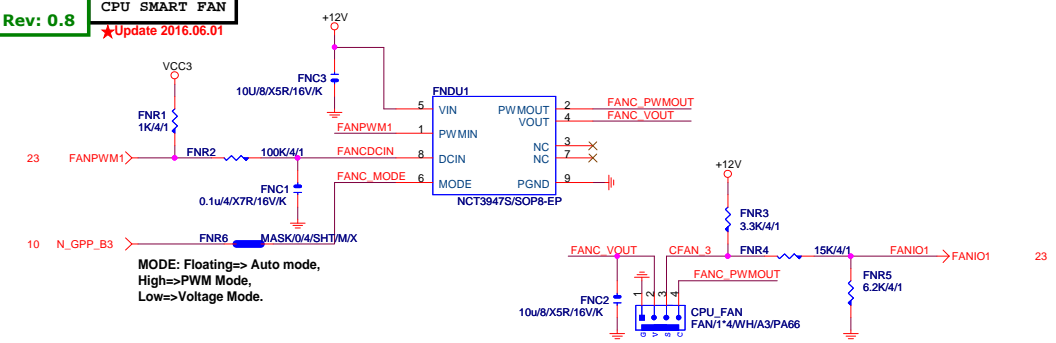


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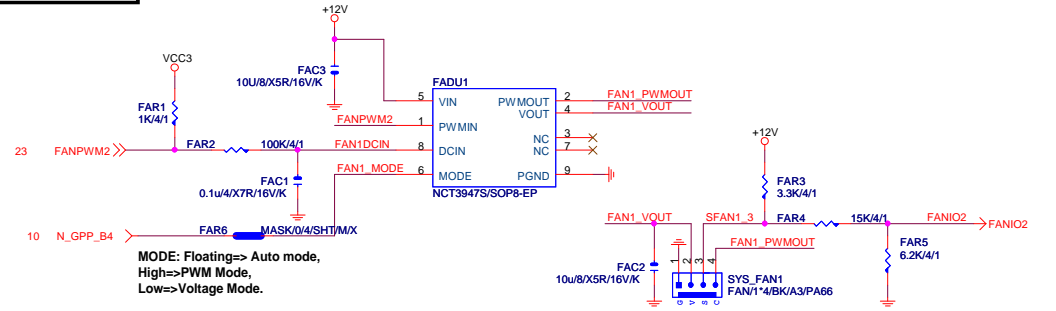


★Update 2015-04-24

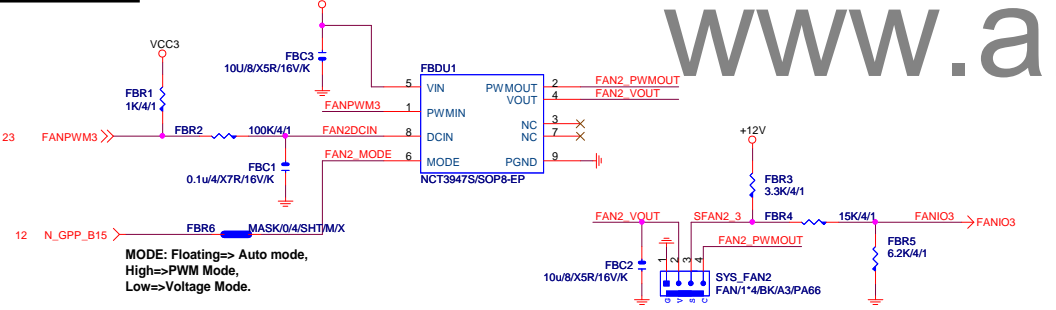
Gigabyte Technology			
Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
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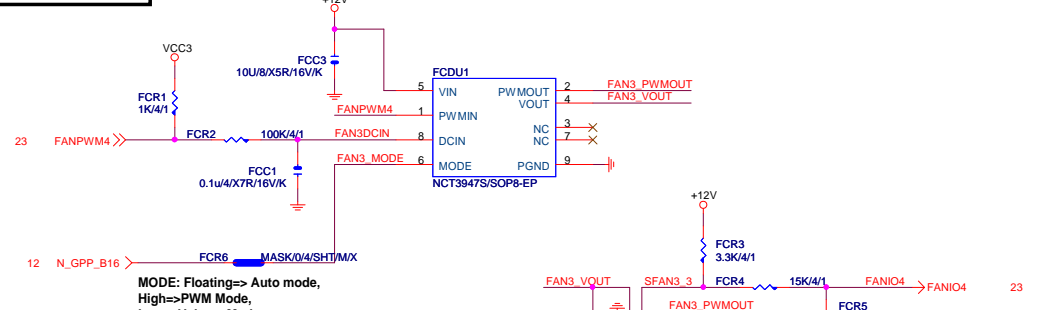
SYSTEM FAN1



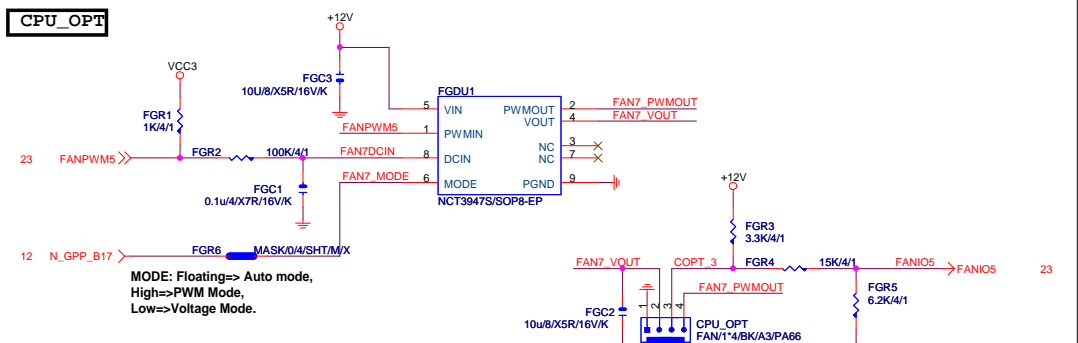
SYSTEM FAN2



SYSTEM FAN3



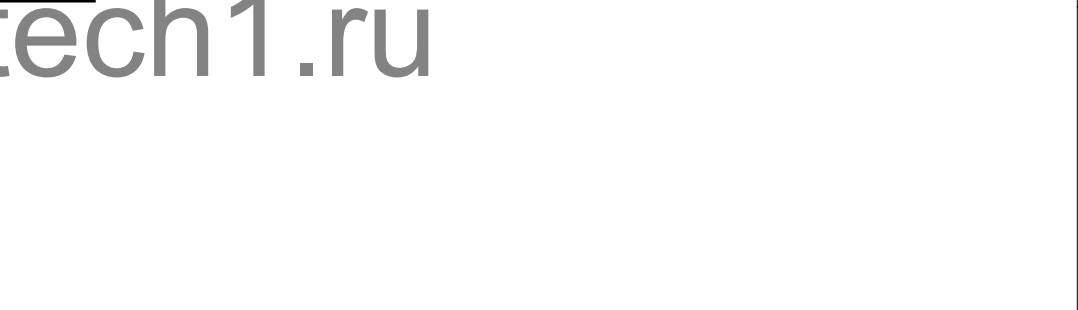
CPU_OPT



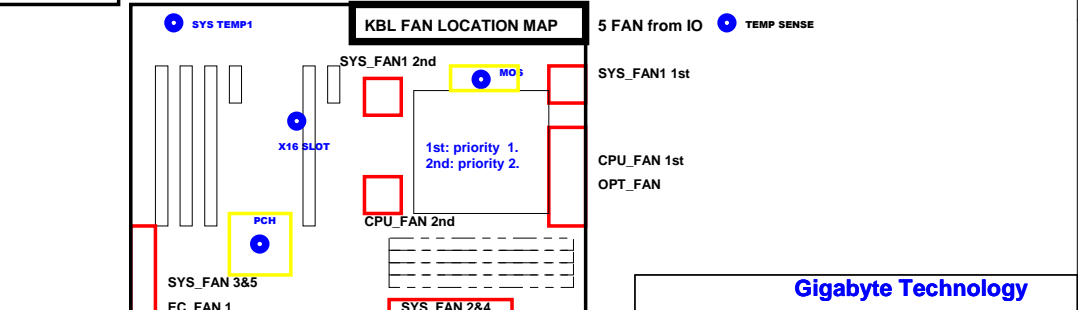
CPU_PUMP1



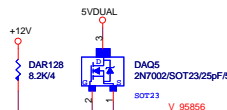
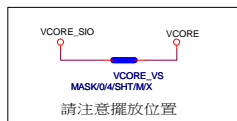
CPU_PUMP2



SYSTEM_FAN4



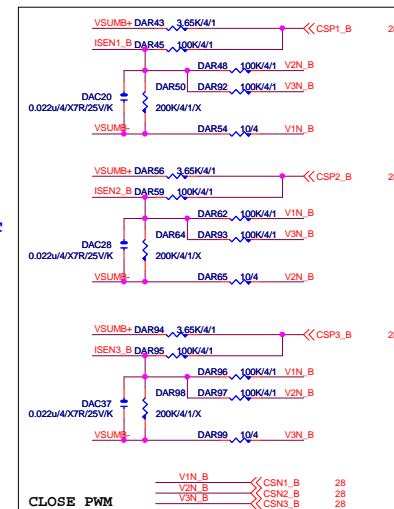
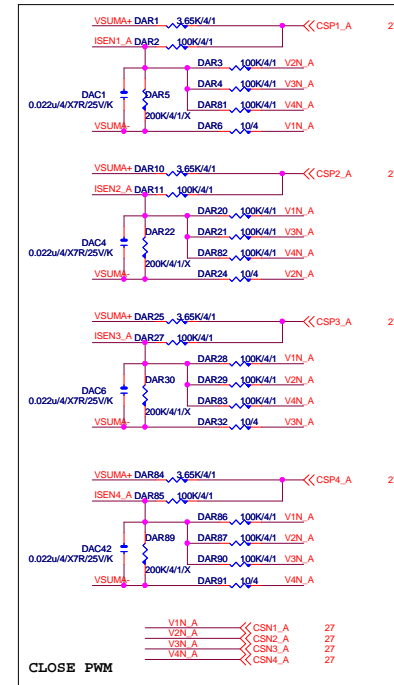
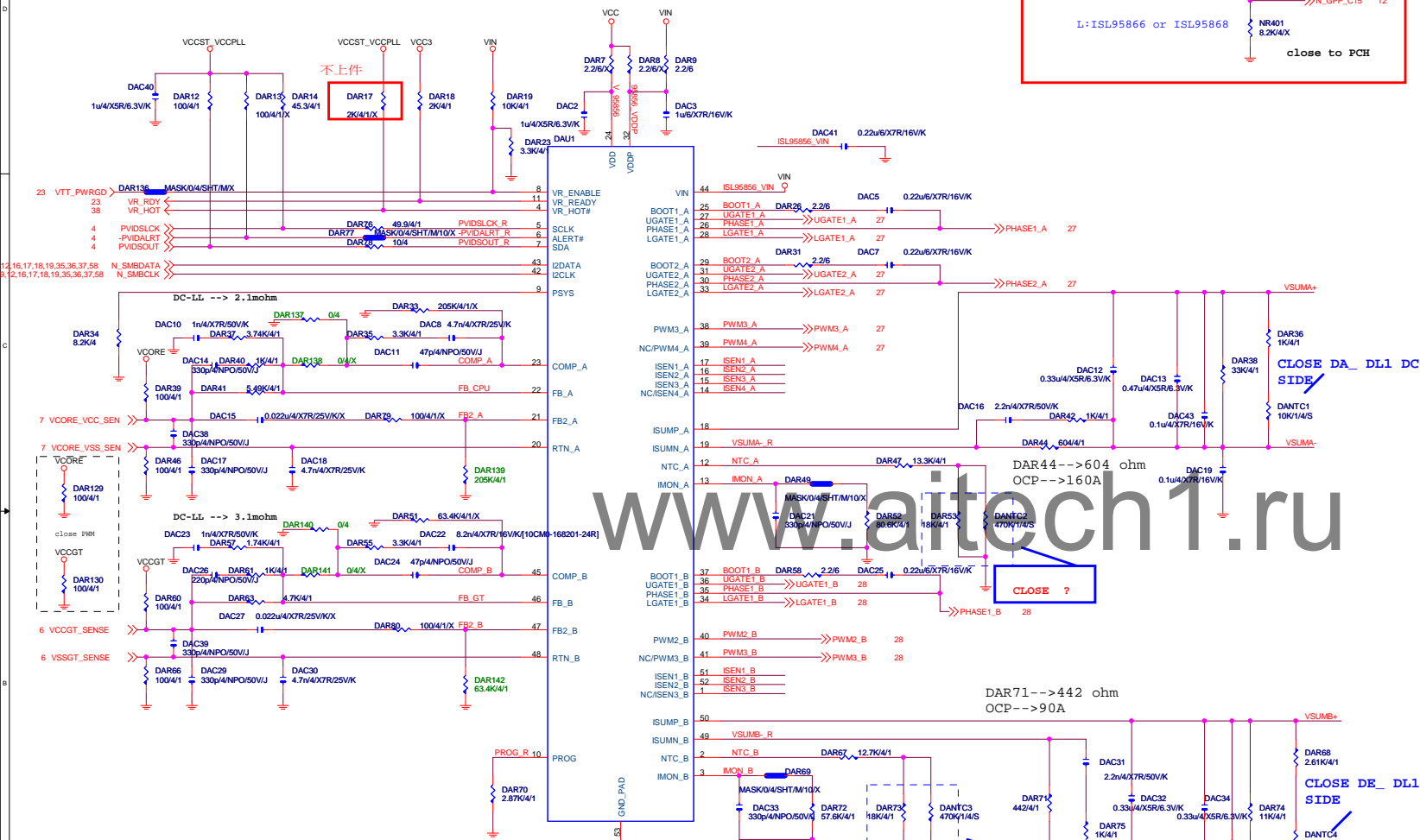
KBL FAN LOCATION MAP REFER TO PAGE.27



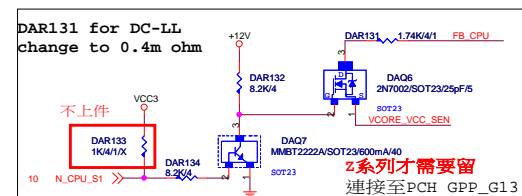
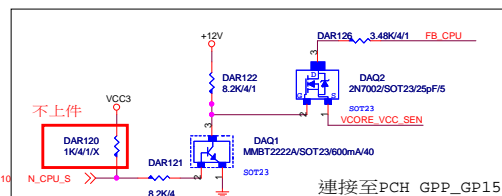
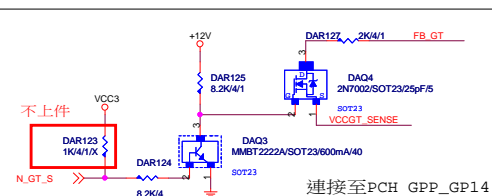
H:ISL95856 or ISL95858

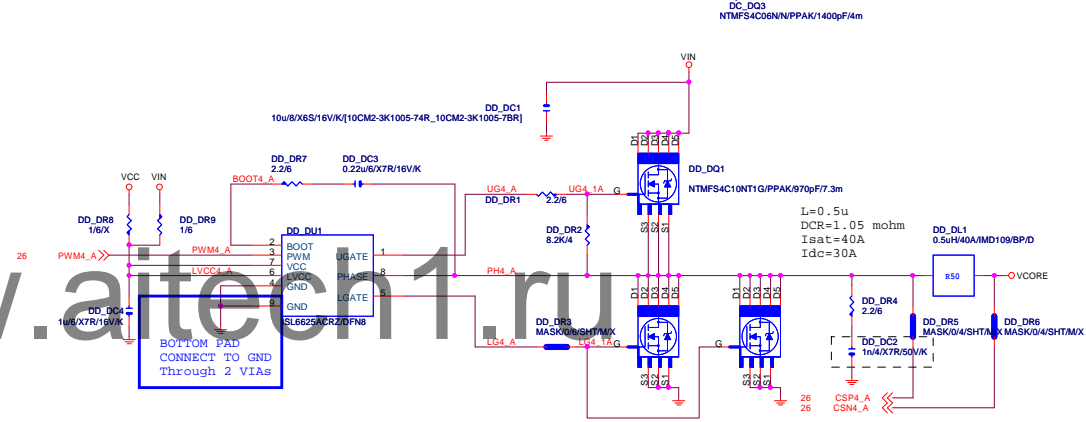
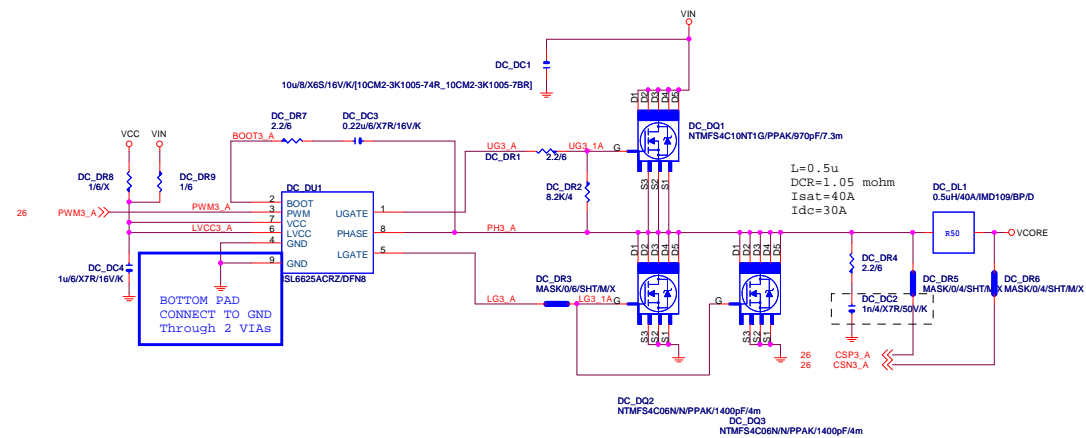
L:ISL95866 or ISL95868

close to PCH



Vcore	ISL95856	ISL95866	Vccgt	ISL95856	ISL95866
DAR137	X	V	DAR140	X	V
DAR138	V	X	DAR141	V	X
DAR139	X	V	DAR142	X	V
DAC15	V	X	DAC27	V	X
DAR79	V	X	DAR80	V	X
DAR33	V	X	DAR51	V	X



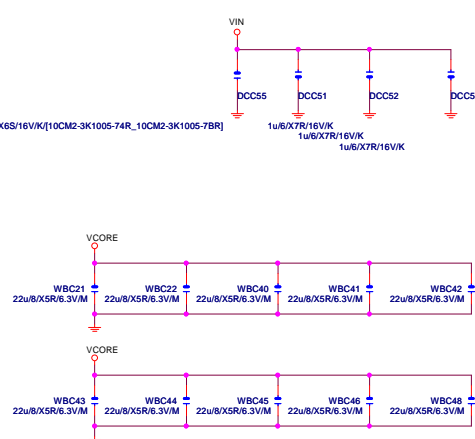
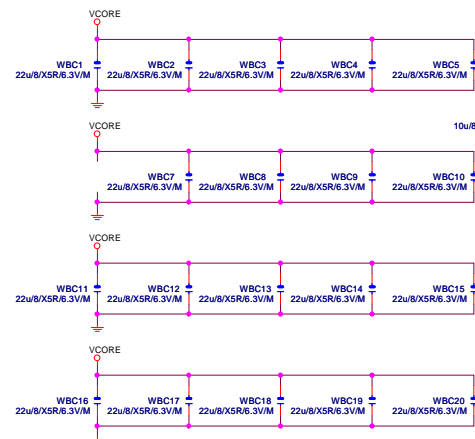


Vcore

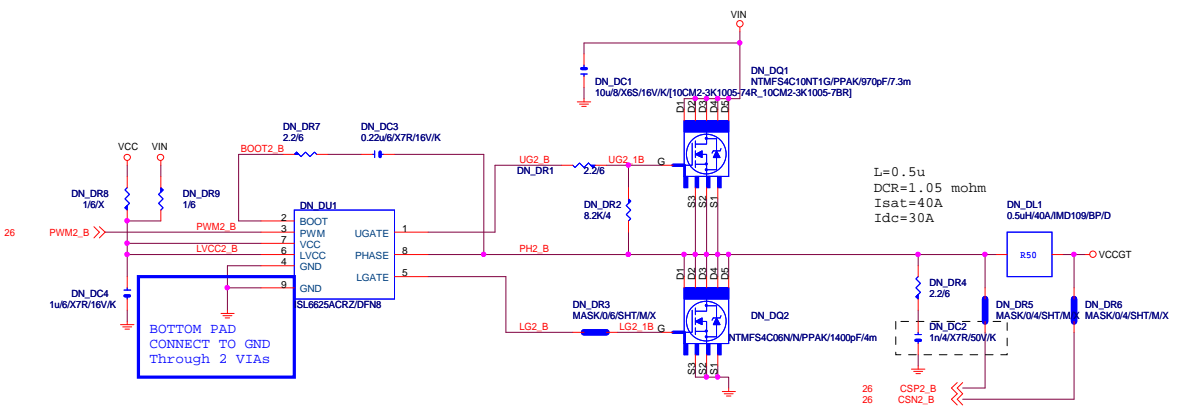
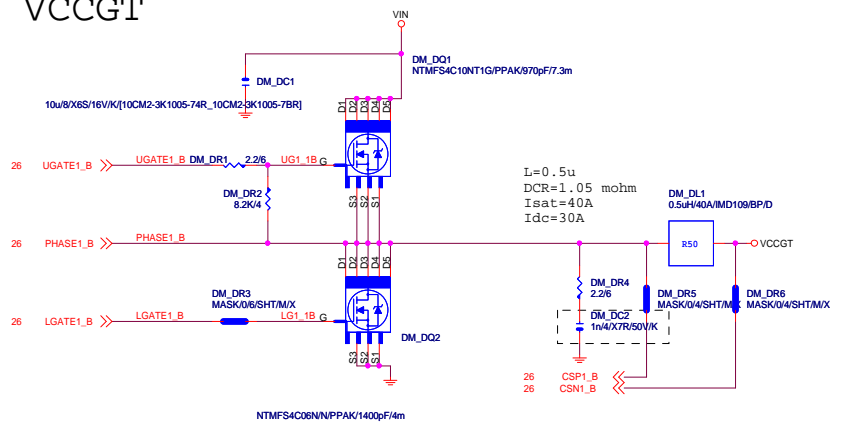
1 1 1 1 1 1

DAEC1 DAEC2 DAEC3 DAEC4 DAEC5 DAEC6

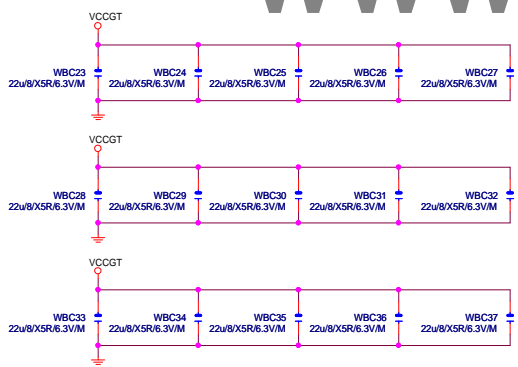
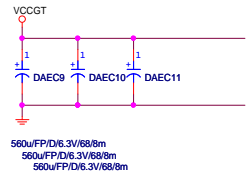
560uF/3V/688mF
560uF/3V/688mF
560uF/3V/688mF
560uF/3V/688mF
560uF/3V/688mF
560uF/3V/688mF

[illegible]

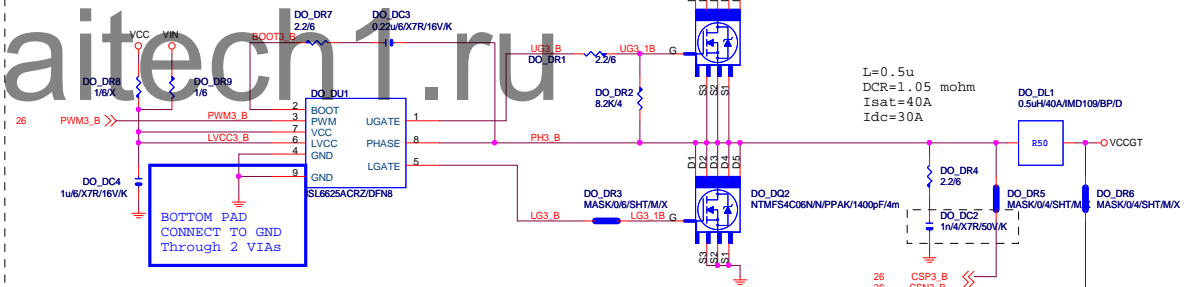
VCCGT



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

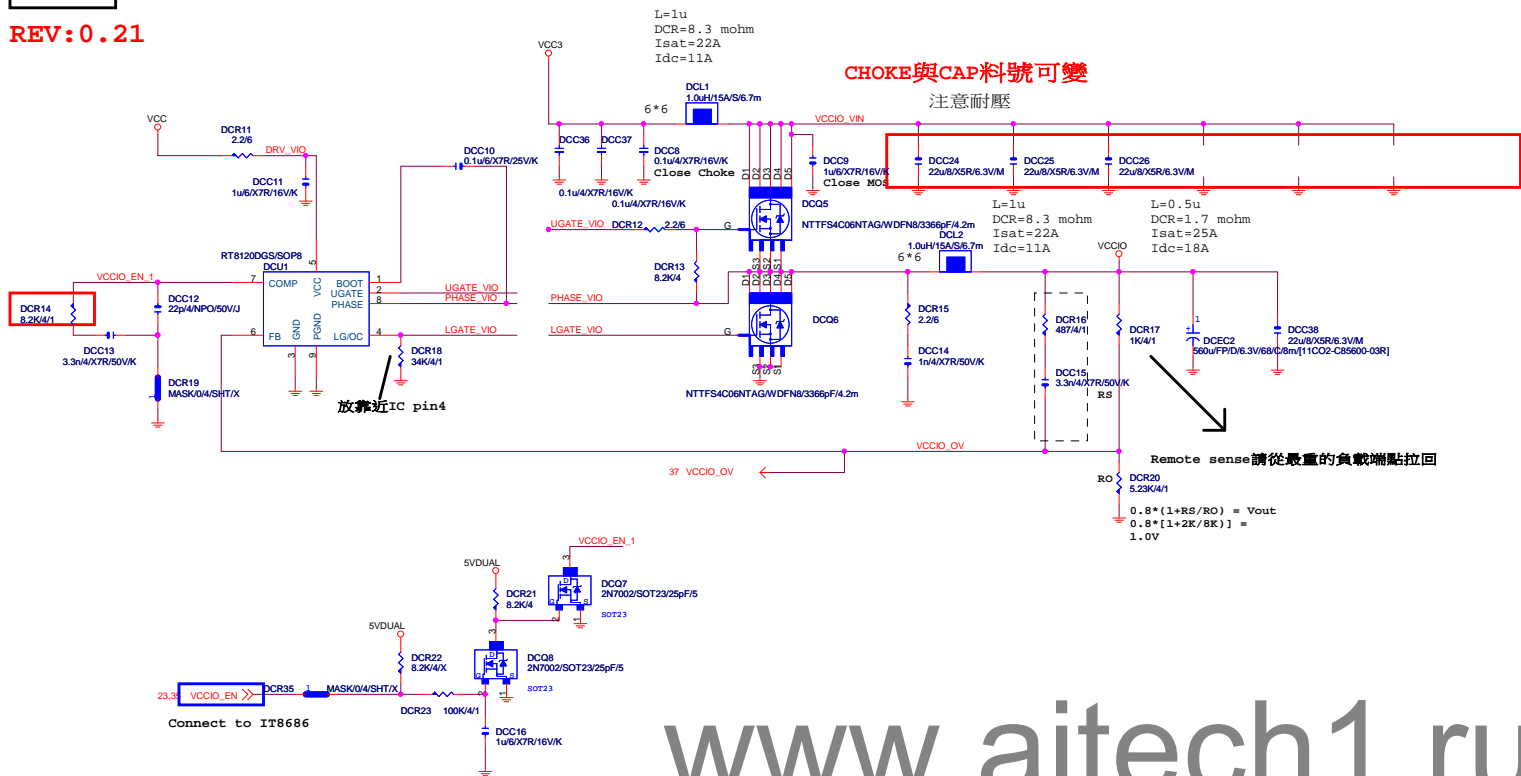


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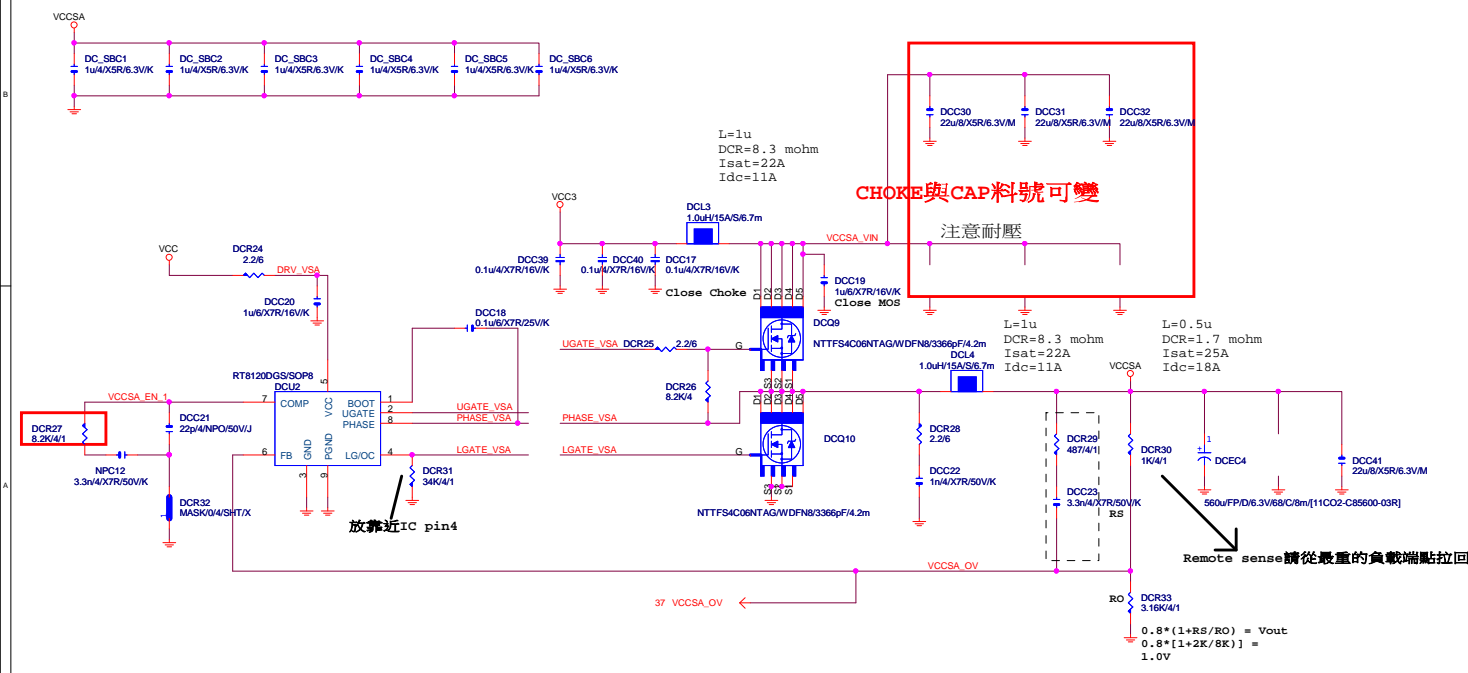


GIGABYTE™			
Title	ISL95866_MOS		
Size	Document Number	Rev	
Custkm	GA-Z770-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	28 of 63

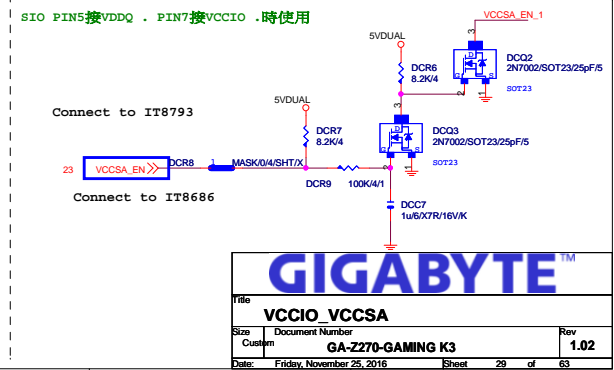
REV: 0.21



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SIO PIN5 . PIN7 用在其他function時使用



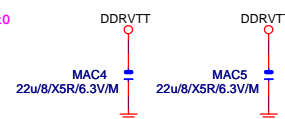
DDR4



DDRVTT



DDRVTT CAP



GIGABYTE

RT8120_DDR4 POWER

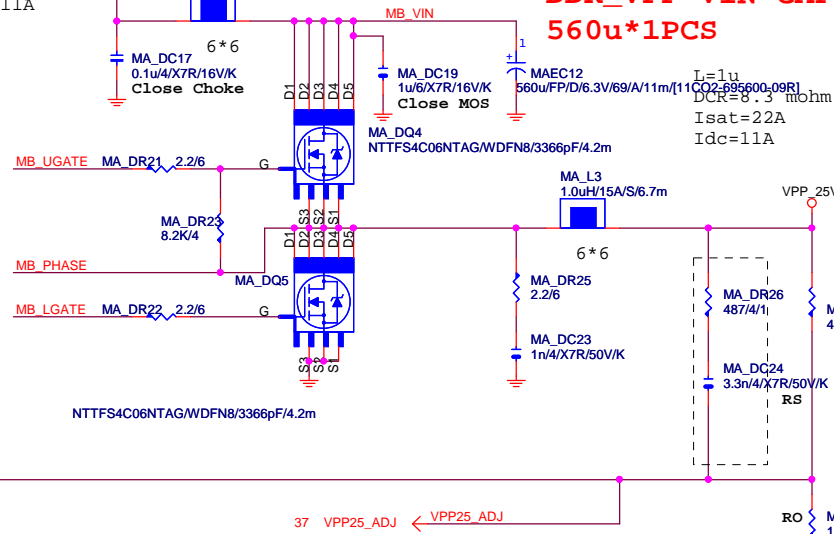
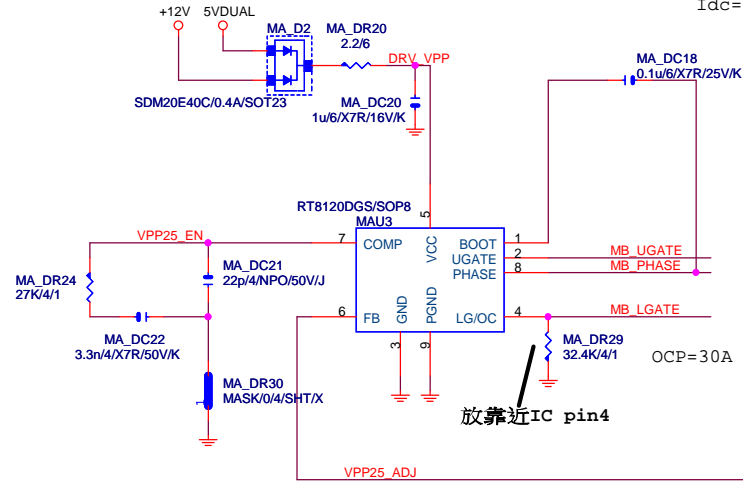
Size Custom	Document Number GA-Z270-GAMING K3	Rev 1.02
Date: Friday, November 25, 2016	Sheet 30 of 63	

REV:0.1

VPP_25V

CHOKE與CAP料號可變

$L=1\mu$
 $DCR=8.3\text{ m}\Omega$
 $I_{sat}=22A$
 $I_{dc}=11A$



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

DDR_VPP VIN CAP
 560u*1PCS

$L=1\mu$
 $DCR=8.3\text{ m}\Omega$
 $I_{sat}=22A$
 $I_{dc}=11A$

SUPPORT DDR4 2.5V

25A MAX

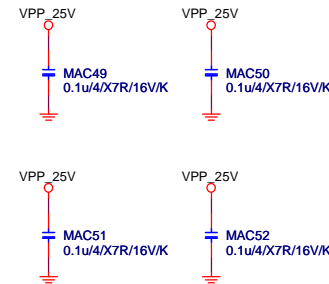
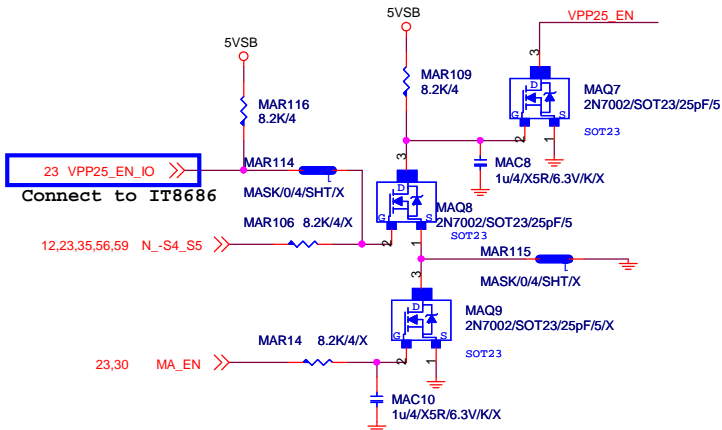
請放置CHOKE一出來位置. 先預留.
 請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

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PWR_SEQ

* 刪 MA_DR32

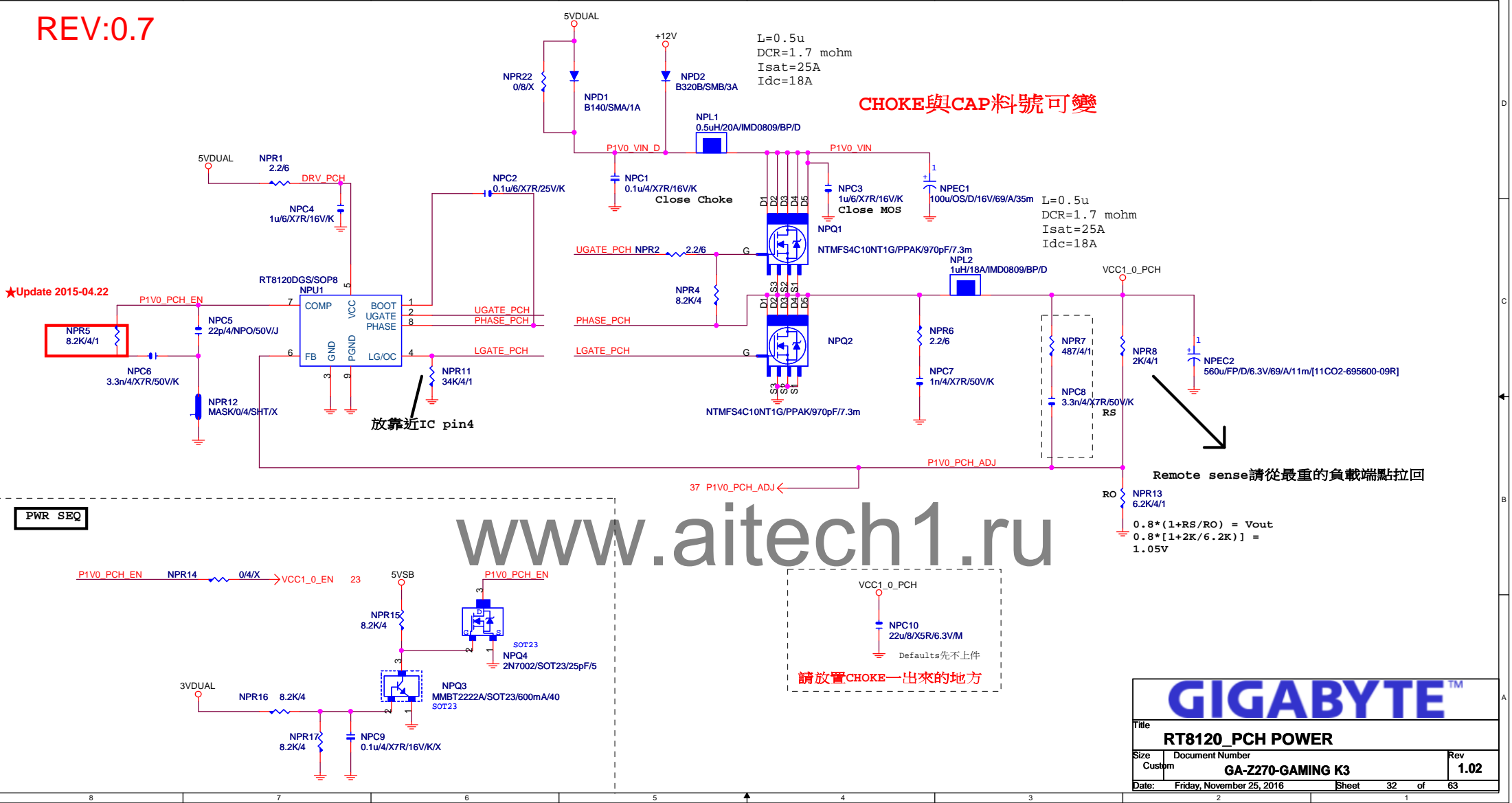


VPP CAP 560u*1PCS



GIGABYTE™			
Title RT8120_VPP25 POWER			
Size Custom	Document Number GA-Z270-GAMING K3	Rev 1.02	
Date: Friday, November 25, 2016	Sheet 31	of 63	

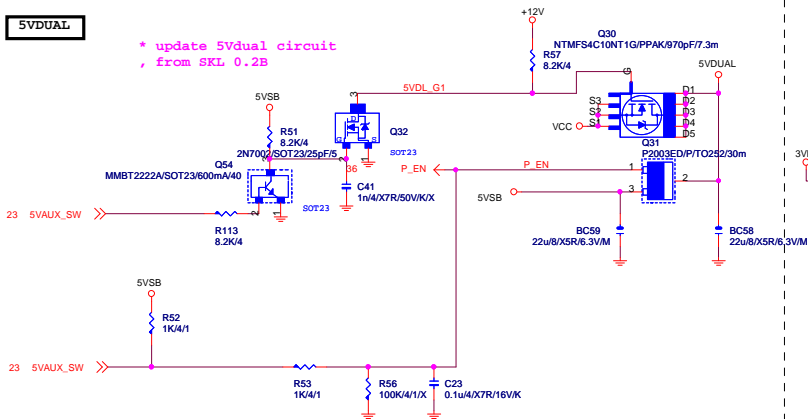
REV:0.7



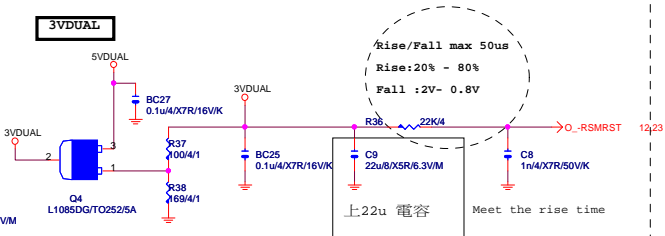
GIGABYTE™			
Title			
RT8120_PCH POWER			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	32 of 63

5VDUAL

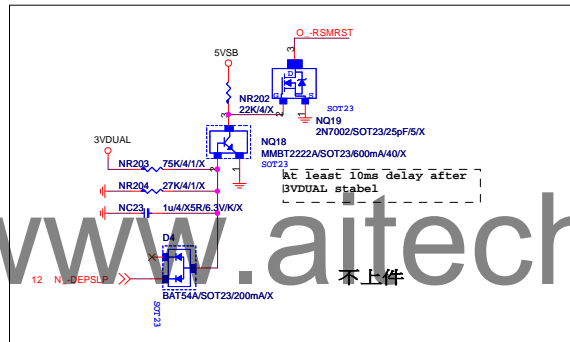
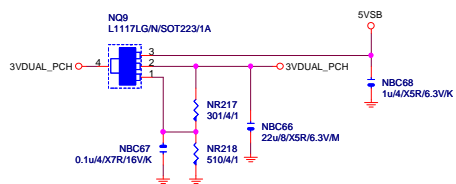
* update 5Vdual circuit
from SKL 0.2B



3VDUAL



3VDUAL_PCH



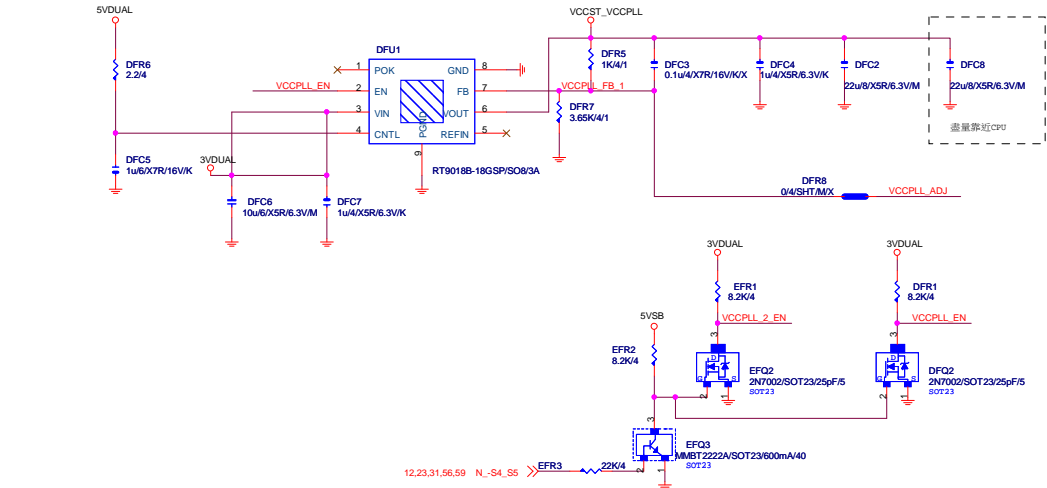
Gigabyte Technology

Title			DISCRETE POWER
Size	Document Number	GA-Z270-GAMING K3	Rev
Custom			1.02
Date:	Friday, November 25, 2016	Sheet	33 of 63

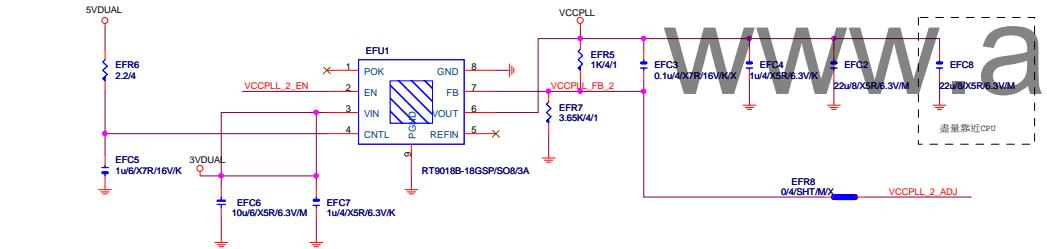
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GIGABYTE			
Title			
PCH PWR-VCC18_PCH			
Size	Document Number		Rev
A	GA-Z270-GAMING K3		1.02
Date:	Friday, November 25, 2016	Sheet	34 of 63

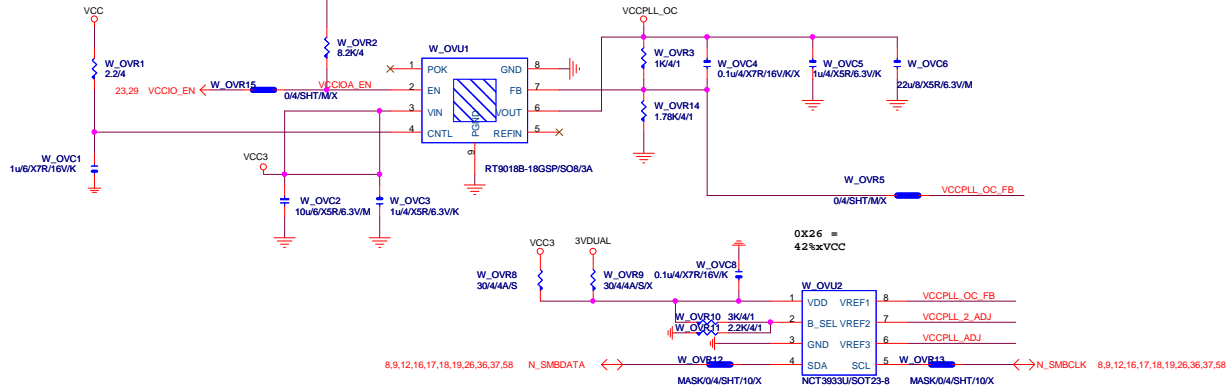
VCCST_VCCPLL 替換原先MOS開關線路



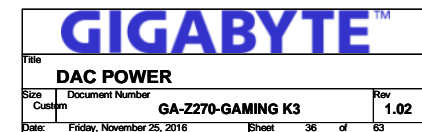
VCCPLL



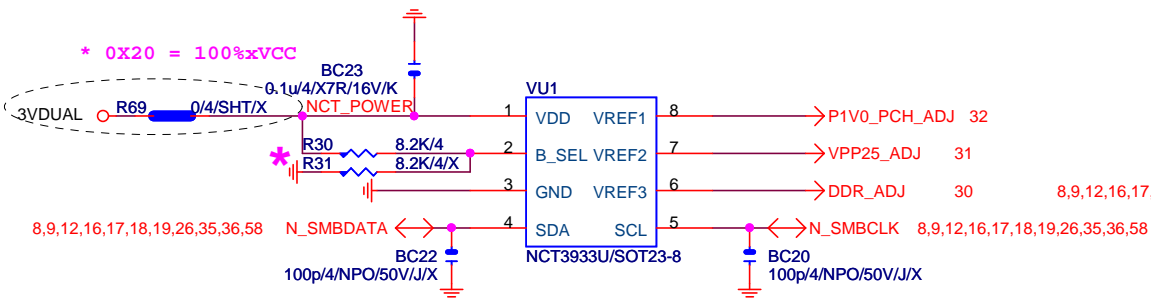
VCCPLL_OC



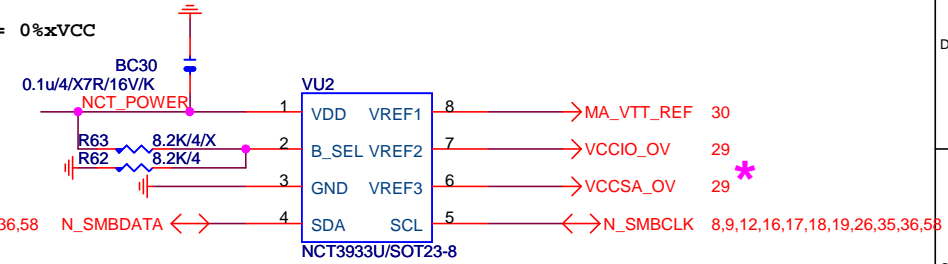
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OVER VOLTAGE



0X2A = 0%xVCC



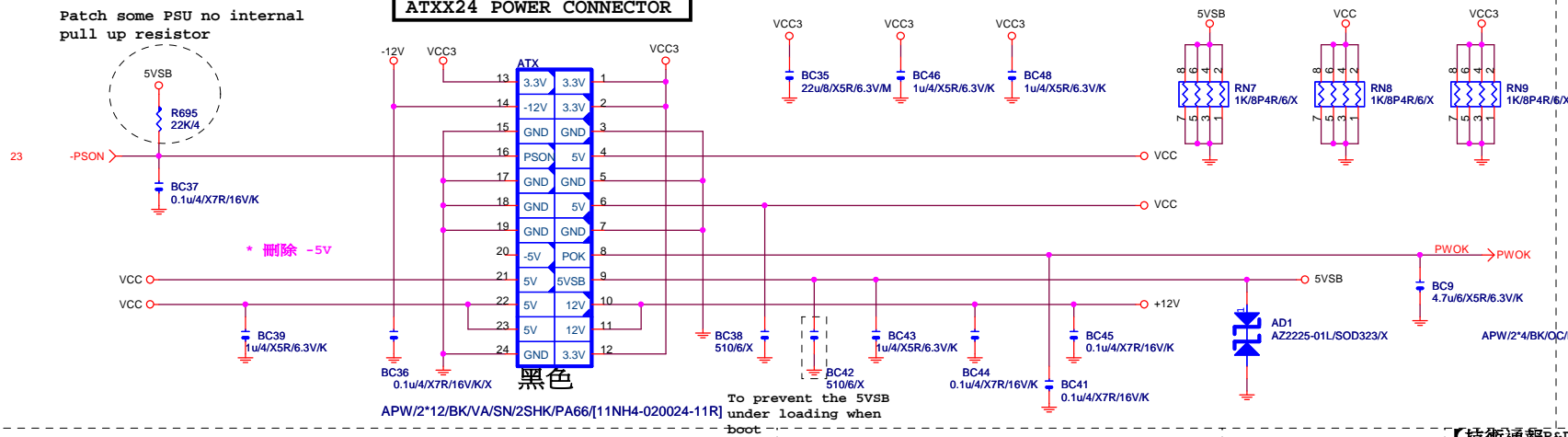
0X22 = 75%xVCC

* 删除 ovu3

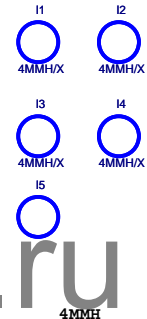
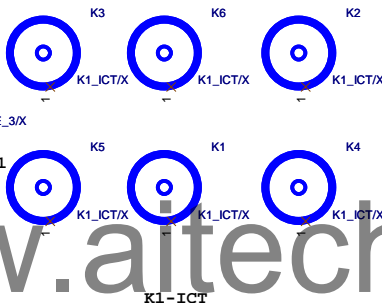
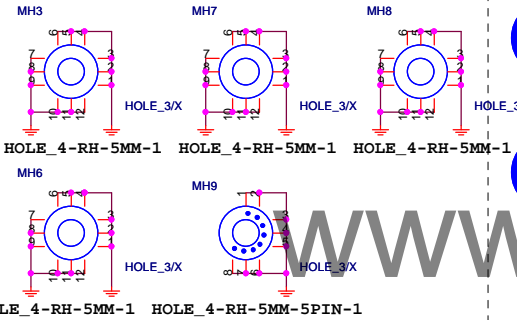
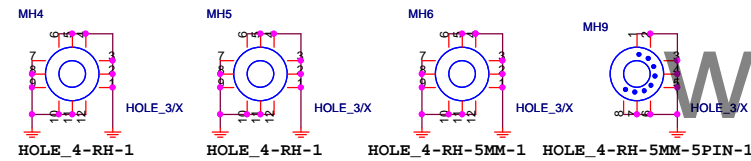
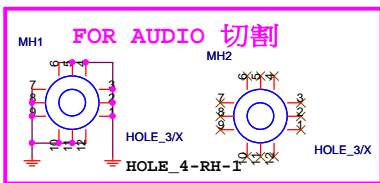
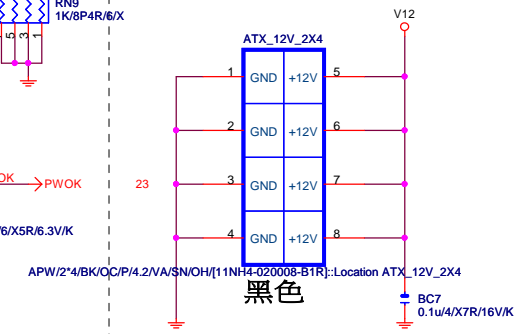
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology		
CPU CORE VR		
Title	Document Number	Rev
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Size Custom	Date: Friday, November 25, 2016	Sheet 37 of 63

ATXX24 POWER CONNECTOR

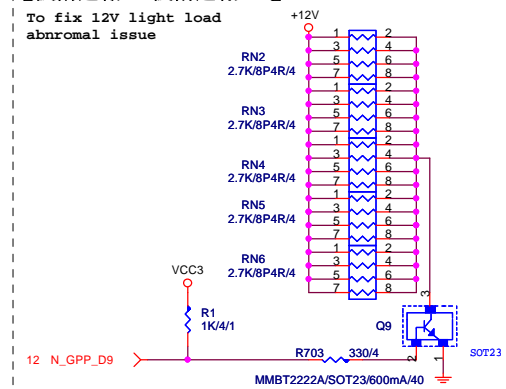


ATXX4 POWER CONNECTOR



【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



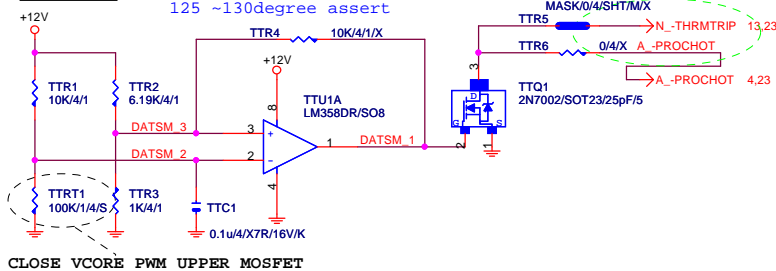
-PROHOT * 保留 ?

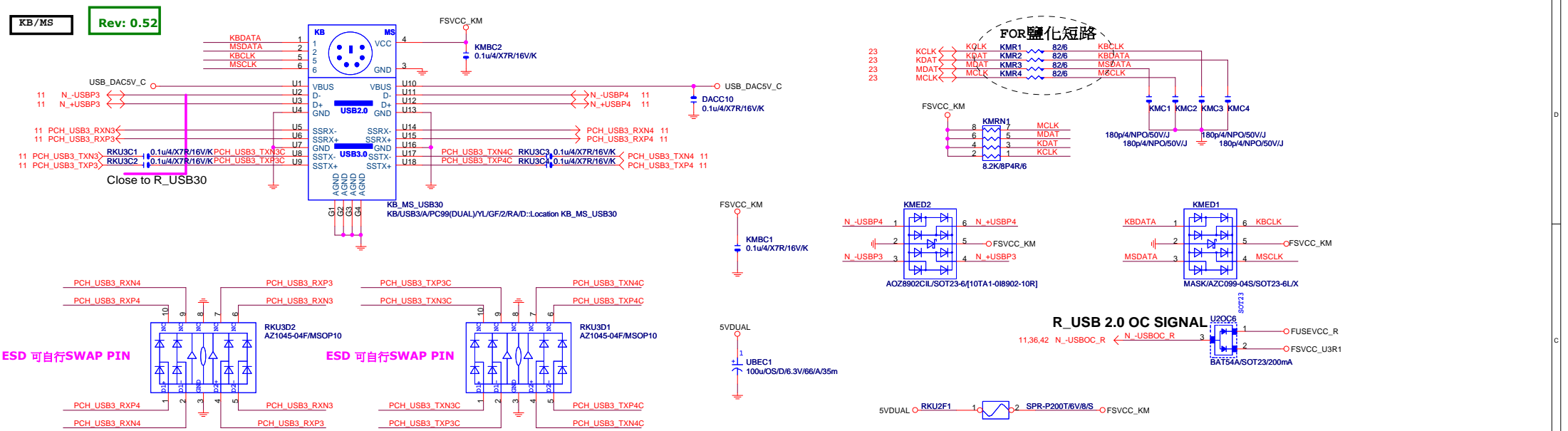
4.23 A_PROCHOT <-> A_PROCHOT R2 0/4/SHT/X >-> VR_HOT 26

-PROHOT

OTP:130度 / PCB THERMAL TRIP:128 度

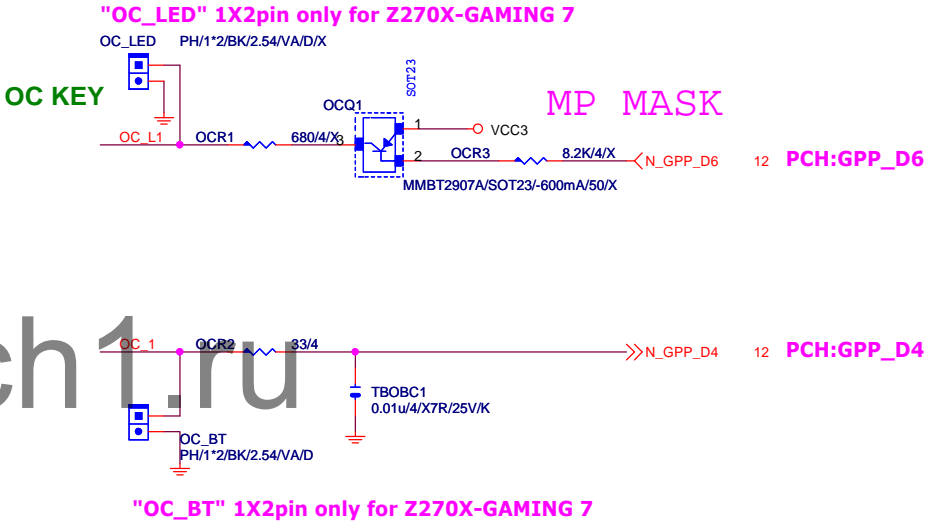
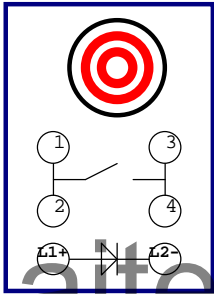
125 ~130degree assert





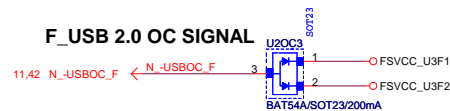
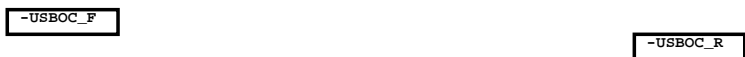
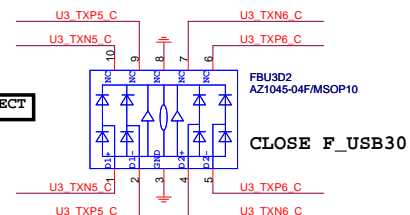
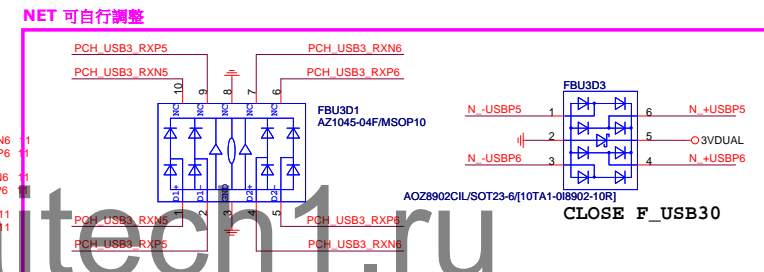
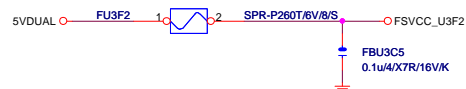
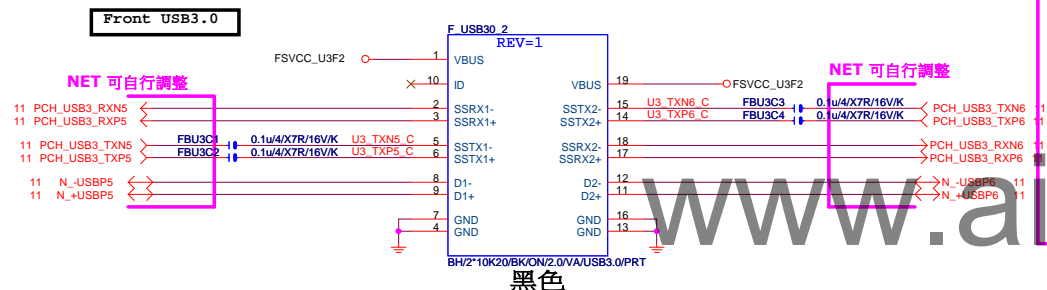
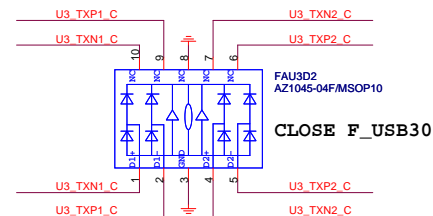
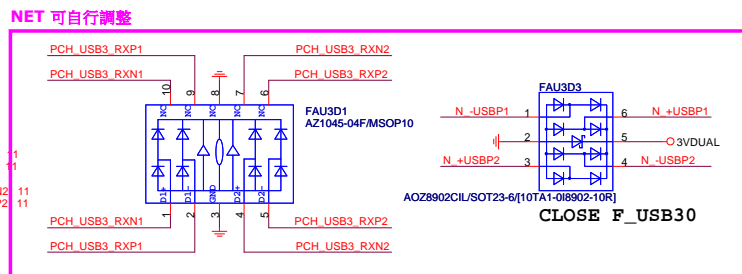
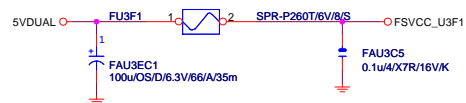
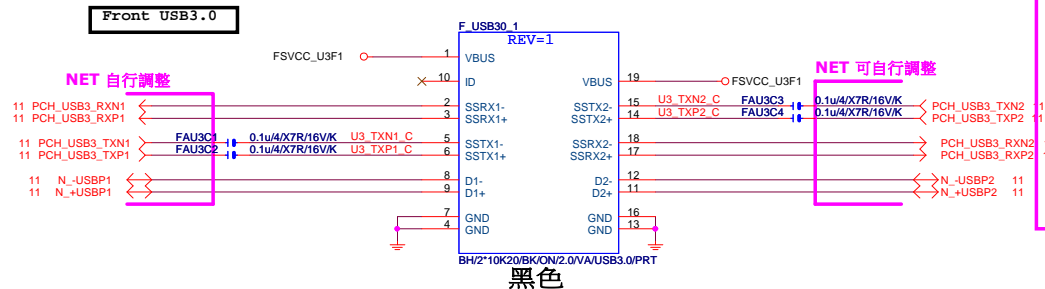
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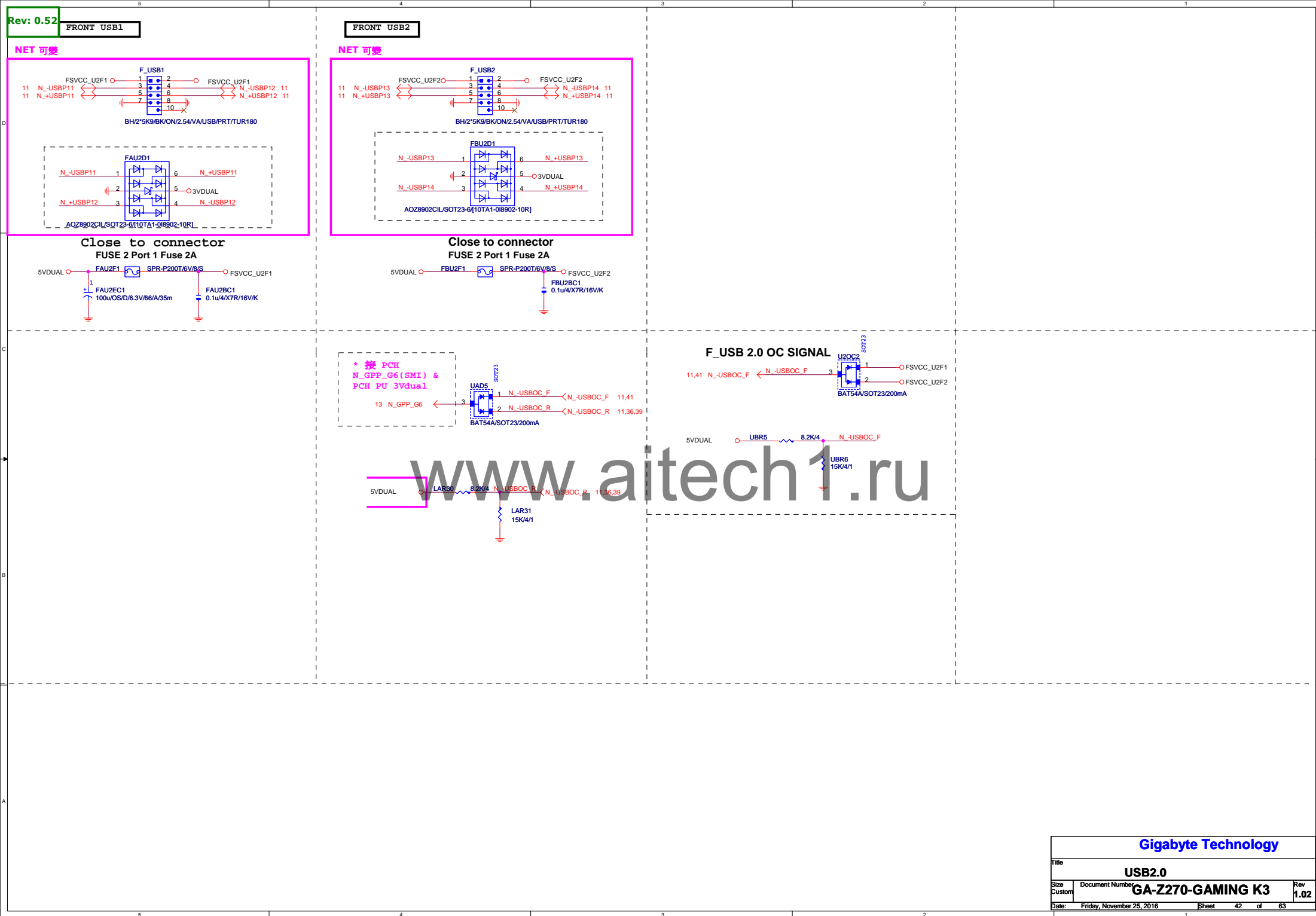
Gigabyte Technology			
Title			
KB_MS_USB			
Size	Document Number	Rev	
Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	39 of 63



Gigabyte Technology			
Title			
OC BUTTON			
Size	Document Number		Rev
Custom	GA-Z270-GAMING K3		1.02
Date:	Friday, November 25, 2016		Sheet 40 of 63

Rev: 0.52

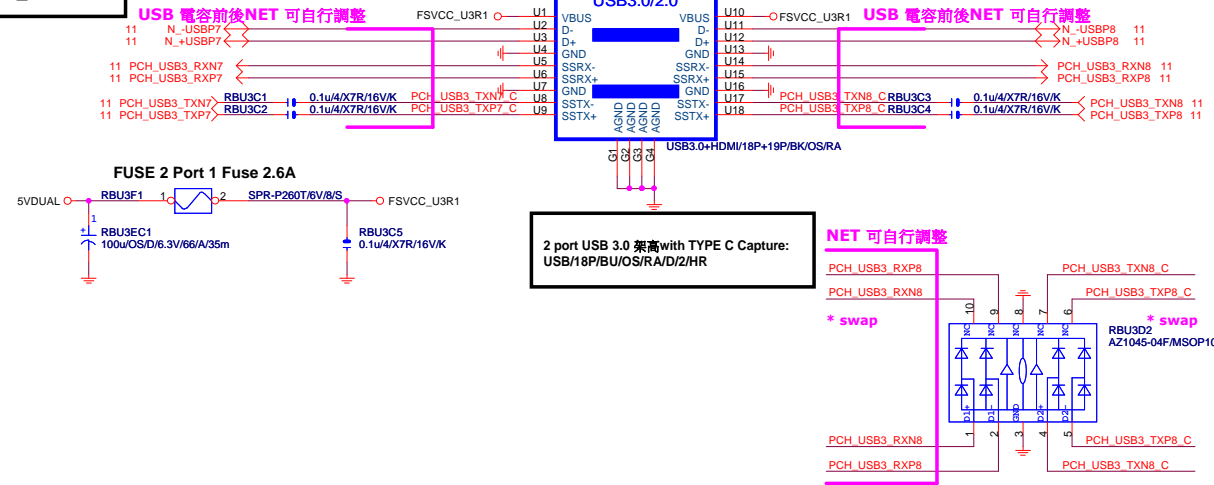




Gigabyte Technology

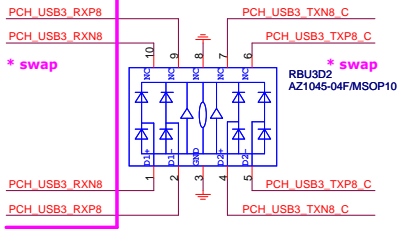
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Size	Document Number	GA-Z270-GAMING K3		Rev
Custom				1.02
Date:	Friday, November 25, 2016	Sheet	42	of 63

R_USB30

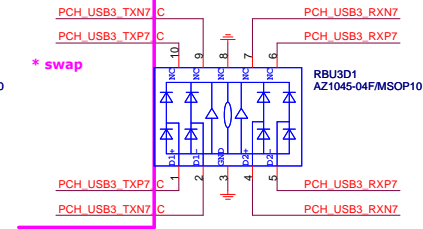


2 port USB 3.0 架構with TYPE C Capture:
USB/18P/BU/OS/RA/D/2/HR

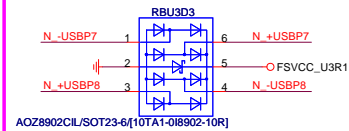
NET 可自行調整



NET 可自行調整

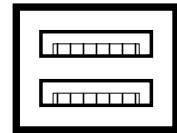


ESD 可自行SWAP PIN



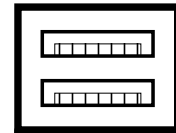
CONNECTOR 自行調整

2 port USB 3.0 Capture:



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

2 port USB 3.0 with TYPE C Capture:



USB/18P/BU/OS/RA/D/2/HR

Gigabyte Technology

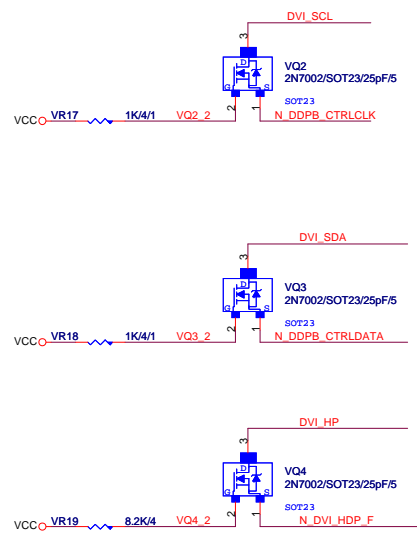
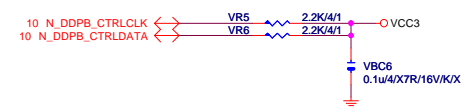
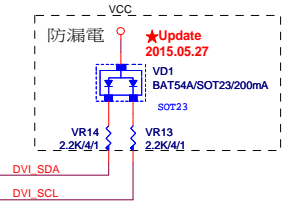
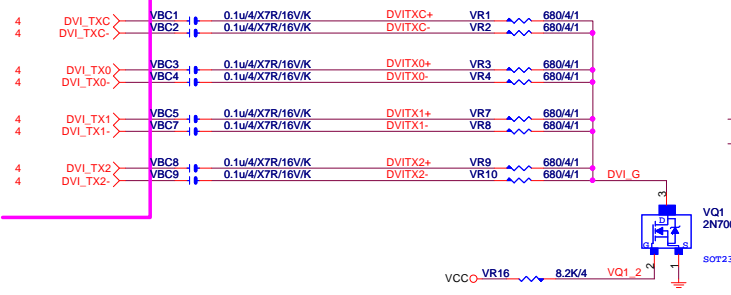
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Custom	GA-Z270-GAMING K3	1.02	
Date:	Friday, November 25, 2016	Sheet	43 of 63

Rev: 0.62

DVI_CONN

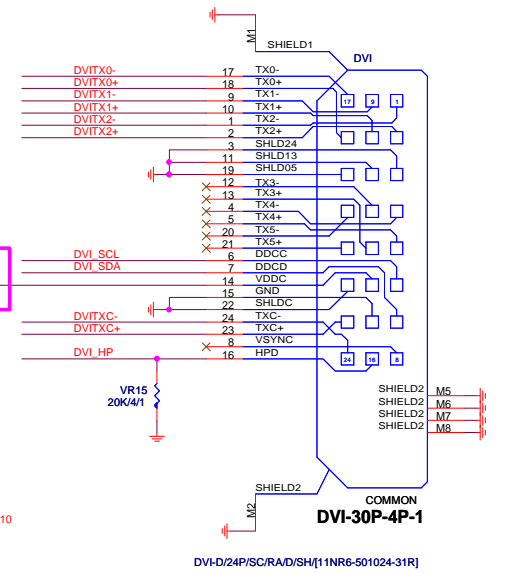
DVI: 20/4/6/4/20
Impedance=85 +- 17.5%

NET 可變



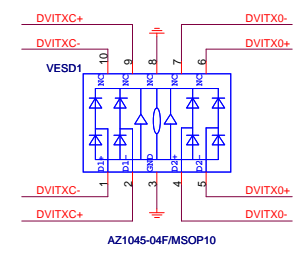
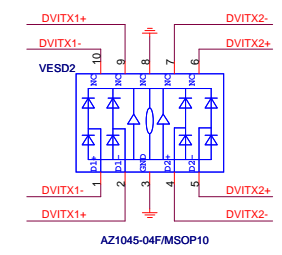
NET 可變

* FSVCC_KM

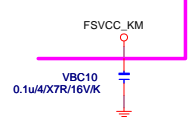


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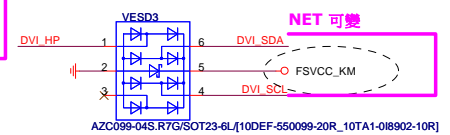
Close to connector



NET 可變



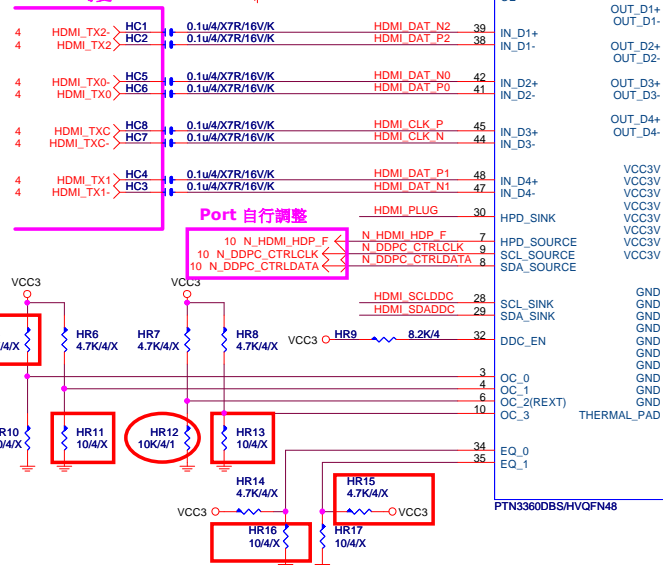
Close to connector



Gigabyte Technology			
Title			
DVI			
Size	Document Number	GA-Z270-GAMING K3	
Custom		Rev 1.02	
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NET 可變

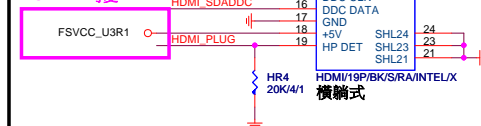
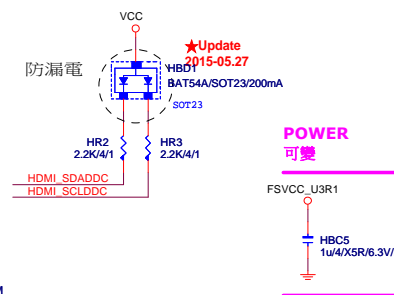


【技術通報R&D技術通報150】

HDMI eye diagram1.4版(deep color)會fail

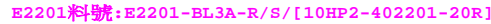
原因：因目前的HDMI訊號過長，造成RISING TIME過慢，而會壓到eye diagram

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



直立式

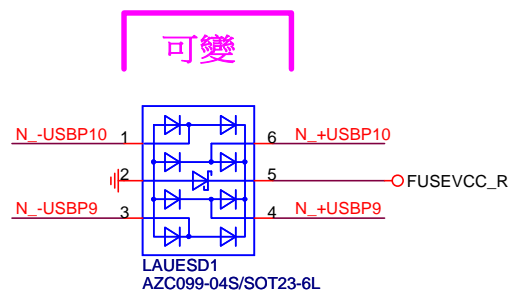
P/N:11NR6-H01019-K1R



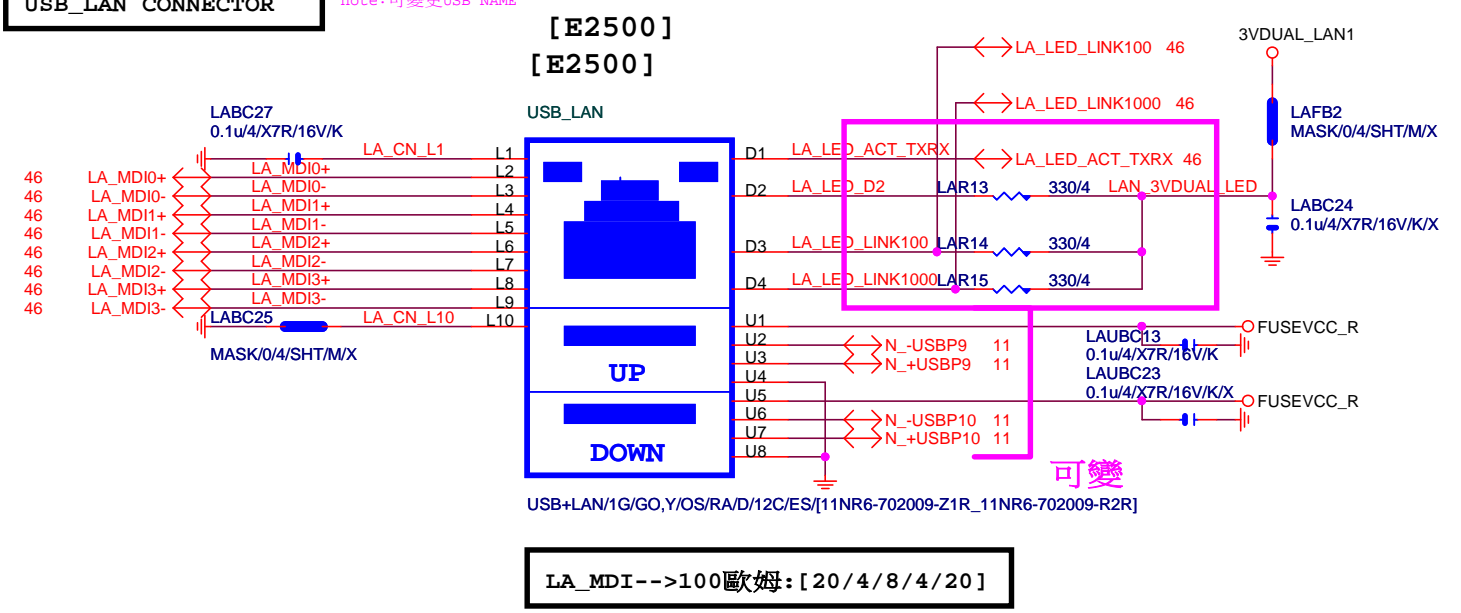
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<p align="center">KILLER E2500(E2400)(E2201)</p>			
<p>Title</p>	<p>Document Number</p>	<p align="right">Rev</p>	
<p>Size Custom</p>	<p align="center">GA-Z270-GAMING</p>		<p>1.3</p>
<p>Date:</p>	<p>Friday, November 25, 2016</p>	<p>Sheet</p>	<p>46 of 63</p>

USB_LAN CONNECTOR R1.06

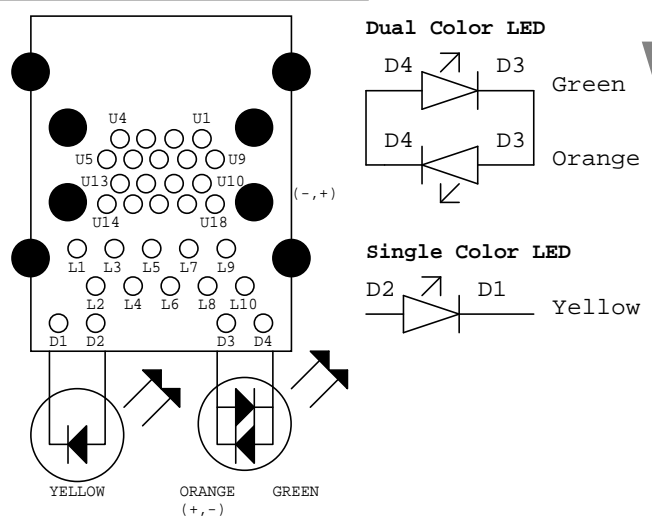
RMA ESD PROTECT note:可變更USB NAME



USB_LAN CONNECTOR note:可變更USB NAME



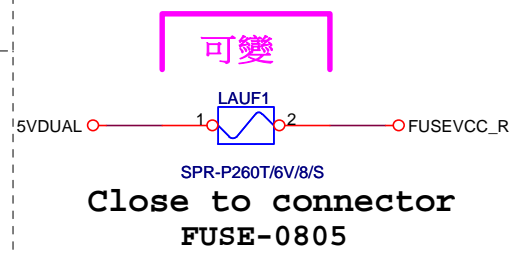
USB30_LAN LAYOUT示意圖



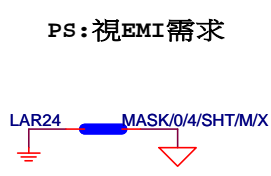
LAN_COVER FOOT PRINT:LAN_COVER

Cover remove (Ver. 1.0)
可變
[視SPEC需求]

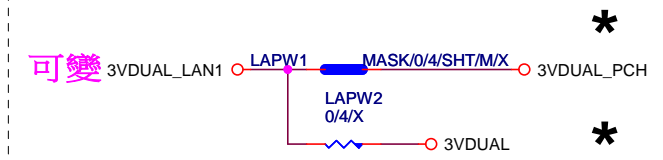
USB POWER note:可變更FUSE



EMI SHORT PAD

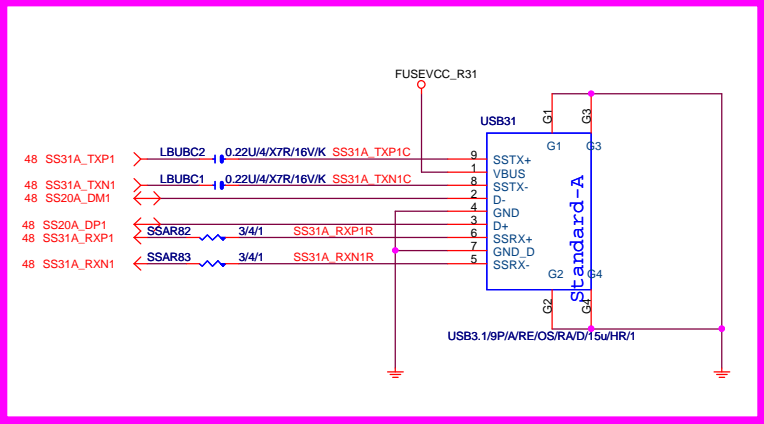


LAN POWER

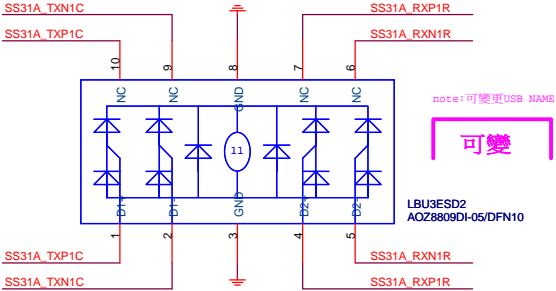
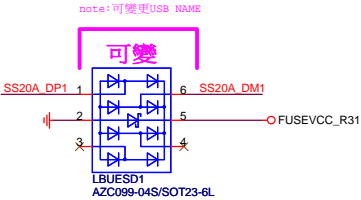
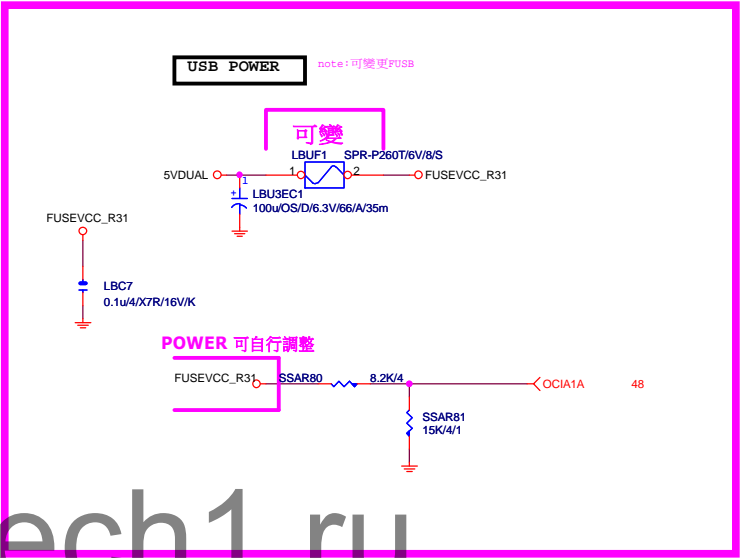


Gigabyte Technology
LAN CONNECTOR-E2500
GA-Z270-GAMING K3

Title: _____
Size: Custom Document Number: _____ Rev: 1.02
Date: Friday, November 25, 2016 Sheet 47 of 63

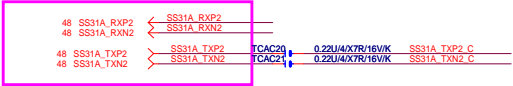


USB31 TYPE A Connector which chooses for project demand

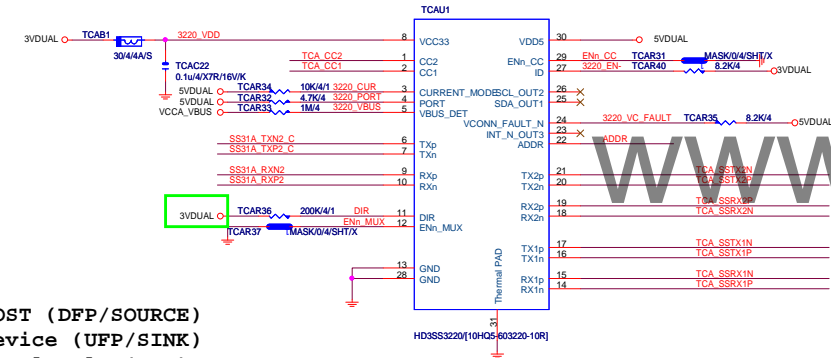
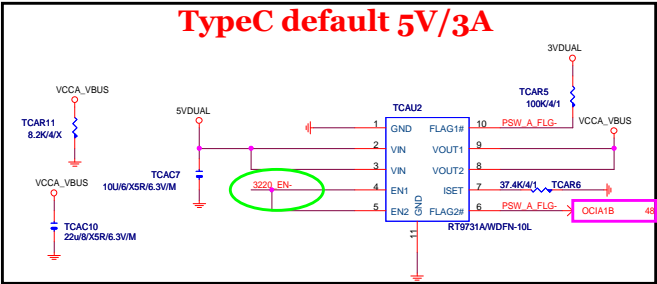


ASM2142 USB31 Host Rev0.2

USB 3.x SuperSpeed

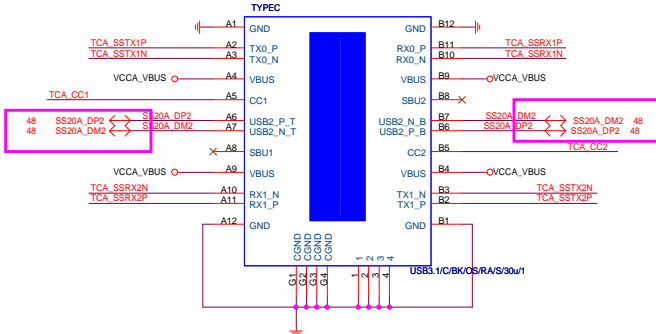


For VBUS current limit at 900mA on S3

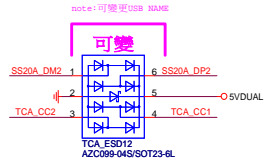
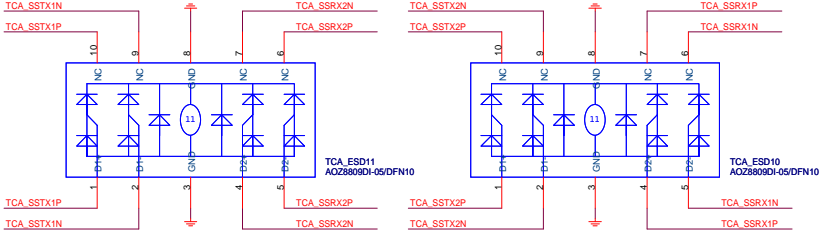


PORT
H - HOST (DFP/SOURCE)
L - Device (UFP/SINK)
NC - Dual Role (DRP)

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



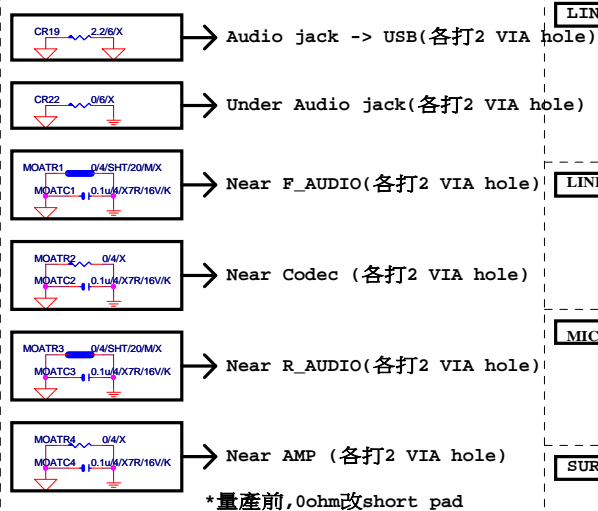
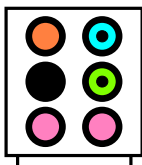
USB2.0 can be used the same source



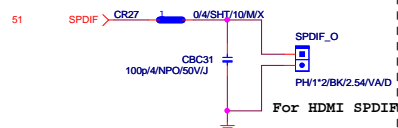
Color markers can be changed by model

Rev 0.53

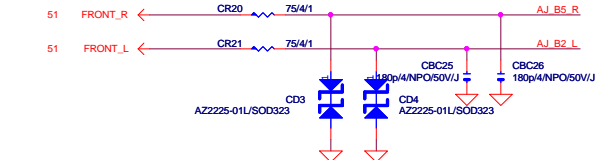
AZALIA JACK



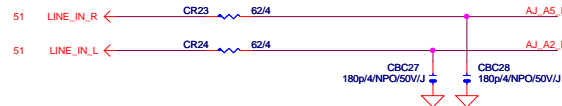
SPDIF_OUT



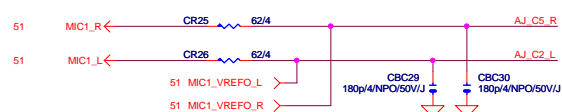
LINE-OUT



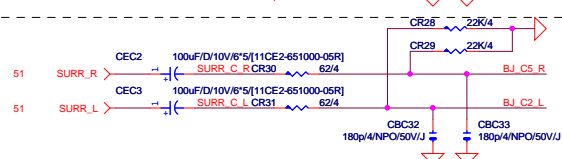
LINE-IN



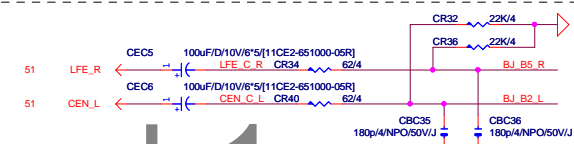
MIC-IN



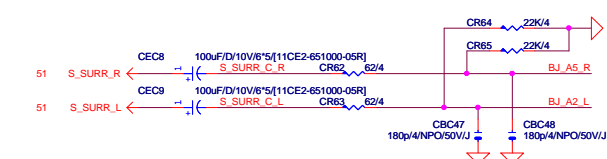
SURROUND



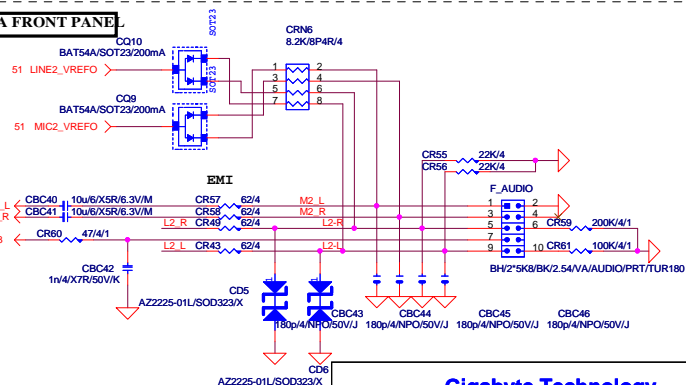
CEN/LFE



SURR BACK



AZALIA FRONT PANE



Gigabyte Technology

AUDIO JACK

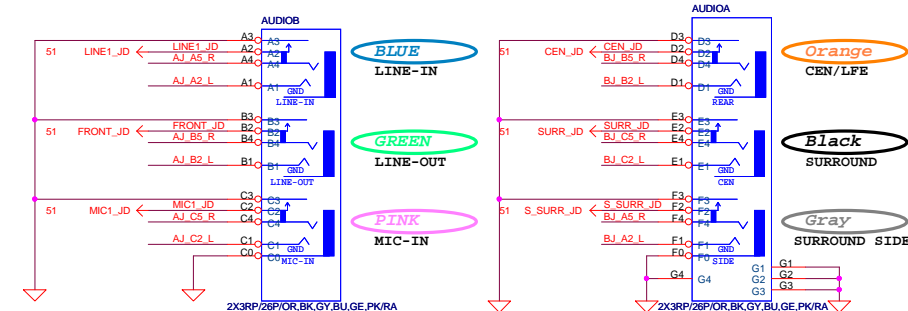
GA-Z270-GAMING K3

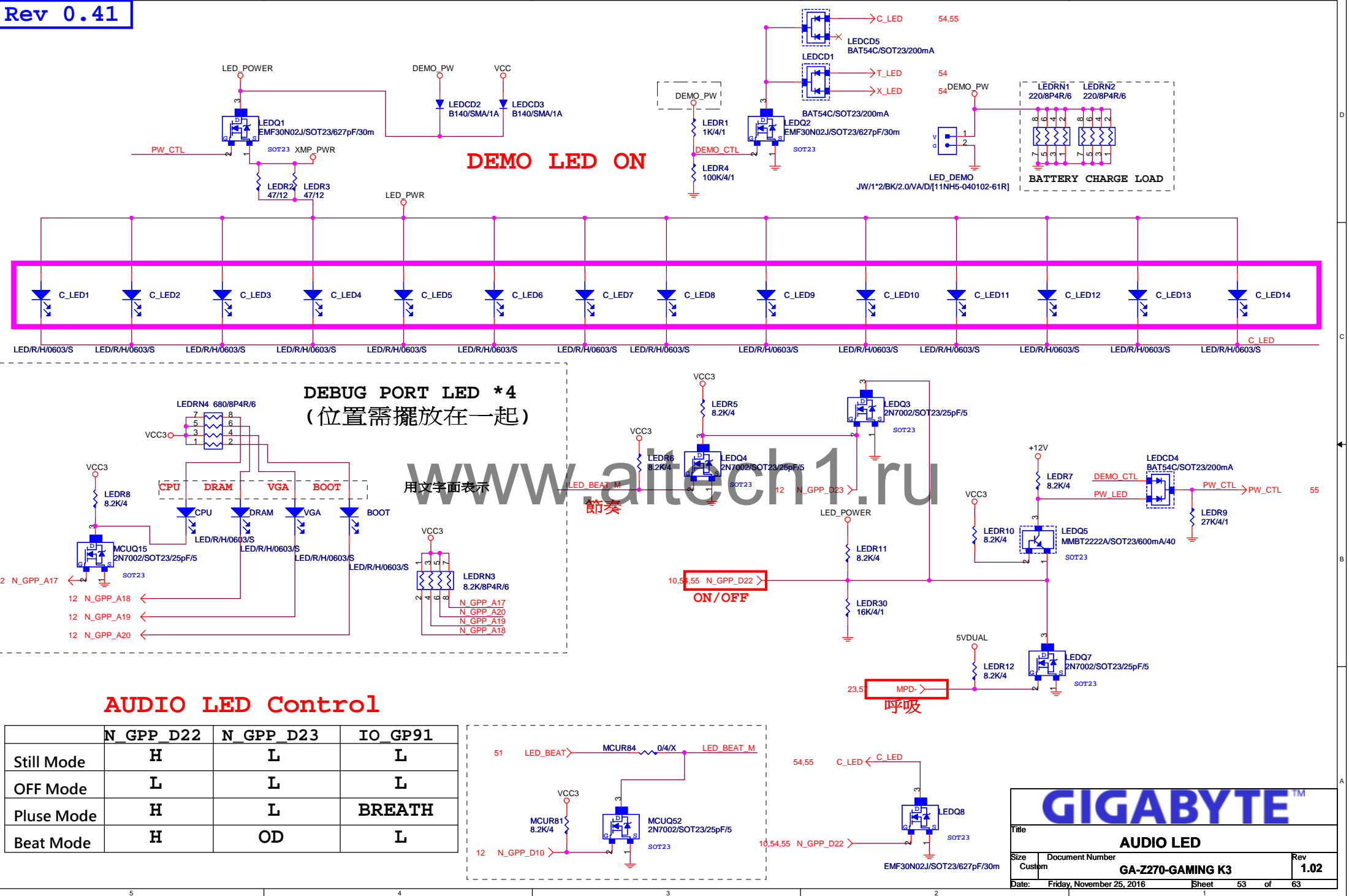
Rev 1.02

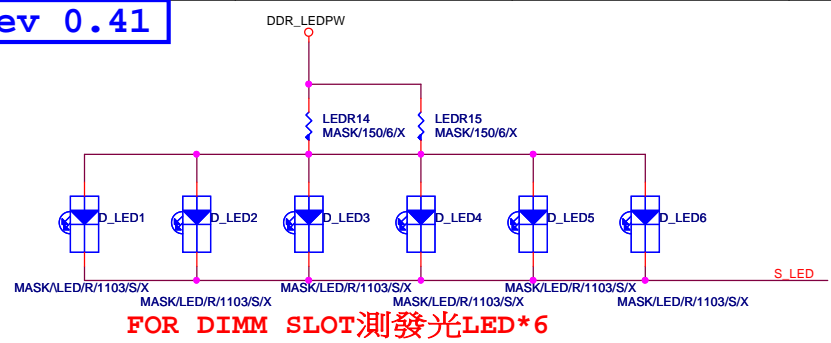
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Size	Custom	1.02
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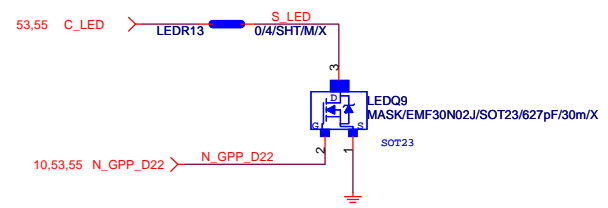
AZALIA JACK







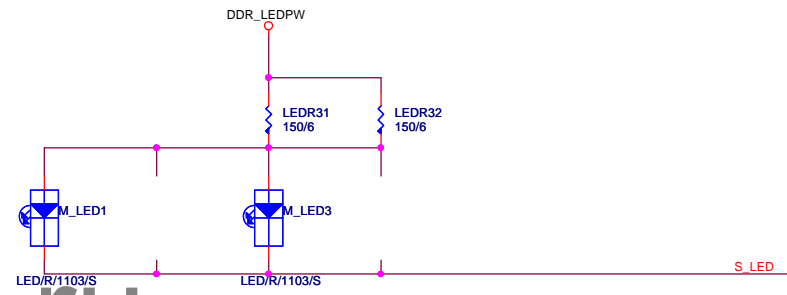
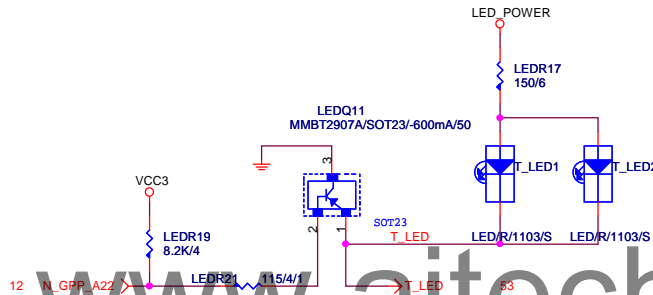
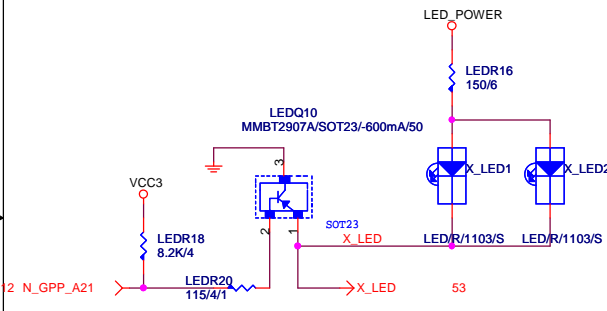
LED BAR remove (Ver. 1.0)



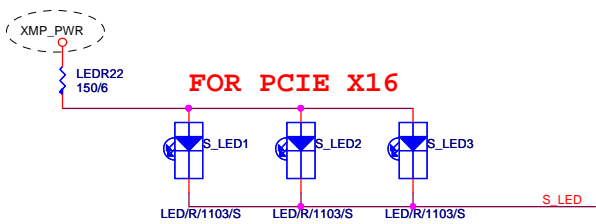
FOR XMP 測發光 LED*2
(靠近DIMM附近放背板鏤空)

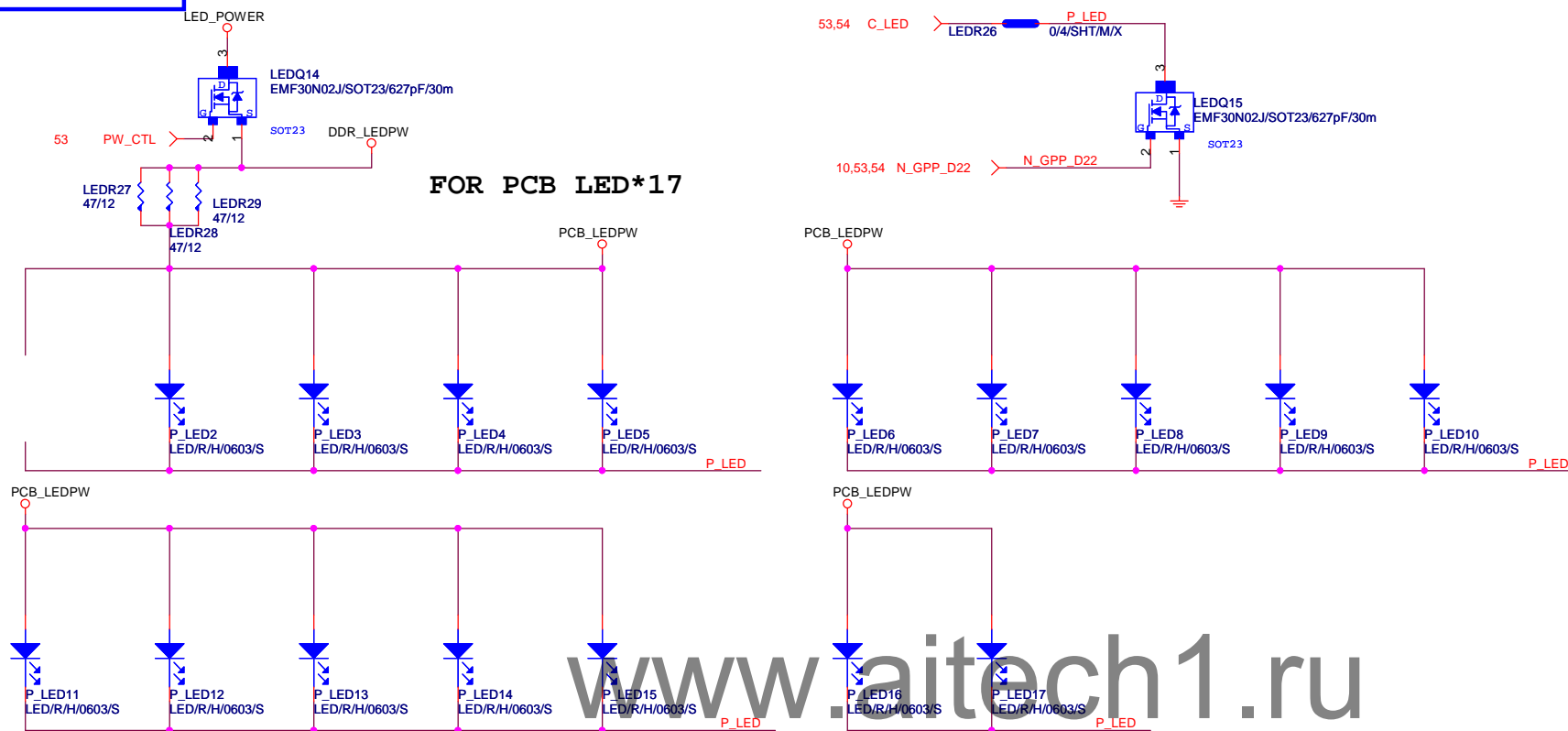
FOR TURBO 測發光 LED*2
(靠近DIMM附近背板鏤空)

FOR MODEL NAME測發光LED*4



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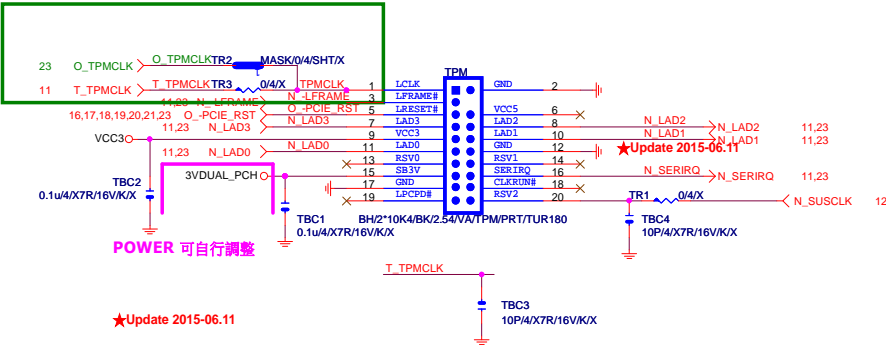


COM PORT

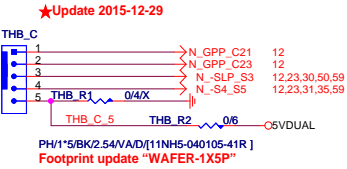
80 PORT

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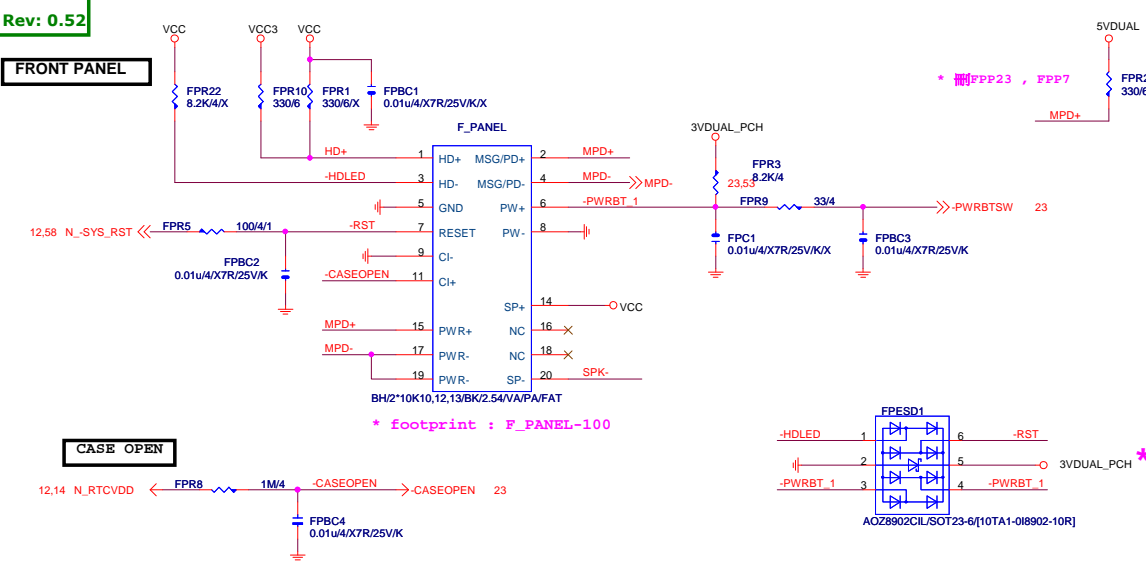
TPM CONNECT



Thunderbolt

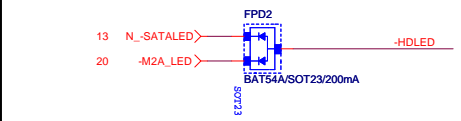


FRONT PANEL



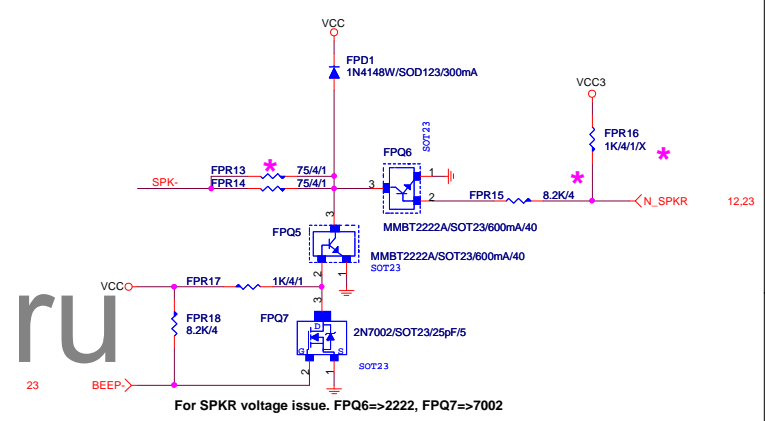
CASE OPEN

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



SPEAKER

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



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IDT6V41630



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

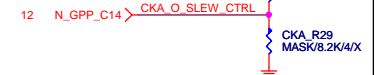
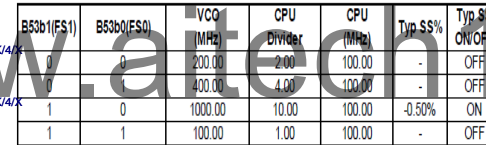


Figure 10 is a schematic diagram of the external memory connection. It shows the connection of CKA_SCLK and CKA_SDATA signals to the external memory. CKA_SCLK is connected to N_SMBCLK and CKA_R1. CKA_SDATA is connected to N_SMBDATA and CKA_R2. The external memory is connected to CKA_B11 and CKA_B10. The memory is labeled MASK/100p/4/NPO/50V/J/X. The memory is also connected to MASK/100p/4/NPO/50V/J/X. The memory is connected to the ground plane.

9,26,35,36,37

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Cover remove (Ver. 1.0)

*可變，依需求上件不上件。

CLOSE SIO

EMIC1
100p/4/NPO/50V/J/X

12,23,30,50,56 N_SLP_S3 ←

EMIC2
100p/4/NPO/50V/J/X

12,23,31,35,56 N_S4_S5 ←

CLOSE PCH

EMIC4
100p/4/NPO/50V/J/X

4,12 N_CPUPWROK ←

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Title

EMI/ESDSize
A

Document Number

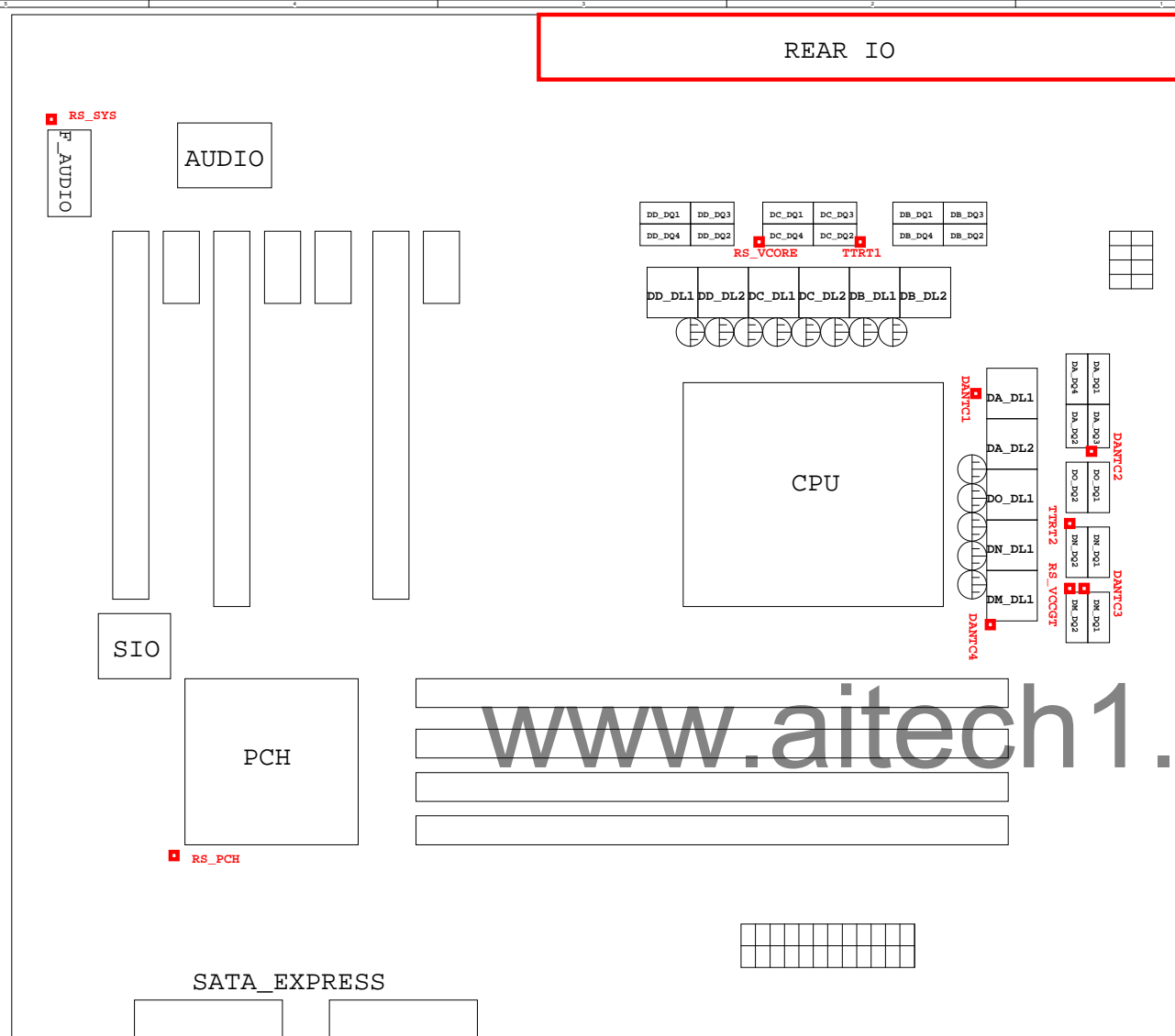
GA-Z270-GAMING K3

Rev

1.02

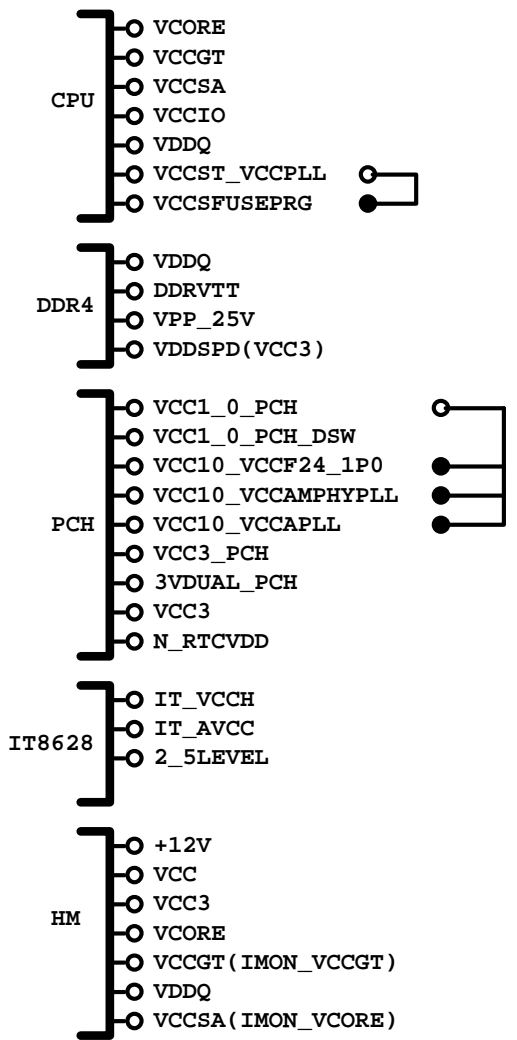
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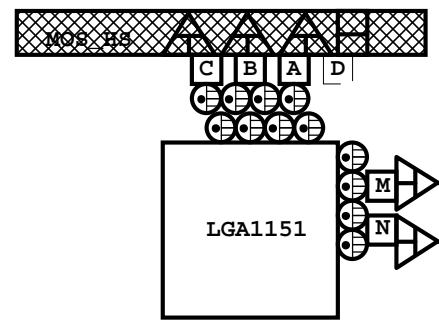
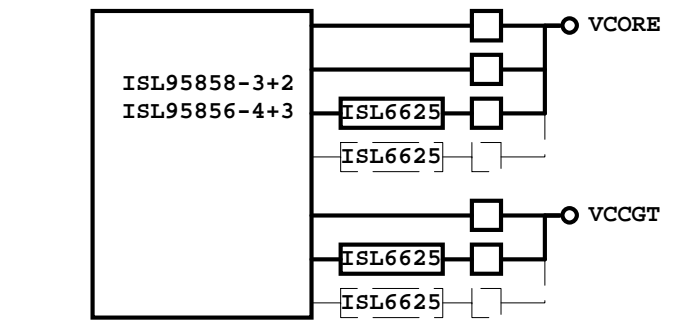


熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

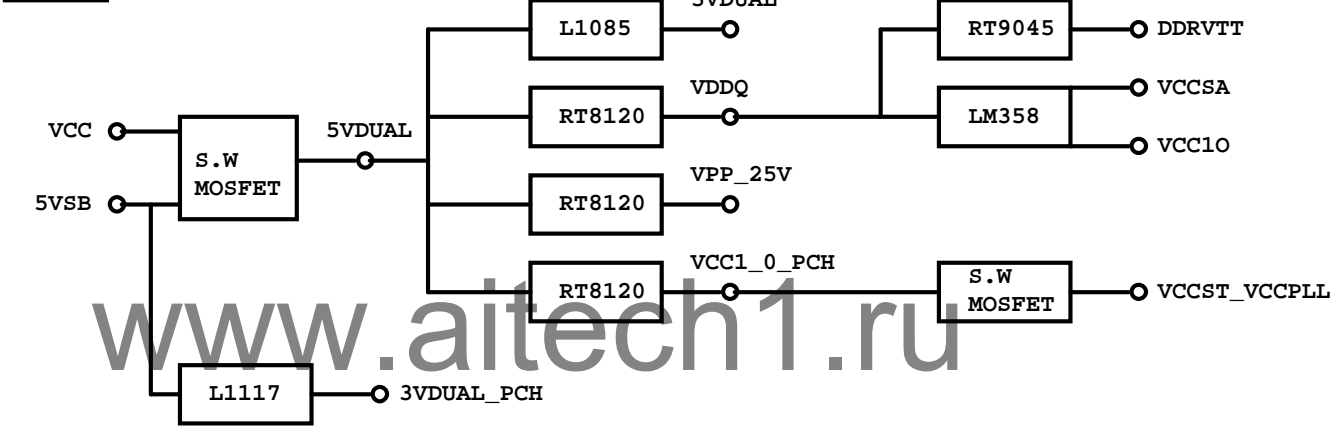
POWER BLOCK MAP



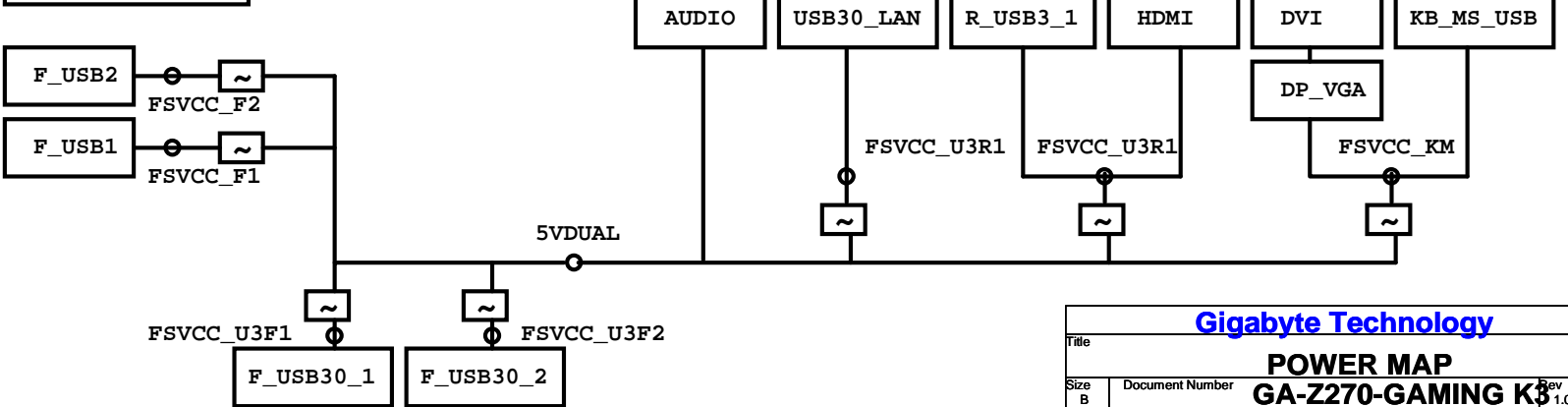
VCORE/VCCGT



POWER



FUSE POWER F/R



Gigabyte Technology	
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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-EPSOIC

GIGABYTE™			
Title RT8120_DDR4 POWER			
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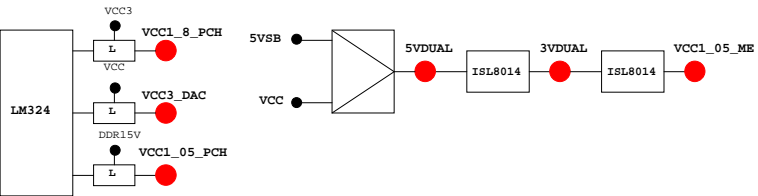
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	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	PCIE1 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	GPIO12	N/A
GP13	STBY	L	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN	GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN	GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN	GPI	Mobile Only	N/A
GP19	MAIN	GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN	GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN	GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPIO22	P/U 8.2K VCC3
GP23	MAIN	GPI	GPIO23	N/A
GP24	STBY	L	SKTOCC#	N/A
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
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	PCIE4 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	N/A
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	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

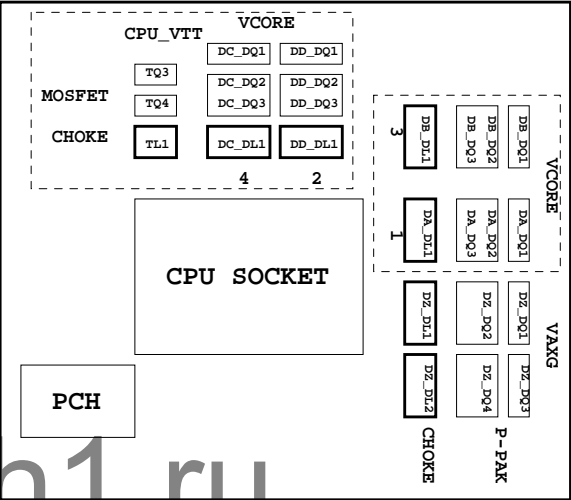
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/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/SEN	LOW_PWR_1	
VID05/GP27/SEN2	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	
VID00/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/SMBC_R	SE PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/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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