

Model Name: GA-Z97X-SLI

1.1

SHEET

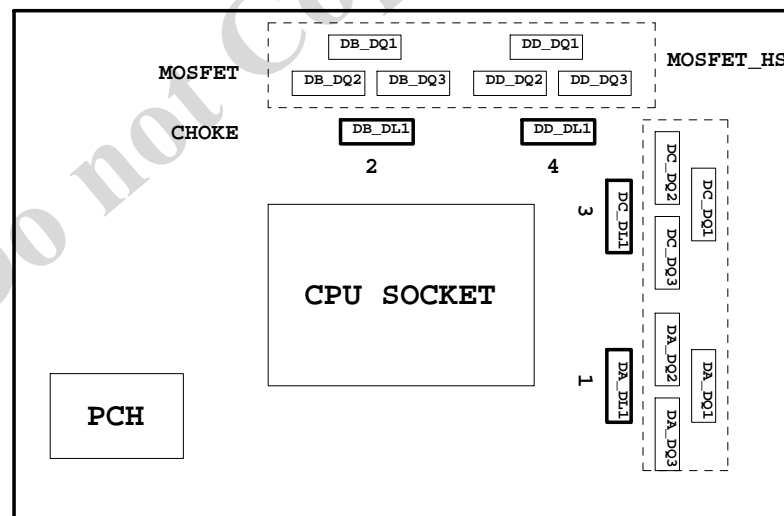
TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS , TPM SLB9635TT
21	ALC892 CODEC
22	REAR AUDIO JACK
23	VCORE PWM_IR3564a
24	VCORE+DDR PWM IR3553+IR3598
25	ME POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET

TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	LAN INTEL i217
32	DVI
33	HDMI , R_USB30
34	TABLE LIST
35	
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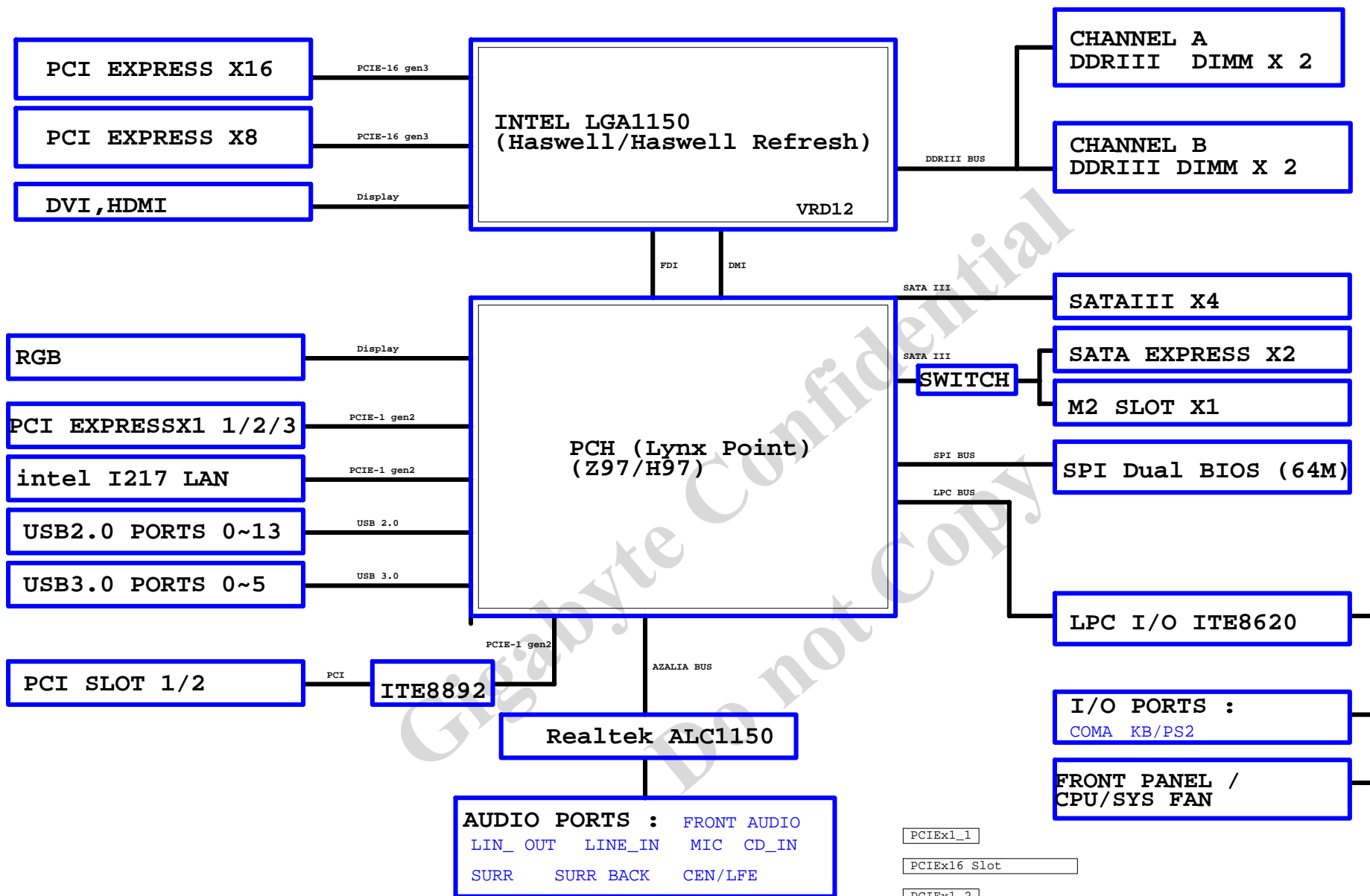


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Title		
Cover Sheet		
Size	Document Number	Rev
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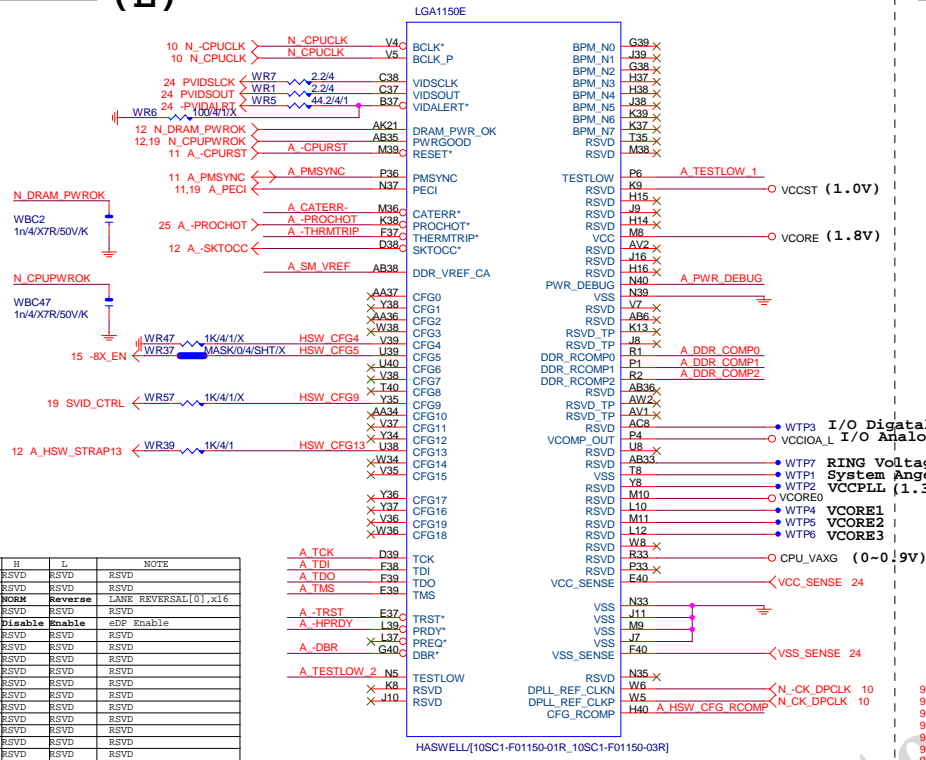
BLOCK DIAGRAM

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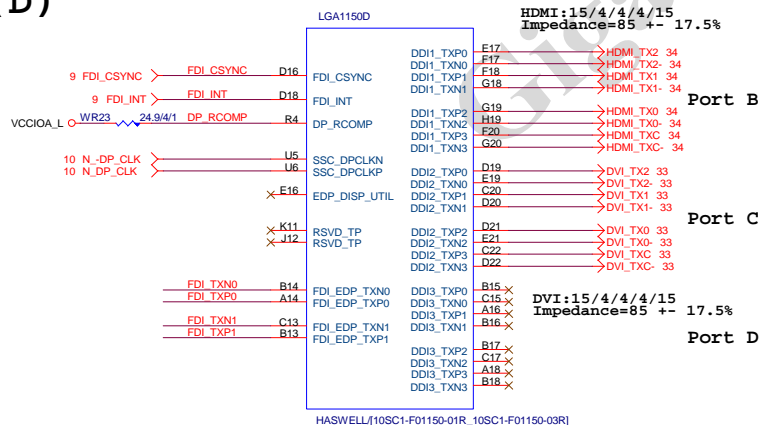
- PCIEx1_1
- PCIEx16 Slot
- PCIEx1_2
- PCIEx1_3
- PCIEx8
- PCI Slot
- PCI Slot

LGA1150 (E)

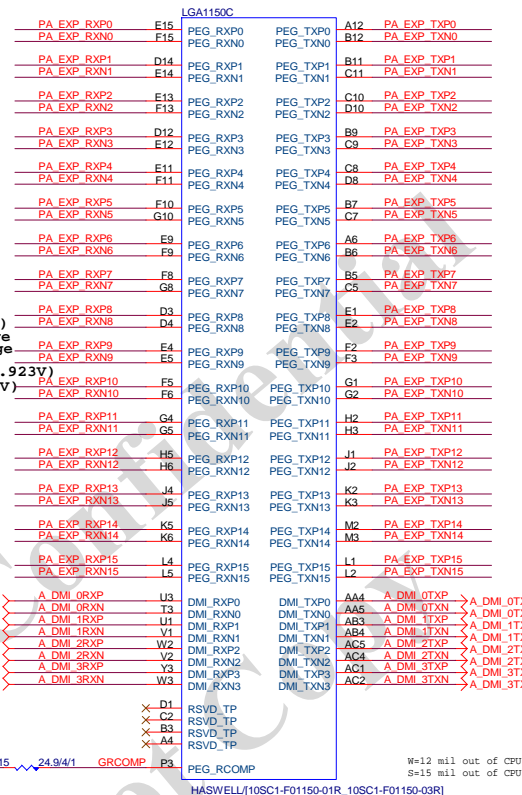


CFG 0-17 all internal PULL-UP

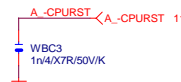
LGA1150 (D)

FDI:12/4/4/12(breakout min 6/4/4/4/6)
Impedance=85 +- 17.5%FDI_TXP0_11 >> FDI_TXP0[0..1] 9
FDI_TXN0_11 >> FDI_TXN0[0..1] 9

LGA1155 (C)

PCIEX16:20/5/4/5/20(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%DMI:12/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%PA_EXP_TXP0_15 >> PA_EXP_TXP0[0..15] 14,16
PA_EXP_TXN0_15 >> PA_EXP_TXN0[0..15] 14,16
PA_EXP_RXP0_15 >> PA_EXP_RXP0[0..15] 14,16
PA_EXP_RXN0_15 >> PA_EXP_RXN0[0..15] 14,16

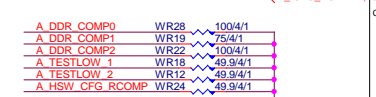
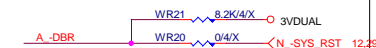
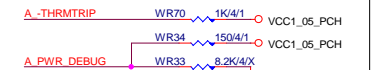
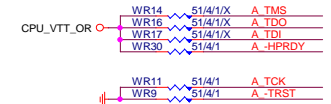
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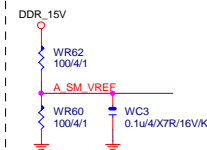
CPU SVID



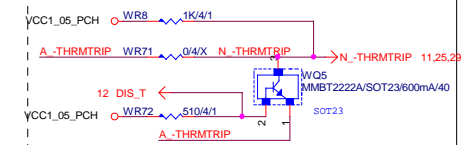
CPU PU/PD



SM REF



THRMTRIP DISABLE



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CPU LGA1150-A

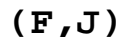
GA-Z97X-SLI

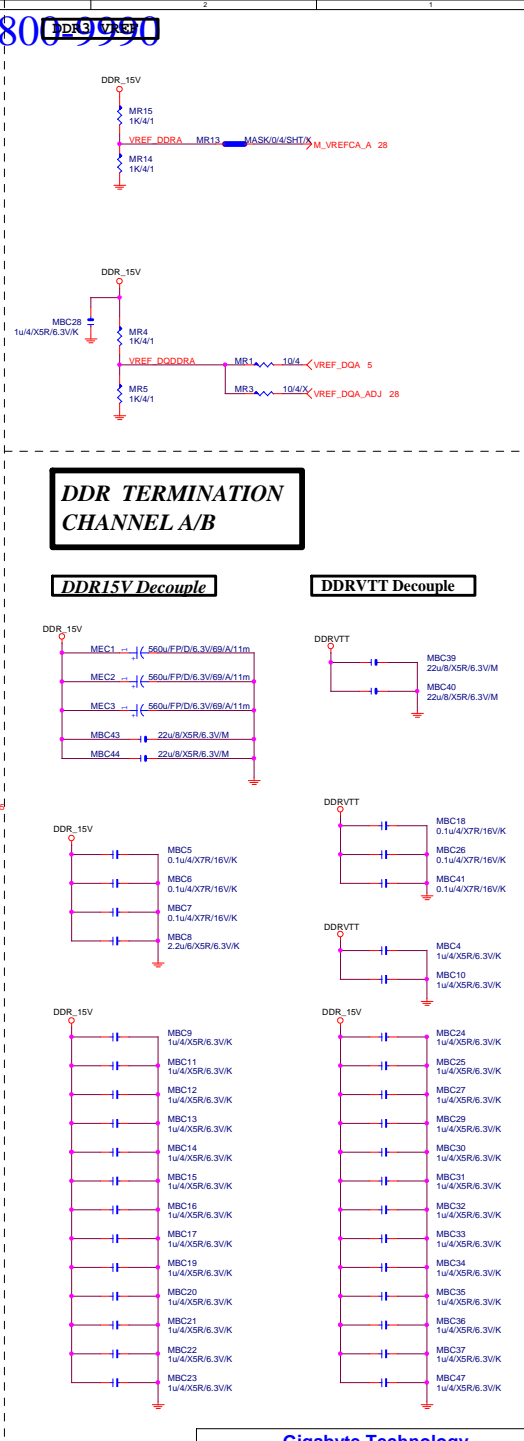
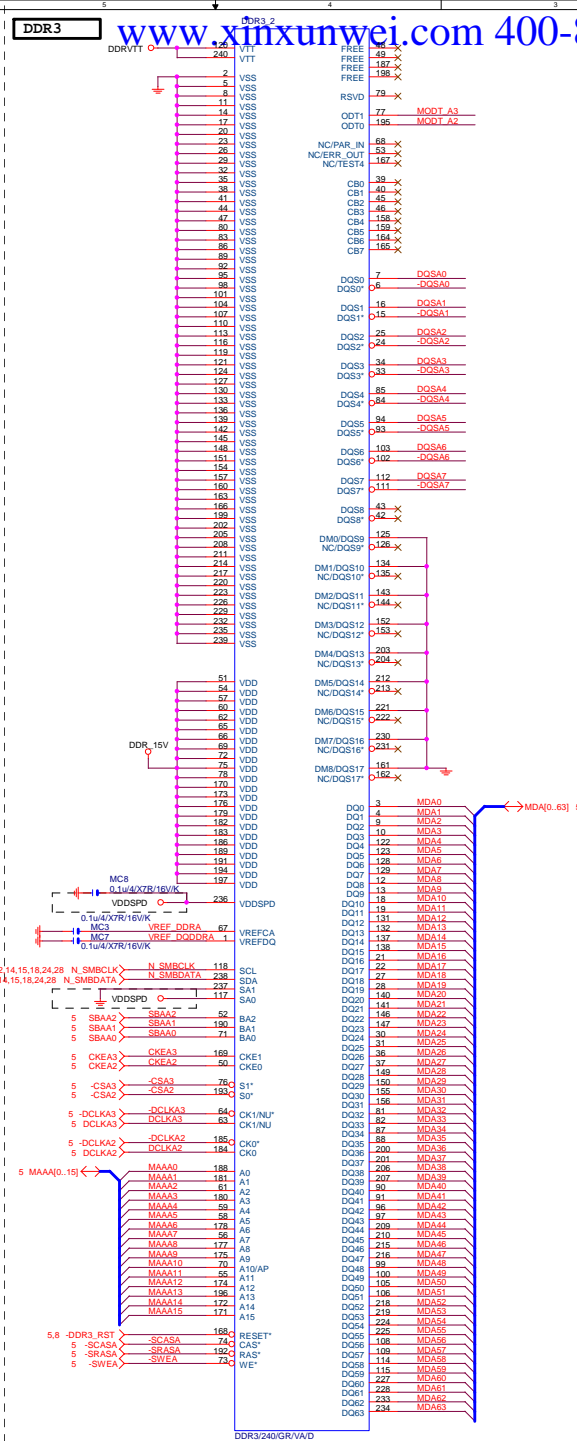
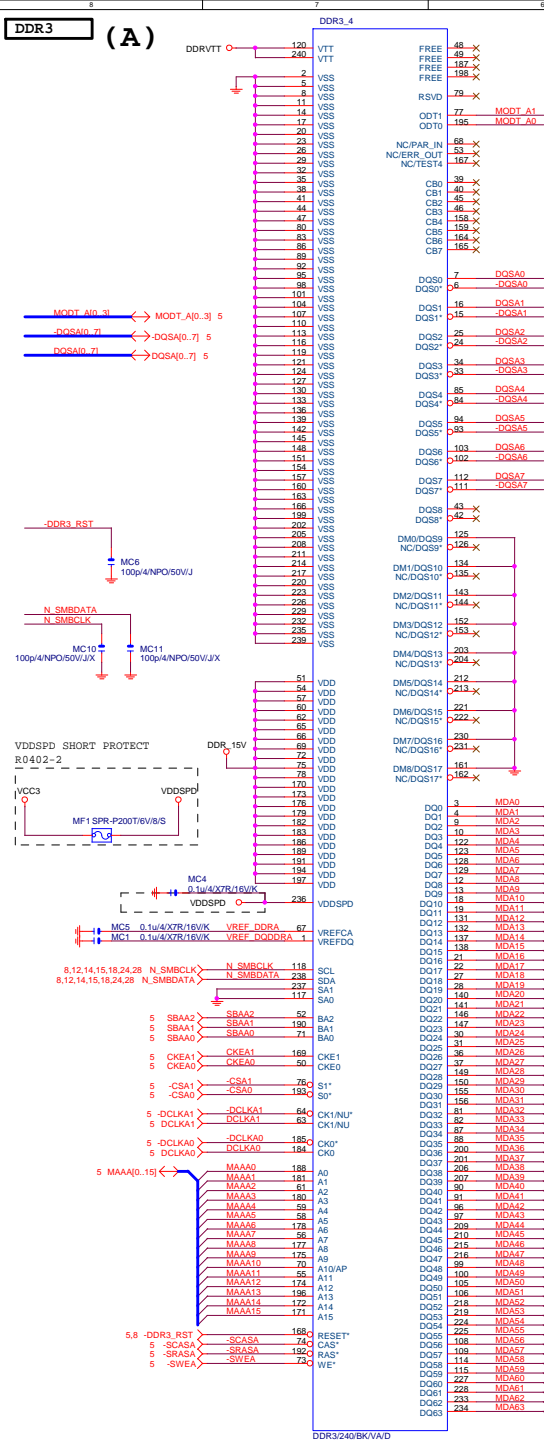
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LGA1150 (A)

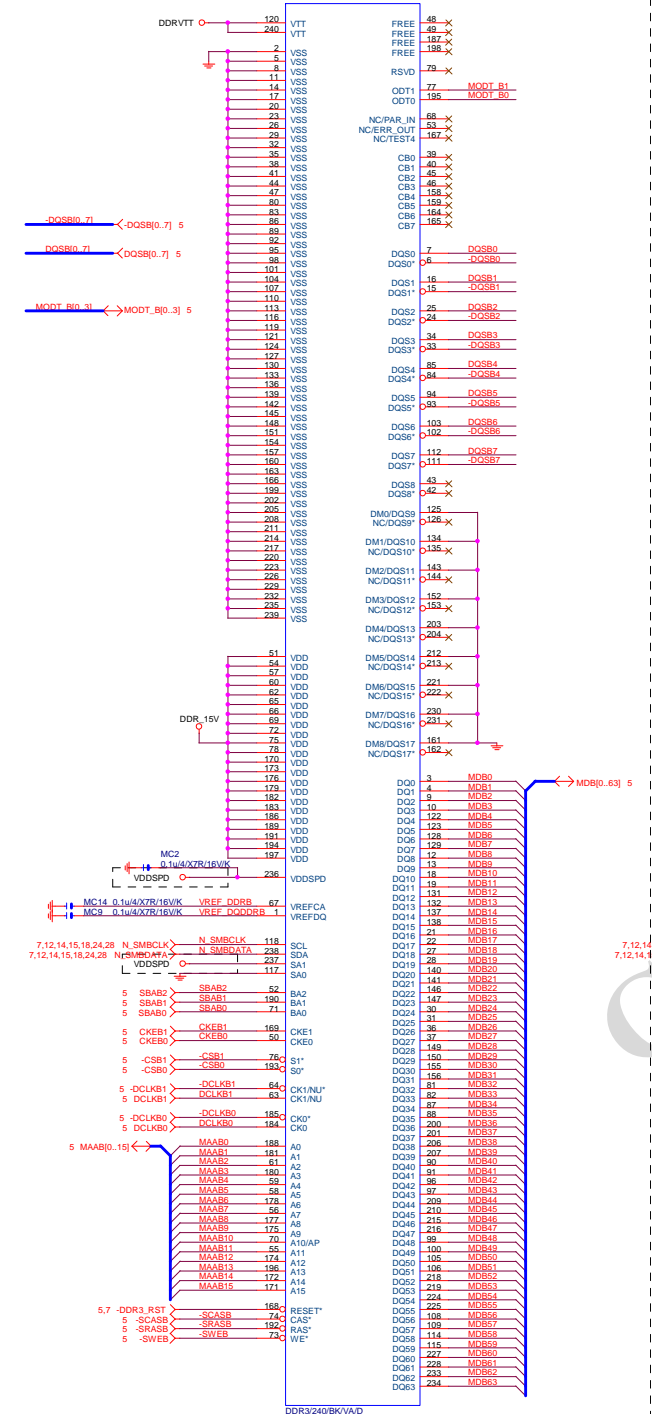
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		MAAA2 AU16	DDR0_MA2	DDR0_D02	AF38 MDA2
		MAAA3 AW17	DDR0_MA3	DDR0_D03	AF39 MDA3
		MAAA4 AU17	DDR0_MA4	DDR0_D04	AD37 MDA4
		MAAA5 AW18	DDR0_MA5	DDR0_D05	AD40 MDA5
		MAAA6 AV17	DDR0_MA6	DDR0_D06	AE37 MDA6
		MAAA7 AT18	DDR0_MA7	DDR0_D07	AF40 MDA7
		MAAA8 AU18	DDR0_MA8	DDR0_D08	AH40 MDA9
		MAAA9 AT19	DDR0_MA9	DDR0_D09	AH39 MDA10
		MAAA10 AW11	DDR0_MA10	DDR0_D10	AK38 MDA10
		MAAA11 AV19	DDR0_MA11	DDR0_D11	AK39 MDA11
		MAAA12 AU19	DDR0_MA12	DDR0_D12	AH37 MDA12
		MAAA13 AY10	DDR0_MA13	DDR0_D13	AH38 MDA13
		MAAA14 AT20	DDR0_MA14	DDR0_D14	AK37 MDA14
		MAAA15 AU21	DDR0_MA15	DDR0_D15	AK40 MDA15
		MODT_A0 AW10	DDR0_ODT0	DDR0_D16	AM40 MDA17
		MODT_A1 AY8	DDR0_ODT1	DDR0_D17	AM39 MDA21
		MODT_A2 AW9	DDR0_ODT2	DDR0_D18	AP38 MDA18
		MODT_A3 AU8	DDR0_ODT3	DDR0_D19	AP39 MDA19
				DDR0_D20	AM37 MDA20
				DDR0_D21	AM38 MDA16
				DDR0_D22	AP37 MDA22
				DDR0_D23	AP40 MDA23
				DDR0_D24	AW37 MDA29
				DDR0_D25	AU35 MDA26
				DDR0_D26	AU35 MDA27
				DDR0_D27	AT37 MDA28
				DDR0_D28	AU37 MDA24
				DDR0_D29	AT35 MDA30
				DDR0_D30	AW35 MDA31
				DDR0_D31	AW6 MDA33
				DDR0_D32	AU6 MDA37
				DDR0_D33	AW6 MDA36
				DDR0_D34	AW4 MDA38
				DDR0_D35	AW4 MDA39
				DDR0_D36	AR1 MDA41
				DDR0_D37	AR4 MDA45
				DDR0_D38	AN3 MDA42
				DDR0_D39	AN4 MDA43
				DDR0_D40	AR2 MDA44
				DDR0_D41	AR3 MDA40
				DDR0_D42	AN2 MDA46
				DDR0_D43	AN1 MDA47
				DDR0_D44	AL1 MDA49
				DDR0_D45	AL4 MDA53
				DDR0_D46	AL4 MDA50
				DDR0_D47	AJ4 MDA51
				DDR0_D48	AL2 MDA52
				DDR0_D49	AL3 MDA48
				DDR0_D50	AJ2 MDA54
				DDR0_D51	AJ1 MDA55
				DDR0_D52	AG1 MDA57
				DDR0_D53	AG4 MDA61
				DDR0_D54	AE3 MDA58
				DDR0_D55	E4 MDA59
				DDR0_D56	AG2 MDA60
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				DDR0_D61	AJ39 DQSA1
				DDR0_D62	AN39 DQSA2
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				DDR0_D64	AV5 DQSA4
				DDR0_D65	AP3 DQSA5
				DDR0_D66	AK3 DQSA6
				DDR0_D67	AF3 DQSA7
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				DDR0_D72	AJ36 DQSA4
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				DDR0_D74	AP2 DQSA5
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				DDR0_D76	AF2 DQSA7
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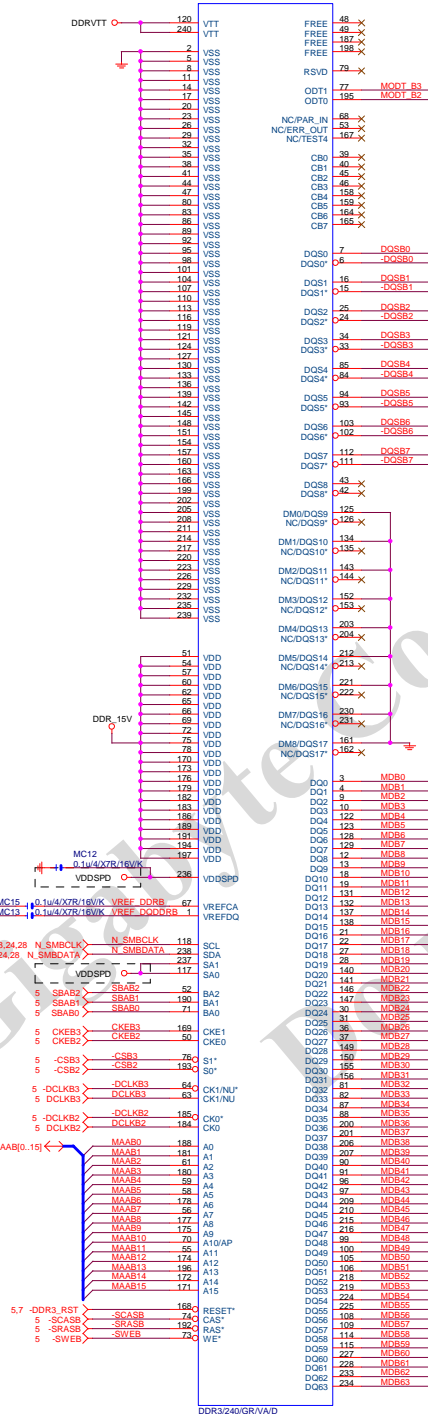
DDR3

(B)

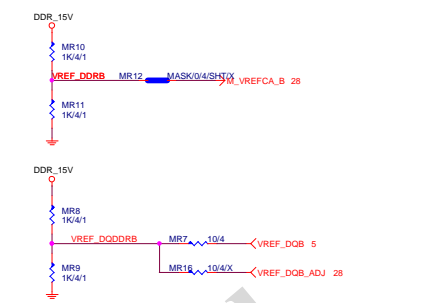


DDR3

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DDR3 REF1



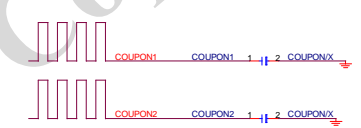
DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

COUPON



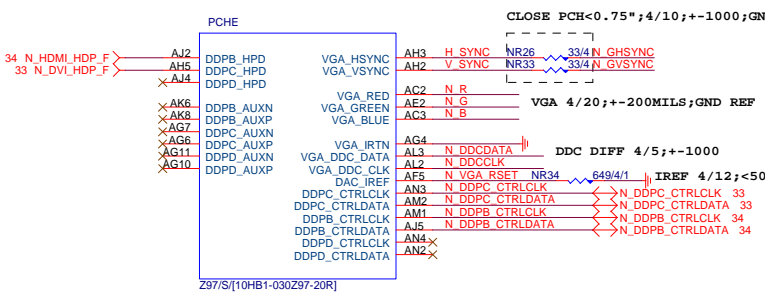
CPU

DTMM4 (黑色) CHA
DTMM2 (灰色)
DTMM3 (黑色) CHB
DTMM1 (灰色)

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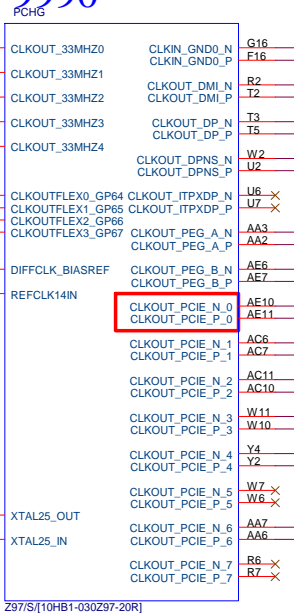
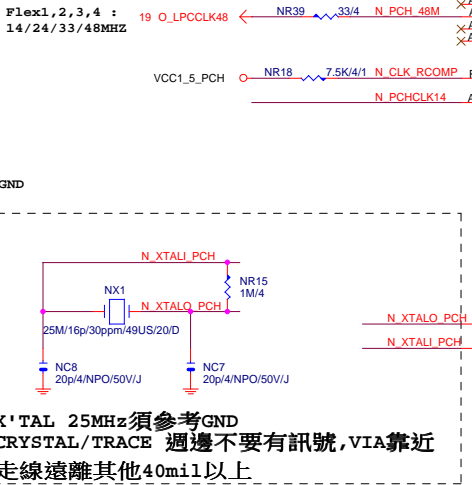
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DDR3 CHANNEL B				
Size	Document Number			Rev
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PCH (E)



VGA DISABLE	
R,G,B	NC OR GND
IRTN / IREF GND	
VGA_HSYNC, VGA_VSYNC, DDC_CLK, DDC_DATA NC	
POWER VCCADAC(AF2), VCCADACBG(AE1) GND	

Flex1,2,3,4 : 14/24/33/48MHZ



PCIEX4 CLOCK (PE_SRCLK_3GIO1)
由 PIN R6, R7 換成 PIN W7, W6
避免跟 CRYSTAL 25MHZ 干擾

Differential Clock: 18/4/6/4/18
Impedance = 90 +- 15%

M.2 CLK 限用
CLKOUT_PCIE_0

PCIXx16

PCIXx8

M.2 slot

LAN i217v

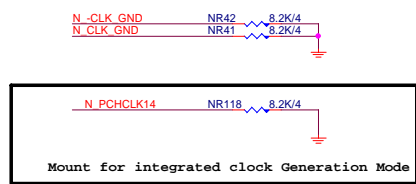
ITE892

PCIXx1_3

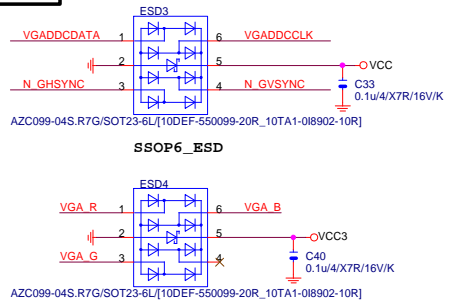
PCIXx1_2

PCIXx1_1

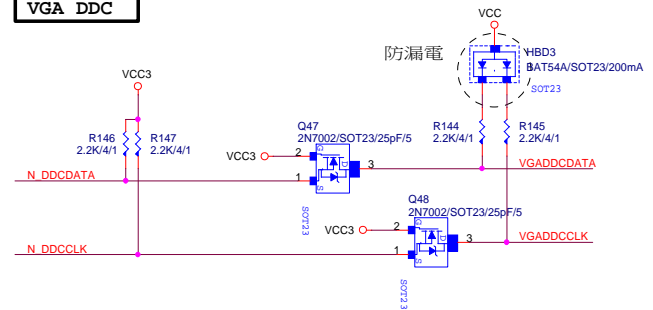
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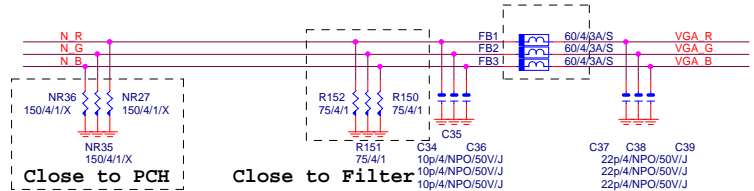
VGA ESD



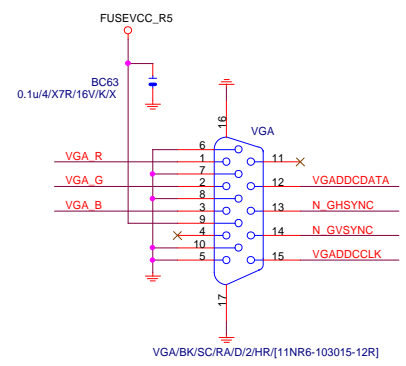
VGA DDC



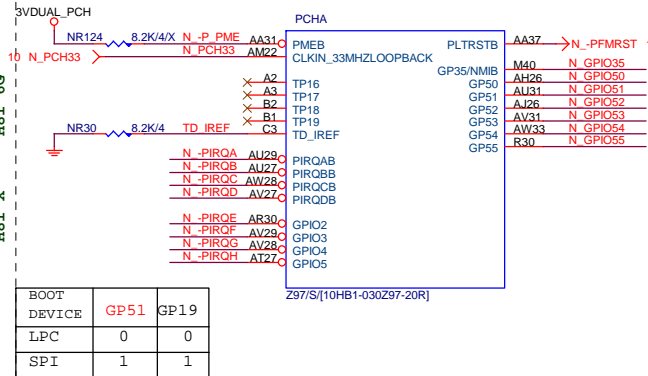
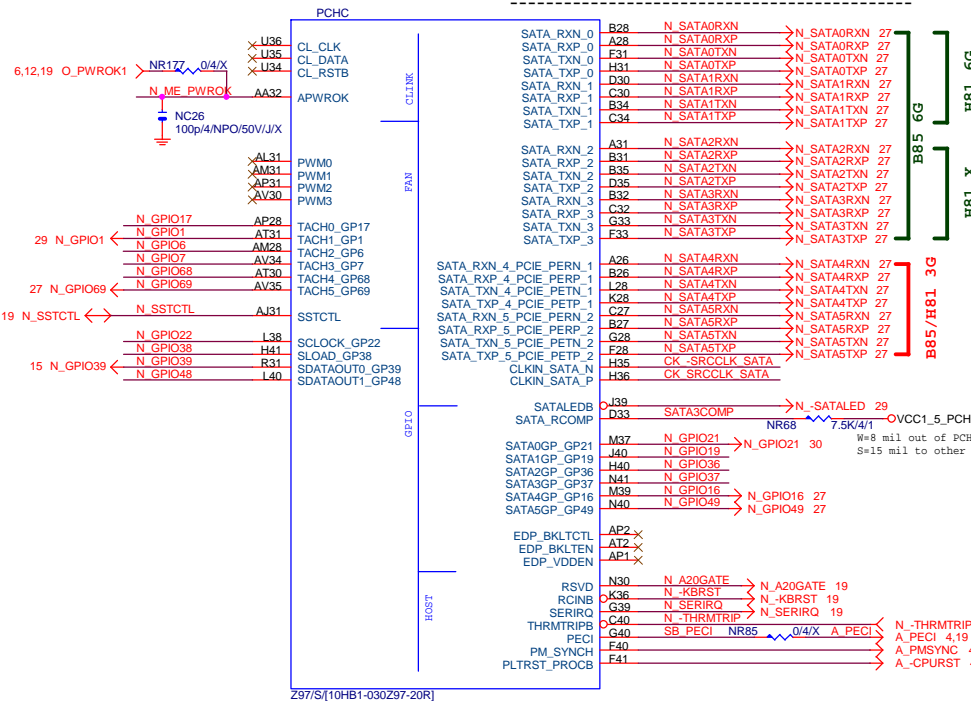
VGA DDC



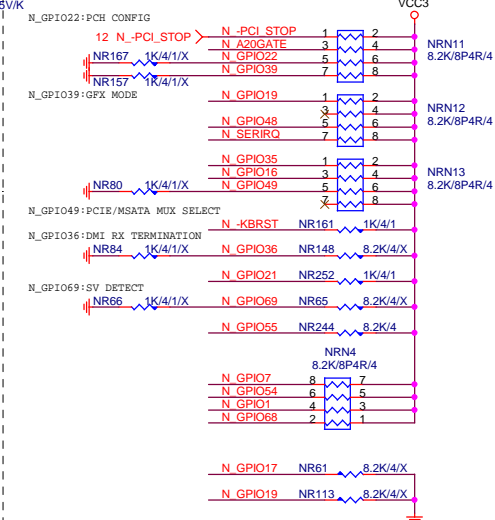
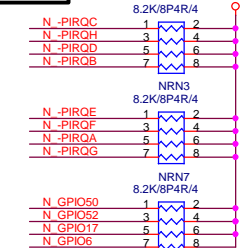
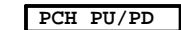
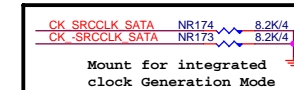
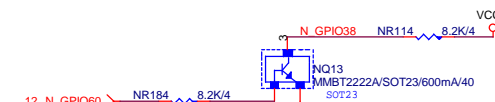
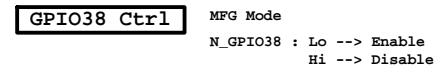
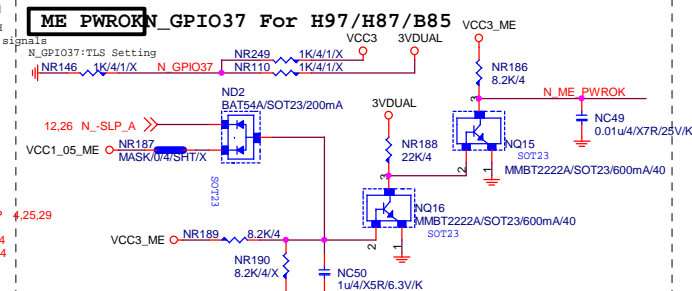
VGA CONNECTOR

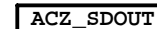
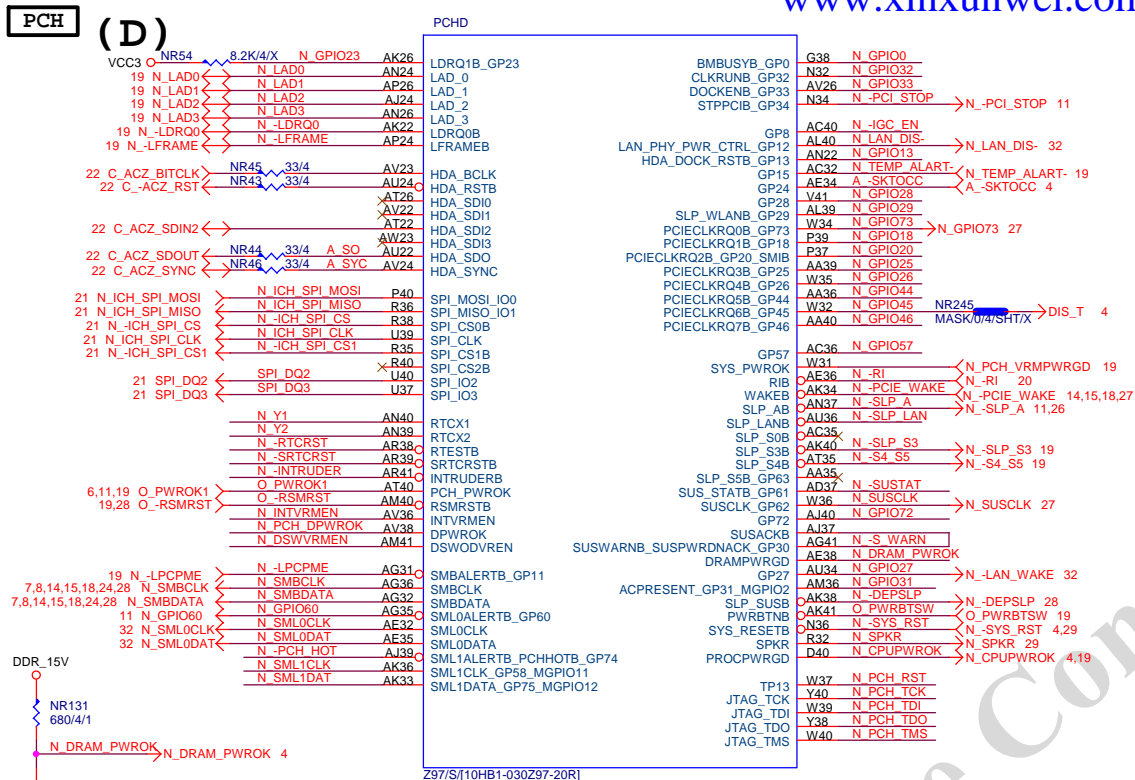


Gigabyte Technology			
Title PCH DISPLAY ,CLK BUFFER			
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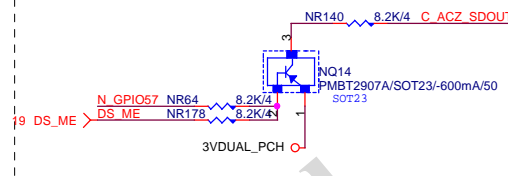
```
Default int pull up on GP51,  
Default SPI boot devices
```





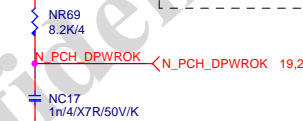
SPI OVERRIDE PROTECTION

```
C_ACZ_SDOUT : HI --> ME Enable
              Lo --> ME Disable
```

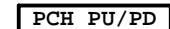
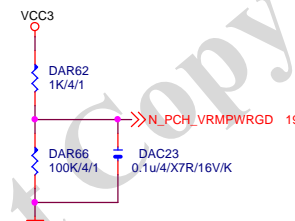


PCH_DPWROK

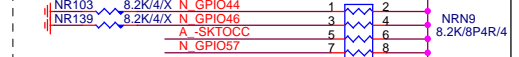
```
At least 10ms delay after
3VDUAL_PCH stabel
```



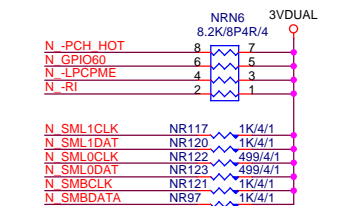
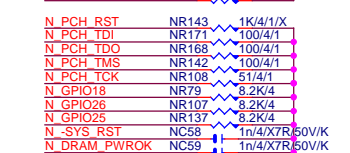
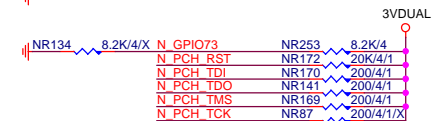
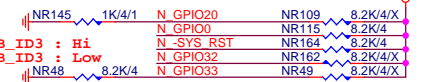
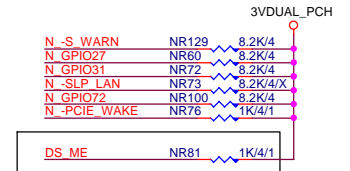
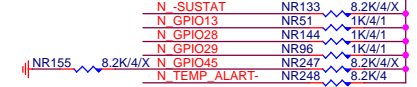
For IT8620 Ctrl



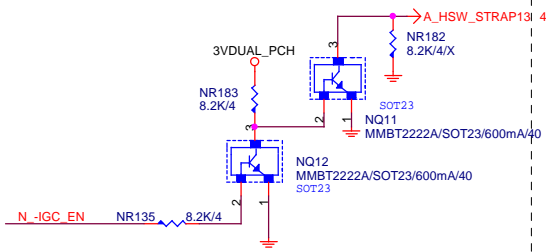
GP44:DFX test Mode



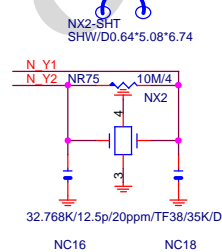
NR106 1K/4/1 N -IGC_EN NR105 8.2K/4/X
NR153 1K/4/1/X N SUSCLK NR154 8.2K/4/X
SUSCLK : Lo --> OD PLL VR Disable



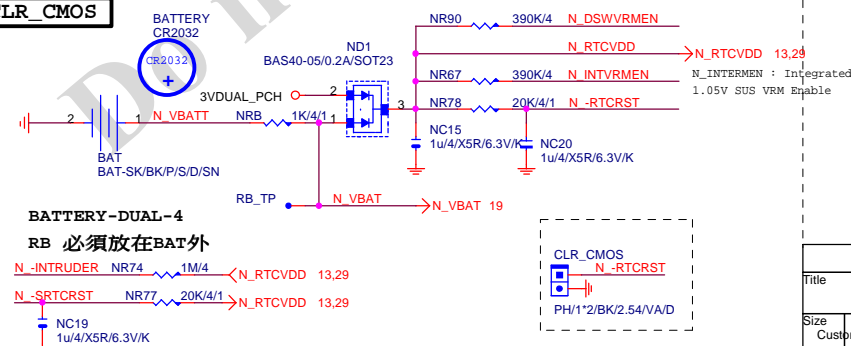
HSW_STRAP13



32.768KHZ



CLR_CMOS



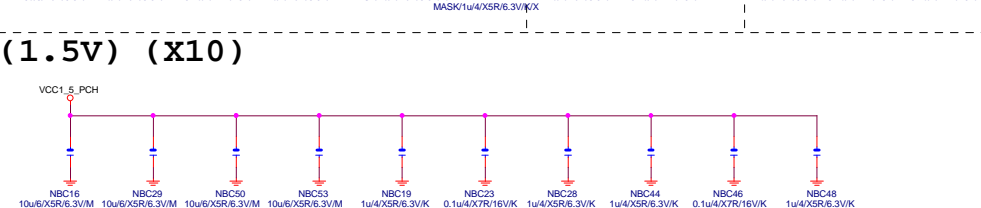
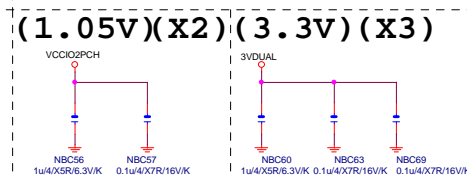
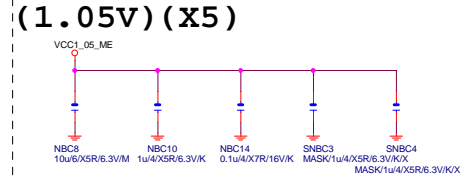
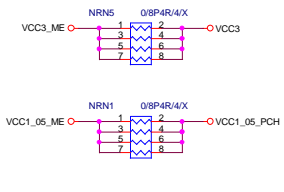
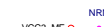
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PCH GPIO , CTRL , AUDIO

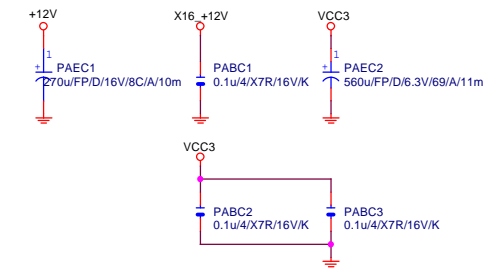
Document Number

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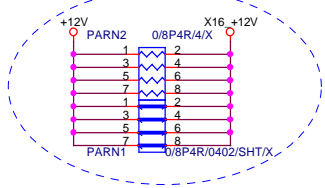


PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP SW TXP8	PAC20	0.22u/4/X5R/6.3V/K	PA EXP SW TXP8 C
PA EXP SW TXN8	PAC21	0.22u/4/X5R/6.3V/K	PA EXP SW TXN8 C
PA EXP SW TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA EXP SW TXP9 C
PA EXP SW TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA EXP SW TXN9 C
PA EXP SW TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA EXP SW TXP10 C
PA EXP SW TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA EXP SW TXN10 C
PA EXP SW TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA EXP SW TXP11 C
PA EXP SW TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA EXP SW TXN11 C
PA EXP SW TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA EXP SW TXP12 C
PA EXP SW TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA EXP SW TXN12 C
PA EXP SW TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA EXP SW TXP13 C
PA EXP SW TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA EXP SW TXN13 C
PA EXP SW TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA EXP SW TXP14 C
PA EXP SW TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA EXP SW TXN14 C
PA EXP SW TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA EXP SW TXP15 C
PA EXP SW TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA EXP SW TXN15 C

PCI-E REV:1.1--> 2.5GHZ

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

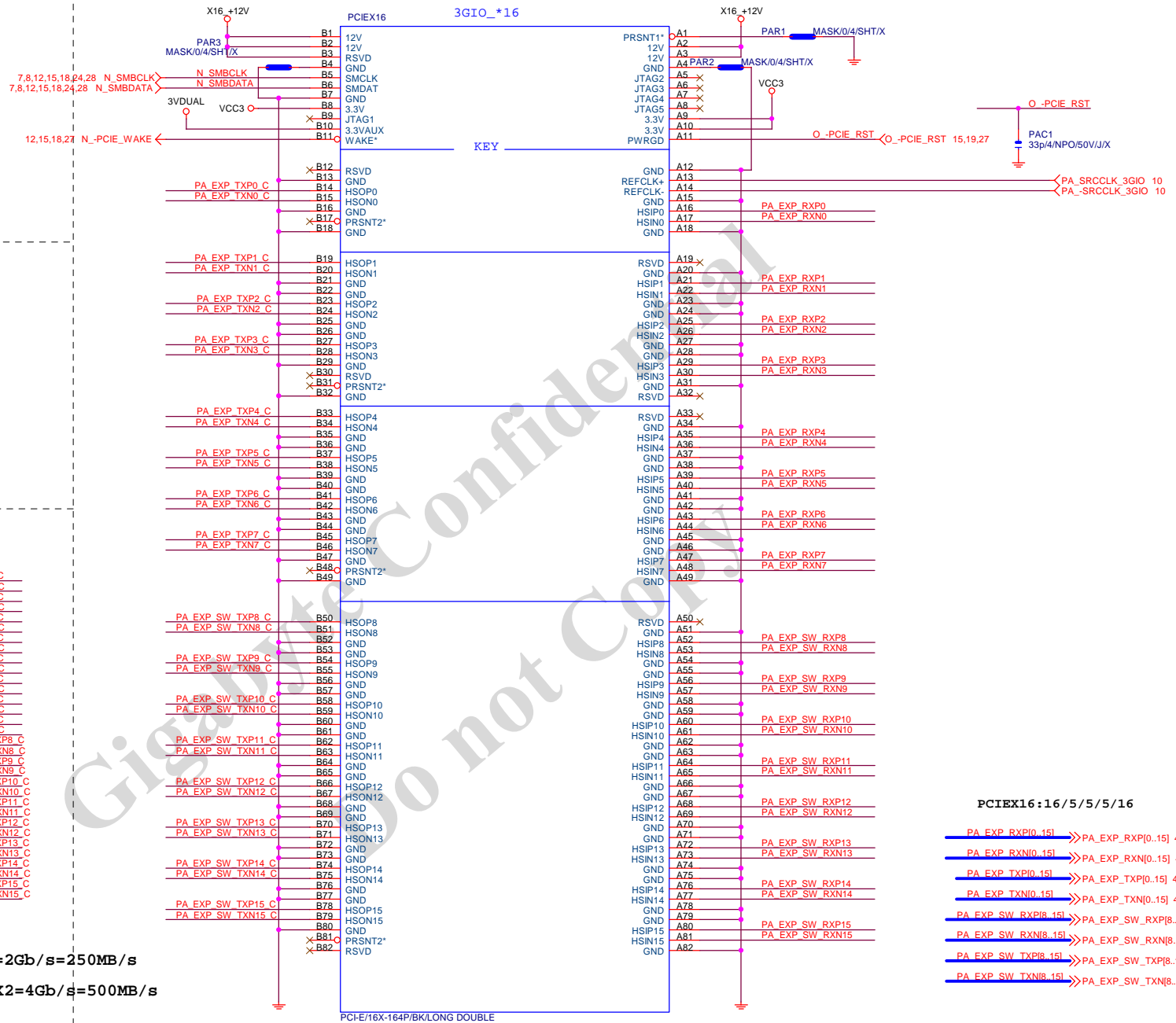
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

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

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT



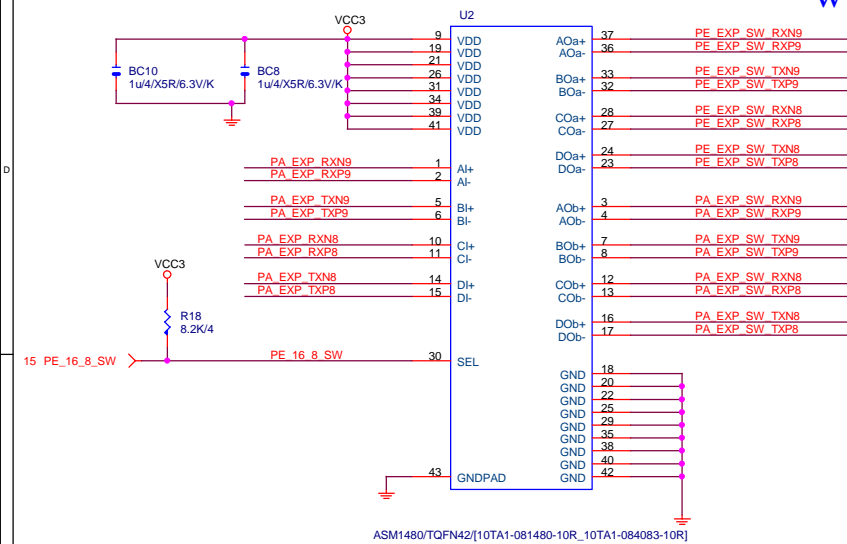
Gigabyte Technology

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PCI EXPRESS * 16			
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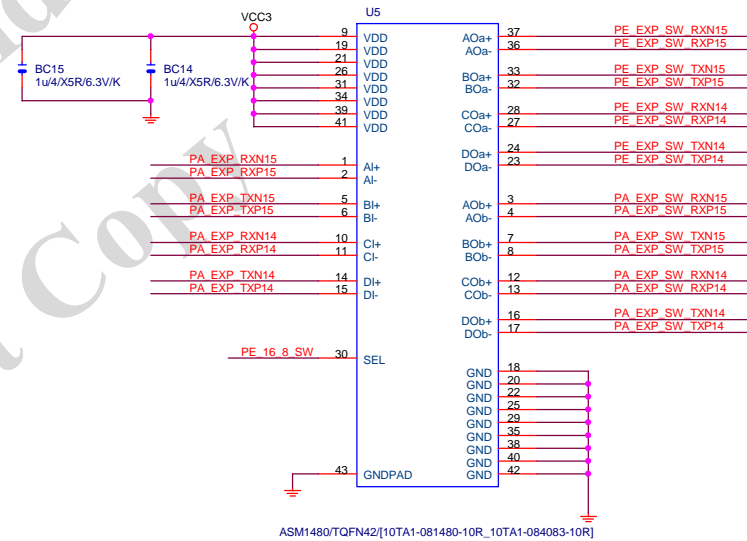
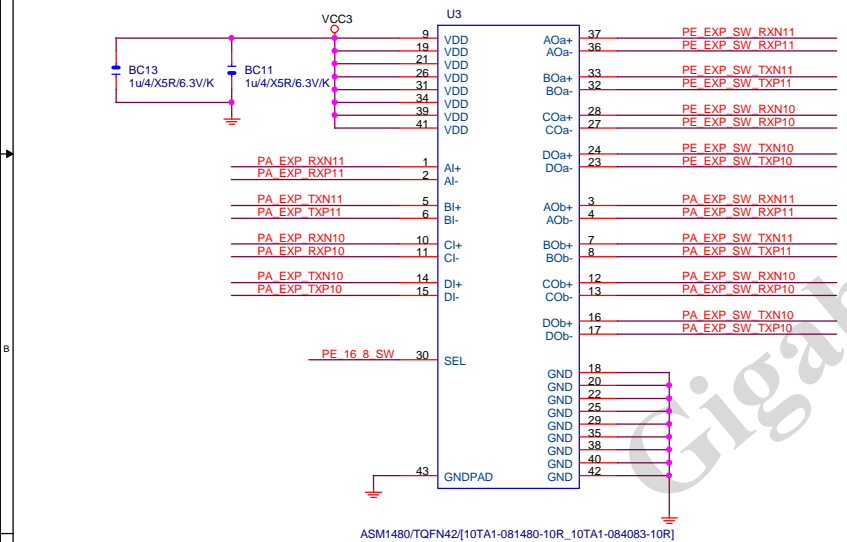
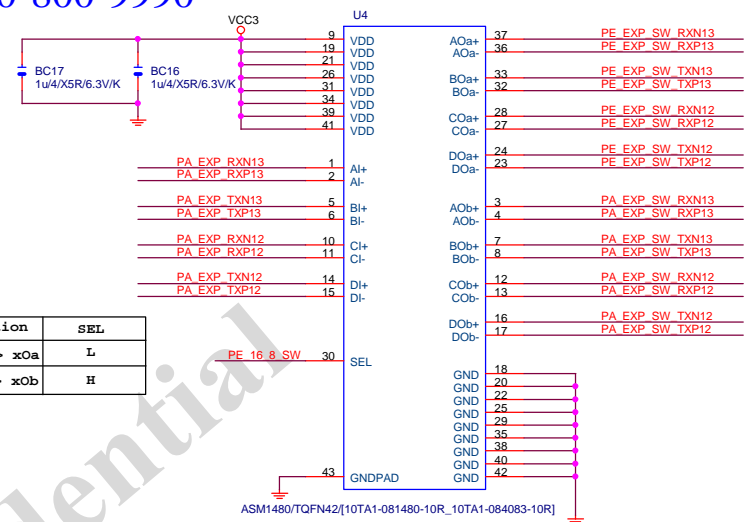


Gigabyte Technology

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Function	SEL
xI--> x0a	L
xI--> x0b	H



PA EXP SW RXP[8..15] >> PA_EXP_SW_RXP[8..15] 14

PA EXP SW RXN[8..15] >> PA_EXP_SW_RXN[8..15] 14

PA EXP SW TXP[8..15] >> PA_EXP_SW_TXP[8..15] 14

PA EXP SW TXN[8..15] >> PA_EXP_SW_TXN[8..15] 14

PE EXP SW RXP[8..15] >> PE_EXP_SW_RXP[8..15] 15

PE EXP SW RXN[8..15] >> PE_EXP_SW_RXN[8..15] 15

PE EXP SW TXP[8..15] >> PE_EXP_SW_TXP[8..15] 15

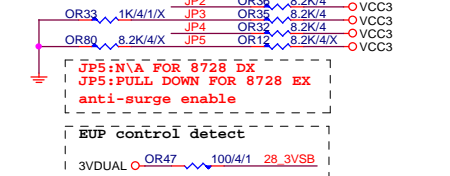
PE EXP SW TXN[8..15] >> PE_EXP_SW_TXN[8..15] 15

PA EXP RXP[0..15] >> PA_EXP_RXP[0..15] 4,14

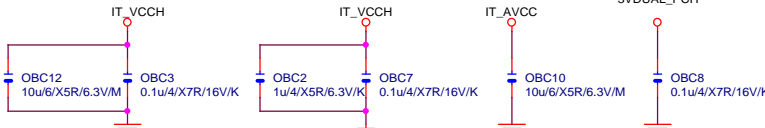
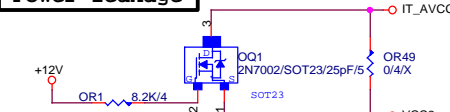
PA EXP RXN[0..15] >> PA_EXP_RXN[0..15] 4,14

PA EXP TXP[0..15] >> PA_EXP_TXP[0..15] 4,14

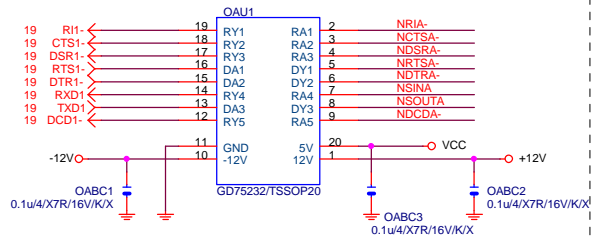
PA EXP TXN[0..15] >> PA_EXP_TXN[0..15] 4,14



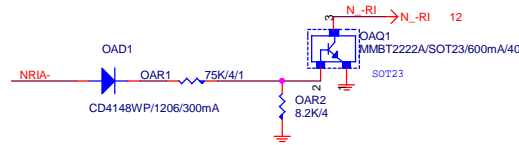
MB ID



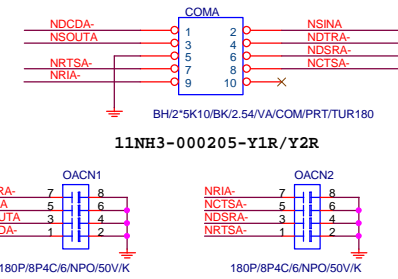
COMA



COM R1

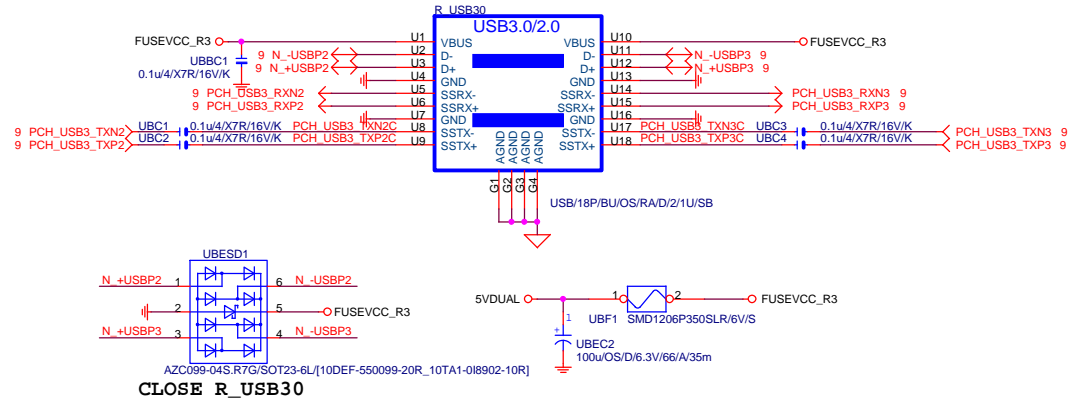


COM BUFFER

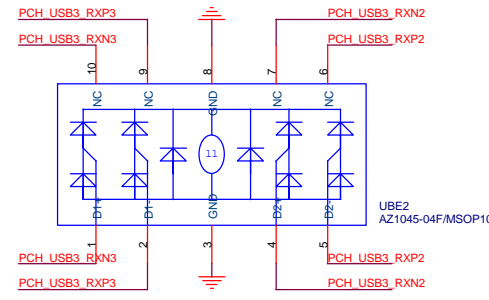
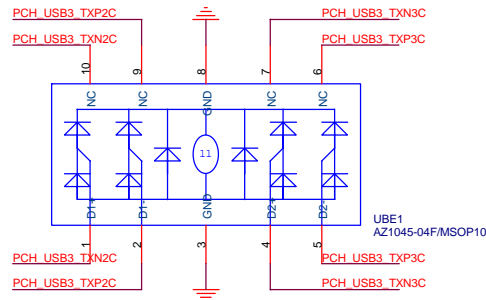


R_USB

R_USB30



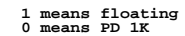
CLOSE R_USB30



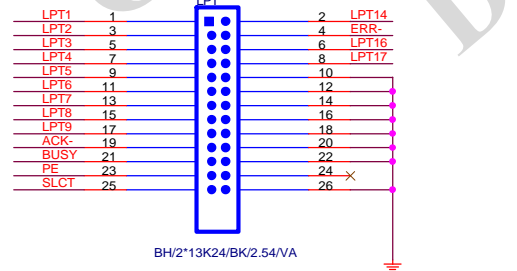
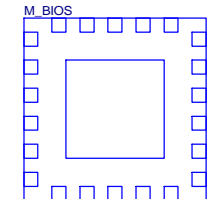
Gigabyte Technology

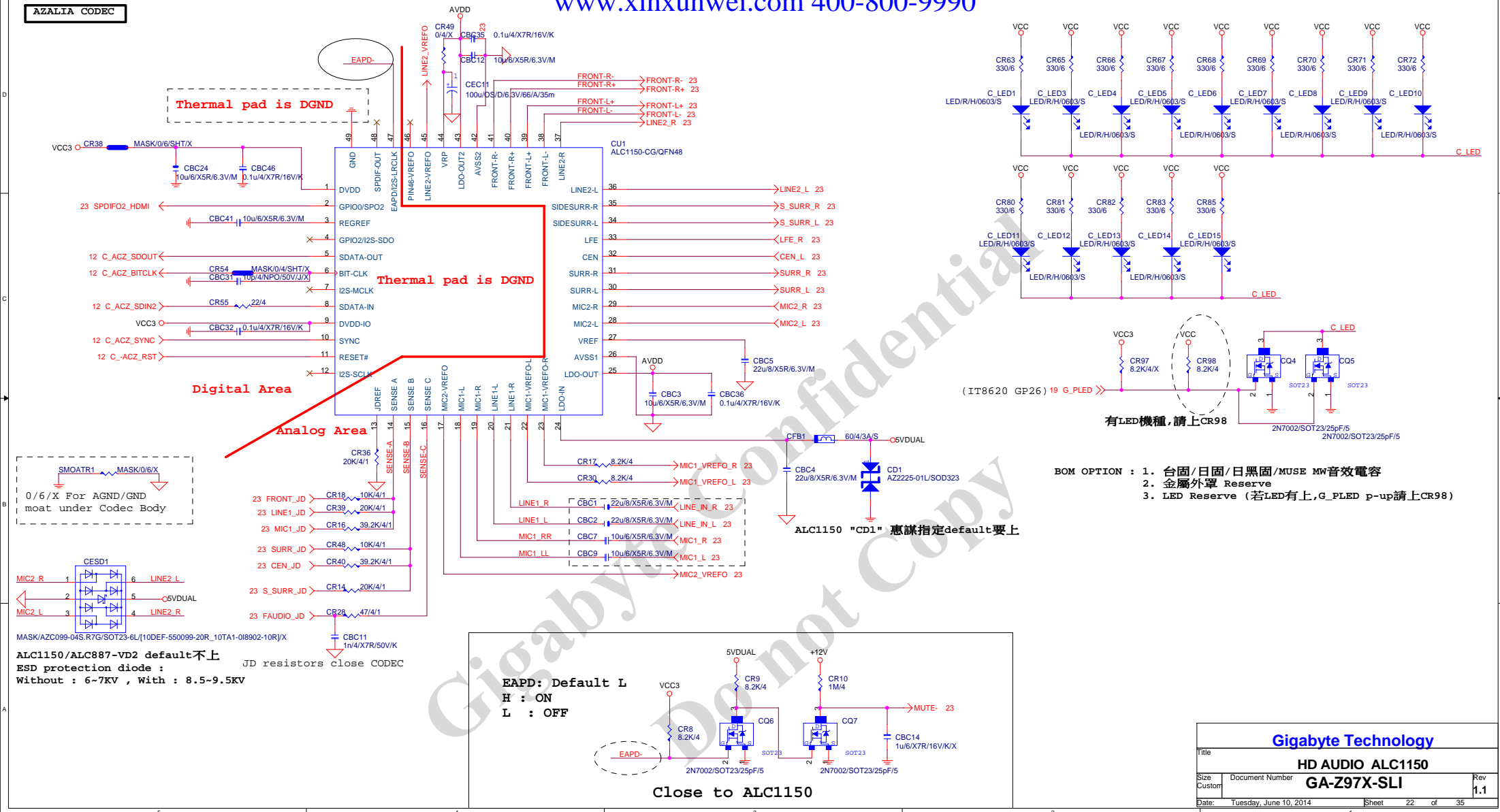
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Size	Document Number	Rev	1.1
Custom			
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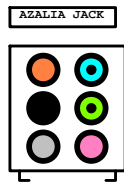
VCC3_ME



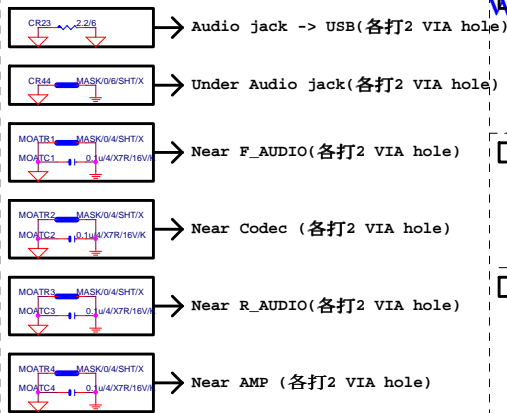
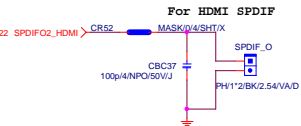
LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X



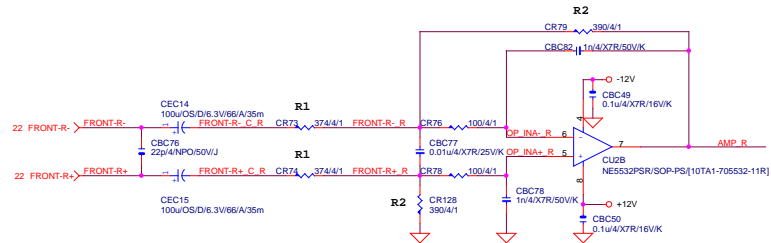




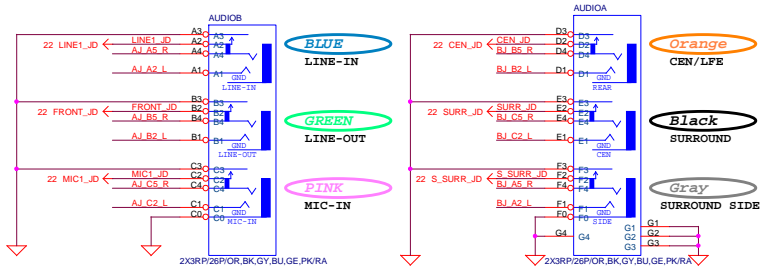
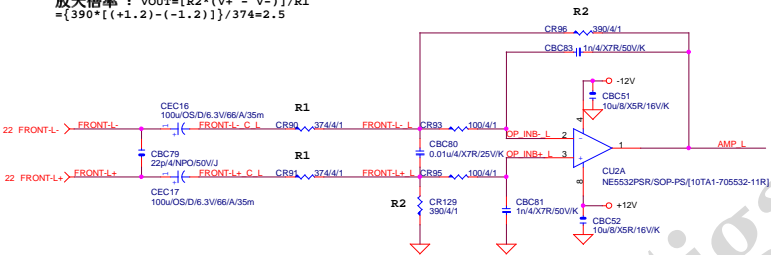
SPDIF OUT



Differential to Single-End AMPLIFIED



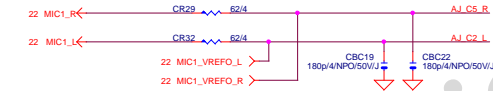
放大倍率: $V_{OUT} = [R2 * (V_+ - V_-)] / R1$
 $= [390 * [(+1.2) - (-1.2)]] / 374 = 2.5$



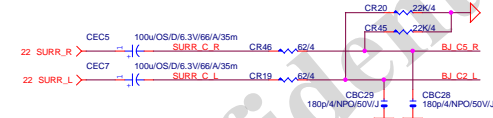
LINE-IN



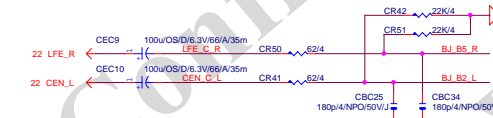
MIC-IN



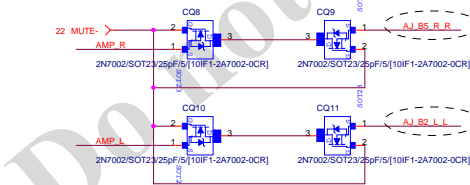
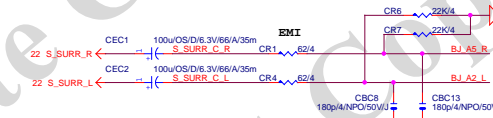
SURROUND



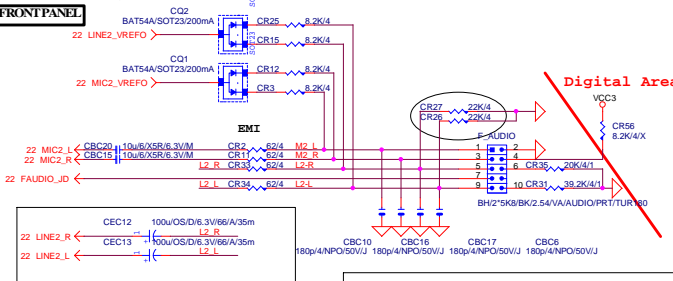
CEN/LFE



SURRBACK



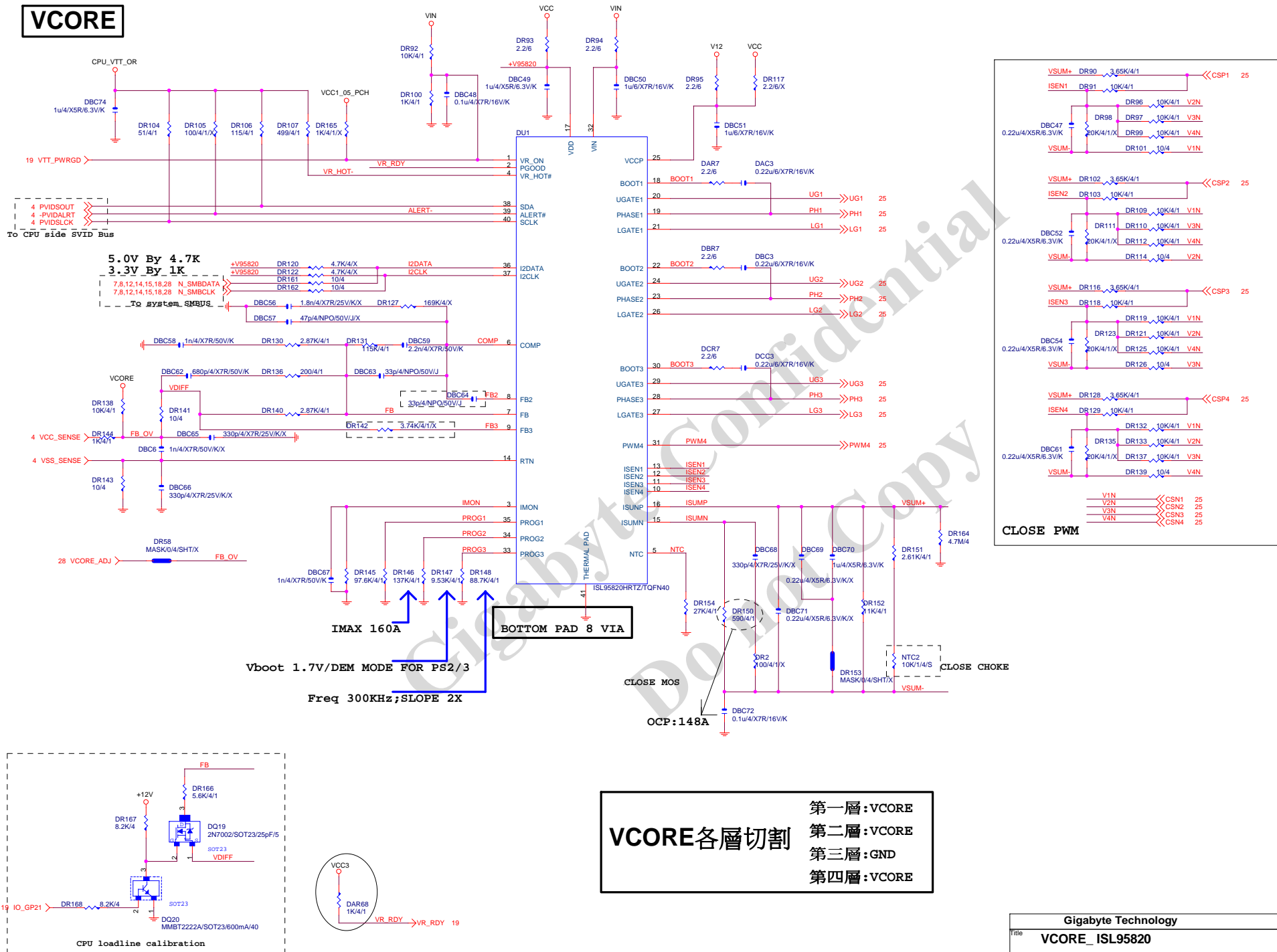
AZALIA FRONT PANEL



Gigabyte Technology

Title			AUDIO JACK
Size			GA-Z97X-SLI
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VCORE



CLOSE PWM

VCORE各層切割

第一層:VCORE

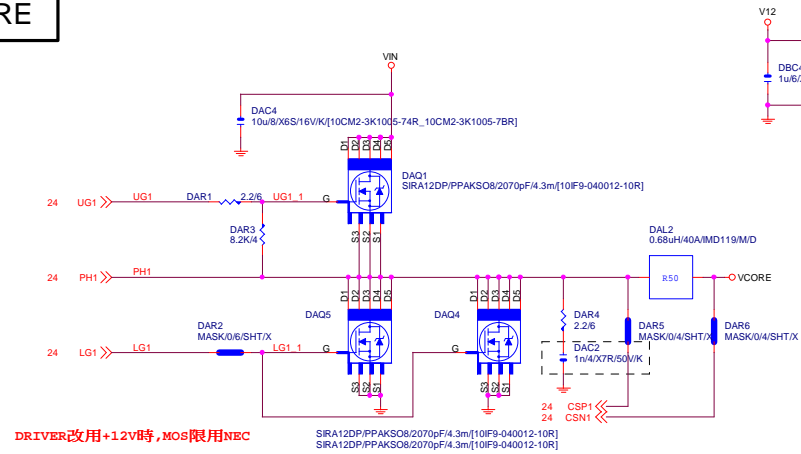
第二層:VCORE

第三層:GND

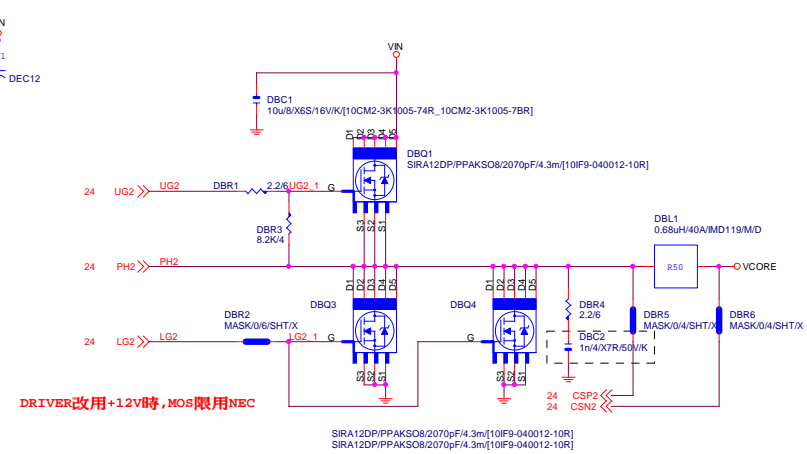
第四層:VCORE

VCORE

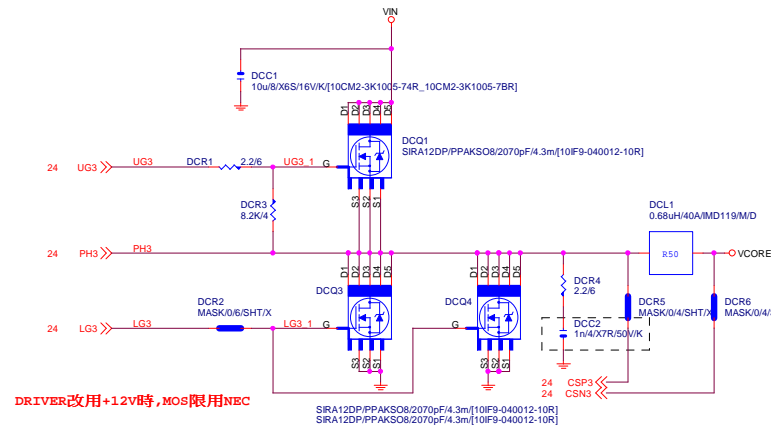
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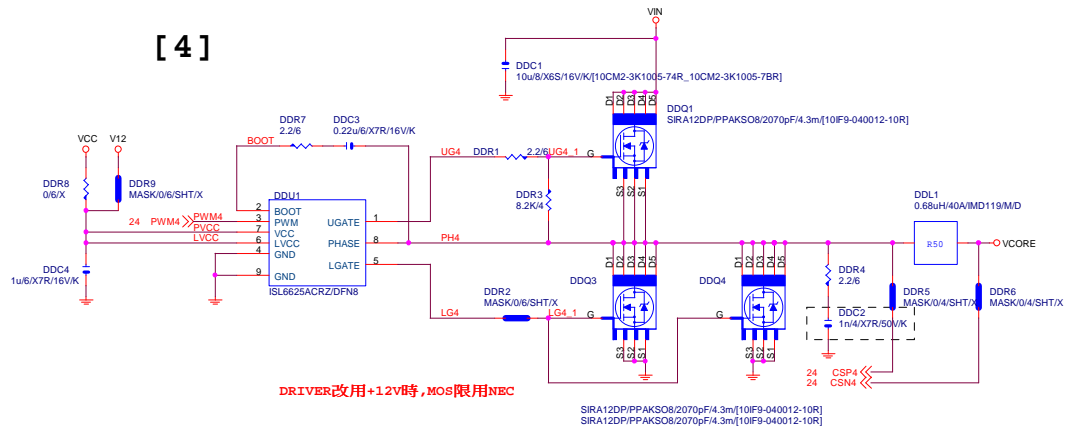
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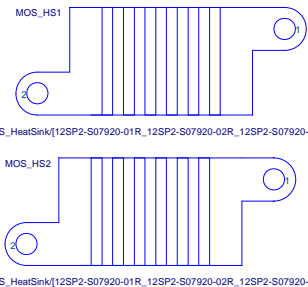
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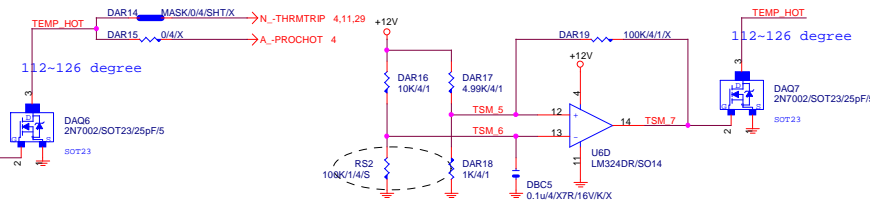
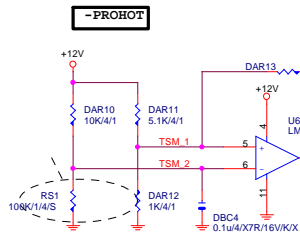
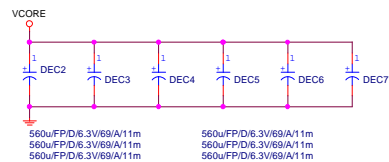
[4]



MOSFET HEATSINK



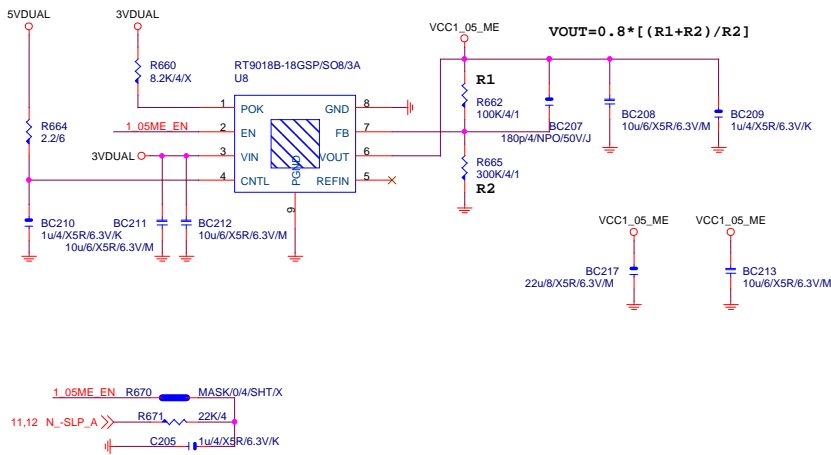
MOSHHSINK-Z97X-SLI



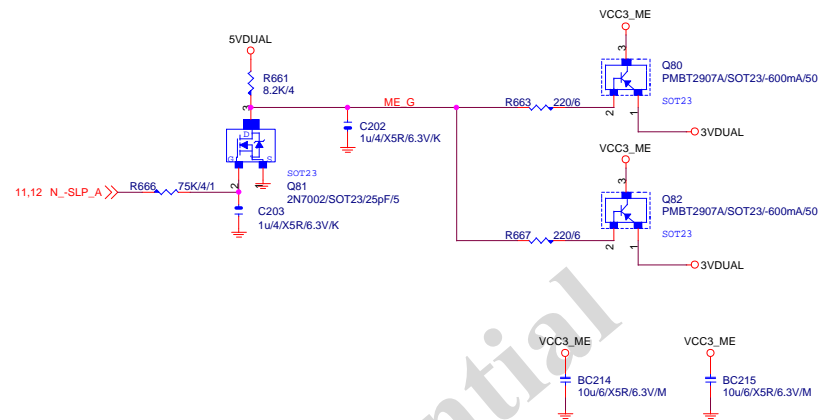
Gigabyte Technology

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Size	Document Number
Custom	GA-Z97X-SLI
Date	Tuesday, June 10, 2014
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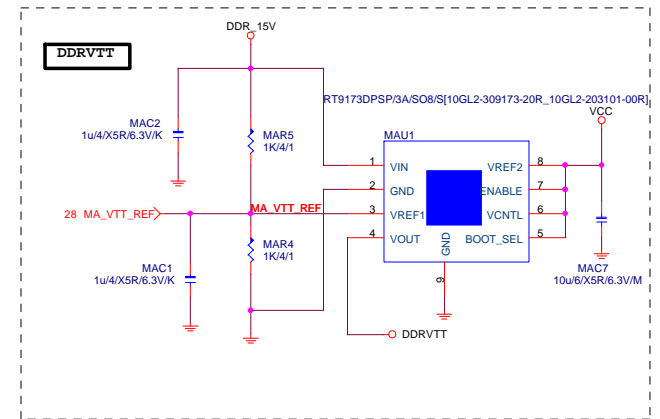
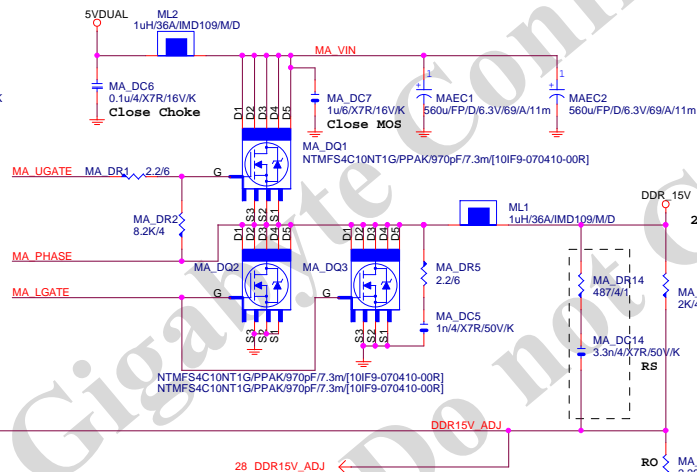
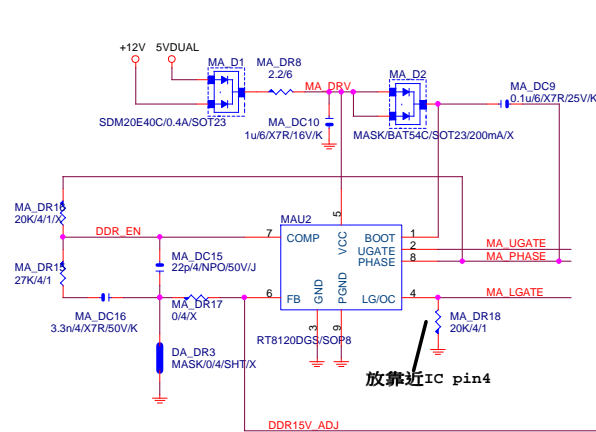
VCC1_05_ME



VCC3_ME



DDR_15V



Remote sense請從最重的負載端點拉回

PWR_SEQ

DDR_EN < DDR_EN_CON 19

VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85°C),1(105°C)

VIN Ripple current=4.7X1.7=7.99A(85°C)
-->故固態電容須2X7.99=15.98>11.45A

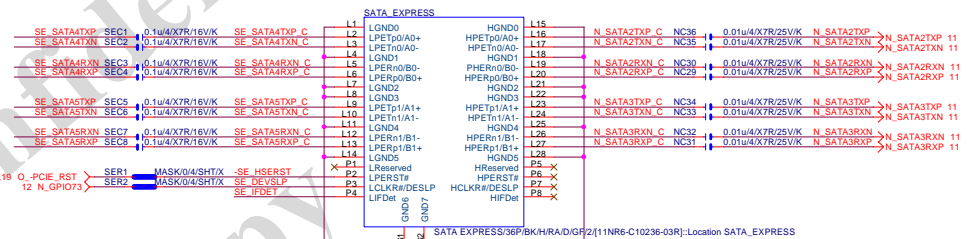
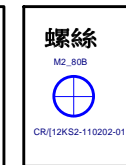
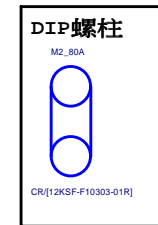
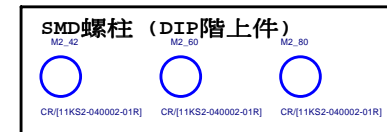
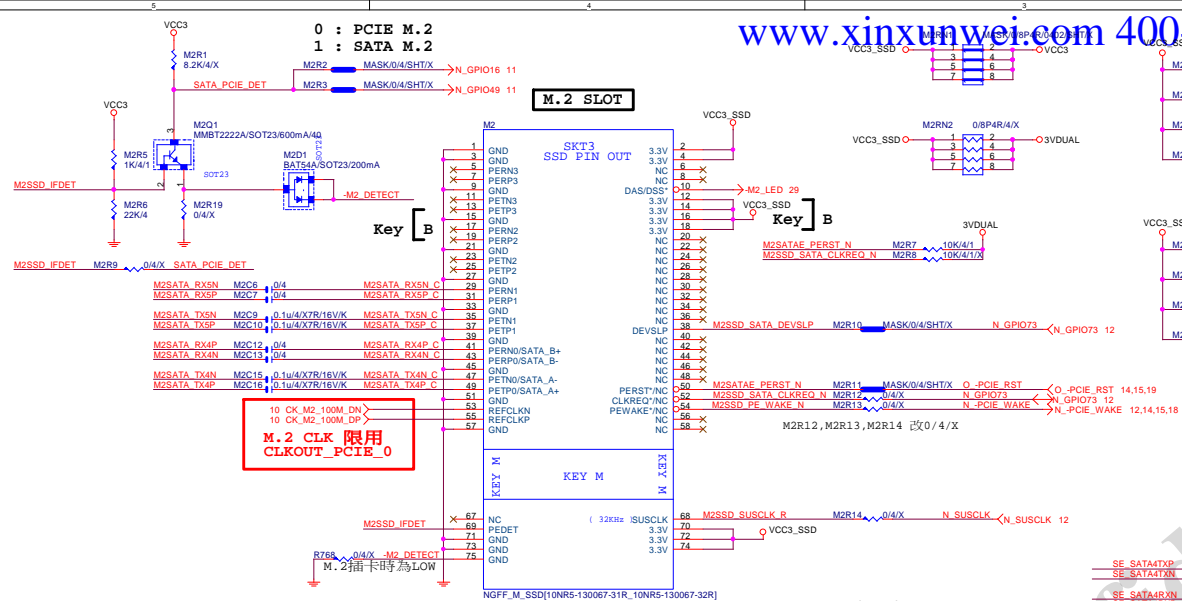
OCP:35.82A for Rds=6.7m for vishay@4.5V
OCP:72.727A for Rds=3.3m for renesas@10V
OCP:48A=Roset*Iocset / Rds(on)
=12K*10uA / [5/5]

GIGABYTE™

Title RT8120_DDR_15V

Size Document Number GA-Z97X-SLI Rev 1.1

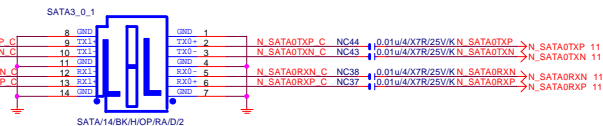
Date: Tuesday, June 10, 2014 Sheet 26 of 35



 SATA EXPRESS料號

單層:11NR6-C10118-02R

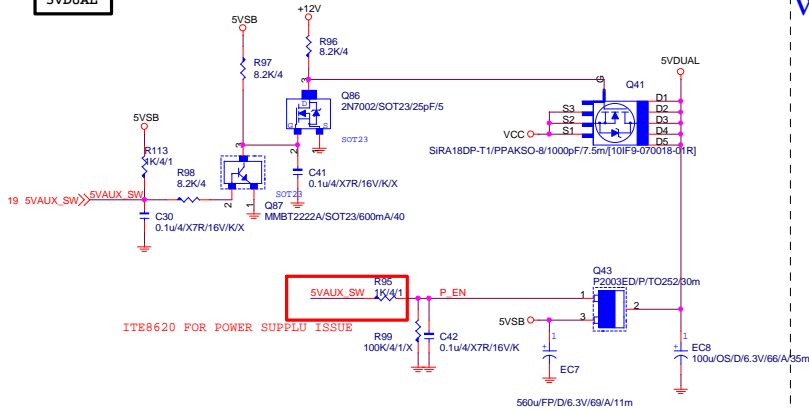
雙層:11NR6-C10236-02R

**GIGABYTE™**

Title			
M2_SATA_EXPRESS			
Size	Document Number	Rev	
Custom	GA-Z97X-SLI	1.1	
Date:	Tuesday, June 10, 2014	Sheet	27 of 35

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

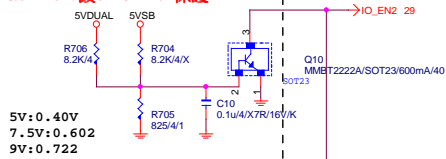
5VDUAL



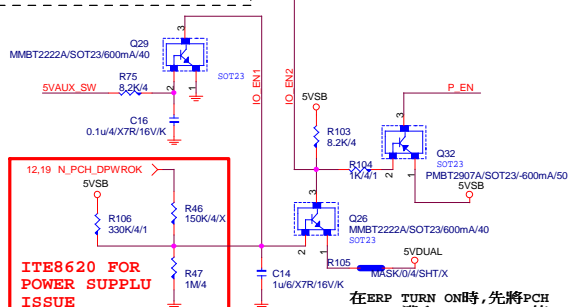
5VSB OVP發生時 : 5VDUAL=0.8V --> 解除時,須拔POWER CORE 才可開機

5VDUAL OVP發生時 : 5VDUAL=6.0V --> 解除時則恢復正常

5VSB OVP:7.5V protection
NOTE 82:改5VDUAL 6v保護

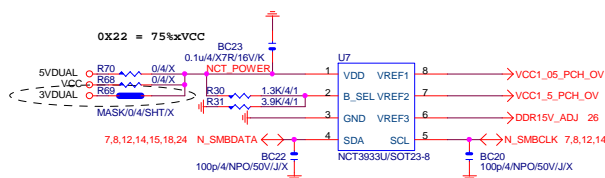


5VDUAL SHORT PROTECT



在ERP TURN ON時,先將PCH
3VDUAL灌入3VDUAL_PCH,使TURN ON -SLP_S3功能

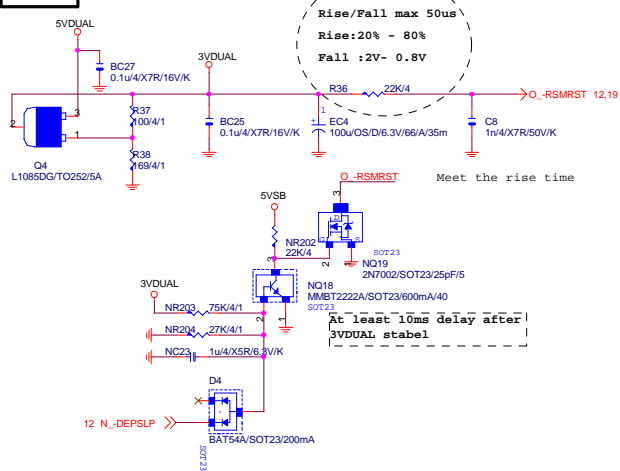
OVER VOLTAGE



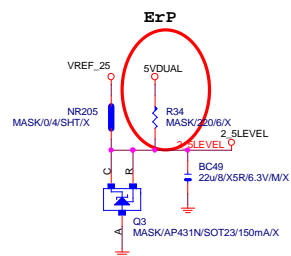
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

www.Xinxunwei.com 400-800-9990

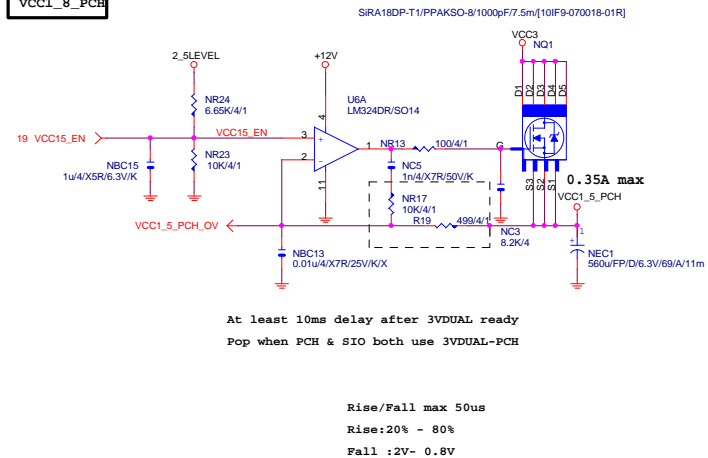
3VDUAL.



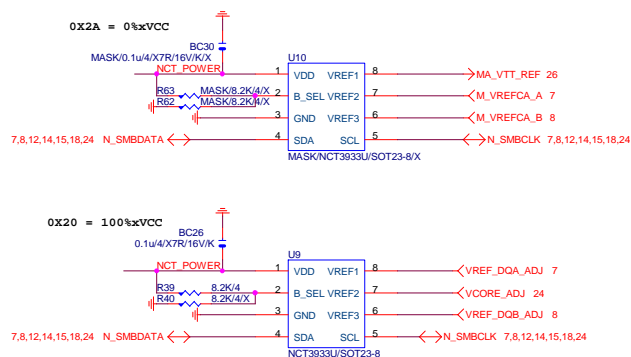
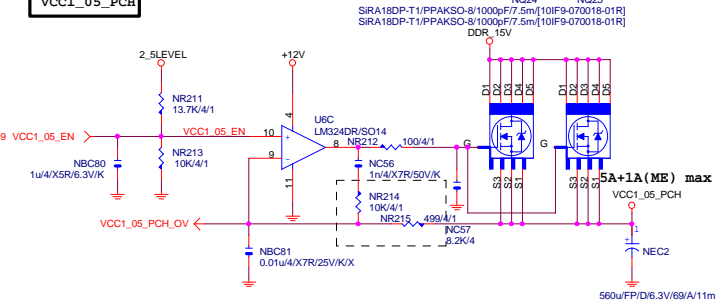
2 5LEVEL



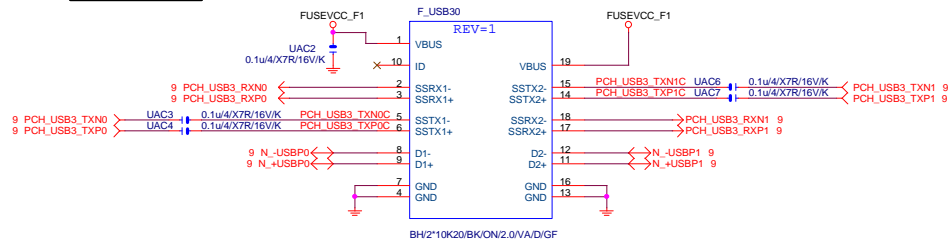
VCC1_8_PCH



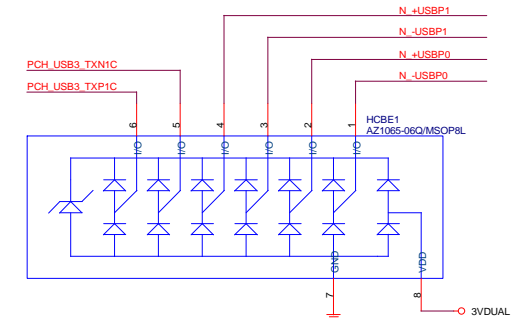
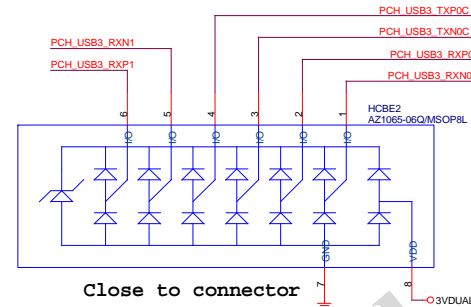
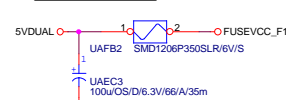
VCC1_05_PCH



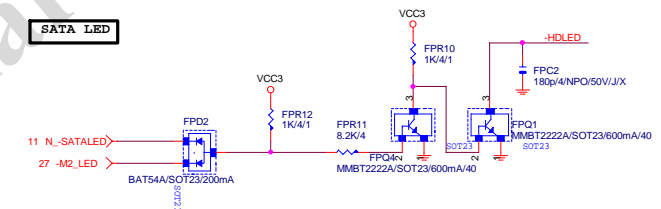
Front USB3.0



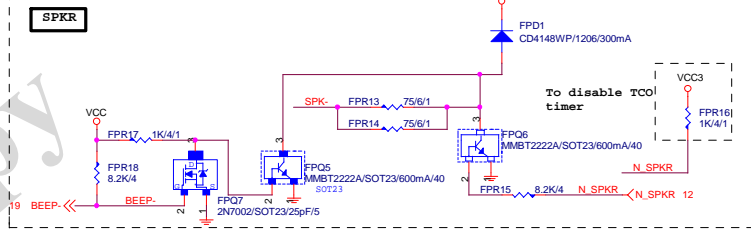
F_USB30 PWR



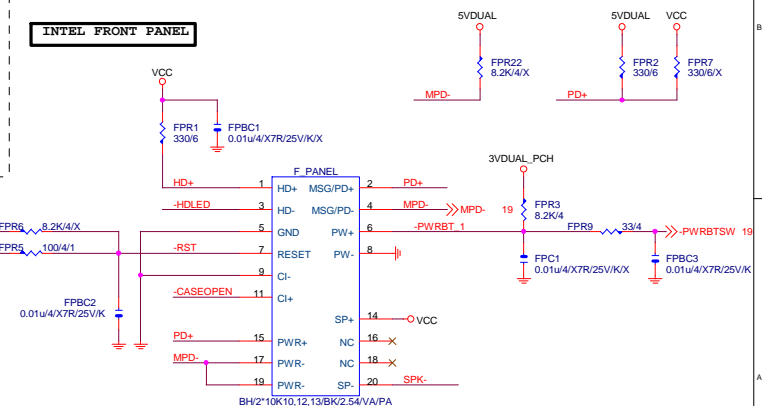
SATA LED



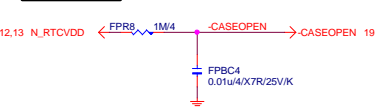
SPKR



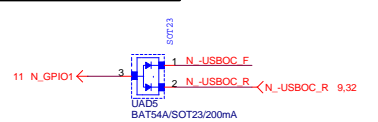
INTEL FRONT PANEL



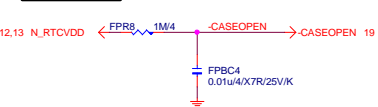
CASE OPEN



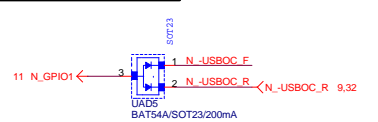
F_USB POWER PROTECT



CASE OPEN

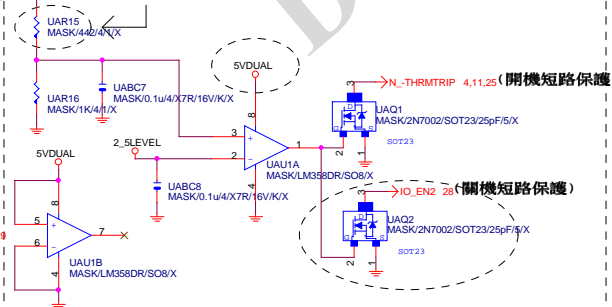


F_USB POWER PROTECT



USB2.0 Signal & power short protection

USB2.0 Signal > 4.9V
Enable --> 3VDUAL=3.6V

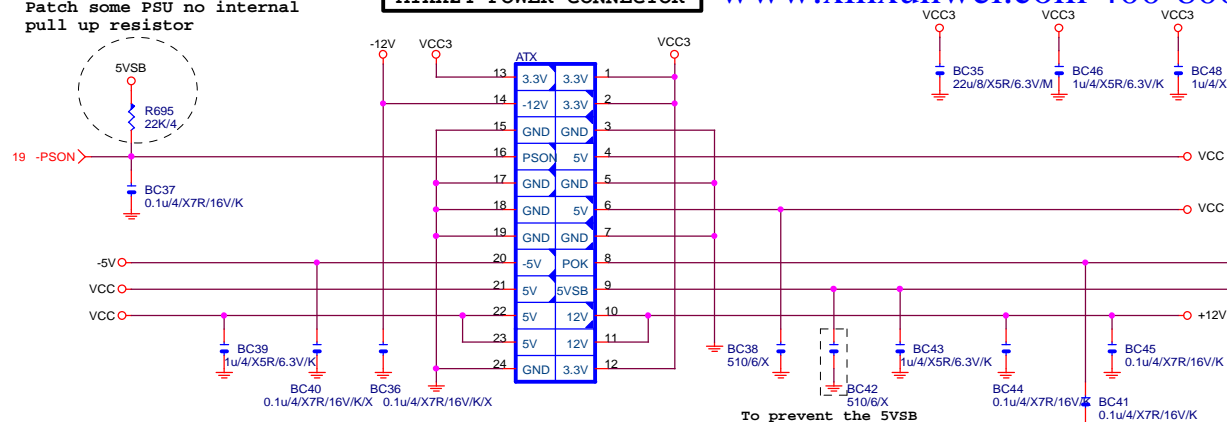


Gigabyte Technology

Title			
FP,F_USB,USB PWR,FDD,BZ			
Size	Document Number		Rev
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ATXX24 POWER CONNECTOR

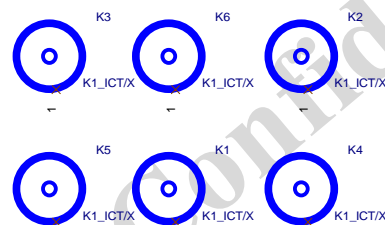
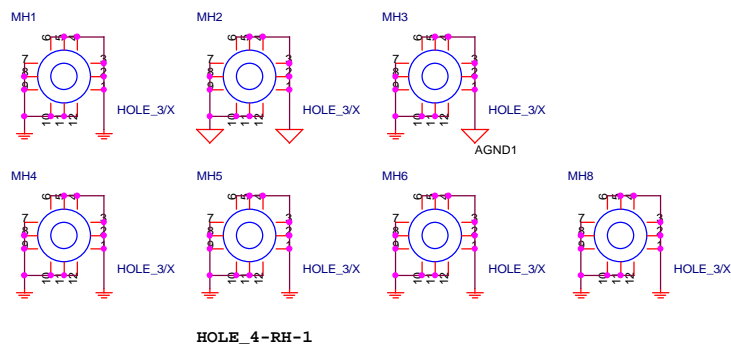
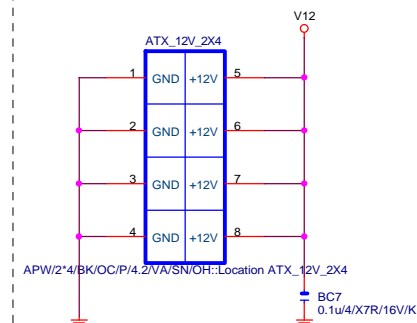
Patch some PSU no internal pull up resistor



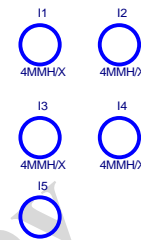
APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB
under loading when
boot

ATXX4 POWER CONNECTOR



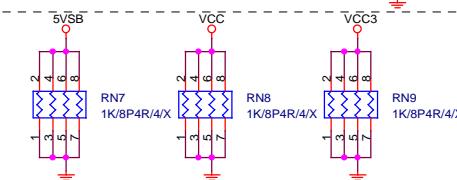
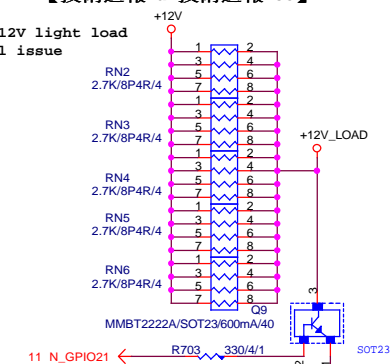
K1-ICT



4MMH

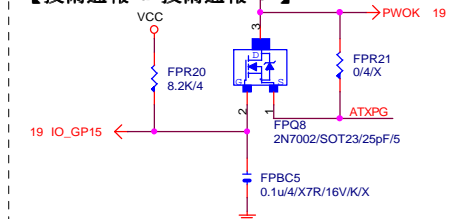
【技術通報R&D技術通報153】

To fix 12V light load
abnormal issue



PWOK PATCH

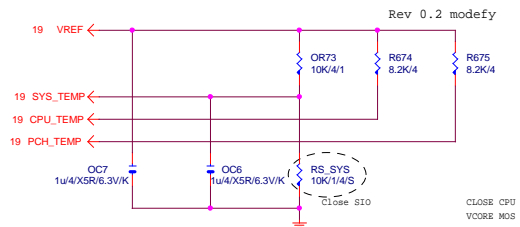
【技術通報R&D技術通報154】



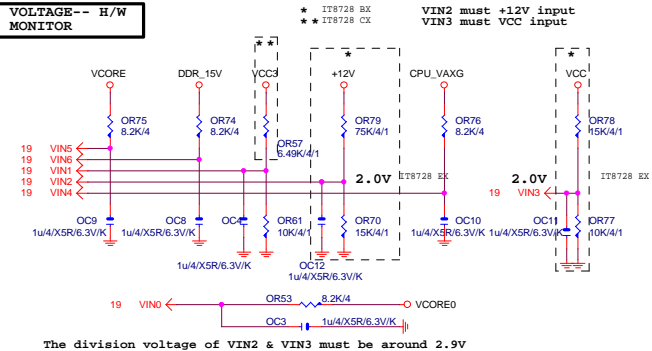
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
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TEMP H/W MONITOR

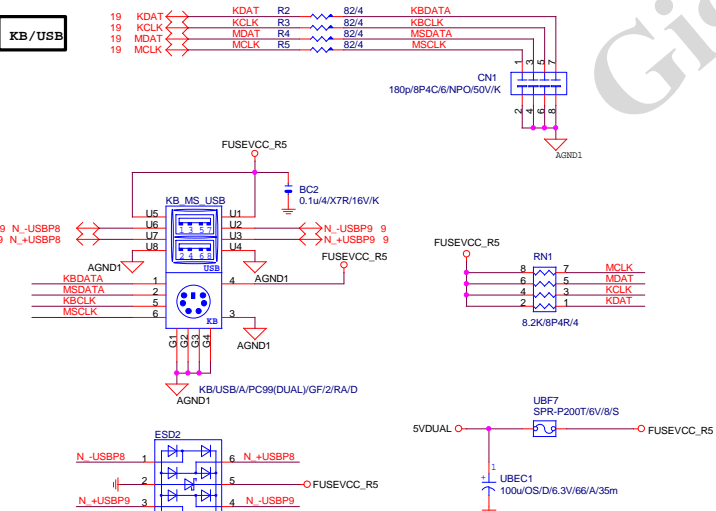


VOLTAGE-- H/W
MONITOR

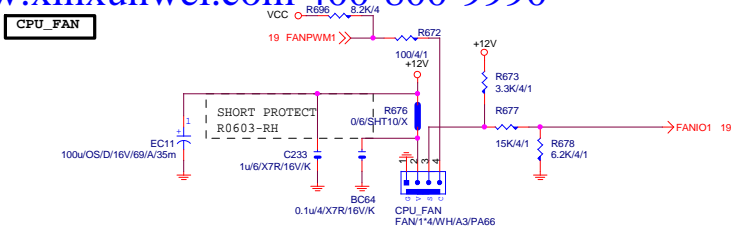


The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB



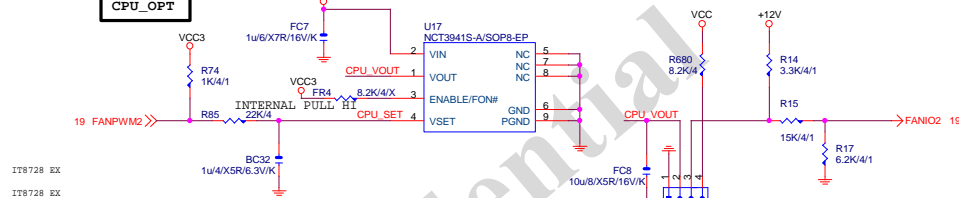
CPU_FAN



Linear SYS_FAN

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

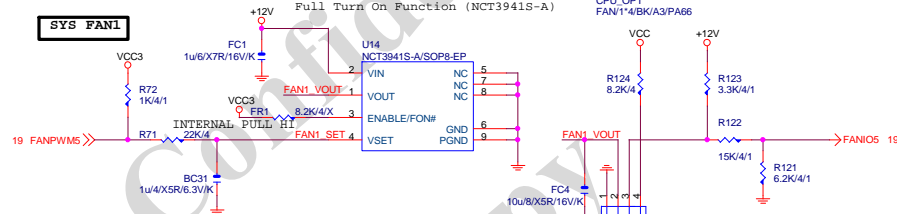
CPU_OPT



Linear SYS_FAN

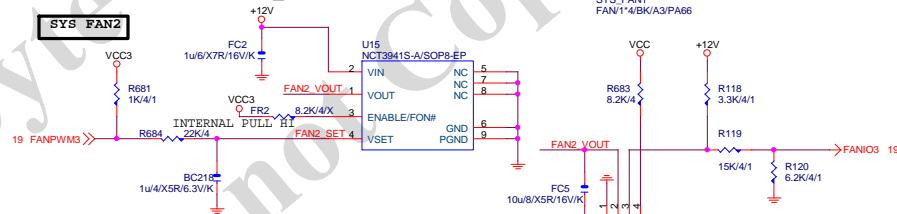
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

SYS FAN1



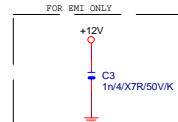
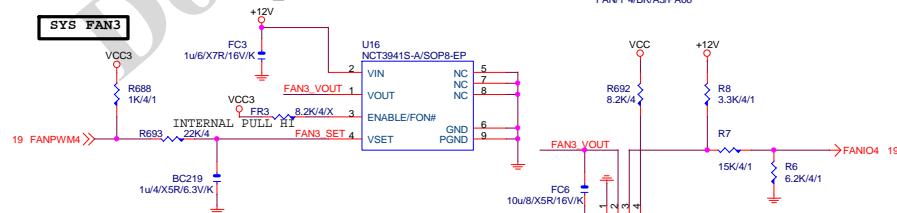
Linear SYS_FAN

SYS FAN2

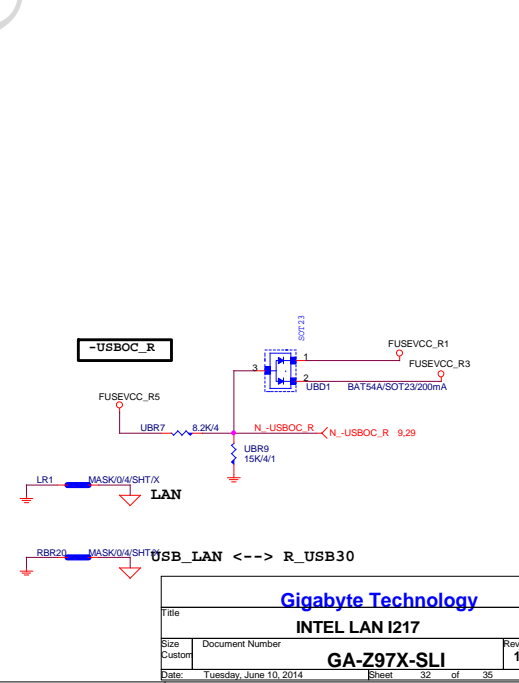
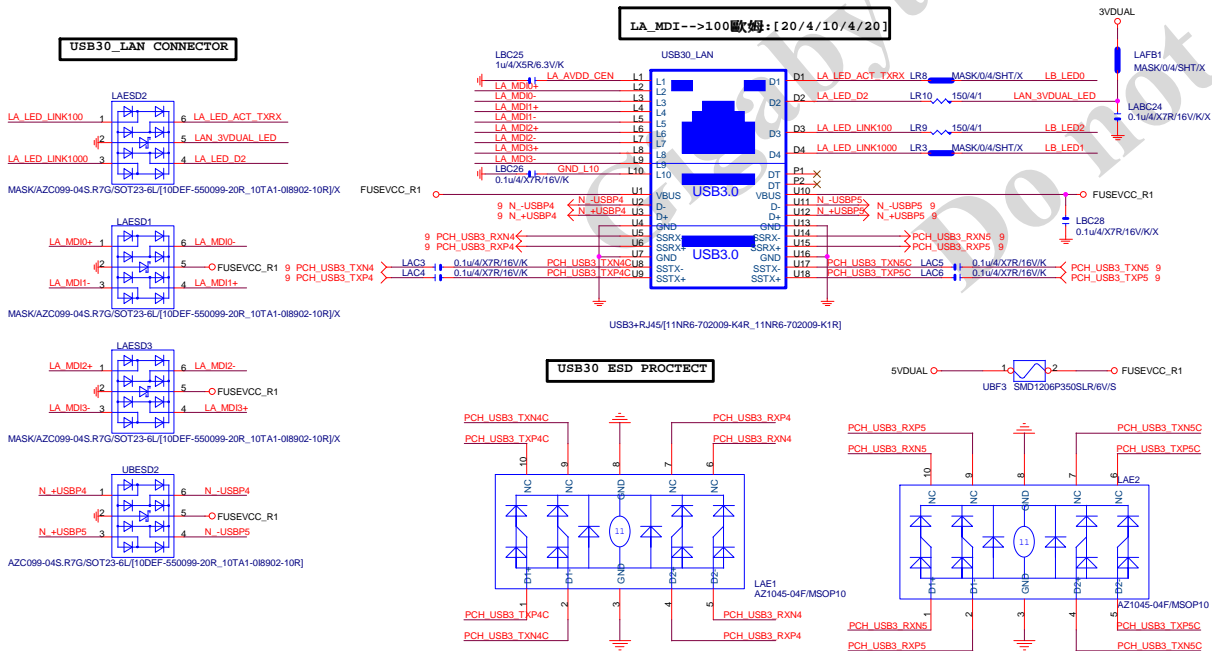
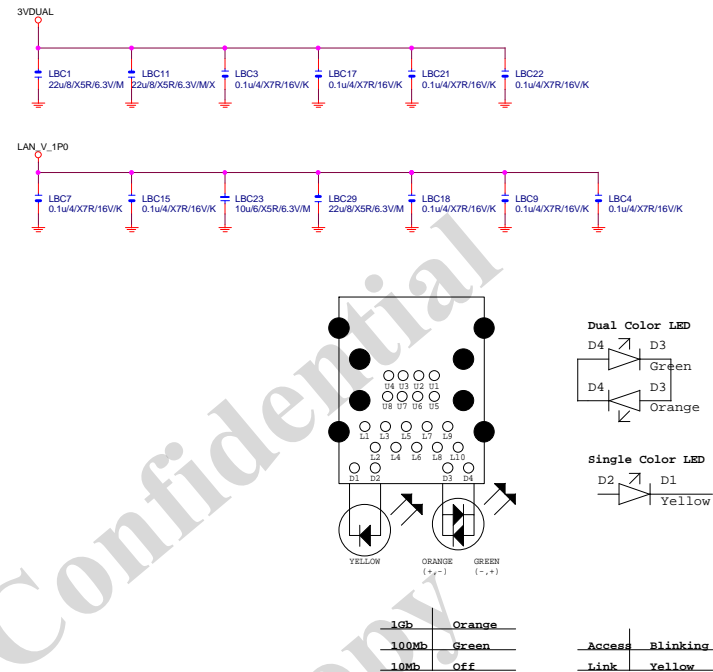
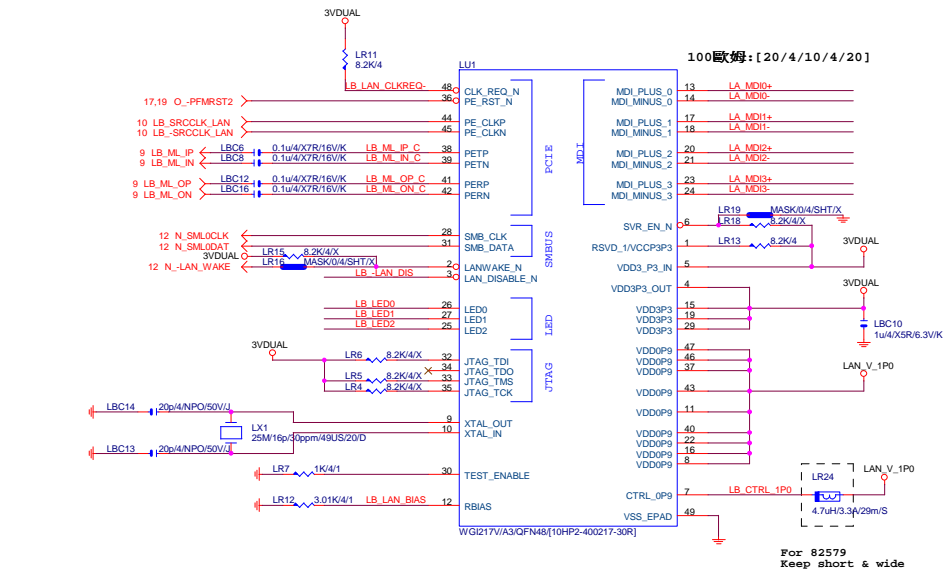


Linear SYS_FAN

SYS FAN3



Title				HWM,KB/MS, FAN CTRL			
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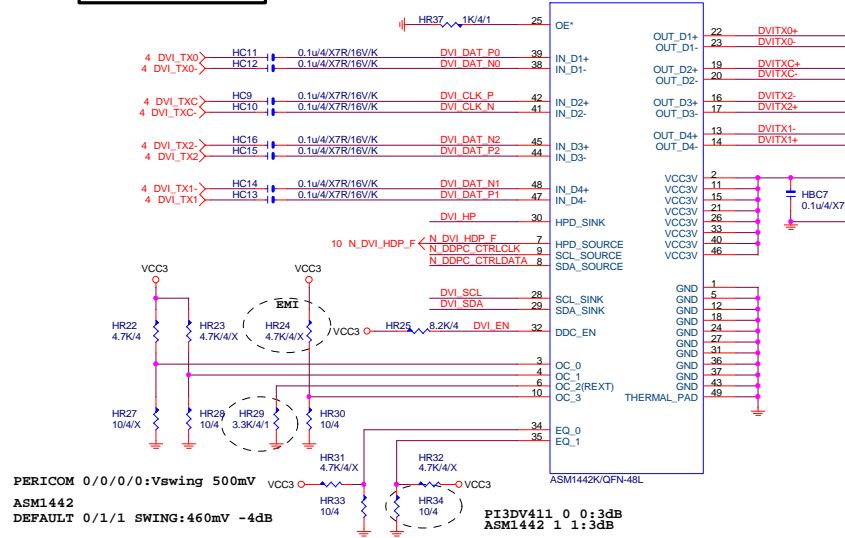


DVI LEVEL SHIFT

DVI:15/4/4/4/15

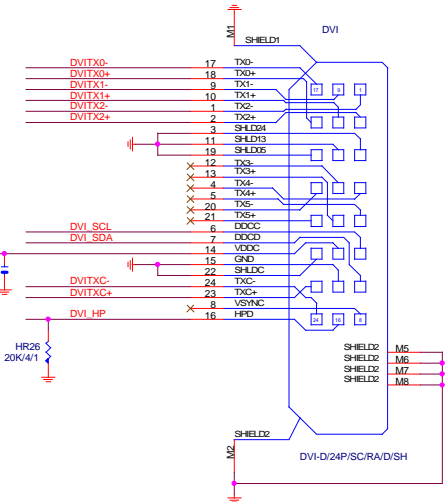
Impedance=85 +- 17.5%

HU2



10 N_DDPC_CTRLCLK ← N_DDPC_CTRLCLK
 10 N_DDPC_CTRLDATA ← N_DDPC_CTRLDATA

防漏電
 HBD2
 1A54A/SOT23/200mA
 SOT23



Gigabyte Technology

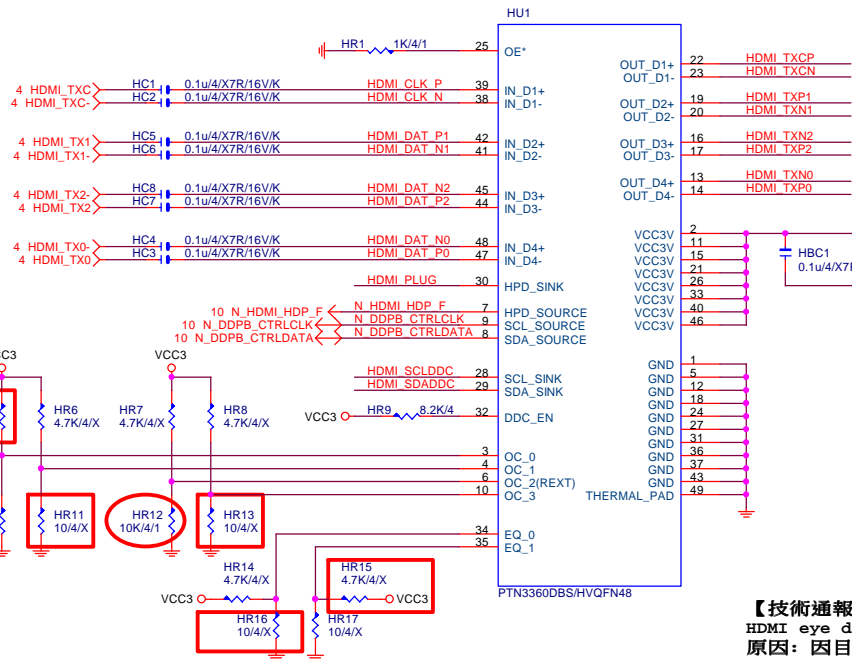
TI TSB43AB23 1394

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HDMI: 20/4/6/4/20

Impedance=85 +- 17.5%

HDMI LEVEL SHIFT



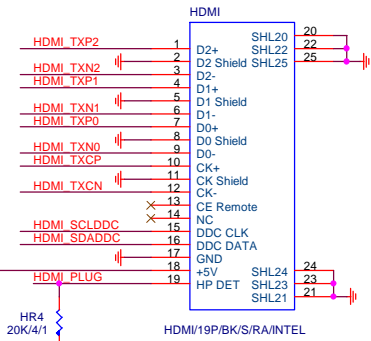
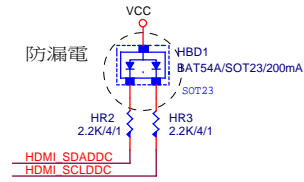
PTN3360: PIN 4/10/34/35 NC PIN, 都不上值; 只上 HR12: 10K
 ASM1442: 紅色框要上, HR12: 3.16K

【技術通報R&D技術通報150】

HDMI eye diagram 1.4版(deep color)會fail

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

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



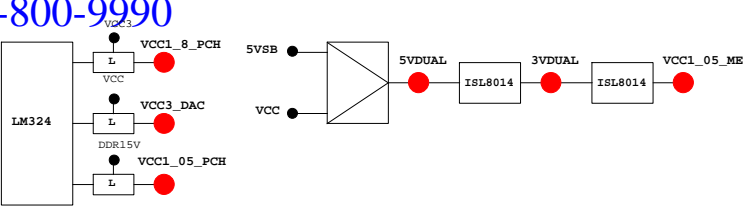
GIGABYTE™			
Title HDMI & USB			
Size Custom	Document Number GA-Z97X-SLI		Rev 1.1
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PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI0	N/A	
GP1/TACH1	MAIN		GPI01	N/A	
GP2/PIRQ#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		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		GPI	GPI07	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPI08	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	GPI012	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPI015(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPI016	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPI017	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPI019	P/U 8.2K VCC3
GP20	MAIN		GPI	GPI020	P/U 8.2K VCC3
GP21	MAIN		GPI	GPI021	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPI022	P/U 8.2K VCC3
GP23	MAIN		GPI	GPI023	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPI027	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPI029	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPI039	P/U 8.2K VCC3
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	GPI044	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPI045	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPI046	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPI048	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPI049	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPI063	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

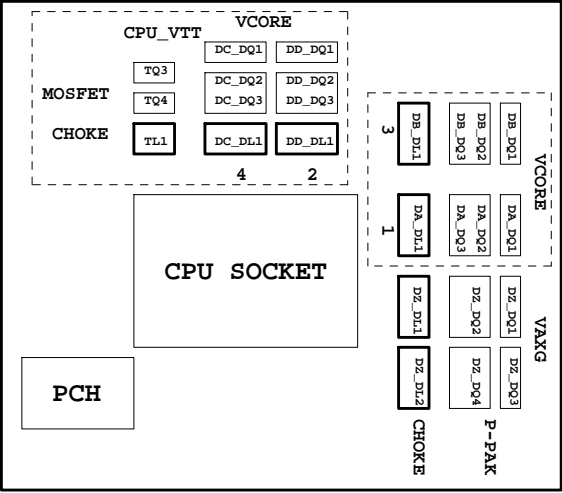
Super I/O ITE8720 GPIO Table

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#CIRRXL/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/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VBSBW#/GP40	CSI_F0	BSEL166_1
SUSC#/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/SMBC_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/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/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRXL2/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 Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

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

	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