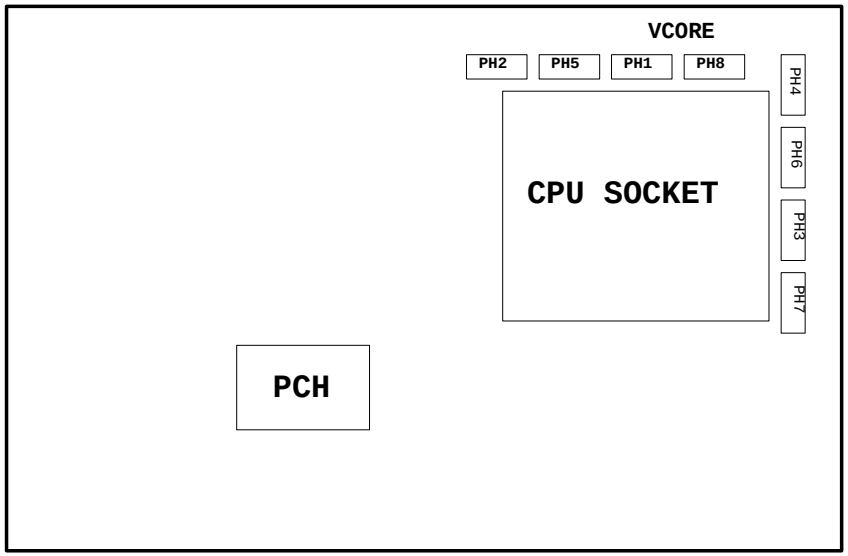
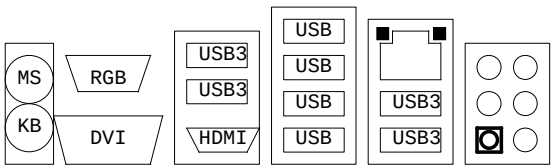
Model Name: GA-Z97X-GAMING 5 *1.02*

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	PCI EXPRESS*8 SLOT
16	PCI EXPRESS*16 SWITCH
17	PCI EXPRESS*4 SLOT
18	PCI EXPRESS*1 1,2,3 SLOT
19	ITE8892E
20	PCI SLOT
21	ALC1150 CODEC
22	REAR AUDIO JACK
23	ITE8620
24	COM/KB_MS/R_USB/PROHOT/USB PROTECT
25	IR3563B
26	IR3598 VCORE Phase 1, 4, 2, 5
27	DDR POWER

SHEET	TITLE
28	DISCRETE POWER
29	DUAL BIOS
30	FP,F_USB,USB PWR,BZ
31	ATX POWER CONNECTOR
32	H/W MONITOR,FAN CTRL
33	DVI
34	HDMI_USB30
35	ARTHEROS E2201
36	M.2_SATA_EXPRESS
37	TABLE LIST
38	IR3598 VCORE Phase 6, 8, 3, 7
39	
40	





Gigabyte Technology

Title: Cover Sheet

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GA-Z97X-GAMING5

Component value change history

Data	Change Item	Reason
2014.01.22_0.2	UAR15 change to 442 ohm	
	Vcore MOS change to 4m ohm	
	Non-Vocre MOS change to 7.3m ohm	
	NE5532's 2.7n/4 --> 1n/4	
	N_GPIO73原P.D. --> P.U.	
	DVI Level-shift change to ASM1442K	
	C14改上1u/4/X5R/6.3V/K	
	Remove U9, U10 (NCT3933)	
	HDMI/DVI DDC_DATA & CLK P.U. 2.2K	
	C_LED3改成不上件	
	F_USB之ESD改成AOZ's 8902	
	M2 Power(VCC3_SSD)改成接VCC3	
2014.02.11_1.0	LAN ESD不上件	
	USB 2.0 ESD元件改AZC099-04S.R7G加強版	
	MUTE- pull-up change to 1M ohm	
	M2_SK改名為M2	
2014.0425_1.01	MB_ID ADD OR15, remove OR7	
2014.0509_1.01	DDR MOSFET cheng to ON	
2014.0825_1.02	Remove NR253 for M.2 M550 SSD	

Circuit or PCB layout change

DATE	Change Item	Reason
2014.01.22_0.2	修正 FPR22,FPR23,OR89,OR90, OR174, OR175	Footprint error
	M2 & SATA Express circuit update	M2_DETECT 移至pin 75
	DVI add Level-Shift	解決訊號量測Fail及長線問題
	SYS_FAN1-->FANPWM5，CPU_OPT-->FANPWM2	FANPWM*與TEMPIN*的群組需對應
	TR4 connect to SYS_TEMP	FANPWM*與TEMPIN*的群組需對應
	NR205改成0/4/X，改上431	IT8620轉出的2.5V在S3~S5的電壓不準
	M2 change Footprint to NGFF-M-75P-8CM-1	自動帶出42, 60, 80的文字面
	Add EAPD- circuit to fix pop-noise	解決+12V/-12V關機不同步導致的放屁聲音
	DA_DU1移到MOS_HS下面	避免被對手用紅外線熱像儀拍到高溫影像
	all 0 ohm change to Shrot-PAD	For PVT前需移除0 ohm
	將右邊的兩個Thermistor移到最熱的MOS旁	使最熱的MOSFET能維持在溫度Spec內
	將上方的兩個Thermistor移到最熱的MOS旁，並增加Thrmtrip#	
	C_LED11~C_LED13需遠離DIP 5mm	Fix DFM以利工廠製程
	DVI.14 change to FUSEVCC_R1_R2	方便Layout拉線
	放入9-Series文字面	Follow SPM spec.
	PCH's Heatsink change to BGAHSINK-Z97X-GAMING5-1	行銷部門要求需加大Heatsink
	預留Audio LED之呼吸燈模式	業務需求
2014.02.11_1.0	不上件者改為MASK Footprint	
	ISEN6 & ISEN8 change to 1.43K	
2014.0425_1.01	SE_IFDET	
2014.0825_1.02	Remove MLCC for SATA	
2014.0826_1.02	PER8,PER9 改0 ohm 不上件	

Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

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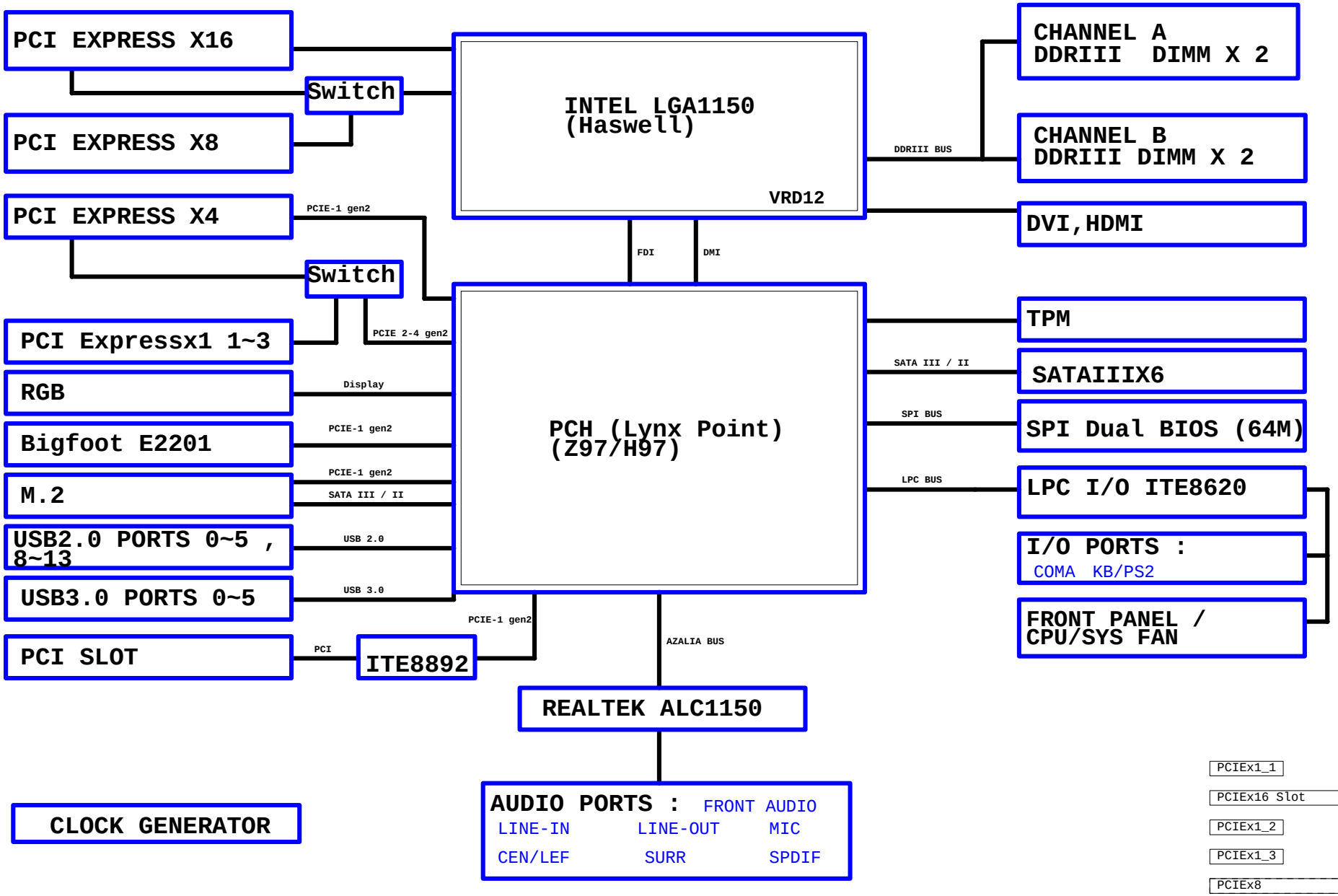
BLOCK DIAGRAM



PCIEx1_1
PCIEx16 Slot
PCIEx1_2
PCIEx1_3
PCIEx8
PCI Slot
PCIEx4

Gigabyte Technology		
Title: BLOCK DIAGRAM		
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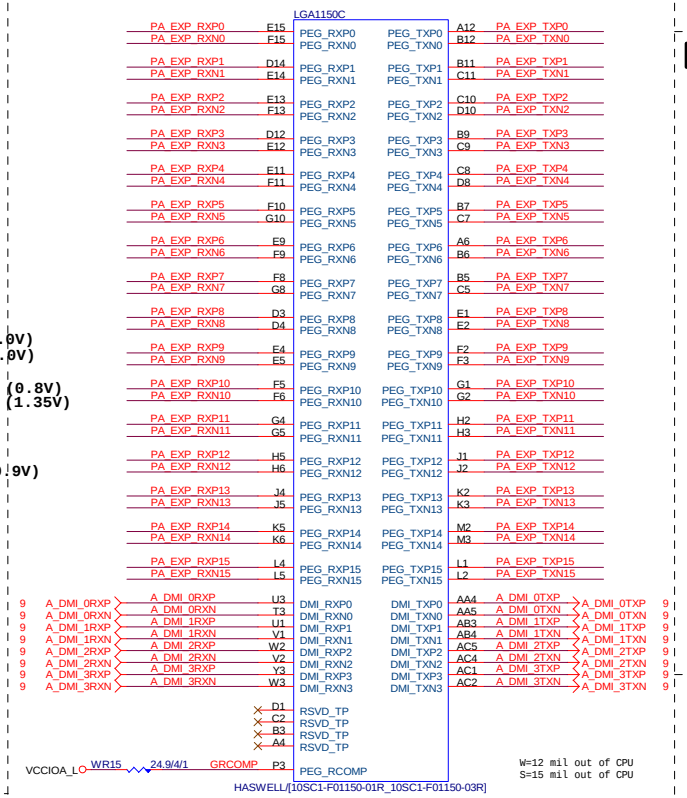
LGA1150 (E)

CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

LGA1155 (C)

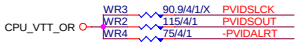


W=12 mil out of CPU
S=15 mil out of CPU

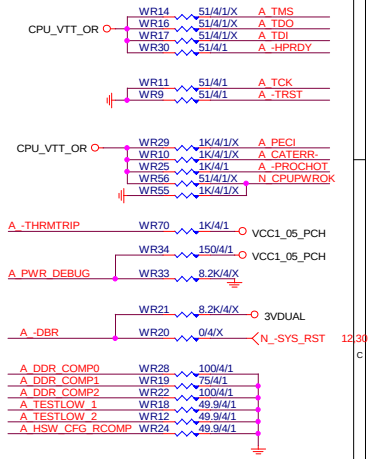
CPU PEG 5/5/5//20 Impedance=80 +- 15%

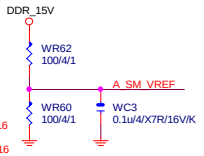
DMI 4/4/4//15 Impedance=85 +- 15%

CPU SVID



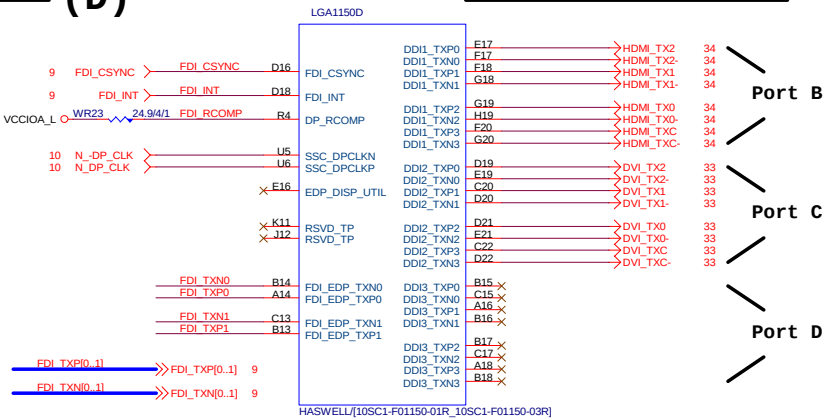
CPU PU/PD





LGA1150 (D)

HDMI需接Port B for WHQL



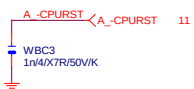
FDI:4/4/4//15(breakout min 4/4/4//8)
Impedance=85 +- 15%

DP/HDMI 4/4/4//20 FDI 4/4/4/12

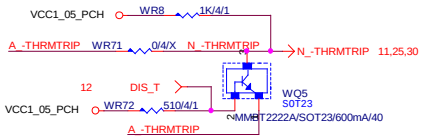
Impedance=85 +- 15%

-CPURST

1.1V分壓



THRMTRIP DISABLE FOR Z87 OVERCLOCK



Gigabyte Technology

Title	CPU LGA1150-A	
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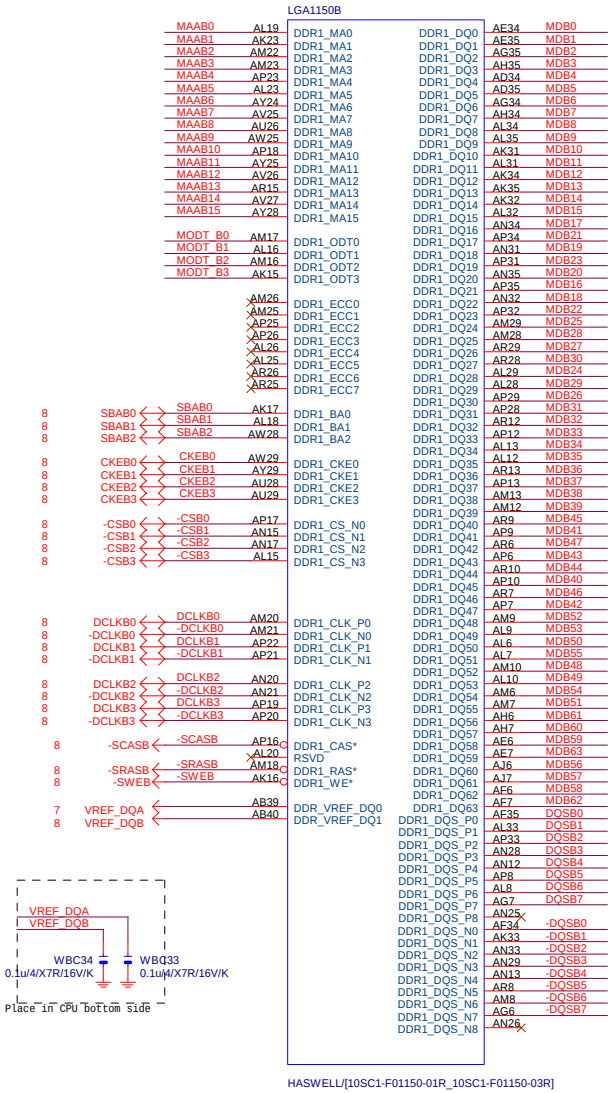
LGA1150 (A)

LGA1150A

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (B)

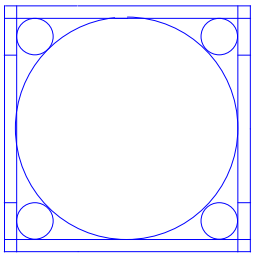
LGA1150B



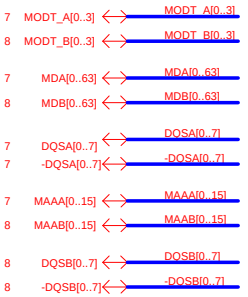
HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (CR)

LGA1150CR/115X/BKNI/[12KRC-0F0001-61R_12KRC-0F0001-62R]



DDR BUS



Gigabyte Technology	
Title	CPU LGA1150-B
Size: Custom	Document Number: GA-Z97X-GAMING 5
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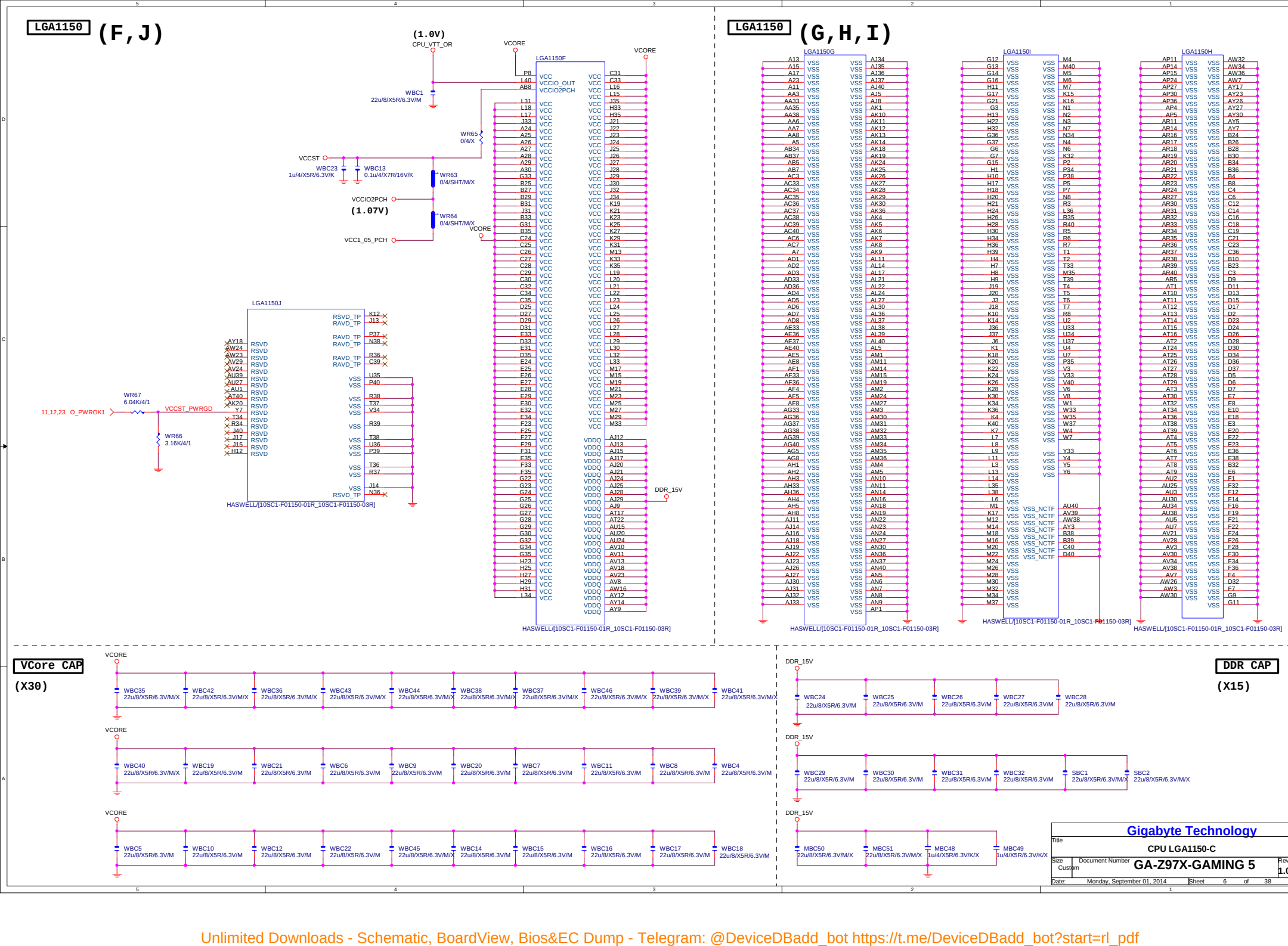
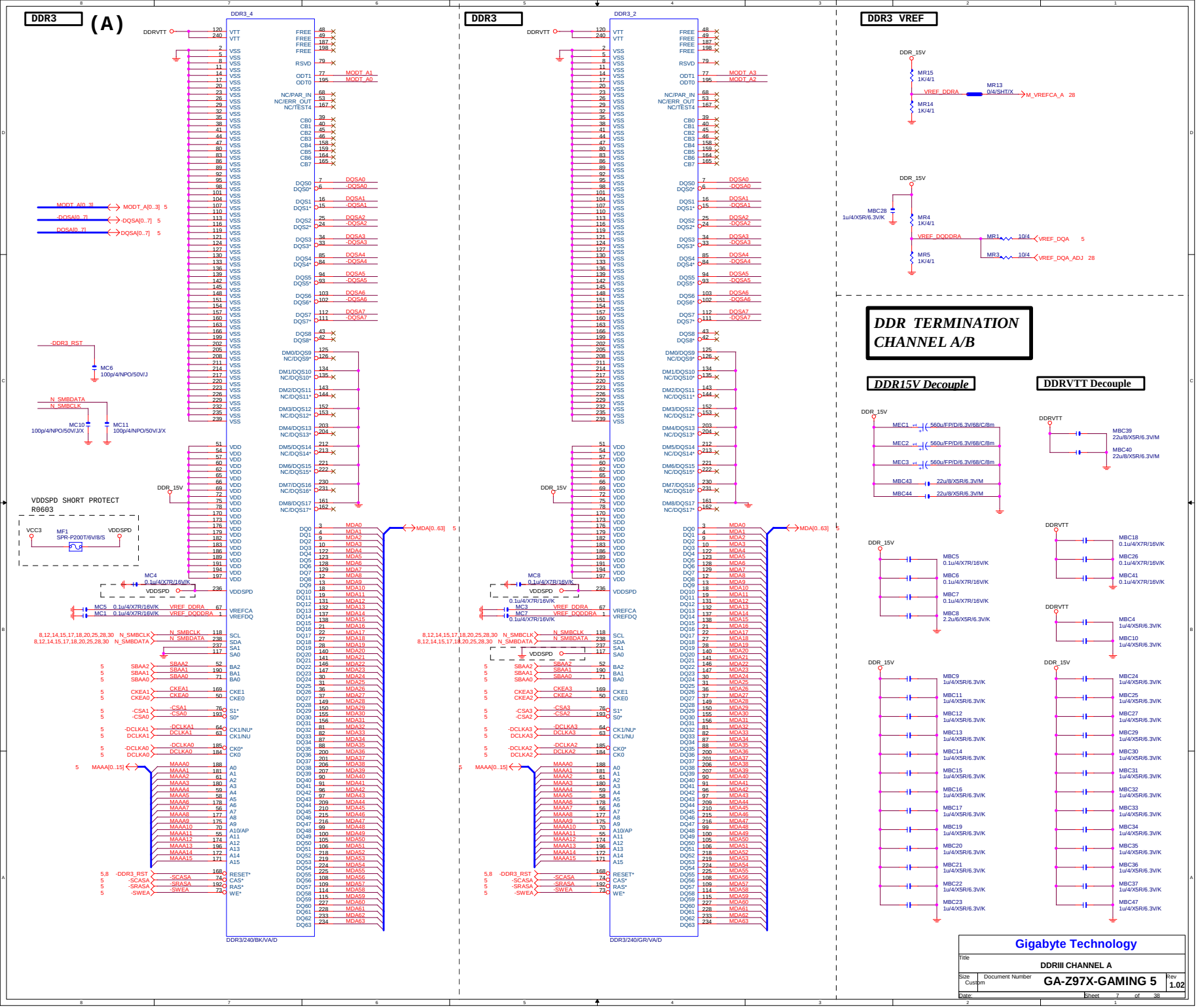
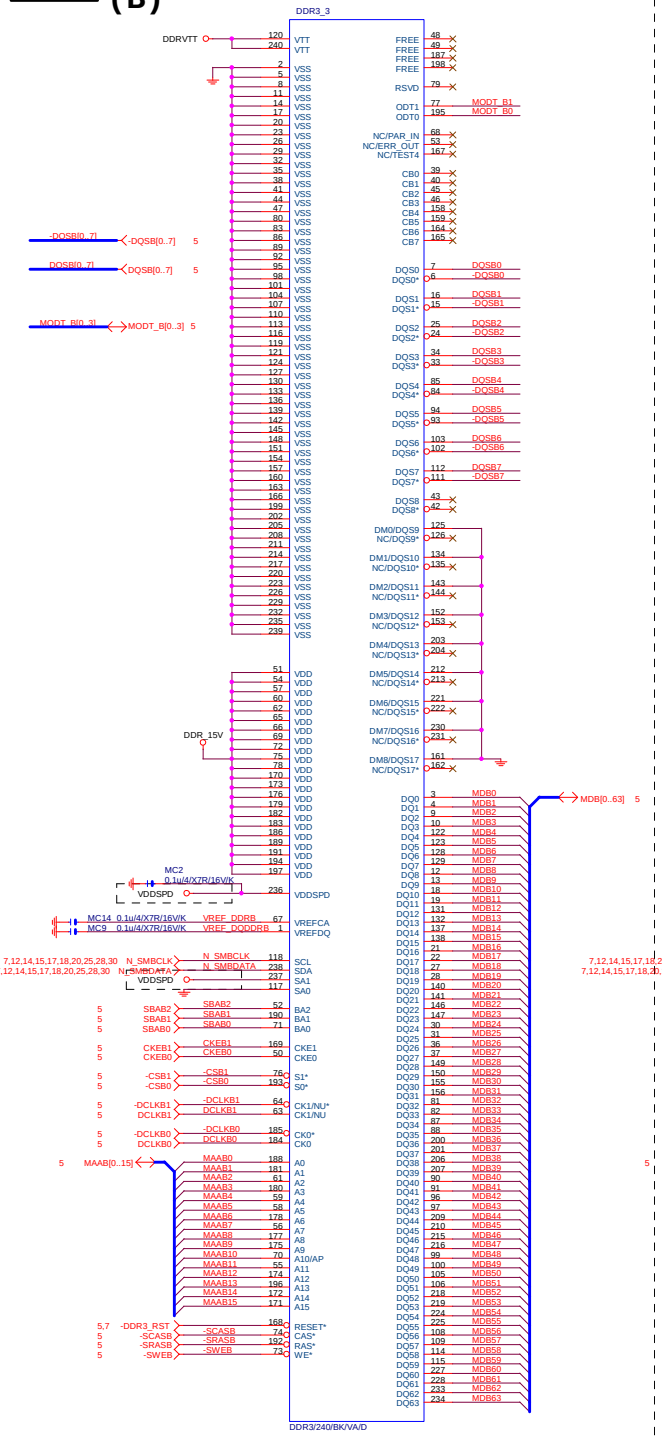


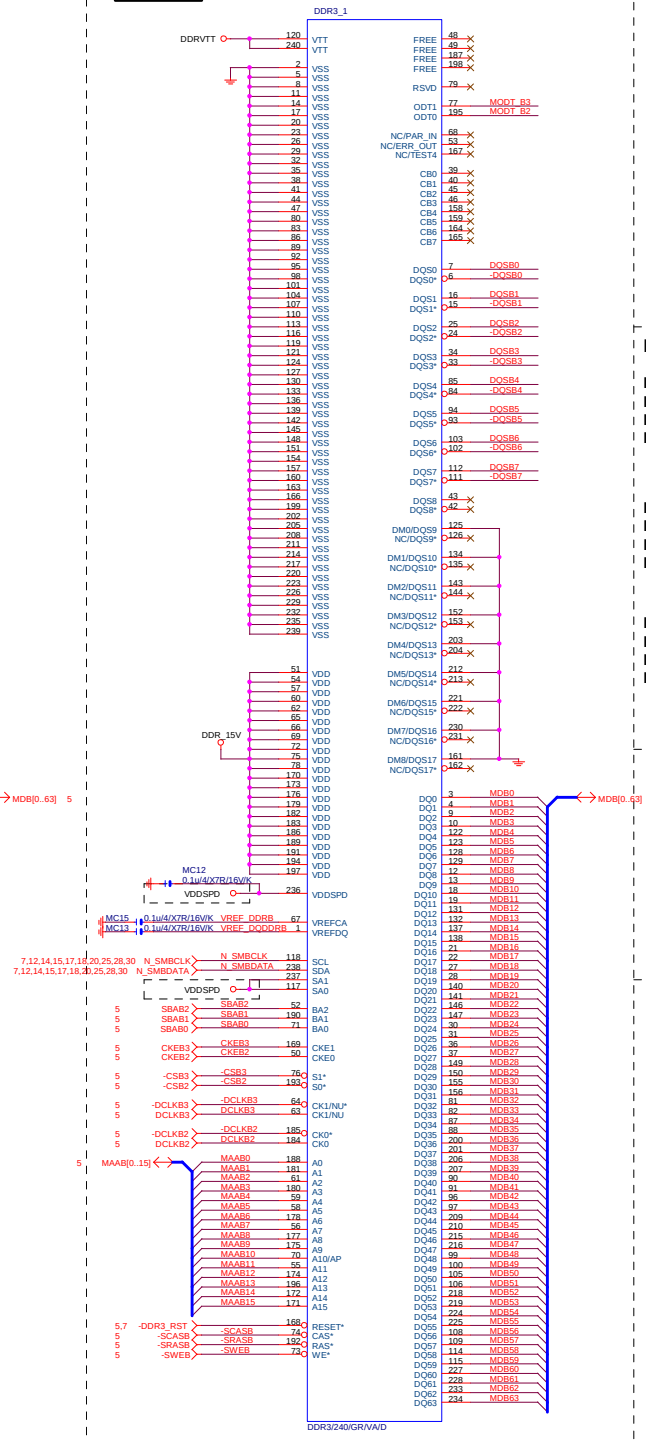


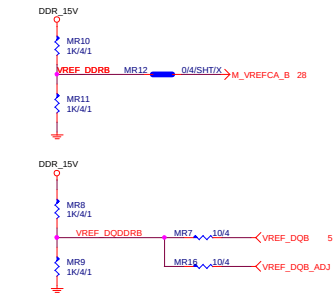
DDR3 (B)

DDR3

DDR3 VREF







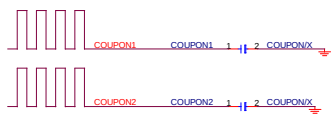
DDR3 1066,1333,1600MHZ BANDWIDTH

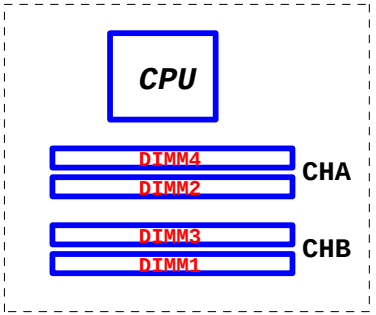
DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

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





Gigabyte Technology

Title: DDRIII CHANNEL B

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PCH (B)

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)
Impedance=85 +- 15%

PCHB

DMI_RXN_0 DMI_RXP_0 DMI_TXN_0 DMI_TXP_0 DMI_RXN_1 DMI_RXP_1 DMI_TXN_1 DMI_TXP_1 DMI_RXN_2 DMI_RXP_2 DMI_TXN_2 DMI_TXP_2 DMI_RXN_3 DMI_RXP_3 DMI_TXN_3 DMI_TXP_3 — DMI

A_DMI_0TXN L24, A_DMI_0TXP K24, A_DMI_0RXN C20, A_DMI_0RXP B20, A_DMI_1TXN G24, A_DMI_1TXP H24, A_DMI_1RXN D21, A_DMI_1RXP B21, A_DMI_2TXN F26, A_DMI_2TXP G26, A_DMI_2RXN B22, A_DMI_2RXP C22, A_DMI_3TXN K26, A_DMI_3TXP L26, A_DMI_3RXN A24, A_DMI_3RXP B24

DMI_RCOMP B19, PCIE_RCOMP C13

VCC1_5_PCH — NR50 7.5K/4/1 — DMI_COMP
NR40 7.5K/4/1 — PCIE_COMP
W=8 mil out of PCH
S=15 mil to other signals

CLKIN_DMI_N CK_-SRCCLK_PCH G22
CLKIN_DMI_P CK_SRCCLK_PCH F22

USB

USBN_0 AV10 N_-USBP0 — N_-USBP0 30
USBP_0 AU10 N_+USBP0 — N_+USBP0 30
USBN_1 AV11 N_-USBP1 — N_-USBP1 30
USBP_1 AW11 N_+USBP1 — N_+USBP1 30
USBN_2 AN14 N_-USBP2 — N_-USBP2 35
USBP_2 AP14 N_+USBP2 — N_+USBP2 35
USBN_3 AJ16 N_-USBP3 — N_-USBP3 35
USBP_3 AK16 N_+USBP3 — N_+USBP3 35
USBN_4 AU15 N_-USBP4 — N_-USBP4 34
USBP_4 AV15 N_+USBP4 — N_+USBP4 34
USBN_5 AU12 N_-USBP5 — N_-USBP5 34
USBP_5 AT12 N_+USBP5 — N_+USBP5 34
USBN_6 AV14 N_-USBP6 — N_-USBP6 24
USBP_6 AW14 N_+USBP6 — N_+USBP6 24
USBN_7 AU17 N_-USBP7 — N_-USBP7 24
USBP_7 AT17 N_+USBP7 — N_+USBP7 24
USBN_8 AW16 N_-USBP8 — N_-USBP8 24
USBP_8 AV16 N_+USBP8 — N_+USBP8 24
USBN_9 AN16 N_-USBP9 — N_-USBP9 24
USBP_9 AP16 N_+USBP9 — N_+USBP9 24
USBN_10 AJ18 N_-USBP10 — N_-USBP10 30
USBP_10 AK18 N_+USBP10 — N_+USBP10 30
USBN_11 AP18 N_-USBP11 — N_-USBP11 30
USBP_11 AN18 N_+USBP11 — N_+USBP11 30
USBN_12 AW18 N_-USBP12 — N_-USBP12 30
USBP_12 AV18 N_+USBP12 — N_+USBP12 30
USBN_13 AP20 N_-USBP13 — N_-USBP13 30
USBP_13 AN20 N_+USBP13 — N_+USBP13 30

Port要對應

B85/H81: 6/7 N\A

H81:USB3.0 N\A

H81:12/13 N\A

REAR USB3.0
B85/H81:USB N\A

35 PCH_USB3_RXN2 L14, PCH_USB3_RXP2 K14, PCH_USB3_TXN2 B12, PCH_USB3_TXP2 B11, PCH_USB3_RXN3 F14, PCH_USB3_RXP3 G14, PCH_USB3_TXN3 D11, PCH_USB3_TXP3 C11

LAN E2201

35 LB_ML_IN F11, LB_ML_IP H11, LB_ML_ON B9, LB_ML_OP A9

ITE8892 PCI Bridge

19 G_PCIEBIN J11, G_PCIEBIP L11, G_PCIEBON B8, G_PCIEBOP C8

PCIEX4 port1

17 PE_PCIE_IN1 G9, PE_PCIE_IP1 F9, PE_PCIE_TN1 B7, PE_PCIE_TP1 A7

PCIEX4 port2

18 PF_PCIE_IN2 F7, PF_PCIE_IP2 H7, PF_PCIE_TN2 E1, PF_PCIE_TP2 D2

PCIEX4 port3
PCIEX1_1

18 PI_PCIE_IN3 K6, PI_PCIE_IP3 K8, PI_PCIE_TN3 G3, PI_PCIE_TP3 G5

H81:PCIE 7/8X
PCIEX4 port4
PCIEX1_2

18 PJ_PCIE_IN4 J2, PJ_PCIE_IP4 J3, PJ_PCIE_TN4 H2, PJ_PCIE_TP4 H1

PCIE_PERN_1_USB3_RXN_2 PCIE_PERP_1_USB3_RXP_2 PCIE_PETN_1_USB3_TXN_2 PCIE_PETP_1_USB3_TXP_2 PCIE_PERN_2_USB3_RXN_3 PCIE_PERP_2_USB3_RXP_3 PCIE_PETN_2_USB3_TXN_3 PCIE_PETP_2_USB3_TXP_3 PCIE_PERN_3 PCIE_PERP_3 PCIE_PETN_3 PCIE_PETP_3 PCIE_PERN_4 PCIE_PERP_4 PCIE_PETN_4 PCIE_PETP_4 PCIE_PERN_5 PCIE_PERP_5 PCIE_PETN_5 PCIE_PETP_5 PCIE_PERN_6 PCIE_PERP_6 PCIE_PETN_6 PCIE_PETP_6 PCIE_PERN_7 PCIE_PERP_7 PCIE_PETN_7 PCIE_PETP_7 PCIE_PERN_8 PCIE_PERP_8 PCIE_PETN_8 PCIE_PETP_8 — PCIE

OC0B_GP59 AE40 N_-USBOC_F 30
OC1B_GP40 AE37
OC2B_GP41 AD39
OC3B_GP42 AD40
OC4B_GP43 AE39 N_-USBOC_R 30
OC5B_GP9 AC41
OC6B_GP10 AE40
OC7B_GP14 AG40 N_GPIO14

USBRBIASB AV20 N_USBRBIAS — NR47 22.6/4/1
USBRBIAS AU20
W=8 mil out of PCH
S=15 mil to other signals

CLKIN_DOT96N AP11 CK_-DOTCLK
CLKIN_DOT96P AM11 CK_DOTCLK

N_GPIO14 — NR130 8.2K/4 — 3VDUAL

N_-USBOC_F — NBC82 0.1u/4/X7R/16V/K
N_-USBOC_R — NBC83 0.1u/4/X7R/16V/K

Z97/S

放靠近 Device & PCI-E Slot

PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

usb2.0 5/7/5//12
usb3.0 5/7/5//20 Impedance=85 +- 15%

PCH (F)

PCHF

USB3: F20 USB3_RXN_0, G20 USB3_RXP_0, B18 USB3_TXN_0, C18 USB3_TXP_0, G18 USB3_RXN_1, H18 USB3_RXP_1, B15 USB3_TXN_1, B16 USB3_TXP_1, K20 USB3_RXN_4, L20 USB3_RXP_4, D15 USB3_TXN_4, C15 USB3_TXP_4, L18 USB3_RXN_5, K18 USB3_RXP_5, B14 USB3_TXN_5, A14 USB3_TXP_5

30 PCH_USB3_RXN0, 30 PCH_USB3_RXP0, 30 PCH_USB3_TXN0, 30 PCH_USB3_TXP0
30 PCH_USB3_RXN1, 30 PCH_USB3_RXP1, 30 PCH_USB3_TXN1, 30 PCH_USB3_TXP1
34 PCH_USB3_RXN4, 34 PCH_USB3_RXP4, 34 PCH_USB3_TXN4, 34 PCH_USB3_TXP4
34 PCH_USB3_RXN5, 34 PCH_USB3_RXP5, 34 PCH_USB3_TXN5, 34 PCH_USB3_TXP5

TACH6_GP70, TACH7_GP71

FDILINK: N1 FDI_TXN0, N2 FDI_TXP0, P2 FDI_TXN1, P3 FDI_TXP1
FDI_CSYNC L2 — FDI_CSYNC 4
FDI_INT L3 — FDI_INT 4
FDI_RCOMP K2 — NR29 7.5K/4/1 — VCC1_5_PCH

FDI:12/4/5/4/12
Impedance=85 +- 17.5%

VCC3 — NR62 8.2K/4 — AK28
NR63 8.2K/4 — AT34

Z97/S

Port1 & 9為Debug Port，
一定要拉到Connector。

FDI_TXP[0..1] — FDI_TXP[0..1] 4
FDI_TXN[0..1] — FDI_TXN[0..1] 4

USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

CK_SRCCLK_PCH NR89 8.2K/4
CK_-SRCCLK_PCH NR88 8.2K/4
Mount for integrated clock Generation Mode

CK_DOTCLK NR92 8.2K/4
CK_-DOTCLK NR91 8.2K/4
NR92 short to GND in non graphic SKU

PCH (J)

PCHJ

VSS_NCTF: AT1, AT41, AU1, AV1, AV2, AV40, AV41, AW2, AW40, B40, B41, C41, D1, D41

TP22 U11, TP23 U10, TP21 AJ14, TP20 AK14, TP14 K34, TP15 K33, TP12 AH24
TP10 L16, TP11 K16, TP9 AM34
TP3 R12, TP4 N12, TP1 L22, TP2 K22
TP5 R4, TP6 K5, TP7 P5, TP8 L5
VSS AC31
VSS AF3, VSS AV21

Z97/S

PCH H/S

PCH_HS

PCH_HS/[12SP2-SG5574-01R_12SP2-SG5574-02R_12SP2-SG5574-03R]

USB TABLE

OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB Usage & OC# Configure			
OC0#	USB0,1	F_USB30	FUSEVCC_F1_F2
OC1#	USB2,3	USB30_LAN	FUSEVCC_R7_R8
OC2#	USB4,5	HDMI & R_USB3	FUSEVCC_R1_R2
OC3#	USB6,7	4 Ports R_USB (Up)	FUSEVCC_R5_R6
OC4#	USB8,9	4 Ports R_USB (Down)	FUSEVCC_R3_R4
OC5#	USB10,11	F_USB2	FUSEVCC_F5_F6
OC6#	USB12,13	F_USB1	FUSEVCC_F3_F4
OC7#	Not Use		

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Title: PCH FDI,DMI,USB ,PCIE

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PCH (E)

PCHE

34 N_HDMI_HDP_F
33 N_DVI_HDP_F
AJ2 DDPB_HPD
AH5 DDPC_HPD
AJ4 DDPD_HPD
AK6 DDPB_AUXN
AK8 DDPB_AUXP
AG7 DDPC_AUXN
AG6 DDPC_AUXP
AG11 DDPD_AUXN
AG10 DDPD_AUXP

VGA_HSYNC
VGA_VSYNC
VGA_RED
VGA_GREEN
VGA_BLUE
VGA_IRTN
VGA_DDC_DATA
VGA_DDC_CLK
DAC_IREF
DDPC_CTRLCLK
DDPC_CTRLDATA
DDPB_CTRLCLK
DDPB_CTRLDATA
DDPD_CTRLCLK
DDPD_CTRLDATA

AH3 H_SYNC — NR26 33/4 — N_GHSYNC
AH2 V_SYNC — NR33 33/4 — N_GVSYNC
AC2 N_R
AE2 N_G
AC3 N_B
AG4
AL3 N_DDCDATA
AL2 N_DDCCLK
AF5 N_VGA_RSET — NR34 649/4/1
AN3 N_DDPC_CTRLCLK — N_DDPC_CTRLCLK 33
AM2 N_DDPC_CTRLDATA — N_DDPC_CTRLDATA 33
AM1 N_DDPB_CTRLCLK — N_DDPB_CTRLCLK 34
AJ5 N_DDPB_CTRLDATA — N_DDPB_CTRLDATA 34
AN4
AN2

Z97/S

CLOSE PCH<0.75";4/10;+-1000;GND

VGA 4/20;+-200MILS;GND REF

DDC DIFF 4/5;+-1000

IREF 4/12;<500MILS;GND

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

PCH (G)

PCHG

23 N_LPC33 — NR37 33/4 — AV5 CLKOUT_33MHZ0
11 N_PCH33 — NR38 33/4 — AV7 CLKOUT_33MHZ1
29 T_TPMCLK — NR28 33/4 — AU2 CLKOUT_33MHZ2
AN9 CLKOUT_33MHZ3
AU5 CLKOUT_33MHZ4

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

23 O_LPCCLK48 — NR39 22/4 — N_PCH_48M — AV8 CLKOUTFLEX0_GP64
AT9 CLKOUTFLEX1_GP65
AV9 CLKOUTFLEX2_GP66
AU8 CLKOUTFLEX3_GP67

VCC1_5_PCH — NR18 7.5K/4/1 — N_CLK_RCOMP — R11 DIFFCLK_BIASREF
N_PCHCLK14 — AR7 REFCLK14IN

CLKIN_GND0_N G16 — N_CLK_GND
CLKIN_GND0_P F16 — N_CLK_GND

CLKOUT_DMI_N R2 — N_CPUCLK 4
CLKOUT_DMI_P T2 — N_CPUCLK 4
CLKOUT_DP_N T3 — N_DP_CLK 4
CLKOUT_DP_P T5 — N_DP_CLK 4
CLKOUT_DPNS_N W2 — N_CK_DPCLK 4
CLKOUT_DPNS_P U2 — N_CK_DPCLK 4

CLKOUT_ITPXDP_N U6
CLKOUT_ITPXDP_P U7

CLKOUT_PEG_A_N AA3 — PA_SRCCLK_3GIO 14
CLKOUT_PEG_A_P AA2 — PA_SRCCLK_3GIO 14 — PCIEx16
CLKOUT_PEG_B_N AE6 — PE_SRCCLK_3GIO1 15
CLKOUT_PEG_B_P AE7 — PE_SRCCLK_3GIO1 15 — PCIEx8
CLKOUT_PCIE_N_0 AE10 — CK_M2_100M_DN 36
CLKOUT_PCIE_P_0 AE11 — CK_M2_100M_DP 36 — M.2 slot
CLKOUT_PCIE_N_1 AC6 — LB_SRCCLK_LAN 35
CLKOUT_PCIE_P_1 AC7 — LB_SRCCLK_LAN 35 — LAN E2201
CLKOUT_PCIE_N_2 AC11 — G_PBCLK 19
CLKOUT_PCIE_P_2 AC10 — G_PBCLK 19 — ITE8892
CLKOUT_PCIE_N_3 W11 — PF_PCIE_CLK3 18
CLKOUT_PCIE_P_3 W10 — PF_PCIE_CLK3 18 — PCIEx1_3
CLKOUT_PCIE_N_4 Y4 — PJ_PCIE_CLK2 18
CLKOUT_PCIE_P_4 Y2 — PJ_PCIE_CLK2 18 — PCIEx1_2
CLKOUT_PCIE_N_5 W7 — PE_SRCCLK_3GIO2 17
CLKOUT_PCIE_P_5 W6 — PE_SRCCLK_3GIO2 17 — PCIEx4
CLKOUT_PCIE_N_6 AA7 — PI_PCIE_CLK1 18
CLKOUT_PCIE_P_6 AA6 — PI_PCIE_CLK1 18 — PCIEx1_1
CLKOUT_PCIE_N_7 R6
CLKOUT_PCIE_P_7 R7

N_XTALO_PCH N7 — XTAL25_OUT
N_XTALI_PCH N6 — XTAL25_IN

Z97/S

PCIEX4 CLOCK(PE_SRCCLK_3GIO1)由PIN R6,R7 換成PIN W7,W6 避免跟CRYSTAL 25MHZ干擾

XTAL Trace Length < 1500 mil

N_XTALI_PCH — NR15 1M/4 — N_XTALO_PCH
NX1 25M/16p/30ppm/49US/20/D
NC8 20p/4/NPO/50V/J
NC7 20p/4/NPO/50V/J

X'TAL 25MHz須參考GND
CRYSTAL/TRACE 週邊不要有訊號,VIA靠近
走線遠離其他40mil以上

M2 Clock需接Clock#0

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

PCH CLK PD

N_-CLK_GND — NR42 8.2K/4 — N_CLK_GND — NR41 8.2K/4

N_PCHCLK14 — NR118 8.2K/4

Mount for integrated clock Generation Mode

VGA DDC

VCC
防漏電
HBD3 BAT54A/SOT23/200mA SOT23

VCC3
R146 2.2K/4/1 R147 2.2K/4/1
N_DDCDATA
N_DDCCLK

Q47 2N7002/SOT23/25pF/5
Q48 2N7002/SOT23/25pF/5
SOT23

R144 2.2K/4/1 R145 2.2K/4/1
VGADDCDATA
VGADDCCLK

N_GVSYNC — C31 100p/4/NPO/50V/J/X
N_GHSYNC — C32 100p/4/NPO/50V/J/X

VGA CONNECTOR

FUSEVCC_R1_R2
BC63 0.1u/4/X7R/16V/K/X

VGA
VGA_R
VGA_G
VGA_B
VGADDCDATA
N_GHSYNC
N_GVSYNC
VGADDCCLK

VGA/BK/SC/RA/D/2/HR

VGA ESD

ESD3
VGADDCCLK 1 — 6 N_GVSYNC
2 — 5 — VCC
VGADDCDATA 3 — 4 N_GHSYNC
C33 0.1u/4/X7R/16V/K

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

SSOP6_ESD

ESD4
VGA_R 1 — 6 VGA_B
2 — 5 — VCC3
VGA_G 3 — 4
C40 0.1u/4/X7R/16V/K

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

VGA DDC

N_R
N_G
N_B

NR36 150/4/1/X
NR27 150/4/1/X
NR35 150/4/1/X
Close to PCH

FB1 FB2 FB3 60/4/3A/S
VGA_R VGA_G VGA_B

R152 75/4/1 R150 75/4/1
R151 75/4/1
C35
C34 C36 10p/4/NPO/50V/J 10p/4/NPO/50V/J 10p/4/NPO/50V/J
C37 C38 C39 22p/4/NPO/50V/J 22p/4/NPO/50V/J 22p/4/NPO/50V/J

Close to VGA connector

Gigabyte Technology

Title: PCH DISPLAY ,CLK BUFFER

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PCH (C)

SATA3 : 20/4/4/4/20 (breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%
SATA2 4/4/4//15
SATA3 4/4/4//20

PCHC

CL_CLK
CL_DATA
CL_RSTB
APWROK
PWM0
PWM1
PWM2
PWM3
TACH0_GP17
TACH1_GP1
TACH2_GP6
TACH3_GP7
TACH4_GP68
TACH5_GP69
SSTCTL
SCLOCK_GP22
SLOAD_GP38
SDATAOUT0_GP39
SDATAOUT1_GP48

CLINK
FAN
GPIO
HOST

SATA_RXN_0 B28 N_SATA0RXN
SATA_RXP_0 A28 N_SATA0RXP
SATA_TXN_0 F31 N_SATA0TXN
SATA_TXP_0 H31 N_SATA0TXP
SATA_RXN_1 D30 N_SATA1RXP
SATA_RXP_1 C30 N_SATA1RXP
SATA_TXN_1 B34 N_SATA1TXN
SATA_TXP_1 C34 N_SATA1TXP
SATA_RXN_2 A31 N_SATA2RXN
SATA_RXP_2 B31 N_SATA2RXP
SATA_TXN_2 B35 N_SATA2TXN
SATA_TXP_2 D35 N_SATA2TXP
SATA_RXN_3 B32 N_SATA3RXN
SATA_RXP_3 C32 N_SATA3RXP
SATA_TXN_3 G33 N_SATA3TXN
SATA_TXP_3 F33 N_SATA3TXP

H81 6G
B85 6G
H81 X
B85/H81 3G

SATA_RXN_4_PCIE_PERN_1 A26 N_SATA4RXN
SATA_RXP_4_PCIE_PERP_1 B26 N_SATA4RXP
SATA_TXN_4_PCIE_PETN_1 L28 N_SATA4TXN
SATA_TXP_4_PCIE_PETP_1 K28 N_SATA4TXP
SATA_RXN_5_PCIE_PERN_2 C27 N_SATA5RXN
SATA_RXP_5_PCIE_PERP_2 B27 N_SATA5RXP
SATA_TXN_5_PCIE_PETN_2 G28 N_SATA5TXN
SATA_TXP_5_PCIE_PETP_2 F28 N_SATA5TXP

CLKIN_SATA_N H35 CK_-SRCCLK_SATA
CLKIN_SATA_P H36 CK_SRCCLK_SATA

SATALEDB J39 N_-SATALED
SATA_RCOMP D33 SATA3COMP
NR68 7.5K/4/1 VCC1_5_PCH

W=8 mil out of PCH
S=15 mil to other signals

SATA0GP_GP21 M37 N_GPIO21
SATA1GP_GP19 J40 N_GPIO19
SATA2GP_GP36 H40 N_GPIO36
SATA3GP_GP37 N41 N_GPIO37
SATA4GP_GP16 M39 N_GPIO16
SATA5GP_GP49 N40 N_GPIO49

EDP_BKLTCTL AP2
EDP_BKLTEN AT2
EDP_VDDEN AP1

RSVD N30 N_A20GATE
RCINB K36 N_-KBRST
SERIRQ G39 N_SERIRQ
THRMTRIPB C40 N_-THRMTRIP
PECI G40 SB_PECI
PM_SYNCH F40
PLTRST_PROCB F41

NR85 0/4/X A_PECI
A_-THRMTRIP
A_PECI
A_PMSYNC
A_-CPURST

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PCH (A)

3VDUAL_PCH
NR124 8.2K/4/X N_-P_PME
N_PCH33 AA31 N_PCH33 AM22
NR30 8.2K/4 TD_IREF

PCHA
PMEB
CLKIN_33MHZLOOPBACK
TP16 A2
TP17 A3
TP18 B2
TP19 B1
TD_IREF C3
PIRQAB
PIRQBB
PIRQCB
PIRQDB
GPIO2
GPIO3
GPIO4
GPIO5

N_-PIRQA AU29
N_-PIRQB AU27
N_-PIRQC AW28
N_-PIRQD AV27
N_-PIRQE AR30
N_-PIRQF AV29
N_-PIRQG AV28
N_GPIO5 AT27

PLTRSTB AA37 N_-PFMRST
GP35/NMIB M40 N_GPIO35
GP50 AH26 N_GPIO50
GP51 AU31 N_GPIO51
GP52 AJ26 N_GPIO52
GP53 AV31 N_GPIO53
GP54 AW33 N_GPIO54
GP55 R30 N_GPIO55

Z97/S

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

Default int pull up on GP51,
Default SPI boot devices

ME PWROK

MASK

VCC3_ME
NR186 MASK/8.2K/4/X
N_ME_PWROK
NC49 MASK/0.01u/4/X7R/25V/K/X
3VDUAL
ND2 MASK/BAT54A/SOT23/200mA/X
12,27 N_-SLP_A
NR188 MASK/22K/4/X
NQ15 S0T23 MASK/MMBT2222A/SOT23/600mA/40/X
VCC1_05_ME
NR187 MASK/0/4/X
S0T23
NQ16 MASK/MMBT2222A/SOT23/600mA/40/X
NR119 1K/4/1/X VCC3
4,25,30
4,25 VCC3_ME
NR189 MASK/8.2K/4/X
NR190 MASK/8.2K/4/X
NC50 MASK/1u/4/X5R/6.3V/K/X
3VDUAL
TLS Setting enable for SBA
NR146 1K/4/1/X N_GPIO37 NR110 1K/4/1/X

GPIO38 Ctrl

MFG Mode
N_GPIO38 : Lo --> Enable
Hi --> Disable

VCC3
N_GPIO38 NR114 8.2K/4
NQ13 MMBT2222A/SOT23/600mA/40 S0T23
12 N_GPIO60 NR184 8.2K/4

SATA CONNECTOR

SATA3_0_1
MASK/0.01u/4/X7R/25V/K/X
MASK/0.01u/4/X7R/25V/K/X
N_SATA1TXP NC42 N_SATA1TXPC 9 TX1+
N_SATA1TXN NC41 N_SATA1TXNC 10 TX1-
11 GND
N_SATA1RXN NC40 N_SATA1RXNC 12 RX1-
N_SATA1RXP NC39 N_SATA1RXPC 13 RX1+
14 GND
MASK/0.01u/4/X7R/25V/K/X
MASK/0.01u/4/X7R/25V/K/X
GND 1
TX0+ 2 N_SATA0TXPC NC44
TX0- 3 N_SATA0TXNC NC43
GND 4
RX0- 5 N_SATA0RXNC NC38
RX0+ 6 N_SATA0RXPC NC37
GND 7
MASK/0.01u/4/X7R/25V/K/X
MASK/0.01u/4/X7R/25V/K/X
N_SATA0TXP
N_SATA0TXN
N_SATA0RXN
N_SATA0RXP
MASK/0.01u/4/X7R/25V/K/X
MASK/0.01u/4/X7R/25V/K/X
SATA/14/BK/H/OP/RA/D/2

PCH CLK PD

23
CK_SRCCLK_SATA NR174 8.2K/4
CK_-SRCCLK_SATA NR173 8.2K/4
Mount for integrated clock Generation Mode

PCH PU/PD

NRN2 8.2K/8P4R/4
N_-PIRQC
N_GPIO5
N_-PIRQD
N_-PIRQB
NRN3 8.2K/8P4R/4
N_-PIRQE
N_-PIRQF
N_-PIRQA
N_-PIRQG
NRN7 8.2K/8P4R/4
N_GPIO50
N_GPIO52
N_GPIO17
N_GPIO6
N_GPIO55 NR160 4.7K/4/1/X
N_GPIO55:A16 SWAP OVERRIDE
N_GPIO53 NR53 1K/4/1/X
N_GPIO53:DMI AC COUPLING
N_GPIO51 NR55 1K/4/1/X
N_GPIO19 NR113 1K/4/1/X
N_GPIO17 NR61 8.2K/4/X

N_GPIO22:PCH CONFIG
NR167 1K/4/1/X N_A20GATE
12 N_-PCI_STOP NR157 1K/4/1/X N_GPIO22 N_-PCI_STOP N_GPIO39
N_GPIO39:GFX MODE
NRN11 8.2K/8P4R/4
N_SERIRQ
N_PCIE_4_SW
N_GPIO19
NRN12 8.2K/8P4R/4
N_GPIO35
N_GPIO16
N_GPIO49
NRN13 8.2K/8P4R/4
NR80 1K/4/1/X
N_GPIO49:PCIE/MSATA MUX SELECT

soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

N_GPIO21 NR252 1K/4/1
N_-KBRST NR161 1K/4/1
N_GPIO36:DMI RX TERMINATION
NR84 1K/4/1/X N_GPIO36 NR148 8.2K/4/X
NR66 1K/4/1/X N_GPIO69 NR65 8.2K/4/X
N_GPIO69:SVID DETECT
N_GPIO55 NR244 8.2K/4
NRN4 8.2K/8P4R/4
N_GPIO7
N_GPIO54
N_GPIO1
N_GPIO68
17 -PCIEX1_PR12

Gigabyte Technology

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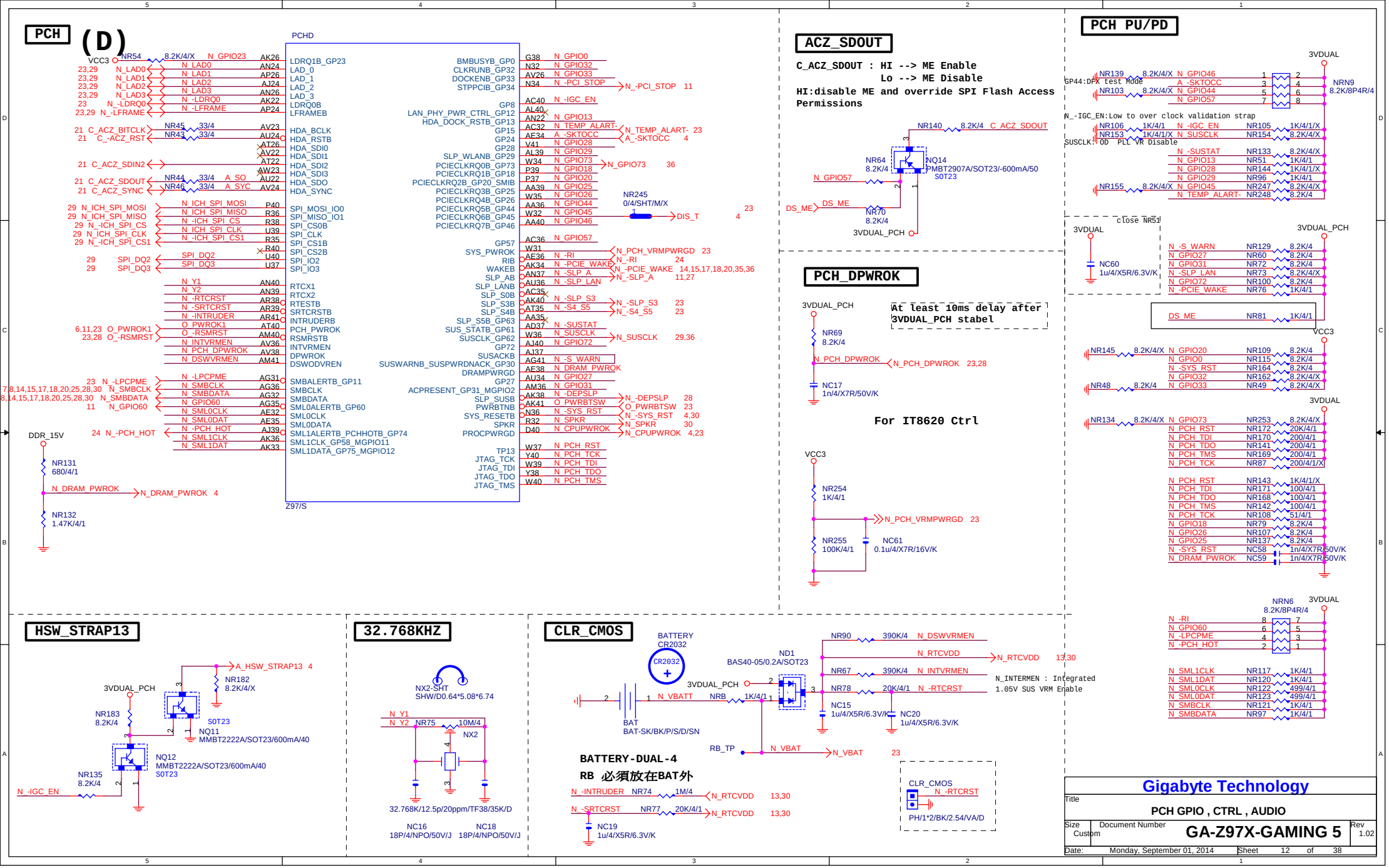
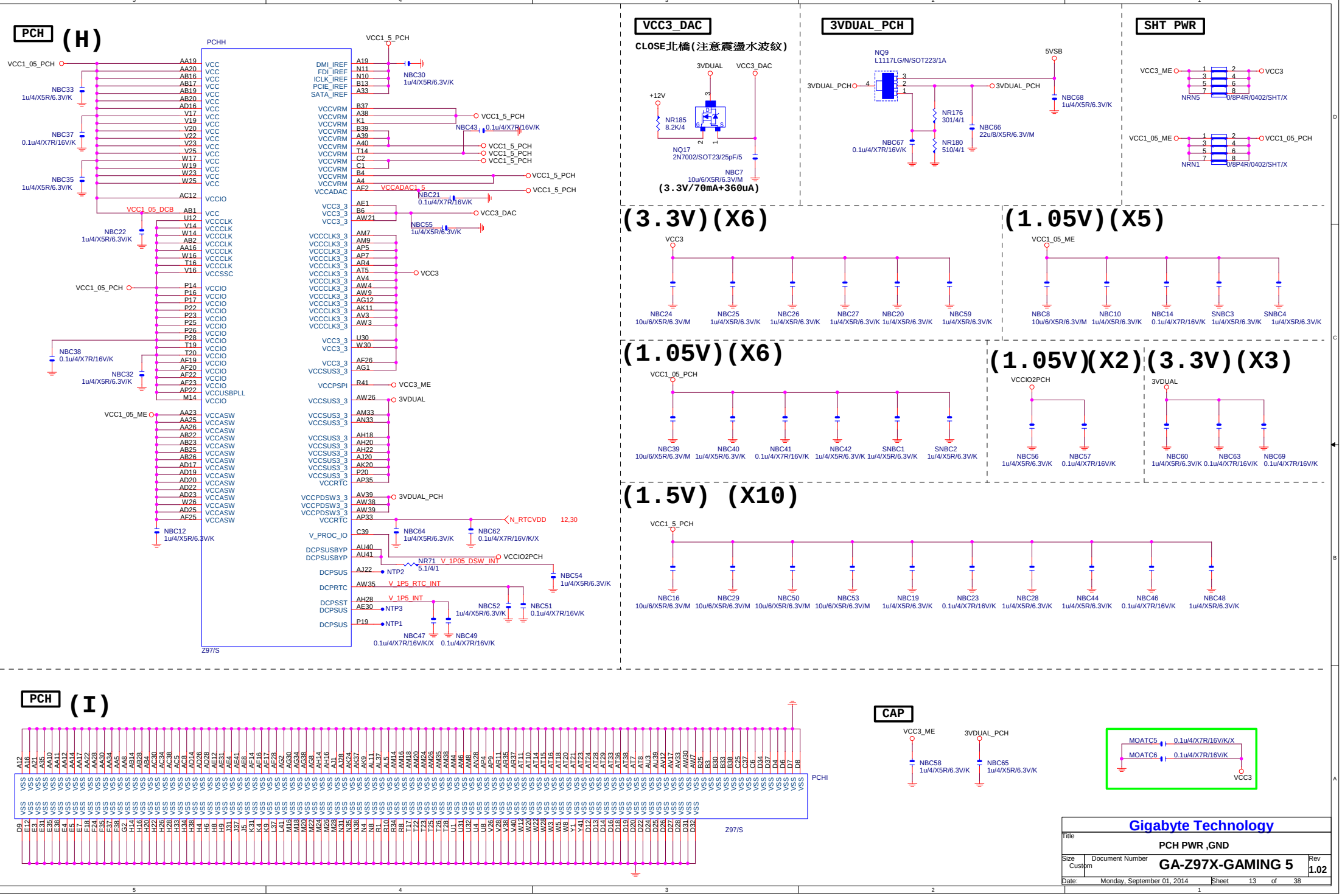
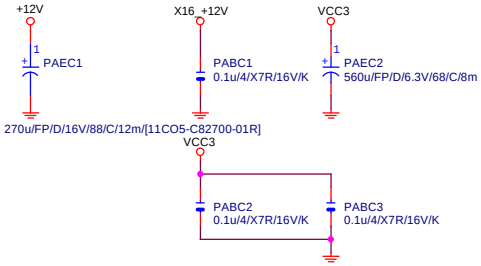


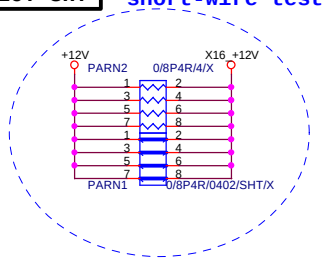


PCIEX16 CAP



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	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	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

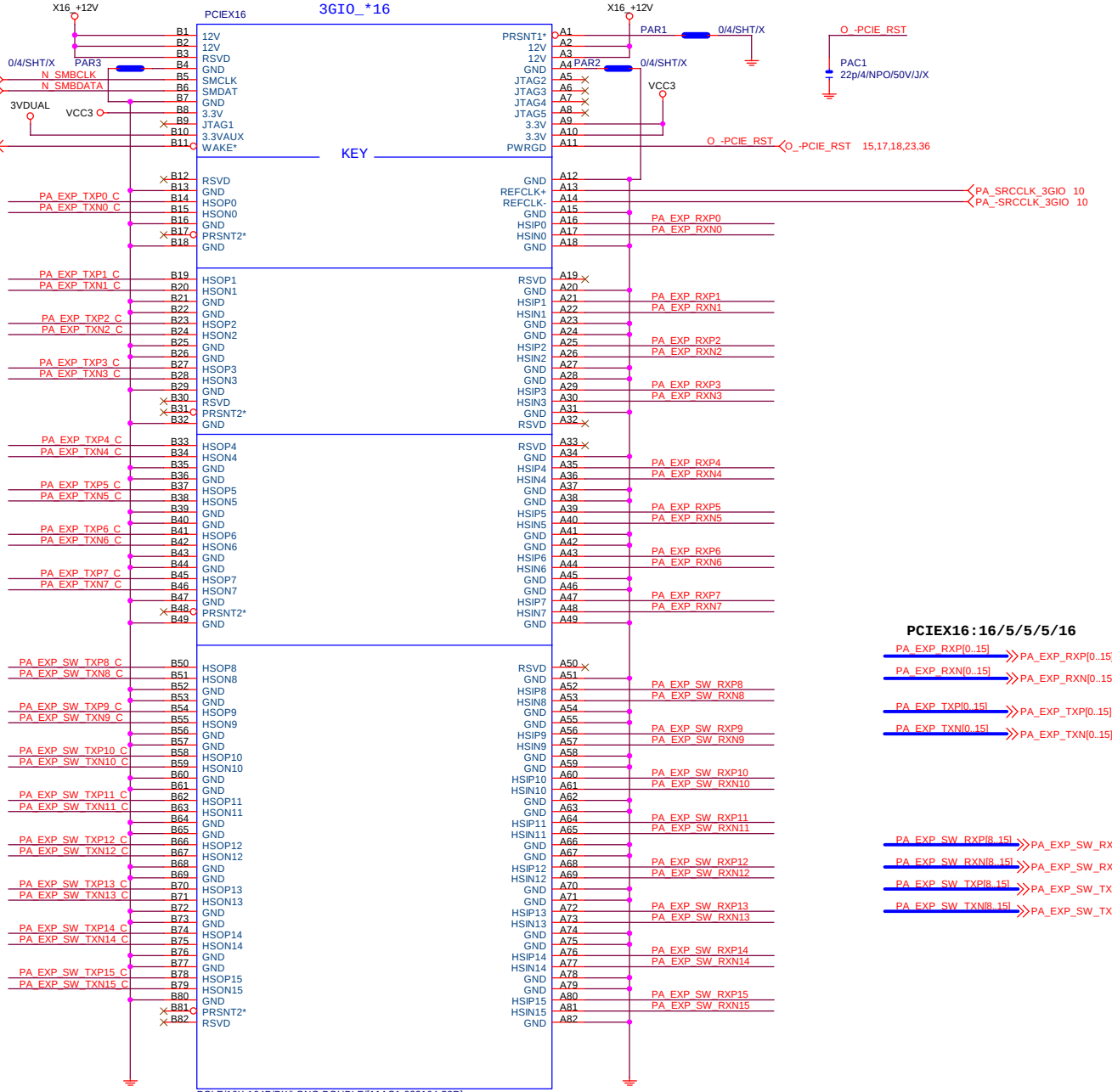
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

PCIESLOT-164DN-Q

PCIEX16 3GIO_*16



PCIEX16:16/5/5/5/16

PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] 4,16

PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] 4,16

PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] 4,16

PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] 4,16

PA_EXP_SW_RXP[8..15] → PA_EXP_SW_RXP[8..15] 16

PA_EXP_SW_RXN[8..15] → PA_EXP_SW_RXN[8..15] 16

PA_EXP_SW_TXP[8..15] → PA_EXP_SW_TXP[8..15] 16

PA_EXP_SW_TXN[8..15] → PA_EXP_SW_TXN[8..15] 16

Gigabyte Technology

Title	PCI EXPRESS * 16		
Size: Custom	Document Number: GA-Z97X-GAMING 5		Rev: 1.02
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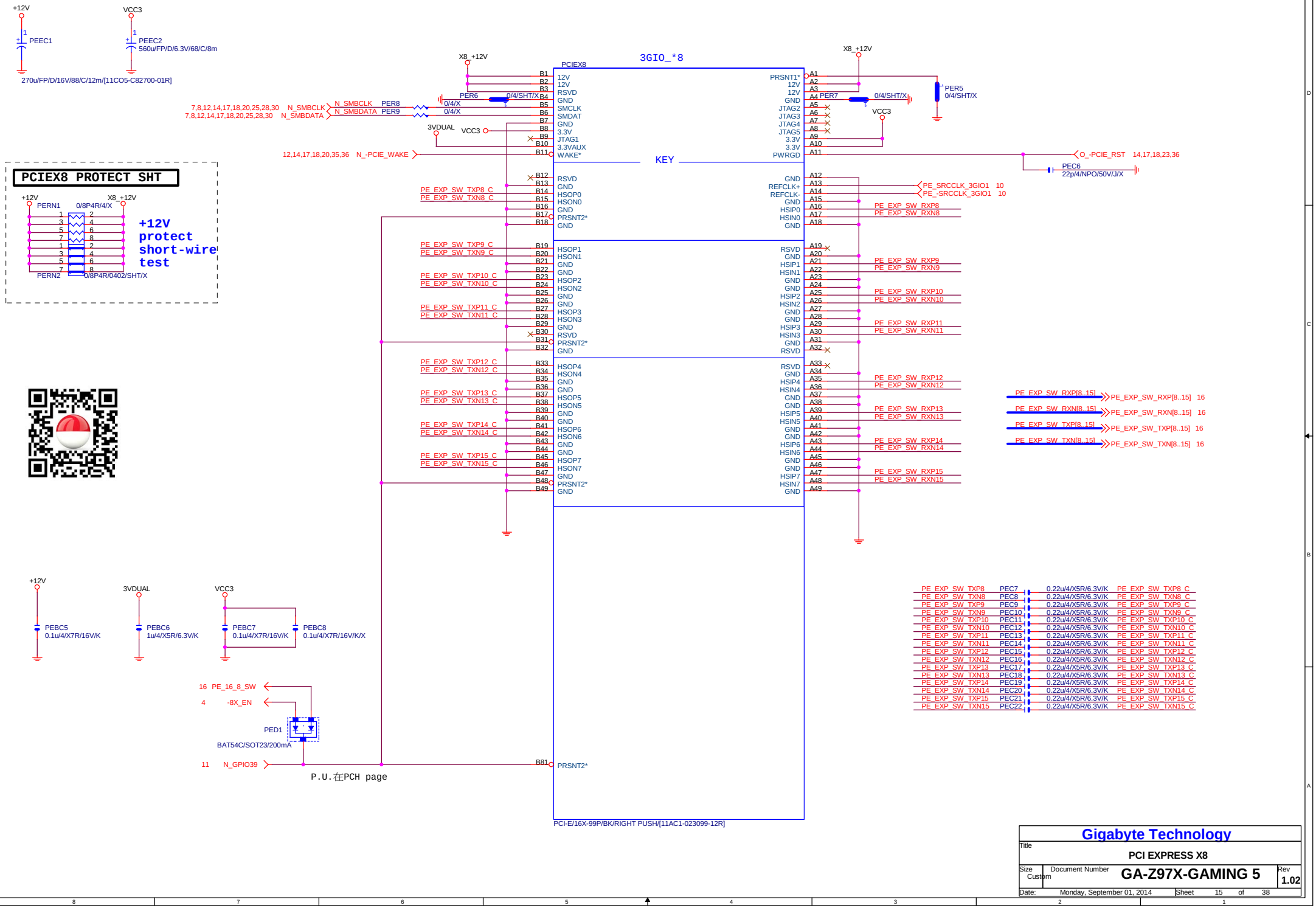

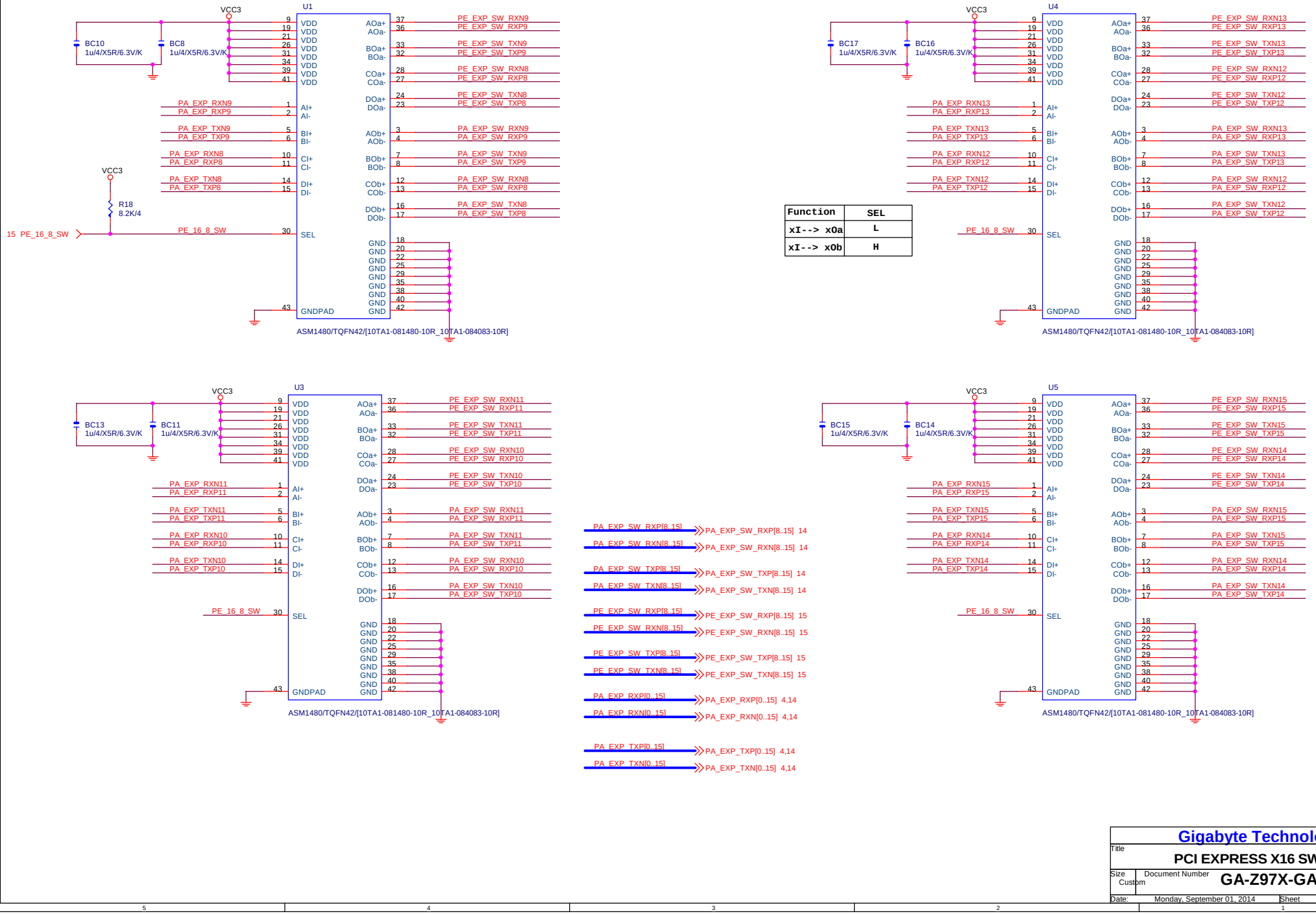

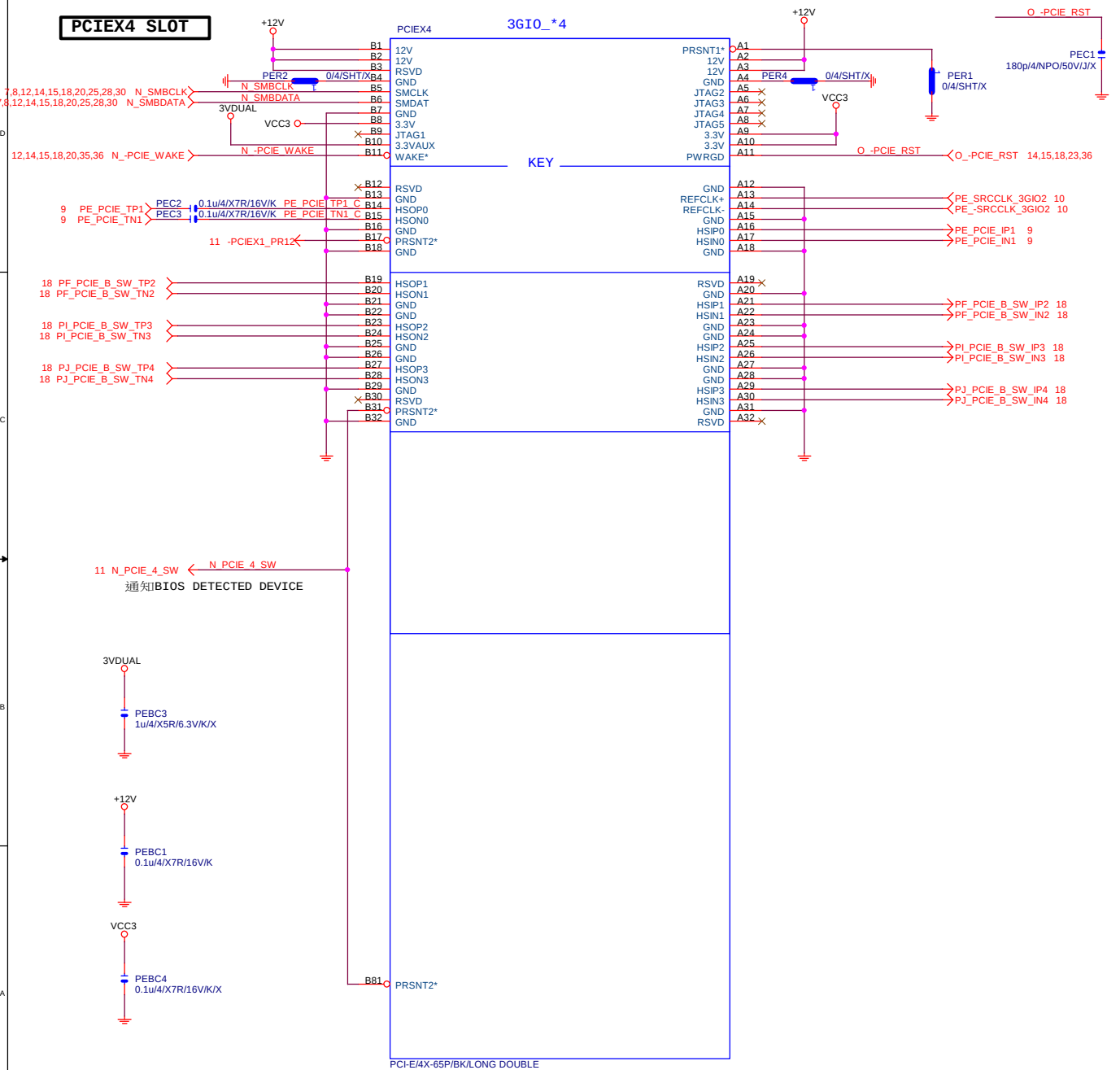

	N_PCIE_4_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO27)
PEX_PCE 4 -> X (Default)	H	H
PCIEX4 No devices PCIEX4 -> X1	H	H
PCIEX4 Have devices PCIEX4 -> X4 PCIEX1_1/2 --> N/A	L	L

Gigabyte Technology

Title: PCIE_X1 1,2

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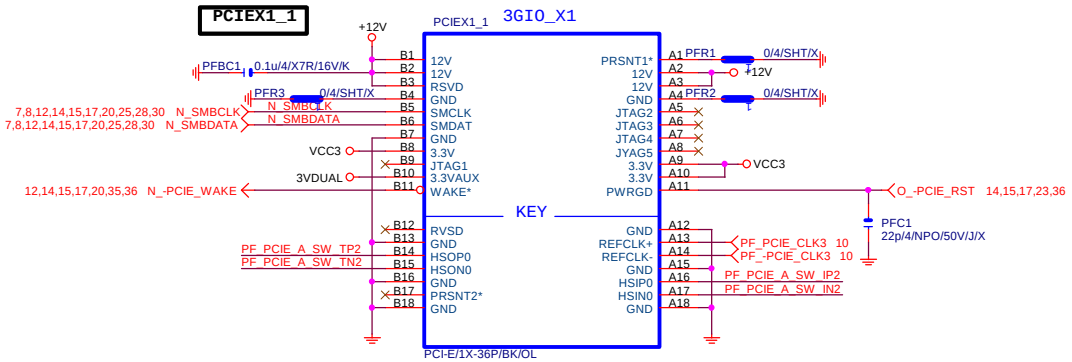
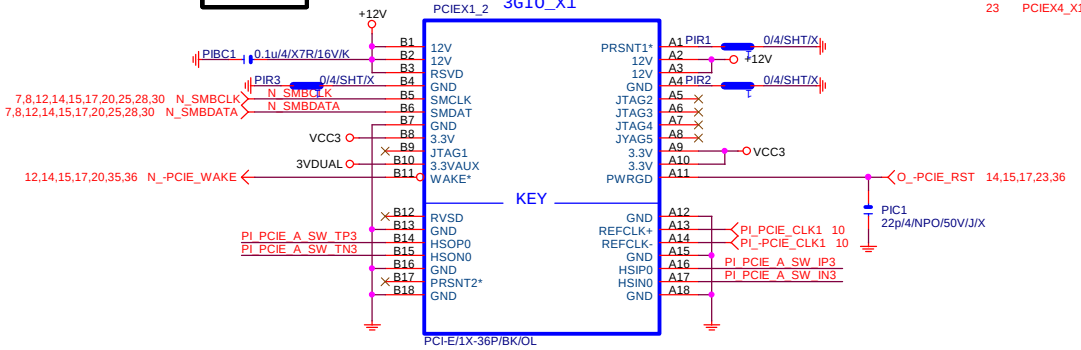
PCIEX1 SLOT

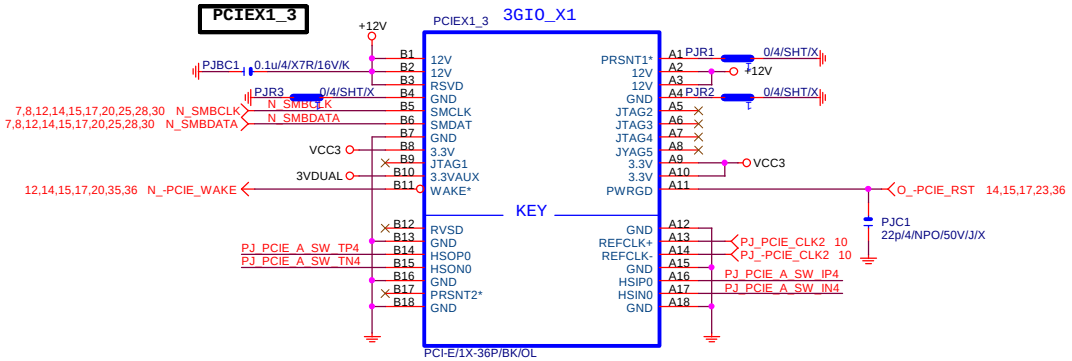
PCIEX1_1

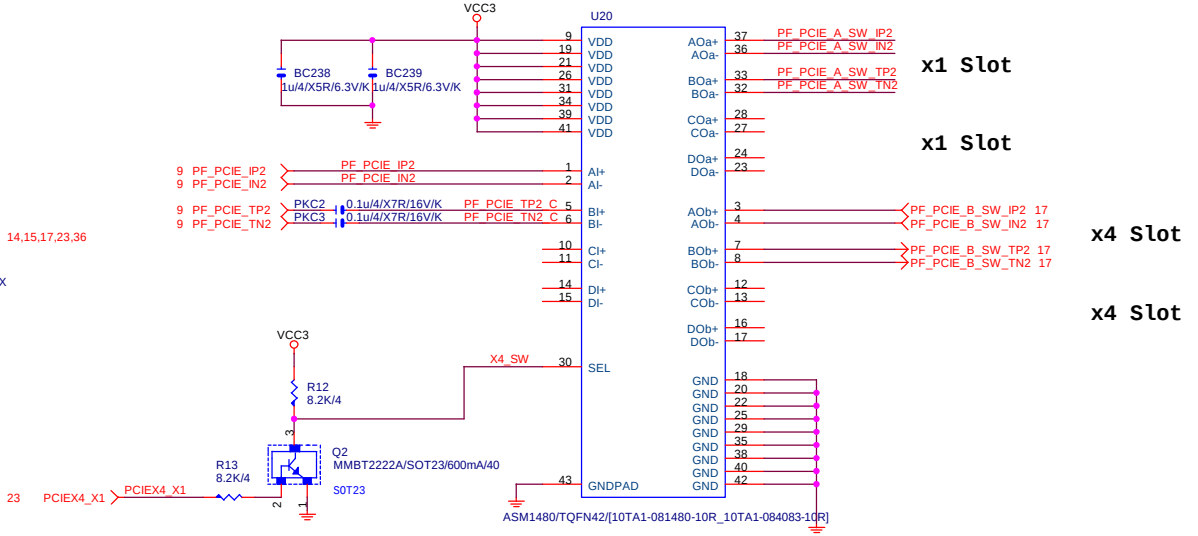


PCIEX1_2

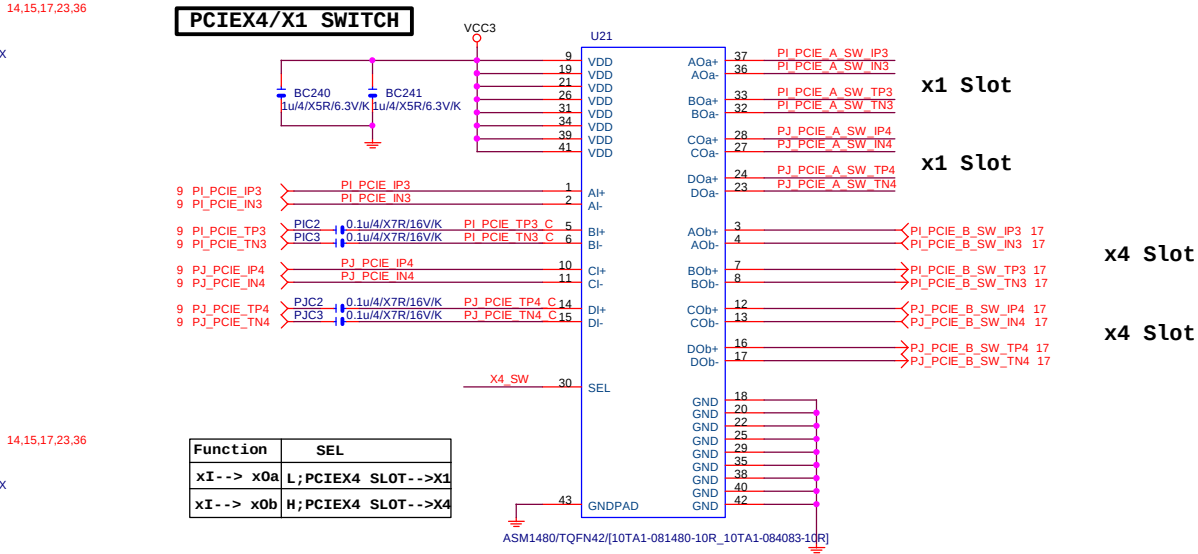


PCIEX1_3

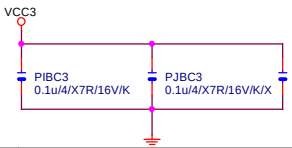




PCIEX4/X1 SWITCH



Function	SEL
xI--> xOa	L;PCIEX4 SLOT-->X1
xI--> xOb	H;PCIEX4 SLOT-->X4



Gigabyte Technology			
Title: PCIE_X1 1,2,3			
Size: Custom	Document Number: GA-Z97X-GAMING 5		Rev: 1.02
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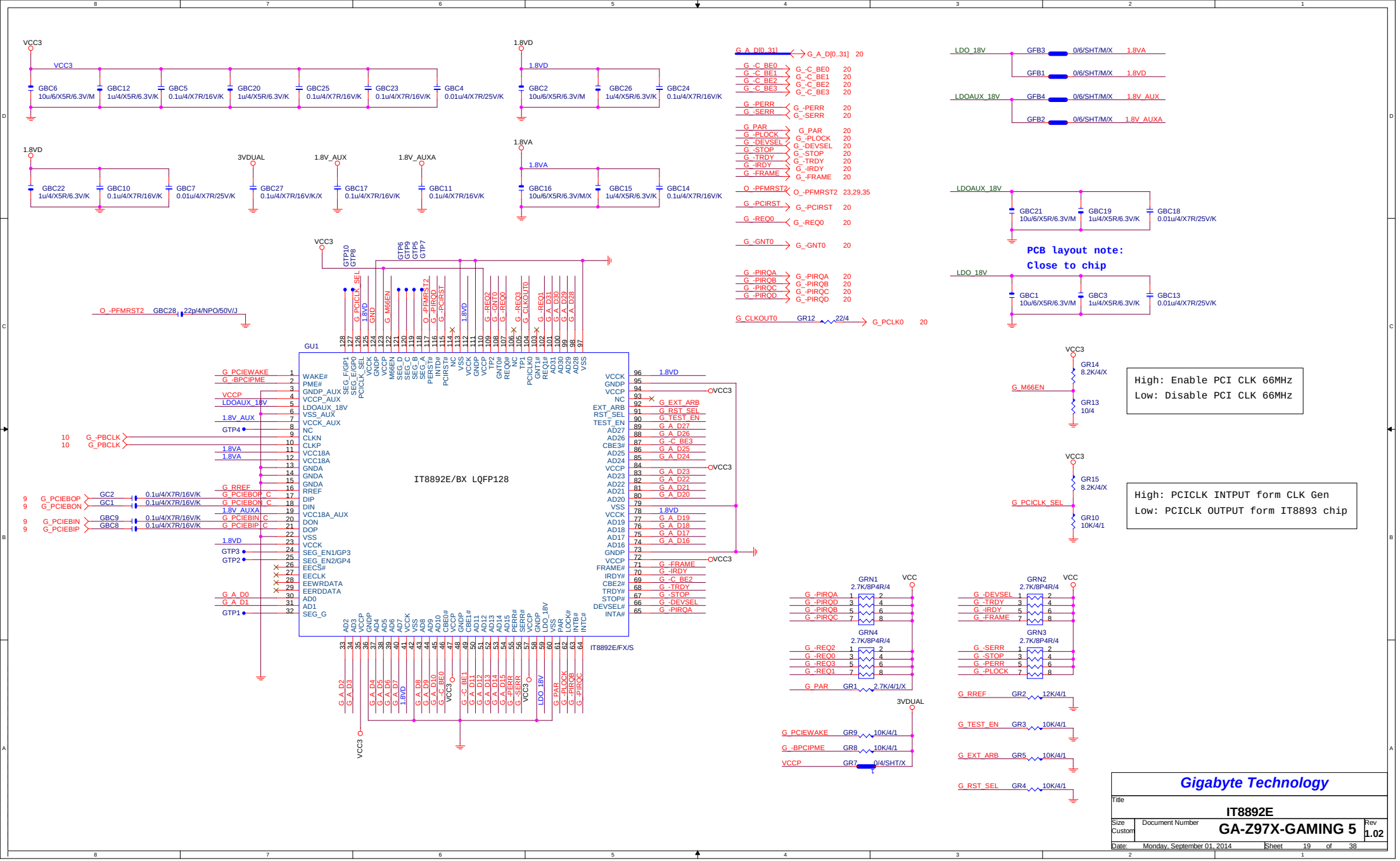
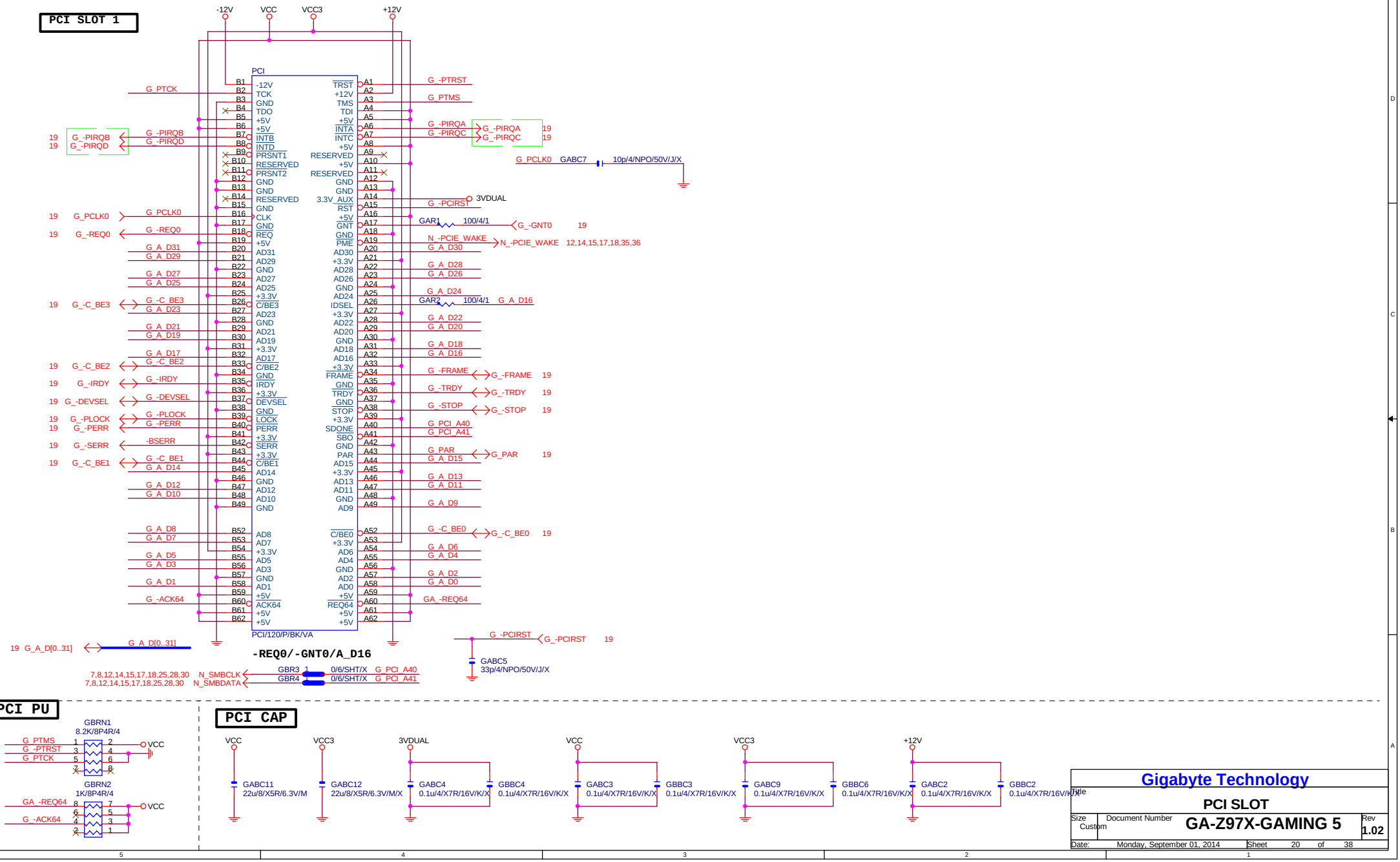
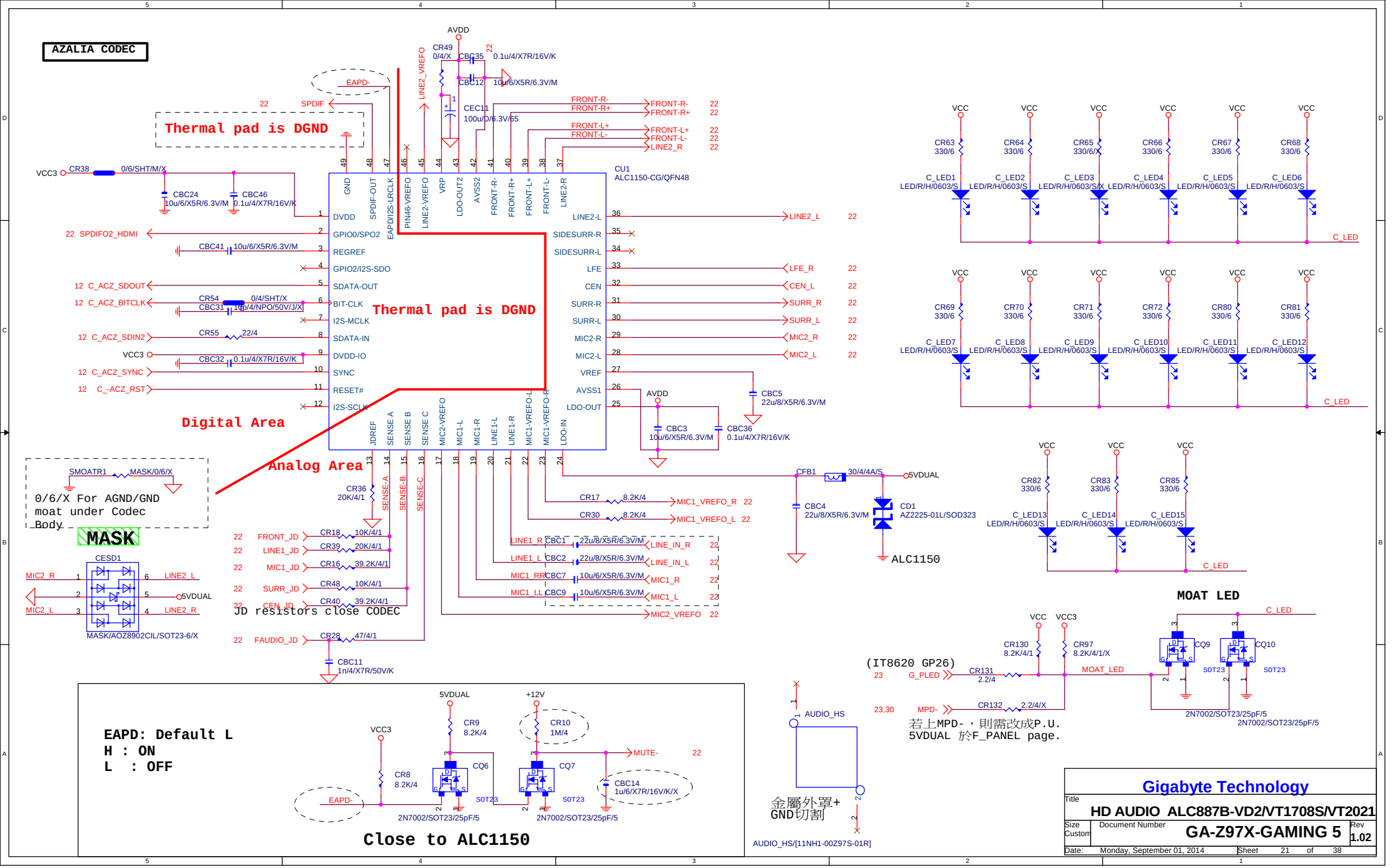
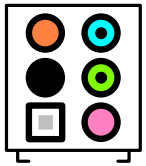






AZALIA JACK



CR23 2.2/6 → Audio jack -> USB(各打2 VIA hole)

CR44 0/6/SHT/X → Under Audio jack(各打2 VIA hole)

MOATR1 0/4/SHT/X → Codec -> Audio jack(各打2 VIA hole)

MOATR2 0/4/SHT/X → Near Codec Right(各打2 VIA hole)

MOATR3 0/4/SHT/X → Near F_AUDIO(各打2 VIA hole)

SPDIF_OUT

21 SPDIFO2_HDMI — CR52 0/4/SHT/M/X — SPDIF_O — CBC37 100p/4/NPO/50V/J — PH/1*2/BK/2.54/VA/D

For HDMI SPDIF

MOATC1 0.1u/4/X7R/16V/K → Near F_AUDIO

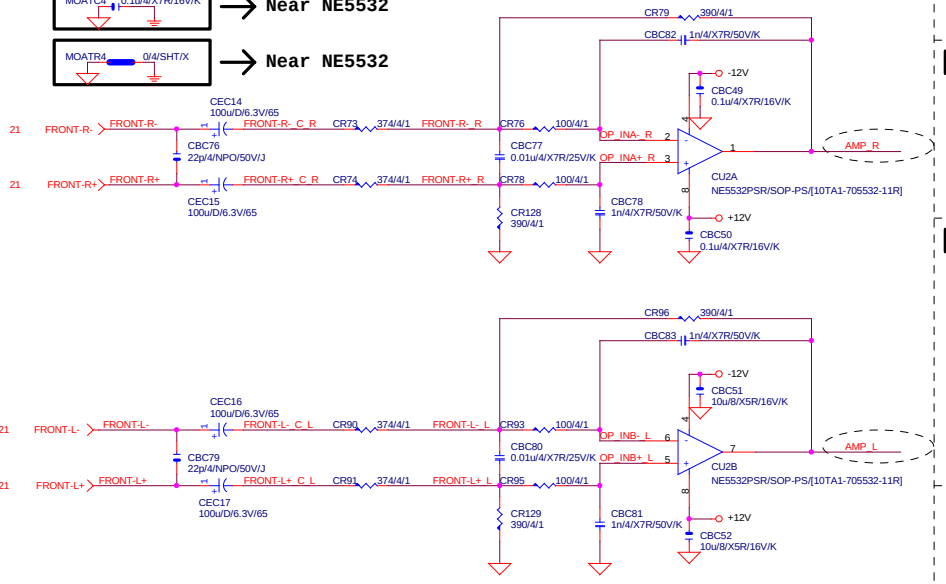
MOATC2 0.1u/4/X7R/16V/K → Near R_AUDIO

MOATC3 0.1u/4/X7R/16V/K → Near CODEC

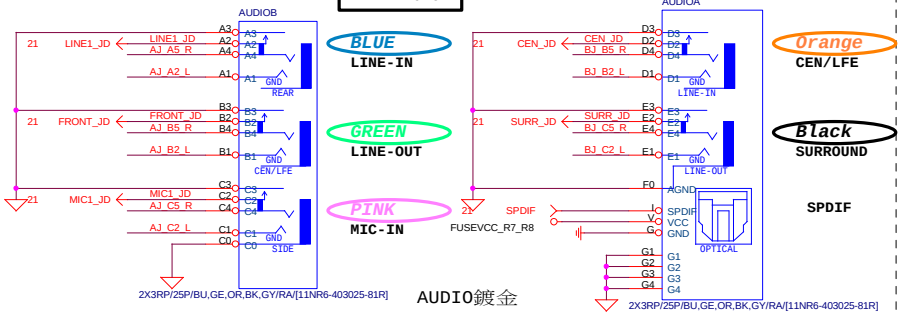
Differential to Single-End AMPLIFIED

MOATC4 0.1u/4/X7R/16V/K → Near NE5532

MOATR4 0/4/SHT/X → Near NE5532

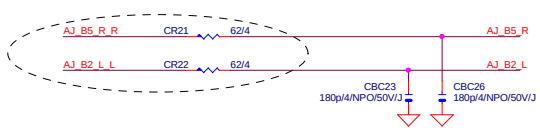


AZALIA JACK

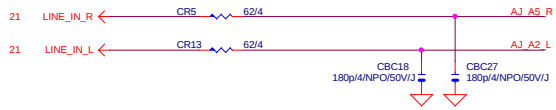


AUDIO鍍金

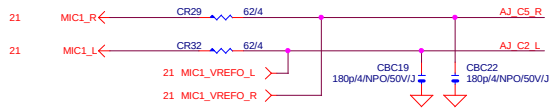
LINE-OUT



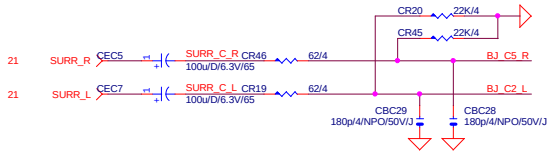
LINE-IN



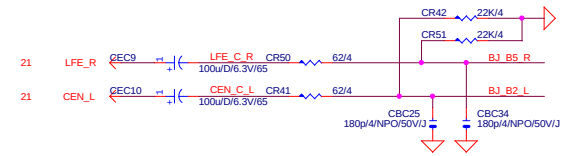
MIC-IN



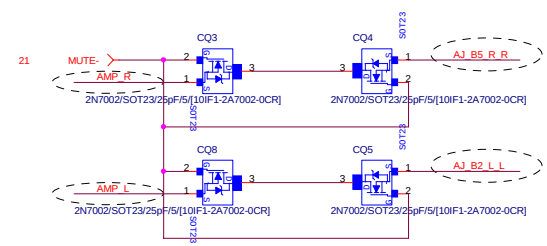
SURROUND



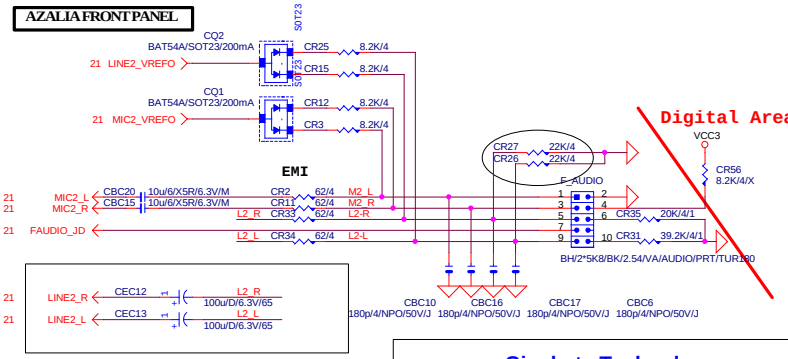
CEN/LFE



Anti-Pop



AZALIA FRONT PANEL



Gigabyte Technology

Title: AUDIO JACK

Size: Custom | Document Number: GA-Z97X-GAMING 5 | Rev: 1.02

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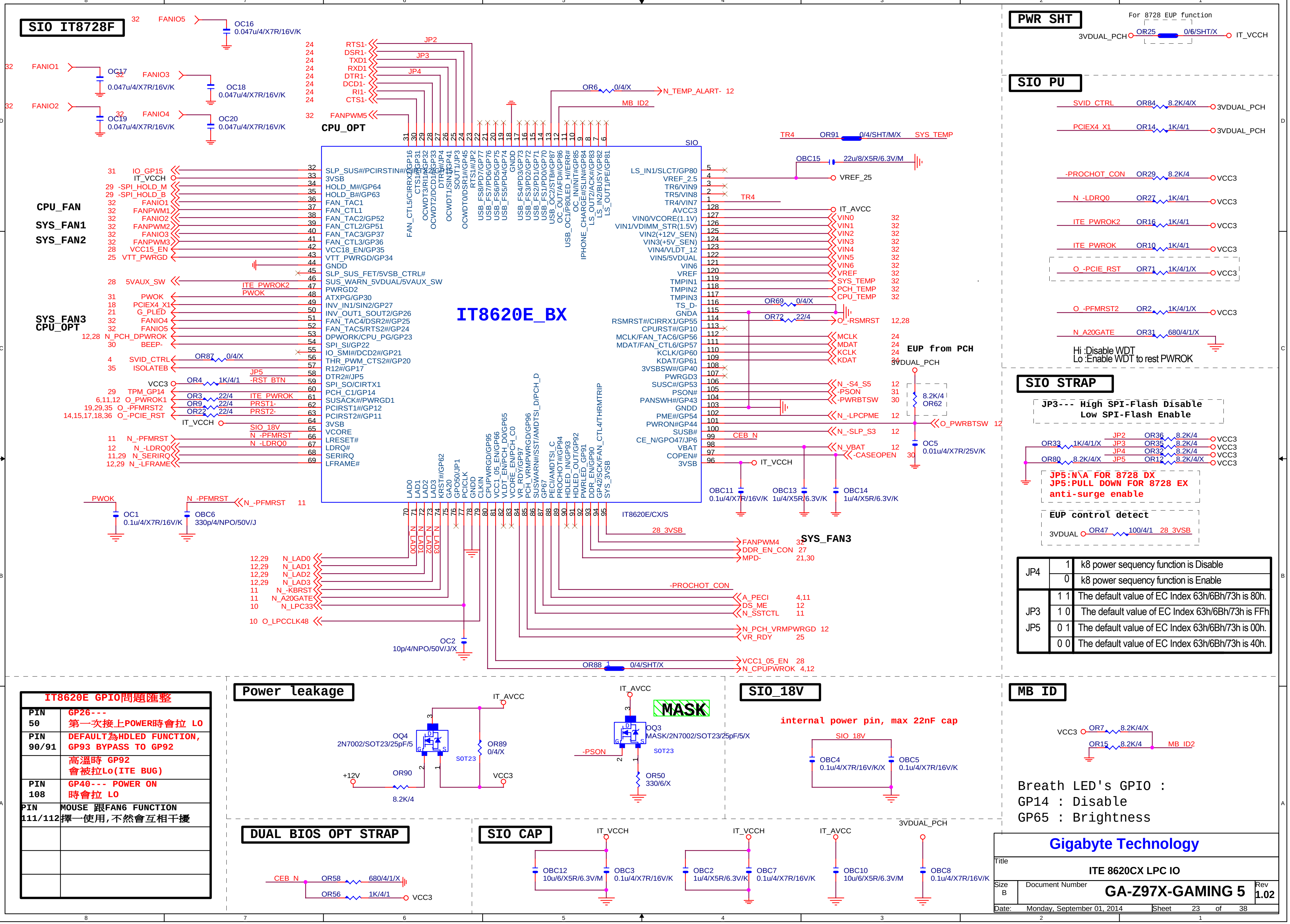

JP4		
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
JP5	1 0	The default value of EC Index 63h/6Bh/73h is FFh
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

IT8620E GPIO問題匯整

PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾

Breath LED's GPIO :
GP14 : Disable
GP65 : Brightness

Gigabyte Technology

Title: ITE 8620CX LPC IO
Size: B
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Rev: 1.02
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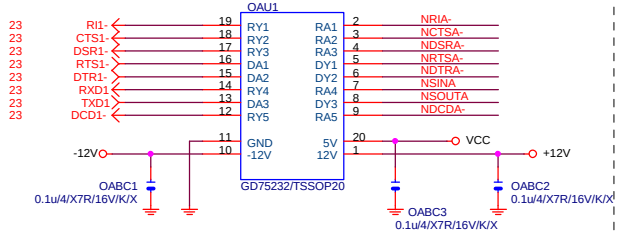
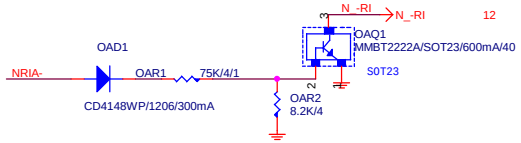
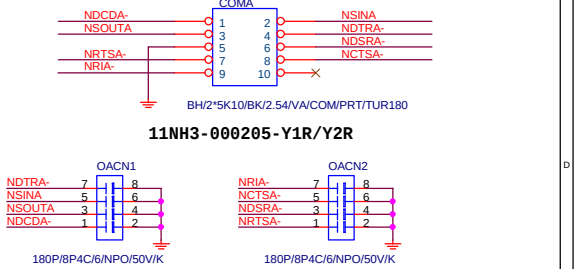
COMA



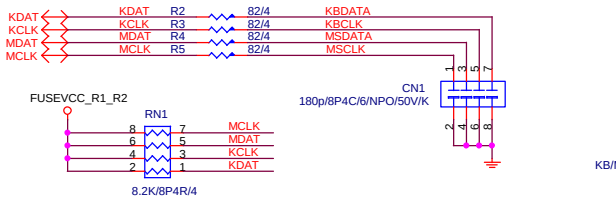
COM RI

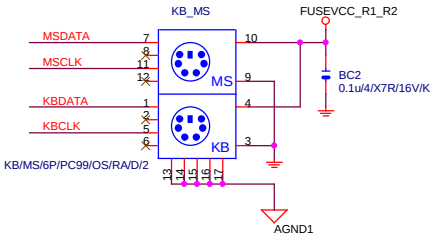


COM BUFFER

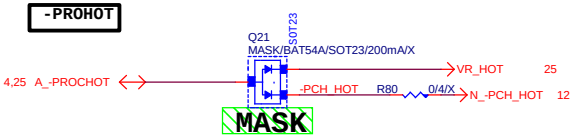


KB/USB





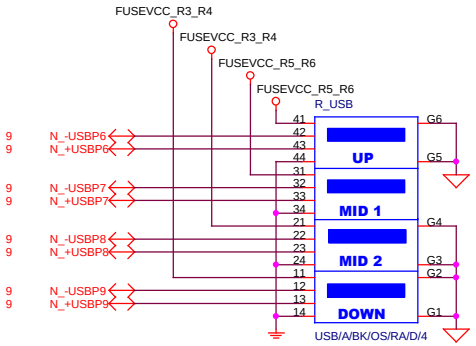
-PROHOT



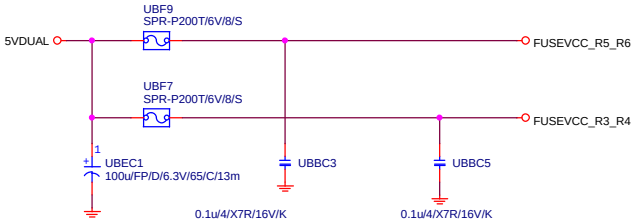
Thunderbolt pin header

Removed

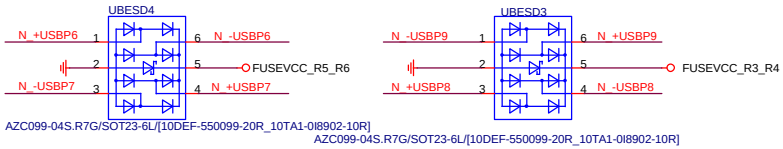
R_USB



USB20 FUSE



USB20 ESD PROCTECT



Gigabyte Technology		
Title: COM/ PROHOT/ R_USB		
Size: Custom	Document Number: GA-Z97X-GAMING 5	Rev: 1.02
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-PROHOT

OTP:132度 / PCB THERMAL TRIP:122 度

125 degree assert, 105~115 degree deasserted

+12V

DAR90 10K/4/1

DAR83 2.32K/4/1

DATSM_1

DATSM_2

DART2_5 100K/1/4/S

DAR86 1K/4/1

DAC30 0.1u/4/X7R/16V/K

DAR84 10K/4/1

DU1A LM358DR/SO8

DATSM_3

R? CLOSE Q32

DQ6 2N7002/SOT23/25pF/5

SOT23

N_-THRMTRIP 4,11,30

0.1不上件

0.2上件

CLOSE VCORE PWM UPPER MOSFET

3VDUAL VCC3

DAR57 0/4/X

DAR55 0/4/SHT/X

PWM_VCC

DAC12 1u/4/X5R/6.3V/K

DAC13 0.1u/4/X7R/16V/K

VCC

DAR61 13K/4/1

DAR60 1K/4/1

DAC15 0.01u/4/X7R/25V/K

DAL1 0.8uH/35A/INC109/F/D

V12

R36

VIN

DAC33 1u/6/X7R/16V/K

DAEC3 DAEC2 DAEC1 DAEC4

270u/FP/D/16V/88/C/12m/[11CO5-C82700-01R]

VCORE

DAEC7 DAEC10 DAEC8 DAEC9 DAEC11 DAEC12 DAEC5 DAEC6

560u/FP/D/6.3V/68/C/8m

Debug Only

Remove PinHeader in modify PBOM

DAJP1

PH/1*3/BK/2.54/VA/D/X

DAD1

VRHOT_ICRIT

DAR101 0/4/X

DAR102 0/4/SHT/M/X

VR_HOT 24

N_-THRMTRIP 4,11,30

BAS40-05/0.2A/SOT23

DAC17 10p/4/NPO/50V/J/X

DAC23 10p/4/NPO/50V/J/X

DAR68 0/4/SHT/M/X

DAR67 0/4/SHT/M/X

N_SMBCLK 7,8,12,14,15,17,18,20,28,30

N_SMBDATA 7,8,12,14,15,17,18,20,28,30

26 ISEN8

26 IRTN8

DAR48 1.43K/4/1

DAR46 301/4/1

DAC1 0.47u/4/X5R/6.3V/K

DAR42 301/4/1

PWM8 26

PWM7 38

PWM6 38

PWM5 26

PWM4 38

PWM3 38

PWM2 26

PWM1 26

IR3563B

VDG/VAUXSEN

SM_CLK

SM_DIO

SM_ALERT

ADDR_PROT

EN

VRHOT_ICRIT

SV_DIO/ VIDSEL0

SV_CLK/VIDSEL1

SV_ALERT#

SV_ADDR/VDDIO

NC

GND_TH

DAU1 IR3563BMGB03TRP/QFN48/[10TA1-63563B-05R]

DAC22 0.01u/4/X7R/25V/K

DAR66 845/4/1

Addr: 70h

MOS HEATSINK

DAR79 4.7K/4

VCC3

DAR72 8.2K/4

PWM_VCC

DAR78 8.2K/4

VTT_PWRGD 23

CPU_VTT_OR

DAR77 115/4/1

DAR76 51/4/1

DAR75 200/4/1/X

DAC25 1u/4/X5R/6.3V/K

MOS_HS

SV_DIO

SV_CLK

SV_ALERT

SV_ADDR

DAR65 2.2/4

DAR64 2.2/4

DAR63 2.2/4

DAR74 845/4/1

DAC21 0.01u/4/X7R/25V/K

PVIDSOUT 4

PVIDSLCK 4

-PVIDALRT 4

MOS HS/[12SP2-S07924-01R_12SP2-S07924-02R_12SP2-S07924-03R]

DAC28 DAC27 DAC26

10p/4/NPO/50V/J/X

38 ISEN7

38 IRTN7

26 ISEN5

26 IRTN5

38 ISEN4

38 IRTN4

38 ISEN3

38 IRTN3

26 ISEN2

26 IRTN2

26 ISEN1

26 IRTN1

DAR23 1.43K/4/1

DAR37 301/4/1

DAC2 0.47u/4/X5R/6.3V/K

DAR36 301/4/1

DAR20 1.43K/4/1

DAR35 301/4/1

DAC3 0.47u/4/X5R/6.3V/K

DAR34 301/4/1

DAR17 1.43K/4/1

DAR33 301/4/1

DAC4 0.47u/4/X5R/6.3V/K

DAR32 301/4/1

DAR14 1.43K/4/1

DAR31 301/4/1

DAC5 0.47u/4/X5R/6.3V/K

DAR30 301/4/1

DAR11 1.43K/4/1

DAR29 301/4/1

DAC6 0.47u/4/X5R/6.3V/K

DAR28 301/4/1

DAR8 1.43K/4/1

DAR27 301/4/1

DAC7 0.47u/4/X5R/6.3V/K

DAR26 301/4/1

38 IRTN6

38 ISEN6

DAR25 301/4/1

DAR3 1.43K/4/1

DAC8 0.47u/4/X5R/6.3V/K

DAR24 301/4/1

Close to Vcore output inductor

DKRT1 10K/1/4/S

VCORE_RCSP_R

VCORE_RCSM_R

DAR40 1.43K/4/1

DAR41 2.05K/4/1

DAR44 1.43K/4/1

VCORE_RCSP

DAC9 150p/4/NPO/50V/J

VCORE_RCSM

DAR81 13K/4/1

DAC51 0.01u/4/X7R/25V/K

DAR71

VCC3

8.2K/4

DAC19 10p/4/NPO/50V/J/X

DAR73 1K/4/1

DAC20 0.01u/4/X7R/25V/K

DAR62 8.2K/4

VR_RDY

VR_RDY 23

V18A

7.5K/4/1

DAR54

PWM_VCC

DAR69 75/4/1

Pop DAR83 if pop DAR63

MOS_HS2

MOS HS/[12SP2-S07924-21R_12SP2-S07924-22R_12SP2-S07924-23R]

125 degree assert, 105~115 degree deasserted

VCORE

DAR1 100/4/1

For Phase margin and gain margin measure

4 VCC_SENSE

4 VSS_SENSE

DAR49 0/4/SHT/M/X

VSEN

VSEN-

DAC11 3.3n/4/X7R/50V/K

DAR2 100/4/1

DAR_MOAT 0/6/SHT-EMI-MASK/X

DAC16 0.1u/4/X7R/16V/K

DAC18 4.7u/6/X5R/6.3V/K

DAR56 0/4/SHT/X

CPU_TSEN_R1

DAR59

-CPU_TSEN_R1

DAC14 0.1u/4/X7R/16V/K

DAR58 13K/4/1

DART7_3 47K/1/4/S

+12V

DAR85 10K/4/1

DAR89 10K/4/1

DAR87 3K/4/1

DATSM_4

DATSM_5

DU1B LM358DR/SO8

DATSM_6

R? CLOSE Q32

DART4_6 100K/1/4/S

DAR88 1K/4/1

DAC29 0.1u/4/X7R/16V/K

TEMP_HOT

DAR103 0/4/X

DAR104 0/4/SHT/M/X

A_-PROCHOT 4,24

N_-THRMTRIP 4,11,30

2N7002/SOT23/25pF/5

DQ5

SOT23

CLOSE VCORE PWM LOWER MOSFET

Gigabyte Technology

Title: IR 3563A

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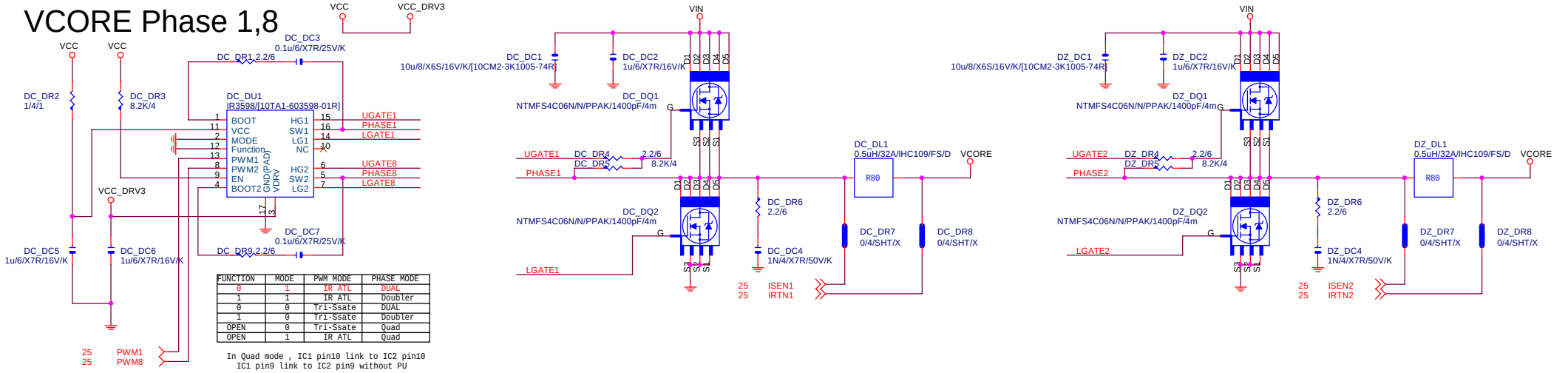
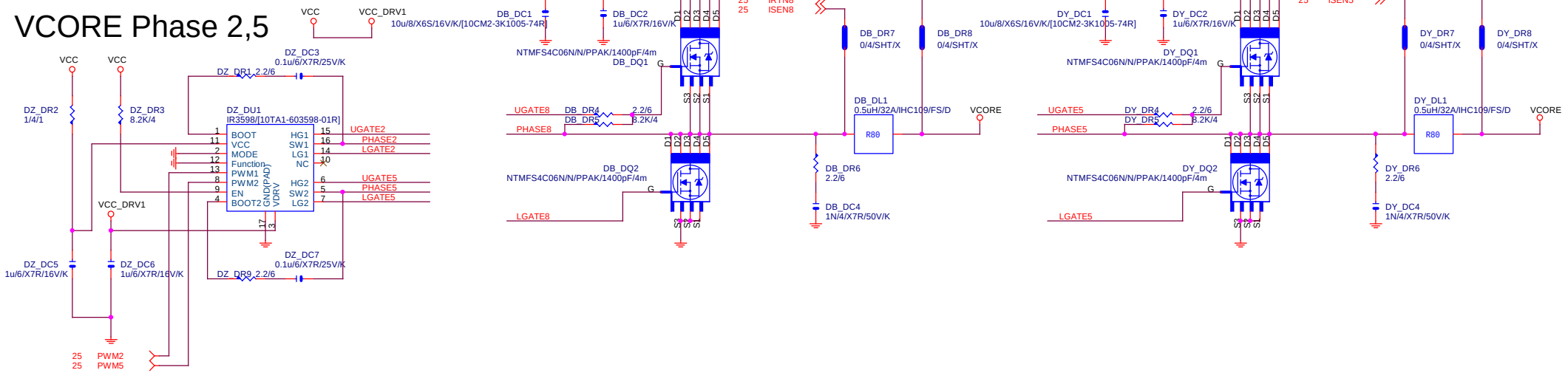
VCORE Phase 1,8



FUNCTION	MODE	PWM MODE	PHASE MODE
0	1	IR ATL	DUAL
1	1	IR ATL	Doubler
0	0	Tri-Ssate	DUAL
1	0	Tri-Ssate	Doubler
OPEN	0	Tri-Ssate	Quad
OPEN	1	IR ATL	Quad

In Quad mode , IC1 pin10 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PU

VCORE Phase 2,5



Gigabyte Technology			
Title: CPU CORE_IR3563B			
Size: Custom	Document Number: GA-Z97X-GAMING 5		Rev: 1.02
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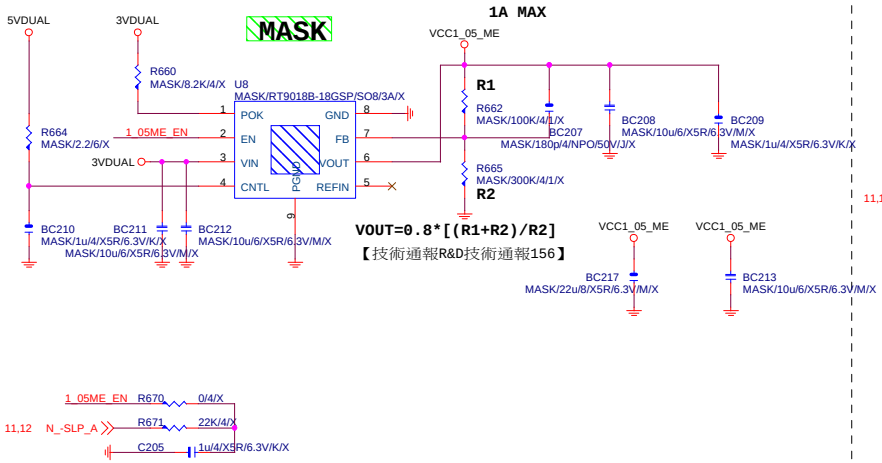
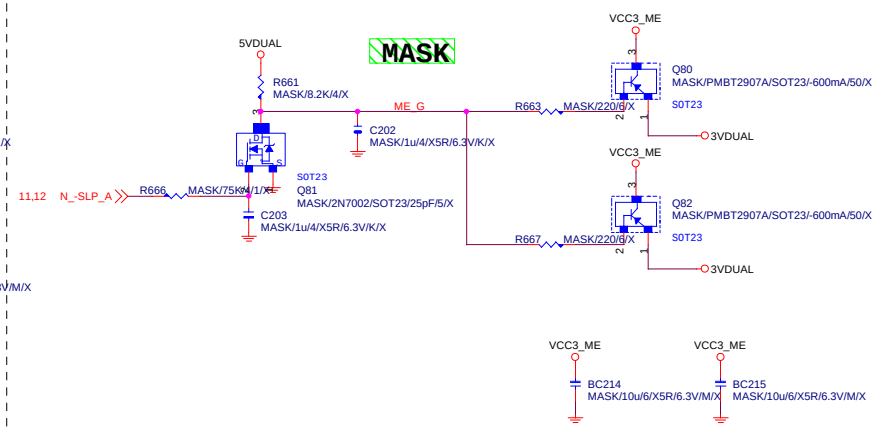
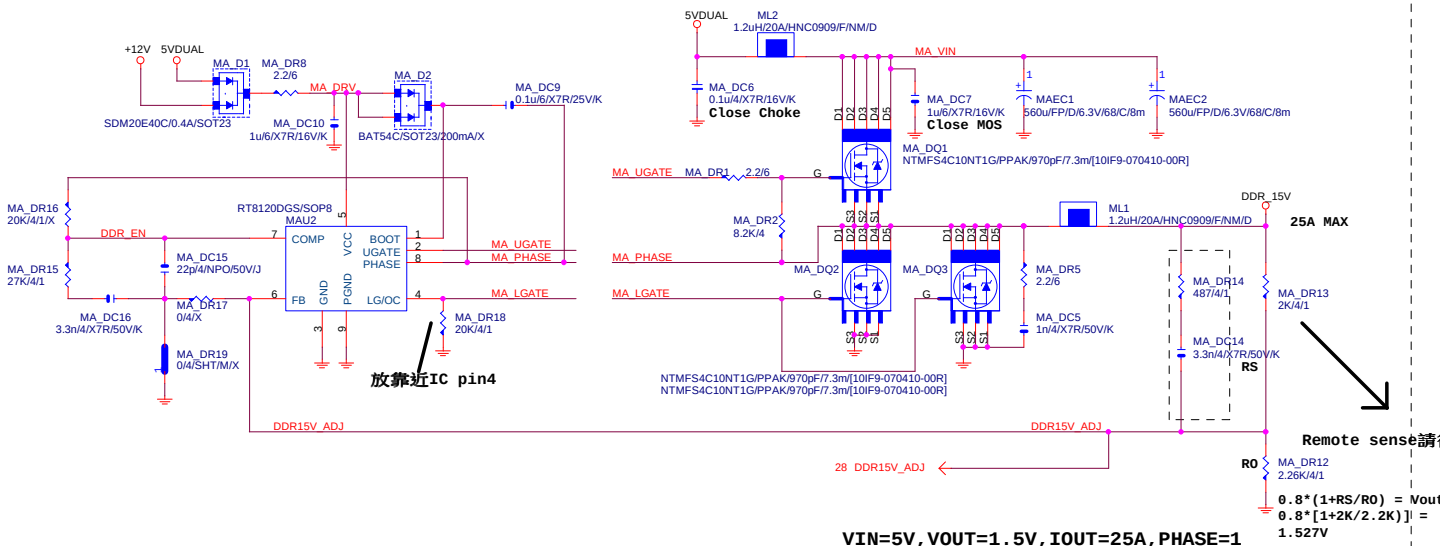
VCC1_05_ME



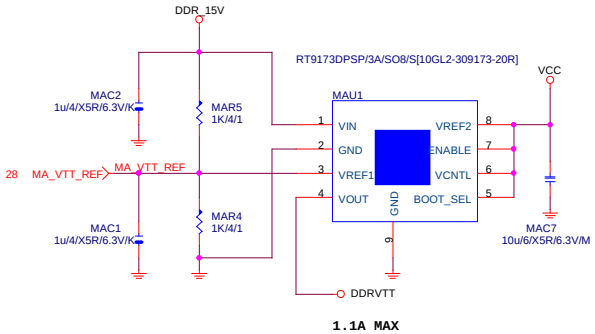
VCC3_ME



DDR_15V



DDRVTT



PWR SEQ

DDR_EN — DDR_EN_CON 23

Gigabyte Technology	
Title	DDR15V/M3 POWER
Size: Custom	Document Number: GA-Z97X-GAMING 5
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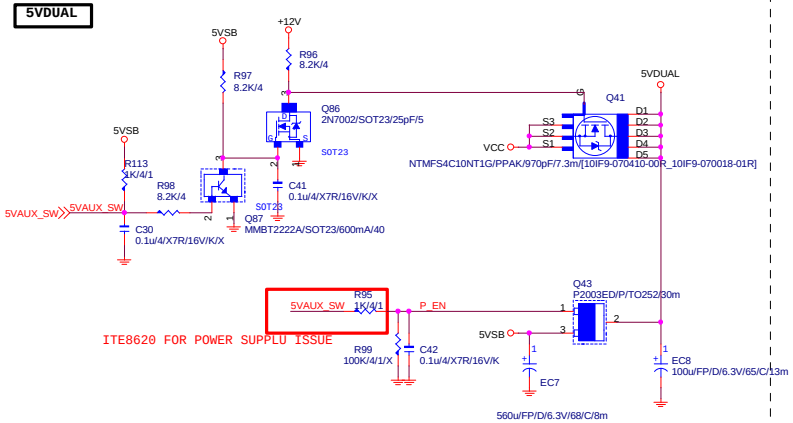
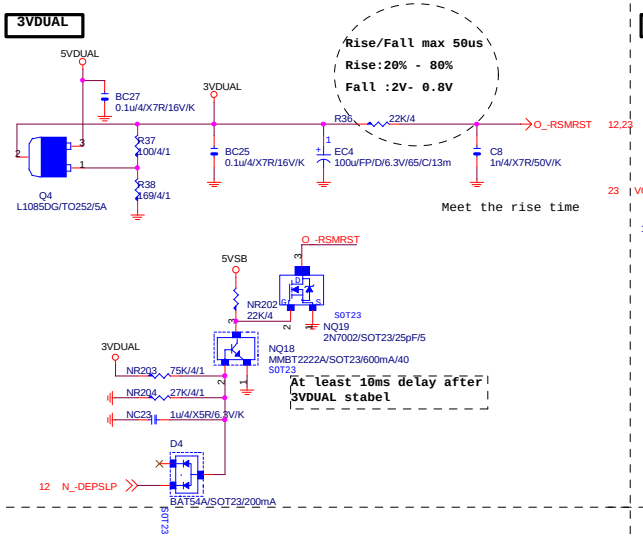
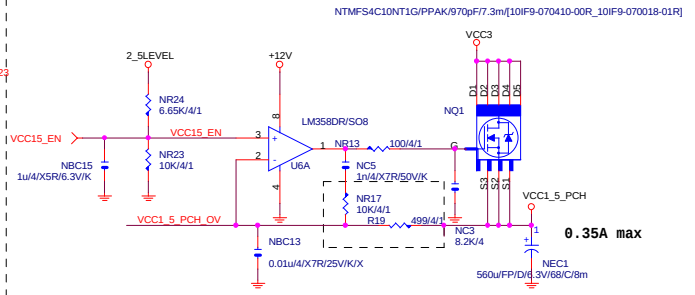
5VDUAL



3VDUAL

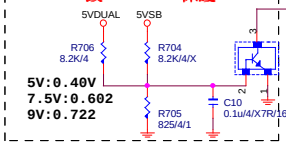


VCC1_5_PCH

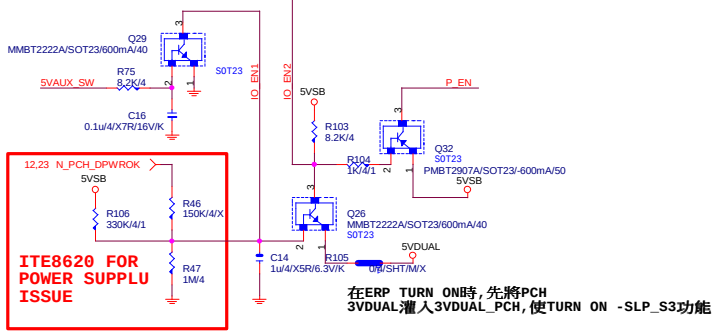


5VSB OVP:7.5V protection

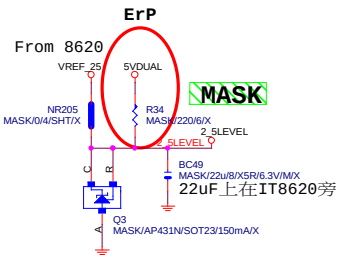
NOTE 82:改5VDUAL 6v保護



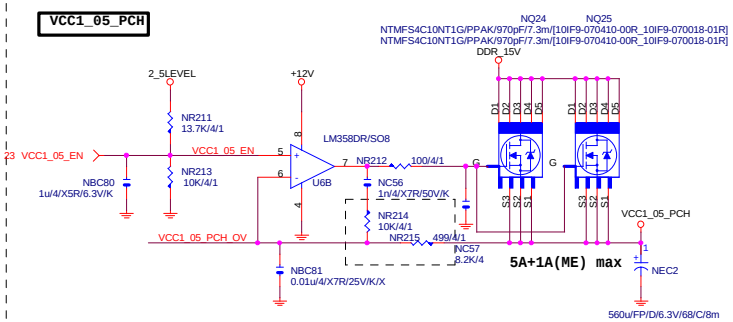
5VDUAL SHORT PROTECT



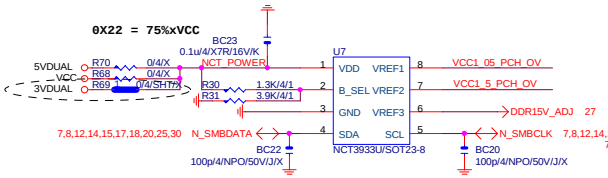
2_5LEVEL

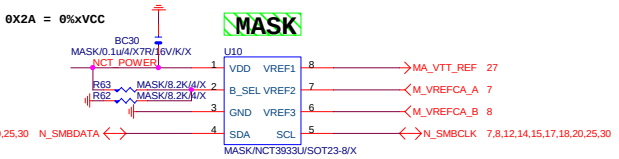


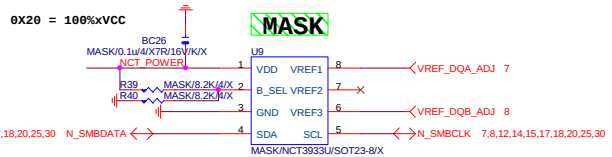
VCC1_05_PCH



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

Gigabyte Technology

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DUAL BIOS

指定用DII

VCC3_ME
NR226 330/4/1
NR227 1K/4/1
NR228 0/4/X
NQ20 S0T23
-SPI_CS_1
N_-ICH_SPI_CS
MMBT2222A/SOT23/600mA/40
NQ21 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_B NR229 8.2K/4

指定用DII

VCC3_ME
NR230 330/4/1
NR231 1K/4/1
-SPI_CS_2
NQ22 MMBT2222A/SOT23/600mA/40 S0T23
N_-ICH_SPI_CS
-SPI_HOLD_B NR234 1K/4/1/X
NQ23 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_M NR232 8.2K/4

MAIN BIOS

M_BIOS
VCC3_ME
NR4 0/4/SHT/M/X
NBC2 1u/4/X5R/6.3V/K
-SPI_CS_1 NR7 22/4
NC1 10p/4/NPO/50V/J/X
SPI_MISO
SPI_DQ2 NR220 0/4/SHT/X N_-SPI_WP0
-HOLD0 NR221 0/4/SHT/X NR222 8.2K/4/X -SPI_HOLD_M
SPI_DQ3 12
N_ICH_SPI_CLK
N_ICH_SPI_MOSI
NC2 10p/4/NPO/50V/J/X
CS# SO WP# VSS VDD HOLD# SCK SI
64M/Q/SPI/SO8/S

BACKUP BIOS

B_BIOS
VCC3_ME
NR12 0/4/SHT/M/X
NBC3 1u/4/X5R/6.3V/K
-SPI_CS_2 NR8 22/4
SPI_MISO
SPI_DQ2 NR233 0/4/SHT/X N_-SPI_WP1
-HOLD1 NR224 0/4/SHT/X NR225 8.2K/4/X -SPI_HOLD_B
SPI_DQ3 12
N_ICH_SPI_CLK N_ICH_SPI_CLK 12
N_ICH_SPI_MOSI N_ICH_SPI_MOSI 12
CS# SO WP# VSS VDD HOLD# SCK SI
64M/Q/SPI/SO8/S
NBC4 0.1u/4/X7R/16V/K

MOSI For DMI RX Termination Voltage

VCC3_ME
12 N_ICH_SPI_MOSI N_ICH_SPI_MOSI NR10 8.2K/4/X
12 N_-ICH_SPI_CS N_-ICH_SPI_CS NR9 8.2K/4/X
12 N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 NR246 8.2K/4/X
23 -SPI_HOLD_M -SPI_HOLD_M NR3 1K/4/1
23 -SPI_HOLD_B -SPI_HOLD_B NR11 1K/4/1

VCC3_ME
N_-SPI_WP1 NR2 8.2K/4/X
N_-SPI_WP0 NR1 8.2K/4/X
12 N_ICH_SPI_MISO N_ICH_SPI_MISO NR5 8.2K/4
-HOLD0 NR235 1K/4/1/X
-HOLD1 NR236 1K/4/1/X

5VDUAL
23 -SPI_HOLD_M -SPI_HOLD_M NR237 1K/4/1/X
23 -SPI_HOLD_B -SPI_HOLD_B NR238 1K/4/1/X

12 N_ICH_SPI_MISO NR6 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

TPM CONNECT

VCC3
3VDUAL_PCH
TPM
10 T_TPMCLK
12,23 N_-LFRAME
19,23,35 O_-PFMRST2
12,23 N_LAD3
12,23 N_LAD0
LCLK LFRAME# LRESET# LAD3 VCC3 LAD0 RSV0 SB3V GND LPCPD#
GND VCC3 LAD2 LAD1 GND RSV1 SERIRQ CLKRUN# RSV2
pin 4 防呆
N_LAD2 N_LAD1 N_SERIRQ
12,23 12,23 11,23
VCC3 TR2 8.2K/4
TPM_GP14 23
TBC1 0.1u/4/X7R/16V/K/X
TBC2 0.1u/4/X7R/16V/K/X
BH/2*10K4/BK/2.54/VA/HA
12,36 N_SUSCLK TR1 10/4

BIOS Debug port

MASK
VCC3_ME
BIOS_PH
N_-ICH_SPI_CS
SPI_MISO
N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 12
-HOLD0
N_ICH_SPI_CLK
N_ICH_SPI_MOSI
MASK/PH/2*5K1,K7/BK/2.54/VA/D[11NH2-020205-81R]/X

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

Gigabyte Technology

Title: BIOS
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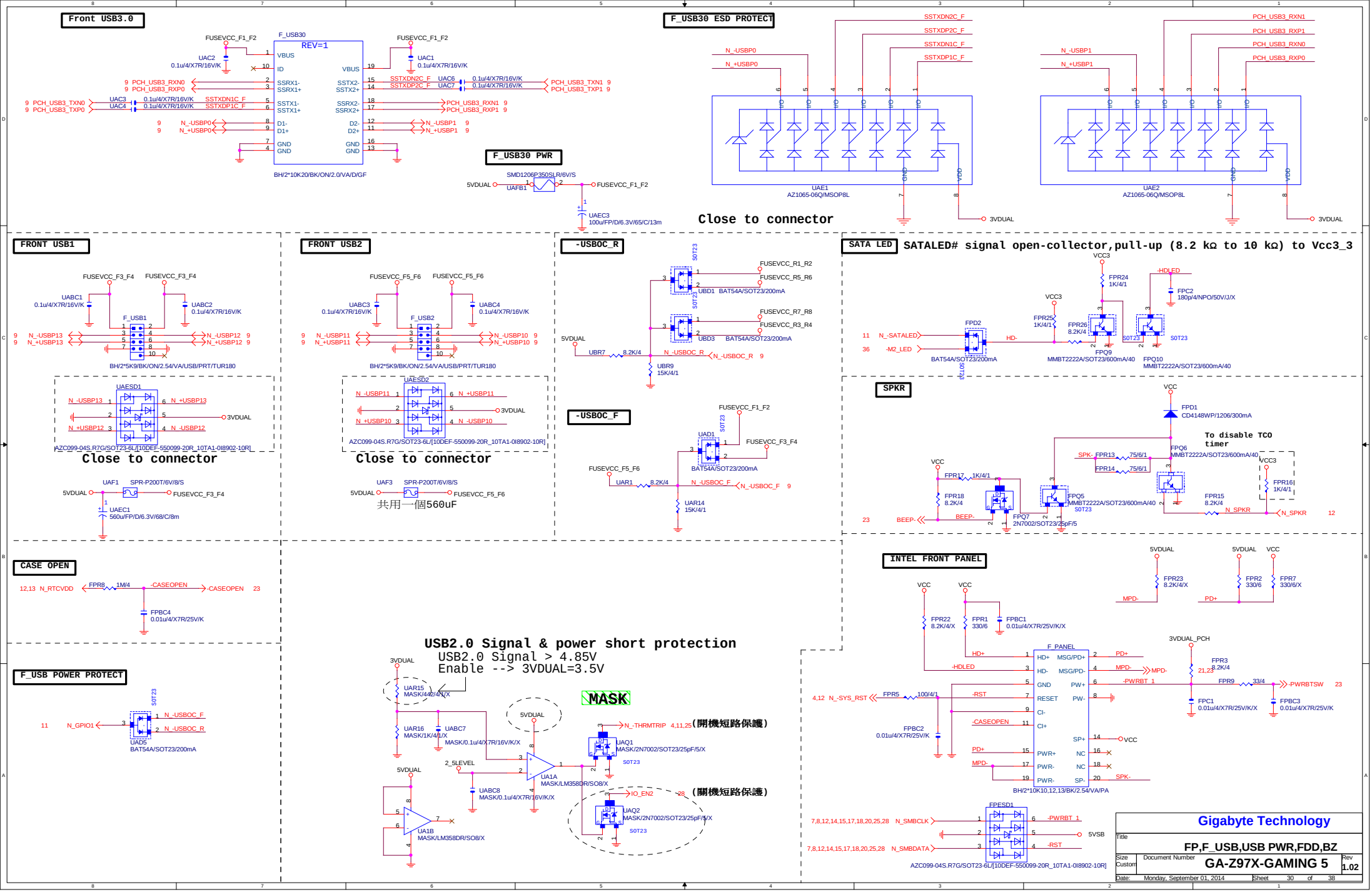
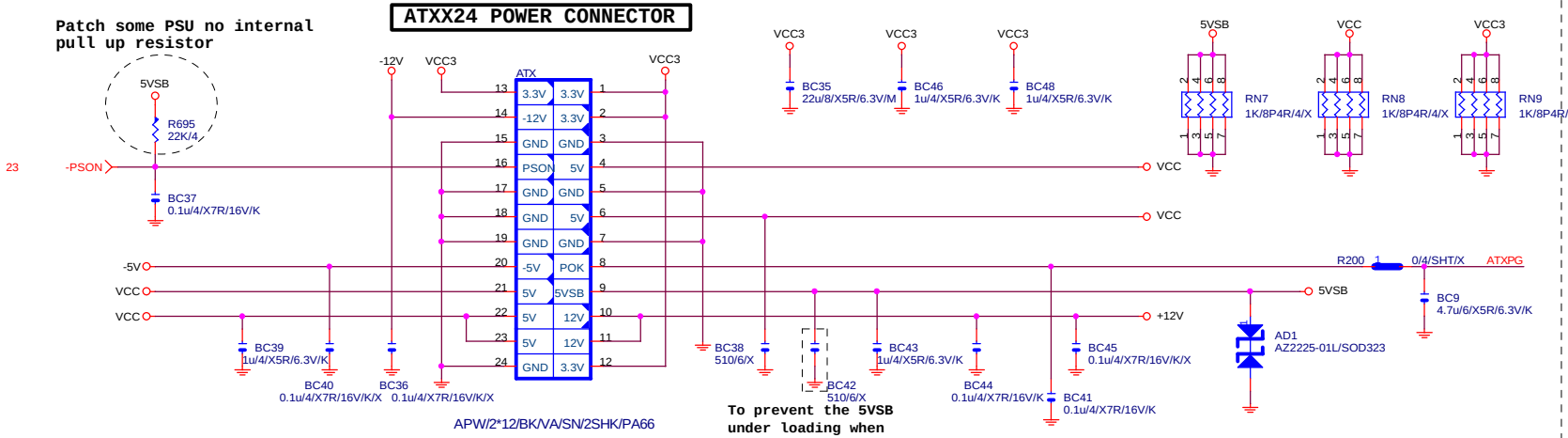


Patch some PSU no internal pull up resistor

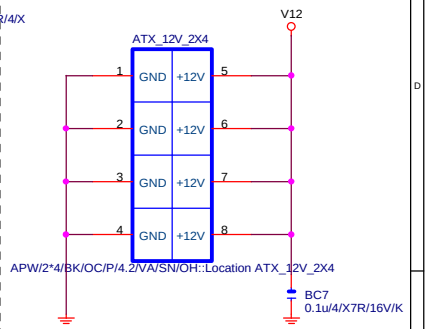
ATXX24 POWER CONNECTOR



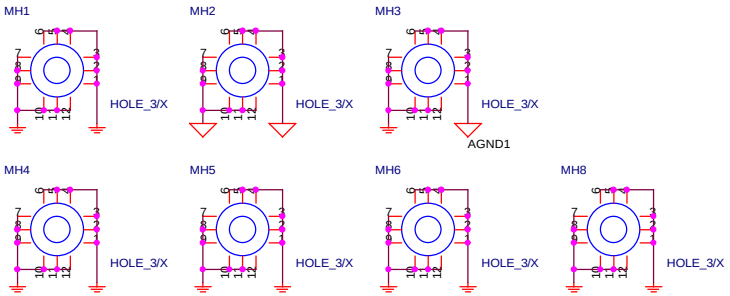
APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

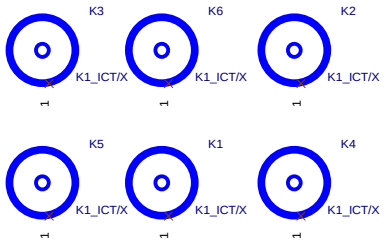
ATXX4 POWER CONNECTOR



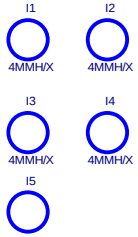
APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4



HOLE_4-RH-1



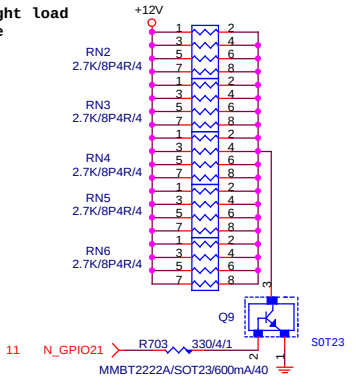
K1-ICT



4MMH

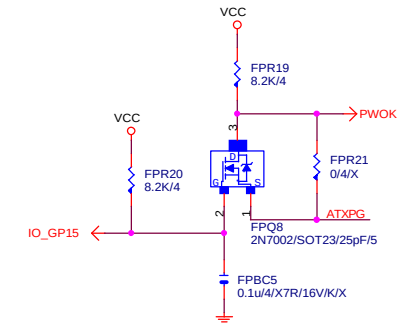
【技術通報R&D技術通報153】

To fix 12V light load abnromal issue



PWOK PATCH

【技術通報R&D技術通報154】



Gigabyte Technology		
Title: ATX POWER CONNECTOR		
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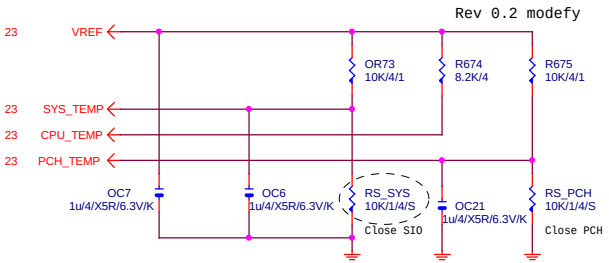
TEMP H/W MONITOR

Rev 0.2 modefy

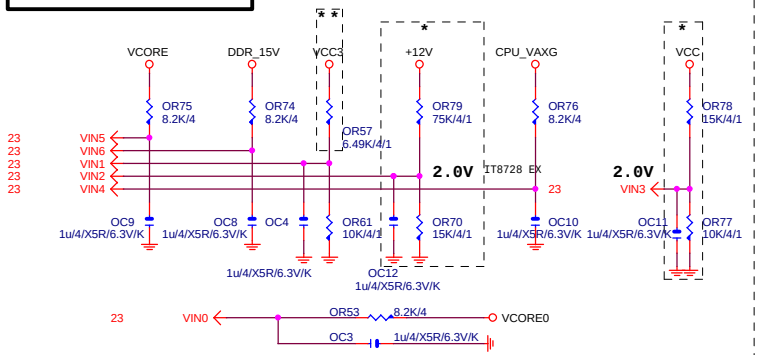


Thrmtrip#改用LM358做

VOLTAGE-- H/W MONITOR

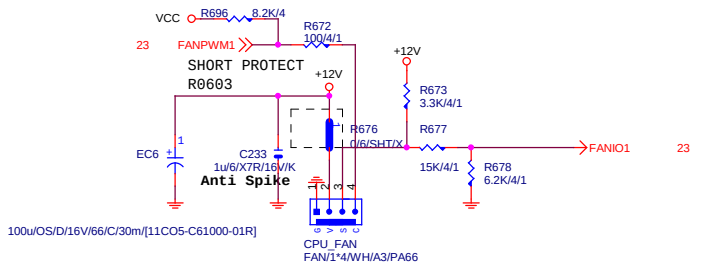
* IT8728 BX
** IT8728 CX

VIN2 must +12V input
VIN3 must VCC input



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

CPU SMART FAN

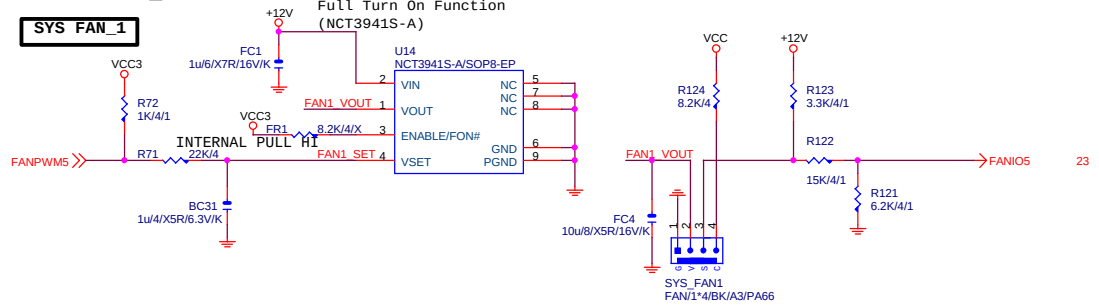


100u/OS/D/16V/66/C/30m/[11CO5-C61000-01R]

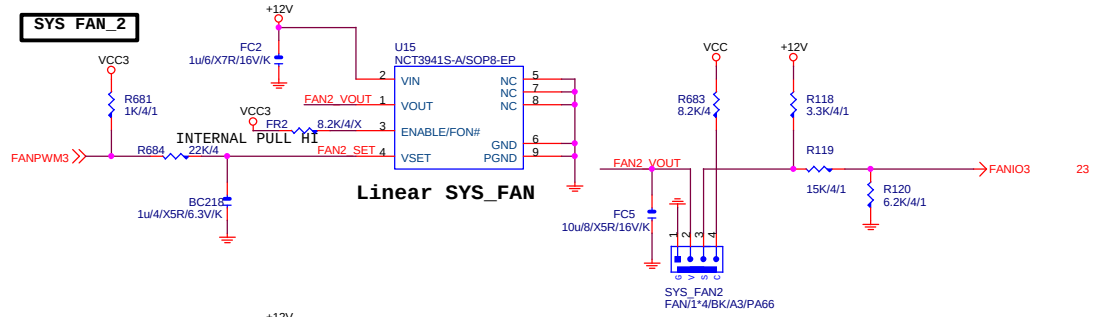
Linear SYS_FAN

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

SYS FAN_1

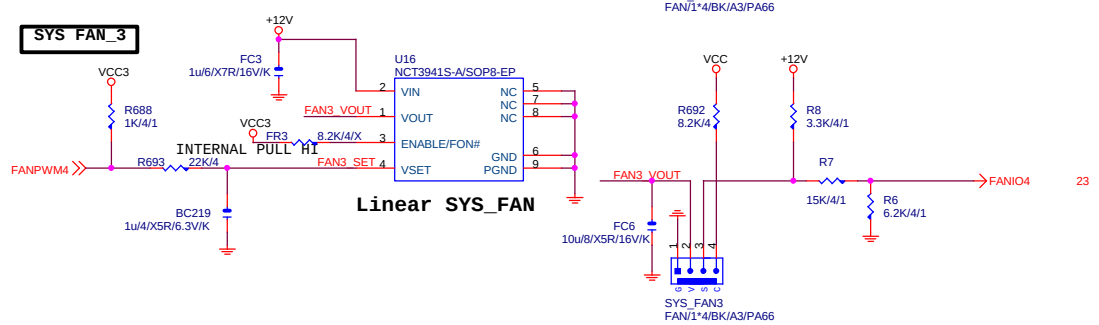


SYS FAN_2



Linear SYS_FAN

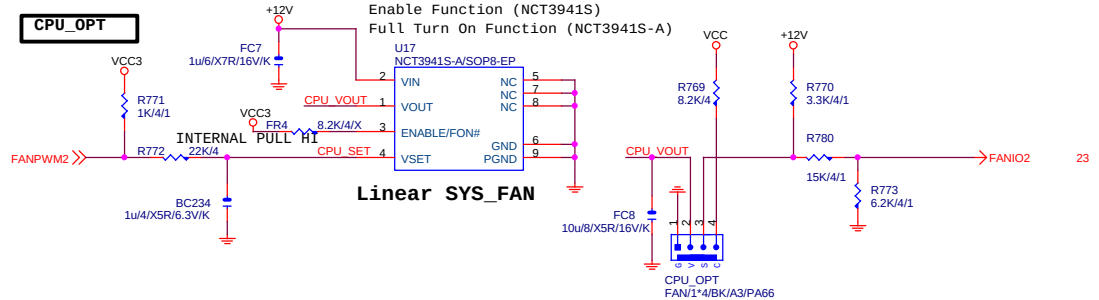
SYS FAN_3



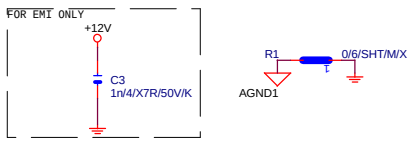
Linear SYS_FAN

CPU_OPT

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



Linear SYS_FAN



Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
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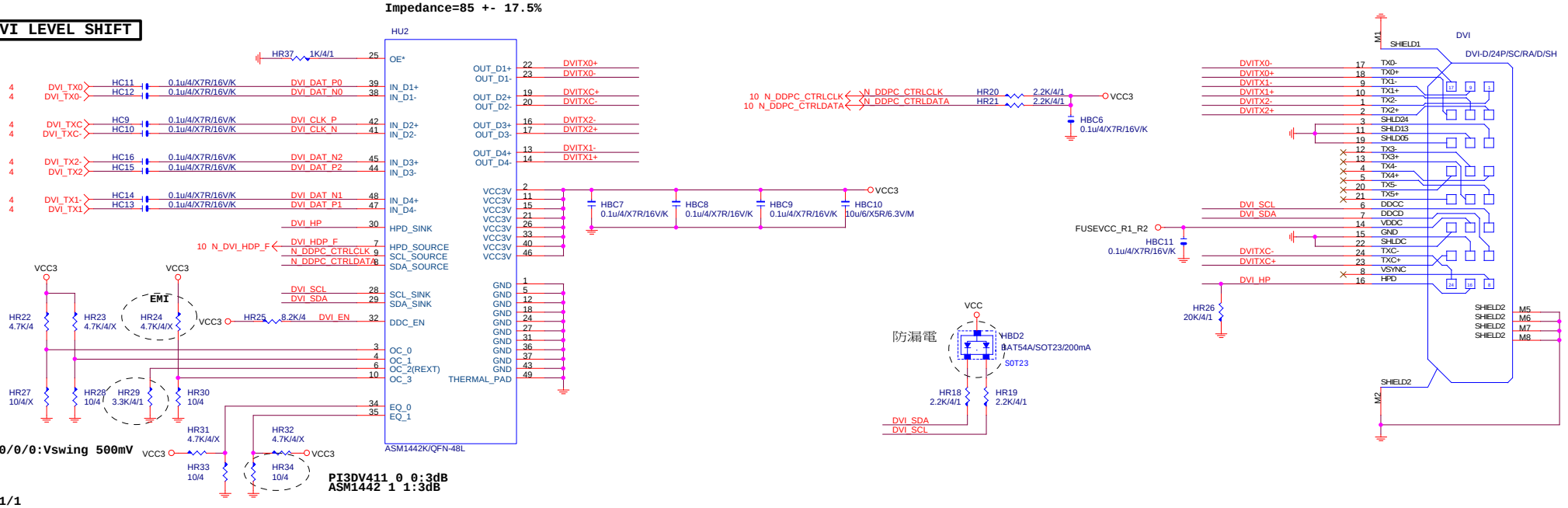
DVI LEVEL SHIFT

DVI:15/4/4/4/15
Impedance=85 +- 17.5%



PERICOM 0/0/0/0:Vswing 500mV

ASM1442
DEFAULT 0/1/1
SWING:460mV -4dB

PI3DV411 0 0:3dB
ASM1442 1 1:3dB

Gigabyte Technology			
Title: DVI			
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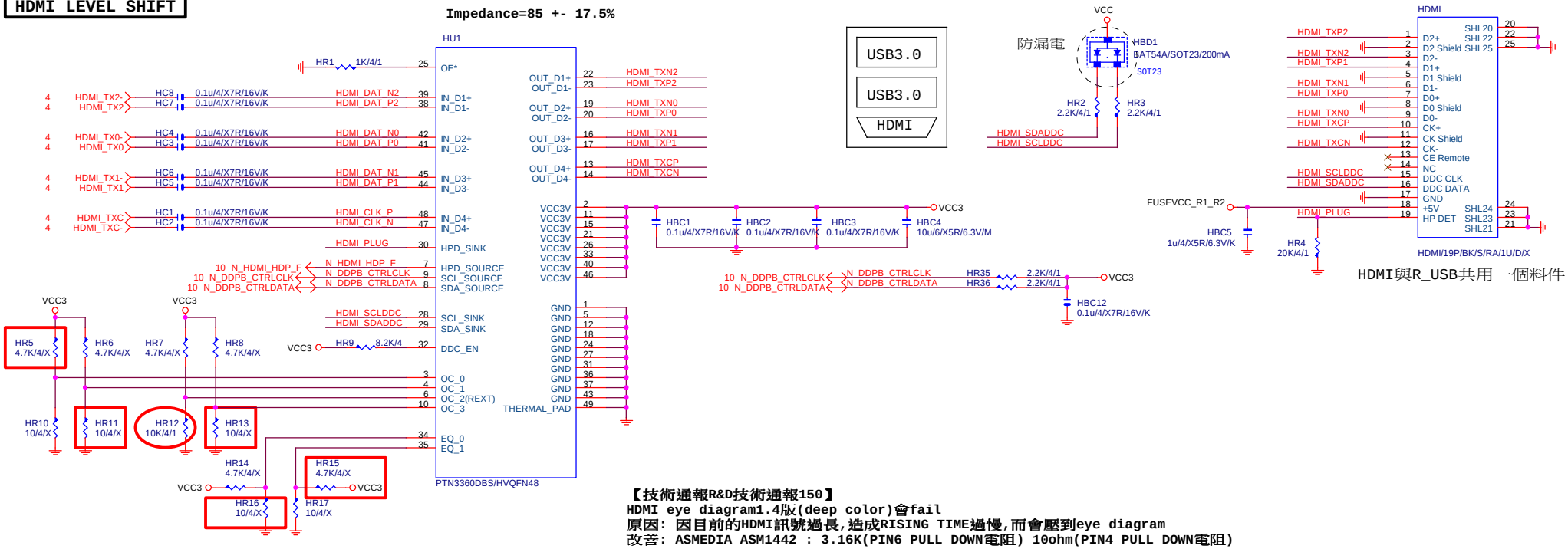
HDMI LEVEL SHIFT

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

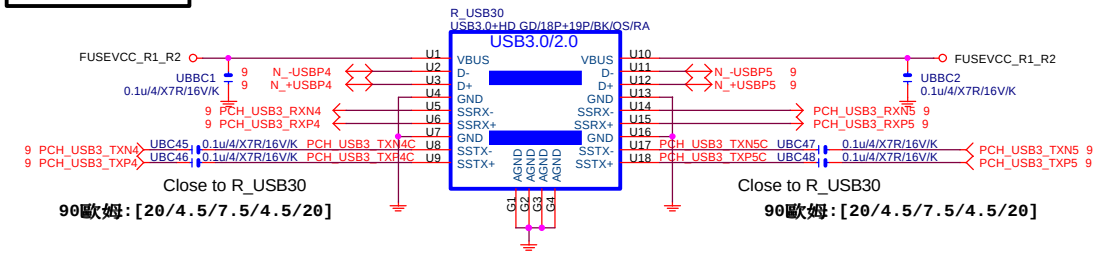


PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

【技術通報R&D技術通報150】
HDMI eye 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)

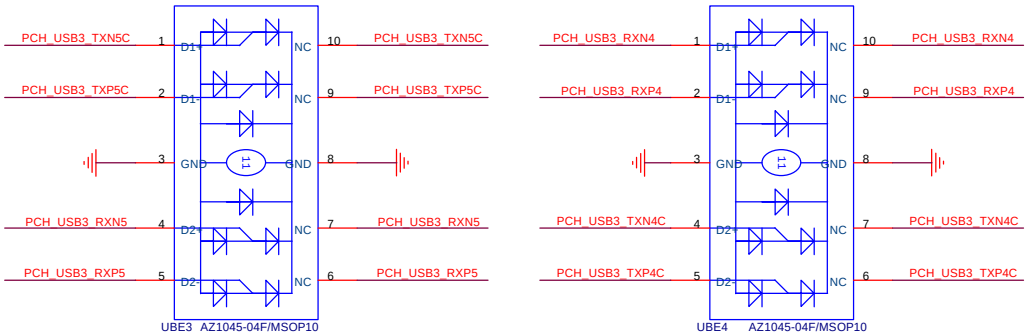
USB30_20 CONNECT

HDMI鍍金



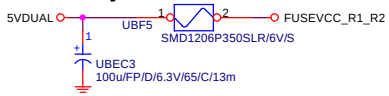
90歐姆:[20/4.5/7.5/4.5/20]
90歐姆:[20/4.5/7.5/4.5/20]

USB30 ESD PROCTECT

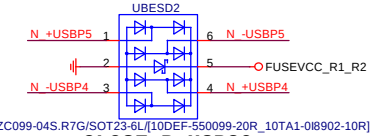


USB30 PWR

Polyswitch-1206



USB20 ESD PROCTECT



CLOSE R_USB30

USB3.0 1Port - 1Fuse (3.5A)

Gigabyte Technology		
Title: HDMI		
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LAN:AR8151/AR8161

離IC近越好

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

AR8161-->N/A (LABC6)

AR8161-->(0)

LA_ ML-->80歐姆:[15/5/5/5/15]

AR8161-->N/A (LABC12)

AR8161-->N/A (LAR9,LABC14)

AR8161-->N/A (LABC20)

AR8151:LA_AVDDH(LAR20)
AR8161:3VDUAL(LAR19)

SCH BOM OPT:(二擇一使用)
-->(LAC30):M/B有CLK GEN 25M
-->(LAX1,LAC31,LAC32):M/B無CLK GEN 25M

LAU1 Atheros AR8151/AR8161 E2201-BL3A-R/S

LAESD1 LAESD3 MASK/AOZ8902CIL/SOT23-6/X MASK

LAX1 25M/16p/30ppm/49US/20/D

LAC31 20p/4/NPO/50V/J LAC32 20p/4/NPO/50V/J

LAN POWER

NEW DESIGN ONLY FOR INTERNAL SWR
AR8151:LAR3(0),LAR5(X)
AR8161:LAR5(0),LAR3/LAR4(X)

LAL1 4.7uH/0.8A/3225/S

CLOSE
LA_LX 200mil

AR8161-->N/A (LAR3,LAR4)

AR8151 POWER

AR8161 POWER

AR8161-->(0) AR8161-->BEAD AR8151-->N/A AR8161-->BEAD AR8151-->0/6

AR8161-->(0)

AR8161-->(0)

Power domain chart

	AR8151	AR8161
AVDD33	N/A	3.3V
VDD33	3.3V	3.3V
AVDDH	2.7V	2.7V
AVDDL/DVDDL	1.1V	1.1V
VDDCT	1.7V	

MDI : AR8161-->N/A

MASK CLOSE LAN CHIP

USB_LAN CONNECTOR

RMA ESD PROTECT

UBESD1 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB X3 POWER

SMD1206P350SLR/6V/S

Close to connector

EMI SHORT PAD

PS:視EMI需求

LAR24 0/6/SHT/M/X

LAESD2 MASK/AOZ8902CIL/SOT23-6/X MASK

LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN USB3.0 USB3.0 USB3+RJ45/[11NR6-702009-K1R]

LAE1 AZ1045-04F/MSOP10

LAE2 AZ1045-04F/MSOP10

注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

Gigabyte Technology

Title: ARTHEROS AR8151/AR8161

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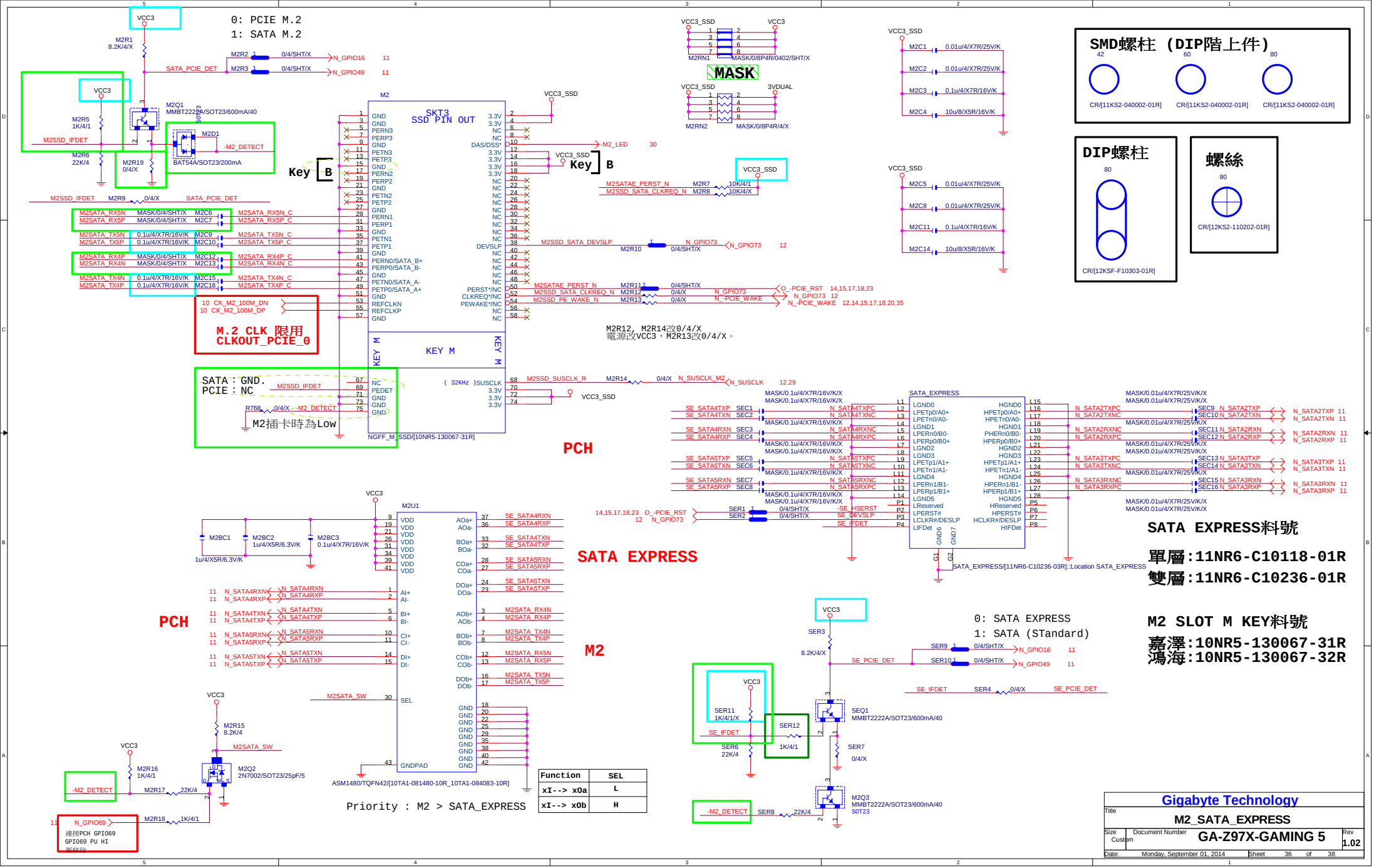


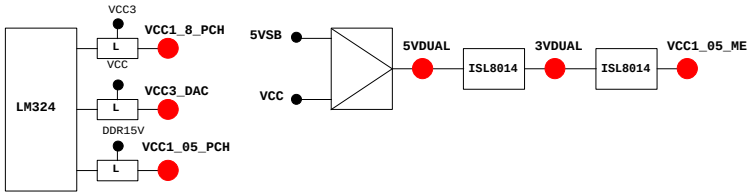
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	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	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	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	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	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	GPIO39	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	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	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	GPIO63	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

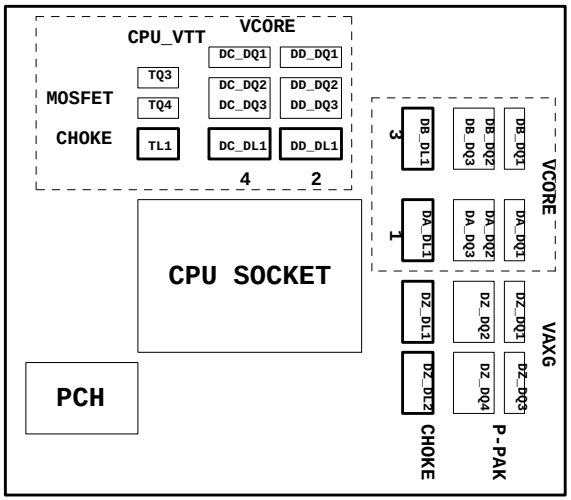
Super I/O ITE8720 GPIO Table

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#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	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	
3VSBSW#/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/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 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/CIRRX2/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/BUSSO0	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

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Title: TABLE LIST

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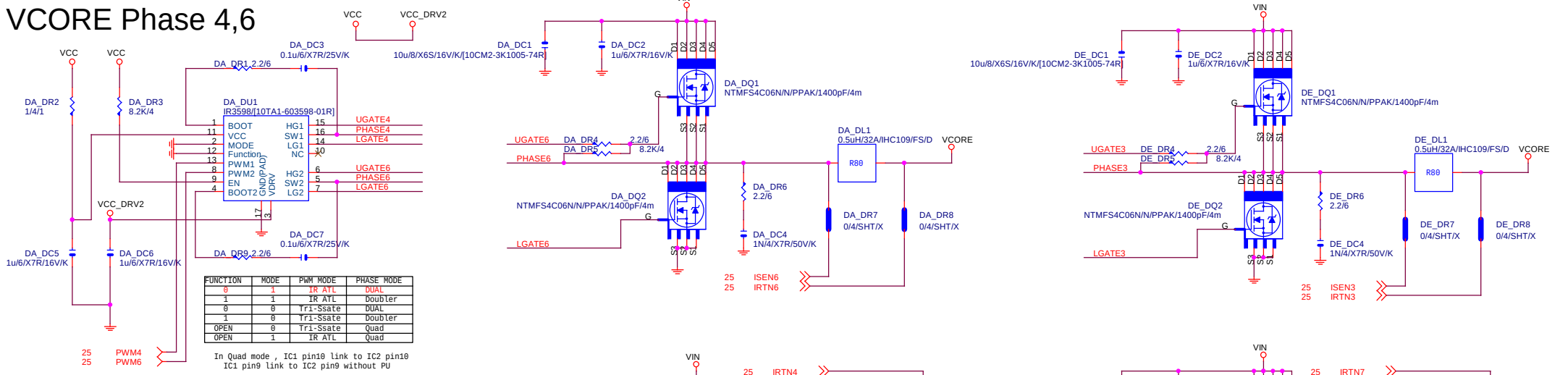
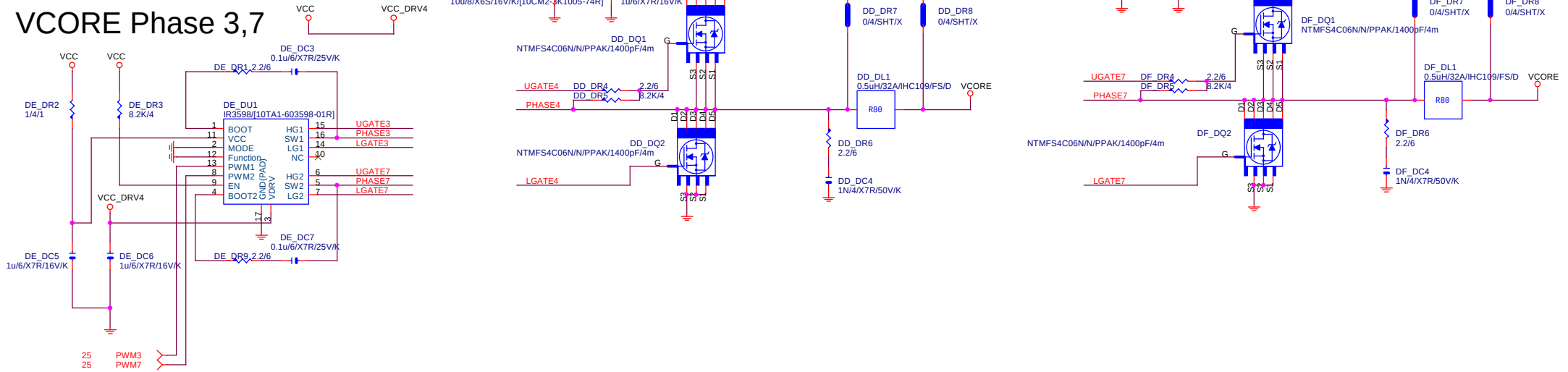
VCORE Phase 4,6

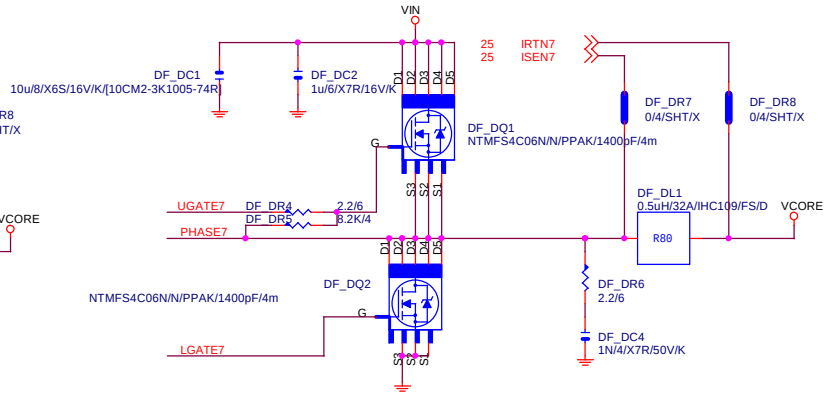


FUNCTION	MODE	PWM MODE	PHASE MODE
0	1	IR ATL	DUAL
1	1	IR ATL	Doubler
0	0	Tri-Ssate	DUAL
1	0	Tri-Ssate	Doubler
OPEN	0	Tri-Ssate	Quad
OPEN	1	IR ATL	Quad

In Quad mode , IC1 pin10 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PU

VCORE Phase 3,7





Gigabyte Technology			
Title: CPU CORE_IR3563B			
Size: Custom	Document Number: GA-Z97X-GAMING 5		Rev: 1.02
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