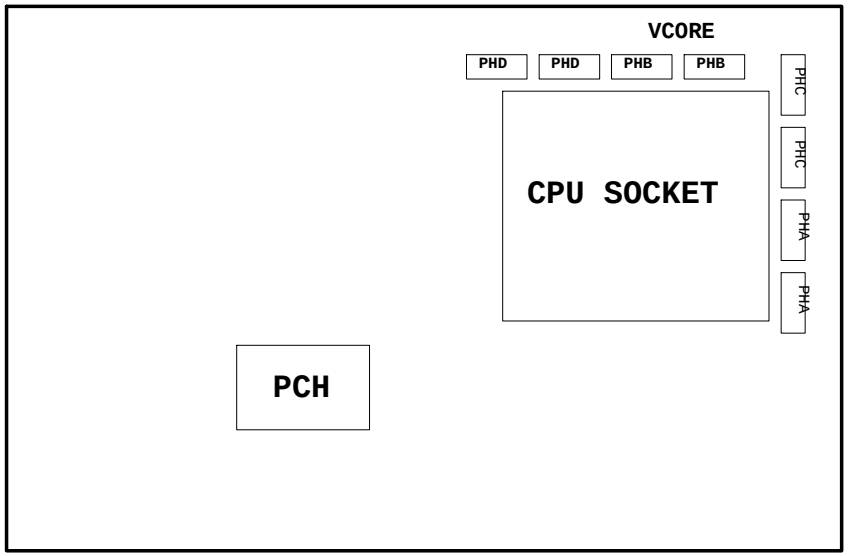
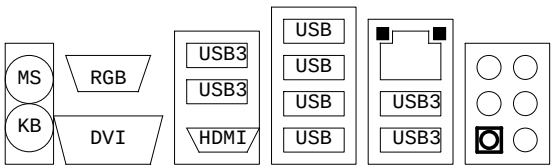
Model Name: GA-Z97X-UD3H-BK

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	ISL95820
26	ISL95820 VCORE Phase 8
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	INTEL LAN I2I7
36	M.2_SATA_EXPRESS
37	TABLE LIST
39	
40	





Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

Date: Thursday, July 10, 2014 | Sheet 1 of 37

GA-Z97X-UD3H-BK

Component value change history

Data	Change Item	Reason
2014/2/26 10A	PCB ：興英 精誠 ,(全成信沒承認) 1.LBC2 100P/4 / GBC28 22P/4 REMOVE FOR Glitch 2. VCORE / Non-Vcore 指定用 VISHAY 3. VGA指定用 : VGA/BK/SC/RA/D/2/HR/[11NR6-103015-12R]	
2014/3/14 10B	1. AUDIO change to "11NR6-403025-A1R" 2. R_USB change to "11NR6-304016-09R/11NR6-304016-12R"	
2014/3/21 Z97X-UD3H-BK 10A	1. PCH_HS : 12SP2-S05574-11R 2. MOS_HS1 : 12SP2-S07924-41R ; MOS_HS2 : 12SP2-S07924-51R	
10B-0411	1. UPDATE Z97 料號:10HB1-030Z97-20R	
10C-0424	1. SATA EXPRESS CAP : SEC1~SEC8 CHANGE 0.1u/4/X7R/16V/K	
10D-0509	1. MA_DQ1~MA_DQ3 --> NTMFS4C10NT1G/PPAK/970pF/7.3m/[10IF9-070410-00R]	
11A-0606	1. AUDIO LED 模組線路 MASK --> Non-MASK	
11C-0707	1. SATA/SATA EXPRESS /M2 AC couple cap change to short pad	

Circuit or PCB layout change

DATE	Change Item	Reason
PCB:1.1	1. AUDIO LED 模組線路 MASK --> Non-MASK	
PCB:1.11	1. SATA/SATA EXPRESS /M2 AC couple cap change to short pad	

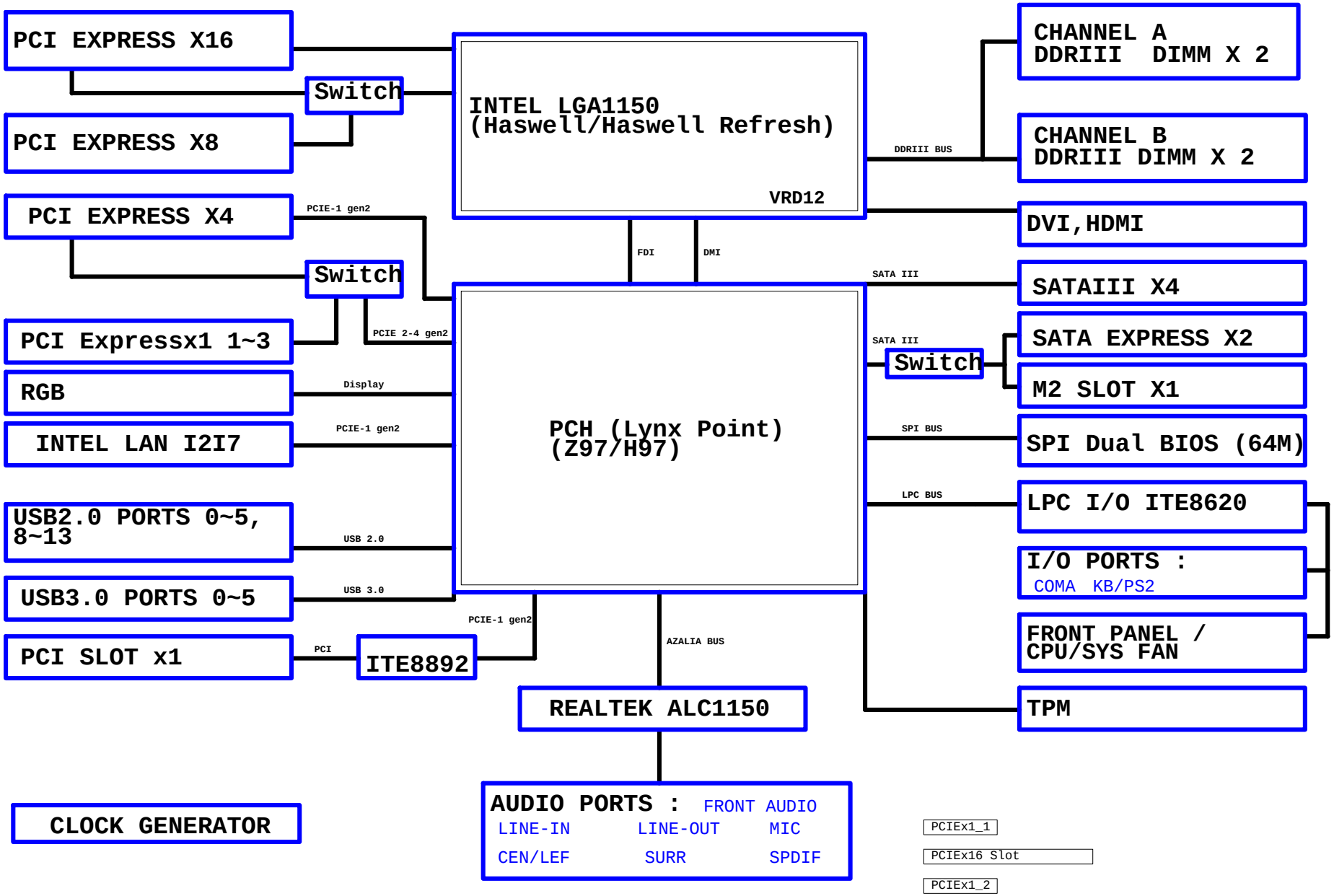
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

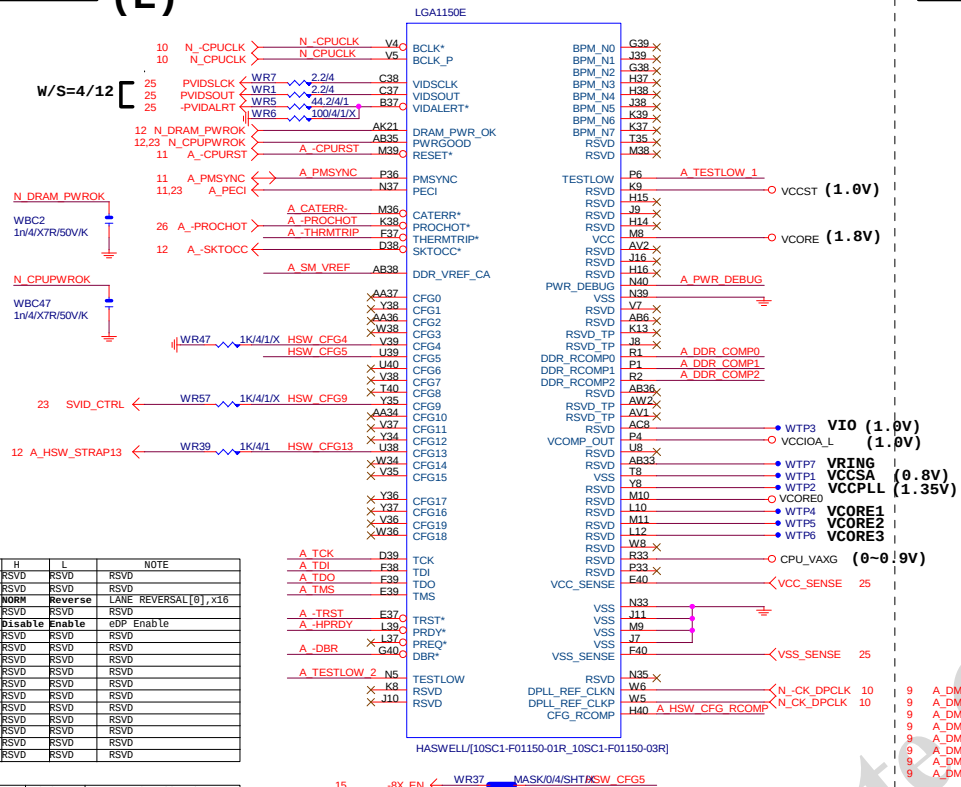
Date: Thursday, July 10, 2014 | Sheet 2 of 37

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 3 of 37	

LGA1150 (E)



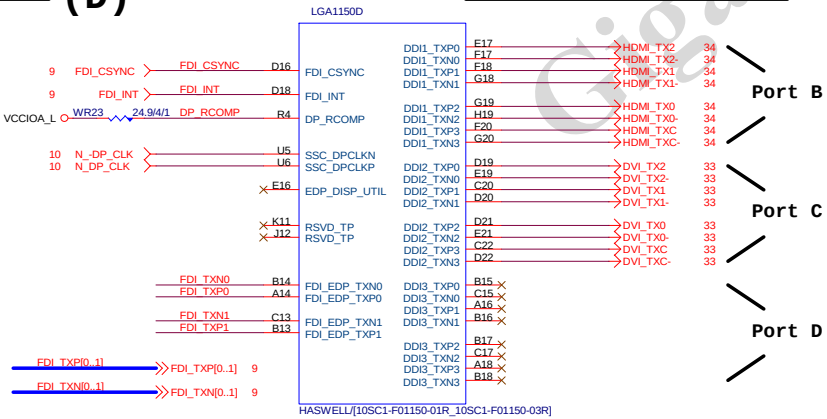
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

LGA1150 (D)

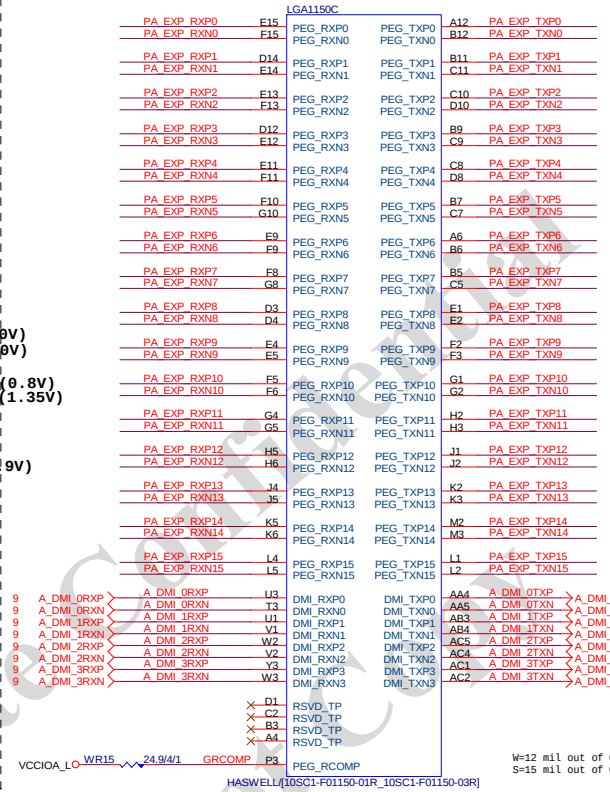
HDMI需接Port B for WHQL



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%

LGA1155 (C)



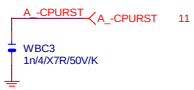
W=12 mil out of CPU
S=15 mil out of CPU

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

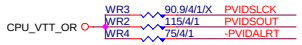
DMI 4/4/4//15 Impedance=85 +- 15%

-CPURST

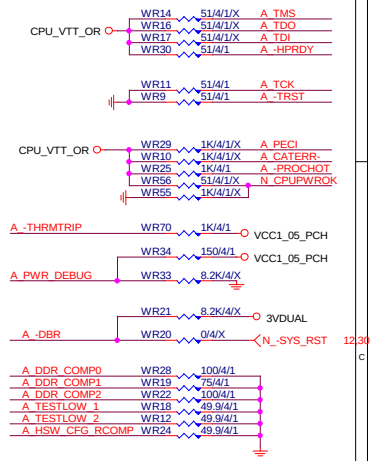
1.1V分壓

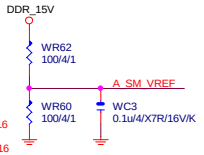


CPU SVID

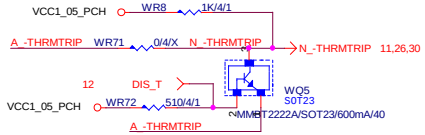


CPU PU/PD





THRMTRIP DISABLE FOR Z87 OVERCLOCK



Gigabyte Technology		
Title: CPU LGA1150-A		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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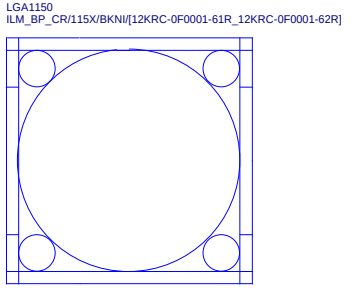
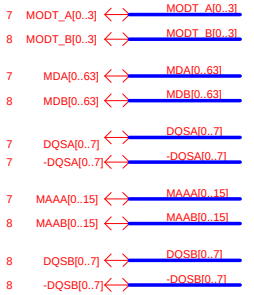
LGA1150 (A)

LGA1150 (B)

LGA1150 (CR)

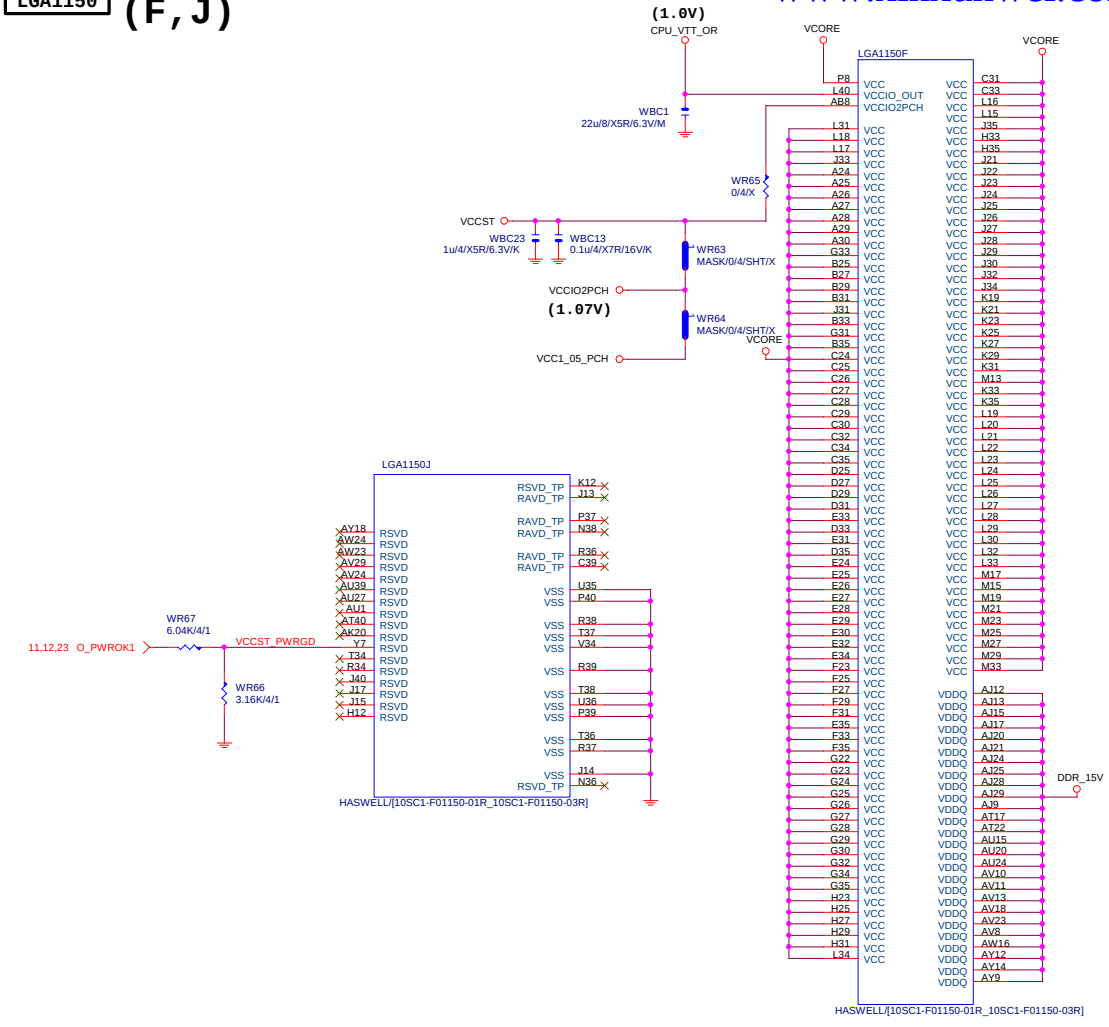


DDR BUS

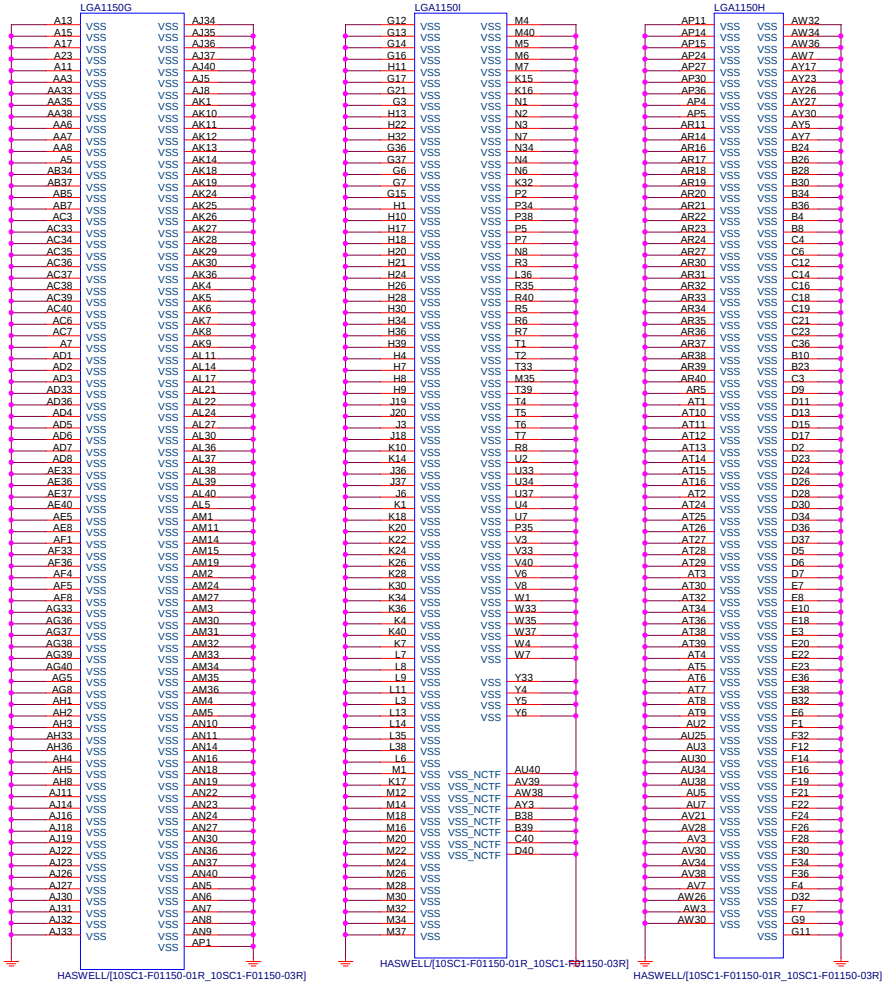


Gigabyte Technology			
Title: CPU LGA1150-B			
Size: Custom	Document Number: GA-Z97X-UD3H-BK		Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 5 of 37		

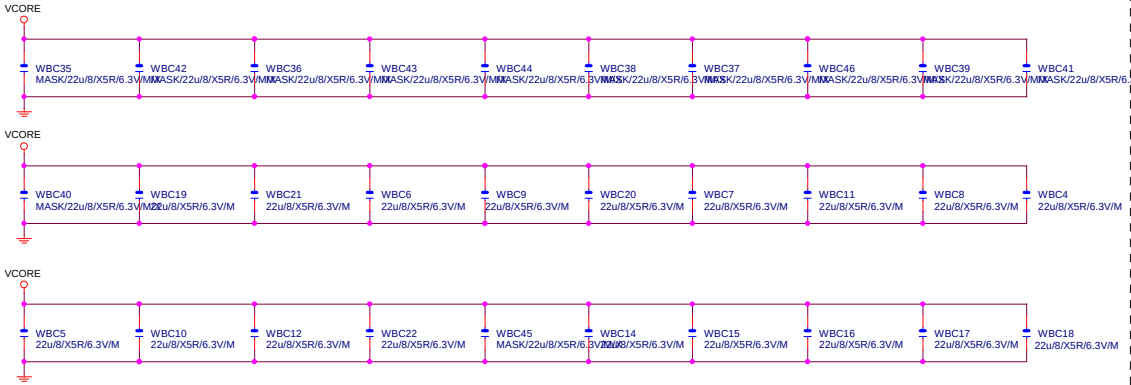
LGA1150 (F,J)



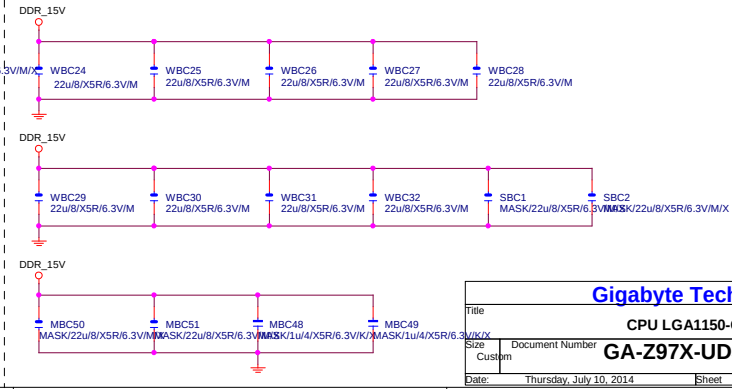
LGA1150 (G,H,I)



VCore CAP (X30)



DDR CAP (X15)



Gigabyte Technology		
Title	CPU LGA1150-C	
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 6 of 37	

DDR3 (A)

DDR3_4

DDRVTT

MODT_A[0..3] 5
-DQSA[0..7] 5
DQSA[0..7] 5

-DDR3_RST
MC6 100p/4/NPO/50V/J
N_SMBDATA
N_SMBCLK
MC10 100p/4/NPO/50V/J/X
MC11 100p/4/NPO/50V/J/X

VDDSPD SHORT PROTECT
R0603
VCC3
MF1 SPR-P200T/6V/8/S
VDDSPD

DDR_15V
MC4 0.1u/4/X7R/16V/K
MC5 0.1u/4/X7R/16V/K VREF_DDRA
MC1 0.1u/4/X7R/16V/K VREF_DQDDRA

8,12,14,15,17,18,20,25,28 N_SMBCLK
8,12,14,15,17,18,20,25,28 N_SMBDATA

5 SBAA2 SBAA1 SBAA0
5 CKEA1 CKEA0
5 -CSA1 -CSA0
5 -DCLKA1 DCLKA1
5 -DCLKA0 DCLKA0
5 MAAA[0..15]
5,8 -DDR3_RST
5 -SCASA
5 -SRASA
5 -SWEA

MDA[0..63] 5

DDR3/240/BK/VA/D

DDR3

DDR3_2

MODT_A3
MODT_A2

DDR3/240/GR/VA/D

DDR3 VREF

DDR_15V
MR15 1K/4/1
VREF_DDRA MR13 MASK/0/4/SHT/X M_VREFCA_A 28
MR14 1K/4/1

DDR_15V
MBC28 1u/4/X5R/6.3V/K
MR4 1K/4/1
VREF_DQDDRA MR1 10/4 VREF_DQA 5
MR5 1K/4/1
MR3 10/4/X VREF_DQA_ADJ 28

DDR TERMINATION CHANNEL A/B

DDR15V Decouple

DDR_15V
MEC1 560u/FP/D/6.3V/68/C/8m
MEC2 560u/FP/D/6.3V/68/C/8m
MEC3 560u/FP/D/6.3V/68/C/8m
MBC43 22u/8/X5R/6.3V/M
MBC44 22u/8/X5R/6.3V/M

DDRVTT Decouple

DDRVTT
MBC39 22u/8/X5R/6.3V/M
MBC40 22u/8/X5R/6.3V/M

DDR_15V
MBC5 0.1u/4/X7R/16V/K
MBC6 0.1u/4/X7R/16V/K
MBC7 0.1u/4/X7R/16V/K
MBC8 2.2u/6/X5R/6.3V/M

DDRVTT
MBC18 0.1u/4/X7R/16V/K
MBC26 0.1u/4/X7R/16V/K
MBC41 0.1u/4/X7R/16V/K

DDRVTT
MBC4 1u/4/X5R/6.3V/K
MBC10 1u/4/X5R/6.3V/K

DDR_15V
MBC9 1u/4/X5R/6.3V/K
MBC11 1u/4/X5R/6.3V/K
MBC12 1u/4/X5R/6.3V/K
MBC13 1u/4/X5R/6.3V/K
MBC14 1u/4/X5R/6.3V/K
MBC15 1u/4/X5R/6.3V/K
MBC16 1u/4/X5R/6.3V/K
MBC17 1u/4/X5R/6.3V/K
MBC19 1u/4/X5R/6.3V/K
MBC20 1u/4/X5R/6.3V/K
MBC21 1u/4/X5R/6.3V/K
MBC22 1u/4/X5R/6.3V/K
MBC23 1u/4/X5R/6.3V/K

DDR_15V
MBC24 1u/4/X5R/6.3V/K
MBC25 1u/4/X5R/6.3V/K
MBC27 1u/4/X5R/6.3V/K
MBC29 1u/4/X5R/6.3V/K
MBC30 1u/4/X5R/6.3V/K
MBC31 1u/4/X5R/6.3V/K
MBC32 1u/4/X5R/6.3V/K
MBC33 1u/4/X5R/6.3V/K
MBC34 1u/4/X5R/6.3V/K
MBC35 1u/4/X5R/6.3V/K
MBC36 1u/4/X5R/6.3V/K
MBC37 1u/4/X5R/6.3V/K
MBC47 1u/4/X5R/6.3V/K

Gigabyte Technology

Title: DDRIII CHANNEL A

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Date: | Sheet 7 of 37

DDR3 (B)

DDR3_3

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

DIMM4
DIMM2
CHA

DIMM3
DIMM1
CHB

Gigabyte Technology

Title: DDRIII CHANNEL B

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

Date: | Sheet 8 of 37

PCH (B)

USB Port 1/9—定要接出來,For Debug Port test 1001

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

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

LAN E2201

ITE8892 PCI Bridge

PCIEX4 port1

PCIEX4 port2

PCIEX4 port3
PCIEX1_1

H81:PCIE 7/8X
PCIEX4 port4
PCIEX1_2

放靠近 Device & PCI-E Slot

Z97/S/[10HB1-030Z97-20R]

B85/H81: 6/7 N\A

H81:12/13 N\A

Port要對應

H81:USB3.0 N\A

Port1 & 9為Debug Port，
一定要拉到Connector。

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

Mount for integrated clock Generation Mode

NR92 short to GND in non graphic SKU

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

Z97/S/[10HB1-030Z97-20R]

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

PCH (J)

PCHJ

Z97/S/[10HB1-030Z97-20R]

PCH H/S

PCH_HS

PCH_HS/Z97X-UD3H-BK/[12SP2-S05574-11R]

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		

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

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PCH (E)

PCHE

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

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

DDC DIFF 4/5;+-1000

IREF 4/12;<500MILS;GND

Z97/S/[10HB1-030Z97-20R]

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

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

XTAL Trace Length < 1500 mil

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

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

M2 Clock需接Clock#0

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

Z97/S/[10HB1-030Z97-20R]

PCH CLK PD

Mount for integrated clock Generation Mode

VGA DDC

防漏電

VGA CONNECTOR

VGA/BK/SC/RA/D/2/HR/[11NR6-103015-12R]

VGA ESD

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

SSOP6_ESD

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

VGA DDC

Close to PCH

Close to VGA connector

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 10 of 37	

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_SATA1RXN
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 NR85 0/4/X A_PECI
PM_SYNCH F40
PLTRST_PROCB F41

Z97/S/[10HB1-030Z97-20R]

PCH (A)

3VDUAL_PCH
NR124 8.2K/4/X N_-P_PME
N_PCH33 N_PCH33

PCHA
PMEB AA31
CLKIN_33MHZLOOPBACK AM22
TP16 A2
TP17 A3
TP18 B2
TP19 B1
TD_IREF C3
PIRQAB AU29
PIRQBB AU27
PIRQCB AW28
PIRQDB AV27
GPIO2 AR30
GPIO3 AV29
GPIO4 AV28
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

NR30 8.2K/4 TD_IREF
N_-PIRQA AU29
N_-PIRQB AU27
N_-PIRQC AW28
N_-PIRQD AV27
N_-PIRQE AR30
N_-PIRQF AV29
N_-PIRQG AV28
N_GPIO5 AT27

Z97/S/[10HB1-030Z97-20R]

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

Default int pull up on GP51,
Default SPI boot devices

PCH CLK PD

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
N_GPIO22
12 N_-PCI_STOP
N_-PCI_STOP
N_GPIO39
NR157 1K/4/1/X
N_GPIO39:GFX MODE
N_SERIRQ
N_PCIE_4_SW
N_GPIO19
N_GPIO35
N_GPIO16
N_GPIO49
NR80 1K/4/1/X
N_GPIO49:PCIE/MSATA MUX SELECT

NRN11 8.2K/8P4R/4
NRN12 8.2K/8P4R/4
NRN13 8.2K/8P4R/4

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
INS175651360 1K/4/1/X
N_GPIO36 NR148 8.2K/4/X
NR66 1K/4/1/X
N_GPIO69:SV DETECT
N_GPIO69 NR65 8.2K/4/X
N_GPIO55 NR244 8.2K/4

NRN4 8.2K/8P4R/4
N_GPIO7
N_GPIO54
N_GPIO1
N_GPIO68
17 -PCIEX1_PR12

ME PWROK

VCC3_ME
NR186 8.2K/4
N_ME_PWROK
ND2 BAT54A/SOT23/200mA
12,27 N_-SLP_A
NR187 MASK/0/4/SHT/X
VCC1_05_ME
3VDUAL
NR188 22K/4
NQ15 S0T23 MMBT2222A/SOT23/600mA/40
NC49 0.01u/4/X7R/25V/K
NQ16 MMBT2222A/SOT23/600mA/40 S0T23
4,26,30
4,21 VCC3_ME
NR189 8.2K/4
NR190 8.2K/4/X
NC50 1u/4/X5R/6.3V/K
NR119 1K/4/1/X VCC3
3VDUAL
TLS Setting enable for SBA
NR146 1K/4/1/X N_GPIO37 NR110 1K/4/1/X

N_GPIO37 For H97/H87/B85

SATA CONNECTOR

SATA3_0_1
N_SATA1TXP NC42 MASK/0/4/SHT/X N_SATA1TXPC
N_SATA1TXN NC41 MASK/0/4/SHT/X N_SATA1TXNC
N_SATA1RXN NC40 MASK/0/4/SHT/X N_SATA1RXNC
N_SATA1RXP NC39 MASK/0/4/SHT/X N_SATA1RXPC
GND TX1+ TX1- GND RX1- RX1+ GND
GND TX0+ TX0- GND RX0- RX0+ GND
N_SATA0TXPC NC44 MASK/0/4/SHT/X N_SATA0TXP
N_SATA0TXNC NC43 MASK/0/4/SHT/X N_SATA0TXN
N_SATA0RXNC NC38 MASK/0/4/SHT/X N_SATA0RXN
N_SATA0RXPC NC37 MASK/0/4/SHT/X N_SATA0RXP
SATA/14/BK/H/OP/RA/D/2

GPIO38 Ctrl

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

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

Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

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PCH (D)

PCHD

VCC3 NR54 8.2K/4/X N_GPIO23 AK26
23,29 N_LAD0 N_LAD0 AN24
23,29 N_LAD1 N_LAD1 AP26
23,29 N_LAD2 N_LAD2 AJ24
23,29 N_LAD3 N_LAD3 AN26
23 N_-LDRQ0 N_-LDRQ0 AK22
23,29 N_-LFRAME N_-LFRAME AP24

21 C_ACZ_BITCLK NR45 33/4 AV23
21 C_-ACZ_RST NR43 33/4 AU24
AT26
AV22
21 C_ACZ_SDIN2 AT22
AW23
21 C_ACZ_SDOUT NR44 33/4 A_SO AU22
21 C_ACZ_SYNC NR46 33/4 A_SYC AV24

29 N_ICH_SPI_MOSI N_ICH_SPI_MOSI P40
29 N_ICH_SPI_MISO N_ICH_SPI_MISO R36
29 N_-ICH_SPI_CS N_-ICH_SPI_CS R38
29 N_ICH_SPI_CLK N_ICH_SPI_CLK U39
29 N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 R35
R40
29 SPI_DQ2 SPI_DQ2 U40
29 SPI_DQ3 SPI_DQ3 U37

N_Y1 AN40
N_Y2 AN39
N_-RTCRST AR38
N_-SRTCRST AR39
N_-INTRUDER AR41
6,11,23 O_PWROK1 O_PWROK1 AT40
23,28 O_-RSMRST O_-RSMRST AM40
N_INTVRMEN AV36
N_PCH_DPWROK AV38
N_DSWVRMEN AM41

23 N_-LPCPME N_-LPCPME AG31
7,8,14,15,17,18,20,25,28 N_SMBCLK N_SMBCLK AG36
7,8,14,15,17,18,20,25,28 N_SMBDATA N_SMBDATA AG32
11 N_GPIO60 N_GPIO60 AG35
35 N_SML0CLK N_SML0CLK AE32
35 N_SML0DAT N_SML0DAT AE35
N_PCH_HOT AJ39
N_SML1CLK AK36
N_SML1DAT AK33

LDRQ1B_GP23 LAD_0 LAD_1 LAD_2 LAD_3 LDRQ0B LFRAMEB
HDA_BCLK HDA_RSTB HDA_SDI0 HDA_SDI1 HDA_SDI2 HDA_SDI3 HDA_SDO HDA_SYNC
SPI_MOSI_IO0 SPI_MISO_IO1 SPI_CS0B SPI_CLK SPI_CS1B SPI_CS2B SPI_IO2 SPI_IO3
RTCX1 RTCX2 RTESTB SRTCRSTB INTRUDERB PCH_PWROK RSMRSTB INTVRMEN DPWROK DSWODVREN
SMBALERTB_GP11 SMBCLK SMBDATA SML0ALERTB_GP60 SML0CLK SML0DATA SML1ALERTB_PCHHOTB_GP74 SML1CLK_GP58_MGPIO11 SML1DATA_GP75_MGPIO12

BMBUSYB_GP0 CLKRUNB_GP32 DOCKENB_GP33 STPPCIB_GP34
GP8 LAN_PHY_PWR_CTRL_GP12 HDA_DOCK_RSTB_GP13 GP15 GP24 GP28 SLP_WLANB_GP29 PCIECLKRQ0B_GP73 PCIECLKRQ1B_GP18 PCIECLKRQ2B_GP20_SMIB PCIECLKRQ3B_GP25 PCIECLKRQ4B_GP26 PCIECLKRQ5B_GP44 PCIECLKRQ6B_GP45 PCIECLKRQ7B_GP46
GP57 SYS_PWROK RIB WAKEB SLP_AB SLP_LANB SLP_S0B SLP_S3B SLP_S4B SLP_S5B_GP63 SUS_STATB_GP61 SUSCLK_GP62 GP72 SUSACKB SUSWARNB_SUSPWRDNACK_GP30 DRAMPWRGD GP27 ACPRESENT_GP31_MGPIO2 SLP_SUSB PWRBTNB SYS_RESETB SPKR PROCPWRGD
TP13 JTAG_TCK JTAG_TDI JTAG_TDO JTAG_TMS

G38 N_GPIO0
N32 N_GPIO32
AV26 N_GPIO33
N34 N_-PCI_STOP N_-PCI_STOP 11
AC40 N_-IGC_EN
AL40 N_LAN_DIS- N_LAN_DIS- 35
AN22 N_GPIO13
AC32 N_TEMP_ALART- N_TEMP_ALART- 23
AE34 A_-SKTOCC A_-SKTOCC 4
V41 N_GPIO28
AL39 N_GPIO29
W34 N_GPIO73 N_GPIO73 36
P39 N_GPIO18
P37 N_GPIO20
AA39 N_GPIO25
W35 N_GPIO26
AA36 N_GPIO44
W32 N_GPIO45 NR245 MASK/0/4/SHT/X DIS_T 4 23
AA40 N_GPIO46
AC36 N_GPIO57
W31 N_PCH_VRMPWRGD 23
AE36 N_-RI N_-RI 24
AK34 N_-PCIE_WAKE N_-PCIE_WAKE 14,15,17,18,20,36
AN37 N_-SLP_A N_-SLP_A 11,27
AU36 N_-SLP_LAN
AC35
AK40 N_-SLP_S3 N_-SLP_S3 23
AT35 N_-S4_S5 N_-S4_S5 23
AA35
AD37 N_-SUSTAT
W36 N_SUSCLK N_SUSCLK 29,36
AJ40 N_GPIO72
AJ37
AG41 N_-S_WARN
AE38 N_DRAM_PWROK
AU34 N_GPIO27 N_-LAN_WAKE 35
AM36 N_GPIO31
AK38 N_-DEPSLP N_-DEPSLP 28
AK41 O_PWRBTSW O_PWRBTSW 23
N36 N_-SYS_RST N_-SYS_RST 4,30
R32 N_SPKR N_SPKR 30
D40 N_CPUPWROK N_CPUPWROK 4,23
W37 N_PCH_RST
Y40 N_PCH_TCK
W39 N_PCH_TDI
Y38 N_PCH_TDO
W40 N_PCH_TMS

Z97/S/[10HB1-030Z97-20R]

DDR_15V
NR131 680/4/1
N_DRAM_PWROK N_DRAM_PWROK 4
NR132 1.47K/4/1

ACZ_SDOUT

C_ACZ_SDOUT : HI --> ME Enable
Lo --> ME Disable
HI:disable ME and override SPI Flash Access Permissions

NR140 8.2K/4 C_ACZ_SDOUT
NR64 8.2K/4
NQ14 PMBT2907A/SOT23/-600mA/50 S0T23
N_GPIO57
DS_ME DS_ME
NR70 8.2K/4
3VDUAL_PCH

PCH_DPWROK

3VDUAL_PCH
At least 10ms delay after 3VDUAL_PCH stabel
NR69 8.2K/4
N_PCH_DPWROK N_PCH_DPWROK 23,28
NC17 1n/4/X7R/50V/K

For IT8620 Ctrl

VCC3
NR254 1K/4/1
N_PCH_VRMPWRGD 23
NR255 100K/4/1
NC61 0.1u/4/X7R/16V/K

PCH PU/PD

3VDUAL
NR139 8.2K/4/X N_GPIO46
GP44:DFX test Mode A_-SKTOCC
NR103 8.2K/4/X N_GPIO44
N_GPIO57
NRN9 8.2K/8P4R/4
N_-IGC_EN:Low to over clock validation strap
NR106 1K/4/1 N_-IGC_EN NR105 1K/4/1/X
NR153 1K/4/1/X N_SUSCLK NR154 8.2K/4/X
SUSCLK: OD PLL VR Disable
N_-SUSTAT NR133 8.2K/4/X
N_GPIO13 NR51 1K/4/1
N_GPIO28 NR144 1K/4/1/X
N_GPIO29 NR96 1K/4/1
NR155 8.2K/4/X N_GPIO45 NR247 8.2K/4/X
N_TEMP_ALART- NR248 8.2K/4

close NR51
3VDUAL
NC60 1u/4/X5R/6.3V/K

3VDUAL_PCH
N_-S_WARN NR129 8.2K/4
N_GPIO27 NR60 8.2K/4
N_GPIO31 NR72 8.2K/4
N_-SLP_LAN NR73 8.2K/4/X
N_GPIO72 NR100 8.2K/4
N_-PCIE_WAKE NR76 1K/4/1
DS_ME NR81 1K/4/1

VCC3
NR145 8.2K/4/X N_GPIO20 NR109 8.2K/4
N_GPIO0 NR115 8.2K/4
N_-SYS_RST NR164 8.2K/4
N_GPIO32 NR162 8.2K/4/X
NR48 8.2K/4 N_GPIO33 NR49 8.2K/4/X

3VDUAL
NR134 8.2K/4/X N_GPIO73 NR253 8.2K/4
N_PCH_RST NR172 20K/4/1
N_PCH_TDI NR170 200/4/1
N_PCH_TDO NR141 200/4/1
N_PCH_TMS NR169 200/4/1
N_PCH_TCK NR87 200/4/1/X
N_PCH_RST NR143 1K/4/1/X
N_PCH_TDI NR171 100/4/1
N_PCH_TDO NR168 100/4/1
N_PCH_TMS NR142 100/4/1
N_PCH_TCK NR108 51/4/1
N_GPIO18 NR79 8.2K/4
N_GPIO26 NR107 8.2K/4
N_GPIO25 NR137 8.2K/4
N_-SYS_RST NC58 1n/4/X7R/50V/K
N_DRAM_PWROK NC59 1n/4/X7R/50V/K

NRN6 8.2K/8P4R/4 3VDUAL
N_-RI
N_GPIO60
N_-LPCPME
N_-PCH_HOT
N_SML1CLK NR117 1K/4/1
N_SML1DAT NR120 1K/4/1
N_SML0CLK NR122 499/4/1
N_SML0DAT NR123 499/4/1
N_SMBCLK NR121 1K/4/1
N_SMBDATA NR97 1K/4/1

HSW_STRAP13

3VDUAL_PCH
NR182 8.2K/4/X
A_HSW_STRAP13 4
NR183 8.2K/4
S0T23
NQ11 MMBT2222A/SOT23/600mA/40
NQ12 MMBT2222A/SOT23/600mA/40
S0T23
NR135 8.2K/4
N_-IGC_EN

32.768KHZ

NX2-SHT SHW/D0.64*5.08*6.74
N_Y1
N_Y2 NR75 10M/4
NX2
32.768K/12.5p/20ppm/TF38/35K/D
NC16 18P/4/NPO/50V/J
NC18 18P/4/NPO/50V/J

CLR_CMOS

BATTERY CR2032
BAT BAT-SK/BK/P/S/D/SN
N_VBATT NRB 1K/4/1
3VDUAL_PCH
ND1 BAS40-05/0.2A/SOT23
NR90 390K/4 N_DSWVRMEN
N_RTCVDD N_RTCVDD 13,30
NR67 390K/4 N_INTVRMEN
NR78 20K/4/1 N_-RTCRST
N_INTERMEN : Integrated 1.05V SUS VRM Enable
NC15 1u/4/X5R/6.3V/K
NC20 1u/4/X5R/6.3V/K
RB_TP
N_VBAT N_VBAT 23

BATTERY-DUAL-4
RB 必须放在BAT外

N_-INTRUDER NR74 1M/4 N_RTCVDD 13,30
N_-SRTCRST NR77 20K/4/1 N_RTCVDD 13,30
NC19 1u/4/X5R/6.3V/K

CLR_CMOS
N_-RTCRST
PH/1*2/BK/2.54/VA/D

Gigabyte Technology

Title: PCH GPIO , CTRL , AUDIO

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

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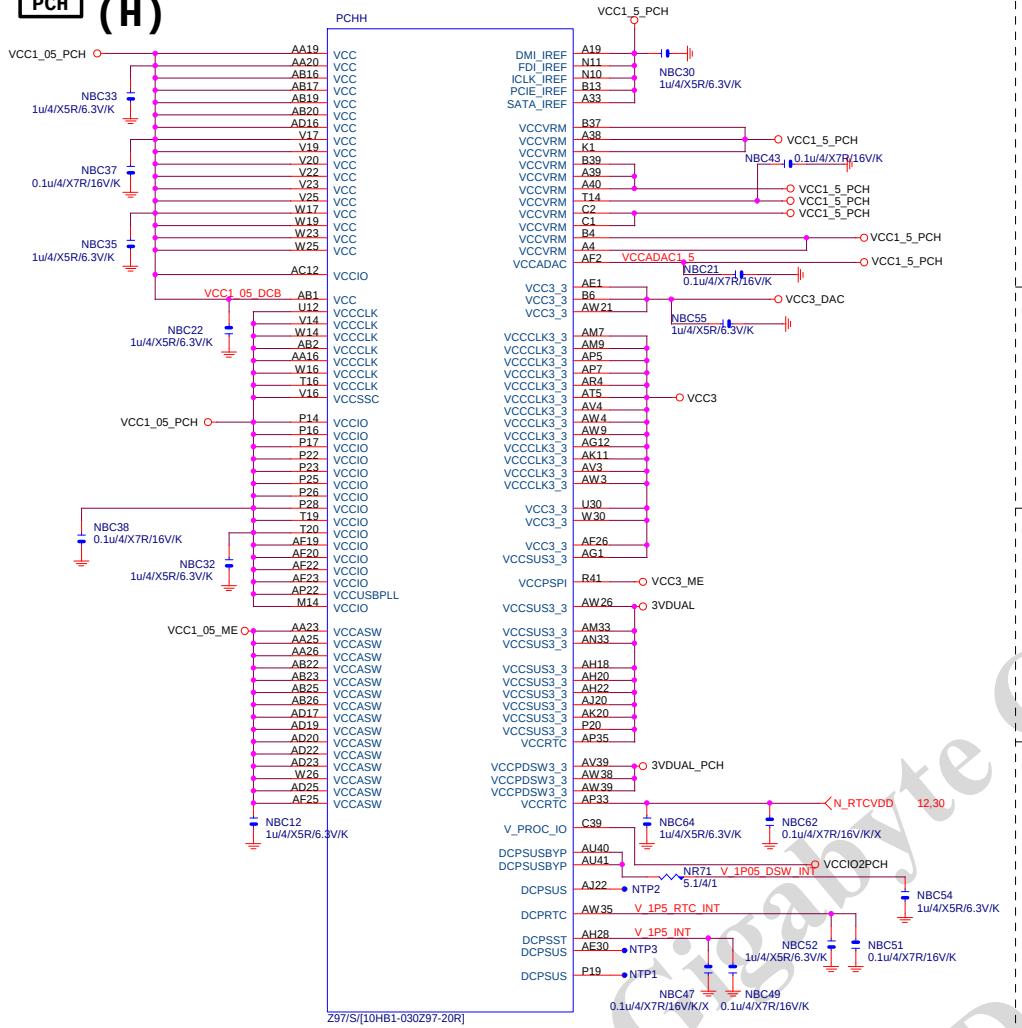
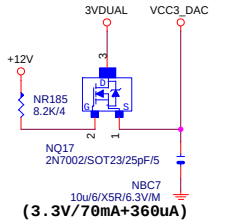
PCH (H)



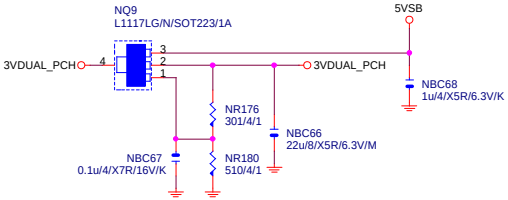
VCC3_DAC

CLOSE北橋(注意震盪水波紋)

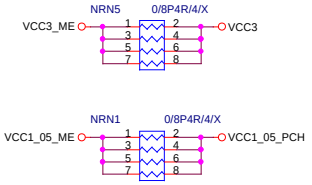


(3.3V/70mA+360uA)

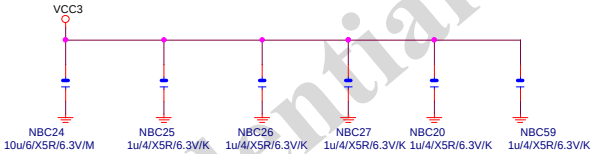
3VDUAL_PCH



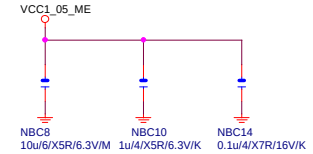
SHT PWR



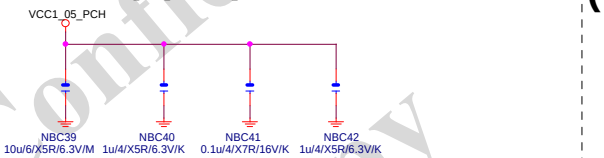
(3.3V)(X6)



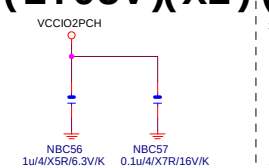
(1.05V)(X5)



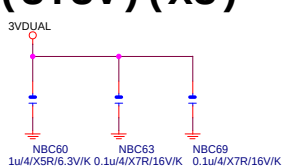
(1.05V)(X6)



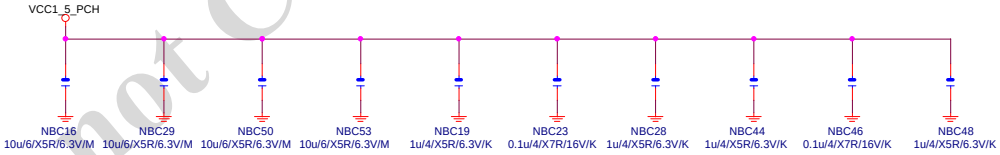
(1.05V)(X2)



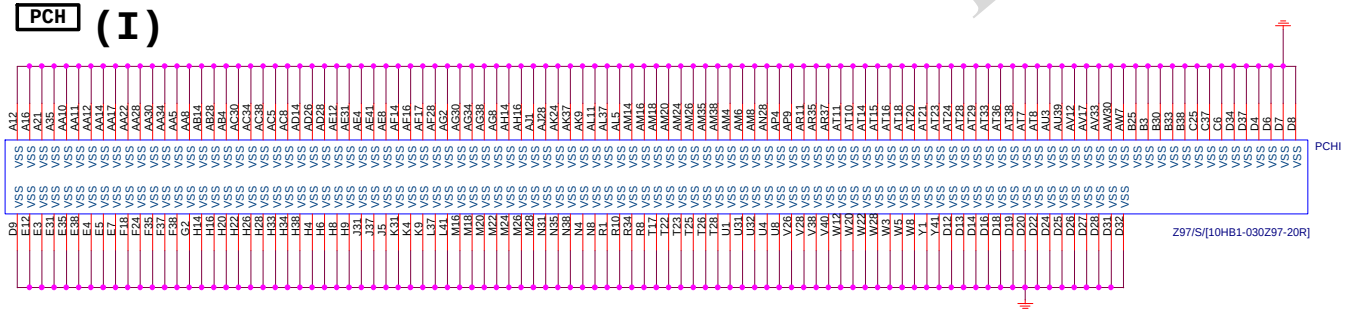
(3.3V)(X3)



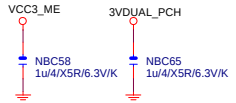
(1.5V) (X10)

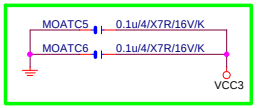


PCH (I)



CAP





Gigabyte Technology		
Title: PCH PWR ,GND		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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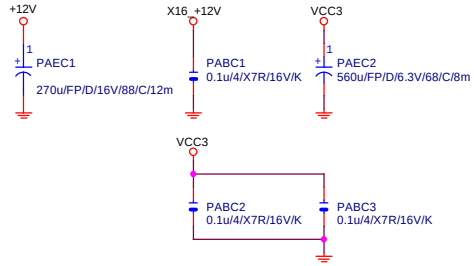
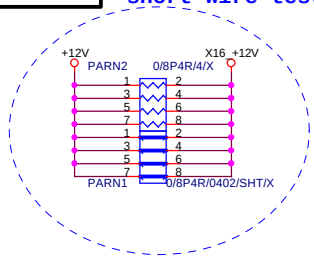
PCIEX16 CAP



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

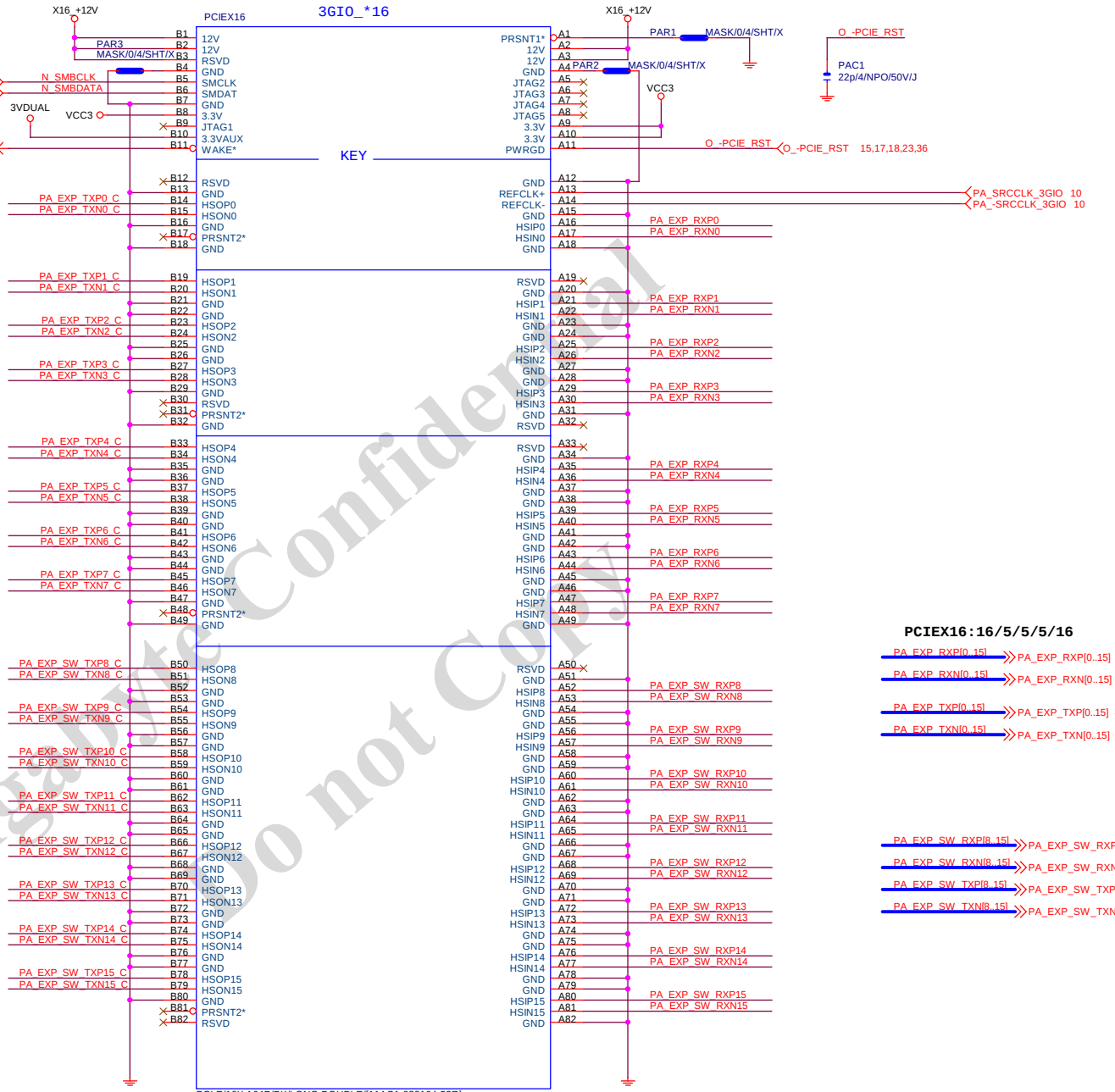
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

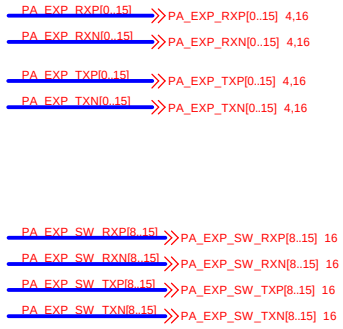
PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

PCIESLOT-164DM-Q



PCIEX16:16/5/5/5/16



Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-Z97X-UD3H-BK		Rev: 1.11
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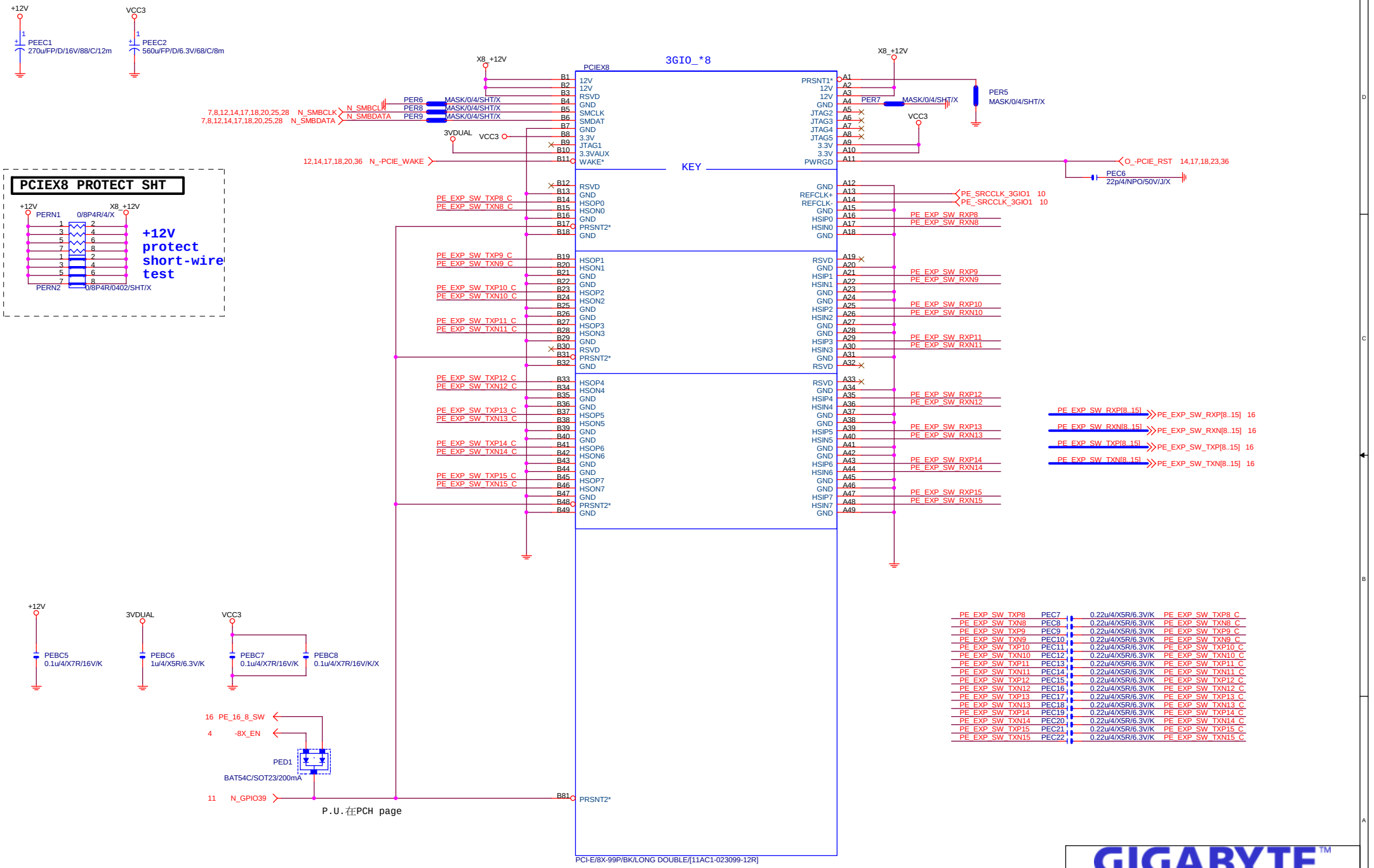

PE_EXP_SW_TXP8	PEC7	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP8_C
PE_EXP_SW_TXN8	PEC8	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN8_C
PE_EXP_SW_TXP9	PEC9	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP9_C
PE_EXP_SW_TXN9	PEC10	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN9_C
PE_EXP_SW_TXP10	PEC11	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP10_C
PE_EXP_SW_TXN10	PEC12	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN10_C
PE_EXP_SW_TXP11	PEC13	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP11_C
PE_EXP_SW_TXN11	PEC14	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN11_C
PE_EXP_SW_TXP12	PEC15	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP12_C
PE_EXP_SW_TXN12	PEC16	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN12_C
PE_EXP_SW_TXP13	PEC17	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP13_C
PE_EXP_SW_TXN13	PEC18	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN13_C
PE_EXP_SW_TXP14	PEC19	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP14_C
PE_EXP_SW_TXN14	PEC20	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN14_C
PE_EXP_SW_TXP15	PEC21	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXP15_C
PE_EXP_SW_TXN15	PEC22	0.22u/4/X5R/6.3V/K	PE_EXP_SW_TXN15_C

GIGABYTE™

Title: PCI EXPRESS X 8			
Size: Custom	Document Number: GA-Z97X-UD3H-BK		Rev: 1.11
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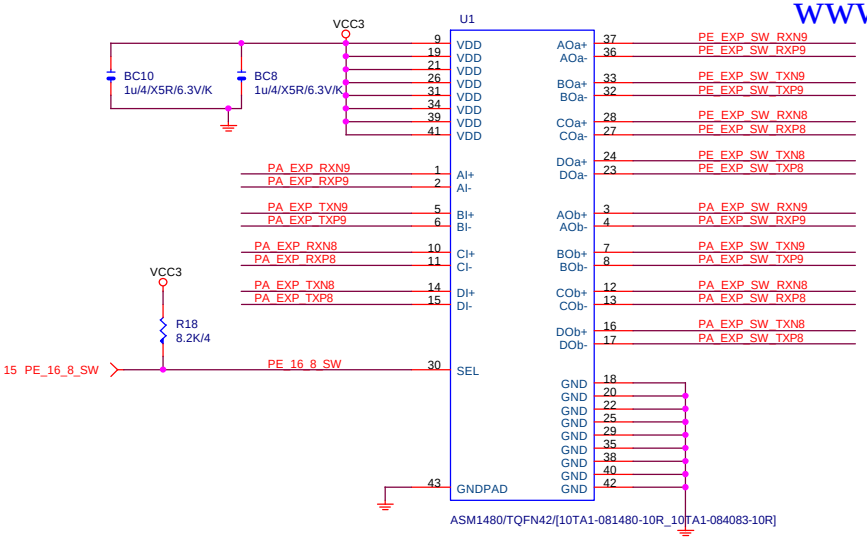
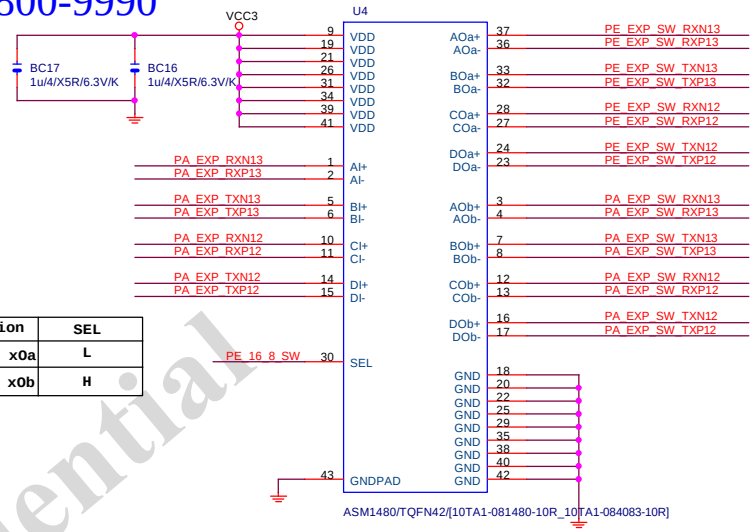
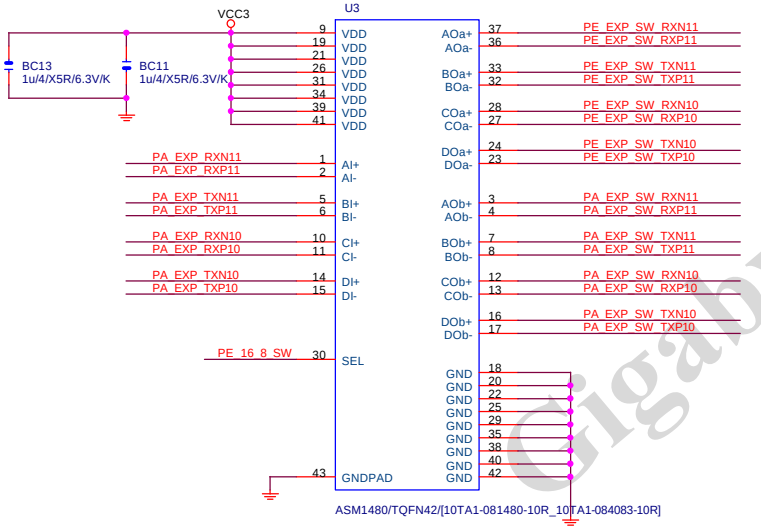
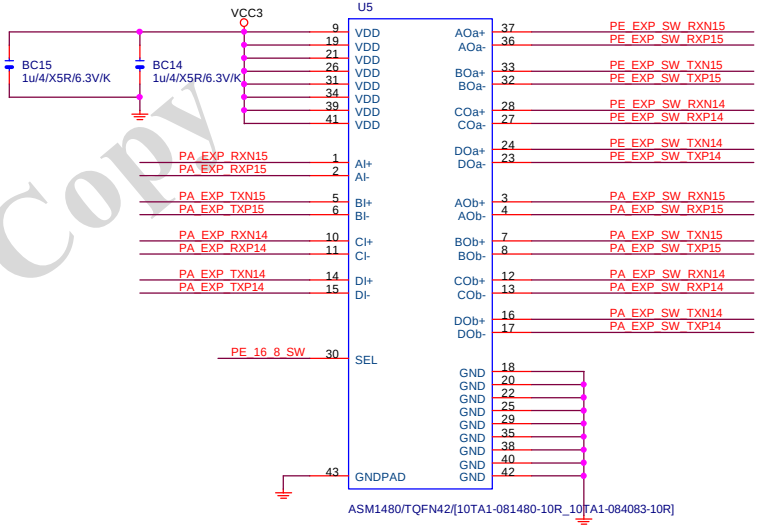




Function	SEL
xI--> xOa	L
xI--> xOb	H





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

GIGABYTE™

Title: PCI EXPRESS X16 SWITCH		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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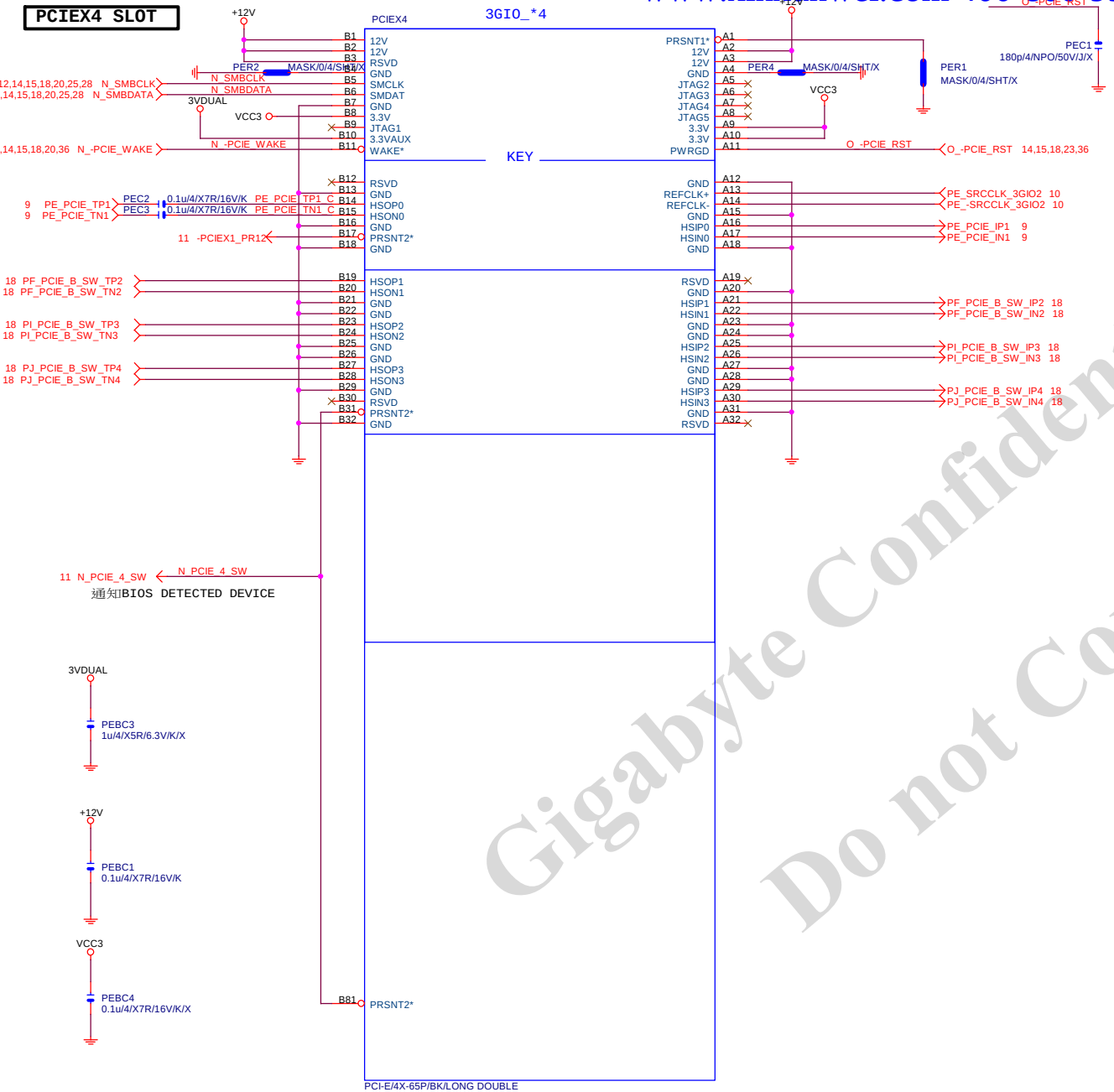

	N_PCIE_4_SW (PCH_GPIO48)	PCIEX4_X1 (SIO_GPIO27)
PCIEX1,PCIEX4 --> X1 (Default)	H	H
PCIEX4 No devices PCIEX4 -> X1	H	H
PCIEX4 Have devices PCIEX4 -> X4 PCIEX1_1/2 --> N/A	L	L

Gigabyte Technology

Title: PCIE_X1 1,2

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

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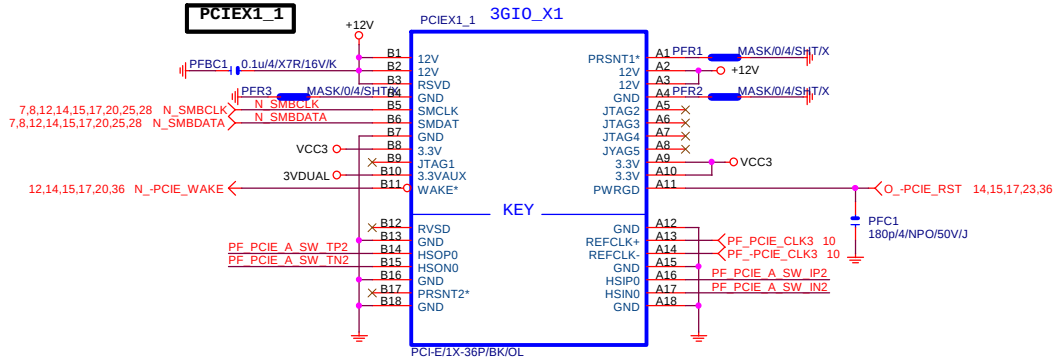
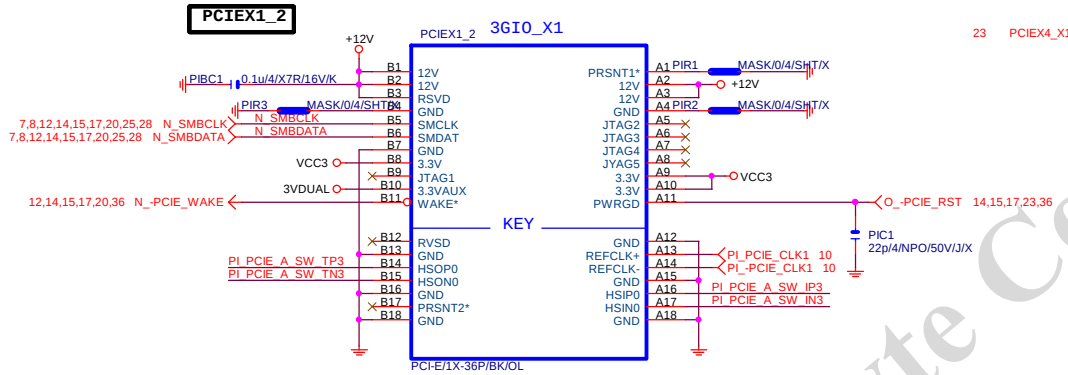
PCIEX1 SLOT

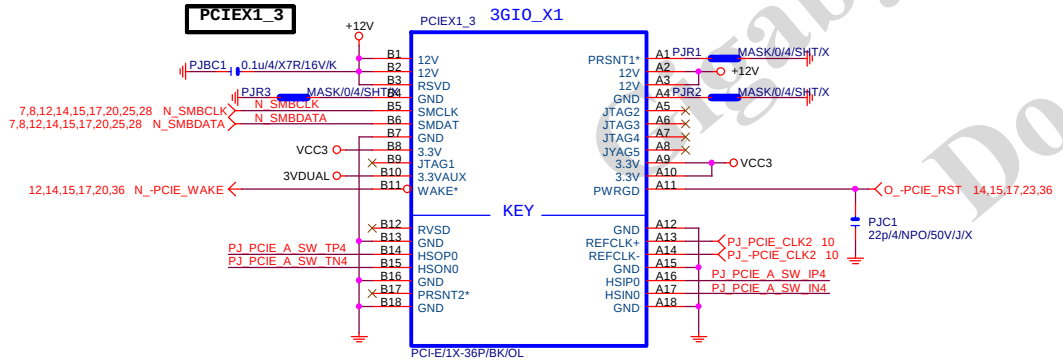
PCIEX1_1

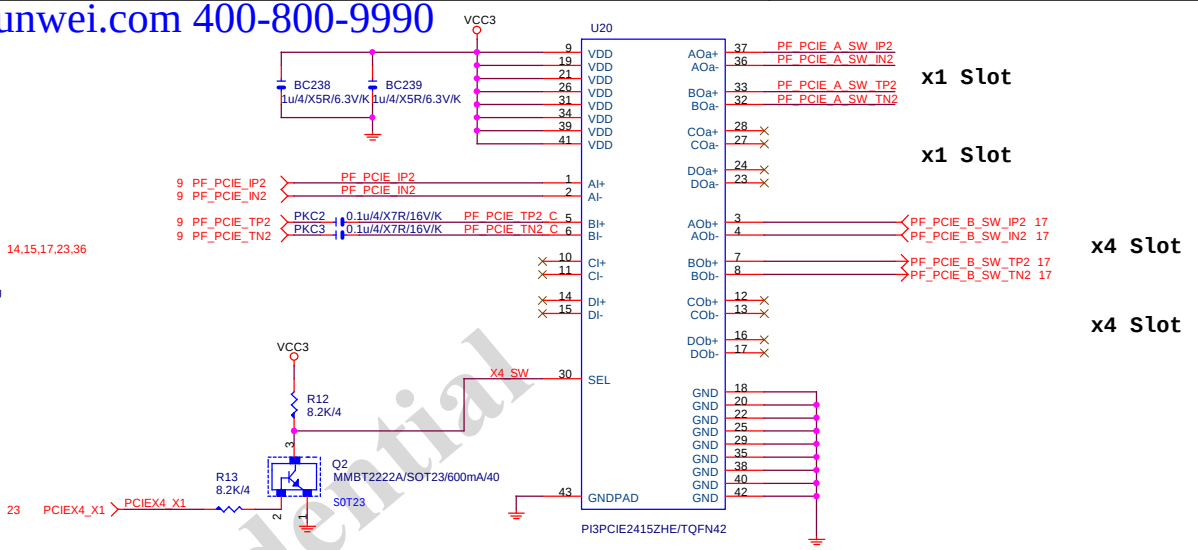


PCIEX1_2

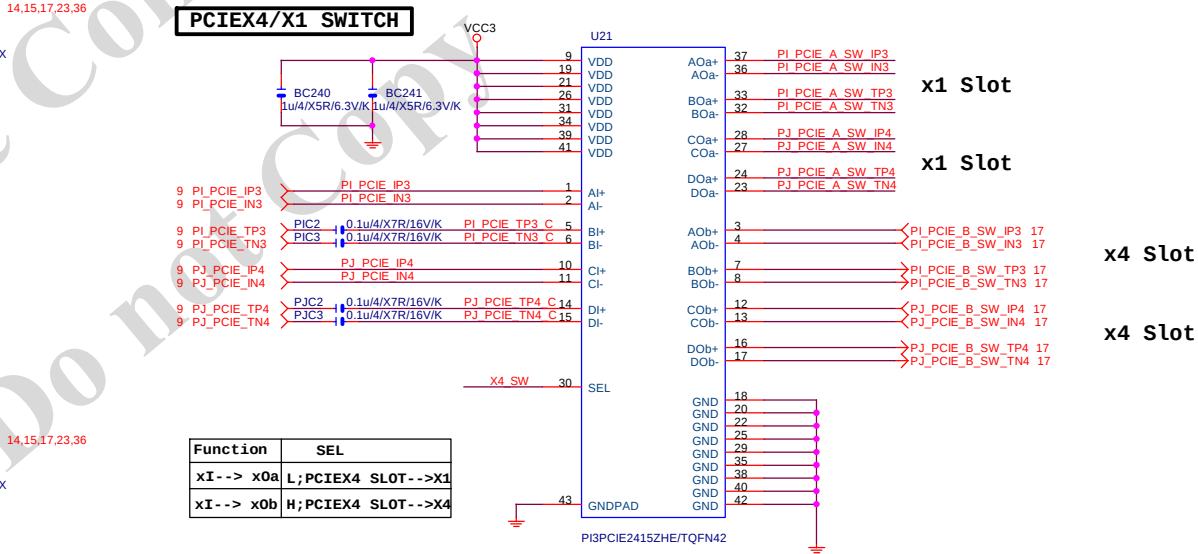


PCIEX1_3

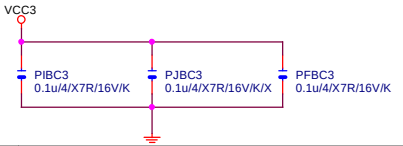




PCIEX4/X1 SWITCH



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-UD3H-BK	Rev: 1.11
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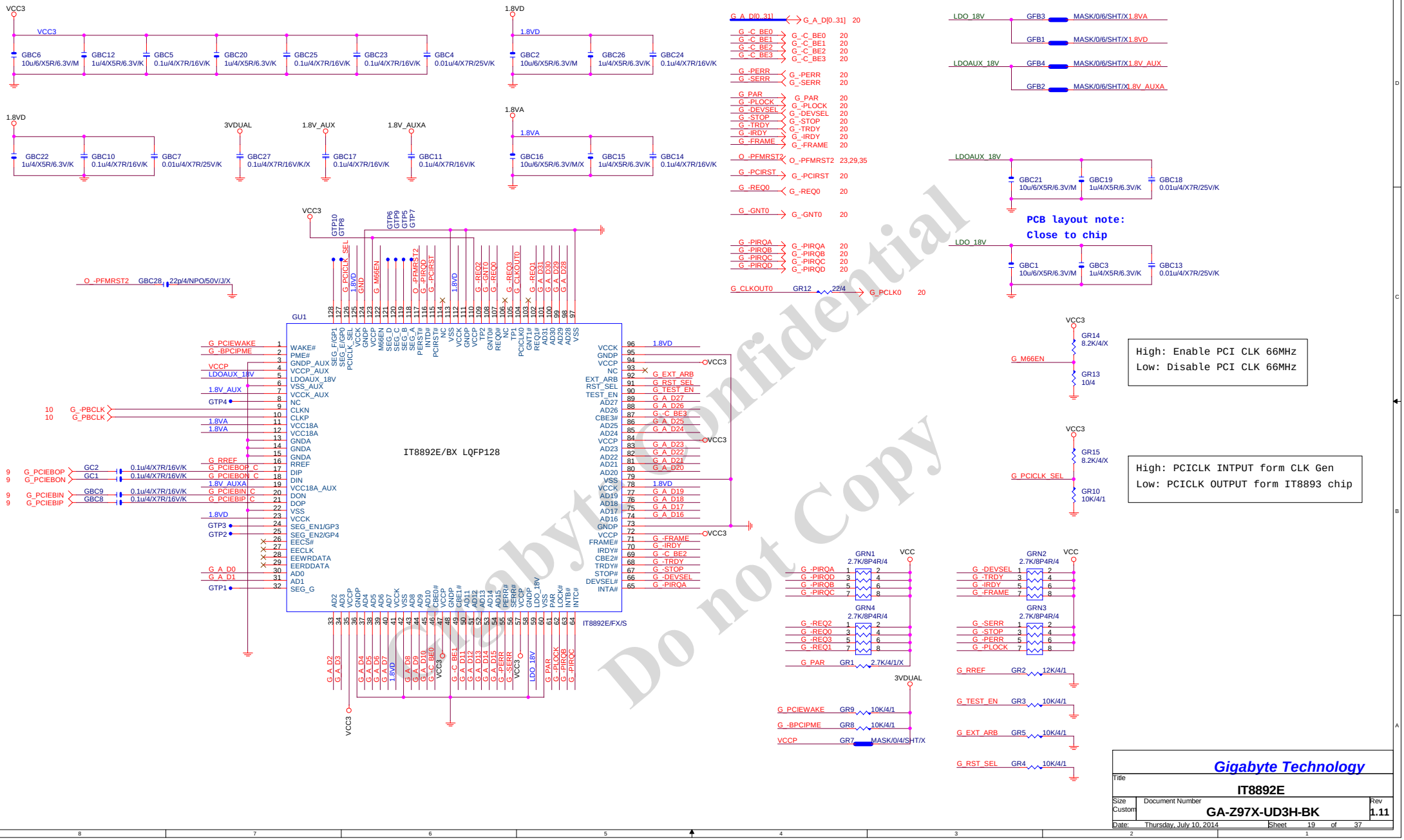

Gigabyte Technology		
Title: IT8892E		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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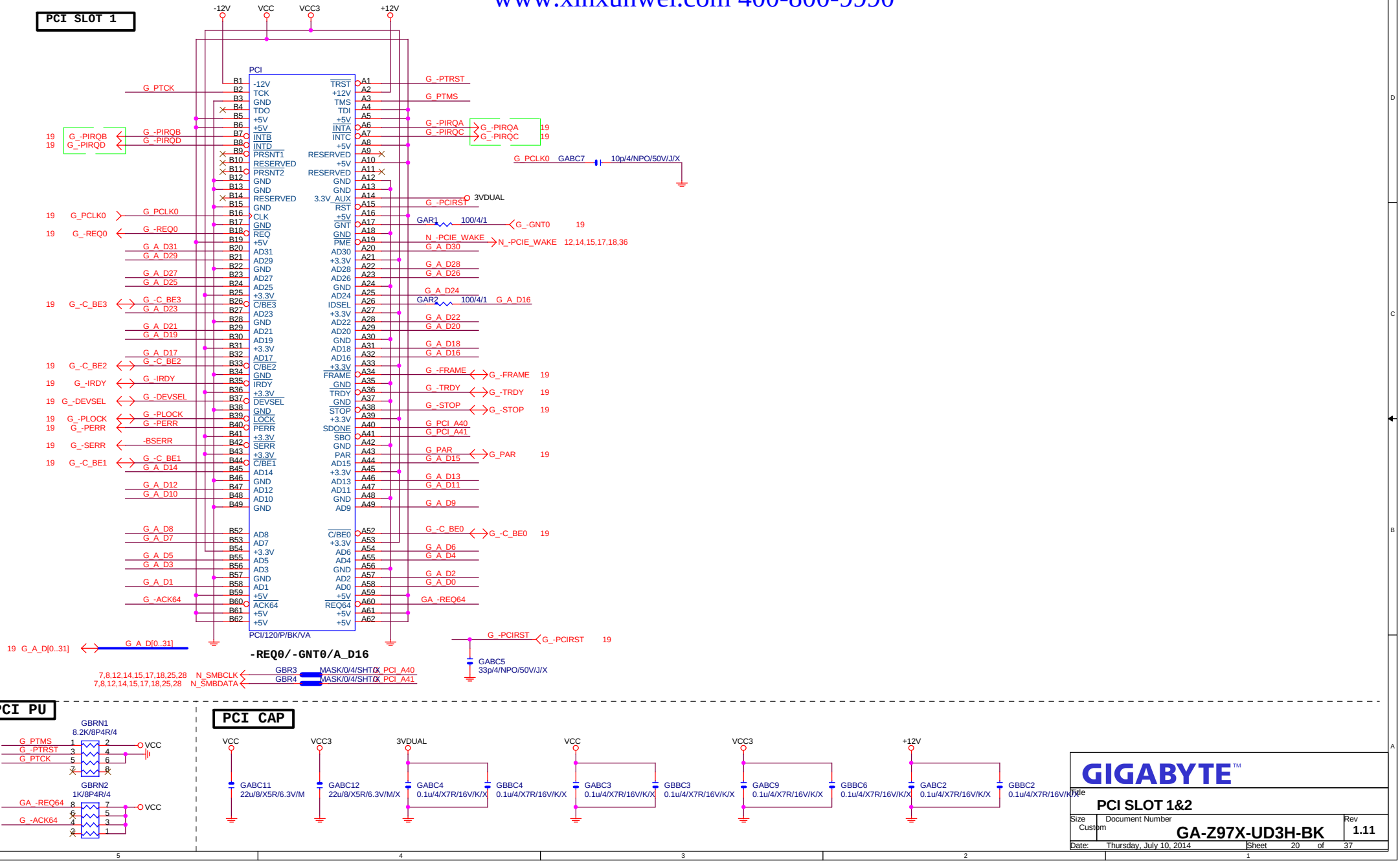
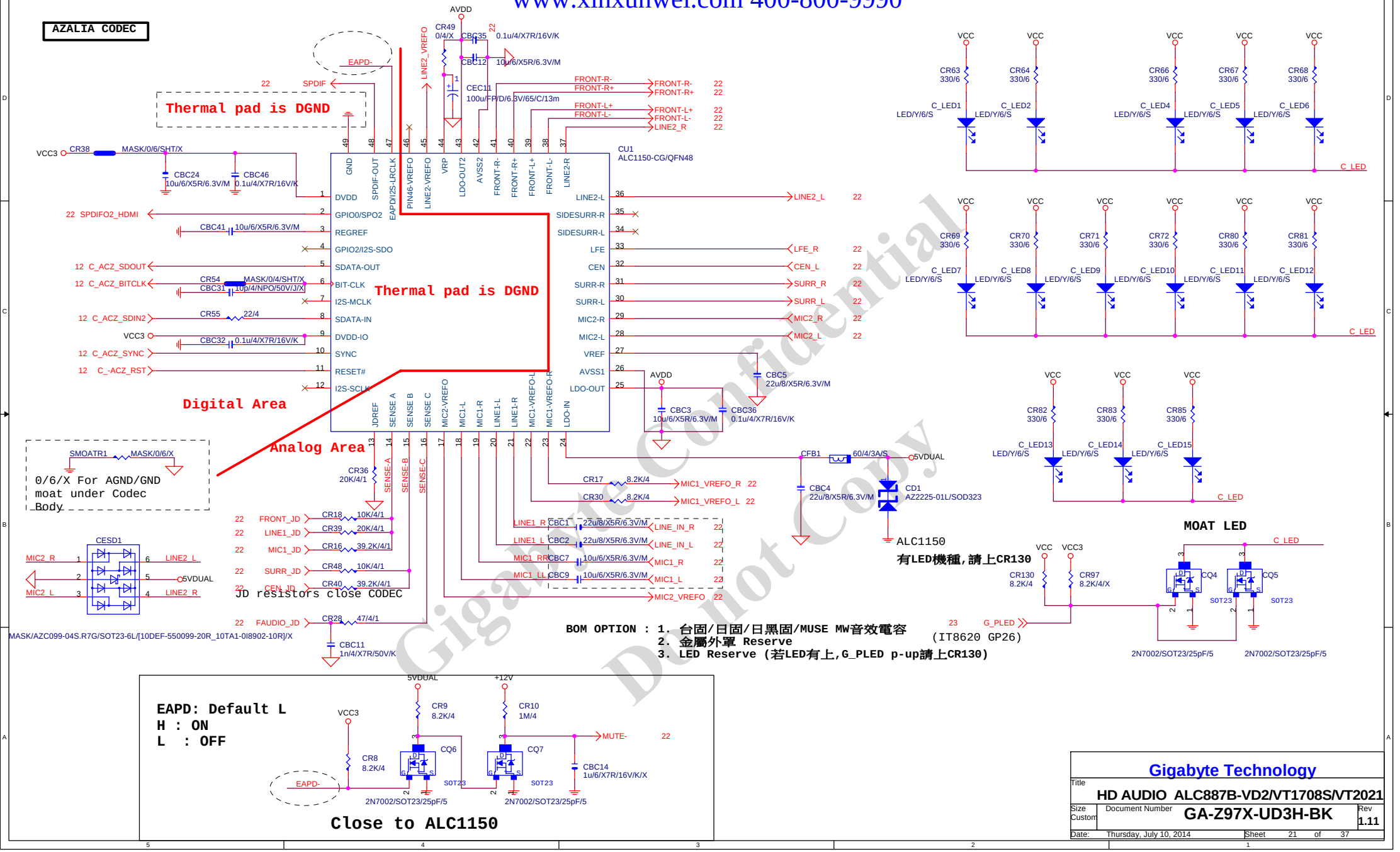


AZALIA CODEC



Gigabyte Technology			
Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021		
Size: Custom	Document Number: GA-Z97X-UD3H-BK		Rev: 1.11
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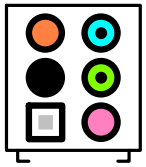
AZALIA JACK



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

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

MOATR1 MASK/0/4/SHT/X, MOATC1 0.1u/4/X7R/16V/K → Near F_AUDIO(各打2 VIA hole)

MOATR2 MASK/0/4/SHT/X, MOATC2 0.1u/4/X7R/16V/K → Near Codec (各打2 VIA hole)

MOATR3 MASK/0/4/SHT/X, MOATC3 0.1u/4/X7R/16V/K → Near R_AUDIO(各打2 VIA hole)

MOATR4 MASK/0/4/SHT/X, MOATC4 0.1u/4/X7R/16V/K → Near AMP (各打2 VIA hole)

SPDIF_OUT

21 SPDIFO2_HDMI — CR52 1 MASK/0/4/SHT/X — SPDIF_O

CBC37 100p/4/NPO/50V/J

PH/1*2/BK/2.54/V/A/D

For HDMI SPDIF

Differential to Single-End AMPLIFIED

FRONT-R- / FRONT-R+ → CEC14 100u/FP/D/6.3V/65/C/13m, CEC15 100u/FP/D/6.3V/65/C/13m, CBC76 22p/4/NPO/50V/J, FRONT-R-_C_R CR73 374/4/1, FRONT-R+_C_R CR74 374/4/1, FRONT-R-_R CR76 100/4/1, FRONT-R+_R CR78 100/4/1, CR128 390/4/1, CBC77 0.01u/4/X7R/25V/K, CBC78 1n/4/X7R/50V/K, CR79 390/4/1, CBC82 1n/4/X7R/50V/K, -12V CBC49 0.1u/4/X7R/16V/K, +12V CBC50 0.1u/4/X7R/16V/K, OP_INA-_R, OP_INA+_R, CU2A NE5532PSR/SOP-PS/[10TA1-705532-11R], AMP_R

FRONT-L- / FRONT-L+ → CEC16 100u/FP/D/6.3V/65/C/13m, CEC17 100u/FP/D/6.3V/65/C/13m, CBC79 22p/4/NPO/50V/J, FRONT-L-_C_L CR90 374/4/1, FRONT-L+_C_L CR91 374/4/1, FRONT-L-_L CR93 100/4/1, FRONT-L+_L CR95 100/4/1, CR129 390/4/1, CBC80 0.01u/4/X7R/25V/K, CBC81 1n/4/X7R/50V/K, CR96 390/4/1, CBC83 1n/4/X7R/50V/K, -12V CBC51 10u/8/X5R/16V/K, +12V CBC52 10u/8/X5R/16V/K, OP_INB-_L, OP_INB+_L, CU2B NE5532PSR/SOP-PS/[10TA1-705532-11R], AMP_L

AZALIA JACK

AUDIOB: LINE1_JD, FRONT_JD, MIC1_JD; REAR, CEN/LFE, SIDE

AUDIOA: CEN_JD, SURR_JD, SPDIF; LINE-IN, LINE-OUT, OPTICAL

BLUE LINE-IN

GREEN LINE-OUT

PINK MIC-IN

Orange CEN/LFE

Black SURROUND

SPDIF

FUSEVCC_R7_R8

2X3RP/25P/OR,BK,BU,GR,RE/RA/[11NR6-403025-A1R]

LINE-OUT

21 LINE_OUT_R — CR21 10/4 — AJ_B5_R

AJ_B2_L_L — CR22 10/4 — AJ_B2_L

CBC23 180p/4/NPO/50V/J, CBC26 180p/4/NPO/50V/J

LINE-IN

21 LINE_IN_R — CR5 62/4 — AJ_A5_R

21 LINE_IN_L — CR13 62/4 — AJ_A2_L

CBC18 180p/4/NPO/50V/J, CBC27 180p/4/NPO/50V/J

MIC-IN

21 MIC1_R — CR29 62/4 — AJ_C5_R

21 MIC1_L — CR32 62/4 — AJ_C2_L

21 MIC1_VREFO_L, 21 MIC1_VREFO_R

CBC19 180p/4/NPO/50V/J, CBC22 180p/4/NPO/50V/J

SURROUND

21 SURR_R — CEC5 100u/FP/D/6.3V/65/C/13m — SURR_C_R CR46 62/4 — CR20 22K/4 — BJ_C5_R

21 SURR_L — CEC7 100u/FP/D/6.3V/65/C/13m — SURR_C_L CR19 62/4 — CR45 22K/4 — BJ_C2_L

CBC29 180p/4/NPO/50V/J, CBC28 180p/4/NPO/50V/J

CEN/LFE

21 LFE_R — CEC9 100u/FP/D/6.3V/65/C/13m — LFE_C_R CR50 62/4 — CR42 22K/4 — BJ_B5_R

21 CEN_L — CEC10 100u/FP/D/6.3V/65/C/13m — CEN_C_L CR41 62/4 — CR51 22K/4 — BJ_B2_L

CBC25 180p/4/NPO/50V/J, CBC34 180p/4/NPO/50V/J

21 MUTE- → AMP_R, AMP_L

CQ8, CQ9, CQ10, CQ11: 2N7002/SOT23/25pF/5/[10IF1-2A7002-0CR]

AJ_B5_R_R, AJ_B2_L_L

AZALIA FRONT PANEL

CQ2 BAT54A/SOT23/200mA — 21 LINE2_VREFO — CR25 8.2K/4, CR15 8.2K/4

CQ1 BAT54A/SOT23/200mA — 21 MIC2_VREFO — CR12 8.2K/4, CR3 8.2K/4

EMI

21 MIC2_L — CBC20 10u/6X5R/6.3V/M — CR2 62/4 — M2_L

21 MIC2_R — CBC15 10u/6X5R/6.3V/M — CR11 62/4 — M2_R

21 FAUDIO_JD — L2_R CR33 62/4 L2-R; L2_L CR34 62/4 L2-L

CR27 22K/4, CR26 22K/4 — F_AUDIO — CR35 20K/4/1, CR31 39.2K/4/1

BH/2*5K8/BK/2.54/VA/AUDIO/PRT/TUR180

21 LINE2_R, 21 LINE2_L — CEC12 100u/FP/D/6.3V/65/C/13m — L2_R, L2_L — CEC13 100u/FP/D/6.3V/65/C/13m

CBC10 180p/4/NPO/50V/J, CBC16 180p/4/NPO/50V/J, CBC17 180p/4/NPO/50V/J, CBC6 180p/4/NPO/50V/J

Digital Area

VCC3 — CR56 8.2K/4/X

Gigabyte Technology

Title	AUDIO JACK	
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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SIO IT8728F

IT8620E_BX

CPU_OPT

SIO

CPU_FAN

SYS_FAN1

SYS_FAN2

SYS_FAN3

CPU_OPT

EUP from PCH

SYS_FAN3

PWR SHT

For 8728 EUP function

SIO PU

SIO STRAP

JP3--- High SPI-Flash Disable
Low SPI-Flash Enable

JP5:N\A FOR 8728 DX
JP5:PULL DOWN FOR 8728 EX
anti-surge enable

EUP control detect

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

Power leakage

SIO_18V

internal power pin, max 22nF cap

MB ID

GPIO86
Rev1.0 --> MB_ID3 : Hi
Rev1.1 --> MB_ID3 : Low

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

DUAL BIOS OPT STRAP

SIO CAP

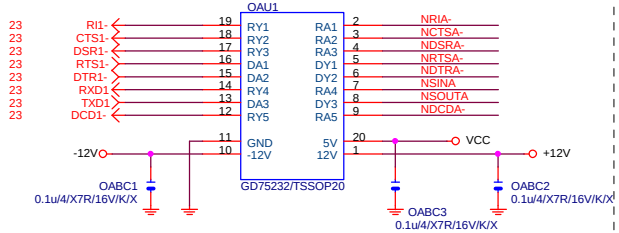
Gigabyte Technology

Title: ITE 8620CX LPC IO

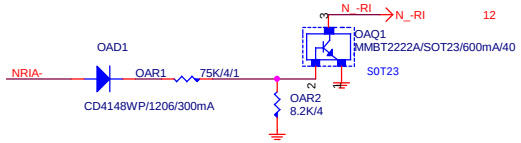
Size: B | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

Date: Thursday, July 10, 2014 | Sheet 23 of 37

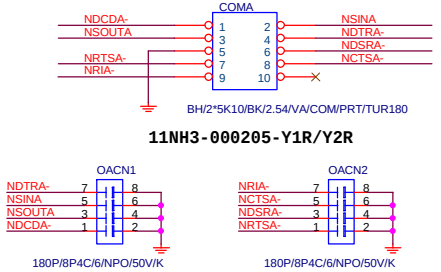
COMA



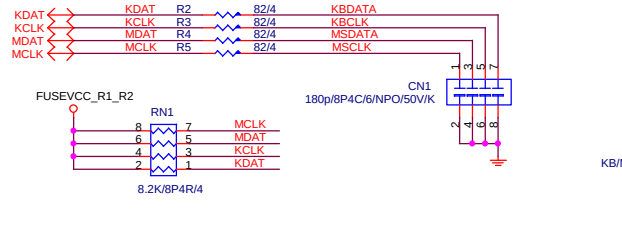
COM R1

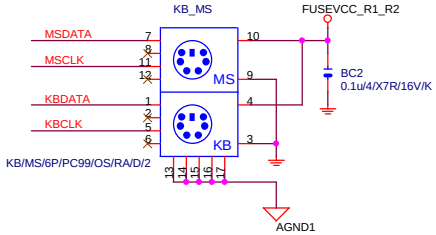


COM BUFFER

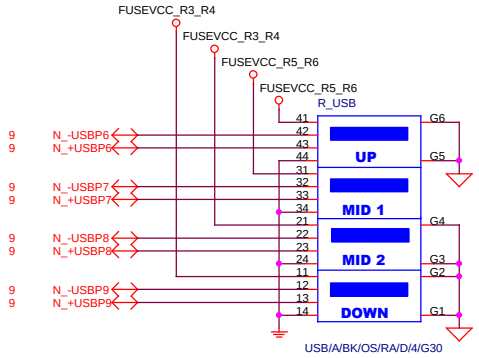


KB/USB

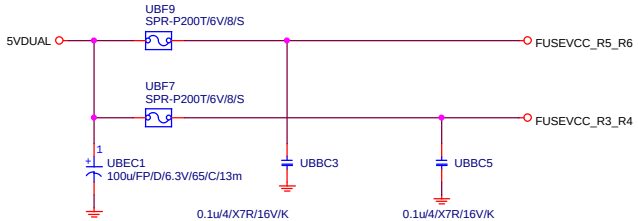




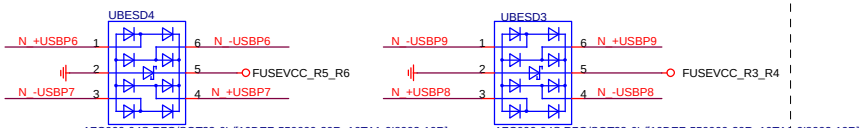
R_USB



USB20 FUSE

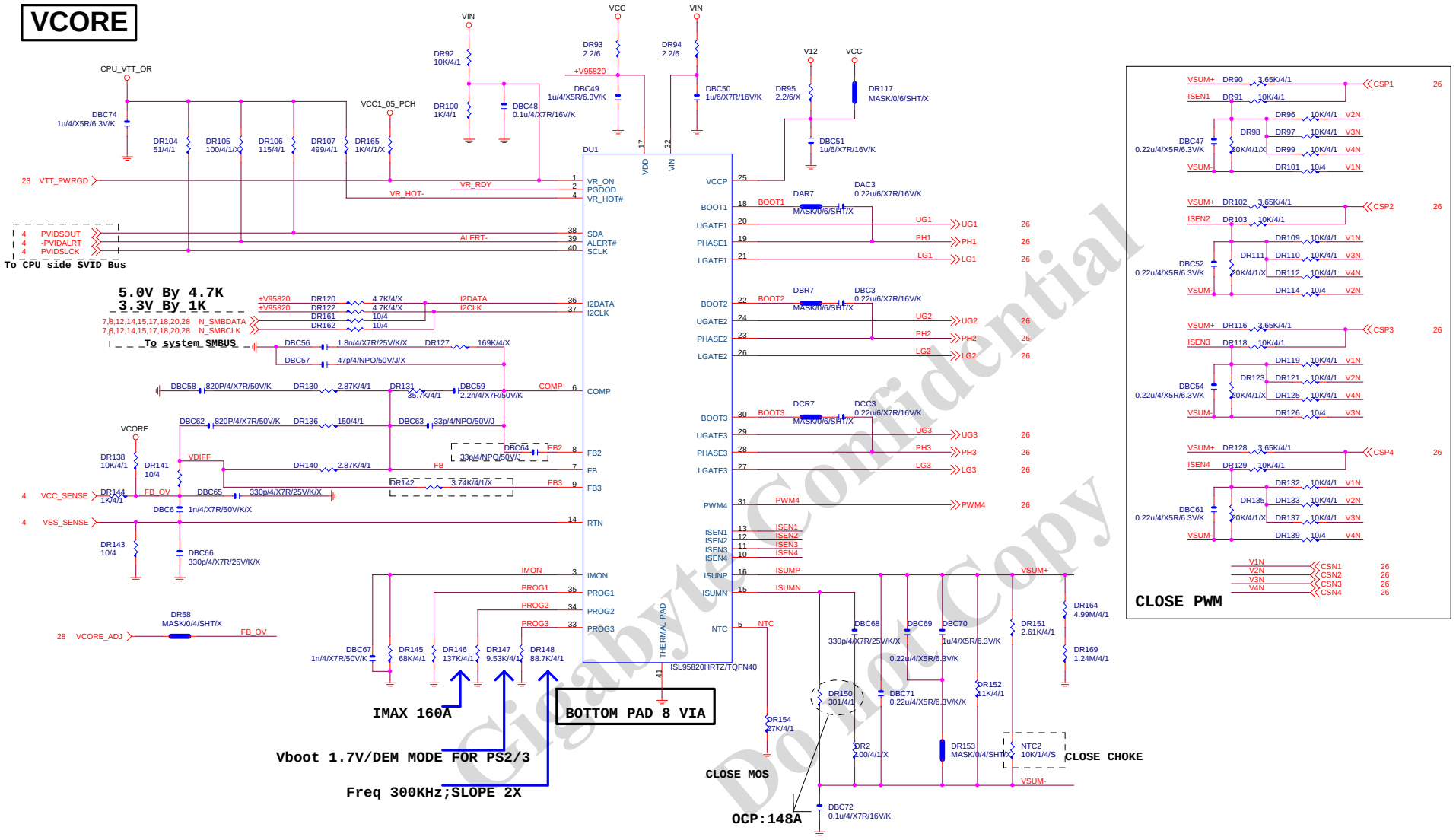


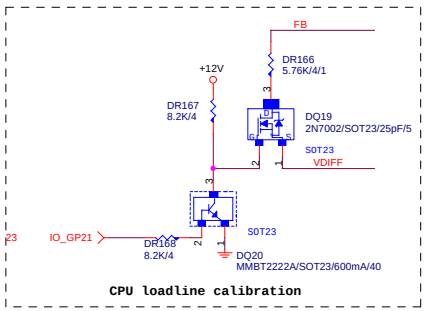
USB20 ESD PROCTECT

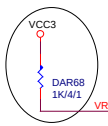


Gigabyte Technology		
Title: COM/ PROHOT/ R_USB		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 24 of 37	

VCORE





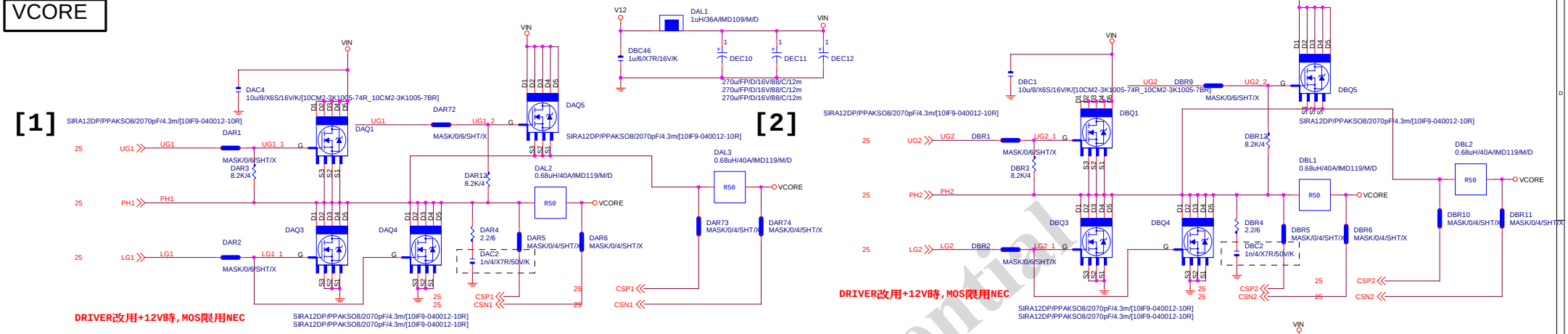


VCORE各層切割

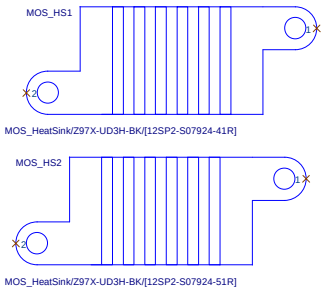
第一層:VCORE
第二層:VCORE
第三層:GND
第四層:VCORE

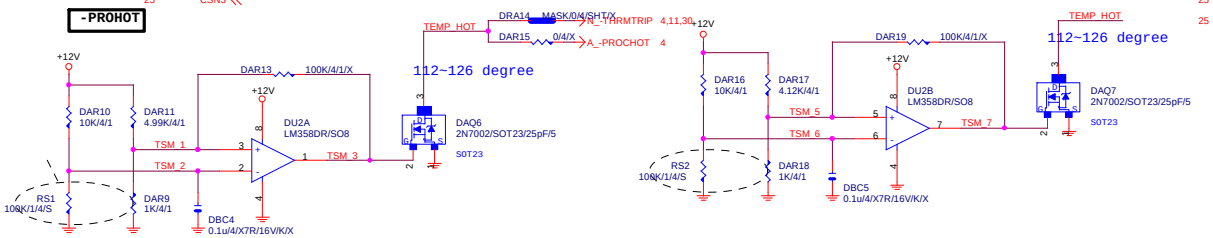
Gigabyte Technology			
Title: VCORE_ ISL95820			
Size: Custom	Document Number: GA-Z97X-UD3H-BK		Rev: 1.11
Date: Thursday, July 10, 2014	Sheet 25 of 37		

VCORE



MOSFET HEATSINK





Gigabyte Technology	
Title	ISL95820_2
Size: Custom	Document Number: GA-Z97X-UD3H-BK Rev: 1.11
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VCC1_05_ME

1A MAX

VOUT=0.8*[(R1+R2)/R2]

【技術通報R&D技術通報156】

VCC3_ME

DDR_15V

放靠近IC pin4

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℃),1(105℃)

VIN Ripple current=4.7X1.7=7.99A(85℃)
-->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]

25A MAX

Remote sense請從最重的負載端點拉回

0.8*(1+RS/RO) = Vout
0.8*[1+2K/2.2K)] =
1.527V

DDRVTT

1.1A MAX

PWR SEQ

GIGABYTE™

Title	DDR15V / M3 POWER	
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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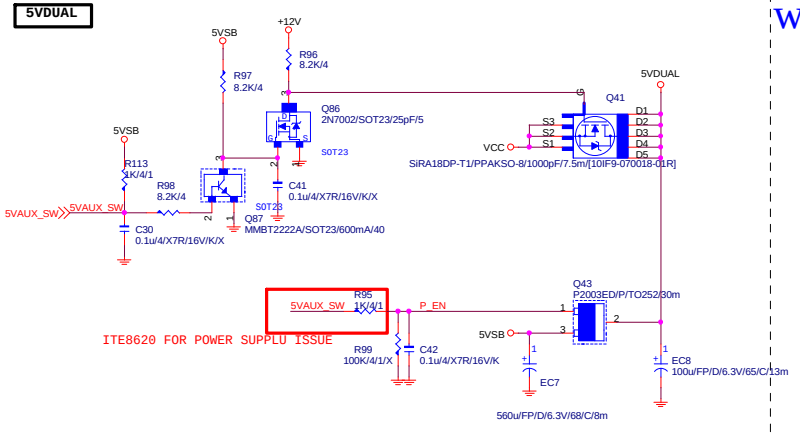
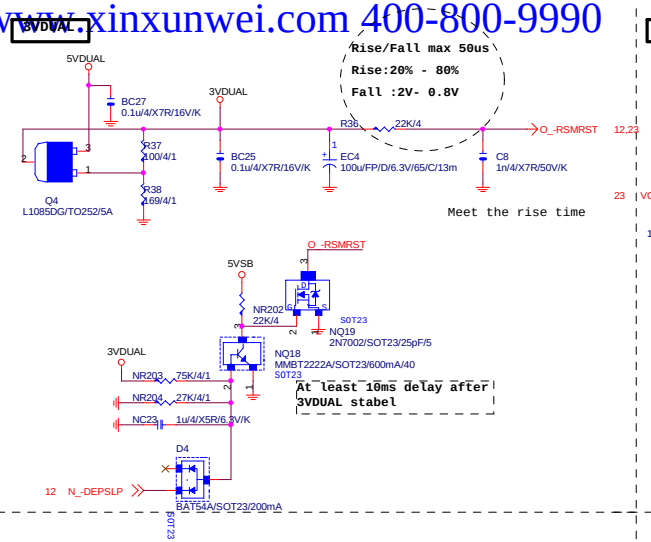
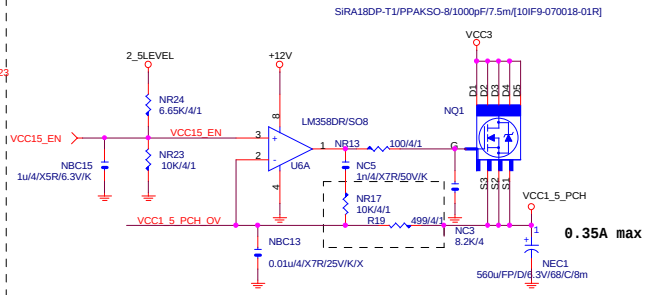
5VDUAL



3VDUAL

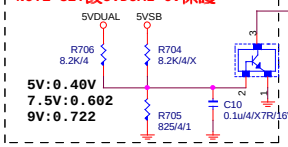


VCC1_5_PCH

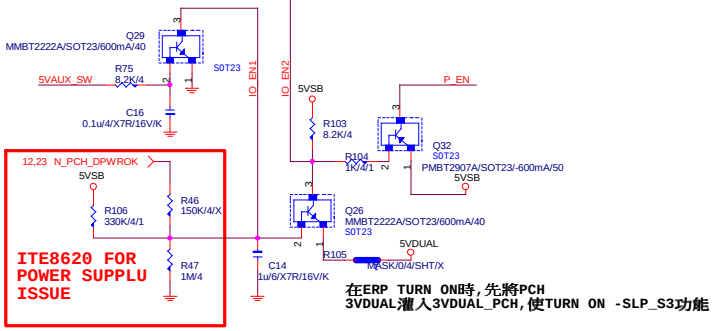


5VSB OVP:7.5V protection

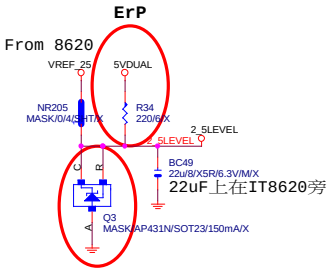
NOTE 82:改5VDUAL 6v保護



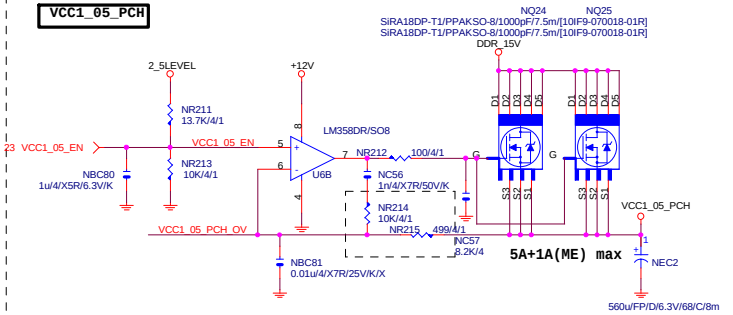
5VDUAL SHORT PROTECT



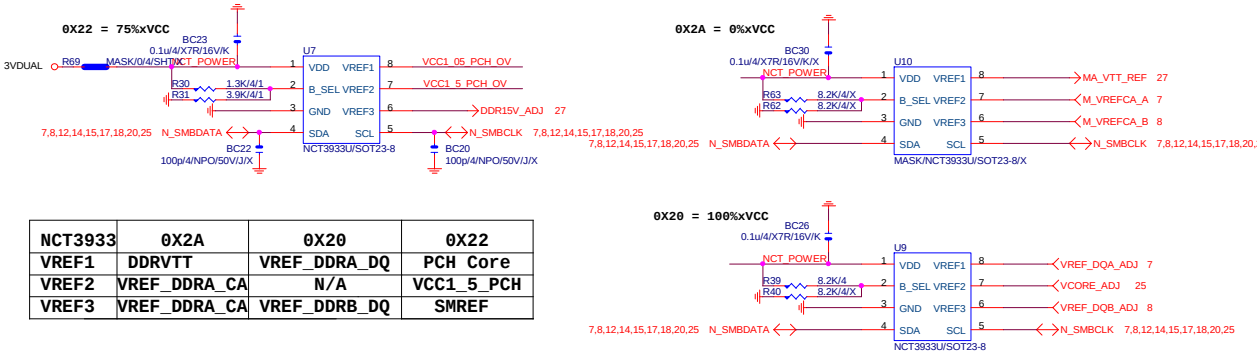
2_5LEVEL



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

Title: DISCRETE POWER

Size: Custom | Document Number: GA-Z97X-UD3H-BK | Rev: 1.11

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DUAL BIOS

指定用DII

VCC3_ME
NR226 330/4/1
-SPI_CS_1
NR227 1K/4/1
NR228 0/4/X
NQ20 S0T23
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
-SPI_CS_2
NR231 1K/4/1
NQ22 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_B NR234 1K/4/1/X
N_-ICH_SPI_CS
NQ23 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_M NR232 8.2K/4

VCC3_ME
NR4 MASK/0/4/SHT/X
NBC2 1u/4/X5R/6.3V/K

M_BIOS
-SPI_CS_1 NR7 22/4
NC1 10p/4/NPO/50V/J/X
SPI_MISO
SPI_DQ2 NR220 MASK/0/4/SHT/X -SPI_WP0
CS# VDD
SO HOLD#
WP# SCK
VSS SI
-HOLD0 NR221 MASK/0/4/SHT/X NR222 8.2K/4/X -SPI_HOLD_M
N_ICH_SPI_CLK
N_ICH_SPI_MOSI
NC2 10p/4/NPO/50V/J/X
MAIN BIOS
64M/Q/SPI/SO8/S

SPI_DQ3 12
12 N_ICH_SPI_MISO

MOSI For DMI RX Termination Voltage

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
N_ICH_SPI_MISO NR5 8.2K/4
-HOLD0 NR235 1K/4/1/X
-HOLD1 NR236 1K/4/1/X

5VDUAL
-SPI_HOLD_M NR237 1K/4/1/X
-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

VCC3_ME
NBC4 0.1u/4/X7R/16V/K

1 means floating
0 means PD 1K

TPM CONNECT

VCC3
3VDUAL_PCH
TPM
10 T_TPMCLK — LCLK
12,23 N_-LFRAME — LFRAME#
19,23,35 O_-PFMRST2 — LRESET#
12,23 N_LAD3 — LAD3
VCC3
12,23 N_LAD0 — LAD0
RSV0
SB3V
GND
LPCPD#
GND
pin 4 防异
VCC5
LAD2 — N_LAD2
LAD1 — N_LAD1
GND
RSV1
SERIRQ — N_SERIRQ
CLKRUN#
RSV2
N_LAD2 — 12,23
N_LAD1 — 12,23
N_SERIRQ — 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

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	
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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Front USB3.0

F_USB30 REV=1

BH/2*10K20/BK/ON/2.0/VA/D/GF

F_USB30 ESD PROTECT

UAE1 AZ1065-06Q/MSOP8L

UAE2 AZ1065-06Q/MSOP8L

F_USB30 PWR

SMD1206P350SLR/6V/S

UAEC3 100u/FP/D/6.3V/65/C/13m

Close to connector

FRONT USB1

F_USB1

BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180

UAESD1 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Close to connector

UAF1 SPR-P200T/6V/8/S

UAEC1 560u/FP/D/6.3V/68/C/8m

FRONT USB2

F_USB2

BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180

UAESD2 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Close to connector

UAF3 SPR-P200T/6V/8/S

共用一個560uF

-USBOC_R

UBD1 BAT54A/SOT23/200mA

UBD3 BAT54A/SOT23/200mA

UBR7 8.2K/4

UBR9 15K/4/1

-USBOC_F

UAD1 BAT54A/SOT23/200mA

UAR1 8.2K/4

UAR14 15K/4/1

SATA LED

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

FPD2 BAT54A/SOT23/200mA

MMBT2222A/SOT23/600mA/40

MMBT2222A/SOT23/600mA/40

SPKR

FPD1 CD4148WP/1206/300mA

To disable TCO timer

FPQ6 MMBT2222A/SOT23/600mA/40

FPQ5 MMBT2222A/SOT23/600mA/40

FPQ7 2N7002/SOT23/25pF/5

CASE OPEN

FPBC4 0.01u/4/X7R/25V/K

F_USB POWER PROTECT

UAD5 BAT54A/SOT23/200mA

USB2.0 Signal & power short protection

USB2.0 Signal > 4.85V

Enable --> 3VDUAL=3.6V

UAQ1 MASK/2N7002/SOT23/25pF/5/X

UAQ2 MASK/2N7002/SOT23/25pF/5/X

UA1A MASK/LM358DR/SO8/X

UA1B MASK/LM358DR/SO8/X

(開機短路保護)

(開機短路保護)

INTEL FRONT PANEL

F_PANEL

BH/2*10K10,12,13/BK/2.54/VA/PA

FPESD1 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Company	Gigabyte Technology
Title	FP,F_USB,USB PWR,FDD,BZ
Size	Document Number: GA-Z97X-UD3H-BK
Rev	1.11
Date:	Thursday, July 10, 2014
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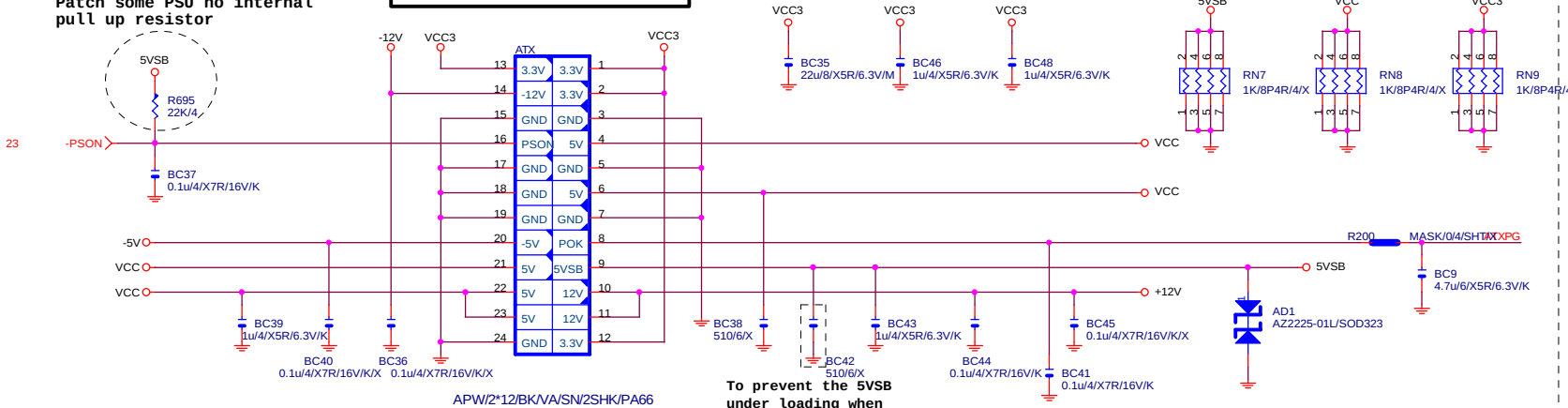
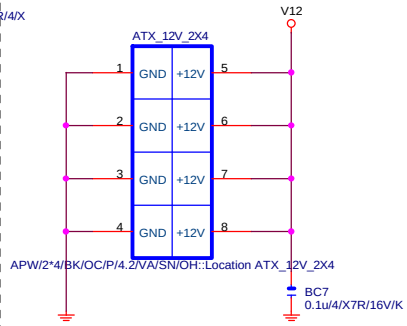
Patch some PSU no internal pull up resistor

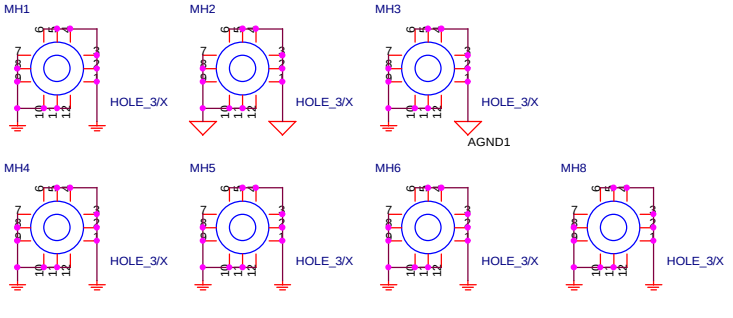
ATXX24 POWER CONNECTOR



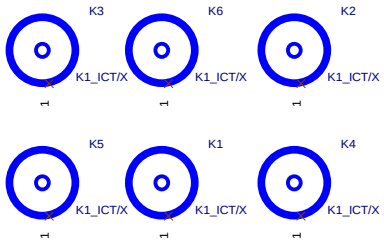
To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

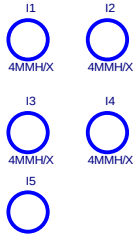




HOLE_4-RH-1



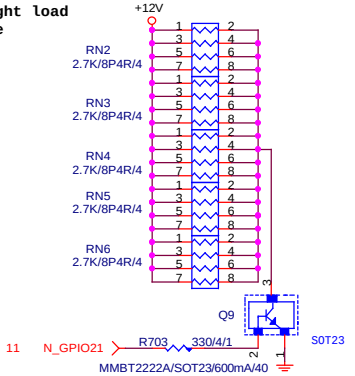
K1-ICT



4MMH

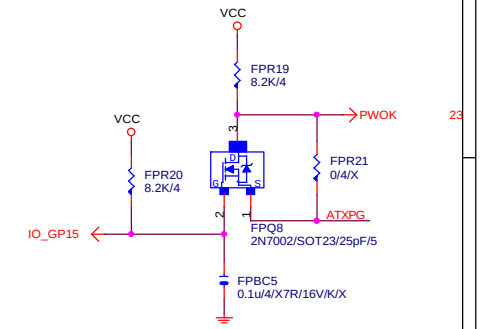
【技術通報R&D技術通報153】

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		
Size: Custom	Document Number: GA-Z97X-UD3H-BK	Rev: 1.11
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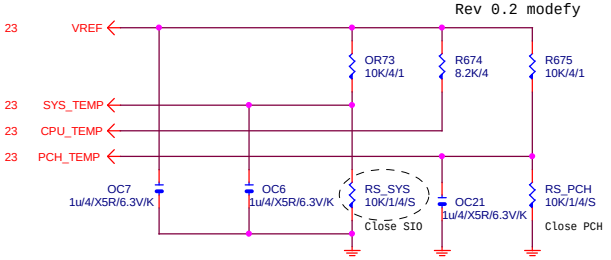
CLOSE CPU
VCORE EN#

TEMP H/W MONITOR

Rev 0.2 modefy

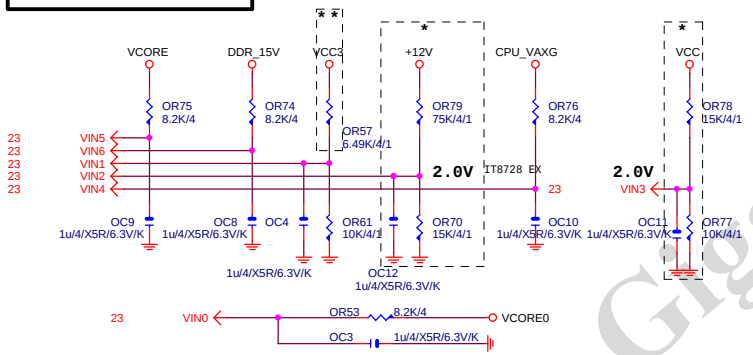


Thrmtrip#改用LM358做

VOLTAGE-- H/W MONITOR

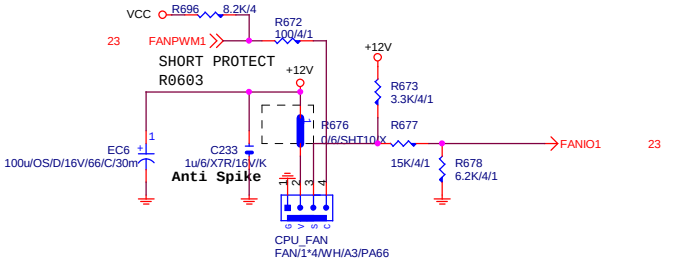
* IT8728 BX
** IT8728 CX

VIN2 must +12V input
VIN3 must VCC input



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

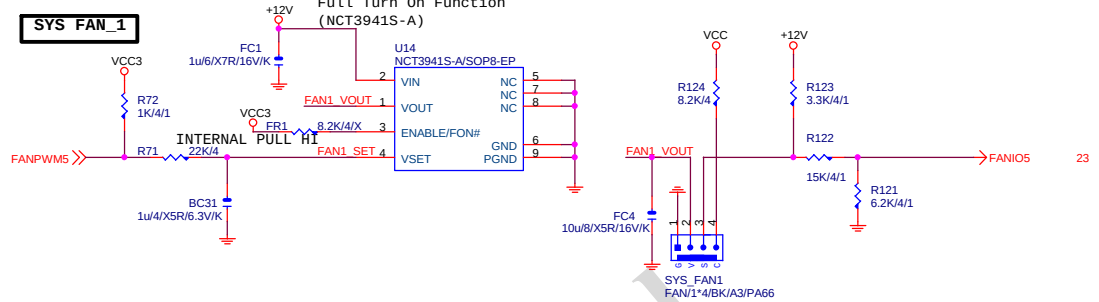
CPU SMART FAN



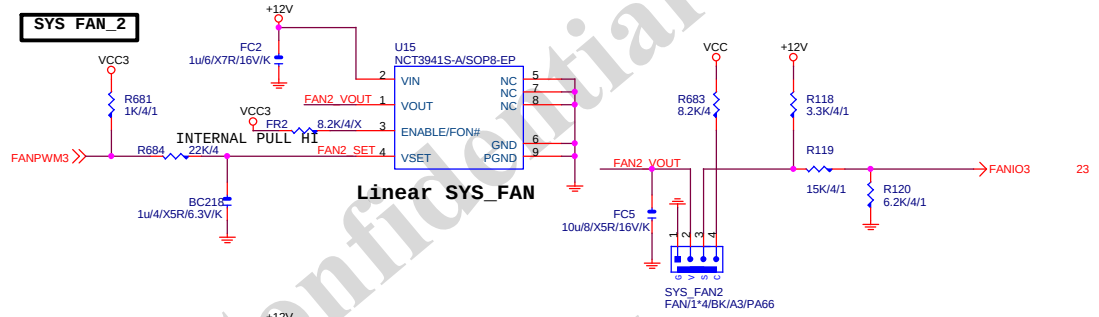
Linear SYS_FAN

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

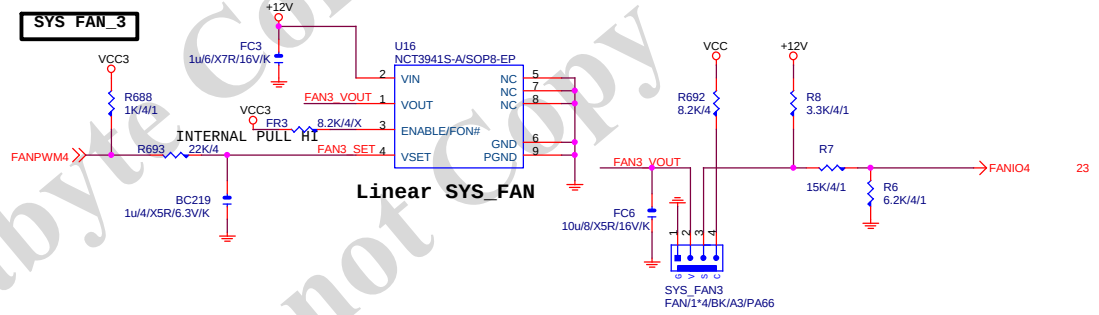
SYS FAN_1



SYS FAN_2



SYS FAN_3



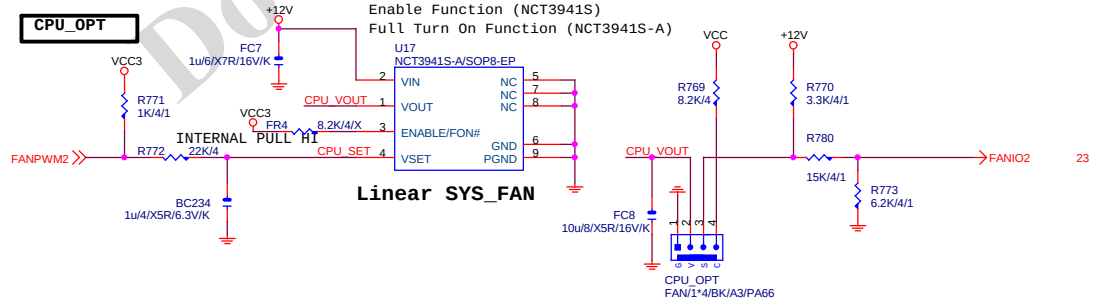
Linear SYS_FAN

Linear SYS_FAN

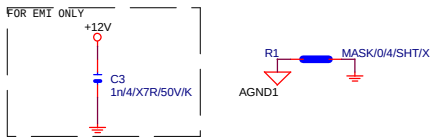
Linear SYS_FAN

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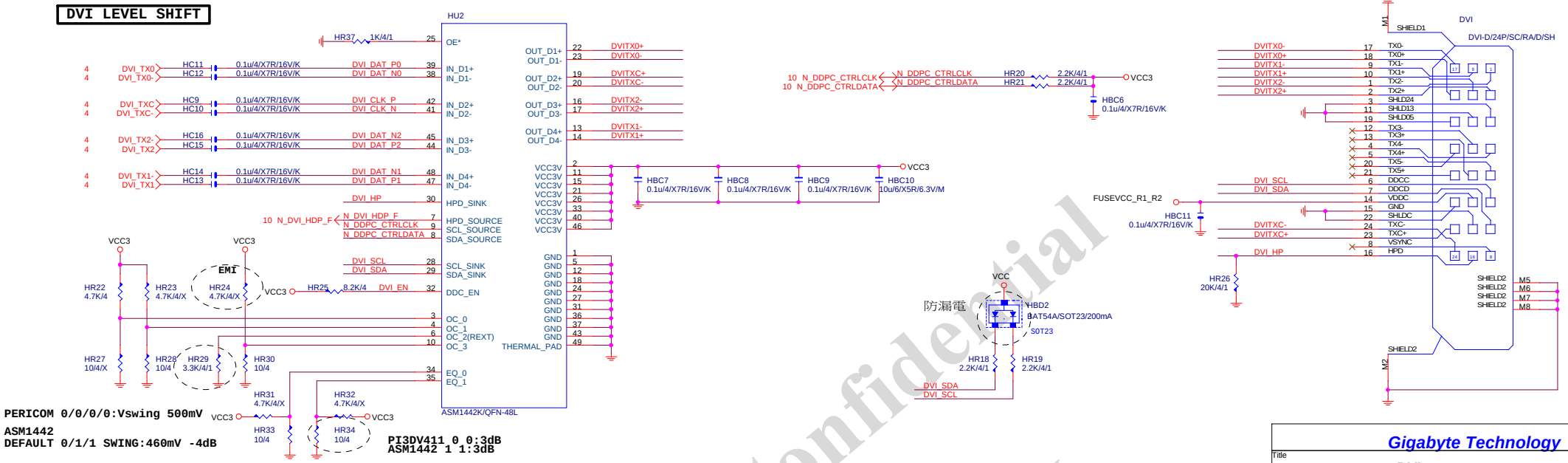
DVI:15/4/4/4/15
Impedance=85 +- 17.5%

DVI LEVEL SHIFT



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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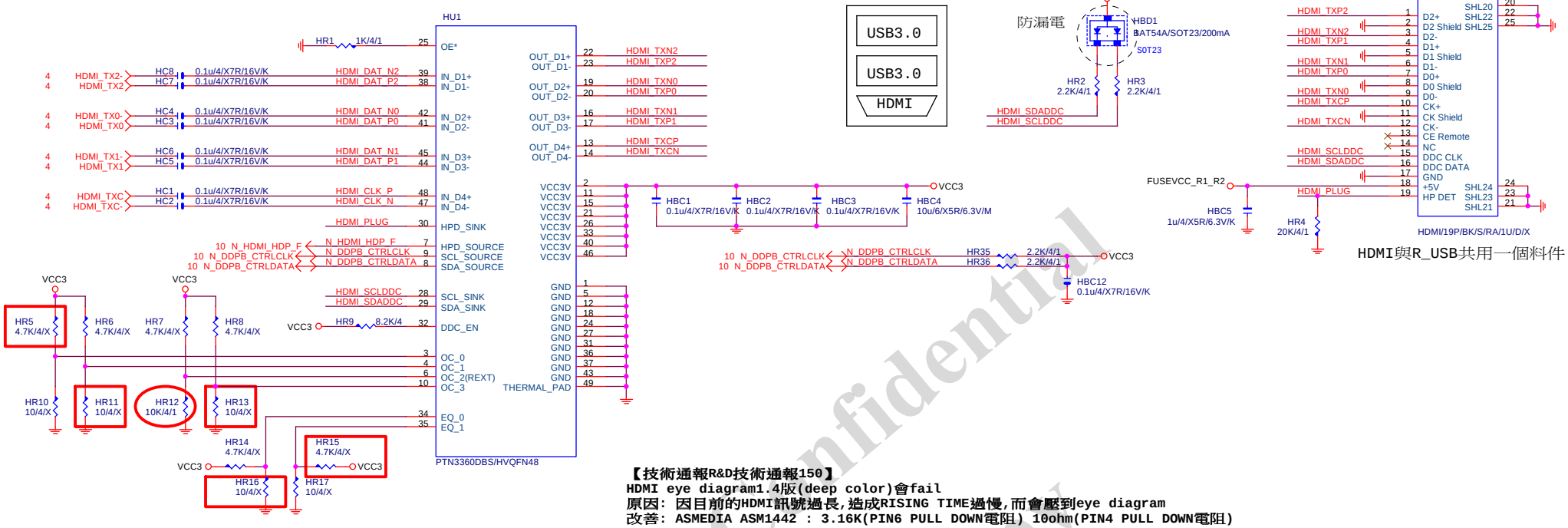
HDMI LEVEL SHIFT

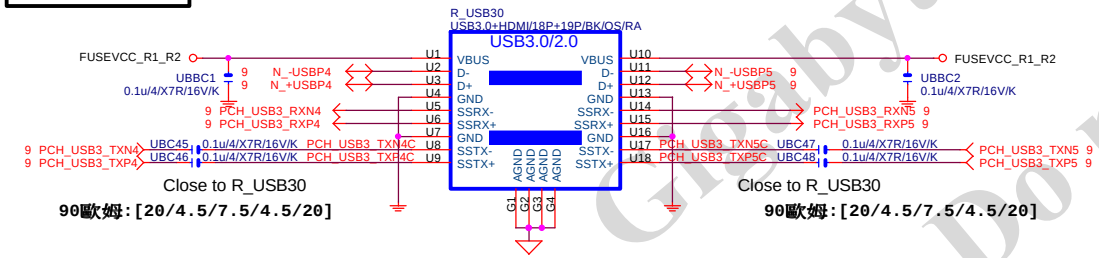
HDMI:20/4/6/4/20
Impedance=85 +- 17.5%



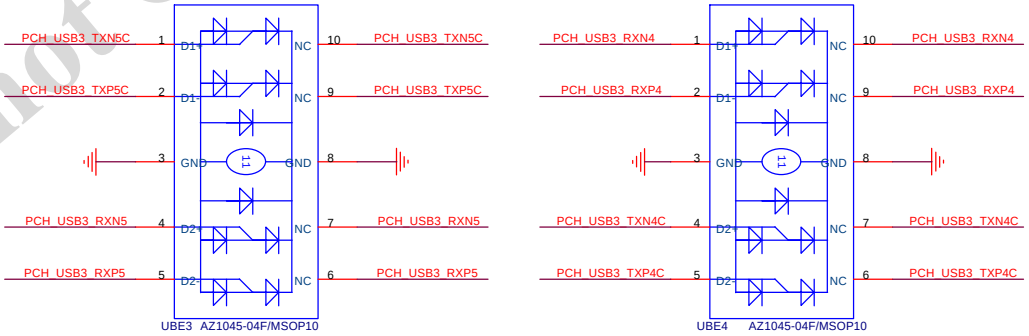
【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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

USB30_20 CONNECT

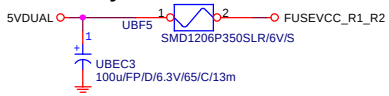


USB30 ESD PROCTECT

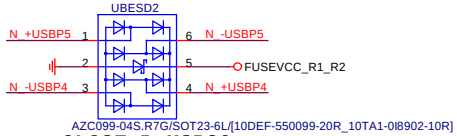


USB30 PWR

Polyswitch-1206



USB20 ESD PROCTECT



CLOSE R_USB30

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

GIGABYTE™

Title: HDMI		
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LAN:INTEL I217

100歐姆:[20/4/10/4/20]

WGI217V/A3/QFN48/[10HP2-400217-30R]

For 82579
Keep short & wide

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

Dual Color LED
D4 D3 Green
D4 D3 Orange

Single Color LED
D2 D1 Yellow

1Gb	Orange
100Mb	Green
10Mb	Off

Access	Blinking
Link	Yellow

USB_LAN CONNECTOR

RMA ESD PROTECT

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

USB X3 POWER

Close to connector

EMI SHORT PAD

PS:視EMI需求

LA_MDI-->100歐姆:[20/4/8/4/20]

USB3+RJ45/[11NR6-702009-K4R_11NR6-702009-K1R]

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

LAE1 AZ1045-04F/MSOP10

LAE2 AZ1045-04F/MSOP10

Gigabyte Technology			
Title	INTEL LAN I2I7		
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0 : PCIE M.2
1 : SATA M.2

鴻海:10NR5-130067-32R
M2 SLOT M KEY料號
嘉澤:10NR5-130067-31R

PCH

SATA EXPRESS

M2

0 : SATA EXPRESS
1 : SATA (Standard)

SMD螺柱 (DIP階上件)
M2_42 CR/[11KS2-040002-01R]
M2_60 CR/[11KS2-040002-01R]
M2_80 CR/[11KS2-040002-01R]

DIP螺柱
M2_80A CR/[12KSF-F10303-01R]

螺絲
M2_80B CR/[12KS2-110202-01R]

SATA EXPRESS料號
單層:11NR6-C10118-01R
雙層:11NR6-C10236-01R

M.2 CLK 限用
CLKOUT_PCIE_0

M.2插卡時為LOW

連接PCH GPIO69
GPIO69 PU HI 要移除

M2R12, M2R14改0/4/X
M2R13改0/4

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

NGFF_M_SSD[10NR5-130067-31R_10NR5-130067-32R]

ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]

SATA EXPRESS/36P/BK/H/RA/D/GF/2/[11NR6-C10236-03R]::Location SATA_EXPRESS

GIGABYTE™

Title	M2_SATA_EXPRESS	
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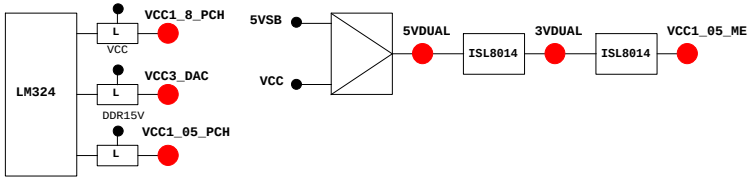
PCH GPIO LIST TABLE

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

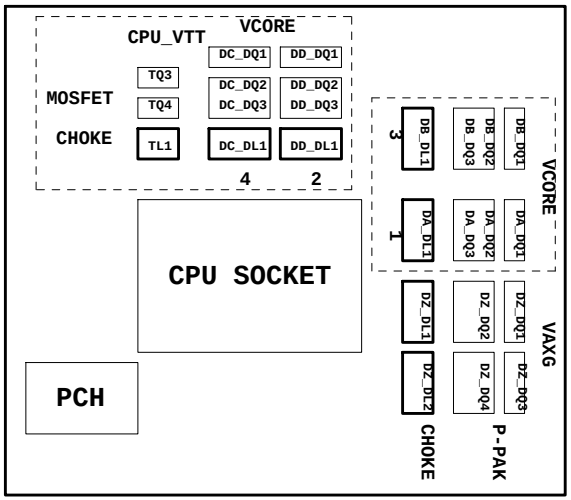
Super I/O ITE8720 GPIO Table

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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