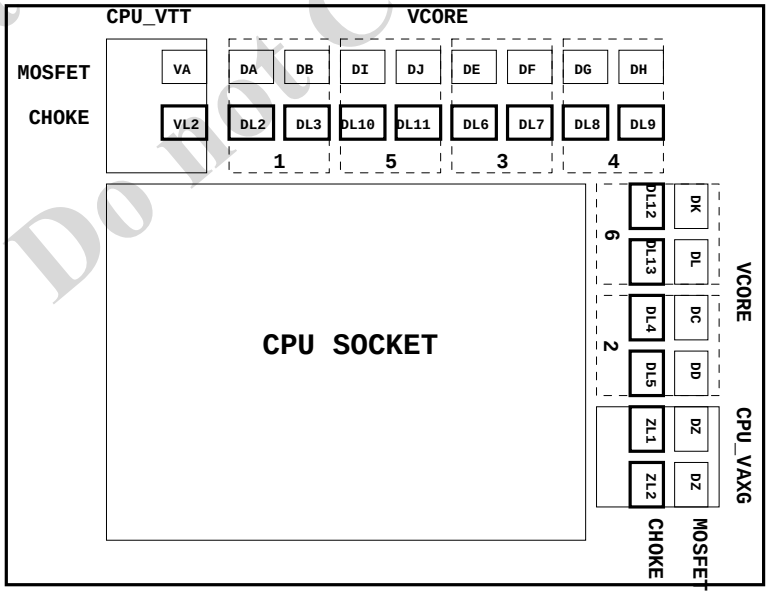
Model Name: GA-Z77X-UD5H

rev 1.1

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_DP,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*4 SLOT
17	PCI EXPRESS*16/*8/*4 SWITCH
18	PCI EXPRESS*1 SLOTs X3
19	ITE 8892
20	PCI SLOT 1
21	HDMI / DVI / DP
22	MSATA
23	Dual BIOS
24	ALC898
25	REAR AUDIO JACK
26	AMPLIFIER
27	PWM_IR 3567A
28	IR 3598-VCORE POWER
29	IR 3598-VAXG POWER
30	PWM_IR 3570A
31	IR 3570A-VTT & DDR POWER
32	DISCRETE POWER I

SHEET	TITLE
33	VCCSA POWER
34	I/O ITE8728
35	F_PANEL , F_USB , -PHOT
36	F_USB3.0
37	ATX POWER, CLOCK GEN
38	HWM,KB/MS , FAN CTRL
39	ARTHEROS AR8161/AR8151
40	INTEL 82579V
41	Marvell 9172(F+R)
42	Marvell 9172(F)
43	VT6308P 1394
44	VL810 USB3_HUB1(R)
45	VL810 USB3_HUB1(F)
46	RST, PWR, CLR_CMOS
47	TABLE LIST
48	



Gigabyte Technology

Title	Cover Sheet	
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Friday, June 01, 2012	Sheet 1 of 47	

GA-Z77X-UD5H

Component value change history

Data	Change Item	Reason
2011/02/10	0.2A	
	REMOVE AMplifier _ISL54405	
2012/01/03	1.0A-EBOM	
	vcore 改 上1下2	
	IT8892改FX	
	Vcore, VTT, vaxg circuit modify =>remove 3931	
2012/01/18	1.0	
	修改值for Magntiude Response高頻高於-1dB	
	改+12v driver piull high R=>0ohm	
	Q41=>MODIFY : SIR840DP/N/5.4m/PPAKSO-8/[10IF9-040393-01R] for on/off charge	
2012/01/19	1.01B	
	修改 PCB 文字面 "SYS_FAN 1", "SYS_FAN 2", "SYS_FAN 3""SYS_FAN 4"	
2012/01/30	1.01C	
	改PROCHOT 阻值	
	改driver串0 ohm to 5v	
	改choke : 0.36uH/38A/IGC109/FS/D/[11LC5-F3360B-01R]	
2012/02/03	1.01D	
	FOR Vcore and Vaxg bom modify	
	For dvi test add HR83	
2012/03/05	1.01E	
	ADD HR147 HR148 FOR VIA HUB USB3 LOSS ISSUE ;	
	ADD MB_ID2 ; H : VIA HUB reset L : 1.01	
2012/03/06	1.02J	
	ADD CPU CFG9 CTRIL	
	ADD DBC126 for EMI	
	ADD MB_ID3 H:Rev1.02	
	ADD MR14,MBC34,MBC35,MBC36,MR15	
2012/03/22	1.03K	
	Modify PCB	
2012/04/20	1.03N	
	Change to IR 3567A (DAU1),Del DAESD1,3570A (MAU40)	
	8728 SIO_18V Change to 0.1uF	
	AUDIO AP w/ inbox driver	
2012/05/09	MB_ID2 OR7->OR15	
2012/06/05	1.1A	
	LAN change to Atheros 8161 , LAR1->1%	
	Add GPIO17 , GPIO1 MB_ID , PCH Core R131-> X , R132->0	
	F.B 30,60 down size ,ATX PWOK Add 4.7u/6/X5R/6.3V/K + 0 ohm	
	Footprint ATX->ATXPWR_24-6 , ATX_12V_2X4->ATXPW2X4-6	
	R199->10K , R198->499 , change N_GPIO38 to standby pin,Add PR5 & OR173	
	VEC3 ,VEC4,VEC5 Change to 820u	
	IESD3 pin 5 change to FUSEVCC3,LGA1155 change to 12KRC-0F0001-23	
	VCORE,VAXG,DDR_15V,CPU_VTT Low size MOS and Q41 change to 10IF9-040393-11R	
	CFB2,LAFB3,CFB3,LAFB2,LAR5,RHFB2,RIFB2,change to 0402	
2012/07/25	1.1B	
	R191->12.7K PCH core Add 50mV , Del HP_PWR	

Circuit or PCB layout change

DATE	Change Item	Reason
2012/01/19	REV1.01 修改 PCB 文字面 "SYS_FAN 1", "SYS_FAN 2", "SYS_FAN 3""SYS_FAN 4"	
2012/03/02	REV1.02 修改DDR部分	
2012/03/21	REV1.03 修改文字面	
2012/06/04	REV1.1 Add GPIO17 , GPIO1 MB_ID F.B 30,60 down size ,ATX PWOK Add 4.7u/6/X5R/6.3V/K + 0 ohm Footprint ATX->ATXPWR_24-6 , ATX_12V_2X4->ATXPW2X4-6 change N_GPIO38 to standby pin,Add PR5 & OR173 IESD3 pin 5 change to FUSEVCC3 CFB2,LAFB3,CFB3,LAFB2,LAR5,RHFB2,RIFB2,change to 0402	

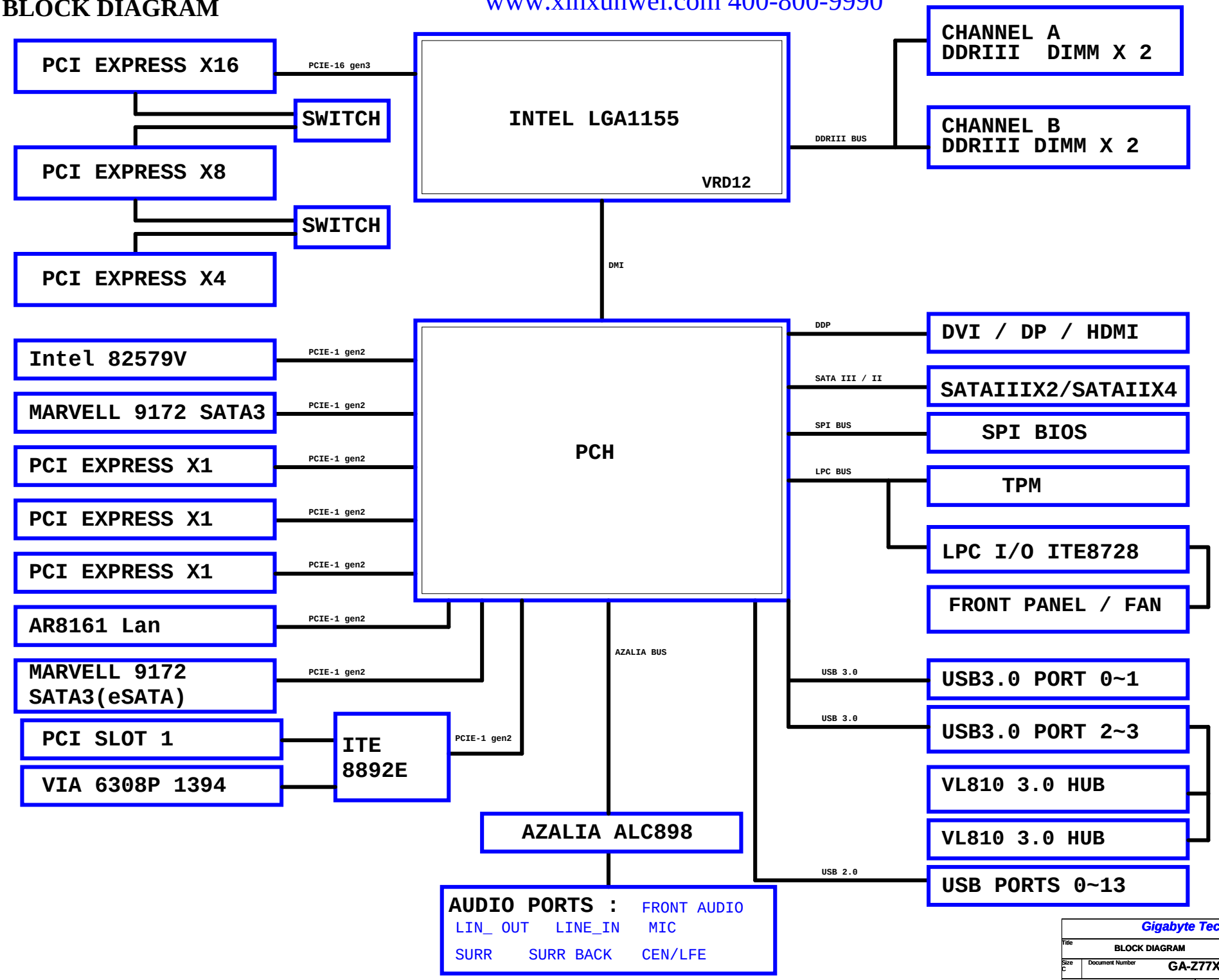
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

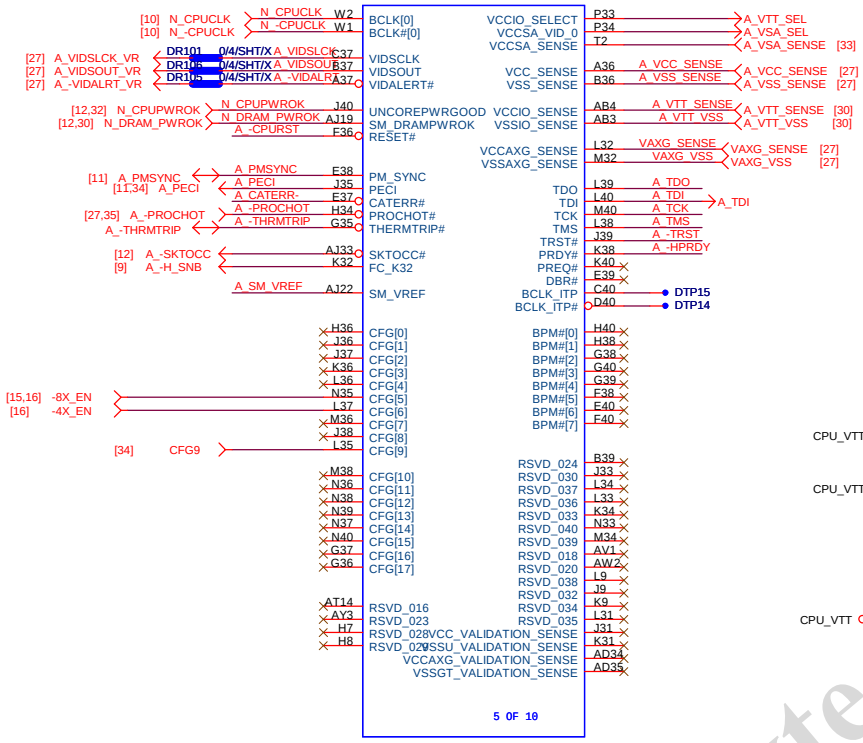
Size: Custom | Document Number: GA-Z77X-UD5H | Rev: 1.1

Date: Thursday, July 26, 2012 | Sheet 2 of 47

BLOCK DIAGRAM



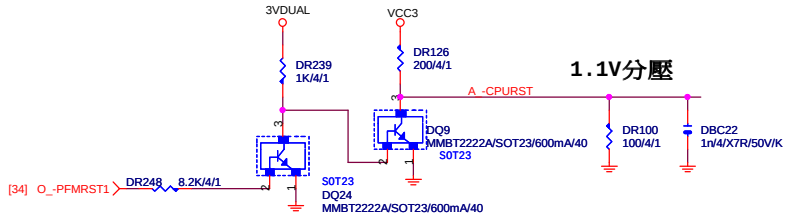
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Friday, June 01, 2012	Sheet 3 of 47	

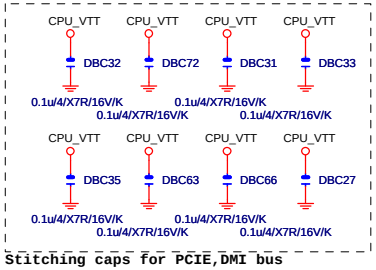


CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NORM	Reverse	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD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

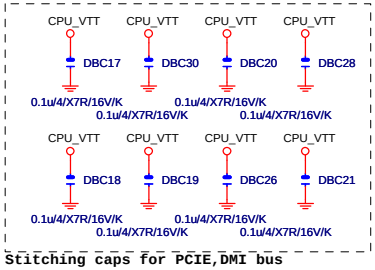
CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

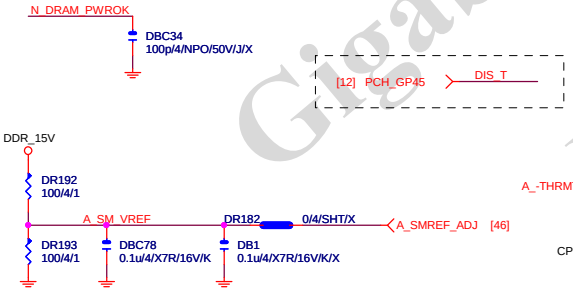


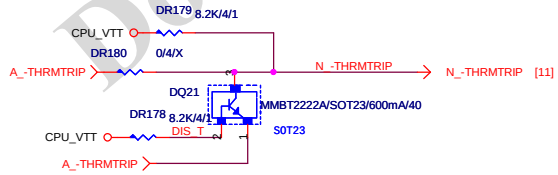


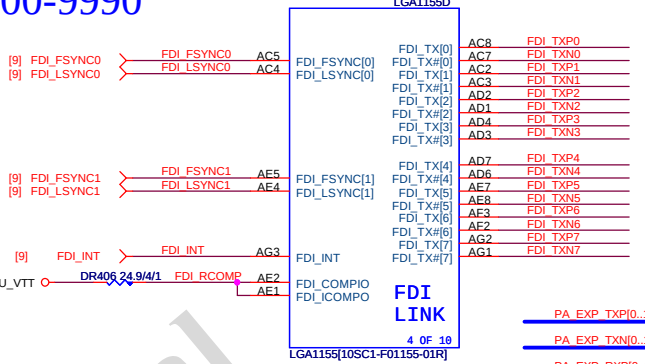
Stitching caps for PCIE,DMI bus

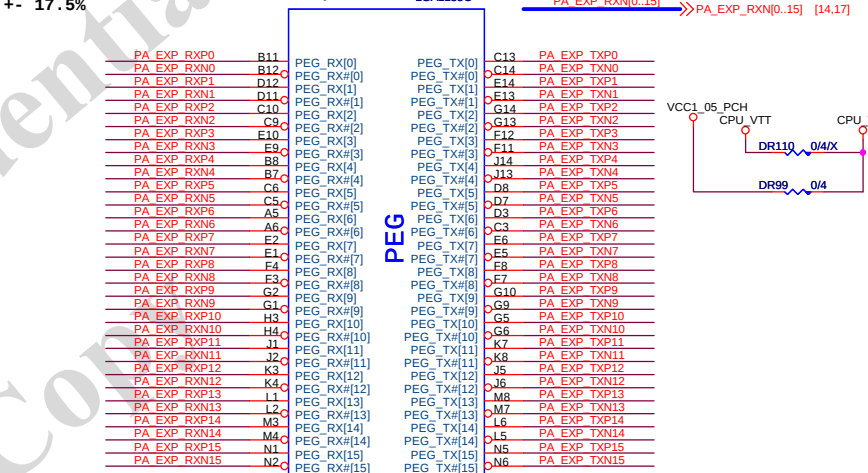


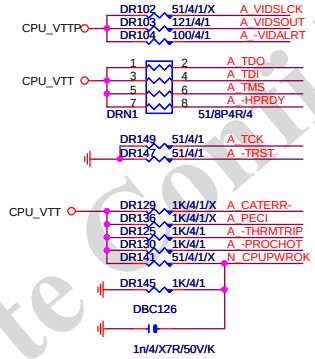
Stitching caps for PCIE,DMI bus



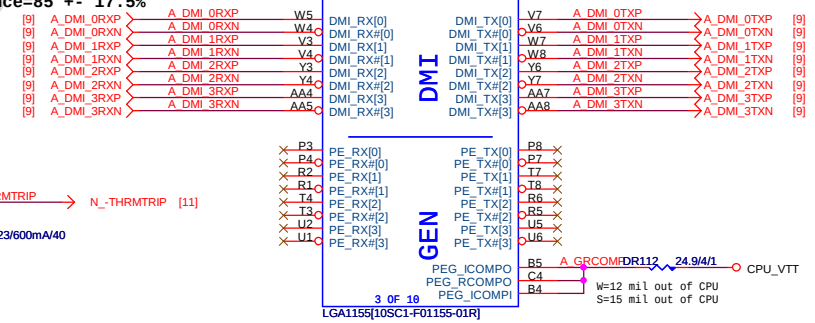




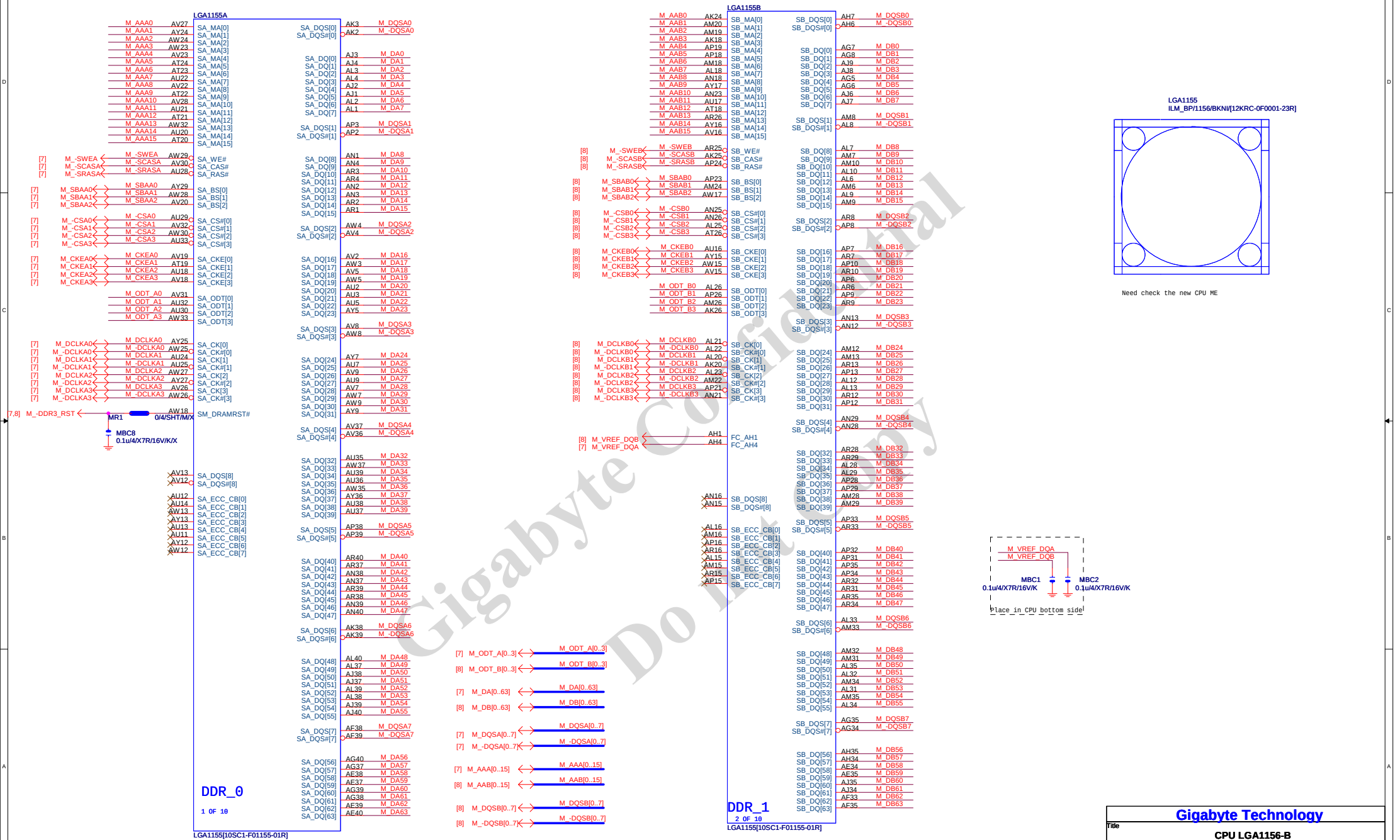




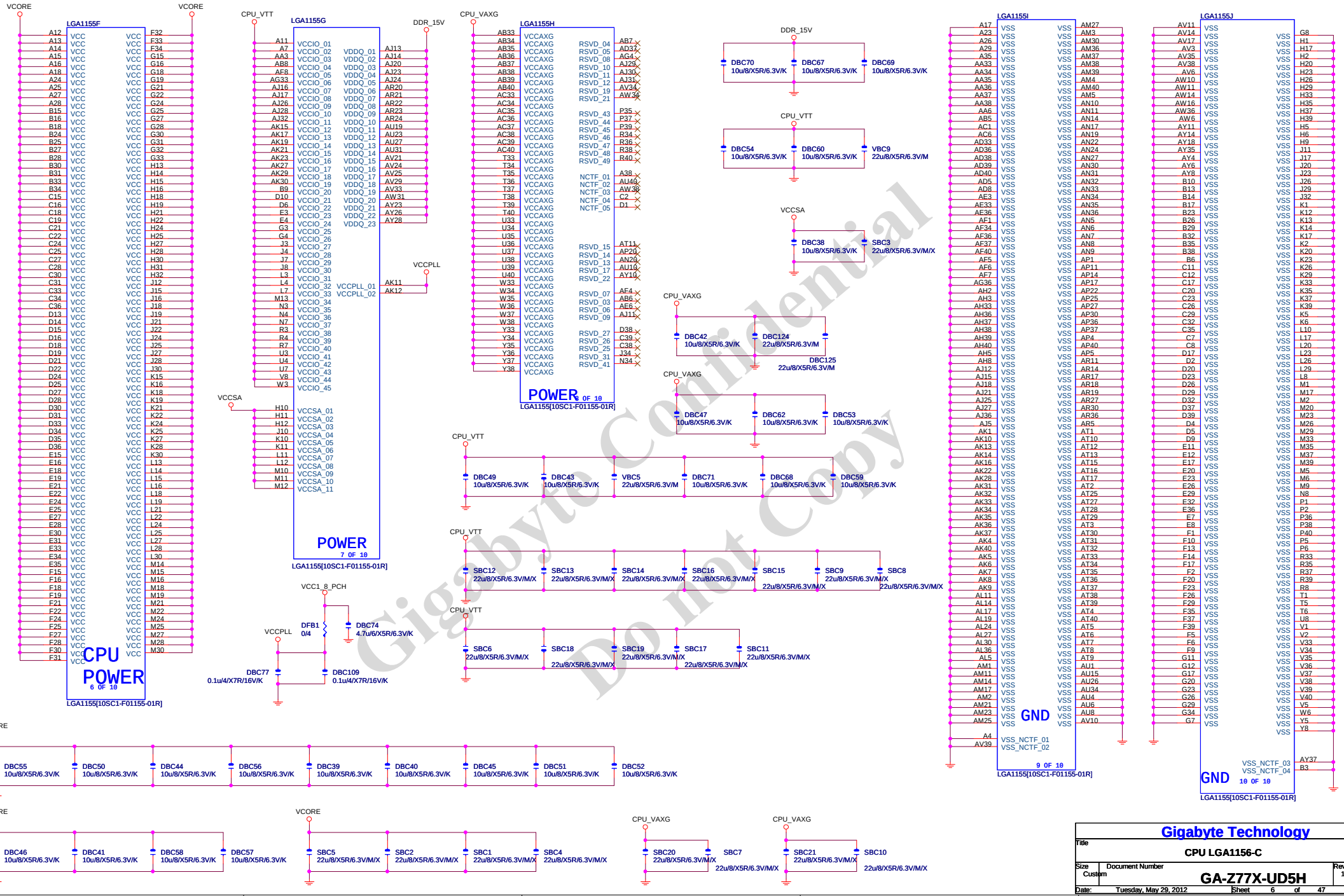
DMI:12/5/4/5/12
Impedance=85 +- 17.5%



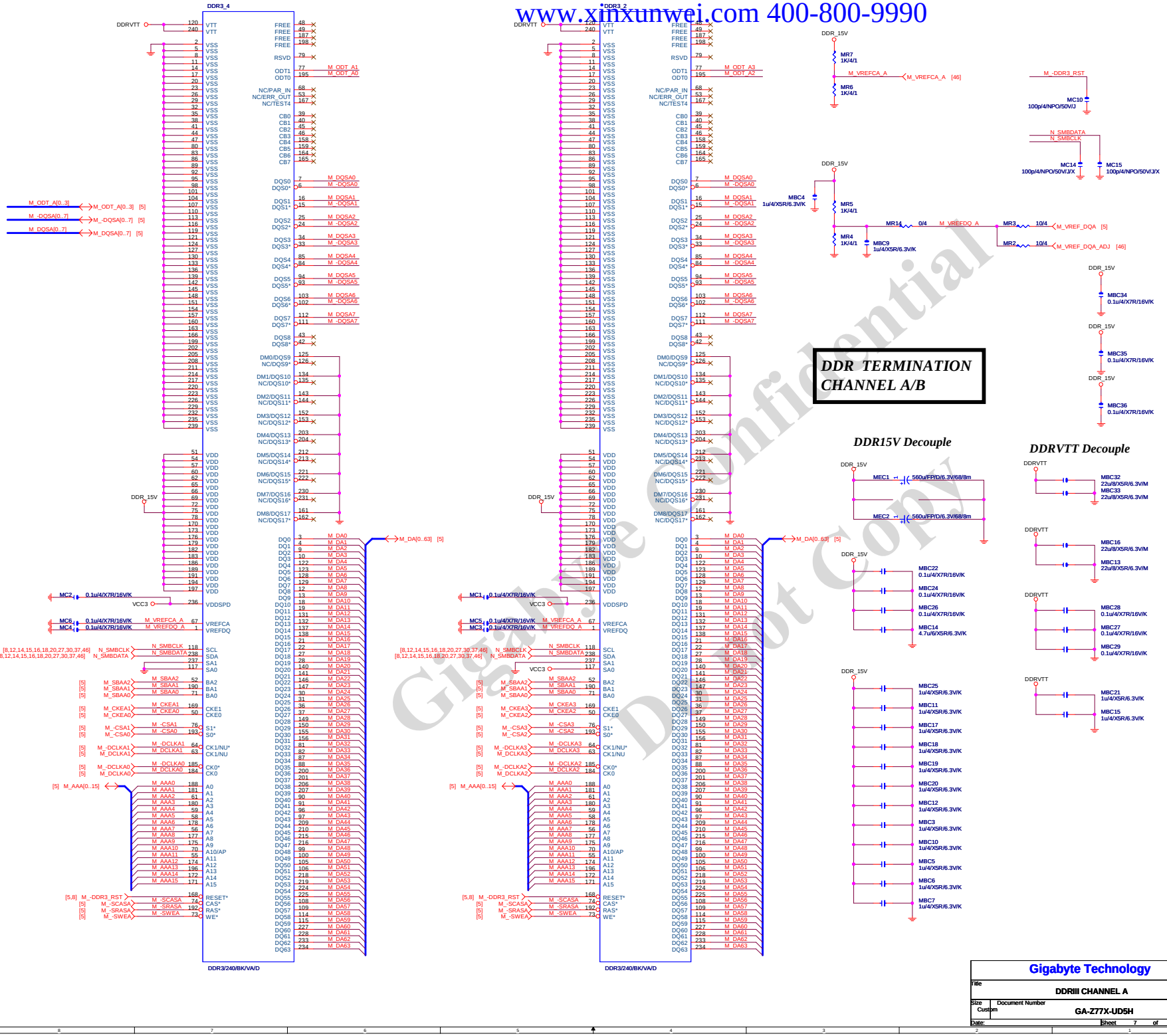
Gigabyte Technology	
Title	CPU LGA1155-A
Size: Custom	Document Number: GA-Z77X-UD5H
Rev	1.1
Date: Wednesday, June 06, 2012	Sheet 4 of 47



Gigabyte Technology			
Title: CPU LGA1156-B			
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 5 of 47		

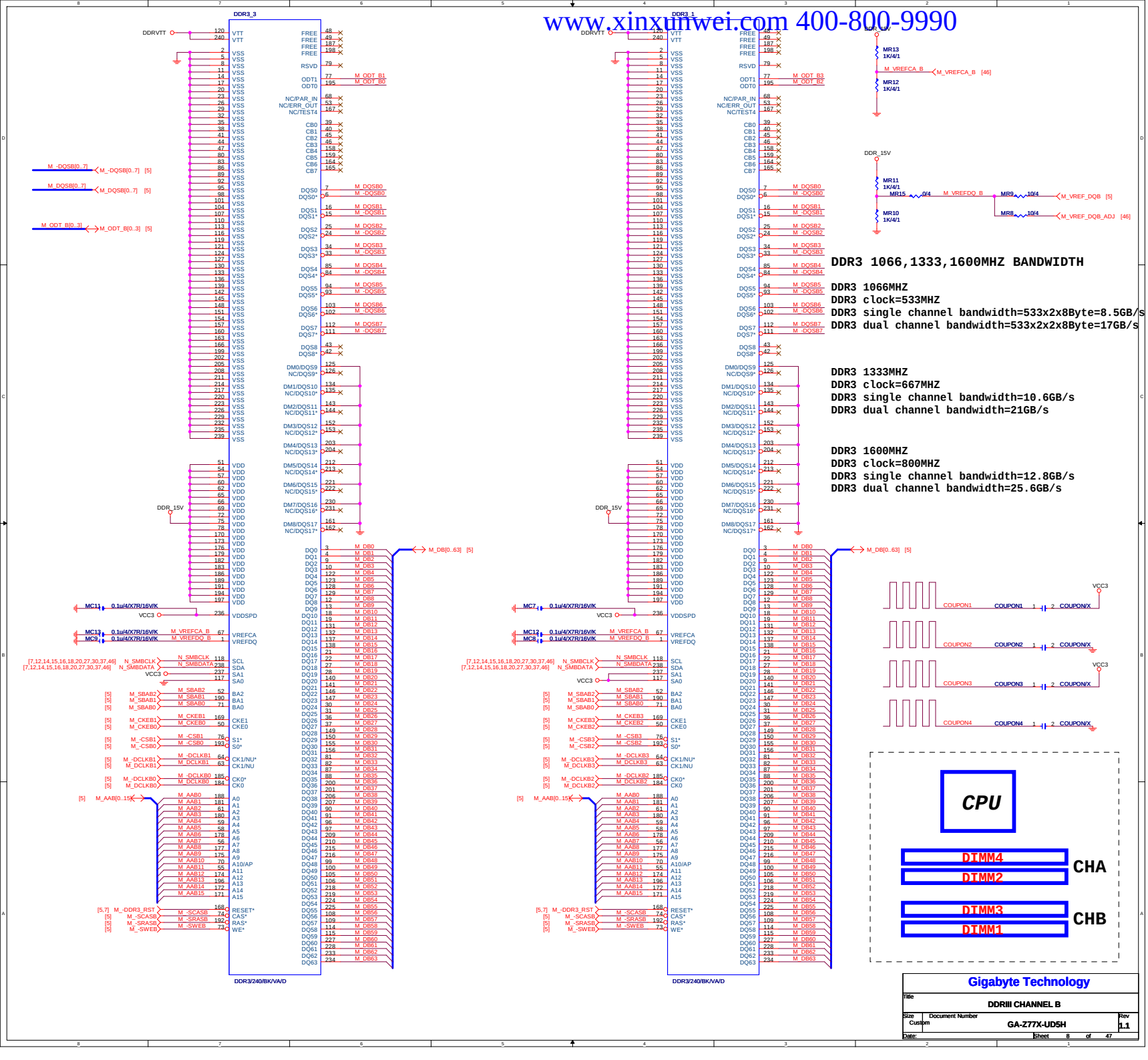


Gigabyte Technology	
Title	CPU LGA1156-C
Size: Custom	Document Number: GA-Z77X-UD5H
Rev	1.1
Date: Tuesday, May 29, 2012	Sheet 6 of 47



DDR TERMINATION CHANNEL A/B

Gigabyte Technology		
Title: DDRIII CHANNEL A		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date:	Sheet 7 of 47	



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

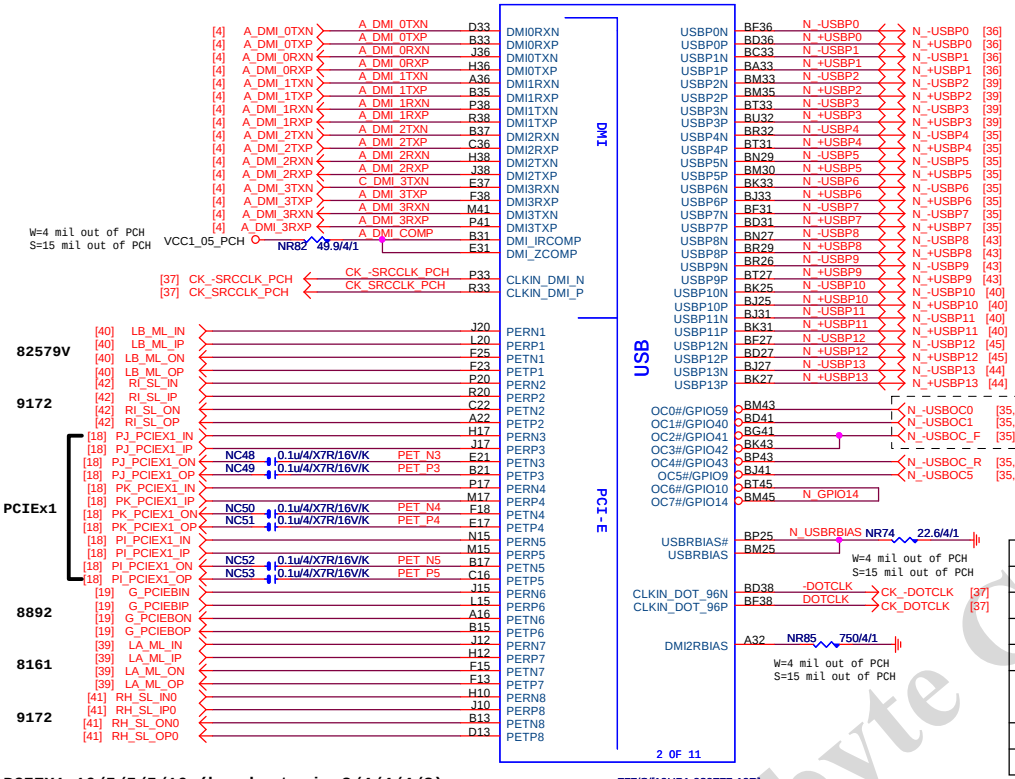
DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

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

Gigabyte Technology			
Title: DDRIII CHANNEL B			
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date:	Sheet 8 of 47		

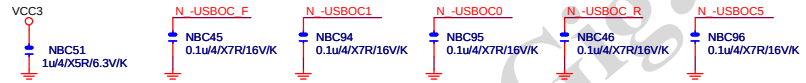
USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHB



Z77/S/[10HB1-030Z77-10R]

PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)
Impedance=80 +- 17.5%

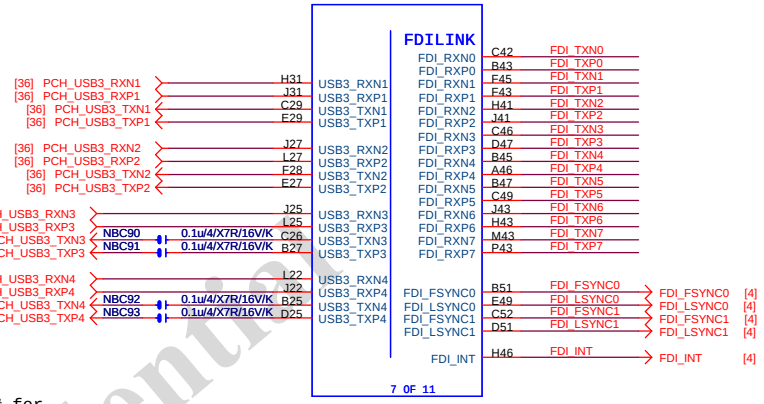


OC[3:0]# for Device 29 (ports 0-7)

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

USB OC# Configure	
OC0#	F_USB30_1
OC1#	USB30_LAN1
OC2#	F_USB1
OC3#	F_USB2
OC4#	ESATA_1394_USB
OC5#	USB30_LAN2
OC6#	Not Use
OC7#	Not Use

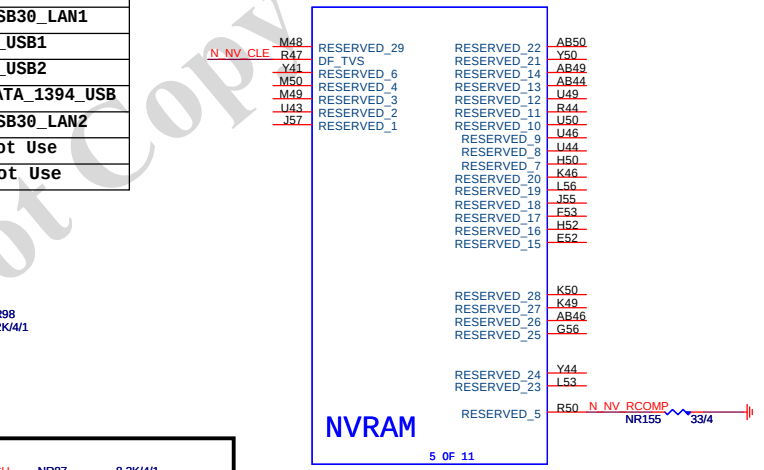
PCHG



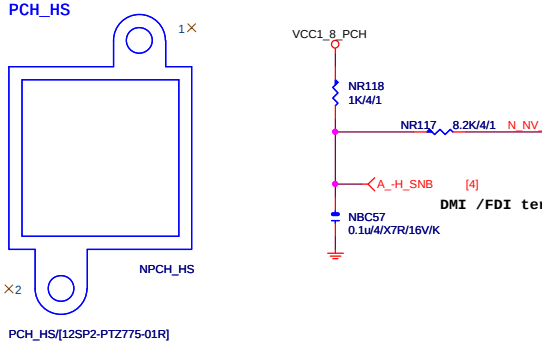
Z77/S/[10HB1-030Z77-10R]

FDI_TXP[0..7] → FDI_TXP[0..7] [4]
FDI_TXN[0..7] → FDI_TXN[0..7] [4]

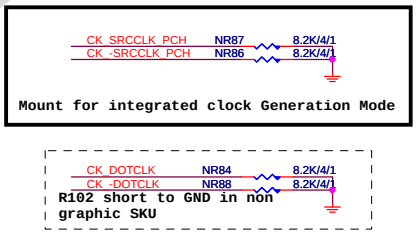
PCHE



Z77/S/[10HB1-030Z77-10R]



PCH_HS/[12SP2-PTZ775-01R]



Gigabyte Technology		
Title: PCH FDI,DMI,USB ,PCIE		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Tuesday, June 19, 2012	Sheet 9 of 47	

PCHF

DDPB_HPD T1 [21] DVI_HDP_F
DDPC_HPD N2 [21] DP_HDP
DDPD_HPD M1 [21] HDMI_HDP_F
DDPB_AUXP R8
DDPB_AUXN R9
DDPC_AUXP U14 [21] DP_AUX
DDPC_AUXN U12 [21] DP_AUX-
DDPD_AUXP N6
DDPD_AUXN R6

DDPB_0P R14 [21] DVI_TX2
DDPB_0N R12 [21] DVI_TX2-
DDPB_1P M11 [21] DVI_TX1
DDPB_1N M12 [21] DVI_TX1-
DDPB_2P H8 [21] DVI_TX0
DDPB_2N K8 [21] DVI_TX0-
DDPB_3P L5 [21] DVI_TXC
DDPB_3N M3 [21] DVI_TXC-
DDPC_0P L2 [21] DP_TX0
DDPC_0N J3 [21] DP_TX0-
DDPC_1P G2 [21] DP_TX1
DDPC_1N G4 [21] DP_TX1-
DDPC_2P F3 [21] DP_TX2
DDPC_2N F5 [21] DP_TX2-
DDPC_3P E4 [21] DP_TX3
DDPC_3N E2 [21] DP_TX3-
DDPD_0P D5 [21] HDMI_TX2
DDPD_0N B5 [21] HDMI_TX2-
DDPD_1P C6 [21] HDMI_TX1
DDPD_1N D7 [21] HDMI_TX1-
DDPD_2P B7 [21] HDMI_TX0
DDPD_2N C9 [21] HDMI_TX0-
DDPD_3P E11 [21] HDMI_TXC
DDPD_3N B11 [21] HDMI_TXC-

CRT_HSYNC AR4 H_SYNC NR210 33/4 N_GHSYNC
CRT_VSYNC AR2 V_SYNC NR211 33/4 N_GVSYNC
CRT_RED AN6 N_R
CRT_GREEN AN2 N_G
CRT_BLUE AM1 N_B
CRT_IRTN AM6
CRT_DDC_DATA AW1 N_DDCDATA
CRT_DDC_CLK AW3 N_DDCCLK
DAC_IREF AT3 N_VGA_RSET NR50 1K/4/1
Pop 0/4 for non graphic skus

TP6 Y18
TP7 Y17
TP8 AB18
TP9 AB17

SDVO_INTP U2
SDVO_INTN T3
SDVO_STALLP W3
SDVO_STALLN U5
SDVO_TVCLKINP U8
SDVO_TVCLKINN U9

DDPC_CTRLCLK AL12 N_DDPC_CTRLCLK N_DDPC_CTRLCLK
DDPC_CTRLDATA AL14 N_DDPC_CTRLDATA N_DDPC_CTRLDATA
DDPD_CTRLCLK AL9 N_DDPD_CTRLCLK N_DDPD_CTRLCLK [21]
DDPD_CTRLDATA AL8 N_DDPD_CTRLDATA N_DDPD_CTRLDATA [21]
SDVO_CTRLCLK AL15 N_DDPB_CTRLCLK N_DDPB_CTRLCLK [21]
SDVO_CTRLDATA AL17 N_DDPB_CTRLDATA N_DDPB_CTRLDATA [21]

6 OF 11

Z77/S/[10HB1-030Z77-10R]

Flex0,2 : 33MHZ

Flex1,3 : 27/14/24/48/25MHZ

PCHH

[34] N_LPC33 NR18 33/4 AT11 CLKOUT_PCI0
[11] N_PCH33 NR47 33/4 AN14 CLKOUT_PCI1
[23] T_TPMCLK NR29 33/4 AT12 CLKOUT_PCI2
AT17 CLKOUT_PCI3
AT14 CLKOUT_PCI4

NTP2 AT9 CLKOUTFLEX0/GPIO64
NTP1 BA5 CLKOUTFLEX1/GPIO65
NTP1 AW5 CLKOUTFLEX2/GPIO66
[34] O_LPCCLK48 NR48 33/4 N_PCH_48M BA2 CLKOUTFLEX3/GPIO67

VCC1_05_PCH NR51 90.9/4/1 N_CLK_RCOMP AL2 XCLK_RCOMP
[37] N_PCHCLK14 N_PCHCLK14 AN8 REFCLK14IN

N_XTALO_PCH AJ5 XTAL25_OUT
N_XTALI_PCH AJ3 XTAL25_IN

8 OF 11

Z77/S/[10HB1-030Z77-10R]

CLKIN_GND1_N CLKIN_GND1_P R27 P27 N_PCHCLK N_PCHCLK [37]
CLKIN_GND0_N CLKIN_GND0_P W53 V52 N_CLK_GND N_CLK_GND
CLKOUT_ITPXDP_N CLKOUT_ITPXDP_P R52 N52

CLKOUT_PCIE7N CLKOUT_PCIE7P AE2 AE1 NR212 NR213 0/4/SHT/M/X 0/4/SHT/M/X -SRC_IN SRC_IN [37] [37]
CLKOUT_DMI_N CLKOUT_DMI_P P31 R31 N_CLK_CPU N_CLK_CPU NR78 NR77 0/4/SHT/M/X 0/4/SHT/M/X N_CPUCLK N_CPUCLK [4] [4]
CLKOUT_DP_N CLKOUT_DP_P N56 M55 120Mhz for DP
CLKOUT_PCIE0N CLKOUT_PCIE0P AE6 AC6 NR54 NR55 0/4/SHT/M/X 0/4/SHT/M/X PJ_PCIE_CLK PJ_PCIE_CLK [18] [18] PCIXx1
CLKOUT_PCIE1N CLKOUT_PCIE1P AA5 W5 NR58 NR59 0/4/SHT/M/X 0/4/SHT/M/X PK_PCIE_CLK PK_PCIE_CLK [18] [18] PCIXx1
CLKOUT_PCIE2N CLKOUT_PCIE2P AB12 AB14 NR60 NR61 0/4/SHT/M/X 0/4/SHT/M/X LA_SRCCLK_LAN LA_SRCCLK_LAN [39] [39] 8161
CLKOUT_PCIE3N CLKOUT_PCIE3P AB9 AB8 NR42 NR41 0/4/SHT/M/X 0/4/SHT/M/X PI_PCIE_CLK PI_PCIE_CLK [18] [18] PCIXx1
CLKOUT_PCIE4N CLKOUT_PCIE4P Y9 Y8 NR44 NR43 0/4/SHT/M/X 0/4/SHT/M/X PP_PCIE_CLK PP_PCIE_CLK [16] [16] PCIXx4
CLKOUT_PCIE5N CLKOUT_PCIE5P AF3 AG2 NR53 NR52 0/4/SHT/M/X 0/4/SHT/M/X LB_SRCCLK_LAN LB_SRCCLK_LAN [40] [40] 82579V
CLKOUT_PCIE6N CLKOUT_PCIE6P AB3 AA2 NR56 NR57 0/4/SHT/M/X 0/4/SHT/M/X G_PBCLK G_PBCLK [19] [19] 8892
CLKOUT_PEG_A_N CLKOUT_PEG_A_P AG8 AG9 N_SRCCLK1 N_SRCCLK1 NR39 NR40 0/4/SHT/M/X 0/4/SHT/M/X PA_SRCCLK_3GIO PA_SRCCLK_3GIO [14] [14] PCIXx16
CLKOUT_PEG_B_N CLKOUT_PEG_B_P AE12 AE11 N_SRCCLK5 N_SRCCLK5 NR21 NR20 0/4/SHT/M/X 0/4/SHT/M/X PE_SRCCLK_3GIO1 PE_SRCCLK_3GIO1 [15] [15] PCIXx8

CLK BUF

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

N_XTALI_PCH NR16 1M/4 NX1 N_XTALO_PCH
25M/20p/30ppm/49US/20/D
NC6 27p/4/NPO/50V/J
NC4 27p/4/NPO/50V/J

N_PCHCLK14 NR33 8.2K/4/1

Mount for integrated clock Generation Mode

VCC3 NR208 2.2K/4/1 NR209 2.2K/4/1
N_DDPC_CTRLCLK
N_DDPC_CTRLDATA

5VDUAL F19 FUSEVCC_R1
SMD1812P160/8V

ESD5
N_GVSYNC 1
VGADDCCLK 6
VGADDCDATA 3
N_GHSYNC 4
VCC C219 0.1u/4/X7R/16V/K
AOZ8902CIL/SOT23-6

SSOP6_ESD

N_GVSYNC C210 100p/4/NPO/50V/J/X
N_GHSYNC C211 100p/4/NPO/50V/J/X

VCC3 R902 2.2K/4/1 R903 2.2K/4/1
N_DDCDATA
N_DDCCLK
VCC VCC3 R5404 R5405 1K/4/1 0/4/X
Q350 2N7002/SOT23/25pF/5
VCC R900 2.2K/4/1 R901 2.2K/4/1
VGADDCDATA
VCC VCC3 R5406 R5407 1K/4/1 0/4/X
Q351 2N7002/SOT23/25pF/5
VGADDCCLK
SOT23

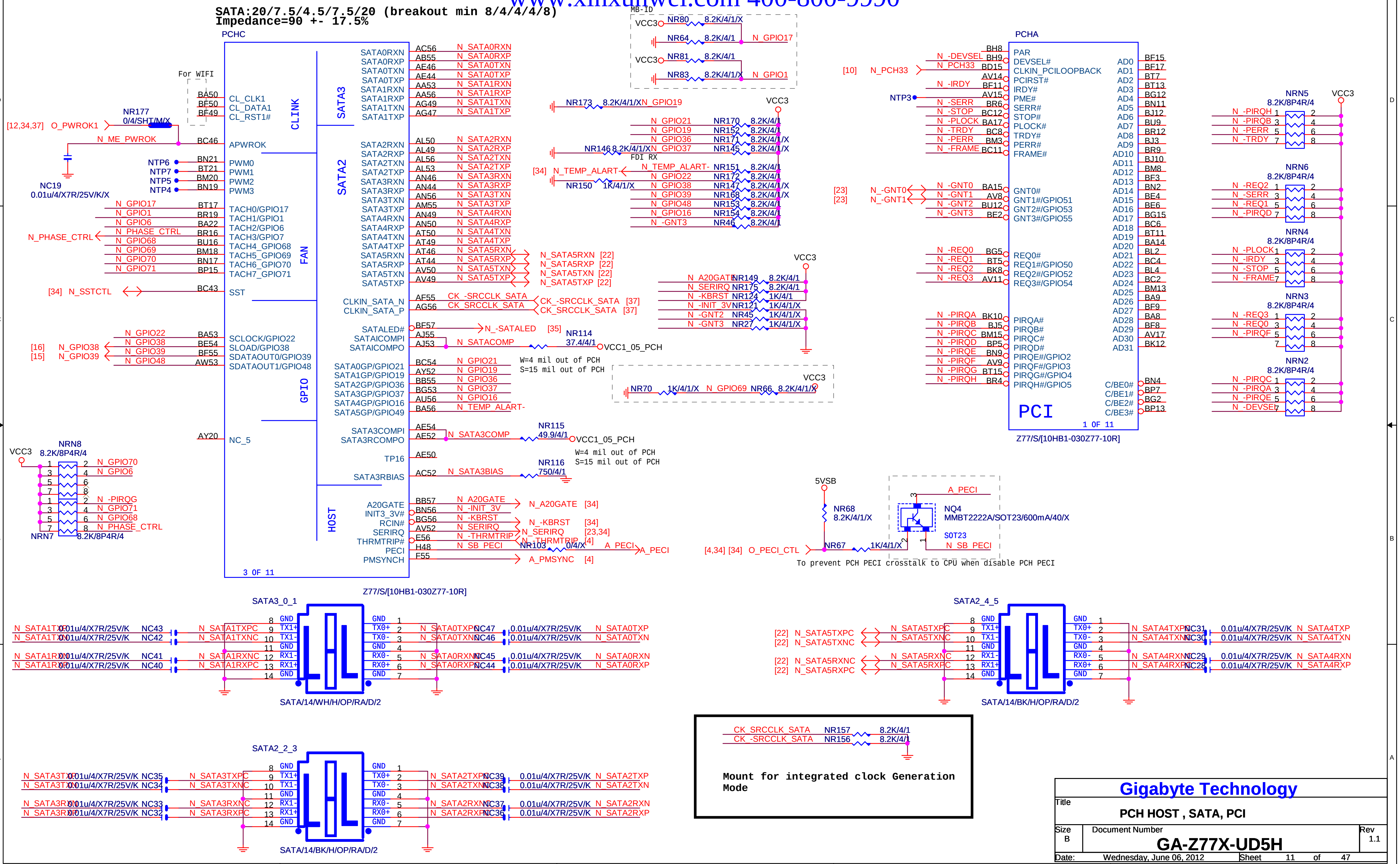
FUSEVCC_R1
BC330 0.1u/4/X7R/16V/K/X
VGA
VGA_R 11
VGA_G 12 VGADDCDATA
VGA_B 13 N_GHSYNC
14 N_GVSYNC
15 VGADDCCLK
16
17
VGA/BU/SC/RA/D/2/HR/[11NR6-102015-R1R]

ESD12
N_R 6
N_B 3
N_G 4
VCC3 C220 0.1u/4/X7R/16V/K
AOZ8902CIL/SOT23-6

N_R
N_G
N_B
R68 150/4/1/X
R70 150/4/1/X
R69 150/4/1/X
Close to PCH

FB2 FB3 FB4 60/4/3A/S
VGA_R VGA_G VGA_B
R556 75/4/1 R558 75/4/1 R557 75/4/1
C52 C2064 10p/4/NPO/50V/J 10p/4/NPO/50V/J 10p/4/NPO/50V/J
C53 C54 22p/4/NPO/50V/J C55 22p/4/NPO/50V/J C56 22p/4/NPO/50V/J
Close to Filter

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Tuesday, June 19, 2012	Sheet 10 of 47	

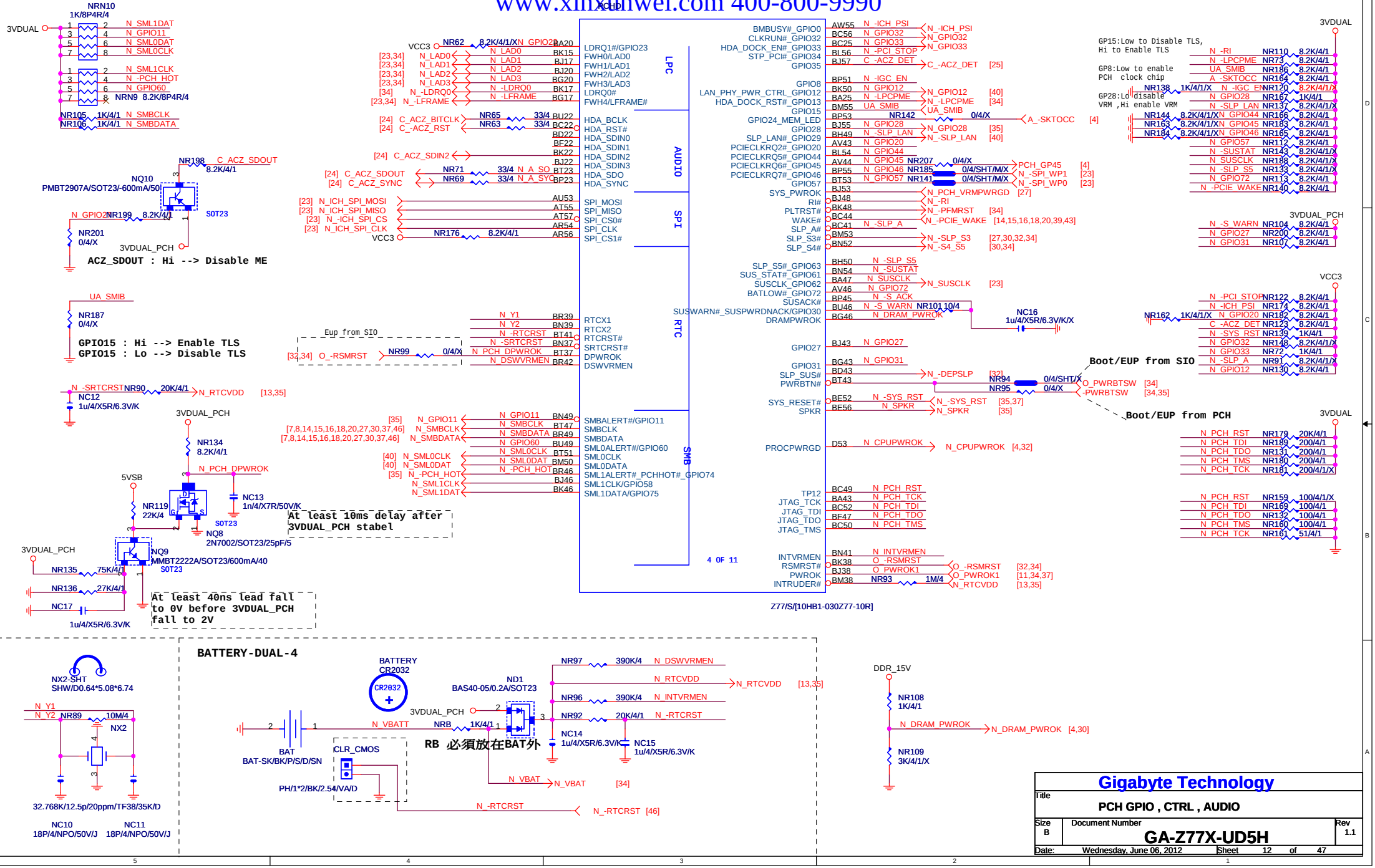


Gigabyte Technology

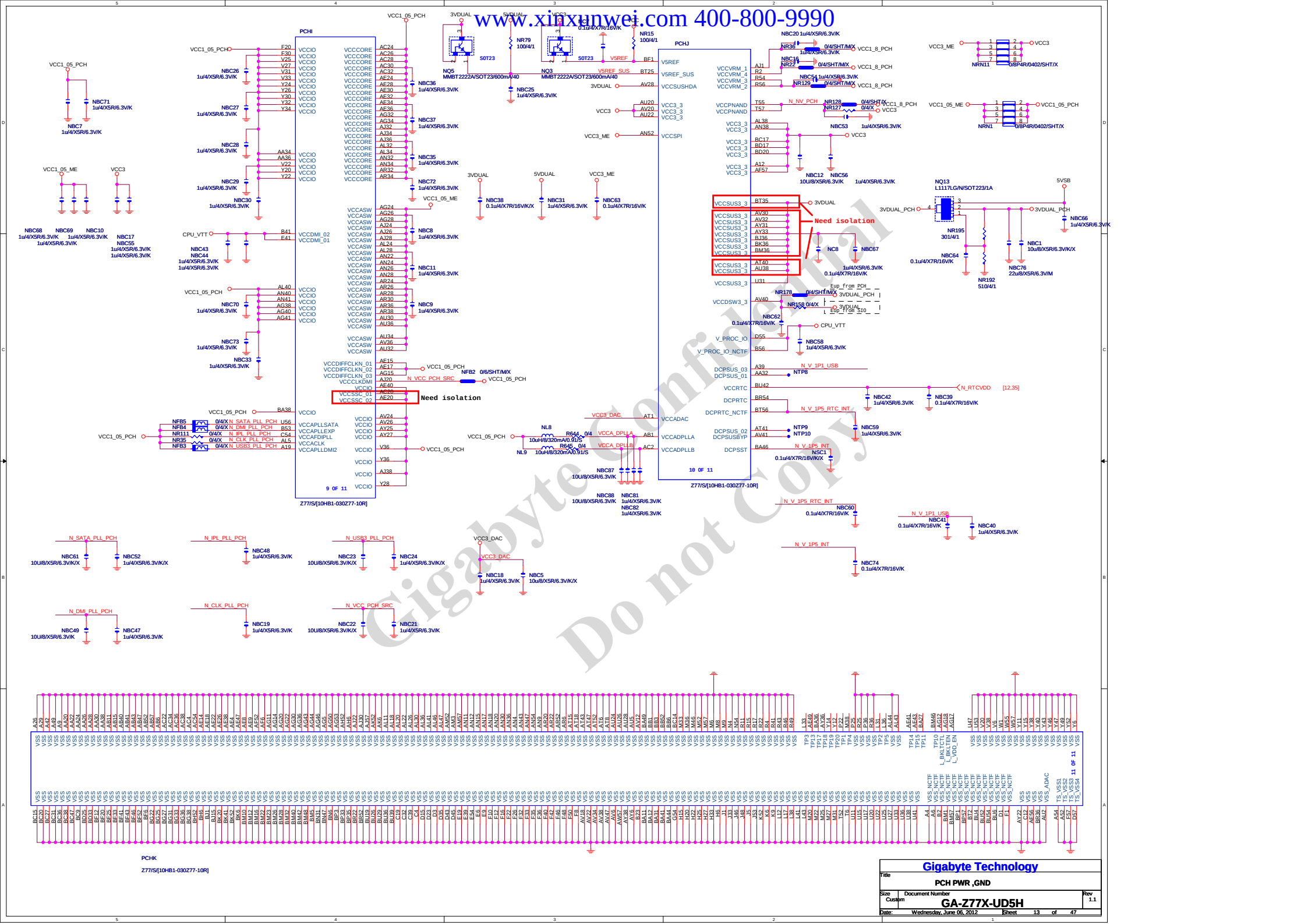
Title: PCH HOST , SATA, PCI

Size: B | Document Number: GA-Z77X-UD5H | Rev: 1.1

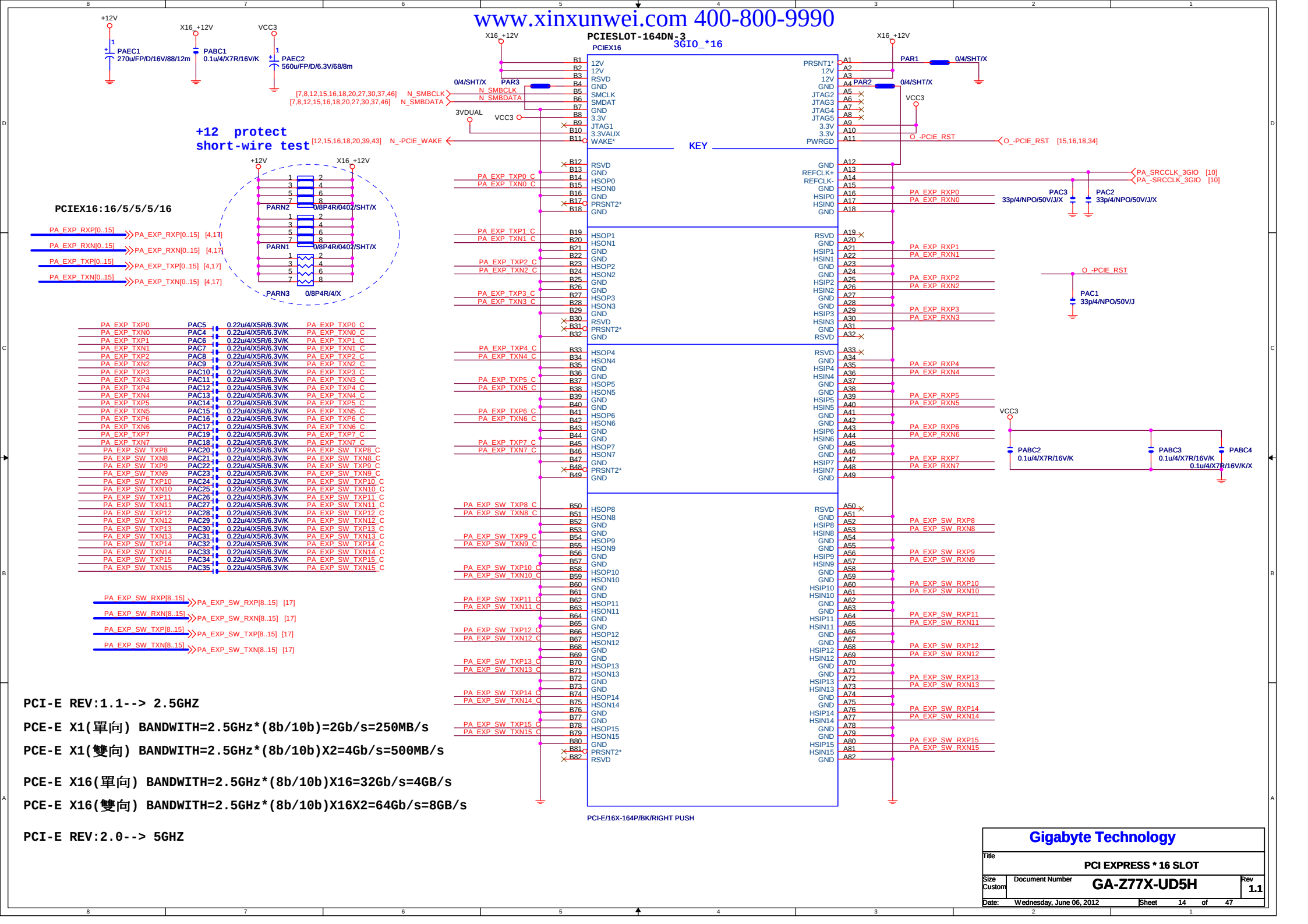
Date: Wednesday, June 06, 2012 | Sheet 11 of 47



Gigabyte Technology		
Title: PCH GPIO , CTRL , AUDIO		
Size: B	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 12 of 47	



Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012		Sheet 13 of 47	



PCI-E REV:1.1--> 2.5GHZ

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

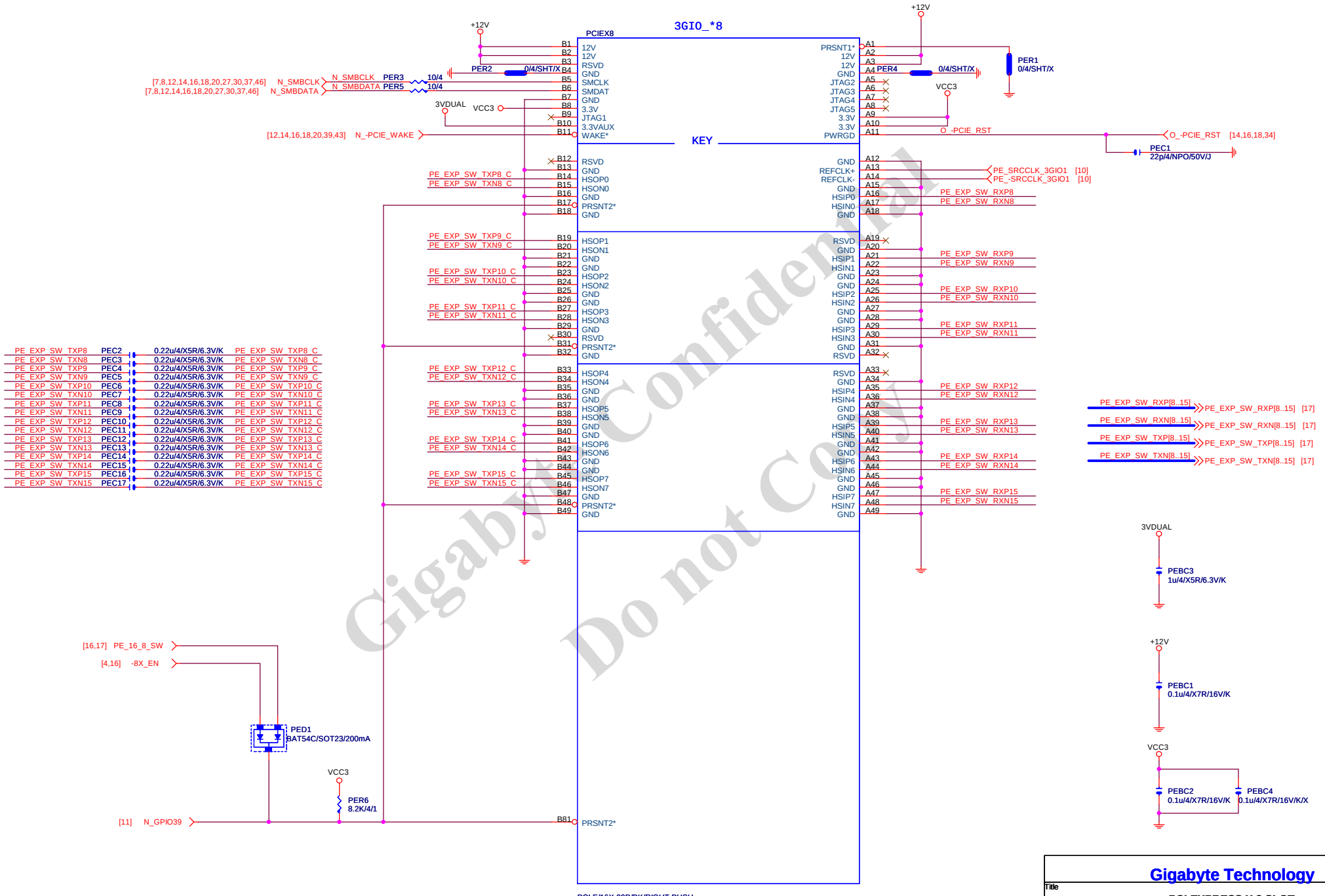
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

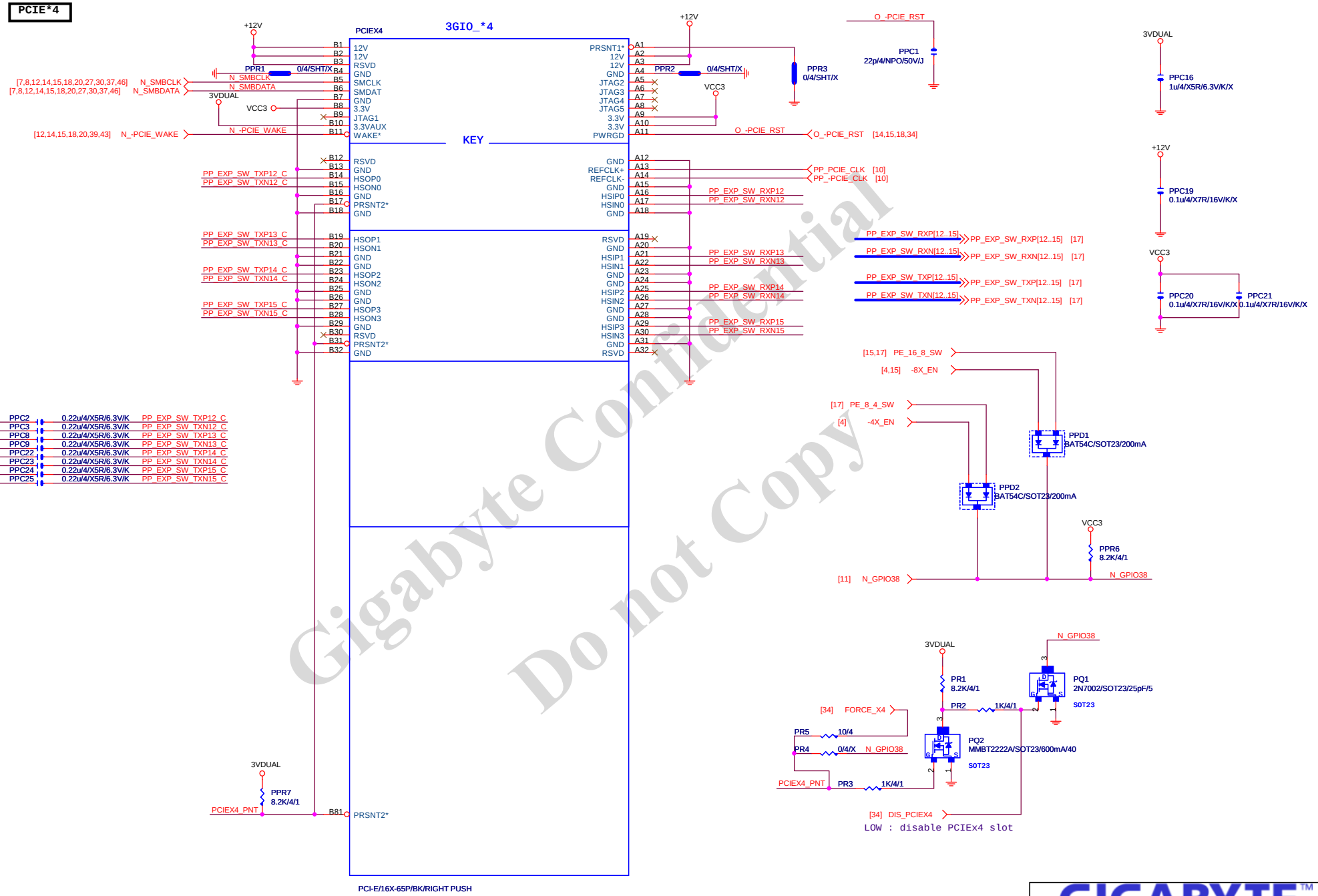
Gigabyte Technology	
Title	PCI EXPRESS * 16 SLOT
Size: Custom	Document Number: GA-Z77X-UD5H
Rev: 1.1	
Date: Wednesday, June 06, 2012	Sheet 14 of 47



Title	PCI EXPRESS X 8 SLOT
Size	Custom
Document Number	GA-Z77X-UD5H
Rev	1.1
Date:	Tuesday, June 19, 2012
Sheet	15 of 47

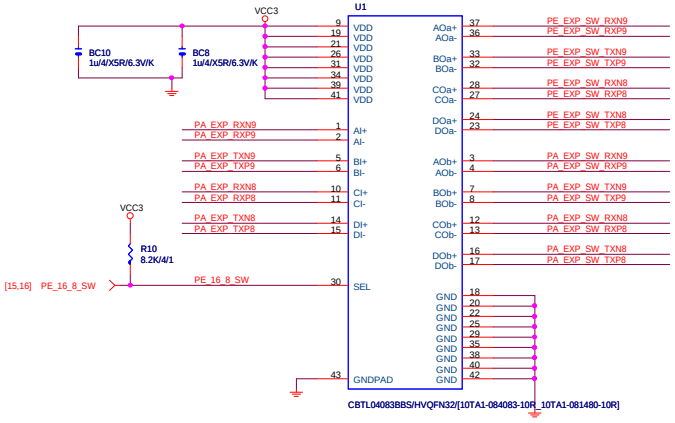
Gigabyte Technology

PCIE*4

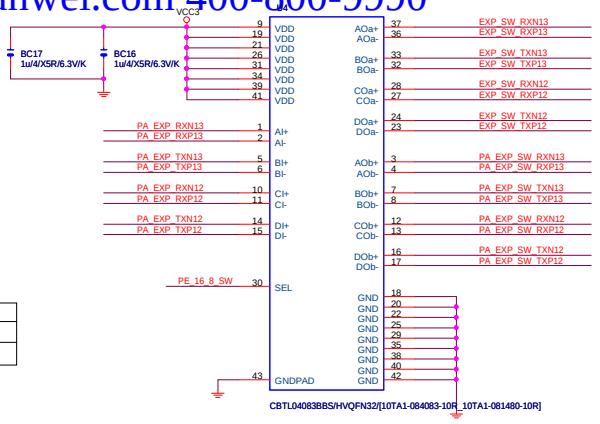


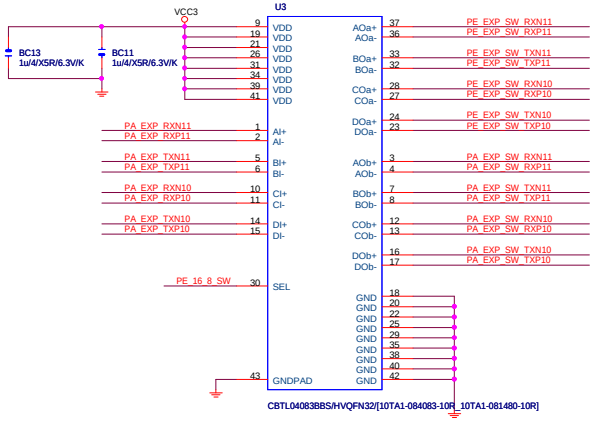
GIGABYTE™

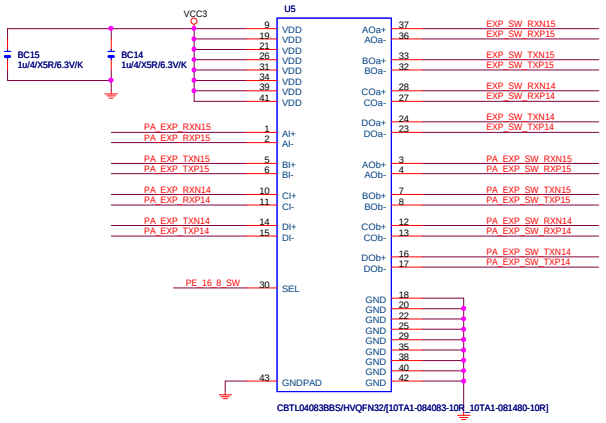
Title	PCI EXPRESS X4 SLOT	
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 16 of 47	



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

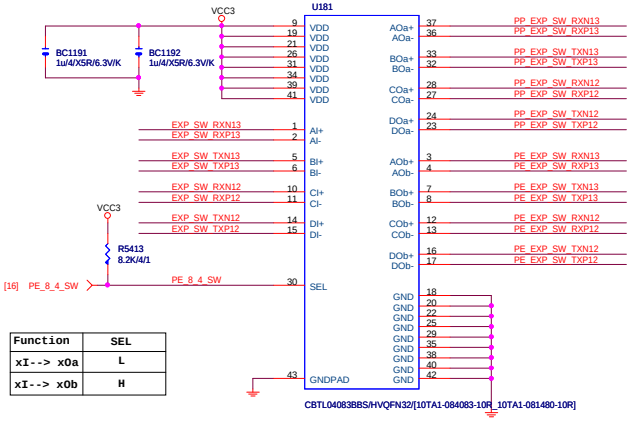




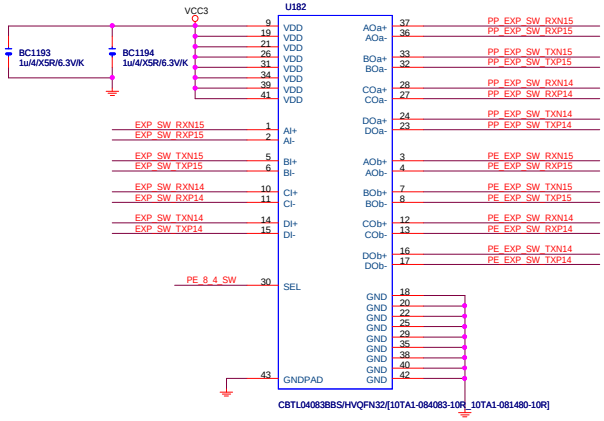


PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] [4,14]
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [4,14]
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [4,14]
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [4,14]

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]

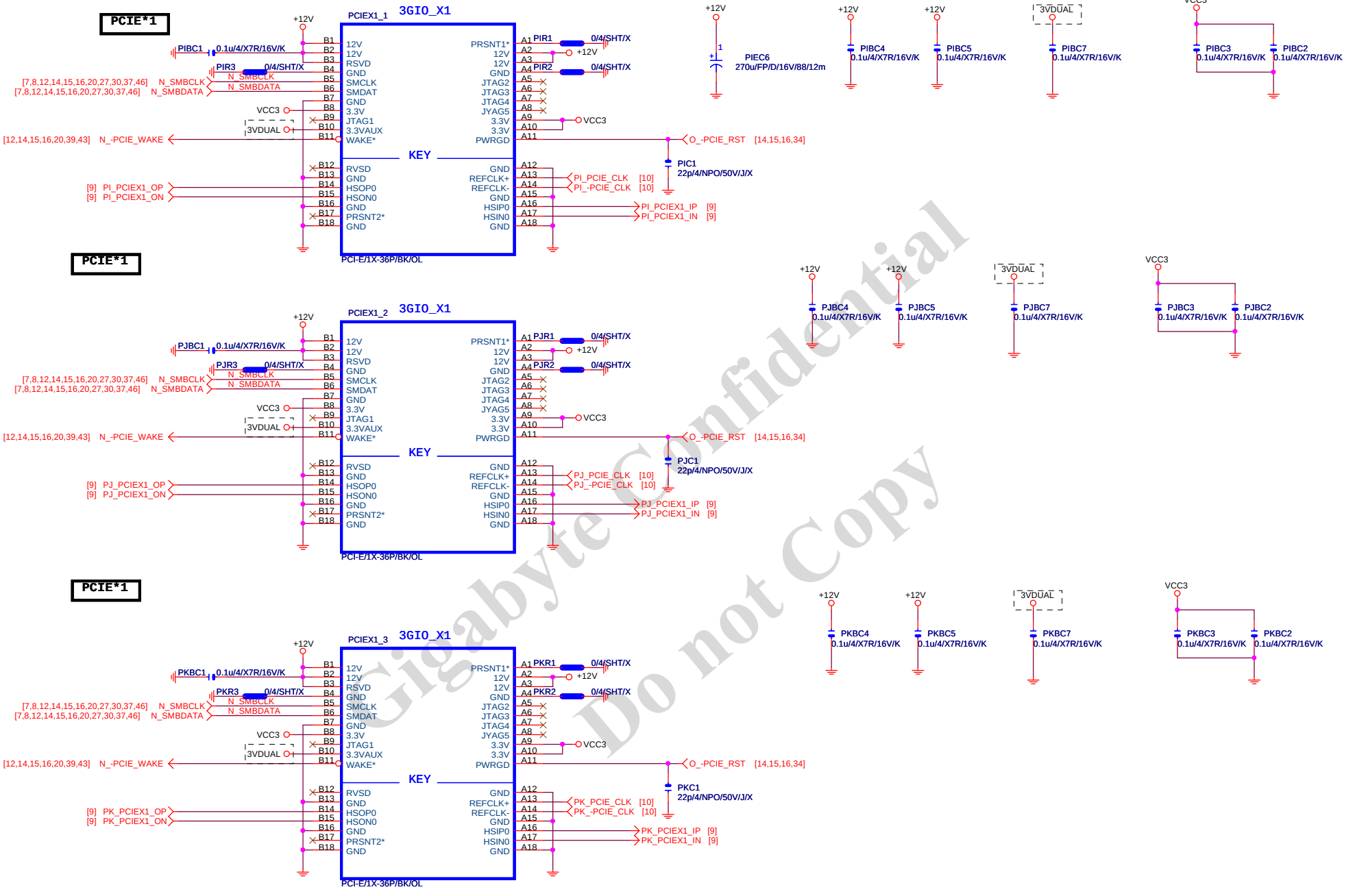


Function	SEL
xI--> xOa	L
xI--> xOb	H

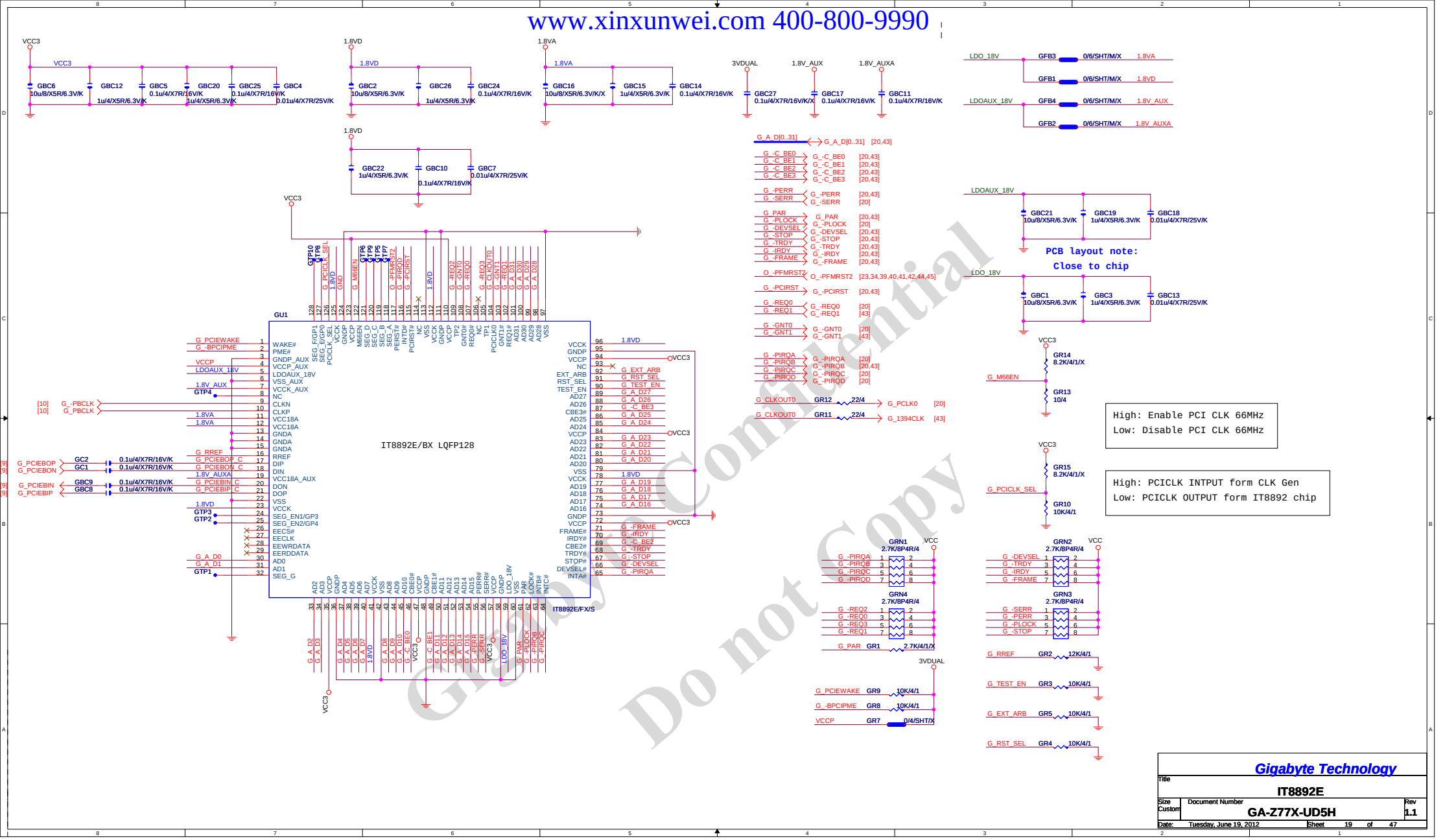


PP_EXP_SW_RXP[12..15] >> PP_EXP_SW_RXP[12..15] [16]
PP_EXP_SW_RXN[12..15] >> PP_EXP_SW_RXN[12..15] [16]
PP_EXP_SW_TXP[12..15] >> PP_EXP_SW_TXP[12..15] [16]
PP_EXP_SW_TXN[12..15] >> PP_EXP_SW_TXN[12..15] [16]

Gigabyte Technology			
Title: PCI EXPRESS X16 X8 X4 SWITCH			
Size: C	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012		Sheet 17 of 47	

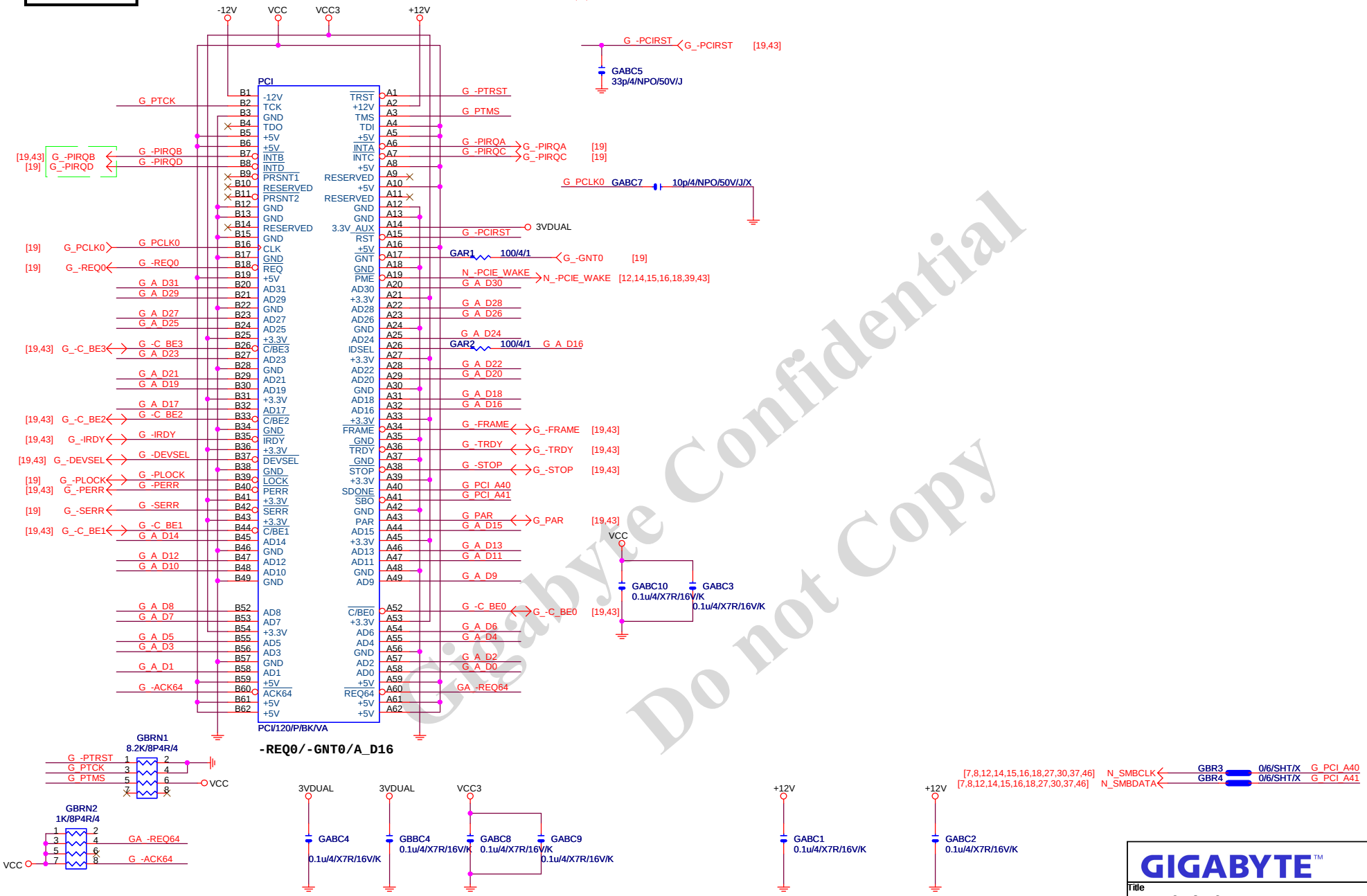


Gigabyte Technology		
Title: PCIEX1_1, 2 , 3		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 18 of 47	



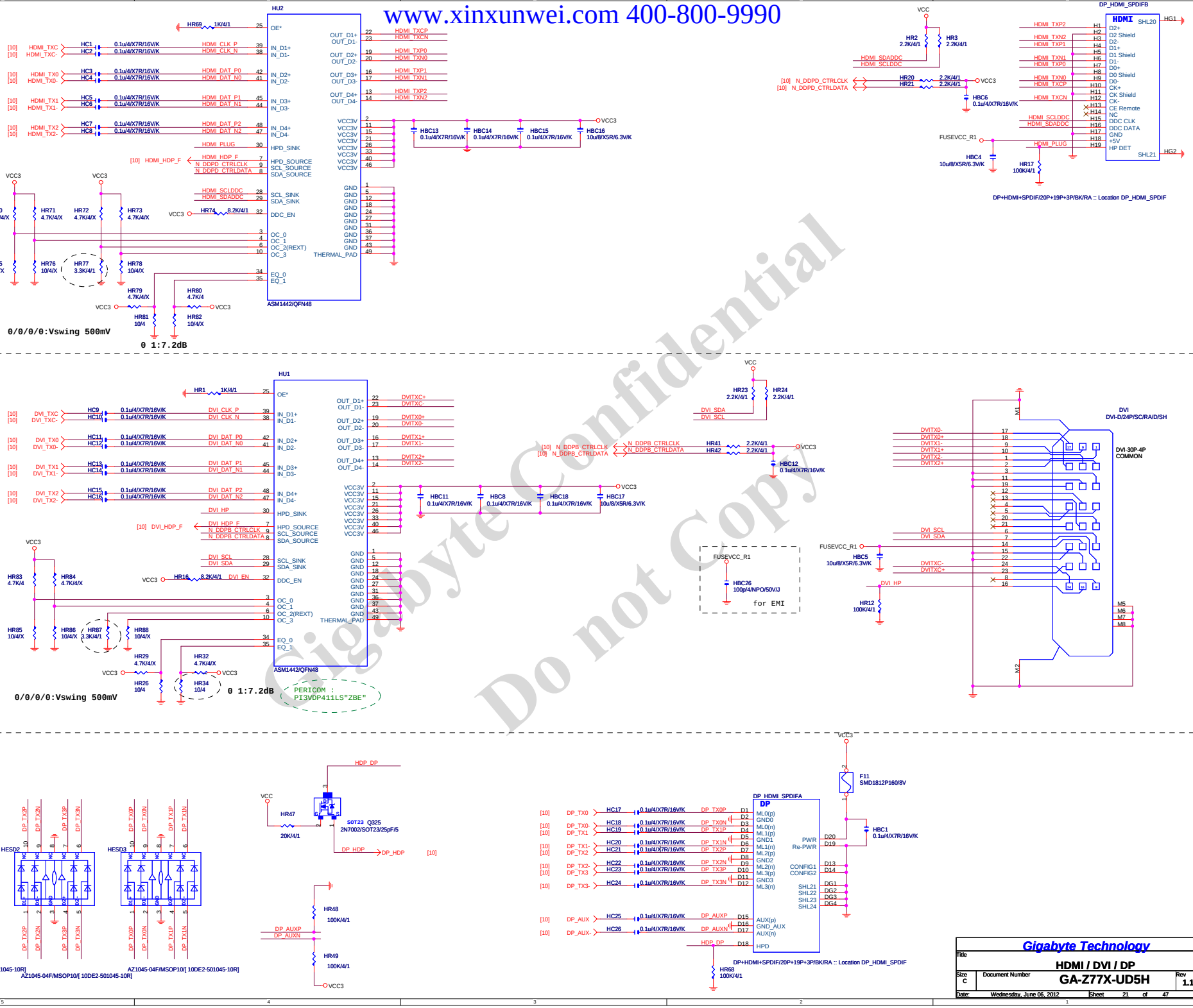
Gigabyte Technology		
Title: IT8892E		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Tuesday, June 19, 2012	Sheet 19 of 47	

PCI SLOT 1

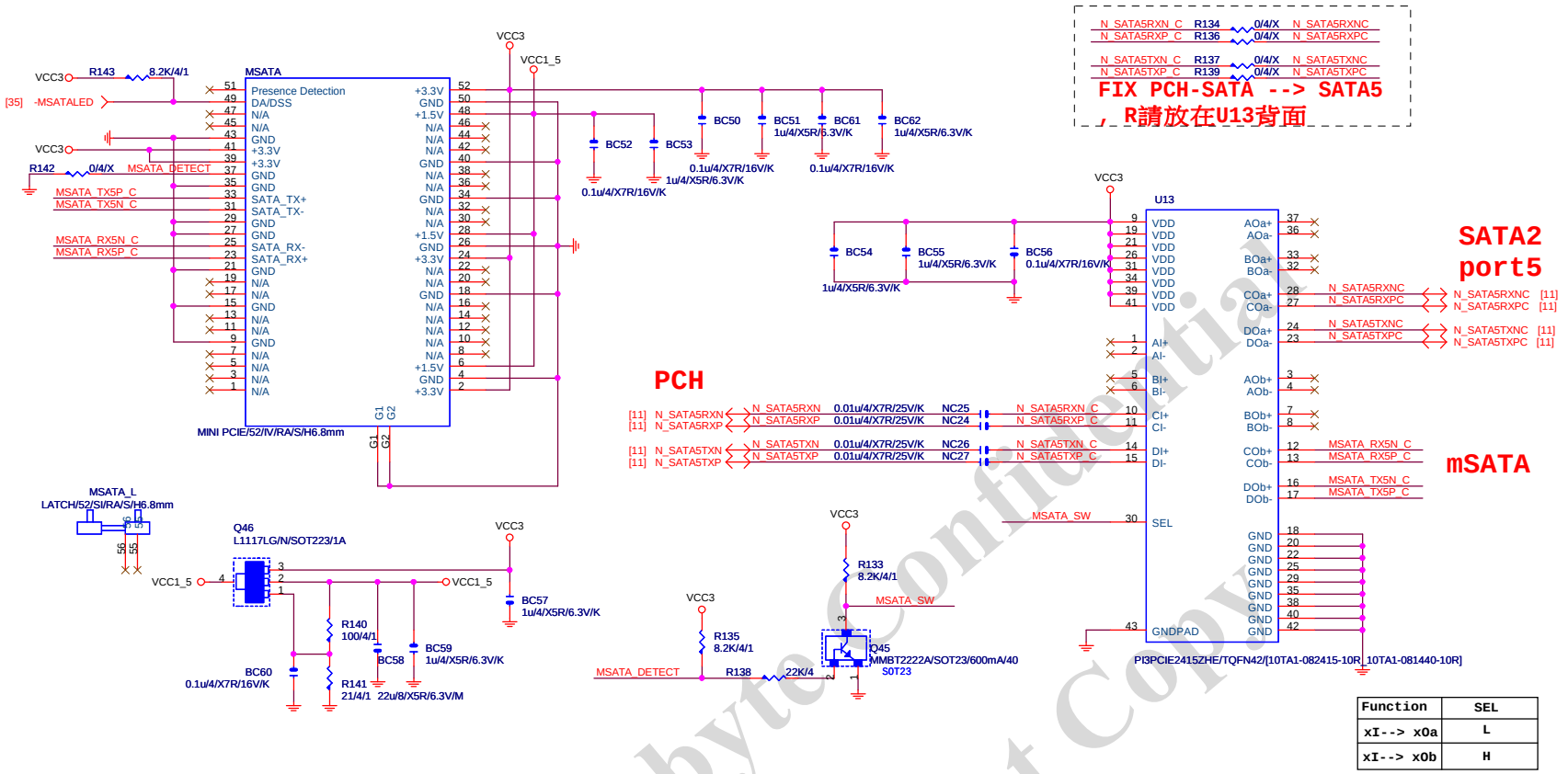


GIGABYTE™

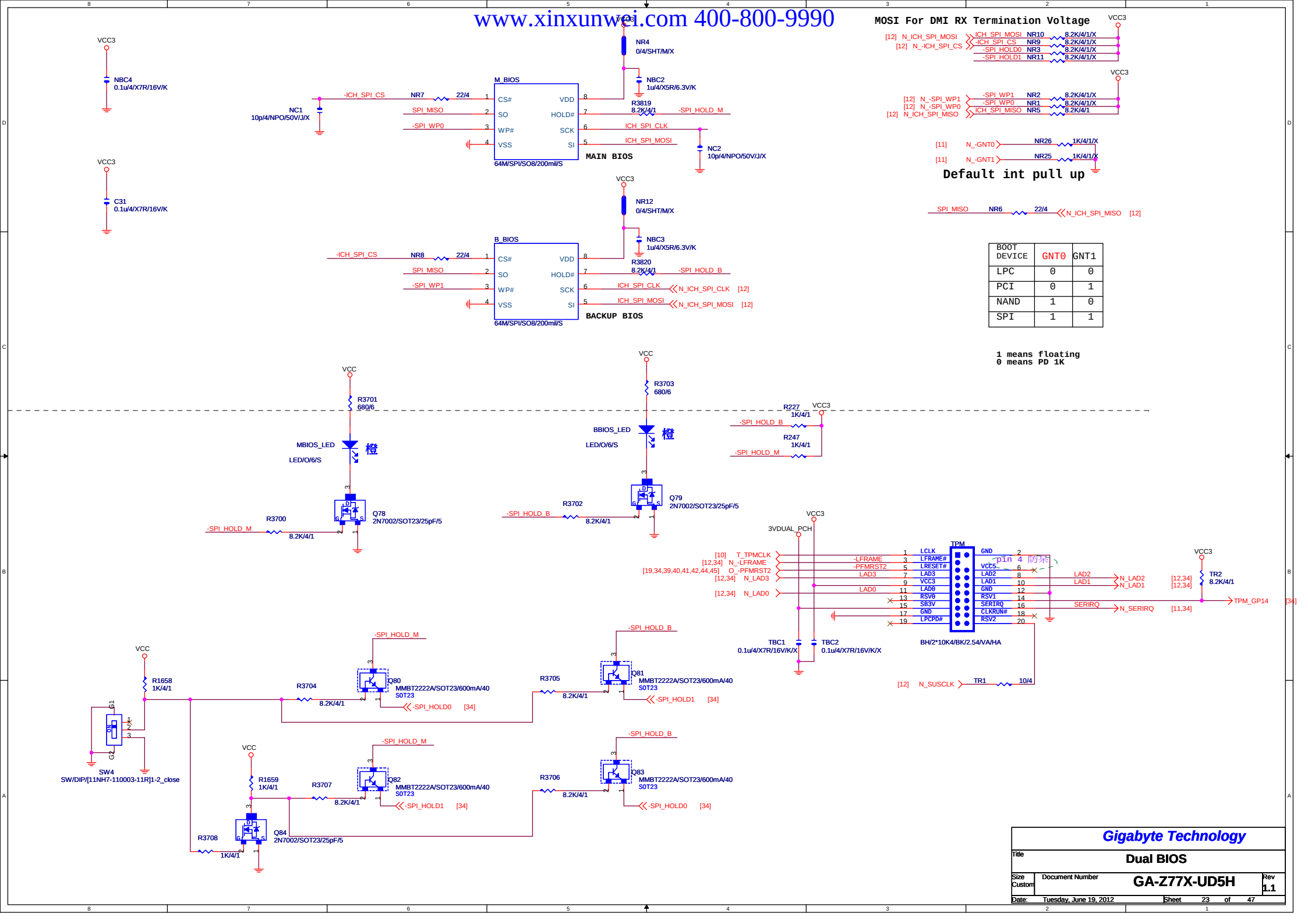
Title: PCI SLOT 1		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 20 of 47	

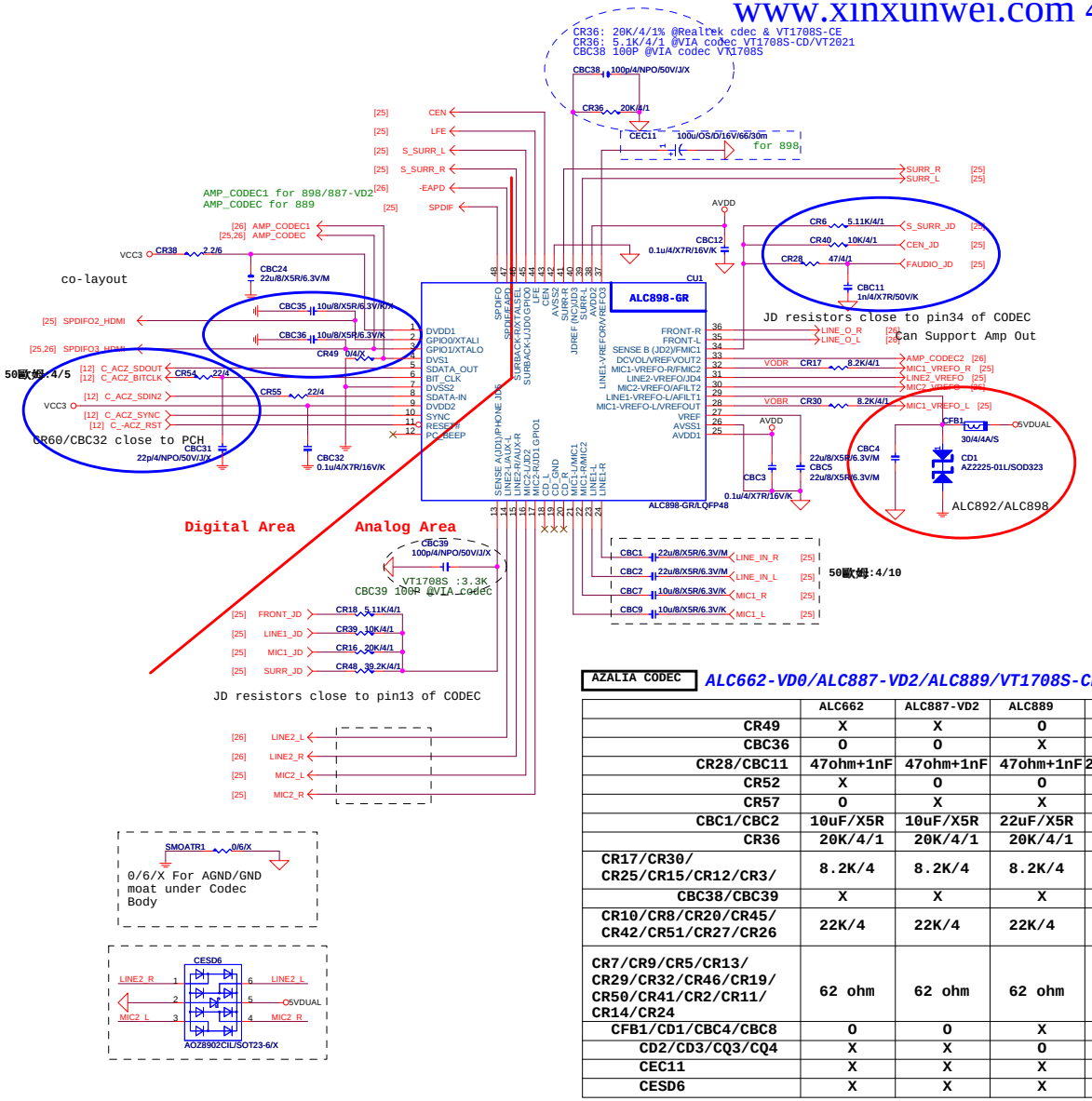


Gigabyte Technology			
Title	HDMI / DVI / DP		
Size C	Document Number GA-Z77X-UD5H		Rev 1.1
Date: Wednesday, June 06, 2012	Sheet 21 of 47		



Title	MSATA
Size	Custom
Document Number	GA-Z77X-UD5H
Rev	1.1
Date:	Wednesday, June 06, 2012
Sheet	22 of 47





AZALIA CODEC *ALC889/ALC889B/ALC892/ALC898 Colay*

	ALC889	ALC889B	ALC898/ALC892
CR49	0	0	X
CBC36	X	X	10uF/X5R
CBC35	X	10uF/X5R	X
CR52	0	X	0
CR53	X	0	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R
CBC7/CBC9/CBC20/CBC15	10uF/X5R	10uF/X5R	10uF/X5R
CFB1/CD1/CBC4	X	X	0
CD2/CD3/CQ3/CQ4	0	0	X
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR21/CR47/ CR2/CR11/CR14/CR24	62 ohm	62 ohm	62 ohm

AZALIA CODEC *ALC662-VD0/ALC887-VD2/ALC889/VT1708S-CD/VT1708S-CE/VT2021 Colay*

	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC892
CR49	X	X	0	0	X	0	X
CBC36	0	0	X	X	0	X	0
CR28/CBC11	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P	47ohm+1nF	47ohm+1nF
CR52	X	0	0	0	0	0	0
CR57	0	X	X	X	X	X	X
CBC1/CBC2	10uF/X5R	10uF/X5R	22uF/X5R	10uF/X5R	10uF/X5R	10uF/X5R	22uF/X5R
CR36	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CR17/CR30/ CR25/CR15/CR12/CR3/	8.2K/4	8.2K/4	8.2K/4	3.3K/4/1	3.3K/4/1	3.3K/4/1	8.2K/4
CBC38/CBC39	X	X	X	100P/4	100P/4	X	X
CR10/CR8/CR20/CR45/ CR42/CR51/CR27/CR26	22K/4	22K/4	22K/4	10K/4/1	10K/4/1	10K/4/1	22K/4
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR2/CR11/ CR14/CR24	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm	75 ohm	62 ohm
CFB1/CD1/CBC4/CBC8	0	0	X	X	0	X	0
CD2/CD3/CQ3/CQ4	X	X	0	0	X	0	X
CEC11	X	X	X	X	X	X	0
CESD6	X	X	X	0	0	0	X

Gigabyte Technology	
Title	HD AUDIO ALC898
Size: Custom	Document Number: GA-Z77X-UD5H
Rev	1.1
Date: Tuesday, June 19, 2012	Sheet 24 of 47

CODEC POWER/EMI PAD

EUP
5VDUAL
AVDD
+12V
CQ4
CD4148WP/1206/300mA/X
CQ3
CD4148WP/1206/300mA/X
78L05/SOT89/0.1A/X
CD3
CBC21
0.1u/4/X7R/16V/K
CD2
AZ2225-01L/SOD323/X
CBC8
22u/8/X5R/6.3V/M

ADD CD2 For ESD PROTECT DIODE

上ALC892時,此顆電容要保留

CR23 0/4/X
CR44 0/6/X

MOATC1 0/4 → Near Audio jack left
MOATC2 0/4 → Codec --> Audio jack
MOATC3 0.1u/4/X7R/16V/K → F_AUDIO

CR4 0/6/X

CESD1
M2_L
M2_R
L2_R
L2_L
AZ2025-04S/SOT23-5L/X

DP_HDMI_SPDIFC
FUSEVCC_R1
[24] SPDIF
S1 S2 S3
G1 G2 G3 G4
DP+HDMI+SPDIF/20P+19P+3P/BK/RA :: Location DP_HDMI_SPDIF

[24] SPDIF CR57 0/4/X
[24] SPDIFO2_HDMI CR52 0/4
[24,26] SPDIFO3_HDMI CR53 0/4/X
for 889B
SPDIFO_HDMI
CBC37 100p/4/NPO/50V/J
PIN
SPDIF_O
PH/1*2/BK/2.54/VA/D
For HDMI SPDIF

CESD5
SPDIF
SPDIFO_HDMI
AZ2025-04S/SOT23-5L/X

AZALIA JACK

BTX AZALIA CONNECTOR

11NR6-403007-21R

CESD2 AJ_A2 AJ_B2 AJ_C2 AJ_C5
CESD4 AJ_B5 AJ_A5 BJ_C2 BJ_A2
CESD3 BJ_B5 BJ_A5 BJ_C5 BJ_B2
AZ2025-04S/SOT23-5L/X

AUDIOB
[24] LINE1_JD
AJ_A5
AJ_A2
[24] FRONT_JD
AJ_B5
AJ_B2
[24] MIC1_JD
AJ_C5
AJ_C2
GND LINE-IN
GND LINE-OUT
GND MIC-IN
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

BLUE LINE-IN
GREEN LINE-OUT
PINK MIC-IN

AUDIOA
[24] CEN_JD
BJ_B5
BJ_B2
[24] SURR_JD
BJ_C5
BJ_C2
[24] S_SURR_JD
BJ_A5
BJ_A2
GND REAR
GND CEN
GND SIDE
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

Orange CEN/LFE
Black SURROUND
Gray SURROUND SIDE

Audio jack --> USB LINE-OUT

CR10 22K/4
CR8 22K/4
[26] AJ_B5
[26] AJ_B2
CBC23 180p/4/NPO/50V/J
CBC26 180p/4/NPO/50V/J

LINE-IN

[24] LINE_IN_R CR5 62/4 AJ_A5
[24] LINE_IN_L CR13 62/4 AJ_A2
CBC18 180p/4/NPO/50V/J
CBC27 180p/4/NPO/50V/J

MIC-IN

[24] MIC1_R CR29 62/4 AJ_C5
[24] MIC1_L CR32 62/4 AJ_C2
[24] MIC1_VREFO_L
[24] MIC1_VREFO_R
CBC19 180p/4/NPO/50V/J
CBC22 180p/4/NPO/50V/J

SURROUND

CR20 22K/4
CR45 22K/4
EMI
CEC5 100u/OS/D/16V/66/30m
[24] SURR_R CR46 62/4 BJ_C5
CEC7 100u/OS/D/16V/66/30m
[24] SURR_L CR19 62/4 BJ_C2
CBC29 180p/4/NPO/50V/J
CBC28 180p/4/NPO/50V/J

CEN/LFE

CR42 22K/4
CR51 22K/4
EMI
CEC9 100u/OS/D/16V/66/30m
[24] LFE CR50 62/4 BJ_B5
CEC10 100u/OS/D/16V/66/30m
[24] CEN CR41 62/4 BJ_B2
CBC25 180p/4/NPO/50V/J
CBC34 180p/4/NPO/50V/J

SURR BACK

CR43 22K/4
CR22 22K/4
EMI
CEC8 100u/OS/D/16V/66/30m
[24] S_SURR_R CR21 62/4 BJ_A5
CEC4 100u/OS/D/16V/66/30m
[24] S_SURR_L CR47 62/4 BJ_A2
CBC33 180p/4/NPO/50V/J
CBC30 180p/4/NPO/50V/J

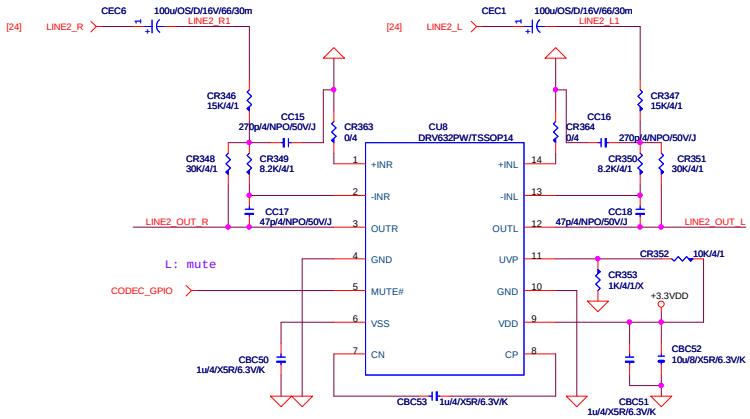
AZALIA FRONT PANEL

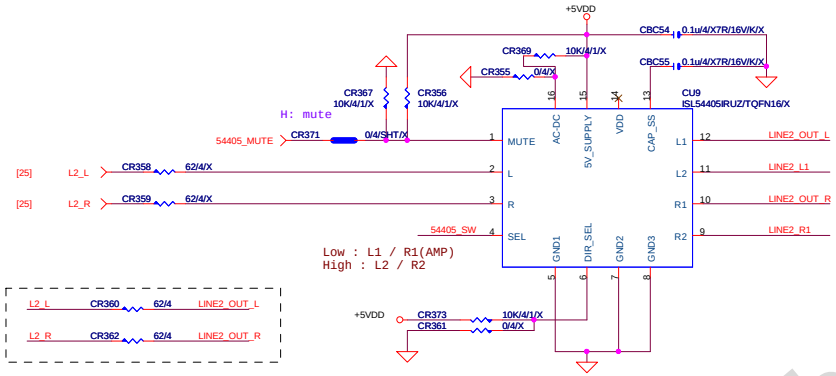
CQ2 BAT54A/SOT23/200mA/X
[24] LINE2_VREFO
CR25 8.2K/4/1/X
CR15 8.2K/4/1/X
CQ1 BAT54A/SOT23/200mA
[24] MIC2_VREFO
CR12 8.2K/4/1
CR3 8.2K/4/1
EMI
[24] MIC2_L
[24] MIC2_R
CBC20 10u/8/X5R/6.3V/K
CBC15 10u/8/X5R/6.3V/K
CR2 62/4 M2_L
CR11 62/4 M2_R
[26] L2_R
[24] FAUDIO_JD
[26] L2_L
CR1 0/4/X
CBC10 180p/4/NPO/50V/J
CBC16 180p/4/NPO/50V/J
CBC17 180p/4/NPO/50V/J
CBC6 180p/4/NPO/50V/J
F_AUDIO
CR27 22K/4
CR26 22K/4
CR35 20K/4/1
CR31 39.2K/4/1
bh/2*5k8/bk/2.54/va/[11nh3-000205-p1r]
Digital Area
3VDUAL
CR56 8.2K/4/1/X
C_ACZ_DET [12]

Gigabyte Technology

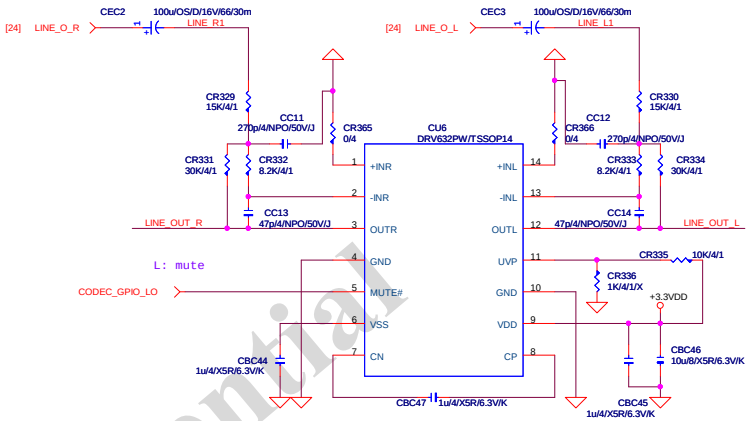
Title	AUDIO JACK	
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 25 of 47	

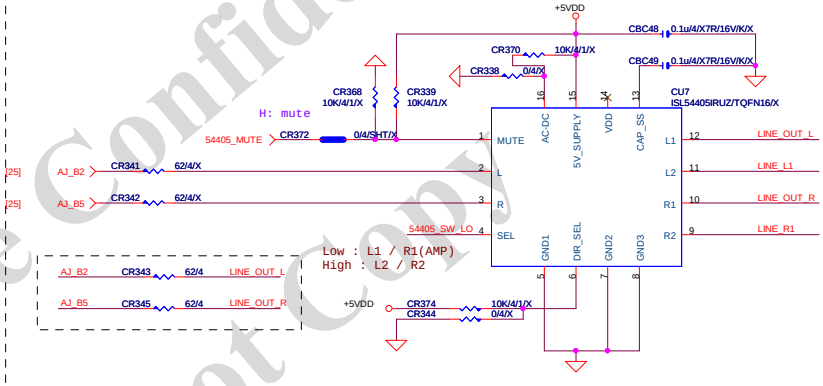
HEADPHONE

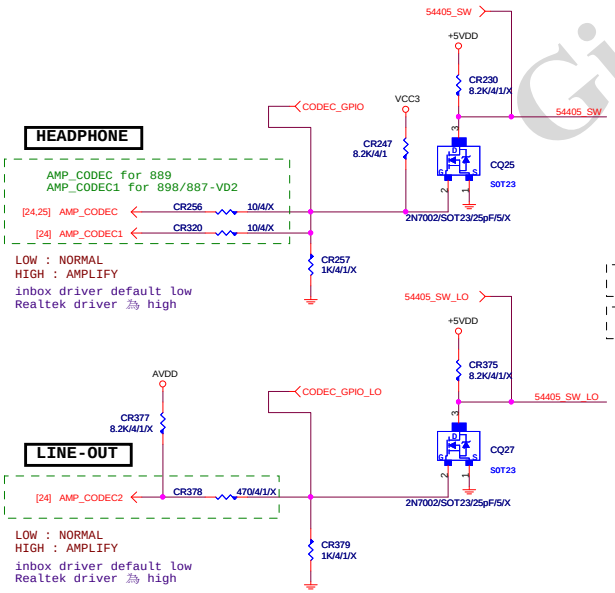


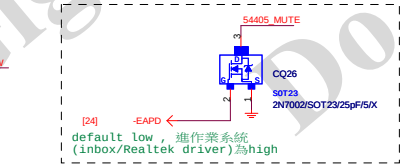


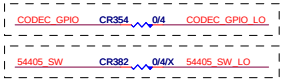
LINE-OUT

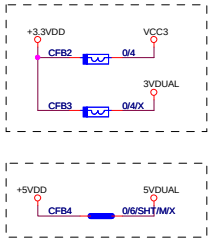




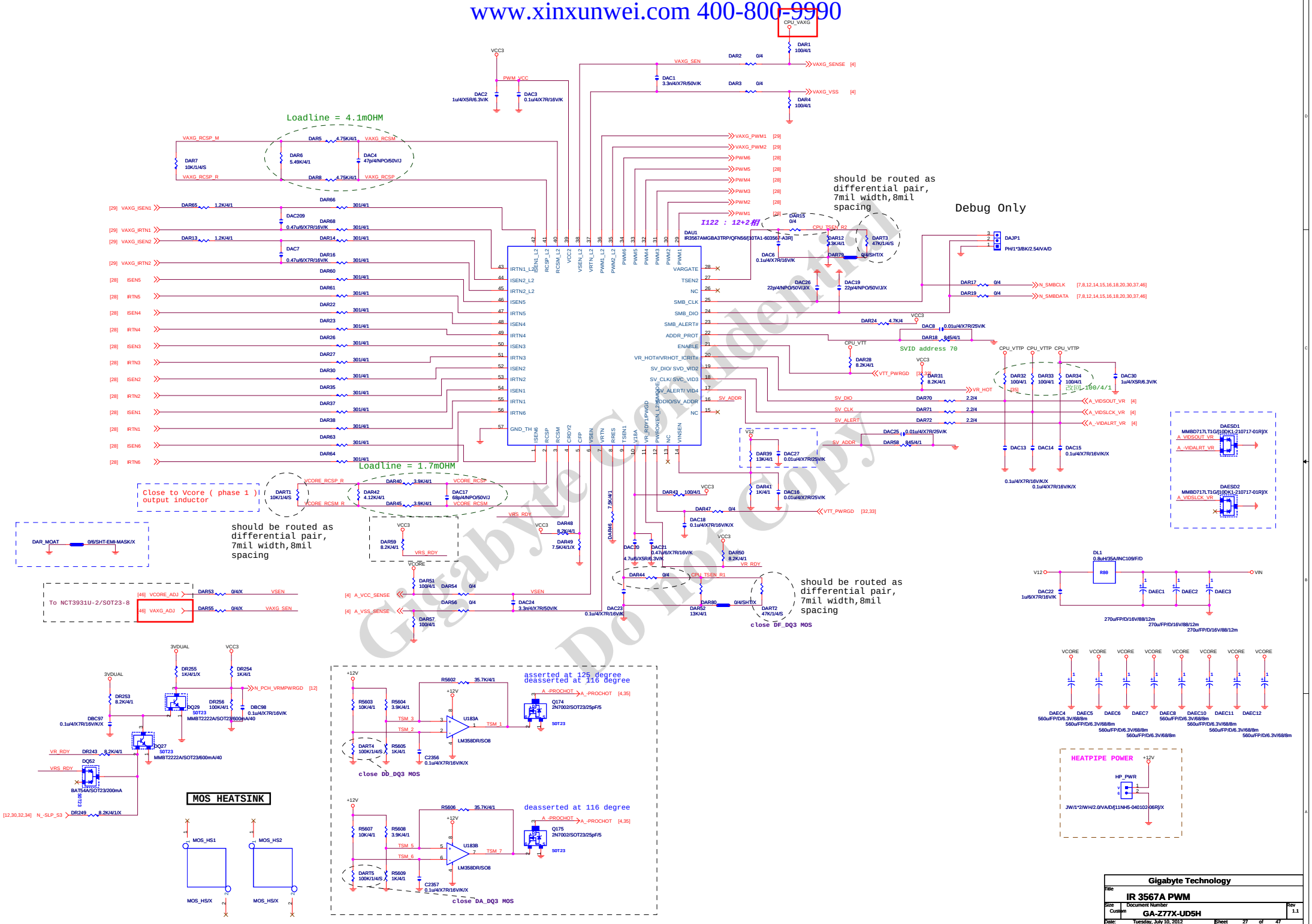






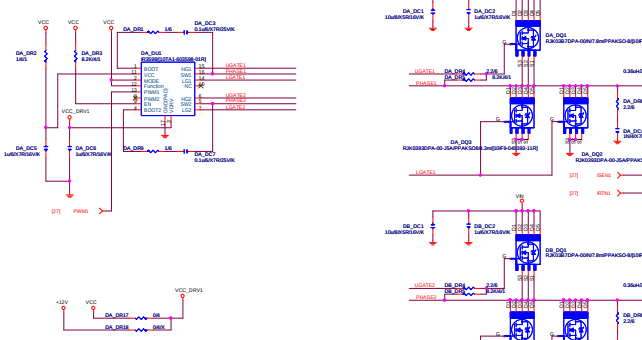


Gigabyte Technology		
Title: 8-CH DAC & Anti-Pop / Mute		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 26 of 47	

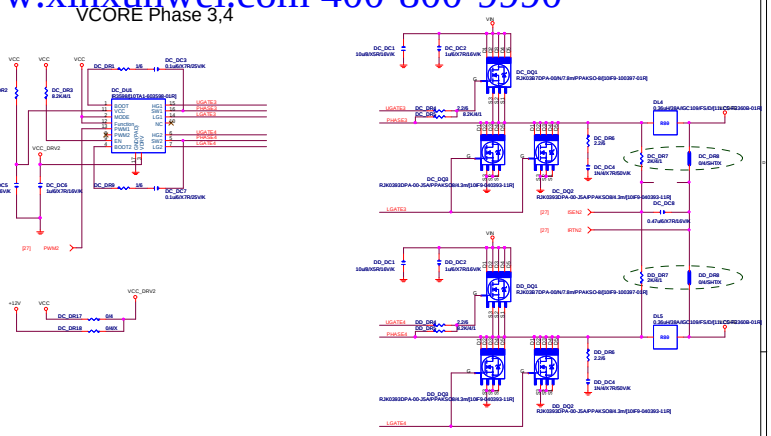


Gigabyte Technology	
Title	IR 3567A PWM
Size: Custom	Document Number: GA-Z77X-UD5H
Rev	1.1
Date: Tuesday, July 10, 2012	Sheet 27 of 47

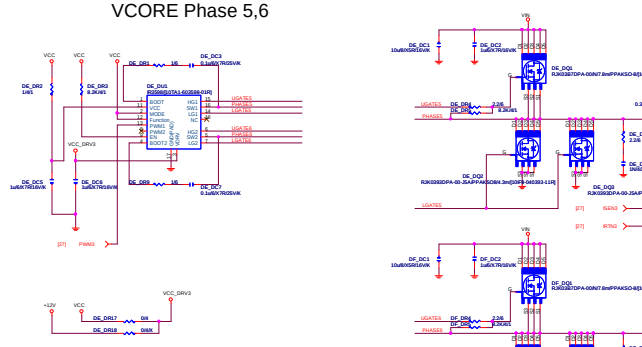
VCORE Phase 1,2



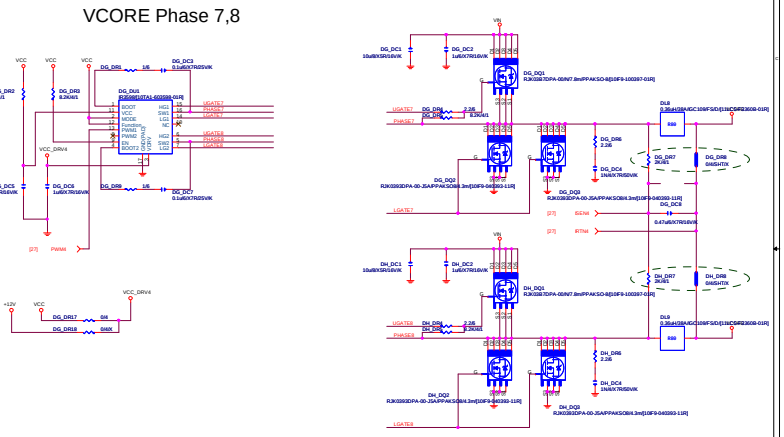
VCORE Phase 3,4



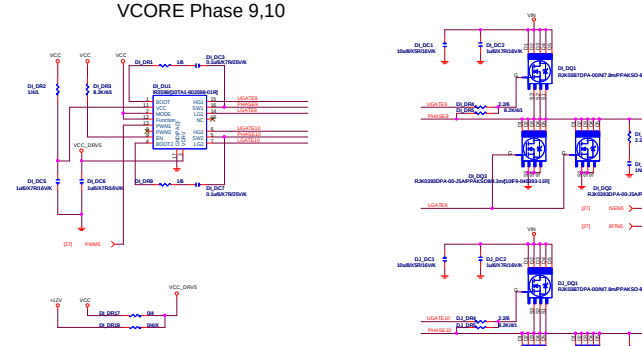
VCORE Phase 5,6



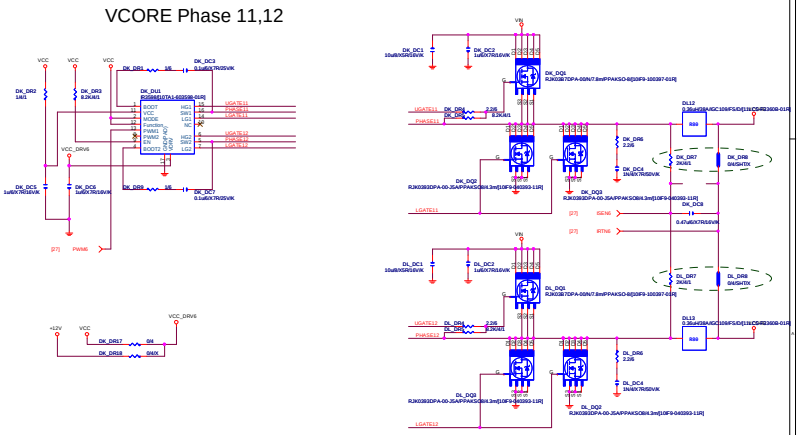
VCORE Phase 7,8



VCORE Phase 9,10

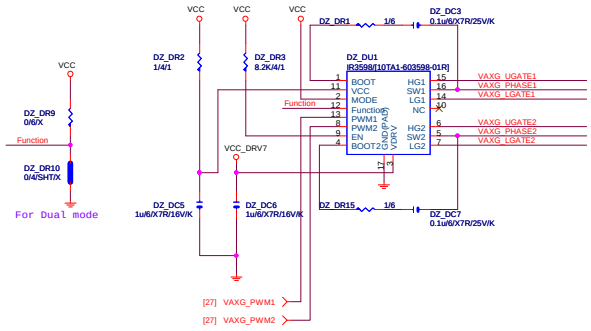


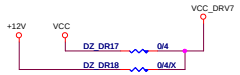
VCORE Phase 11,12

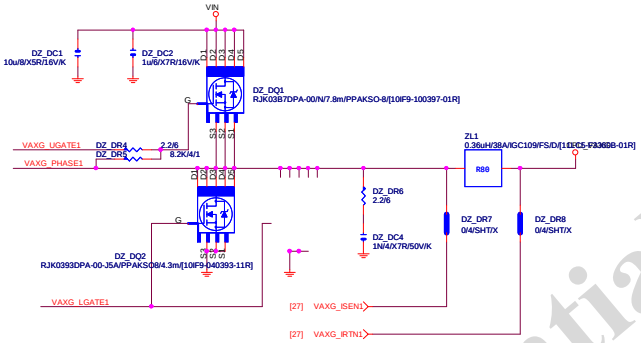


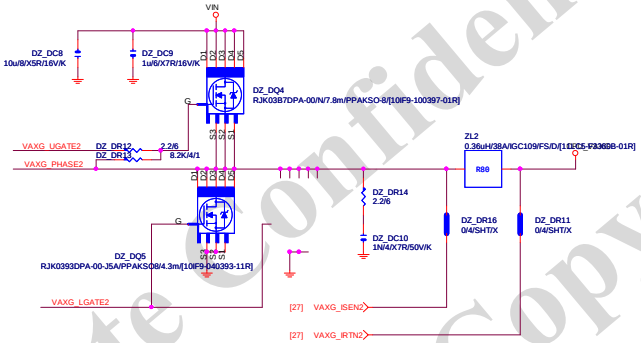
Gigabyte Technology			
Title: IR 3598-VCORE			
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 05, 2012	Sheet: 28 of 42		

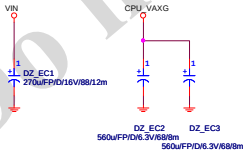
VAXG Phase











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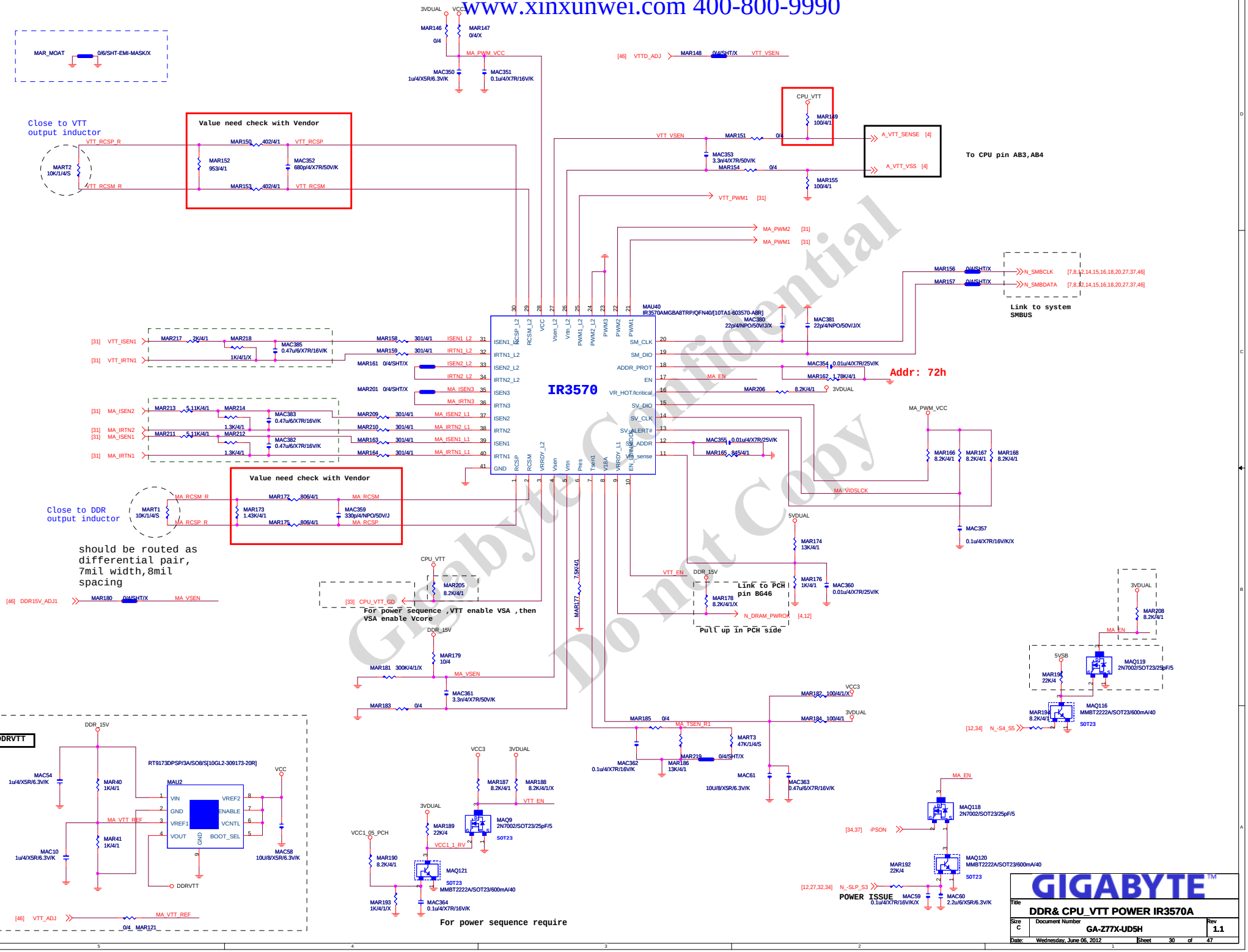
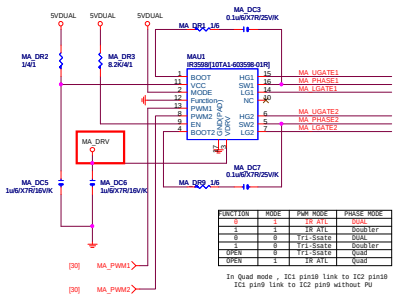
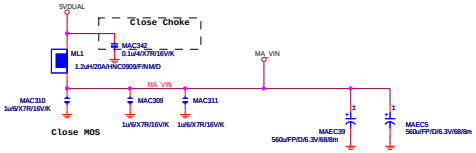
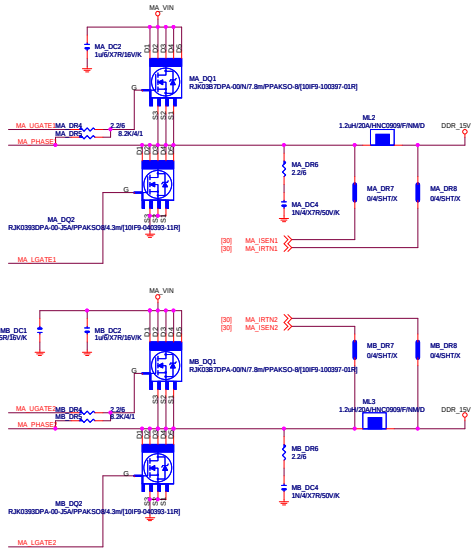
Title: IR 3598-VAXG		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 29 of 47	

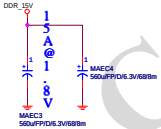


DDR_15V

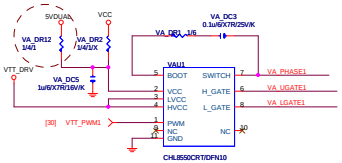


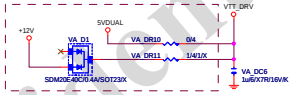


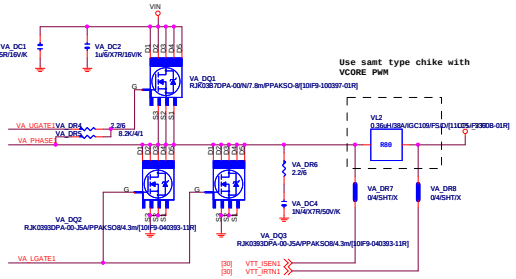


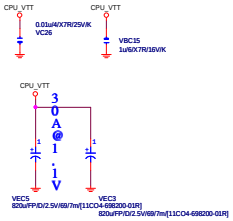


CPU_VTT



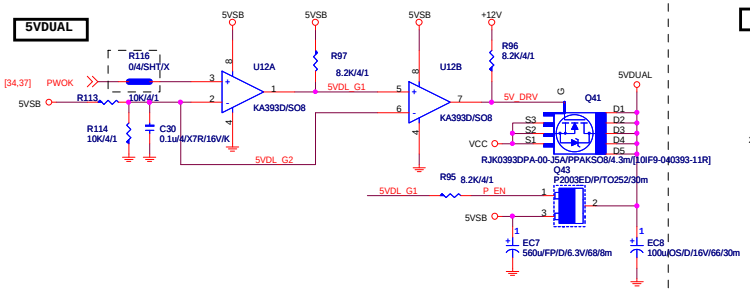




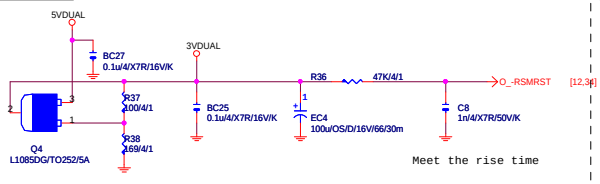


Gigabyte Technology		
Title: IR3570A CPU_VTT&DDR		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 31 of 47	

5VDUAL

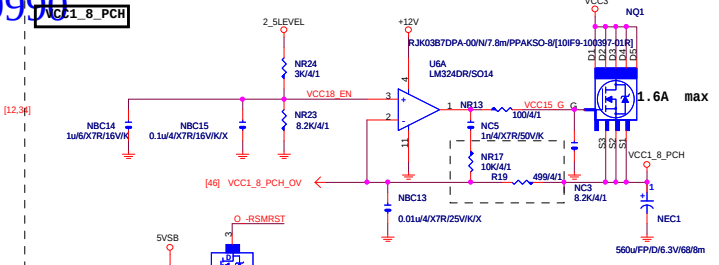


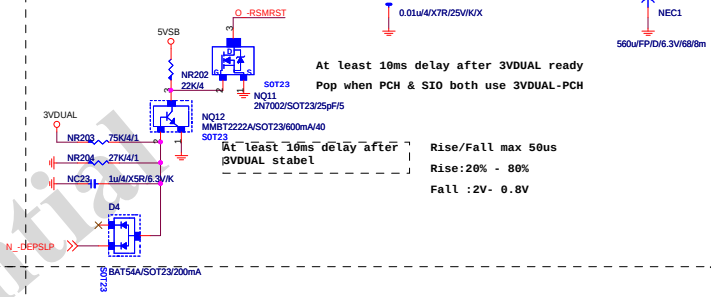
3VDUAL



Meet the rise time

VCC1_8_PCH





At least 10ms delay after 3VDUAL ready

Pop when PCH & SIO both use 3VDUAL-PCH

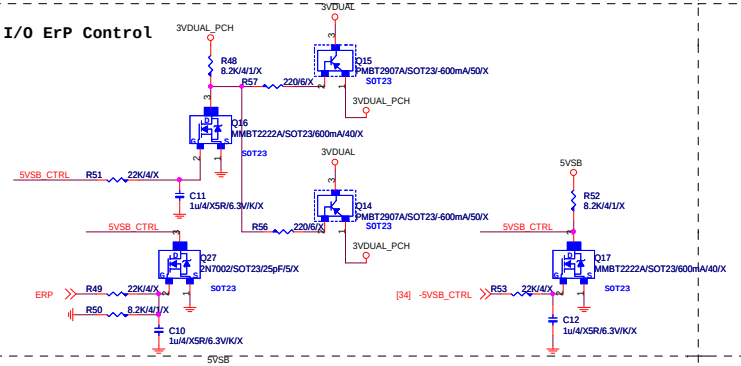
At least 10ms delay after 3VDUAL stabel

Rise/Fall max 50us

Rise:20% - 80%

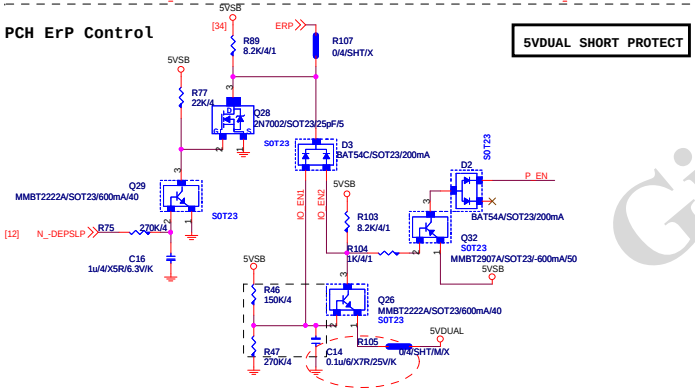
Fall :2V- 0.8V

I/O ErP Control

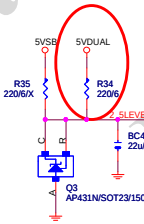


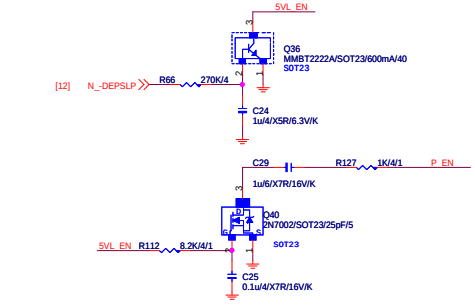
PCH ErP Control

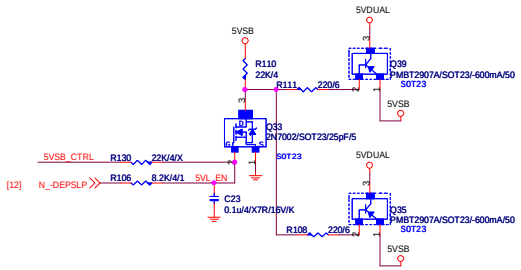
5VDUAL SHORT PROTECT

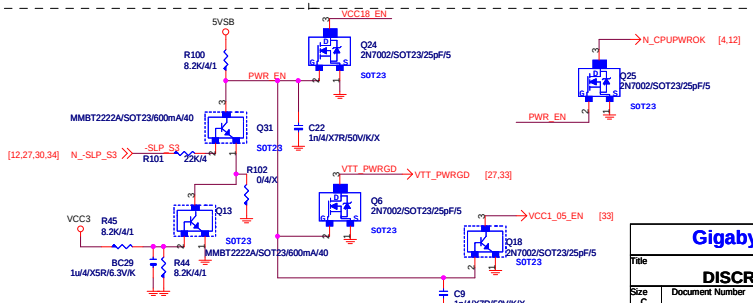


ErP



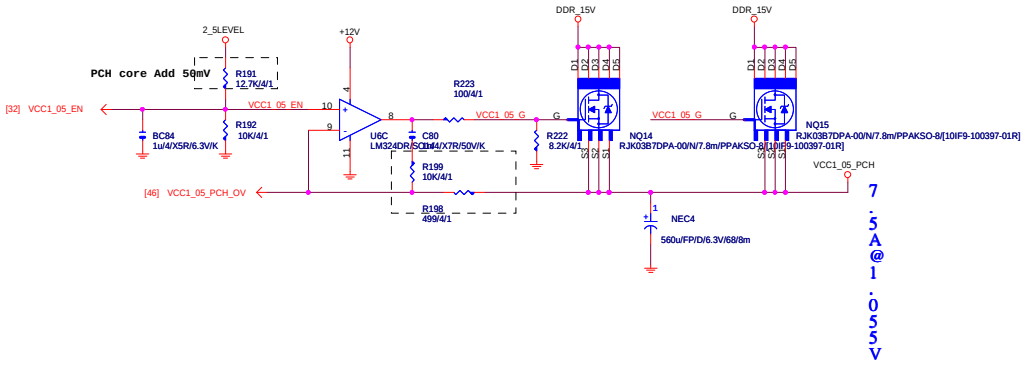






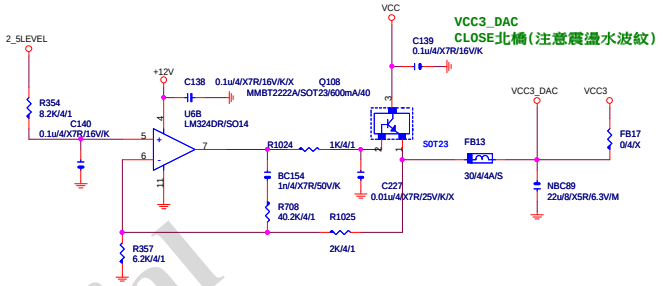
Gigabyte Technology			
Title: DISCRETE POWER I			
Size: C	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 32 of 47		

VCC1_05_PCH

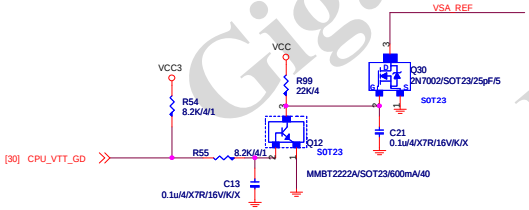


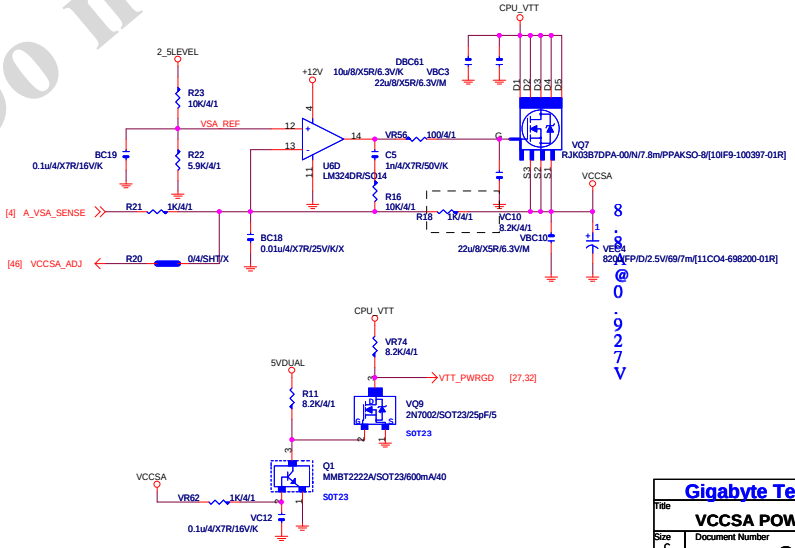
VCC3_DAC

(3.3V/70mA+360uA)

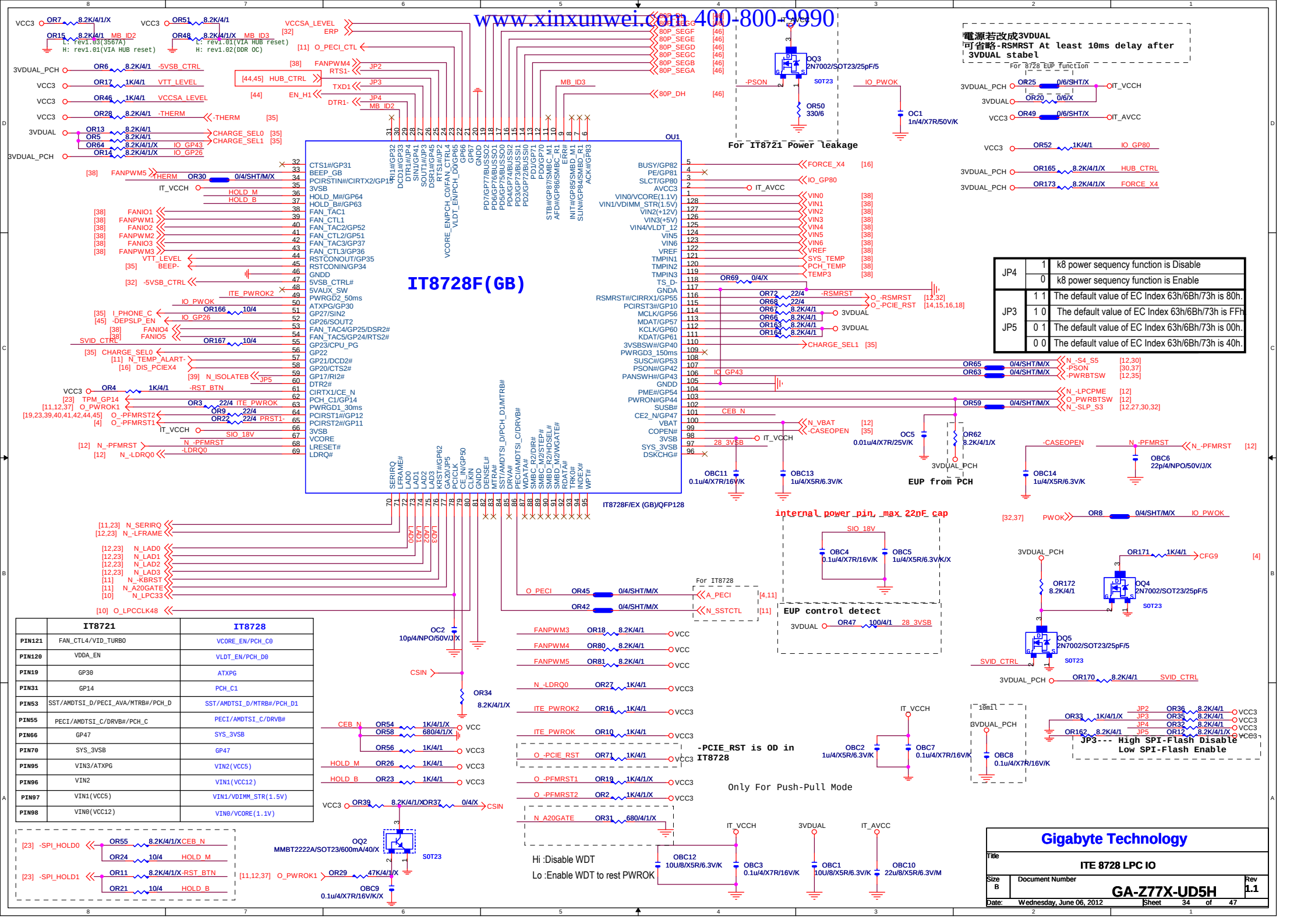


VCC_SA

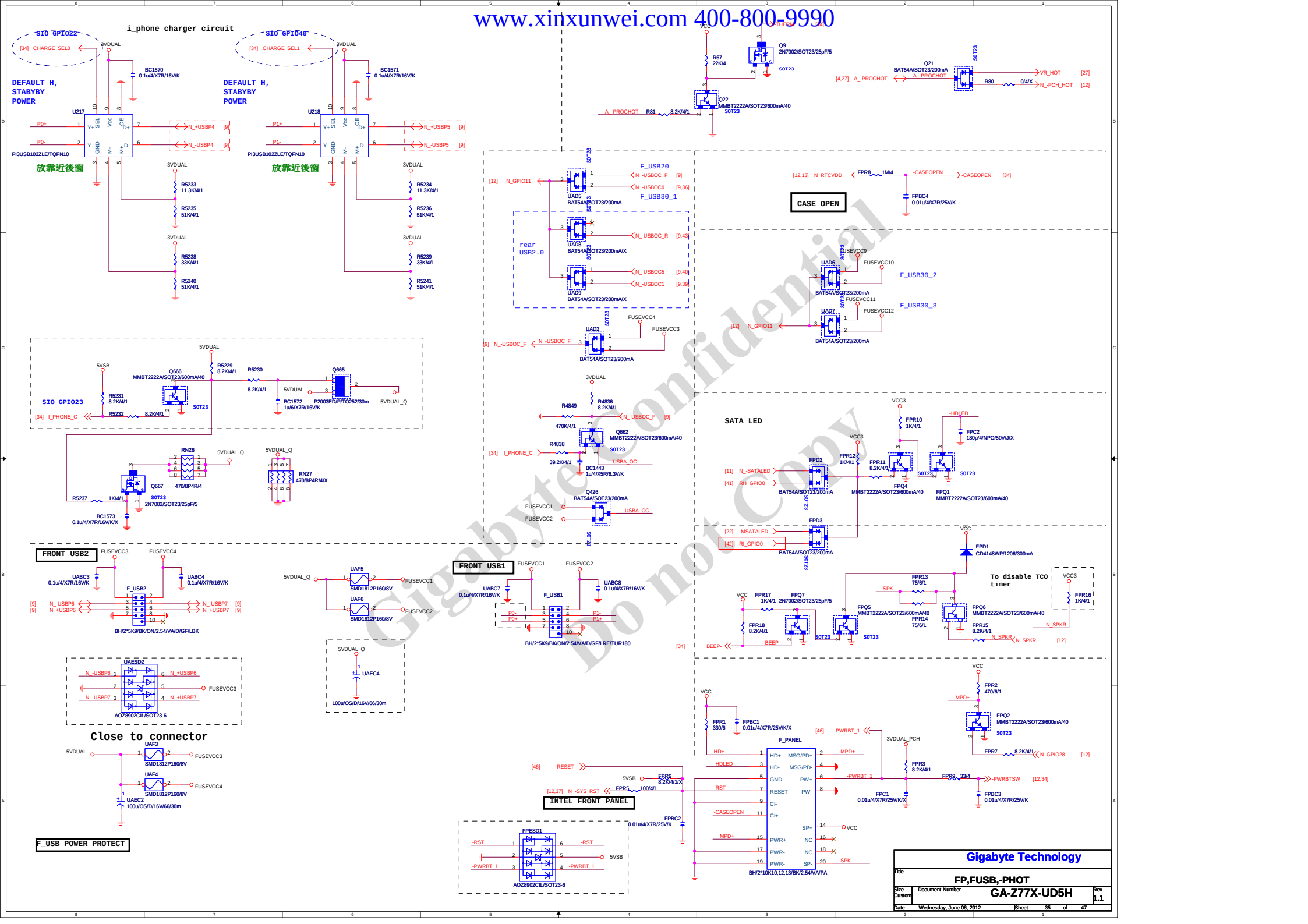


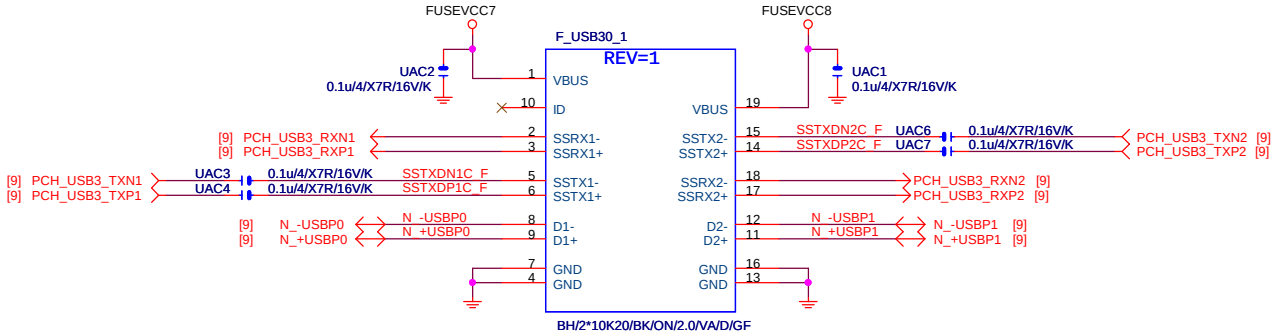


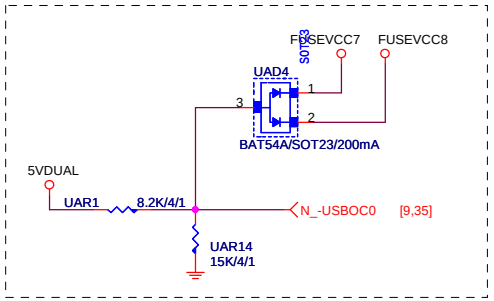
Gigabyte Technology		
Title: VCCSA POWER		
Size: C	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Thursday, June 21, 2012	Sheet 33 of 47	

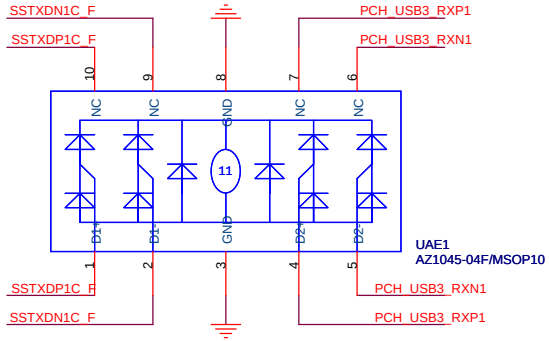


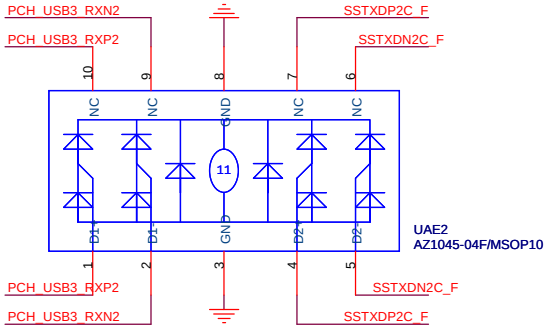
	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2(VCC5)
PIN96	VIN2	VIN1(VCC12)
PIN97	VIN1(VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0(VCC12)	VIN0/VCORE(1.1V)

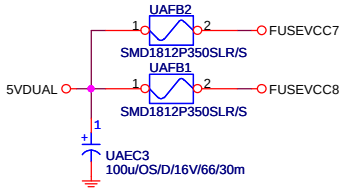


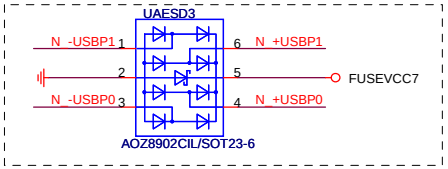






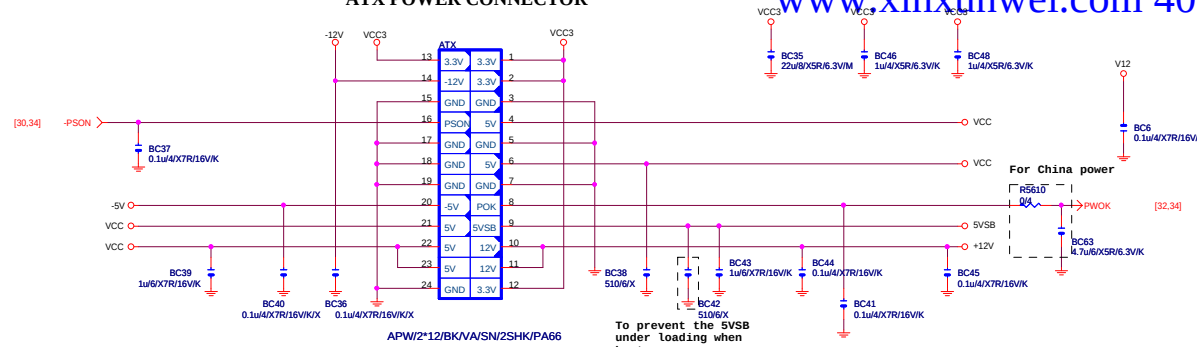


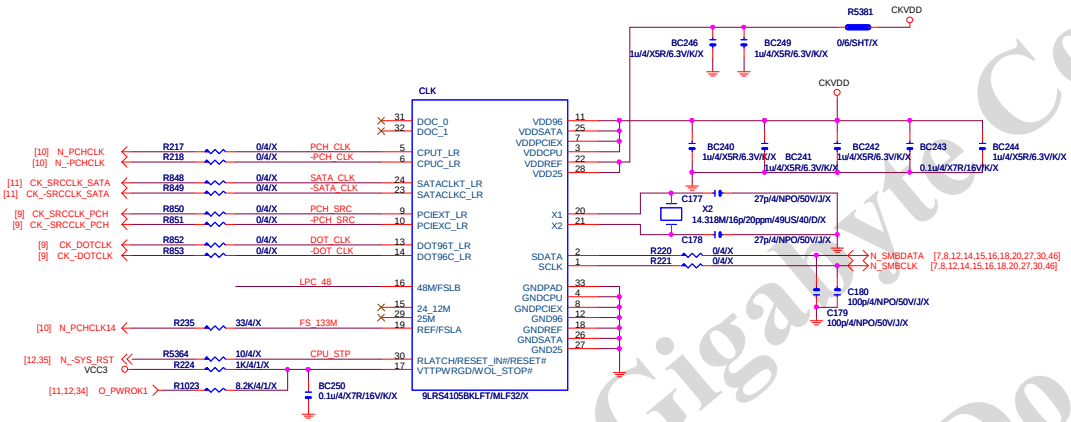




Gigabyte Technology		
Title: **F_USB 3.0**		
Size: B	Document Number: **GA-Z77X-UD5H**	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 36 of 47	

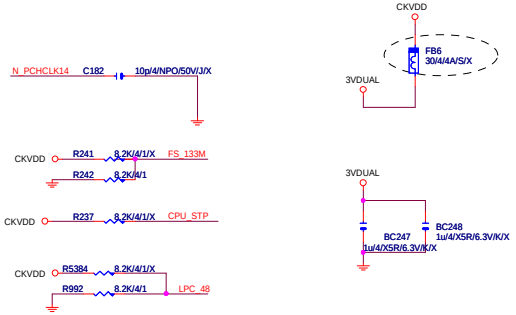
ATX POWER CONNECTOR

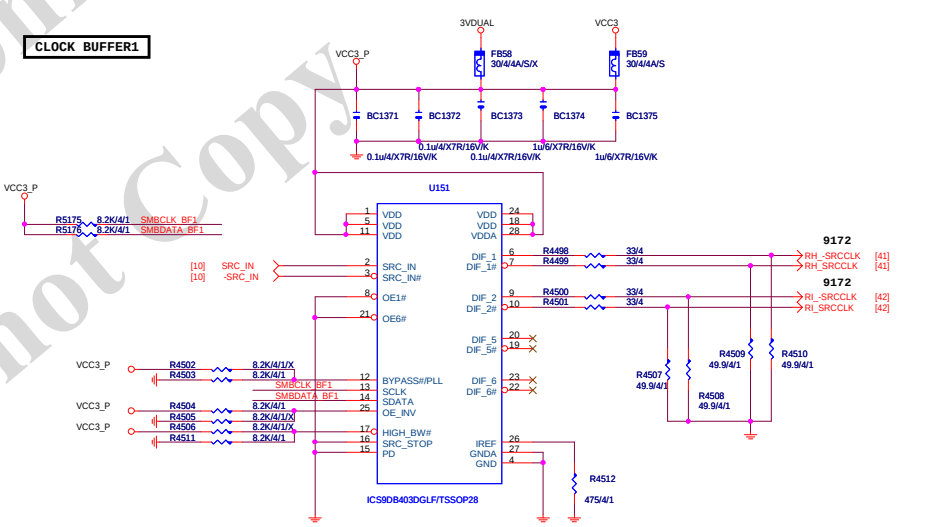




CPU Frequency Selection

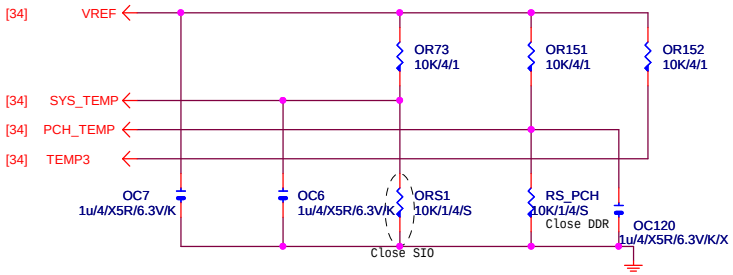
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



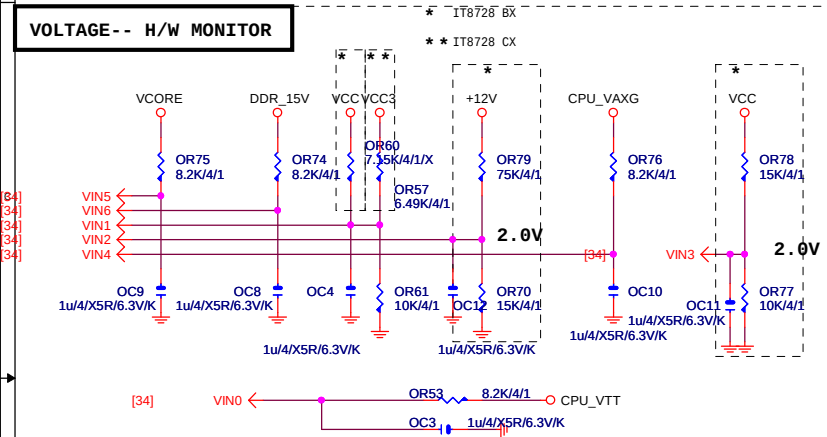


Gigabyte Technology			
Title: ATX_POWER , CLOCK GEN			
Size: C	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 37 of 47		

TEMP H/W MONITOR

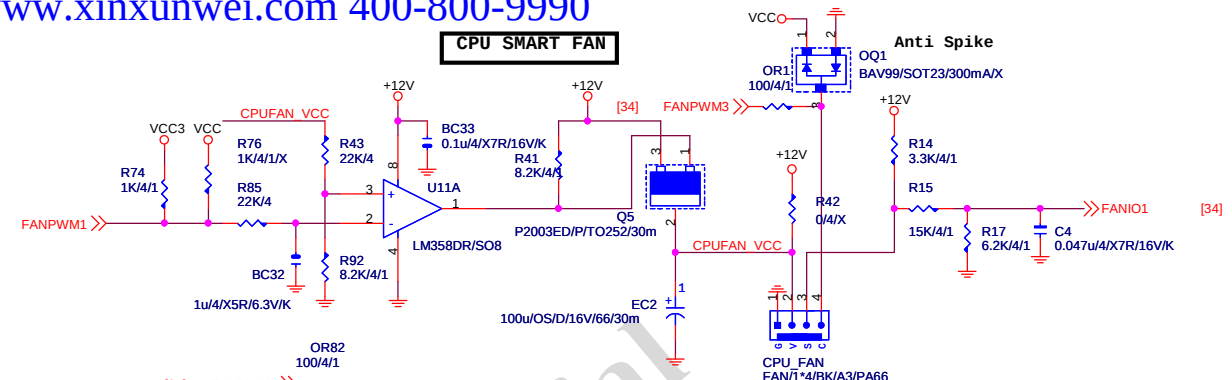


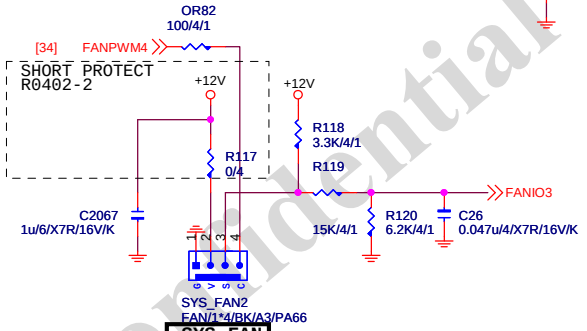
VOLTAGE-- H/W MONITOR

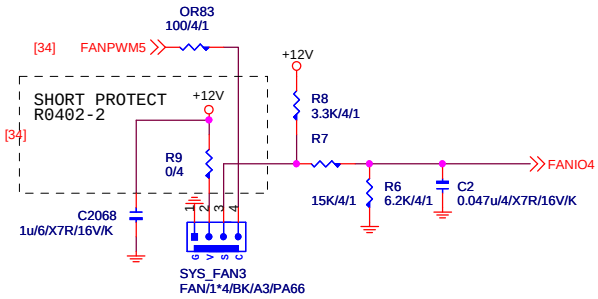


The division voltage of VIN2 & VIN3 must be around 2.9V

CPU SMART FAN

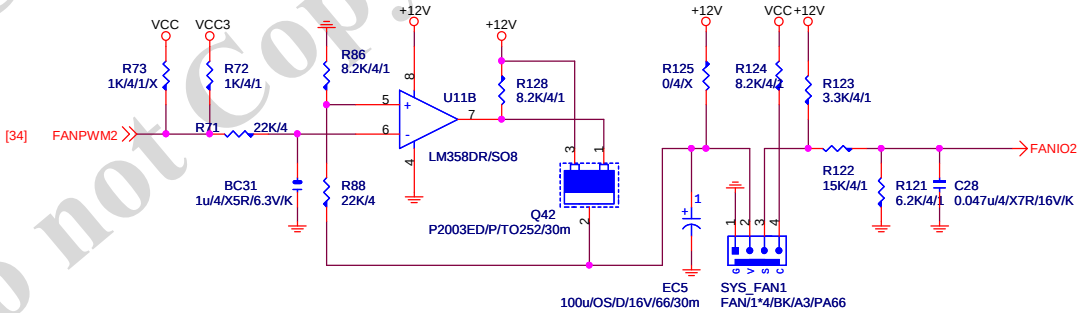


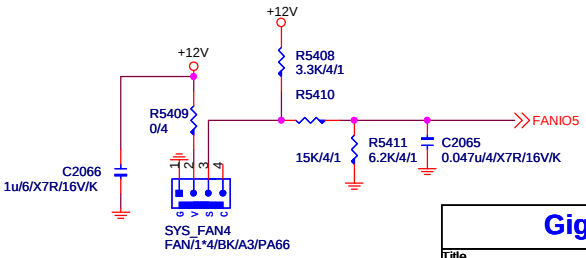


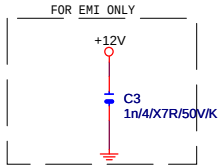


SYS FAN

Linear SYS_FAN







Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 38 of 47	

LAN:AR8151/AR8161

離IC近越好

LAC1 0.1u/4/X7R/16V/K
LAC2 0.1u/4/X7R/16V/K
[10] LA_-SRCCLK_LAN
[10] LA_SRCCLK_LAN
[9] LA_ML_OP
[9] LA_ML_ON
LA_ML_OP_C
LA_ML_ON_C

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

LABC5 0.1u/4/X7R/16V/K
LABC4 1u/4/X5R/6.3V/K
LABC3 0.1u/4/X7R/16V/K
LABC6 0.1u/4/X7R/16V/K/X
AR8161-->N/A (LABC6)

LA_AVDDVCO
LABC7 0.1u/4/X7R/16V/K
LABC8 4.7u/6/X5R/6.3V/K
AR8161-->(O)

3VDUAL
LABC9 10u/8/X5R/6.3V/K
LABC10 1u/4/X5R/6.3V/K
LABC11 0.1u/4/X7R/16V/K

LAU1
Atheros
AR8151/AR8161
EGND
VDD3V
PERST#
WAKE#
CLKREQ#
VDDCT/ISOLAT
AVDDL_REG
XTLO
XTLI
AVDDH_REG
RBIAS
LX
LED1
LED0
DVDDL_REG
RX_P
AVDDL
REFCLKP
REFCLKN
AVDDL/NC
TX_P
TX_N
NC
TESTMODE
SMDATA
SMCLK
DVDDL/PPS
LED2
AVDDH
TRXN3
TRXP0
TRXN0
AVDDL/NC
TRXP1
TRXN1
AVDDH/AVDD33
TRXP2
TRXN2
AVDDL
TRXP3
AR8161-BL3A-R/S/[10HP2-408161-10R]

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

LA_ML_IP_C LAC12 0.1u/4/X7R/16V/K LA_ML_IP [9]
LA_ML_IN_C LAC13 0.1u/4/X7R/16V/K LA_ML_IN [9]

3VDUAL
LAC33 100p/4/NPO/50V/J/X
LAR6 8.2K/4/1
LA_VDD33
[19,23,34,40,41,42,44,45] O_-PFMRST2
[17,21,45,46,48,26,45] N_PCIE_WAKE
LA_-CLKREQ
LA_VDDCT
LA_AVDDL
LA_XTALO
LA_XTALI
LA_AVDDH
LABC12 1u/4/X5R/6.3V/K/X
AR8161-->N/A (LABC12)
LABC15 1u/4/X5R/6.3V/K
LABC16 0.1u/4/X7R/16V/K
LABC18 1u/4/X5R/6.3V/K
LABC19 0.1u/4/X7R/16V/K
LA_RBIAS
LAR10 2.37K/4/1

LAR9 0/4/X
LABC14 0.1u/4/X7R/16V/K/X
LA_DVDDL
LA_PPS
LA_LED_LINK100
LA_AVDDH
LA_MDI3-
LABC17 0.1u/4/X7R/16V/K
AR8161-->N/A (LAR9,LABC14)

LAX1 25M/20p/30ppm/49US/20/D
LA_XTALI
LA_XTALO
LAC31 27p/4/NPO/50V/J
LAC32 27p/4/NPO/50V/J

LABC20 0.1u/4/X7R/16V/K/X
AR8161-->N/A (LABC20)
LABC21 0.1u/4/X7R/16V/K
LAR19 0/4
LAR20 0/4/X
3VDUAL
LA_AVDDH
AR8151:LA_AVDDH(LAR20)
AR8161:3VDUAL(LAR19)
LABC22 1u/4/X5R/6.3V/K

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

LAN POWER

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

LAL1 4.7uH/1A/[10LC4-5A470B-01R]
LA_LX_OUT
LA_LX
CLOSE
LA_LX 200mil
LABC1 10u/8/X5R/6.3V/K
LABC2 0.1u/4/X7R/16V/K

LA_VDDCT
LAR3 0/4/X
LA_AVDD_CEN
LAR4 0/4/X
AR8161-->N/A (LAR3,LAR4)
AR8151 POWER

LA_DVDDL
LA_AVDDL
LA_AVDDVCO
LAR5 0/4
AR8161-->(O)
LAFB2 0/4
AR8161-->BEAD
AR8151-->N/A
LAFB3 0/4
AR8161-->BEAD
AR8151-->0/6
AR8161 POWER

AR8161-->(O)
LA_AVDDH
LAR7 8.2K/4/1
LA_LED_ACT_TXRX
LA_LED_LINK100
LAR8 8.2K/4/1

AR8161-->(O)
VCC3
LAR1 30K/4/1
LAR2 0/4
LA_VDDCT
N_ISOLATEB [34]

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

LA_MDI0+ LA_MDI0-
LAR11 49.9/4/1/X
LAR12 49.9/4/1/X
LA_MDI_RC0
LAC26 0.1u/4/X7R/16V/K/X

LA_MDI1+ LA_MDI1-
LAR13 49.9/4/1/X
LAR14 49.9/4/1/X
LA_MDI_RC1
LAC27 0.1u/4/X7R/16V/K/X

LA_MDI2+ LA_MDI2-
LAR15 49.9/4/1/X
LAR16 49.9/4/1/X
LA_MDI_RC2
LAC28 0.1u/4/X7R/16V/K/X

LA_MDI3+ LA_MDI3-
LAR17 49.9/4/1/X
LAR18 49.9/4/1/X
LA_MDI_RC3
LAC29 0.1u/4/X7R/16V/K/X

CLOSE LAN CHIP

USB_LAN CONNECTOR

RMA ESD PROTECT

UBESD1
N_+USBP2
N_-USBP2
FUSEVCC_R3
N_+USBP3
N_-USBP3
AOZ8902CIL/SOT23-6

LAESD1
LA_LED_LINK100
LA_LED_ACT_TXRX
LAN_3VDUAL_LED
LA_LED_LINK1000
LA_LED_D2
AOZ8902CIL/SOT23-6

SOT23
FUSEVCC_R3
FUSEVCC_R4
5VDUAL
UBR10 8.2K/4/1
UBD3 BAT54A/SOT23/200mA
N_-USBOC1 [9,35]
UBR11 15K/4/1

USB X3 POWER

5VDUAL
LAFB4
SMD1812P350SLR/S
FUSEVCC_R3
UEC4 100u/OS/D/16V/66/30m
LAFB5
SMD1812P350SLR/S
FUSEVCC_R4
Close to connector

FUSEVCC_R3
LR33 8.2K/4/1
OVCUR3 [44]
LR64 15K/4/1
FUSEVCC_R4
LR51 8.2K/4/1
OVCUR4 [44]
LR34 15K/4/1

EMI SHORT PAD

PS:視EMI需求

LAR24
0/6/SHT/M/X

LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN1
LABC23 0.1u/4/X7R/16V/K
LA_AVDD_CEN
LA_MDI0+
LA_MDI0-
LA_MDI1+
LA_MDI1-
LA_MDI2+
LA_MDI2-
LA_MDI3+
LA_MDI3-
GND_L10
LABC25 0/4/SHT/M/X
FUSEVCC_R3
BC233 0.1u/4/X7R/16V/K
USB3.0
USB3+RJ45/[11NR6-702009-K1R]

D1 LA_LED_ACT_TXRX
D2 LA_LED_D2 LAR21 150/6 LAN_3VDUAL_LED
D3 LA_LED_LINK100 LAR22 150/6
D4 LA_LED_LINK1000 LAR23 150/6
P1 -LAN1_PLUG
P2
DT
VBUS
D-
D+
GND
SSRX-
SSRX+
SSTX-
SSTX+
N_-USBP2
N_+USBP2
N_-USBP3
N_+USBP3
HSSRX3-
HSSRX3+
HSSTX3-
HSSTX3+
HSSRX4-
HSSRX4+
HSSTX4-
HSSTX4+

3VDUAL
LAFB1 0/6/SHT/M/X
LABC24 0.1u/4/Y5V/16V/Z/X
FUSEVCC_R4
LBC26 0.1u/4/X7R/16V/K/X

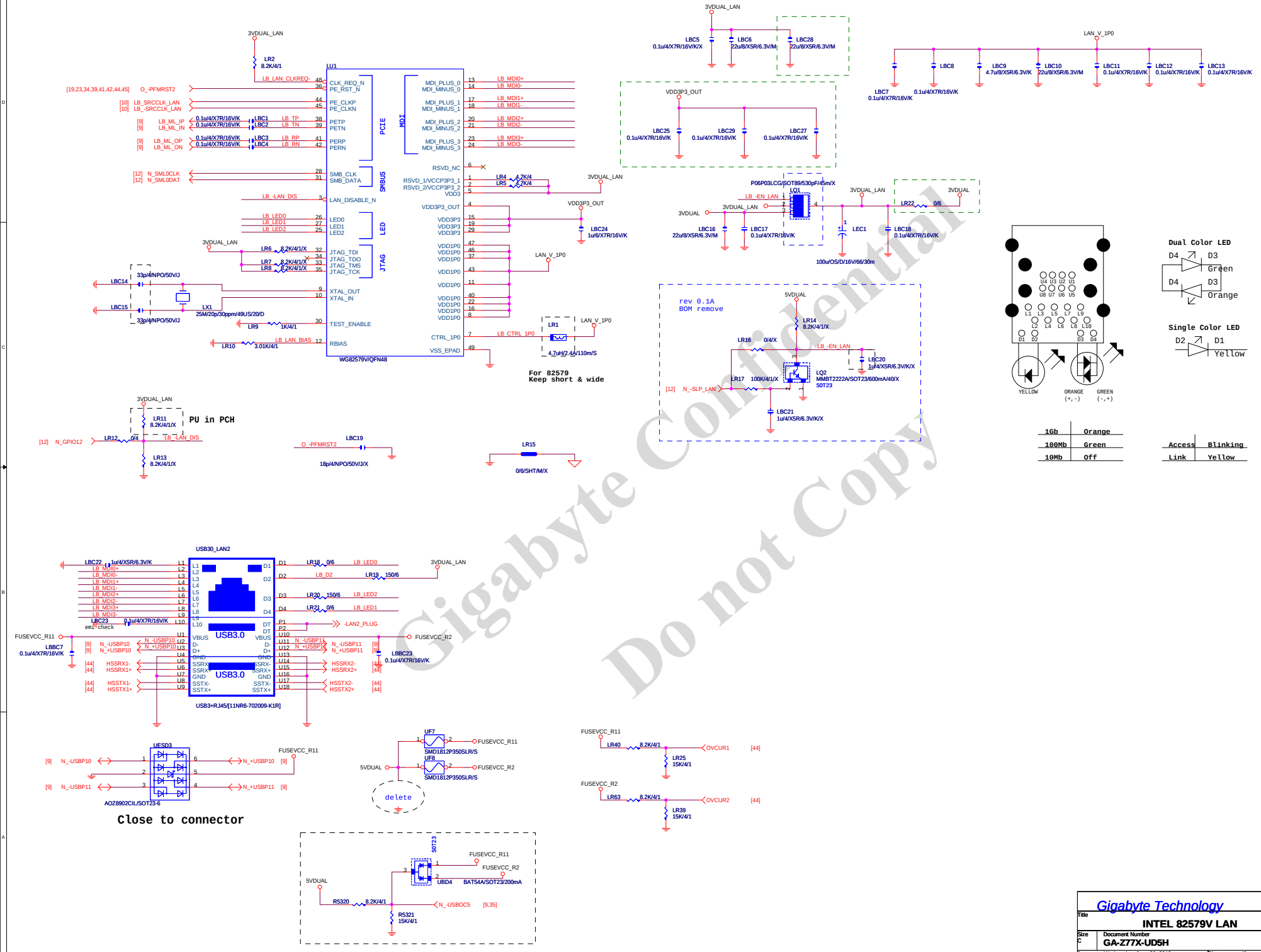
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

Gigabyte Technology

Title: ARTHEROS AR8151/AR8161

Size: Custom | Document Number: GA-Z77X-UD5H | Rev: 1.1

Date: Wednesday, June 06, 2012 | Sheet 39 of 47

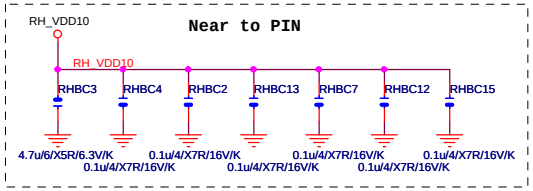


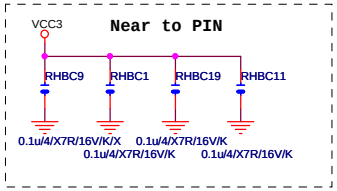
Gigabyte Technology

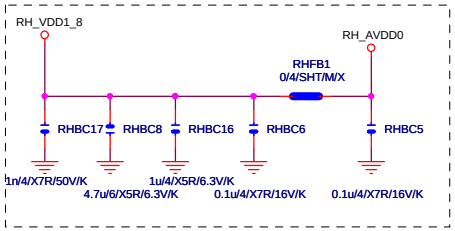
Title: INTEL 82579V LAN

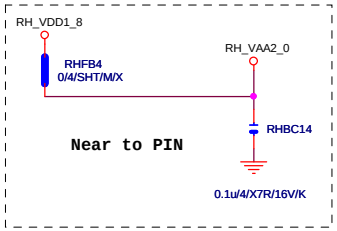
Size: C | Document Number: GA-Z77X-UD5H | Rev: 1.1

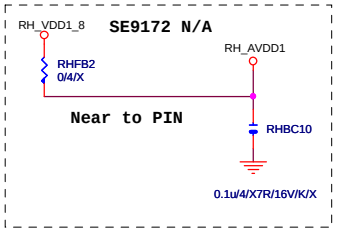
Date: Wednesday, June 06, 2012 | Sheet 40 of 47

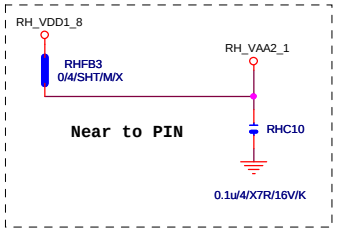


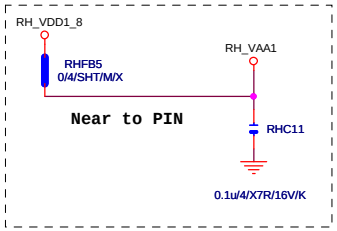


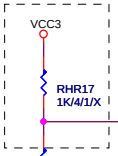


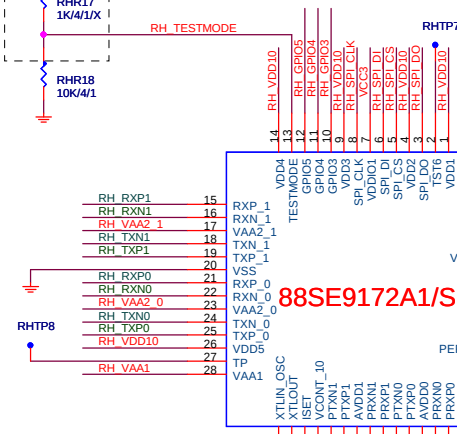


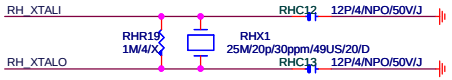


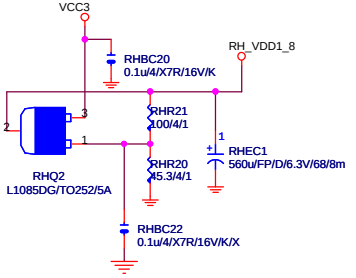


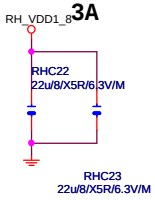


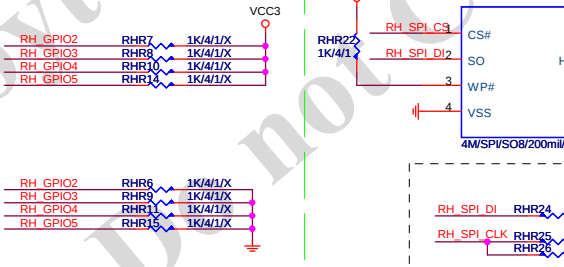


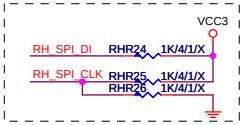


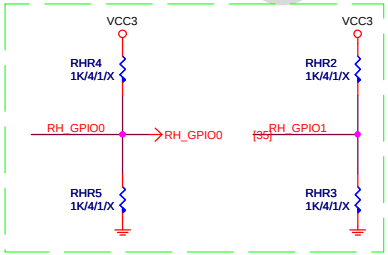


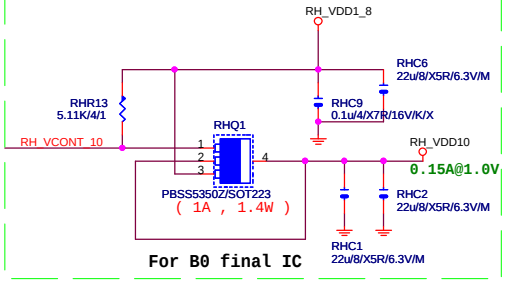


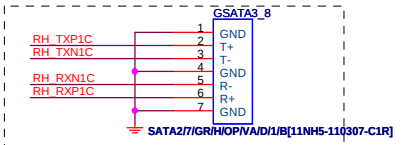


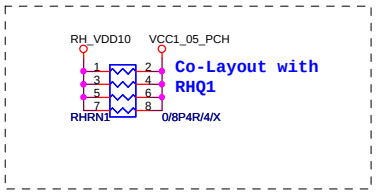










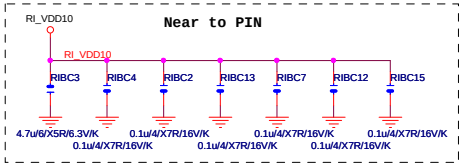


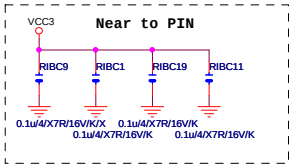
灰色
connector

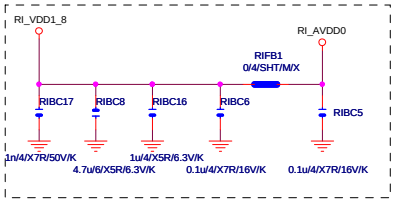
GIGABYTE™

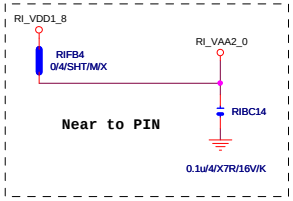
Title	Marvell 9172(F+R)	
Size: Custom	Document Number: GA-Z77X-UD5H	Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 41 of 47	

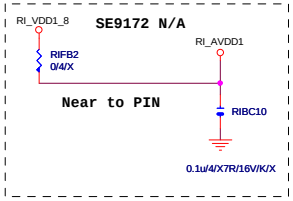
Close to Connect

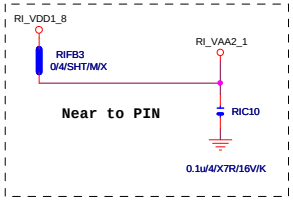


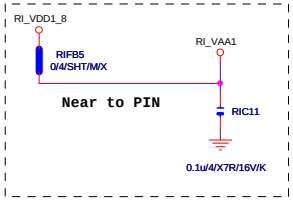


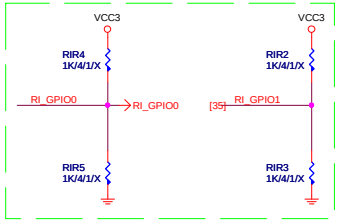


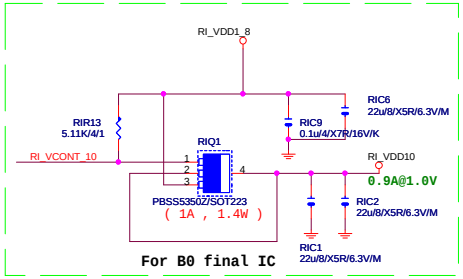


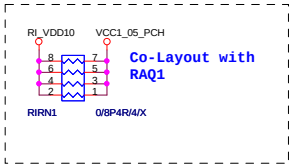


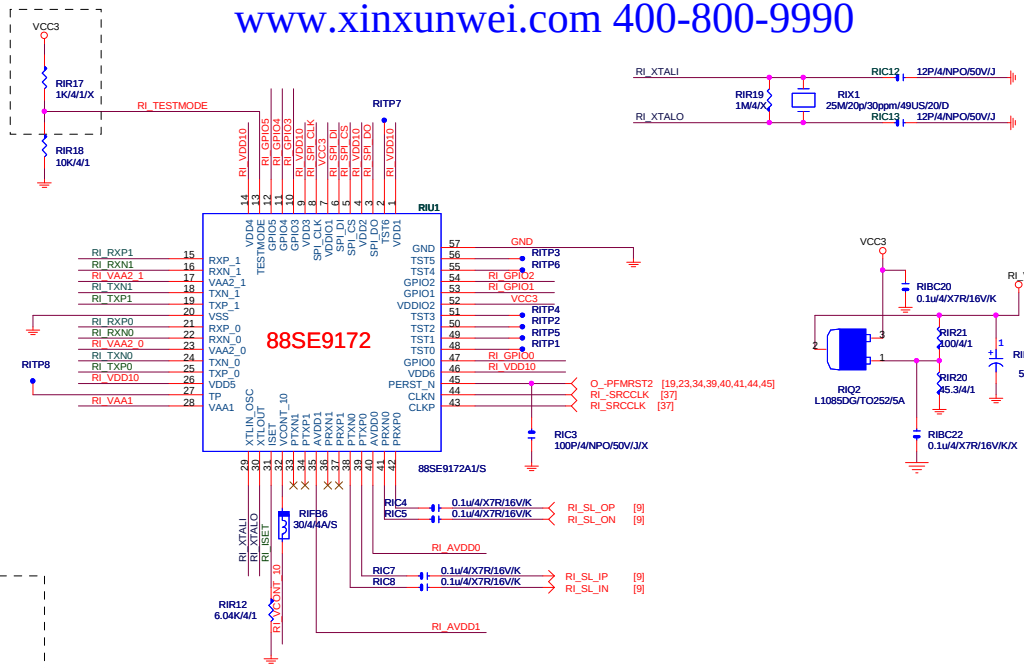


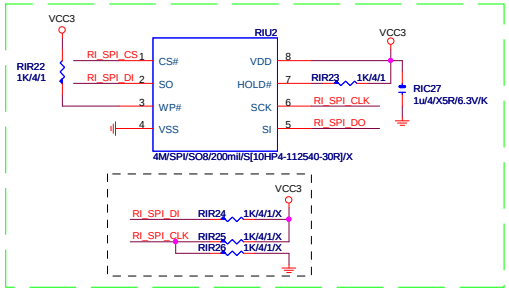


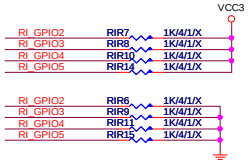


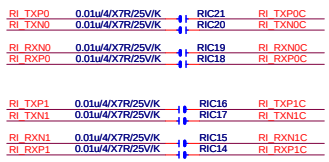


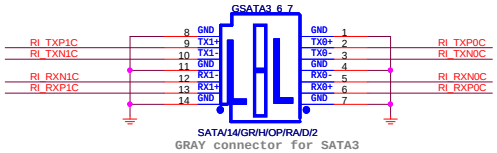












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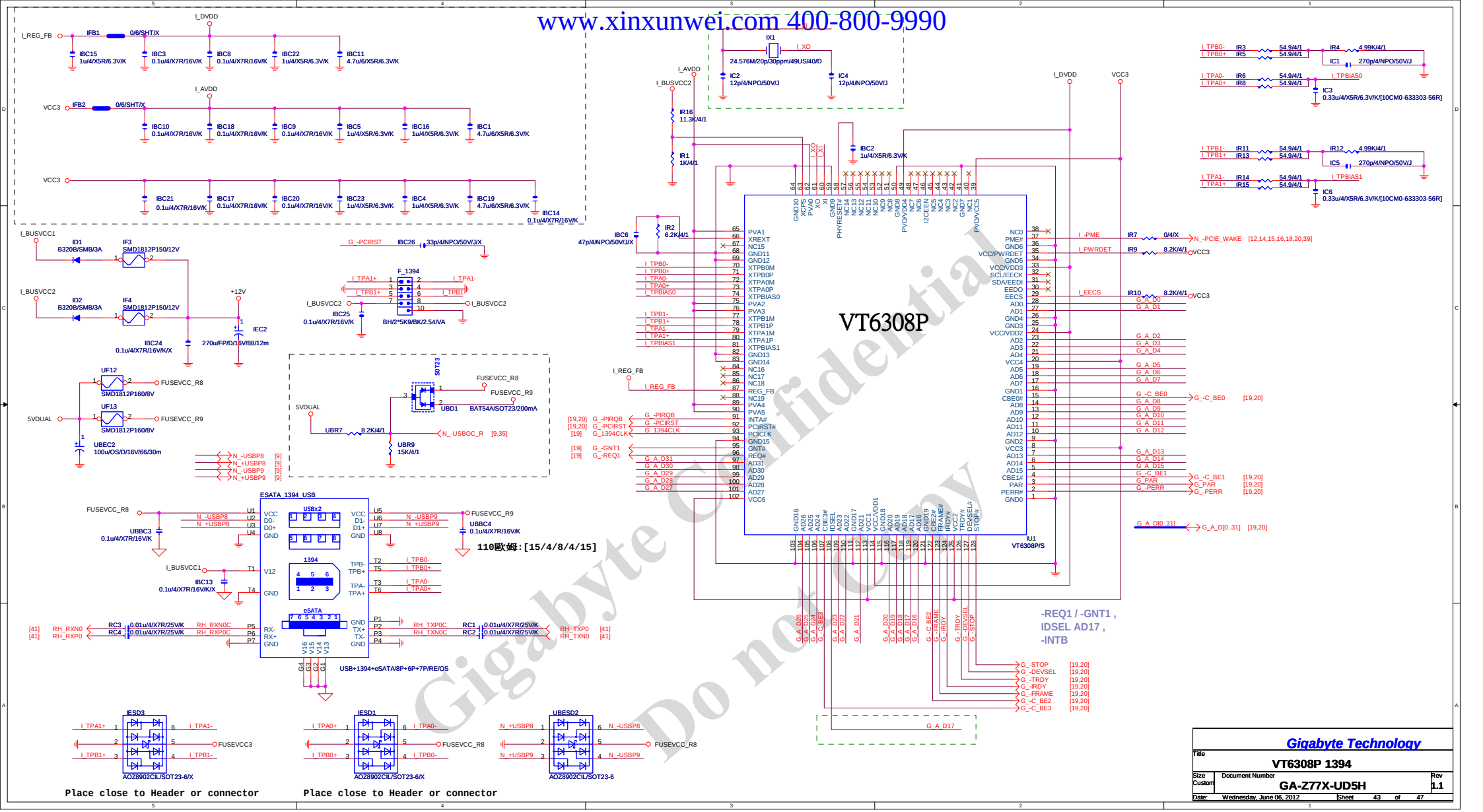
Gigabyte Technology			
Title: Marvell 9172(F-2)			
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012		Sheet 42 of 47	



Gigabyte Technology			
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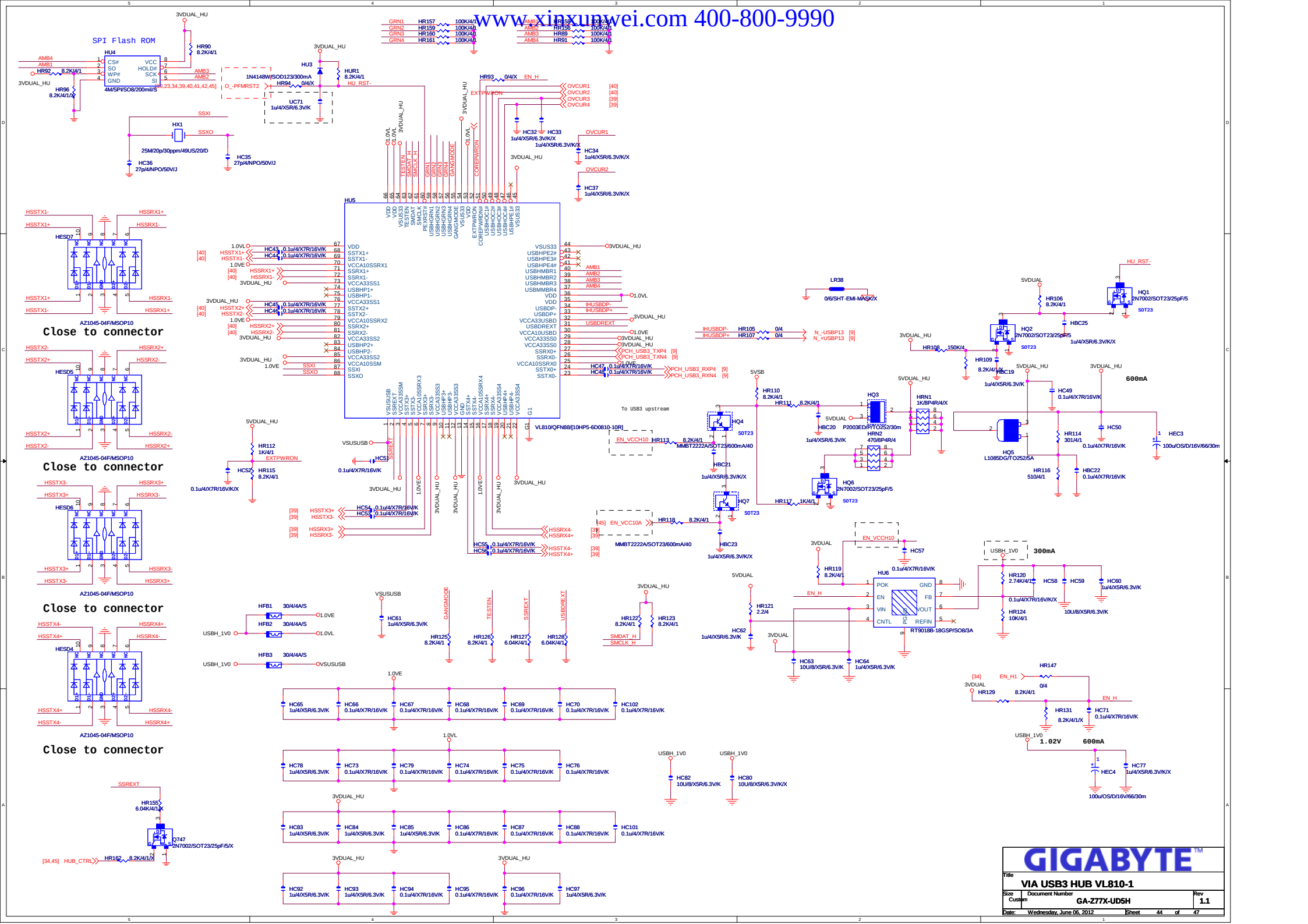
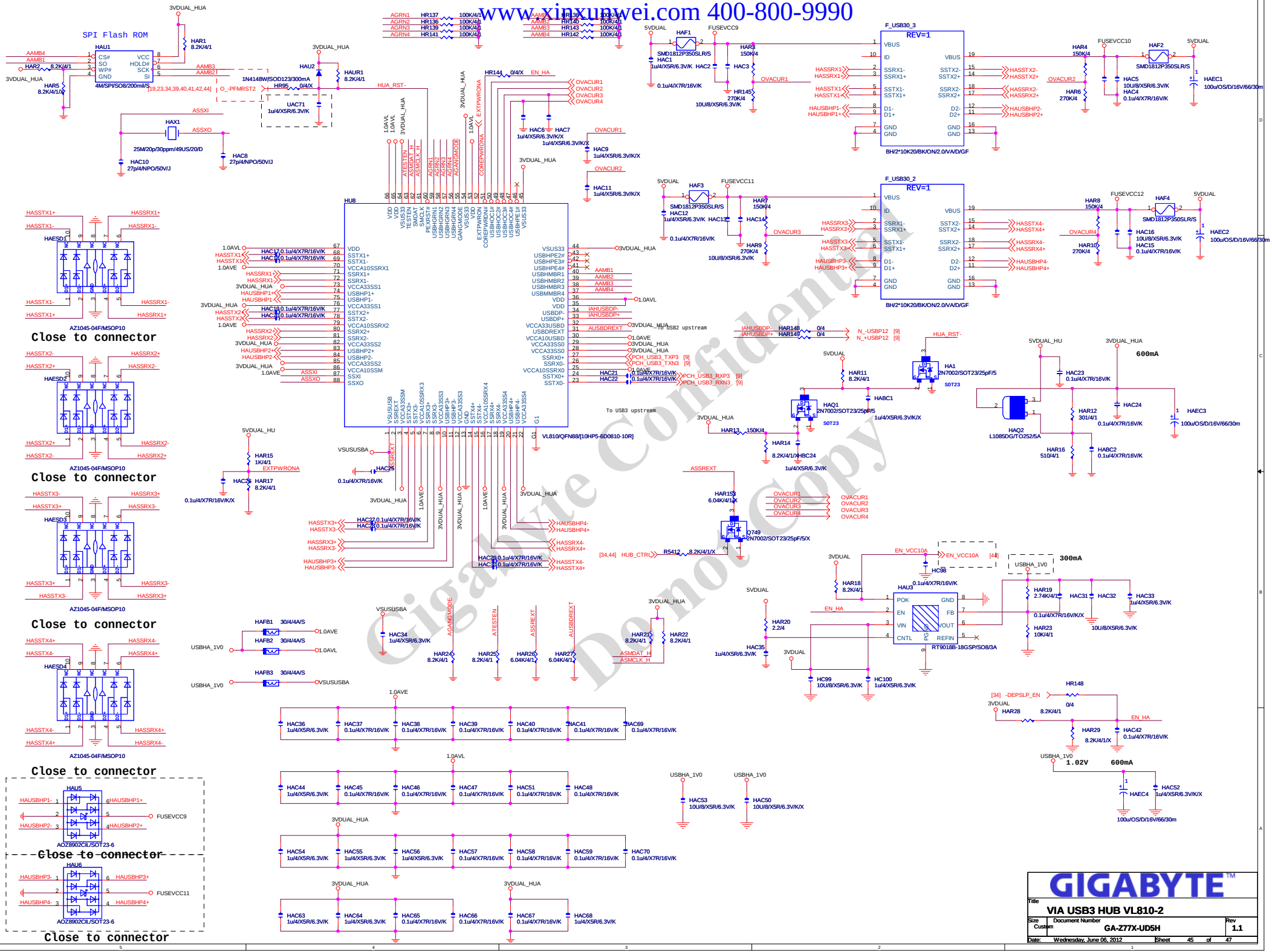
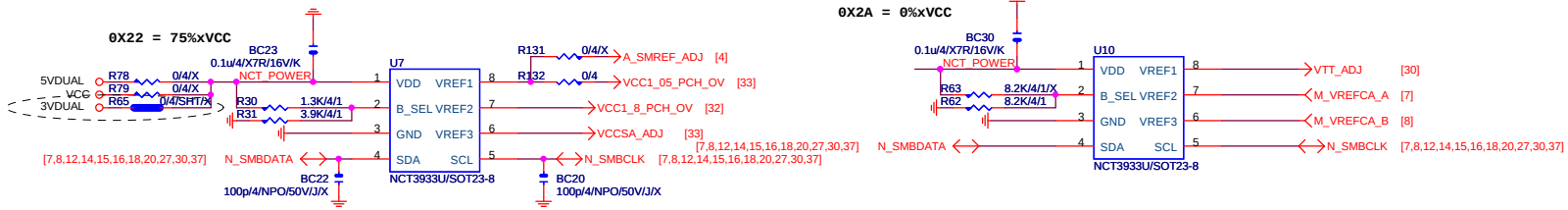
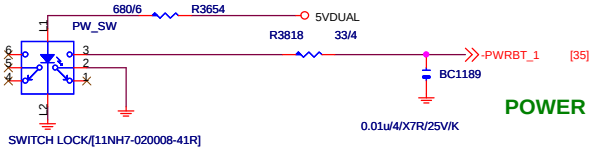
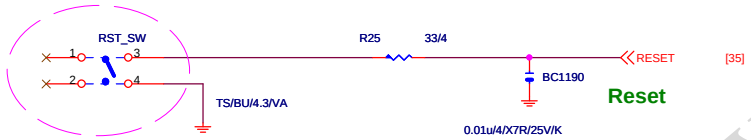
Size: Custom	Document Number: GA-Z77X-UD5H		Rev: 1.1
Date: Wednesday, June 06, 2012	Sheet 43 of 47		

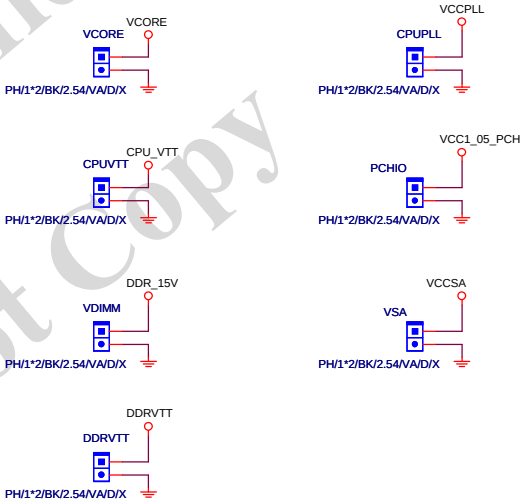












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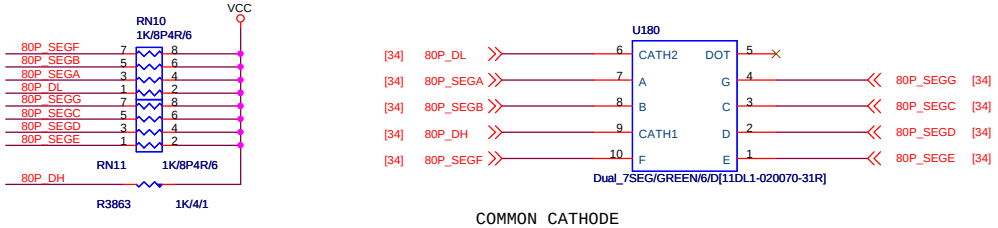

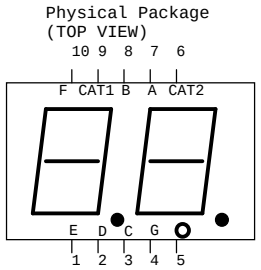

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Title: RST,PWR,CLR COMS

Size: Custom | Document Number: GA-Z77X-UD5H | Rev: 1.1

Date: Wednesday, June 06, 2012 | Sheet 46 of 47

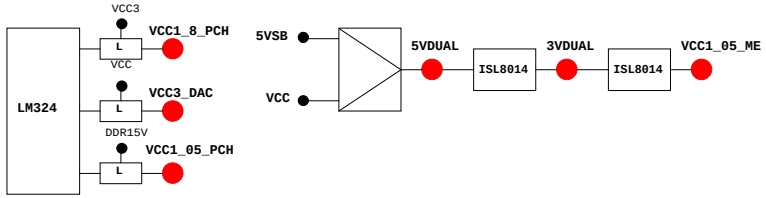
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	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	ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#	N/A
GP10/OC6#	STBY		NATIVE	OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	OC7#	N/A
GP15	STBY	L	GPO	GPIO15	N/A
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL
GP26	STBY		NATIVE	-ACZ_DET	P/U 8.2K 3VDUAL
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3
GP40	STBY		NATIVE	OC1#	N/A
GP41	STBY		NATIVE	OC2#	N/A
GP42	STBY		NATIVE	OC3#	N/A
GP43	STBY		NATIVE	OC4#	N/A
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	-LPCPME	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL
GP47	STBY		NATIVE	PSI LED	P/U 8.2K 3VDUAL
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3
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	N/A(Reverse)	P/U 8.2K 3VDUAL
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		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
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

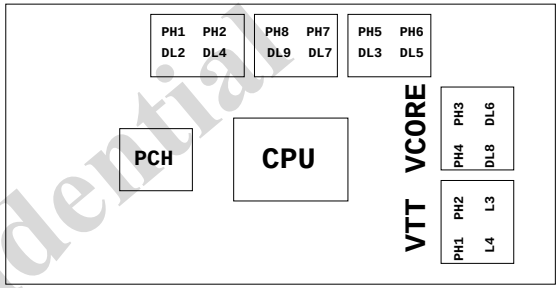
Super I/O ITE8720 GPIO Table

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：

8IBP:
1.12SP2-01A001-Y1R/Y2R
2.12SP2-01A001-Z1R/Z2R
(HIBRID模組)包材階

	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

Gigabyte Technology
Title: TABLE LIST
Size: C | Document Number: GA-Z77X-UD5H | Rev: 1.1
Date: Tuesday, May 29, 2012 | Sheet 47 of 47