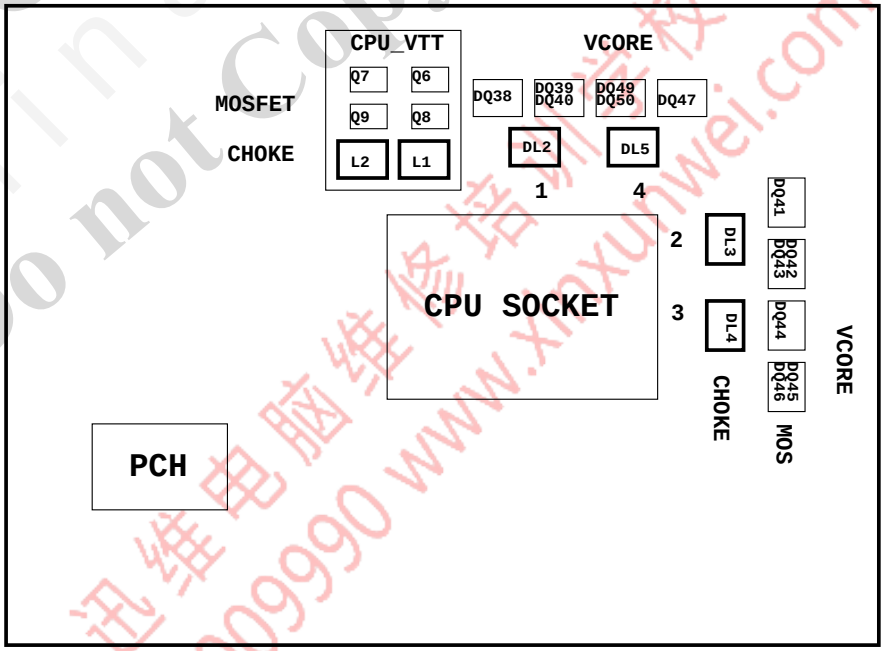
Model Name: GA-P61A-D3

2.1

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,NVRAM
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*4 SLOT
16	PCI EXPRESS*1 SLOTs X2
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, -PROHOT, ESATA CONNECT
20	Dual BIOS
21	ALC892
22	REAR AUDIO JACK
23	VCORE PWM_ISL6364CRZ-1
24	VCORE PWM_ISL6364CRZ-2
25	DISCRETE POWER
26	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
27	CPU_VTT PWM_ISL6322G

SHEET	TITLE
28	VCCSA POWER
29	F_PANEL , F_USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	NEC USB3.0
34	TABLE LIST
35	
36	
37	
38	
39	
40	



Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-P61A-D3 | Rev: 2.1

Date: Wednesday, September 05, 2012 | Sheet 1 of 34

GA-P61A-D3
Component value change history

Data	Change Item	Reason
2011/05/11 BOM:01	1. E-BOM	
2011/05/19 BOM:10A	1. 修改load-line & prochot	
	2. load-line DR345 8.2K --> 20K ,DR347 24.9K--> 62K	
	3. PROCHOT DR418 1.6k--> 845	
2011/06/27 BOM:10B	1. Load-line change DR303 1.27K/4/1 --> 4.3K/4/1 , DR294 12.7K/4/1 --> 52.3K/4/1	
	2. MB_ID Change Remove R40=8.2K/4, Add R41=8.2K/4	
H61-S3		
2011/07/18 BOM:01	1.EVT BOM	
2011/06/27 BOM:10A	1. Add R28 For FANPWM2 P.UP	
P61-S3P		
2011/08/17 BOM:01	1.EVT BOM	
	2. LAN AR8151 --> RTL8111E-VL	
2011/09/16 BOM:10A	1. P-BOM	
	2. PCB只能先下"精成"	
P61-U3S6	1. P-BOM	
	2. PCIEX16 SLOT CHANGE COST DOWN	
P61A-D3-01	1. CHECK MOSFET用料	
P61A-D3-2.0	1. U13 RT9173 --> RT9199	
	2. 確認MOSFET用料	
	3. PCIEX16 & COM & PCI 料號確認	
	4. PCB改Rev2.0	
20B-1219	1. F_AUDIO Change 料號	
20C-1221	1. ITE8728 Rev.D --> E	
2012		
20D-0627	1. 1uH/0.6uH 亮面-->霧面	
	2. PWOK 0.1u-->1u For China PSU issue	
21A-0831	1. E-BOM Releaser	
21A-1004	1. P-BOM Releaser	

Circuit or PCB layout change

DATE	Change Item	Reason
P61-S3-B3	從P61-DS3-B3修改	
2011/05/11 PCB:0.1	1. Rear panel remove LPT , SPDIF 2. Remove CLK-Buffer for non over clocking 3. Remove 3x power 4. Vcore power 4 phase ' 3 phase (Iron choke) 5. Audio ALC889 ' VIA VT1708S 6. LAN RTL8111E-VL ' Atheros AR8151 7. Over voltage (Vcore , DDDR_VTT ,DDR15V)	
2011/05/19 PCB:1.0	1. 修改文字面: P61-S3-B3 REV0.1 --> P61-S3-B3 REV1.0	
P61-S3P		
2011/08/17 PCB:0.2	1. Add MOS_HS Co-lay	
	2. LAN AR8151 --> RTL8111E-VL	
2011/09/15 PCB:1.0	1. 文字面增加: Dynamic energy saver	
	2. MOS_HS1/2文字面要對應	
2011/09/27 P61-S3-B3 1.2	1. 文字面移除: Dynamic energy saver 2. Remove ITE8275 3. SLOT & CHIP多餘電容移除 4. Remove背板電容	
P61-U3S6 Rev 0.1	1. EVT	
P61A-D3 Rev 0.2	1. CPU FAN 100uF移除 2. PCIEX16 270uF移除,改上22uF 3. CPU SOCKET內圈電容LAYOUT? 4. M_BIOS/B_BIOS 文字面要加	
P61A-D3 Rev 1.0	1. R348 NET加粗	
	2. PCI/PCIEX1 SLOT電容移除	
	3. PBC39過電容	
	4. TR56 0-SHORT	
	5. CODEC 2.2/6 --> SHORT PAD	
P61A-D3 Rev 2.1(0831)	1. ATX_12V_2X2 change to ATX_12V_2X4 2. Atheros LAN AR8151 --> AR8161B 3. F.B "FB0603-RH" change to "FB0402-RH" 4. ATX footprint update to "ATXPWR_24-6" 5. Add R200,BC12 for PWOK放在ATX 端 6. ERP R650 change to "R0402-2"	

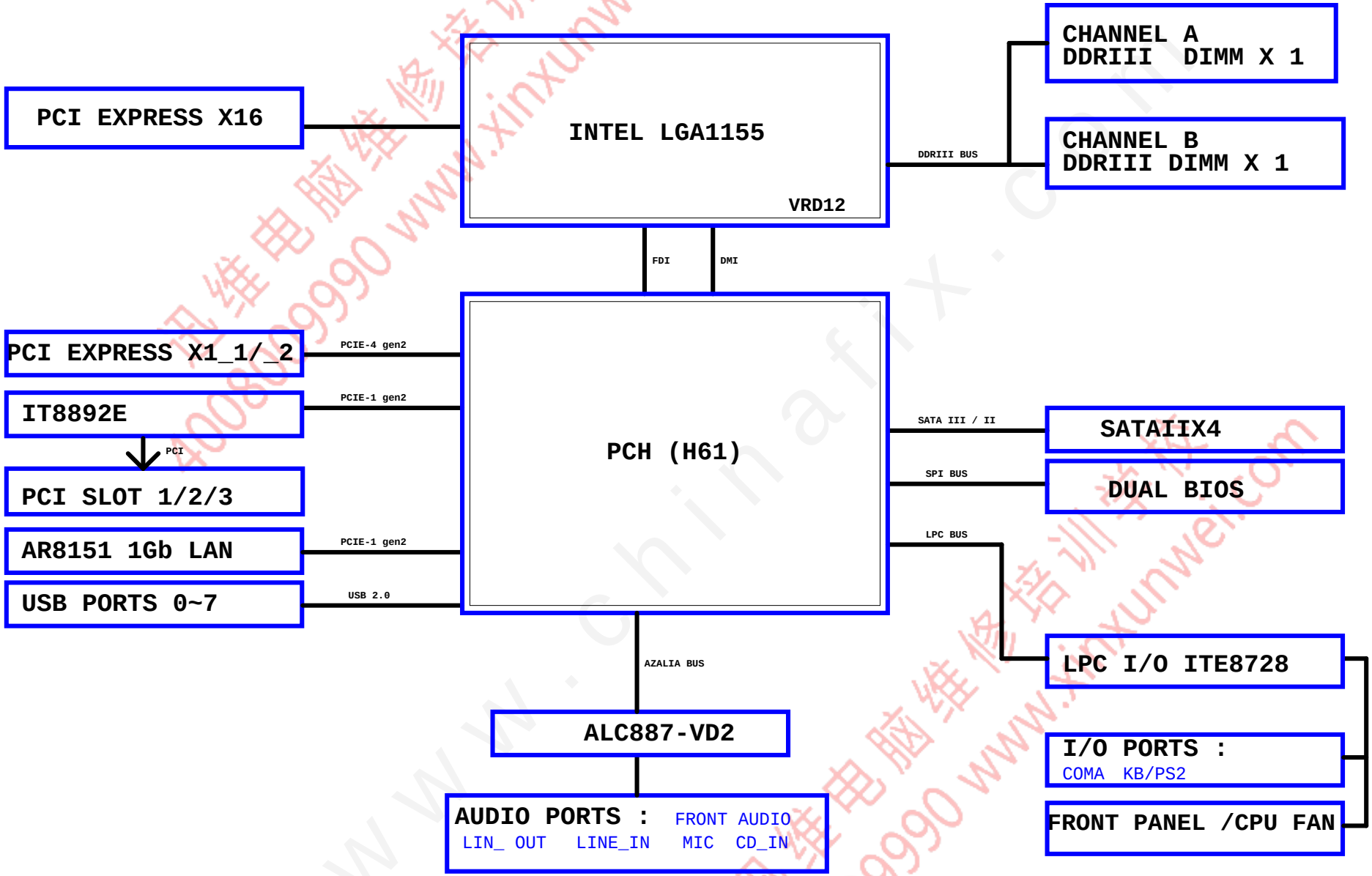
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

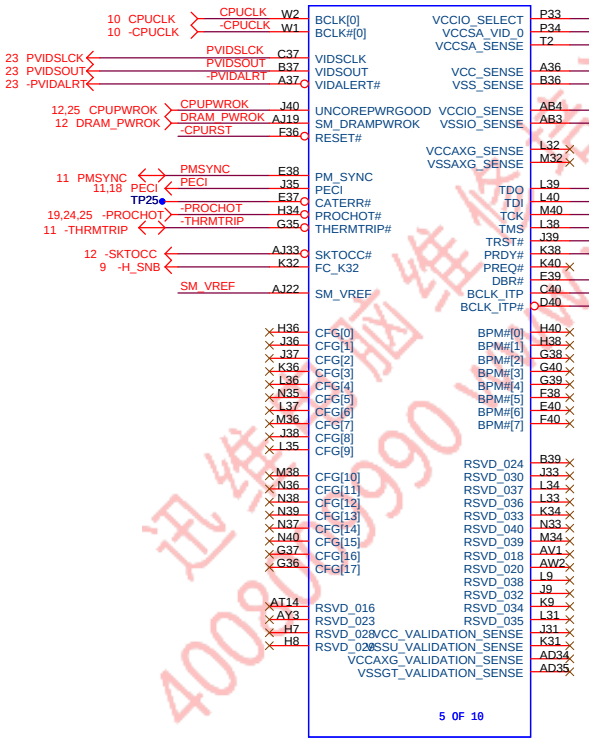
Size: Custom | Document Number: GA-P61A-D3 | Rev: 2.1

Date: Wednesday, October 24, 2012 | Sheet 2 of 34

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-P61A-D3	Rev: 2.1
Date: Wednesday, June 27, 2012	Sheet 3 of 34	

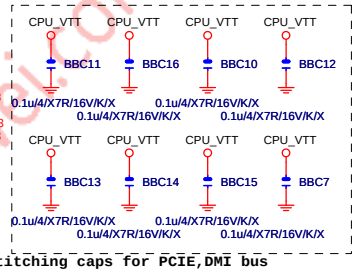


LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]

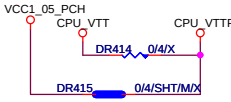
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD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

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

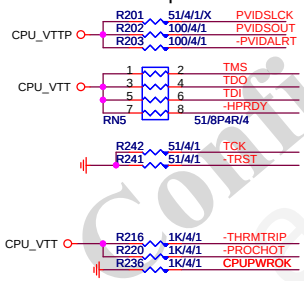
CFG 0-17 all internal PULL-UP

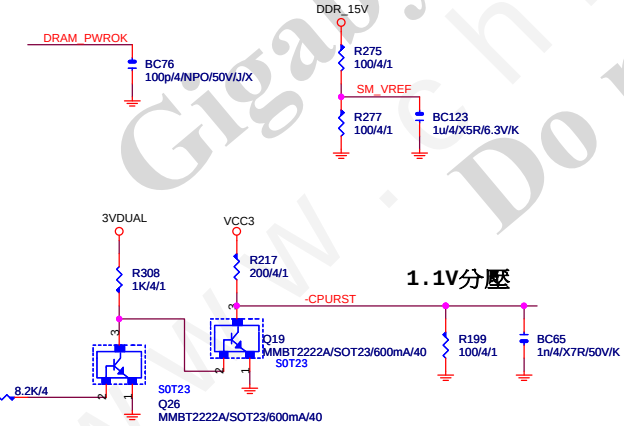


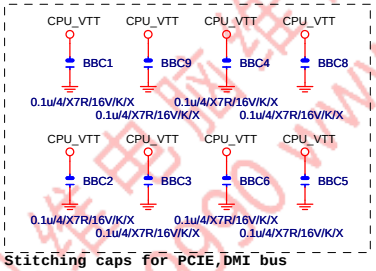
Stitching caps for PCIE,DMI bus



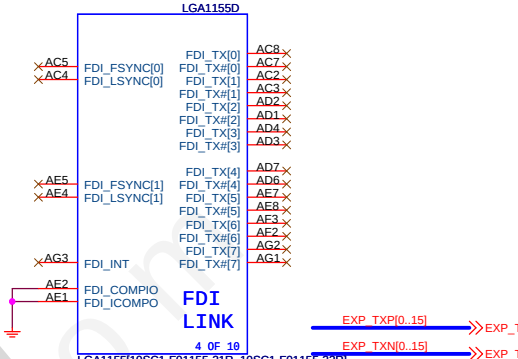
close cpu socket







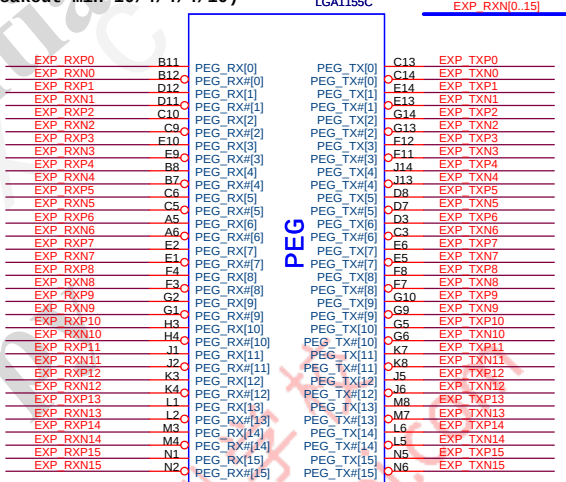
Stitching caps for PCIE,DMI bus



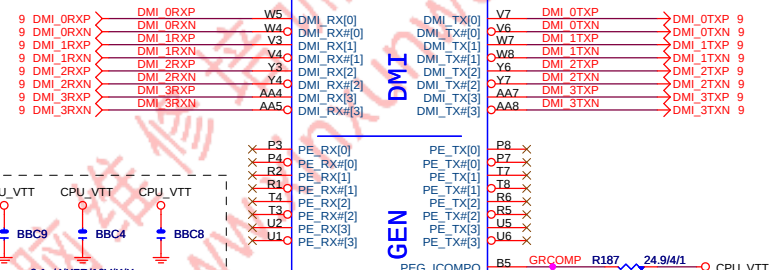
LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]

EXP_TXP[0..15] EXP_TXP[0..15] 14
EXP_TXN[0..15] EXP_TXN[0..15] 14
EXP_RXP[0..15] EXP_RXP[0..15] 14
EXP_RXN[0..15] EXP_RXN[0..15] 14

PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



DMI:12/4/5/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%



LGA1155[10SC1-F01155-21R_10SC1-F01155-22R]

GRCOMP R187 24.9/4/1 CPU_VTT
W=12 mil out of CPU
S=15 mil out of CPU

Title	CPU LGA1156-A
Size	Custom
Document Number	GA-P61A-D3
Rev	2.1
Date:	Friday, August 31, 2012
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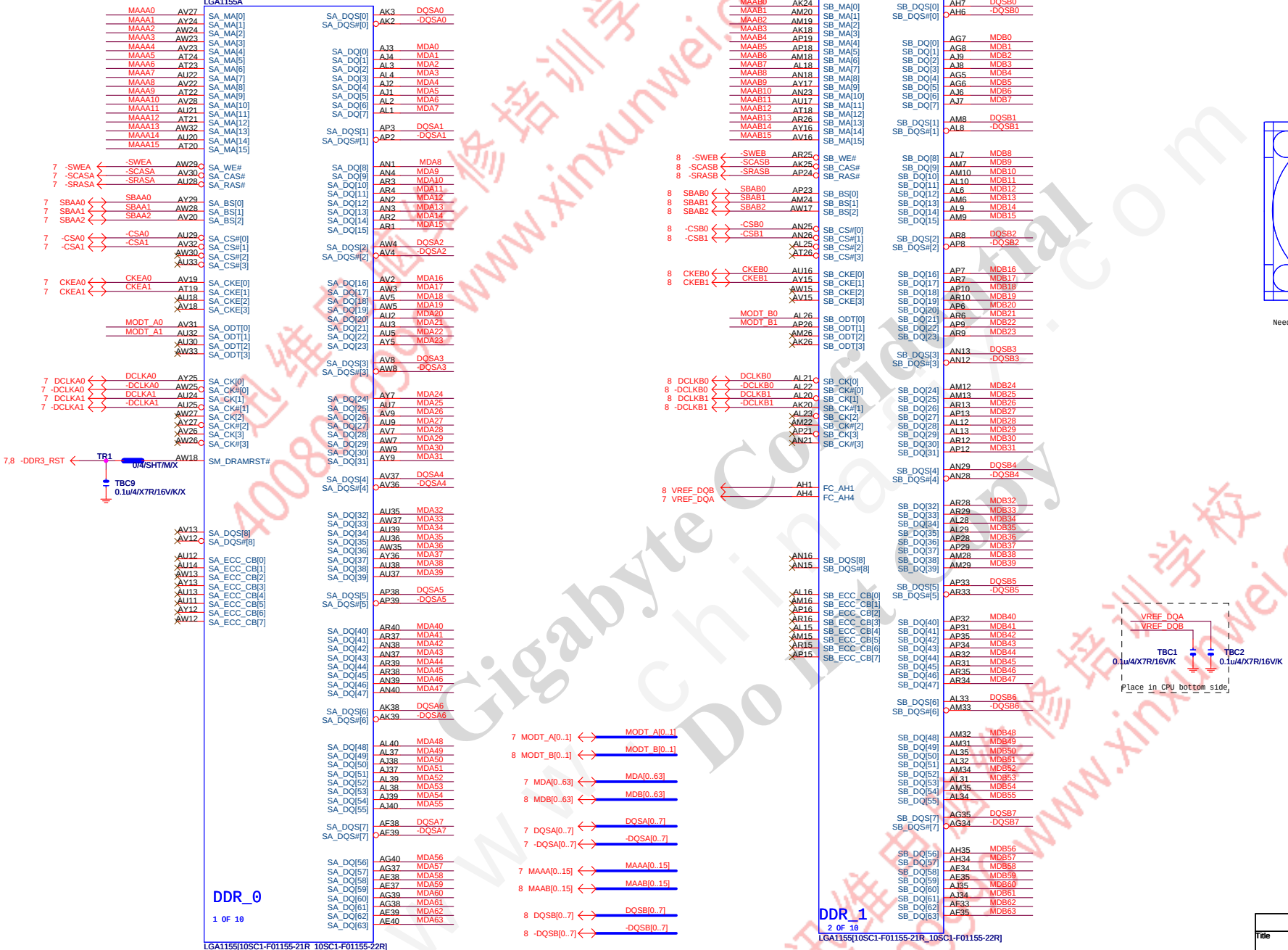
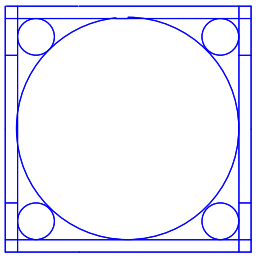
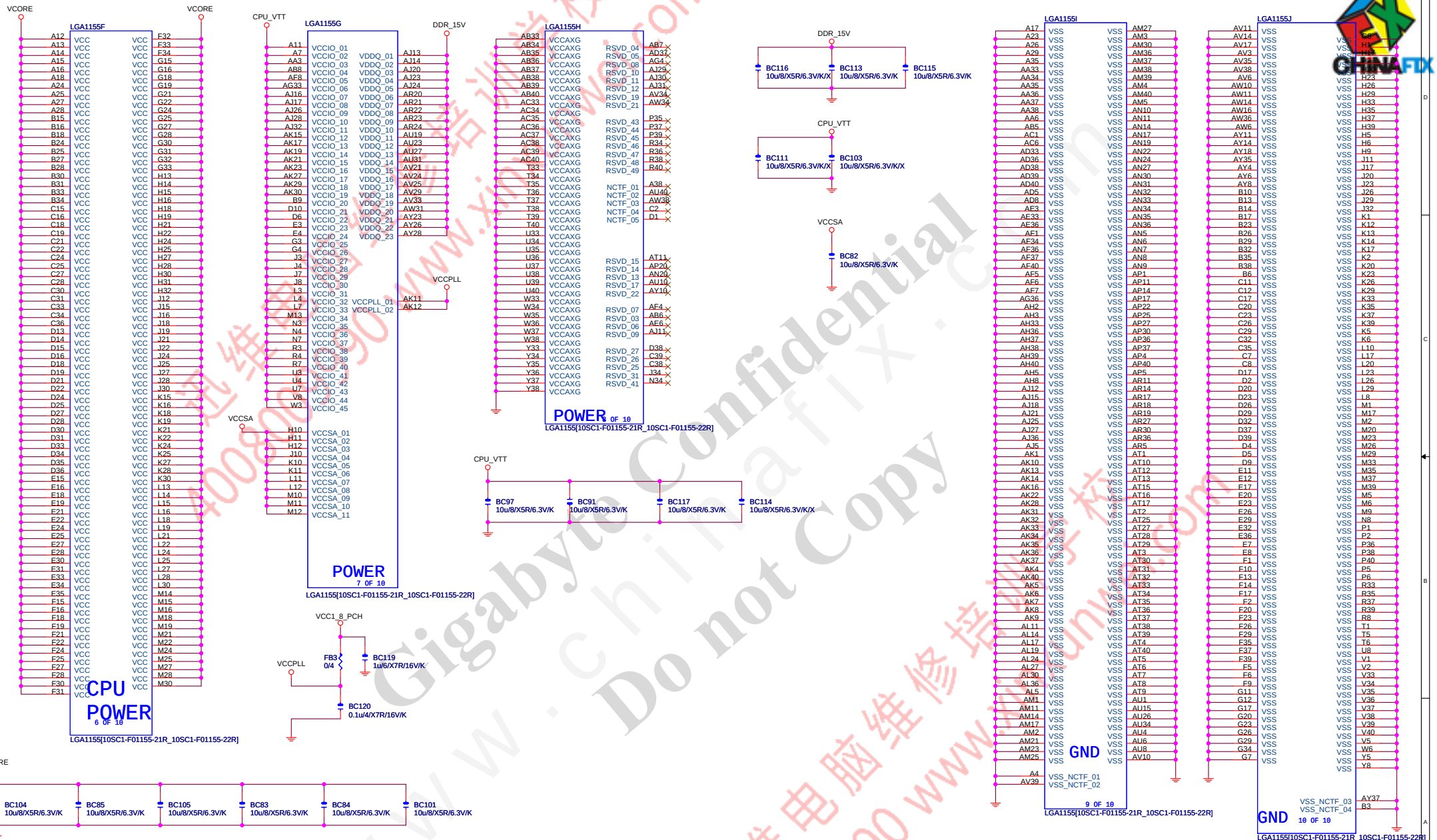
Gigabyte Technology

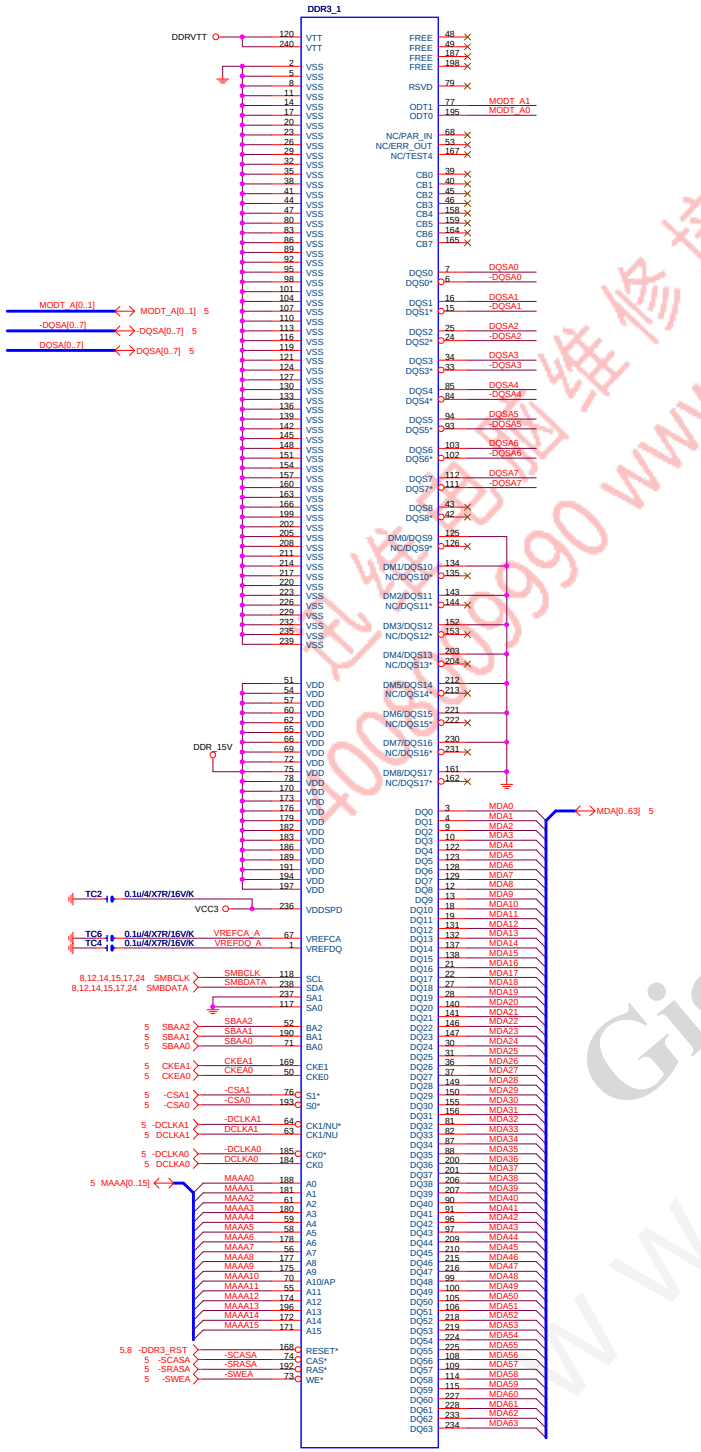


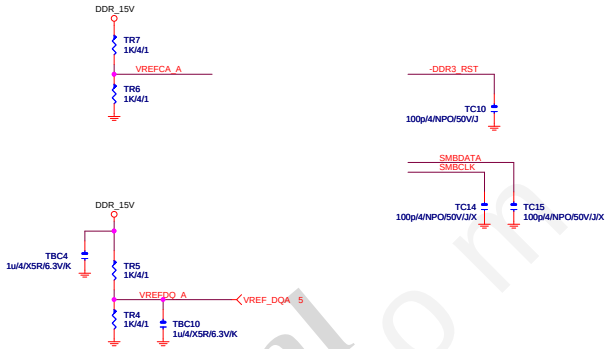


Gigabyte Technology			
Title: CPU LGA1156-B			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.1
Date: Friday, August 31, 2012		Sheet 5 of 34	

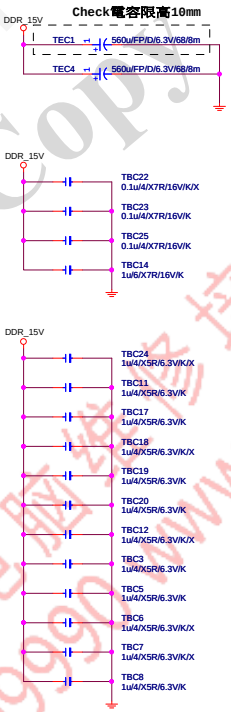


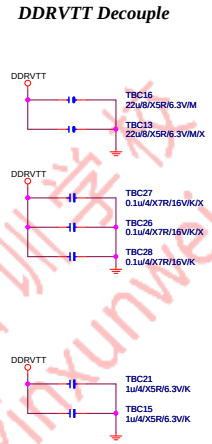
Gigabyte Technology		
Title: CPU LGA1156-C		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 6 of 34	



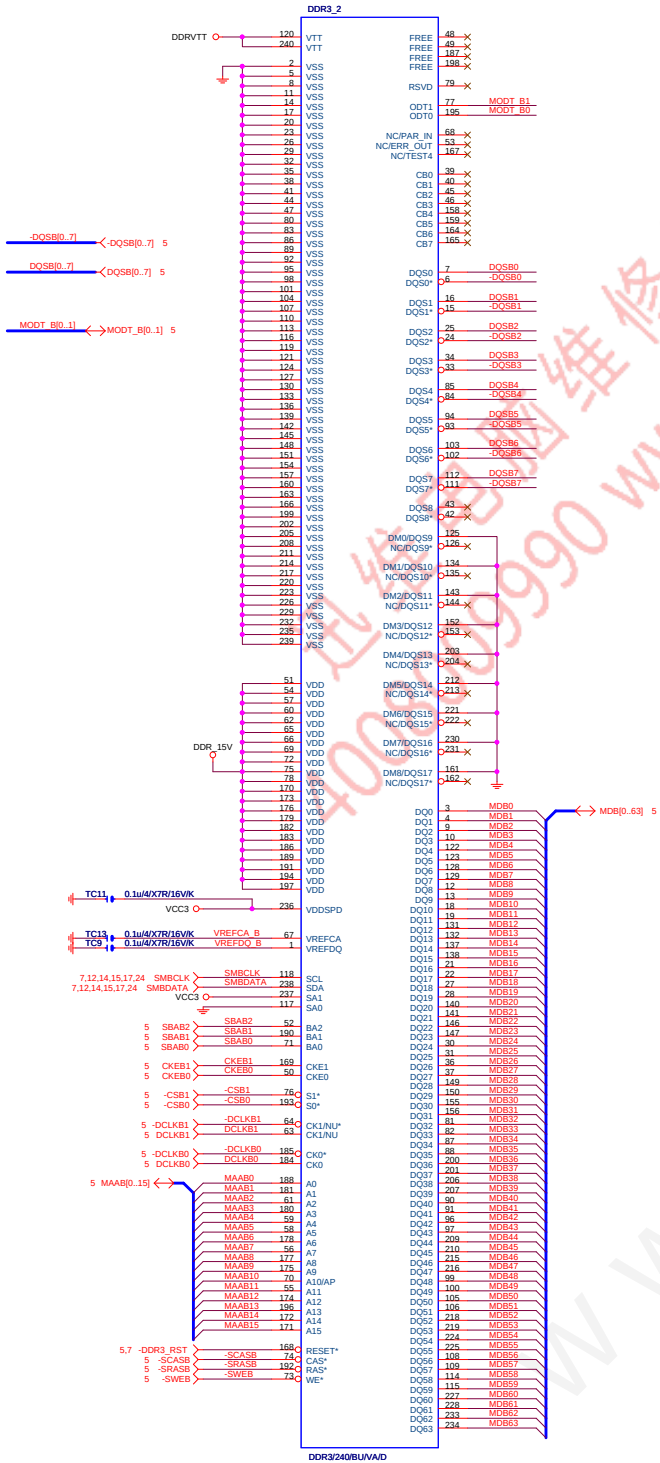


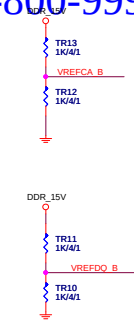
DDR TERMINATION CHANNEL A/B





Gigabyte Technology			
Title: DDRIII CHANNEL A			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.1
Date:	Sheet 7 of 34		



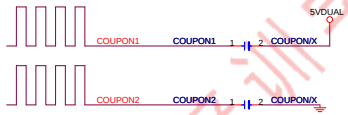


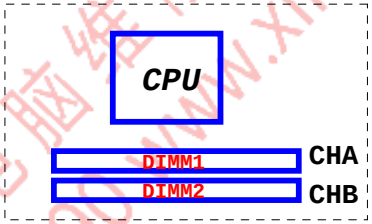
DDR3 1066,1333,1600MHZ BANDWIDTH

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-P61A-D3		Rev: 2.1
Date:	Sheet 8 of 34		

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

PCHB

DMI0RXN DMI0RXP DMI0TXN DMI0TXP DMI1RXN DMI1RXP DMI1TXN DMI1TXP DMI2RXN DMI2RXP DMI2TXN DMI2TXP DMI3RXN DMI3RXP DMI3TXN DMI3TXP DMI_IRCOMP DMI_ZCOMP CLKIN_DMI_N CLKIN_DMI_P — DMI

4 DMI_0TXN — DMI_0TXN — D33
4 DMI_0TXP — DMI_0TXP — B33
4 DMI_0RXN — DMI_0RXN — J36
4 DMI_0RXP — DMI_0RXP — H36
4 DMI_1TXN — DMI_1TXN — A36
4 DMI_1TXP — DMI_1TXP — B35
4 DMI_1RXN — DMI_1RXN — P38
4 DMI_1RXP — DMI_1RXP — R38
4 DMI_2TXN — DMI_2TXN — B37
4 DMI_2TXP — DMI_2TXP — C36
4 DMI_2RXN — DMI_2RXN — H38
4 DMI_2RXP — DMI_2RXP — J38
4 DMI_3TXN — DMI_3TXN — E37
4 DMI_3TXP — DMI_3TXP — F38
4 DMI_3RXN — DMI_3RXN — M41
4 DMI_3RXP — DMI_3RXP — P41
DMI_COMP — B31
E31

W=4 mil out of PCH
S=15 mil out of PCH
VCC1_05_PCH — R350 49.9/4/1

-SRCCLK_PCH — P33
SRCCLK_PCH — R33

USB: USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P

BF36 -USBP0 — -USBP0 29
BD36 +USBP0 — +USBP0 29
BC33 -USBP1 — -USBP1 29
BA33 +USBP1 — +USBP1 29
BM33 -USBP2 — -USBP2 29
BM35 +USBP2 — +USBP2 29
BT33 -USBP3 — -USBP3 29
BU32 +USBP3 — +USBP3 29
BR32 -USBP4 — -USBP4 32
BT31 +USBP4 — +USBP4 32
BN29 -USBP5 — -USBP5 32
BM30 +USBP5 — +USBP5 32
BK33
BJ33
BF31
BD31
BN27
BR29
BR26
BT27
BK25
BJ25
BJ31
BK31
BF27
BD27
BJ27
BK27

H61 CHIP USB PORT 6/7 are Disable

H61 CHIP USB PORT 12/13 are Disable

PCI-E: PERN1 PERP1 PETN1 PETP1 PERN2 PERP2 PETN2 PETP2 PERN3 PERP3 PETN3 PETP3 PERN4 PERP4 PETN4 PETP4 PERN5 PERP5 PETN5 PETP5 PERN6 PERP6 PETN6 PETP6 PERN7 PERP7 PETN7 PETP7 PERN8 PERP8 PETN8 PETP8

15 PCIE_IN1 — J20 — L20
15 PCIE_IP1
15 PCIE_TN1 — C18 0.1u/4/X7R/16V/K — PET_N1 — F25 — F23
15 PCIE_TP1 — C17 0.1u/4/X7R/16V/K — PET_P1
15 PCIE_IN2 — P20 — R20
15 PCIE_IP2
15 PCIE_TN2 — C2 0.1u/4/X7R/16V/K — PET_N2 — C22 — A22
15 PCIE_TP2 — C3 0.1u/4/X7R/16V/K — PET_P2
34 RA_SL_IN — H17 — J17
34 RA_SL_IP
34 RA_SL_ON — F21 — B21
34 RA_SL_OP
16 PCIEBIN — P17 — M17
16 PCIEBIP
16 PCIEBON — C15 0.1u/4/X7R/16V/K — PET_N4 — F18 — E17
16 PCIEBOP — C16 0.1u/4/X7R/16V/K — PET_P4
33 USB3_IN — N15 — M15
33 USB3_IP
33 USB3_ON — C42 0.1u/4/X7R/16V/K — PET_N5 — B17 — C16
33 USB3_OP — C35 0.1u/4/X7R/16V/K — PET_P5
32 ML_IN — J15 — L15
32 ML_IP
32 ML_ON — C41 0.1u/4/X7R/16V/K — PET_N6 — A16 — B15
32 ML_OP — C33 0.1u/4/X7R/16V/K — PET_P6

J12 H12 F15 F13 H10 J10 B13 D13

H61 CHIP PCIE PORT 7/8 are Disable

OC0#/GPIO59 OC1#/GPIO40 OC2#/GPIO41 OC3#/GPIO42 OC4#/GPIO43 OC5#/GPIO9 OC6#/GPIO10 OC7#/GPIO14

BM43
BD41 -USBOC_F — -USBOC_F 29
BG41
BK43
BP43
BJ41 — -USBOC_R 29,32
BT45
BM45 GPIO14

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

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

USBRBIAS# USBRBIAS
BP25 USBRBIAS — R341 22.6/4/1
BM25
W=4 mil out of PCH
S=15 mil out of PCH

CLKIN_DOT_96N CLKIN_DOT_96P
BD38 -DOTCLK
BF38 DOTCLK

DMI2RBIAS
A32 — R351 750/4/1
W=4 mil out of PCH
S=15 mil out of PCH

2 OF 11
BD82H61/B3/S

放靠近 Device & PCI-E Slot

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

VCC3 — BC178 1u/4/X5R/6.3V/K

-USBOC_F — BC168 0.1u/4/X7R/16V/K
-USBOC_R — BC170 0.1u/4/X7R/16V/K

3VDUAL — R371 8.2K/4 — GPIO14

VCC1_05_PCH — R244 8.2K/4/X DOTCLK
Mount for non-graphics skus

DOTCLK — R246 8.2K/4
-DOTCLK — R251 8.2K/4
R102 short to GND in non graphic SKU

SRCCLK_PCH — R267 8.2K/4
-SRCCLK_PCH — R268 8.2K/4

PCH_HS
1
2
SB_HS/[12SP2-030005-42R_12SP2-030005-43R]

VCC1_8_PCH — R407 1K/4/1
R408 8.2K/4 NV_CLE
-H_SNB 4
BC186 0.1u/4/X7R/16V/K
DMI /FDI termination voltage

PCHG

FDILINK

H31 J31 C29 E29 — TP21 TP25 TP29 TP33
J27 L27 F28 E27 — TP22 TP26 TP30 TP34
J25 L25 C26 B27 — TP23 TP27 TP31 TP35
L22 J22 B25 D25 — TP24 TP28 TP32 TP36

FDI_RXN0 — C42
FDI_RXP0 — B43
FDI_RXN1 — F45
FDI_RXP1 — F43
FDI_RXN2 — H41
FDI_RXP2 — J41
FDI_RXN3 — C46
FDI_RXP3 — D47
FDI_RXN4 — B45
FDI_RXP4 — A46
FDI_RXN5 — B47
FDI_RXP5 — C49
FDI_RXN6 — J43
FDI_RXP6 — H43
FDI_RXN7 — M43
FDI_RXP7 — P43

FDI_FSYNC0 — B51
FDI_LSYNC0 — E49
FDI_FSYNC1 — C52
FDI_LSYNC1 — D51
FDI_INT — H46

7 OF 11
BD82H61/B3/S

PCHE

NV_CLE — M48 R47 Y41 M50 M49 U43 J57
NV_ALE NV_CLE NV_RB# NV_RE#_WRB0 NV_RE#_WRB1 NV_WE#_CK0 NV_WE#_CK1

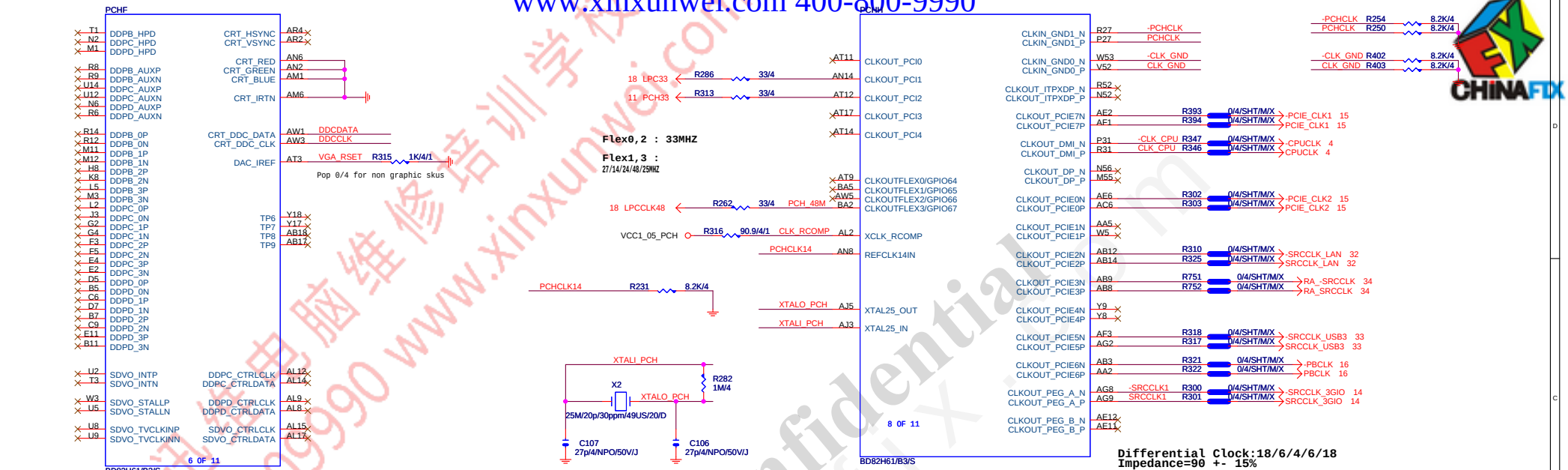
NV_DQ0/NV_IO0 — AB50
NV_DQ1/NV_IO1 — Y50
NV_DQ2/NV_IO2 — AB49
NV_DQ3/NV_IO3 — AB44
NV_DQ4/NV_IO4 — U49
NV_DQ5/NV_IO5 — R44
NV_DQ6/NV_IO6 — U50
NV_DQ7/NV_IO7 — U46
NV_DQ8/NV_IO8 — U44
NV_DQ9/NV_IO9 — H50
NV_DQ10/NV_IO10 — K46
NV_DQ11/NV_IO11 — L56
NV_DQ12/NV_IO12 — J55
NV_DQ13/NV_IO13 — F53
NV_DQ14/NV_IO14 — H52
NV_DQ15/NV_IO15 — F52

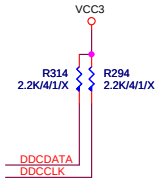
NV_CE#0 — K50
NV_CE#1 — K49
NV_CE#2 — AB46
NV_CE#3 — C56

NV_DQS0 — Y44
NV_DQS1 — L53
NV_RCOMP — R50 NV_RCOMP — R422 33/4

NVRAM
5 OF 11
BD82H61/B3/S

Gigabyte Technology		
Title: PCH FDI,DMI,USB ,PCIE		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 9 of 34	





Check if NC for P67 non graphic chip

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 10 of 34	

SATA:20/4.5/7.5/4.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHC

PCHA

MB-ID

H61
PORT2.3
Disable

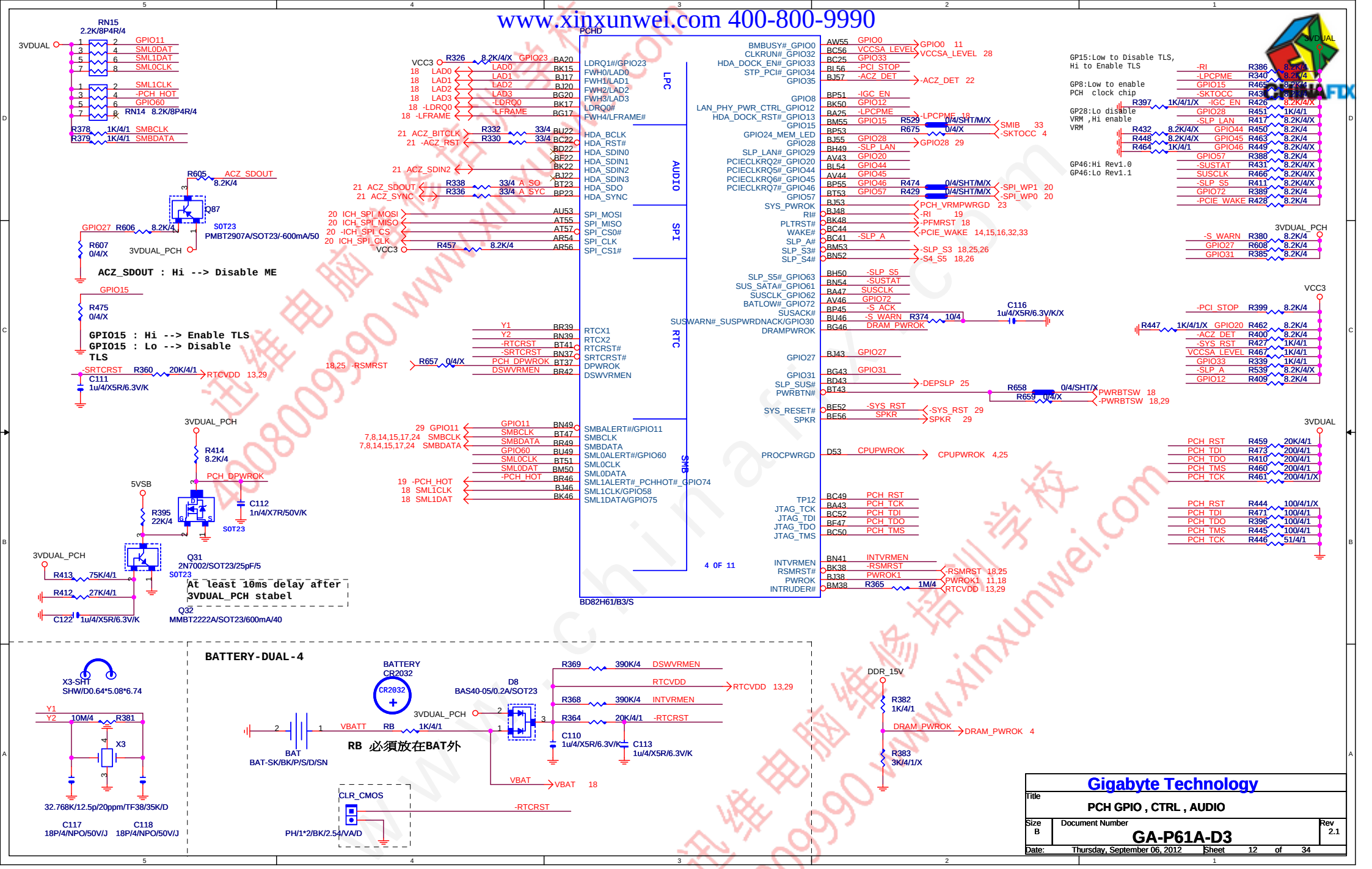
FDI RX

BD82H61/B3/S

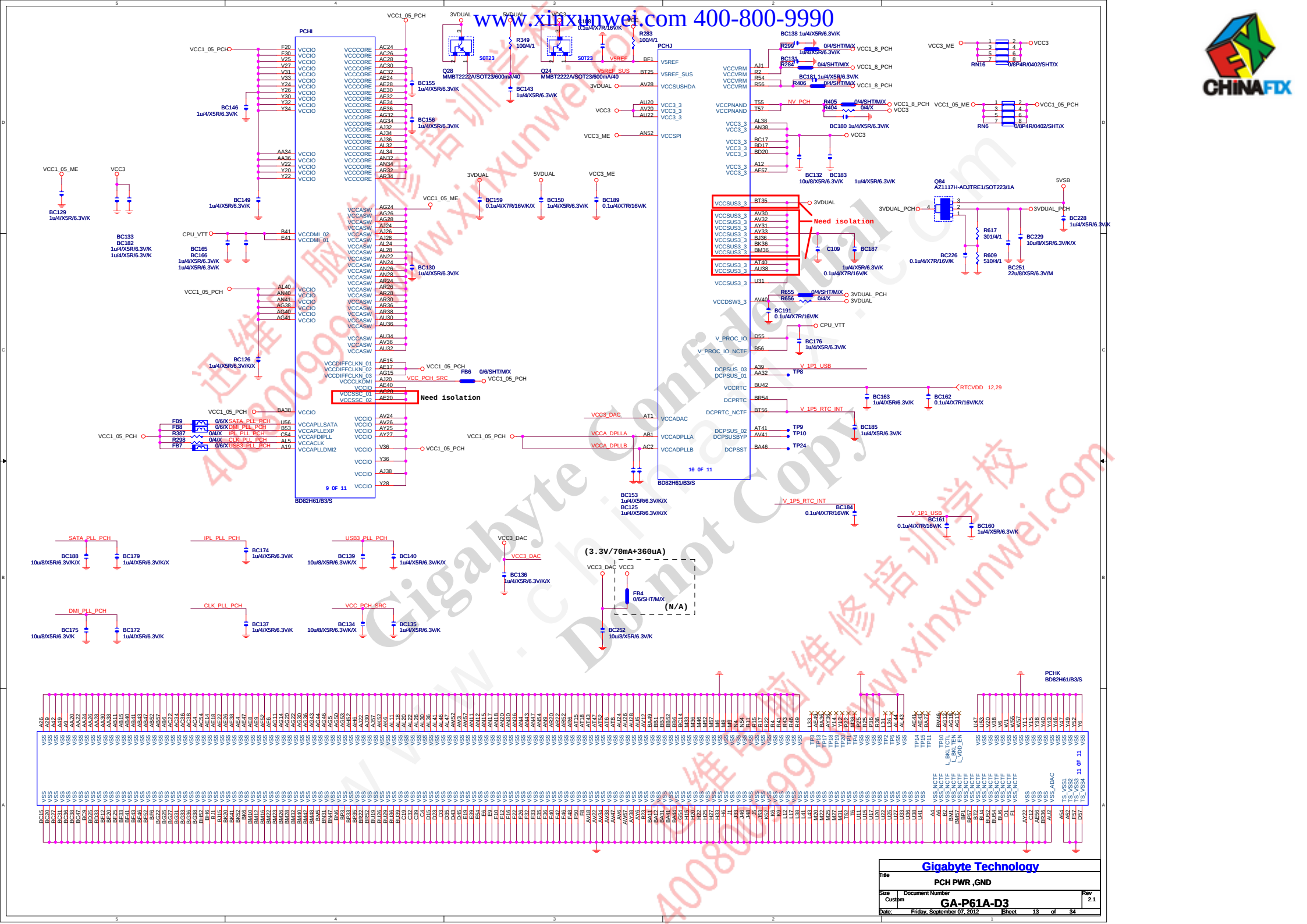
PCI

Gigabyte Technology

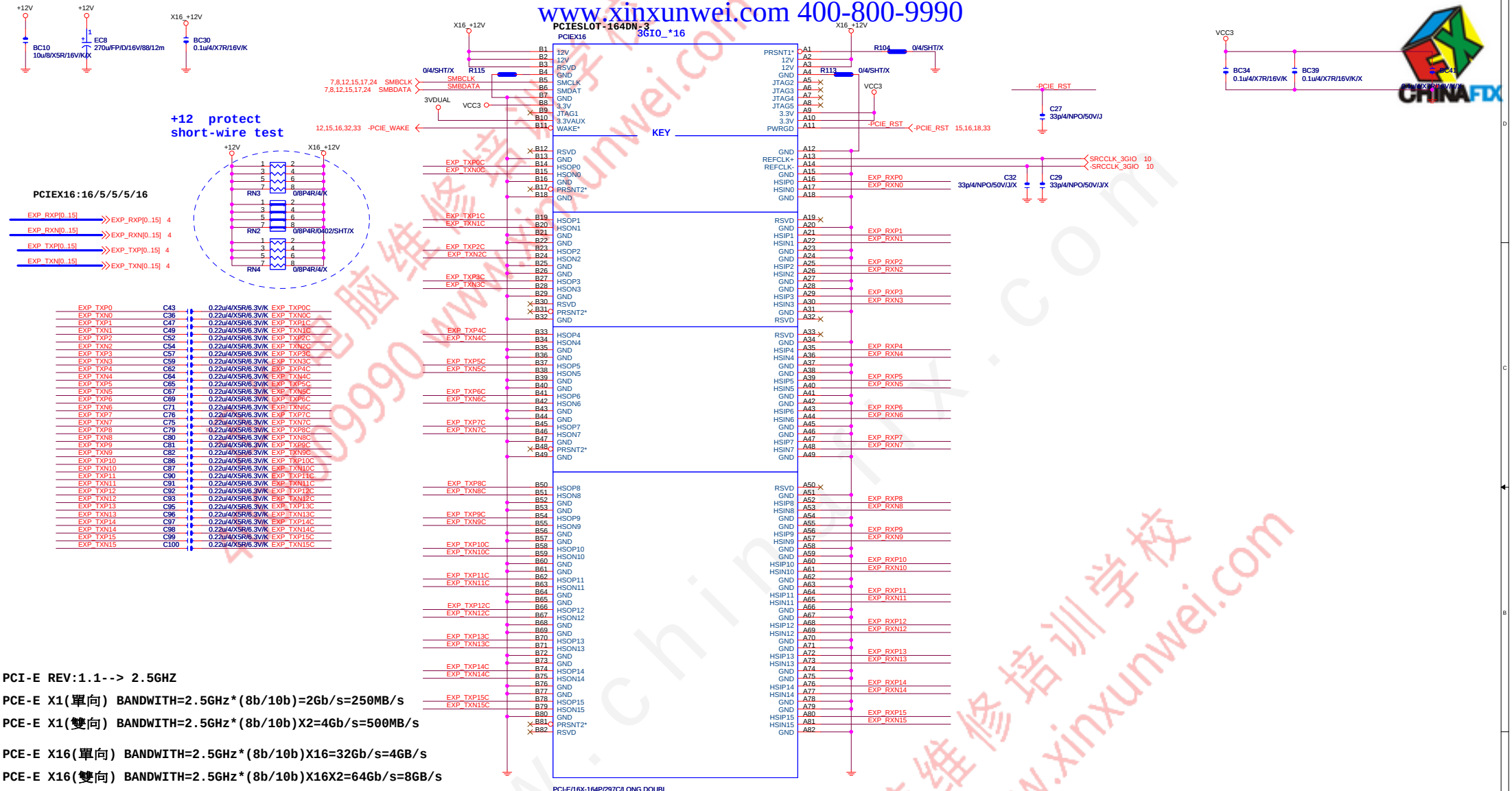
Title	PCH HOST , SATA, PCI	
Size B	Document Number GA-P61A-D3	Rev 2.1
Date: Friday, August 31, 2012	Sheet 11 of 34	



Gigabyte Technology		
Title: PCH GPIO , CTRL , AUDIO		
Size: B	Document Number: GA-P61A-D3	Rev: 2.1
Date: Thursday, September 06, 2012	Sheet 12 of 34	



Gigabyte Technology			
Title	PCH PWR ,GND		
Size	Document Number		Rev
Custom	GA-P61A-D3		2.1
Date:	Friday, September 07, 2012	Sheet 13 of 34	



PCI-E REV:1.1--> 2.5GHZ

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

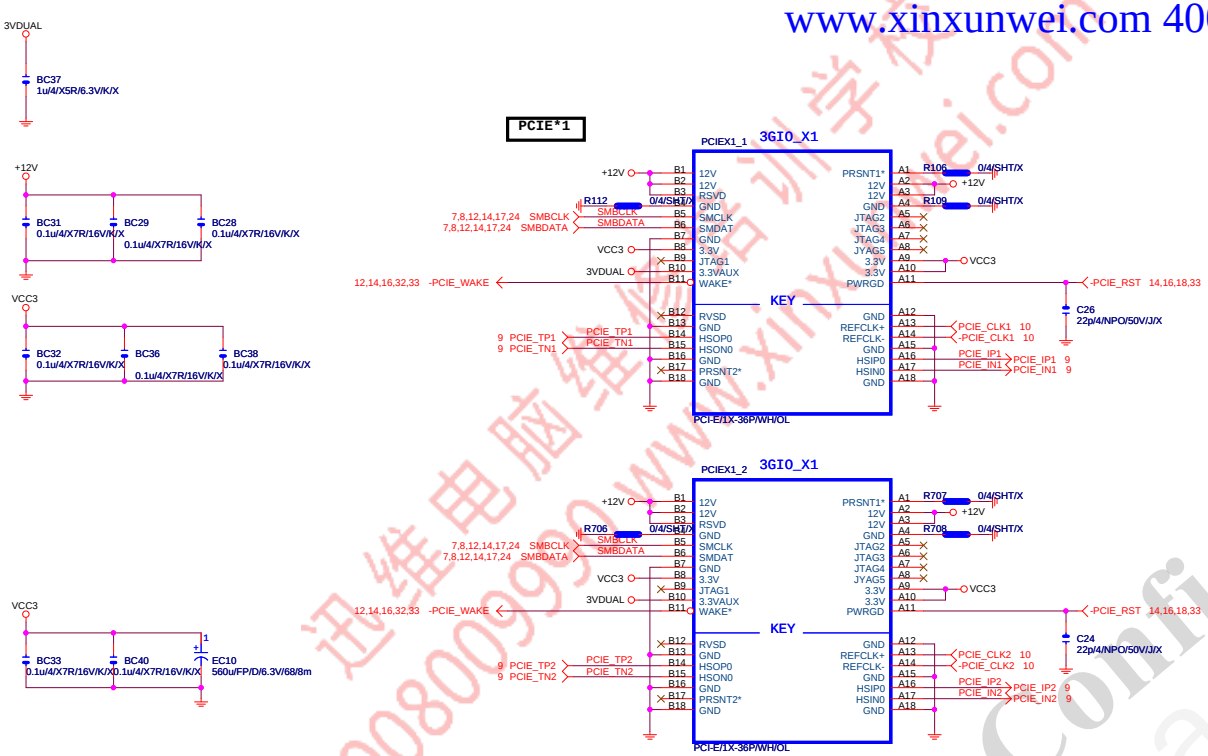
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

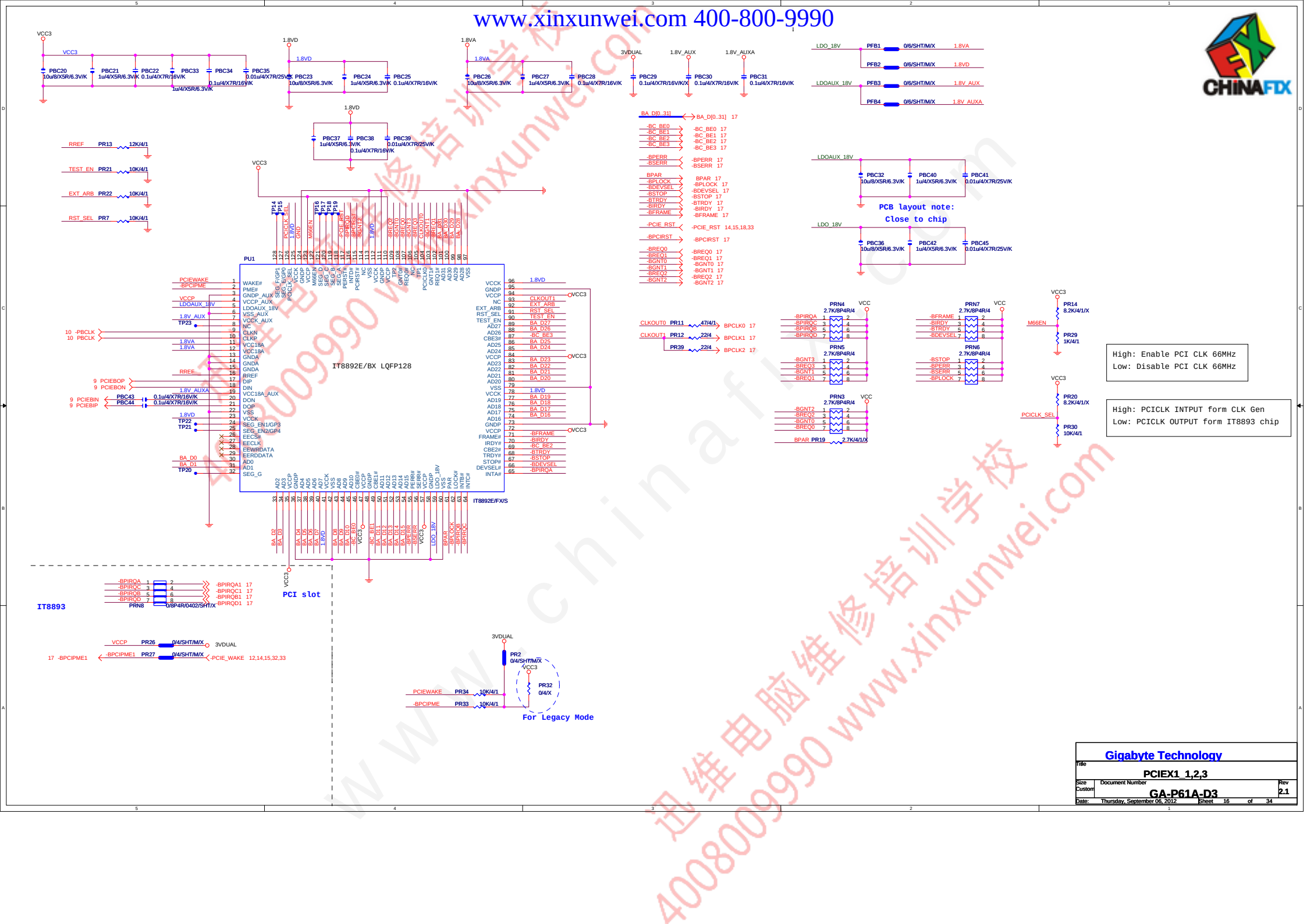
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

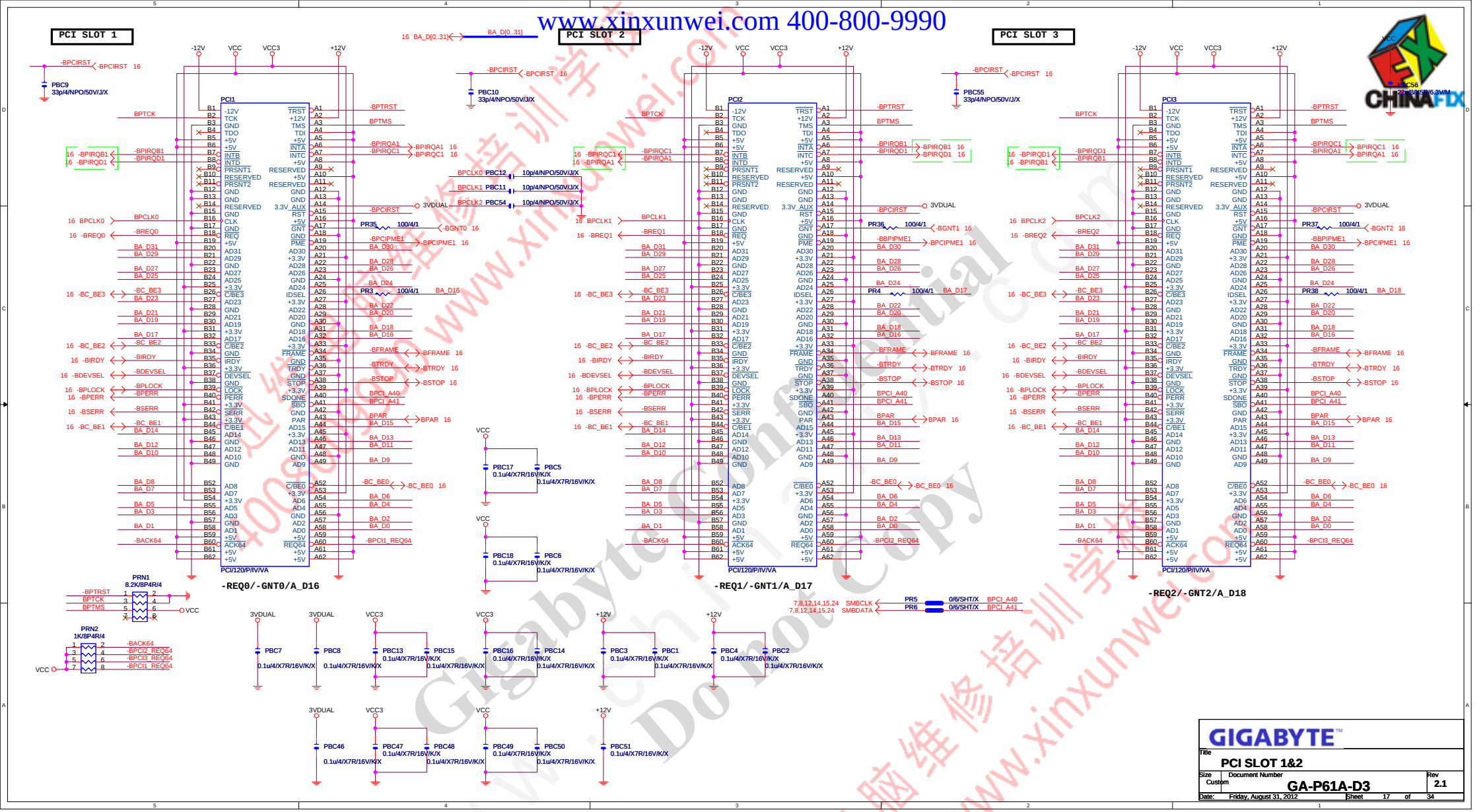
PCI-E REV:2.0--> 5GHZ

Gigabyte Technology		
Title	PCI EXPRESS * 16	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Wednesday, September 05, 2012	Sheet 14 of 34	



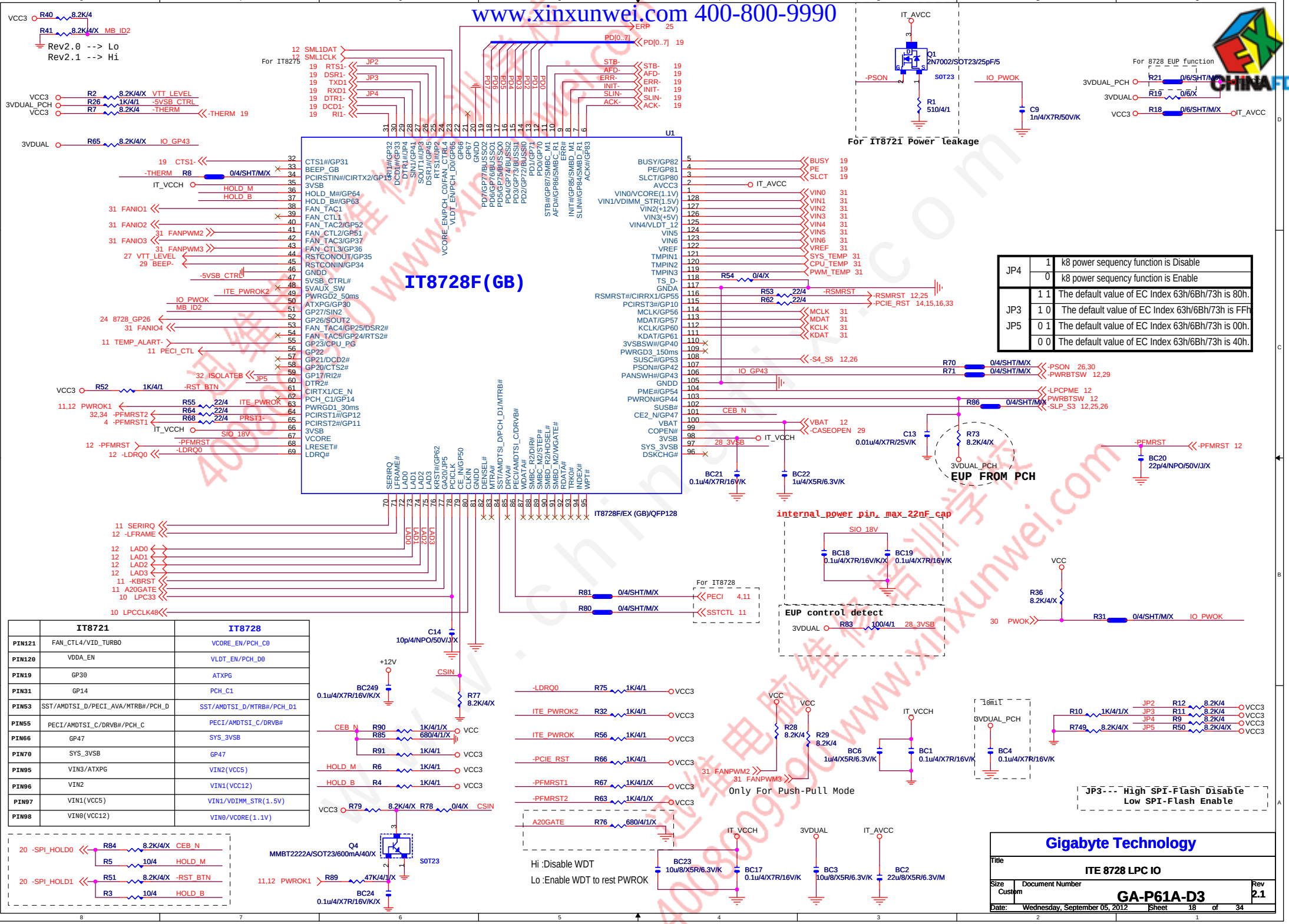
Title	Gigabyte Technology	
	PCI EXPRESS X 4 PORT	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 15 of 34	





GIGABYTE

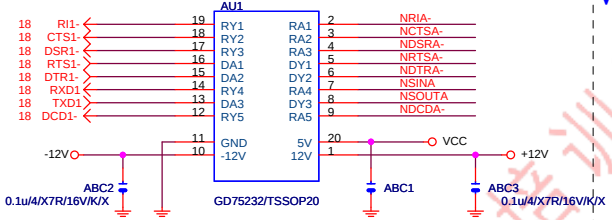
Title	PCI SLOT 1&2	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 17 of 34	



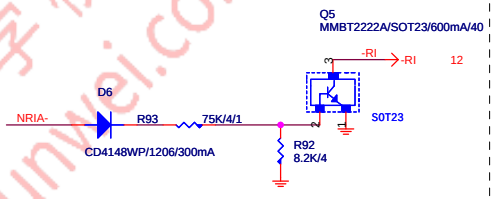
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

	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)

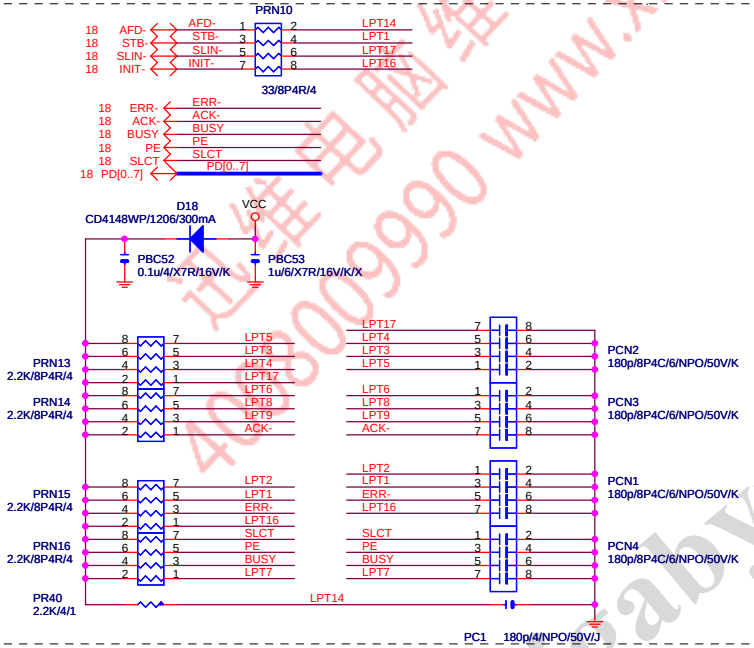
COMA

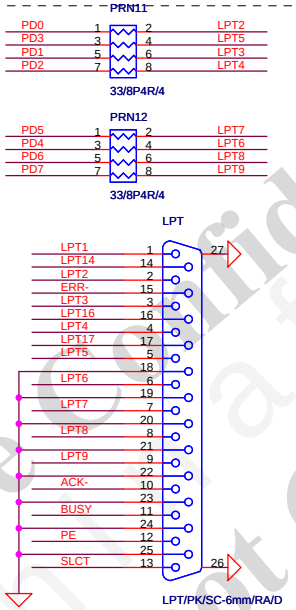


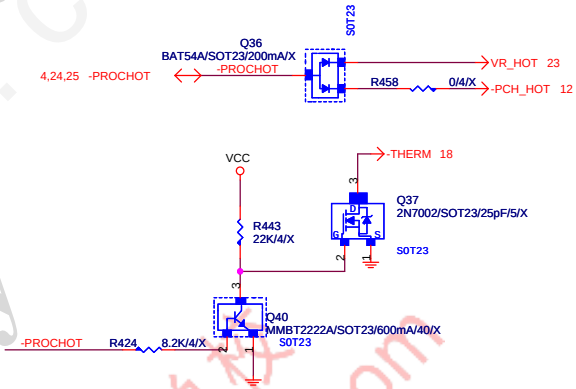
COM RI



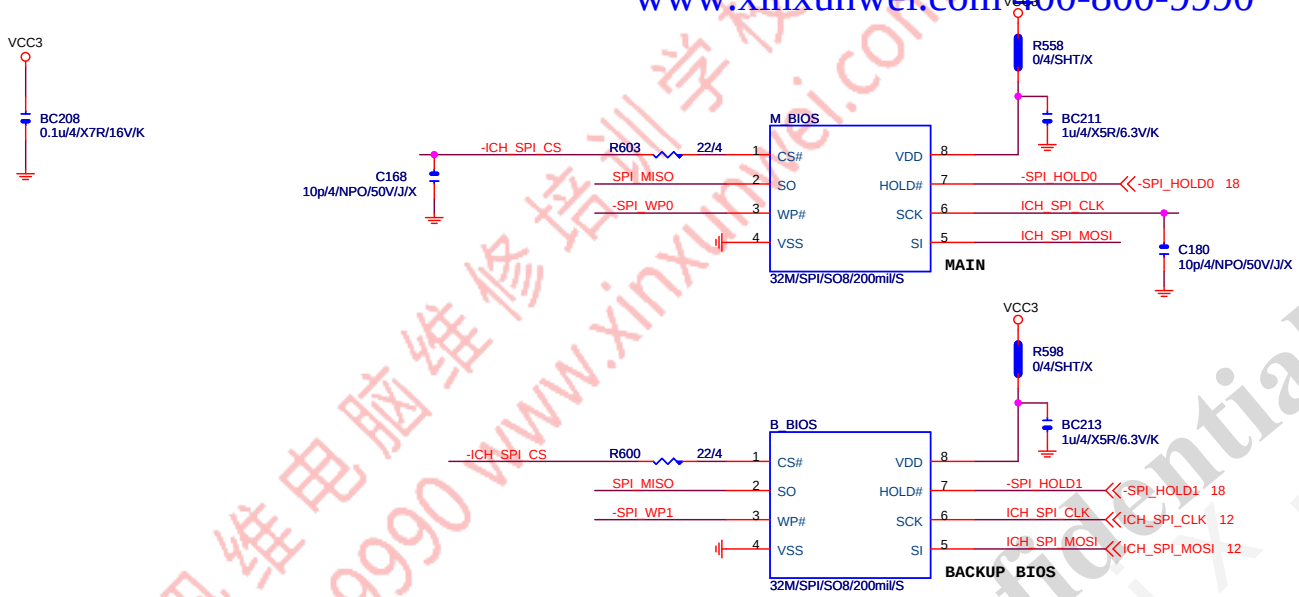
LPT PORT



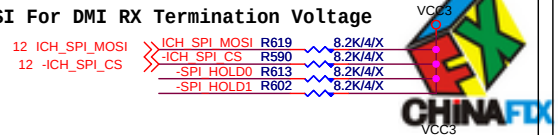


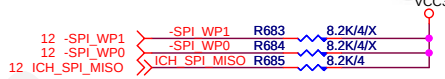


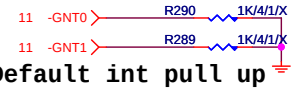
Gigabyte Technology		
Title: COM & PROHOT/Dynamic O.C.		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, August 31, 2012	Sheet 19 of 34	



MOSI For DMI RX Termination Voltage







Default int pull up

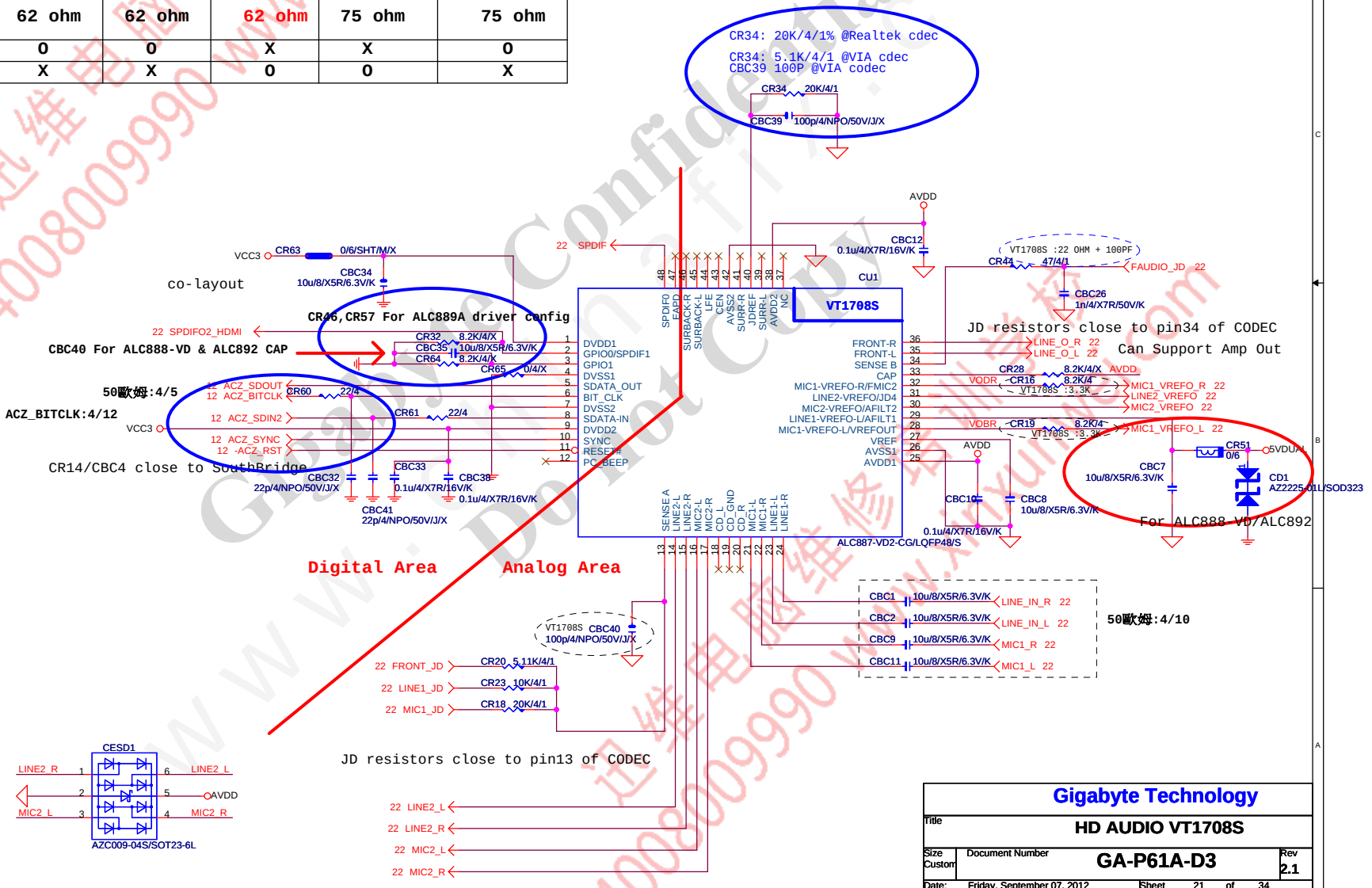
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

Gigabyte Technology			
Title: BIOS			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.1
Date: Friday, August 31, 2012	Sheet 20 of 34		

AZALIA CODEC *ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay*

	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE
CR65	X	X	O	O	X
CR64	X	X	X	X	0.1u/4
CBC35	O	O	X	X	O
CR44/CBC6	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR31	X	O	O	O	O
CR30	O	X	X	X	X
CR20	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR34	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC39/CBC40	N/A	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	22K/4	10K/4	10K/4
CR1/CR14/CR17/CR22	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	O	X	X	O
CD2/CD3/CQ3/CQ5	X	X	O	O	X



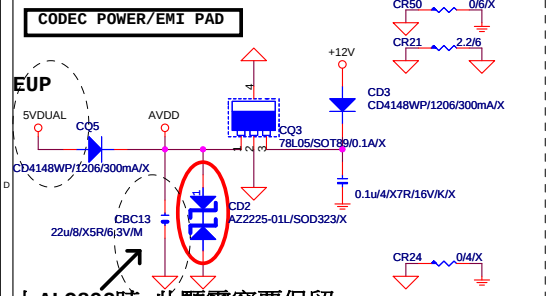
Gigabyte Technology

Title: HD AUDIO VT1708S

Size: Custom | Document Number: GA-P61A-D3 | Rev: 2.1

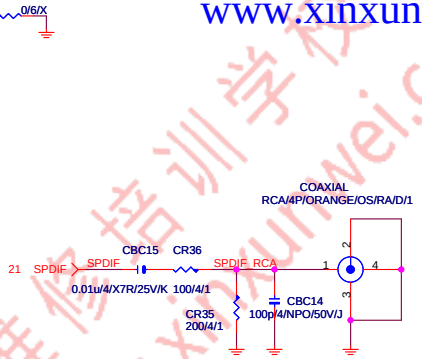
Date: Friday, September 07, 2012 | Sheet 21 of 34

CODEC POWER/EMI PAD

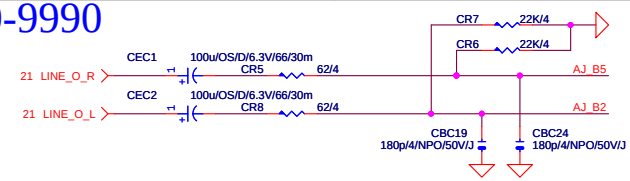


上ALC892時,此顆電容要保留

ADD CD2 For ESD PROTECT DIODE

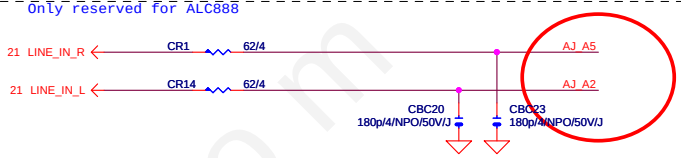


LINE-OUT



LINE-IN

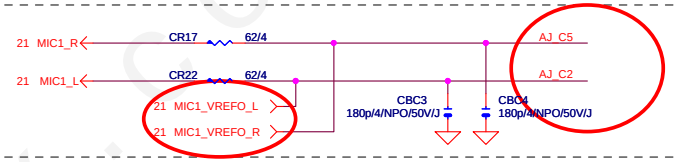
Only reserved for ALC888



Verify MIC function in LINE-in

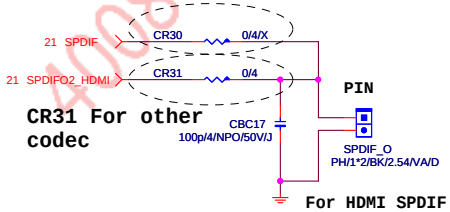
For 889A/888

MIC-IN



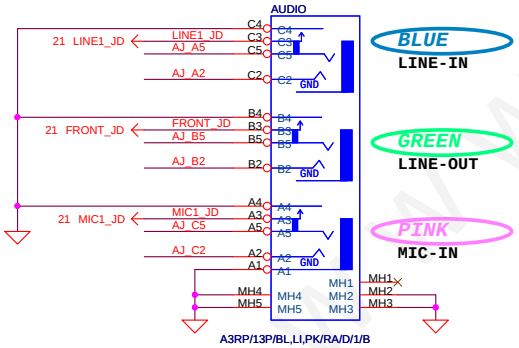
SPDIF_OUT

CR30 For ALC662



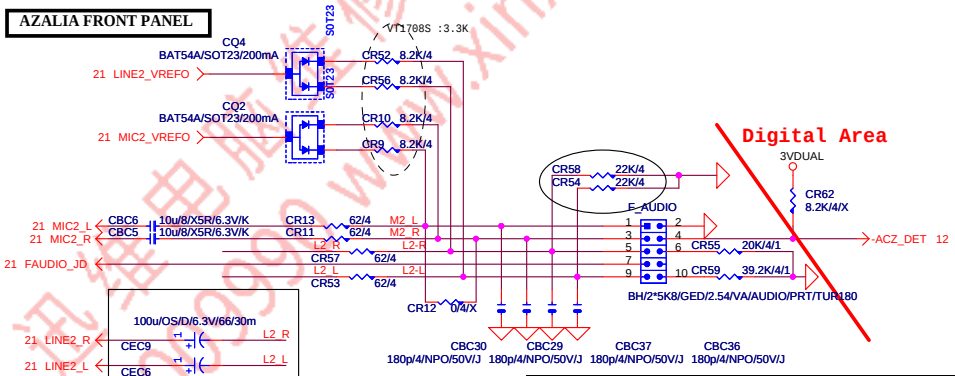
CR31 For other codec

For HDMI SPDIF

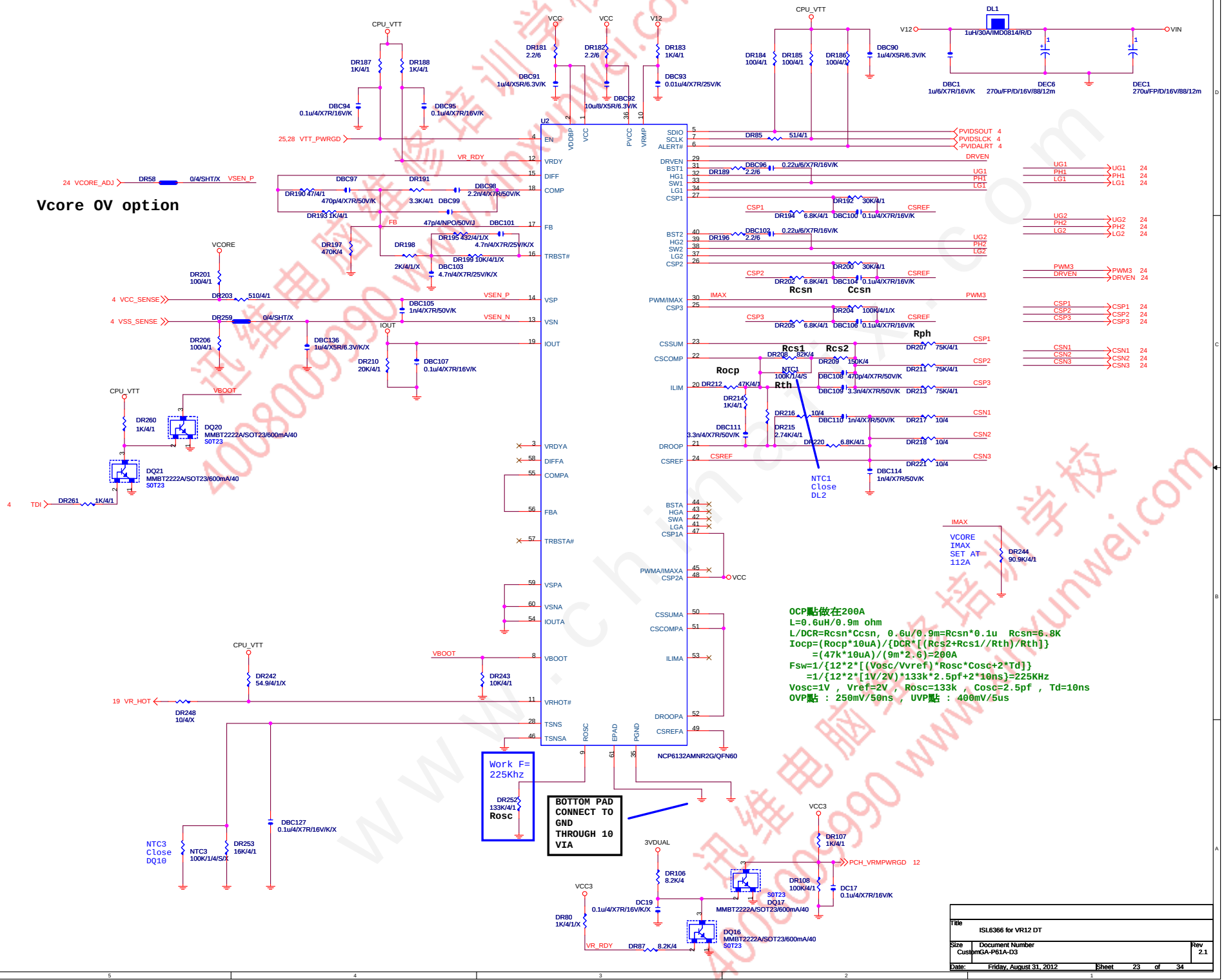


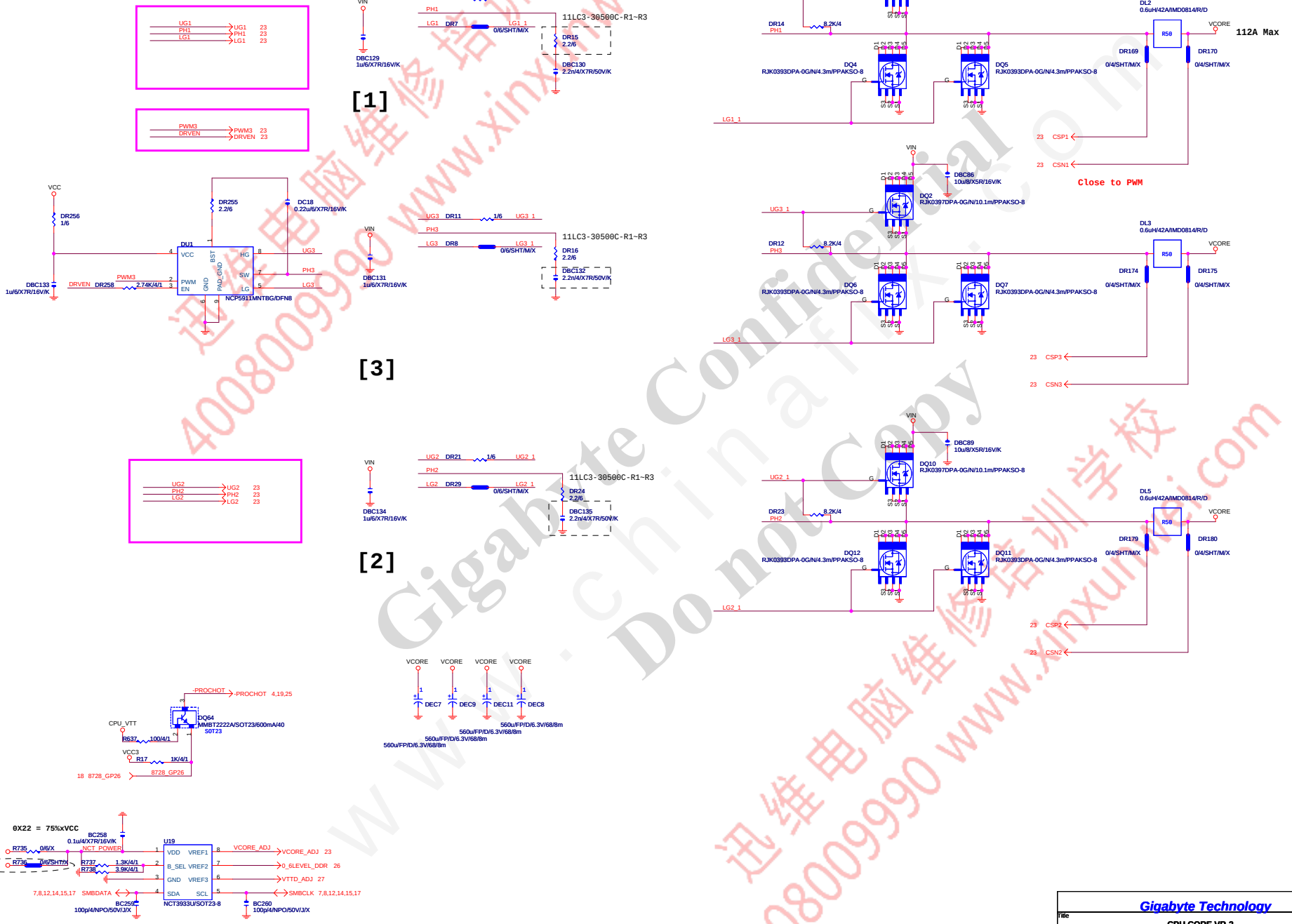
A3RP/13P/BL,LI,PK/RA/D/1/B

AZALIA FRONT PANEL

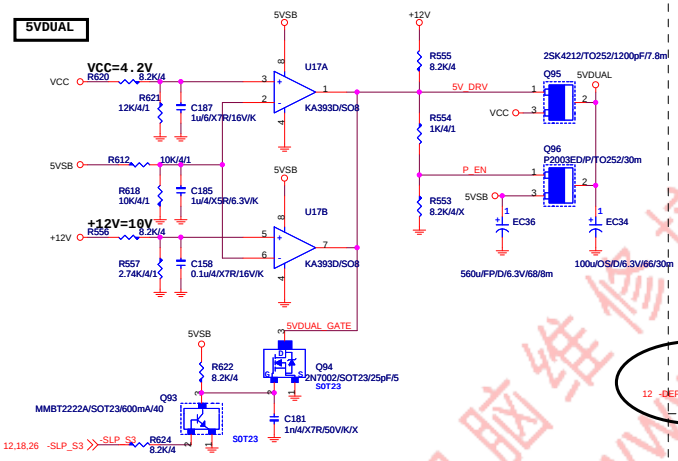


Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
Date: Friday, September 07, 2012	Sheet 22 of 34	

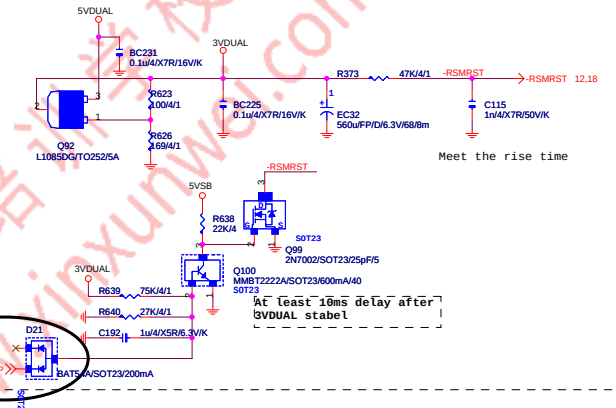




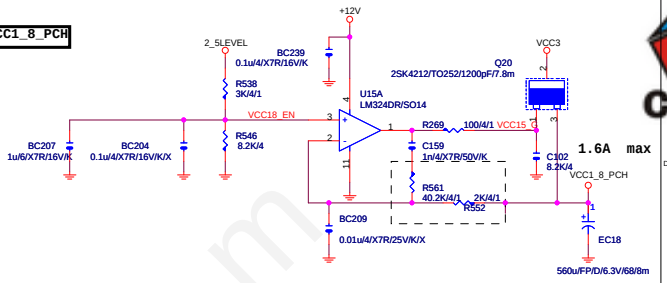
5VDUAL



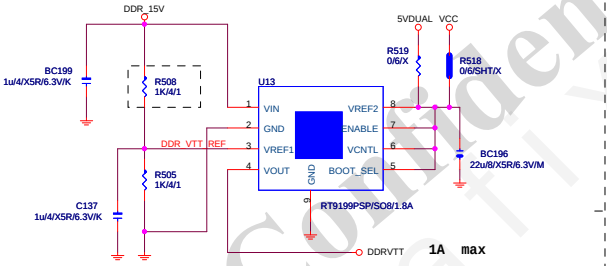
3VDUAL



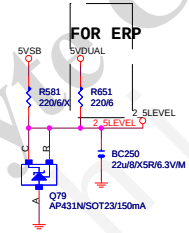
VCC1_8_PCH



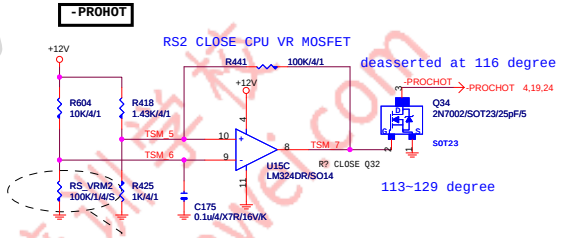
DDRVTT



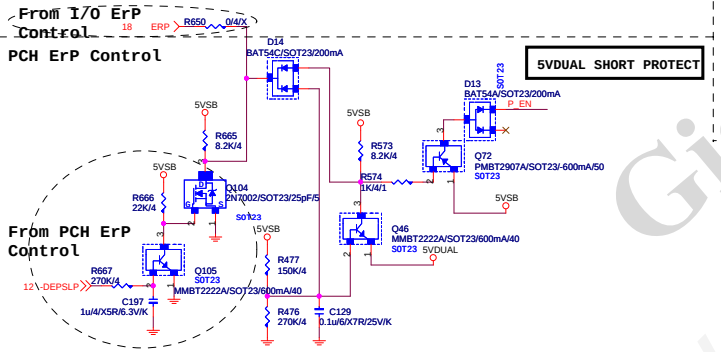
FOR ERP



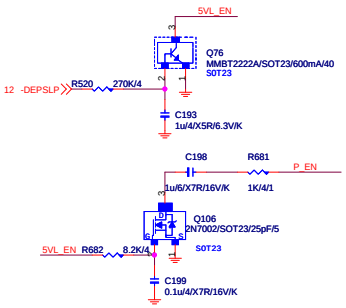
-PROHOT

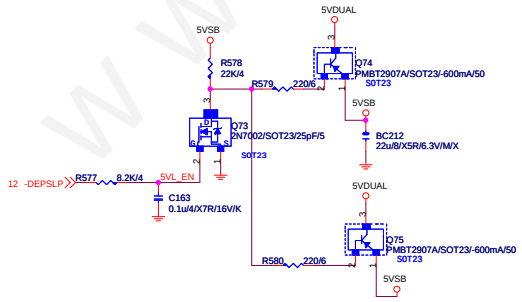


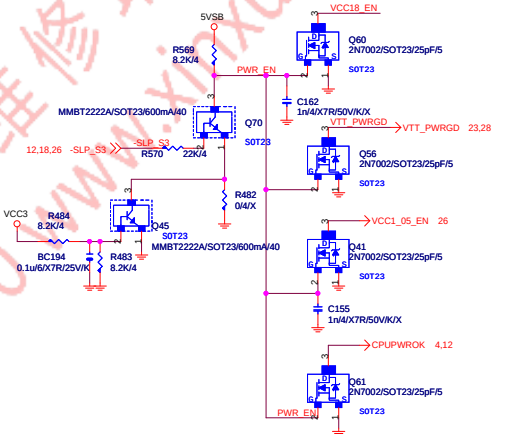
From I/O ErP Control
PCH ErP Control



5VDUAL SHORT PROTECT

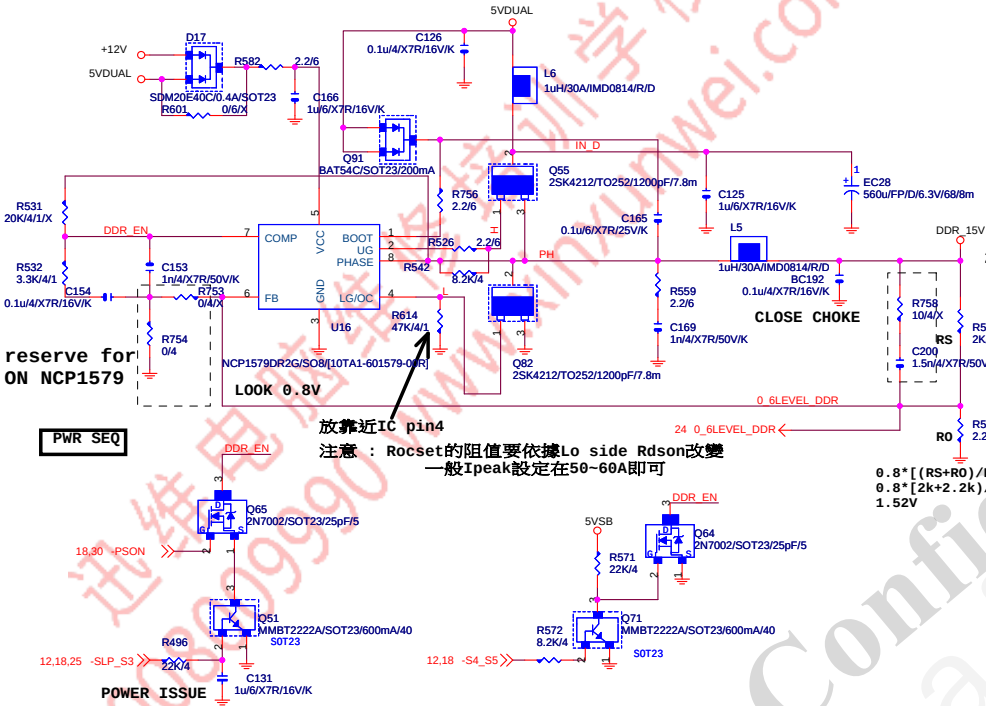






Gigabyte Technology			
Title: DISCRETE POWER			
Size: C	Document Number: GA-P61A-D3		Rev: 2.1
Date: Monday, September 10, 2012		Sheet 25 of 34	

DDR18V



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 : Ipeak=(IocsetxRocset)/Rdson
typ Iocset=10uA , Rocset=33k

OCP : 40A=(10uAx47k)/(7.8m)/1.5

UVLO : Under Voltage Lock Out : 370mV

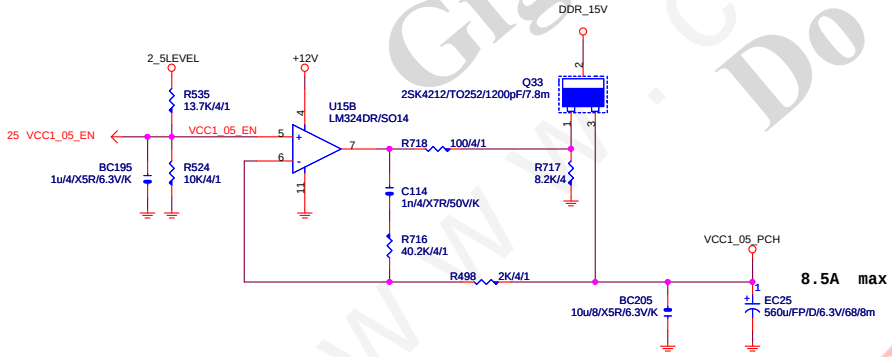
25A max (DDR3*4-DIMM)

Remote sense請從最重的負載端點拉回

PWR SEQ

POWER ISSUE

VCC1_05_PCH



VIN=3.3V,VOUT=1.05V,IOUT=7.5A,PHASE=1
IRMS=3.4875A
1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
Coefficient=1.7(85℃),1(105℃)
VIN Ripple current=1.14X1.7=1.938A(85℃)
-->故電解電容須2X1.938=3.876>3.4875A

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=8.2k
OCP :58.57A=(2x20uax8.2k)/5.6m

Gigabyte Technology		
Title: DDR_15V		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
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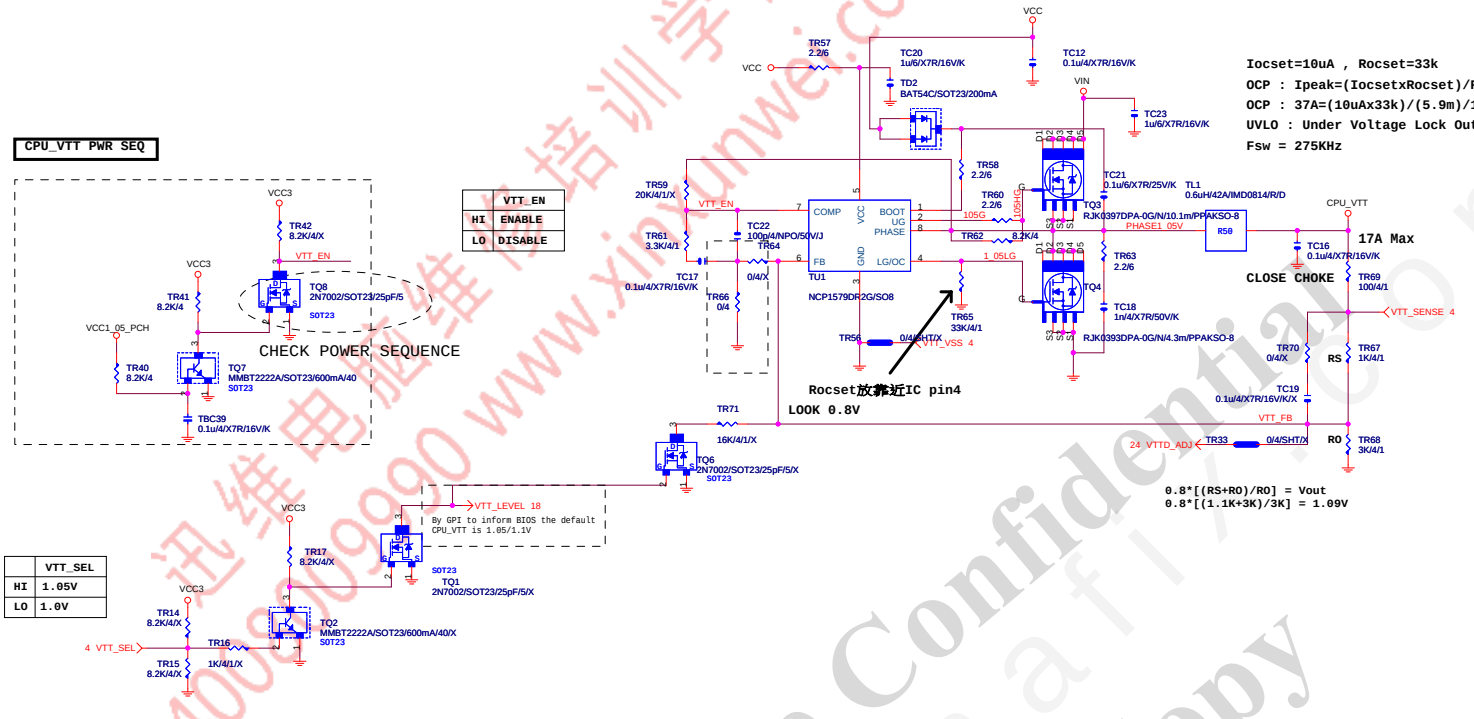
CPU_VTT



Title	CPU_VTT PWM_ISL6322CRZ
Size	Custom
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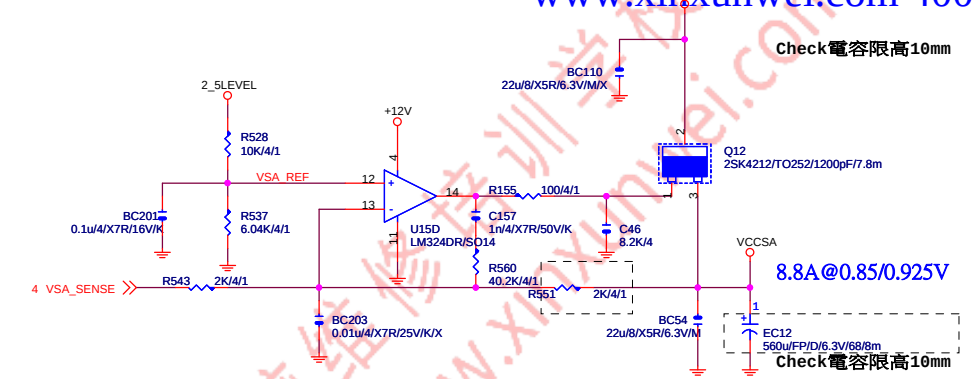
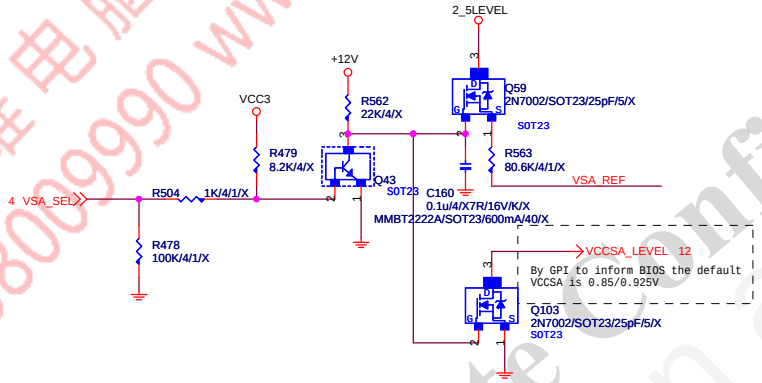
VCC_SA

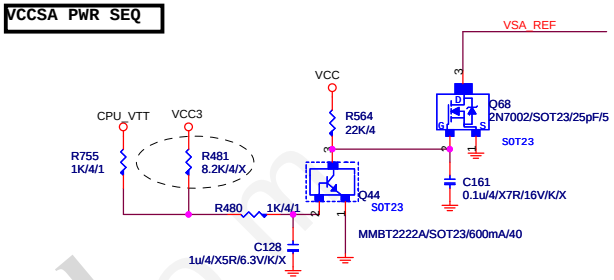


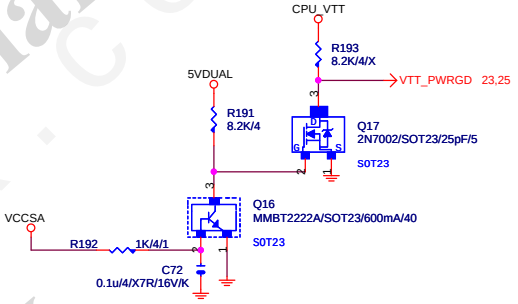
PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V



VCCSA PWR SEQ





Title	Gigabyte Technology CPU VTT PWM_ISL6312
Size	Custom
Document Number	GA-P61A-D3
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FRONT USB1

FUSEVCC1

BC122 0.1u/4/X7R/16V/K

BC124 0.1u/4/X7R/16V/K

F_USB1

9 -USBP0
9 +USBP0

-USBP1 9
+USBP1 9

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

5VDUAL

F15 SMD1812P260/6V

FUSEVCC1

EC23 100u/OS/D/6.3V/66/30m

CASE OPEN

ESD9

-USBP0 +USBP0

FUSEVCC1

-USBP1 +USBP1

AZC009-04S/SOT23-6L

Close to connector

12,13 RTCVDD R530 1M/4 -CASEOPEN -CASEOPEN 18

BC198 0.01u/4/X7R/25V/K

SATA LED

VCC3

R489 1K/4/1

-HDLED

C124 180p/4/NPO/50V/J/X

VCC3

R490 1K/4/1

R491 8.2K/4

11 -SATALED

34 RA_GPIO0

D2 BAT54A/SOT23/200mA

Q53 MMBT2222A/SOT23/600mA/40

Q39 MMBT2222A/SOT23/600mA/40

SOT23

FRONT USB2

FUSEVCC1

BC96 0.1u/4/X7R/16V/K

BC102 0.1u/4/X7R/16V/K

F_USB2

9 -USBP2
9 +USBP2

-USBP3 9
+USBP3 9

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

FUSEVCC1

R274 8.2K/4 -USBOC_F -USBOC_F 9

R276 15K/4/1

ESD8

-USBP2 +USBP2

FUSEVCC1

-USBP3 +USBP3

AZC009-04S/SOT23-6L

Close to connector

VCC

D16 CD4148WP/1206/300mA

VCC R591 1K/4/1

R583 8.2K/4

18 BEEP-

BEEP-

Q88 2N7002/SOT23/25pF/5

for ITE8728 rstconin issue

SOT23

Q77 MMBT2222A/SOT23/600mA/40

R610 75/6/1

SPK-

R611 75/6/1

Q78 MMBT2222A/SOT23/600mA/40

To disable TCO timer

VCC3

R585 1K/4/1

R:0.2

修正

SPKR

R584 8.2K/4

R:0.2 修正

SPKR 12

VCC

R438 330/6

MPD+

Q38 MMBT2222A/SOT23/600mA/40

R470 8.2K/4 GPIO28 12

VCC

R419 330/6

F_PANEL

-HD+ HD+ MSG/PD+ MPD+

+HDLED HD- MSG/PD-

GND PW+ -PWRBT_1

-RST RESET PW-

CI-

-CASEOPEN CI+

SP+ VCC

MPD+ PWR+ NC

PWR- NC

PWR- SP- SPK-

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

3VDUAL_PCH

R472 8.2K/4

R469 33/4 -PWRBTSW 12,18

C127 0.01u/4/X7R/25V/K/X

BC190 0.01u/4/X7R/25V/K

5VSB

R495 8.2K/4/X

12 -SYS_RST

R497 100/4/1

INTEL FRONT PANEL

BC197 0.01u/4/X7R/25V/K

ESD10

-RST -RST

5VSB

-PWRBT_1 -PWRBT_1

AZC009-04S/SOT23-6L

Rev 0.2 modefy

F_USB POWER PROTECT

12 GPIO11

D11 BAT54A/SOT23/200mA

-USBOC_F

-USBOC_R

-USBOC_R 9,32

SOT23

Gigabyte Technology

Title: FP,F_USB,USB PWR,FDD,BZ

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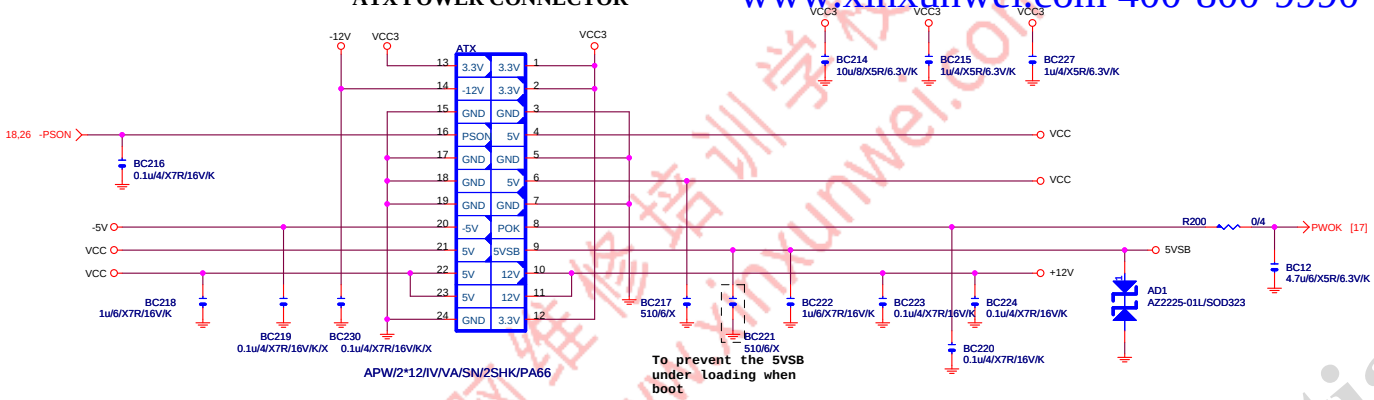
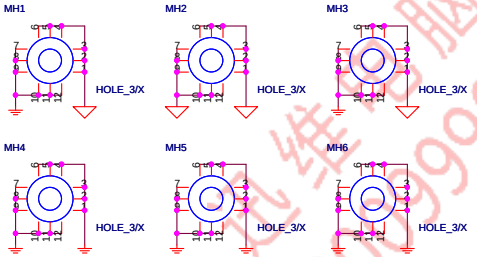
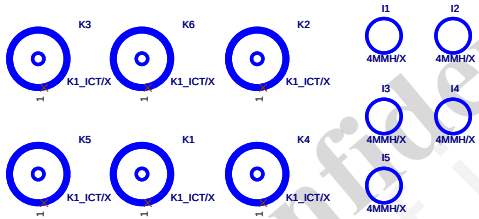
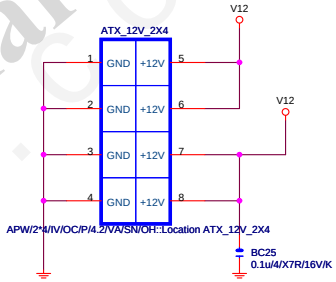
ATX POWER CONNECTOR









Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
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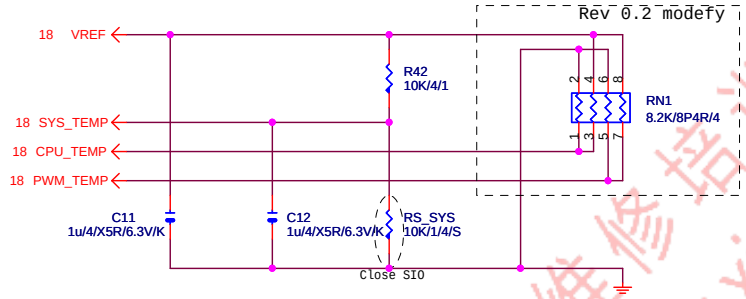
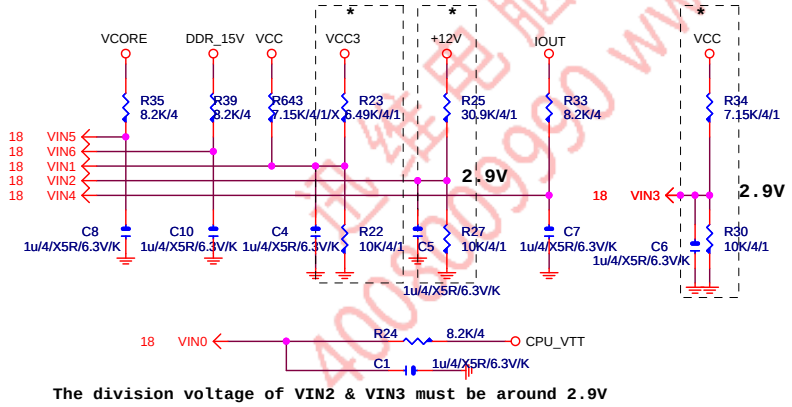
TEMP H/W MONITOR

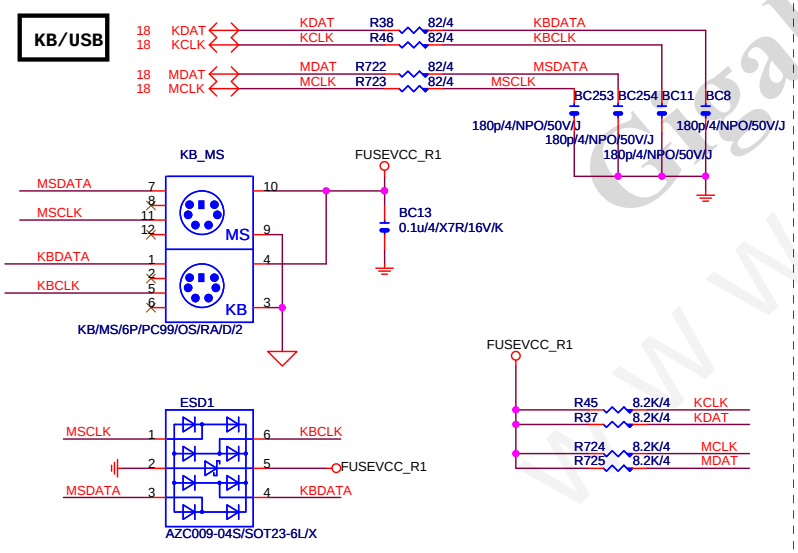


VOLTAGE-- H/W MONITOR

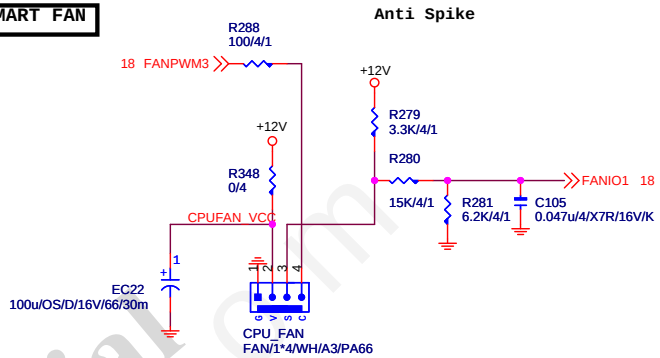


The division voltage of VIN2 & VIN3 must be around 2.9V

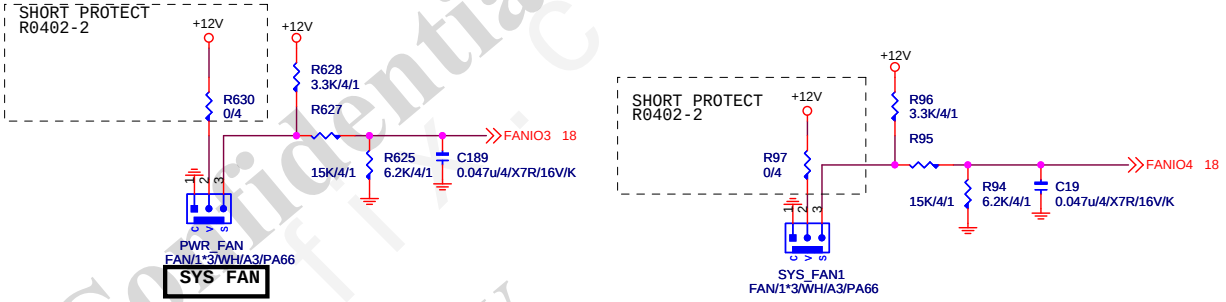
KB/USB

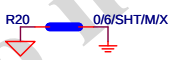


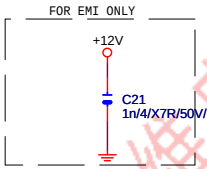
CPU SMART FAN

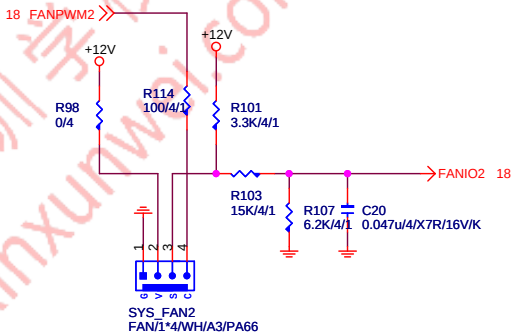


SYS FAN









Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
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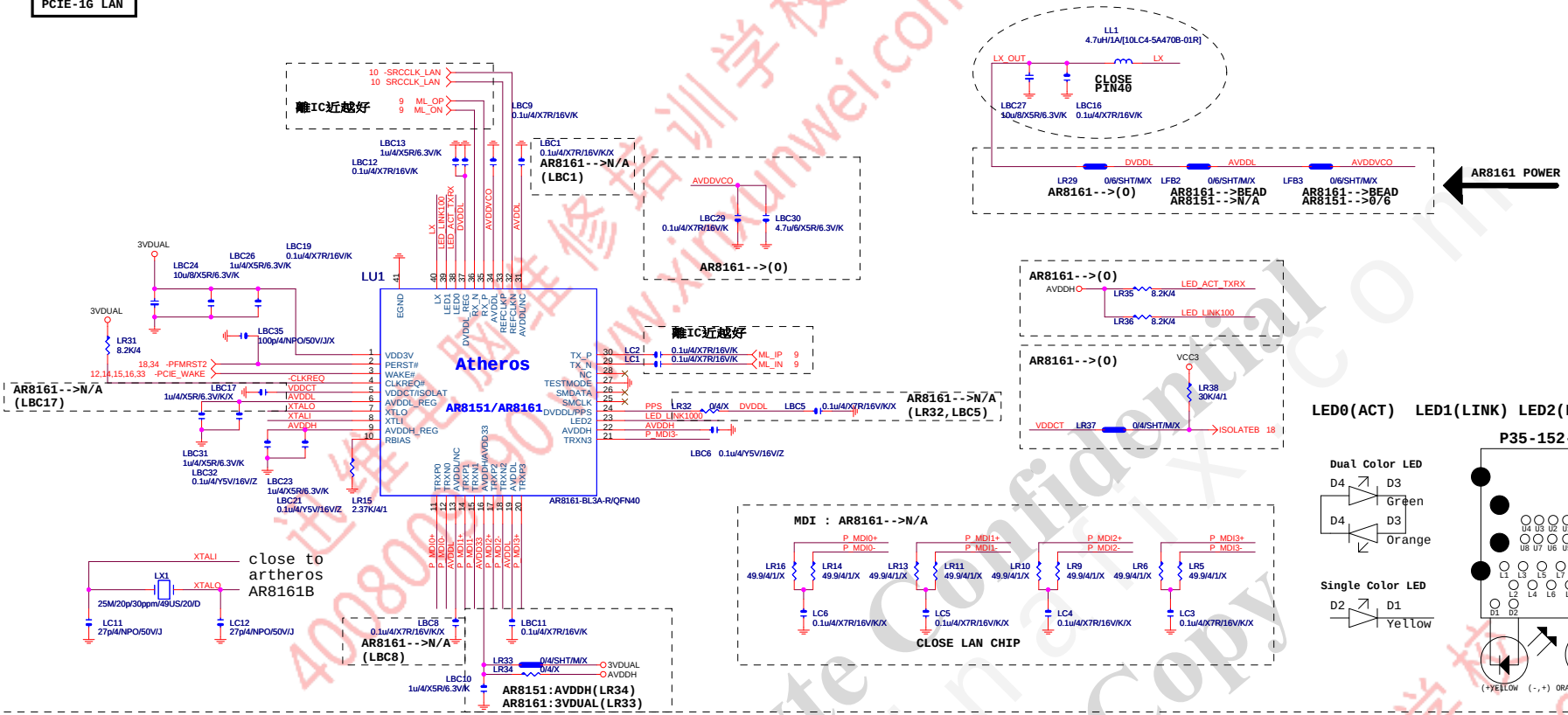
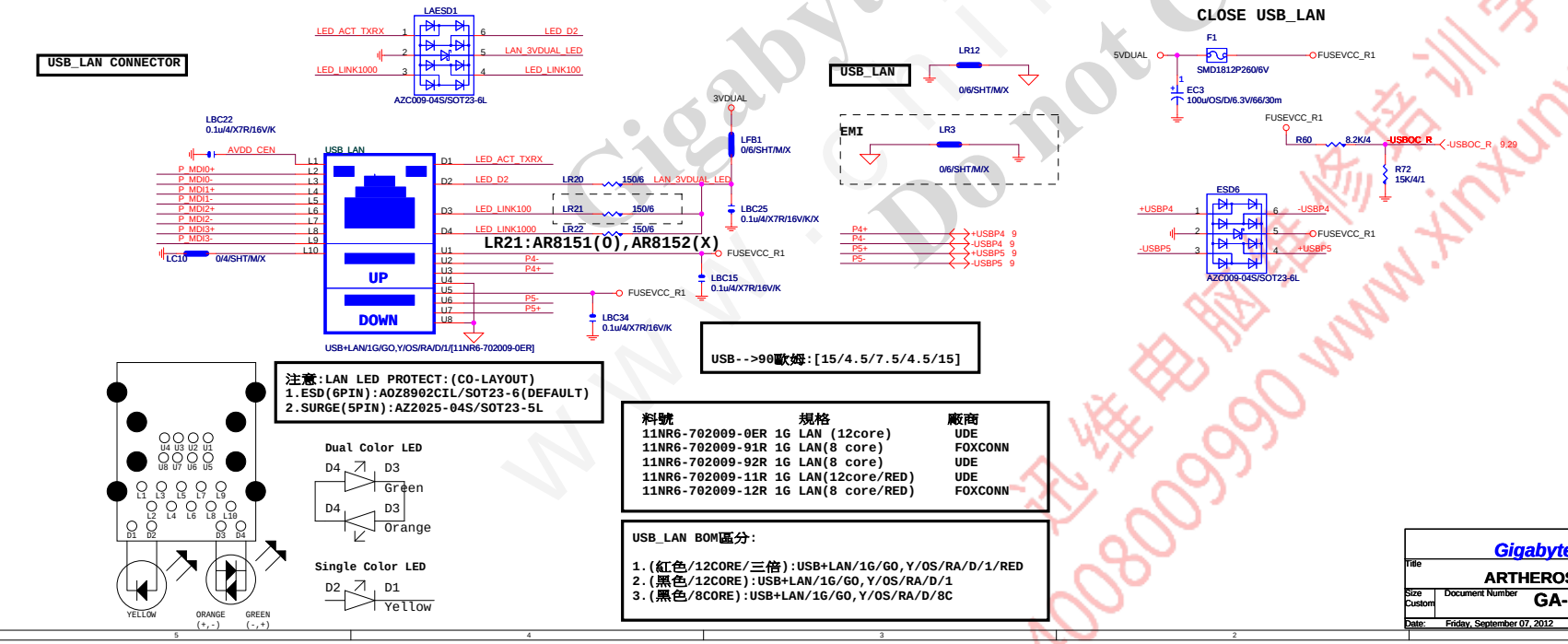
PCIE-1G LAN



USB_LAN CONNECTOR



料號	規格	廠商
11NR6-702009-0ER	1G LAN (12core)	UDE
11NR6-702009-91R	1G LAN(8 core)	FOXCONN
11NR6-702009-92R	1G LAN(8 core)	UDE
11NR6-702009-11R	1G LAN(12core/RED)	UDE
11NR6-702009-12R	1G LAN(8 core/RED)	FOXCONN

USB_LAN BOM區分:

1.(紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2.(黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3.(黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

Title: ARTHEROS AR8151/AR8161

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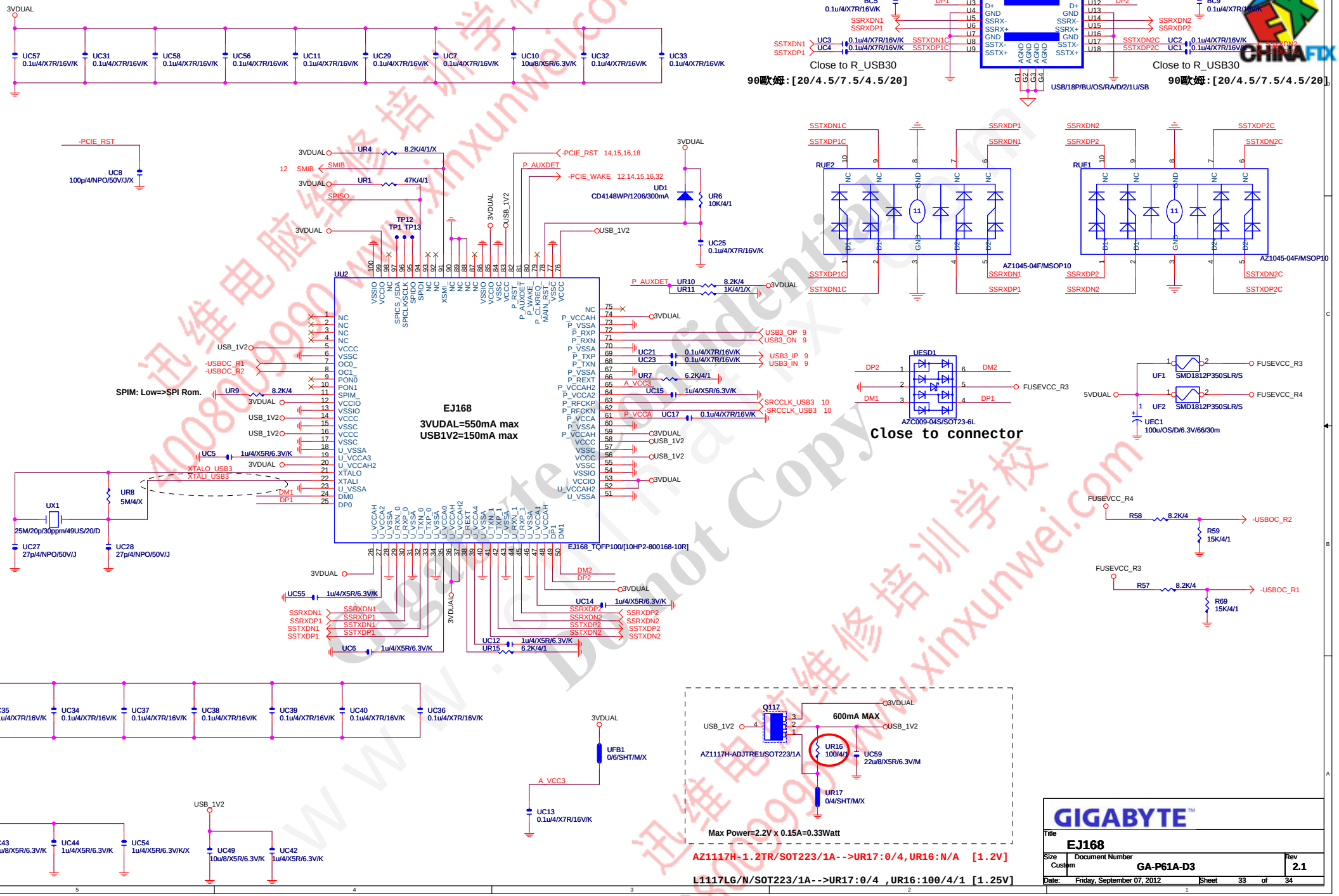

GIGABYTE

Title	EJ168	
Size: Custom	Document Number: GA-P61A-D3	Rev: 2.1
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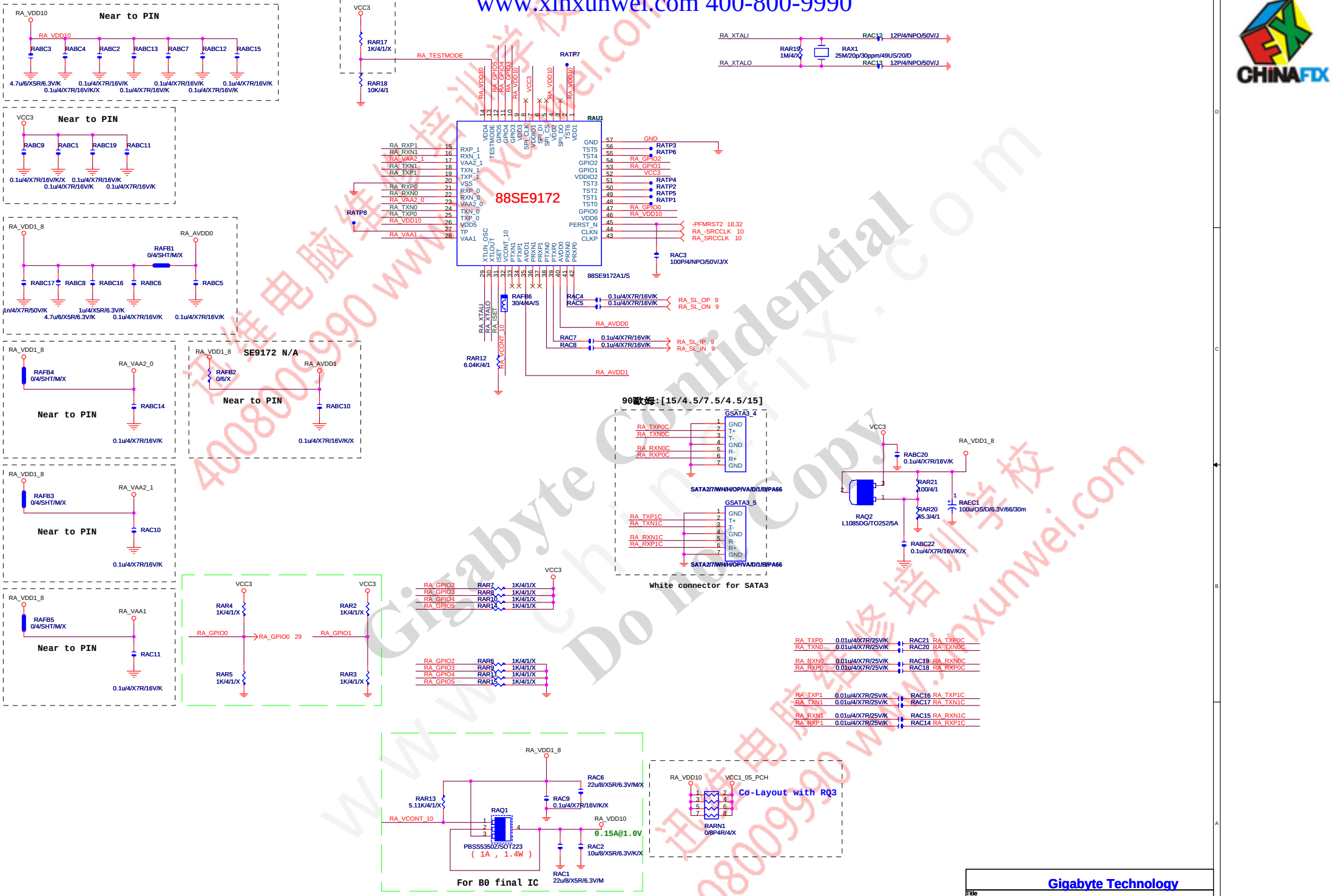

Gigabyte Technology			
Title: Marvell 9172			
Size: Custom	Document Number: GA-P61A-D3		Rev: 2.1
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