Model Name: GA-P55-USB3 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1156-A
05	CPU_LGA1156-B
06	CPU_LGA1156-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	DDR III POWER CAP
10	PCH_FDI,DMI,USB,PCIE,NVRAM
11	PCH_DP,CLK BUFFER
12	PCH_HOST,SATA,PCI
13	PCH_GPIO,CTRL,AUDIO
14	PCH_PWR,GND
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*4 SLOT
17	PCI EXPRESS*1 SLOT
18	PCI SLOT 1,2,3
19	ITE 8720 LPC IO
20	COM, -PROHOT , DYNAMIC OC , LPT
21	Dual BIOS
22	ALC888
23	REAR AUDIO JACK
24	CLOCK GEN ICS9LPRS914
25	VCORE PWM ISL6334ACR
26	CPU_VTT PWM_ISL6322G
27	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ

SHEET	TITLE
28	DISCRETE POWER
29	F_PANEL , F_USB , FDD
30	ATX POWER
31	Marvell 9128
32	REALTEK RTL8111D
33	TPM SLB9635TT
34	HWM,KB/MS , FAN CTRL
35	ESATA JMB362
36	IT8213-1 PATA
37	UP72022
38	TABLE LIST
39	
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44	
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Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-P55-USB3 | Rev: 1.0

Date: Wednesday, December 23, 2009 | Sheet 1 of 37

GA-P55-USB3 Version: 1.0

Component value change history

Data	Change Item	Reason
EP55A-UD3P 0.2	1. CHECK +12V SHORT PAD FOR 10mil	9. LU1,LU4 RTL8111D --> RTL8111C
	2. F1_1394加蓋(包材階)	10. PCB "育富"移除
	3. ADD DR86=124K/4/1 , DR88=249K/4/1	11. ONFI指定用11SM1-600078-02R
	4. U12~U15 upi6262M --> upi6267M	12. R376 2.26K/4/1 --> 2.55K/4/1
	5. DRAM_PWROK R490=1K/4/1 , R491=3K/4/1	13. 確認上哪種upi6262 10%/upi6267?
	6. REMOVE DR138=0/4 , ADD DR139,DR141=0/4	14. FB7~FB10 REMOVE
	7. RU2指定料號:10HP4-112540-11R	15. PCH BUFFER 25MHz REMOVE "X2,C93,C94,X420"
	8. 排阻指定廠牌用WALSIN	16. BIOS 16M --> 32M (FOR ONFI ONBOARD)
2009/06/10 PBOM:0.1	1.NEW MODEL: P55-UD3P-0.1	
2009/06/24 EBOM:10A	1.ADD -RSMRST PATCH CIRCUIT R866~R868,C192,C193,Q112,Q113,3UDUAL_ICH ADD 5VSB R864,R865	
	2.CHANGE Marvel9123 gpio pin,del RR39,R10,RR67,RR65,ADD RR62	
	3.CHANGE IT8275 料號,DR84 100--->0	
	4.MARVELL 9123----->JMB363	
	5.J363/J632 PATCH POWER SEQUENCE;Q50 MOS--->BJT	
2009/07/7 PBOM:10B	1.P-BOM	
2009/07/10 PBOM:10C	1.RBC53 0.1UF----->1UF	
2009/07/16 PBOM:10D	1.移除PLL電容,BC136,BC150,BC185,BC201	
2009/07/22 PBOM:10E	1(CE2,EC32,EC37,EC38,EC23,EC36,REC3)100uf cap 6*6改成6.3*10.5mm ,因缺料	
	2.VCC3_DAC直接由VCC3經0 ohm提供	
2009/07/29 PBOM:10F	1.ADD R190 1K/4/1 FOR PCIE OVERCLOCK	
2009/08/24 EBOM:29T	1.P55-UD3P-3.0 FOR 9123/USB3.0/8213	
2009/09/9 EBOM:29A	1.CHANGE 9123;USB3.0 MP料號	
2009/10/01 EBOM:02	1.E-BOM	
2009/10/01 PBOM:10A	1.P-BOM	
P55-USB3-02	1. 包材修改	
	2. FOR H55要將CTRLCLK & CTRLDDATA移除嗎?	
P55-USB3-10A	1. ADD UE1,UE2 AZ1045	BIOS
	2. 決定R_USB30使用廠牌	1. upi6262 code改回舊版
	3. PCH要上P55/B2/B3,H55?	2. manual "ati crossfireX " remove
	4. 若是上H55 Chips,請注意KB_USB料號爲11NR6-801006-21R,U3相關零件移除,改上SR6~SR9	
	5. H55 Chips , DDCDATA/DDCCLK/DDP/CLK/DDPDATA P.U REMOVE	

Circuit or PCB layout change for next version

DATE	Change Item	Reason
EP55A-UD3P 0.2	1. REMOVE AUDIO ESD	7. 1394 "IEC1" NET SWAP & SHORT PROTECT
	2. REMOVE CPU_VAXG	8. PIN HEATER CHECK
	3. PCH_CLK 改 SHORT PAD (0 ohm維持10pcs以下)	9. ITE8275 SYS_RST PATCH
	4. ITE8275 GPIO11,GPIO13 TO TURBO0/TURBO1	10. BC118,BC119 --> TBC29,TBC30
	5. F_PANEL UPDATE H2X10PANEL-1	11. BC5靠近M_BIOS PIN8 , BC6靠近M_BIOS PIN8
	6. ONFI 改 ON BOARD	12. U2 7474 REMOVE
EP55-UD4P 0.2	1.ONFI作塞孔	
2009/05/20 PCB:0.1	1.NEW MODEL: P55-UD3P-0.1由EP55A-UD3P-0.2修改	
2009/06/10 PCB:0.1	1.NEW MODEL: P55-UD3LP-0.1由P55-UD3P-0.1修改	
2009/06/24 PCB:1.0	1.P55-UD3P-1.0 2.修改文字面	
	3.ADD -RSMRST PATCH CIRCUIT,3UDUAL_ICH ADD 5VSB	
	4.ADD J362 POWER SEQUENCE PATCH CIRCUIT,VCC3&362_1.8V	
	5.MARVELL 9123--->J363(SPEC 變動)	
2009/07/07 PCB:1.01	1.修改文字面,加入crossFire X(PM-SALES REQUEST)	
	2.連帶更改FB5.CR64,RN21 short-wire----->電阻;ESD17 5VDUAL--->5VSB	
2009/08/21 PCB:2.9T	1.P55-UD3P-3.0 FOR 9123/USB3.0	
	2.實驗4層板及6層板(不同內層切割)	
2009/09/08 PCB:2.91	1.ADD PCIEX1 SLOT DETECT PIN FOR BIOS	
	2.EACH USB PORT USE ONE POLYFUSE	
	3.修正X16/X8 TURBO MODE 線路	
	4.調整PCICLK,USB_SEL GPIO GP40 TO GP23	
2009/09/18 PCB:1.0	1.修正X16 lane9接至switch for 9128/usb3.0 GNE2時可以斷開x16 slot端	
	2.版本改0.1,ALC888--->ALC889	
2009/09/21 PCB:0.1	1.由P55A-UD3P-1.0修正.SPEC 12相CPU爲8相	
	2.DEL ESATA,NEC SWITCH	
2009/10/01 PCB:0.2	1.add NEC switch,USB 2.0 switch	
2009/10/02 PCB:1.0	1.由0.2改爲1.0版	
P55-USB3-01	EVT RELEASE (From P55A-UD3 1.0)	
P55-USB3-02	1. ADD JMB363	
	2. ADD USB3.0 GEN1/GEN2 SEL SWITCH	
P55-USB3-10	1. Remove "ATI CrossFireX" Logo	

2. PE_4_1_SW可預留一pull down電阻For H55 Chips
3. 文字面DES2
4. VCC2_2,USB_1V0在LDO加粗40mil
5. N16962199 , U2AVDD33 ICT移除
6. COMP SIDE的VIN離USB3.0的訊號太近,SOLDER SIDE也是

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Title: BOM & PCB MODIFY HISTORY

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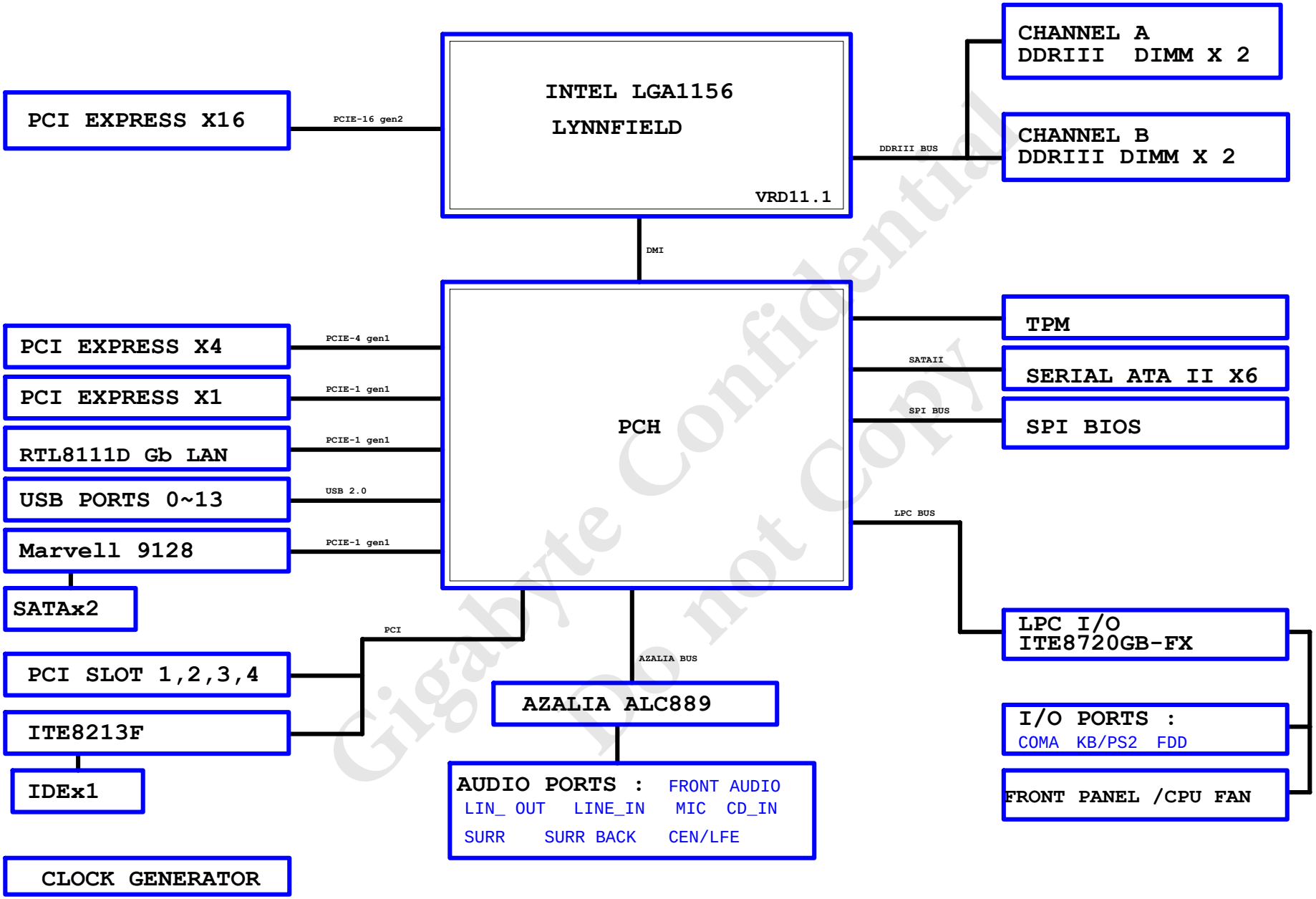
BLOCK DIAGRAM



Gigabyte Technology			
Title: BLOCK DIAGRAM			
Size: C	Document Number: GA-P55-USB3		Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 3 of 37		

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

PCIEX16:16/5/5/5/16(breakout min 8/4/5/4/8)
Impedance=80 +- 17.5%

DMI:12/5/5/5/12
Impedance=80 +- 17.5%

CFG0=1: 1X16 PEG
CFG0=0: 2X8 PEG

For PCIE2.0 issue
Must remove after
fixed issue

CFG 0-5 all internal PULL-UP

CFG	H	L	NOTE
0			H:1X16 , L:2X8
1	RSVD		
2	RSVD		
3	NORM	RSVD	LANE REVERSAL
4	DISABLE	ENABLE	DP PRESENCE
5	RSVD		
6	RSVD		
7	RSVD		ENGINEERING EXPERIMENT
15	RSVD		ENGINEERING EXPERIMENT

POWER ON CONFIG TABLE (Default=1.2250V)

	FUNCTION	DEFAULT
VID0	MSI0	0
VID1	MSI1	1
VID2	MSI2	1
VID3	IMON CFG0	1
VID4	IMON CFG1	1
VID5	IMON CFG2	1
VID6	RSVD	
VID7	VRD SEL	LOW
PSI#	RSVD	LOW

Rev 0.2 modefy

Check Trace length/ width

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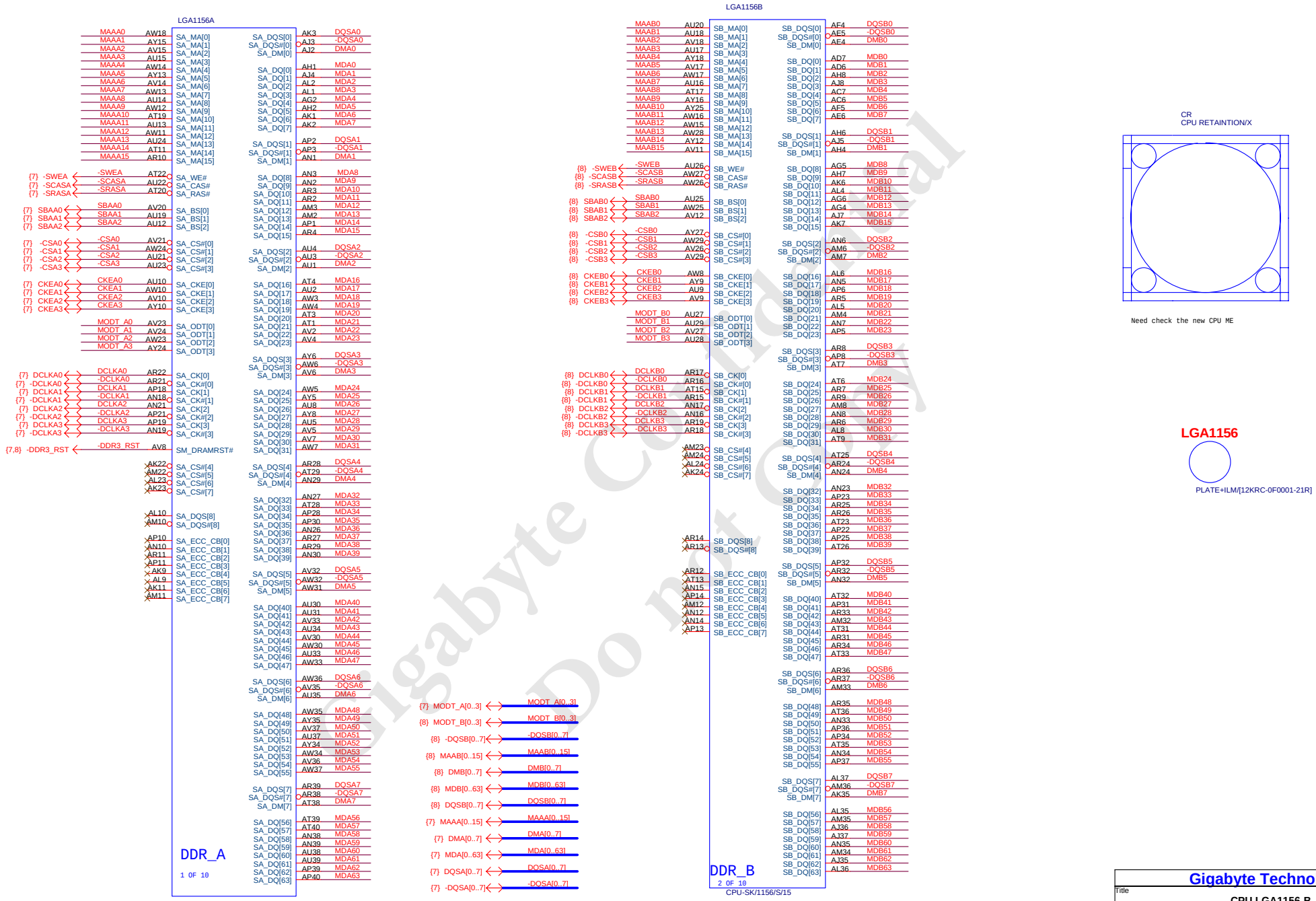
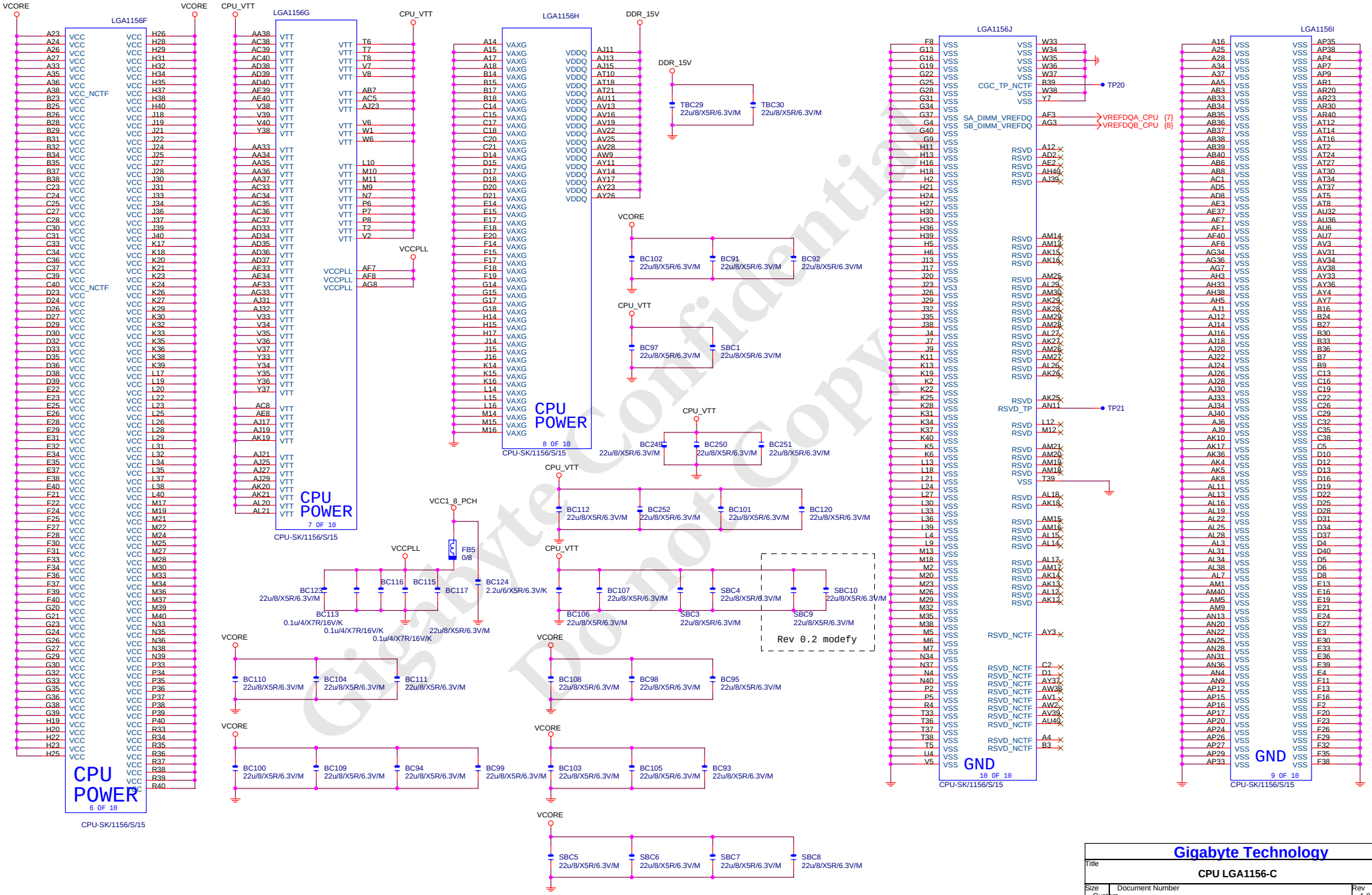
Title: CPU LGA1156-A

Size: Custom | Document Number: GA-P55-USB3 | Rev: 1.0

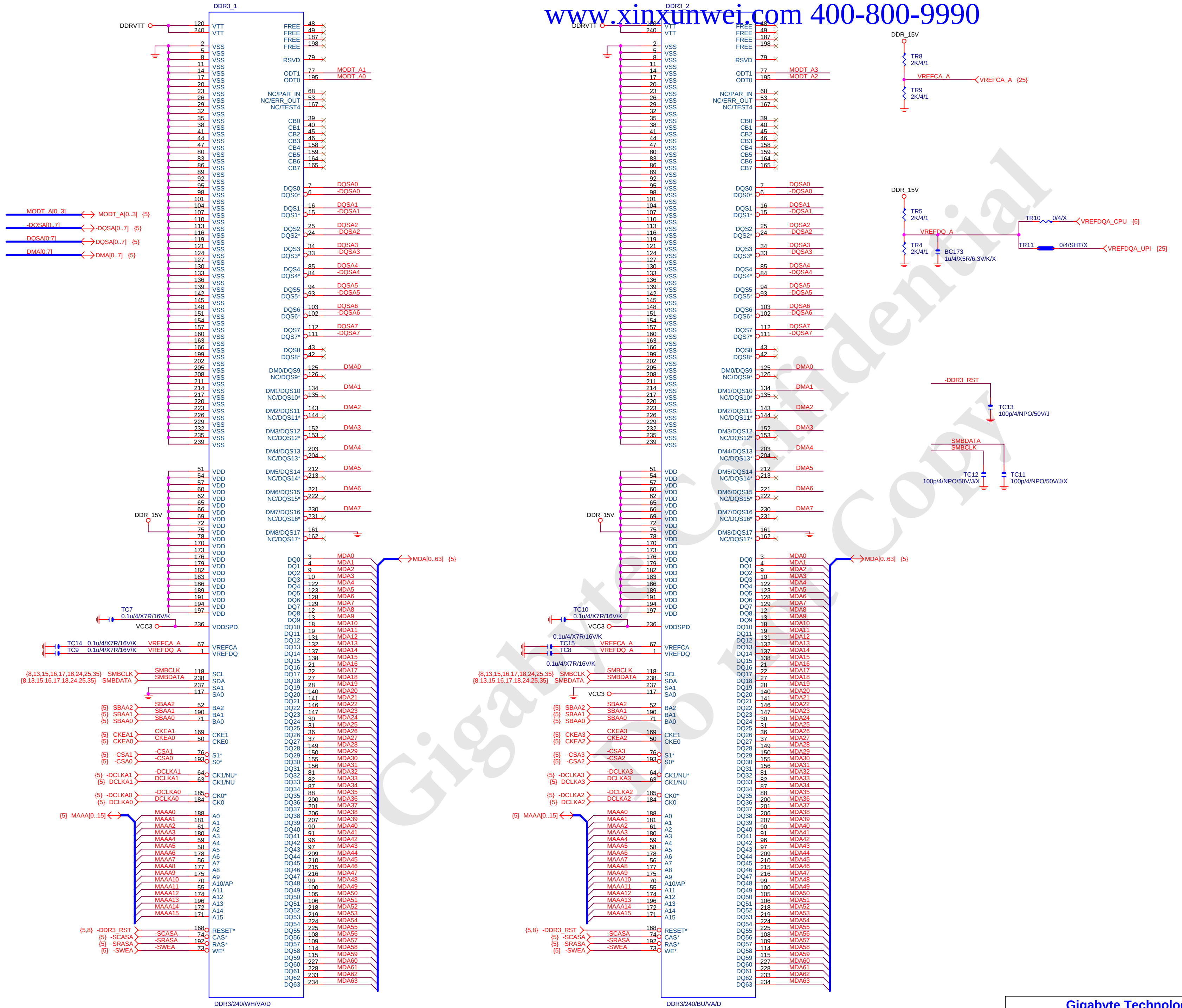
Date: Wednesday, December 23, 2009 | Sheet 4 of 37



Gigabyte Technology			
Title: CPU LGA1156-B			
Size: Custom	Document Number: GA-P55-USB3		Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 5 of 37		

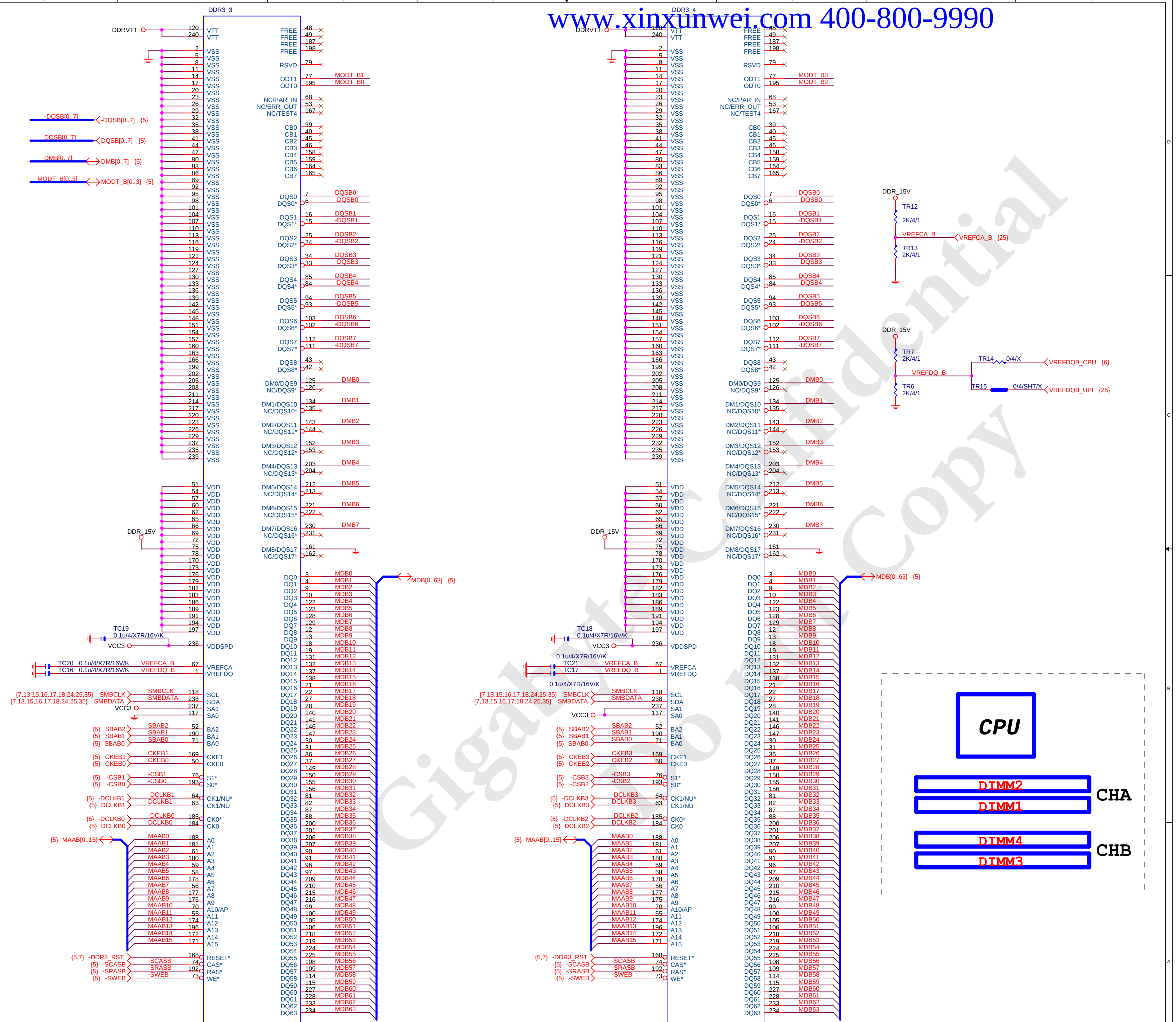


Gigabyte Technology			
Title: CPU LGA1156-C			
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0	
Date: Wednesday, December 23, 2009	Sheet 6 of 37		



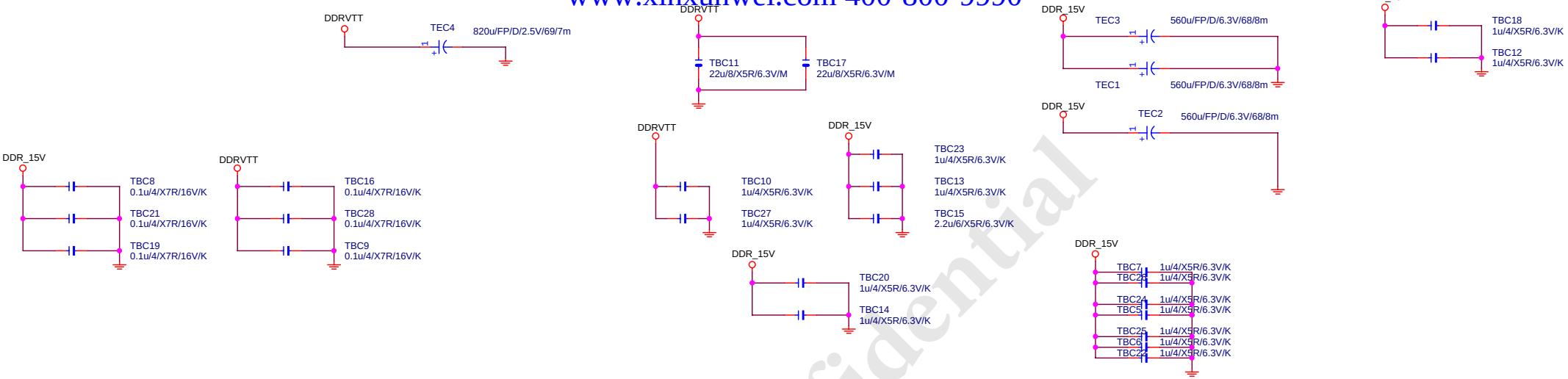
Gigabyte Technology

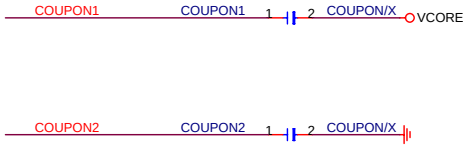
Title	DDRIII CHANNEL A	
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
Date:	Sheet 7 of 37	



Gigabyte Technology

Title	DDRIII CHANNEL B		
Size Custom	Document Number GA-P55-USB3		Rev 1.0
Date:		Sheet 8 of 37	





Gigabyte Technology		
Title: DDRIII POWER CAP		
Size: B	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 9 of 37	

DMI:12/5/5/5/12
Impedance=80 +- 17.5%

PCIE X1 :15/5/5/5/15
Impedance=80 +- 17.5%

PCHB

USB:15/4.5/7.5/4.5/15
Impedance=90+- 15%

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

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

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

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

USBRBIAS# USBRBIAS

CLKIN_DOT_96N CLKIN_DOT_96P

DMI PCI-E USB

2 OF 11

BD82P55-B3/S/[10HB1-038255-30R]

Rev 0.2 modefy

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

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

電容要靠近 slot 端

PCHE

NV_ALE NV_CLE NV_RB# NV_WR#0_RE# NV_WR#1_RE# NV_WE#_CK0 NV_WE#_CK1

NV_DQ0/NV_IO0 NV_DQ1/NV_IO1 NV_DQ2/NV_IO2 NV_DQ3/NV_IO3 NV_DQ4/NV_IO4 NV_DQ5/NV_IO5 NV_DQ6/NV_IO6 NV_DQ7/NV_IO7 NV_DQ8/NV_IO8 NV_DQ9/NV_IO9 NV_DQ10/NV_IO10 NV_DQ11/NV_IO11 NV_DQ12/NV_IO12 NV_DQ13/NV_IO13 NV_DQ14/NV_IO14 NV_DQ15/NV_IO15

NV_CE#0 NV_CE#1 NV_CE#2 NV_CE#3

NV_DQS0 NV_DQS1

NV_RCOMP

NVRAM

5 OF 11

BD82P55-B3/S/[10HB1-038255-30R]

Impedance=50+- 15%
ONFI: NV_DQ 4/5
NV_DQS 4/10
NV_CTRL 4/10
NV_CK 4/15

NV_PCH R562 8.2K/4 NV_ALE R565 8.2K/4/X

NV_PCH R563 8.2K/4/X NV_CLE R564 4.7K/4/1/X

NV_ALE	
Hi	Enable Danbury
Lo	Disable Danbury

Intel anti theft techonlogy

DMI Terminator voltage
LO : DC COUP : HALF SWING
HI : AC COUP : TX/RX TO VCC

NB_HEATSIN

HEAT SINK/EP55-UD4P/PIN/ZHIHAN/[12SP2-060010-12R]

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5_6#	USB10~13
OC7#	

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Title: PCH FDI,DMI,USB ,PCIE,NVRAM

Size: B | Document Number: GA-P55-USB3 | Rev: 1.0

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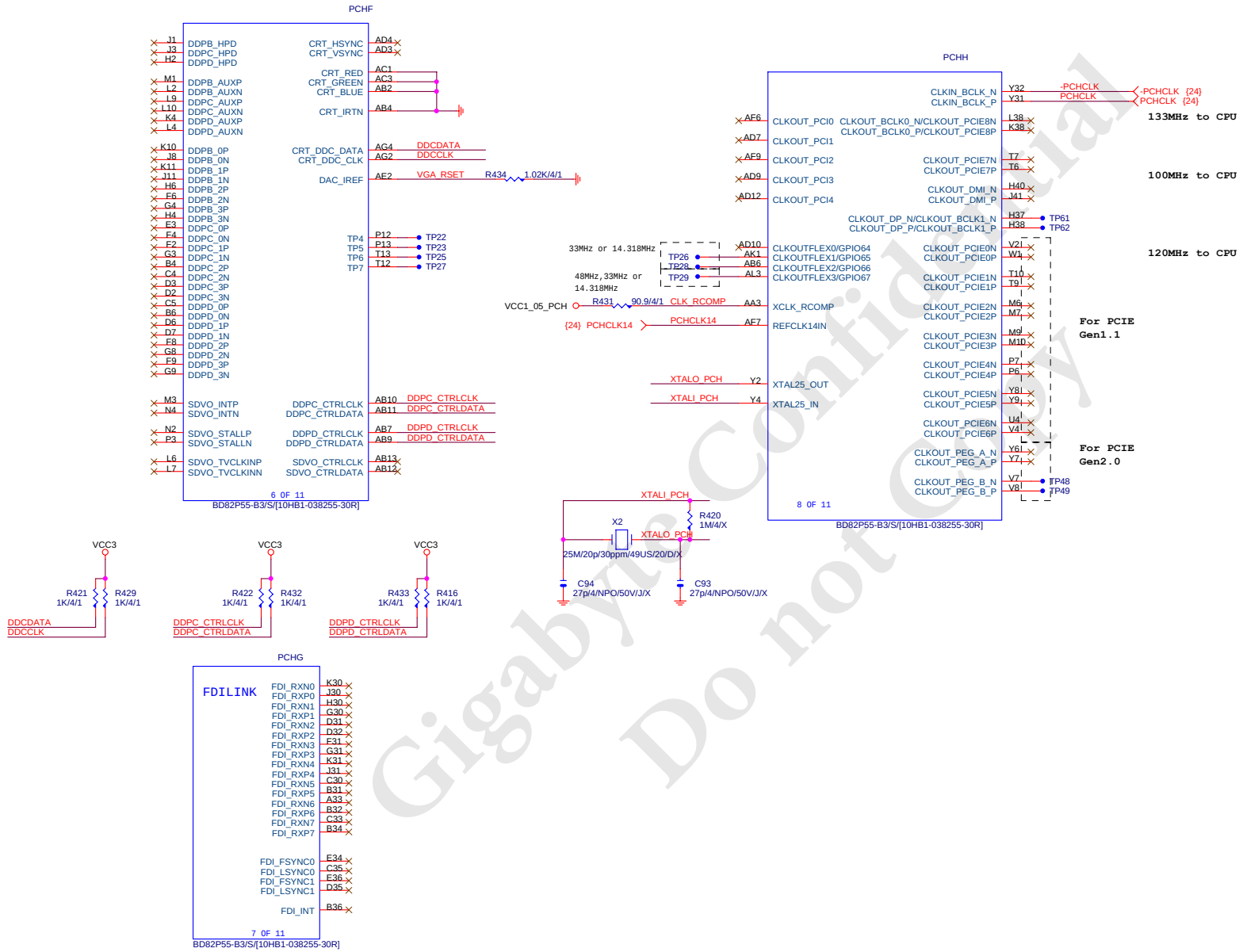
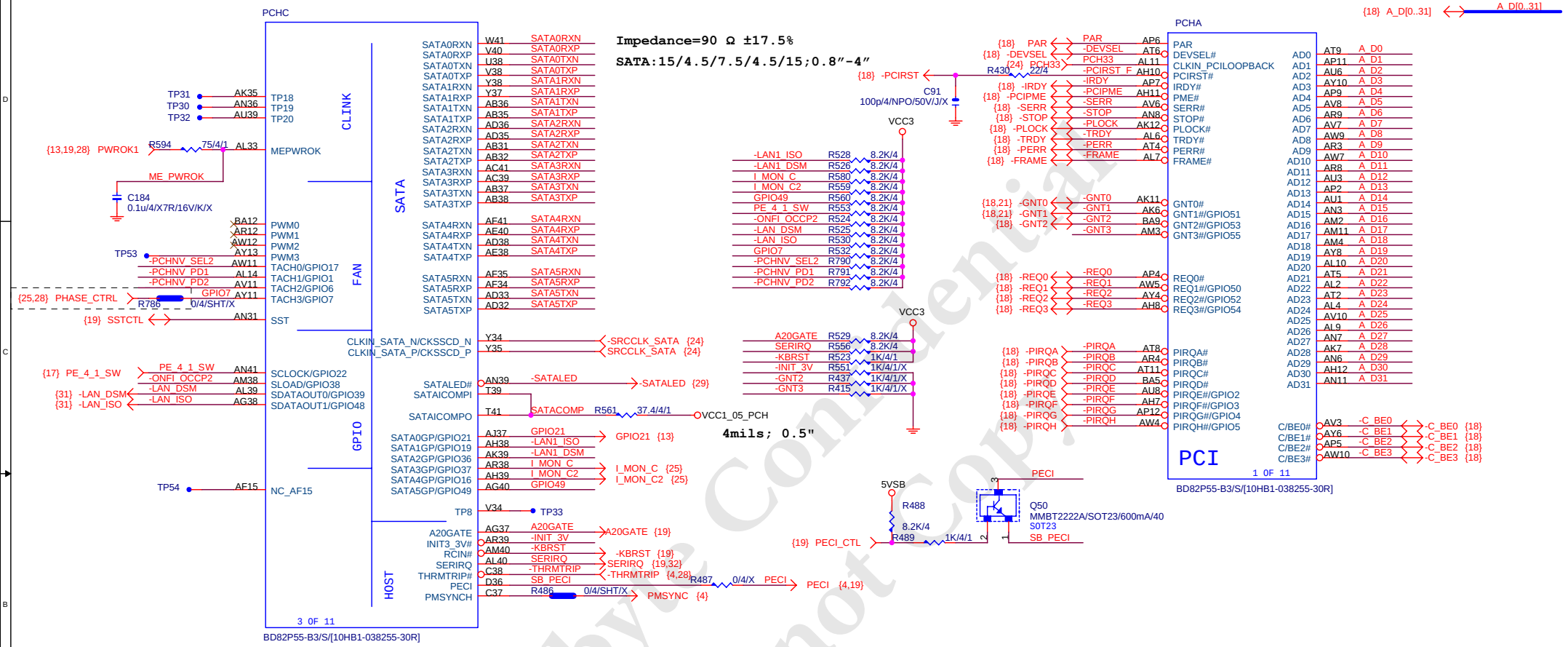
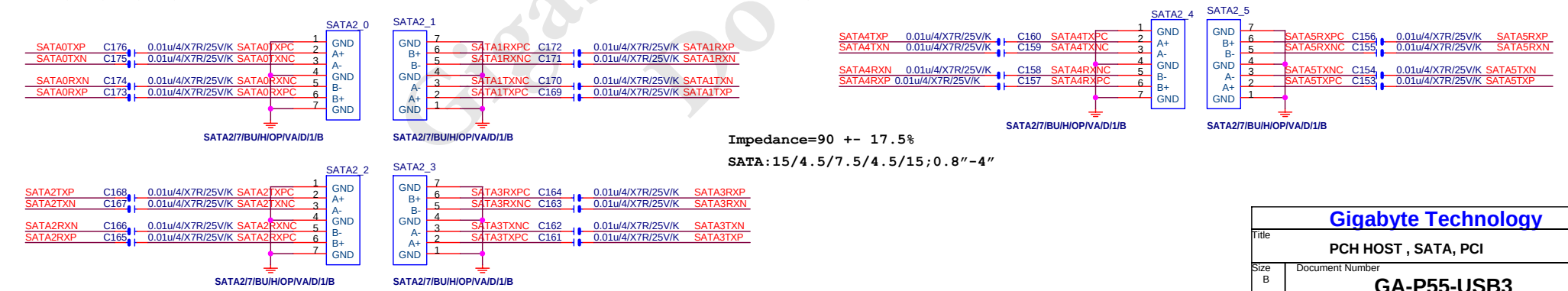
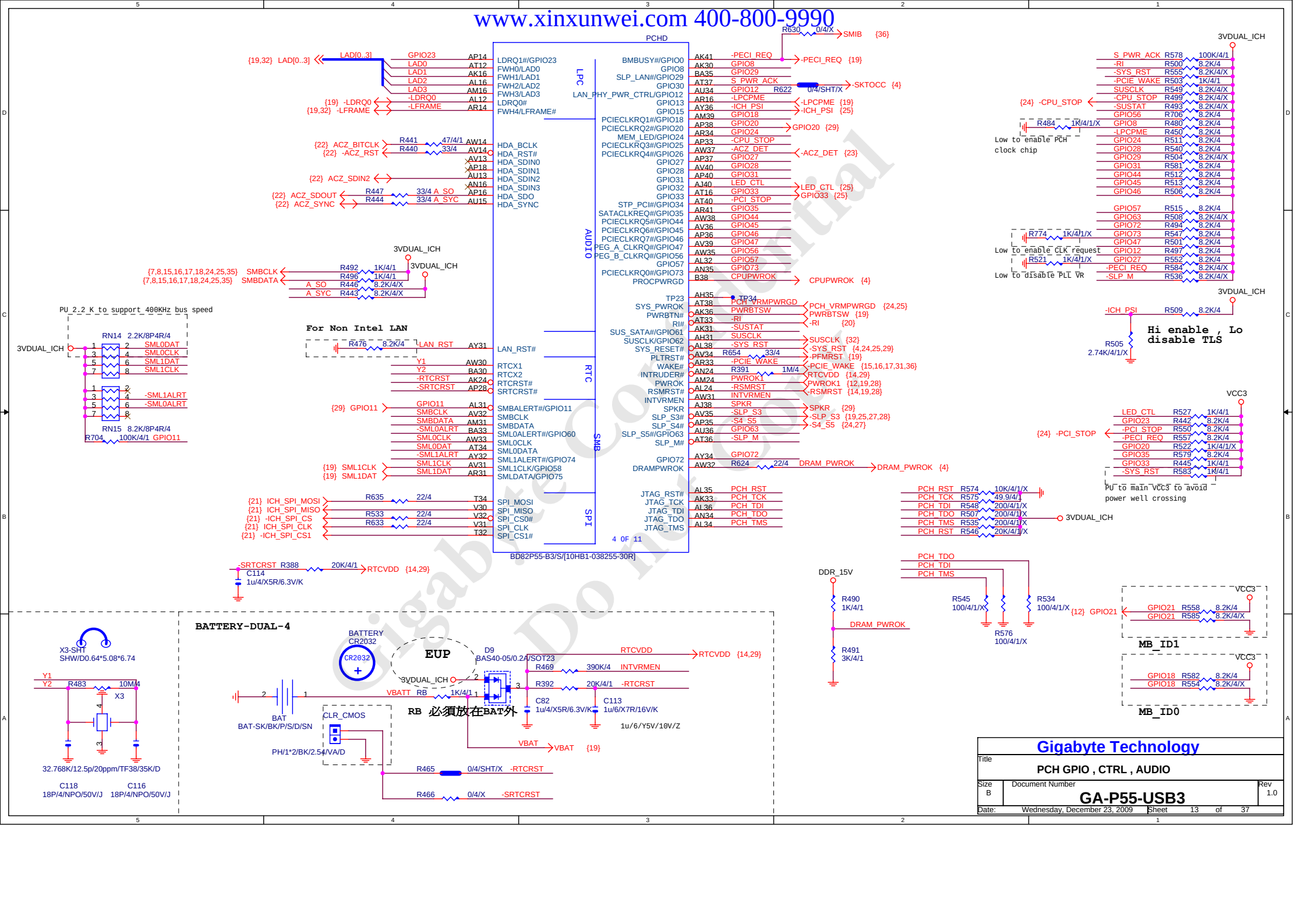


Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 11 of 37	

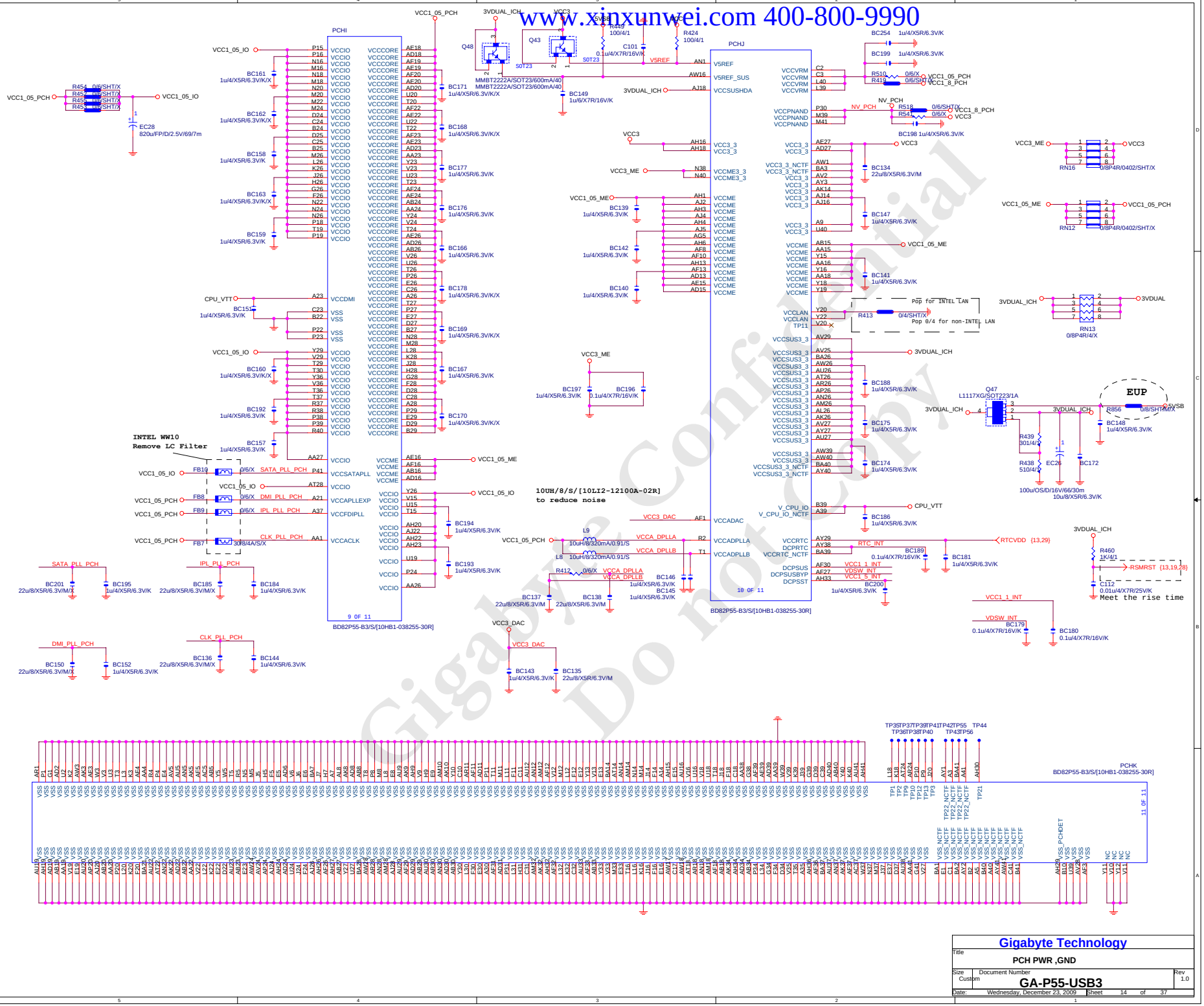


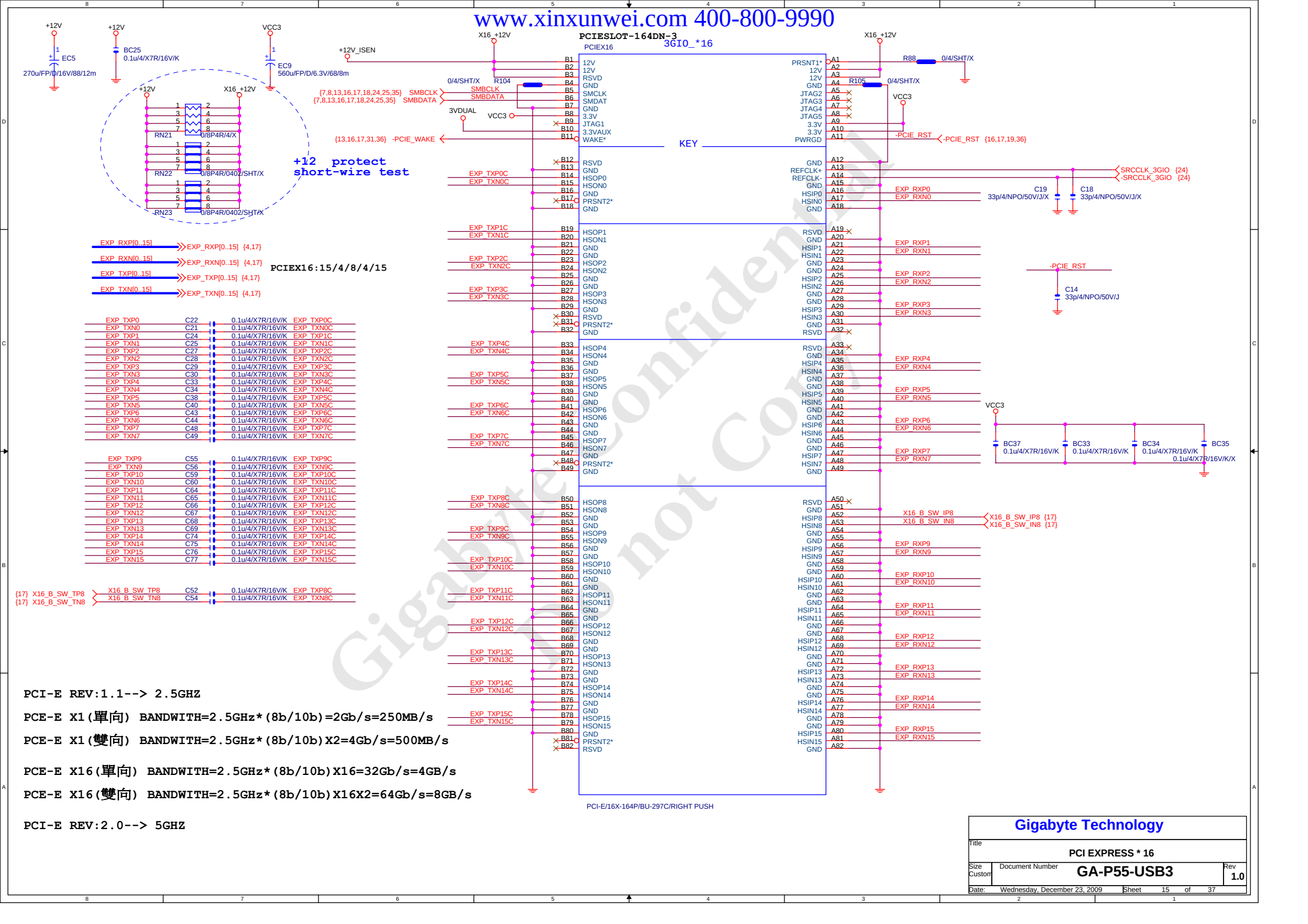


Gigabyte Technology		
Title: PCH HOST , SATA, PCI		
Size: B	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 12 of 37	



Gigabyte Technology		
Title	PCH GPIO , CTRL , AUDIO	
Size B	Document Number GA-P55-USB3	Rev 1.0
Date: Wednesday, December 23, 2009	Sheet 13 of 37	





PCI-E REV:1.1--> 2.5GHZ

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

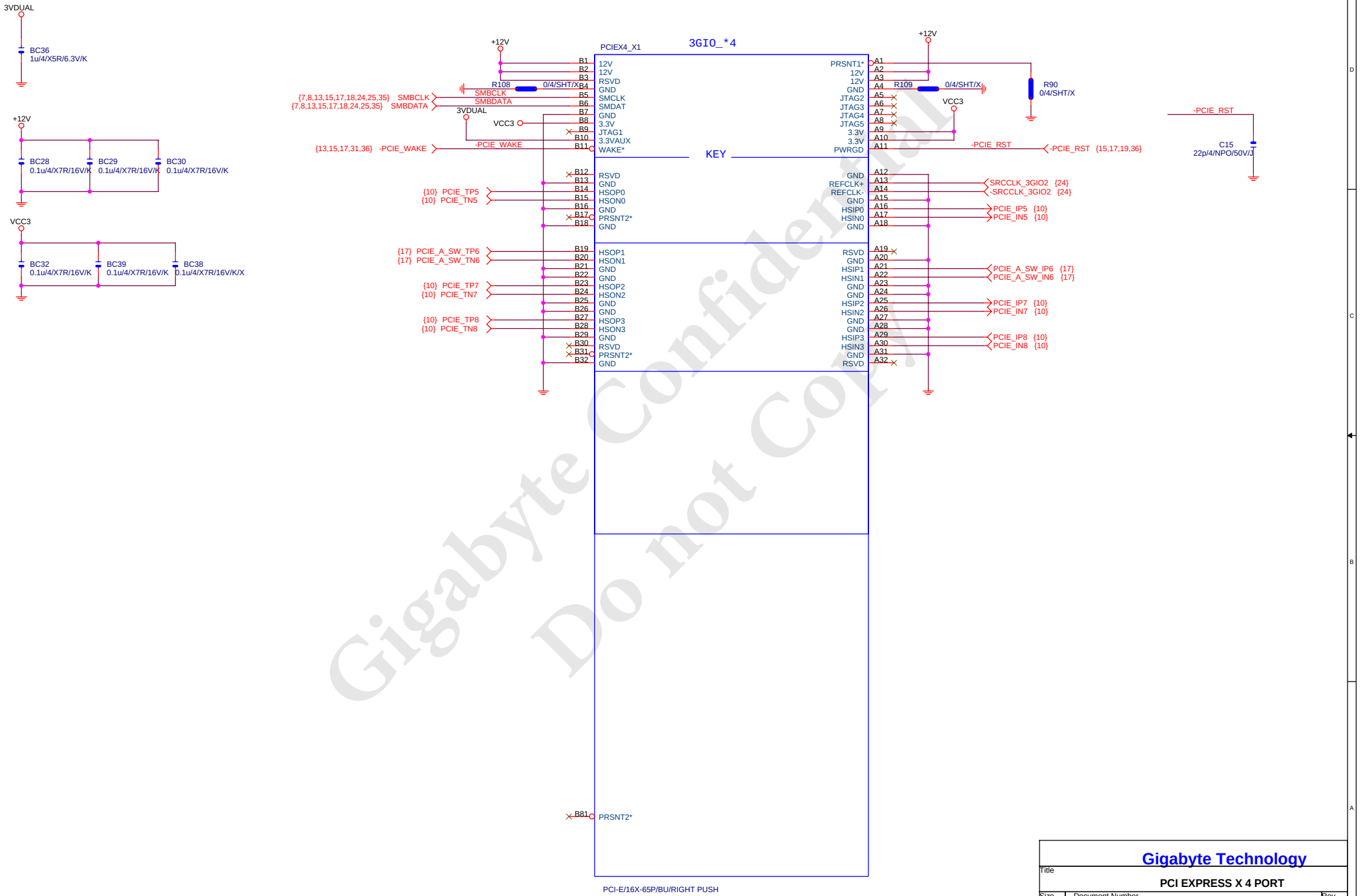
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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-P55-USB3
Rev	1.0
Date: Wednesday, December 23, 2009	Sheet 15 of 37



Gigabyte Technology		
Title: PCI EXPRESS X 4 PORT		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 16 of 37	

PCIE*1

PCIEX1_1 3GIO_X1

PCI-E/1X-36P/WH/OL

KEY

C13 22p/4/NPO/50V/J/X

-PCIE_RST {15,16,19,36}

PCIE*1

PCIEX1_2 3GIO_X1

PCI-E/1X-36P/WH/OL

KEY

C17 22p/4/NPO/50V/J/X

-PCIE_RST {15,16,19,36}

BC27 0.1u/4/X7R/16V/K

BC50 0.1u/4/X7R/16V/K

BC49 0.1u/4/X7R/16V/K

BC57 0.1u/4/X7R/16V/K

EC8 560u/FP/D/6.3V/68/8m

通知BIOS DETECTED DEVICE

FOR H55;PULL HI
移除,ADD PULL
LO R124

U3

PI3PCIE2415ZHE/TQFN42

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

NEC USB3.0 Gen1/Gen2 switch

	PCIEX4->X4 : Hi PCIEX4->X1 : Lo X4_SW	PCIEX4->X4 : Hi PCIEX4->X1 : Lo PE_4_1_SW
PCIEX1_2未插卡	Hi	Hi
PCIEX1_2插卡	Lo	Lo

FOR H55 ONLY,
R請放在U3背面

	P55	H55
PCH PCIE_1	JMB363	JMB363
PCH PCIE_2	LAN	LAN
PCH PCIE_3	USB3.0	USB3.0
PCH PCIE_4	PCIEX1_1	PCIEX1_1
PCH PCIE_5	PCIEX4	PCIEX4-->PCIEX1
PCH PCIE_6	PCIEX4/PCIEX1_2	PCIEX1_2
PCH PCIE_7	PCIEX4	N/A
PCH PCIE_8	PCIEX4	N/A

U29

GEN2

CPU PCIEX16 LANE8

USB3.0

PCIEX16

USB3.0 GEN1

DEFAULT HI

H: CPU FOR PCIEX16
L: CPU FOR PCIEX8

PI3PCIE2415ZHE/TQFN42

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

Function	SEL
USB3.0 GNE2	L
USB3.0 GNE1	H

NEC USB3.0 Gen1/Gen2 switch

	USB3.0 Gen1 : Lo USB3.0 Gen2 : Hi X16_SW	MCH X16 : Hi MCH X8 : Lo -8X_EN
USB3.0 Gen1	Hi	Hi
USB3.0 Gen2	Lo	Lo

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Title: PCIE_X1 1,2

Size: Custon | Document Number: GA-P55-USB3 | Rev: 1.0

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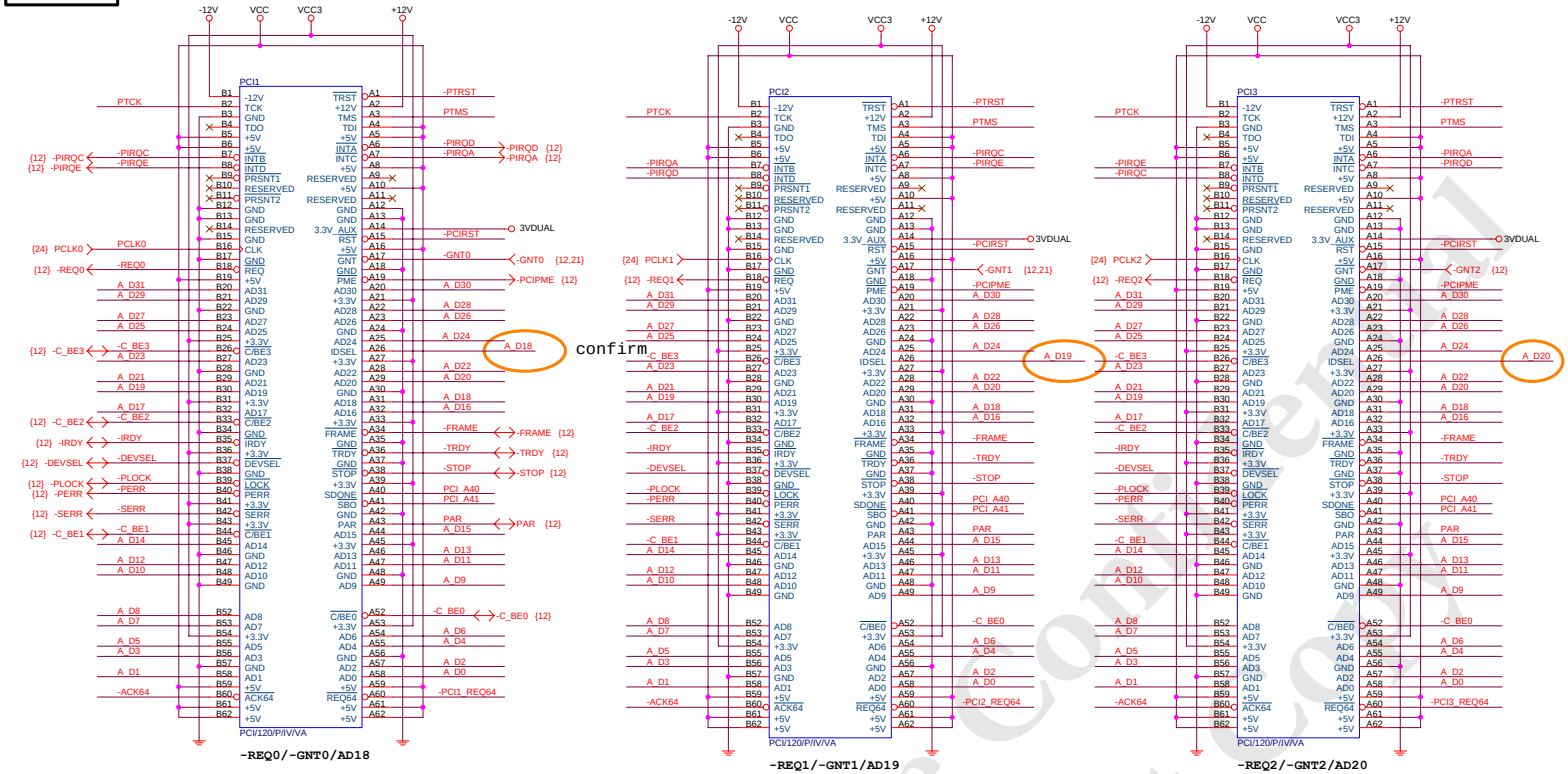
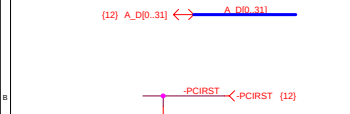
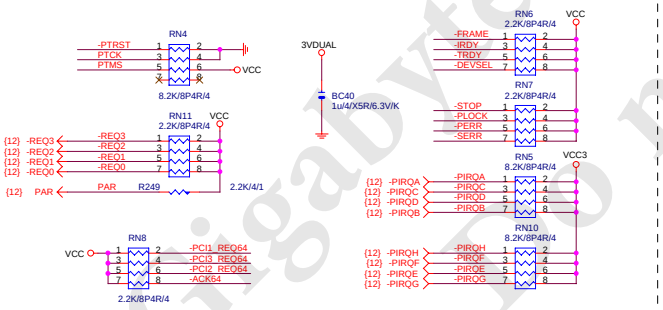
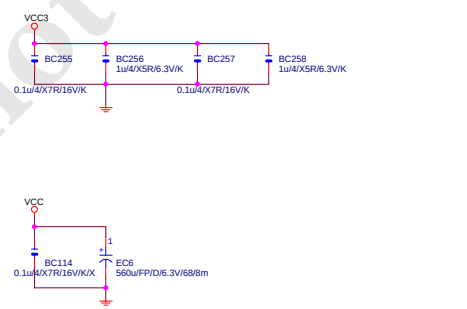
PCI1,2 SLOT

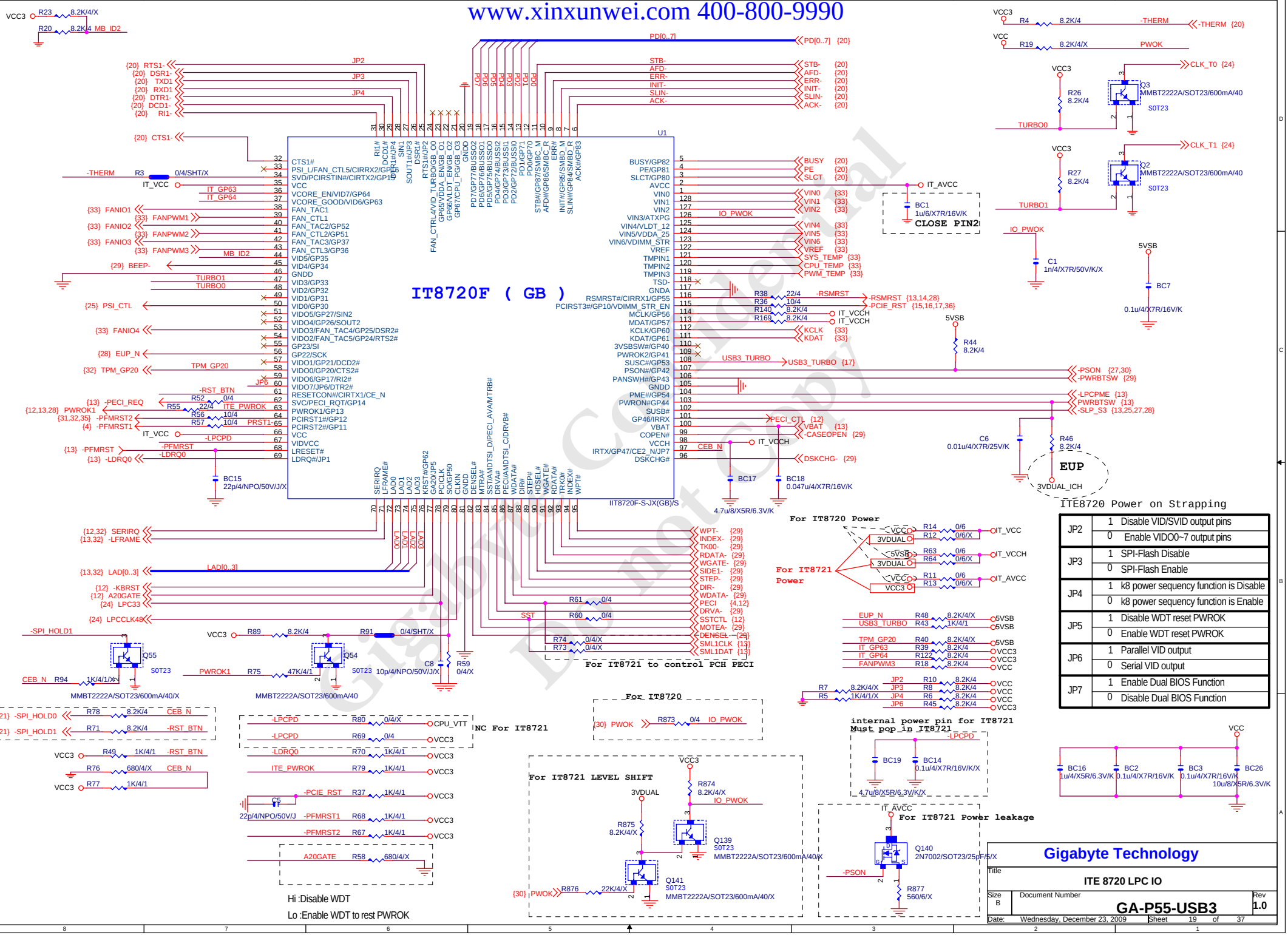








Gigabyte Technology		
Title: PCI SLOT 1, 2, 3		
Size: C	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 18 of 37	

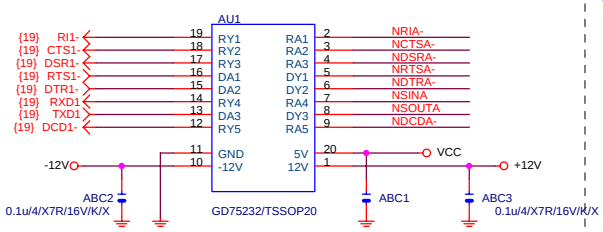


ITE8720 Power on Strapping

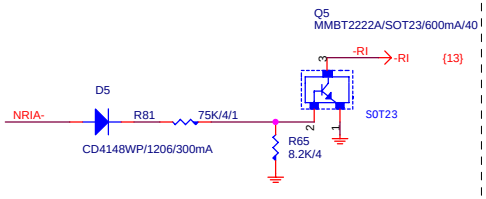
JP2	1	Disable VID/SVID output pins
	0	Enable VIDO0~7 output pins
JP3	1	SPI-Flash Disable
	0	SPI-Flash Enable
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP5	1	Disable WDT reset PWROK
	0	Enable WDT reset PWROK
JP6	1	Parallel VID output
	0	Serial VID output
JP7	1	Enable Dual BIOS Function
	0	Disable Dual BIOS Function

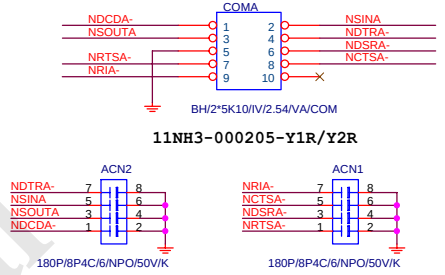
Gigabyte Technology		
Title	ITE 8720 LPC IO	
Size B	Document Number GA-P55-USB3	Rev 1.0
Date: Wednesday, December 23, 2009	Sheet 19 of 37	

COMA

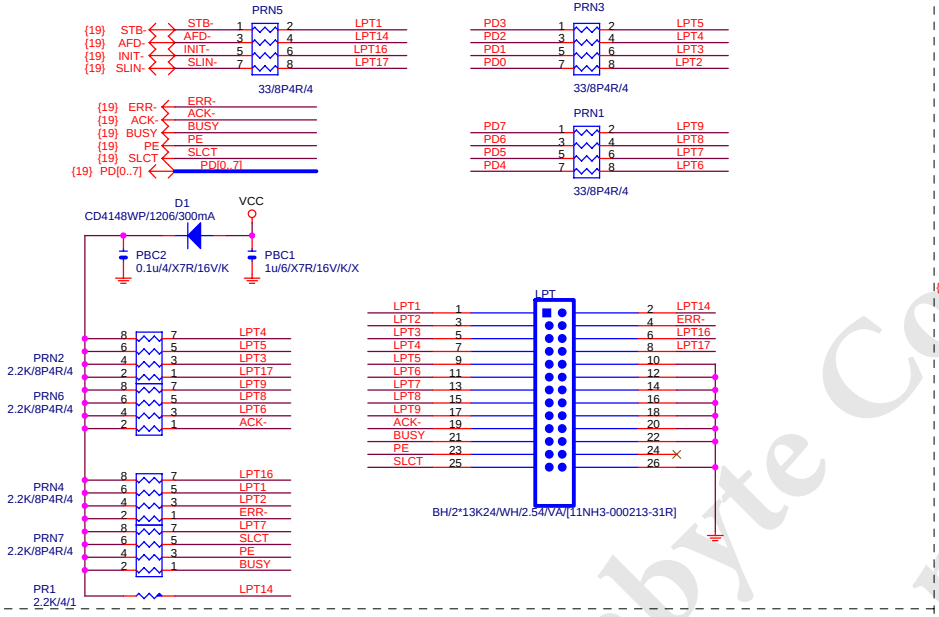


COM RI

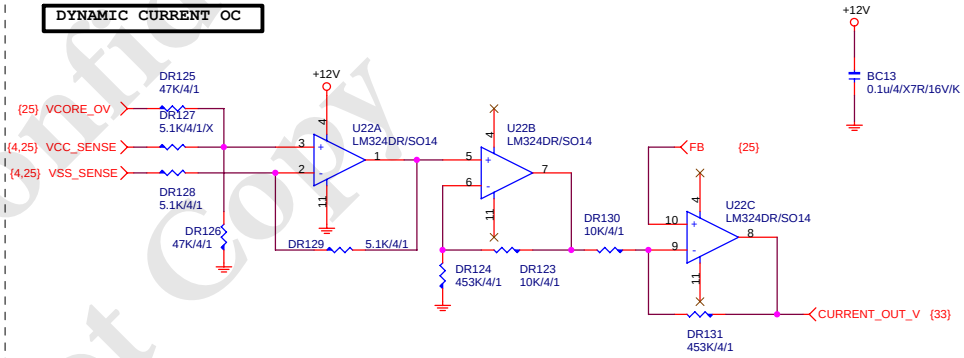




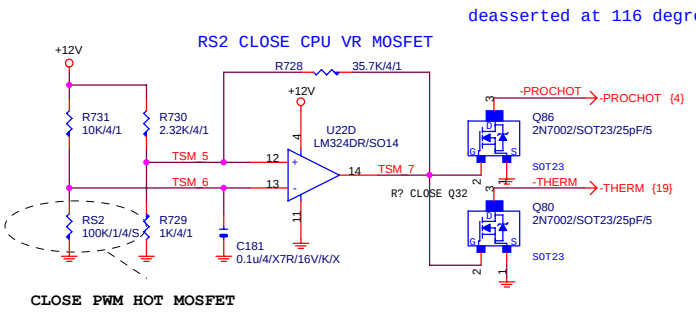
LPT PORT



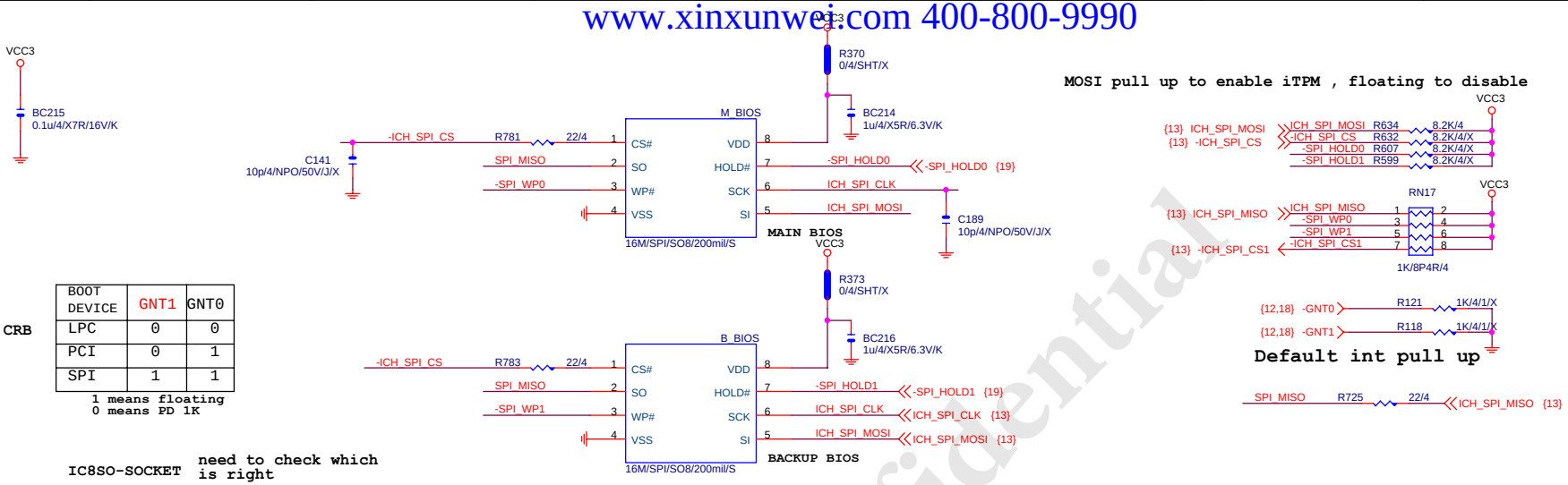
DYNAMIC CURRENT OC



-PROHOT



Gigabyte Technology		
Title: COM & PROHOT/Dynamic O.C.		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 20 of 37	



r1.0 DG;0.7 CRB

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

1 means floating
0 means PD 1K

IC8SO-SOCKET need to check which is right

MOSI pull up to enable iTPM , floating to disable

Default int pull up

Gigabyte Technology

Title: BIOS

Size: Custom | Document Number: GA-P55-USB3 | Rev: 1.0

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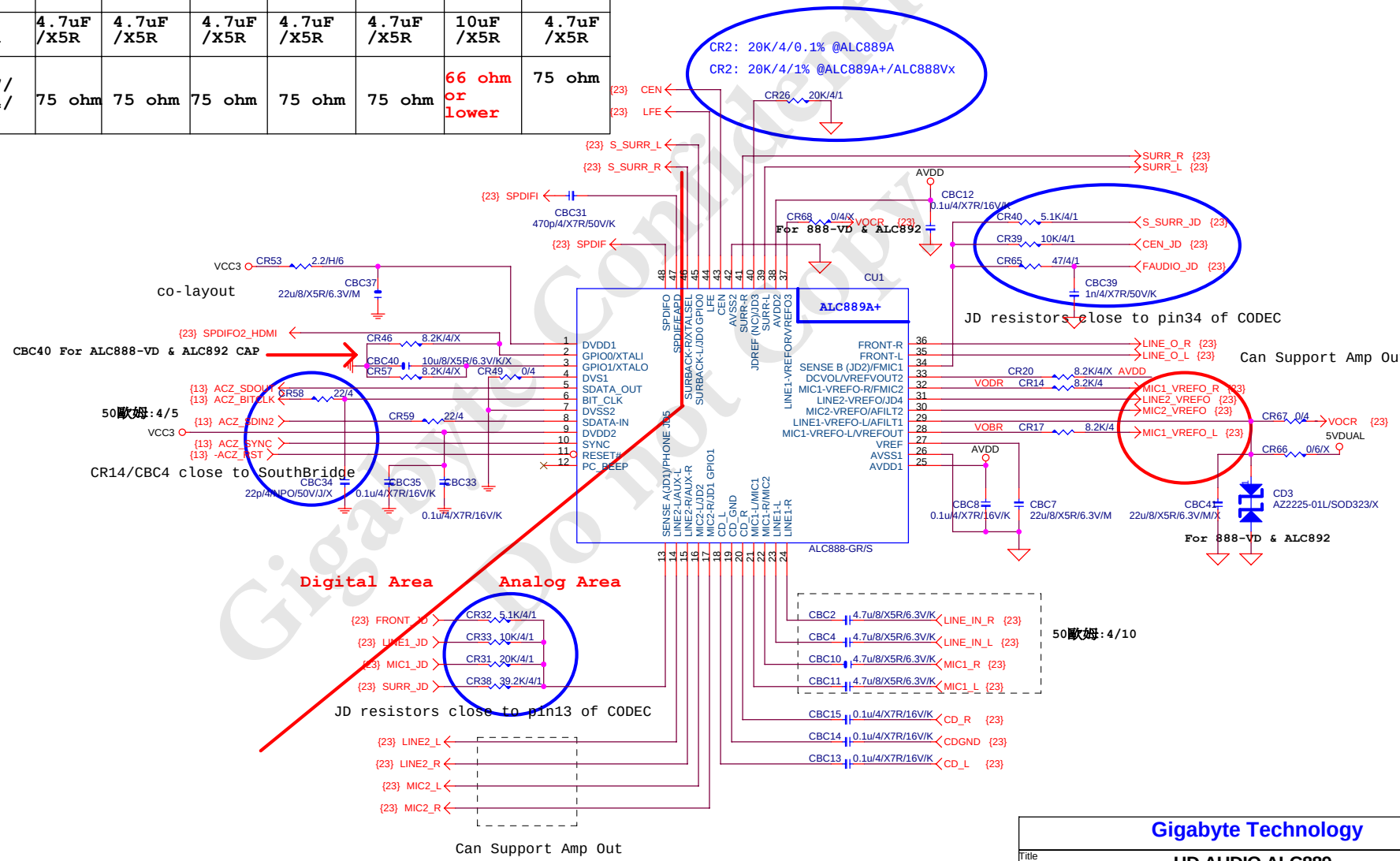
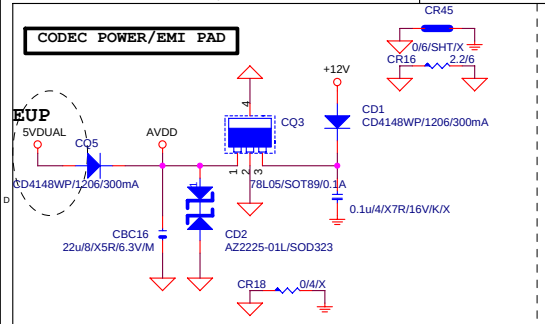
AZALIA CODEC *ALC889A+/ALC889A/ALC888Vx Co-lay*

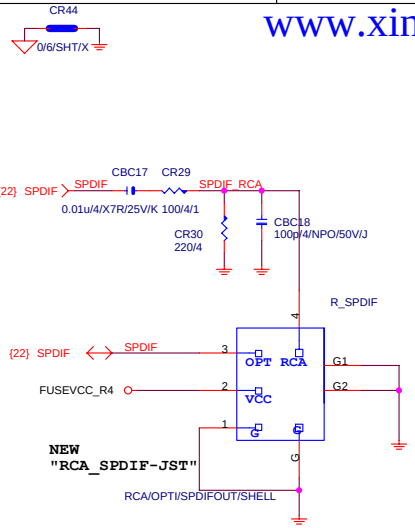
	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892	ALC889	ALC889A
CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	X	X	O	O	X
CR48	O	O	O	O	X	X	O
CBC2/CBC4/CBC5/ CBC6/CBC10/CBC11	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	10uF /X5R	4.7uF /X5R
CR1/CR3/CR10/CR12/ CR15/CR19/CR56/CR27/ CR55/CR37/CR28/CR34/ CR6/CR9/CR51/CR61	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	66 ohm or lower	75 ohm



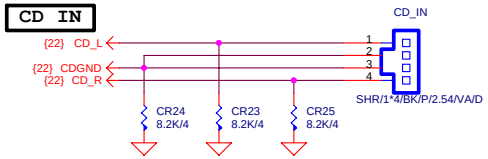
Gigabyte Technology	
Title	HD AUDIO ALC889
Size: Custom	Document Number: GA-P55-USB3
Rev	1.0
Date: Wednesday, December 23, 2009	Sheet 22 of 37

CODEC POWER/EMI PAD

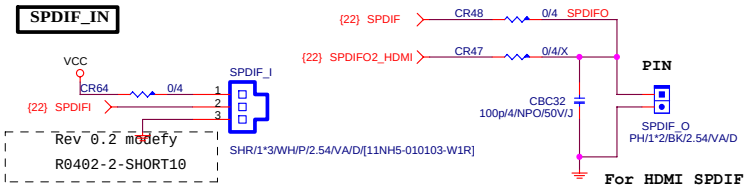




CD IN

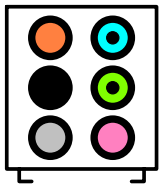


SPDIF_IN

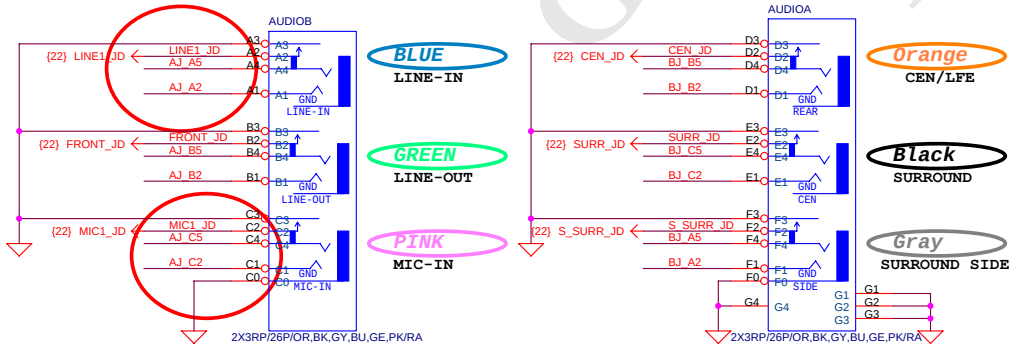


AZALIA JACK

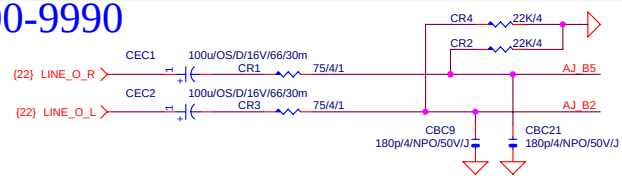
BTX AZALIA CONNECTOR



11NR6-403007-21R



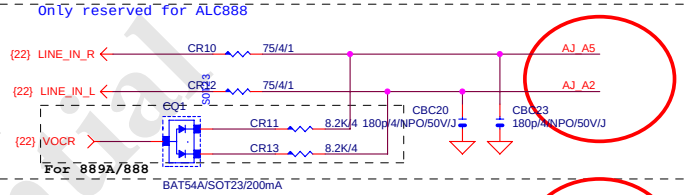
LINE-OUT



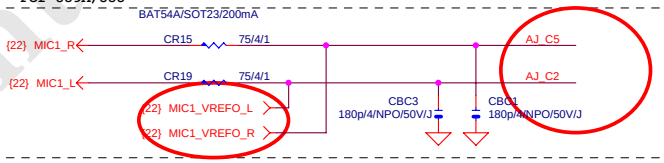
LINE-IN

Only reserved for ALC888

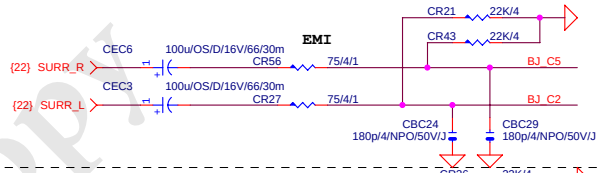
Verify MIC function in LINE-in



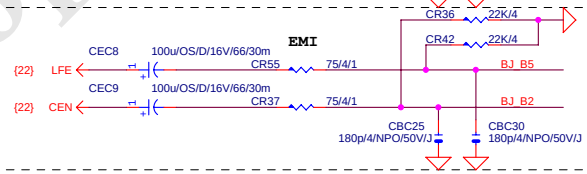
MIC-IN



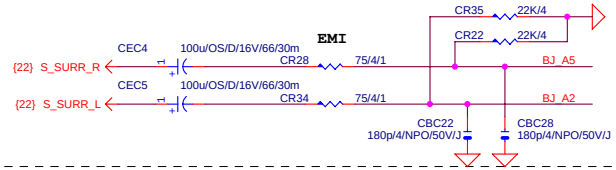
SURROUND



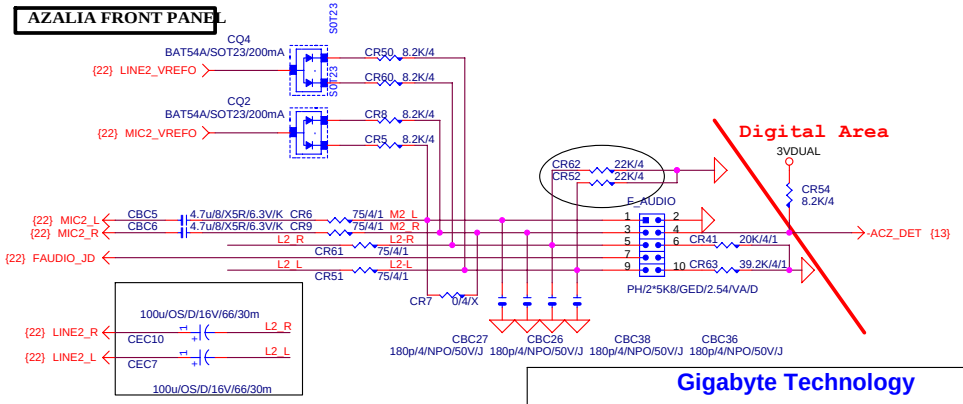
CEN/LFE



SURR BACK



AZALIA FRONT PANEL



Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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CLK GEN CK505

50歌姆:[18/4/10/4/18]

50歌姆:[18/4/10/4/18]

50歌姆:[4/10]

U5

ICS9LPRS914EKLF-T/MLF72

FSC	FSB	FSA	CPU
0	0	0	266MHz
0	0	1	133MHz
0	1	0	200MHz
0	1	1	166MHz
1	0	0	333MHz
1	1	0	400MHz

GSEL=1,96Mhz from 12/13
GSEL=0,100Mhz from12/13

SEL_48=1, 24Mhz from pin10
SEL_48=0, 48Mhz from pin10

To enhance PD strength

SEL_STOP: latched input to select pin functionality
1 = Selects pin 44/45 to be PCI_STOP#/CPU_STOP#
0 = Selects pin 44/45 to be PCIEX outputs ;
3.3V PCICLK output

FOR EMI
LPC48CLK

Rev 0.2 modefy

Rev 0.2 modefy

Gigabyte Technology

Title	CK505 CLK GEN	
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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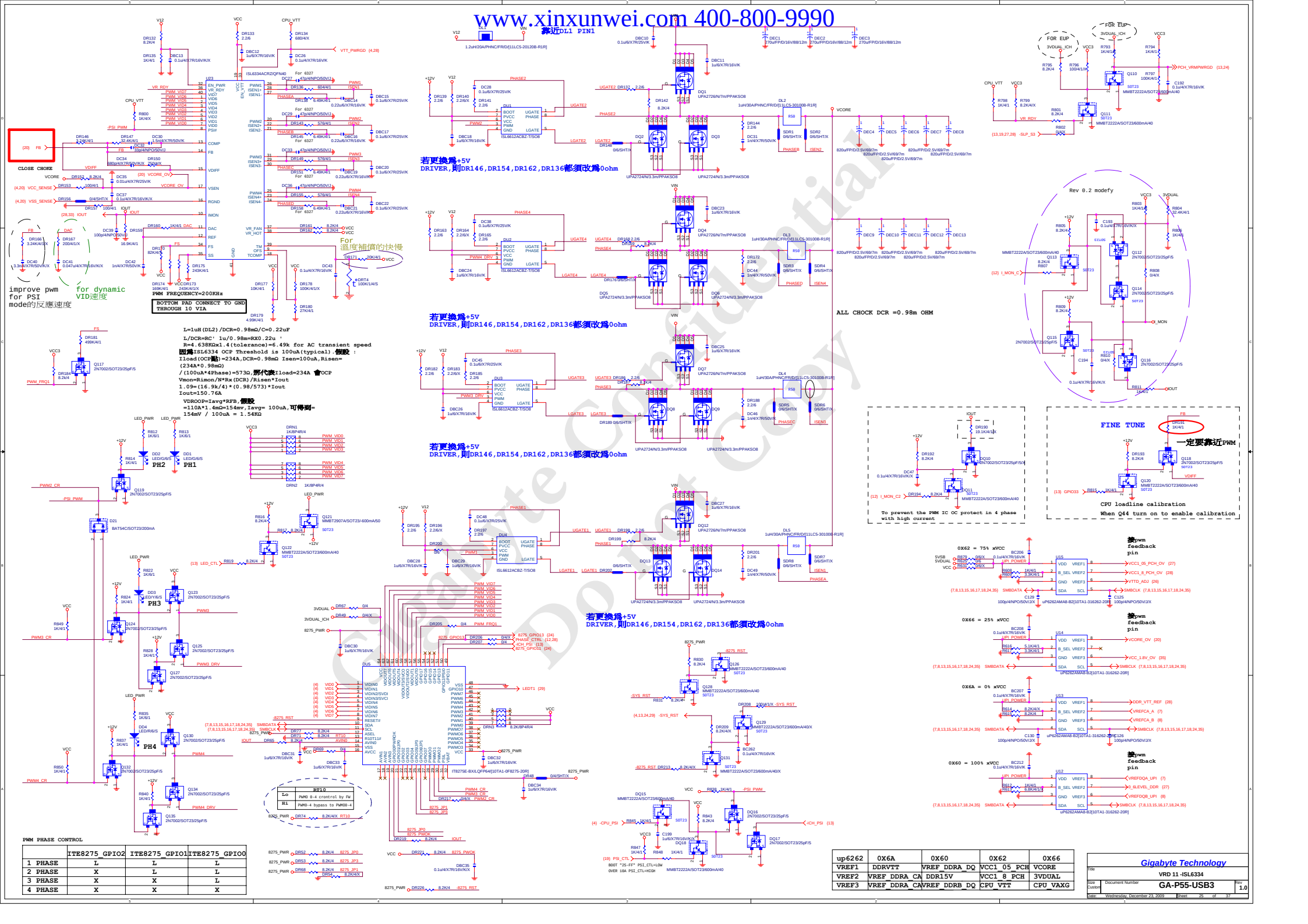

	ITE8275_GPIO2	ITE8275_GPIO1	ITE8275_GPIO0
1 PHASE	L	L	L
2 PHASE	X	L	L
3 PHASE	X	X	L
4 PHASE	X	X	X

up6262	0X6A	0X60	0X62	0X66
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	3VDUAL
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	CPU_VTT	CPU_VAXG

Gigabyte Technology			
Title: VRD 11 -ISL6334			
Size:	Document Number: GA-P55-USB3		Rev: 1.0
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5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode

U6 ISL6322G/QFN48/[10TA1-606322-11R]

Remove to check NTC function

0.775V * 1.47
Rev 0.2 modefy

For ISL6312

Low to clear 6322 setup

Pu for 6322 type2 SMBus address
address 1000_111x

BOTTOM PAD CONNECT TO GND THROUGH 10 VIA

OCP點做在146A
Isens+ R270阻值設在590ohm
Iocp=(IsensxRisenxPhase)/DCR
=[(120uAX590X2)/0.97m=146A
L/DCR=R*C
L=1uH DCR=0.97 mohm , 1uH/0.97mohm=4.7kX0.22uF
Risens R260 阻值=4.7k ohm, Cisen BC75=0.22u

Rt=10^(10.61-[1.035Xlog(FS)]) Rt=R301=158 kohm , FS=170KHz

OVP=VDAC+225mV

5V: 1phase
Below 5V-0.6V : 2phase

1.05V / 1.1V select by CPU

Bit 7 Pull High for AMD 6bit mode
Reomve Bit6 when use AMD mode
AMD 6bit mode
SET 1.05V
[1x010100]

0 1 0 1 0 0

L6 1.2uH/20A/PHNC/FR/D/[11LC5-20120B-R1R_11LC5-20120B-R2R]
L4 1uH/30A/PHNC/FR/D/[11LC5-30100B-R1R_11LC5-30100B-R2R]
L3 1uH/30A/PHNC/FR/D/[11LC5-30100B-R1R_11LC5-30100B-R2R]

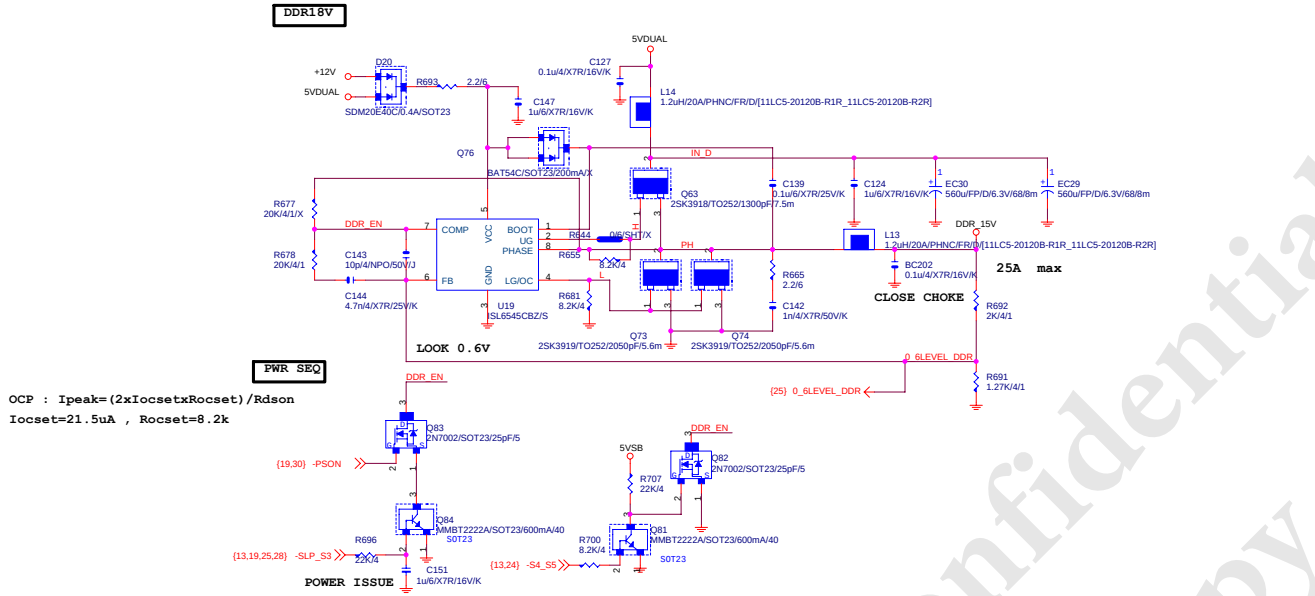
48A@1.1V

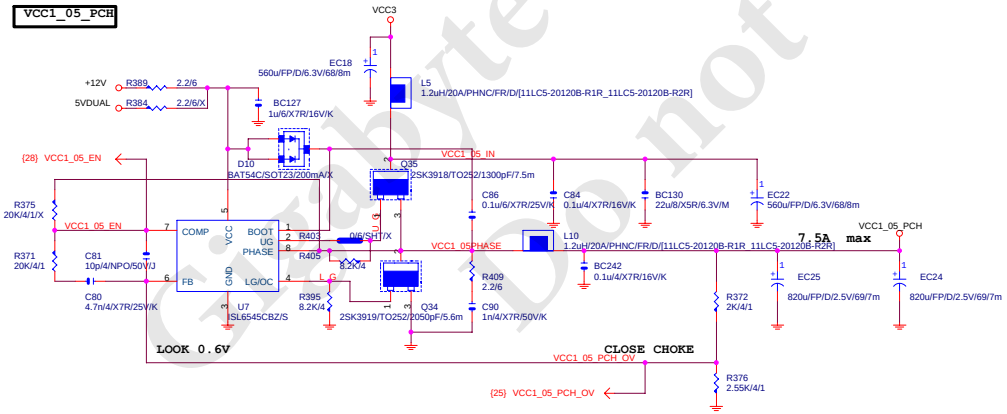
UPA2726/N/7m/PPAKSO8
UPA2724/N/3.3m/PPAKSO8

MOS_HS1
HEAT PIPE/P55-UD3/GRAY/KWOGER/[12SP2-01A003-K1R]
MOS_HS2
HEAT PIPE/P55-UD3/GRAY/KWOGER/[12SP2-01A003-K1R]
MOS_HS3
MOS_HeatSink/[12SP2-01A003-61R_12SP2-01A003-62R]/X

GIGABYTE

Title	CPU_VTT PWM_ISL6322CRZ	
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
Date: Wednesday, December 23, 2009	Sheet 26 of 37	





Gigabyte Technology		
Title: DDR_15V		
Size: C	Document Number: GA-P55-USB3	Rev: 1.0
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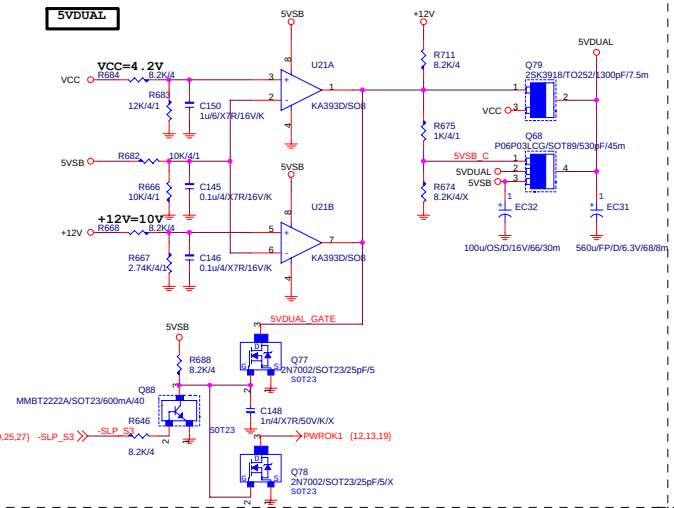
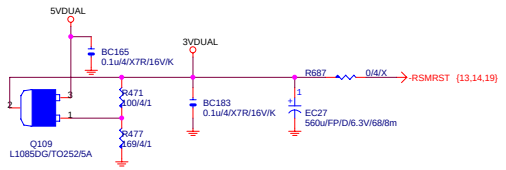
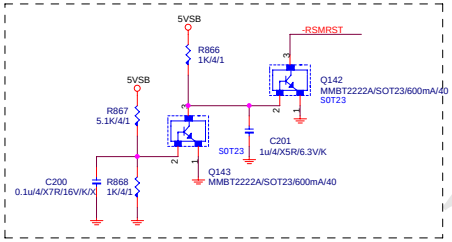
5VDUAL

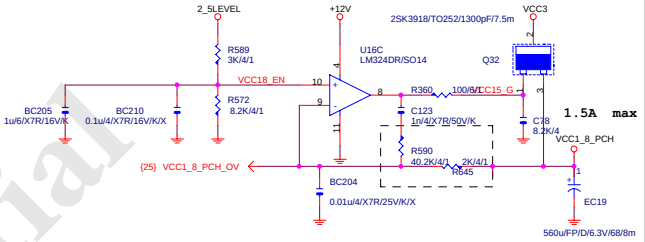


3VDUAL

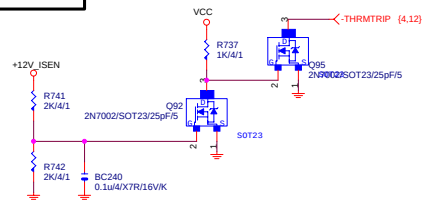




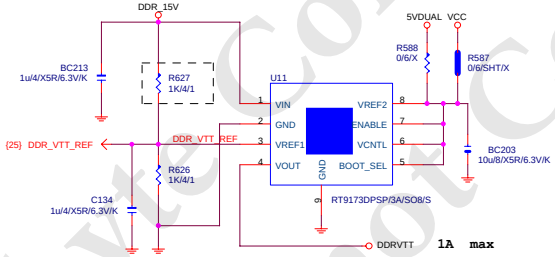
VCC1_8_PCH



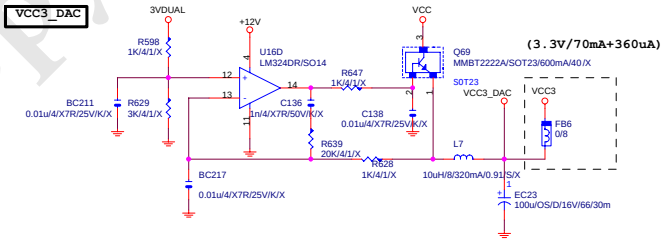
+12V SHORT PROTECT



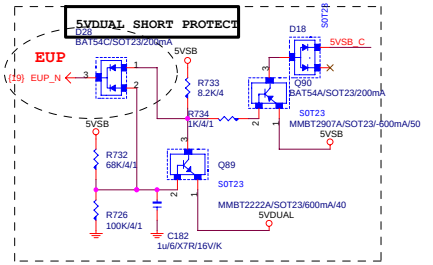
DDRVTT

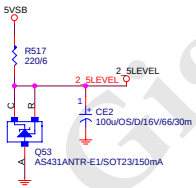


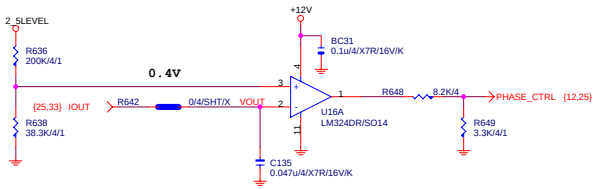
VCC3_DAC

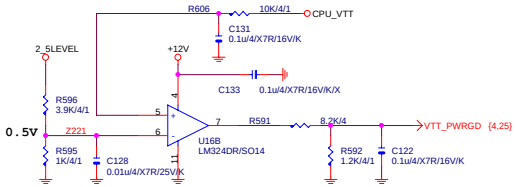


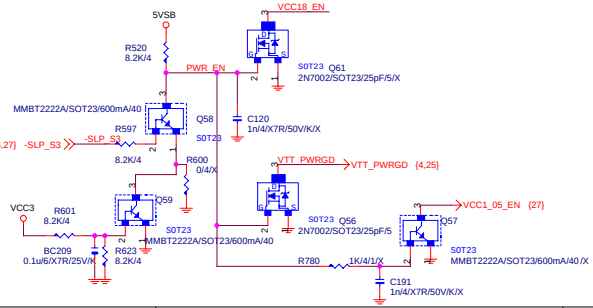
5VDUAL SHORT PROTECT











Gigabyte Technology		
Title: DISCRETE POWER		
Size: C	Document Number: GA-P55-USB3	Rev: 1.0
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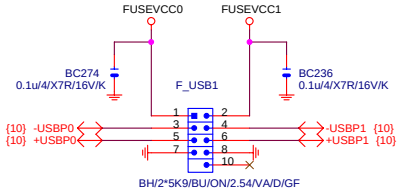
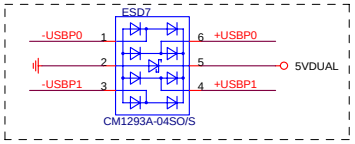
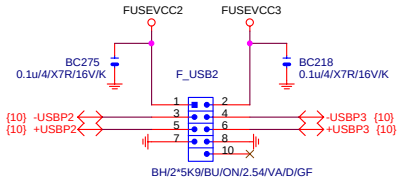
FRONT USB1

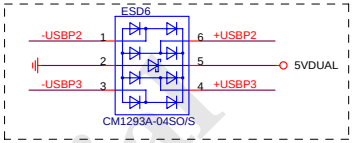




Close to connector

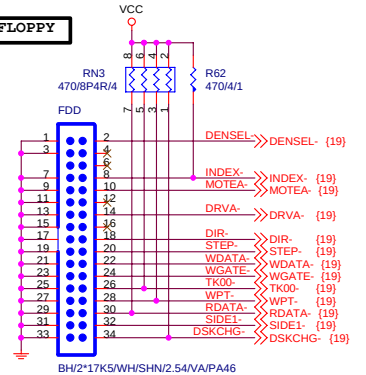
FRONT USB2

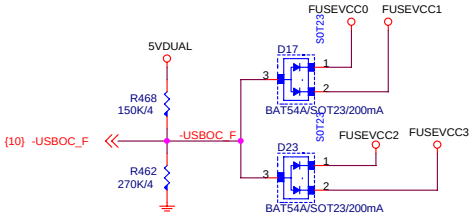




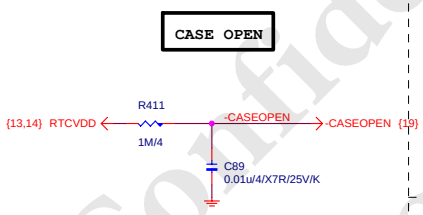
Close to connector

FLOPPY



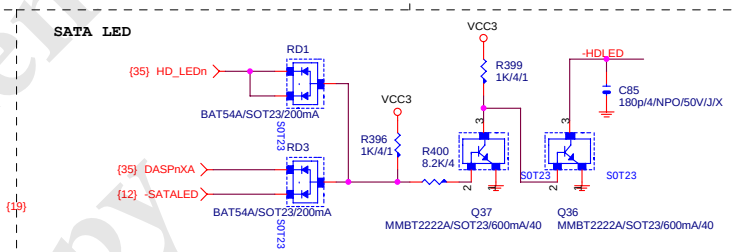


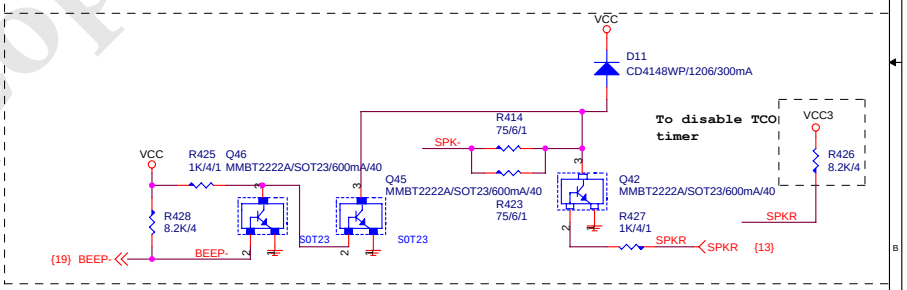
CASE OPEN

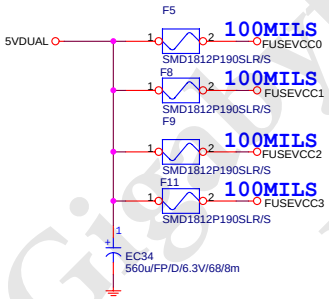


Case Open Circuits

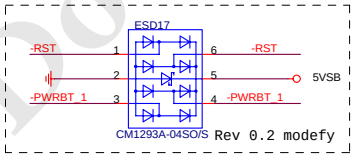
SATA LED

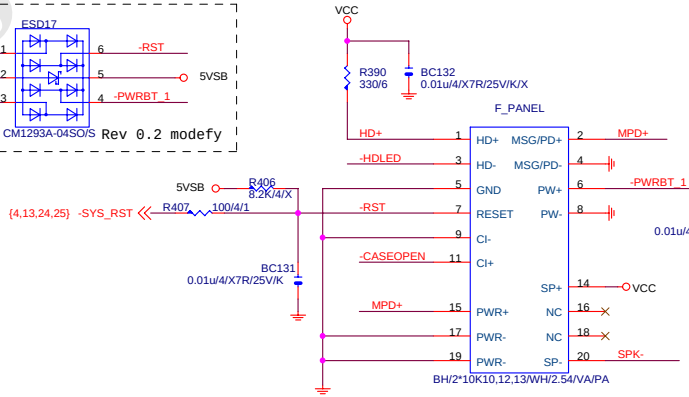


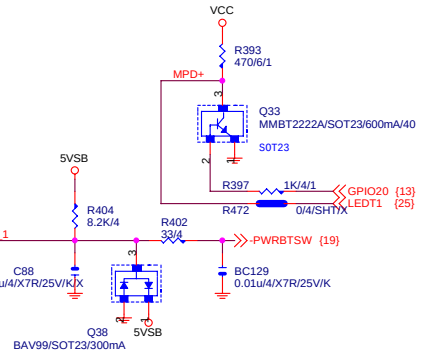




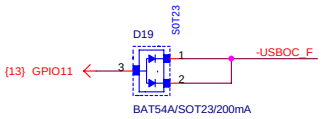
INTEL FRONT PANEL







F_USB & F_1394 POWER PROTECT



Gigabyte Technology		
Title: FP,F_USB,USB PWR,FDD,BZ		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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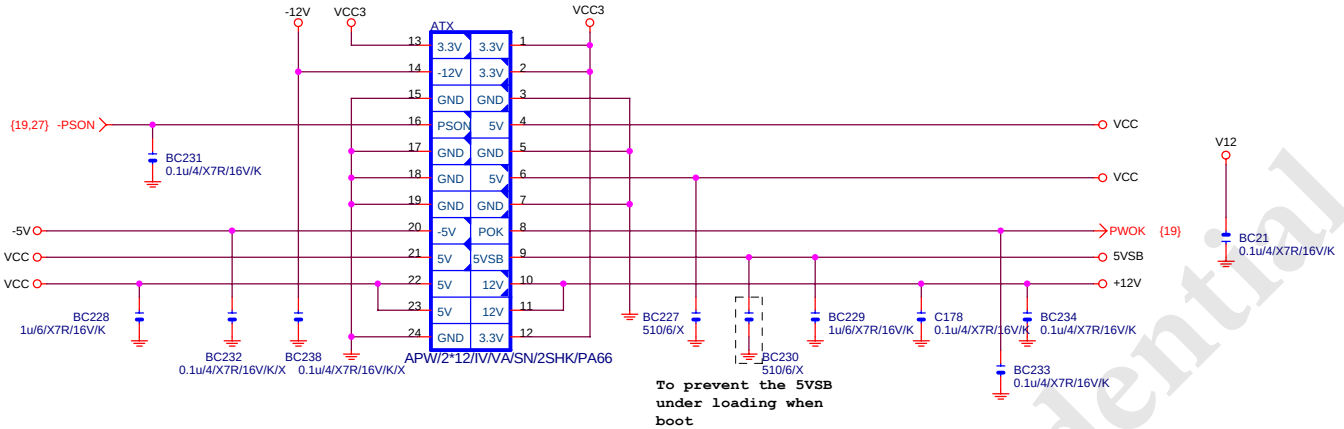
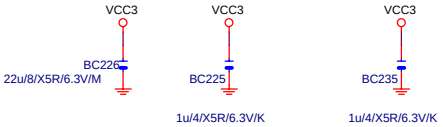
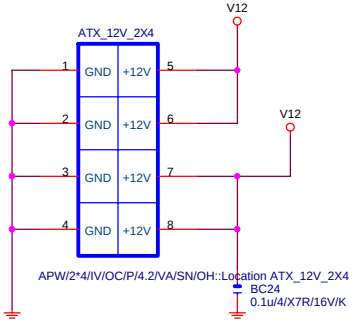
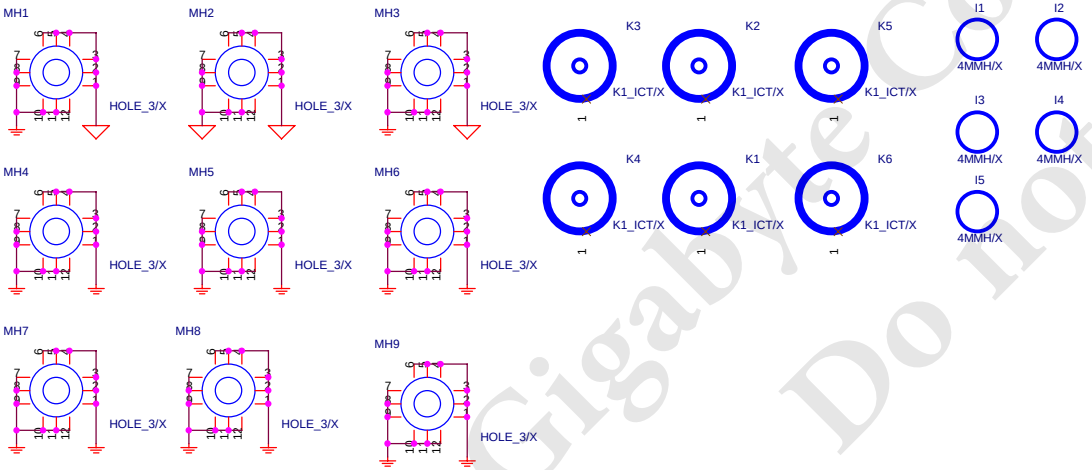
ATX POWER CONNECTOR









Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: B	Document Number: GA-P55-USB3	Rev: 1.0
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PCIE-1G LAN

Power domain chart

	RTL8111B / RTL8101E	RTL8111C
AVDD33	3.3V	3.3V
AVDD18	1.8V	1.2V
EVDD18	1.8V	1.2V
VDD15	1.5V	1.2V

For RTL8111C/D

for RT8111B N/C
for RT8111C 0 ohm (Internal Regulator)
for RT8111C N/C (external Regulator)

LU4
RTL8111D-VB-GR/S/[10HP2-408111-70R]

80歐姆:[15/5/5/5/15]
SRCCLK 50歐姆:[18/4/10/4/18]
90歐姆:[15/4.5/7.5/4.5/15]

離 PIN63 0.5cm以內
LR27離IC越近越好
離IC近越好
Close to connector
Close to R_USB30
Close to R_USB30

USB+LAN/1G/GO_Y/OS/RA/D/1

USB30_LAN CONNECTOR

R_USB30
R-A USB+LAN/W TF/1G/USB3.0 UDE/[11NR6-302009-11R]

FOR CLOSE PIN1,29,37,40

距離pin1 在0.5cm以內
距離LL2 在0.5cm以內

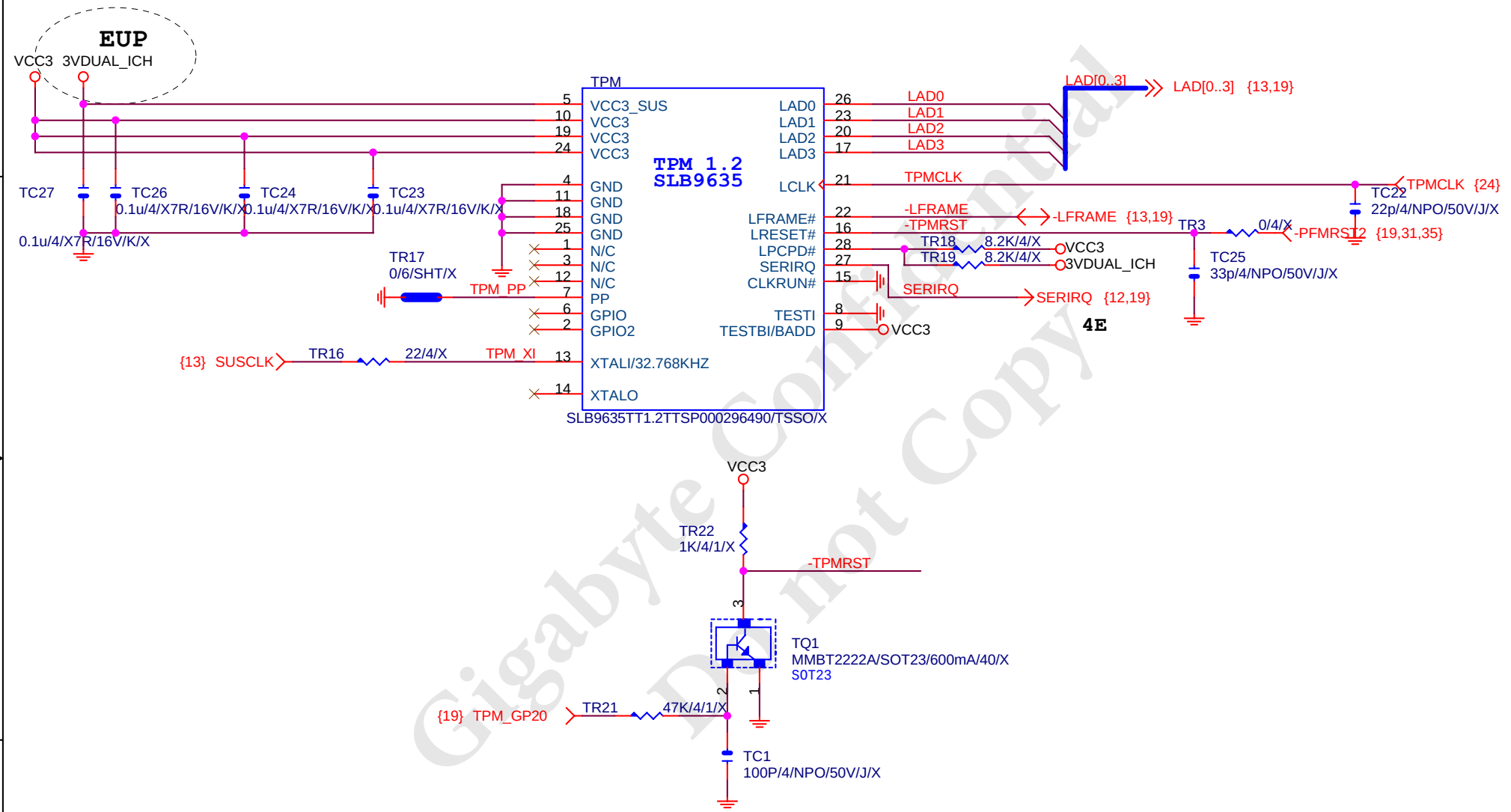
SEL	OE	Y+	Y-
X	H	Hi-Z	Hi-Z
L	L	M+	M-
H	L	D+	D-

NEC
PCH

400MILS 240MILS

Gigabyte Technology

Title: REALTEK RTL8111D
Size: Custom | Document Number: GA-P55-USB3 | Rev: 1.0
Date: Wednesday, December 23, 2009 | Sheet 31 of 37



Gigabyte Technology		
Title	TPM I/F-SLB 9635 TT 1.2	
Size A	Document Number GA-P55-USB3	Rev 1.0
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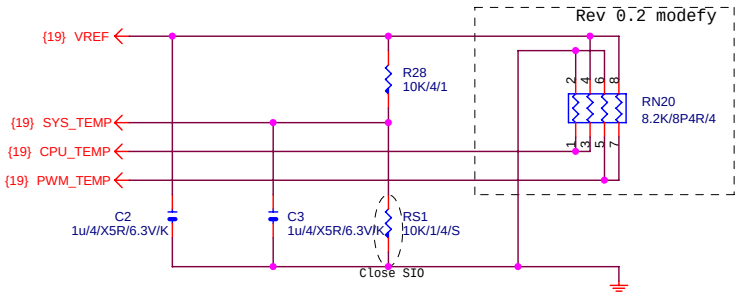
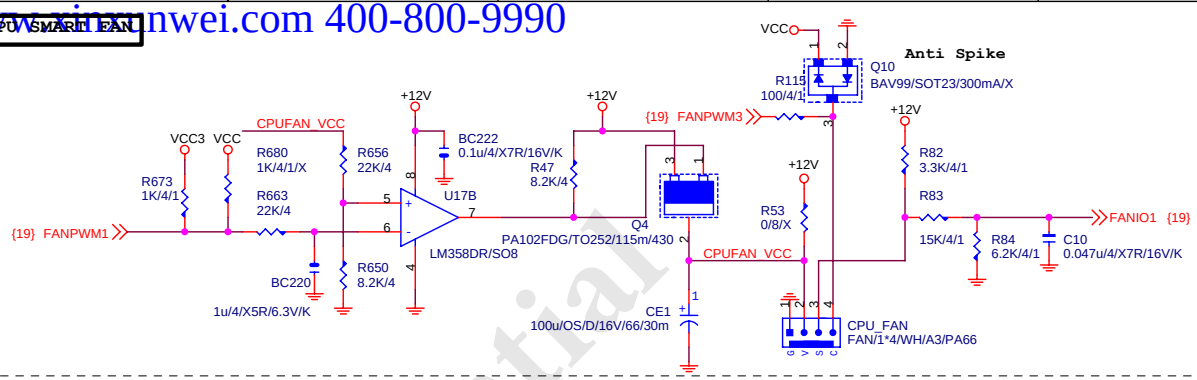
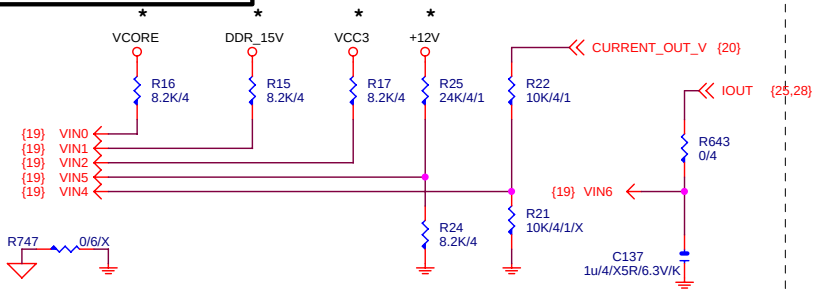
TEMP H/W MONITOR



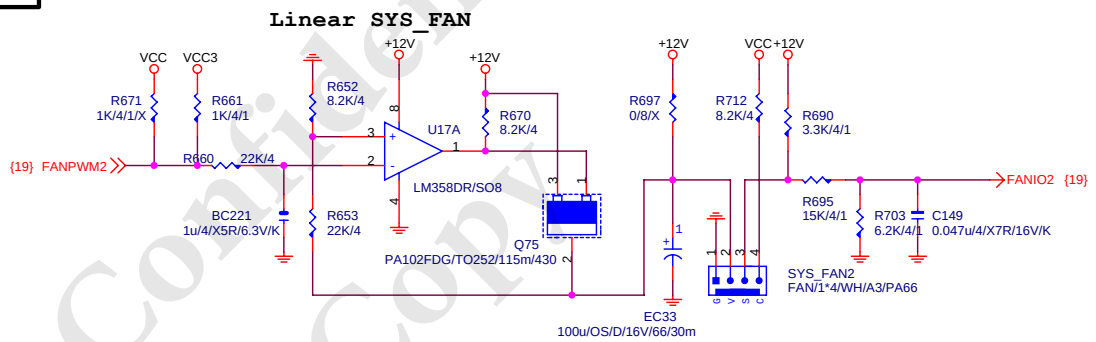
CPU SMART FAN



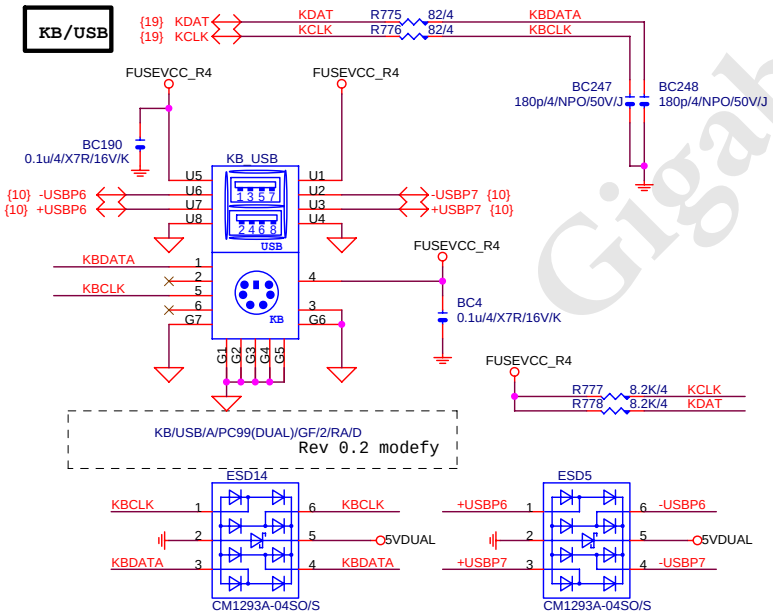
VOLTAGE-- H/W MONITOR



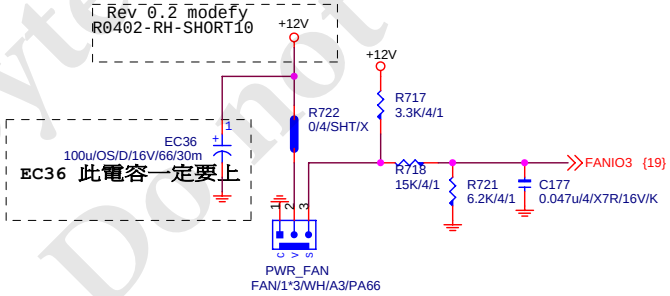
SYS FAN2



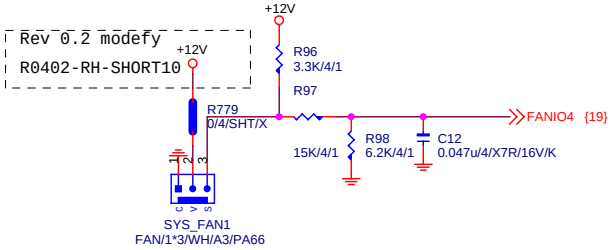
KB/USB

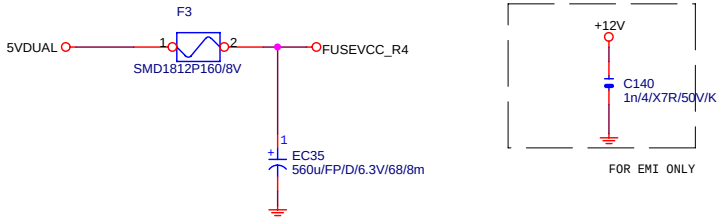


PWR FAN



SYS FAN1





Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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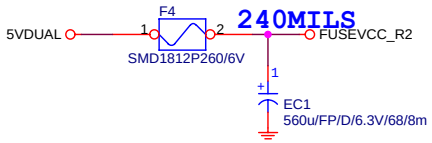

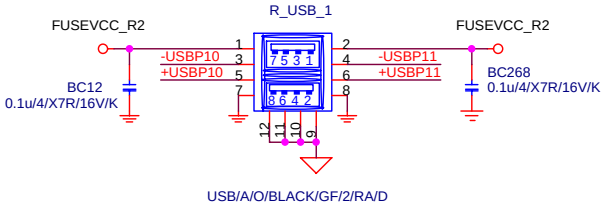

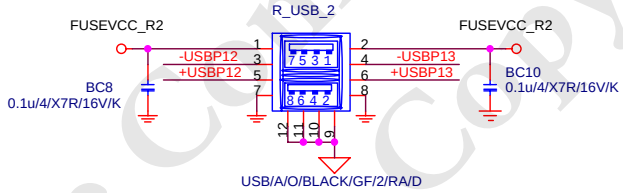

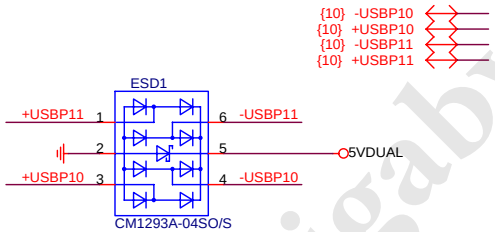

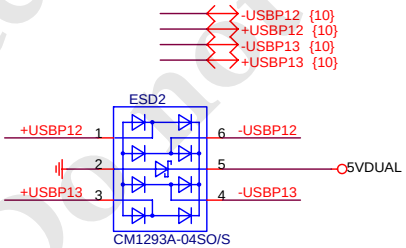

GIGABYTE™

Title: R_USB		
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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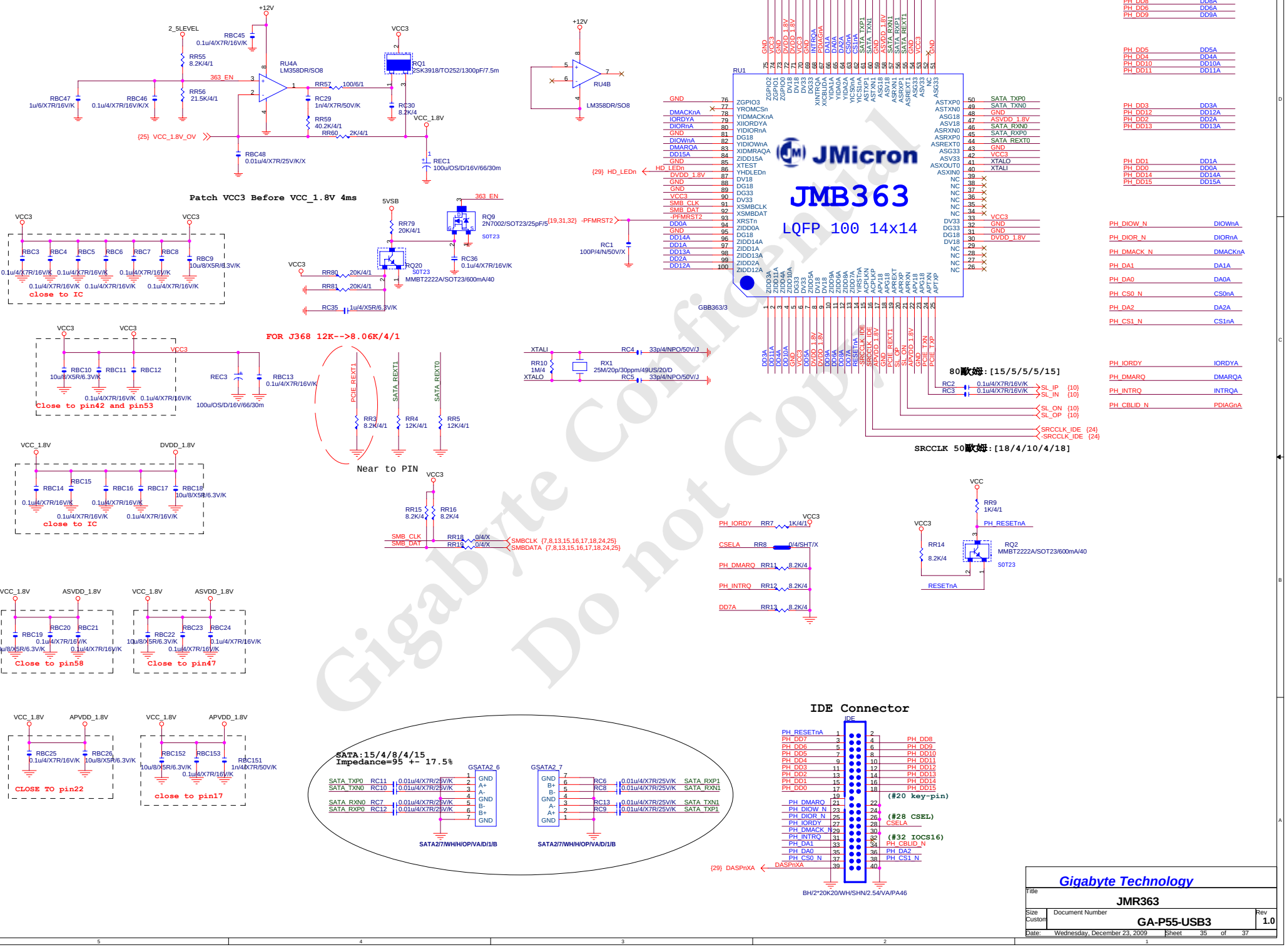

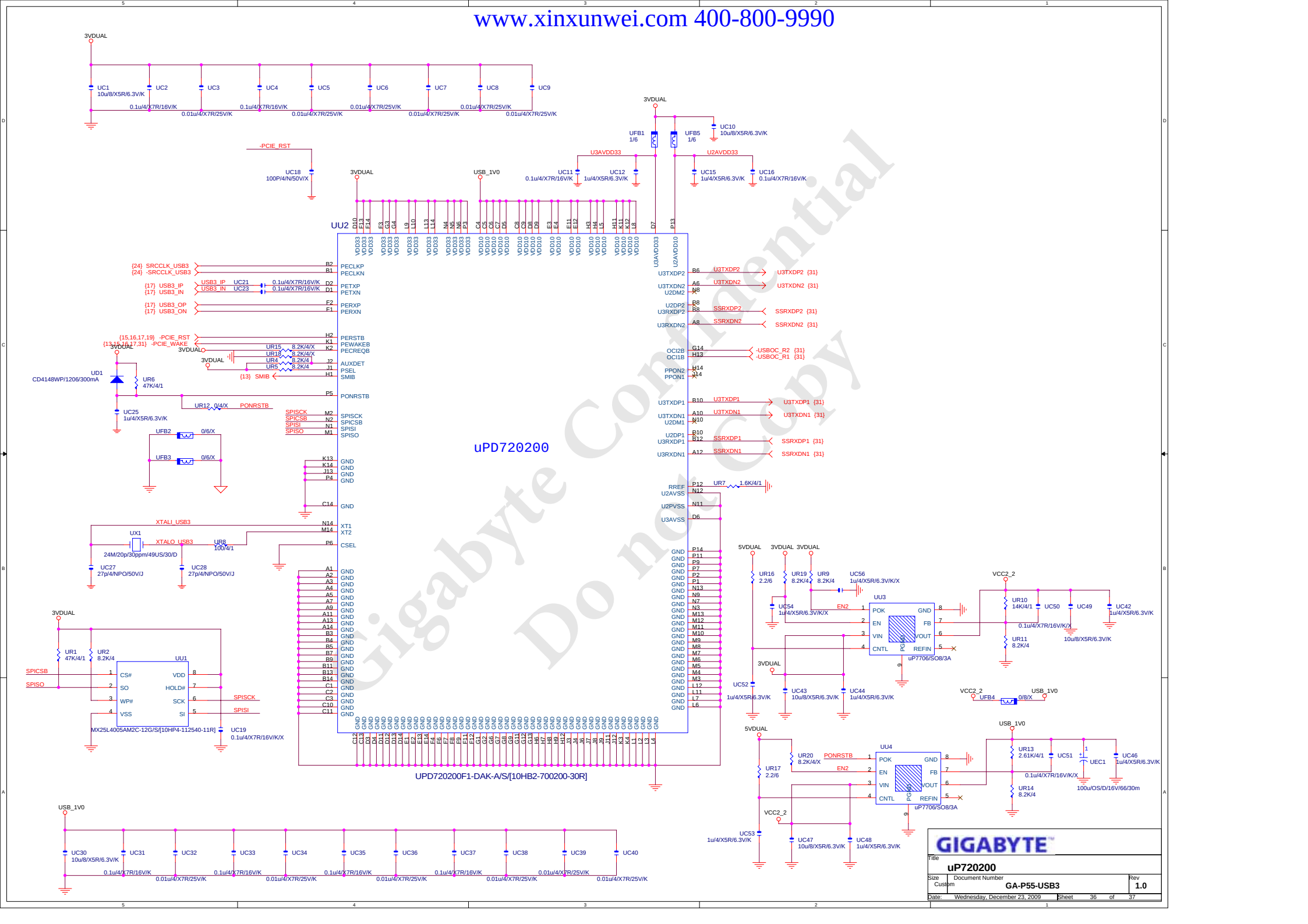

GIGABYTE

Title	uP720200	
Size: Custom	Document Number: GA-P55-USB3	Rev: 1.0
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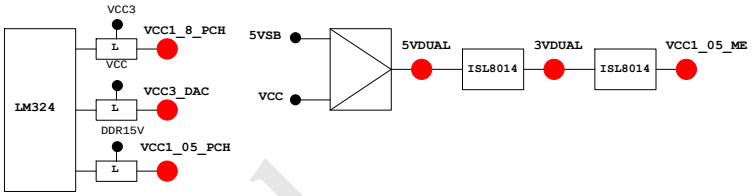
PCH GPIO LIST TABLE

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

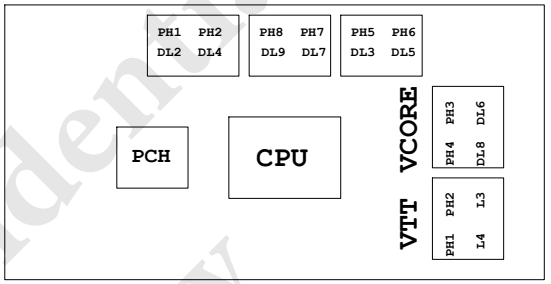
Super I/O ITE8720 GPIO Table

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	
VID03/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	
VID05/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	
VID00/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	
VID01/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	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/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

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