

Model Name: GA-Z68X-UD5-B3**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	DUAL BIOS,TPM
15	PCIEX2 , PCI SIGNAL
16	ITE 8721/ITE 8728
17	-PROHOT,KB/MS,PROTECT
18-25	VCORE
26	VCCSA POWER
27	CPU_VTTD ISL6322
28	DDR POWER ISL6545
29	PCH CORE
30	DISCRETE POWER1
31	DISCRETE POWER2
32	FP, FUSB, USB PWR

SHEET**TITLE**

33	ATX , CLOCK GEN
34	ALC889A+
35	REAR AUDIO JACK
36	HWM,FAN CTRL
37	NEC UP720200 USB3.0
38	VL810 USB3_HUB1
39	VL810 USB3_HUB2
40	REALTEK RTL8111E
41	TI TSB43AB23 1394
42	IT8892E
43	PCI SLOT 1&2
44	ESATA MARVELL SE9128
45	PCI EXPRESS X16 SLOT
46	PCI EXPRESS X8 SLOT
47	PCI EXPRESS X16 SWITCH
48	PCI EXPRESS X4 SLOT
49	LED_BUTTON CONTROL

GIGABYTE™		
Title Cover Sheet		
Size	Document Number	Rev
Custom	GA-Z68X-UD5-B3	1.01
Date:	Thursday, April 28, 2011	Sheet 1 of 49

GA-Z68X-UD5-B3

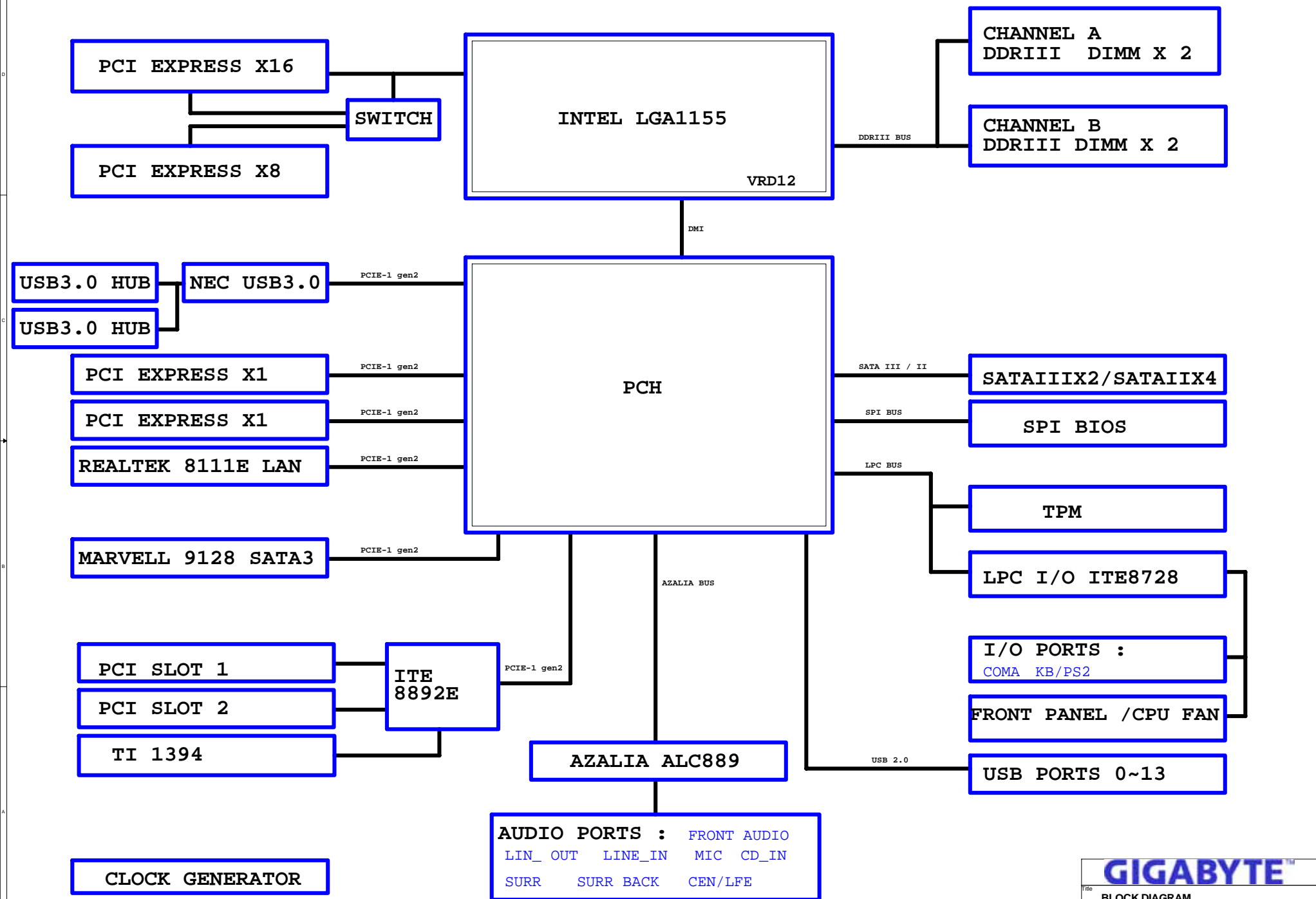
Circuit or PCB layout change

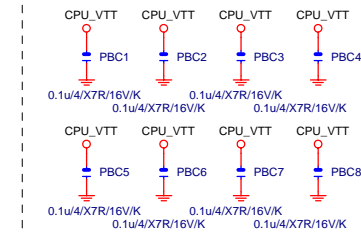
Component value change history

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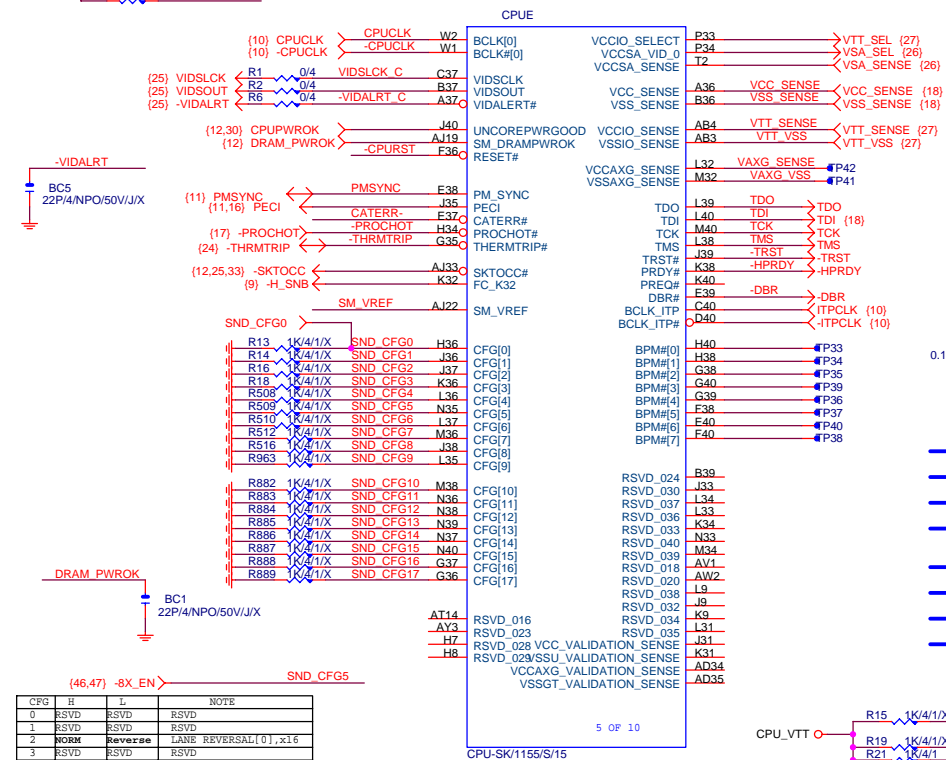
BLOCK DIAGRAM

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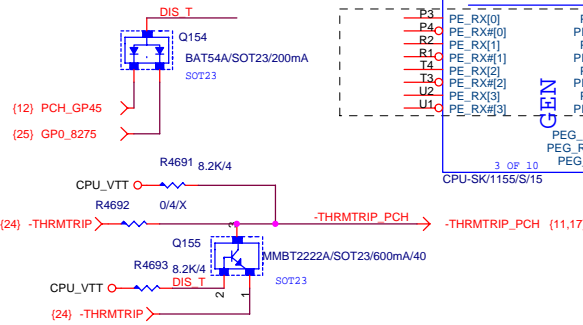
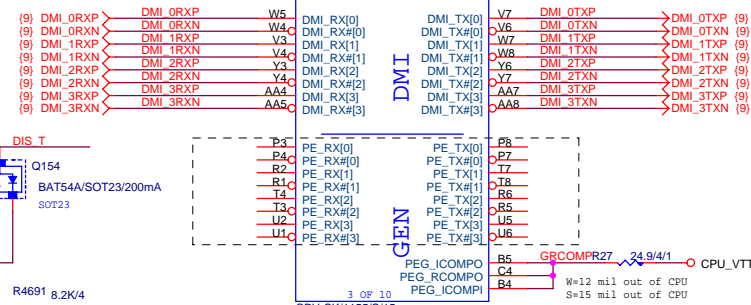
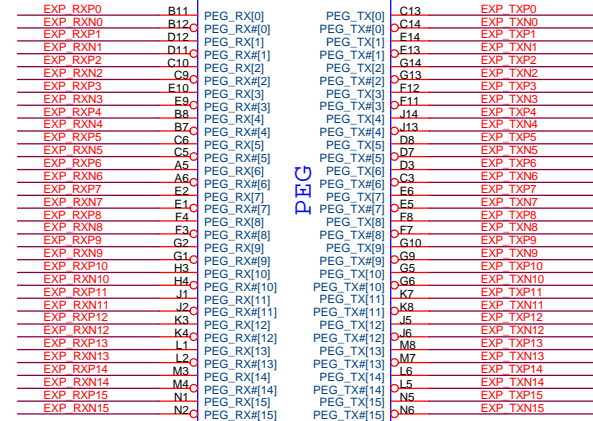
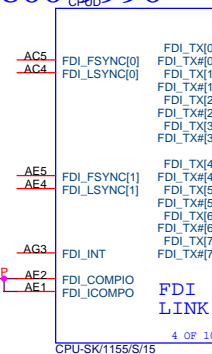
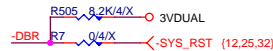
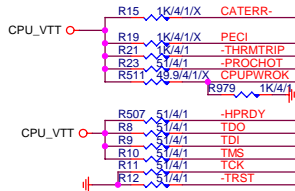
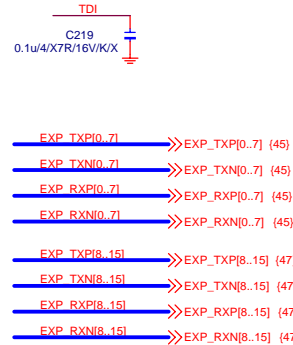
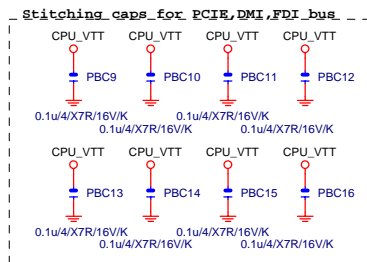
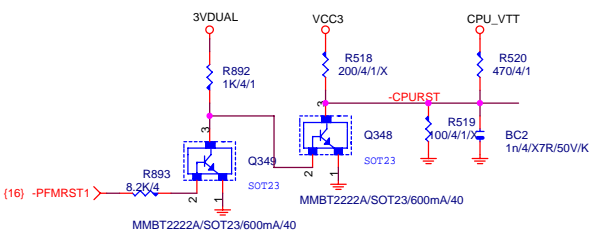
Stitching caps for PCIE,DMI,FDI bus



CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	RSVD	RSVD	RSVD
3	RSVD	RSVD	REVERSAL(0, x16)
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



Title			
CPU LGA1155-A			
Size	Document Number	Rev	
Custom	GA-Z68X-UD5-B3	1.01	
Date:	Thursday, April 28, 2011	Sheet	4 of 49

CPUA

MAAA0	AV27	SA_MA[0]	SA_DQS[0]	AK3	DQSA0
MAAA1	AY24	SA_MA[1]	SA_DQS#0	AK2	-DQSA0
MAAA2	AW24	SA_MA[2]			
MAAA3	AW23	SA_MA[3]			
MAAA4	AV23	SA_MA[4]	SA_DQ[0]	AJ3	MDA0
MAAA5	AT24	SA_MA[5]	SA_DQ[1]	AJ4	MDA1
MAAA6	AT23	SA_MA[6]	SA_DQ[2]	AL3	MDA2
MAAA7	AU22	SA_MA[7]	SA_DQ[3]	AL4	MDA3
MAAA8	AV22	SA_MA[8]	SA_DQ[4]	AJ2	MDA4
MAAA9	AT22	SA_MA[9]	SA_DQ[5]	AJ1	MDA5
MAAA10	AU21	SA_MA[10]	SA_DQ[6]	AL2	MDA6
MAAA11	AU21	SA_MA[11]	SA_DQ[7]	AL1	MDA7
MAAA12	AT21	SA_MA[12]			
MAAA13	AW32	SA_MA[13]	SA_DQS[1]	AP3	DQSA1
MAAA14	AU20	SA_MA[14]	SA_DQS#1	AP2	-DQSA1
MAAA15	AT20	SA_MA[15]			
(7) -SWEA	-SWEA	AW29	SA_WE#	AN1	MDA8
(7) -SCASA	-SCASA	AV30	SA_CAS#	AN4	MDA9
(7) -SRASA	-SRASA	AU28	SA_RAS#	AR3	MDA10
(7) SBAA0	SBAA0	AY29	SA_BS[0]	AR4	MDA11
(7) SBAA1	SBAA1	AW28	SA_BS[1]	AN2	MDA12
(7) SBAA2	SBAA2	AV20	SA_BS[2]	AN3	MDA13
(7) -CSA0	-CSA0	AU29	SA_CS#0	AR2	MDA14
(7) -CSA1	-CSA1	AV20	SA_CS#1	AR1	MDA15
(7) -CSA2	-CSA2	AW30	SA_CS#2		
(7) -CSA3	-CSA3	AU33	SA_CS#3		
(7) CKEA0	CKEA0	AV19	SA_CKE[0]	AV2	MDA16
(7) CKEA1	CKEA1	AT19	SA_CKE[1]	AW3	MDA17
(7) CKEA2	CKEA2	AU18	SA_CKE[2]	AV5	MDA18
(7) CKEA3	CKEA3	AV18	SA_CKE[3]	AW5	MDA19
(7) MODT_A0	MODT_A0	AV31	SA_ODT[0]	AU2	MDA20
(7) MODT_A1	MODT_A1	AU32	SA_ODT[1]	AU3	MDA21
(7) MODT_A2	MODT_A2	AU30	SA_ODT[2]	AU5	MDA22
(7) MODT_A3	MODT_A3	AW33	SA_ODT[3]	AY5	MDA23
(7) DCLKA0	DCLKA0	AY25	SA_CK[0]	AV8	DQSA3
(7) -DCLKA0	-DCLKA0	AW25	SA_CK#0	AW8	-DQSA3
(7) DCLKA1	DCLKA1	AU24	SA_CK[1]		
(7) -DCLKA1	-DCLKA1	AU25	SA_CK#1		
(7) DCLKA2	DCLKA2	AW27	SA_CK[2]		
(7) -DCLKA2	-DCLKA2	AY27	SA_CK#2		
(7) DCLKA3	DCLKA3	AV26	SA_CK[3]		
(7) -DCLKA3	-DCLKA3	AW26	SA_CK#3		
(7,8) -DDR3_RST	R894	AW18	SM_DRAMRST#		
C207	0.1u/4/X7R/16V/K/X				
AV13	SA_DQS[8]				
AV12	SA_DQS#8				
AU12	SA_ECC_CB[0]				
AU14	SA_ECC_CB[1]				
AU13	SA_ECC_CB[2]				
AY13	SA_ECC_CB[3]				
AU13	SA_ECC_CB[4]				
AU11	SA_ECC_CB[5]				
AY12	SA_ECC_CB[6]				
AW12	SA_ECC_CB[7]				
AP38	DQSA5				
AP39	-DQSA5				
AR40	MDA40				
AR37	MDA41				
AN38	MDA42				
AN37	MDA43				
AR39	MDA44				
AR38	MDA45				
AN39	MDA46				
AN40	MDA47				
AK38	DQSA6				
AK39	-DQSA6				
AL40	MDA48				
AL37	MDA49				
AJ38	MDA50				
AJ37	MDA51				
AL39	MDA52				
AL38	MDA53				
AJ39	MDA54				
AL40	MDA55				
AE38	DQSA7				
AE39	-DQSA7				
AG40	MDA56				
AG37	MDA57				
AE38	MDA58				
AE37	MDA59				
AG39	MDA60				
AG38	MDA61				
AE39	MDA62				
AE40	MDA63				

DDR_0

1 OF 10

CPU-SK/1155/S/15

CPUB

	MAAB0	AK24	SB_MA[0]	SB_DQS[0]	AH7	DQSB0
	MAAB1	AM20	SB_MA[1]	SB_DQS#0	AH6	-DQSB0
	MAAB2	AM19	SB_MA[2]			
	MAAB3	AK18	SB_MA[3]			
	MAAB4	AP19	SB_MA[4]		AG7	MDB0
	MAAB5	AP18	SB_MA[5]	SB_DQ[0]	AG8	MDB1
	MAAB6	AM18	SB_MA[6]	SB_DQ[1]	AJ9	MDB2
	MAAB7	AL18	SB_MA[7]	SB_DQ[2]	AJ8	MDB3
	MAAB8	AN18	SB_MA[8]	SB_DQ[3]	AG5	MDB4
	MAAB9	AY17	SB_MA[9]	SB_DQ[4]	AG6	MDB5
	MAAB10	AN23	SB_MA[9]	SB_DQ[5]	AJ6	MDB6
	MAAB11	AU17	SB_MA[10]	SB_DQ[6]	AJ7	MDB7
	MAAB12	AT18	SB_MA[11]	SB_DQ[7]		
	MAAB13	AR26	SB_MA[12]	SB_DQS[1]	AM8	DQSB1
	MAAB14	AY16	SB_MA[14]	SB_DQS#1	AL8	-DQSB1
	MAAB15	AV16	SB_MA[15]			
(8) -SWEB	-SWEB	AR25	SB_WE#	SB_DQ[8]	AL7	MDB8
(8) -SCASB	-SCASB	AK25	SB_CAS#	SB_DQ[9]	AM7	MDB9
(8) -SRASB	-SRASB	AP24	SB_RAS#	SB_DQ[10]	AM10	MDB10
(8) SBAB0	SBAB0	AP23	SB_BS[0]	SB_DQ[11]	AL10	MDB11
(8) SBAB1	SBAB1	AM24	SB_BS[1]	SB_DQ[12]	AL6	MDB12
(8) SBAB2	SBAB2	AW17	SB_BS[2]	SB_DQ[13]	AL9	MDB14
				SB_DQ[14]	AM9	MDB15
				SB_DQ[15]		
(8) -CSB0	-CSB0	AN25	SB_CS#0			
(8) -CSB1	-CSB1	AN26	SB_CS#1	SB_DQS[2]	AR8	DQSB2
(8) -CSB2	-CSB2	AL25	SB_CS#2	SB_DQS#2	AP8	-DQSB2
(8) -CSB3	-CSB3	AT26	SB_CS#3			
(8) CKEB0	CKEB0	AU16	SB_CKE[0]	SB_DQ[16]	AP7	MDB16
(8) CKEB1	CKEB1	AY15	SB_CKE[1]	SB_DQ[17]	AR7	MDB17
(8) CKEB2	CKEB2	AW15	SB_CKE[2]	SB_DQ[18]	AP10	MDB18
(8) CKEB3	CKEB3	AV15	SB_CKE[3]	SB_DQ[19]	AP10	MDB19
				SB_DQ[20]	AP6	MDB20
	MODT_B0	AL26	SB_ODT[0]	SB_DQ[21]	AR6	MDB21
	MODT_B1	AP26	SB_ODT[1]	SB_DQ[22]	AP1	MDB22
	MODT_B2	AM26	SB_ODT[2]	SB_DQ[23]	AR9	MDB23
	MODT_B3	AK26	SB_ODT[3]			
			SB_DQS[3]	AN13	DQSB3	
			SB_DQS#3	AN12	-DQSB3	
(8) DCLKB0	DCLKB0	AL21	SB_CK[0]			
(8) -DCLKB0	-DCLKB0	AL22	SB_CK#0	SB_DQ[24]	AM12	MDB24
(8) DCLKB1	DCLKB1	AL20	SB_CK[1]	SB_DQ[25]	AM13	MDB25
(8) -DCLKB1	-DCLKB1	AK20	SB_CK#1	SB_DQ[26]	AR13	MDB26
(8) DCLKB2	DCLKB2	AL23	SB_CK[2]	SB_DQ[27]	AP13	MDB27
(8) -DCLKB2	-DCLKB2	AM22	SB_CK#2	SB_DQ[28]	AL12	MDB28
(8) DCLKB3	DCLKB3	AP21	SB_CK[3]	SB_DQ[29]	AL13	MDB29
(8) -DCLKB3	-DCLKB3	AN21	SB_CK#3	SB_DQ[30]	AR12	MDB30
				SB_DQ[31]	AP12	MDB31
				SB_DQS[4]	AN29	DQSB4
				SB_DQS#4	AN28	-DQSB4
(8) VREF_DQB	VREF_DQB	AH4	FC_AH1			
(7) VREF_DQA	VREF_DQA	AH1	FC_AH4			
				SB_DQ[32]	AR28	MDB32
				SB_DQ[33]	AR29	MDB33
				SB_DQ[34]	AL28	MDB34
				SB_DQ[35]	AL29	MDB35
				SB_DQ[36]	AP28	MDB36
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				SB_DQ[39]	AM29	MDB39
				SB_DQS[5]	AP33	DQSB5
				SB_DQS#5	AP33	-DQSB5
				SB_DQ[40]	AP32	MDB40
				SB_DQ[41]	AP31	MDB41
				SB_DQ[42]	AP35	MDB42
				SB_DQ[43]	AP34	MDB43
				SB_DQ[44]	AR32	MDB44
				SB_DQ[45]	AR31	MDB45
				SB_DQ[46]	AR35	MDB46
				SB_DQ[47]	AR34	MDB47
				SB_DQS[6]	AL33	DQSB6
				SB_DQS#6	AM33	-DQSB6
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				SB_DQ[50]	AL35	MDB50
				SB_DQ[51]	AL32	MDB51
				SB_DQ[52]	AM34	MDB52
				SB_DQ[53]	AL31	MDB53
				SB_DQ[54]	AM35	MDB54
				SB_DQ[55]	AL34	MDB55
				SB_DQS[7]	AG35	DQSB7
				SB_DQS#7	AG34	-DQSB7
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				SB_DQ[63]	AE35	MDB63

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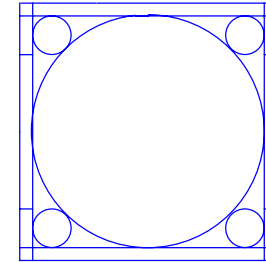
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PCIE014E

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2 OF 10

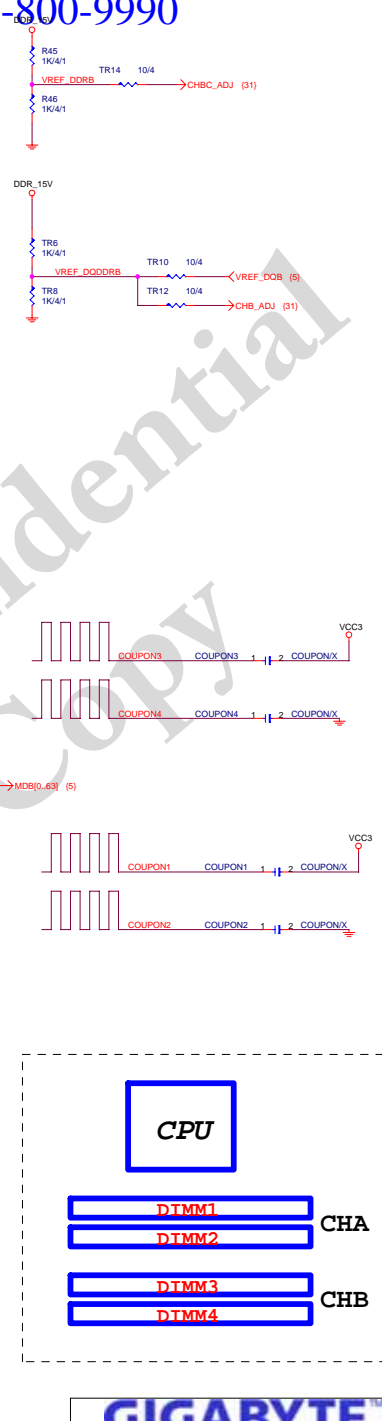
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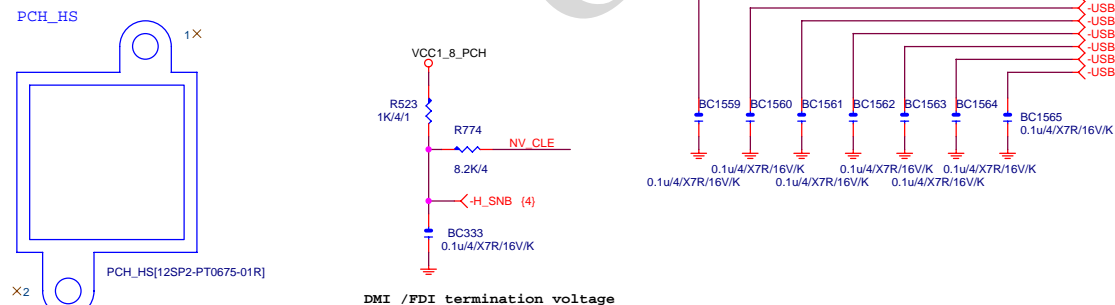
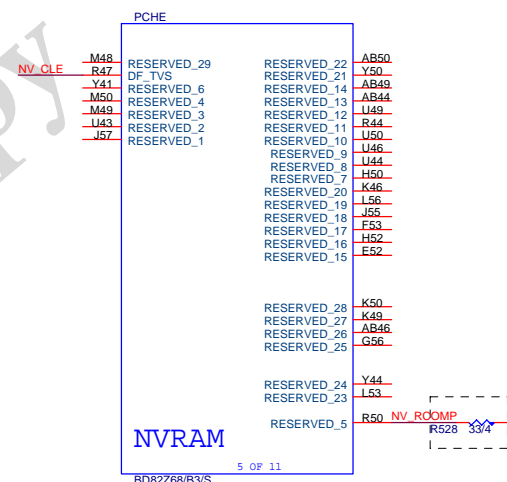
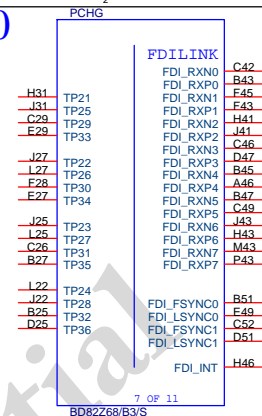
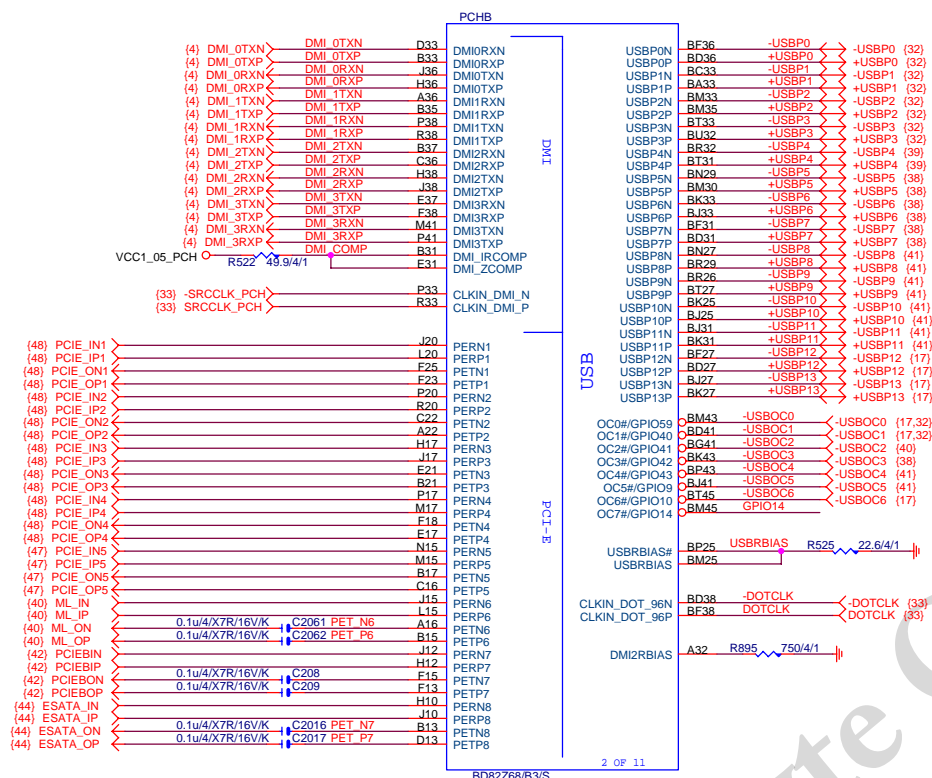
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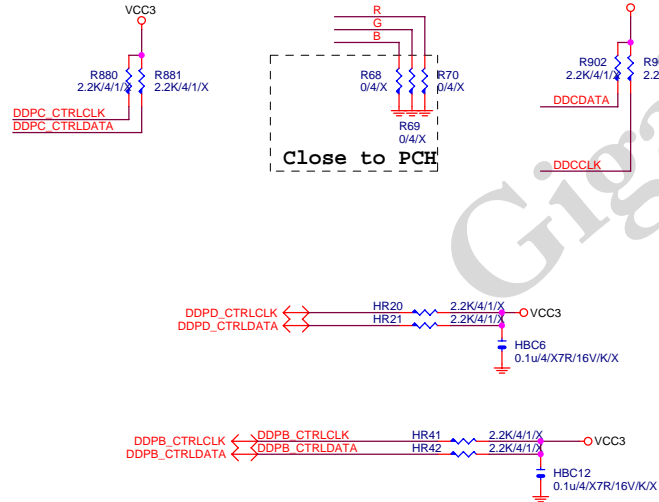
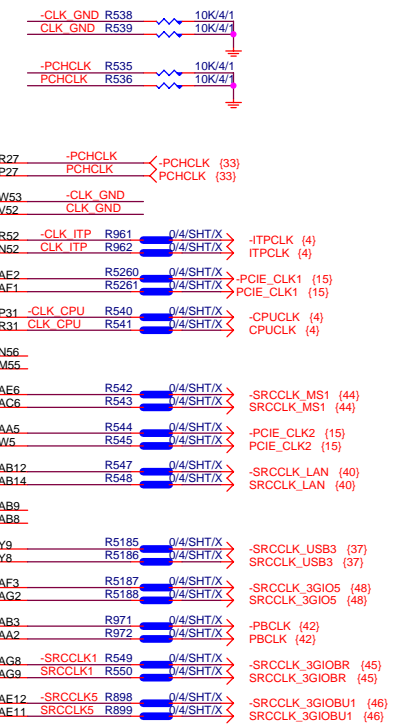
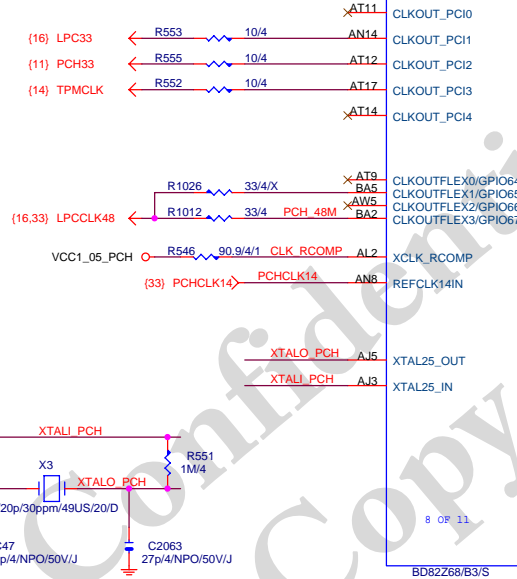
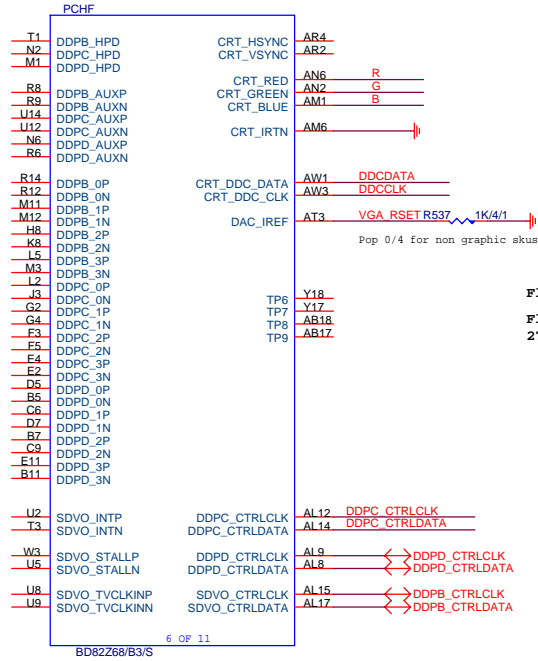
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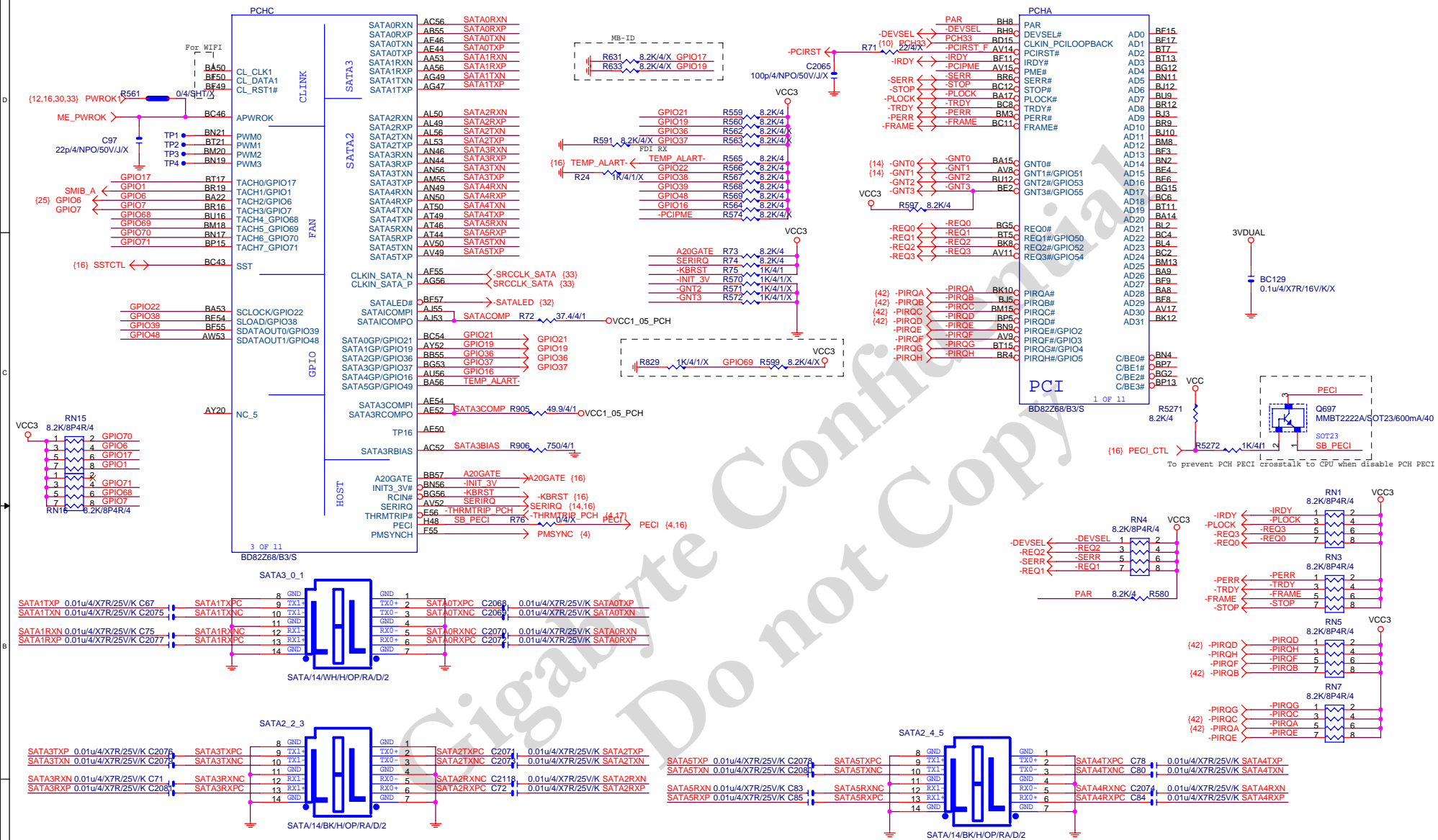
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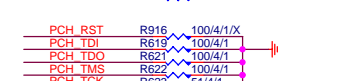
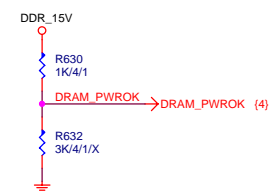
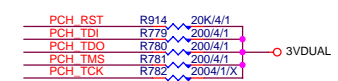
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Size			Document Number	
Custom			GA-Z68X-UD5-B3	
Date:			Thursday, April 28, 2011	Sheet 5 of 49
			Rev	1.01

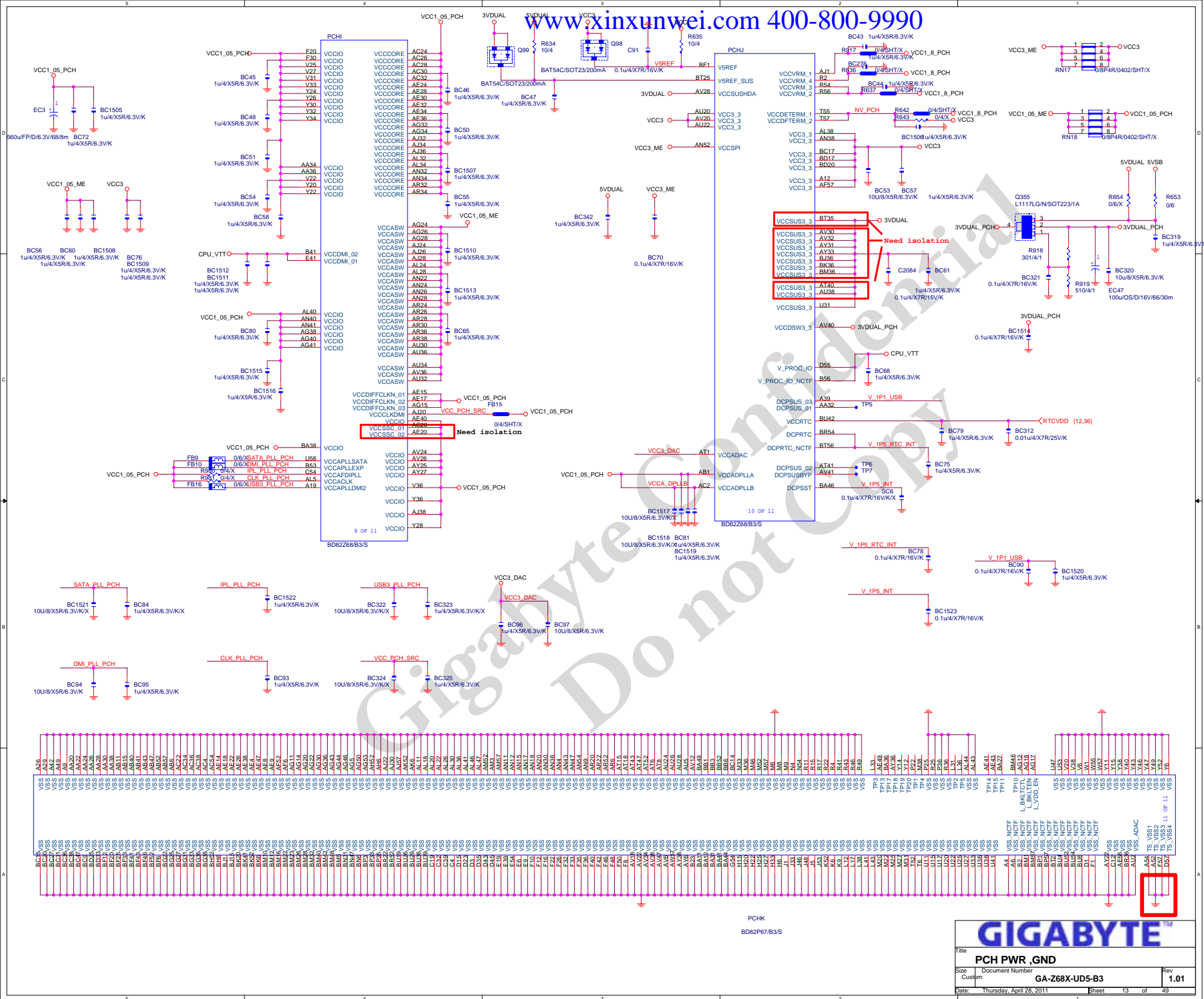


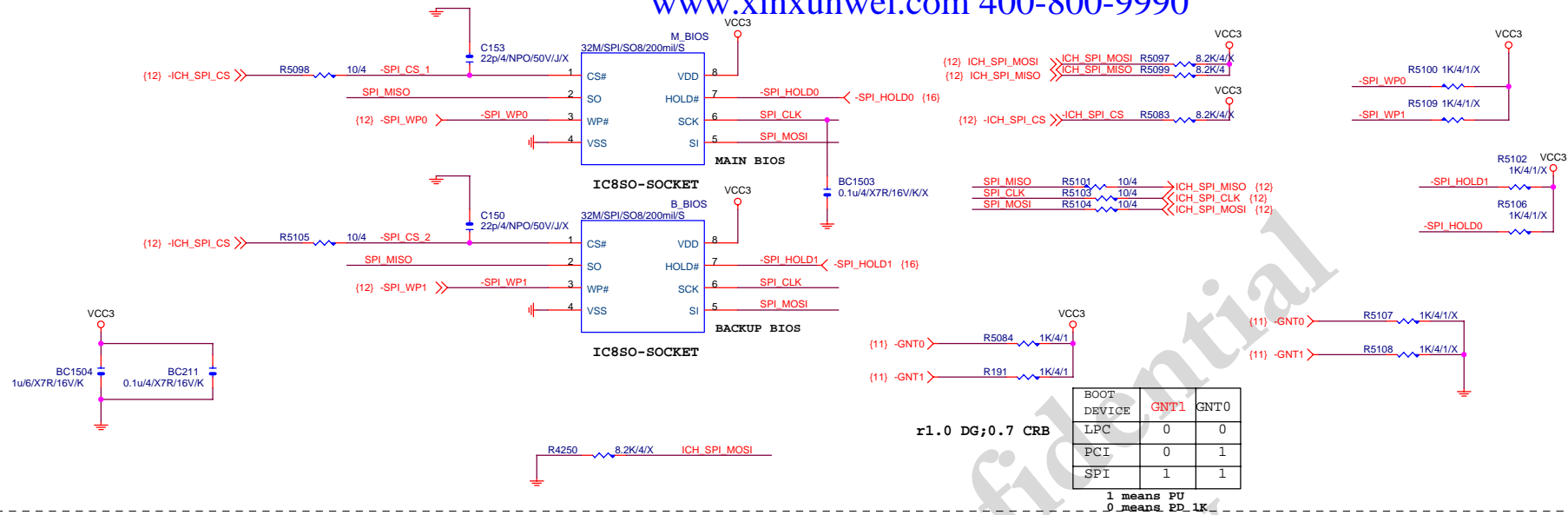




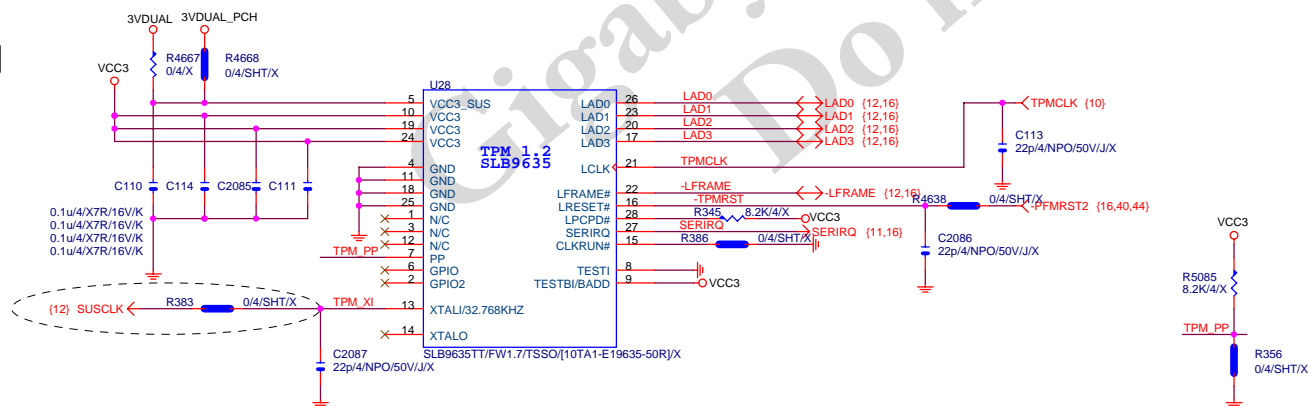








TPM



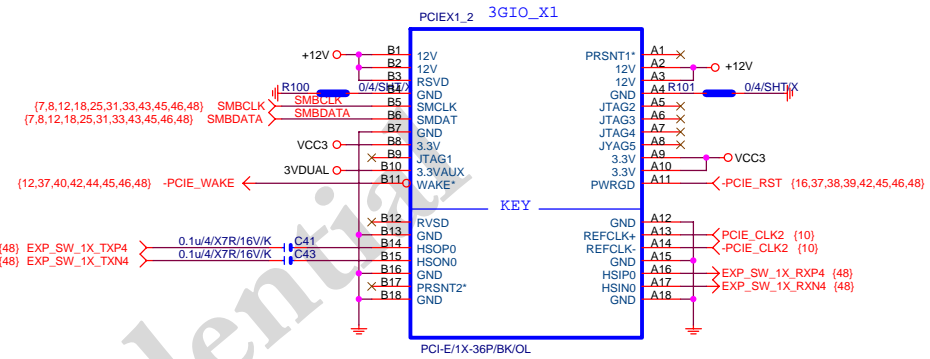
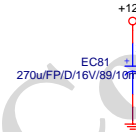
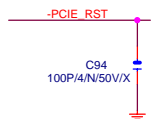
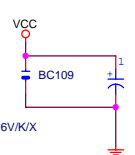
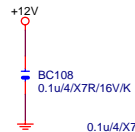
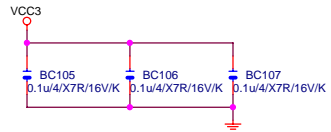
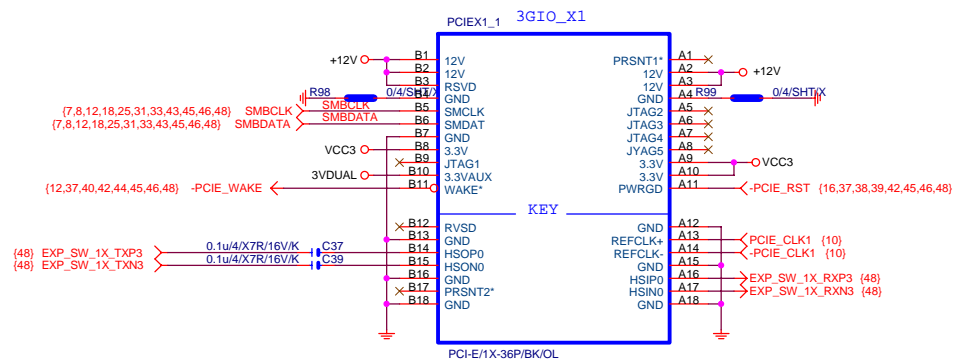
TPM Function

- 1.C110.C111.C114.C115
- 2.U28
- 3.R383.R345.R386.R356

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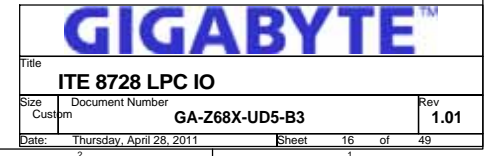
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Size Custom	Document Number GA-Z68X-UD5-B3	Rev 1.01
Date: Thursday, April 28, 2011	Sheet 14	of 49

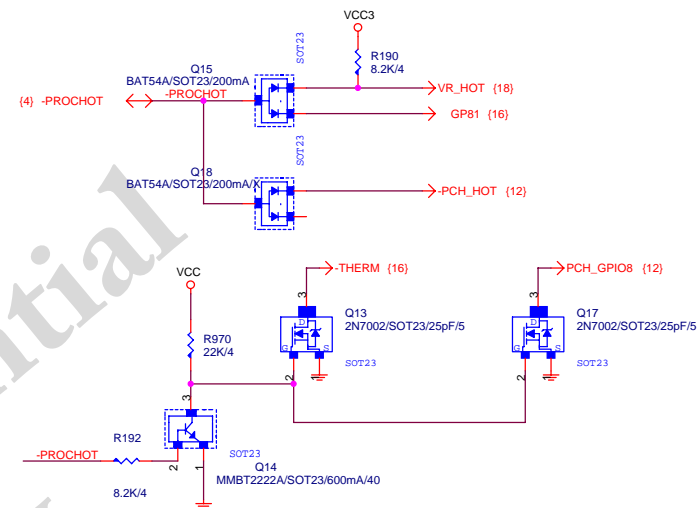
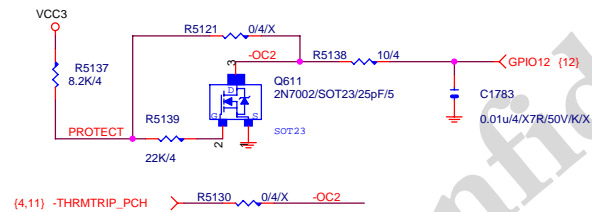
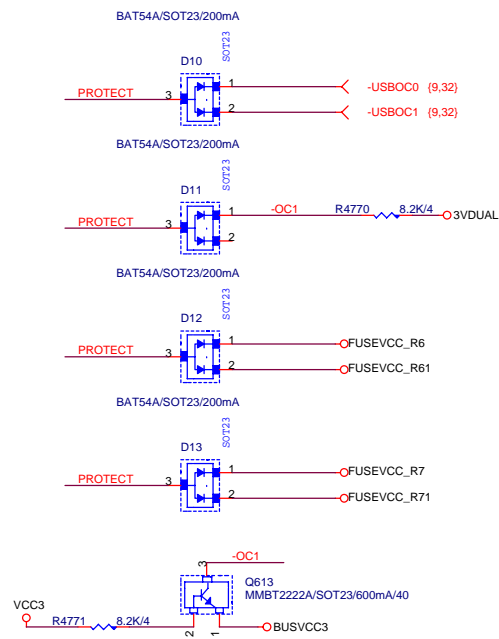
PCIE*1



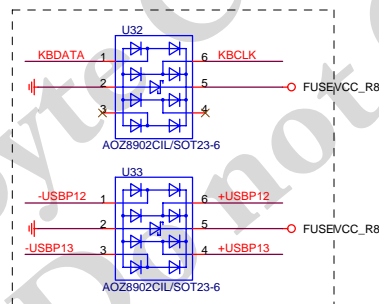
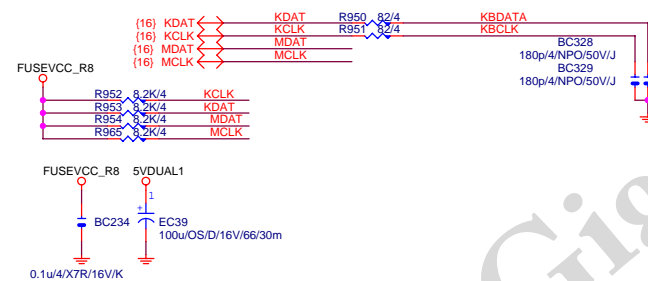
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Title PCIE*1 SLOTT 1 & 2		
Size Custom	Document Number GA-Z68X-UD5-B3	Rev 1.01
Date: Thursday, April 28, 2011	Sheet 15	of 49

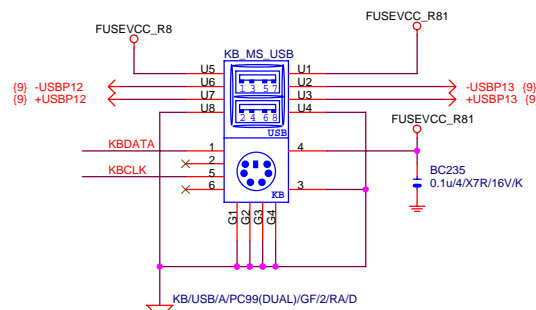
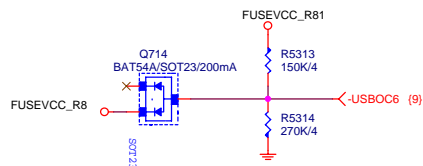
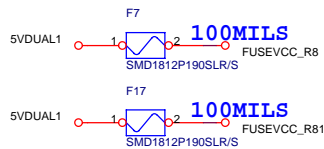
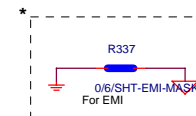




KB / MS



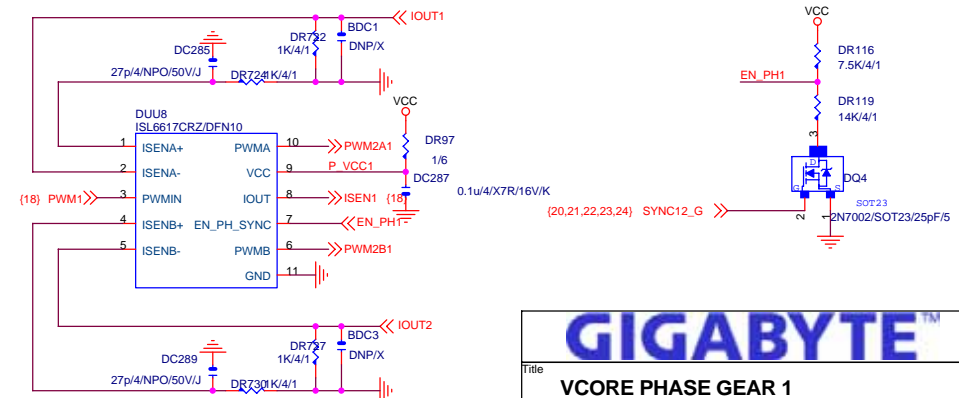
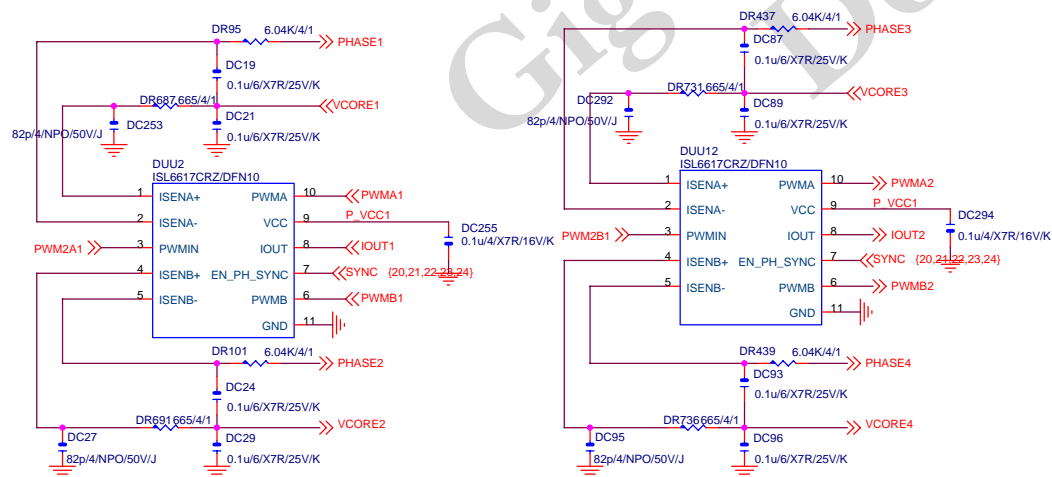
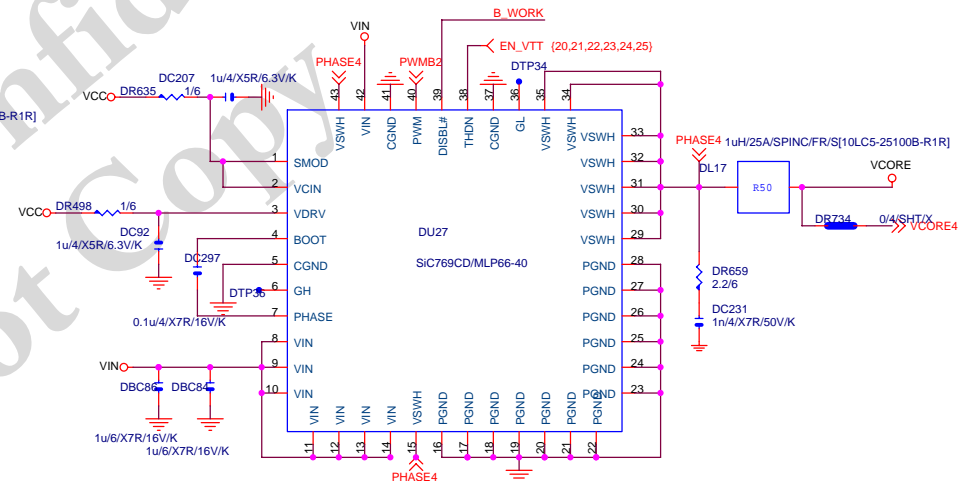
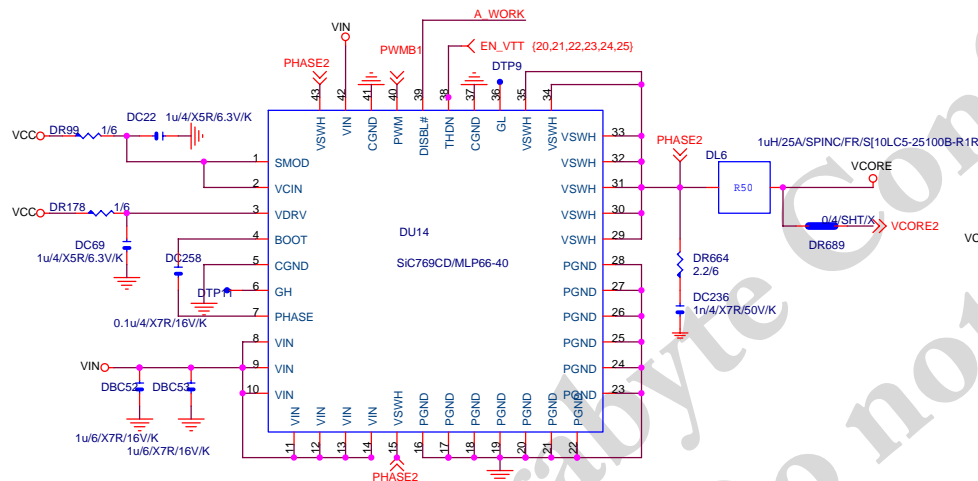
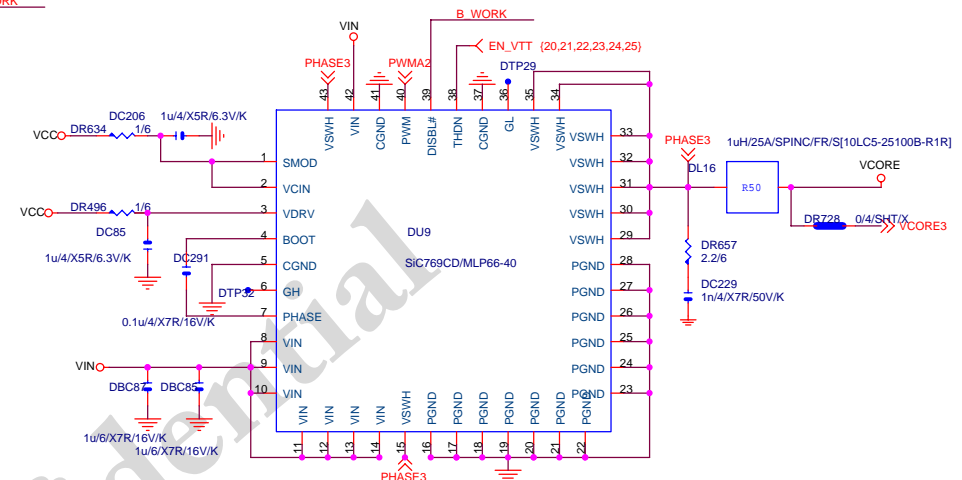
Close to connector



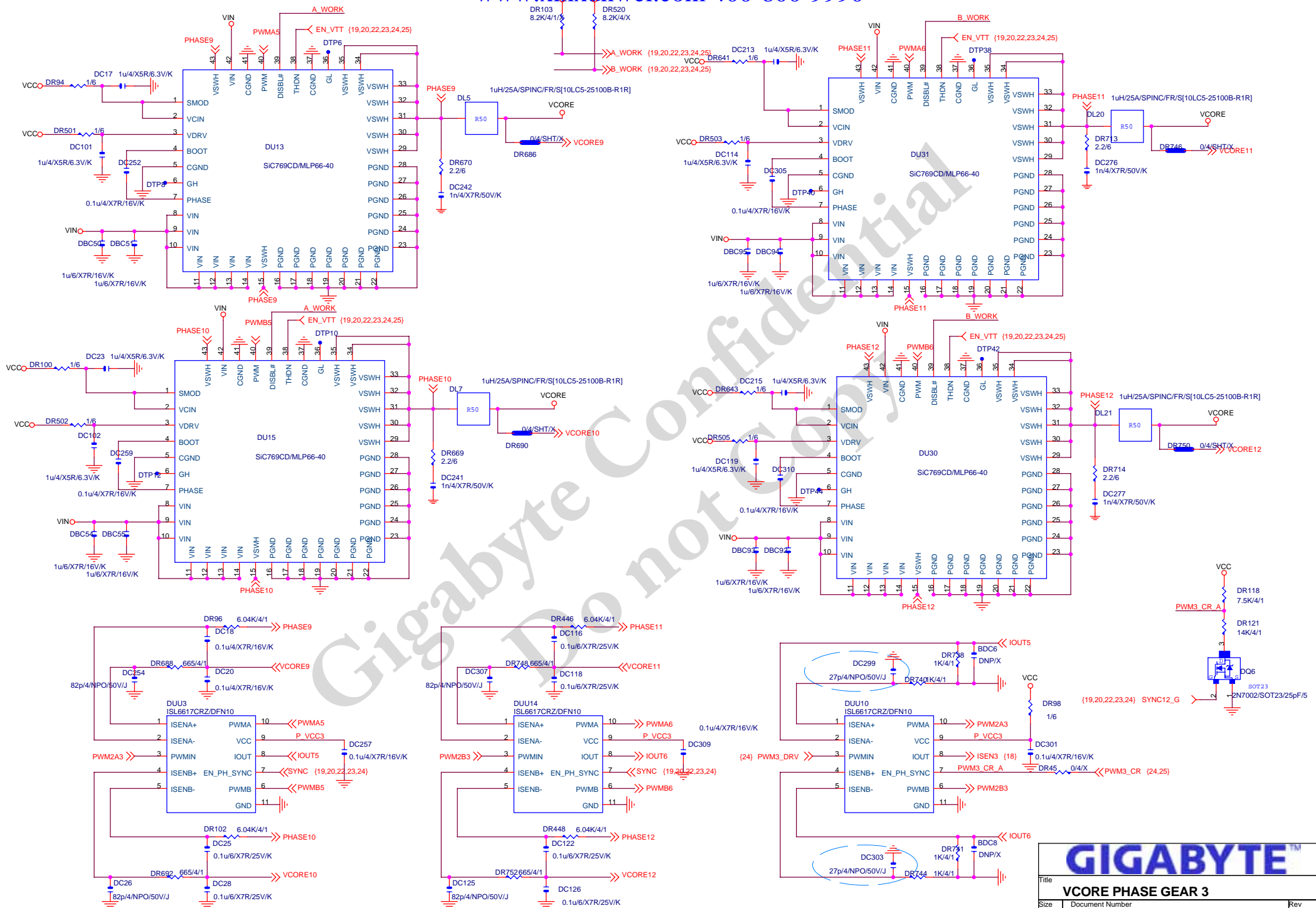
GIGABYTE™

Title			KB_USB3, -PROHOT, OC PROTECT
Size	Document Number	Rev	1.01
Custom	GA-Z68X-UD5-B3		
Date:	Thursday, April 28, 2011	Sheet	17 of 49

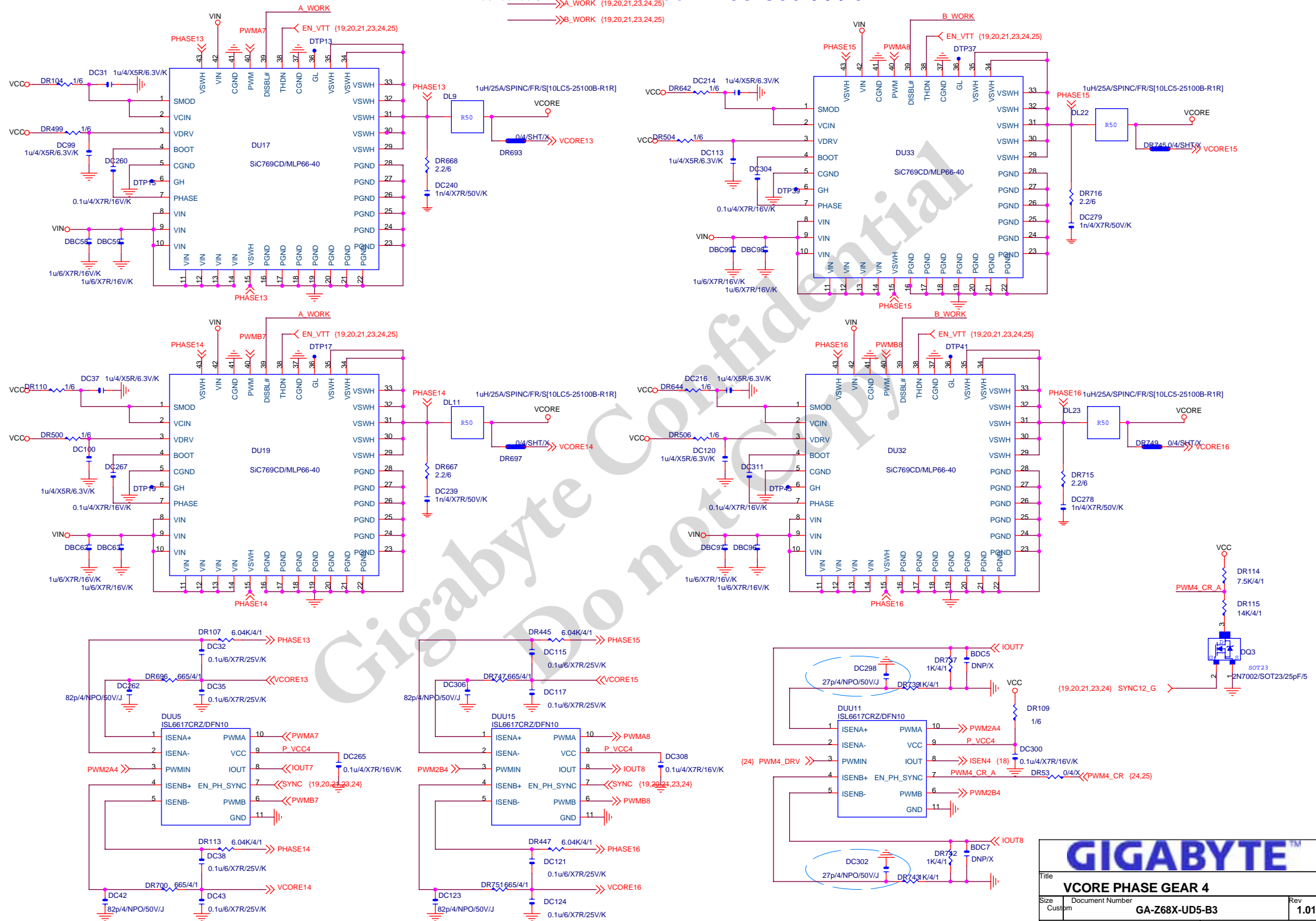




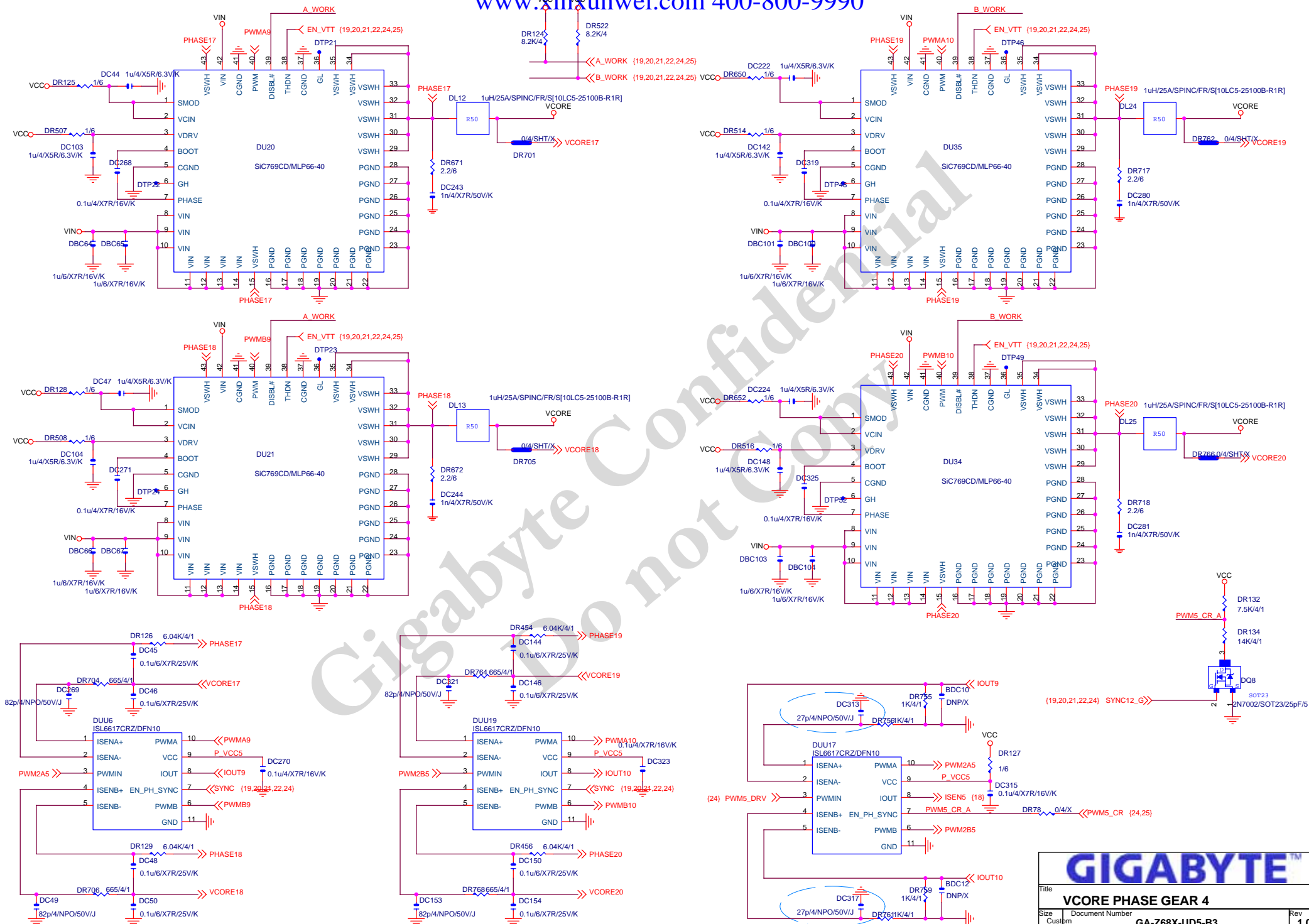


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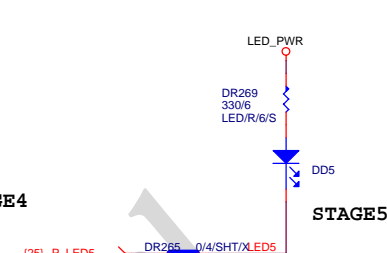
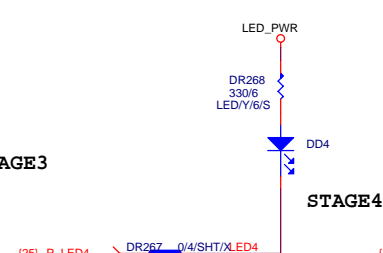
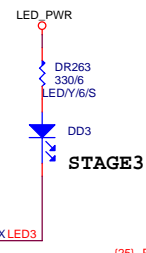
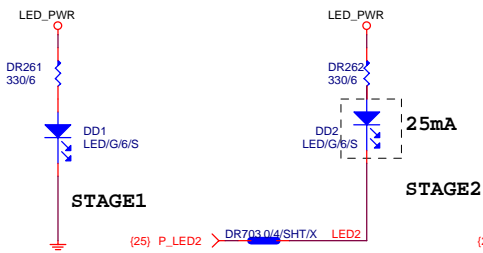
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VCORE PHASE GEAR 3			
Size	Document Number		Rev
Custom	GA-Z68X-UD5-B3		1.01
Date:	Thursday, April 28, 2011	Sheet	21 of 49

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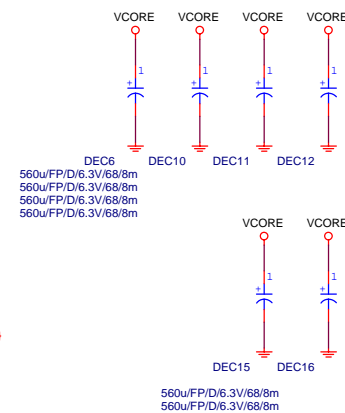
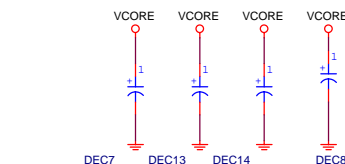
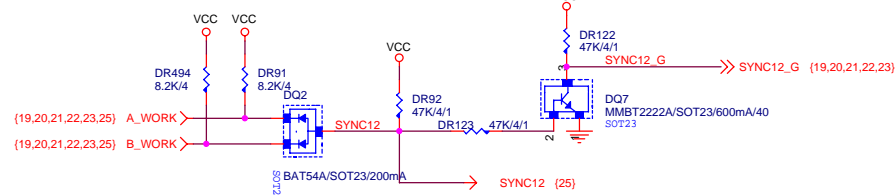
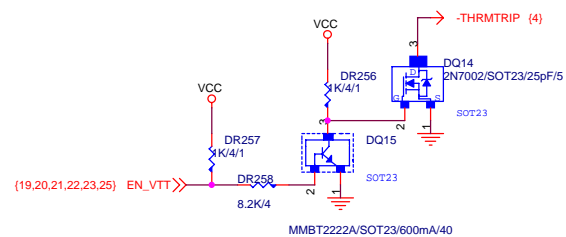
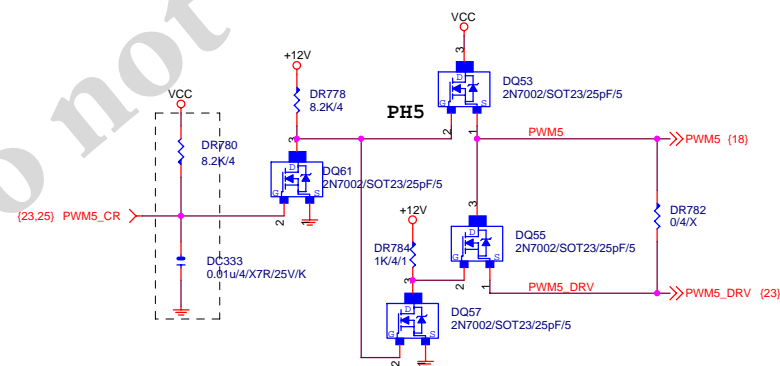
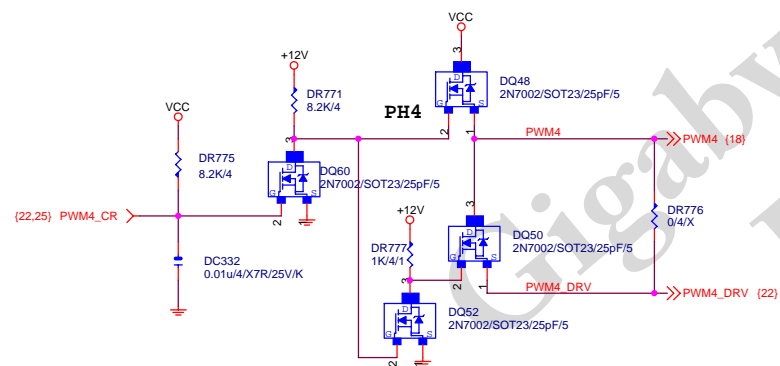
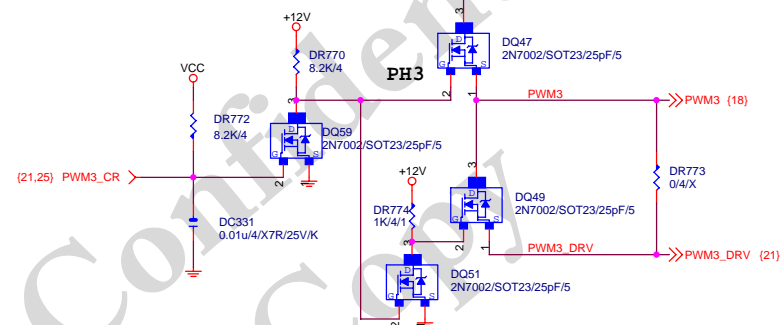
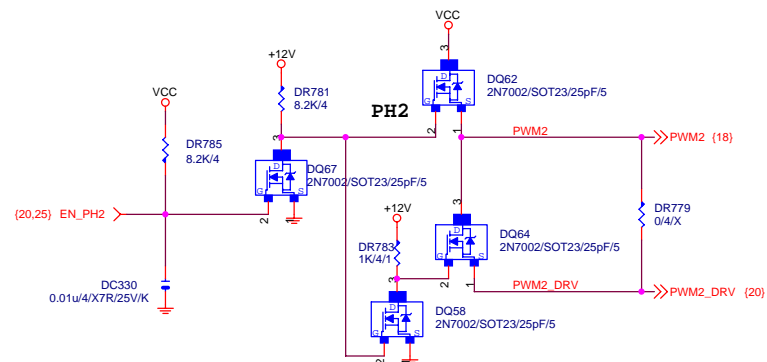
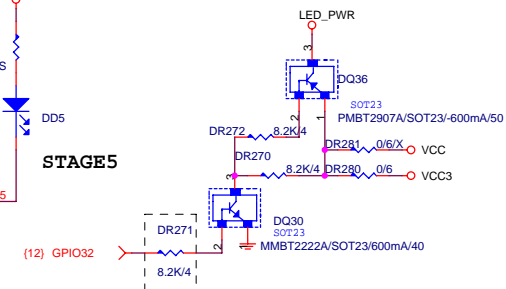
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Title	Document Number	Rev
Size	GA-Z68X-UD5-B3	1.01
Custm		
Date:	Thursday, April 28, 2011	Sheet 22 of 49



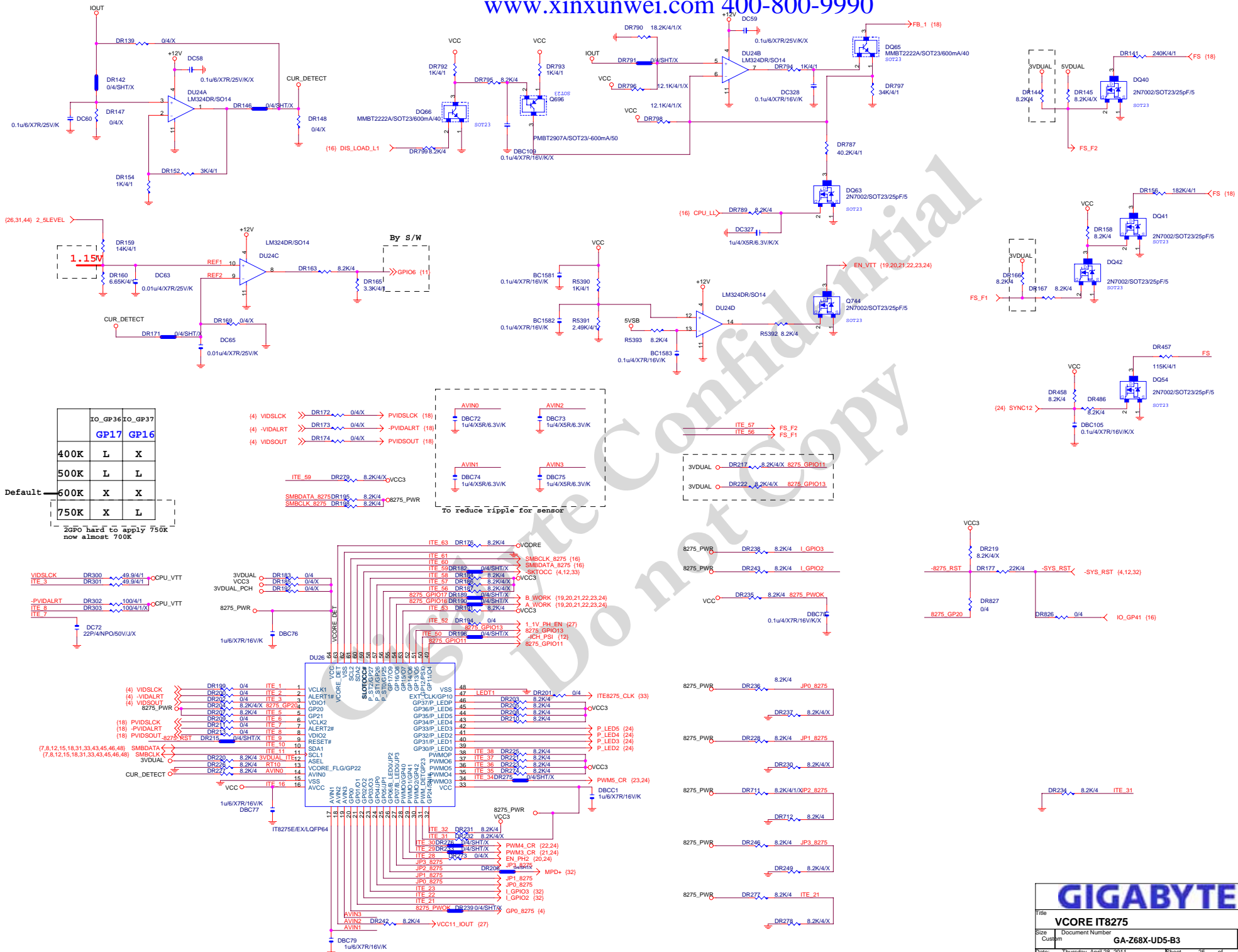
PHASE LED



LED POWER

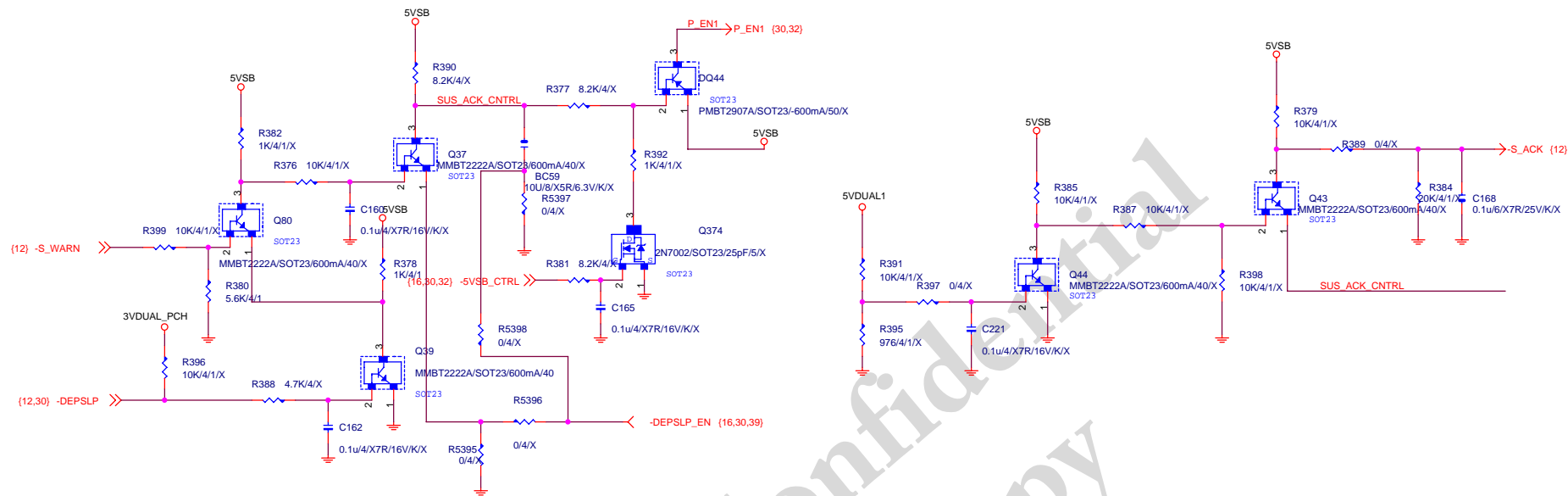


GIGABYTE™			
Title: VCORE PHASE CONTROL			
Size: Custom	Document Number: GA-Z68X-UD5-B3	Rev: 1.01	
Date: Thursday, April 28, 2011	Sheet: 24	of 49	

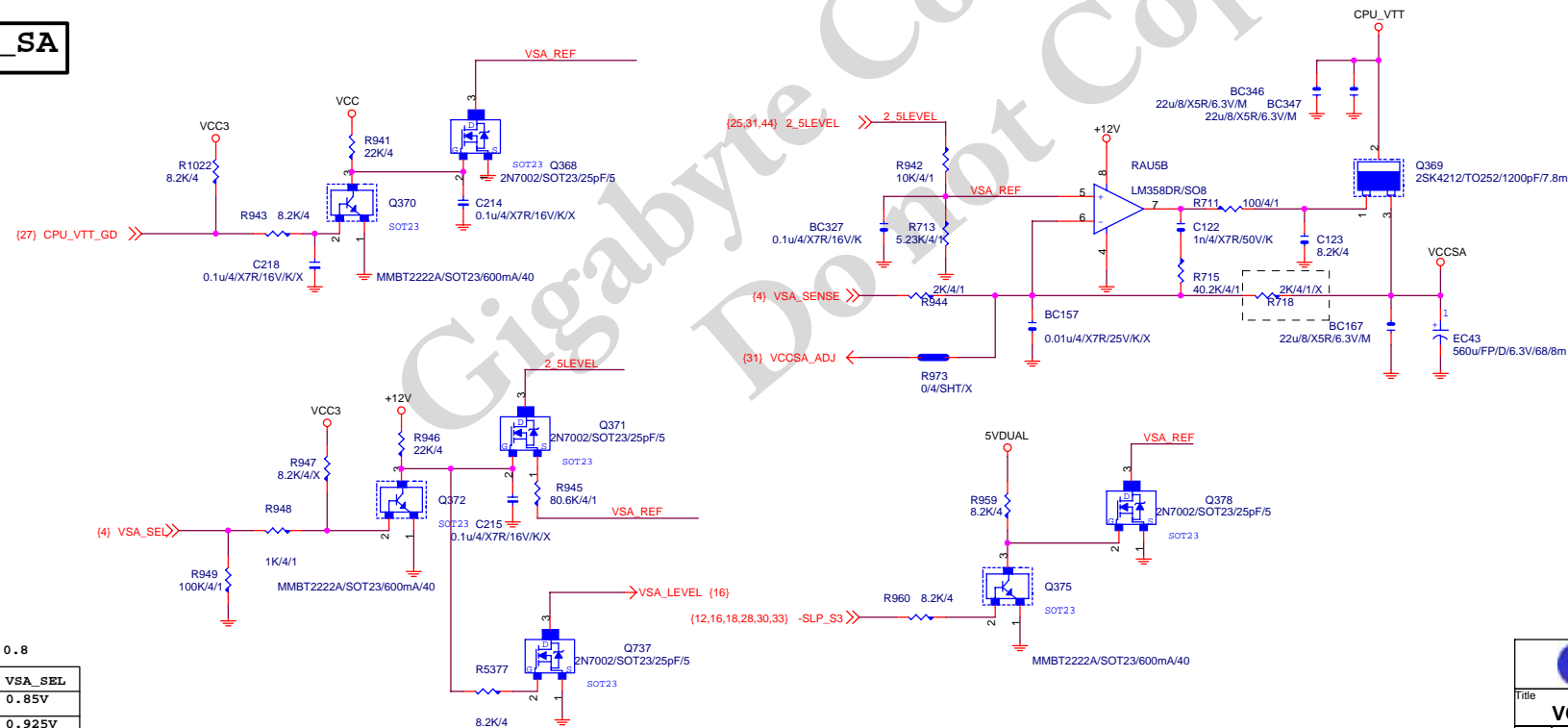


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File	VCORE IT8275	Rev	1.01
Size	Document Number	GA-Z68X-UD5-B3	
Custom			
Date	Thursday, April 28, 2011	Sheet	25 of 49



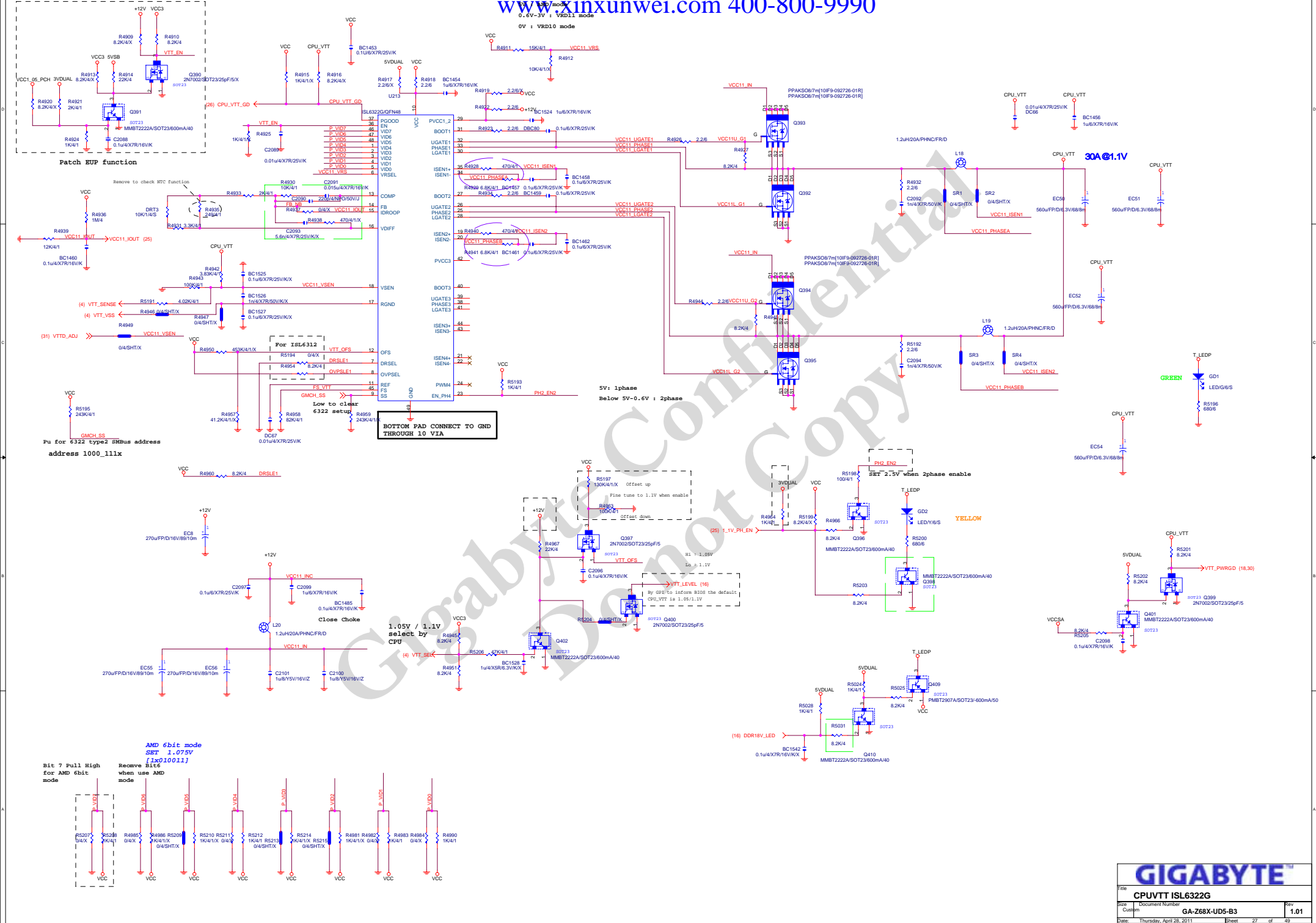
VCC_SA

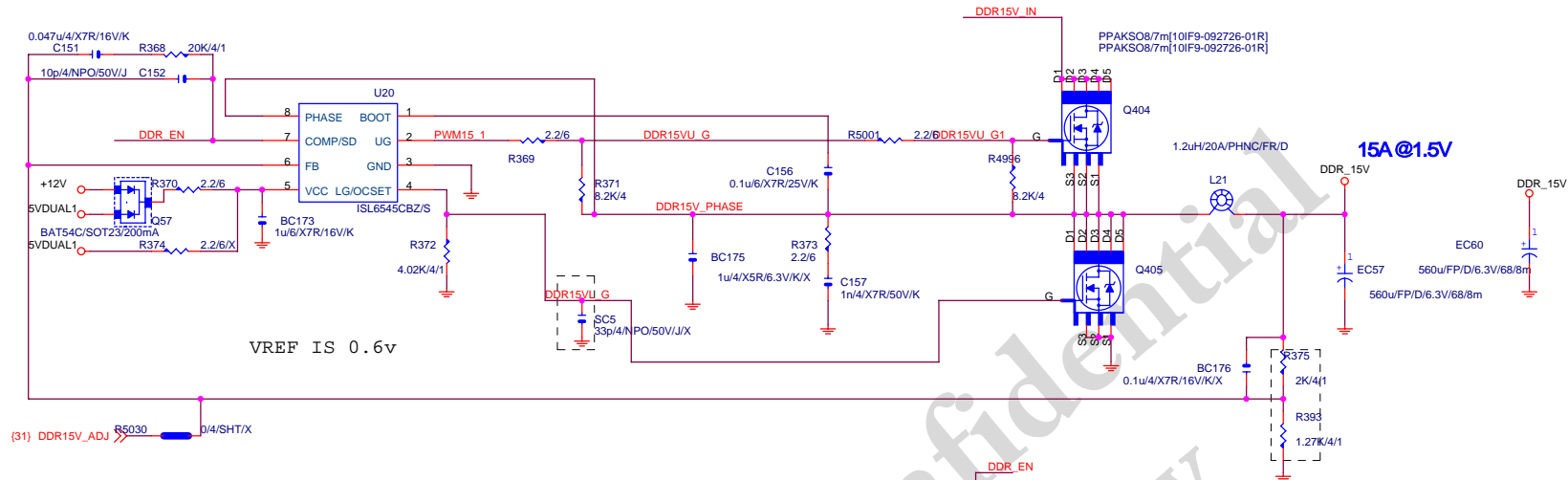


PDG 0.8

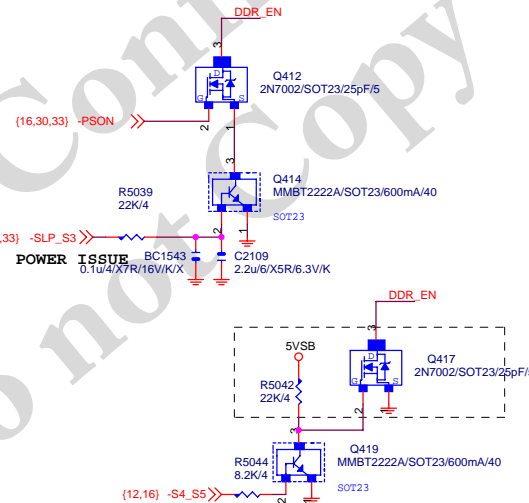
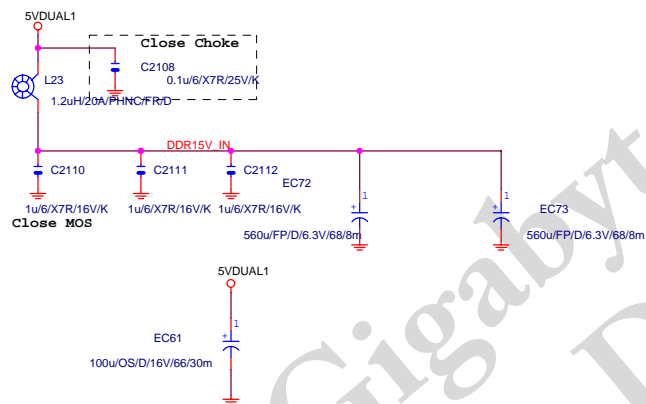
	VSA_SEL
HI	0.85V
LO	0.925V

GIGABYTE™		
Title VCCSA POWER		
Size Custom	Document Number GA-Z68X-UD5-B3	Rev 1.01
Date: Thursday, April 28, 2011	Sheet 26	of 49

0.6V-3V : VRD11 mode
0V : VRD10 mode

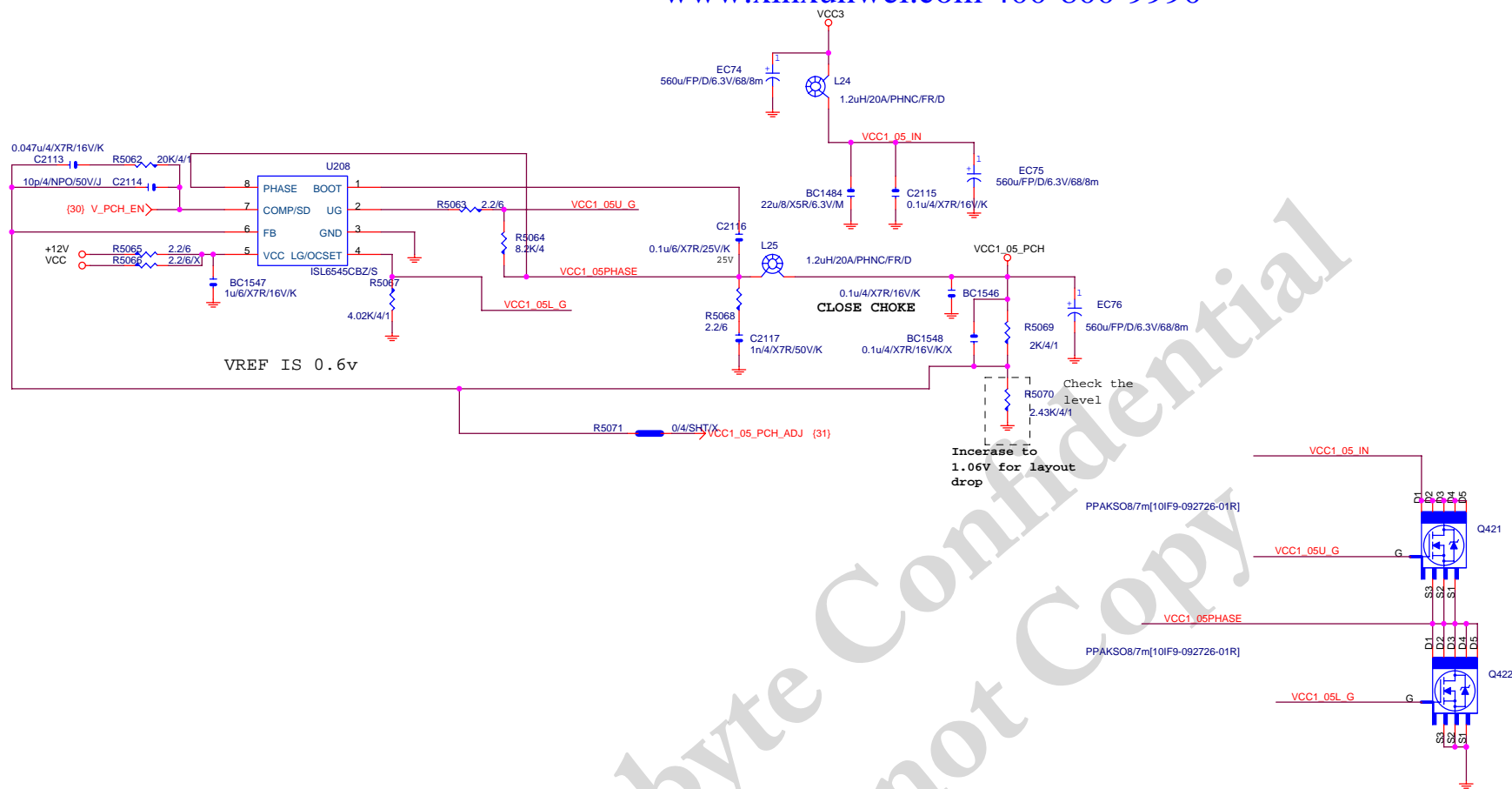


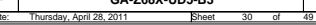
For ISL 6322

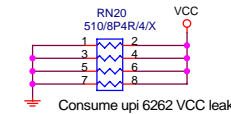
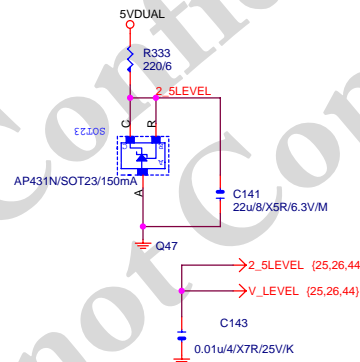
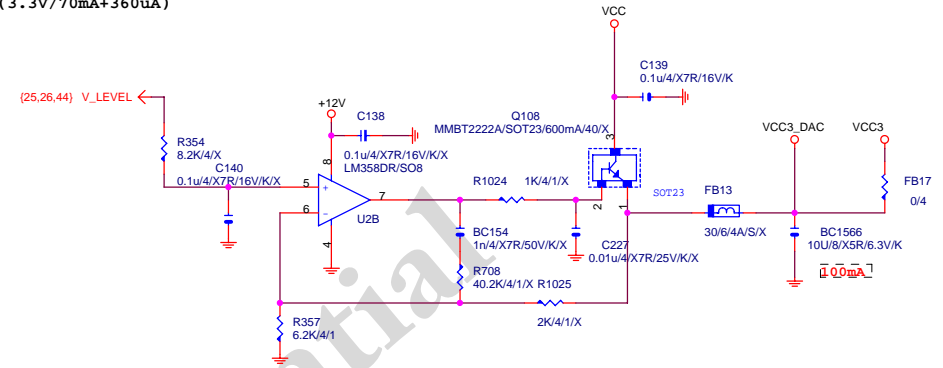


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Title	DDR POWER ISL6545		
Size	Document Number	Rev	
Custom	GA-Z68X-UD5-B3	1.01	
Date:	Thursday, April 28, 2011	Sheet	28 of 49

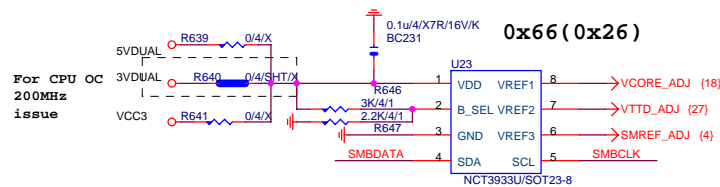
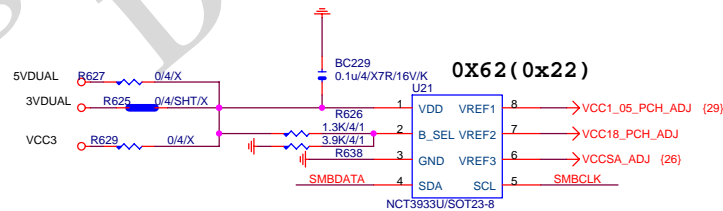


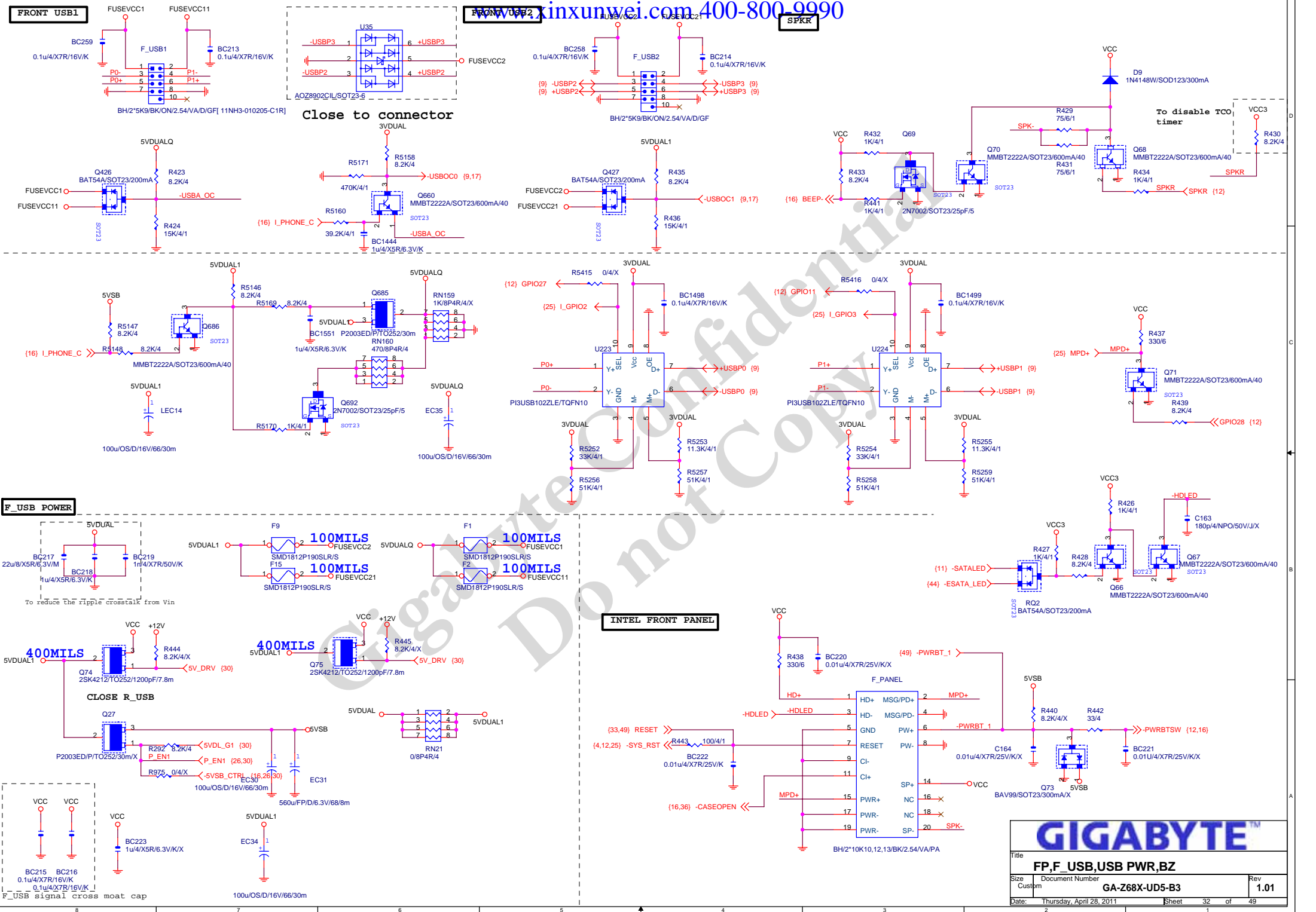


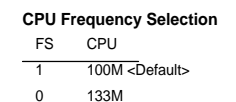


SMBCLK <—> SMBCLK {7,8,12,15,18,25,33,43,45,46,48}

SMBDATA <—> SMBDATA {7,8,12,15,18,25,33,43,45,46,48}



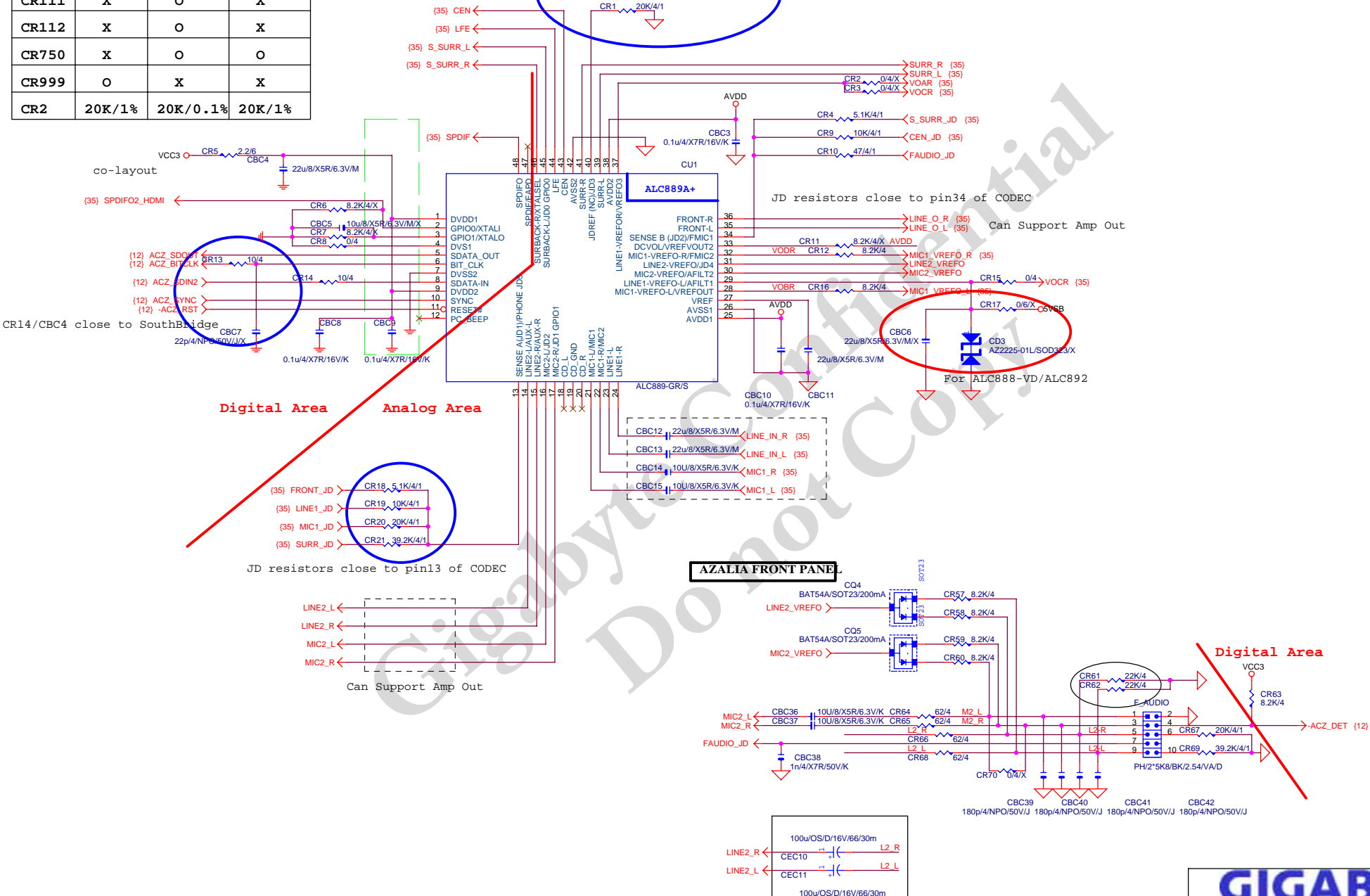




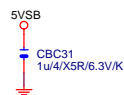
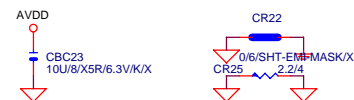
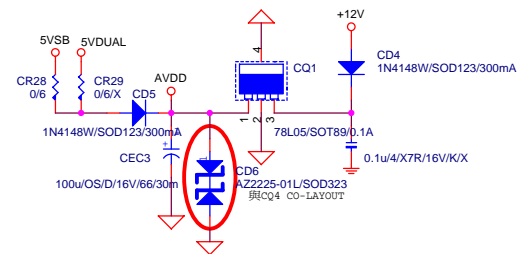
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Title			
ATX / CLOCK GEN			
Size	Document Number	Rev	
Custom	GA-Z68X-UD5-B3	1.01	
Date:	Thursday, April 28, 2011	Sheet	33 of 49

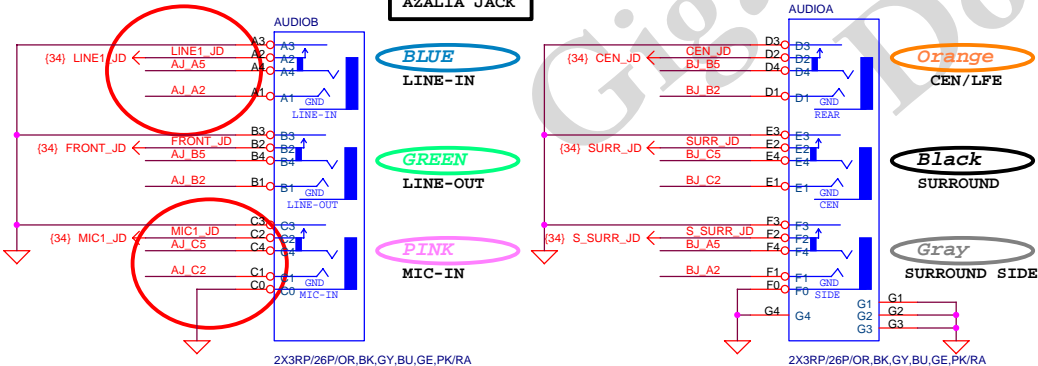
	ALC889A+	ALC889A	ALC888Vx
CR111	X	O	X
CR112	X	O	X
CR750	X	O	O
CR999	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%



CODEC POWER/EMI PAD

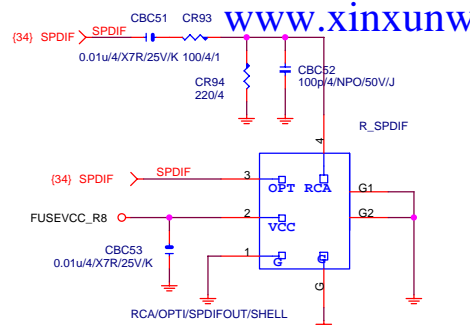


AZALIA JACK

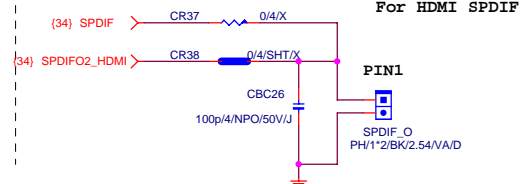


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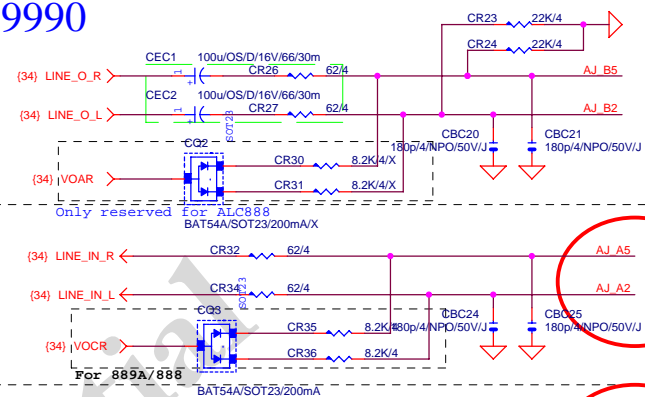
LINE-OUT



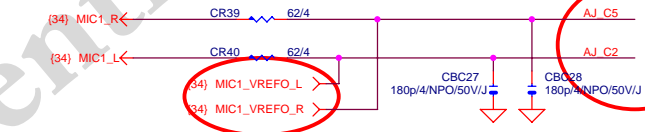
For HDMI SPDIF



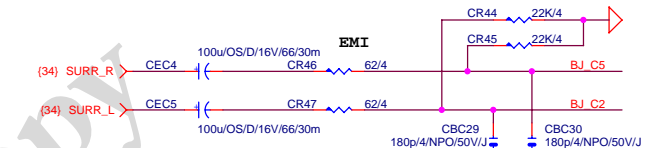
LINE-IN



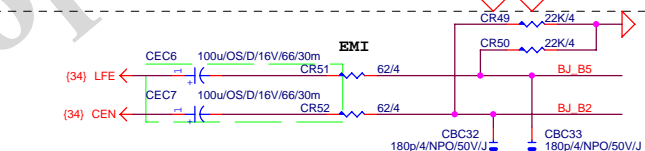
MIC-IN



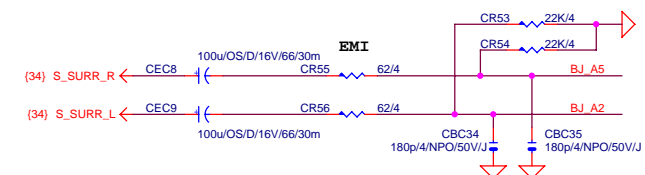
SURROUND



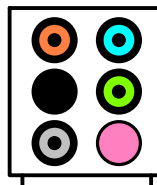
CEN/LFE



SURR BACK



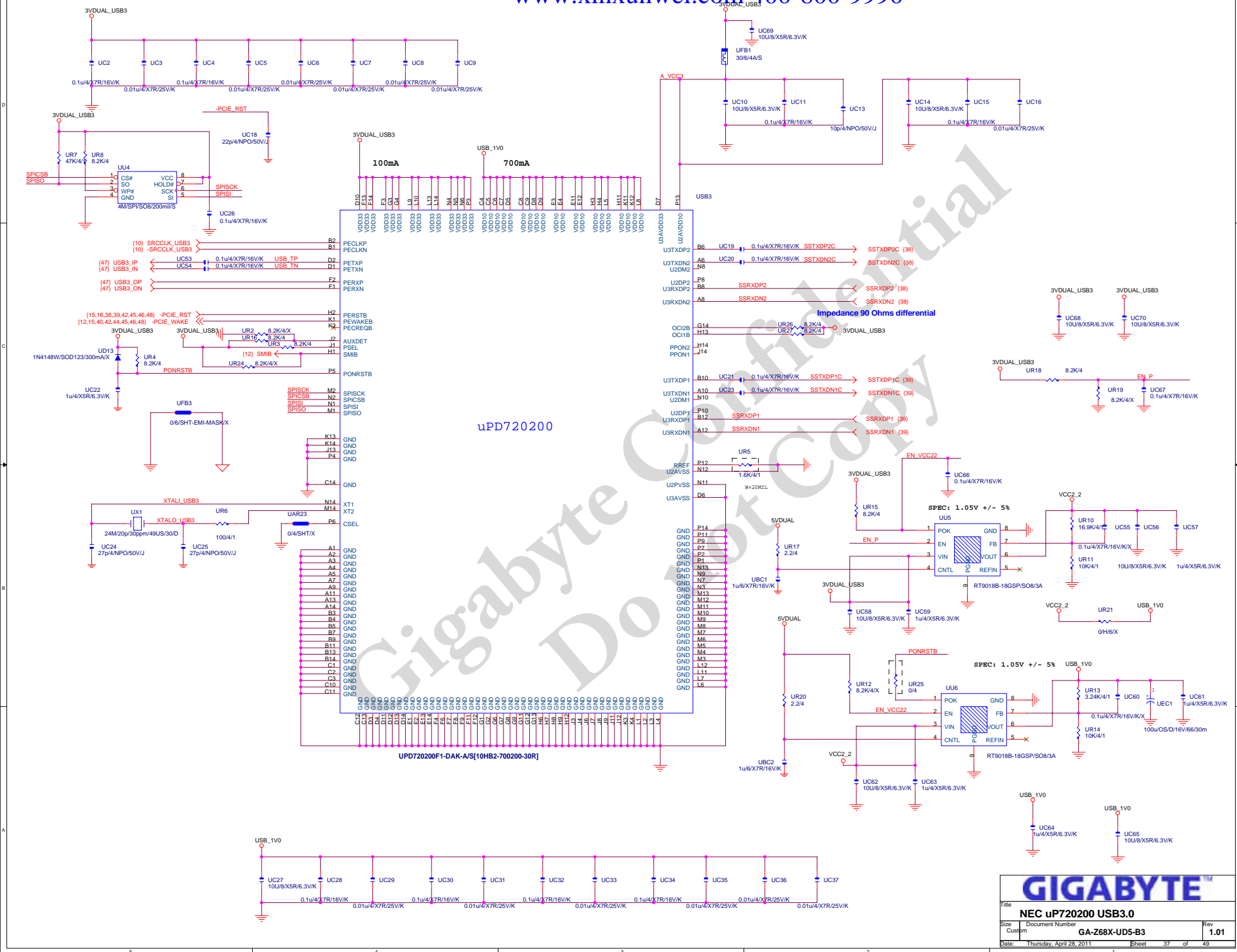
BTX AZALIA CONNECTOR

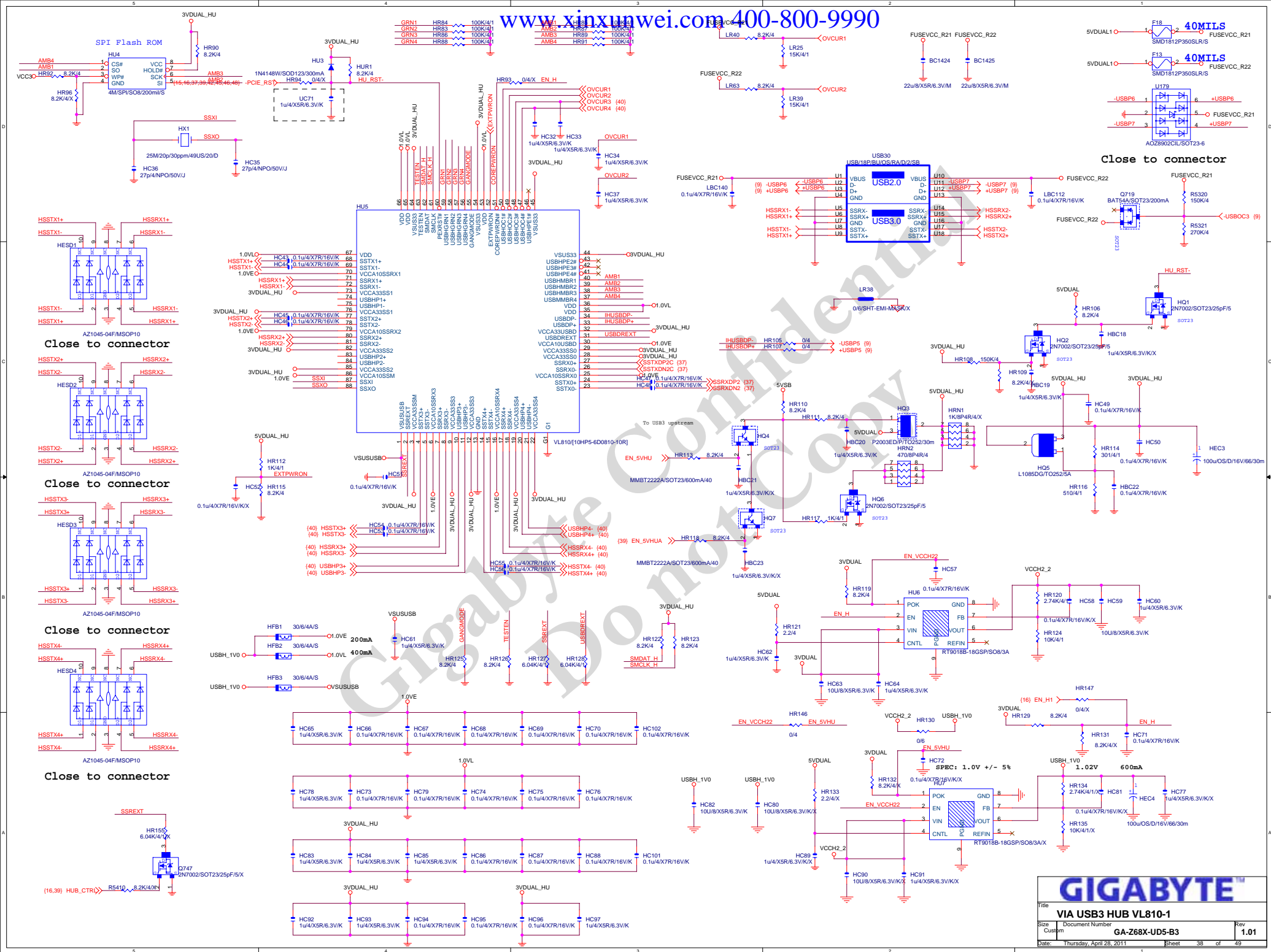


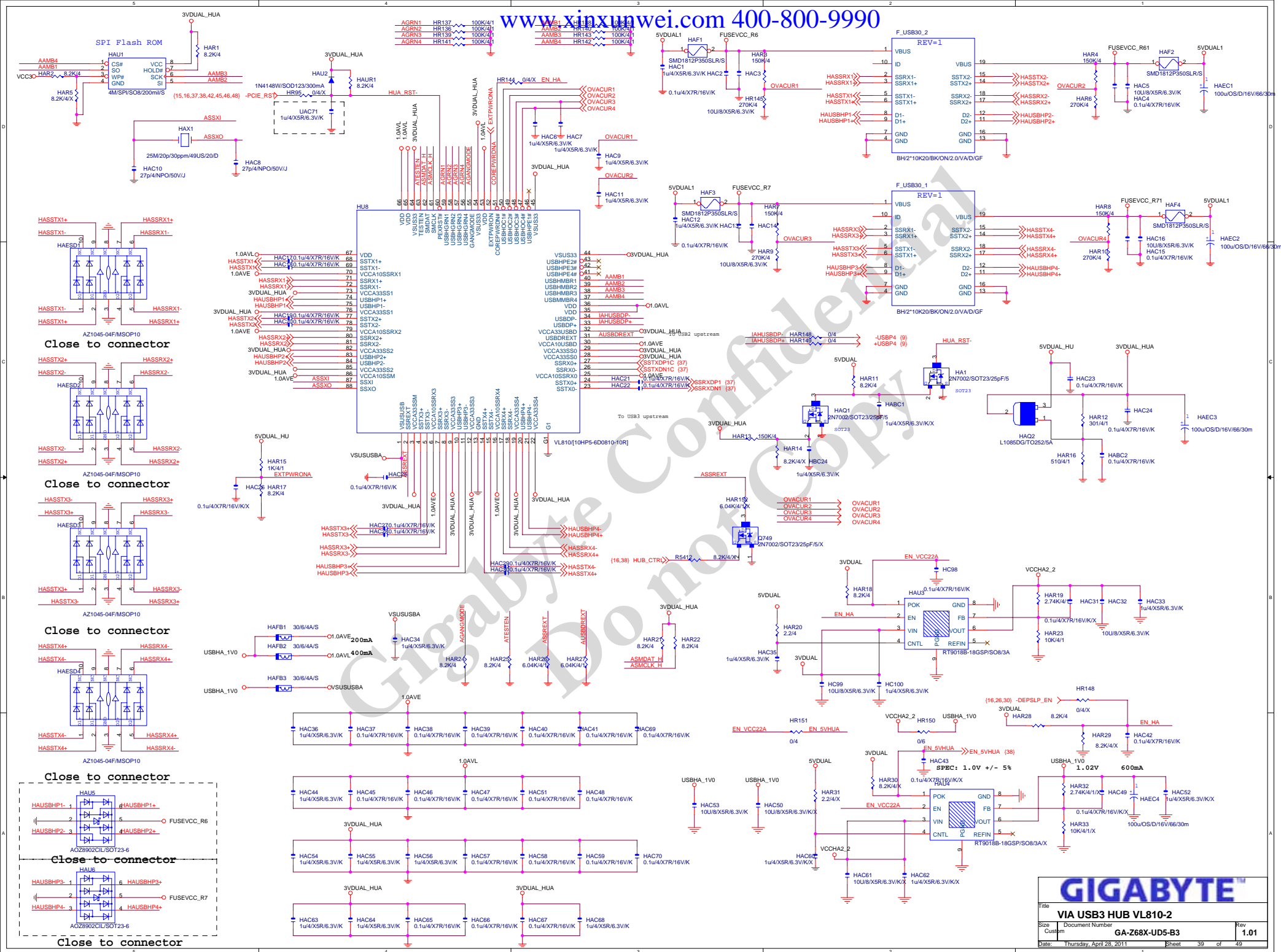
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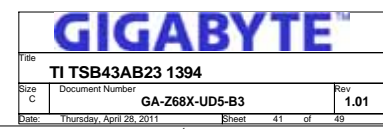
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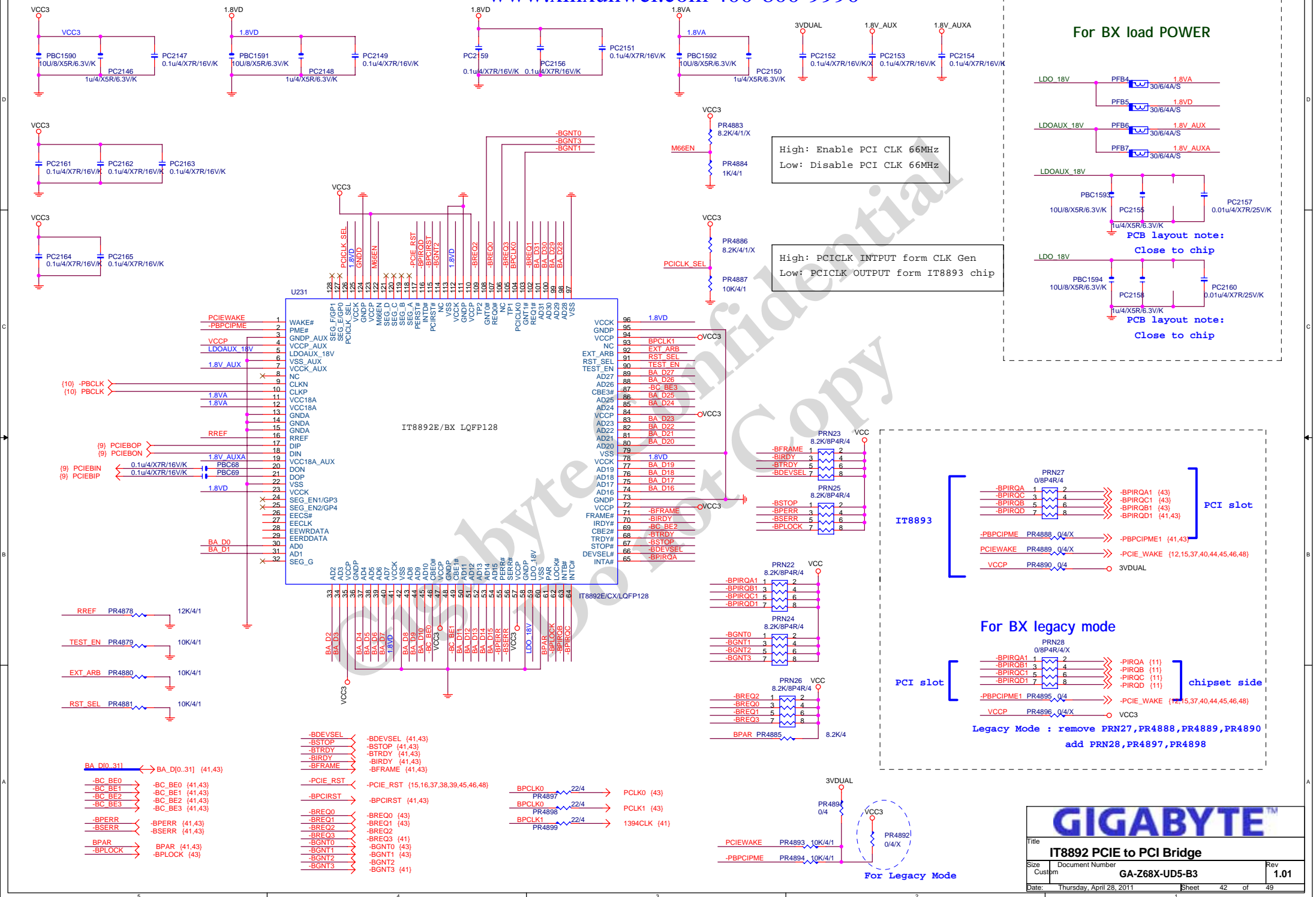
Title AUDIO JACK		
Size Custom	Document Number GA-Z68X-UD5-B3	Rev 1.01
Date: Thursday, April 28, 2011	Sheet 35	of 49

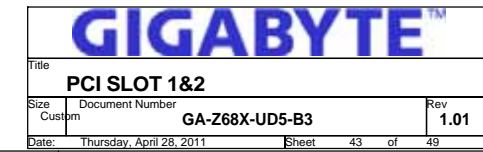




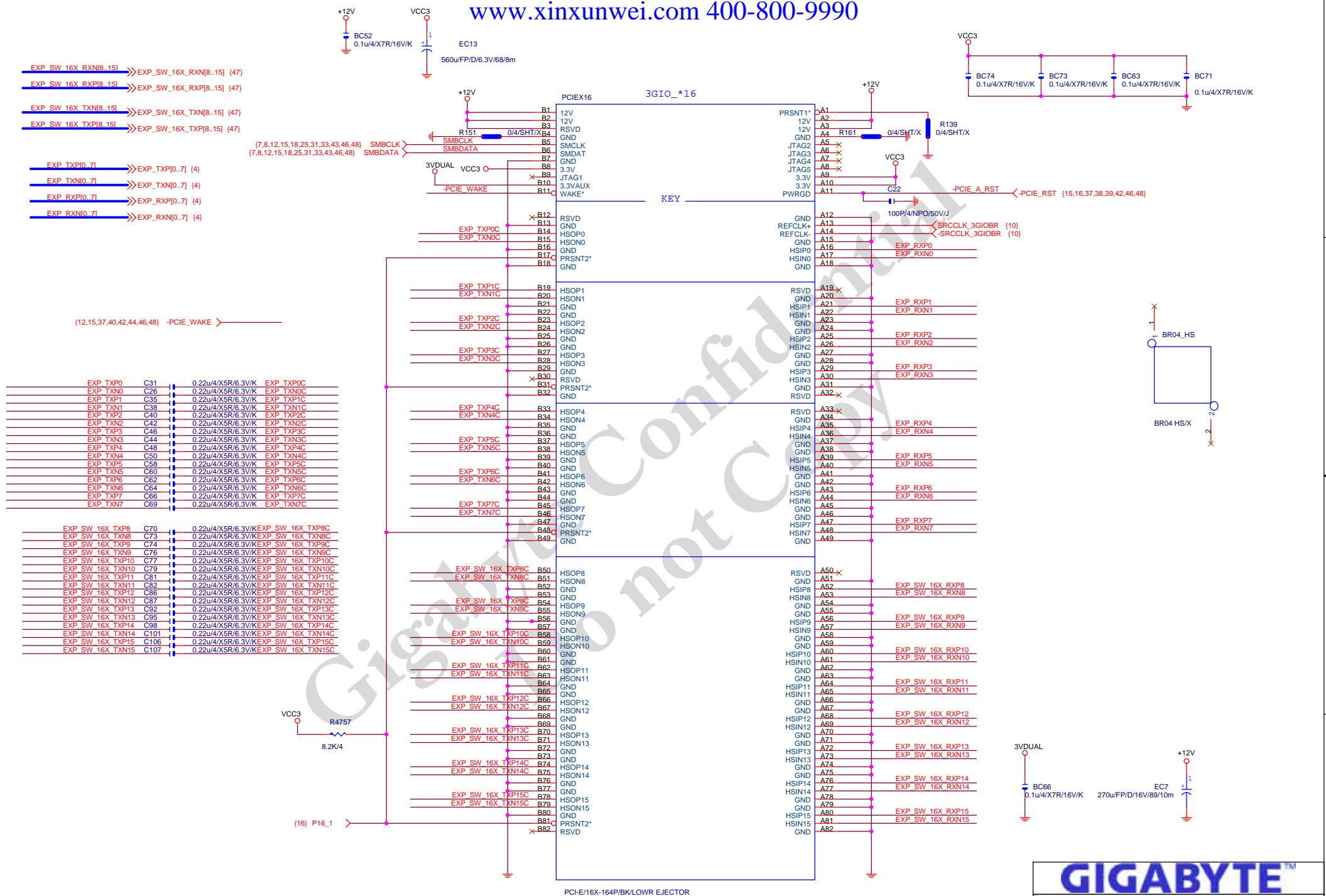


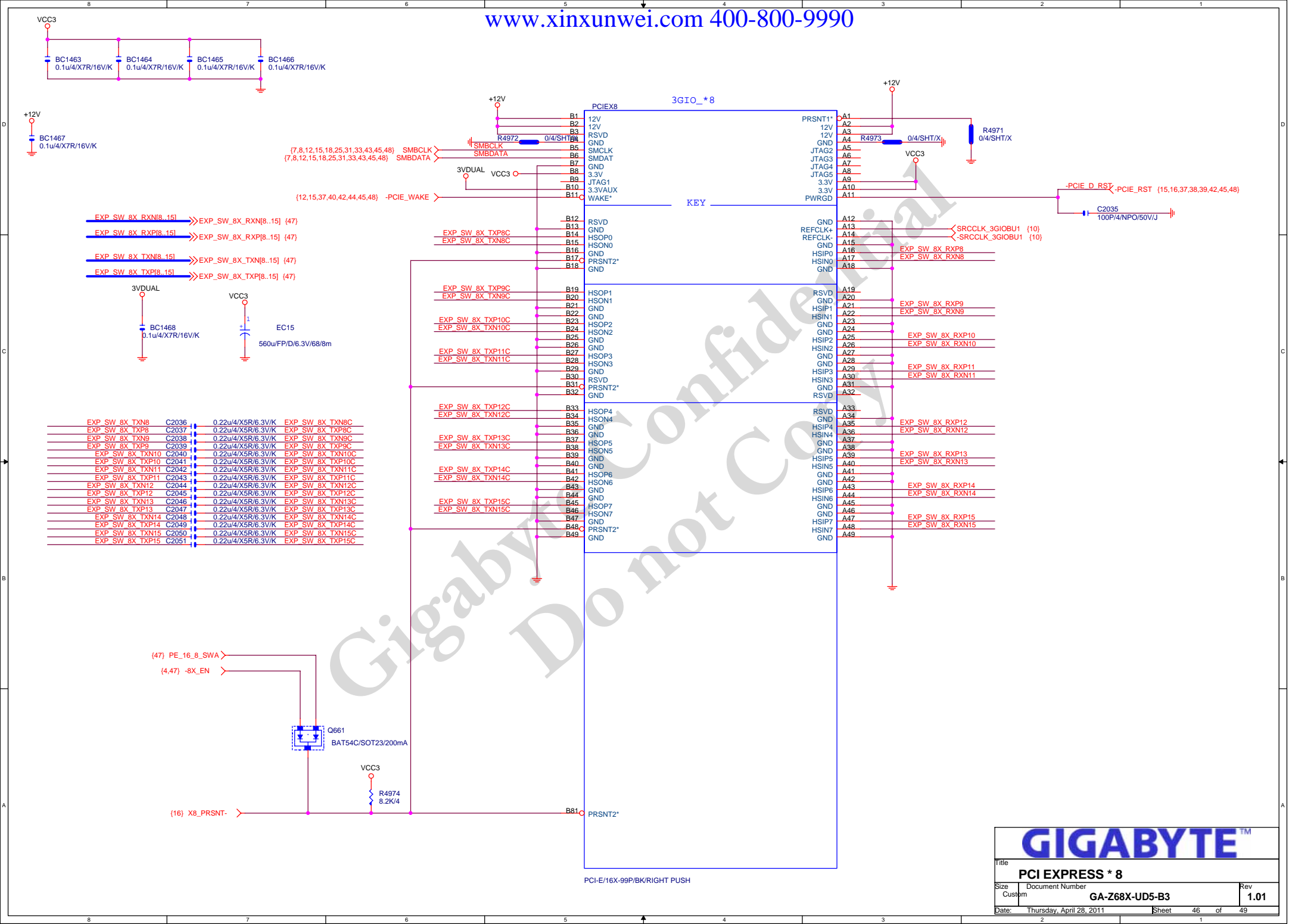


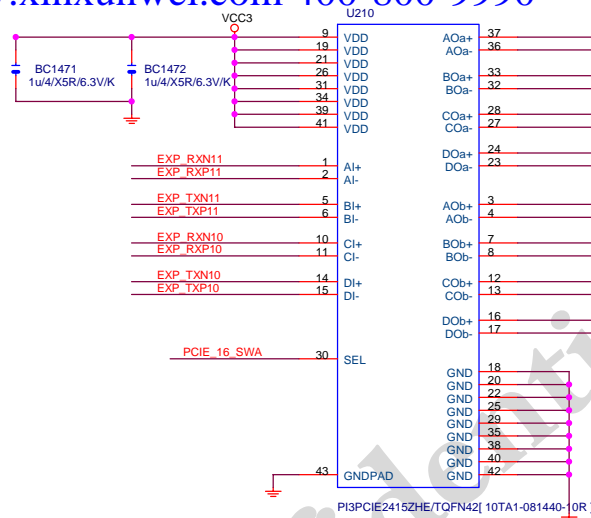
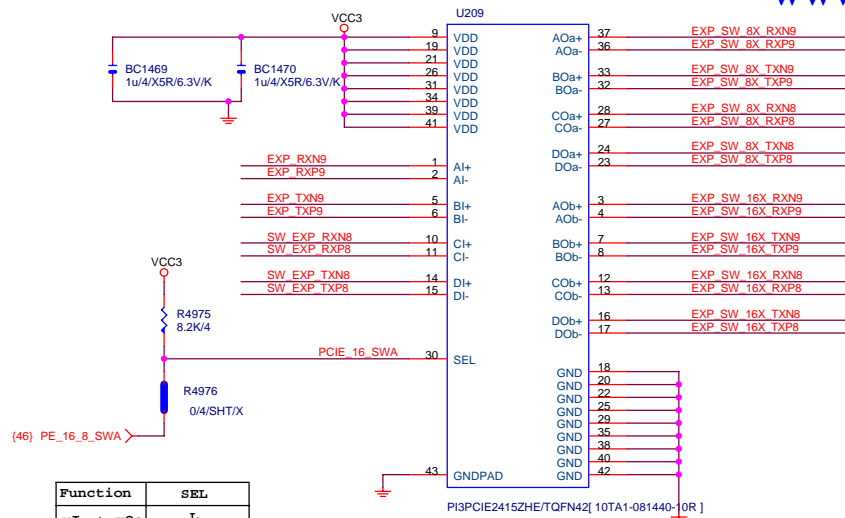




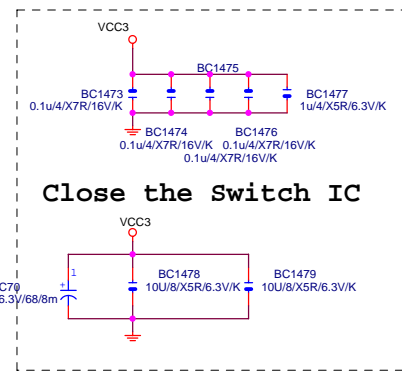
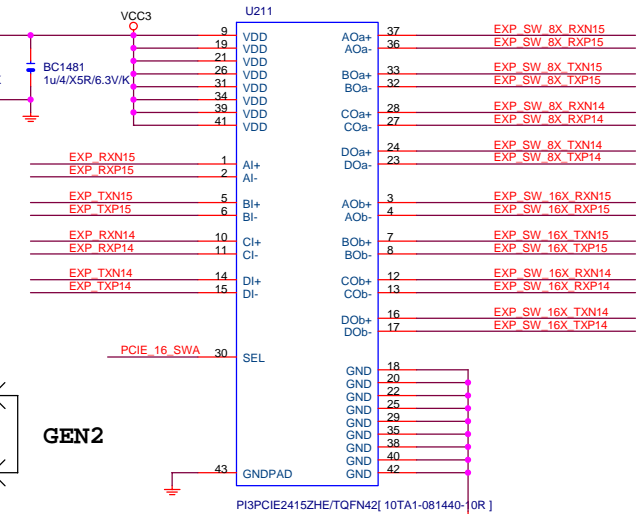
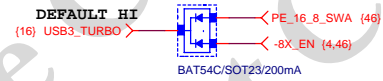
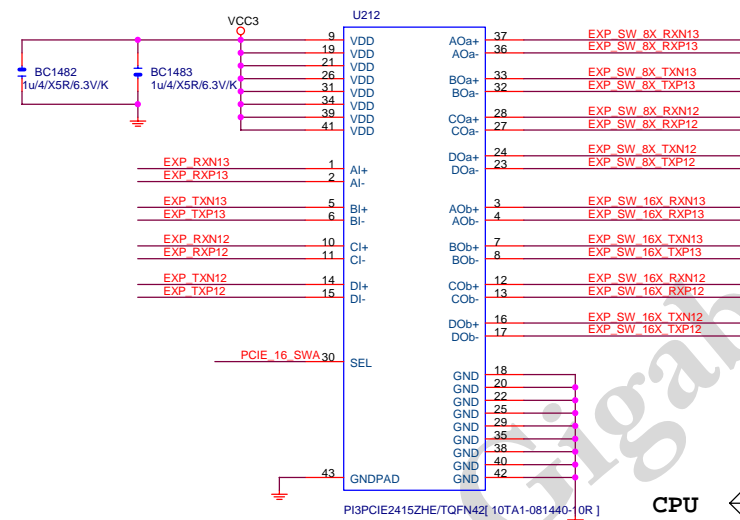








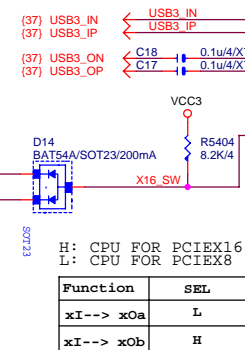
EXP SW 16X RXN8.15] >>> EXP_SW_16X_RXN[8.15] (45)
 EXP SW 16X RXP8.15] >>> EXP_SW_16X_RXP[8.15] (45)
 EXP SW 16X TXN8.15] >>> EXP_SW_16X_TXN[8.15] (45)
 EXP SW 16X TXP8.15] >>> EXP_SW_16X_TXP[8.15] (45)
 EXP SW 8X RXN8.15] >>> EXP_SW_8X_RXN[8.15] (46)
 EXP SW 8X RXP8.15] >>> EXP_SW_8X_RXP[8.15] (46)
 EXP SW 8X TXN8.15] >>> EXP_SW_8X_TXN[8.15] (46)
 EXP SW 8X TXP8.15] >>> EXP_SW_8X_TXP[8.15] (46)
 EXP TXP8.15] >>> EXP_TXP[8.15] (4)
 EXP TXN8.15] >>> EXP_TXN[8.15] (4)
 EXP RXP8.15] >>> EXP_RXP[8.15] (4)
 EXP RXN8.15] >>> EXP_RXN[8.15] (4)



CPU

USB3

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



GEN2

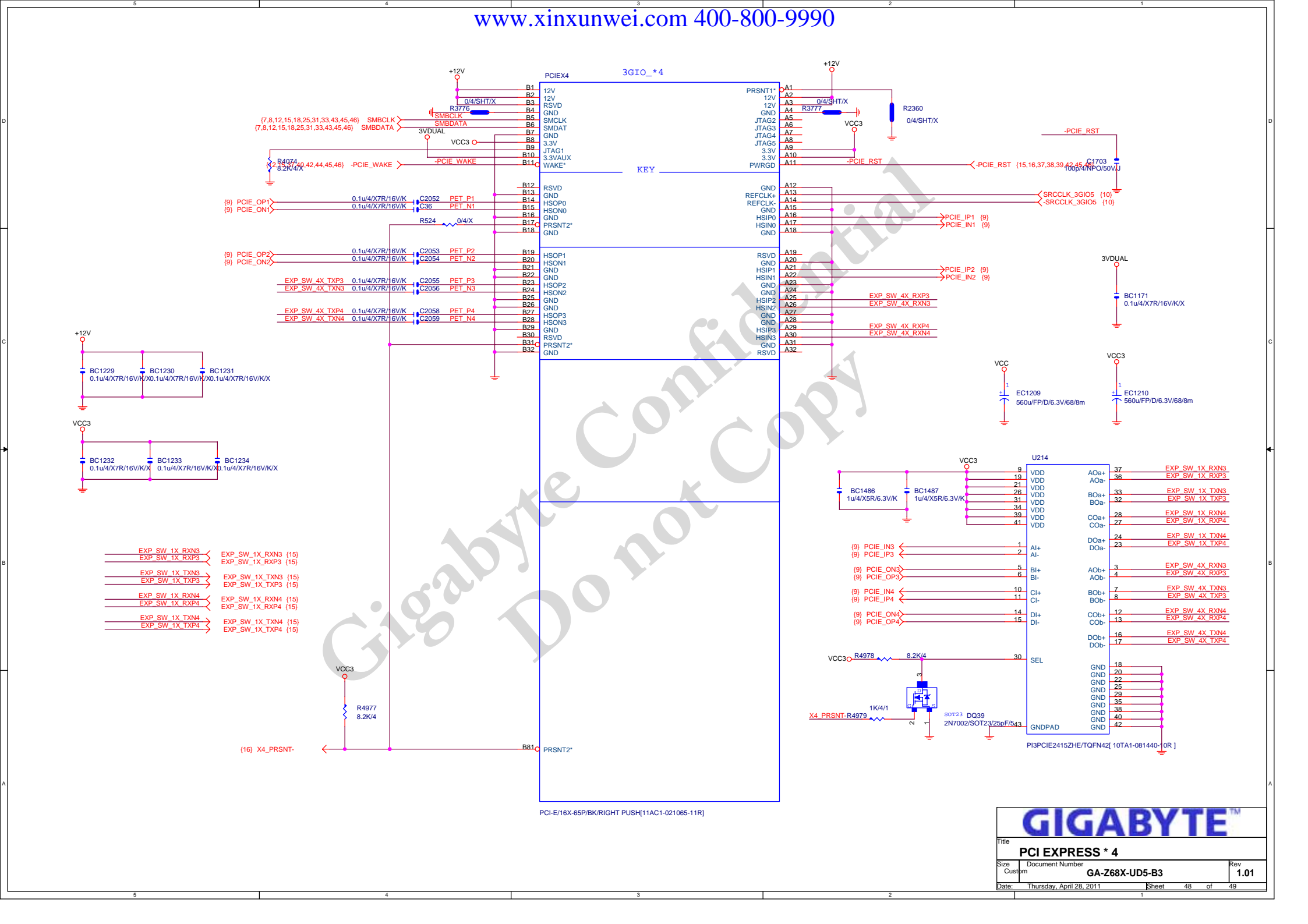
PCIEX16

NEC USB3.0 Gen1/Gen2 switch

USB3.0 Gen1 : Lo	MCH X16 : Hi
USB3.0 Gen2 : Hi	MCH X8 : Lo
x16_SW	-8X_EN
USB3.0 Gen1	Hi
USB3.0 Gen2	Lo

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PCI EXPRESS SWITCH		
Size	Document Number	Rev
Custpm	GA-Z68X-UD5-B3	1.01
Date:	Thursday, April 28, 2011	Sheet 47 of 49



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PCI-E/16X-65P/BK/RIGHT PUSH[11AC1-021065-11R]

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Title: **PCI EXPRESS * 4**

Size: Custom Document Number: **GA-Z68X-UD5-B3** Rev: **1.01**

Date: Thursday, April 28, 2011 Sheet 48 of 49

