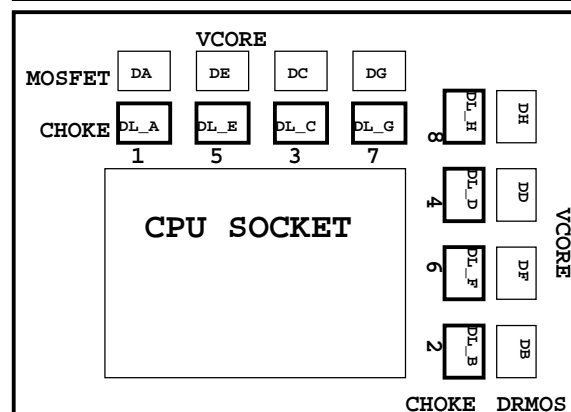


SHEET TITLE

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	PCH HDMI/DP
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*8 SLOT
17	PCI EXPRESS*16/*8 SWITCH
18	PCI EXPRESS*1 SLOTS X3
19	PCI EXPRESS*4 SLOT
20	ITE 8892
21	PCI SLOT 1
22	Dual BIOS
23	ALC898
24	REAR AUDIO JACK
25	AMPLIFIER
26	IR3563A PWM
27	IR3550-VCORE

SHEET TITLE

28	IR3570-DDR PWM
29	IR3598-DDR POWER
30	5VDUAL, 3VDAUL, ERP
31	PCH1.05V, PCH1.5V, VCC3_DAC
32	I/O ITE8728
33	USB3_ESATA,KB/USB3
34	F_PANEL , F_USB , PHOT
35	F_USB 2.0
36	F_USB 3.0
37	ATX POWER, CLOCK GEN
38	HWM, FAN CTRL
39	INTEL I217
40	Marvell 9172
41	SATA SWITCH
42	RST, PWR, CLR_CMOS
43	USB 3.0 uPD720201
44	USB 3.0 uPD720201 POWER
45	TABLE LIST
46	



D

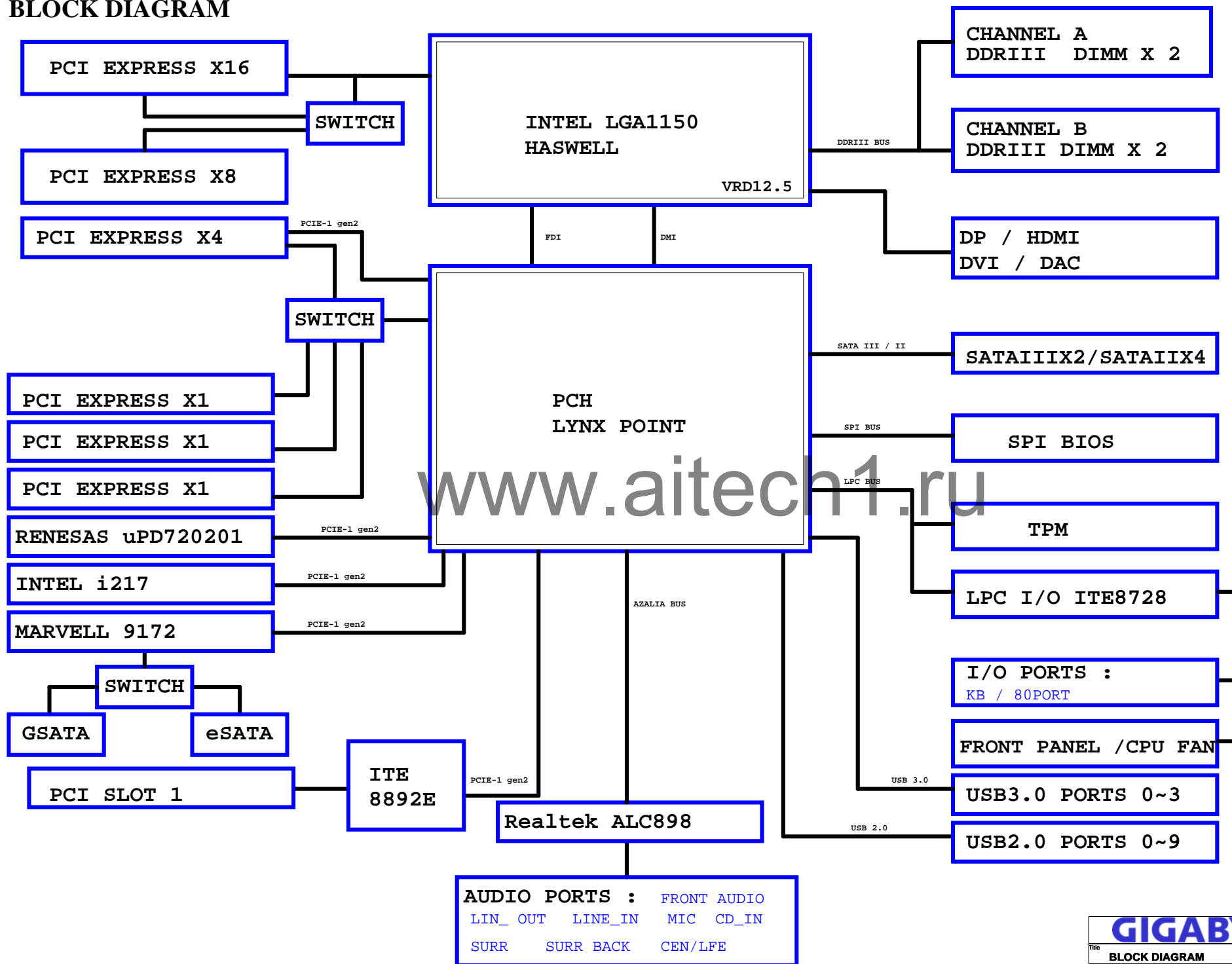
C

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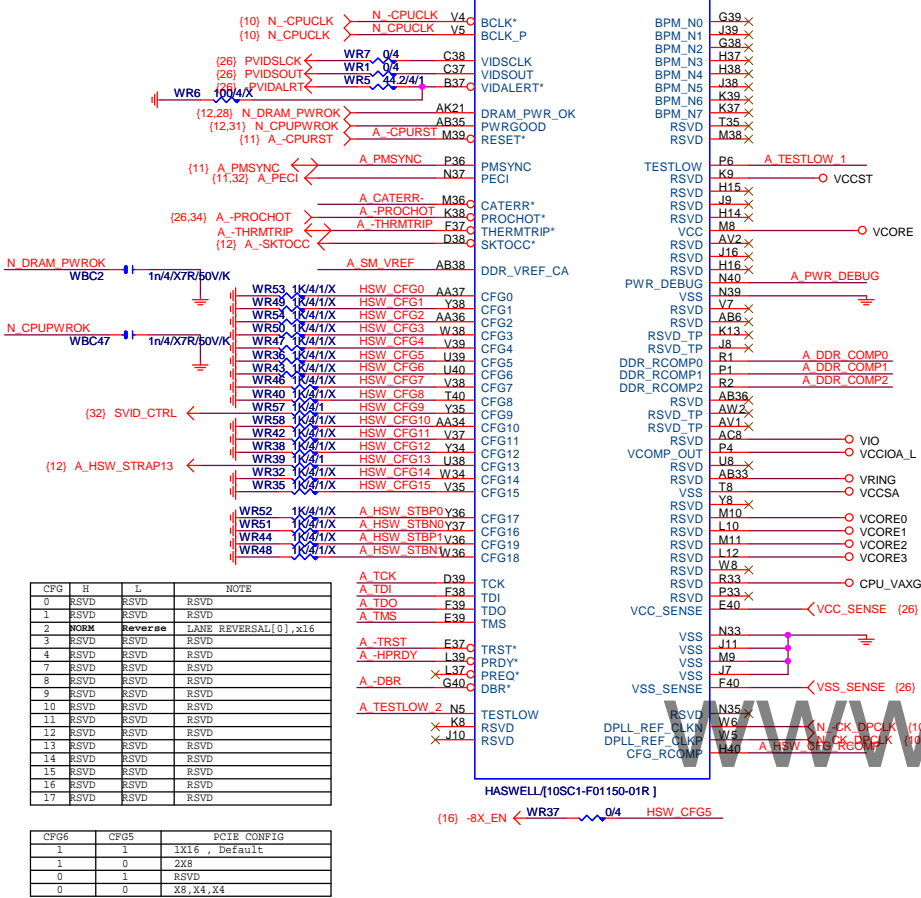
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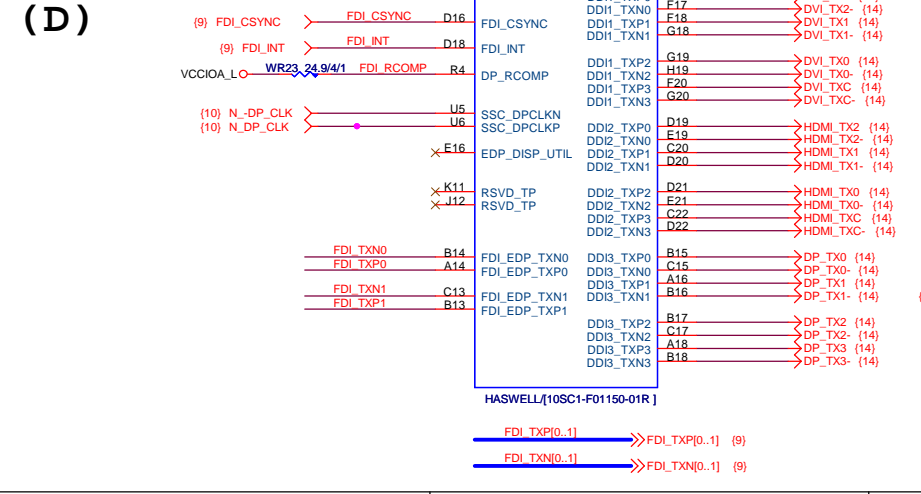
BLOCK DIAGRAM



LGA1150 (E)



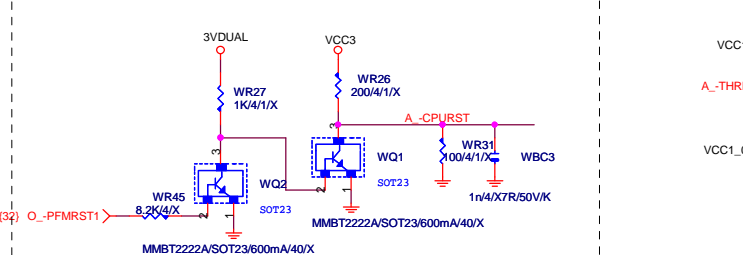
LGA1150 (D)



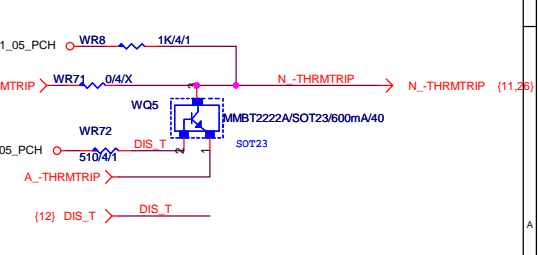
LGA1150 (C)



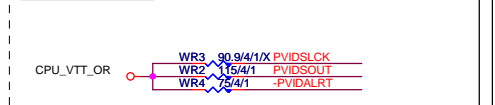
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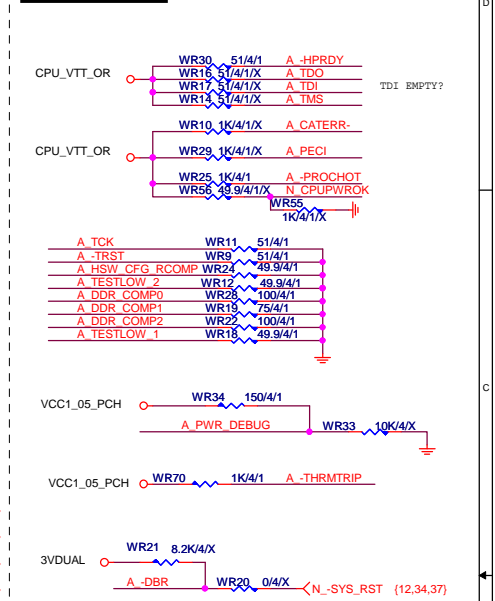
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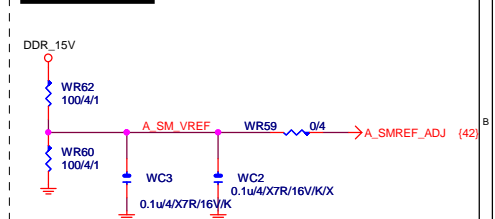
CPU SVID



CPU PU/PD



SM REF



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CPU LGA1150-A

Size: Custom Document Number: **GA-Z87X-UD3H** Rev: **1.02**

Date: Monday, April 01, 2013 Sheet: 4 of 48

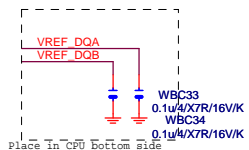
LGA1150A

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MAAA1	AV16	DDR0_DQ1	AD39	MDA1
MAAA2	AU16	DDR0_DQ2	AF38	MDA2
MAAA3	AW17	DDR0_DQ3	AF39	MDA3
MAAA4	AU17	DDR0_DQ4	AD37	MDA4
MAAA5	AW18	DDR0_DQ5	AD40	MDA5
MAAA6	AV17	DDR0_DQ6	AF37	MDA6
MAAA7	AT18	DDR0_DQ7	AF40	MDA7
MAAA8	AU18	DDR0_DQ8	AH40	MDA8
MAAA9	AT19	DDR0_DQ9	AH39	MDA9
MAAA10	AW11	DDR0_DQ10	AK38	MDA10
MAAA11	AV19	DDR0_DQ11	AK39	MDA11
MAAA12	AU19	DDR0_DQ12	AH37	MDA12
MAAA13	AY10	DDR0_DQ13	AH38	MDA8
MAAA14	AT20	DDR0_DQ14	AK37	MDA14
MAAA15	AU21	DDR0_DQ15	AK40	MDA15
MODT_A0	AW10	DDR0_DQ16	AM40	MDA17
MODT_A1	AY8	DDR0_DQ17	AM39	MDA21
MODT_A2	AW9	DDR0_ODT1	AP38	MDA18
MODT_A3	AU8	DDR0_ODT2	AP39	MDA19
		DDR0_ODT3	AM37	MDA20
			AM38	MDA16
			AM26	MDA22
			AP37	MDA23
			AP40	MDA25
			AW37	MDA29
			AU35	MDA26
			AV35	MDA27
			AT37	MDA28
			AU37	MDA24
			AT35	MDA30
			AW35	MDA31
			AY6	MDA33
			AU6	MDA37
			AV4	MDA34
			AU4	MDA35
			AW6	MDA36
			AV6	MDA32
			AW4	MDA38
			AR1	MDA39
			AR4	MDA45
			AN3	MDA42
			AN4	MDA43
			AR2	MDA44
			AR3	MDA40
			AN2	MDA46
			AN1	MDA47
			AL1	MDA49
			AL4	MDA53
			AJ3	MDA50
			AJ4	MDA51
			AL2	MDA52
			AL3	MDA48
			AJ2	MDA54
			AJ1	MDA55
			AG4	MDA57
			AG1	MDA61
			AE3	MDA58
			AE4	MDA59
			AG2	MDA60
			AG3	MDA56
			AE1	MDA62
			AE2	MDA63
			AE39	DQSA0
			AJ39	DQSA1
			AN39	DQSA2
			AV36	DQSA3
			AV5	DQSA4
			AP3	DQSA5
			AK3	DQSA6
			AF3	DQSA7
			AV32	DQSA0
			AE38	DQSA1
			AJ38	DQSA2
			AN38	DQSA3
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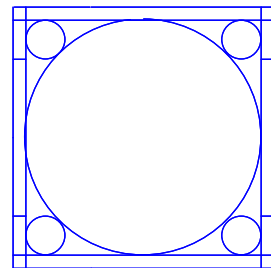
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LGA1150B

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MAAB3	AM23	DDR1_DQ3	AH35	MDB3
MAAB4	AP23	DDR1_DQ4	AD34	MDB4
MAAB5	AL23	DDR1_DQ5	AD35	MDB5
MAAB6	AY24	DDR1_DQ6	AG34	MDB6
MAAB7	AV25	DDR1_DQ7	AL34	MDB7
MAAB8	AU26	DDR1_DQ8	AL35	MDB8
MAAB9	AW25	DDR1_DQ9	AL36	MDB9
MAAB10	AP18	DDR1_DQ10	AK31	MDB10
MAAB11	AY25	DDR1_DQ11	AL31	MDB11
MAAB12	AV26	DDR1_DQ12	AK34	MDB12
MAAB13	AY27	DDR1_DQ13	AK35	MDB13
MAAB14	AY27	DDR1_DQ14	AK32	MDB14
MAAB15	AY28	DDR1_DQ15	AL32	MDB15
		DDR1_DQ16	AN34	MDB17
		DDR1_DQ17	AP34	MDB21
		DDR1_DQ18	AP31	MDB19
		DDR1_DQ19	AN35	MDB20
		DDR1_DQ20	AP35	MDB16
		DDR1_DQ21	AN32	MDB18
		DDR1_DQ22	AP32	MDB22
		DDR1_DQ23	AM29	MDB25
		DDR1_DQ24	AM28	MDB28
		DDR1_DQ25	AR29	MDB27
		DDR1_DQ26	AR28	MDB30
		DDR1_DQ27	AL29	MDB24
		DDR1_DQ28	AL28	MDB29
		DDR1_DQ29	AP29	MDB26
		DDR1_DQ30	AP28	MDB31
		DDR1_DQ31	AR12	MDB32
		DDR1_DQ32	AP12	MDB33
		DDR1_DQ33	AL13	MDB34
		DDR1_DQ34	AL12	MDB35
		DDR1_DQ35	AR13	MDB36
		DDR1_DQ36	AP13	MDB37
		DDR1_DQ37	AM13	MDB38
		DDR1_DQ38	AM12	MDB39
		DDR1_DQ39	AR9	MDB45
		DDR1_DQ40	AP9	MDB41
		DDR1_DQ41	AR6	MDB47
		DDR1_DQ42	AP6	MDB43
		DDR1_DQ43	AR10	MDB44
		DDR1_DQ44	AP10	MDB40
		DDR1_DQ45	AR7	MDB46
		DDR1_DQ46	AP7	MDB42
		DDR1_DQ47	AM9	MDB52
		DDR1_DQ48	AL9	MDB53
		DDR1_DQ49	AL6	MDB50
		DDR1_DQ50	AL7	MDB55
		DDR1_DQ51	AL10	MDB49
		DDR1_DQ52	AM10	MDB49
		DDR1_DQ53	AM6	MDB54
		DDR1_DQ54	AM7	MDB51
		DDR1_DQ55	AH6	MDB61
		DDR1_DQ56	AH7	MDB60
		DDR1_DQ57	AE7	MDB59
		DDR1_DQ58	AE7	MDB63
		DDR1_DQ59	AJ6	MDB56
		DDR1_DQ60	AJ7	MDB57
		DDR1_DQ61	AE6	MDB58
		DDR1_DQ62	AE7	MDB62
		DDR1_DQ63	AE35	DQSB0
		DDR1_DQ64	AL33	DQSB1
		DDR1_DQ65	AN28	DQSB3
		DDR1_DQ66	AN12	DQSB4
		DDR1_DQ67	AP8	DQSB5
		DDR1_DQ68	AL8	DQSB6
		DDR1_DQ69	AG7	DQSB7
		DDR1_DQ70	AN25	DQSB0
		DDR1_DQ71	AK33	DQSB1
		DDR1_DQ72	AN33	DQSB2
		DDR1_DQ73	AN29	DQSB3
		DDR1_DQ74	AN13	DQSB4
		DDR1_DQ75	AR8	DQSB5
		DDR1_DQ76	AM8	DQSB6
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HASWELL[10SC1-F01150-01R]

CPU
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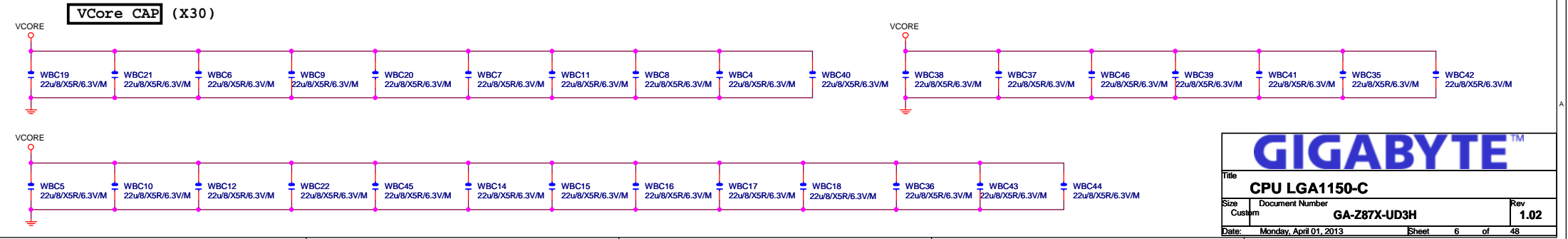
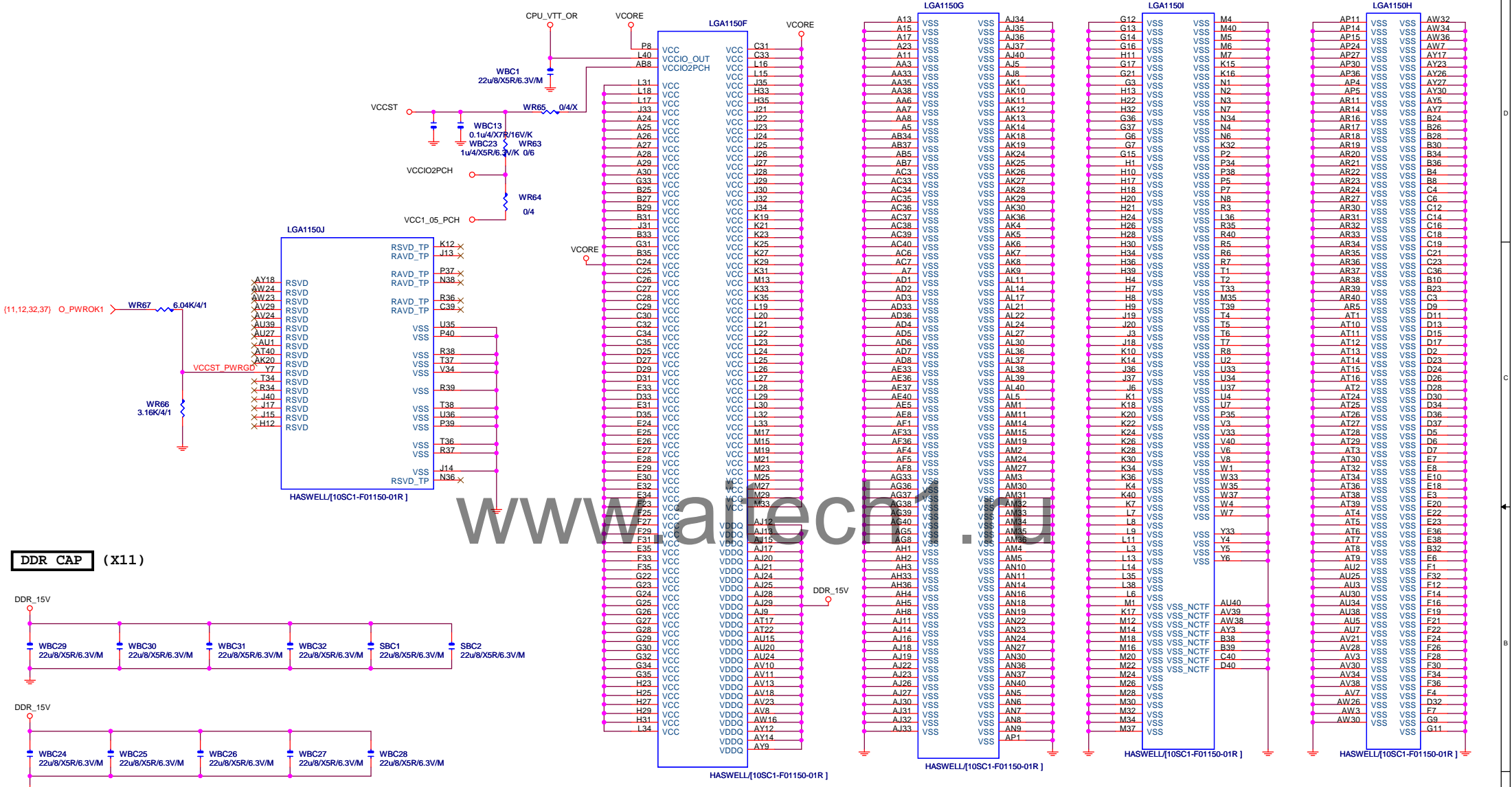
Need check the new CPU ME

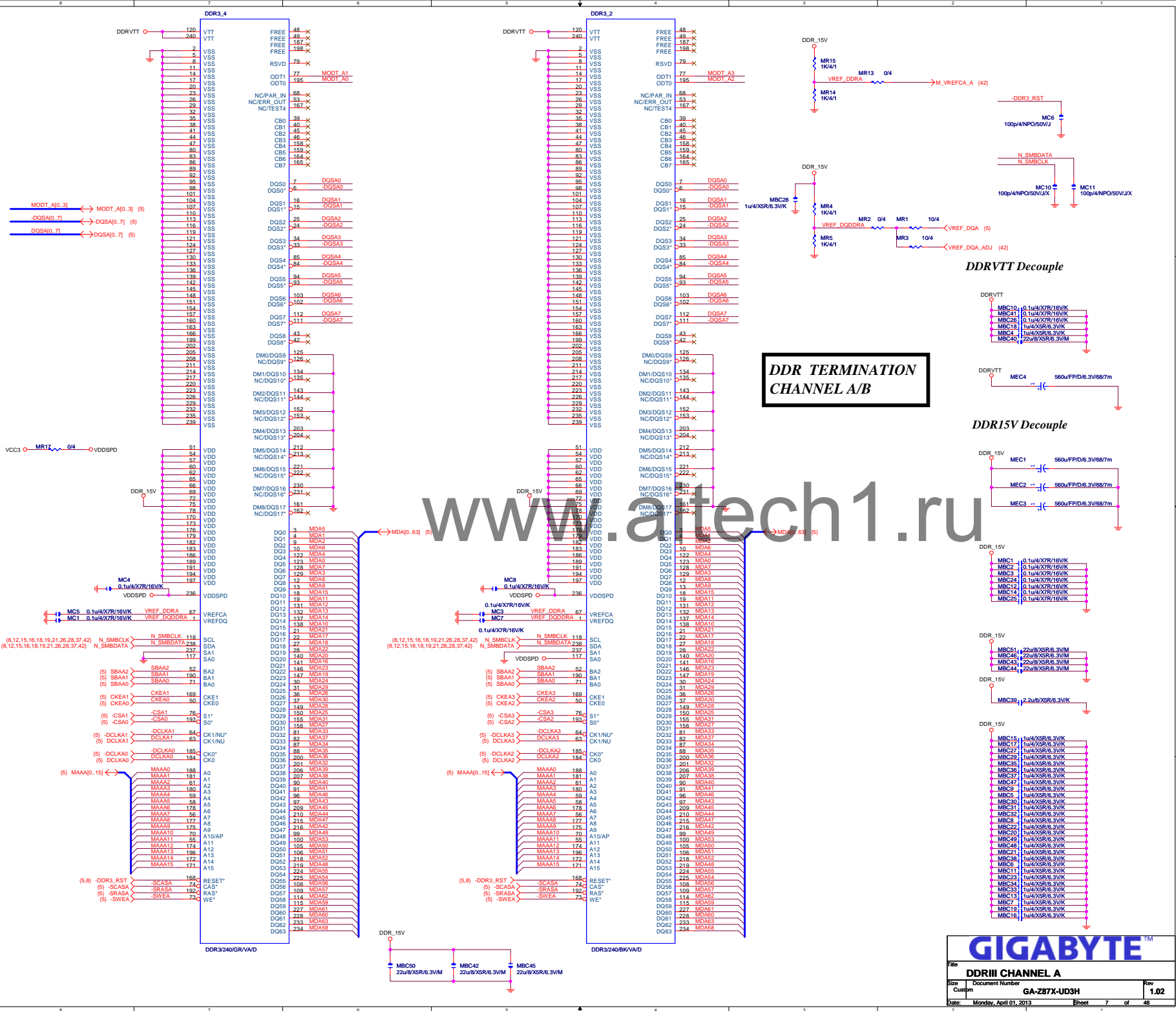
DDR BUS

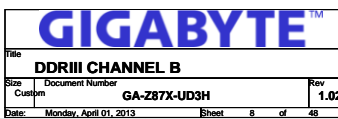
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(8) MODT_B[0..3]	MODT_B[0..3]
(7) MDA[0..63]	MDA[0..63]
(8) MDB[0..63]	MDB[0..63]
(7) DQSA[0..7]	DQSA[0..7]
(7) -DQSA[0..7]	-DQSA[0..7]
(7) MAAA[0..15]	MAAA[0..15]
(8) MAAB[0..15]	MAAB[0..15]
(8) DQSB[0..7]	DQSB[0..7]
(8) -DQSB[0..7]	-DQSB[0..7]

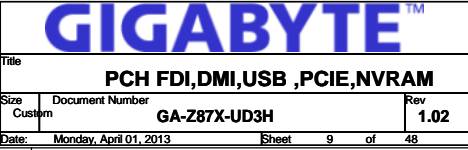
GIGABYTE™

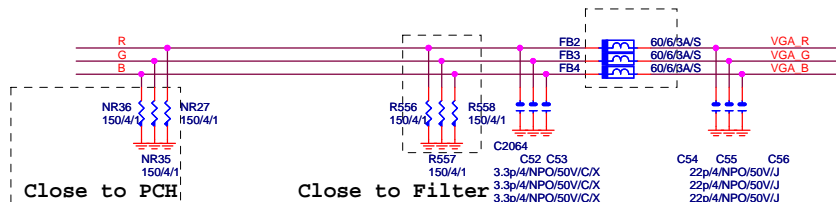
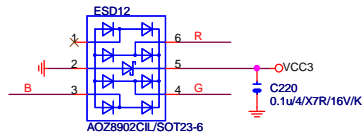
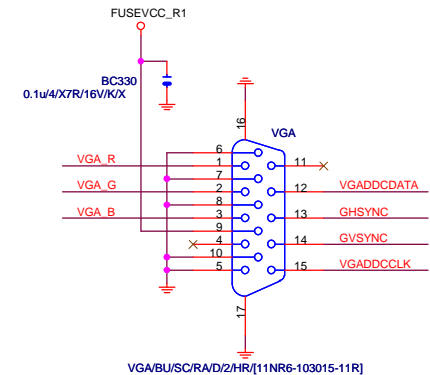
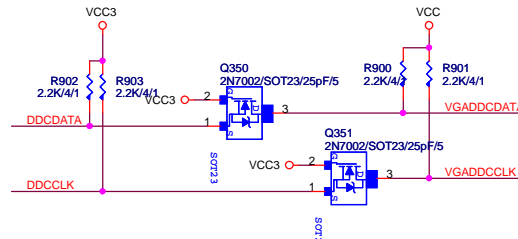
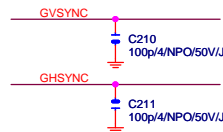
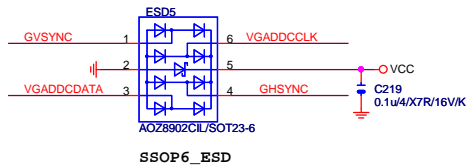
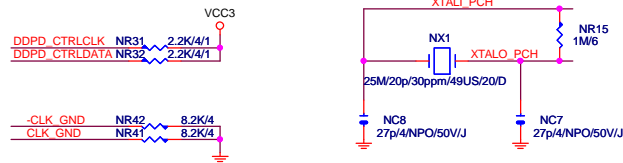
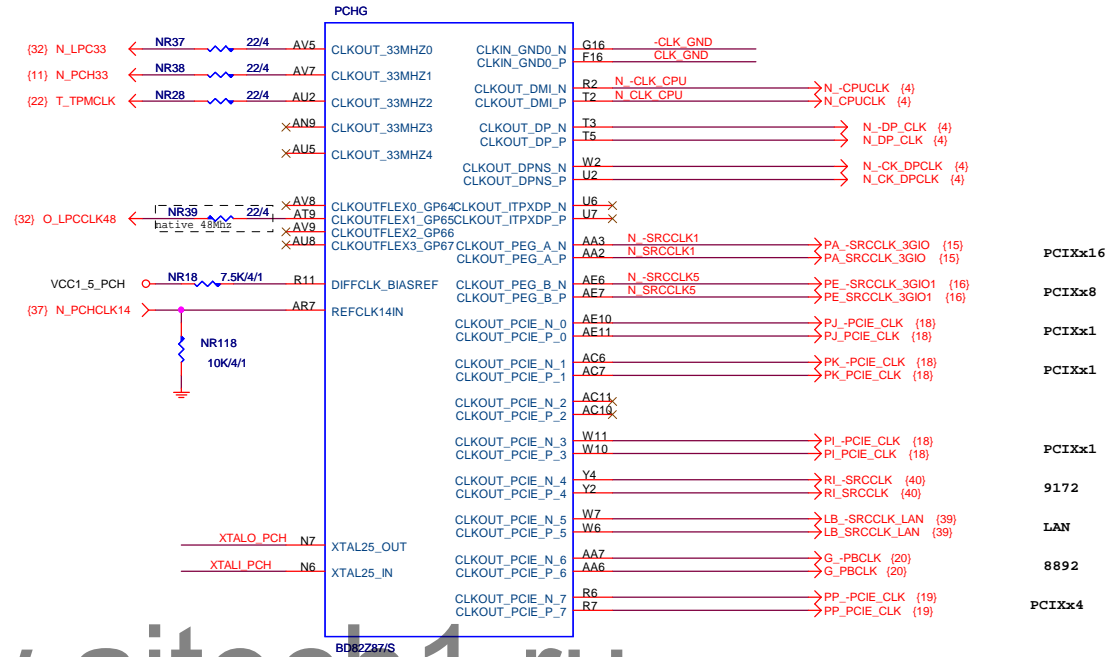
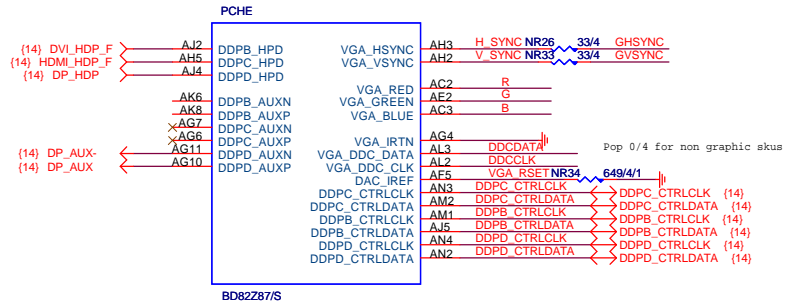
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Size Custom	Document Number GA-Z87X-UD3H	Rev 1.02
Date: Monday, April 01, 2013	Sheet 5	of 48

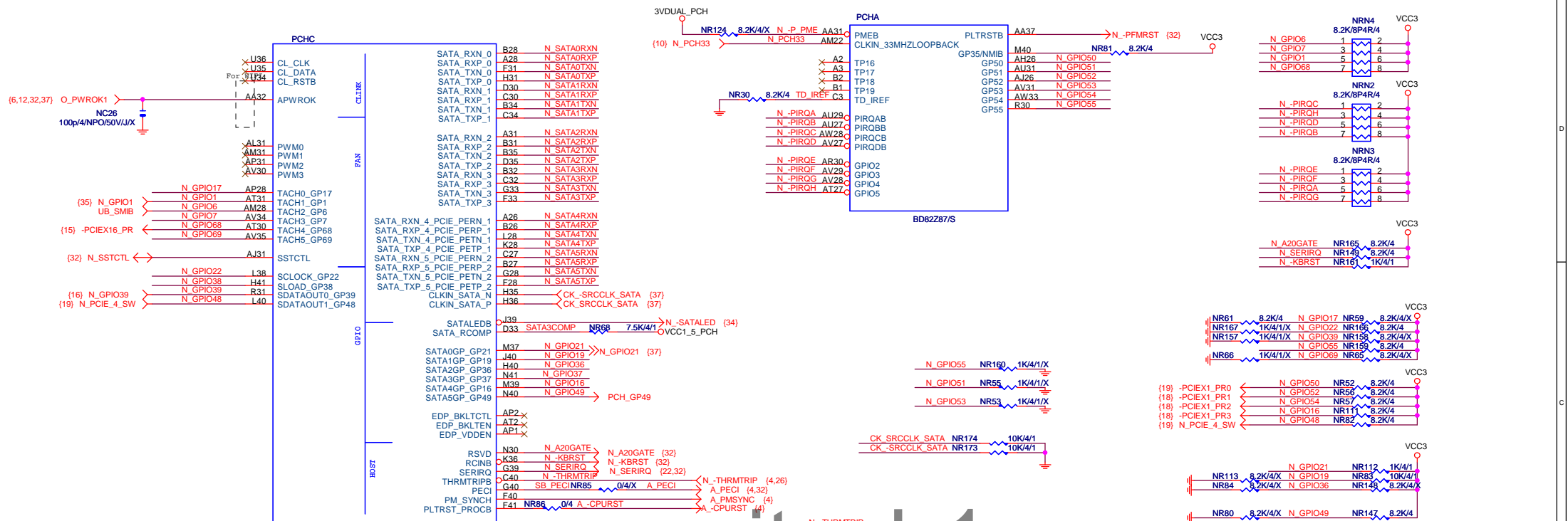




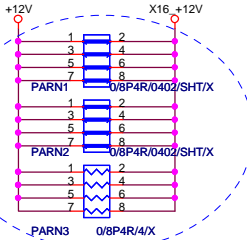








**+12 protect
short-wire test**



PCIEX16:16/5/5/5/16

PA_EXP_RXP0[0..15] >>> PA_EXP_RXP[0..15] (4,17)
PA_EXP_RXN0[0..15] >>> PA_EXP_RXN[0..15] (4,17)
PA_EXP_TXP0[0..15] >>> PA_EXP_TXP[0..15] (4,17)
PA_EXP_TXN0[0..15] >>> PA_EXP_TXN[0..15] (4,17)

PA_EXP_TXP0	PAC5	0.22u4/X5R6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u4/X5R6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u4/X5R6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u4/X5R6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u4/X5R6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u4/X5R6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u4/X5R6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u4/X5R6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u4/X5R6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u4/X5R6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u4/X5R6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u4/X5R6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u4/X5R6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u4/X5R6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u4/X5R6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u4/X5R6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN15_C

PA_EXP_SW_RXP8[0..15] >>> PA_EXP_SW_RXP[8..15] (17)
PA_EXP_SW_RXN8[0..15] >>> PA_EXP_SW_RXN[8..15] (17)
PA_EXP_SW_TXP8[0..15] >>> PA_EXP_SW_TXP[8..15] (17)
PA_EXP_SW_TXN8[0..15] >>> PA_EXP_SW_TXN[8..15] (17)

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

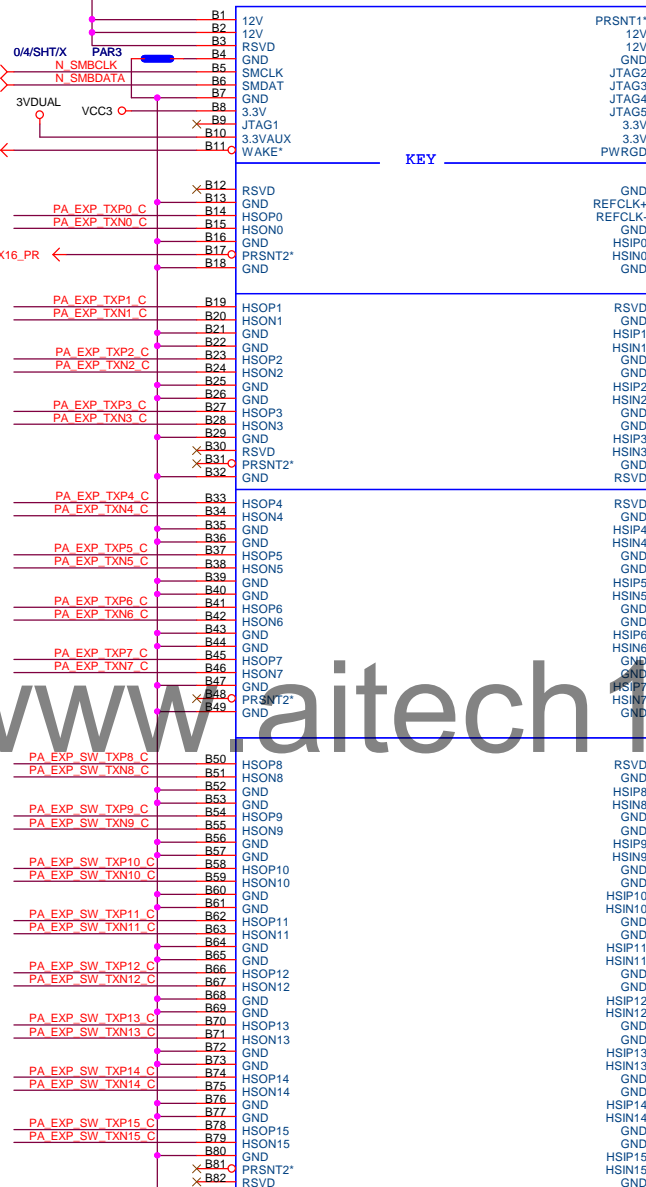
PCE-E X16(單向) BANDWITH=2.5GHZ*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

(11) -PCIEX16_PR

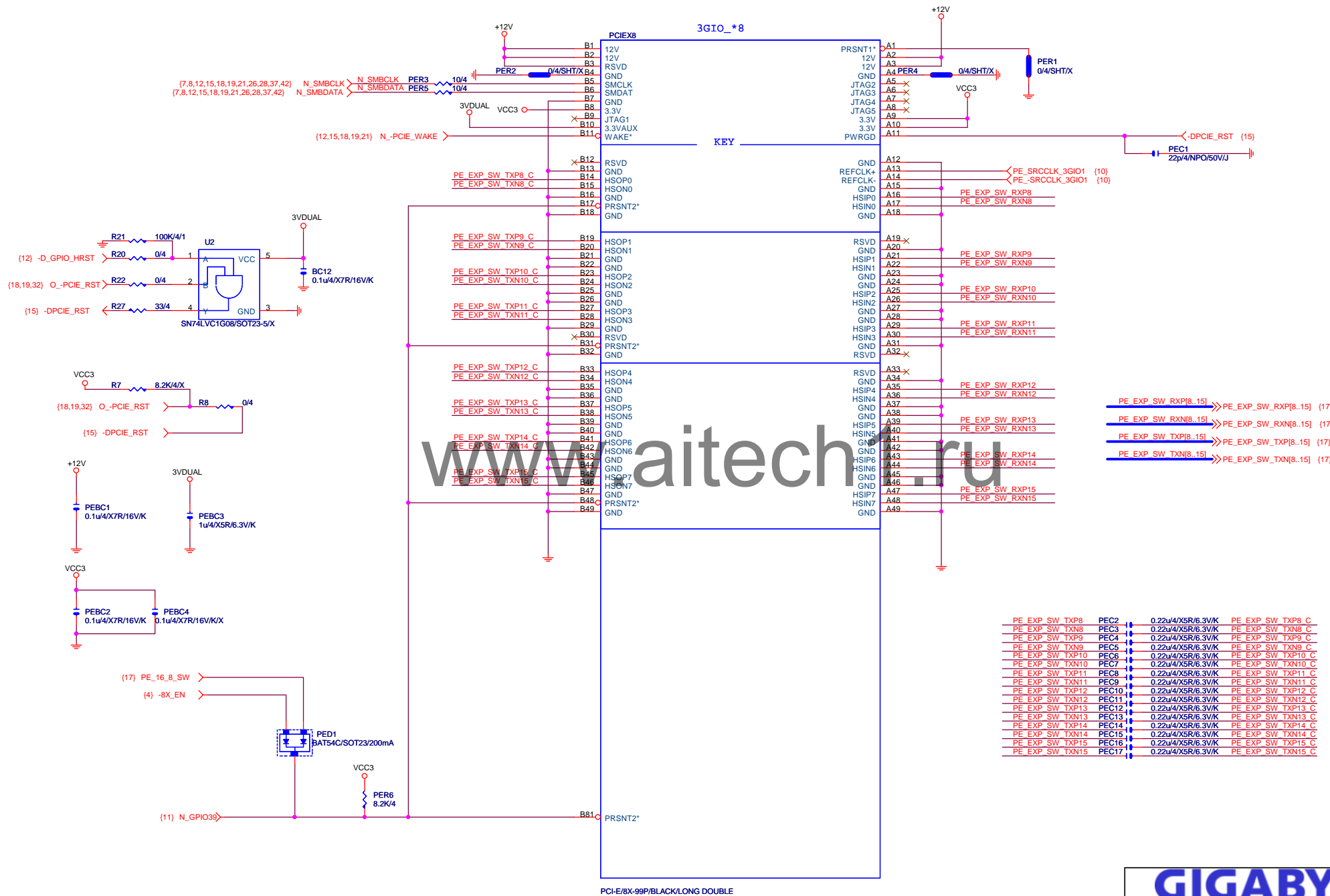
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3GIO_*16

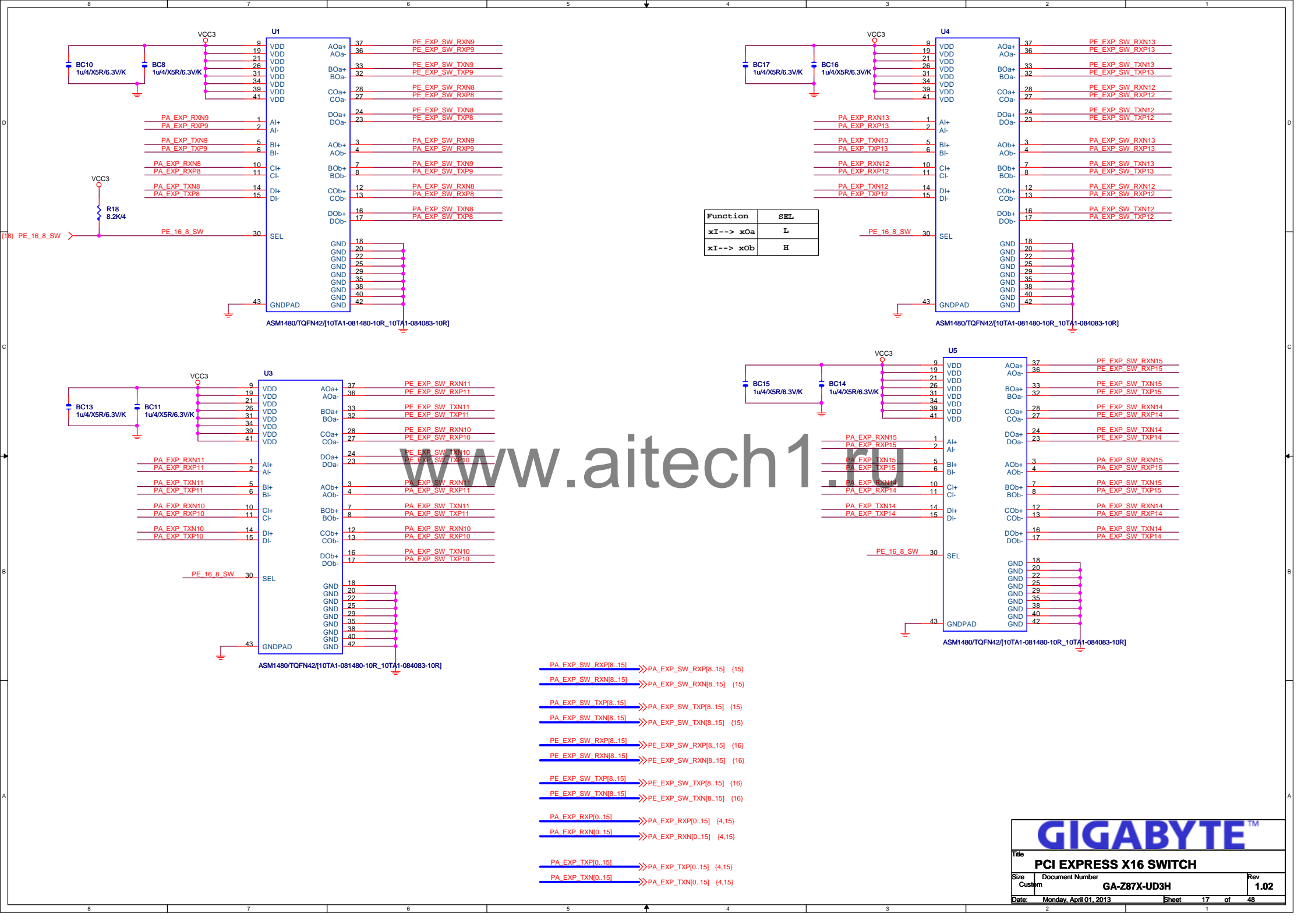


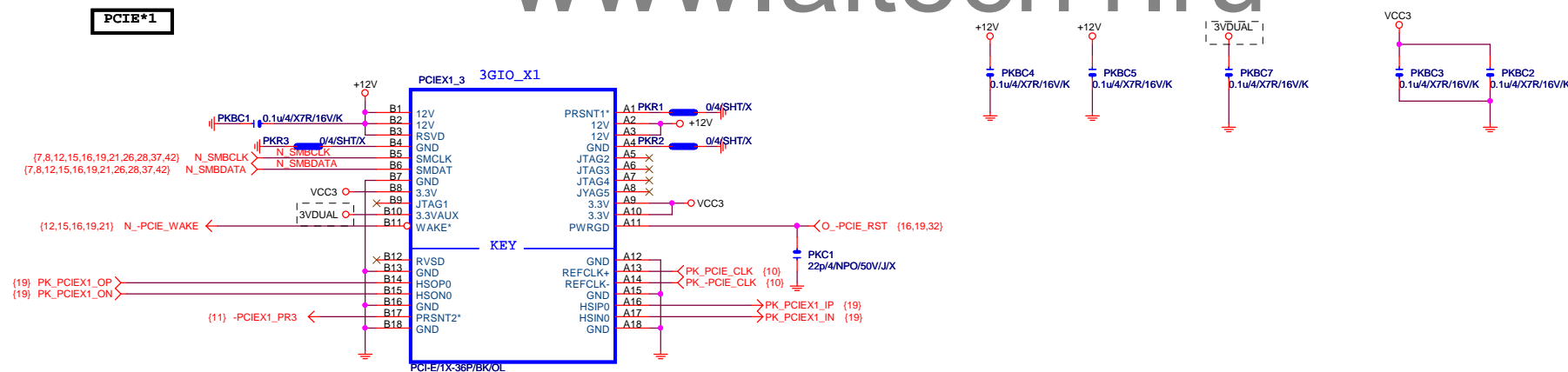
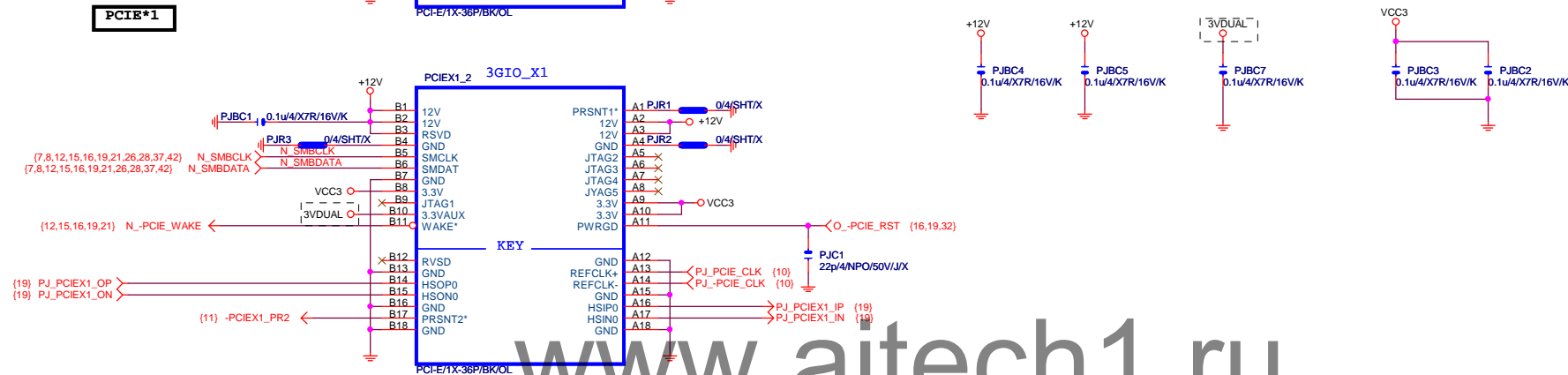
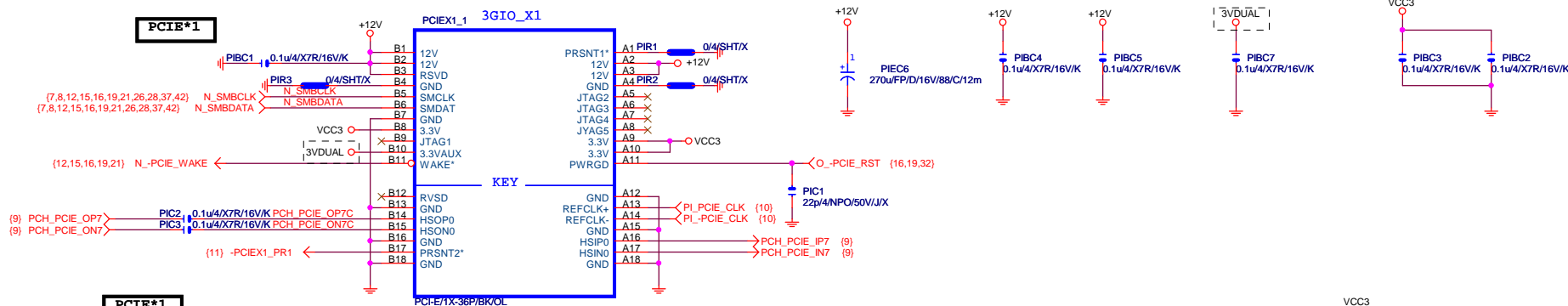
PCI-E/16X-164P/BK/LONG DOUBLE

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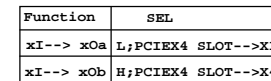
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Size	Document Number	Rev	
Custom	GA-Z87X-UD3H	1.02	
Date:	Monday, April 01, 2013	Sheet	15 of 48

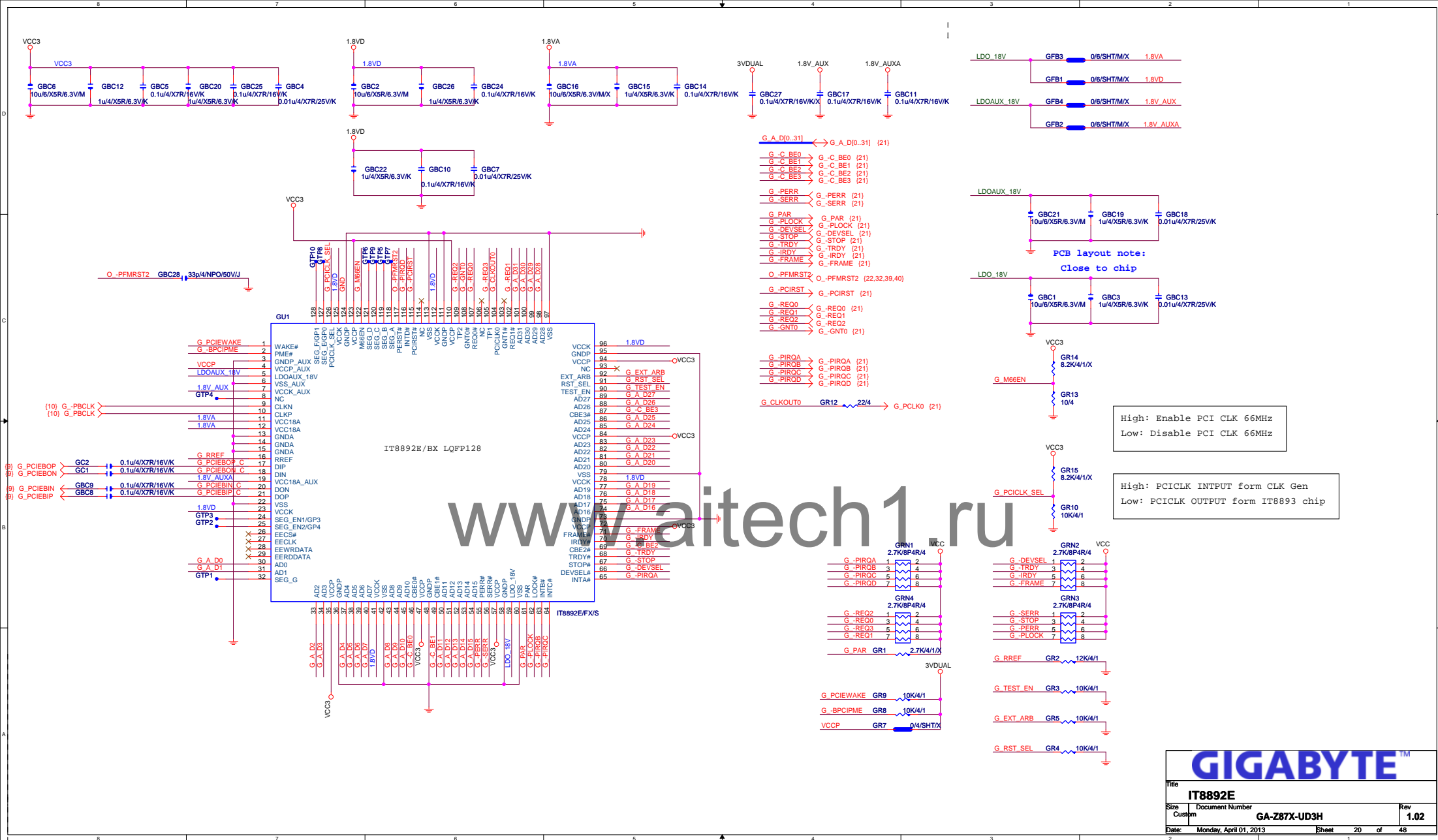


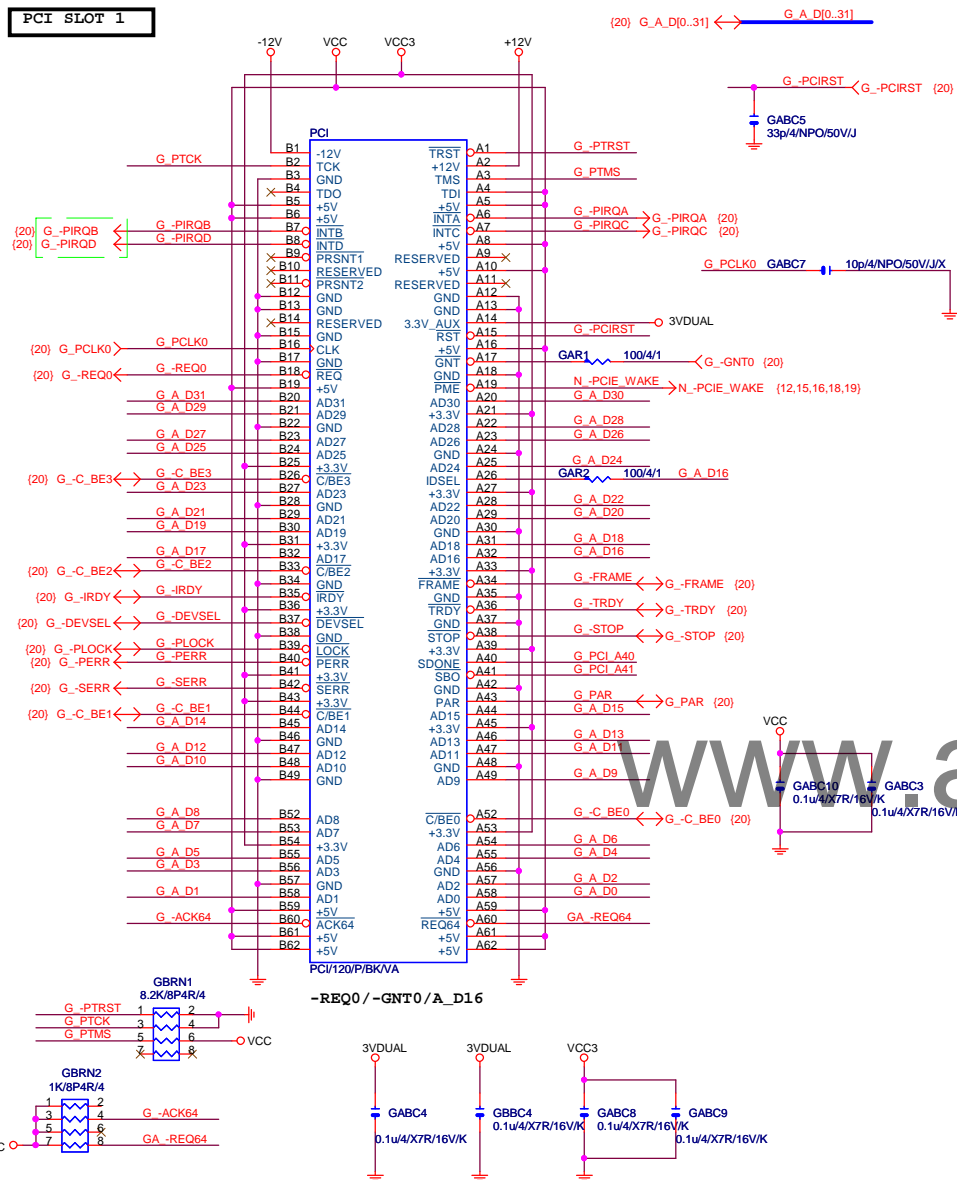
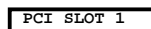





PCIE*4

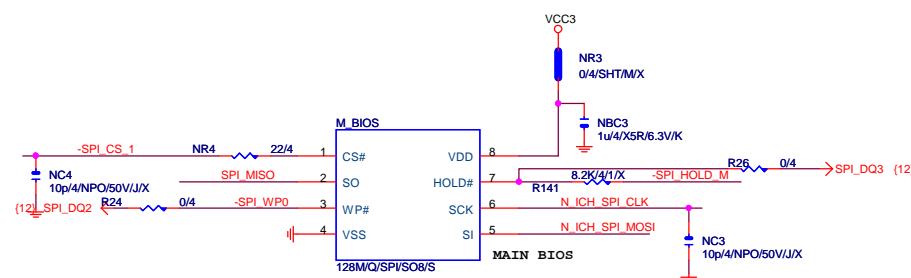
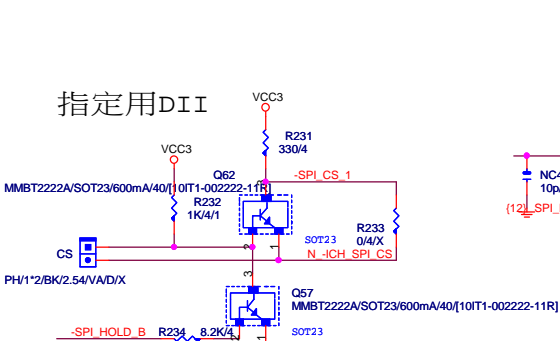






			
Title			
PCI SLOT 1			
Size	Document Number		Rev
Custom	GA-Z87X-UD3H		1.02
Date:	Monday, April 01, 2013	Sheet	21 of 48

指定用DII



MOSI For DMI RX Termination Voltage

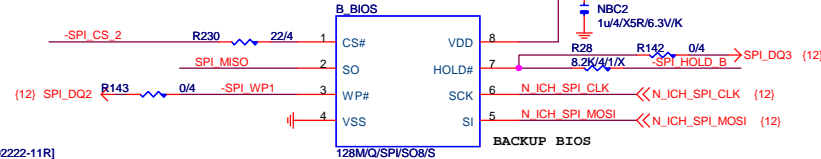
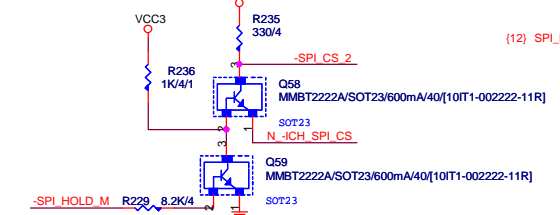
(12) N_ICH_SPI_MOSI 8.2K/4/1/X
(12) N_ICH_SPI_CS 8.2K/4/1/X
(12) N_ICH_SPI_CLK 8.2K/4/1/X
(12) N_ICH_SPI_HOLD 8.2K/4/1/X
(12) N_ICH_SPI_HOLD_M 8.2K/4/1/X

(12) N_ICH_SPI_HOLD 8.2K/4/1/X
(12) N_ICH_SPI_HOLD_M 8.2K/4/1/X
(12) N_ICH_SPI_HOLD 8.2K/4/1/X
(12) N_ICH_SPI_HOLD_M 8.2K/4/1/X

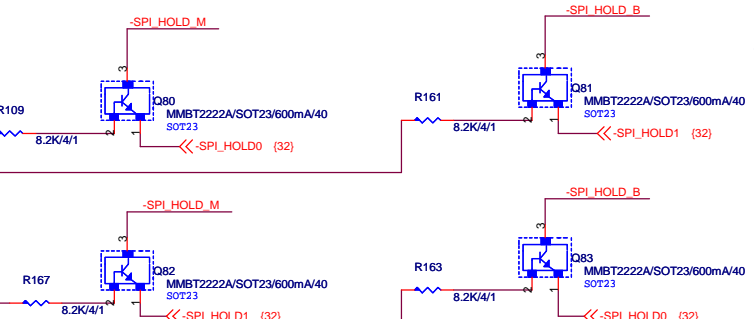
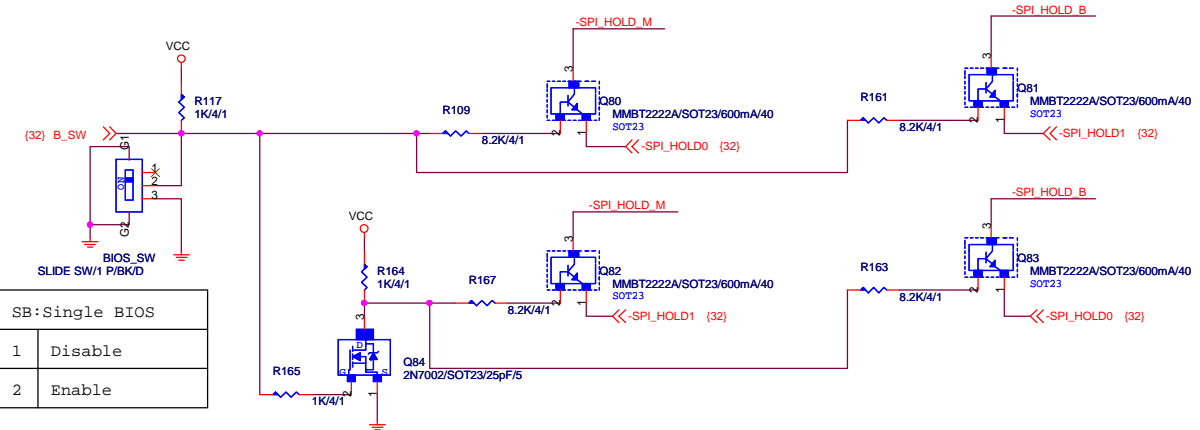
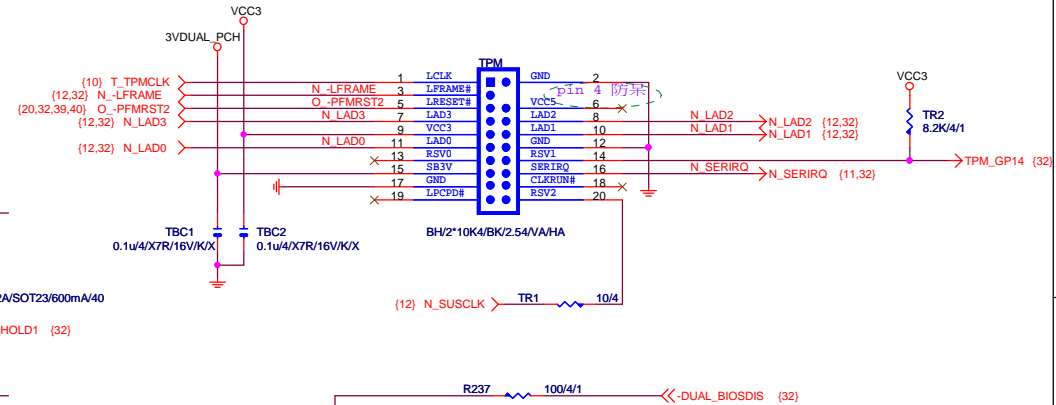
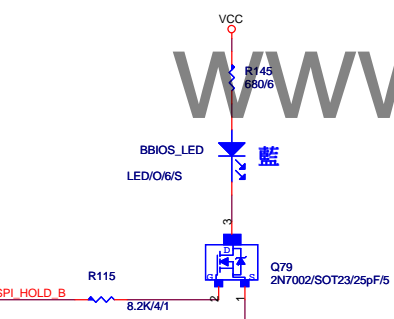
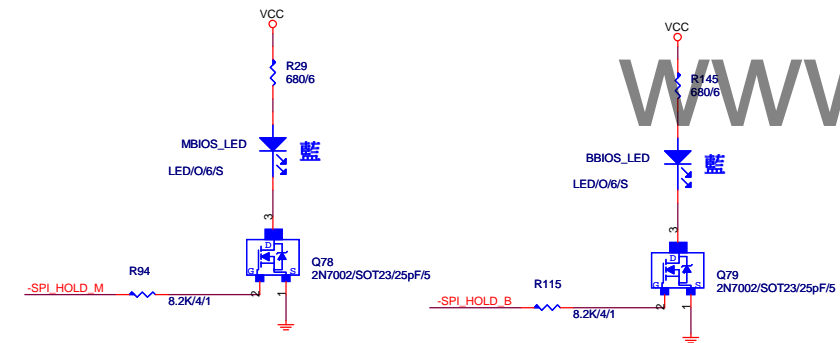
1 means floating
0 means PD 1K

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

指定用DII



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SB:Single BIOS	
1	Disable
2	Enable

GIGABYTE

Title: **DUAL BIOS, TPM**

Size: Custom

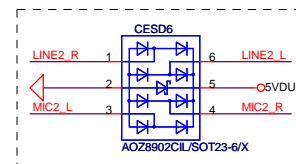
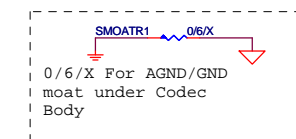
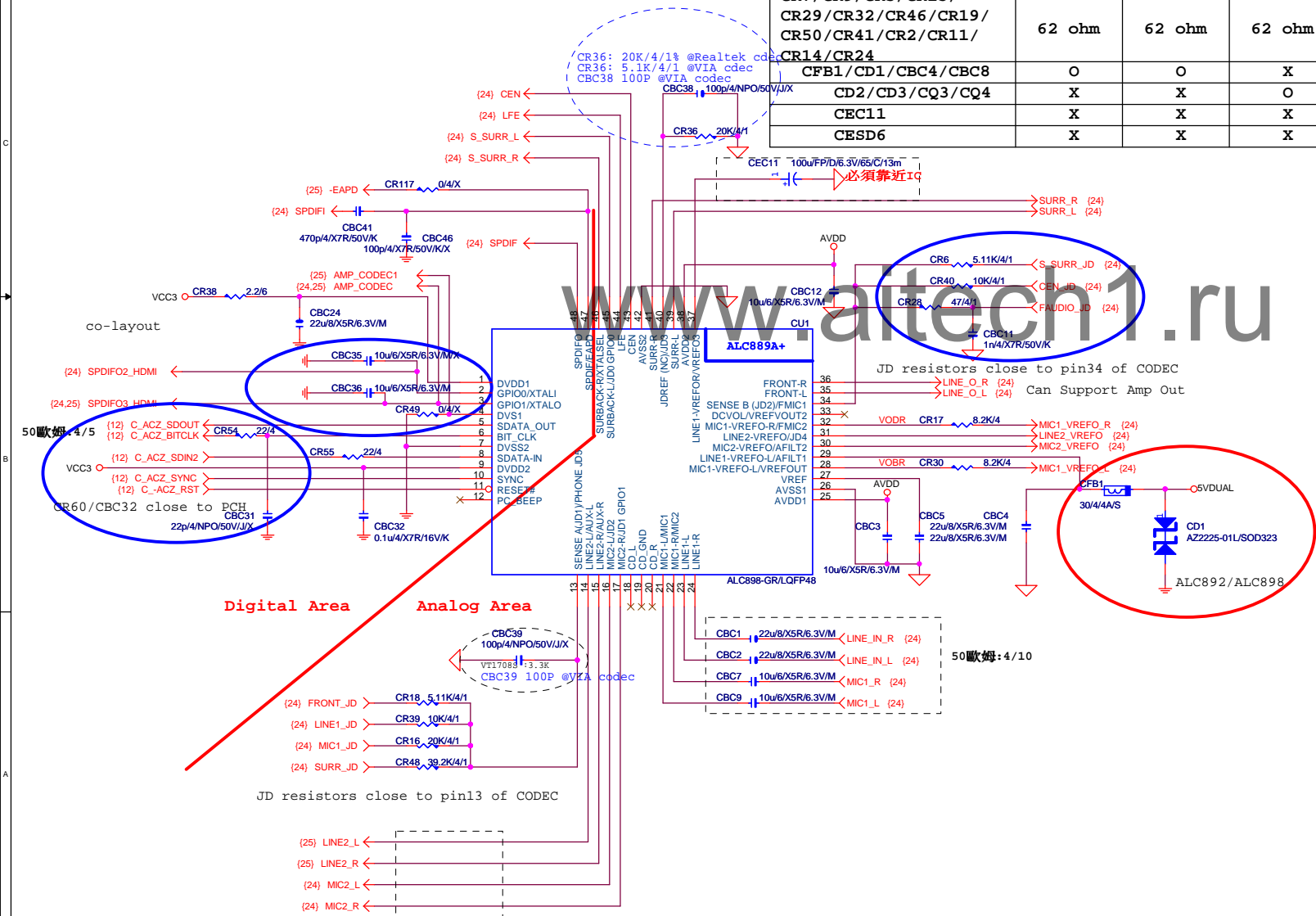
Document Number: **GA-Z87X-UD3H**

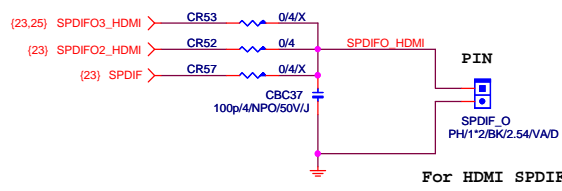
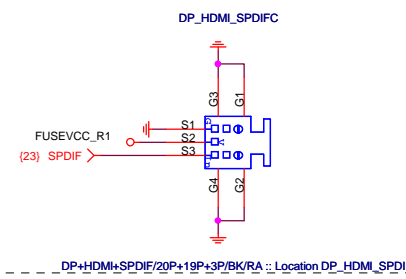
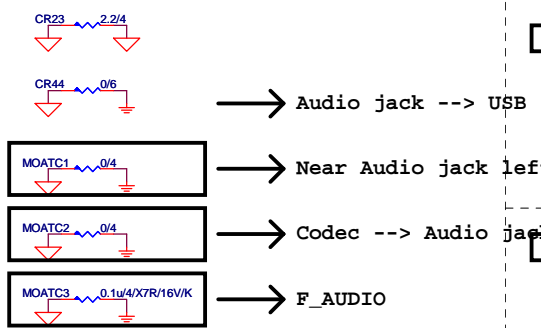
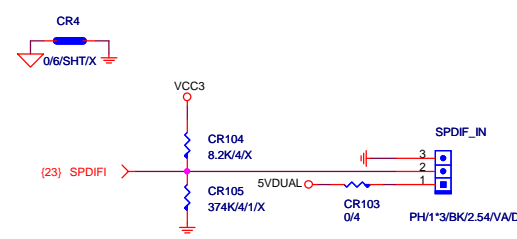
Rev: **1.02**

Date: Tuesday, April 02, 2013

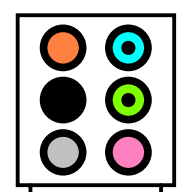
Sheet: 22 of 48

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

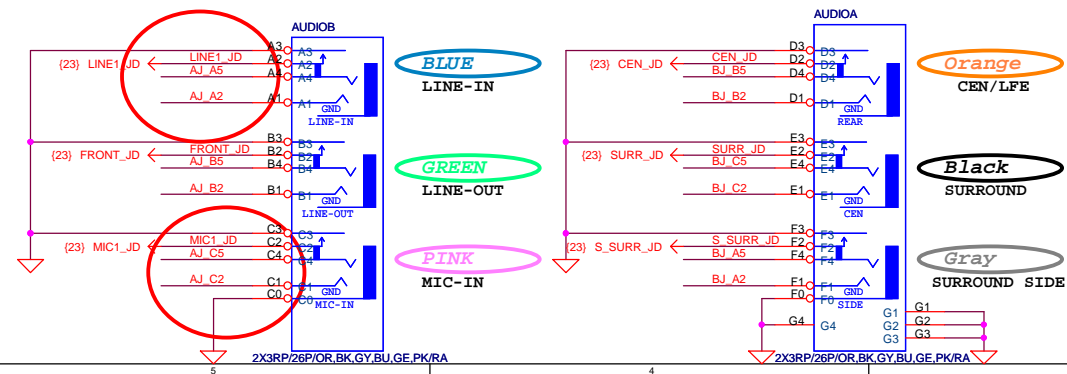




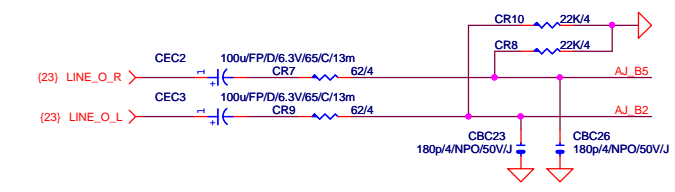
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BTX AZALIA CONNECTOR



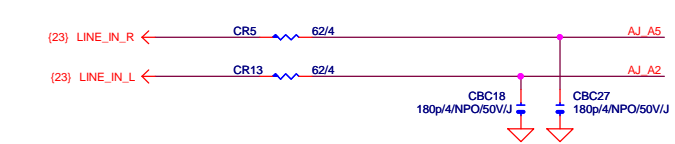
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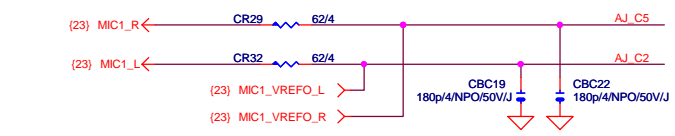
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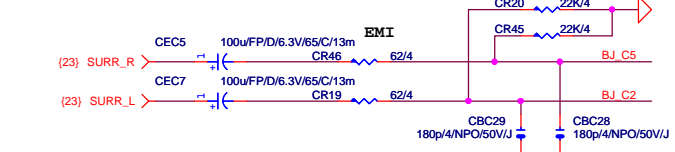
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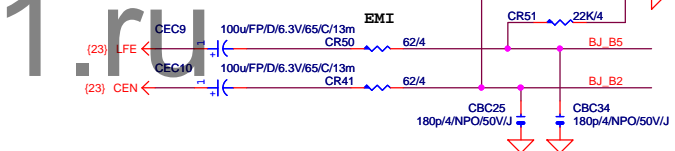
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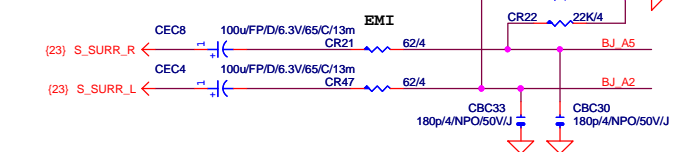
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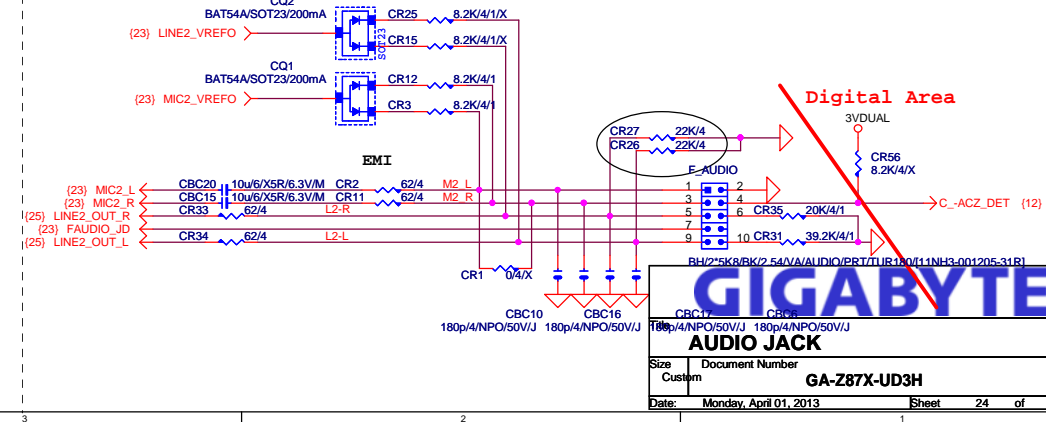
CEN/LFE



SURR BACK



AZALIA FRONT PANE

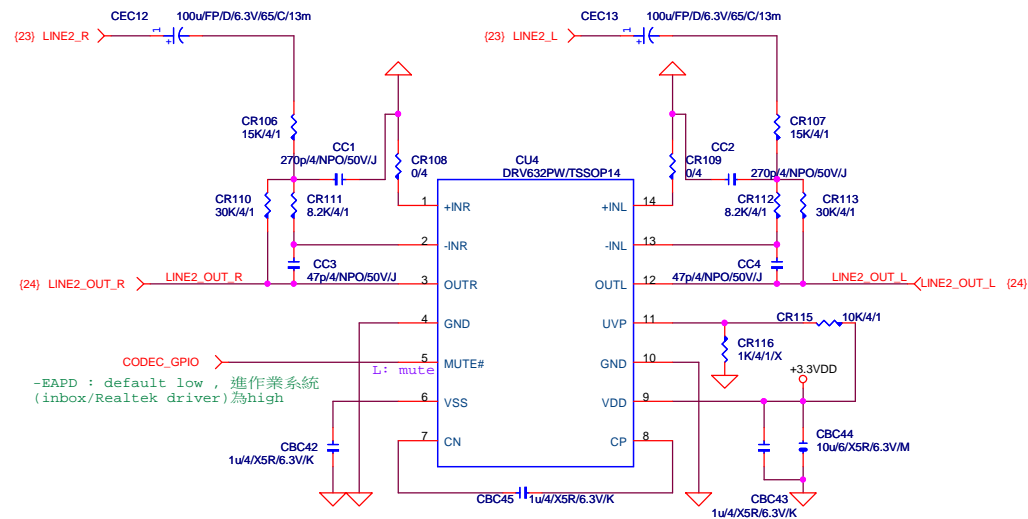


GIGABYTE

AUDIO JACK

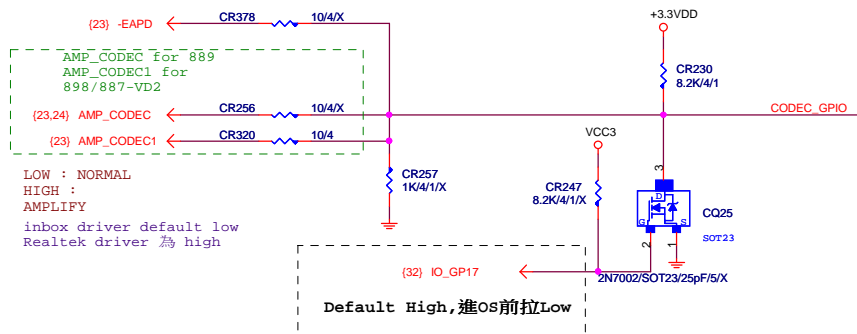
Size	Document Number	Rev
Custom	GA-Z87X-UD3H	1.02
Date:	Monday, April 01, 2013	Sheet 24 of 48

HEADPHONE



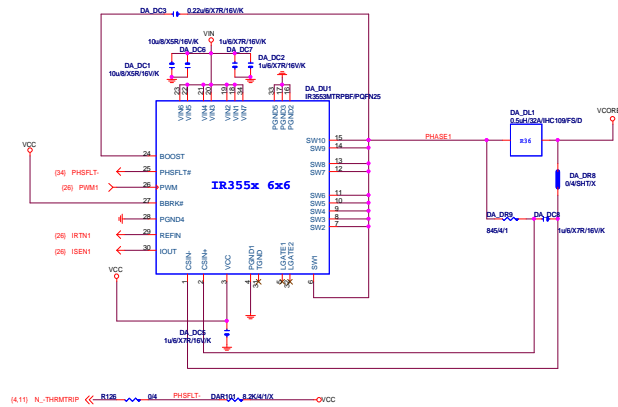
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HEADPHONE

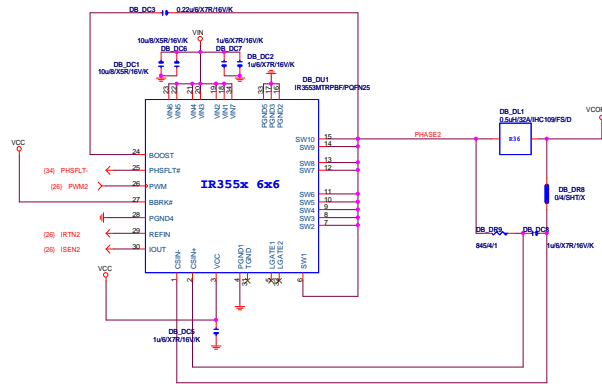


GIGABYTE™			
Title Audio Amplifier			
Size	Document Number	Rev	
Custom	GA-Z87X-UD3H	1.02	
Date:	Monday, April 01, 2013	Sheet	25 of 48

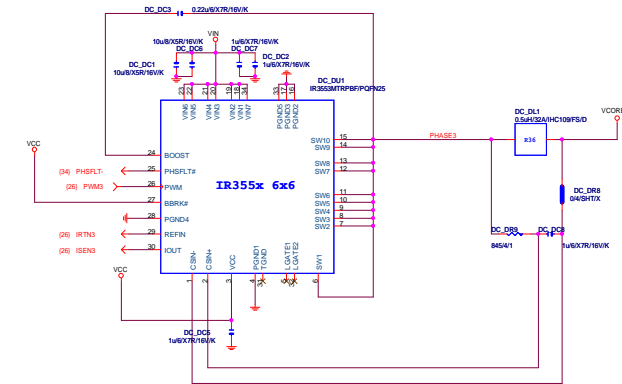
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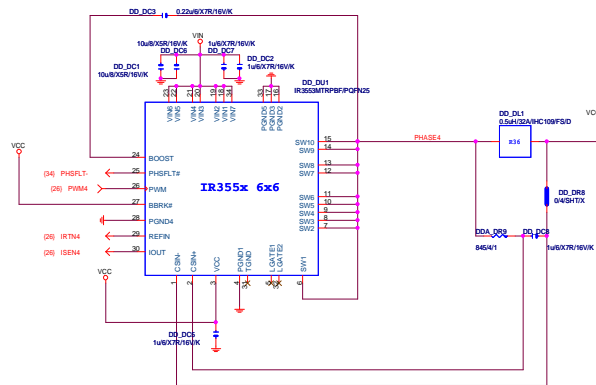
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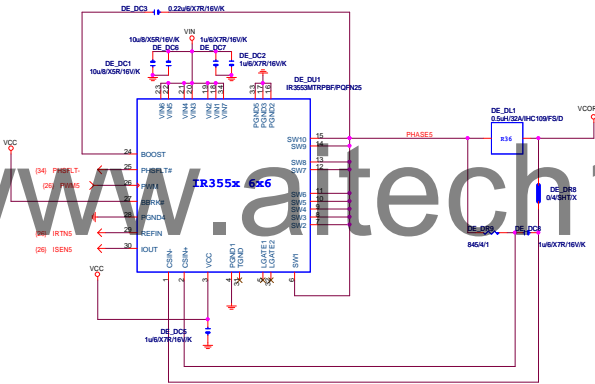
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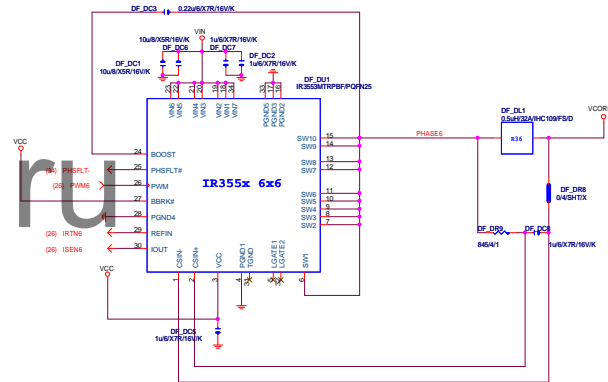
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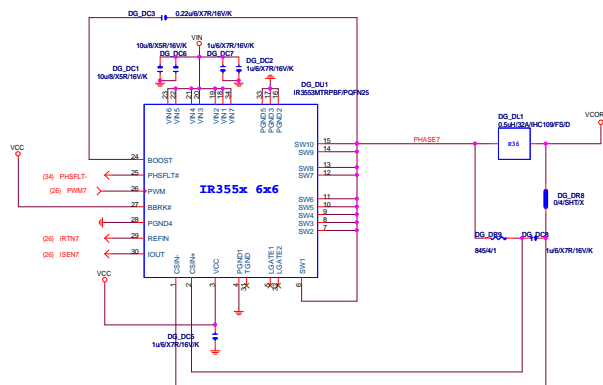
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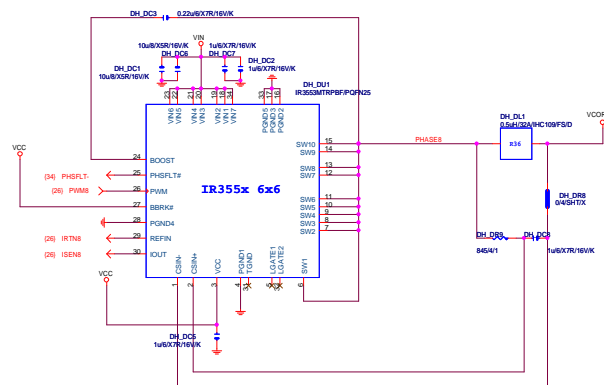
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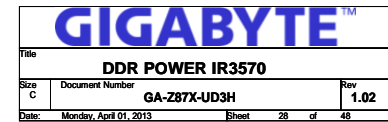
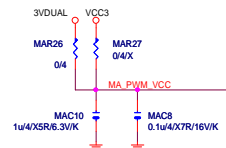


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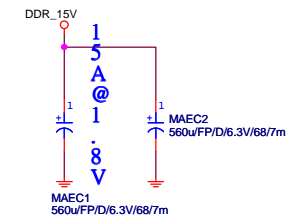
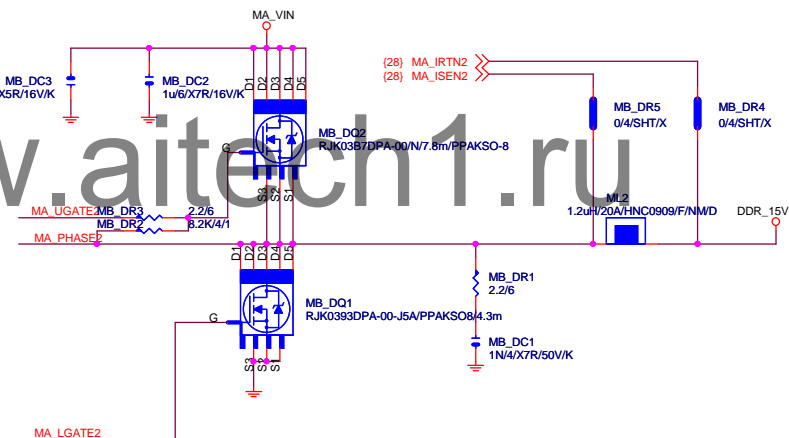
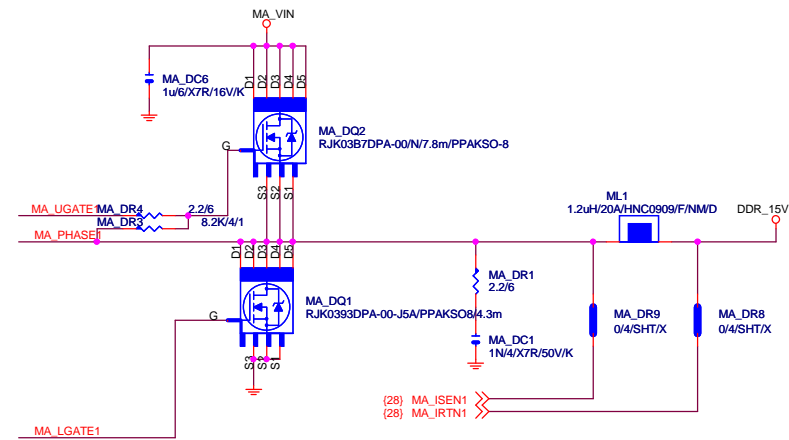
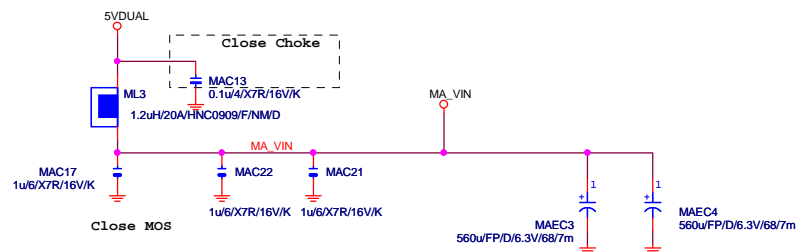
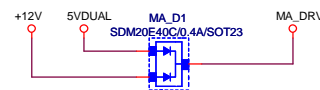
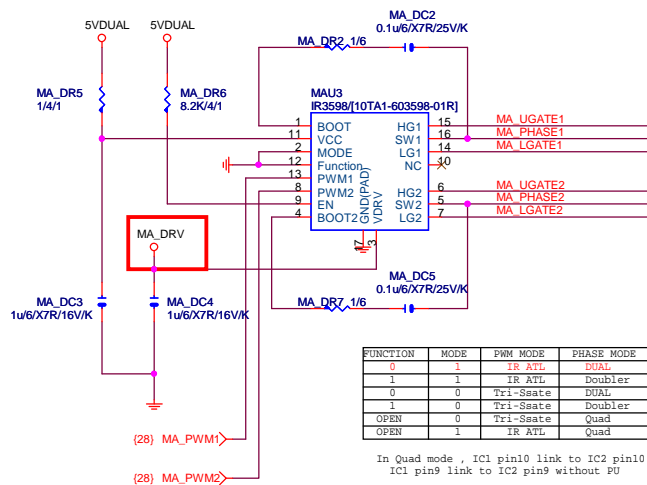


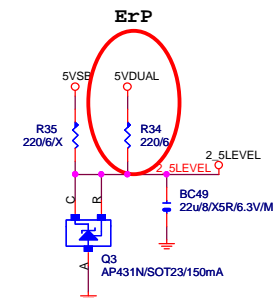
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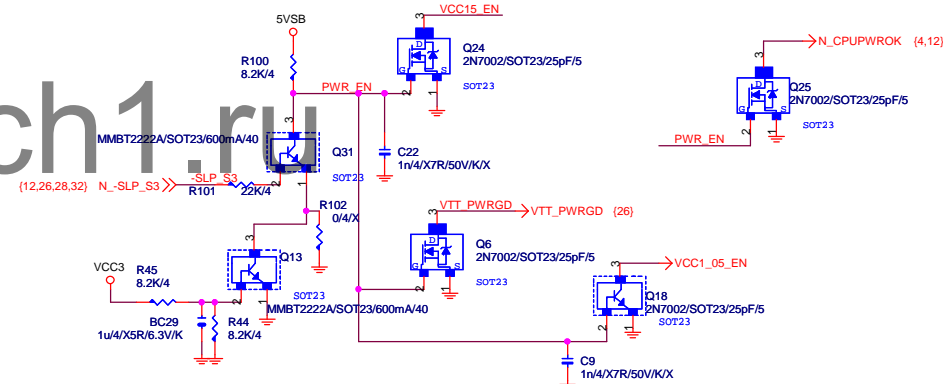
DDR_15V

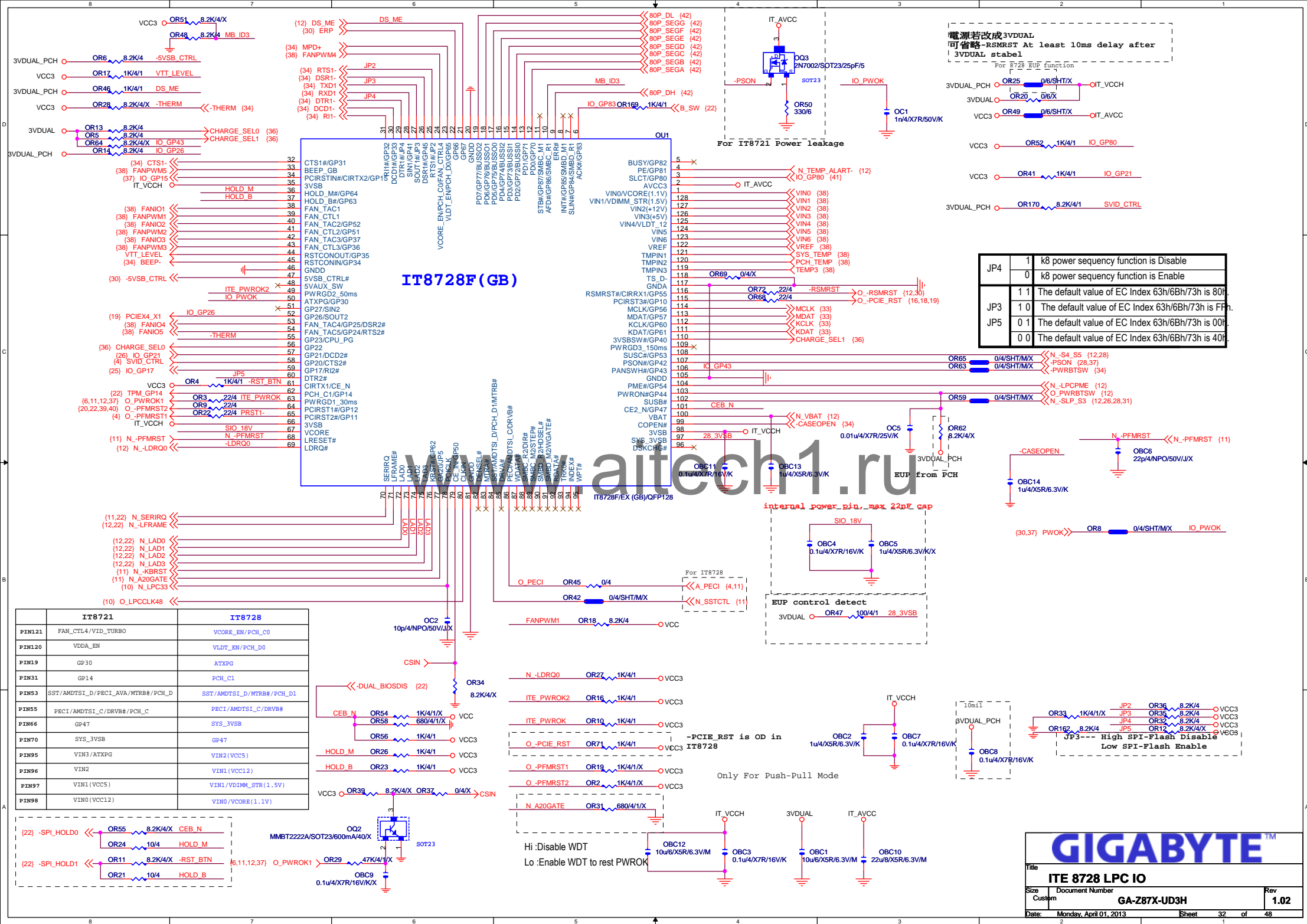


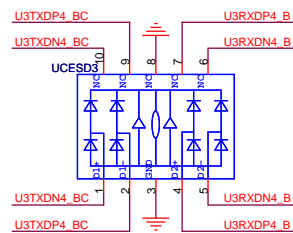
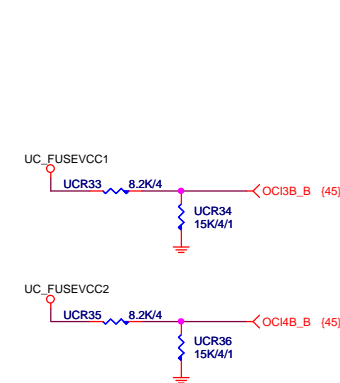
[illegible][illegible]

Pop when PCH & SIO both use 3VDUAL-PCH

The diagram shows a precision current source circuit. An op-amp (LM324DR) is configured as a voltage follower, with its non-inverting input connected to a voltage divider (R354, R357) and its output connected to the inverting input. The op-amp's output is connected to the base of a PNP transistor (Q108), which is also connected to a resistor (R708) and a resistor (R904). The emitter of Q108 is connected to a resistor (R905) and a resistor (R904). The collector of Q108 is connected to a resistor (R904) and a resistor (R905). The output of the current source is connected to a DAC (VCC3_DAC) and a load (FB17). The circuit includes several capacitors (C138, C139, C140, C227) and resistors (R354, R357, R708, R904, R905) to ensure stability and precision.

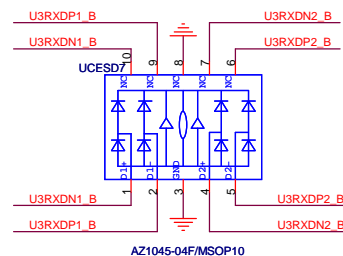
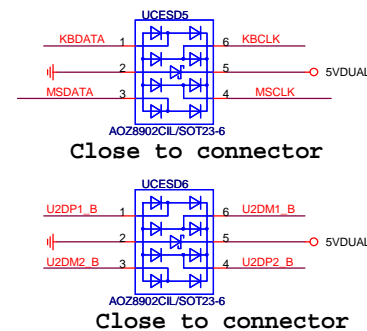




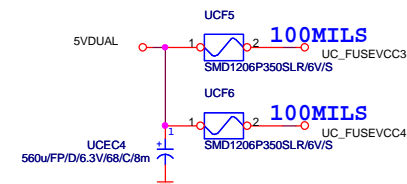


AZ1045-04F/MSOP10

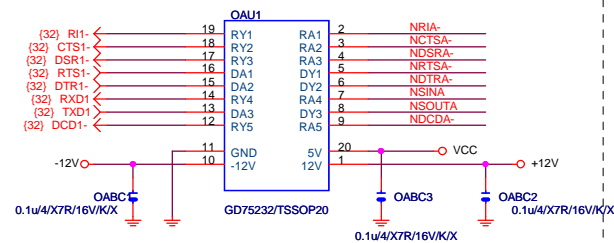
Close to connector



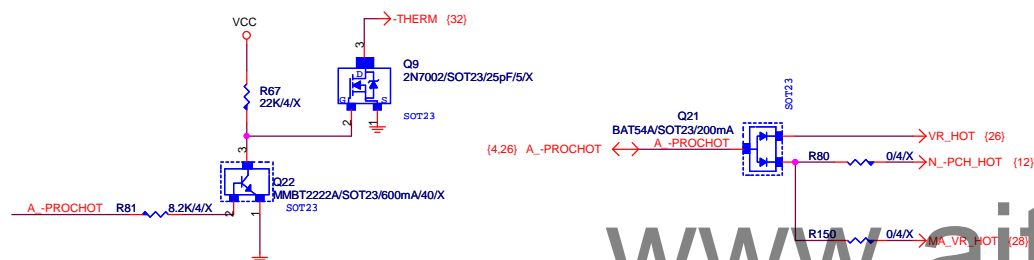
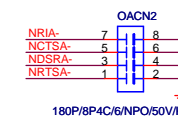
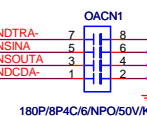
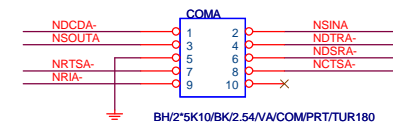
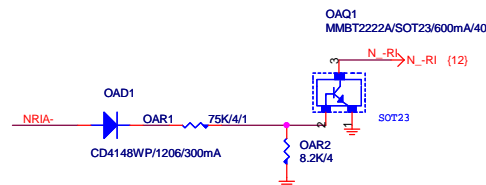
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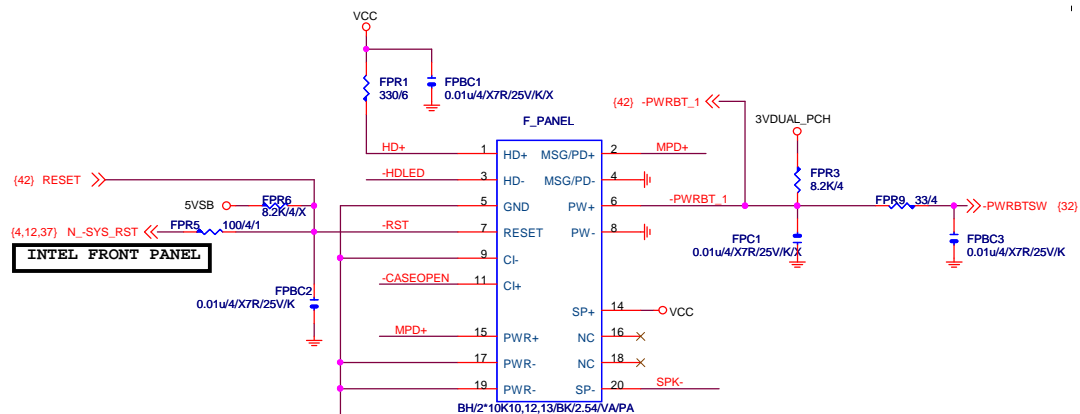
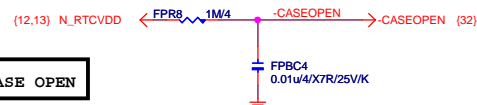
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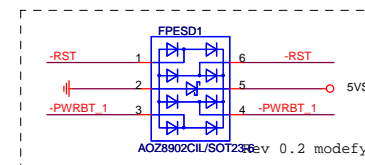
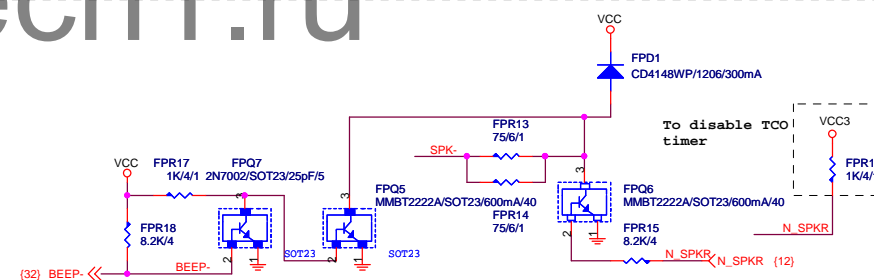
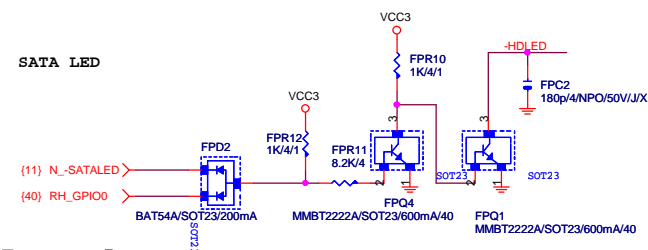
COM RI



CASE OPEN



SATA LED



Close to connector

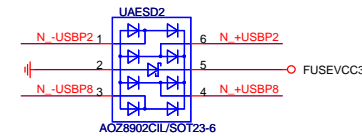
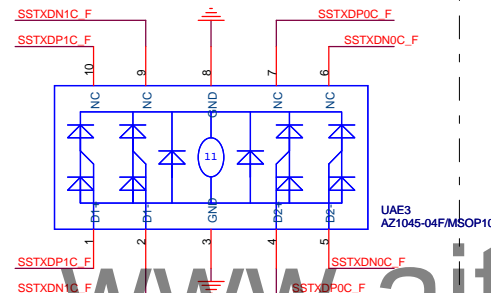
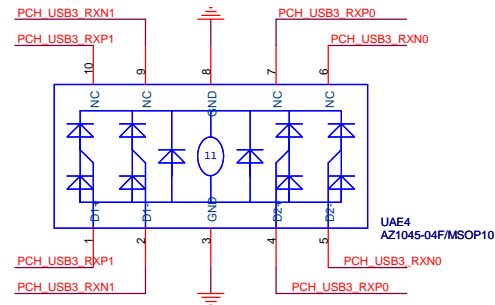
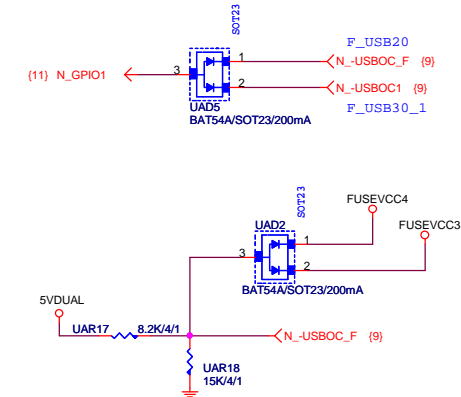
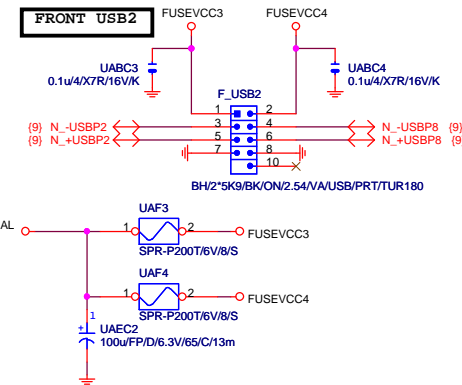
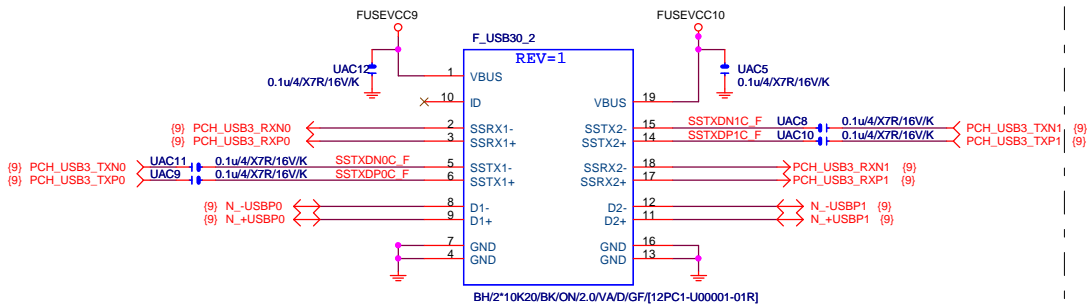
GIGABYTE™

Title
FP, COM, -PHOTSize
Custom Document Number
GA-Z87X-UD3H

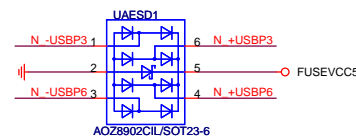
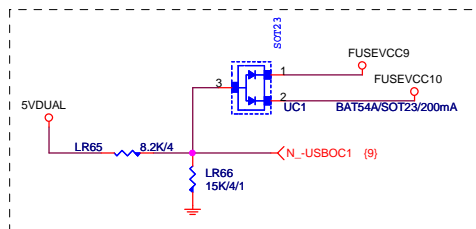
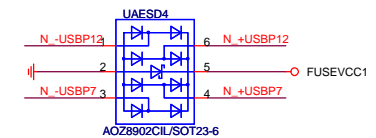
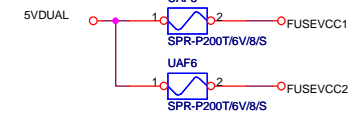
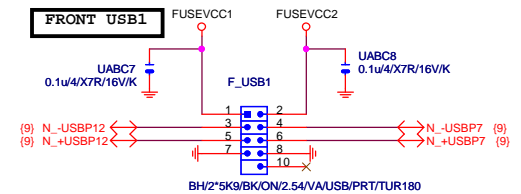
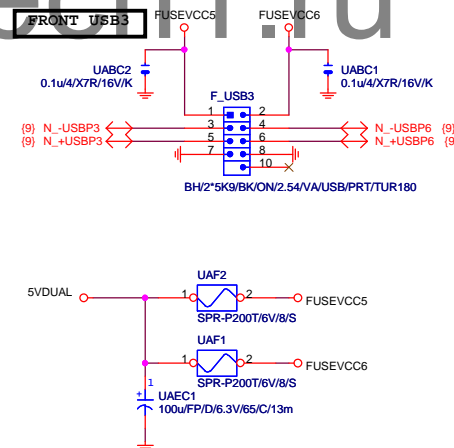
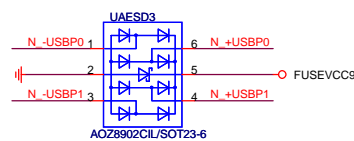
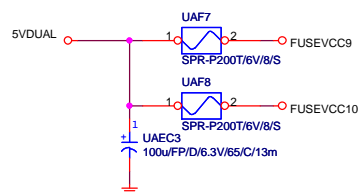
Date: Monday, April 01, 2013

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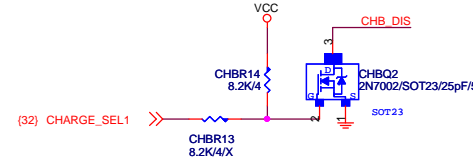
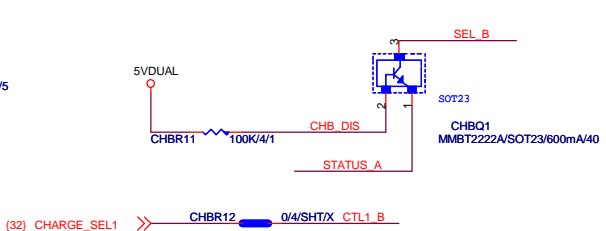
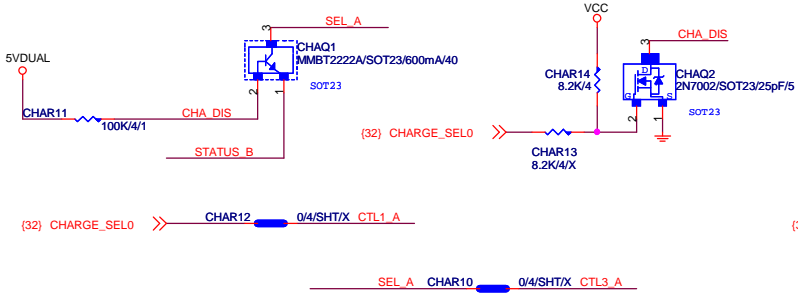
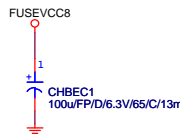
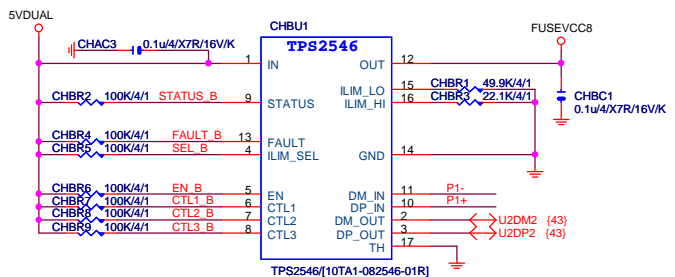
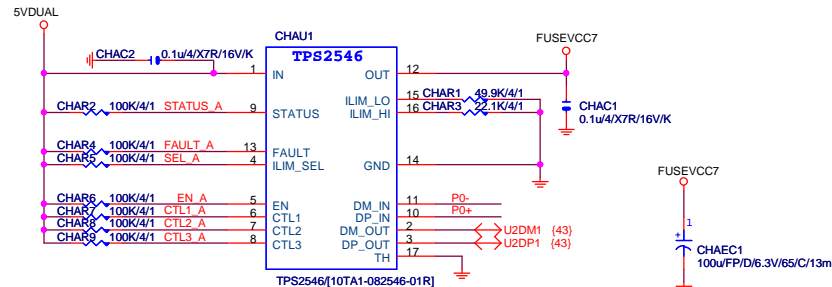
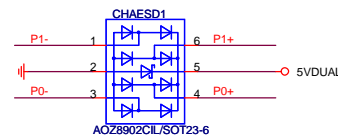
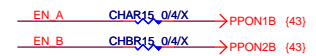
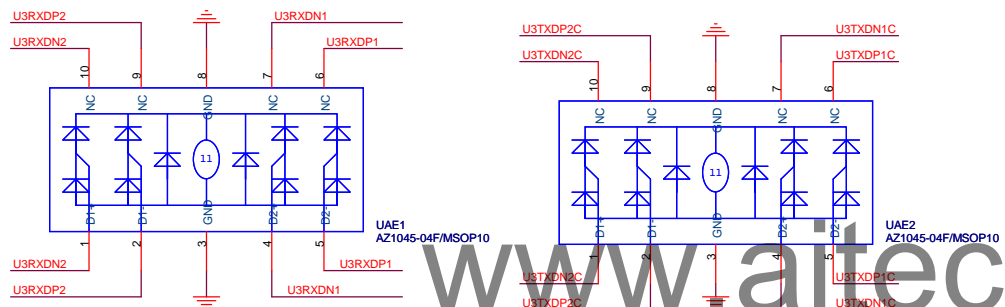
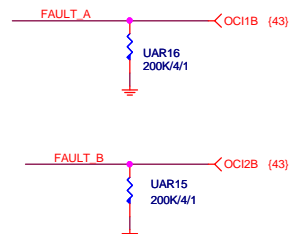
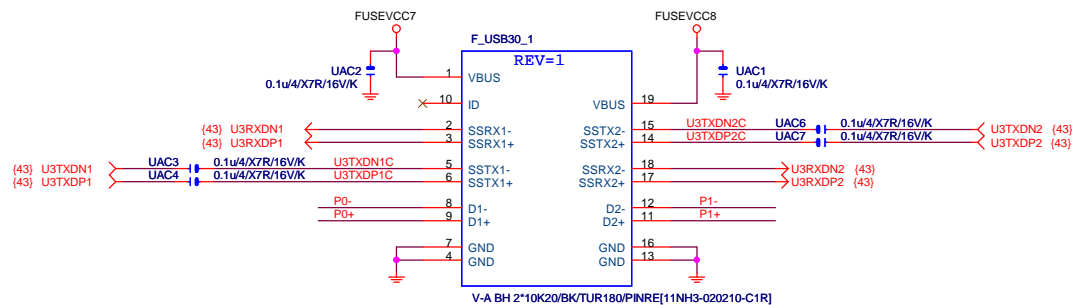
Rev
1.02



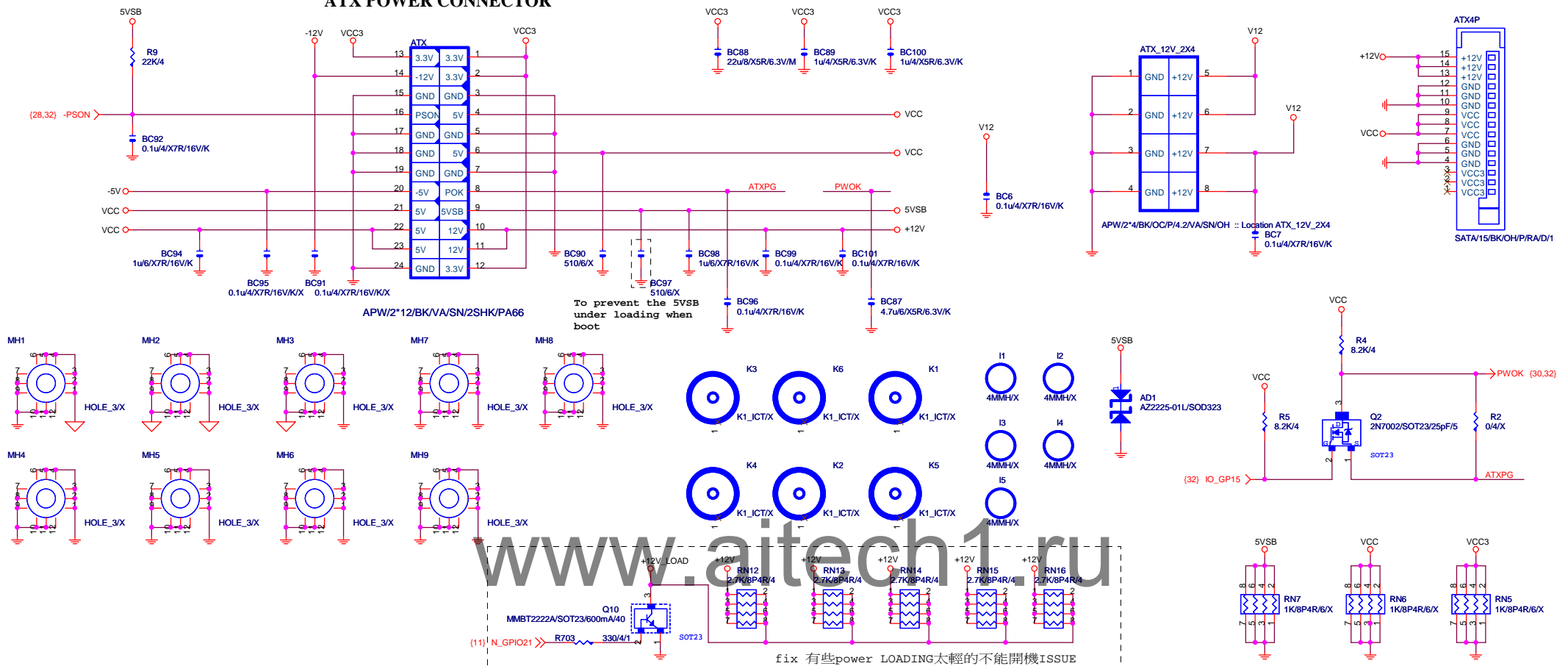
Close to connector



Close to connector



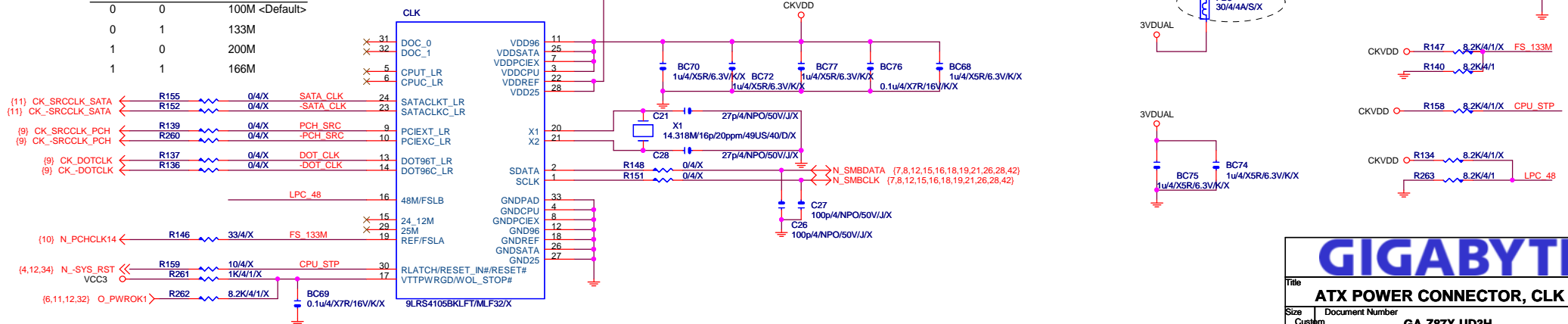
ATX POWER CONNECTOR



CLK GEN CK505

CPU Frequency Selection

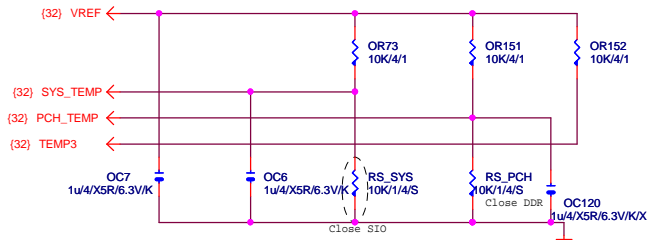
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0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M

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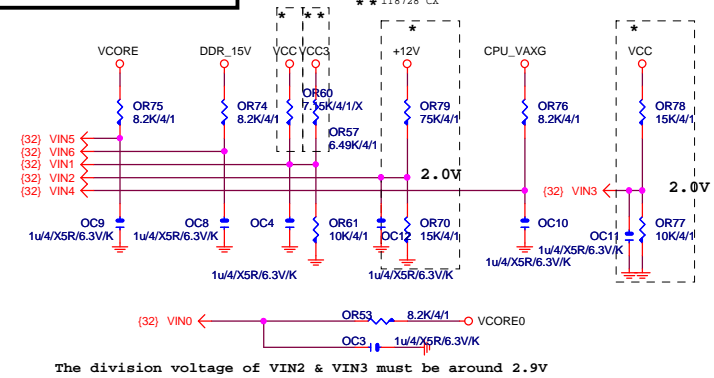
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ATX POWER CONNECTOR, CLK GEN

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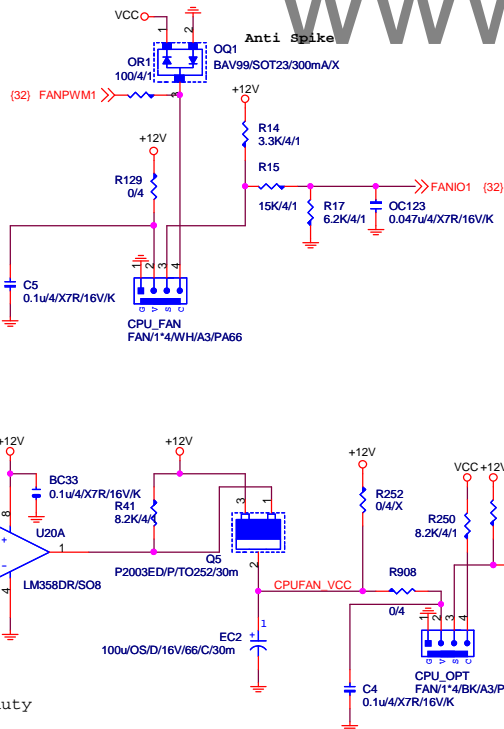
TEMP H/W MONITOR



VOLTAGE-- H/W MONITOR

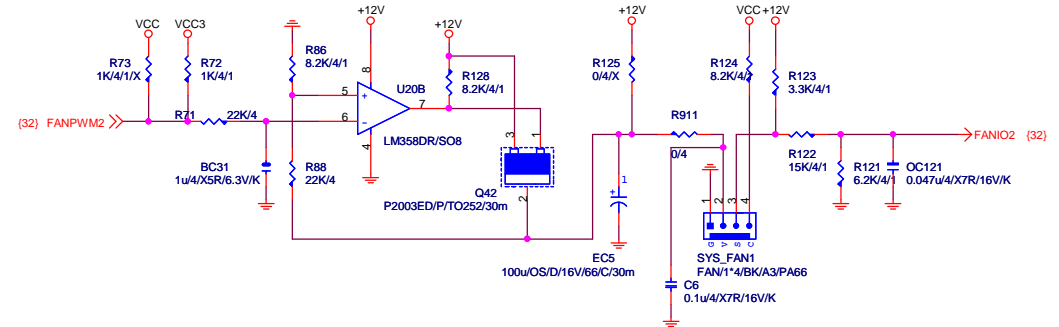


CPU SMART FAN

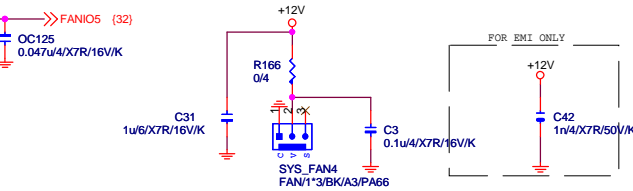
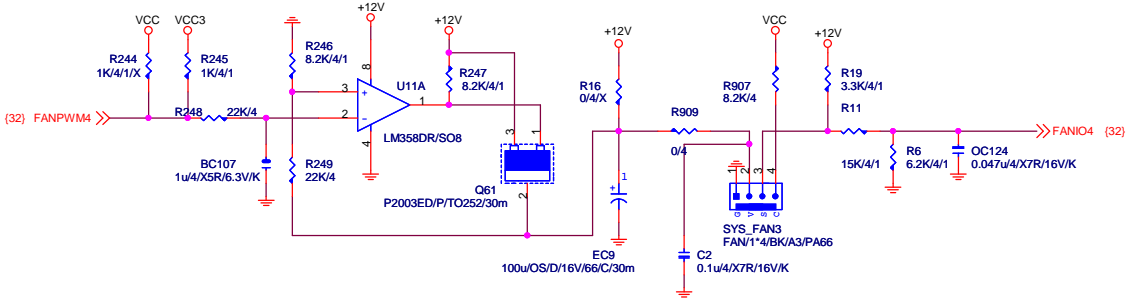
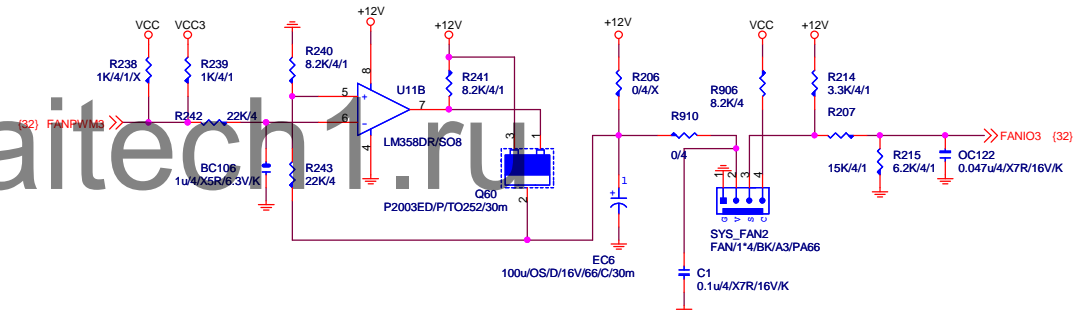


CTL5 (follow 1), default 100% duty

Linear SYS_FAN

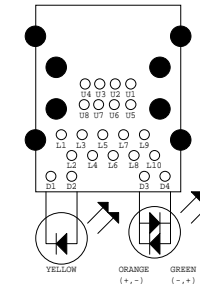
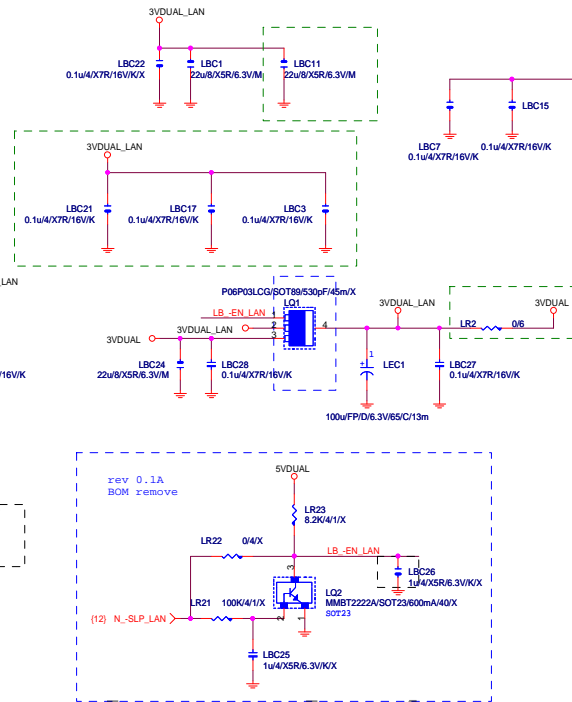
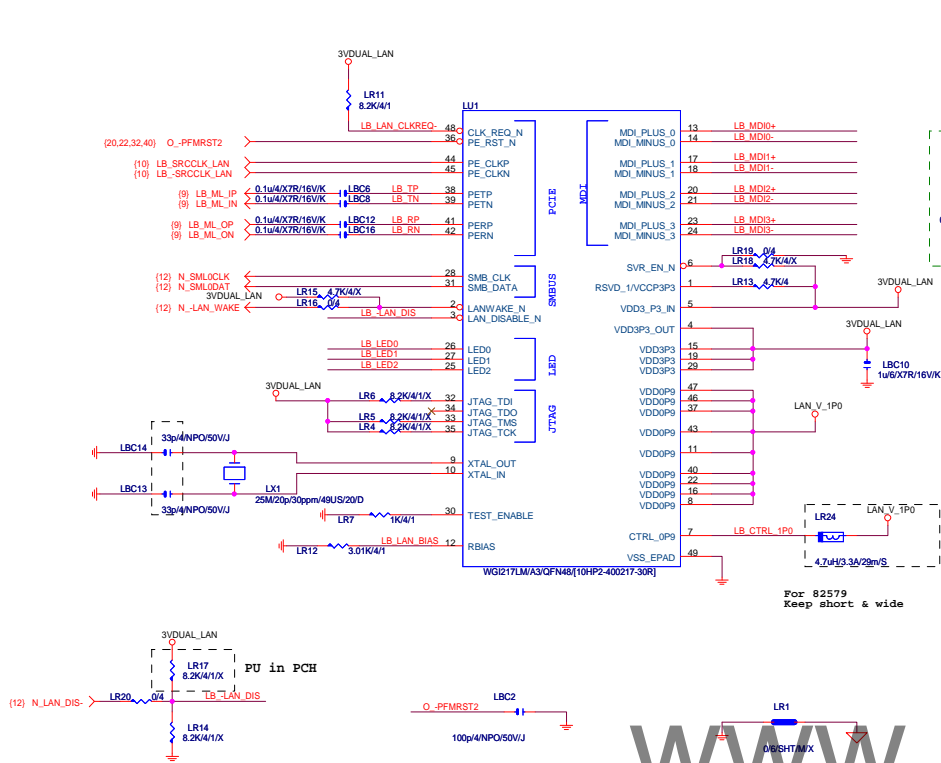


Linear SYS_FAN



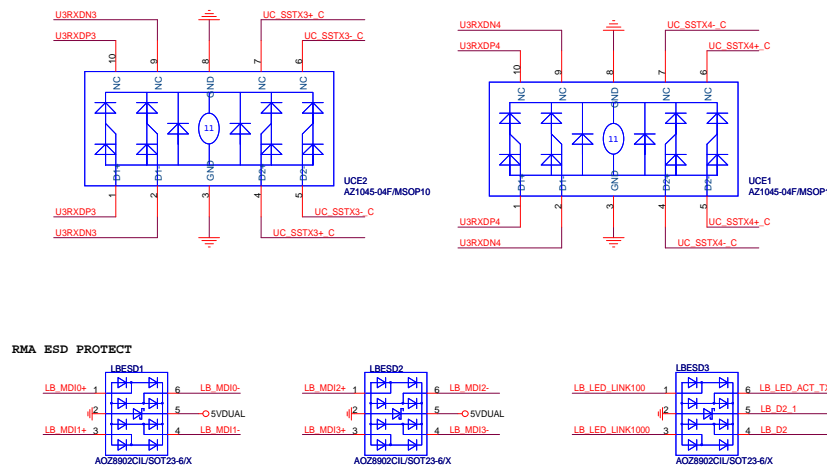
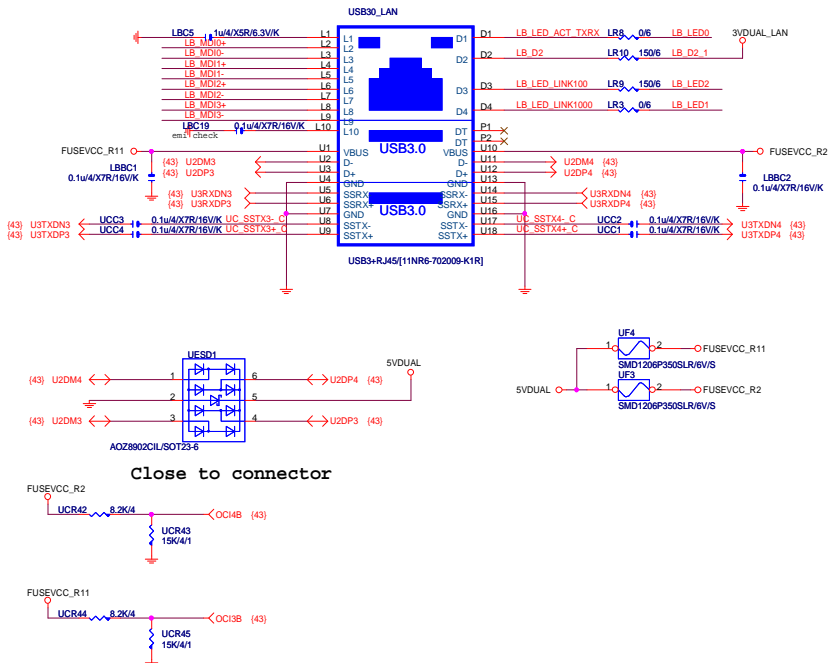
GIGABYTE™

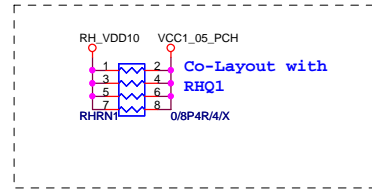
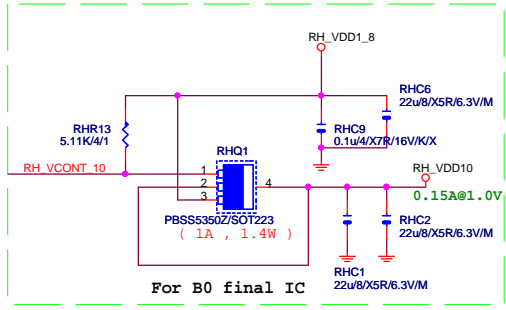
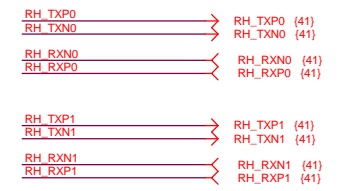
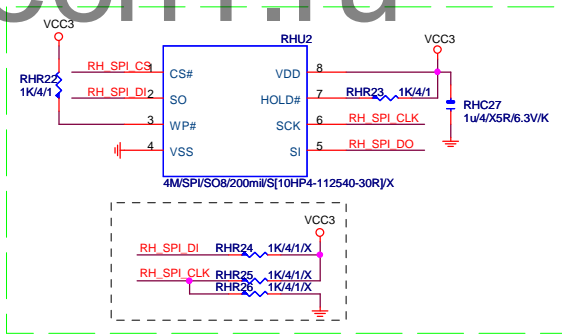
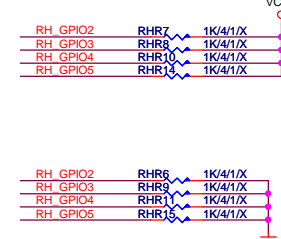
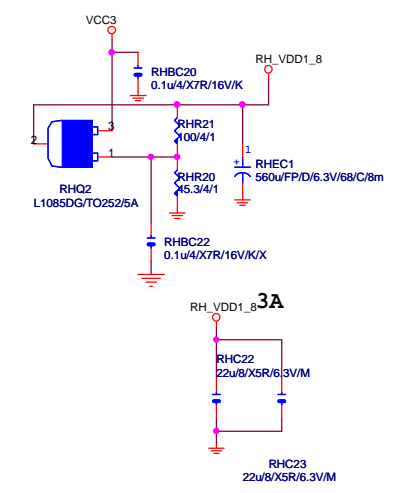
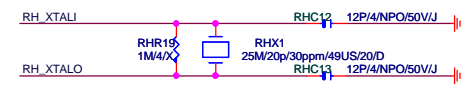
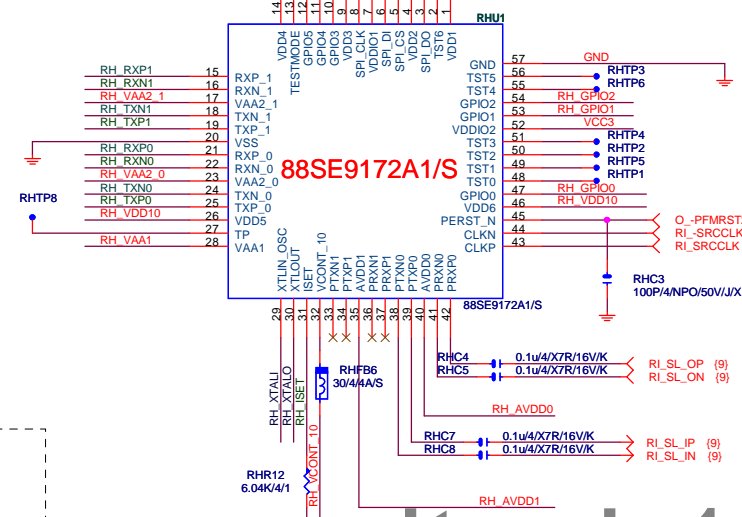
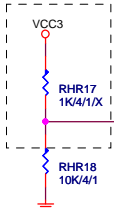
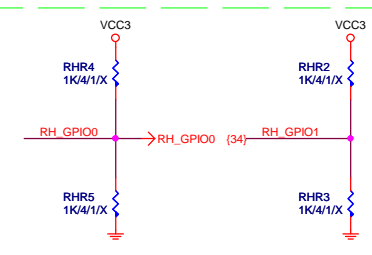
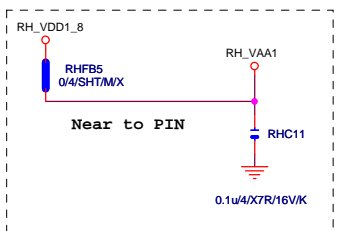
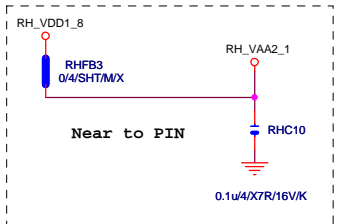
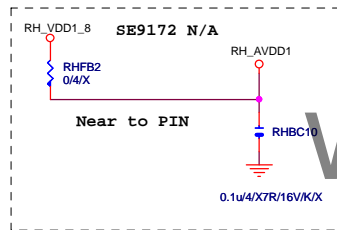
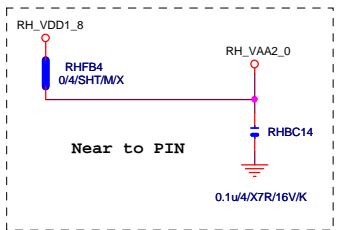
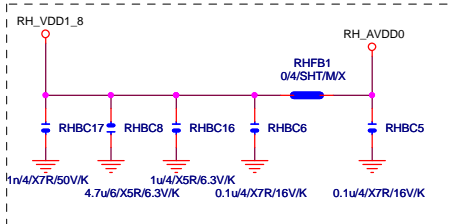
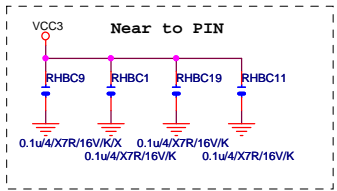
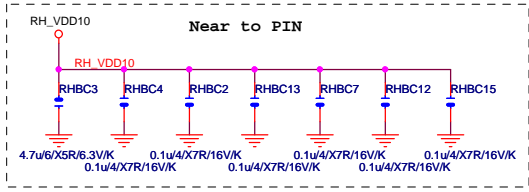
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HWM, FAN CTRL			
Size	Document Number		Rev
Custom	GA-Z87X-UD3H		1.02
Date:	Monday, April 01, 2013	Sheet	38 of 48



1Gb	Orange
100Mb	Green
10Mb	OFF

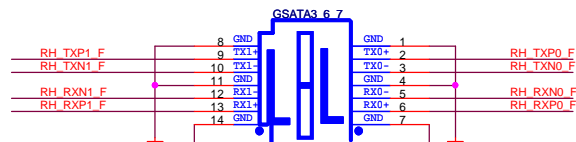
Access	Blinking
Link	Yellow





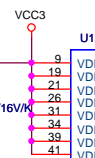
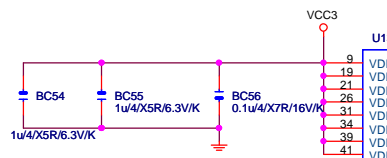
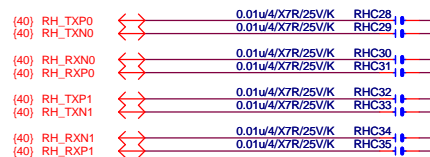
Marvell 9172 Power Requirements
 Analog 1.8V 230mA
 Core 1.0V 900mA
 I/O 3.3V 50mA

GIGABYTE™		
Marvell 9172 SATA 3.0		
Title	Document Number	Rev
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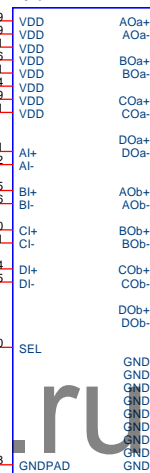


SATA/14/GR/HOP/RA/D/2
GRAY connector for SATA3

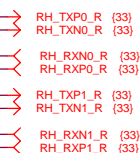
90歐姆:[15/4.5/7.5/4.5/15]



U13



eSATA

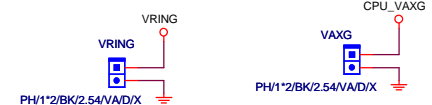
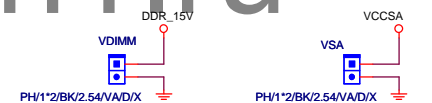
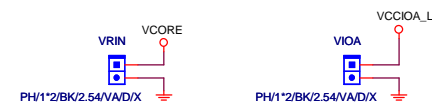
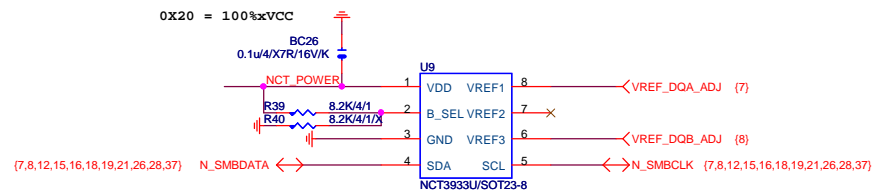


Front
SATA

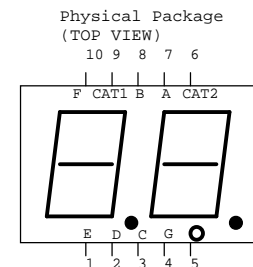
Function	SEL
xI--> xOa	L
xI--> xOb	H

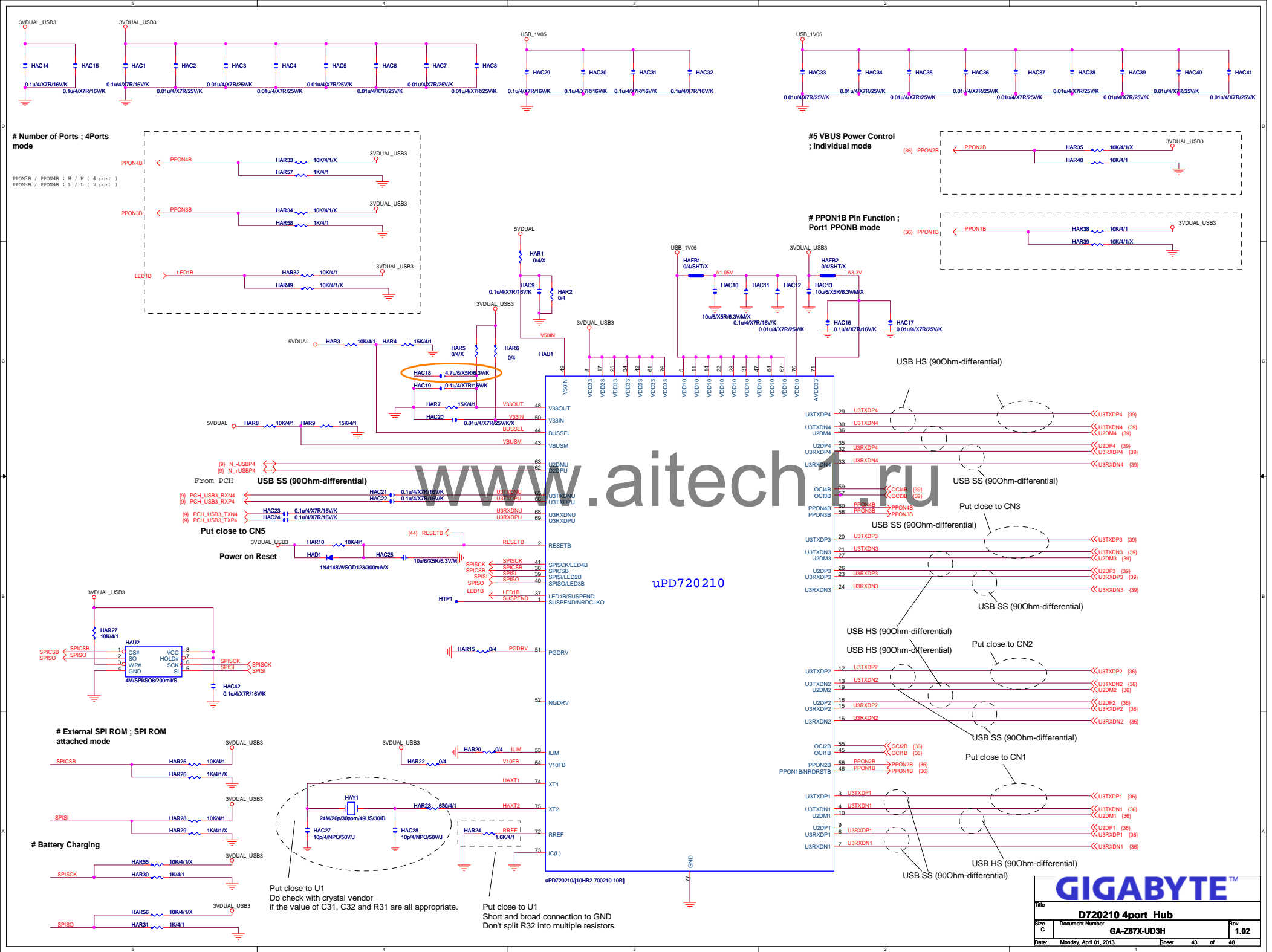
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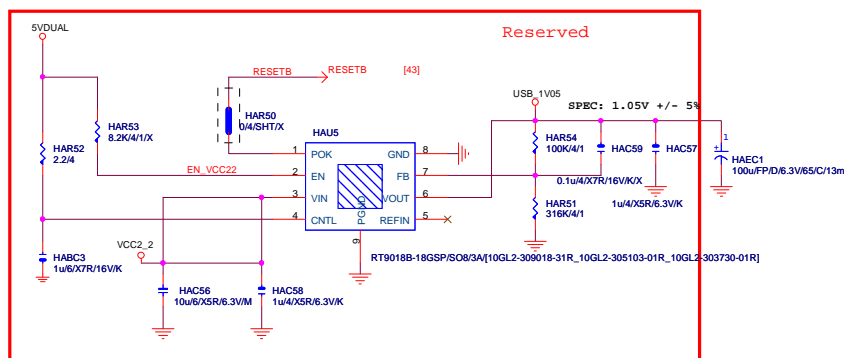
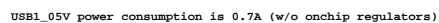
(32) IO_GP80

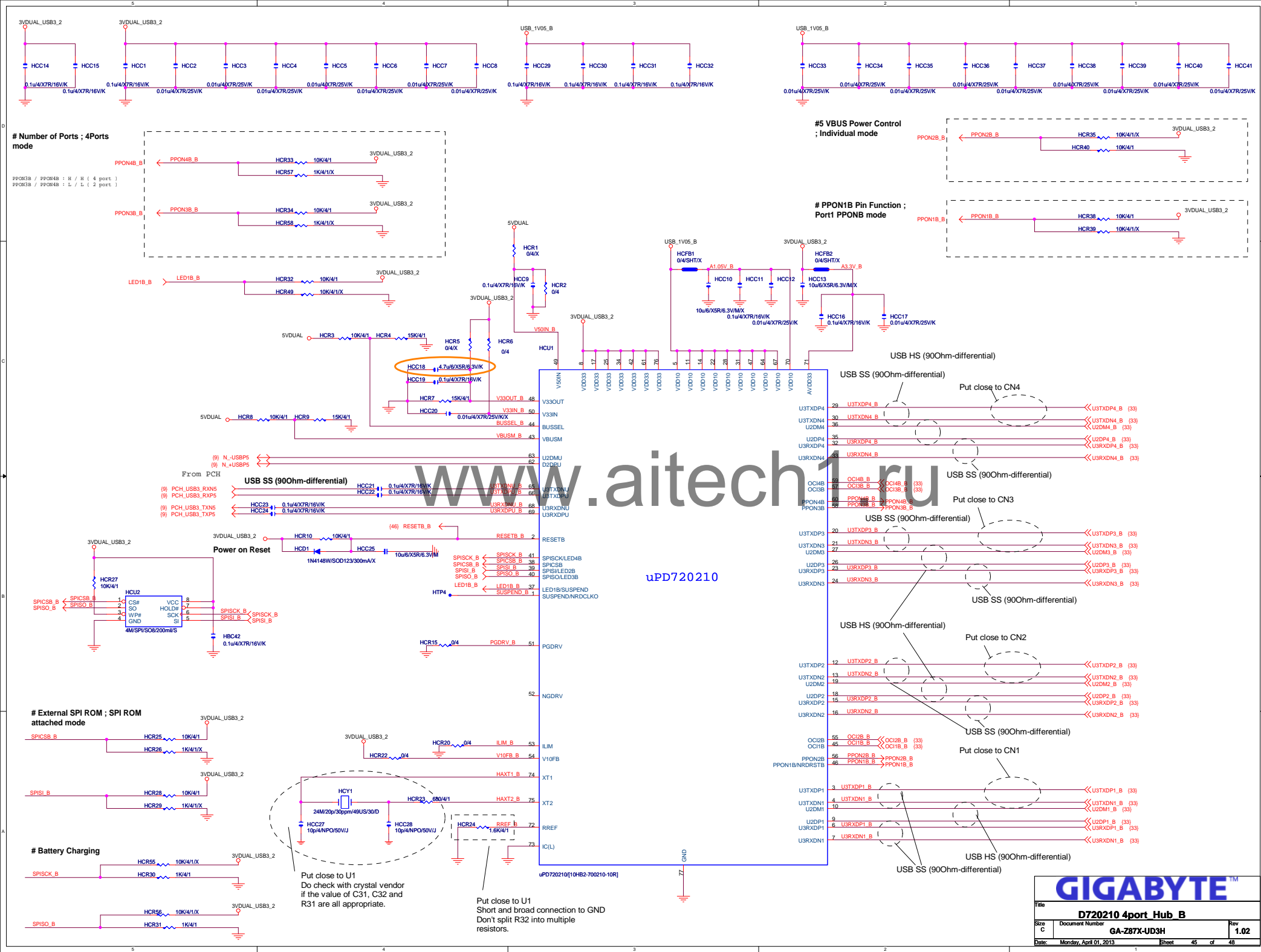


Timing diagram for the 80P bus. The diagram shows a sequence of signals: 80P_SEG7, 80P_SEG6, 80P_SEG4, 80P_DL, 80P_SEGG, 80P_SEG8, 80P_SEGD, 80P_SEGE, and 80P_DH. The signals are connected to a bus structure with components RN10 (1K/8P4R/6), RN11 (1K/8P4R/6), R181 (1K/4/1), and a VCC connection.







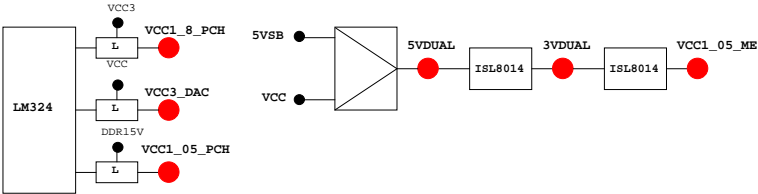


PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	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	-AC2_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

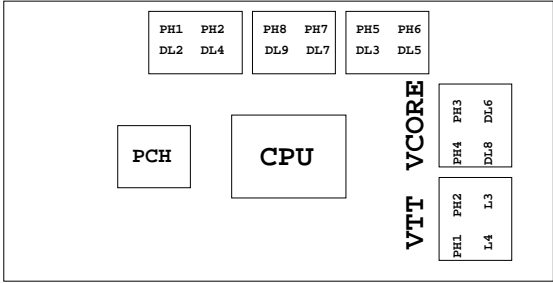
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
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/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
VID05/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/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/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	W_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_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#/CIRT2/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	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_AVREF_CA_B	DRAM Address Ref
VREF_DQ_AVREF_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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