

SHEET

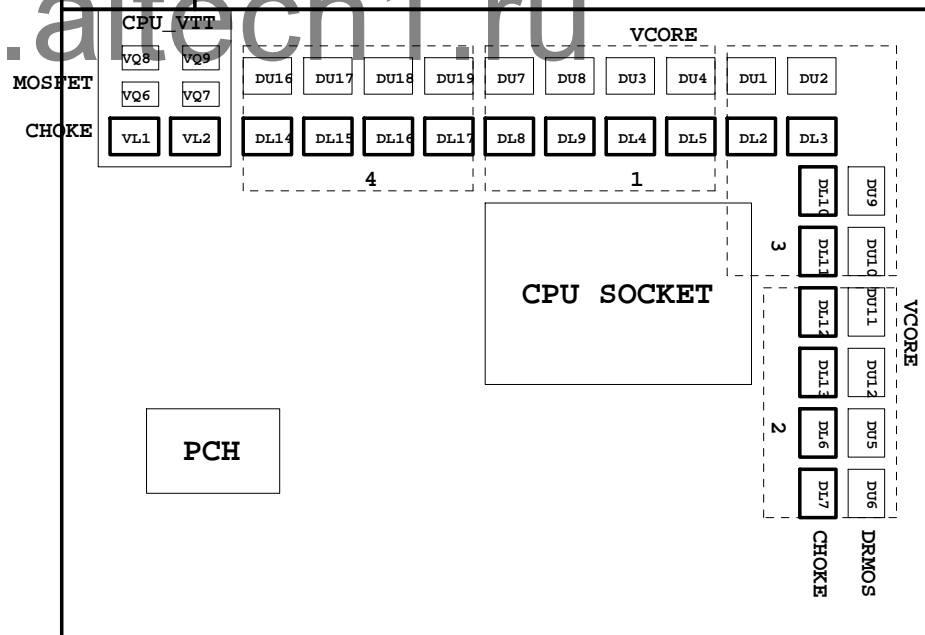
TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT_3
15	PCI EXPRESS*16/*8 SWITCH_2
16	PCI EXPRESS*8 SLOT_2
17	PCI EXPRESS*16 SLOT_1
18	PCI EXPRESS*16/*8 SWITCH_1
19	PCI EXPRESS*8 SLOT_1
20	PCI EXPRESS*1 SLOTS X1
21	HDMI/DVI/DP
22	Dual BIOS , TPM SLB9635TT
23	CT9570 AUDIO
24	REAR AUDIO JACK
25	AUDIO power
26-28	IR 3563A+IR3550-Vcore
29	DISCRETE POWER1
30	DISCRETE POWER2
31	ITE 8728 LPC IO
32	FP,FUSB,-PHOT
33	ATX POWER, CLOCK GEN
34	HWM,KB/MS , FAN CTRL
35	INTEL LAN I217
36	INTEL LAN I210
37	Marvell 9230
38-39	IR3570A+IR3598-DDR15 POWER

SHEET

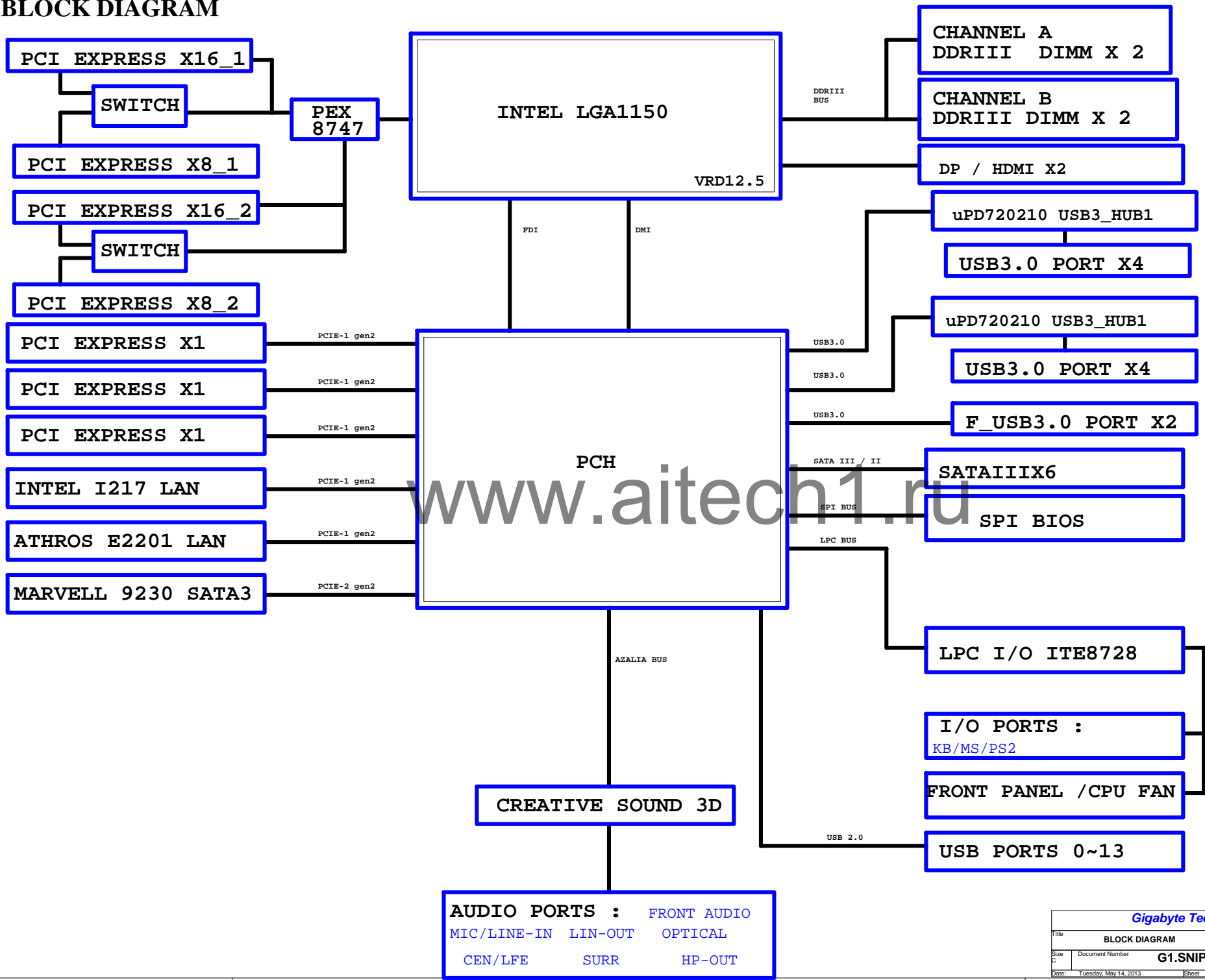
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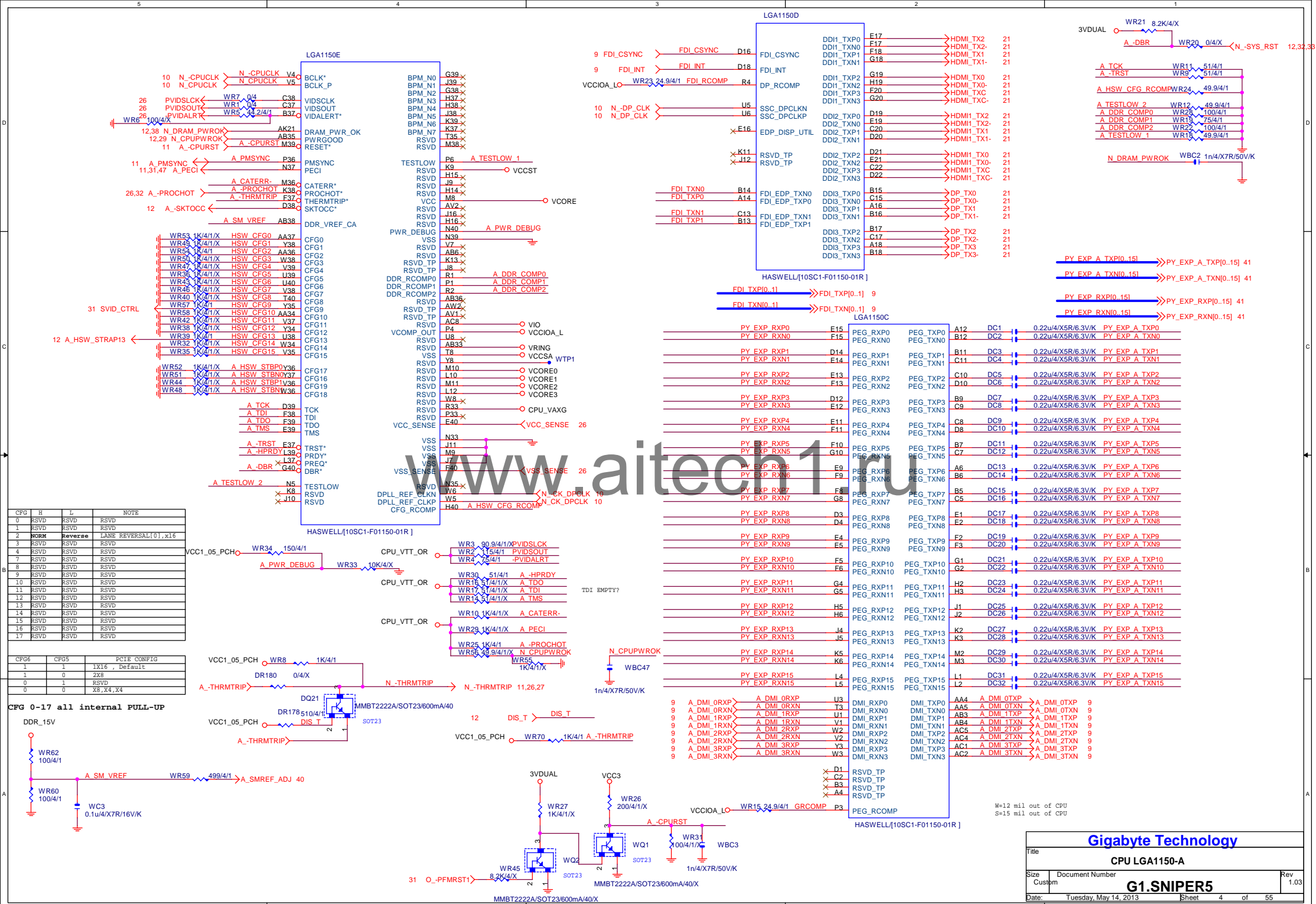
40	RST, PWR, CLR_CMOS
41	PEX8747S UPSTREAM & MISC
42	PEX8747S DOWNSTREAM SLOTS
43	PEX8747S STRAP & CPLD INTF
44	PEX8747S POWER
45	REFCLK
46	PEX8747 POWER DESIGN
47	IT8790
48	FAN CTRL
49-51	D720210 4port_Hub - Rear
52-54	D720210 4port_Hub - Front
55	TABLE LIST



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BLOCK DIAGRAM





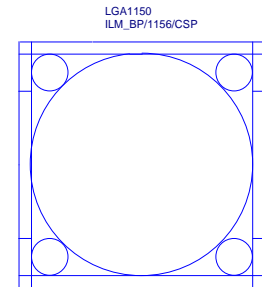
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MAAA3	AW17	DDR0_MA3	DDR0_DQ3	AF39	MDA3				
MAAA4	AU17	DDR0_MA3	DDR0_DQ3	AD37	MDA4				
MAAA5	AW18	DDR0_MA4	DDR0_DQ4	AD40	MDA5				
MAAA6	AV17	DDR0_MA5	DDR0_DQ5	AF40	MDA7				
MAAA7	AT18	DDR0_MA6	DDR0_DQ6	AF40	MDA7				
MAAA8	AU18	DDR0_MA7	DDR0_DQ7	AF40	MDA9				
MAAA9	AT19	DDR0_MA8	DDR0_DQ8	AH39	MDA13				
MAAA10	AW11	DDR0_MA9	DDR0_DQ9	AK38	MDA10				
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MAAA12	AU19	DDR0_MA11	DDR0_DQ11	AH37	MDA12				
MAAA13	AY10	DDR0_MA12	DDR0_DQ12	AH38	MDA8				
MAAA14	AT20	DDR0_MA13	DDR0_DQ13	AK37	MDA14				
MAAA15	AU21	DDR0_MA14	DDR0_DQ14	AK40	MDA15				
		DDR0_MA15	DDR0_DQ15	AK40	MDA17				
MODT_A0	AW10	DDR0_ODT0	DDR0_DQ16	AM40	MDA17				
MODT_A1	AY8	DDR0_ODT1	DDR0_DQ17	AM39	MDA18				
MODT_A2	AW9	DDR0_ODT2	DDR0_DQ18	AP38	MDA19				
MODT_A3	AU8	DDR0_ODT3	DDR0_DQ19	AP39	MDA19				
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			DDR0_DQ21	AM38	MDA16				
			DDR0_DQ22	AP37	MDA22				
			DDR0_DQ23	AP40	MDA23				
			DDR0_DQ24	AV37	MDA25				
			DDR0_DQ25	AV37	MDA29				
			DDR0_DQ26	AU35	MDA26				
			DDR0_DQ27	AV35	MDA27				
			DDR0_DQ28	AT37	MDA28				
			DDR0_DQ29	AU37	MDA24				
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			DDR0_DQ31	AW35	MDA31				
			DDR0_DQ32	AY6	MDA33				
			DDR0_DQ33	AU6	MDA37				
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			DDR0_DQ36	AW6	MDA36				
			DDR0_DQ37	AV6	MDA32				
			DDR0_DQ38	AW4	MDA38				
			DDR0_DQ39	AY4	MDA39				
			DDR0_DQ40	AR1	MDA41				
			DDR0_DQ41	AR4	MDA45				
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			DDR0_DQ43	AN4	MDA43				
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			DDR0_DQ46	AN2	MDA46				
			DDR0_DQ47	AN1	MDA47				
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			DDR0_DQ52	AL3	MDA48				
			DDR0_DQ53	AJ2	MDA54				
			DDR0_DQ54	AJ1	MDA55				
			DDR0_DQ55	AG1	MDA57				
			DDR0_DQ56	AG4	MDA61				
			DDR0_DQ57	AE3	MDA58				
			DDR0_DQ58	AE4	MDA59				
			DDR0_DQ59	AG2	MDA60				
			DDR0_DQ60	AG3	MDA56				
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			DDR0_DQ65	AN39	DQSA2				
			DDR0_DQ66	AV36	DQSA3				
			DDR0_DQ67	AV5	DQSA4				
			DDR0_DQ68	AP3	DQSA5				
			DDR0_DQ69	AK3	DQSA6				
			DDR0_DQ70	AE3	DQSA7				
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			DDR0_DQ75	AU36	DQSA3				
			DDR0_DQ76	AW5	DQSA4				
			DDR0_DQ77	AP2	DQSA5				
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HASWELL[10SC1-F01150-01R]

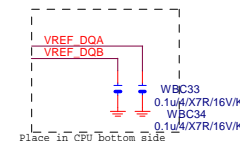
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8	MODT_B[0..3]	MODT_B10_31
7	MDA[0..63]	MDA10_631
8	MDB[0..63]	MDB10_631
7	DQSA[0..7]	DQSA10_71
7	-DQSA[0..7]	-DQSA10_71
7	MAAA[0..15]	MAAA10_151
8	MAAB[0..15]	MAAB10_151
8	DQSB[0..7]	DQSB10_71
8	-DQSB[0..7]	-DQSB10_71

LGA1150B									
MAAB0	AL19	DDR1_MA0	DDR1_DQ0	AE34	MDB0				
MAAB1	AK23	DDR1_MA1	DDR1_DQ1	AE35	MDB1				
MAAB2	AM22	DDR1_MA2	DDR1_DQ2	AG35	MDB2				
MAAB3	AM23	DDR1_MA3	DDR1_DQ3	AH35	MDB3				
MAAB4	AP23	DDR1_MA4	DDR1_DQ4	AD34	MDB4				
MAAB5	AL23	DDR1_MA5	DDR1_DQ5	AD35	MDB5				
MAAB6	AY24	DDR1_MA6	DDR1_DQ6	AG34	MDB6				
MAAB7	AV25	DDR1_MA7	DDR1_DQ7	AH34	MDB7				
MAAB8	AU25	DDR1_MA8	DDR1_DQ8	AL34	MDB8				
MAAB9	AW25	DDR1_MA9	DDR1_DQ9	AL35	MDB9				
MAAB10	AP18	DDR1_MA10	DDR1_DQ10	AK31	MDB10				
MAAB11	AY25	DDR1_MA11	DDR1_DQ11	AL31	MDB11				
MAAB12	AV26	DDR1_MA12	DDR1_DQ12	AK34	MDB12				
MAAB13	AR15	DDR1_MA13	DDR1_DQ13	AK35	MDB13				
MAAB14	AV27	DDR1_MA14	DDR1_DQ14	AK32	MDB14				
MAAB15	AY28	DDR1_MA15	DDR1_DQ15	AL32	MDB15				
			DDR1_DQ16	AN34	MDB17				
			DDR1_DQ17	AP34	MDB21				
			DDR1_DQ18	AN31	MDB19				
			DDR1_DQ19	AP31	MDB23				
			DDR1_DQ20	AN35	MDB20				
			DDR1_DQ21	AP35	MDB18				
			DDR1_DQ22	AN32	MDB19				
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			DDR1_DQ29	AL28	MDB29				
			DDR1_DQ30	AP29	MDB26				
			DDR1_DQ31	AP28	MDB31				
			DDR1_DQ32	AR12	MDB32				
			DDR1_DQ33	AP12	MDB33				
			DDR1_DQ34	AL13	MDB34				
			DDR1_DQ35	AL12	MDB35				
			DDR1_DQ36	AR13	MDB36				
			DDR1_DQ37	AP13	MDB37				
			DDR1_DQ38	AM13	MDB38				
			DDR1_DQ39	AM12	MDB39				
			DDR1_DQ40	AR9	MDB45				
			DDR1_DQ41	AP9	MDB41				
			DDR1_DQ42	AR6	MDB47				
			DDR1_DQ43	AP6	MDB43				
			DDR1_DQ44	AR10	MDB44				
			DDR1_DQ45	AP10	MDB40				
			DDR1_DQ46	AR7	MDB46				
			DDR1_DQ47	AP7	MDB42				
			DDR1_DQ48	AM9	MDB52				
			DDR1_DQ49	AL9	MDB53				
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			DDR1_DQ52	AM10	MDB48				
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			DDR1_DQ55	AR6	MDB61				
			DDR1_DQ56	AR6	MDB60				
			DDR1_DQ57	AE7	MDB59				
			DDR1_DQ58	AE7	MDB63				
			DDR1_DQ59	AE7	MDB56				
			DDR1_DQ60	AJ7	MDB57				
			DDR1_DQ61	AE6	MDB58				
			DDR1_DQ62	AE7	MDB62				
			DDR1_DQ63	AF35	DQSB0				
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			DDR1_DQ65	AP33	DQSB2				
			DDR1_DQ66	AN28	DQSB3				
			DDR1_DQ67	AN12	DQSB4				
			DDR1_DQ68	AP8	DQSB5				
			DDR1_DQ69	AL8	DQSB6				
			DDR1_DQ70	AG7	DQSB7				
			DDR1_DQ71	AN25					
			DDR1_DQ72	AF34	-DQSB0				
			DDR1_DQ73	AK33	-DQSB1				
			DDR1_DQ74	AN33	-DQSB2				
			DDR1_DQ75	AN29	-DQSB3				
			DDR1_DQ76	AN13	-DQSB4				
			DDR1_DQ77	AR8	-DQSB5				
			DDR1_DQ78	AM8	-DQSB6				
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HASWELL[10SC1-F01150-01R]

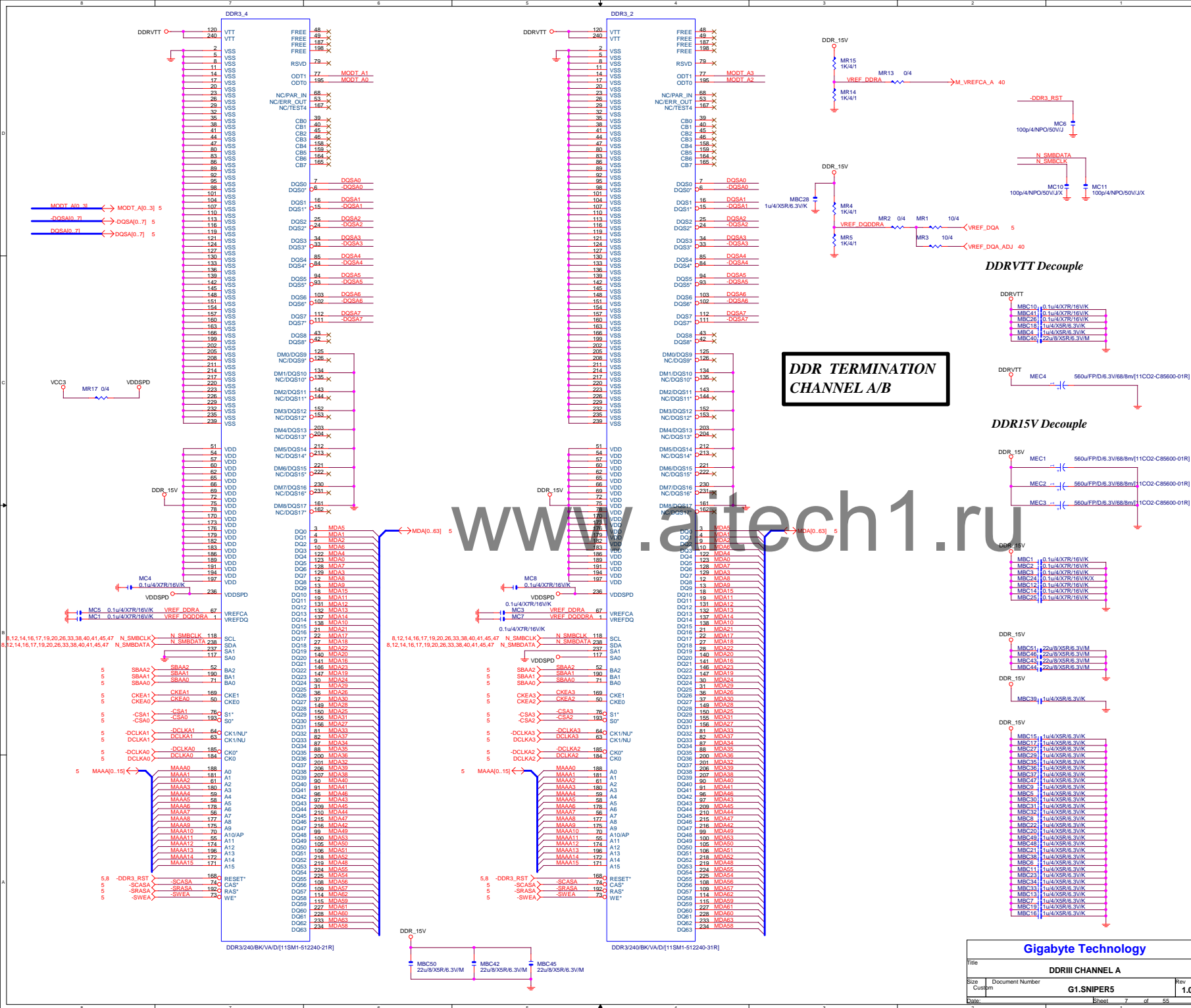


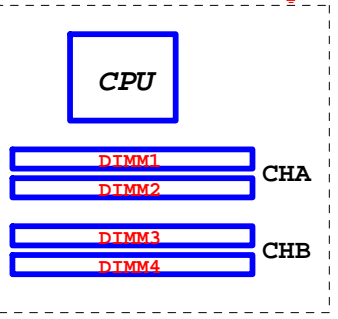
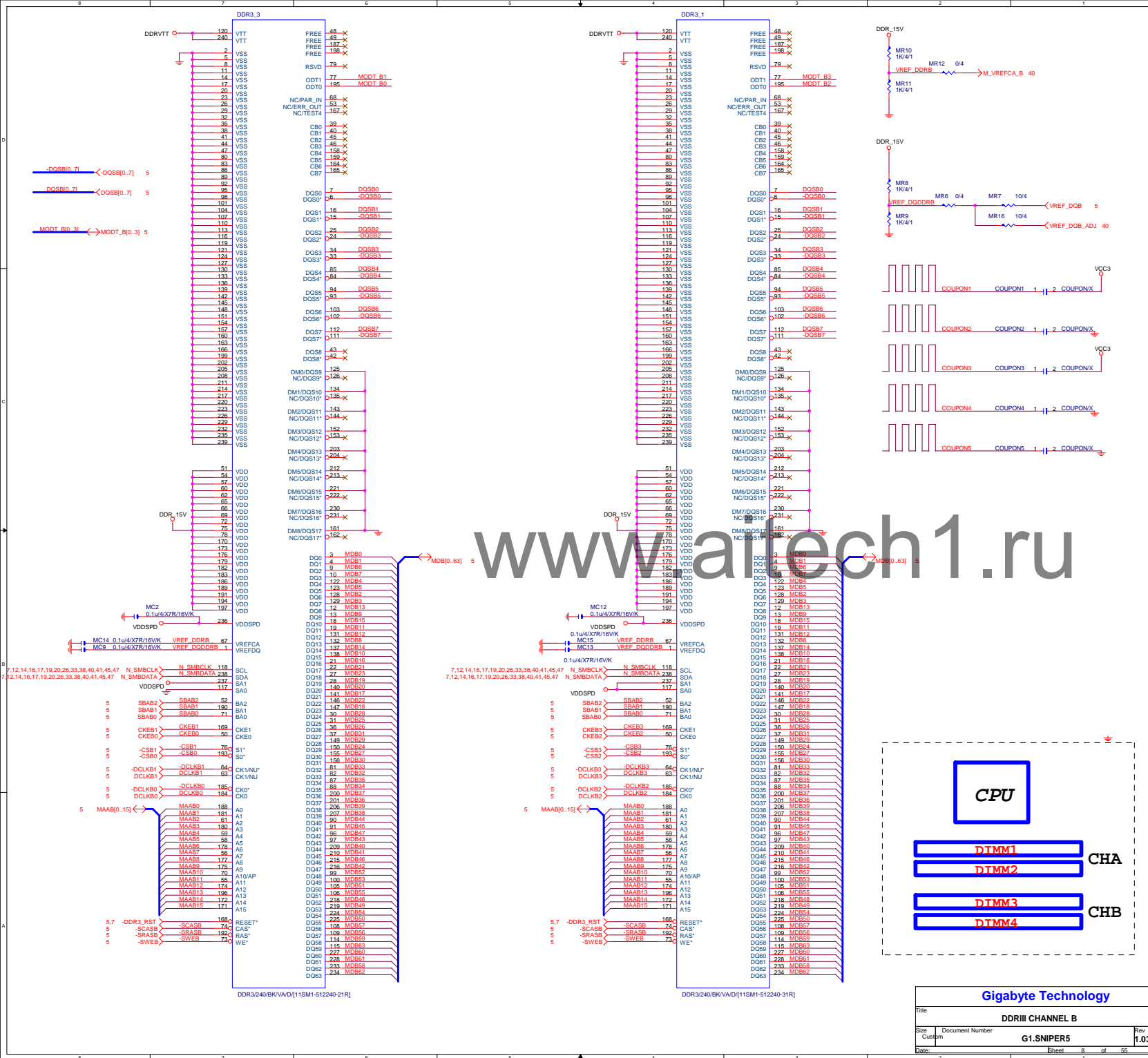
Need check the new CPU ME

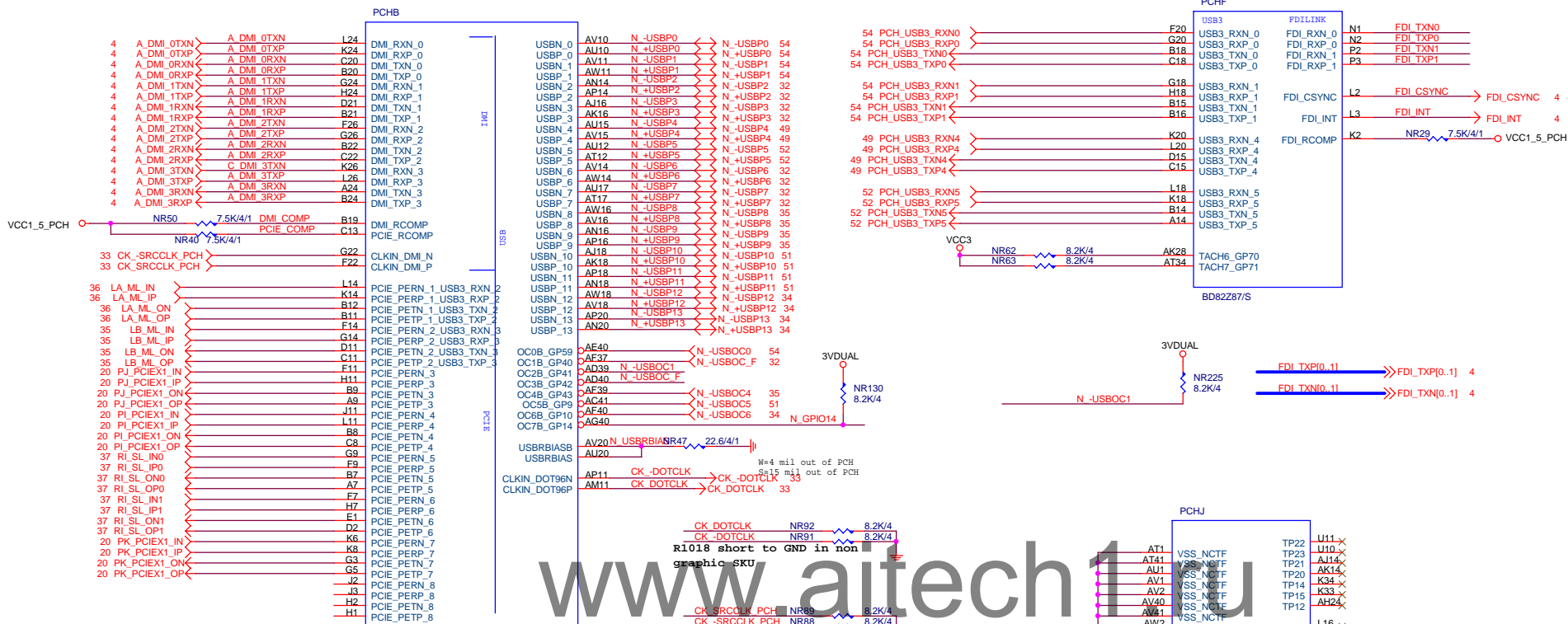


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Size				G1.Sniper5			
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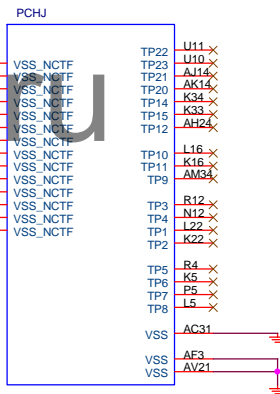
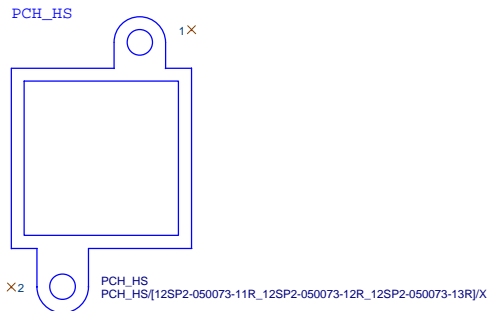




PCIEX1:16/5/5/16 (breakout min 8/4/4/8)

Impedance=80 +/- 17.5%

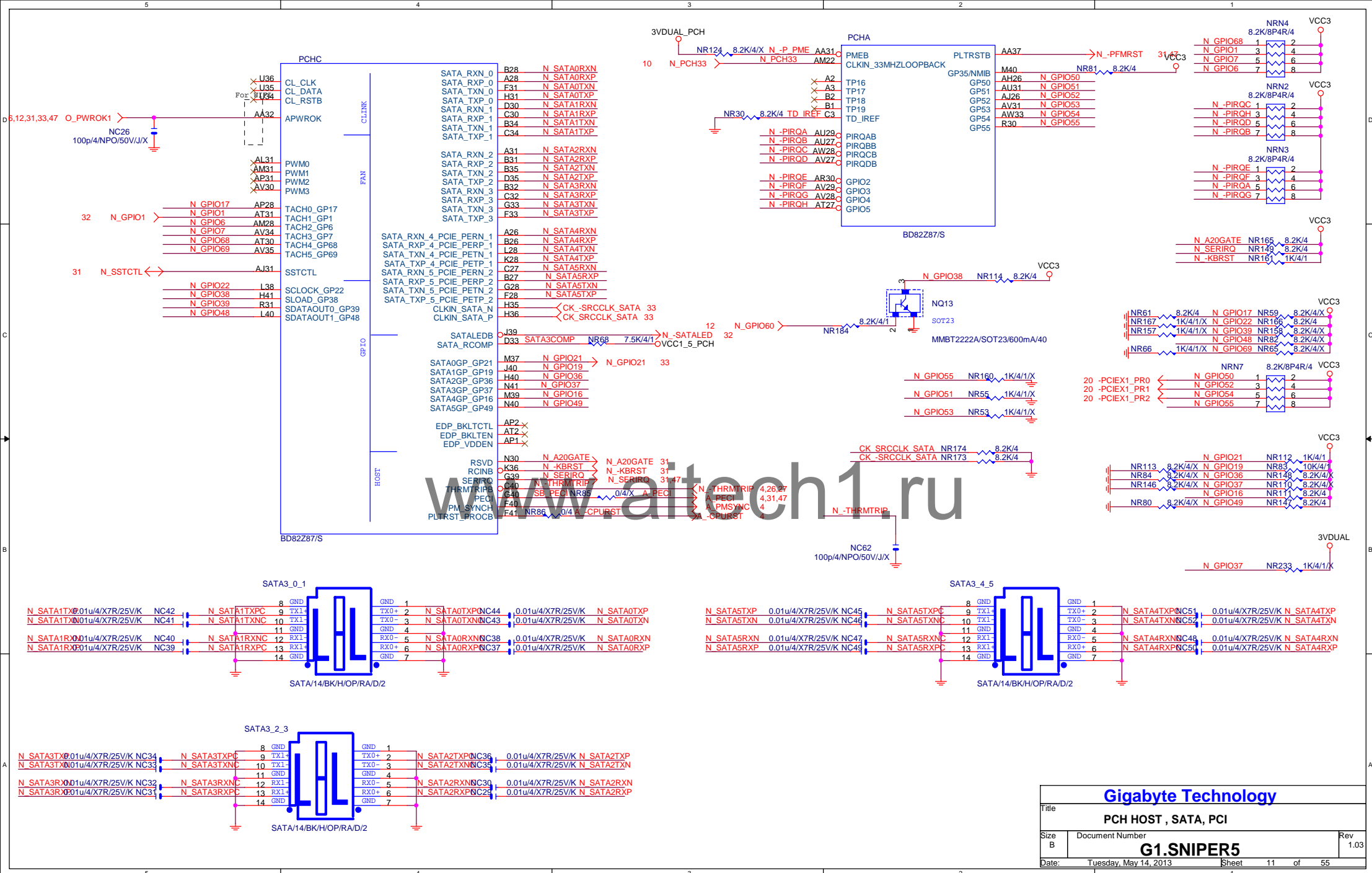
BD82287/S

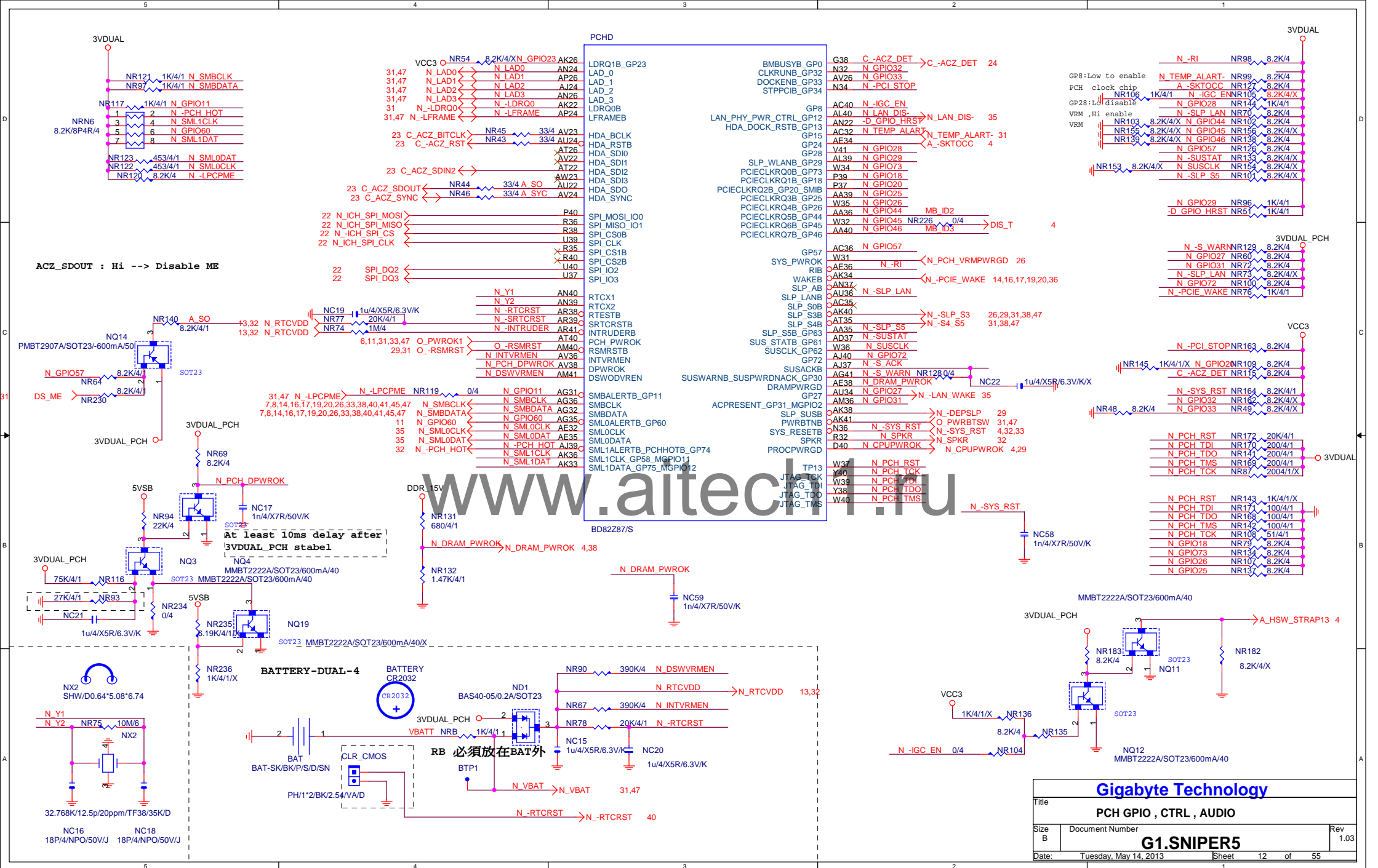


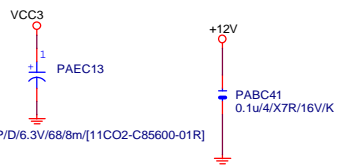
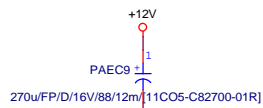
BD82287/S

Gigabyte Technology

Title			
PCH FDI,DMI,USB,PCIe,NVRAM			
Size	Document Number	Rev	
Custom		G1.SNIPER5	
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PA EXP A TXP15	PAC114	0.22u/4/X5R/6.3V/K	PA EXP A TXP15C
PA EXP A TXN15	PAC115	0.22u/4/X5R/6.3V/K	PA EXP A TXN15C
PA EXP A TXP14	PAC110	0.22u/4/X5R/6.3V/K	PA EXP A TXP14C
PA EXP A TXN14	PAC111	0.22u/4/X5R/6.3V/K	PA EXP A TXN14C
PA EXP A TXP13	PAC109	0.22u/4/X5R/6.3V/K	PA EXP A TXP13C
PA EXP A TXN13	PAC110	0.22u/4/X5R/6.3V/K	PA EXP A TXN13C
PA EXP A TXP12	PAC108	0.22u/4/X5R/6.3V/K	PA EXP A TXP12C
PA EXP A TXN12	PAC109	0.22u/4/X5R/6.3V/K	PA EXP A TXN12C
PA EXP A TXP11	PAC97	0.22u/4/X5R/6.3V/K	PA EXP A TXP11C
PA EXP A TXN11	PAC98	0.22u/4/X5R/6.3V/K	PA EXP A TXN11C
PA EXP A TXP10	PAC92	0.22u/4/X5R/6.3V/K	PA EXP A TXP10C
PA EXP A TXN10	PAC93	0.22u/4/X5R/6.3V/K	PA EXP A TXN10C
PA EXP A TXP9	PAC87	0.22u/4/X5R/6.3V/K	PA EXP A TXP9C
PA EXP A TXN9	PAC88	0.22u/4/X5R/6.3V/K	PA EXP A TXN9C
PA EXP A TXP8	PAC83	0.22u/4/X5R/6.3V/K	PA EXP A TXP8C
PA EXP A TXN8	PAC85	0.22u/4/X5R/6.3V/K	PA EXP A TXN8C

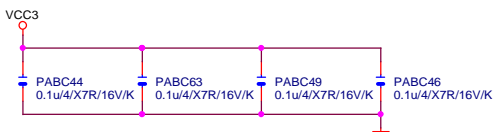
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PA EXP A1 TXN7	PAC82	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN7C
PA EXP A1 TXP6	PAC74	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP6C
PA EXP A1 TXN6	PAC77	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN6C
PA EXP A1 TXP5	PAC68	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP5C
PA EXP A1 TXN5	PAC70	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN5C
PA EXP A1 TXP4	PAC62	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP4C
PA EXP A1 TXN4	PAC64	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN4C
PA EXP A1 TXP3	PAC56	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP3C
PA EXP A1 TXN3	PAC58	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN3C
PA EXP A1 TXP2	PAC50	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP2C
PA EXP A1 TXN2	PAC52	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN2C
PA EXP A1 TXP1	PAC43	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP1C
PA EXP A1 TXN1	PAC46	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN1C
PA EXP A1 TXP0	PAC39	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP0C
PA EXP A1 TXN0	PAC38	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN0C

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PA EXP A1 RXN18..15] >>> PA_EXP_A_RXN[8..15] 42

PA EXP A1 TXP18..15] >>> PA_EXP_A_TXP[8..15] 42
PA EXP A1 TXN18..15] >>> PA_EXP_A_TXN[8..15] 42

PA EXP A1 RXP10..7] >>> PA_EXP_A1_RXP[0..7] 15
PA EXP A1 RXN10..7] >>> PA_EXP_A1_RXN[0..7] 15

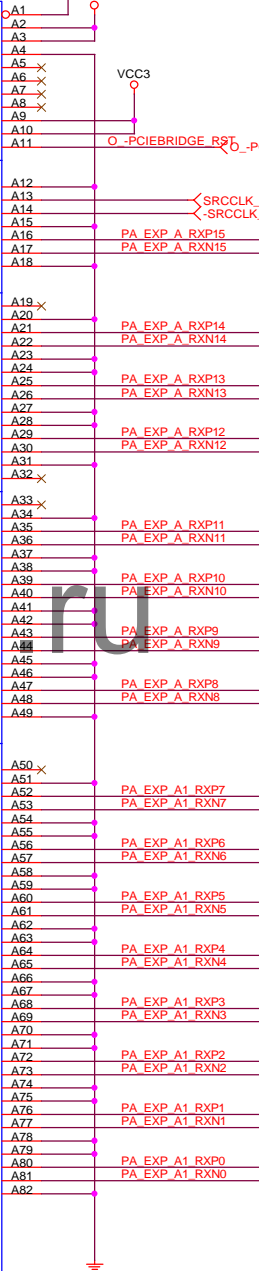
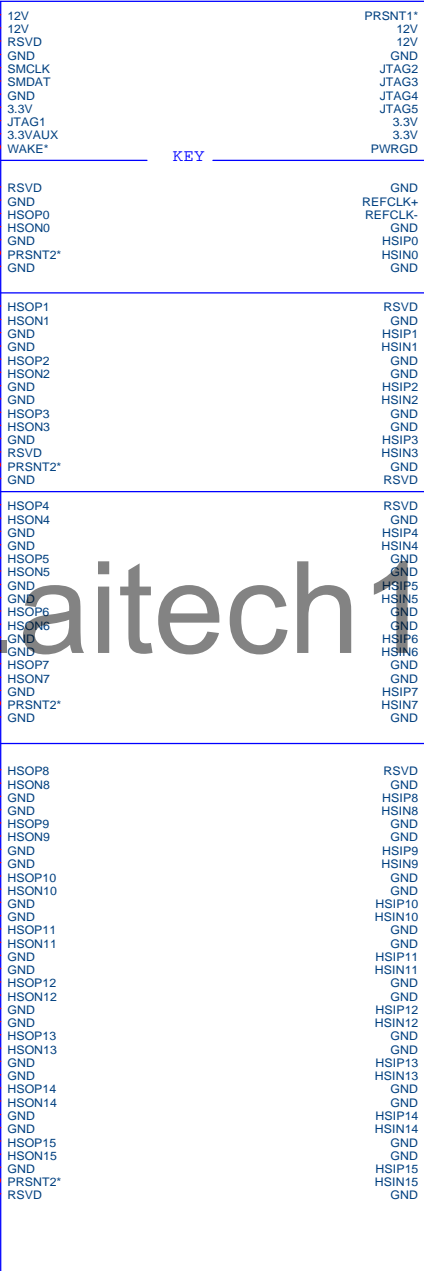
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PA EXP A1 TXN10..7] >>> PA_EXP_A1_TXN[0..7] 15



PA EXP A1 TXP7C B50
PA EXP A1 TXN7C B51
PA EXP A1 TXP6C B52
PA EXP A1 TXN6C B53
PA EXP A1 TXP5C B54
PA EXP A1 TXN5C B55
PA EXP A1 TXP4C B56
PA EXP A1 TXN4C B57
PA EXP A1 TXP3C B58
PA EXP A1 TXN3C B59
PA EXP A1 TXP2C B60
PA EXP A1 TXN2C B61
PA EXP A1 TXP1C B62
PA EXP A1 TXN1C B63
PA EXP A1 TXP0C B64
PA EXP A1 TXN0C B65
PA EXP A1 TXP0C B66
PA EXP A1 TXN0C B67
PA EXP A1 TXP0C B68
PA EXP A1 TXN0C B69
PA EXP A1 TXP0C B70
PA EXP A1 TXN0C B71
PA EXP A1 TXP0C B72
PA EXP A1 TXN0C B73
PA EXP A1 TXP0C B74
PA EXP A1 TXN0C B75
PA EXP A1 TXP0C B76
PA EXP A1 TXN0C B77
PA EXP A1 TXP0C B78
PA EXP A1 TXN0C B79
PA EXP A1 TXP0C B80
PA EXP A1 TXN0C B81
PA EXP A1 TXP0C B82

PCIESLOT-164DN-2

PCIE16_2 3GIO_*16



Title

PCI EXPRESS X16 PORT_1

Size

Document Number

G1.SNIPERS5

Rev

1.03

Date:

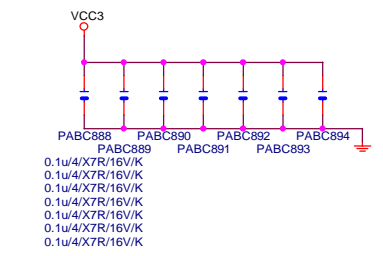
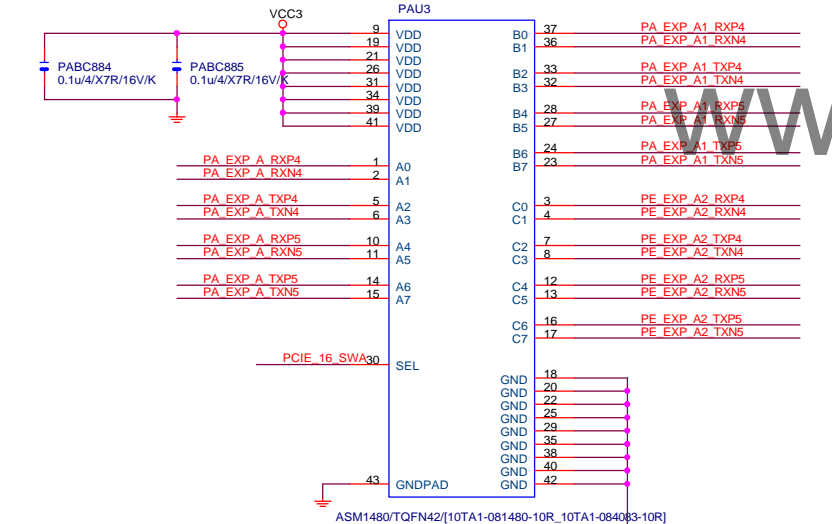
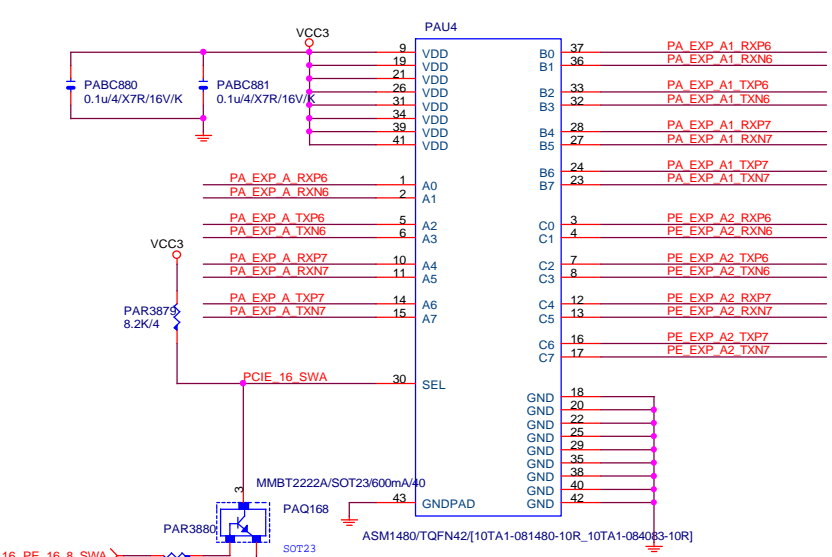
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14

of

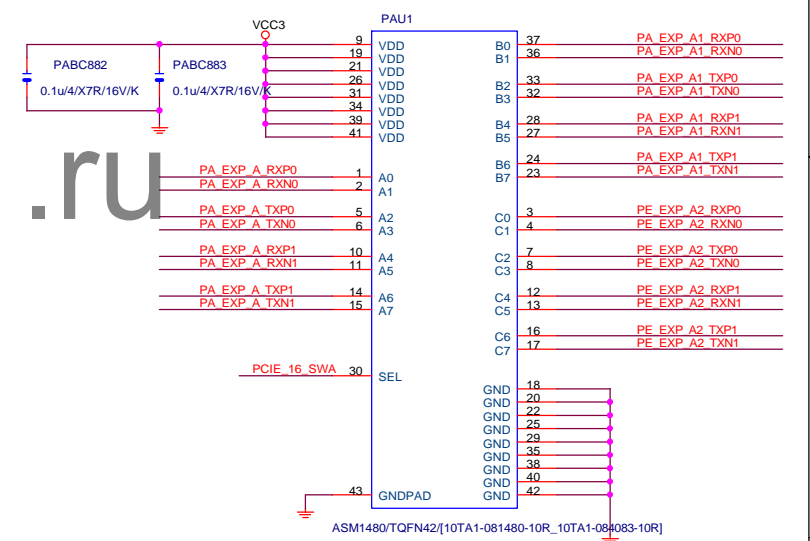
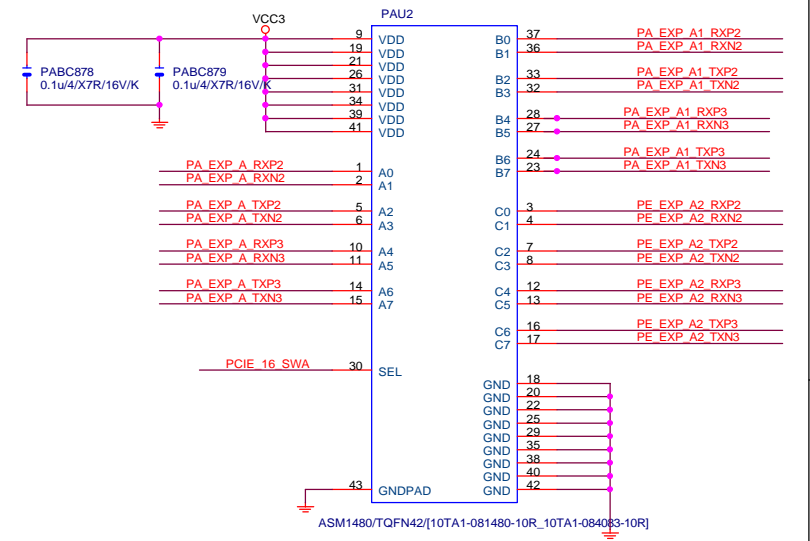
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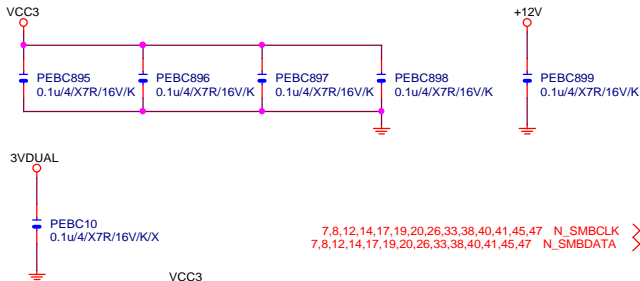


PE EXP A2 RXPI0..7I >>> PE_EXP_A2_RXP[0..7] 16
 PE EXP A2 RXNI0..7I >>> PE_EXP_A2_RXN[0..7] 16
 PE EXP A2 TXPI0..7I >>> PE_EXP_A2_TXP[0..7] 16
 PE EXP A2 TXNI0..7I >>> PE_EXP_A2_TXN[0..7] 16

PA EXP A1 RXPI0..7I >>> PA_EXP_A1_RXP[0..7] 14
 PA EXP A1 RXNI0..7I >>> PA_EXP_A1_RXN[0..7] 14
 PA EXP A1 TXPI0..7I >>> PA_EXP_A1_TXP[0..7] 14
 PA EXP A1 TXNI0..7I >>> PA_EXP_A1_TXN[0..7] 14

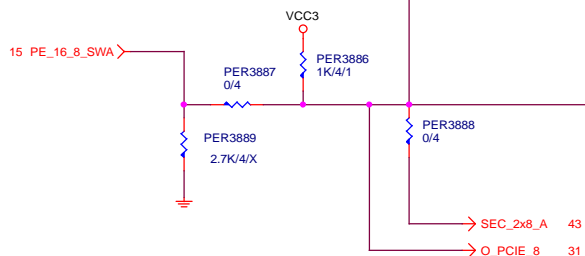
PA EXP A RXPI0..7I >>> PA_EXP_A_RXP[0..7] 42
 PA EXP A RXNI0..7I >>> PA_EXP_A_RXN[0..7] 42
 PA EXP A TXPI0..7I >>> PA_EXP_A_TXP[0..7] 42
 PA EXP A TXNI0..7I >>> PA_EXP_A_TXN[0..7] 42



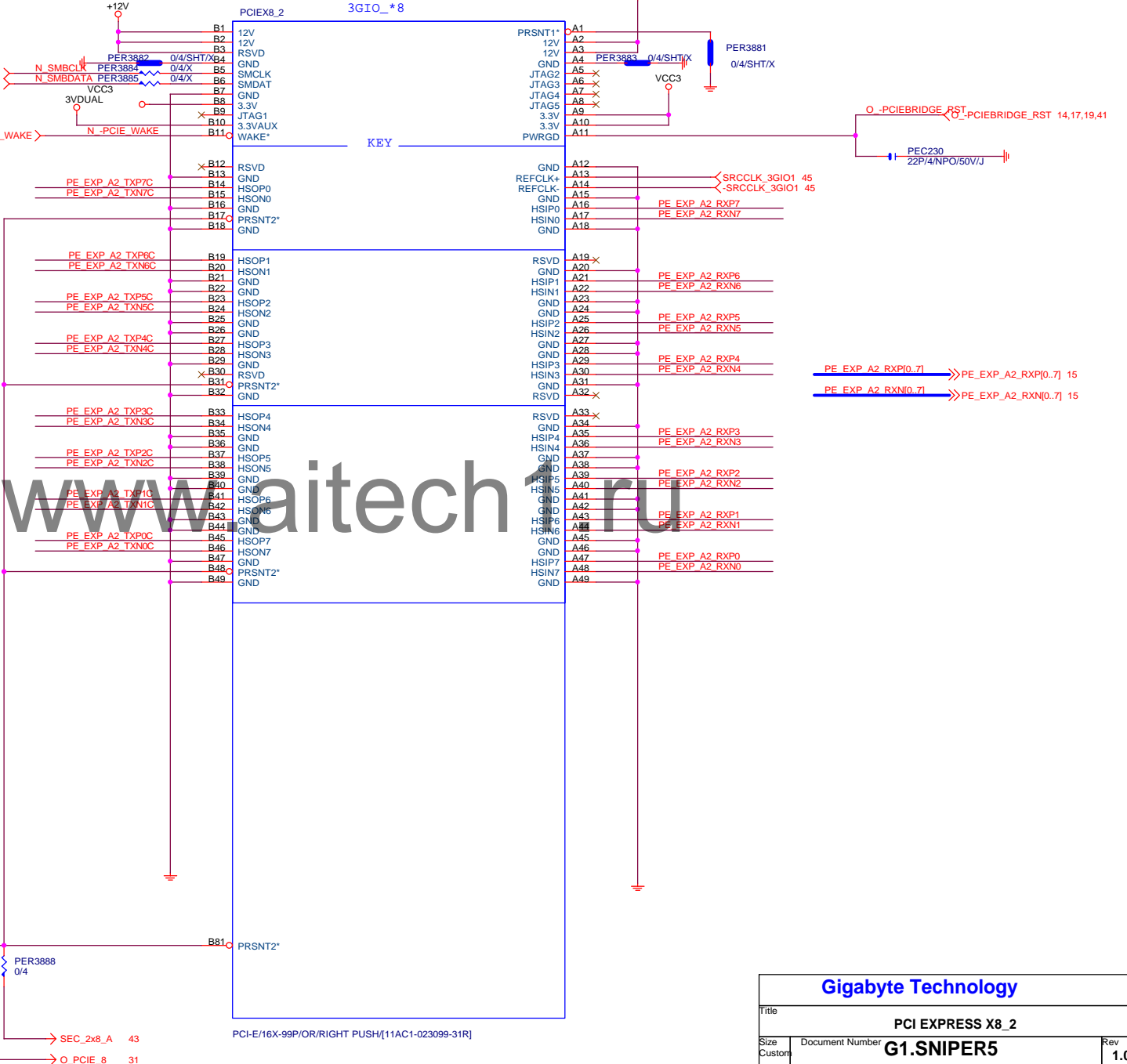


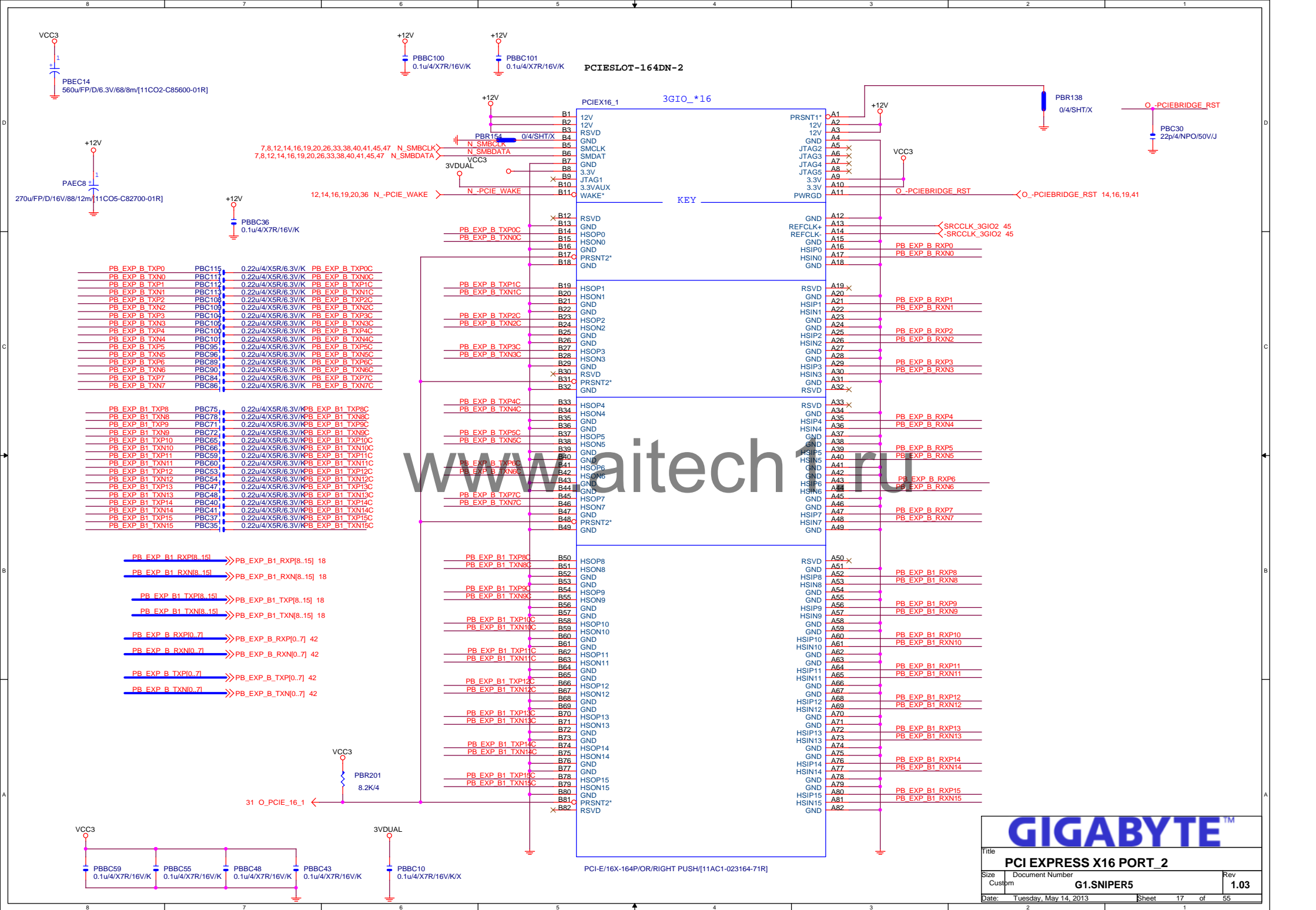
PE_EXP_A2_TXP0.7I >>> PE_EXP_A2_TXP[0..7] 15
PE_EXP_A2_TXN0.7I >>> PE_EXP_A2_TXN[0..7] 15

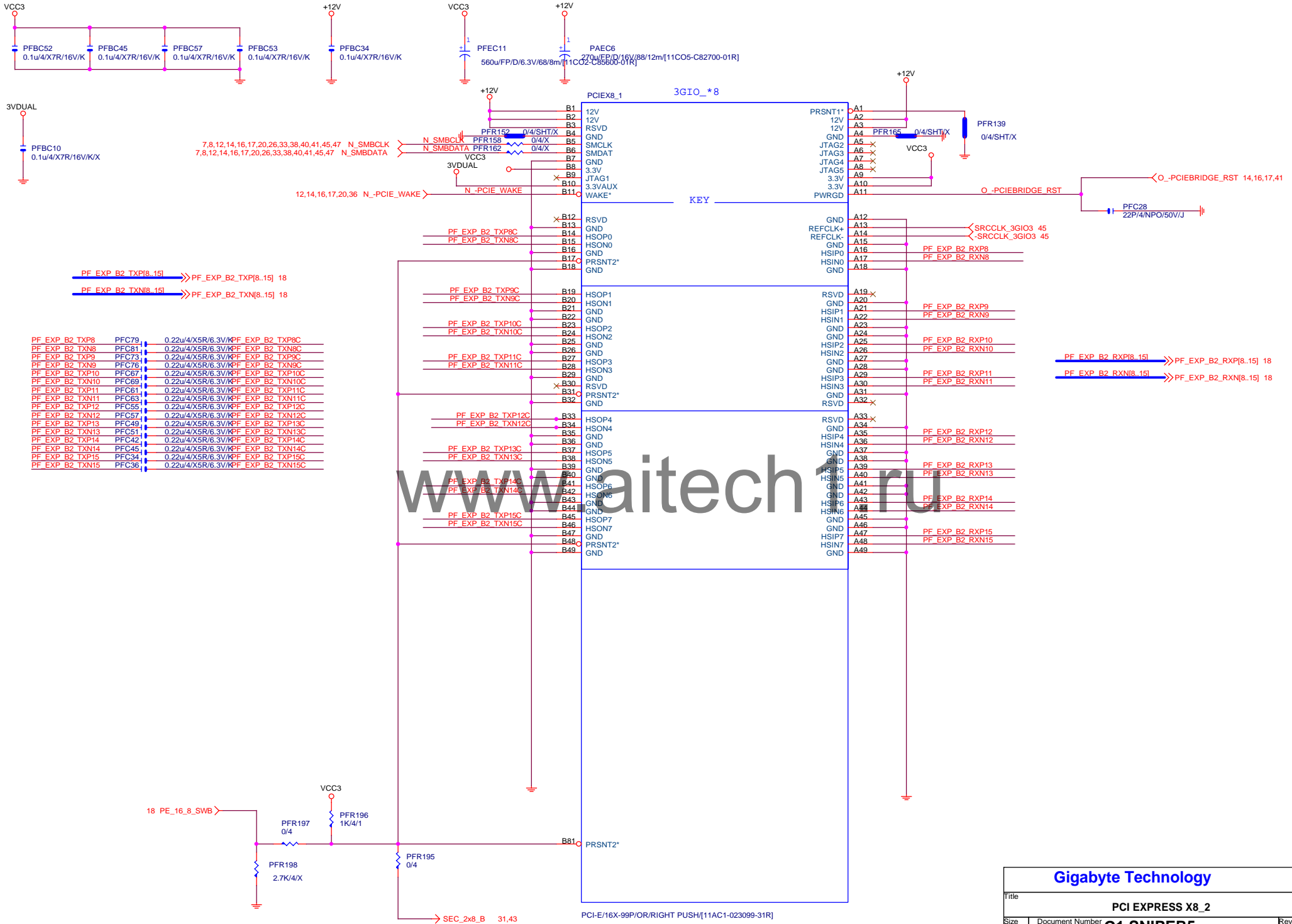
PE_EXP_A2_TXP7	PEC231	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP7C
PE_EXP_A2_TXN7	PEC232	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN7C
PE_EXP_A2_TXP6	PEC233	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP6C
PE_EXP_A2_TXN6	PEC234	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN6C
PE_EXP_A2_TXP5	PEC235	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP5C
PE_EXP_A2_TXN5	PEC236	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN5C
PE_EXP_A2_TXP4	PEC237	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP4C
PE_EXP_A2_TXN4	PEC238	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN4C
PE_EXP_A2_TXP3	PEC239	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP3C
PE_EXP_A2_TXN3	PEC240	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN3C
PE_EXP_A2_TXP2	PEC241	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP2C
PE_EXP_A2_TXN2	PEC242	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN2C
PE_EXP_A2_TXP1	PEC243	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP1C
PE_EXP_A2_TXN1	PEC244	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN1C
PE_EXP_A2_TXP0	PEC245	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP0C
PE_EXP_A2_TXN0	PEC246	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN0C

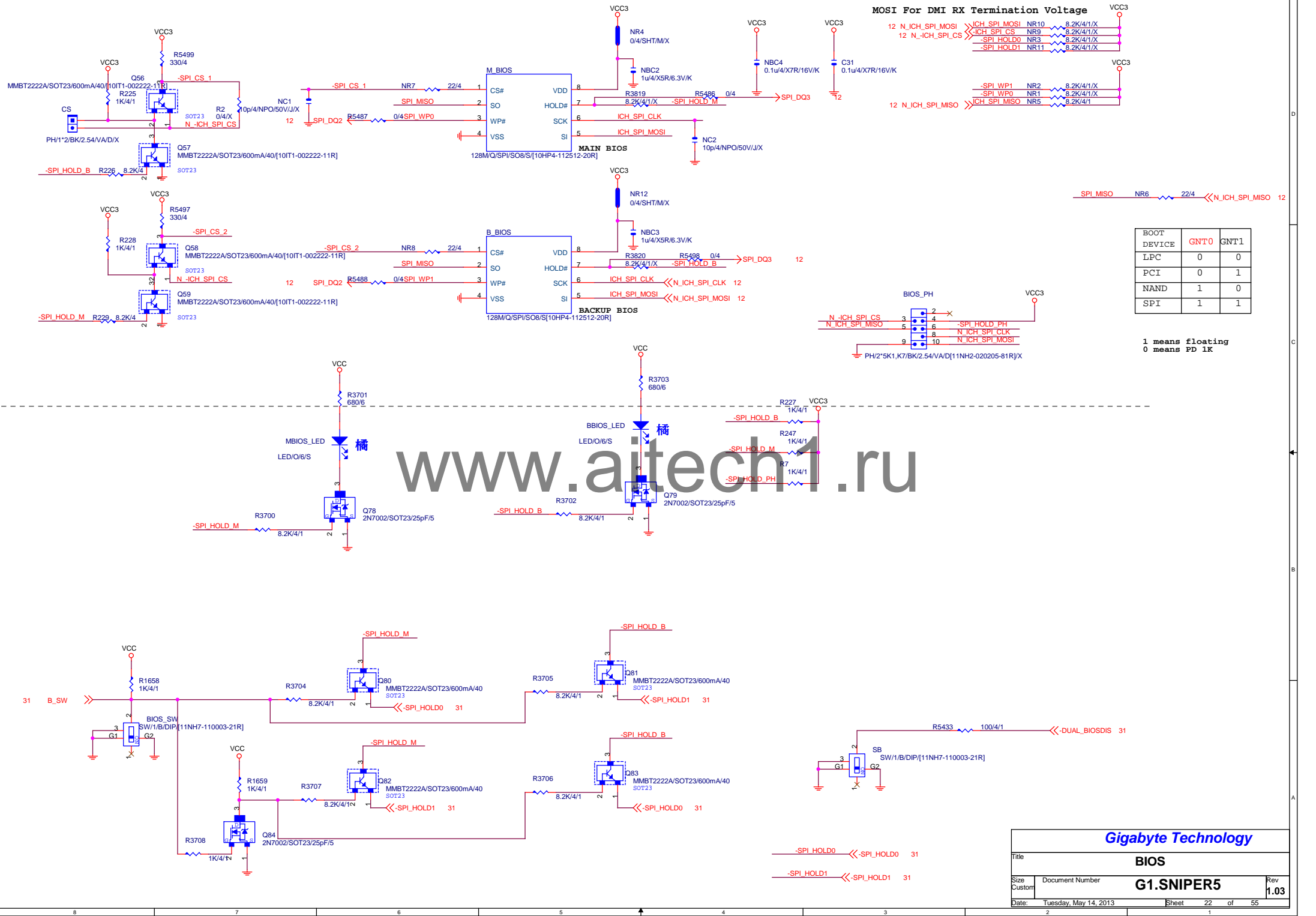


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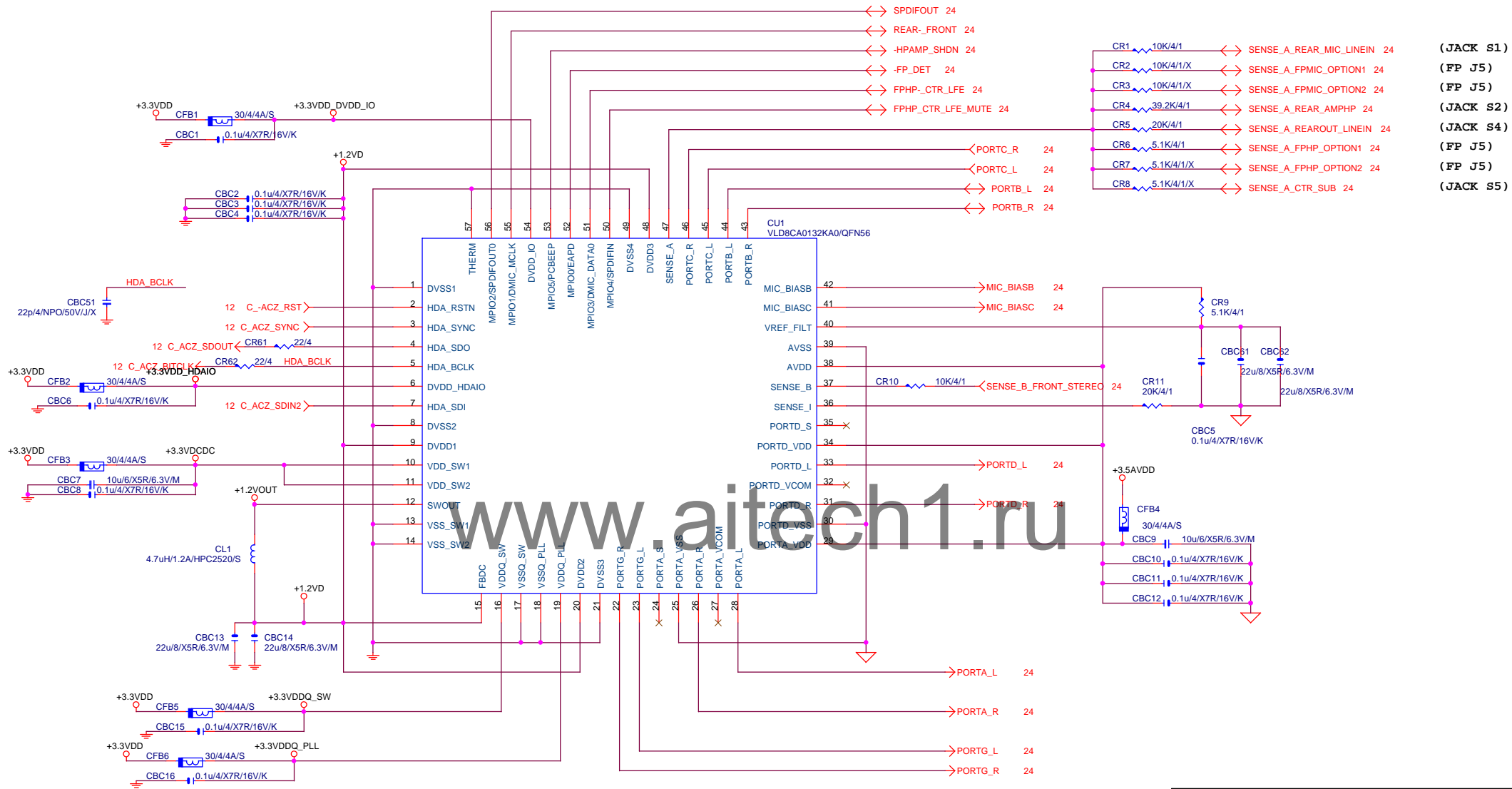






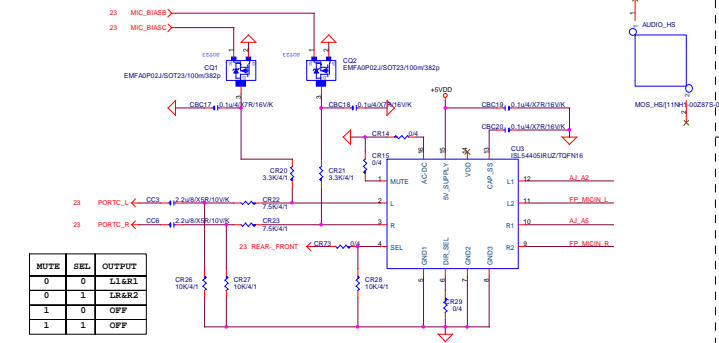
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

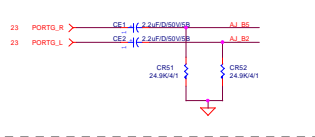


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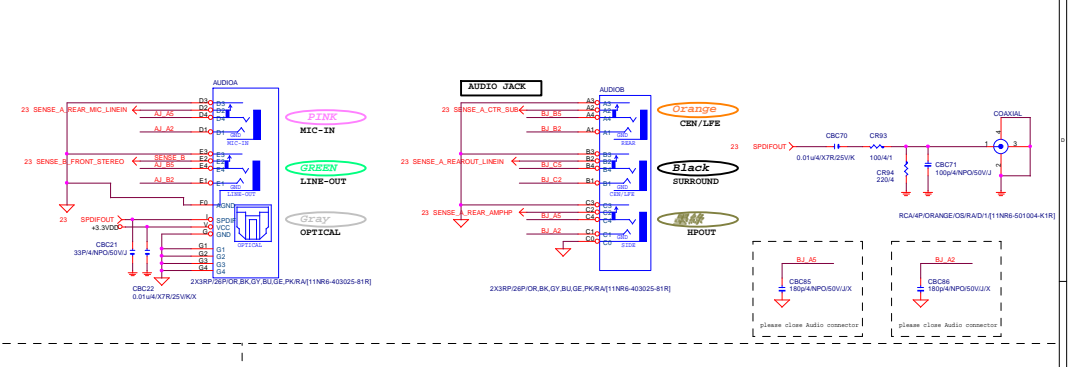
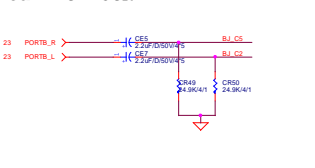
Rear MIC & FP MIC



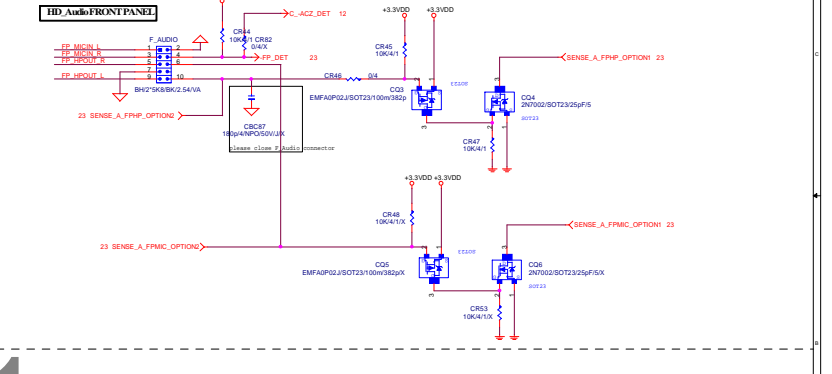
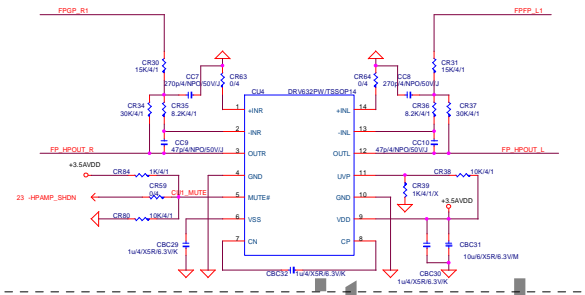
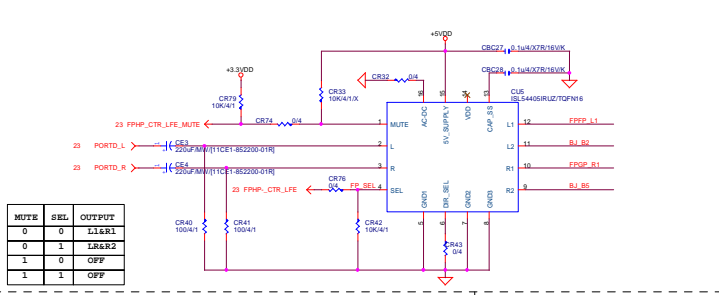
Line-Out



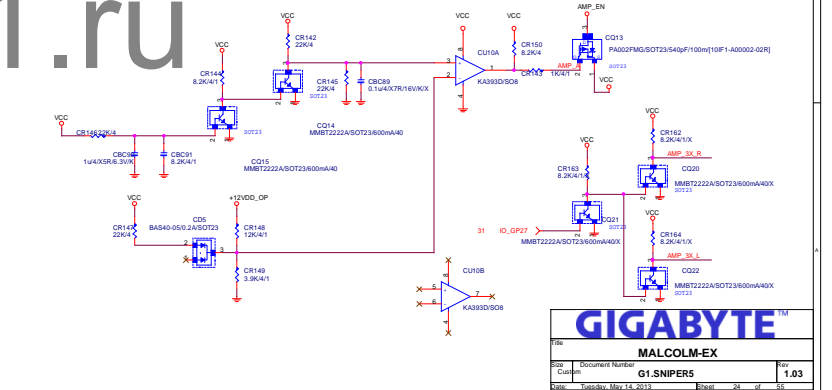
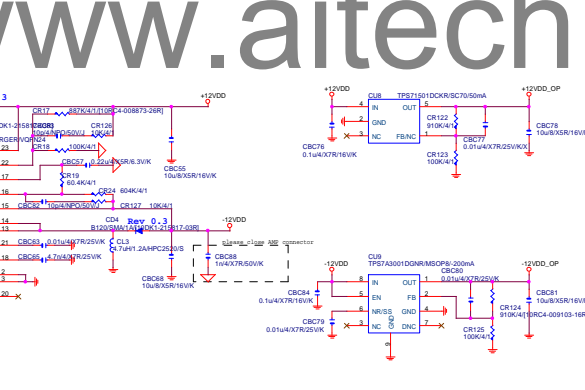
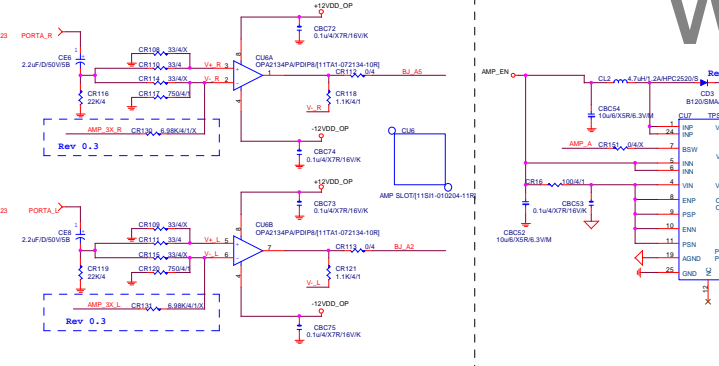
Rear SURROUND



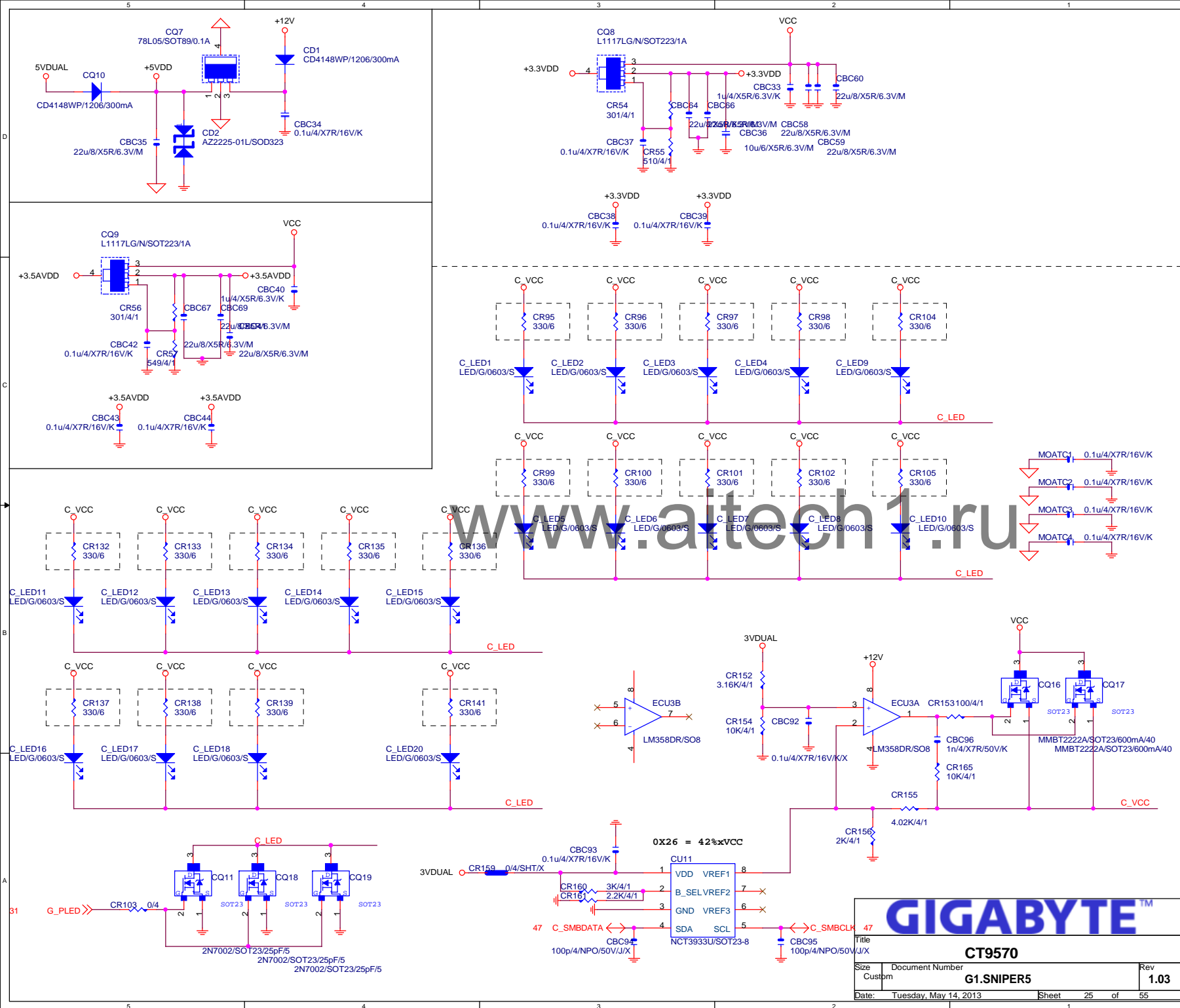
Rear CEN/LFE & FP HP-Out

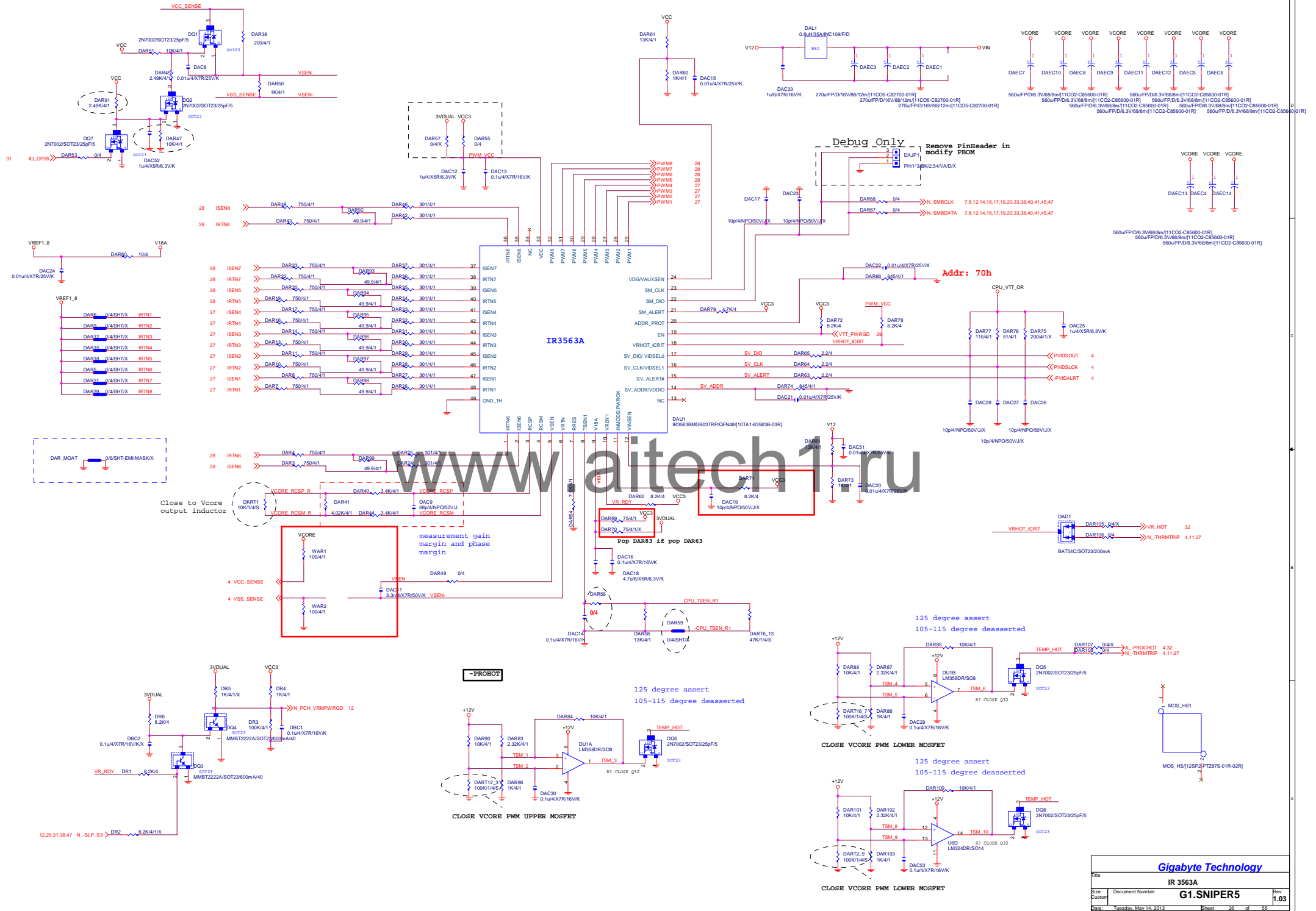


AMPLIFIED

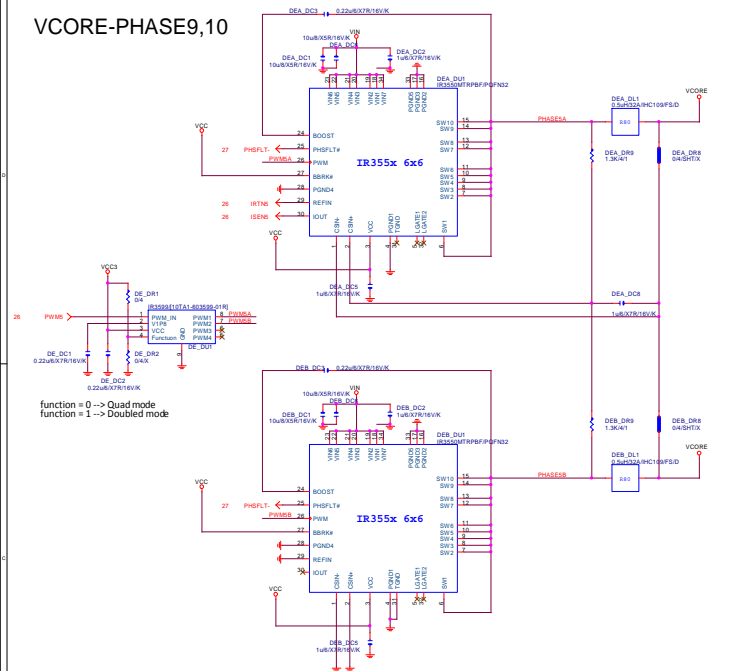


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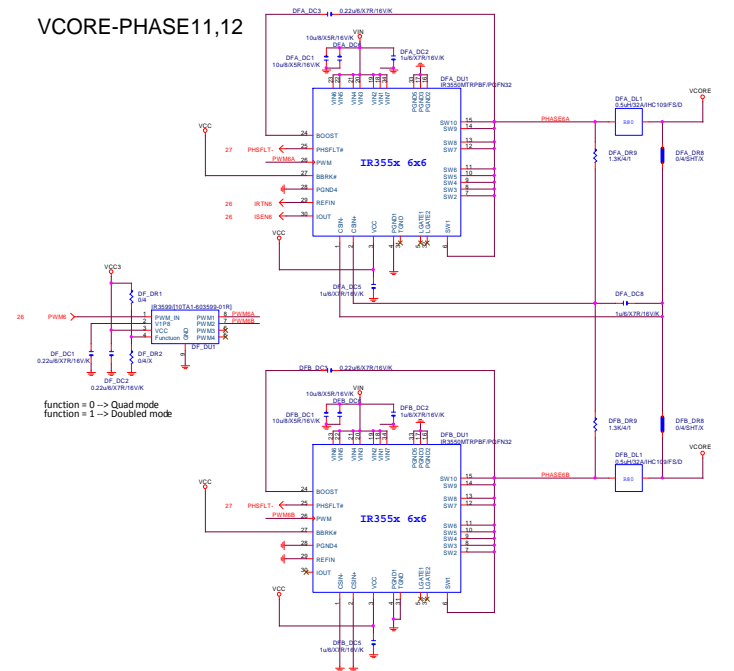




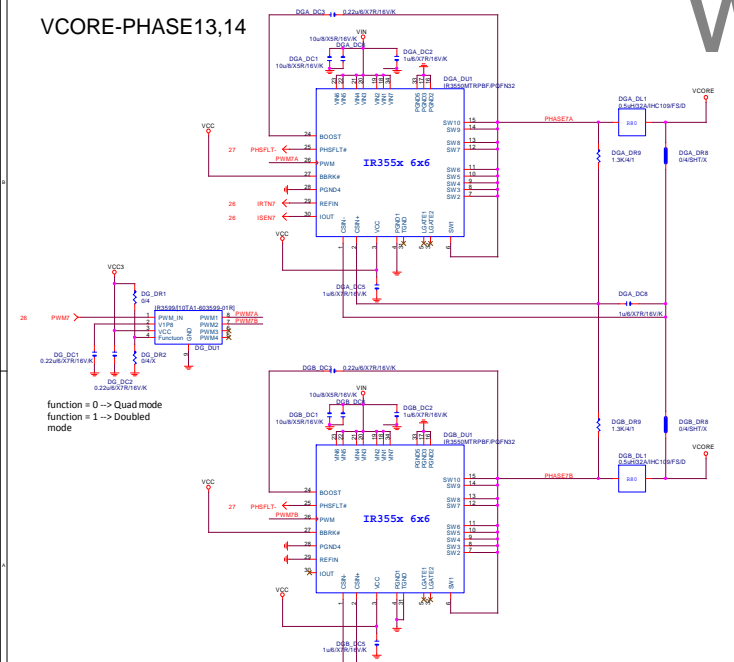
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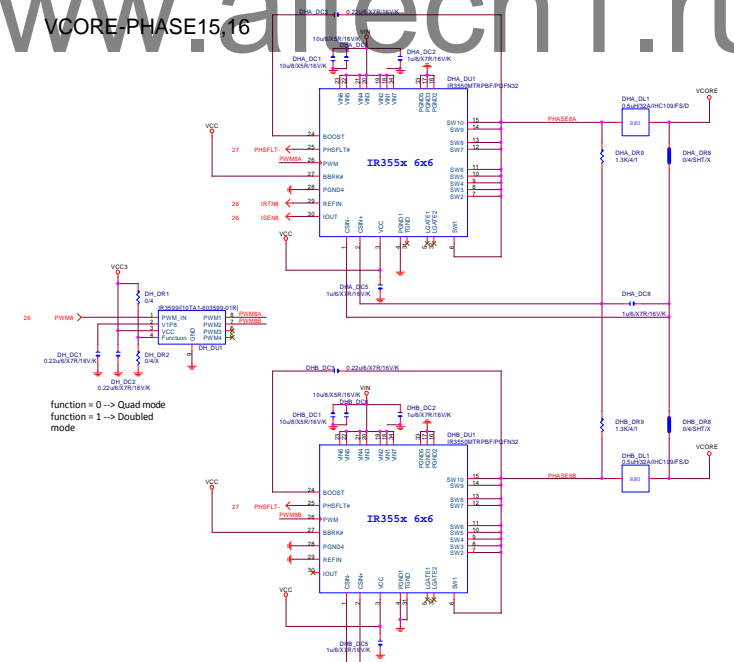
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VCORE-PHASE13,14

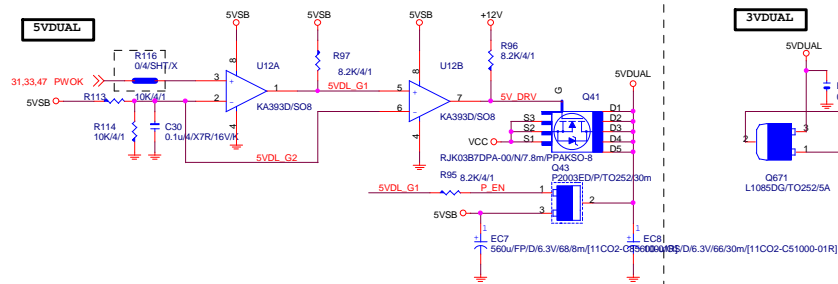


VCORE-PHASE15,16

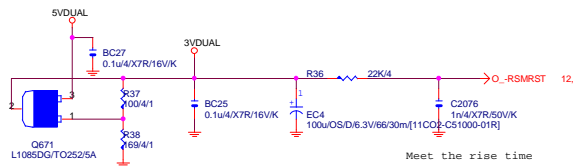


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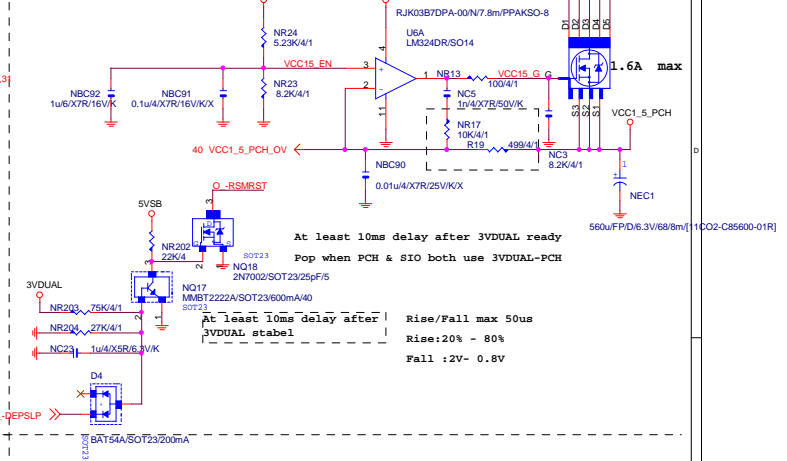
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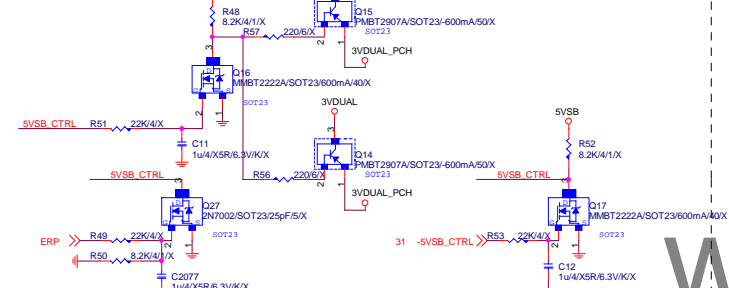
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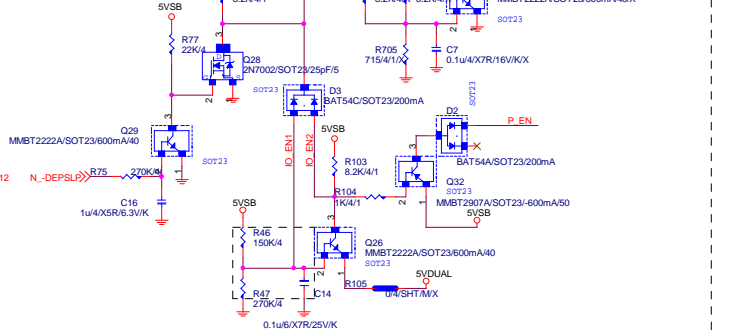
VCC1_5_PCH



I/O ErP Control

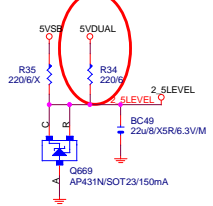


PCH ErP Control

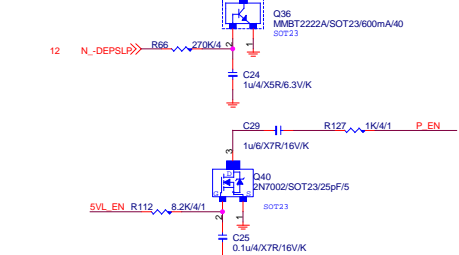


5VDUAL SHORT PROTECT

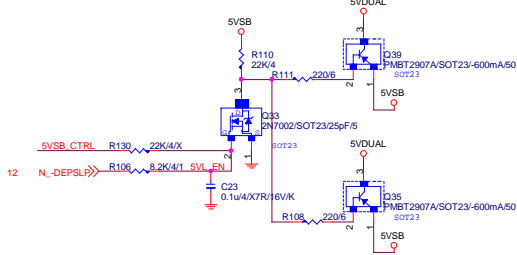
ErP



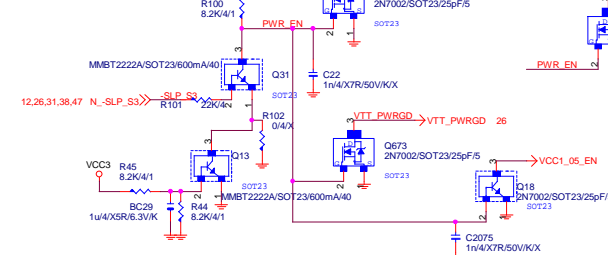
5V15_EN



5VSB_CTRL



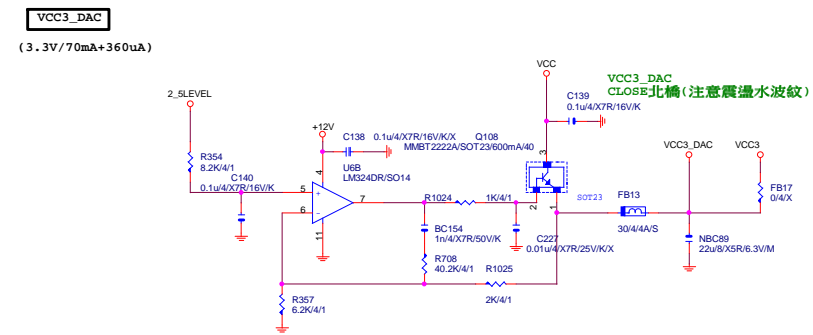
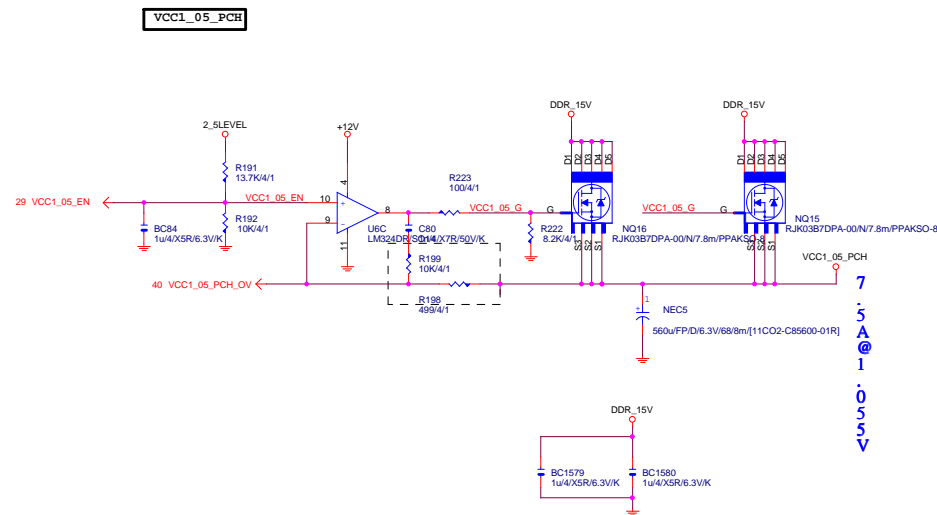
5VSB_CTRL



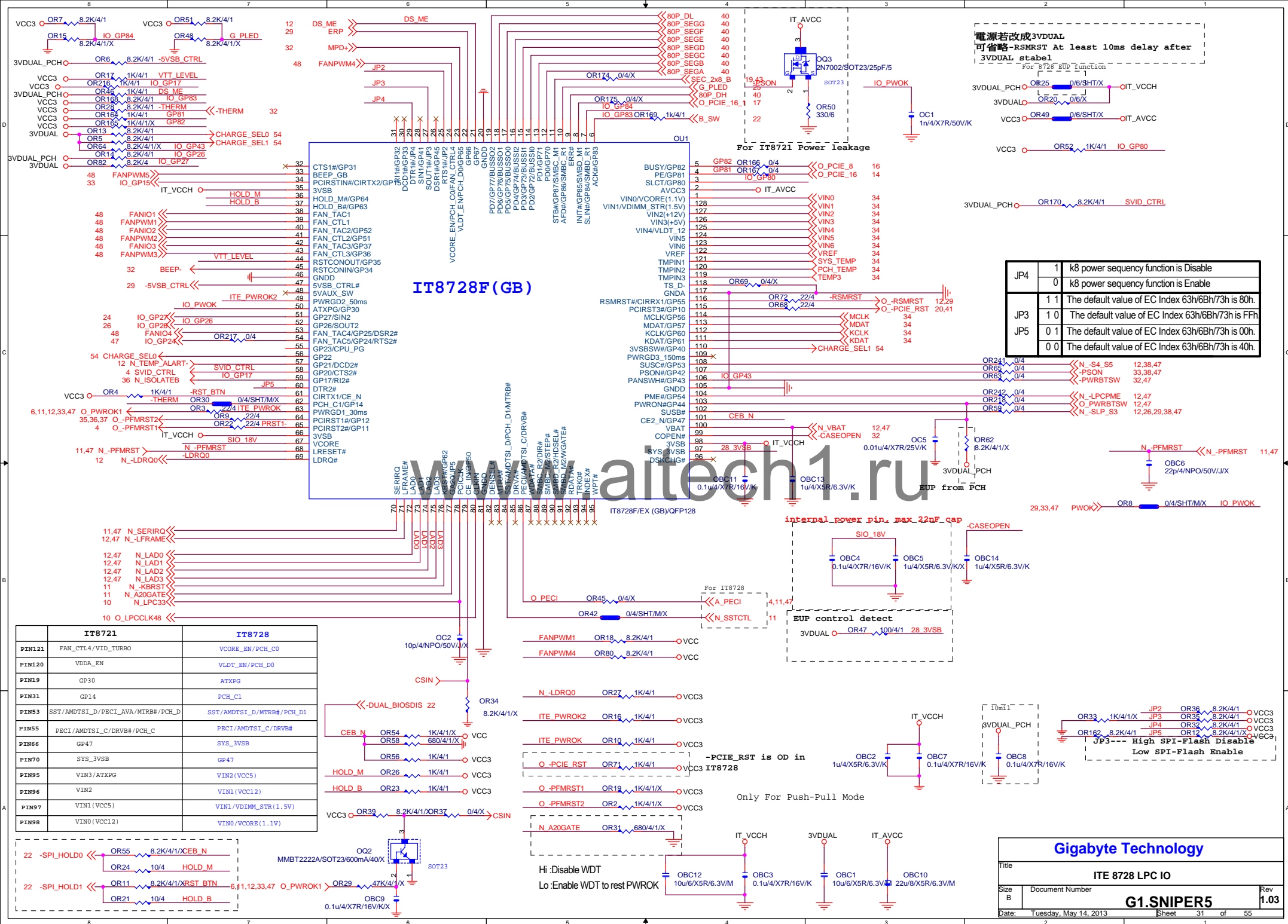
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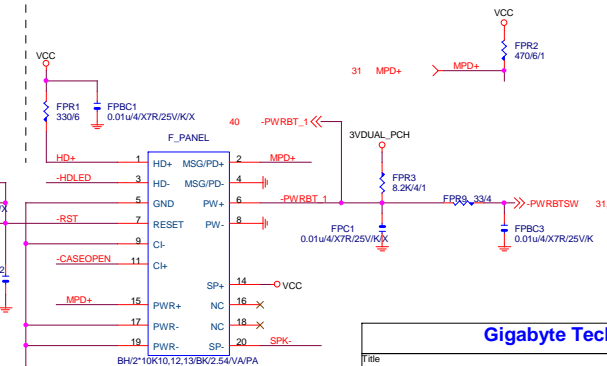
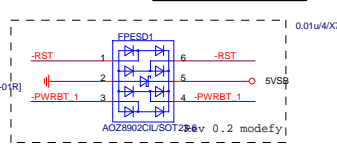
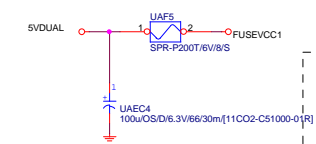
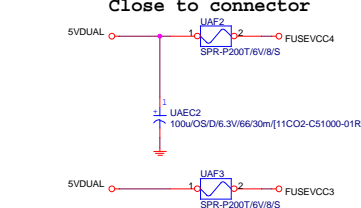
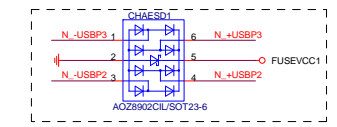
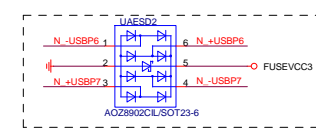
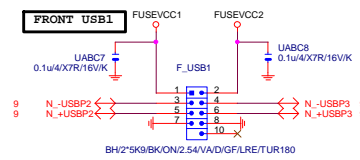
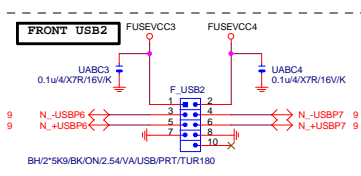
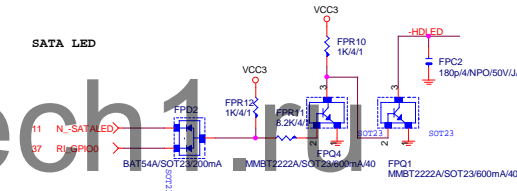
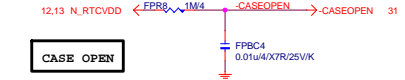
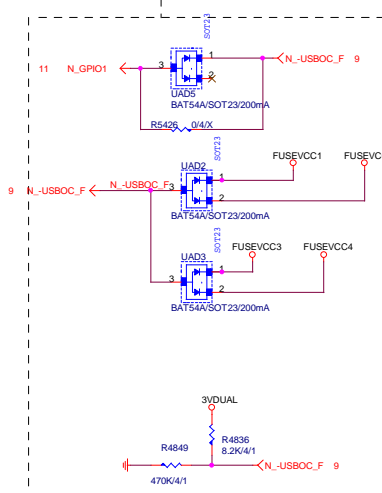
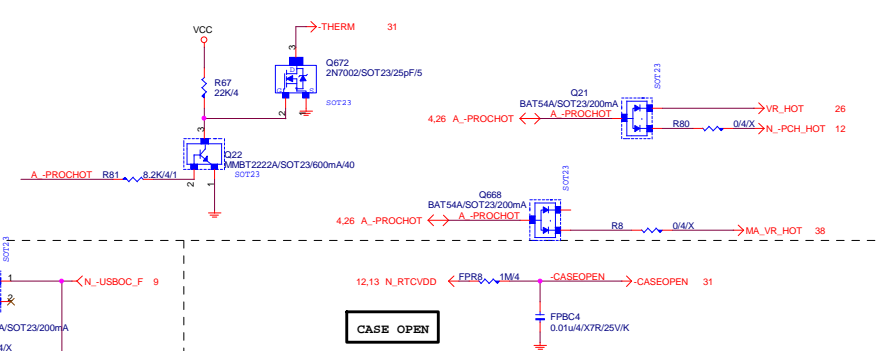
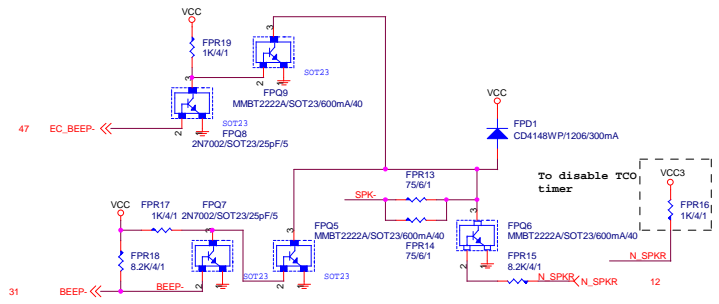
DISCRETE POWER
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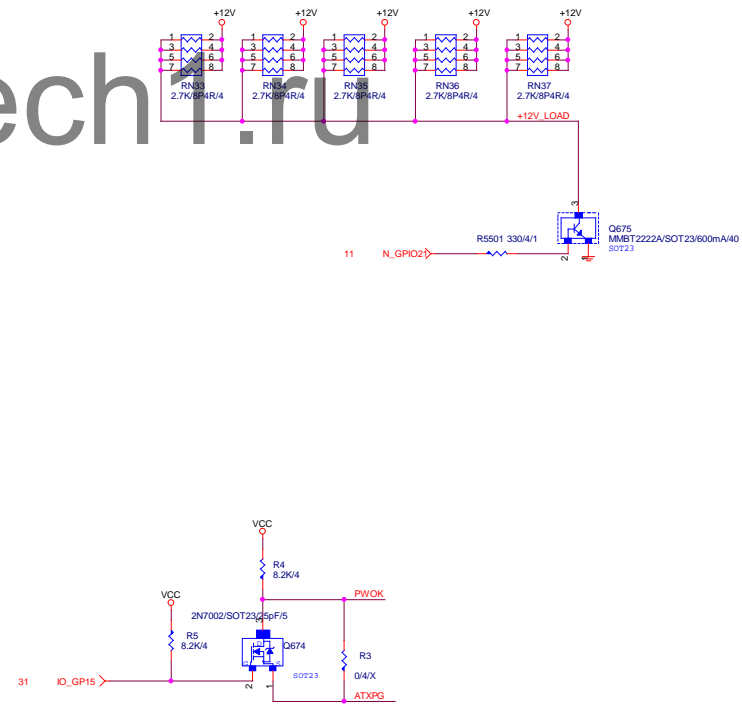
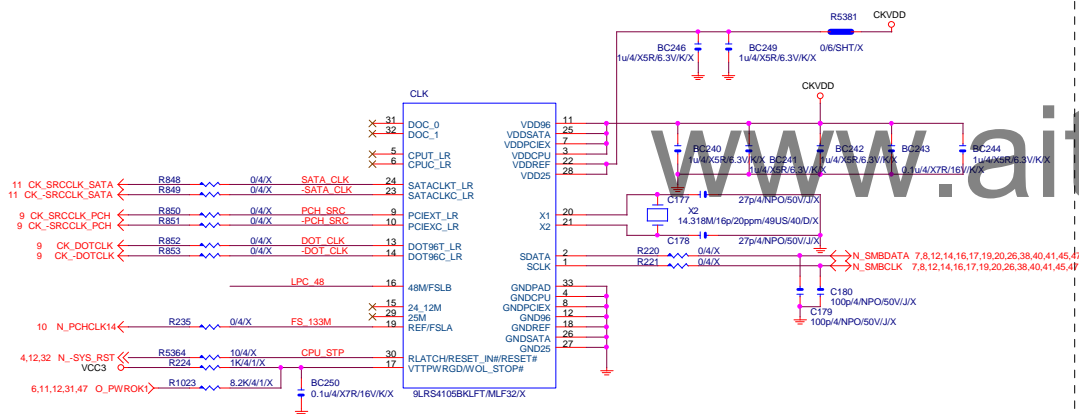
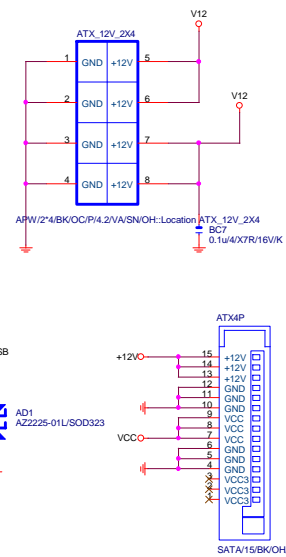
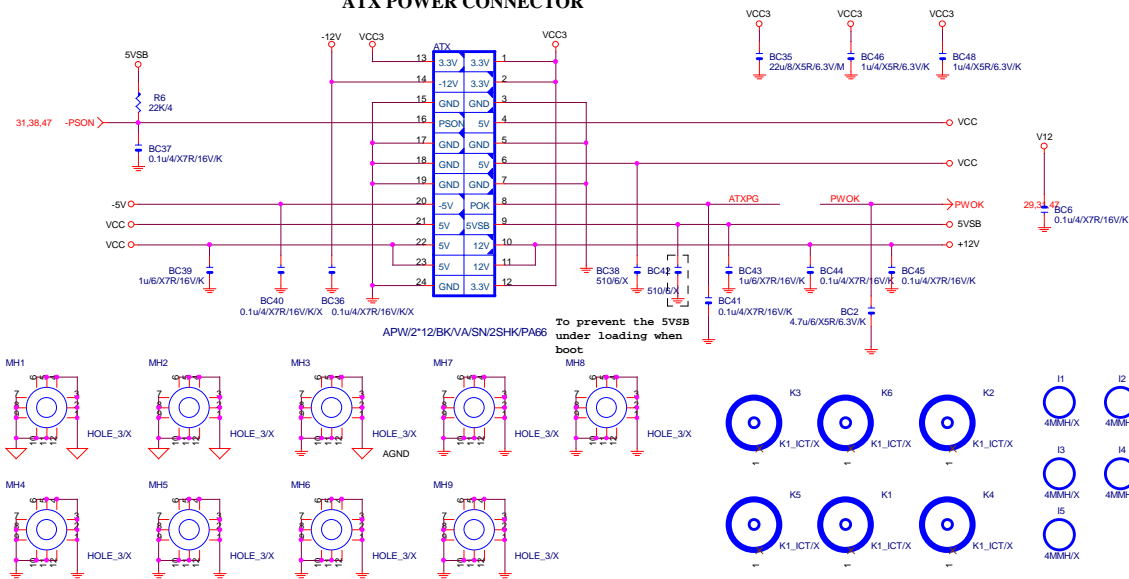
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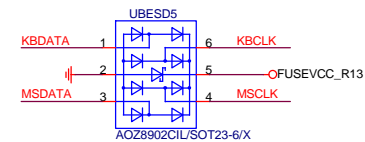
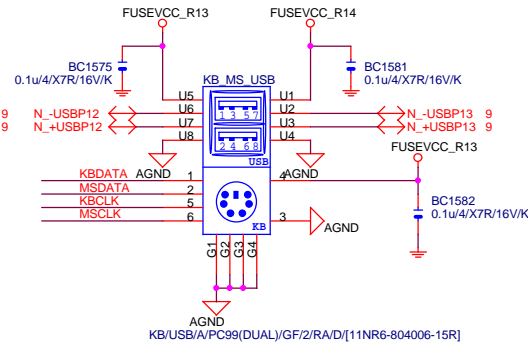
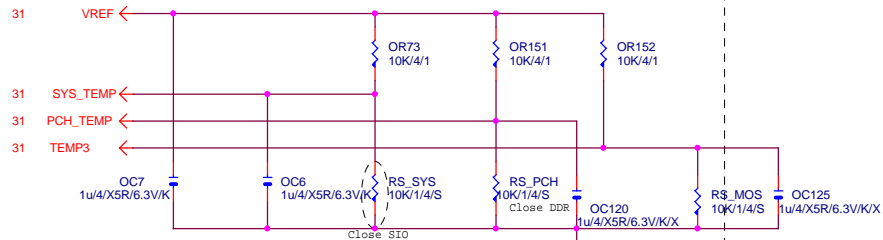
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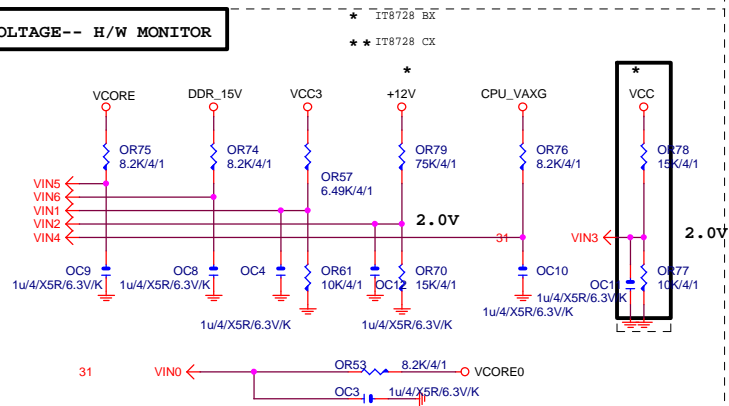
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TEMP H/W MONITOR

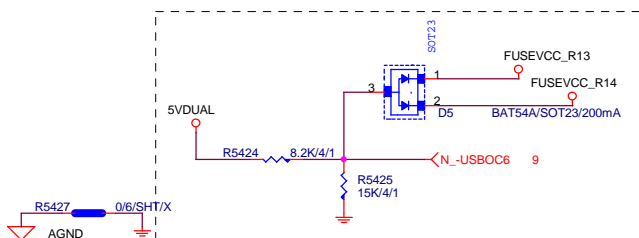
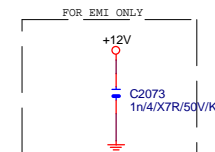
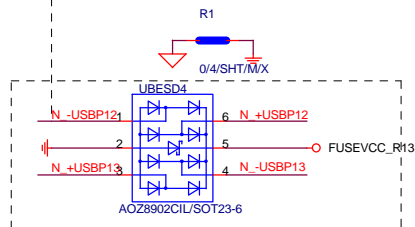
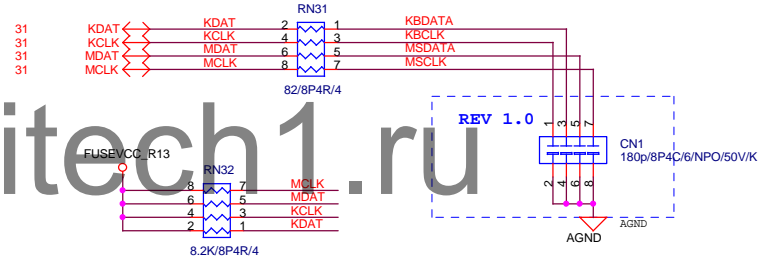


VOLTAGE-- H/W MONITOR

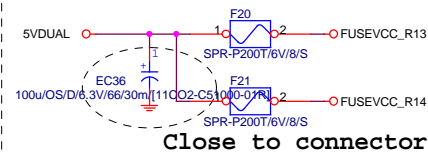


The division voltage of VIN2 & VIN3 must be around 2.0

V-FOR E-VERSION

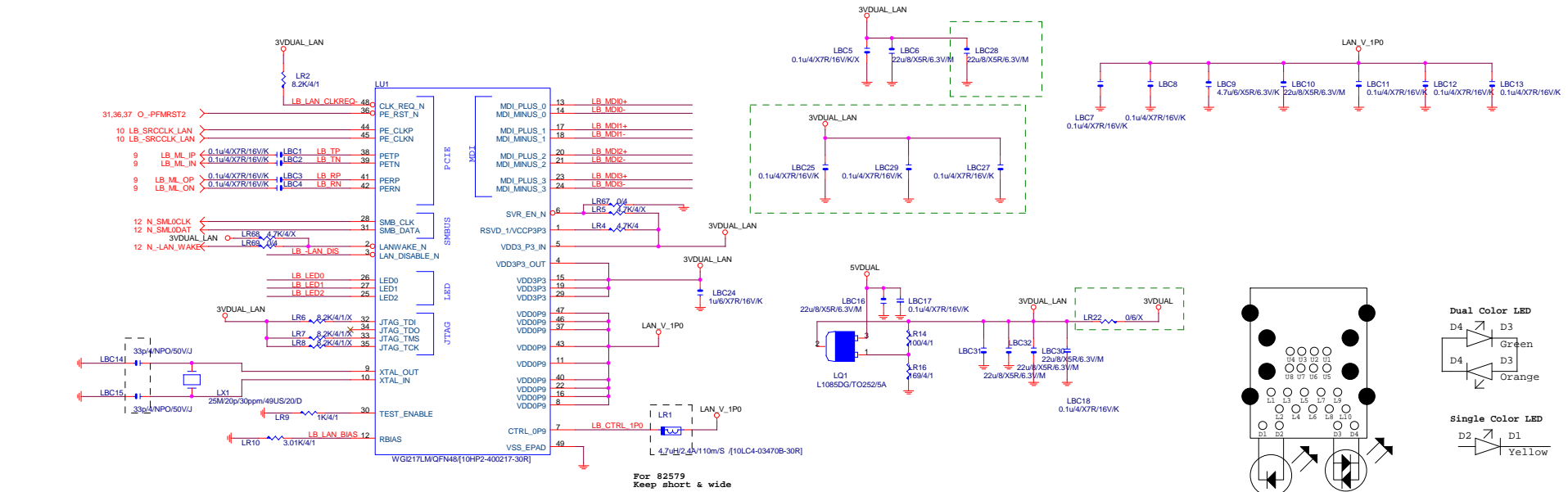


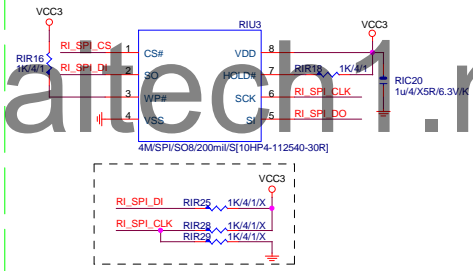
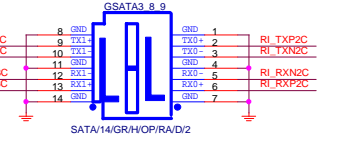
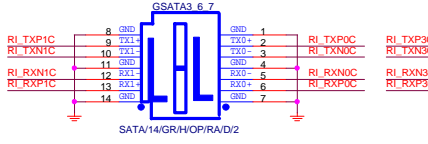
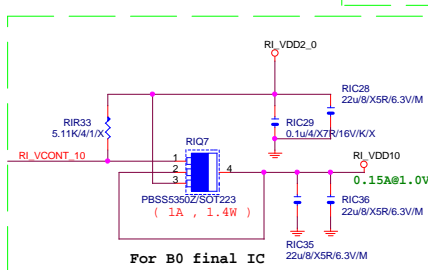
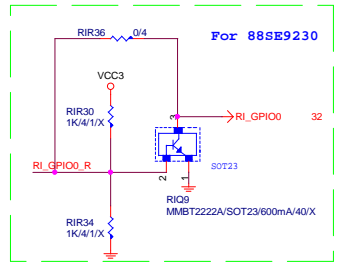
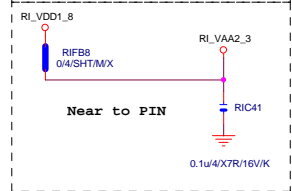
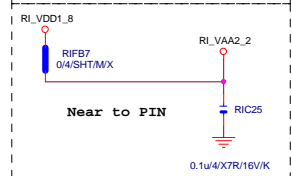
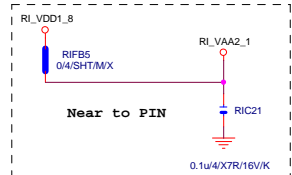
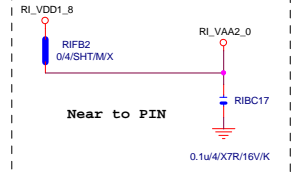
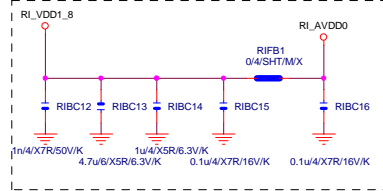
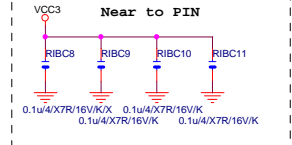
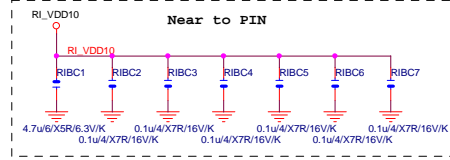
USB X3 POWER



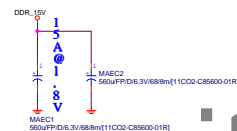
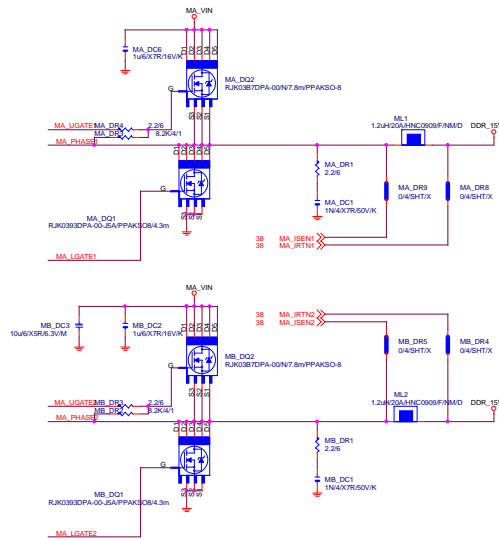
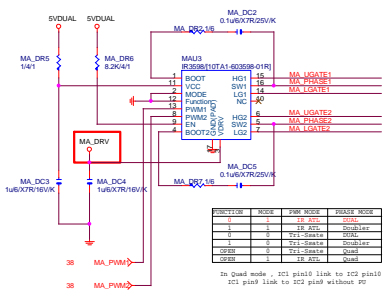
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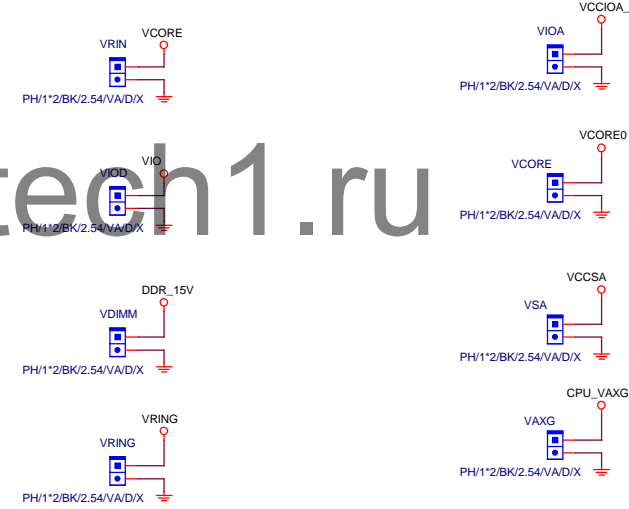
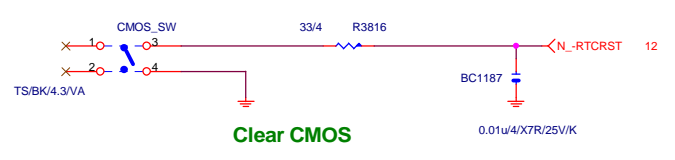
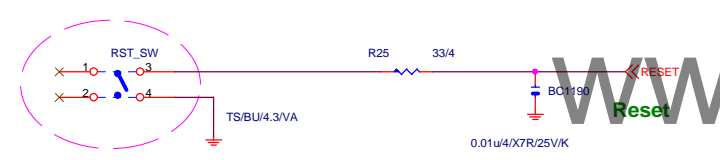
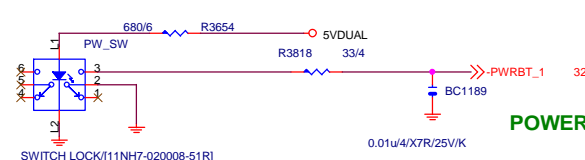
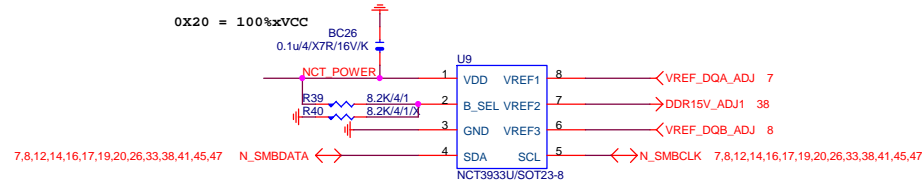
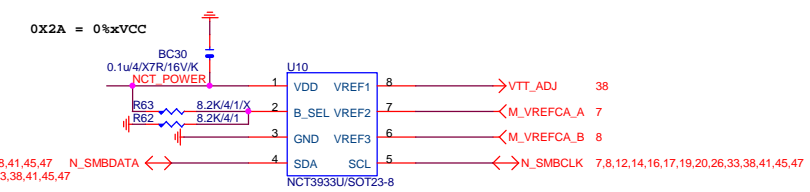
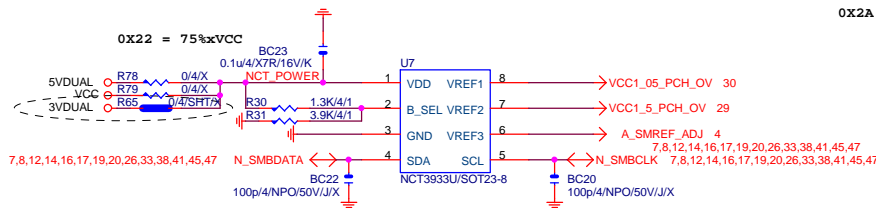




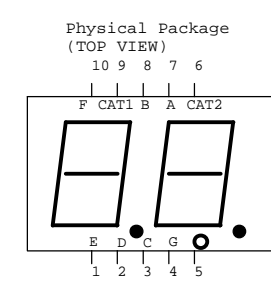
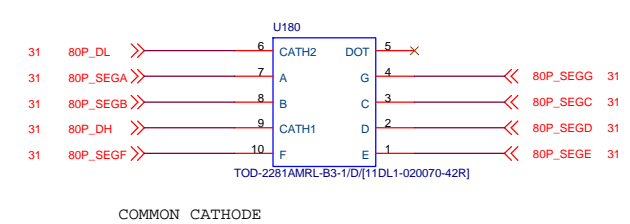
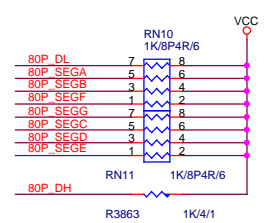
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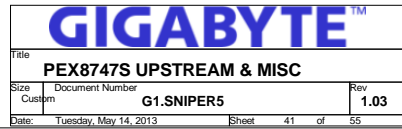
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80 PORT



GIGABYTE™			
Title: RST, PWR, CLR_CMOS			
Size: Custom	Document Number: G1.SNIPER5	Rev: 1.03	
Date: Tuesday, May 14, 2013	Sheet: 40	of 55	



USB			
PA EXP A RXP0	V4	PEX_PETP16	V2
PA EXP A RXN0	V5	PEX_PERN16	V1
PA EXP A RXP1	U4	PEX_PETP17	U2
PA EXP A RXN1	U5	PEX_PETP17	U1
PA EXP A RXP2	R5	PEX_PETN17	R2
PA EXP A RXN2	R4	PEX_PETP18	R1
PA EXP A RXP3	P5	PEX_PETN18	P2
PA EXP A RXN3	P4	PEX_PETP19	P1
PA EXP A RXP4	M5	PEX_PETN19	M2
PA EXP A RXN4	M4	PEX_PETP20	M1
PA EXP A RXP5	L5	PEX_PETN20	L2
PA EXP A RXN5	L4	PEX_PETP21	L1
PA EXP A RXP6	J5	PEX_PETN21	J2
PA EXP A RXN6	J4	PEX_PETP22	J1
PA EXP A RXP7	H5	PEX_PETP23	H2
PA EXP A RXN7	H4	PEX_PETN23	H1
PA EXP A RXP8	D5	PEX_PETP24	D1
PA EXP A RXN8	D1	PEX_PETN24	A1
PA EXP A RXP9	E2	PEX_PETP25	B2
PA EXP A RXN9	D2	PEX_PETN25	A2
PA EXP A RXP10	E4	PEX_PETP26	B4
PA EXP A RXN10	D4	PEX_PETN26	A4
PA EXP A RXP11	E5	PEX_PETP27	B5
PA EXP A RXN11	D5	PEX_PETN27	A5
PA EXP A RXP12	E7	PEX_PETP28	B7
PA EXP A RXN12	D7	PEX_PETN28	A7
PA EXP A RXP13	E8	PEX_PETP29	B8
PA EXP A RXN13	D8	PEX_PETN29	A8
PA EXP A RXP14	E10	PEX_PETP30	B10
PA EXP A RXN14	D10	PEX_PETN30	A10
PA EXP A RXP15	E11	PEX_PETP31	B11
PA EXP A RXN15	D11	PEX_PETN31	A11
PB EXP B RXP0	V19	PEX_PETP32	V22
PB EXP B RXN0	V20	PEX_PETN32	V23
PB EXP B RXP1	U19	PEX_PETP33	U22
PB EXP B RXN1	U20	PEX_PETN33	U23
PB EXP B RXP2	R19	PEX_PETP34	R22
PB EXP B RXN2	R20	PEX_PETN34	R23
PB EXP B RXP3	P19	PEX_PETP35	P22
PB EXP B RXN3	P20	PEX_PETN35	P23
PB EXP B RXP4	M19	PEX_PETP36	M22
PB EXP B RXN4	M20	PEX_PETN36	M23
PB EXP B RXP5	L19	PEX_PETP37	L22
PB EXP B RXN5	L20	PEX_PETN37	L23
PB EXP B RXP6	J19	PEX_PETP38	J22
PB EXP B RXN6	J20	PEX_PETN38	J23
PB EXP B RXP7	H19	PEX_PETP39	H22
PB EXP B RXN7	H20	PEX_PETN39	H23
PB EXP B RXP8	E23	PEX_PETP40	E22
PB EXP B RXN8	D23	PEX_PETN40	A22
PB EXP B RXP9	E22	PEX_PETP41	B22
PB EXP B RXN9	D22	PEX_PETN41	A22
PB EXP B RXP10	E20	PEX_PETP42	B20
PB EXP B RXN10	D20	PEX_PETN42	A20
PB EXP B RXP11	E19	PEX_PETP43	B19
PB EXP B RXN11	D19	PEX_PETN43	A19
PB EXP B RXP12	E17	PEX_PETP44	B17
PB EXP B RXN12	D17	PEX_PETN44	A17
PB EXP B RXP13	E16	PEX_PETP45	B16
PB EXP B RXN13	D16	PEX_PETN45	A16
PB EXP B RXP14	E14	PEX_PETP46	B14
PB EXP B RXN14	D14	PEX_PETN46	A14
PB EXP B RXP15	E13	PEX_PETP47	B13
PB EXP B RXN15	D13	PEX_PETN47	A13

PEX_REFCLK_SSCP4
PEX_REFCLK_SSCN4
PEX_REFCLK_SSCP8
PEX_REFCLK_SSCN8

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PA EXP A RXP[0..7] >>> PA_EXP_A_RXP[0..7] 15
PA EXP A RXN[0..7] >>> PA_EXP_A_RXN[0..7] 15

PA EXP A TXP[0..7] >>> PA_EXP_A_TXP[0..7] 15
PA EXP A TXN[0..7] >>> PA_EXP_A_TXN[0..7] 15

PA EXP A RXP[8..15] >>> PA_EXP_A_RXP[8..15] 14
PA EXP A RXN[8..15] >>> PA_EXP_A_RXN[8..15] 14

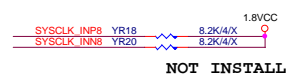
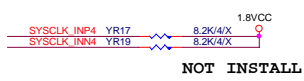
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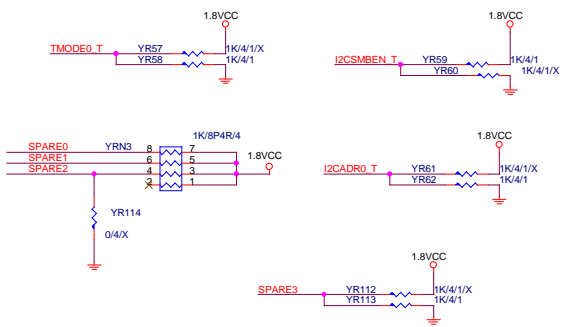
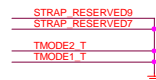
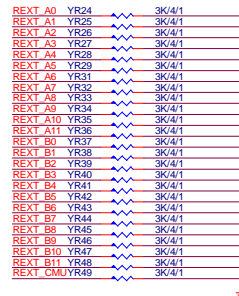
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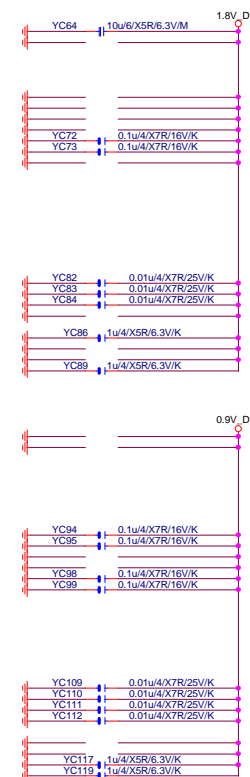
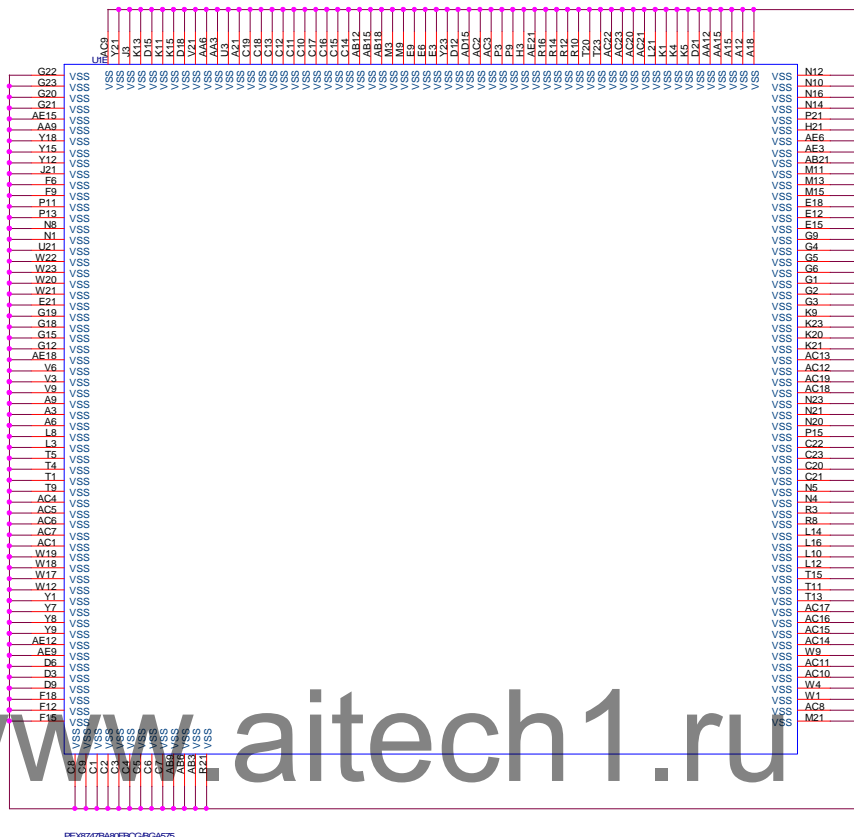
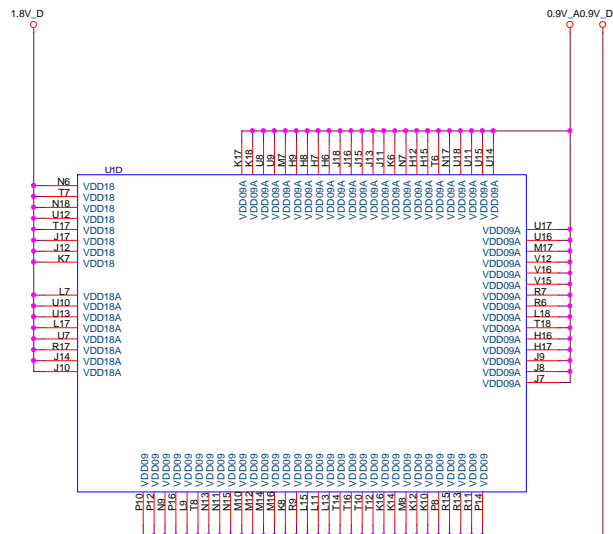
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PB EXP B TXN[0..7] >>> PB_EXP_B_TXN[0..7] 17

PB EXP B RXP[8..15] >>> PB_EXP_B_RXP[8..15] 18
PB EXP B RXN[8..15] >>> PB_EXP_B_RXN[8..15] 18

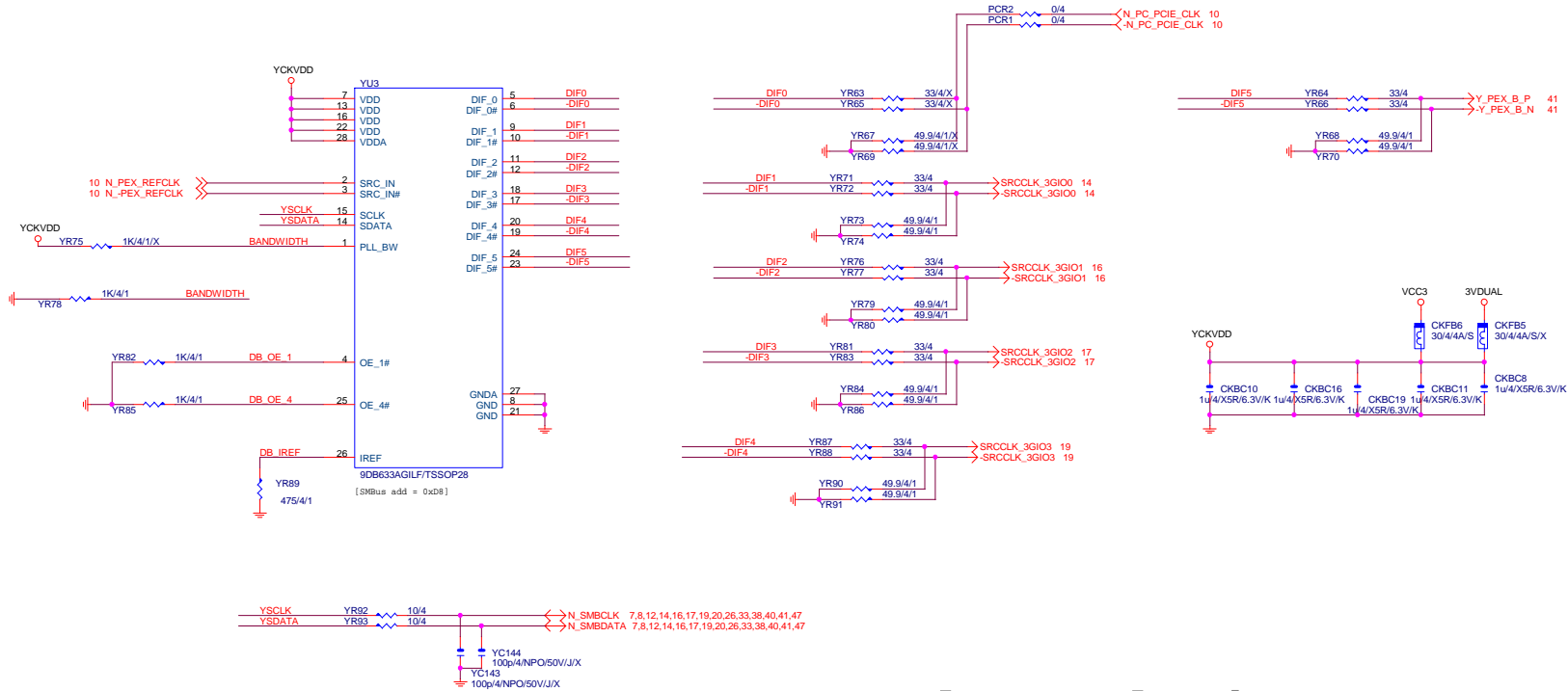
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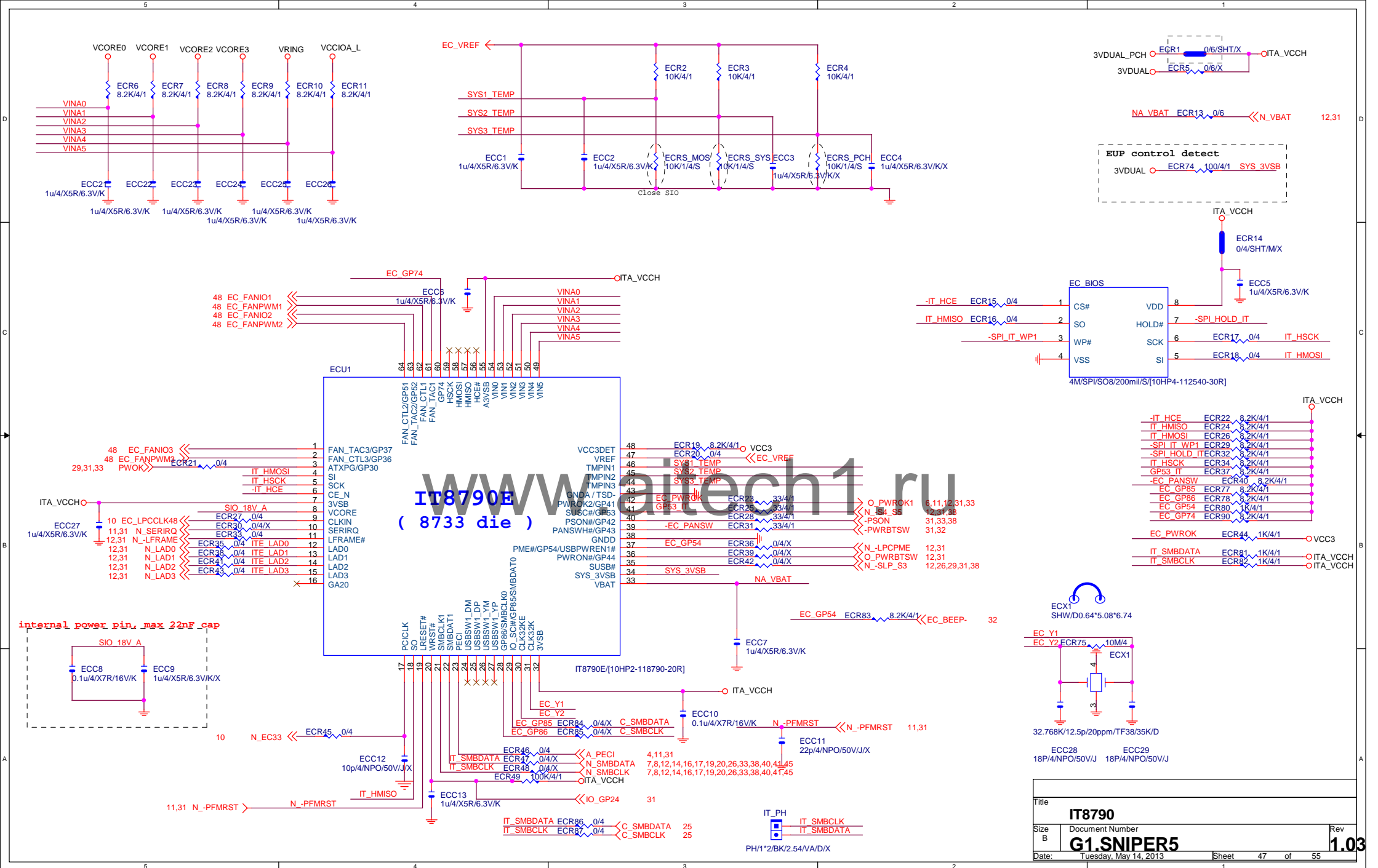




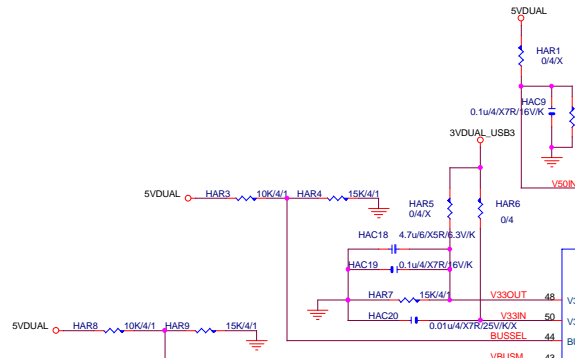
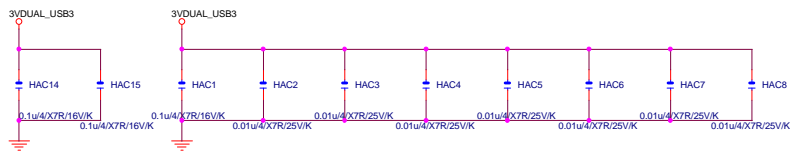
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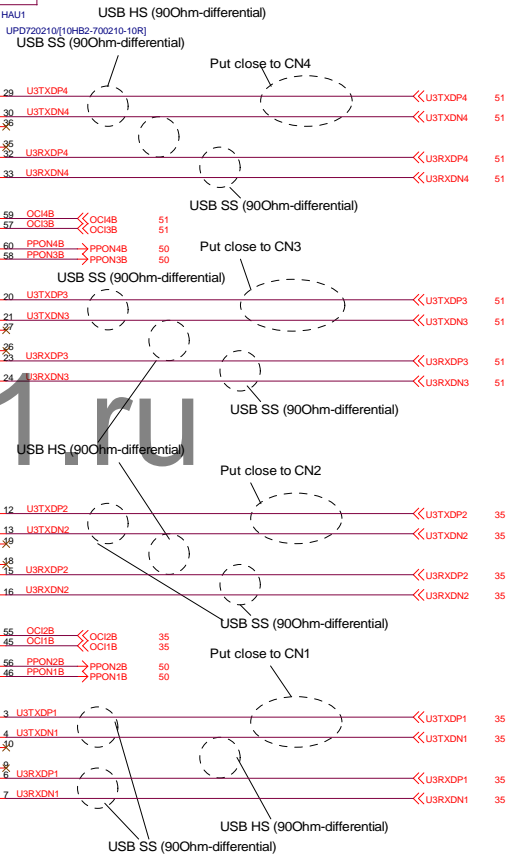
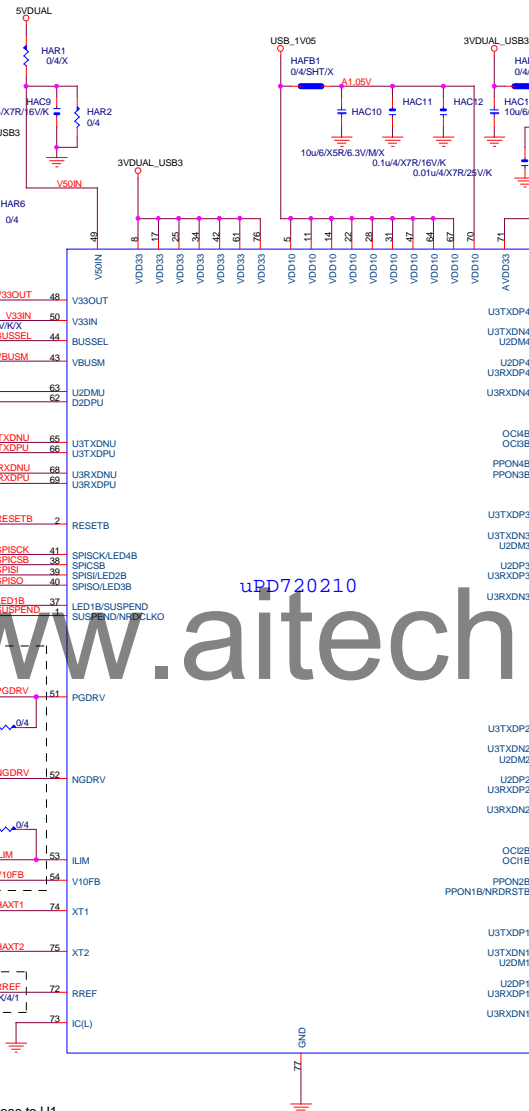
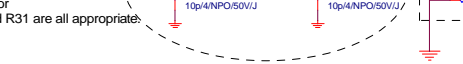
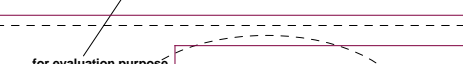
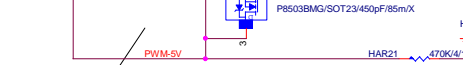
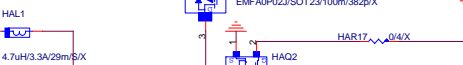
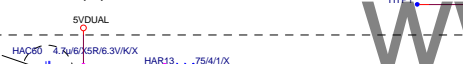
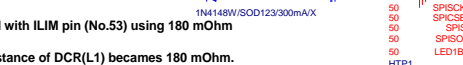
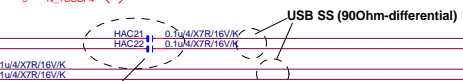




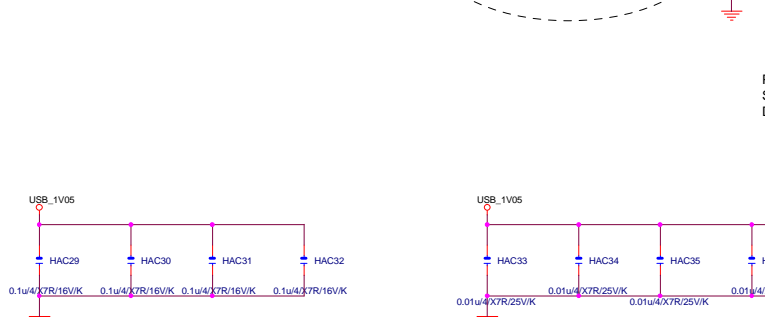
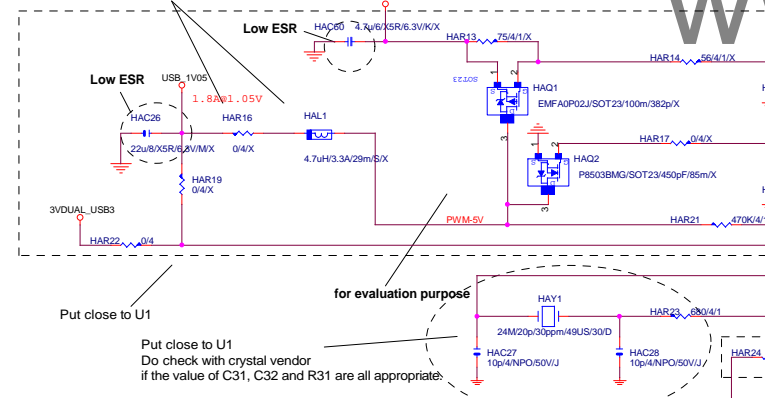


From PCH

9 PCH_USB3_RXN4
9 PCH_USB3_RXP4
9 PCH_USB3_TXN4
9 PCH_USB3_TXP4

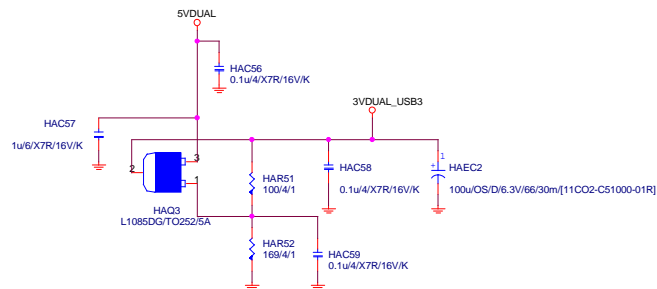


The over current protection of VDD10 is detected with ILIM pin (No.53) using 180 mOhm of DC resistance (DCR) of inductor L1.
HAR16 should be choosing so that the total resistance of DCR(L1) becomes 180 mOhm.
→ HAR16 + DCR(HAL1) = 180 [mOhm]

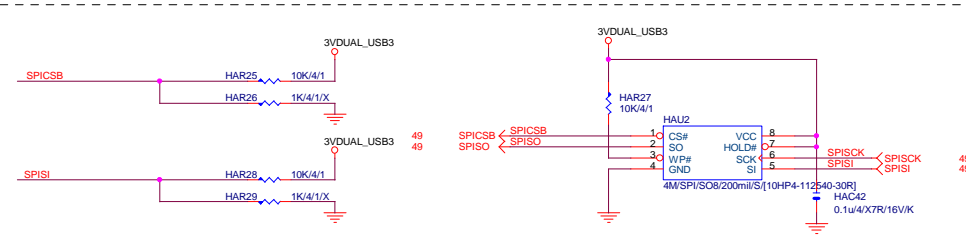


Put close to U1
Short and broad connection to GND
Don't split R32 into multiple resistors.

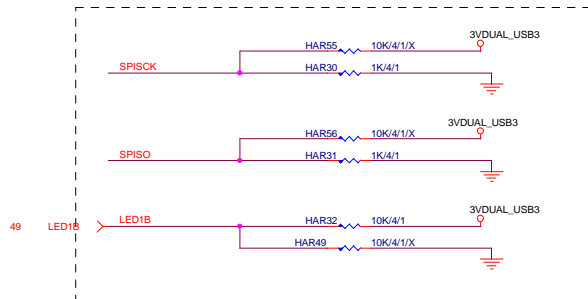
3VDUAL_USB_1



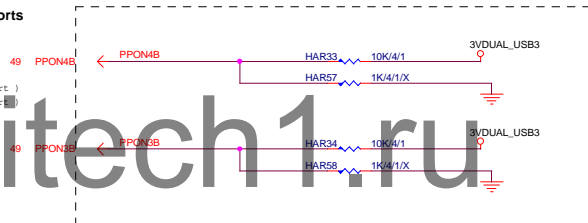
External SPI ROM ; SPI ROM attached mode



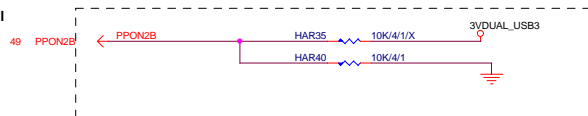
Battery Charging



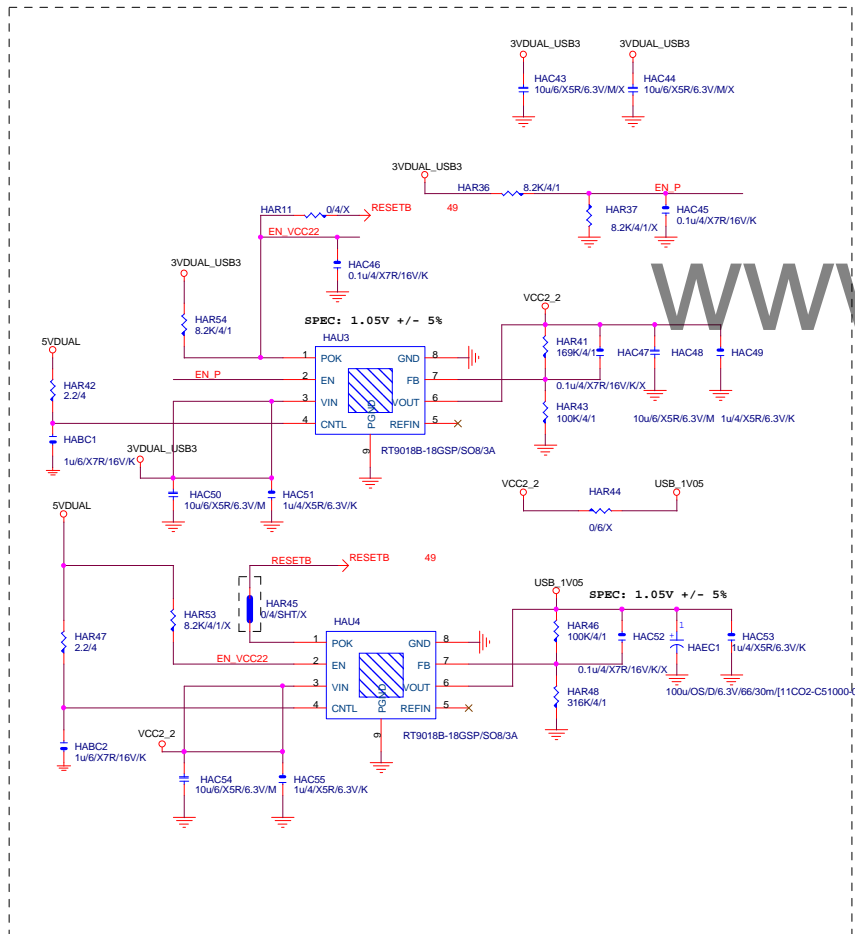
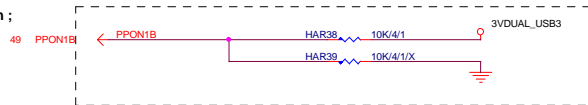
Number of Ports ; 4Ports mode



#5 VBUS Power Control ; Individual mode

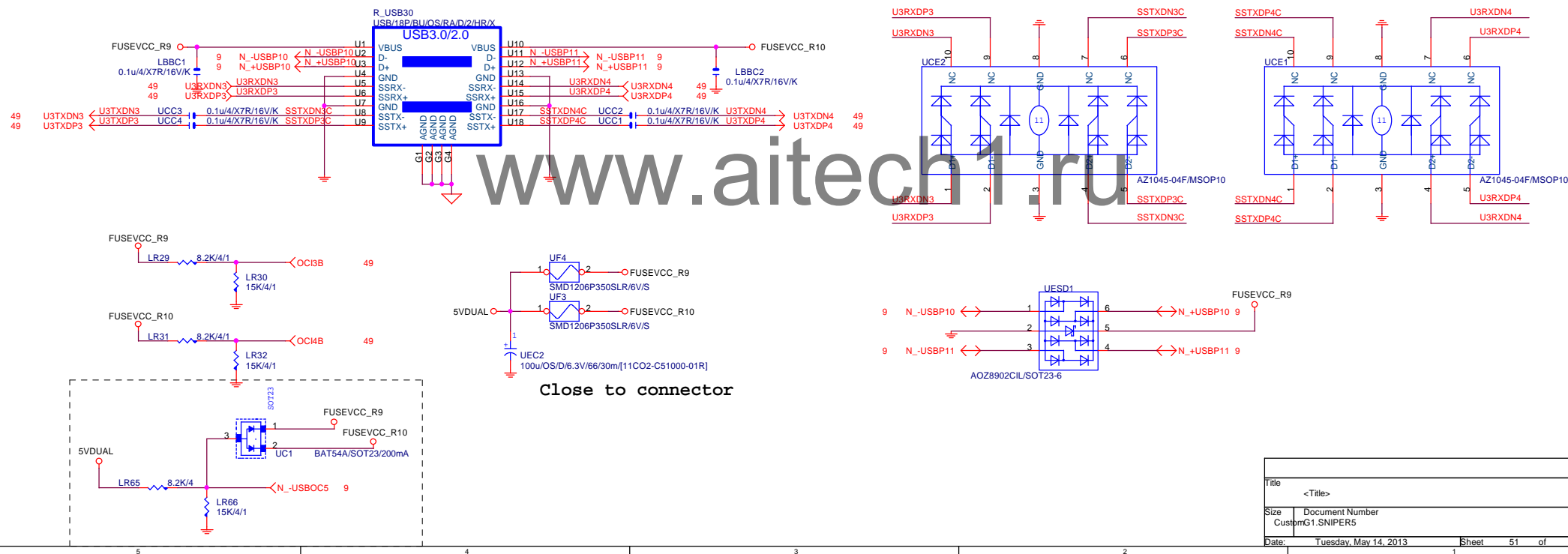


PPON1B Pin Function ; Port1 PPONB mode



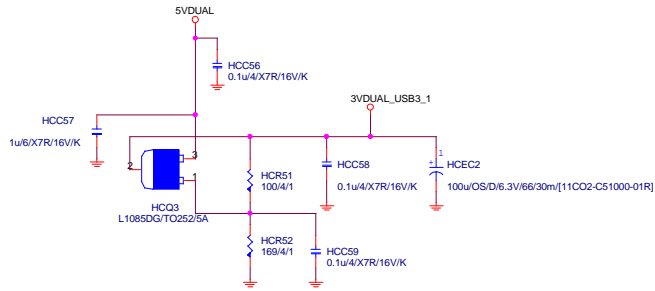
Renesas Electronics Confidential

Title	UPD720210 reference design 4port Hub board		
Size	Document Number	Rev	1.03
Date	Sheet	50	of

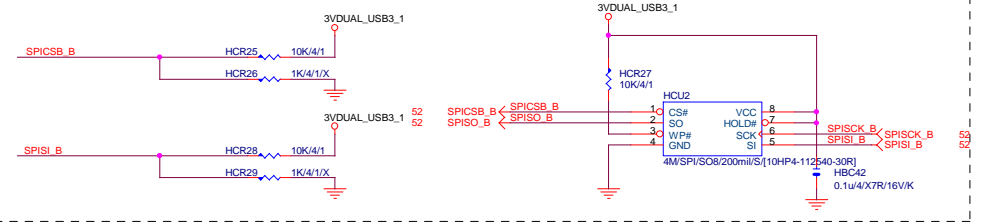


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Size	Document Number	Rev
Custom	G1.SNIPER5	1.03
Date:	Tuesday, May 14, 2013	Sheet 51 of 55

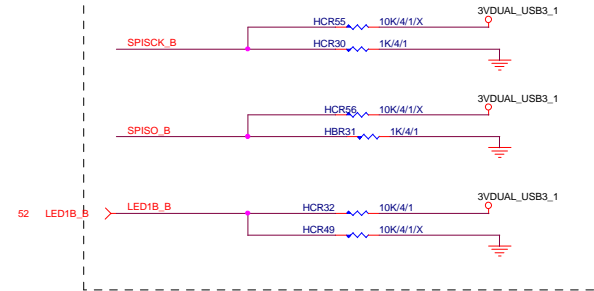
3VDUAL_USB_2



External SPI ROM ; SPI ROM attached mode

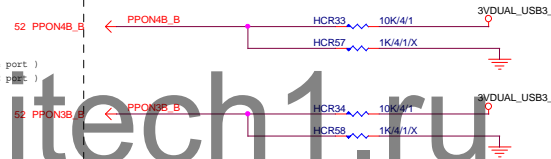


Battery Charging

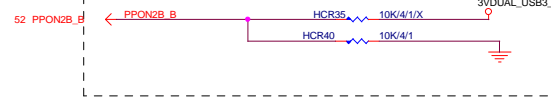


Number of Ports ; 4Ports mode

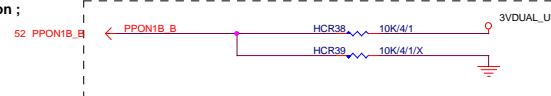
PPON3B / PPON4B : H / H (4 port)
PPON3B / PPON4B : L / L (2 port)



#5 VBUS Power Control ; Individual mode



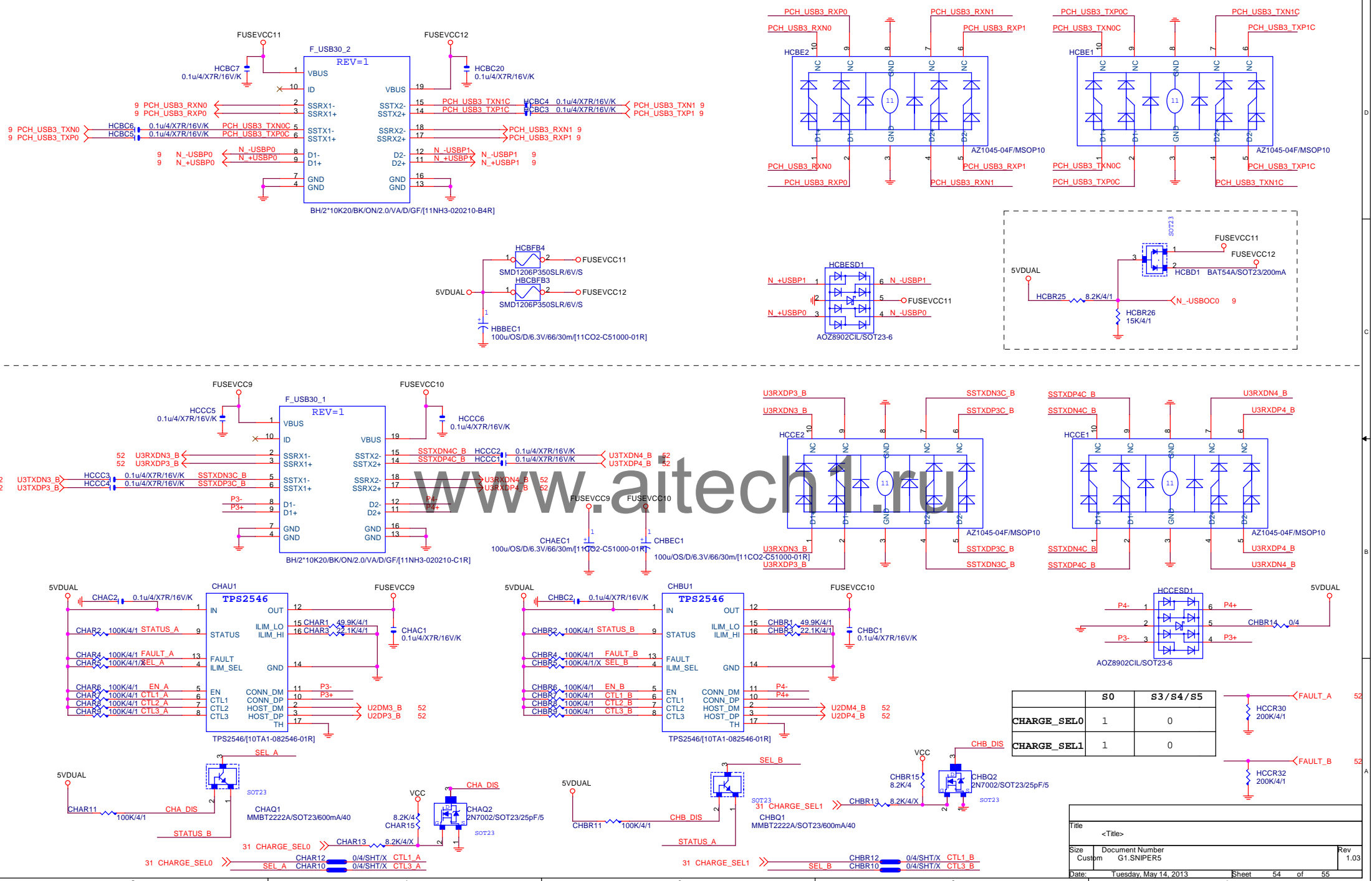
PPON1B Pin Function ; Port1 PPONB mode



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	S0	S3/S4/S5	
CHARGE_SEL0	1	0	FAULT_A
CHARGE_SEL1	1	0	FAULT_B

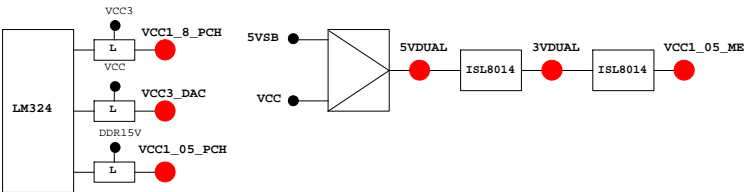
Title			
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Size	Document Number		Rev
Custom	G1.SNIPER5		1.03
Date:	Tuesday, May 14, 2013	Sheet	54 of 55

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/PIRQ#	MAIN		GPI -PIRQE	P/U 8.2K VCC3	
GP3/PIRQ#	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 -SKT0CC	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_FCH_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	

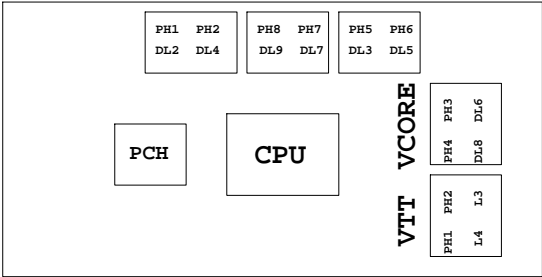
Super I/O ITE8720 GPIO Table

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#CIRRXL/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PWRST1	
PCIRST1#/GP12	-PWRST2	
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/SMBD_R	2X PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBD_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：

散熱模組料號：

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

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology			
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