

Model Name: GA-Z68X-UD7-B3

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04-06	CPU_LGA1155
07-08	DDR III CHANNEL A / B
09	PCH_DMI,USB,PCIE
10	PCH CLK BUFFER
11	PCH_HOST,SATA
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	DUAL BIOS,TPM
15	PCIEX1 & PCI SLOT
16	ITE 8728
17	-PROHOT,KB/MS,PROTECT
18-23	VCORE ISL6367
24	VCCSA POWER
25	ISL6322_CPU_VTTD
26	ISL6322_DDRIII
27	PCH CORE
28-29	DISCRETE POWER
30	FP,FUSB,FDD
31	ATX , LED & BUTTON
32	ALC889-GR
33	REAR AUDIO JACK
34	HWM,FAN CTRL
35-36	NEC UP720200 USB3.0 x2
37-38	REALTEK RTL8111E x2

SHEET TITLE

39	TI TSB43AB23 1394
40	IT8892 PCI bridge
41-42	Marvell 9128 SATA3.0 x2
43-45	PCIE X16_1 & PCIE X8_1 SWITCH
46-48	PCIE X16_2 & PCIE X8_2 SWITCH
49-50	BR04 PCIE GEN2
51	CLOCK GEN & BUFFER
52-53	VL810 USB3_HUB x2
54	USB3 TURBO SWITCH

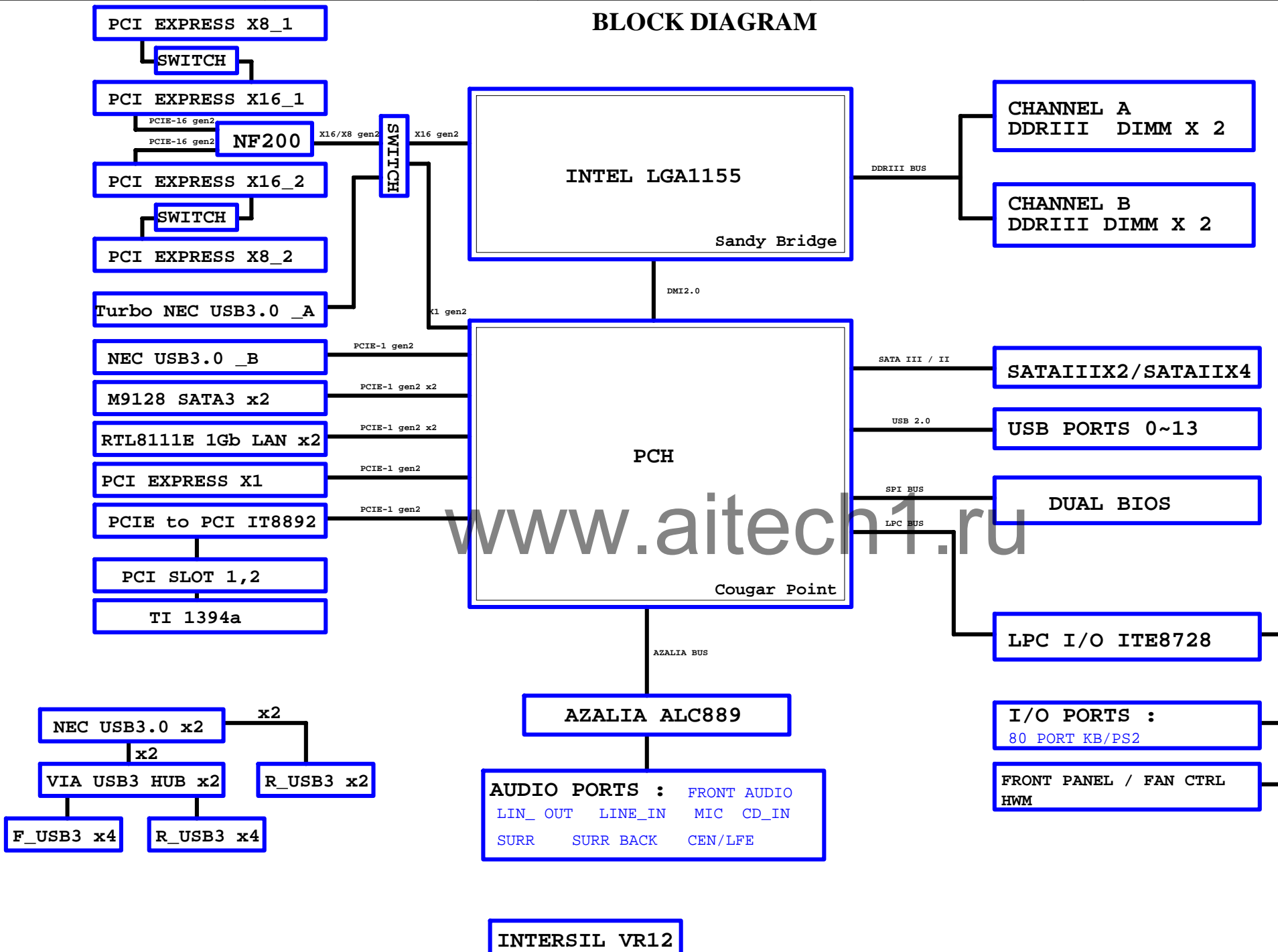
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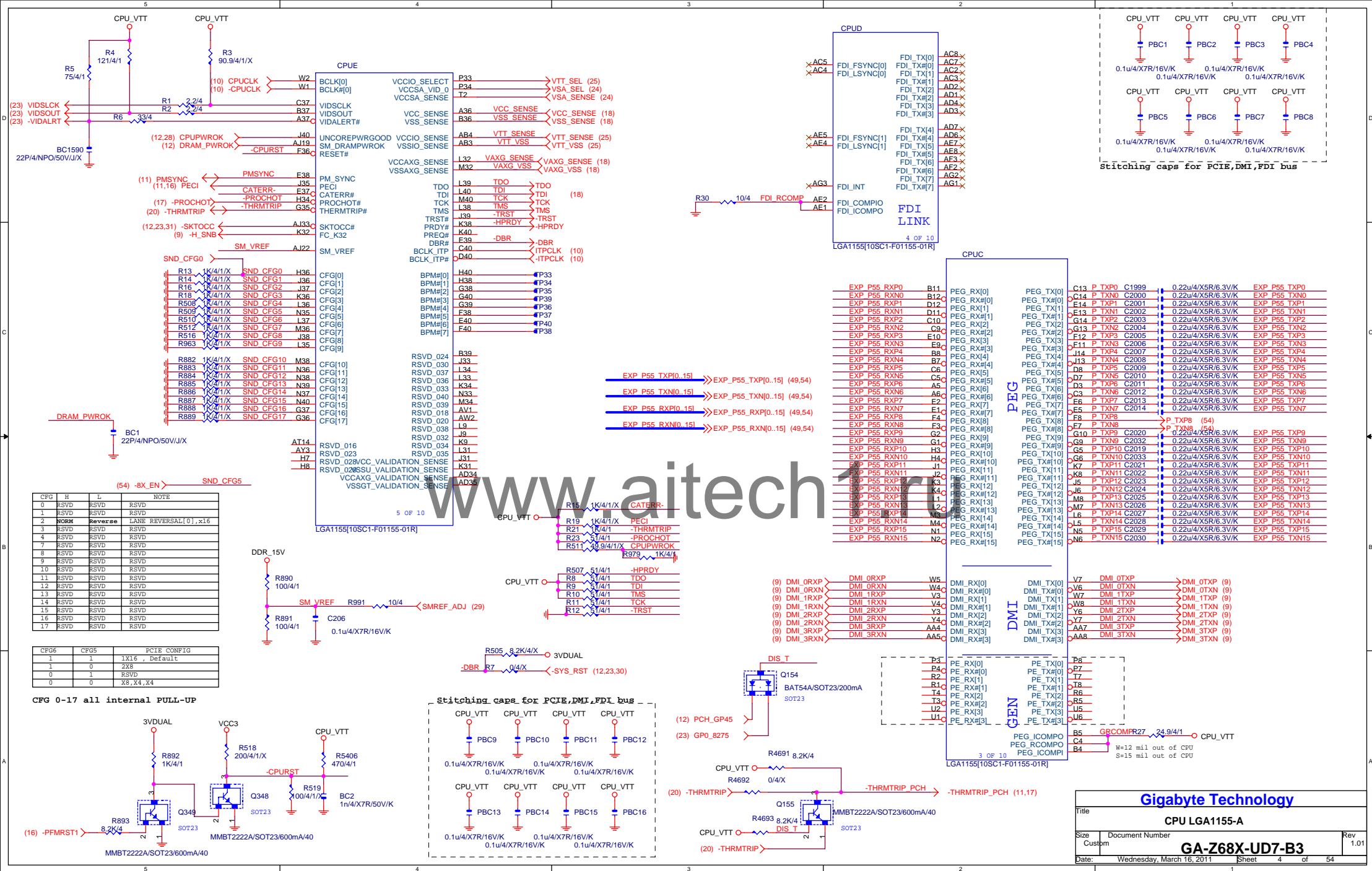
Gigabyte Technology			
Title			
Cover Sheet			
Size Custom	Document Number	GA-Z68X-UD7-B3	Rev 1.01
Date:	Wednesday, March 16, 2011	Sheet	1 of 54

Component value change history

[illegible][illegible]

BLOCK DIAGRAM





CPUA

MAAA0	AV27	SA_MA[0]	SA_DSQ[0]	AK3	DQSA0
MAAA1	AY24	SA_MA[1]	SA_DSQ[0]	AK2	-DQSA0
MAAA2	AW24	SA_MA[2]			
MAAA3	AV23	SA_MA[3]			
MAAA4	AV23	SA_MA[3]		AJ3	MDA0
MAAA5	AT24	SA_MA[4]	SA_DQ[0]	AJ4	MDA1
MAAA6	AT23	SA_MA[5]	SA_DQ[1]	AL3	MDA2
MAAA7	AU22	SA_MA[6]	SA_DQ[2]	AL4	MDA3
MAAA8	AV22	SA_MA[7]	SA_DQ[3]	AJ2	MDA4
MAAA9	AT22	SA_MA[8]	SA_DQ[4]	AJ1	MDA5
MAAA10	AV28	SA_MA[9]	SA_DQ[5]	AL2	MDA6
MAAA11	AU21	SA_MA[10]	SA_DQ[6]	AL1	MDA7
MAAA12	AT21	SA_MA[11]	SA_DQ[7]		
MAAA13	AW32	SA_MA[12]	SA_DSQ[11]	AP3	DQSA1
MAAA14	AU30	SA_MA[13]	SA_DSQ[11]	AP2	-DQSA1
MAAA15	AT20	SA_MA[14]			
		SA_MA[15]			
(7) -SWEA	AW29	SA_WE#	SA_DQ[8]	AN1	MDA8
(7) -SCASA	AV30	SA_CAS#	SA_DQ[9]	AN4	MDA9
(7) -SRASA	AU28	SA_RAS#	SA_DQ[10]	AR3	MDA10
			SA_DQ[11]	AR4	MDA12
(7) SBAA0	AY29	SA_BS[0]	SA_DQ[12]	AN2	MDA11
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(7) SBAA2	AV20	SA_BS[2]	SA_DQ[14]	AR2	MDA14
			SA_DQ[15]	AR1	MDA15
(7) -CSA0	AY29	SA_CS#	SA_DSQ[2]	AW4	DQSA2
(7) -CSA1	AV32	SA_CS#	SA_DSQ[2]	AW4	-DQSA2
(7) -CSA2	AW30	SA_CS#			
(7) -CSA3	AU33	SA_CS#			
(7) CKEA0	AV19	SA_CKE[0]	SA_DQ[16]	AV2	MDA16
(7) CKEA1	AT19	SA_CKE[1]	SA_DQ[17]	AW3	MDA17
(7) CKEA2	AU18	SA_CKE[2]	SA_DQ[18]	AV5	MDA18
(7) CKEA3	AV18	SA_CKE[3]	SA_DQ[19]	AW5	MDA19
			SA_DQ[20]	AU2	MDA20
			SA_DQ[21]	AU3	MDA21
			SA_DQ[22]	AU5	MDA22
			SA_DQ[23]	AY5	MDA23
			SA_DSQ[3]	AV8	DQSA3
			SA_DSQ[3]	AW8	-DQSA3
(7) DCLKA0	AY25	SA_CK[0]	SA_DQ[24]	AY7	MDA24
(7) -DCLKA0	AW25	SA_CK#	SA_DQ[25]	AU7	MDA25
(7) DCLKA1	AU24	SA_CK[1]	SA_DQ[26]	AV9	MDA26
(7) -DCLKA1	AU25	SA_CK#	SA_DQ[27]	AU9	MDA27
(7) DCLKA2	AW27	SA_CK[2]	SA_DQ[28]	AV7	MDA28
(7) -DCLKA2	AY27	SA_CK#	SA_DQ[29]	AW7	MDA29
(7) DCLKA3	AV26	SA_CK[3]	SA_DQ[30]	AW9	MDA30
(7) -DCLKA3	AW26	SA_CK#	SA_DQ[31]	AY9	MDA31
			SA_DSQ[4]	AV37	DQSA4
			SA_DSQ[4]	AV36	-DQSA4
			SA_DQ[32]	AU35	MDA32
			SA_DQ[33]	AW37	MDA33
			SA_DQ[34]	AU38	MDA34
			SA_DQ[35]	AU36	MDA35
			SA_DQ[36]	AW35	MDA36
			SA_DQ[37]	AY36	MDA37
			SA_DQ[38]	AU38	MDA38
			SA_DQ[39]	AU37	MDA39
			SA_DSQ[5]	AP38	DQSA5
			SA_DSQ[5]	AP39	-DQSA5
			SA_DQ[40]	AR40	MDA40
			SA_DQ[41]	AR37	MDA41
			SA_DQ[42]	AN38	MDA42
			SA_DQ[43]	AN37	MDA43
			SA_DQ[44]	AR39	MDA44
			SA_DQ[45]	AR38	MDA45
			SA_DQ[46]	AN38	MDA46
			SA_DQ[47]	AN40	MDA47
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			SA_DSQ[6]	AK39	-DQSA6
			SA_DQ[48]	AL40	MDA48
			SA_DQ[49]	AL37	MDA49
			SA_DQ[50]	AJ38	MDA50
			SA_DQ[51]	AJ37	MDA51
			SA_DQ[52]	AL39	MDA52
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			SA_DQ[54]	AJ39	MDA54
			SA_DQ[55]	AJ40	MDA55
			SA_DSQ[7]	AF38	DQSA7
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			SA_DQ[56]	AG40	MDA56
			SA_DQ[57]	AG37	MDA57
			SA_DQ[58]	AE38	MDA58
			SA_DQ[59]	AE37	MDA59
			SA_DQ[60]	AG39	MDA60
			SA_DQ[61]	AG38	MDA61
			SA_DQ[62]	AE39	MDA62
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DDR_0

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LGA1155[10SC1-F01155-01R]

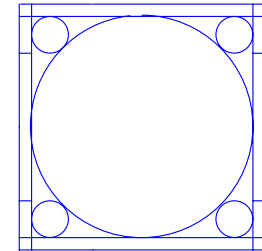
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MAAB3	AK18	SB_MA[3]			
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MAAB5	AP18	SB_MA[5]	SB_DQ[1]	AG8	MDB1
MAAB6	AM18	SB_MA[6]	SB_DQ[2]	AJ9	MDB2
MAAB7	AL18	SB_MA[7]	SB_DQ[3]	AJ8	MDB3
MAAB8	AY17	SB_MA[8]	SB_DQ[4]	AG5	MDB4
MAAB9	AN18	SB_MA[9]	SB_DSQ[5]	AJ6	MDB5
MAAB10	AN23	SB_MA[10]	SB_DSQ[5]	AJ7	MDB6
MAAB11	AU17	SB_MA[11]	SB_DSQ[7]		
MAAB12	AT18	SB_MA[12]	SB_DSQ[11]	AM8	DQSB1
MAAB13	AR26	SB_MA[13]	SB_DSQ[11]	AL8	-DQSB1
MAAB14	AY16	SB_MA[14]			
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(8) -SWEB	AR25	SB_WE#	SB_DSQ[8]	AM7	MDB8
(8) -SCASB	AK25	SB_CAS#	SB_DSQ[9]	AM10	MDB10
(8) -SRASB	AP24	SB_RAS#	SB_DSQ[10]	AL10	MDB11
			SB_DSQ[11]	AL6	MDB12
(8) SBAB0	AP23	SB_BS[0]	SB_DSQ[12]	AM6	MDB13
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			SB_DSQ[15]		
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(8) -CSB1	AN26	SB_CS#	SB_DSQ[2]	AP8	-DQSB2
(8) -CSB2	AL25	SB_CS#			
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(8) CKEB2	AW15	SB_CKE[2]	SB_DSQ[18]	AR10	MDB18
(8) CKEB3	AV15	SB_CKE[3]	SB_DSQ[19]	AR10	MDB19
			SB_DSQ[20]	AP6	MDB20
			SB_DSQ[21]	AR6	MDB21
			SB_DSQ[22]	AP9	MDB22
			SB_DSQ[23]	AR9	MDB23
			SB_DSQ[3]	AN13	DQSB3
			SB_DSQ[3]	AN12	-DQSB3
(8) DCLKB0	AL21	SB_CK[0]	SB_DSQ[24]	AM12	MDB24
(8) -DCLKB0	AL22	SB_CK#	SB_DSQ[25]	AM13	MDB25
(8) DCLKB1	AK20	SB_CK[1]	SB_DSQ[26]	AR13	MDB26
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(8) DCLKB2	AM22	SB_CK[2]	SB_DSQ[28]	AL12	MDB28
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			SB_DSQ[32]	AR28	MDB32
			SB_DSQ[33]	AR23	MDB33
			SB_DSQ[34]	AL28	MDB34
			SB_DSQ[35]	AL29	MDB35
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			SB_DSQ[37]	AP29	MDB37
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			SB_DSQ[52]	AM34	MDB52
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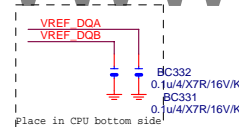
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LGA1155[10SC1-F01155-01R]

CPU
ILM_BP/1156/BKNI

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SBCB0..71 <-> SBCB0..71

SACB0..71 <-> SACB0..71

(7) MODT_A[0..3] <-> MODT_A0..31

(8) MODT_B[0..3] <-> MODT_B0..31

(7) MDA[0..63] <-> MDA0..631

(8) MDB[0..63] <-> MDB0..631

(7) DQSA[0..8] <-> DQSA0..81

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(7) MAAA[0..15] <-> MAAA0..151

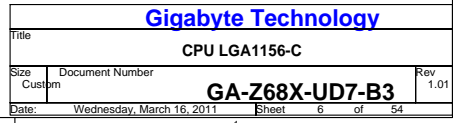
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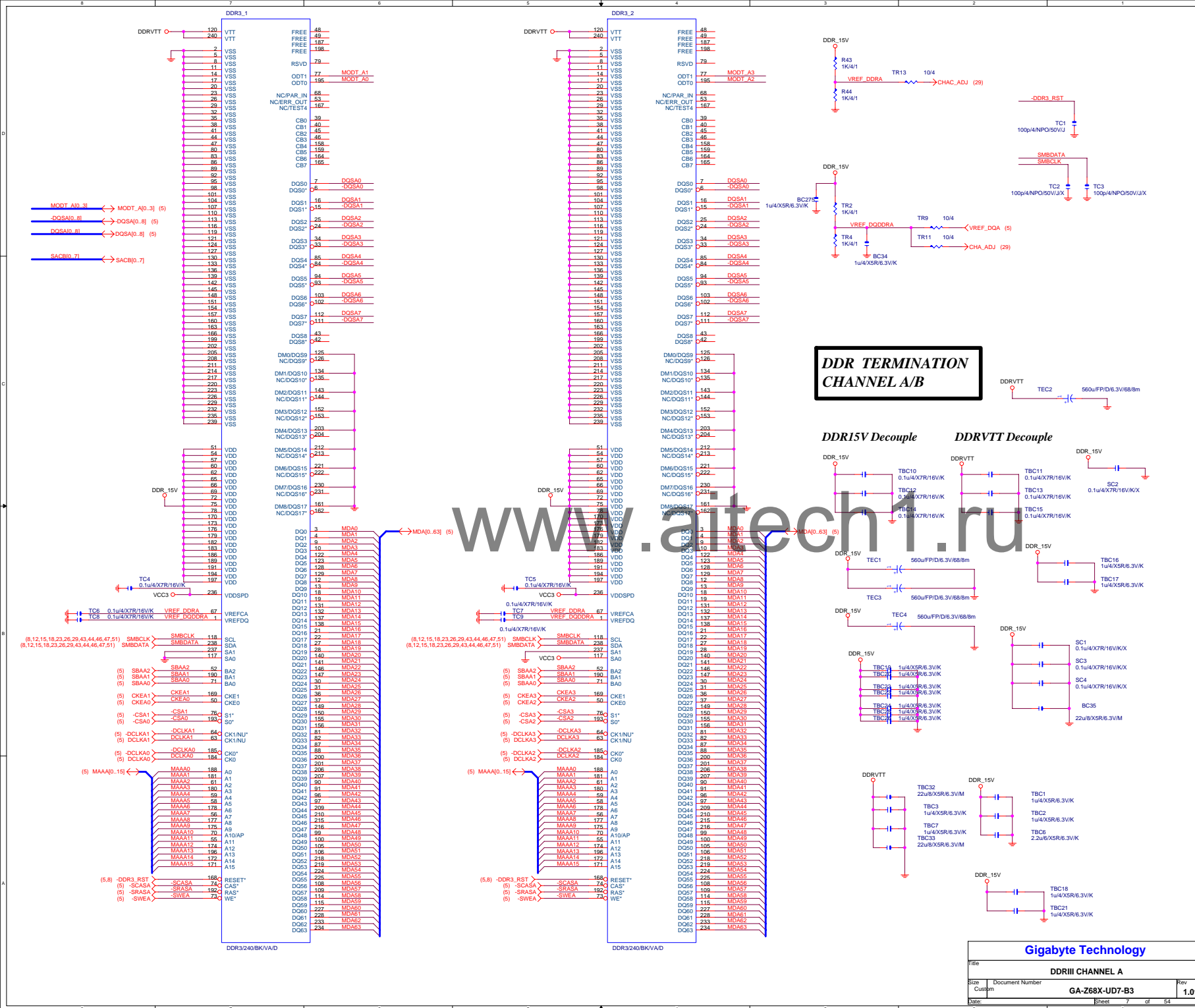
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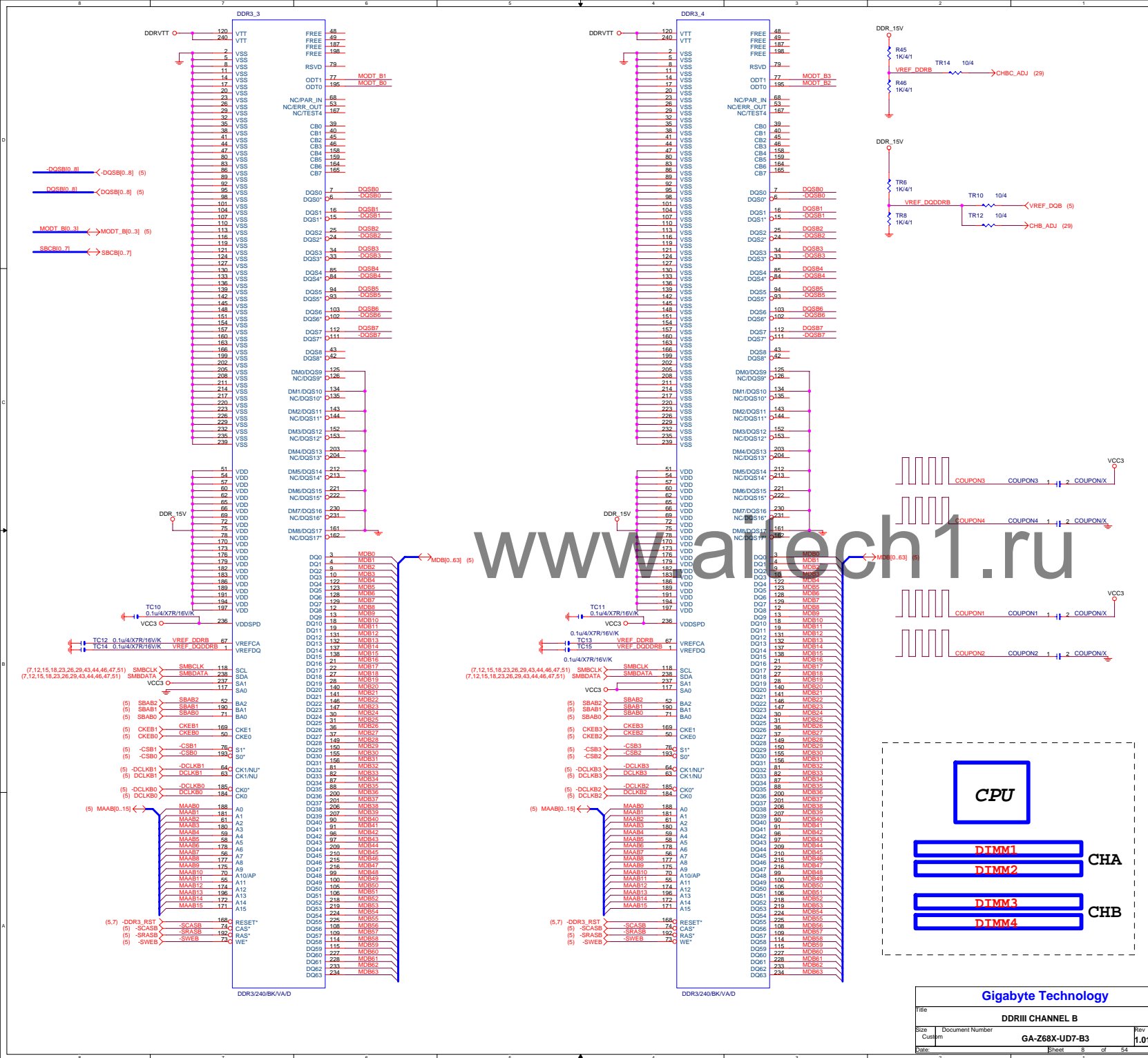
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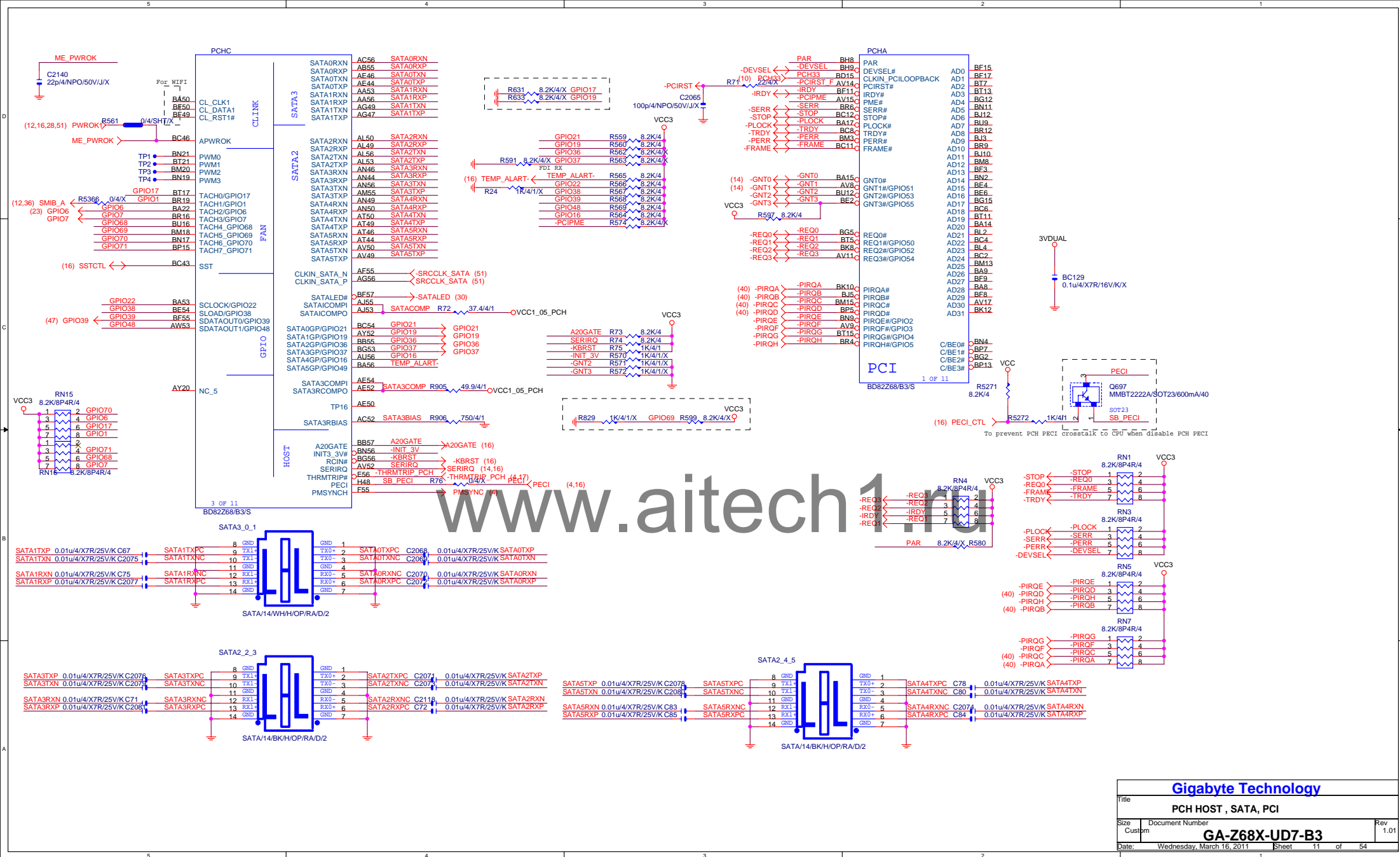
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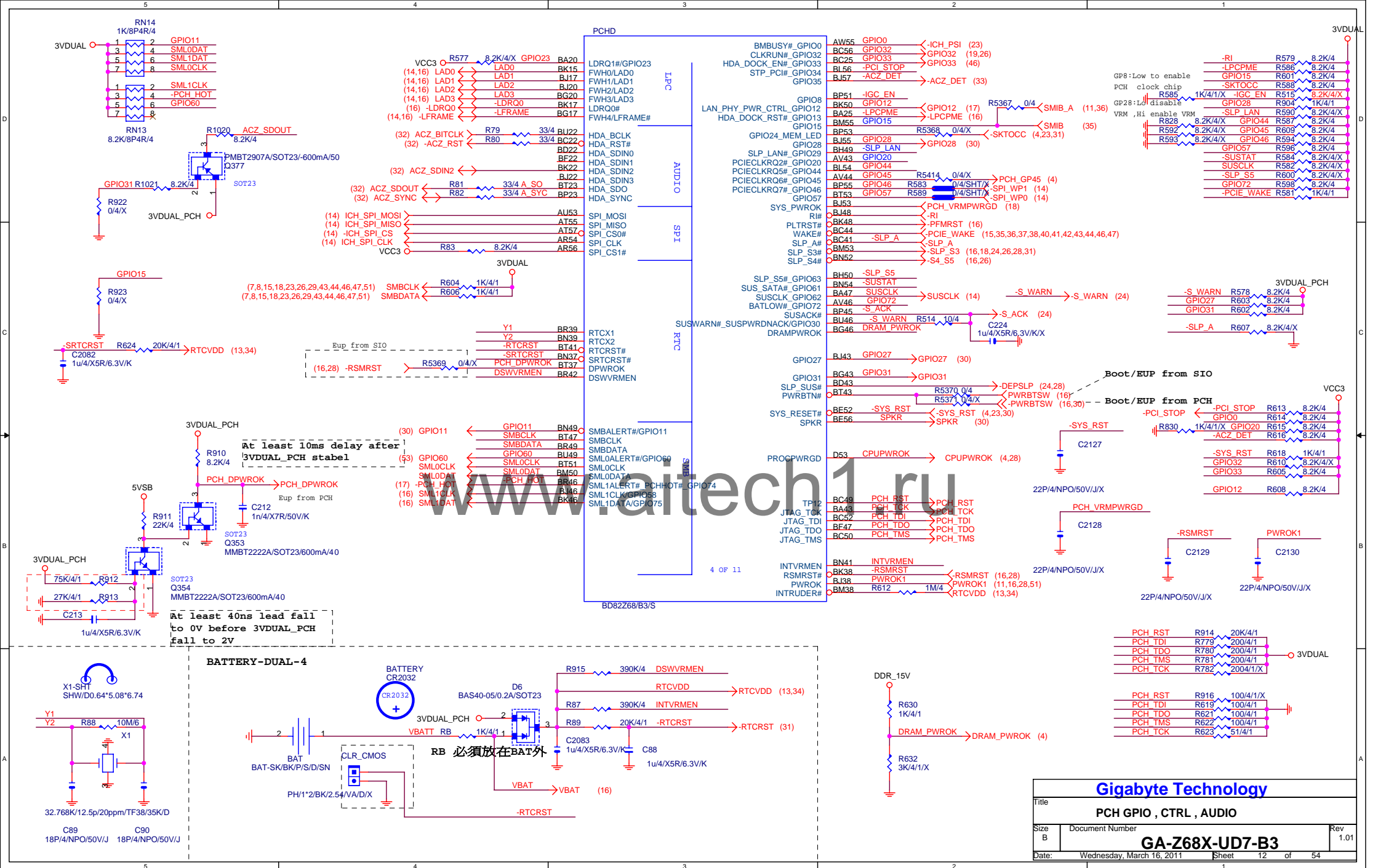
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Size			Document Number		
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Date:			Wednesday, March 16, 2011		
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Rev			1.01		

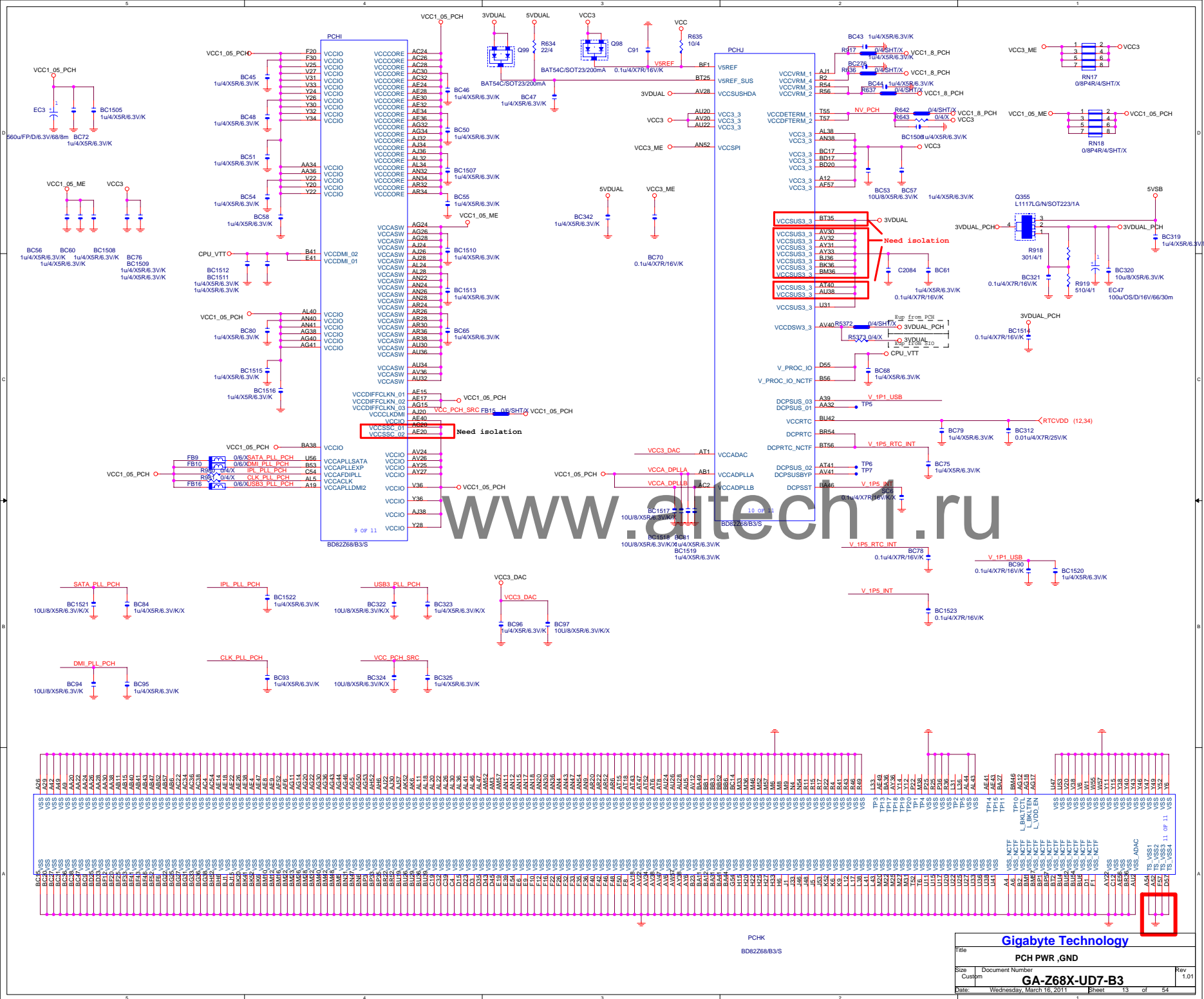




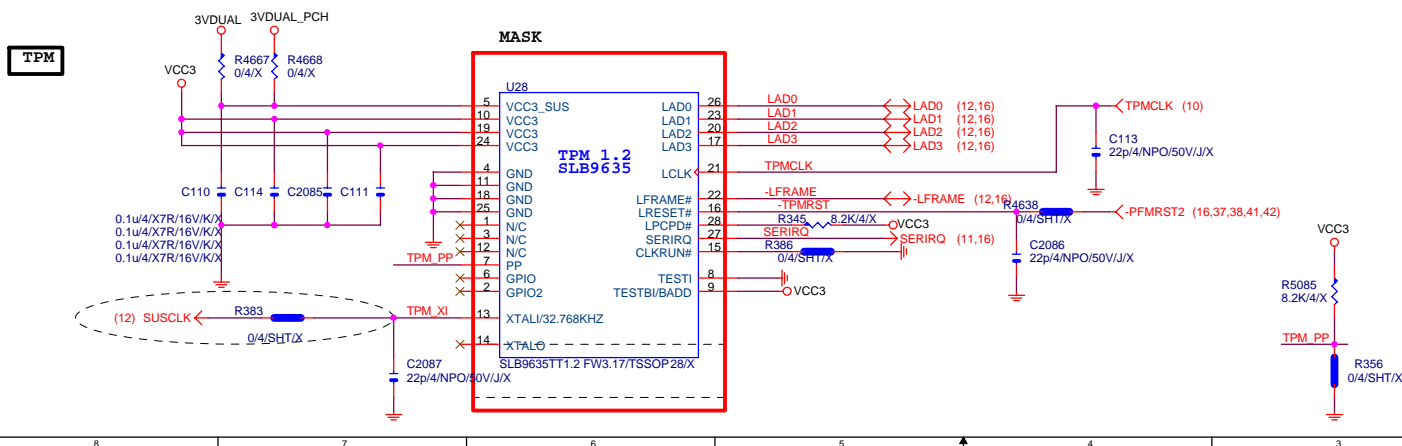








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PCI	1	0
SPI	1	1

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0 means PD 1K

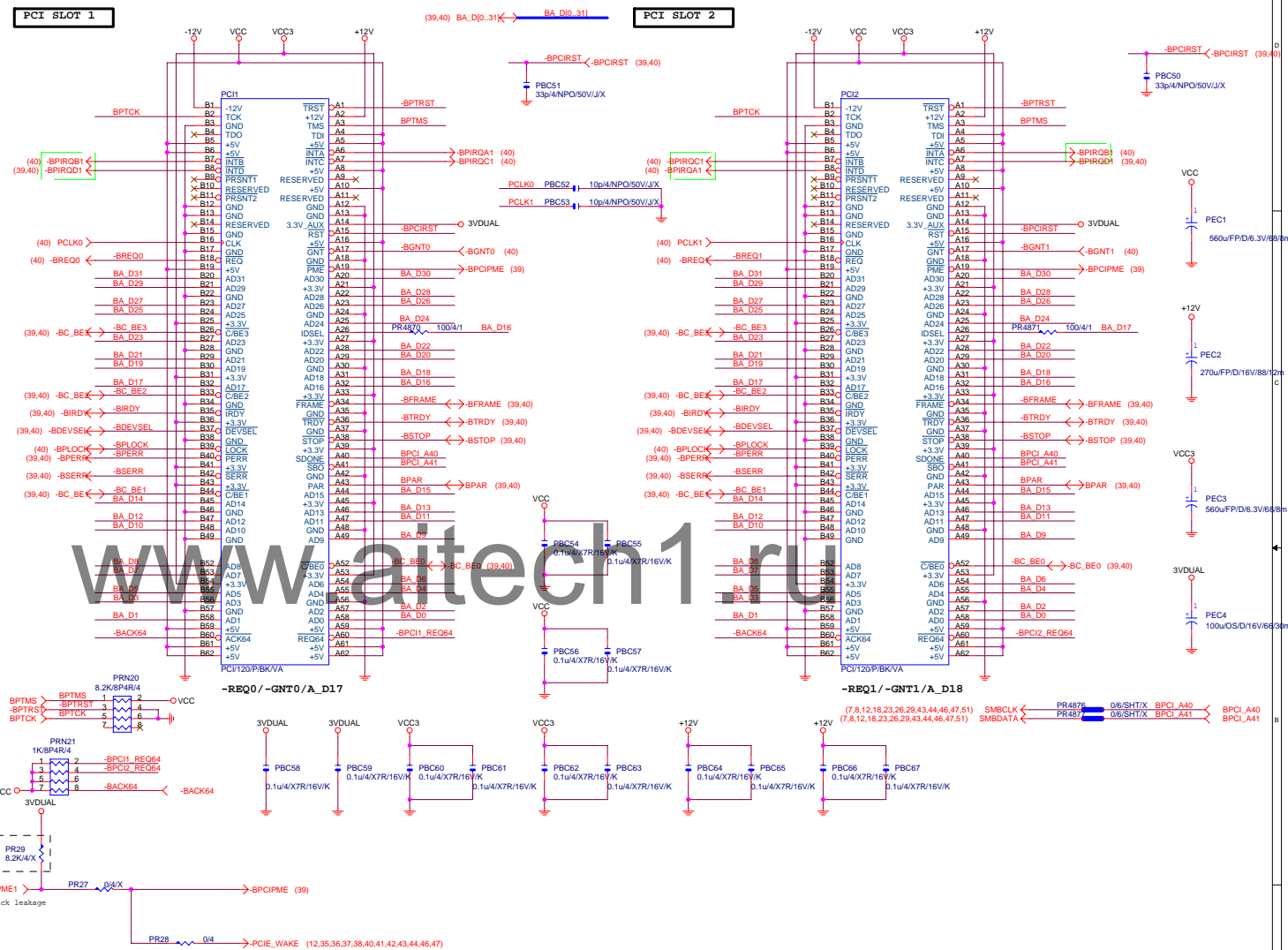
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 2.U28
 3.R383.R345.R386.R356

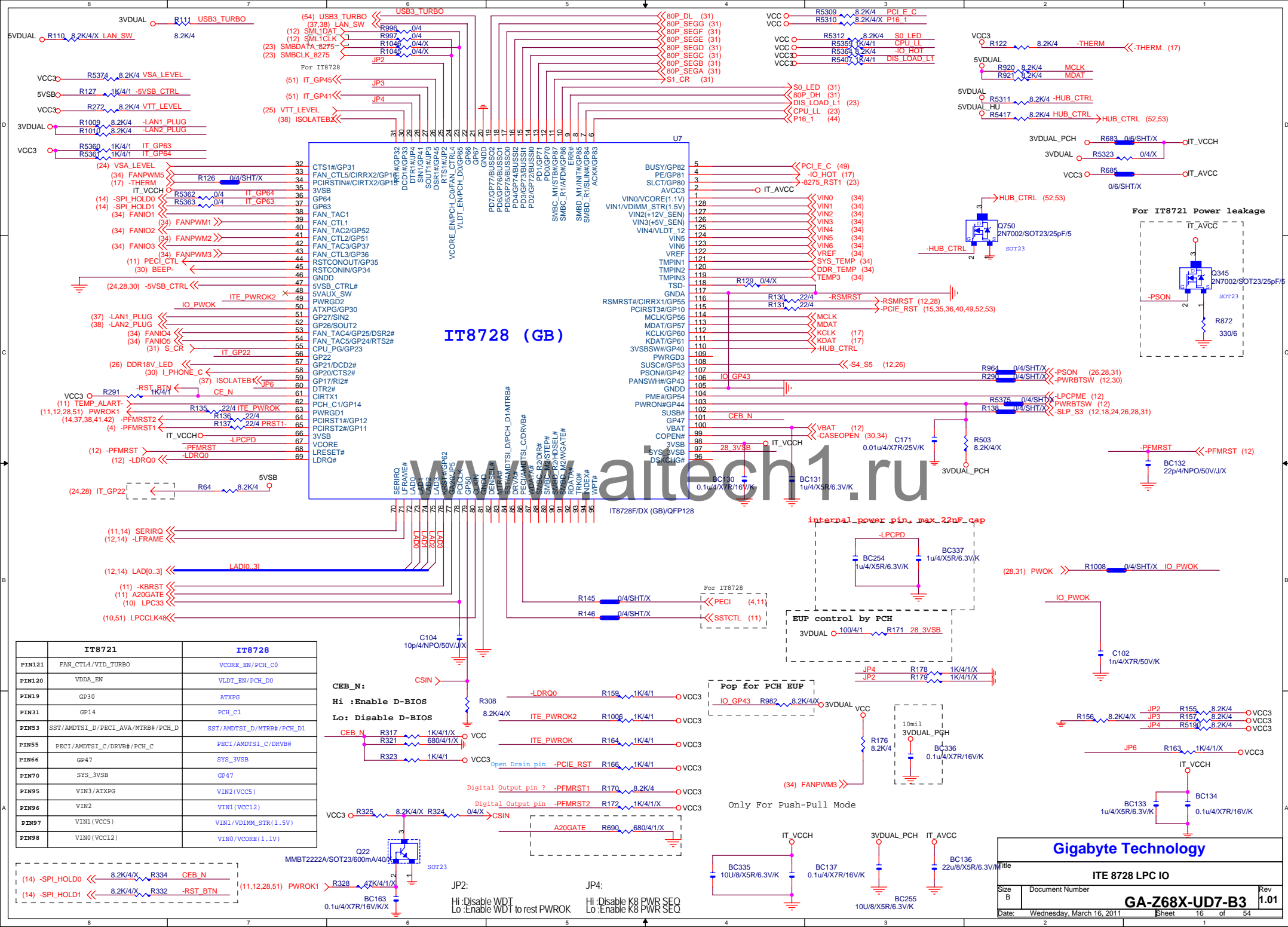
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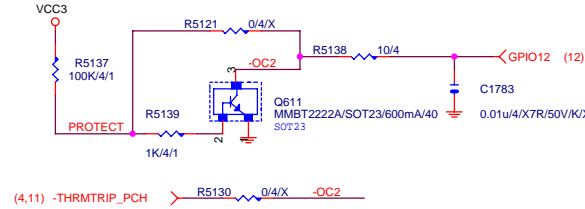
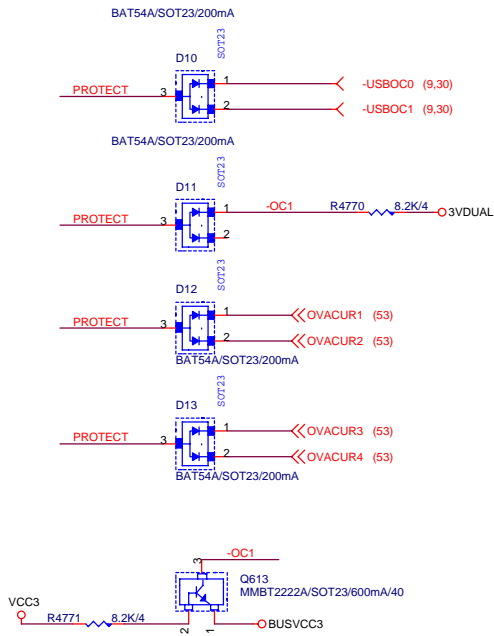
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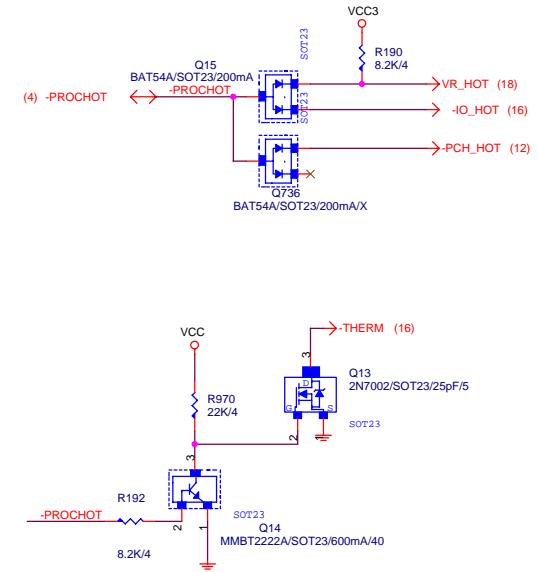
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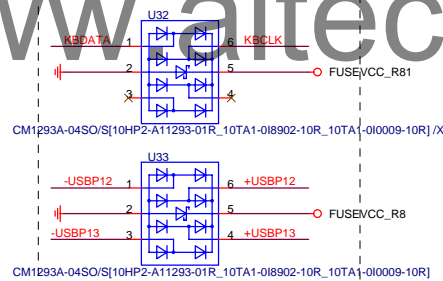
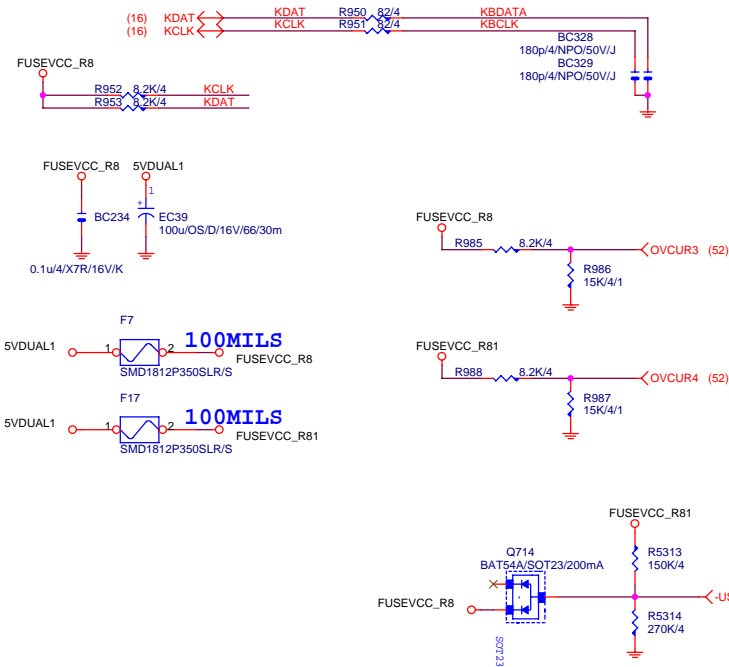


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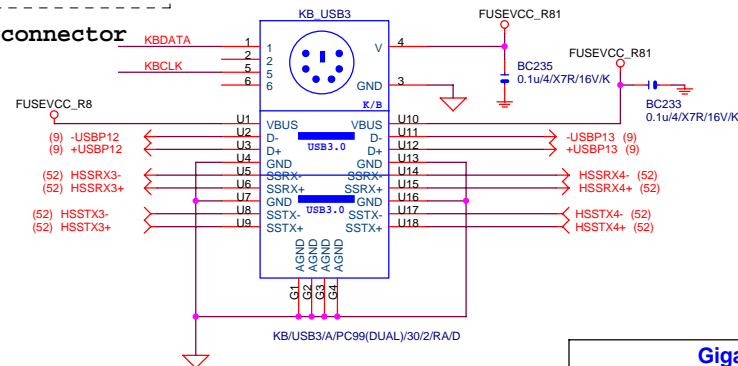


KB / MS

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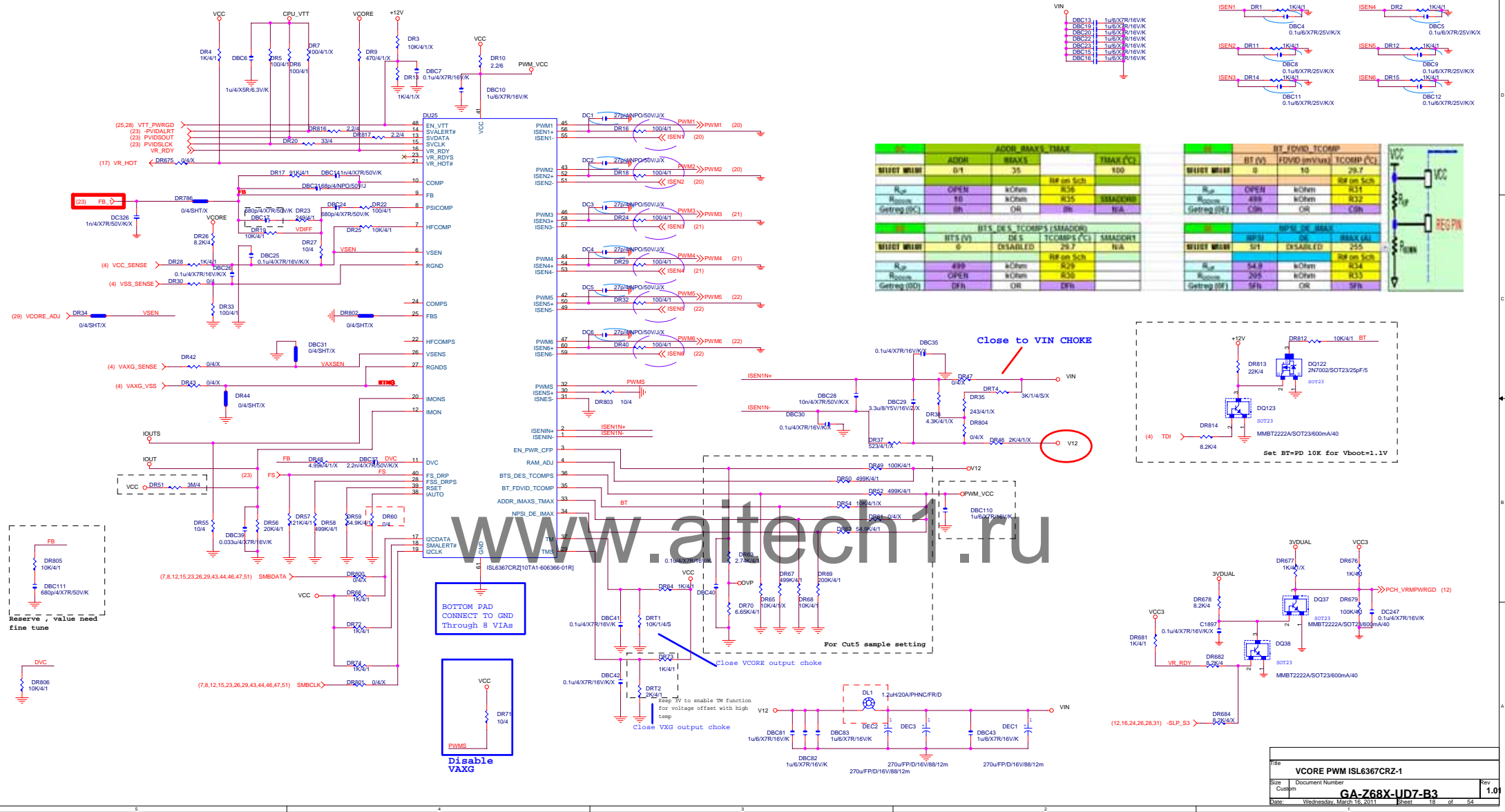


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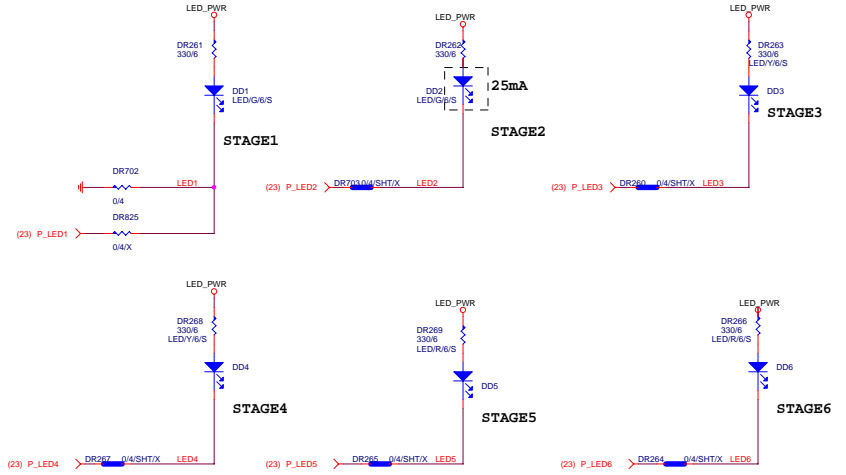


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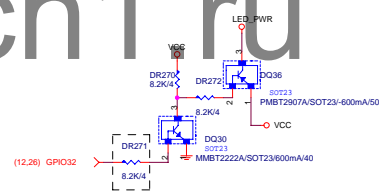
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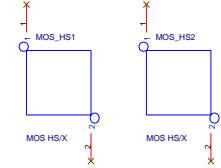
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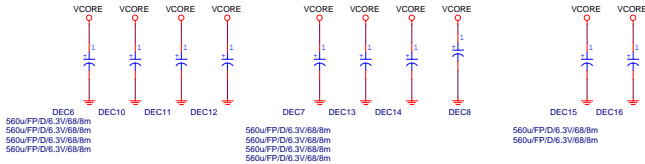
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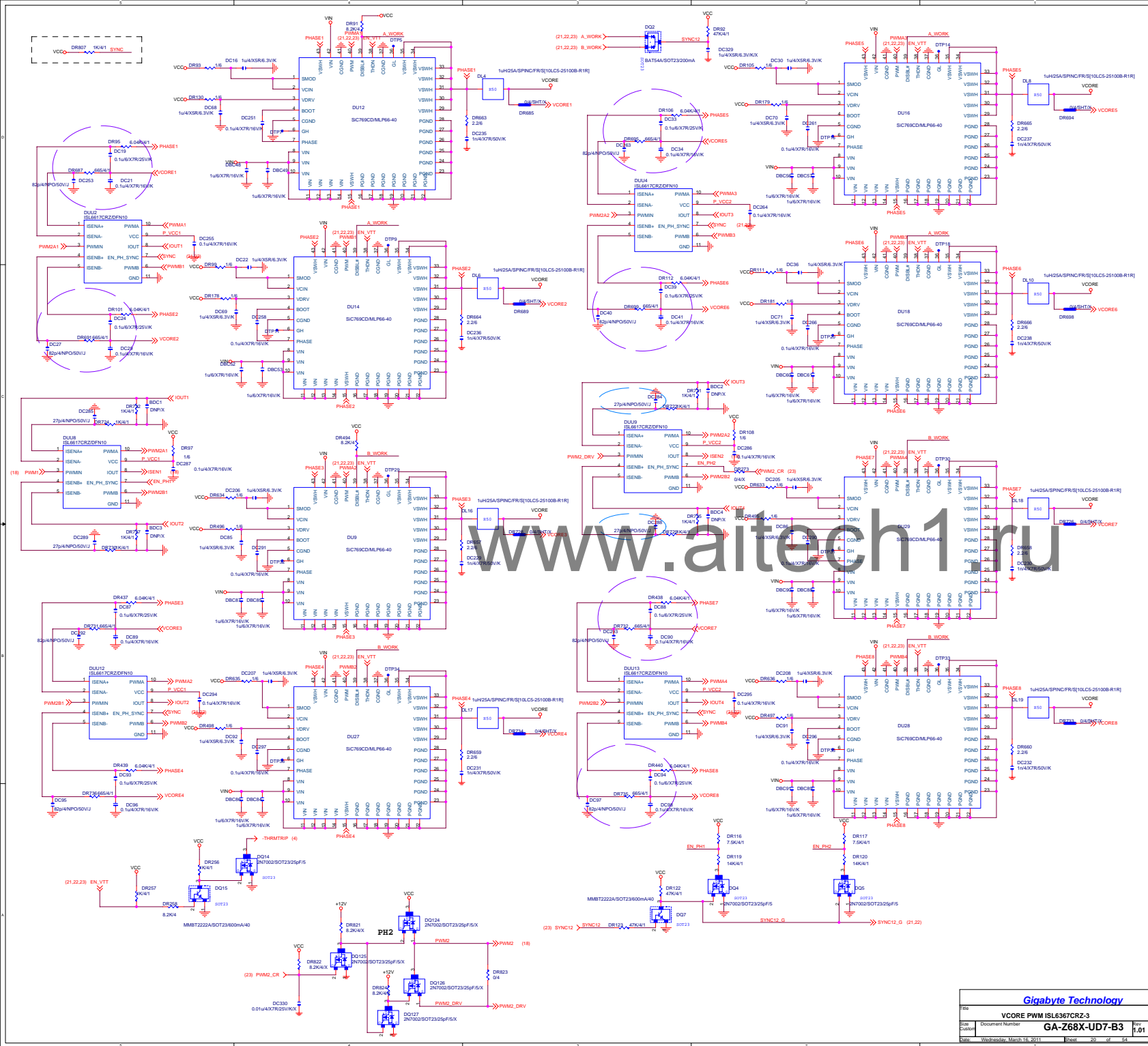
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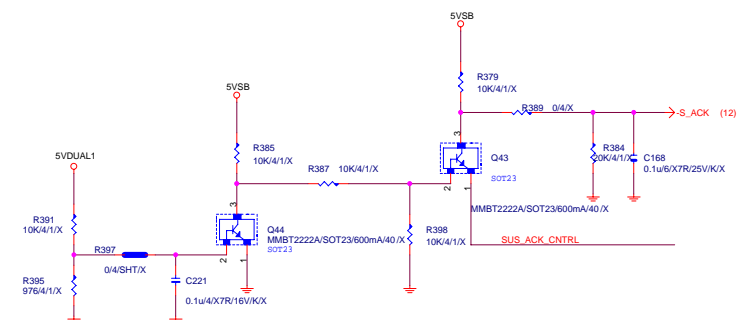


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Size			
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Date			
Wednesday, March 16, 2011			
Rev			
1.01			



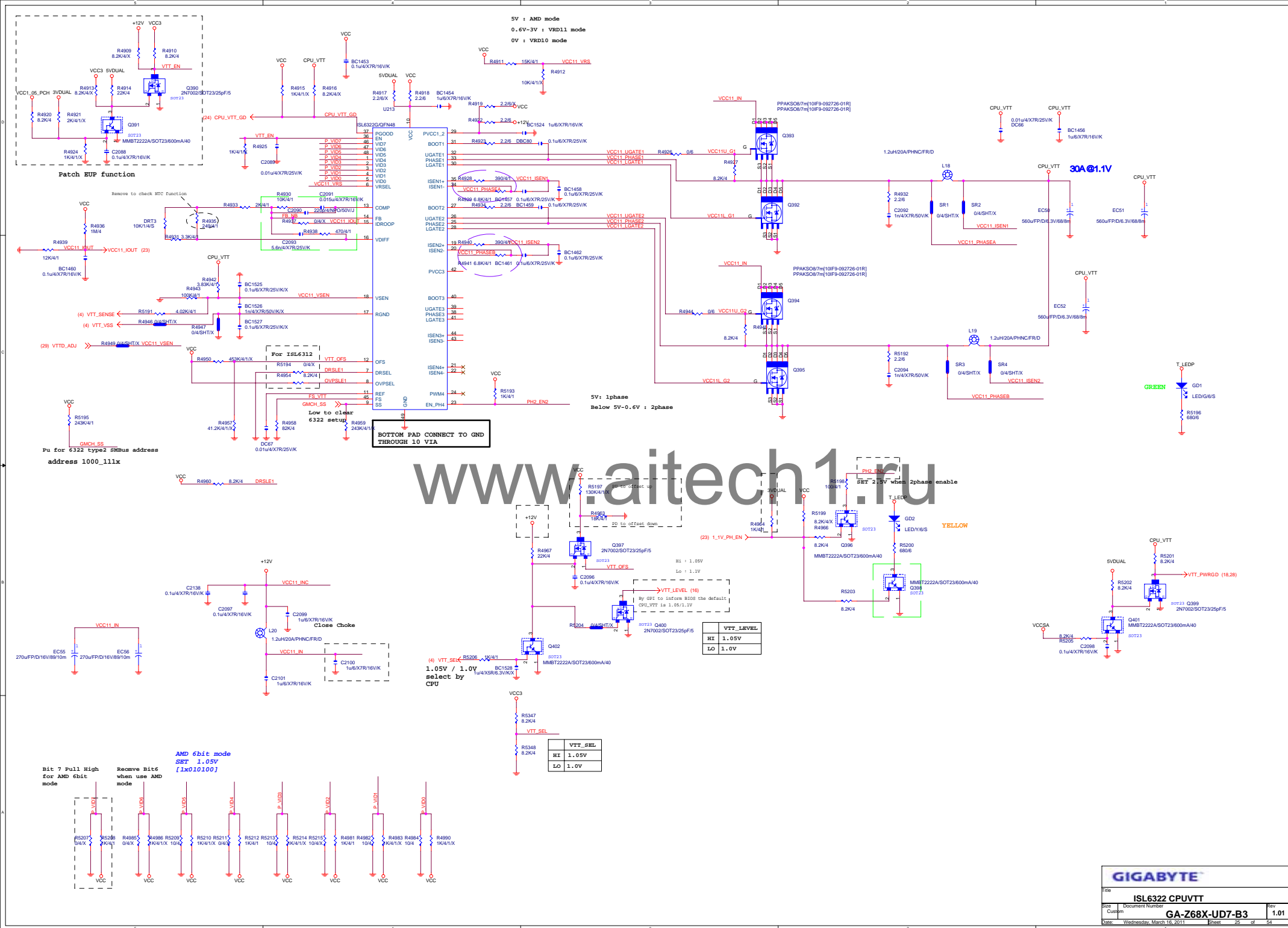


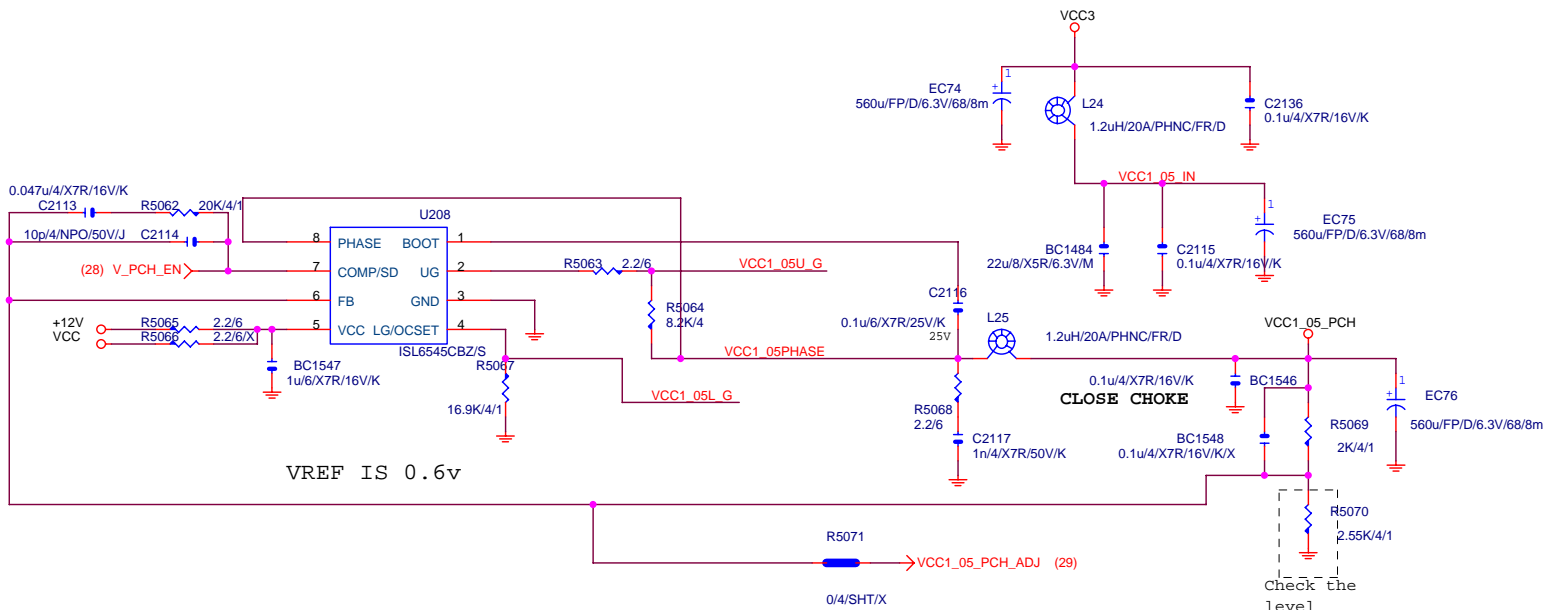
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[illegible]

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HI	0.85V
LO	0.925V

Title			
CPU VTT PWM_ISL6312			
Size	Document Number	Rev	
C	GA-Z68X-UD7-B3	1.0	
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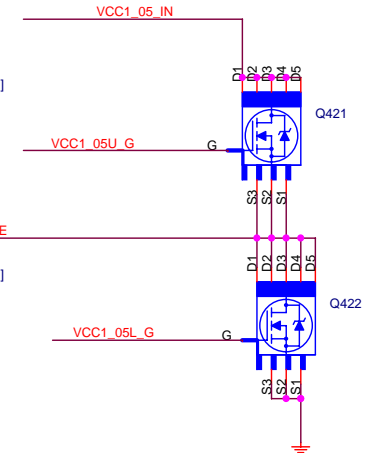




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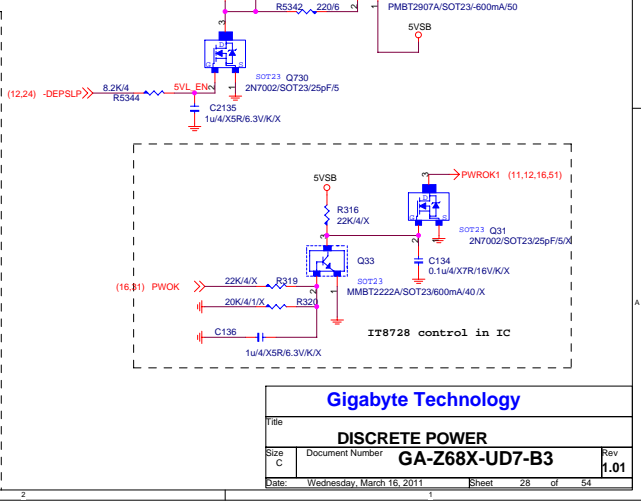
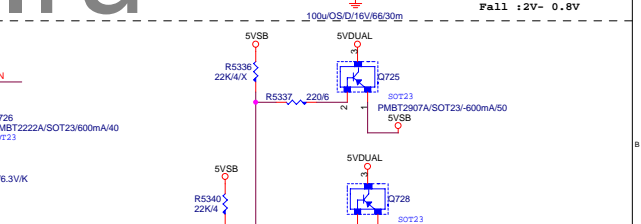
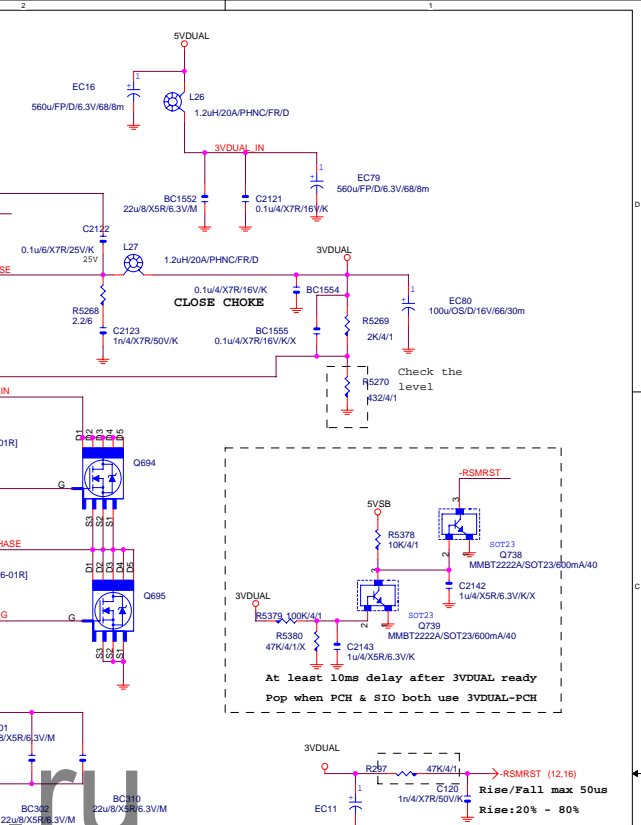
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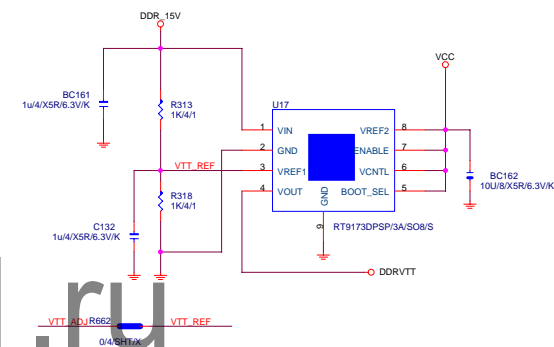
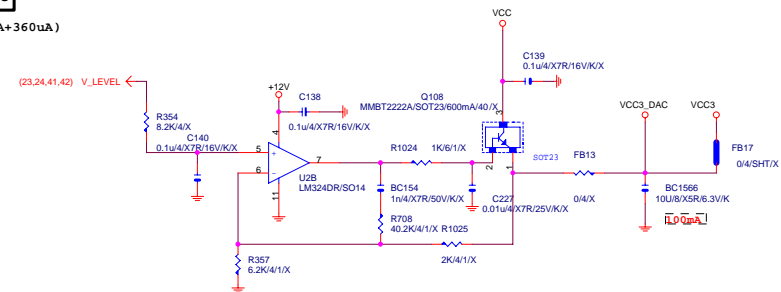
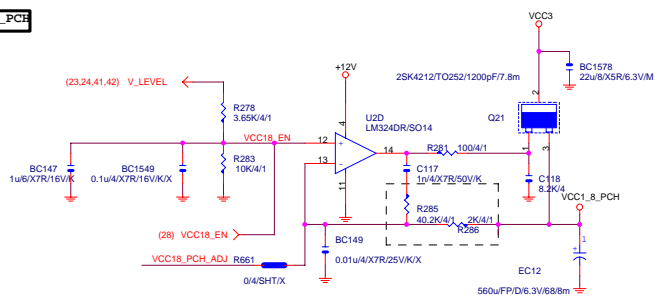
PPAKS08/7m[10IF9-092726-01R]



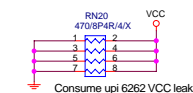
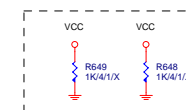
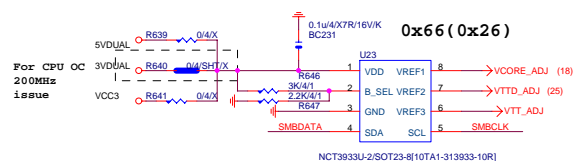
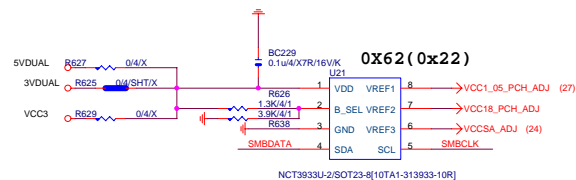
Gigabyte Technology

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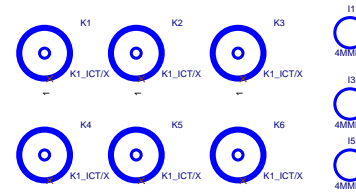
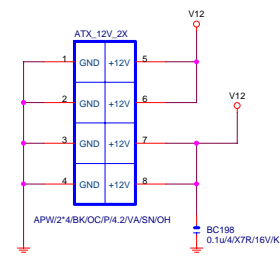
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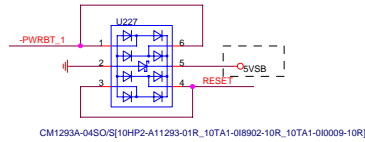
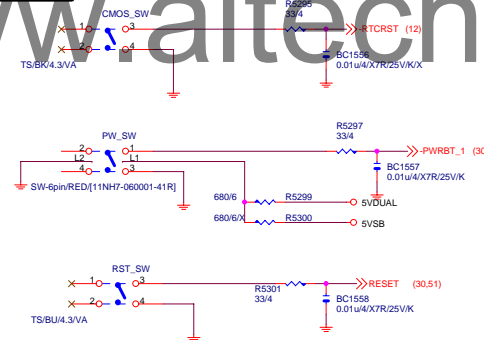
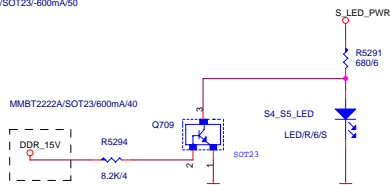
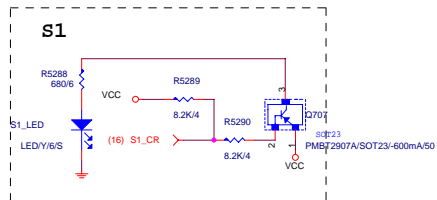
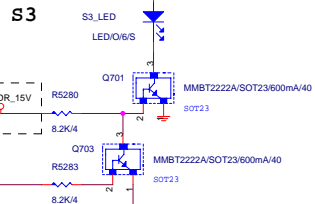
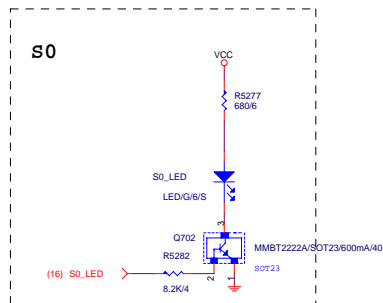
The schematic diagram illustrates the power module APW1212-12/BK/VA/SN/25HKPA66. The module is a blue rectangular component with pins 1 through 24. The connections are as follows:

- VCC3** (12V) is connected to pins 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.
- VCC** (5V) is connected to pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.
- POK** (-5V) is connected to pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.
- 5VSB** (5V) is connected to pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.
- +12V** is connected to pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24.

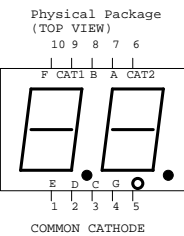
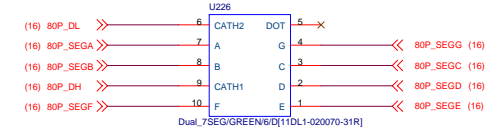
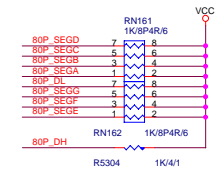
The module is shown with its pins and internal components, and the connections are labeled with component values and part numbers. The diagram also includes a note: "To prevent the 5VSB under loading when boot".



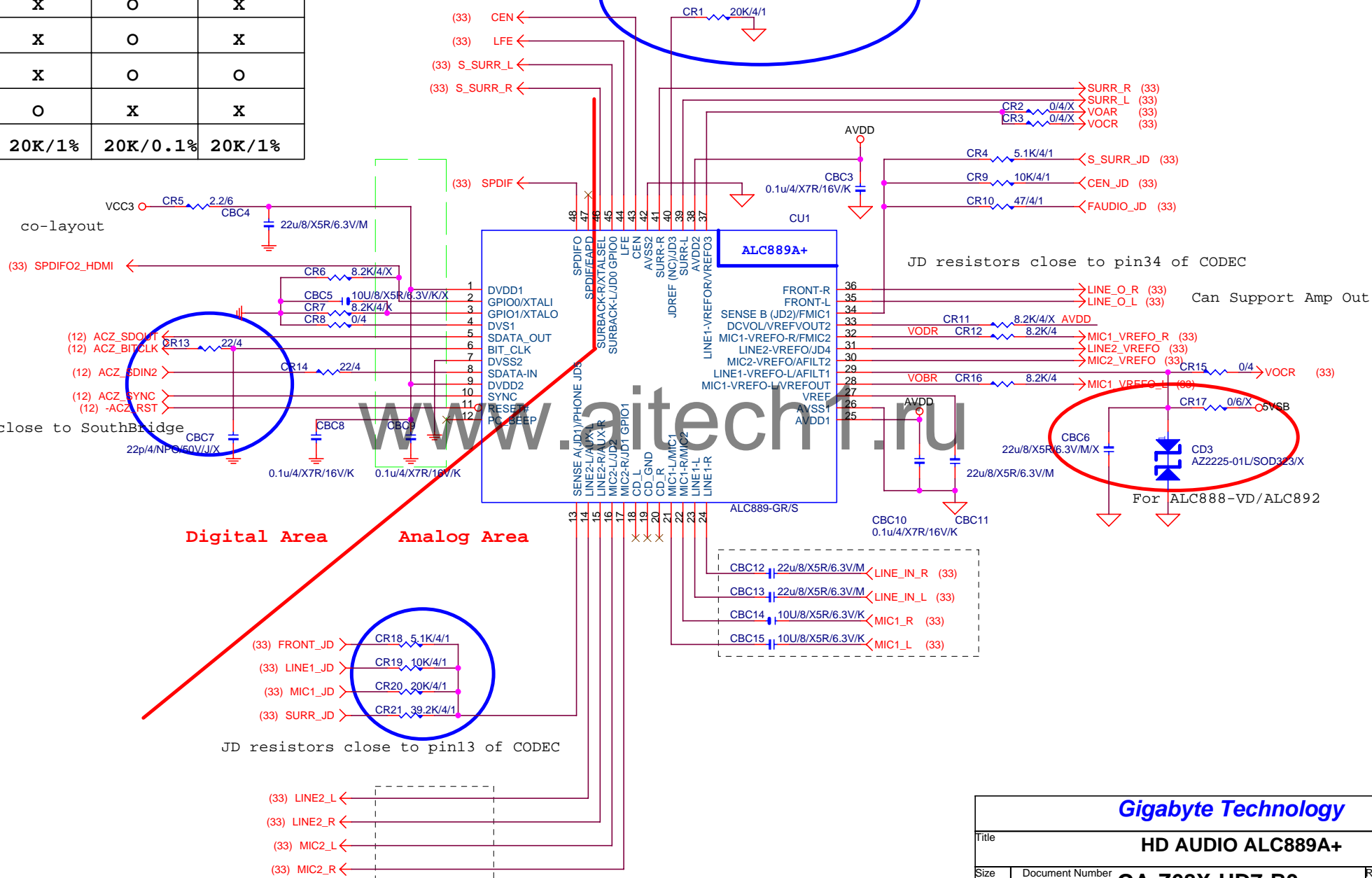
80 PORT



The schematic diagram shows the LED driver circuit for the MMBT2222A/SOT23 600mA/40V transistor. The circuit includes a 5V_DUAL supply, a 1kΩ resistor (R5307), a 8.2kΩ resistor (R5308), a 1kΩ resistor (R5306), and a 8.2kΩ resistor (R5306). The transistor is an MMBT2222A/SOT23 600mA/40V. The LED is connected to the collector of the transistor, and the emitter is connected to ground. The LED is labeled S_LED_PWR.



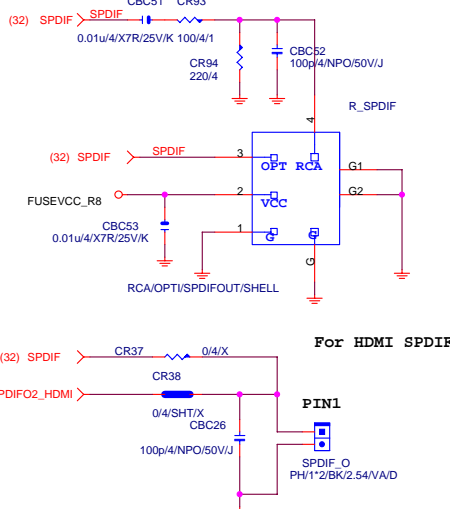
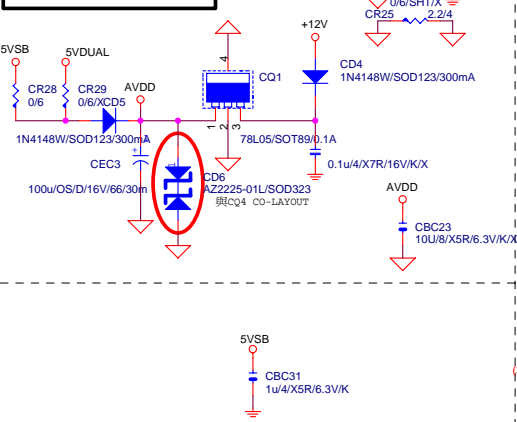
	ALC889A+	ALC889A	ALC888Vx
CR111	X	O	X
CR112	X	O	X
CR750	X	O	O
CR999	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%



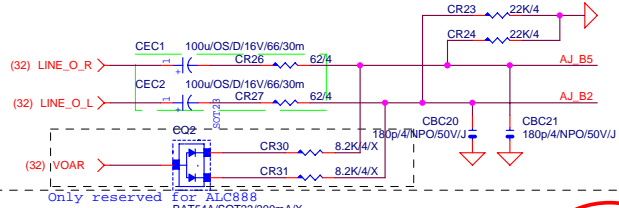
Gigabyte Technology

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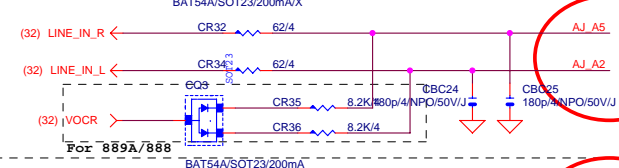
CODEC POWER/EMI PAD



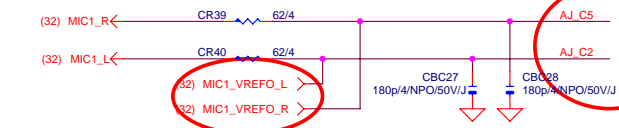
LINE-OUT



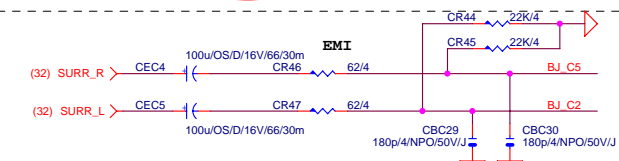
LINE-IN



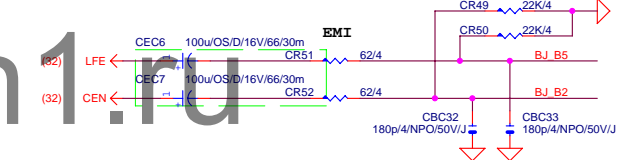
MIC-IN



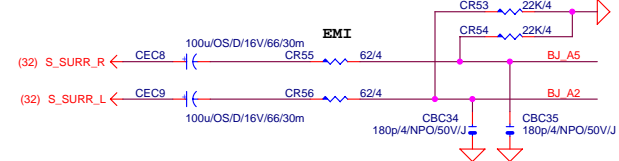
SURROUND



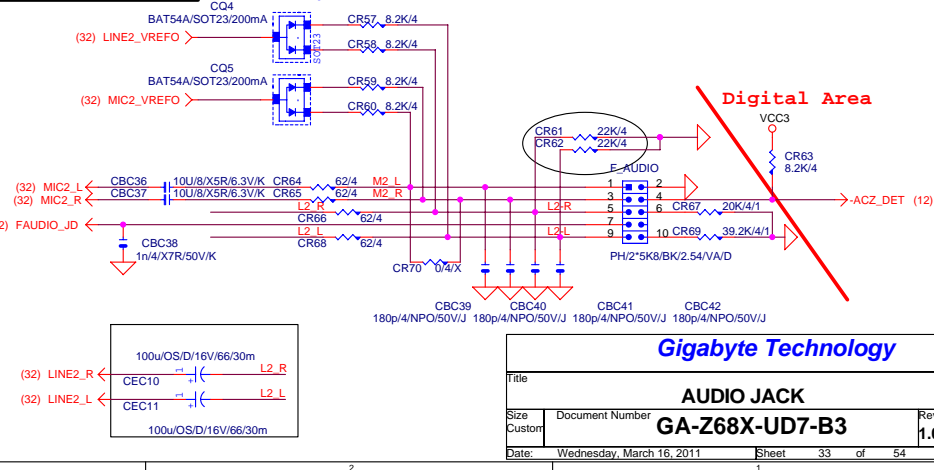
CEN/LFE



SURR BACK



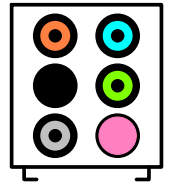
AZALIA FRONT PANEL



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AUDIO JACK			
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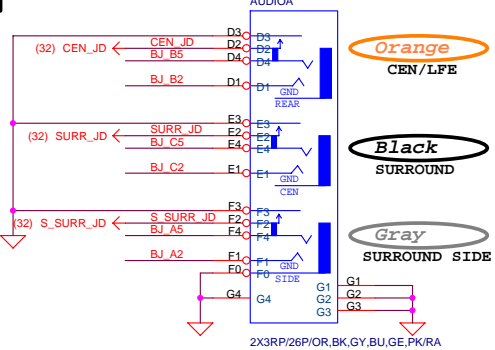
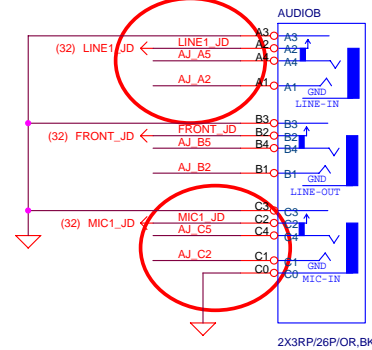
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BTX AZALIA CONNECTOR

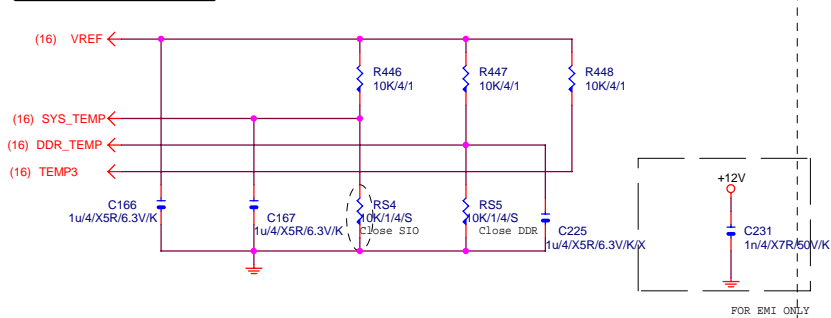


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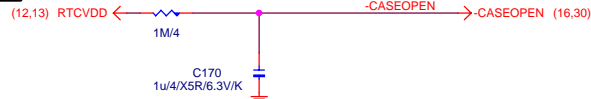
AZALIA JACK



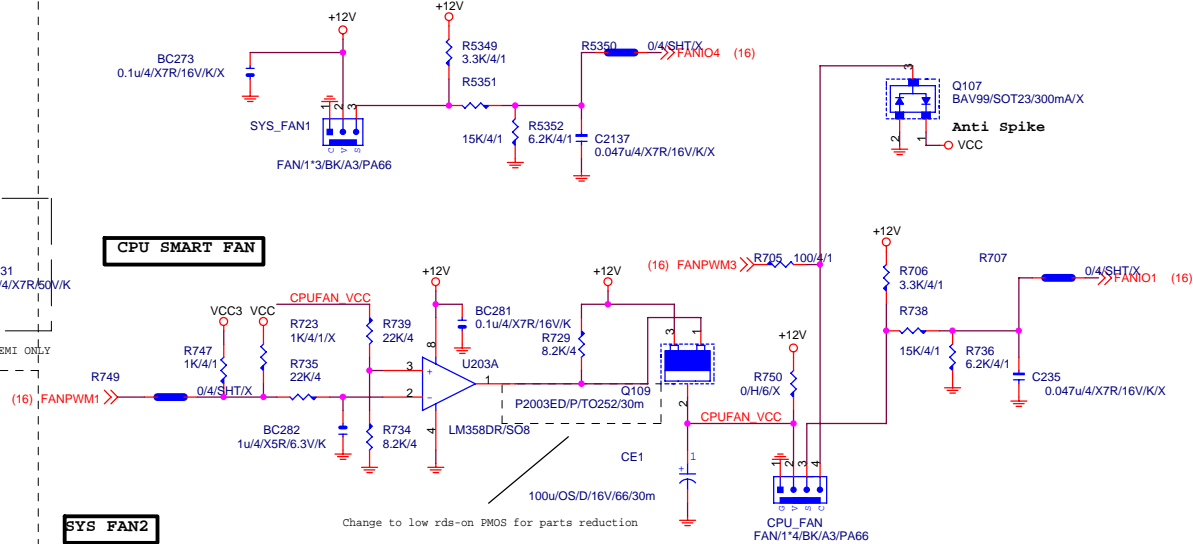
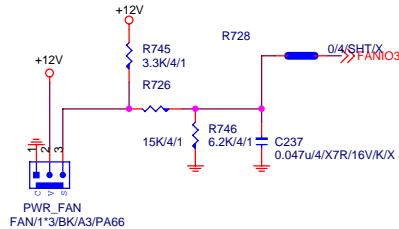
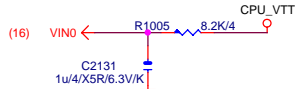
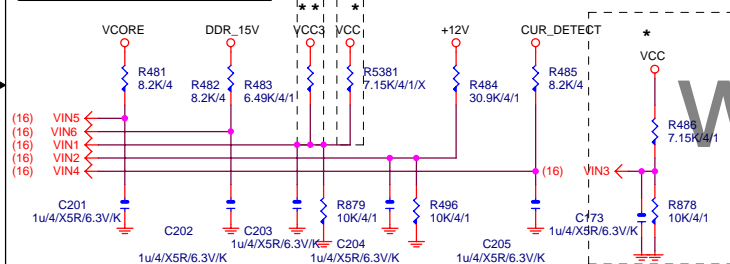
TEMP H/W MONITOR



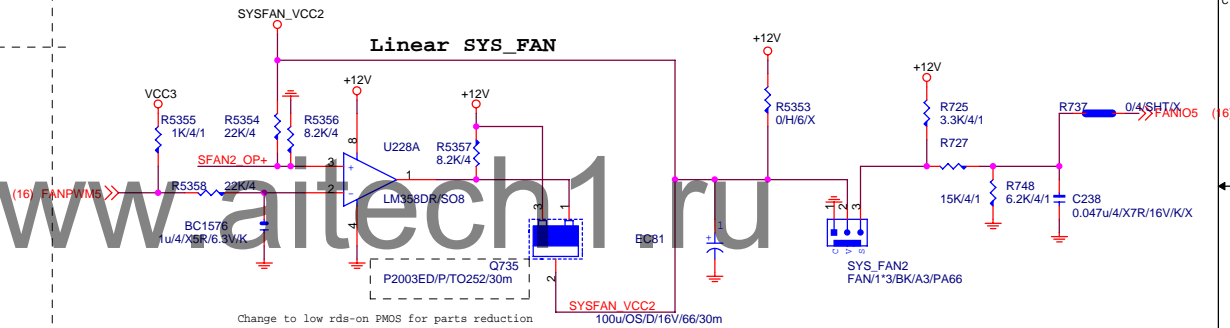
CASE OPEN



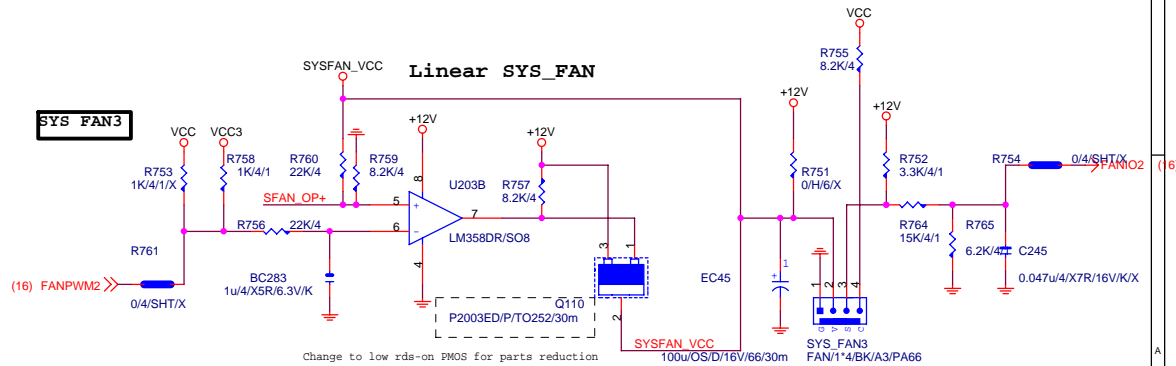
VOLTAGE-- H/W MONITOR



SYS FAN2

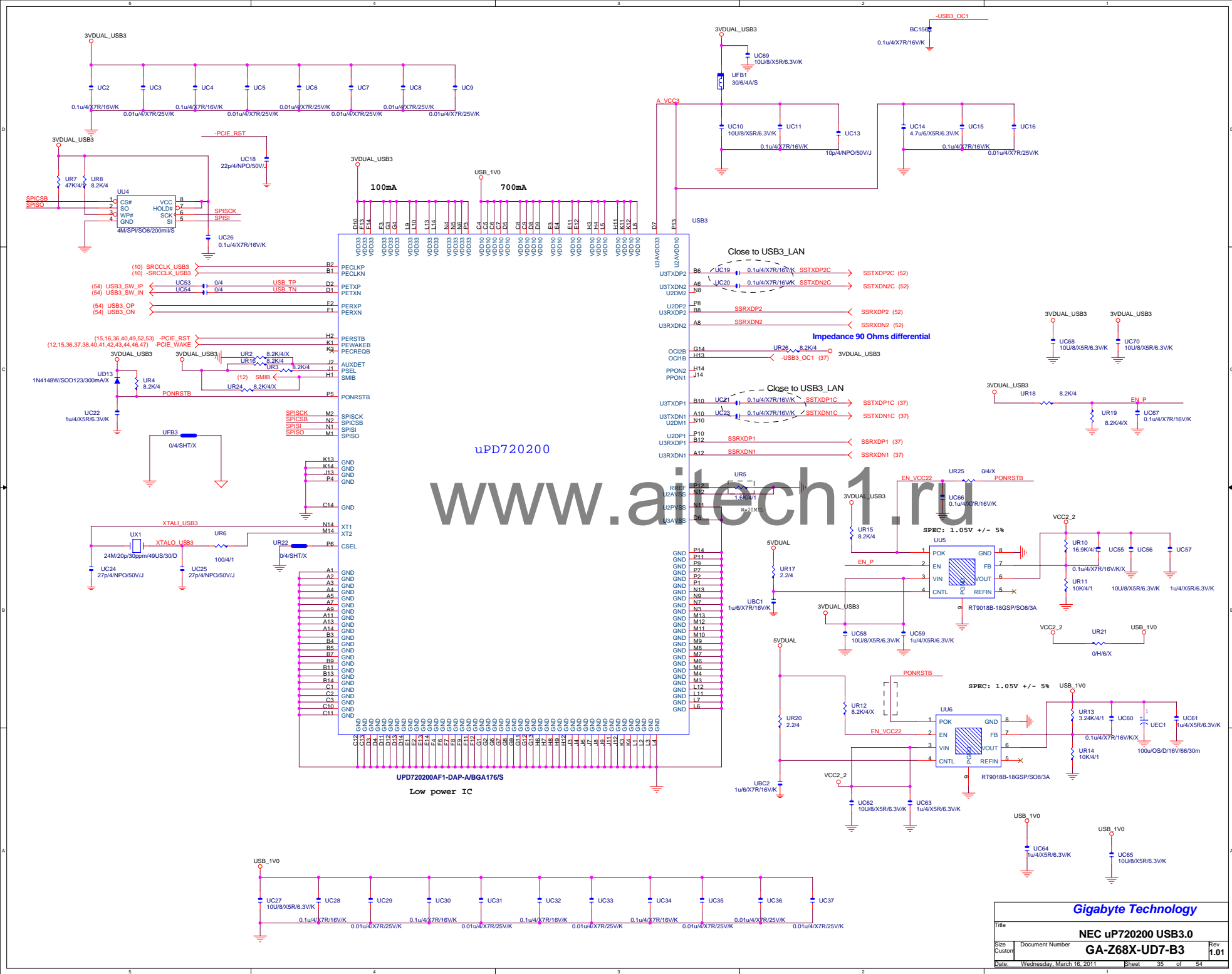


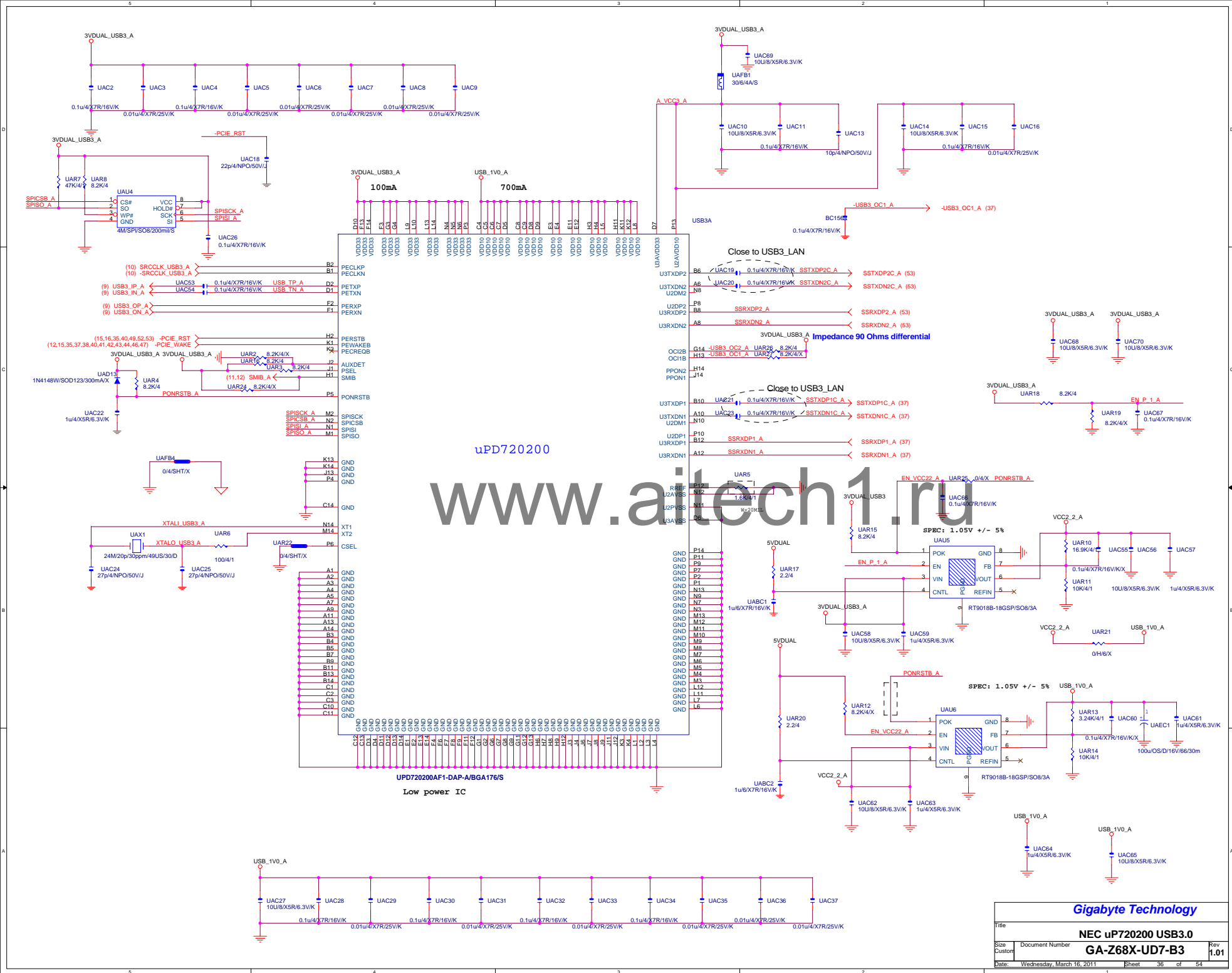
Linear SYS_FAN



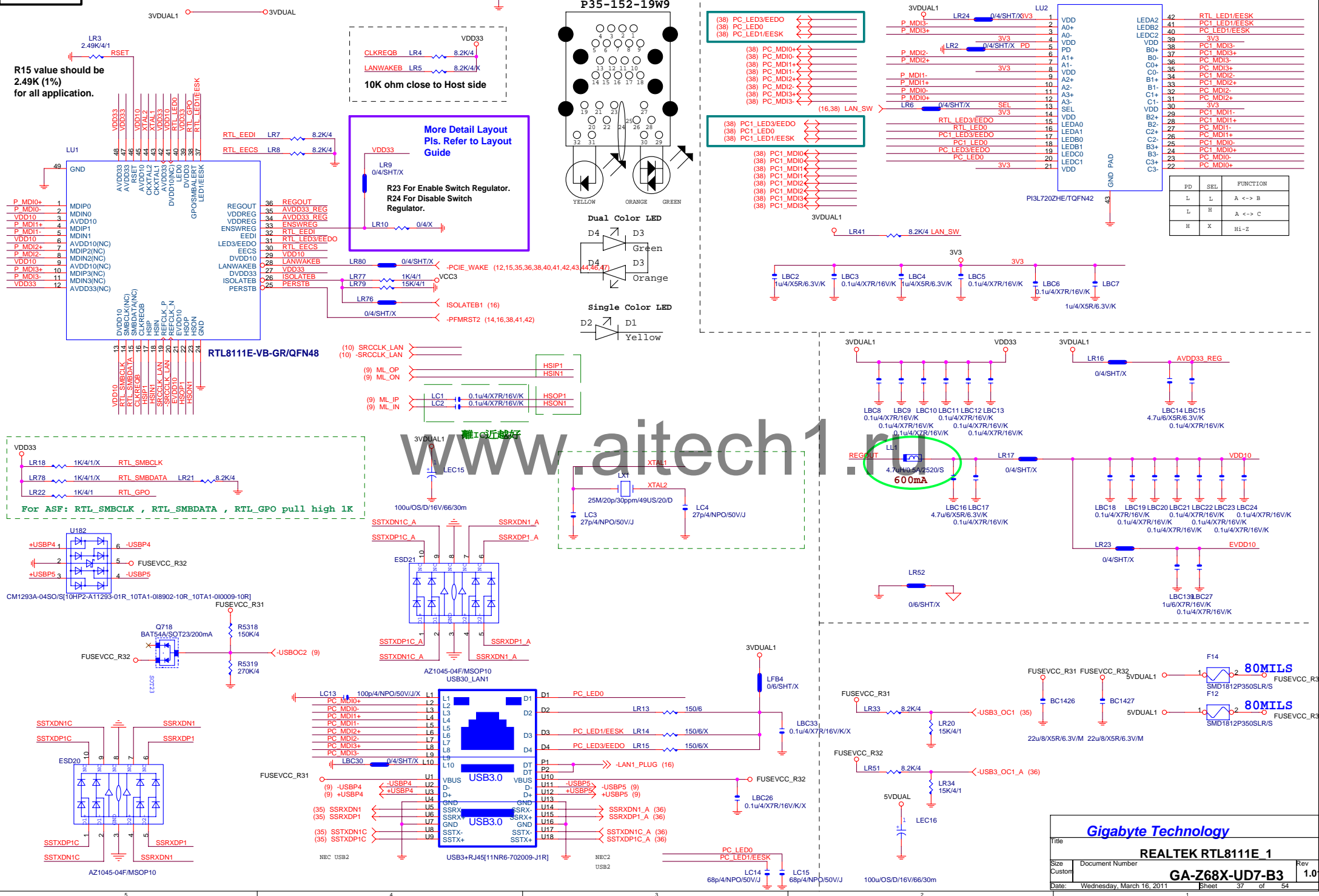
Gigabyte Technology

Title				HWM,KB/MS, FAN CTRL			
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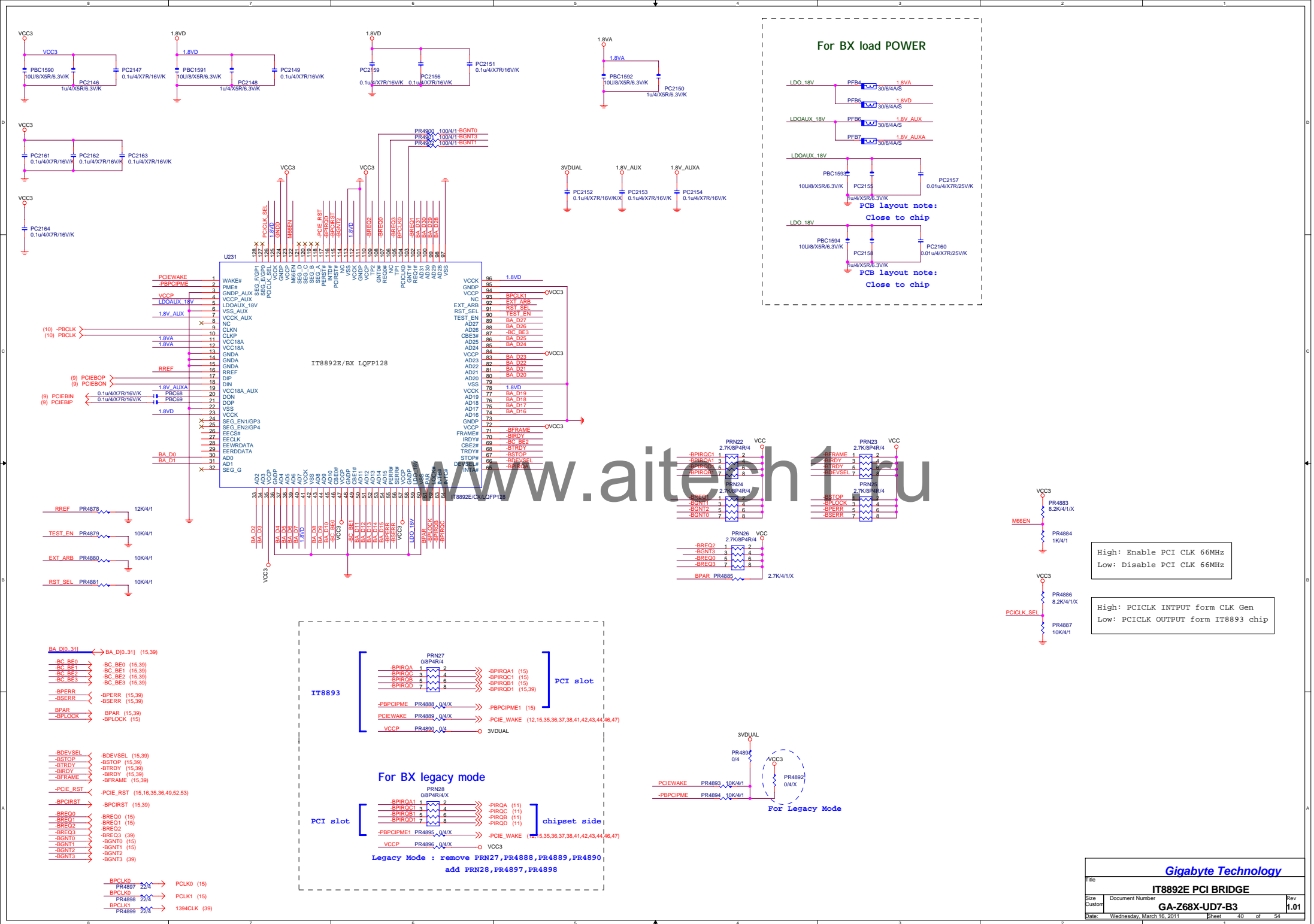


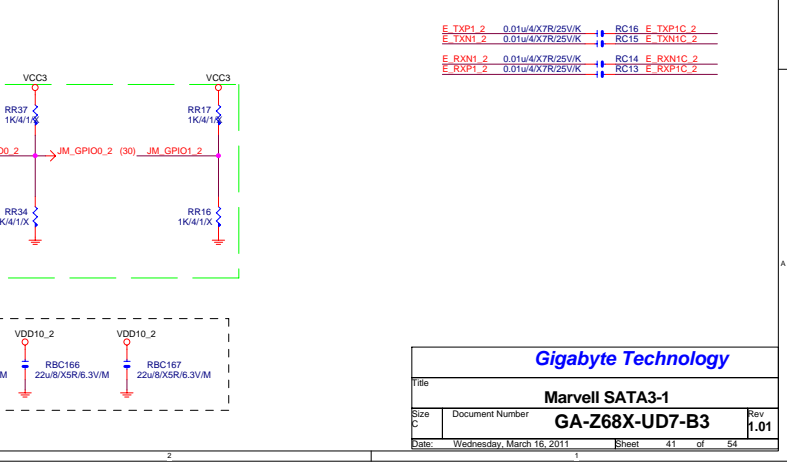
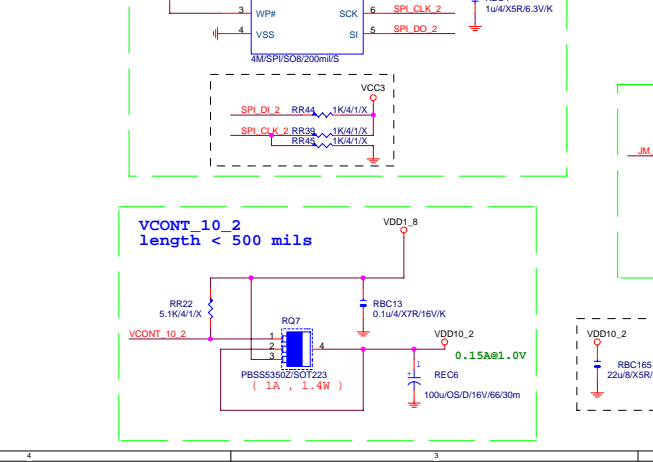
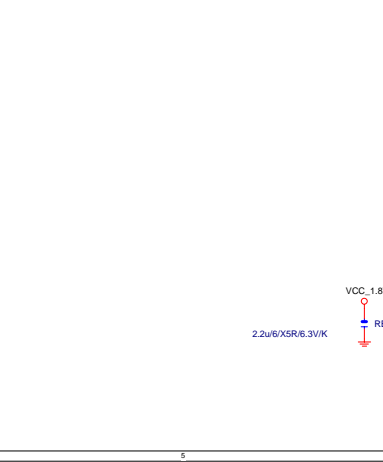
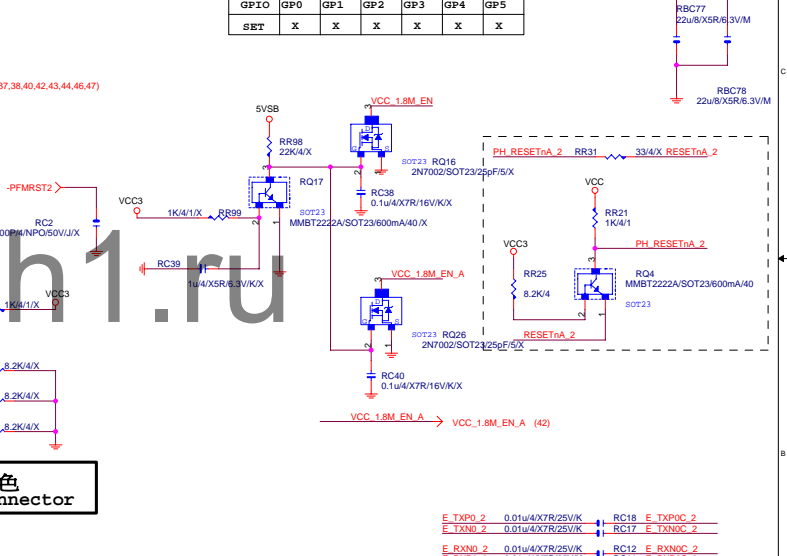
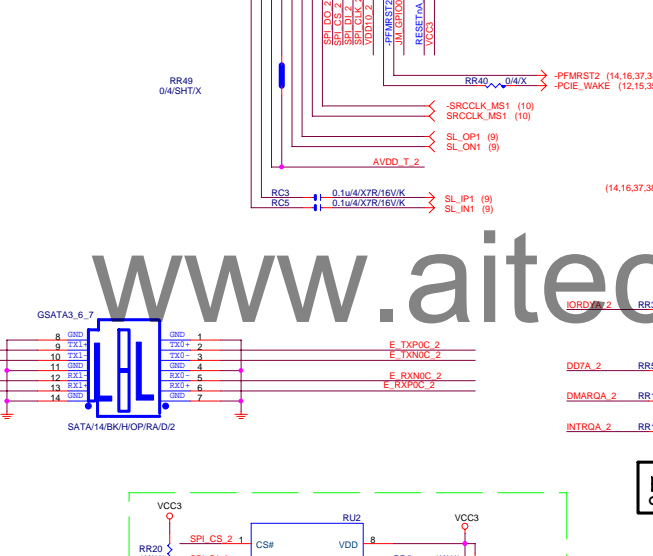
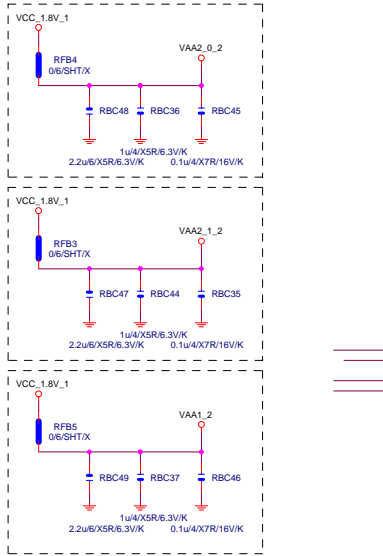
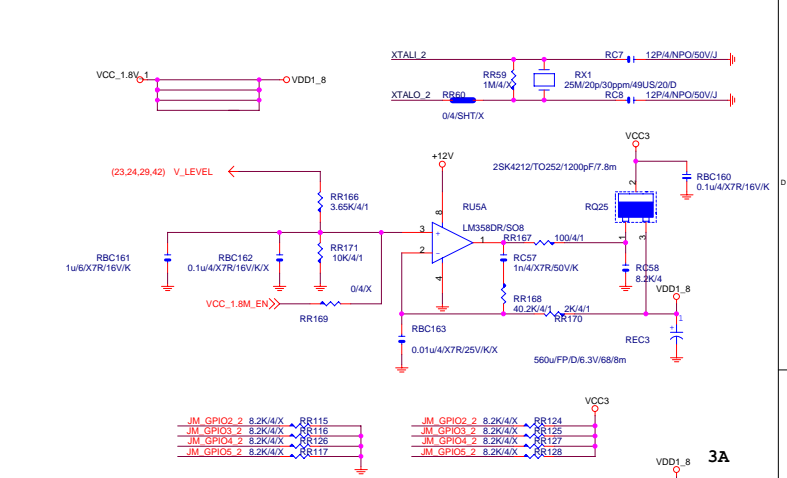
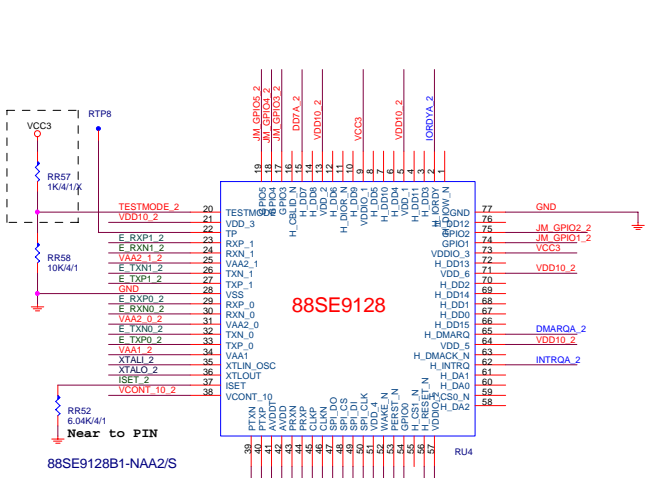
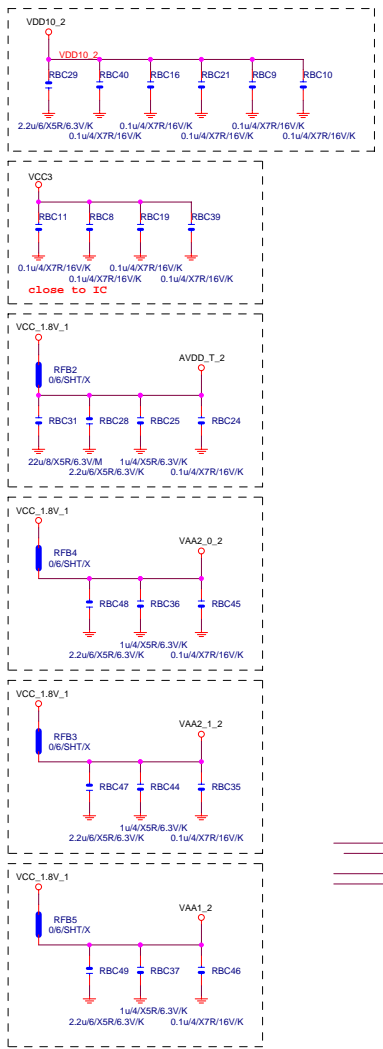


PCIE-1G LAN



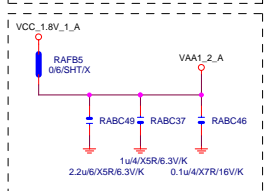
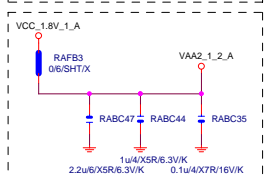
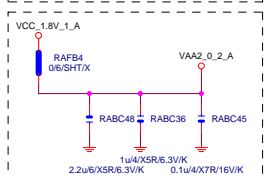
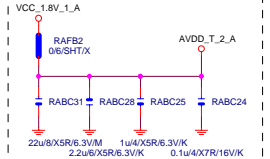
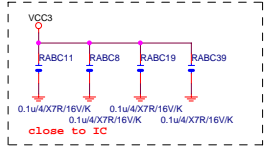
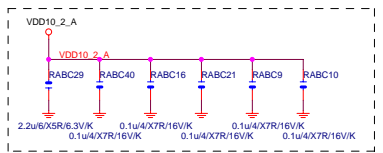
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L	L	A <-> B
L	H	A <-> C
H	X	Hi-Z



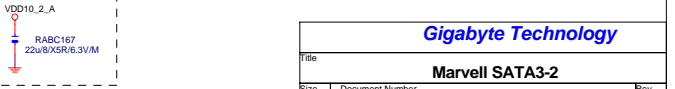
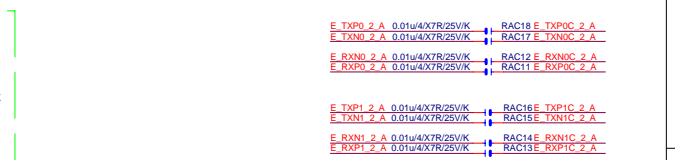
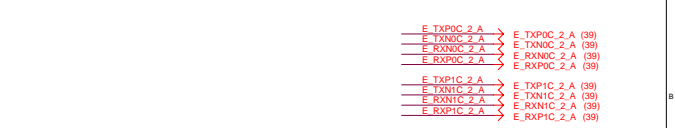
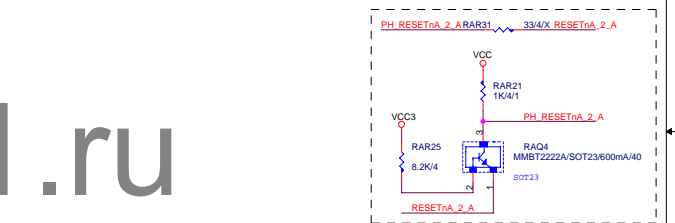
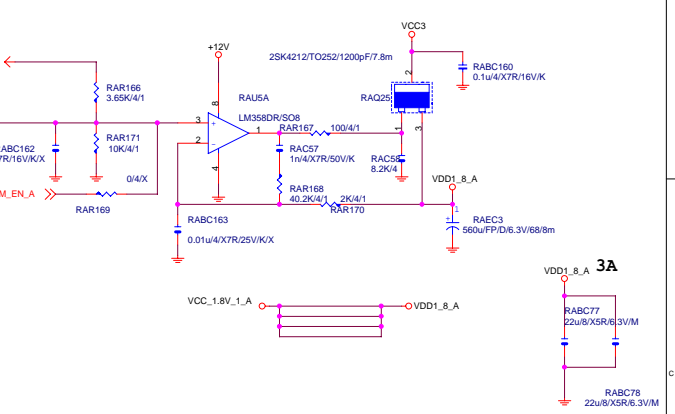
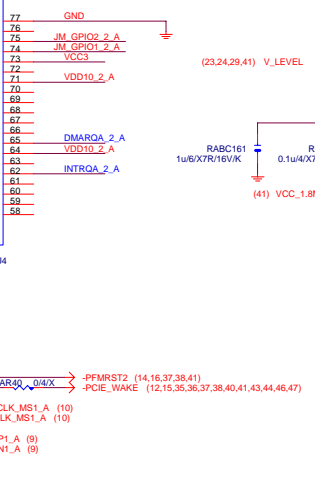
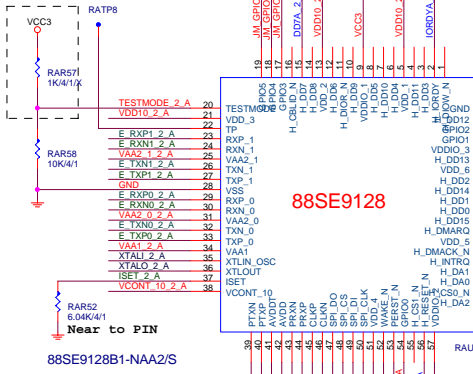
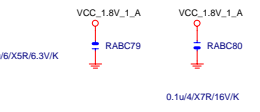
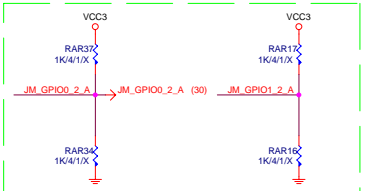


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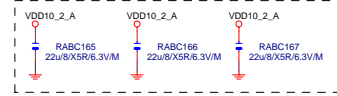
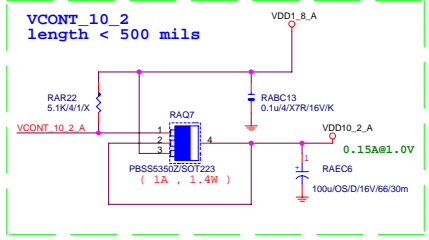
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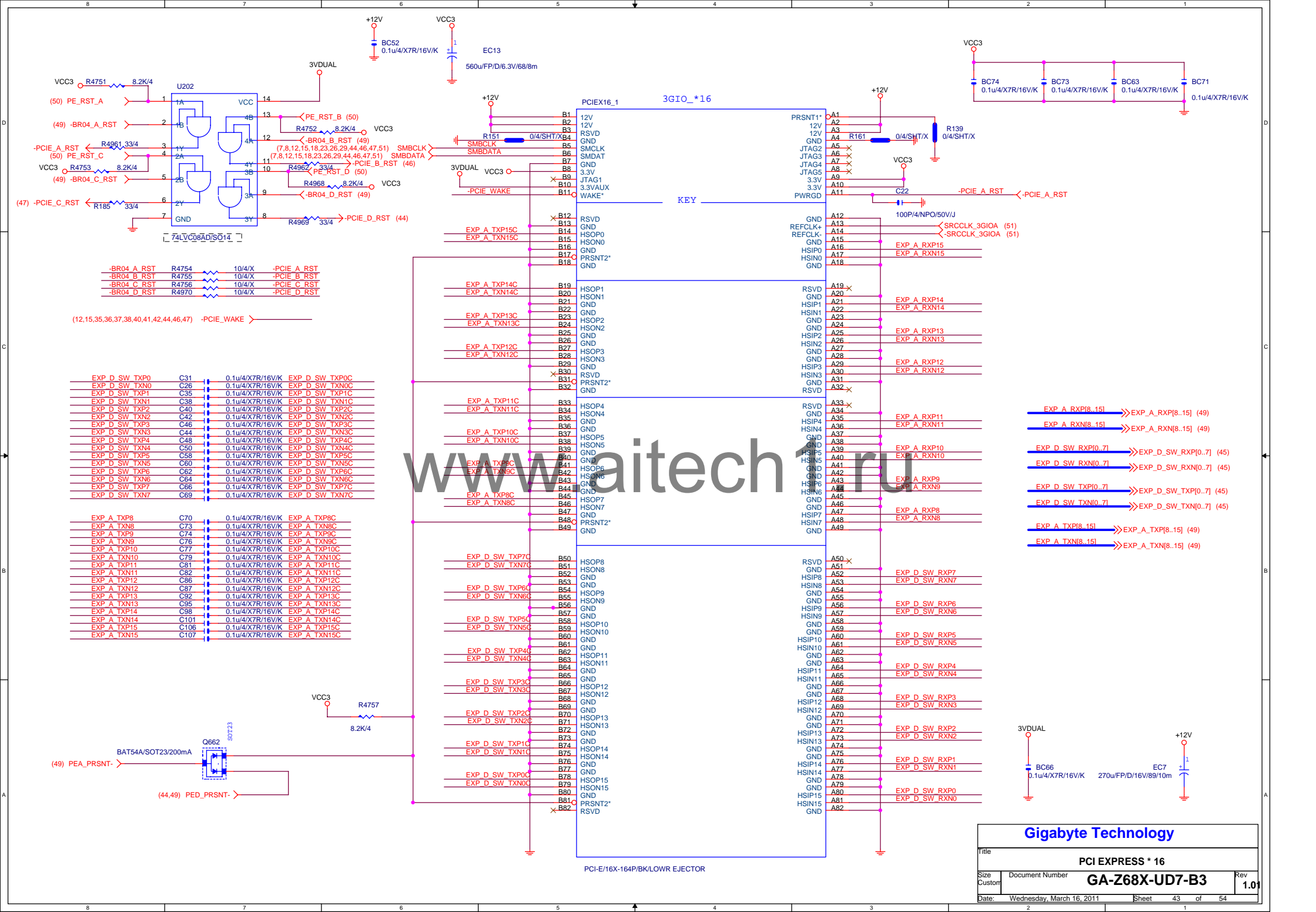


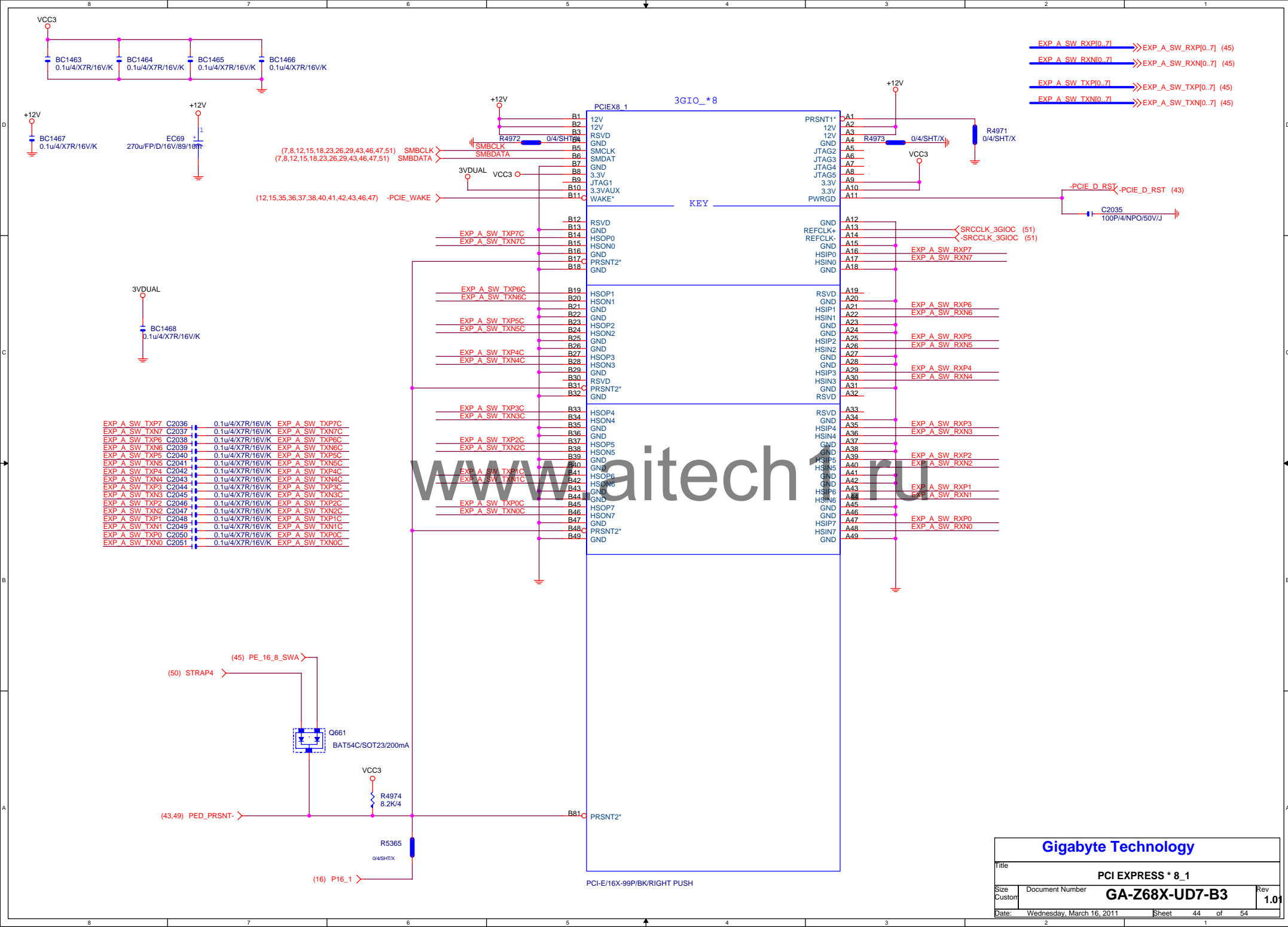
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SET	X	X	X	X	X	X

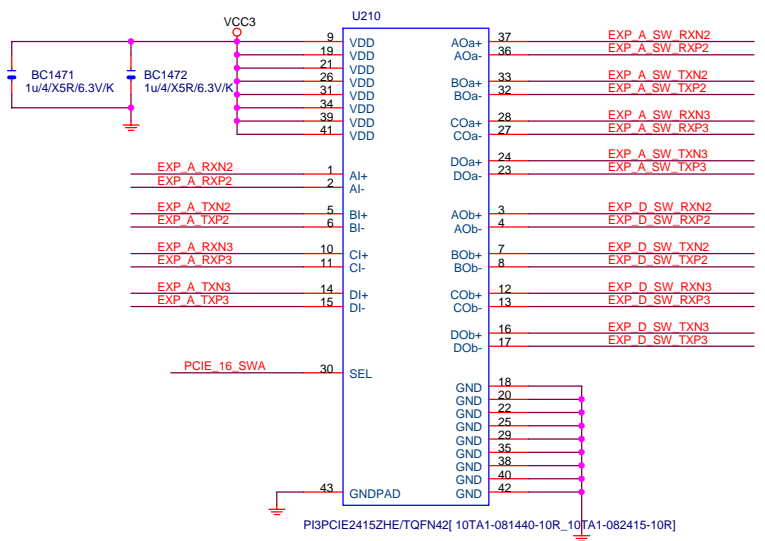
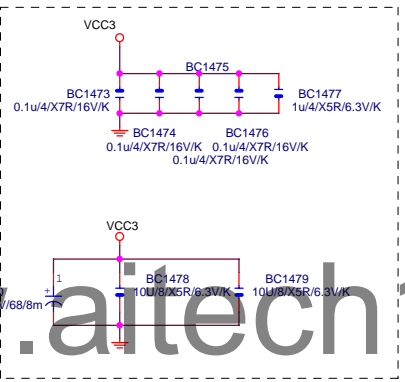
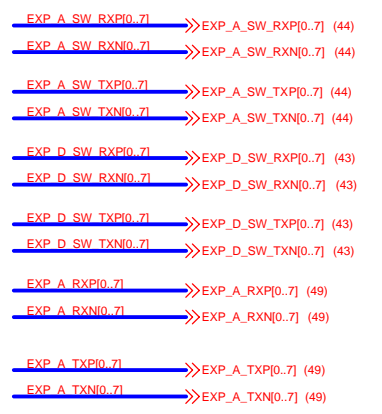
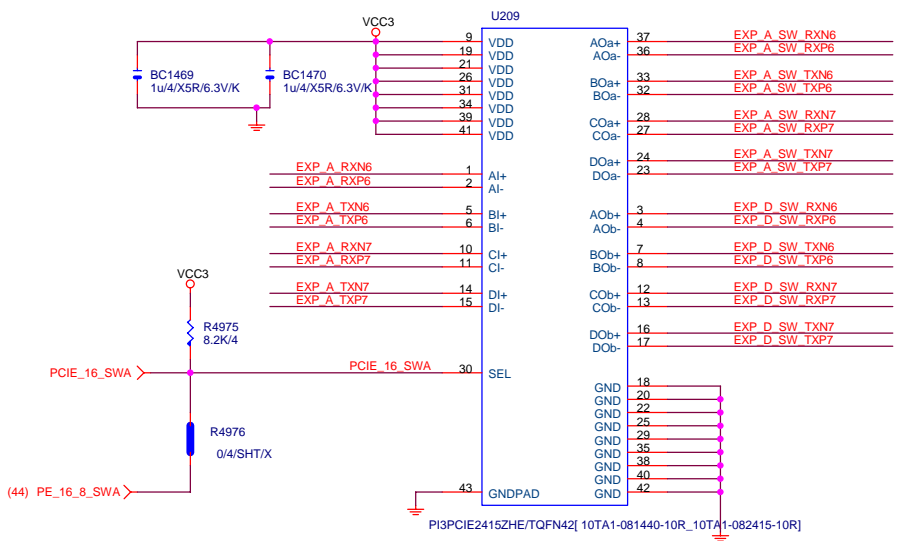


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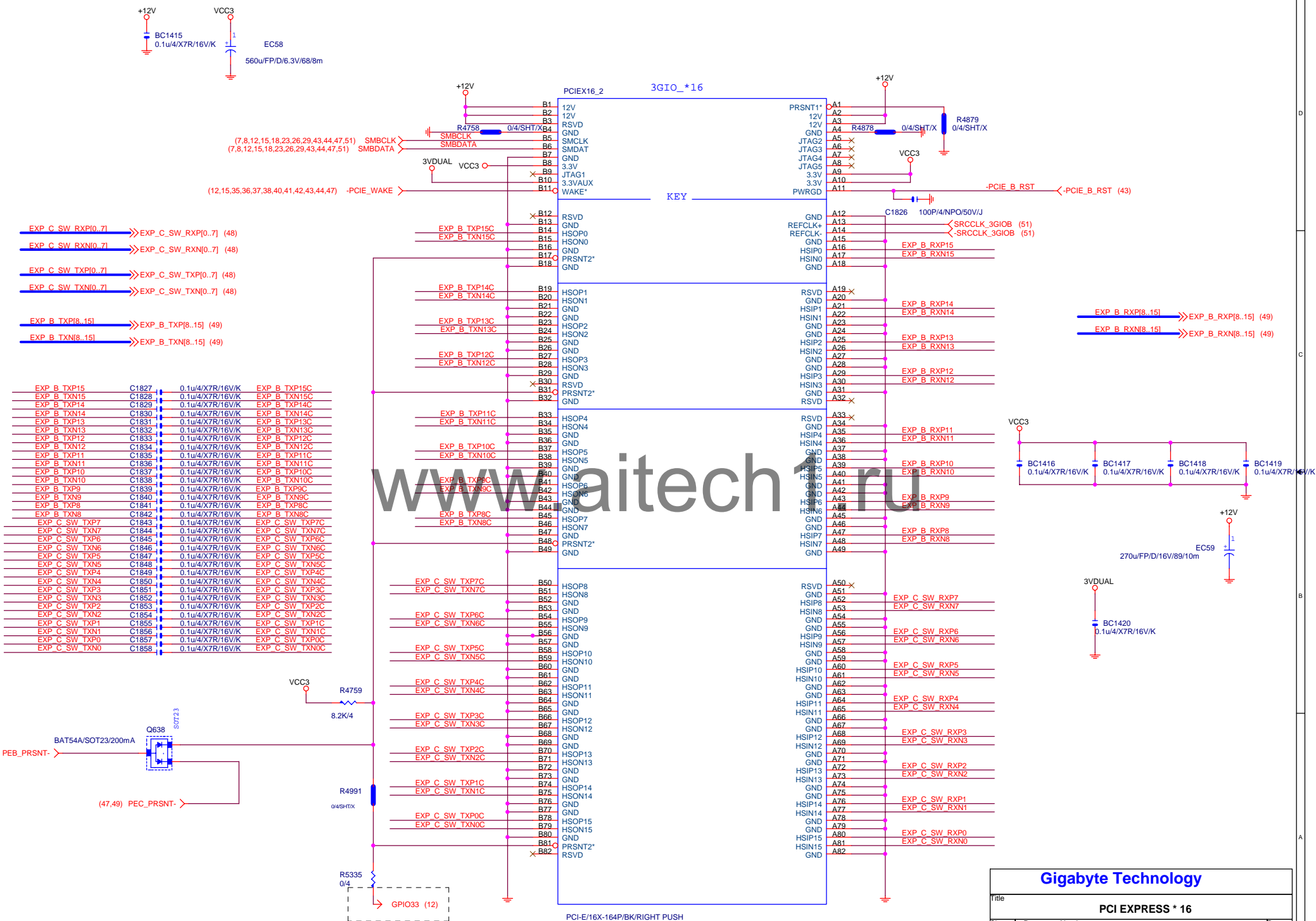


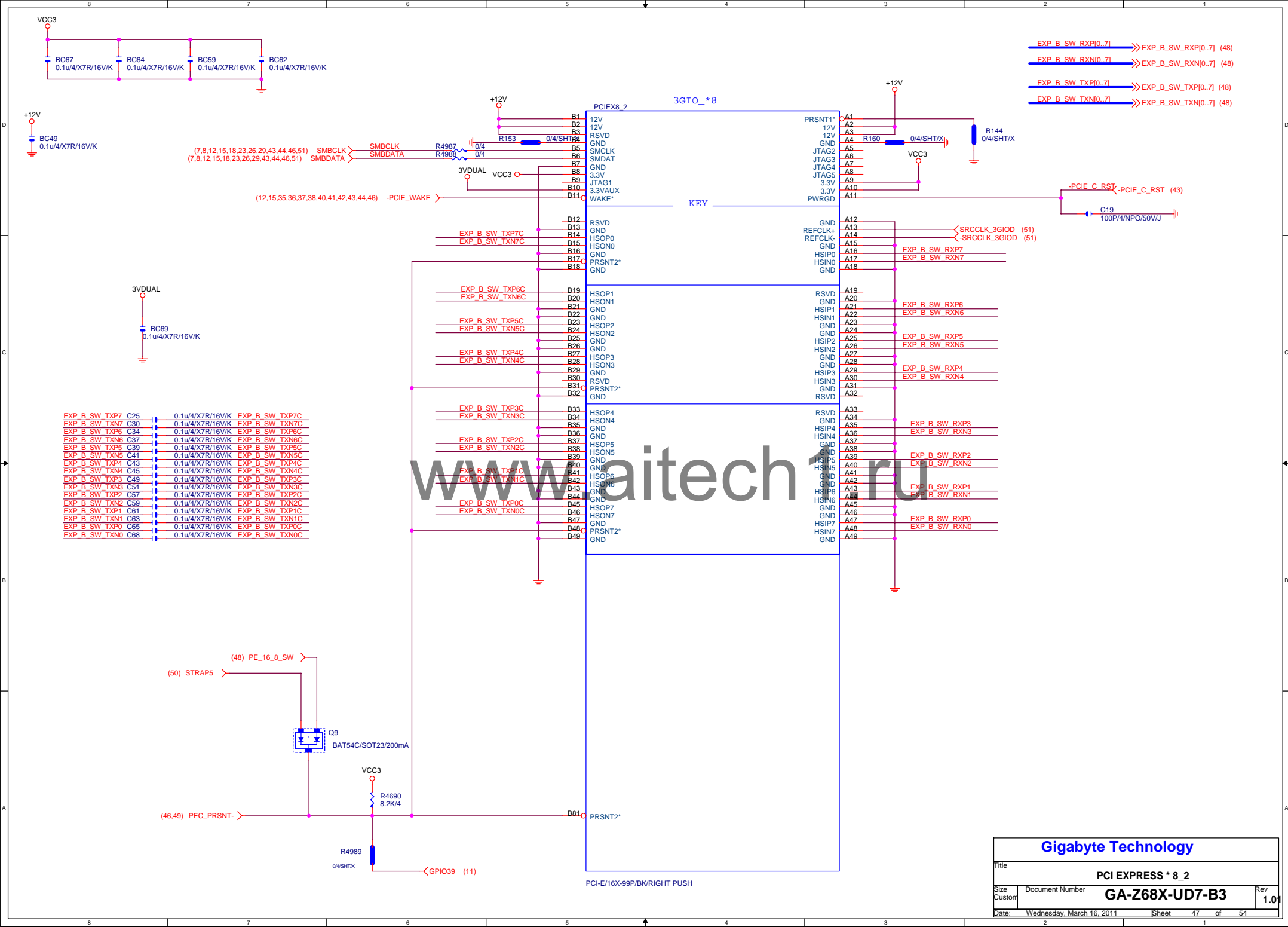


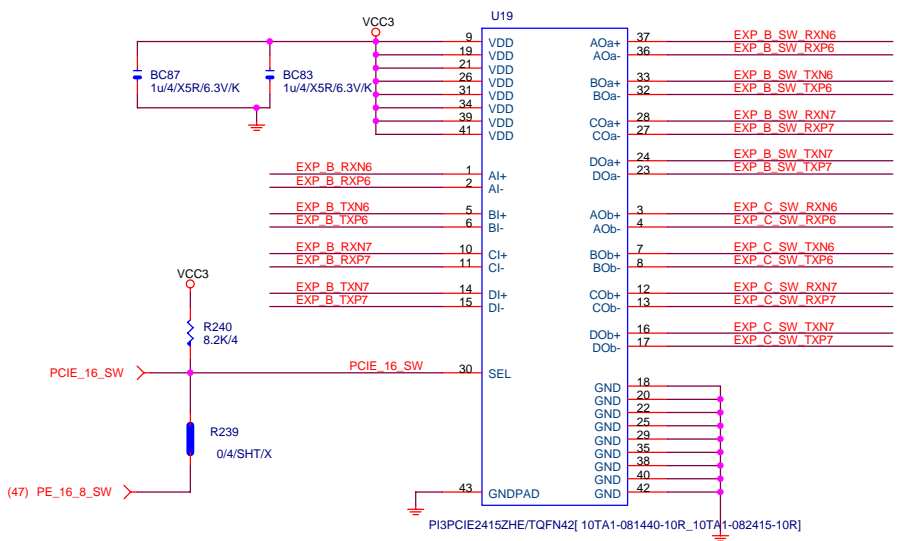
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xI--> xOb	H

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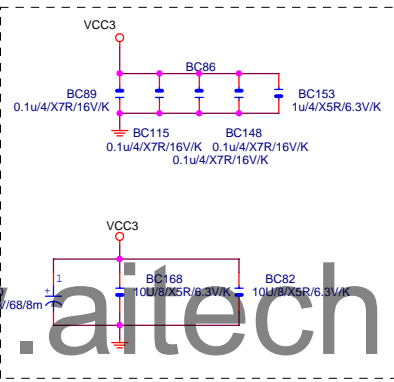
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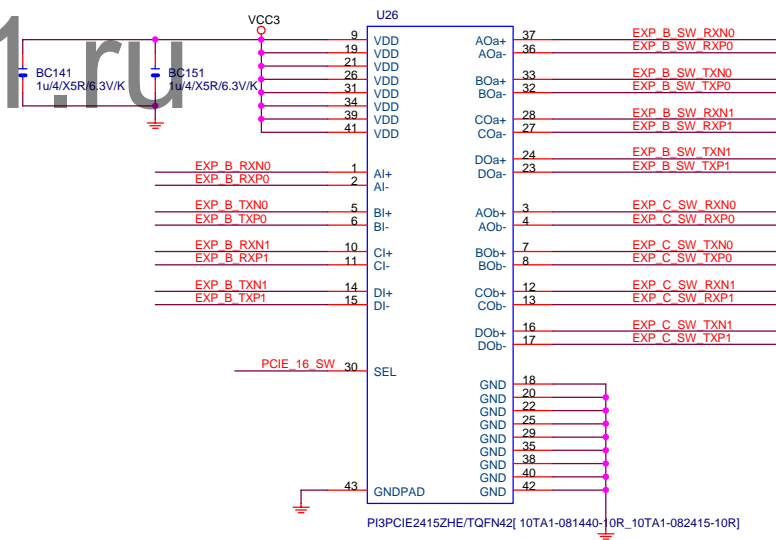
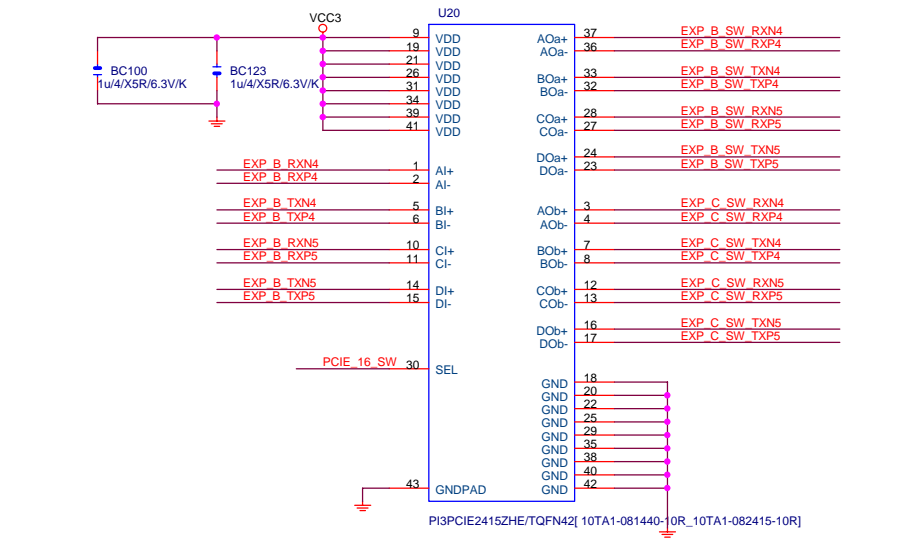
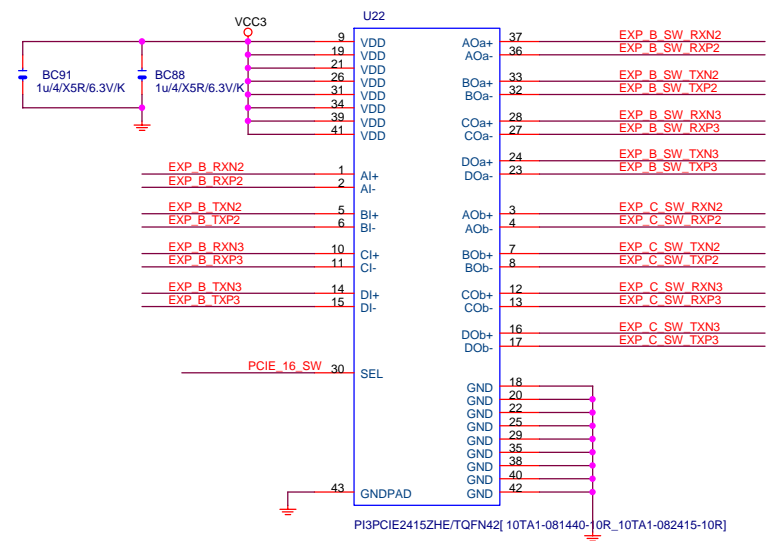


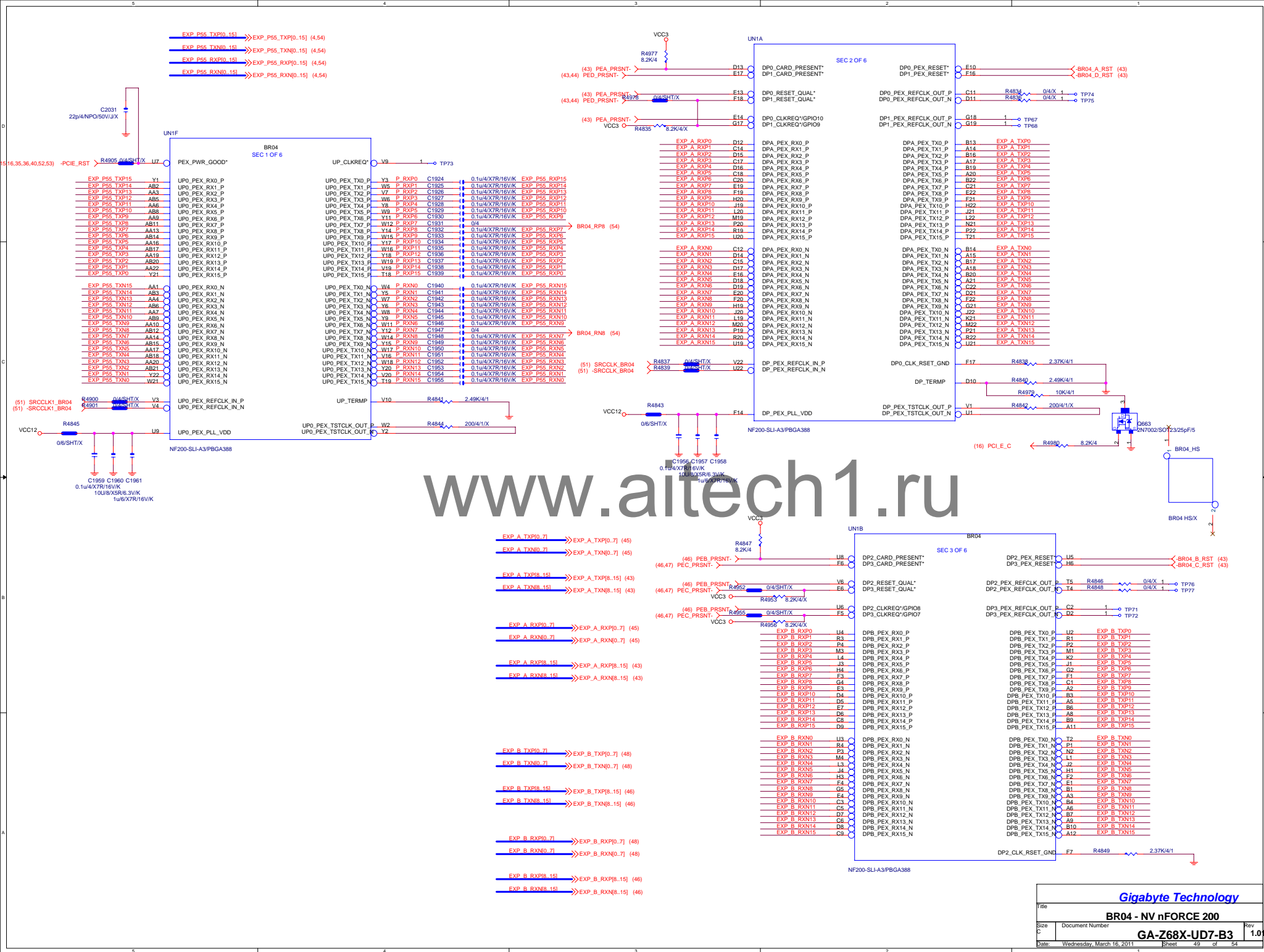


Function	SEL
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xI--> xOb	H

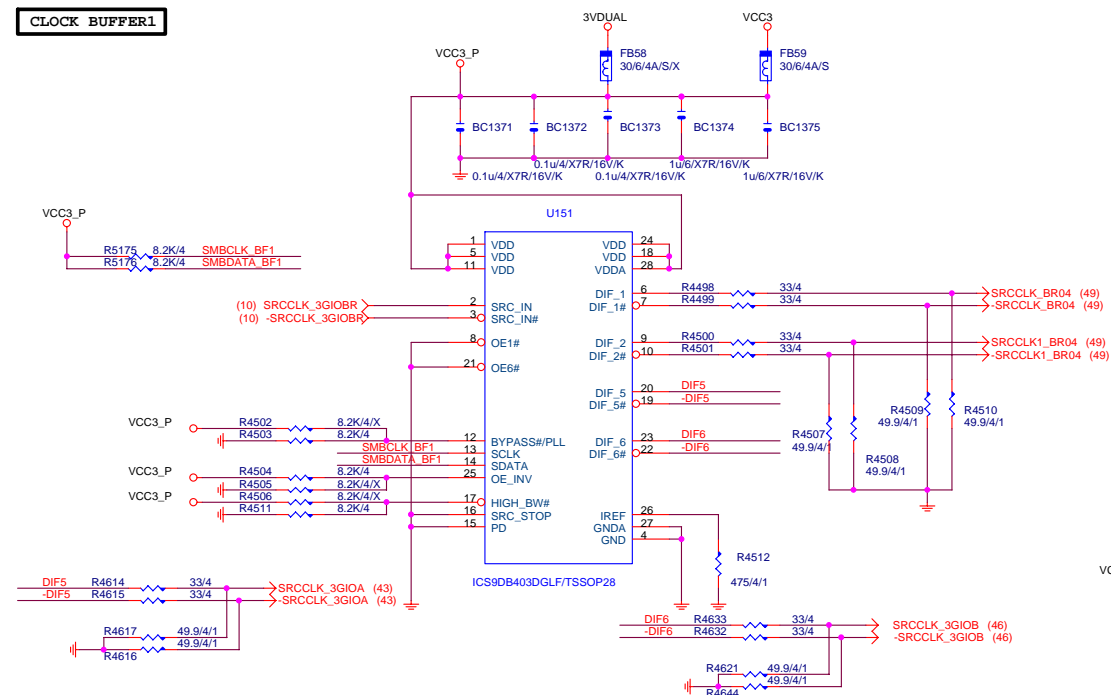


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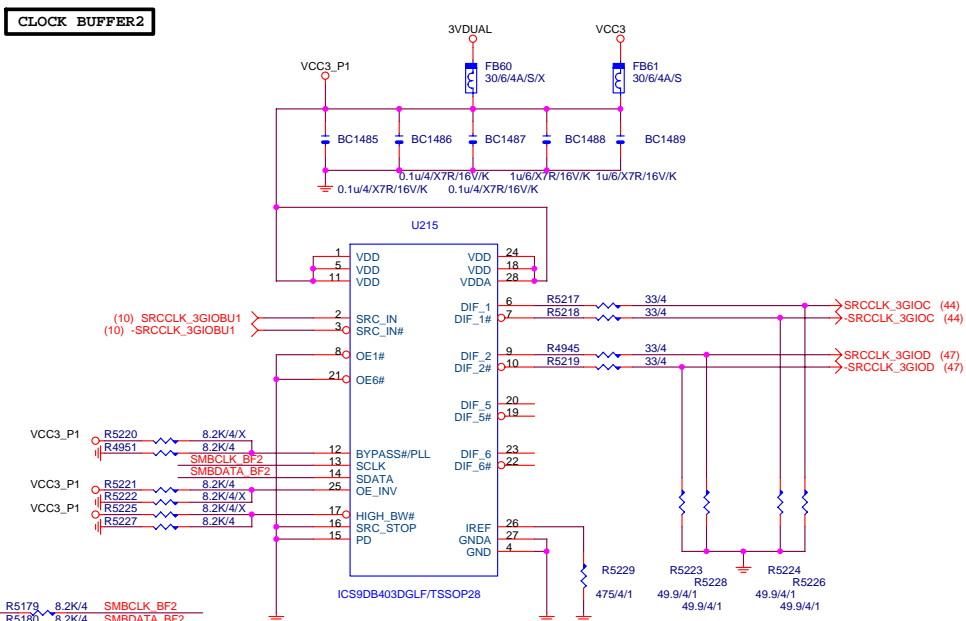




CLOCK BUFFER1



CLOCK BUFFER2



CLK GEN CK505

