

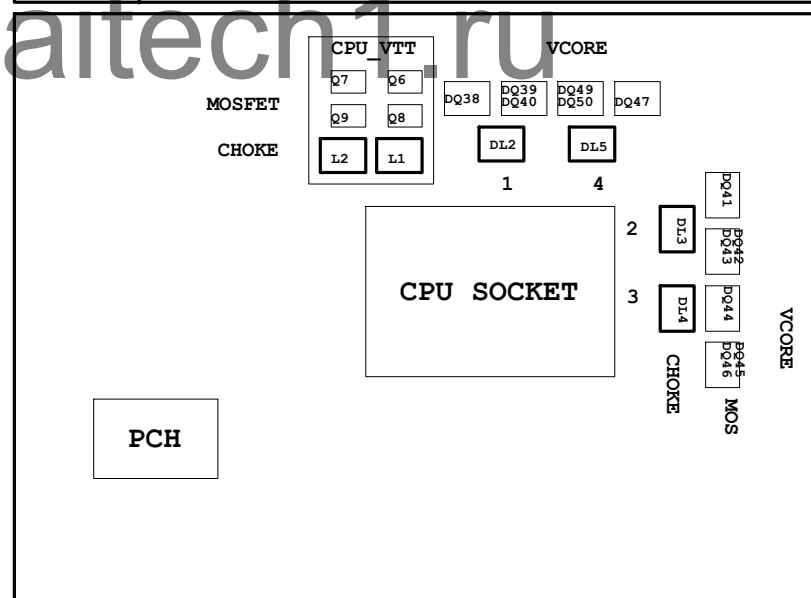
Model Name: GA-Z68A-D3-B3 1.01

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
15	PCI EXPRESSX4 SLOT / PCIE X1 SLOT
16	IT8892
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, LPT, TPM
20	Dual BIOS
21	ALC889
22	REAR AUDIO JACK
23	VCORE PWM ISL6364CRZ-1
24	VCORE PWM ISL6364CRZ-2
25	DISCRETE POWER
26	DDR 15V & VCC1 05 PCH PWM ISL6545CBZ
27	CPU VTT PWM ISL95870

SHEET TITLE

28	VCCSA POWER
29	F PANEL , F USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	ETRON 168A
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Component value change history

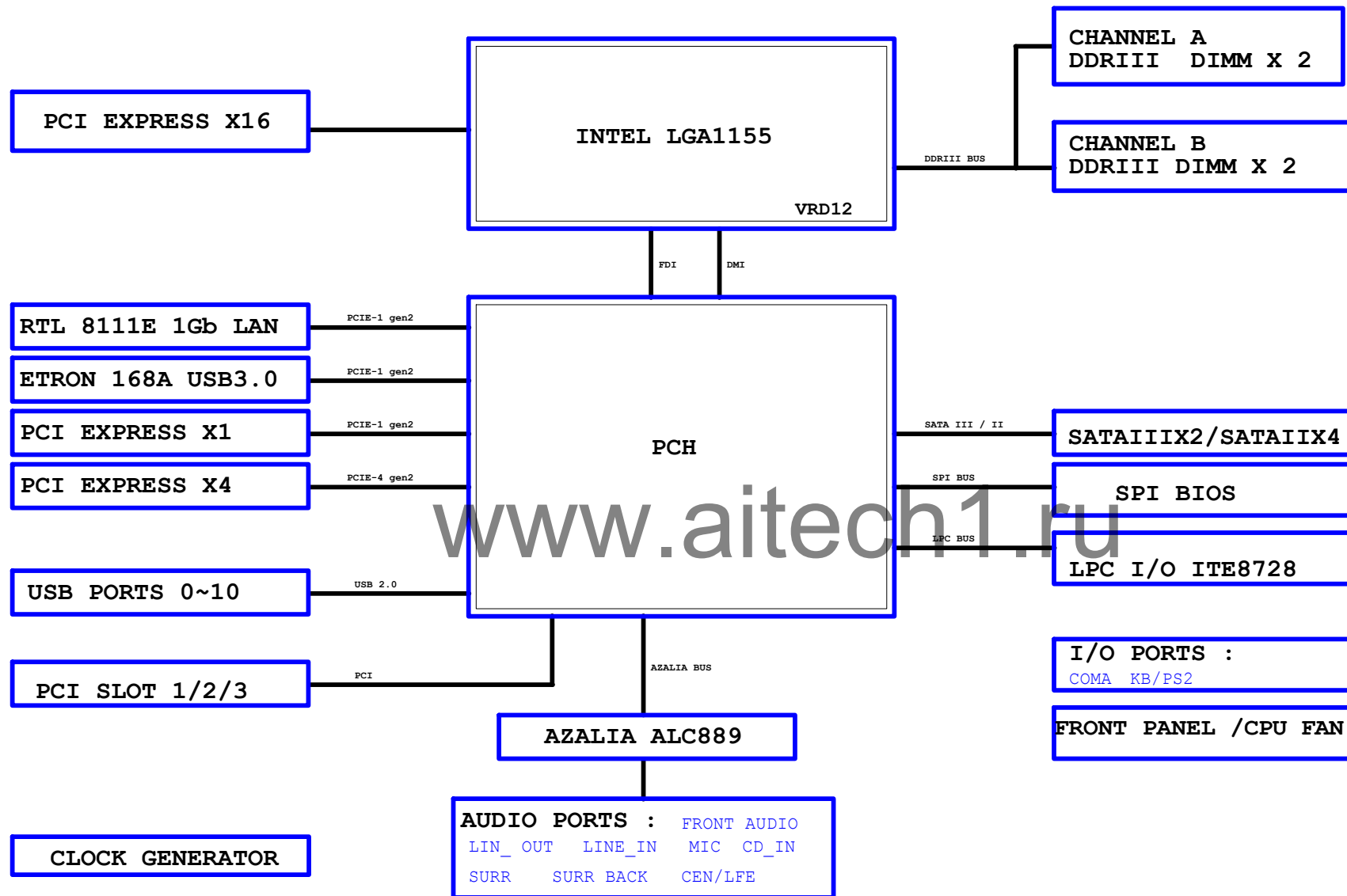
Data	Change Item	Reason
2010/11/11 EBOM:01	1. H61/P67 Mounting plan	
	2. ALC892 銅製程 & NEC Lo-power mounting plan	
	3. CHOKE mounting	
2010/11/11 EBOM:01	1. U8第一PIN標示與BC141重疊不易辨識	
	2. PCH_HS定位孔與RN9、RN10距離不足2mm	
PA65-D3-0.1	1. 注意改成電解電容時REC2應該是用100uF	
	2. Add RBC39 22u/8	
	3. MOSFET --> NEC+ON	
	4. Add 文字面 "108dB"	
	5. Add USB_LAN "11NR6-702009-93R"	
	6. VIN背板鋪銅移除	
	7. 文字面 "DES"移除	
	8. F_AUDIO Connect 改成綠色	
	9. REMOVE SE9172 SPI FLASH	
PA65-D3-1.0	1. L01 RTL8111E-VL	
	2. 文字面 "Ultra Durable 2"	
	3. 0 OHM SHORT	
	DEL EC26,PEC3,EC10,DEC2	
2011/01/28 EBOM:02	e-bom for P67A-D3-0.2	
2011/02/10 EBOM:01	1.RENAME FOR P67A-D3-B3-0.1	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除	
	3.PCH VCC1_05 switch power----->linear power	
	4.PCH B2----->B3料號,R216 51 ---->1K	
2011/02/25 PBOM:10A	1.DR275 1K--->100K,R220 200 OHM---->1K 2.ADD TBC40,TBC41 FOR CPU VTT POWER RIPPLE	
2011/03/07 PBOM:10B	1.DEL R50 FOR 8278DX JP6 ISSUE	
	2.PCH HEATSINK換成有銘板消庫存	
2011/04/07 PBOM:10A	1.由P67A-D3-B3 10B BOM換Z68 CHIP,PCB及包材FOR DVT	
2011/04/11 PBOM:10B	1.Z68 CHIP由20R 換成21R(不同COST,function不變),PCH HEATSINK無銘板	
2011/05/12 PBOM:10C	1.修改PCB料號	

Circuit or PCB layout change

DATE	Change Item	Reason
2010/07/05 PCB:0.1	1.NEW MODEL: P67A-D3-0.1	
2010/08/18 PCB:0.2	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1.update MOS_HS footprint 2.20z copper pcb	
2010/10/05 PCB:0.1	由GA-P67A-UD3-0.2 修改	
2010/10/18 PCB:0.2	1.確認SATA 6GB PORT0 OR PORT1???	
	2.NO TURBO USB3.0 ,SUR1-SUR8 ----->SHORT WIRE	
2011/01/10 PCB:0.2	1.NEW MODEL: P67A-D3-0.2 由 P65A-D3-0.2修改	
	1.co-lay 電容移除	
	2.CPU VCORE 電容多留不用的MASK起來	
	3.0 OHM---->SHORT-WIRE	
2011/02/08 PCB:0.1	由0.2修改---->RENAME GA-P67A-D3-B3	
	1.co-lay 電容移除	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除;調整MOS_HS與CHOKE及電容的位置避免撞件	
	3.PCH VCC1_05 switch power----->linear power	
2011/02/24 PCB:1.0	1.CR49,CR50 short-wire ----->open,add LR15 FOR AUDIO line out SNR issue	
	2.DR290,DR293,DR312,DR333,DR351,R264,CR31 0 OHM---->SHORT-WIRE	
	3.背面電容mask	
	4.ADD TBC40,TBC41 to reduce CPU VTT power ripple	
2011/04/06 PCB:1.0	由1.0修改---->RENAME GA-Z68A-D3-B3	
2011/05/12 PCB:1.01	1.修改文字面,ULTRA DURABLE 3 ----->2	

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BOM & PCB MODIFY HISTORY			
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BLOCK DIAGRAM



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Title BLOCK DIAGRAM			
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LGA1155A

MAAA0	AV27	SA_MA[0]
MAAA1	AV24	SA_MA[1]
MAAA2	AW24	SA_MA[2]
MAAA3	AW23	SA_MA[3]
MAAA4	AV23	SA_MA[4]
MAAA5	AT24	SA_MA[5]
MAAA6	AT23	SA_MA[6]
MAAA7	AU22	SA_MA[7]
MAAA8	AV22	SA_MA[8]
MAAA9	AT22	SA_MA[9]
MAAA10	AV28	SA_MA[10]
MAAA11	AU21	SA_MA[11]
MAAA12	AT21	SA_MA[12]
MAAA13	AW32	SA_MA[13]
MAAA14	AU20	SA_MA[14]
MAAA15	AT20	SA_MA[15]

7	-SWEA	←	-SWEA	AW29	SA_WE#
7	-SCASA	←	-SCASA	AV30	SA_CAS#
7	-SRASA	←	-SRASA	AU28	SA_RAS#
7	SBA0	←	SBA0	AY29	SA_BS[0]
7	SBA1	←	SBA1	AW28	SA_BS[1]
7	SBA2	←	SBA2	AV20	SA_BS[2]
7	-CSA0	←	-CSA0	AU29	SA_CS#
7	-CSA1	←	-CSA1	AV32	SA_CS#
7	-CSA2	←	-CSA2	AW30	SA_CS#
7	-CSA3	←	-CSA3	AU33	SA_CS#

7	CKEA0	←	CKEA0	AV19	SA_CKE[0]
7	CKEA1	←	CKEA1	AT19	SA_CKE[1]
7	CKEA2	←	CKEA2	AU18	SA_CKE[2]
7	CKEA3	←	CKEA3	AV18	SA_CKE[3]
7	MODT_A0	←	MODT_A0	AV31	SA_ODT[0]
7	MODT_A1	←	MODT_A1	AU32	SA_ODT[1]
7	MODT_A2	←	MODT_A2	AU30	SA_ODT[2]
7	MODT_A3	←	MODT_A3	AW33	SA_ODT[3]

7	DCLKA0	←	DCLKA0	AY25	SA_CK[0]
7	-DCLKA0	←	-DCLKA0	AW25	SA_CK[0]
7	DCLKA1	←	DCLKA1	AU24	SA_CK[1]
7	-DCLKA1	←	-DCLKA1	AU25	SA_CK[1]
7	DCLKA2	←	DCLKA2	AW27	SA_CK[2]
7	-DCLKA2	←	-DCLKA2	AY27	SA_CK[2]
7	DCLKA3	←	DCLKA3	AV26	SA_CK[3]
7	-DCLKA3	←	-DCLKA3	AW26	SA_CK[3]

7,8 -DDR3_RST ← TR1
0.1u4/4X7R/16V/K/KX
TBC9
0.1u4/4X7R/16V/K/KX

AV13	SA_ECC_CB[0]
AV12	SA_ECC_CB[1]
AU12	SA_ECC_CB[2]
AW13	SA_ECC_CB[3]
AV13	SA_ECC_CB[4]
AU13	SA_ECC_CB[5]
AW12	SA_ECC_CB[6]
AW12	SA_ECC_CB[7]

DDR_0

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LGA1155[10SC1-F01155-01R]

AK3	DQSA0
AK2	-DQSA0

AJ3	MDA0
AJ4	MDA1
AJ3	MDA2
AJ4	MDA3
AJ2	MDA4
AJ1	MDA5
AJ2	MDA6
AJ1	MDA7

AP3	DQSA1
AP2	-DQSA1

AN1	MDA8
AN4	MDA9
AR3	MDA10
AR4	MDA11
AN2	MDA12
AN3	MDA13
AR2	MDA14
AR1	MDA15

AW4	DQSA2
AV4	-DQSA2

AV2	MDA16
AW3	MDA17
AV5	MDA18
AW5	MDA19
AU2	MDA20
AU3	MDA21
AU5	MDA22
AV5	MDA23

AV8	DQSA3
AW8	-DQSA3

AV7	MDA24
AU7	MDA25
AV9	MDA26
AU9	MDA27
AV7	MDA28
AW7	MDA29
AW9	MDA30
AV9	MDA31

AV37	DQSA4
AV36	-DQSA4

AU35	MDA32
AW37	MDA33
AU39	MDA34
AU36	MDA35
AW35	MDA36
AV36	MDA37
AU38	MDA38
AU37	MDA39

AP38	DQSA5
AP39	-DQSA5

AR40	MDA40
AR37	MDA41
AN38	MDA42
AN37	MDA43
AR39	MDA44
AR38	MDA45
AN39	MDA46
AN40	MDA47

AK38	DQSA6
AK39	-DQSA6

AL40	MDA48
AL37	MDA49
AJ38	MDA50
AJ37	MDA51
AL39	MDA52
AL38	MDA53
AJ39	MDA54
AJ40	MDA55

AF38	DQSA7
AF39	-DQSA7

AG40	MDA56
AG37	MDA57
AE38	MDA58
AE37	MDA59
AG39	MDA60
AG38	MDA61
AE39	MDA62
AE40	MDA63

MODT_A[0..3] ← MODT_A[0..3]

MODT_B[0..3] ← MODT_B[0..3]

MDA[0..63] ← MDA[0..63]

MDB[0..63] ← MDB[0..63]

DQSA[0..7] ← DQSA[0..7]

-DQSA[0..7] ← -DQSA[0..7]

MAAA[0..15] ← MAAA[0..15]

MAAB[0..15] ← MAAB[0..15]

DQSB[0..7] ← DQSB[0..7]

-DQSB[0..7] ← -DQSB[0..7]

LGA1155B

MAAB0	AK24	SB_MA[0]
MAAB1	AM20	SB_MA[1]
MAAB2	AM19	SB_MA[2]
MAAB3	AK18	SB_MA[3]
MAAB4	AP19	SB_MA[4]
MAAB5	AP18	SB_MA[5]
MAAB6	AM18	SB_MA[6]
MAAB7	AL18	SB_MA[7]
MAAB8	AN18	SB_MA[8]
MAAB9	AV17	SB_MA[9]
MAAB10	AN25	SB_MA[10]
MAAB11	AU17	SB_MA[11]
MAAB12	AT18	SB_MA[12]
MAAB13	AR26	SB_MA[13]
MAAB14	AT18	SB_MA[14]
MAAB15	AV16	SB_MA[15]

8	-SWEB	←	-SWEB	AR29	SB_WE#
8	-SCASB	←	-SCASB	AK25	SB_CAS#
8	-SRASB	←	-SRASB	AP24	SB_RAS#

8	SBAB0	←	SBAB0	AP24	SB_BS[0]
8	SBAB1	←	SBAB1	AW17	SB_BS[1]
8	SBAB2	←	SBAB2	AW17	SB_BS[2]

8	-CSB0	←	-CSB0	AN25	SB_CS#
8	-CSB1	←	-CSB1	AN26	SB_CS#
8	-CSB2	←	-CSB2	AL25	SB_CS#
8	-CSB3	←	-CSB3	AT26	SB_CS#

8	CKEB0	←	CKEB0	AU16	SB_CKE[0]
8	CKEB1	←	CKEB1	AY15	SB_CKE[1]
8	CKEB2	←	CKEB2	AW15	SB_CKE[2]
8	CKEB3	←	CKEB3	AY15	SB_CKE[3]

MODT_B0	AL26	SB_ODT[0]
MODT_B1	AP26	SB_ODT[1]
MODT_B2	AK28	SB_ODT[2]
MODT_B3	AK28	SB_ODT[3]

AV8	DQSA3
AW8	-DQSA3

8	DCLKB0	←	DCLKB0	AL21	SB_CK[0]
8	-DCLKB0	←	-DCLKB0	AL22	SB_CK[0]
8	DCLKB1	←	DCLKB1	AK20	SB_CK[1]
8	-DCLKB1	←	-DCLKB1	AK20	SB_CK[1]
8	DCLKB2	←	DCLKB2	AL23	SB_CK[2]
8	-DCLKB2	←	-DCLKB2	AM22	SB_CK[2]
8	DCLKB3	←	DCLKB3	AP21	SB_CK[3]
8	-DCLKB3	←	-DCLKB3	AN21	SB_CK[3]

8	VREF_DQB	←	VREF_DQB	AK21	SB_VREF_DQB
7	VREF_DQB	←	VREF_DQB	AK21	SB_VREF_DQB

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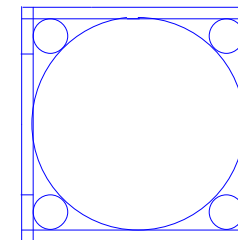
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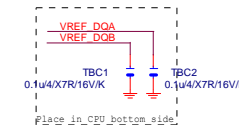
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LGA1155[10SC1-F01155-01R]

LGA1155
LGA1155/CSP

Need check the new CPU ME

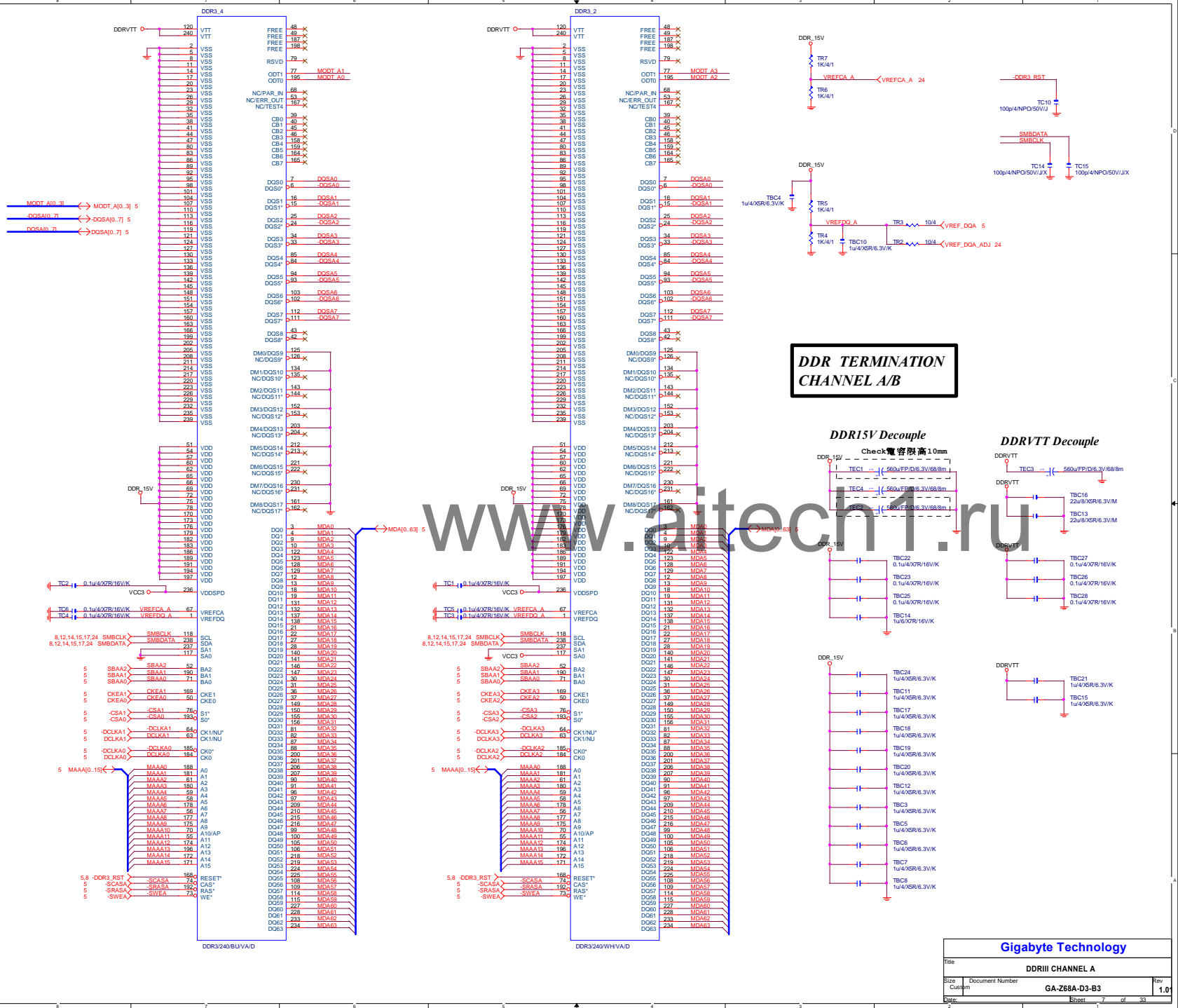


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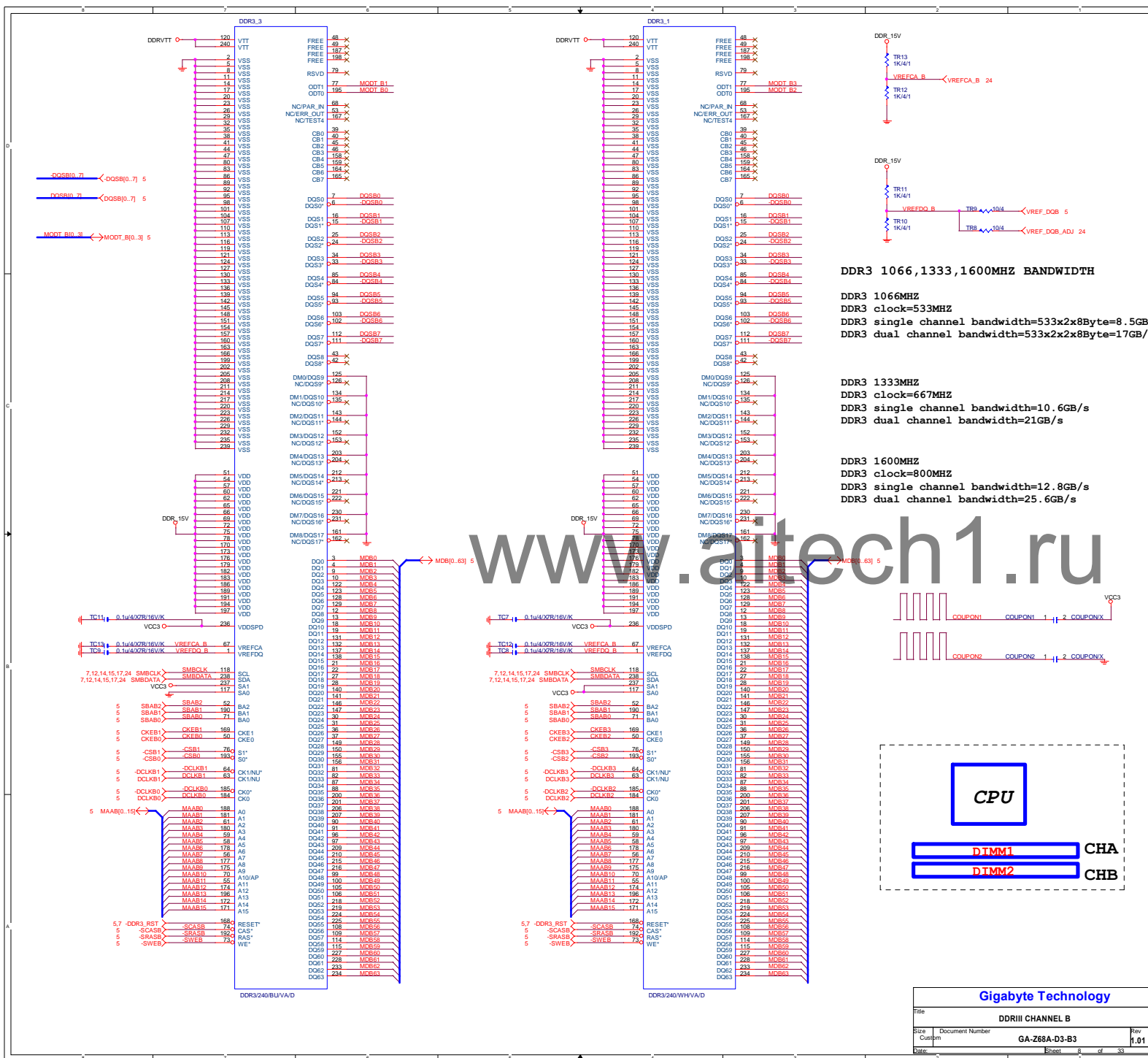
CPU LGA1155-B

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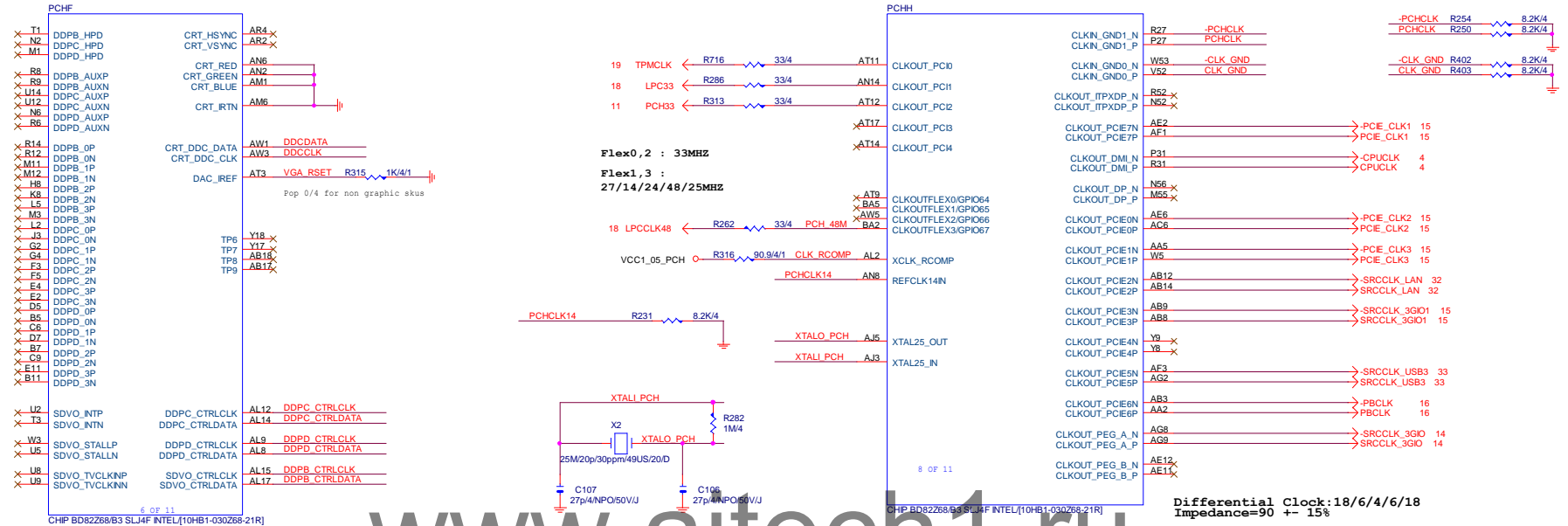
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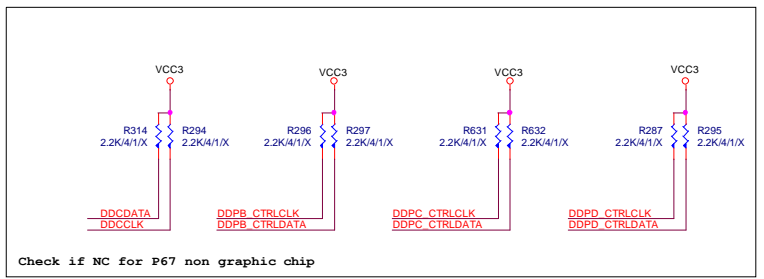
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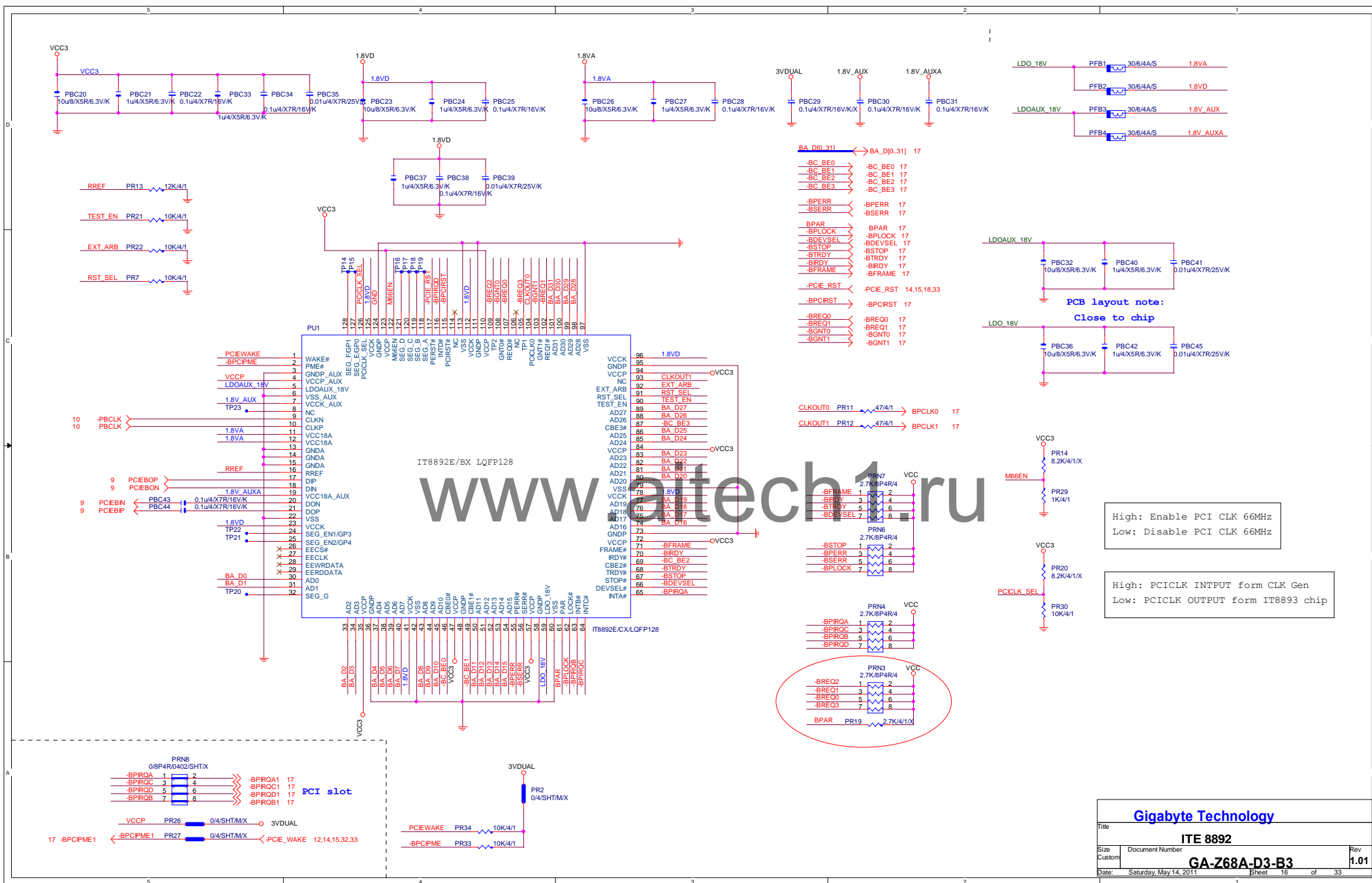


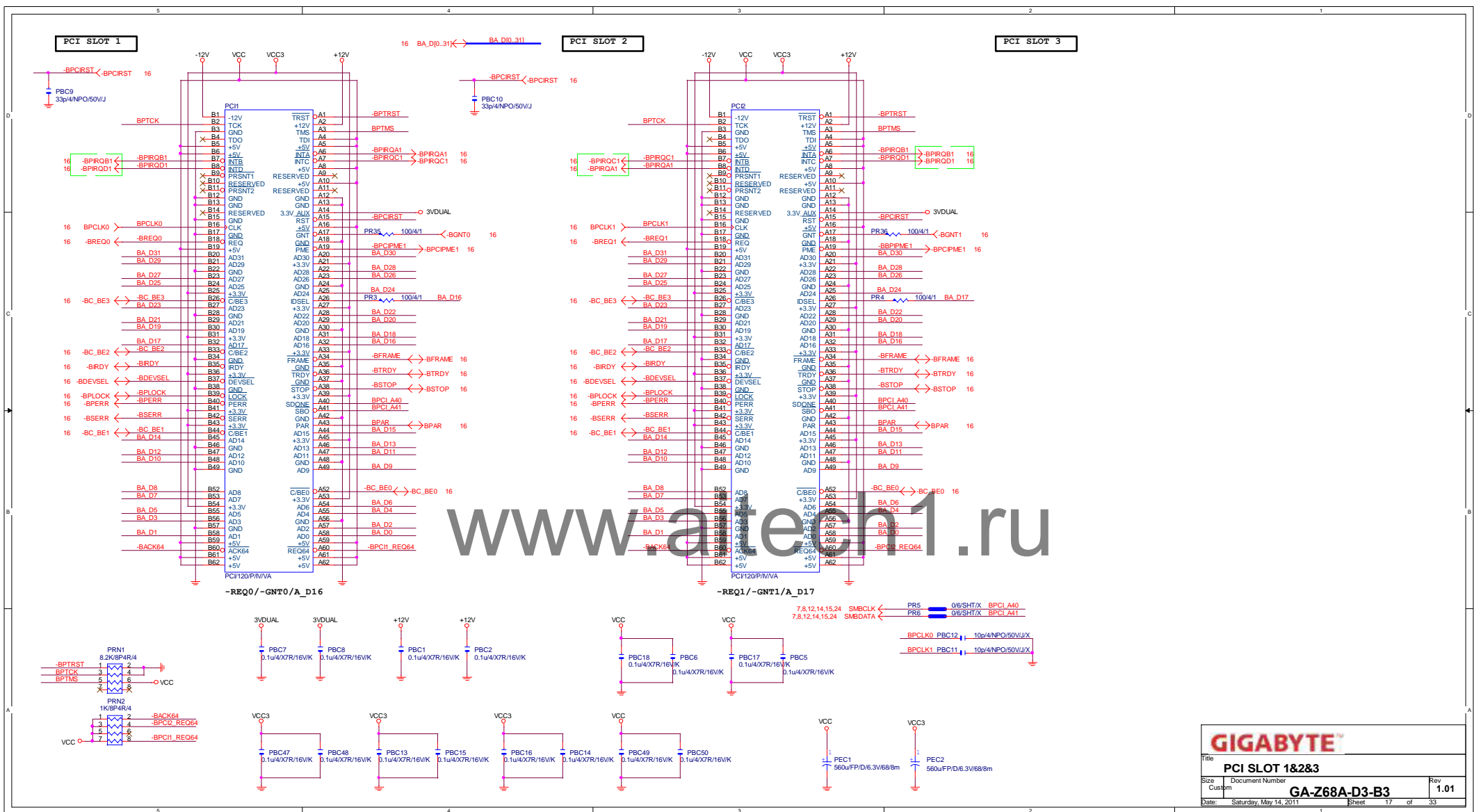


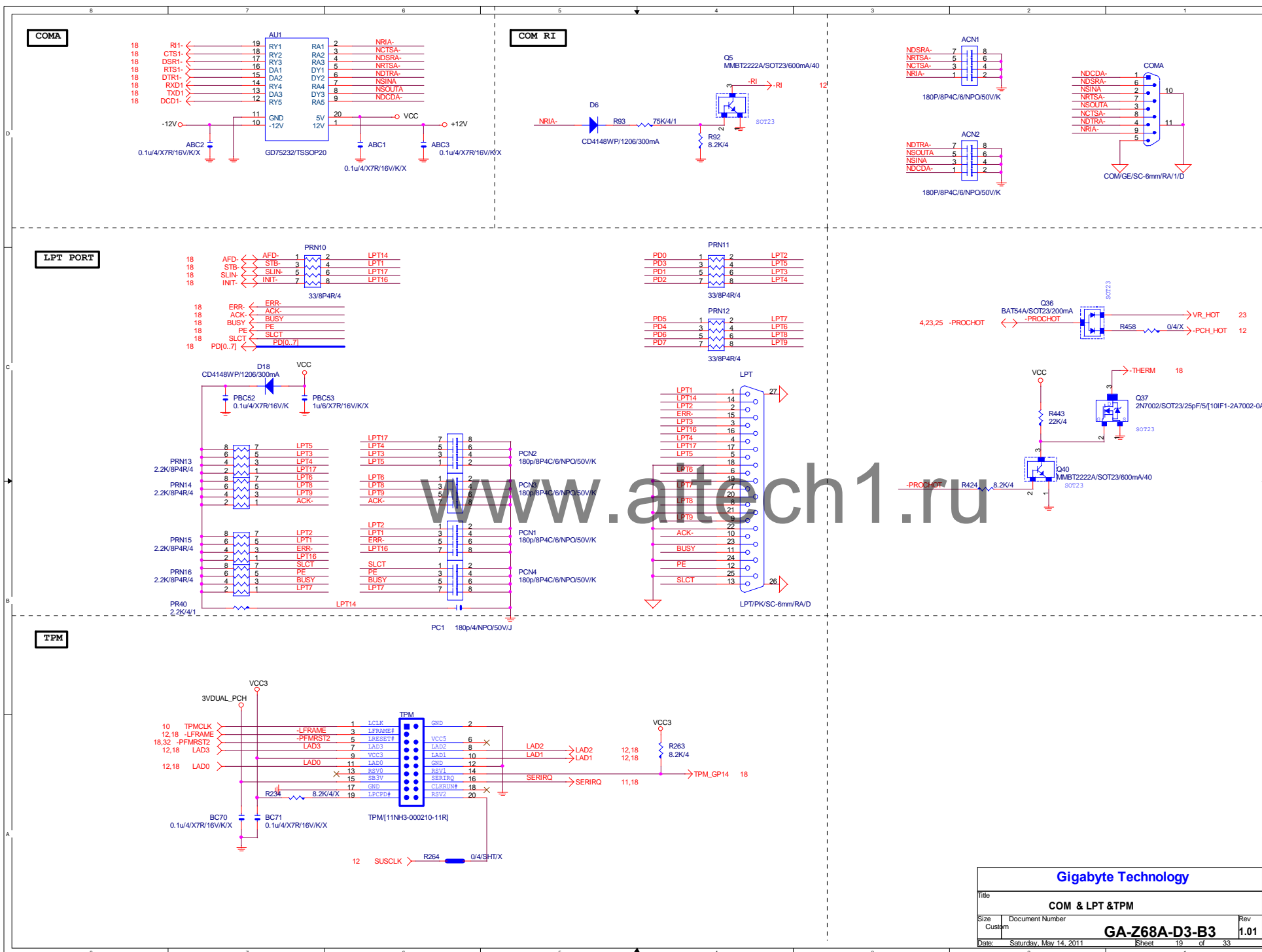
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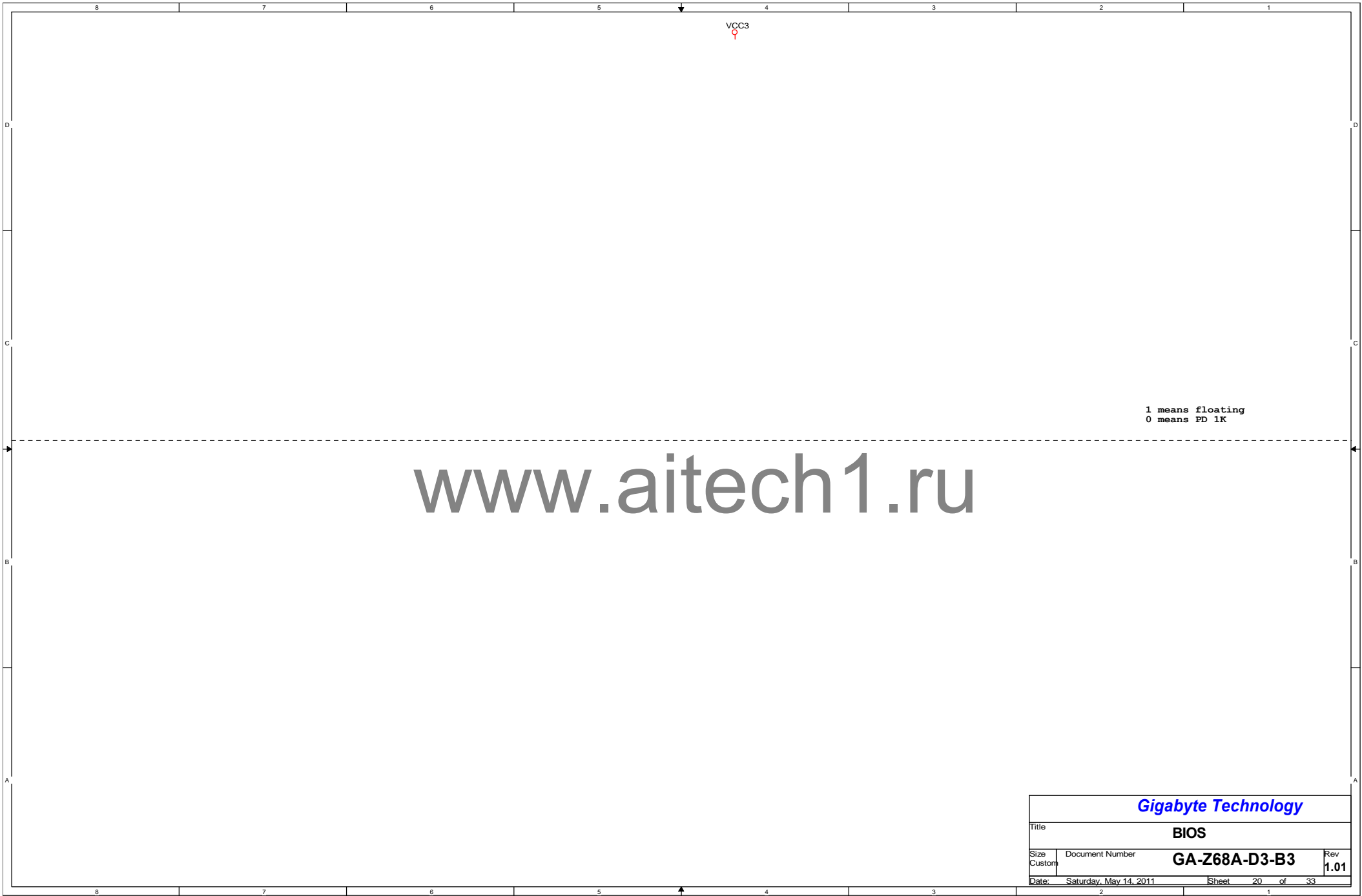


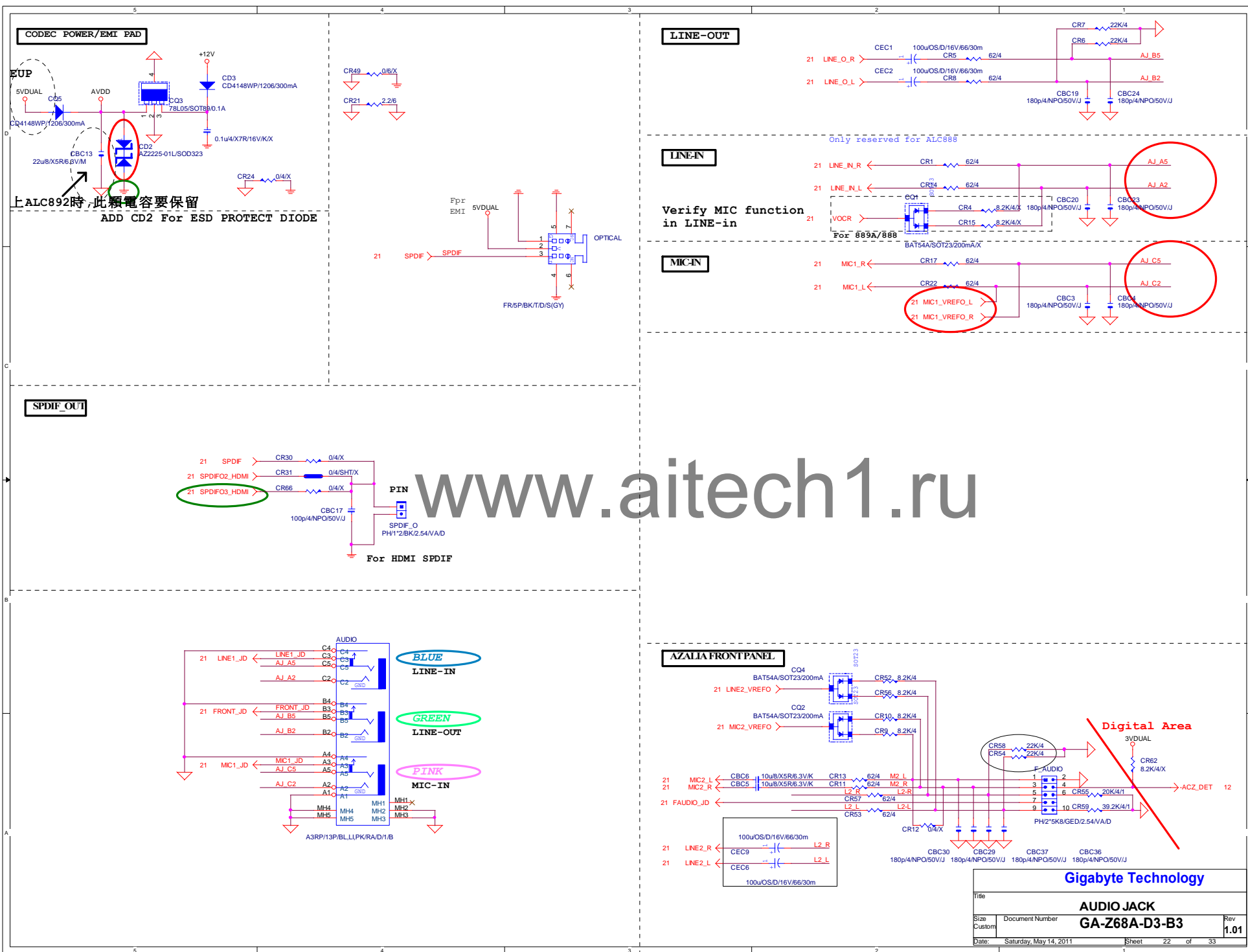
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Title			
PCH DISPLAY ,CLK BUFFER			
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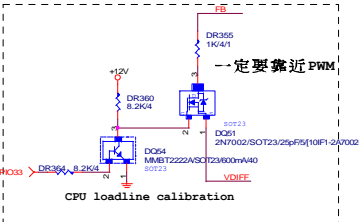
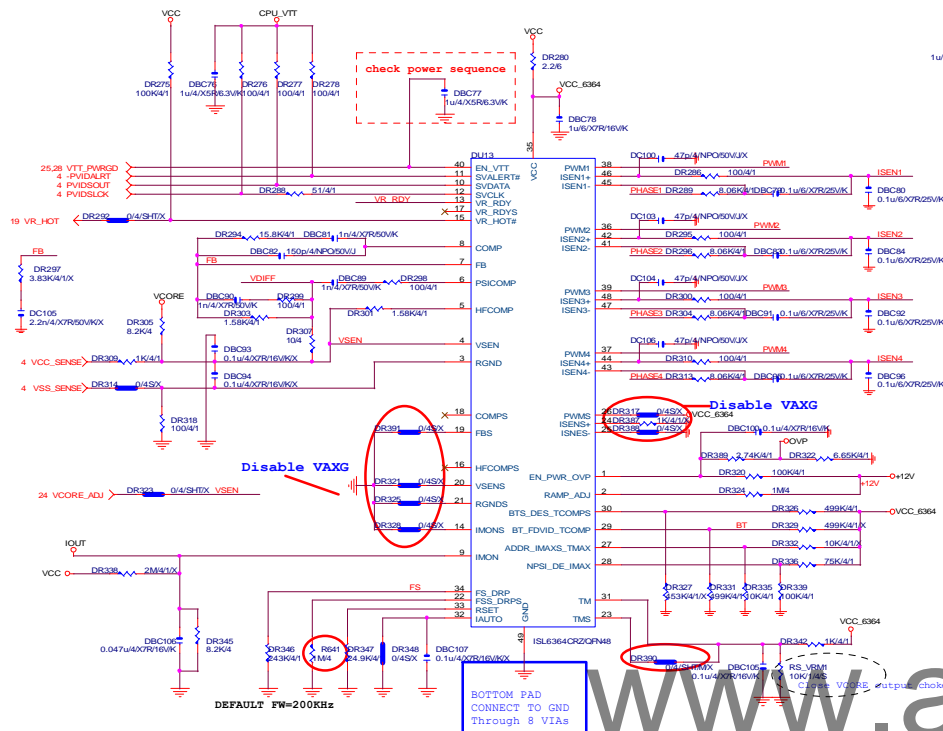




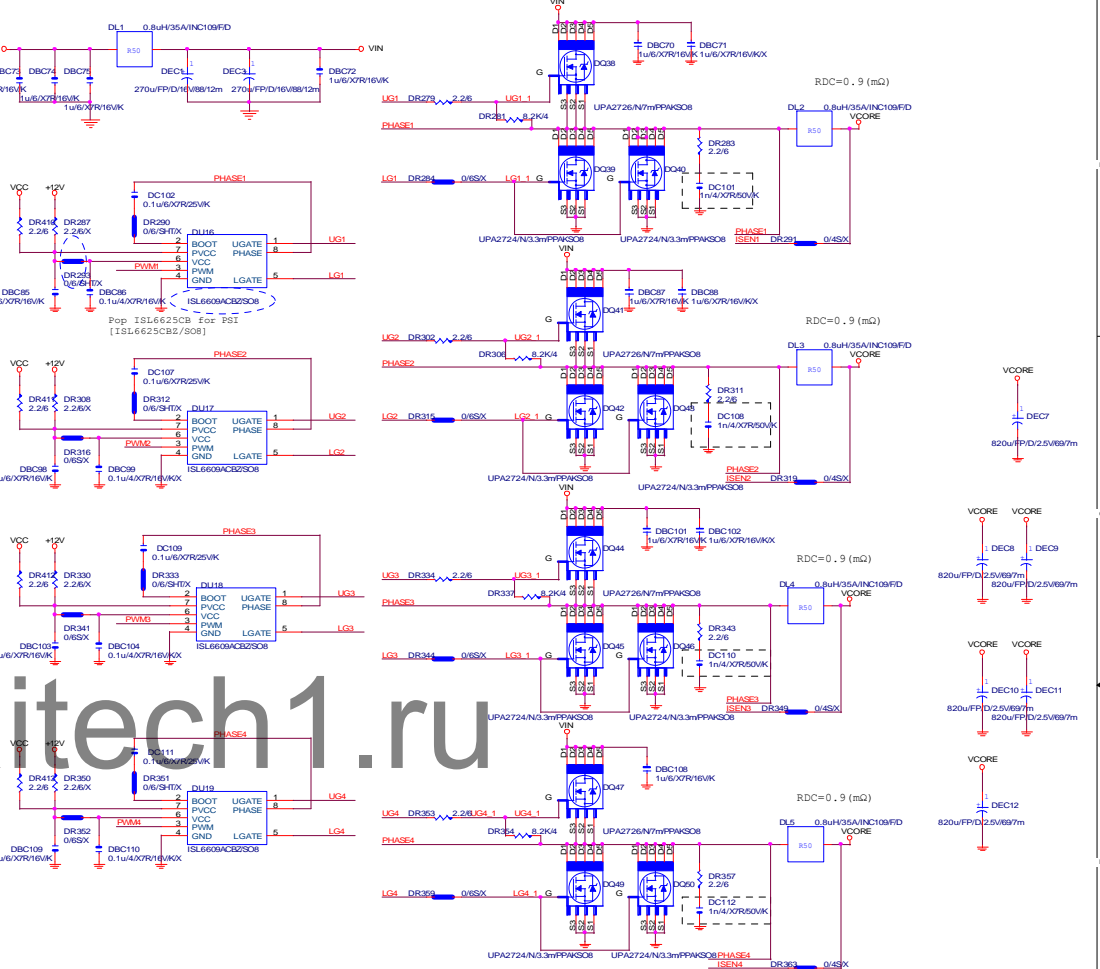
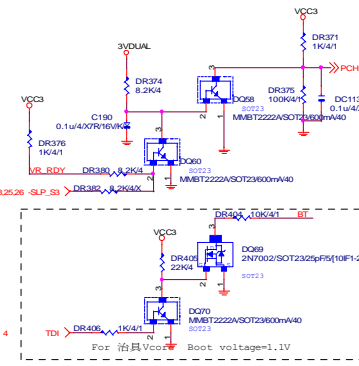




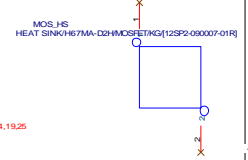




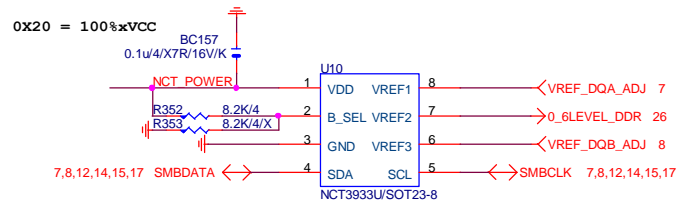
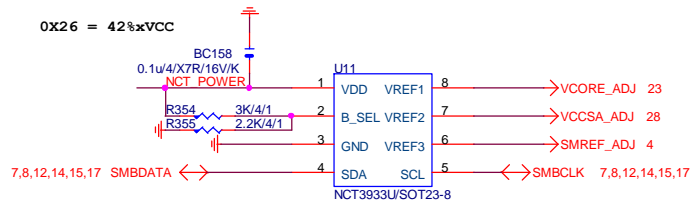
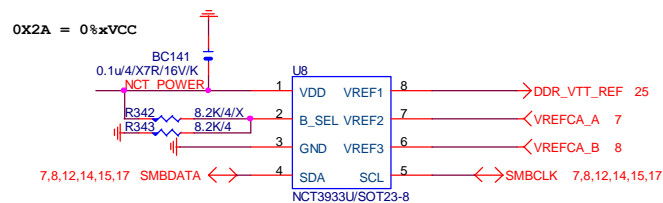
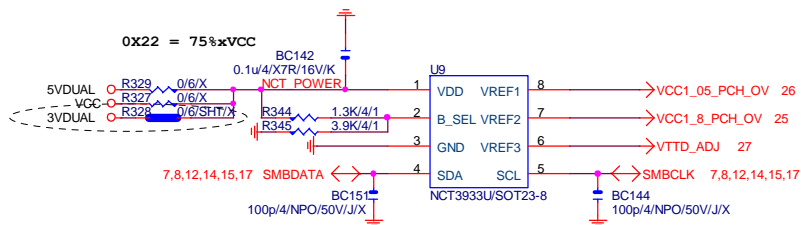
VIN=12V, IF
VOUT=1.2V, IOUT=112A (VCORE)+17A (VTT)+8.8A (VSSA)=137.8A, PHASE=5
IRMS=13.78A
270u/FP/D/16V/88/12m RIPPLE CURRENT=5A(105℃)
Coefficient=1.7 (85℃)
-->故min 固態電容須 3X5=>15A>13.78A (105℃)



MOS HEATSINK



ISL6364 for VR12 DT		
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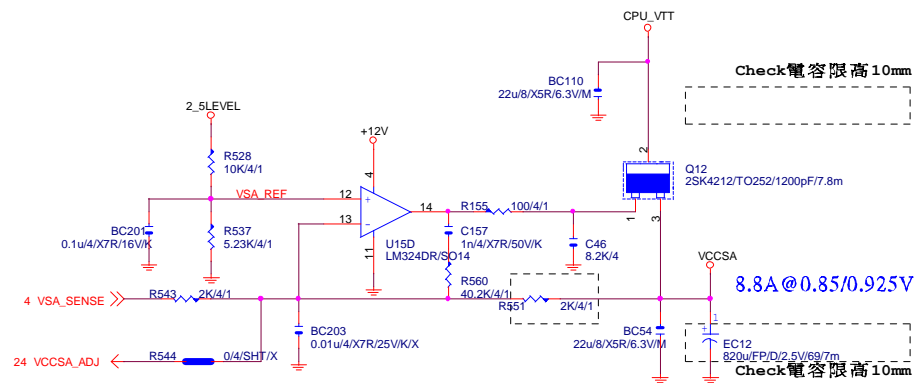


up6262	0X2A	0X20	0X22	0X26
VREF1	DDR_VTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAV	VREF_DDRB_DQ	CPU_VTT	SMREF

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VCC_SA

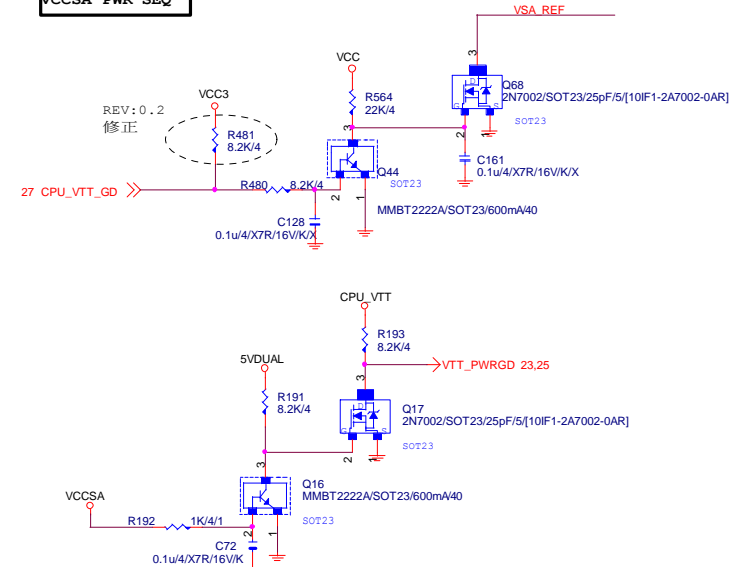


PDG 1.01

VSA_SEL	
HI	0.85V
LO	0.925V

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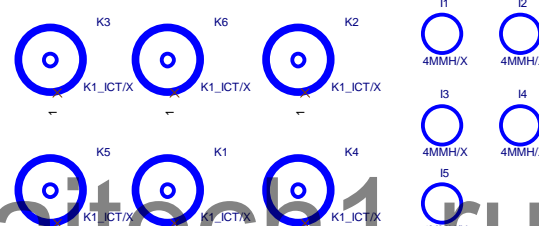
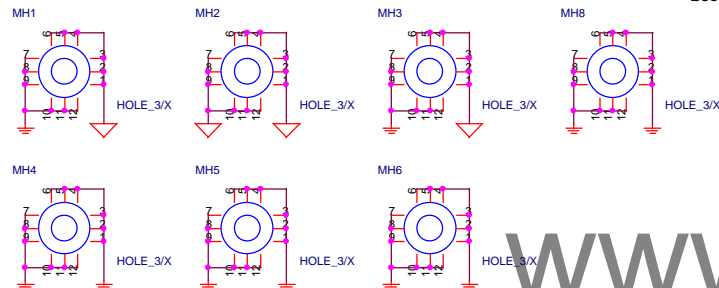
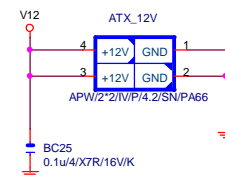
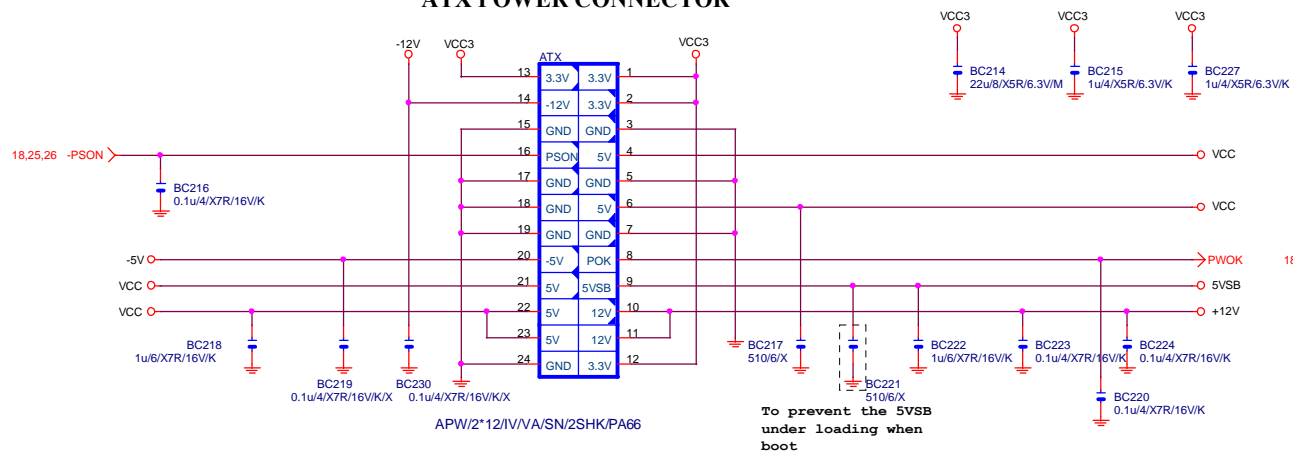
VCCSA PWR SEQ



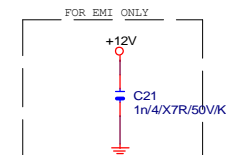
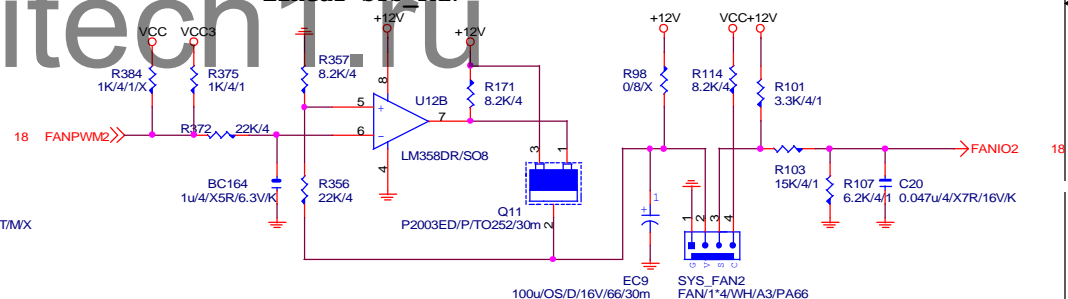
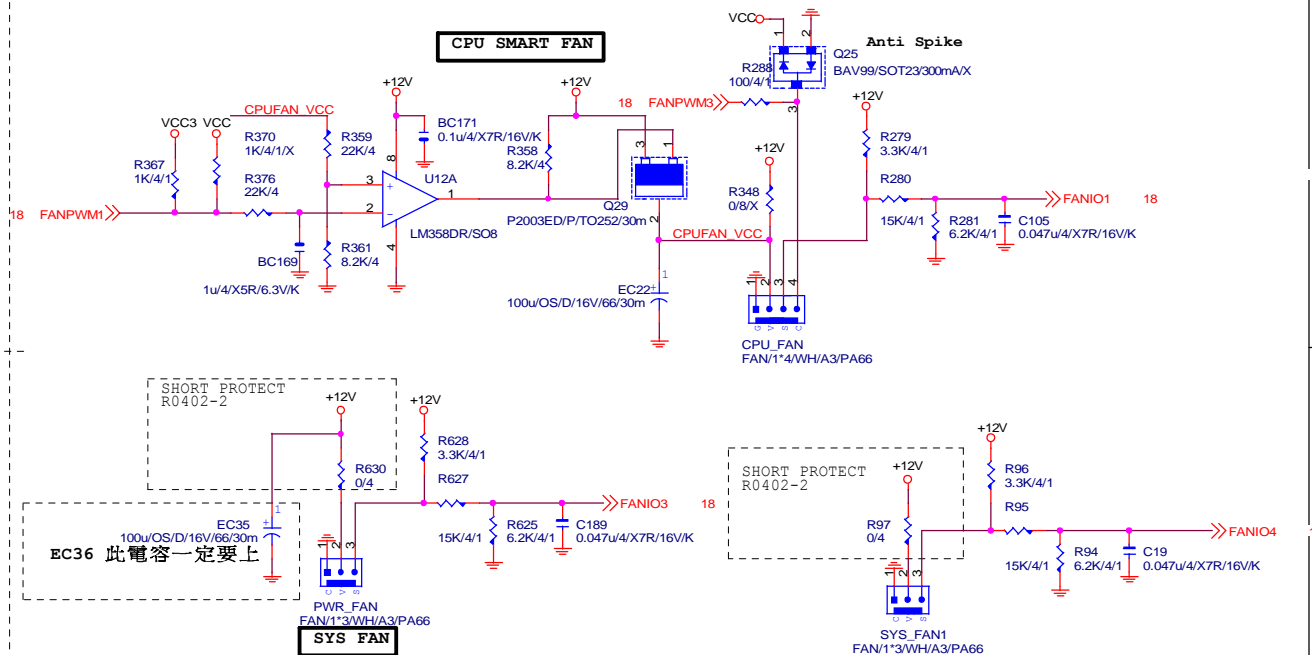
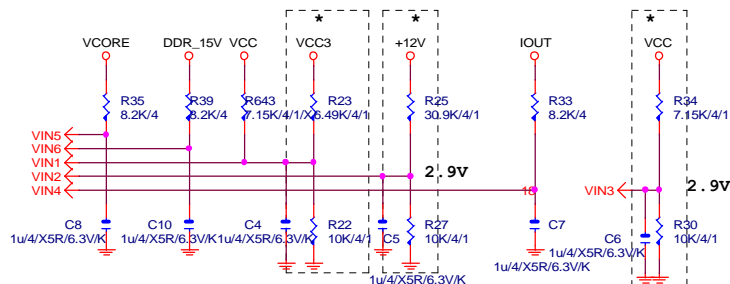
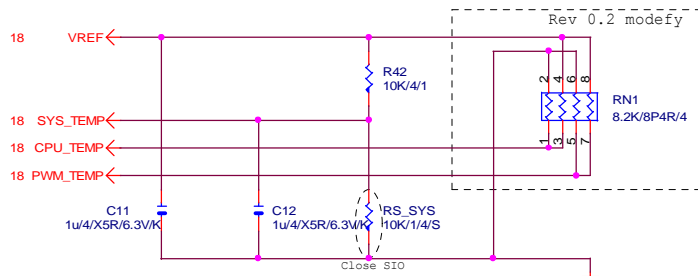
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Title			
CPU VTT PWM_ISL6312			
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ATX POWER CONNECTOR



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Title		
ATX POWER CONNECTOR		
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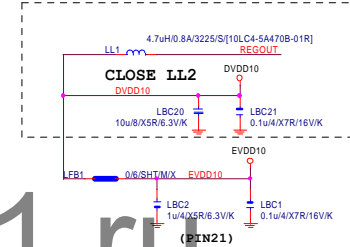
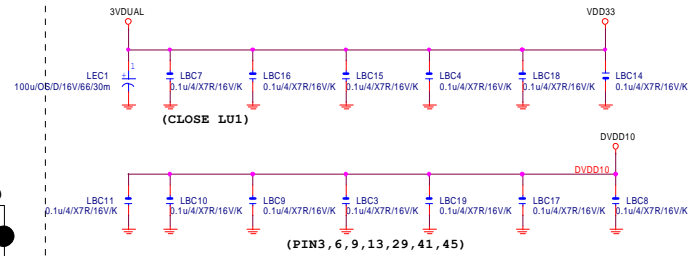
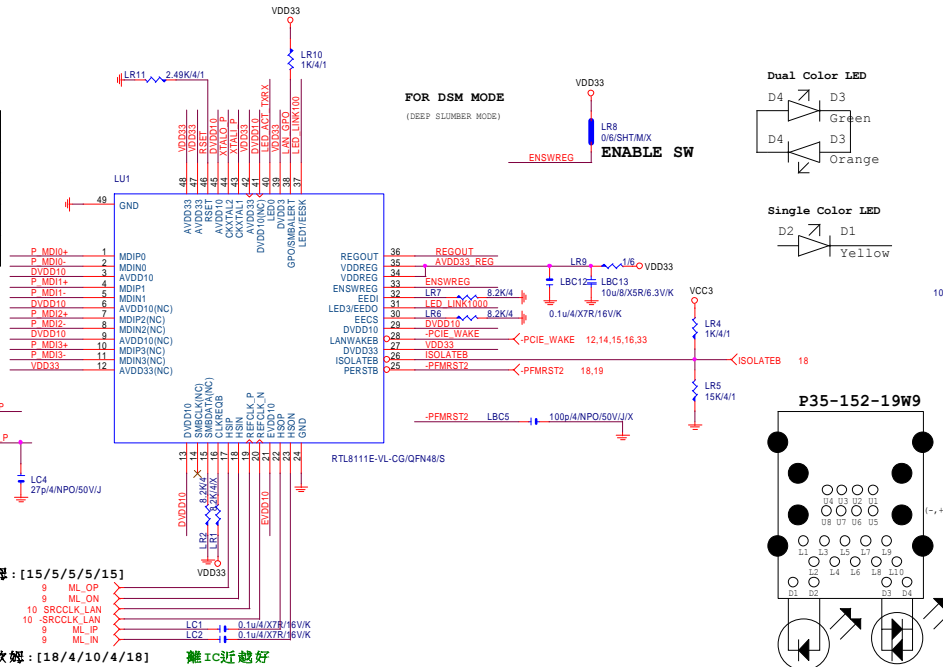


Title			
HWM,KB/MS, FAN CTRL			
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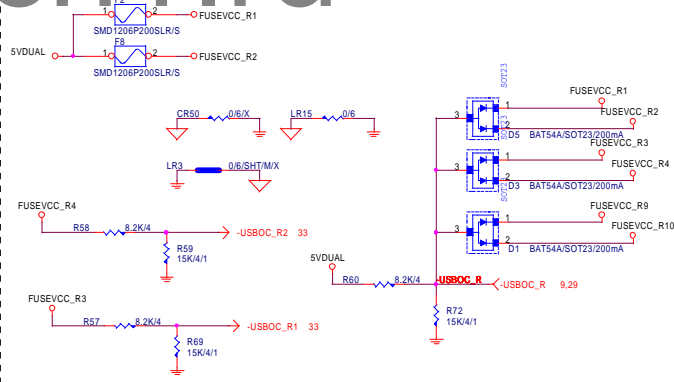
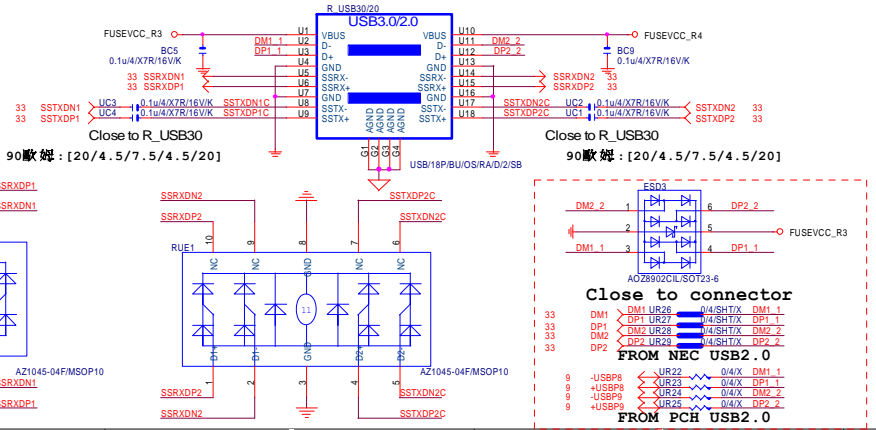
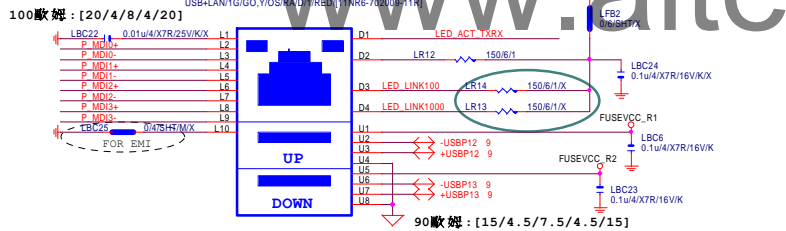
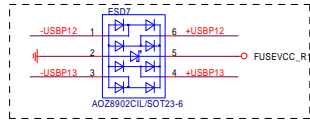
PCIE-1G LAN

Power domain chart

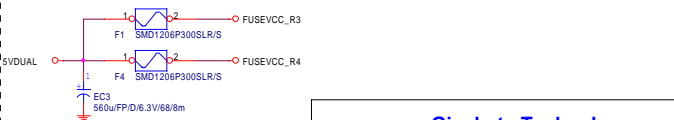
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



USB30 LAN CONNECTOR



Close to connector



Gigabyte Technology			
REALTEK RTL8111E			
GA-Z68A-D3-B3			
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