

Model Name: GA-X58-USB3

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04-05	LGA1366-A CPU_DDRA_B_C
06	LGA1366-C CPU_CSI
07	LGA1366-D CPU_GND
08	LGA1366-E CPU_PWR
09	IOH_CSI
10	IOH_PCIEx16 / PCIEx4
11-12	IOH_MISC_SRRAP
13-14	IOH_PWR_GND
15-17	DDRIII CHANNEL A_B_C
18	DDRIII TERMINATION
19	PCI EXPRESS X16 PORT_1
20	PCI EXPRESS X16 PORT_2
21	ICH10 PCIE,DMI, PCI, USB
22	ICH10 GPIO, CTRL
23	ICH10 SATA, FAN PWM
24	ICH10 VCC, GND
25	ISL6312_VTTD
26	ICS9LPRS914
27	PCI EXPRESS x4 SLOT
28	PCI EXPRESS x1 SLOTS
29	PCI SLOT
30	ITE 8720 (GB)
31	-PROHOT, DYNAMIC OC +12V保護線路
32	Dual BIOS , TPM
33-34	CODEC 892 & AUDIO JACK
35-38	VCORE PWM_ISL6336A

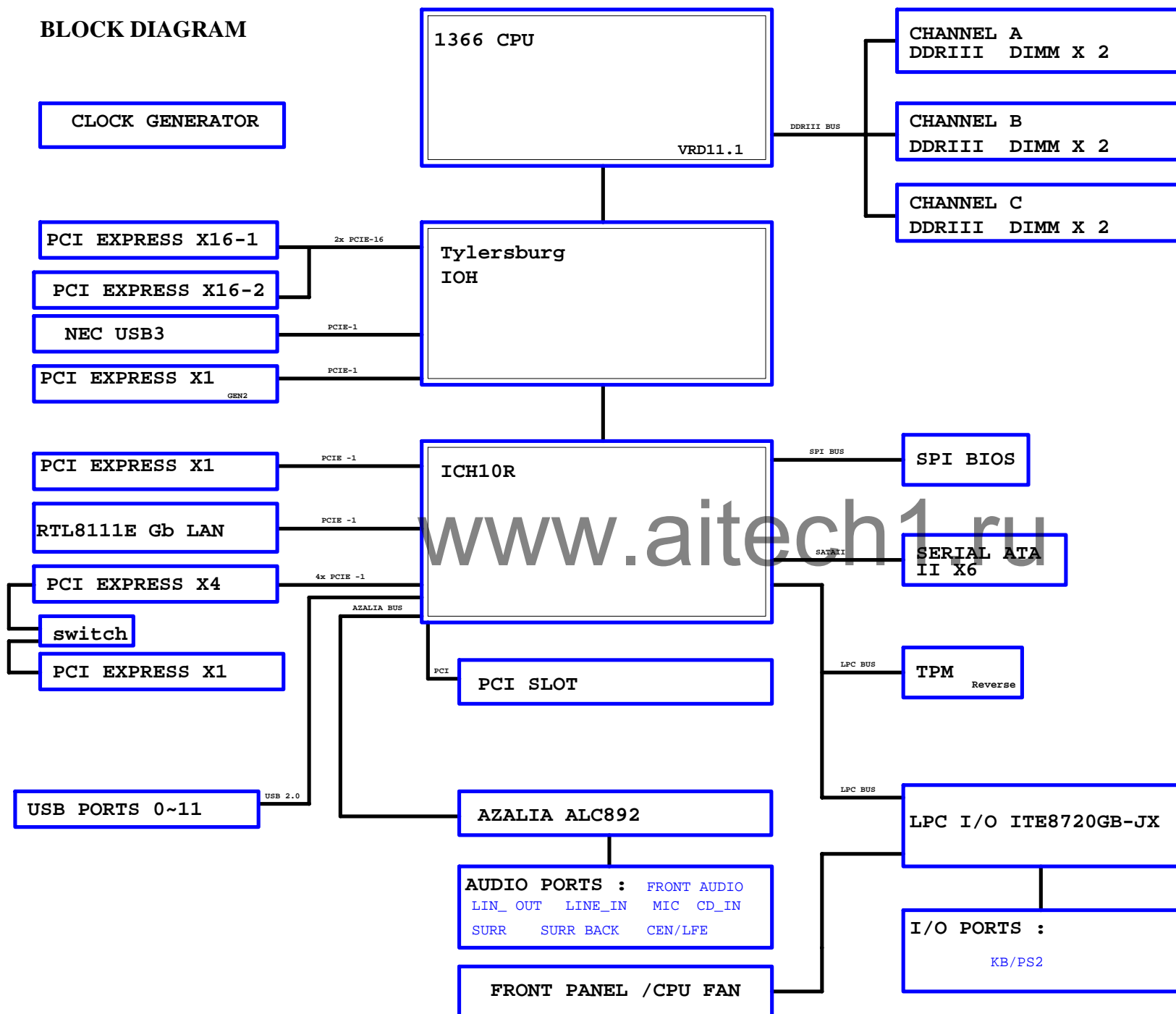
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39-40	DISCRETE POWER
41	ISL6322_DDRII
42	ISL6322_IOH_CORE
43	ATX
44	R_USB & UPI6262
45	FP,FUSB
46	HWM,KB/MS, FAN CTRL
47	REALTEK RTL8111E
48	NEC uP720200

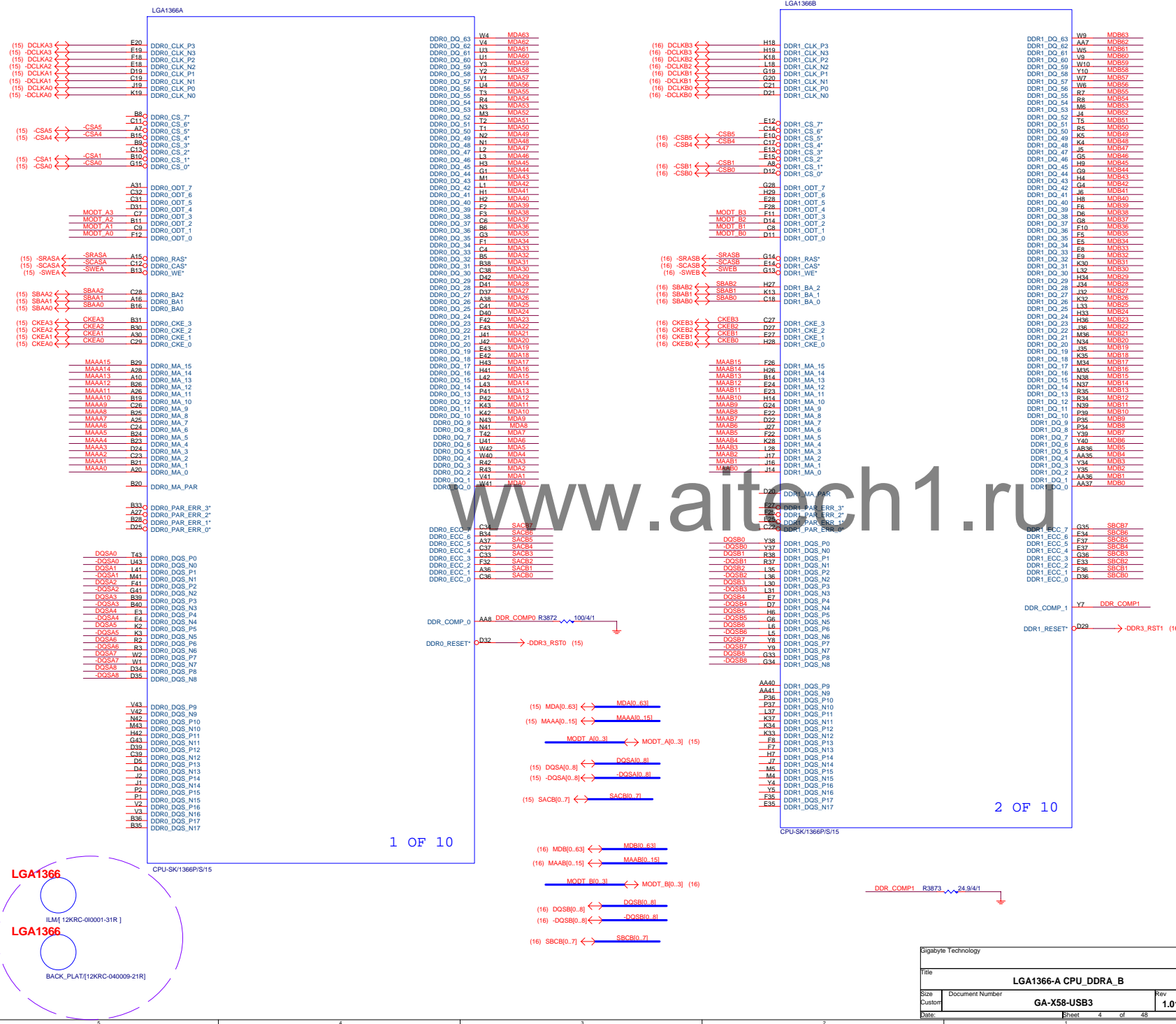
www.aitech1.ru

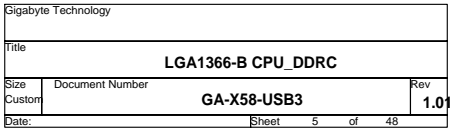
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Cover Sheet		
Size	Document Number	Rev
Custom	GA-X58-USB3	1.01
Date:	Friday, August 06, 2010	Sheet 1 of 48

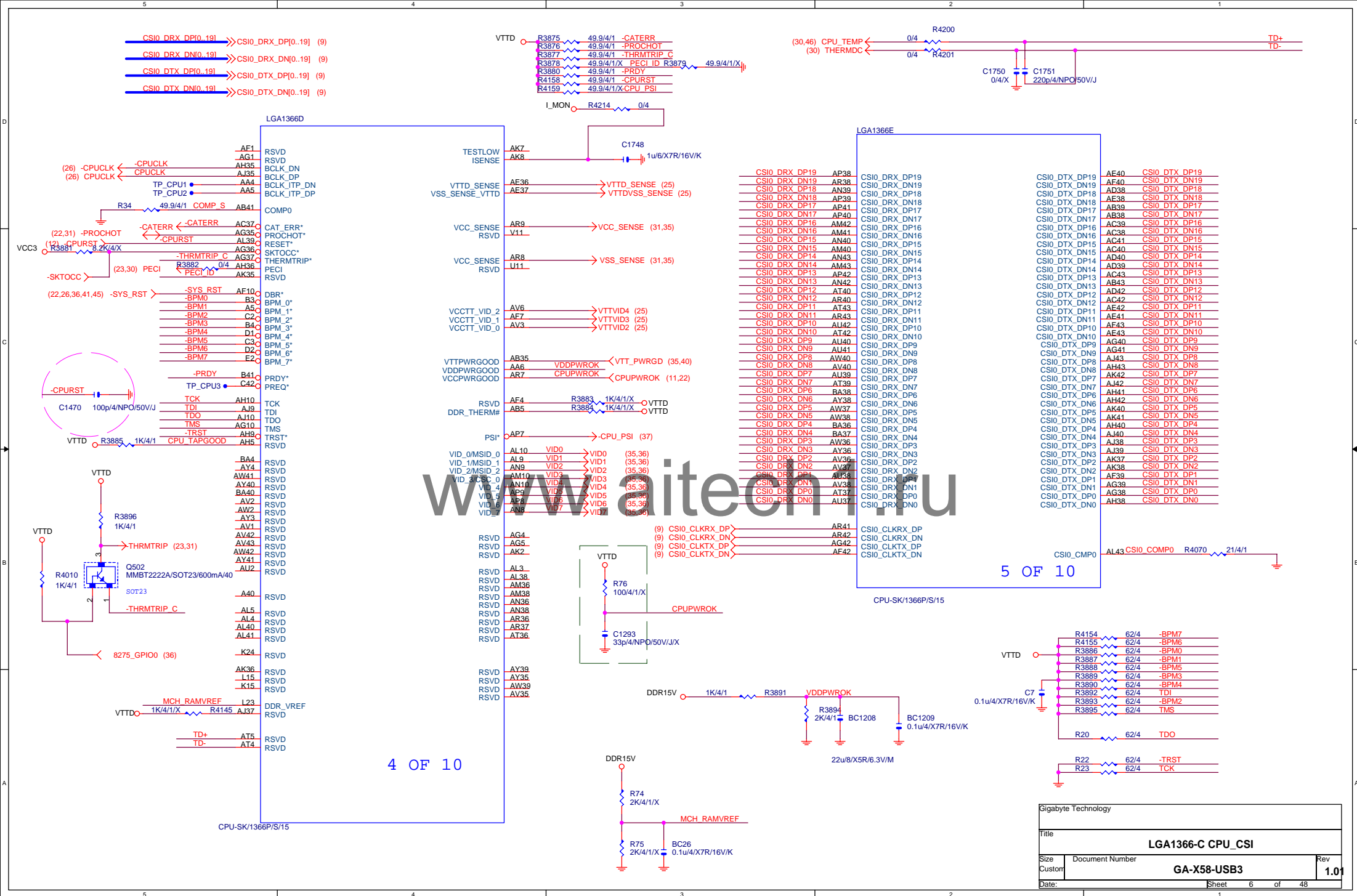
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BLOCK DIAGRAM









LGA1366I

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B37	VSS	AV22	VSS
B2	VSS	AV20	VSS
A41	VSS	AV17	VSS
A39	VSS	AV14	VSS
A35	VSS	AV11	VSS
A6	VSS	AV4	VSS
A4	VSS	AU43	VSS
C5	VSS	AU36	VSS
E6	VSS	AU35	VSS
E1	VSS	AU32	VSS
D43	VSS	AU29	VSS
D38	VSS	AU26	VSS
D33	VSS	AU23	VSS
D8	VSS	AU22	VSS
D3	VSS	AU20	VSS
C43	VSS	AU17	VSS
C40	VSS	AU11	VSS
C35	VSS	AU14	VSS
E36	VSS	AU5	VSS
F41	VSS	AU23	VSS
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F34	VSS	AT32	VSS
F39	VSS	AT29	VSS
G2	VSS	AT26	VSS
G7	VSS	AT23	VSS
G12	VSS	AT22	VSS
G32	VSS	AT20	VSS
G37	VSS	AT17	VSS
G42	VSS	AT14	VSS
H5	VSS	AT11	VSS
H10	VSS	AT8	VSS
H30	VSS	AT7	VSS
H35	VSS	AK39	VSS
BA39	VSS	AK23	VSS
BA35	VSS	AK35	VSS
BA29	VSS	AK32	VSS
BA26	VSS	AK29	VSS
BA20	VSS	AK26	VSS
BA17	VSS	AK23	VSS
BA14	VSS	AK22	VSS
BA11	VSS	AK20	VSS
BA5	VSS	AK17	VSS
BA3	VSS	AK14	VSS
AY42	VSS	AK10	VSS
AY37	VSS	AK9	VSS
AY29	VSS	AK3	VSS
AY26	VSS	AJ41	VSS
AY23	VSS	AJ36	VSS
AY32	VSS	AJ34	VSS
AY22	VSS	AJ3	VSS
AY20	VSS	AJ5	VSS
AY17	VSS	AH39	VSS
AY14	VSS	AH37	VSS
AY11	VSS	AH34	VSS
AY7	VSS	AH7	VSS
AY2	VSS	AH1	VSS
AW35	VSS	AG43	VSS
AW32	VSS	AG33	VSS
AW29	VSS	AG11	VSS
AW26	VSS	AG9	VSS
AW23	VSS	AG3	VSS
AW22	VSS	AF41	VSS
AW20	VSS	AF38	VSS
AW17	VSS	AF35	VSS
AW14	VSS	AF5	VSS
AW11	VSS	AE39	VSS
AW8	VSS	AE7	VSS
AW6	VSS	AE2	VSS
AW1	VSS	AD43	VSS
AV41	VSS	AD41	VSS
AV39	VSS	AD37	VSS
AV32	VSS	AD33	VSS
AV29	VSS	AD11	VSS
AV26	VSS	AC36	VSS
		AC26	VSS
		AC7	VSS
		AC5	VSS
		AC2	VSS
		AN17	VSS
		AN14	VSS
		AN11	VSS

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CPU-SK/1366P/S/15

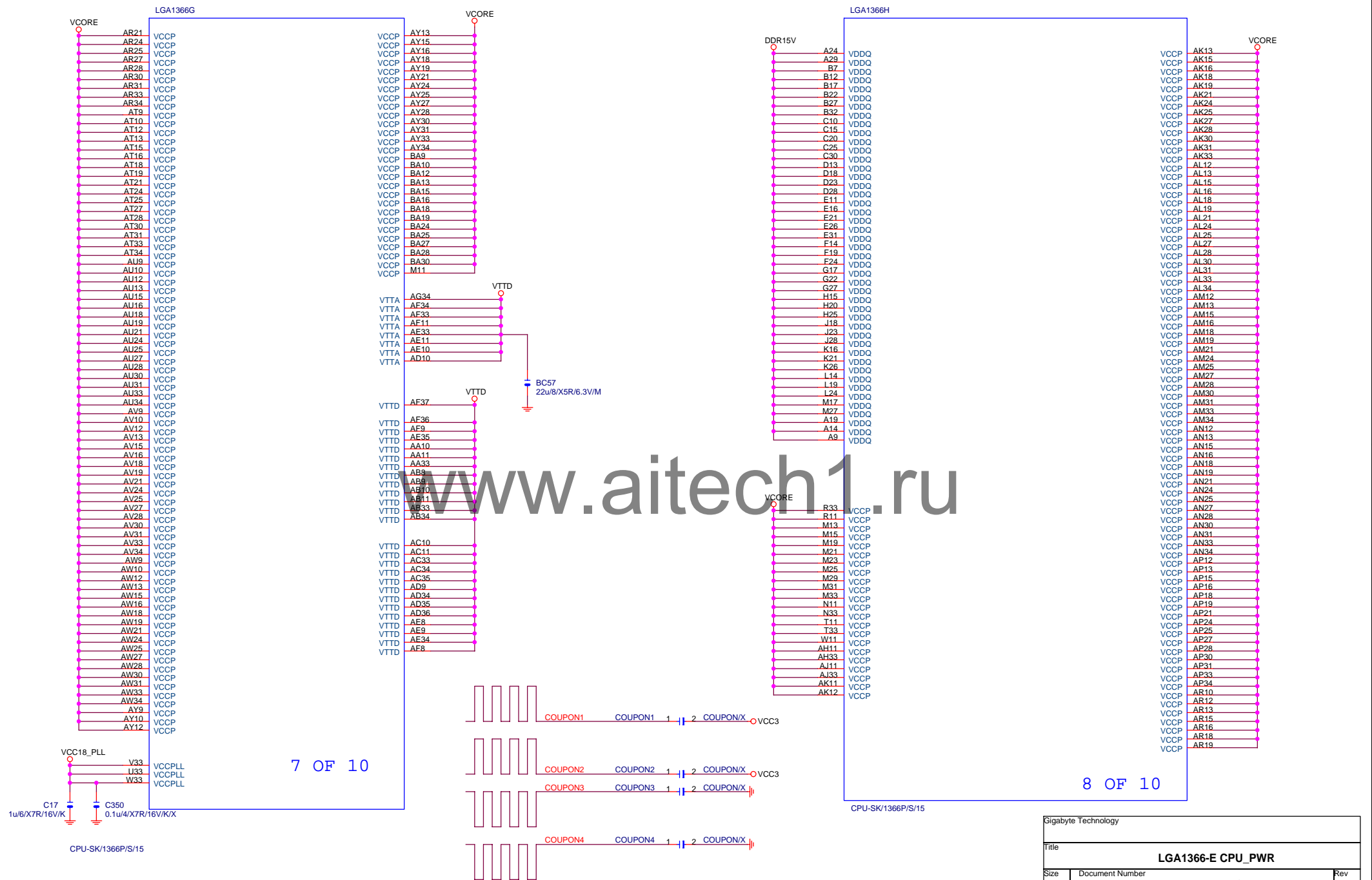
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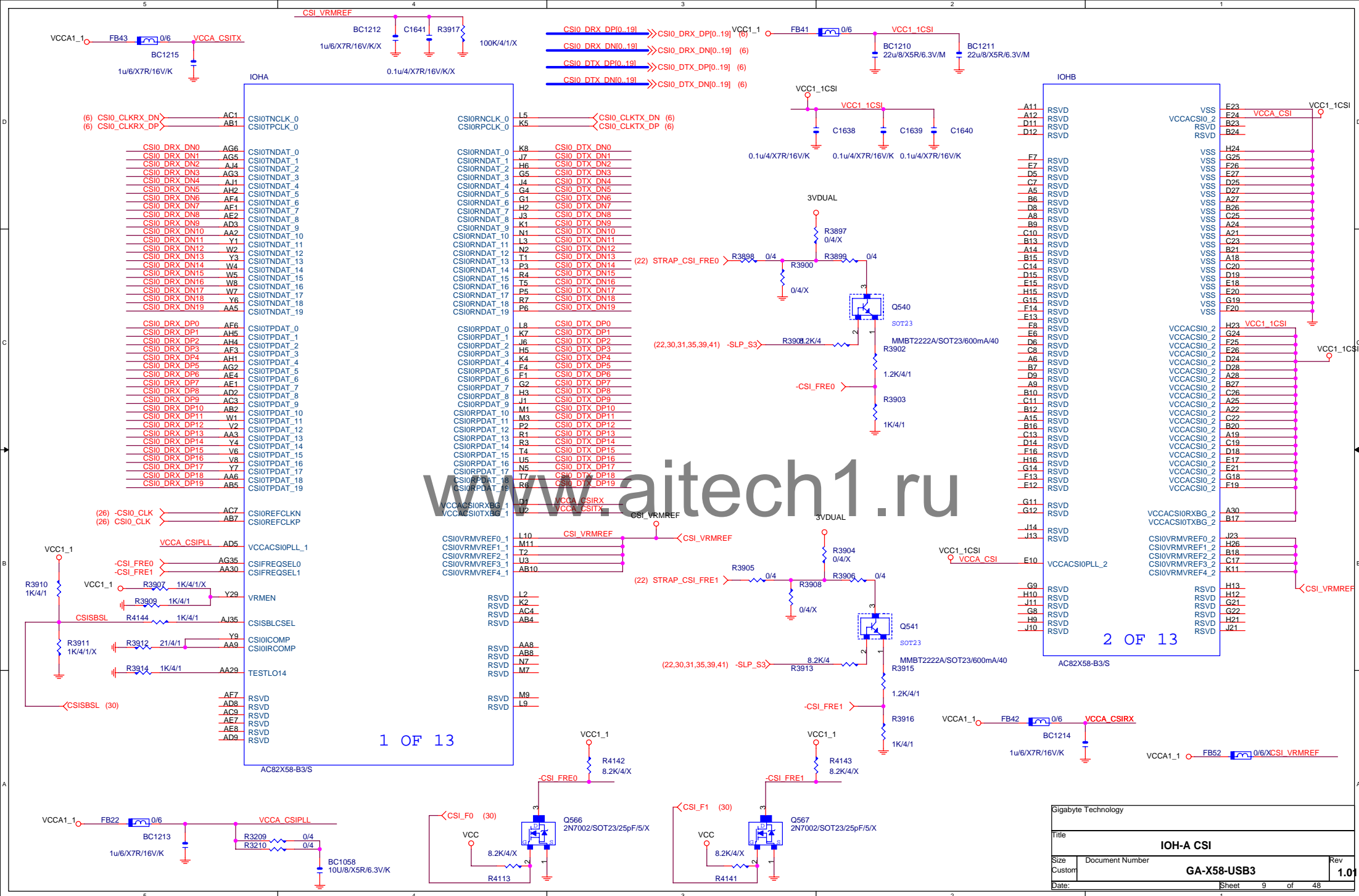
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AM32	VSS	AA38	VSS
AM17	VSS	AA34	VSS
AM26	VSS	AA9	VSS
AM23	VSS	AA3	VSS
AM22	VSS	Y41	VSS
AM20	VSS	Y36	VSS
AM17	VSS	Y33	VSS
AM14	VSS	Y11	VSS
AM11	VSS	Y6	VSS
AM9	VSS	Y1	VSS
AM5	VSS	W43	VSS
AL42	VSS	W38	VSS
AL37	VSS	W8	VSS
AL36	VSS	W3	VSS
AL35	VSS	V40	VSS
AL32	VSS	V35	VSS
AL29	VSS	V10	VSS
AL26	VSS	V5	VSS
AL23	VSS	U45	VSS
AL22	VSS	U42	VSS
AL20	VSS	U37	VSS
AL17	VSS	U7	VSS
AL14	VSS	U2	VSS
AL11	VSS	T39	VSS
AL7	VSS	T34	VSS
AL2	VSS	T9	VSS
AL1	VSS	T4	VSS
AK43	VSS	R41	VSS
AK39	VSS	R36	VSS
AK34	VSS	R6	VSS
AK32	VSS	R1	VSS
AK29	VSS	P43	VSS
AK26	VSS	P38	VSS
AK23	VSS	P33	VSS
AK22	VSS	P11	VSS
AK20	VSS	P8	VSS
AK17	VSS	P3	VSS
AK14	VSS	N40	VSS
AK10	VSS	N35	VSS
AK9	VSS	N10	VSS
AK3	VSS	N5	VSS
AJ41	VSS	M42	VSS
AJ36	VSS	M37	VSS
AJ34	VSS	M32	VSS
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AJ5	VSS	M28	VSS
AH39	VSS	M26	VSS
AH37	VSS	M24	VSS
AH34	VSS	M22	VSS
AH7	VSS	M20	VSS
AH1	VSS	M18	VSS
AG43	VSS	M16	VSS
AG33	VSS	M14	VSS
AG11	VSS	M12	VSS
AG9	VSS	M7	VSS
AG3	VSS	M2	VSS
AF41	VSS	L39	VSS
AF38	VSS	L34	VSS
AF35	VSS	L29	VSS
AF5	VSS	L9	VSS
AE39	VSS	L4	VSS
AE7	VSS	K41	VSS
AE2	VSS	K36	VSS
AD43	VSS	K31	VSS
AD41	VSS	K11	VSS
AD37	VSS	K6	VSS
AD33	VSS	K1	VSS
AD11	VSS	J43	VSS
AC36	VSS	J38	VSS
AC26	VSS	J33	VSS
AC7	VSS	J13	VSS
AC5	VSS	J8	VSS
AC2	VSS	J3	VSS
AN17	VSS	H40	VSS
AN14	VSS		
AN11	VSS		

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LGA1366-D GND		
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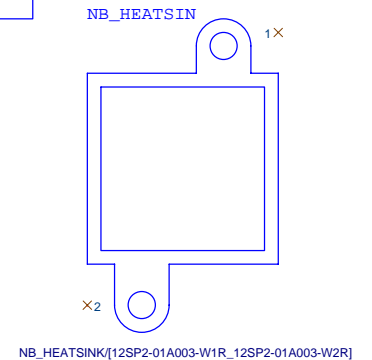
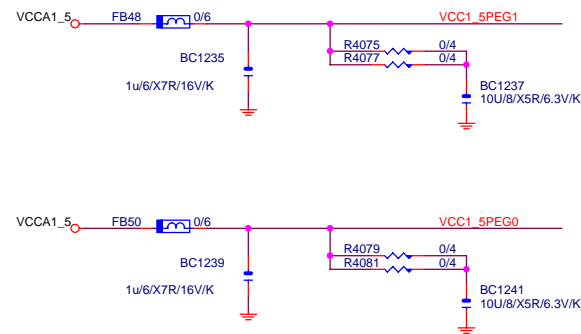
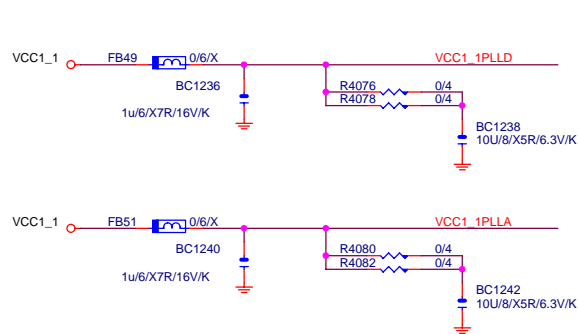
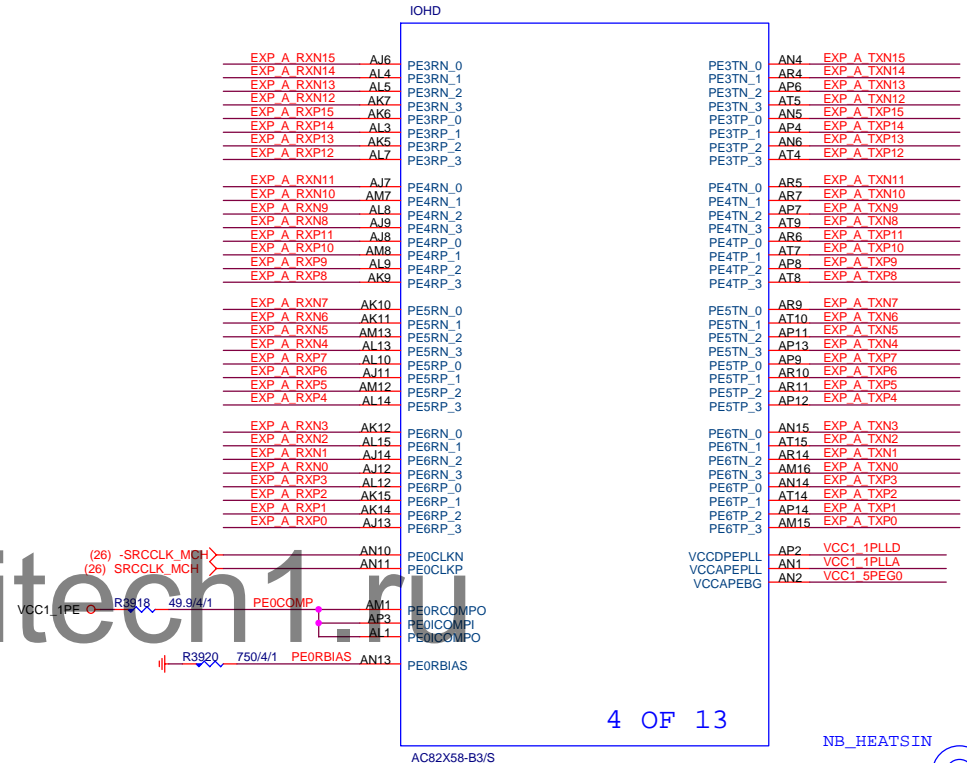
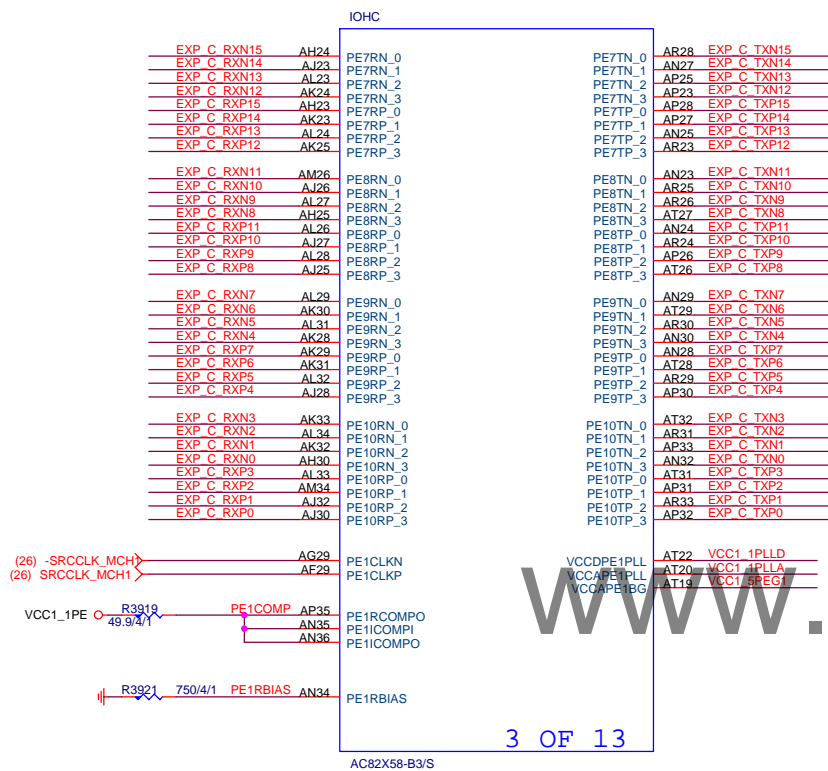


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EXP A TXN[0..7] >>> EXP_A_TXN[0..7] (19)
EXP A RXP[0..7] >>> EXP_A_RXP[0..7] (19)
EXP A RXN[0..7] >>> EXP_A_RXN[0..7] (19)

EXP A TXP[8..15] >>> EXP_A_TXP[8..15] (19)
EXP A TXN[8..15] >>> EXP_A_TXN[8..15] (19)
EXP A RXP[8..15] >>> EXP_A_RXP[8..15] (19)
EXP A RXN[8..15] >>> EXP_A_RXN[8..15] (19)

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EXP C RXP[0..7] >>> EXP_C_RXP[0..7] (20)
EXP C RXN[0..7] >>> EXP_C_RXN[0..7] (20)

EXP C TXP[8..15] >>> EXP_C_TXP[8..15] (20)
EXP C TXN[8..15] >>> EXP_C_TXN[8..15] (20)
EXP C RXP[8..15] >>> EXP_C_RXP[8..15] (20)
EXP C RXN[8..15] >>> EXP_C_RXN[8..15] (20)



Gigabyte Technology

Title

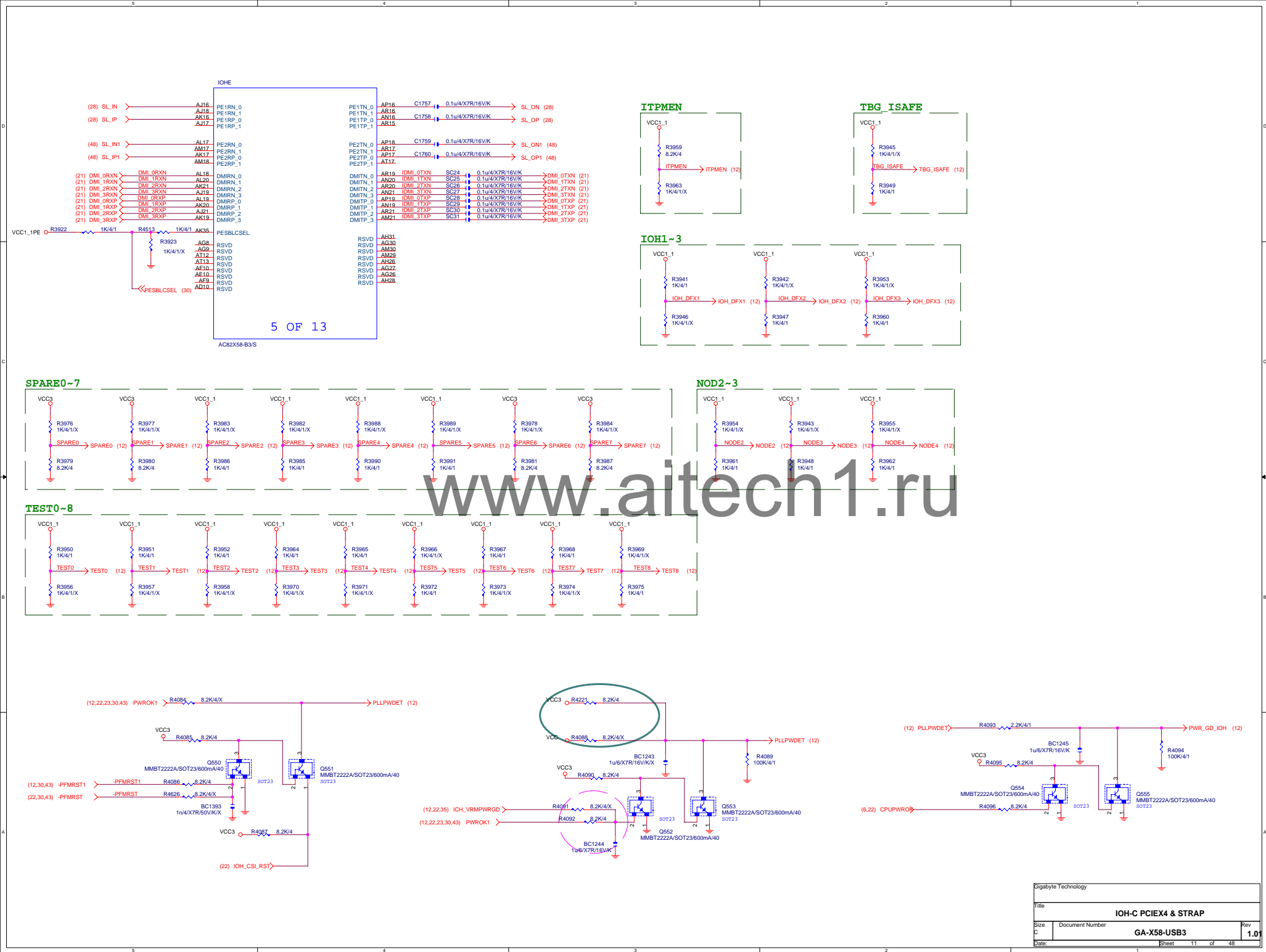
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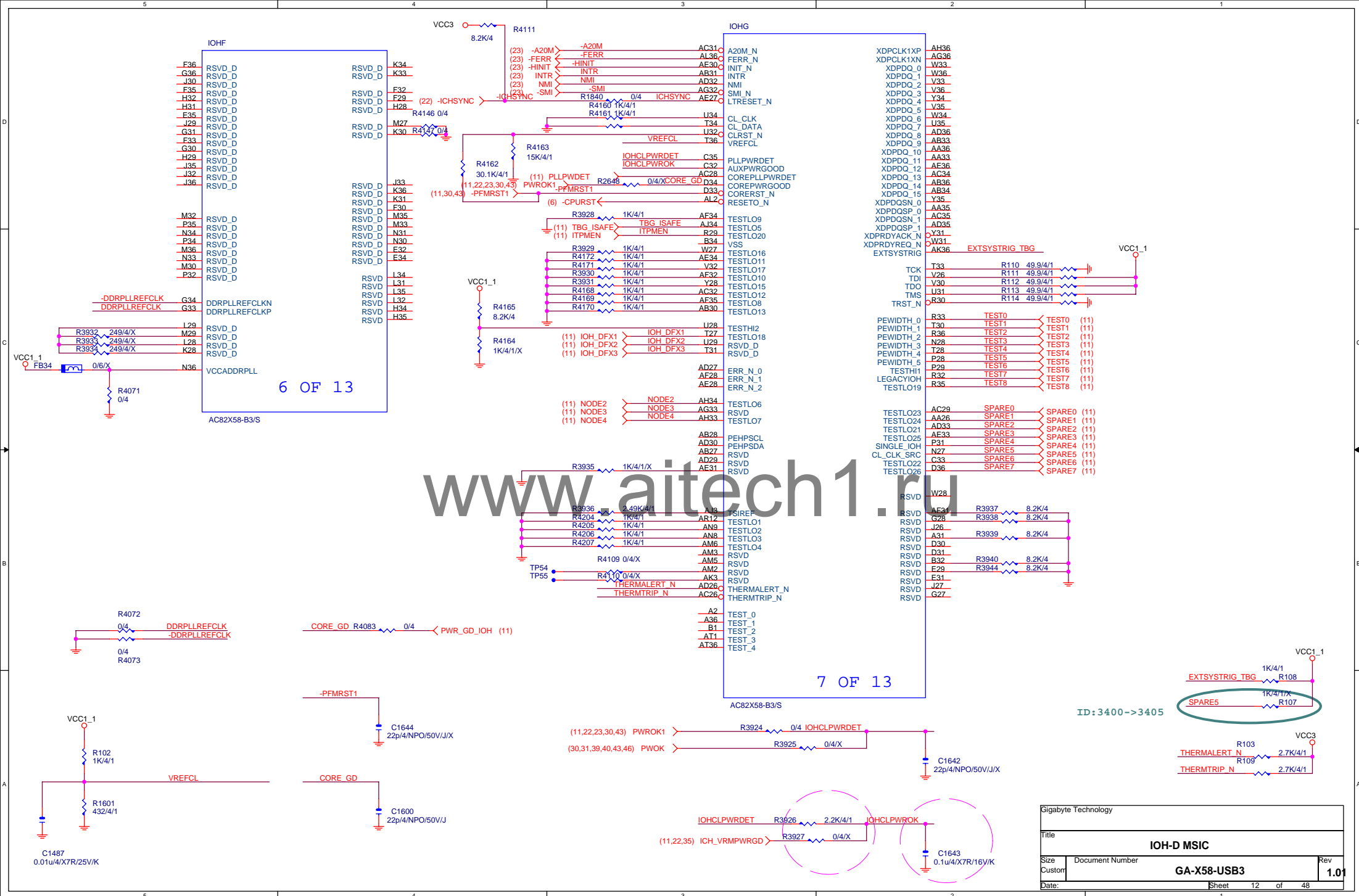
Size Document Number

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Rev 1.01





IOHJ

A16 RSVD_SP
A23 RSVD_SP
B14 RSVD_SP
C12 RSVD_SP
C18 RSVD_SP
D16 RSVD_SP
F12 RSVD_SP
G13 RSVD_SP
G17 RSVD_SP
H14 RSVD_SP

A7 VSS
A10 VSS
A29 VSS
A32 VSS
A34 VSS
A44 VSS
AA10 VSS
AA17 VSS
AA21 VSS
AA25 VSS
AA31 VSS
AB3 VSS
AB9 VSS
AB11 VSS
AB13 VSS
AB16 VSS
AB20 VSS
AB26 VSS
AB35 VSS
AC8 VSS
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AC18 VSS
AC21 VSS
AC24 VSS
AC30 VSS
AC36 VSS
AD4 VSS
AD11 VSS
AD31 VSS
AE6 VSS
AE11 VSS
AE29 VSS
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AK13 VSS
AK22 VSS
AK27 VSS
AL11 VSS
AL21 VSS
AL25 VSS
AL35 VSS

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VSS F31
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VSS G23
VSS G29
VSS G32
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VSS H4
VSS H8
VSS H22
VSS H27
VSS H33

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AC82X58-B3/S

IOHK

J15 RSVD_SP
J18 RSVD_SP

J2 VSS
J5 VSS
J8 VSS
J9 VSS
J20 VSS
J22 VSS
J25 VSS
J28 VSS
J31 VSS
J34 VSS
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K6 VSS
K9 VSS
K14 VSS
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P20 VSS
P22 VSS
P24 VSS
P27 VSS
P30 VSS
P33 VSS
P36 VSS
R10 VSS
R11 VSS
R15 VSS
R17 VSS
R19 VSS

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AC82X58-B3/S

IOHL

A13 RSVD_SP
A17 RSVD_SP
A20 RSVD_SP
C15 RSVD_SP
D13 RSVD_SP
D17 RSVD_SP
E14 RSVD_SP
F15 RSVD_SP
G16 RSVD_SP
J12 RSVD_SP
J17 RSVD_SP

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AA11 VSS
AA19 VSS
AA23 VSS
AA28 VSS
AA34 VSS
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AB12 VSS
AB14 VSS
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AB32 VSS
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AC5 VSS
AC11 VSS
AC16 VSS
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AC27 VSS
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AC82X58-B3/S

Gigabyte Technology

Title

IOH-H GND

Size

Document Number

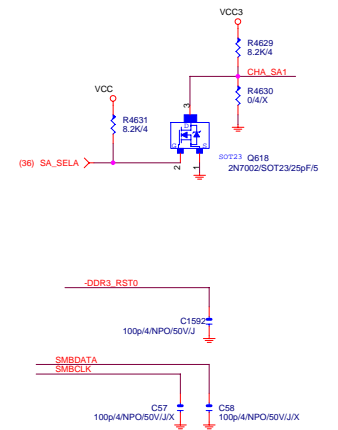
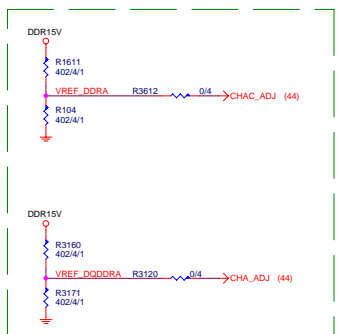
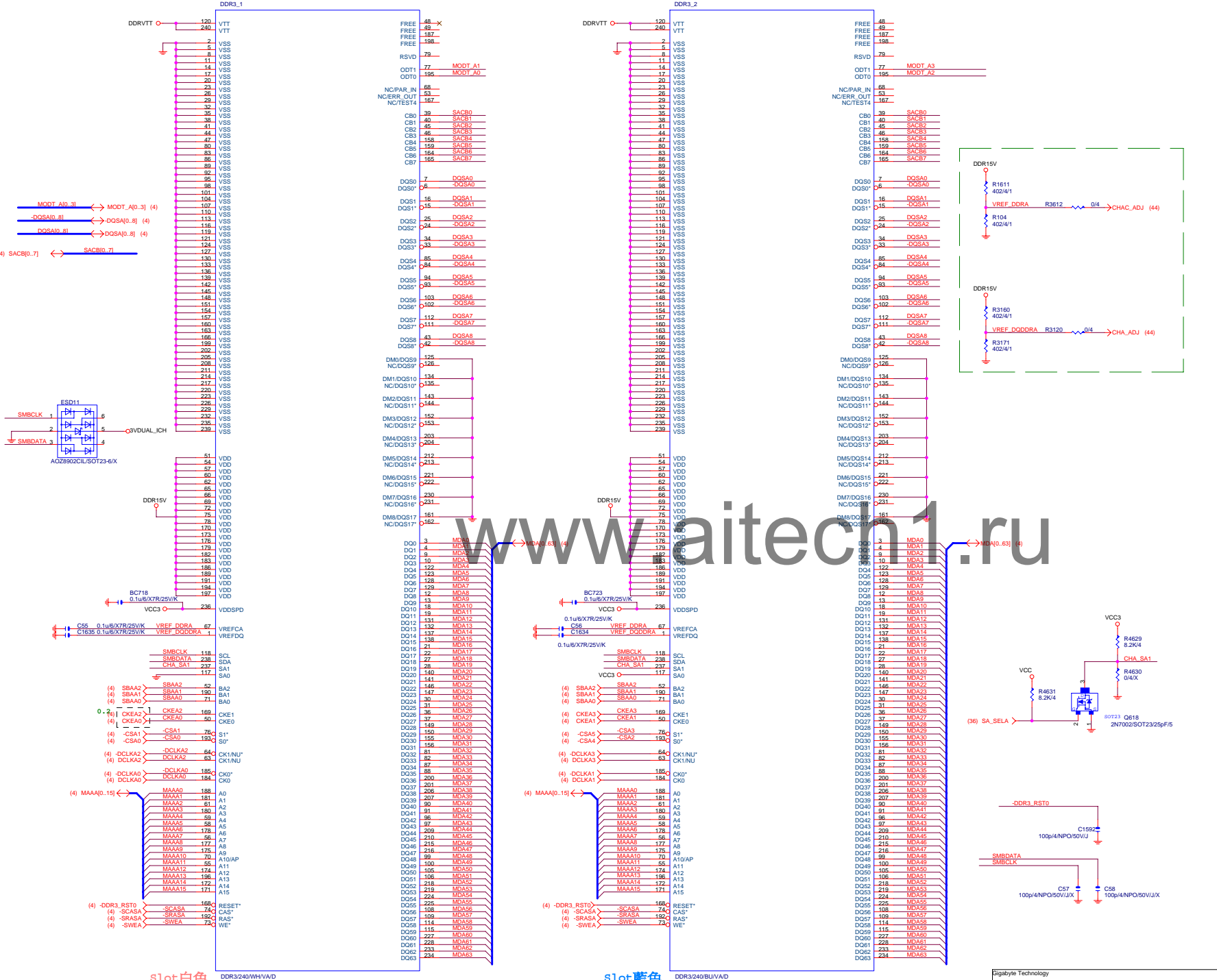
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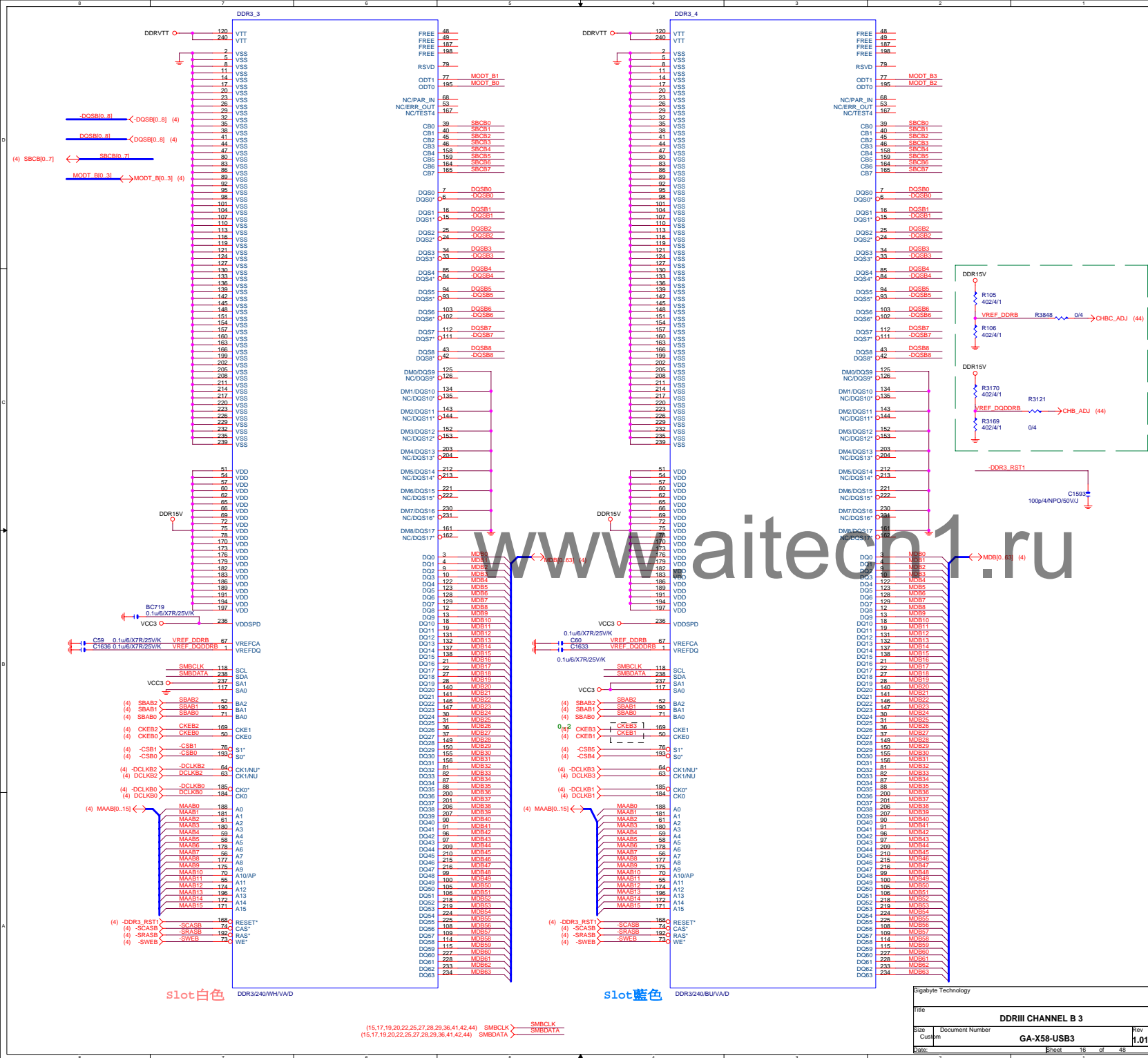
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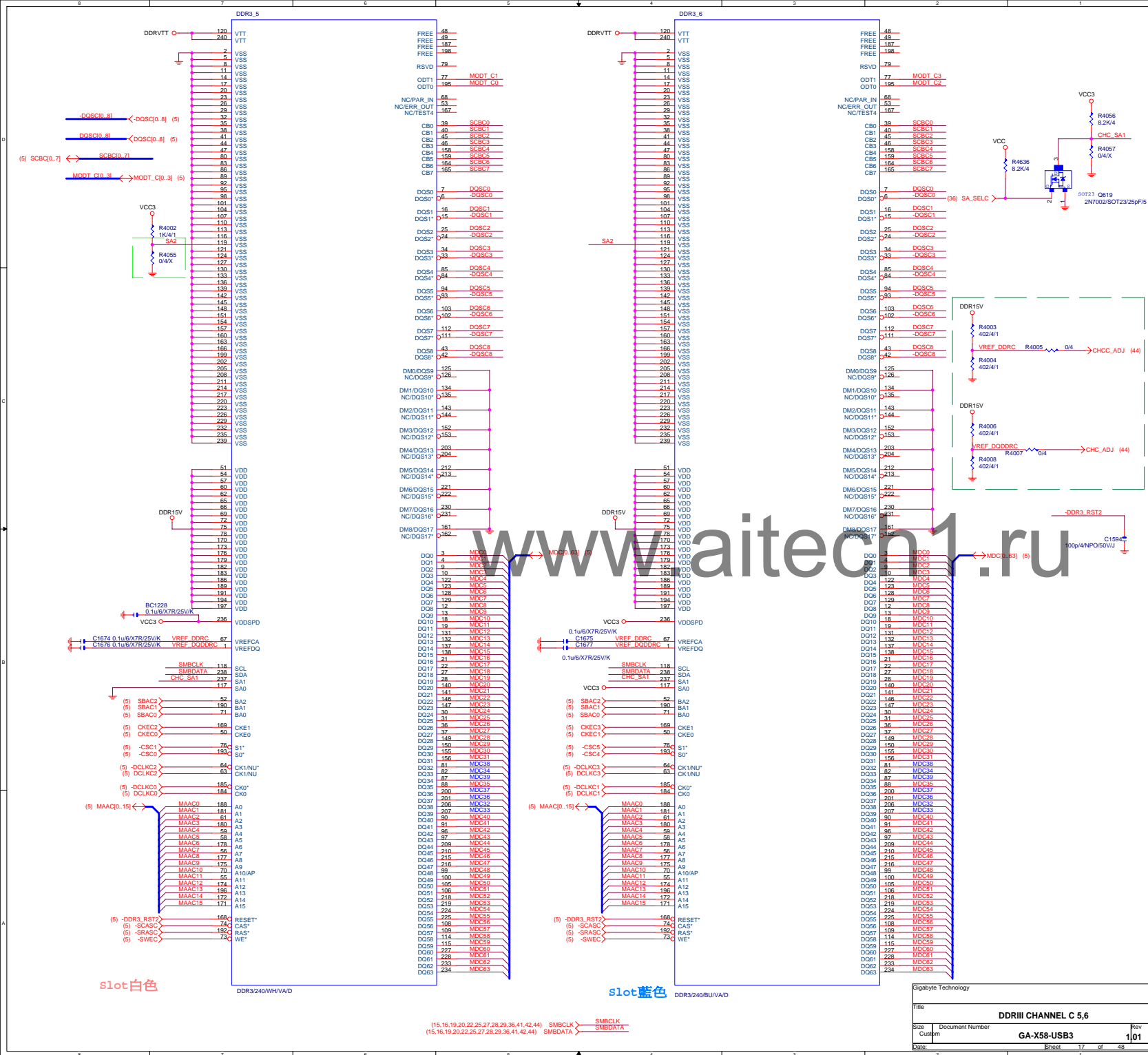
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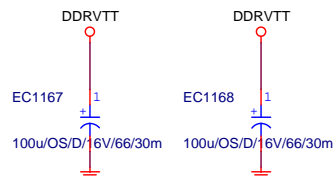
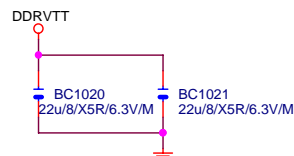
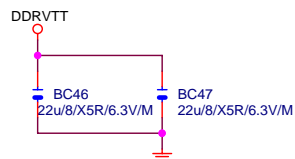
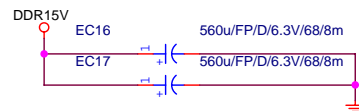
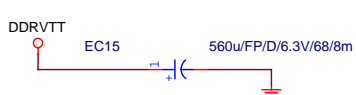
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Size		
Document Number		
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Date:		
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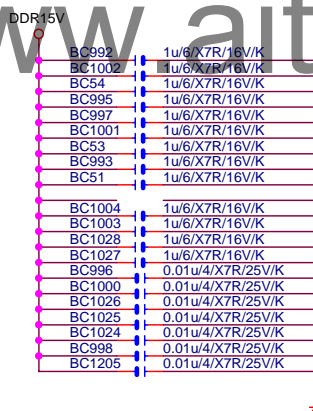
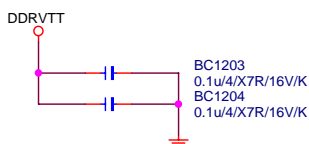
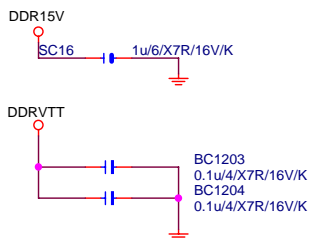
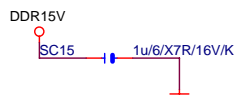
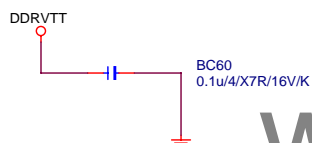
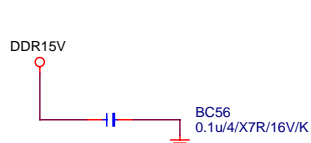
DDR TERMINATION CHANNEL A

DDRVTT Decouple



DDR18V Decouple

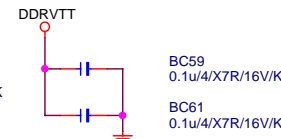
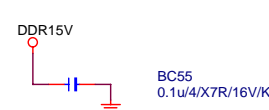
DDRVTT Decouple



DDR TERMINATION CHANNEL B

DDR18V Decouple

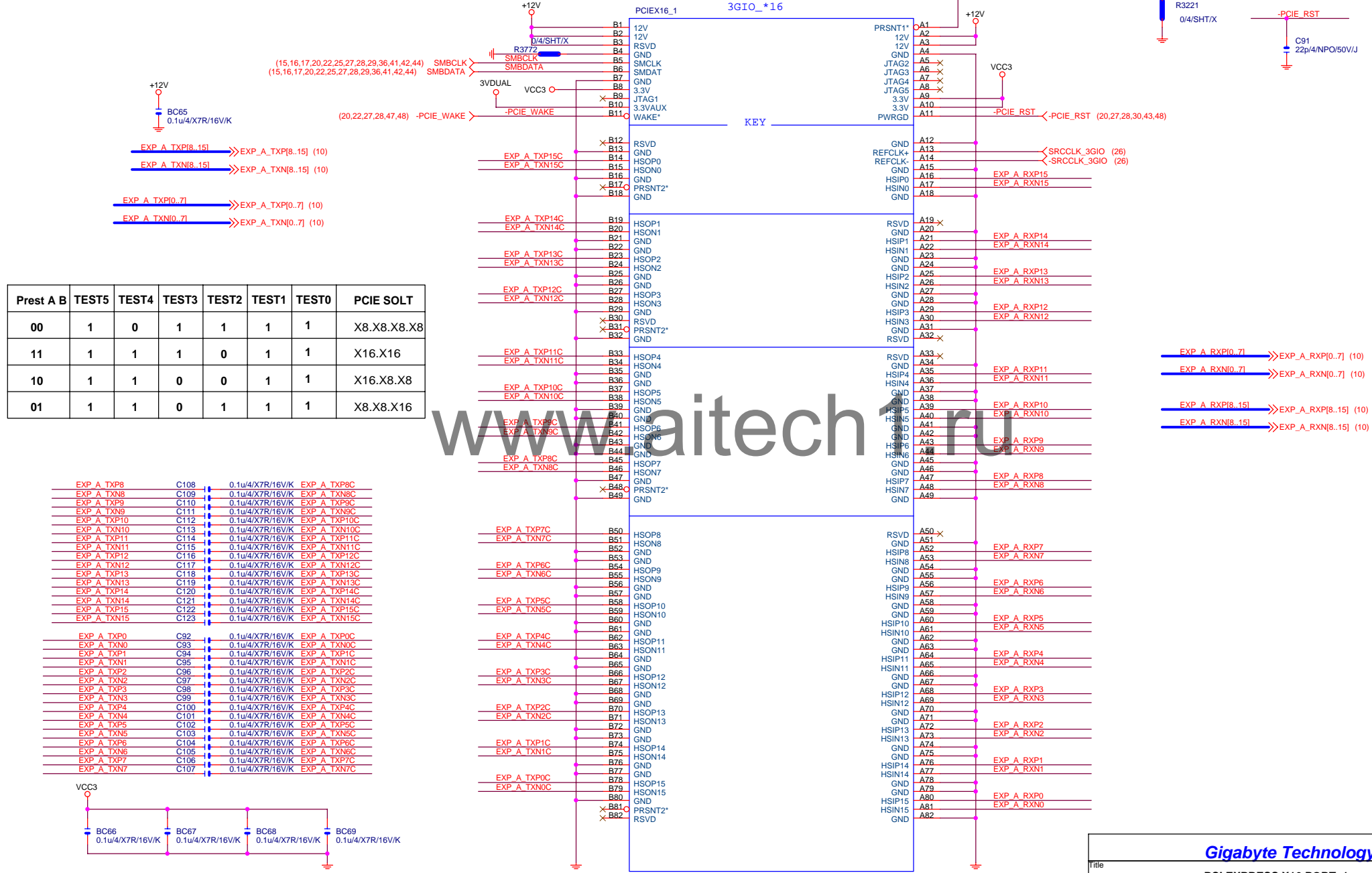
DDRVTT Decouple



Gigabyte Technology

Title			
DDRII TERMINATOR			
Size	Document Number	Rev	
Custom	GA-X58-USB3	1.01	
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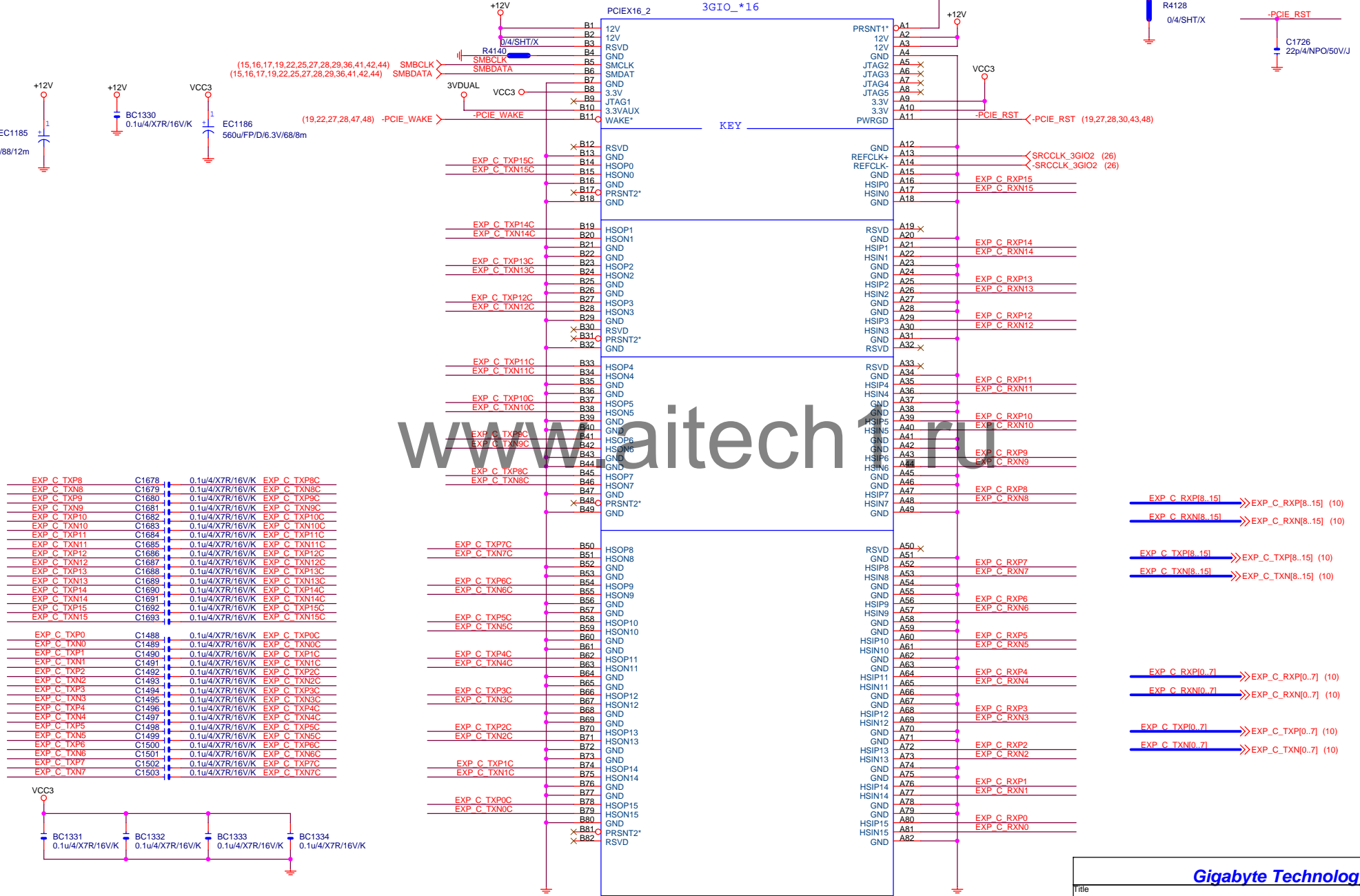
PCIESLOT-164DN-2



PCIESLOT-164DN-2

PCIE16_2 3GIO_*16

PCI-E/16X-164P/BU-297C/RIGHT PUSH



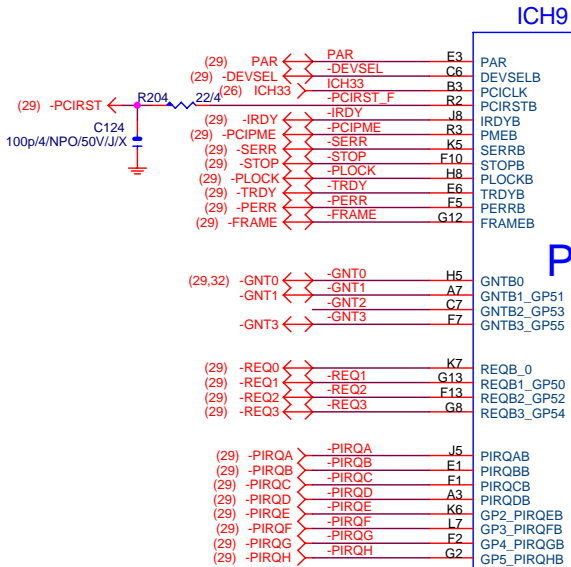
Gigabyte Technology

PCI EXPRESS X16 PORT_2

GA-X58-USB3

Rev 1.01

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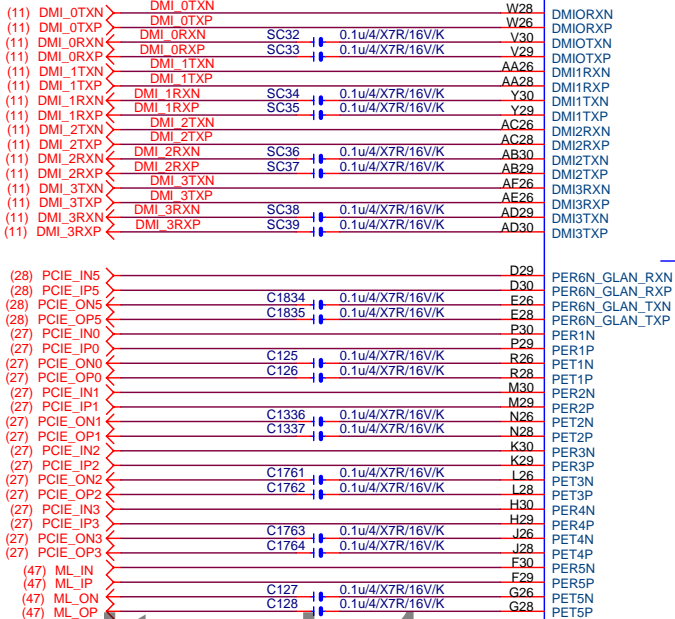
PCI

1 OF 6

ICH GPIO Table

PIN NAME	USAGE	NOTE
GP9_WOL_EN(GPIO9)	8268_P18	
GP20(GPIO20)	8268_P18	
GP0	-PECI_REQ	
GP8	STRAP_CSI_FRE1	
GP12	STRAP_CSI_FRE0	
GP27_QRT_STATE0	3VDUAL_ICH	原ISOLATEB_1
GP26_S4_STATEB	3VDUAL_ICH	原ISOLATEB_2
CLGPIO5_GP57	F_LED1_C	
GP1_TACH1	F_LED2_C	
GP22_SCLOCK	F_LED3_C	
GP28_SLOAD	F_LED4_C	
GP21_SATA0GP	F_LED5_C	
GP6_TACH2	NBT_LED2_C	
GP39_SDATAOUT0	-CPU_PSI_DIS	
GP34(GPIO34)	-SPI_WP0	
GP48_SDATAOUT1	-EN_PWM	
GP19_SATA1GP	-ACZ_DET	
GP25	-CPU_STOP	
GP36_SATA2GP	GPI036(FS)	
GP37_SATA3GP	SATA3GP	
SMBALERTB_GP11	-SMBALRT	
GP10_ALERTB	ICH_GP10(-CATERR)	原-LAN1_DSM
GP13	-LPCPME	

ICH10R[10HB1-038280-F0R]



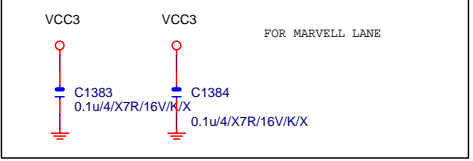
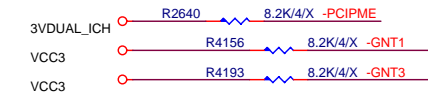
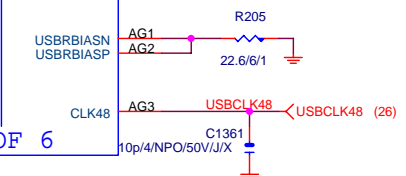
ICH9

DMI

USB

PCI-E

2 OF 6

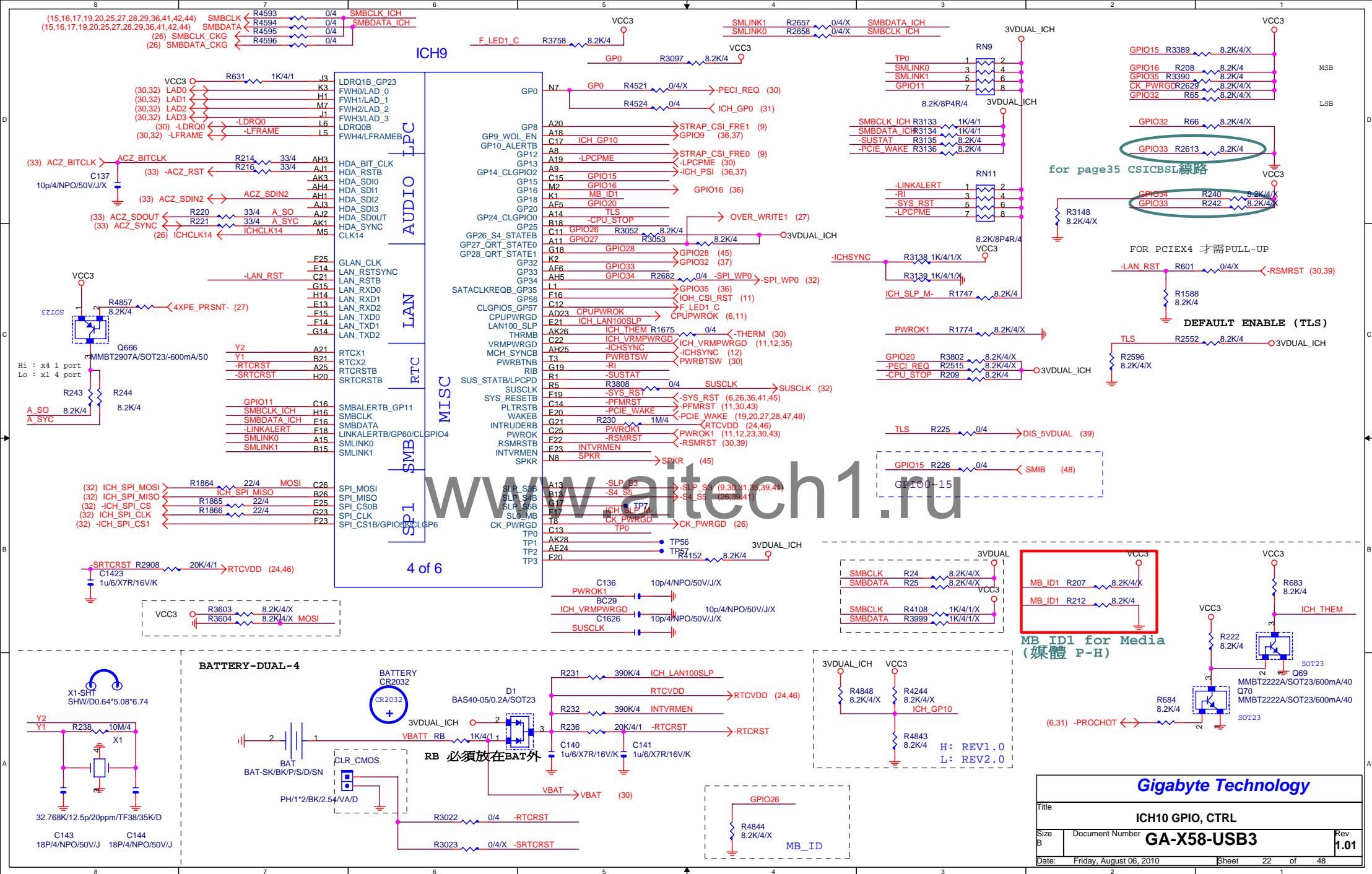


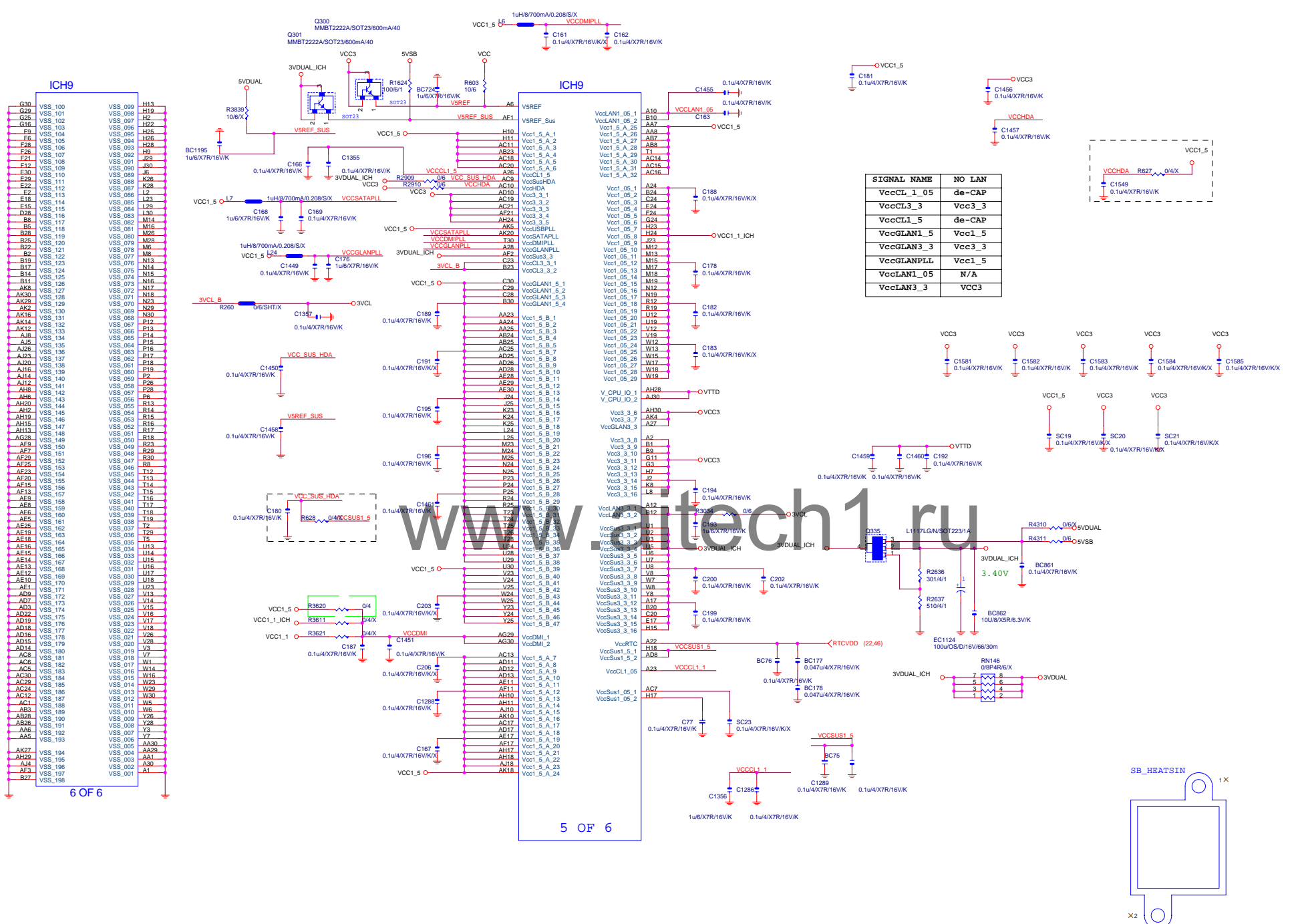
Gigabyte Technology

Title: ICH10 PCIE, DMI, PCI, USB

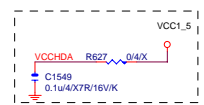
Size B: Document Number: **GA-X58-USB3** Rev 1.01

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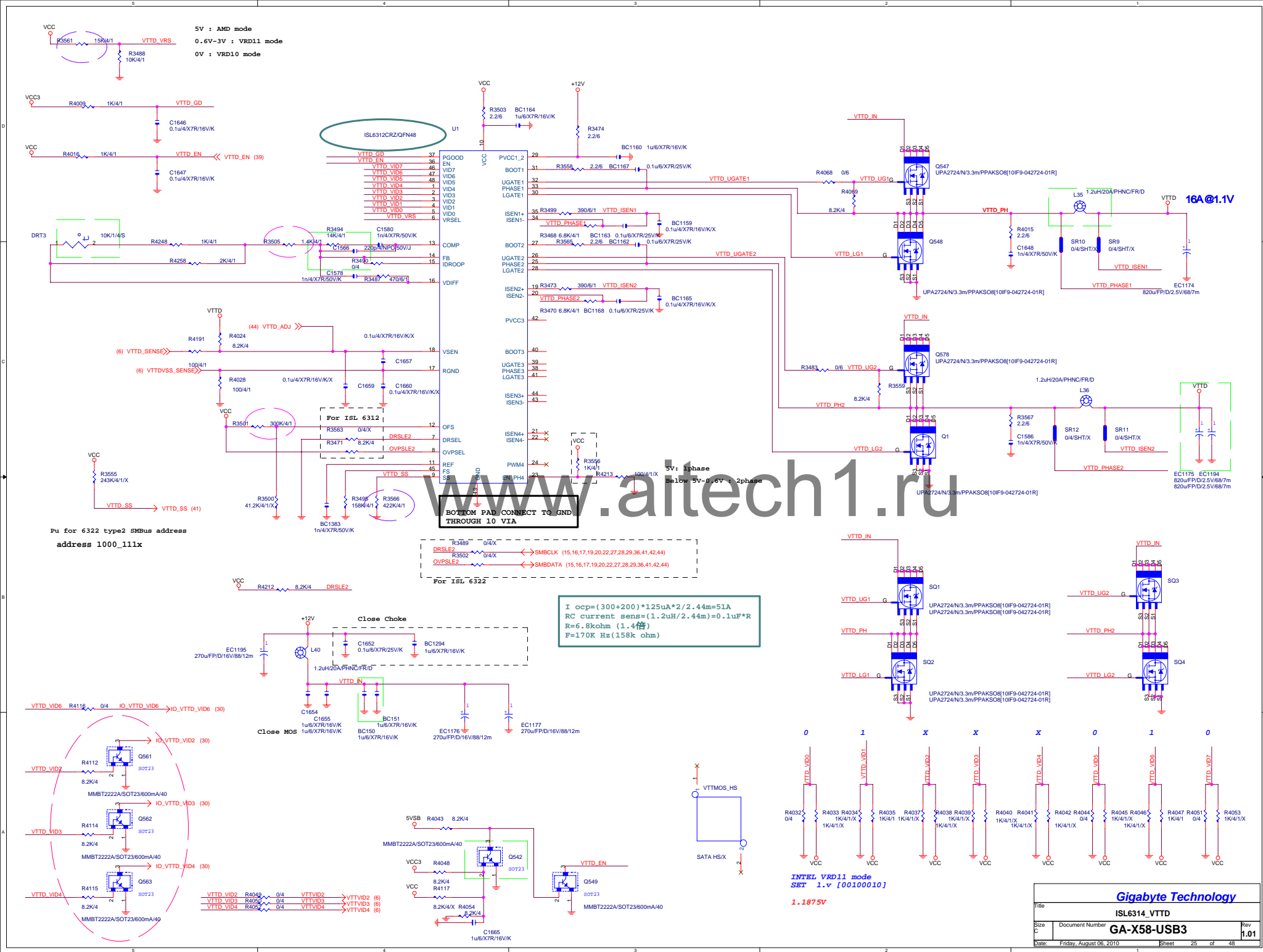


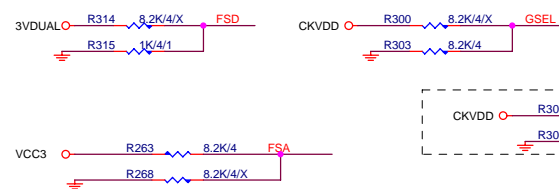
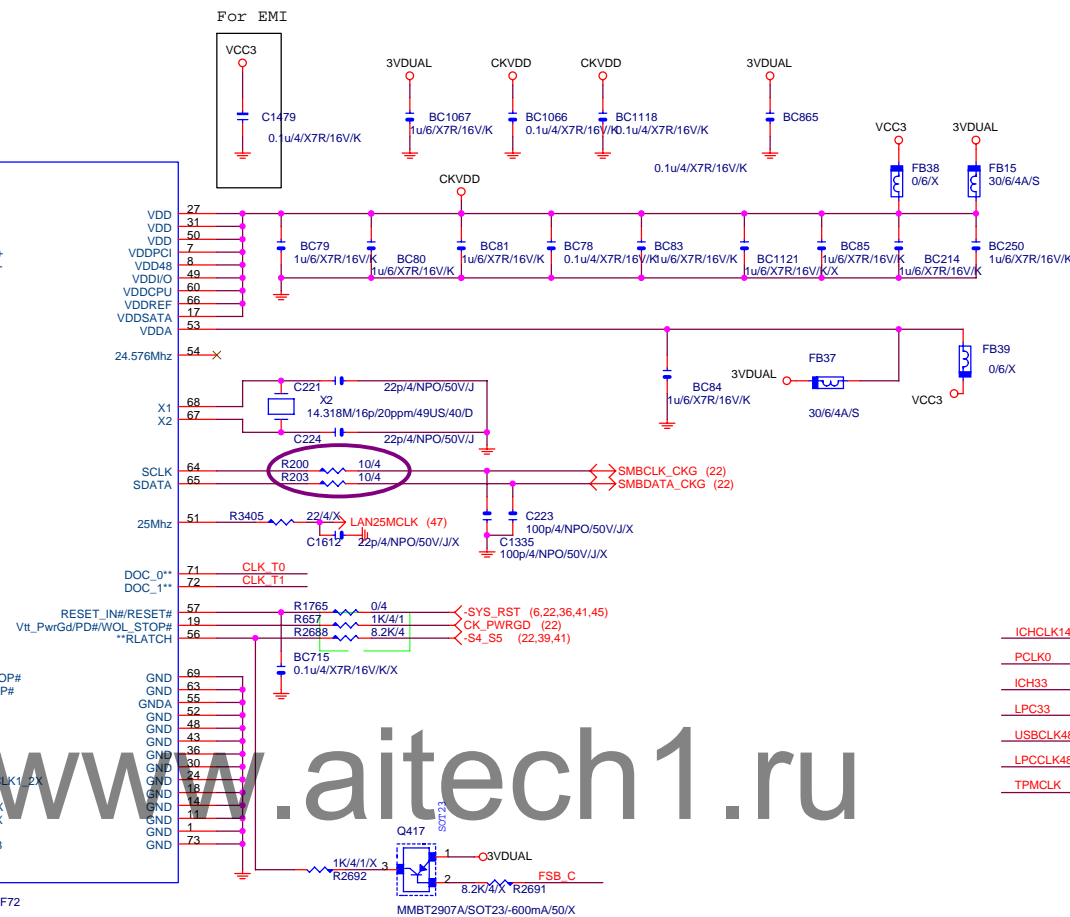
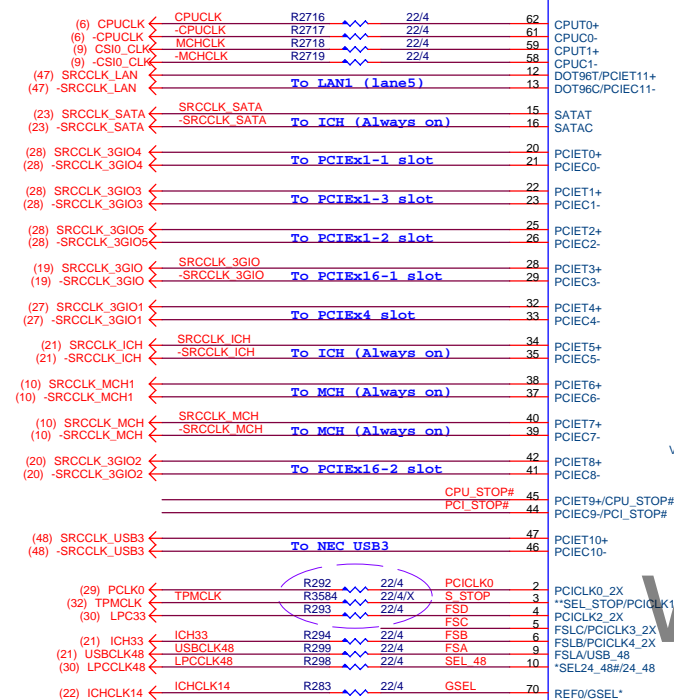


SIGNAL NAME	NO LAN
VccCL1_05	de-CAP
VccCL3_3	Vcc3_3
VccCL1_5	de-CAP
VccGLAN1_5	Vcc1_5
VccGLAN3_3	Vcc3_3
VccGLANPLL	Vcc1_5
VccLAN1_05	N/A
VccLAN3_3	VCC3



SB_HEATSIN[12SP2-030030-51R_12SP2-030030-52R_12SP2-030030-53R]





GSEL=1 , DOTCLK 96Mhz from 12/13

GSEL=0 , PCIECLK11 from 12/13



SEL_48= 1 , 24Mhz from pin10

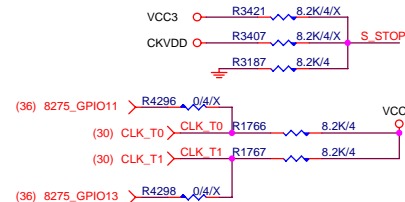
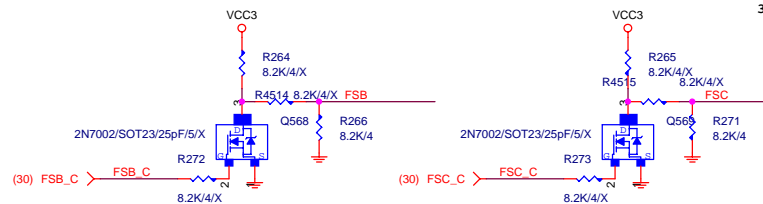
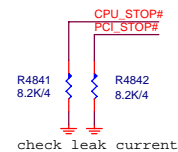
SEL_48= 0 , 48Mhz from pin10

SEL_STOP: latched input to select pin functionality

1 = Selects pin 44/45 to be PCI_STOP#/CPU_STOP#

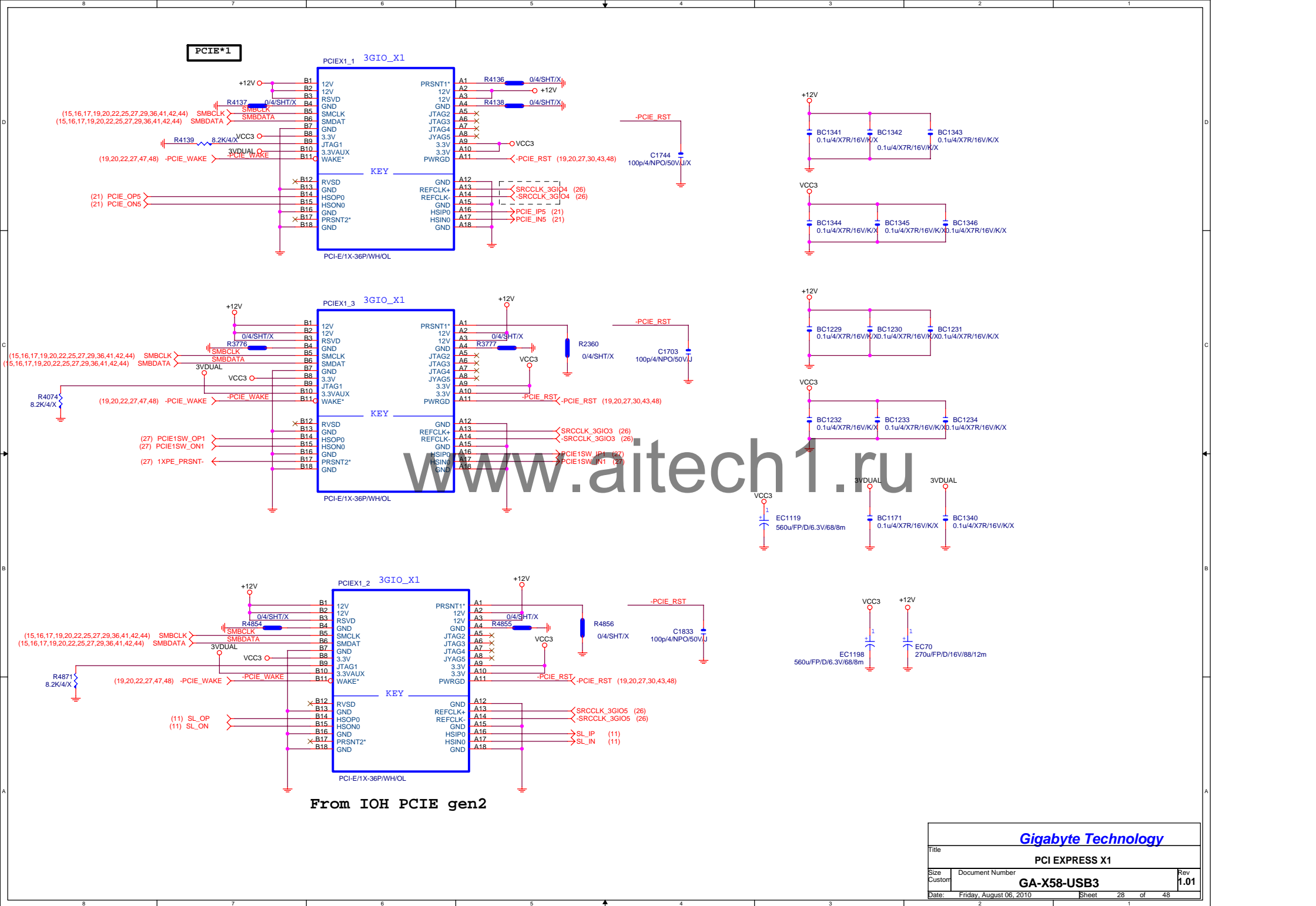
0 = Selects pin 44/45 to be PCIE outputs ;

3.3V PCICLK output



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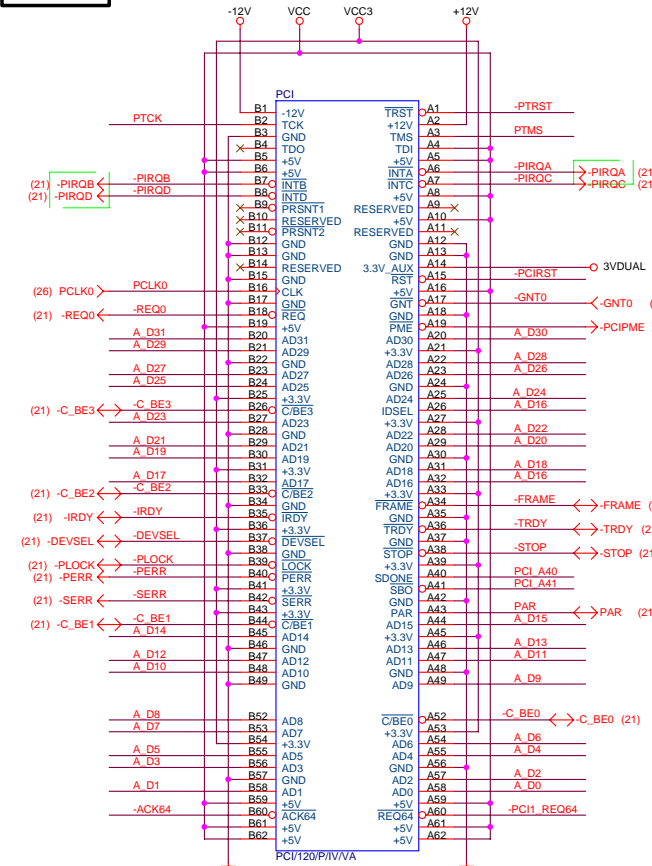
Title		
ICS9LPRS914		
Size		
Custom	Document Number	Rev
GA-X58-USB3		1.01
Date: Friday, August 06, 2010		
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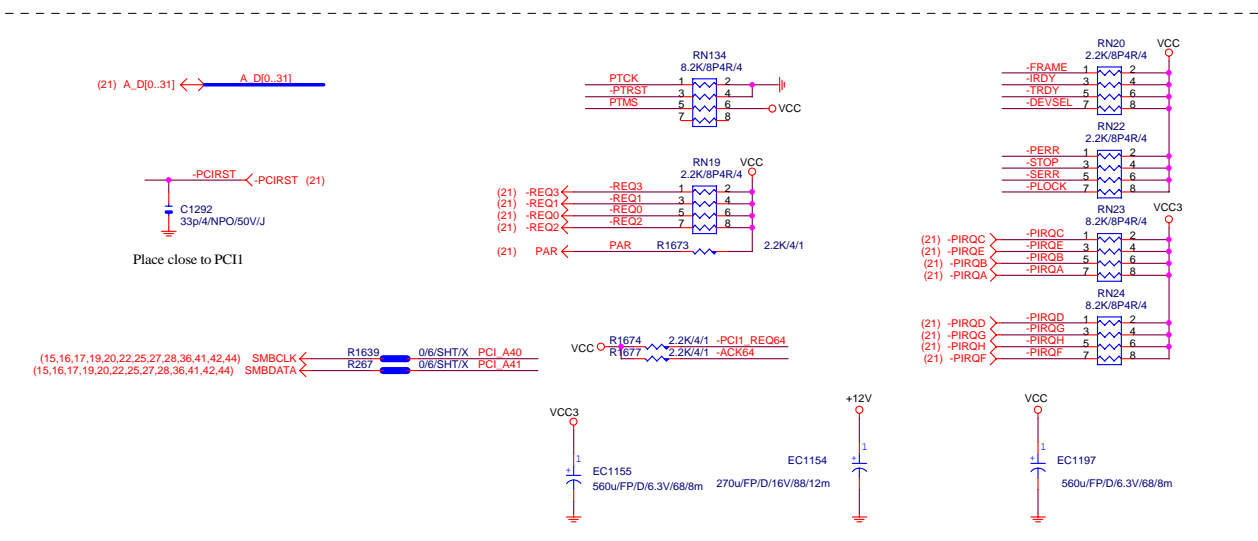
Gigabyte Technology

Title			PCI EXPRESS X1
Size	Document Number	Rev	
Custom	GA-X58-USB3	1.01	
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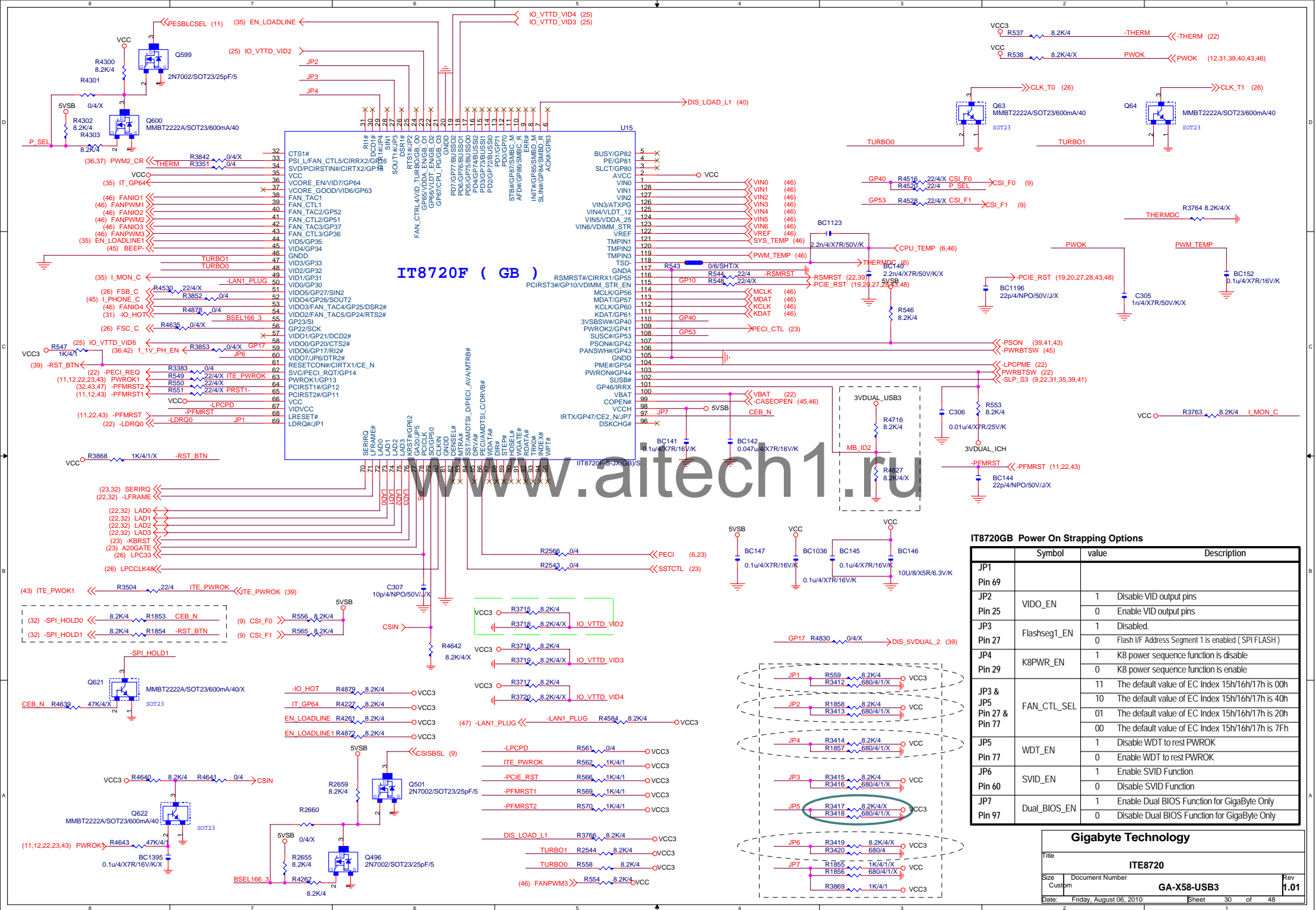
PCI SLOT

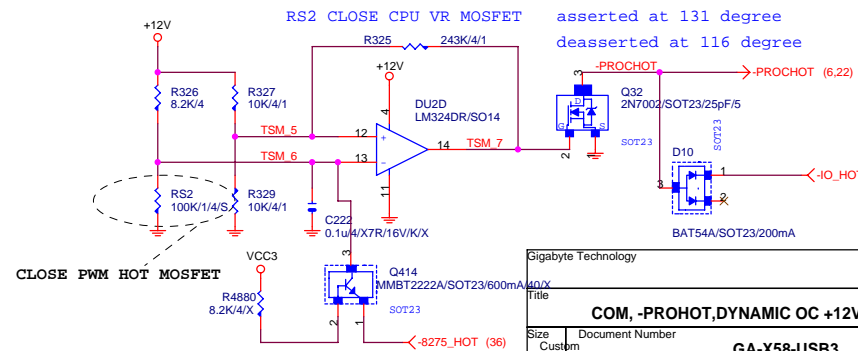
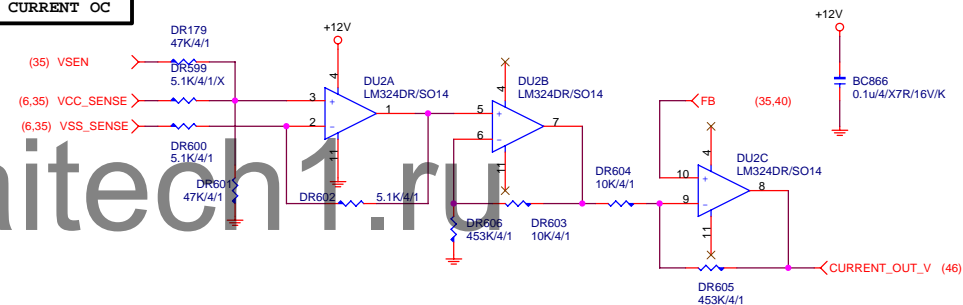
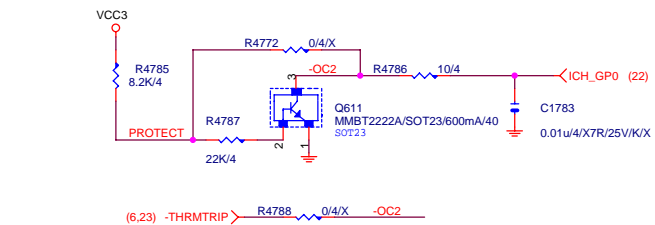


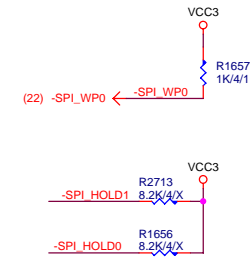
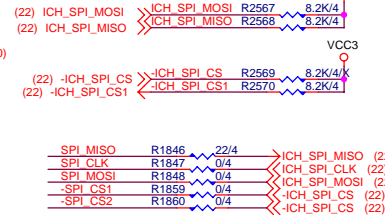
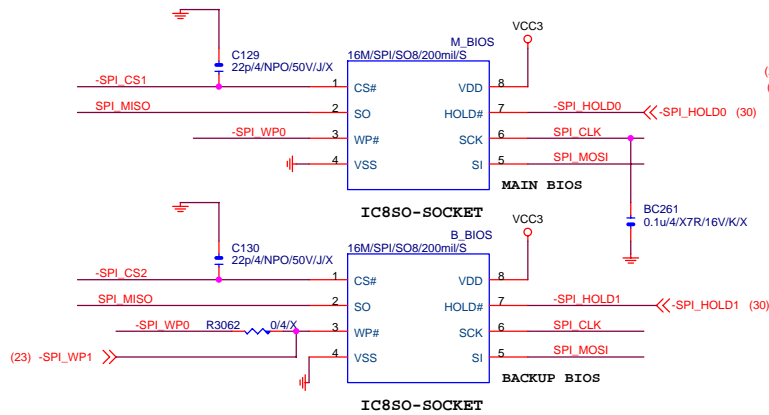
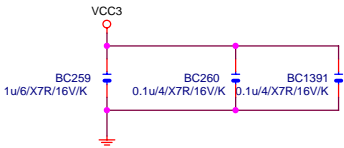
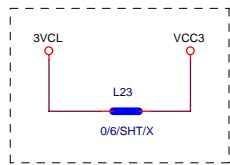
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Gigabyte Technology			
Title			
PCI SLOT 1,			
GA-X58-USB3			
Size	Document Number	Rev	
Custom		1.01	
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距離LR29 在0.5cm以內

REMOVE PCI_BT1.PCI_BT2

BOOT DEVICE	GNT0	CS1
SPI	0	X
PCI	1	0
FWH	1	1

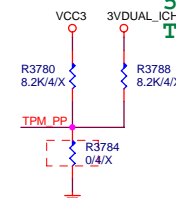
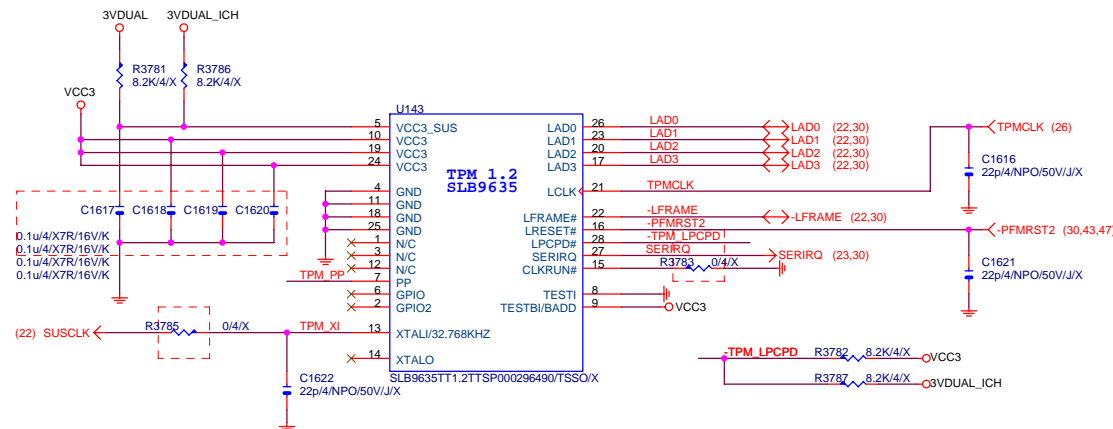


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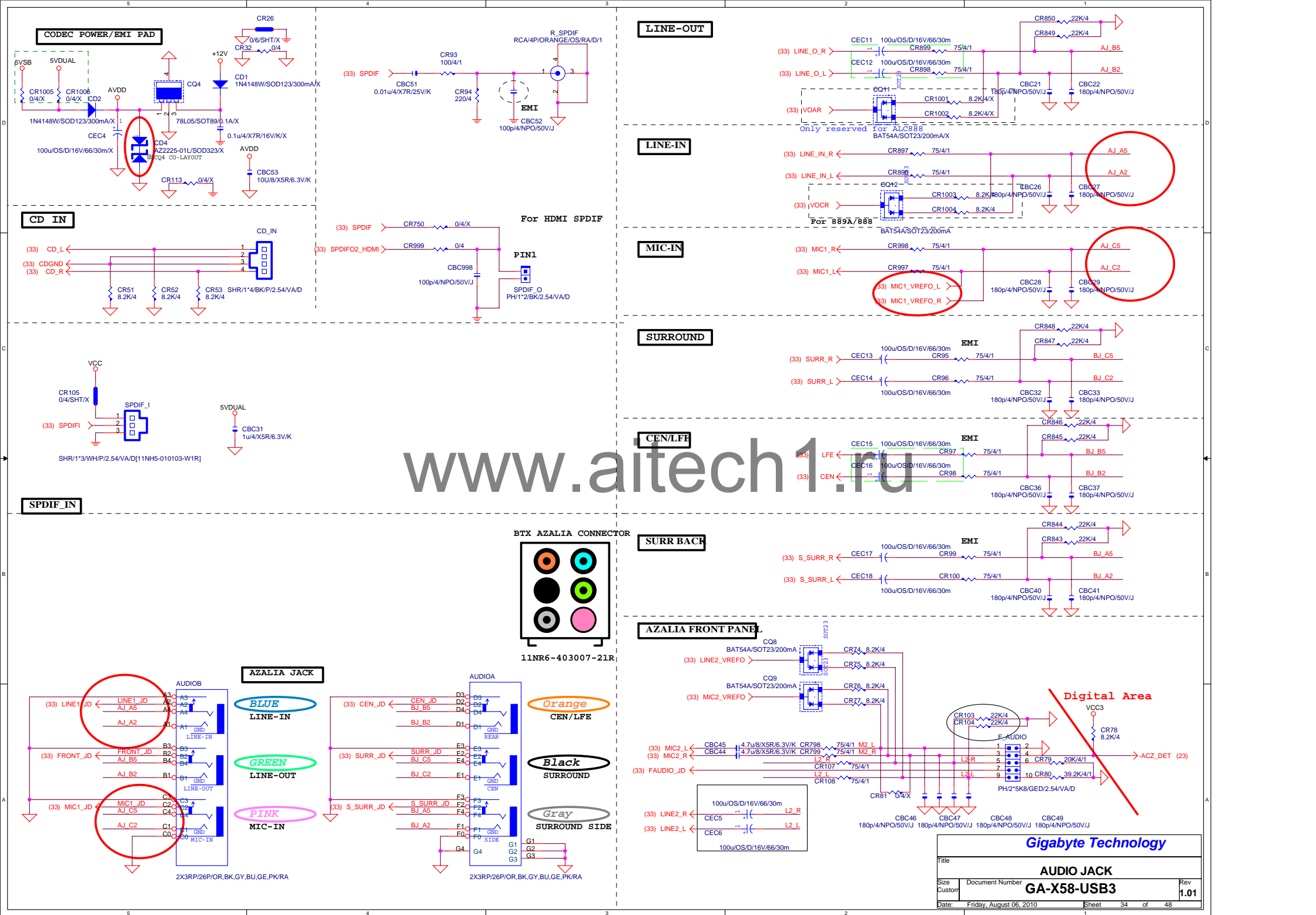
TPM

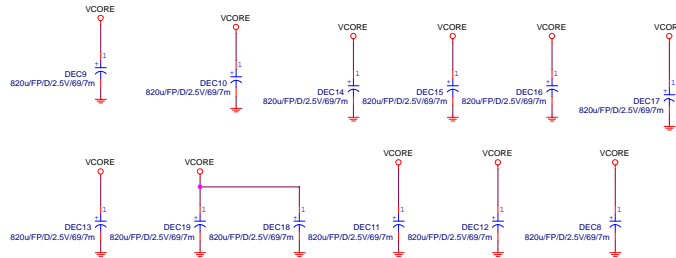
TPM Function

- 1.C1617.C16118.C1619.C1620
- 2.U143
- 3.R3782.R3783.R3784.R3785
- 4.R3584=15 ohm(TPM)不上(no TPM)
- 5.R295=15 ohm(TPM)22 ohm(no TPM)



Gigabyte Technology		
Title DUAL BIOS TPM		
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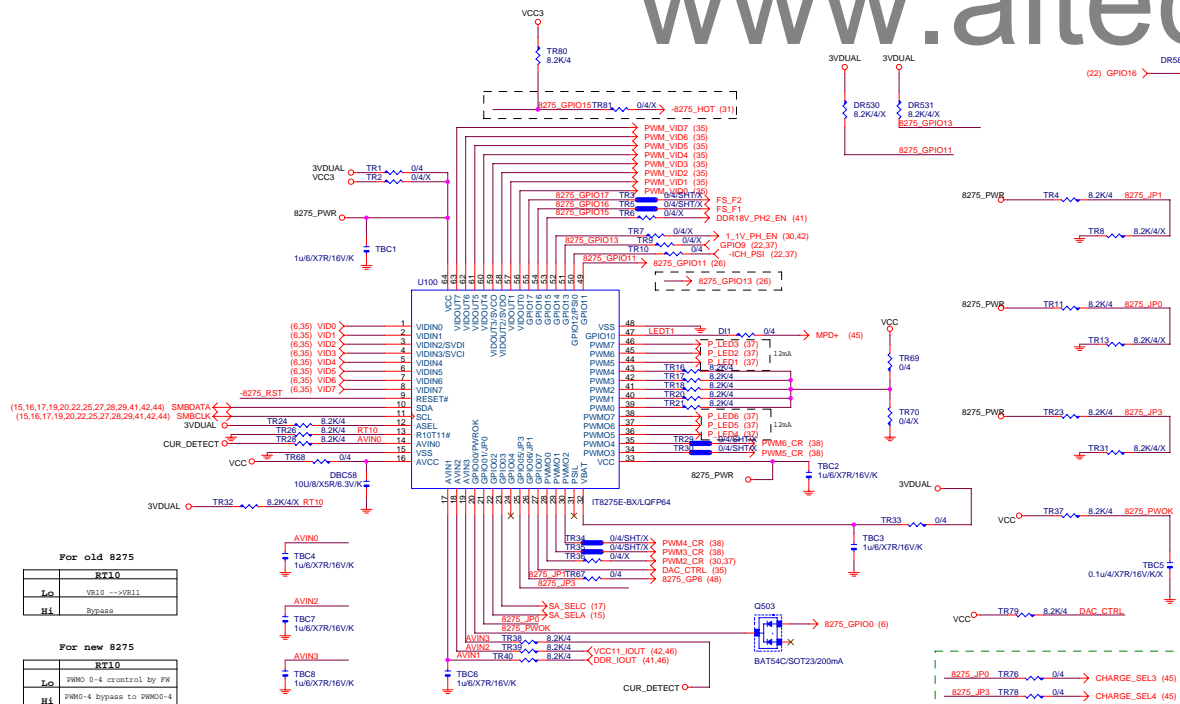
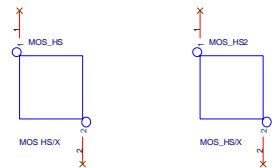




PWM FREQUENCY (200K-500KHz)

	IT8275	GP17	GP16	GP36
200K	L	X	X	X
250K	L	L	X	X
Default 300K	X	X	X	X
350K	X	L	X	X
500K	X	L	L	L

MOS HEATSINK

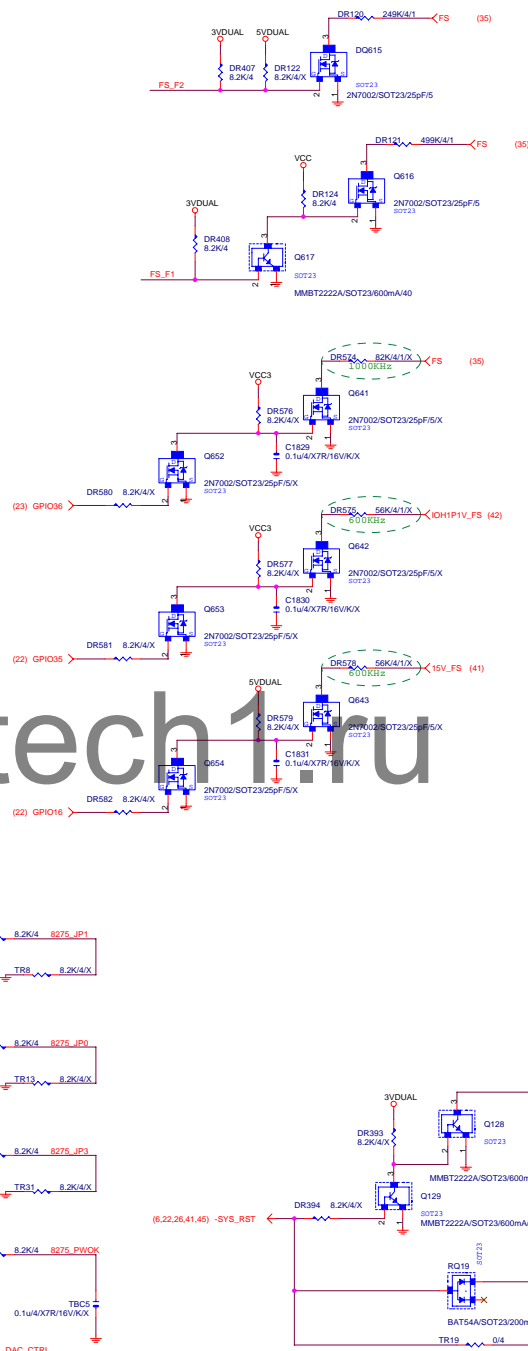


For old 8275

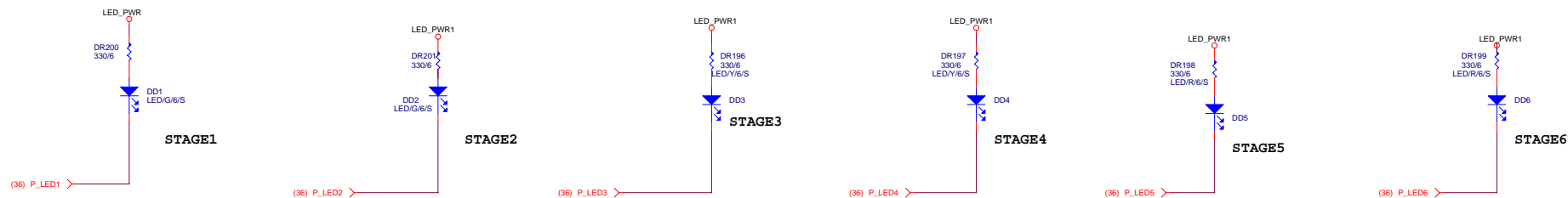
RT10
I/O
VB10 --> VB11
H1 Bypass

For new 8275

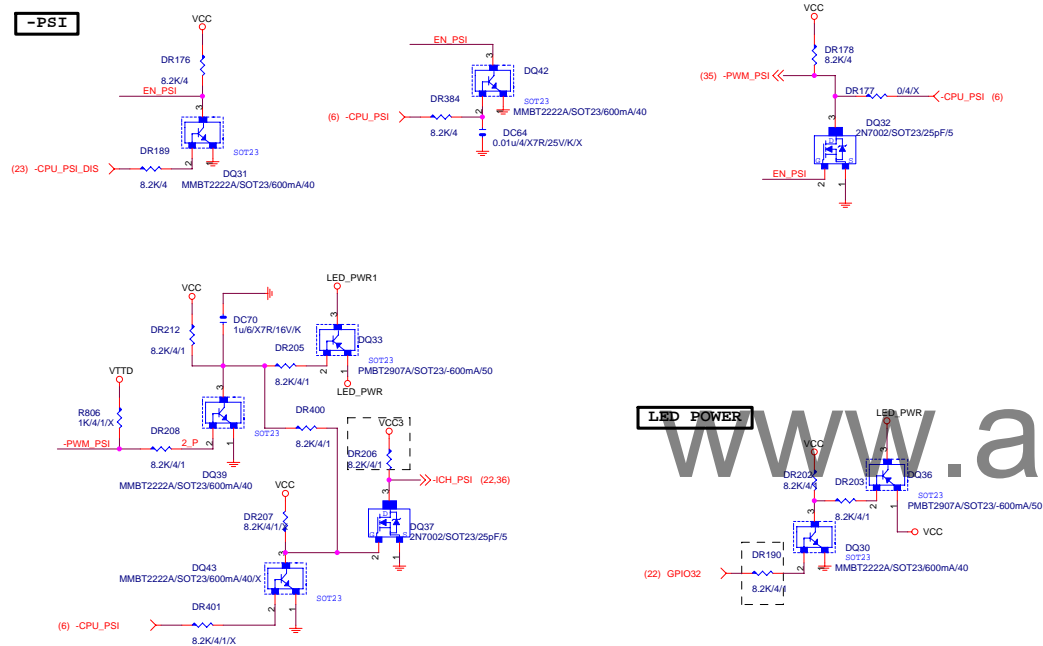
RT10
I/O
PWM 5-4 control by PW
H1 PWM 5-4 bypass to PWM 5-4



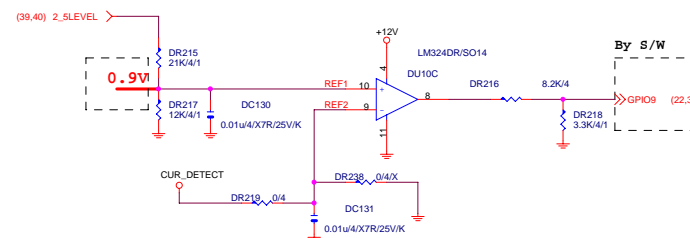
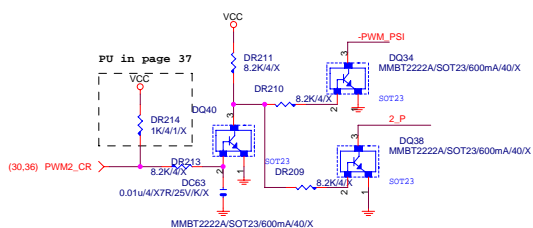
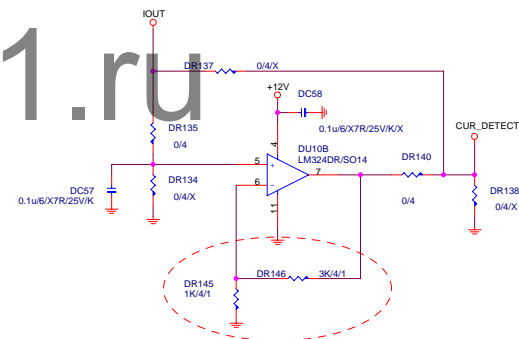
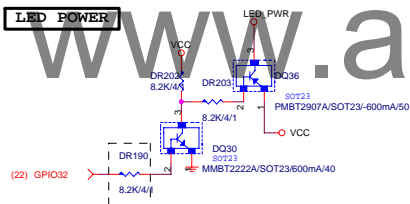
PHASE LED

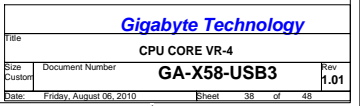


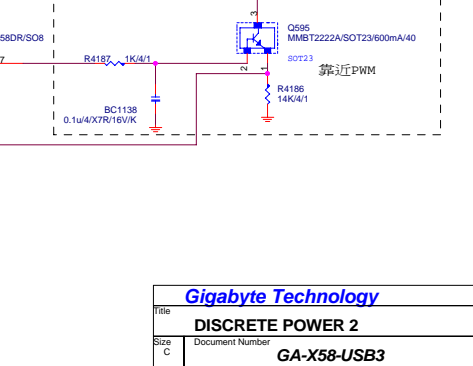
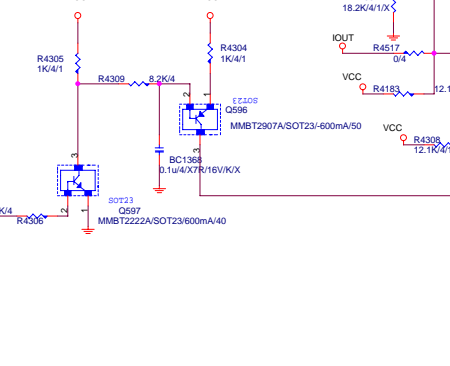
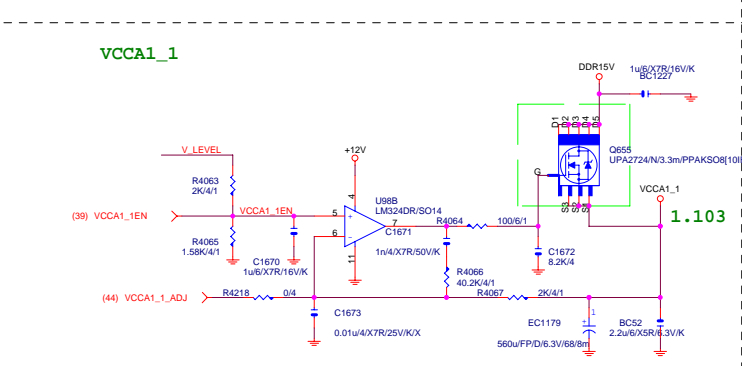
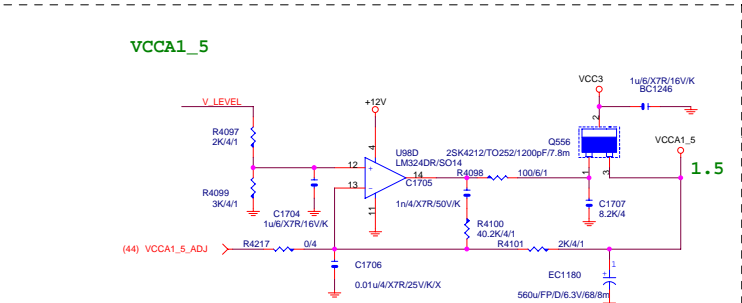
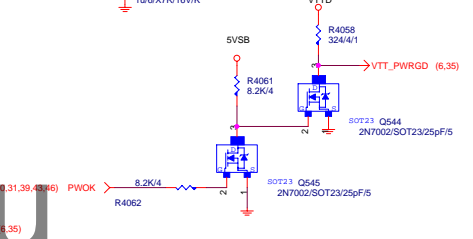
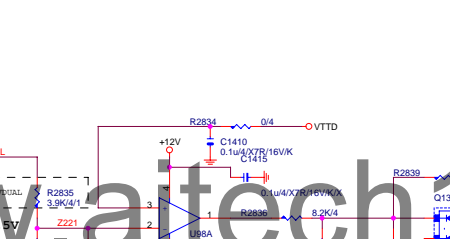
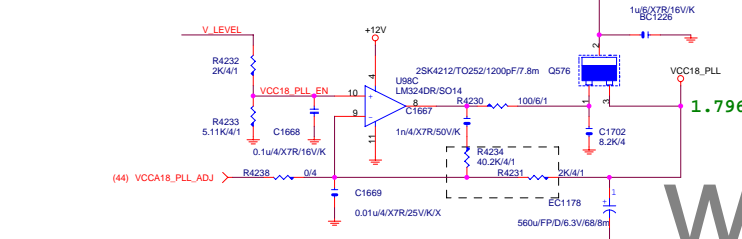
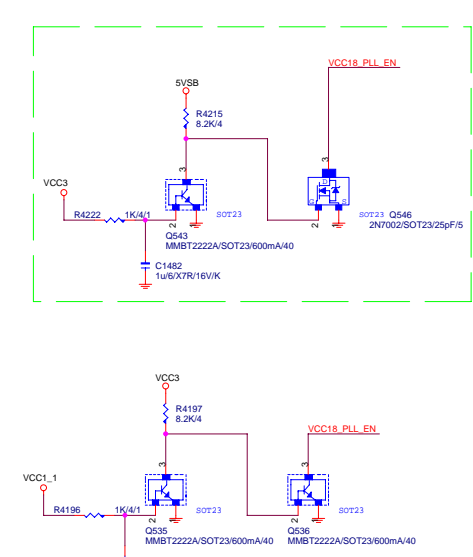
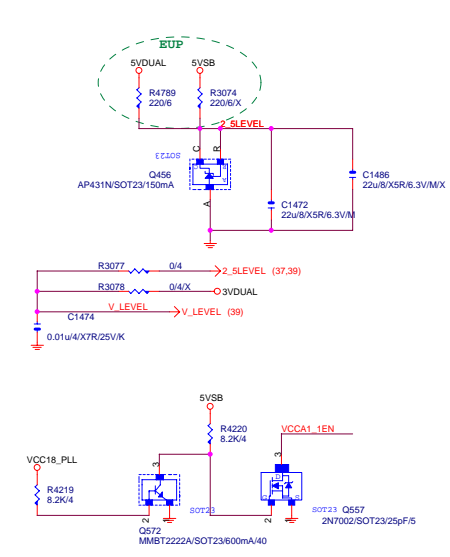
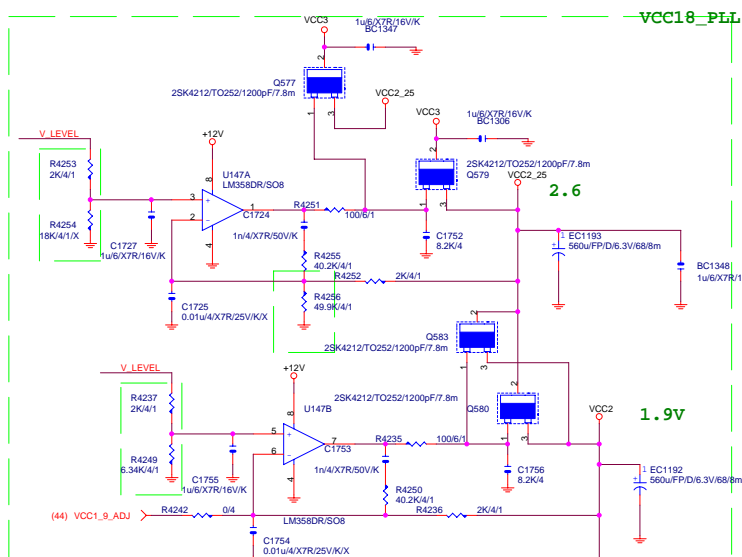
-PSI



LED POWER

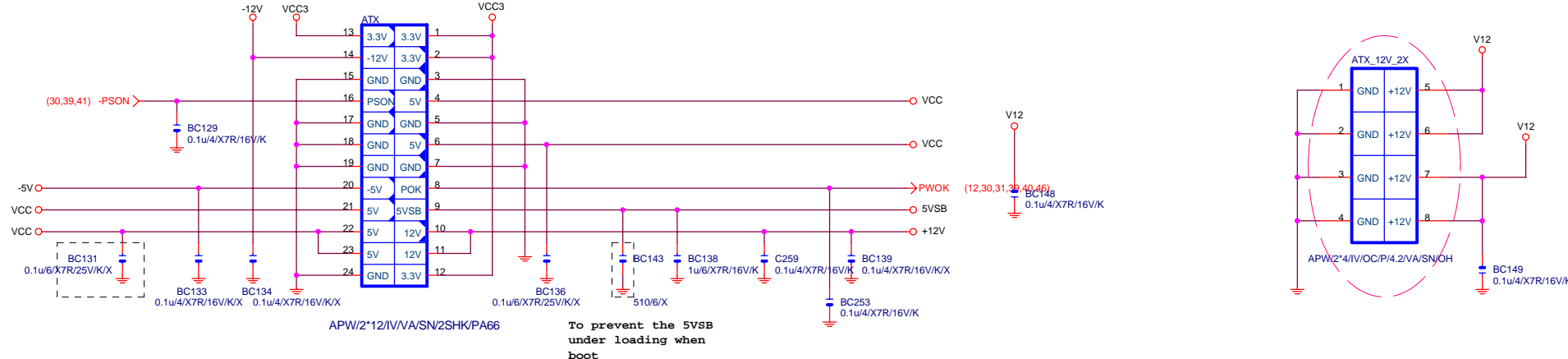




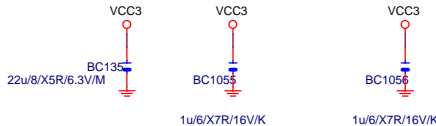


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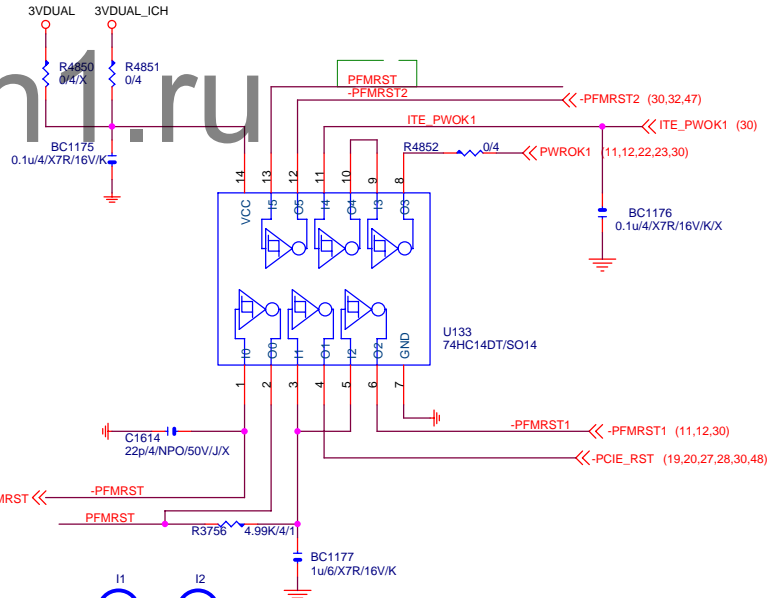
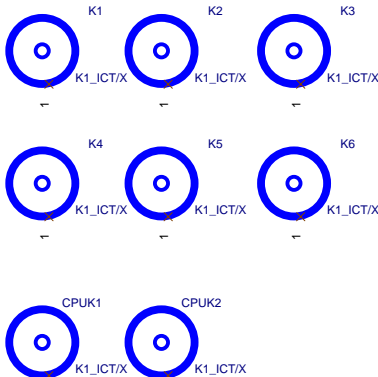
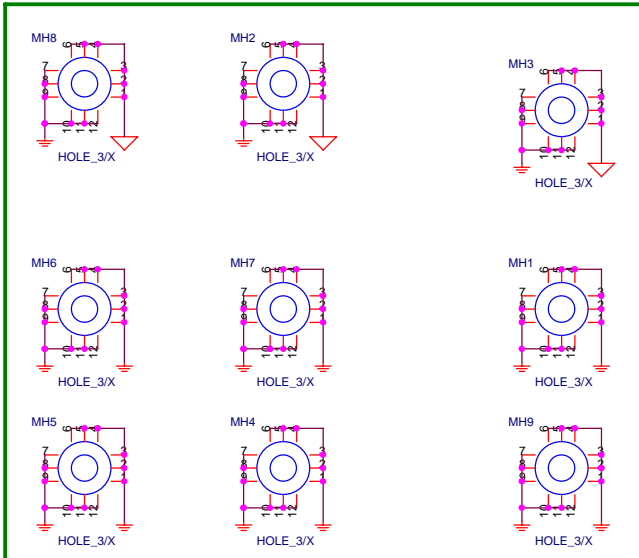
ATX POWER CONNECTOR



To prevent the 5VSB from dropping under loading when boot

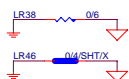
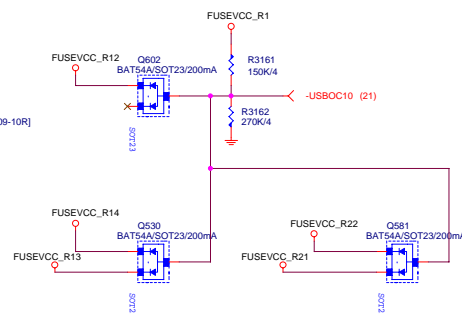
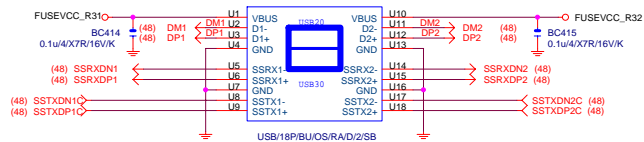
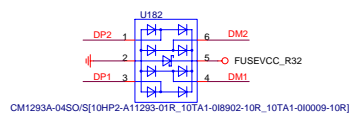


PCB 螺絲孔位置(Footprint不同)

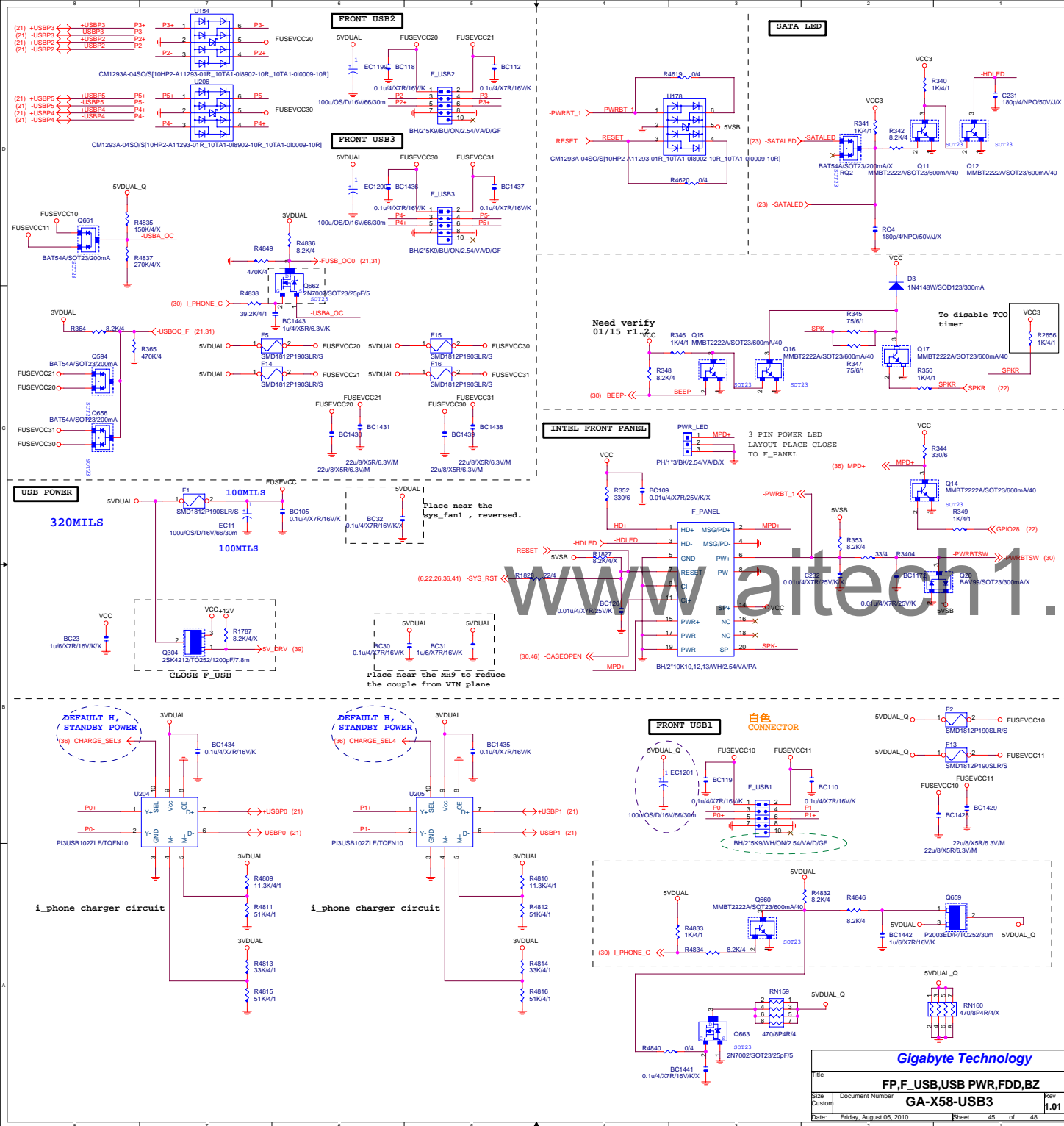


Gigabyte Technology

Title			
ATX POWER CONNECTOR			
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up6262	0X60-U123 (5VDUAL)	0X62-U116 (5VDUAL)	0X6A-U122 (5VDUAL)	0X66-U124 (5VDUAL)	0X68-U115 (5VDUAL)	0X64-U117 (5VDUAL)
VREF1	CHA_ADJ	VCCA18_PLL_ADJ	VTT_ADJ	VCORE_ADJ	CHCC_ADJ	VTTD_ADJ
VREF2	DDR18V_ADJ	VCCA1_1_ADJ	CHAC_ADJ	VCC15_ADJ	CHC_ADJ	VCC1_1_ICH_ADJ
VREF3	CHB_ADJ	VCC11_ADJ	CHBC_ADJ	VCCA1_5_ADJ	MCH_RAMVREF_ADJ	VCC1_9_ADJ



(30) VREF ←

(30) SYS_TEMP ←

(0) PWM_TEMP ←

(0) CPU_TEMP ←

C1294
1u6/X7R/16V/K

C1295
1u6/X7R/16V/K

RS1
10K/1/4/S

RS5
10K/1/4/S

C1296
1n4/X7R/50V/K/X

R1651
10K/4/1

R269
10K/4/1

R270
30K/4/1/X

[illegible][illegible]

FOR EMI ONLY

Two circuit diagrams for fan speed control are shown. Both circuits use a 12V supply, a capacitor, and a transistor connected to a fan.

Left Circuit (SYS_FAN3): A 12V supply is connected to a capacitor (0.1uF/4X7R/16V/K/X) and a BC1114 PNP transistor. The transistor is connected to a fan (FAN1*3/WH/A3/PA66).

Right Circuit (NB_FAN): A 12V supply is connected to a capacitor (0.1uF/4X7R/16V/K/X) and a BC1115 PNP transistor. The transistor is connected to a fan (FAN1*3/WH/A3/PA66).

Q62
BAV99/SOT23/300mA/V

Anti Spike

VCC

PWR_FAN
FAN/1*3/WH/A3/F
SYS FAN

Linear SYS_FAN

[illegible]

Title			
HWM,KB/MS, FAN CTRL			
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