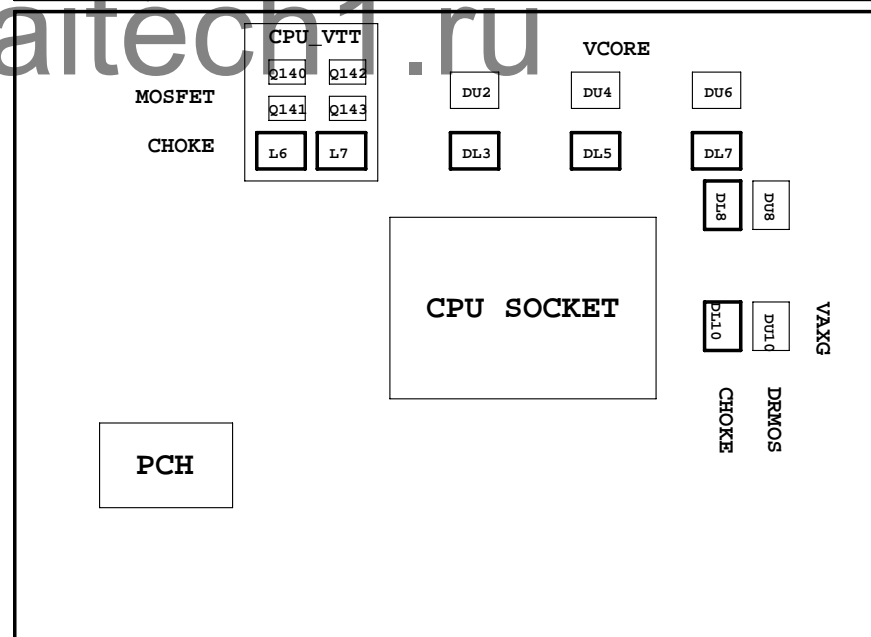


SHEET TITLE

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	HDMI,DVI,DP
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*8 SLOT
17	PCI EXPRESS*16/*8 SWITCH
18	PCI EXPRESS*1 SLOTS X3
19	IT8892E
20	Marvell 9172 SATA 3.0
21	PCI SLOT 1&2
22	I/O ITE8728
23	COM , -PROHOT
24	Dual BIOS , TPM
25	HD AUDIO ALC889A
26	REAR AUDIO JACK
27-30	VCORE ISL6364

SHEET TITLE

31	DISCRETE POWER I
32	PCH POWER
33	CPU_VTT PWM_ISL6322G
34	VCC_SA POWER
35	F_PANEL,F_USB,USB PWR,CI
36	ATX POWER CONNECTOR
37	HWM,KB/MS,FAN CTRL
38	REALTEK RTL8111E_VL
39	VT3608 1394
40	REAR NEC USB3.0
41	FRONT NEC USB3.0
42	TABLE LIST



Gigabyte Technology

Title		Cover Sheet	
Size	Document Number	GA-Z68X-UD3H-B3	Rev 1.3
Custom			
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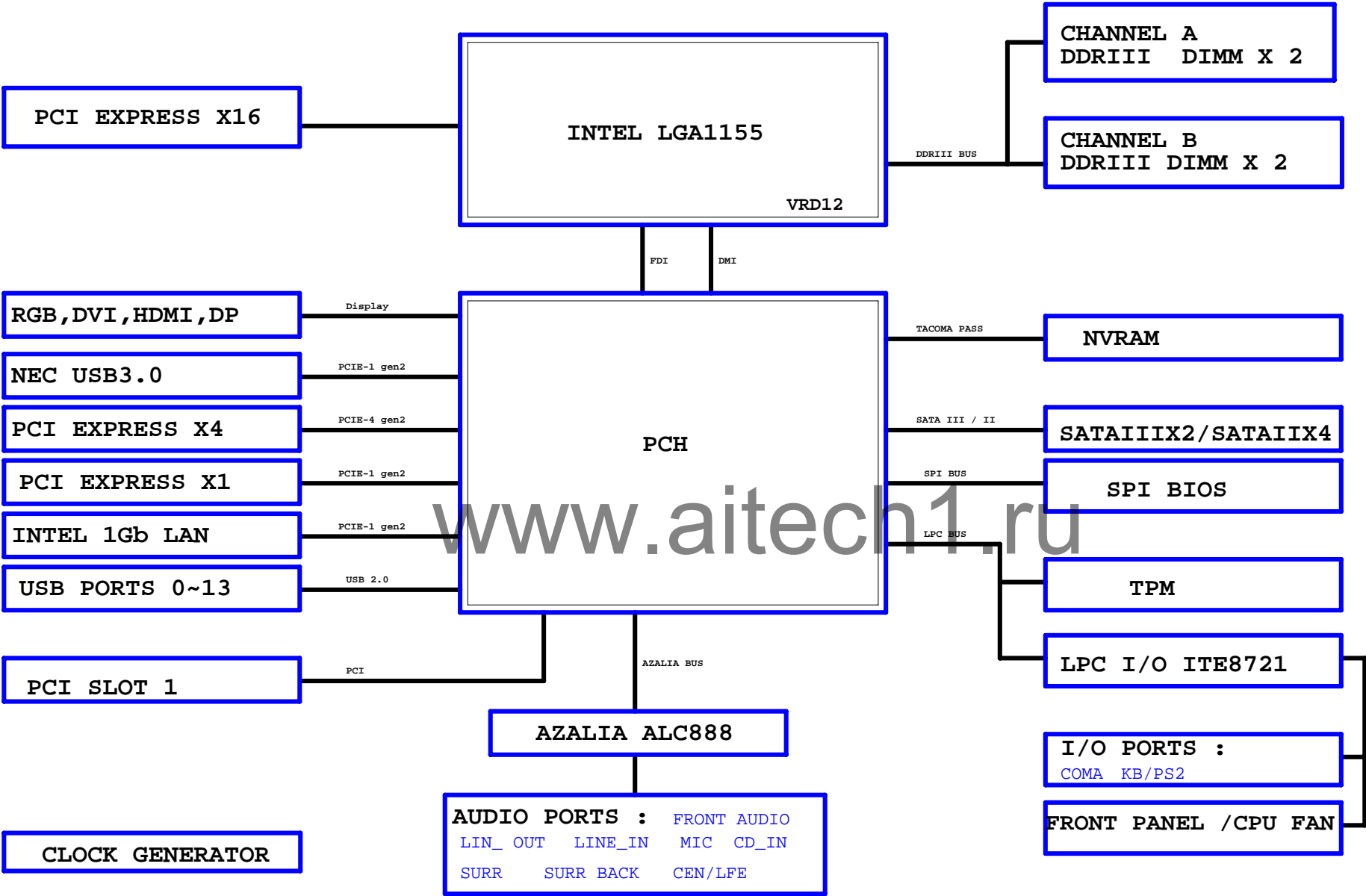
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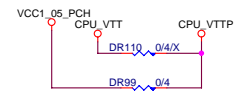
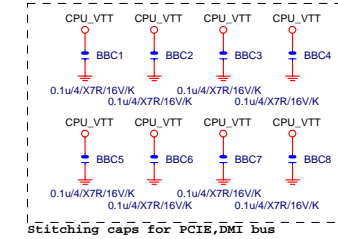
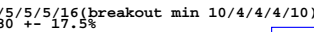
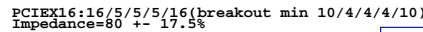
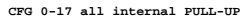
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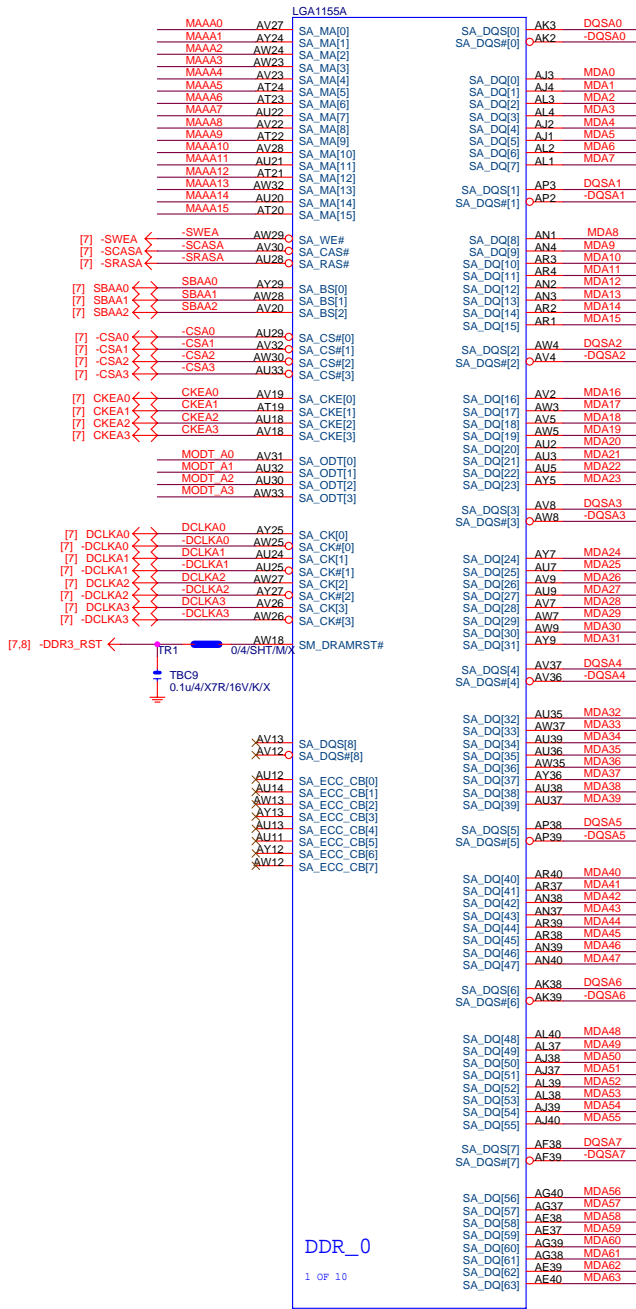
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D

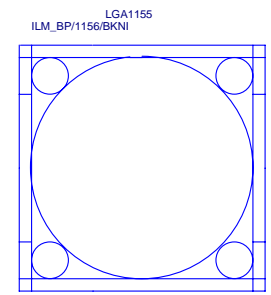
BLOCK DIAGRAM



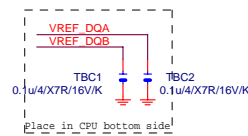


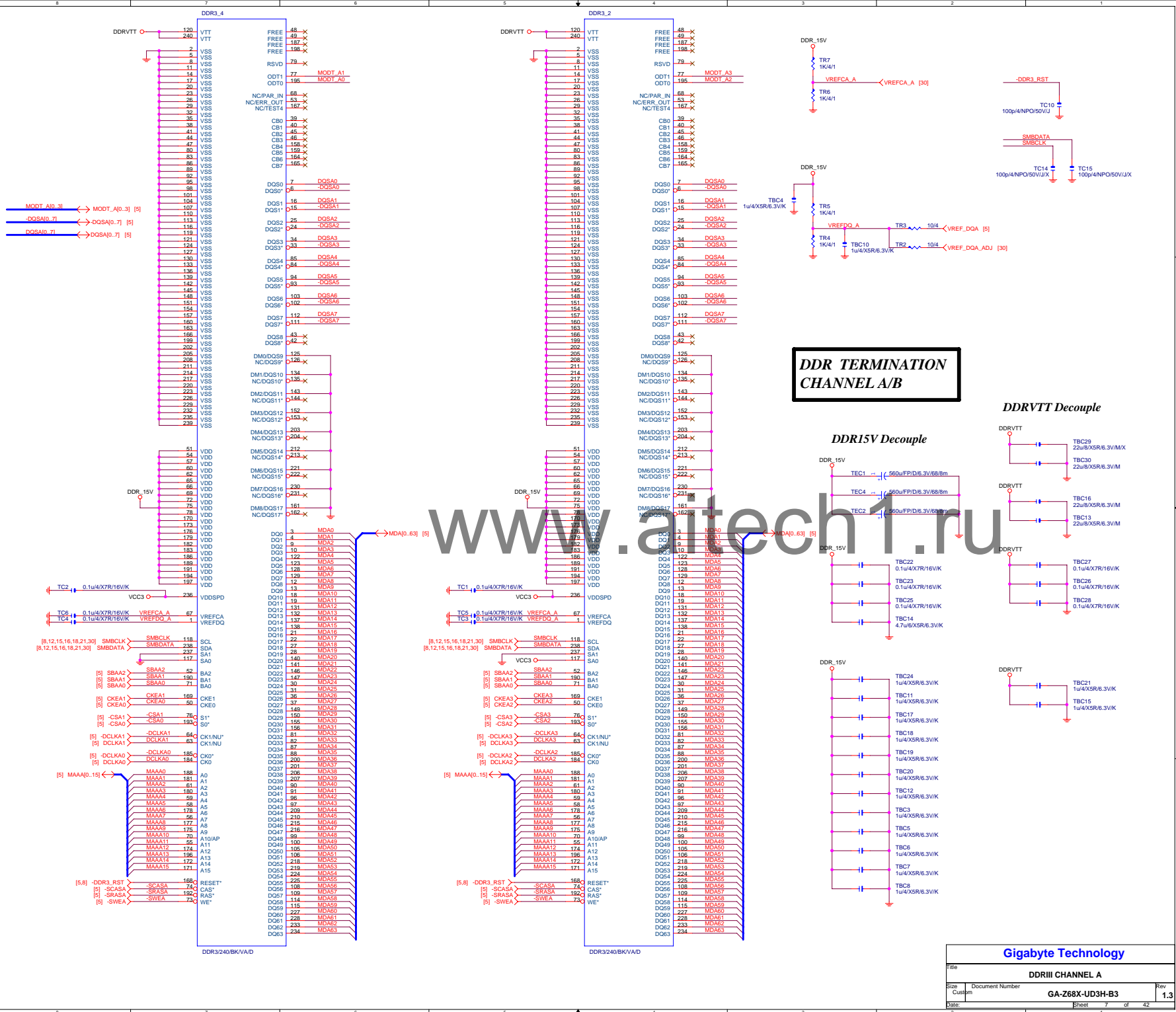


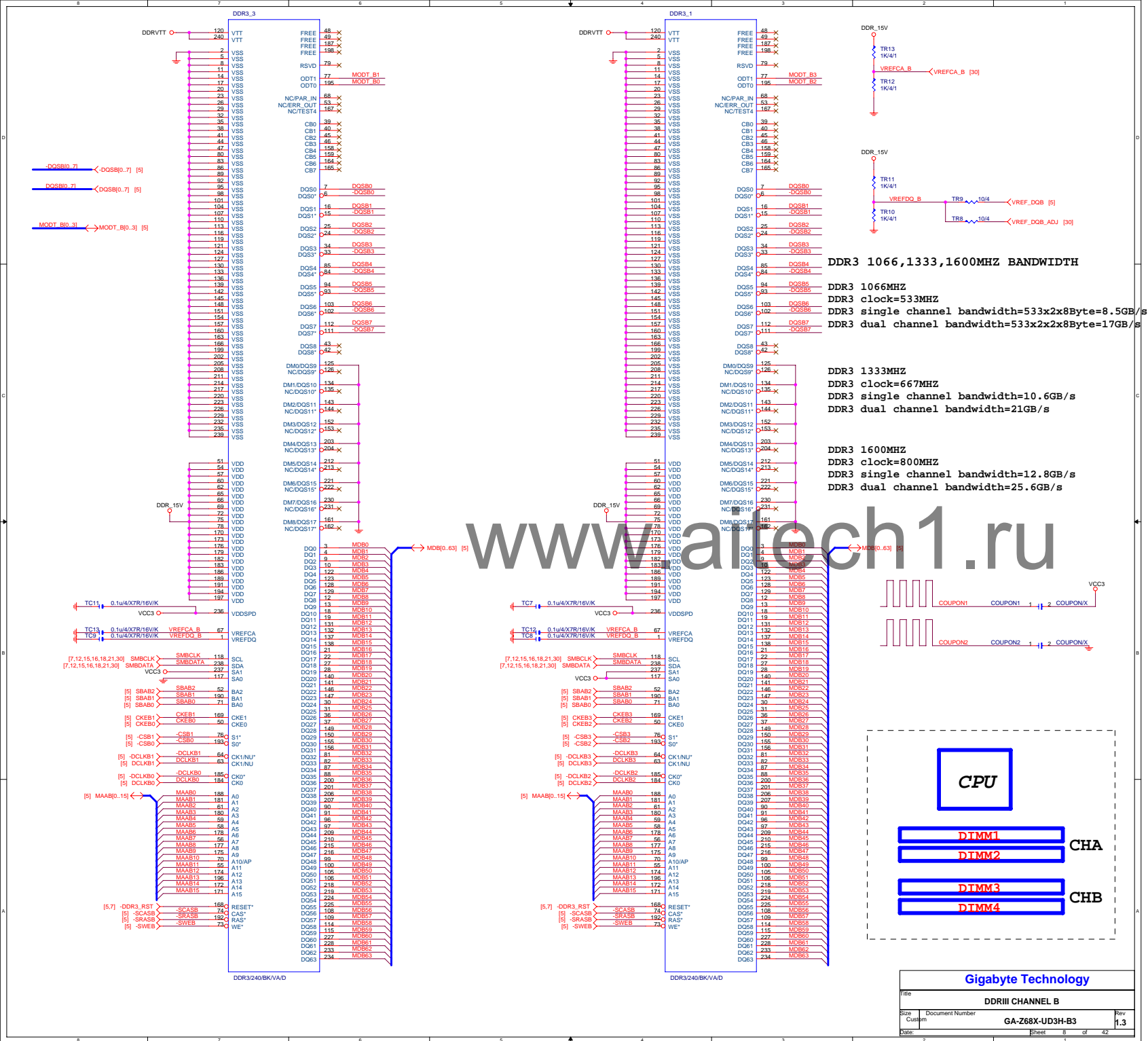
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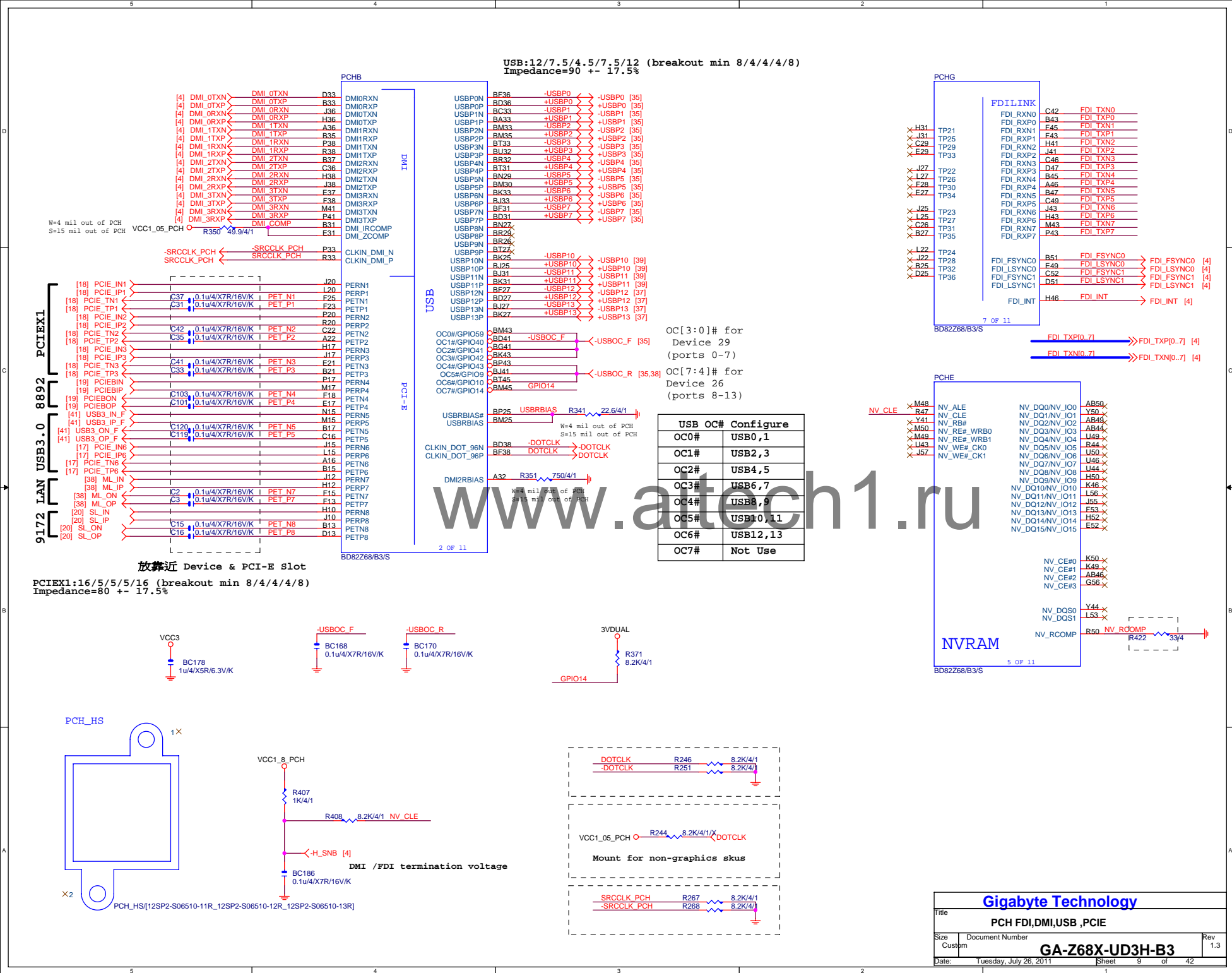


Need check the new CPU ME

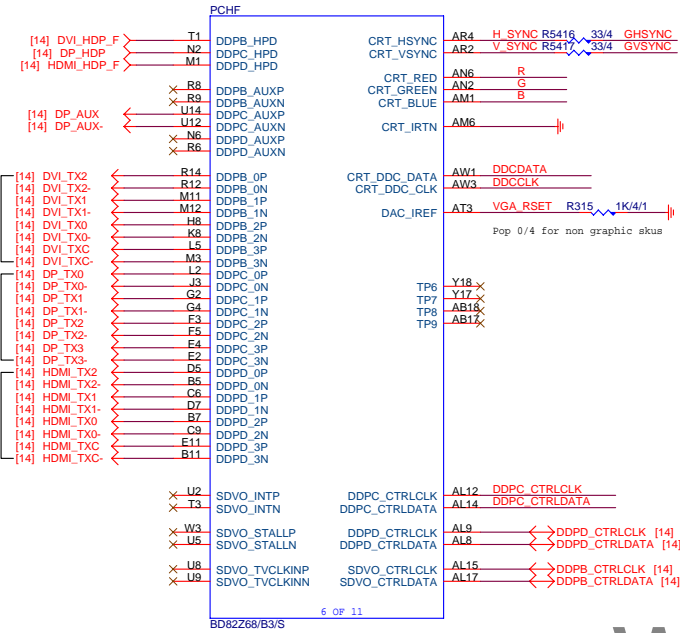




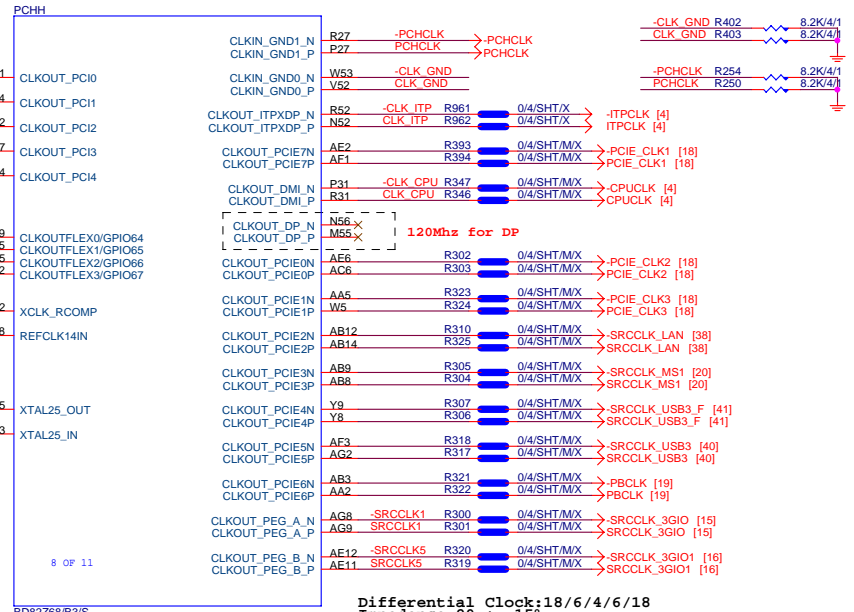
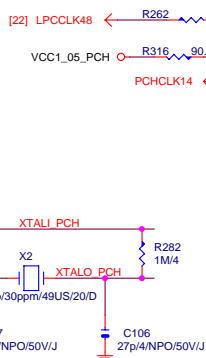




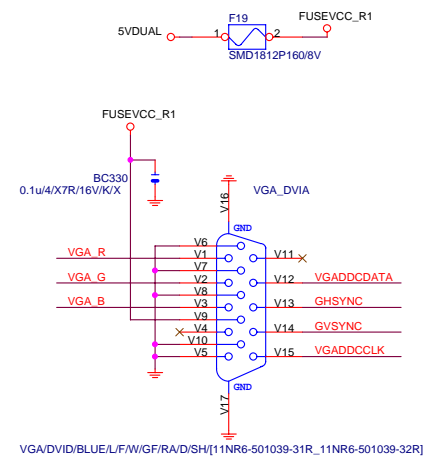
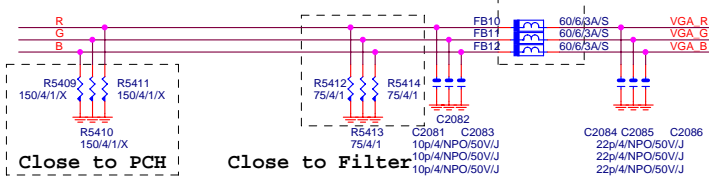
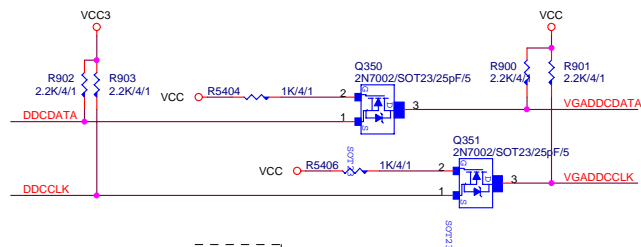
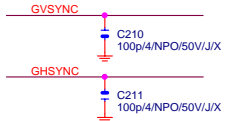
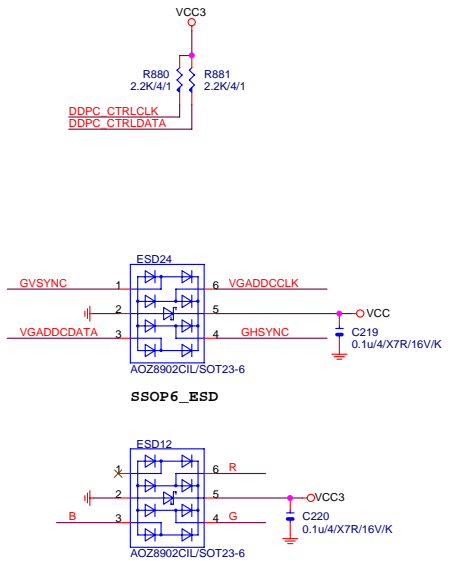
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Flex0,2 : 33MHZ
Flex1,3 :
27/14/24/48/25MHZ

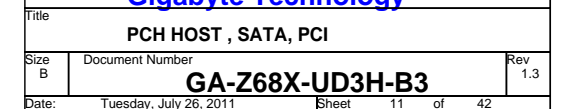


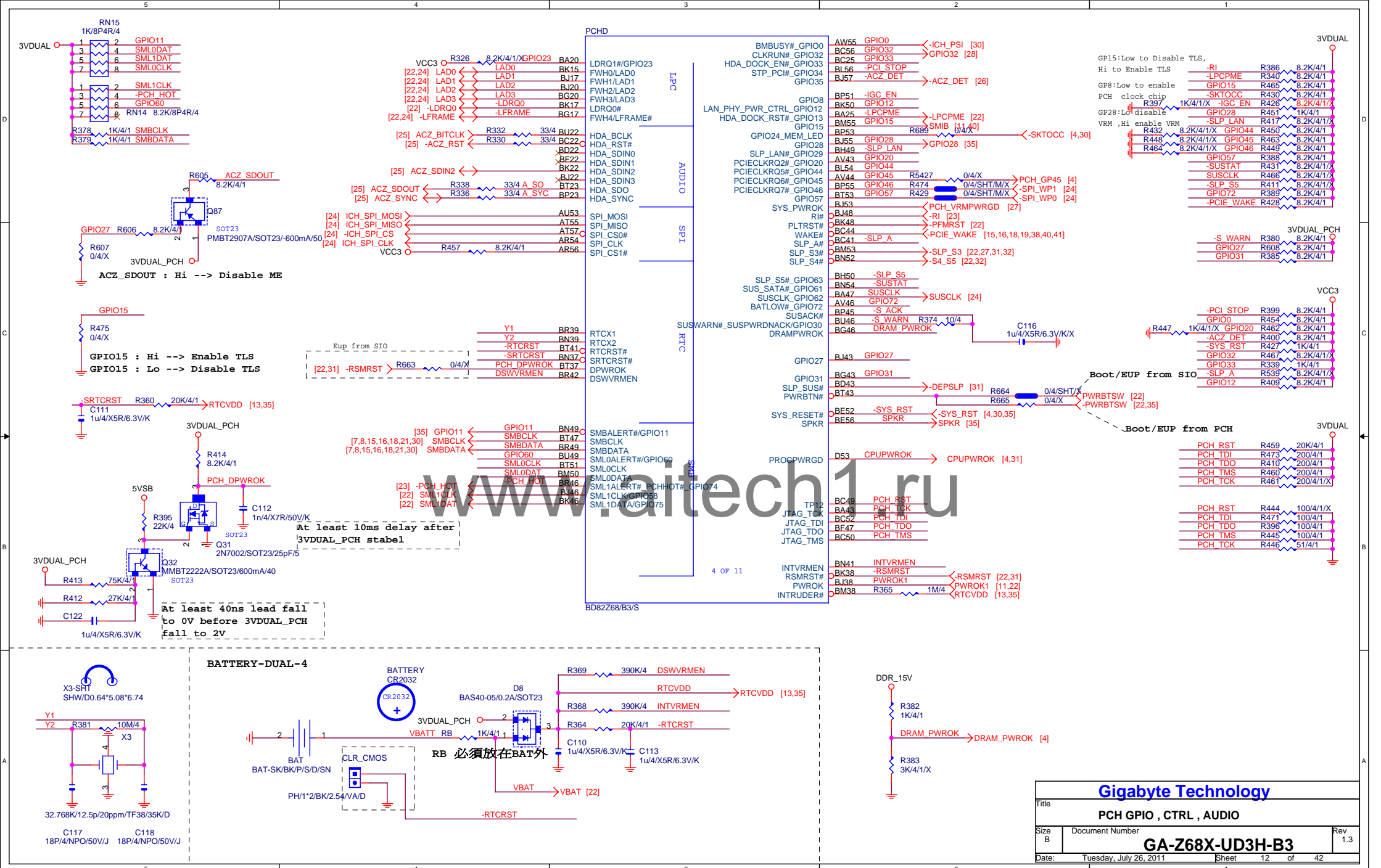
Differential Clock:18/6/4/6/18
Impedance=90 +- 15%

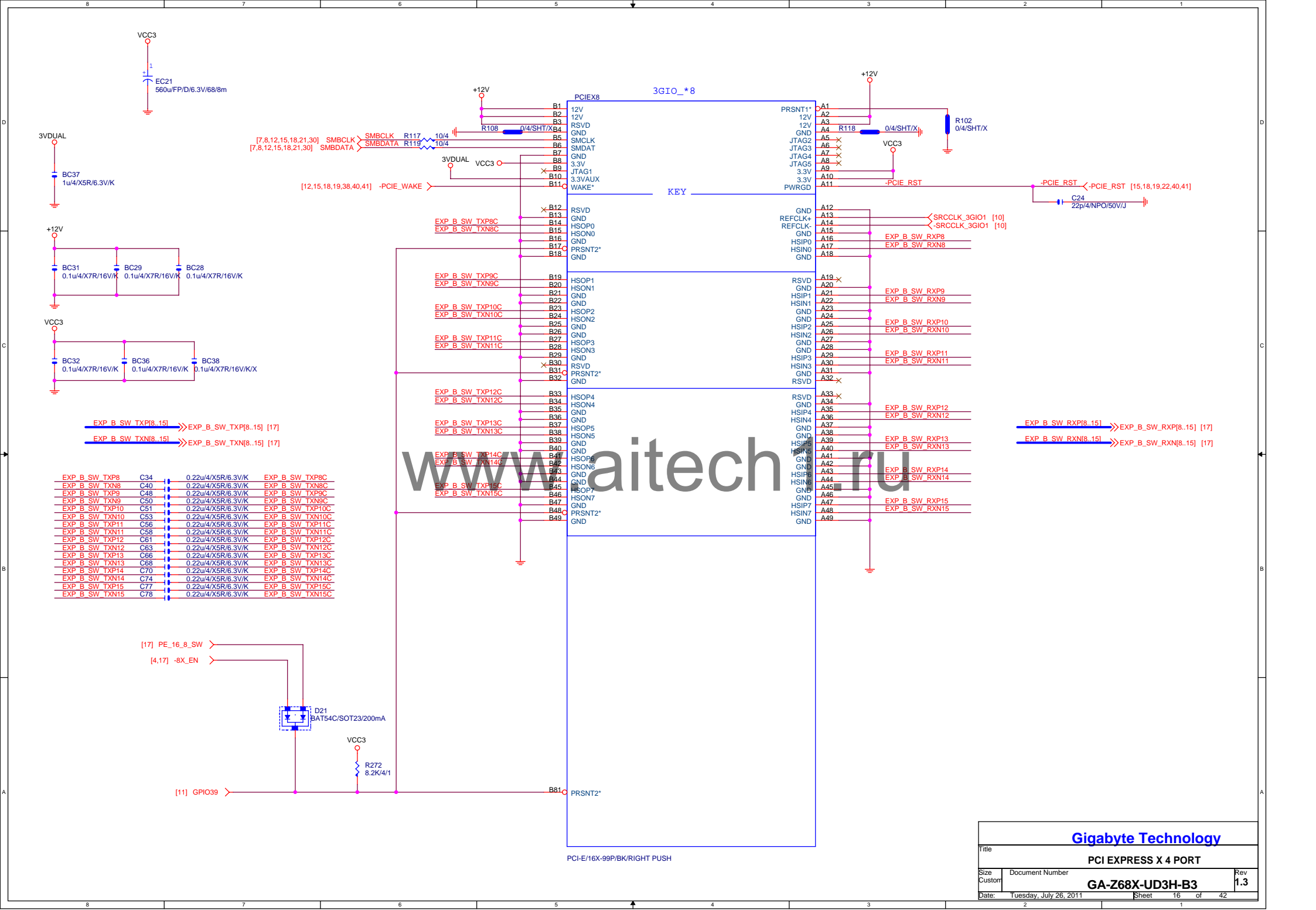


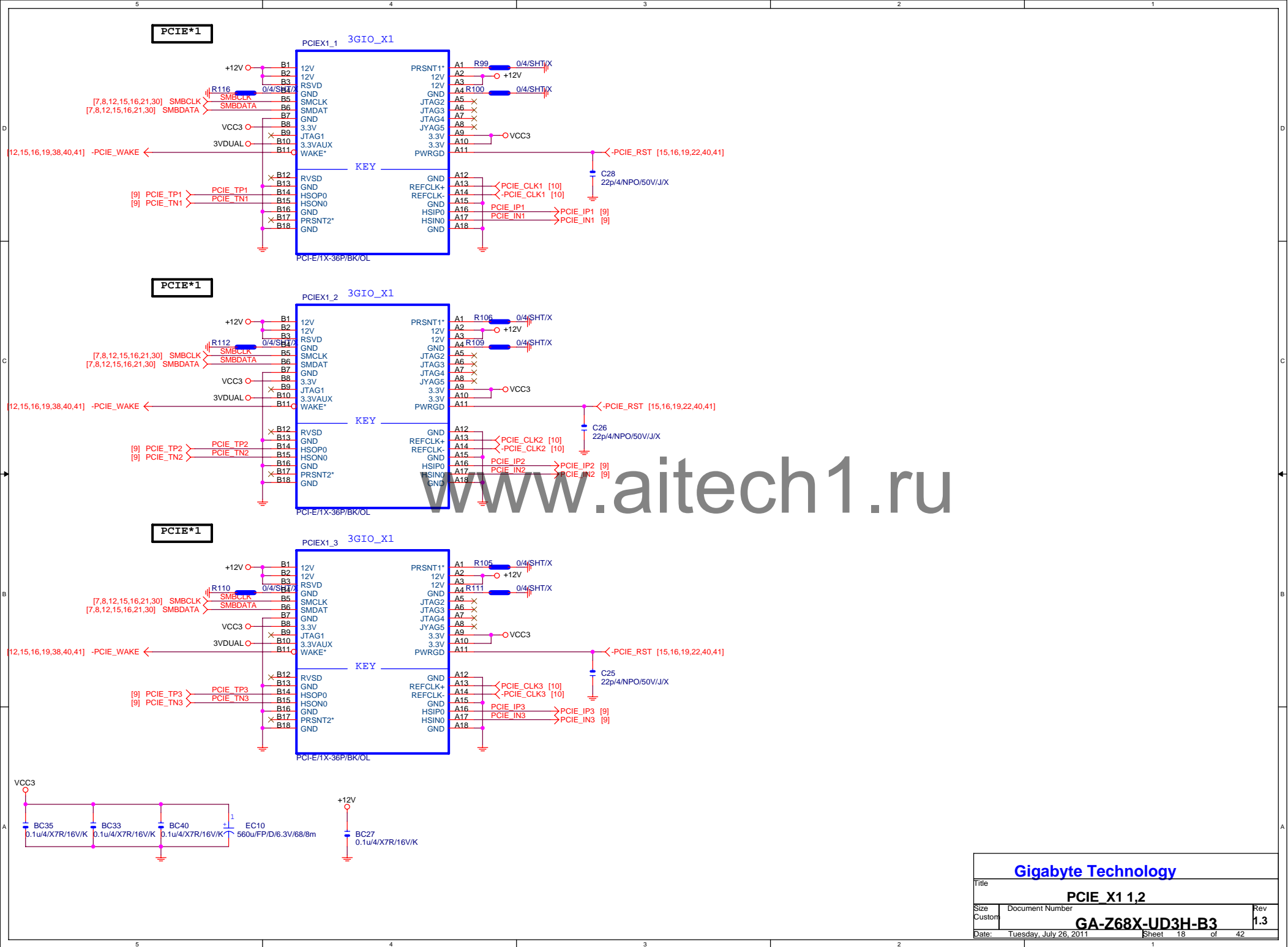
Gigabyte Technology			
PCH DISPLAY ,CLK BUFFER			
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PCHC



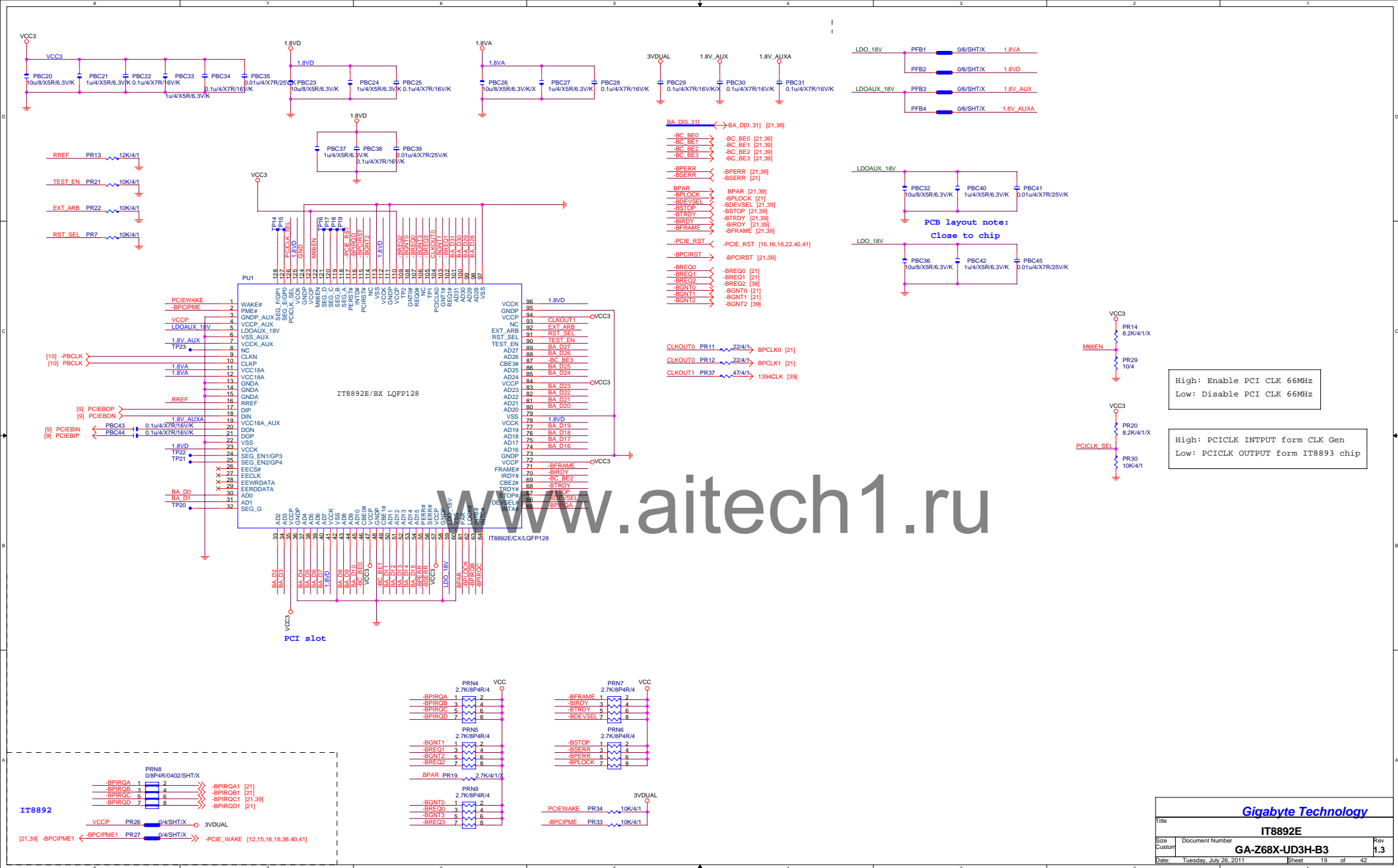


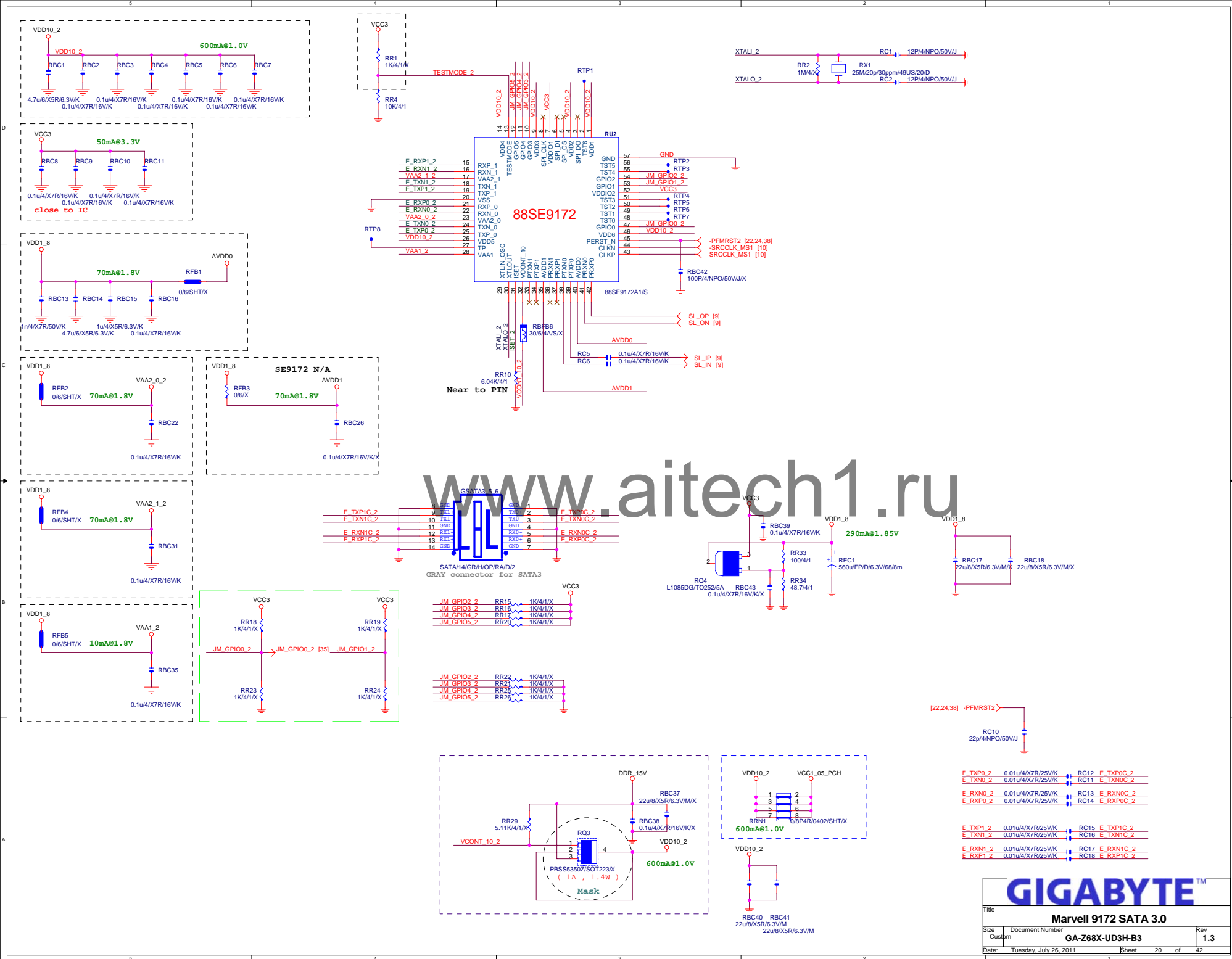


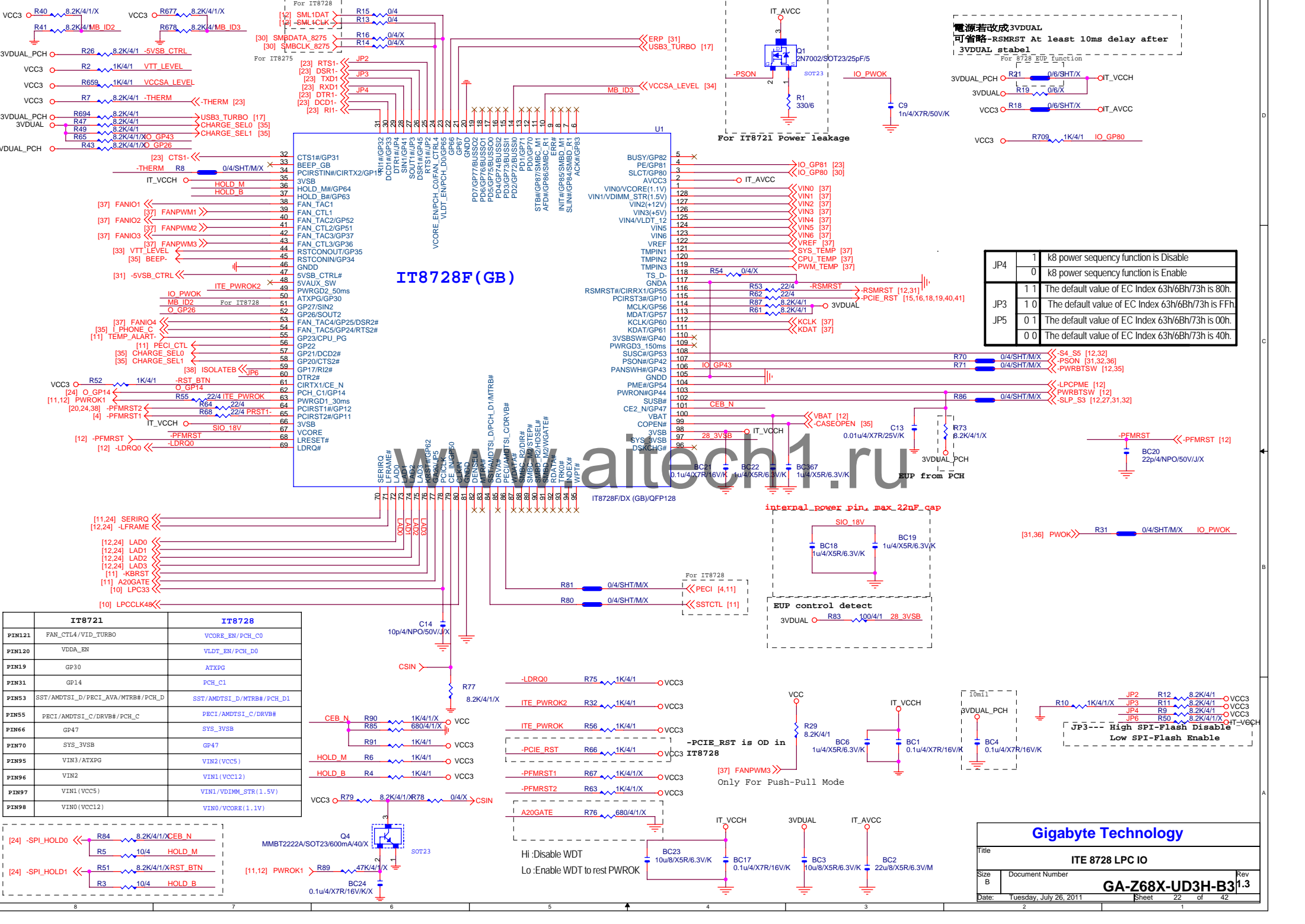


Gigabyte Technology

Title		
PCIE X1 1,2		
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電源若改成3VDUAL
可省略-RSMRST At least 10ms delay after
3VDUAL stabel

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

	IT8721	IT8728
PIN121	FAN_CTL4 / VID_TURBO	VCORE_EN / PCH_C0
PIN120	VDDA_EN	VLDOT_EN / PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST / AMDTISI_D / PCH_AVA / MTRB# / PCH_D	SST / AMDTISI_D / MTRB# / PCH_D1
PIN55	PECI / AMDTISI_C / DRVVB# / PCH_C	PECI / AMDTISI_C / DRVVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3 / ATXPG	VIN2 (VCC5)
PIN96	VIN2	VIN1 (VCC12)
PIN97	VIN1 (VCC5)	VIN1 / VDIMM_STR (1.5V)
PIN98	VIN0 (VCC12)	VIN0 / VCORE (1.1V)

Gigabyte Technology

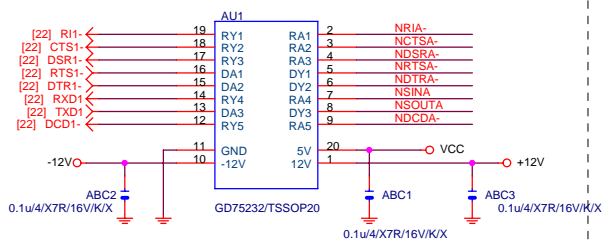
ITE 8728 LPC IO

GA-Z68X-UD3H-B3

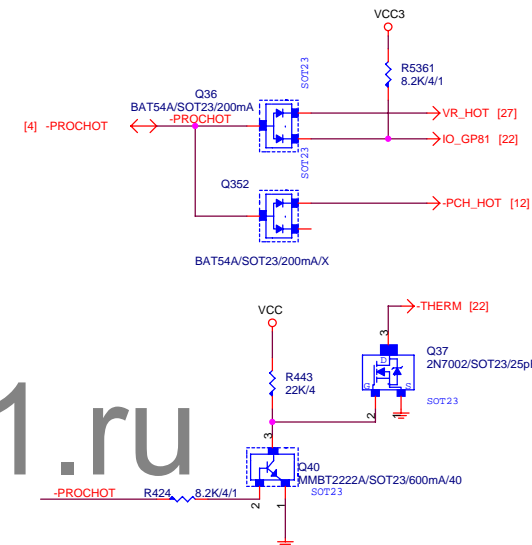
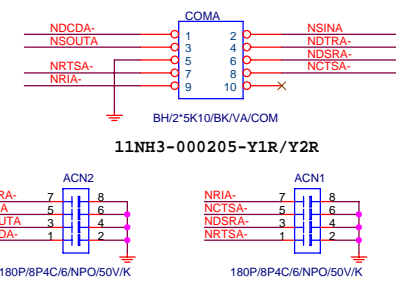
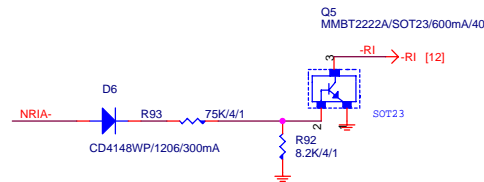
1.3

Title	ITE 8728 LPC IO		
Size	Document Number	Rev	
B			
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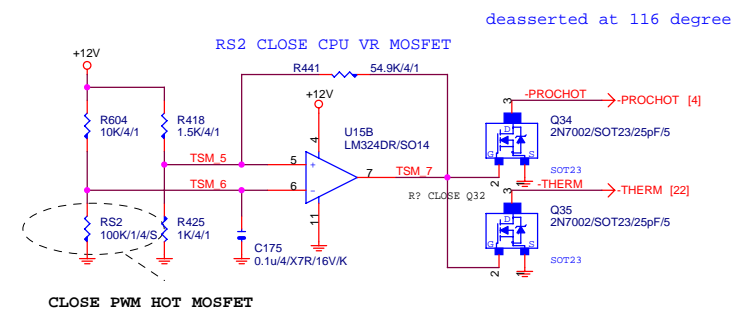
COMA



COM RI



-PROHOT

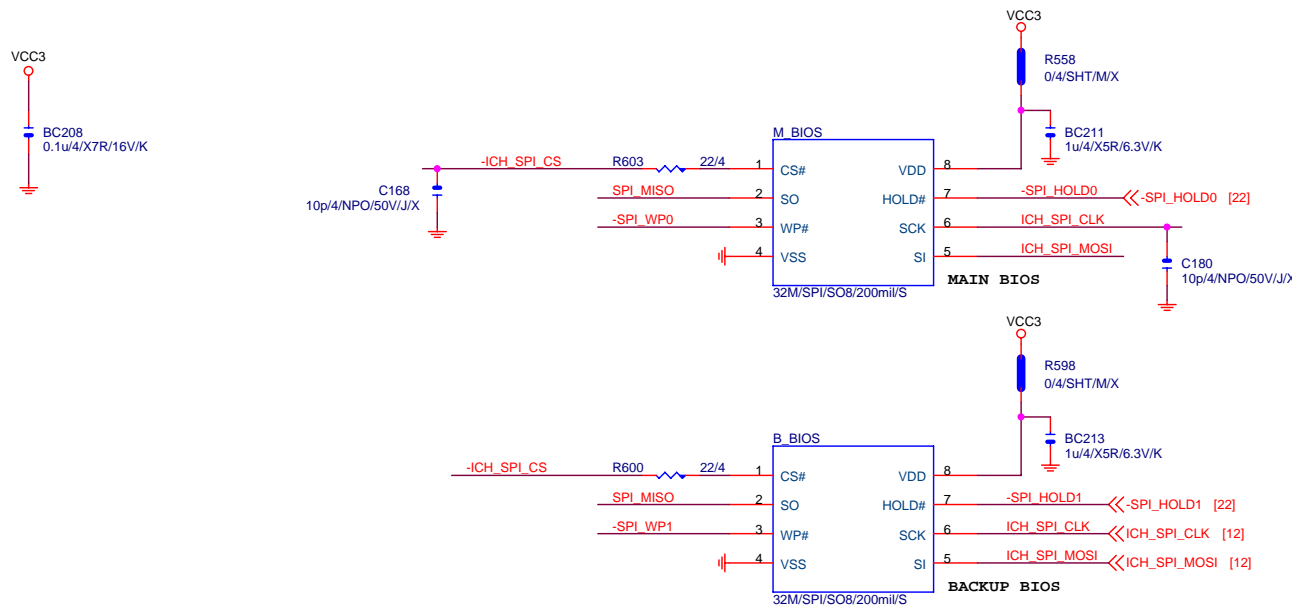


CLOSE PWM HOT MOSFET

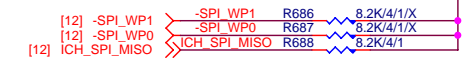
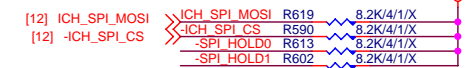
Gigabyte Technology

Title			COM & PROHOT
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GA-Z68X-UD3H-B3



MOSI For DMI RX Termination Voltage



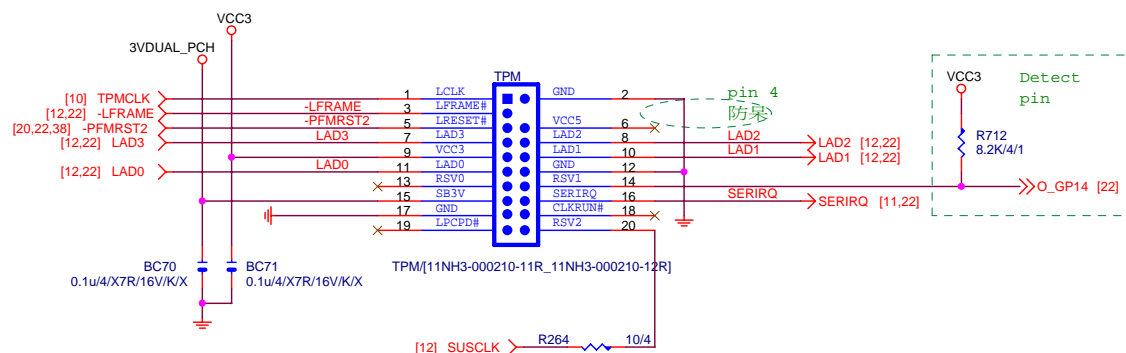
Default int pull up



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

1 means floating
0 means PD 1K

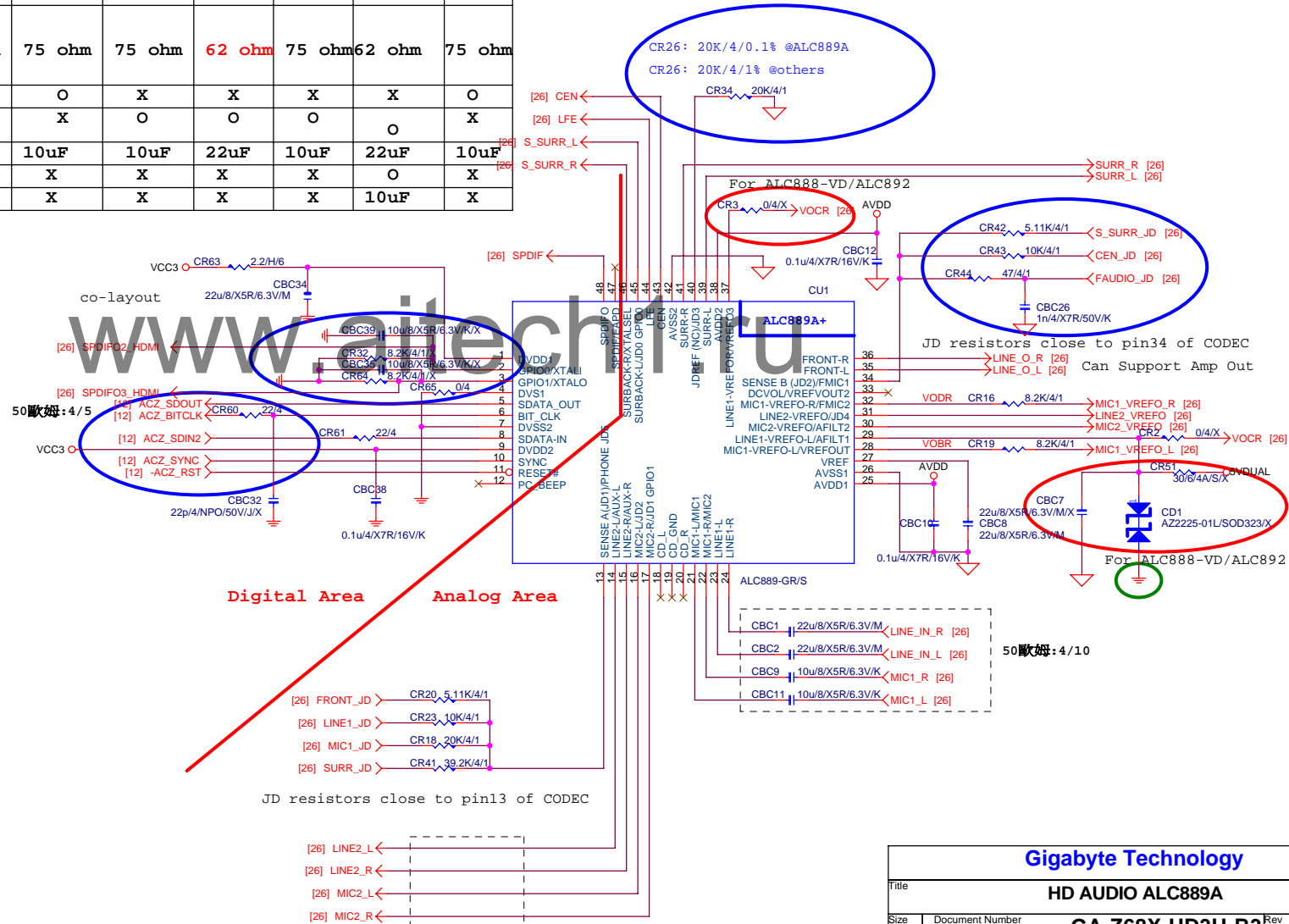
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Title			BIOS , TPM
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	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A	ALC889B	ALC898 ALC892
CR32	X	X	X	X	X	O	X	X
CR64	X	X	X	X	X	O	X	X
CR65	O	X	X	X	O	O	O	X
CBC35	X	X	10uF/X5R	10uF/X5R	X	X	X	10uF/X5R
CR28	X	X	X	X	X	X	X	X
CR34	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%
CR31	X	O	X	O	O	X	X	O
CR30	O	X	O	X	X	O	X	X
CBC5/CBC6/CBC9/CBC11	4.7uF/X5R	4.7uF/X5R	4.7uF/X5R	4.7uF/X5R	10uF/X5R	4.7uF/X5R	10uF/X5R	4.7uF/X5R
CR5/CR8/CR11/CR4/ CR17/CR22/CR45/CR33/ CR47/CR40/CR26/CR37/ CR13/CR11/CR57/CR53	75 ohm	75 ohm	75 ohm	75 ohm	62 ohm	75 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	X	X	O	X	X	X	X	O
CD2/CD3/CQ3/CQ5	O	O	X	O	O	O	O	X
CBC1/CBC2	10uF	10uF	10uF	10uF	22uF	10uF	22uF	10uF
CR66	X	X	X	X	X	X	O	X
CBC39	X	X	X	X	X	X	10uF	X

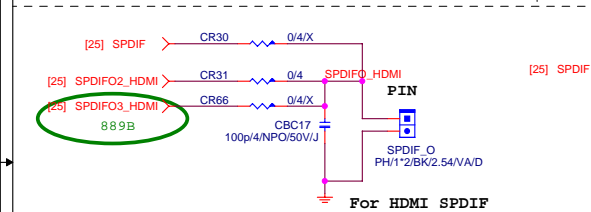
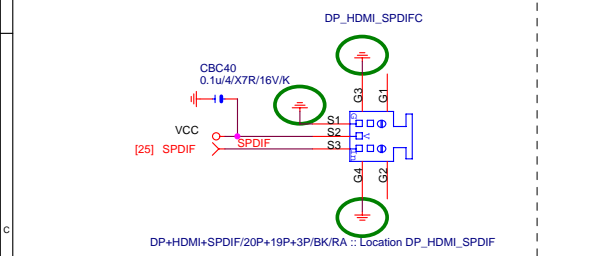
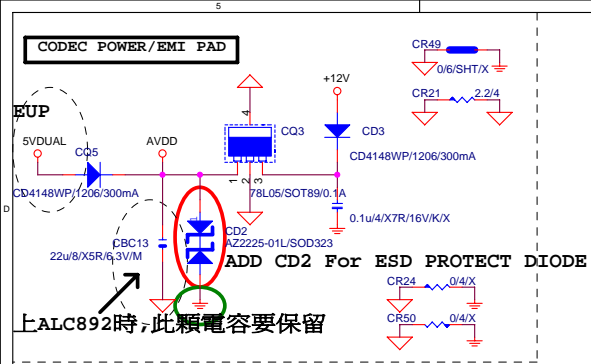


Can Support Amp Out

Gigabyte Technology

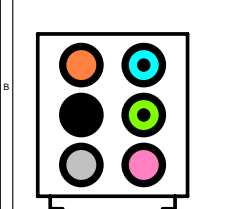
HD AUDIO ALC889A

Title	Document Number	Rev
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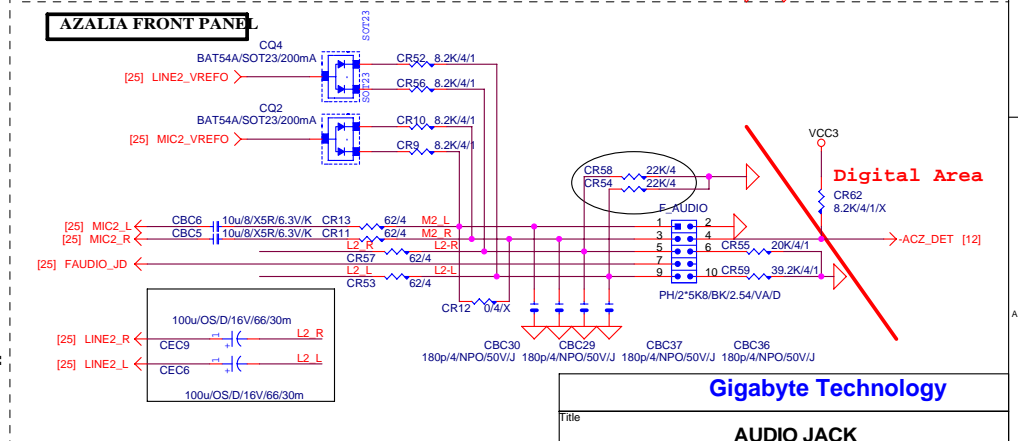
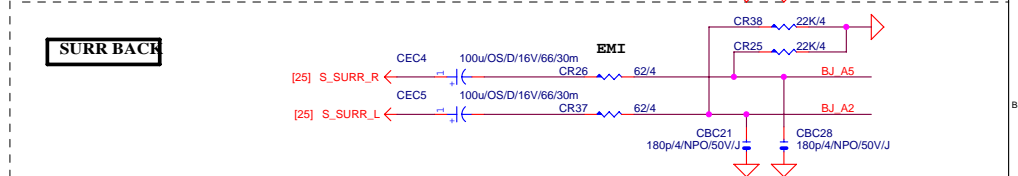
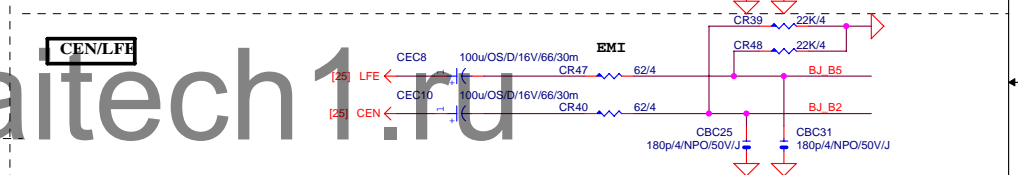
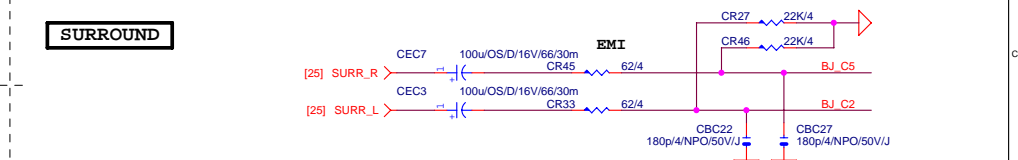
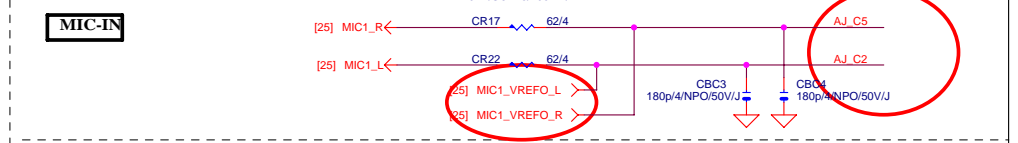
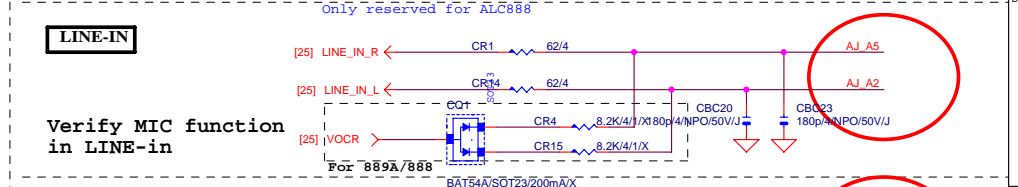
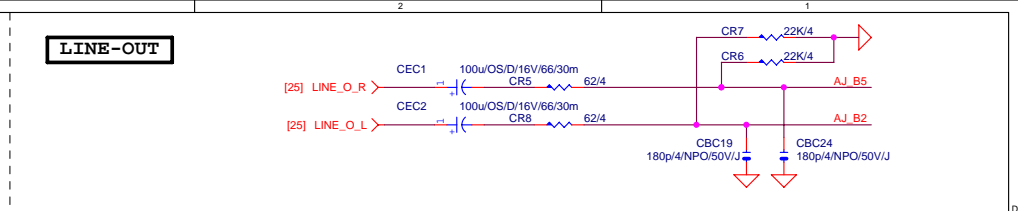
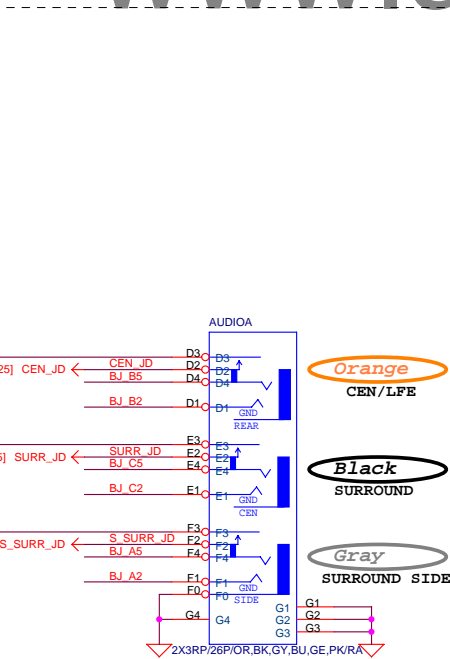
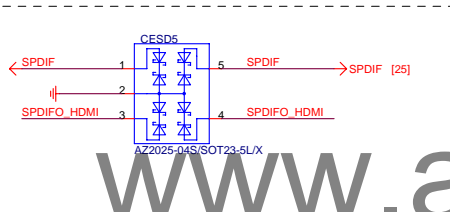
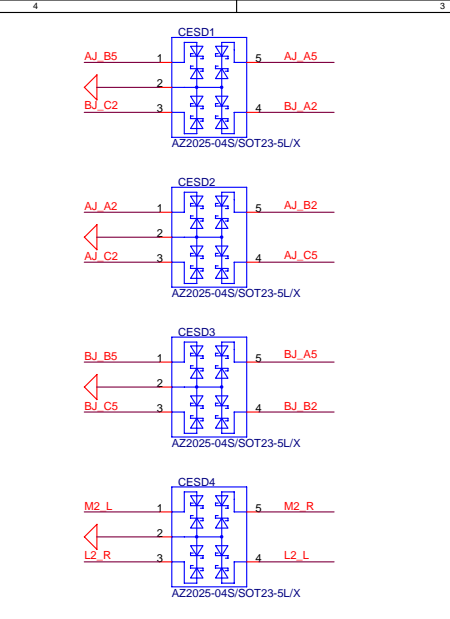
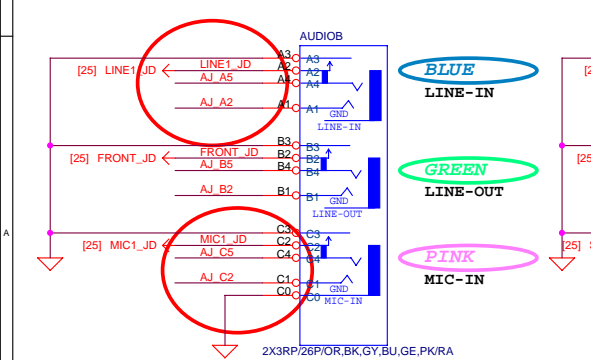


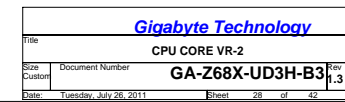
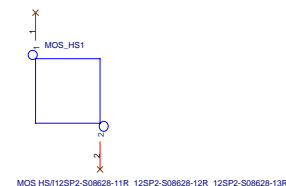
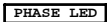
AZALIA JACK

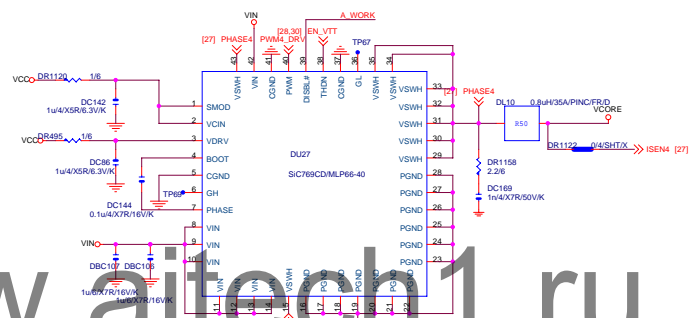
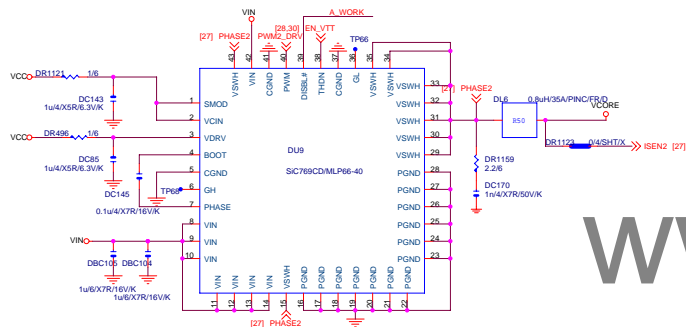
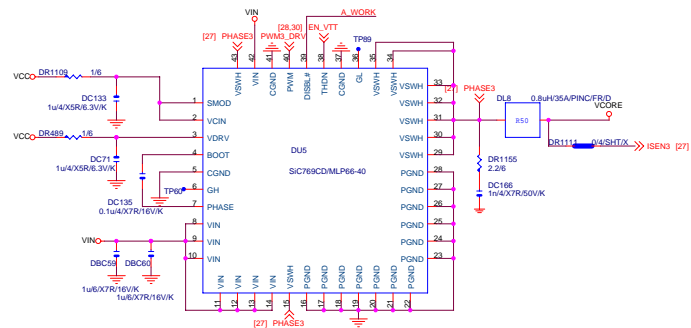
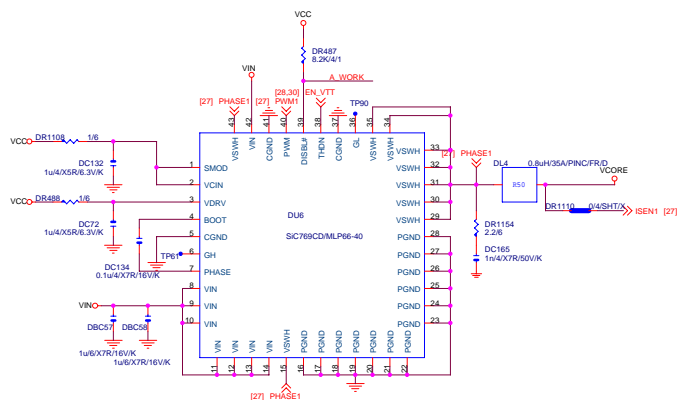
BTX AZALIA CONNECTOR



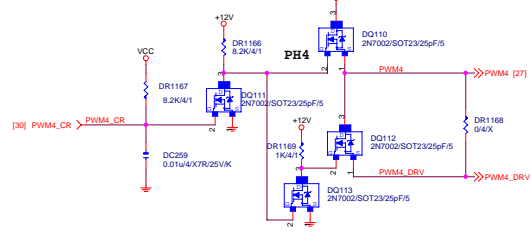
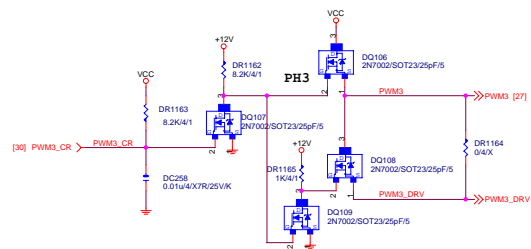
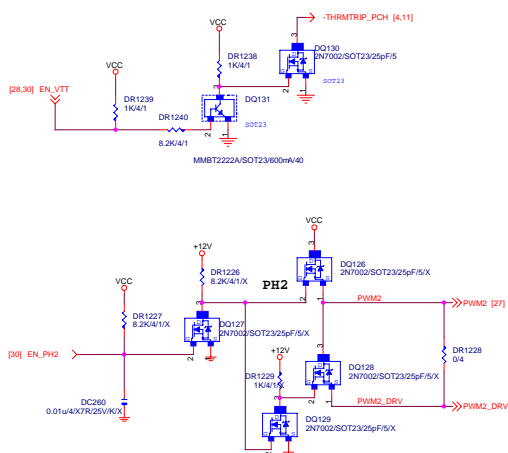
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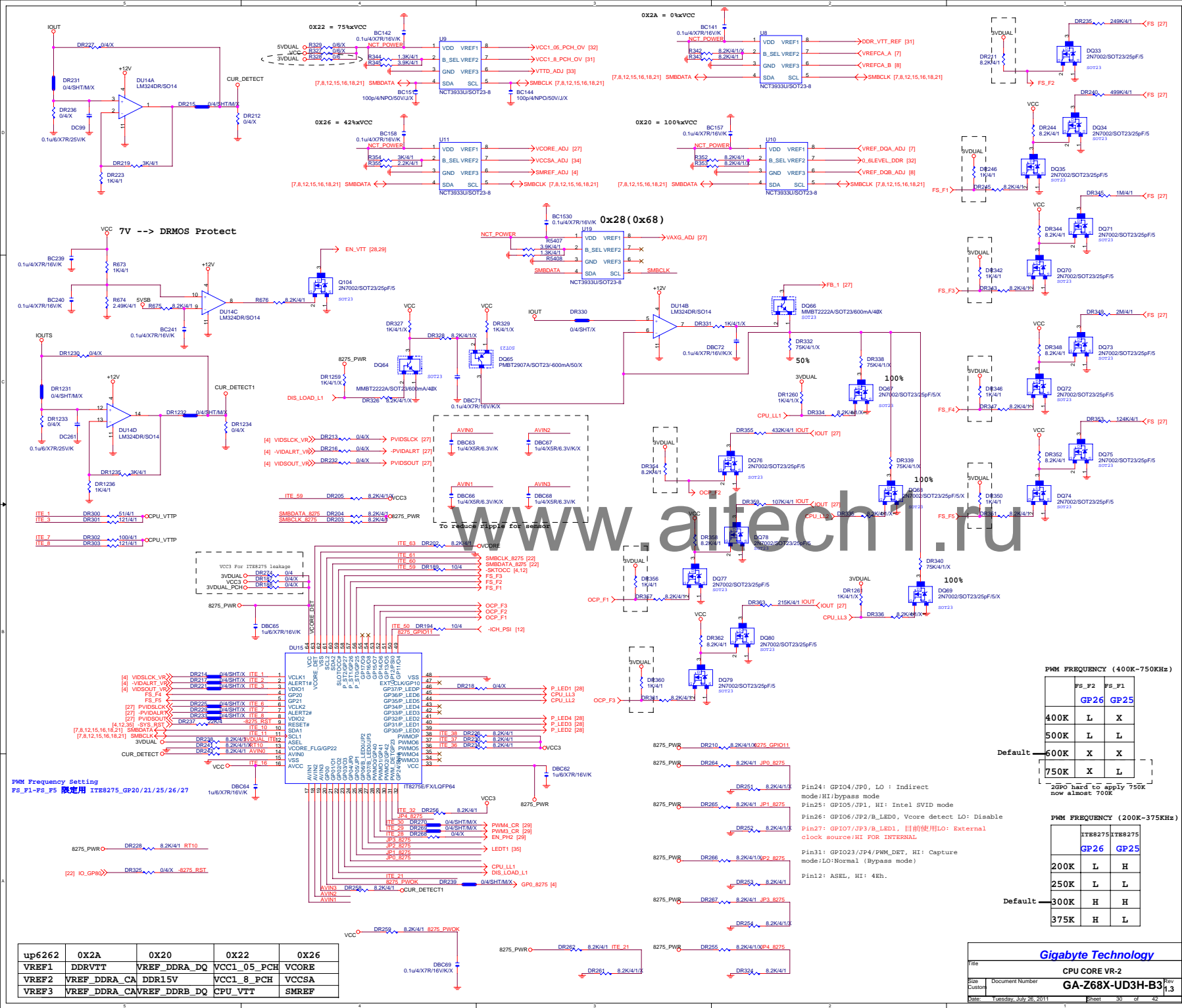






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PWM FREQUENCY (400K-750KHz)

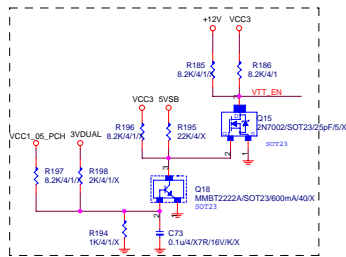
	FS_F2	FS_F1
Default	GP26	GP25
400K	L	X
500K	L	L
600K	X	X
750K	X	L

2600 hard to apply 750K now almost 700K

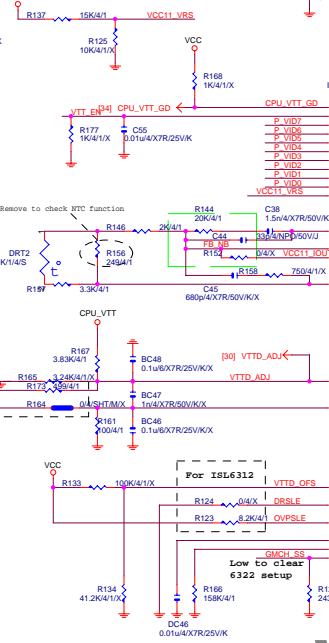
PWM FREQUENCY (200K-375KHz)

	ITE8275	ITE8275
Default	GP26	GP25
200K	L	H
250K	L	L
300K	H	H
375K	H	L

up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CV	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAVREF	DDR8_DQ	CPU_VTT	SMREF

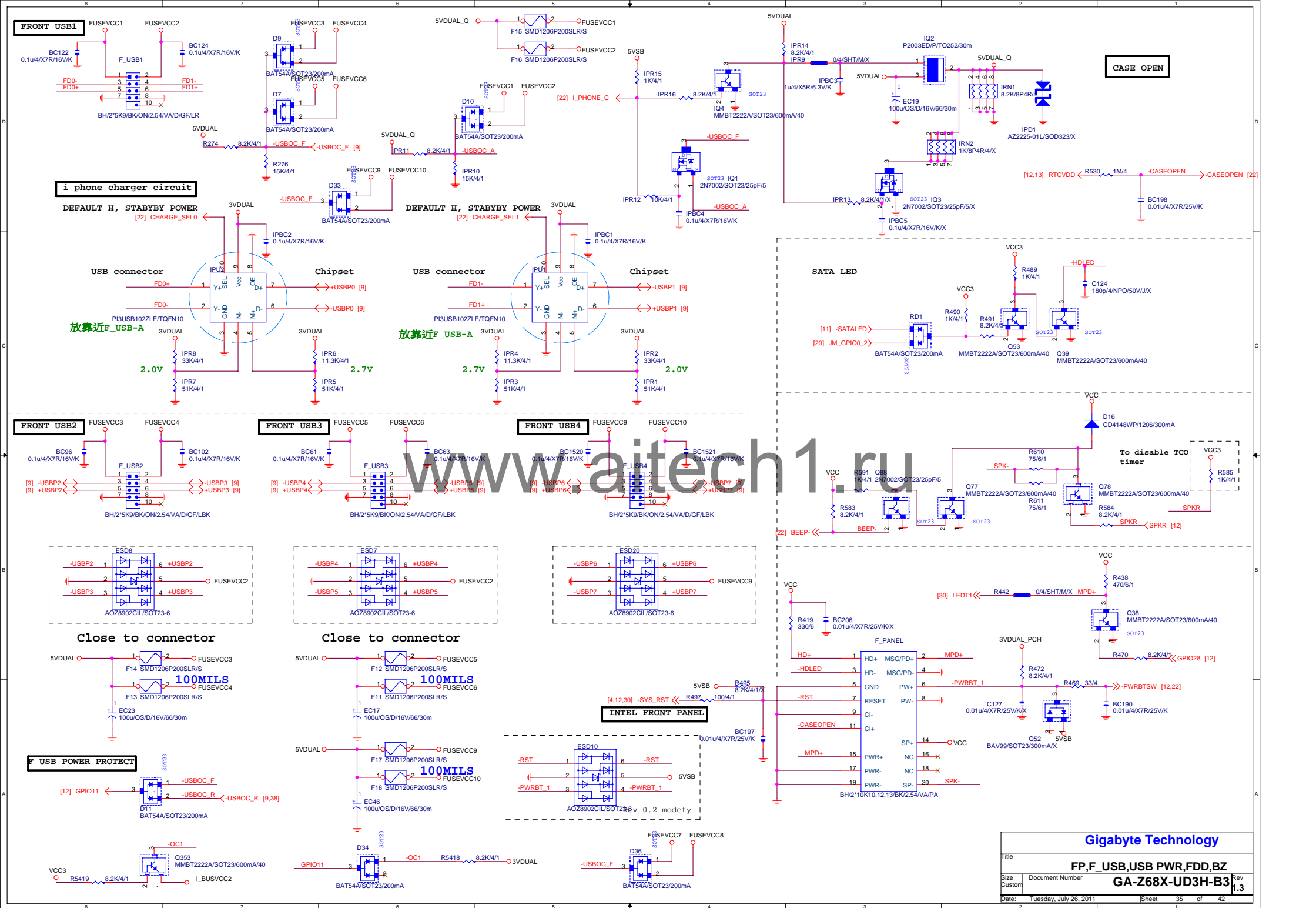


5V : AMD mode
0.6V-3V : VRD11 mode
0V : VRD10 mode

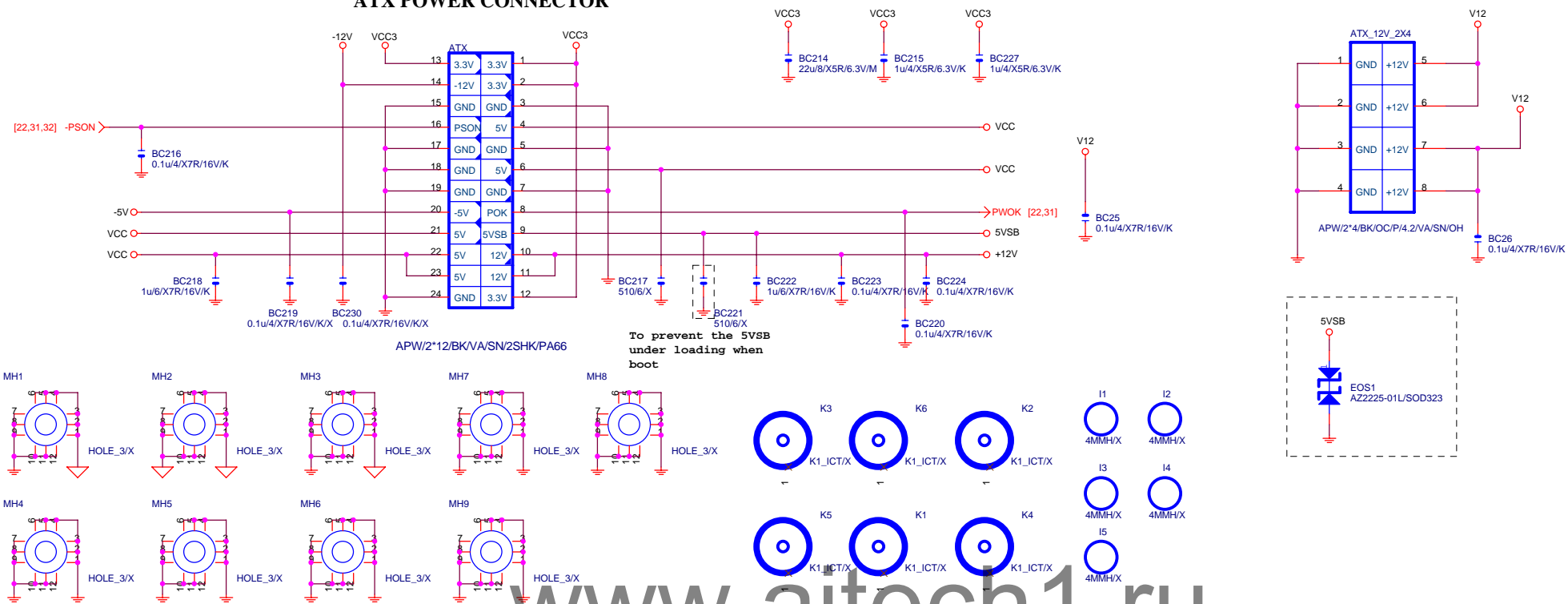


VCC_SA

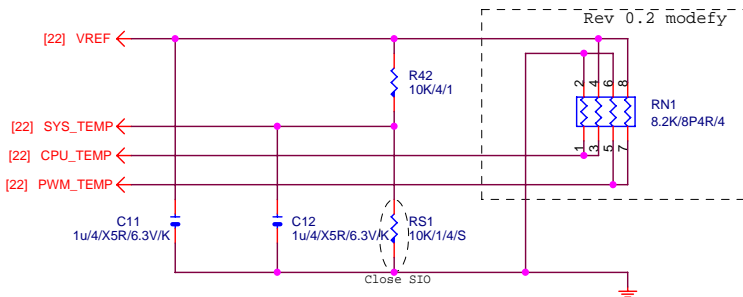




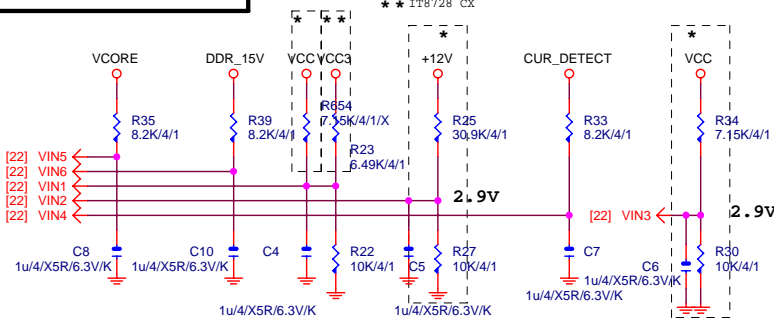
ATX POWER CONNECTOR



TEMP H/W MONITOR

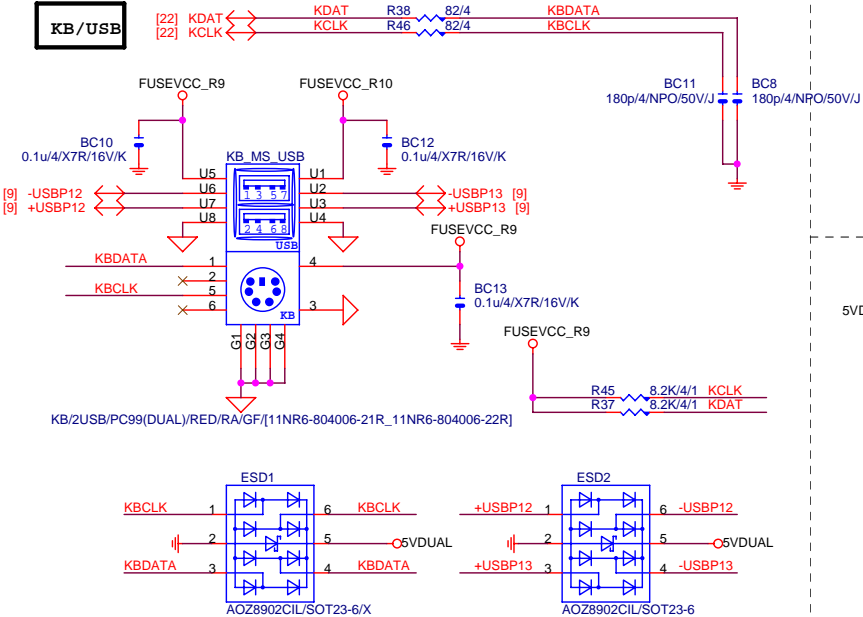


VOLTAGE-- H/W MONITOR

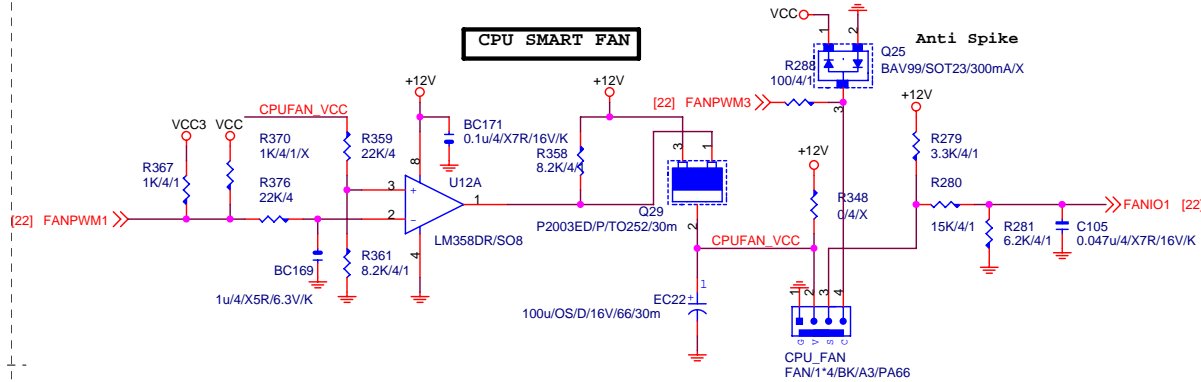


The division voltage of VIN2 & VIN3 must be around 2.9V

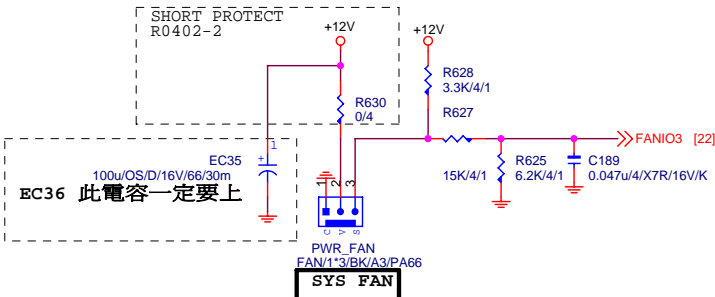
KB/USB



CPU SMART FAN

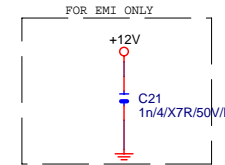
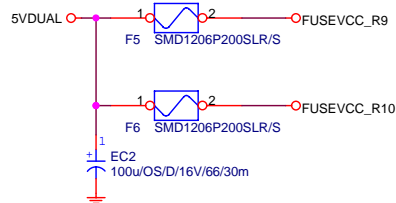
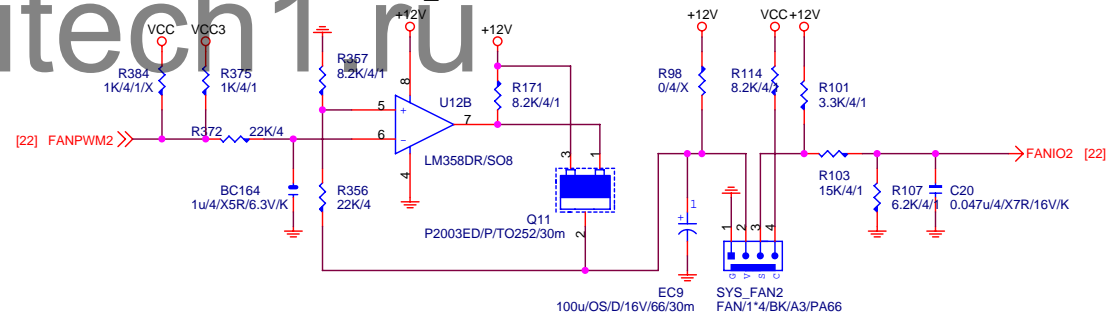


SHORT PROTECT
R0402-2



SYS FAN

Linear SYS_FAN



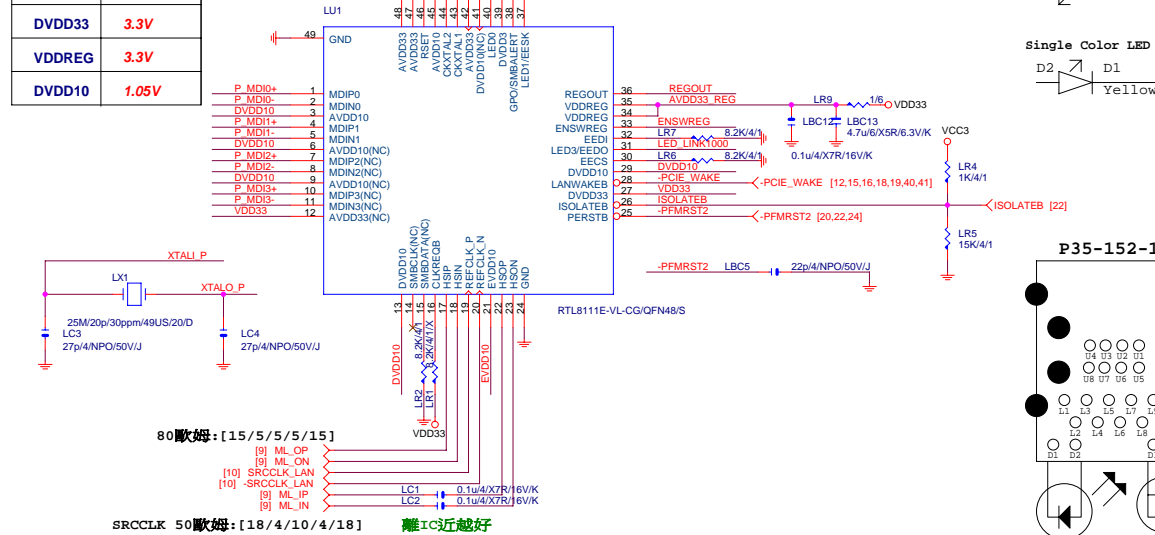
Gigabyte Technology

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

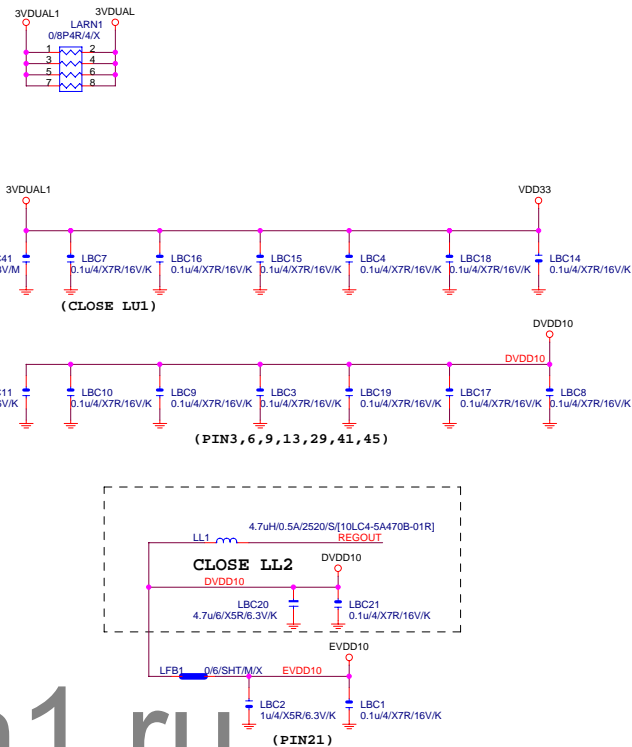
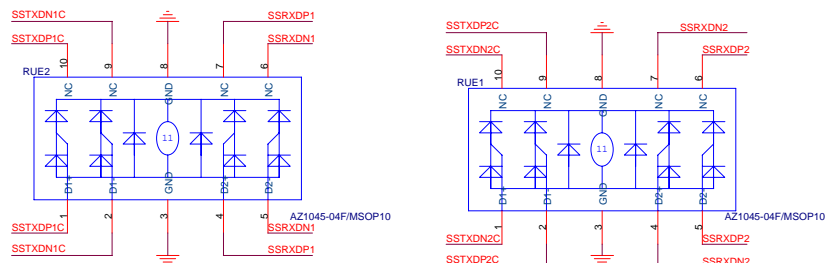
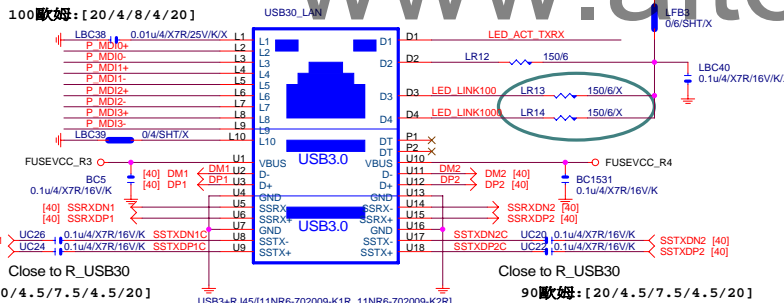
Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

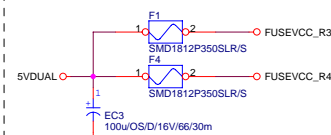


USB30_LAN CONNECTOR

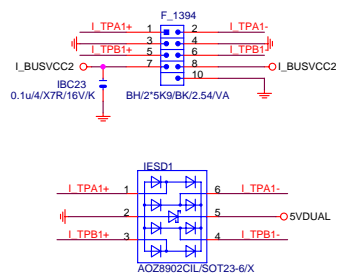
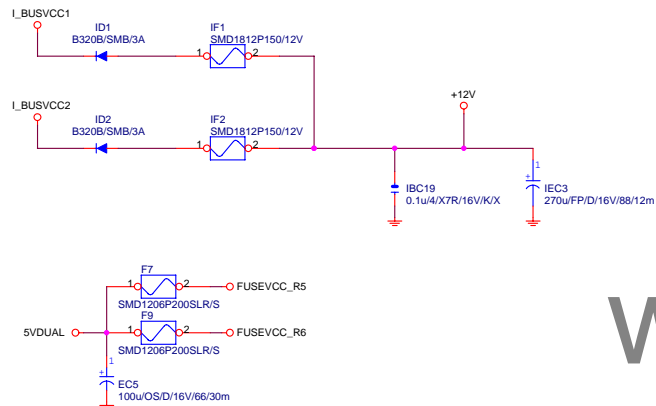
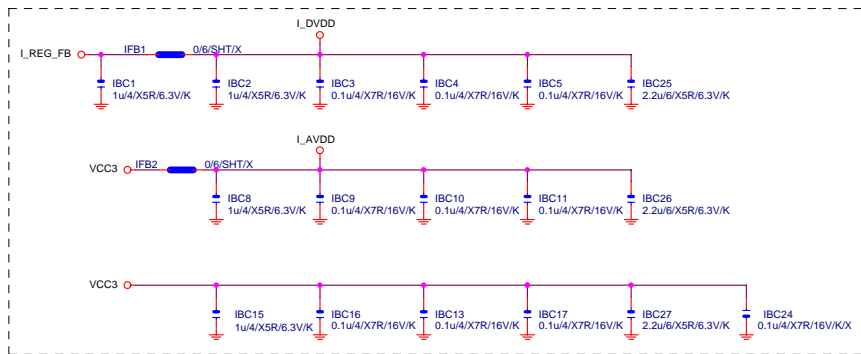
100 欧姆: [20/4/8/4/20]



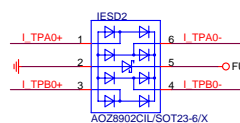
Close to connector



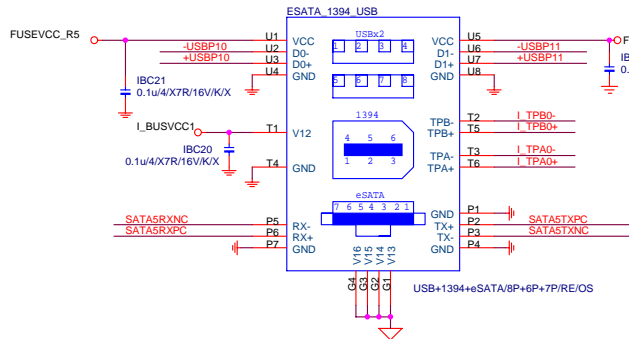
Gigabyte Technology	
REALTEK RTL8111D_1	
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Place close to Header or connector

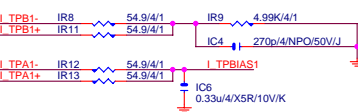
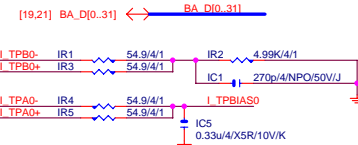
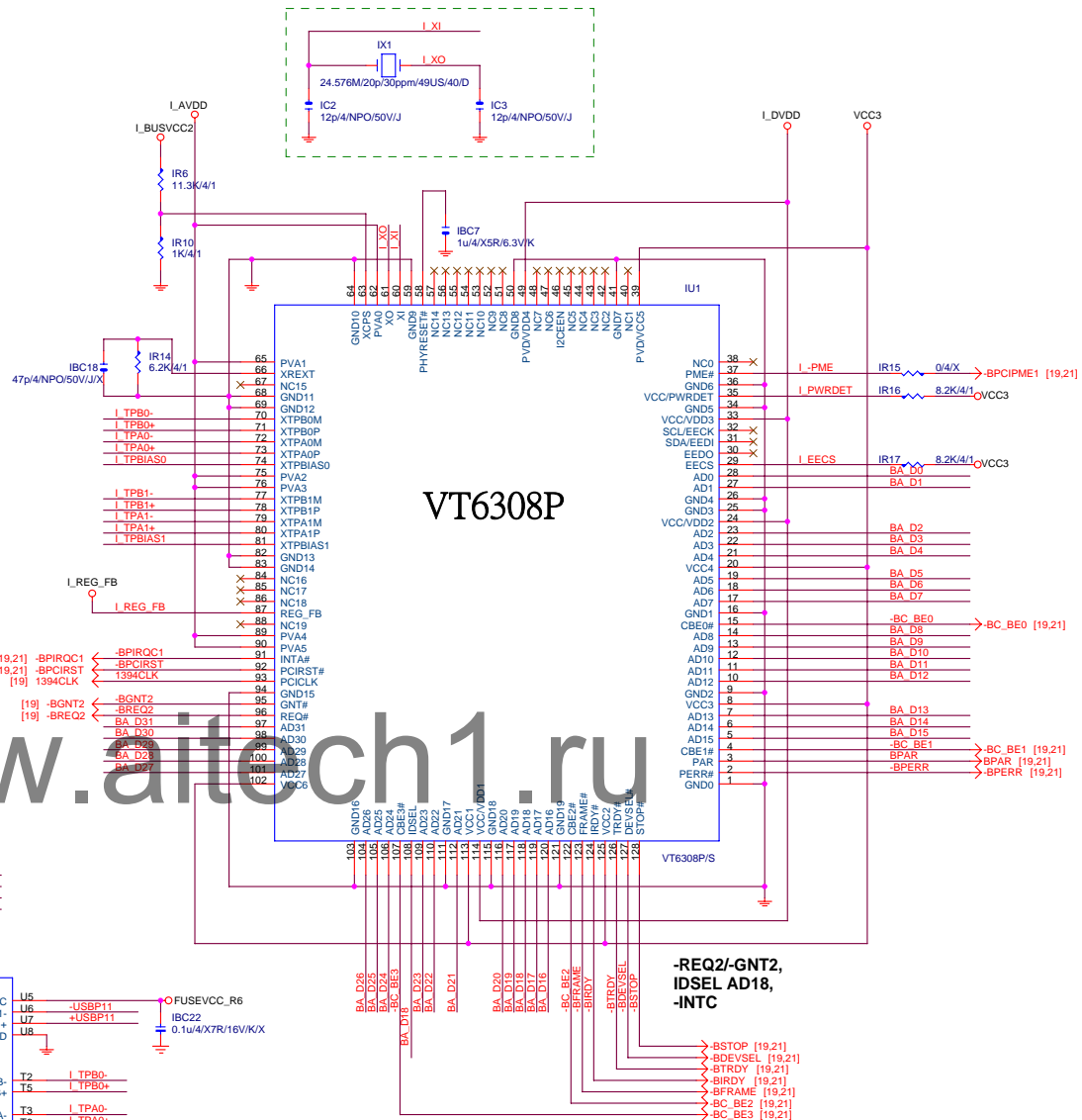


Place close to Header or connector

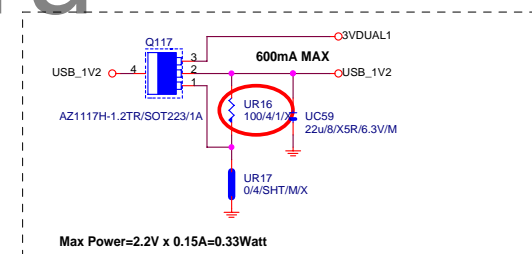
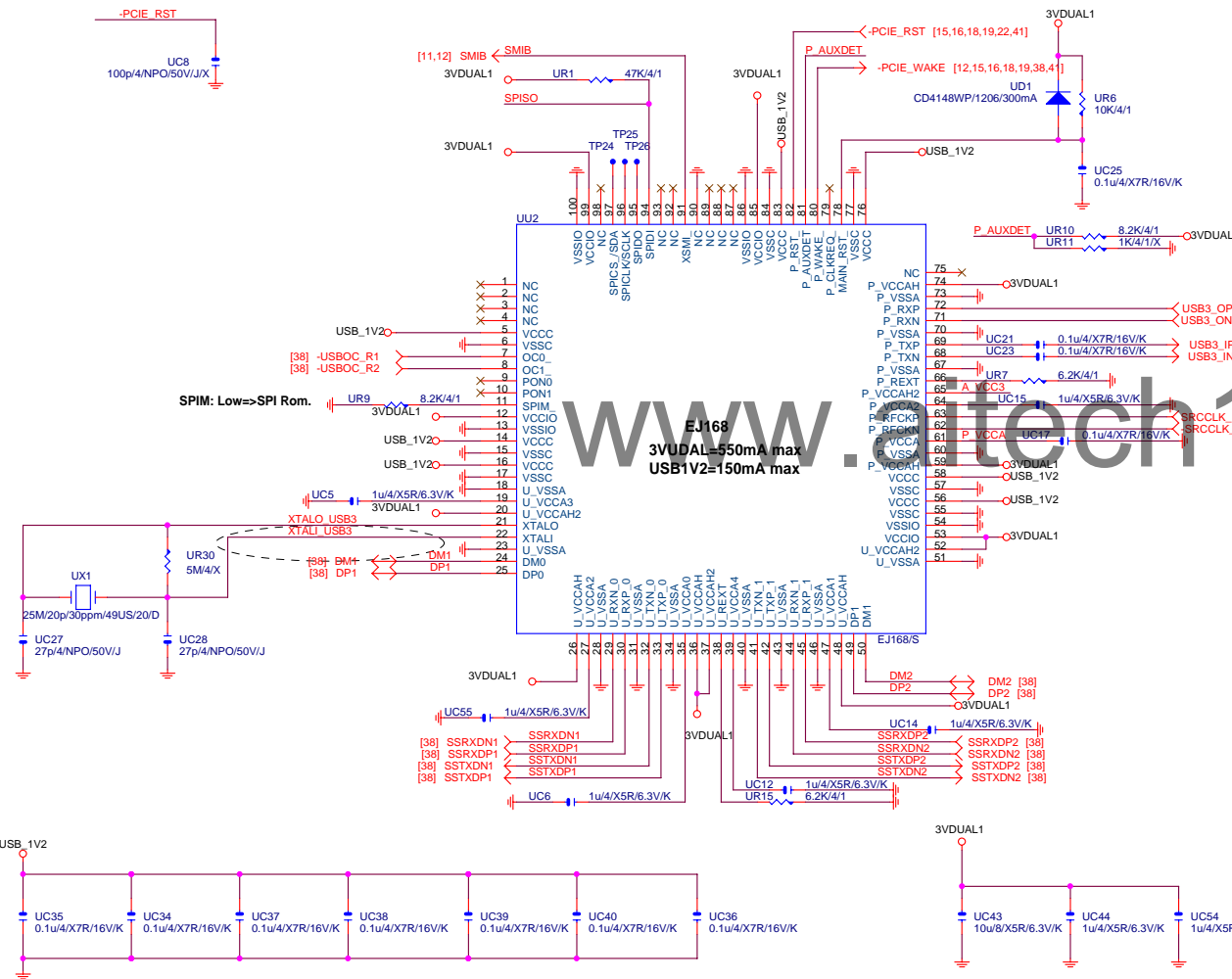
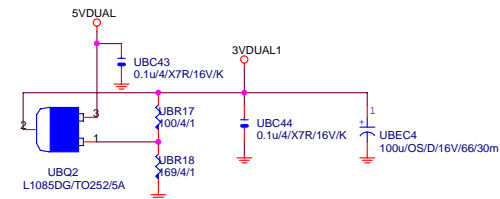
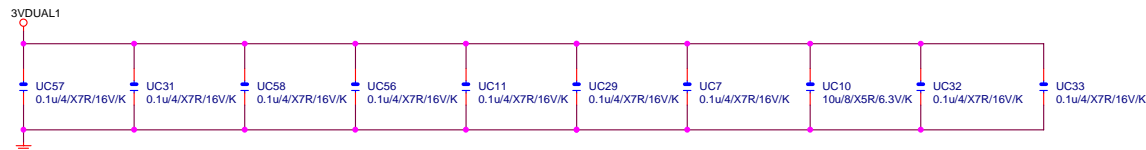


Place close to Header or connector

- [11] SATA5TXP+ SATA5TXP 0.01u/4/X7R/25V/K C1992 SATA5TXPC
- [11] SATA5TXN+ SATA5TXN 0.01u/4/X7R/25V/K C1993 SATA5TXNC
- [11] SATA5RXN+ SATA5RXN 0.01u/4/X7R/25V/K C1994 SATA5RXNC
- [11] SATA5RXP+ SATA5RXP 0.01u/4/X7R/25V/K C1995 SATA5RXPNC



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VT3608 1394			
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Max Power=2.2V x 0.15A=0.33Watt

AZ1117H-1.2TR/SOT223/1A-->UR17:0/4,UR16:N/A [1.2V]

L1117LG/N/SOT223/1A-->UR17:0/4,UR16:100/4/1 [1.25V]

USB3.0 --> 5GHz

BANDWIDTH=5GHz * (8b/10b)=4Gb/s=500MB/s

GIGABYTE™			
Title			
uP720200			
Size	Document Number	Rev	
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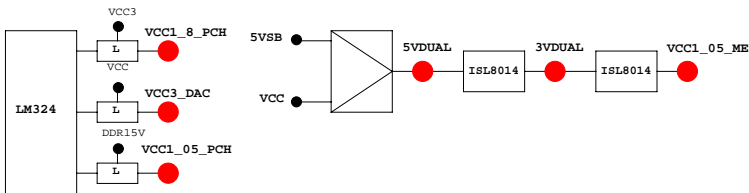
PCH GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	-PECI_REQ	N/A
GP1/TACH1	MAIN		ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#
GP10/OC6#	STBY		NATIVE	OC6#
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL
GP13	STBY	L	GPI	GPIO13
GP14/OC7#	STBY		NATIVE	OC7#
GP15	STBY	L	GPO	GPIO15
GP16	MAIN		GPI	-SKTOCC
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0
GP18	MAIN		NATIVE	MB_ID0
GP19	MAIN		GPI	-LAN1_ISO
GP20	MAIN		NATIVE	LED_CTL
GP21	MAIN		GPI	VCC18_PCH_OV2
GP22	MAIN	H-Z	GPI	VCORE_OV3
GP23	MAIN		NATIVE	-LDRQ1
GP24	STBY	L	GPO	TLS
GP25	STBY		NATIVE	-CPU_STOP
GP26	STBY		NATIVE	-ACZ_DET
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	GPIO28
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	S_PWR_ACK
GP31	STBY	H-Z	GPI	N/A(Reverse)
GP32	MAIN	H	GPO	MB_ID1
GP33	MAIN	H	GPO	LOAD-LINE
GP34	MAIN	H-Z	GPI	-PCI_STOP
GP35	MAIN	L	GPO	GPIO35
GP36	MAIN		GPI	-LAN1_DSM
GP37	MAIN		GPI	N/A
GP38	MAIN	H-Z	GPI	VCORE_OV2
GP39	MAIN	H-Z	GPI	-LAN_DSM
GP40	STBY		NATIVE	OC1#
GP41	STBY		NATIVE	OC2#
GP42	STBY		NATIVE	OC3#
GP43	STBY		NATIVE	OC4#
GP44	STBY	L	NATIVE	N/A
GP45	STBY		NATIVE	-LPCPME
GP46	STBY	L	NATIVE	PWR_LED
GP47	STBY		NATIVE	PSI_LED
GP48	MAIN	H-Z	IN	EN_PWM
GP49	MAIN	H-Z	IN	VCC18_OV1
GP50	MAIN		NATIVE	-REQ1
GP51	MAIN	H	NATIVE	-GNT1
GP52	MAIN		NATIVE	-REQ2
GP53	MAIN	H	NATIVE	-GNT2
GP54	MAIN		NATIVE	-REQ3
GP55	MAIN	H	NATIVE	-GNT3
GP56	STBY		NATIVE	N/A(Reverse)
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY		NATIVE	USB_OC0#
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	-SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		NATIVE	1_05V_OV1
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

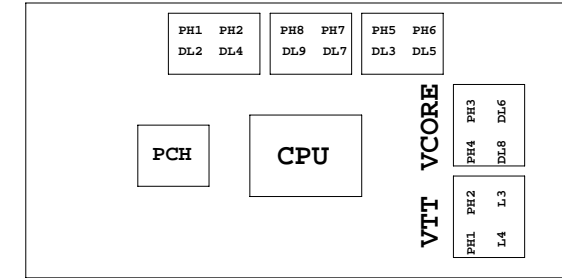
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SFI_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/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SCX	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	2X_PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_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/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRXL/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位の擺法如下：



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

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	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			
File	TABLE LIST		
Size	Document Number	Rev	
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