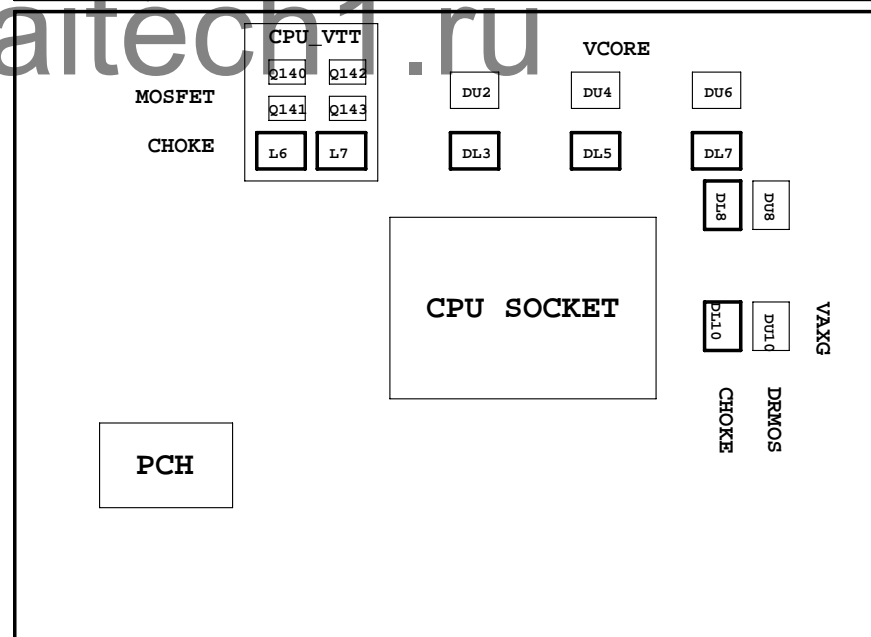


SHEET TITLE

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 1.0
Custom			
Date:	Wednesday, April 27, 2011	Sheet 1 of 42	

GA-Z68X-UD3H-B3

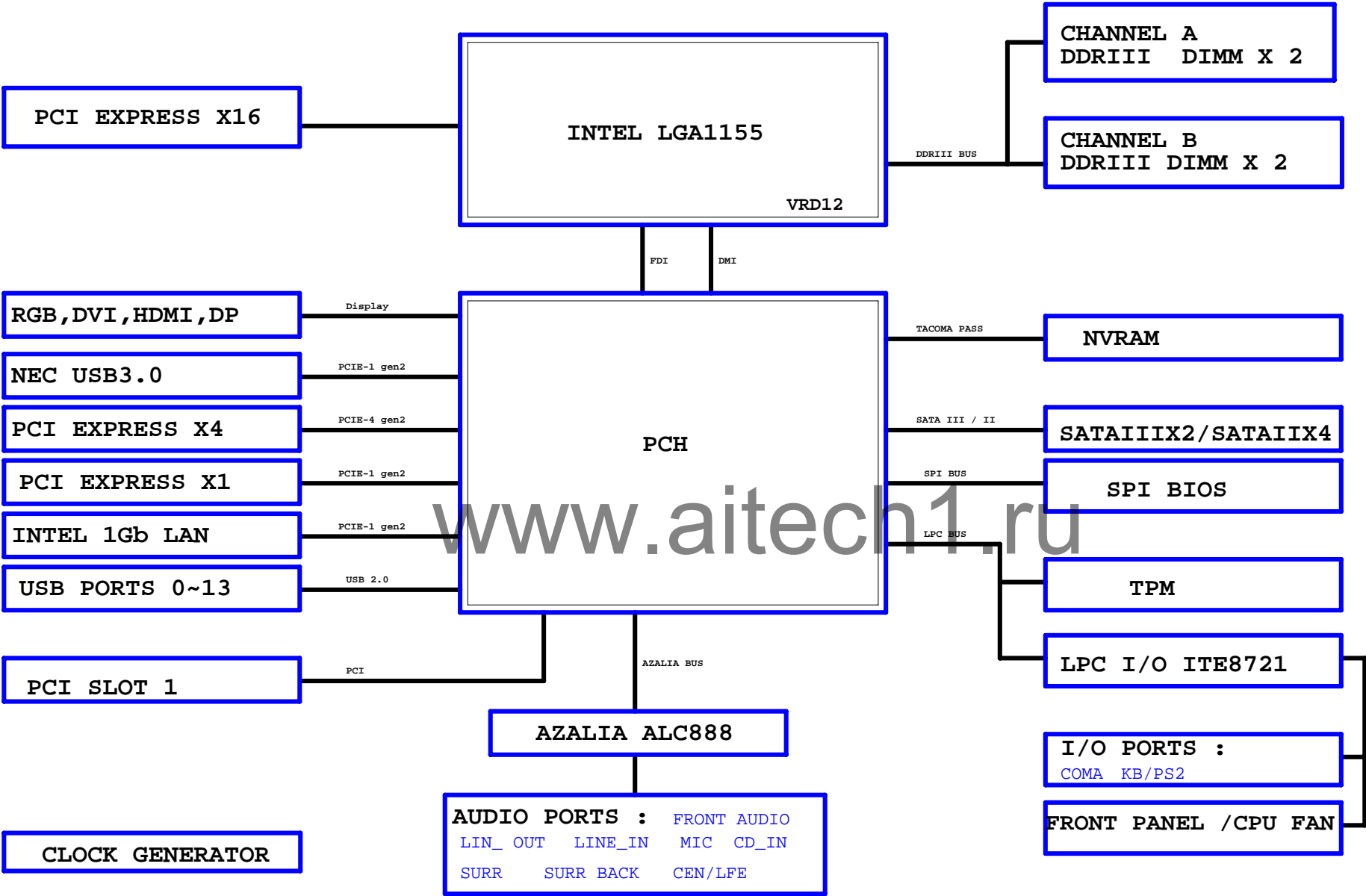
Component value change history

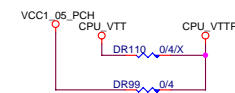
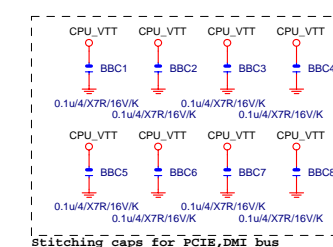
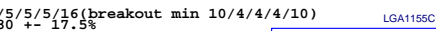
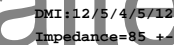
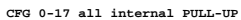
Data	Change Item	Reason
2011/02/18	9MZ68XD4B-00-01.txt	first release BOM
	LGA1155 12KRC-0F0001-01R change to 12KRC-0F0001-22R	Modify 鍍黑線
	DEL LR15 0 ohm & R683 33 ohm.	Modify LAN
	ADD LX1,LAR14 LC4,LC3	Modify LAN
2011/03/10	9MZ68XD4B-00-02.txt	DVT release BOM
	R535 2K ohm change to 499 ohm	VCC1_05_PCH 電阻值調整
	R524 2.55K ohm change to 649 ohm	VCC1_05_PCH 電阻值調整
	remove R128 10 ohm & R138 , R139 1K ohm	CPU_VTT power 電阻值調整
	ADD R140 1K ohm & R126 , R127 10 ohm	CPU_VTT power 電阻值調整
	DR26 10K ohm change to 8.2K ohm & DR28 1.1K ohm change to 499 ohm,DR17 27K ohm change to 20K ohm.	Load-line 電阻值調整 Load-line 電阻值調整
	remove DR23 249 ohm.	Chock noise issue
	11NH3-000205-F1R change to 11NH2-000205-B3R	Modify F_audio
	ADD R543 1K ohm	VCCSA power 電阻值調整
	ADD REC1 560U	8172 SPEC
2011/03/18	9MZ68XU3H-00-02	Modify model name release BOM
2011/04/8	9MZ68XU3H-00-10A.txt	PVT release BOM
2011/04/13	9MZ68XU3H-00-10B.txt	modify PCH_HS 料號.
2011/04/17	9MZ68XU3H-00-10C.txt	DR69 205K ohm change to 200K ohm.
2011/04/27	9MZ68XU3H-00-10D.txt	modify MOS_HS1 料號.

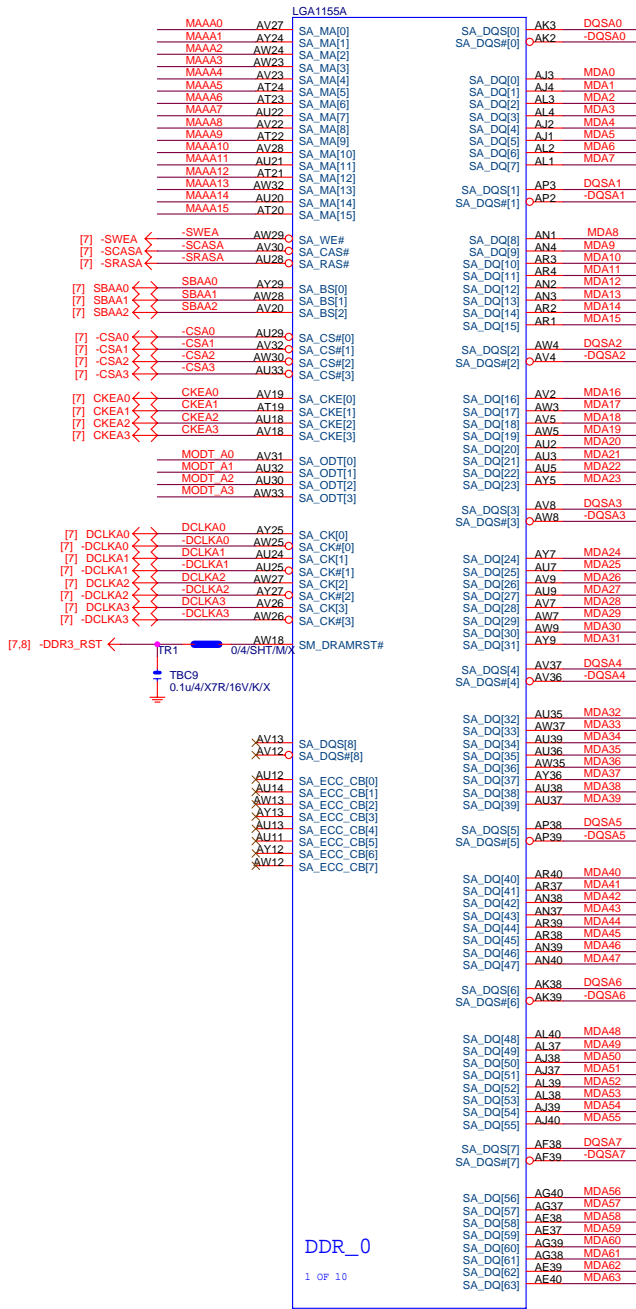
Circuit or PCB layout change

DATE	Change Item	Reason
2011/02/16	Z68X-UD4H-B3 0.1 gerber out	rev:0.1
	Modify cpu_vaxg power	
2011/03/17	Z68X-UD3H-B3 0.2 gerber out	rev:0.2
	Modify model name	
2011/04/8	Z68X-UD3H-B3 1.0 gerber out	rev:1.0
	Modify AGND	

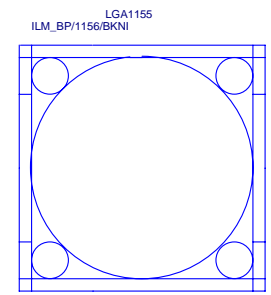
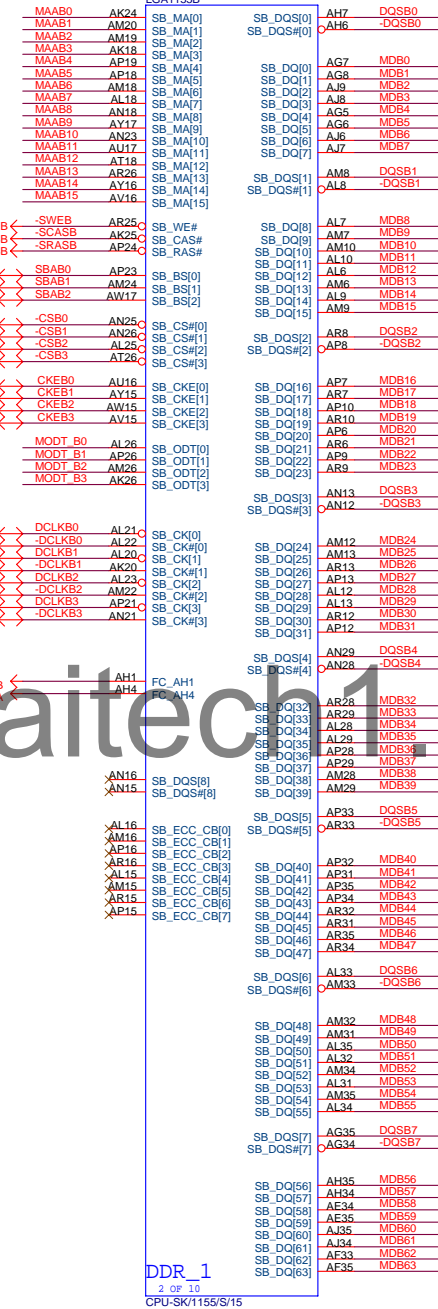
BLOCK DIAGRAM



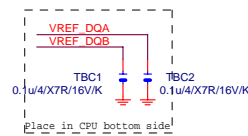


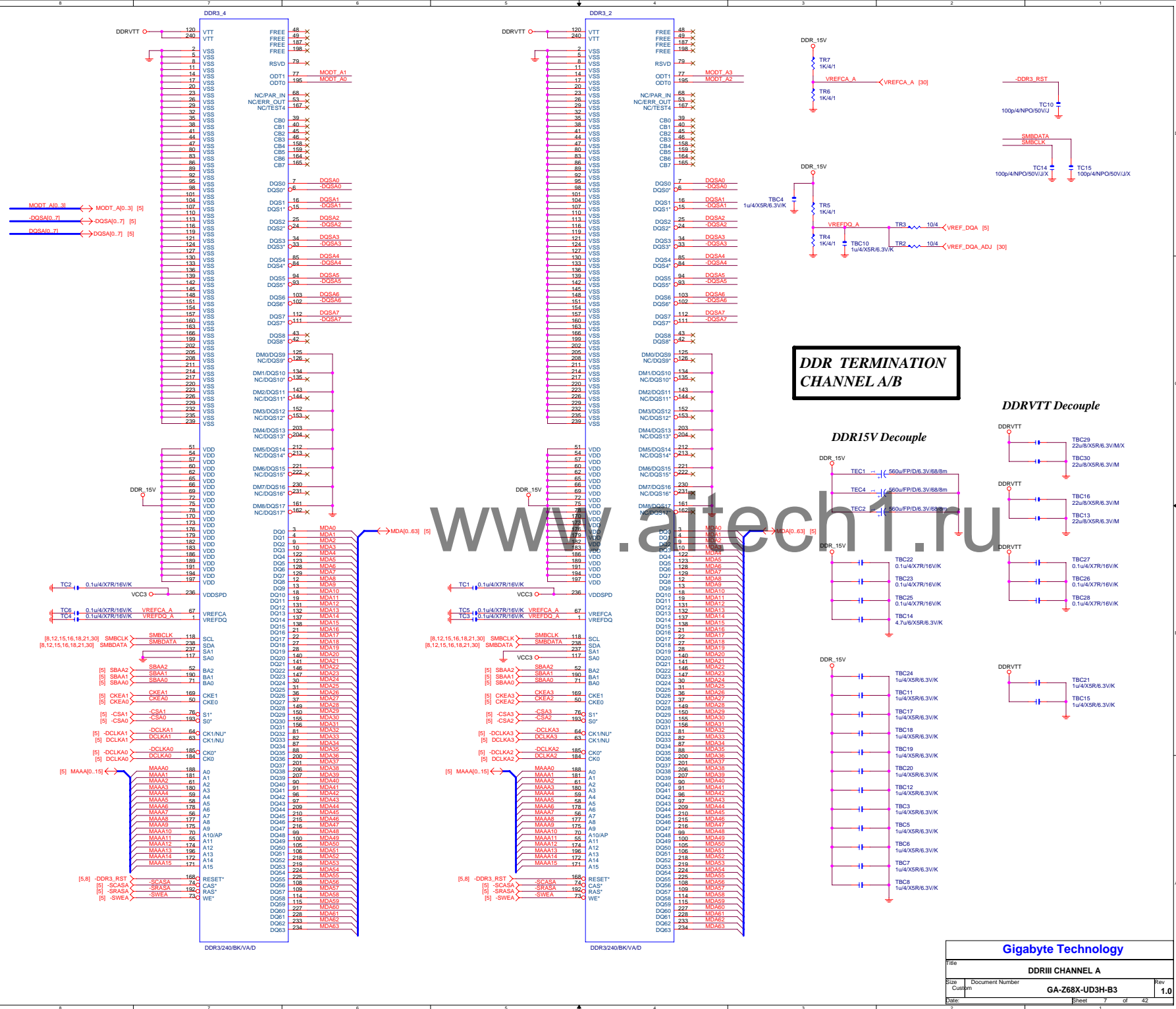


www.aitech1.ru



Need check the new CPU ME





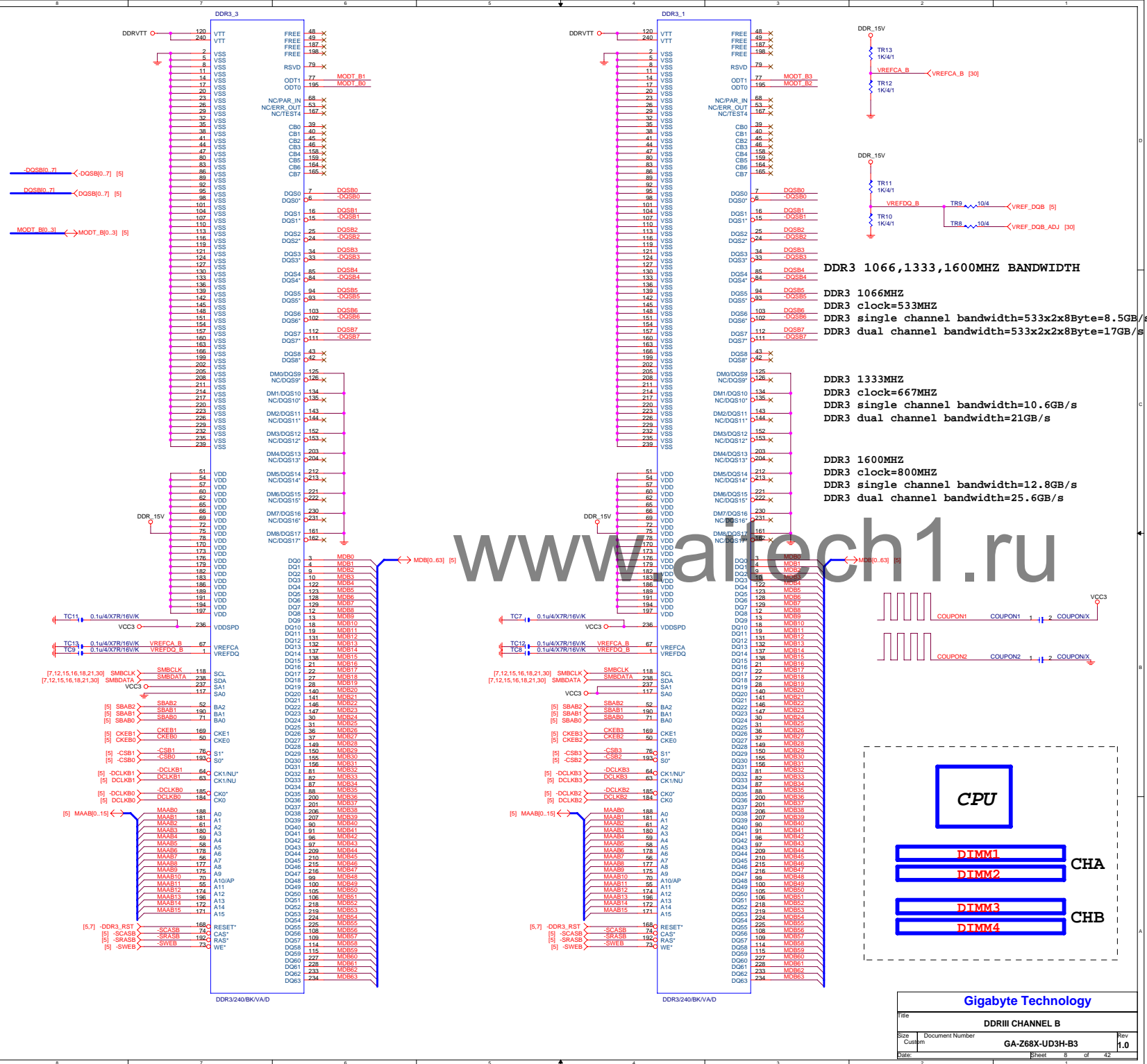
DDR TERMINATION
CHANNEL A/B

DDRVTT Decouple

DDR15V Decouple

Gigabyte Technology

Title			DDR3 CHANNEL A
Size			Document Number
Custom			GA-Z68X-UD3H-B3
Date:	Sheet	7	of 42
			Rev 1.0

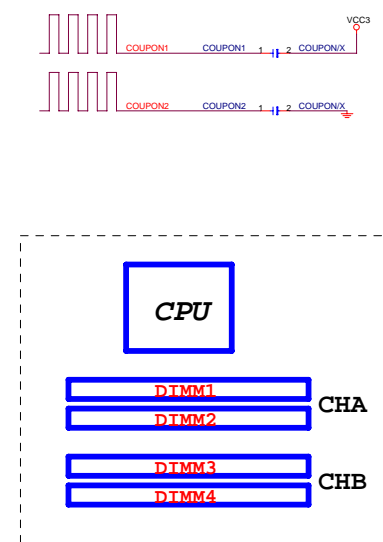


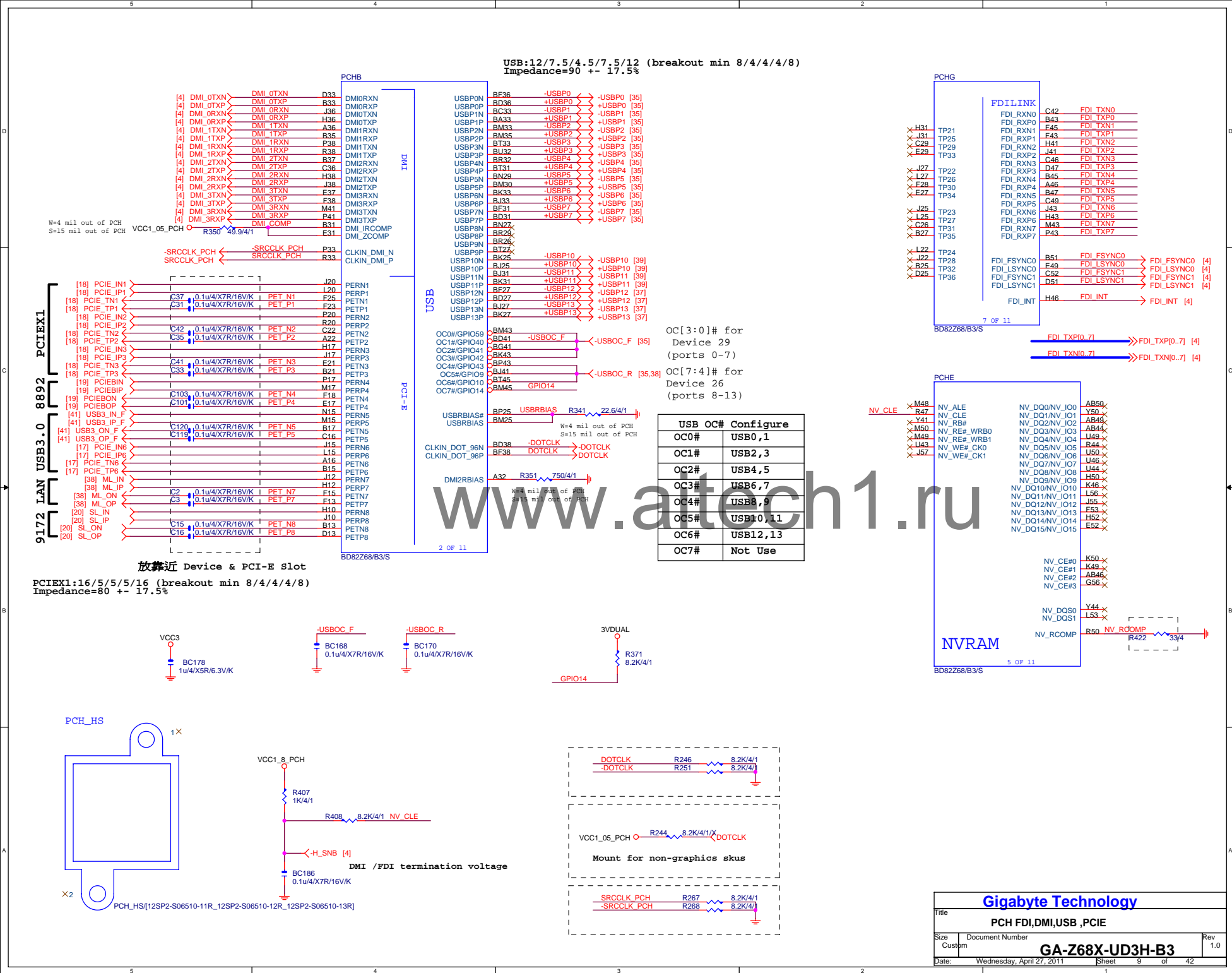
DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

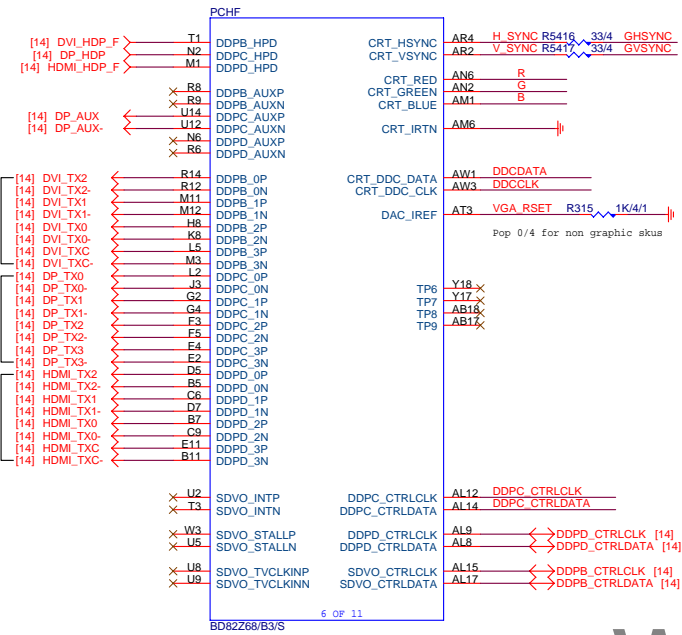
DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

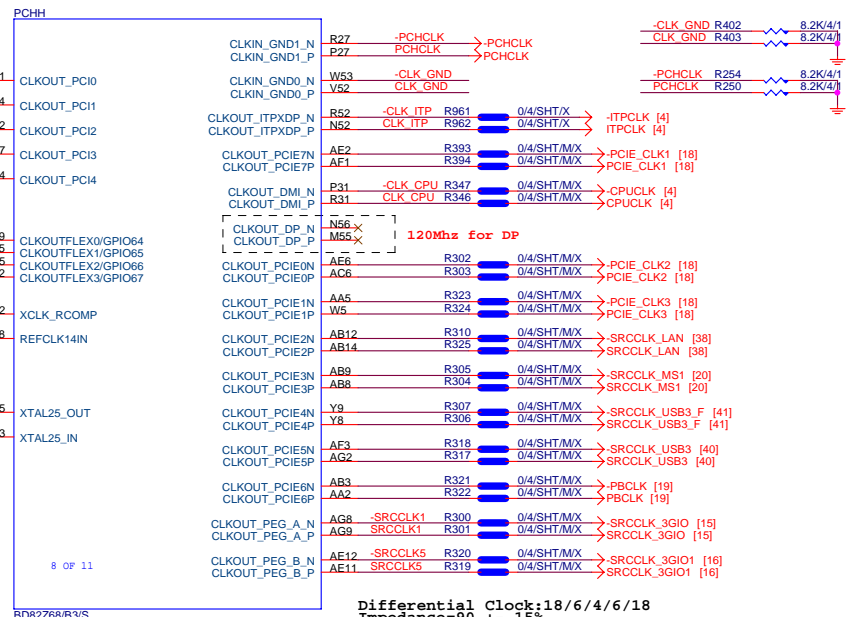
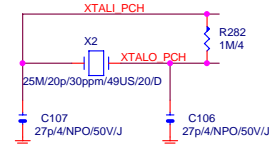




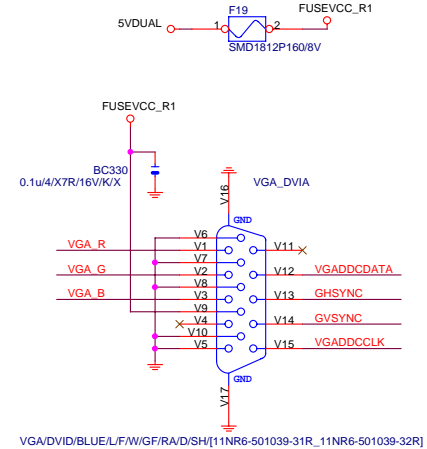
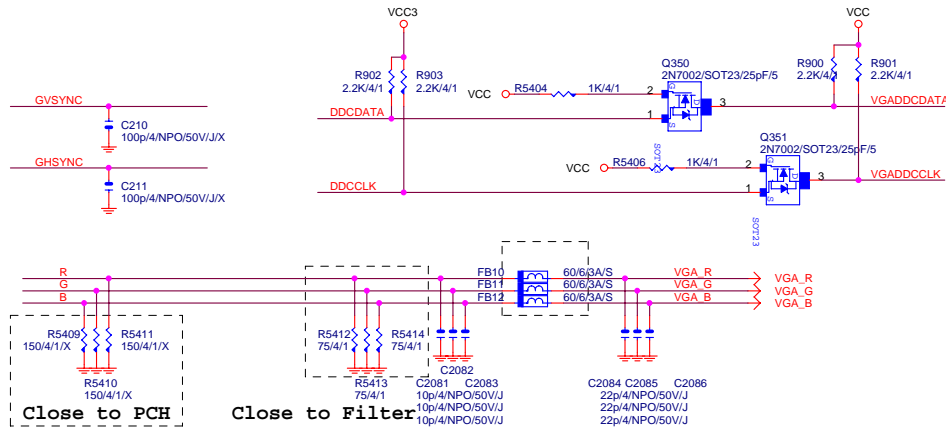
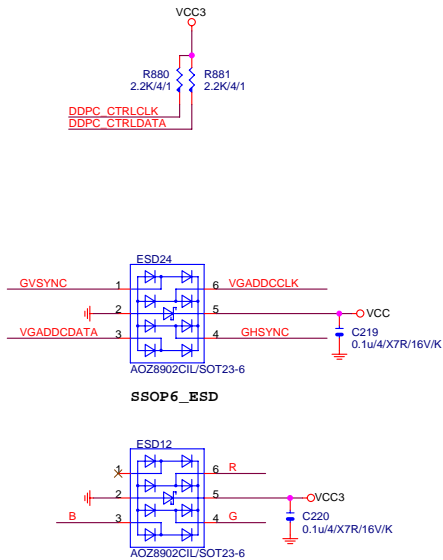
www.aitech1.ru



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

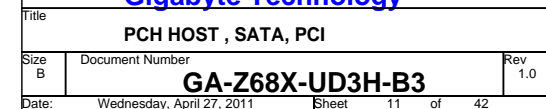


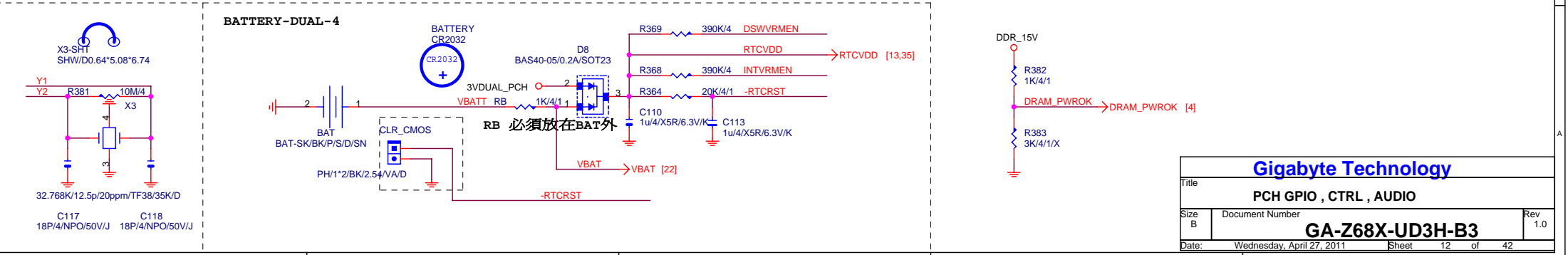
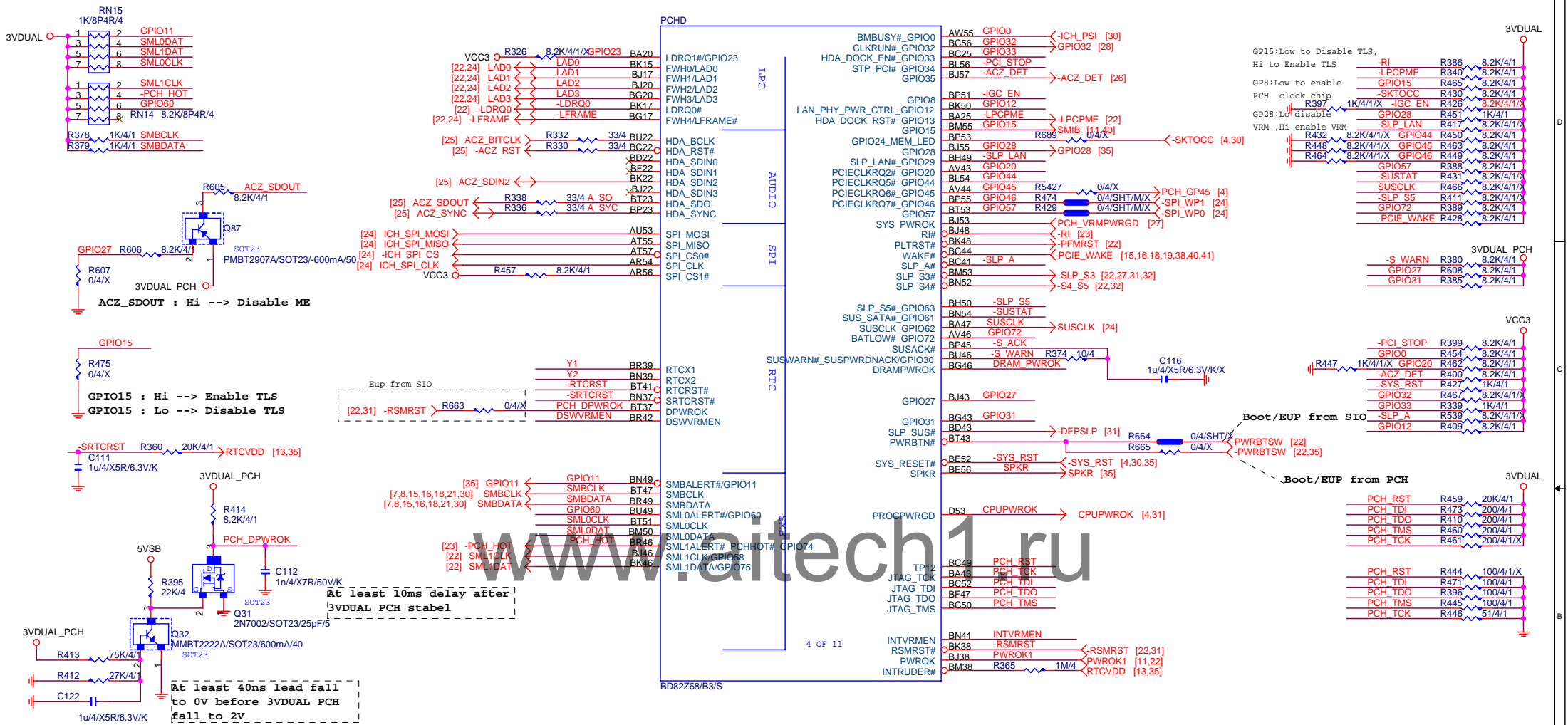
Differential Clock:18/6/4/6/18
Impedance=90 +- 15%

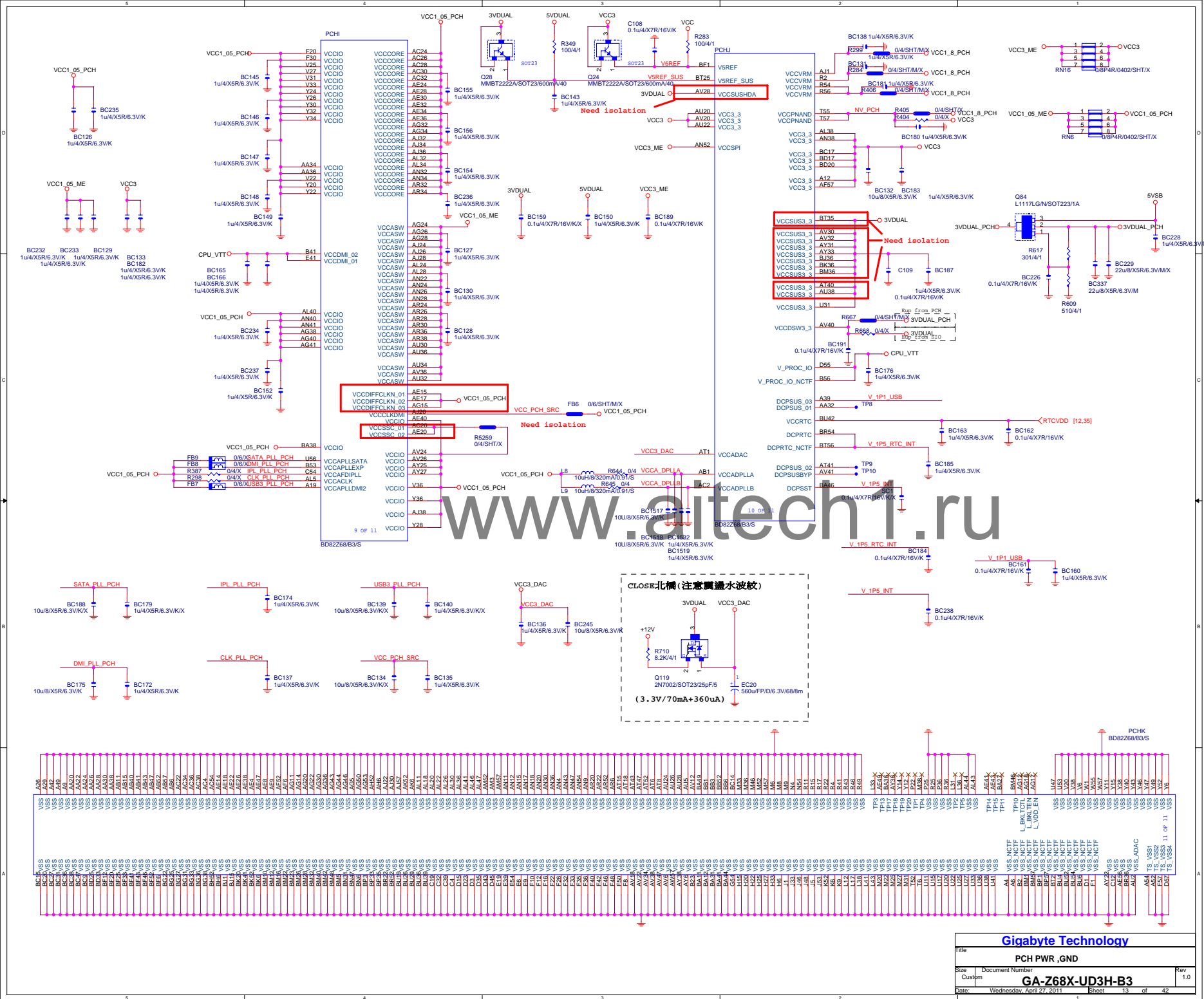


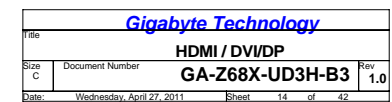
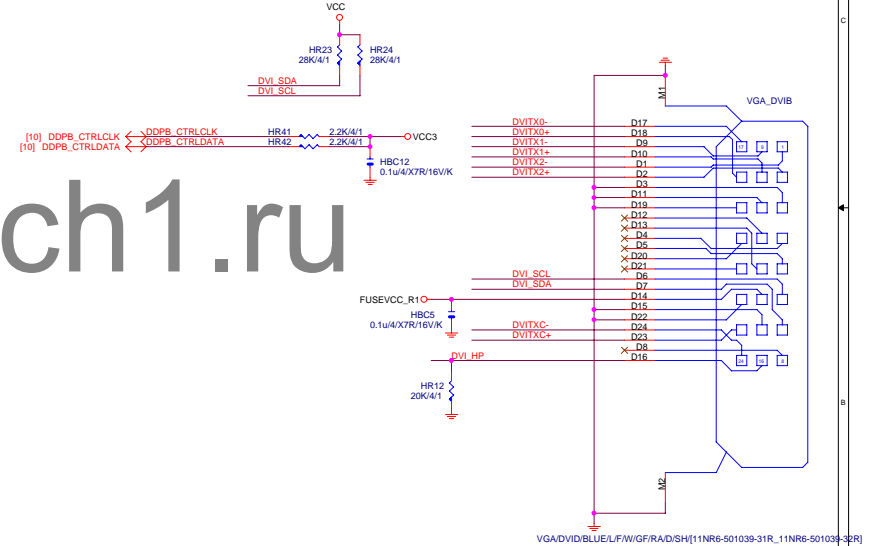
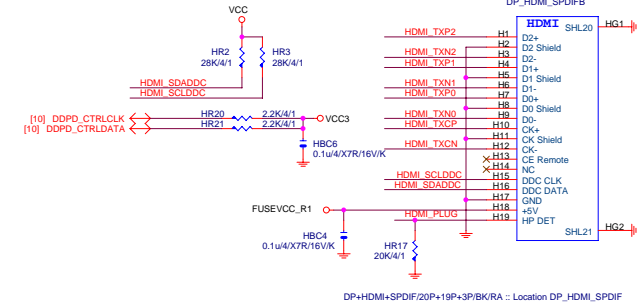
Gigabyte Technology			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-Z68X-UD3H-B3	1.0	
Date:	Wednesday, April 27, 2011	Sheet	10 of 42

PCHC

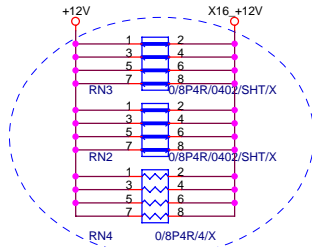








+12 protect
short-wire test



PCIE16:16/5/5/5/16

EXP_RXP0..15] >> EXP_RXP[0..15] [4,17]
EXP_RXN0..15] >> EXP_RXN[0..15] [4,17]
EXP_TXP0..15] >> EXP_TXP[0..15] [4,17]
EXP_TXN0..15] >> EXP_TXN[0..15] [4,17]

EXP_TXP0	C43	0.22u/4/X5R/6.3V/K/EXP_TXP0C
EXP_TXN0	C36	0.22u/4/X5R/6.3V/K/EXP_TXN0C
EXP_TXP1	C47	0.22u/4/X5R/6.3V/K/EXP_TXP1C
EXP_TXN1	C49	0.22u/4/X5R/6.3V/K/EXP_TXN1C
EXP_TXP2	C52	0.22u/4/X5R/6.3V/K/EXP_TXP2C
EXP_TXN2	C54	0.22u/4/X5R/6.3V/K/EXP_TXN2C
EXP_TXP3	C57	0.22u/4/X5R/6.3V/K/EXP_TXP3C
EXP_TXN3	C59	0.22u/4/X5R/6.3V/K/EXP_TXN3C
EXP_TXP4	C62	0.22u/4/X5R/6.3V/K/EXP_TXP4C
EXP_TXN4	C64	0.22u/4/X5R/6.3V/K/EXP_TXN4C
EXP_TXP5	C65	0.22u/4/X5R/6.3V/K/EXP_TXP5C
EXP_TXN5	C67	0.22u/4/X5R/6.3V/K/EXP_TXN5C
EXP_TXP6	C69	0.22u/4/X5R/6.3V/K/EXP_TXP6C
EXP_TXN6	C71	0.22u/4/X5R/6.3V/K/EXP_TXN6C
EXP_TXP7	C76	0.22u/4/X5R/6.3V/K/EXP_TXP7C
EXP_TXN7	C75	0.22u/4/X5R/6.3V/K/EXP_TXN7C
EXP_A_SW_TXP8	C79	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP8C
EXP_A_SW_TXN8	C80	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN8C
EXP_A_SW_TXP9	C81	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP9C
EXP_A_SW_TXN9	C82	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN9C
EXP_A_SW_TXP10	C86	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP10C
EXP_A_SW_TXN10	C87	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN10C
EXP_A_SW_TXP11	C90	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP11C
EXP_A_SW_TXN11	C91	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN11C
EXP_A_SW_TXP12	C92	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP12C
EXP_A_SW_TXN12	C93	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN12C
EXP_A_SW_TXP13	C95	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP13C
EXP_A_SW_TXN13	C96	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN13C
EXP_A_SW_TXP14	C97	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP14C
EXP_A_SW_TXN14	C98	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN14C
EXP_A_SW_TXP15	C99	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXP15C
EXP_A_SW_TXN15	C100	0.22u/4/X5R/6.3V/K/EXP_A_SW_TXN15C

EXP_A_SW_RXP8..15] >> EXP_A_SW_RXP[8..15] [17]
EXP_A_SW_RXN8..15] >> EXP_A_SW_RXN[8..15] [17]
EXP_A_SW_TXP8..15] >> EXP_A_SW_TXP[8..15] [17]
EXP_A_SW_TXN8..15] >> EXP_A_SW_TXN[8..15] [17]

PCI-E REV:1.1--> 2.5GHZ

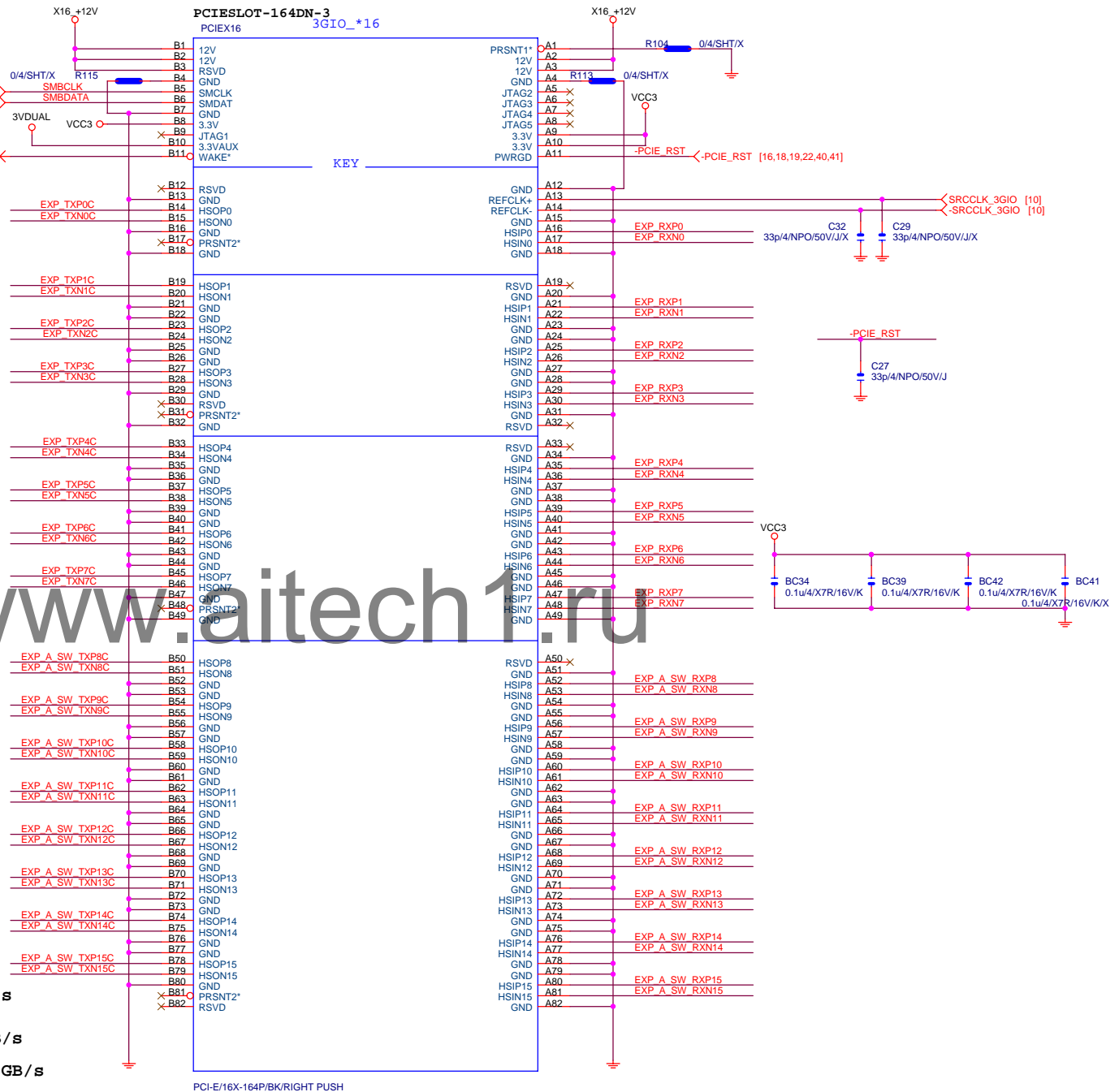
PCE-E X1(單向) BANDWIDTH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWIDTH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWIDTH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWIDTH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

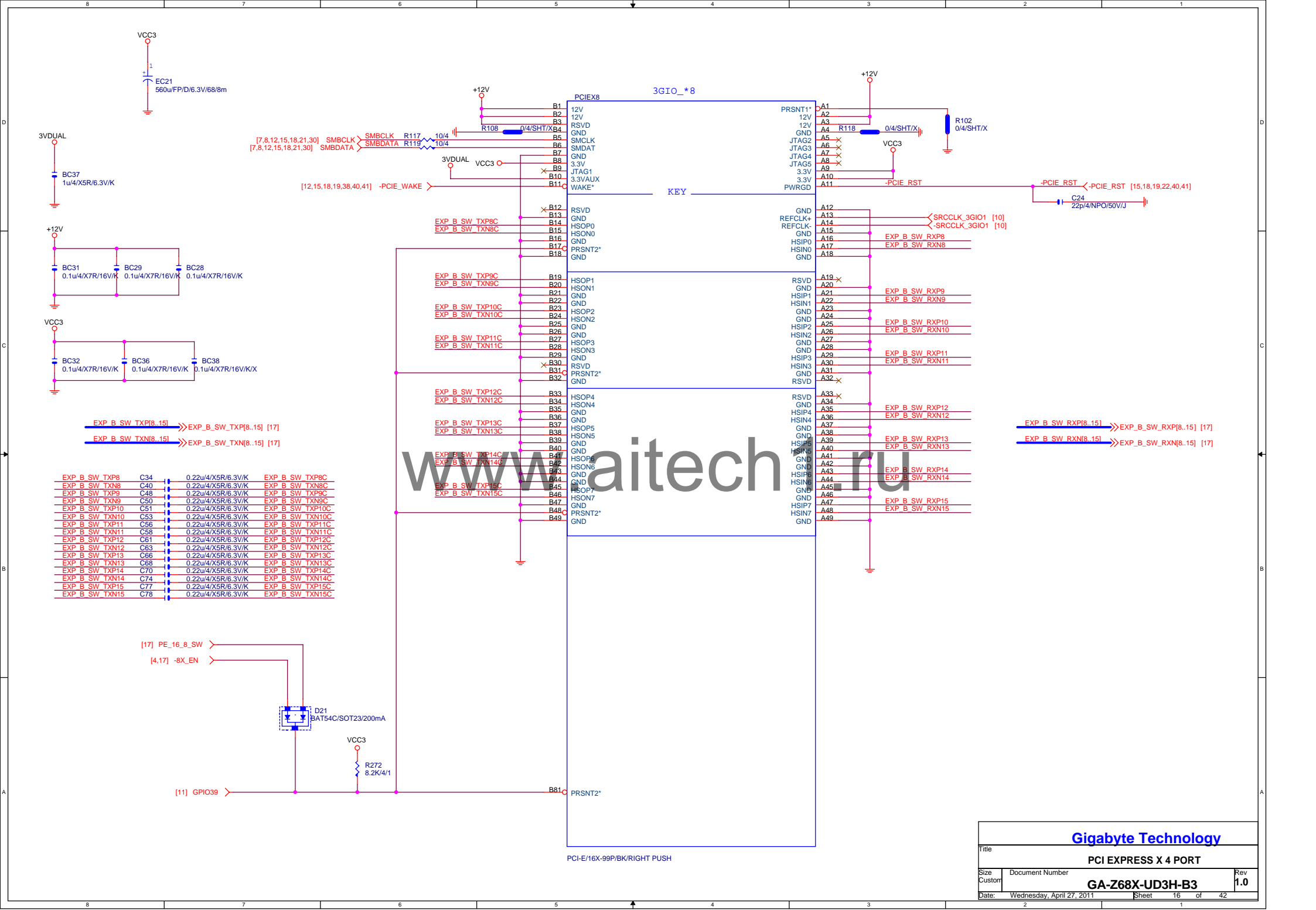
PCI-E REV:2.0--> 5GHZ

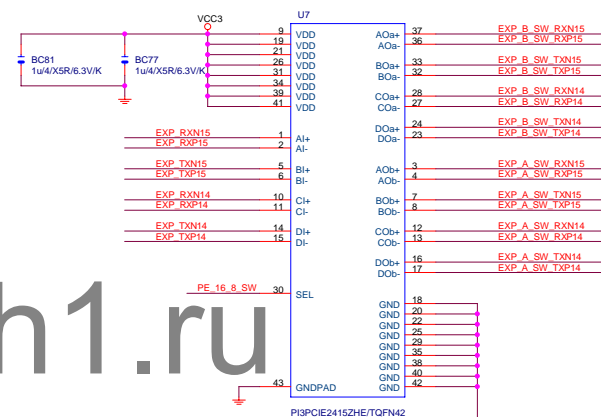
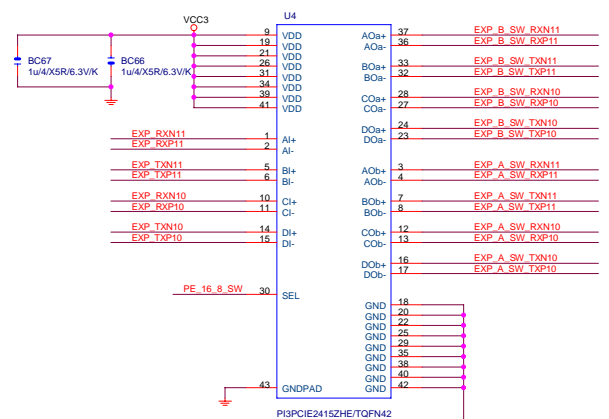
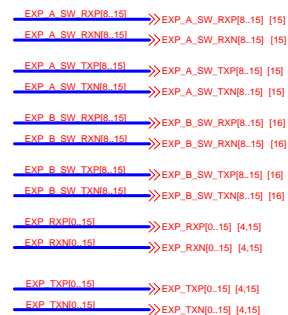


PCI-E16X-164P/BK/RIGHT PUSH

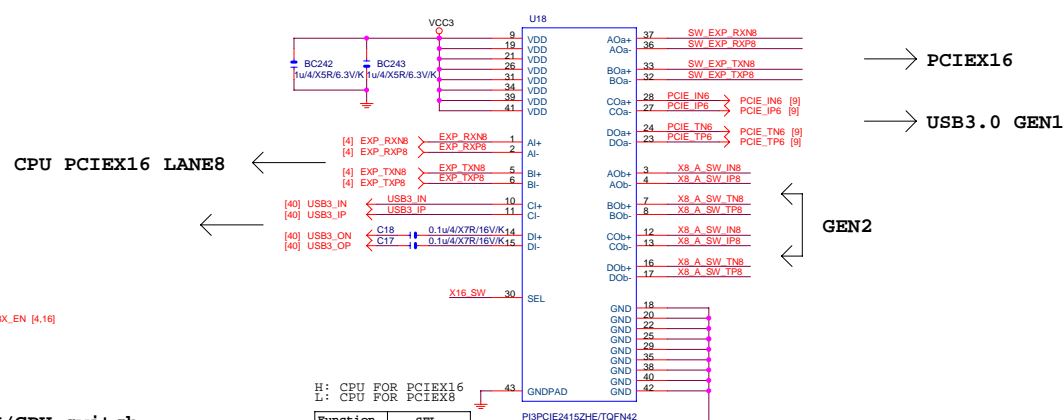
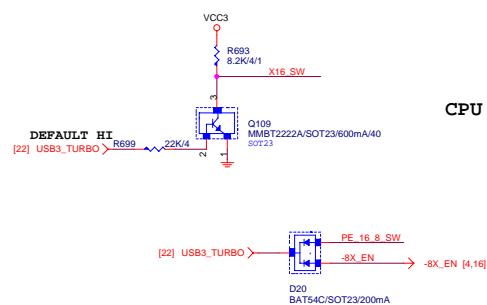
Gigabyte Technology

Title			
PCI EXPRESS * 16			
Size	Document Number	GA-Z68X-UD3H-B3	
Custom			Rev 1.0
Date:	Wednesday, April 27, 2011	Sheet	15 of 42





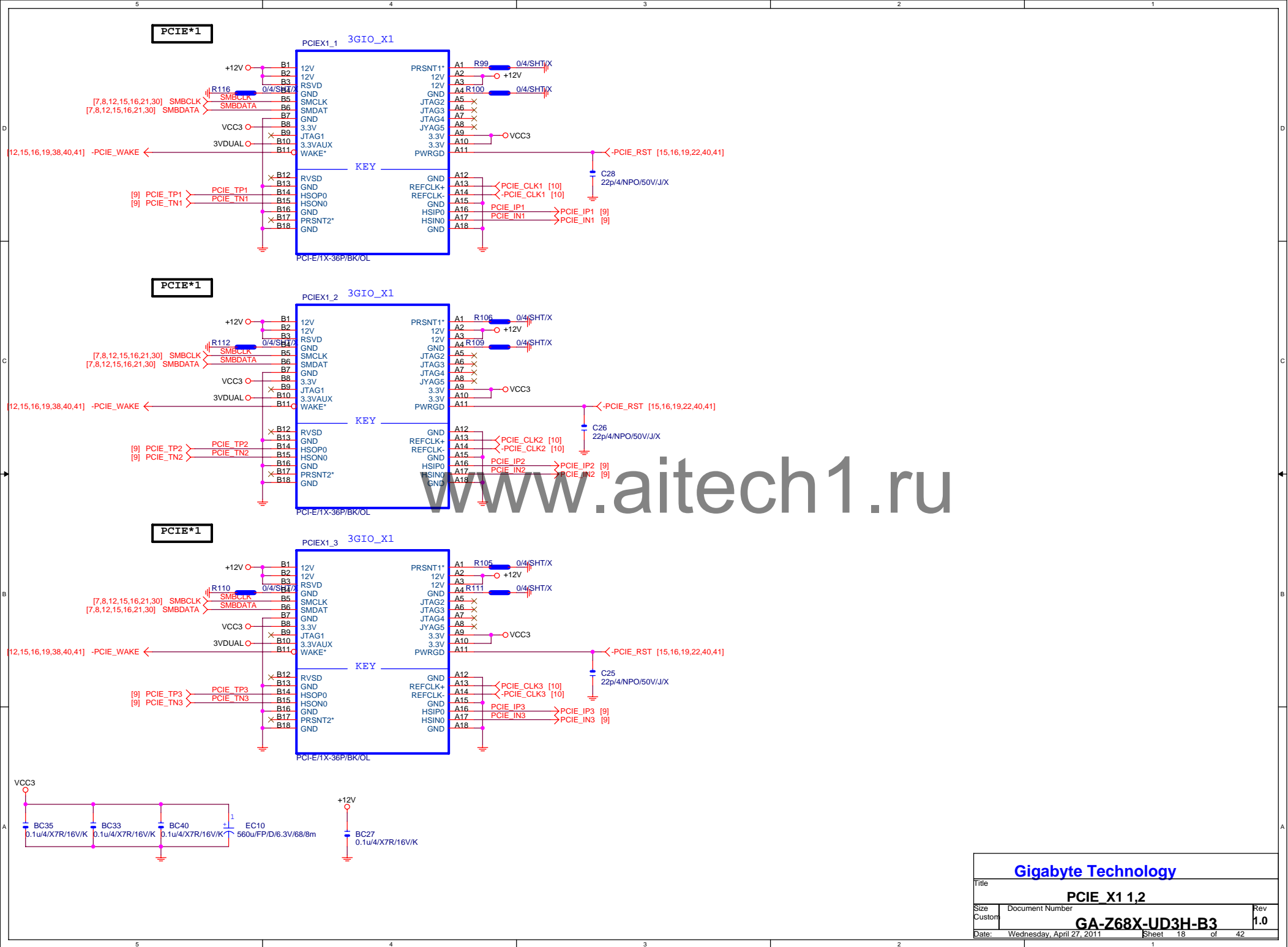
www.aitech1.ru



	USB3.0 Gen1 : Lo USB3.0 Gen2 : Hi X16_SW	MCH X16 : Hi MCH X8 : Lo -8X_EN
USB3.0 PCH	Lo	Hi
USB3.0 CPU	Hi	Lo

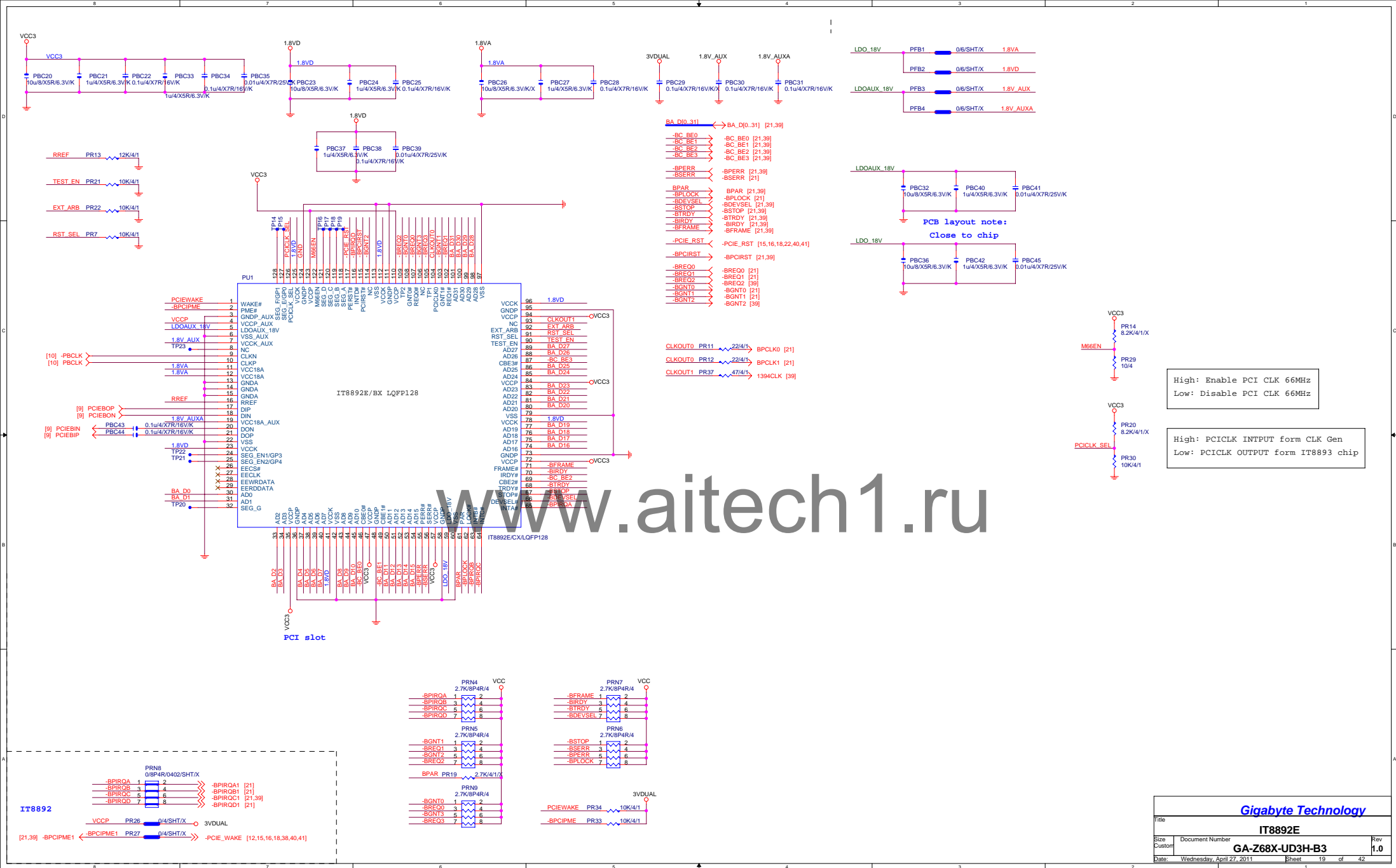
Function	SEL
xI--> xOa	L
xI--> xOb	H

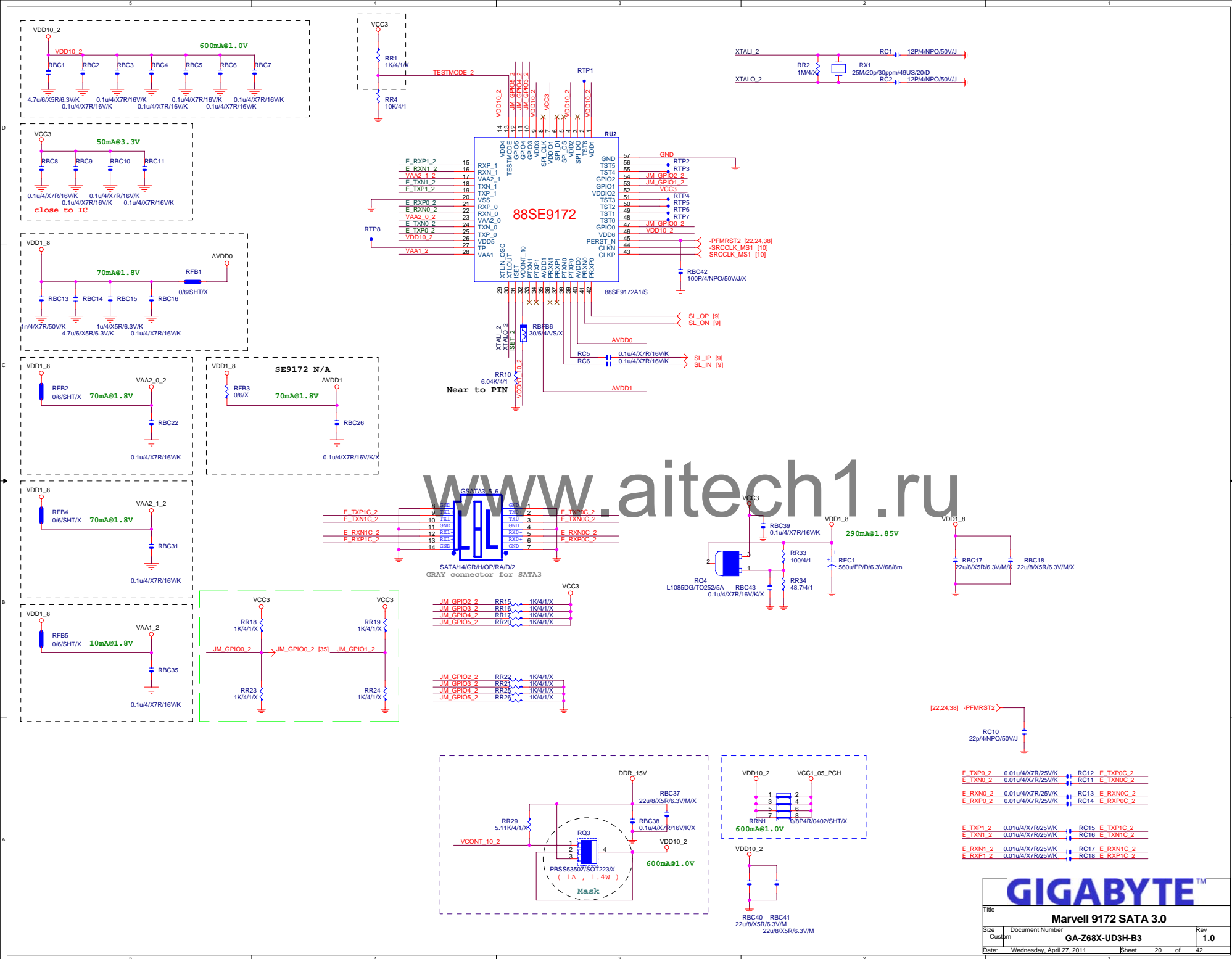
Function	SEL
USB3.0 GNE2	H
USB3.0 GNE1	L

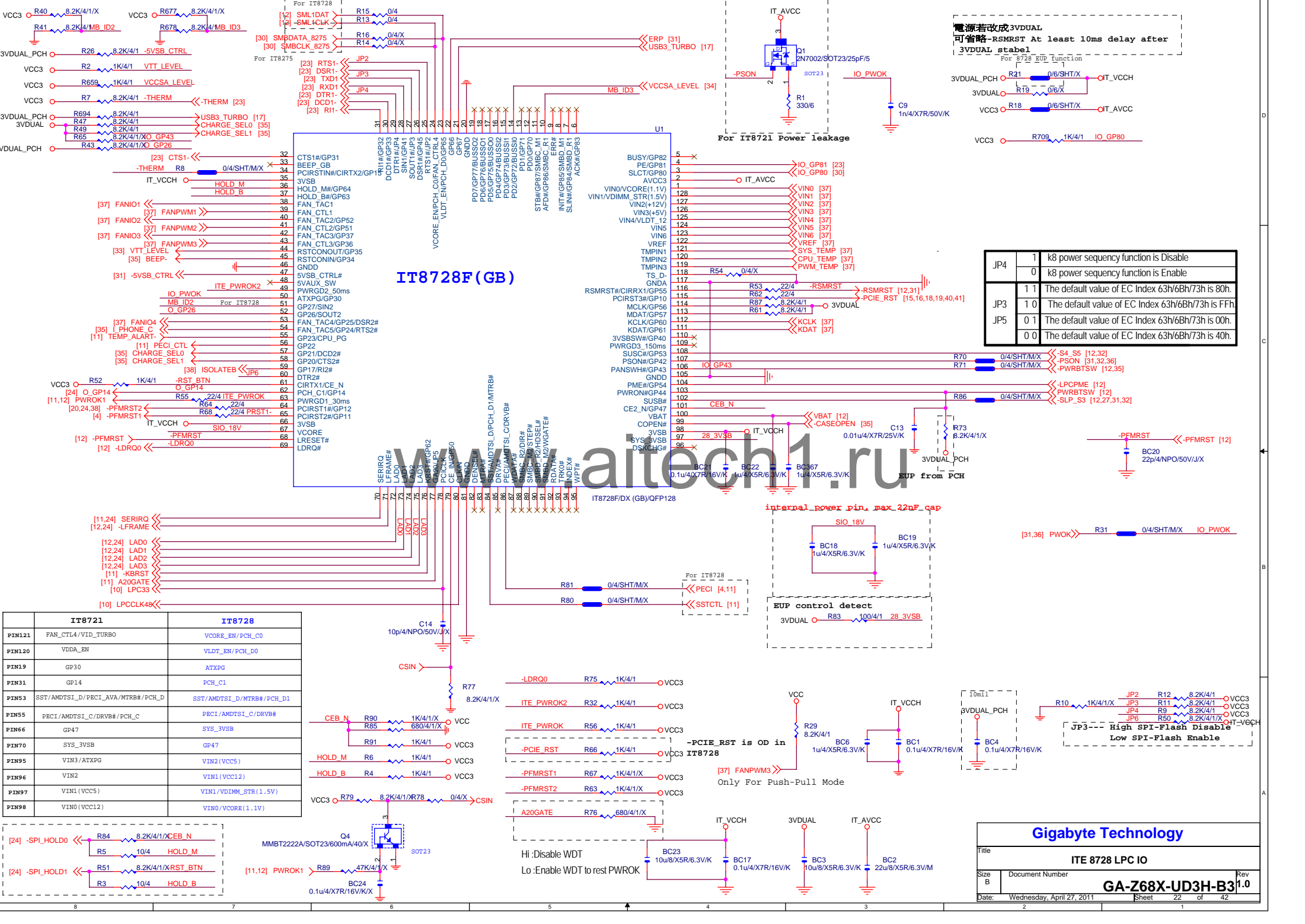


Gigabyte Technology

Title		
PCIE X1 1,2		
Size	Document Number	Rev
Custom	GA-Z68X-UD3H-B3	1.0
Date:	Wednesday, April 27, 2011	Sheet 18 of 42







電源若改成3VDUAL
可省略-RSMRST At least 10ms delay after
3VDUAL stabel

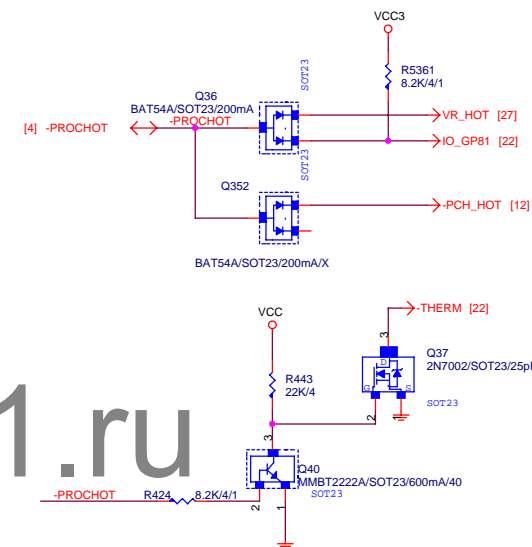
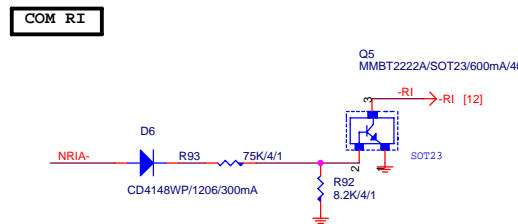
For 8728 EUP function

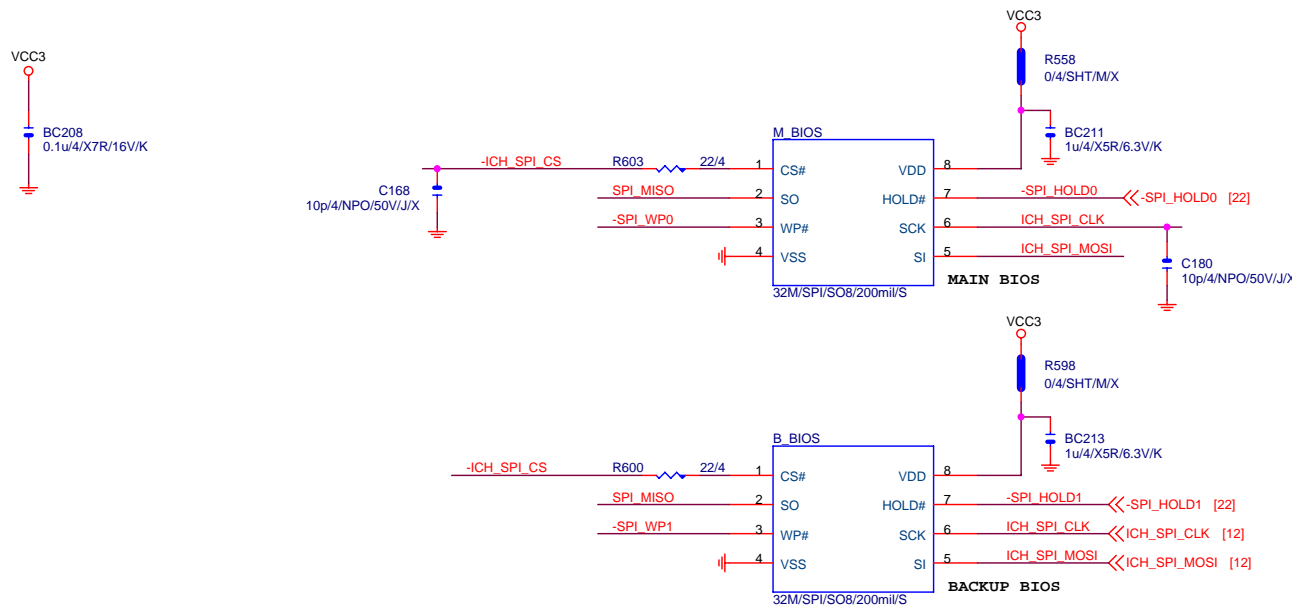
3VDUAL_PCH R21 0/6/SHT/X IO_VCCH
3VDUAL R19 0/6/X
VCC3 R18 0/6/SHT/X IO_AVCC

VCC3 R709 1K/4/1 IO_GP80

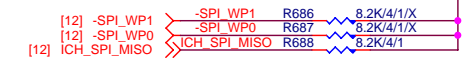
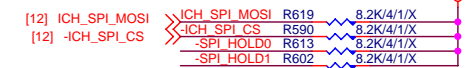
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

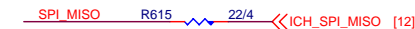




MOSI For DMI RX Termination Voltage



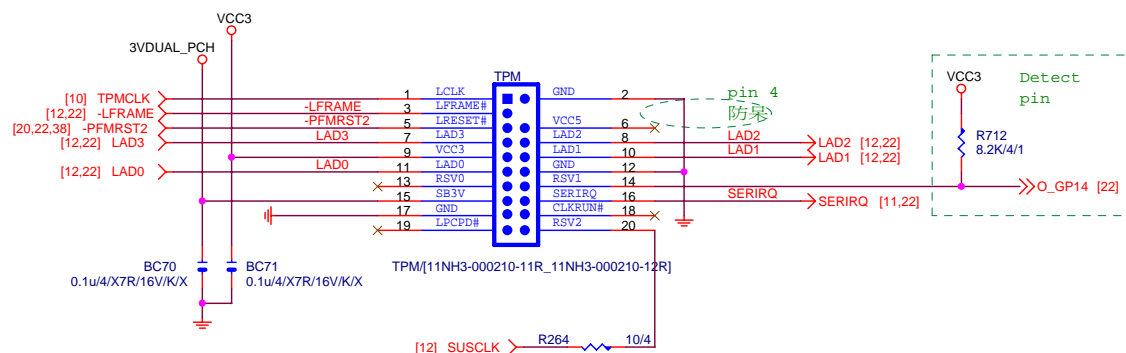
Default int pull up



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

1 means floating
0 means PD 1K

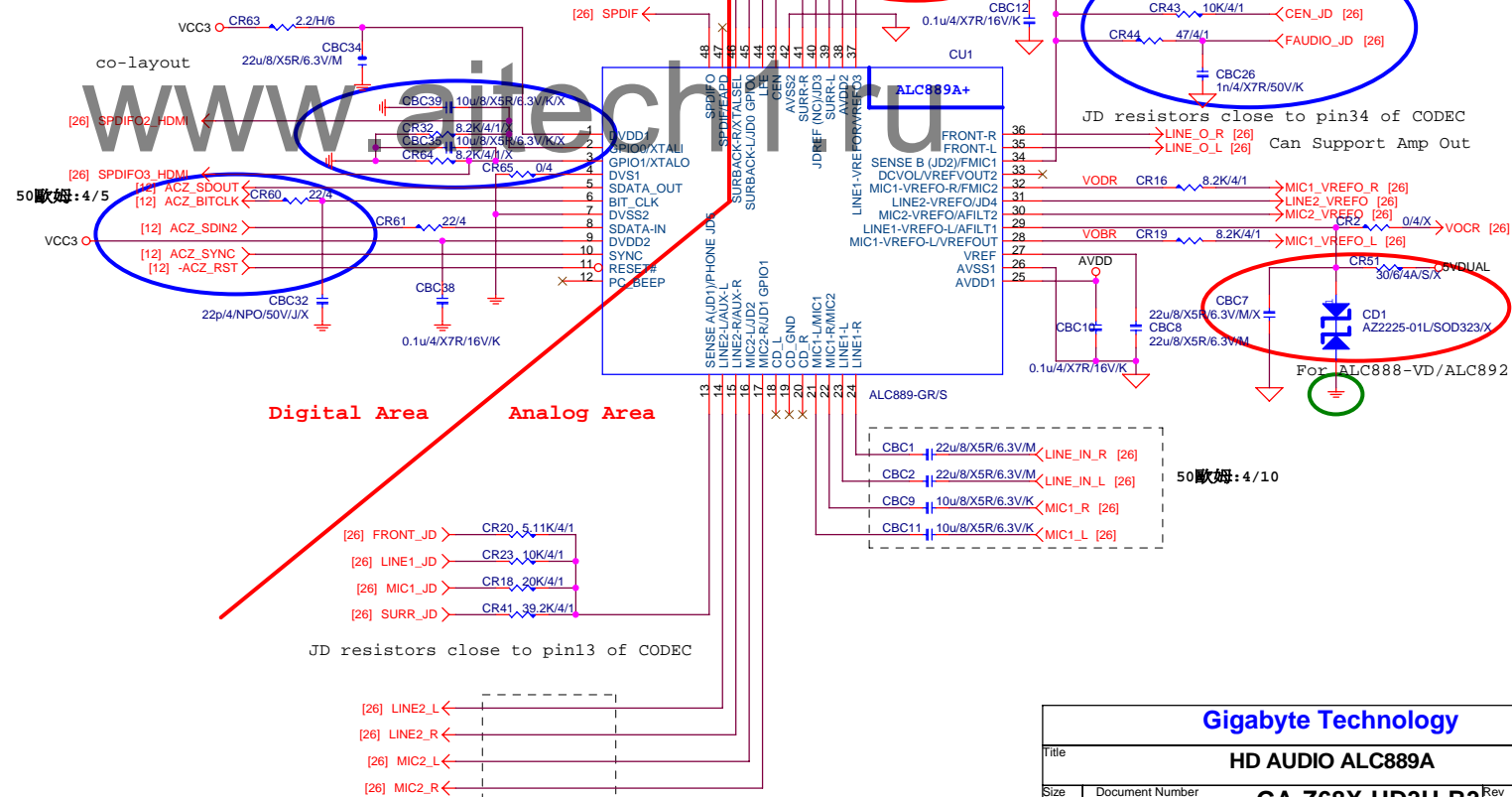
www.aitech1.ru



Gigabyte Technology

Title			BIOS , TPM	
Size	Document Number	GA-Z68X-UD3H-B3		Rev
Custom				1.0
Date:	Wednesday, April 27, 2011	Sheet	24	of 42

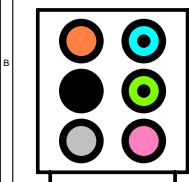
	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A	ALC889B	ALC898 ALC892
CR32	X	X	X	X	X	O	X	X
CR64	X	X	X	X	X	O	X	X
CR65	O	X	X	X	O	O	O	X
CBC35	X	X	10uF/X5R	10uF/X5R	X	X	X	10uF/X5R
CR28	X	X	X	X	X	X	X	X
CR34	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%
CR31	X	O	X	O	O	X	X	O
CR30	O	X	O	X	X	O	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



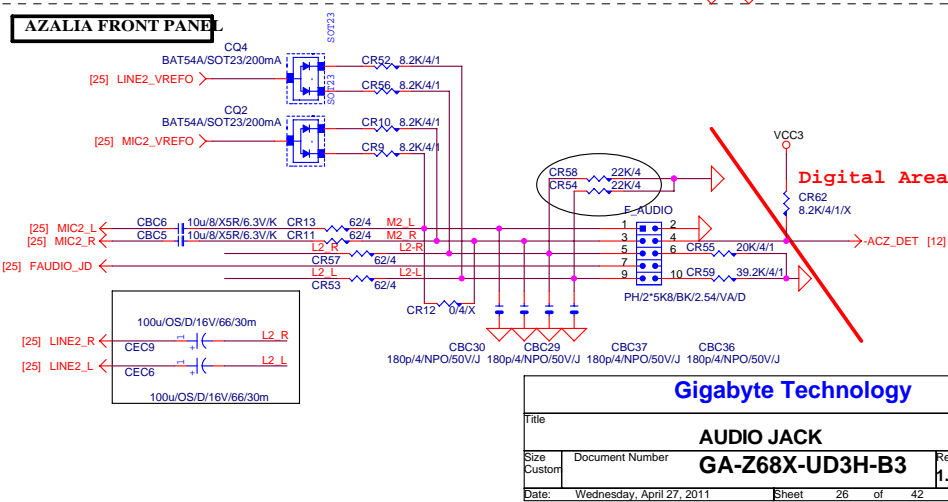
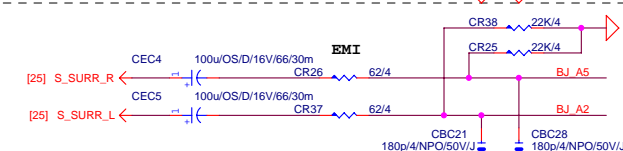
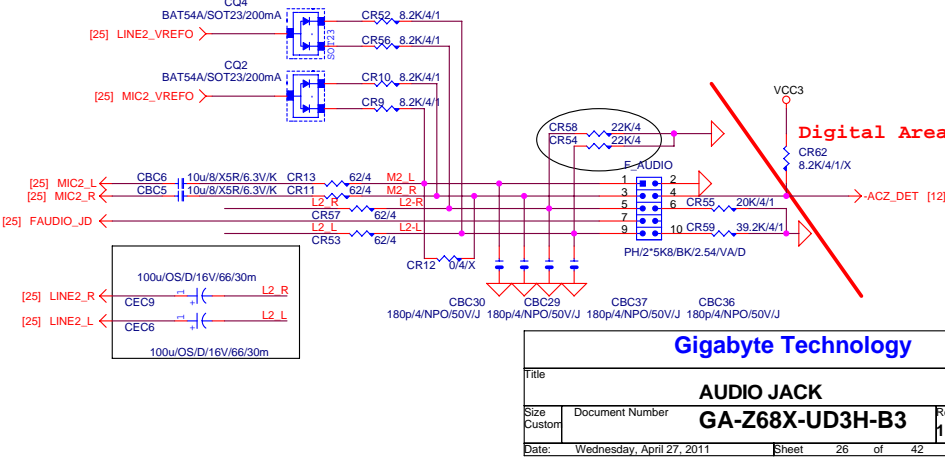
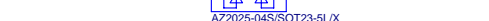
Can Support Amp Out

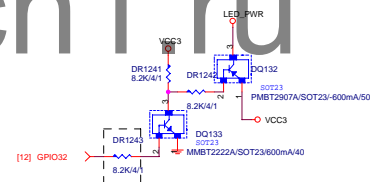
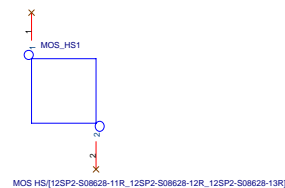
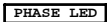
Gigabyte Technology

Title		HD AUDIO ALC889A	
Size	Document Number	GA-Z68X-UD3H-B3	
Custom		Rev 1.0	
Date:	Wednesday, April 27, 2011	Sheet	25 of 42

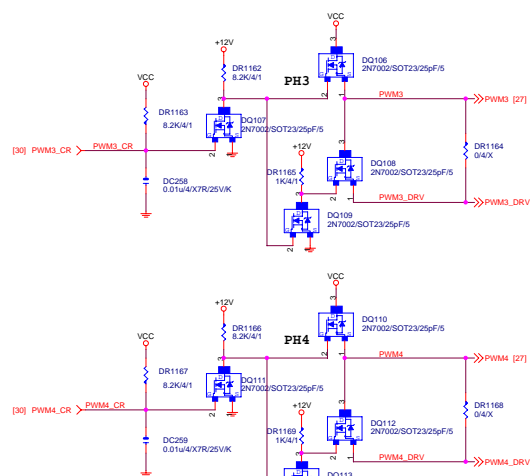
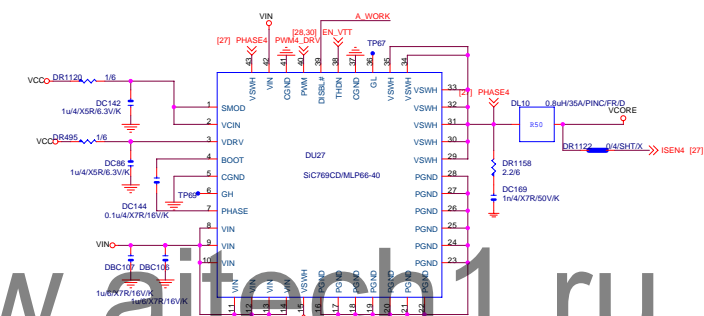
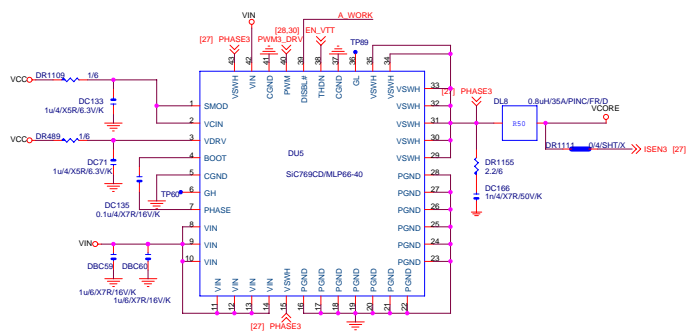


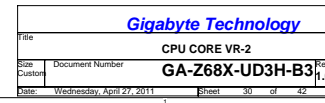
11NR6-403007-21R

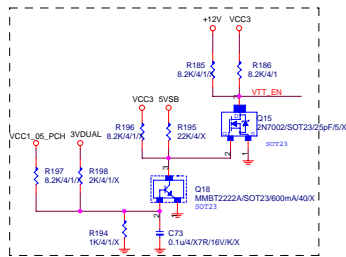




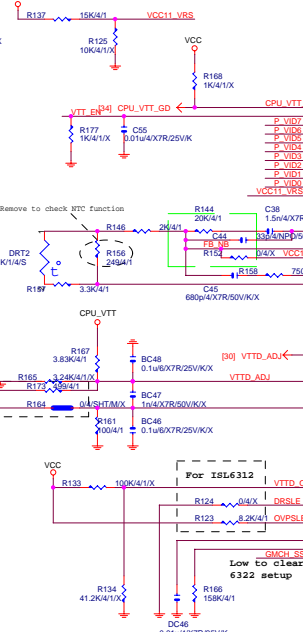
<i>Gigabyte Technology</i>			
CPU CORE VR-2			
Title			
Size Custom	Document Number	GA-Z68X-UD3H-B3	
Date:	Wednesday, April 27, 2011	Sheet	28 of 42
			Rev 1.0



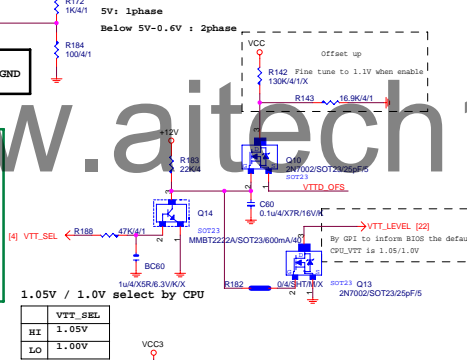




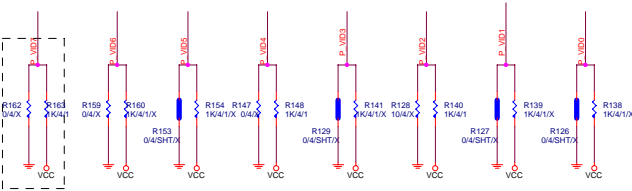
5V : AMD mode
0.6V-3V : VRD11 mode
0V : VRD10 mode



OCF點做在120A
Isensx R176阻值做在432ohm
 $I_{ocp} = (Isensx \times R_{isensxPhase}) / DCR$
 $= [(120\mu A \times 432\Omega) / 0.85] = 120A$
 $L / DCR = R \times C$
 $L = 0.8\mu H$ $DCR = 0.85\text{ mohm}$ $0.8\mu H / 0.85\text{ mohm} = 4.3k\Omega \times 0.22\mu F$
 R_{isensx} R175 阻值=4.3k ohm, C_{isen} BC51=0.22u
 $Rt = 10 \times [0.61 - [1.035 \times \log(FS)]]$ $Rt = R301 = 158\text{ kohm}$ $FS = 170KHz$
 $OVP = V_{DAC} + 225mV$

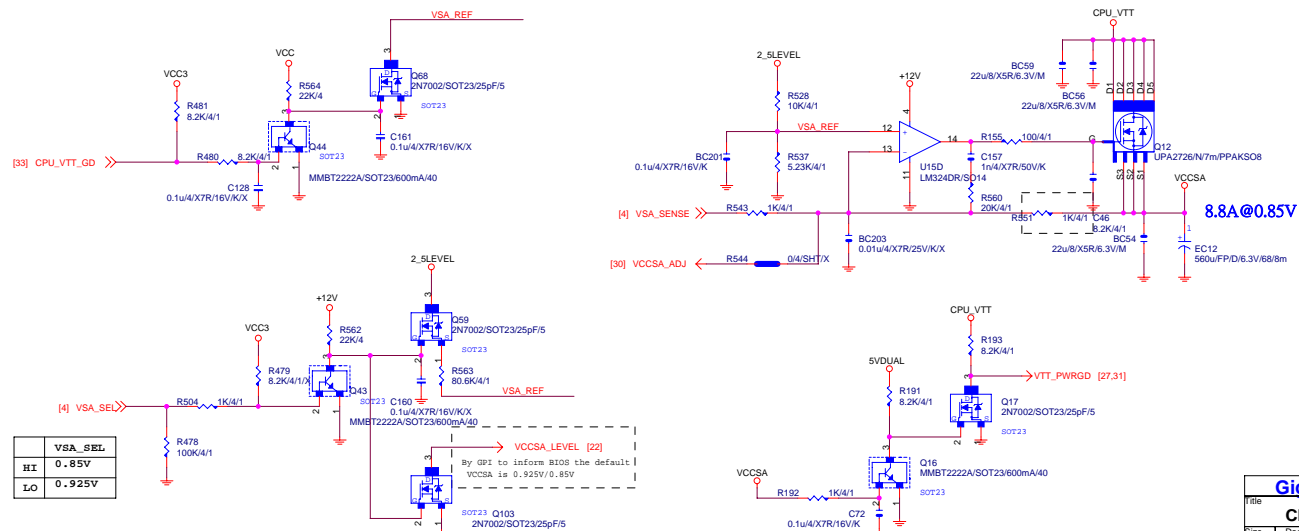


Bit 7 Pull High for AMD 6bit mode
Remove Bit6 when use AMD mode
AMD 6bit mode SET 1.05V [1x010100]

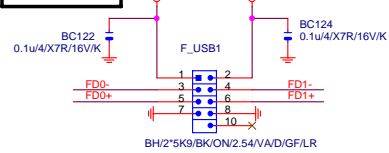


www.aitech1.ru

VCC_SA

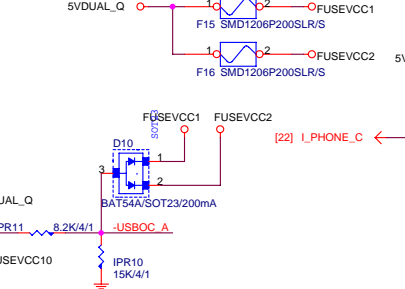
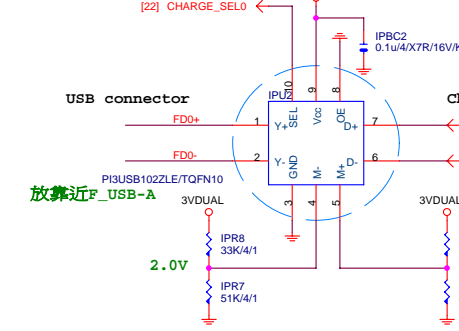


FRONT USB1

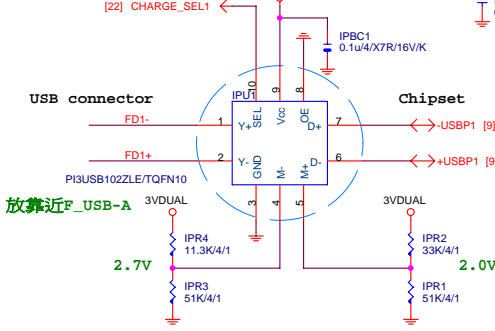


iPhone charger circuit

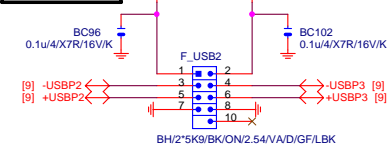
DEFAULT H, STABBY POWER



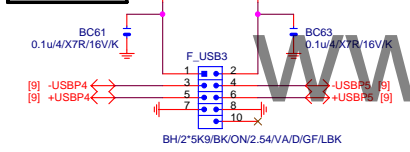
DEFAULT H, STABBY POWER



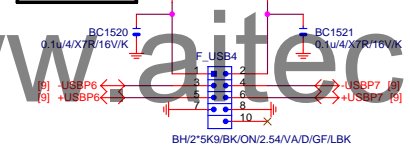
FRONT USB2



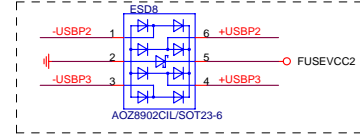
FRONT USB3



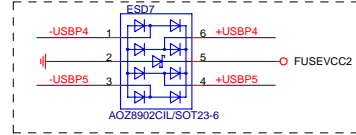
FRONT USB4



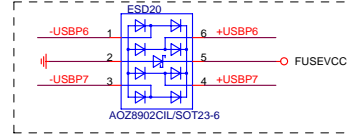
www.aitech1.ru



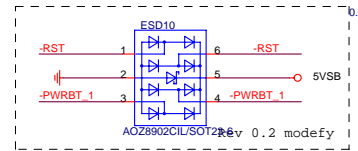
Close to connector



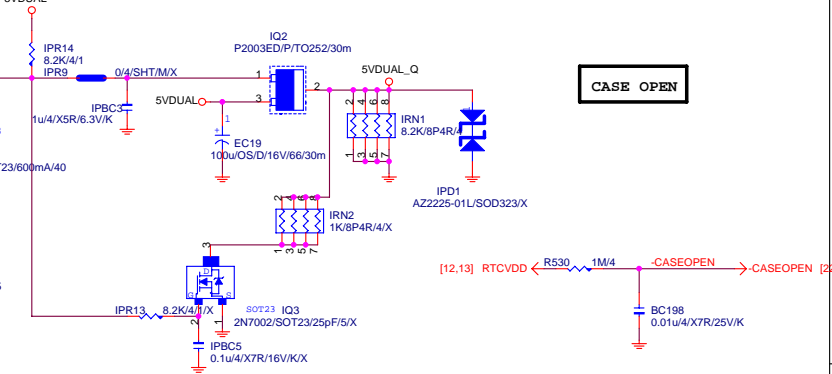
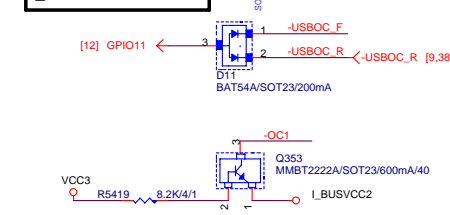
Close to connector



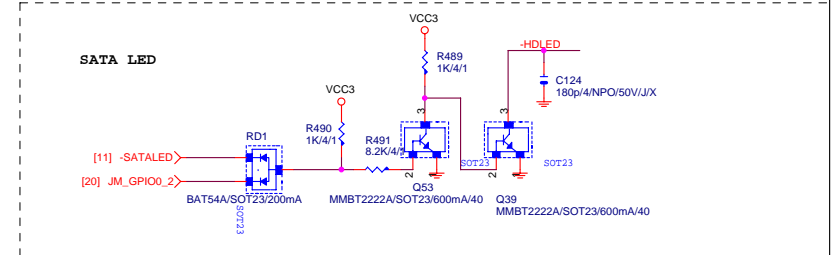
INTEL FRONT PANEL



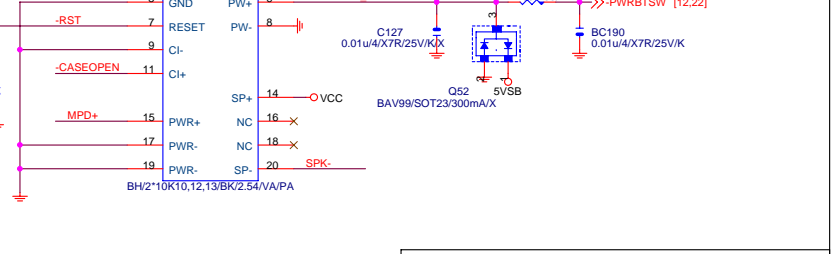
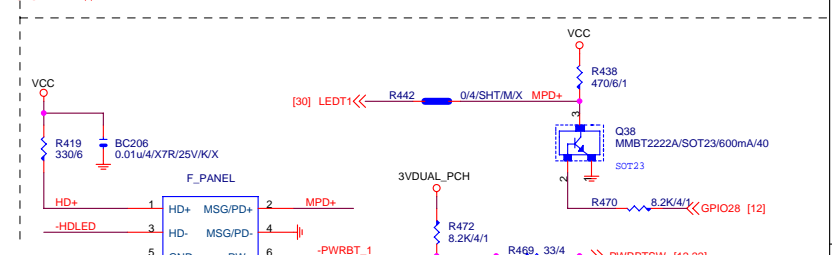
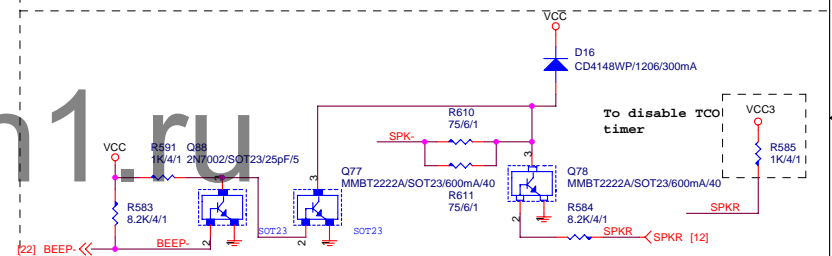
F_USB POWER PROTECT



CASE OPEN



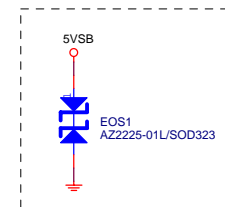
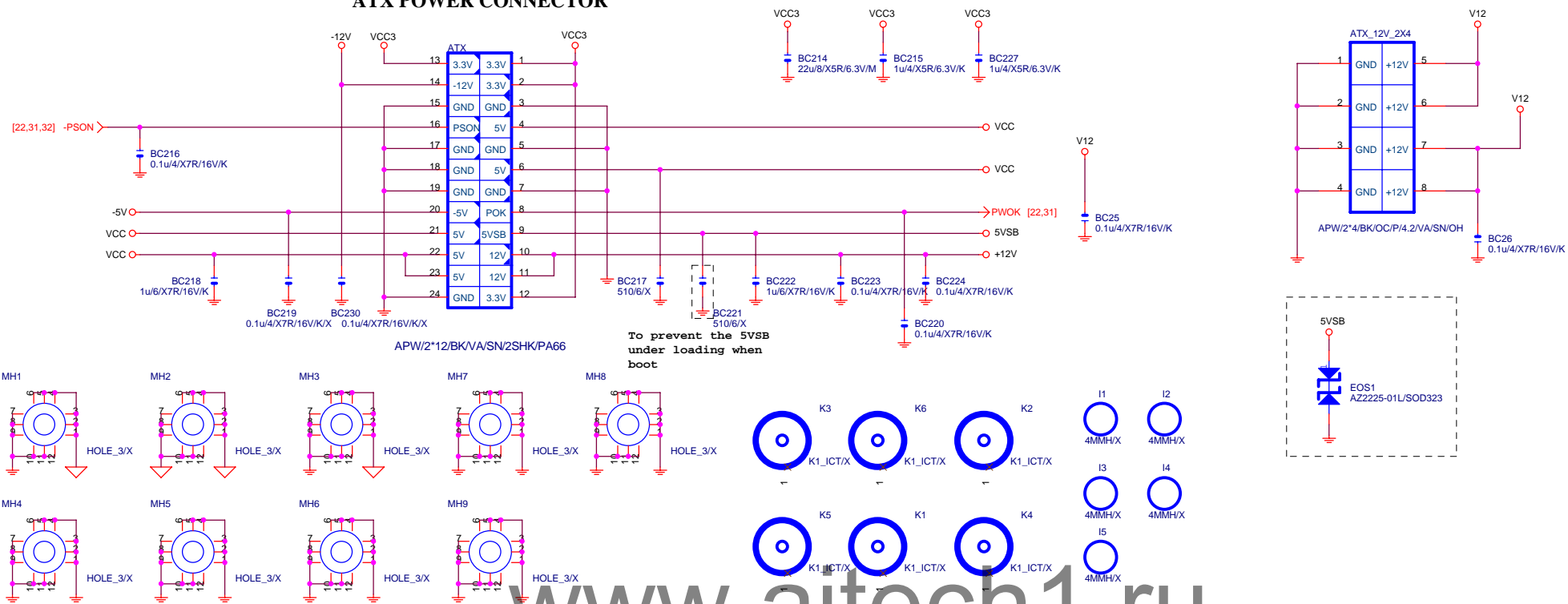
SATA LED



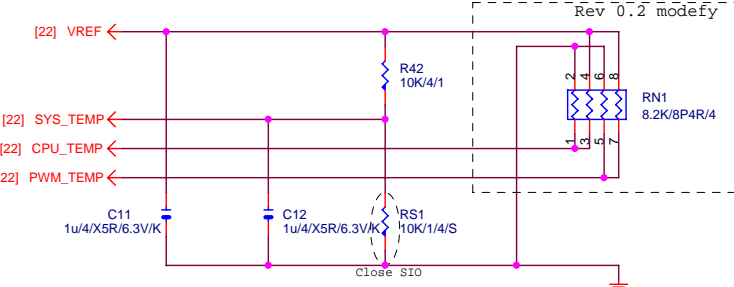
Gigabyte Technology

Title		Rev	
FP,F_USB,USB PWR,FDD,BZ		1.0	
Size	Document Number	GA-Z68X-UD3H-B3	
Custom			
Date:	Wednesday, April 27, 2011	Sheet	35 of 42

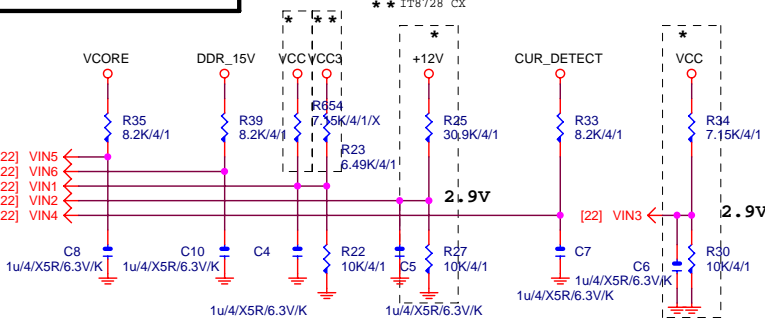
ATX POWER CONNECTOR



TEMP H/W MONITOR

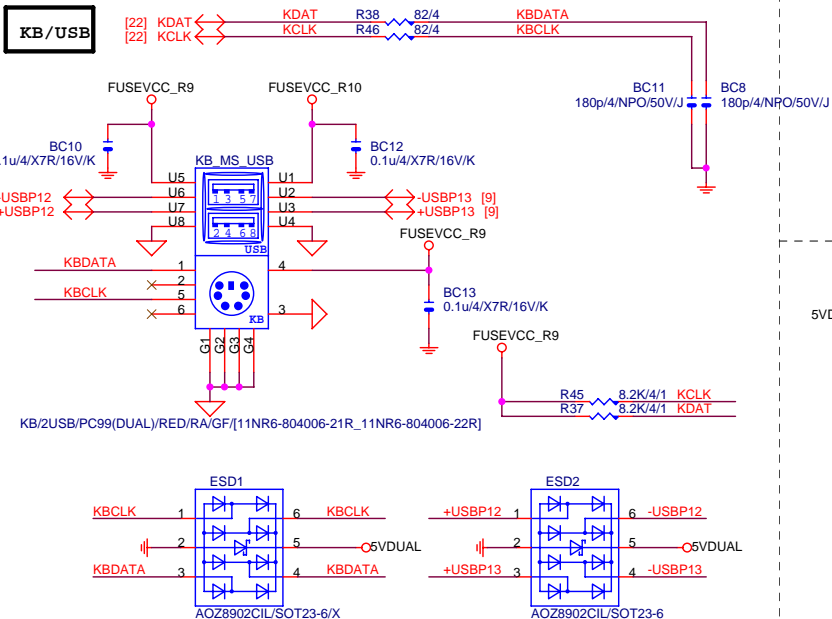


VOLTAGE-- H/W MONITOR

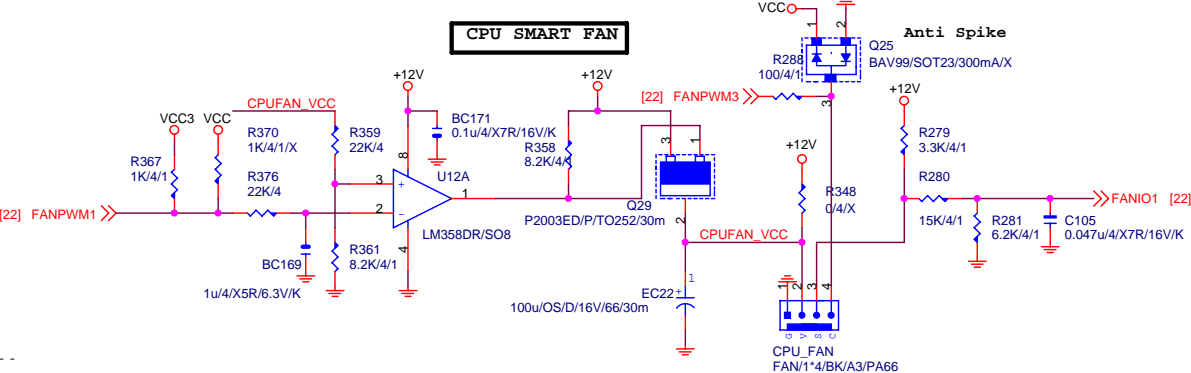


The division voltage of VIN2 & VIN3 must be around 2.9V

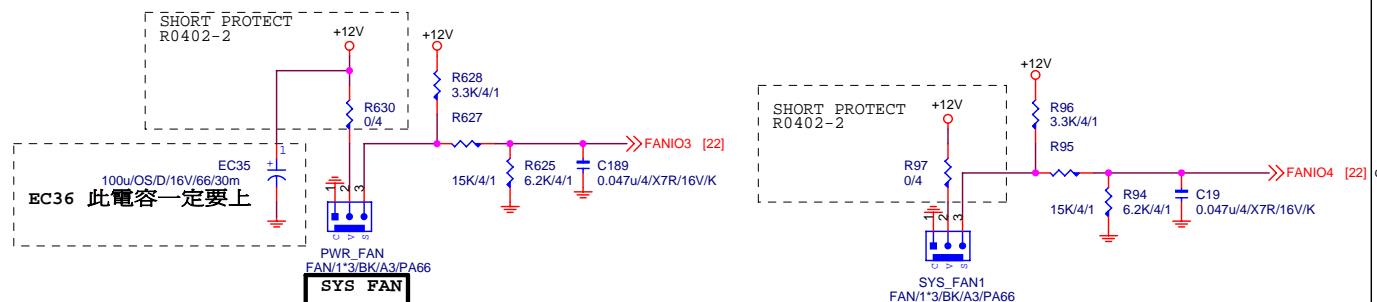
KB/USB



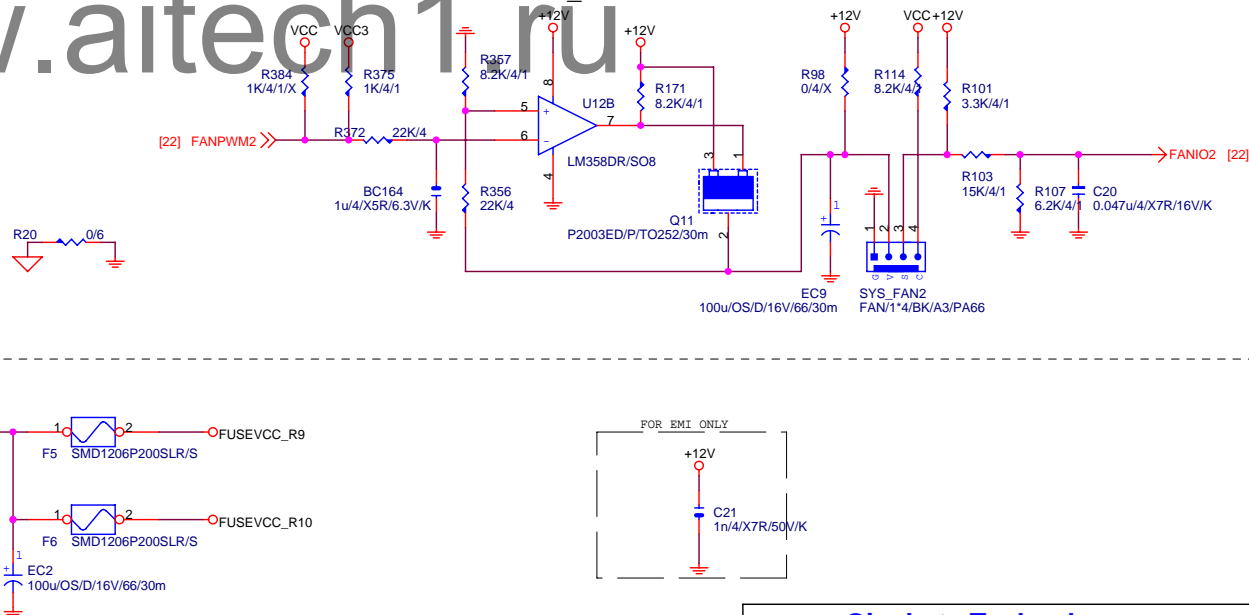
CPU SMART FAN



SYS FAN



```
Linear SYS_FAN
```



Gigabyte Technology

Title	HWM,KB/MS, FAN CTRL
-------	---------------------

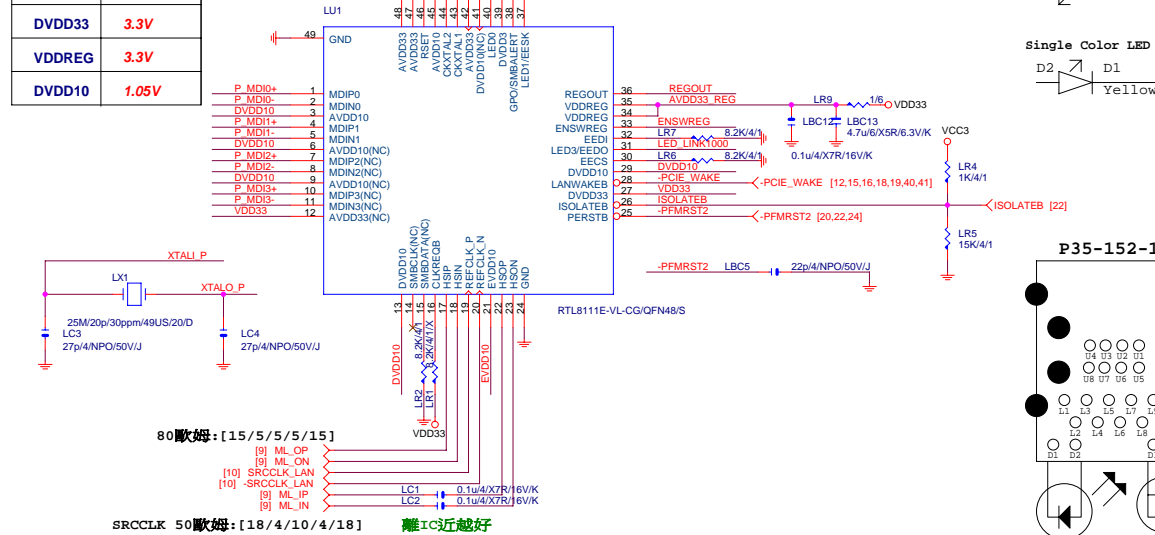
Size	Document Number
Custom	GA-Z68X-UD3H-B3

Rev	1.0
-----	-----

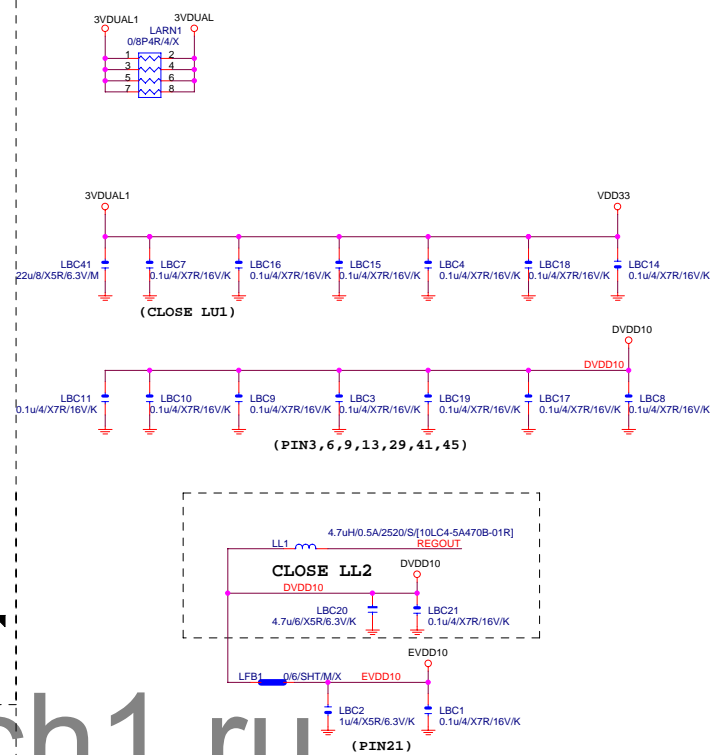
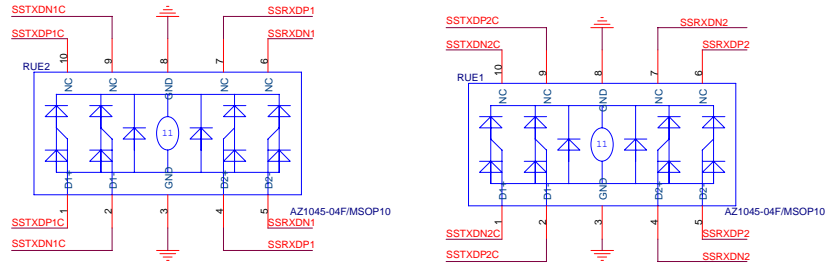
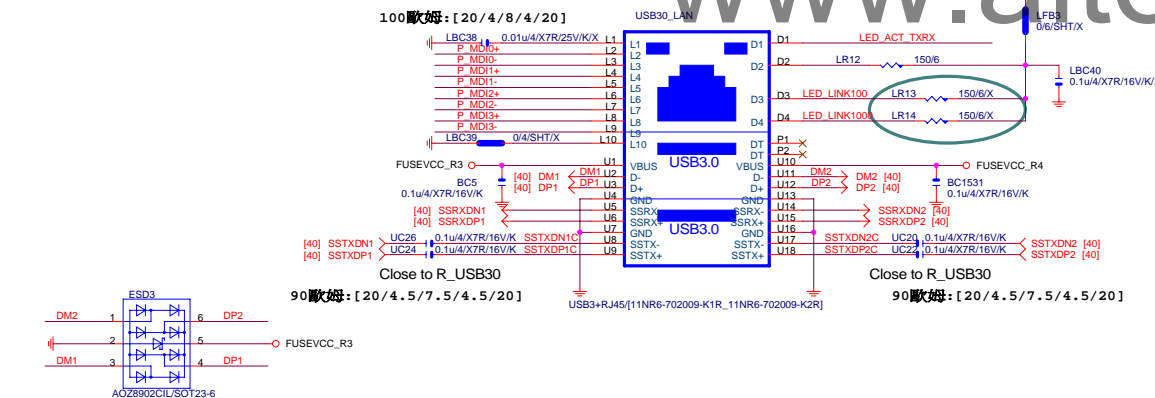
PCIE-1G LAN

Power domain chart

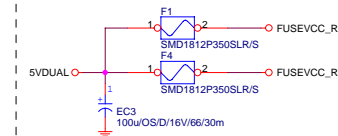
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



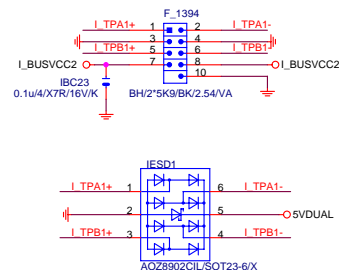
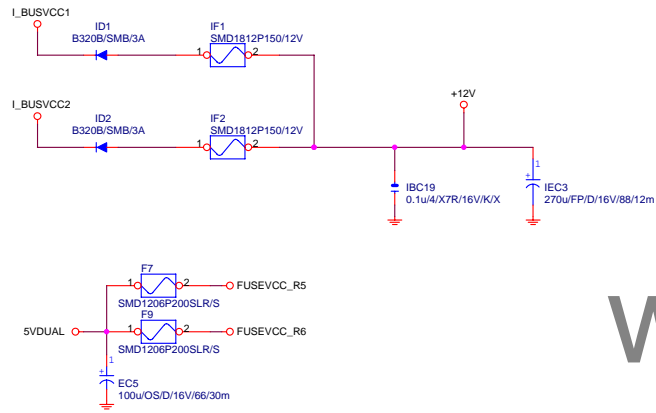
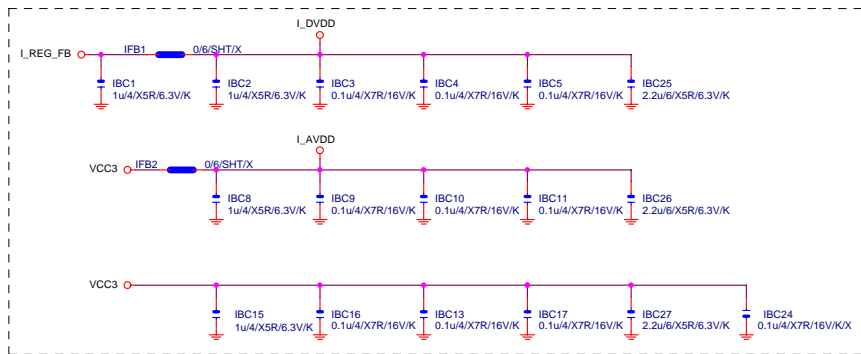
USB30_LAN CONNECTOR



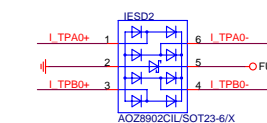
Close to connector



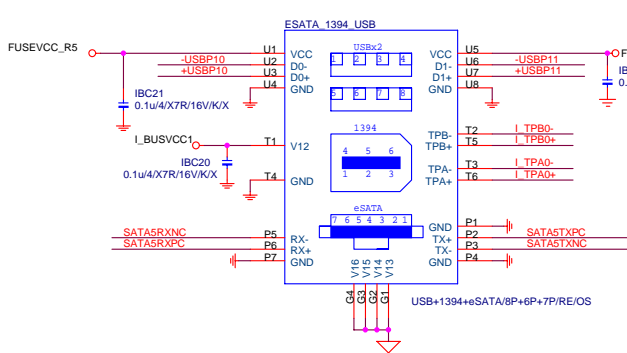
Gigabyte Technology	
File	
REALTEK RTL8111D_1	
Size	Document Number
Custom	GA-Z68X-UD3H-B3
Date:	Wednesday, April 27, 2011
Sheet	36 of 42
Rev	1.0



Place close to Header or connector



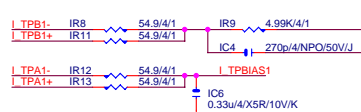
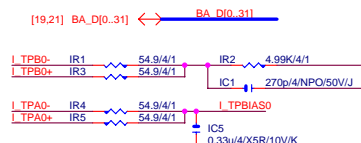
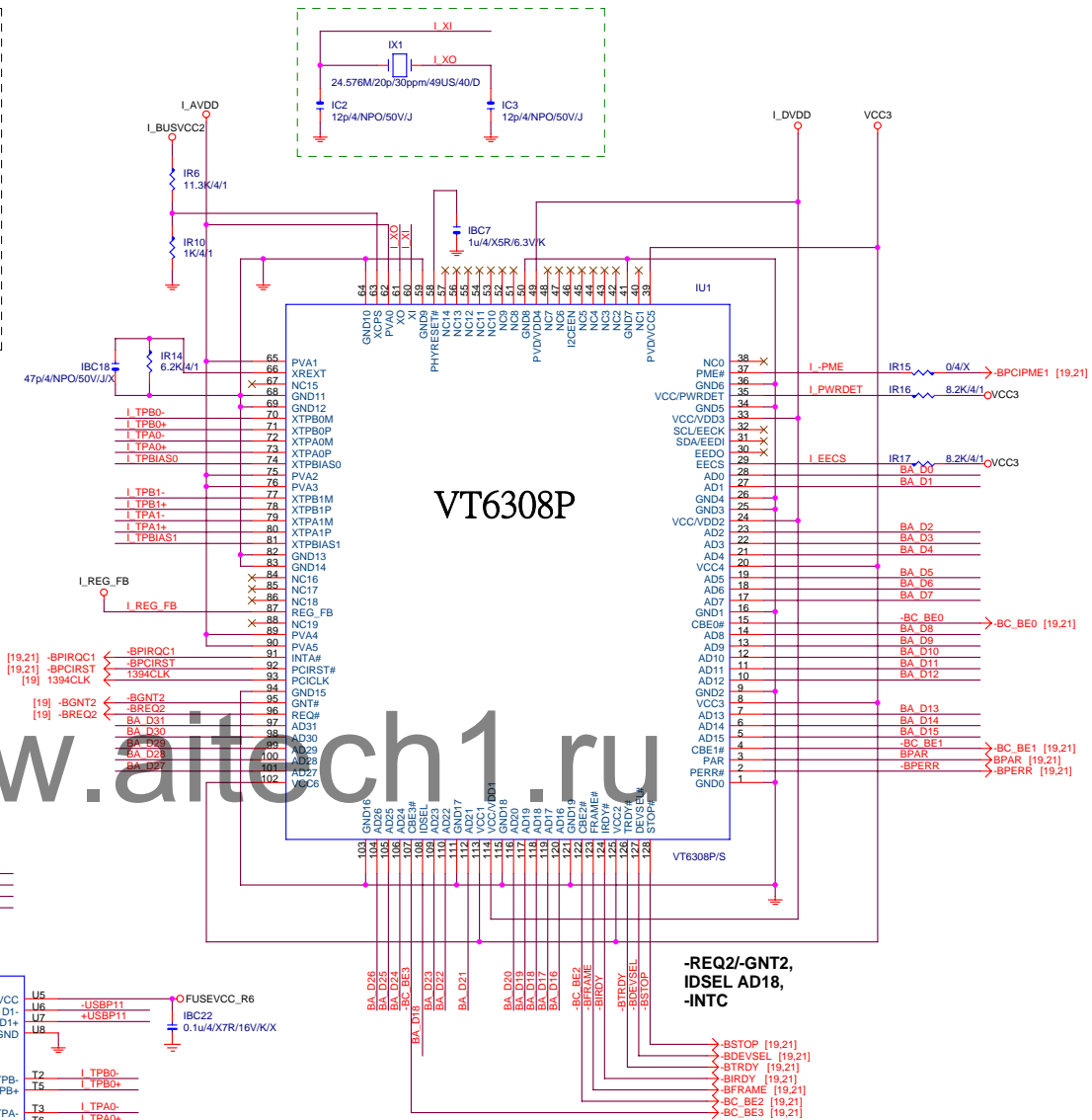
Place close to Header or connector



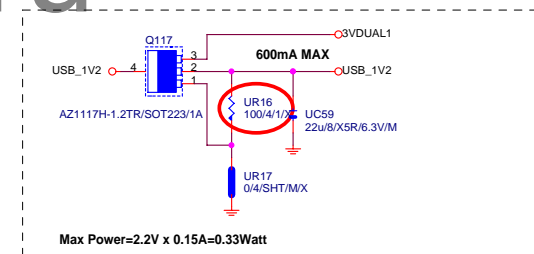
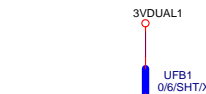
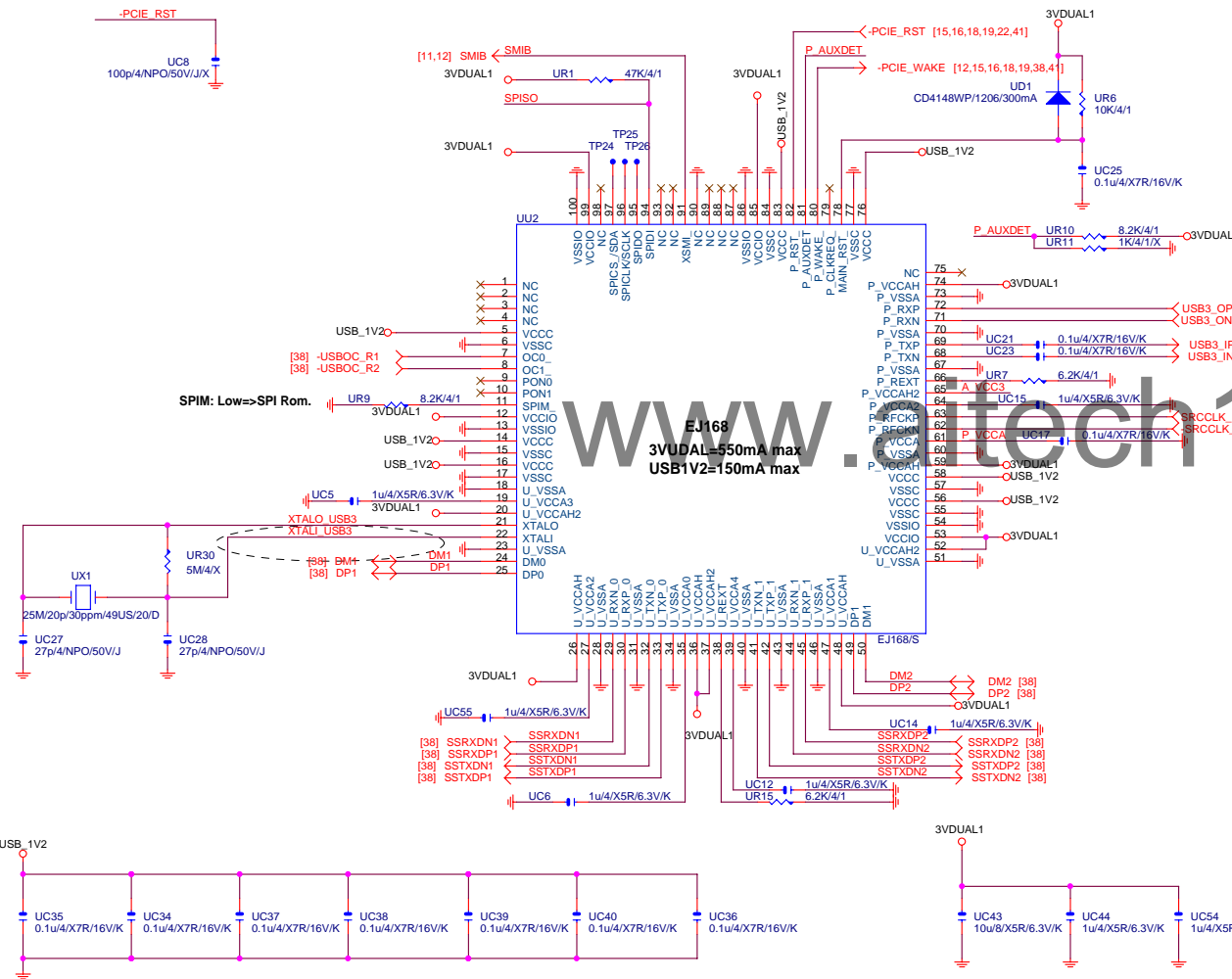
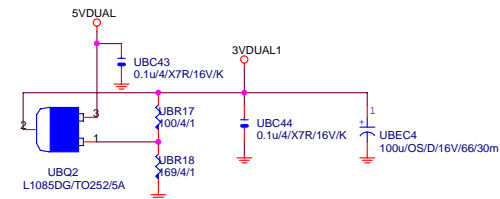
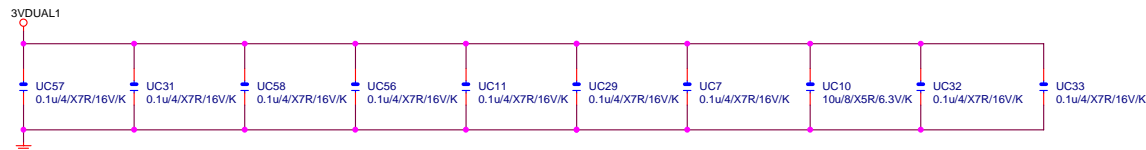
Place close to Header or connector



Place close to Header or connector



Gigabyte Technology		
Title		
VT3608 1394		
Size	Document Number	Rev
Custom	GA-Z68X-UD3H-B3	1.0
Date:	Wednesday, April 27, 2011	Sheet 39 of 42



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]

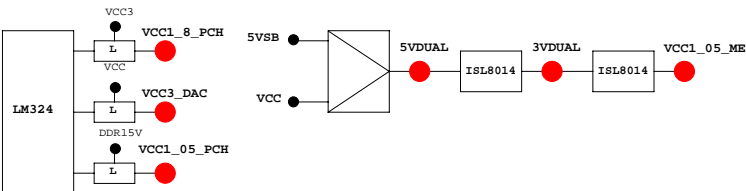
USB3.0 --> 5GHz
BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s

GIGABYTE™			
Title			
uP720200			
Size	Document Number	Rev	
Custom	GA-Z68X-UD3H-B3	1.0	
Date:	Wednesday, April 27, 2011	Sheet	40 of 42

PIN GPIO LIST TABLE						
PIN NAME	PWR	AFTER PLUG-IN	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A	
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A	
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3	
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3	
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3	
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3	
GP6/TACH2	MAIN		GPI	ICH_FAN_TACH2	N/A	
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A	
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL	
GP9/OC5#	STBY		NATIVE	OC5#	N/A	
GP10/OC6#	STBY		NATIVE	OC6#	N/A	
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL	
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL	
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL	
GP14/OC7#	STBY		NATIVE	OC7#	N/A	
GP15	STBY	L	GPO	GPIO15	N/A	
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3	
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A	
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND	
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3	
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3	
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3	
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3	
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3	
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL	
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL	
GP26	STBY		NATIVE	-ACZ_DET	P/U 8.2K 3VDUAL	
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL	
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL	
GP29	STBY	L	GPI	GPIO29	N/A	
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL	
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3	
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND	
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3	
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3	
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3	
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3	
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3	
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3	
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3	
GP40	STBY		NATIVE	OC1#	N/A	
GP41	STBY		NATIVE	OC2#	N/A	
GP42	STBY		NATIVE	OC3#	N/A	
GP43	STBY		NATIVE	OC4#	N/A	
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL	
GP45	STBY		NATIVE	-LPCME	P/U 8.2K 3VDUAL	
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL	
GP47	STBY		NATIVE	PSI_LED	P/U 8.2K 3VDUAL	
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3	
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3	
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC	
GP51	MAIN	H	NATIVE	-GNT1	N/A	
GP52	MAIN		NATIVE	-GNT2	P/U 2.2K VCC	
GP53	MAIN	H	NATIVE	-GNT2	N/A	
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC	
GP55	MAIN	H	NATIVE	-GNT3	N/A	
GP56	STBY		NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL	
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL	
GP58	STBY	H-Z	NATIVE	F_USB_OC#	P/U 8.2K 3VDUAL	
GP59	STBY		NATIVE	USB_OC0#	N/A	
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL	
GP61	STBY	L	NATIVE	-SUSTAT	N/A	
GP62	STBY	L	NATIVE	NSCLK	N/A	
GP63	STBY	L	NATIVE	GPIO63	N/A	
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A	
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A	
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A	
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A	
GP72	STBY	H-Z	NATIVE	VCORE_O		

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRXL/GP55	-RSMRST	
FME#/GP54	-LPCPME	
PD5/GP75/BUS00	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/SCK	LOW_PWR_1	
VID05/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PWRST1	
PCIRST1#/GP12	-PWRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	2X PIN	FST_2X8
INIT#/GP85/SMBD_M	SSC_2x8	GT1REF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/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/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_IV_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



The diagram illustrates a 2D mesh network topology. It consists of 16 nodes arranged in a 4x4 grid, labeled PH1 through PH16. The nodes are connected in a mesh pattern. There are four routers, labeled PCH, CPU, VTT, and VCore, positioned at the intersections of the mesh. The PCH router is at the top-left, CPU at the top-center, VTT at the bottom-left, and VCore at the bottom-center. The nodes are labeled as follows:

- Top row: PH1, PH2, PH3, PH4
- Second row: DL2, DL4, DL9, DL7
- Third row: PH5, PH6, PH15, PH16
- Bottom row: DL3, DL5, DL8, DL6

The routers are labeled as follows:

- PCH (top-left)
- CPU (top-center)
- VTT (bottom-left)
- VCore (bottom-center)

散熱模組料號：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAUXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Termination
VREF_CA_A/REF_CA_B	DRAM Address Ref
VREF_DQ_A/REF_DQ_B	DRAM Data Ref

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