

Model Name: GA-PH67A-UD3-B3 1.1

SHEET

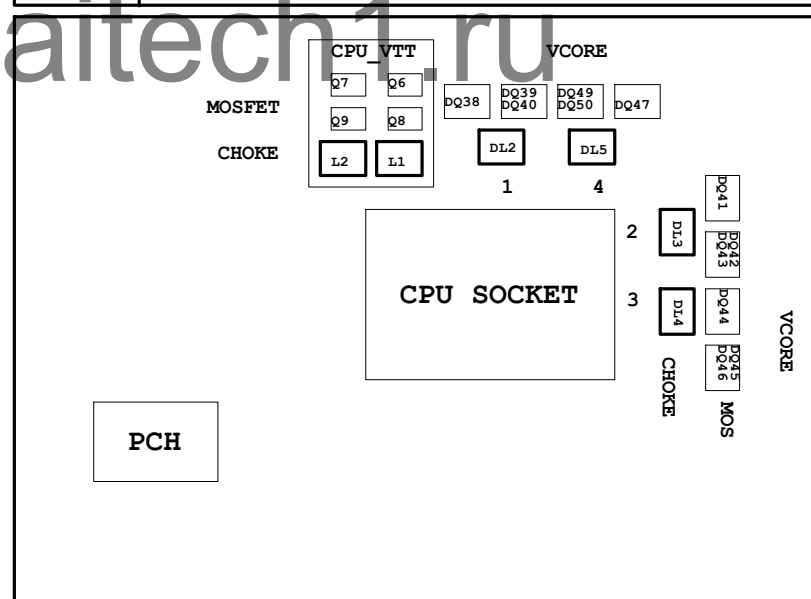
TITLE

SHEET

TITLE

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02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU LGA1155-A
05	CPU LGA1155-B
06	CPU LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH FDI,DMI,USB,PCIE,NVRAM
10	PCH DP,CLK BUFFER
11	PCH HOST,SATA,PCI
12	PCH GPIO,CTRL,AUDIO
13	PCH PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
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19	PCI SLOT 1&2
20	I/O ITE8728
21	COM, -PROHOT, ESATA CONNECT
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25	VCORE PWM ISL6364CRZ-1
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28	DDR 15V & VCC1 05 PCH PWM ISL6545CBZ
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32	ATX POWER, CLOCK GEN
33	HWM,KB/MS , FAN CTRL
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Title	Cover Sheet
Size	Document Number
Custom	GA-PH67A-UD3-B3 Rev 1.1
Date	Tuesday, February 15, 2011
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GA-PH67A-UD3-B3

Component value change history

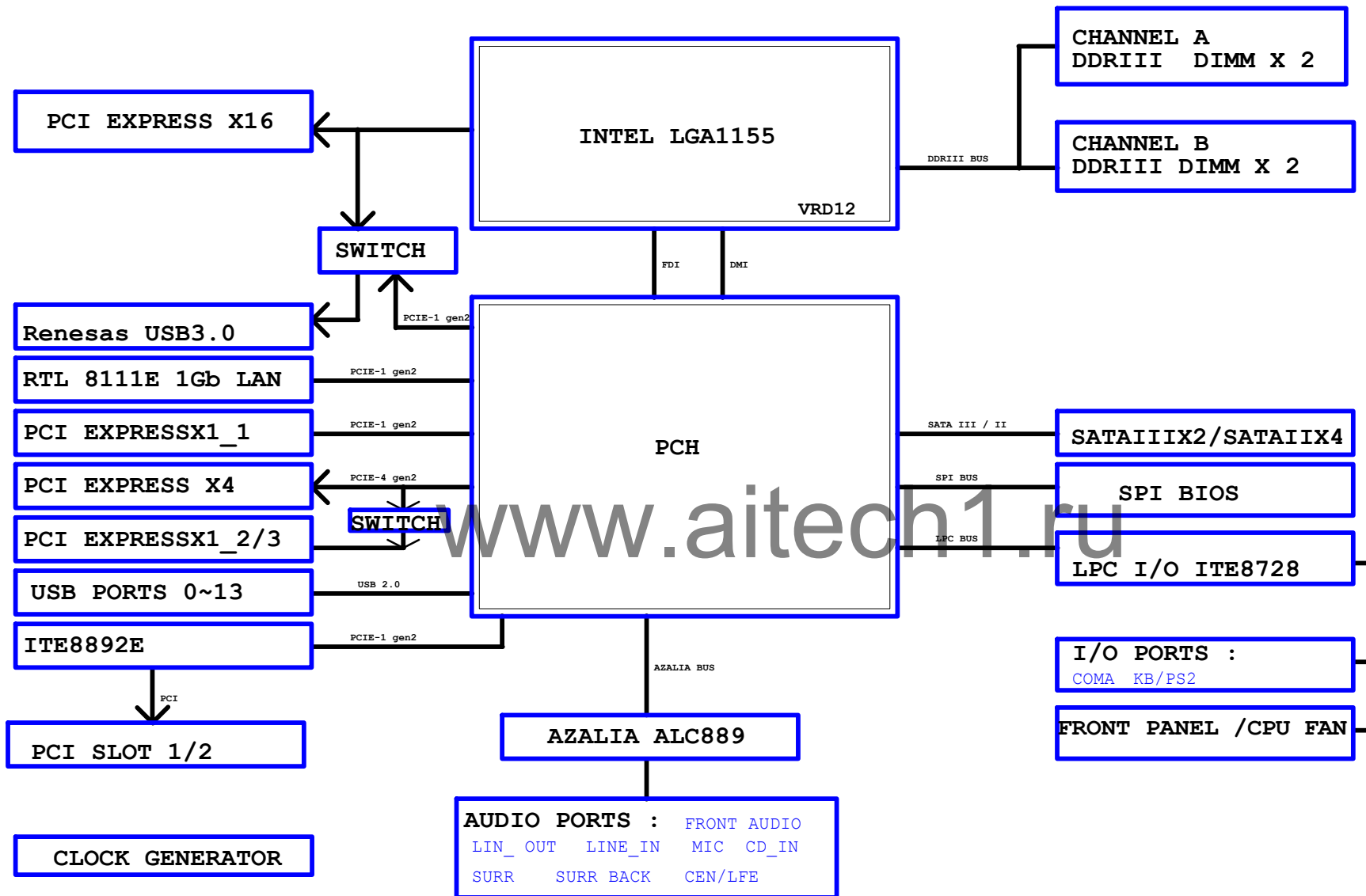
Data	Change Item	Reason
2010/07/28 EBOM:01	1. E-BOM	
2010/08/16 EBOM:02	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1. MODIFIED DR346--->243K, DR345--->10K; DR309--->1K; DR303 --->1K; DR294--->10K	
2010/09/21 EBOM:03	1. PU1 ITE8892 ----->ASMI085	
2010/09/24 EBOM:04	1. PU1 ITE8892 版本 2. 修改部份阻值	
2010/09/28 EBOM:10A	1. P-BOM	
2010/10/06 PBOM:10B	1. R418 2.49K----->1.74K, R441 35.7K----->28K FOR PROCHOT	
	2. DEL C194, C193, C163, Q73, R578, R579, R580, R548, Q86	
	3. del UU5, UBC1, UBC2, UQ2, UQ3, UR30, UR31, UR32, R676; ADD SUR1~SUR8	
2010/10/15 PBOM:10A	1. 由P67A-USB3 P-BOM修正	
2010/10/20 PBOM:10B	1. 修改BOM, SUR1~8由TOP換至BOT	
	2. 修改LOCAIOTN CPU---->LGA1155	
	3. DR272 0----->22K	
2010/12/15 EBOM:11A	1. CPU TO-252/IRON CHOKE ----->POWER PAK/ FERRITE CHOKE	
	2. ALC892----->ALC889	
	3. ISL6612----->ISL6609	
2010/12/31 PBOM:11B	1. CPU 0.8u CHOKE 改料號	
	2. change DR303, DR294 電阻	
	3. CBC1, CBC2 10UF----->22UF	
	4. TUNE R418, R441 FOR PROCHOT	
2011/01/21 PBOM:11D	1. BC18, BC19 0.01uf----->1uf for ITE8728低溫issue	
	2. DR276 51 --->100 OHM for pwm SVIDSCLK 相容性	
2011/02/09 PBOM:11A	1. 改MODEL NAME, P67A-UD3-B3	
	2. FOR B3 MODEL, 改 PCH B3 料號, 彩盒, MANUAL, PCB料號	

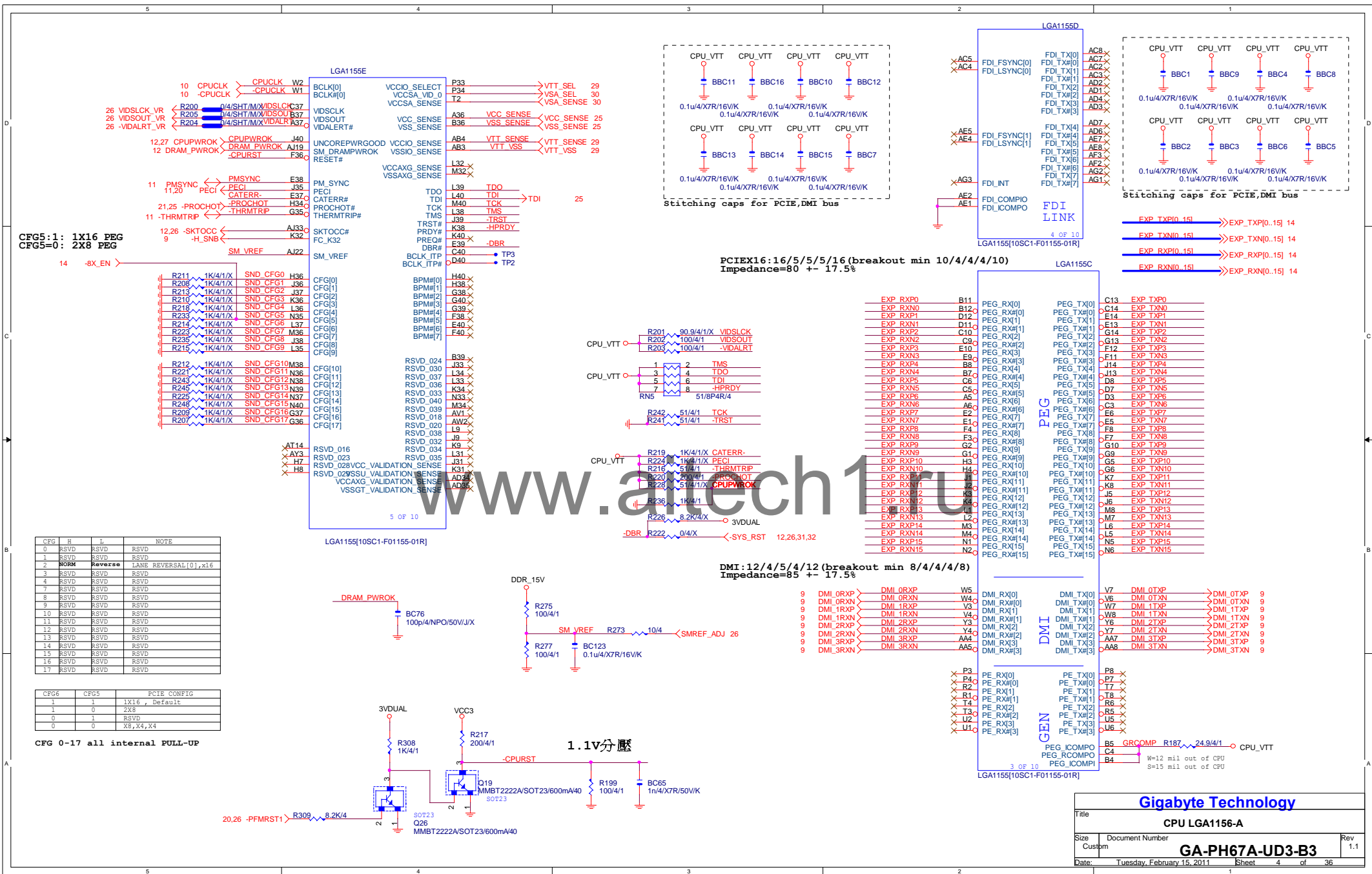
Circuit or PCB layout change

DATE	Change Item	Reason
2010/07/05 PCB:0.1	1. NEW MODEL: P67A-D3-0.1	
2010/08/18 PCB:0.2	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1. update MOS_HS footprint 2.2Oz copper pcb	
2010/09/21 PCB:0.3	1. ITE8892 ----->ASMI085	
2010/09/23 PCB:0.4	1. SRCCLK_3GIO1 換到PCH PIN AB8, AB9	
	2. ADD C199, C200, C201 FOR DES LV1, LV2, LV3 切換時CPU OFF ISSUE	
	3. ESD8 FUSEVCC2----->FUSEVCC3	
	4. RS2, R529位置調整, CPU切割 GAP 8MILS----->15MILS	
2010/09/29 PCB:1.0	1. 由0.4改1.0 FOR MP	
2010/10/14 PCB:1.0	1. P67A-USB3 RENAME PH67A-UD3-1.0	
2010/11/23 PCB:1.1	1. CPU TO-252/IRON CHOKE ----->POWER PAK/ FERRITE CHOKE	
	2. ALC892----->ALC889 3. ISL6612/6609 ----->VCC/V12 VCC POWER 預留; DR390改接105	
	4. MH8 UPDATE FOOTPRINT; D2 NET SWAP	
2011/02/08 PCB:1.1	1. FOR PCH B3 CHIP 改MODEL NAME GA-P67A-UD3-B3.	

Gigabyte Technology			
BOM & PCB MODIFY HISTORY			
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BLOCK DIAGRAM







SATA:20/4.5/7.5/4.5/20 (breakout min 8/4/4/8)
Impedance=90 +- 17.5%

PCHC

For WIFI

F 1

CL_CLK1

CL_DATA1

CL_RST1#

CLINK

SATA3

SATA2

SATA1

SATA0

SATA0RXN

SATA0RXP

SATA0TXN

SATA0TXP

SATA1RXN

SATA1RXP

SATA1TXN

SATA1TXP

SATA2RXN

SATA2RXP

SATA2TXN

SATA2TXP

SATA3RXN

SATA3RXP

SATA3TXN

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SATA4RXN

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SATA73RXN

SATA73RXP

SATA73TXN

SATA73TXP

SATA74RXN

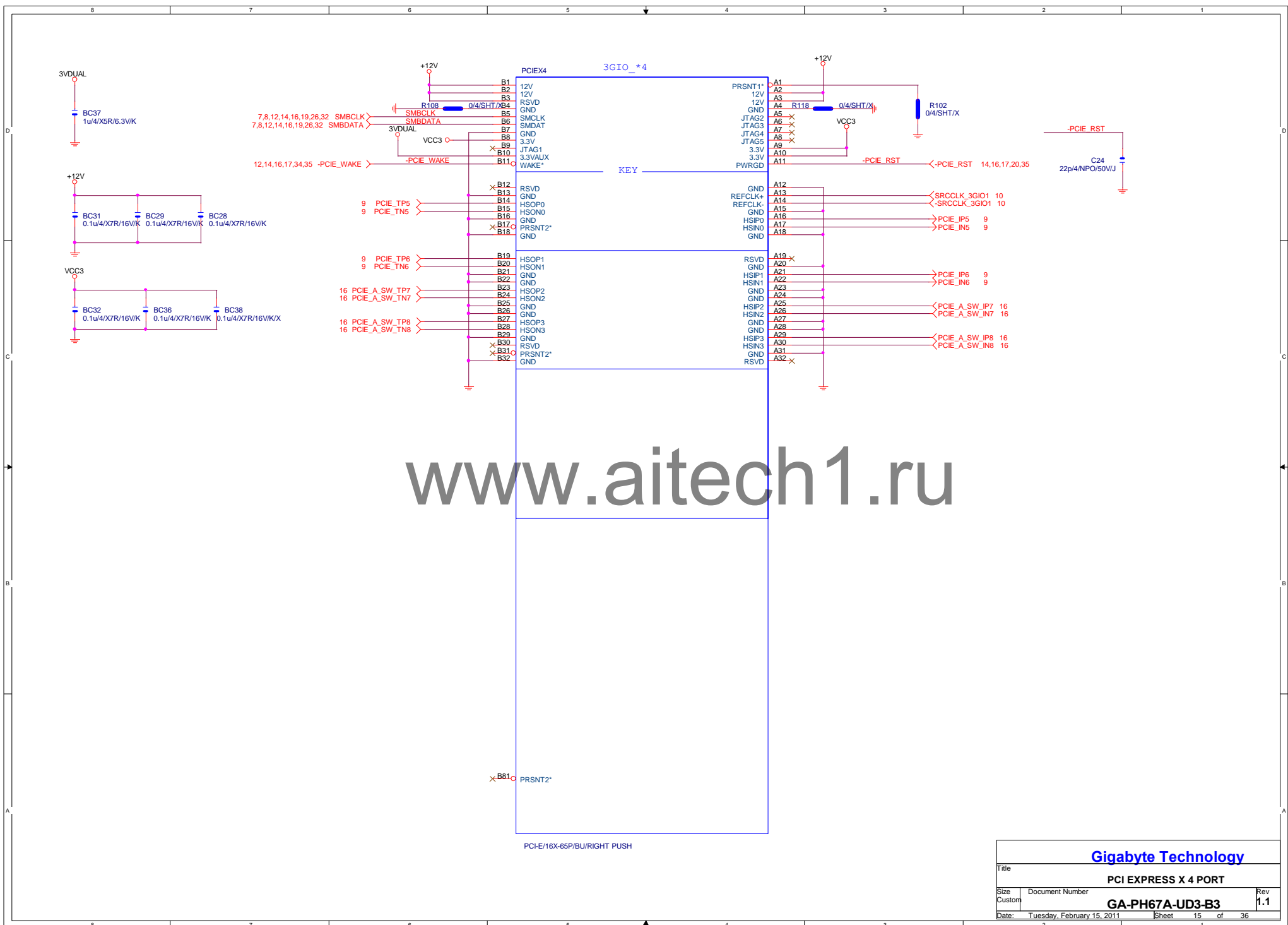
SATA74RXP

SATA74TXN

SATA74TXP

SATA75RXN

SATA75RXP



PCI:5/4/5 Impedance=50 +- 15%

BA D[0..31] 19

-BC BE0 19
-BC BE1 19
-BC BE2 19
-BC BE3 19

-BPERR 19
-BSERR 19

-BPAR 19
-BPCLOCK 19
-BDEVSSEL 19
-BSTOP 19
-BTRDY 19
-BTRDY 19
-BFRAME 19

-PCIE_RST 14,15,16,20,35

-BPCIRST 19

-BREQ0 19

-BREQ1 19

-BGNT0 19

-BGNT1 19

19 BPCLK0 PR11 47/4/1 CLKOUT0

19 BPCLK1 PR12 47/4/1 CLKOUT1

RREF PR13 12K/4/1

TEST_EN PR21 10K/4/1

EXT_ARB PR22 10K/4/1

RST_SEL PR7 10K/4/1

VCC3

PR14 1K/4/1X

PR29 1K/4/1

VCC3

PR20 8.2K/4/1X

PCICLK_SEL

PR30 10K/4/1

High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

IT8893

-BPIROA 1 2
-BPIROD 3 4
-BPIROC 5 6
-BPIROB 7 8

-BPCIME PR24 0/4/X

PCIEWAKE PR25 0/4/X

VCCP PR26 0/4

3VDUAL

For BX legacy mode

-BPIROA1 1 2

-BPIROD1 3 4

-BPIROC1 5 6

-BPIROB1 7 8

-BPCIME1 PR27 0/4

VCCP PR28 0/4/X

VCC3

Legacy Mode : remove PRN12,PR42,PR40

add PRN11,PR38,PR39

PCI slot

chipset side

-BFRAME 1 2
-BTRDY 3 4
-BSTOP 5 6
-BDEVSSEL 7 8

-BPLOCK 1 2

-BTRDY 3 4

-BPERR 5 6

-BSERR 7 8

-BPIROA 1 2

-BPIROD 3 4

-BPIROC 5 6

-BPIROB 7 8

-BPLOCK 1 2

-BTRDY 3 4

-BPERR 5 6

-BSERR 7 8

-BPIROA 1 2

-BPIROD 3 4

-BPIROC 5 6

-BPIROB 7 8

-BPLOCK 1 2

-BTRDY 3 4

-BPERR 5 6

-BSERR 7 8

-BPIROA 1 2

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-BPIROD 3 4

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-BPERR 5 6

-BSERR 7 8

-BPIROA 1 2

-BPIROD 3 4

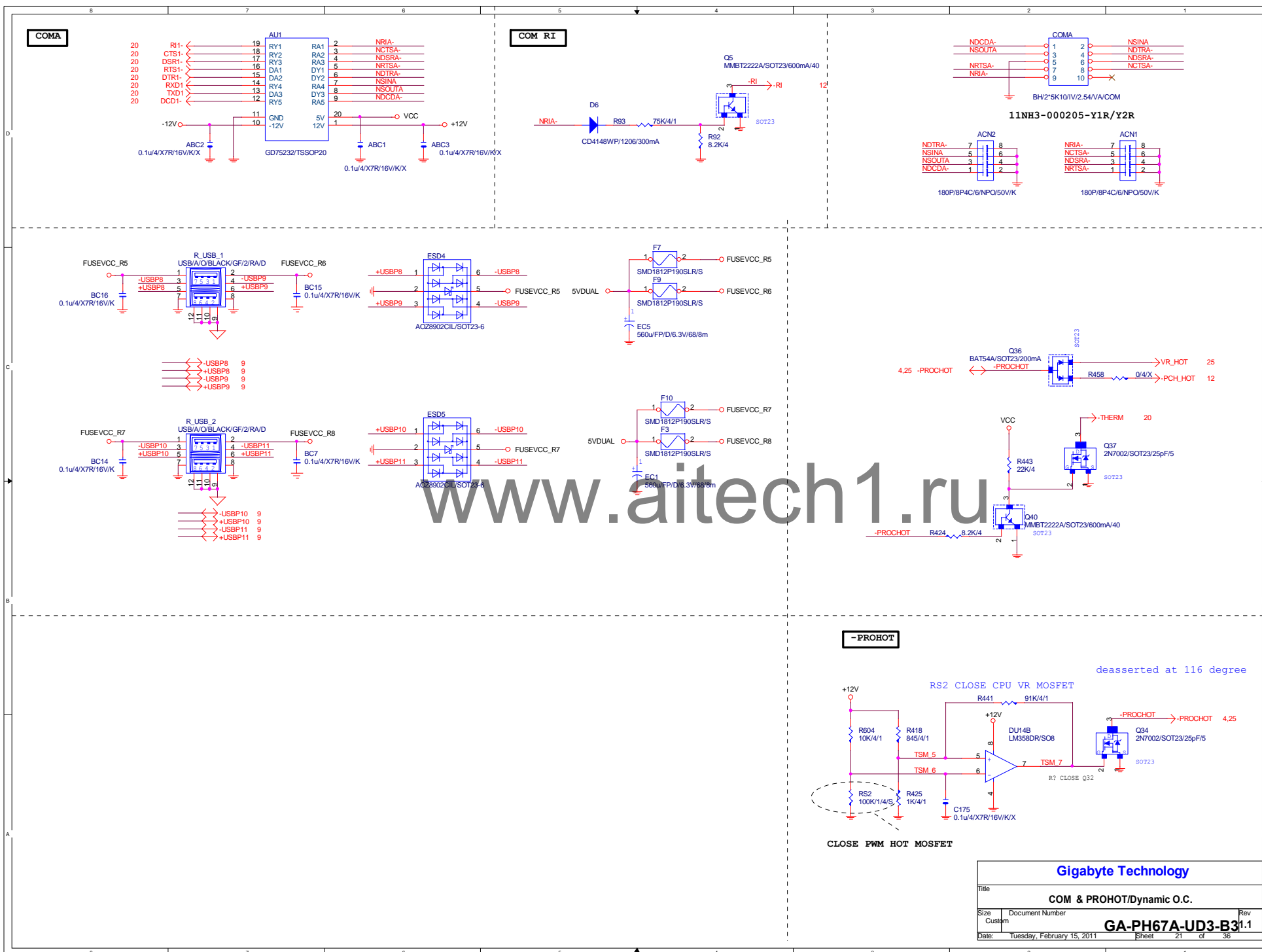
-BPIROC 5 6

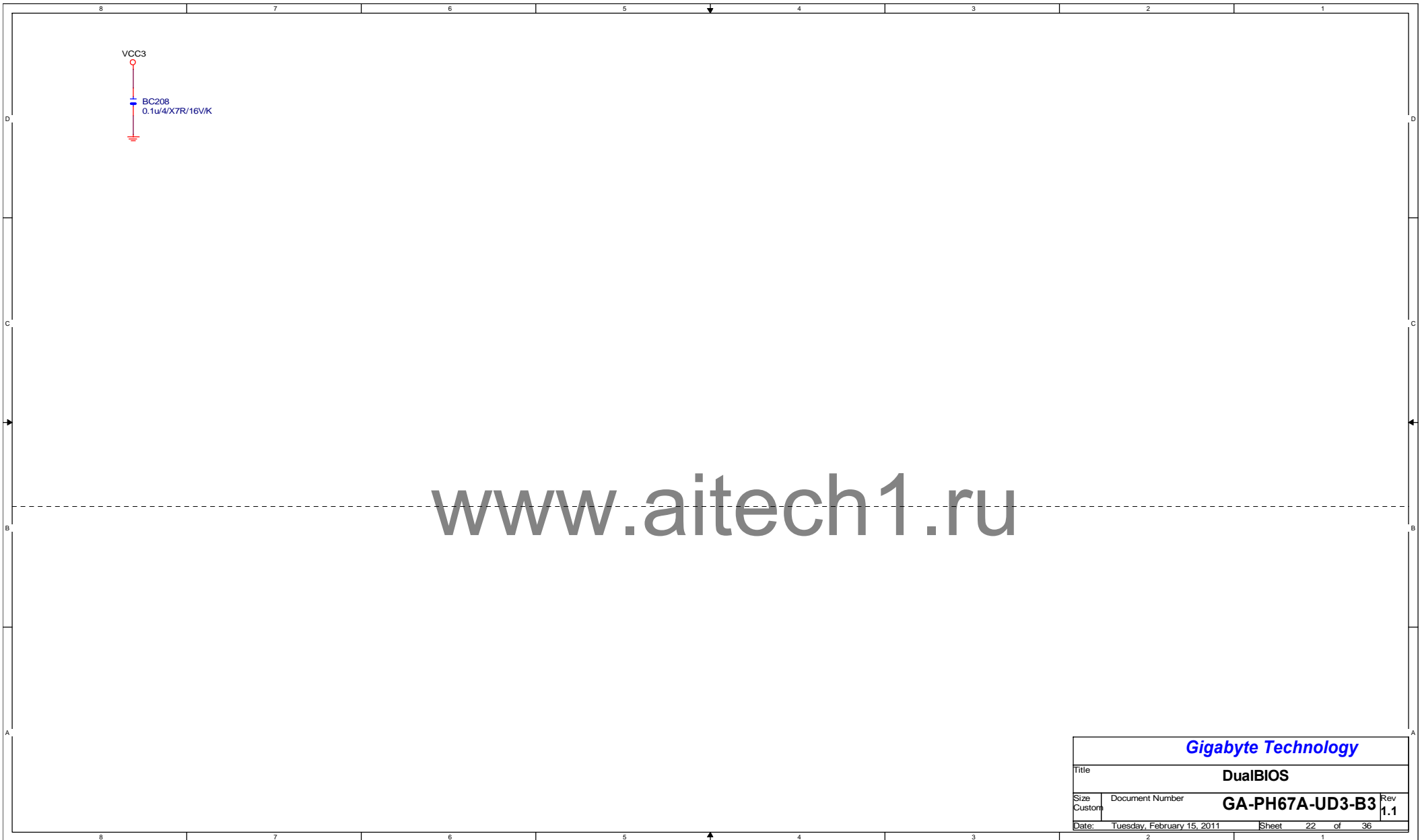
-BPIROB 7 8

	8	7	6	5	4	3	2	1	
D									D
C									C
B									B
A									A
	8	7	6	5	4	3	2	1	

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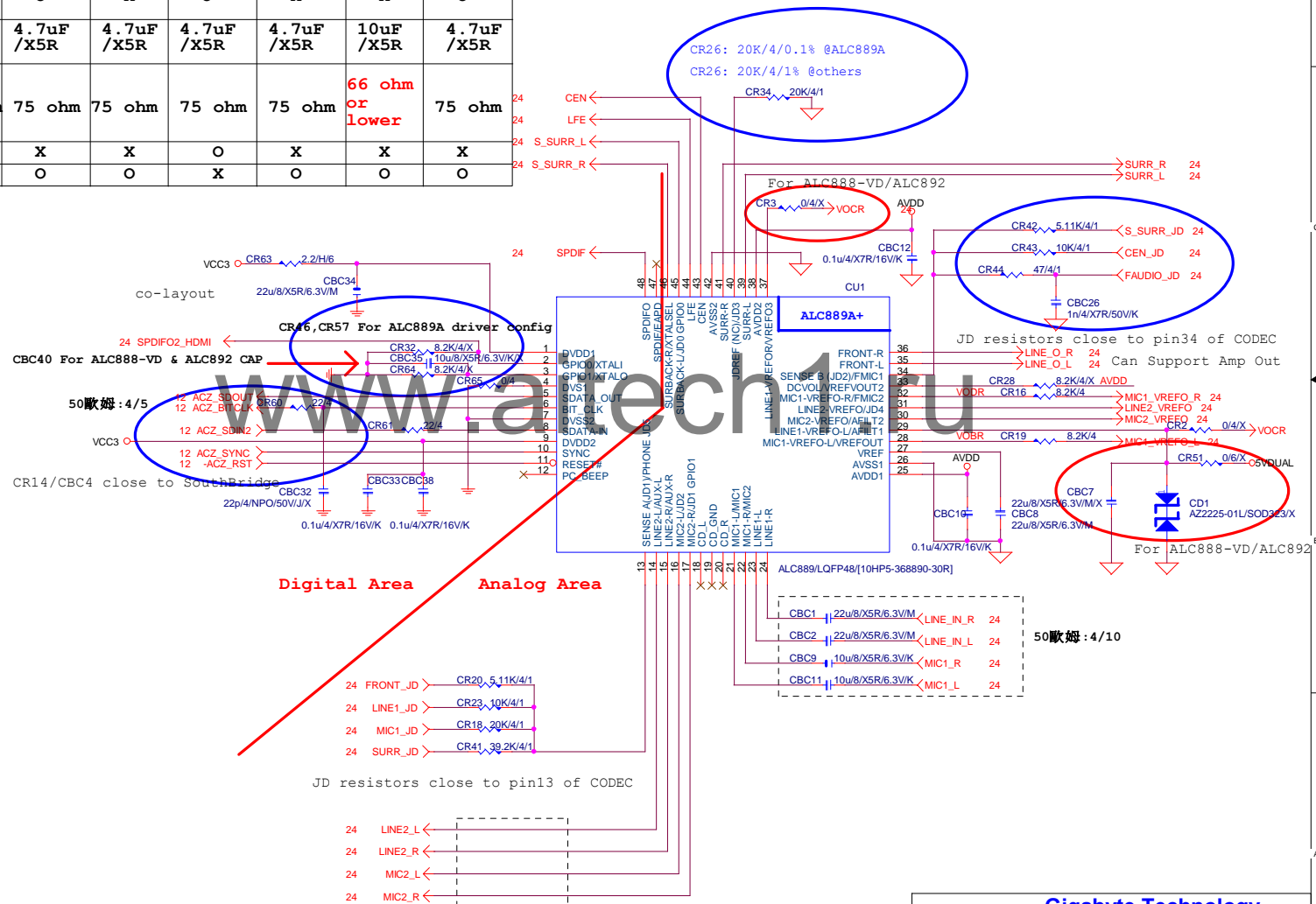
Gigabyte Technology		
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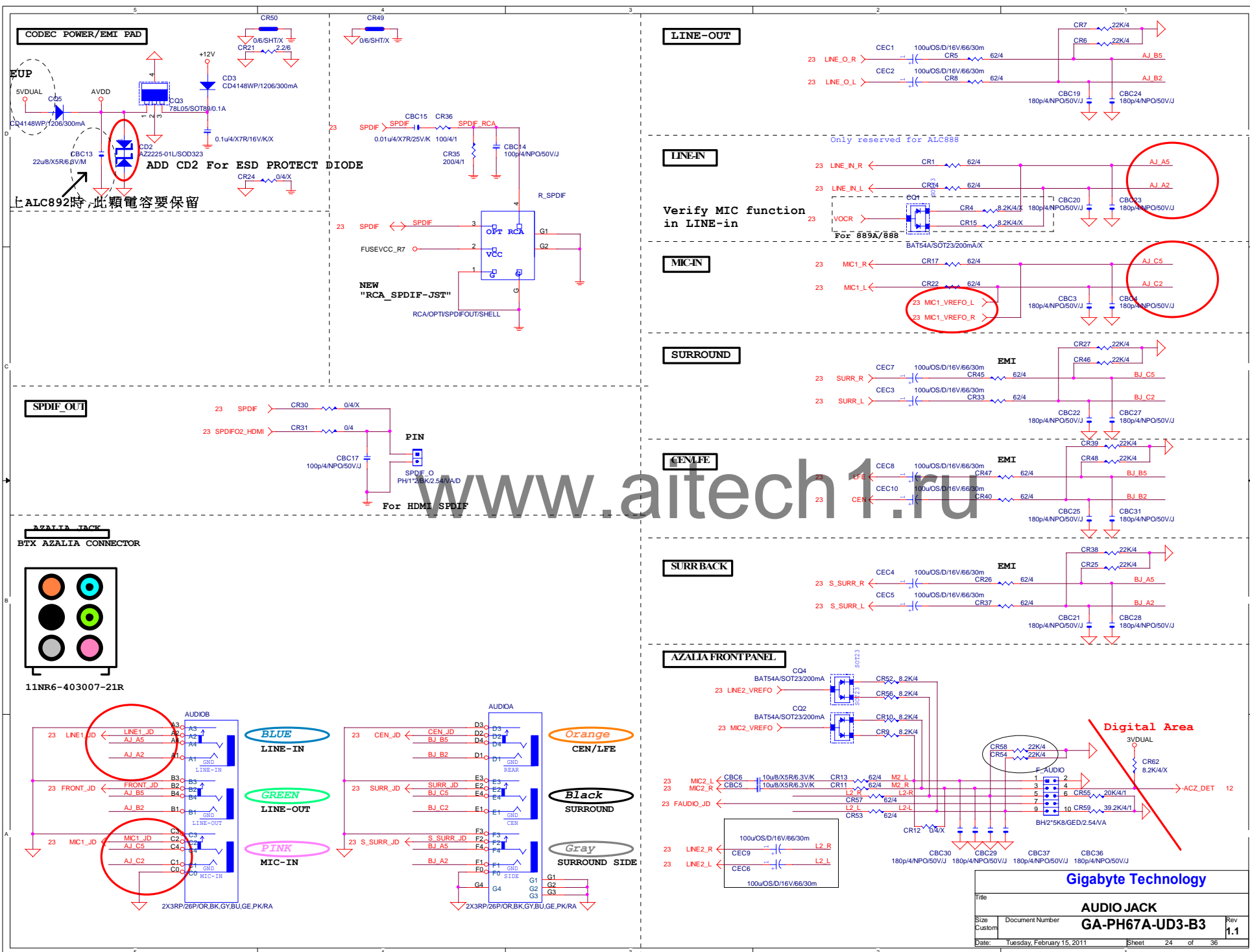
Gigabyte Technology			
Title		DualBIOS	
Size	Document Number	GA-PH67A-UD3-B3	Rev 1.1
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		2	1

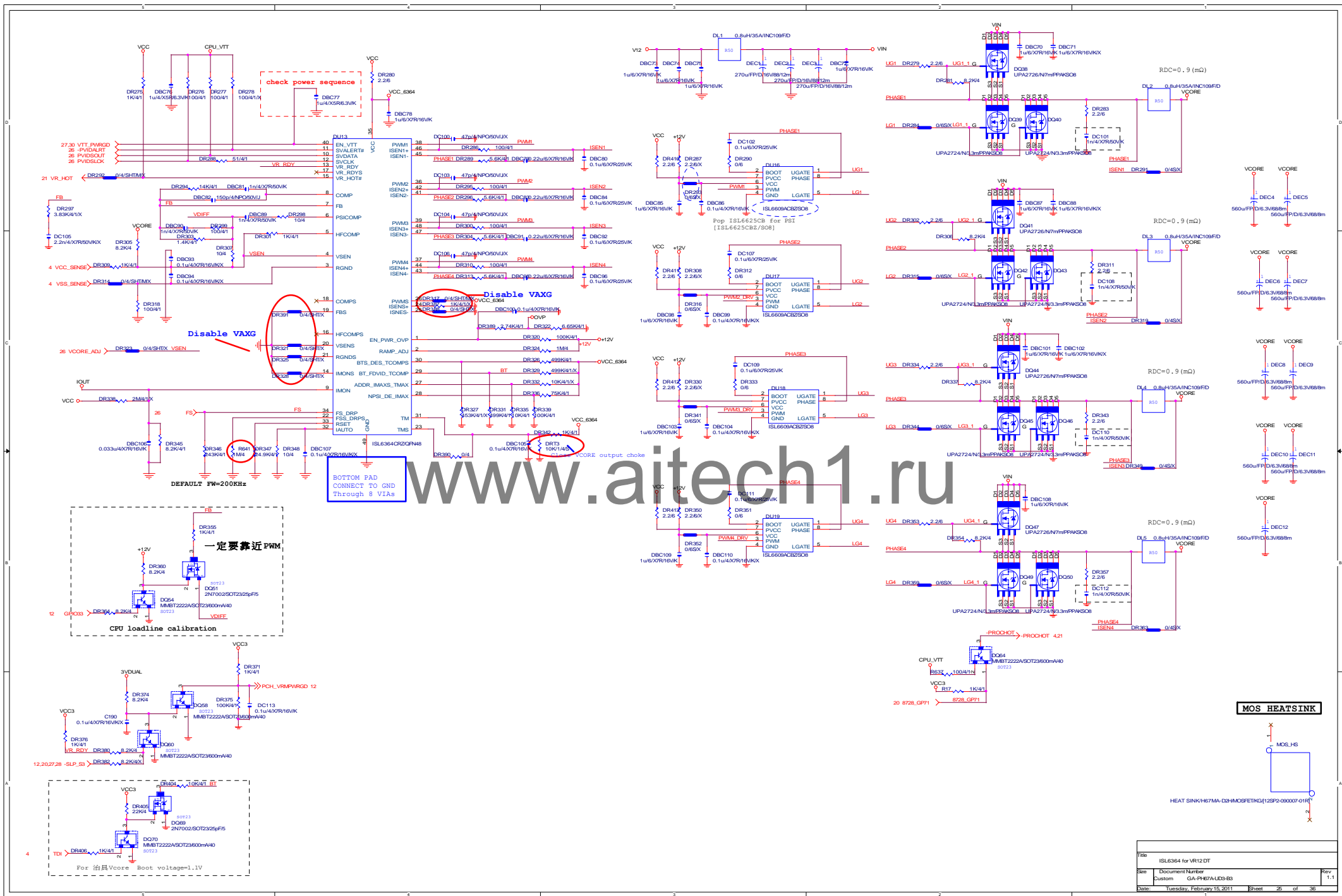
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CR46	X	X	X	X	X	X	O
CR57	X	X	X	X	X	X	O
CR49	O	O	X	X	X	O	O
CBC40	X	X	X	10uF/X5R	10uF/X5R	X	X
CR20	O	X	X	X	X	X	X
CR26	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR47	X	X	O	X	O	O	X
CR48	O	O	X	O	X	X	O
CBC2/CBC4/CBC5/ CBC6/CBC10/CBC11	4.7uF/ X5R	4.7uF/ X5R	4.7uF/ X5R	4.7uF/ X5R	4.7uF/ X5R	10uF/ X5R	4.7uF/ X5R
CR1/CR3/CR10/CR12/ CR15/CR19/CR56/CR27/ CR55/CR37/CR28/CR34/ CR6/CR9/CR51/CR61	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	66 ohm or lower	75 ohm
CR66/CR68/CD3/CBC41	X	X	X	O	X	X	X
CR67/CD1/CD2/CQ3/CQ5	O	O	O	X	O	O	O

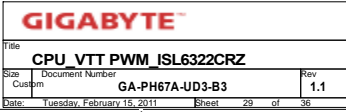


Gigabyte Technology

Title		HD AUDIO ALC892	
Size	Document Number	GA-PH67A-UD3-B3	
Custom		Rev 1.1	
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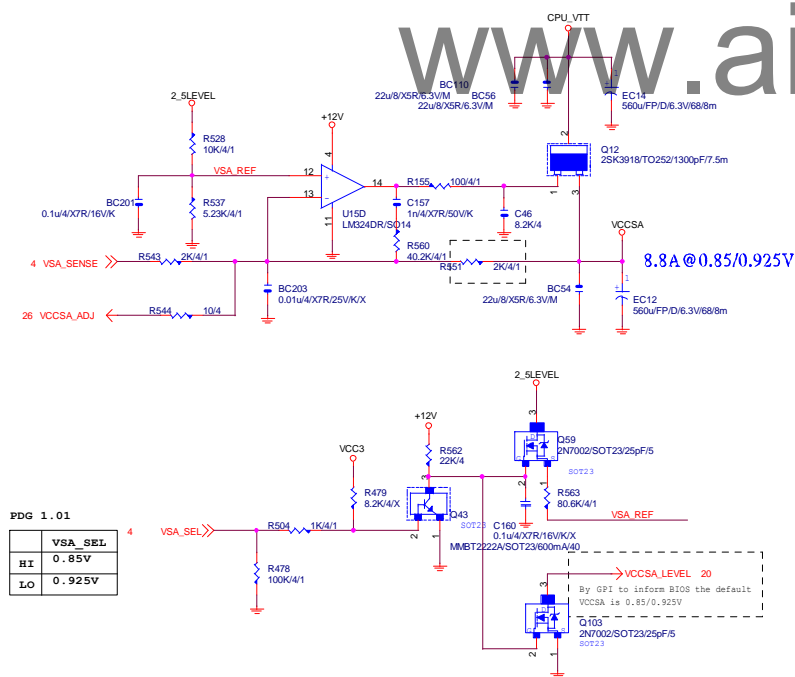




5VDUAL1(USB PORT/DDRIII POWER)
5VDUAL(3VDUAL/OTHER)

-S_WARN-->5VDUAL1-->-S_ACK(PCH)-->-DEPSLP/-RSMRST-->5VDUAL-->3VDUAL

VCC_SA

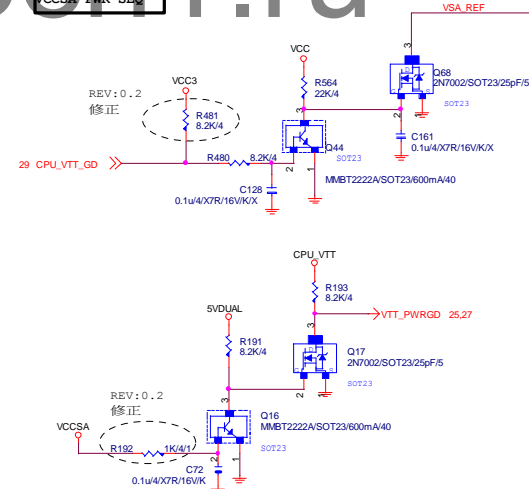


PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

www.aitech1.ru

VCCSA_PWR_SEQ

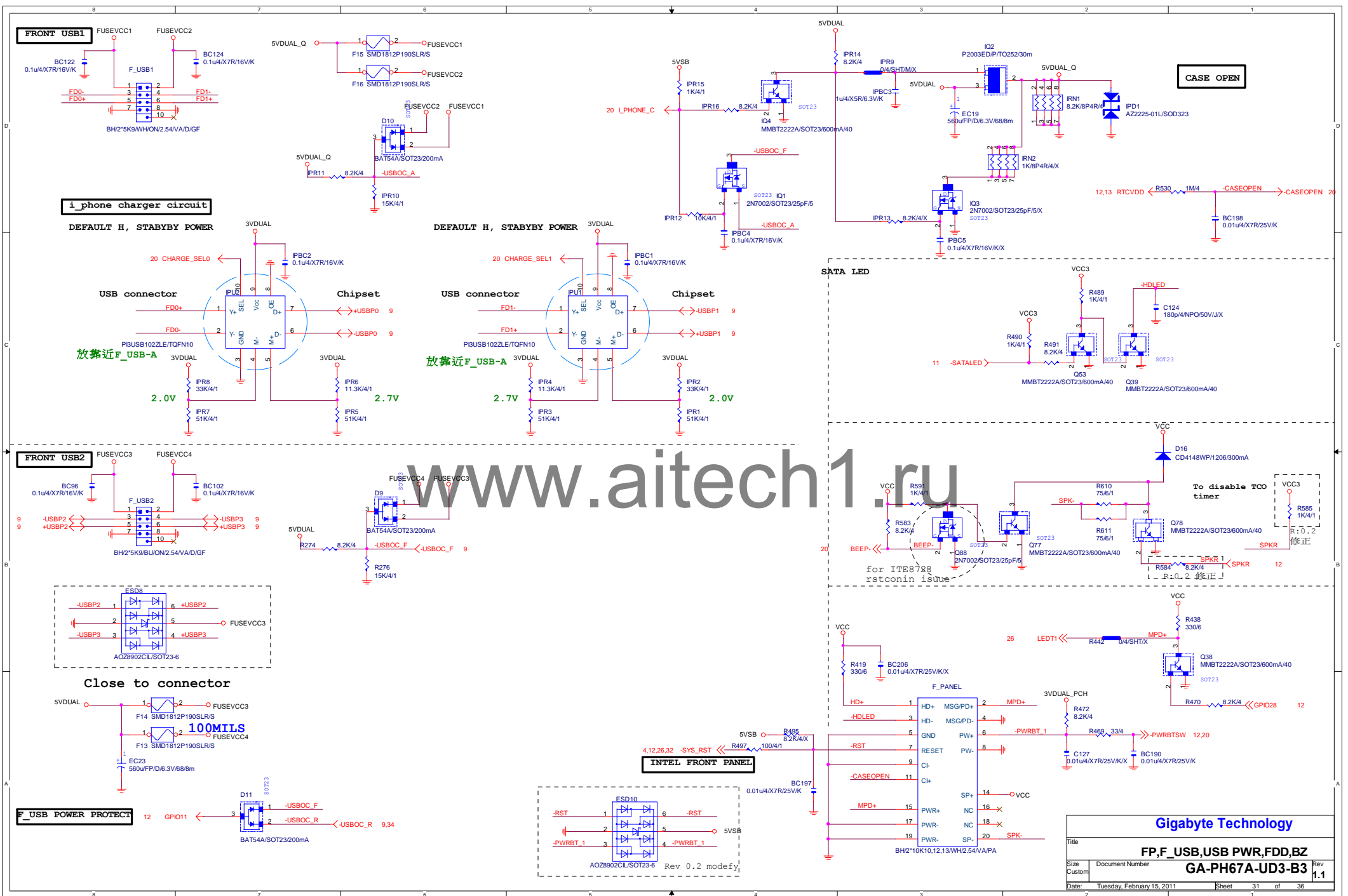


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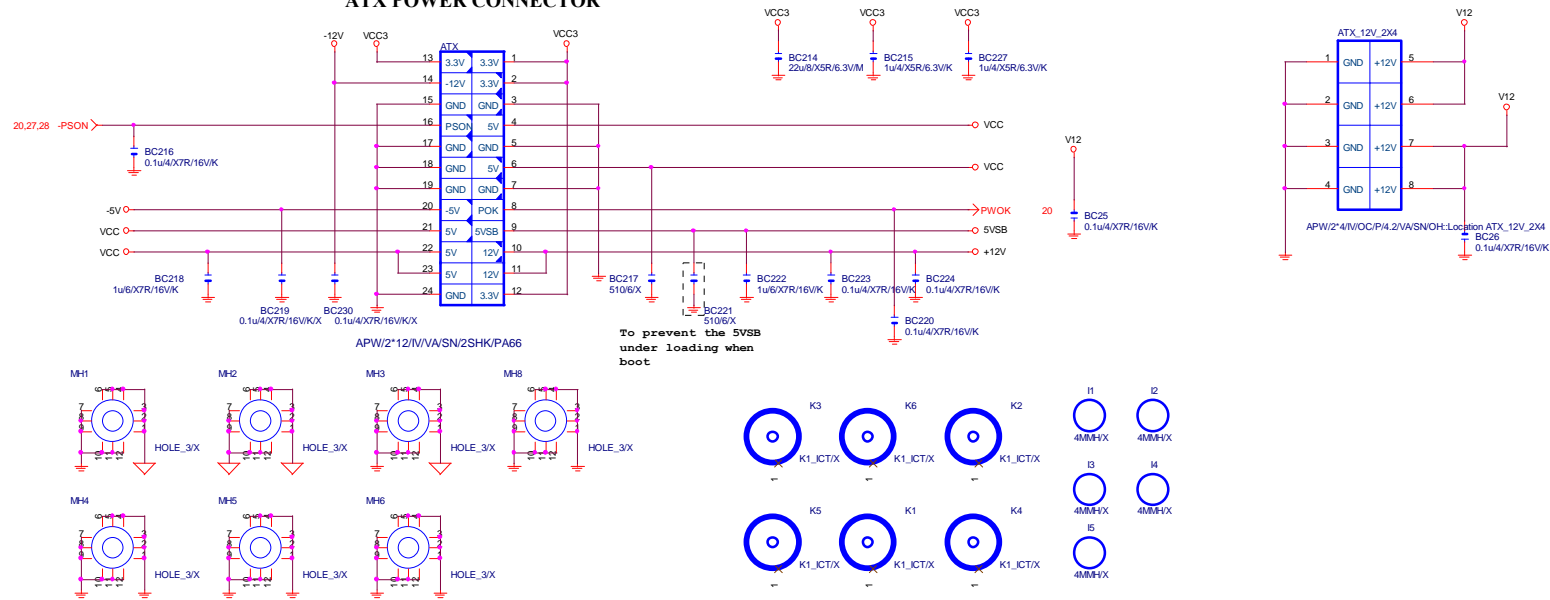
CPU VTT PWM_ISL6312

Size Custom GA-PH67A-UD3-B3 Rev 1.1

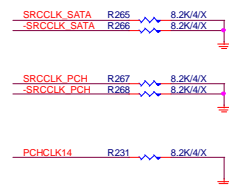
Date: Tuesday, February 15, 2011 Sheet 30 of 36



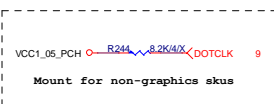
ATX POWER CONNECTOR



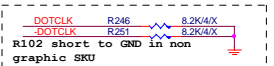
CLK GEN CK505



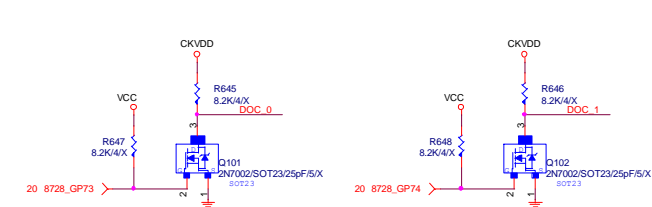
Mount for integrated clock Generation Mode



Mount for non-graphics skus



graphic SKU



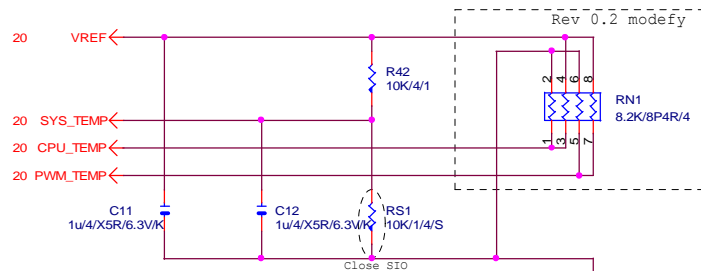
CPU Frequency Selection

FS	CPU
1	100M <Default>
0	133M

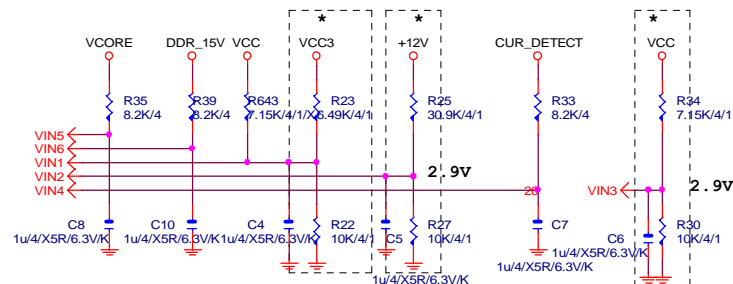
Gigabyte Technology

Title			
ATX POWER CONNECTOR			
Size	Document Number		Rev
Custom	GA-PH67A-UD3-B3		1.1
Date:	Tuesday, February 15, 2011	Sheet	32 of 36

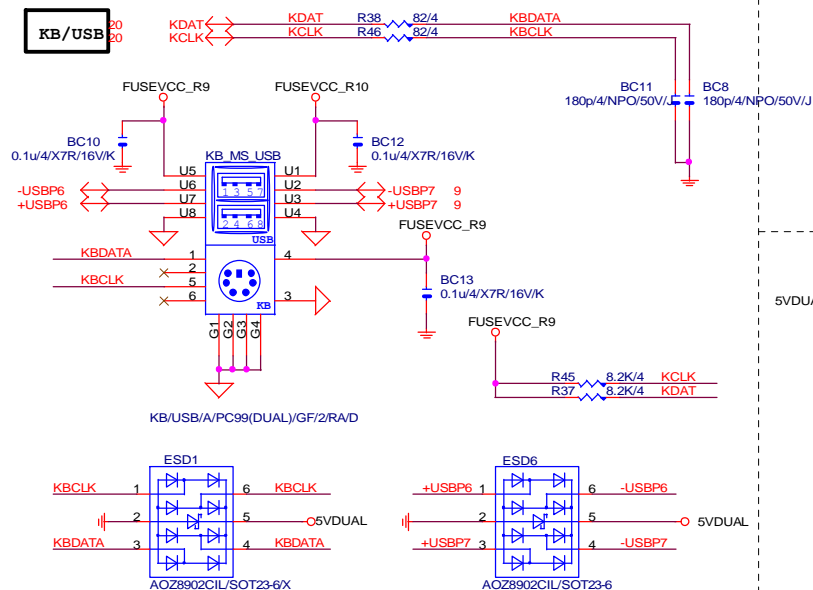
TEMP H/W MONITOR



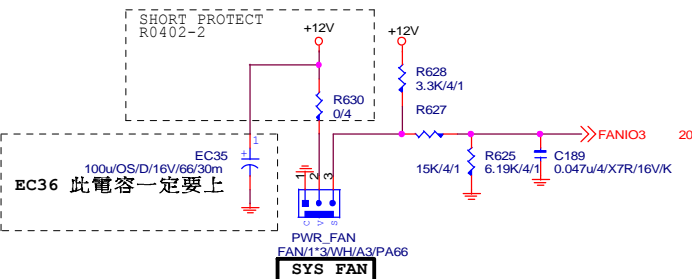
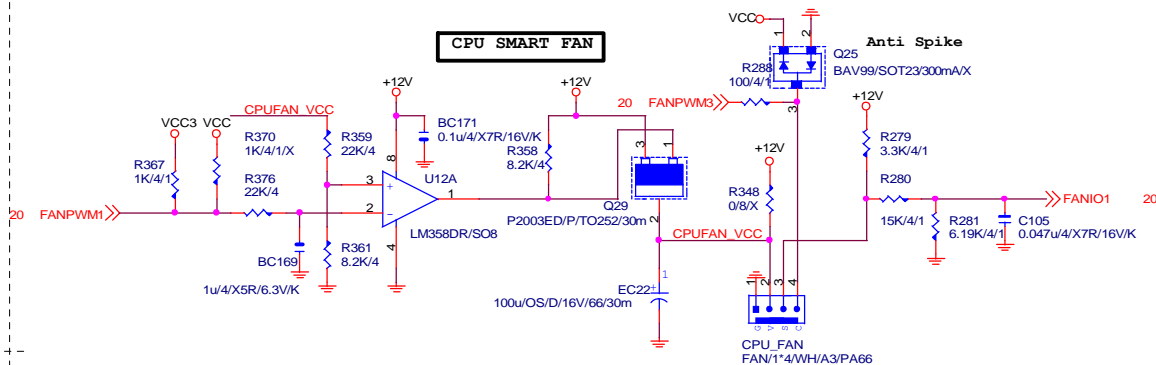
VOLTAGE-- H/W MONITOR



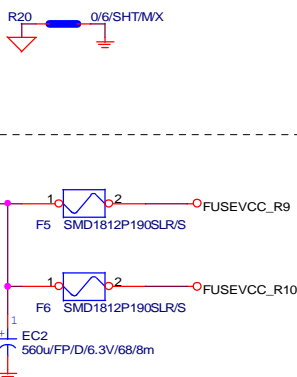
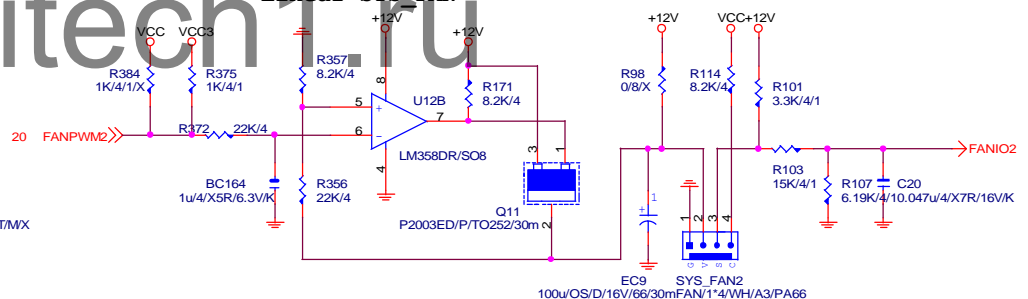
KB/USB



CPU SMART FAN



Linear SYS FAN



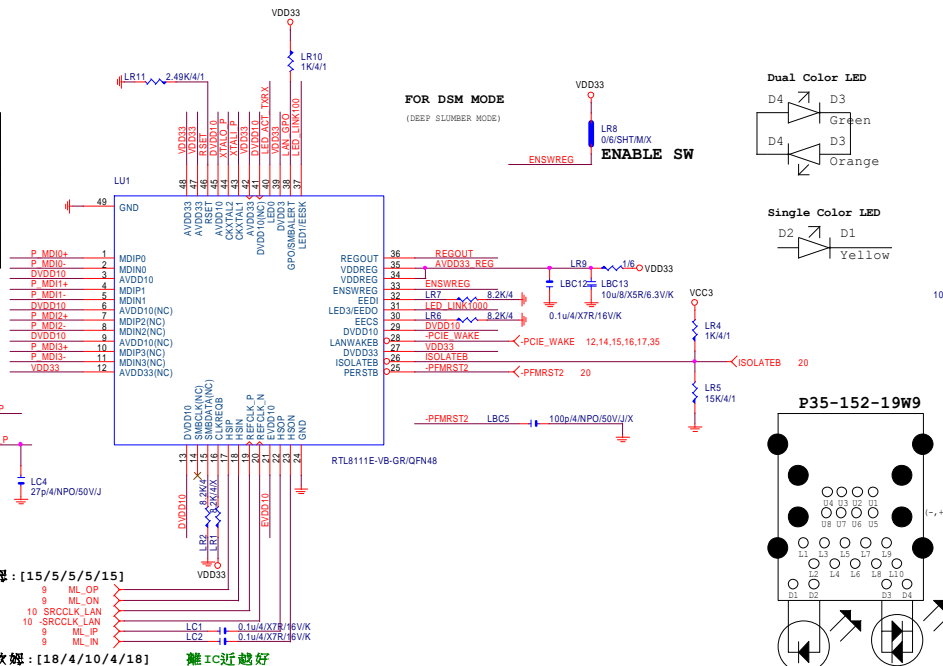
Gigabyte Technology

Title		
HWM,KB/MS, FAN CTRL		
Size	Document Number	Rev
Custm	GA-PH67A-UD3-B3	1.1
Date:	Tuesday, February 15, 2011	Sheet 33 of 36

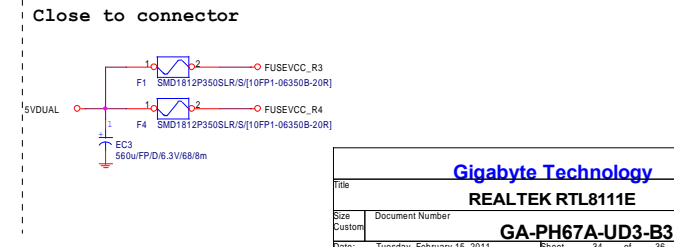
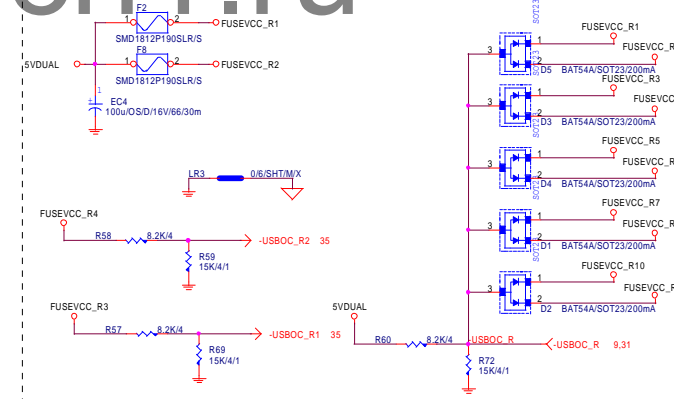
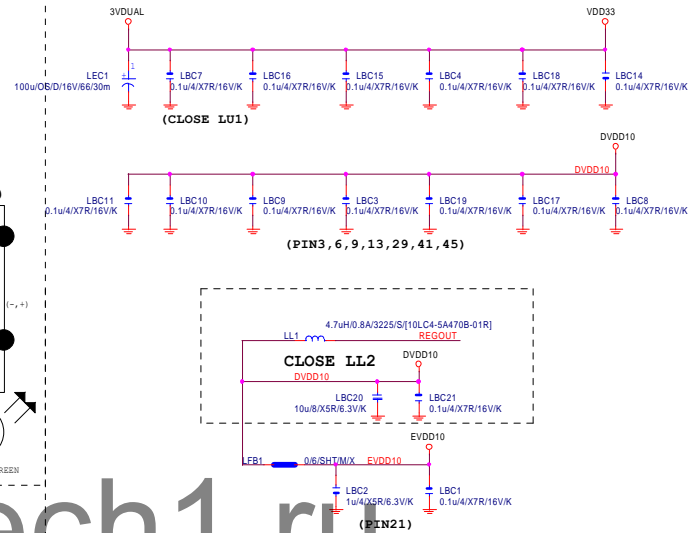
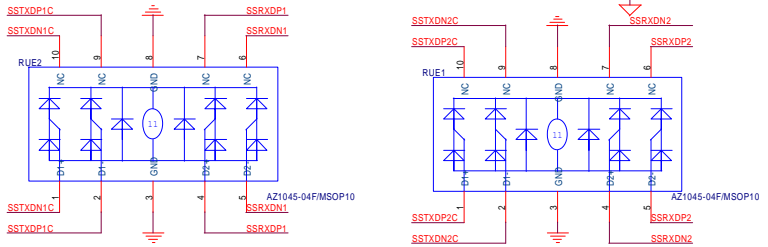
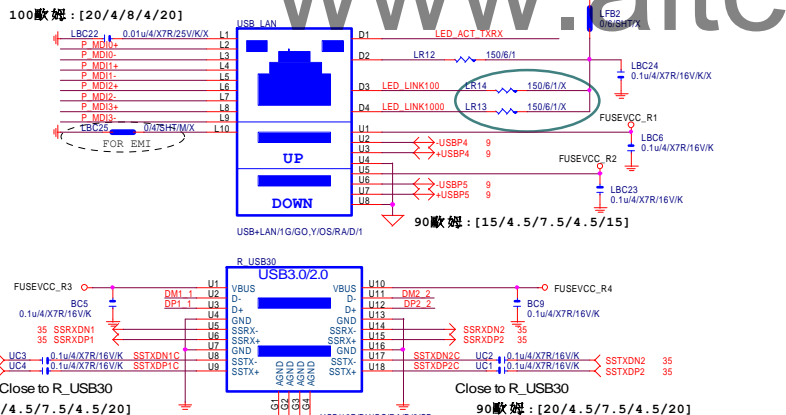
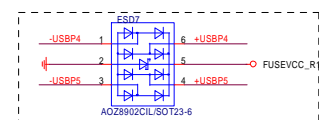
PCIE-1G LAN

Power domain chart

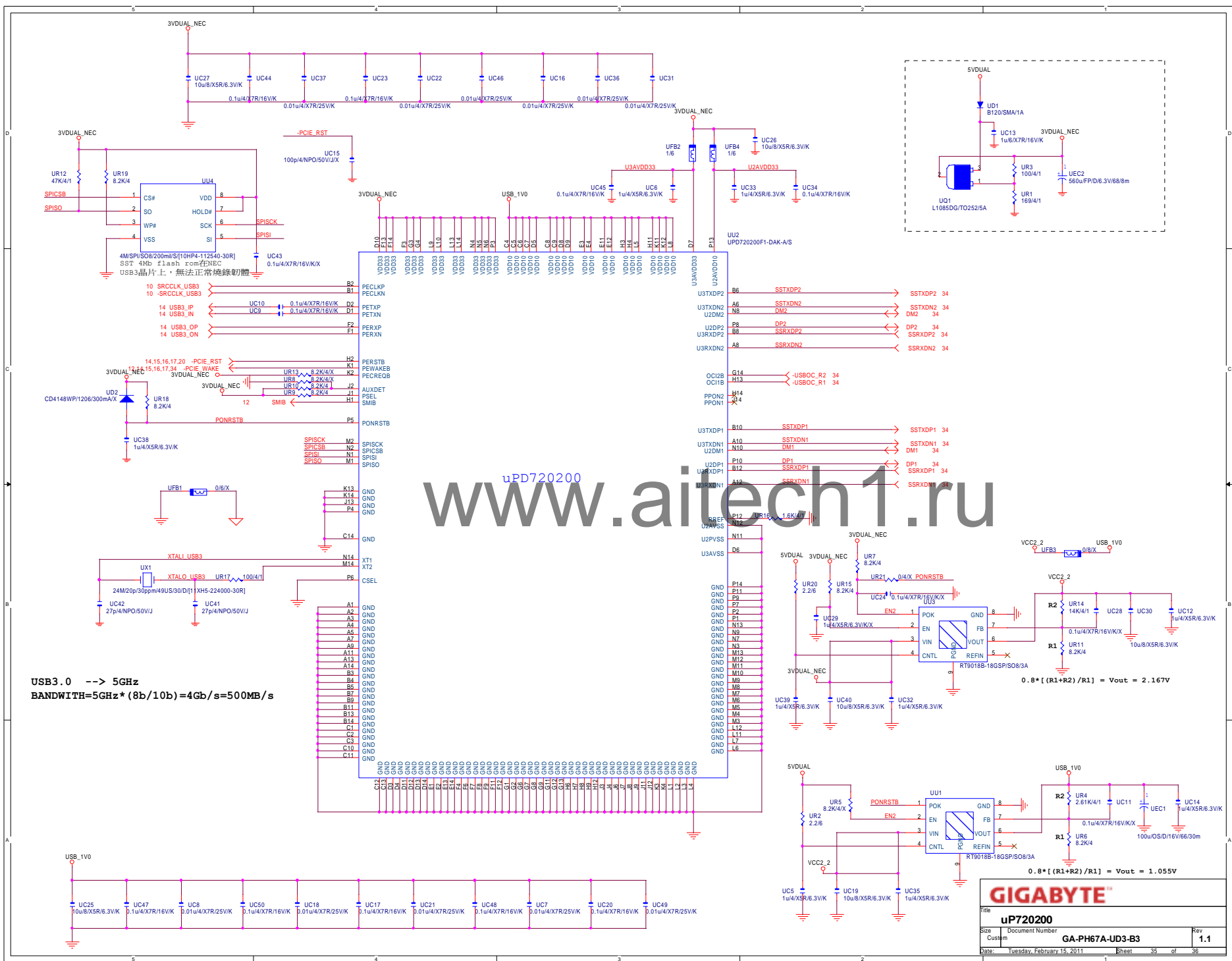
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



USB30 LAN CONNECTOR



Gigabyte Technology			
REALTEK RTL8111E			
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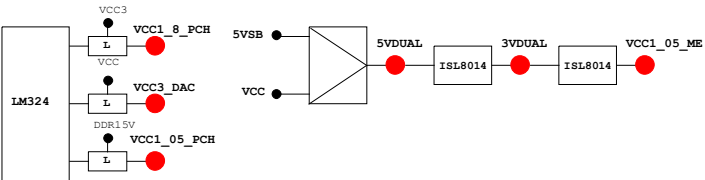
PCH GPIO LIST TABLE

PIN NAME	PWR	After Pinmux	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	-LPCPME	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	-REQ2	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_OCO#	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	SUSCLK	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_OV4	P/U 8.2K 3VDUAL
GP73	STBY		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

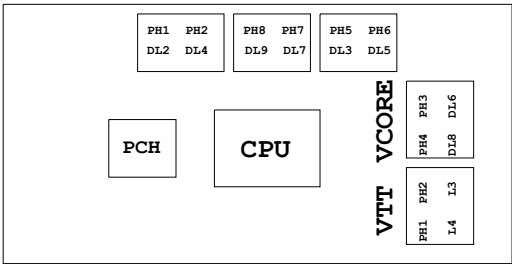
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_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#CIRRX1/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/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH/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/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMB_C_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWROK#/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#/CIRRX/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	
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/BUSSO0	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

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 Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

8IBP:
1.12SP2-01A001-Y1R/Y2R
2.12SP2-01A001-Z1R/Z2R
(HIBRID模組)包材階

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

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TABLE LIST			
Size C	Document Number	Rev	
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