

REV: 1.0

TITLE

SHEET

TITLE

[illegible]

GA-H55M-S2HP-TO Version: 1.0

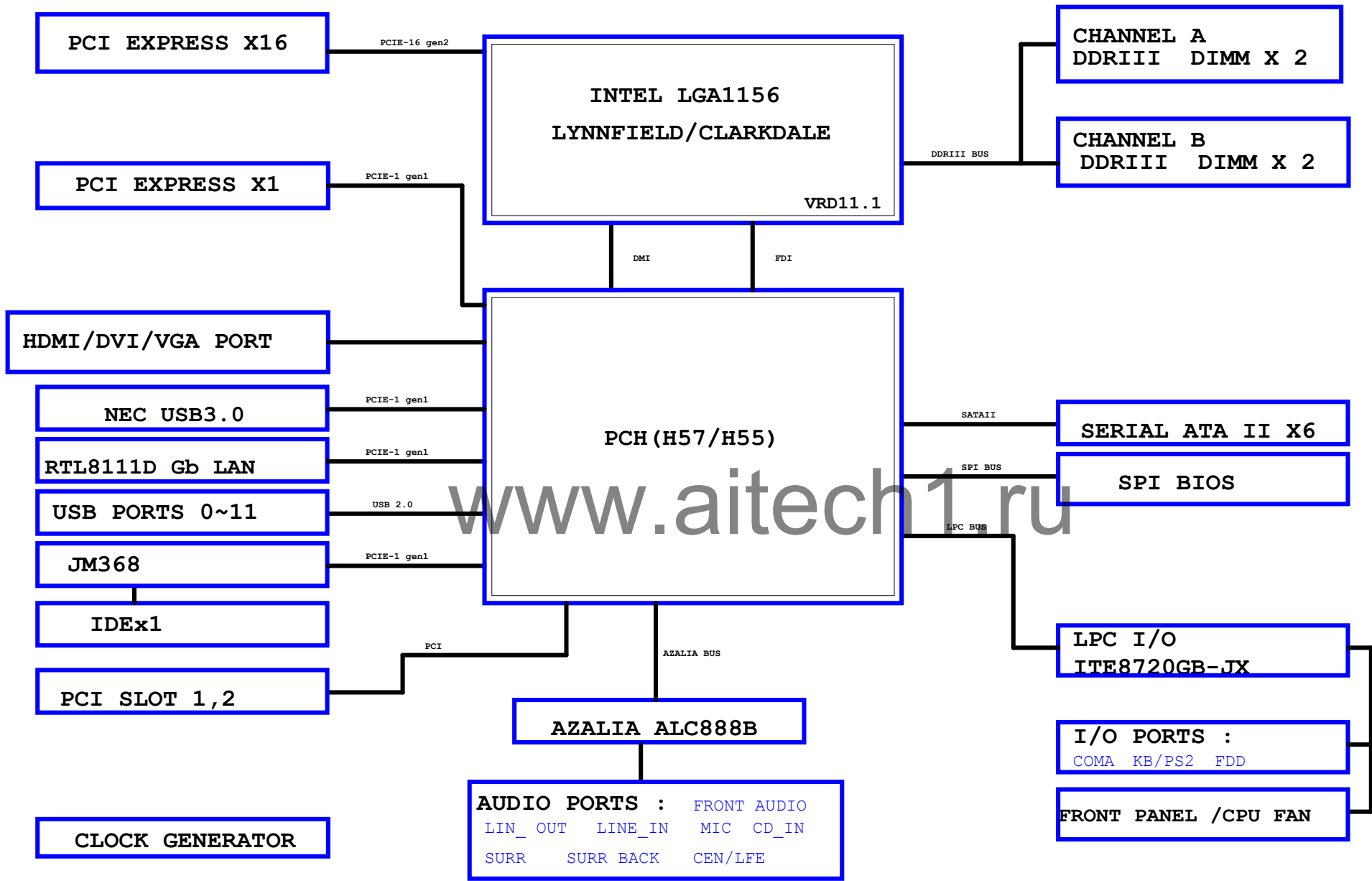
Circuit or PCB layout change
for next version

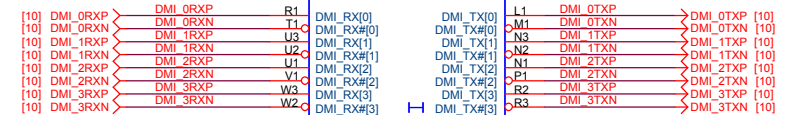
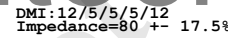
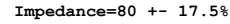
Component value change history

2010/01/21

[illegible][illegible]

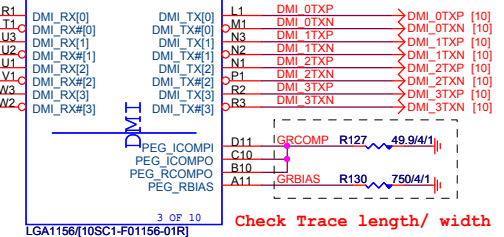
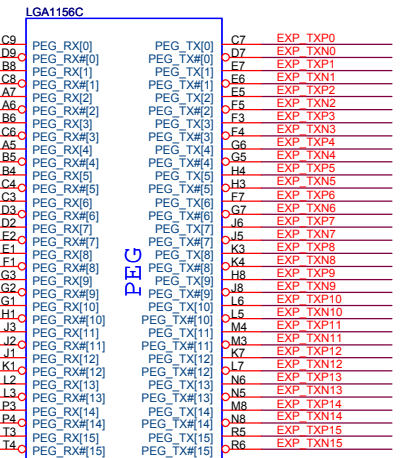
BLOCK DIAGRAM





	FUNCTION	DEFAULT
VID0	MSI0	0
VID1	MSI1	1
VID2	MSI2	1
VID3	IMON CFG0	1
VID4	IMON CFG1	1
VID5	IMON CFG2	1
VID6	RSVD	0
VID7	VRD SEL	0
PSI#	RSVD	

POWER ON CONFIG TABLE (Default=1.2250V)

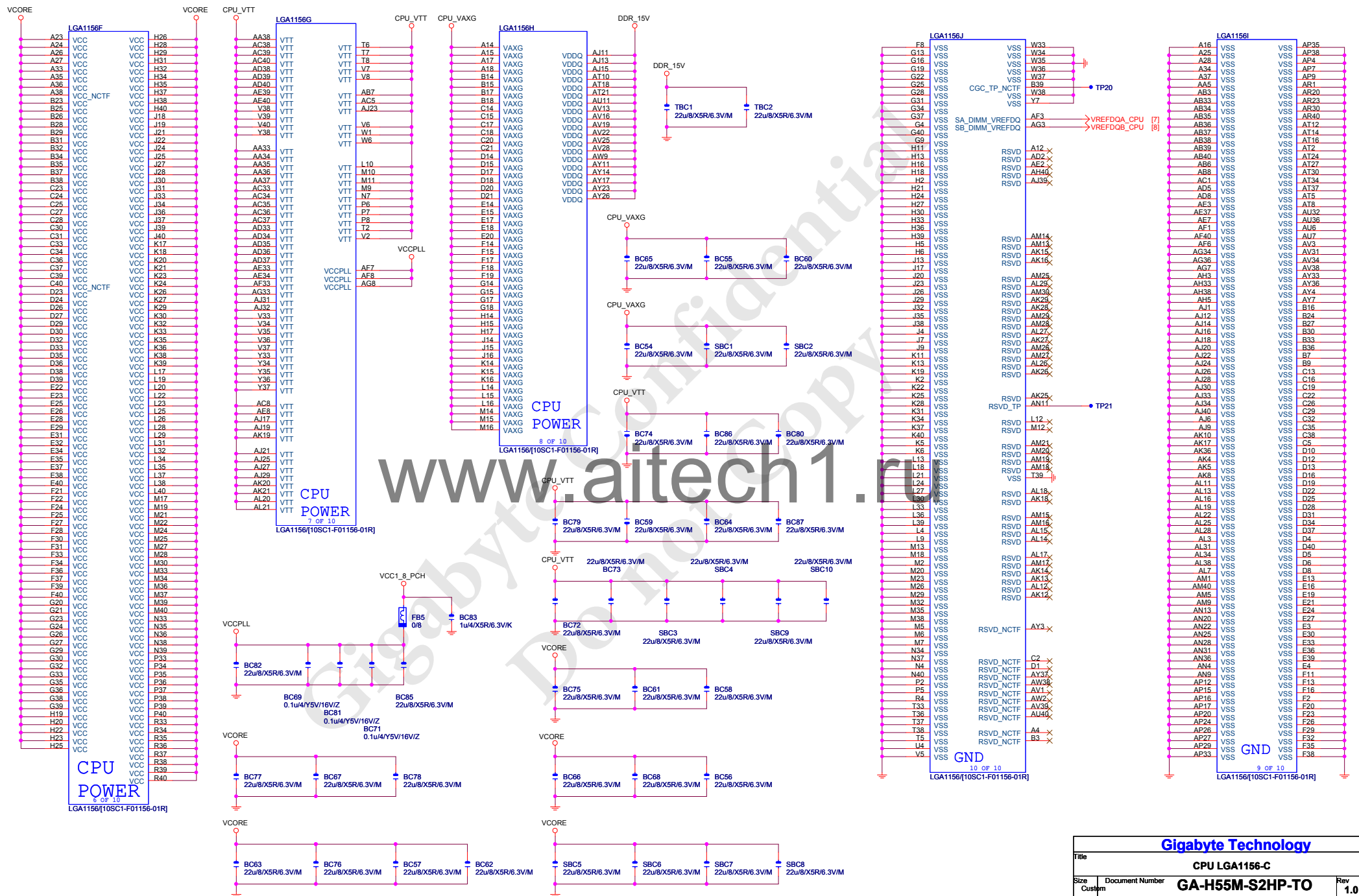


Check Trace length/ width

LGA1156/T10SC1-F01156-01R1

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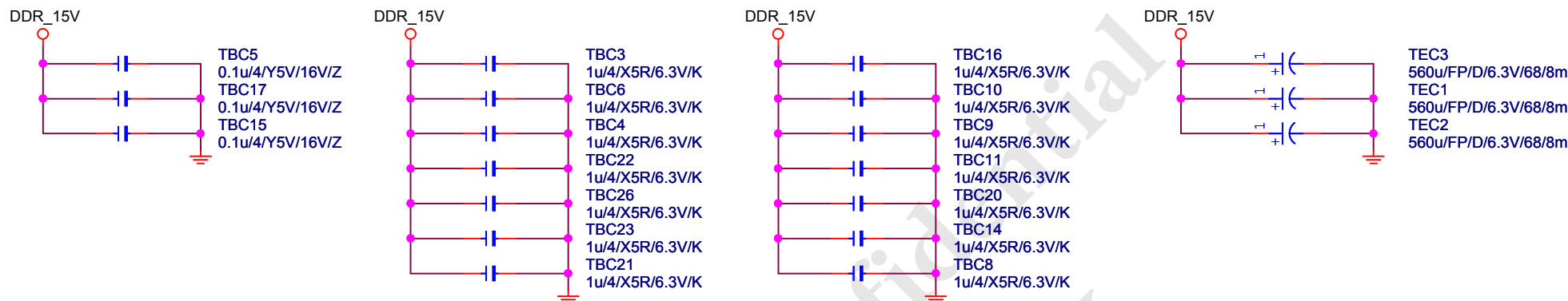




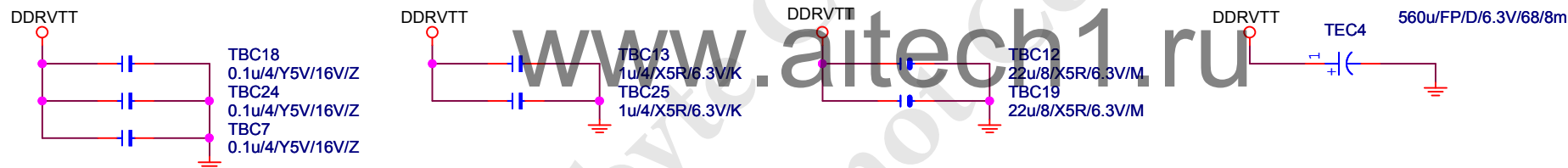


DDR TERMINATION CHANNEL A/B

DDR15V Decouple



DDRVTT Decouple



REF VCC層GND, GND層GND要塞孔



REF GND層GND, VCC層GND要塞孔

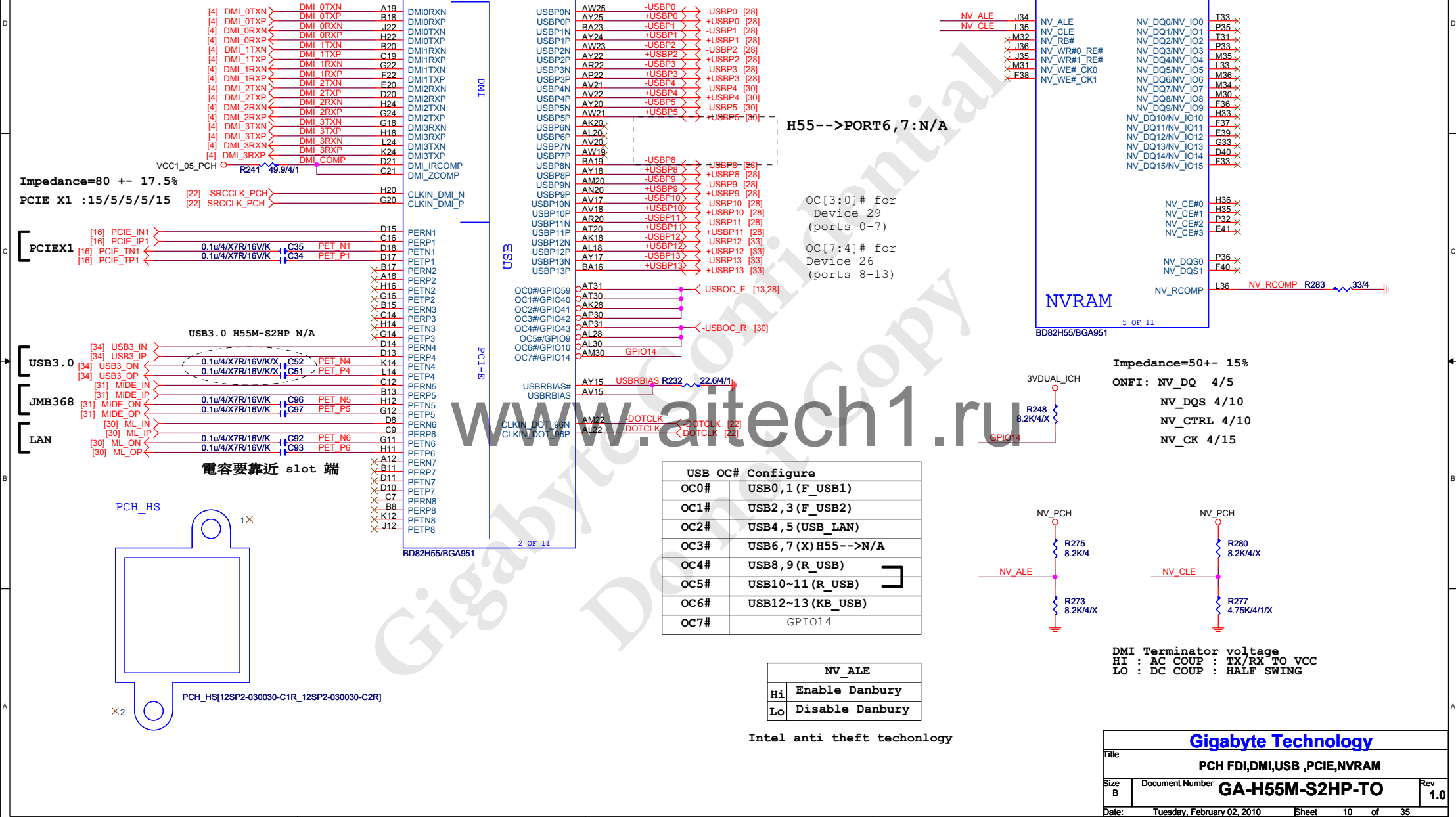
Gigabyte Technology

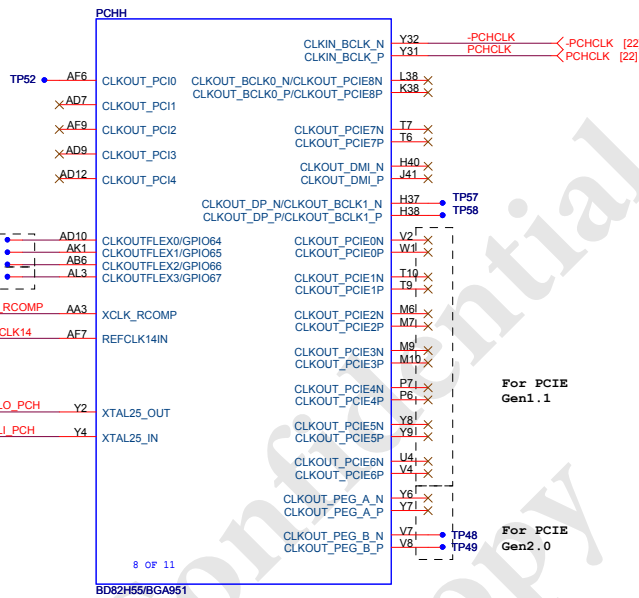
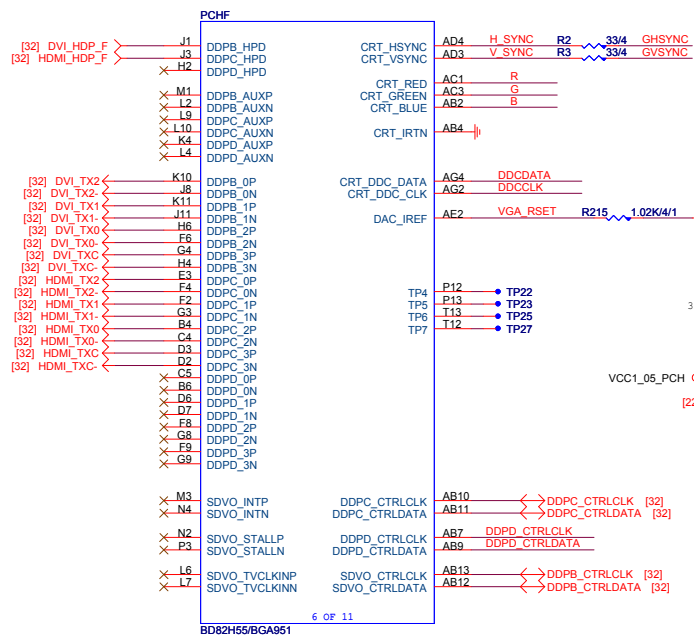
Title			DDRIII POWER CAP
Size A	Document Number	GA-H55M-S2HP-TO	
Date: Friday, January 22, 2010		Sheet 9 of 35	Rev 1.0

PCHB

USB: 15/4.5/7.5/4.5/15
Impedance=90+- 15%

PCHE

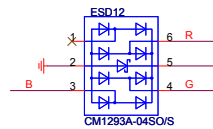
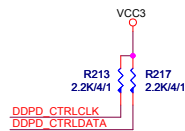
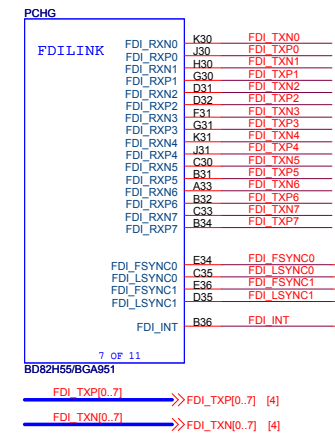




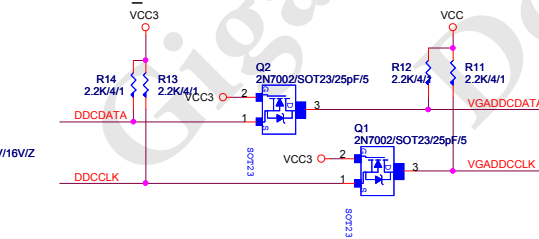
133MHz to CPU

100MHz to CPU

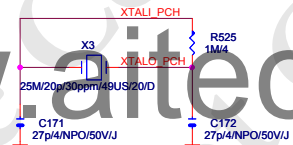
120MHz to CPU



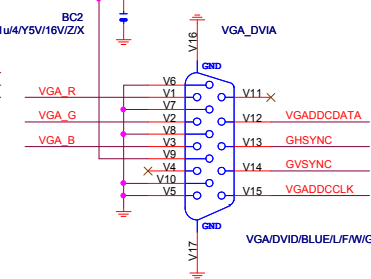
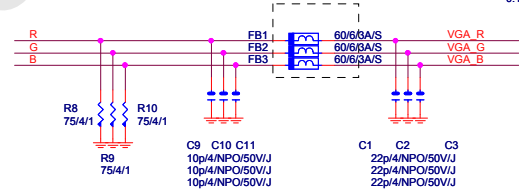
SSOP6_ESD



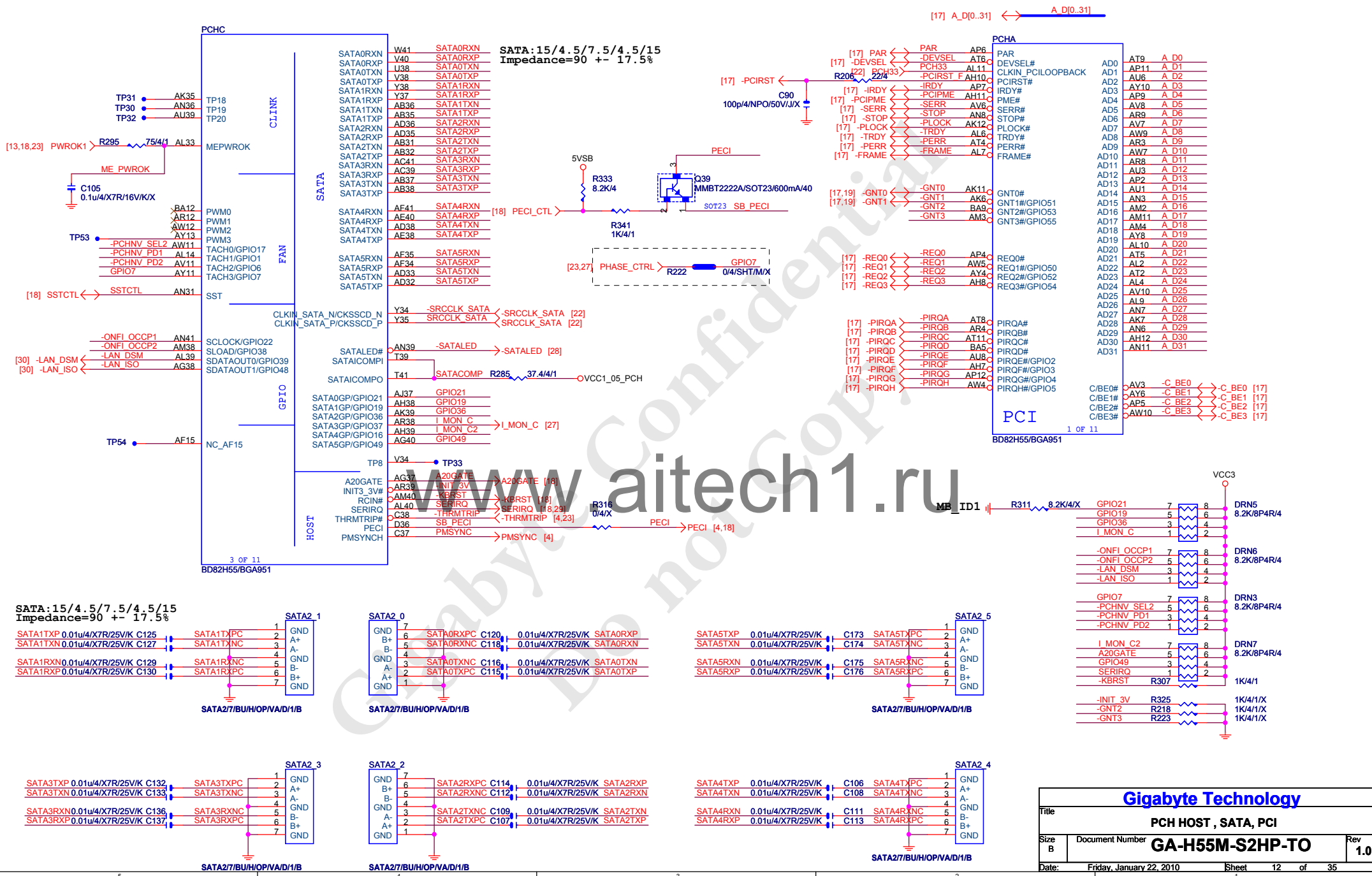
SSOP6_ESD



check R.G.B SIGNAL

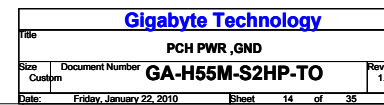


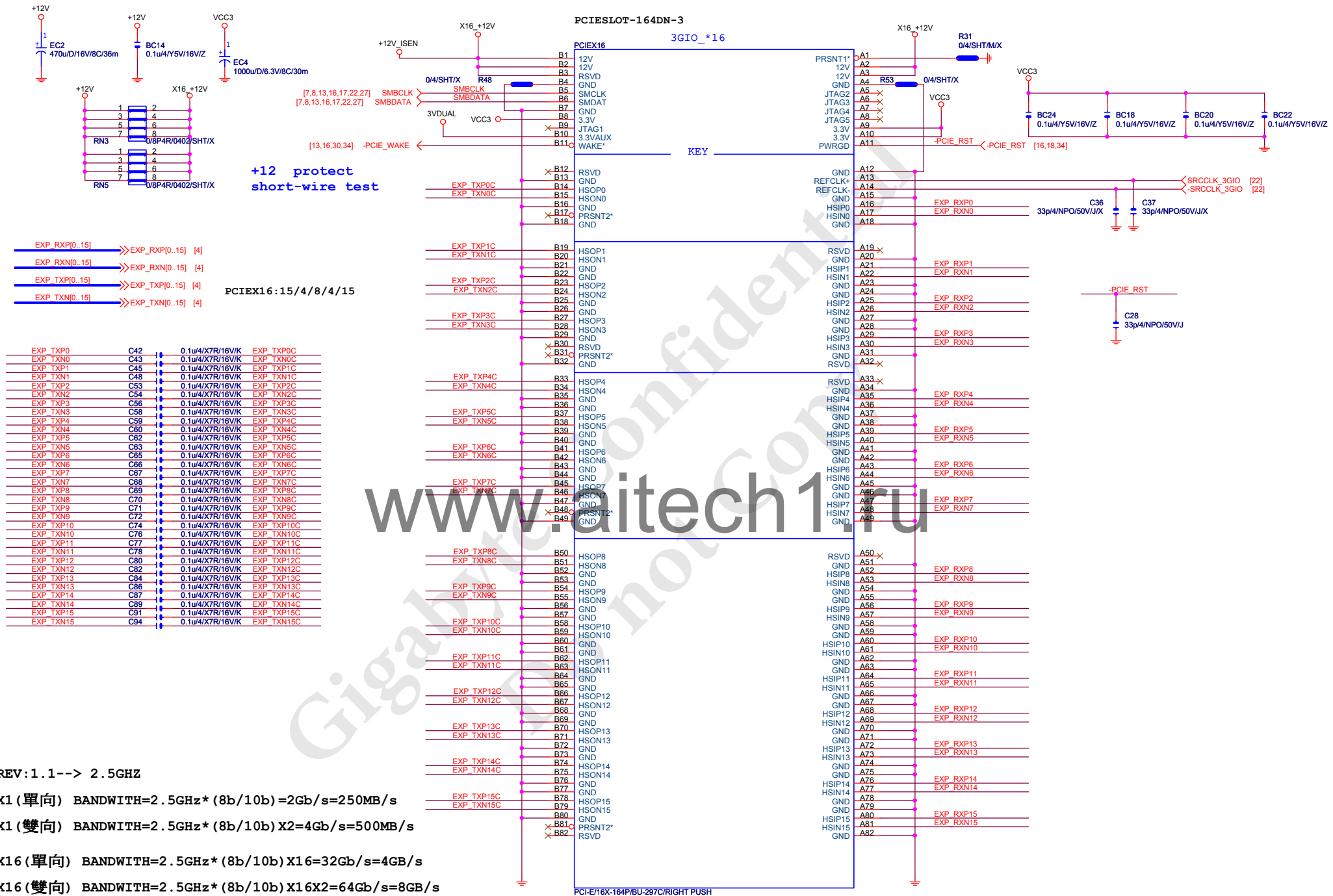
Gigabyte Technology			
Title			
PCH DISPLAY_CLK BUFFER			
Size			
Custom			
Document Number			
GA-H55M-S2HP-TO			
Date			
Friday, January 22, 2010			
Sheet			
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Rev			
1.0			

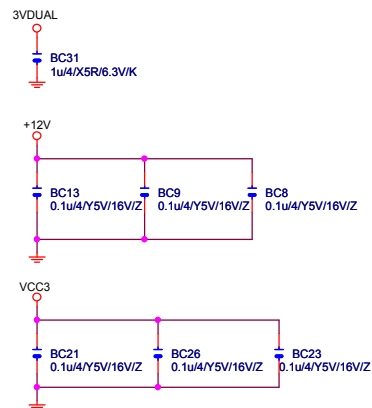
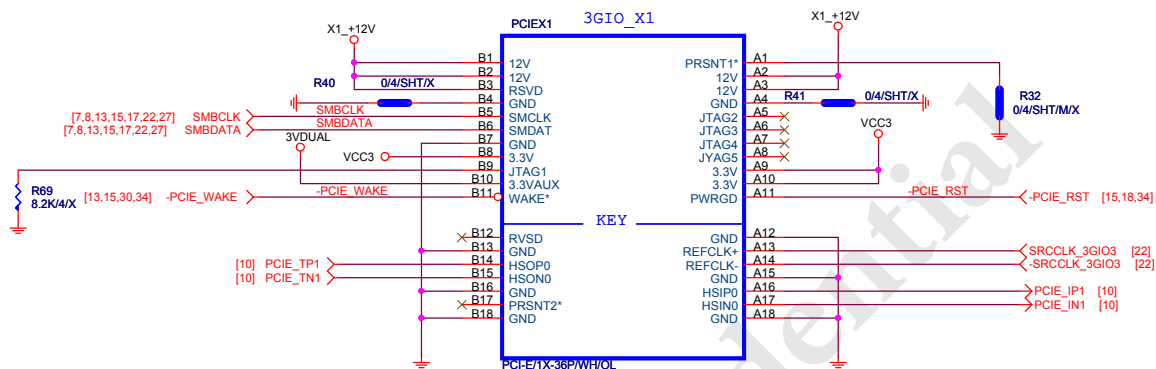
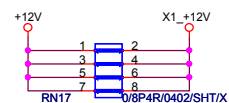


Gigabyte Technology

Title		PCH HOST , SATA, PCI	
Size	Document Number	GA-H55M-S2HP-TO	Rev
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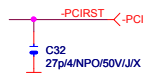
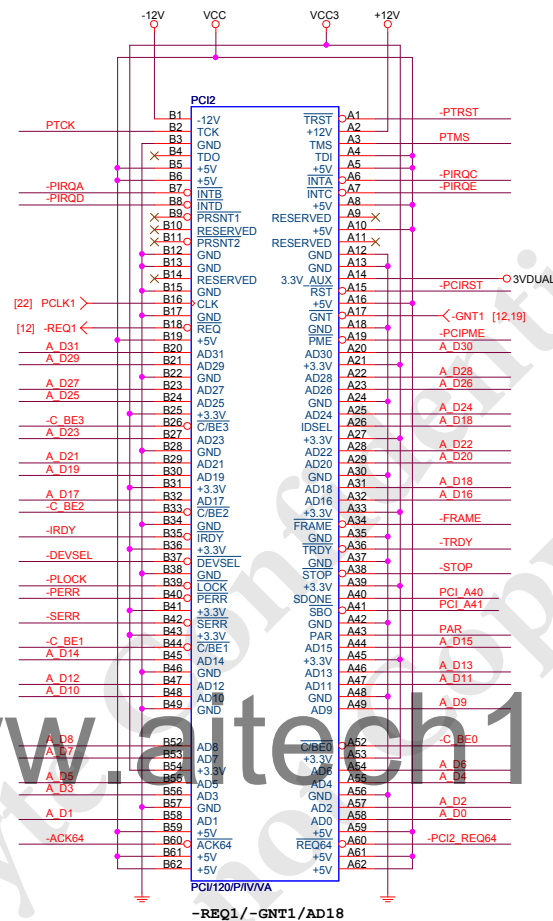
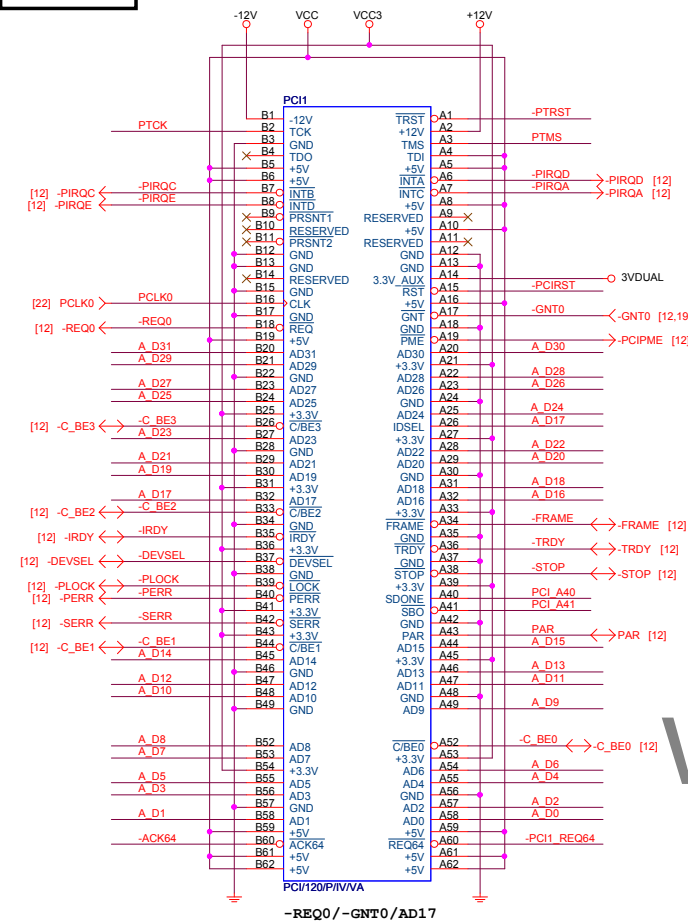




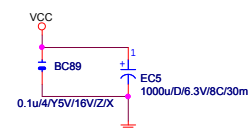
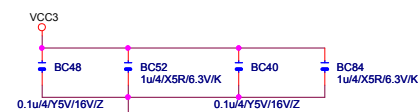
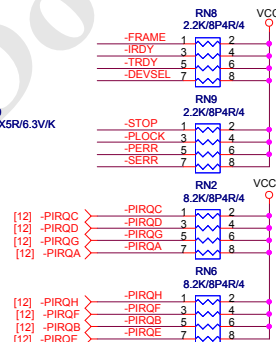
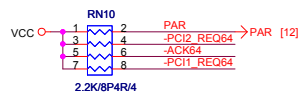
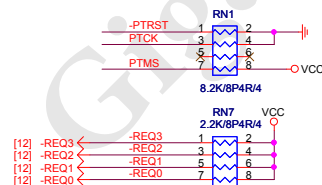


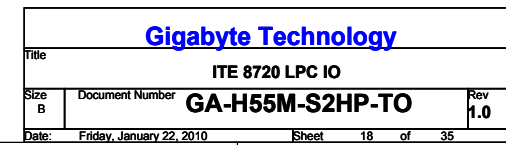
www.aitech1.ru

PCI1,2 SLOT

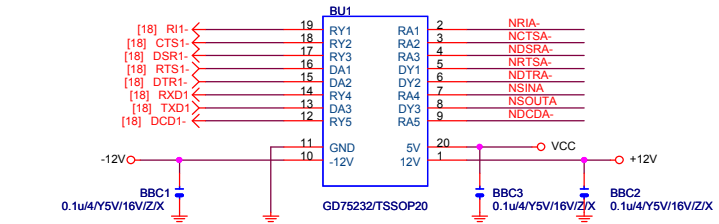


Place close to PCI1

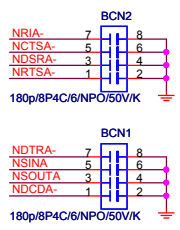
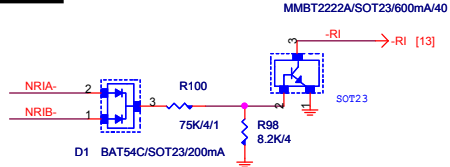




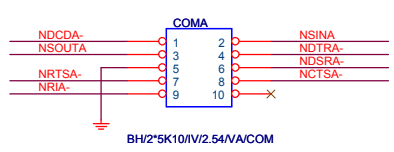
COMA



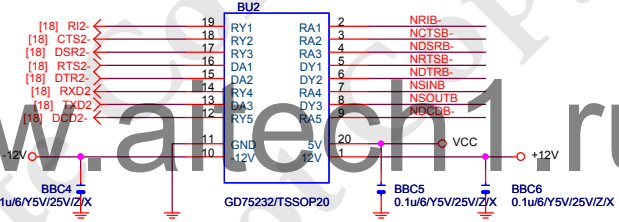
RING IN



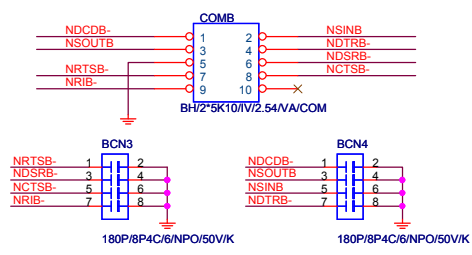
F_COM-HS



COMB

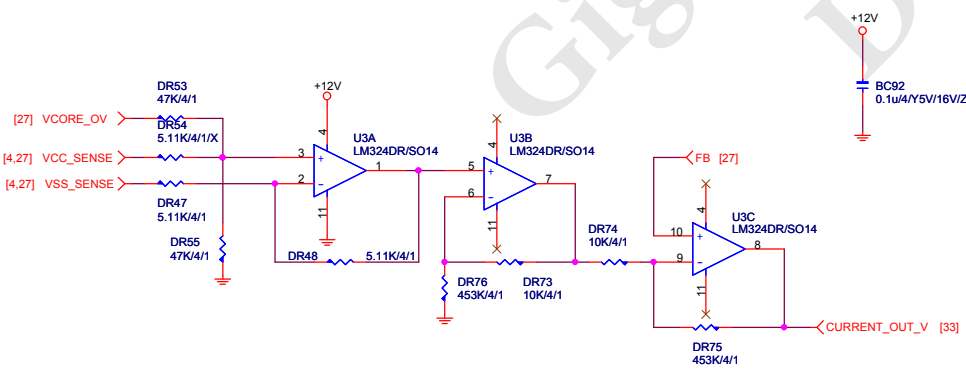


INTERNAL COMB

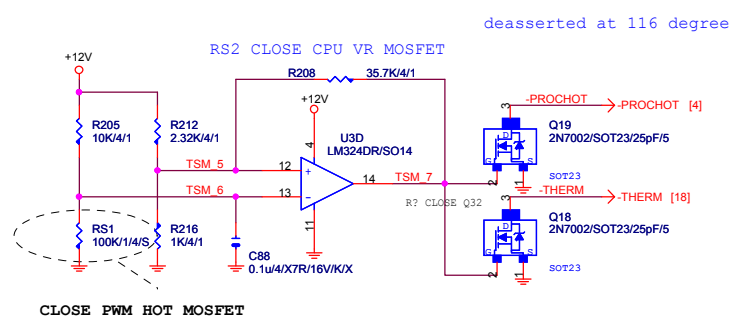


PLACE NEAR COM CONNECTOR

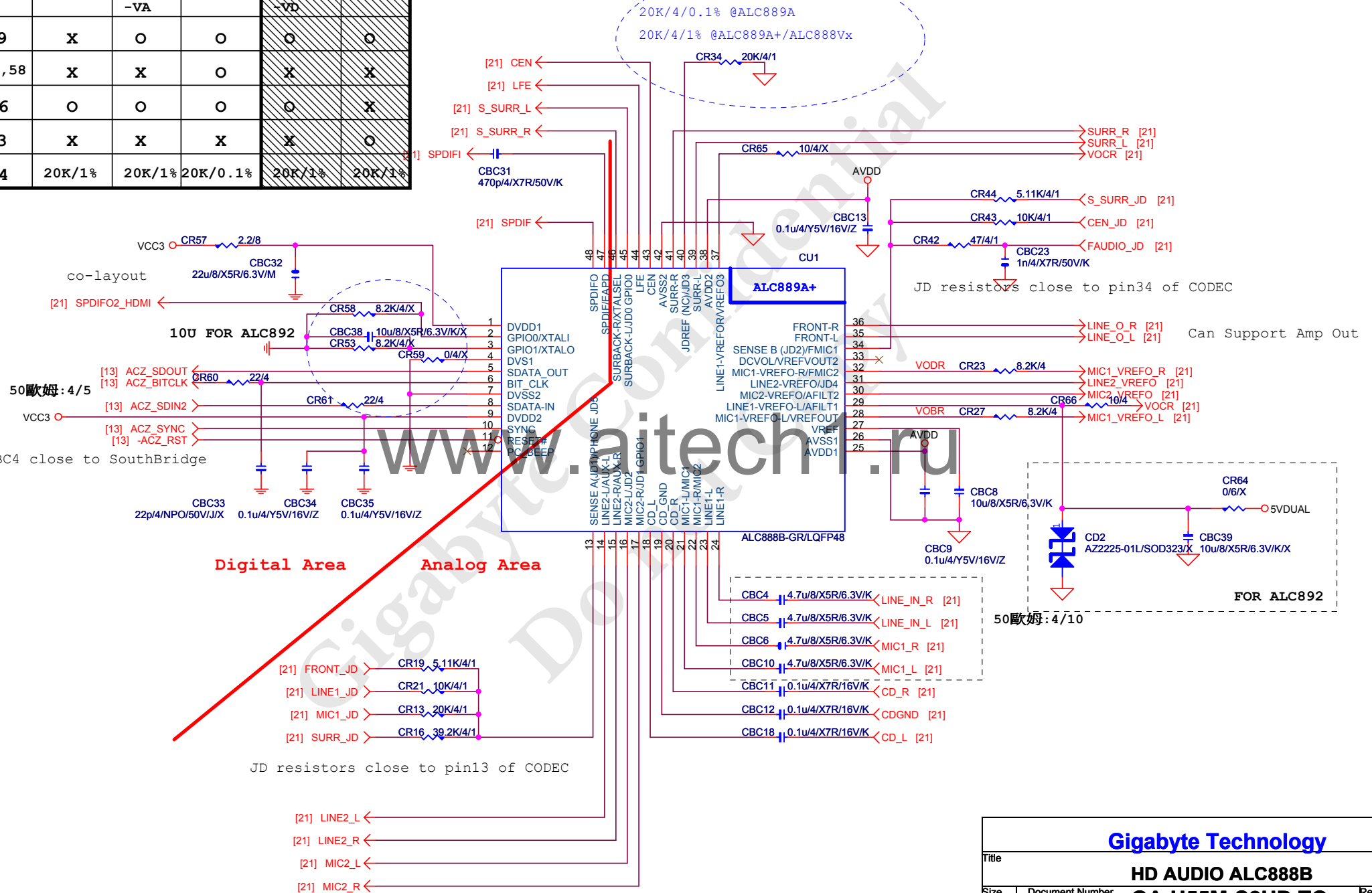
DYNAMIC CURRENT OC



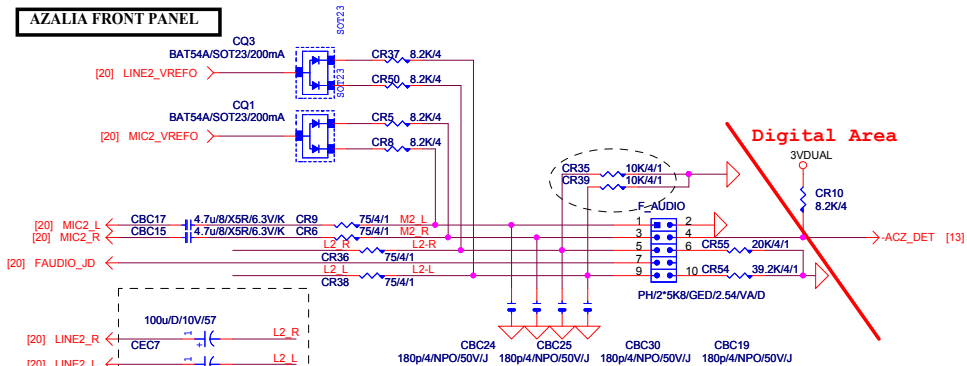
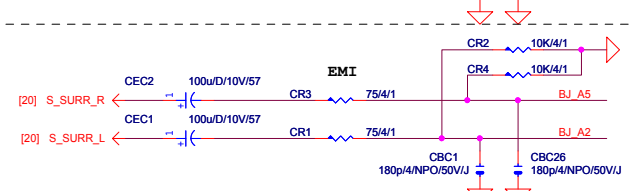
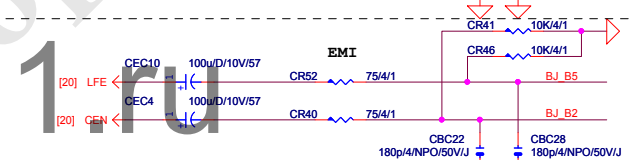
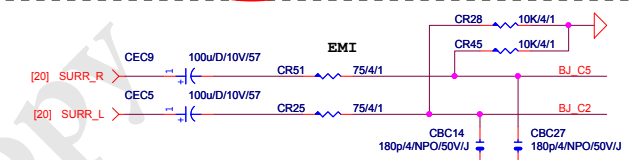
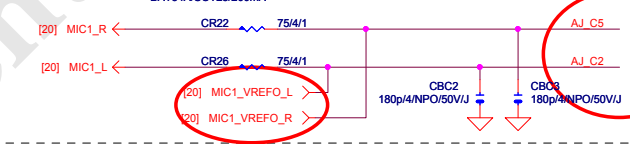
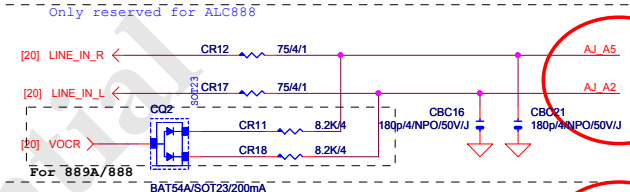
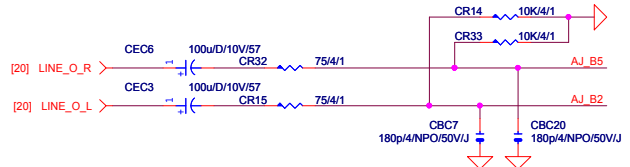
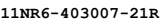
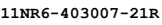
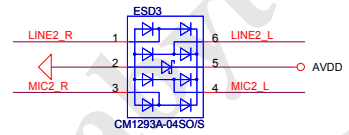
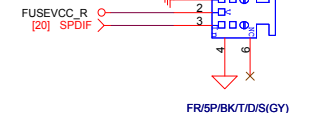
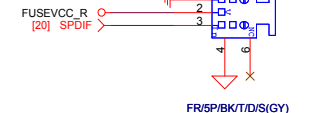
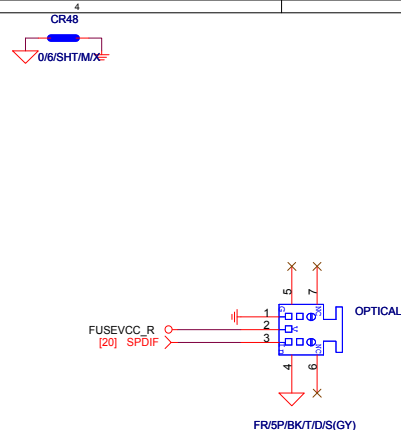
-PROHOT

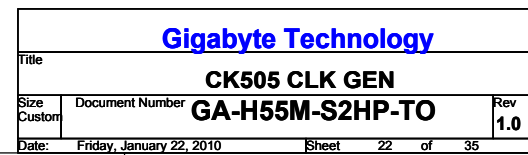


	ALC888B	ALC888 -VA	ALC889A	ALC888 -VD	ALC892
CR59	X	O	O	O	O
CR53, 58	X	X	O	X	X
CR56	O	O	O	O	X
CR63	X	X	X	X	O
CR34	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%

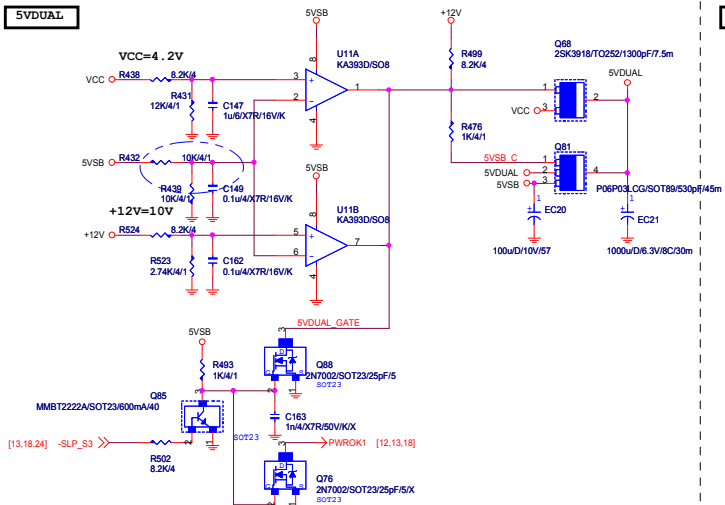


Can Support Amp Out

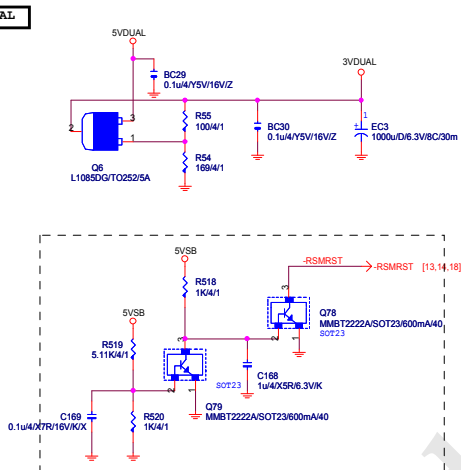




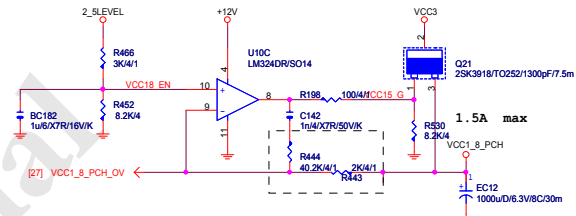
5VDUAL



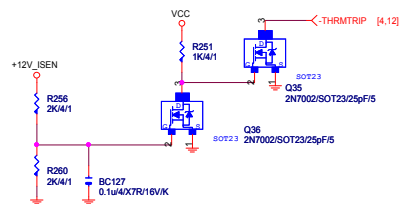
3VDUAL



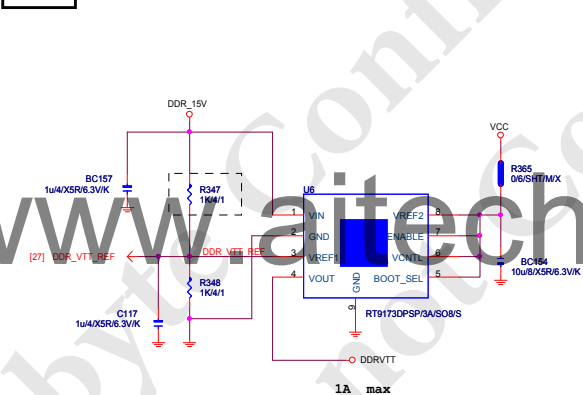
VCC1_8_PCH



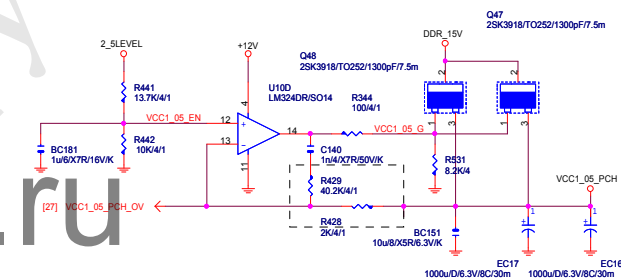
+12V SHORT PROTECT



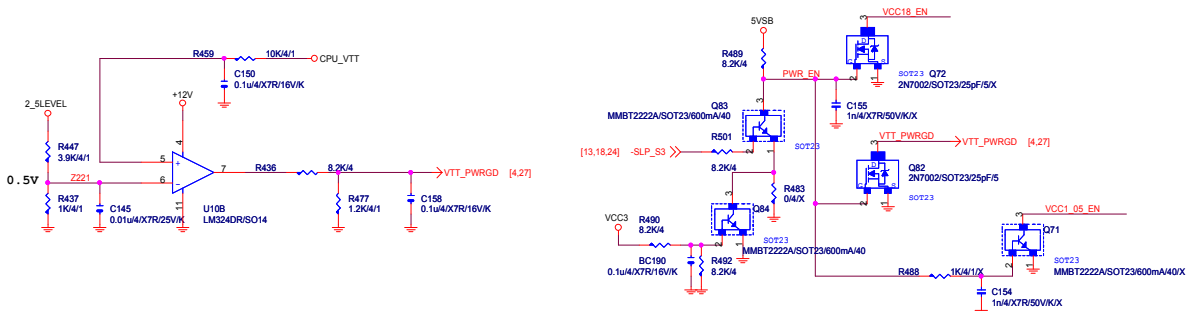
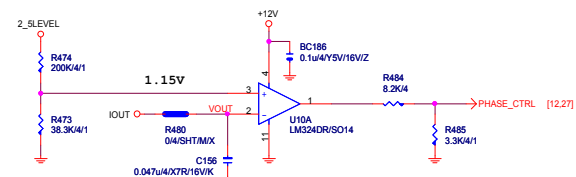
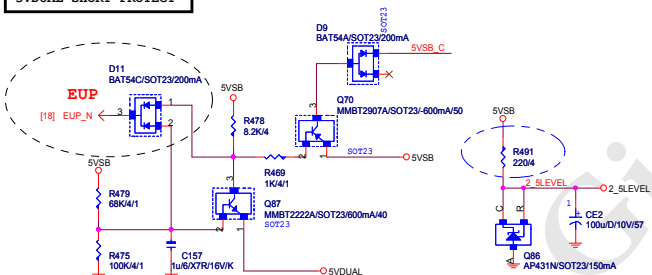
DDR_VTT



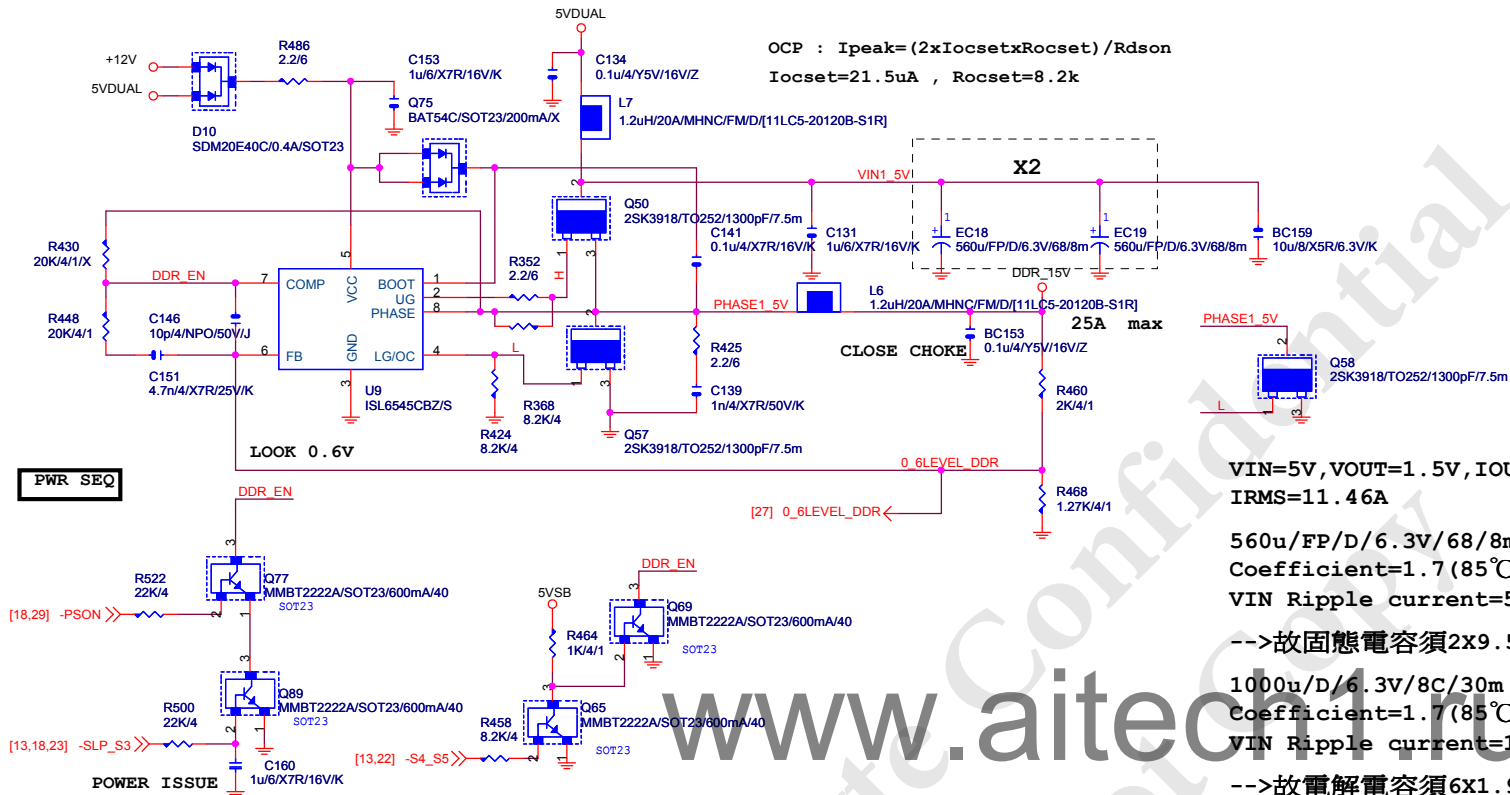
VCC1_05_PCH



5VDUAL SHORT PROTECT



DDR1_5V



VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1

IRMS=11.46A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=5.6A

Coefficient=1.7(85°C), 1(105°C)

VIN Ripple current=5.6X1.7=9.52A(85°C)

-->故固態電容須 $2 \times 9.52 = 19.04 > 11.46A$

1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A

Coefficient=1.7(85°C), 1(105°C)

VIN Ripple current=1.14X1.7=1.938A(85°C)

-->故電解電容須 $6 \times 1.938 = 11.628 > 11.46A$

VIN=3V, VOUT=1.05V, IOUT=7.5A, PHASE=1

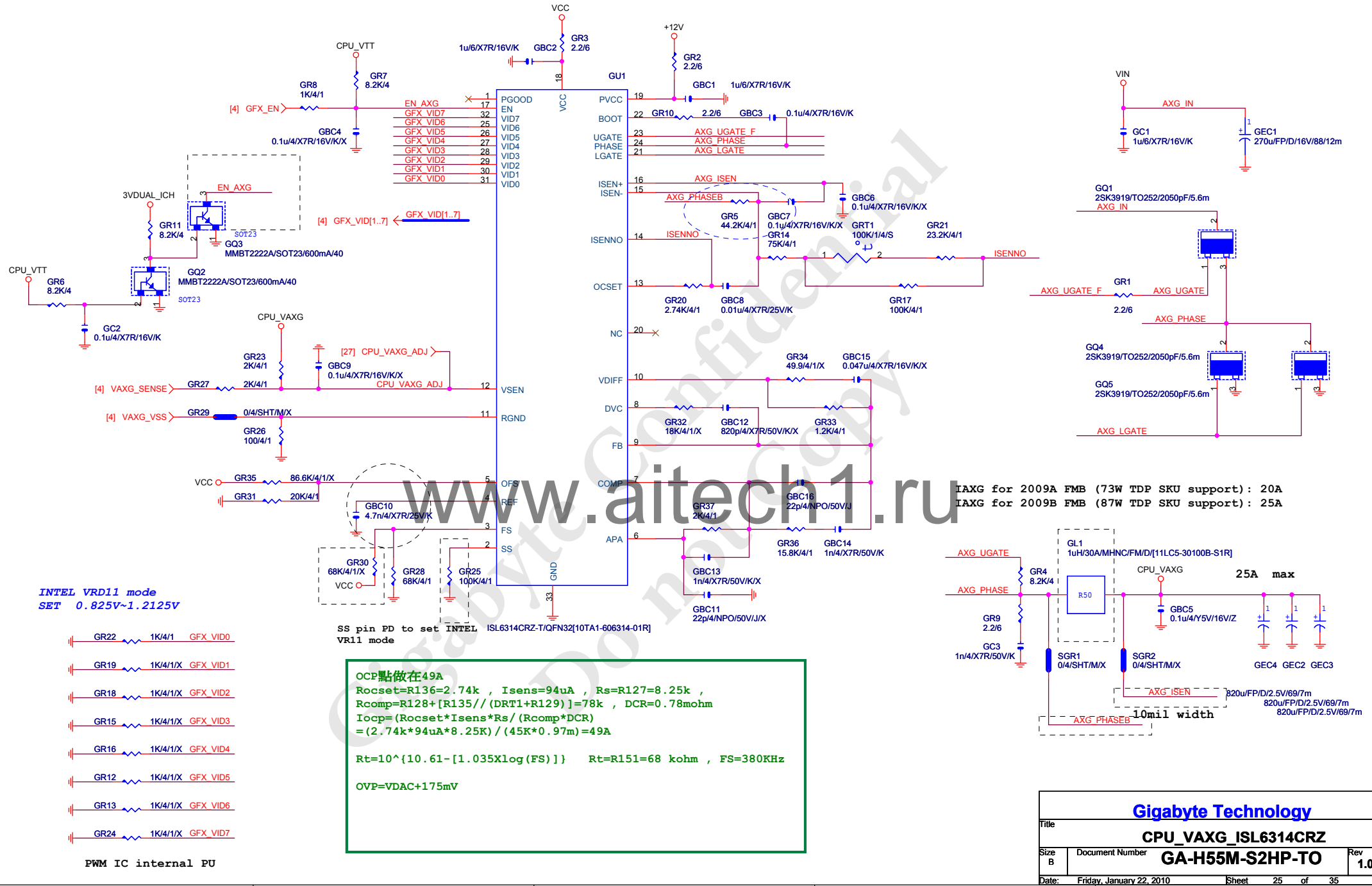
IRMS=3.5A

-->故固態電容須 $1 \times 9.52 = 9.52 > 3.5A$

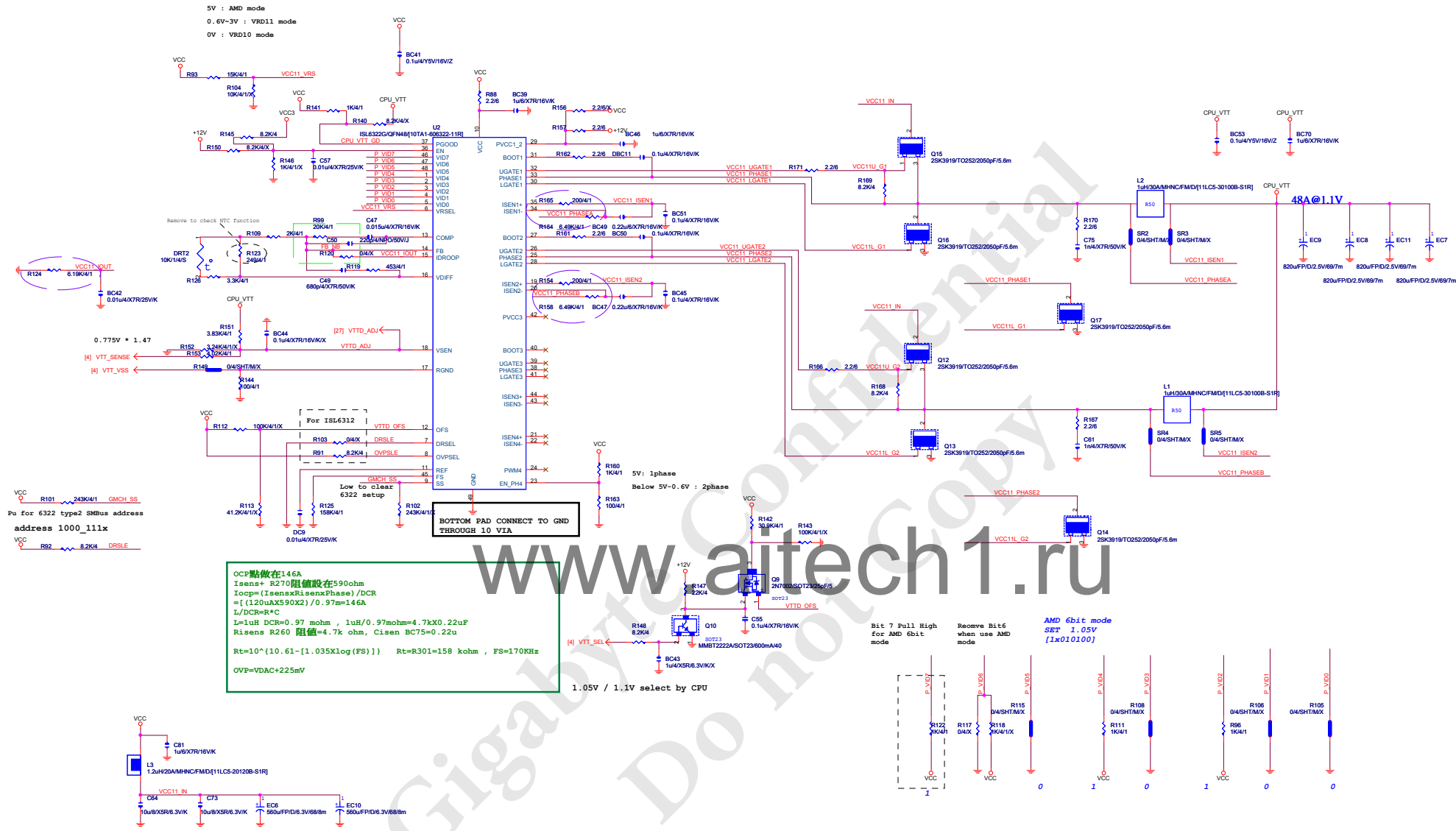
-->故電解電容須 $2 \times 1.938 = 3.876 > 3.5A$

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Title			
DDR_15V			
Size	Document Number	Rev	
Custom	GA-H55M-S2HP-TO	1.0	
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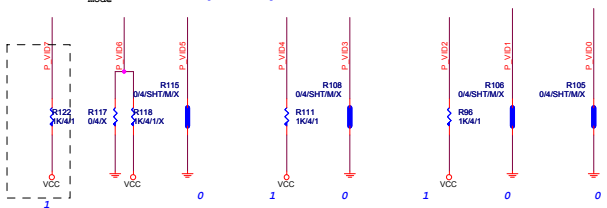
5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode



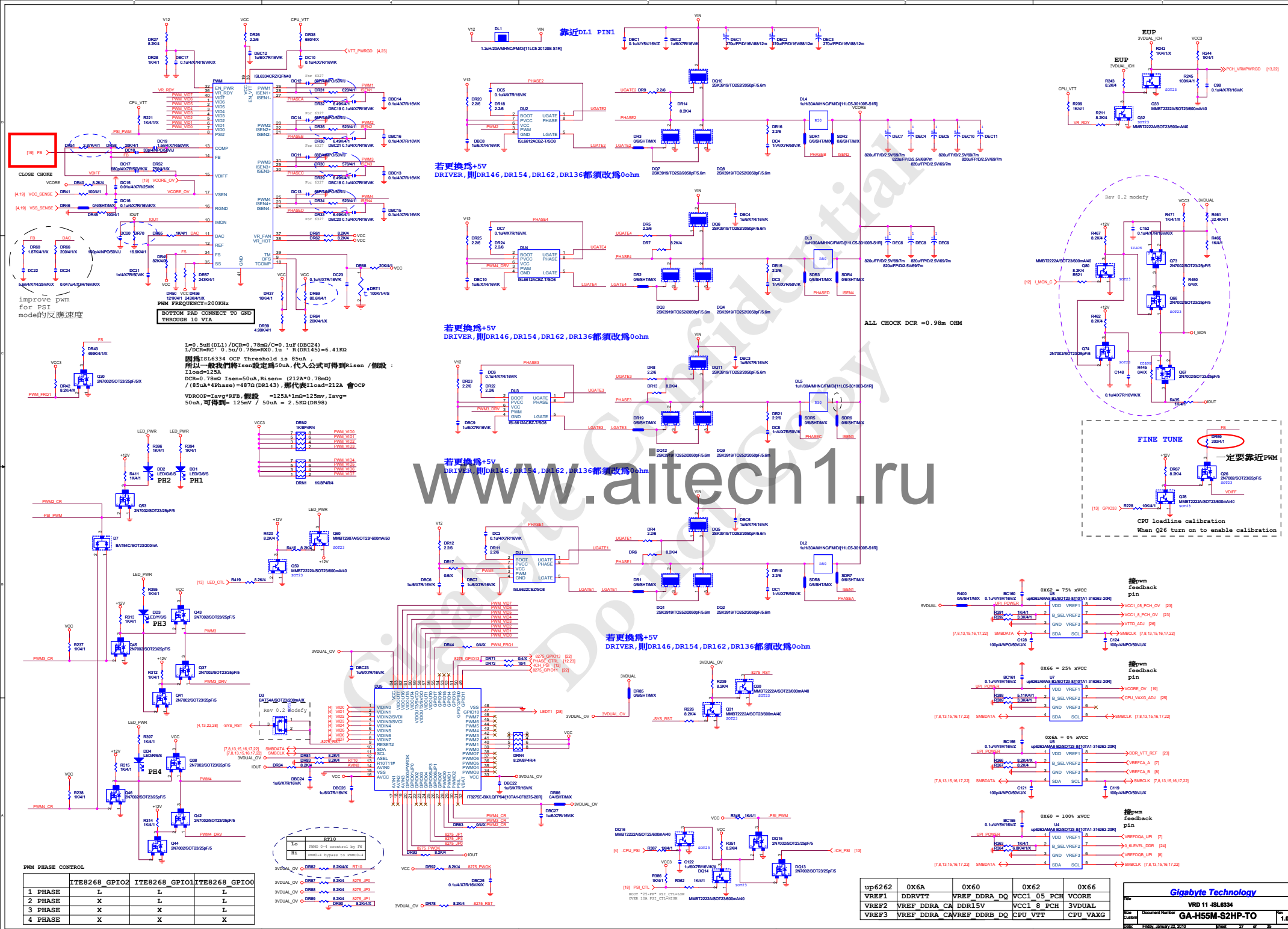
OCF點做在146A
Isensx R270阻值做在590ohm
Iocp=(IsensxRIsensxPhase)/DCR
=[(120uAX590X2)/0.97m=146A
L/DCR=R+C
L=1uH DCR=0.97 mohm , 1uH/0.97mohm=4.7kX0.22uF
Risens R260 阻值=4.7k ohm, CIsen BC75=0.22u
Rt=10^([10.61-[1.035Xlog(FS)]) Rt=R301=158 kohm , FS=170KHz
OVP=VDAC+225mV

1.05V / 1.1V select by CPU

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

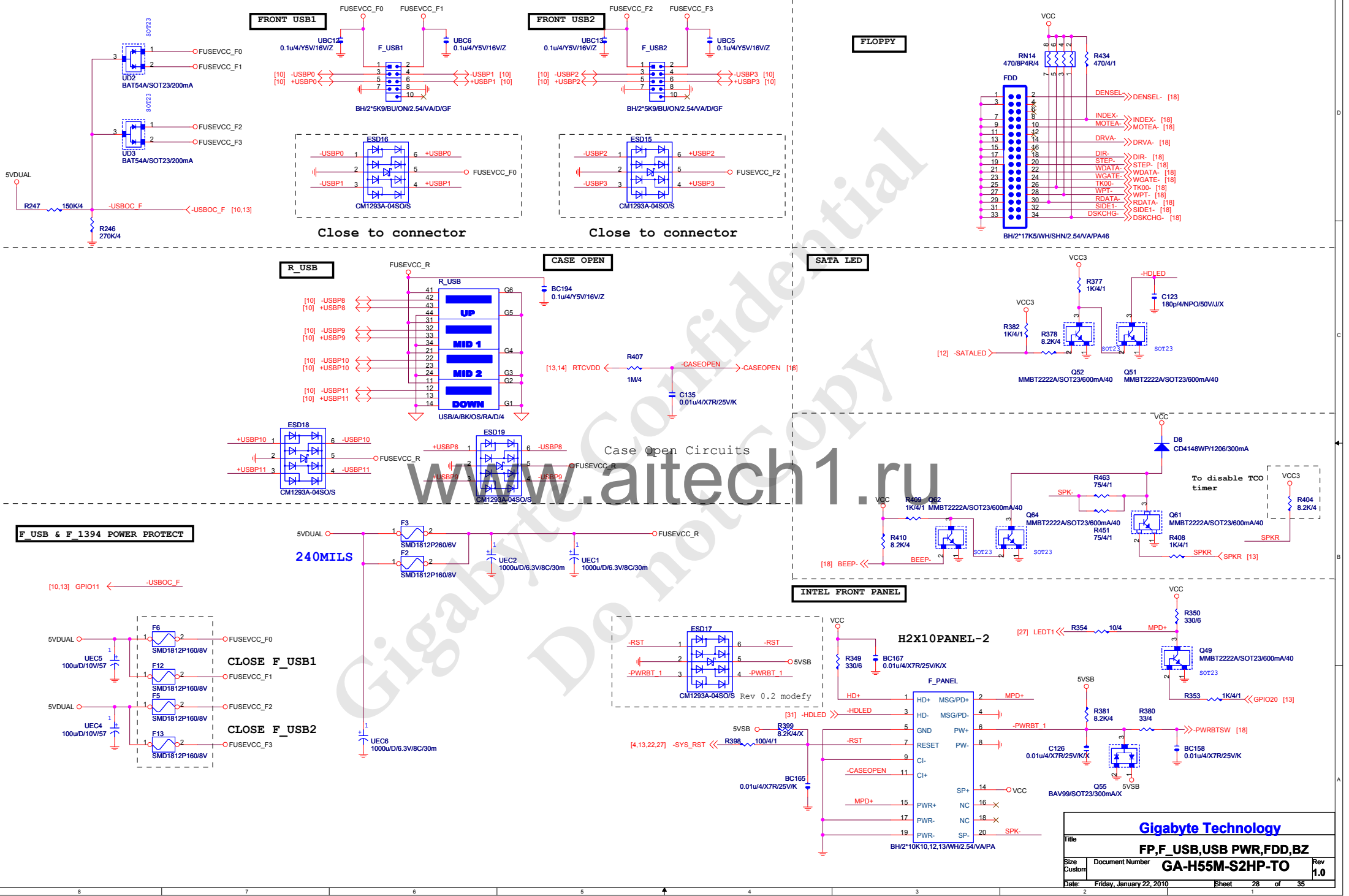


VIN=5V, VOUT=1.1V, IOUT=48A, PHASE=2
IRMS=11.91A
560u/FP/D/6.3V/68/8m RIPPLE CURRENT=5.6A
Coefficient=1.7(85℃), 1(105℃)
VIN Ripple current=5.6X1.7=9.52A(85℃)
-->故固態電容須2X9.52=19.04>11.91A
1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
Coefficient=1.7(85℃), 1(105℃)
VIN Ripple current=1.14X1.7=1.938A(85℃)
-->故電解電容須7X1.938=13.566>11.91A



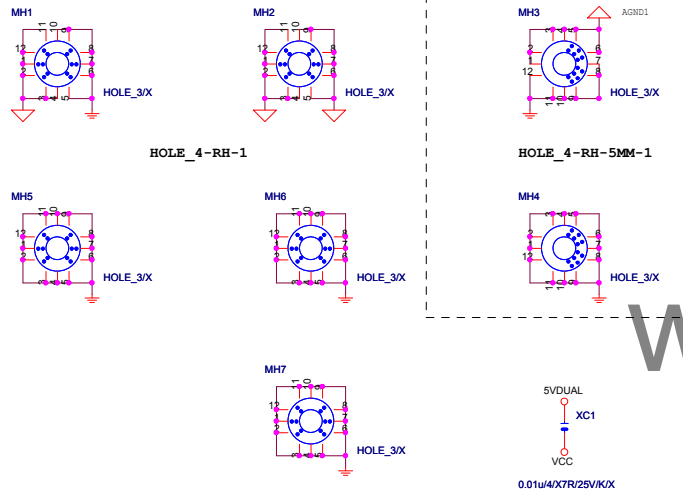
PWM PHASE CONTROL			
	ITE268 GPIO2	ITE268 GPIO1	ITE268 GPIO0
1 PHASE	L	L	L
2 PHASE	X	L	L
3 PHASE	X	X	L
4 PHASE	X	X	X

up6262	0X6A	0X60	0X62	0X66
VREF1	DDRVT	VREF DDR A DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDR A CA	DDR15V	VCC1_8_PCH	3VDUAL
VREF3	VREF_DDR A CA	VREF_DDR B DO	CPU_VTT	CPU_VA

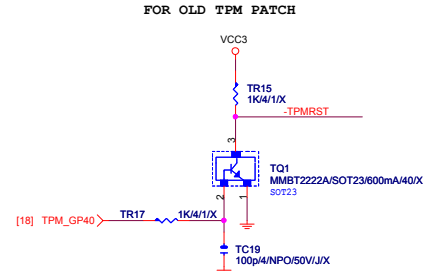


Gigabyte Technology			
Title			
FP,F_USB,USB PWR,FDD,BZ			
Size			
Custom			
Document Number			
GA-H55M-S2HP-TO			
Date:			
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1.0			

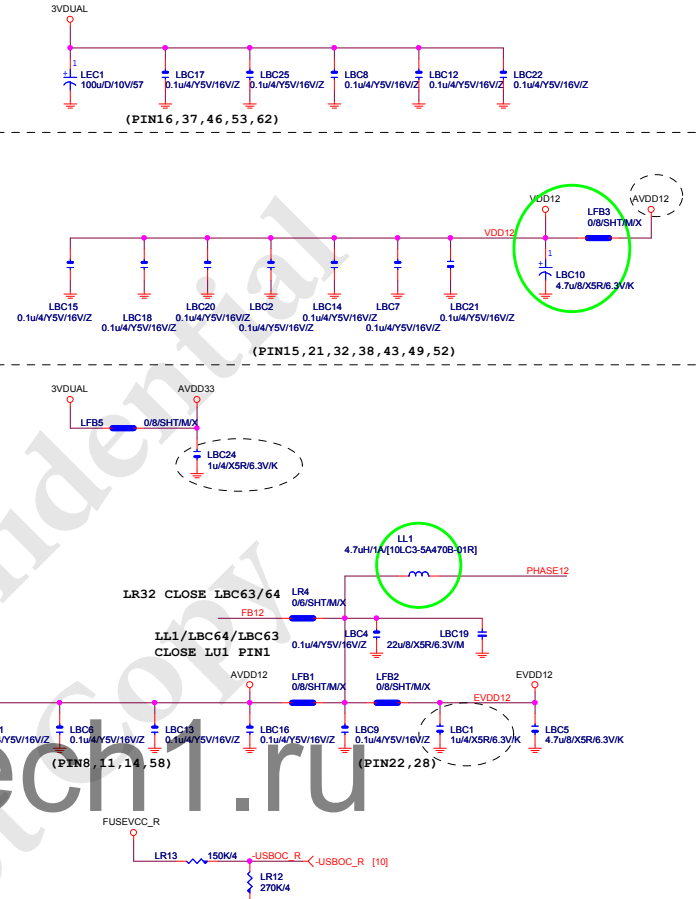
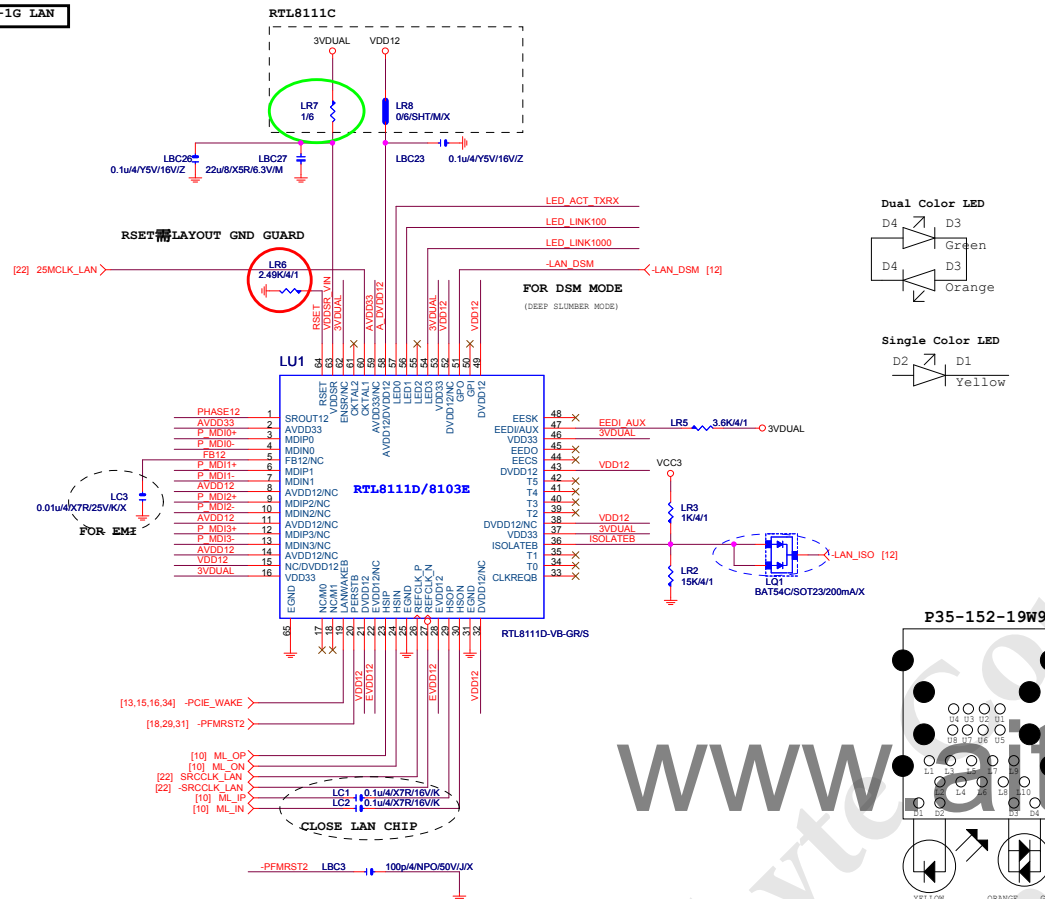
www.aitech1.ru



The diagram shows a dashed oval containing two pins: **EUP** (in red) and **3VDUAL_ICH** (in black). Both pins are connected to a common power source, represented by a purple line and a red circle.

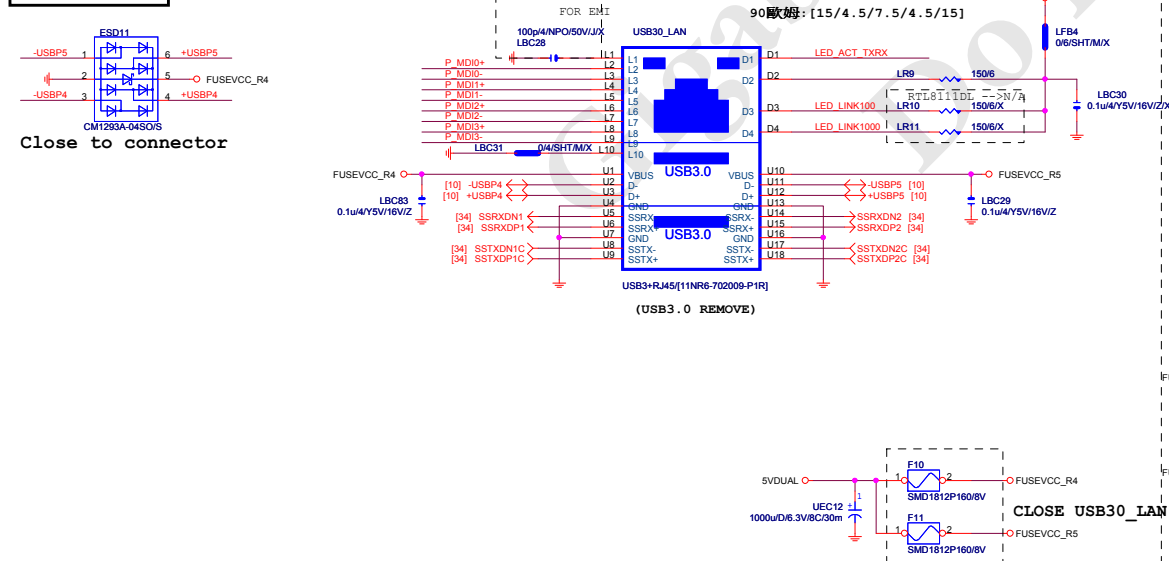


PCIE-1G LAN

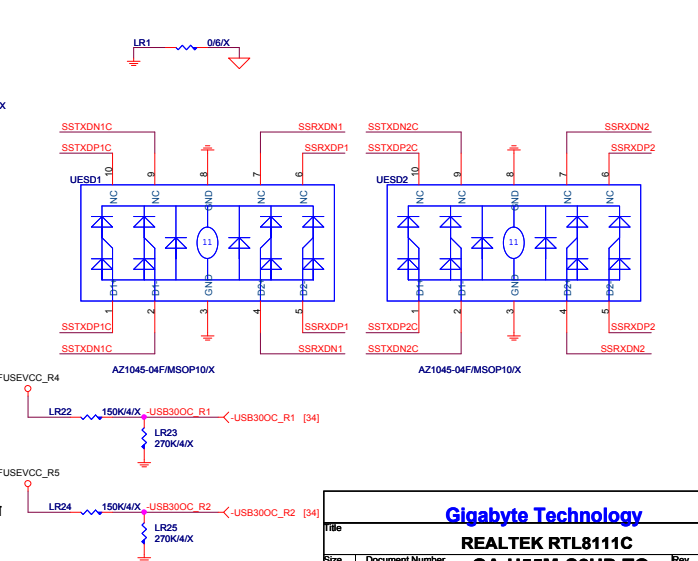


USB_LAN CONNECTOR

90 歐姆: [20/4/8/4/20]

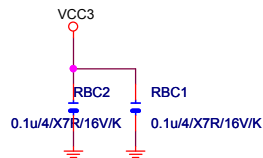
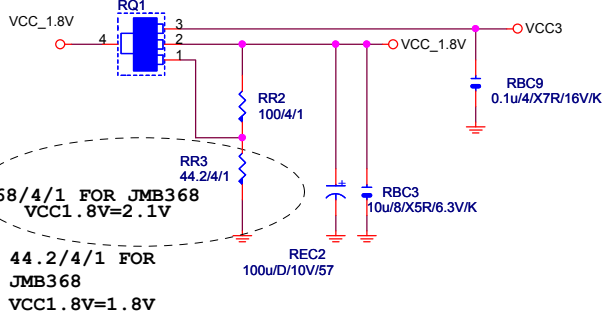


(USB3.0 N/A)

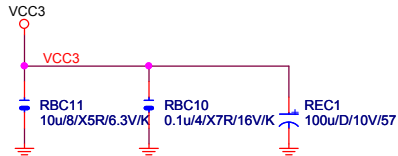


3.3V to 1.8V Voltage Regulator

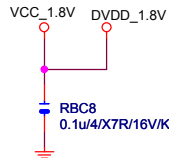
L1117LGN/SOT223/1A



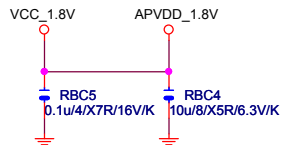
close to IC



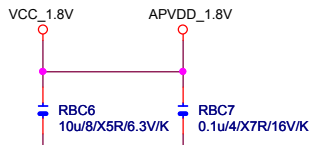
Close to pin22 and pin39



Near to PIN



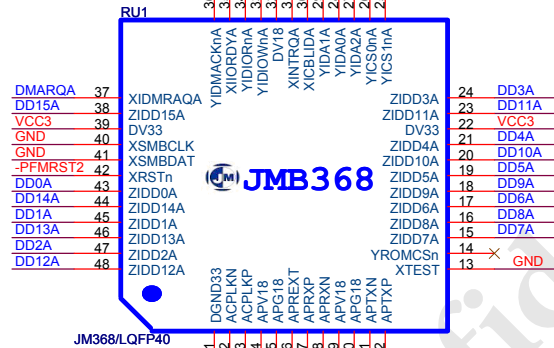
CLOSE TO pin22



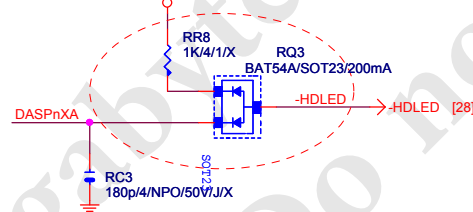
close to pin17

[18,29,30] -PFMRST2

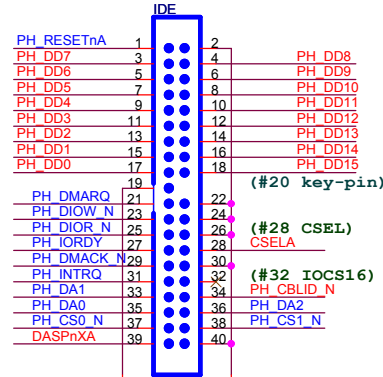
RC4
100p/4/NPO/50V/J/X

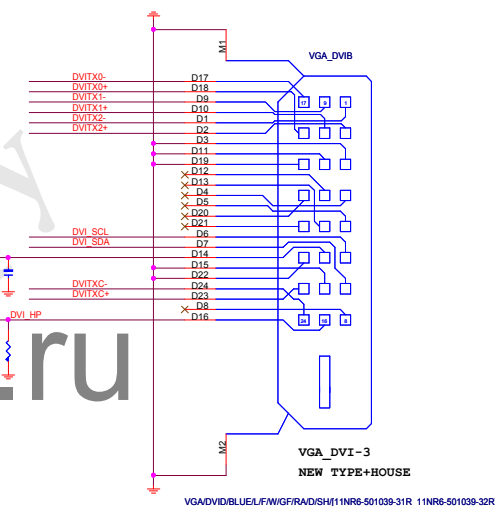
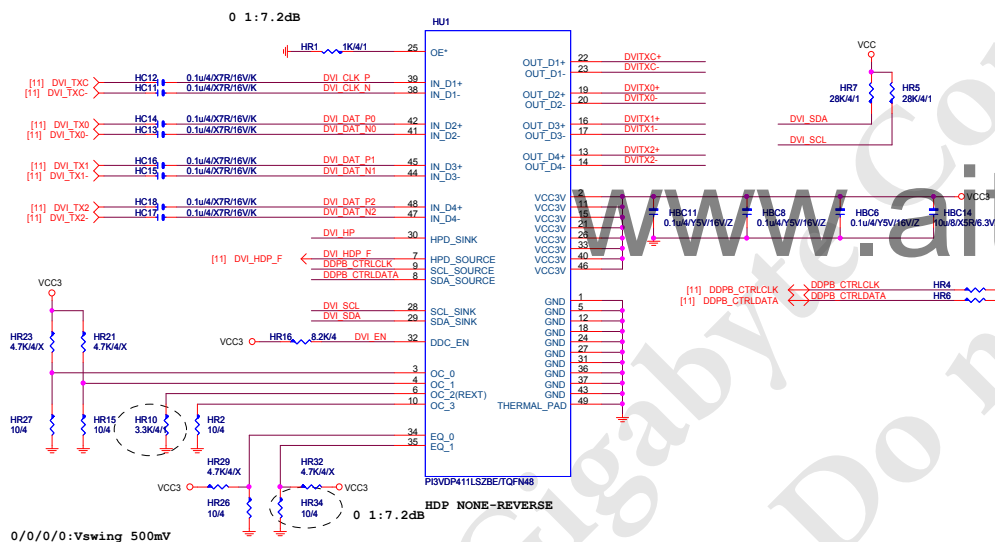


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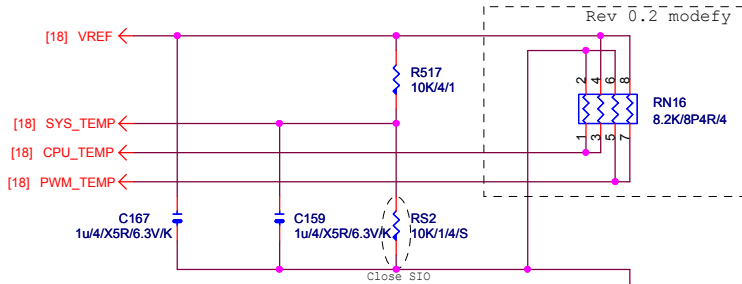


IDE Connector

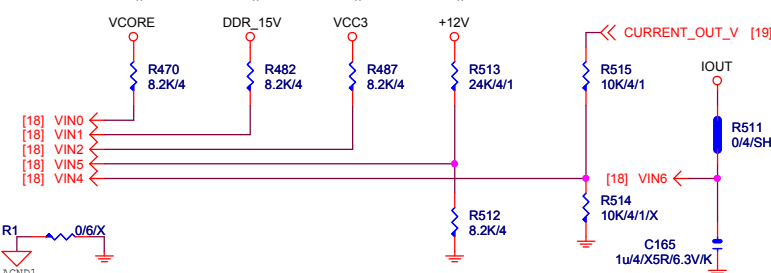




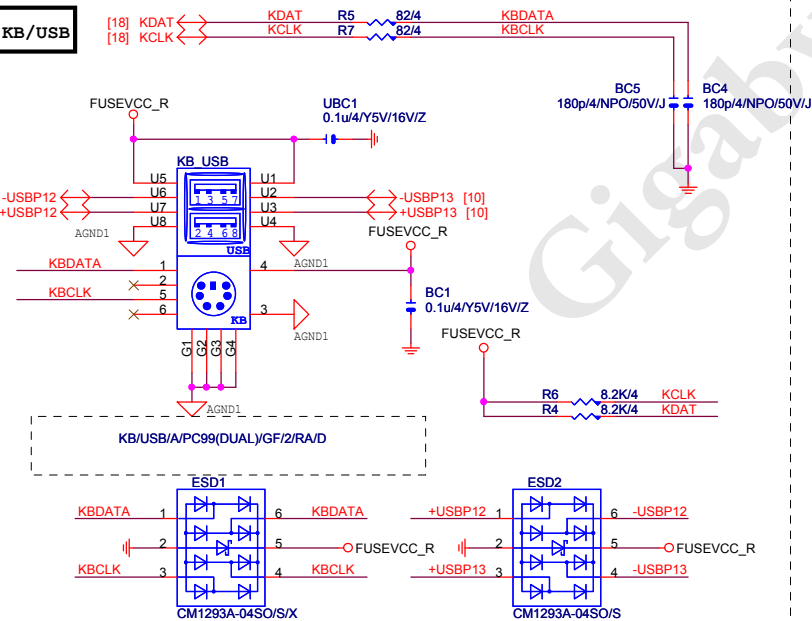
TEMP H/W MONITOR



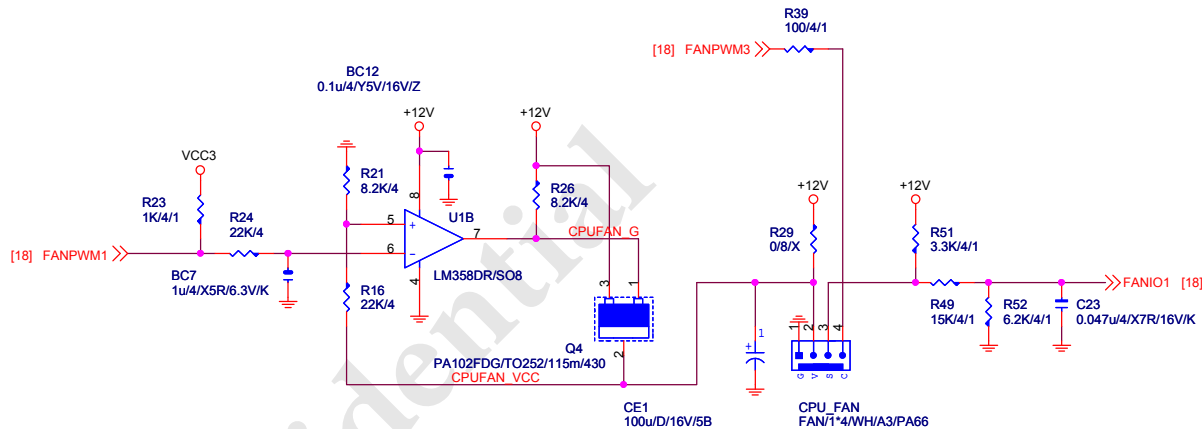
VOLTAGE-- H/W MONITOR



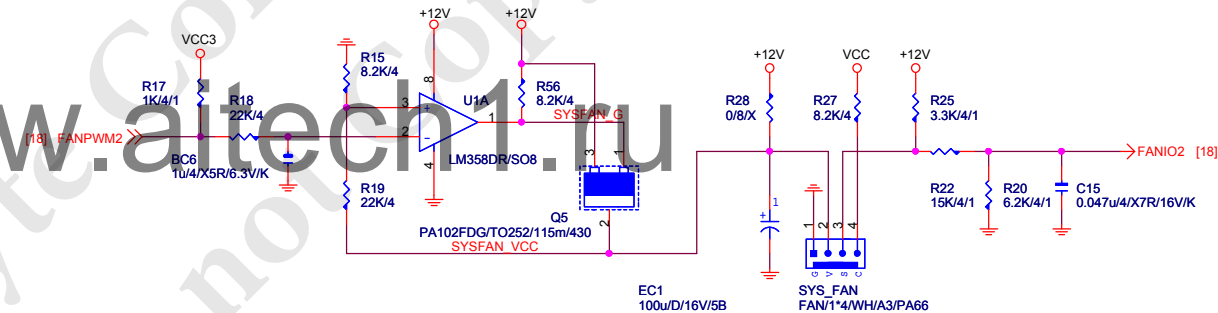
KB/USB



CPU SMART FAN

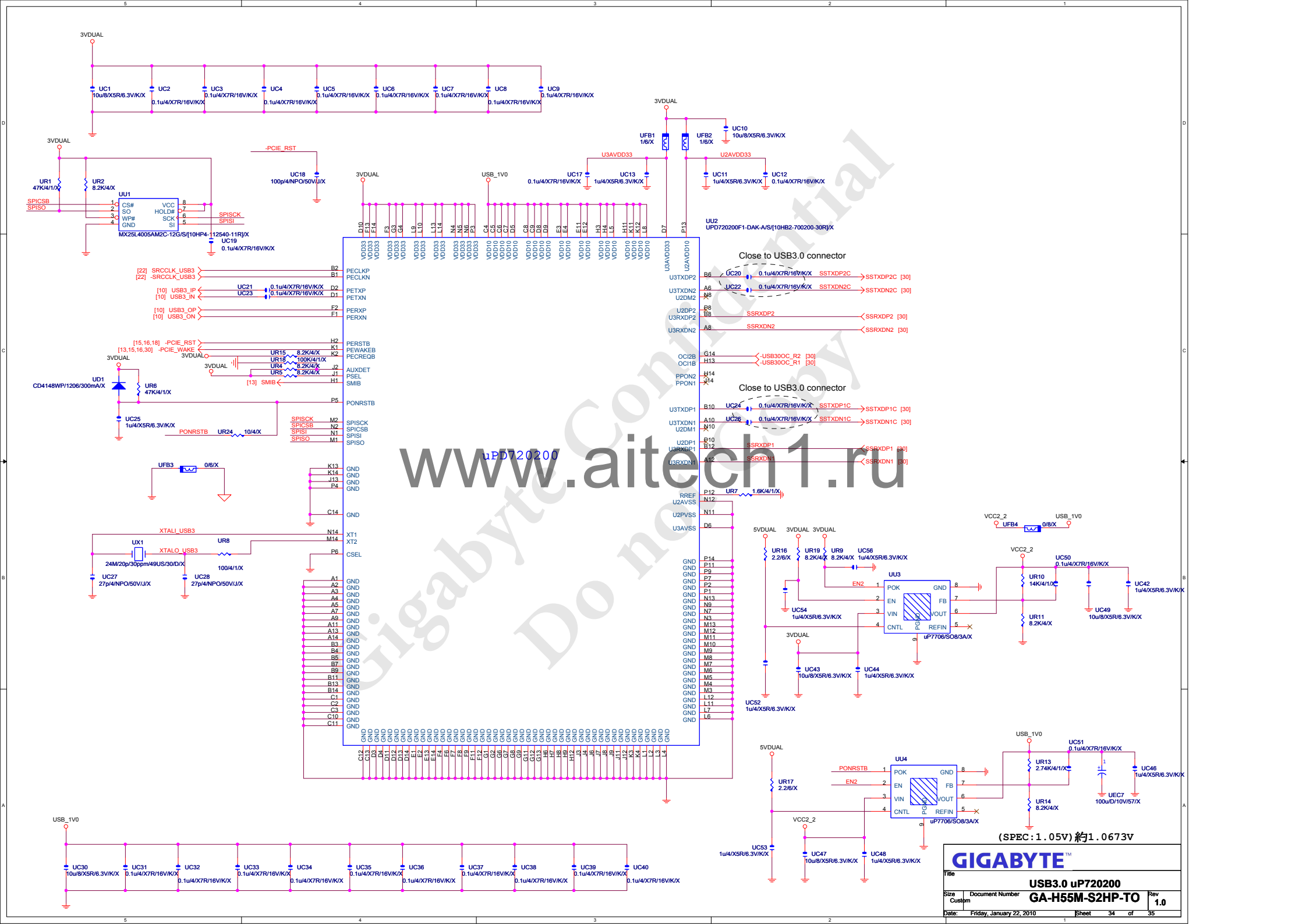


SYS SMART FAN Linear SYS_FAN



Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL
Size	Document Number	GA-H55M-S2HP-TO	
Custom		Rev	1.0
Date:	Friday, January 22, 2010	Sheet	33 of 35

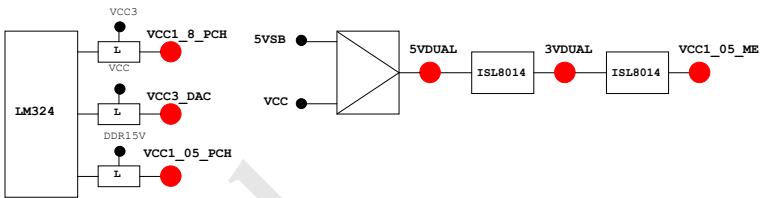


PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	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	-AC2_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_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	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

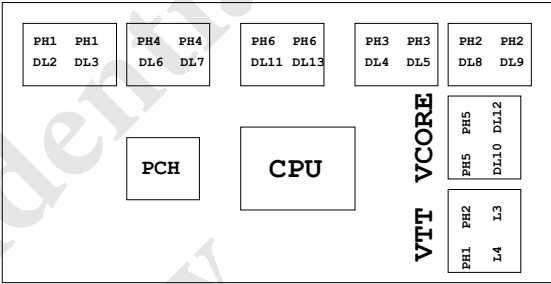
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
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/BUSS00	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/SEN	LOW_PWR_1	
VIDO5/GP27/SEN2	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/VDPA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBD_R	3V PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBD_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VIDT_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	
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 Terminatio
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	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