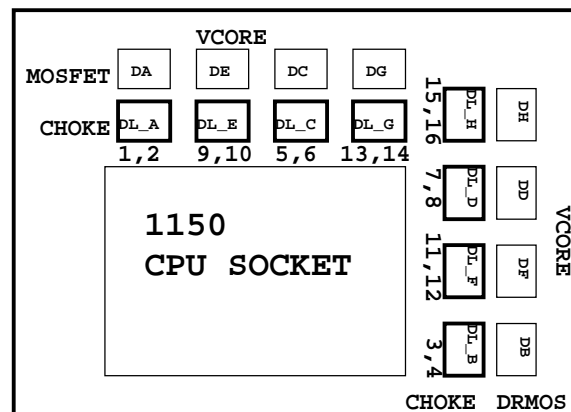


01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04-06	CPU_LGA1150
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	HDMI / DVI (Switch) / TPM
15	PCI EXPRESS*16 SLOT
16	PCI EXPRESS*8 SLOT
17	PCI EXPRESS SWITCH X16/X8/X4
18	PCI EXPRESS*1 SLOTS X2
19	PCI EXPRESS*4 SLOT
20	ITE 8892
21	PCI SLOT 1
22	Dual BIOS
23	ALC898
24	REAR AUDIO JACK
25	AMPLIFIER
26	IR3563B PWM
27-28	IR3550 VCORE 16 Phase
29	IR3570 PWM
30	IR3598 DDR 2 Phase

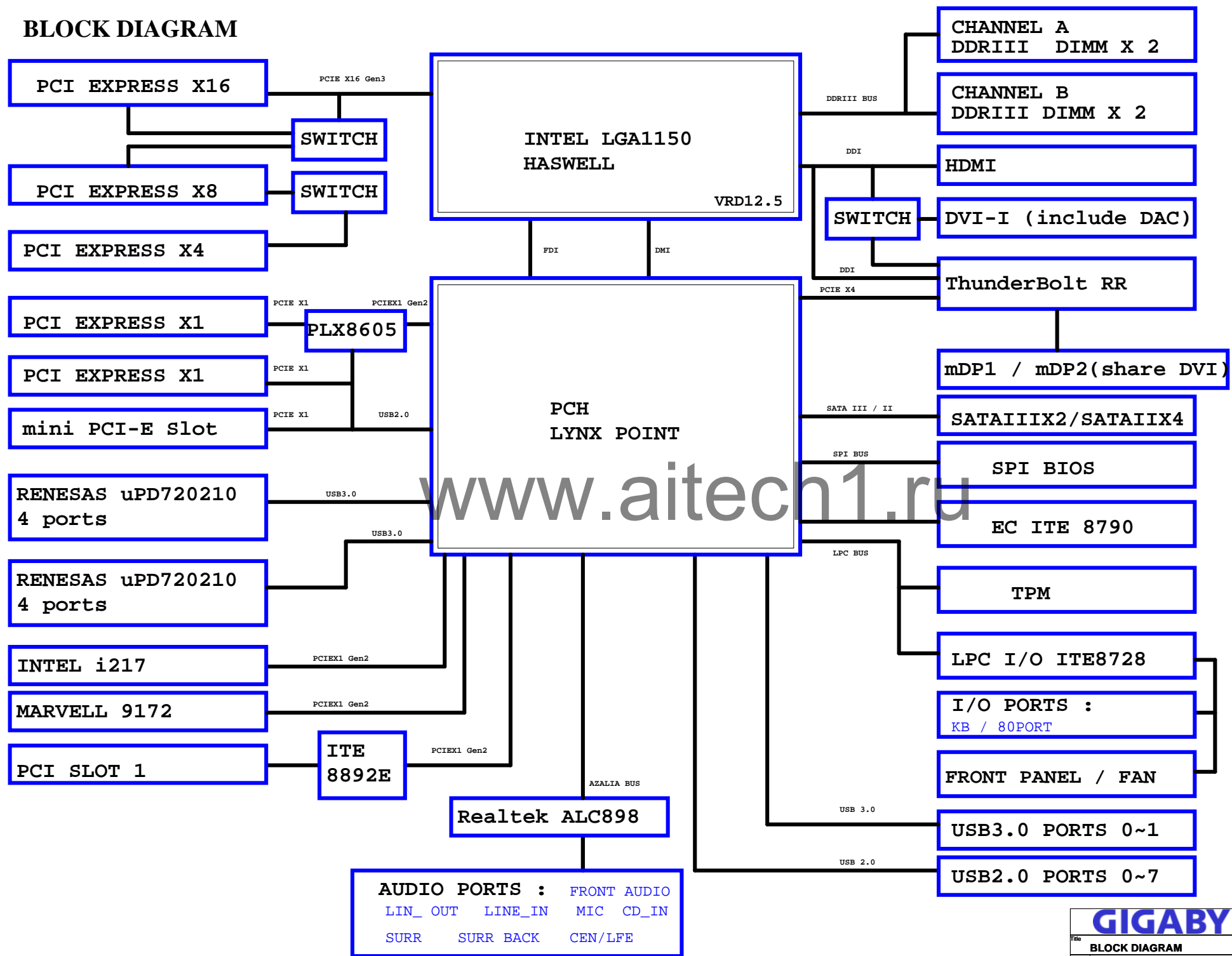
31	5VDUAL, 3VDAUL, ERP
32	PCH1.05V, PCH1.5V, VCC3_DAC
33	I/O ITE8728
34	USB3 , KB/USB3
35	F_PANEL , F_USB , PHOT
36	F_USB 2.0
37	F_USB 3.0
38	ATX POWER, CLOCK GEN
39	HWM, FAN CTRL
40	INTEL I217 Lan
41	Marvell 9172
42	RST, PWR, CLR_CMOS
43-44	USB3.0 HUB uPD720210
45-46	USB3.0 HUB_B uPD720210
47	PLX8605
48	mini PCIE Slot
49	EC ITE 8790
50	DVI / mDP Switch 412
51-54	Thunderbolt RR 4C

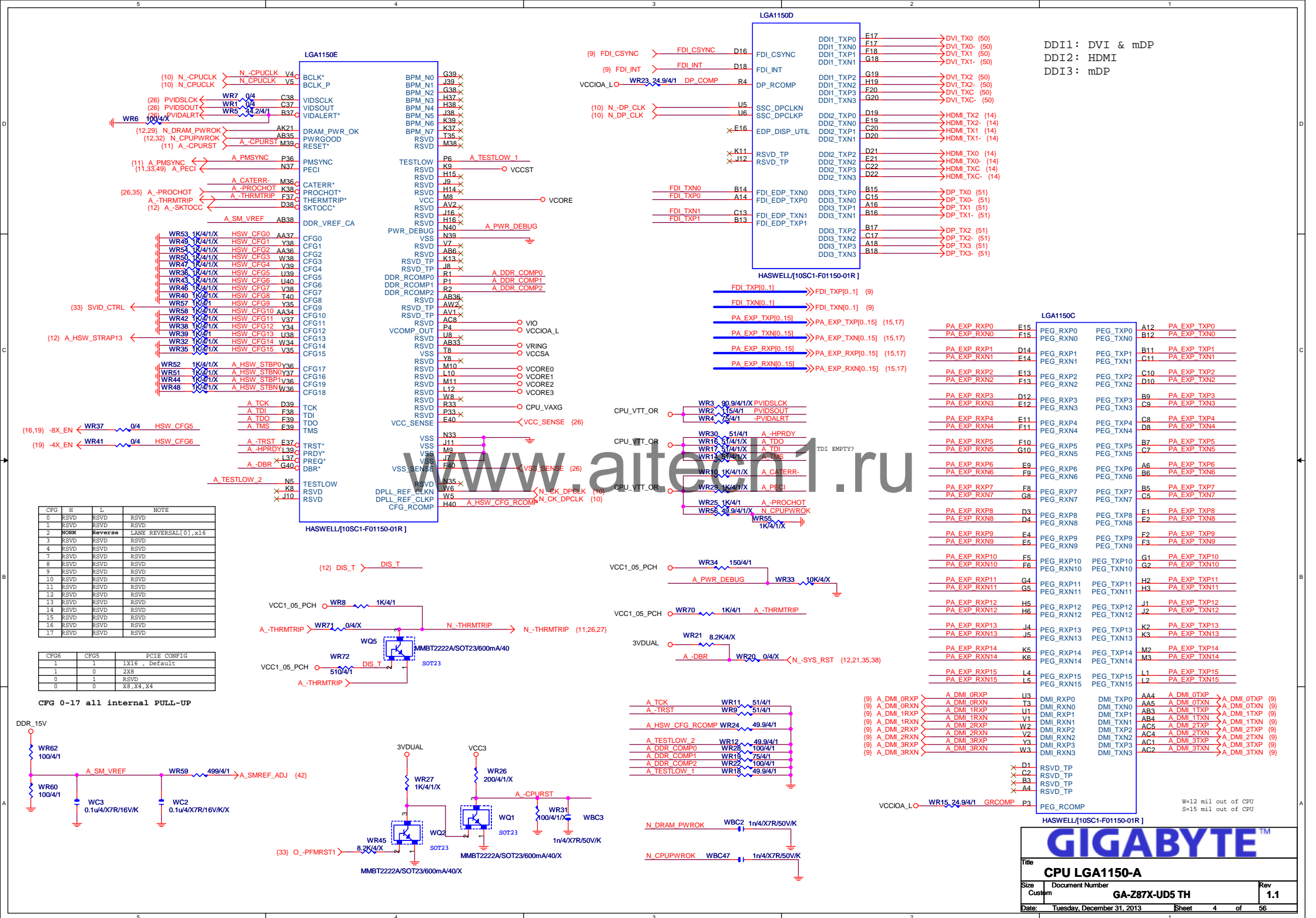


Component value change history

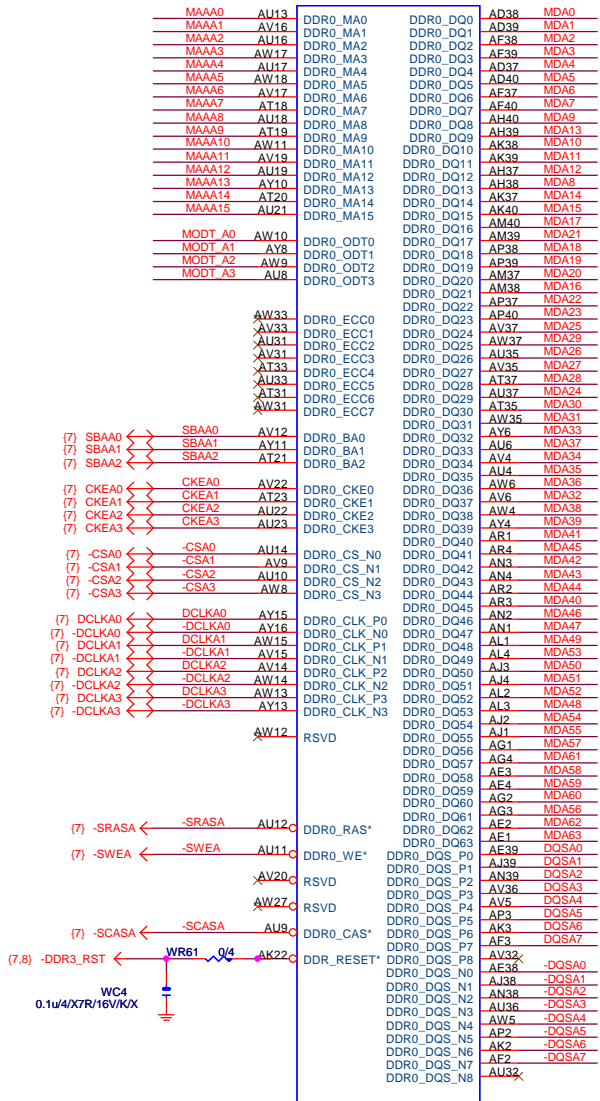
[illegible][illegible]

BLOCK DIAGRAM

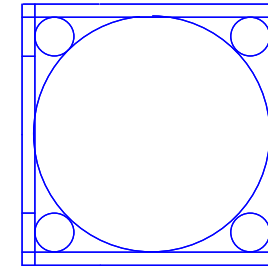




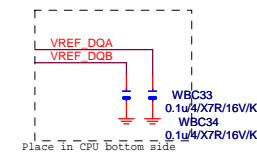
LGA1150A

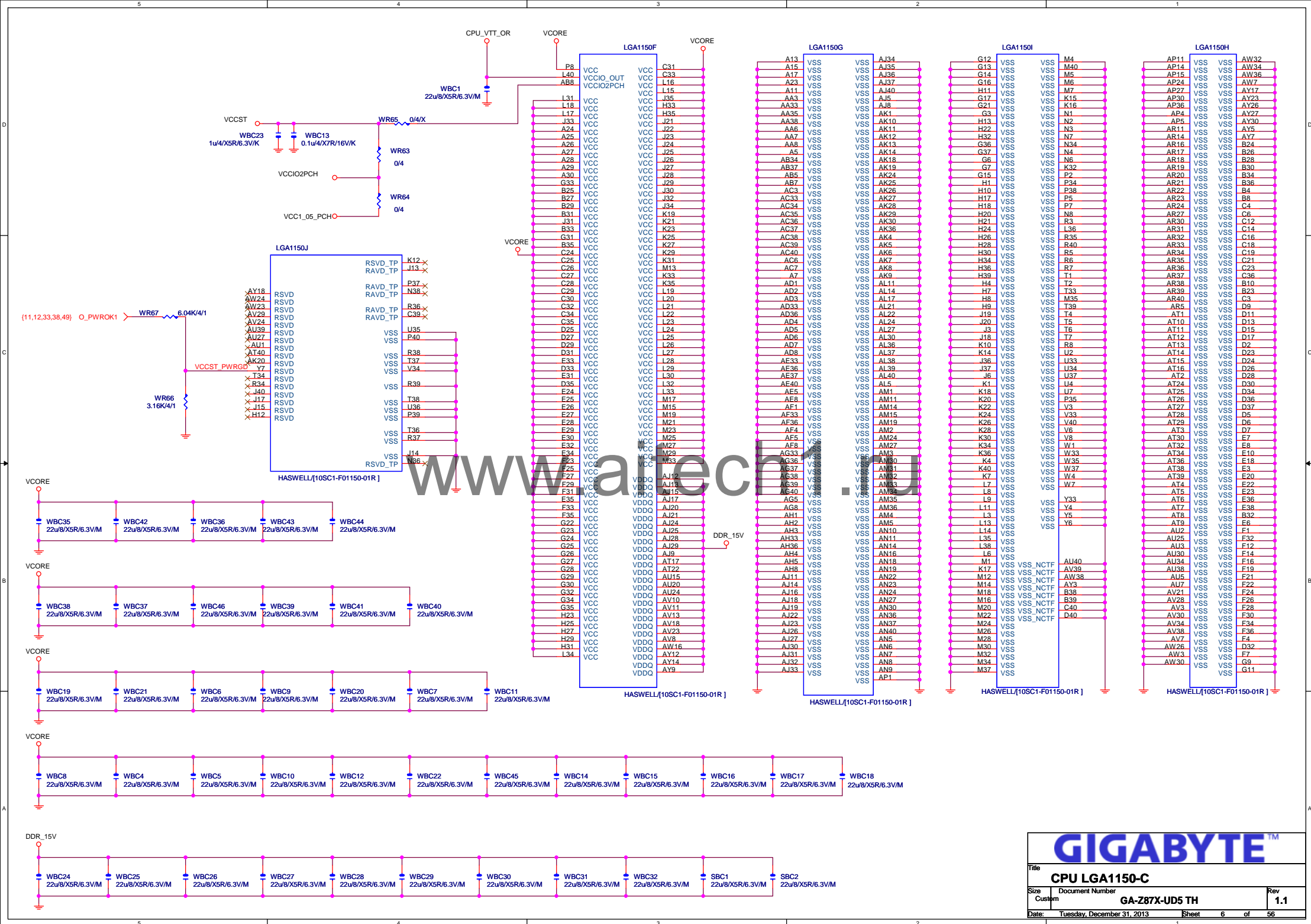


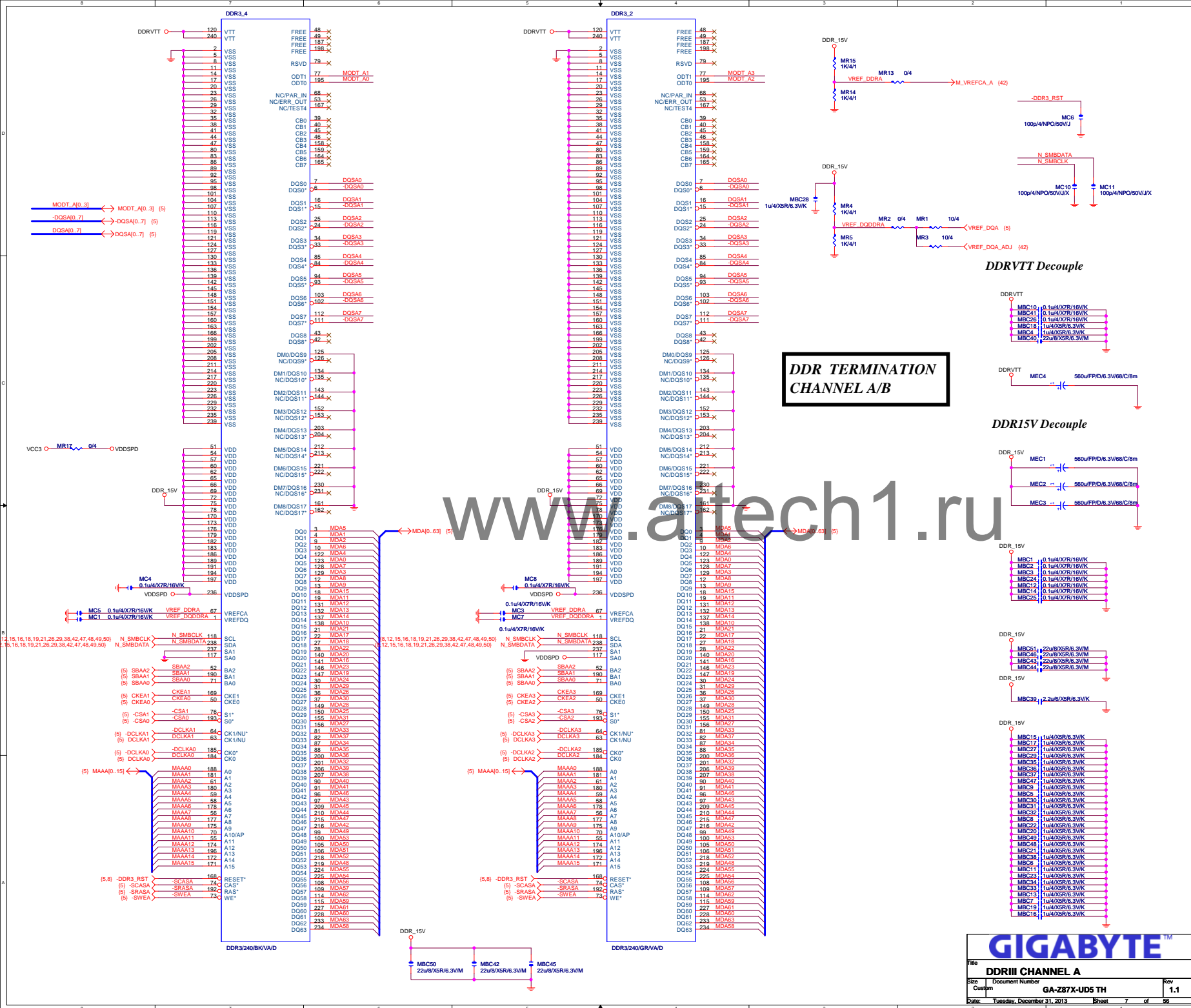
LGA1150B

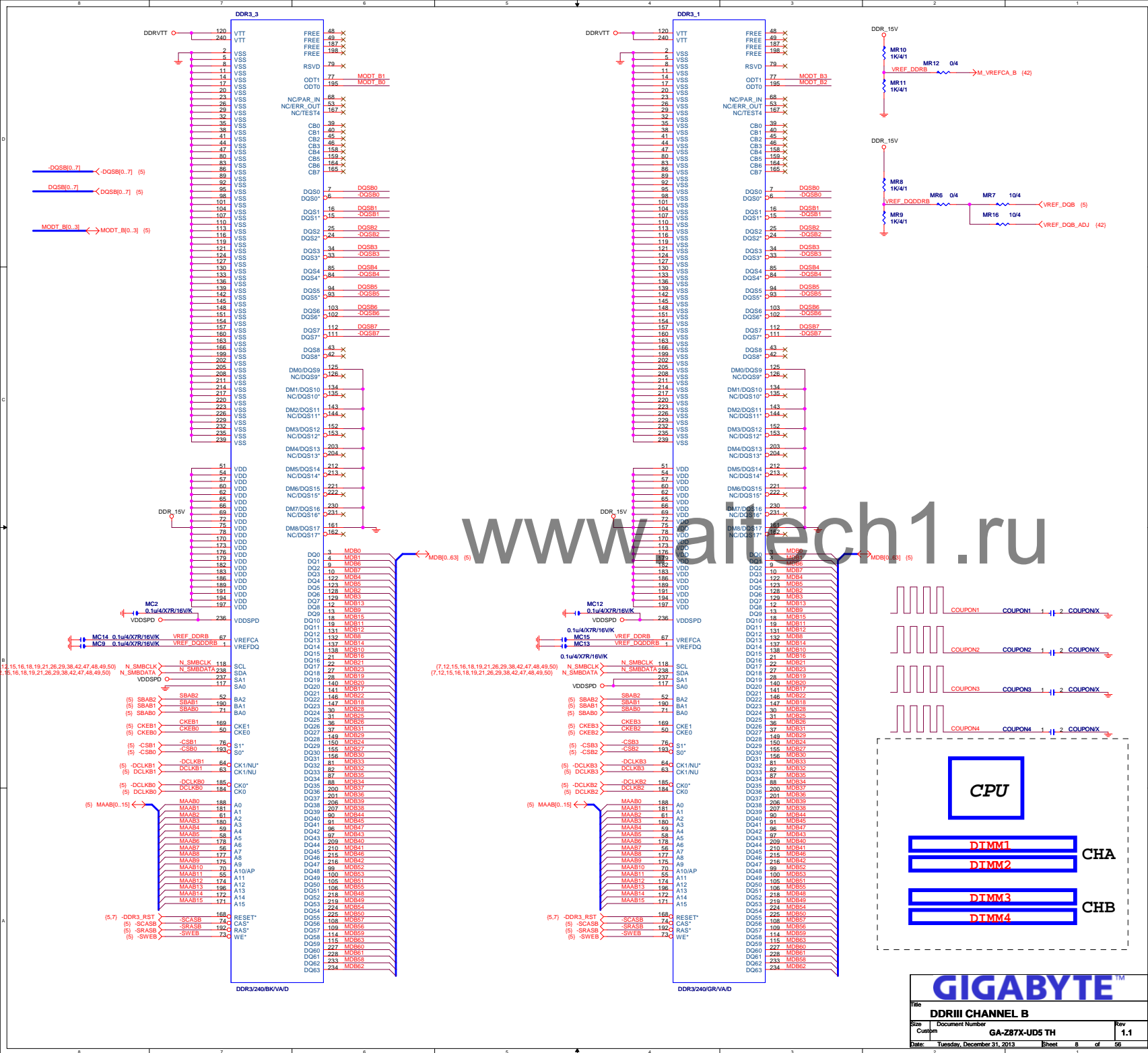
LGA1150
ILM_BP/1156/BKN/[12KRC-0F0001-61R]

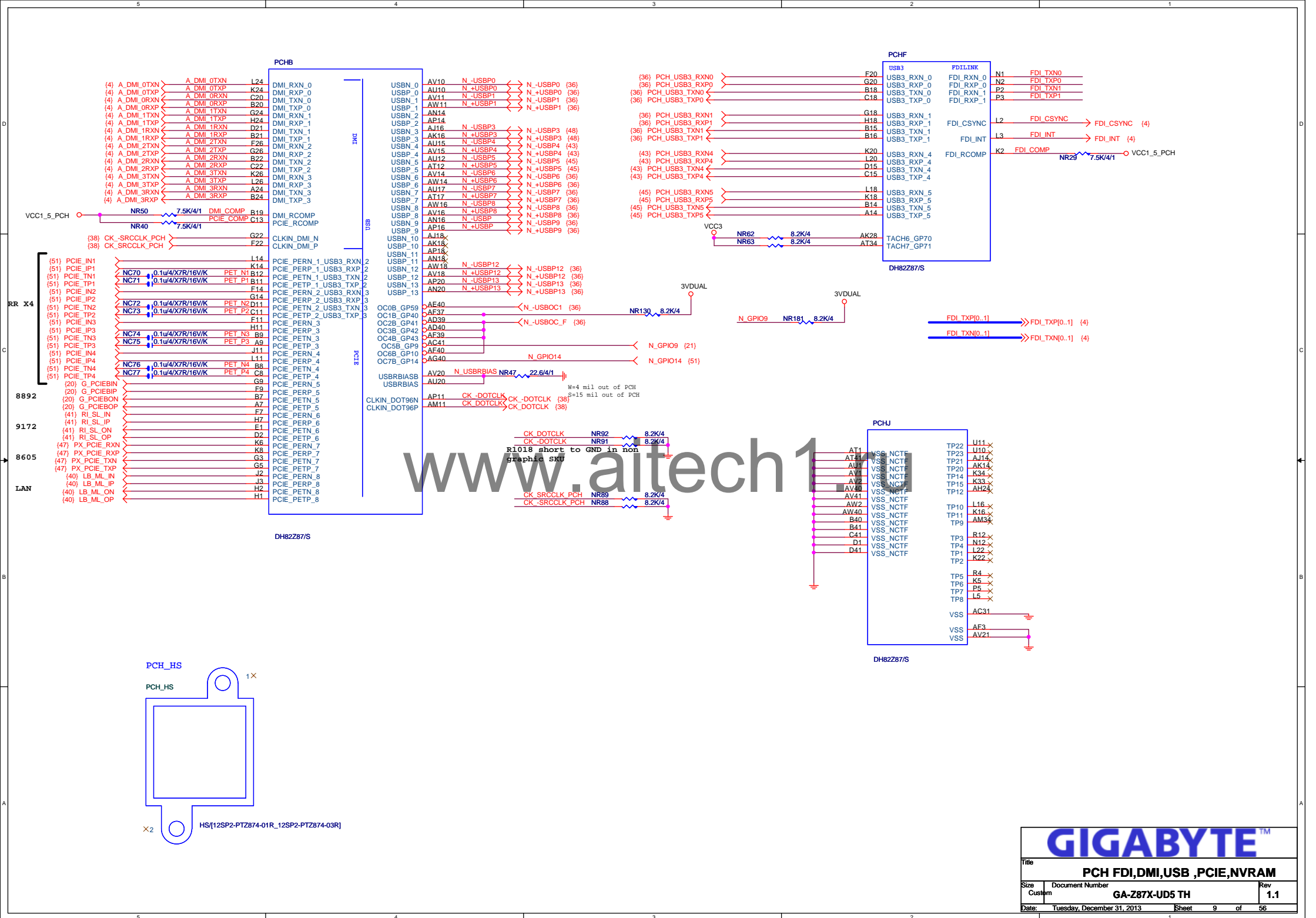
Need check the new CPU MB

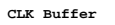
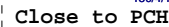
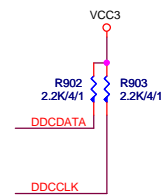
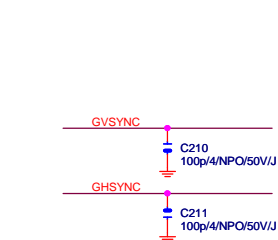
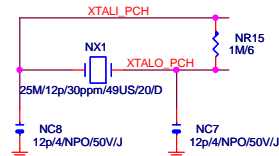
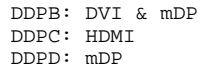




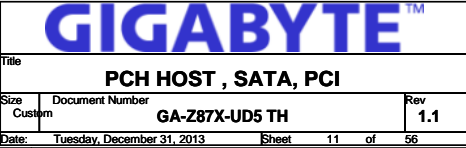


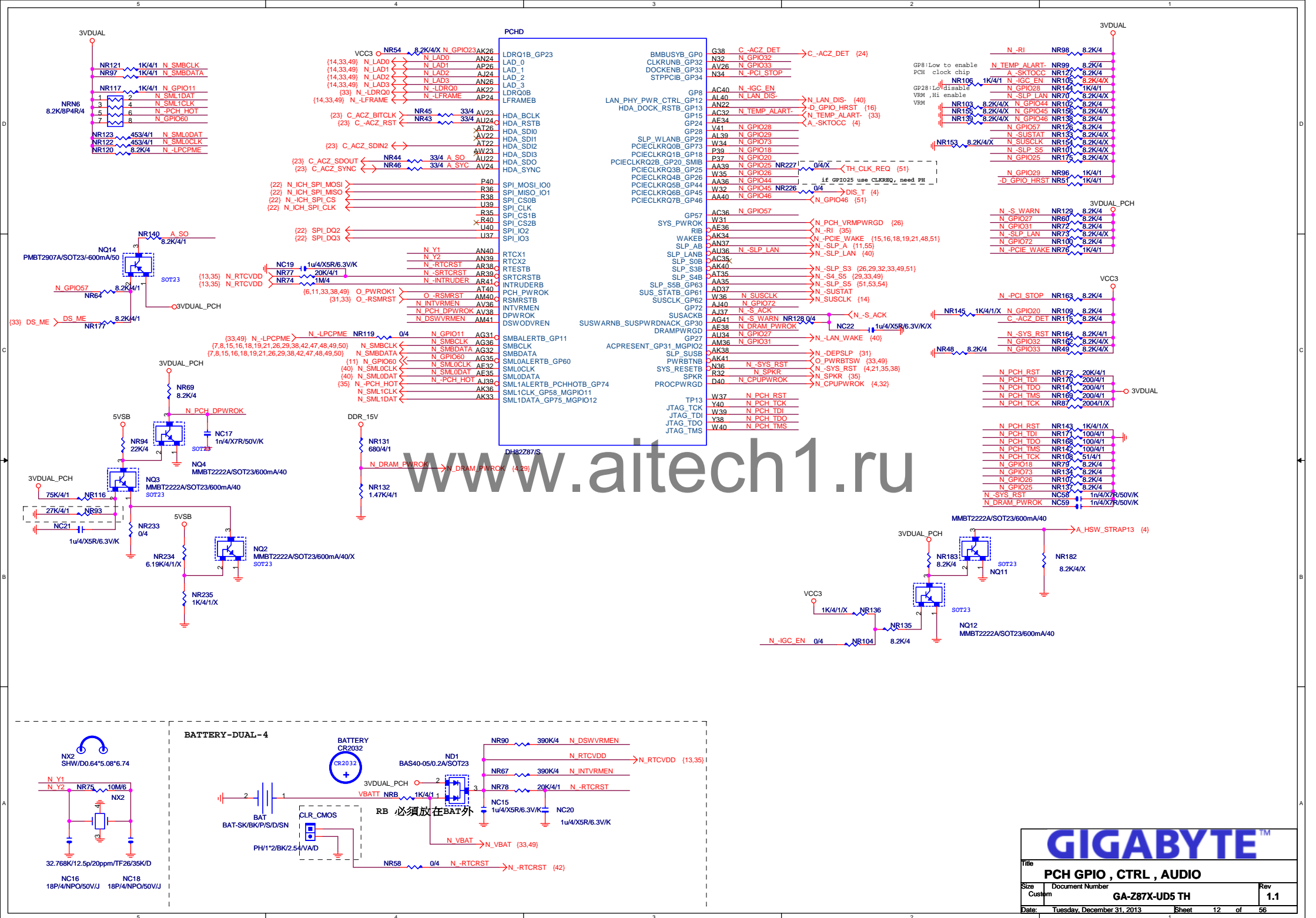


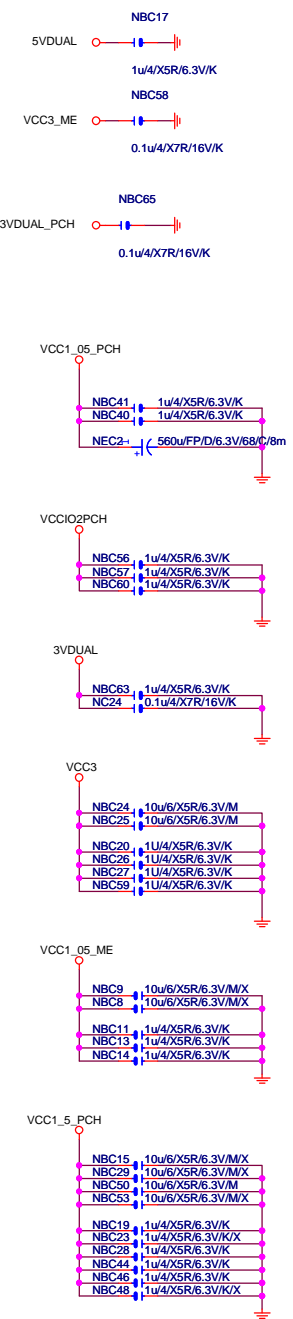


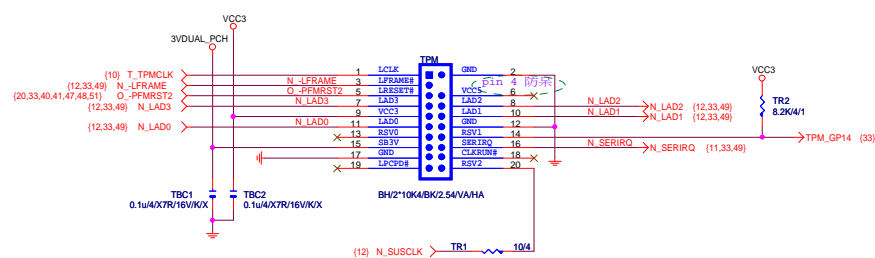


www.aitech1.ru

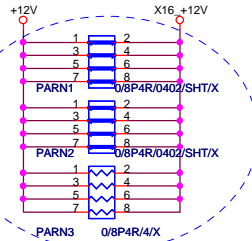








+12 protect
short-wire test



PCIEX16:16/5/5/5/16

PA_EXP_RXP0[0..15] >> PA_EXP_RXP[0..15] (4,17)
PA_EXP_RXN0[0..15] >> PA_EXP_RXN[0..15] (4,17)
PA_EXP_TXP0[0..15] >> PA_EXP_TXP[0..15] (4,17)
PA_EXP_TXN0[0..15] >> PA_EXP_TXN[0..15] (4,17)

PA_EXP_TXP0	PAC5	0.22u4/X5R6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u4/X5R6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u4/X5R6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u4/X5R6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u4/X5R6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u4/X5R6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u4/X5R6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u4/X5R6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u4/X5R6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u4/X5R6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u4/X5R6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u4/X5R6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u4/X5R6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u4/X5R6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u4/X5R6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u4/X5R6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u4/X5R6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u4/X5R6.3V/K	PA_EXP_SW_TXN15_C

PA_EXP_SW_RXP8[0..15] >> PA_EXP_SW_RXP[8..15] (17)
PA_EXP_SW_RXN8[0..15] >> PA_EXP_SW_RXN[8..15] (17)
PA_EXP_SW_TXP8[0..15] >> PA_EXP_SW_TXP[8..15] (17)
PA_EXP_SW_TXN8[0..15] >> PA_EXP_SW_TXN[8..15] (17)

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

PCI-E REV:2.0--> 5GHZ

(11) -PCIEX16_PR

PA_EXP_SW_TXP8_C

PA_EXP_SW_TXN8_C

PA_EXP_SW_TXP9_C

PA_EXP_SW_TXN9_C

PA_EXP_SW_TXP10_C

PA_EXP_SW_TXN10_C

PA_EXP_SW_TXP11_C

PA_EXP_SW_TXN11_C

PA_EXP_SW_TXP12_C

PA_EXP_SW_TXN12_C

PA_EXP_SW_TXP13_C

PA_EXP_SW_TXN13_C

PA_EXP_SW_TXP14_C

PA_EXP_SW_TXN14_C

PA_EXP_SW_TXP15_C

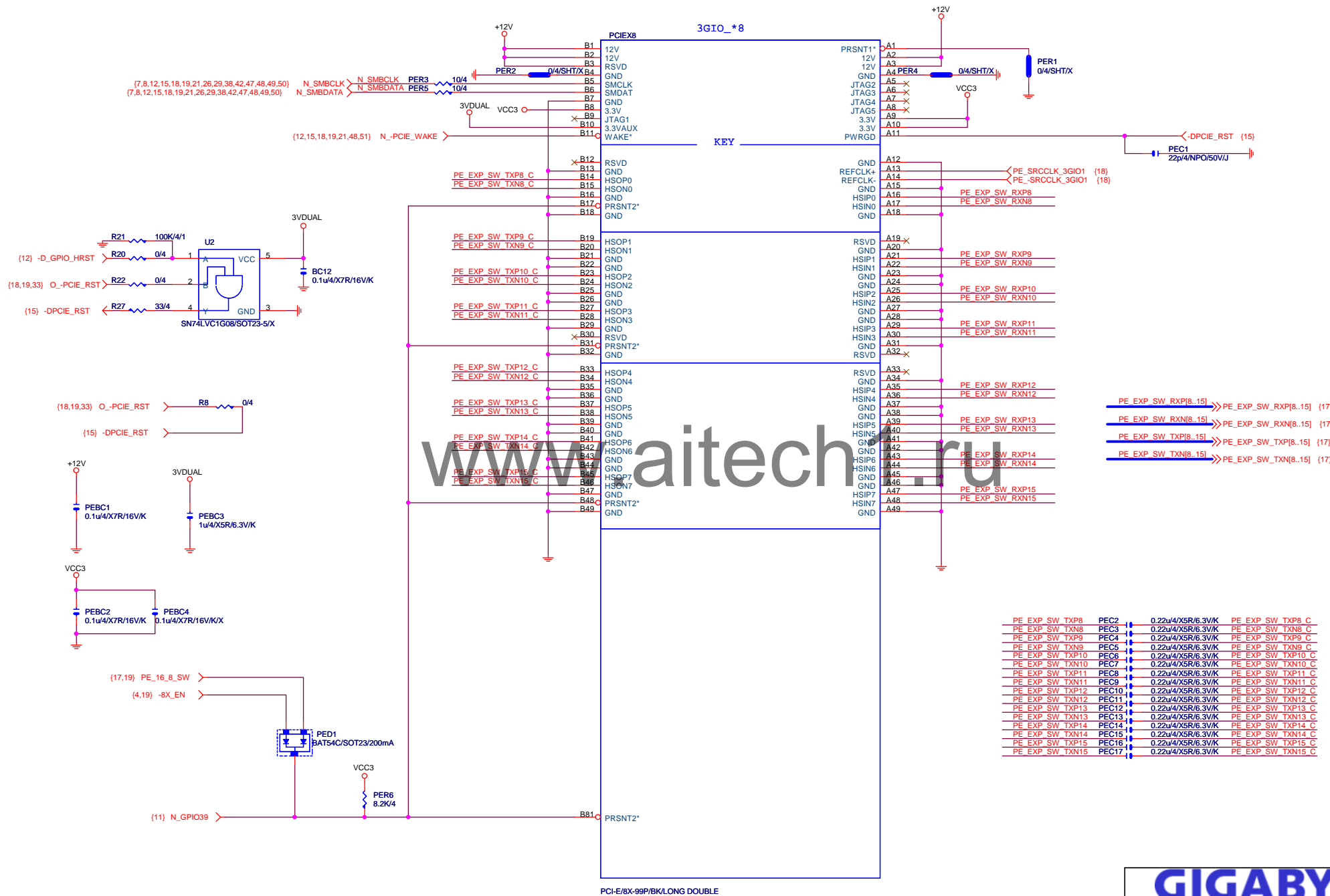
PA_EXP_SW_TXN15_C

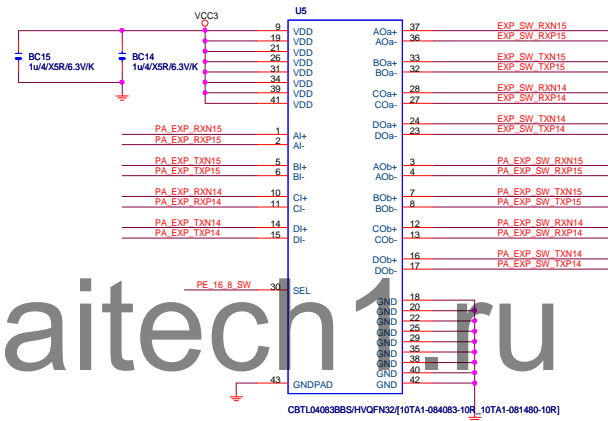
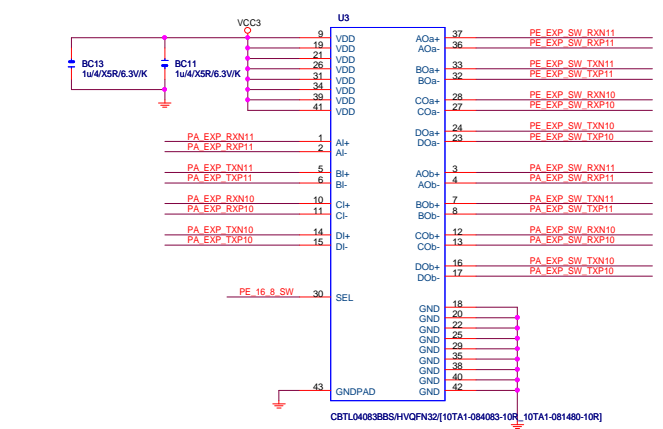
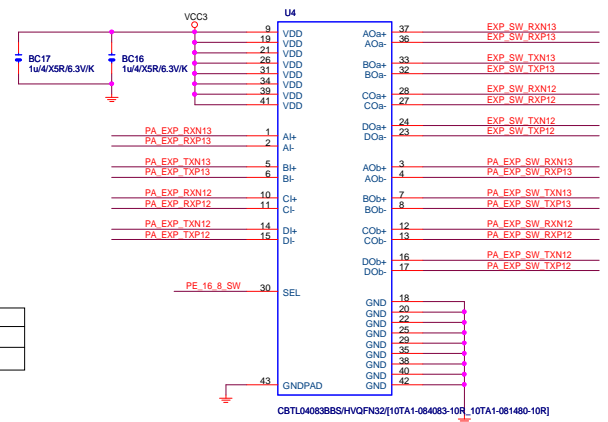
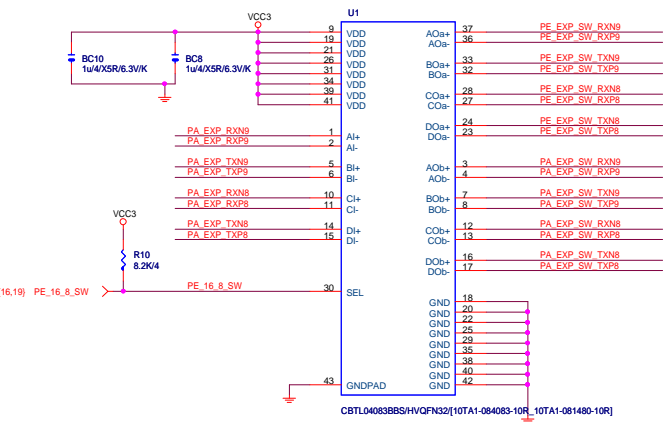
PCIESLOT-164DN-3
3GIO_*16

PCI-E/16X-164P/BK/LONG DOUBLE

GIGABYTE™

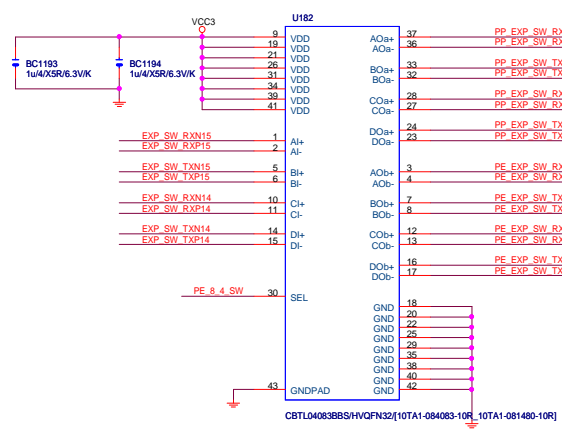
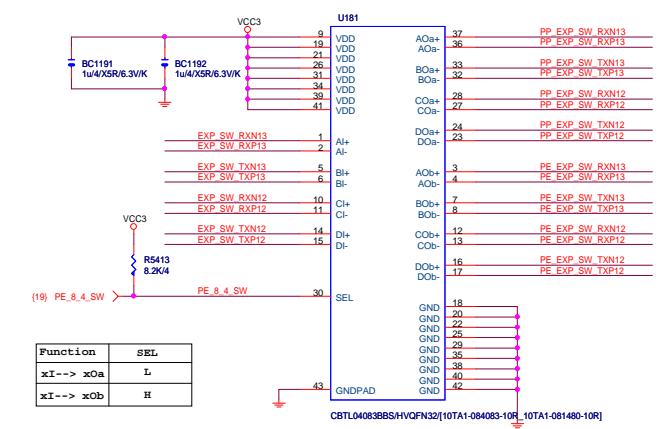
Title PCI EXPRESS * 16			
Size	Document Number	Rev	
Custom	GA-Z87X-UD5 TH	1.1	
Date:	Tuesday, December 31, 2013	Sheet	15 of 56



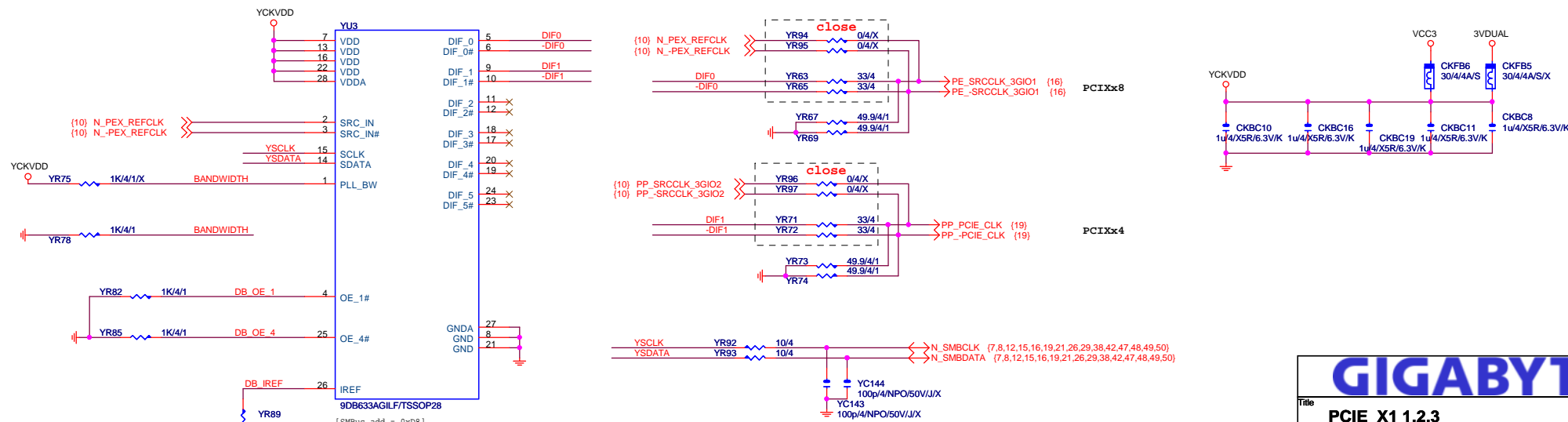
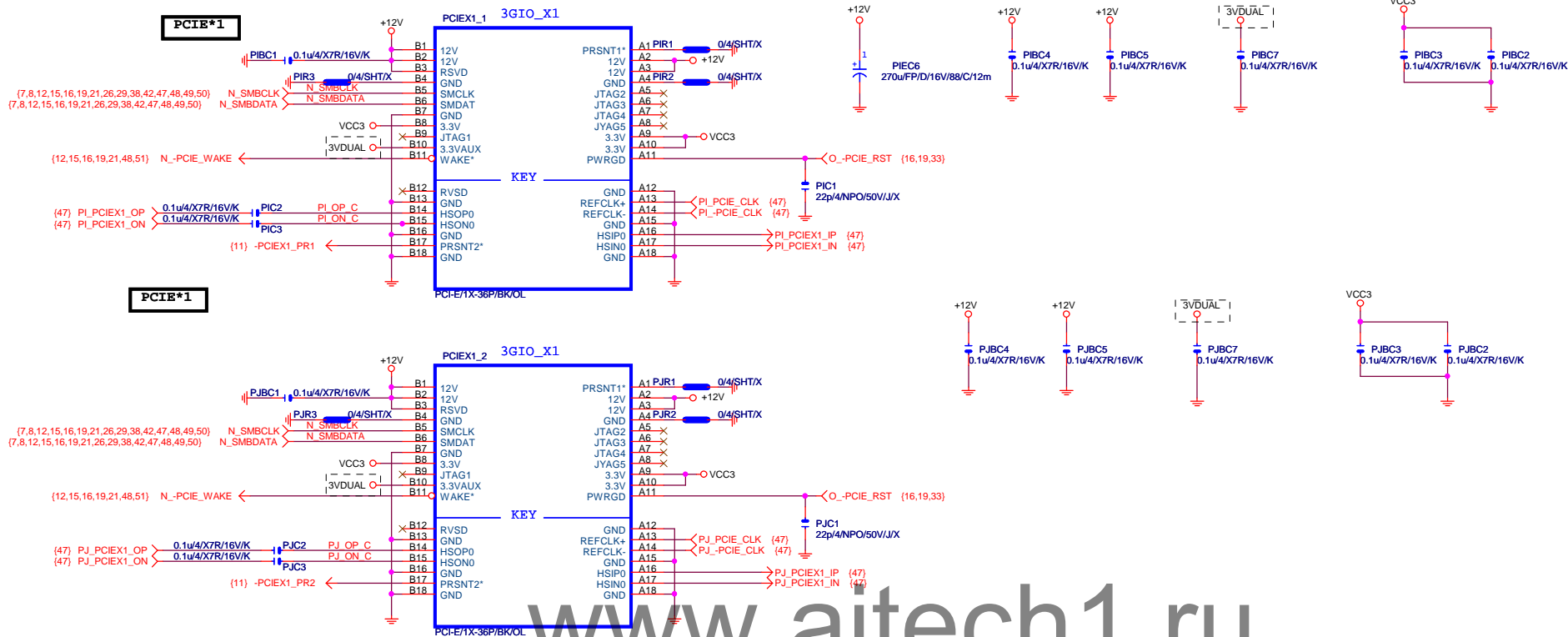


www.aitech1.ru

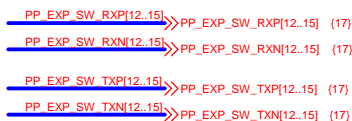
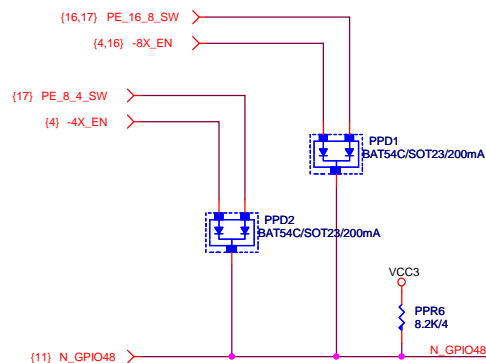
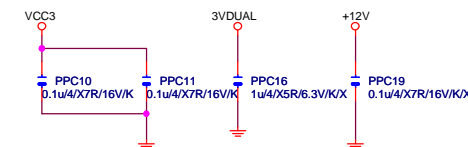
- PA_EXP_RXP0_15 >>> PA_EXP_RXP0_15 (4,15)
- PA_EXP_RXN0_15 >>> PA_EXP_RXN0_15 (4,15)
- PA_EXP_TXP0_15 >>> PA_EXP_TXP0_15 (4,15)
- PA_EXP_TXN0_15 >>> PA_EXP_TXN0_15 (4,15)
- PA_EXP_SW_RXP8_15 >>> PA_EXP_SW_RXP8_15 (15)
- PA_EXP_SW_RXN8_15 >>> PA_EXP_SW_RXN8_15 (15)
- PA_EXP_SW_TXP8_15 >>> PA_EXP_SW_TXP8_15 (15)
- PA_EXP_SW_TXN8_15 >>> PA_EXP_SW_TXN8_15 (15)
- PE_EXP_SW_RXP8_15 >>> PE_EXP_SW_RXP8_15 (16)
- PE_EXP_SW_RXN8_15 >>> PE_EXP_SW_RXN8_15 (16)
- PE_EXP_SW_TXP8_15 >>> PE_EXP_SW_TXP8_15 (16)
- PE_EXP_SW_TXN8_15 >>> PE_EXP_SW_TXN8_15 (16)
- PP_EXP_SW_RXP12_15 >>> PP_EXP_SW_RXP12_15 (19)
- PP_EXP_SW_RXN12_15 >>> PP_EXP_SW_RXN12_15 (19)
- PP_EXP_SW_TXP12_15 >>> PP_EXP_SW_TXP12_15 (19)
- PP_EXP_SW_TXN12_15 >>> PP_EXP_SW_TXN12_15 (19)

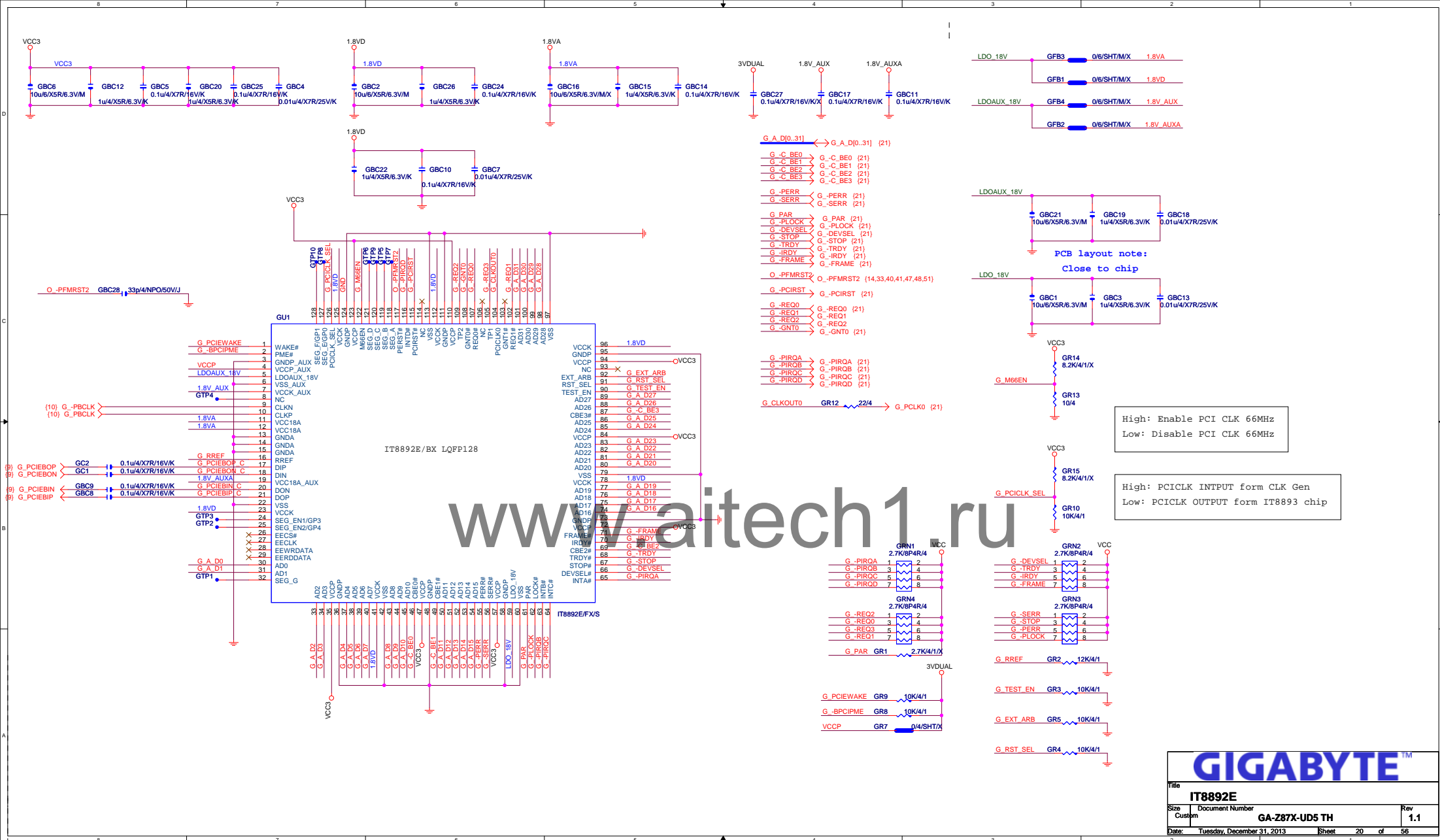


- PP_EXP_SW_RXP12_15 >>> PP_EXP_SW_RXP12_15 (19)
- PP_EXP_SW_RXN12_15 >>> PP_EXP_SW_RXN12_15 (19)
- PP_EXP_SW_TXP12_15 >>> PP_EXP_SW_TXP12_15 (19)
- PP_EXP_SW_TXN12_15 >>> PP_EXP_SW_TXN12_15 (19)

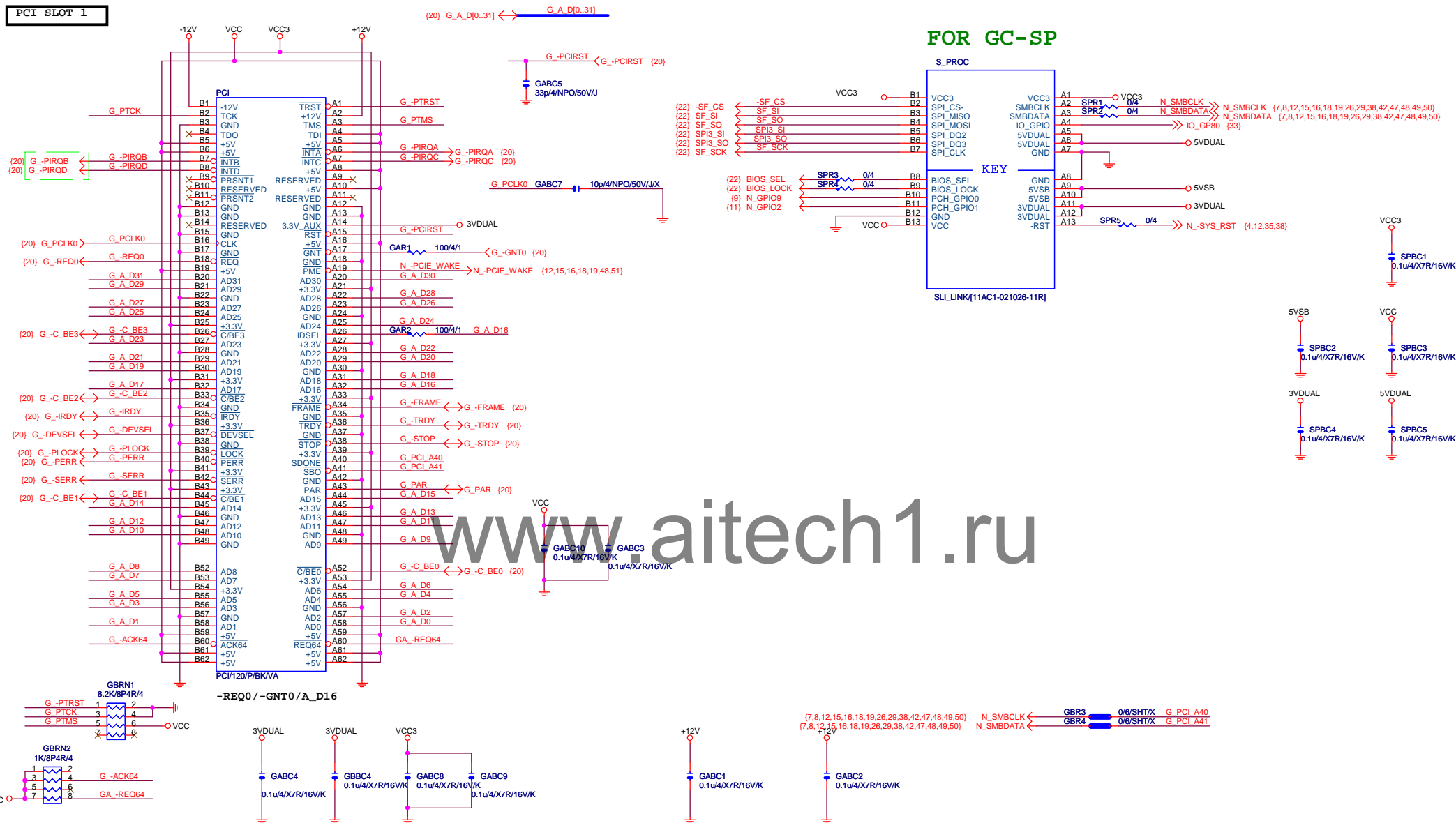


PCIE*4

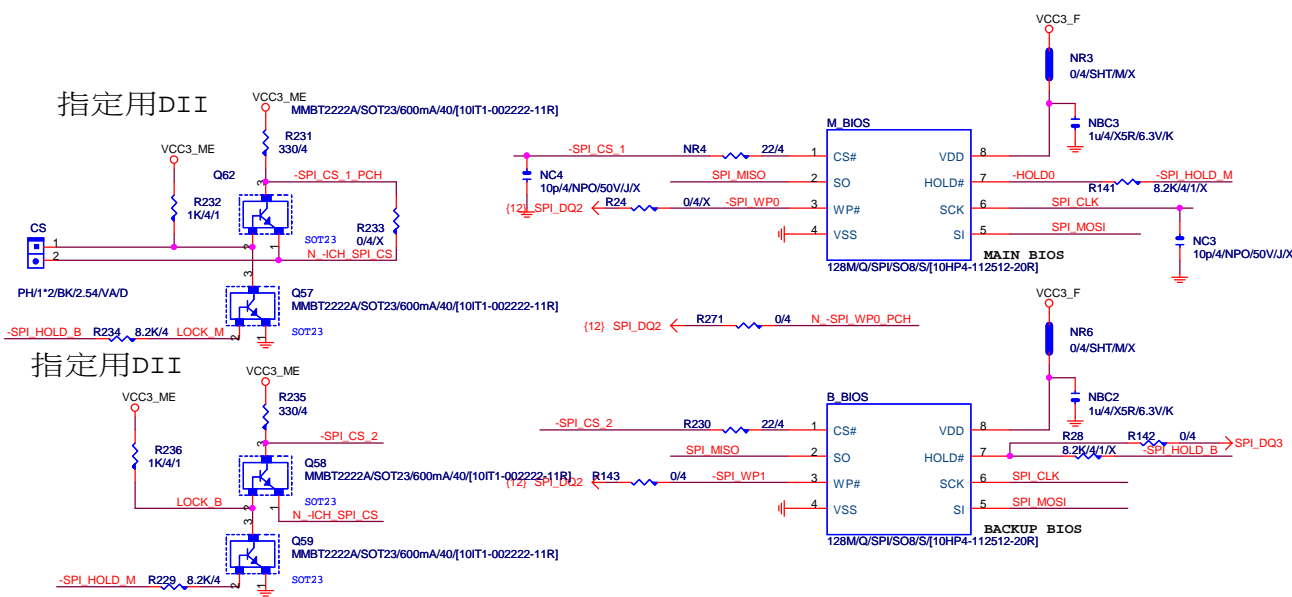




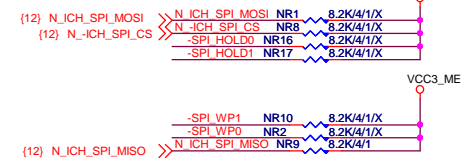
PCI SLOT 1



指定用DII



MOSI For DMI RX Termination Voltage



1 means floating
0 means PD 1K

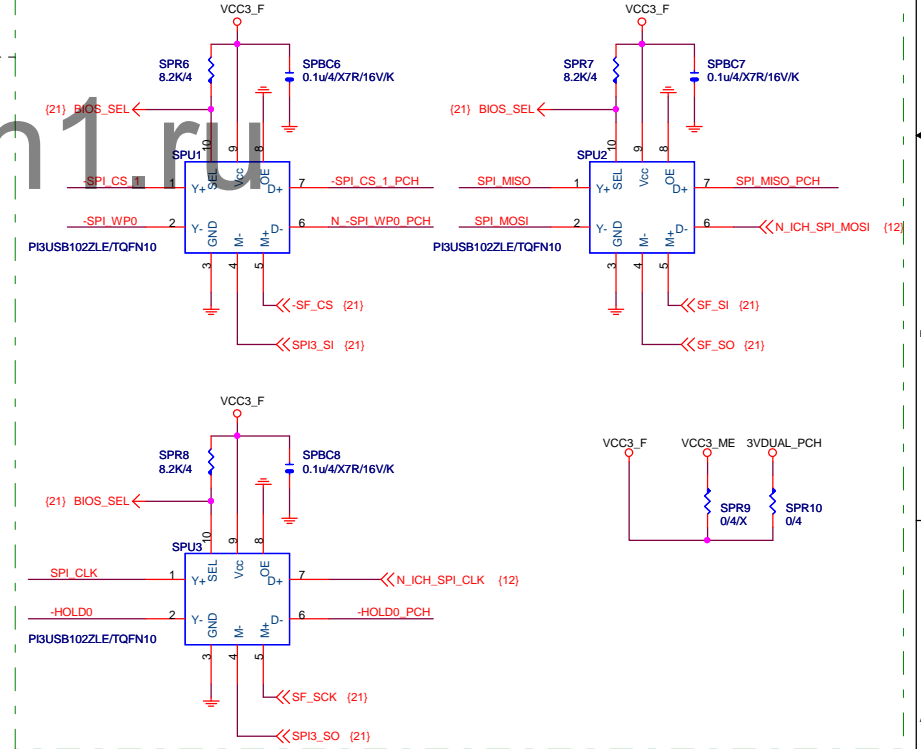


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

FOR GC-SP

www.aitech1.ru

FOR GC-SP



1	Disable
2	Enable

GIGABYTE™

Title: **DUAL BIOS, TPM**

Size: Custom

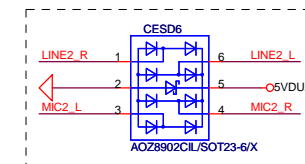
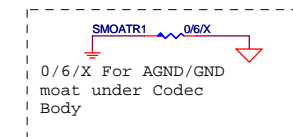
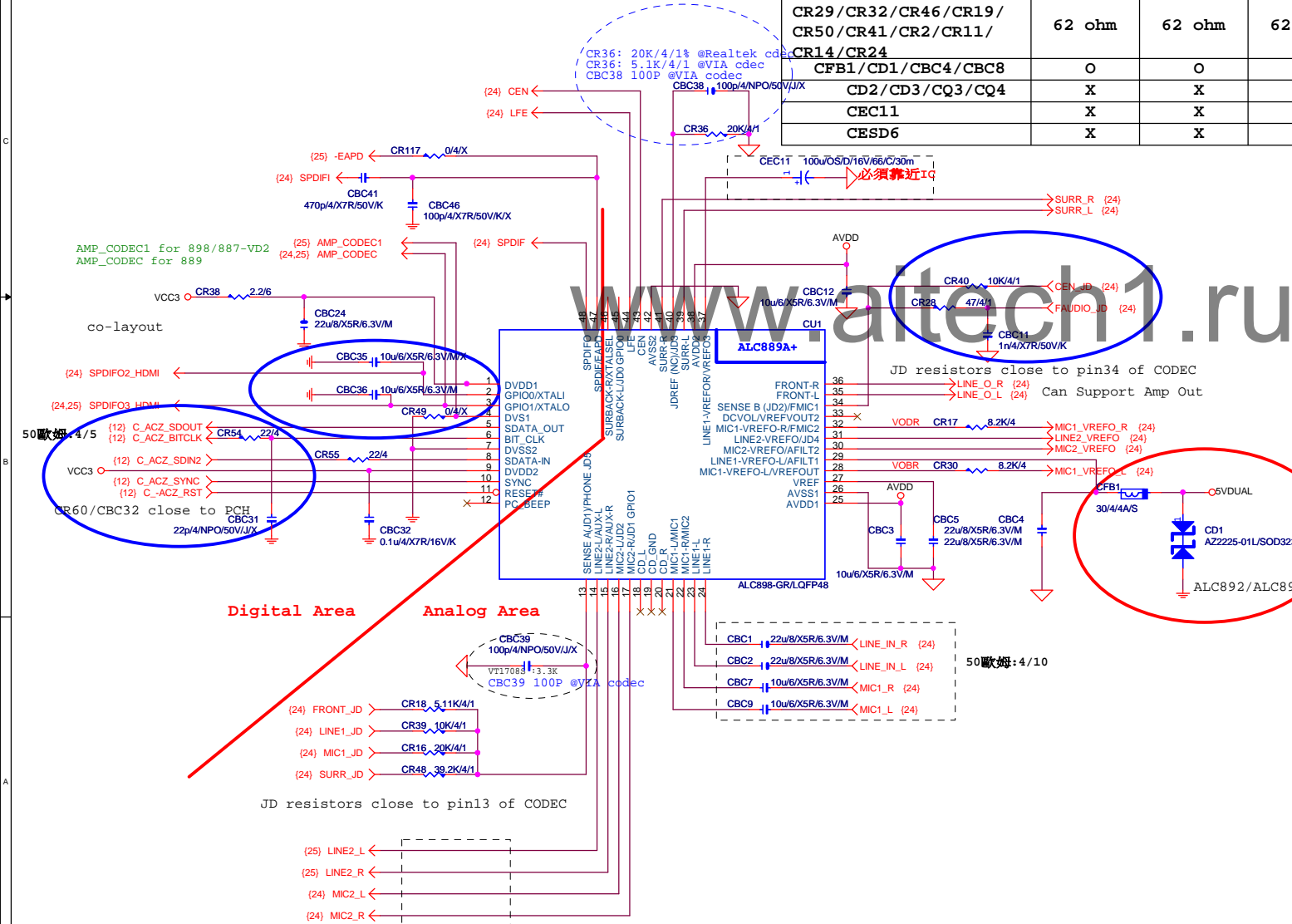
Document Number: **GA-Z87X-UD5 TH**

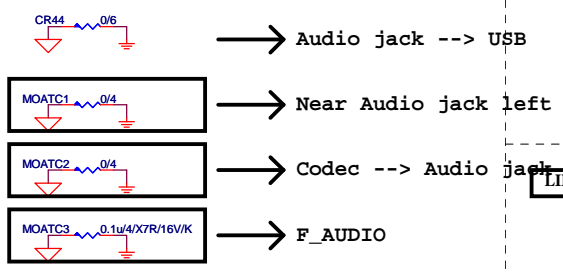
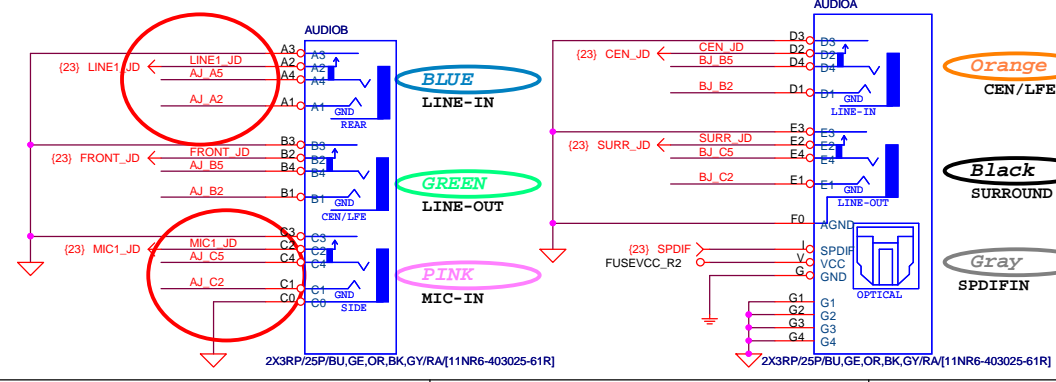
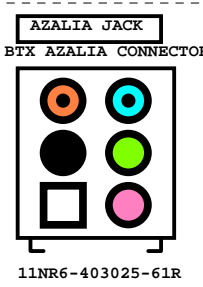
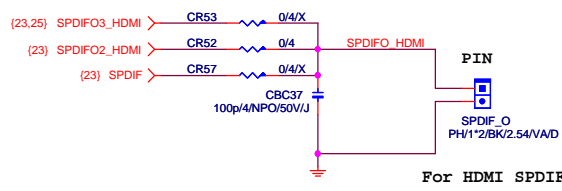
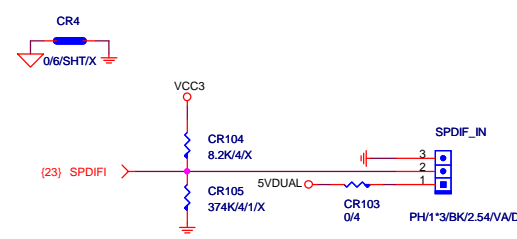
Rev: **1.1**

Date: Tuesday, December 31, 2013

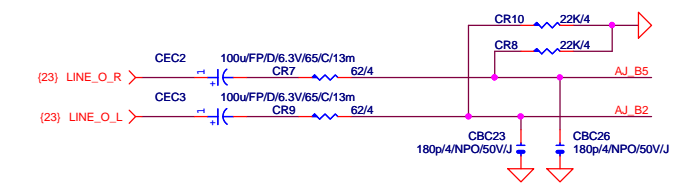
Sheet: 22 of 56

	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC892
CR49	X	X	O	O	X	O	X
CBC36	O	O	X	X	O	X	O
CR28/CBC11	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P	47ohm+1nF	47ohm+1nF
CR52	X	O	O	O	O	O	O
CR57	O	X	X	X	X	X	X
CBC1/CBC2	10uF/X5R	10uF/X5R	22uF/X5R	10uF/X5R	10uF/X5R	10uF/X5R	22uF/X5R
CR36	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CR17/CR30/ CR25/CR15/CR12/CR3/	8.2K/4	8.2K/4	8.2K/4	3.3K/4/1	3.3K/4/1	3.3K/4/1	8.2K/4
CBC38/CBC39	X	X	X	100P/4	100P/4	X	X
CR10/CR8/CR20/CR45/ CR42/CR51/CR27/CR26	22K/4	22K/4	22K/4	10K/4/1	10K/4/1	10K/4/1	22K/4
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR2/CR11/ CR14/CR24	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm	75 ohm	62 ohm
CFB1/CD1/CBC4/CBC8	O	O	X	X	O	X	O
CD2/CD3/CQ3/CQ4	X	X	O	O	X	O	X
CEC11	X	X	X	X	X	X	O
CESD6	X	X	X	O	O	O	X

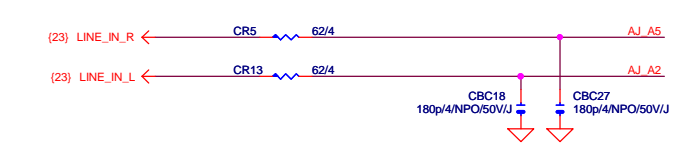




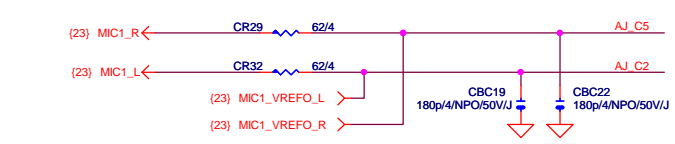
LINE-OUT



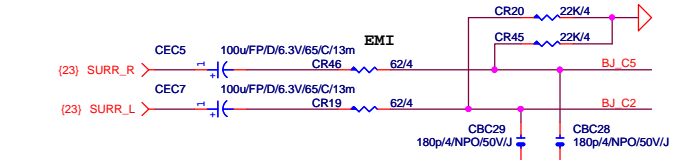
LINE-IN



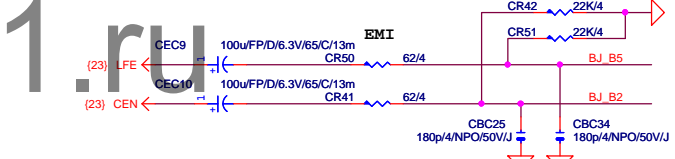
MIC-IN



SURROUND

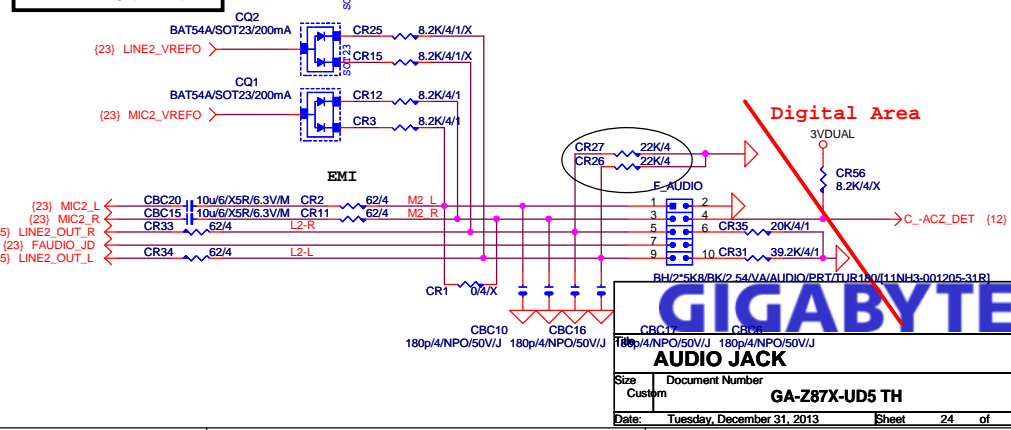


CEN/LFE



SURR BACK

AZALIA FRONT PANEL

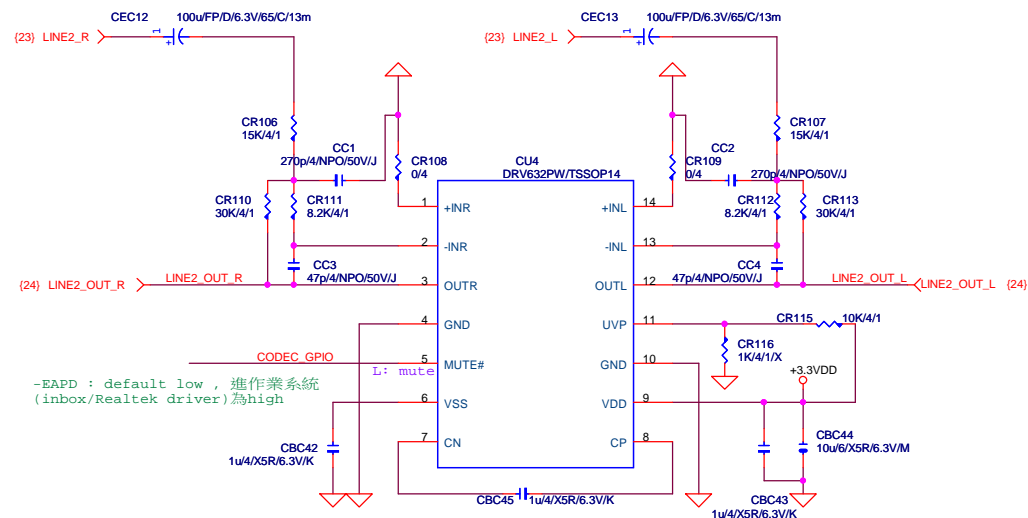


GIGABYTE

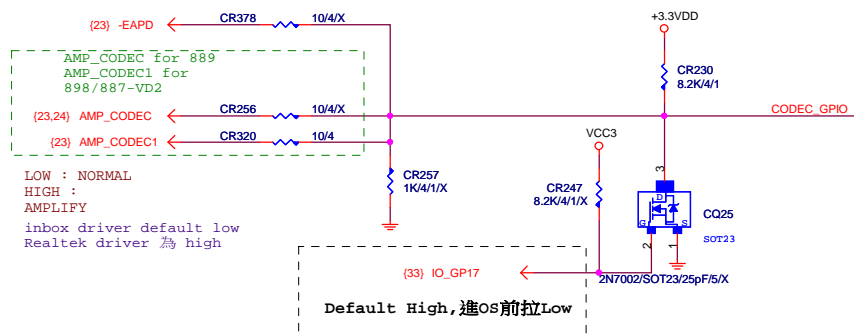
AUDIO JACK

Size	Document Number	Rev
Custom	GA-Z87X-UD5 TH	1.1
Date:	Tuesday, December 31, 2013	Sheet 24 of 56

HEADPHONE

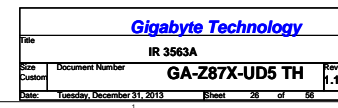


www.aitech1.ru

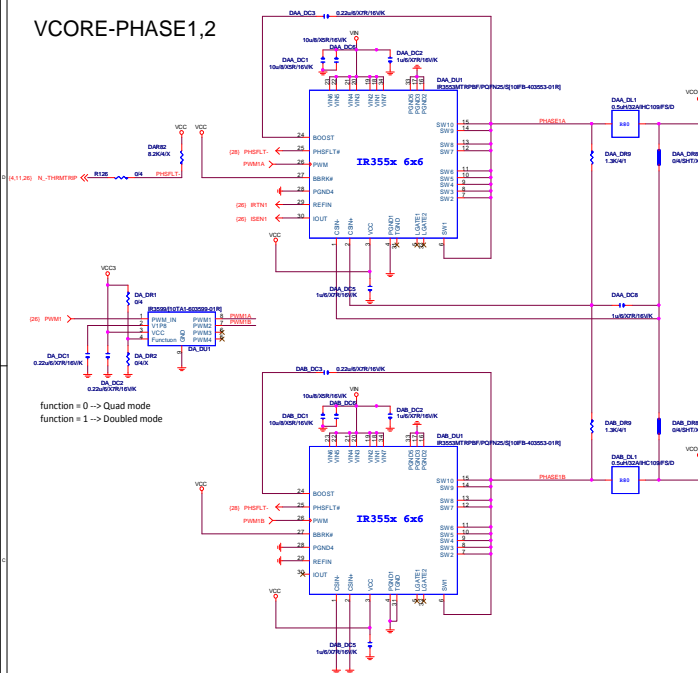


GIGABYTE™

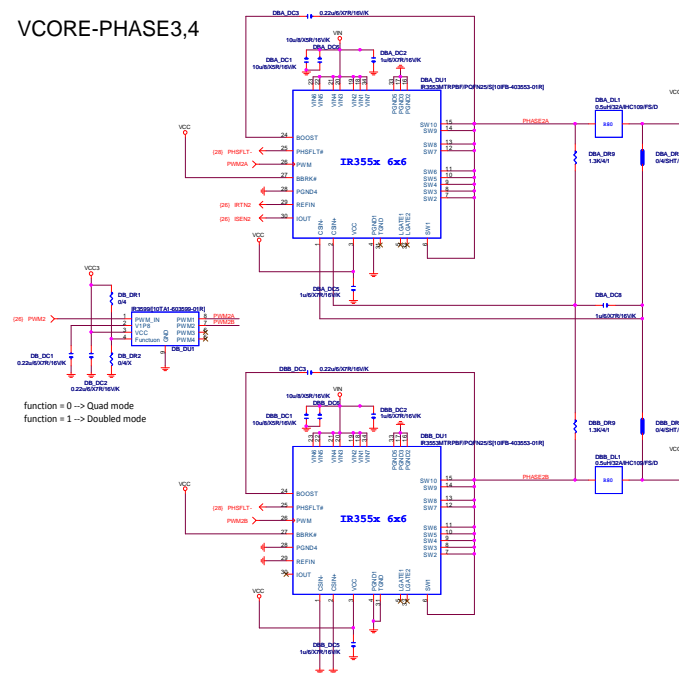
Title		
Audio Amplifier		
Size	Document Number	Rev
Custom	GA-Z87X-UD5 TH	1.1
Date:	Tuesday, December 31, 2013	Sheet 25 of 56



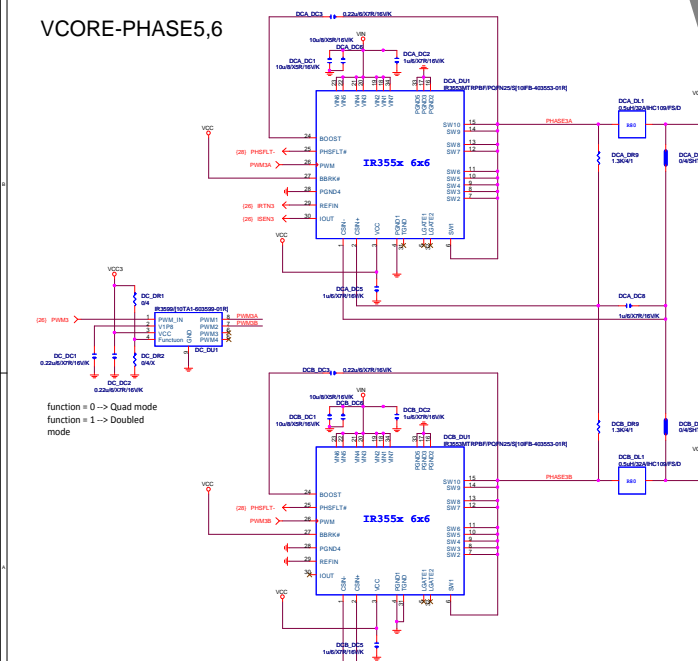
VCORE-PHASE1,2



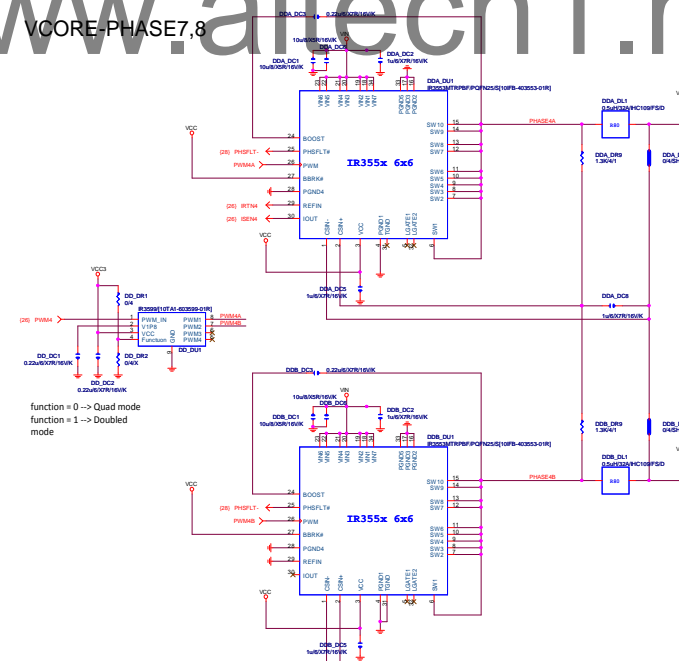
VCORE-PHASE3,4



VCORE-PHASE5,6

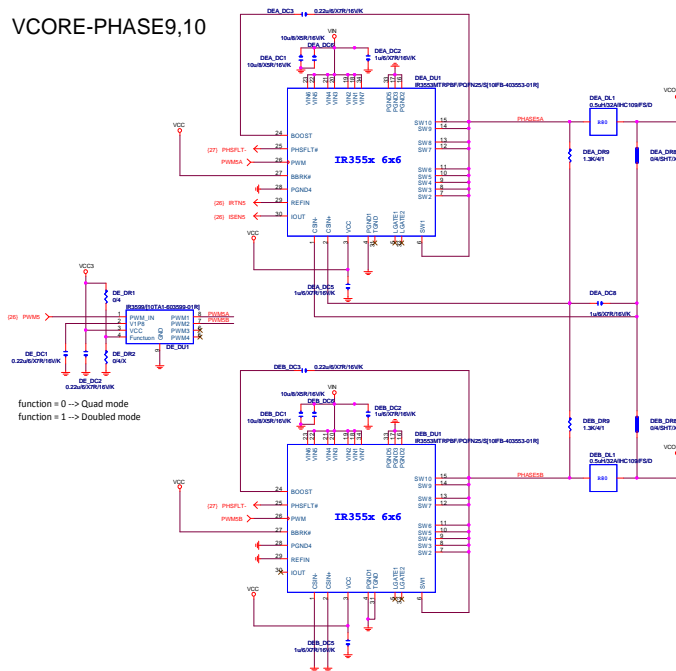


VCORE-PHASE7,8

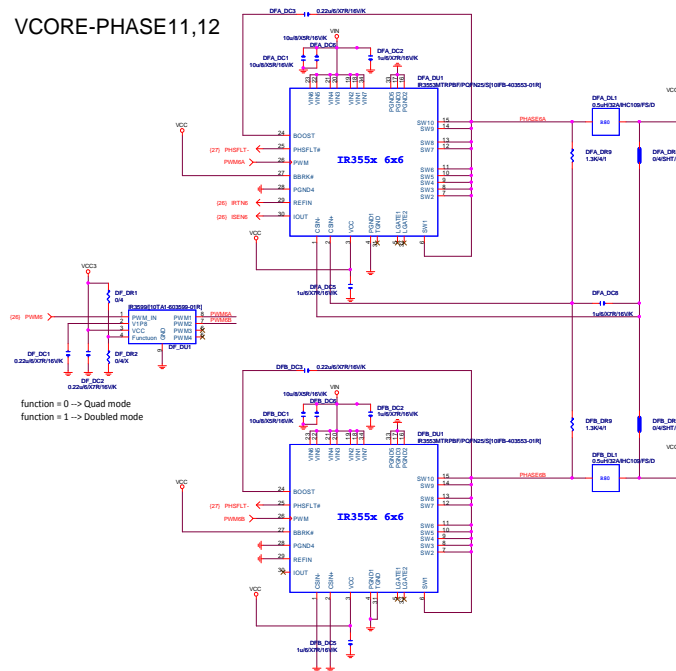


www.aitech1.ru

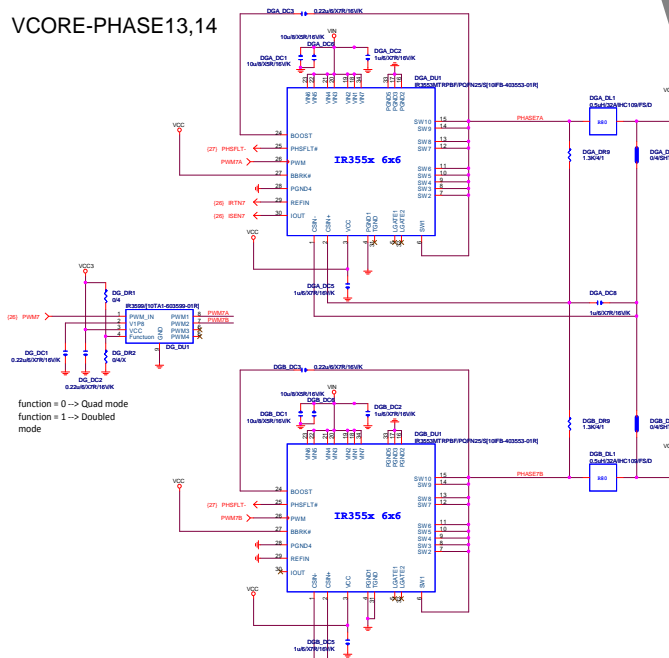
VCORE-PHASE9,10



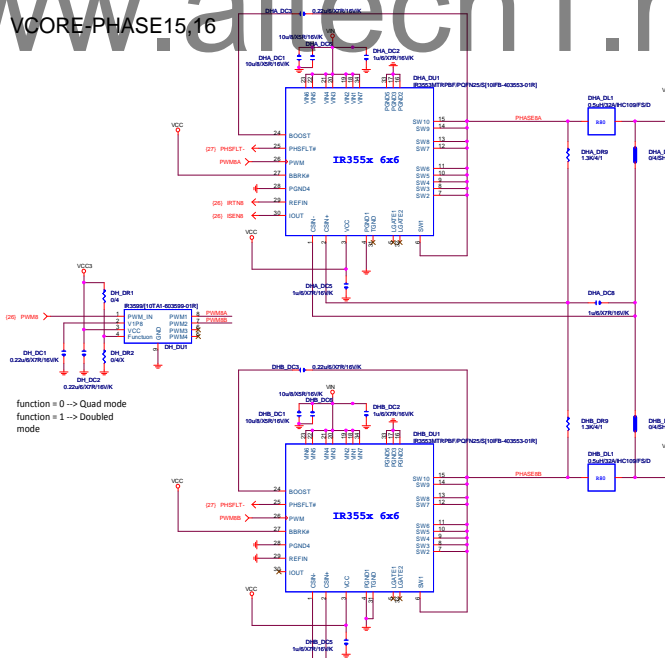
VCORE-PHASE11,12



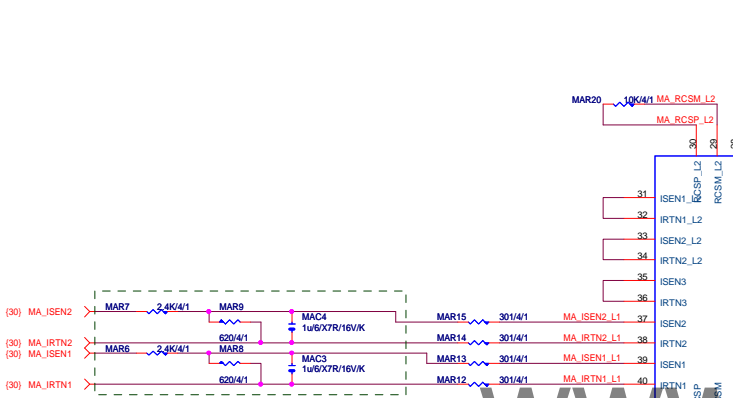
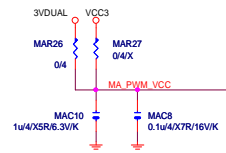
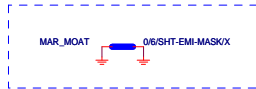
VCORE-PHASE13,14



VCORE-PHASE15,16



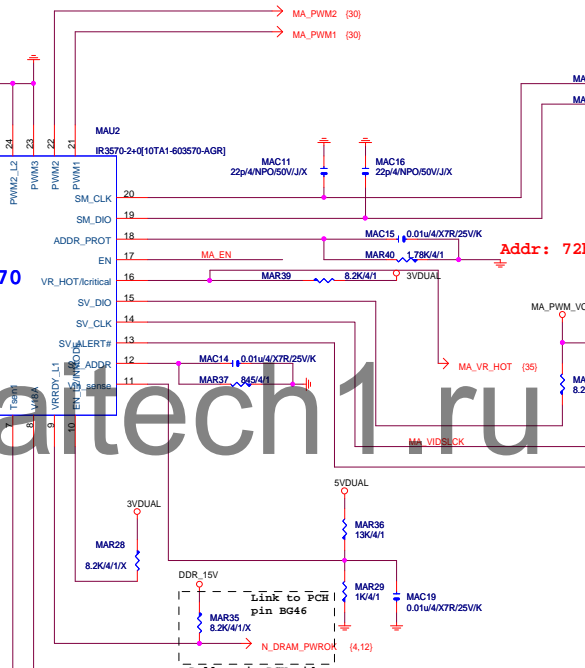
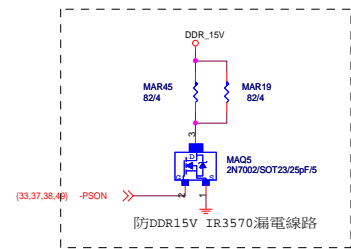
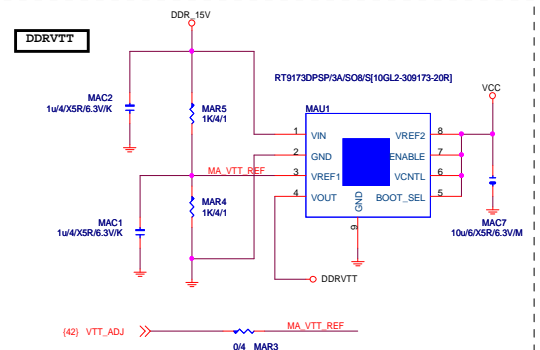
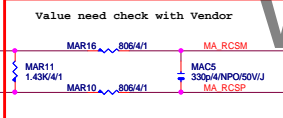
www.aitech1.ru



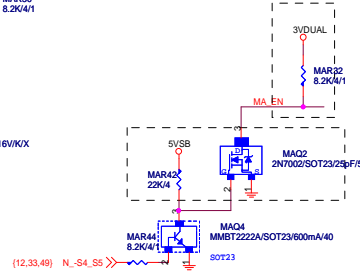
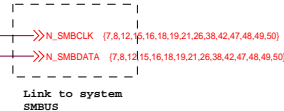
IR3570

Close to DDR output inductor

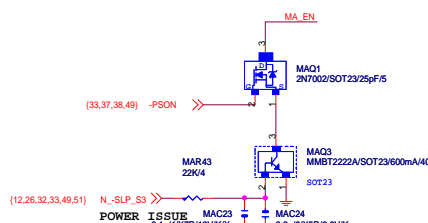
should be routed as differential pair, 7mil width, 8mil spacing



Addr: 72h



(12,33,49) N_S4_S5



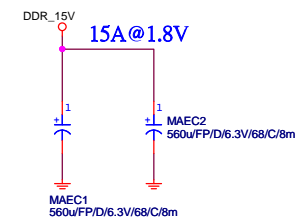
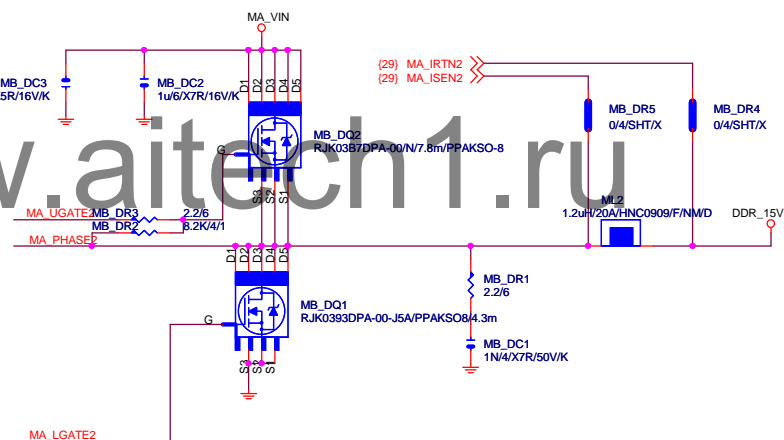
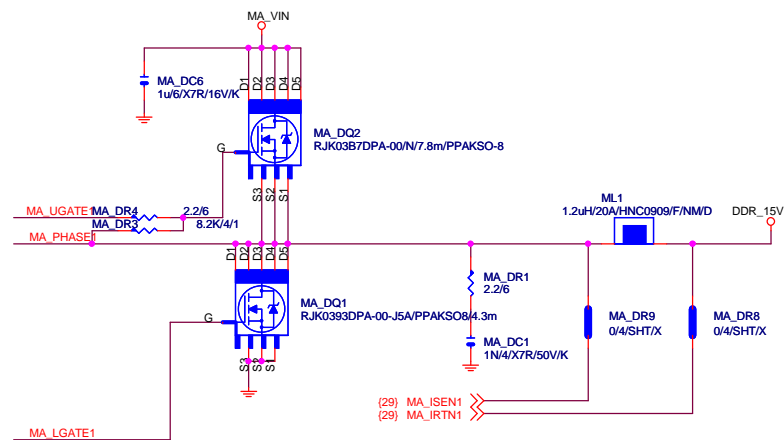
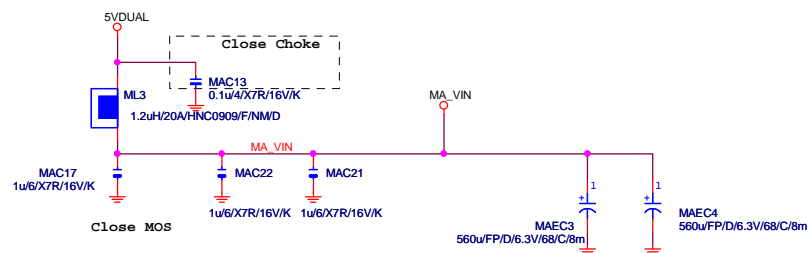
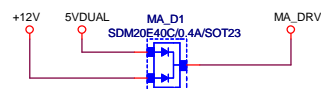
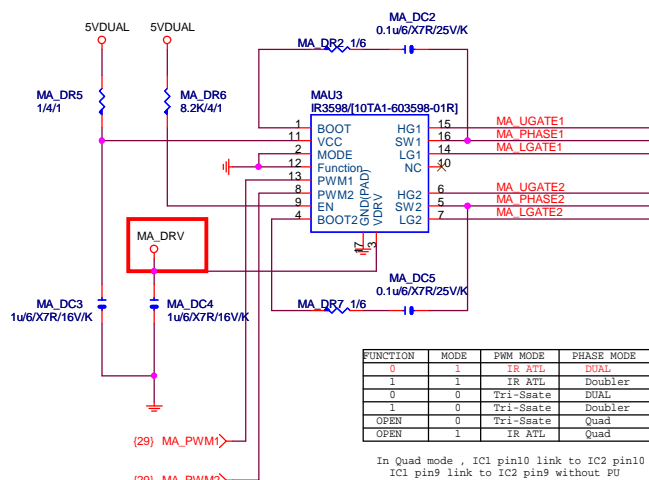
(33,37,38,49) -PSON

(12,26,32,33,49,51) N_SLP_S3

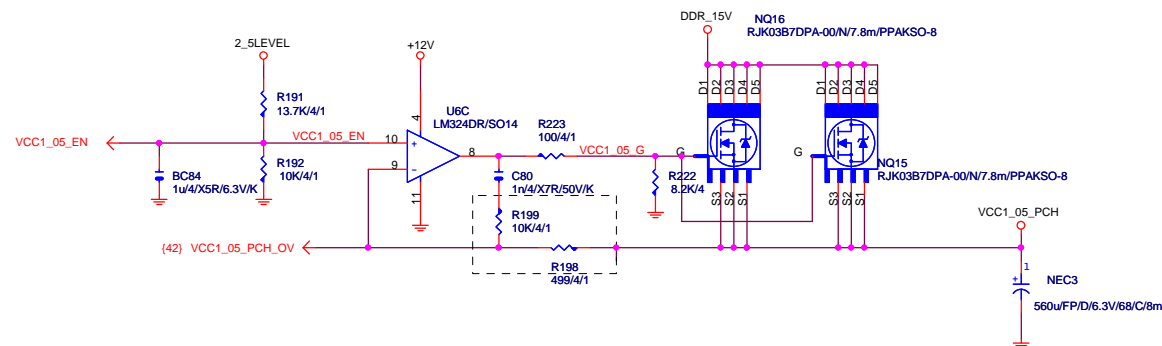
POWER ISSUE

GIGABYTE™			
Title			
DDR POWER IR3570			
Size	Document Number	Rev	
C	GA-Z87X-UD5 TH	1.1	
Date	Tuesday, December 31, 2013	Sheet	29 of 56

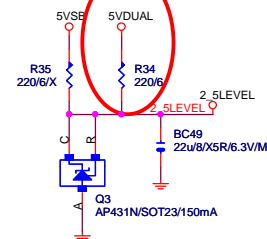
DDR 15V



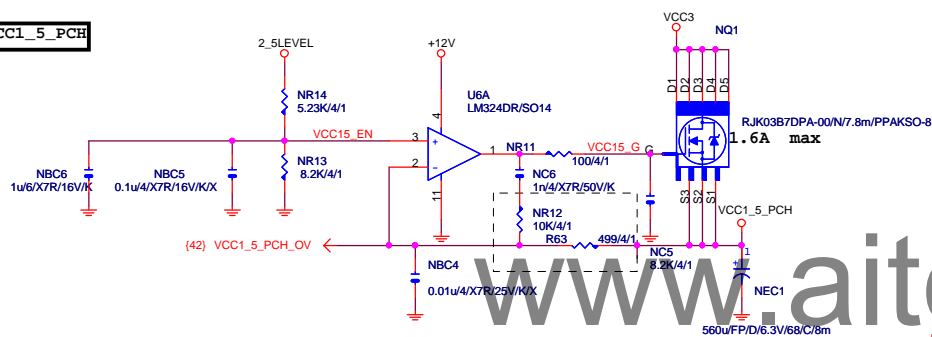
VCC1_05_PCH



ErP



VCC1_5_PCH

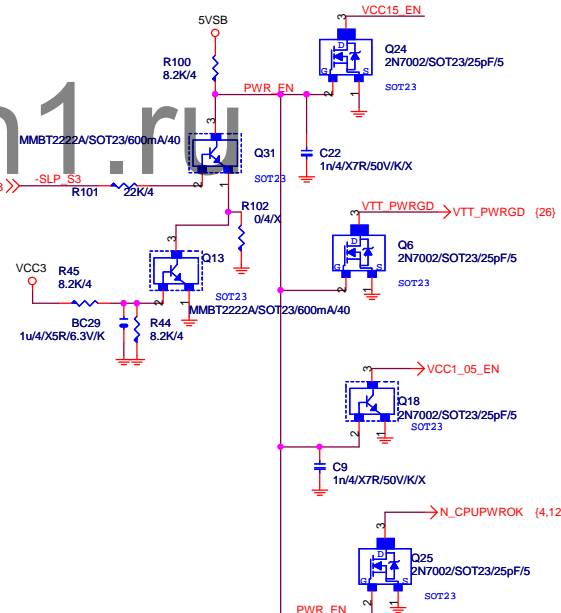
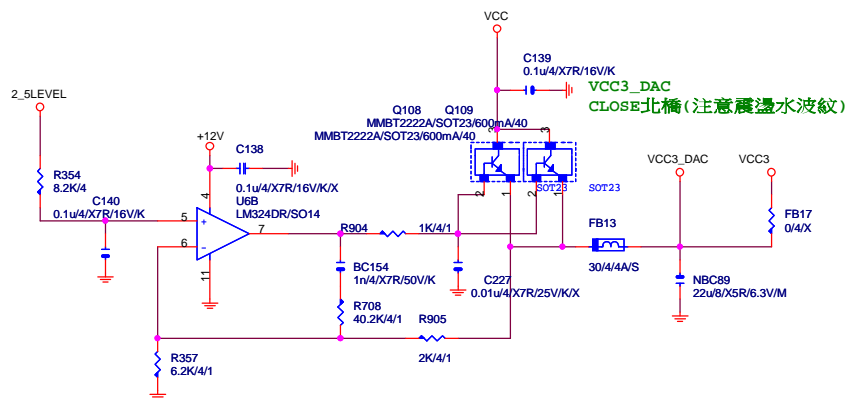


Rise/Fall max 50us
Rise:20% - 80%
Fall :2V- 0.8V

At least 10ms delay after 3VDUAL ready
Pop when PCH & SIO both use 3VDUAL-PCH

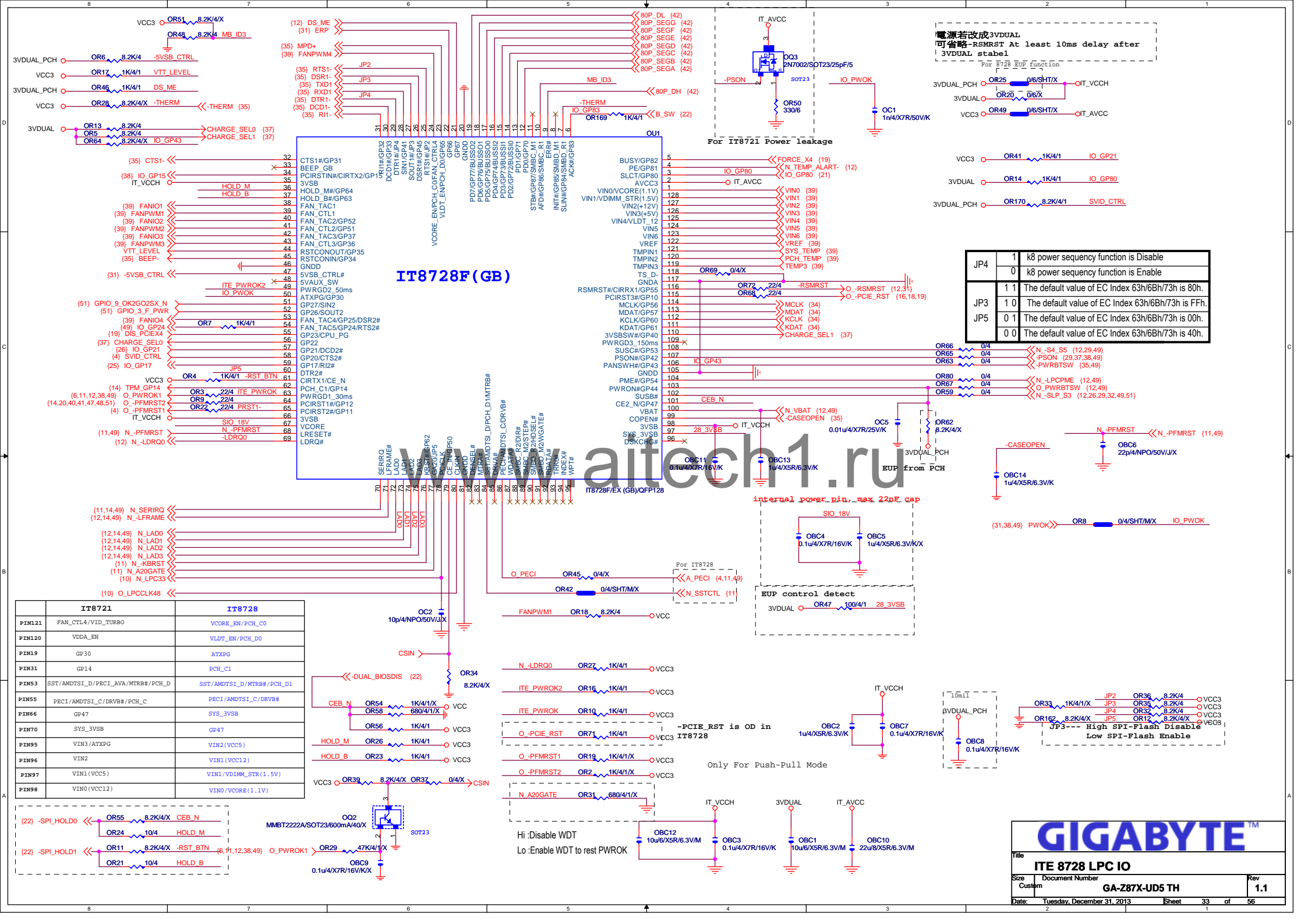
VCC3_DAC

(3.3V/70mA+360uA)

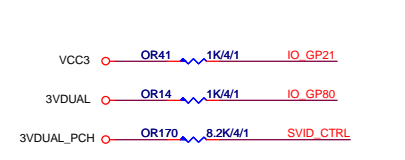
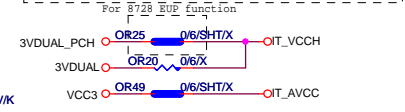


GIGABYTE™

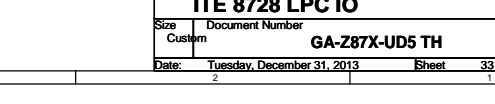
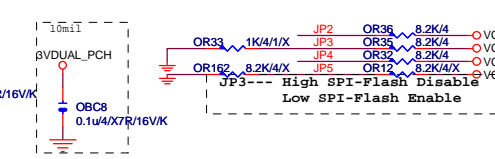
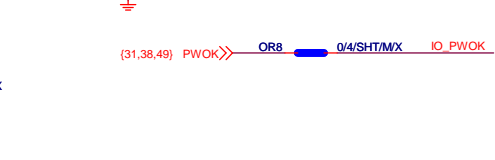
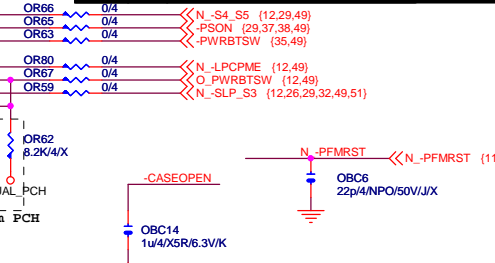
Title			
VCC 1.05 PCH, VCC1.5 PCH, CC3 DAC			
Size	Document Number	Rev	
Custom	GA-Z87X-UD5 TH	1.1	
Date:	Tuesday, December 31, 2013	Sheet	32 of 56



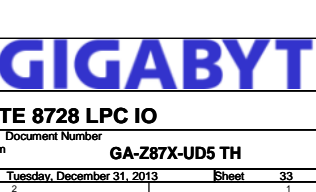
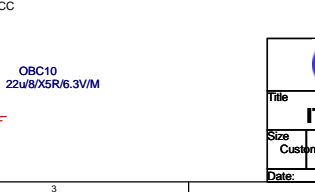
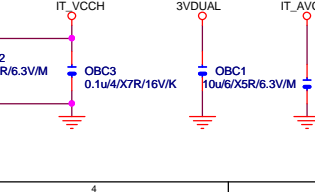
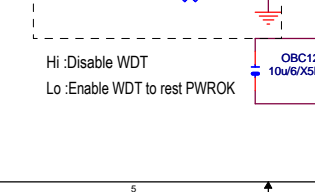
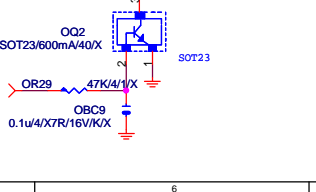
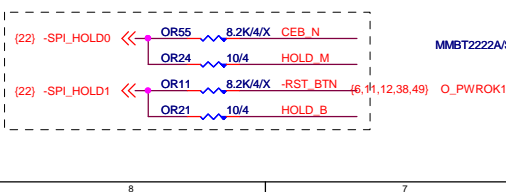
電源若改成3VDUAL
可省略-RSMRST At least 10ms delay after
3VDUAL stabel



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	VLDLT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
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™

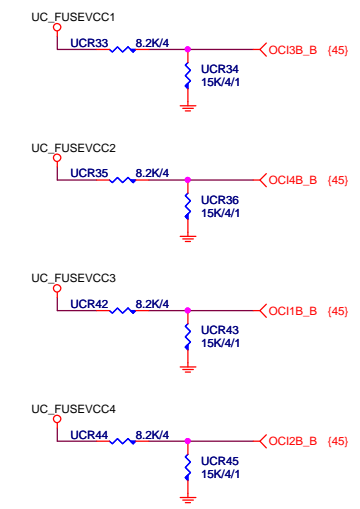
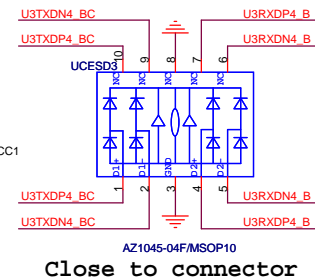
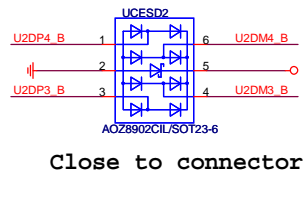
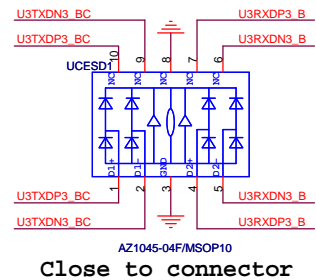
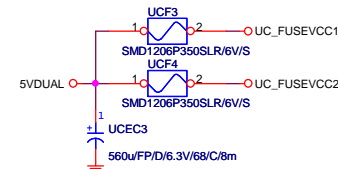
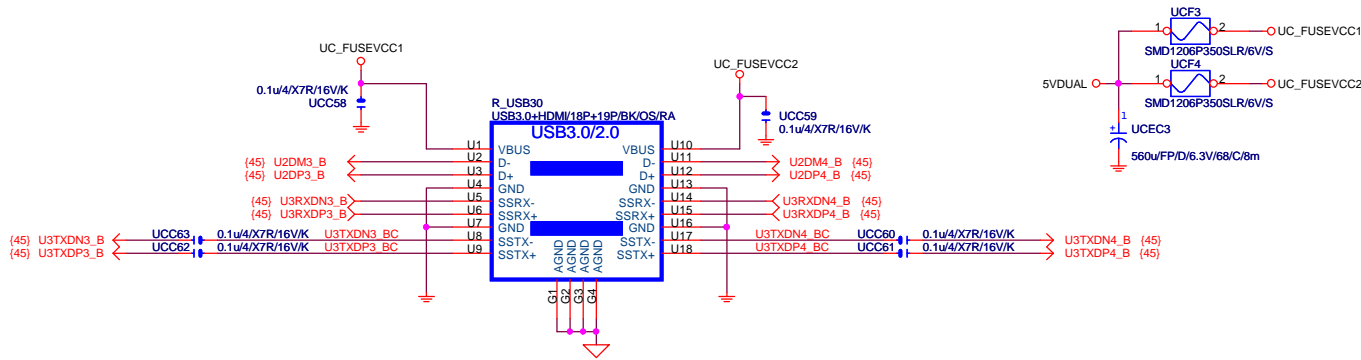
Title
ITE 8728 LPC IO

Size
Custom

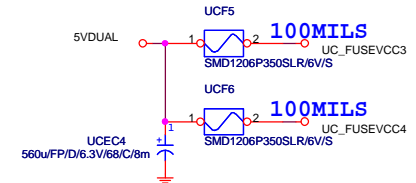
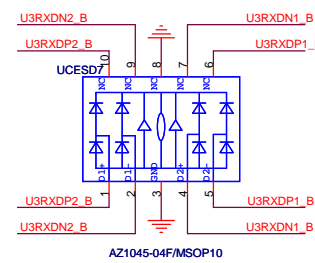
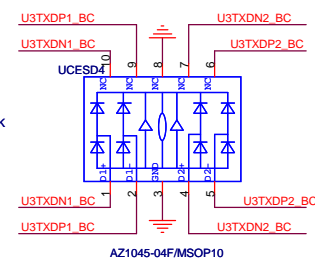
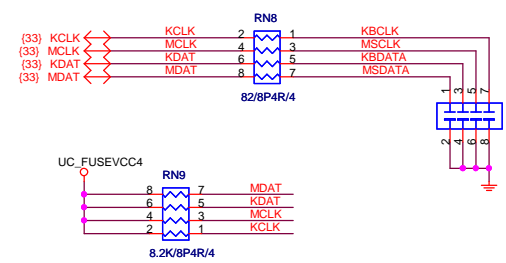
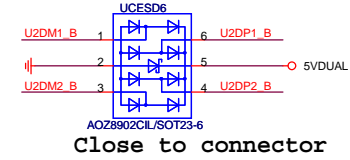
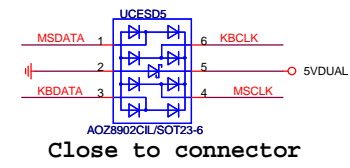
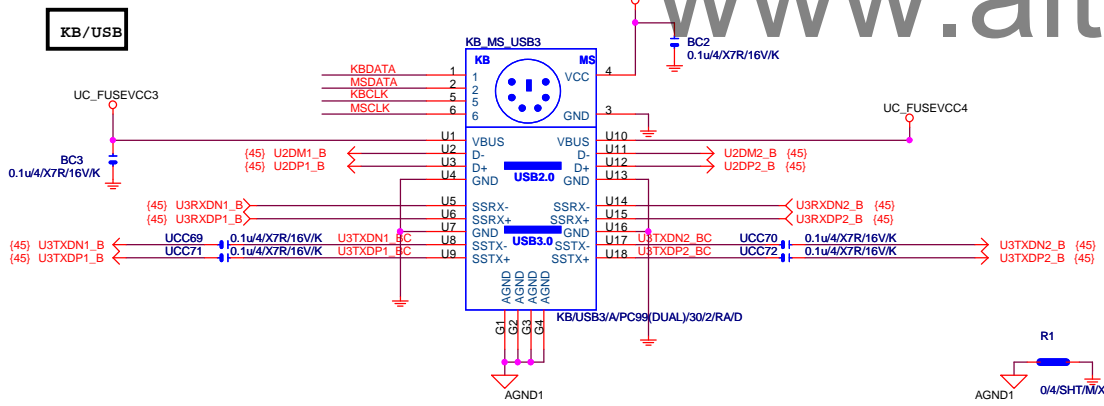
Document Number
GA-Z87X-UD5 TH

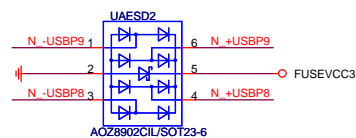
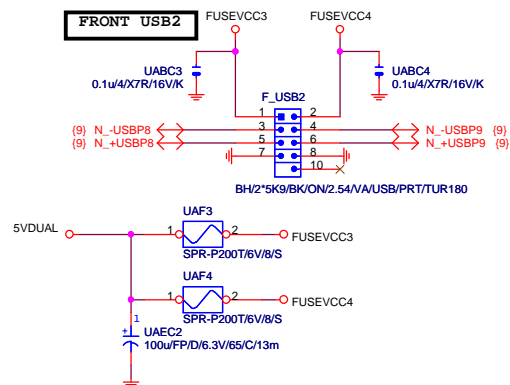
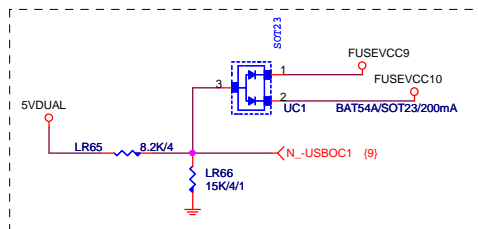
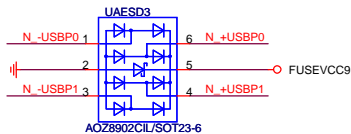
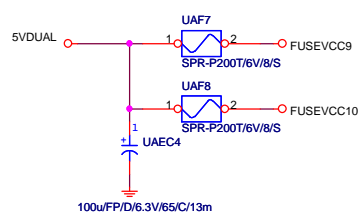
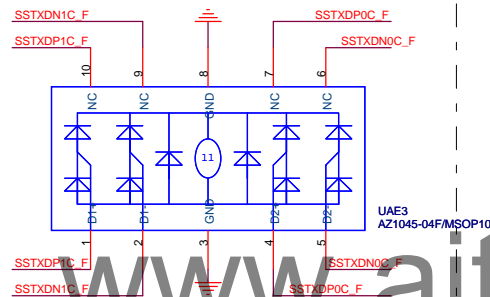
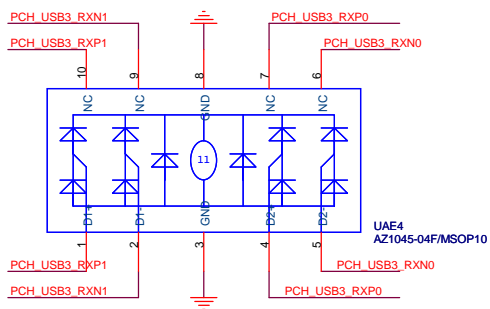
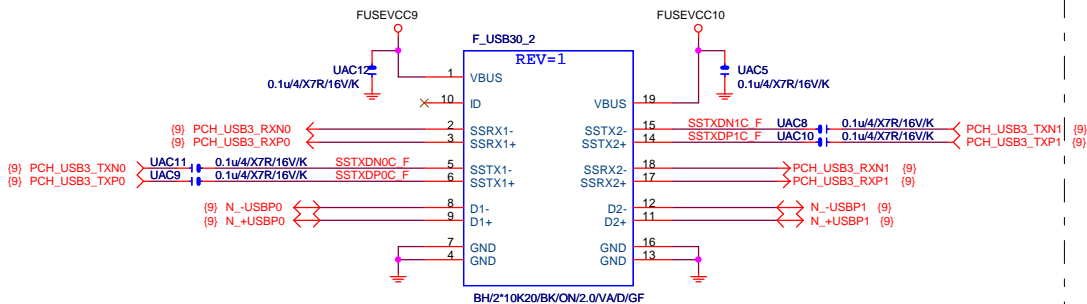
Rev
1.1

Date: Tuesday, December 31, 2013 Sheet 33 of 56

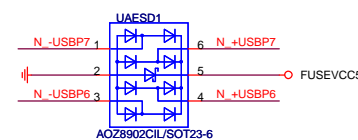
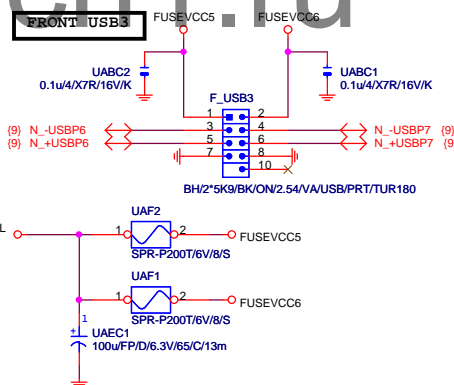


www.aitech1.ru

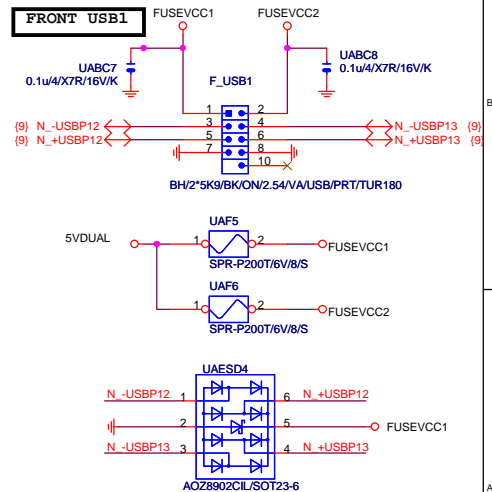
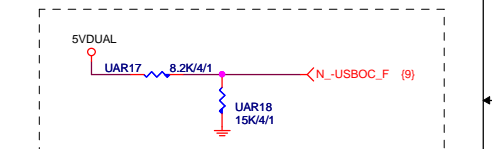
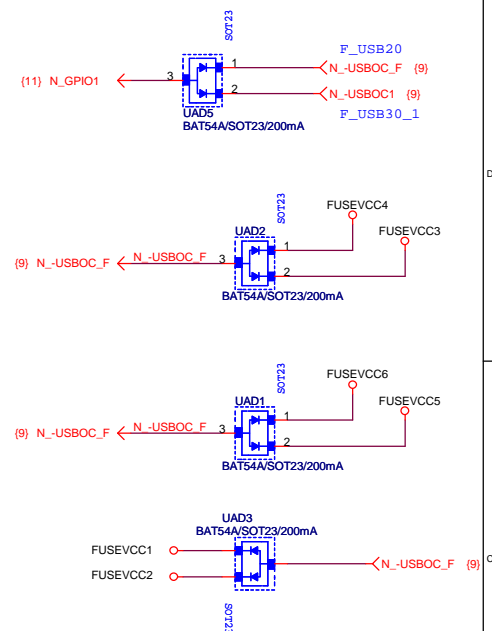




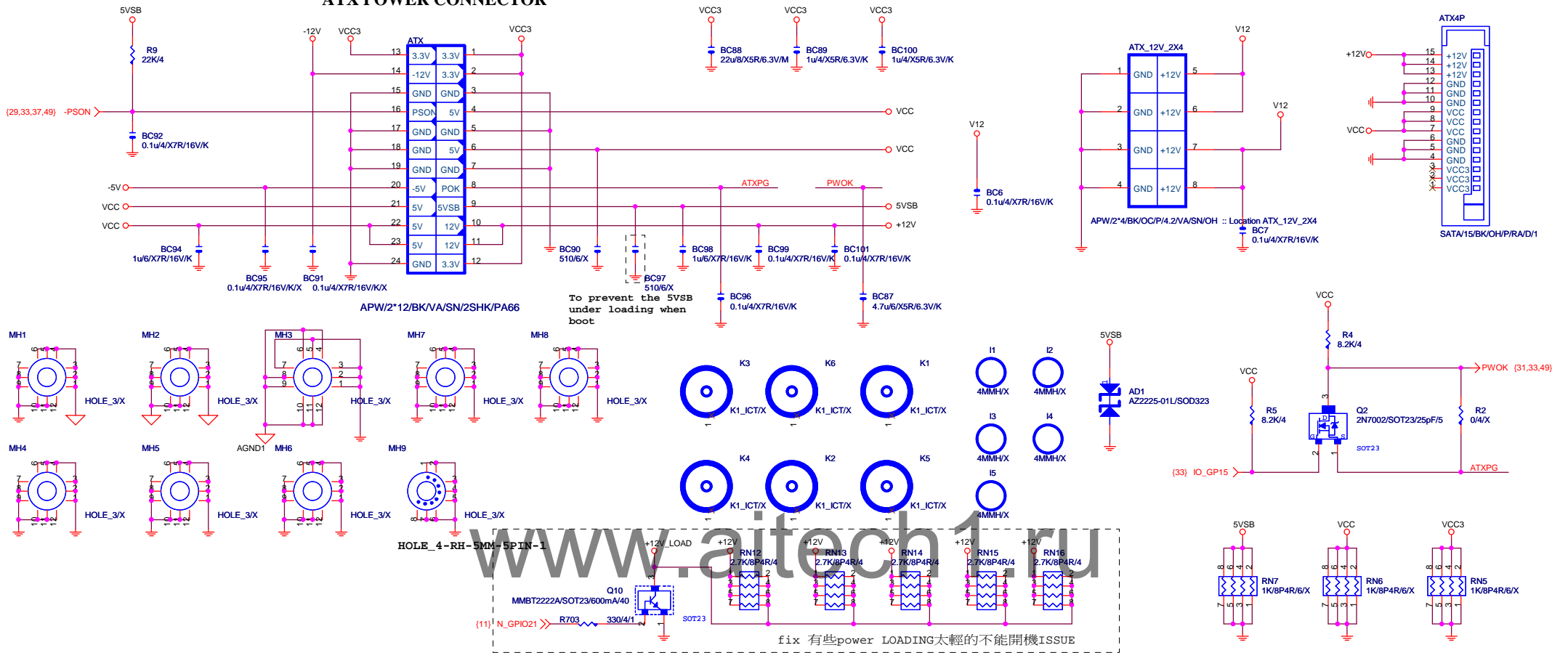
Close to connector



Close to connector



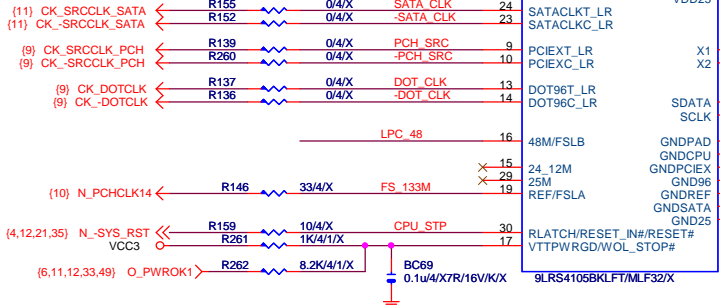
ATX POWER CONNECTOR



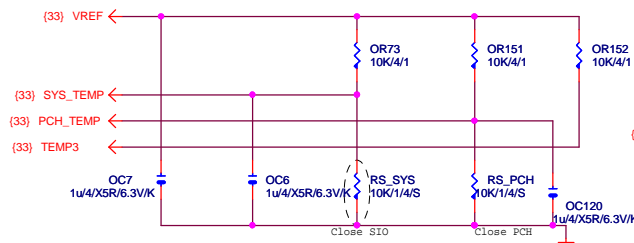
CLK GEN CK505

CPU Frequency Selection

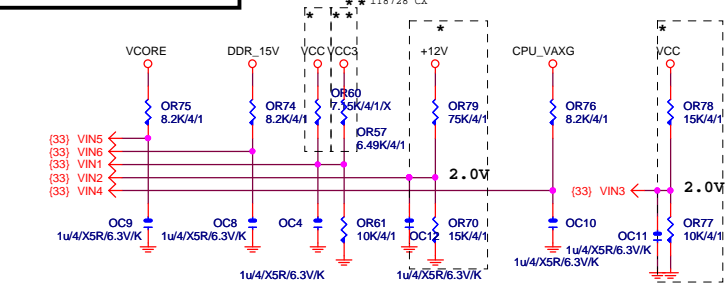
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



TEMP H/W MONITOR

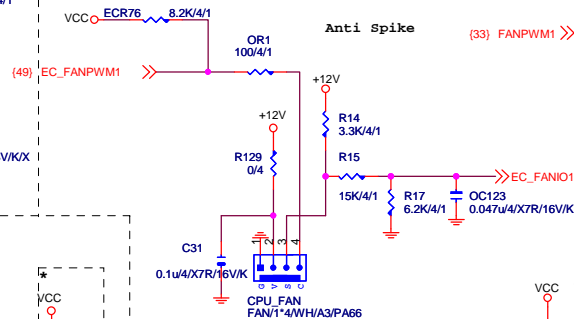


VOLTAGE-- H/W MONITOR

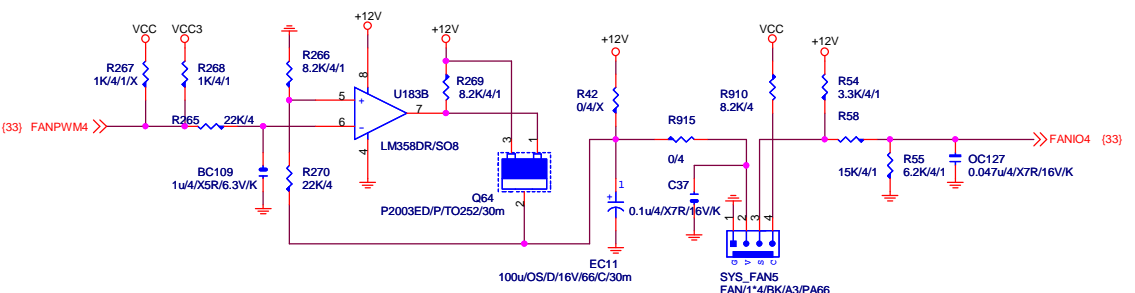
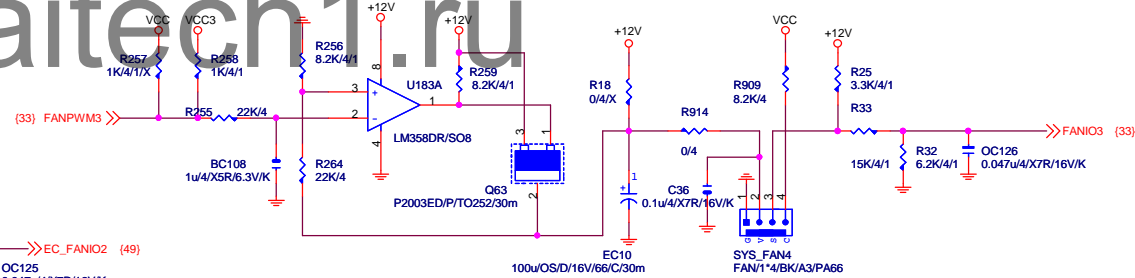
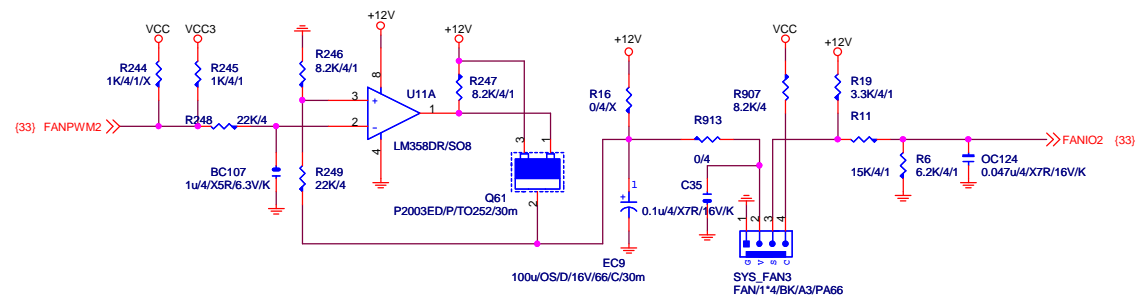
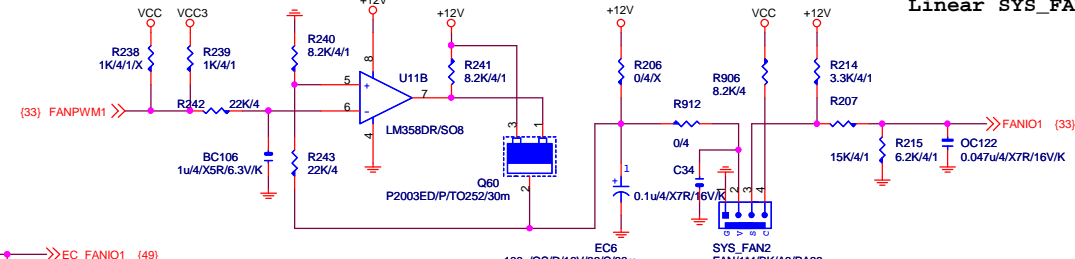


The division voltage of VIN2 & VIN3 must be around 2.9V

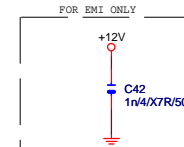
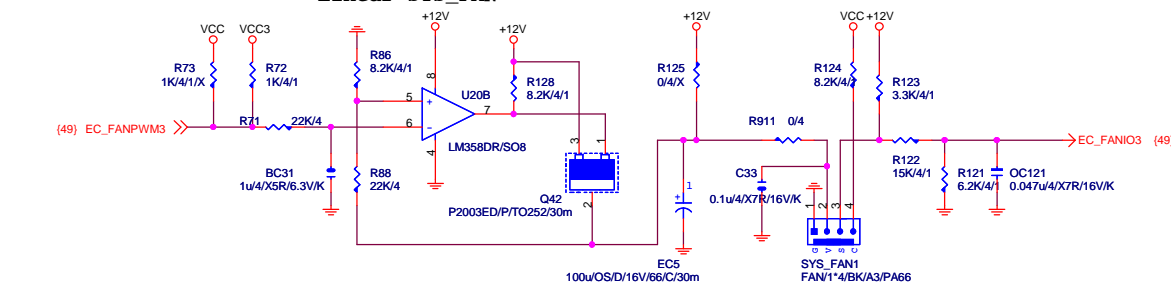
CPU SMART FAN



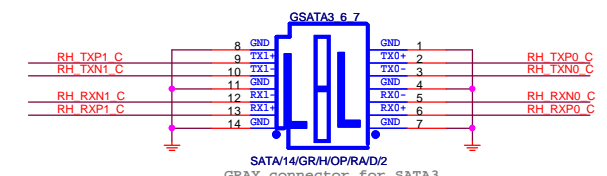
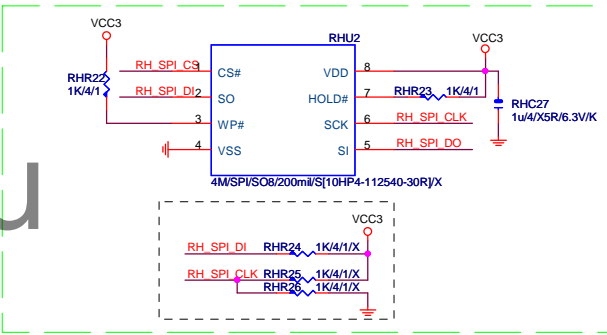
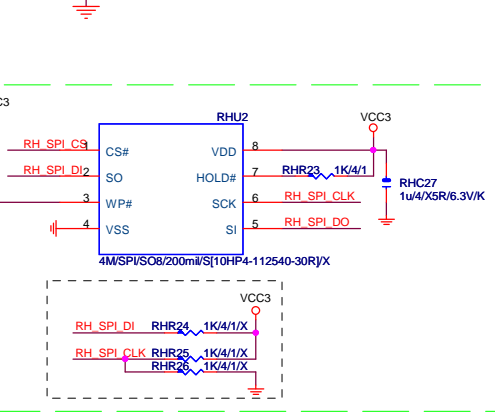
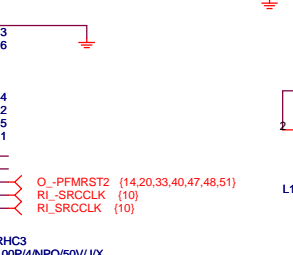
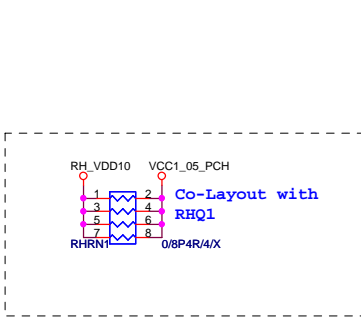
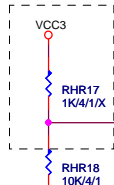
Anti Spike



Linear SYS_FAN




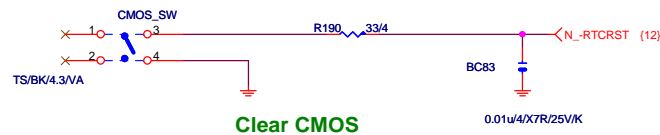
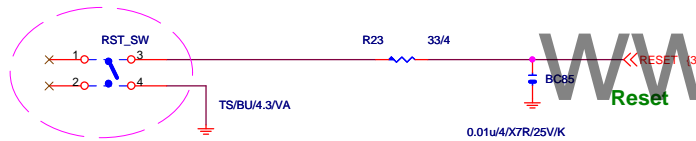
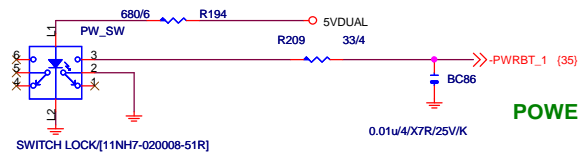
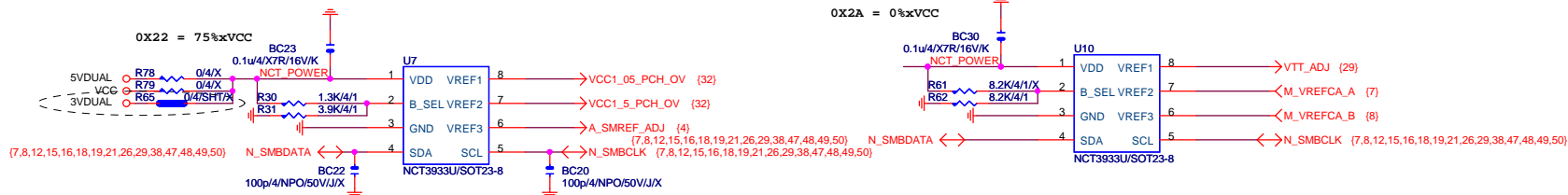
GIGABYTE™			
Title HWM, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-Z87X-UD5 TH	1.1	
Date:	Tuesday, December 31, 2013	Sheet	39 of 56



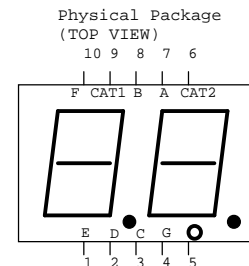
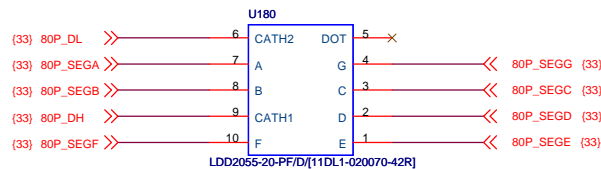
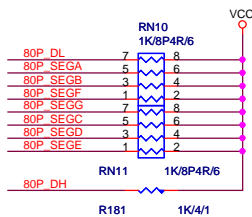
90 歐姆:[15/4.5/7.5/4.5/15]

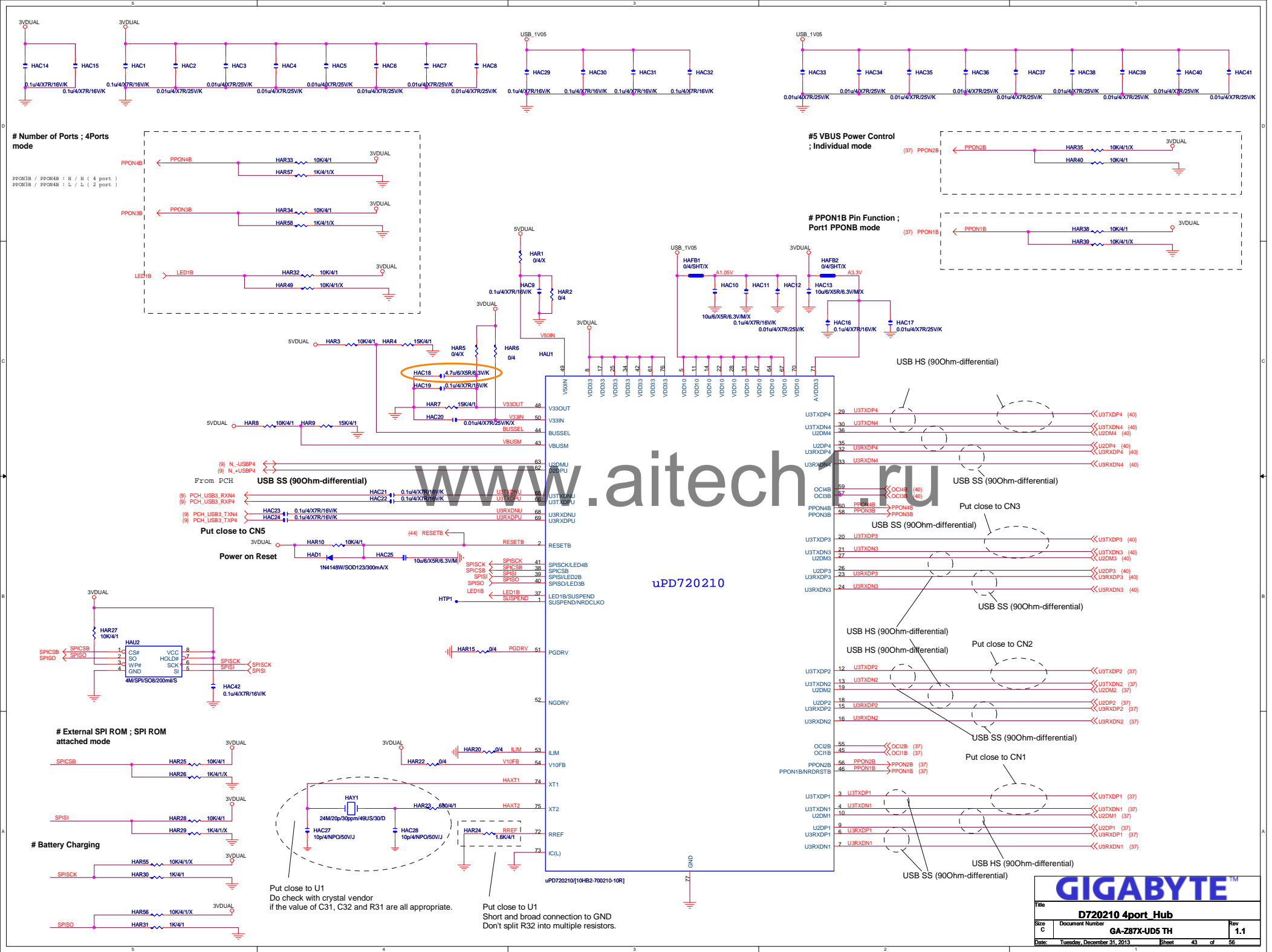
Marvell 9172 Power Requirements
Analog 1.8V 230mA
Core 1.0V 900mA
I/O 3.3V 50mA

			
Title Marvell 9172 SATA 3.0			
Size Custom	Document Number GA-Z87X-UD5 TH		Rev 1.1
Date: Tuesday, December 31, 2013	Sheet 41	of 56	



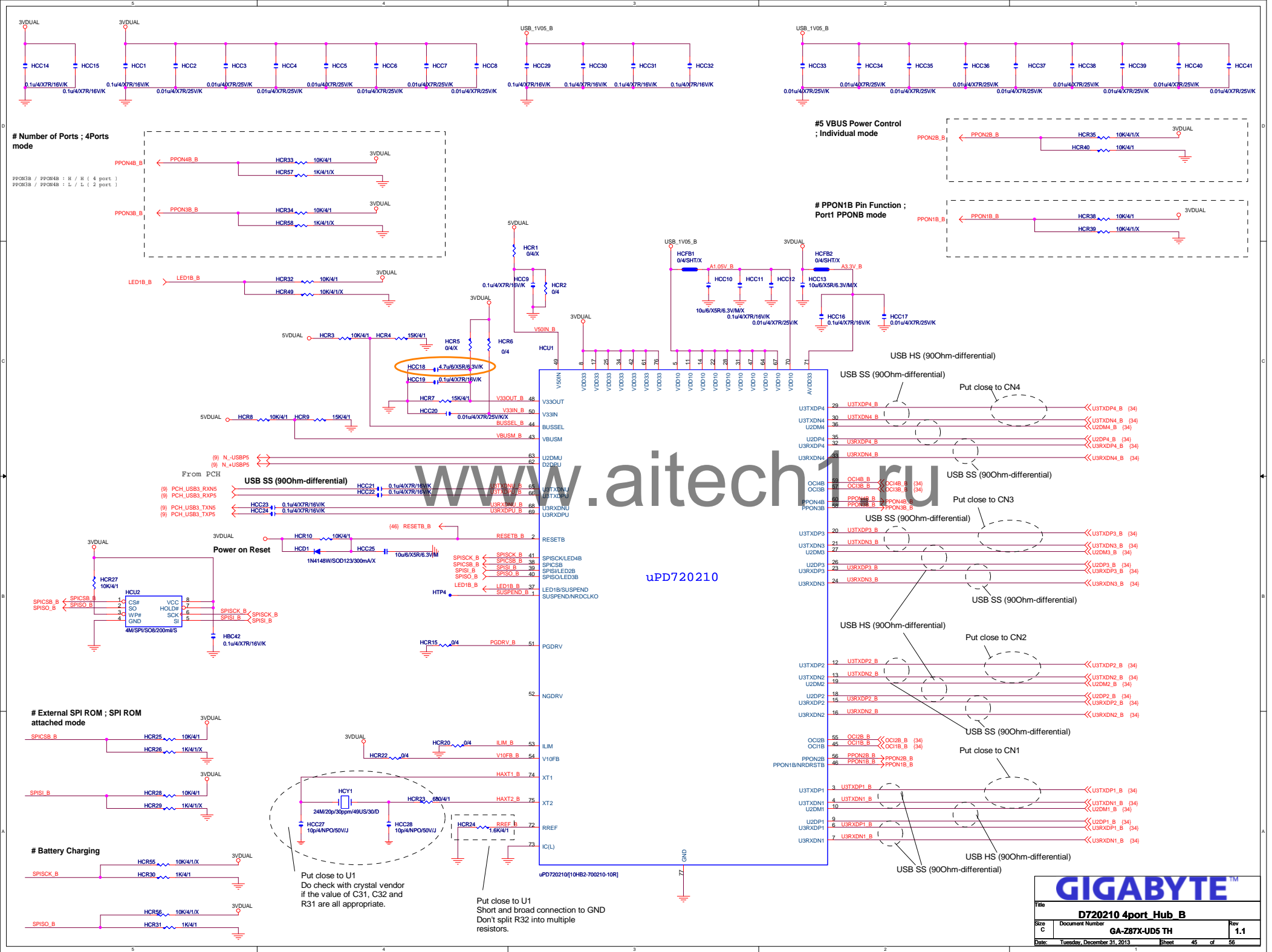
80 PORT



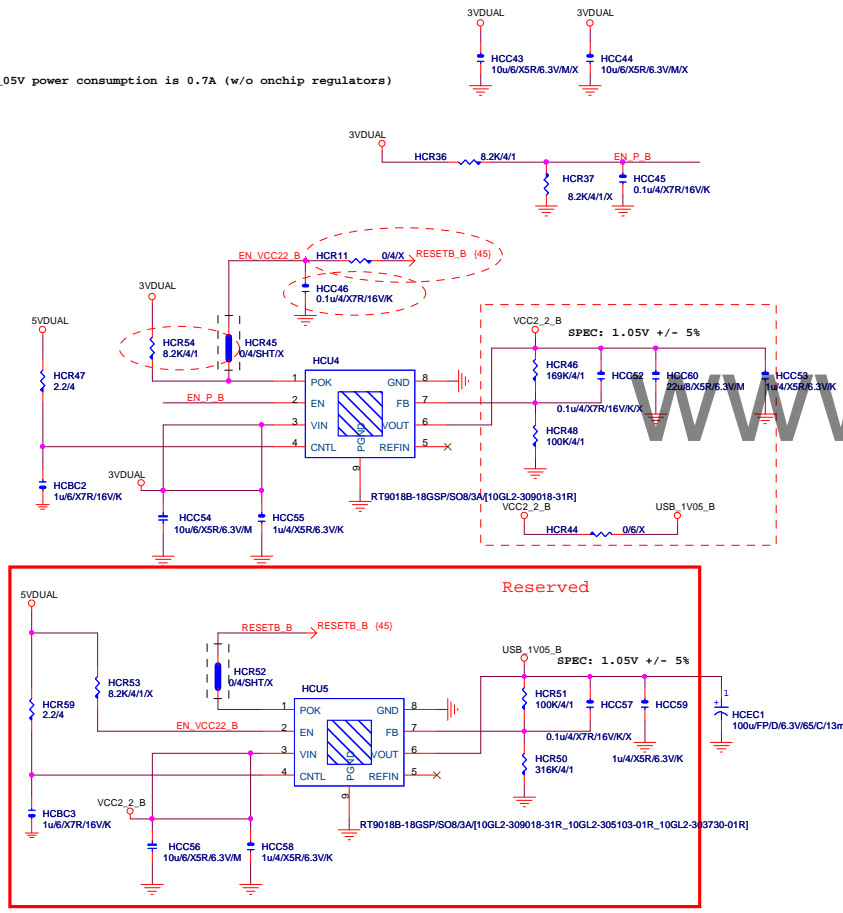


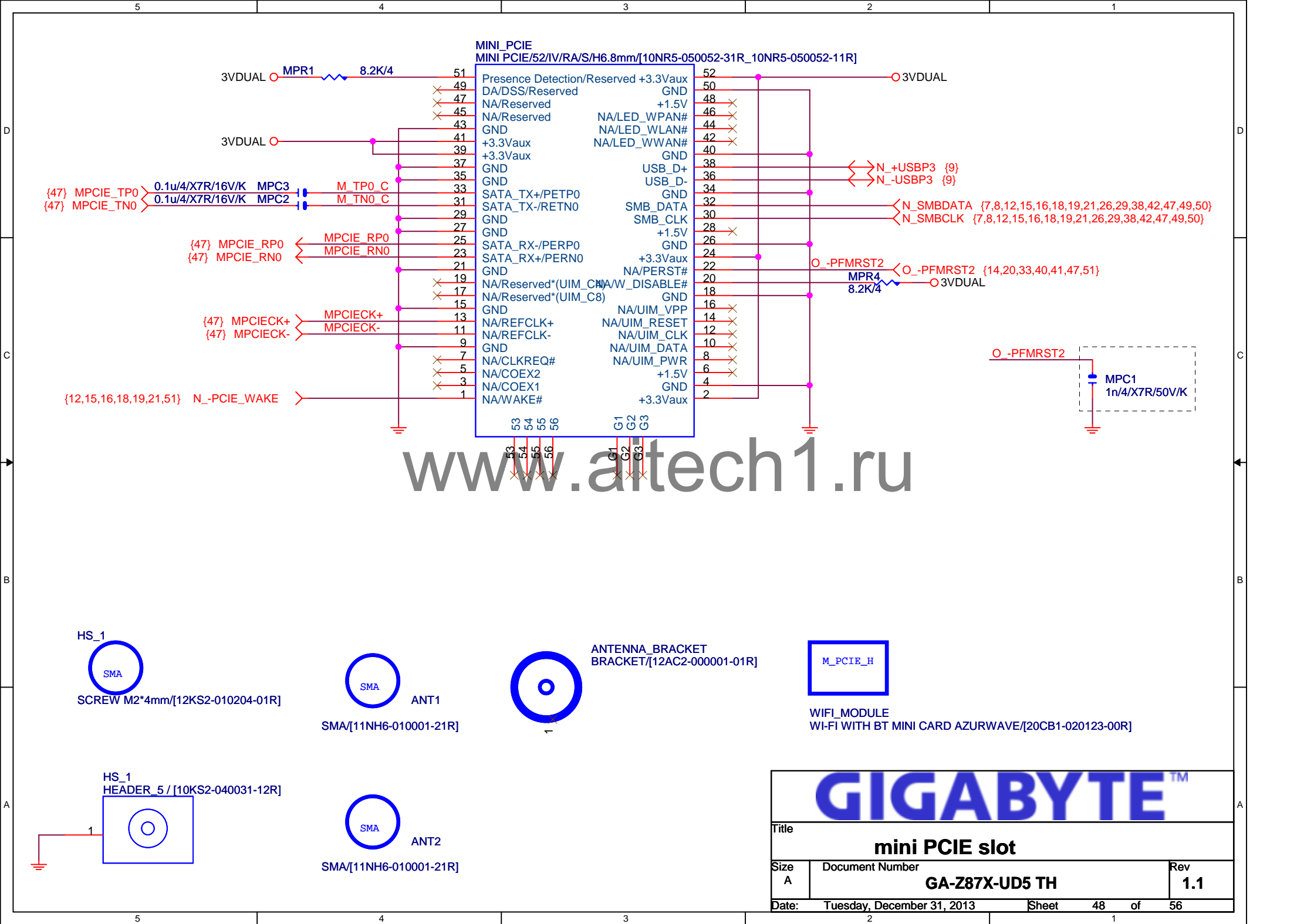
www.aitech1.ru

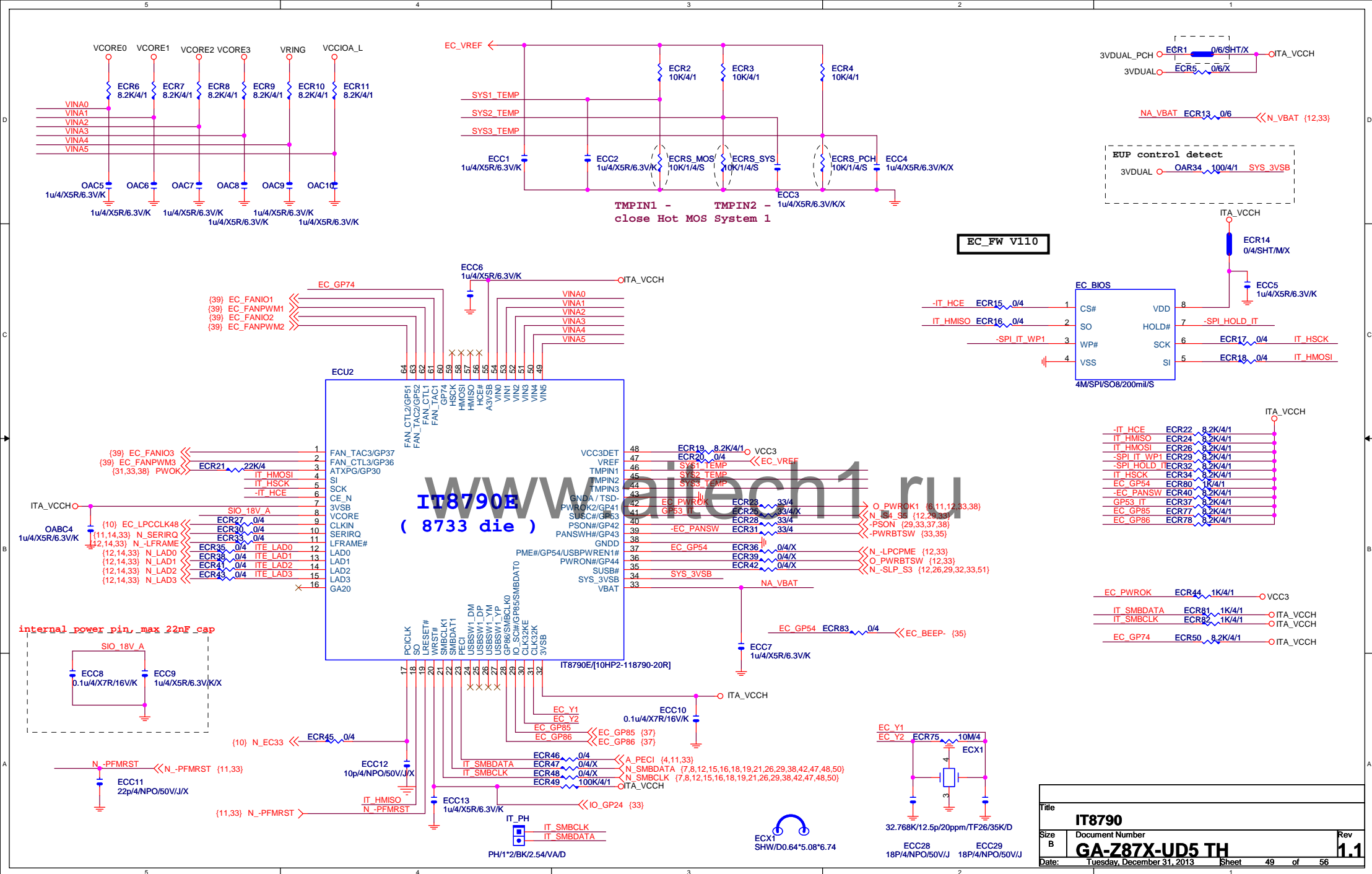




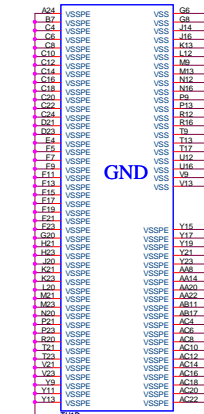
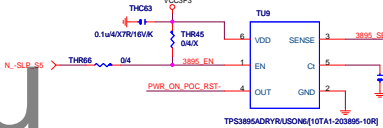
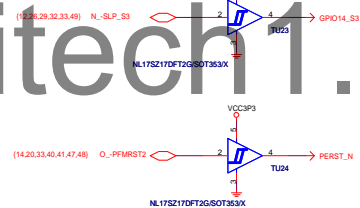
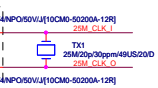
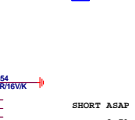
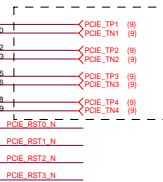
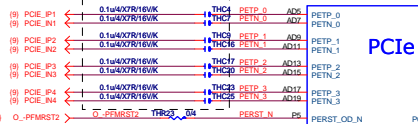
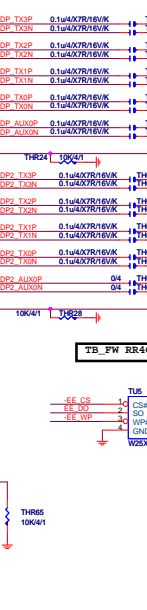
USB1_05V power consumption is 0.7A (w/o onchip regulators)

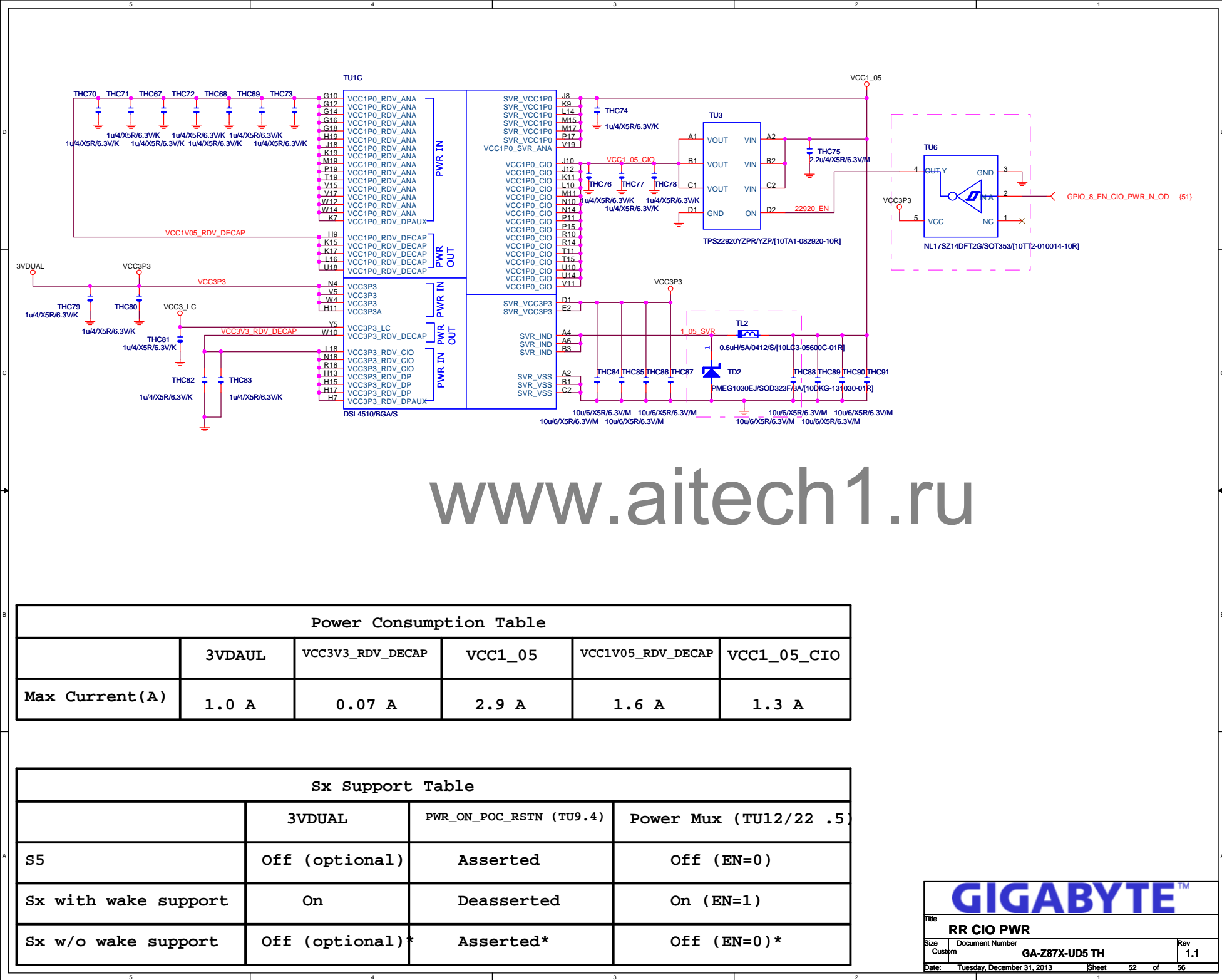


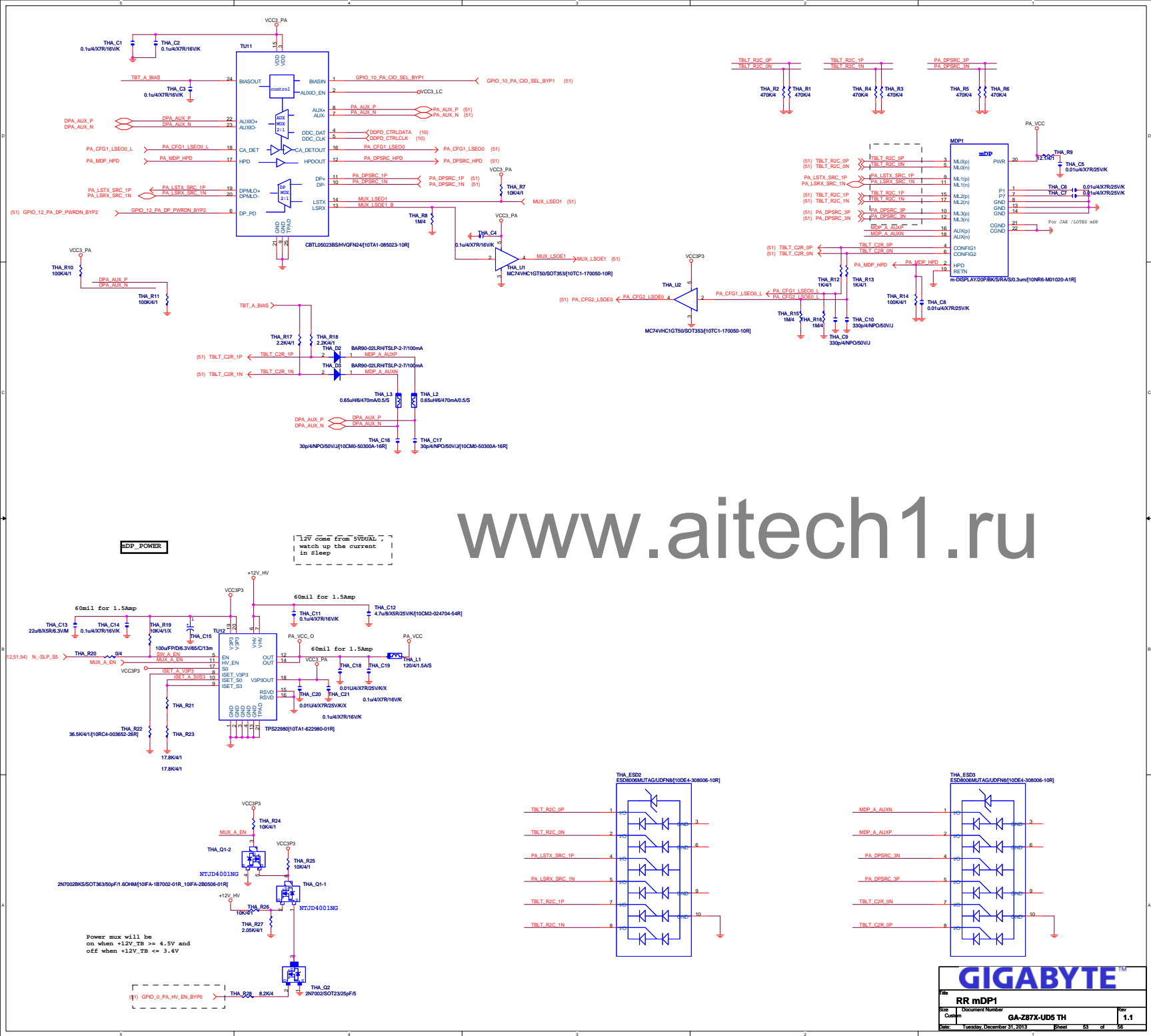


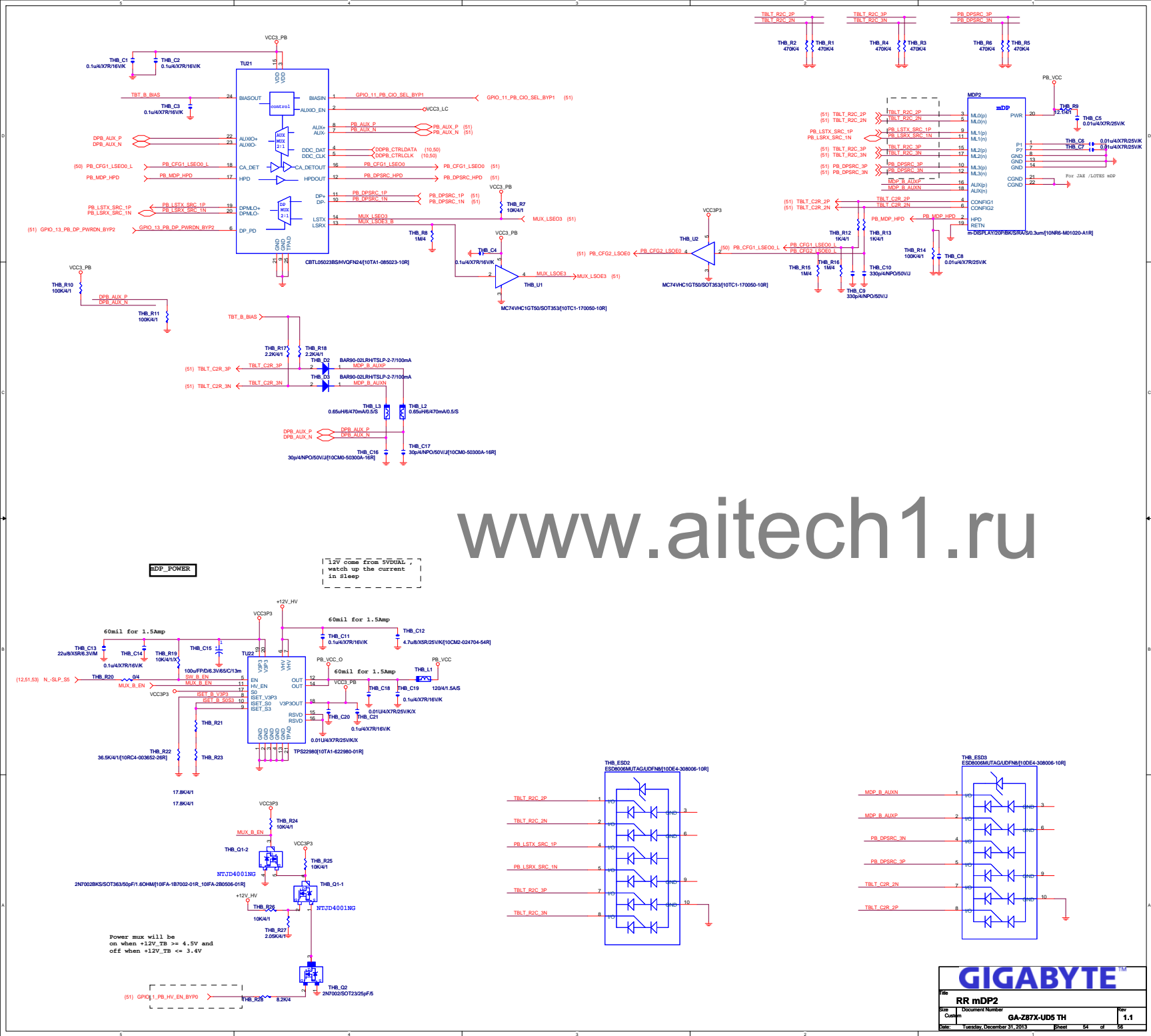


LINE	CIO	DP
1	PA.DPSRC_3,N	DPSRC0_3,N
2	PA.DPSRC_3,N	DPSRC0_3,N
3	PA.DPSRC_1,P	DPSRC0_2,N
4	PA.DPSRC_1,N	DPSRC0_2,N
5	PA.AUX,P	DPSRC0_1,N
6	PA.AUX,N	DPSRC0_1,N
7	PA.DPSRC_HPD	DPSRC0_0,N
8	PA.DIOC_TX,P_DPSRC_0,P	DPSRC0_AUX,P
9	PA.DIOC_TX,N_DPSRC_0,N	DPSRC0_AUX,N
10	PA.DIOC_RX,P	DPSRC0_HPD,N
11	PA.DIOC_RX,N	
12	PA.CONFIG2_CIO_0,LSE0	
13	PA.CONFIG2_CIO_0,LSE0	
14	PA.CIO_TX,P_DPSRC_2,P	DPSRC1_3,N
15	PA.CIO_TX,N_DPSRC_2,N	DPSRC1_3,N
16	PA.CIO_RX,P	DPSRC1_2,N
17	PA.CIO_RX,N	DPSRC1_2,N
18	PA.LSTRX_CIO_1,LSE0	DPSRC1_1,N
19	PA.LSRX_CIO_1,LSE0	DPSRC1_0,N
20	GPI0_0_PA_HV_EN_BYP0	DPSRC1_AUX,P
21	GPI0_10_PA_CIO_SEL_BYP1	DPSRC1_AUX,N
22	GPI0_12_PA_DP_PWRDN_BYP2	DPSRC1_HPD,N
23	PBL.DPSRC_3,P	
24	PBL.DPSRC_3,N	
25	PBL.DPSRC_1,P	DPSRC2_3,N
26	PBL.DPSRC_1,N	DPSRC2_3,N
27	PBL.AUX,P	DPSRC2_2,N
28	PBL.AUX,N	DPSRC2_2,N
29	PBL.DPSRC_HPD	DPSRC2_1,N
30	PBL.DIOC_TX,P_DPSRC_0,P	DPSRC2_0,N
31	PBL.DIOC_TX,N_DPSRC_0,N	DPSRC2_0,N
32	PBL.DIOC_RX,P	DPSRC2_AUX,P
33	PBL.DIOC_RX,N	DPSRC2_AUX,N
34	PBL.CONFIG1_CIO_2,LSE0	DPSRC2_HPD,CIO_0,N
35	PBL.CONFIG2_CIO_2,LSE0	
36	PBL.CIO_TX,P_DPSRC_2,P	
37	PBL.CIO_TX,N_DPSRC_2,N	
38	PBL.CIO_RX,P	
39	PBL.CIO_RX,N	
40	PBL.LSTRX_CIO_3,LSE0	
41	PBL.LSRX_CIO_3,LSE0	
42	GPI0_1_PBL_HV_EN_BYP0	
43	GPI0_11_PBL_CIO_SEL_BYP1	
44	GPI0_13_PBL_DP_PWRDN_BYP2	



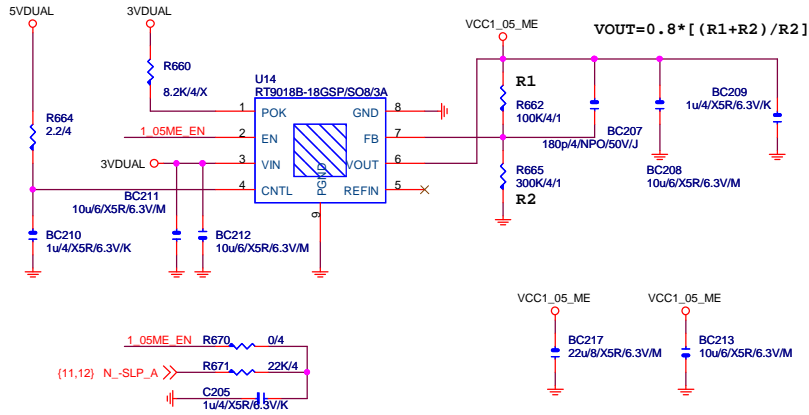




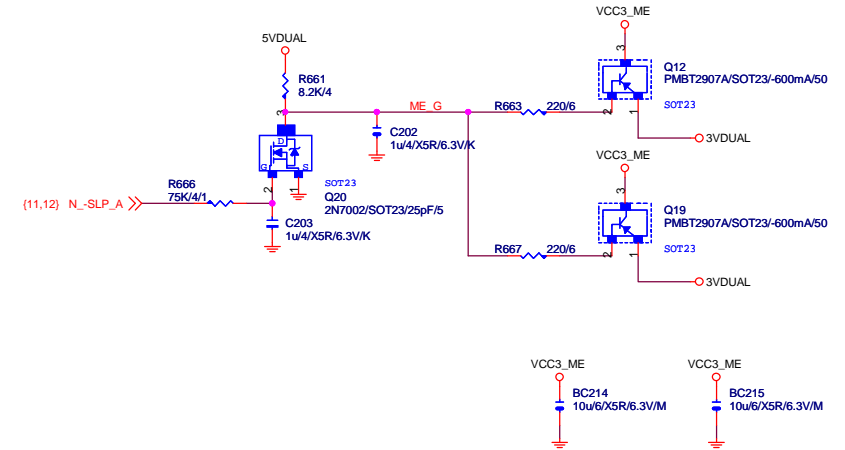


VCC1_05_ME

【技術通報R&D技術通報156】
(RICHTER), (NUVOTON), (EMC)做共用
PIN7分壓阻值須做修改為100K以上電阻值



VCC3_ME



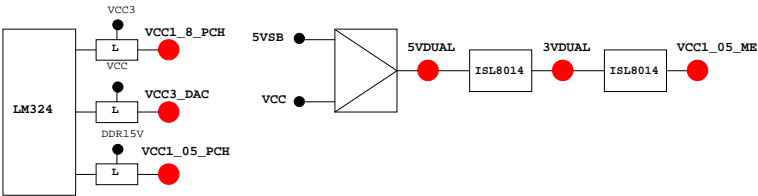
www.aitech1.ru

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	

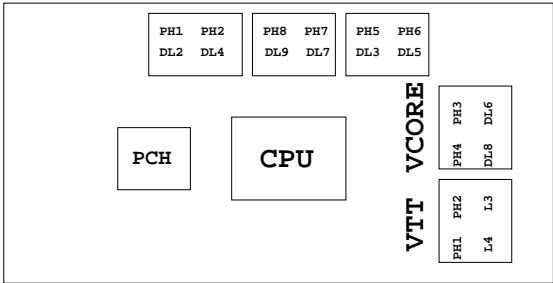
Super I/O ITE8720 GPIO Table

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/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/SEN	LOW_PWR_1	
VID05/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	
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/SMB_C_R	SE PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBT5W	
KDAT/GP61	-PWRBT5W	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRT2X/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_CLT15/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_AVREF_CA_B	DRAM Address Ref
VREF_DQ_AVREF_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

GIGABYTE™			
TABLE LIST			
Size C	Document Number	Rev	1.1
GA-Z87X-UD5 TH			
Date:	Tuesday, December 31, 2013	Sheet	56 of 56