

Model Name: GA-Z87MX-D3H

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE
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*8 SLOT
16	PCI EXPRESS X8 SWITCH
17	PCI EXPRESS X1/X4 SLOTS
18	ITE8728 LPC IO
19	COM, LPT, -PROHOT,RUSB,KB/MS
20	BIOS , TPM
21	IR 3564-PWM
22	IR VCORE & DDR15V
23	CODEC ALC892
24	REAR AUDIO JACK
25	DISCRETE POWER & USB OV PROTECT
26	FP , FUSB
27	ATX ,CLOCK GEN , M3 POWER

SHEET TITLE

28	HWM,FAN CTRL
29	PCH HDMI/DP
30	INTEL i217 PHY

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Gigabyte Technology

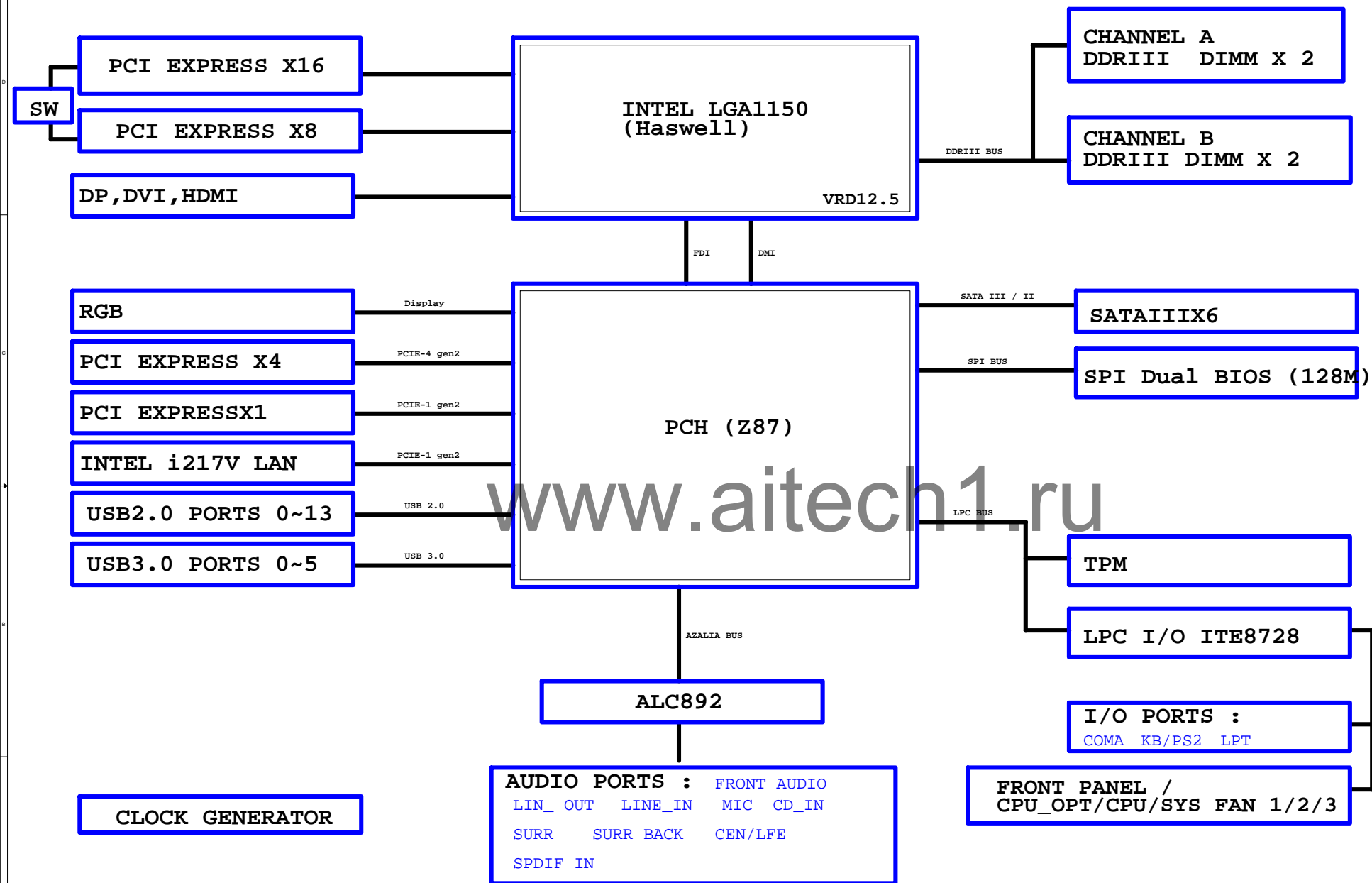
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Size	Document Number	Rev
Custom	GA-Z87MX-D3H	1.0
Date:	Tuesday, April 16, 2013	Sheet 1 of 30

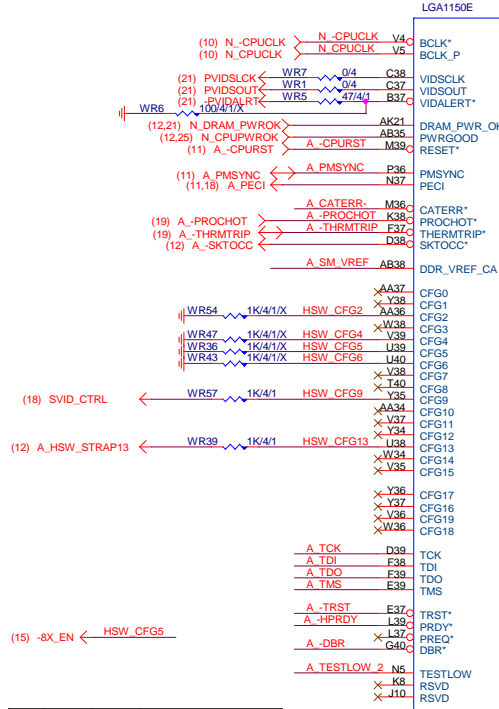
Component value change history

Circuit or PCB layout change

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BLOCK DIAGRAM

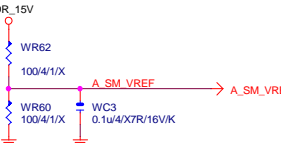




CFG	R	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NOHM	Reverse	LANE REVERSAL[0..x16]
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
5	RSVD	RSVD	RSVD
6	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

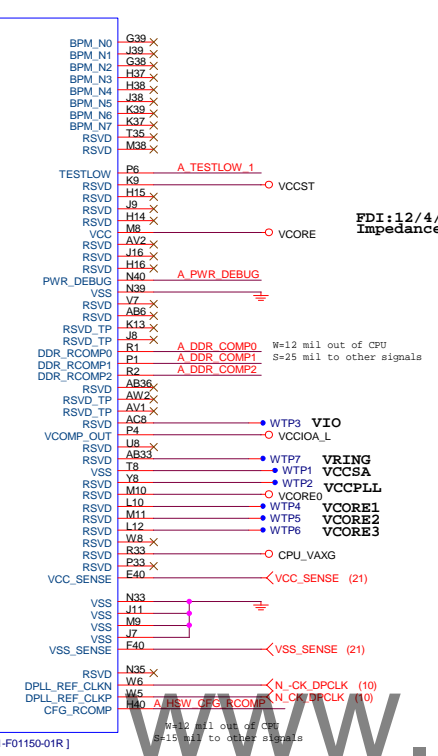
CFG6	CFG5	PCI8 CONFIG
1	1	1x16 / Default
0	0	2x8
0	1	RSVD
0	0	2x8, 2x4, 2x4

CFG 0-17 all internal PULL-UP



CFG6	CFG5	PCI8 CONFIG
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0	0	2x8
0	1	RSVD
0	0	2x8, 2x4, 2x4

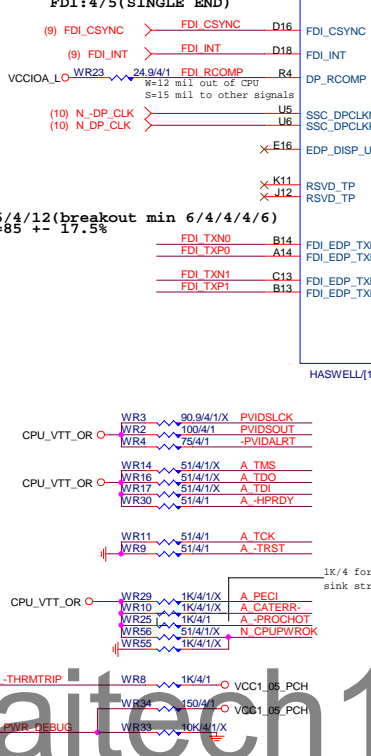
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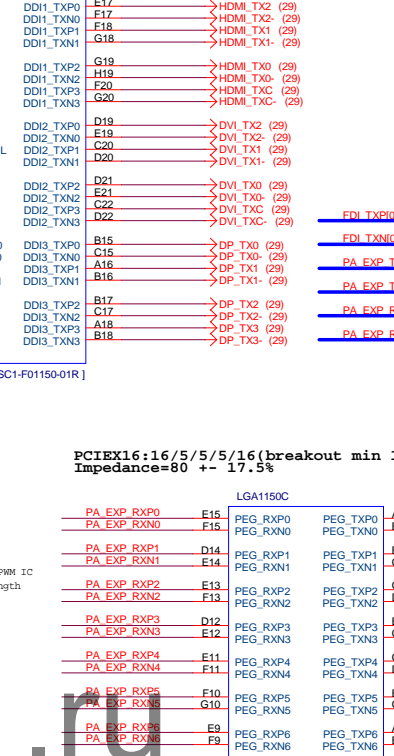
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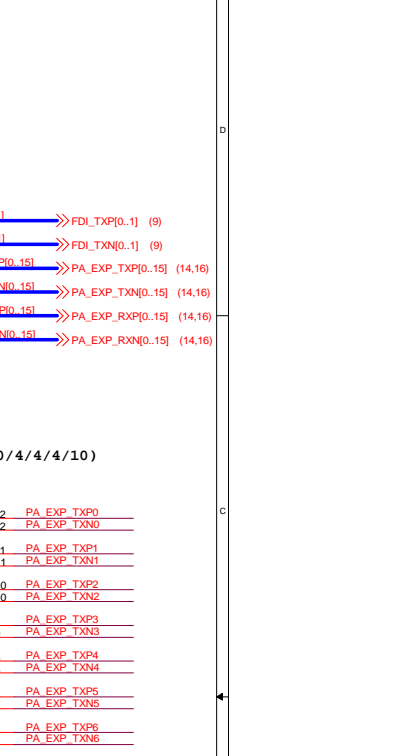
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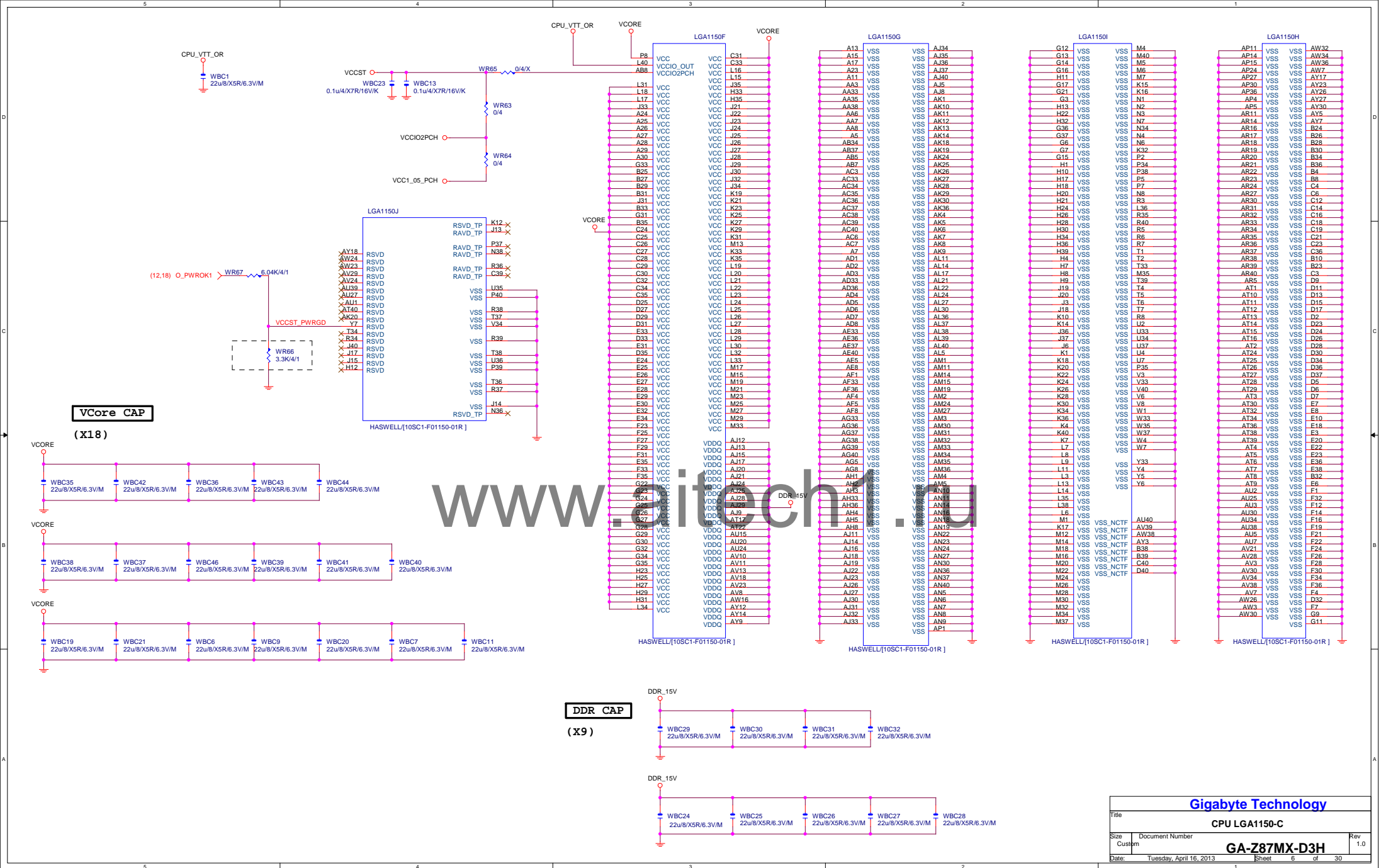


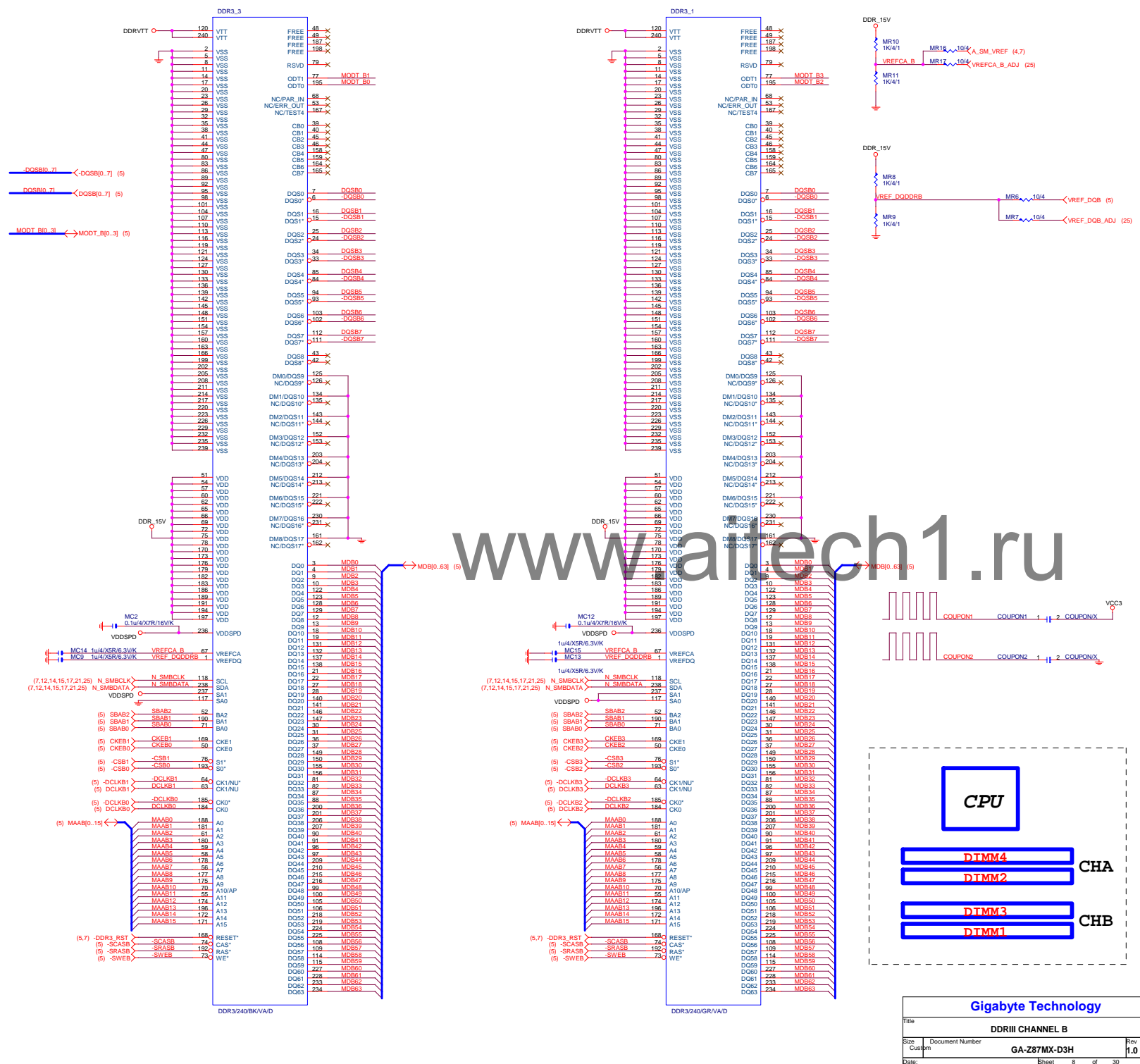
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CFG 0-17 all internal PULL-UP

LGA1150A					
MAAA0	AU13	DDR0_MA0	DDR0_DQ0	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_DQ1	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_DQ2	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_DQ3	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_DQ4	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_DQ5	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_DQ6	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_DQ7	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_DQ8	AD40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_DQ9	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_DQ10	AK38	MDA11
MAAA11	AV19	DDR0_MA11	DDR0_DQ11	AK39	MDA12
MAAA12	AU19	DDR0_MA12	DDR0_DQ12	AH37	MDA12
MAAA13	AY10	DDR0_MA13	DDR0_DQ13	AH38	MDA8
MAAA14	AT20	DDR0_MA14	DDR0_DQ14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_DQ15	AK40	MDA15
MODT_A0	AW10	DDR0_ODT0	DDR0_DQ16	AM40	MDA17
MODT_A1	AY8	DDR0_ODT1	DDR0_DQ17	AM38	MDA21
MODT_A2	AW9	DDR0_ODT2	DDR0_DQ18	AP38	MDA18
MODT_A3	AU8	DDR0_ODT3	DDR0_DQ19	AP39	MDA19
			DDR0_DQ20	AM37	MDA20
			DDR0_DQ21	AP37	MDA22
			DDR0_DQ22	AP40	MDA23
	AW33	DDR0_ECC0	DDR0_DQ23	AV31	MDA25
	AV33	DDR0_ECC1	DDR0_DQ24	AW37	MDA29
	AU31	DDR0_ECC2	DDR0_DQ25	AK38	MDA26
	AW31	DDR0_ECC3	DDR0_DQ26	AV35	MDA27
	AT33	DDR0_ECC4	DDR0_DQ27	AT37	MDA27
	AT33	DDR0_ECC5	DDR0_DQ28	AV37	MDA28
	AW31	DDR0_ECC6	DDR0_DQ29	AT35	MDA30
		DDR0_ECC7	DDR0_DQ30	AW36	MDA33
			DDR0_DQ31	AW35	MDA30
SBA40	AV12	DDR0_BA0	DDR0_DQ32	AV36	MDA33
SBA41	AY11	DDR0_BA1	DDR0_DQ33	AU36	MDA37
SBA42	AT21	DDR0_BA2	DDR0_DQ34	AY4	MDA34
			DDR0_DQ35	AY4	MDA35
CKEA0	AV22	DDR0_CK0	DDR0_DQ36	AW6	MDA36
CKEA1	AT23	DDR0_CK1	DDR0_DQ37	AW6	MDA36
CKEA2	AU22	DDR0_CK2	DDR0_DQ38	AW4	MDA38
CKEA3	AU23	DDR0_CK3	DDR0_DQ39	AW4	MDA38
			DDR0_DQ40	AR1	MDA41
CSA0	AU14	DDR0_CS_0	DDR0_DQ41	AR4	MDA43
CSA1	AV9	DDR0_CS_1	DDR0_DQ42	AR1	MDA42
CSA2	AU10	DDR0_CS_2	DDR0_DQ43	AR2	MDA43
CSA3	AW8	DDR0_CS_N3	DDR0_DQ44	AR4	MDA44
			DDR0_DQ45	AR3	MDA40
DCLKA0	AY15	DDR0_CLK_P0	DDR0_DQ46	AN2	MDA46
DCLKA0	AY16	DDR0_CLK_N0	DDR0_DQ47	AN1	MDA47
DCLKA1	AW15	DDR0_CLK_P1	DDR0_DQ48	AL4	MDA49
DCLKA2	AV15	DDR0_CLK_N1	DDR0_DQ49	AJ3	MDA50
DCLKA2	AW14	DDR0_CLK_P2	DDR0_DQ50	AJ4	MDA51
DCLKA3	AW13	DDR0_CLK_P3	DDR0_DQ51	AJ2	MDA52
DCLKA3	AY13	DDR0_CLK_N3	DDR0_DQ53	AJ2	MDA54
	AW12	RSVD	DDR0_DQ54	AJ1	MDA55
			DDR0_DQ55	AG1	MDA57
			DDR0_DQ56	AG4	MDA61
			DDR0_DQ57	AE1	MDA58
			DDR0_DQ58	AE4	MDA59
			DDR0_DQ59	AE2	MDA60
			DDR0_DQ60	AG3	MDA56
			DDR0_DQ61	AG3	MDA56
			DDR0_DQ62	AE1	MDA63
			DDR0_DQ63	AJ9	QD5A0
			DDR0_DQ64	AJ9	QD5A1
			DDR0_DQ65	AV36	QD5A2
			DDR0_DQ66	AV36	QD5A3
			DDR0_DQ67	AE5	QD5A4
			DDR0_DQ68	AP3	QD5A5
			DDR0_DQ69	AP3	QD5A6
			DDR0_DQ70	AP3	QD5A7
			DDR0_DQ71	AE32	QD5A8
			DDR0_DQ72	AE32	QD5A8
			DDR0_DQ73	AJ38	QD5A2
			DDR0_DQ74	AJ38	QD5A3
			DDR0_DQ75	AW5	QD5A4
			DDR0_DQ76	AP2	QD5A5
			DDR0_DQ77	AP2	QD5A7
			DDR0_DQ78	AP2	QD5A7
			DDR0_DQ79	AP2	QD5A7
			DDR0_DQ80	AP2	QD5A7
			DDR0_DQ81	AP2	QD5A7
			DDR0_DQ82	AP2	QD5A7
			DDR0_DQ83	AP2	QD5A7
			DDR0_DQ84	AP2	QD5A7
			DDR0_DQ85	AP2	QD5A7
			DDR0_DQ86	AP2	QD5A7
			DDR0_DQ87	AP2	QD5A7
			DDR0_DQ88	AP2	QD5A7
			DDR0_DQ89	AP2	QD5A7
			DDR0_DQ90	AP2	QD5A7
			DDR0_DQ91	AP2	QD5A7
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			DDR0_DQ256	AP2	QD5A7
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			DDR0_DQ259	AP2	QD5A7
			DDR0_DQ260	AP2	QD5A7
			DDR0_DQ261	AP2	QD5A7
			DDR0_DQ262	AP2	QD5A7
			DDR0_DQ263	AP2	QD5A7
			DDR0_DQ264	AP2	QD5A7





PCHE

USB

Bač



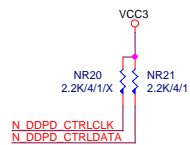
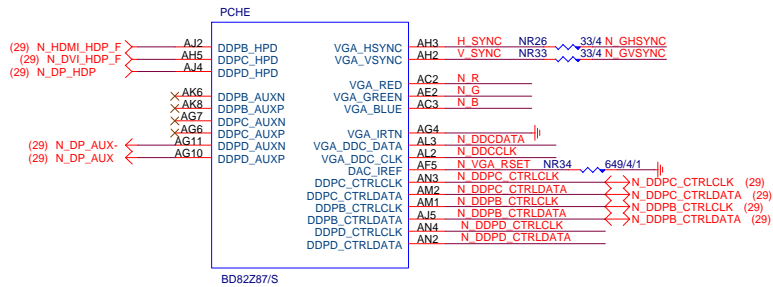
放靠



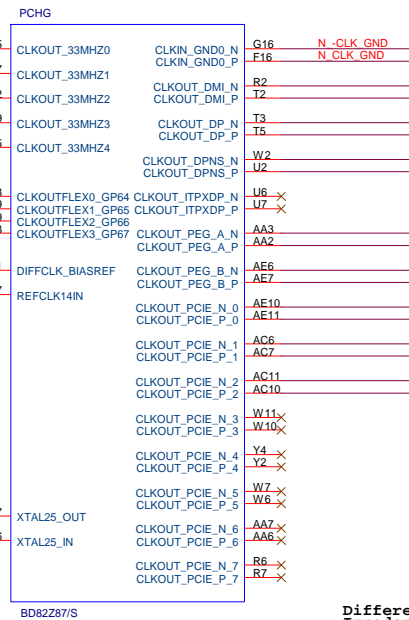
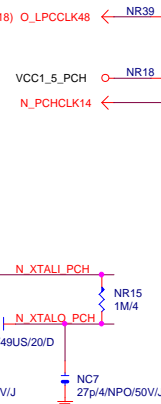
Gio

Title

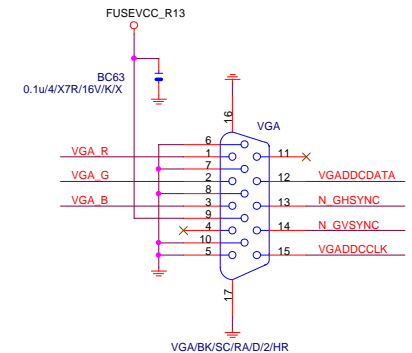
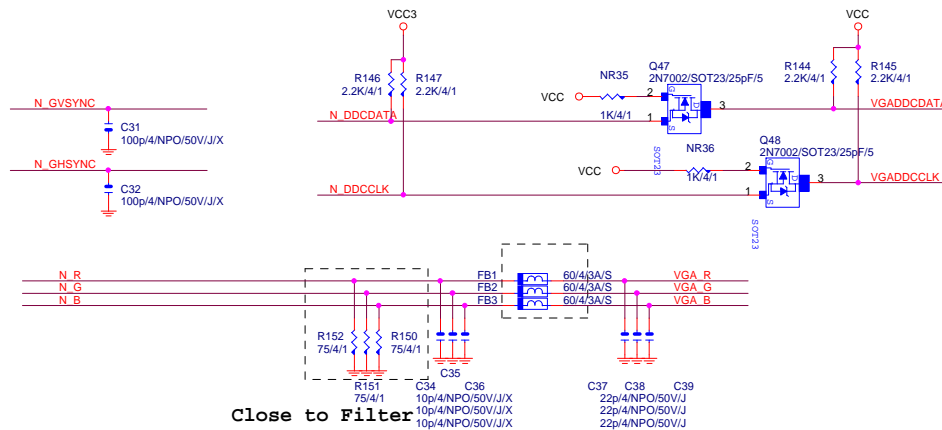
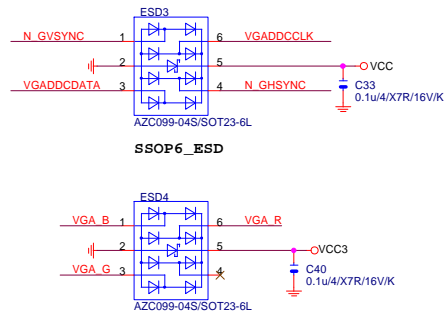
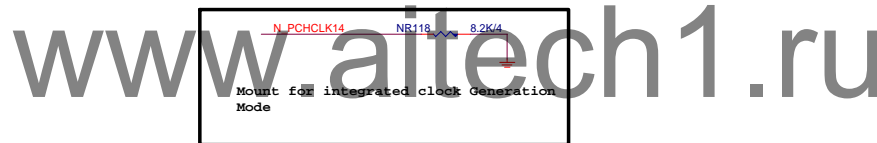
DMI



Flex1,2,3,4 :
14/24/33/48MHZ



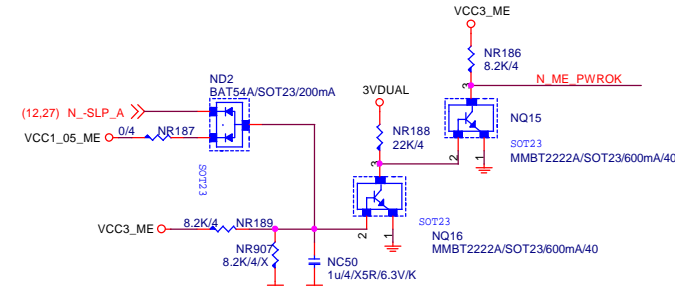
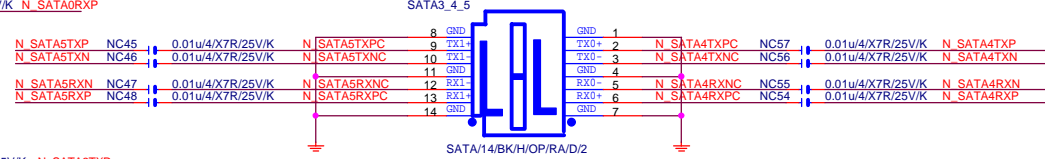
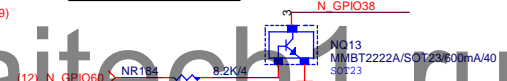
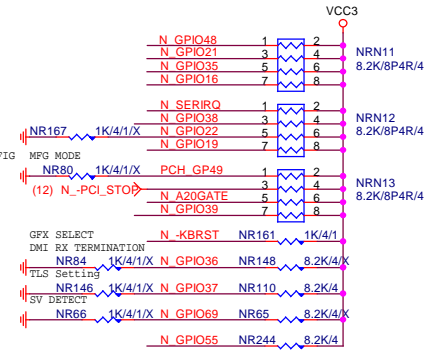
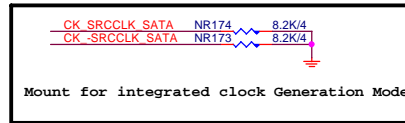
Differential Clock:18/4/6/4/18
Impedance=90 +- 15%



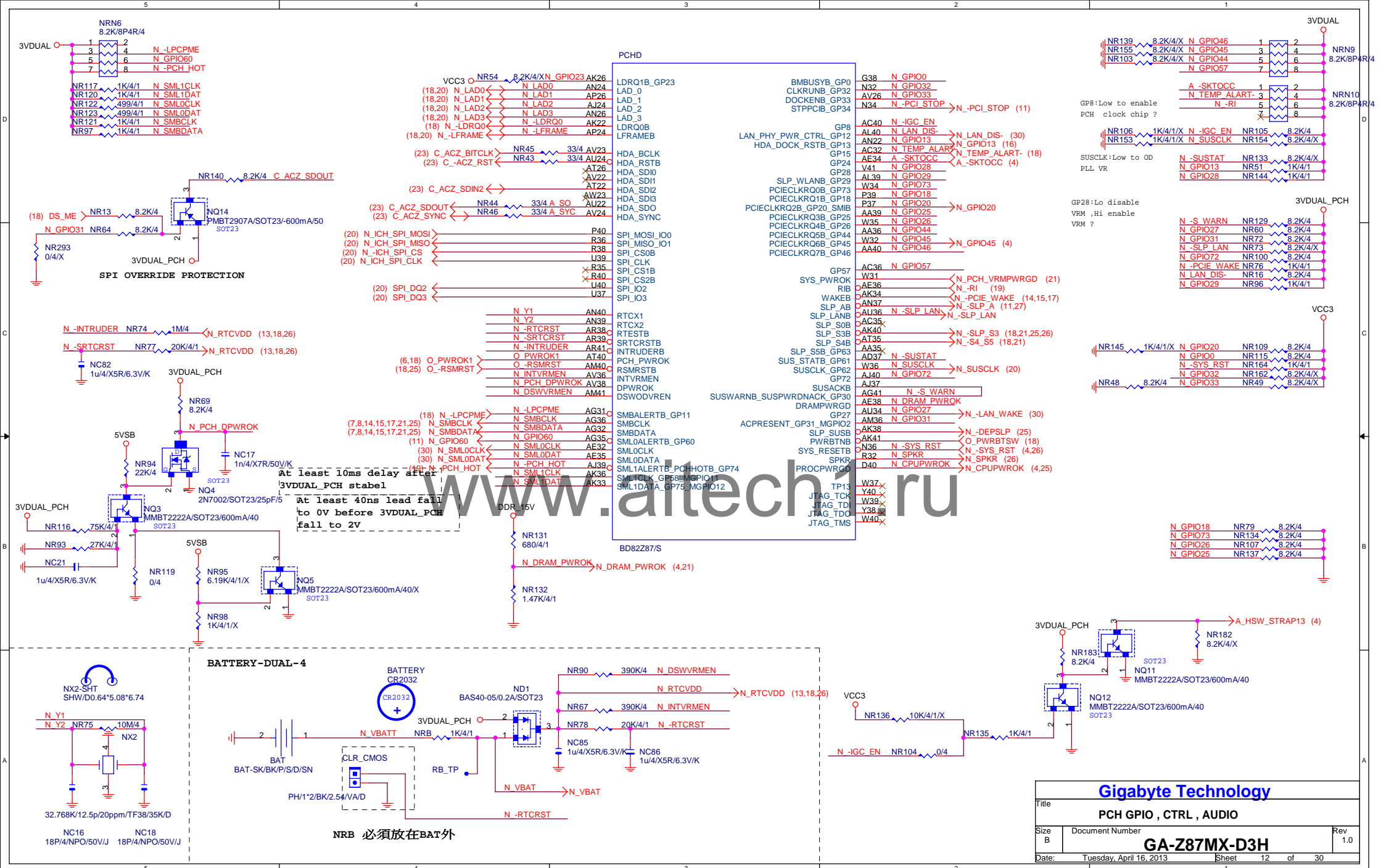
Gigabyte Technology			
Title			
PCH VGA ,CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-Z87MX-D3H	1.0	
Date:	Tuesday, April 16, 2013	Sheet	10 of 30

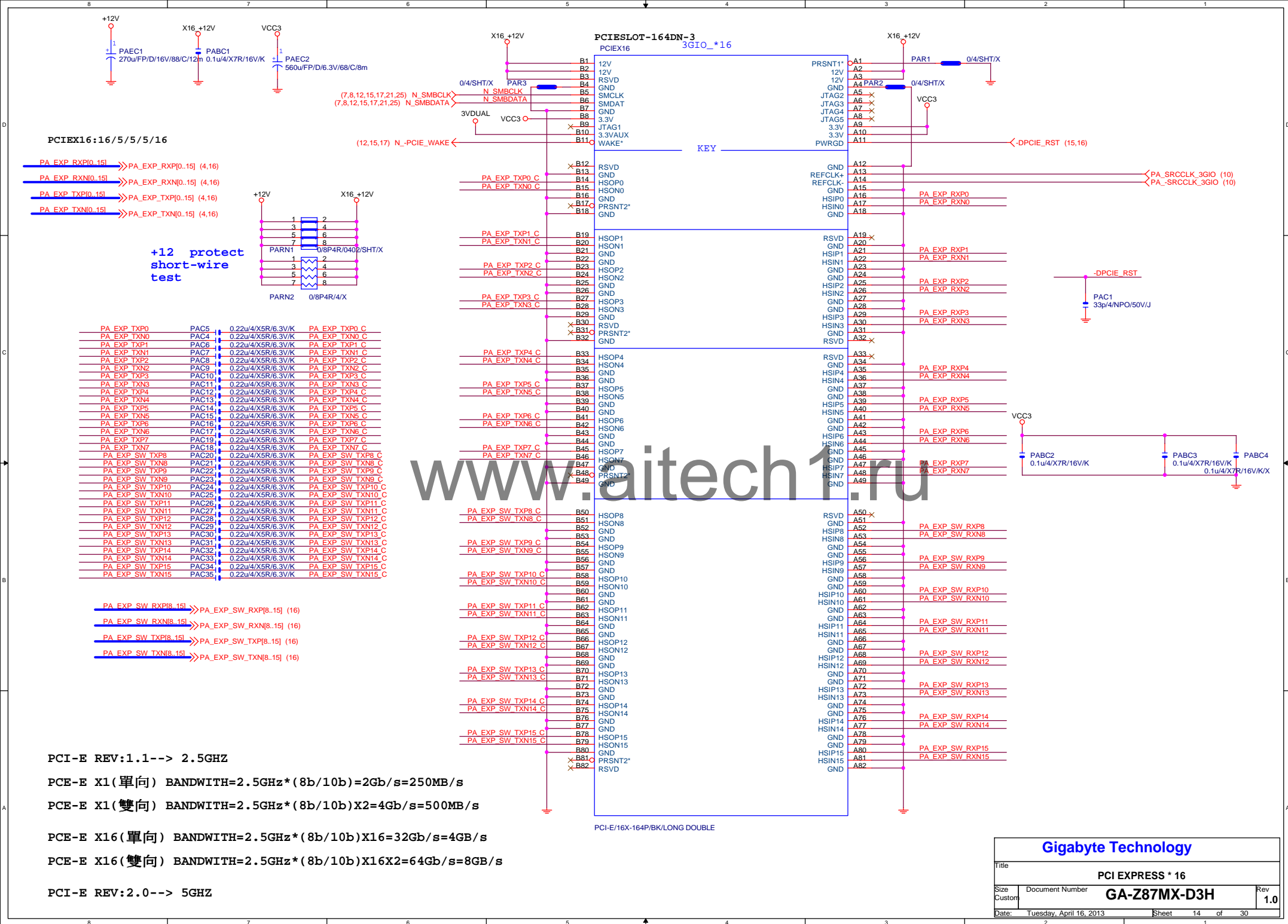
PCHC							
36	CL_CLK	CLINK		SATA_RXN_0	B28	N SATA0RXN	
35	CL_DATA			SATA_RXP_0	A28	N SATA0RX	
34	CL_RSTB			SATA_TXN_0	F31	N SATA0TX	
32	APWROK			SATA_TXP_0	B30	N SATA1RX	
				SATA_RXN_1	C30	N SATA1RX	
				SATA_RXP_1	B34	N SATA1TX	
				SATA_TXN_1	C34	N SATA1TX	
				SATA_TXP_1	B31	N SATA2RX	
		FPM		SATA_RXN_2	A31	N SATA2RX	
31	PWM0			SATA_RXP_2	B35	N SATA2TX	
31	PWM1			SATA_TXN_2	B35	N SATA2TX	
31	PWM2			SATA_TXP_2	B32	N SATA3RX	
30	PWM3			SATA_RXN_3	C32	N SATA3RX	
				SATA_RXP_3	G33	N SATA3TX	
28	TACH0_GP17			SATA_TXN_3	F33	N SATA3TX	
31	TACH1_GP1			SATA_TXP_3	A26	N SATA4RX	
34	TACH2_GP6				B26	N SATA4RX	
34	TACH3_GP7		SATA_RXN_4 PCIE PERM_1	A26	N SATA4RX		
35	TACH4_GP68		SATA_RXP_4 PCIE PERP_1	K28	N SATA4TX		
35	TACH5_GP69		SATA_TXN_4 PCIE PETP_1	C27	N SATA5RX		
			SATA_TXP_4 PCIE PETP_1	B27	N SATA5RX		
31	SSCTCL		SATA_RXN_5 PCIE PERM_2	G28	N SATA5TX		
			SATA_RXP_5 PCIE PERP_2	F28	N SATA5TX		
38	SCLOCK_GP22		SATA_TXN_5 PCIE PETP_2	H35			
41	SLOAD_GP38		SATA_TXP_5 PCIE PETP_2	H36			
41	SDATAOUT0_GP39		CLKIN_SATA_P				
40	SDATAOUT1_GP48		CLKIN_SATA_P				
		GPIO		SATALEDB	OJ39		
				SATA_RCOMP	D33	SATA3COMP	
					M37	N GPIO21	
					J40	N GPIO19	
				SATA0GP_GP21	H40	N GPIO36	
				SATA1GP_GP19	N41	N GPIO37	
				SATA2GP_GP36	M39	N GPIO16	
				SATA3GP_GP37	N40	PCH_GP49	
				SATA4GP_GP16			
				SATA5GP_GP49			
		HOST		EDP_BKLTCTL	AP2	×	
				EDP_BKLTEN	AT2	×	
				EDP_VDDEN	AP1	×	
					N30	N A20GATE	
			RSVD	K36	N -KBRST		
			RCN6	G39	N SERIRQ		
			SERIRO	C40	N -THERMTR		
			THRMTTRIPB	G40	SB PECC		
			PECI	F40			
			PM_SYNCN	F41			
			PLRST_PROCB				

BD82287/S

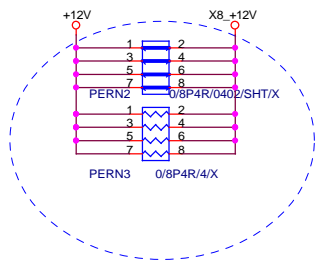


Gigabyte Technology			
Title PCH HOST , SATA, PCI			
Size	Document Number	Rev	
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**+12 protect
short-wire test**



PE EXP SW TXP8	PEC2	0.22u/4/X5R/6.3V/K	PE EXP SW TXP8 C
PE EXP SW TXN8	PEC3	0.22u/4/X5R/6.3V/K	PE EXP SW TXN8 C
PE EXP SW TXP9	PEC4	0.22u/4/X5R/6.3V/K	PE EXP SW TXP9 C
PE EXP SW TXN9	PEC5	0.22u/4/X5R/6.3V/K	PE EXP SW TXN9 C
PE EXP SW TXP10	PEC6	0.22u/4/X5R/6.3V/K	PE EXP SW TXP10 C
PE EXP SW TXN10	PEC7	0.22u/4/X5R/6.3V/K	PE EXP SW TXN10 C
PE EXP SW TXP11	PEC8	0.22u/4/X5R/6.3V/K	PE EXP SW TXP11 C
PE EXP SW TXN11	PEC9	0.22u/4/X5R/6.3V/K	PE EXP SW TXN11 C
PE EXP SW TXP12	PEC10	0.22u/4/X5R/6.3V/K	PE EXP SW TXP12 C
PE EXP SW TXN12	PEC11	0.22u/4/X5R/6.3V/K	PE EXP SW TXN12 C
PE EXP SW TXP13	PEC12	0.22u/4/X5R/6.3V/K	PE EXP SW TXP13 C
PE EXP SW TXN13	PEC13	0.22u/4/X5R/6.3V/K	PE EXP SW TXN13 C
PE EXP SW TXP14	PEC14	0.22u/4/X5R/6.3V/K	PE EXP SW TXP14 C
PE EXP SW TXN14	PEC15	0.22u/4/X5R/6.3V/K	PE EXP SW TXN14 C
PE EXP SW TXP15	PEC16	0.22u/4/X5R/6.3V/K	PE EXP SW TXP15 C
PE EXP SW TXN15	PEC17	0.22u/4/X5R/6.3V/K	PE EXP SW TXN15 C

(16) PE_16_8_SW
(4) -8X_EN

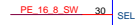
(11) N_GPIO39

PED1
BAT54C/SOT23/200mA

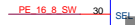
VCC3
PER6
8.2K/4

PCI-E/8X-99P/BK/LONG DOUBLE

Gigabyte Technology		
PCI EXPRESS X 8 PORT		
Title	Document Number	Rev
	GA-Z87MX-D3H	1.0
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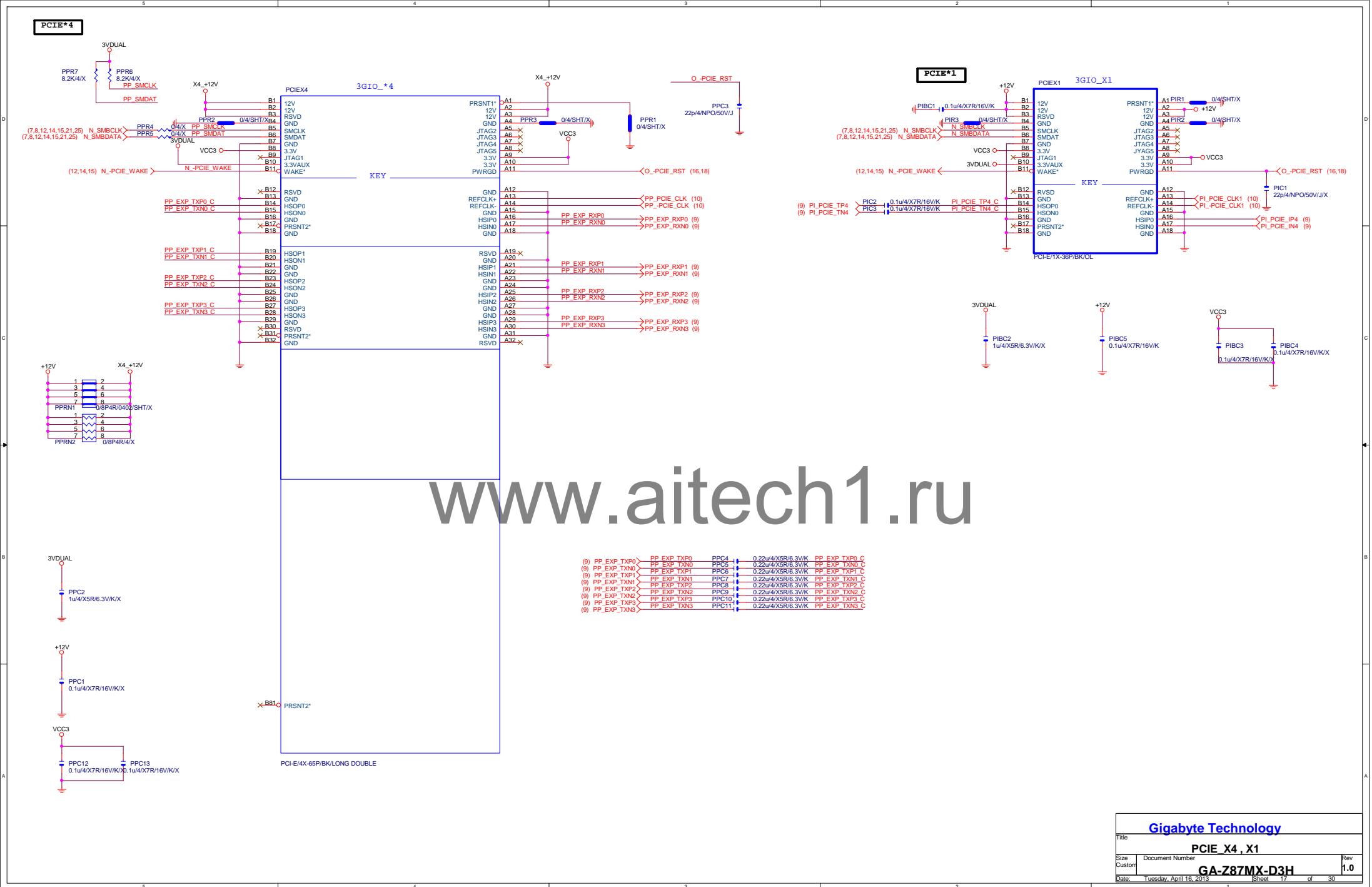
www.aitech.ru

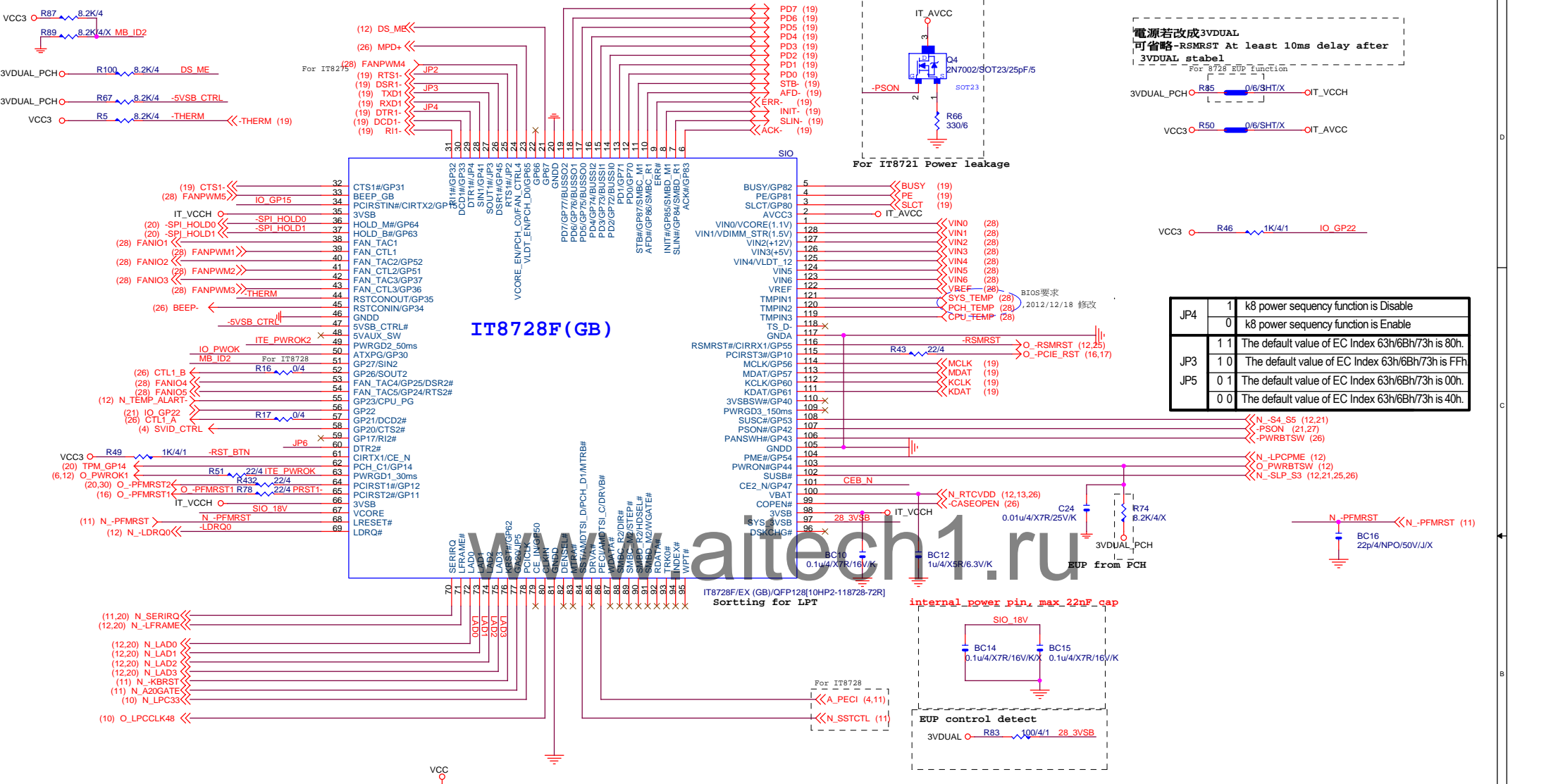


PA_EXP_SW_RXIP[8..15] >> PA_EXP_SW_RXIP[8..15] (14)
PA_EXP_SW_RXIN[8..15] >> PA_EXP_SW_RXIN[8..15] (14)
PA_EXP_SW_TXIP[8..15] >> PA_EXP_SW_TXIP[8..15] (14)
PA_EXP_SW_TXIN[8..15] >> PA_EXP_SW_TXIN[8..15] (14)

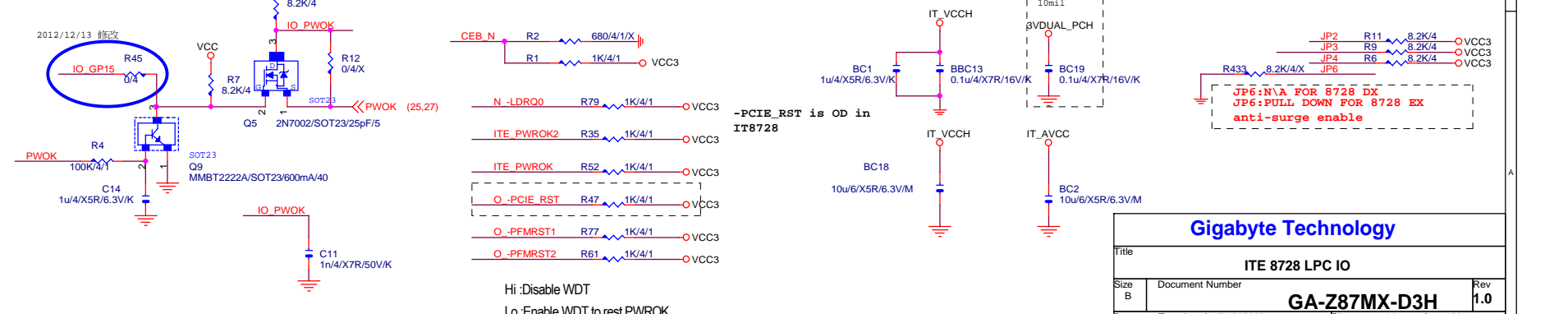
PE_EXP_SW_RXIP[8..15] >> PE_EXP_SW_RXIP[8..15] (15)
PE_EXP_SW_RXIN[8..15] >> PE_EXP_SW_RXIN[8..15] (15)
PE_EXP_SW_TXIP[8..15] >> PE_EXP_SW_TXIP[8..15] (15)
PE_EXP_SW_TXIN[8..15] >> PE_EXP_SW_TXIN[8..15] (15)

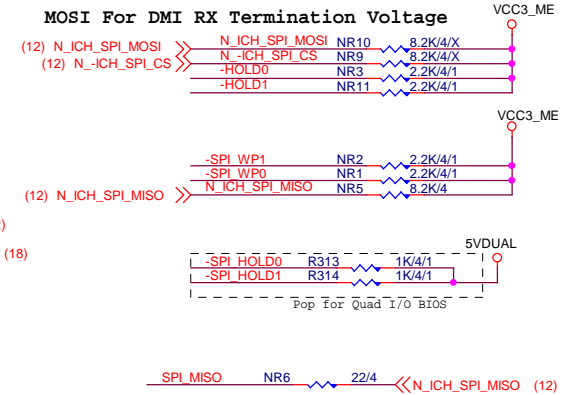
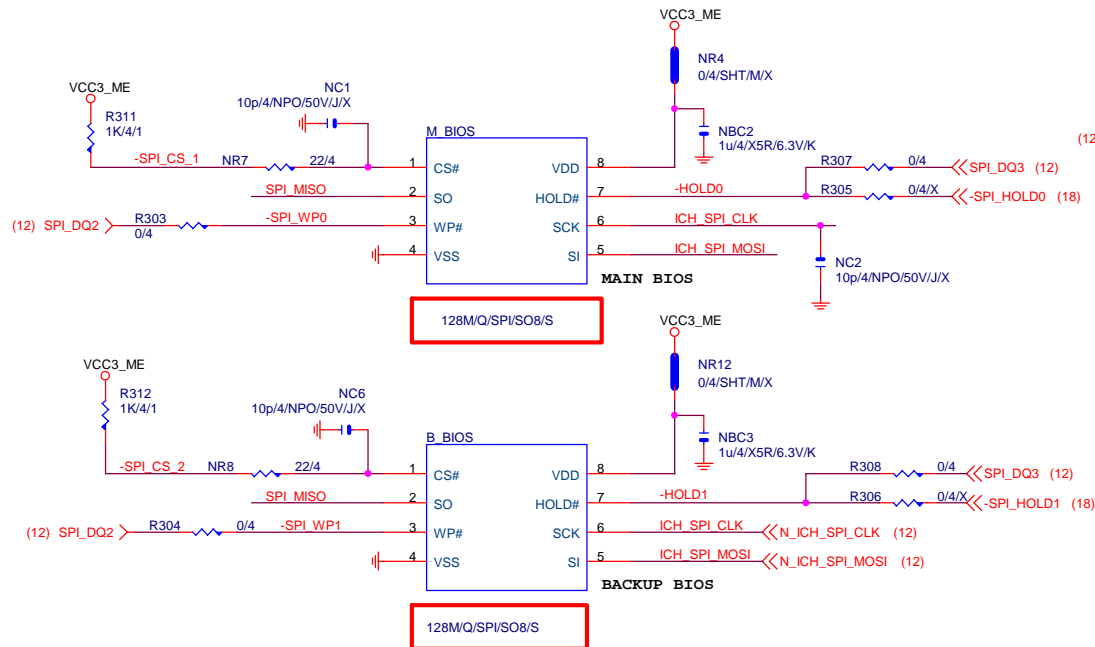
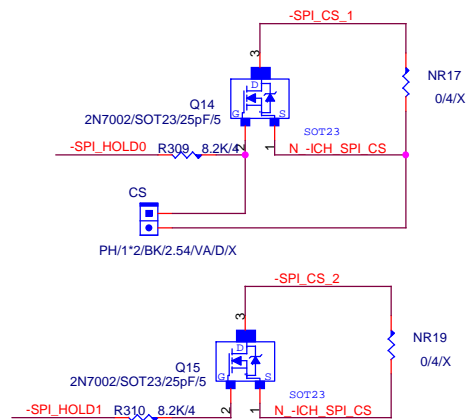






IT8728F NOTE	
	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDI_EN/PCH_D0
PIN19	ATXP
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2 (VCC5)
PIN96	VIN1 (VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

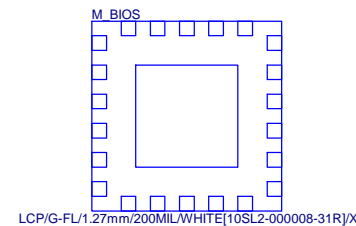
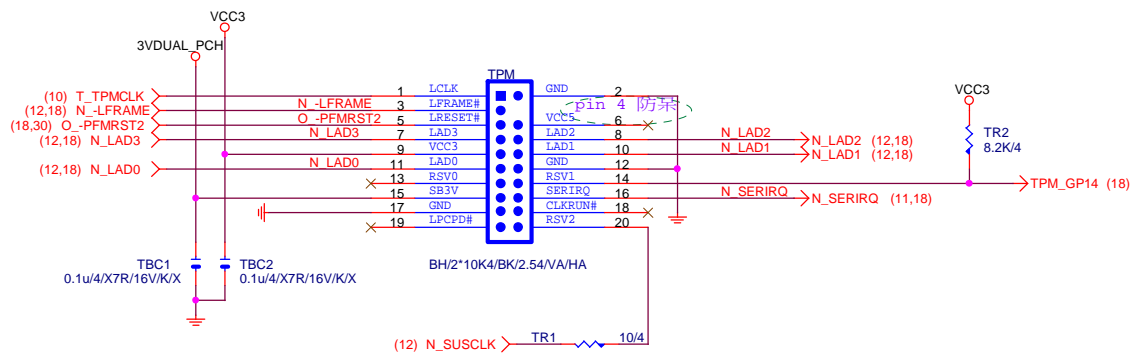




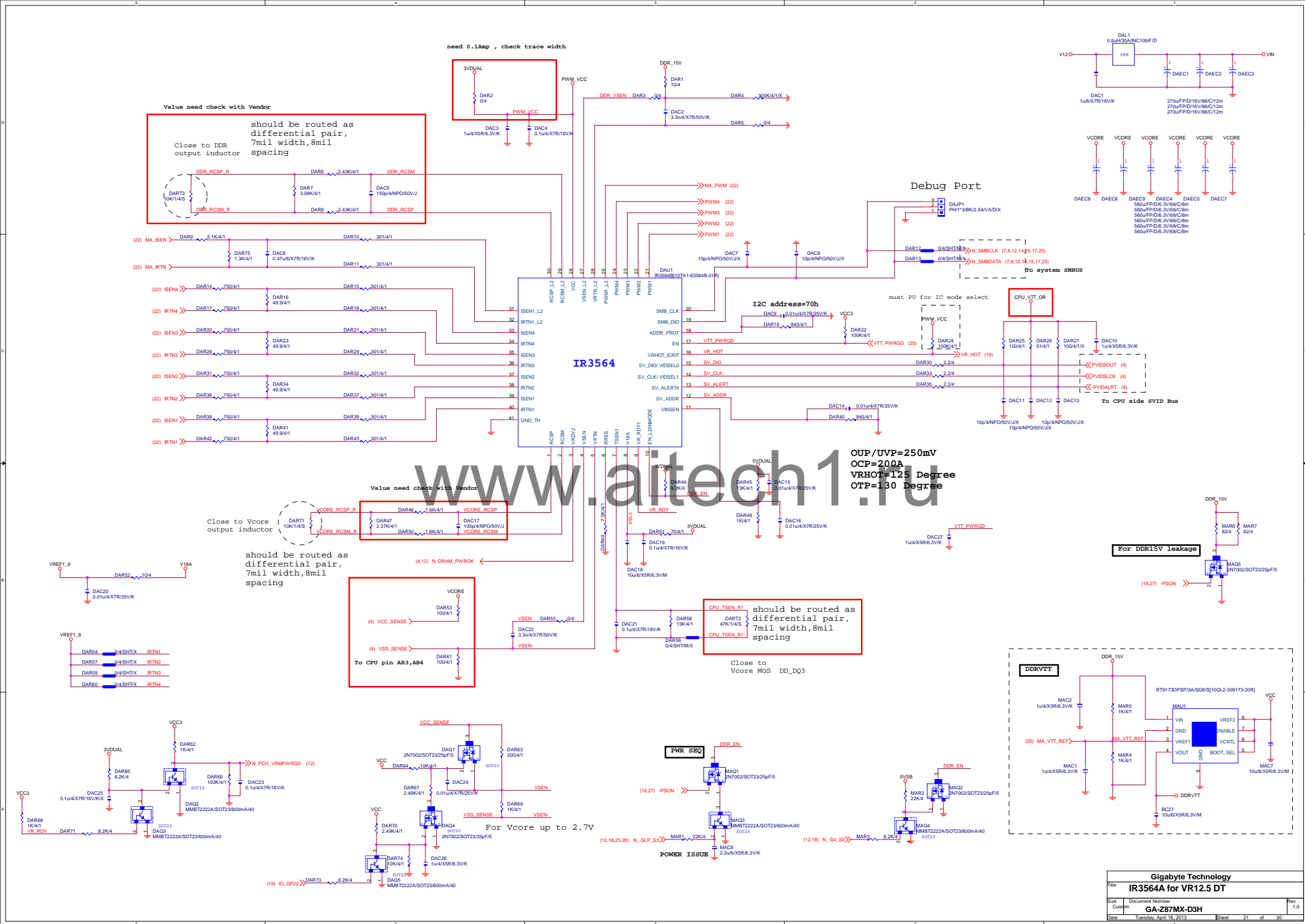
BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	1	1

1 means internal PU
0 means PD 1K

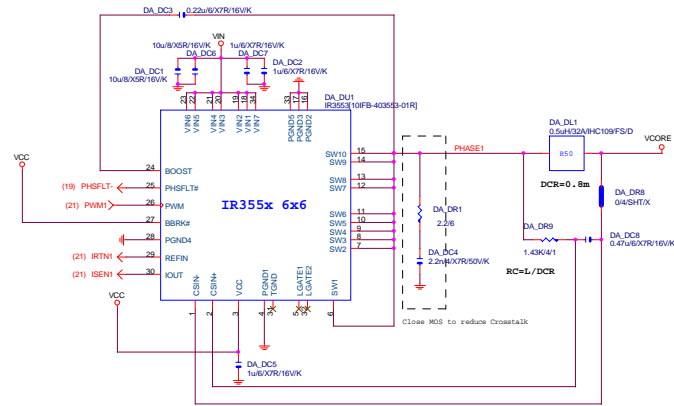
www.aitech1.ru



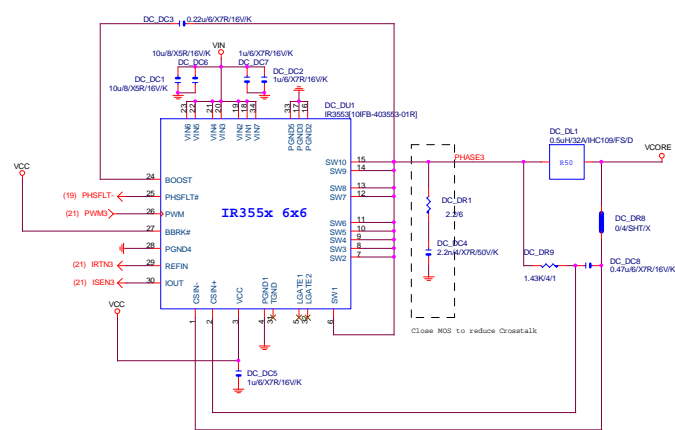
Gigabyte Technology			
Title BIOS & TPM			
Size Custom	Document Number	GA-Z87MX-D3H Rev 1.0	
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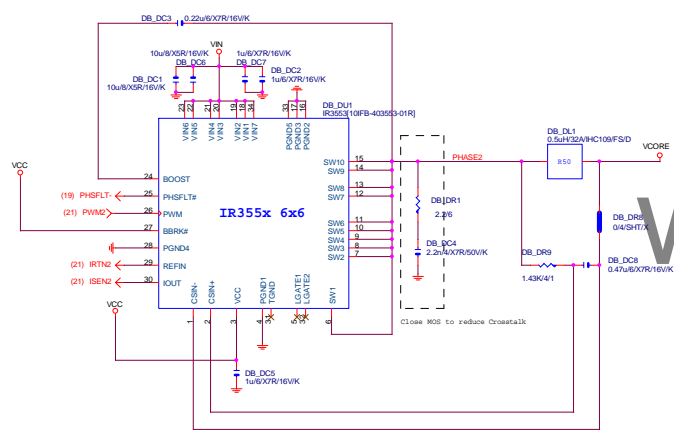
VCORE-PHASE1



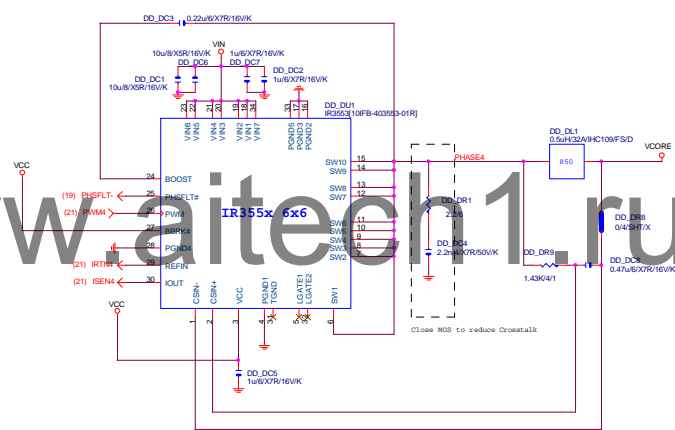
VCORE-PHASE3



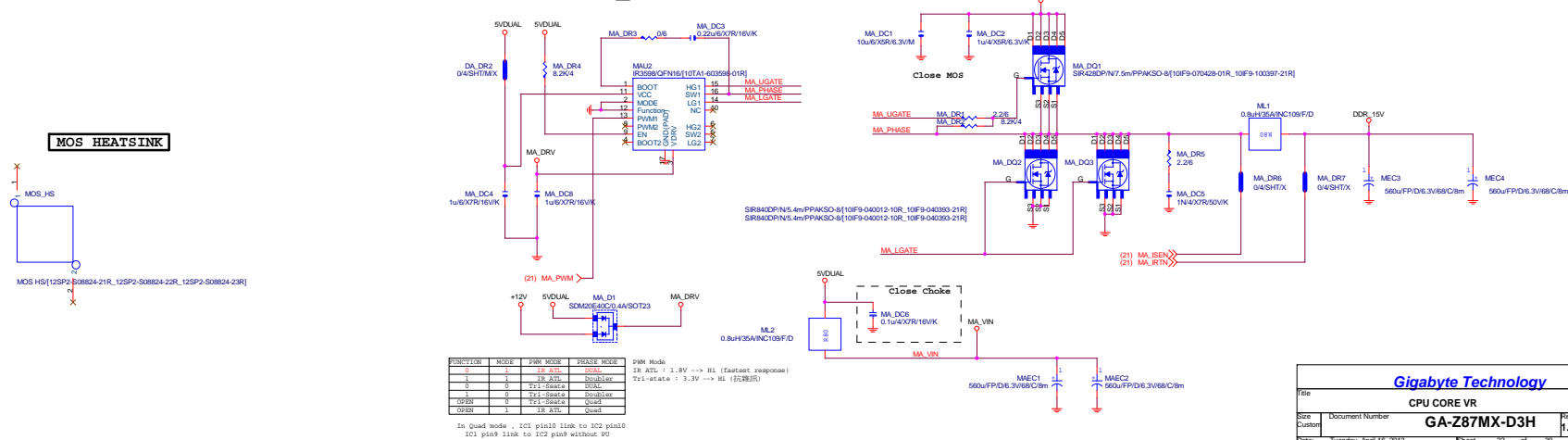
VCORE-PHASE2



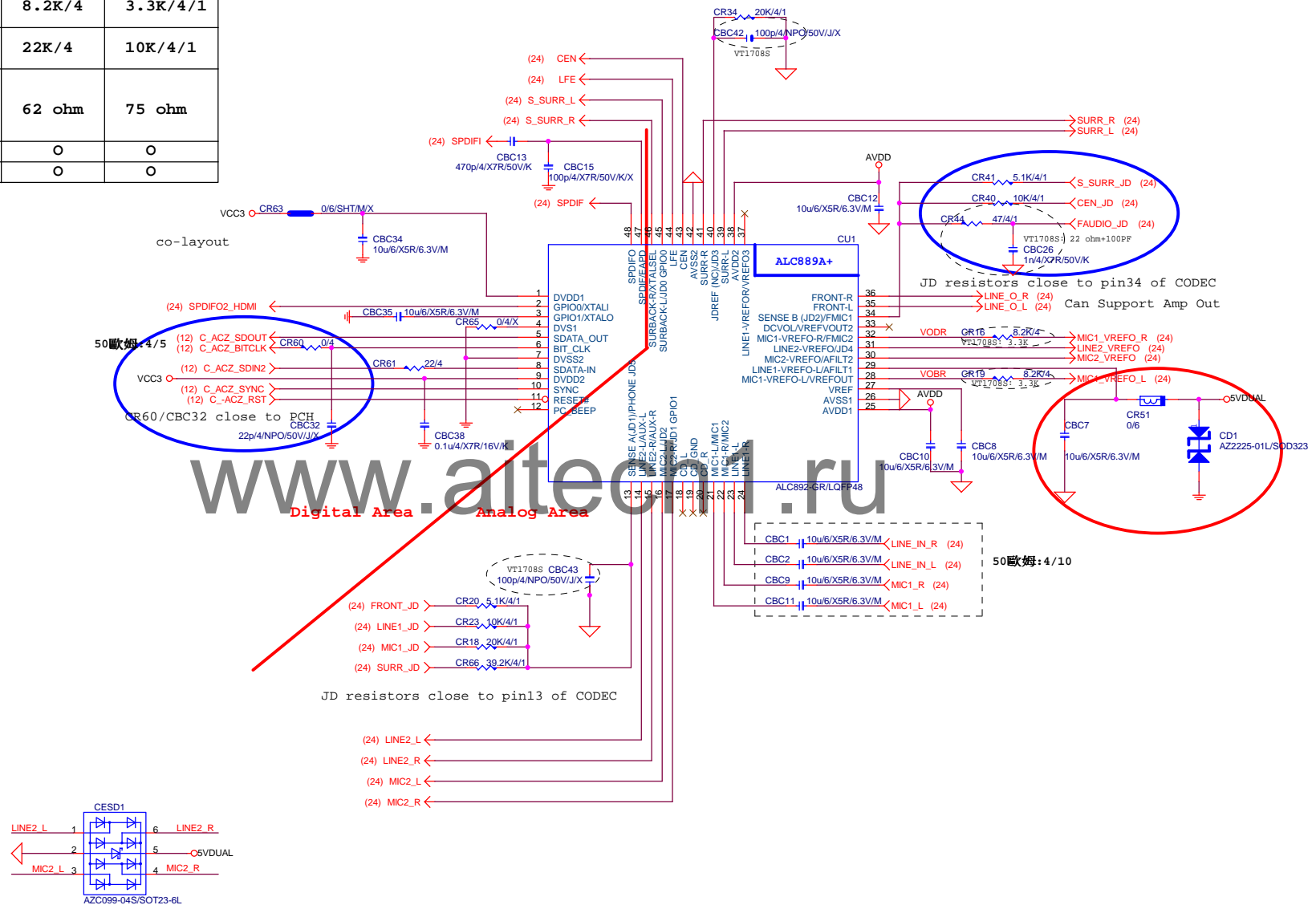
VCORE-PHASE4

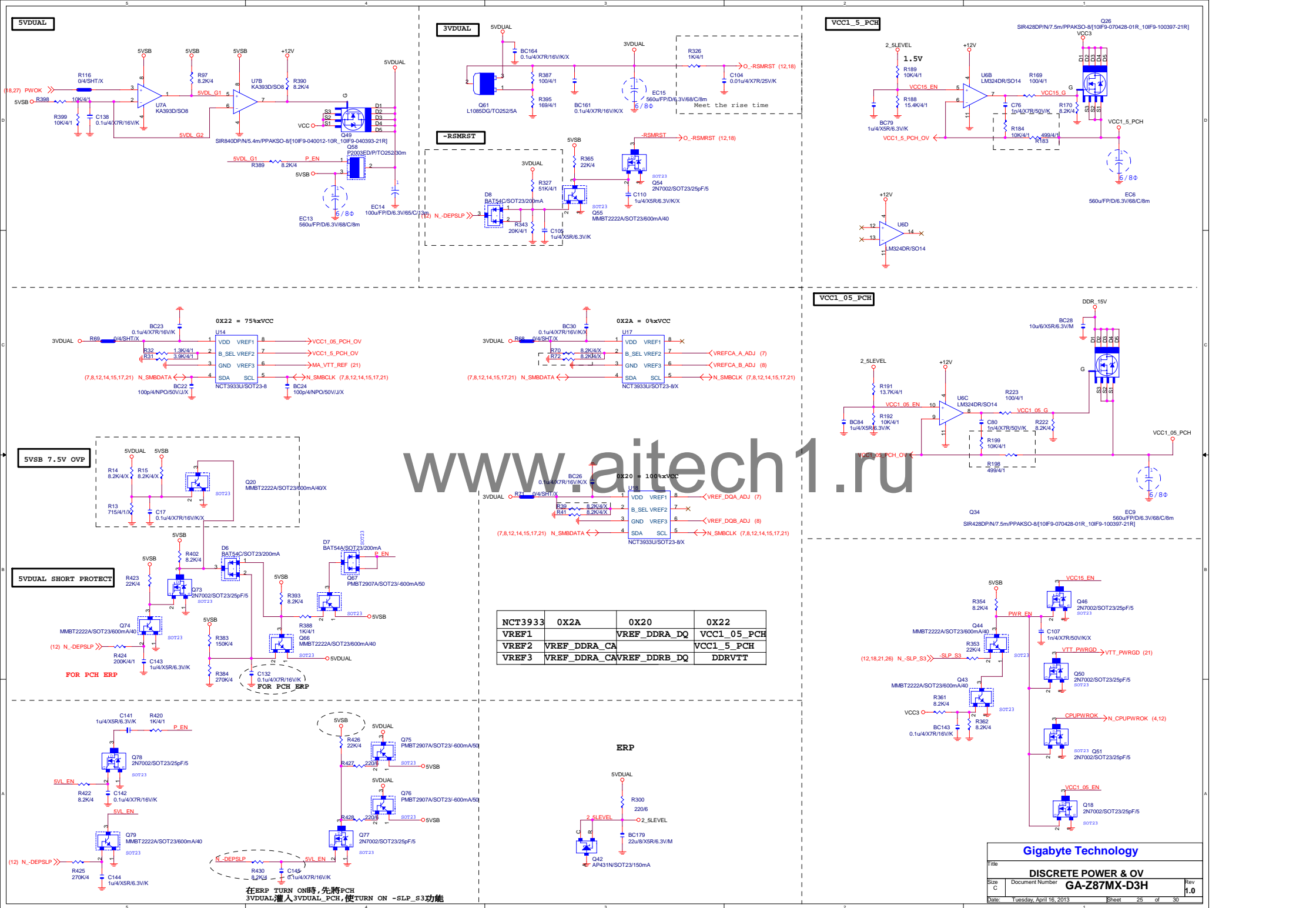


DDR_15V

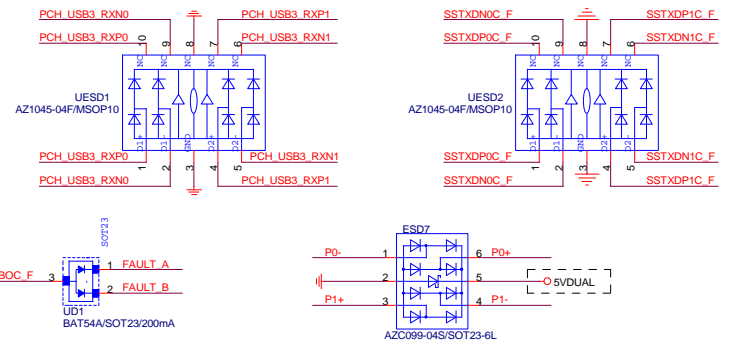


	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	O	O	O



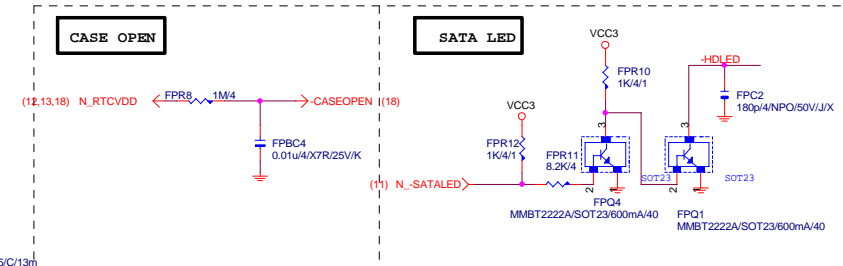


F_USB30

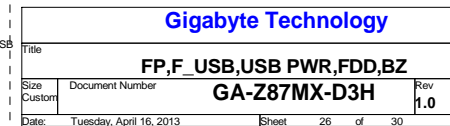
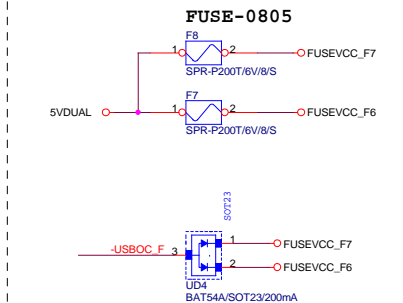
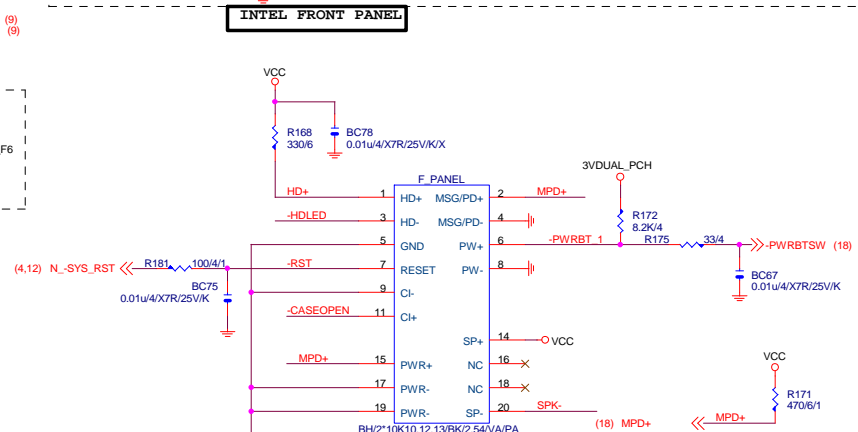
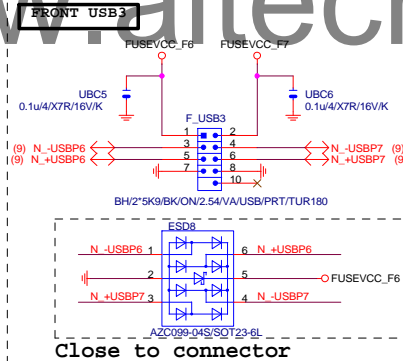


F_USB30 PWR

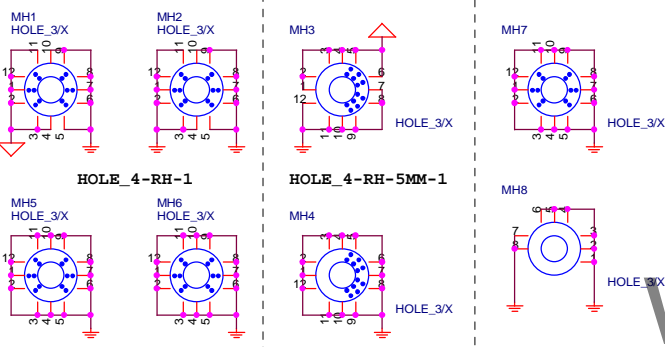
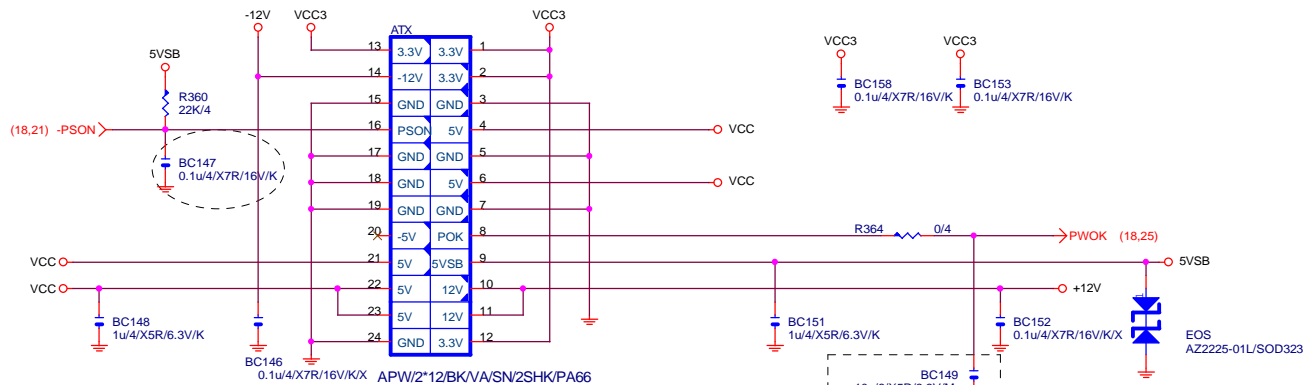
CTL1/2/3/ILIM_SEL	MODE
1111	CDP / ILIM_HI
0111	DCP_AUTO / ILIM_HI /HID wake
0100	SDP/ILIM_LO



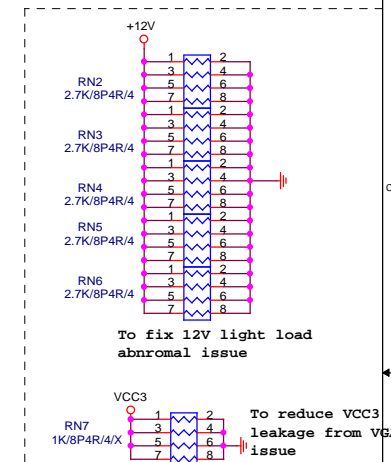
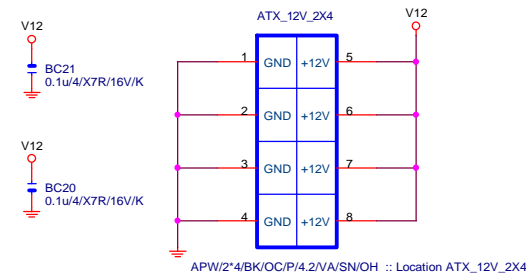
FRONT USB1



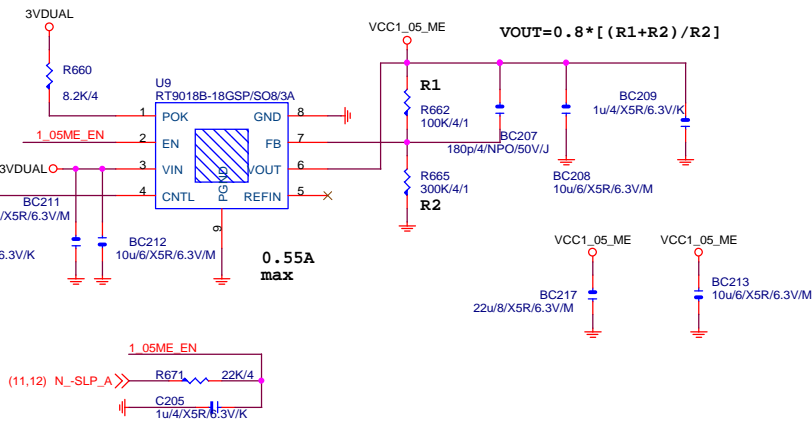
ATXX24 POWER CONNECTOR



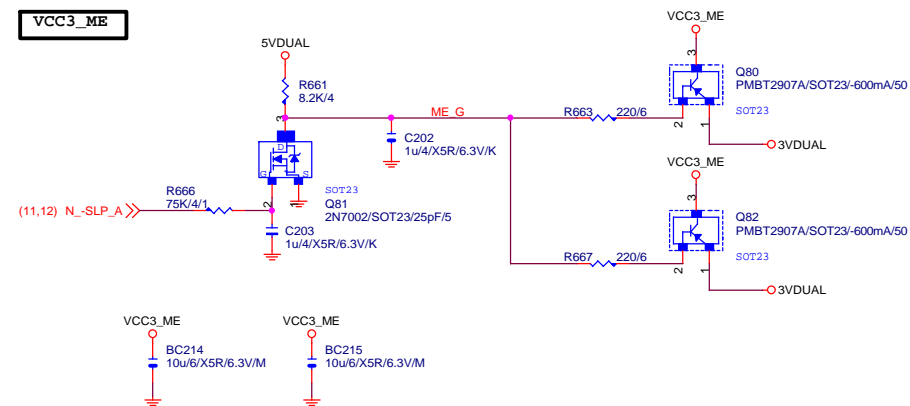
ATXX4 POWER CONNECTOR



VCC1_05_ME



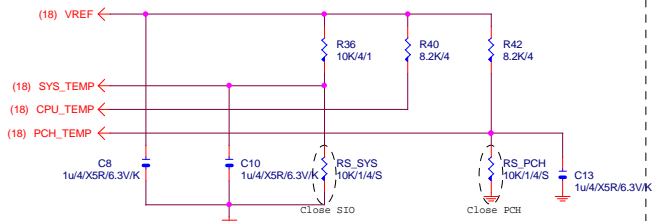
VCC3_ME



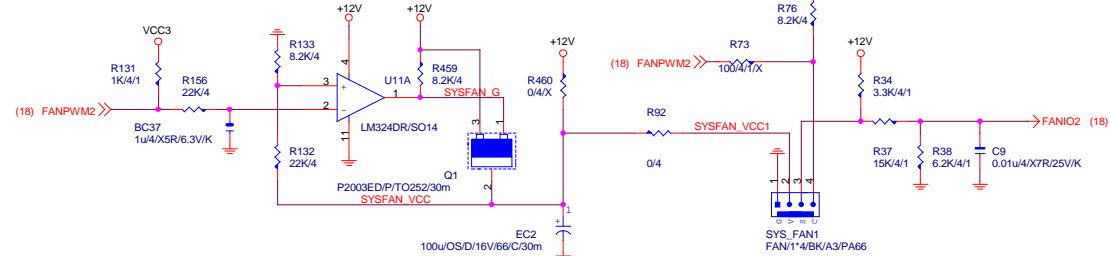
Gigabyte Technology

Title			
ATX,CLOCK GEN ,M3 POWER			
Size	Document Number	Rev	
Custom	GA-Z87MX-D3H	1.0	
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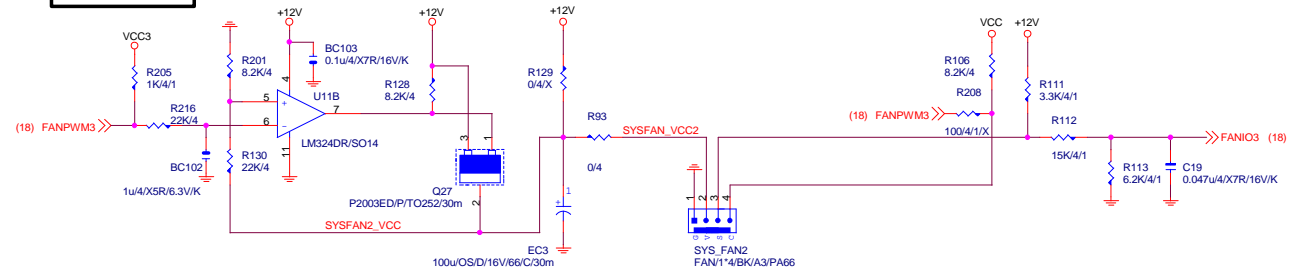
TEMP H/W MONITOR



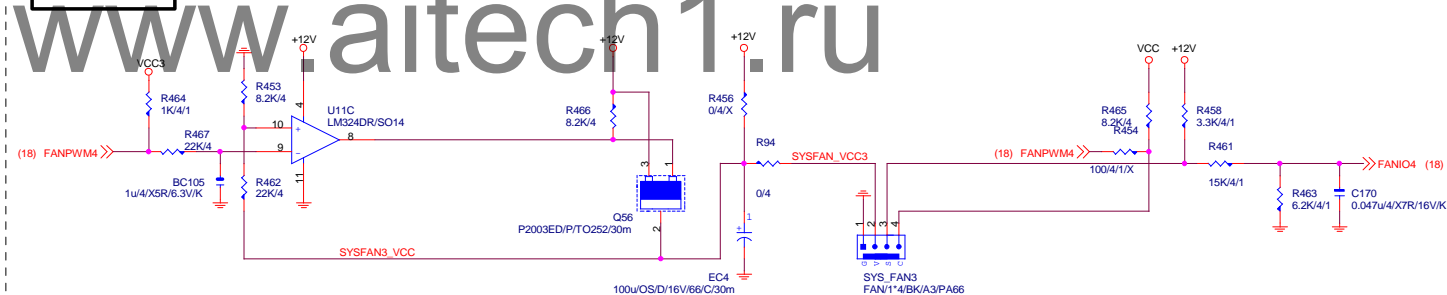
SYS_FAN_1



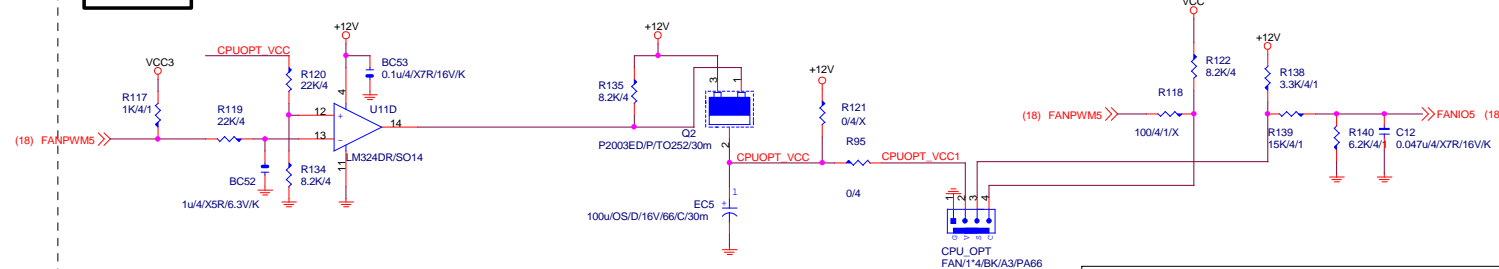
SYS_FAN_2



SYS_FAN_3



CPU_OPT



Gigabyte Technology

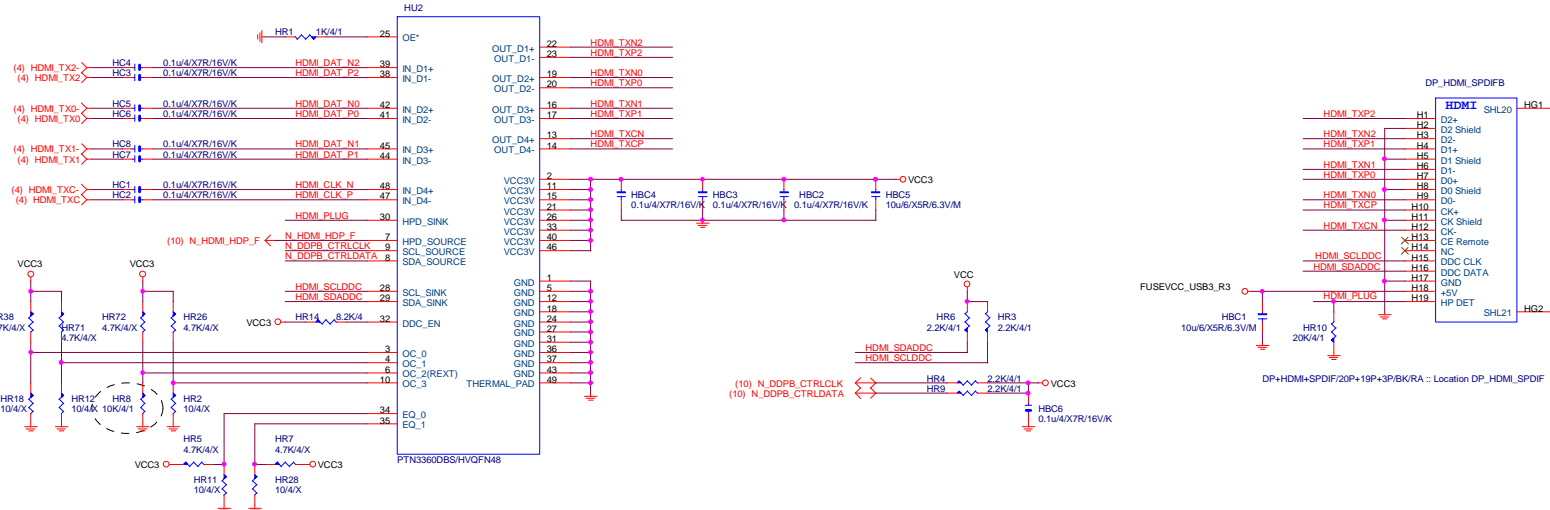
HWM, FAN CTRL

GA-Z87MX-D3H

Rev 1.0

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HDMI LEVEL SHIFT



DVI LEVEL SHIFT

