

## Model Name: GA-Z87-HD3

1.11

SHEET

TITLE

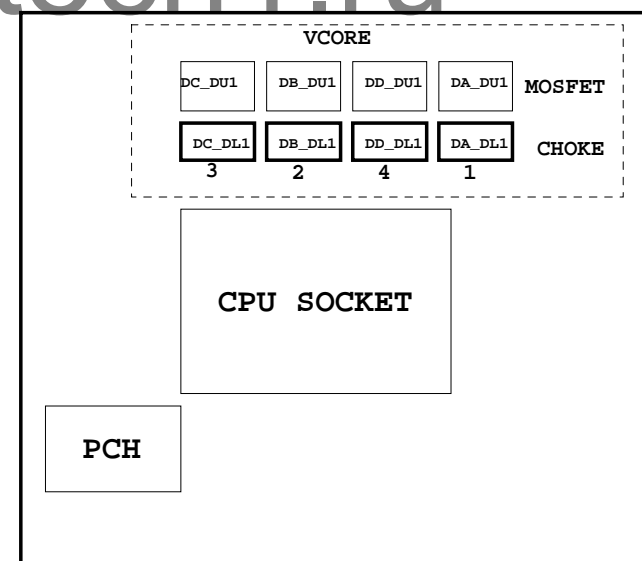
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC892 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET

TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
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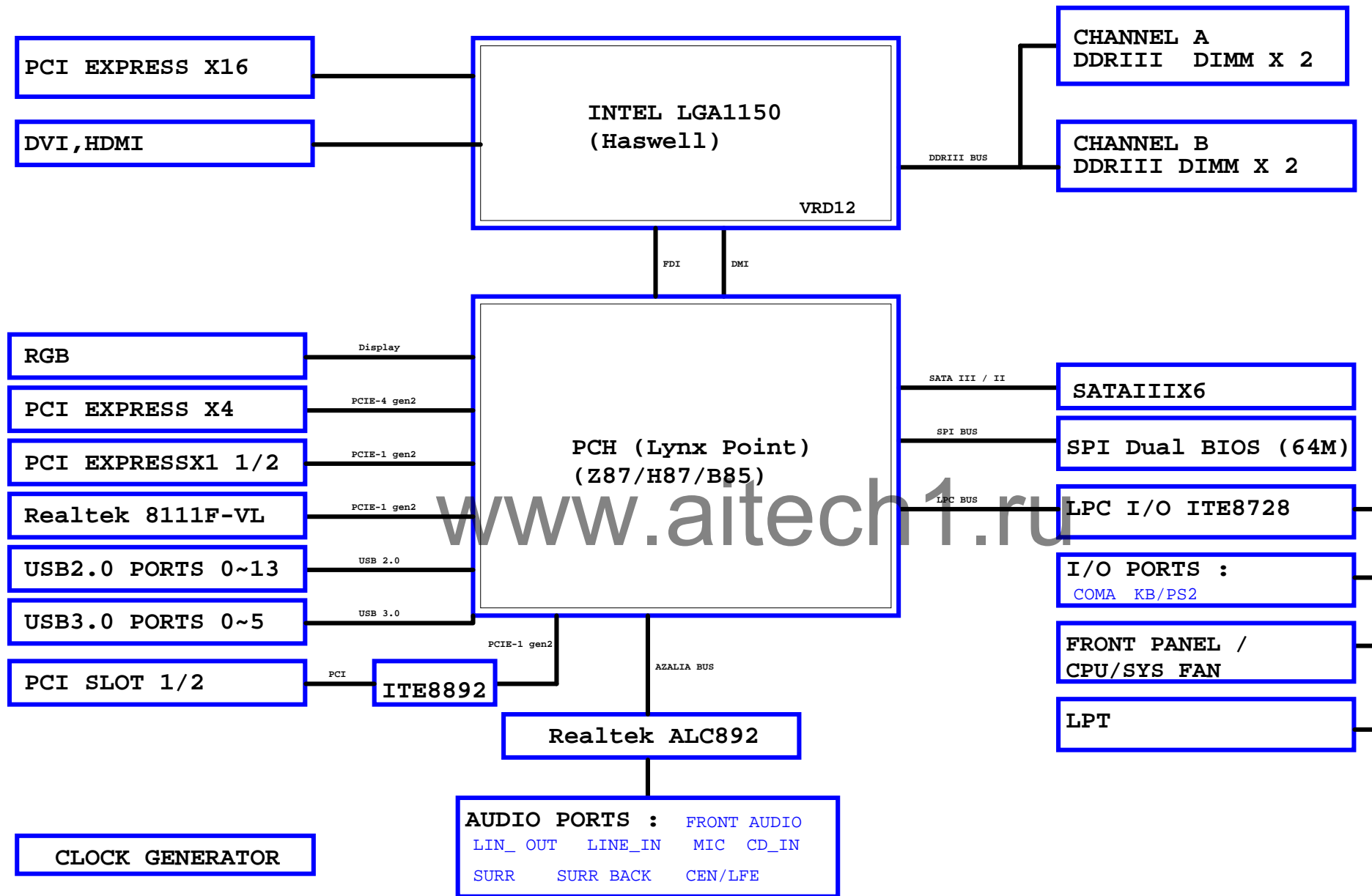
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Cover Sheet			
Size	Document Number	GA-Z87-HD3	Rev
Custom			1.11
Date:	Wednesday, October 16, 2013	Sheet	1 of 34

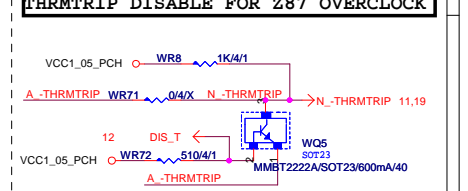
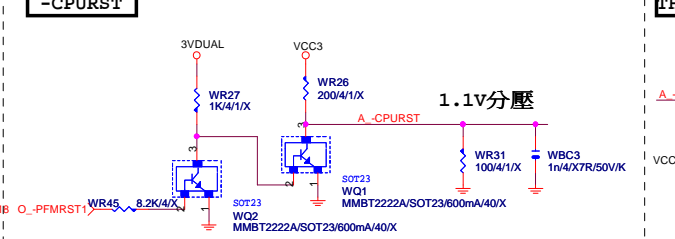
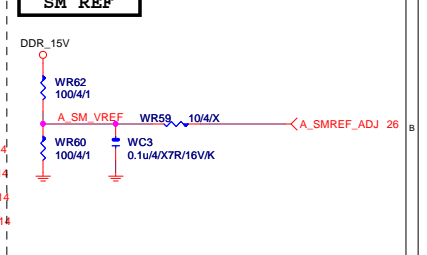
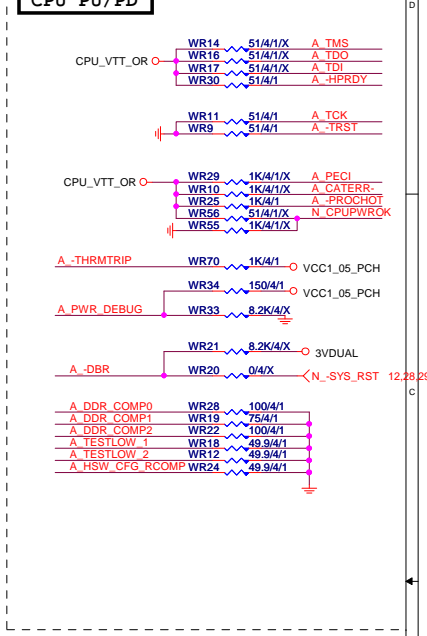
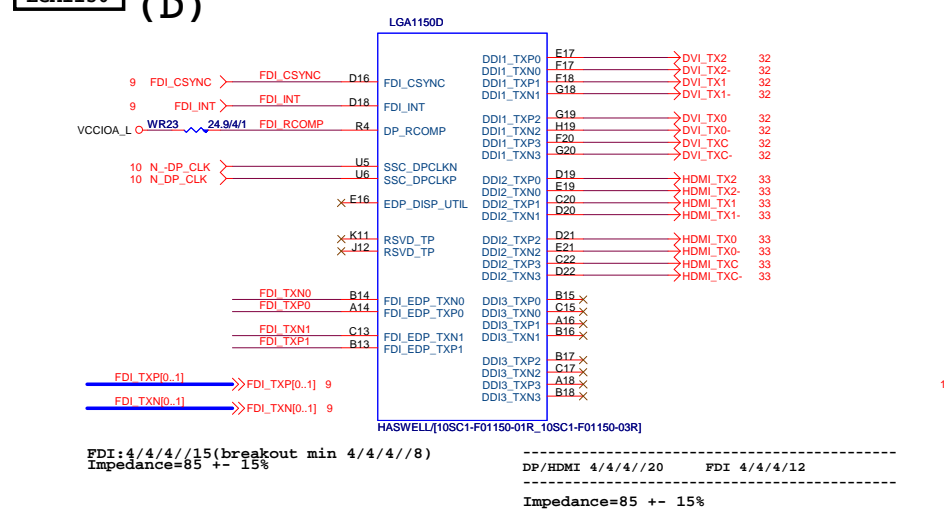
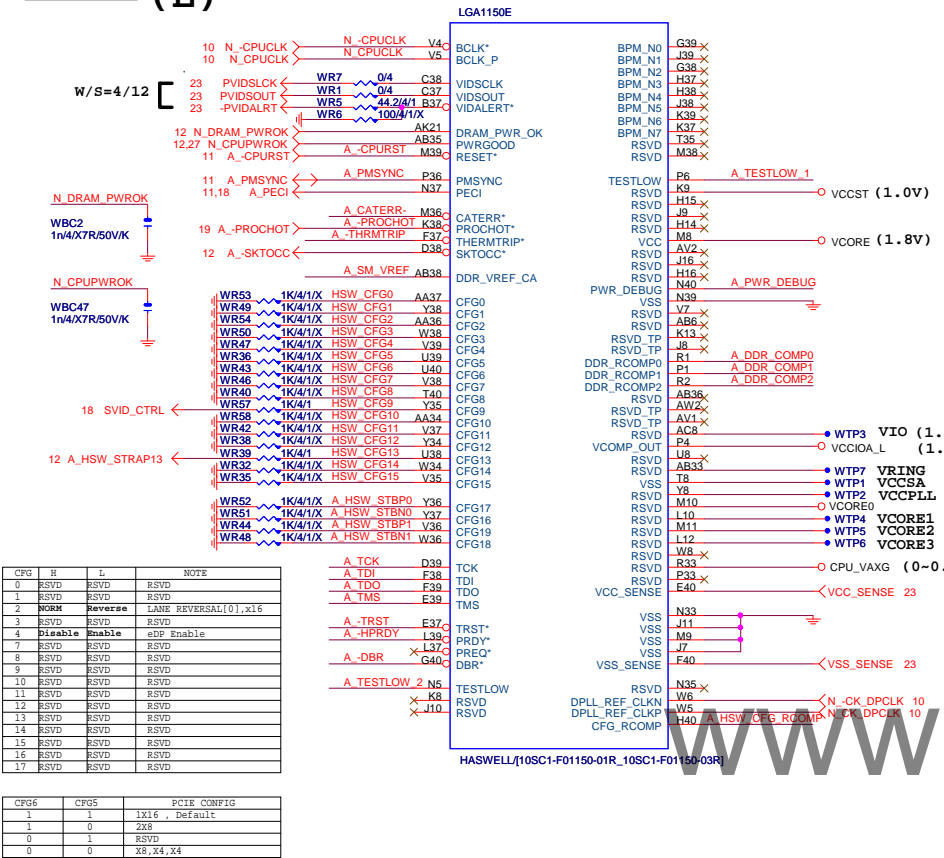
## Component value change history

[illegible]

DATE	Change Item	Reason
2012/12/07 PCB:0.1	1.由Z87-D3H 修改成Z87-HD3-0.1	
2013/01/16 PCB:0.2	1.CS 1*1 PIN ---->1*2 PIN    2.front panel update footprint	
	3.NC59跟NR132 位置互換    4.N_CLK_RCOMP SPACE 調整	
	5.ADD DISABLE ME SCH    6. WR59 SHORT----->499/4/1    7.ADD VCORE OVER VOLTAGE CIRCUIT	
	8.MAU2 REF GND,ML1轉向    9.SATA/PCIEX16 WIDTH/SPACE修正.	
	10.PI_-PCIE_CLK1 / PE_-SRCCLK_3GIO1 換位置FOR PCIE 2.0 CLCOK	
	11.ALL SYS FAN換成3941S-A	
2013/03/01 PCB:1.0	1.SYS_FAN short protection	4.部分0 ohm改short pad
	2.PWR_LED change to IO_GP65	5.Add +12V dummy load control
	3.Add N_GPIO37 pull up VCC3	6.Add 5VSB/5VDUAL OVP protection
	7.WBC35~46;MBC48~51;SBC1/2 背板電容改MASK	8.預留N_PCH_DPWROK 控制線路
	9.修正usb2.0 對應到usb3.0 名稱及位置	
2013/03/21 PCB:1.01	1.CPU_FAN ADD 100UF CAP FOR 12V DROOP ISSUE	
2013/03/22 PCB:1.02	1.NR177 SHORT WIRE -----> 0402 SIZE	
2013/06/27 PCB:1.1	1.修改HDMI footprint -2 ----->-3 固定孔加大	
2013/09/11 PCB:1.11	1.Crystal ( 25MHZ / 32.768KHz) ref GND /width/space	
	2.CPU fan R676 0402----->0603,UPDATE 3941S-A FOOTPRINT	
	3.DDR VDDSD 0402----->0603/POLY FUSE CO-LAY	
	4.POWER PAK (Q_TDSON8-GDS-T)/ 1206 POLY FUSE UPDATE FOOTPRINT	
	5.UPDATE PCIEX16 FOOTPRINT"PCIESLOT-164DN-Q-1"	
	6.ADD FPR22,FPR23 FOR SATA LED	
	7.PCIEX4 CLOCK(PE_SRCCLK_3GIO1)由PIN R6,R7 換成PIN W7,W6 避免跟CRYSTAL 25MHZ干擾	

# BLOCK DIAGRAM







**LGA1150 (A)**

LGA1150A									
		MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0		
		MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1		
		MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2		
		MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3		
		MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4		
		MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5		
		MAAA6	AV17	DDR0_MA6	DDR0_D06	AF37	MDA6		
		MAAA7	AU18	DDR0_MA7	DDR0_D07	AF40	MDA7		
		MAAA8	AV19	DDR0_MA8	DDR0_D08	AD39	MDA13		
		MAAA9	AU18	DDR0_MA9	DDR0_D09	AD40	MDA9		
		MAAA10	AW11	DDR0_MA10	DDR0_D10	AD38	MDA11		
		MAAA11	AU19	DDR0_MA11	DDR0_D11	AD39	MDA12		
		MAAA12	AY10	DDR0_MA12	DDR0_D12	AD38	MDA8		
		MAAA13	AY19	DDR0_MA13	DDR0_D13	AD37	MDA14		
		MAAA14	AT20	DDR0_M14	DDR0_D14	AK40	MDA15		
		MAAA15	AT21	DDR0_M15	DDR0_D15	AK41	MDA17		
				DDR0_M16	DDR0_D16	AM38	MDA21		
		MODT_A0	AW10	DDR0_ODT0	DDR0_D17	AM39	MDA18		
		MODT_A1	AY8	DDR0_ODT1	DDR0_D18	AP37	MDA19		
		MODT_A2	AW9	DDR0_ODT2	DDR0_D19	AP37	MDA20		
		MODT_A3	AU8	DDR0_ODT3	DDR0_D20	AM38	MDA16		
					DDR0_D21	AP37	MDA22		
					DDR0_D22	AP37	MDA23		
			AW33	DDR0_ECC0	DDR0_D23	AV35	MDA29		
			UJ31	DDR0_ECC1	DDR0_D24	AV37	MDA29		
			UJ31	DDR0_ECC2	DDR0_D25	AV35	MDA26		
			UJ31	DDR0_ECC3	DDR0_D26	AV37	MDA27		
			UJ33	DDR0_ECC4	DDR0_D27	AV35	MDA27		
			AT33	DDR0_ECC5	DDR0_D28	AV37	MDA24		
			AT31	DDR0_ECC6	DDR0_D29	AT35	MDA30		
			QW31	DDR0_ECC7	DDR0_D30	AW35	MDA31		
					DDR0_D31	AY6	MDA33		
		SBAA0	AY12	DDR0_BA0	DDR0_D32	AY6	MDA37		
7		SBAA1	AT21	DDR0_BA1	DDR0_D33	AY6	MDA37		
7		SBAA2	AT21	DDR0_BA2	DDR0_D34	AW4	MDA35		
					DDR0_D35	AW6	MDA36		
			CKEA0	DDR0_CK0	DDR0_D36	AW4	MDA32		
7		CKEA1	CKEA2	DDR0_CK1	DDR0_D37	AW4	MDA38		
7		CKEA2	CKEA3	DDR0_CK2	DDR0_D38	AW4	MDA39		
7		CKEA3		DDR0_CK3	DDR0_D39	AN1	MDA41		
					DDR0_D40	AN1	MDA41		
		CSA0	AY12	DDR0_CS_N0	DDR0_D41	AN2	MDA42		
7		CSA1	AU9	DDR0_CS_N1	DDR0_D42	AN4	MDA43		
7		CSA2	AW10	DDR0_CS_N2	DDR0_D43	AN2	MDA44		
7		CSA3		DDR0_CS_N3	DDR0_D44	AN2	MDA45		
					DDR0_D45	AN2	MDA46		
7		DCLKA0	DCLKA0	DDR0_CLK_P0	DDR0_D46	AN1	MDA47		
7		DCLKA0	DCLKA0	DDR0_CLK_N0	DDR0_D47	AL1	MDA49		
7		DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_D48	AL1	MDA50		
7		DCLKA1	DCLKA2	DDR0_CLK_N1	DDR0_D49	AL3	MDA50		
7		DCLKA2	DCLKA2	DDR0_CLK_P2	DDR0_D50	AL4	MDA51		
7		DCLKA2	DCLKA3	DDR0_CLK_N2	DDR0_D51	AL2	MDA52		
7		DCLKA3	DCLKA3	DDR0_CLK_P3	DDR0_D52	AL3	MDA53		
7		DCLKA3		DDR0_CLK_N3	DDR0_D53	AL2	MDA54		
			AW12	RSVD	DDR0_D54	AL2	MDA55		
					DDR0_D55	AG1	MDA57		
					DDR0_D56	AG4	MDA61		
					DDR0_D57	AE3	MDA58		
					DDR0_D58	AE4	MDA59		
					DDR0_D59	AE2	MDA60		
					DDR0_D60	AE3	MDA56		
					DDR0_D61	AE3	MDA62		
					DDR0_D62	AE1	MDA63		
7		-SRASA	-SRASA	DDR0_RAS*	DDR0_D63	AE39	DSQA0		
7		-SWEA	-SWEA	DDR0_WE*	DDR0_D64	AN39	DSQA2		
					DDR0_D65	AV36	DSQA3		
			AW20	RSVD	DDR0_D66	AE3	DSQA4		
			AW27C	RSVD	DDR0_D67	AP3	DSQA5		
					DDR0_D68	AP3	DSQA6		
7		-SCASA	-SCASA	DDR0_CAS*	DDR0_D69	AE3	DSQA7		
					DDR0_D70	AE2	DSQA7		
7.8		-DDR3_RST	WR61 D4/SH/TMX	AKK22	DDR0_RESET*	AV32	DSQA0		
						AE38	DSQA1		
			WC4			AN38	DSQA2		
						AN36	DSQA3		
						AW5	DSQA4		
						AE2	DSQA5		
						AE2	DSQA6		
						AE2	DSQA7		
						AKK22	DSQA7		

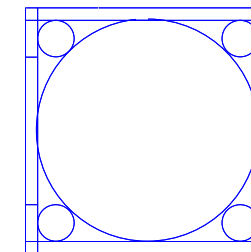
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**LGA1150 (B)**

LGA1150B					
MAA80	AL19	DDR1_MA0	DDR1_DQ0	AE34	MD80
MAA81	AK23	DDR1_MA1	DDR1_DQ1	AE35	MD81
MAA82	AM22	DDR1_MA2	DDR1_DQ2	AE36	MD82
MAA83	AM23	DDR1_MA3	DDR1_DQ3	AH35	MD83
MAA84	AF23	DDR1_MA4	DDR1_DQ4	AD34	MD84
MAA85	AL23	DDR1_MA5	DDR1_DQ5	AD35	MD85
MAA86	AY24	DDR1_MA6	DDR1_DQ6	AG34	MD86
MAA87	AV25	DDR1_MA7	DDR1_DQ7	AH34	MD87
MAA88	AL26	DDR1_MA8	DDR1_DQ8	AH35	MD88
MAA89	AP25	DDR1_MA9	DDR1_DQ9	AK31	MD89
MAA90	AW18	DDR1_MA10	DDR1_DQ10	AK31	MD810
MAA91	AY25	DDR1_MA11	DDR1_DQ11	AL31	MD811
MAA92	AV26	DDR1_MA12	DDR1_DQ12	AL31	MD812
MAA93	AL15	DDR1_MA13	DDR1_DQ13	AK32	MD813
MAA94	AV27	DDR1_MA14	DDR1_DQ14	AL32	MD814
MAA95	AY28	DDR1_MA15	DDR1_DQ15	AL32	MD815
			DDR1_DQ16	AK34	MD821
MODT_B0	AM17	DDR1_ODT0	DDR1_DQ17	AE34	MD819
MODT_B1	AL16	DDR1_ODT1	DDR1_DQ18	AP31	MD823
MODT_B2	AM16	DDR1_ODT2	DDR1_DQ19	AP31	MD820
MODT_B3	AK15	DDR1_ODT3	DDR1_DQ20	AN35	MD816
			DDR1_DQ21	AN32	MD818
	AM26	DDR1_EC00	DDR1_DQ22	AP32	MD822
	AM25	DDR1_EC01	DDR1_DQ23	AM29	MD825
	AE25	DDR1_EC02	DDR1_DQ24	AM29	MD828
	AF26	DDR1_EC03	DDR1_DQ25	AM28	MD827
	AR26	DDR1_EC04	DDR1_DQ26	AR28	MD830
	AR25	DDR1_EC05	DDR1_DQ27	AL28	MD829
	AR26	DDR1_EC06	DDR1_DQ28	AP29	MD826
	AR25	DDR1_EC07	DDR1_DQ29	AP28	MD831
			DDR1_DQ30	AP12	MD832
SBA80	AK17	DDR1_BA0	DDR1_DQ31	AL13	MD834
SBA81	AL18	DDR1_BA1	DDR1_DQ32	AL12	MD835
SBA82	AW28	DDR1_BA2	DDR1_DQ33	AL13	MD836
			DDR1_DQ34	AL12	MD838
CKE80	AW29	DDR1_CKE0	DDR1_DQ35	AM13	MD838
CKE81	AY29	DDR1_CKE1	DDR1_DQ36	AM12	MD838
CKE82	AL29	DDR1_CKE2	DDR1_DQ37	AR9	MD845
CKE83	AL29	DDR1_CKE3	DDR1_DQ38	AP6	MD847
			DDR1_DQ39	AP6	MD844
CS80	AP17	DDR1_CS_N0	DDR1_DQ40	AR10	MD843
CS81	AN15	DDR1_CS_N1	DDR1_DQ41	AR7	MD846
CS82	AN17	DDR1_CS_N2	DDR1_DQ42	AP7	MD842
CS83	AL15	DDR1_CS_N3	DDR1_DQ43	AP7	MD852
			DDR1_DQ44	AM6	MD850
			DDR1_DQ45	AM10	MD848
			DDR1_DQ46	AL10	MD854
CLK80	AM20	DDR1_CLK_P0	DDR1_DQ47	AM7	MD851
CLK81	AM21	DDR1_CLK_P1	DDR1_DQ48	AH6	MD861
CLK82	AN21	DDR1_CLK_P2	DDR1_DQ49	AH7	MD859
CLK83	AP20	DDR1_CLK_P3	DDR1_DQ50	A67	MD863
CLK84	AL20	DDR1_CLK_P4	DDR1_DQ51	A66	MD856
CLK85	AN19	DDR1_CLK_P5	DDR1_DQ52	A67	MD857
CLK86	AP21	DDR1_CLK_P6	DDR1_DQ53	A67	MD862
CLK87	AL20	DDR1_CLK_P7	DDR1_DQ54	AF35	MD880
CLK88	AP20	DDR1_CLK_P8	DDR1_DQ55	AL33	MD881
CLK89	AL20	DDR1_CLK_P9	DDR1_DQ56	AN28	MD883
CLK90	AP21	DDR1_CLK_N0	DDR1_DQ57	AN12	MD884
CLK91	AL20	DDR1_CLK_N1	DDR1_DQ58	AP8	MD885
CLK92	AN19	DDR1_CLK_N2	DDR1_DQ59	AL8	MD886
CLK93	AP20	DDR1_CLK_N3	DDR1_DQ60	AG7	MD887
CLK94	AL20	DDR1_CLK_N4	DDR1_DQ61	AN2X	MD888
CLK95	AP21	DDR1_CLK_N5	DDR1_DQ62	AF34	MD890
CLK96	AL20	DDR1_CLK_N6	DDR1_DQ63	AK33	MD881
CLK97	AP20	DDR1_CLK_N7	DDR1_DQ64	AN33	MD882
CLK98	AL20	DDR1_CLK_N8	DDR1_DQ65	AN29	MD883
CLK99	AP21	DDR1_CLK_N9	DDR1_DQ66	AN13	MD884
CLK100	AL20	DDR1_CLK_N10	DDR1_DQ67	AL8	MD886
CLK101	AP20	DDR1_CLK_N11	DDR1_DQ68	AG8	MD887
CLK102	AL20	DDR1_CLK_N12	DDR1_DQ69	AN2X	MD888
CLK103	AP21	DDR1_CLK_N13	DDR1_DQ70	AF34	MD890
CLK104	AL20	DDR1_CLK_N14	DDR1_DQ71	AK33	MD881
CLK105	AP20	DDR1_CLK_N15	DDR1_DQ72	AN33	MD882
CLK106	AL20	DDR1_CLK_N16	DDR1_DQ73	AN29	MD883
CLK107	AP21	DDR1_CLK_N17	DDR1_DQ74	AN13	MD884
CLK108	AL20	DDR1_CLK_N18	DDR1_DQ75	AL8	MD886
CLK109	AP20	DDR1_CLK_N19	DDR1_DQ76	AG8	MD887
CLK110	AL20	DDR1_CLK_N20	DDR1_DQ77	AN2X	MD888
CLK111	AP21	DDR1_CLK_N21	DDR1_DQ78	AF34	MD890
CLK112	AL20	DDR1_CLK_N22	DDR1_DQ79	AK33	MD881
CLK113	AP20	DDR1_CLK_N23	DDR1_DQ80	AN33	MD882
CLK114	AL20	DDR1_CLK_N24	DDR1_DQ81	AN29	MD883
CLK115	AP21	DDR1_CLK_N25	DDR1_DQ82	AN13	MD884
CLK116	AL20	DDR1_CLK_N26	DDR1_DQ83	AL8	MD886
CLK117	AP20	DDR1_CLK_N27	DDR1_DQ84	AG8	MD887
CLK118	AL20	DDR1_CLK_N28	DDR1_DQ85	AN2X	MD888
CLK119	AP21	DDR1_CLK_N29	DDR1_DQ86	AF34	MD890
CLK120	AL20	DDR1_CLK_N30	DDR1_DQ87	AK33	MD881
CLK121	AP20	DDR1_CLK_N31	DDR1_DQ88	AN33	MD882
CLK122	AL20	DDR1_CLK_N32	DDR1_DQ89	AN29	MD883
CLK123	AP21	DDR1_CLK_N33	DDR1_DQ90	AN13	MD884
CLK124	AL20	DDR1_CLK_N34	DDR1_DQ91	AL8	MD886
CLK125	AP20	DDR1_CLK_N35	DDR1_DQ92	AG8	MD887
CLK126	AL20	DDR1_CLK_N36	DDR1_DQ93	AN2X	MD888
CLK127	AP21	DDR1_CLK_N37	DDR1_DQ94	AF34	MD890
CLK128	AL20	DDR1_CLK_N38	DDR1_DQ95	AK33	MD881
CLK129	AP20	DDR1_CLK_N39	DDR1_DQ96	AN33	MD882
CLK130	AL20	DDR1_CLK_N40	DDR1_DQ97	AN29	MD883
CLK131	AP21	DDR1_CLK_N41	DDR1_DQ98	AN13	MD884
CLK132	AL20	DDR1_CLK_N42	DDR1_DQ99	AL8	MD886
CLK133	AP20	DDR1_CLK_N43	DDR1_DQ100	AG8	MD887
CLK134	AL20	DDR1_CLK_N44	DDR1_DQ101	AN2X	MD888
CLK135	AP21	DDR1_CLK_N45	DDR1_DQ102	AF34	MD890
CLK136	AL20	DDR1_CLK_N46	DDR1_DQ103	AK33	MD881
CLK137	AP20	DDR1_CLK_N47	DDR1_DQ104	AN33	MD882
CLK138	AL20	DDR1_CLK_N48	DDR1_DQ105	AN29	MD883
CLK139	AP21	DDR1_CLK_N49	DDR1_DQ106	AN13	MD884
CLK140	AL20	DDR1_CLK_N50	DDR1_DQ107	AL8	MD886
CLK141	AP20	DDR1_CLK_N51	DDR1_DQ108	AG8	MD887
CLK142	AL20	DDR1_CLK_N52	DDR1_DQ109	AN2X	MD888
CLK143	AP21	DDR1_CLK_N53	DDR1_DQ110	AF34	MD890
CLK144	AL20	DDR1_CLK_N54	DDR1_DQ111	AK33	MD881
CLK145	AP20	DDR1_CLK_N55	DDR1_DQ112	AN33	MD882
CLK146	AL20	DDR1_CLK_N56	DDR1_DQ113	AN29	MD883
CLK147	AP21	DDR1_CLK_N57	DDR1_DQ114	AN13	MD884
CLK148	AL20	DDR1_CLK_N58	DDR1_DQ115	AL8	MD886
CLK149	AP20	DDR1_CLK_N59	DDR1_DQ116	AG8	MD887
CLK150	AL20	DDR1_CLK_N60	DDR1_DQ117	AN2X	MD888
CLK151	AP21	DDR1_CLK_N61	DDR1_DQ118	AF34	MD890
CLK152	AL20	DDR1_CLK_N62	DDR1_DQ119	AK33	MD881
CLK153	AP20	DDR1_CLK_N63	DDR1_DQ120	AN33	MD882
CLK154	AL20	DDR1_CLK_N64	DDR1_DQ121	AN29	MD883
CLK155	AP21	DDR1_CLK_N65	DDR1_DQ122	AN13	MD884
CLK156	AL20	DDR1_CLK_N66	DDR1_DQ123	AL8	MD886
CLK157	AP20	DDR1_CLK_N67	DDR1_DQ124	AG8	MD887
CLK158	AL20	DDR1_CLK_N68	DDR1_DQ125	AN2X	MD888
CLK159	AP21	DDR1_CLK_N69	DDR1_DQ126	AF34	MD890
CLK160	AL20	DDR1_CLK_N70	DDR1_DQ127	AK33	MD881
CLK161	AP20	DDR1_CLK_N71	DDR1_DQ128	AN33	MD882
CLK162	AL20	DDR1_CLK_N72	DDR1_DQ129	AN29	MD883
CLK163	AP21	DDR1_CLK_N73	DDR1_DQ130	AN13	MD884
CLK164	AL20	DDR1_CLK_N74	DDR1_DQ131	AL8	MD886
CLK165	AP20	DDR1_CLK_N75	DDR1_DQ132	AG8	MD887
CLK166	AL20	DDR1_CLK_N76	DDR1_DQ133	AN2X	MD888
CLK167	AP21	DDR1_CLK_N77	DDR1_DQ134	AF34	MD890
CLK168	AL20	DDR1_CLK_N78	DDR1_DQ135	AK33	MD881
CLK169	AP20	DDR1_CLK_N79	DDR1_DQ136	AN33	MD882
CLK170	AL20	DDR1_CLK_N80	DDR1_DQ137	AN29	MD883
CLK171	AP21	DDR1_CLK_N81	DDR1_DQ138	AN13	MD884
CLK172	AL20	DDR1_CLK_N82	DDR1_DQ139	AL8	MD886
CLK173	AP20	DDR1_CLK_N83	DDR1_DQ140	AG8	MD887
CLK174	AL20	DDR1_CLK_N84	DDR1_DQ141	AN2X	MD888
CLK175	AP21	DDR1_CLK_N85	DDR1_DQ142	AF34	MD890
CLK176	AL20	DDR1_CLK_N86	DDR1_DQ143	AK33	MD881
CLK177	AP20	DDR1_CLK_N87	DDR1_DQ144	AN33	MD882
CLK178	AL20	DDR1_CLK_N88	DDR1_DQ145	AN29	MD883
CLK179	AP21	DDR1_CLK_N89	DDR1_DQ146	AN13	MD884
CLK180	AL20	DDR1_CLK_N90	DDR1_DQ147	AL8	MD886
CLK181	AP20	DDR1_CLK_N91	DDR1_DQ148	AG8	MD887
CLK182	AL20	DDR1_CLK_N92	DDR1_DQ149	AN2X	MD888
CLK183	AP21	DDR1_CLK_N93	DDR1_DQ150	AF34	MD890
CLK184	AL20	DDR1_CLK_N94	DDR1_DQ151	AK33	MD881
CLK185	AP20	DDR1_CLK_N95	DDR1_DQ152	AN33	MD882
CLK186	AL20	DDR1_CLK_N96	DDR1_DQ153	AN29	MD883
CLK187	AP21	DDR1_CLK_N97	DDR1_DQ154	AN13	MD884
CLK188	AL20	DDR1_CLK_N98	DDR1_DQ155	AL8	MD886
CLK189	AP20	DDR1_CLK_N99	DDR1_DQ156	AG8	MD887
CLK190	AL20	DDR1_CLK_N100	DDR1_DQ157	AN2X	MD888
CLK191	AP21	DDR1_CLK_N101	DDR1_DQ158	AF34	MD890
CLK192	AL20	DDR1_CLK_N102	DDR1_DQ159	AK33	MD881
CLK193	AP20	DDR1_CLK_N103	DDR1_DQ160	AN33	MD882
CLK194	AL20	DDR1_CLK_N104	DDR1_DQ161	AN29	MD883
CLK195	AP21	DDR1_CLK_N105	DDR1_DQ162	AN13	MD884
CLK196	AL20	DDR1_CLK_N106	DDR1_DQ163	AL8	MD886
CLK197	AP20	DDR1_CLK_N107	DDR1_DQ164	AG8	MD887
CLK198	AL20	DDR1_CLK_N108	DDR1_DQ165	AN2X	MD888
CLK199	AP21	DDR1_CLK_N109	DDR1_DQ166	AF34	MD890
CLK200	AL20	DDR1_CLK_N110	DDR1_DQ167	AK33	MD881
CLK201	AP20	DDR1_CLK_N111	DDR1_DQ168	AN33	MD882
CLK202	AL20	DDR1_CLK_N112	DDR1_DQ169	AN29	MD883
CLK203	AP21	DDR1_CLK_N113	DDR1_DQ170	AN13	MD884
CLK204	AL20	DDR1_CLK_N114	DDR1_DQ171	AL8	MD886
CLK205	AP20	DDR1_CLK_N115	DDR1_DQ172	AG8	MD887
CLK206	AL20	DDR1_CLK_N116	DDR1_DQ173	AN2X	MD888
CLK207	AP21	DDR1_CLK_N117	DDR1_DQ174	AF34	MD890
CLK208	AL20	DDR1_CLK_N118	DDR1_DQ175	AK33	MD881
CLK209	AP20	DDR1_CLK_N119	DDR1_DQ176	AN33	MD882
CLK210	AL20	DDR1_CLK_N120	DDR1_DQ177	AN29	MD883
CLK211	AP21	DDR1_CLK_N121	DDR1_DQ178	AN13	MD884
CLK212	AL20	DDR1_CLK_N122	DDR1_DQ179	AL8	MD886
CLK213	AP20	DDR1_CLK_N123	DDR1_DQ180	AG8	MD887
CLK214	AL20	DDR1_CLK_N124	DDR1_DQ181	AN2X	MD888
CLK215	AP21	DDR1_CLK_N125	DDR1_DQ182	AF34	MD890
CLK216	AL20	DDR1_CLK_N126	DDR1_DQ183	AK33	MD881
CLK217	AP20	DDR1_CLK_N127	DDR1_DQ184	AN33	MD882
CLK218	AL20	DDR1_CLK_N128	DDR1_DQ185	AN29	MD883
CLK219	AP21	DDR1_CLK_N129	DDR1_DQ186	AN13	MD884
CLK220	AL20	DDR1_CLK_N130	DDR1_DQ187	AL8	MD886
CLK221	AP20	DDR1_CLK_N131	DDR1_DQ188	AG8	MD887
CLK222	AL20	DDR1_CLK_N132	DDR1_DQ189	AN2X	MD888
CLK223	AP21	DDR1_CLK_N133	DDR1_DQ190	AF34	MD890
CLK224	AL20	DDR1_CLK_N134	DDR1_DQ191	AK33	MD881
CLK225	AP20	DDR1_CLK_N135	DDR1_DQ192	AN33	MD882
CLK226	AL20	DDR1_CLK_N136	DDR1_DQ193	AN29	MD883
CLK227	AP21	DDR1_CLK_N137	DDR1_DQ194	AN13	MD884
CLK228	AL20	DDR1_CLK_N138	DDR1_DQ195	AL8	MD886
CLK229	AP20	DDR1_CLK_N139	DDR1_DQ196	AG8	MD887
CLK230	AL20	DDR1_CLK_N140	DDR1_DQ197	AN2X	MD888
CLK231	AP21	DDR1_CLK_N141	DDR1_DQ198	AF34	MD890
CLK232	AL20	DDR1_CLK_N142	DDR1_DQ199	AK33	MD881
CLK233	AP20	DDR1_CLK_N143	DDR1_DQ200	AN33	MD882
CLK234	AL20	DDR1_CLK_N144	DDR1_DQ201	AN29	MD883
CLK235	AP21	DDR1_CLK_N145	DDR1_DQ202	AN13	MD884
CLK236	AL20	DDR1_CLK_N146	DDR1_DQ203	AL8	MD886
CLK237	AP20	DDR1_CLK_N147	DDR1_DQ204	AG8	MD887
CLK238	AL20	DDR1_CLK_N148	DDR1_DQ205	AN2X	MD888
CLK239	AP21	DDR1_CLK_N149	DDR1_DQ206	AF34	MD890
CLK240	AL20	DDR1_CLK_N150	DDR1_DQ207	AK33	MD881
CLK241	AP20	DDR1_CLK_N151	DDR1_DQ208	AN33	MD882

HASWELL/10SC1-F01150-01R 10SC1-F01150-03R

**LGA1150 (CR)**

LGA1150  
ILM\_BP/1156/CSP

## DDR BUS

7 MODT\_A[0..3] ↔ MODT\_A[0..3]  
 8 MODT\_B[0..3] ↔ MODT\_B[0..3]  
 7 MDA[0..63] ↔ MDA[0..63]  
 8 MDB[0..63] ↔ MDB[0..63]  
 7 DQSA[0..7] ↔ DQSA[0..7]  
 7 -DQSA[0..7] ↔ -DQSA[0..7]  
 7 MAAB[0..15] ↔ MAAB[0..15]  
 8 MAAB[0..15] ↔ MAAB[0..15]  
 8 DQSB[0..7] ↔ DQSB[0..7]  
 8 -DQSB[0..7] ↔ -DQSB[0..7]

**(F, J)**



LGAI150G			
A13	VSS	VSS	AJ34
A15	VSS	VSS	AJ35
A17	VSS	VSS	AJ36
A22	VSS	VSS	AJ37
A11	VSS	VSS	AJ40
A43	VSS	VSS	AJ5
AA33	VSS	VSS	AJ8
AA35	VSS	VSS	AJ1
AA38	VSS	VSS	AJ10
AA6	VSS	VSS	AJ11
AA7	VSS	VSS	AJ12
AA8	VSS	VSS	AJ13
A5	VSS	VSS	AJ14
AB34	VSS	VSS	AJ18
AB37	VSS	VSS	AJ19
AB5	VSS	VSS	AJ24
AB7	VSS	VSS	AJ25
AC3	VSS	VSS	AJ26
AC33	VSS	VSS	AJ27
AC34	VSS	VSS	AJ28
AC35	VSS	VSS	AJ29
AC36	VSS	VSS	AJ30
AC37	VSS	VSS	AJ36
AC38	VSS	VSS	AJ4
AC39	VSS	VSS	AJ5
AC40	VSS	VSS	AJ6
AC6	VSS	VSS	AJ7
AC7	VSS	VSS	AJ8
A7	VSS	VSS	AJ9
AD1	VSS	VSS	AJ11
AD2	VSS	VSS	AJ14
AD3	VSS	VSS	AJ17
AD33	VSS	VSS	AJ21
AD36	VSS	VSS	AJ22
AD4	VSS	VSS	AJ24
AD5	VSS	VSS	AJ27
AD6	VSS	VSS	AJ30
AD7	VSS	VSS	AJ36
AD8	VSS	VSS	AJ37
AE33	VSS	VSS	AJ38
AE36	VSS	VSS	AJ39
AE37	VSS	VSS	AJ40
AE40	VSS	VSS	AJ5
AE5	VSS	VSS	AM1
AE8	VSS	VSS	AM11
AF3	VSS	VSS	AM14
AF33	VSS	VSS	AM15
AF36	VSS	VSS	AM19
AF4	VSS	VSS	AM2
AF5	VSS	VSS	AM24
AF8	VSS	VSS	AM27
AG33	VSS	VSS	AM5
AG36	VSS	VSS	AM30
AG37	VSS	VSS	AM31
AG38	VSS	VSS	AM32
AG39	VSS	VSS	AM33
AG40	VSS	VSS	AM34
AG8	VSS	VSS	AM35
AG9	VSS	VSS	AM36
AH1	VSS	VSS	AM5
AH2	VSS	VSS	AM6
AH3	VSS	VSS	AM10
AH33	VSS	VSS	AM11
AH36	VSS	VSS	AM14
AH4	VSS	VSS	AM16
AH5	VSS	VSS	AM18
AH8	VSS	VSS	AM19
AJ11	VSS	VSS	AM22
AJ14	VSS	VSS	AM23
AJ16	VSS	VSS	AM24
AJ18	VSS	VSS	AM27
AJ19	VSS	VSS	AM30
AJ22	VSS	VSS	AM36
AJ23	VSS	VSS	AM37
AJ26	VSS	VSS	AM40
AJ27	VSS	VSS	AM5
AJ30	VSS	VSS	AM6
AJ31	VSS	VSS	AM7
AJ32	VSS	VSS	AM8
AJ33	VSS	VSS	AM9
	VSS	VSS	AP1

(X30)



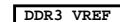
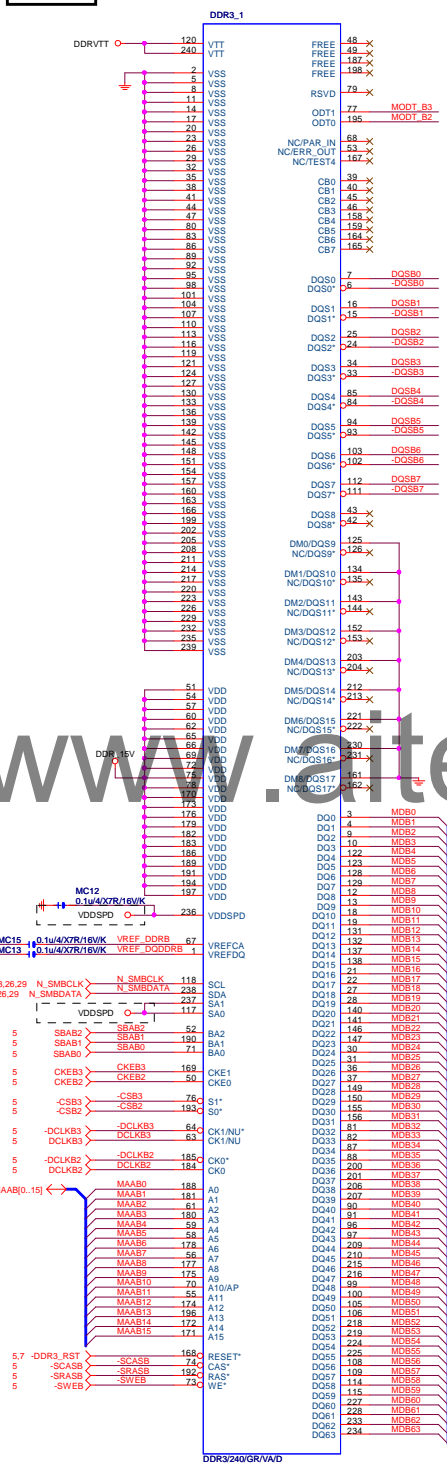
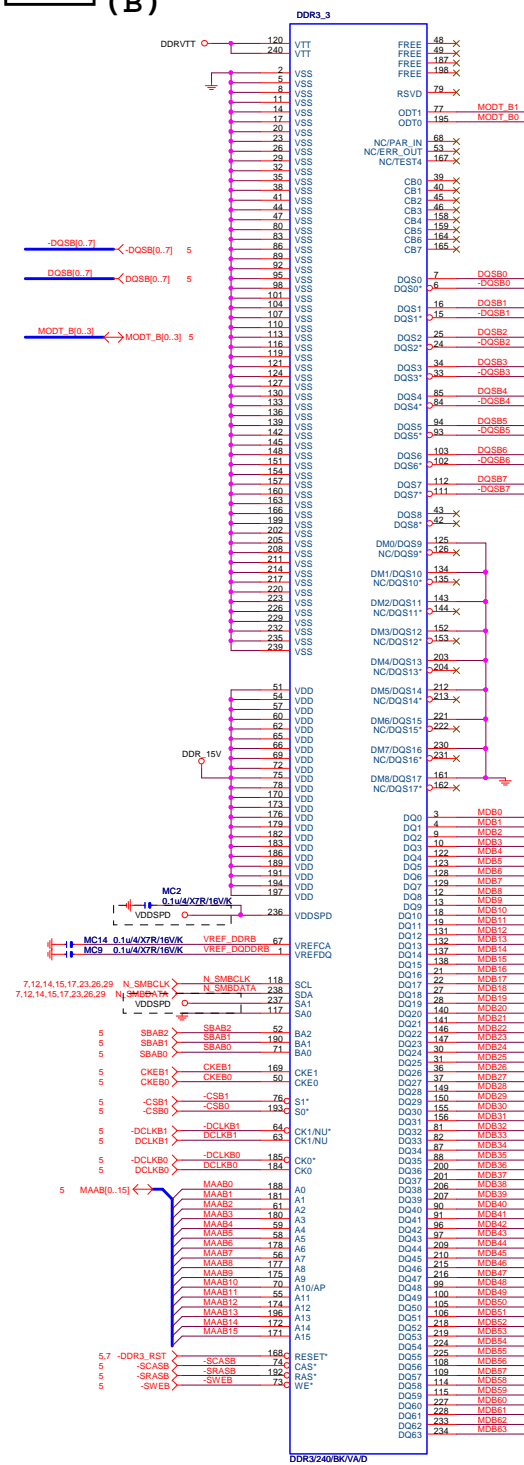
(X15)







(B)



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

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

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

**COUPON**

CPU

CHA

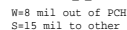
CHB

## Gigabyte Technology

Title				DDRIII CHANNEL B			
Size	Document Number						Rev
Custom	GA-Z87-HD3						1.1
Date:				Sheet 8 of 34			

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)  
Impedance=85 +- 17.5%

PCHB Impedance=85 +/- 15%



LAN AR8161

```
ITE8892 PCI
Bridge
```

PCIEX4 port1

PCIEX4 port2

```
PCIEX4_port3
PCIEX1_1
```

```
H81:PCIE 7/8.
PCIEX4 port4
PCIEX1_2
```

**放靠近** Device & PCI-E Slot

DH82Z87/S/10HB1-030Z87-20R1

PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

usb2.0 5/7/5//12

usb3.0 5/7/5//20 Impedance=85 +- 15%



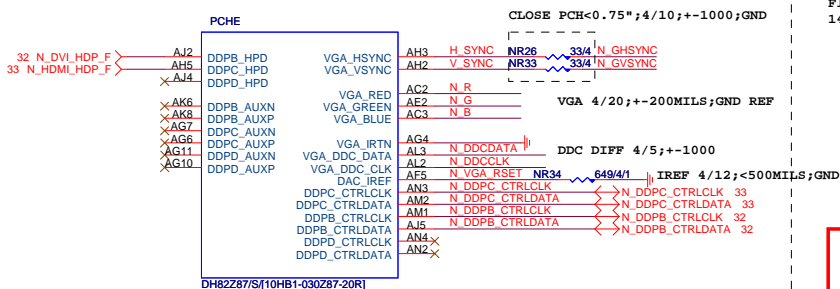
OC[7:4]# for Device 26 (ports 8-13)

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number		Rev
Custom	GA-Z87-HD3		1.1
Date:	Wednesday, October 16, 2013	Sheet	9 of 34



# PCH (E)



VGA DISABLE

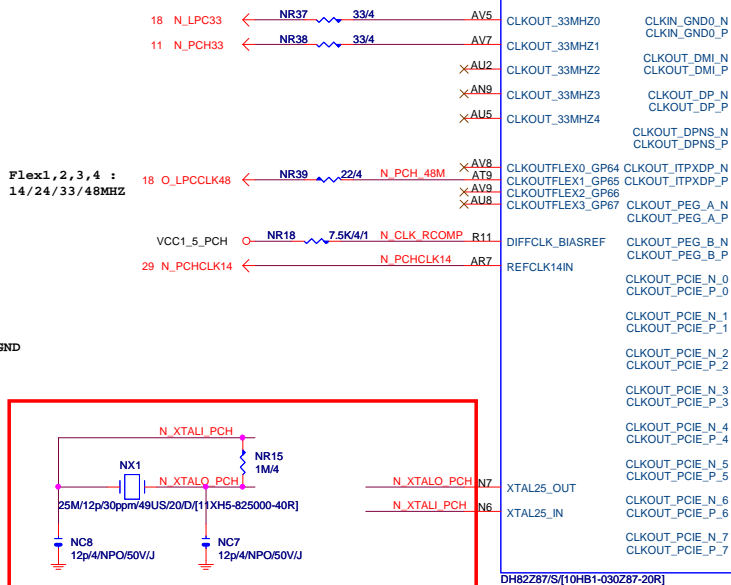
R,G,B NC OR GND

IRTN / IREF GND

VGA\_HSYNC, VGA\_VSYNC, DDC\_CLK, DDC\_DATA NC

POWER VCCADAC(AF2), VCCADACBG(AE1) GND

# PCH (G)

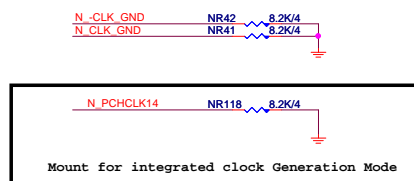


CRYSTAL/TRACE 週邊不要有訊號,VIA靠近

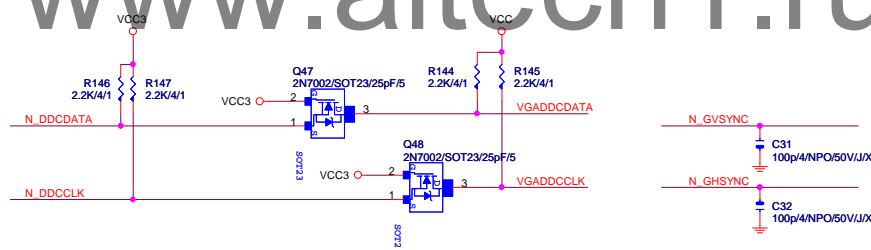
PCIEX4  
CLOCK (PE\_SRRCLK\_3GIO1) 由PIN  
R6,R7 換成PIN W7,W6  
避免跟CRYSTAL 25MHZ干擾

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

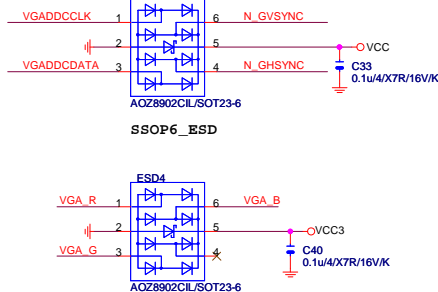
# PCH CLK PD



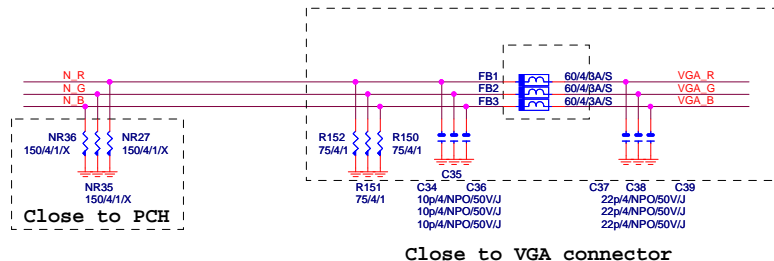
# VGA DDC



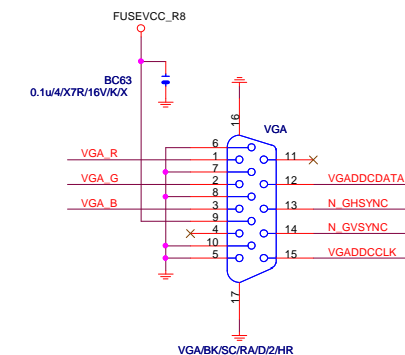
# VGA ESD



# VGA DDC



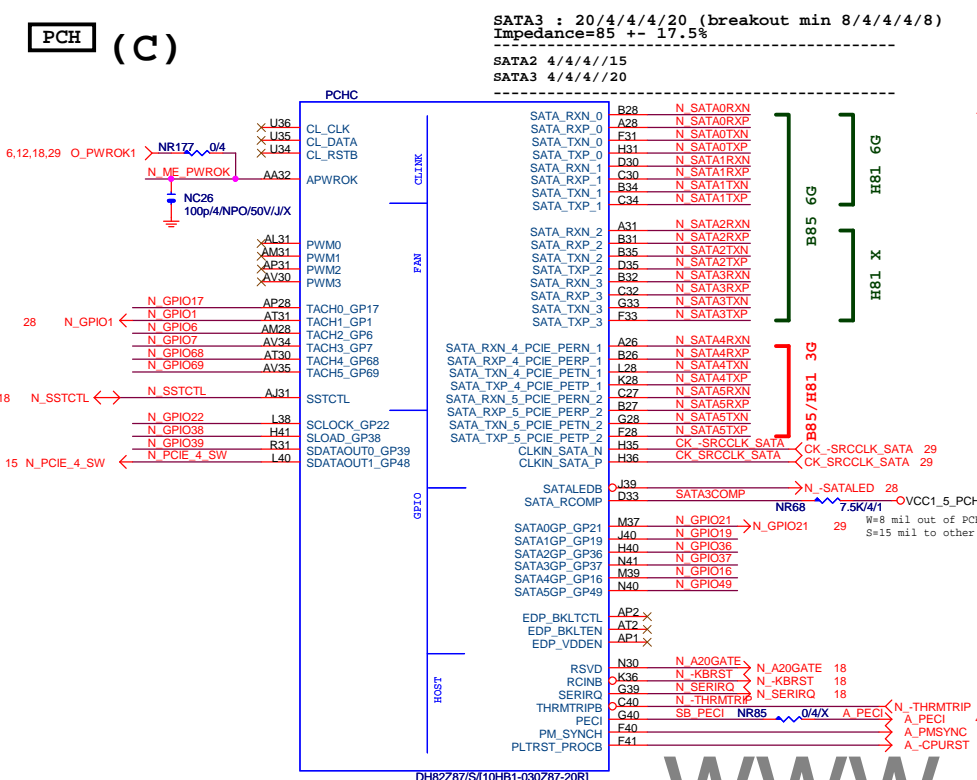
# VGA CONNECTOR



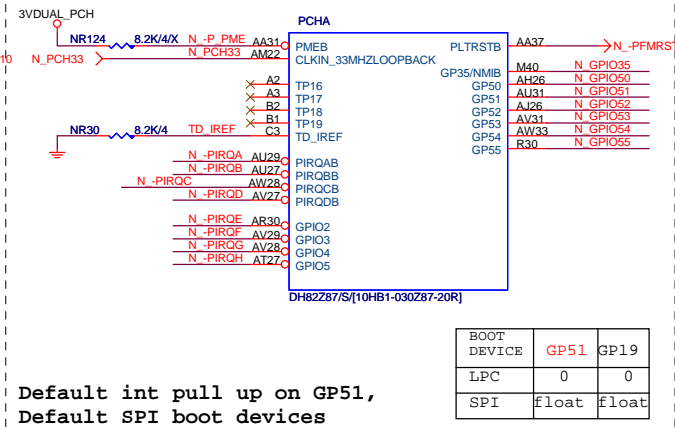
# Gigabyte Technology

Title		
PCH DISPLAY ,CLK BUFFER		
Size	Document Number	Rev
Custom	GA-Z87-HD3	1.11
Date:	Thursday, October 31, 2013	Sheet 10 of 34

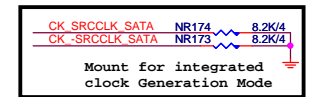
**PCH (C)**



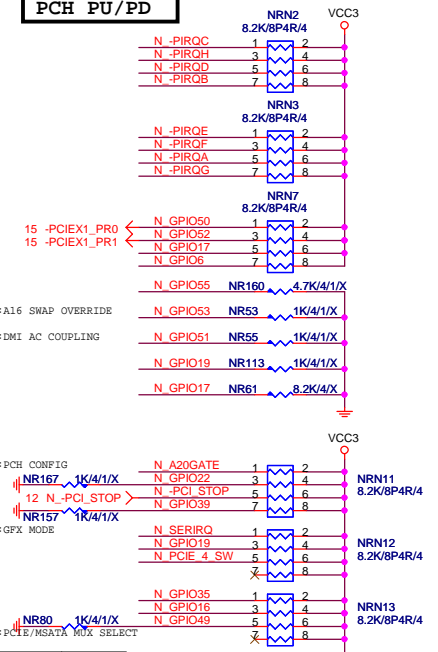
**PCH (A)**



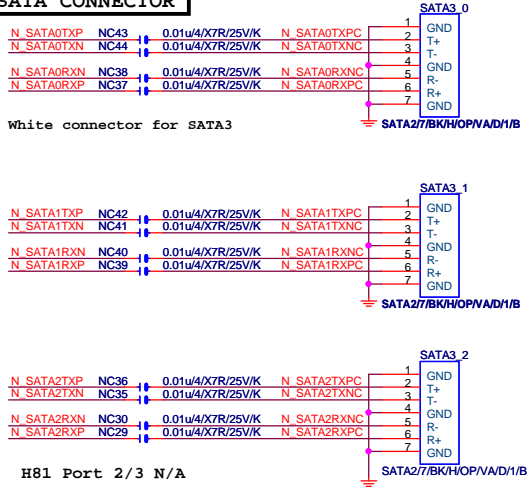
PCH CLK PD



PCH PU/PD



## SATA CONNECTOR



**SATA3\_3**

Pin	Signal	Pin	Signal
1	N SATA3TXP	NC34	0.01u/4/X7R/25V/K
2	N SATA3TXN	NC33	0.01u/4/X7R/25V/K
3			
4			
5	N SATA3RXN	NC32	0.01u/4/X7R/25V/K
6	N SATA3RXN	NC31	0.01u/4/X7R/25V/K
7	N SATA3RXP		

[Z87/H87] all SATA3  
 SATA3 (From Z87) - 黑色  
 SATA3 (From Marvell) - 灰色  
 [B85] SATA2+SATA3  
 SATA2 (From B85) - 黑色  
 SATA3 (From B85) - 白色

**SATA3\_4**

Pin	Signal	Pin	Signal
1	N SATA4TXP	NC45	0.01u/4/X7R/25V/K
2	N SATA4TXN	NC46	0.01u/4/X7R/25V/K
3			
4			
5	N SATA4RXN	NC47	0.01u/4/X7R/25V/K
6	N SATA4RXP	NC48	0.01u/4/X7R/25V/K
7			

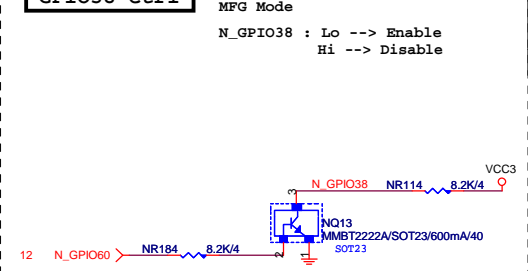
SATA2//BK/H/OP/VA/D/1/B

**SATA3\_5**

Pin	Signal	Pin	Signal
1	N SATA5TXP	NC27	0.01u/4/X7R/25V/K
2	N SATA5TXN	NC28	0.01u/4/X7R/25V/K
3			
4			
5	N SATA5RXN	NC25	0.01u/4/X7R/25V/K
6	N SATA5RXP	NC24	0.01u/4/X7R/25V/K
7			

SATA2//BK/H/OP/VA/D/1/B

GPIO38 Ctrl



```
MFG Mode
N_GPIO38 : Lo --> Enable
           Hi --> Disable
```

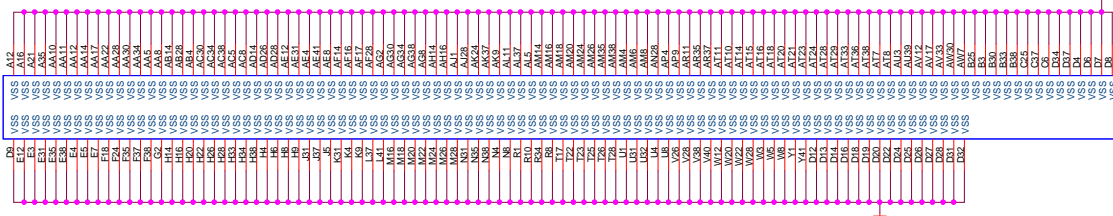
## Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	GA-Z87-HD3	1.11	
Date:	Wednesday, October 16, 2013	Sheet	11 of 34

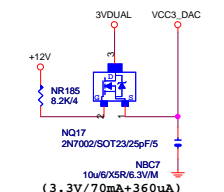




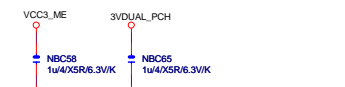
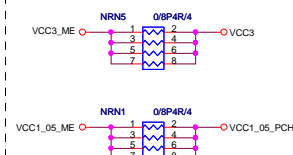
**PCH (I)**



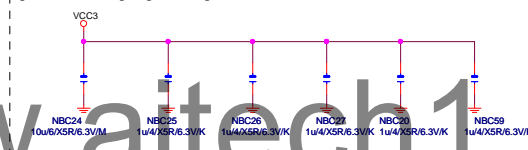
SHT PWR



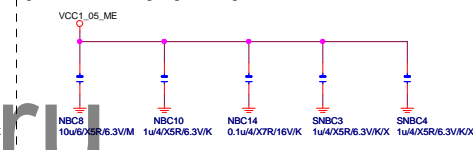
The schematic diagram illustrates the power supply section of the L117LGN/SOT223-1A. It features a 5VSB input connected to a 3VDUAL\_PCH output through a network of resistors (NR176, NR180, NR181) and capacitors (NBC67, NBC66, NBC68). The input is also connected to a CH pin. The output is connected to a 3VDUAL\_PCH pin.



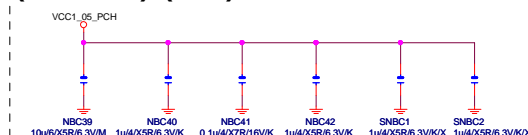
( 3.3V ) ( X6 )



(1.05V) (x5)



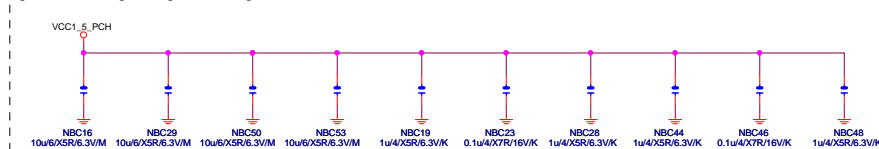
(1.05V) (X6)



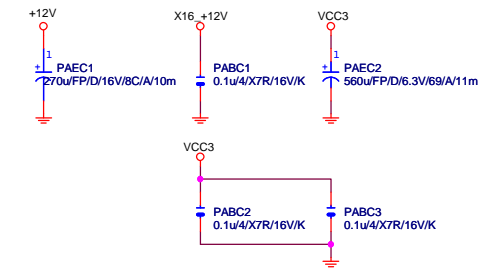
$(1.05V)(x2) (3.3V) (x2)$



(1.5V) (x10)

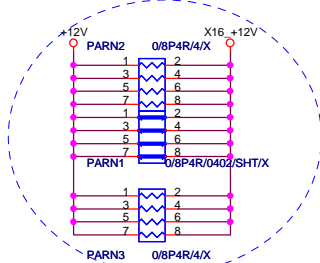


# PCIEX16 CAP



# PCIEX16 PROTECT SHT

+12 protect short-wire test



# PCIEX16 AC CAP

PA EXP TXP0 C	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0 C	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1 C	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1 C	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2 C	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2 C	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3 C	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3 C	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4 C	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4 C	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5 C	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5 C	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6 C	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6 C	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7 C	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7 C	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8 C	PAC20	0.22u/4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8 C	PAC21	0.22u/4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9 C	PAC22	0.22u/4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9 C	PAC23	0.22u/4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10 C	PAC24	0.22u/4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10 C	PAC25	0.22u/4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11 C	PAC26	0.22u/4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11 C	PAC27	0.22u/4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12 C	PAC28	0.22u/4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12 C	PAC29	0.22u/4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13 C	PAC30	0.22u/4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13 C	PAC31	0.22u/4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14 C	PAC32	0.22u/4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14 C	PAC33	0.22u/4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15 C	PAC34	0.22u/4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15 C	PAC35	0.22u/4/X5R/6.3V/K	PA EXP TXN15 C

PCI-E REV:1.1--> 2.5GHZ

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

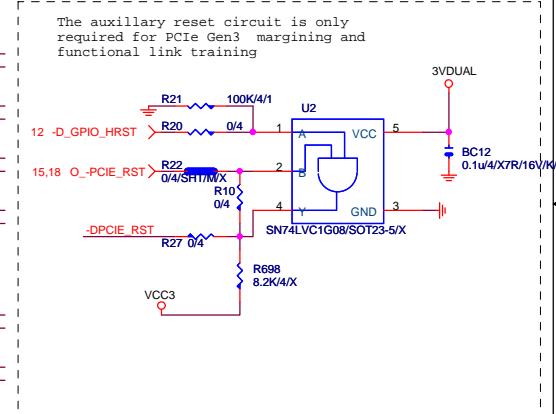
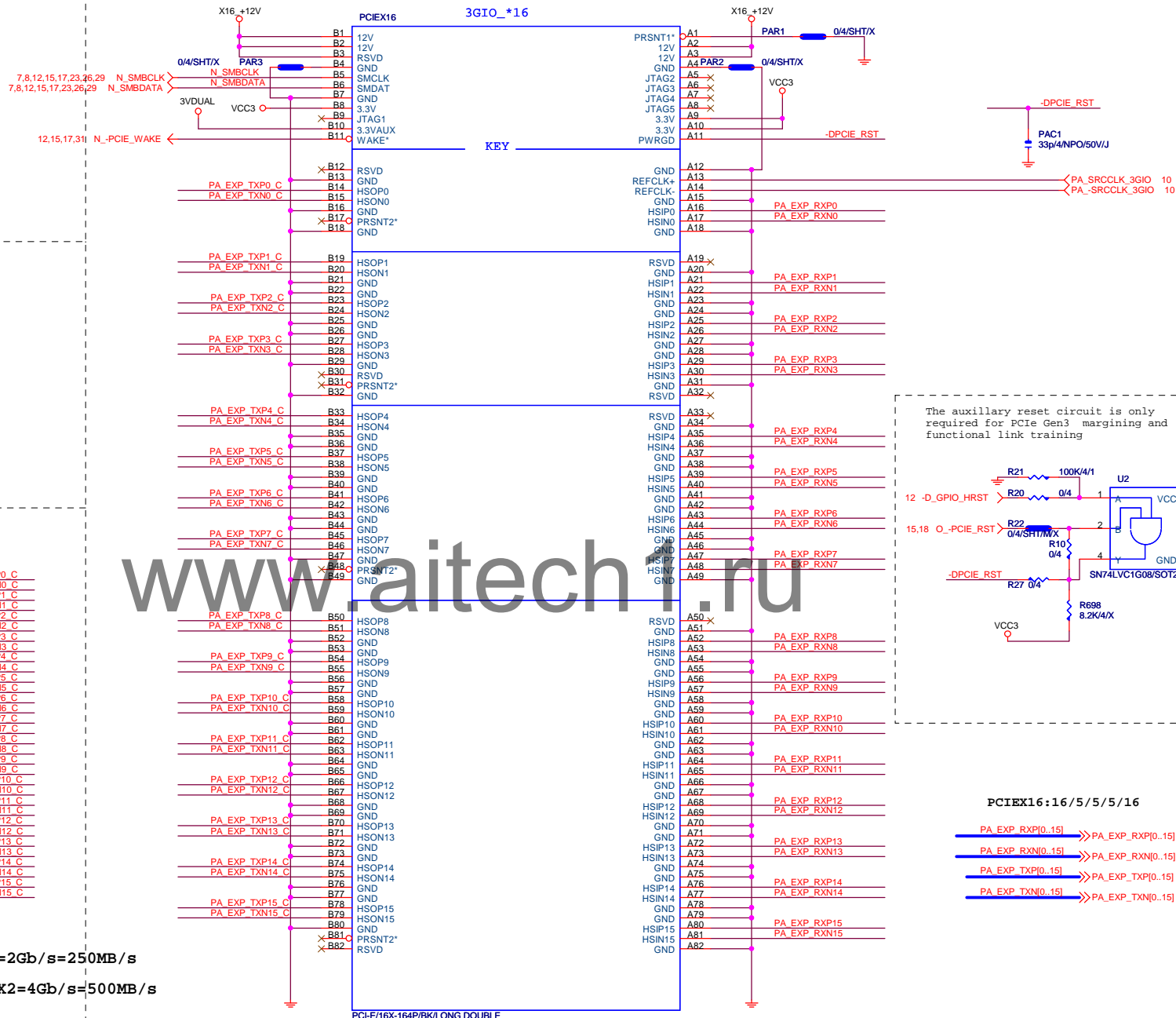
PCE-E X1(雙向) BANDWITH=2.5GHz\*(8b/10b)X2=4Gb/s=500MB/s

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

# PCIEX16 SLOT



PCIEX16:16/5/5/5/16

PA EXP RXP0[0..15]	>>>PA_EXP_RXP[0..15]	4
PA EXP RXN0[0..15]	>>>PA_EXP_RXN[0..15]	4
PA EXP TXP0[0..15]	>>>PA_EXP_TXP[0..15]	4
PA EXP TXN0[0..15]	>>>PA_EXP_TXN[0..15]	4

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PCI EXPRESS * 16			
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[illegible]


	N_PCIE_4_SW (PCH_GPIO48)	PCIEX4_X1 (SIO_GPIO26)
P		
C	H	H
PCIEX4 No devices		
PCIEX4 -> X1	H	H
PCIEX4 Have devices		
PCIEX4 -> X4	L	L
PCIEX1_1/2 --> N/A		
E		
X		
4		
-		
-		

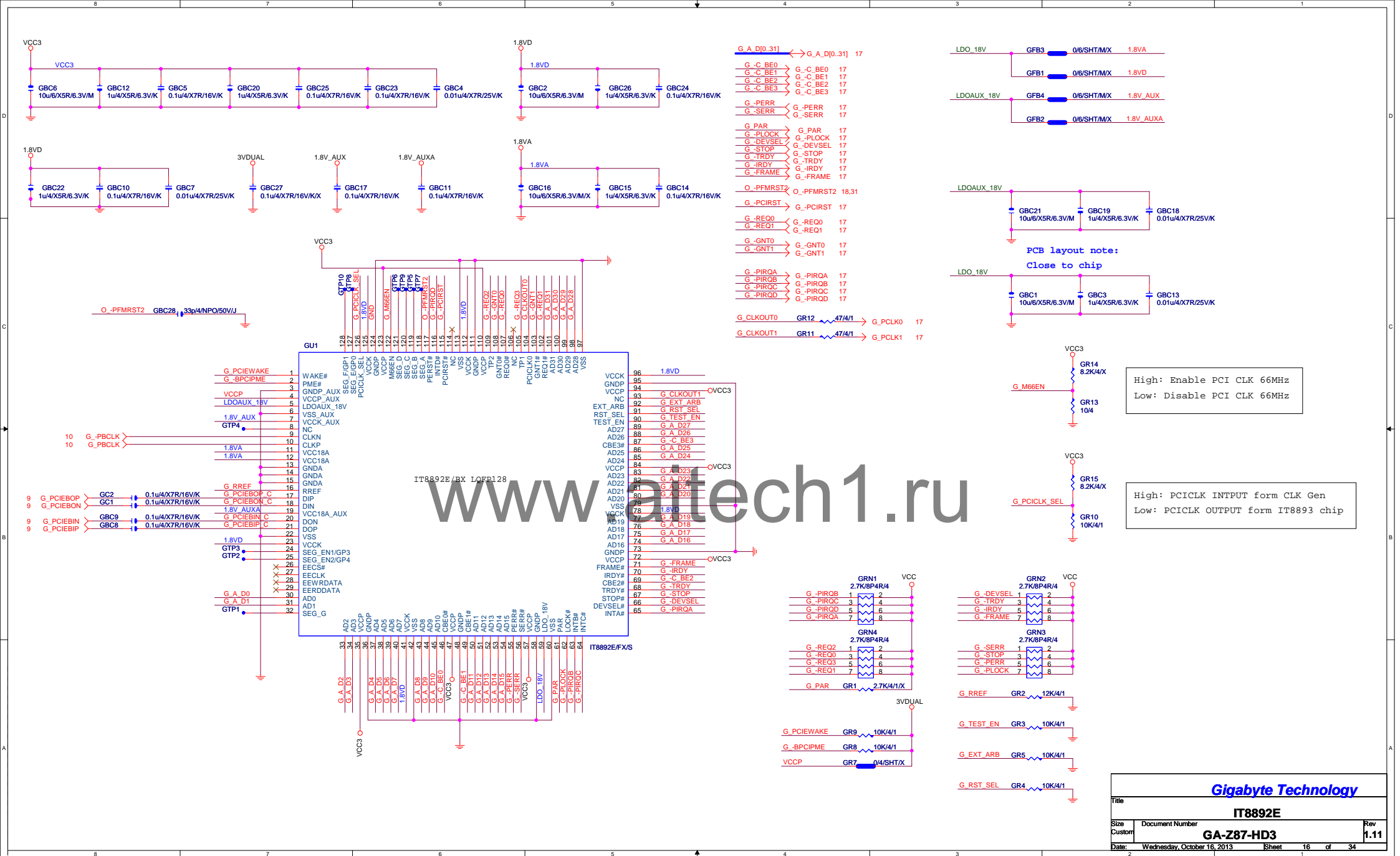
The diagram illustrates the pinout for a PCIE1X1 slot, categorized into three main sections: PBC1, PCIE1\_1, and PCIE1X1 3GIO\_X1. The PBC1 section includes pins for PBC1\_1 (0.1uA/X7R/16VK), PIR3 (0.4/SHT/X), and N\_SMBCLK/N\_SMBDATA. The PCIE1\_1 section includes pins for VCC3, 3VDUAL, and N\_PCIE\_WAKE. The PCIE1X1 3GIO\_X1 section includes pins for R/SVD, SMCLK, SMDAT, GND, 3.3V, JTAG1, 3.3VAUX, WAKE\*, PWRGD, and various signals for the PCIE1X1-3P/BK0L connector, including REFCLK+, REFCLK-, GND, HSIO0, HSIO1, HSIO2, PRSNT2\*, and GND. The diagram also shows the connection of the PCIE1X1-3P/BK0L connector to the PCIE1X1-3P/BK0L connector, with pins for PI\_PCIE\_B SW TP3, PI\_PCIE\_B SW TN3, and PI\_PCIE\_B SW IP3.

The diagram illustrates the connection between the **PCIEX1\_2** and **3GIO\_X1** components. The **PCIEX1\_2** component includes pins for **PJBC1**, **PJR3**, **N\_SMBCLK**, **N\_SMBDATA**, **VCC3**, **3VDUAL**, **N\_PCIE\_WAKE**, **PJ\_PCIE\_B\_SW\_TP4**, **PJ\_PCIE\_B\_SW\_TN4**, **-PCIE1X\_PR1**, and **KEY**. The **3GIO\_X1** component includes pins for **PRSNT1\***, **A1**, **A2**, **A3**, **A4**, **A5**, **A6**, **A7**, **A8**, **A9**, **A10**, **A11**, **A12**, **A13**, **A14**, **A15**, **A16**, **A17**, **A18**, **PWRGD**, **REFCLK+**, **REFCLK-**, **HSIO0P**, **HSIO0N**, **HSIO1P**, **HSIO1N**, **HSIO2P**, **HSIO2N**, **HSIO3P**, **HSIO3N**, **HSIO4P**, **HSIO4N**, **HSIO5P**, **HSIO5N**, **HSIO6P**, **HSIO6N**, **HSIO7P**, **HSIO7N**, **HSIO8P**, **HSIO8N**, **HSIO9P**, **HSIO9N**, **HSIO10P**, **HSIO10N**, **HSIO11P**, **HSIO11N**, **HSIO12P**, **HSIO12N**, **HSIO13P**, **HSIO13N**, **HSIO14P**, **HSIO14N**, **HSIO15P**, **HSIO15N**, **HSIO16P**, **HSIO16N**, **HSIO17P**, **HSIO17N**, **HSIO18P**, **HSIO18N**, **HSIO19P**, **HSIO19N**, **HSIO20P**, **HSIO20N**, **HSIO21P**, **HSIO21N**, **HSIO22P**, **HSIO22N**, **HSIO23P**, **HSIO23N**, **HSIO24P**, **HSIO24N**, **HSIO25P**, **HSIO25N**, **HSIO26P**, **HSIO26N**, **HSIO27P**, **HSIO27N**, **HSIO28P**, **HSIO28N**, **HSIO29P**, **HSIO29N**, **HSIO30P**, **HSIO30N**, **HSIO31P**, **HSIO31N**, **HSIO32P**, **HSIO32N**, **HSIO33P**, **HSIO33N**, **HSIO34P**, **HSIO34N**, **HSIO35P**, **HSIO35N**, **HSIO36P**, **HSIO36N**, **HSIO37P**, **HSIO37N**, **HSIO38P**, **HSIO38N**, **HSIO39P**, **HSIO39N**, **HSIO40P**, **HSIO40N**, **HSIO41P**, **HSIO41N**, **HSIO42P**, **HSIO42N**, **HSIO43P**, **HSIO43N**, **HSIO44P**, **HSIO44N**, **HSIO45P**, **HSIO45N**, **HSIO46P**, **HSIO46N**, **HSIO47P**, **HSIO47N**, **HSIO48P**, **HSIO48N**, **HSIO49P**, **HSIO49N**, **HSIO50P**, **HSIO50N**, **HSIO51P**, **HSIO51N**, **HSIO52P**, **HSIO52N**, **HSIO53P**, **HSIO53N**, **HSIO54P**, **HSIO54N**, **HSIO55P**, **HSIO55N**, **HSIO56P**, **HSIO56N**, **HSIO57P**, **HSIO57N**, **HSIO58P**, **HSIO58N**, **HSIO59P**, **HSIO59N**, **HSIO60P**, **HSIO60N**, **HSIO61P**, **HSIO61N**, **HSIO62P**, **HSIO62N**, **HSIO63P**, **HSIO63N**, **HSIO64P**, **HSIO64N**, **HSIO65P**, **HSIO65N**, **HSIO66P**, **HSIO66N**, **HSIO67P**, **HSIO67N**, **HSIO68P**, **HSIO68N**, **HSIO69P**, **HSIO69N**, **HSIO70P**, **HSIO70N**, **HSIO71P**, **HSIO71N**, **HSIO72P**, **HSIO72N**, **HSIO73P**, **HSIO73N**, **HSIO74P**, **HSIO74N**, **HSIO75P**, **HSIO75N**, **HSIO76P**, **HSIO76N**, **HSIO77P**, **HSIO77N**, **HSIO78P**, **HSIO78N**, **HSIO79P**, **HSIO79N**, **HSIO80P**, **HSIO80N**, **HSIO81P**, **HSIO81N**, **HSIO82P**, **HSIO82N**, **HSIO83P**, **HSIO83N**, **HSIO84P**, **HSIO84N**, **HSIO85P**, **HSIO85N**, **HSIO86P**, **HSIO86N**, **HSIO87P**, **HSIO87N**, **HSIO88P**, **HSIO88N**, **HSIO89P**, **HSIO89N**, **HSIO90P**, **HSIO90N**, **HSIO91P**, **HSIO91N**, **HSIO92P**, **HSIO92N**, **HSIO93P**, **HSIO93N**, **HSIO94P**, **HSIO94N**, **HSIO95P**, **HSIO95N**, **HSIO96P**, **HSIO96N**, **HSIO97P**, **HSIO97N**, **HSIO98P**, **HSIO98N**, **HSIO99P**, **HSIO99N**, **HSIO100P**, **HSIO100N**, **HSIO101P**, **HSIO101N**, **HSIO102P**, **HSIO102N**, **HSIO103P**, **HSIO103N**, **HSIO104P**, **HSIO104N**, **HSIO105P**, **HSIO105N**, **HSIO106P**, **HSIO106N**, **HSIO107P**, **HSIO107N**, **HSIO108P**, **HSIO108N**, **HSIO109P**, **HSIO109N**, **HSIO110P**, **HSIO110N**, **HSIO111P**, **HSIO111N**, **HSIO112P**, **HSIO112N**, **HSIO113P**, **HSIO113N**, **HSIO114P**, **HSIO114N**, **HSIO115P**, **HSIO115N**, **HSIO116P**, **HSIO116N**, **HSIO117P**, **HSIO117N**, **HSIO118P**, **HSIO118N**, **HSIO119P**, **HSIO119N**, **HSIO120P**, **HSIO120N**, **HSIO121P**, **HSIO121N**, **HSIO122P**, **HSIO122N**, **HSIO123P**, **HSIO123N**, **HSIO124P**, **HSIO124N**, **HSIO125P**, **HSIO125N**, **HSIO126P**, **HSIO126N**, **HSIO127P**, **HSIO127N**, **HSIO128P**, **HSIO128N**, **HSIO129P**, **HSIO129N**, **HSIO130P**, **HSIO130N**, **HSIO131P**, **HSIO131N**, **HSIO132P**, **HSIO132N**, **HSIO133P**, **HSIO133N**, **HSIO134P**, **HSIO134N**, **HSIO135P**, **HSIO135N**, **HSIO136P**, **HSIO136N**, **HSIO137P**, **HSIO137N**, **HSIO138P**, **HSIO138N**, **HSIO139P**, **HSIO139N**, **HSIO140P**, **HSIO140N**, **HSIO141P**, **HSIO141N**, **HSIO142P**, **HSIO142N**, **HSIO143P**, **HSIO143N**, **HSIO144P**, **HSIO144N**, **HSIO145P**, **HSIO145N**, **HSIO146P**, **HSIO146N**, **HSIO147P**, **HSIO147N**, **HSIO148P**, **HSIO148N**, **HSIO149P**, **HSIO149N**, **HSIO150P**, **HSIO150N**, **HSIO151P**, **HSIO151N**, **HSIO152P**, **HSIO152N**, **HSIO153P**, **HSIO153N**, **HSIO154P**, **HSIO154N**, **HSIO155P**, **HSIO155N**, **HSIO156P**, **HSIO156N**, **HSIO157P**, **HSIO157N**, **HSIO158P**, **HSIO158**

The schematic diagram illustrates a PCIe4/X1 switch circuit. It features a BC10 1u4/5SR.6.3VK diode and a BC8 1u4/5SR.6.3VK diode connected to VCC3. A PIC2 0.1u4/0X7R/16VK capacitor and a PIC3 0.1u4/0X7R/16VK capacitor are connected to the VCC3 line. A PJ2 0.1u4/0X7R/16VK capacitor and a PJ3 0.1u4/0X7R/16VK capacitor are connected to the GND line. A R12 8.2K/4 resistor and a R13 22K/4 resistor are connected to the 18V source. A Q2 MMBT2222A/SOT23/600mA40 transistor is connected to the 18V source and the GND line. The output is labeled PCIe4\_X1.

Function	SEL
XI--> xOa L;PCIEX4 SLOT-->X1	
XI--> xOb H;PCIEX4 SLOT-->X4	

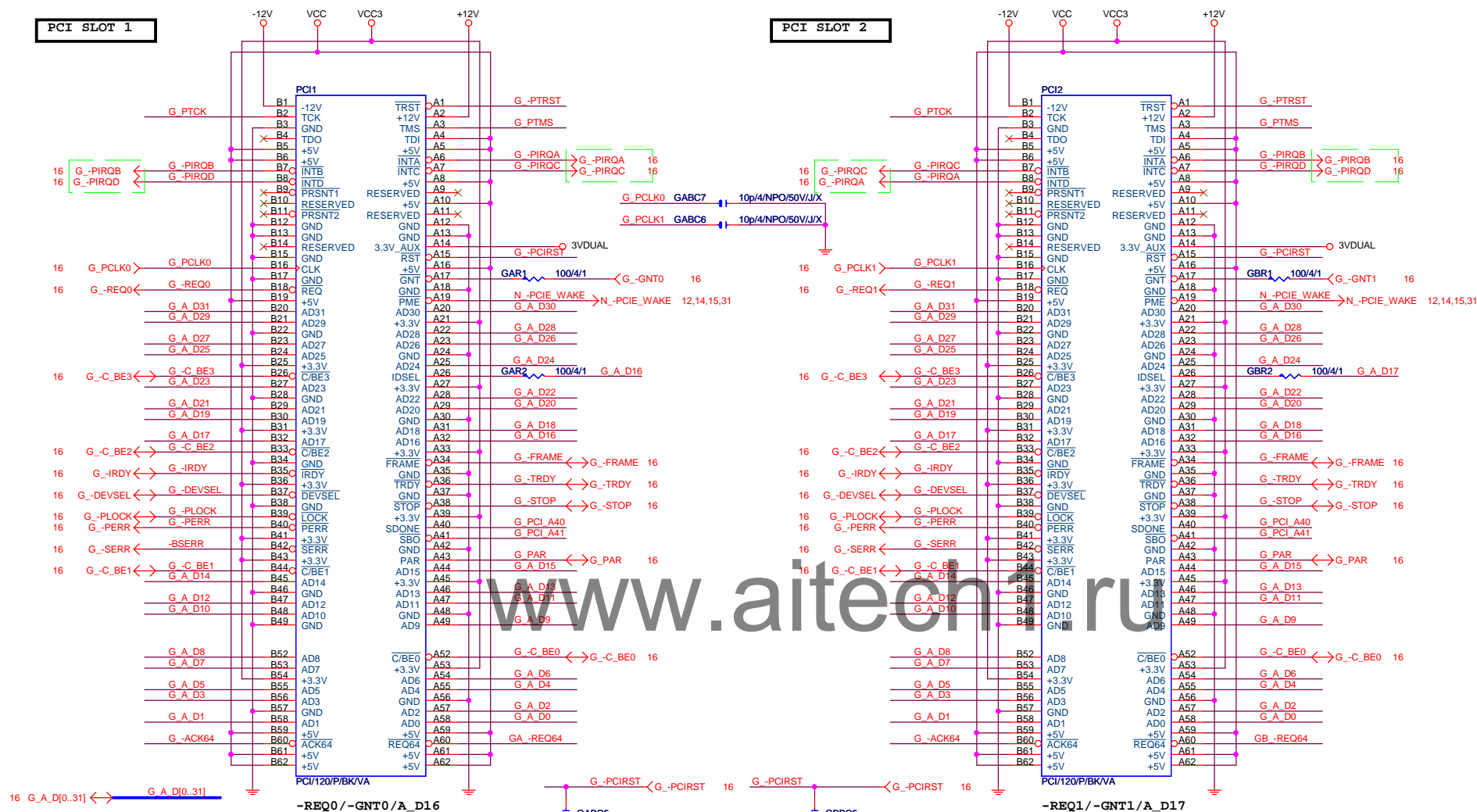

  
**PCIE\_X1 1,2**
  
**GA-Z87-HD3**
  
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Gigabyte Technology		
Title		
IT8892E		
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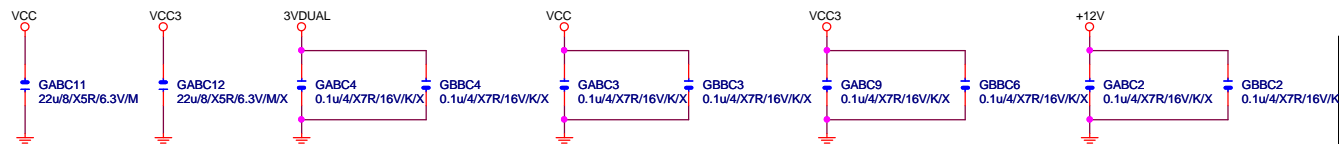
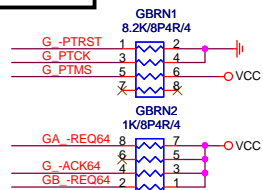
# PCI SLOT 1

# PCI SLOT 2



## PCI PU

## PCI CAP

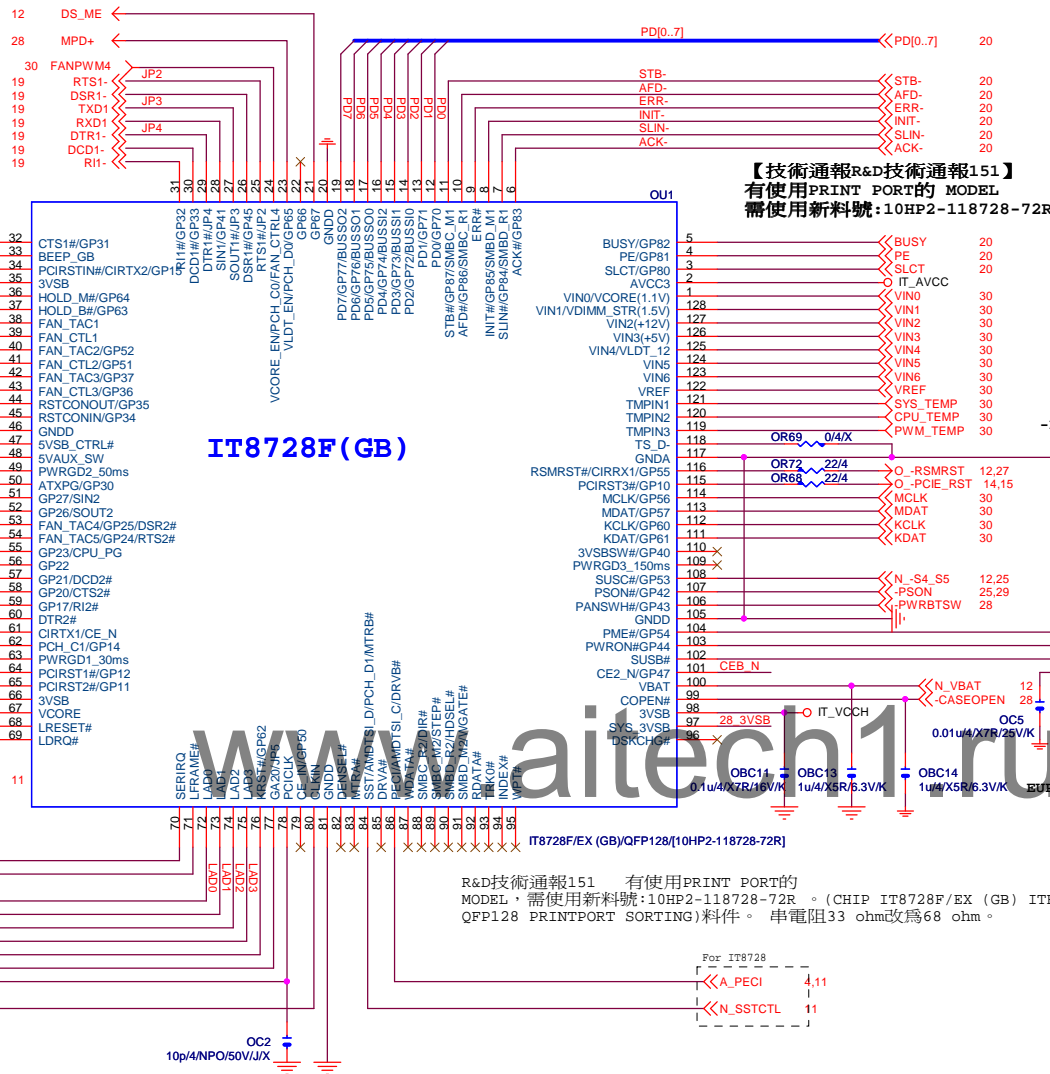


### PCI SLOT 1&2

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## SIO IT8728F

SYS\_FAN3



IT8728F (GB)

R&D技術通報151 有使用PRINT PORTの  
MODEL 需使用新料號:10HP2-118728-72R (CHIP IT8728F/EX (GB) ITE/SMD  
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。

For IT8728  
A\_PECI 4,11  
N\_SSTCTL 11

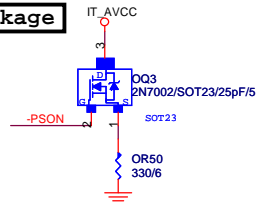
## IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSL_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSL_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

## DUAL BIOS OPT STRAP



## Power leakage

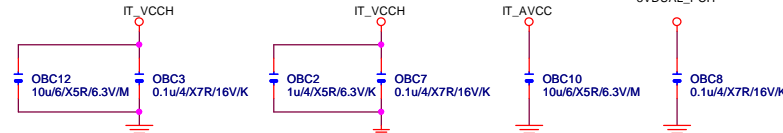


## SIO\_18V

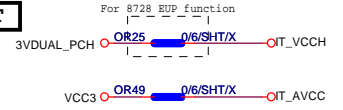
internal power pin, max 22nF cap



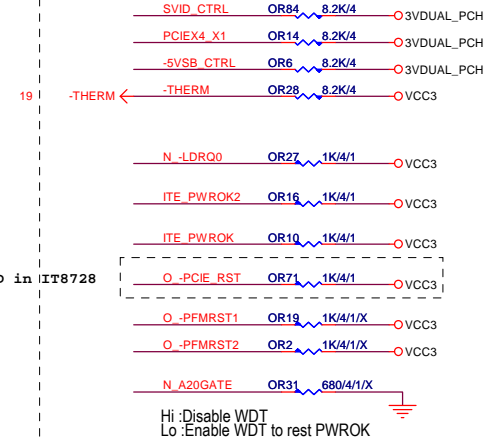
## SIO CAP



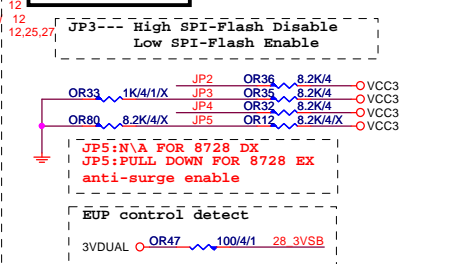
## PWR SHT



## SIO PU

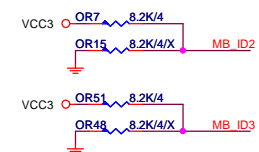


## SIO STRAP



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.
	0 1	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.

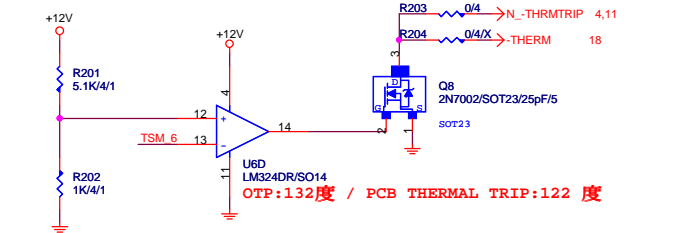
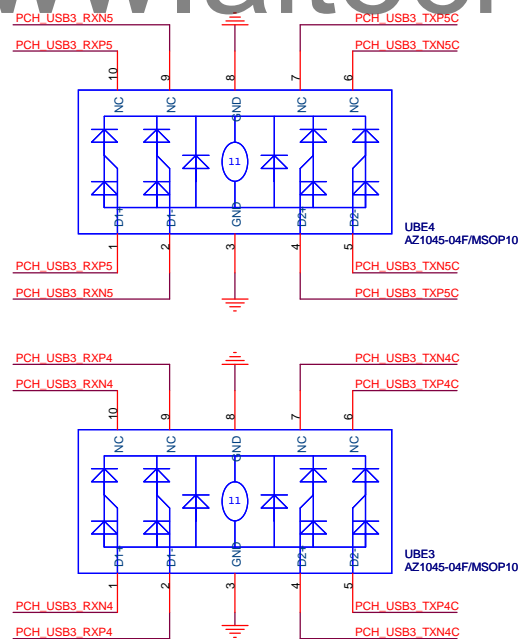
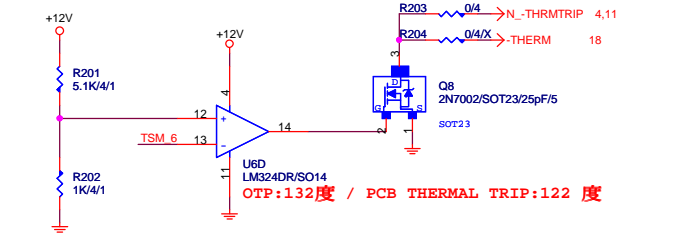
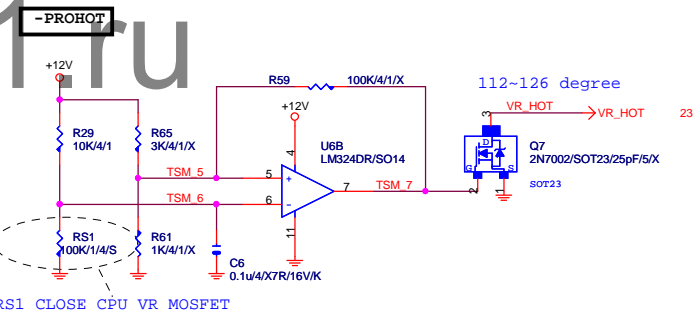
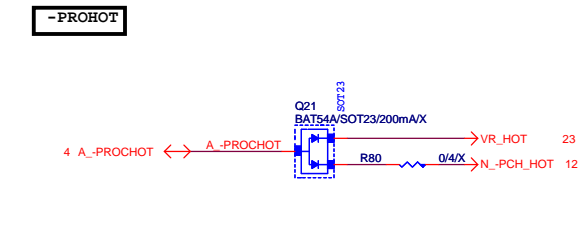
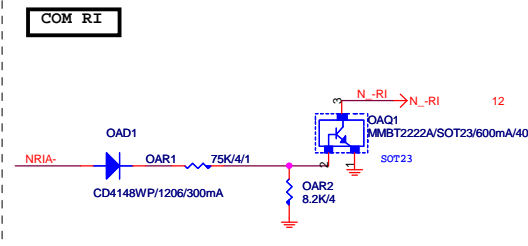
## MB ID



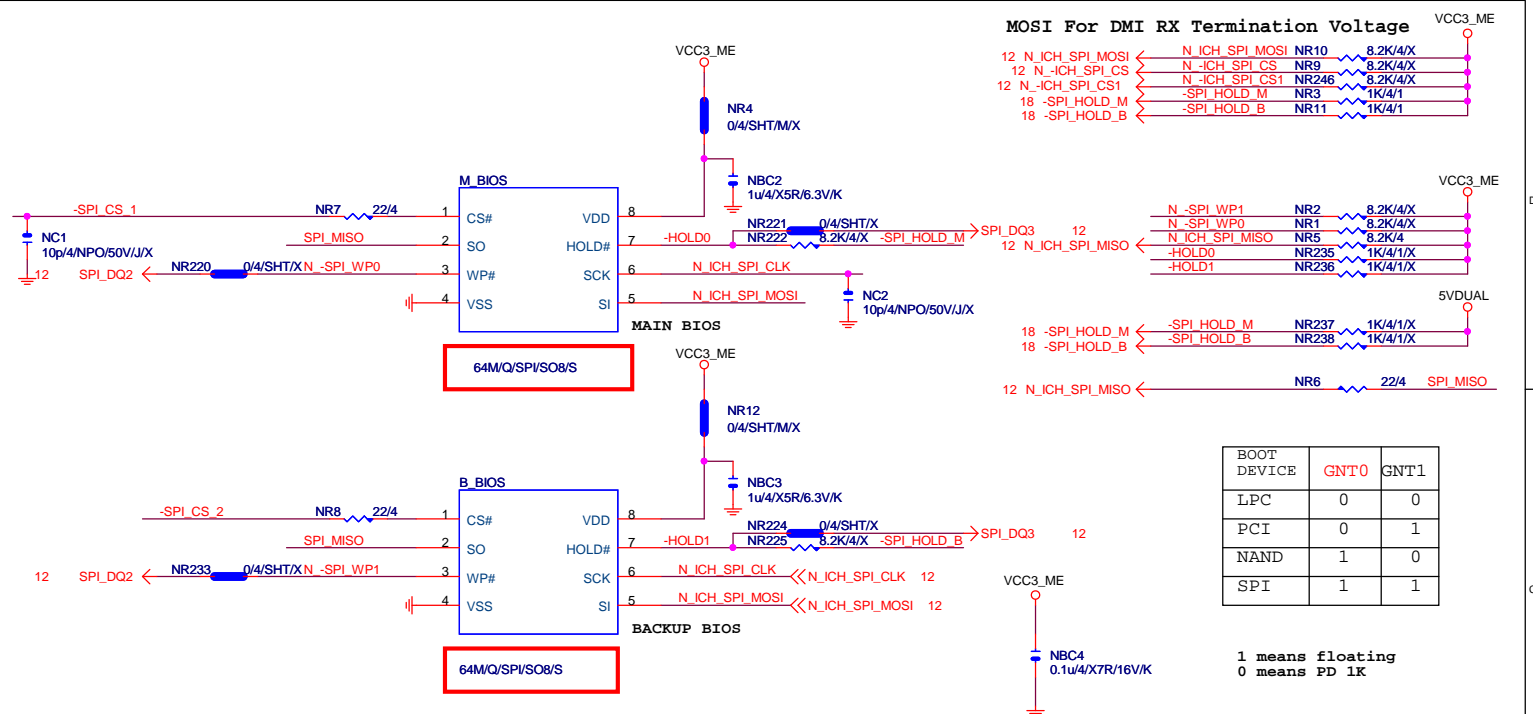
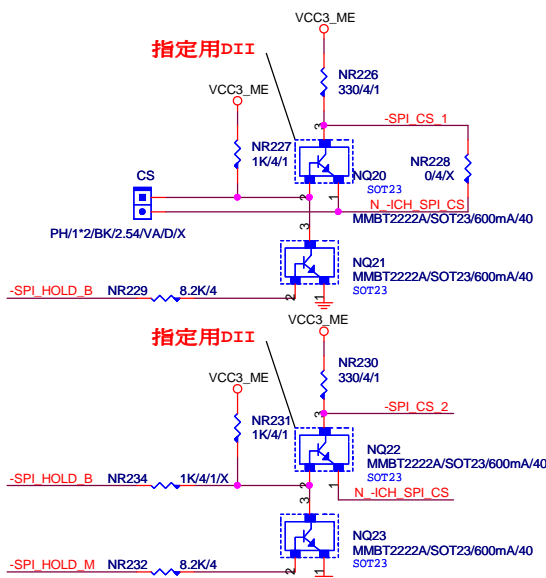
Gigabyte Technology

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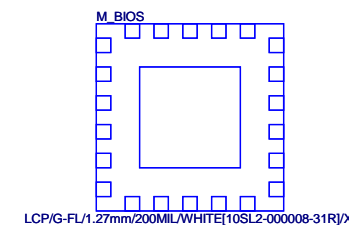
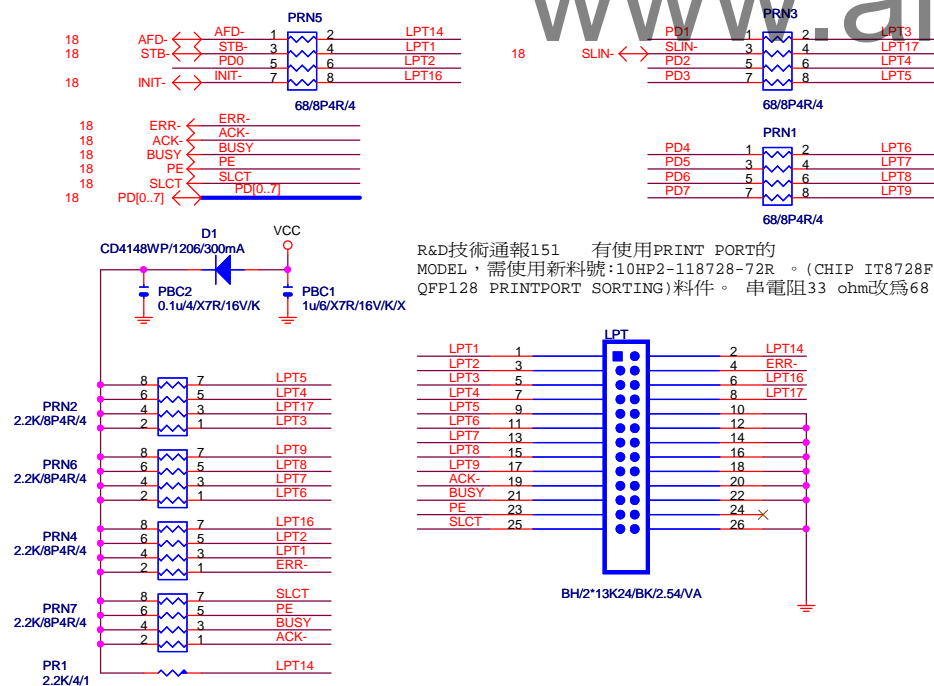




## DUAL BIOS



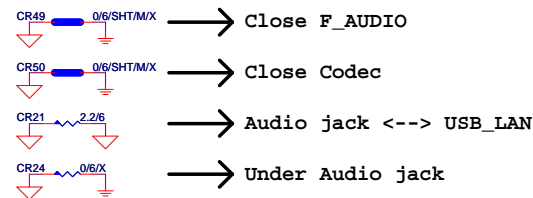
## LPT PORT



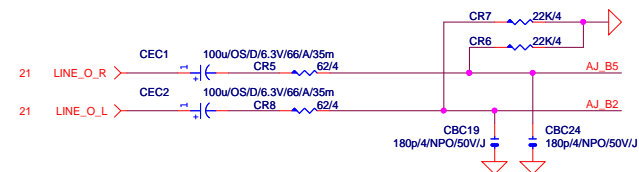


Pin 1 to 6 connection diagram for the AOZ8902C/L/SOT23-6/X component. The diagram shows a 6-pin package with pins 1, 2, 3, 4, 5, and 6. Pin 1 is connected to LINE2\_L. Pin 2 is connected to a triangle symbol. Pin 3 is connected to MIC2\_R. Pin 4 is connected to MIC2\_L. Pin 5 is connected to 5VDDA. Pin 6 is connected to LINE2\_R. The component is labeled CSD1 and AOZ8902C/L/SOT23-6/X.





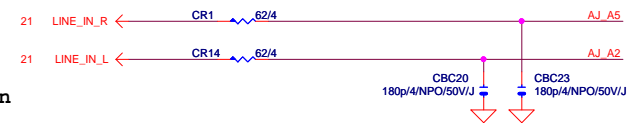
## LINE-OUT



## LINE-IN

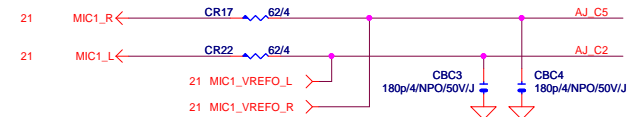
Verify MIC function  
in LINE-in

Only reserved for ALC888

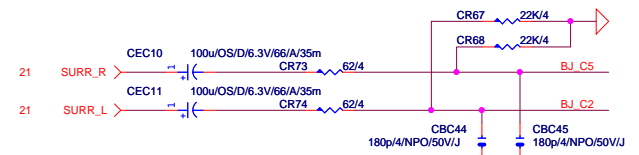


For 889A/888

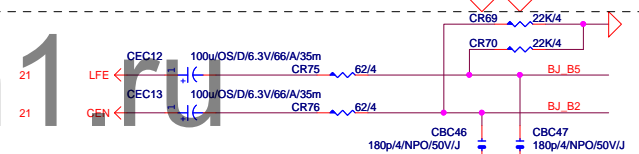
## MIC-IN



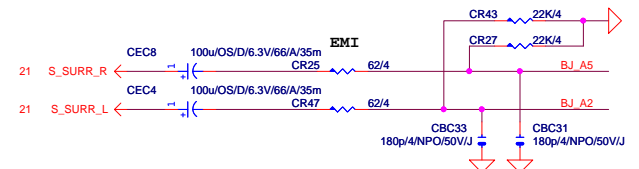
## SURROUND



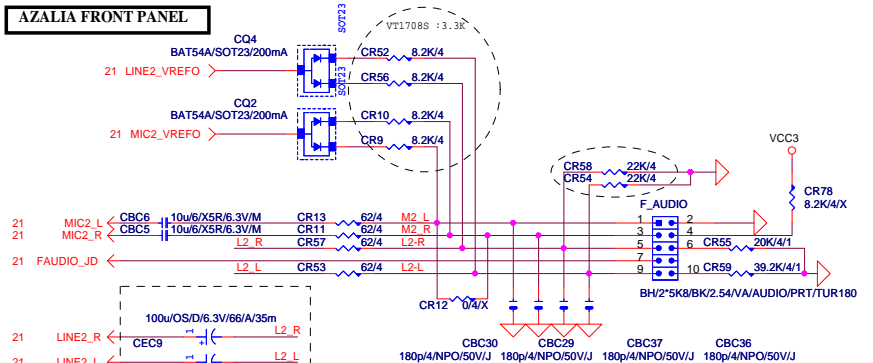
## CEN/LFE



## SURR BACK



## AZALIA FRONT PANEL



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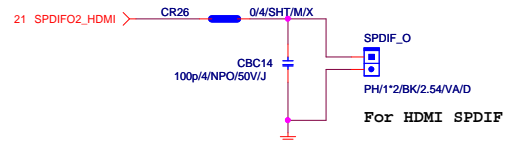
AUDIO JACK

GA-Z87-HD3

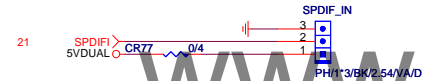
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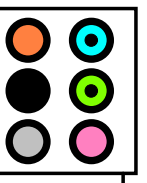
## SPDIF\_OUT



## SPDIF\_IN



## AZALIA JACK

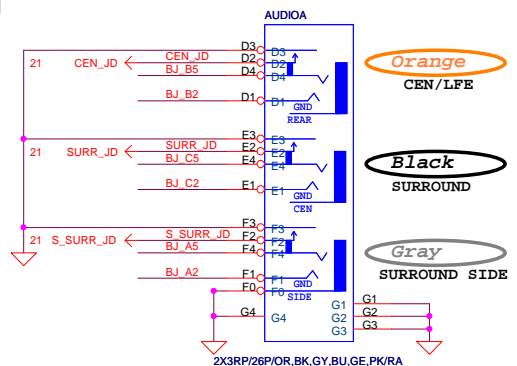
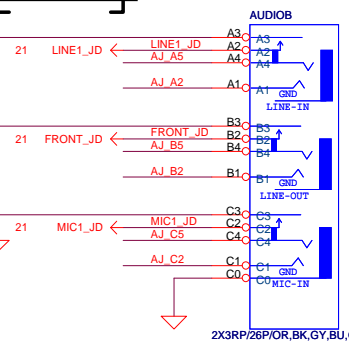


## AZALIA JACK

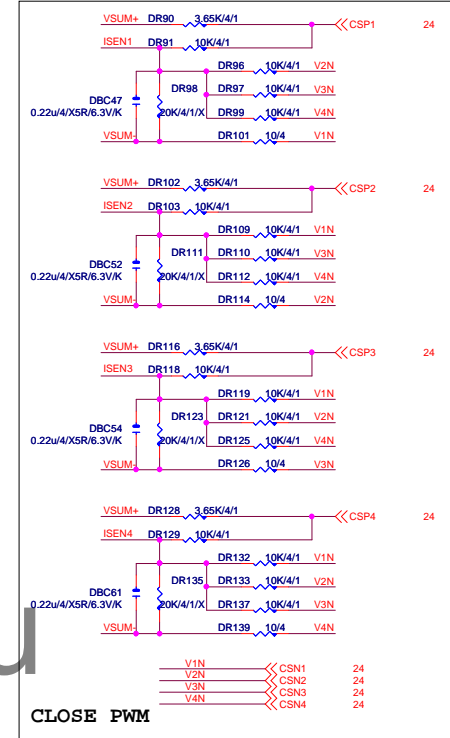
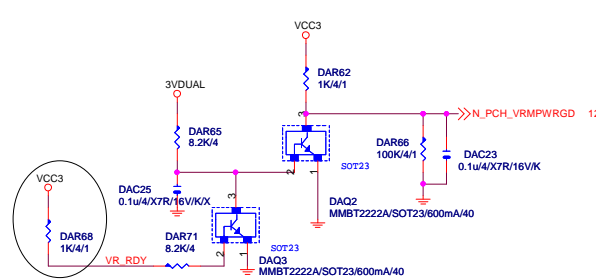
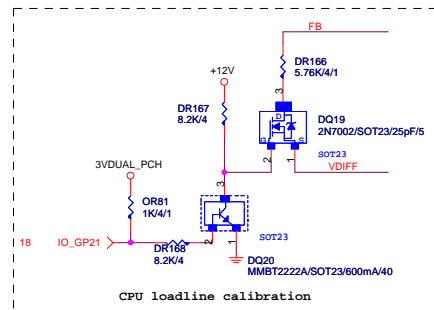
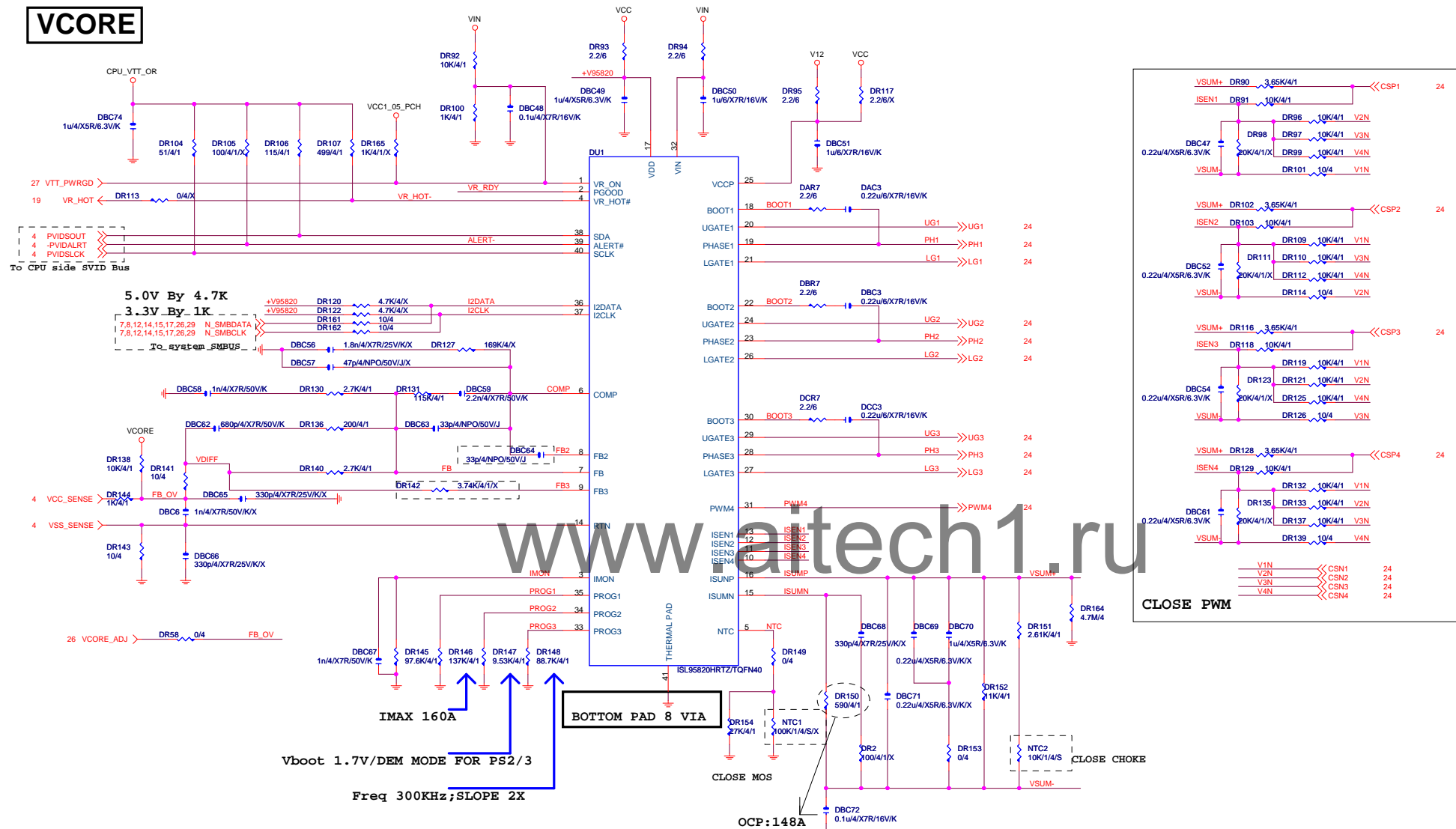
BLUE  
LINE-IN

GREEN  
LINE-OUT

PINK  
MIC-IN



# VCORE



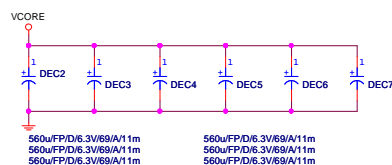
[1]



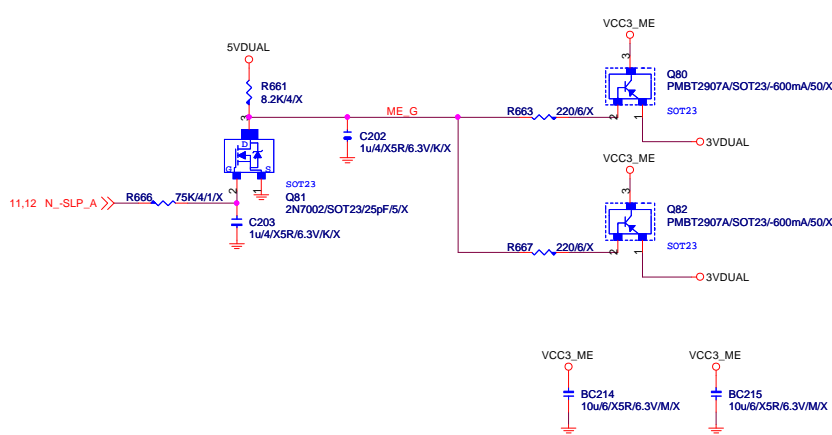
[3]



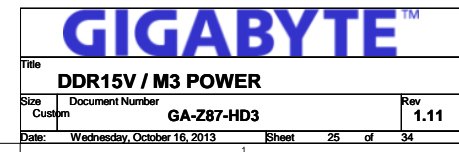
MOS HS[12SP2-S08824-71R\_12SP2-S08824-72R\_12SP2-S08824-73R]



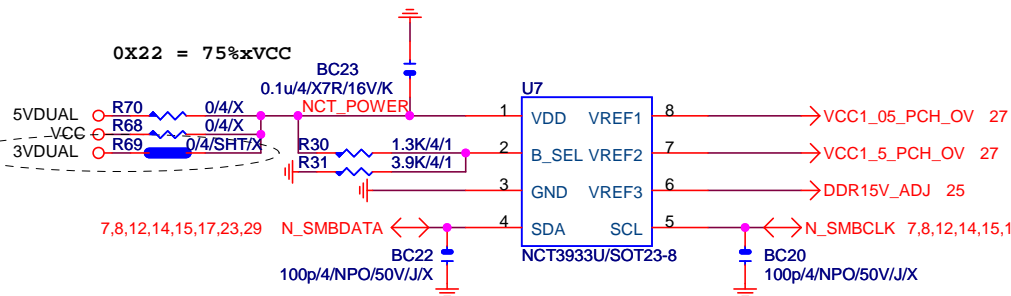
VCC3\_ME



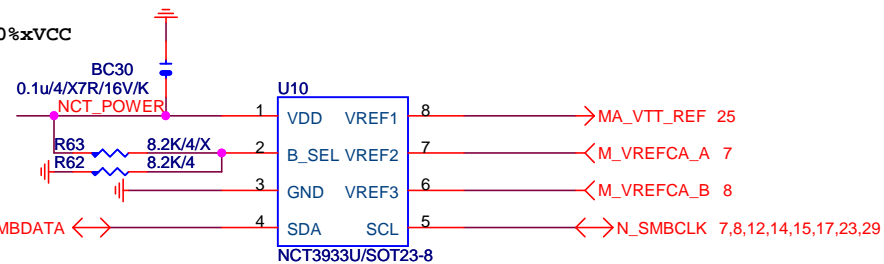
DDRVTT



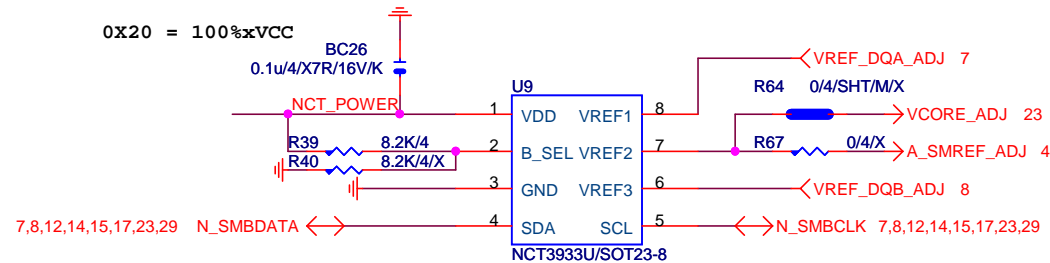
# OVER VOLTAGE



0X2A = 0%xVCC



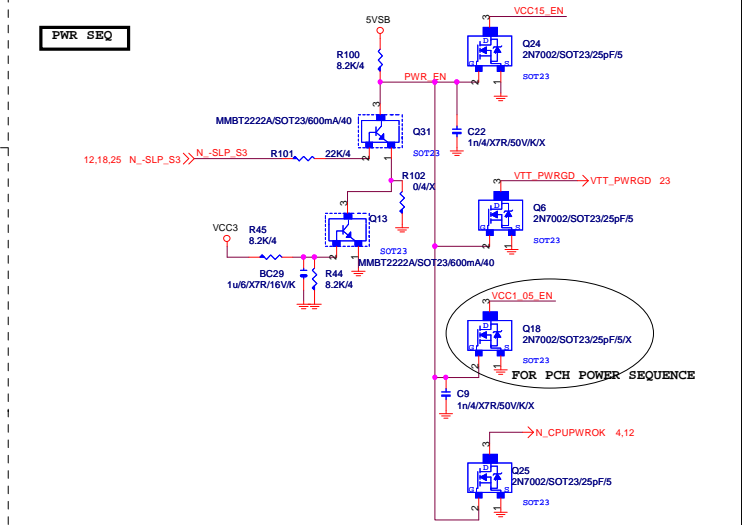
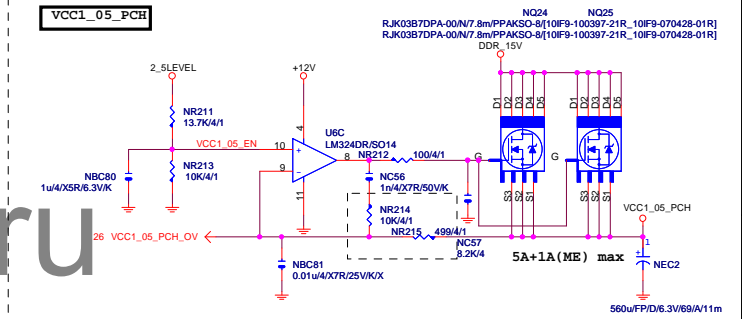
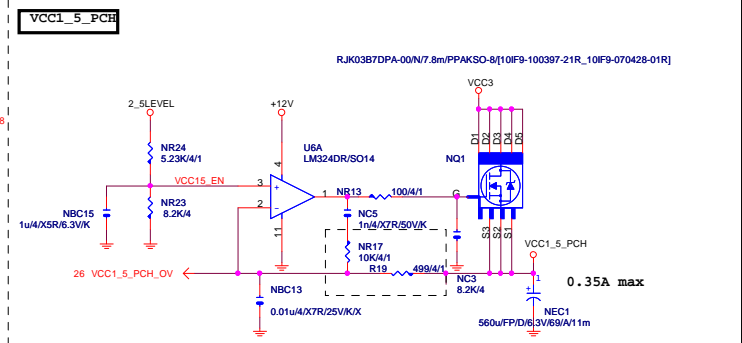
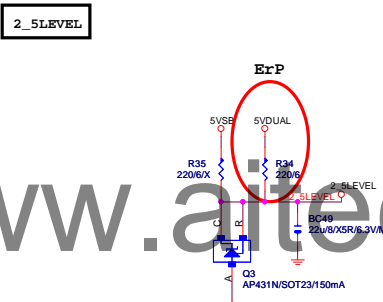
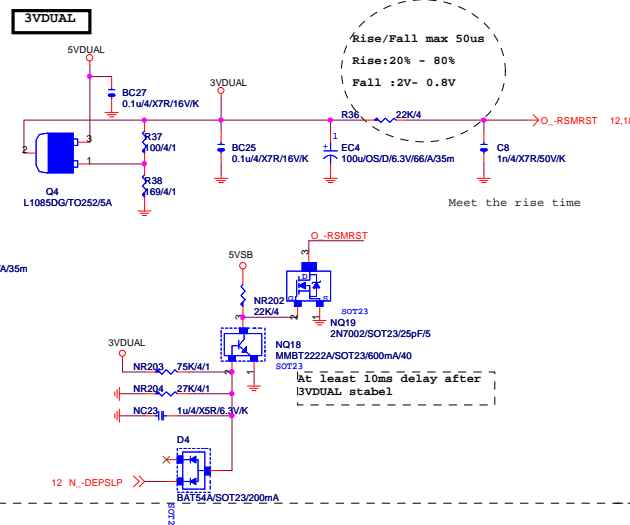
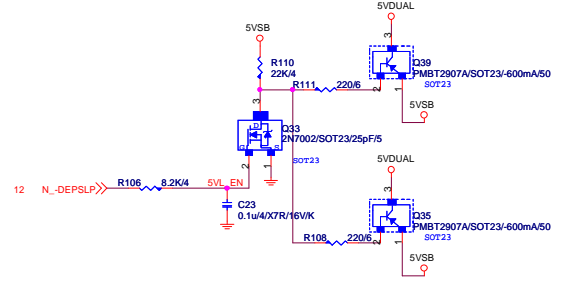
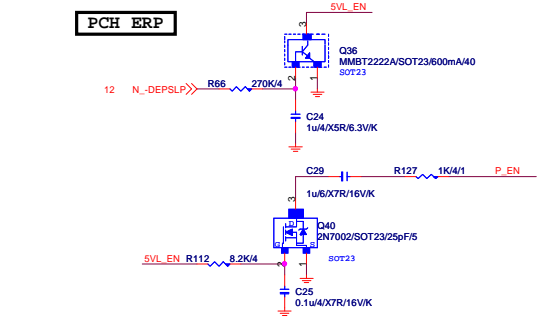
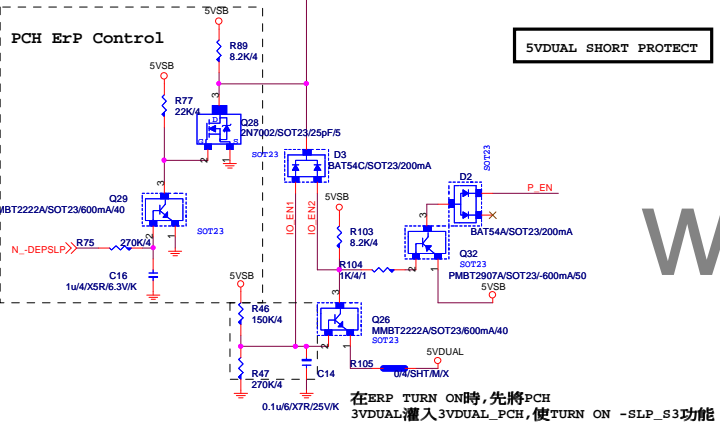
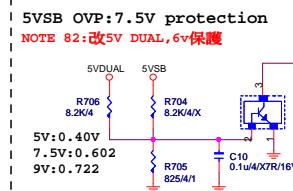
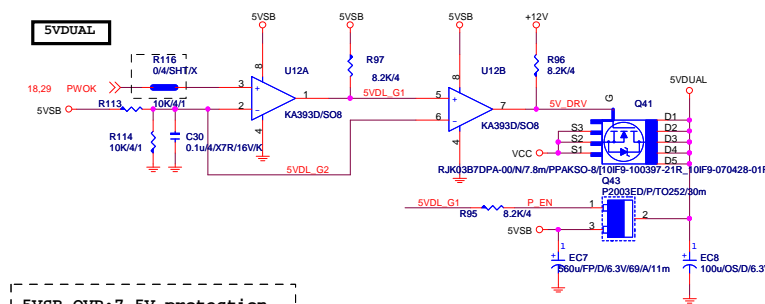
0X20 = 100%xVCC



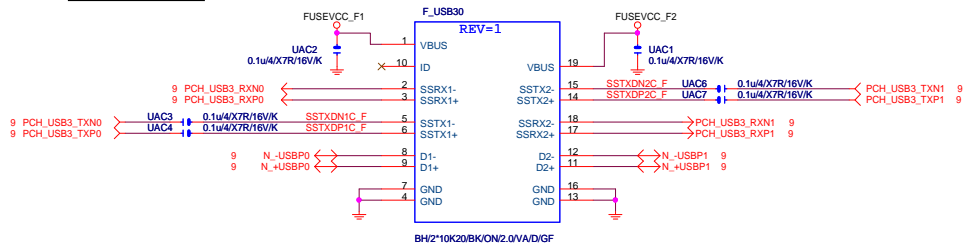
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

**Gigabyte Technology**

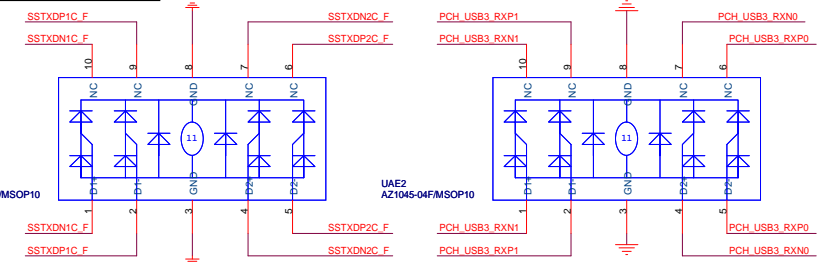
Title		
CPU CORE VR-2		
Size	Document Number	Rev
Custom	GA-Z87-HD3	1.11
Date:	Wednesday, October 16, 2013	Sheet 26 of 34



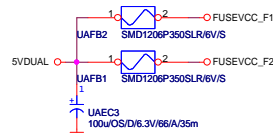
## Front USB3.0



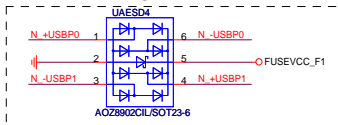
F\_USB30 ESD PROTECT



## F\_USB30 PWR

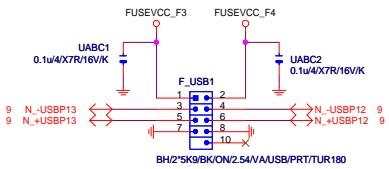


BLUE

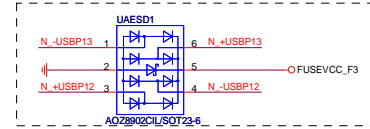


Close to connector

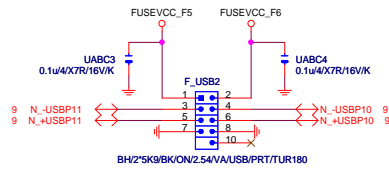
FRONT USB1



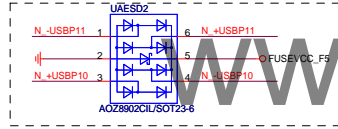
Close to connector



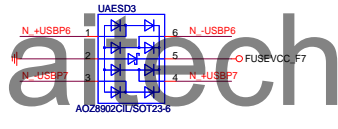
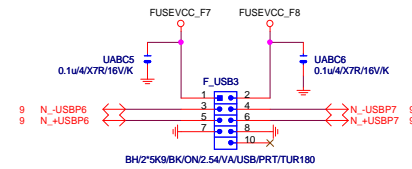
FRONT USB2



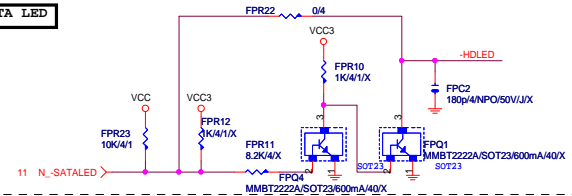
Close to connector



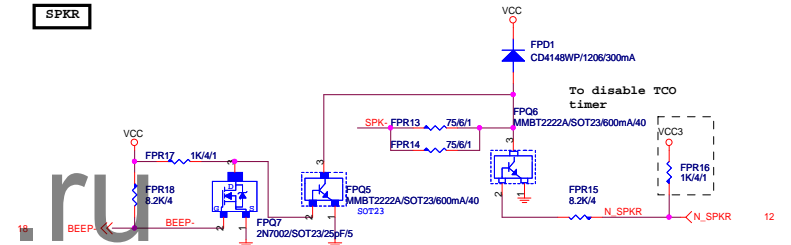
FRONT USB3



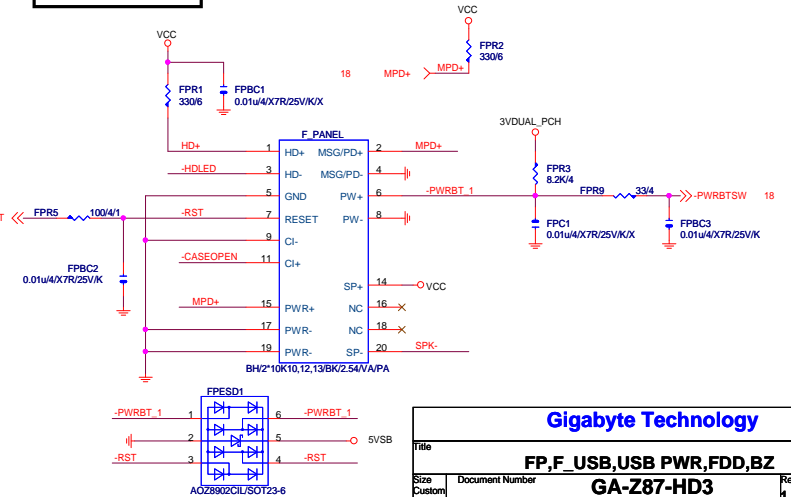
## SATA LED



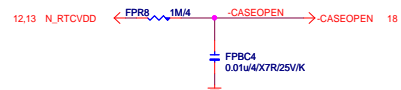
## SPKR



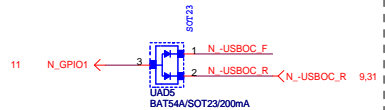
#### INTEL FRONT PANEL



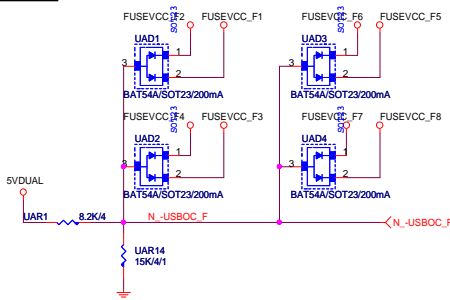
## CASE OPEN



## F\_USB POWER PROTECT

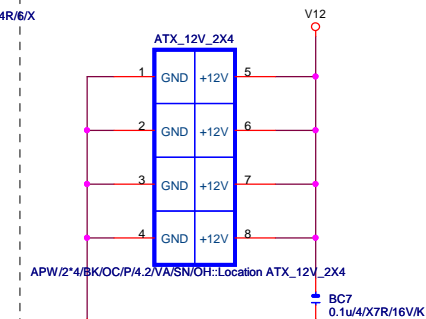


## -USB\_OC\_F

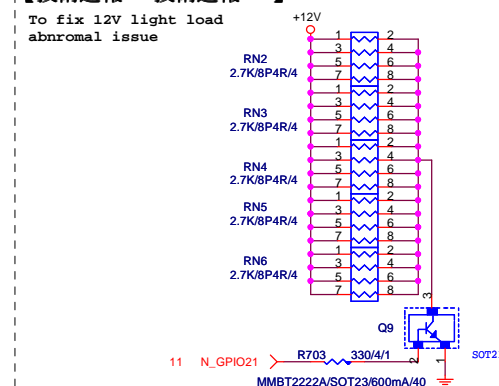
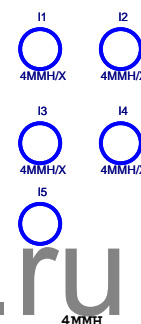




ATXX4 POWER CONNECTOR

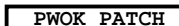
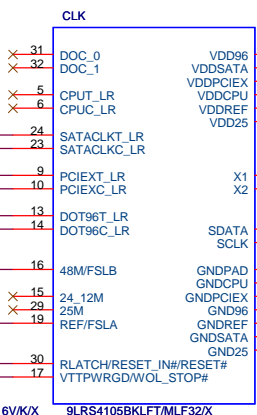


【技術通報R&amp;D技術通報153】

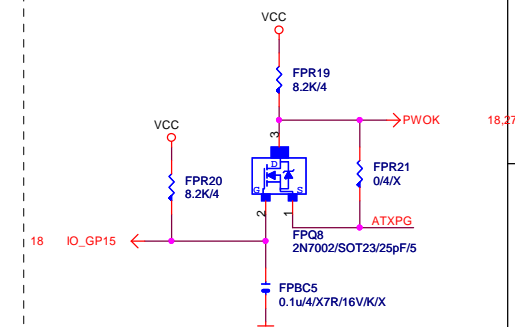


### CPU Frequency Selection

The diagram shows two power planes, CKVDD and CKVDD, each with a termination resistor (8.2K/4/X) and a capacitor (LPC 48 and FS 133M) connected to ground.



【技術通報R&amp;D技術通報154】



## Gigabyte Technology

Title			
<b>ATX POWER CONNECTOR</b>			
Size Custom	Document Number	<b>GA-Z87-HD3</b>	Rev <b>1.11</b>
Date:	Wednesday, October 16, 2013	Sheet	29 of 34

[illegible]

The diagram illustrates a CPU fan speed control circuit. A 12V supply is connected to the fan's power pin (pin 2) through a series of resistors: R673 (3.3K/4/1), R677, and R678 (6.2K/4/1). The fan's tachometer output (pin 1) is connected to a feedback network consisting of a resistor R696 (8.2K/4) and a capacitor C233 (1uW/X7R/16V/K). The fan is labeled 'CPU FAN FAN141/W/H/A3/PA66'. The circuit is designed to control the fan speed based on the tachometer signal.

The diagram illustrates the power supply circuit for the T8728B. It shows the following components and connections:

- Input Pins:** VIN5, VIN6, VIN1, VIN2, VIN4, and VIN0.
- Regulators and Resistors:**
  - VCORE: OR75 (8.2K/4)
  - DDR\_15V: OR74 (8.2K/4)
  - VCC3: OR57 (6.49K/4/1)
  - +12V: OR79 (75K/4/1)
  - CPU\_VAXG: OR76 (8.2K/4)
  - OR61 (10K/4/1)
  - OR70 (15K/4/1)
  - OR12
  - OR53 (8.2K/4)
  - OR78 (15K/4/1)
  - OR77 (10K/4/1)
- Capacitors:** OC9, OC8, OC10, OC11, and OC12, all specified as 1u4/X5R/6.3V/K.
- Reference Voltage:** A 2.0V reference is shown, with VIN3 connected to it.
- Other Labels:** RT8728B, 18, 2.0V, VIN3, VCC0, and VCC1.

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

**Linear SYS\_FAN**

[illegible]

www.aitech1.ru

Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-Z87-HD3	1.11	
Date:	Wednesday, October 16, 2013	Sheet	30 of 34

# LAN:INTEL I217

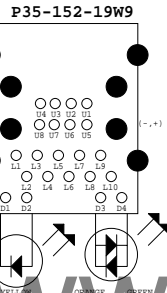
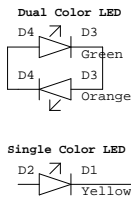
100歐姆:[20/4/8/4/20]

80歐姆:[15/5/5/5/15]

SRCCLK 50歐姆:[18/4/10/4/18]

離IC近越好

FOR DSM MODE  
(DEEP SLEEP MODE)



## USB30\_LAN CONNECTOR

100歐姆:[20/4/8/4/20]

USB30\_LAN  
USB3-LAN1GGO,YOSRADI3011NR6-702009-K1R

90歐姆:[15/4.5/7.5/4.5/15]

## CLOSE USB30\_LAN

UBE1  
AZ1045-04F/MSOP10

UBE2  
AZ1045-04F/MSOP10

3VDUAL

LAN

USB\_LAN <--> R\_USB30\_1

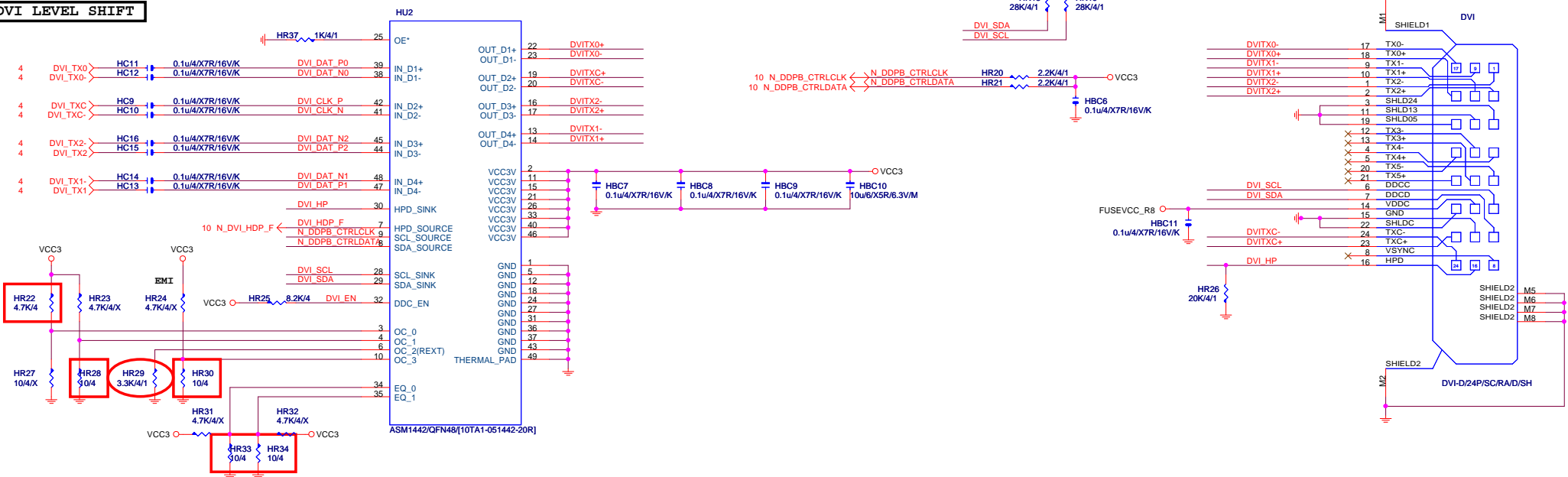
Gigabyte Technology	
INTEL LAN I217	
Size	Document Number
Custom	GA-Z87-HD3
Date: Wednesday, October 16, 2013	Sheet 31 of 34

Gigabyte Technology	
INTEL LAN I217	
Size	Document Number
Custom	GA-Z87-HD3
Date: Wednesday, October 16, 2013	Sheet 31 of 34

# DVI LEVEL SHIFT

DVI:20/4/6/4/20

Impedance=85 +- 17.5%



PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR29:10K

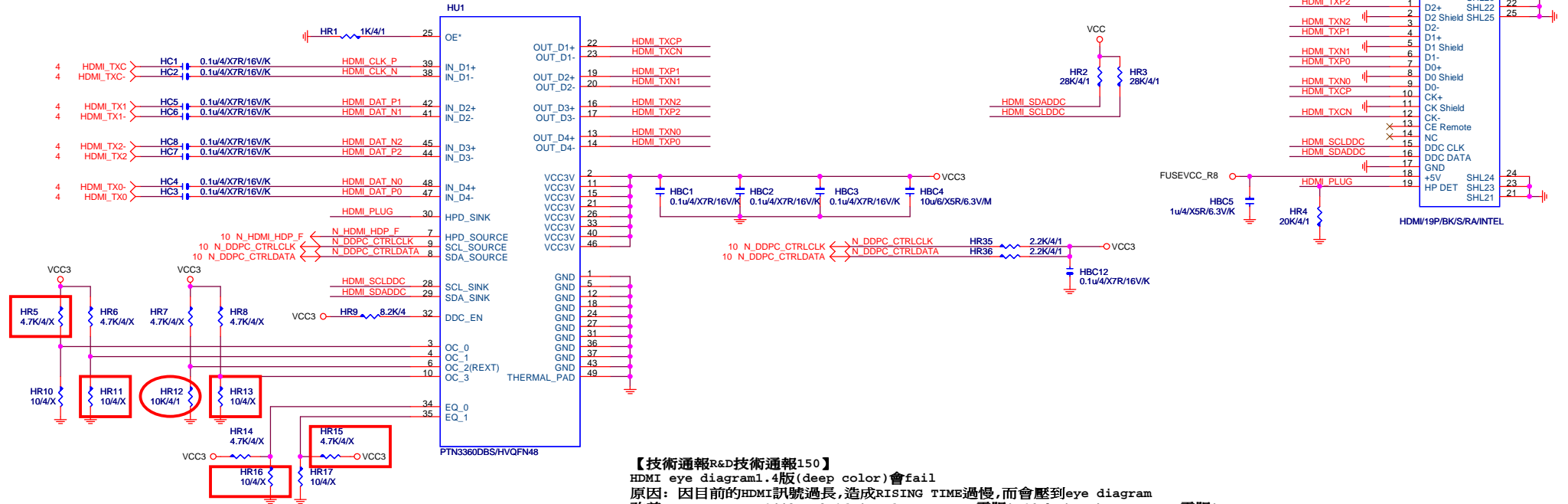
ASM1442:紅色框要上,HR29:3.3K

www.aitech1.ru

Gigabyte Technology			
Title			
DVI			
Size	Document Number	Rev	
Custom	GA-Z87-HD3	1.11	
Date:	Wednesday, October 16, 2013	Sheet	32 of 34

# HDMI LEVEL SHIFT

HDMI:20/4/6/4/20  
Impedance=85 +- 17.5%



PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K  
ASM1442:紅色框要上,HR12:3.16K

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<b>GIGABYTE™</b>			
Title <b>HDMI</b>			
Size Custom	Document Number <b>GA-Z87-HD3</b>		Rev <b>1.11</b>
Date: Wednesday, October 16, 2013	Sheet 33		of 34

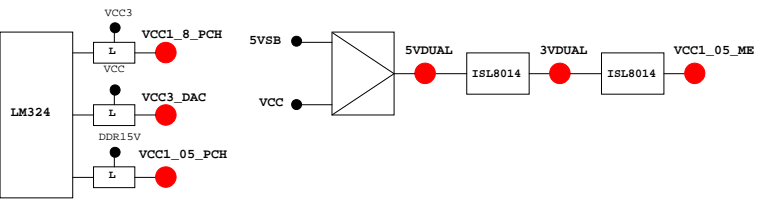
PCB GPIO LIST TABLE

PIN NAME	PWR	AFTER PLUGST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	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	PCIE1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	~PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	~ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
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	Mobile Only	N/A
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			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

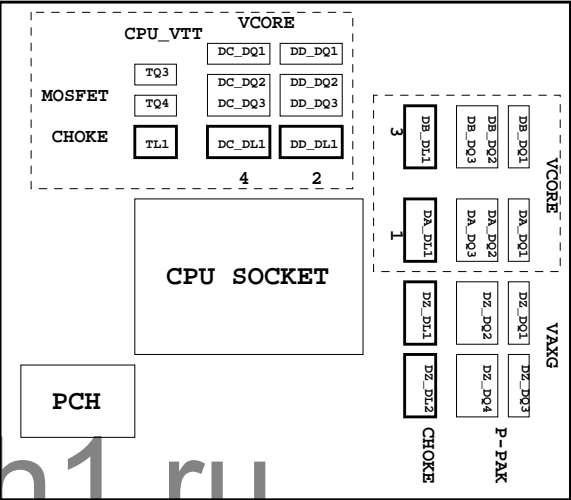
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/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/SMBC_R	🔌 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRT2/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/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 Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

Z77-D3H :  
PCH :  
12SP2-S05511-01R/02R/03R  
MOSFET :  
12SP2-S08924-01R/02R/03R

	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

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