

Model Name: GA-H87M-HD3

Revision 1.0

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,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS X1 *2 SLOT
16	PCI SLOT
17	ITE 8728 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX , CLOCK GEN
27	VCORE ISL95820_1

SHEET

TITLE

28	VCORE ISL95820_2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI, HDMI
32	IT8892E

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Gigabyte Technology

Title			Cover Sheet
Size	Document Number	GA-H87M-HD3	
Custom			Rev 1.0
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Revision 1.0

Component value change history

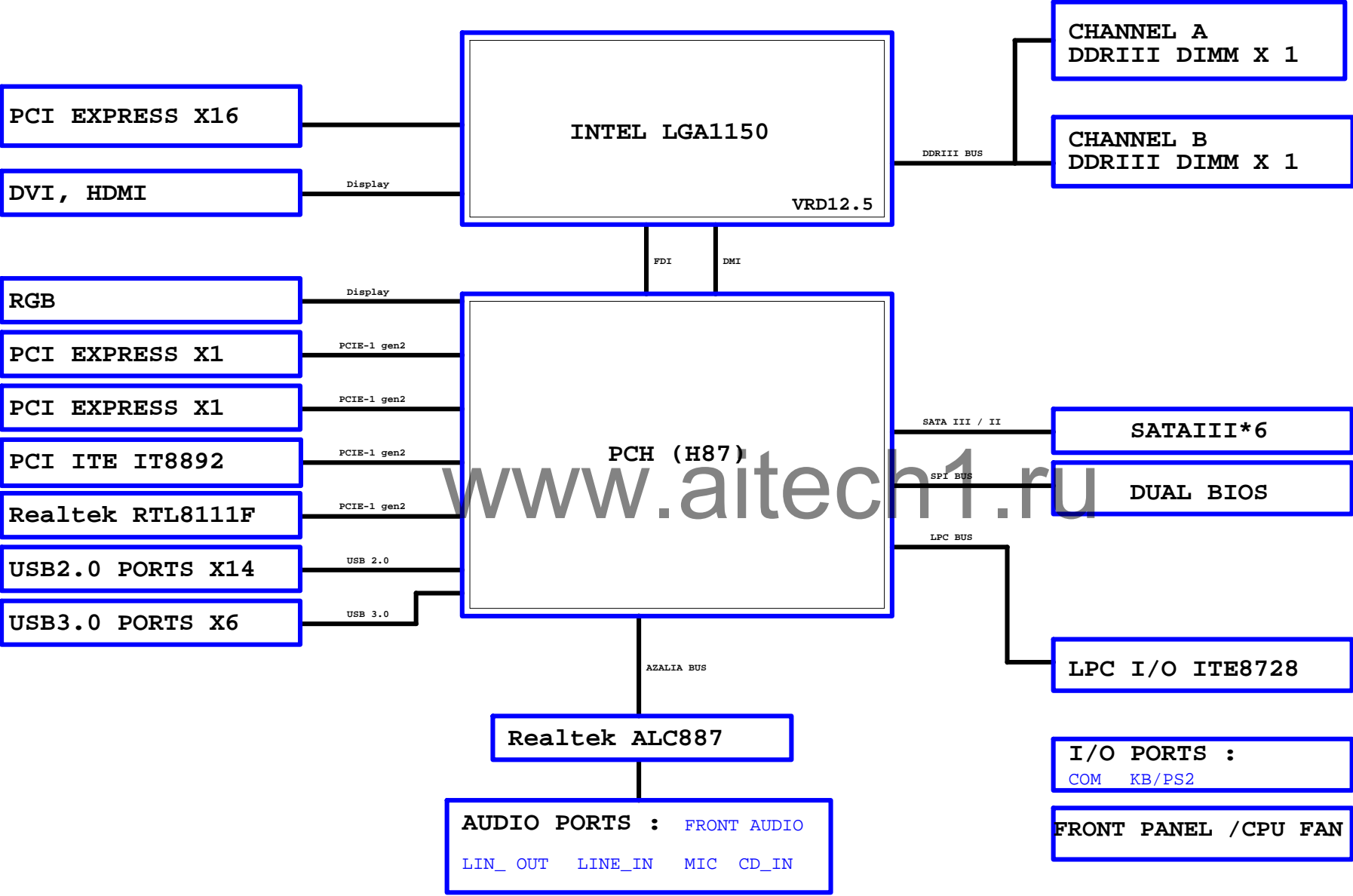
2013/03/28

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Title			
BOM & PCB MODIFY HISTORY			
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BLOCK DIAGRAM



[illegible][illegible]

PCIEX16:16/5/5/16(breakout min 10/4/4/4/10)									
Impedance=80 +- 17.5%									
LGAI1190C									
PA EXP RXP0	E15	PEG_RXP0	PEG_TXP0	A12	PA EXP TXP0				
PA EXP RXN0	F15	PEG_RXN0	PEG_TXN0	B12	PA EXP TXN0				
PA EXP RXP1	D14	PEG_RXP1	PEG_TXP1	B11	PA EXP TXP1				
PA EXP RXN1	E14	PEG_RXN1	PEG_TXN1	C11	PA EXP TXN1				
PA EXP RXP2	E13	PEG_RXP2	PEG_TXP2	C10	PA EXP TXP2				
PA EXP RXN2	F13	PEG_RXN2	PEG_TXN2	D10	PA EXP TXN2				
PA EXP RXP3	D12	PEG_RXP3	PEG_TXP3	B9	PA EXP TXP3				
PA EXP RXN3	E12	PEG_RXN3	PEG_TXN3	C9	PA EXP TXN3				
PA EXP RXP4	F11	PEG_RXP4	PEG_TXP4	C8	PA EXP TXP4				
PA EXP RXN4	E11	PEG_RXN4	PEG_TXN4	D8	PA EXP TXN4				
PA EXP RXP5	F10	PEG_RXP5	PEG_TXP5	B7	PA EXP TXP5				
PA EXP RXN5	G10	PEG_RXN5	PEG_TXN5	C7	PA EXP TXN5				
PA EXP RXP6	E9	PEG_RXP6	PEG_TXP6	A6	PA EXP TXP6				
PA EXP RXN6	F9	PEG_RXN6	PEG_TXN6	B6	PA EXP TXN6				
PA EXP RXP7	F8	PEG_RXP7	PEG_TXP7	B5	PA EXP TXP7				
PA EXP RXN7	G8	PEG_RXN7	PEG_TXN7	C5	PA EXP TXN7				
PA EXP RXP8	D3	PEG_RXP8	PEG_TXP8	E1	PA EXP TXP8				
PA EXP RXN8	D4	PEG_RXN8	PEG_TXN8	F2	PA EXP TXN8				
PA EXP RXP9	E4	PEG_RXP9	PEG_TXP9	F2	PA EXP TXP9				
PA EXP RXN9	E5	PEG_RXN9	PEG_TXN9	F3	PA EXP TXN9				
PA EXP RXP10	F5	PEG_RXP10	PEG_TXP10	G1	PA EXP TXP10				
PA EXP RXN10	F6	PEG_RXN10	PEG_TXN10	G2	PA EXP TXN10				
PA EXP RXP11	G4	PEG_RXP11	PEG_TXP11	H2	PA EXP TXP11				
PA EXP RXN11	G5	PEG_RXN11	PEG_TXN11	J1	PA EXP TXN11				
PA EXP RXP12	H5	PEG_RXP12	PEG_TXP12	J1	PA EXP TXP12				
PA EXP RXN12	H6	PEG_RXN12	PEG_TXN12	J2	PA EXP TXN12				
PA EXP RXP13	J4	PEG_RXP13	PEG_TXP13	K2	PA EXP TXP13				
PA EXP RXN13	J5	PEG_RXN13	PEG_TXN13	K3	PA EXP TXN13				
PA EXP RXP14	K5	PEG_RXP14	PEG_TXP14	M2	PA EXP TXP14				
PA EXP RXN14	K6	PEG_RXN14	PEG_TXN14	M3	PA EXP TXN14				
PA EXP RXP15	L4	PEG_RXP15	PEG_TXP15	L1	PA EXP TXP15				
PA EXP RXN15	L5	PEG_RXN15	PEG_TXN15	L2	PA EXP TXN15				
PA DMI ORXP	U3	DMI_RXP0	DMI_TXP0	AA4	PA DMI OTXP				
PA DMI ORXN	T3	DMI_RXN0	DMI_TXN0	AA5	PA DMI OTXN				
PA DMI IRXP	U1	DMI_RXP1	DMI_TXP1	AB3	PA DMI ITXP				
PA DMI IRXN	U2	DMI_RXN1	DMI_TXN1	AB4	PA DMI ITXN				
PA DMI 2RXP	V2	DMI_RXP2	DMI_TXP2	AC5	PA DMI 2TXP				
PA DMI 2RXN	V2	DMI_RXN2	DMI_TXN2	AC4	PA DMI 2TXN				
PA DMI 3RXP	V3	DMI_RXP3	DMI_TXP3	AC1	PA DMI 3TXP				
PA DMI 3RXN	W3	DMI_RXN3	DMI_TXN3	AC2	PA DMI 3TXN				
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VCCIOA_LO WRT15 24.9/4.1 GRCOMP P3 RSVD_RCOMP									

CPU PU/PD

CPU_VTT_OR

- WR3 90.9/41/X PVIDSLCK
- WR2 115/41 PVIDSOUT
- WR4 75/41 -PVIDALRT

CPU_VTT_OR

- WR14 51/41/X A TMS
- WR16 51/41/X A TDO
- WR17 51/41/X A TDI
- WR30 51/41 A -HPRDY

CPU_VTT_OR

- WR11 51/41 A TCK
- WR9 51/41 A -TRST

CPU_VTT_OR

- WR29 1K4/1/X A PECI
- WR10 1K4/1/X A CATERR
- WR25 1K4/1 A -PROCROT
- WR56 51/41/X N_CPUUPWROK
- WR55 1K4/1/X

A_THRMTRIP

- WR8 1K4/1 VCC1_05_PCH

A_PWR_DEBUG

- WR34 150/41 VCC1_05_PCH
- WR33 10K4/1

A_DBR

- WR21 8.2K/4/X 3VDUAL
- WR20 0/4/X N_-SYS_RST [12] 26

A_DDR_COMP0

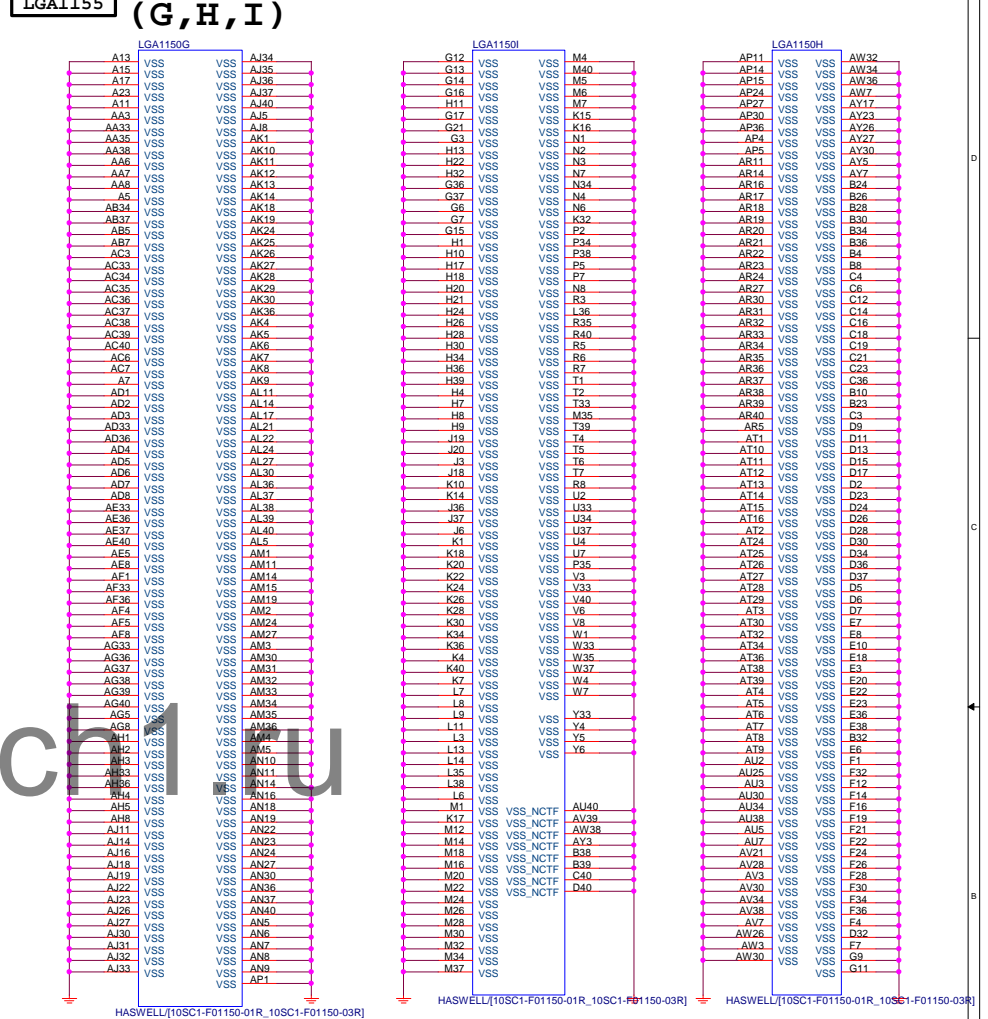
- WR28 100/41
- A_DDR_COMP1 WR19 75/41
- A_DDR_COMP2 WR22 100/41
- A_TESTLOW_1 WR18 49.9/41
- A_TESTLOW_2 WR17 49.9/41
- A_HSW_CFG_RCOMP WR24 49.9/41

Title			
CPU LGA1150-A			
Size	Document Number		Rev
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LGA1150 (A)

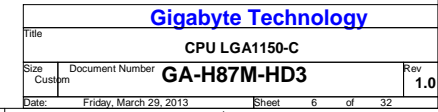
LGA1150A		DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA0	AU13	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA1	AV16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA2	AU16	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA3	AW17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA4	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA5	AW17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA6	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA7	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA8	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA9	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA10	AW11	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA11	AV19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA12	AU19	DDR0_MA13	DDR0_D13	AH38	MDA13
MAAA13	AT20	DDR0_MA14	DDR0_D14	AK37	MDA14
MAAA14	AT20	DDR0_MA15	DDR0_D15	AK40	MDA15
MAAA15	AU21	DDR0_MA16	DDR0_D16	AM40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_ODT0	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_ODT1	AP38	MDA18
AW8	AW8	DDR0_ODT2	DDR0_ODT2	AP39	MDA19
AW9	AW9	DDR0_ODT3	DDR0_ODT3	AM37	MDA20
AW33	AW33	DDR0_ECC0	DDR0_ECC0	AM38	MDA16
AW33	AW33	DDR0_ECC1	DDR0_ECC1	AP37	MDA22
AU31	AU31	DDR0_ECC2	DDR0_ECC2	AP40	MDA23
AU31	AU31	DDR0_ECC3	DDR0_ECC3	AW37	MDA29
AU33	AU33	DDR0_ECC4	DDR0_ECC4	AU35	MDA26
AT31	AT31	DDR0_ECC5	DDR0_ECC5	AW35	MDA27
AW31	AW31	DDR0_ECC6	DDR0_ECC6	AT37	MDA28
AW31	AW31	DDR0_ECC7	DDR0_ECC7	AU37	MDA24
SBAA0	SBAA0	DDR0_BA0	DDR0_BA0	AT35	MDA30
SBAA1	SBAA1	DDR0_BA1	DDR0_BA1	AW35	MDA31
SBAA2	SBAA2	DDR0_BA2	DDR0_BA2	AY6	MDA33
CKEA0	CKEA0	DDR0_CKE0	DDR0_CKE0	AU6	MDA37
CKEA1	CKEA1	DDR0_CKE1	DDR0_CKE1	AW4	MDA34
CSA0	CSA0	DDR0_CS_N0	DDR0_CS_N0	AU4	MDA35
CSA1	CSA1	DDR0_CS_N1	DDR0_CS_N1	AW6	MDA32
DCLKA0	DCLKA0	DDR0_CLK_P0	DDR0_CLK_P0	AW4	MDA38
DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_CLK_P1	AR1	MDA39
DCLKA2	DCLKA2	DDR0_CLK_P2	DDR0_CLK_P2	AR4	MDA45
DCLKA3	DCLKA3	DDR0_CLK_P3	DDR0_CLK_P3	AN3	MDA42
DCLKA4	DCLKA4	DDR0_CLK_P4	DDR0_CLK_P4	AN4	MDA43
DCLKA5	DCLKA5	DDR0_CLK_P5	DDR0_CLK_P5	AR2	MDA44
DCLKA6	DCLKA6	DDR0_CLK_P6	DDR0_CLK_P6	AR3	MDA40
DCLKA7	DCLKA7	DDR0_CLK_P7	DDR0_CLK_P7	AN2	MDA46
DCLKA8	DCLKA8	DDR0_CLK_P8	DDR0_CLK_P8	AN1	MDA47
DCLKA9	DCLKA9	DDR0_CLK_P9	DDR0_CLK_P9	AL1	MDA49
DCLKA10	DCLKA10	DDR0_CLK_P10	DDR0_CLK_P10	AL4	MDA53
DCLKA11	DCLKA11	DDR0_CLK_P11	DDR0_CLK_P11	AL4	MDA50
DCLKA12	DCLKA12	DDR0_CLK_P12	DDR0_CLK_P12	AJ4	MDA51
DCLKA13	DCLKA13	DDR0_CLK_P13	DDR0_CLK_P13	AL2	MDA52
DCLKA14	DCLKA14	DDR0_CLK_P14	DDR0_CLK_P14	AJ2	MDA48
DCLKA15	DCLKA15	DDR0_CLK_P15	DDR0_CLK_P15	AJ2	MDA54
DCLKA16	DCLKA16	DDR0_CLK_P16	DDR0_CLK_P16	AJ1	MDA55
DCLKA17	DCLKA17	DDR0_CLK_P17	DDR0_CLK_P17	AG1	MDA57
DCLKA18	DCLKA18	DDR0_CLK_P18	DDR0_CLK_P18	AG4	MDA61
DCLKA19	DCLKA19	DDR0_CLK_P19	DDR0_CLK_P19	AE3	MDA58
DCLKA20	DCLKA20	DDR0_CLK_P20	DDR0_CLK_P20	E4	MDA59
DCLKA21	DCLKA21	DDR0_CLK_P21	DDR0_CLK_P21	AG2	MDA60
DCLKA22	DCLKA22	DDR0_CLK_P22	DDR0_CLK_P22	AG3	MDA56
DCLKA23	DCLKA23	DDR0_CLK_P23	DDR0_CLK_P23	AE2	MDA62
DCLKA24	DCLKA24	DDR0_CLK_P24	DDR0_CLK_P24	AE1	MDA63
DCLKA25	DCLKA25	DDR0_CLK_P25	DDR0_CLK_P25	AE39	DQSA0
DCLKA26	DCLKA26	DDR0_CLK_P26	DDR0_CLK_P26	AJ39	DQSA1
DCLKA27	DCLKA27	DDR0_CLK_P27	DDR0_CLK_P27	AN39	DQSA2
DCLKA28	DCLKA28	DDR0_CLK_P28	DDR0_CLK_P28	AV36	DQSA3
DCLKA29	DCLKA29	DDR0_CLK_P29	DDR0_CLK_P29	AV5	DQSA4
DCLKA30	DCLKA30	DDR0_CLK_P30	DDR0_CLK_P30	AP3	DQSA5
DCLKA31	DCLKA31	DDR0_CLK_P31	DDR0_CLK_P31	AK3	DQSA6
DCLKA32	DCLKA32	DDR0_CLK_P32	DDR0_CLK_P32	AF3	DQSA7
DCLKA33	DCLKA33	DDR0_CLK_P33	DDR0_CLK_P33	AV32	DQSA7
DCLKA34	DCLKA34	DDR0_CLK_P34	DDR0_CLK_P34	AE38	DQSA0
DCLKA35	DCLKA35	DDR0_CLK_P35	DDR0_CLK_P35	AJ38	DQSA1
DCLKA36	DCLKA36	DDR0_CLK_P36	DDR0_CLK_P36	AN38	DQSA2
DCLKA37	DCLKA37	DDR0_CLK_P37	DDR0_CLK_P37	AJ36	DQSA3
DCLKA38	DCLKA38	DDR0_CLK_P38	DDR0_CLK_P38	AW5	DQSA4
DCLKA39	DCLKA39	DDR0_CLK_P39	DDR0_CLK_P39	AP2	DQSA5
DCLKA40	DCLKA40	DDR0_CLK_P40	DDR0_CLK_P40	AK2	DQSA6
DCLKA41	DCLKA41	DDR0_CLK_P41	DDR0_CLK_P41	AF2	DQSA7
DCLKA42	DCLKA42	DDR0_CLK_P42	DDR0_CLK_P42	AJ32	DQSA7
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DCLKA46	DCLKA46	DDR0_CLK_P46	DDR0_CLK_P46		
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DCLKA49	DCLKA49	DDR0_CLK_P49	DDR0_CLK_P49		
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DCLKA53	DCLKA53	DDR0_CLK_P53	DDR0_CLK_P53		
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DCLKA56	DCLKA56	DDR0_CLK_P56	DDR0_CLK_P56		
DCLKA57	DCLKA57	DDR0_CLK_P57	DDR0_CLK_P57		
DCLKA58	DCLKA58	DDR0_CLK_P58	DDR0_CLK_P58		
DCLKA59	DCLKA59	DDR0_CLK_P59	DDR0_CLK_P59		
DCLKA60	DCLKA60	DDR0_CLK_P60	DDR0_CLK_P60		
DCLKA61	DCLKA61	DDR0_CLK_P61	DDR0_CLK_P61		
DCLKA62	DCLKA62	DDR0_CLK_P62	DDR0_CLK_P62		
DCLKA63	DCLKA63	DDR0_CLK_P63	DDR0_CLK_P63		
DCLKA64	DCLKA64	DDR0_CLK_P64	DDR0_CLK_P64		
DCLKA65	DCLKA65	DDR0_CLK_P65	DDR0_CLK_P65		
DCLKA66	DCLKA66	DDR0_CLK_P66	DDR0_CLK_P66		
DCLKA67	DCLKA67	DDR0_CLK_P67	DDR0_CLK_P67		
DCLKA68	DCLKA68	DDR0_CLK_P68	DDR0_CLK_P68		
DCLKA69	DCLKA69	DDR0_CLK_P69	DDR0_CLK_P69		
DCLKA70	DCLKA70	DDR0_CLK_P70	DDR0_CLK_P70		
DCLKA71	DCLKA71	DDR0_CLK_P71	DDR0_CLK_P71		
DCLKA72	DCLKA72	DDR0_CLK_P72	DDR0_CLK_P72		
DCLKA73	DCLKA73	DDR0_CLK_P73	DDR0_CLK_P73		
DCLKA74	DCLKA74	DDR0_CLK_P74	DDR0_CLK_P74		
DCLKA75	DCLKA75	DDR0_CLK_P75	DDR0_CLK_P75		
DCLKA76	DCLKA76	DDR0_CLK_P76	DDR0_CLK_P76		
DCLKA77	DCLKA77	DDR0_CLK_P77	DDR0_CLK_P77		
DCLKA78	DCLKA78	DDR0_CLK_P78	DDR0_CLK_P78		
DCLKA79	DCLKA79	DDR0_CLK_P79	DDR0_CLK_P79		
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DCLKA81	DCLKA81	DDR0_CLK_P81	DDR0_CLK_P81		
DCLKA82	DCLKA82	DDR0_CLK_P82	DDR0_CLK_P82		
DCLKA83	DCLKA83	DDR0_CLK_P83	DDR0_CLK_P83		
DCLKA84	DCLKA84	DDR0_CLK_P84	DDR0_CLK_P84		
DCLKA85	DCLKA85	DDR0_CLK_P85	DDR0_CLK_P85		
DCLKA86	DCLKA86	DDR0_CLK_P86	DDR0_CLK_P86		
DCLKA87	DCLKA87	DDR0_CLK_P87	DDR0_CLK_P87		
DCLKA88	DCLKA88	DDR0_CLK_P88	DDR0_CLK_P88		
DCLKA89	DCLKA89	DDR0_CLK_P89	DDR0_CLK_P89		
DCLKA90	DCLKA90	DDR0_CLK_P90	DDR0_CLK_P90		
DCLKA91	DCLKA91	DDR0_CLK_P91	DDR0_CLK_P91		
DCLKA92	DCLKA92	DDR0_CLK_P92	DDR0_CLK_P92		
DCLKA93	DCLKA93	DDR0_CLK_P93	DDR0_CLK_P93		
DCLKA94	DCLKA94	DDR0_CLK_P94	DDR0_CLK_P94		
DCLKA95	DCLKA95	DDR0_CLK_P95	DDR0_CLK_P95		
DCLKA96	DCLKA96	DDR0_CLK_P96	DDR0_CLK_P96		
DCLKA97	DCLKA97	DDR0_CLK_P97	DDR0_CLK_P97		
DCLKA98	DCLKA98	DDR0_CLK_P98	DDR0_CLK_P98		
DCLKA99	DCLKA99	DDR0_CLK_P99	DDR0_CLK_P99		
DCLKA100	DCLKA100	DDR0_CLK_P100	DDR0_CLK_P100		
DCLKA101	DCLKA101	DDR0_CLK_P101	DDR0_CLK_P101		
DCLKA102	DCLKA102	DDR0_CLK_P102	DDR0_CLK_P102		
DCLKA103	DCLKA103	DDR0_CLK_P103	DDR0_CLK_P103		
DCLKA104	DCLKA104	DDR0_CLK_P104	DDR0_CLK_P104		
DCLKA105	DCLKA105	DDR0_CLK_P105	DDR0_CLK_P105		
DCLKA106	DCLKA106	DDR0_CLK_P106	DDR0_CLK_P106		
DCLKA107	DCLKA107	DDR0_CLK_P107	DDR0_CLK_P107		
DCLKA108	DCLKA108	DDR0_CLK_P108	DDR0_CLK_P108		
DCLKA109	DCLKA109	DDR0_CLK_P109	DDR0_CLK_P109		
DCLKA110	DCLKA110	DDR0_CLK_P110	DDR0_CLK_P110		
DCLKA111	DCLKA111	DDR0_CLK_P111	DDR0_CLK_P111		
DCLKA112	DCLKA112	DDR0_CLK_P112	DDR0_CLK_P112		
DCLKA113	DCLKA113	DDR0_CLK_P113	DDR0_CLK_P113		
DCLKA114	DCLKA114	DDR0_CLK_P114	DDR0_CLK_P114		
DCLKA115	DCLKA115	DDR0_CLK_P115	DDR0_CLK_P115		
DCLKA116	DCLKA116	DDR0_CLK_P116	DDR0_CLK_P116		
DCLKA117	DCLKA117	DDR0_CLK_P117	DDR0_CLK_P117		
DCLKA118	DCLKA118	DDR0_CLK_P118	DDR0_CLK_P118		
DCLKA119	DCLKA119	DDR0_CLK_P119	DDR0_CLK_P119		
DCLKA120	DCLKA120	DDR0_CLK_P120	DDR0_CLK_P120		
DCLKA121	DCLKA121	DDR0_CLK_P121	DDR0_CLK_P121		
DCLKA122	DCLKA122	DDR0_CLK_P122	DDR0_CLK_P122		
DCLKA123	DCLKA123	DDR0_CLK_P123	DDR0_CLK_P123		
DCLKA124	DCLKA124	DDR0_CLK_P124	DDR0_CLK_P124		
DCLKA125	DCLKA125	DDR0_CLK_P125	DDR0_CLK_P125		
DCLKA126	DCLKA126	DDR0_CLK_P126	DDR0_CLK_P126		
DCLKA127	DCLKA127	DDR0_CLK_P127	DDR0_CLK_P127		
DCLKA128	DCLKA128	DDR0_CLK_P128	DDR0_CLK_P128		
DCLKA129	DCLKA129	DDR0_CLK_P129	DDR0_CLK_P129		
DCLKA130	DCLKA130	DDR0_CLK_P130	DDR0_CLK_P130		
DCLKA131	DCLKA131	DDR0_CLK_P131	DDR0_CLK_P131		
DCLKA132	DCLKA132	DDR0_CLK_P132	DDR0_CLK_P132		
DCLKA133	DCLKA133	DDR0_CLK_P133	DDR0_CLK_P133		
DCLKA134	DCLKA134	DDR0_CLK_P134	DDR0_CLK_P134		
DCLKA135	DCLKA135	DDR0_CLK_P135	DDR0_CLK_P135		
DCLKA136	DCLKA136	DDR0_CLK_P136	DDR0_CLK_P136		
DCLKA137	DCLKA137	DDR0_CLK_P137	DDR0_CLK_P137		
DCLKA138	DCLKA138	DDR0_CLK_P138	DDR0_CLK_P138		
DCLKA139	DCLKA139	DDR0_CLK_P139	DDR0_CLK_P139		
DCLKA140	DCLKA140	DDR0_CLK_P140	DDR0_CLK_P140		
DCLKA141	DCLKA141	DDR0_CLK_P141	DDR0_CLK_P141		
DCLKA142	DCLKA142	DDR0_CLK_P142	DDR0_CLK_P142		
DCLKA143	DCLKA143	DDR0_CLK_P143	DDR0_CLK_P143		
DCLKA144	DCLKA144	DDR0_CLK_P144	DDR0_CLK_P144		
DCLKA145	DCLKA145	DDR0_CLK_P145	DDR0_CLK_P145		
DCLKA146	DCLKA146	DDR0_CLK_P146	DDR0_CLK_P146		
DCLKA147	DCLKA147	DDR0_CLK_P147	DDR0_CLK_P147		
DCLKA148	DCLKA148	DDR0_CLK_P148	DDR0_CLK_P148		
DCLKA149	DCLKA149	DDR0_CLK_P149	DDR0_CLK_P149		
DCLKA150	DCLKA150	DDR0_CLK_P150	DDR0_CLK_P150		
DCLKA151	DCLKA151	DDR0_CLK_P151	DDR0_CLK_P151		
DCLKA152	DCLKA152	DDR0_CLK_P152	DDR0_CLK_P152		
DCLKA153	DCLKA153	DDR0_CLK_P153	DDR0_CLK_P153		
DCLKA154	DCLKA154	DDR0_CLK_P154	DDR0_CLK_P154		
DCLKA155	DCLKA155	DDR0_CLK_P155	DDR0_CLK_P155		
DCLKA156	DCLKA156	DDR0_CLK_P156	DDR0_CLK_P156		
DCLKA157	DCLKA157	DDR0_CLK_P157	DDR0_CLK_P157		
DCLKA158	DCLKA158	DDR0_CLK_P158	DDR0_CLK_P158		
DCLKA159	DCLKA159	DDR0_CLK_P159	DDR0_CLK_P159		
DCLKA160	DCLKA160	DDR0_CLK_P160	DDR0_CLK_P160		
DCLKA161	DCLKA161	DDR0_CLK_P161	DDR0_CLK_P161		
DCLKA162	DCLKA162	DDR0_CLK_P162	DDR0_CLK_P162		
DCLKA163	DCLKA163	DDR0_CLK_P163	DDR0_CLK_P163		
DCLKA164	DCLKA164	DDR0_CLK_P164	DDR0_CLK_P164		
DCLKA165	DCLKA165	DDR0_CLK_P165	DDR0_CLK_P165		
DCLKA166	DCLKA166	DDR0_CLK_P166	DDR0_CLK_P166		
DCLKA167	DCLKA167	DDR0_CLK_P167	DDR0_CLK_P167		
DCLKA168	DCLKA168	DDR0_CLK_P168	DDR0_CLK_P168		
DCLKA169	DCLKA169	DDR0_CLK_P169	DDR0_CLK_P169		
DCLKA170	DCLKA170	DDR0_CLK_P170	DDR0_CLK_P170		
DCLKA171	DCLKA171	DDR0_CLK_P171	DDR0_CLK_P171		
DCLKA172	DCLKA172	DDR0_CLK_P172	DDR0_CLK_P172		
DCLKA173	DCLKA173	DDR0_CLK_P173	DDR0_CLK_P173		
DCLKA174	DCLKA174	DDR0_CLK_P174	DDR0_CLK_P174		
DCLKA175	DCLKA175	DDR0_CLK_P175	DDR0_CLK_P175		
DCLKA176	DCLKA176	DDR0_CLK_P176	DDR0_CLK_P176		
DCLKA177	DCLKA177	DDR0_CLK_P177	DDR0_CLK_P177		
DCLKA178	DCLKA178	DDR0_CLK_P178	DDR0_CLK_P178		
DCLKA179	DCLKA179	DDR0_CLK_P179	DDR0_CLK_P179		
DCLKA180	DCLKA180	DDR0_CLK_P180	DDR0_CLK_P180		
DCLKA181	DCLKA181	DDR0_CLK_P181	DDR0_CLK_P181		
DCLKA182	DCLKA182	DDR0_CLK_P182	DDR0_CLK_P182		
DCLKA183	DCLKA183	DDR0_CLK_P183	DDR0_CLK_P183		
DCLKA184	DCLKA184	DDR0_CLK_P184	DDR0_CLK_P184		
DCLKA185	DCLKA185				

LGA1155 (G,H,I)



DDR CAP

(x9)

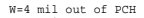




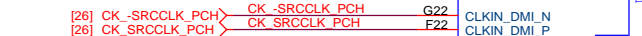
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

PCHB

H81: Port 6/7/12/13 N/A



S=15 mil out of PCH



Impedance=80 +- 17.5%

PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCHJ


$$(-)$$


PCHP



28 TAC

FDI_TXP[0..1] >> FDI_TXP[0..1] [4]

```
EDI_TXN[0..1] >> EDI_TXN[0..1] M M
```

Impedance=85 +- 17.5%

Back Panel < 10000 MILS

Front Panel < 6000 MILS

Page 10 of 10



SB_HEATSIN



GRAY HS

PCH_HS
PCH_HS/12SP2-030005-43R_12SP2-030005-41R_12SP2-030005-42R

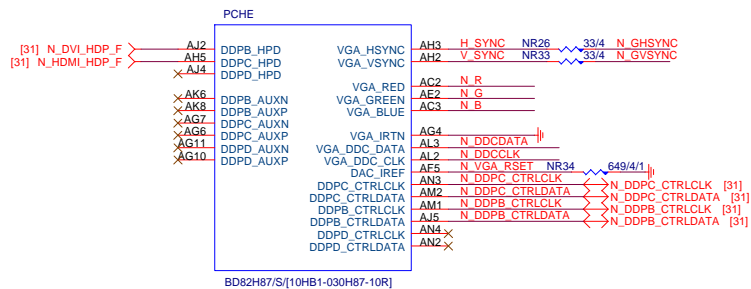
OC[7:4]# for Device 26 (ports 8-13)

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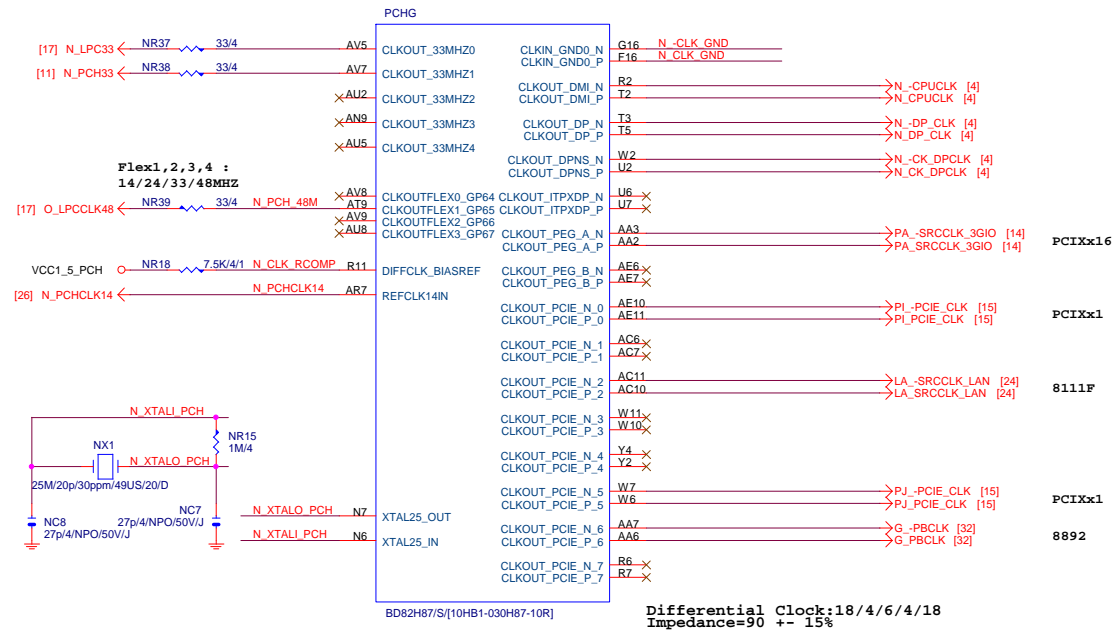
COLLEGE PARK, MD

Title			
PCH FDI,DMI,USB ,PCIE,NVRAM			
Size	Document Number		Rev
Custom	GA-H87M-HD3		1.0
Date:	Friday, March 29, 2013	Sheet	9 of 32

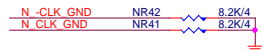
PCH (E)



PCH (G)



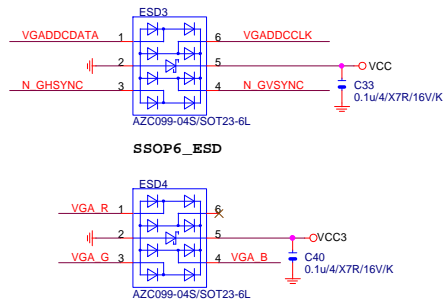
PCH CLK PD



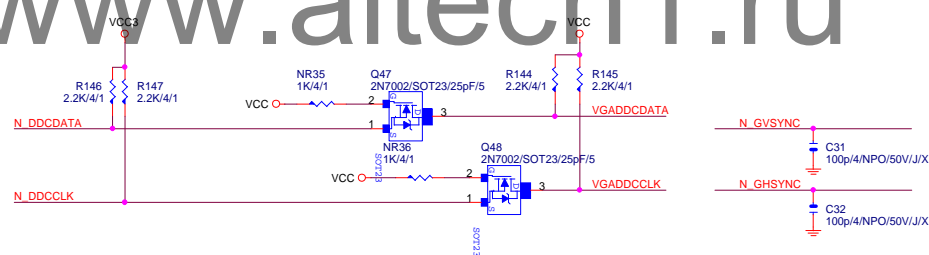
Mount for integrated clock Generation
Mode



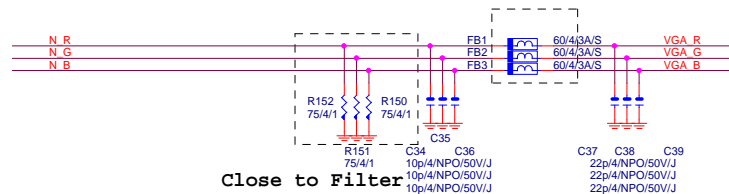
VGA ESD



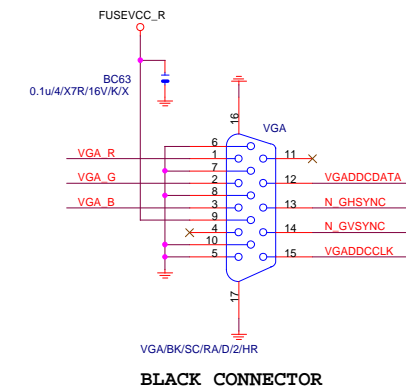
VGA DDC



VGA DDC



VGA CONNECTOR



BLACK CONNECTOR

Gigabyte Technology

PCH DISPLAY ,CLK BUFFER

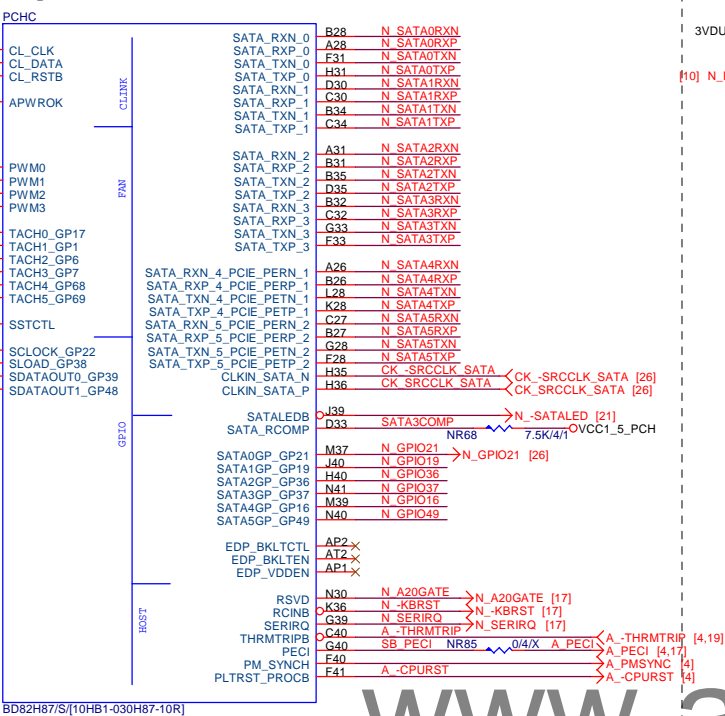
GA-H87M-HD3

Rev	1.0
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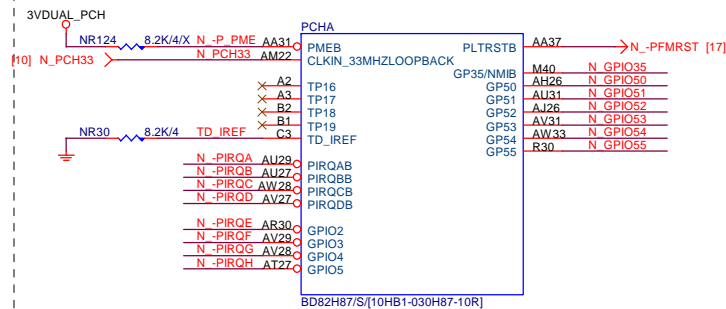
Date:	Friday, March 29, 2013	Sheet	10	of	32
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(C)

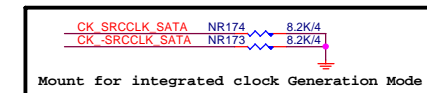
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



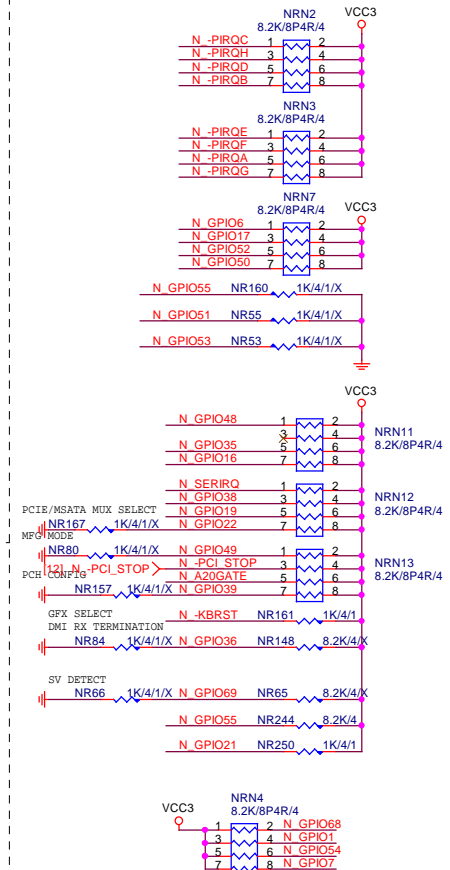
(A)



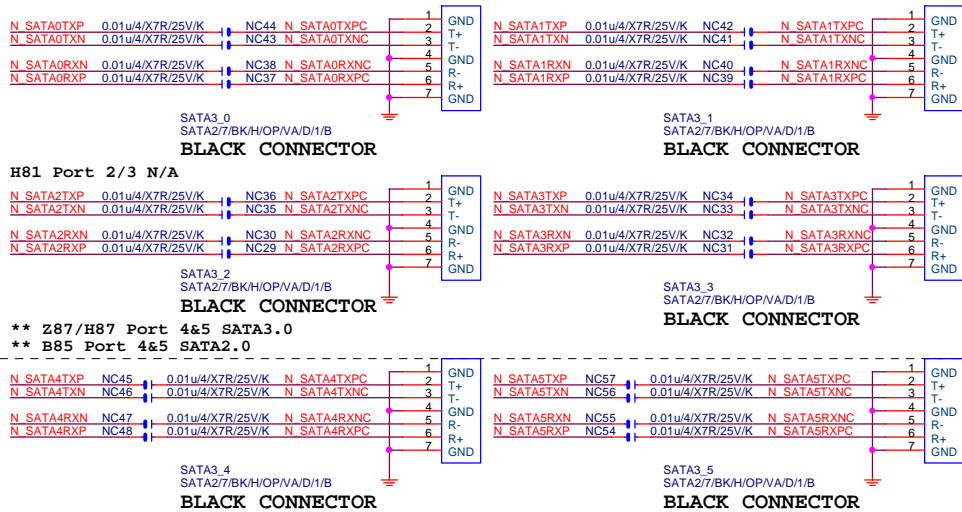
PCH	CLK	PD
-----	-----	----



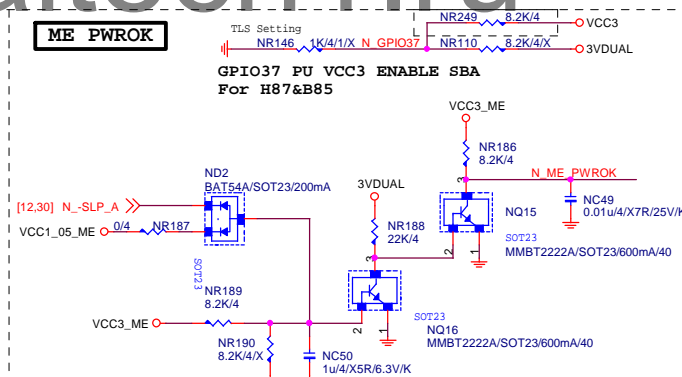
PCH	PU/PD
-----	-------



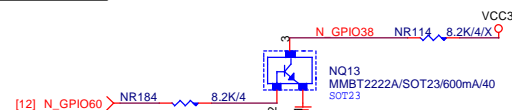
SATA CONNECTOR



ME PWROK



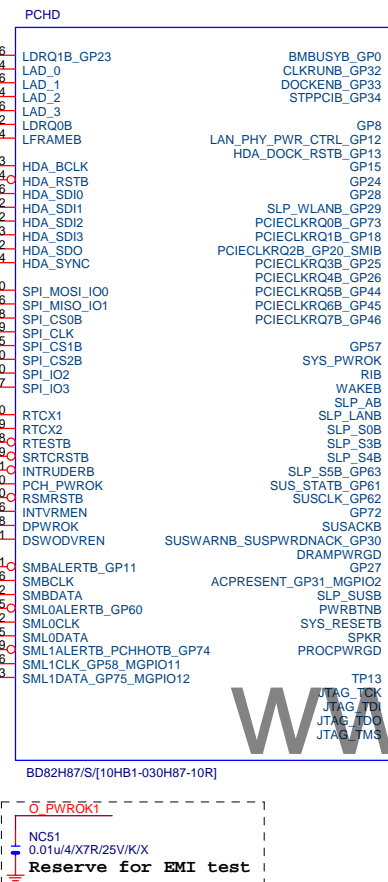
GPIO38 Ctrl



Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-H87M-HD3		1.0
Date:	Friday, March 29, 2013	Sheet	11 of 32

(D)

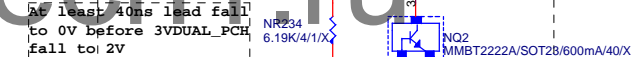


ACZ_SDOU'

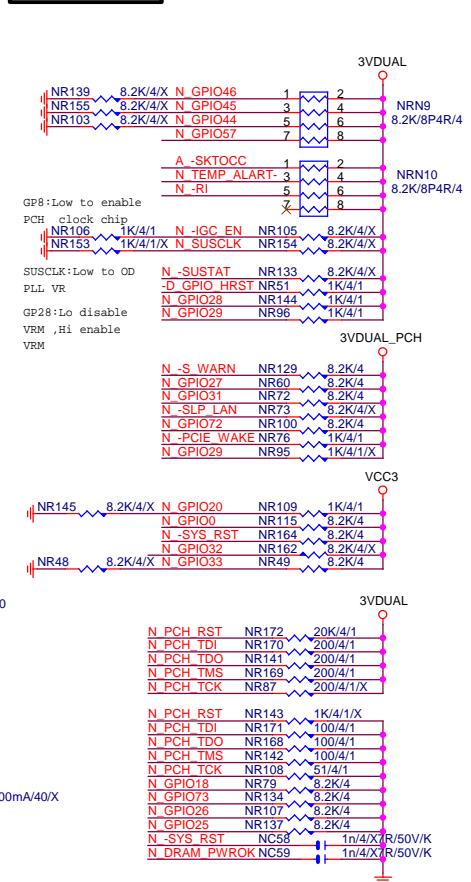


PCH_DPWROK

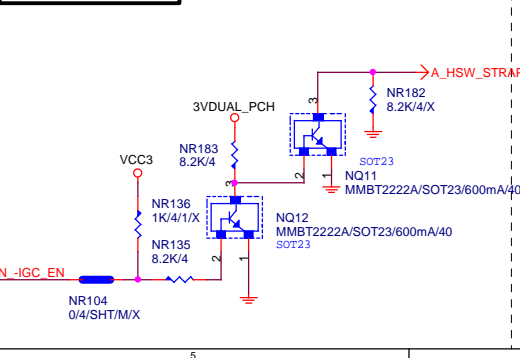
```
| At least 10ms delay after
| 3VDUAL_PCH stabel
```



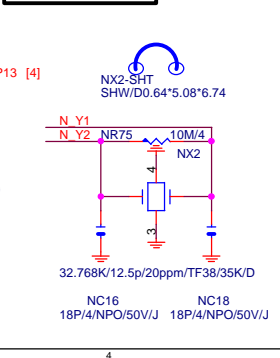
PCH	PU/PD
-----	-------



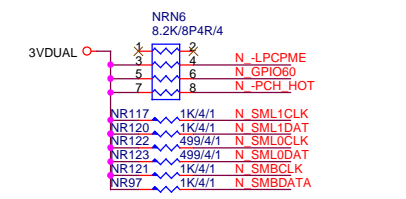
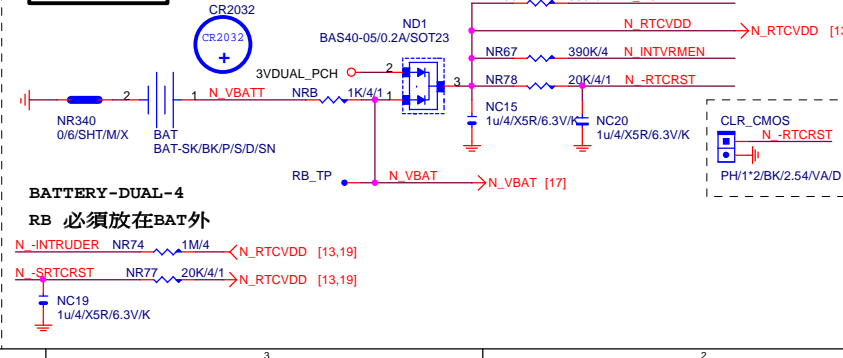
HSW_STRAP13



32.768KHZ



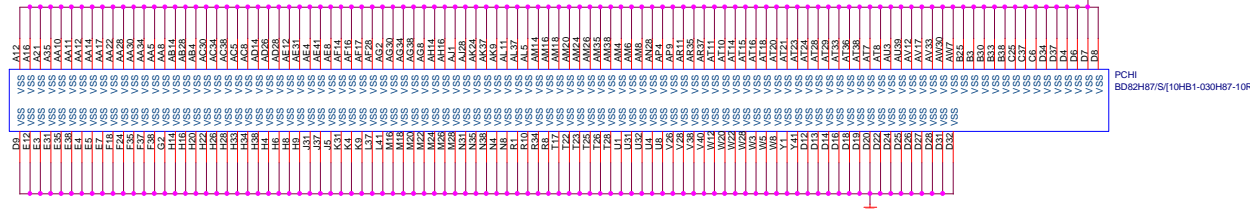
CLR_CMOS



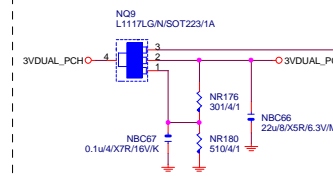
Gigabyte Technology

Title				
PCH GPIO , CTRL , AUDIO				
Size	Document Number			Rev
Custom	GA-H87M-HD3			1.0
Date:	Friday, March 29, 2013	Sheet	12	of 32

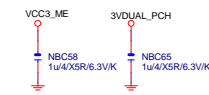
PCH (I)



3VDUAL_PCH



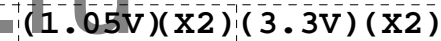
H87 N/A



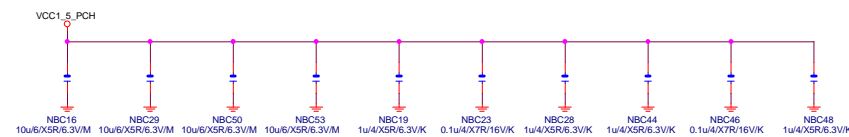
(3.3V) (X6)



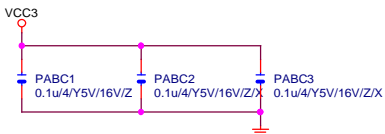
(1.05V) (x5)



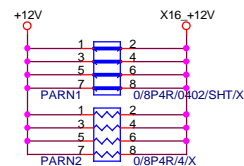
(1.05V) (x10)



PCIEX16 CAP



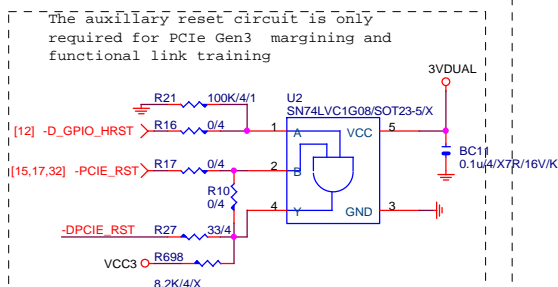
PCIEX16 PROTECT SHT



PCIEX16	AC	CAP
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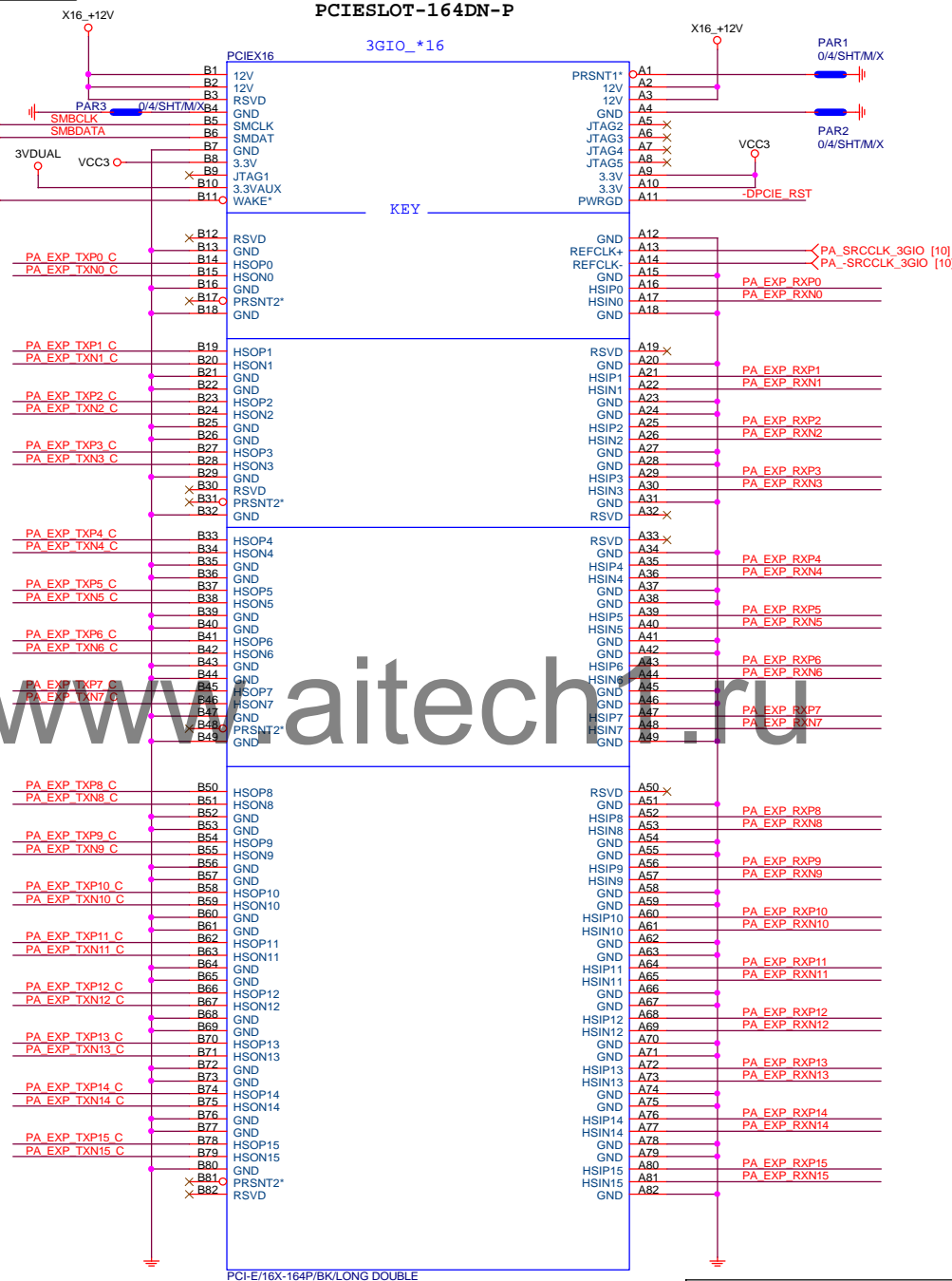
PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXN15 C

PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] [4]
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [4]
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [4]
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [4]



PCIEX16 SLOT

PCIESLOT-164DN-P



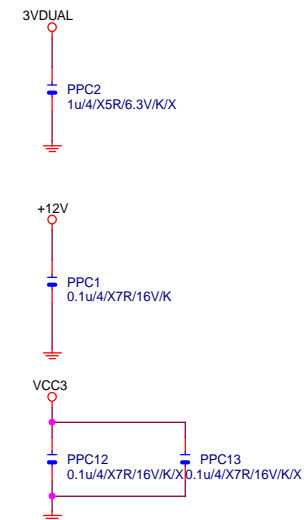
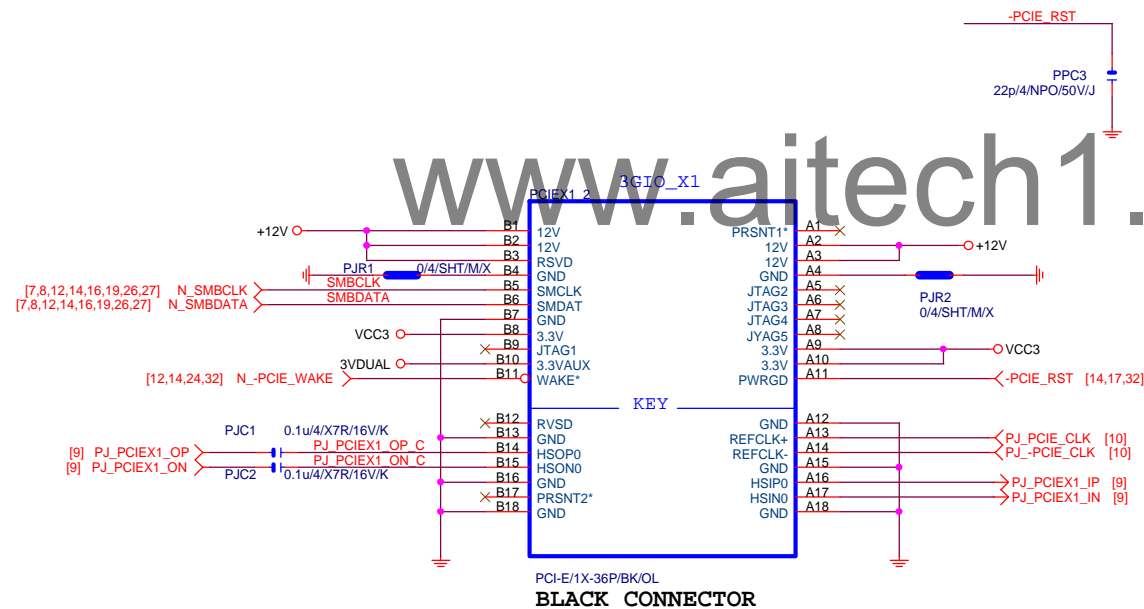
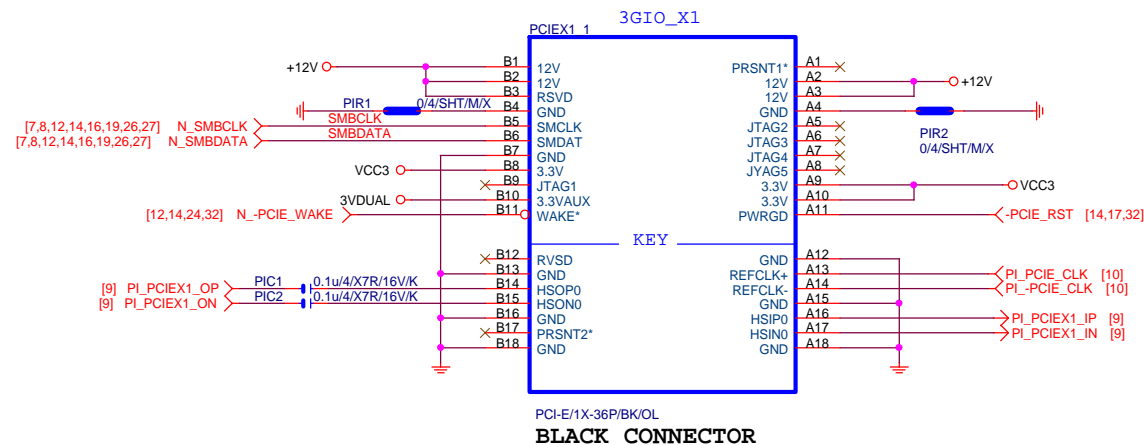
BLACK CONNECTOR

Gigabyte Technology

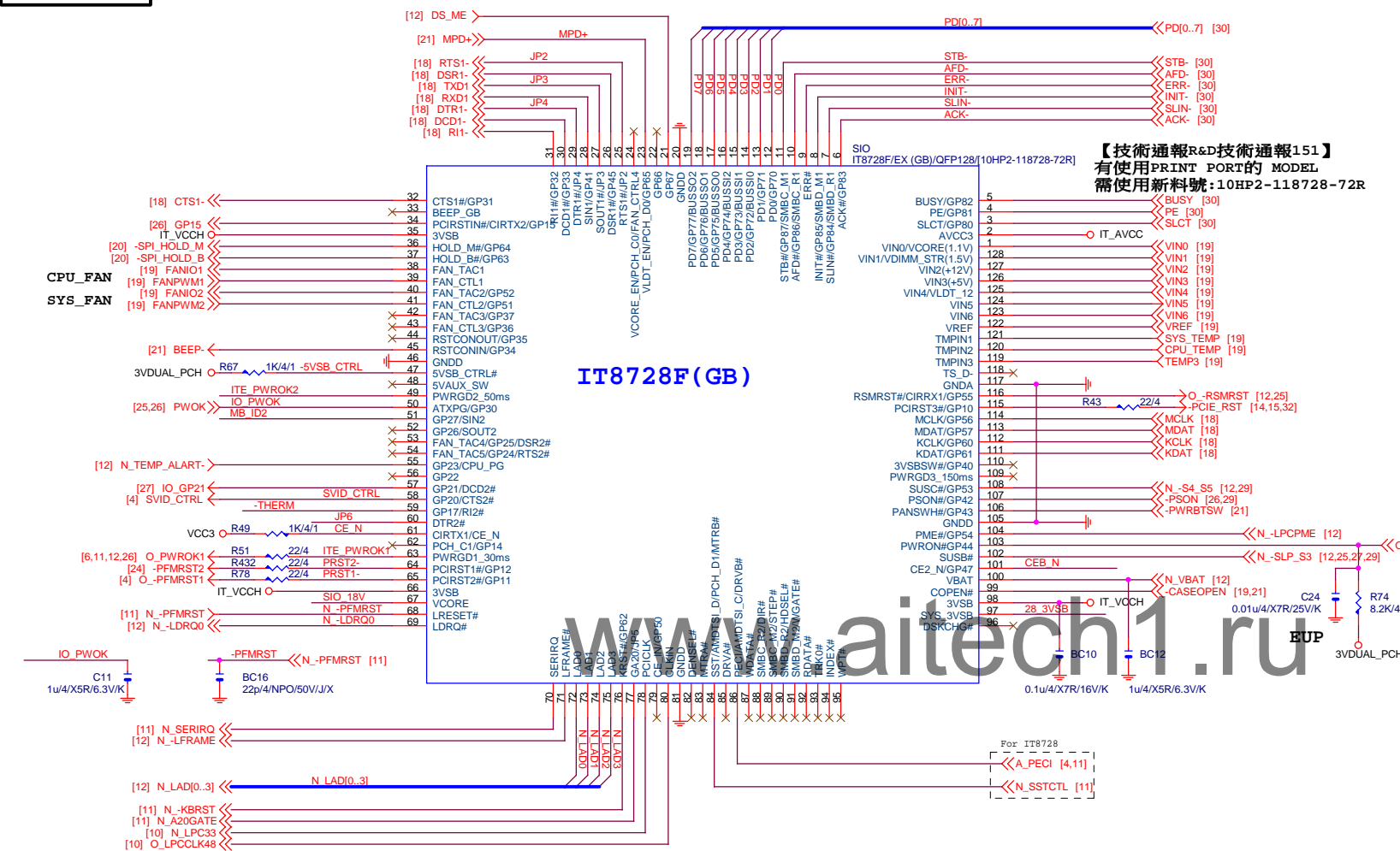
PCI EXPRESS * 16

Title				PCI EXPRESS * 16			
Size	Document Number	GA-H87M-HD3				Rev	
Custom						1.0	
Date:	Friday, March 29, 2013	Sheet	14	of	32		

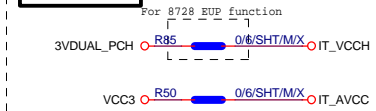
PCIEX1 SLOT



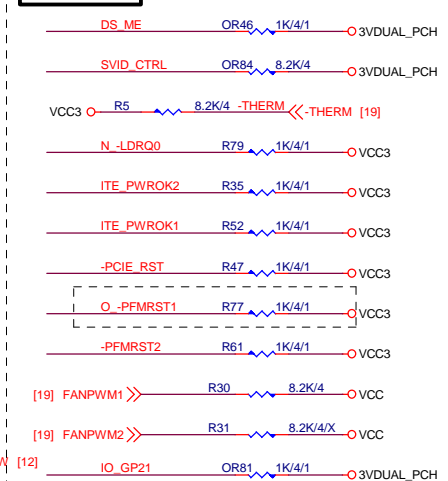
SIO IT8728F



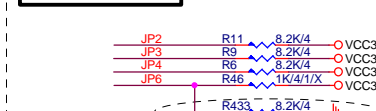
PWR	SHT
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SIO	PU
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SIO STRAP



IT8728-EX
PULL DOWN

— —ENABLE

GVP con

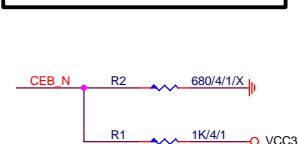
3VDUAL 100/4/1 R83 28_3VSB

```
UP3--- High SPI-Flash Disable
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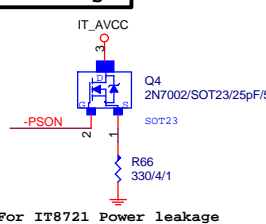
IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRV#
PIN66	SYS_3V5B
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

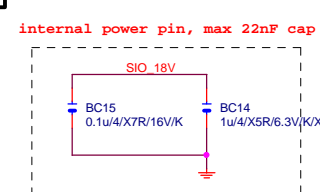
DUAL BIOS OPT STRAP



Power leakage



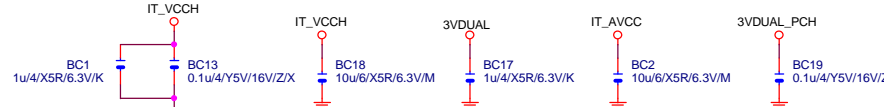
SIO_18V



MB	ID
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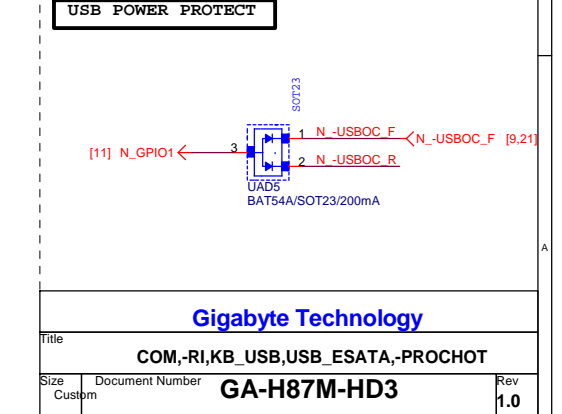
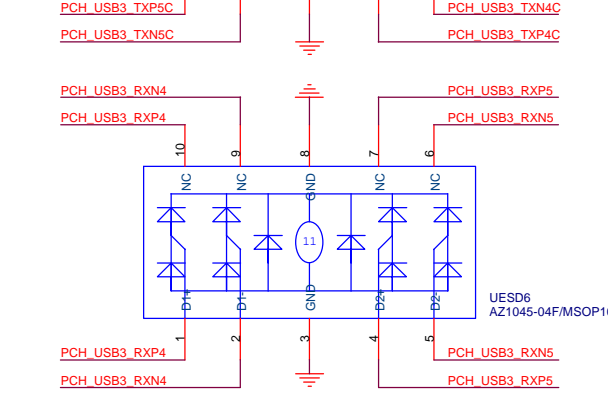
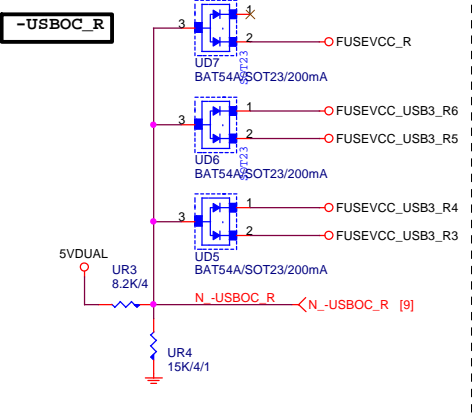
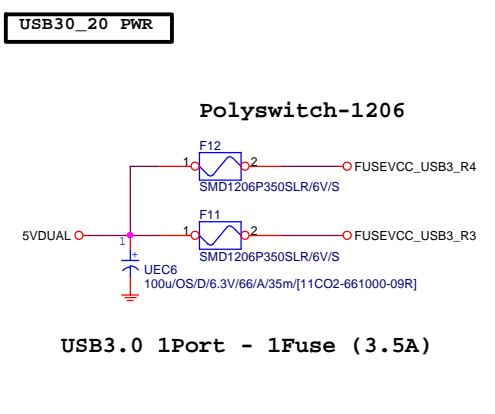
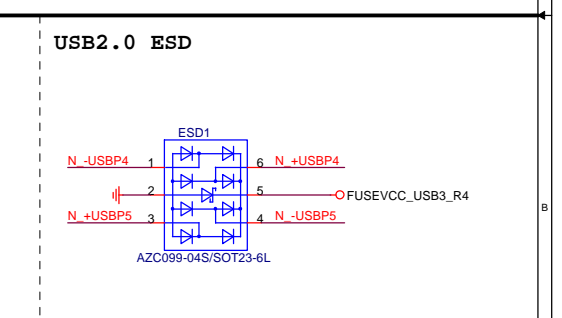
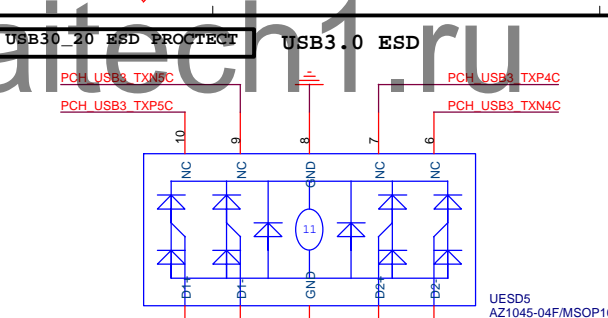
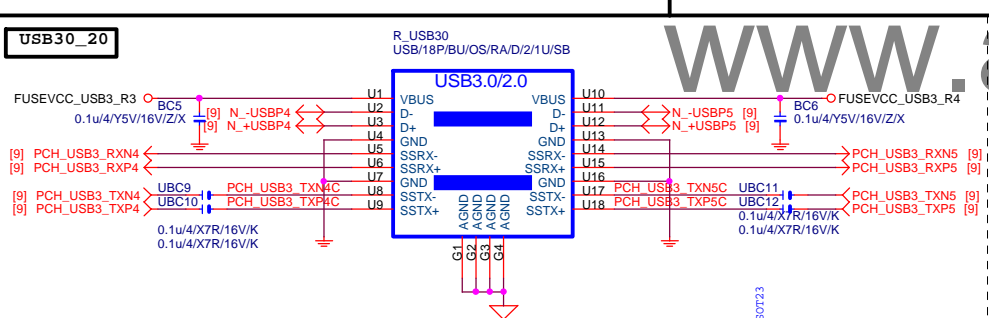
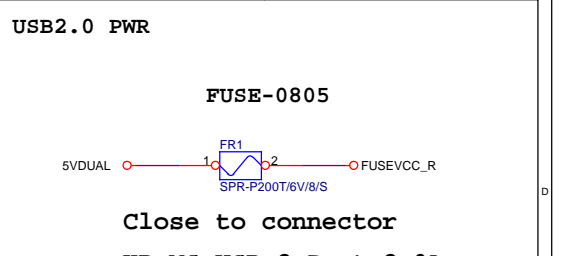
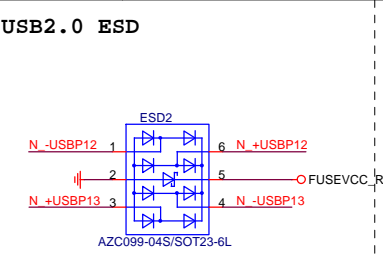
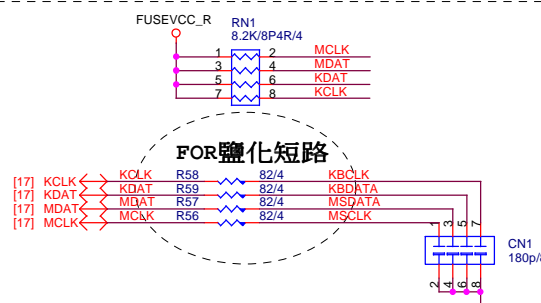
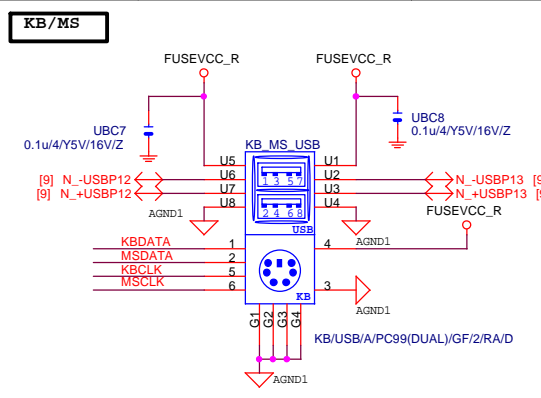
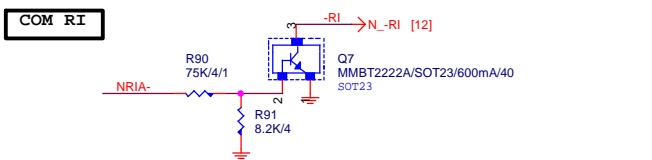
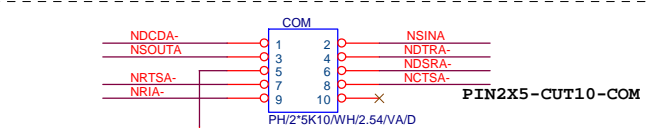
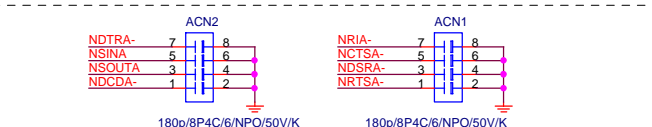
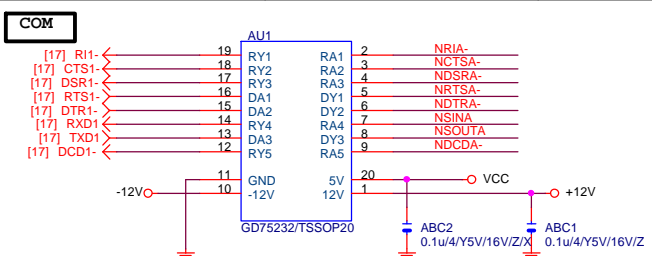


SIO CAP

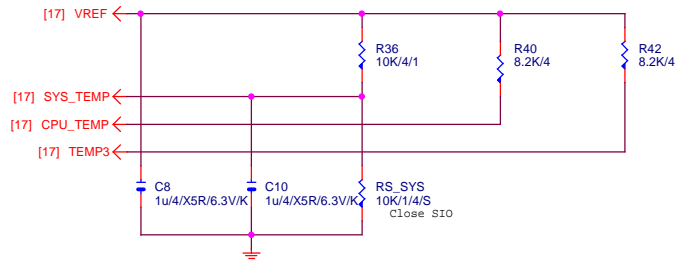


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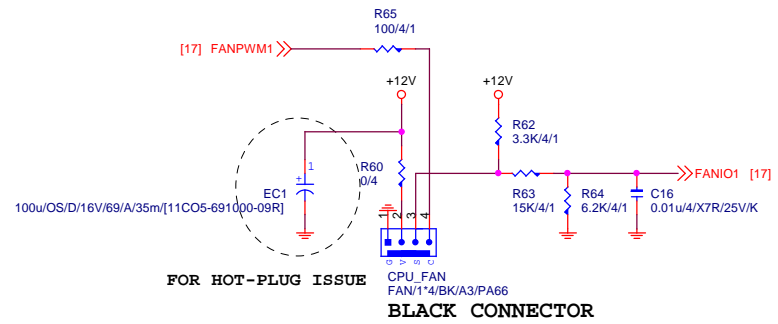
Title			
ITE 8728 LPC IO			
Size	Document Number		Rev
Custom	GA-H87M-HD3		1.0
Date:	Friday, March 29, 2013	Sheet	17 of 32



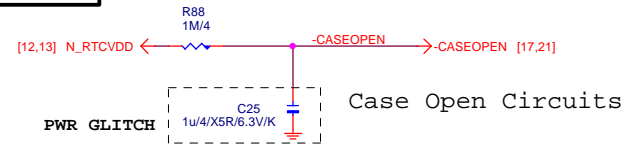
TEMP H/W MONITOR



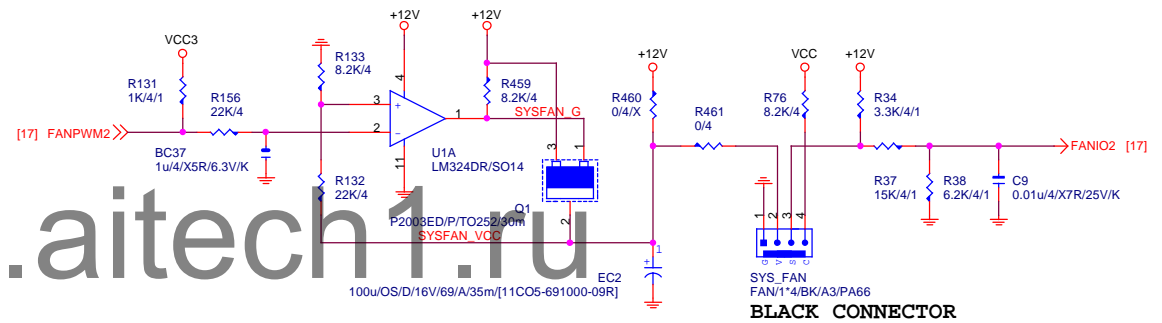
CPU SMART FAN



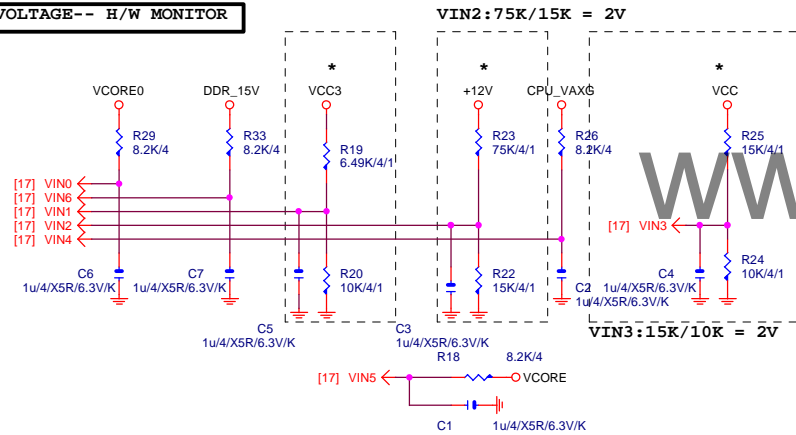
CASE OPEN



SYS SMART FAN

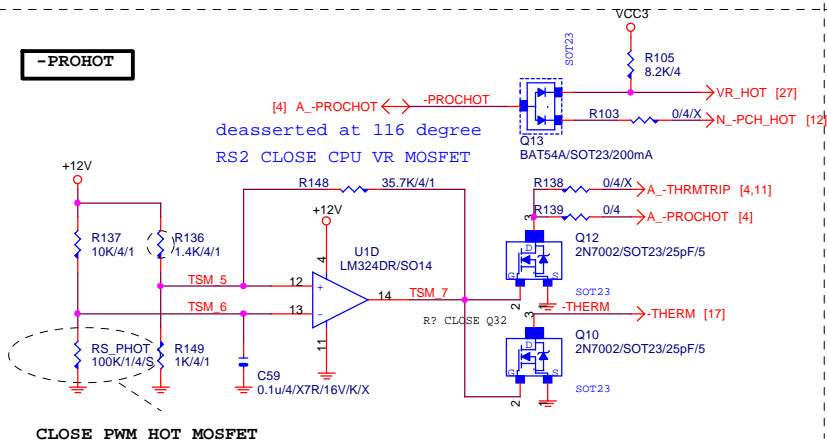


VOLTAGE-- H/W MONITOR

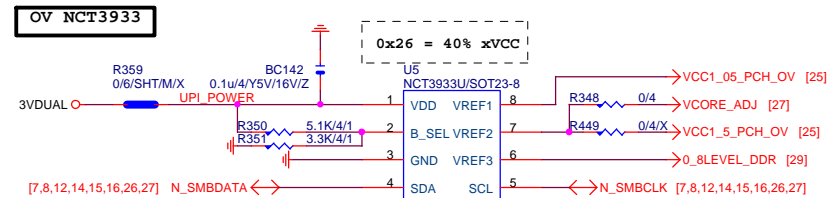


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-PROHOT

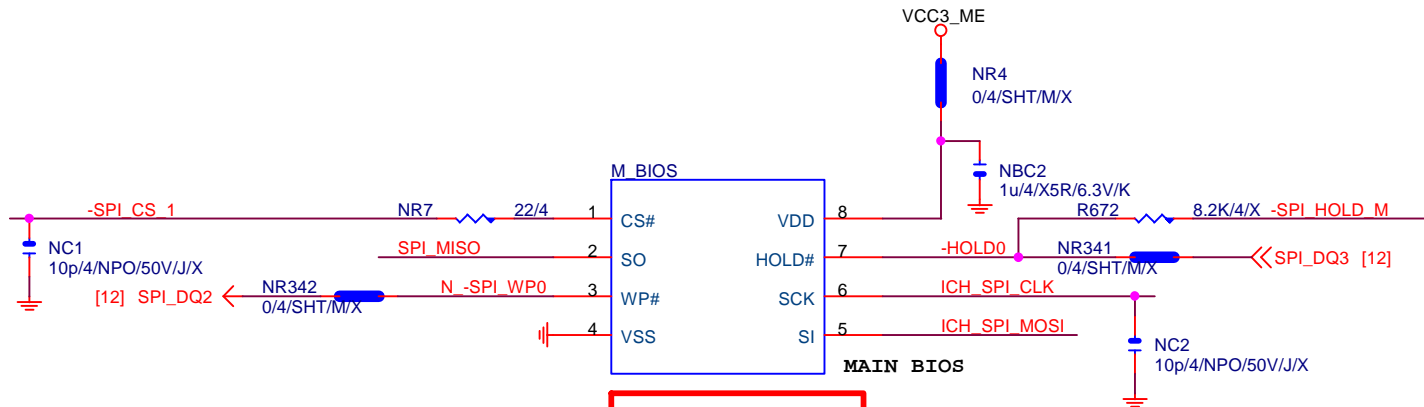


接pwm feedback pin

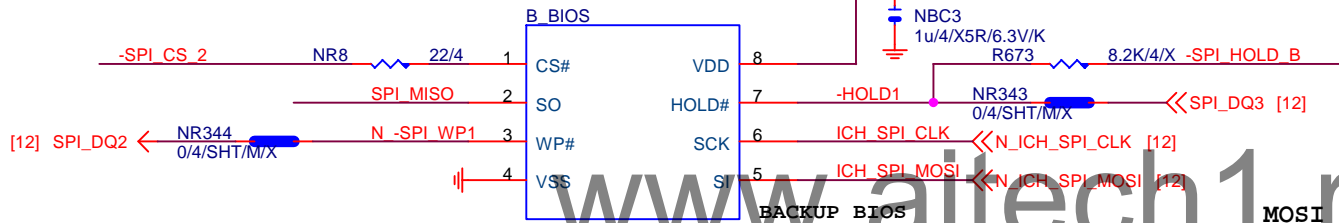


Gigabyte Technology

Title					HWM,FAN CTRL,OV					
Size	Document Number				GA-H87M-HD3					Rev
Custom										1.0
Date:	Friday, March 29, 2013				Sheet	19		of	32	



64M/Q/SPI/SO8/S

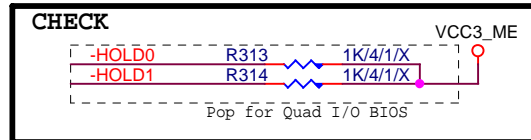
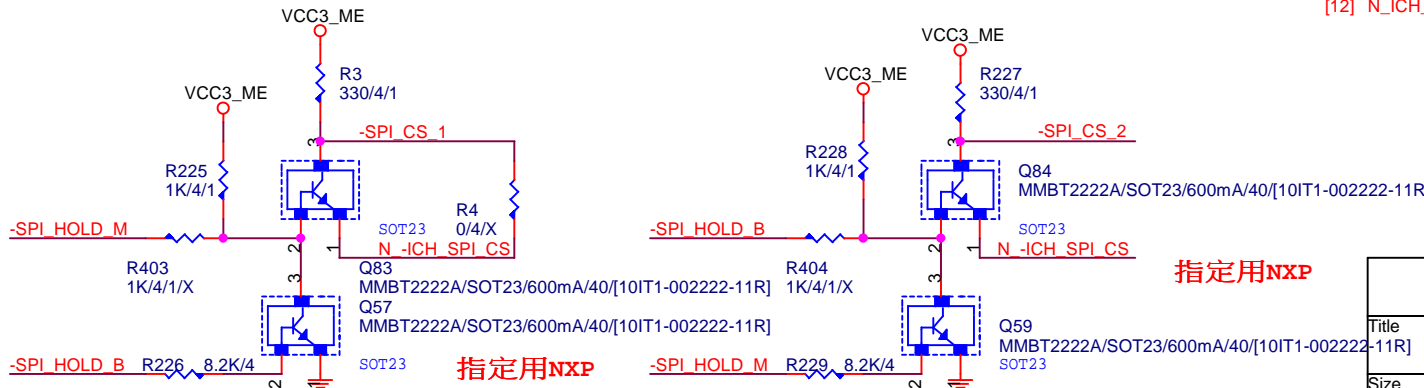
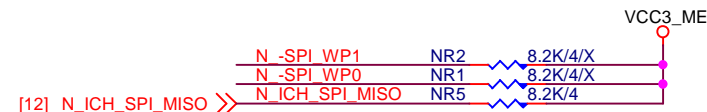
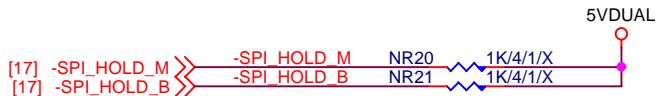
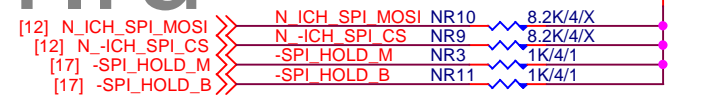


64M/Q/SPI/SO8/S

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

1 means floating
0 means PD 1K

MOSI For DMI RX Termination Voltage



指定用NXP

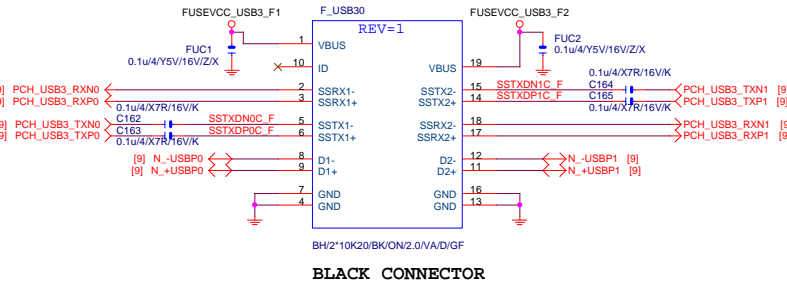
Gigabyte Technology

DUAL BIOS

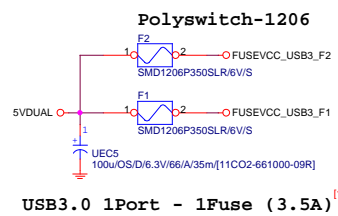
GA-H87M-HD3

Title	Document Number	Rev
		1.0
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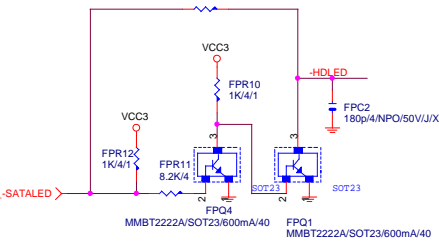
F_USB30



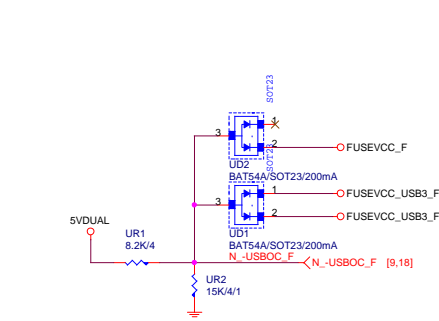
F_USB30 PWR



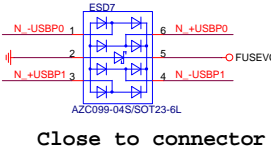
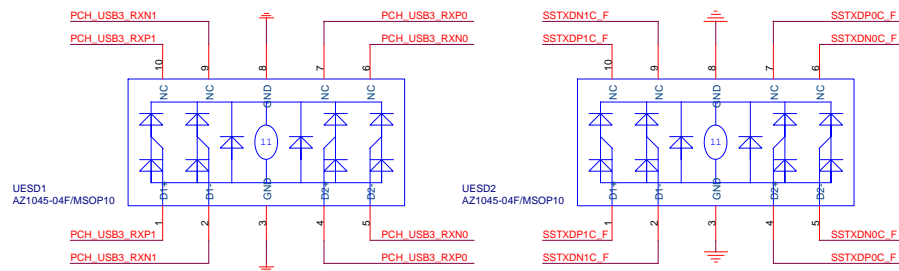
SATA LED



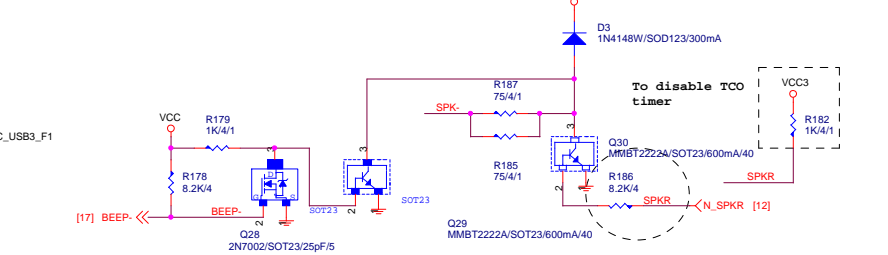
-USB0C_F



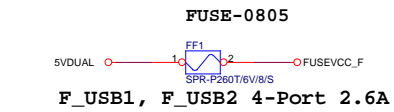
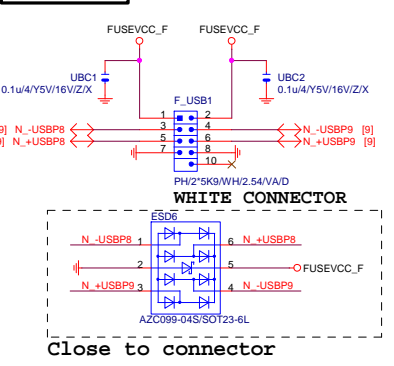
F_USB30 ESD PROTECT



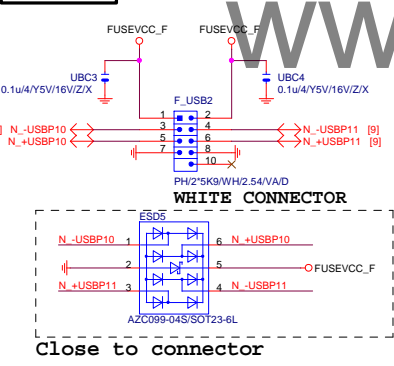
SPKR



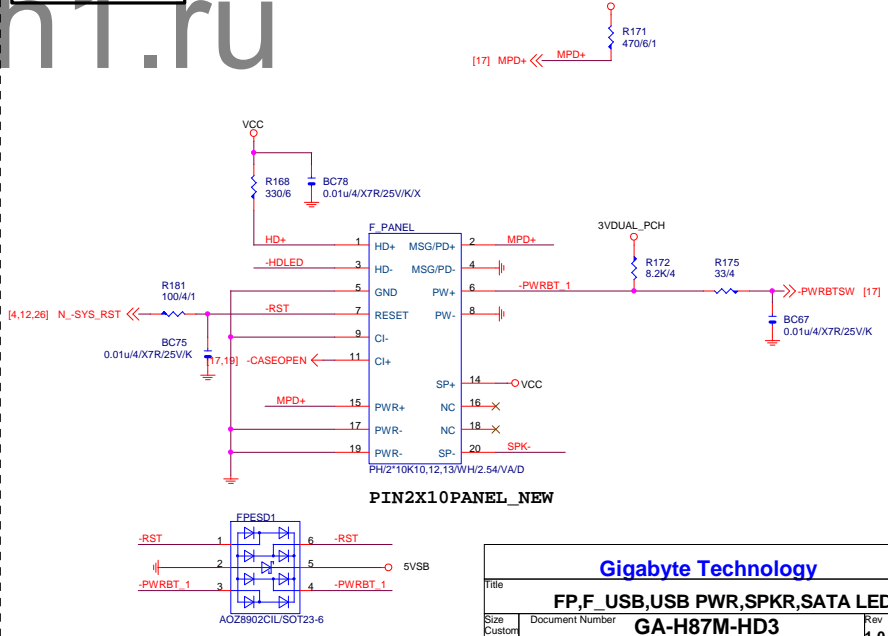
FRONT USB1



FRONT USB2



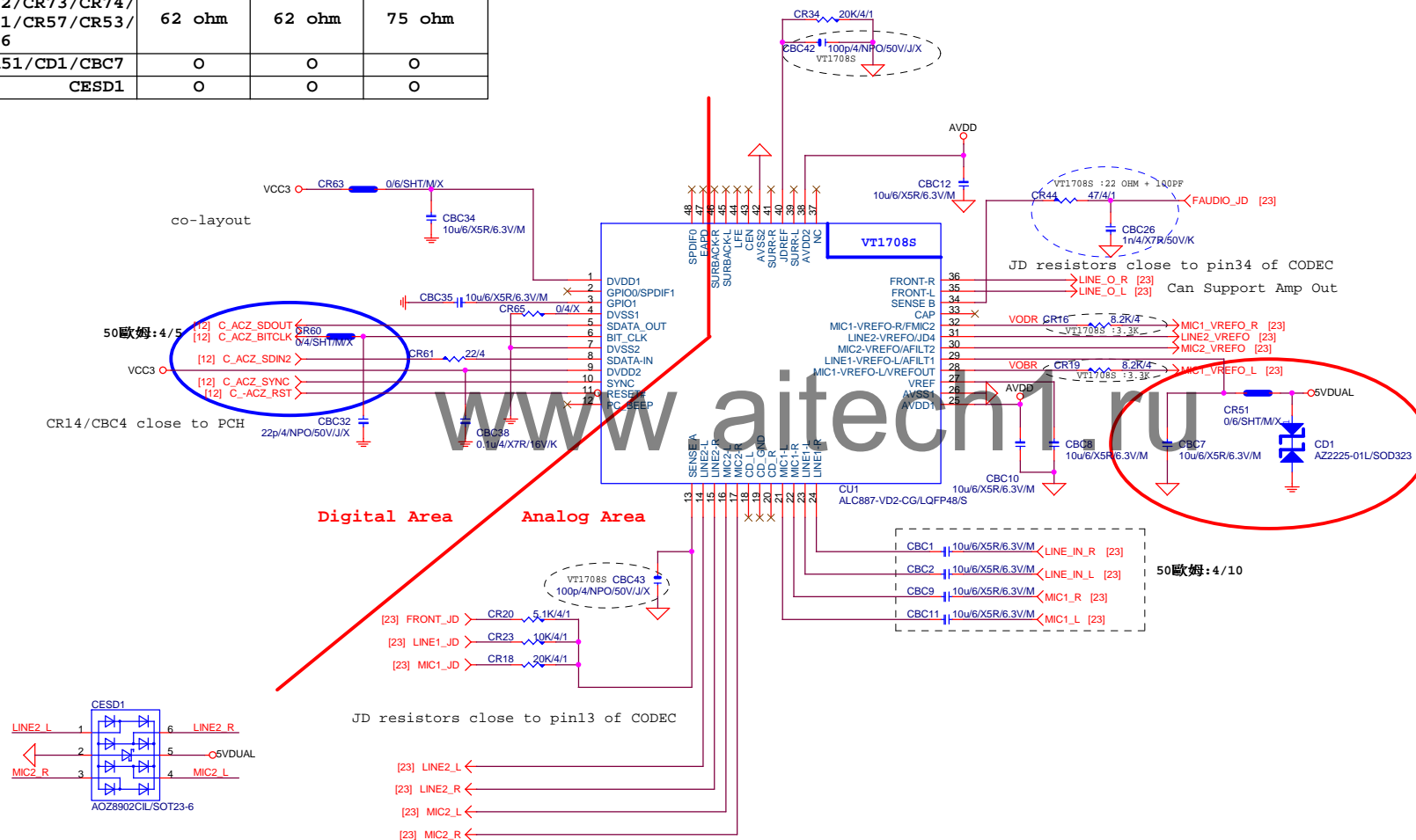
INTEL FRONT PANEL

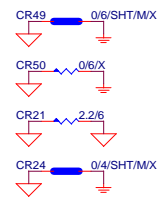


Gigabyte Technology			
FP,F_USB,USB PWR,SPKR,SATA LED			
GA-H87M-HD3			
Rev	1.0		

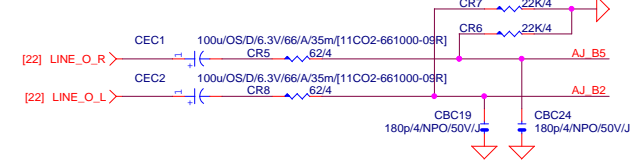
AZALIA CODEC ALC892/ALC887-VD2/VT1708-CE Colay

	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
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





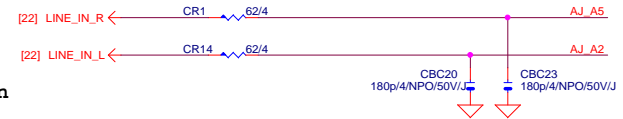
LINE-OUT



LINE-IN

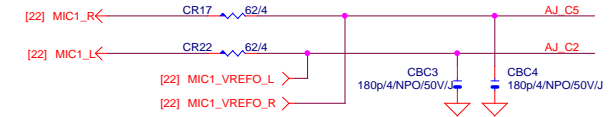
Verify MIC function
in LINE-in

Only reserved for ALC888



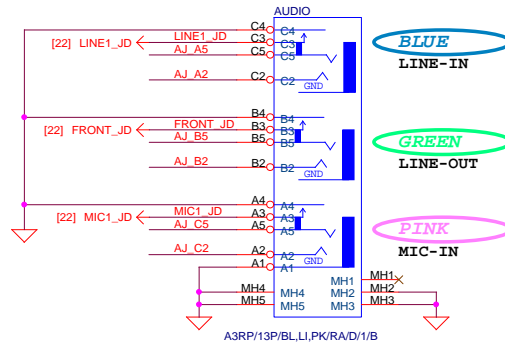
For 889A/888

MIC-IN

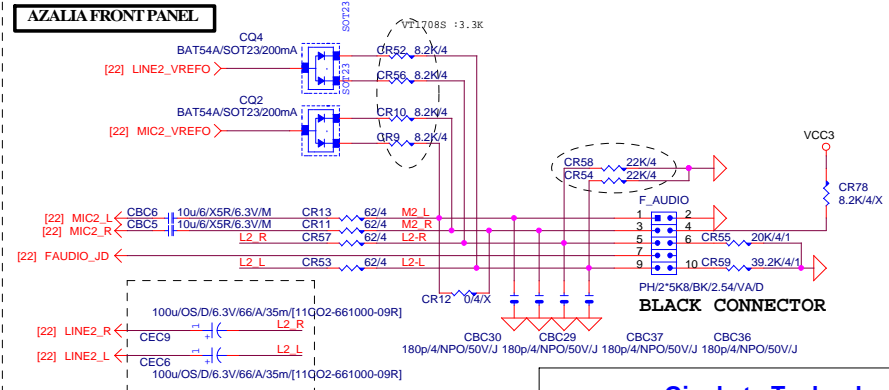


SPDIF_OUT

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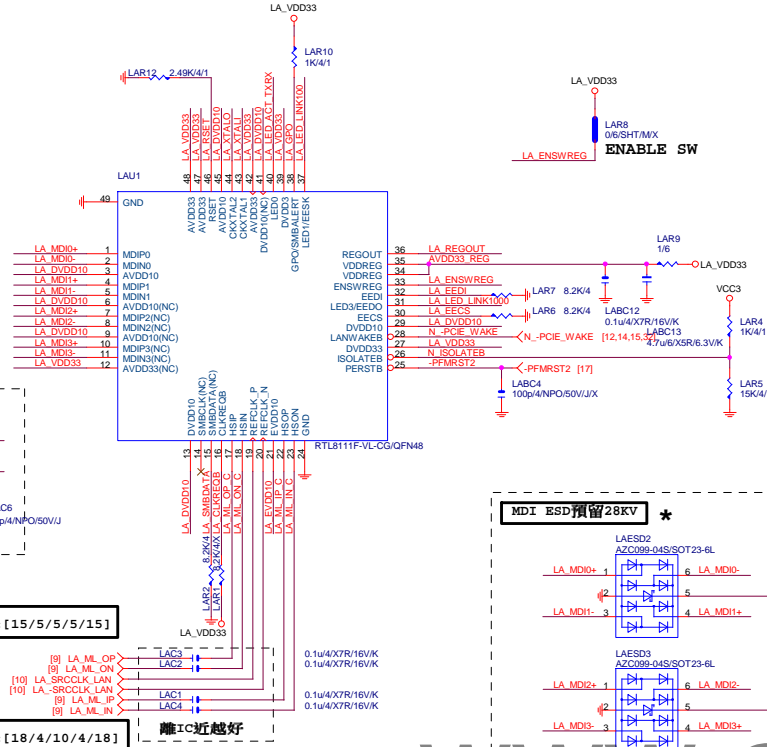
AZALIA FRONT PANEL



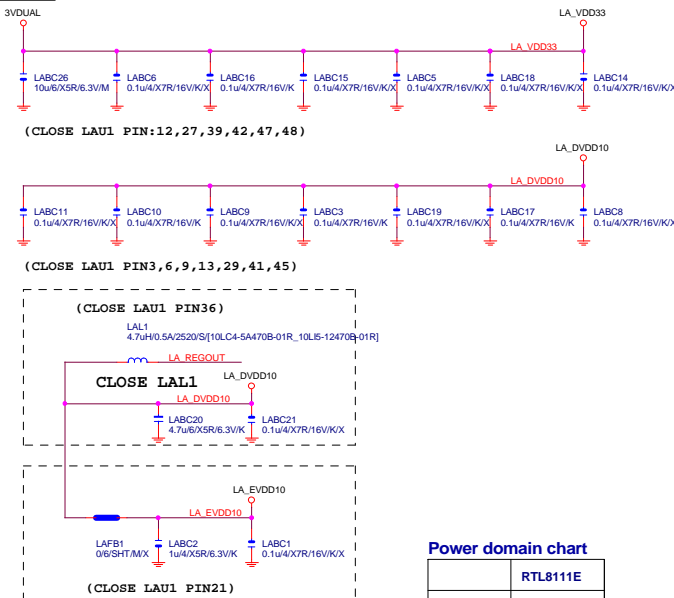
Gigabyte Technology

Title		
AUDIO JACK		
Size	Document Number	Rev
Custom	GA-H87M-HD3	1.0
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LAN:RTL8111F/VB/VL



LAN POWER

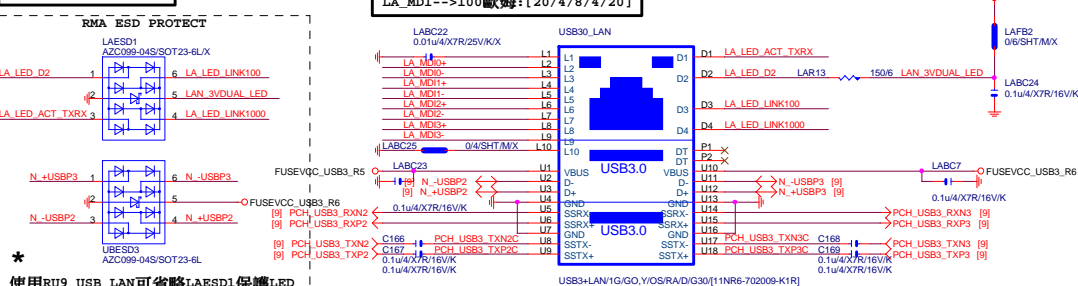


Power domain chart

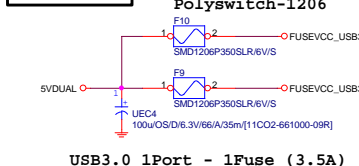
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

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USB LAN CONNECTOR



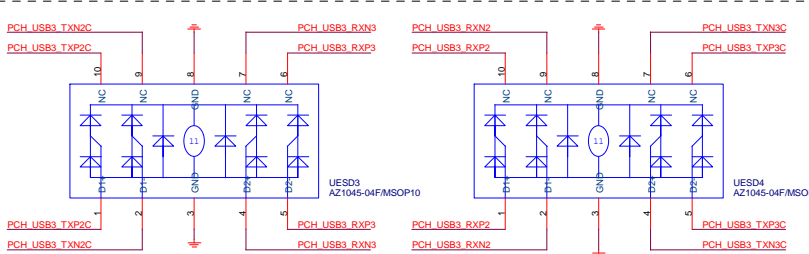
USB X3 POWER



EMI SHORT PAD



USB3.0 1Port - 1Fuse (3.5A)



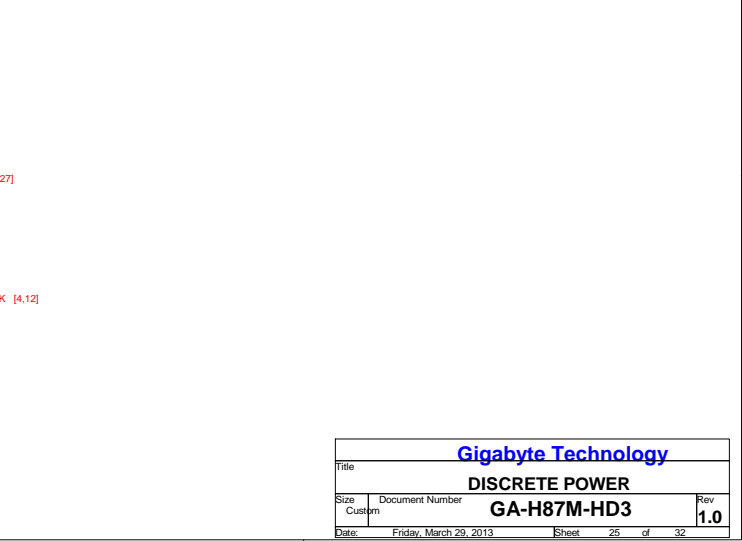
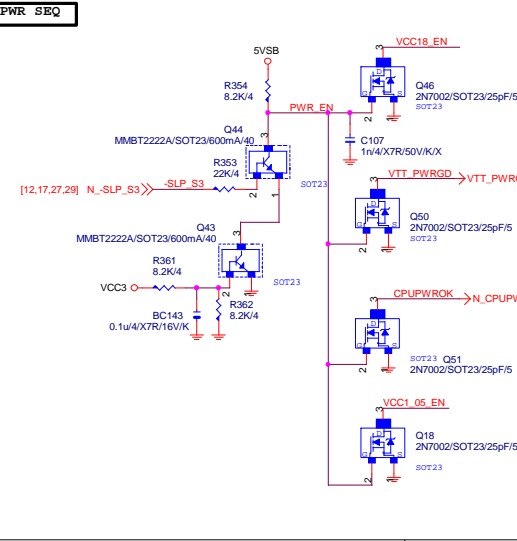
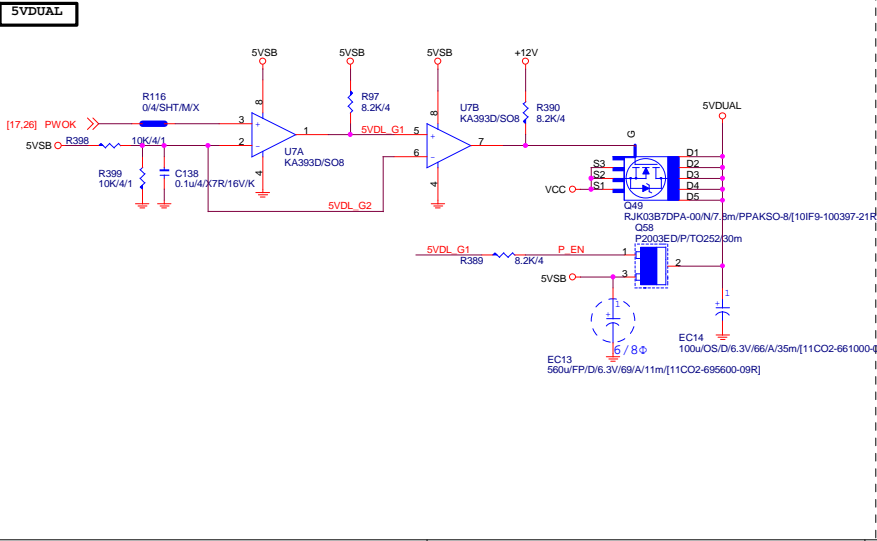
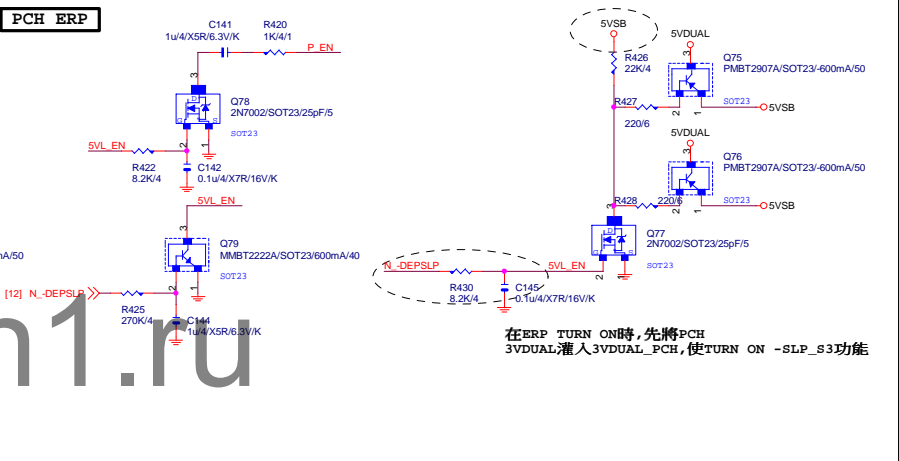
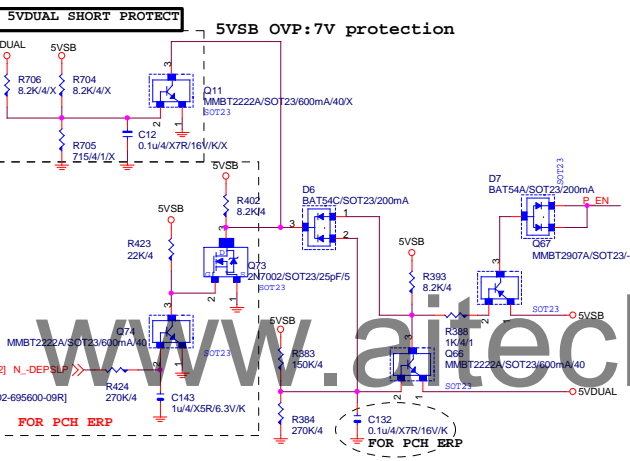
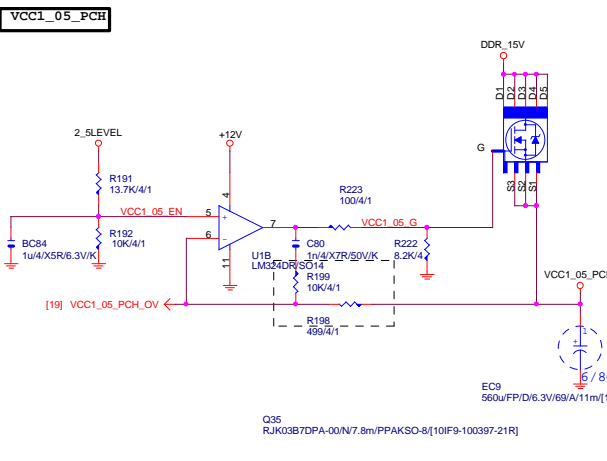
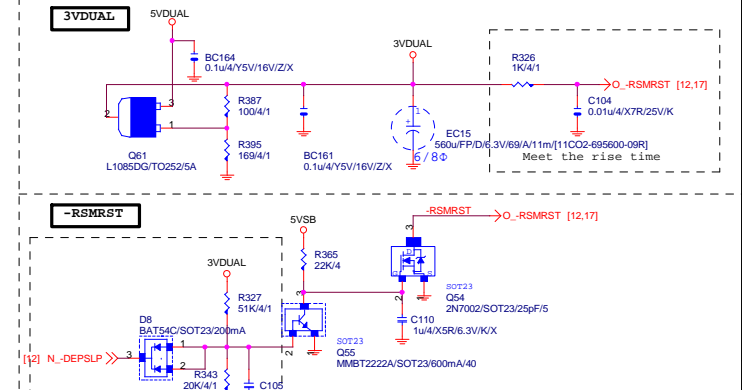
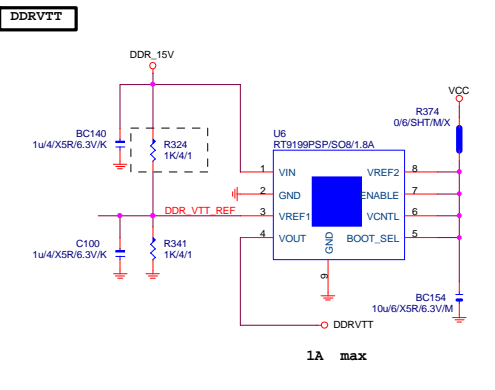
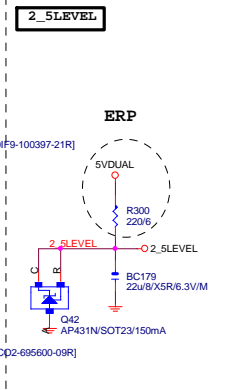
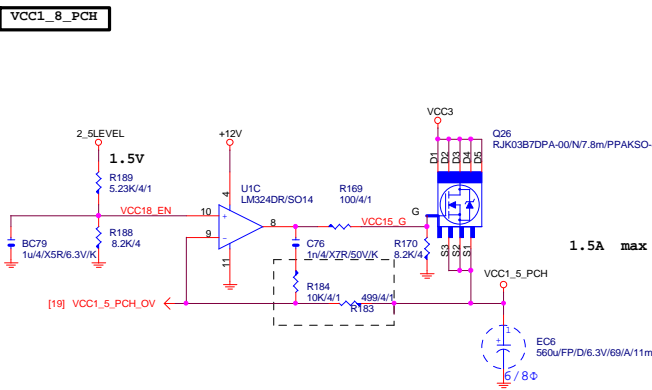
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

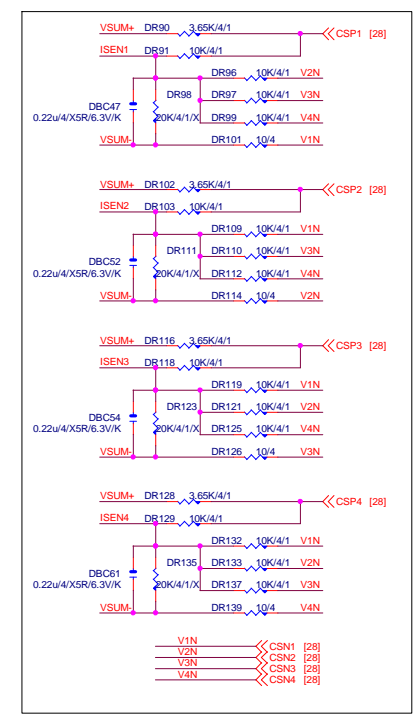
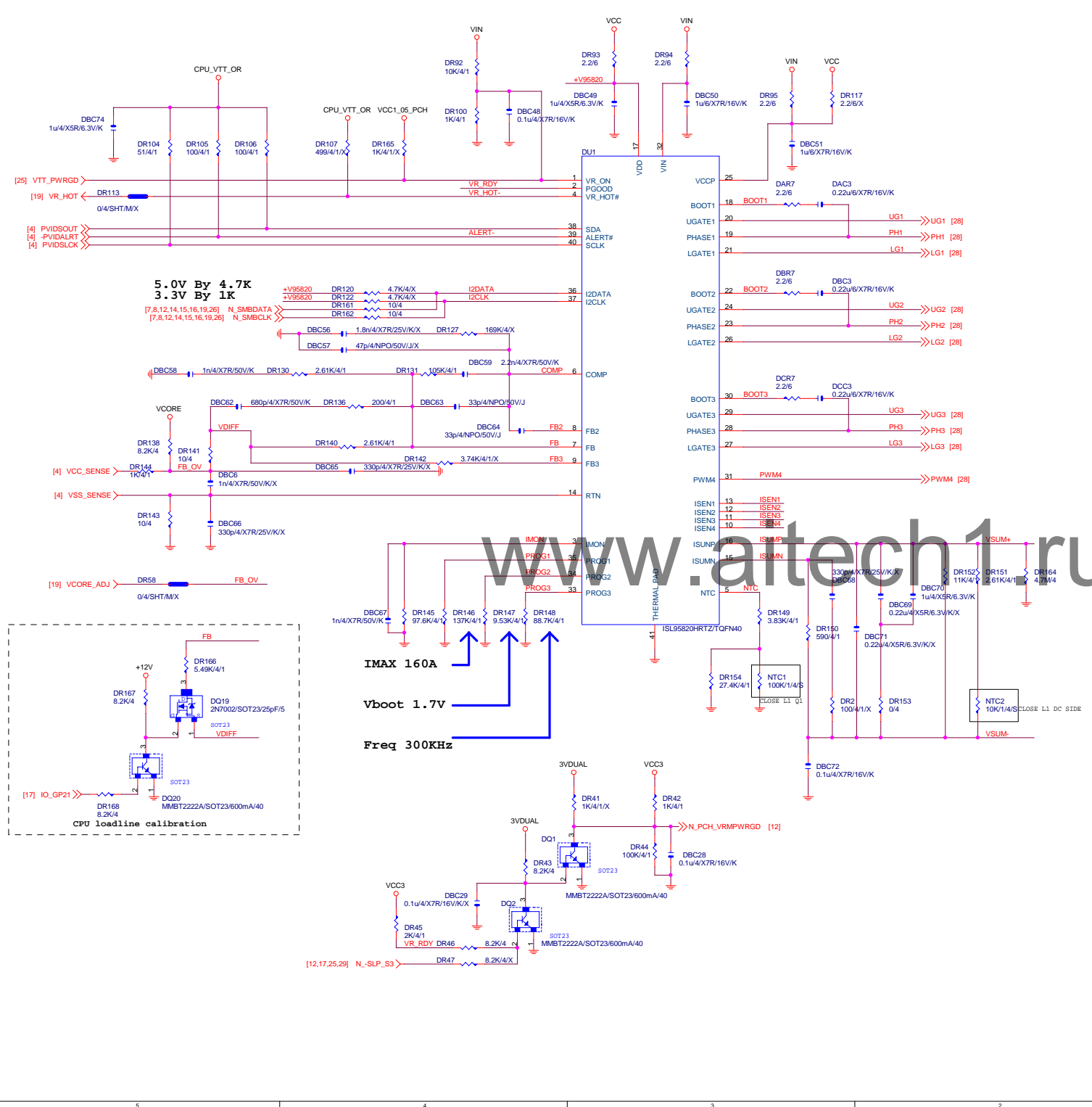
BOM NOTICE

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)
[LED獨立走線,可省略外加AZC099料件LAESD1]		
1. 9KV ESD BOM:		
USB LAN (RU9):11NR6-702009-96R		
2. 28KV ESD BOM:		
USB LAN (RU9):11NR6-702009-96R		
LAESD2,LAESD3:上件AZC398-04S		

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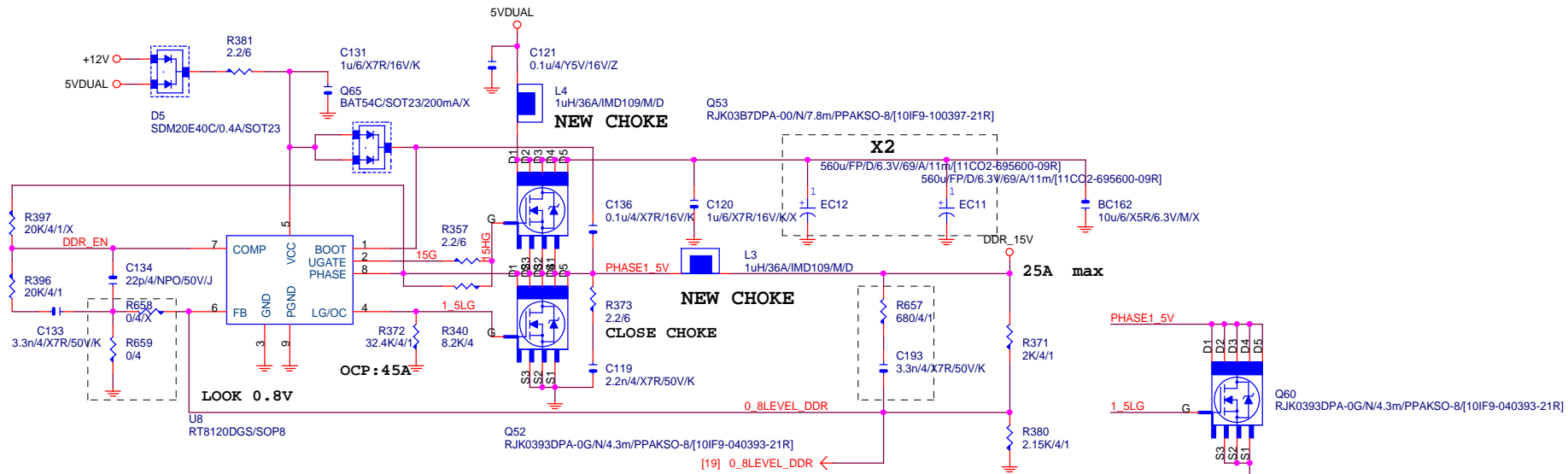
Title		Realtek RTL8111G
Size	Document Number	GA-H87M-HD3
Custom		Rev 1.0
Date	Friday, March 29, 2013	Sheet 24 of 32



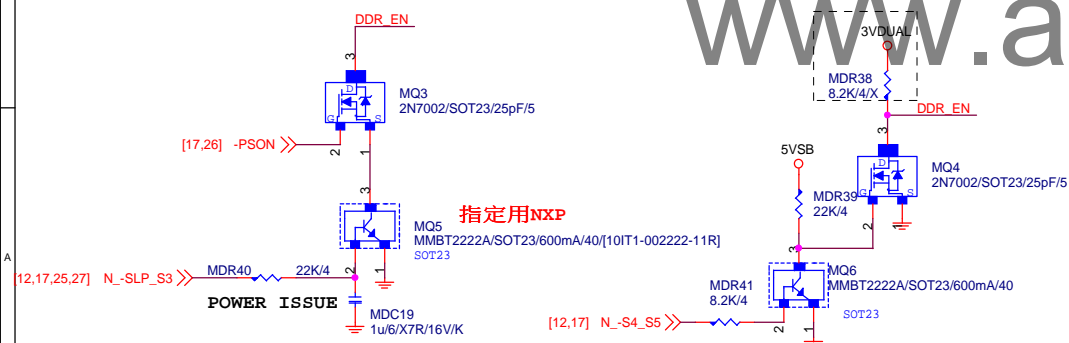


CLOSE PWR

DDR1.5V



PWR_SEQ



VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A

Rocset=(Iocp*Lgate,rdson)/Iocset
 Rocset=(45A*6.7mOhm)/10uA = 30K
 Iocset=10uA

Gigabyte Technology

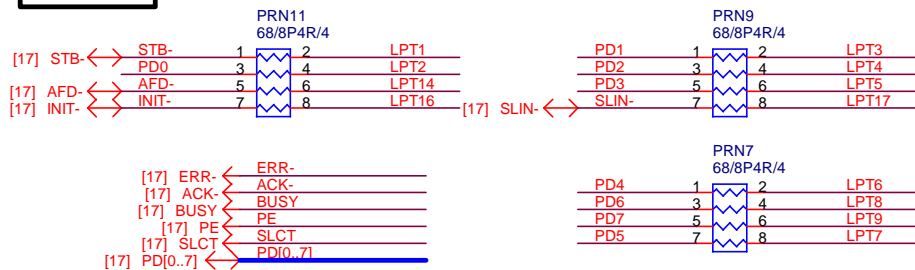
Title		
DDR POWER		
Size	Document Number	Rev
Custom	GA-H87M-HD3	1.0
Date:	Friday, March 29, 2013	Sheet 29 of 32

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

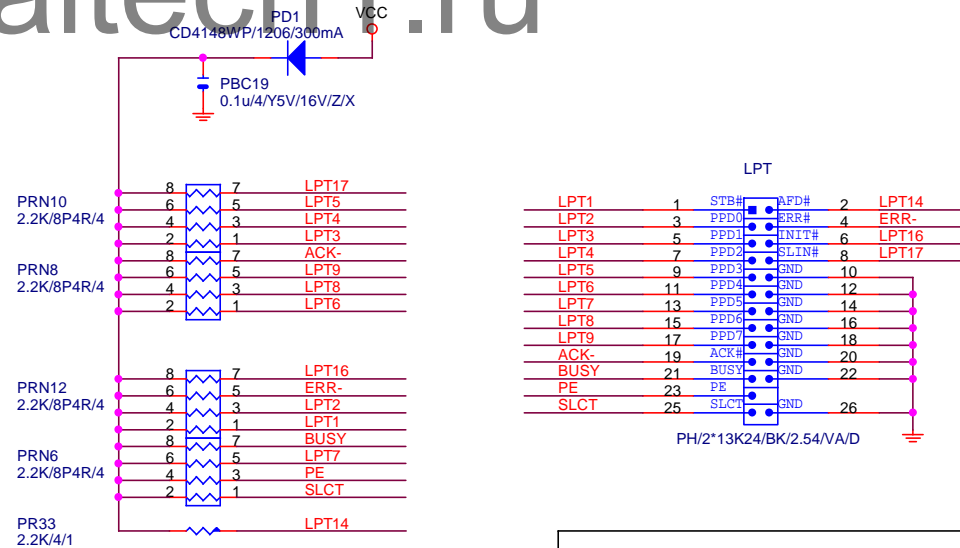
VCC3_ME

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LPT PORT



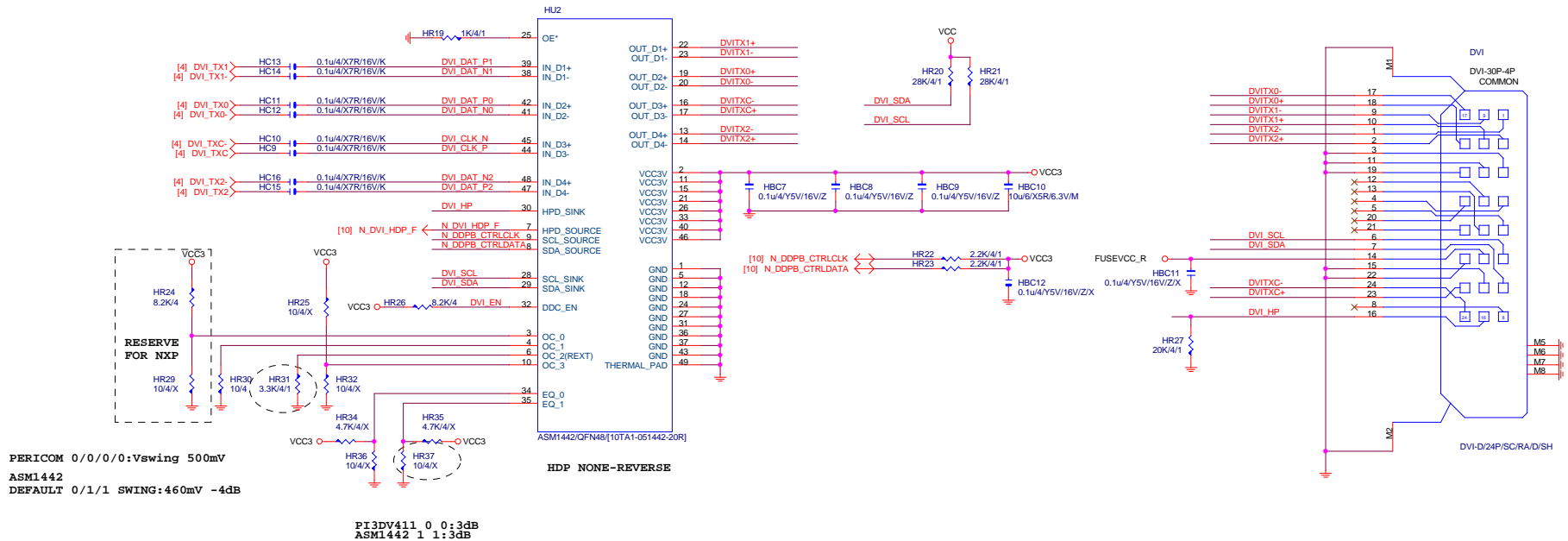
【技術通報R&D技術通報151】
33ohm Change to 68ohm



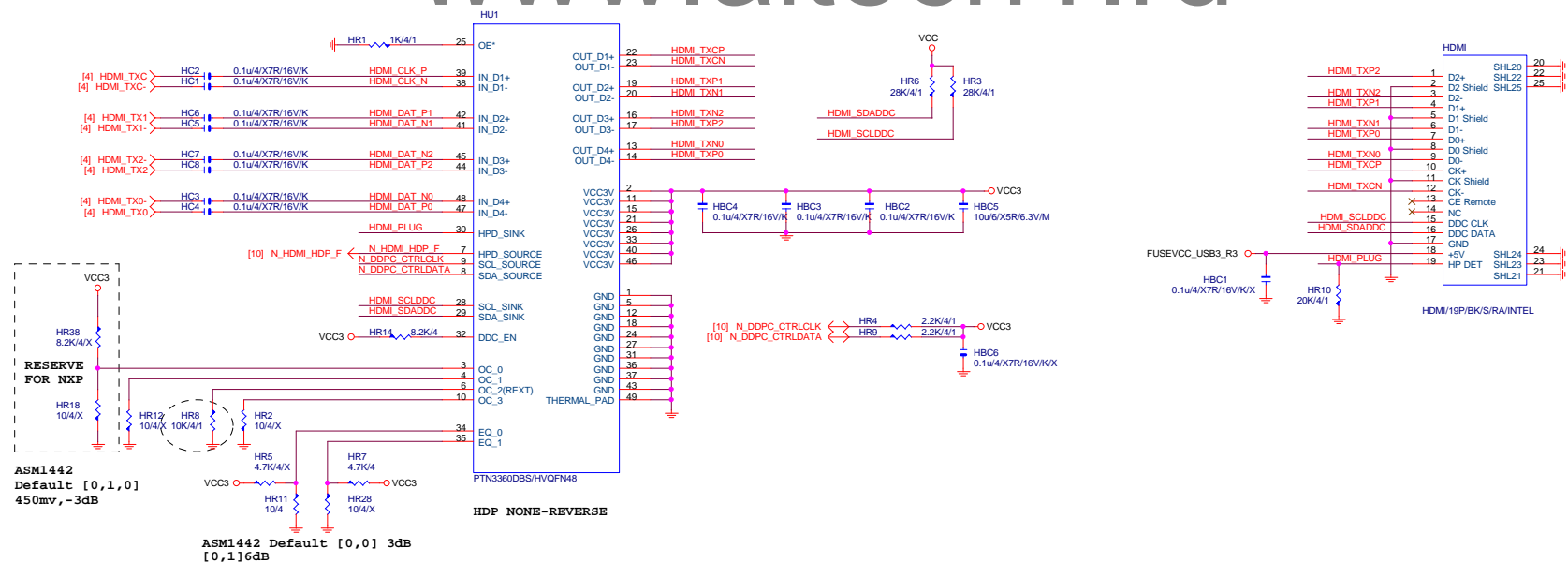
Gigabyte Technology

Title			
LPT			
Size Custom	Document Number	GA-H87M-HD3	Rev 1.0
Date:	Friday, March 29, 2013	Sheet 30 of 32	

DVI LEVEL SHIFT



HDMI LEVEL SHIFT



【技術通報R&D技術通報150】

HDMI eye diagram1.4版(deep color)會fail

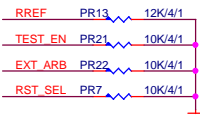
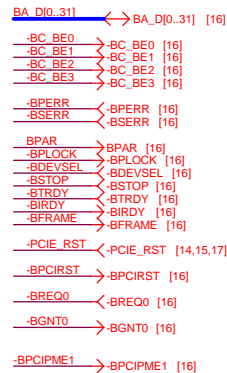
原因：因目前的HDMI訊號過長，造成RISING TIME過慢，而會壓到eye diagram

改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PCIE TO PCI

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

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm



[10] G_PBCLK<
[10] G_PBCLK<



PBC63 10p/4/NPO/50V/J/X
PBC64 10p/4/NPO/50V/J/X

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

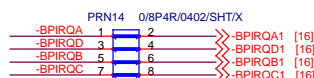
High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

IT8892

PCI slot

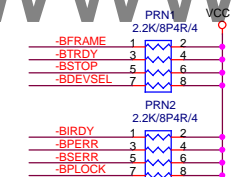
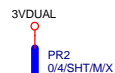
PCI slot

chipset side



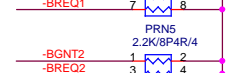
VCCP PR26 0/4/SHT/M/X 3VDUAL

-BPCIPME1 PR27 0/4/SHT/M/X N_PCIE_WAKE [12,14,15,24]



VCCP PR26 0/4/SHT/M/X 3VDUAL

-BPCIPME1 PR27 0/4/SHT/M/X N_PCIE_WAKE [12,14,15,24]



LDO 18V PFB1 0/6/SHT/M/X 1.8VA

LDO 18V PFB2 0/6/SHT/M/X 1.8VD

LDO 18V PFB3 0/6/SHT/M/X 1.8V AUX

LDO 18V PFB4 0/6/SHT/M/X 1.8V AUXA



VCC3 VCC3

VCC3 VCC3

VCC3 VCC3

VCC3 VCC3

VCC3 VCC3

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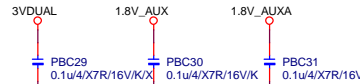
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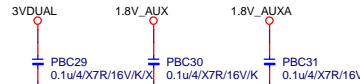
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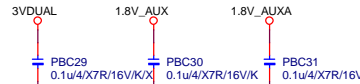
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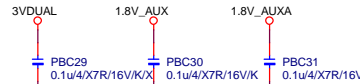
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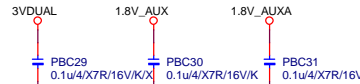
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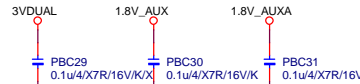
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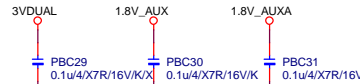
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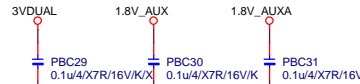
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