

Model Name: GA-B85M-HD3

Revision 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,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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Cover Sheet

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Revision 1.11

Circuit or PCB layout change

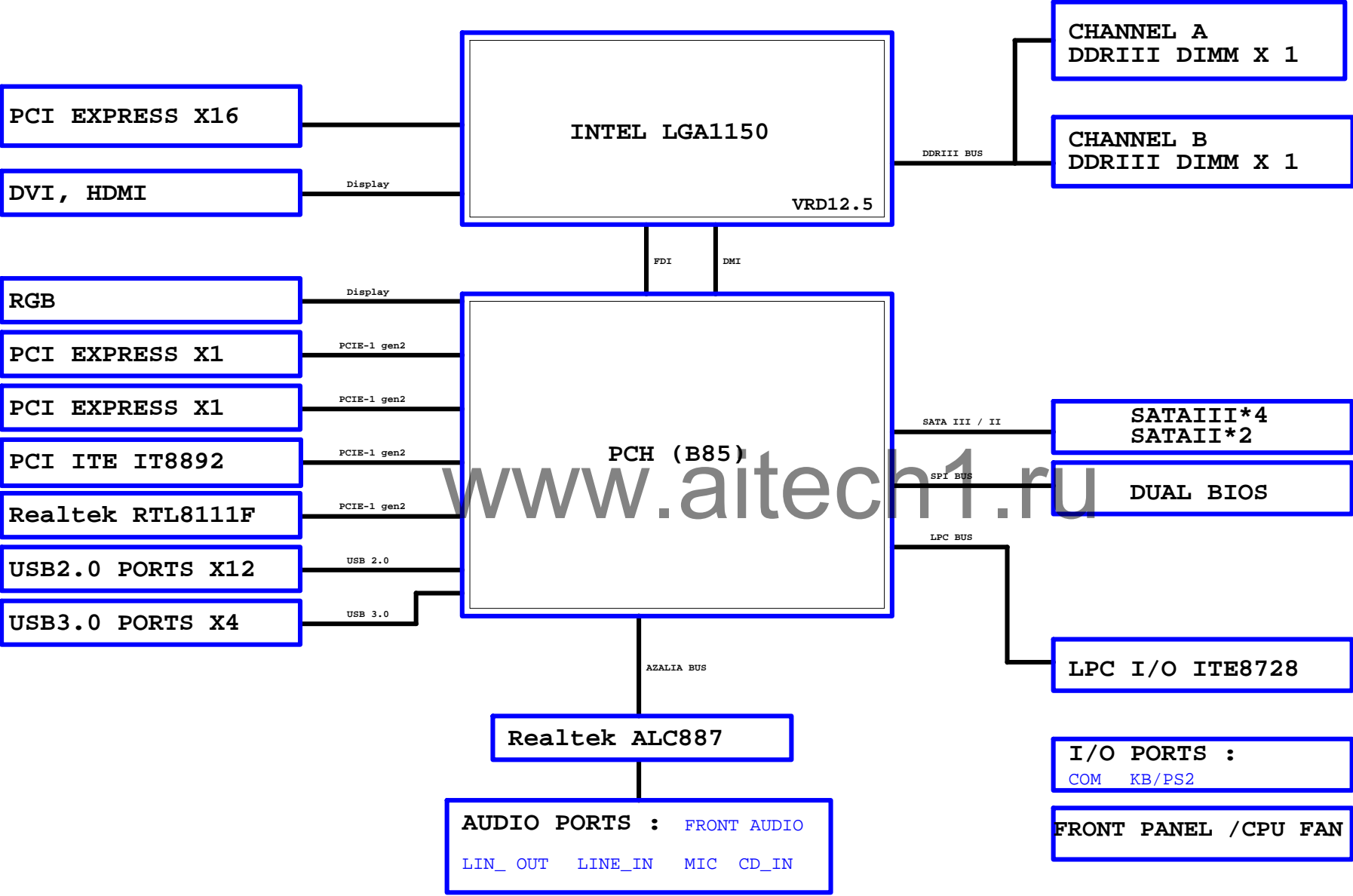
Component value change history

2013/11/27

Data	Change Item	Reason
2013/01/30	Modify to R0.2	
	PCIEX1_2 CLK Change Port	
	ADD Disable SVID [SVID_CTRL]	
	ADD Disable ME [DS_ME]	
	ADD -PCIE_RST Patch	
2013/02/05	O_PWROK1 reserve 0.01u Cap (For EMI)	
2013/03/11	Update to R1.0	
	Modify F_PANEL MPD+ (Super I/O GP65)	
	ADD SYS_FAN 防燒	
	ADD N_-THRMTRIP / A_-PROCHOT Protection Option	
	ADD 5VSB OVP Protection	
	ADD +12V Dummy Control	
	Reserve N_PCH_DPWROK Control	
2013/03/19	ADD EMI 0ohm (R707)	
2013/04/02		PBOM: 9MB85MHD3-00-10A
2013/04/08	Update PROCHOT	PBOM: 9MB85MHD3-00-10B
	R148: 35.7K -> 75K	
	R136: 1.4K -> 1.5K	
	DR149: 3.83K -> 13K	
2013/06/25	Update to R1.1	PBOM: 9MB85MHD3-00-11A
	Chipset change REV: C2	
2013/07/04	ADD 5VSB Protection	PBOM: 9MB85MHD3-00-11B
	Remove Super I/O OVP/UVF Function	
2013/07/11	Modify 5VSB Protection	PBOM: 9MB85MHD3-00-11C
	DEL R704: 8.2K/4	
	ADD R706: 8.2K/4	
	R705: 715/4/1 -> 825/4/1	
	DEL AUDIO AZ2225-01L CD1	

[illegible]

BLOCK DIAGRAM



[illegible]

Diagram illustrating the pin connections for the LGA1150D package, showing connections to various signals and ports.

Left Side Connections:

- [9] FDI_CSYSYNC > FDI_CSYSYNC D16
- [9] FDI_INT > FDI_INT D18
- VCCIOA_L_C < WR23 < 24.9/4/1 < FDI_RCOMP R4
- [10] N_DP_CLK > U5
- [10] N_DP_CLK > U6
- ✕ E16
- ✕ K11
- ✕ J12
- FDI_TXN0 B14
- FDI_TXP0 A14
- FDI_TXN1 C13
- FDI_TXP1 B13

Right Side Connections:

- DDI1_TXP0 E17 > DVI1_TX2 [31]
- DDI1_TXN0 F17 > DVI1_TX2- [31]
- DDI1_TXP1 F18 > DVI1_TX1 [31]
- DDI1_TXN1 G18 > DVI1_TX1- [31]
- DDI1_TXP2 G19 > DVI1_TX0 [31]
- DDI1_TXN2 H19 > DVI1_TX0- [31]
- DDI1_TXP3 F20 > DVI1_TXC [31]
- DDI1_TXN3 G20 > DVI1_TXC- [31]
- SSC_DPCLKN DDI2_TXP0 D19 > HDMI1_TX2 [31]
- SSC_DPCLKP DDI2_TXN0 E19 > HDMI1_TX2- [31]
- ✕ EDP_DISP_UTIL DDI2_TXP1 C20 > HDMI1_TX1 [31]
- DDI2_TXN1 D20 > HDMI1_TX1- [31]
- ✕ RSVD_TP DDI2_TXP2 D21 > HDMI1_TX0 [31]
- ✕ J12 DDI2_TXN2 E21 > HDMI1_TX0- [31]
- DDI2_TXP3 C22 > HDMI1_TXC [31]
- DDI2_TXN3 D22 > HDMI1_TXC- [31]
- FDI_EDP_TXN0 DDI3_TXP0 B15 ✕
- FDI_EDP_TXP0 DDI3_TXN0 C15 ✕
- FDI_TXN1 DDI3_TXP1 A16 ✕
- FDI_EDP_TXN1 DDI3_TXN1 B16 ✕
- DDI3_TXP2 B17 ✕
- DDI3_TXN2 C17 ✕
- DDI3_TXP3 A18 ✕
- DDI3_TXN3 B18 ✕

Bottom Connections:

- FDI_TXP0_11 >>> FDI_TXP[0..1] [9]
- FDI_TXN0_11 >>> FDI_TXN[0..1] [9]

Legend:

- Blue line: 100% (100%)
- Red line: 50% (50%)
- Green line: 25% (25%)
- Orange line: 12.5% (12.5%)
- Grey line: 6.25% (6.25%)
- Black line: 3.125% (3.125%)
- White line: 1.5625% (1.5625%)
- Yellow line: 0.78125% (0.78125%)
- Light blue line: 0.390625% (0.390625%)
- Light green line: 0.1953125% (0.1953125%)
- Light orange line: 0.09765625% (0.09765625%)
- Light grey line: 0.048828125% (0.048828125%)
- Light yellow line: 0.0244140625% (0.0244140625%)
- Light pink line: 0.01220703125% (0.01220703125%)
- Light purple line: 0.006103515625% (0.006103515625%)
- Light brown line: 0.0030517578125% (0.0030517578125%)
- Light blue-grey line: 0.00152587890625% (0.00152587890625%)
- Light green-grey line: 0.000762939453125% (0.000762939453125%)
- Light orange-grey line: 0.0003814697265625% (0.0003814697265625%)
- Light grey-blue line: 0.00019073486328125% (0.00019073486328125%)
- Light yellow-green line: 9.5367431640625e-05% (9.5367431640625e-05%)
- Light pink-grey line: 4.76837158203125e-05% (4.76837158203125e-05%)
- Light purple-grey line: 2.384185791015625e-05% (2.384185791015625e-05%)
- Light brown-grey line: 1.1920928955078125e-05% (1.1920928955078125e-05%)
- Light blue-grey line: 5.9604644775390625e-06% (5.9604644775390625e-06%)
- Light green-grey line: 2.98023223876953125e-06% (2.98023223876953125e-06%)
- Light orange-grey line: 1.4901161193847656e-06% (1.4901161193847656e-06%)
- Light grey-blue line: 7.450580596923828e-07% (7.450580596923828e-07%)
- Light yellow-green line: 3.725290298461914e-07% (3.725290298461914e-07%)
- Light pink-grey line: 1.862645149230957e-07% (1.862645149230957e-07%)
- Light purple-grey line: 9.313225746154785e-08% (9.313225746154785e-08%)
- Light brown-grey line: 4.656612873077392e-08% (4.656612873077392e-08%)
- Light blue-grey line: 2.328306436538696e-08% (2.328306436538696e-08%)
- Light green-grey line: 1.164153218269348e-08% (1.164153218269348e-08%)
- Light orange-grey line: 5.82076609134674e-09% (5.82076609134674e-09%)
- Light grey-blue line: 2.91038304567337e-09% (2.91038304567337e-09%)
- Light yellow-green line: 1.455191522836685e-09% (1.455191522836685e-09%)
- Light pink-grey line: 7.275957614183425e-10% (7.275957614183425e-10%)
- Light purple-grey line: 3.637978807091712e-10% (3.637978807091712e-10%)
- Light brown-grey line: 1.818989403545856e-10% (1.818989403545856e-10%)
- Light blue-grey line: 9.09494701772928e-11% (9.09494701772928e-11%)
- Light green-grey line: 4.54747350886464e-11% (4.54747350886464e-11%)
- Light orange-grey line: 2.27373675443232e-11% (2.27373675443232e-11%)
- Light grey-blue line: 1.13686837721616e-11% (1.13686837721616e-11%)
- Light yellow-green line: 5.6843418860808e-12% (5.6843418860808e-12%)
- Light pink-grey line: 2.8421709430404e-12% (2.8421709430404e-12%)
- Light purple-grey line: 1.4210854715202e-12% (1.4210854715202e-12%)
- Light brown-grey line: 7.105427357601e-13% (7.105427357601e-13%)
- Light blue-grey line: 3.5527136788005e-13% (3.5527136788005e-13%)
- Light green-grey line: 1.77635683940025e-13% (1.77635683940025e-13%)
- Light orange-grey line: 8.88178419700125e-14% (8.88178419700125e-14%)
- Light grey-blue line: 4.440892098500625e-14% (4.440892098500625e-14%)
- Light yellow-green line: 2.2204460492503125e-14% (2.2204460492503125e-14%)
- Light pink-grey line: 1.1102230246251562e-14% (1.1102230246251562e-14%)
- Light purple-grey line: 5.551115123125781e-15% (5.551115123125781e-15%)
- Light brown-grey line: 2.7755575615628906e-15% (2.7755575615628906e-15%)
- Light blue-grey line: 1.3877787807814453e-15% (1.3877787807814453e-15%)
- Light green-grey line: 6.938893903907226e-16% (6.938893903907226e-16%)
- Light orange-grey line: 3.469446951953613e-16% (3.469446951953613e-16%)
- Light grey-blue line: 1.7347234759768065e-16% (1.7347234759768065e-16%)
- Light yellow-green line: 8.673617379884032e-17% (8.673617379884032e-17%)

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				
<div style="display: flex; justify-content: space-between;"> <div> <p>W=12 mil out of CPU</p> <p>S=15 mil out of CPU</p> </div> <div> <p>X D1 X C2 X B3 X A4</p> </div> <div> <p>RSVD_TP RSVD_TP RSVD_TP RSVD_TP</p> </div> </div>									
VCCIOA_LO WRT15 24.9/4.1 GRCOMP P3 RSVD_RCOMP									

3V_{DUAL}

WR27
1K/4/1/X

VCC3

WR26
200/4/1/X

1.1V分壓

A_CPURST

WR31
100/4/1/X

WBC3
1n/4/X/50/V

O_PFMIRST1

WR45
8.2K/4/X

SOT23
WQ2
MMBT2222A/SOT23/600mA/40X

SOT23
WQ1
MMBT2222A/SOT23/600mA/40X

CPU VTT_O

WR3	90.9/41/X	PVIDSLCK
WR2	115/4/1	PVIDSOUT
WR4	75/4/1	PVIDALRT

CPU VTT_O

WR14	51/4/1/X	A_TMS
WR17	51/4/1/X	A_TDO
WR30	51/4/1	A_TDI
WR30	51/4/1	A_HPRDY

CPU VTT_O

WR11	51/4/1	A_TCK
WR9	51/4/1	A_TRST

CPU VTT_O

WR29	1K4/1/X	A_PECI
WR10	1K4/1/X	A_CATERR
WR25	1K4/1	A_PROCHOT
WR55	51/4/1/X	N_CPUWPWROK
WR55	1K4/1/X	

A_THRMTRIP

WR8	1K4/1	VCC1_05_PCH
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A_PWR_DEBUG

WR34	150/4/1	VCC1_05_PCH
WR33	10K/4/1	

A_DBR

WR21	8.2K/4/X	3VDUAL
WR20	0/4/X	N_SYS_RST

A_DDR_COMP0

WR28	100/4/1	
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A_DDR_COMP1

WR19	75/4/1	
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A_DDR_COMP2

WR22	100/4/1	
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A_TESTLOW_1

WR18	49.9/4/1	
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A_TESTLOW_2

WR12	49.9/4/1	
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A_HSW_CFG_ROMP

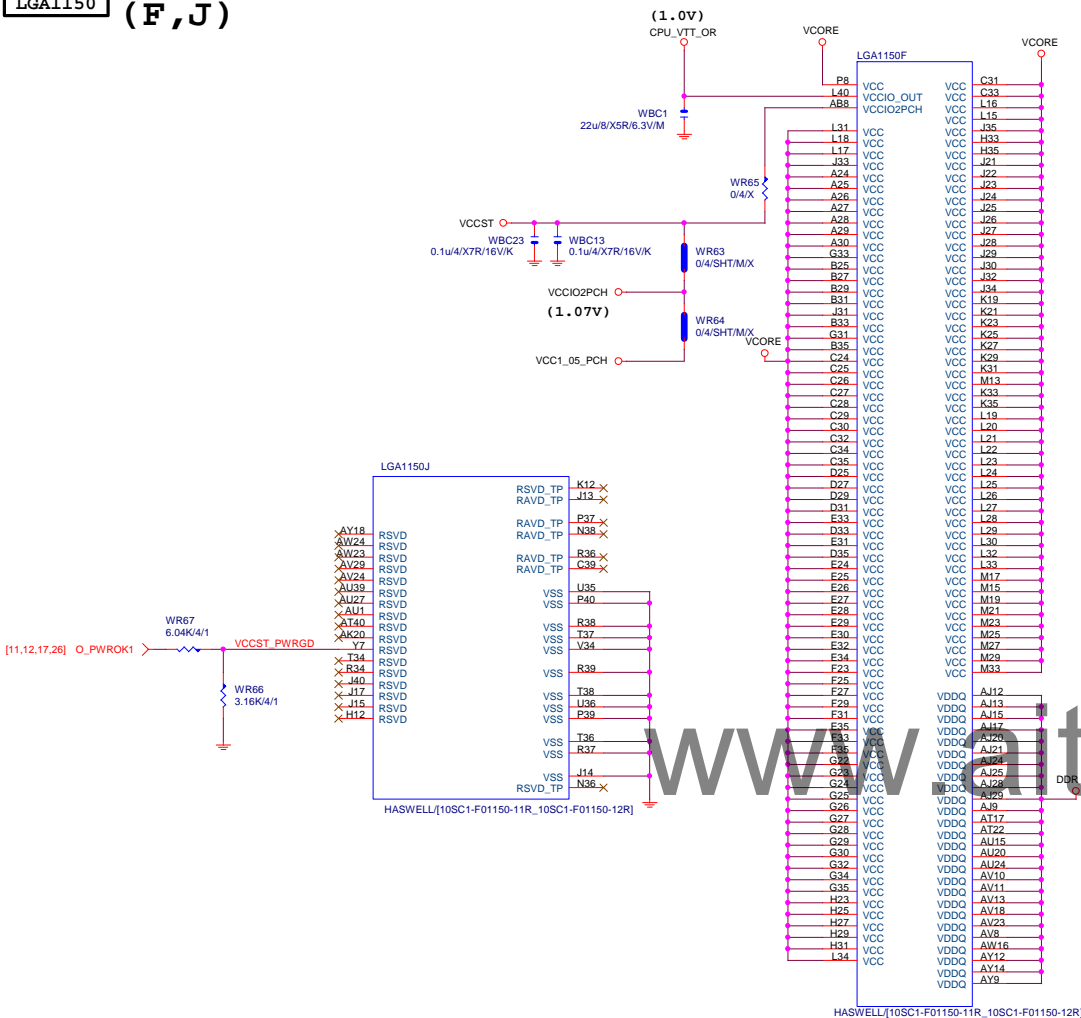
WR24	49.9/4/1	
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Title				CPU LGA1150-A			
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LGA1150 (A)

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	AE37	MDA6				
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7				
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9				
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10				
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10				
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11				
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12				
MAAA13	AY10	DDR0_MA13	DDR0_D13	AH38	MDA13				
MAAA14	AT20	DDR0_MA14	DDR0_D14	AK40	MDA15				
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA17				
MODT_A0	AW10	DDR0_ODT0	DDR0_ODT0	AM39	MDA21				
MODT_A1	AY8	DDR0_ODT1	DDR0_ODT1	AP38	MDA18				
	AW9	DDR0_ODT2	DDR0_ODT2	AP39	MDA19				
	AW8	DDR0_ODT3	DDR0_ODT3	AM37	MDA20				
				AM38	MDA16				
				AM26	MDA22				
				AM25	MDA23				
				AP28	MDA28				
				AL26	MDA26				
				AL25	MDA27				
				AR26	MDA28				
				AR25	MDA29				
				AK17	MDA31				
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				AK17	MDA151				
				AK18	MDA152				
				AK15	MDA153				
				AK16	MDA154				
				AK17	MDA155				
				AK18	MDA156				
				AK15	MDA157				
				AK16	MDA158				
				AK17	MDA159				
				AK18	MDA160				
				AK15	MDA161				
				AK16	MDA162				
				AK17	MDA163				
				AK18	MDA164				
				AK15	MDA165				
				AK16	MDA166				
				AK17	MDA167				
				AK18	MDA168				
				AK15	MDA169				
				AK16	MDA170				
				AK17	MDA171				
				AK18	MDA172				
				AK15	MDA173				
				AK16	MDA174				
				AK17	MDA175				
				AK18	MDA176				
				AK15	MDA177				
				AK16	MDA178				
				AK17	MDA179				
				AK18	MDA180				
				AK15	MDA181				
				AK16	MDA182				
				AK17	MDA183				
				AK18	MDA184				
				AK15	MDA185				
				AK16	MDA186				
				AK17	MDA187				
				AK18	MDA188				
				AK15	MDA189				
				AK16	MDA190				
				AK17	MDA191				
				AK18	MDA192				
				AK15	MDA193				
				AK16	MDA194				
				AK17	MDA195				
				AK18	MDA196				
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				AK17	MDA199				
				AK18	MDA200				
				AK15	MDA201				
				AK16	MDA202				
				AK17	MDA203				
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				AK15	MDA205				
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				AK17	MDA207				
				AK18	MDA208				
				AK15	MDA209				
				AK16	MDA210				
				AK17	MDA211				
				AK18	MDA212				
				AK15	MDA213				
				AK16	MDA214				
				AK17	MDA215				
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				AK15	MDA217				
				AK16	MDA218				
				AK17	MDA219				

LGA1150 (F, J)

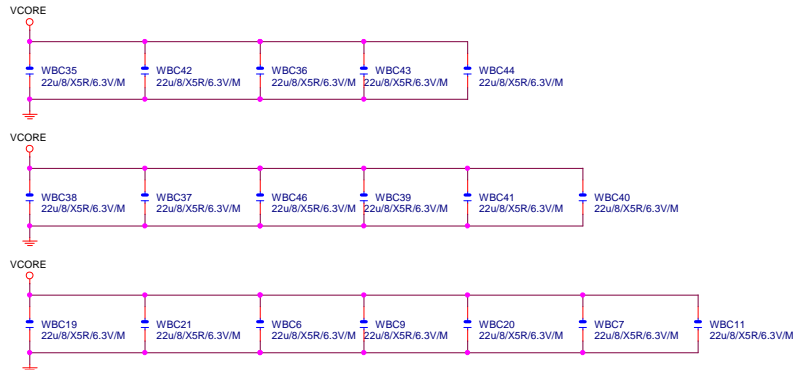


LGA1155 (G,H,I)



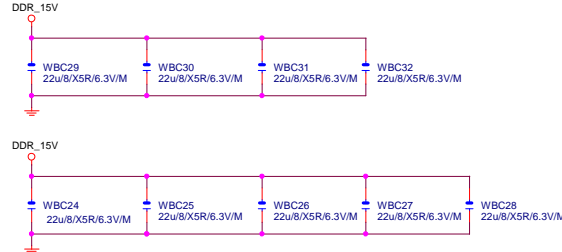
VCore CAP

(x18)



DDR CAP

(x9)



Gigabyte Technology

Title	CPU I LG A1150-C
-------	------------------

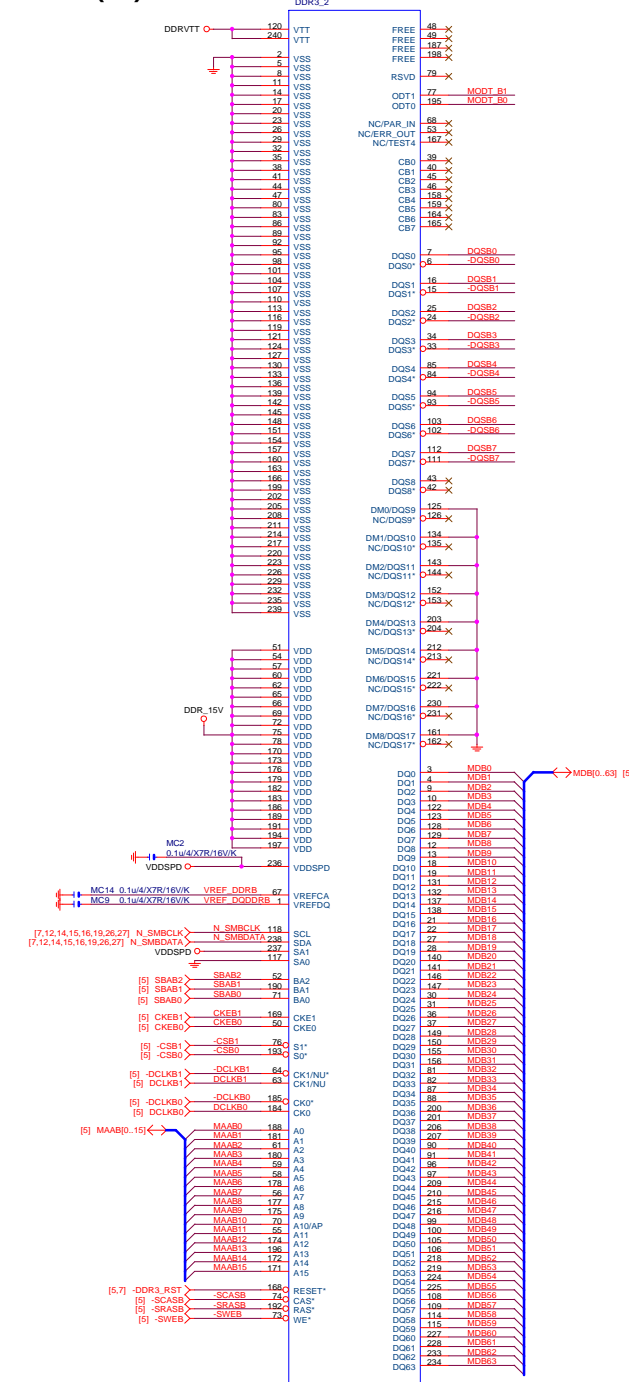
Size	Document Number	GA-B85M-HD3
Custom		

Date: Wednesday, November 27, 2013 Sheet 6 of 32

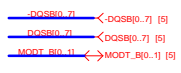
Rev
1.1

DDR3

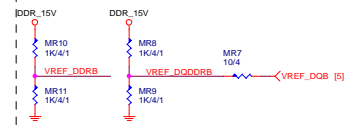
(B)



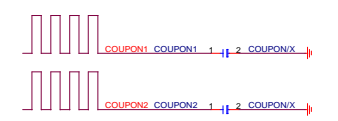
DDR3/240/BK/VA/D
BLACK CONNECTOR



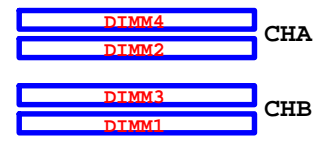
DDR3 VREF



COUPON



CPU



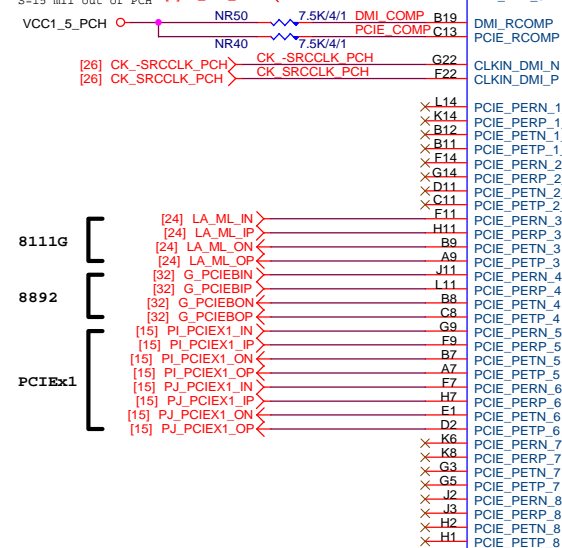
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Gigabyte Technology

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Size		GA-B85M-HD3	
Date		Rev 1.11	

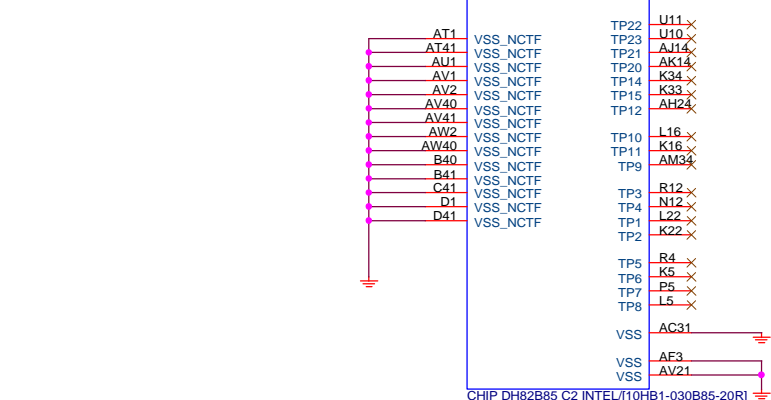
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

[4]	A_DMI_0TXN	A_DMI_0TXN	L
[4]	A_DMI_0TXP	A_DMI_0TXP	C
[4]	A_DMI_0RXN	A_DMI_0RXN	C
[4]	A_DMI_0RXP	A_DMI_0RXP	B
[4]	A_DMI_1TXN	A_DMI_1TXN	C
[4]	A_DMI_1TXP	A_DMI_1TXP	C
[4]	A_DMI_1RXN	A_DMI_1RXN	D
[4]	A_DMI_1RXP	A_DMI_1RXP	C
[4]	A_DMI_2TXN	A_DMI_2TXN	F
[4]	A_DMI_2TXP	A_DMI_2TXP	C
[4]	A_DMI_2RXN	A_DMI_2RXN	C
[4]	A_DMI_2RXP	A_DMI_2RXP	C
[5]	A_DMI_3TXN	A_DMI_3TXN	K
[6]	A_DMI_3TXP	A_DMI_3TXP	L
[4]	A_DMI_3RXN	A_DMI_3RXN	A
[4]	A_DMI_3RXP	A_DMI_3RXP	E



放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%

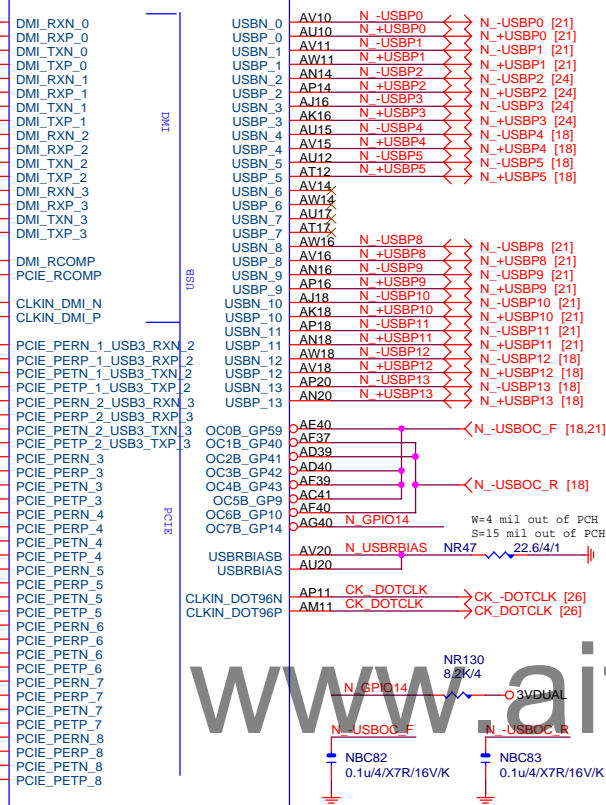
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)



USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

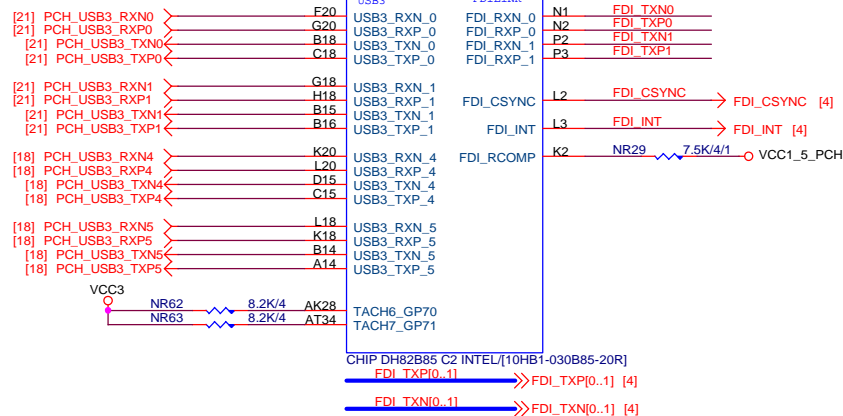
PCHB

B85: Port 6/7 N/A
H81: Port 6/7/12/13 N/A



CHIP DH82B85 C2 INTEL/[10HB1-030B85-20R]

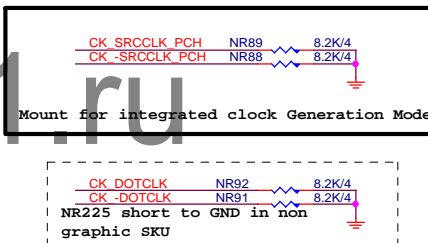
(-)



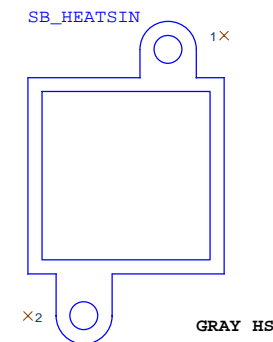
USB3.0:20/5/7/5/20 (breakout min
8/4/4/4/8) ; ONLY 3 VIAS

Impedance=85 +/- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

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LOW COST ICH7 HEATSINK



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

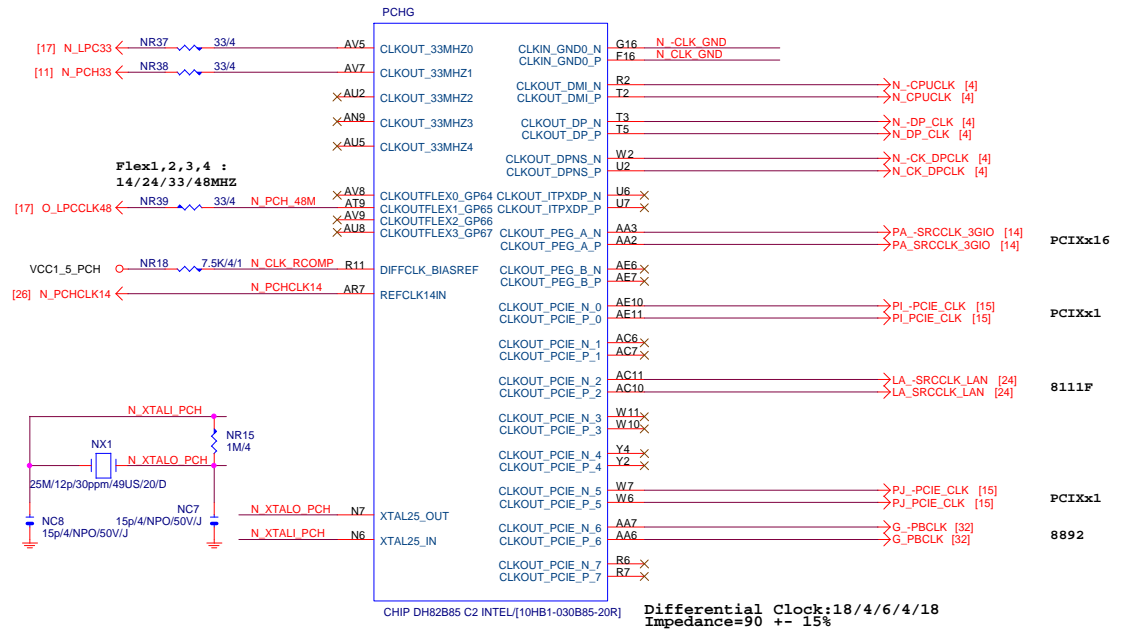
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

USB OC# Configure	
OC0#	F_USB30
OC1#	USB_LAN
OC2#	R_USB30
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	KB_MS_USB
OC7#	Not Use

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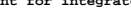
Title			
PCH FDI,DMI,USB ,PCIE,NVRAM			
Size	Document Number		Rev
Custom	GA-B85M-HD3		1:
Date:	Wednesday, November 27, 2013	Sheet	9 of 32

PCH (G)



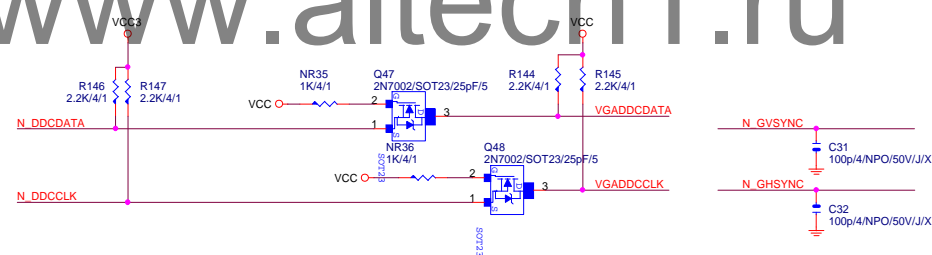
VGA CONNECTOR

Mount for integrated clock Generation Mode

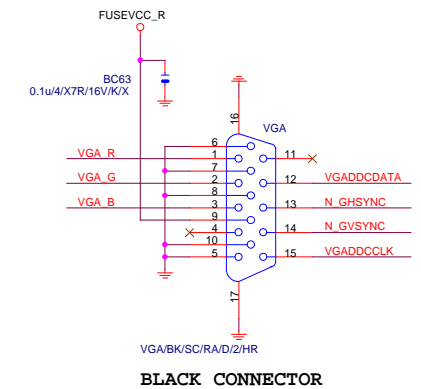
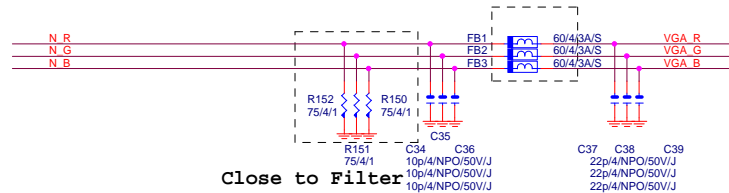
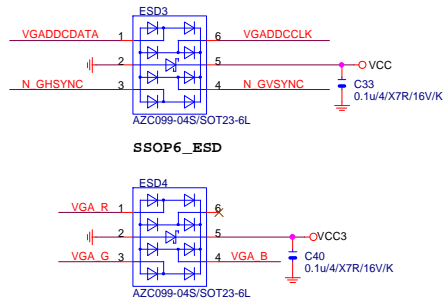


The diagram shows a red line labeled "N_PCHCLK14" connected to a blue line labeled "NR118". A resistor labeled "8.2K/4" is connected between the blue line and ground.

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VGA DDC



Gigabyte Technology

PCH DISPLAY ,CLK BUFFER

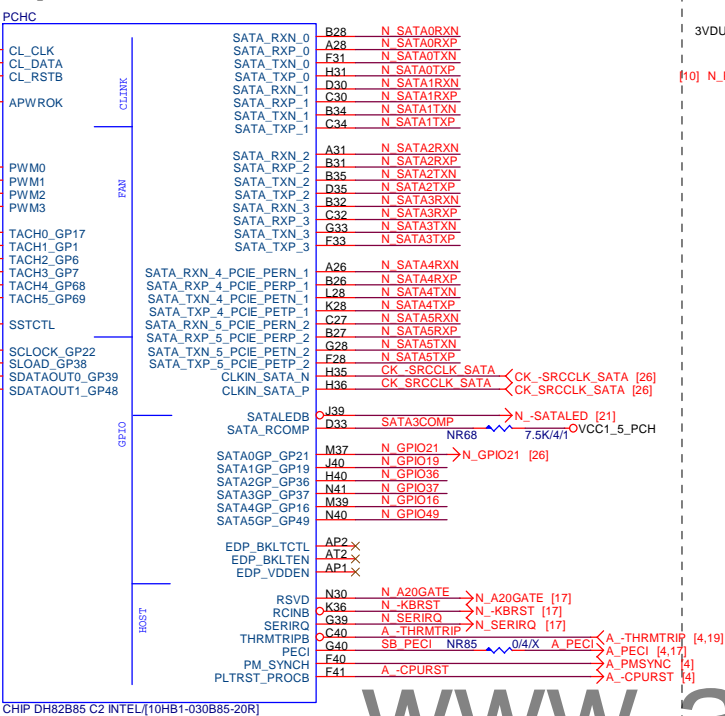
GA-B85M-HD3

111

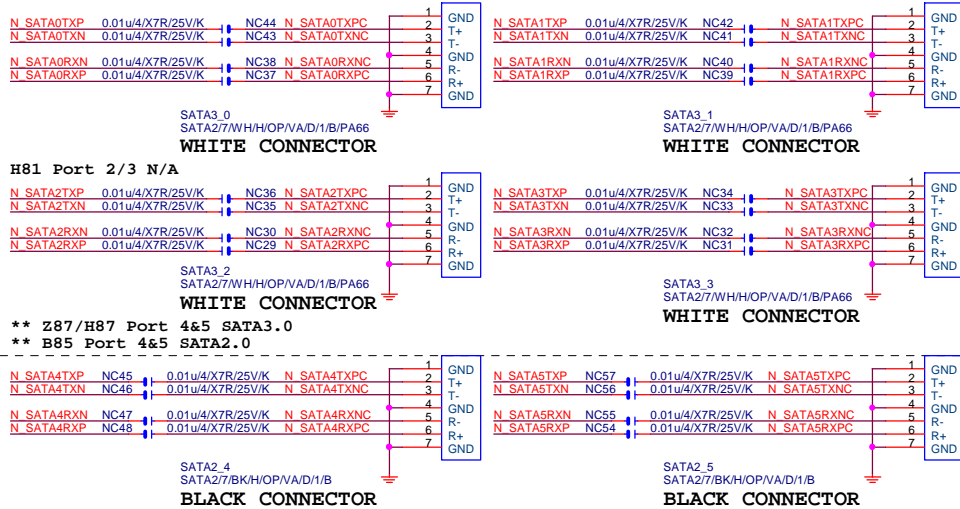
Date: Wednesday, November 27, 2013 Sheet 10 of 32

(C)

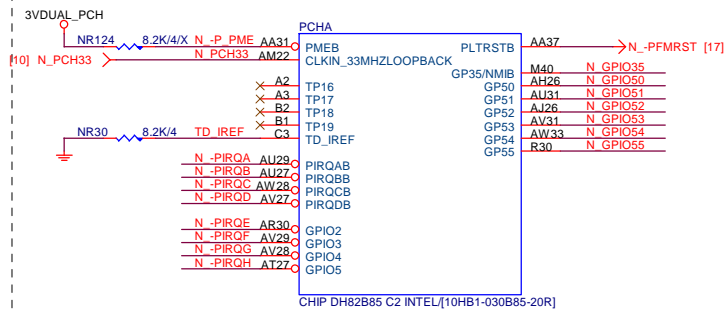
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



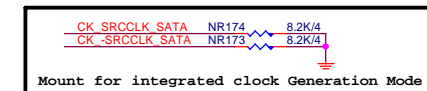
SATA CONNECTOR



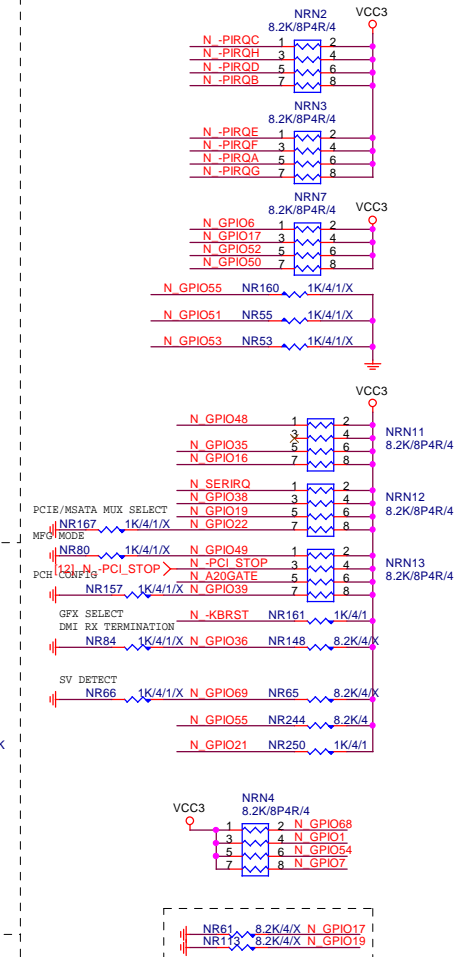
PCH (A)



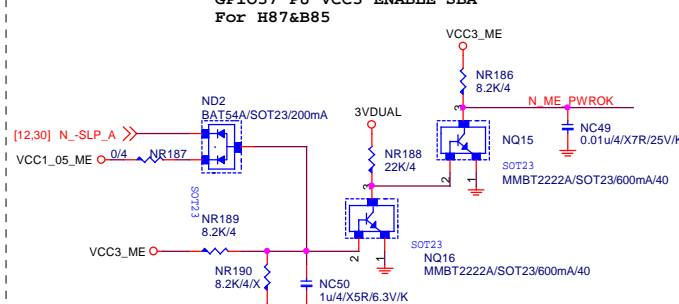
PCH	CLK	PD
-----	-----	----



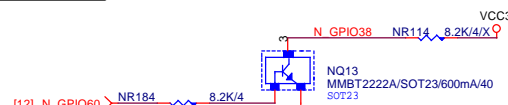
PCH	PU/PD
-----	-------



ME PWROK



GPIO38 Ctrl



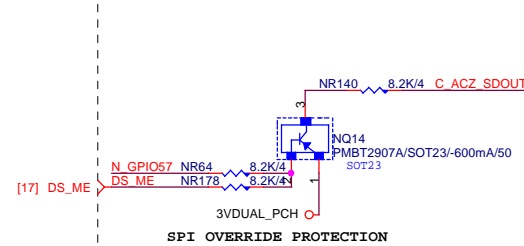
Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-B85M-HD3		1.1
Date:	Wednesday, November 27, 2013	Sheet	11 of 32

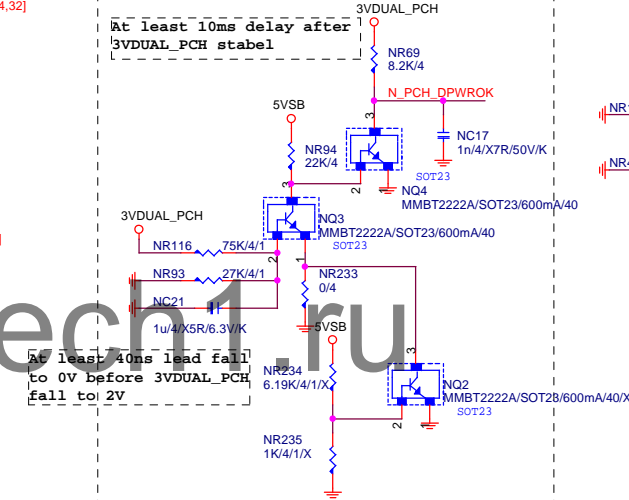
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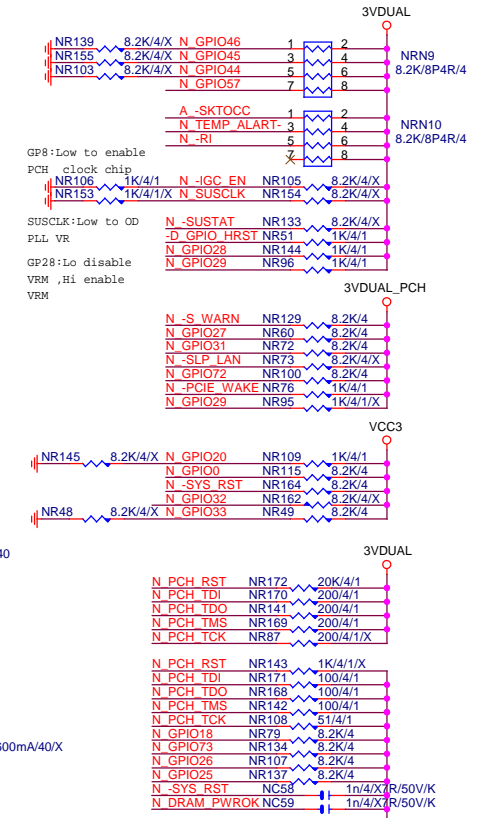
ACZ_SDOUT



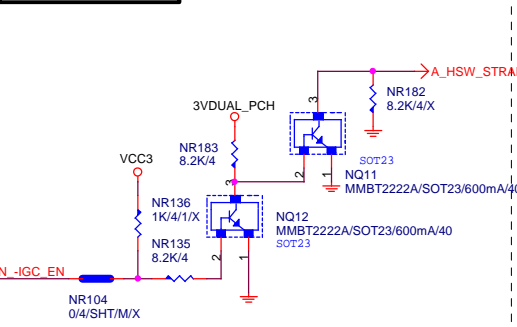
PCH_DPWROK



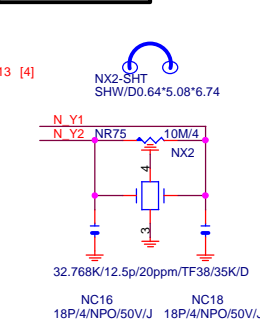
PCH	PU/PD
-----	-------



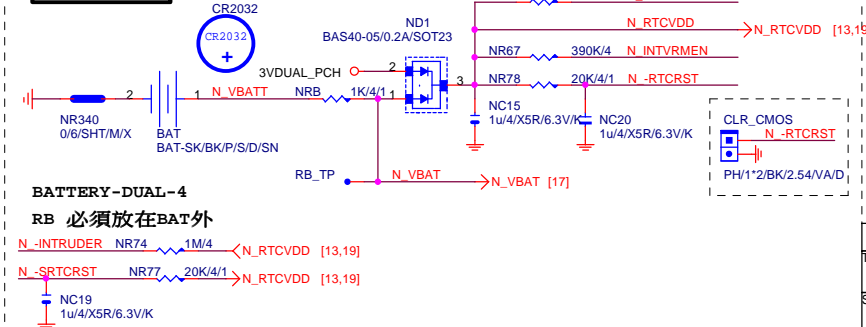
HSW STRAP13



32.768KHZ



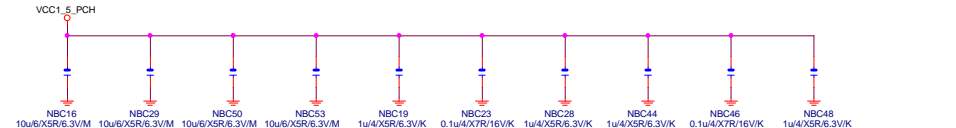
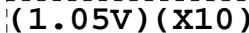
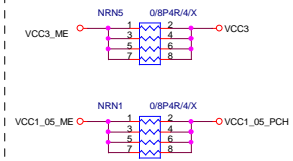
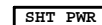
CLR	CMOS
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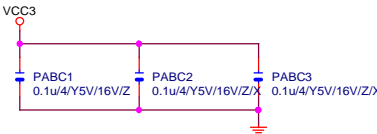
Gigabyte Technology

Gigabyte Technology			
Title PCH GPIO , CTRL , AUDIO			
Size Custom	Document Number GA-B85M-HD3	Rev 1.1	
Date: Wednesday, November 27, 2013	Sheet 12	of 32	

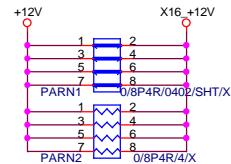
PCH (I)



PCIEX16 CAP



PCIEX16 PROTECT SHT

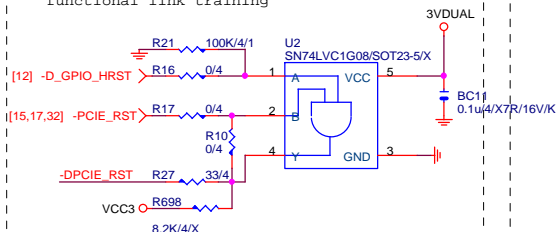


PCIEX16 AC CAP

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

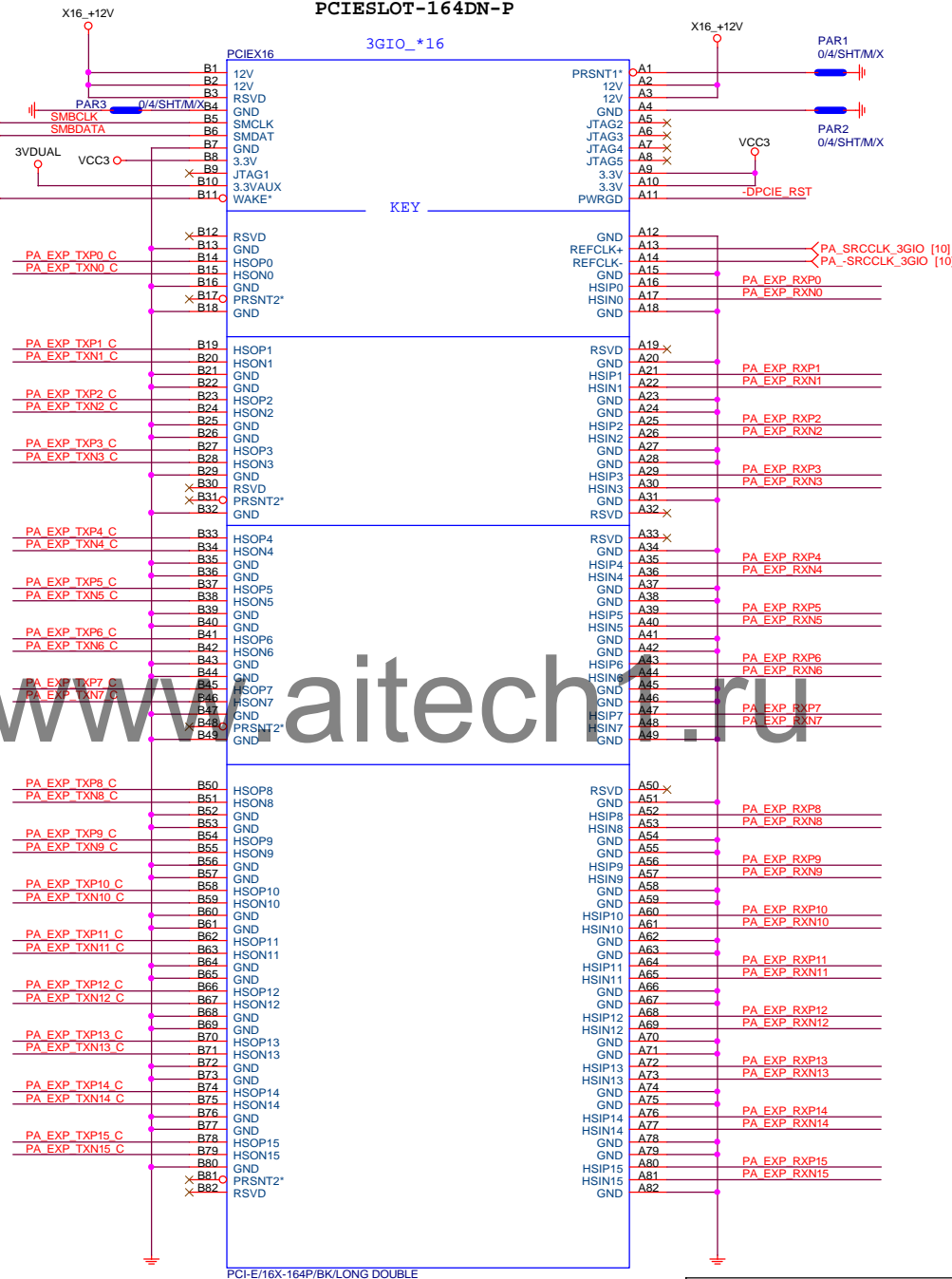
PA EXP RXP0.[15] >> PA_EXP_RXP[0..15] [4]
PA EXP RXN0.[15] >> PA_EXP_RXN[0..15] [4]
PA EXP TXP0.[15] >> PA_EXP_TXP[0..15] [4]
PA EXP TXN0.[15] >> PA_EXP_TXN[0..15] [4]

The auxiliary reset circuit is only required for PCIe Gen3 margining and functional link training



PCIEX16 SLOT

PCIESLOT-164DN-P

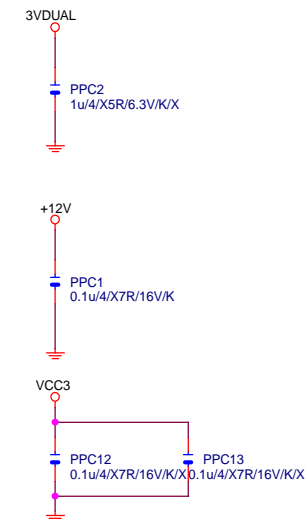
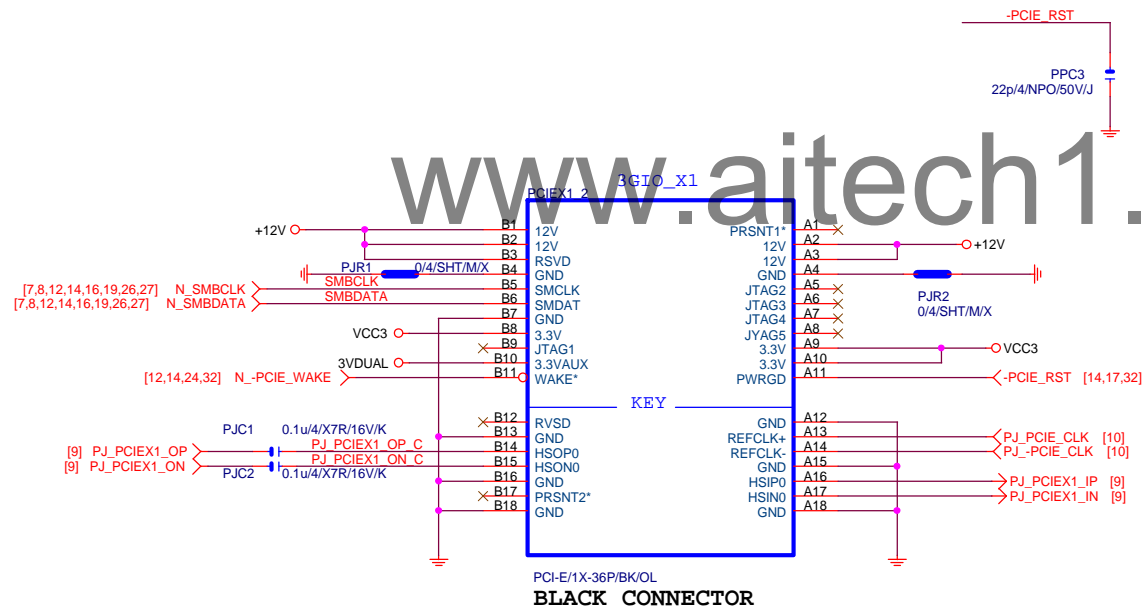
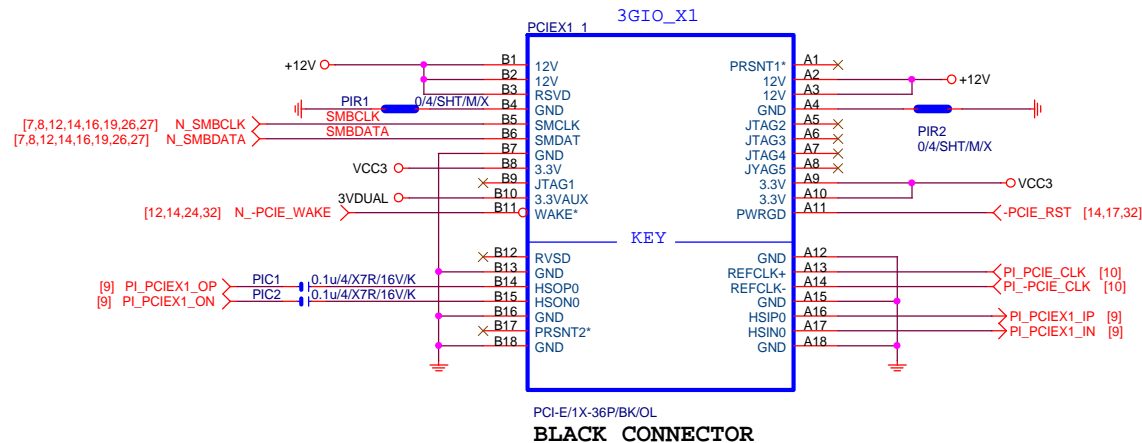


BLACK CONNECTOR

Gigabyte Technology

Title			PCI EXPRESS * 16		
Size			Document Number		
Custom			GA-B85M-HD3		
Date:			Wednesday, November 27, 2013		
Sheet			14 of 32		
Rev			1.11		

PCIEX1 SLOT

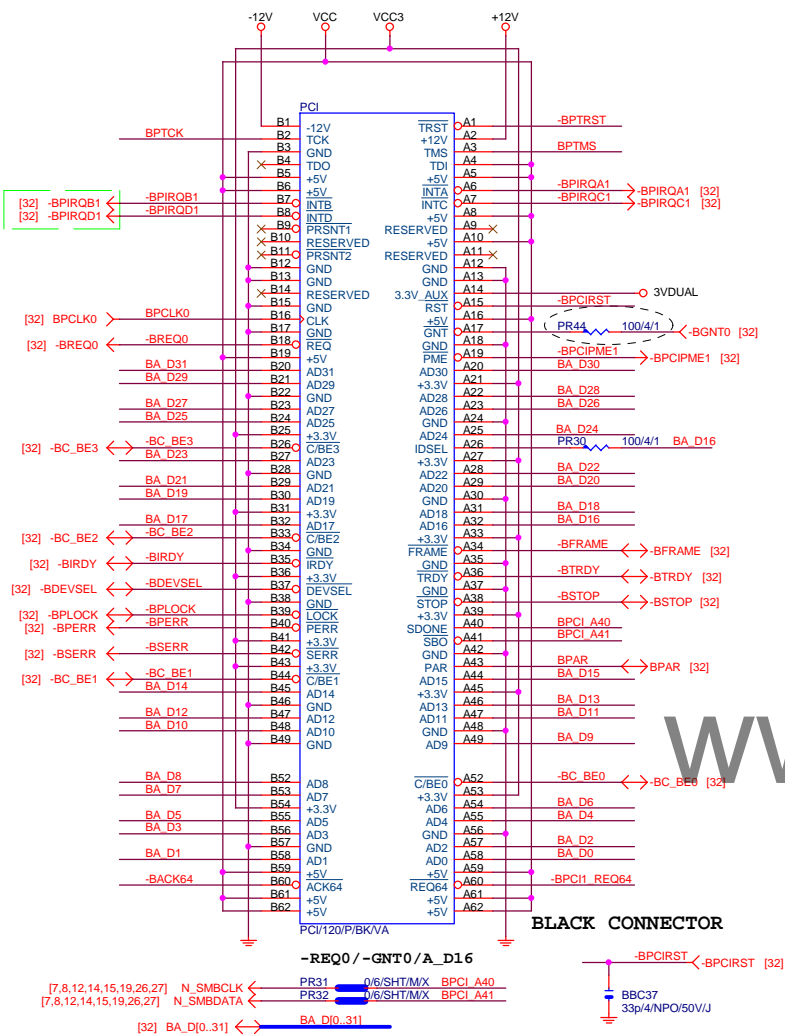


Gigabyte Technology

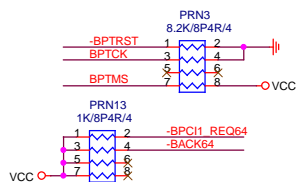
PCI EXPRESS X 1 PORT

Title	Document Number	Rev
	GA-B85M-HD3	1.11
Date:	Wednesday, November 27, 2013	Sheet 15 of 32

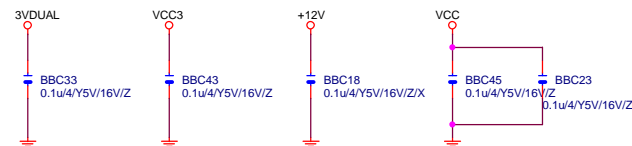
PCI SLOT 1



PCI PU



PCI CAP

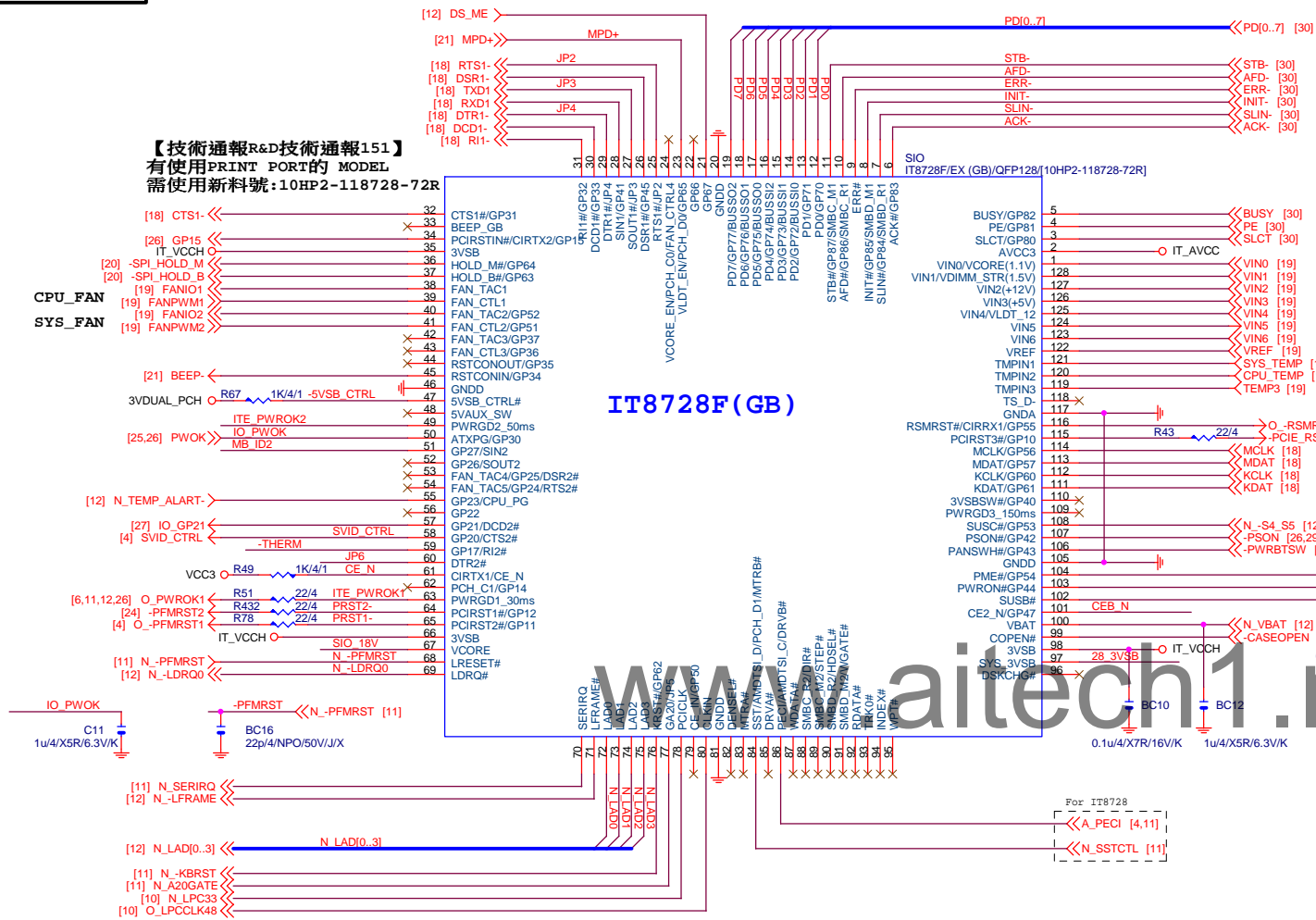


Gigabyte Technology

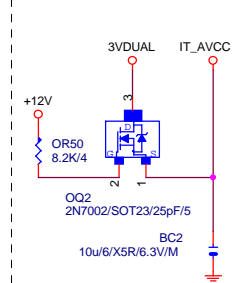
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PCI SLOT 1&2		
Size	Document Number	Rev
Custom	GA-B85M-HD3	1.11
Date:	Wednesday, November 27, 2013	Sheet 16 of 32

SIO IT8728F

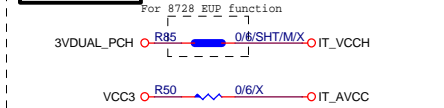
【技術通報R&D技術通報151】
有使用PRINT PORT的 MODEL
需使用新料號:10HP2-118728-72R



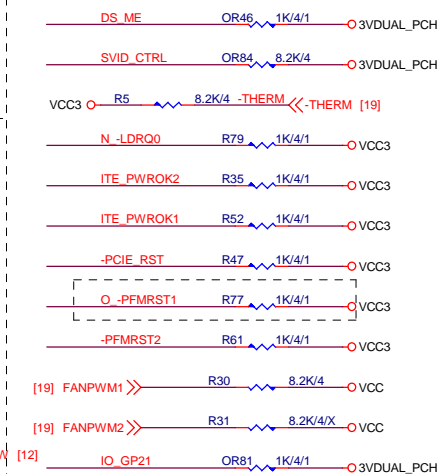
FIX ATX 插拔漏電



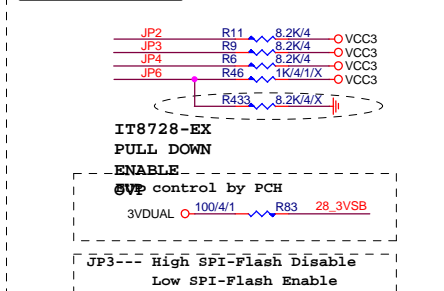
PWR SHT



SIO PU



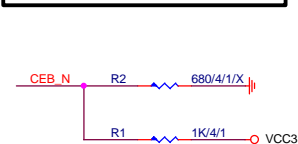
SIO STRAP



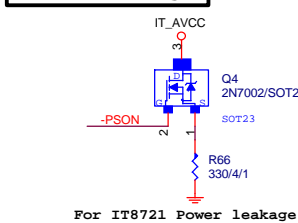
IT8728F NOTE

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

DUAL BIOS OPT STRAP

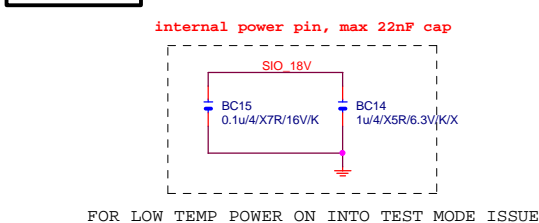


Power leakage



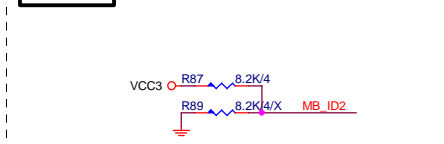
For IT8721 Power leakage

SIO_18V



FOR LOW TEMP POWER ON INTO TEST MODE ISSUE

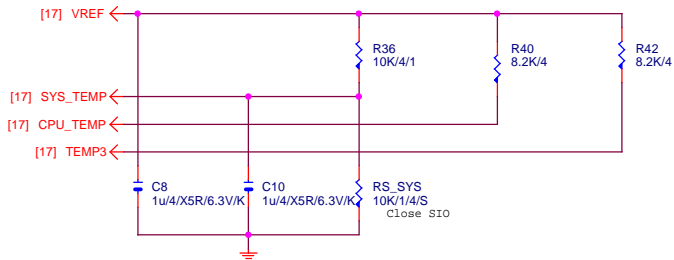
MB ID



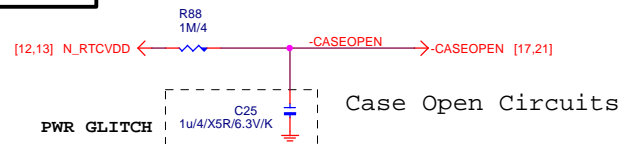
Gigabyte Technology

Title			ITE 8728 LPC IO
Size	Document Number		GA-B85M-HD3
Custom			Rev 1.11
Date:	Wednesday, November 27, 2013	Sheet	17 of 32

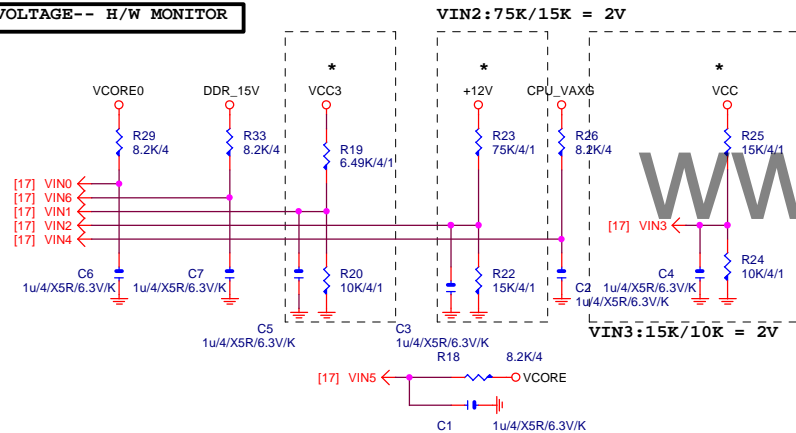
TEMP H/W MONITOR



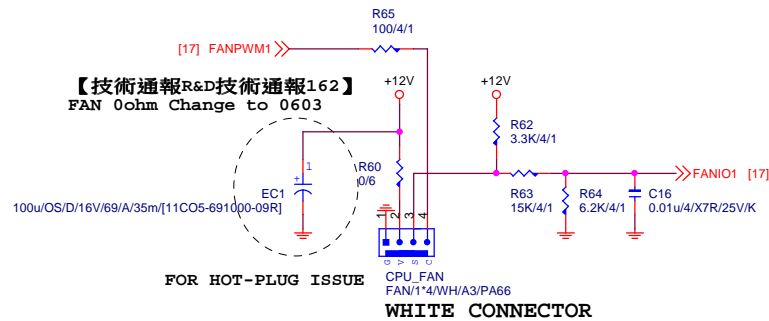
CASE OPEN



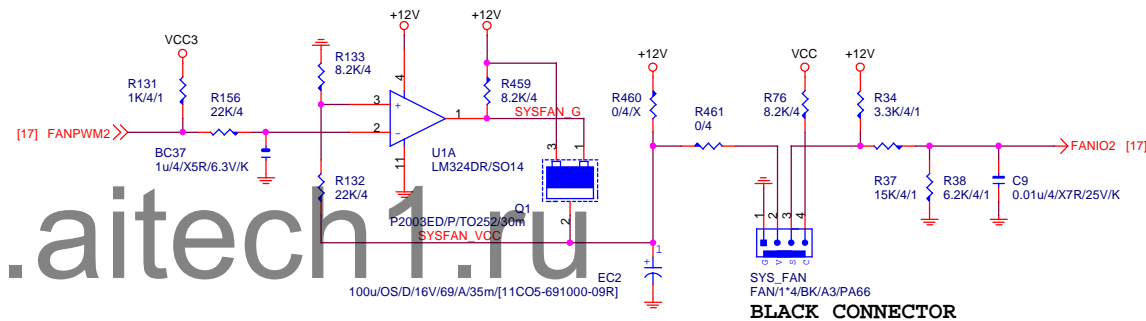
VOLTAGE-- H/W MONITOR



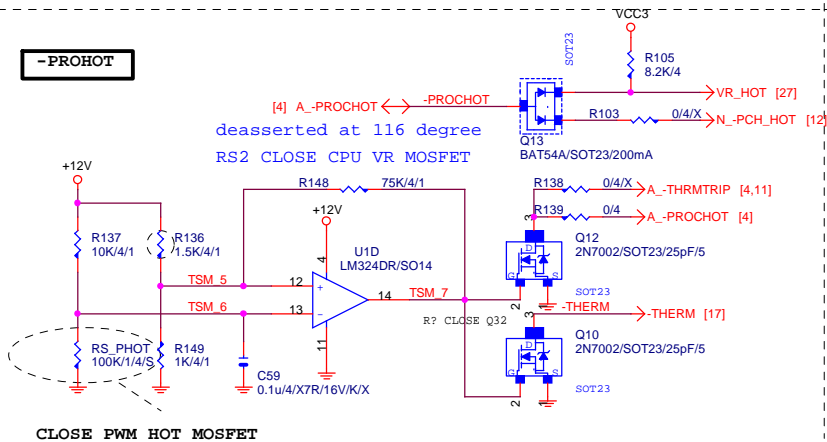
CPU SMART FAN



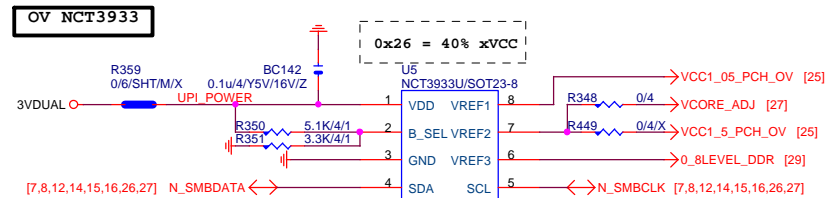
SYS SMART FAN



-PROHOT



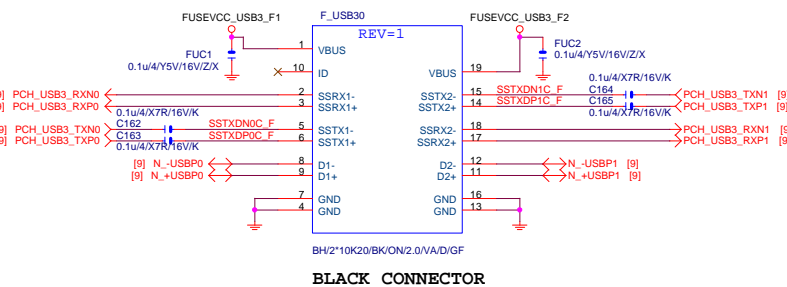
接pwm feedback pin



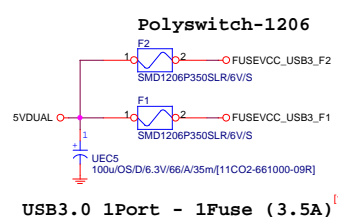
Gigabyte Technology

Title					HWM,FAN CTRL,OV					Rev 1.11	
Size	Custom	Document Number			GA-B85M-HD3						
Date:	Wednesday, November 27, 2013				Sheet	19	of	32			

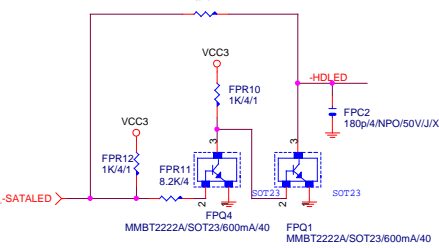
F_USB30



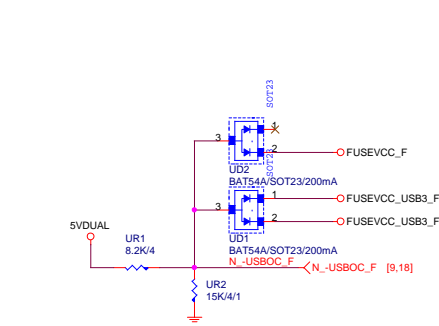
F_USB30 PWR



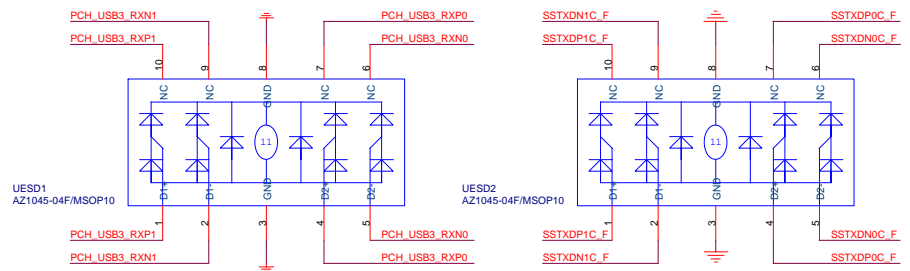
SATA LED



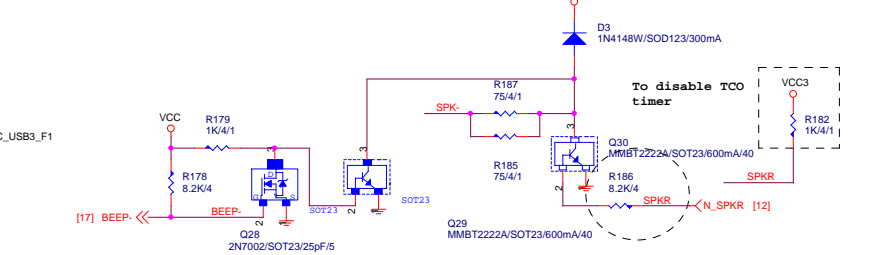
-USB0C_F



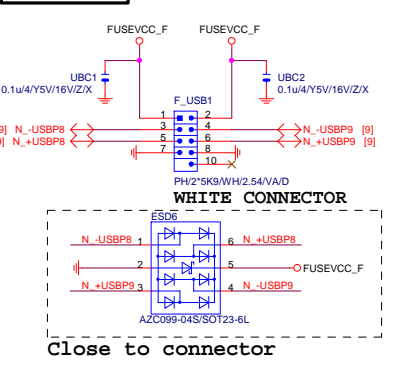
F_USB30 ESD PROTECT



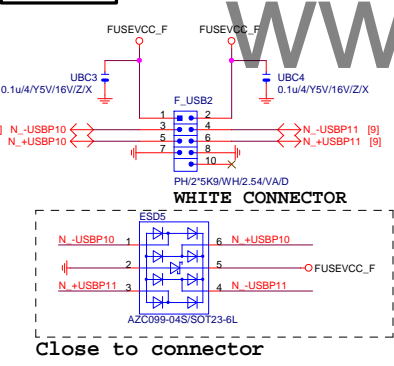
SPKR



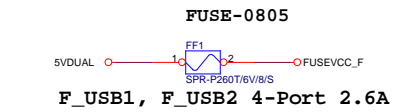
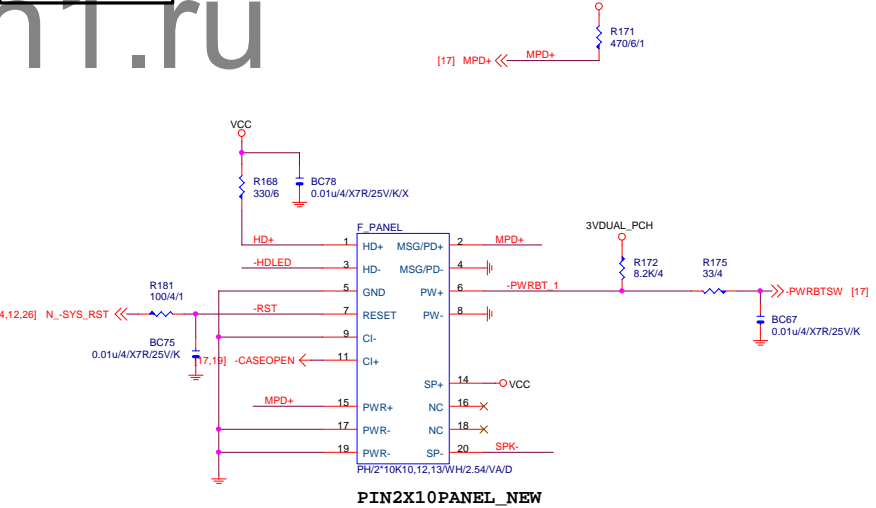
FRONT USB1



FRONT USB2



INTEL FRONT PANEL

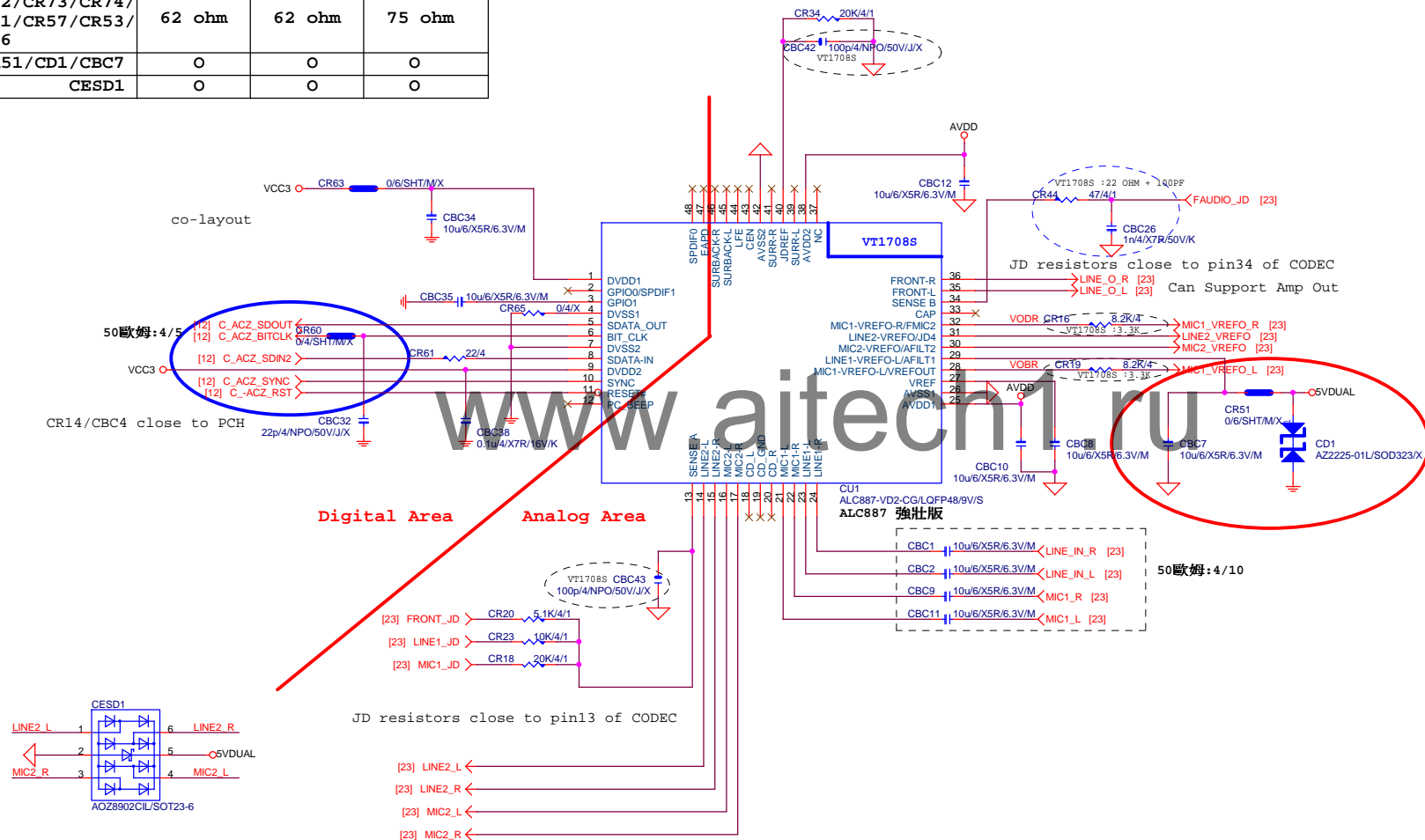


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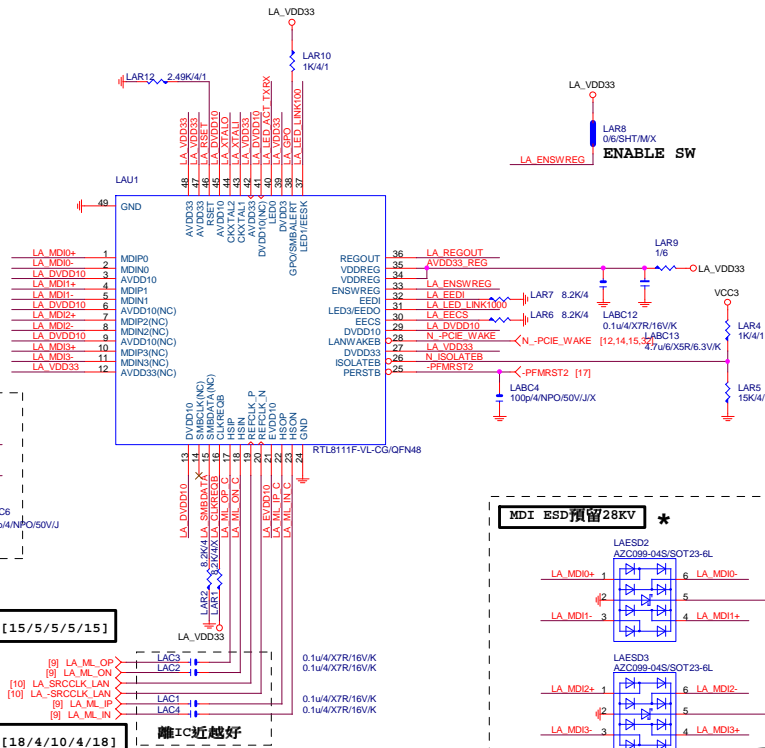
Gigabyte Technology			
Title	FP,F_USB,USB PWR,SPKR,SATA LED		
Size	Custom	Document Number	GA-B85M-HD3
Date:	Wednesday, November 27, 2013	Sheet	21 of 32

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

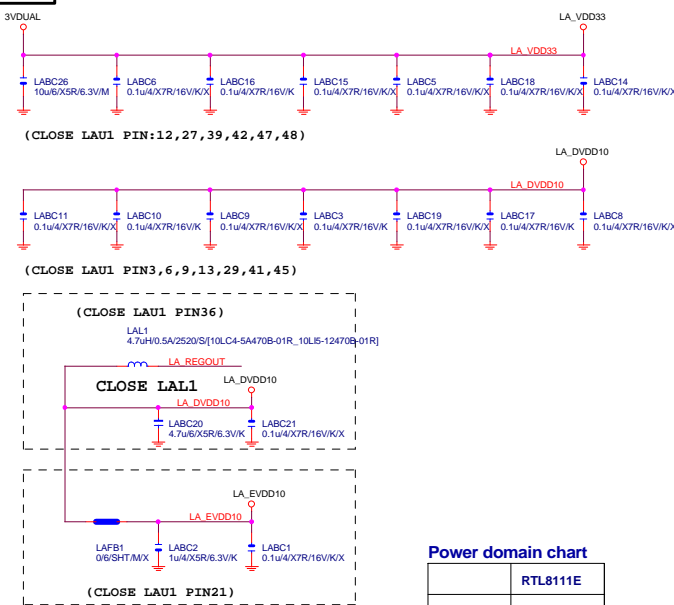
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	O	O	O



LAN:RTL8111F/VB/VL



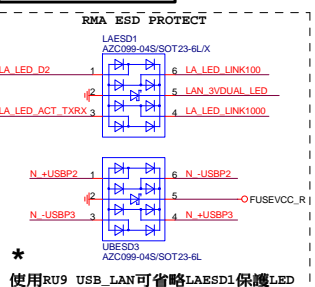
LAN POWER



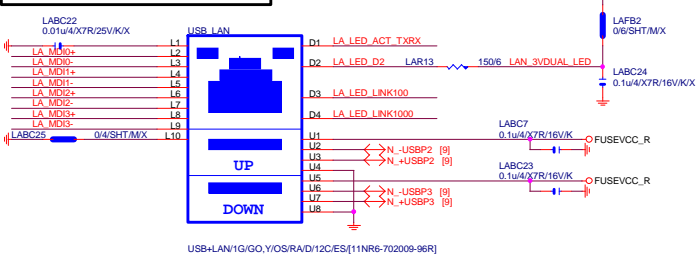
Power domain chart

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

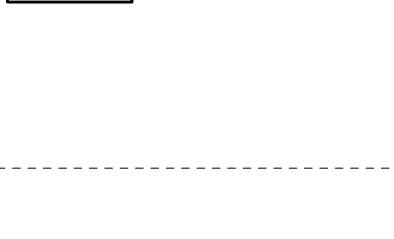
USB LAN CONNECTOR



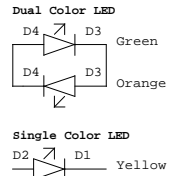
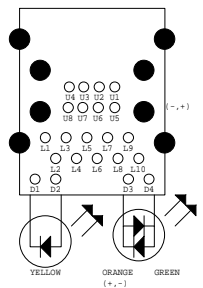
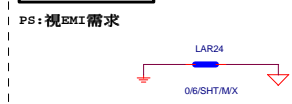
LA_MDI-->100歐姆:[20/4/8/4/20]



USB X3 POWER



EMI SHORT PAD



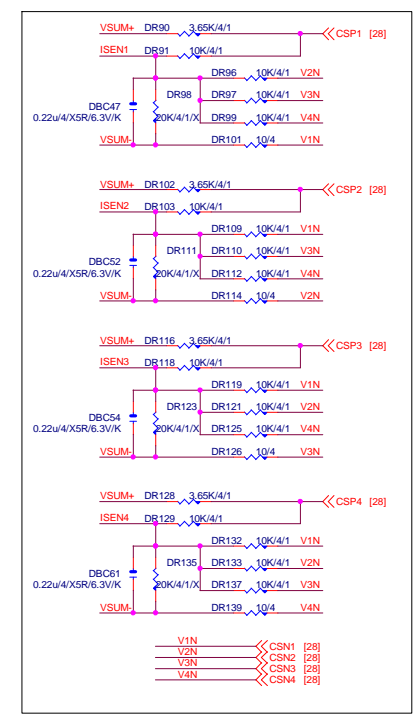
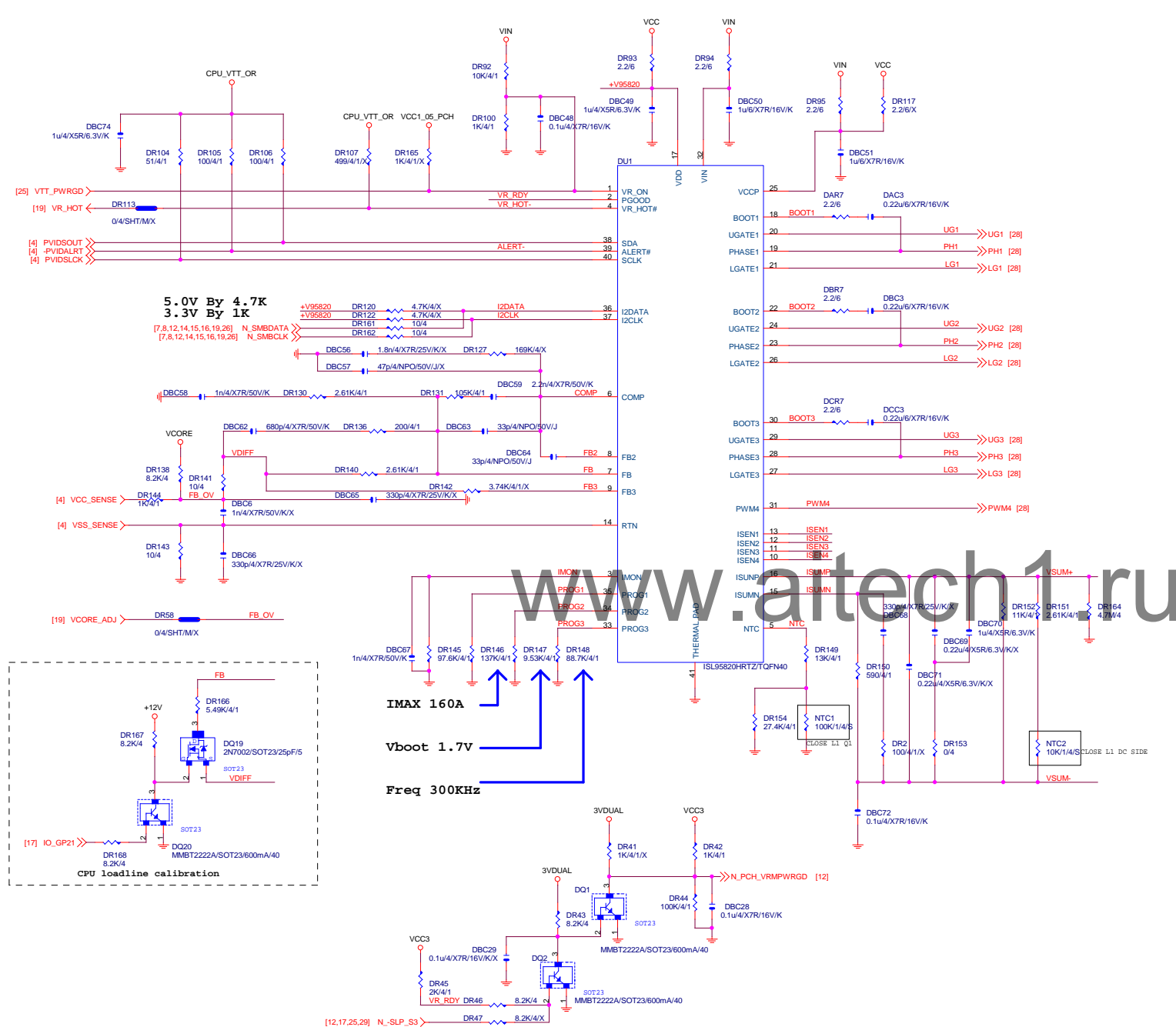
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

BOM NOTICE *

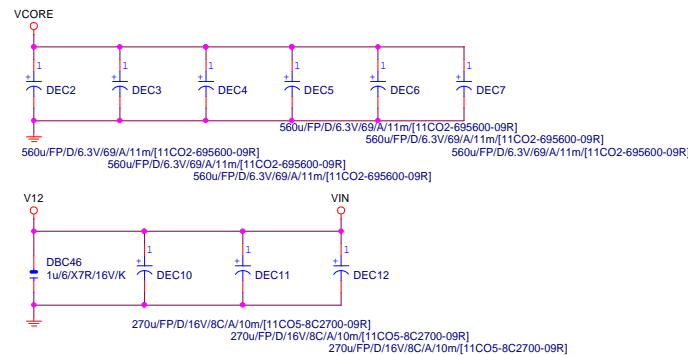
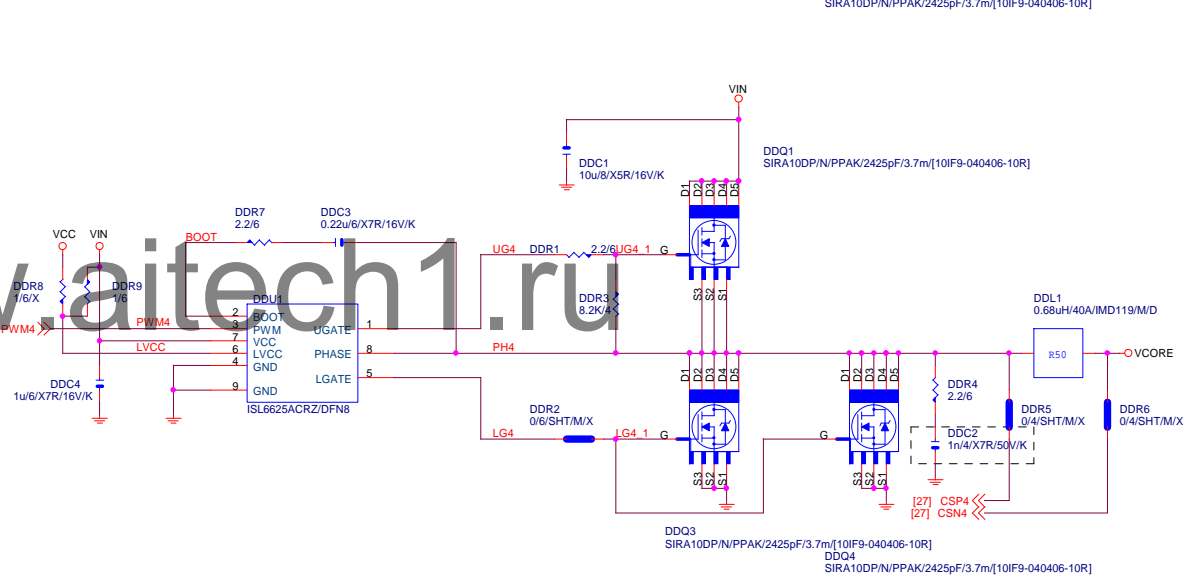
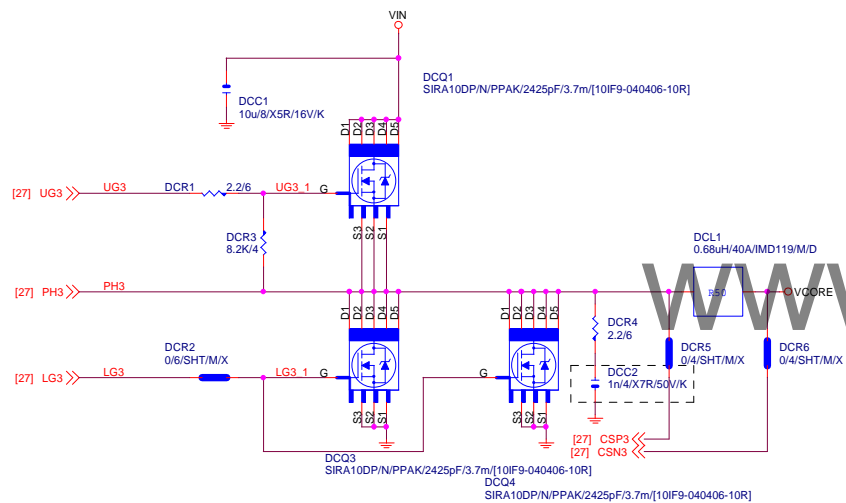
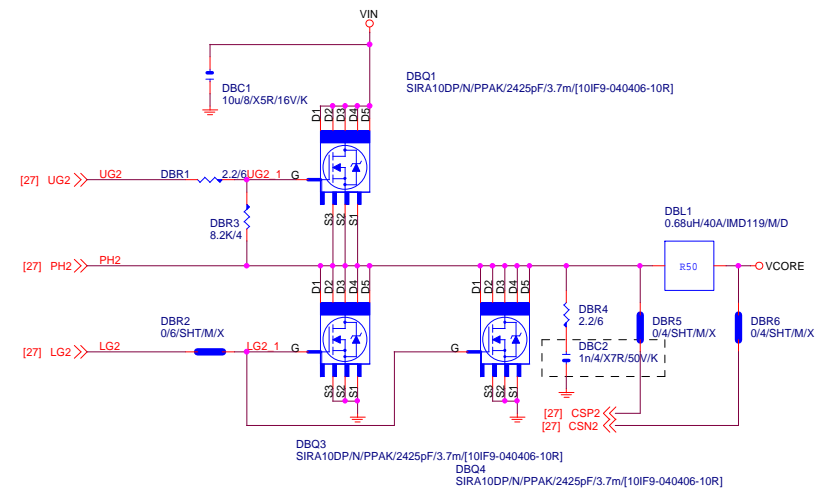
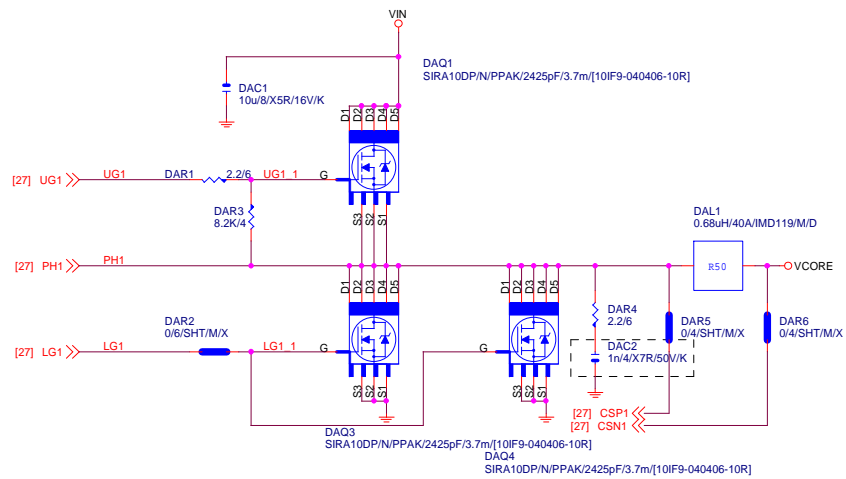
料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)
[LED獨立走線,可省略外加AZC099料件LAESD1]		
1. 9KV ESD BOM:		
USB_LAN (RU9):11NR6-702009-96R		
2. 28KV ESD BOM:		
USB_LAN (RU9):11NR6-702009-96R		
LAESD2,LAESD3:上件AZC398-04S		

Gigabyte Technology

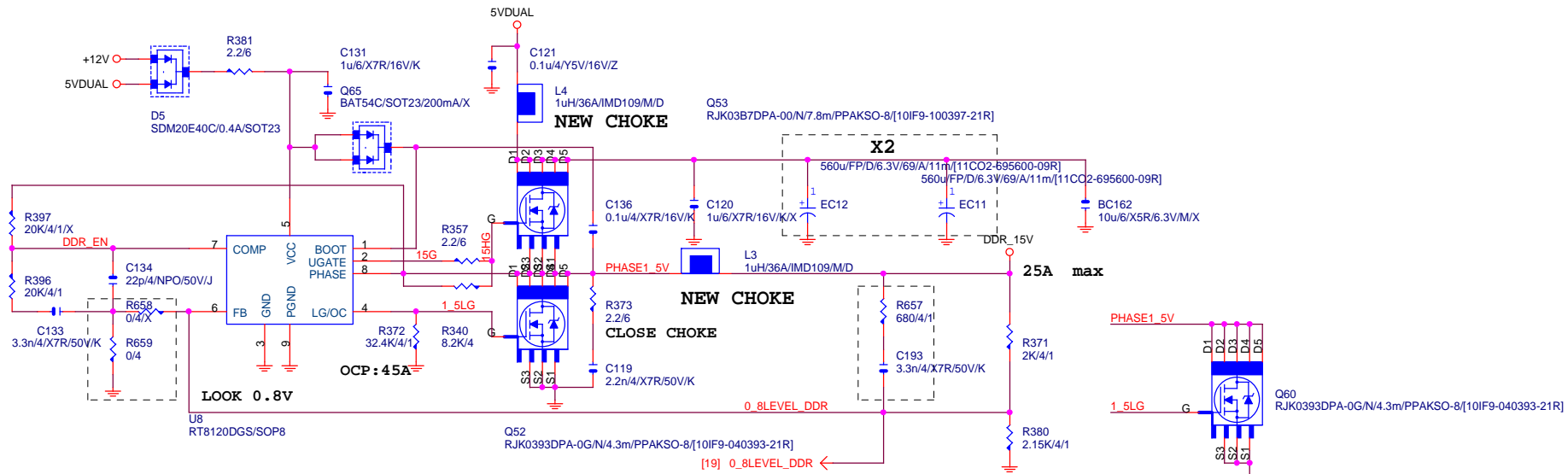
Title		Realtek RTL8111G
Size	Document Number	GA-B85M-HD3
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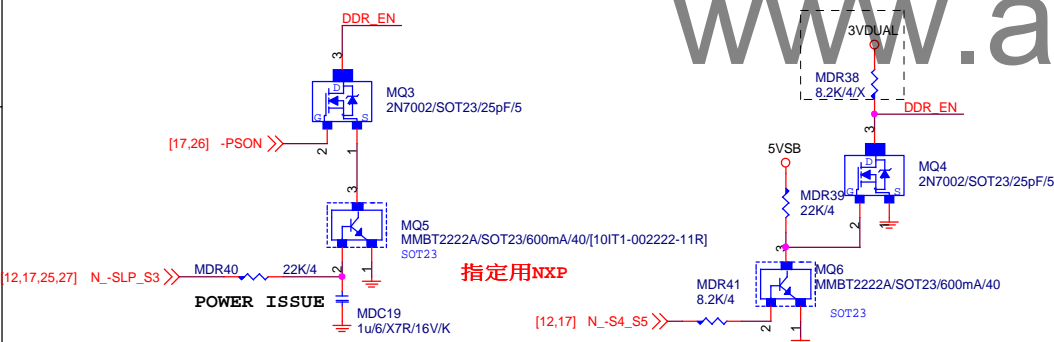
CLOSE PWR



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

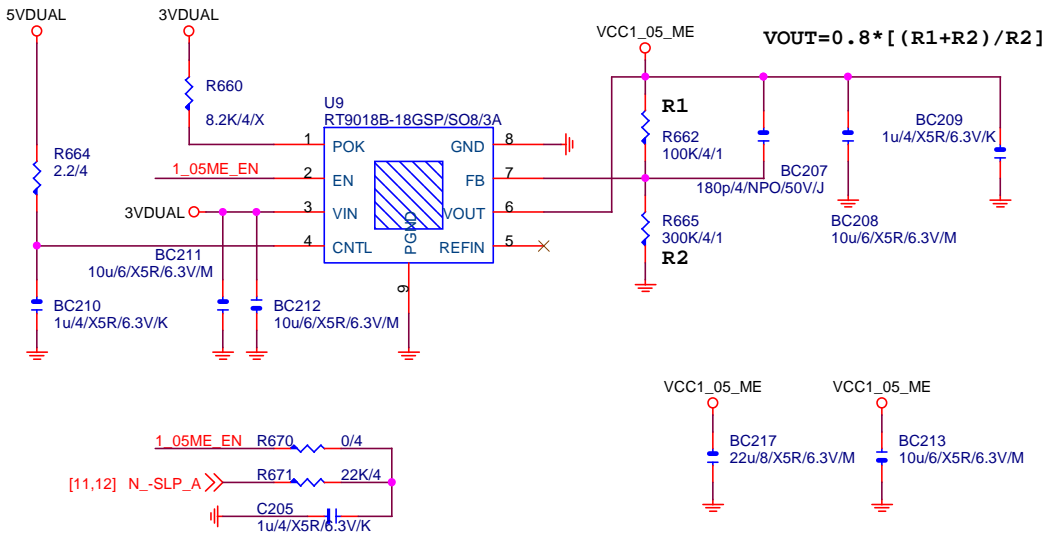
Gigabyte Technology

Title		
DDR POWER		
Size	Document Number	Rev
Custom	GA-B85M-HD3	1.11
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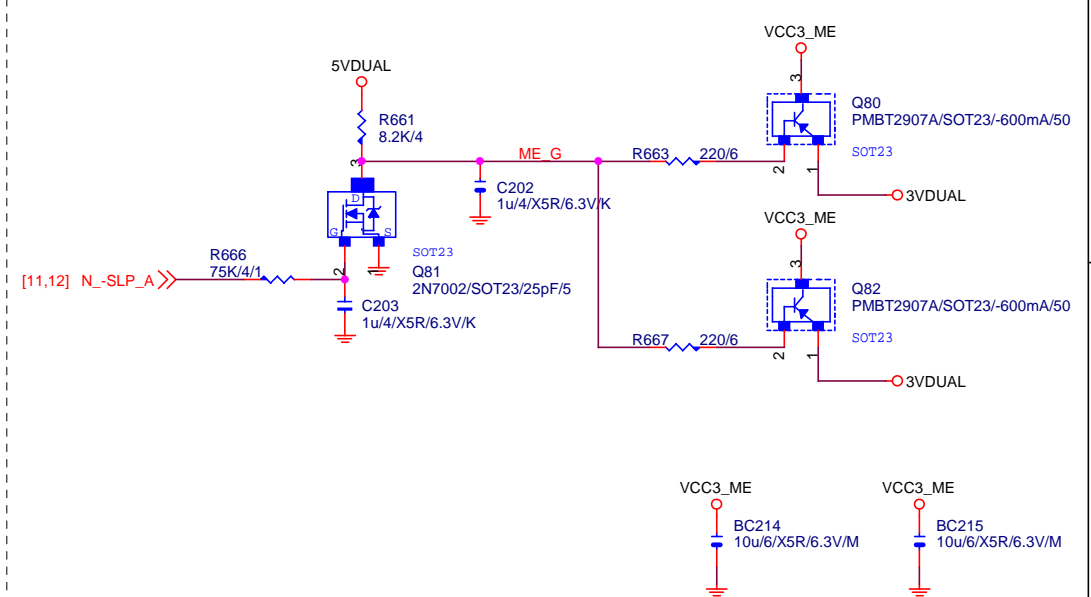
VCC1_05_ME

【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

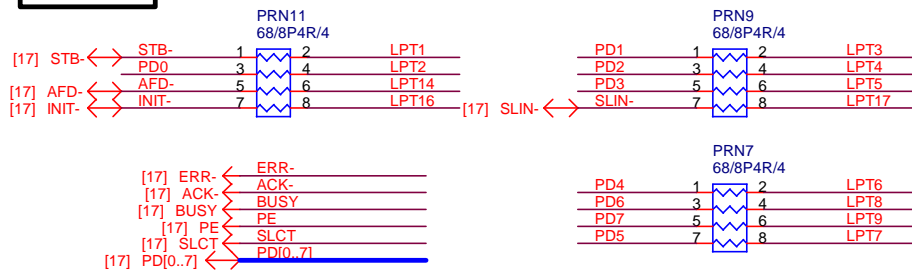


VCC3_ME



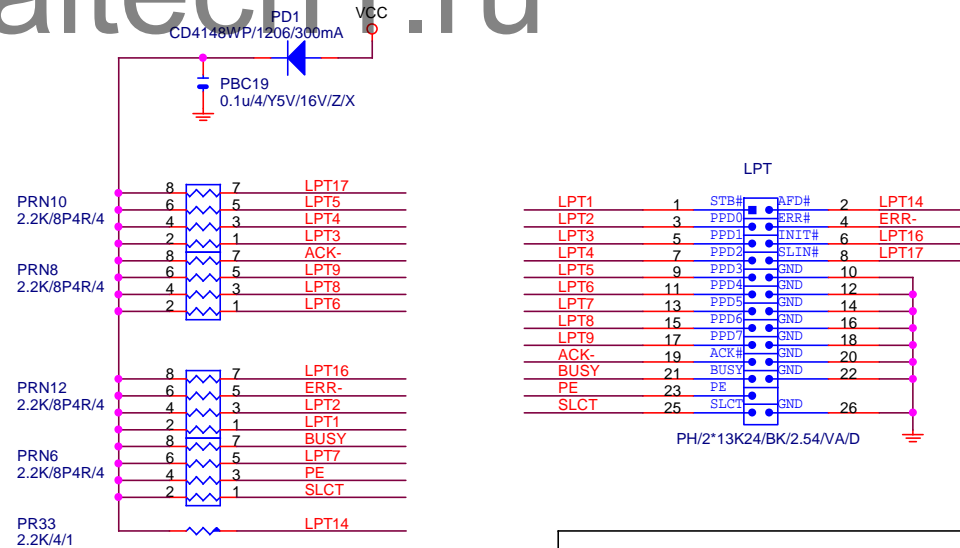
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LPT PORT



【技術通報R&D技術通報151】

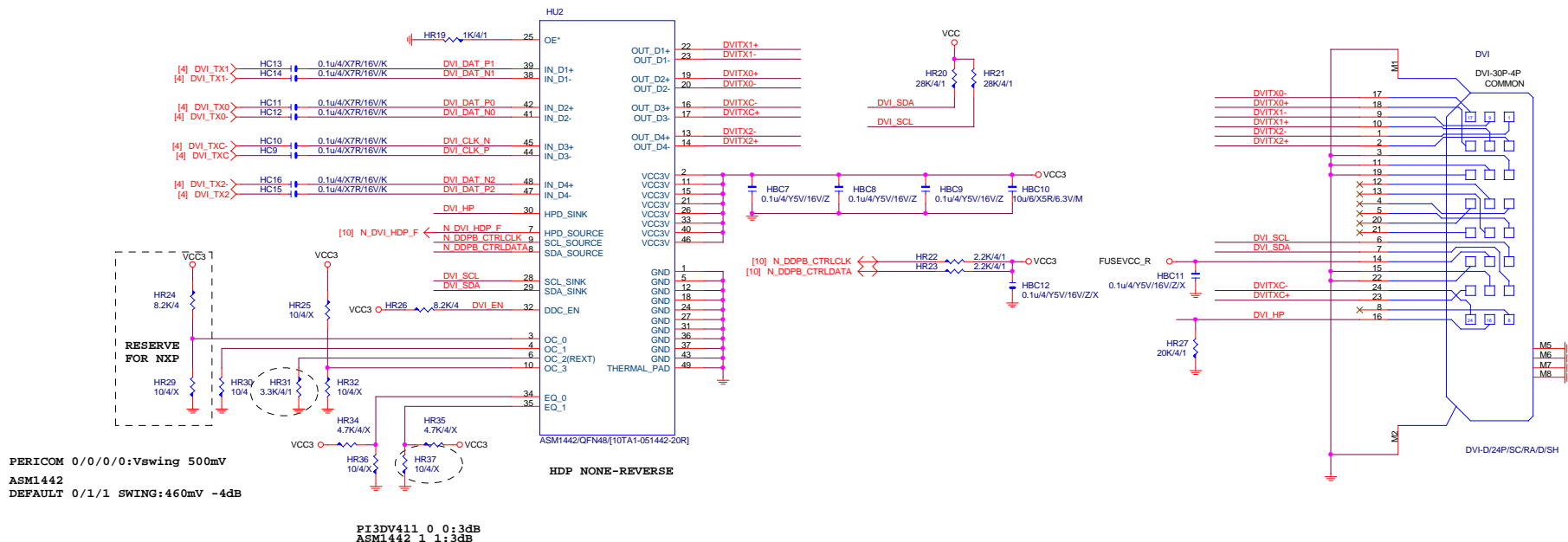
33ohm Change to 68ohm



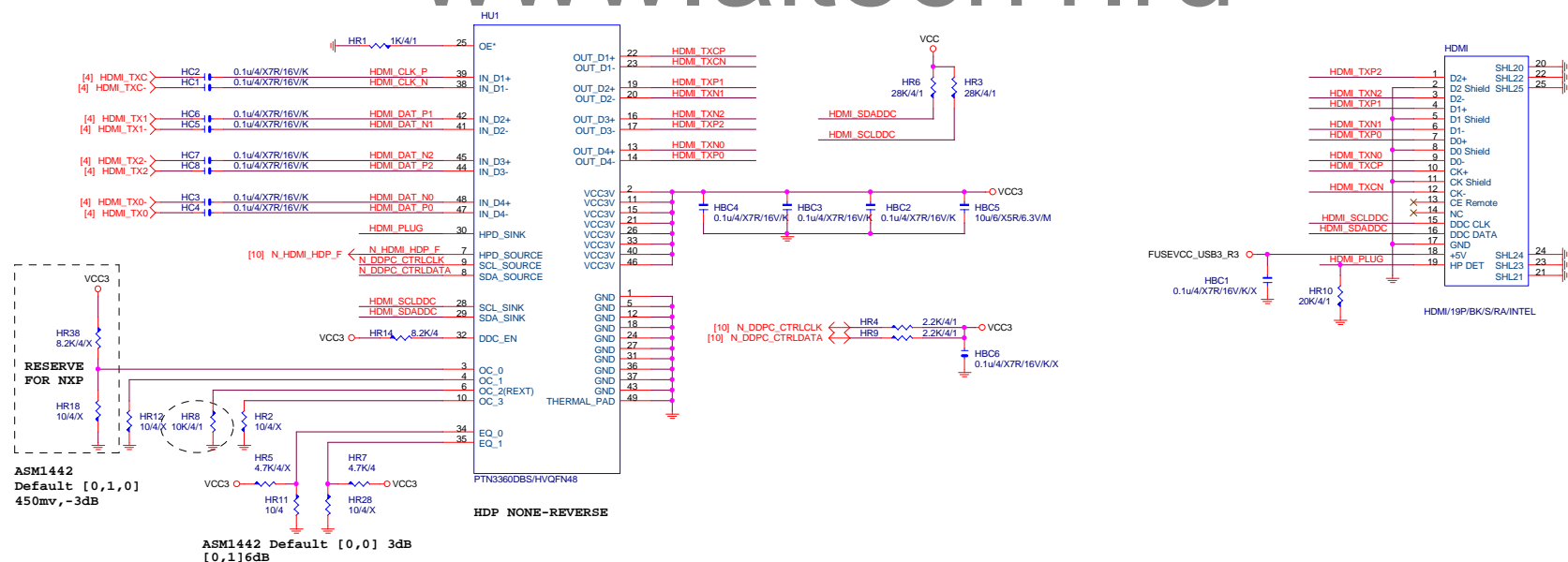
Gigabyte Technology

Title			
LPT			
Size	Document Number	Rev	
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DVI LEVEL SHIFT



HDMI LEVEL SHIFT



【技術通報R&D技術通報150】

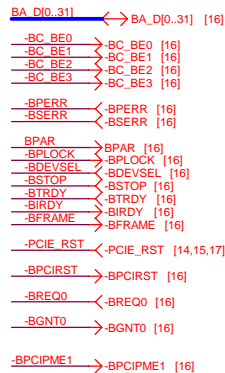
HDMI eye diagram1.4版(deep color)會fail

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

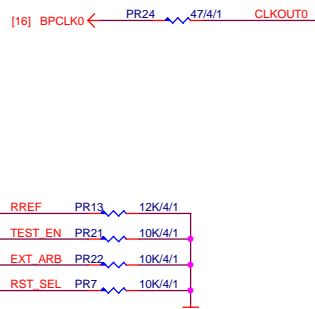
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PCIE TO PCI

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



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



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

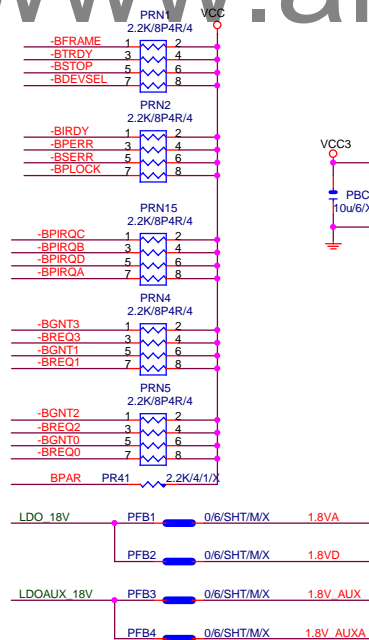
High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

IT8892

PCI slot

PCI slot

chipset side



PCB layout note:
Close to chip

PCB layout note:
Close to chip

Gigabyte Technology

ITE IT8892E
GA-B85M-HD3

Title		Rev	
Size	Document Number	1.11	
Custom			
Date:	Wednesday, November 27, 2013	Sheet	32 of 32