

Model Name: GA-B85-HD3

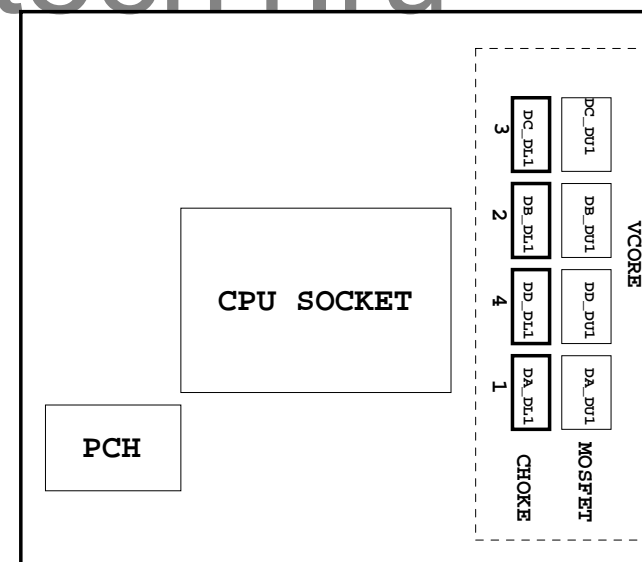
2.1

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 ITE8620
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC887-VD2 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	
37	
38	
39	
40	



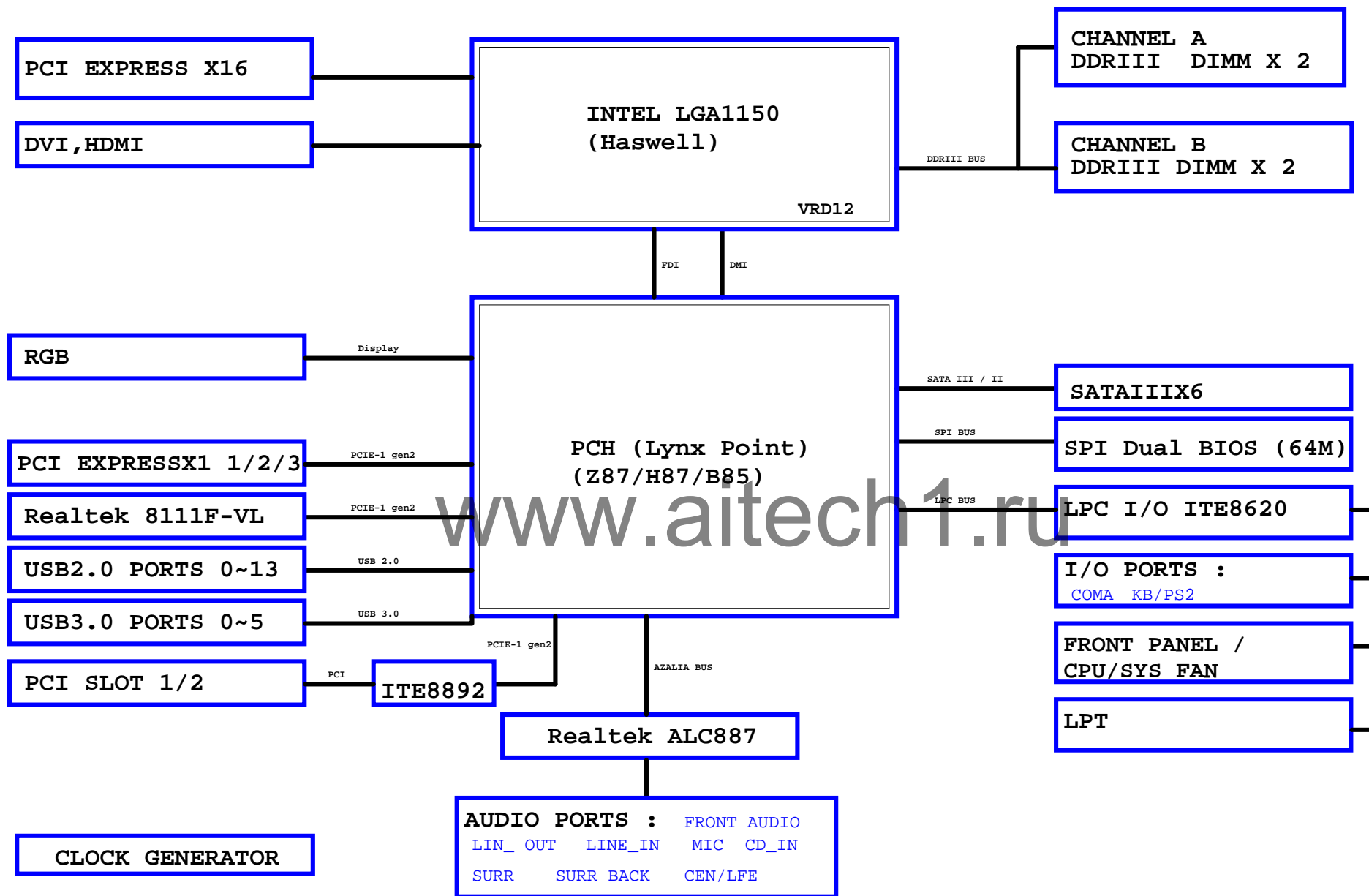
Gigabyte Technology			
Title			
Cover Sheet			
Size	Document Number	GA-B85-HD3	Rev
Custom			2.1
Date	Monday, May 19, 2014	Sheet	1 of 34

Component value change history

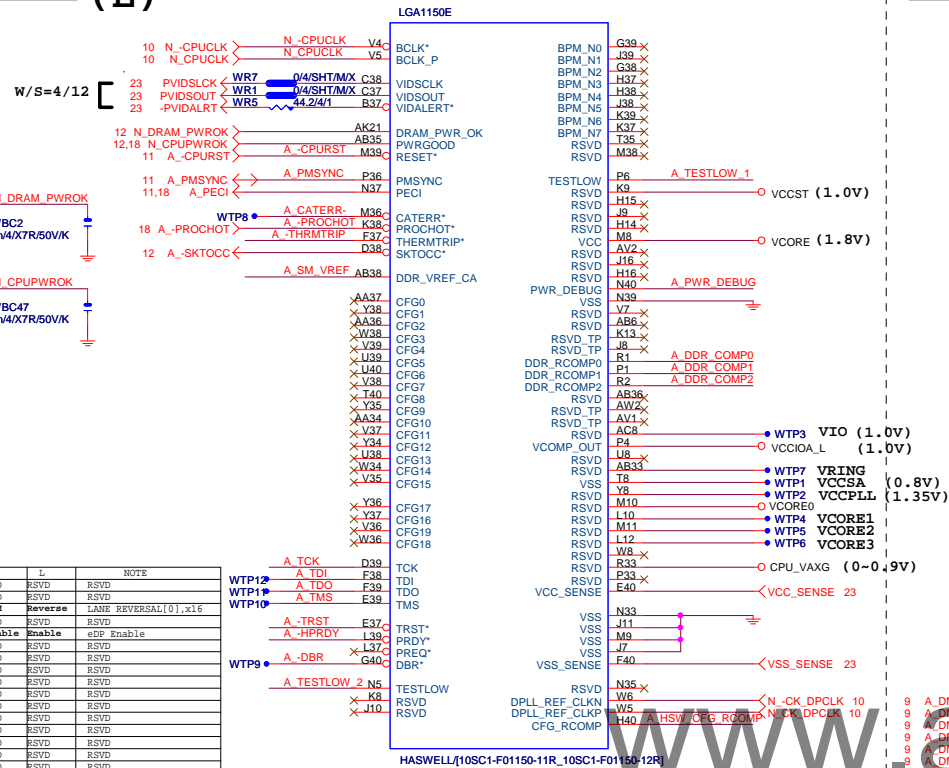
[illegible]

DATE	Change Item	Reason
2013/08/13 PCB:1.5	1. 由Z87-DS3H REV0.1 修改成B85-HD3-1.5 (原B85-HD3-1.1 304.8X225 --> B85-HD3-1.5 304.8X190)	
2013/01/16 PCB:2.0	1. 0ohm SHORT PAD	
	2. PE_SRCCLK_3GIO1/PE_-SRCCLK_3GIO1 change to PCH pin W6/W7	
	3. MR17 footprint update "R0603-RH"	
	4. CPU_FAN R676 update "R0603-RH"	
	5. PCH 25MHz NX1 layout修改 , Trace 4mils	
	6. 32.768KHz will REF "GND" , Trace 4mil	
	7. Update "POLYSWITCH-1206-1"	
	8. 所有的PPAK footprint改爲Q_TDS0N8-GDS-T (增加NXP相容)	
	9. U14-U15 update footprint "SOP8-NCT3941S"	
	1. 工廠反應NBC39有可能被PCH_HS壓壞	
2014/05/09 PCB:2.1	1. LAN to RTL8111G	
	2. VCORE MOSFET to 1上1下	
	3. H81 series Cost down rule	
	4. K/B_MOUSE排阻0402改爲0603	
	5. DVI remove level shift	
	6. Remove 短路保護	
	7. 1206 3.5A fuse to 0805 2.6A	
	8. Remove 3933	
	1. PRN1的FOOTPRINT 改爲SHORT PAD	

BLOCK DIAGRAM



LGA1150 (E)

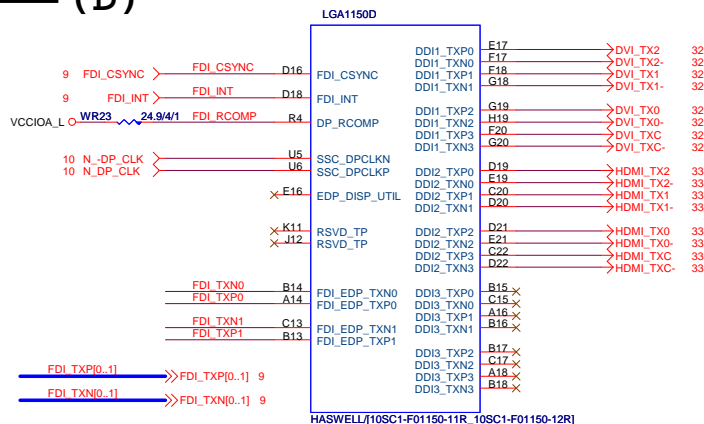


CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	Reverse	RSVD
2	NORM	Reverse	LANS REVERSAL[0,x16]
3	RSVD	RSVD	RSVD
4	Disable	Disable	cpu Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2x8
0	1	RSVD
0	0	x8_x4_x4

CFG 0-17 all internal PULL-UP

LGA1150 (D)



FDI:4/4/4//15(breakout min 4/4/4//8)
Impedance=85 +- 15%

DP/HDMI 4/4/4//20 FDI 4/4/4/12

Impedance=85 +- 15%

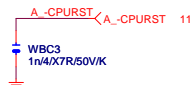
LGA1155 (C)



CPU PEG 5/5/5//20 Impedance=80 +- 15%

DMI 4/4/4//15 Impedance=85 +- 15%

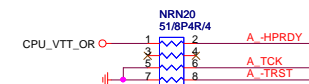
-CPURST



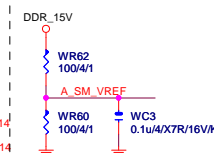
CPU SVID



CPU PU/PD



SM REF



LGA1150A

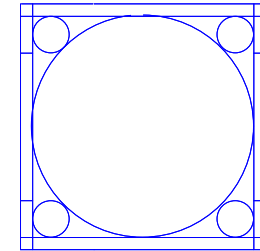
MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	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	AT20	DDR0_MA13	DDR0_D13	AH38	MDA14
MAAA14	AW21	DDR0_MA14	DDR0_D14	AK40	MDA15
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_D16	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_D17	AP38	MDA18
MODT_A2	AW9	DDR0_ODT2	DDR0_D18	AP39	MDA19
MODT_A3	AU8	DDR0_ODT3	DDR0_D19	AM37	MDA20
			DDR0_D20	AM38	MDA16
			DDR0_D21	AM38	MDA16
			DDR0_D22	AP37	MDA22
			DDR0_D23	AP40	MDA23
			DDR0_D24	AV37	MDA25
			DDR0_D25	AW37	MDA29
			DDR0_D26	AU35	MDA28
			DDR0_D27	AT37	MDA27
			DDR0_D28	AU37	MDA24
			DDR0_D29	AT35	MDA30
			DDR0_D30	AW35	MDA31
			DDR0_D31	AY6	MDA33
			DDR0_D32	AU6	MDA37
			DDR0_D33	AV4	MDA34
			DDR0_D34	AW6	MDA36
			DDR0_D35	AW6	MDA32
			DDR0_D36	AW4	MDA38
			DDR0_D37	AR1	MDA39
			DDR0_D38	AR4	MDA45
			DDR0_D39	AN3	MDA42
			DDR0_D40	AN4	MDA43
			DDR0_D41	AR2	MDA44
			DDR0_D42	AR3	MDA40
			DDR0_D43	AN2	MDA46
			DDR0_D44	AN1	MDA47
			DDR0_D45	AL1	MDA49
			DDR0_D46	AL4	MDA53
			DDR0_D47	AL4	MDA50
			DDR0_D48	AJ4	MDA51
			DDR0_D49	AL2	MDA52
			DDR0_D50	AJ2	MDA48
			DDR0_D51	AJ2	MDA54
			DDR0_D52	AJ1	MDA55
			DDR0_D53	AG1	MDA57
			DDR0_D54	AG4	MDA61
			DDR0_D55	AE3	MDA58
			DDR0_D56	AE4	MDA59
			DDR0_D57	AG2	MDA60
			DDR0_D58	AG3	MDA56
			DDR0_D59	AE2	MDA62
			DDR0_D60	AE1	MDA63
			DDR0_D61	AE39	DQSA0
			DDR0_D62	AJ39	DQSA1
			DDR0_D63	AN39	DQSA2
			DDR0_D64	AV36	DQSA3
			DDR0_D65	AV5	DQSA4
			DDR0_D66	AP3	DQSA5
			DDR0_D67	AK3	DQSA6
			DDR0_D68	AF3	DQSA7
			DDR0_D69	AV32	DQSA0
			DDR0_D70	AE38	DQSA1
			DDR0_D71	AN38	DQSA2
			DDR0_D72	AJ38	DQSA3
			DDR0_D73	AW5	DQSA4
			DDR0_D74	AP2	DQSA5
			DDR0_D75	AK2	DQSA6
			DDR0_D76	AF2	DQSA7
			DDR0_D77	AJ32	DQSA7

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150B

MAAB0	AL19	DDR1_MA0	AE34	MD80
MAAB1	AK23	DDR1_MA1	AE35	MD81
MAAB2	AM23	DDR1_MA2	AG35	MD82
MAAB3	AM23	DDR1_MA3	AH35	MD83
MAAB4	AP23	DDR1_MA4	AD34	MD84
MAAB5	AL23	DDR1_MA5	AD35	MD85
MAAB6	AY24	DDR1_MA6	AG34	MD86
MAAB7	AV25	DDR1_MA7	AH34	MD87
MAAB8	AU26	DDR1_MA8	AL34	MD88
MAAB9	AV25	DDR1_MA9	AL35	MD89
MAAB10	AP18	DDR1_MA10	AK31	MD810
MAAB11	AY25	DDR1_MA11	AL31	MD811
MAAB12	AV26	DDR1_MA12	AK34	MD812
MAAB13	AR15	DDR1_MA13	AK35	MD813
MAAB14	AV27	DDR1_MA14	AK32	MD814
MAAB15	AY28	DDR1_MA15	AL32	MD815
MODT_B0	AM17	DDR1_ODT0	AP34	MD821
MODT_B1	AL16	DDR1_ODT1	AN31	MD819
MODT_B2	AM16	DDR1_ODT2	AP31	MD823
MODT_B3	AK15	DDR1_ODT3	AP35	MD820
			AP35	MD816
			AN32	MD818
			AP32	MD822
			AM29	MD825
			AM28	MD828
			AR29	MD827
			AR28	MD830
			AL28	MD824
			AL28	MD829
			AP29	MD826
			AP28	MD831
			AR12	MD832
			AP12	MD833
			AL13	MD834
			AL12	MD835
			AR13	MD836
			AP13	MD837
			AM13	MD838
			AM12	MD839
			AR9	MD845
			AP9	MD841
			AR6	MD847
			AP6	MD843
			AR10	MD844
			AP10	MD840
			AR7	MD846
			AP7	MD842
			AM9	MD852
			AL9	MD853
			AL6	MD850
			AL7	MD855
			AM10	MD848
			AL10	MD849
			AM6	MD854
			AM7	MD851
			AH6	MD861
			AH7	MD860
			AE6	MD859
			AE7	MD863
			AJ6	MD856
			AJ7	MD857
			AF6	MD858
			AF7	MD862
			AF35	DQSB0
			AL33	DQSB1
			AP33	DQSB2
			AN28	DQSB3
			AN12	DQSB4
			AP8	DQSB5
			AL8	DQSB6
			AG7	DQSB7
			AN25	DQSB0
			AK33	DQSB1
			AN33	DQSB2
			AN29	DQSB3
			AN13	DQSB4
			AR8	DQSB5
			AM8	DQSB6
			AG6	DQSB7
			AN26	DQSB7

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150
ILM_BP/1156/CSP/12KRC-OF0001-52R_12KRC-OF0001-51R]

DDR BUS

MODT_A[0..3]	MODT_A[0..3]
MODT_B[0..3]	MODT_B[0..3]
MDA[0..63]	MDA[0..63]
MDB[0..63]	MDB[0..63]
DQSA[0..7]	DQSA[0..7]
-DQSA[0..7]	-DQSA[0..7]
MAAA[0..15]	MAAA[0..15]
MAAB[0..15]	MAAB[0..15]
DQSB[0..7]	DQSB[0..7]
-DQSB[0..7]	-DQSB[0..7]

Gigabyte Technology

Title				CPU LGA1150-B	
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(F, J)



(G,H,I)

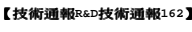


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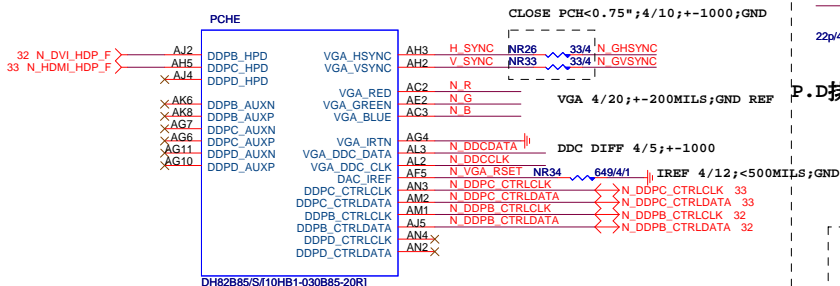


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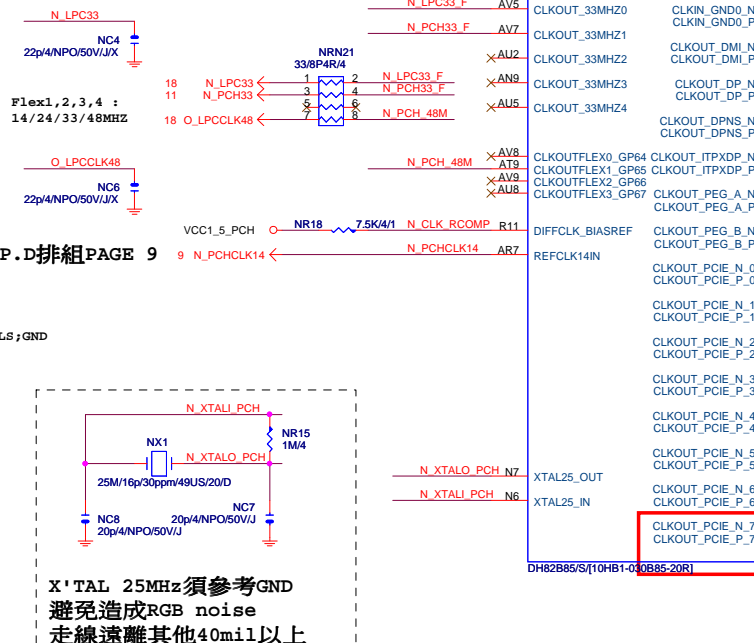


PCH (E)



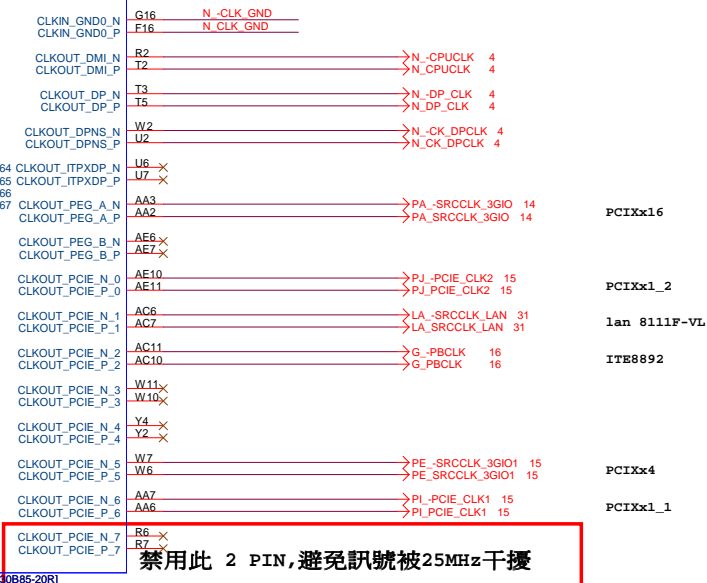
VGA DISABLE	
R,G,B	NC OR GND
IRTN / IREF	GND
VGA_HSYNC, VGA_VSYNC, DDC_CLK,	
DDC_DATA	NC
POWER VCCADAC(AF2),	
VCCADACBG(AE1)	GND

PCH (G)



X'TAL 25MHz須參考GND
避免造成RGB noise
走線遠離其他40mil以上

PCHG

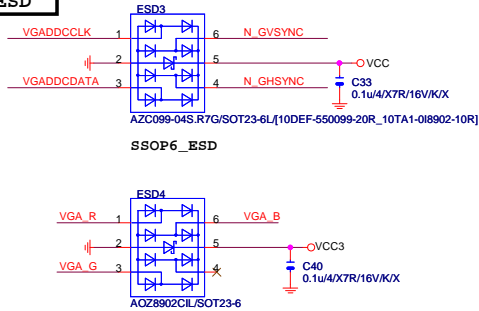


禁用此 2 PIN,避免訊號被25MHz干擾

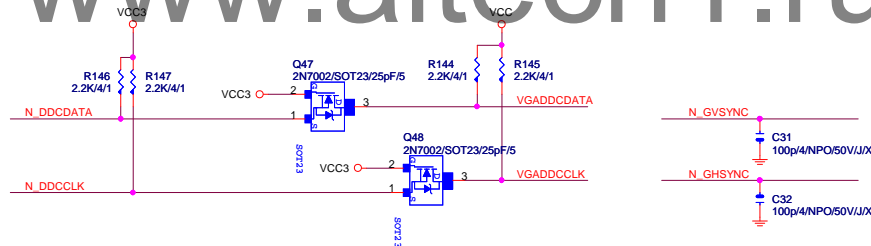
PCH CLK PD



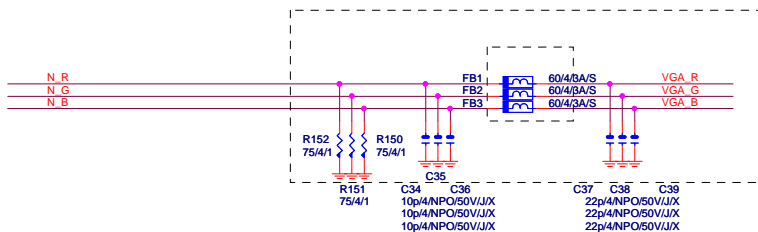
VGA ESD



VGA DDC

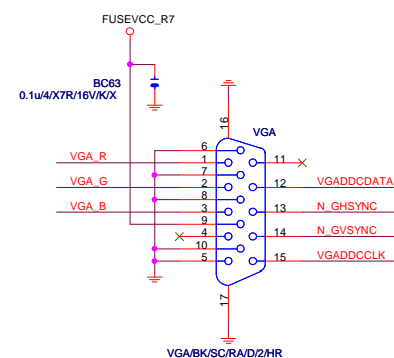


VGA DDC



Close to VGA connector

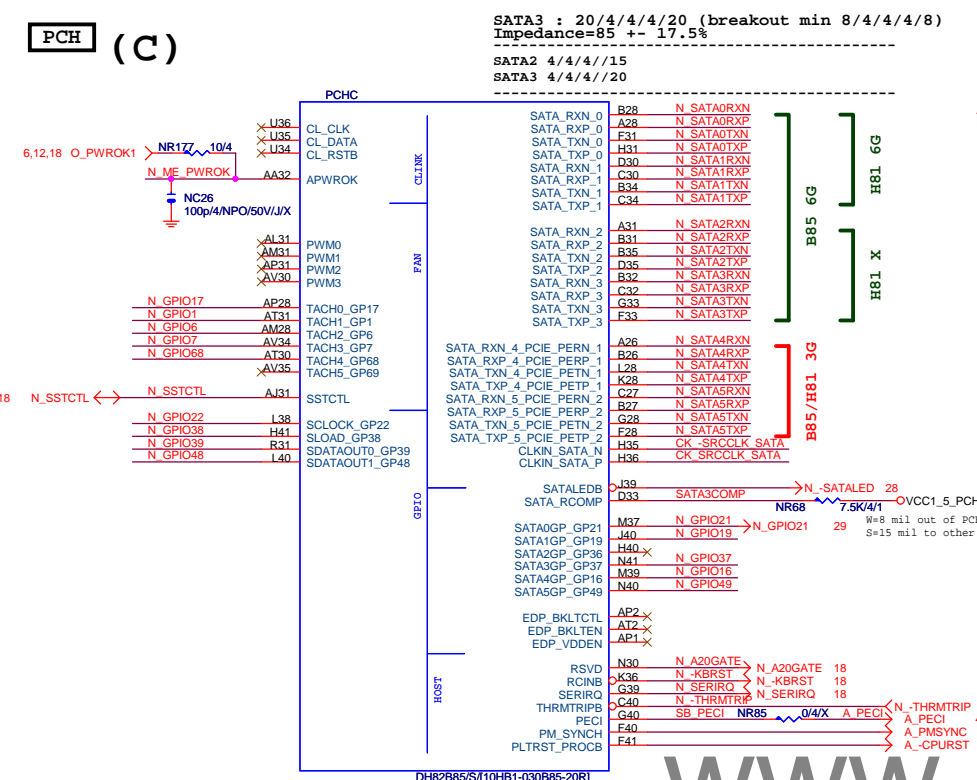
VGA CONNECTOR



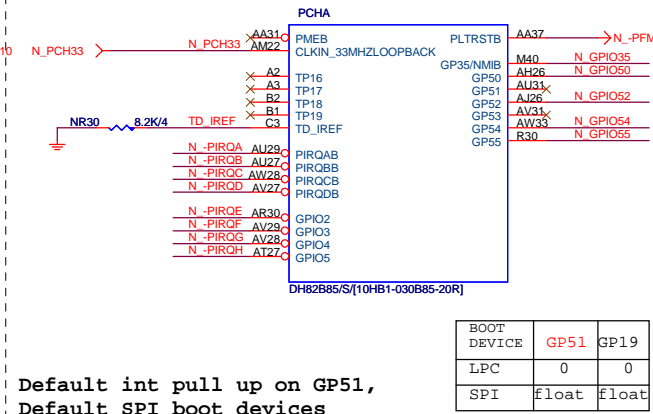
Gigabyte Technology

Title		
PCH DISPLAY ,CLK BUFFER		
Size	Document Number	Rev
Customer	GA-B85-HD3	2.1
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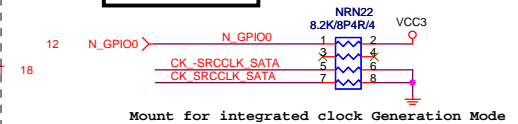
PCH (C)



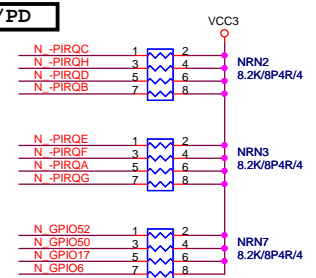
PCH (A)



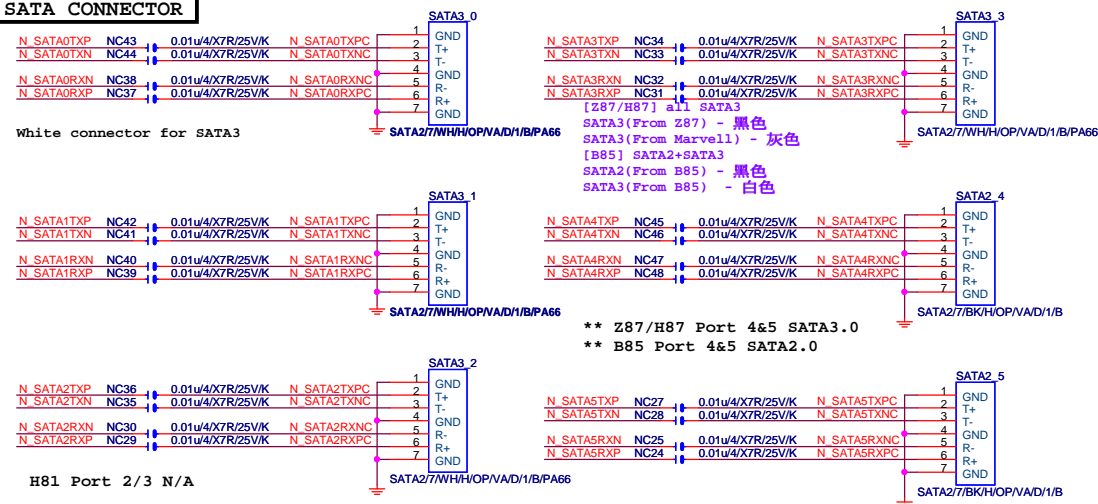
PCH CLK PD



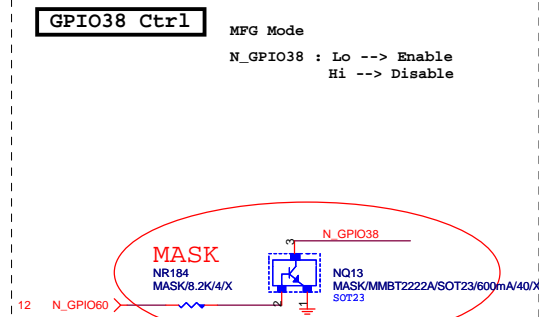
PCH	PU/PD
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SATA CONNECTOR



GPIO38 Ctrl

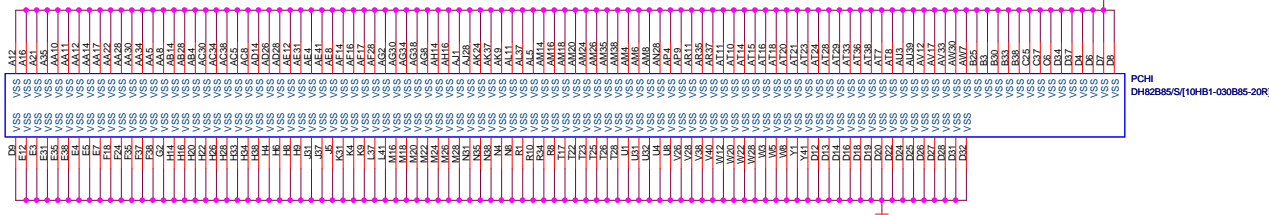


soft strap	GP16	GP49
0	pci1	pci2
1	sata4	sata5

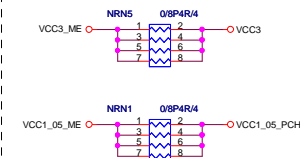
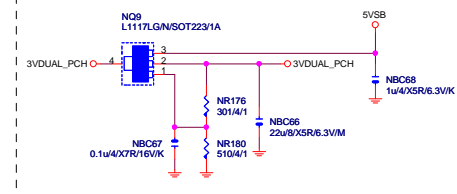
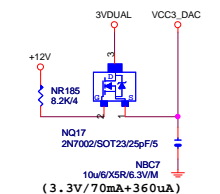
Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
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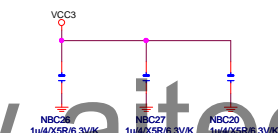
PCH (I)



SHT PWR



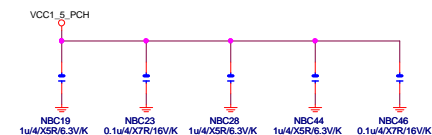
(3.3V) (X3)



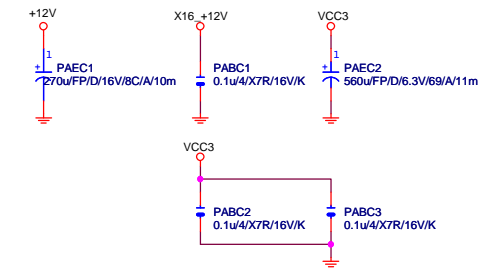
(1.05V)(x2) (3.3V) (x2)



(1.5V) (x5)

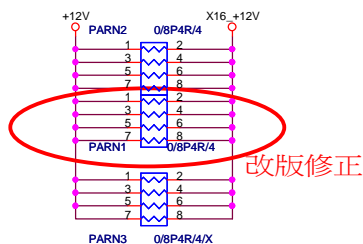


PCIEX16 CAP



PCIEX16 PROTECT SHT

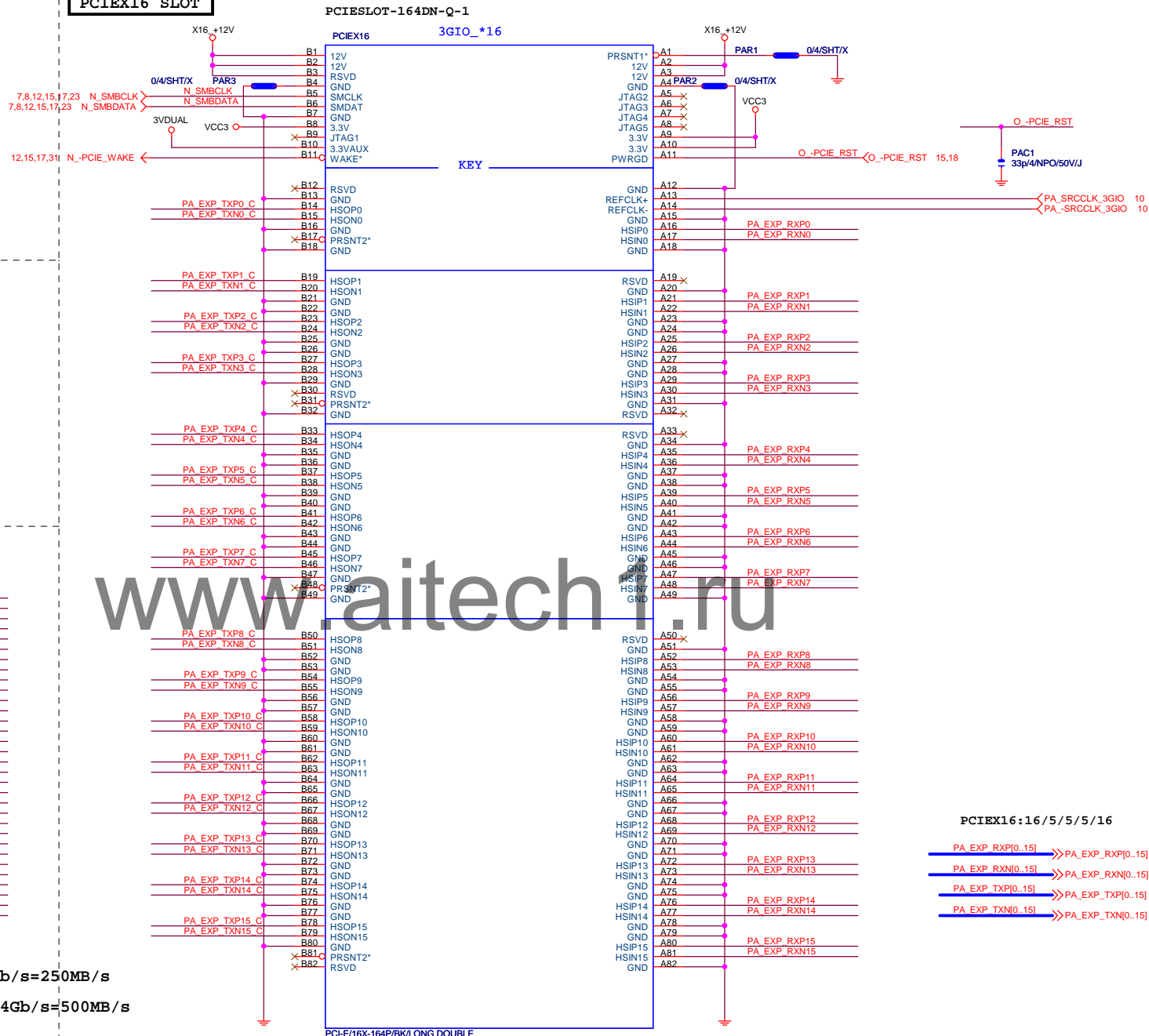
+12 protect
short-wire test



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

PCIEX16 SLOT



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

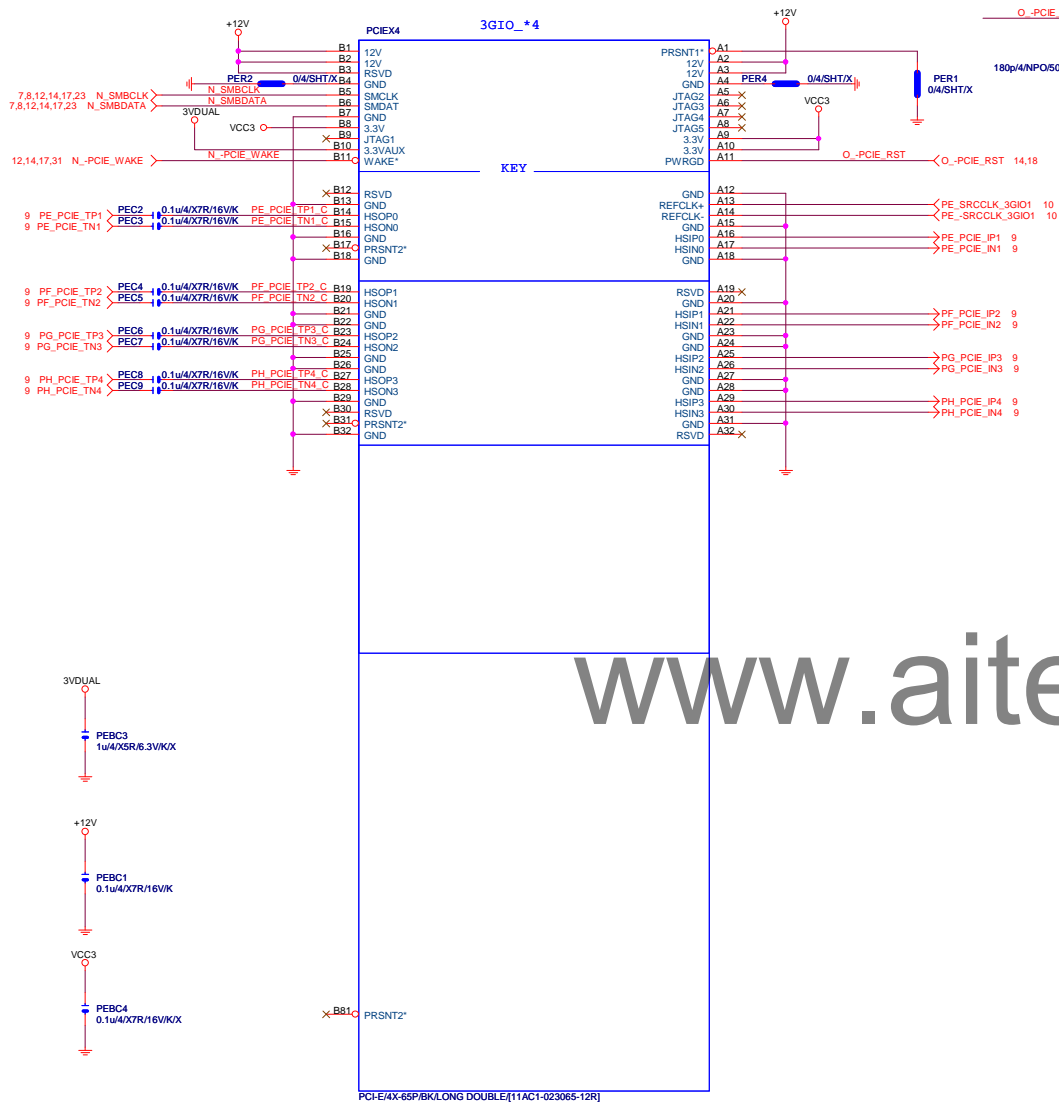
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

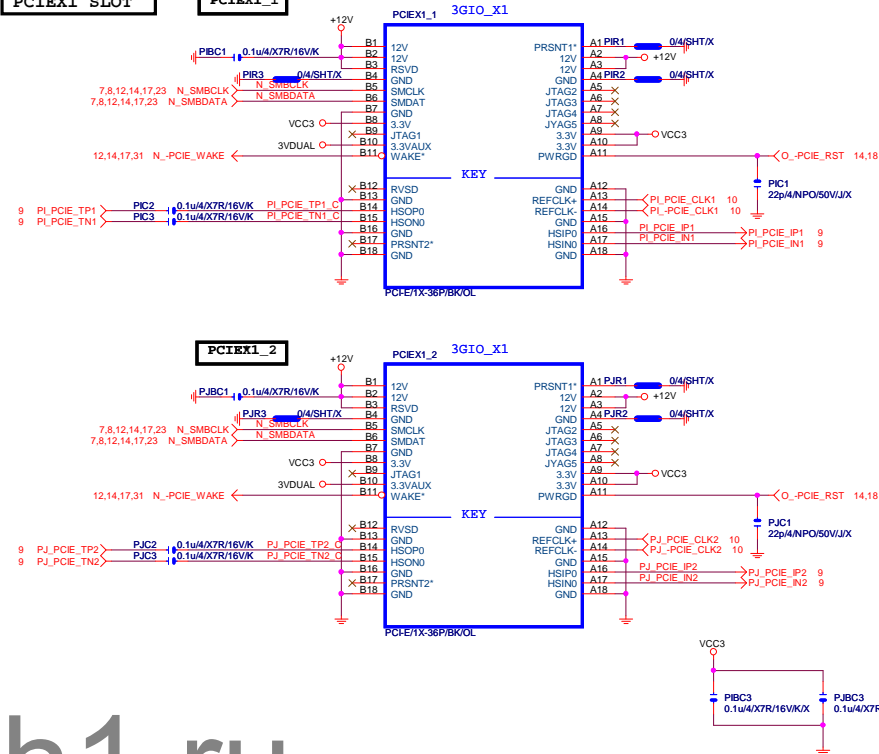
Gigabyte Technology			
Title			
PCI EXPRESS * 16			
Size	Document Number	Rev	
Custom	GA-B85-HD3	2.1	
Date:	Thursday, May 29, 2014	Sheet	14 of 34

PCIEX4 SLOT

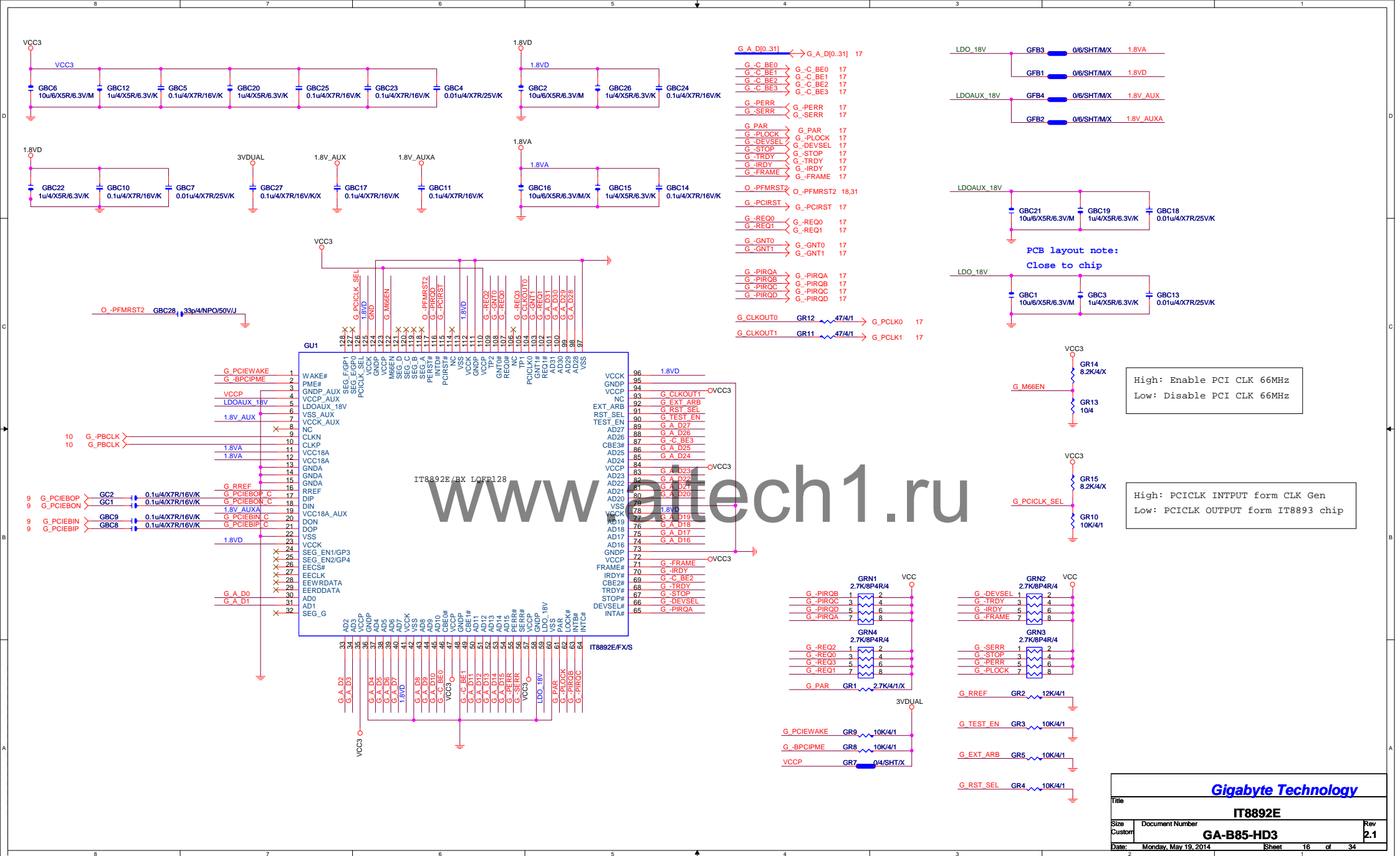


PCIEX1 SLOT

PCIEX1_1



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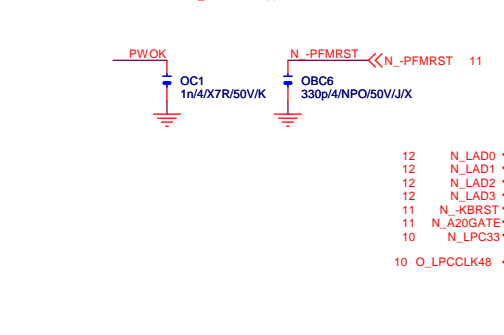
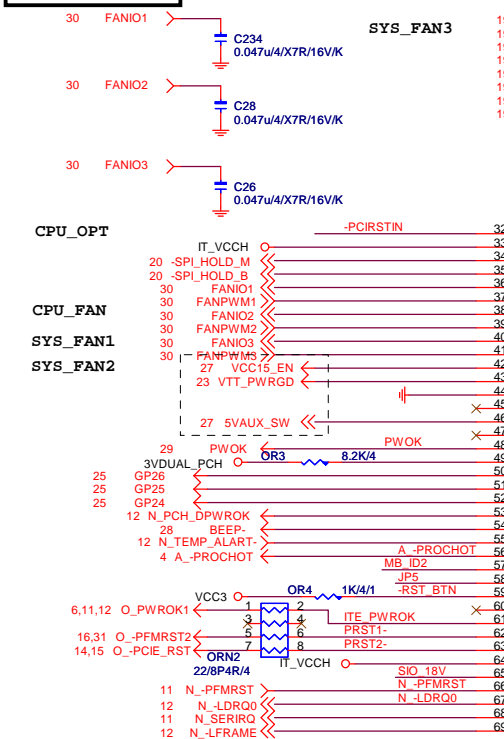


High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

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

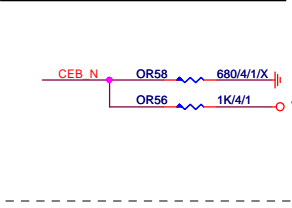
Gigabyte Technology		
Title		
IT8892E		
Size	Document Number	Rev
Custom	GA-B85-HD3	2.1
Date:	Monday, May 19, 2014	Sheet 16 of 34

SIO IT8728F



IT8620E GPIO問題匯整	
PIN 50	GP26---第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
PIN 108	GP40--- POWER ON時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾

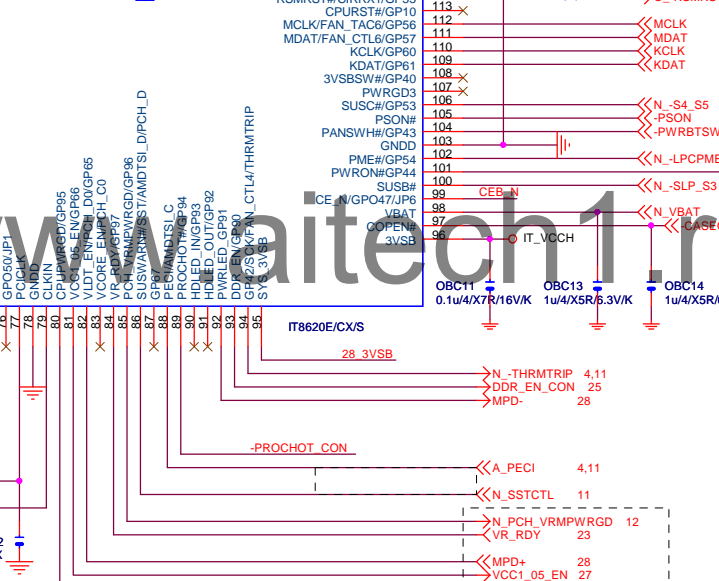
DUAL BIOS OPT STRAP



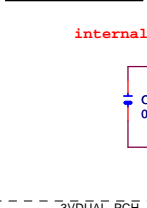
SIO CAP



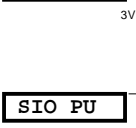
IT8620E_BX



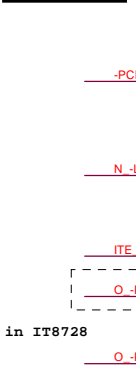
SIO_18V



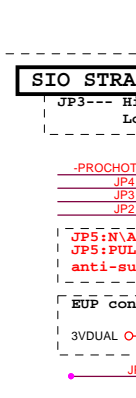
PWR SHT



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.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

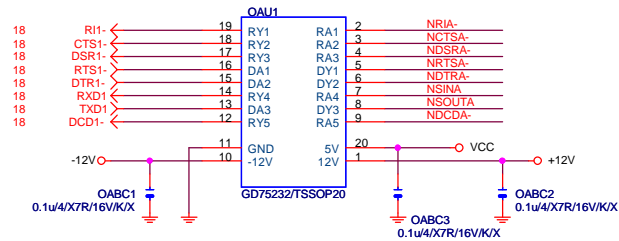
MB ID



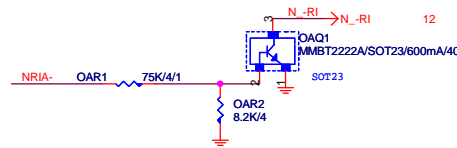
Gigabyte Technology

Title		ITE 8620 LPC IO	
Size B	Document Number	GA-B85-HD3	
Date:	Monday, May 19, 2014	Sheet	18 of 34

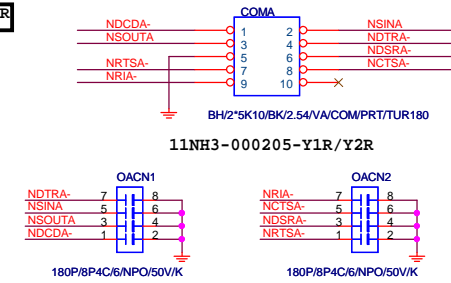
COMA



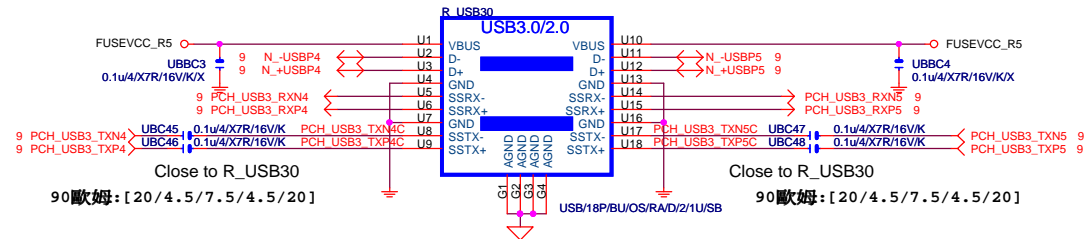
COM RI



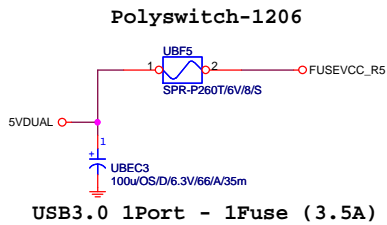
COM BUFFER



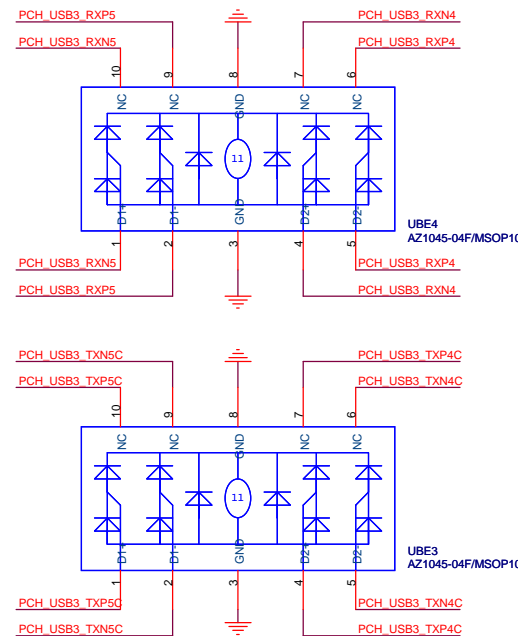
USB30_20 CONNECT



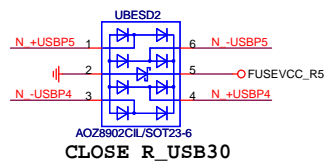
USB30 PWR



USB30 ESD PROTECT

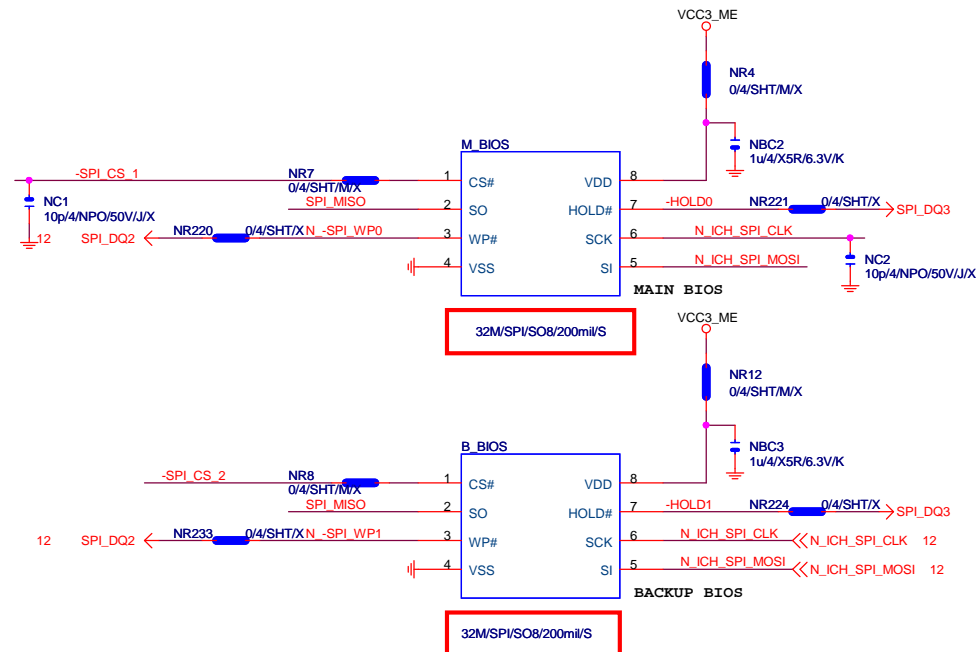
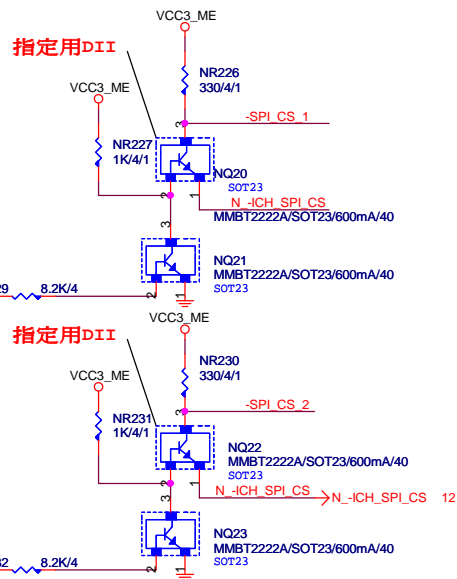
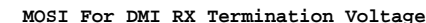


USB20 ESD PROTECT



Gigabyte Technology			
COM/ PROHOT/ R_USB			
File	Document Number	GA-B85-HD3	Rev 2.1
Date: Monday, May 19, 2014	Sheet 19	of 34	

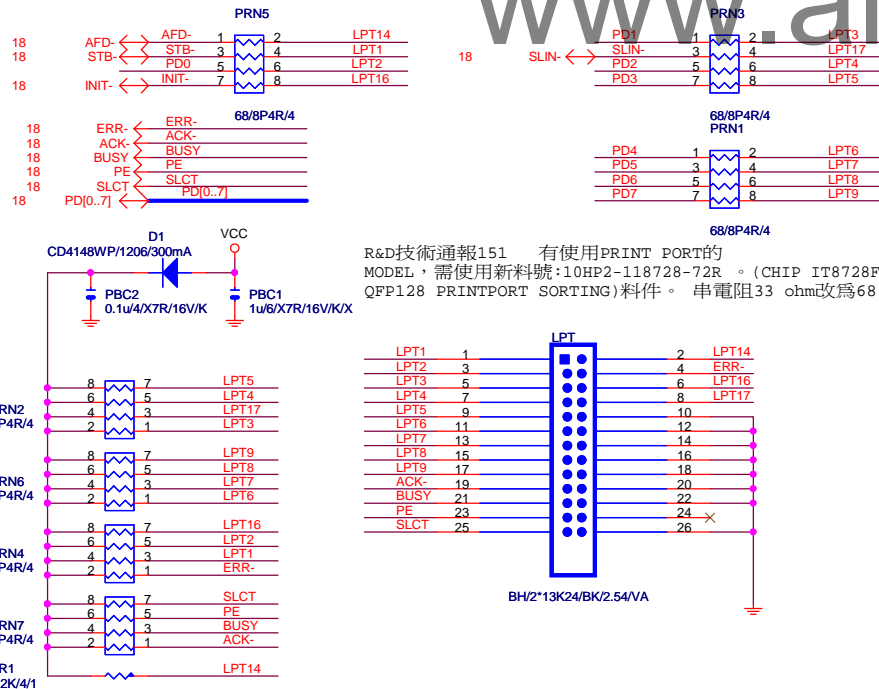
DUAL BIOS



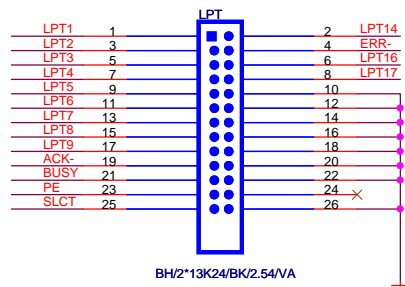
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

LPT PORT



R&D技術通報151 有使用PRINT PORT的
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。



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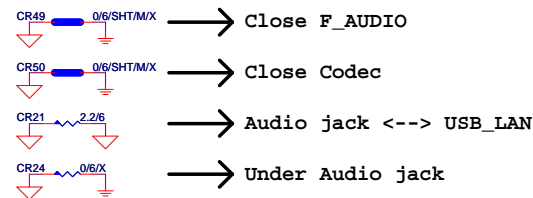
Gigabyte Technology

Title		BIOS	
Size Custom	Document Number	GA-B85-HD3	Rev 2.1
Date:	Monday, May 19, 2014	Sheet	20 of 34

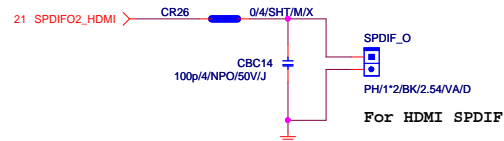
FOR ON/OFF PLAY



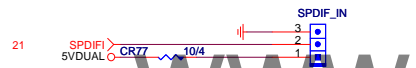
Date: Monday, May 19, 2014 Sheet 21 of 34



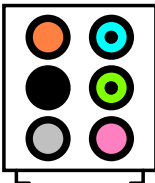
SPDIF_OUT



SPDIF_IN



AZALIA JACK

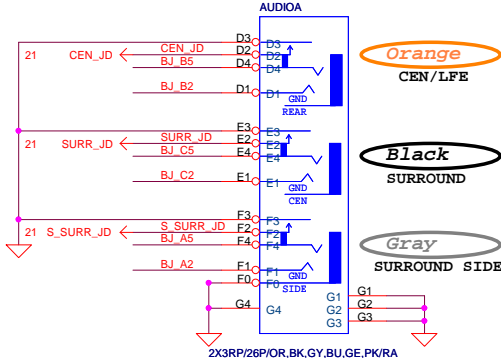
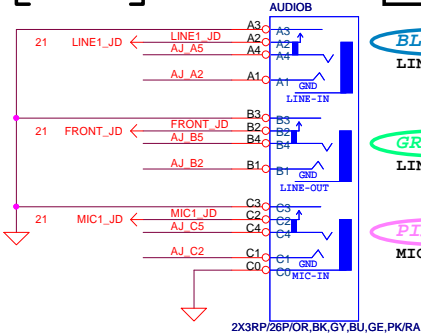


AZALIA JACK

BLUE
LINE-IN

GREEN
LINE-OUT

PINK
MIC-IN

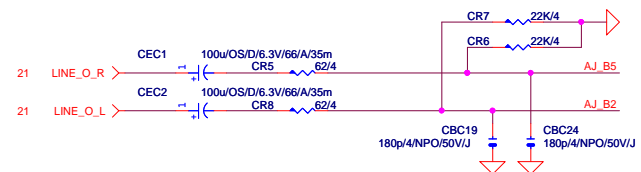


Orange
CEN/LFE

Black
SURROUND

Gray
SURROUND SIDE

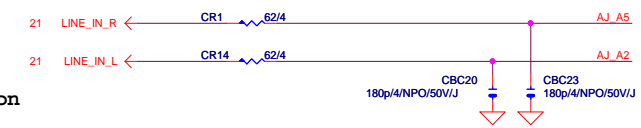
LINE-OUT



LINE-IN

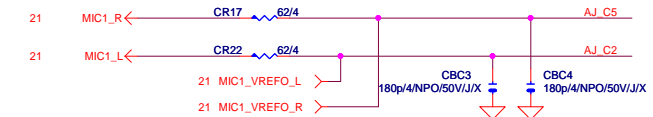
Verify MIC function
in LINE-in

Only reserved for ALC888

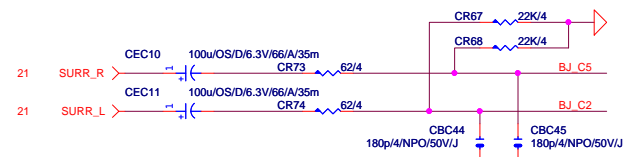


For 889A/888

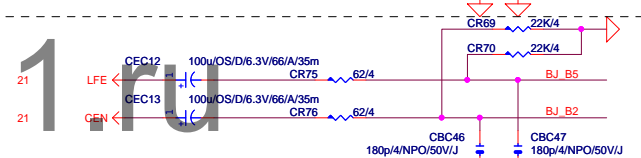
MIC-IN



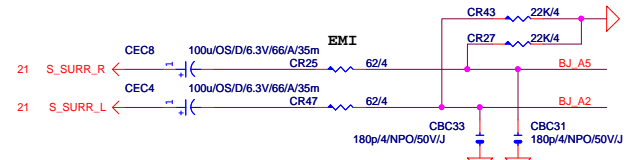
SURROUND



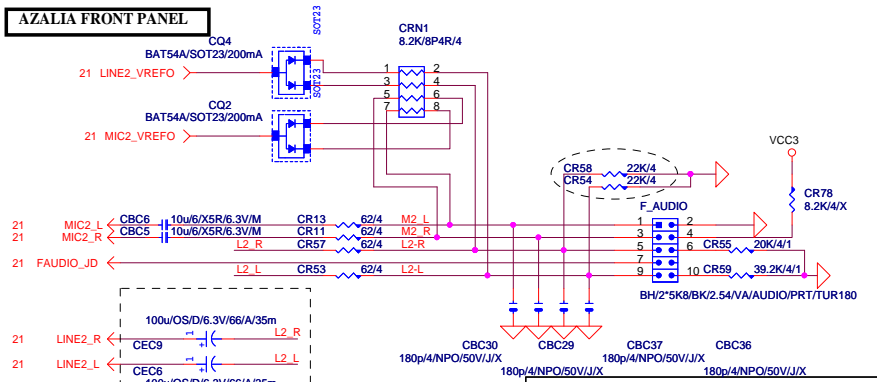
CEN/LFE



SURR BACK



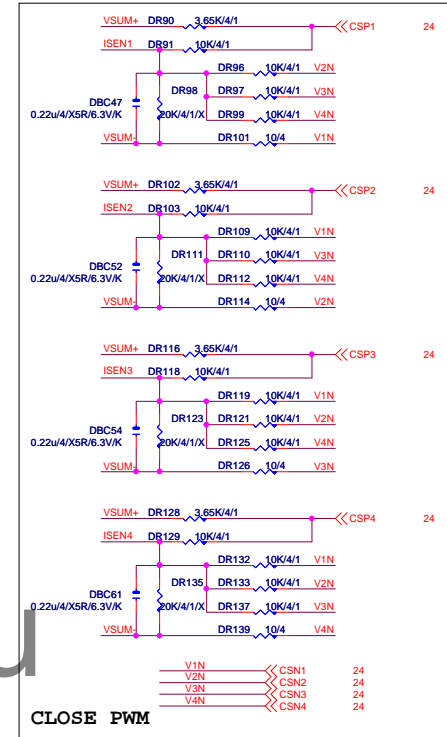
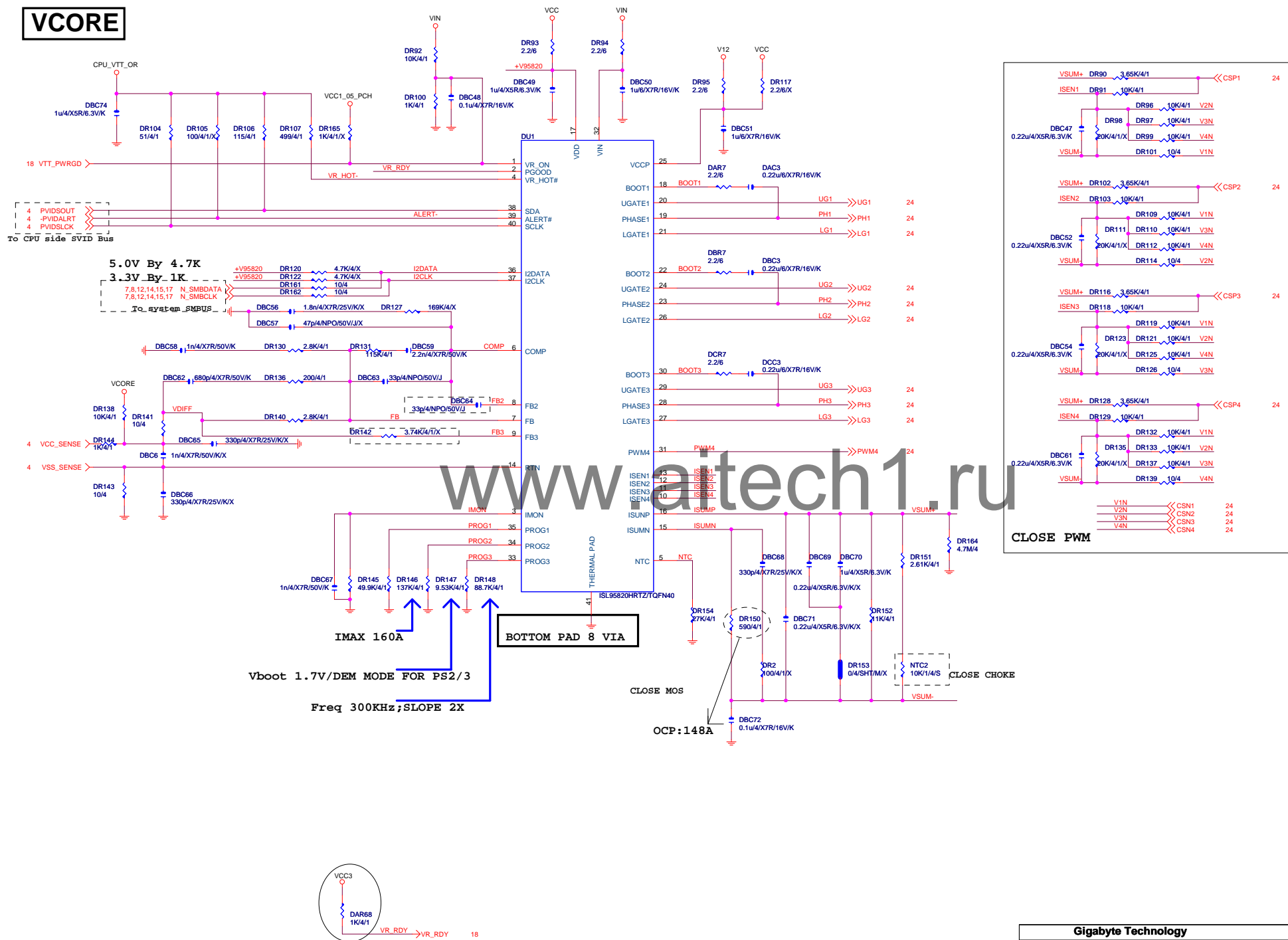
AZALIA FRONT PANEL



Gigabyte Technology

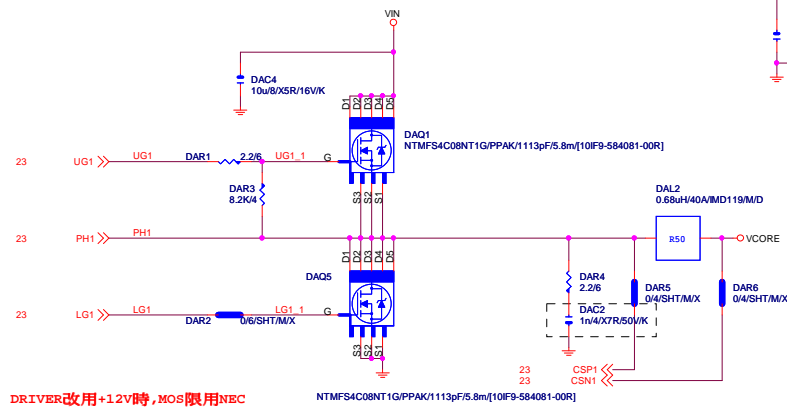
Title		
AUDIO JACK		
Size	Document Number	Rev
Custom	GA-B85-HD3	2.1
Date:	Thursday, May 29, 2014	Sheet 22 of 34

VCORE

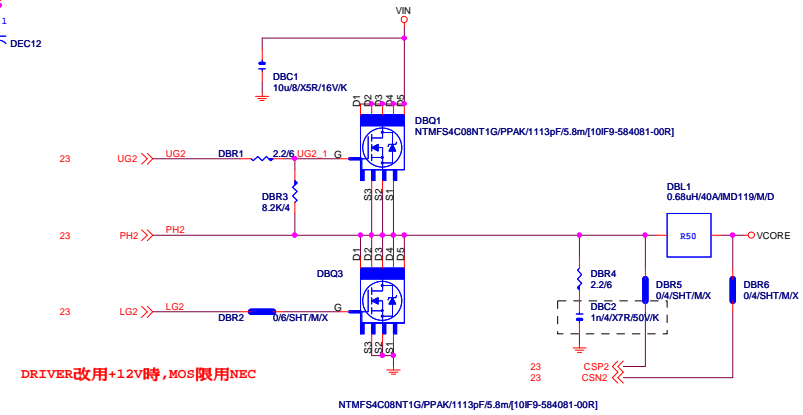


VCORE

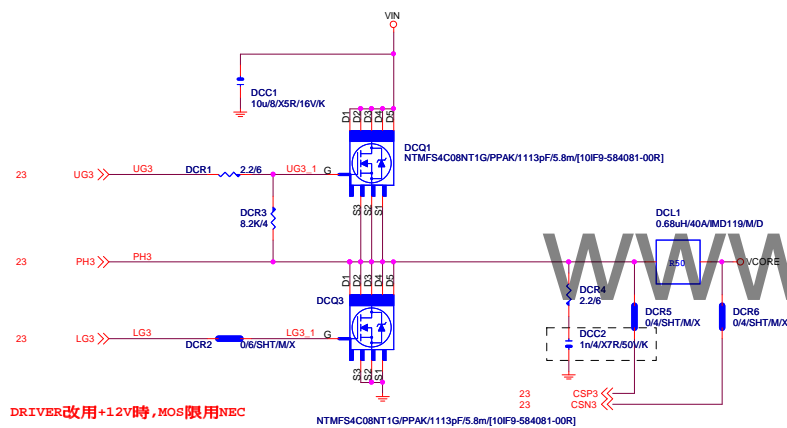
[1]



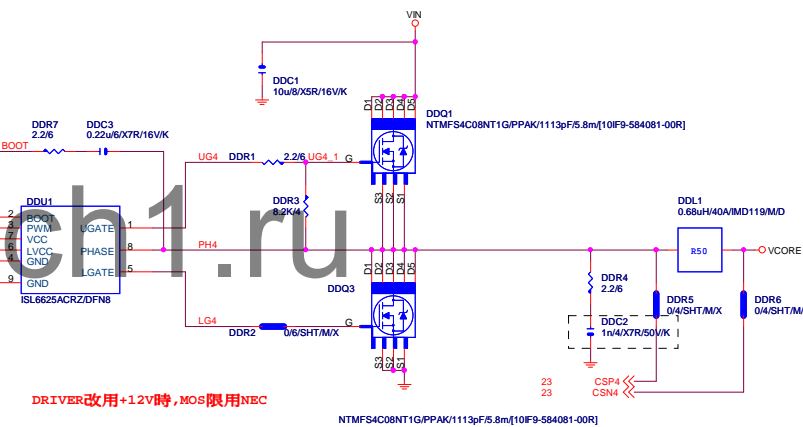
[2]



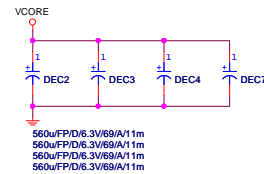
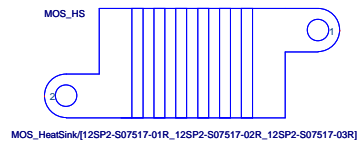
[3]



[4]

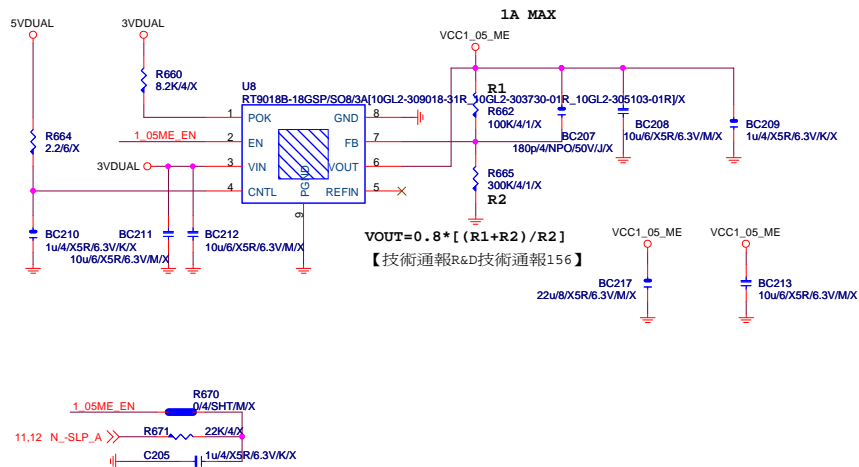


MOSFET HEATSINK

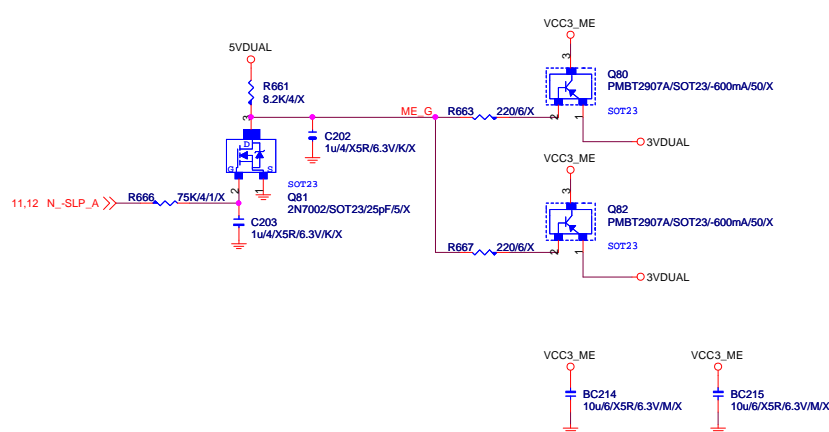


Gigabyte Technology			
Title	ISL95820_2		
Size	Document Number	GA-B85-HD3	
Custom		Rev 2.1	
Date	Monday, May 19, 2014	Sheet	24 of 34

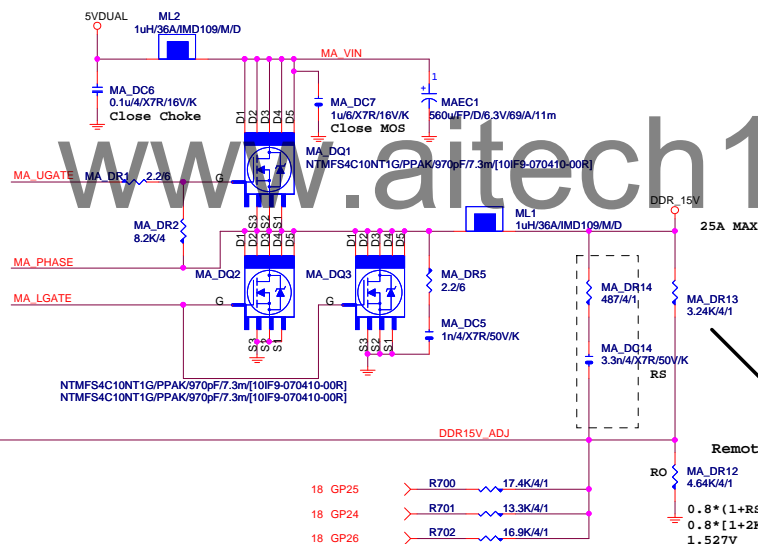
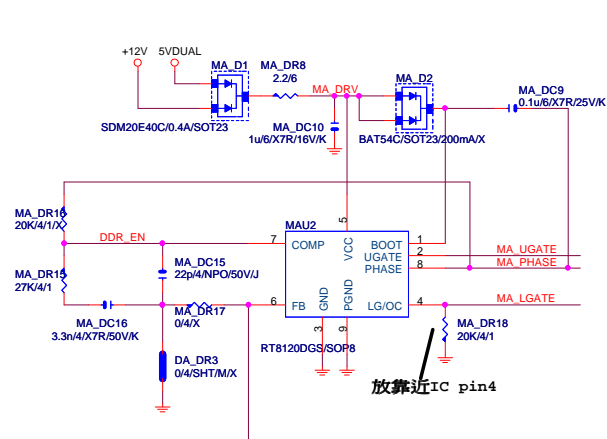
VCC1_05_ME



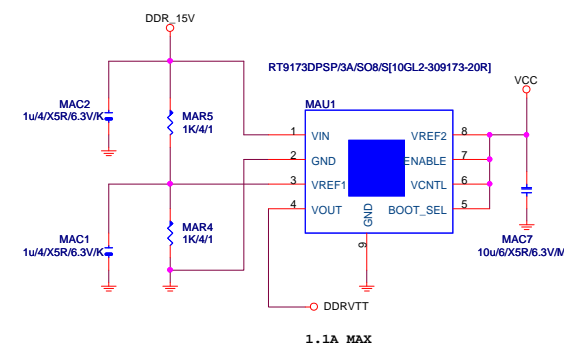
VCC3_ME



DDR_15V



DDRVTT



PWR_SEQ

DDR_EN DDR_EN_CON 18

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

OCP:40A for Rds=8.9~10.8m for on@4.5V
 OCP:40A for Rds=5.8~6.95m for on@10V
 OCP:66.67~37.A=RoSet*Iocset / Rds(on)
 =20K*10uA / 3~5.4m

GIGABYTE™

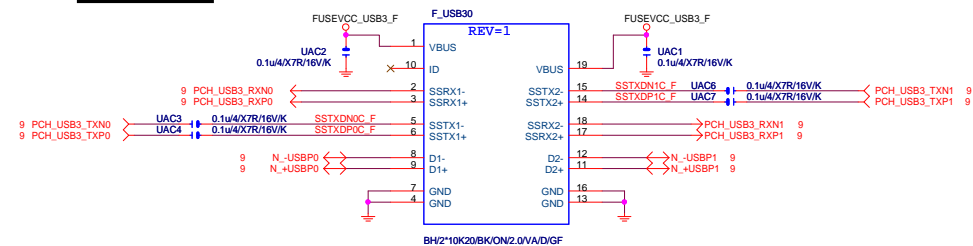
Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
Custom	GA-B85-HD3	2.1	
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	5	4	3	2	1
D					
C					
B					
A					

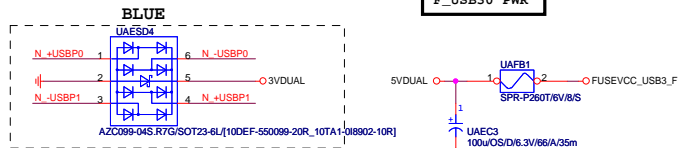
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Gigabyte Technology				
Title		CPU CORE VR-2		
Size Custom	Document Number		GA-B85-HD3	Rev 2.1
Date:	Monday, May 19, 2014		Sheet	26 of 34
	5	4	3	2

Front USB3.0

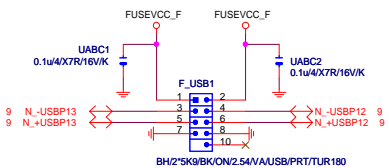


F_USB30 PWR



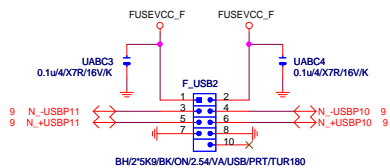
Close to connector

FRONT USB1



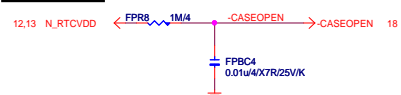
Close to connector

FRONT USB2

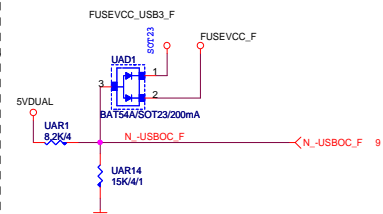


Close to connector

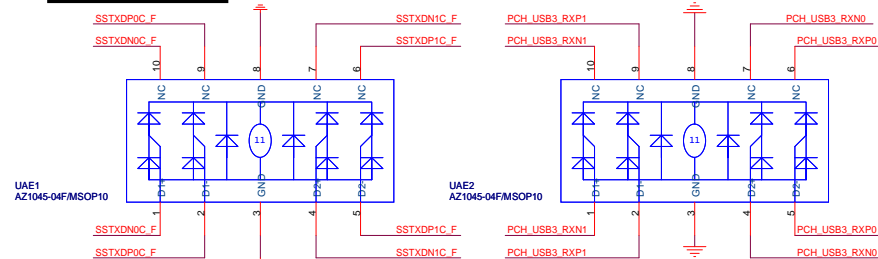
CASE OPEN



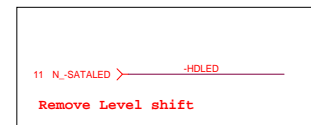
-USBOC_F



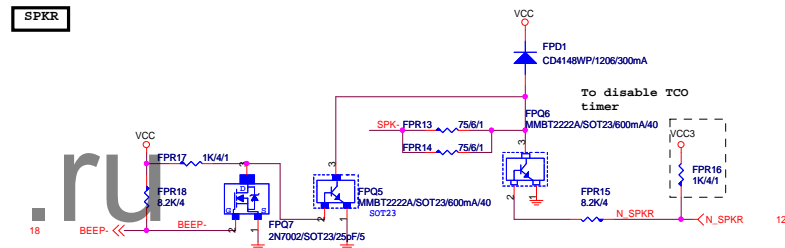
F_USB30 ESD PROTECT



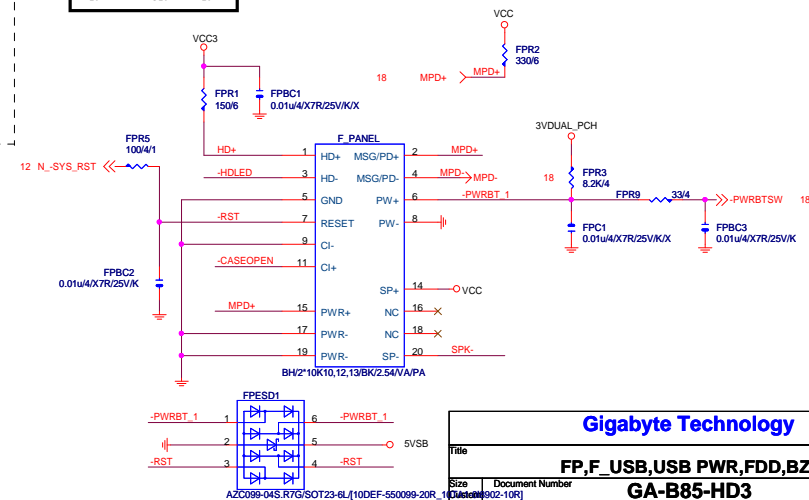
SATA LED



SPKR



INTEL FRONT PANEL

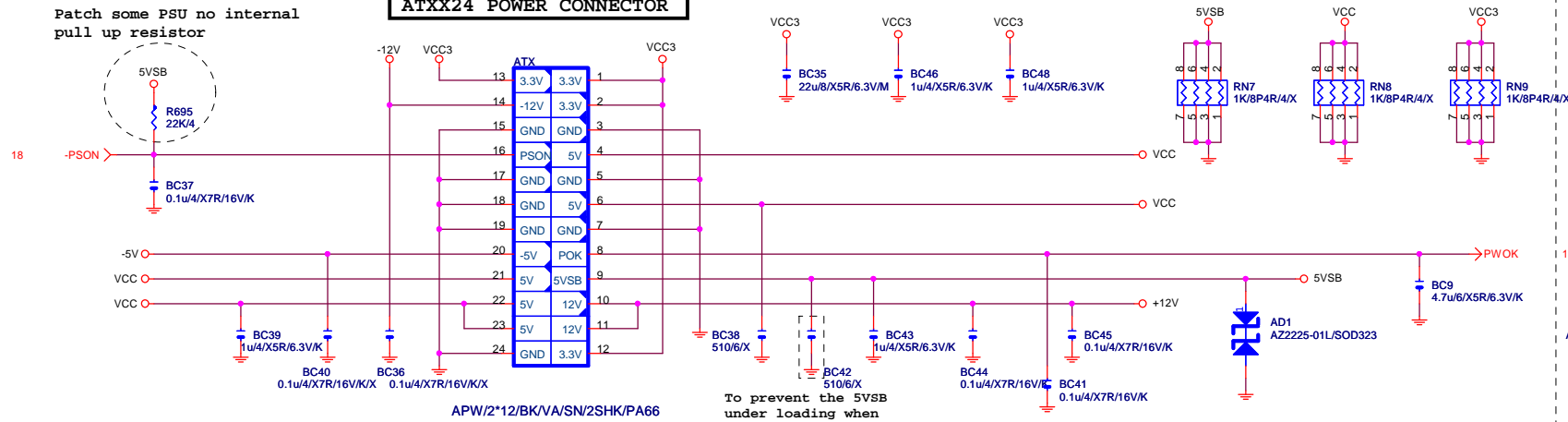


Gigabyte Technology

Title				FP,F_USB,USB PWR,FDD,BZ			
Size	Document Number			GA-B85-HD3			Rev
R_100	1002-10R						2.1
Date	Monday, May 19, 2014			Sheet	28 of 34		

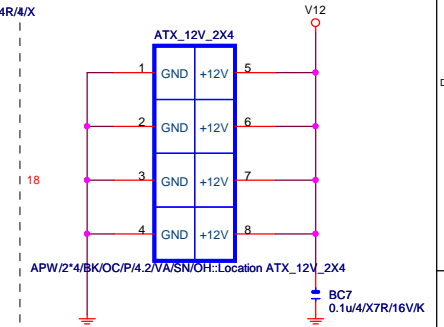
Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

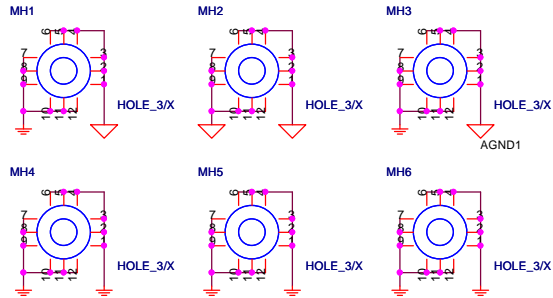


APW/2*12/BK/VA/SN/2SHK/PA66

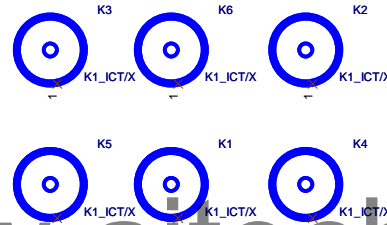
ATXX4 POWER CONNECTOR



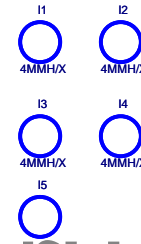
APW/2*4/BK/OC/P/4.2VA/SN/OH:Location ATX_12V_2X4



HOLE_4-RH-1



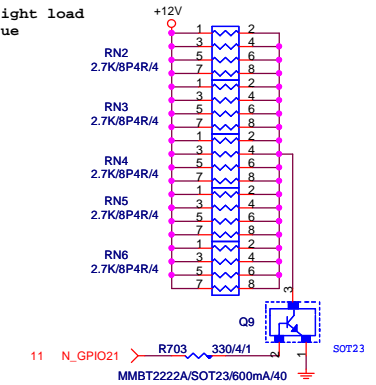
K1-ICT



4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



CLK GEN

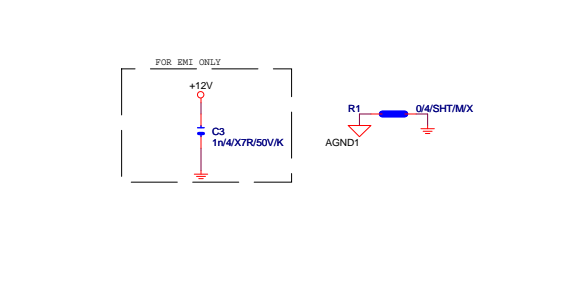
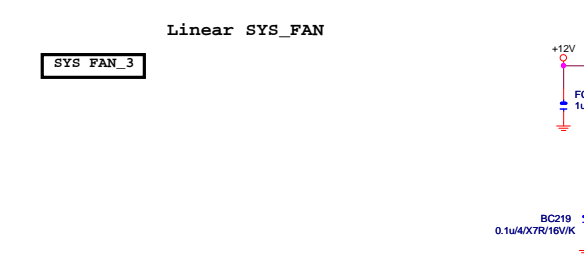
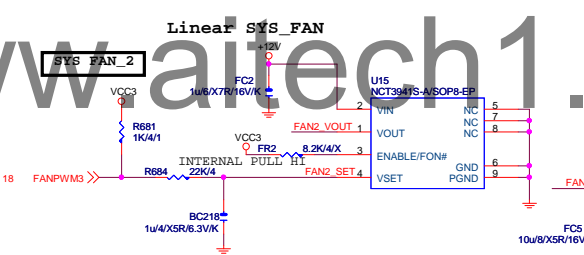
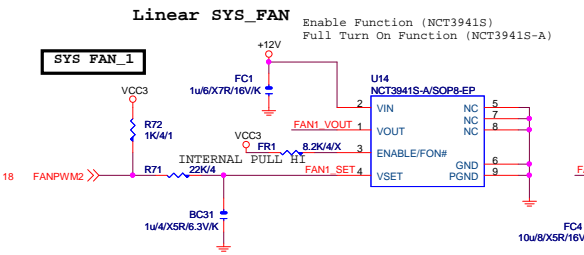
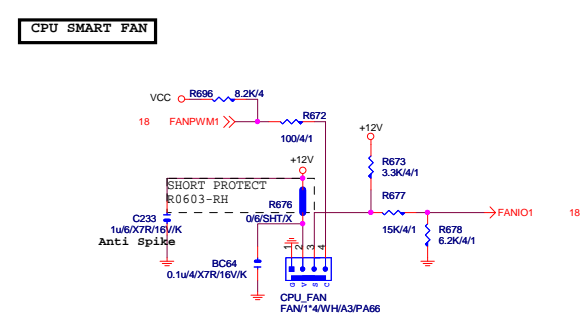
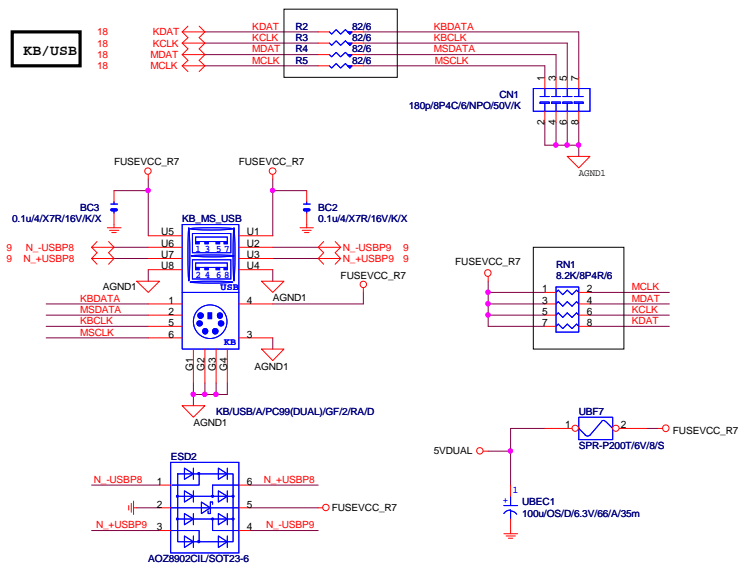
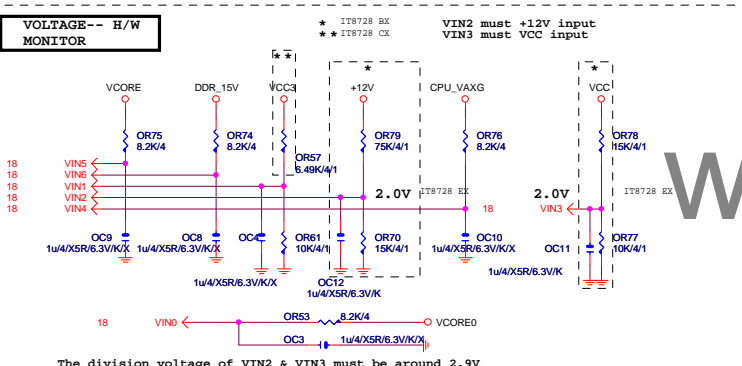
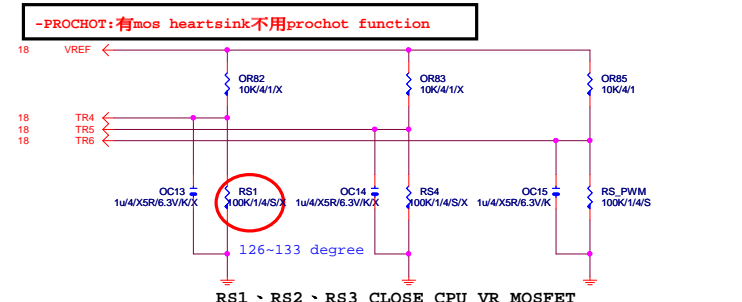
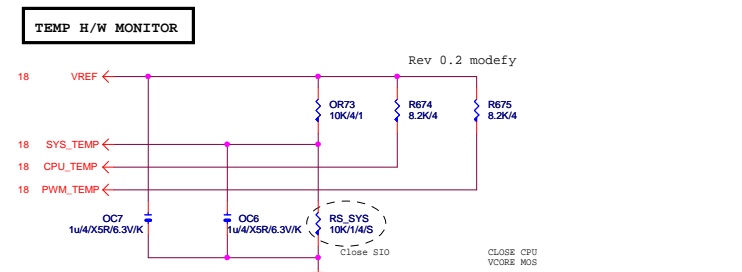
CPU Frequency Selection

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

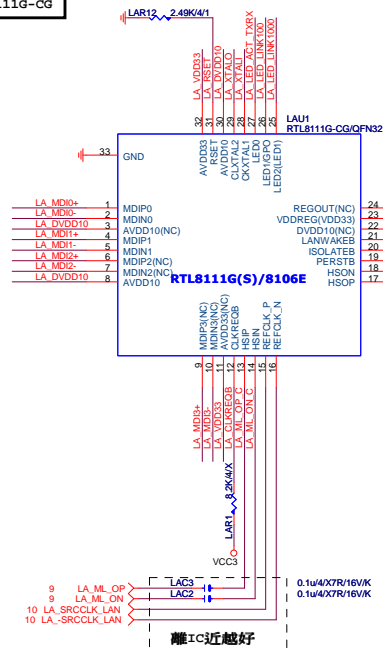
PWOK PATCH

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Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
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Date:	Monday, May 19, 2014	Sheet 29 of 34

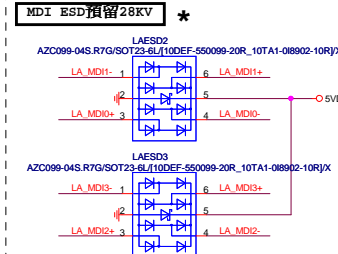


LAN RTL8111G-CG

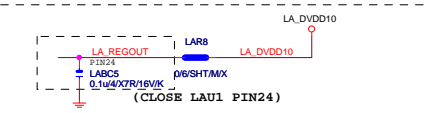
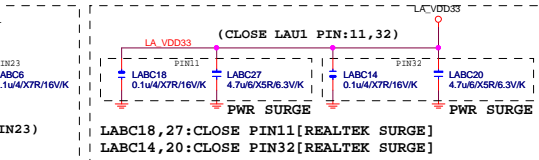
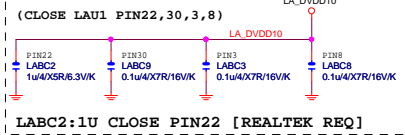


SRCCLK-->50歐姆:[18/4/10/4/18]

LA_ML-->80歐姆:[15/5/5/5/15]



LAN POWER



NOTE:
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

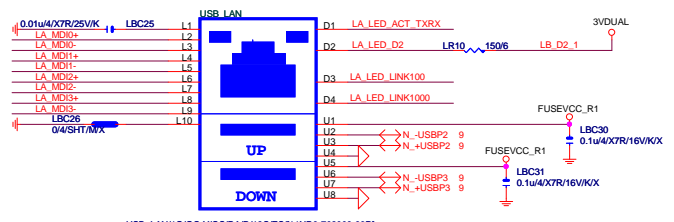
BOM NOTICE

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]

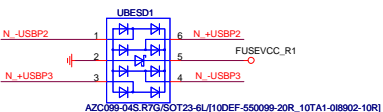
- 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
- 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

USB30_LAN CONNECTOR

100歐姆:[20/4/10/4/20]

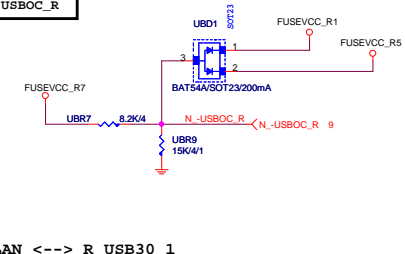


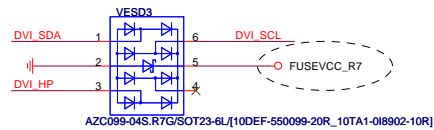
90歐姆:[12/5/7/5/12]



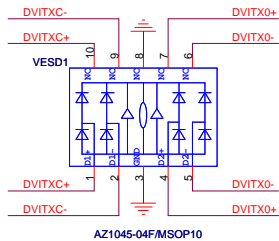
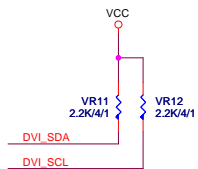
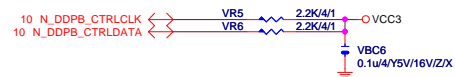
CLOSE USB30_LAN

-USB0C_R

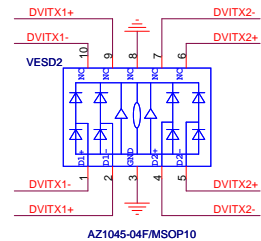
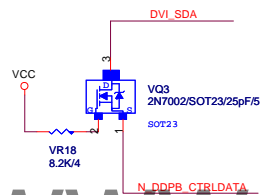
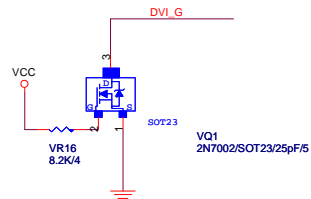




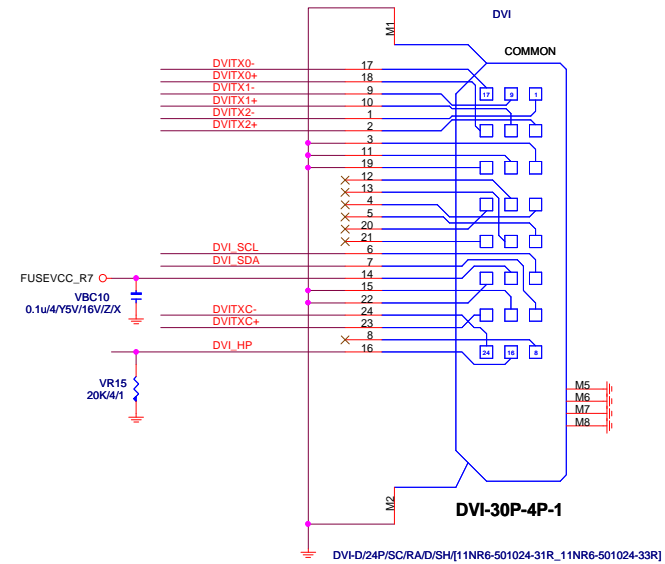
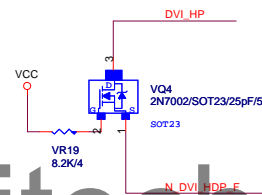
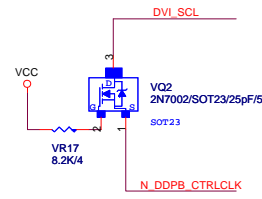
Close to connector



Close to connector



Close to connector



DVI-30P-4P-1

DVI-D/24P/SC/RA/D/SH[11NR6-501024-31R_11NR6-501024-33R]

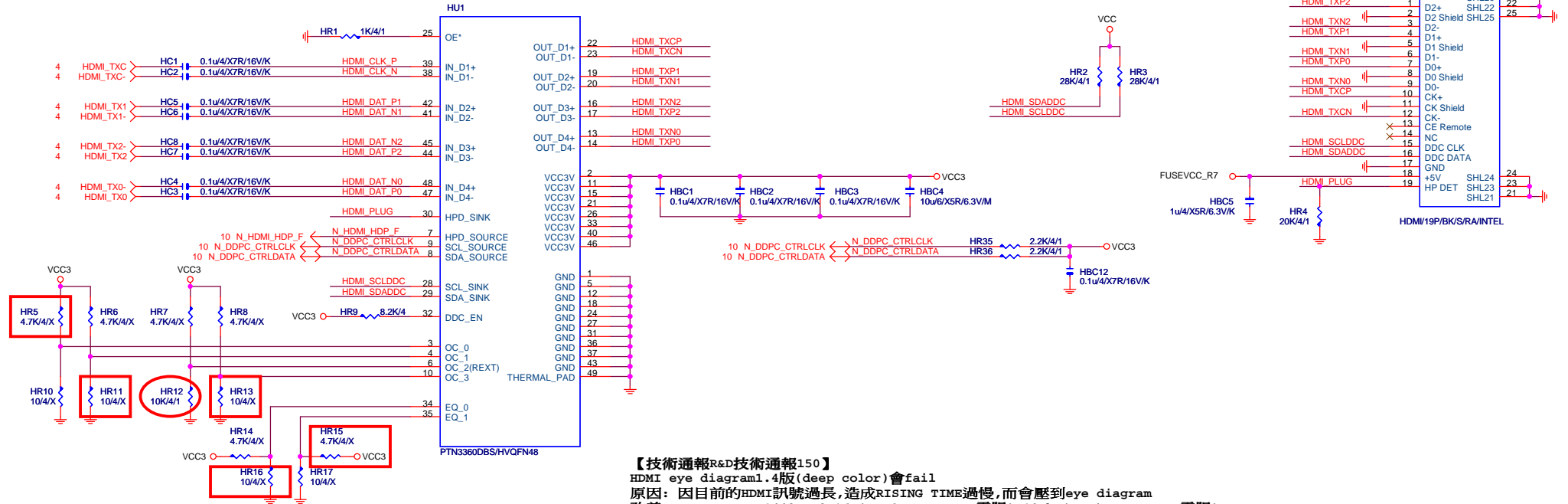
Gigabyte Technology

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DVI		
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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

【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)

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GIGABYTE™		
Title HDMI		
Size Custom	Document Number GA-B85-HD3	Rev 2.1
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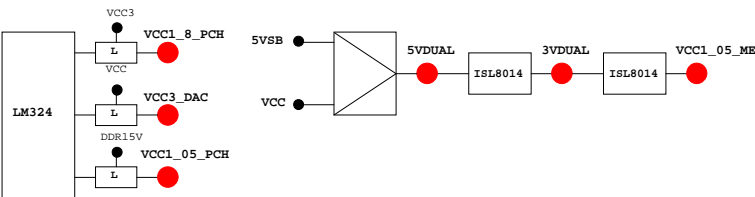
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	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	MAIN	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	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
GP13	STBY	L	GPI	LPCPME#
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)
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
GP23	MAIN	GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	PWR LED
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP
GP35	MAIN	L	GPO	-ACZ_DET
GP36	MAIN	GPI	N/A	N/A
GP37	MAIN	GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect
GP39	MAIN	H-Z	GPI	GPIO39
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
GP45	STBY	NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48
GP49	MAIN	H-Z	IN	GPIO49
GP50	MAIN	NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1
GP52	MAIN	NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2
GP54	MAIN	NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	-SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

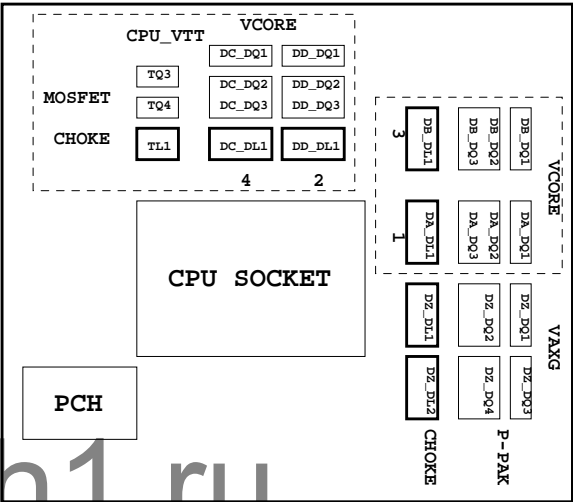
Super I/O ITE8720 GPIO Table

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	
VIDO5/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	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	2X PIN	FST_2X8
INIT#/GP85/SMB_D_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_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#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMB_D_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

	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

散熱模組料號：

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

Gigabyte Technology			
Title	TABLE LIST		
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