

Model Name: GA-B85-HD3

2.2

SHEET

TITLE

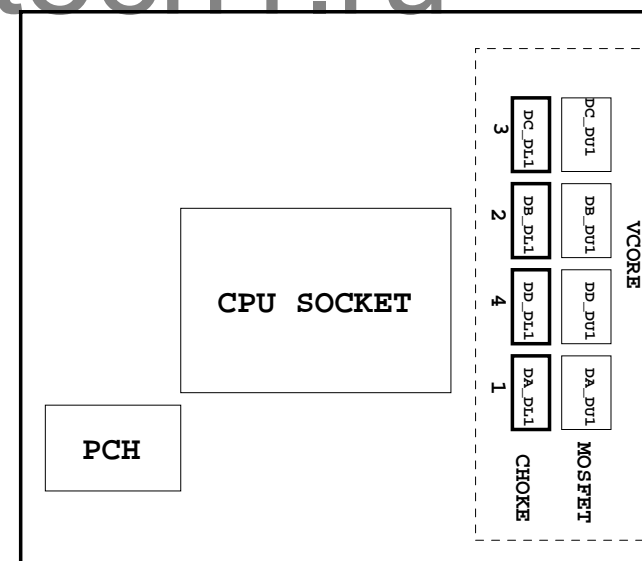
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 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	
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40	

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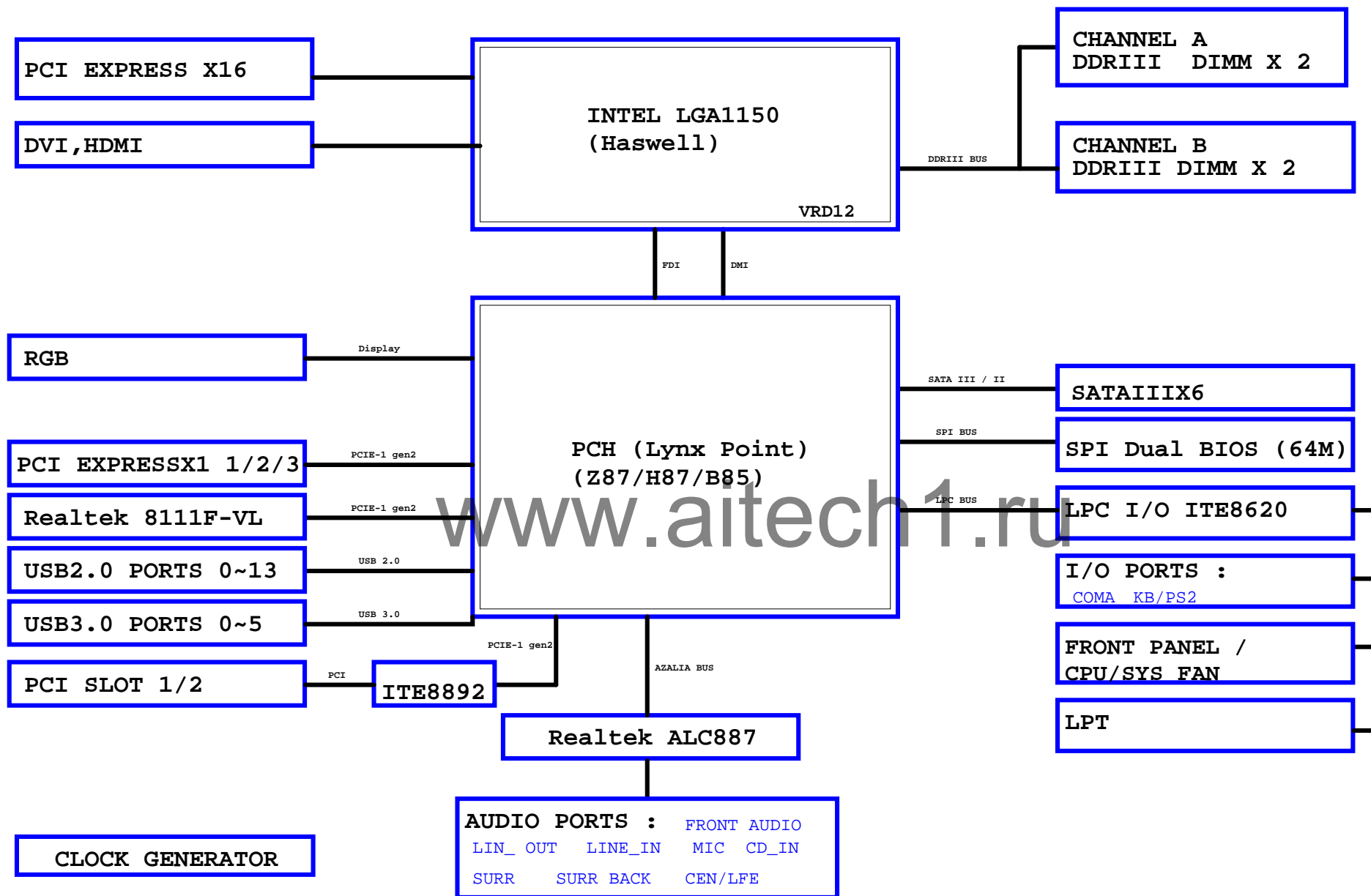
Gigabyte Technology

Title			
Cover Sheet			
Size	Document Number	GA-B85-HD3	Rev
Custom			2.2
Date:	Friday, January 16, 2015	Sheet	1 of 34

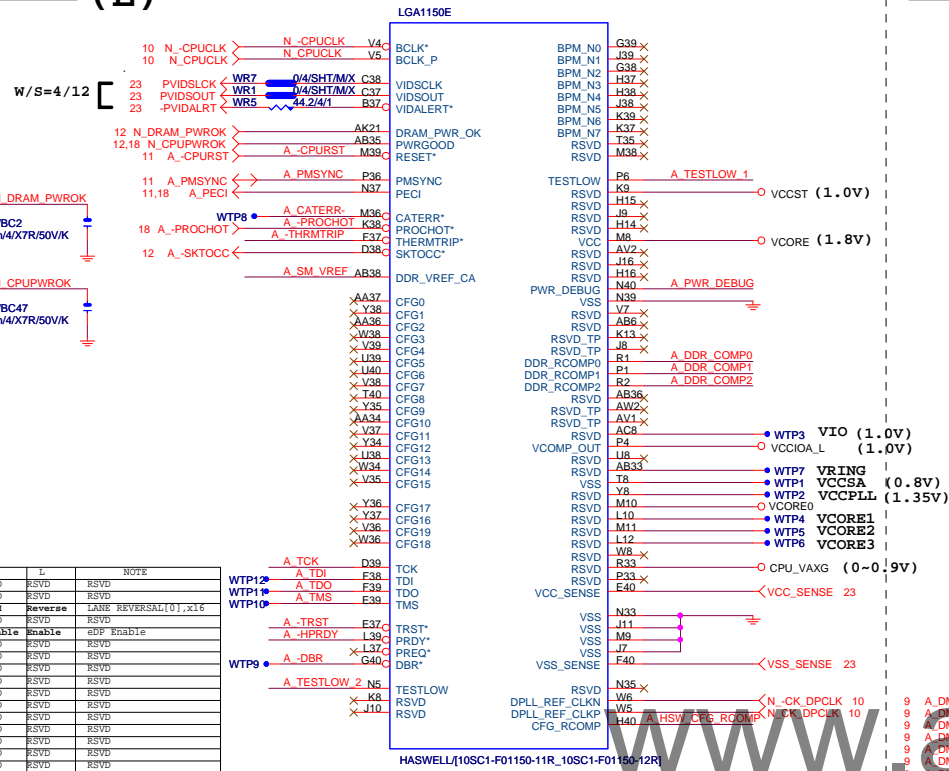
Component value change history

[illegible][illegible]

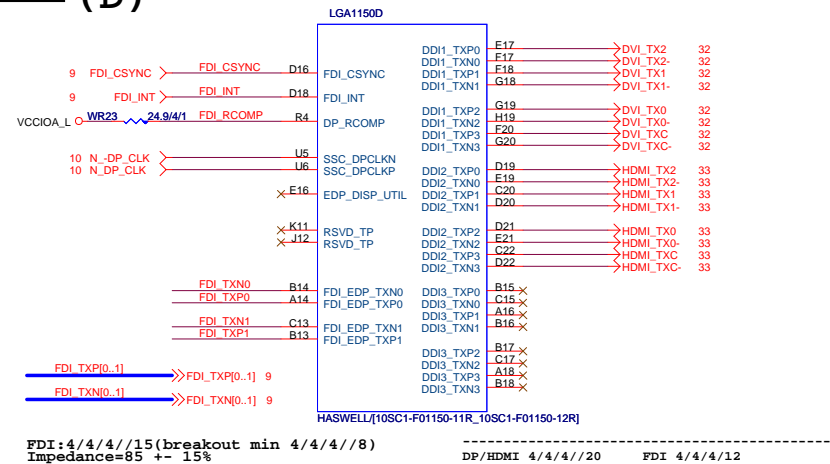
BLOCK DIAGRAM



LGA1150 (E)



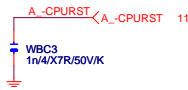
LGA1150 (D)



LGA1155 (C)



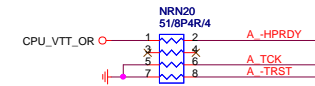
-CPURST



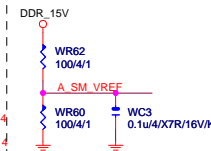
CPU SVID



CPU PU/PD



SM REF



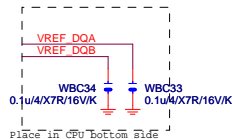
LGA1150 (A)

LGA1150A									
MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0				
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1				
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2				
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3				
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4				
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5				
MAAA6	AV17	DDR0_MA6	DDR0_D06	AF37	MDA6				
MAAA7	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	MDA8				
MAAA14	AT20	DDR0_MA14	DDR0_D14	AK37	MDA14				
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA15				
MODT_A0	AW10		DDR0_D16	AM40	MDA17				
MODT_A1	AY2	DDR0_ODT0	DDR0_D17	AM39	MDA21				
MODT_A2	AW9	DDR0_ODT1	DDR0_D18	AP38	MDA18				
MODT_A3	AU8	DDR0_ODT2	DDR0_D19	AP39	MDA19				
		DDR0_ODT3	DDR0_D20	AM37	MDA20				
			DDR0_D21	AM38	MDA16				
			DDR0_D22	AP37	MDA22				
			DDR0_D23	AP40	MDA23				
			DDR0_D24	AV37	MDA25				
			DDR0_D25	AW37	MDA29				
			DDR0_D26	AU35	MDA26				
			DDR0_D27	AV35	MDA27				
			DDR0_D28	AU37	MDA28				
			DDR0_D29	AT35	MDA30				
			DDR0_D30	AW35	MDA31				
			DDR0_D31	AY6	MDA33				
			DDR0_D32	AU6	MDA37				
			DDR0_D33	AV4	MDA34				
			DDR0_D34	AU4	MDA35				
			DDR0_D35	AW6	MDA32				
			DDR0_D36	AW4	MDA38				
			DDR0_D37	AY4	MDA39				
			DDR0_D38	AR1	MDA41				
			DDR0_D39	AR4	MDA45				
			DDR0_D40	AN3	MDA42				
			DDR0_D41	AN4	MDA43				
			DDR0_D42	AR2	MDA44				
			DDR0_D43	AR3	MDA40				
			DDR0_D44	AN2	MDA46				
			DDR0_D45	AN1	MDA47				
			DDR0_D46	AL1	MDA49				
			DDR0_D47	AL4	MDA53				
			DDR0_D48	AJ3	MDA50				
			DDR0_D49	AJ4	MDA51				
			DDR0_D50	AL2	MDA52				
			DDR0_D51	AJ2	MDA48				
			DDR0_D52	AJ3	MDA54				
			DDR0_D53	AJ1	MDA55				
			DDR0_D54	AG1	MDA57				
			DDR0_D55	AG4	MDA61				
			DDR0_D56	AE3	MDA58				
			DDR0_D57	AE4	MDA59				
			DDR0_D58	AG2	MDA60				
			DDR0_D59	AG3	MDA56				
			DDR0_D60	AE2	MDA62				
			DDR0_D61	AE1	MDA63				
			DDR0_D62	AE39	DQSA0				
			DDR0_D63	AJ39	DQSA1				
			DDR0_D64	AN39	DQSA2				
			DDR0_D65	AV36	DQSA3				
			DDR0_D66	AV5	DQSA4				
			DDR0_D67	AP3	DQSA5				
			DDR0_D68	AK3	DQSA6				
			DDR0_D69	AE3	DQSA7				
			DDR0_D70	AV32	DQSA8				
			DDR0_D71	AE38	DQSA1				
			DDR0_D72	AJ38	DQSA2				
			DDR0_D73	AN38	DQSA3				
			DDR0_D74	AJ36	DQSA4				
			DDR0_D75	AW5	DQSA5				
			DDR0_D76	AP2	DQSA6				
			DDR0_D77	AK2	DQSA7				
			DDR0_D78	AF2	DQSA7				
			DDR0_D79	AU32					

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

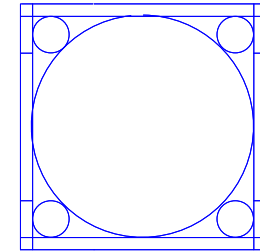
LGA1150 (B)

LGA1150B									
MAAB0	AL19	DDR1_MA0	AE34	MD80					
MAAB1	AM23	DDR1_MA1	AE35	MD81					
MAAB2	AM22	DDR1_MA2	AE36	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	AW25	DDR1_MA9	AL35	MD89					
MAAB10	AY25	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	MD816					
MODT_B1	AL16	DDR1_ODT1	AN31	MD819					
MODT_B2	AM16	DDR1_ODT2	AP31	MD823					
MODT_B3	AK15	DDR1_ODT3	DR1_ODT3	AP35	MD820				
			DDR1_ODT3	AP35	MD816				
			DDR1_ODT3	AN32	MD818				
			DDR1_ODT3	AP32	MD822				
			DDR1_ODT3	AM29	MD825				
			DDR1_ODT3	AM28	MD828				
			DDR1_ODT3	AR29	MD827				
			DDR1_ODT3	AR28	MD830				
			DDR1_ODT3	AL28	MD824				
			DDR1_ODT3	AL28	MD829				
			DDR1_ODT3	AP29	MD826				
			DDR1_ODT3	AP28	MD831				
			DDR1_ODT3	AR12	MD832				
			DDR1_ODT3	AP12	MD833				
			DDR1_ODT3	AL13	MD834				
			DDR1_ODT3	AL12	MD835				
			DDR1_ODT3	AR13	MD836				
			DDR1_ODT3	AP13	MD837				
			DDR1_ODT3	AM13	MD838				
			DDR1_ODT3	AM12	MD839				
			DDR1_ODT3	AR9	MD845				
			DDR1_ODT3	AP9	MD841				
			DDR1_ODT3	AR6	MD847				
			DDR1_ODT3	AP6	MD843				
			DDR1_ODT3	AR10	MD844				
			DDR1_ODT3	AR10	MD840				
			DDR1_ODT3	AR7	MD846				
			DDR1_ODT3	AP7	MD842				
			DDR1_ODT3	AM9	MD852				
			DDR1_ODT3	AL9	MD853				
			DDR1_ODT3	AL6	MD850				
			DDR1_ODT3	AL7	MD855				
			DDR1_ODT3	AM10	MD848				
			DDR1_ODT3	AL10	MD849				
			DDR1_ODT3	AM6	MD854				
			DDR1_ODT3	AM7	MD851				
			DDR1_ODT3	AH6	MD861				
			DDR1_ODT3	AH7	MD860				
			DDR1_ODT3	AE6	MD859				
			DDR1_ODT3	AE7	MD863				
			DDR1_ODT3	AJ6	MD856				
			DDR1_ODT3	AJ7	MD857				
			DDR1_ODT3	AG6	MD858				
			DDR1_ODT3	AF7	MD862				
			DDR1_ODT3	AE35	DQSB0				
			DDR1_ODT3	AL33	DQSB1				
			DDR1_ODT3	AP33	DQSB2				
			DDR1_ODT3	AN28	DQSB3				
			DDR1_ODT3	AN12	DQSB4				
			DDR1_ODT3	AP8	DQSB5				
			DDR1_ODT3	AL8	DQSB6				
			DDR1_ODT3	AG7	DQSB7				
			DDR1_ODT3	AN25					
			DDR1_ODT3	AE34	DQSB0				
			DDR1_ODT3	AK33	DQSB1				
			DDR1_ODT3	AN33	DQSB2				
			DDR1_ODT3	AN29	DQSB3				
			DDR1_ODT3	AN13	DQSB4				
			DDR1_ODT3	AR8	DQSB5				
			DDR1_ODT3	AM8	DQSB6				
			DDR1_ODT3	AG6	DQSB7				
			DDR1_ODT3	AN26					



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

LGA1150 (CR)

LGA1150
ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

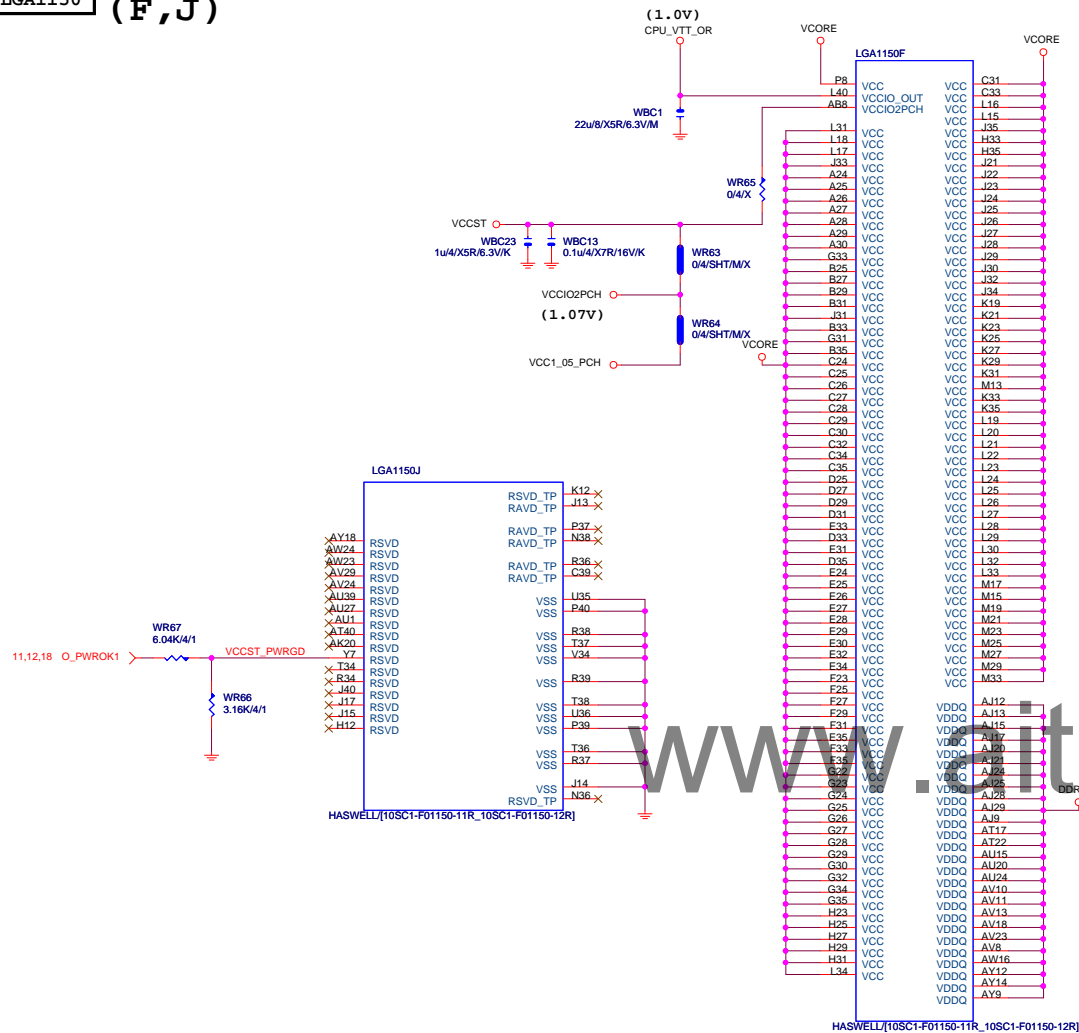
DDR BUS

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

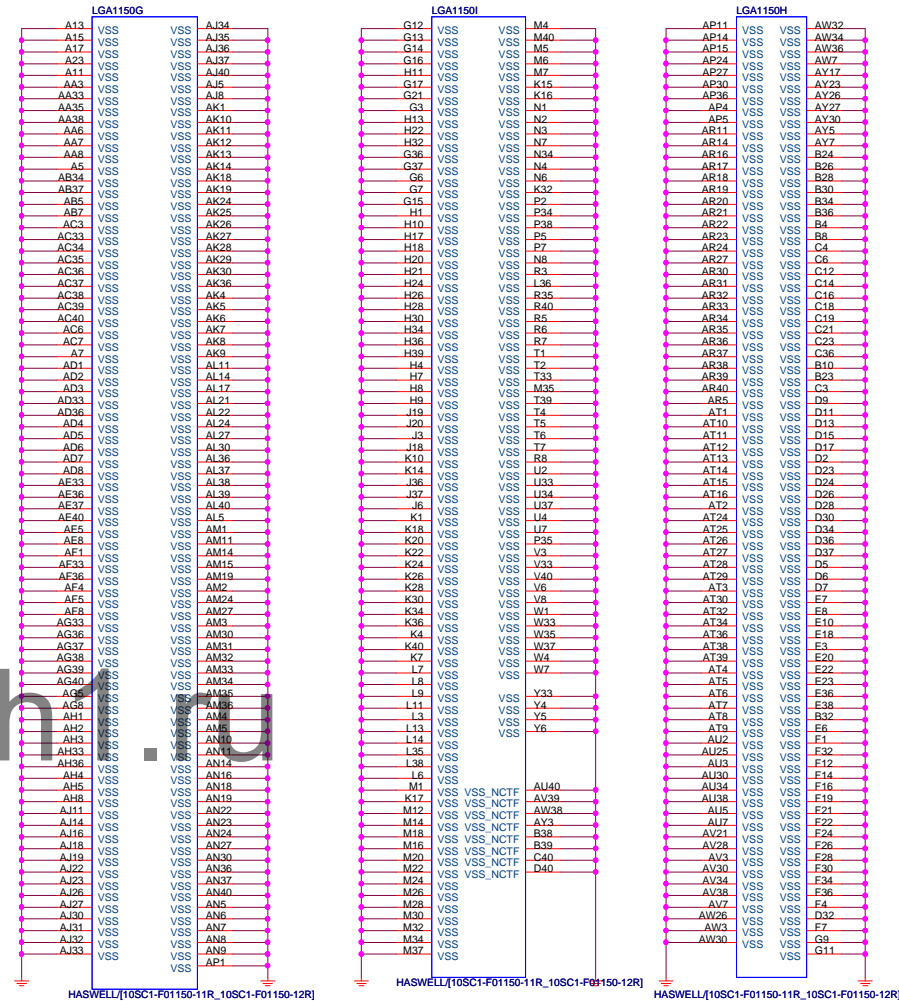
Gigabyte Technology

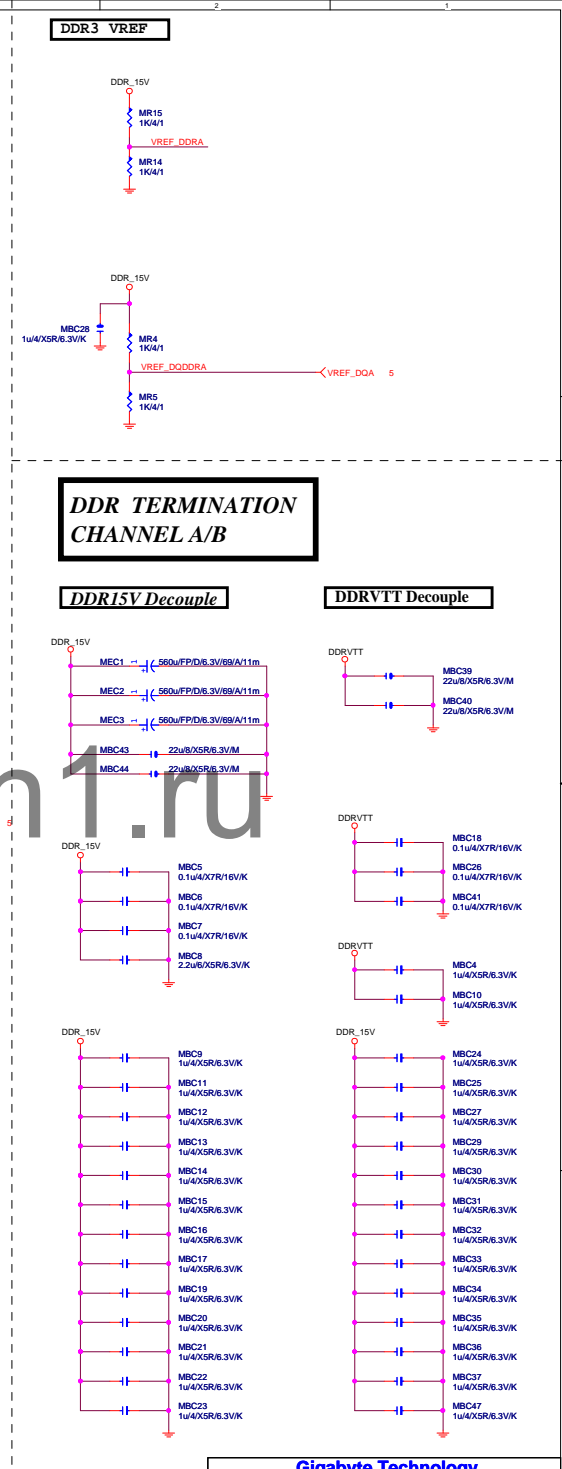
Title			CPU LGA1150-B	
Size			GA-B85-HD3	
Date			Friday, January 16, 2015	
Sheet			5 of 34	

LGA1150 (F,J)

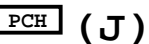


LGA1150 (G,H,I)





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



28_PCH_USB3_RXN0



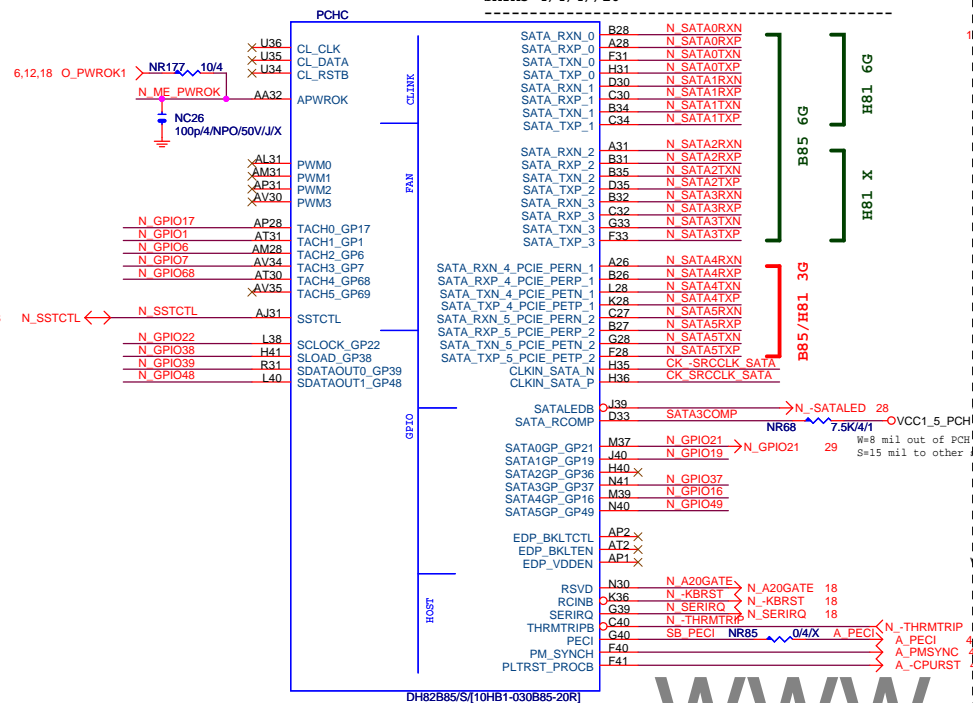
HEAT SINK/N-BG/GBT MK/Z87/KWOG//12SP2-S04208-61R_12SP2-S04208-62R_12SP2-S04208-63R

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

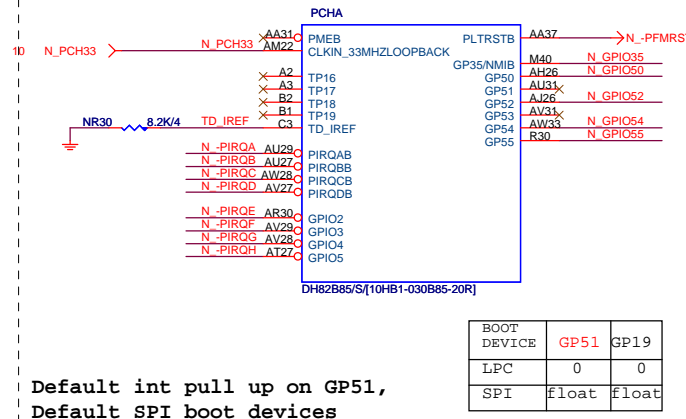
Gigabyte Technology

Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number	Rev	
Custom	GA-B85-HD3	2.2	
Date:	Friday, January 16, 2015	Sheet	9 of 34

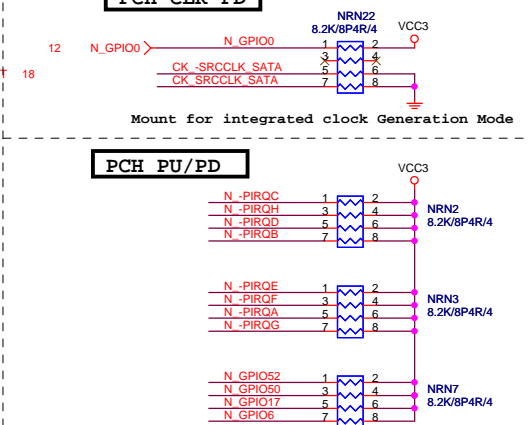
PCH (C)



PCH (A)



PCH CLK PD

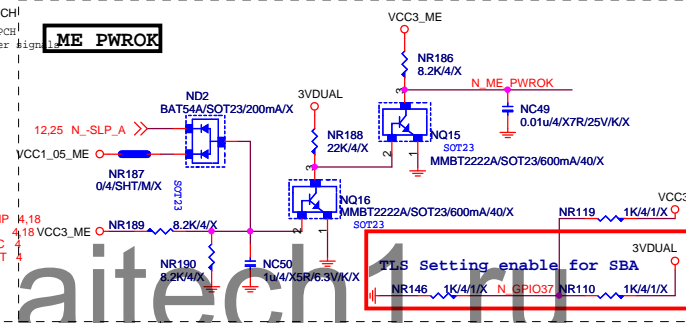


PCH	PU/PD
-----	-------

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

```
Default int pull up on GP51,
Default SPI boot devices
```

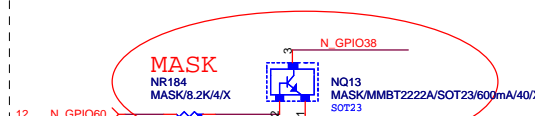
ME PWROK



GPIO38 Ctrl

MFG Mode

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

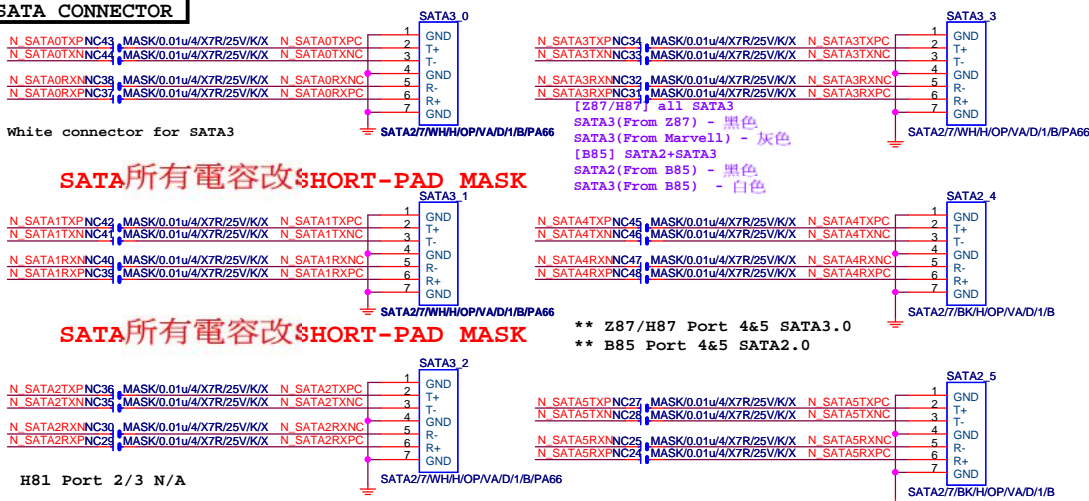


soft strap	GP16	GP4
0	pci1	pci2
1	sata4	sata5

Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-B85-HD3		2.2
Date:	Friday, January 16, 2015	Sheet	11 of 34

SATA CONNECTOR



SATA所有電容改SHORT-PAD MASK

SATA所有電容改SHORT-PAD MASK

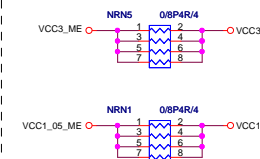
```
** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0
```

H81 Port 2/3 N/A

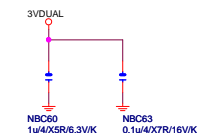
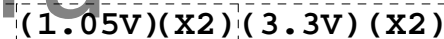
PCH (I)



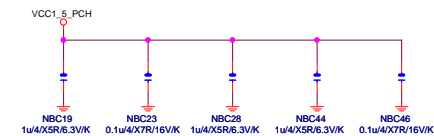
SHT PWR



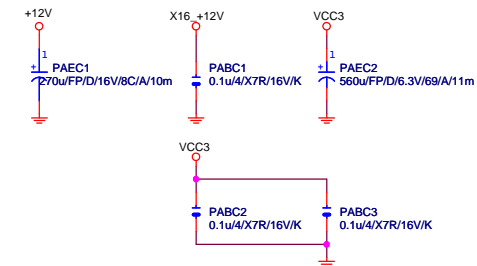
(3.3V) (X3)



(1.5V) (x5)

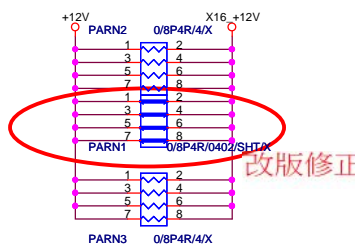


PCIEX16 CAP



PCIEX16 PROTECT SHT

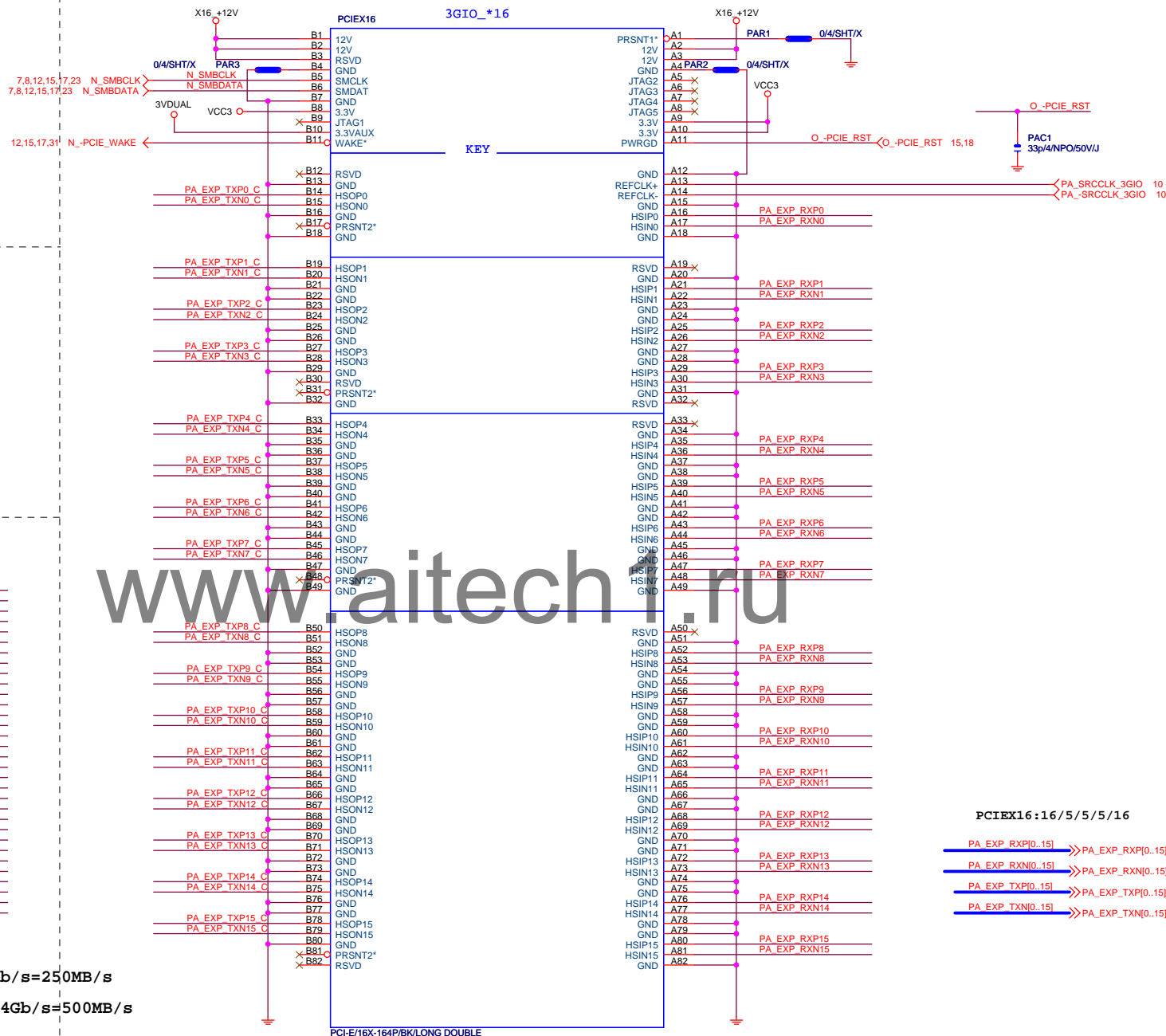
+12 protect
short-wire test



PCIEX16 AC CAP

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

PCIEX16 SLOT



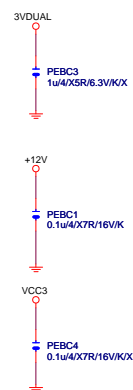
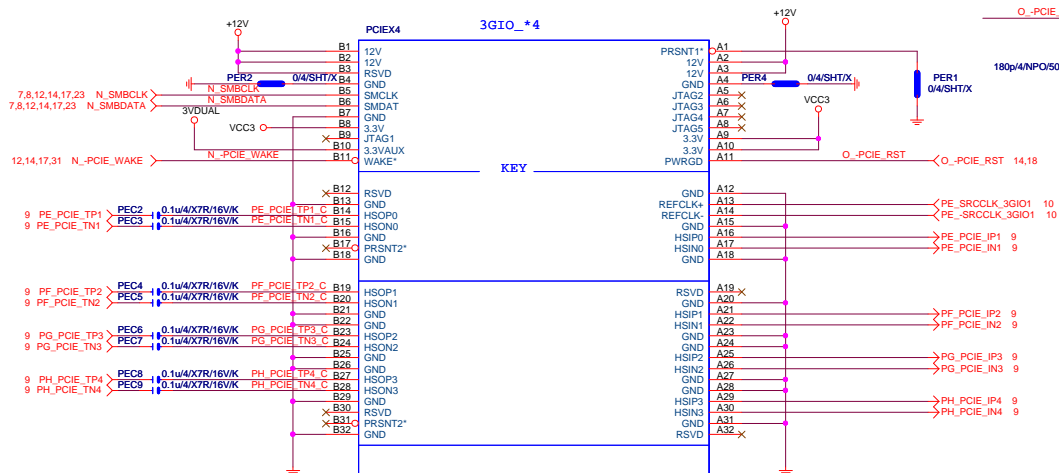
PCIEX16:16/5/5/5/16

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

Gigabyte Technology

Title			
PCI EXPRESS * 16			
Size	Document Number	Rev	
Custom	GA-B85-HD3	2.2	
Date:	Friday, January 16, 2015	Sheet	14 of 34

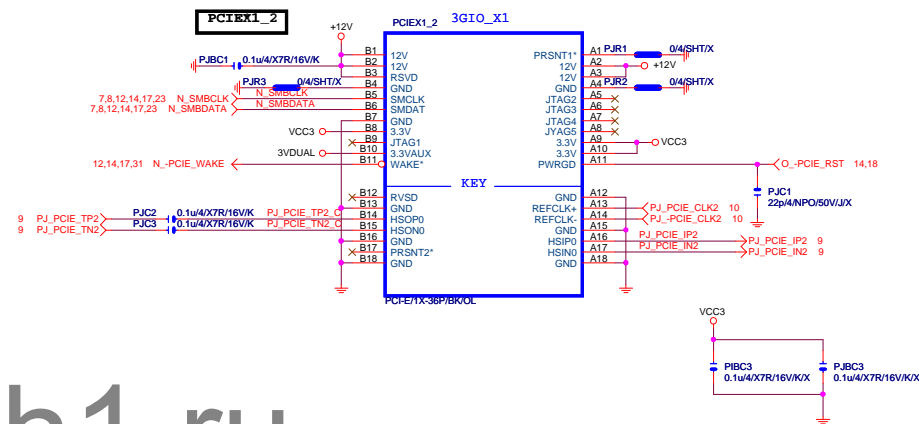
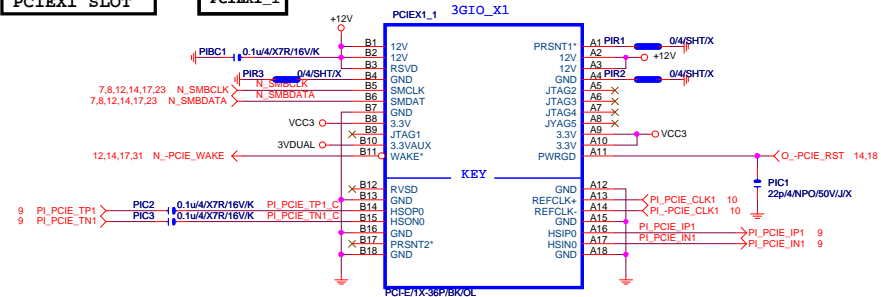
PCIEX4 SLOT

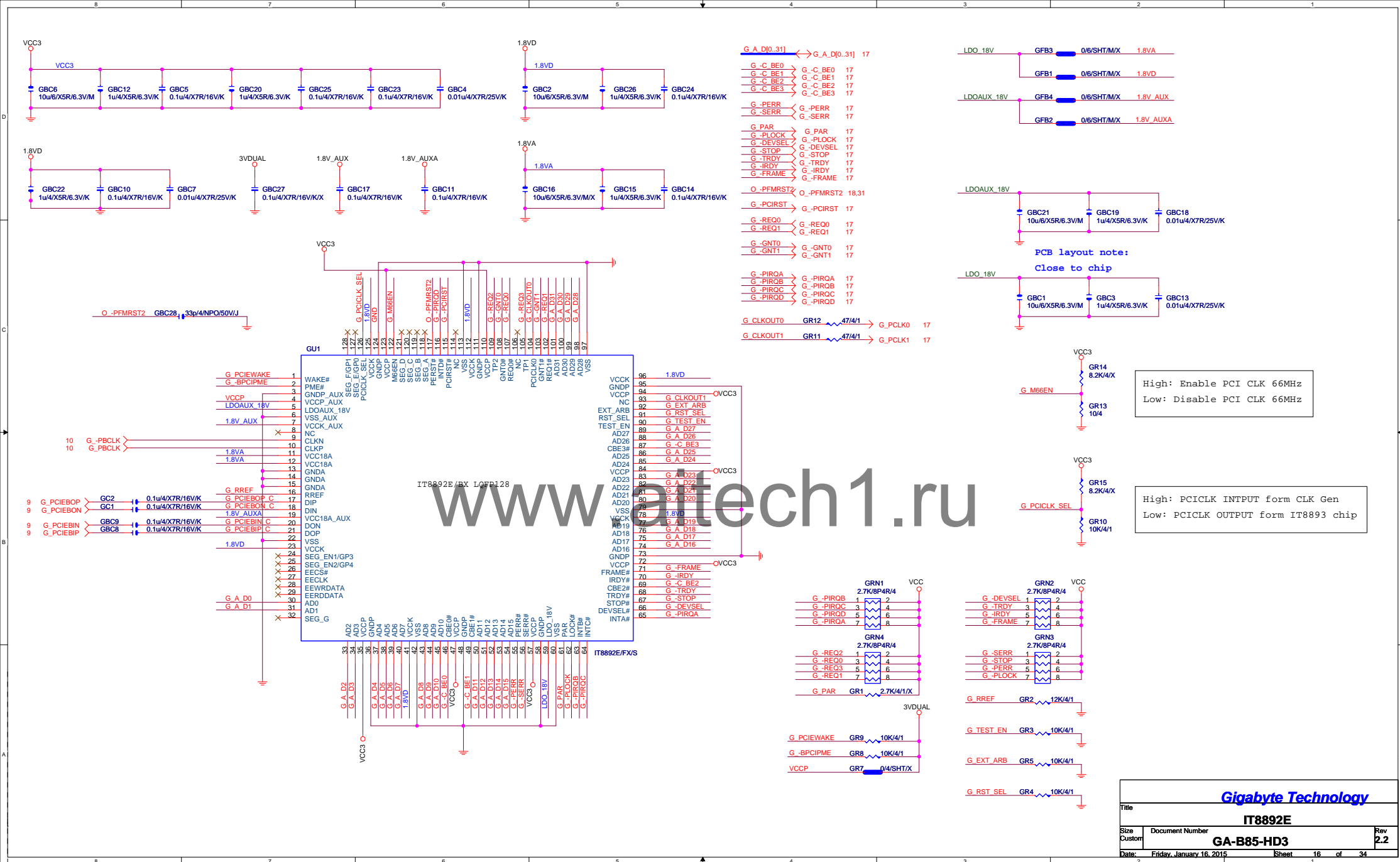


PCI-E/4X-65P/BK/LONG DOUBLE/[11AC1-023065-12R]

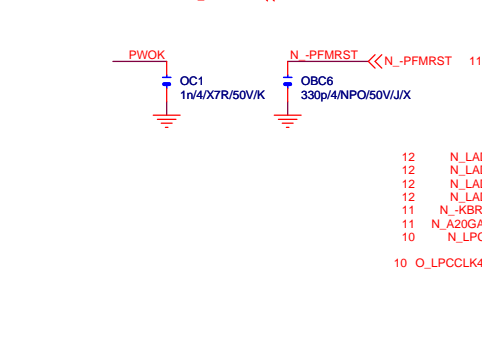
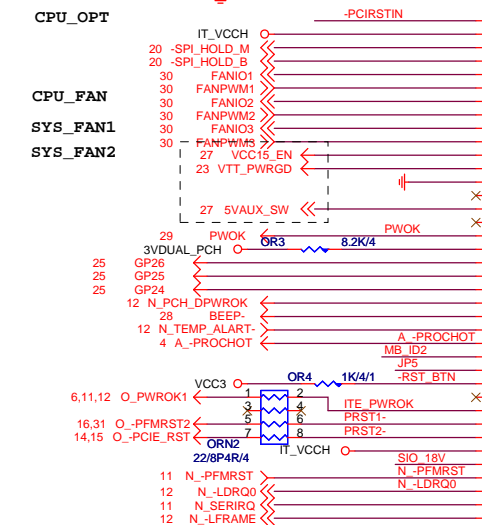
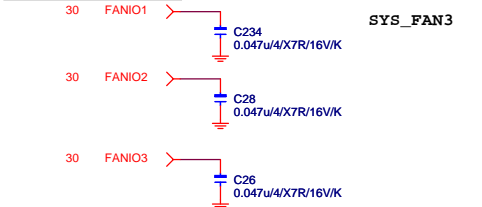
PCIEX1 SLOT

PCIE*1_1



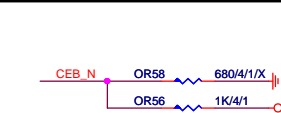


SIO IT8728F



IT8620E GPIO問題匯整	
PIN 50	GP26---第一次接上POWER時會拉 Lo
PIN 90/91	DEFAULT為HDLN 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

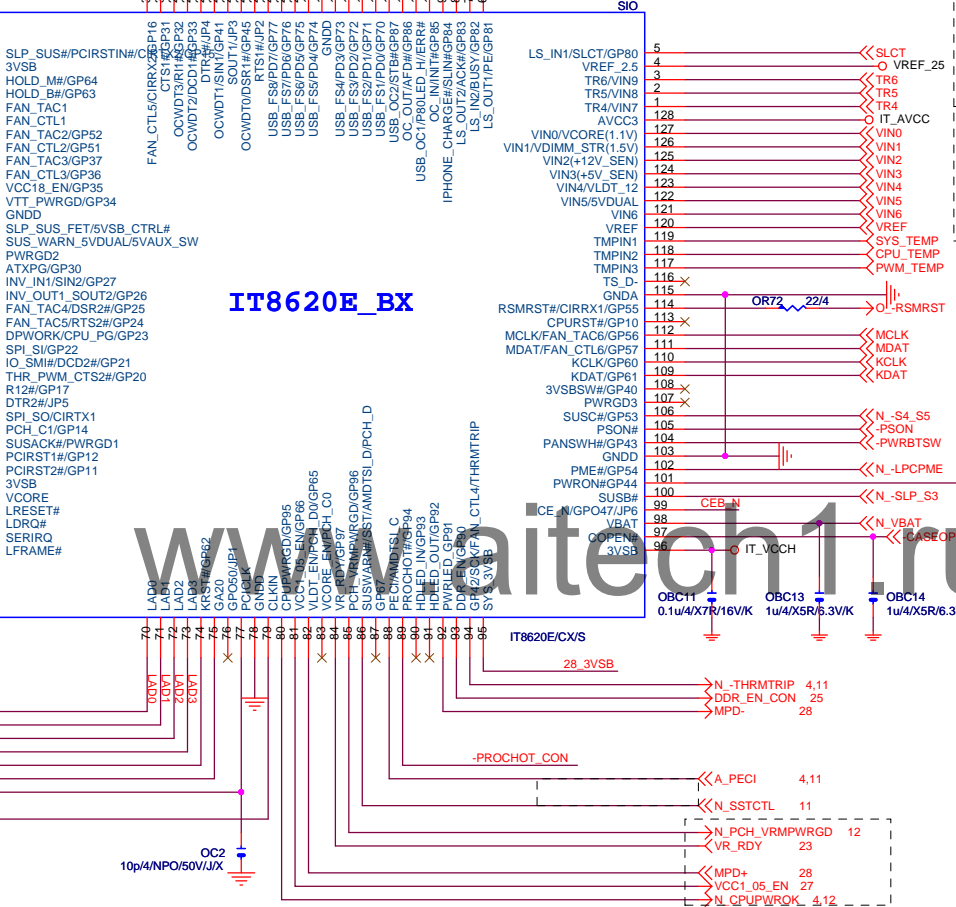
DUAL BIOS OPT STRAP



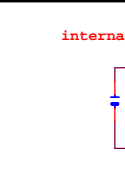
SIO CAP



IT8620E_BX



SIO 18V



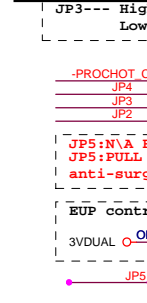
PWR SHT



SIO PU



SIO STRAP



JP3	1	k8 power sequency function is Disable
JP3	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
JP3	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.
JP5	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

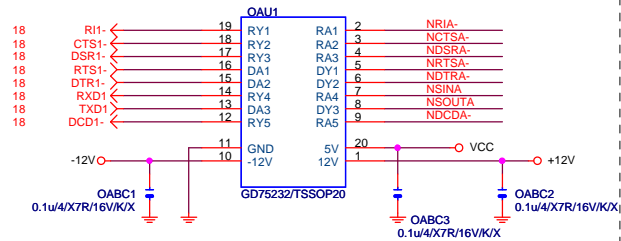
MB ID



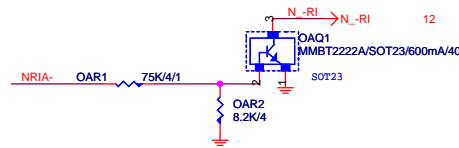
Gigabyte Technology

Title		ITE 8620 LPC IO	
Size B	Document Number	GA-B85-HD3	
Date:	Friday, January 16, 2015	Sheet	18 of 34
			Rev 2.2

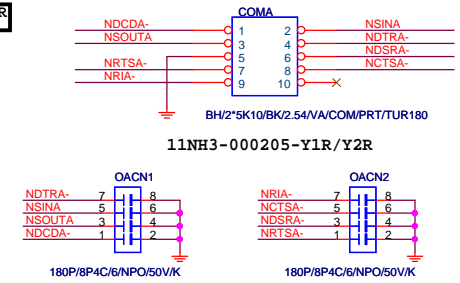
COMA



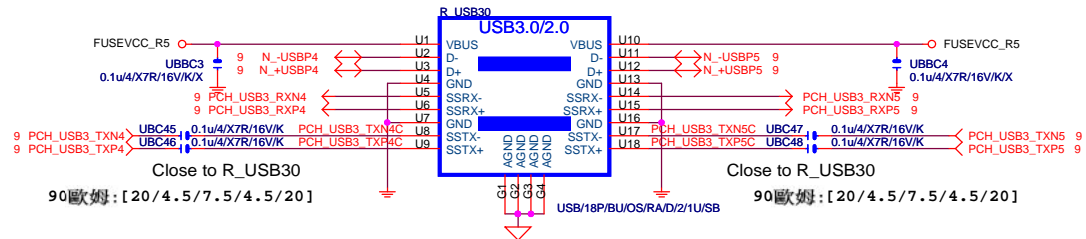
COM RI



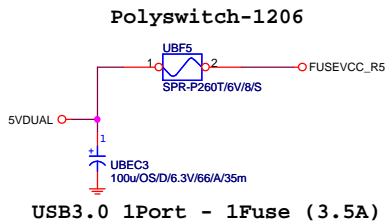
COM BUFFER



USB30_20 CONNECT

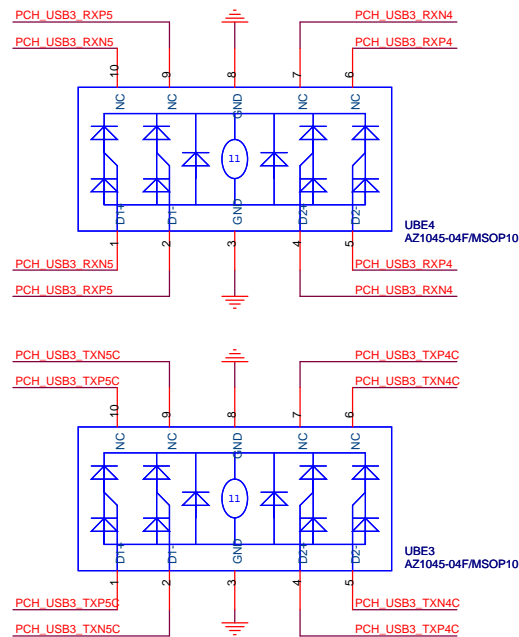


USB30 PWR

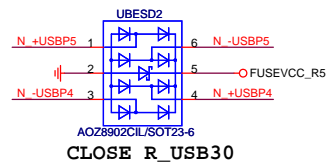


USB3.0 1Port - 1Fuse (3.5A)

USB30 ESD PROTECT



USB20 ESD PROTECT



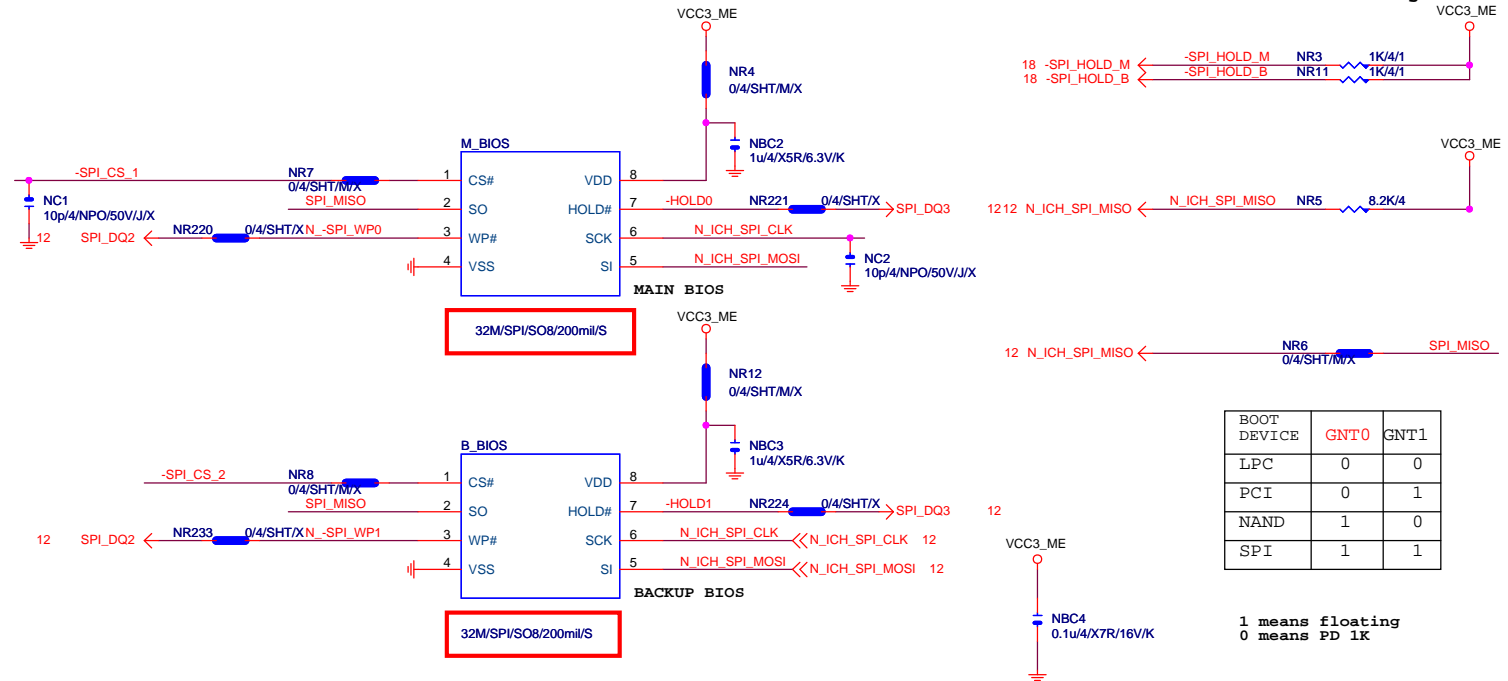
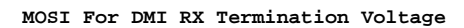
CLOSE R_USB30

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Gigabyte Technology

Title			
COM/ PROHOT/ R_USB			
Size	Document Number	Rev	
Custom		2.2	
Date:	Friday, January 16, 2015	Sheet	19 of 34

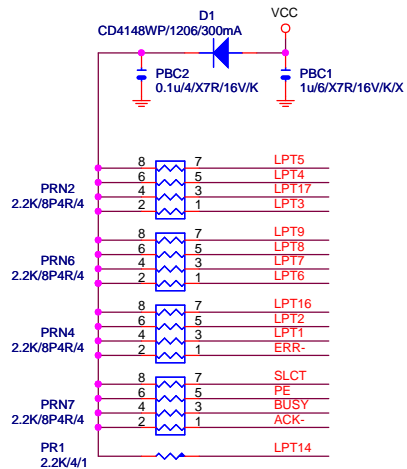
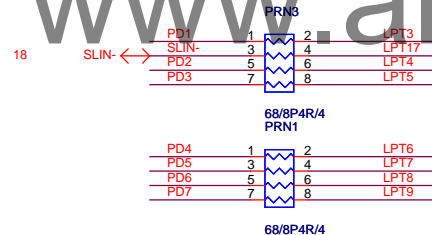
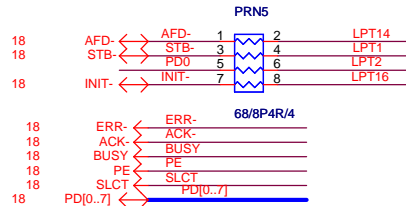
DUAL BIOS



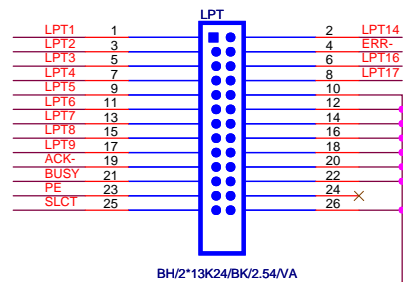
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

LPT PORT



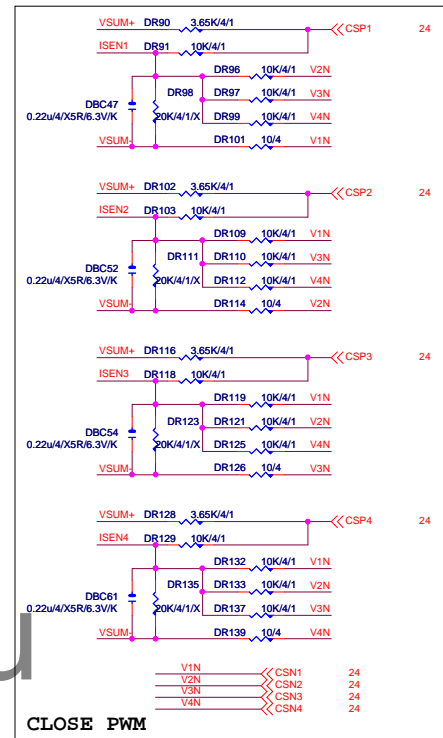
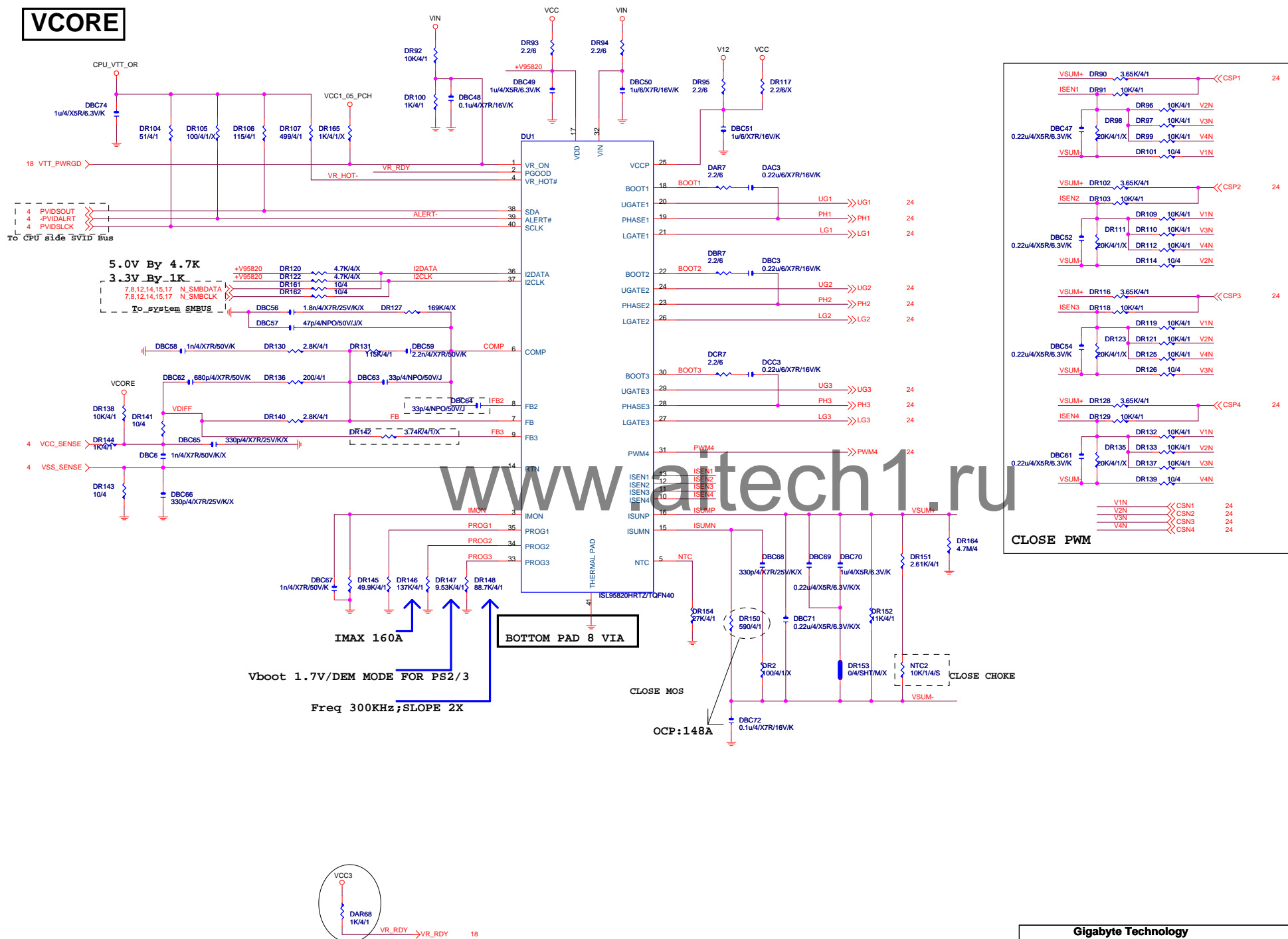
R&D技術通報.51 有使用PRINT PORT的
MODEL 需使用新料號:10HP2-118728-72R (CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件 串電阻33 ohm改為68 ohm



FOR ON/OFF PLAY

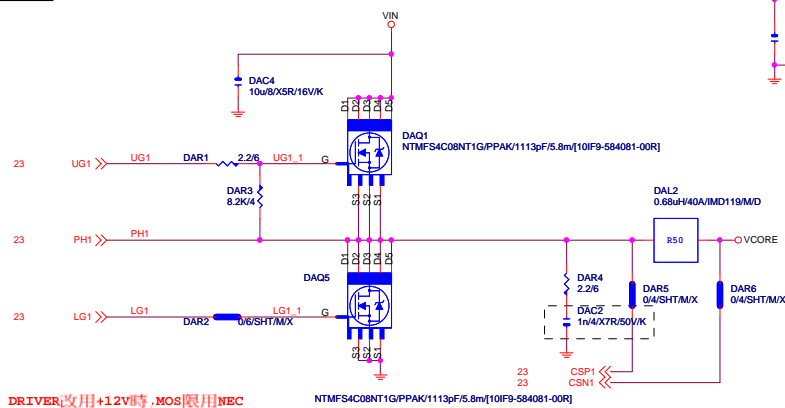


Date: Friday, January 16, 2015 Sheet 21 of 34

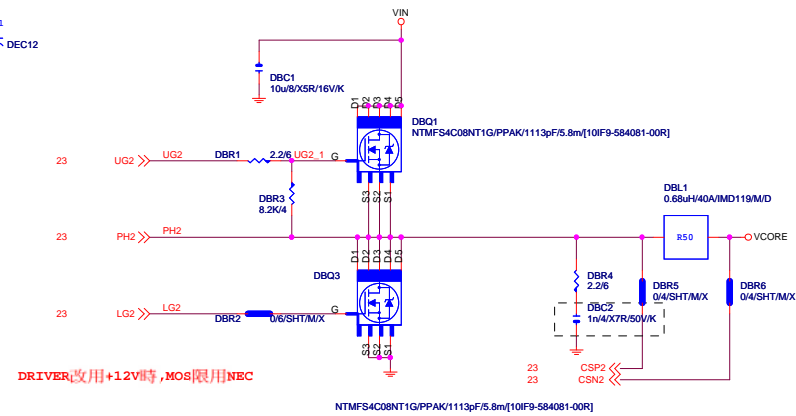
VCORE

VCORE

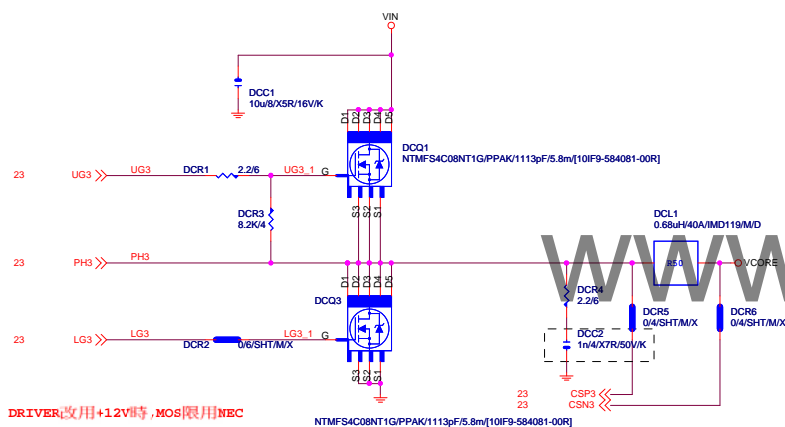
[1]



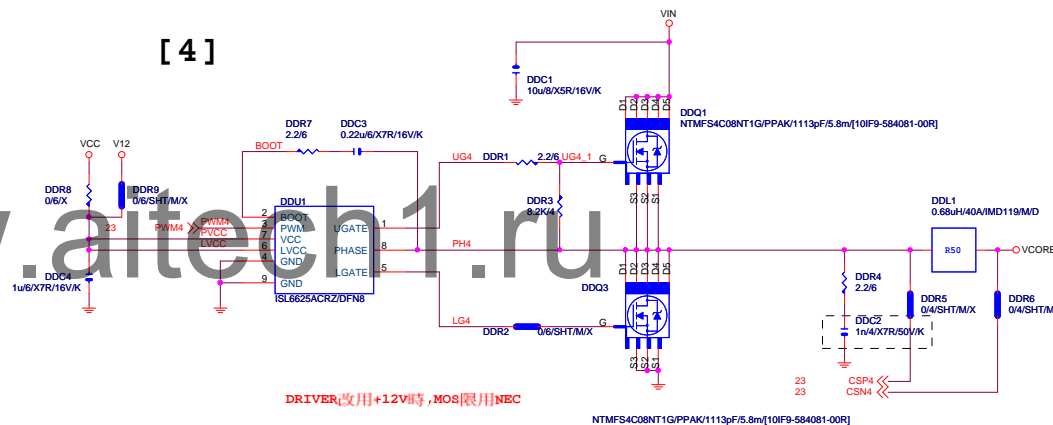
[2]



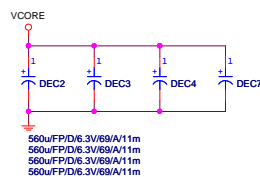
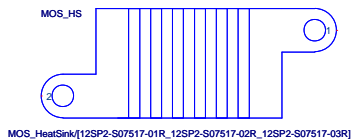
[3]



[4]

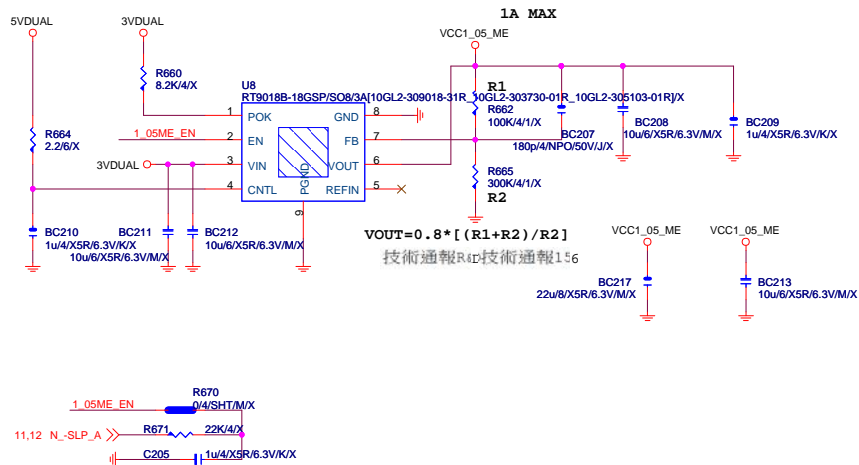


MOSFET HEATSINK

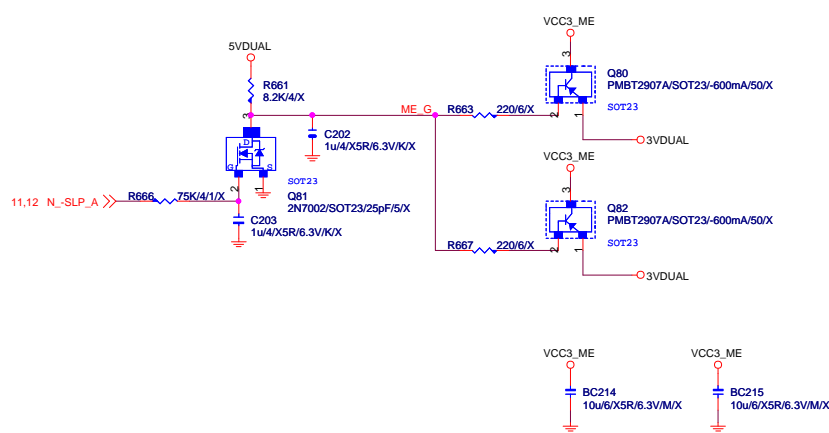


Gigabyte Technology			
Title	ISL95820_2		
Size	Document Number	GA-B85-HD3	
Custom		Rev 2.2	
Date	Friday, January 16, 2015	Sheet	24 of 34

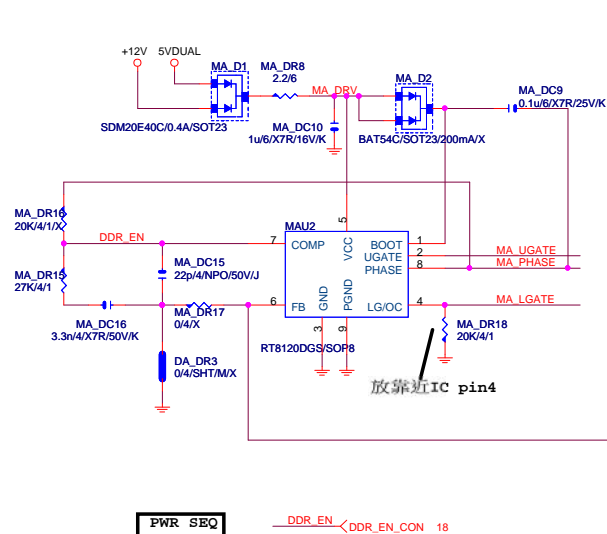
VCC1_05_ME



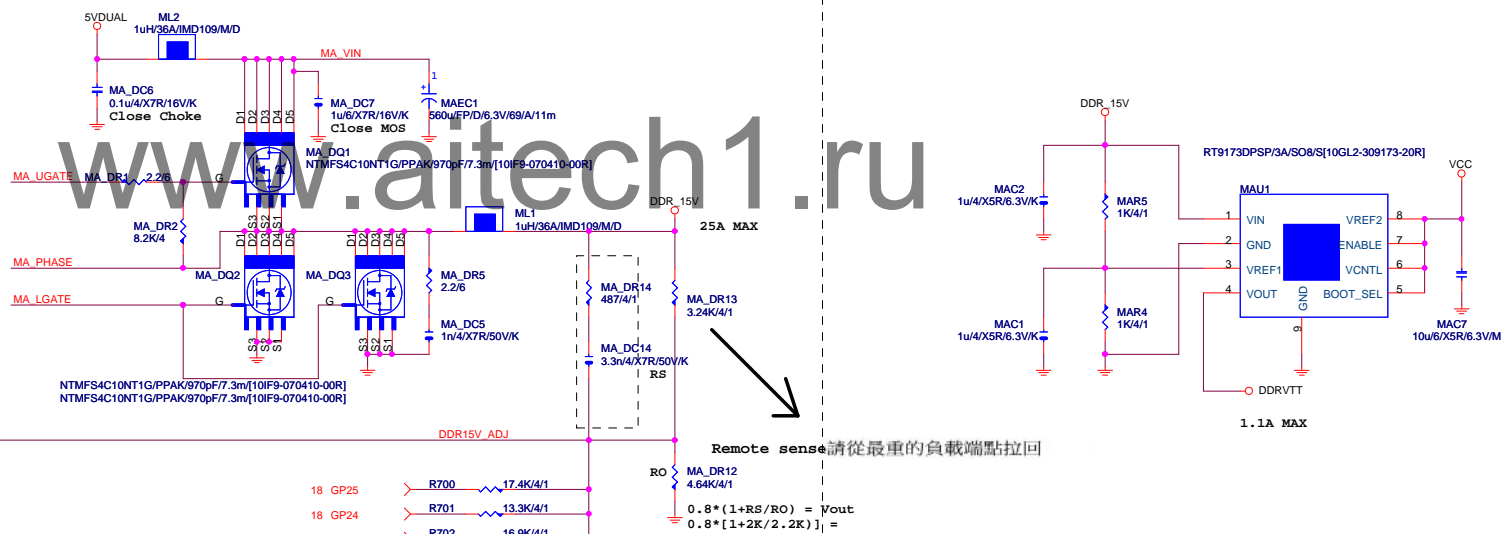
VCC3_ME



DDR_15V



DDRVTT



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), 1(105)
VIN Ripple current=4.7X1.7=7.99A(85)
-->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

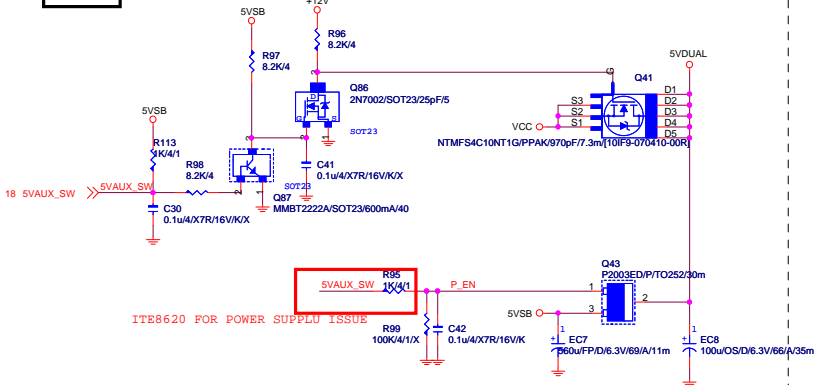
GIGABYTE™			
Title	DDR15V / M3 POWER		
Size	Document Number	Rev	
Custom	GA-B85-HD3	2.2	
Date:	Friday, January 16, 2015	Sheet	25 of 34

	5	4	3	2	1
D					
C					
B					
A					

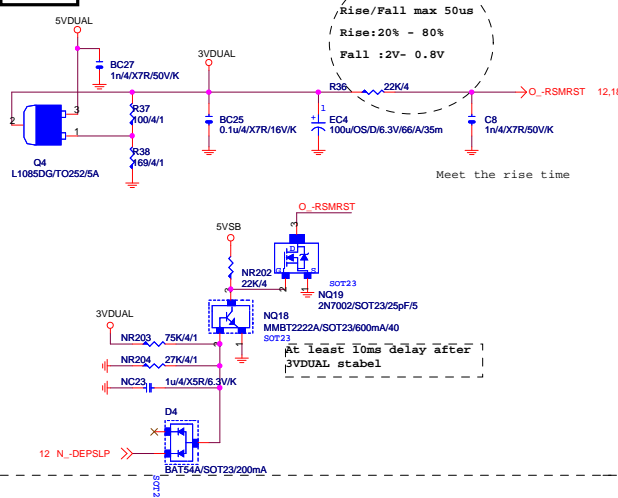
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Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-B85-HD3	Rev 2.2
Date: Friday, January 16, 2015	Sheet 26 of 34	

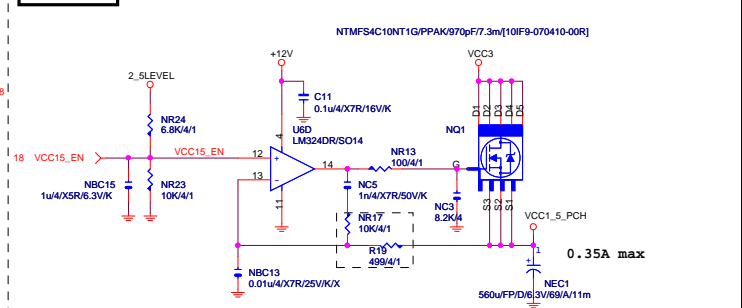
5VDUAL



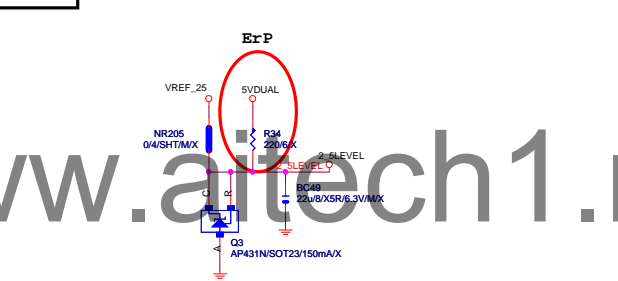
3VDUAL



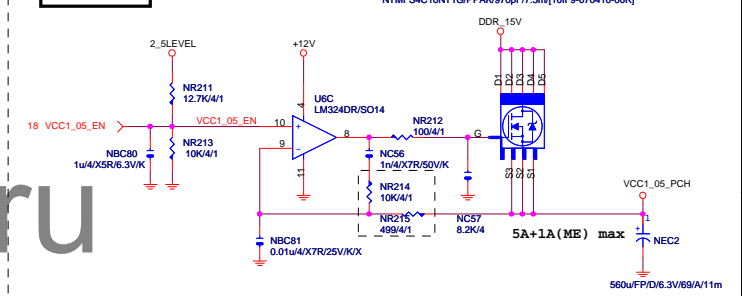
VCC1_5_PCH



2_5LEVEL



VCC1_05_PCH

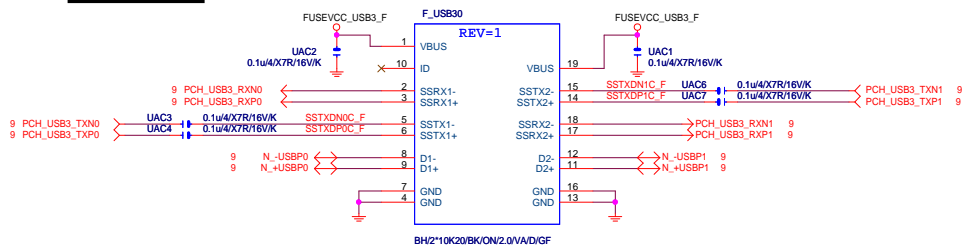


PWR_SEQ

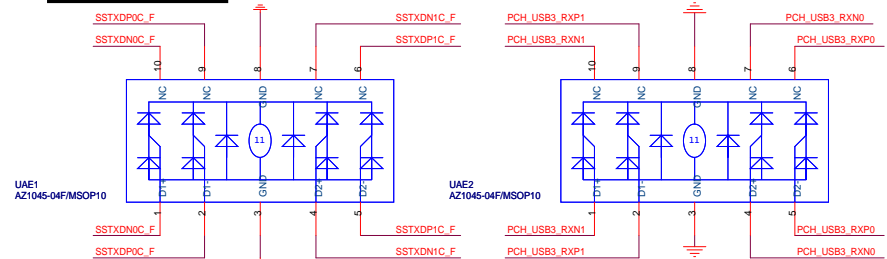


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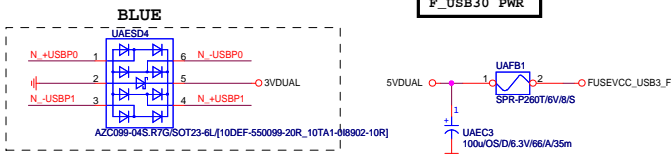
Front USB3.0



F_USB30 ESD PROTECT

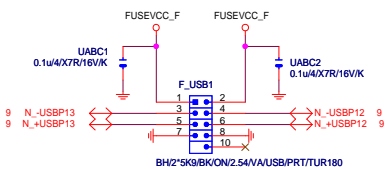


F_USB30 PWR	
-------------	--

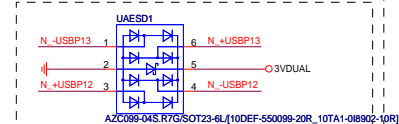


Close to connector

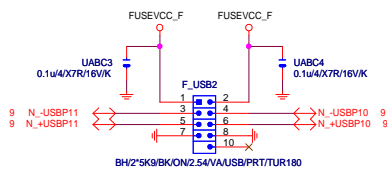
FRONT USB1



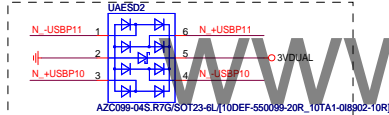
Close to connector



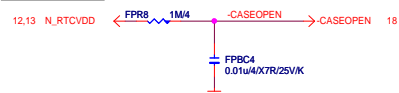
FRONT USB2



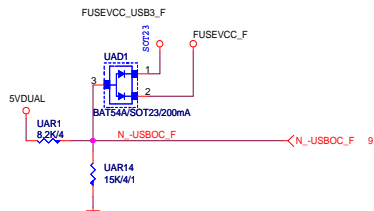
Close to connector



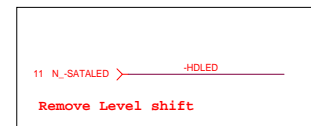
CASE OPEN



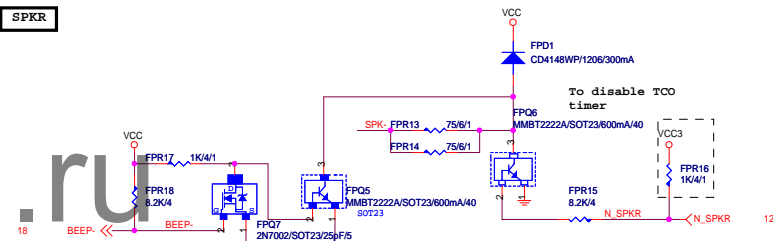
-USB0C_F



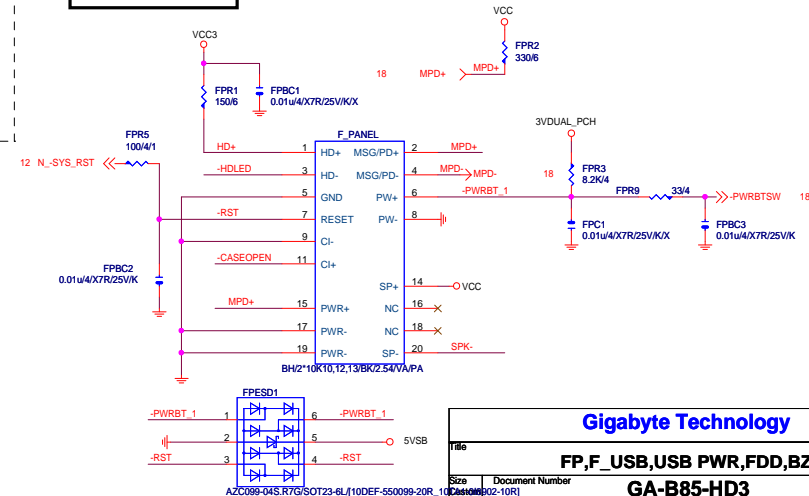
SATA LED



SPKR

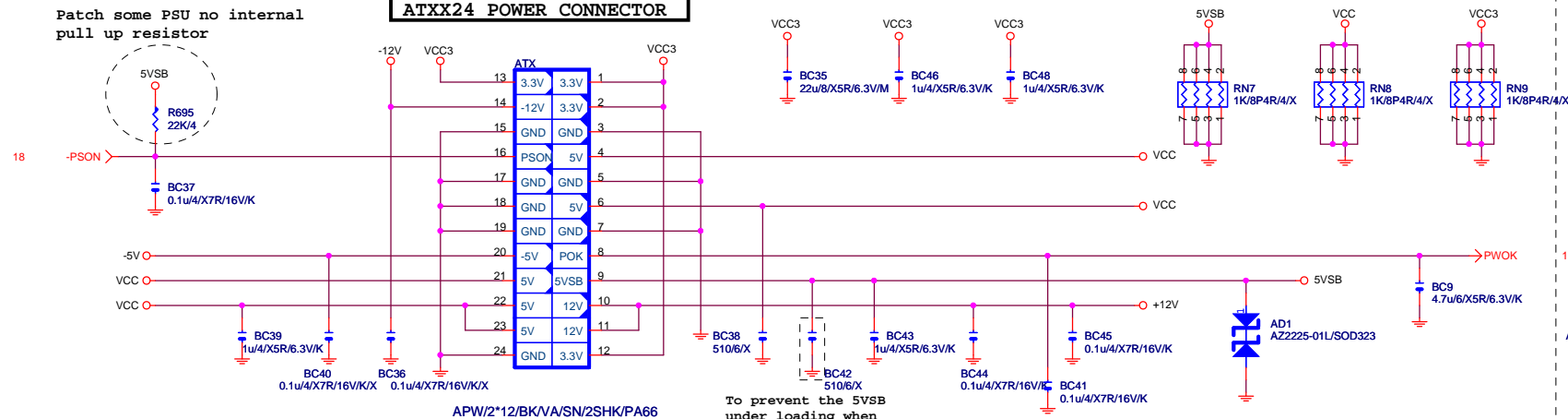


INTEL FRONT PANEL



Patch some PSU no internal pull up resistor

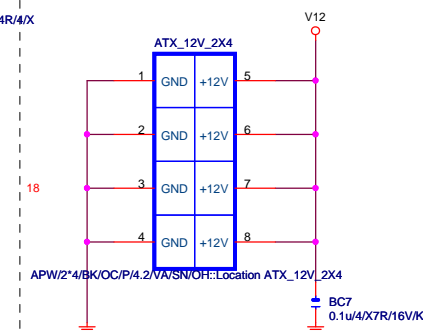
ATXX24 POWER CONNECTOR



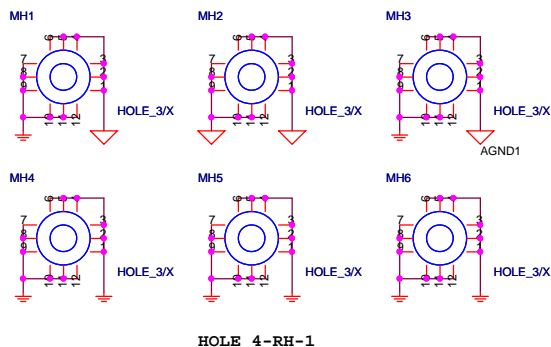
APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

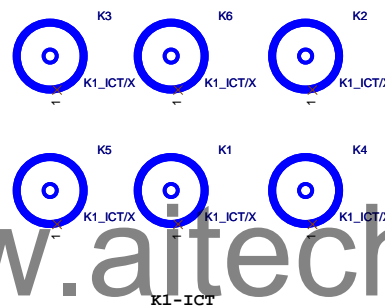
ATXX4 POWER CONNECTOR



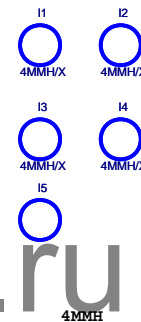
APW/2*4/BK/OC/PA.2/VA/SN/OH:Location ATX_12V_2X4



HOLE_4-RH-1



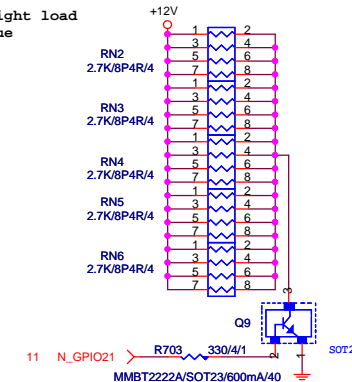
K1-ICT



4MMH

技術通報R5D技術通報153

To fix 12V light load abnormal issue



CLK GEN

CPU Frequency Selection

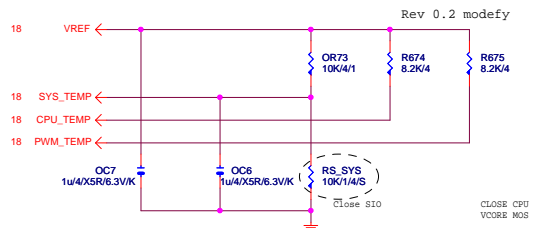
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M

PWOK PATCH

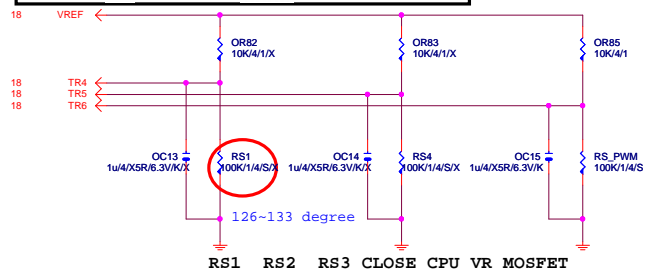
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-B85-HD3	2.2
Date:	Friday, January 16, 2015	Sheet 29 of 34

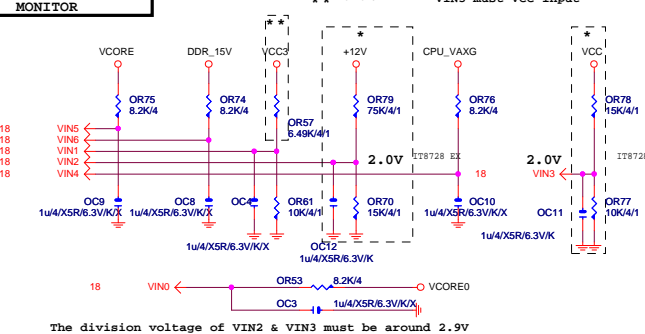
TEMP H/W MONITOR



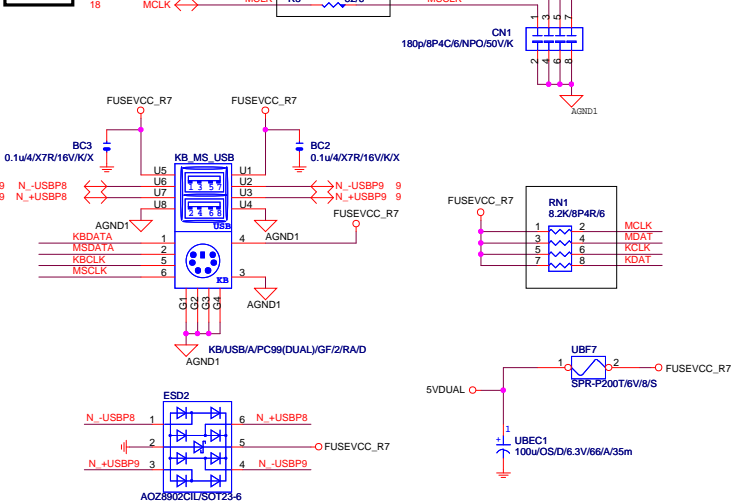
-PROCHOT:有mos heartsink不用prochot function



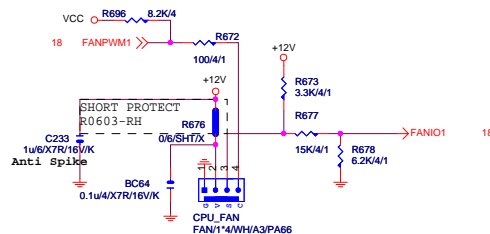
VOLTAGE-- H/W



KB/USB

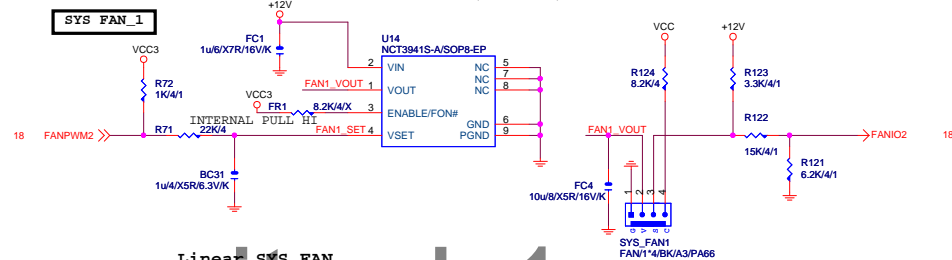


CPU SMART FAN

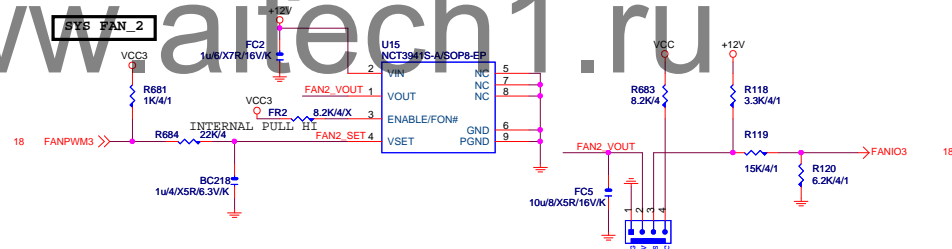


Linear SYS_FAN

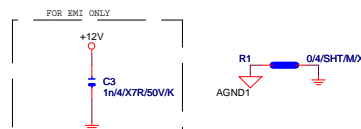
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)



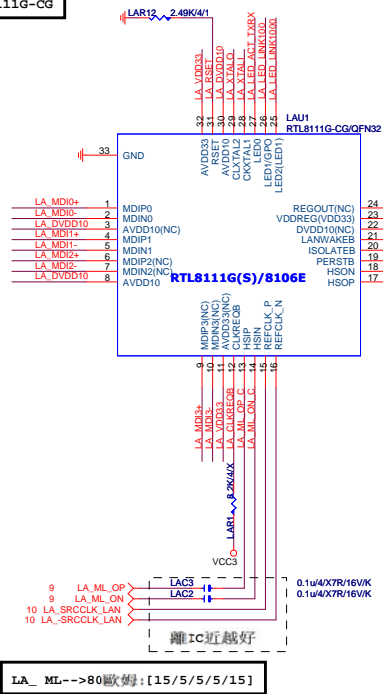
Linear SYS_FAN



Linear SYS_FAN

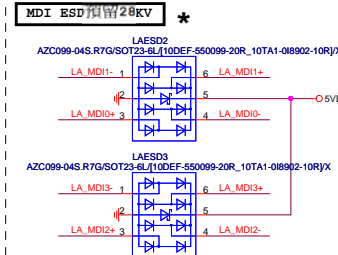


LAN RTL8111G-CG

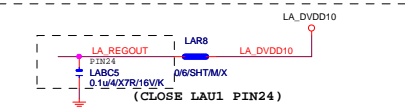
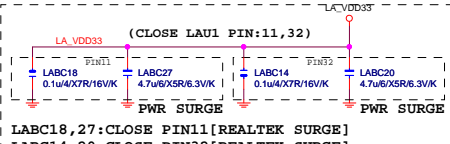
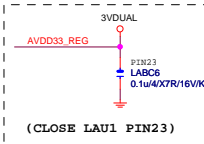
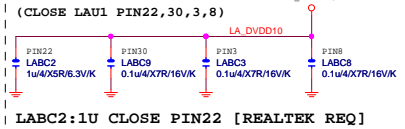


SRCCCLK-->50歐姆:[18/4/10/4/18]

LA_ML-->80歐姆:[15/5/5/15]



LAN POWER



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

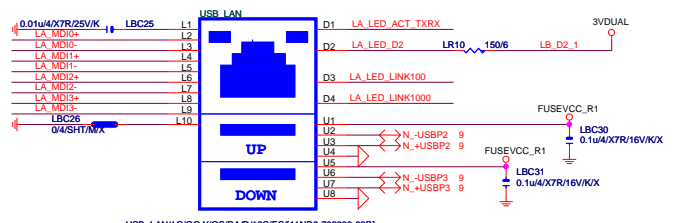
BOM NOTICE *

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]

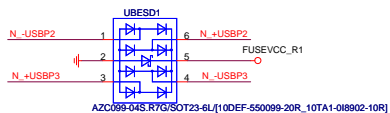
1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

USB30_LAN CONNECTOR

100歐姆:[20/4/10/4/20]

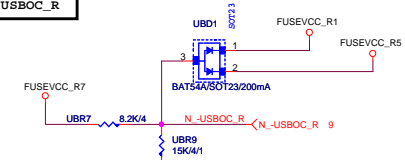


90歐姆:[12/5/7/5/12]

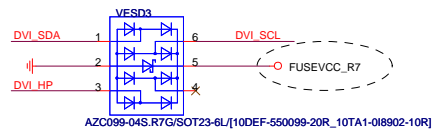
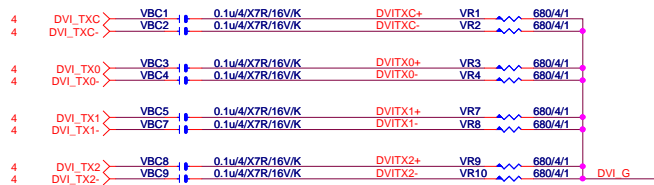


CLOSE USB30_LAN

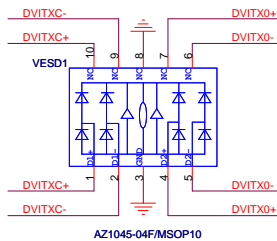
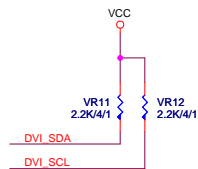
-USBOC_R



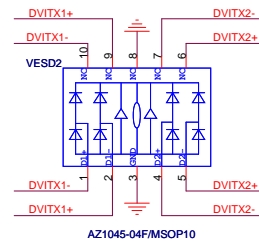
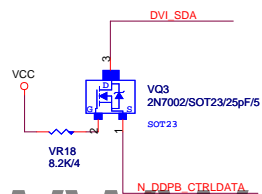
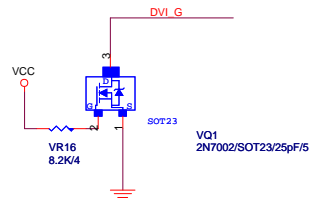
USB LAN <--> R_USB30_1



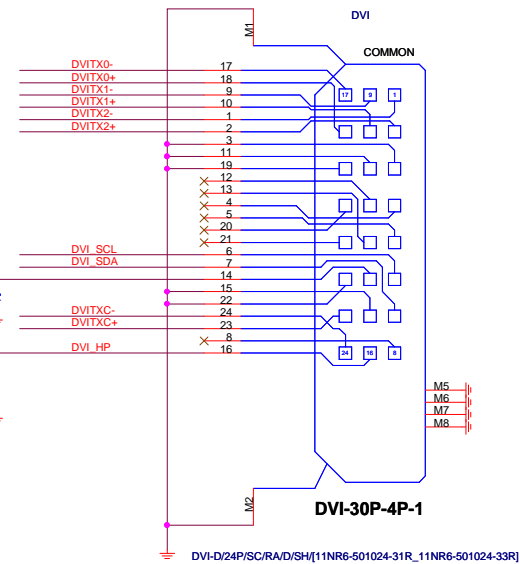
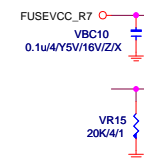
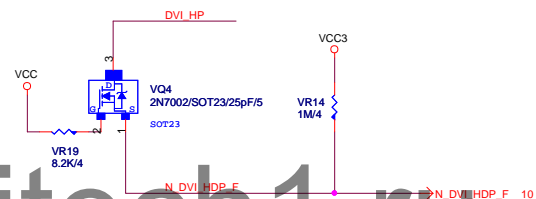
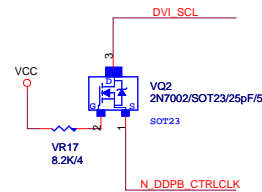
Close to connector



Close to connector



Close to connector



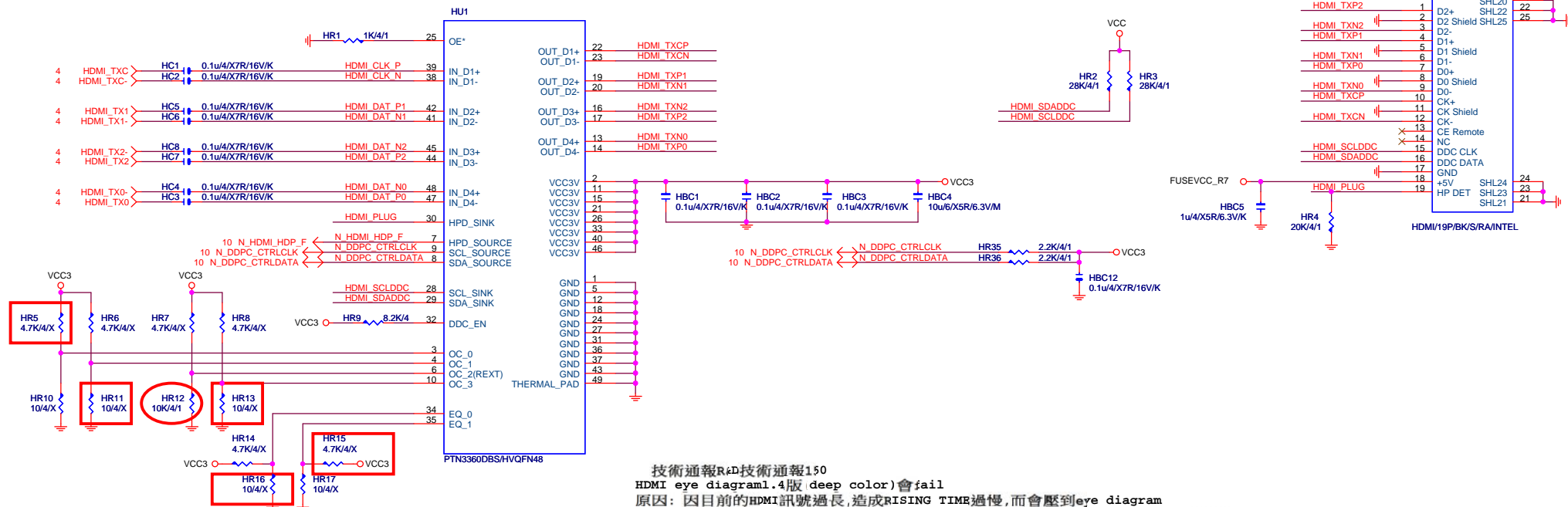
Gigabyte Technology

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DVI		
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Date:	Friday, January 16, 2015	Sheet 32 of 34

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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R4D技術通報150
HDMI eye diagram1.4版(deep color)會fail
原因: 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)

GIGABYTE™

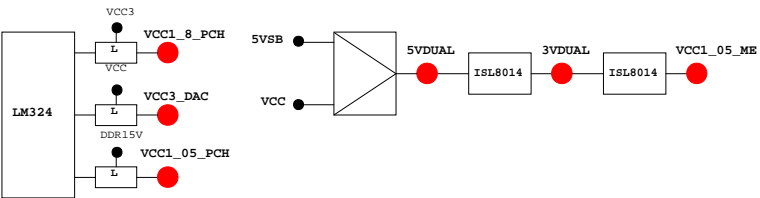
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HDMI			
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Super I/O ITE8720 GPIO Table

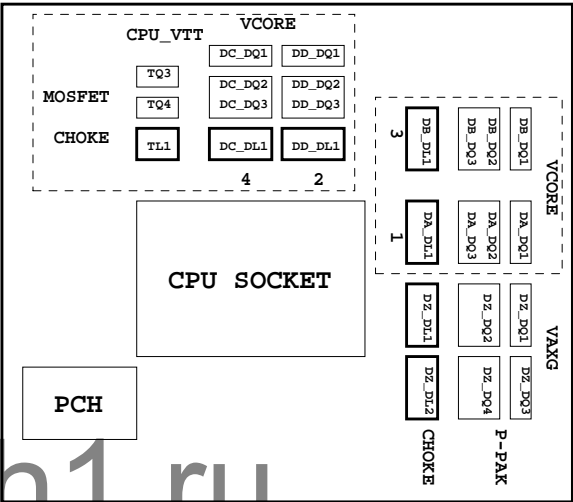
PIN NAME	PWR	AFTER PLUG	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEI1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR_LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

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/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/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/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	✖ PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
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/BUSSO0	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

散熱模組料號:

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

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

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Title			
TABLE LIST			
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