

Model Name: GA-Z87-HD3

1.02

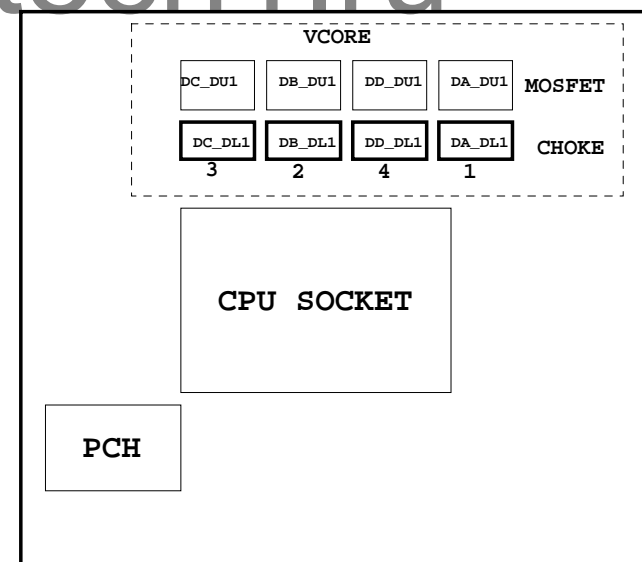
SHEET TITLE

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

SHEET TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
37	
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40	

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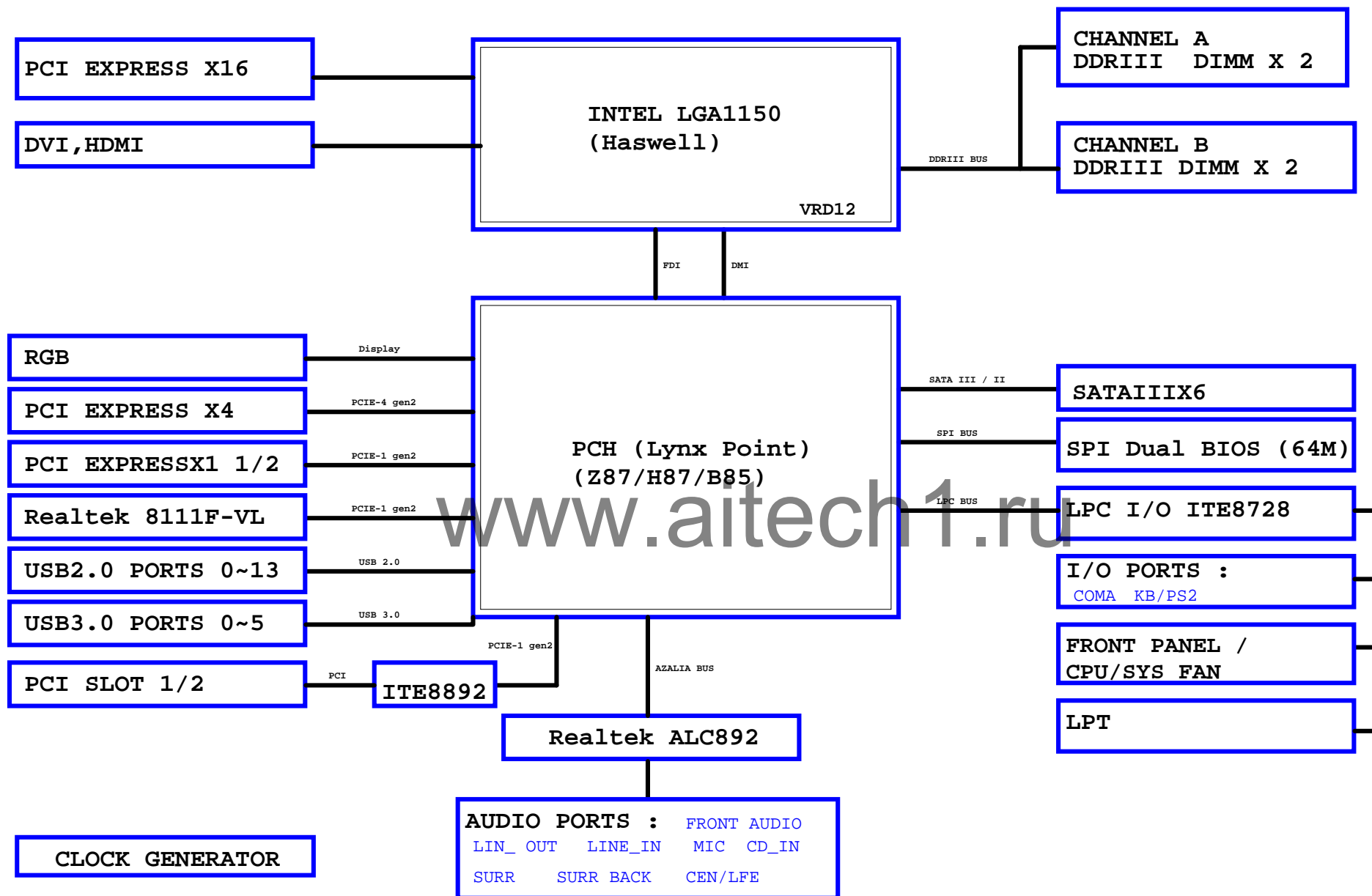


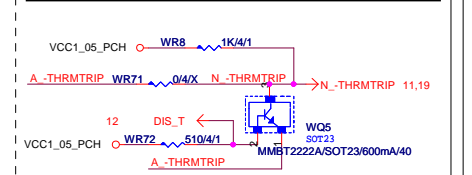
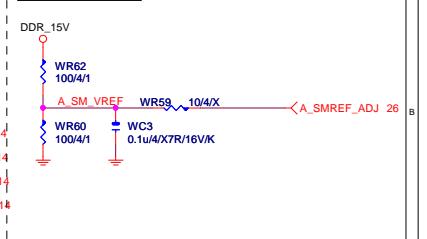
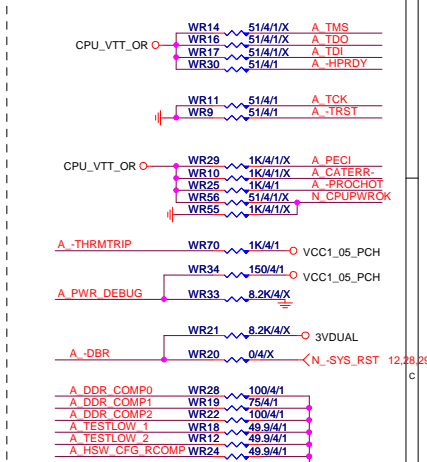
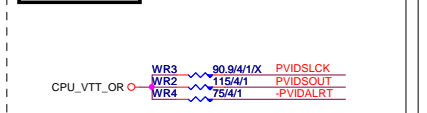
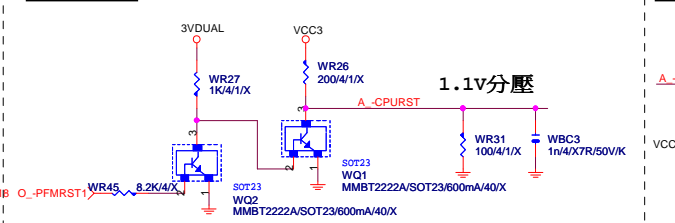
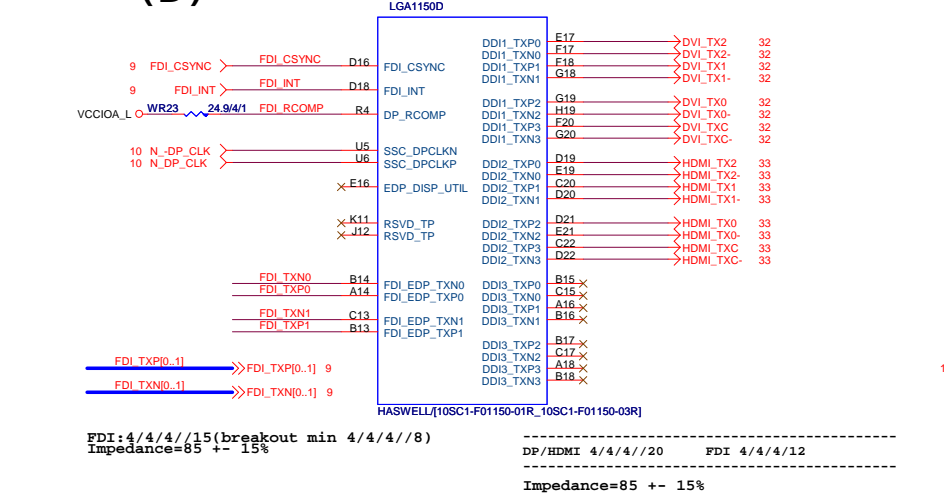
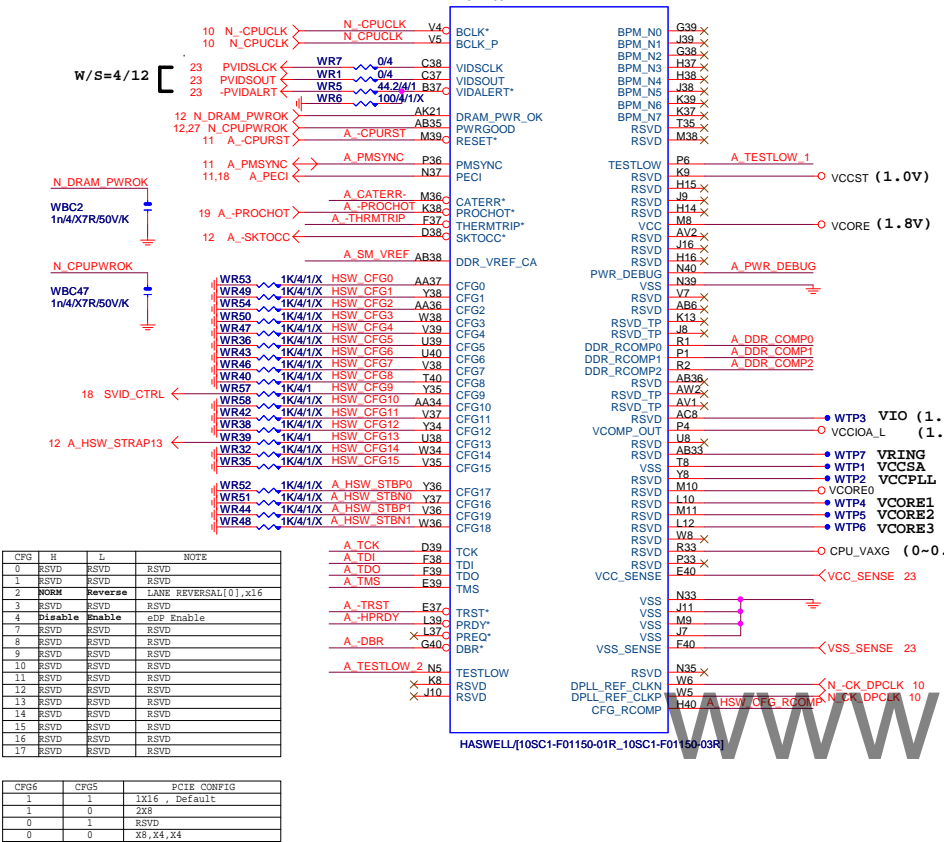
Gigabyte Technology			
Title Cover Sheet			
Size Custom	Document Number	GA-Z87-HD3	Rev 1.02
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Component value change history

[illegible][illegible]

BLOCK DIAGRAM

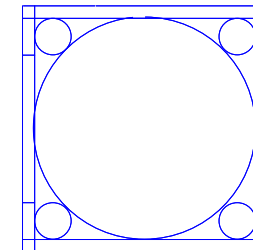




LGA1150A

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150B

HASWELL\10SC1-F01150-01R_10SC1-F01150-03RLGA1150
ILM_BP/1156/CSP

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]

(F, J)



(G,H,I)

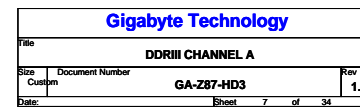
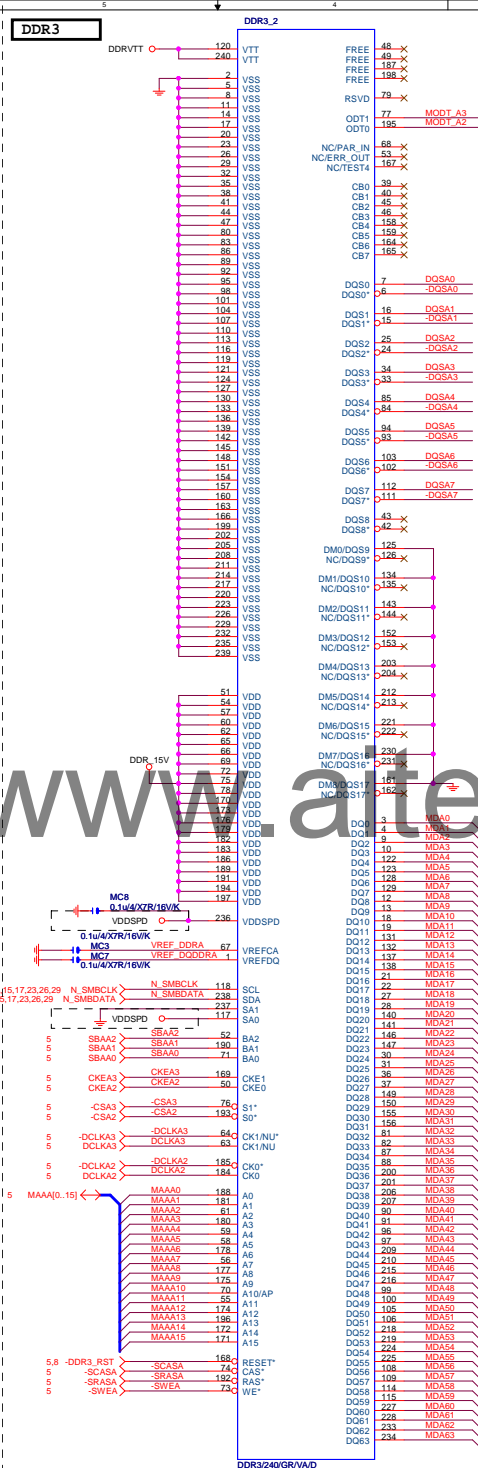


(X30)



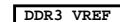
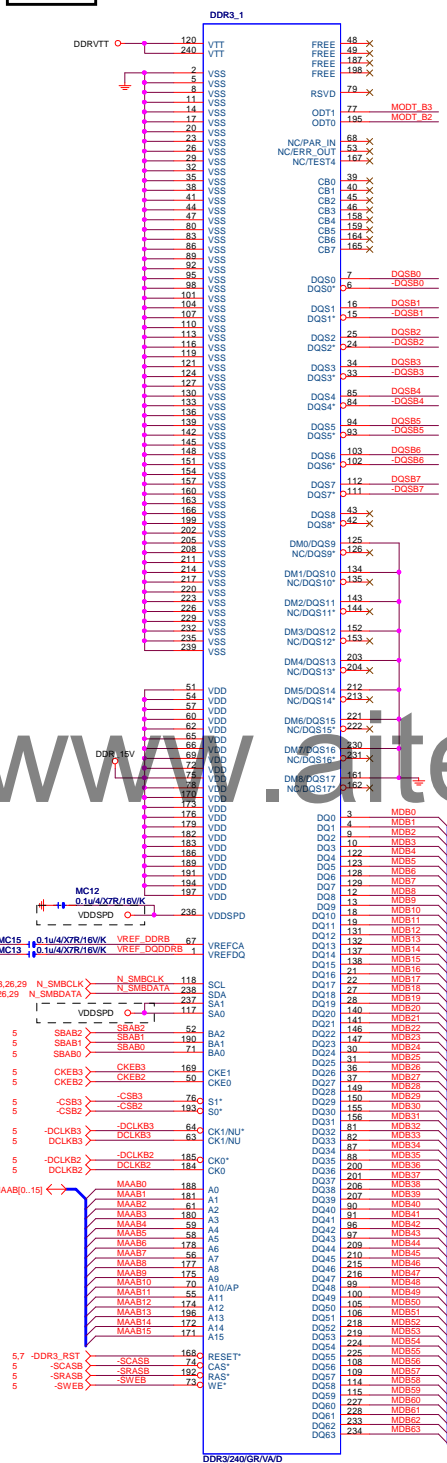
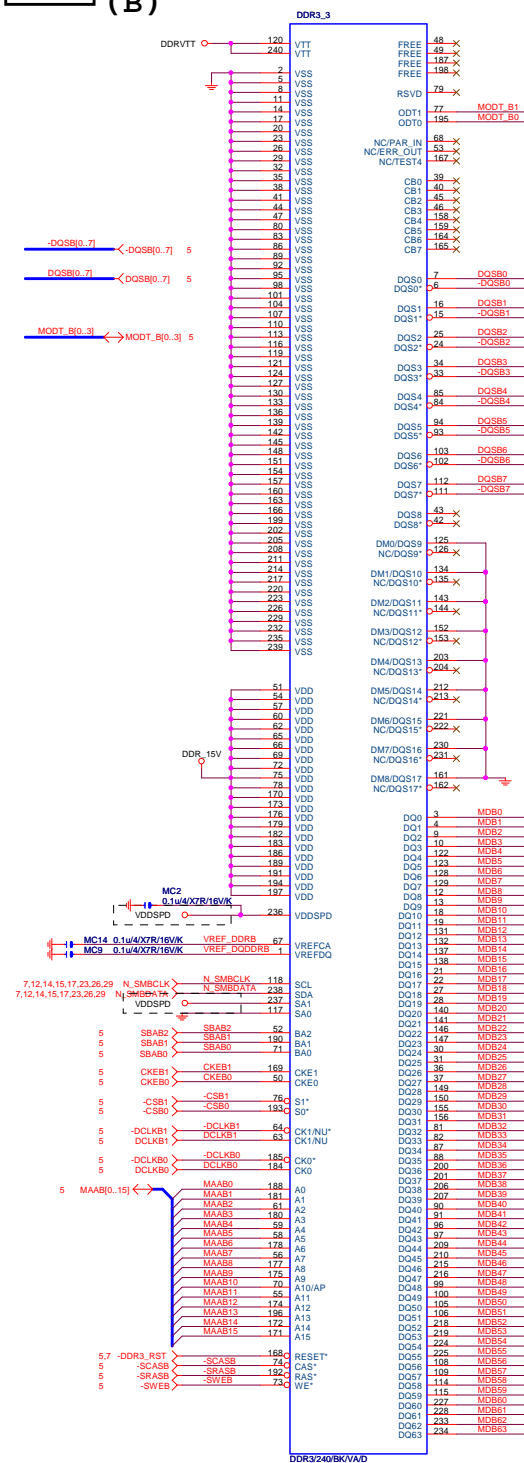
(x15)







(B)



DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ

DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s

DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

```
| DDR3 1333MHZ
```

```
DDR3 clock=667MHZ
```

```
DDR3 single channel bandwidth=10.6GB/s
```

DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ

```
DDR3 clock=800MHZ
```

```
DDR3 single channel bandwidth=12.8GB/s
```

```
DDR3 dual channel bandwidth=25.6GB/s
```

COUPON



CPU

DIMM

DIMM

DTMM

DIMM

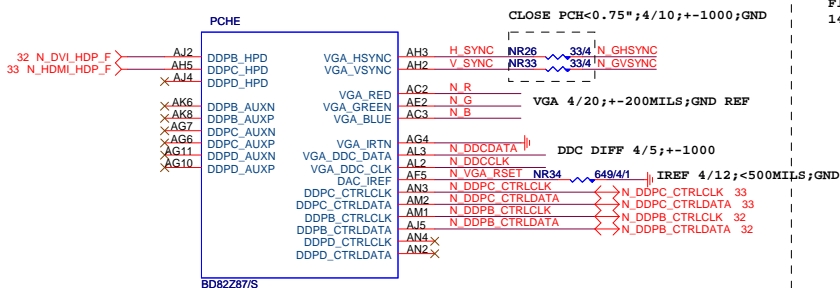
CHA

CHB

Gigabyte Technology

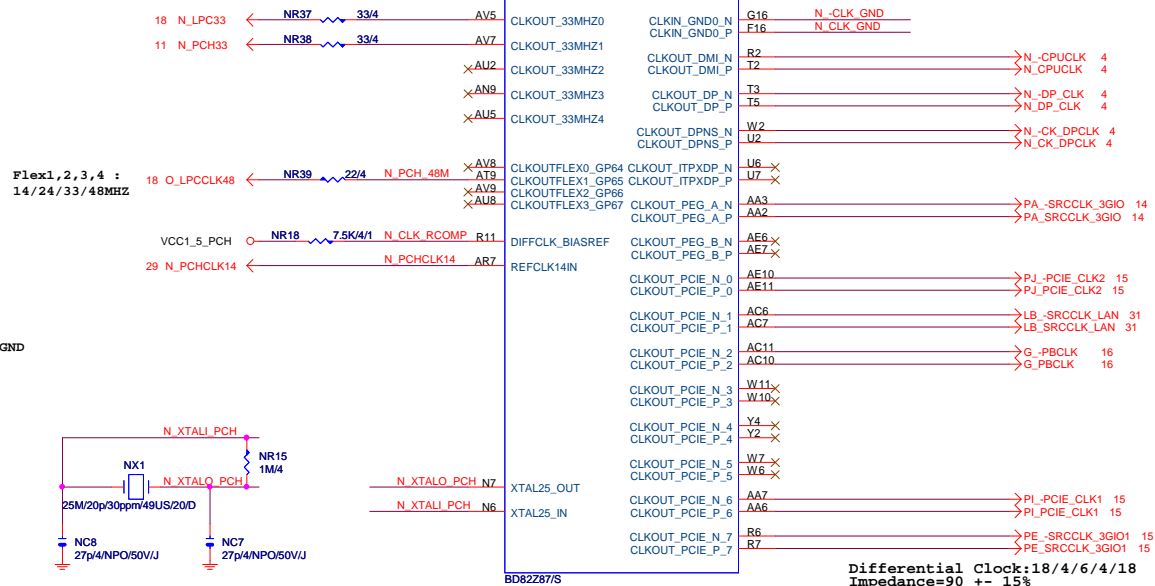
Title			
DDRIII CHANNEL B			
Size	Document Number		Rev
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PCH (E)



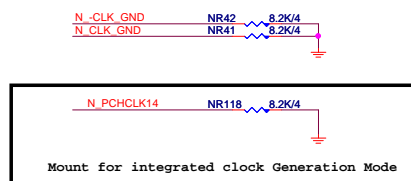
VGA_DISABLE
R,G,B NC OR GND
IRTN / IREF GND
VGA_HSYNC, VGA_VSYNC, DDC_CLK, DDC_DATA NC
POWER_VCCADAC(AF2), VCCADACBG(AE1) GND

PCH (G)

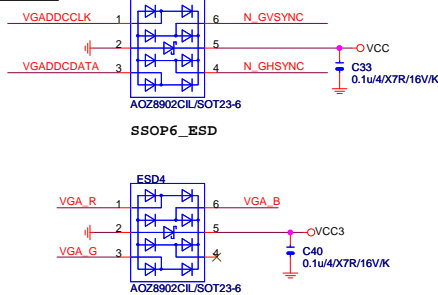


Differential Clock:18/4/6/4/18
Impedance=90 +/- 15%

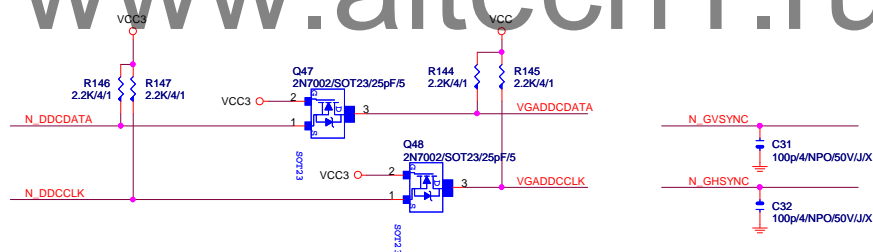
PCH CLK PD



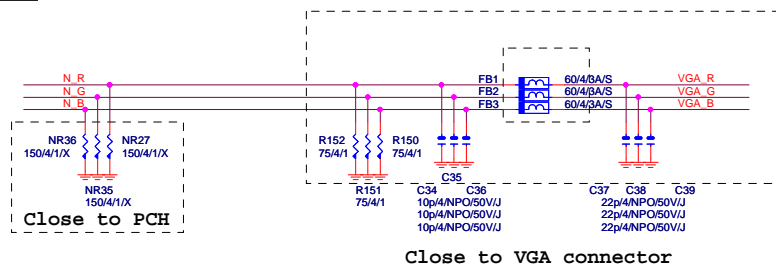
VGA ESD



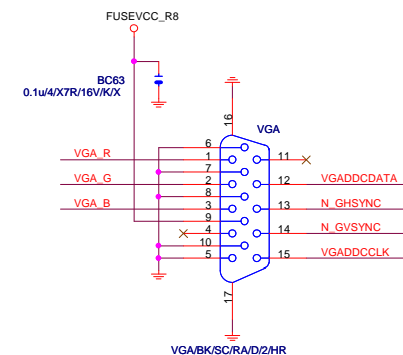
VGA DDC



VGA DDC



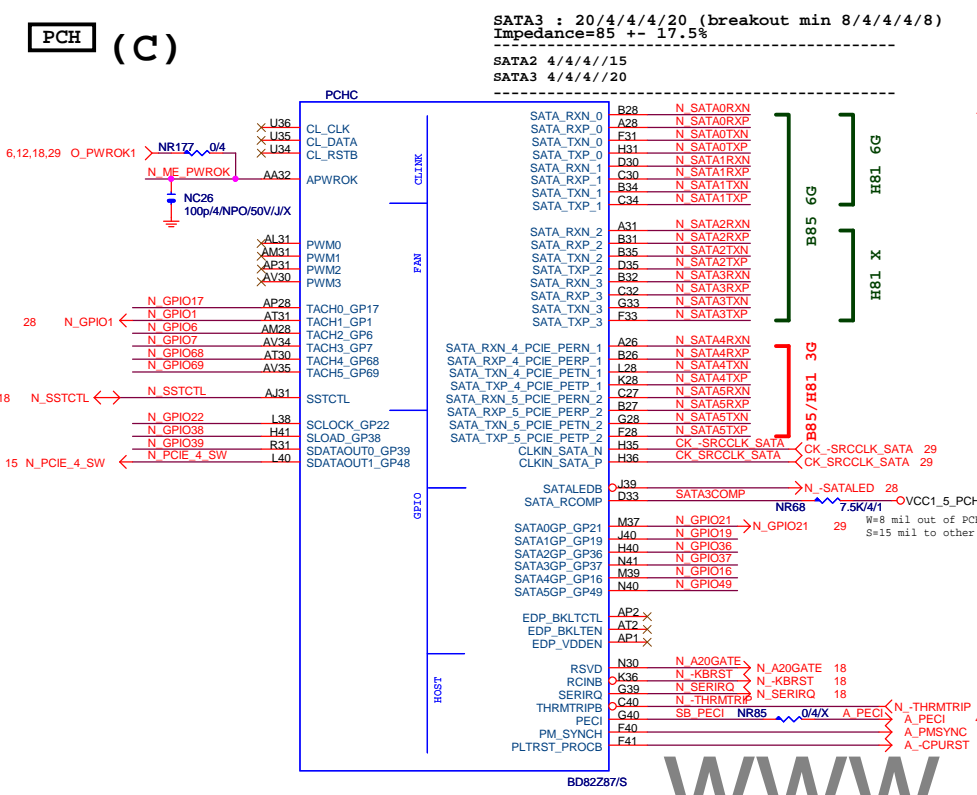
VGA CONNECTOR



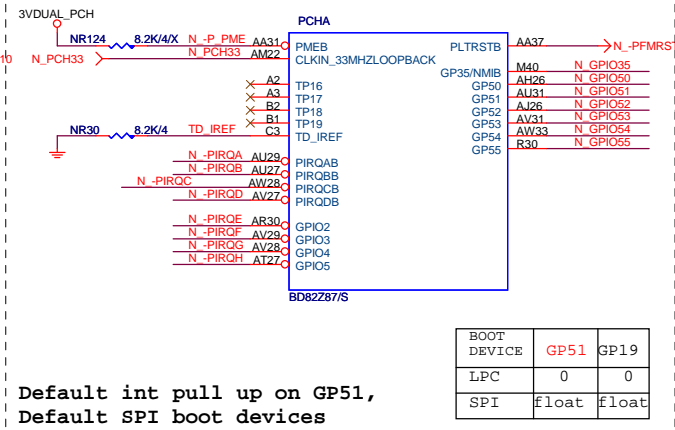
Gigabyte Technology

Title			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number	Rev	
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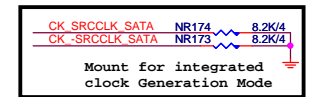
PCH (C)



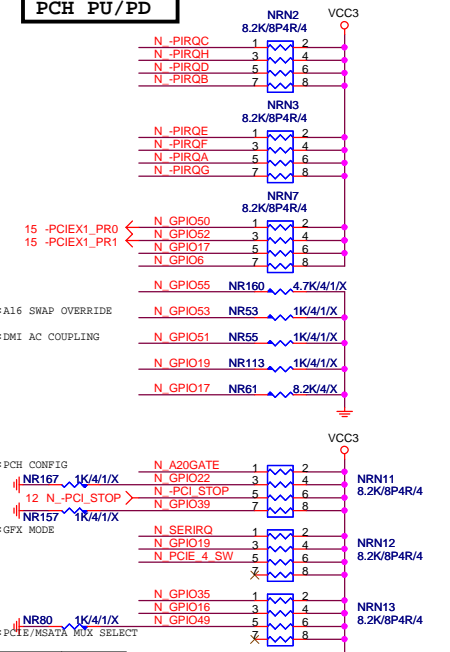
PCH (A)



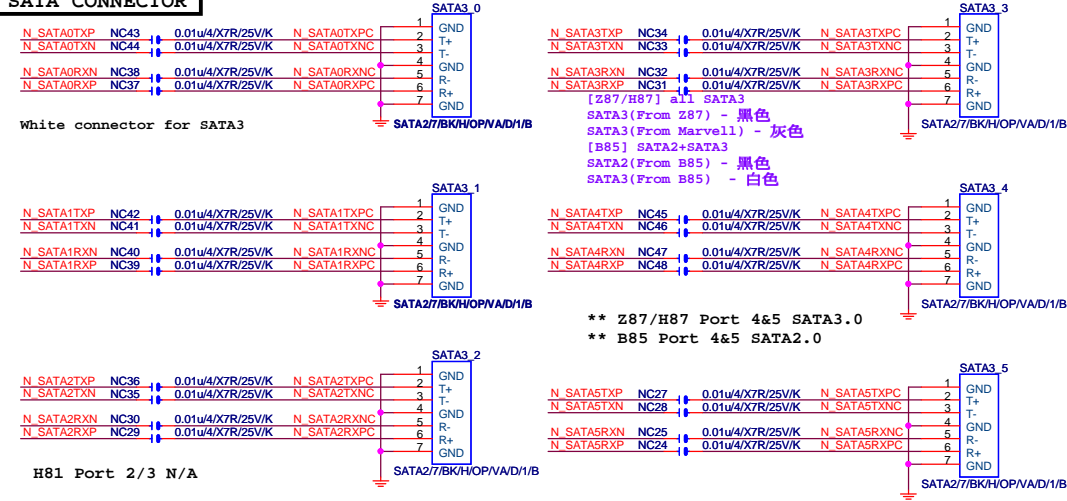
PCH CLK PD



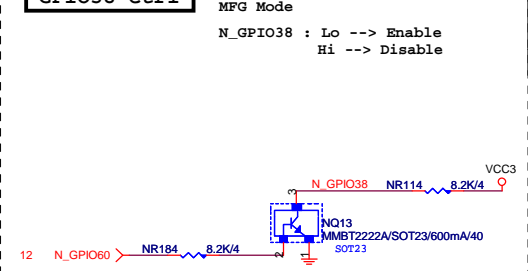
PCH PU/PD



SATA CONNECTOR



GPIO38 Ctrl



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

soft strap	GP16	GP49
0	pci1	pci2
1	sata4	sata5

Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
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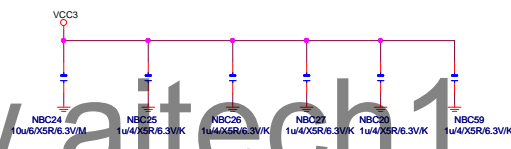
PCH (I)



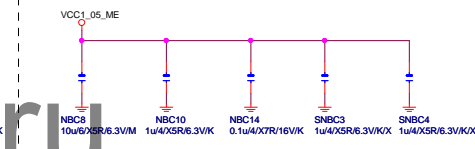
SHT PWR

[illegible]

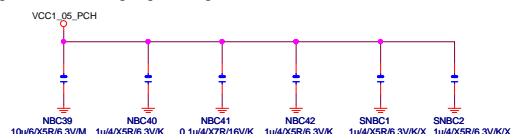
(3.3V) (X6)



(1.05V) (x5)



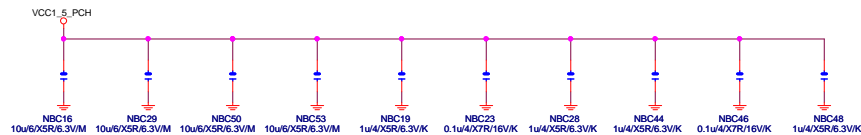
(1.05V) (x6)



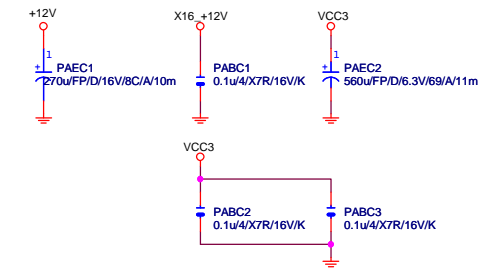
(1.05V)(x2) (3.3V) (x2)



(1.5V) (x10)

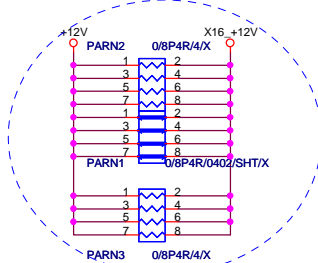


PCIEX16 CAP



PCIEX16 PROTECT SHT

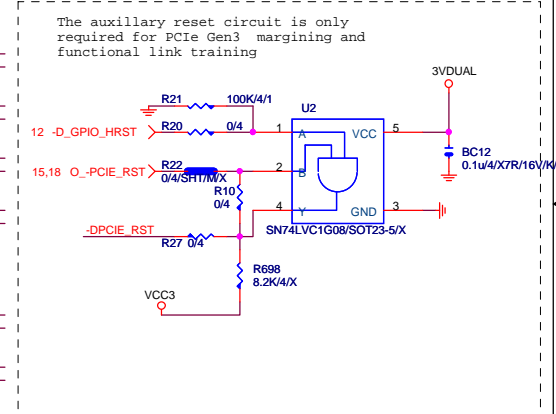
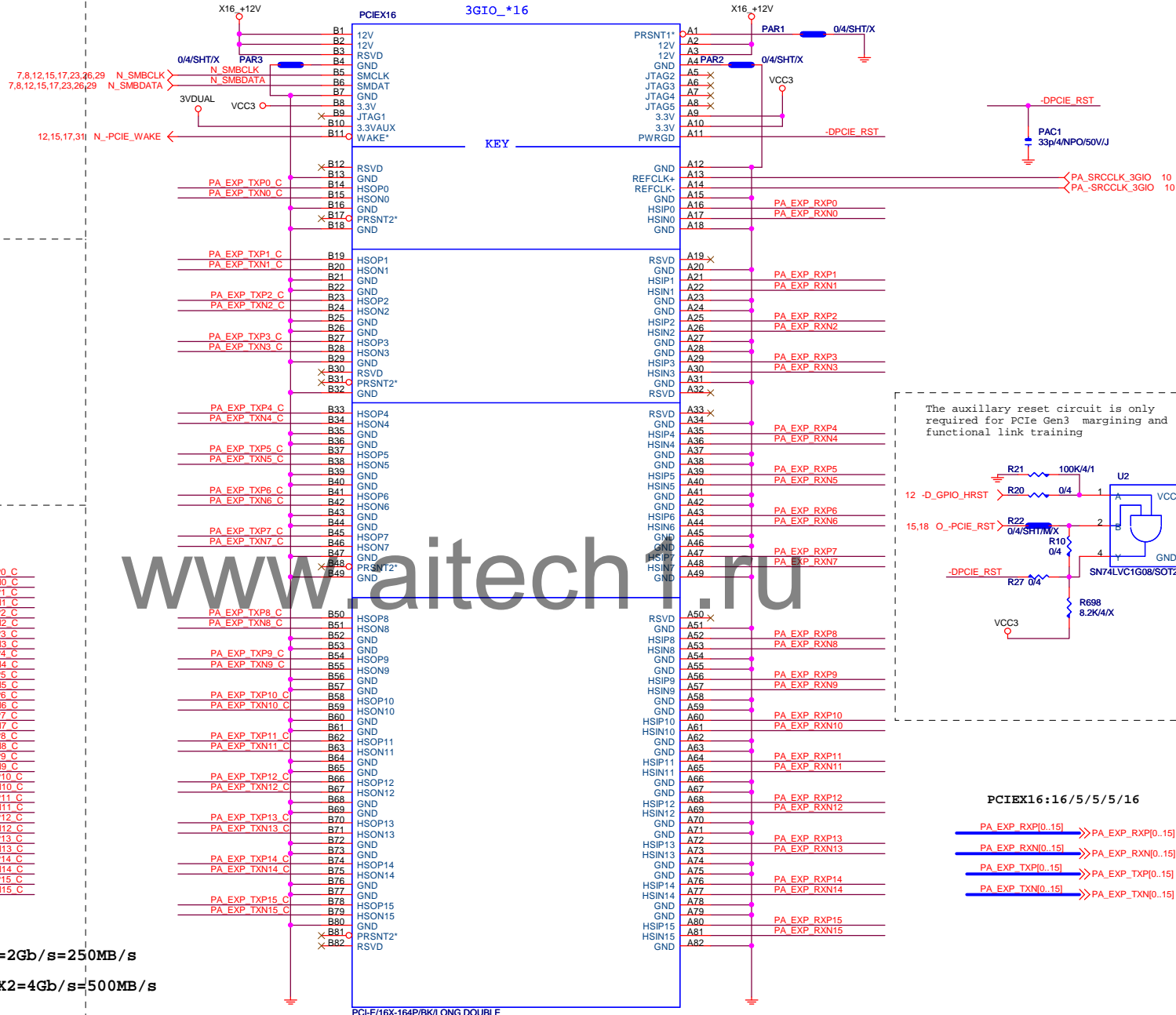
+12 protect short-wire test



PCIEX16 AC CAP

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

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

PCI-E REV:1.1--> 2.5GHZ

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

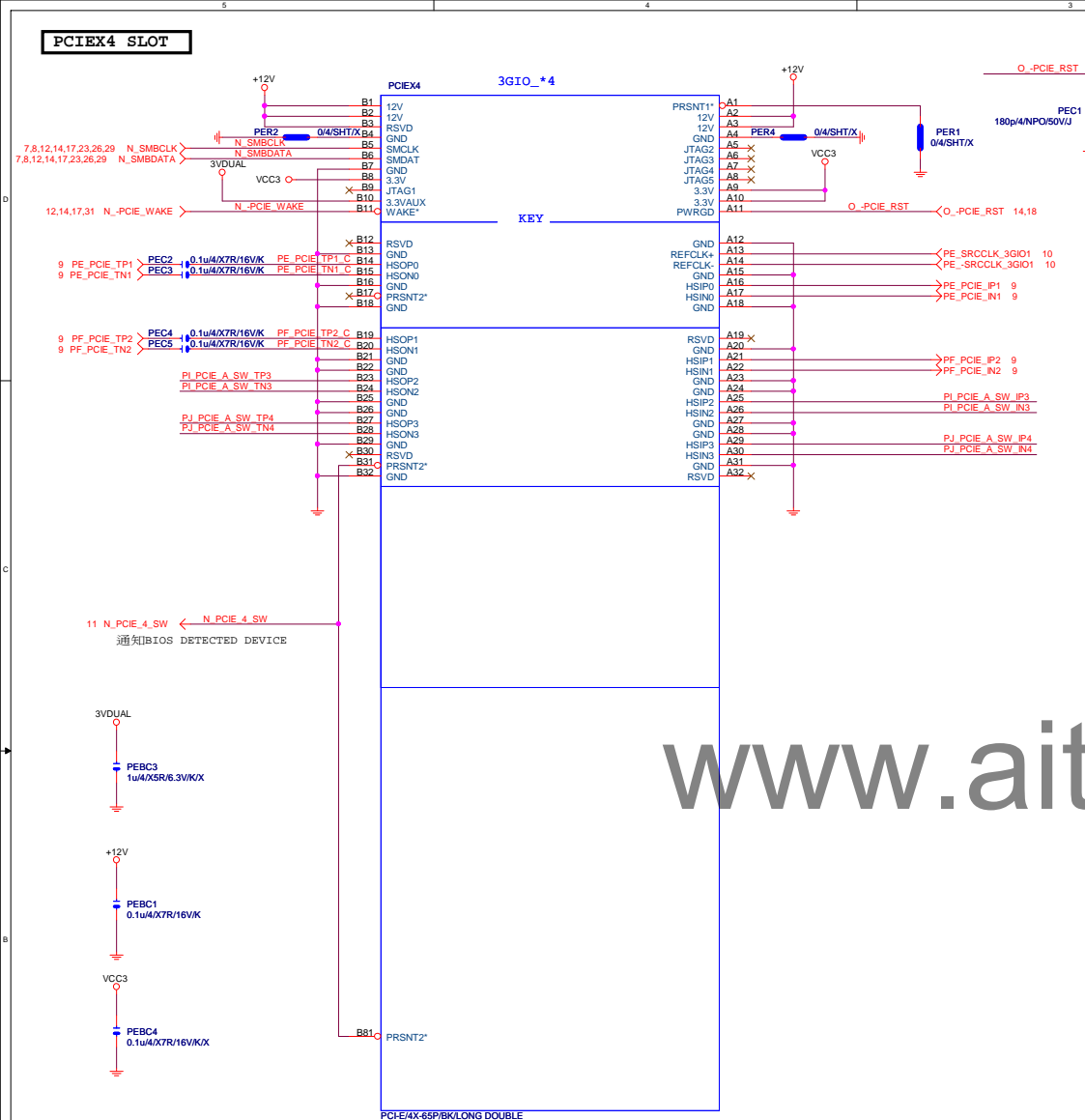
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

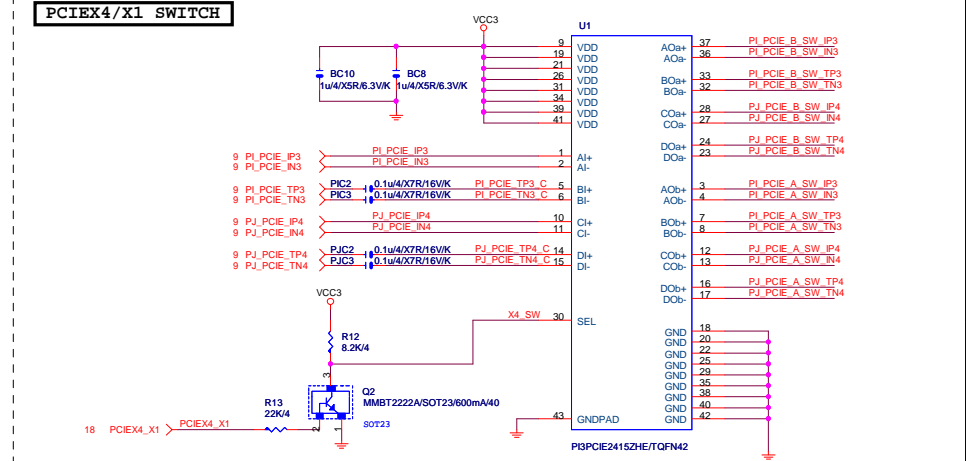
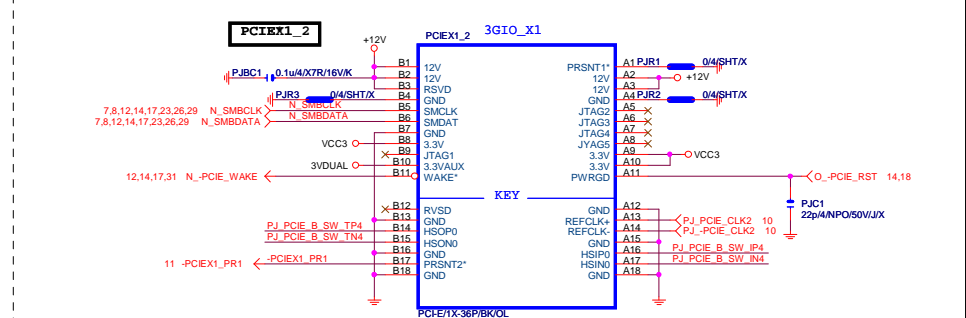
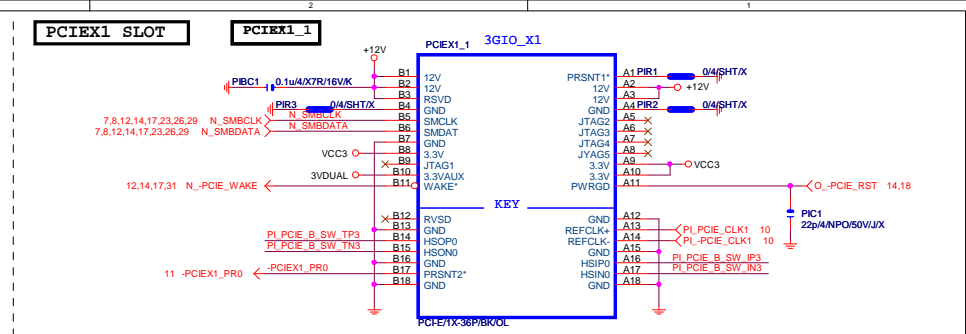
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

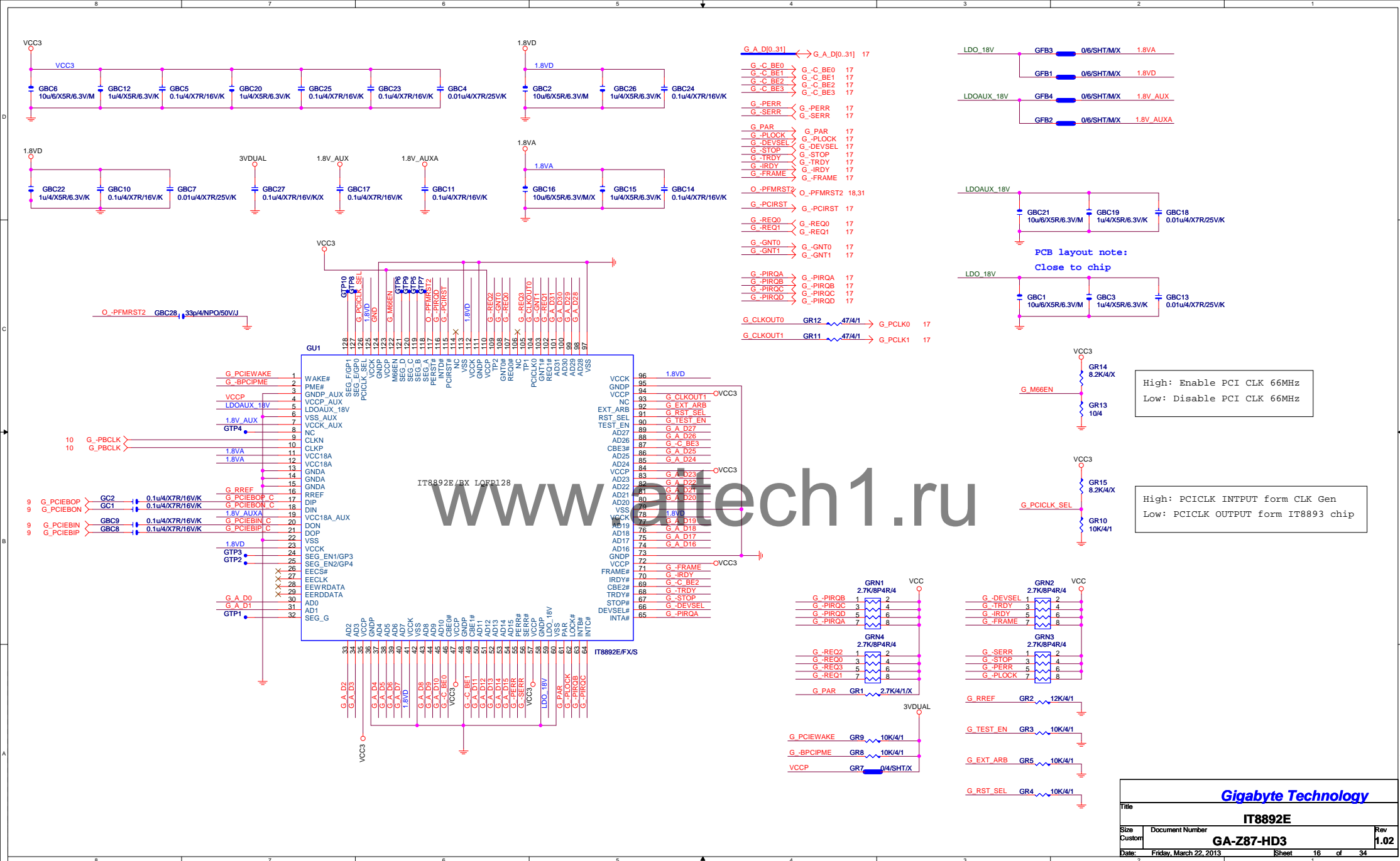
Gigabyte Technology			
PCI EXPRESS * 16			
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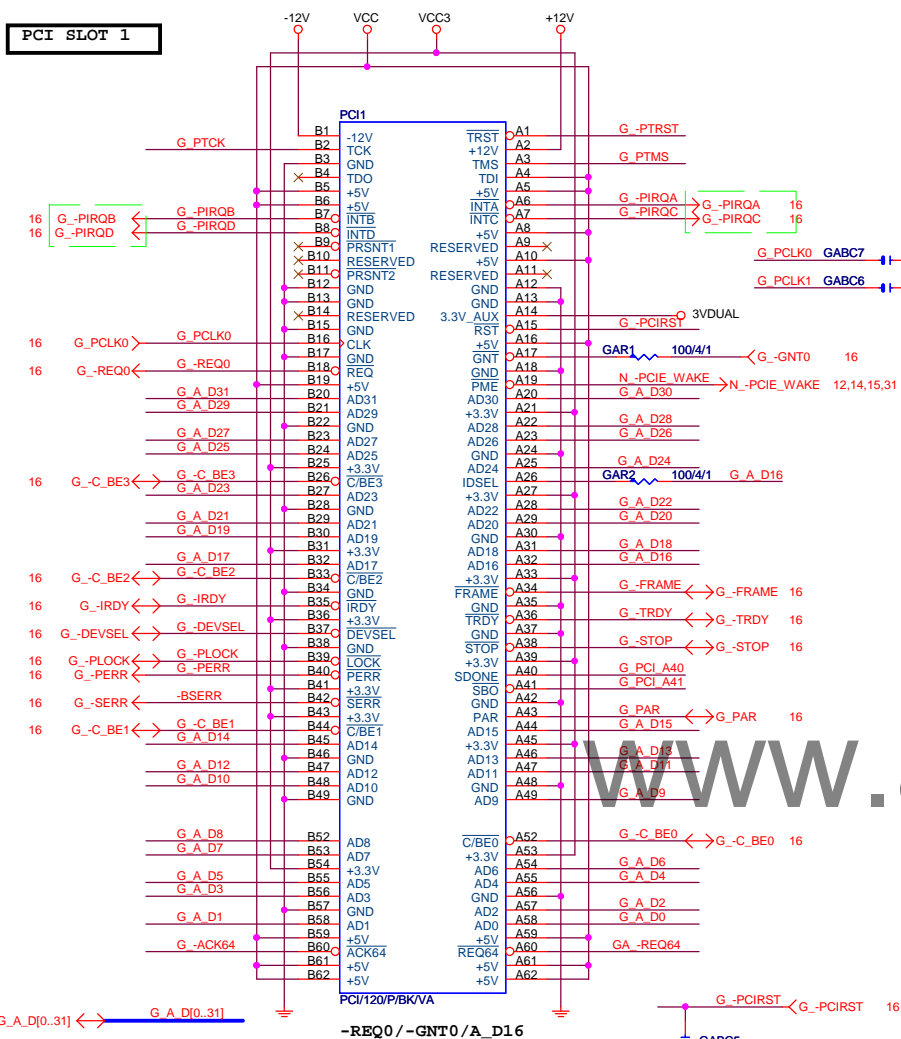
	N_PCIE_4_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4 No devices	H	H
PCIEX4 -> X1	H	H
PCIEX4 Have devices	L	L
PCIEX4 -> X4	L	L
PCIEX1_1/2 -> N/A		



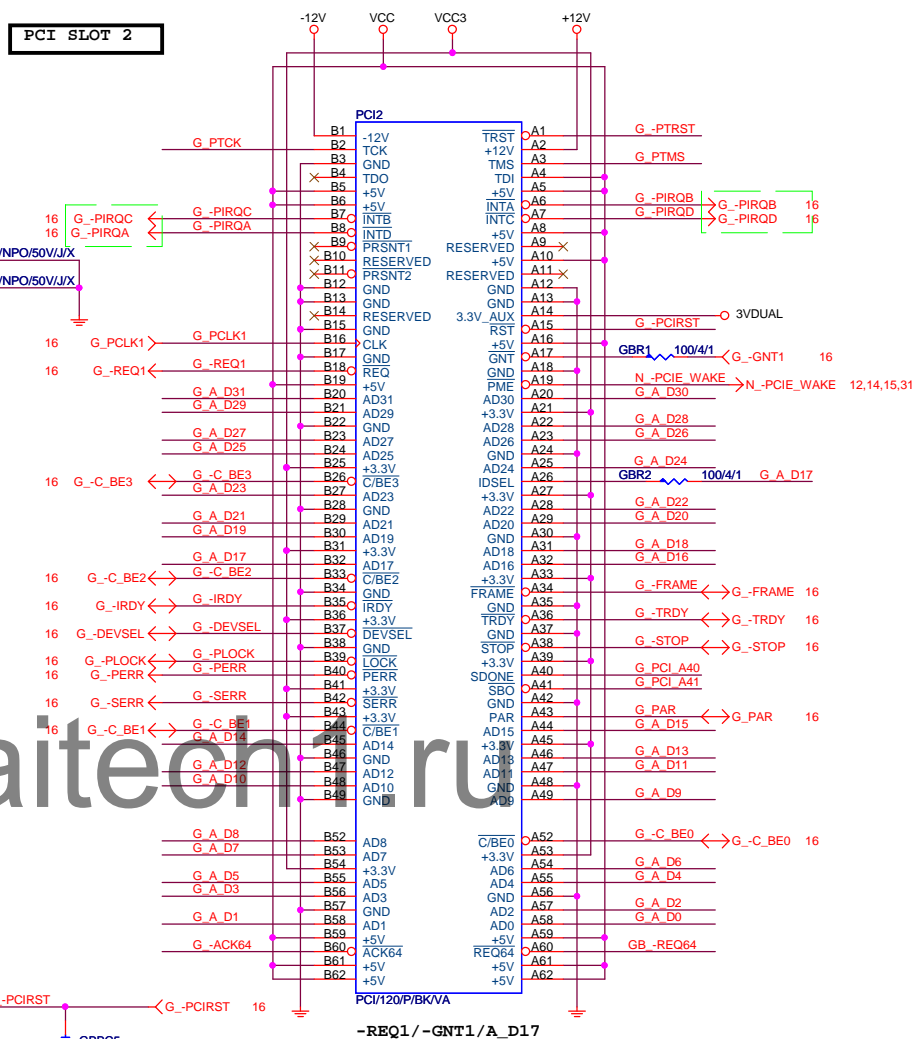
Function	SEL
xI--> x0A	L;PCIEX4 SLOT-->X1
xI--> x0B	H;PCIEX4 SLOT-->X4



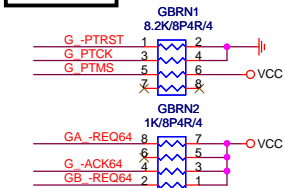
PCI SLOT 1



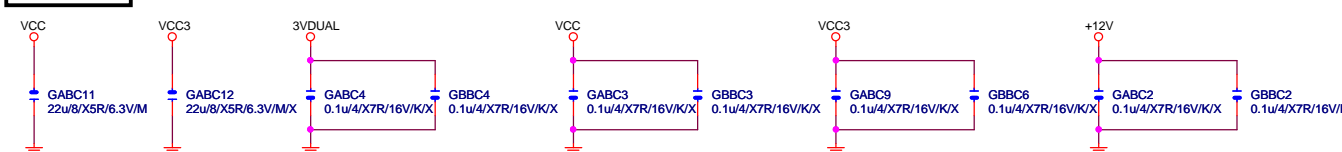
PCI SLOT 2



PCI PU



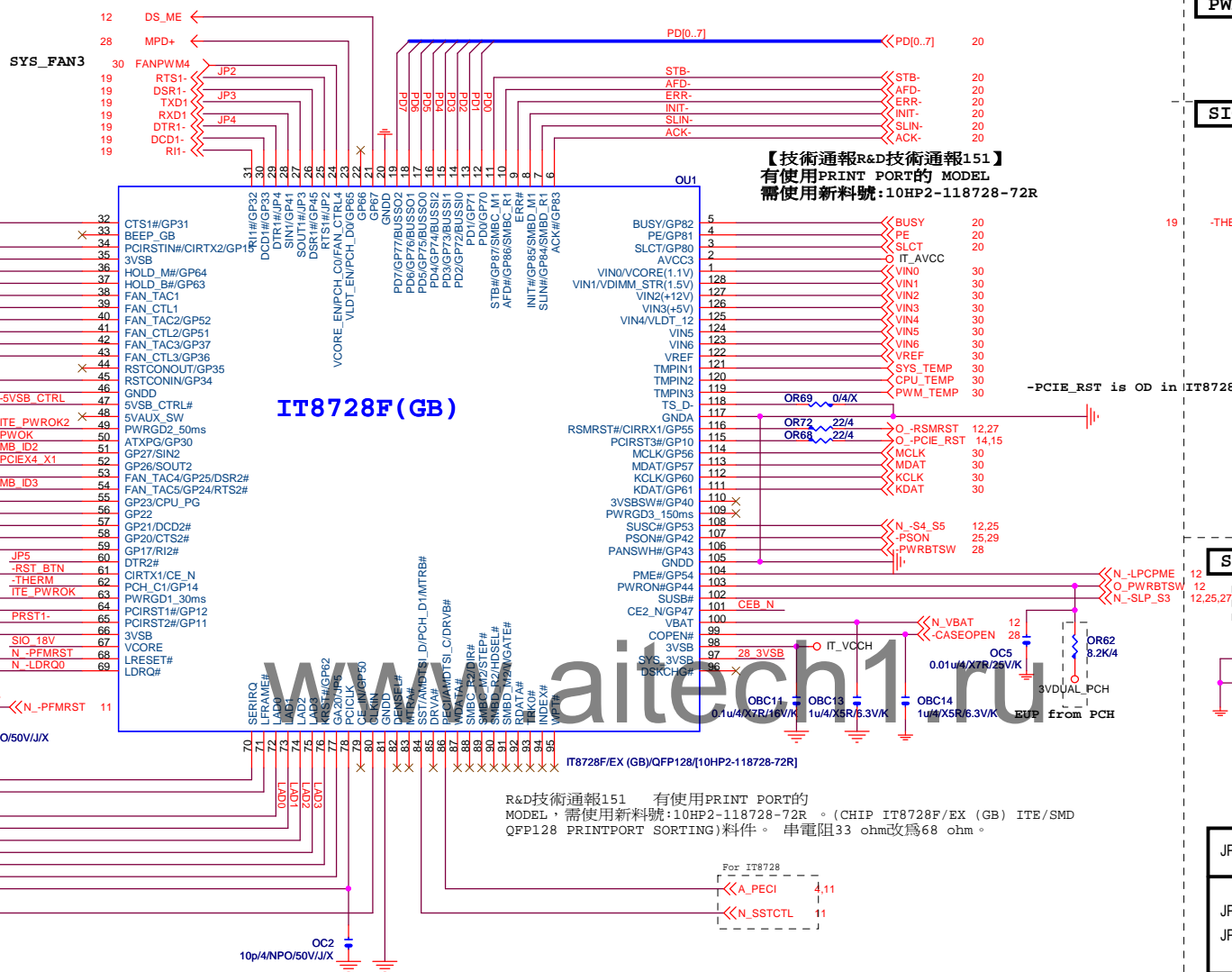
PCI CAP



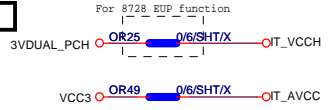
PCI SLOT 1&2

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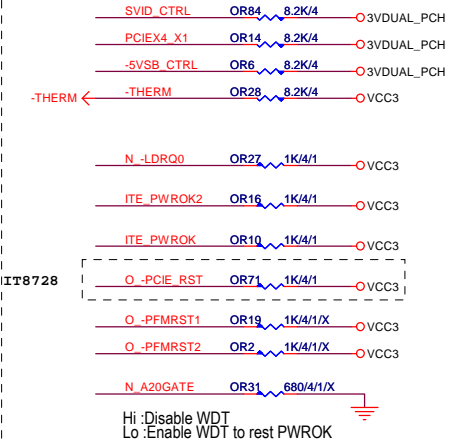
SIO IT8728F



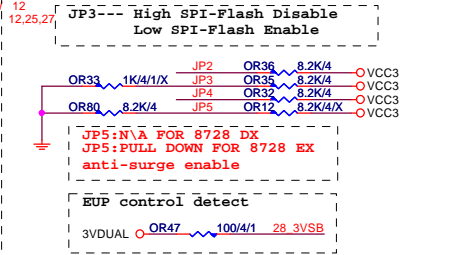
PWR SHT



SIO PU



SIO STRAP

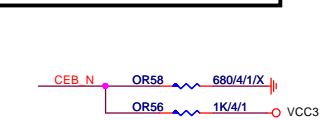


JP4	1	k8 power sequency function is Disable
JP4	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
JP3	0 1	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
JP5	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

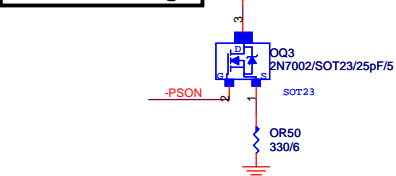
IT8728F NOTE

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

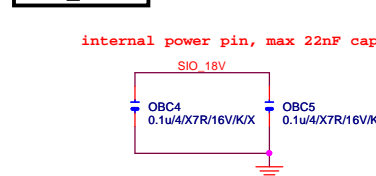
DUAL BIOS OPT STRAP



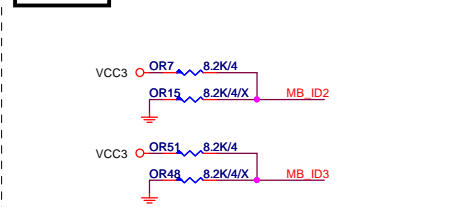
Power leakage



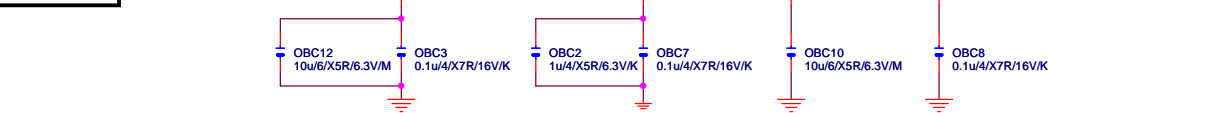
SIO_18V



MB ID



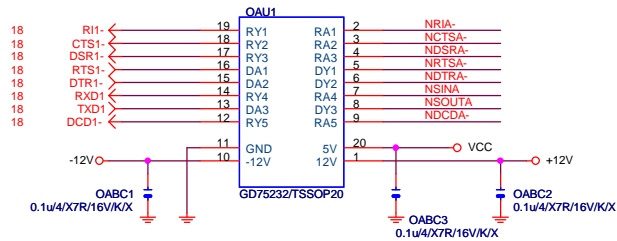
SIO CAP



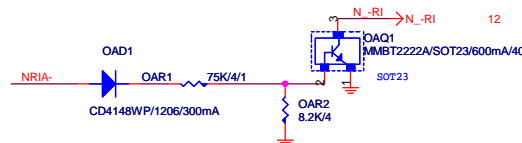
Gigabyte Technology

Title			ITE 8728 LPC IO
Size B	Document Number	GA-Z87-HD3	
Date:	Friday, March 22, 2013	Sheet	18 of 34
Rev		1.02	

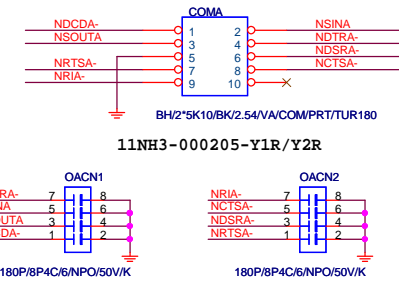
COMA



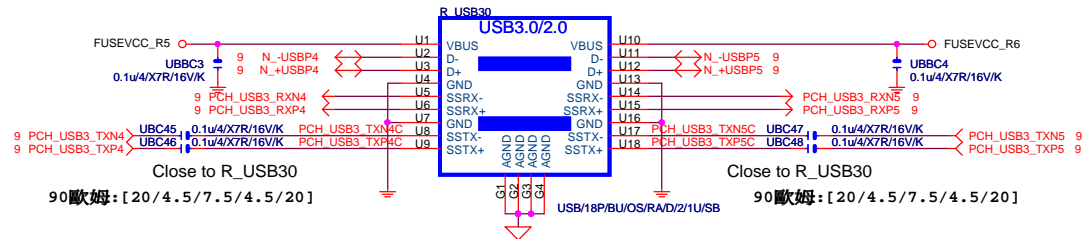
COM RI



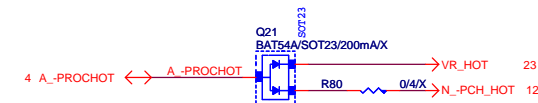
COM BUFFER



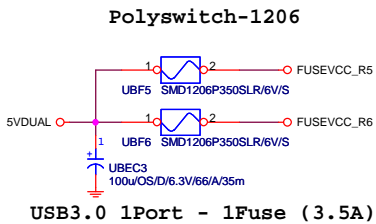
USB30_20 CONNECT



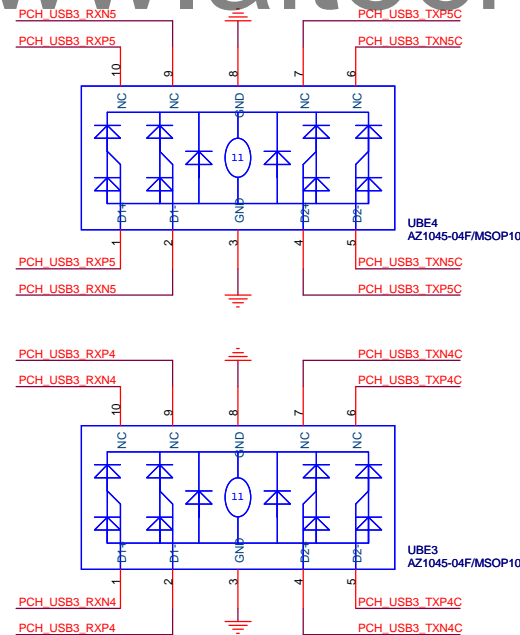
-PROHOT



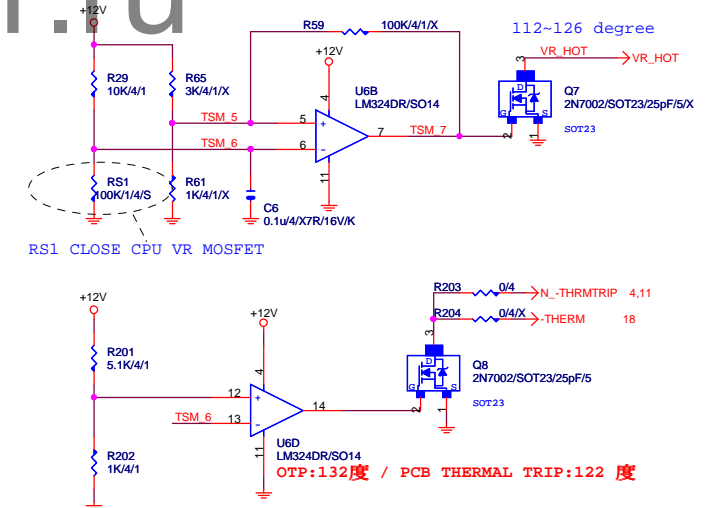
USB30 PWR



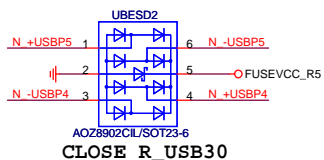
USB30 ESD PROTECT



-PROHOT



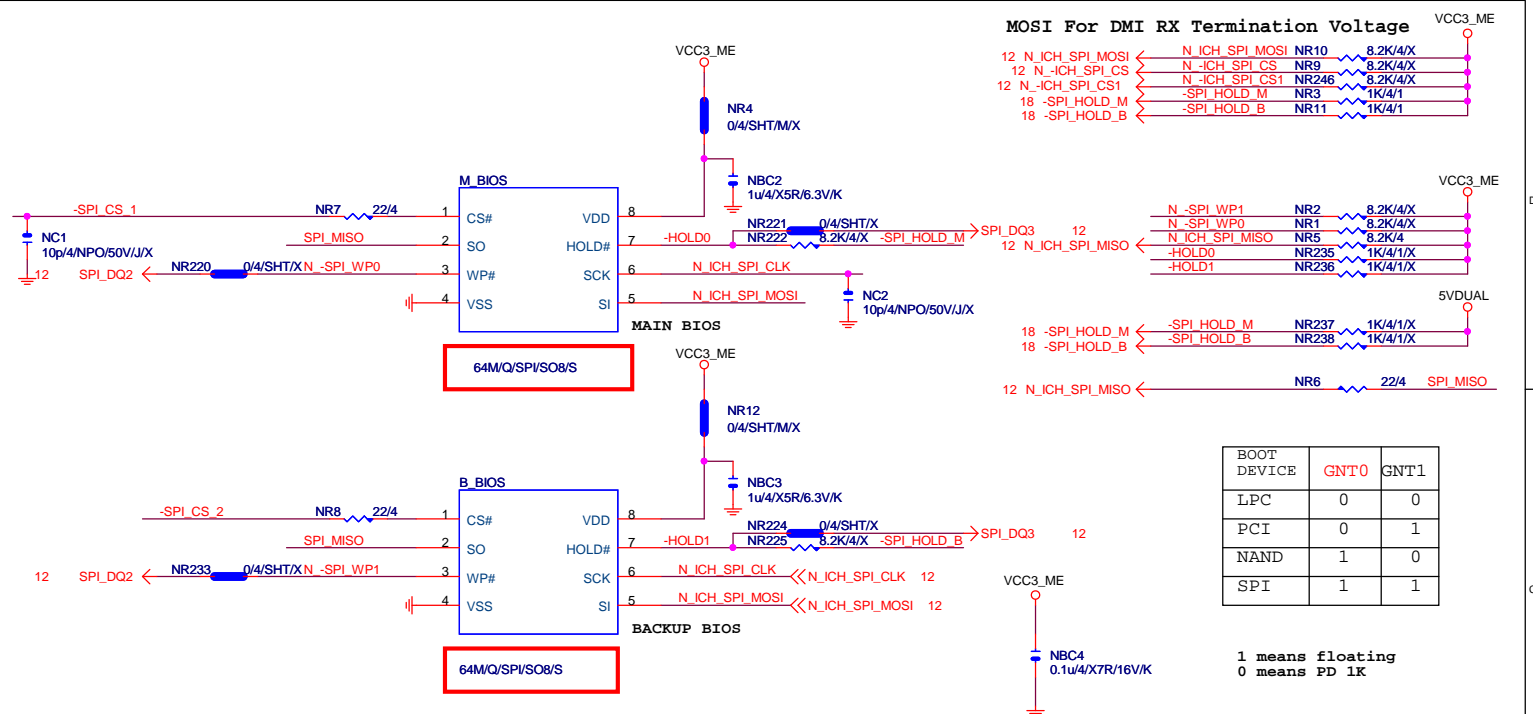
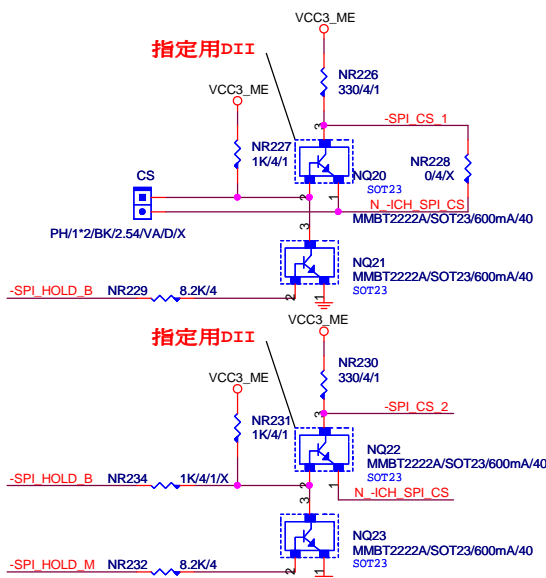
USB20 ESD PROTECT



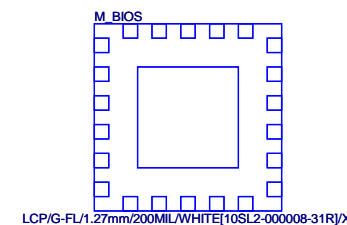
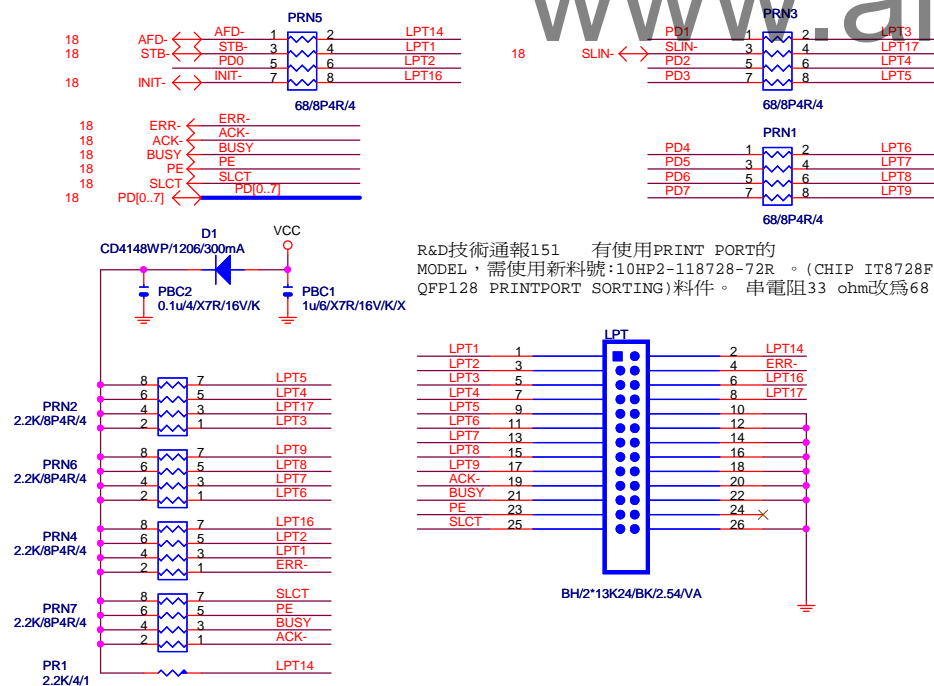
Gigabyte Technology

Title			
COM/ PROHOT/ R_USB			
Size	Document Number	Rev	
Custom		GA-Z87-HD3	
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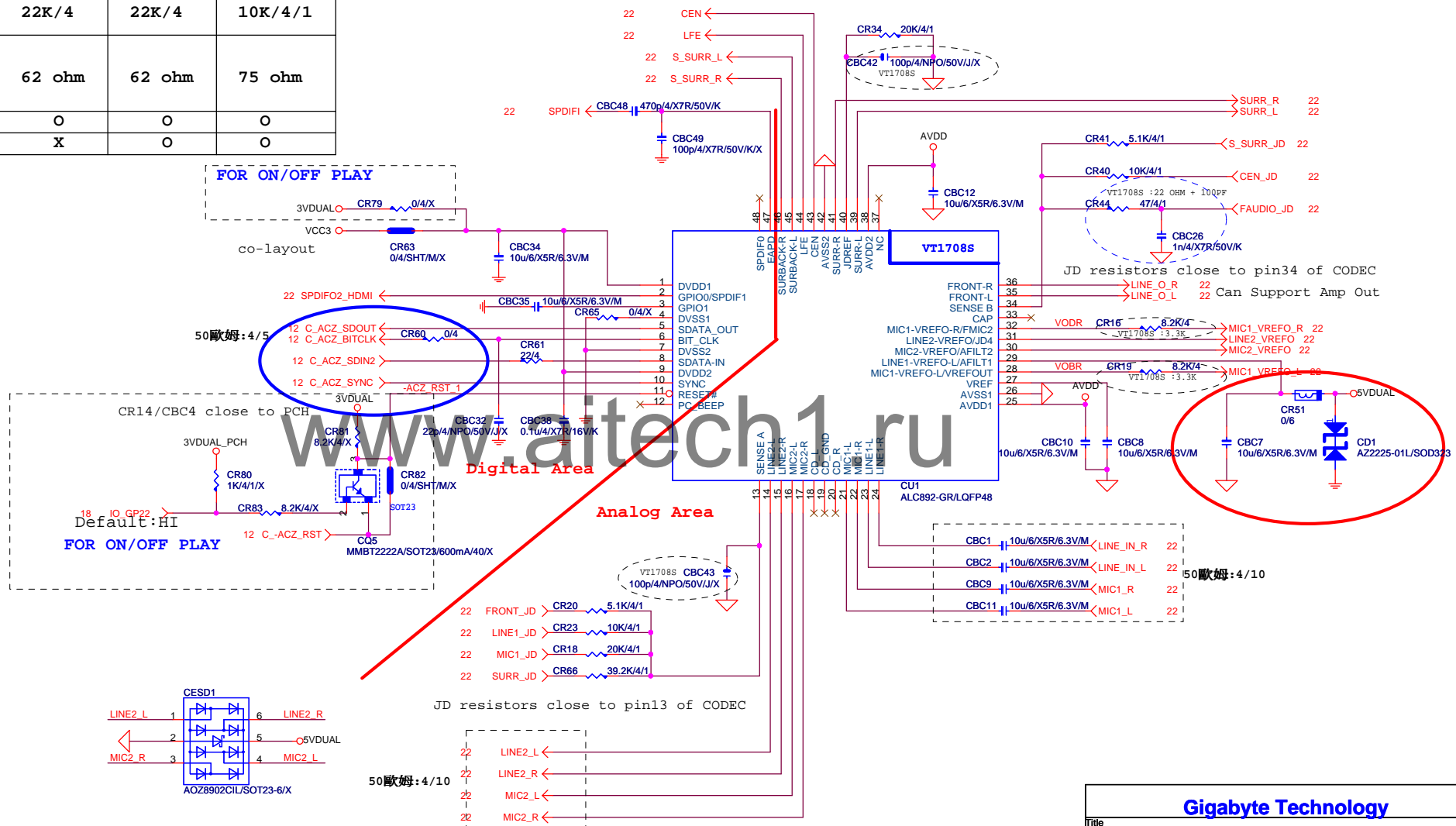
DUAL BIOS



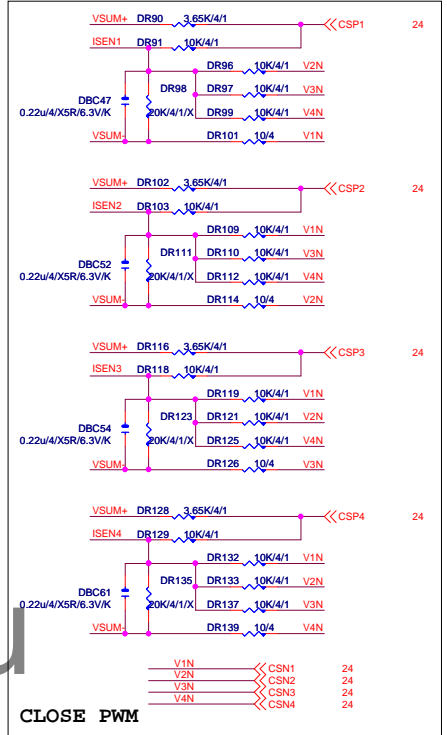
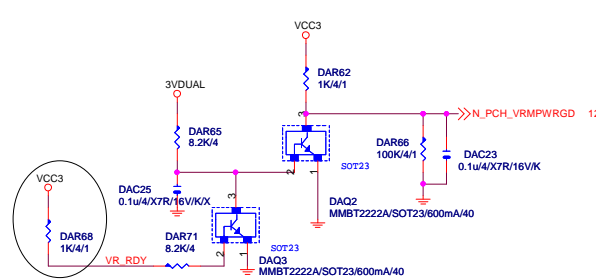
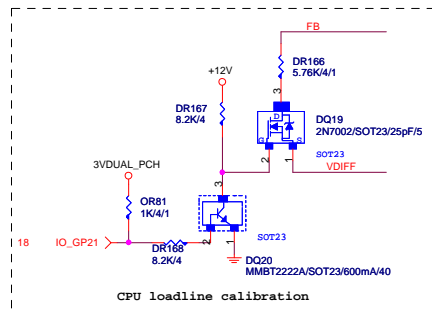
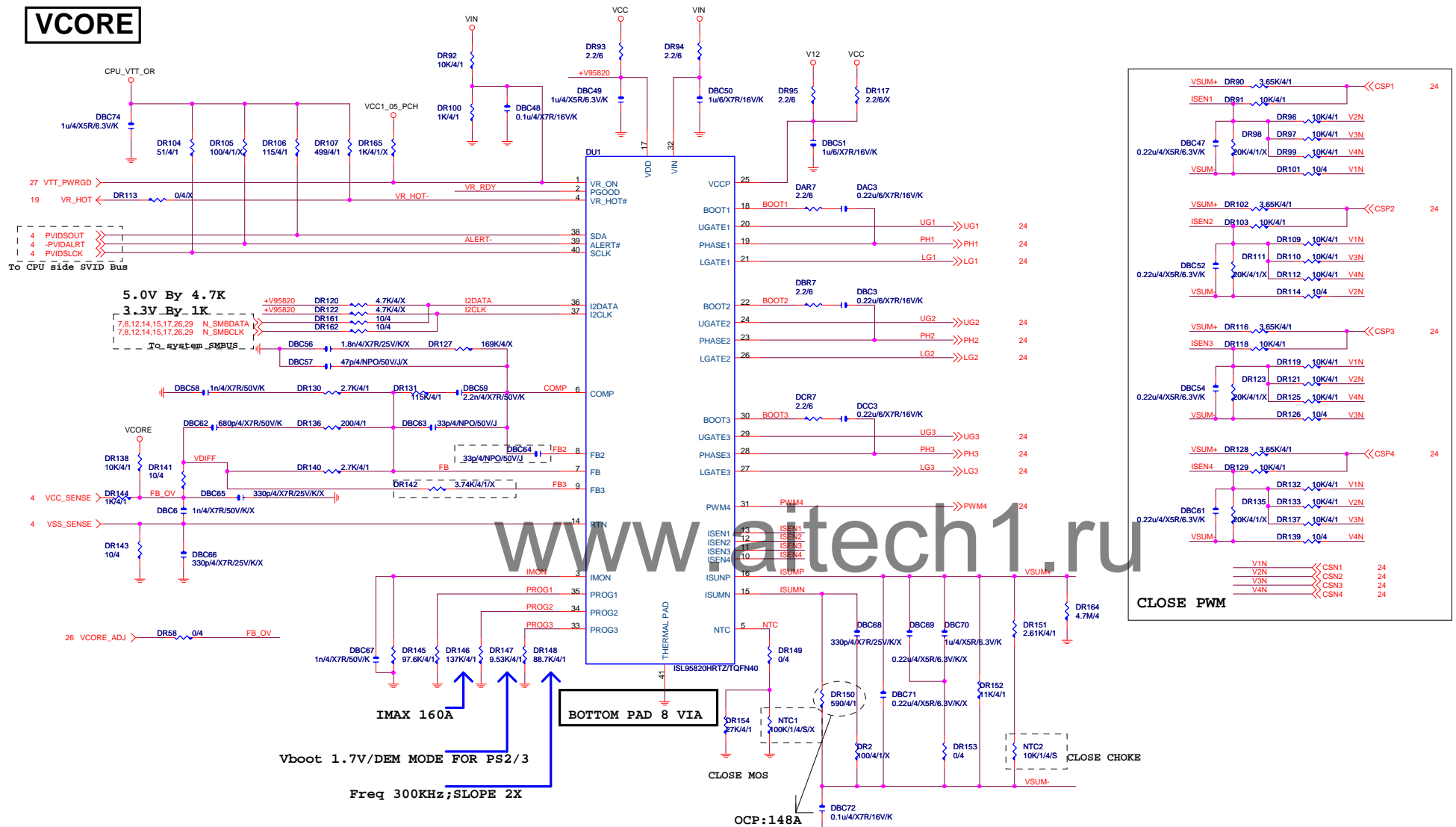
LPT PORT



ALC892	ALC887-VD2	VT1708S-CE
470hm+1nF	470hm+1nF	220hm+100P
X	X	100P/4
8.2K/4	8.2K/4	3.3K/4/1
22K/4	22K/4	10K/4/1
62 ohm	62 ohm	75 ohm
O	O	O
X	O	O



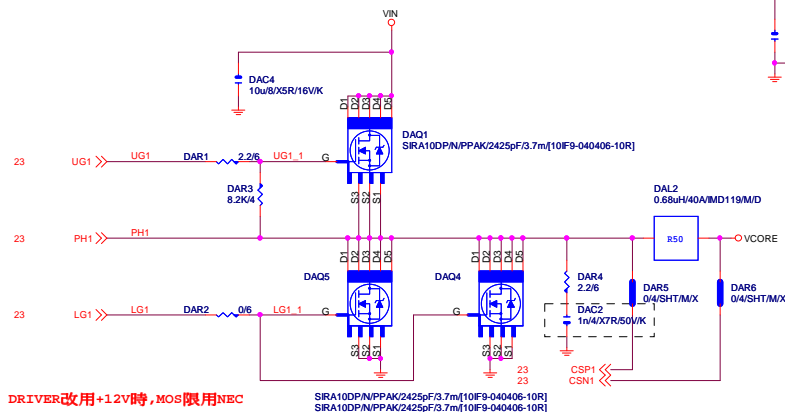
VCORE



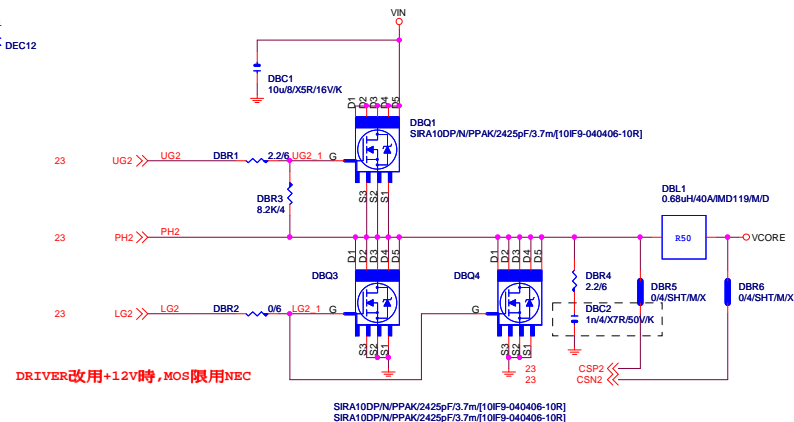
Gigabyte Technology			
File: VCORE_ISL95820			
Size: Custom	Document Number: GA-Z87-HD3	Rev: 1.02	
Date: Friday, March 22, 2013	Sheet: 23	of 34	

VCORE

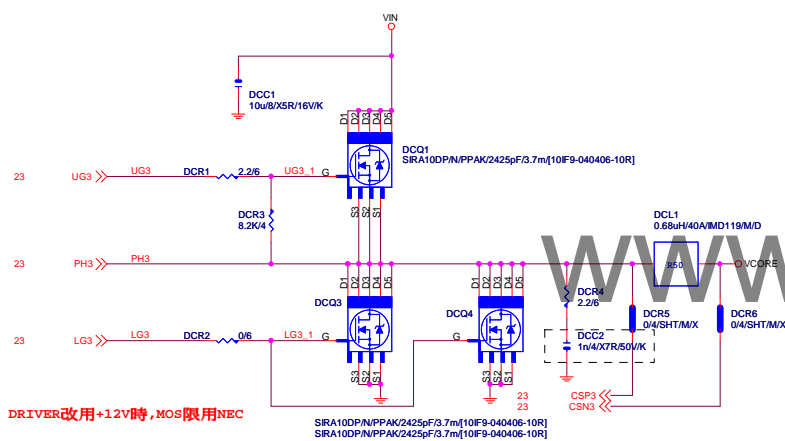
[1]



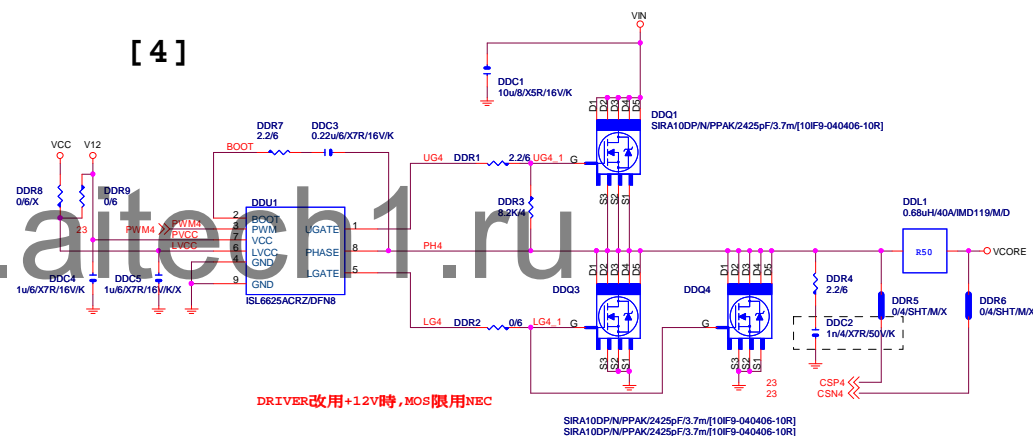
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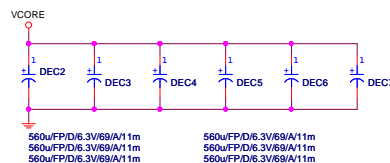
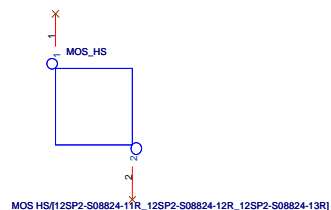
[3]



[4]

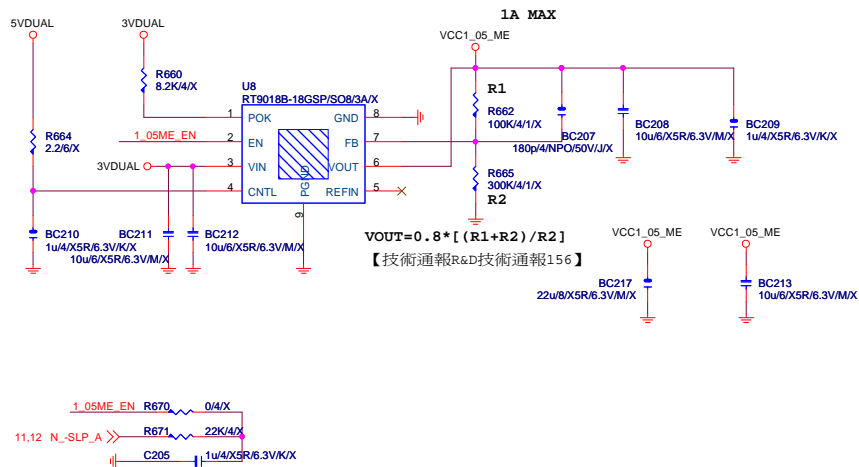


MOSFET HEATSINK

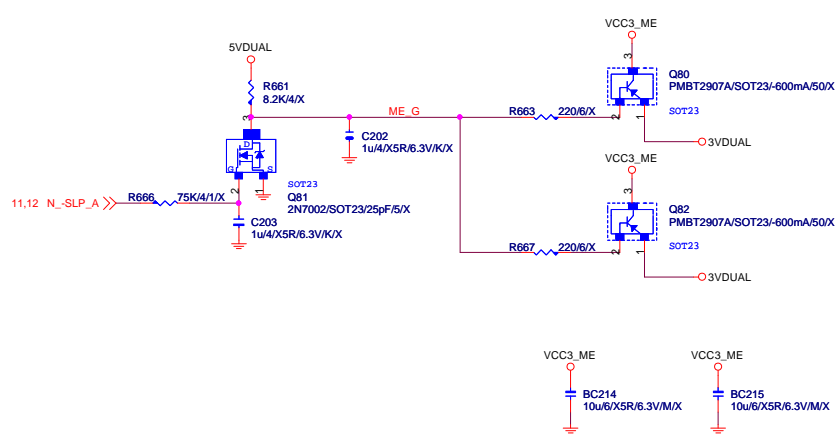


Gigabyte Technology			
Title	ISL95820_2		
Size	Document Number	GA-Z87-HD3	
Custom			Rev 1.02
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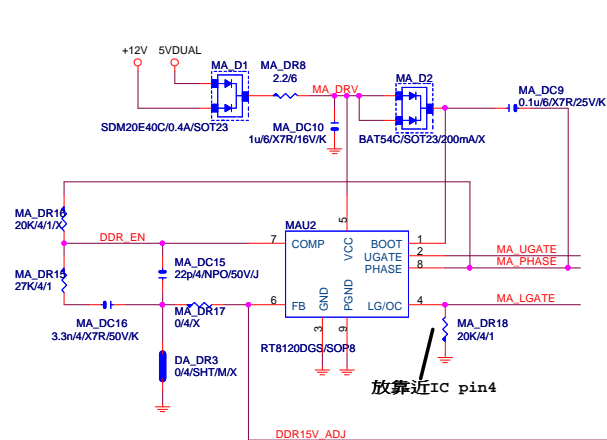
VCC1_05_ME



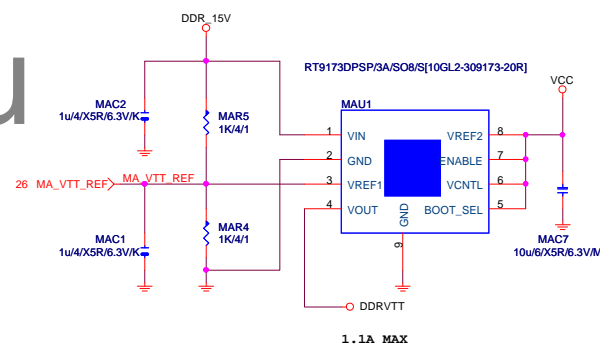
VCC3_ME



DDR_15V



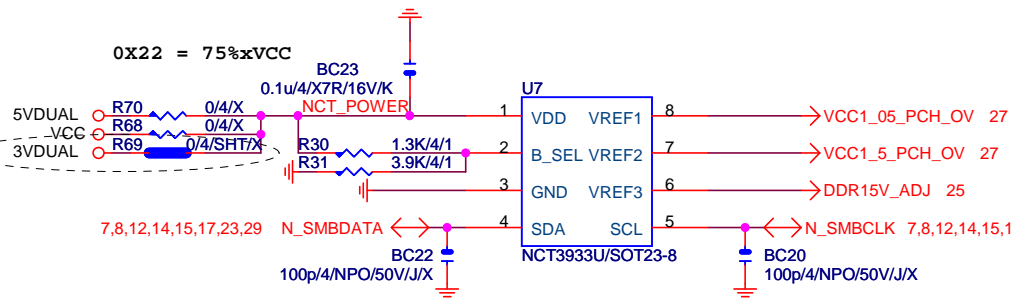
DDRVTT



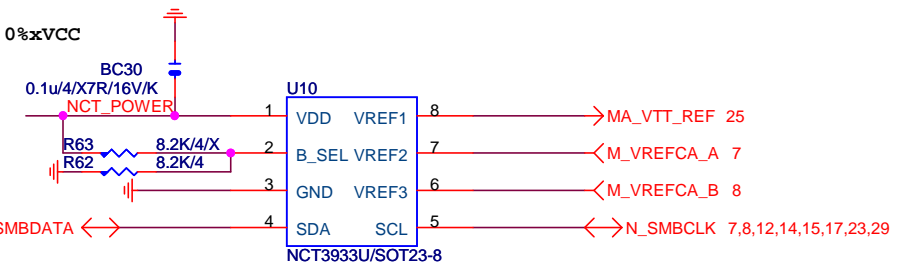
VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A
 OCP:35.82A for Rds=6.7m for vishay@4.5V
 OCP:72.727A for Rds=3.3m for renesas@10V
 OCP:48A=RoSet*Iocset / Rds(on)
 =12K*10uA / [5//5]

GIGABYTE™			
Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
Custom	GA-Z87-HD3	1.02	
Date:	Friday, March 22, 2013	Sheet	25 of 34

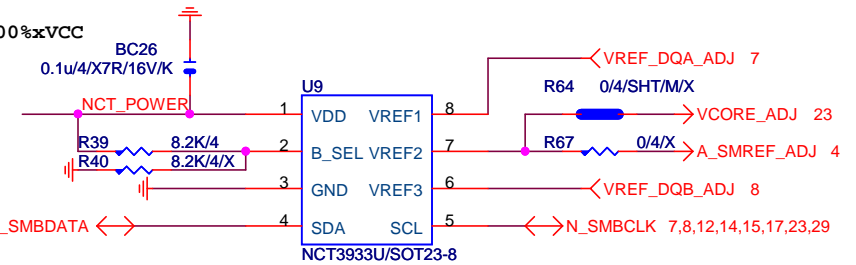
OVER VOLTAGE



0X2A = 0%xVCC



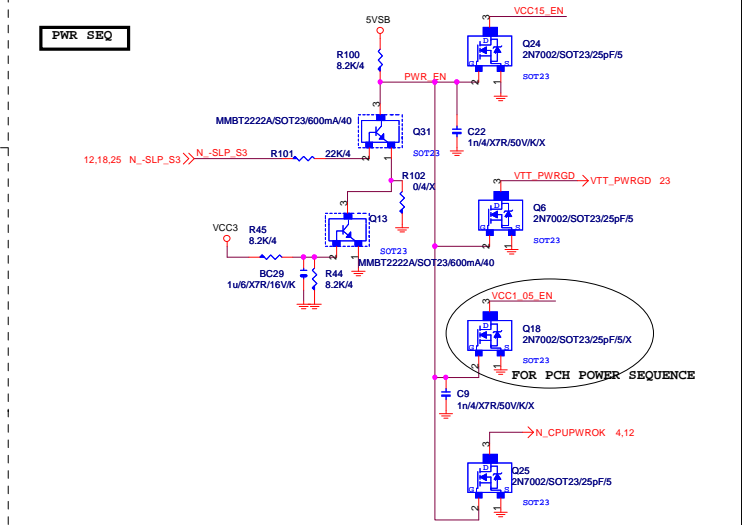
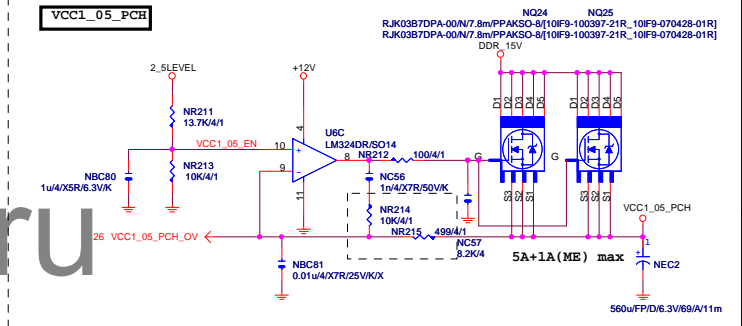
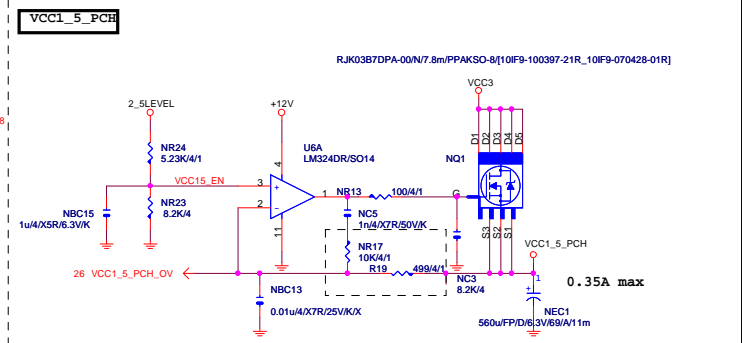
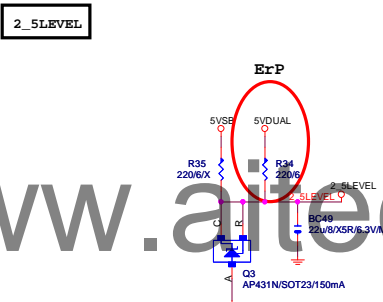
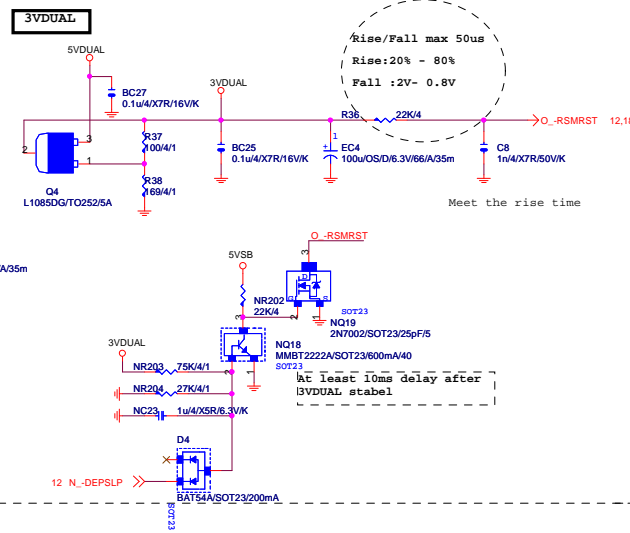
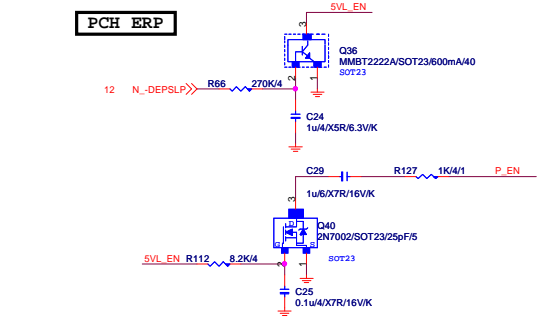
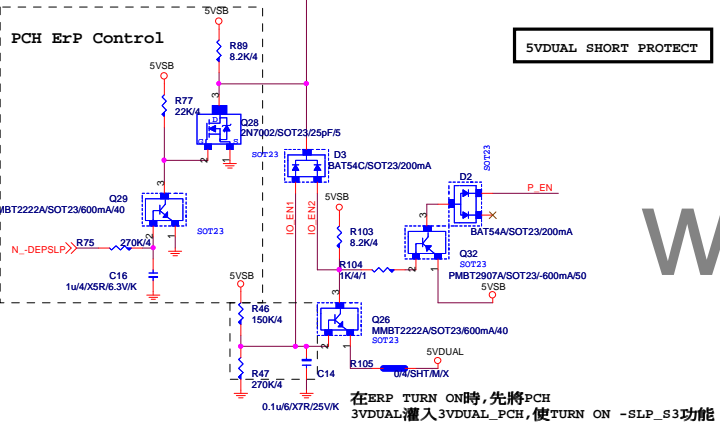
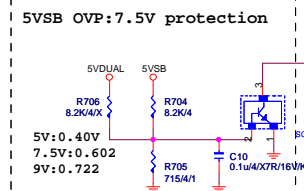
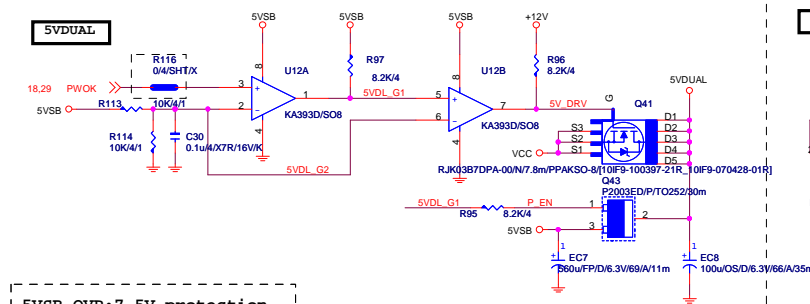
0X20 = 100%xVCC



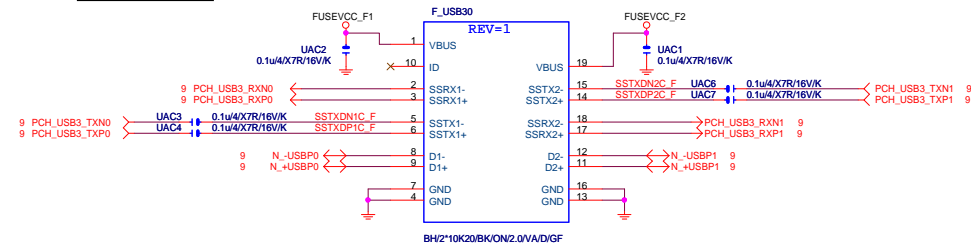
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

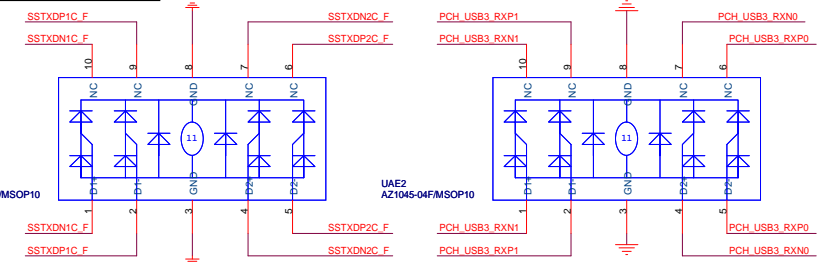
Title			CPU CORE VR-2
Size	Document Number	GA-Z87-HD3	
Custom			Rev 1.02
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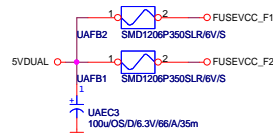
Front USB3.0



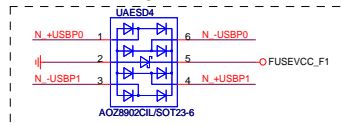
F_USB30 ESD PROTECT



F_USB30 PWR

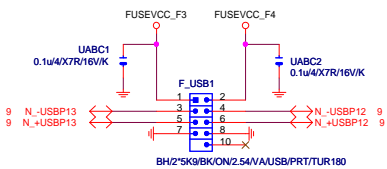


BLUE

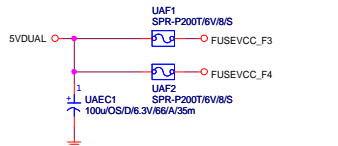


Close to connector

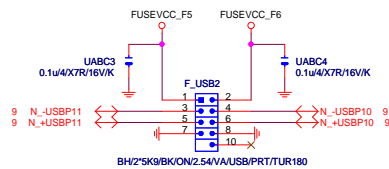
FRONT USB1



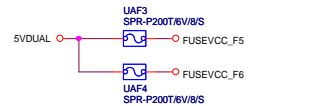
Close to connector



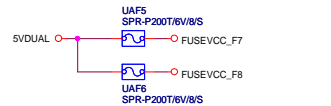
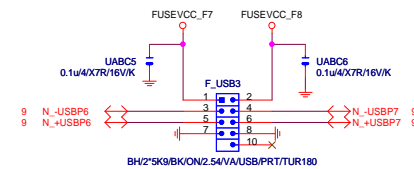
FRONT USB2



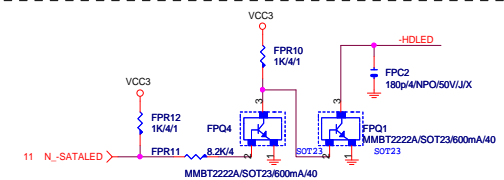
Close to connector



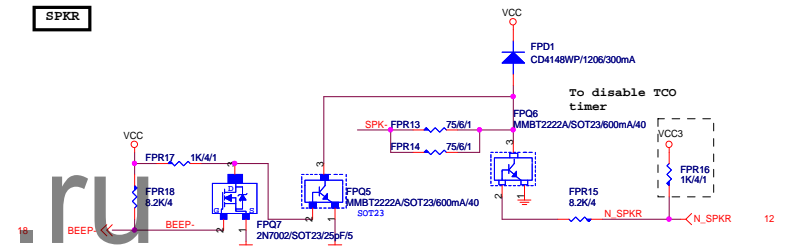
FRONT USB3



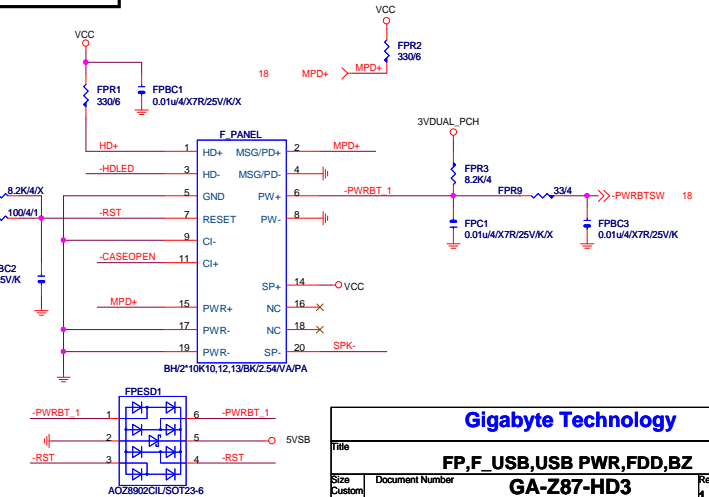
SATA LED



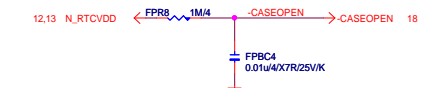
SPKR



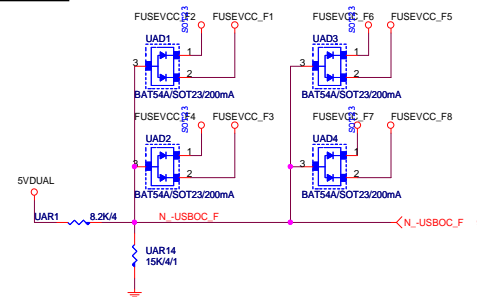
INTEL FRONT PANEL



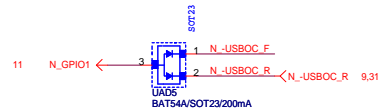
CASE OPEN



-USB0C_F

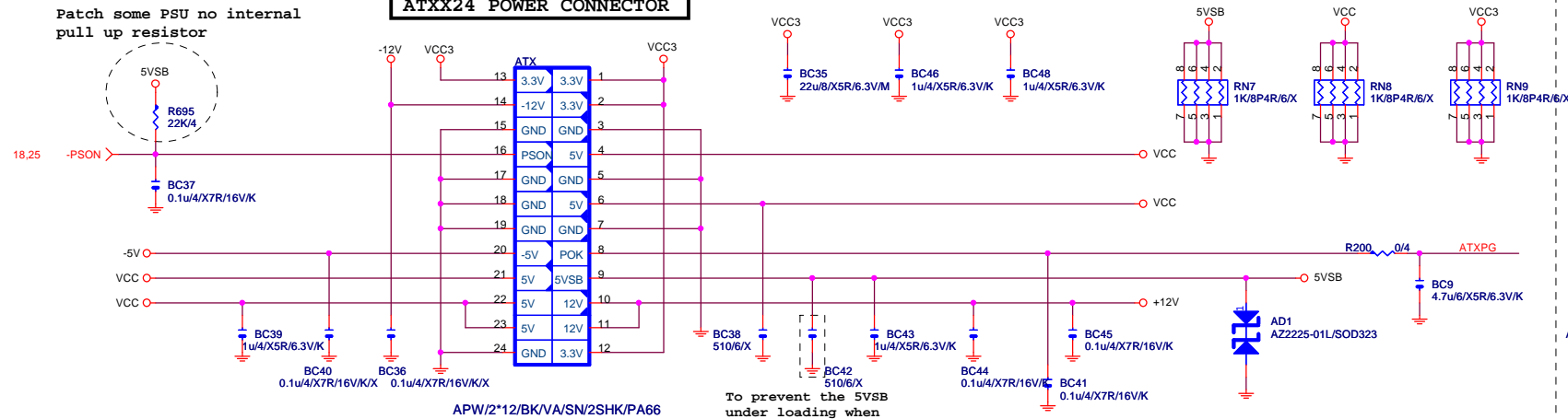


F_USB POWER PROTECT



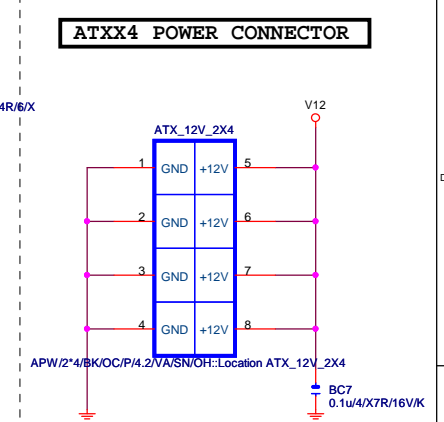
Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

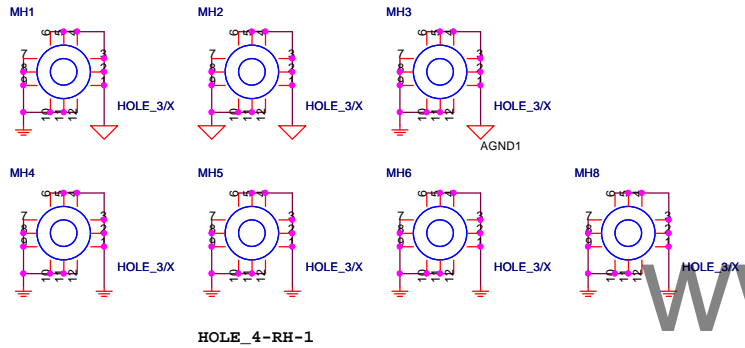


APW/2*12/BK/VA/SN/2SHK/PA66

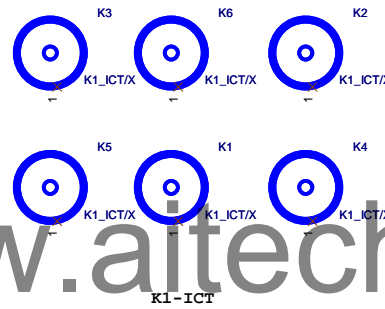
ATXX4 POWER CONNECTOR



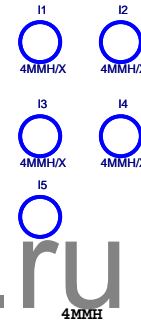
APW/2*4/BK/OC/PA/2/VA/SN/OH:Location ATX_12V_2X4



HOLE_4-RH-1

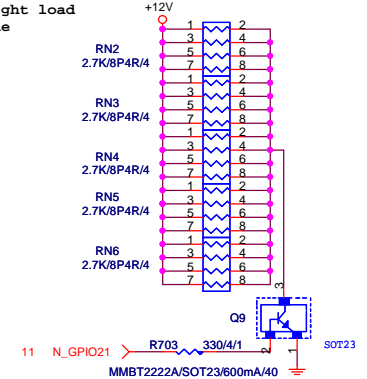


K1-ICT



4MMH

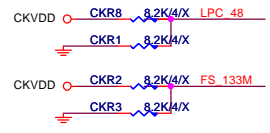
【技術通報R&D技術通報153】
To fix 12V light load
abnormal issue



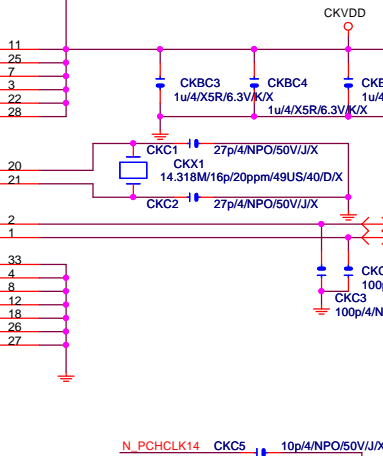
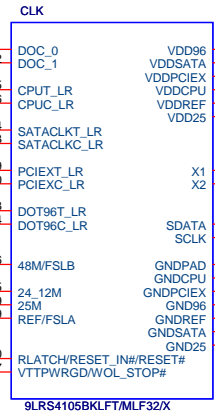
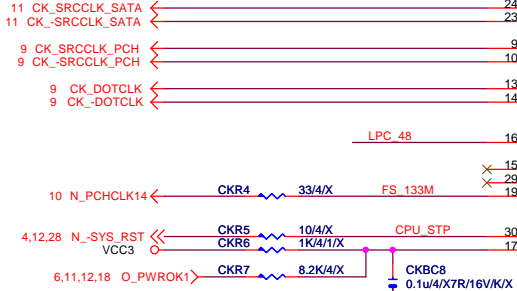
11 N_GPIO21 R703 330/4/1 SOT23
MMBT2222A/SOT23/600mA/40

CLK GEN

CPU Frequency Selection



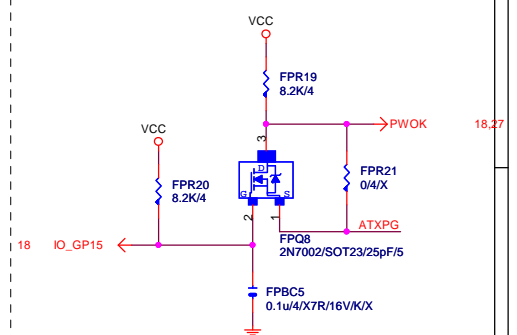
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



N_PCHCLK14 CKC5 10p/4/NPO/50V/J/X

PWOK PATCH

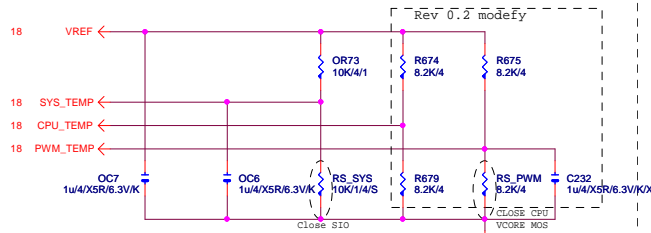
【技術通報R&D技術通報154】



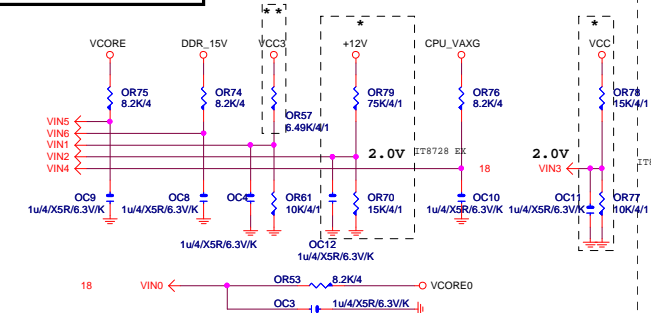
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-Z87-HD3	1.02
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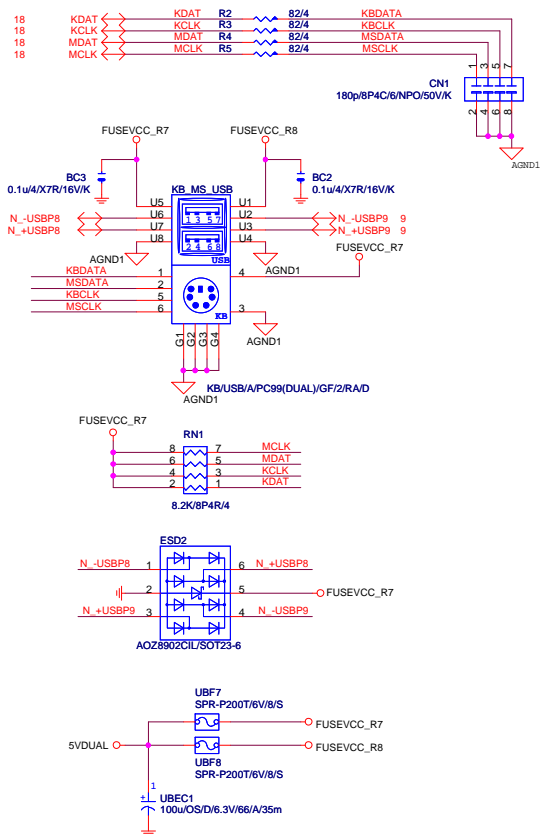
TEMP H/W MONITOR



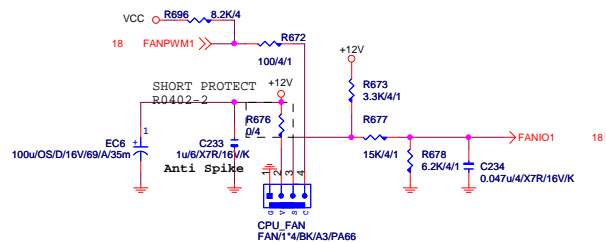
VOLTAGE-- H/W MONITOR



KB/USB



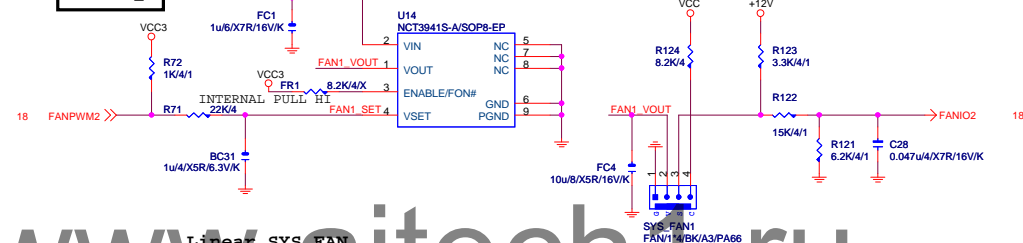
CPU SMART FAN



Linear SYS_FAN

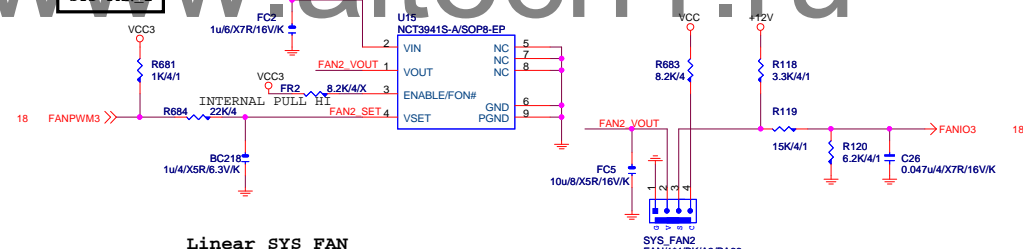
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

SYS_FAN_1



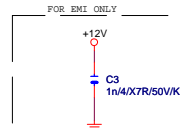
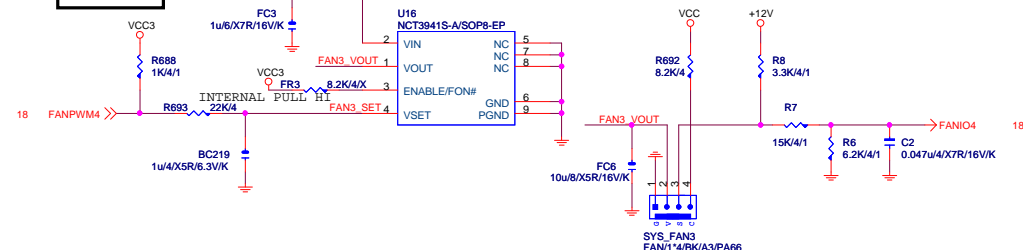
Linear SYS_FAN

SYS_FAN_2



Linear SYS_FAN

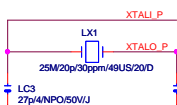
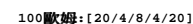
SYS_FAN_3



Gigabyte Technology

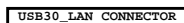
Title			HWM,KB/MS, FAN CTRL
Size	Document Number	Rev	
Custom	GA-Z87-HD3	1.02	
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LAN:INTEL I217



80歐姆:[15/5/5/5/15]

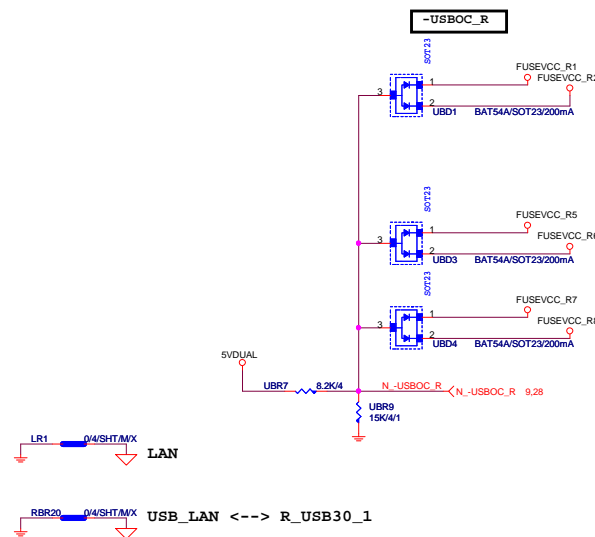
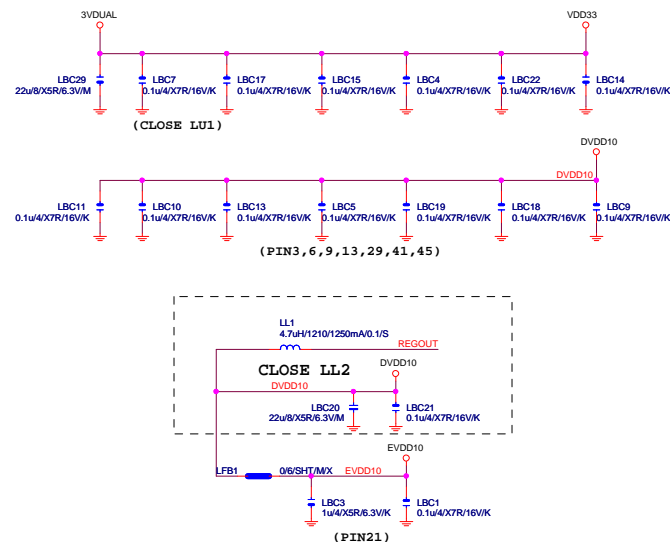
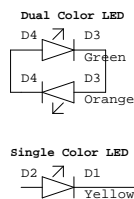
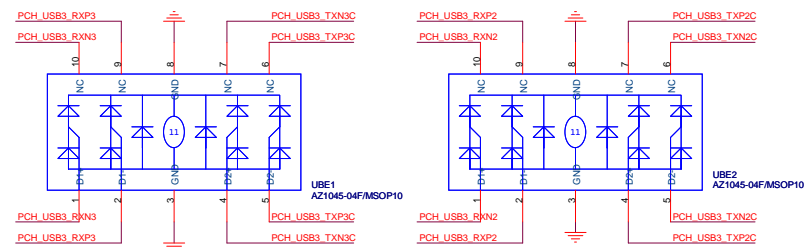
SRCCLK 50MHz: [18/4/10/4/18]



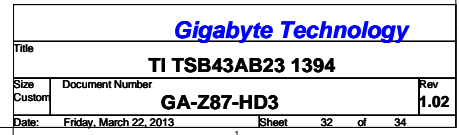
100歐姐:[20/4/8/4/20]



90歐姆:[15/4.5/7.5/4.5/15]



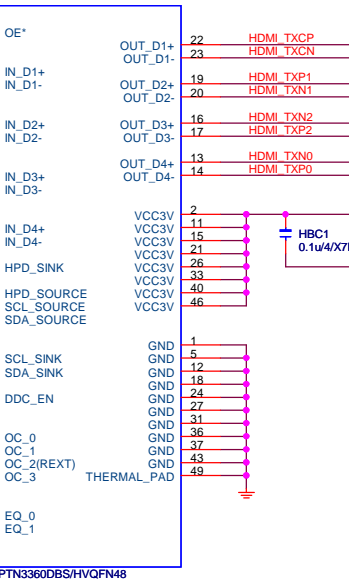
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HDMI LEVEL SHIFT

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

HU1



ASM1442
Default [0,1,0]
450mv,-3dB

ASM1442 Default [0,0] 3dB
[0,1]6dB

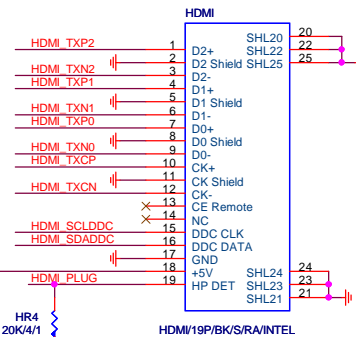
【技術通報R&D技術通報150】

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			
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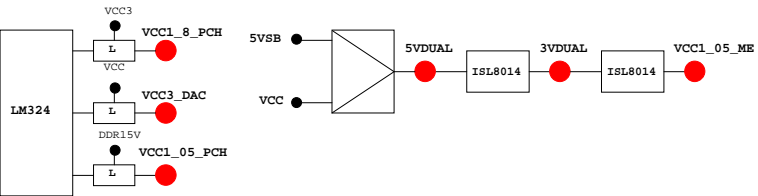
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAG	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
GP26	STBY			Mobile Only
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
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
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

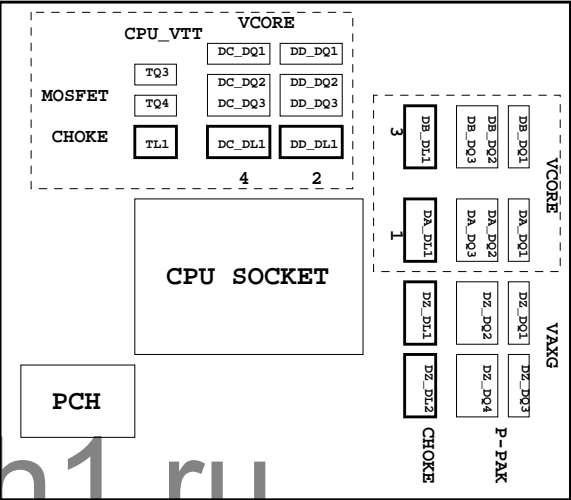
Super I/O ITE8720 GPIO Table

PIN NAME	USAG	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	USAG	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
VID05/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	2X PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

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

散熱模組料號：

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

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

Gigabyte Technology			
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