

Model Name: GA-H87-HD3

1.12

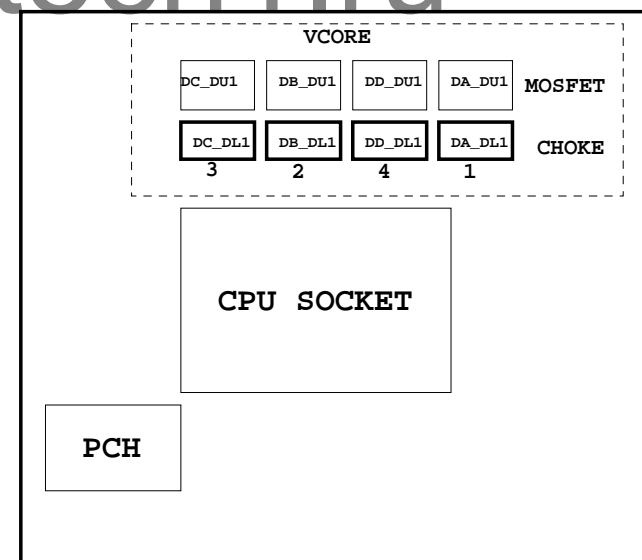
SHEET TITLE

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
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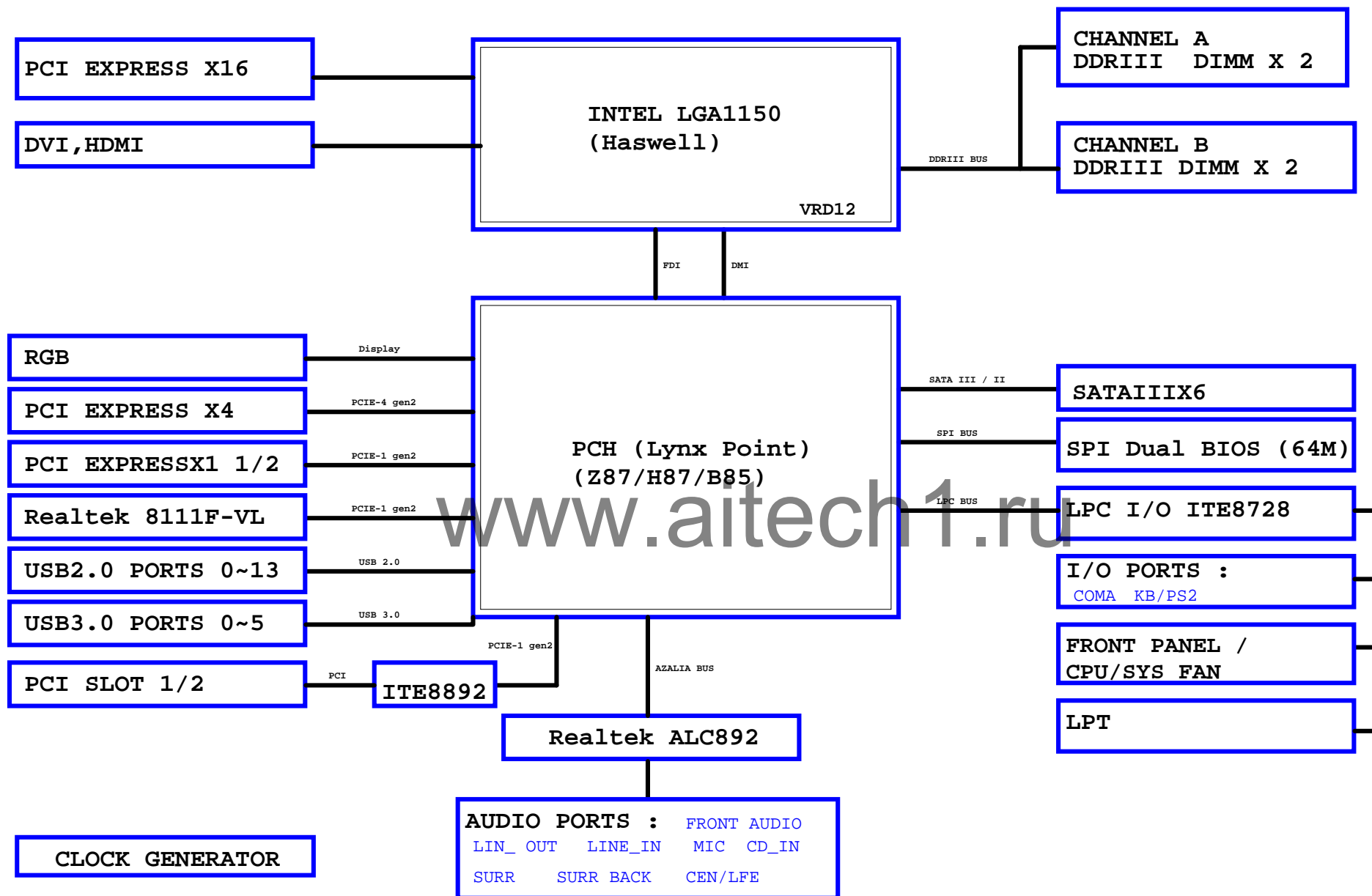
www.aitech1.ru



Component value change history

[illegible][illegible]

BLOCK DIAGRAM



<p style="text-align: center;">Gigabyte Technology</p>				
<p style="text-align: center;">CPU LGA1150-A</p>				
<p style="text-align: center;">GA-H87-HD3</p>				
<p>Document Number</p>	<p>GA-H87-HD3</p>			<p>Rev</p>
<p>10/25/2013</p>	<p>Friday, October 25, 2013</p>	<p>Sheet</p>	<p>4 of 34</p>	<p>1.12</p>

LGA1150 (A)

LGA1150A									
		MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0		
		MAAA1	AU16	DDR0_MA1	DDR0_D01	AF39	MDA1		
		MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2		
		MAAA3	AU17	DDR0_MA3	DDR0_D03	AF39	MDA3		
		MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4		
		MAAA5	AU18	DDR0_MA5	DDR0_D05	AD40	MDA5		
		MAAA6	AU17	DDR0_MA6	DDR0_D06	AF37	MDA6		
		MAAA7	AU18	DDR0_MA7	DDR0_D07	AF40	MDA7		
		MAAA8	AU19	DDR0_MA8	DDR0_D08	AF39	MDA13		
		MAAA9	AU18	DDR0_MA9	DDR0_D09	AF40	MDA9		
		MAAA10	AW11	DDR0_MA10	DDR0_D10	AD38	MDA11		
		MAAA11	AU19	DDR0_MA11	DDR0_D11	AD39	MDA12		
		MAAA12	AU19	DDR0_MA12	DDR0_D12	AF38	MDA8		
		MAAA13	AU19	DDR0_MA13	DDR0_D13	AF37	MDA14		
		MAAA14	AT20	DDR0_MA14	DDR0_D14	AK40	MDA15		
		MAAA15	AT21	DDR0_MA15	DDR0_D15	MDA17			
				DDR0_D16	AM38	MDA21			
		MODT_A0	AW10	DDR0_ODT0	DDR0_D17	PM39	MDA18		
		MODT_A1	AY8	DDR0_ODT1	DDR0_D18	AP39	MDA19		
		MODT_A2	AU9	DDR0_ODT2	DDR0_D19	AM37	MDA20		
		MODT_A3	AW8	DDR0_ODT3	DDR0_D20	AM38	MDA16		
					DDR0_D21	AP37	MDA22		
					DDR0_D22	PM37	MDA25		
			AW33	DDR0_ECC0	DDR0_D23	AV35	MDA29		
			UJ31	DDR0_ECC1	DDR0_D24	AW37	MDA29		
			UJ31	DDR0_ECC2	DDR0_D25	AV35	MDA26		
			UJ31	DDR0_ECC3	DDR0_D26	AV37	MDA27		
			UJ33	DDR0_ECC4	DDR0_D27	AV35	MDA27		
			AT33	DDR0_ECC5	DDR0_D28	AV37	MDA28		
			AT31	DDR0_ECC6	DDR0_D29	AT35	MDA30		
			QW31	DDR0_ECC7	DDR0_D30	AW35	MDA31		
					DDR0_D31	AY6	MDA33		
		SBA0	AY12	DDR0_BA0	DDR0_D32	AY6	MDA37		
		SBA1	AT21	DDR0_BA1	DDR0_D33	AY6	MDA37		
		SBA2	AT21	DDR0_BA2	DDR0_D34	AW4	MDA35		
					DDR0_D35	AW6	MDA36		
			KEA0	DDR0_KE0	DDR0_D36	AW4	MDA32		
		KEA1	KEA1	DDR0_KE1	DDR0_D37	AW4	MDA38		
		KEA2	KEA2	DDR0_KE2	DDR0_D38	AW4	MDA39		
		KEA3	KEA3	DDR0_KE3	DDR0_D39	AN1	MDA41		
					DDR0_D40	AN4	MDA42		
		-CSA0	-CSA1	DDR0_CS_N0	DDR0_D41	AN2	MDA48		
		-CSA1	AY9	DDR0_CS_N1	DDR0_D42	AN4	MDA43		
		-CSA2	AW10	DDR0_CS_N2	DDR0_D43	AN2	MDA44		
		-CSA3	-CSA3	DDR0_CS_N3	DDR0_D44	AN2	MDA46		
					DDR0_D45	AN1	MDA47		
			DCLKA0	DDR0_CLK_P0	DDR0_D46	AL3	MDA49		
		-DCLKA0	-DCLKA0	DDR0_CLK_N0	DDR0_D47	AL3	MDA50		
		DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_D48	AL3	MDA51		

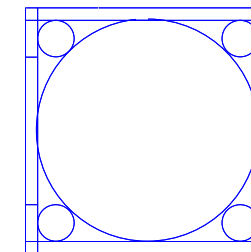
HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (B)

LGA150B			
MAA80	AL19	DDR1_MA0	DDR1_D00
MAA81	AK23	DDR1_MA1	DDR1_D01
MAA82	AM22	DDR1_MA2	DDR1_D02
MAA83	AM23	DDR1_MA3	DDR1_D03
MAA84	AP23	DDR1_MA4	DDR1_D04
MAA85	AL23	DDR1_MA5	DDR1_D05
MAA86	AY24	DDR1_MA6	DDR1_D06
MAA87	AV25	DDR1_MA7	DDR1_D07
MAA88	AU26	DDR1_MA8	DDR1_D08
MAA89	AP18	DDR1_MA9	DDR1_D09
MAA90	AW25	DDR1_MA10	DDR1_D10
MAA91	AY15	DDR1_MA11	DDR1_D11
MAA92	AV26	DDR1_MA12	DDR1_D12
MAA93	AR25	DDR1_MA13	DDR1_D13
MAA94	AV27	DDR1_MA14	DDR1_D14
MAA95	AZ28	DDR1_MA15	DDR1_D15
MODT_B0	AM17	DDR1_ODT0	DDR1_D16
MODT_B1	AL16	DDR1_ODT1	DDR1_D17
MODT_B2	AM16	DDR1_ODT2	DDR1_D18
MODT_B3	AK15	DDR1_ODT3	DDR1_D19
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HASWELL/10SC1-F01150-01R_10SC1-F01150-03R

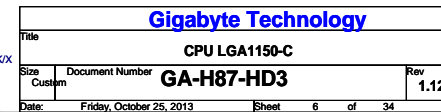
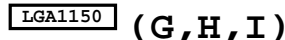
LGA1150 (CR)

LGA1150
ILM_BP/1156/CSP

DDR BUS

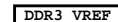
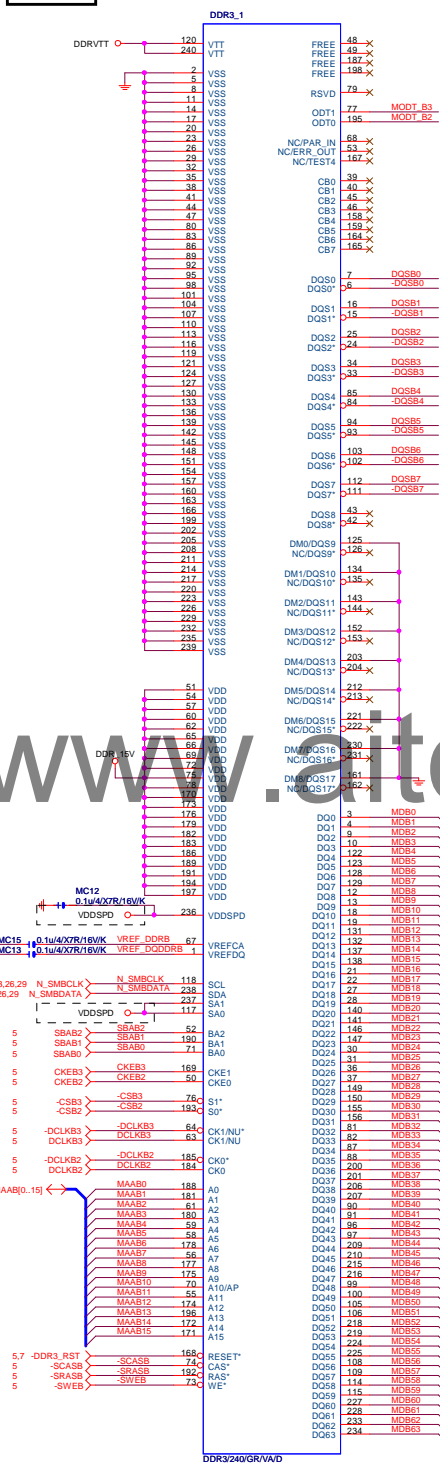
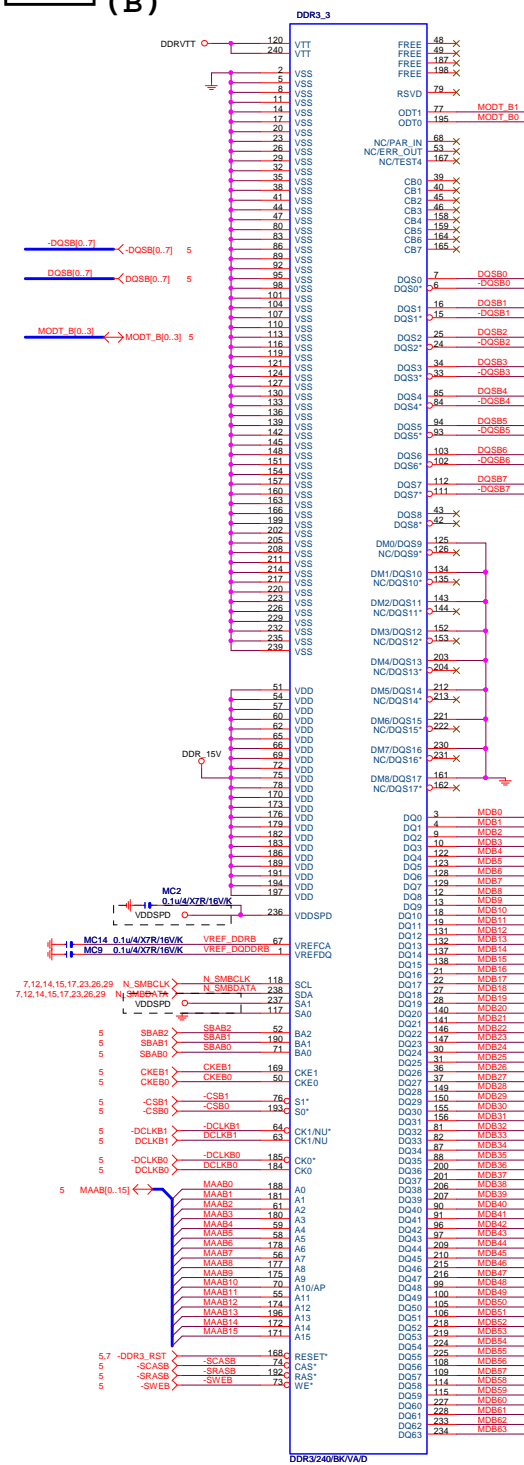
7	MODT_A[0..3]	↔	MODT_A[0..3]
8	MODT_B[0..3]	↔	MODT_B[0..3]
7	MDA[0..63]	↔	MDA[0..63]
8	MDB[0..63]	↔	MDB[0..63]
7	DQSA[0..7]	↔	DQSA[0..7]
7	-DQSA[0..7]	↔	-DQSA[0..7]
7	MAAA[0..15]	↔	MAAA[0..15]
8	MAAB[0..15]	↔	MAAB[0..15]
8	DQSB[0..7]	↔	DQSB[0..7]
8	-DQSB[0..7]	↔	-DQSB[0..7]

(F, J)



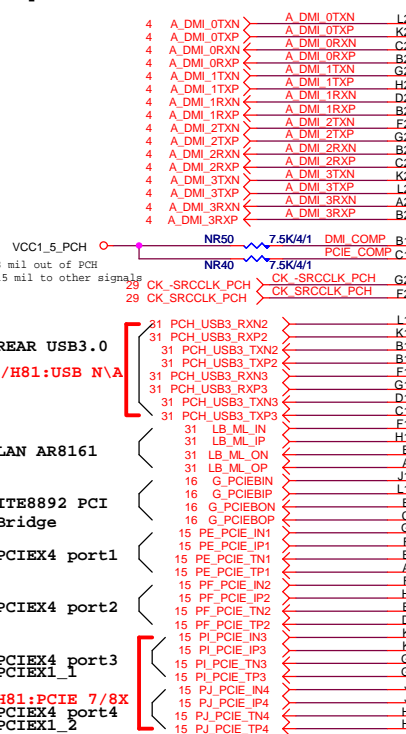


(B)



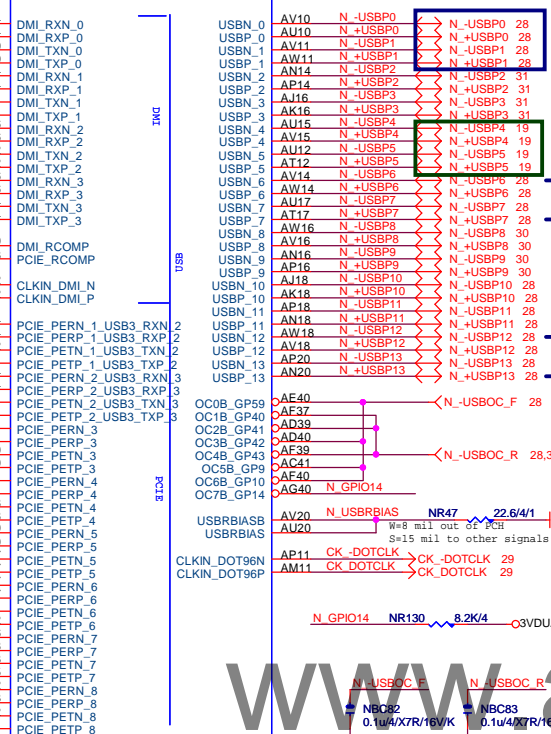
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

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



放靠近 Device & PCI-E Slot

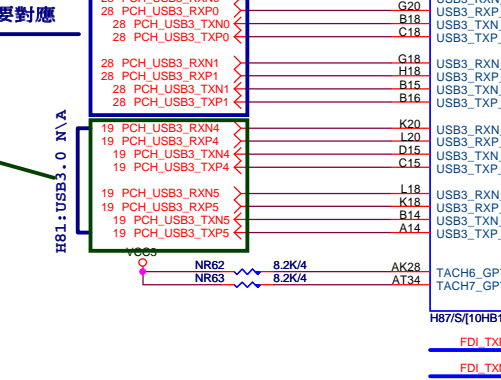
USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)
PCHB Impedance=85 +/- 15%



PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

```
usb2.0 5/7/5//12
usb3.0 5/7/5//20      Impedance=85 +/- 15%
```

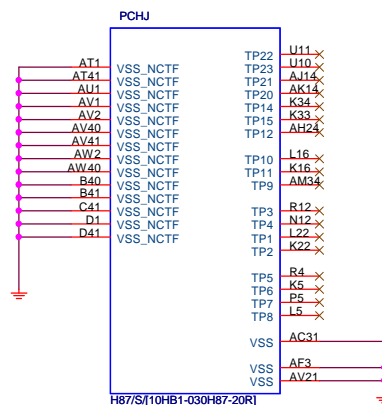
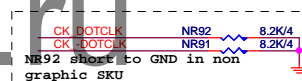
28 PCH_USB3_RXN0 >

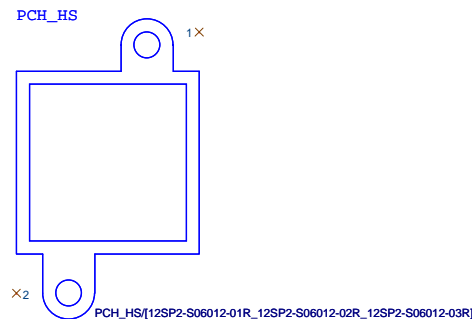


USB3.0:20/5/7/5/20 (breakout mir
8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS



Mount for integrated clock Generation Mode





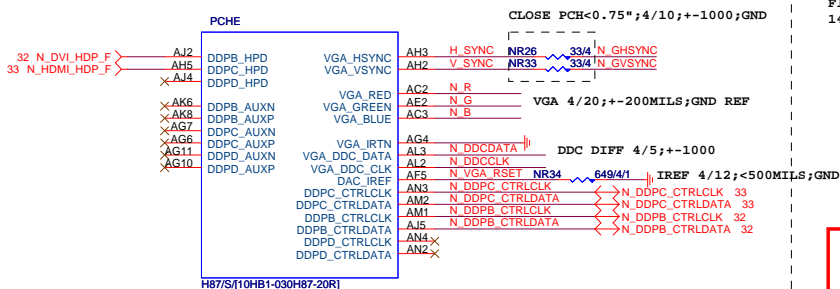
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

USB OC# Configure	
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

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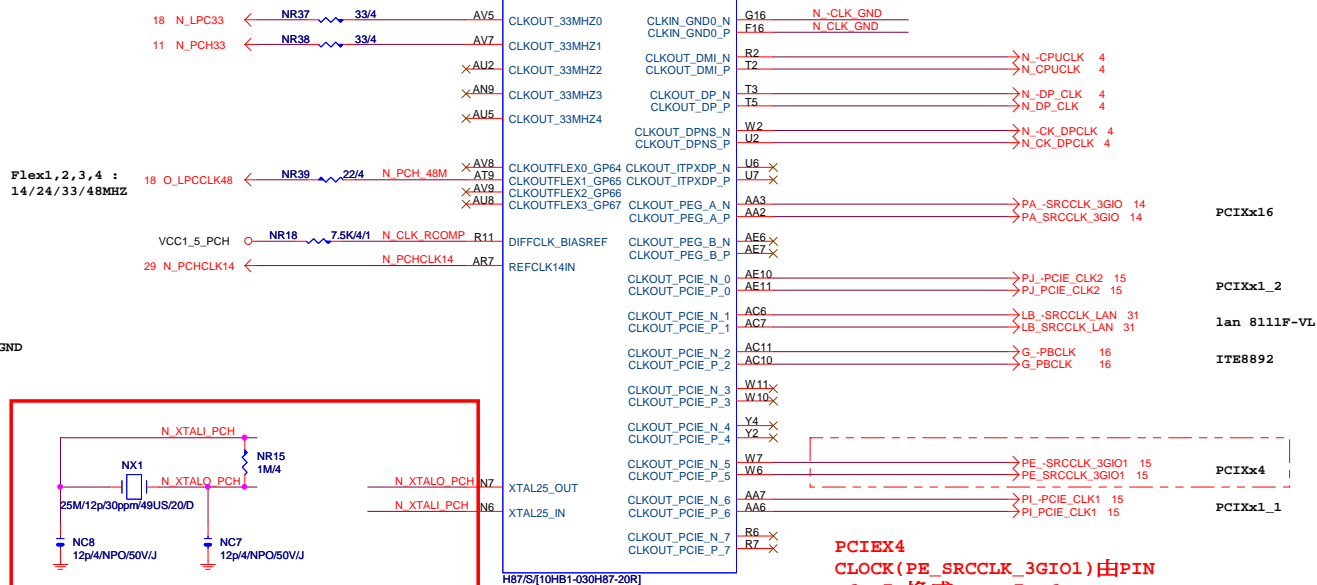
Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number	Rev	
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PCH (E)



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

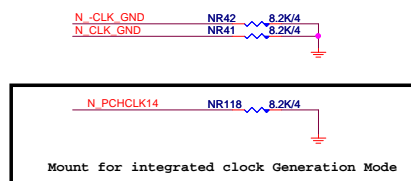
PCH (G)



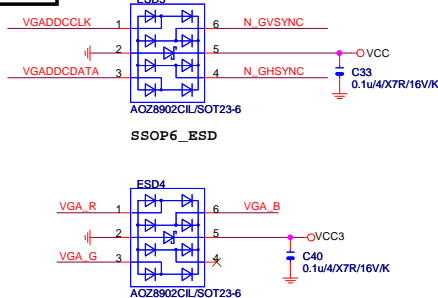
PCIEX4
CLOCK(PE_SRCCLK_3GIO1)由PIN
R6,R7 換成PIN W7,W6
避免跟CRYSTAL 25MHZ干擾

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

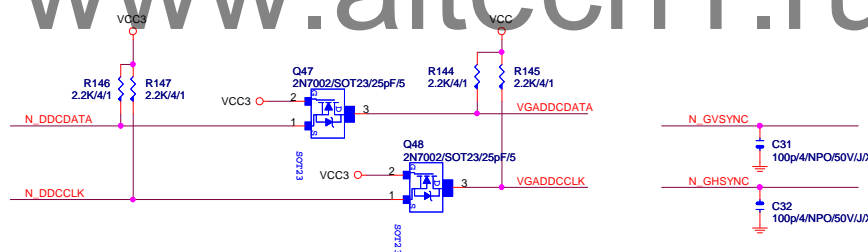
PCH CLK PD



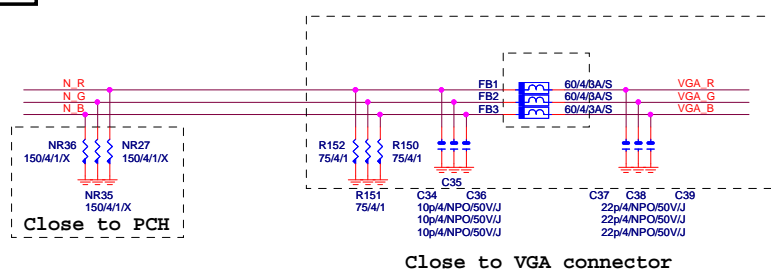
VGA ESD



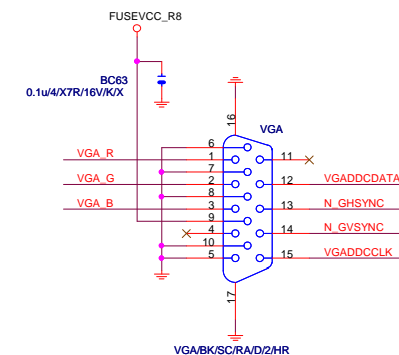
VGA DDC



VGA DDC



VGA CONNECTOR



Gigabyte Technology

Title			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-H87-HD3	1.12	
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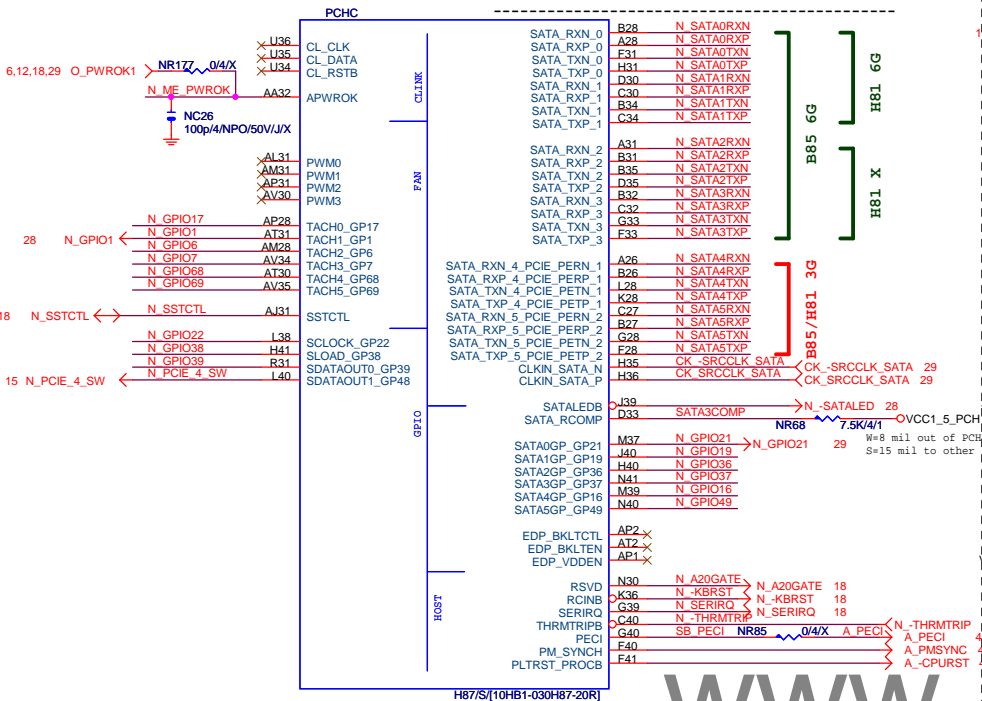
PCH (C)

SATA3 : 20/4/4/4/20_(breakout min 8/4/4/4/8)

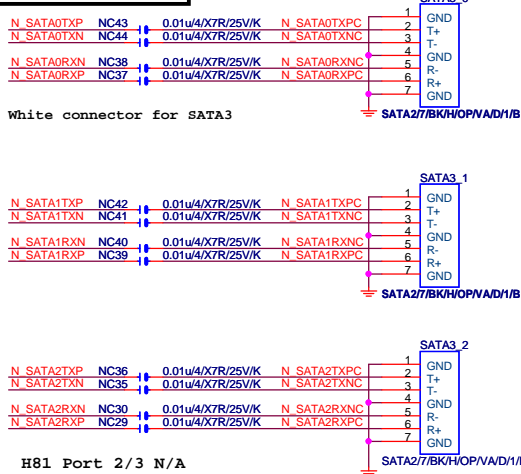
Impedance=85 +- 17.5

SATA2 4/4/4//15

SATA3 4/4/4//20

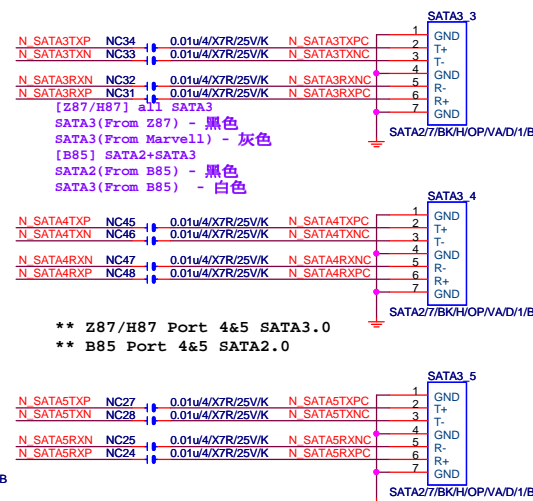


SATA CONNECTOR

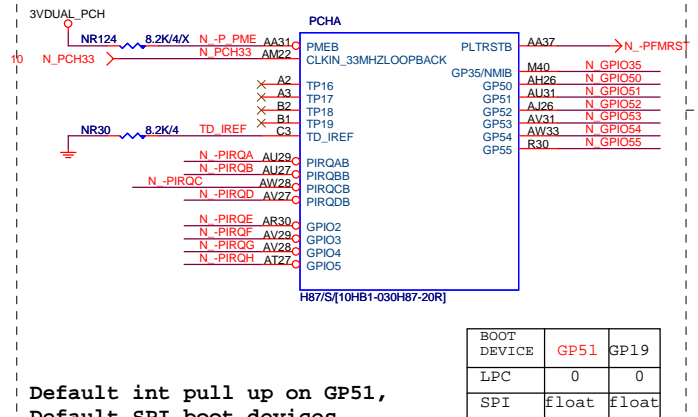


** Z87/H87 Port 4&5 SATA3.0

```
** B85 Port 4&5 SATA2.0
```

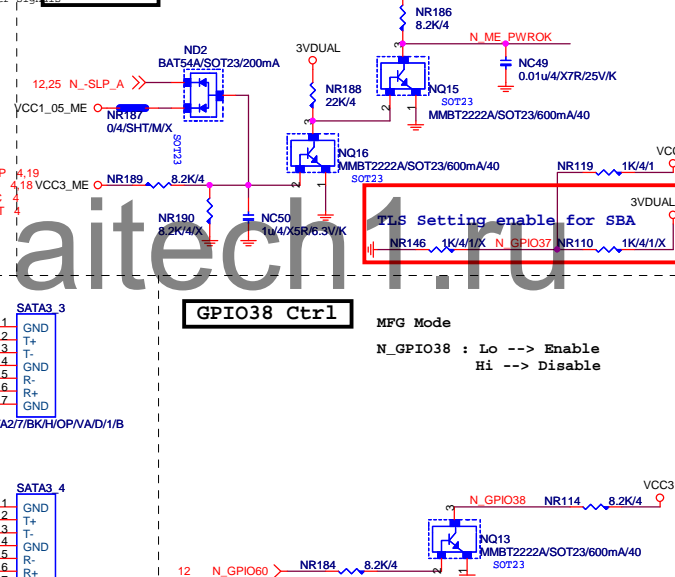


PCH (A)



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

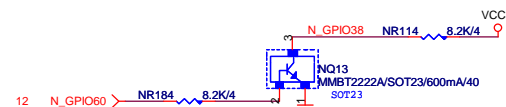
ME PWROK



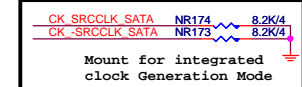
GPIO38 Ctrl

MFG Mode

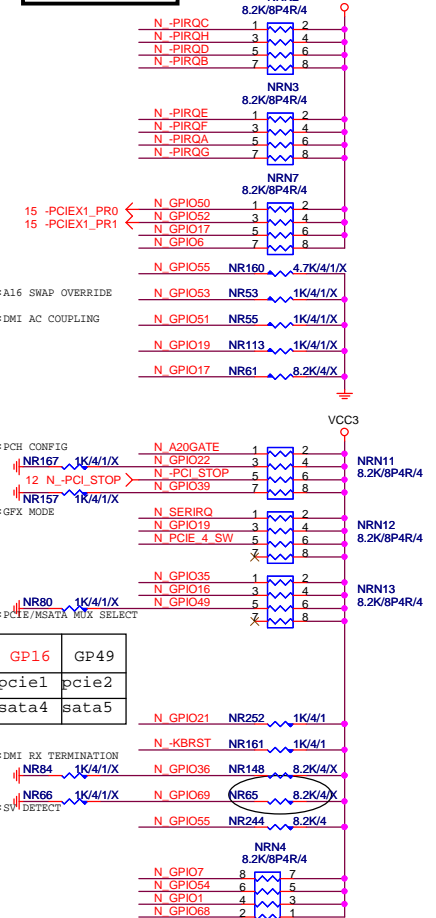
```
N_GPIO38 : Lo --> Enable
           Hi --> Disable
```



PCH CLK PD



PCH PU/PD

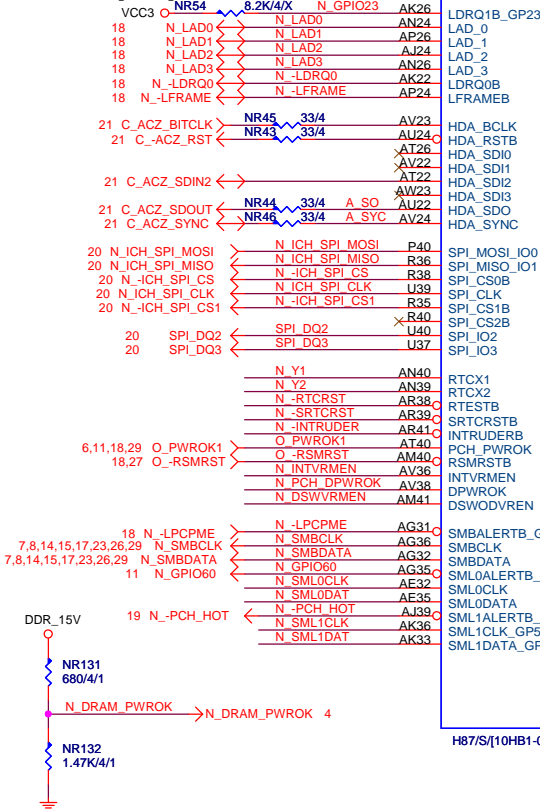


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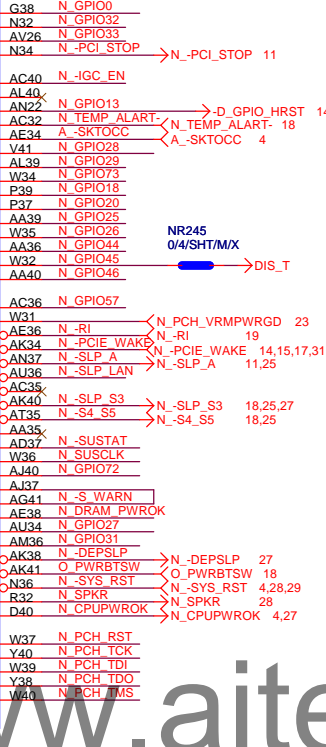
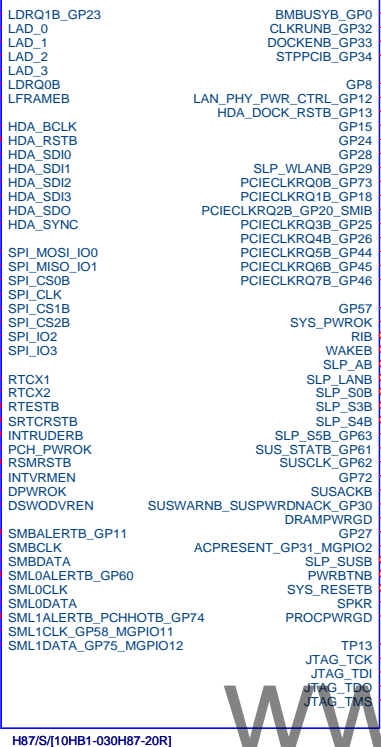
Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	GA-H87-HD3	1.12	
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PCH

(D)

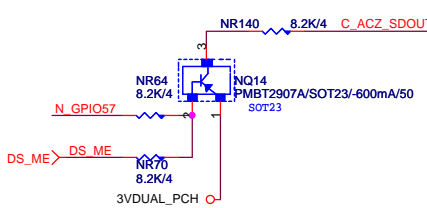


PCHD



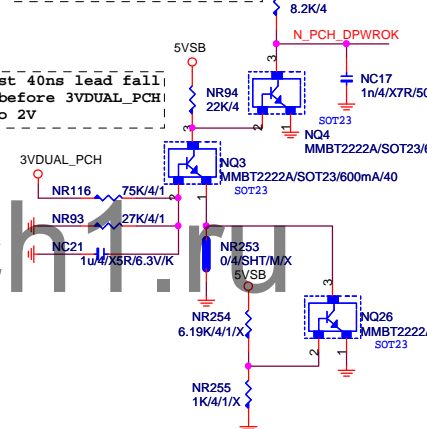
ACZ_SDOUT

C.ACZ_SDOUT : HI --> ME Enable
Lo --> ME Disable
HI:disable ME and override SPI Flash Access Permissions

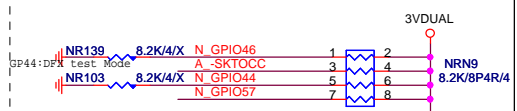


PCH_DPWROK

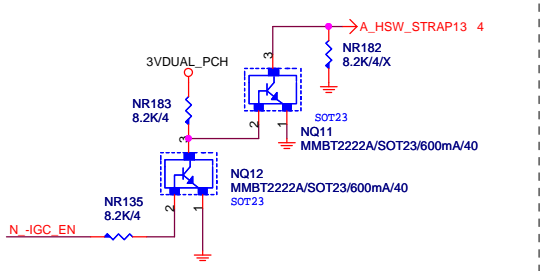
At least 10ms delay after 3VDUAL_PCH stabel



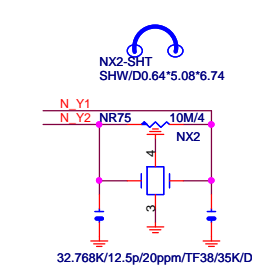
PCH PU/PD



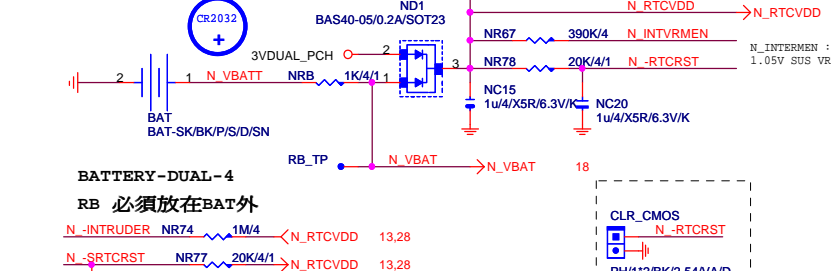
HSW_STRAP13



32.768KHZ



CLR_CMOS



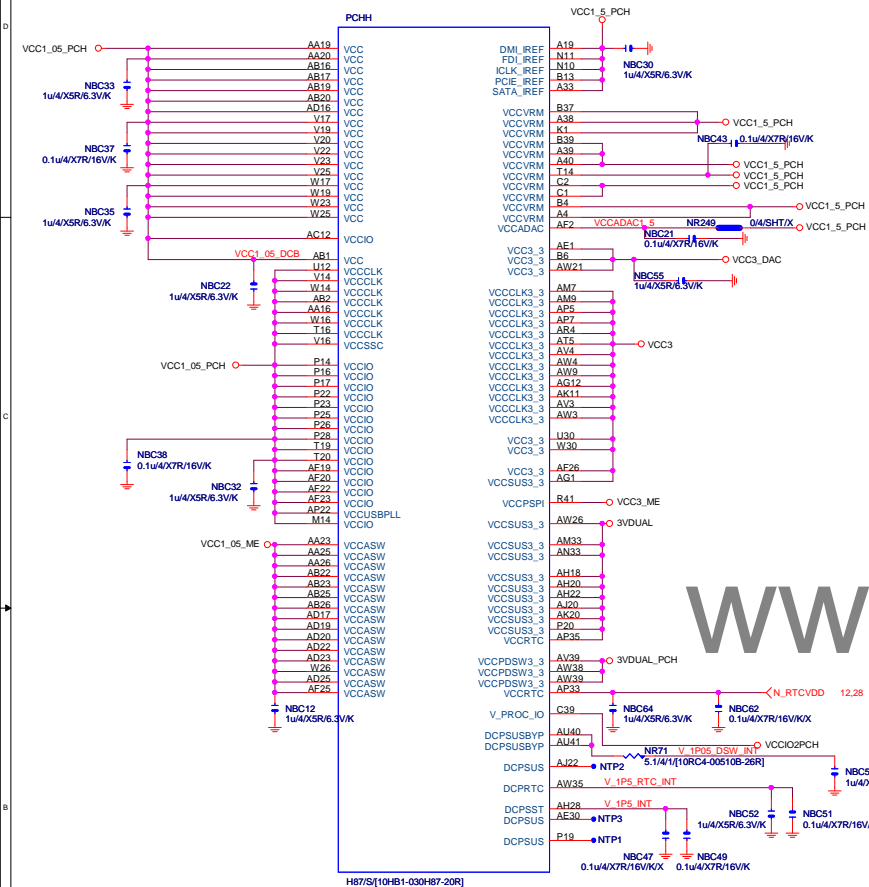
Gigabyte Technology

PCH GPIO , CTRL , AUDIO

GA-H87-HD3

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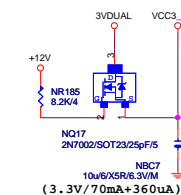
PCH (H)



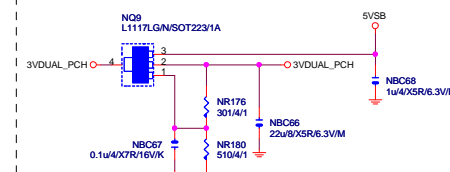
H87/S[10HB1-030H87-20R]

VCC3_DAC

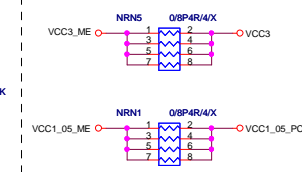
CLOSE北橋(注意震盪水波紋)



3VDUAL_PCH

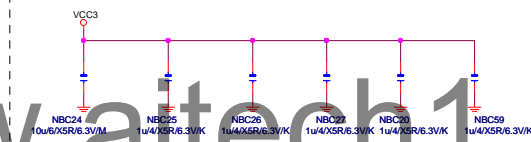


SHT_PWR

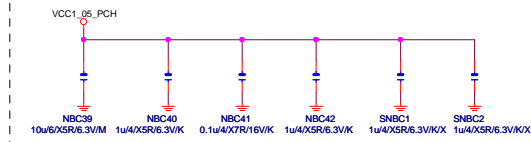


CAP

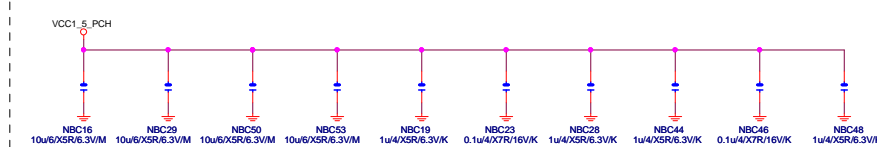
(3.3V) (X6)



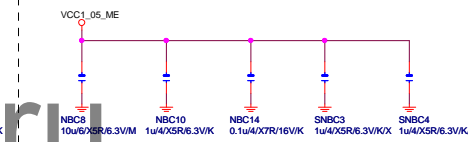
(1.05V) (X6)



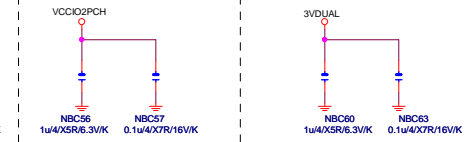
(1.5V) (X10)



(1.05V) (X5)



(1.05V)(X2) (3.3V) (X2)

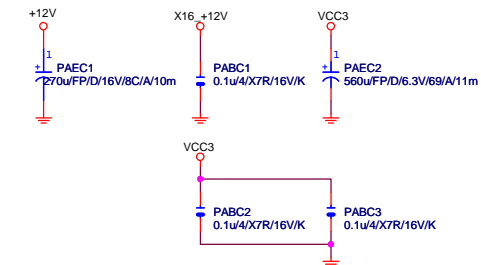


PCH (I)



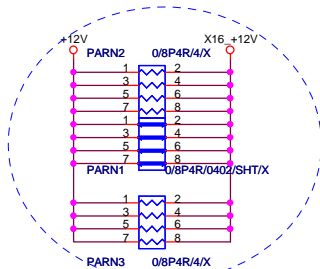
PCH
H87/S[10HB1-030H87-20R]

PCIEX16 CAP



PCIEX16 PROTECT SHT

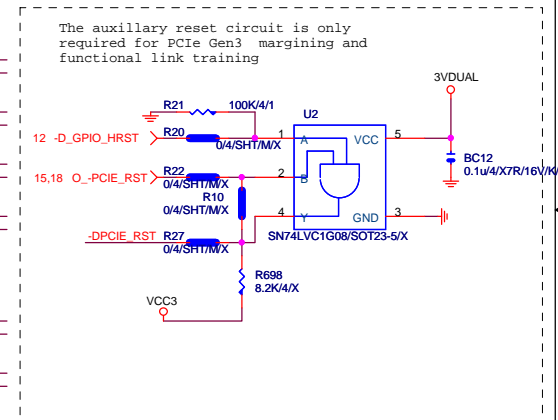
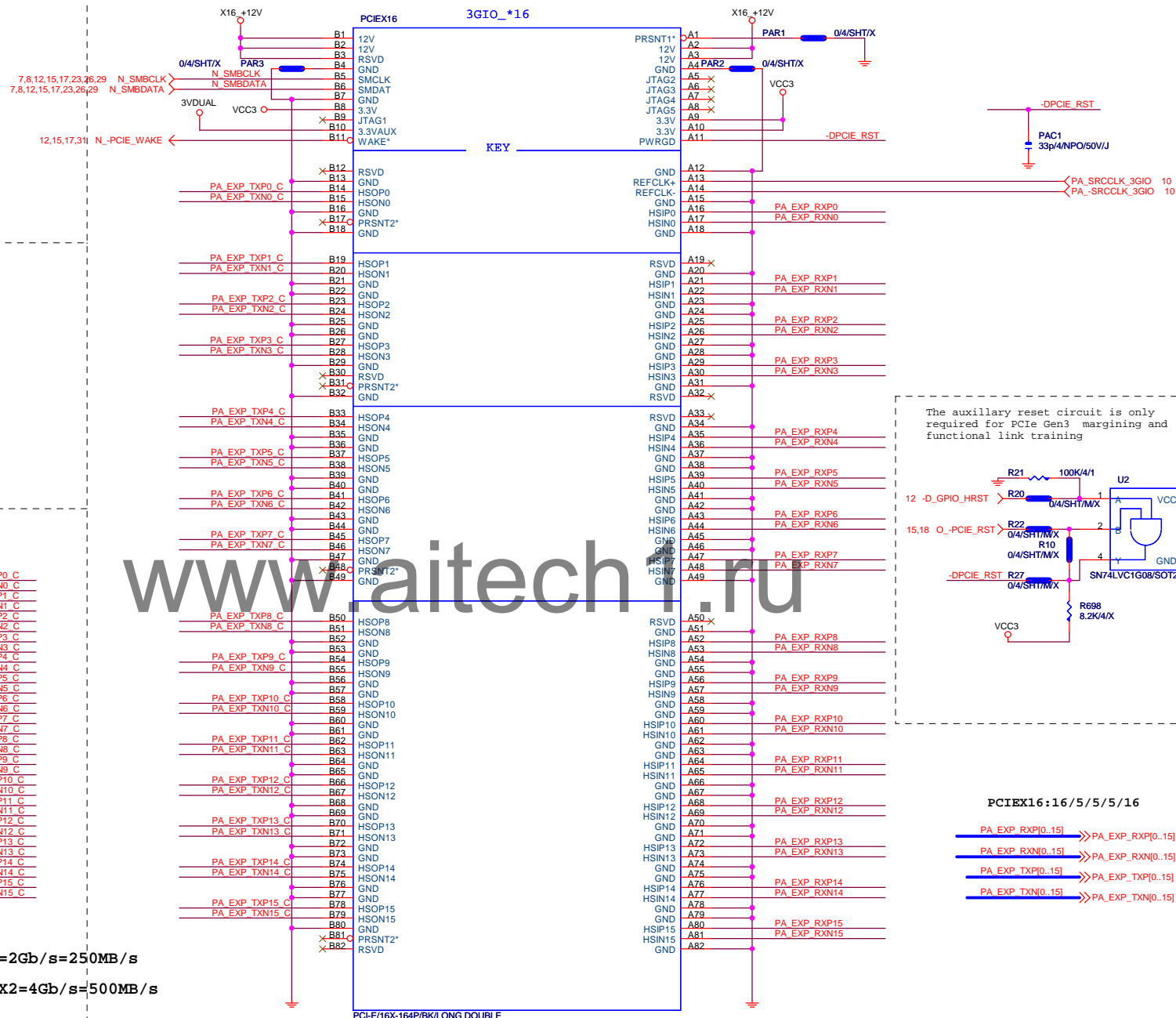
+12 protect short-wire test



PCIEX16 AC CAP

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

PCIEX16 SLOT



PCIEX16:16/5/5/5/16

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

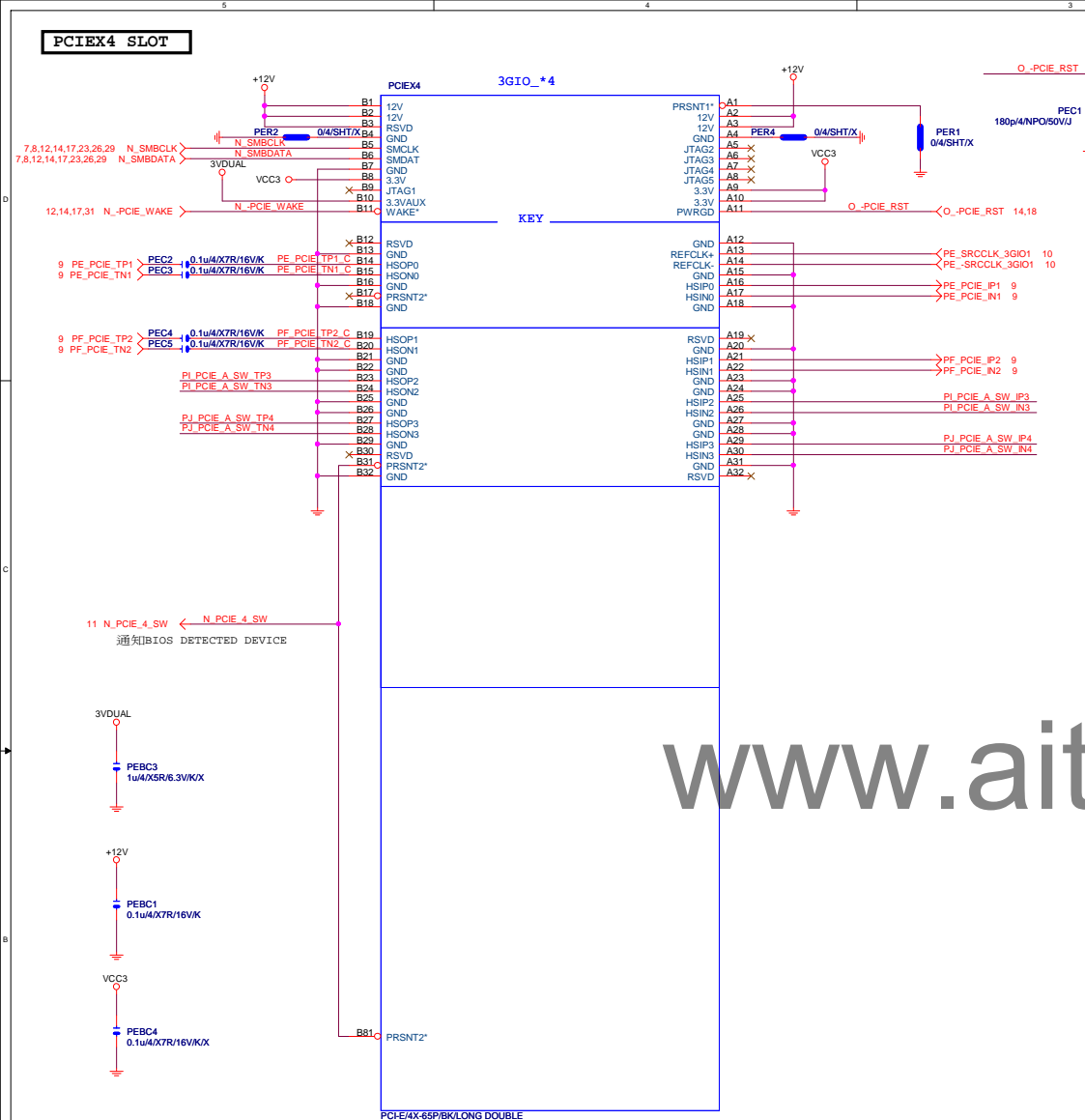
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

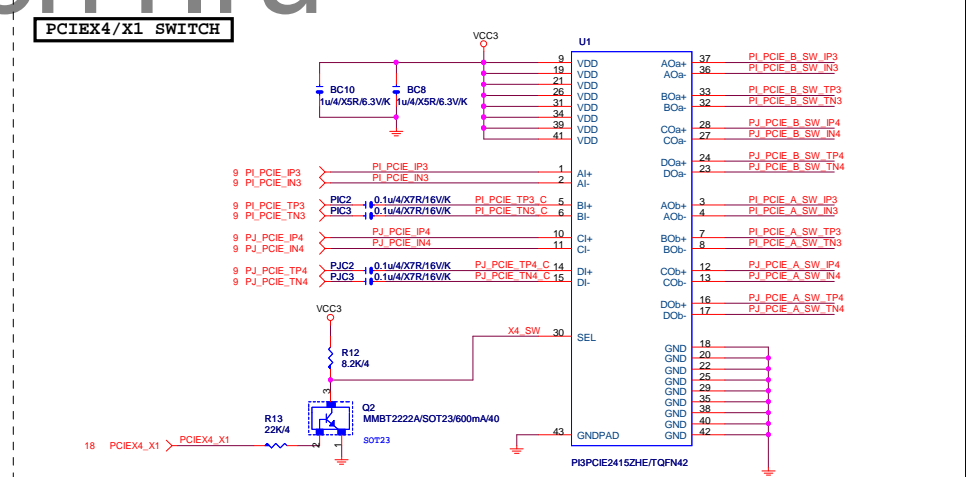
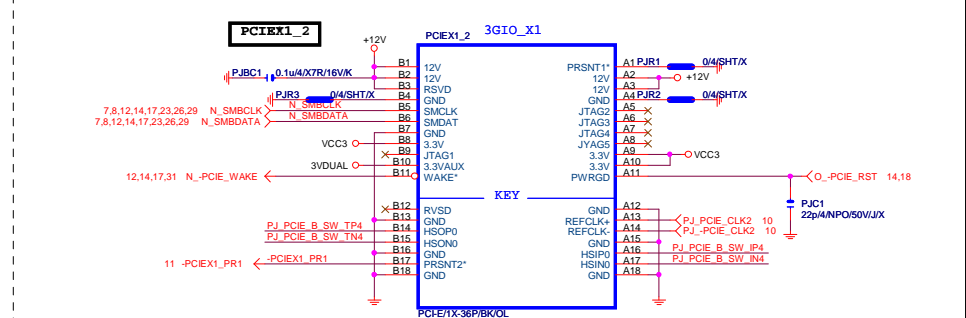
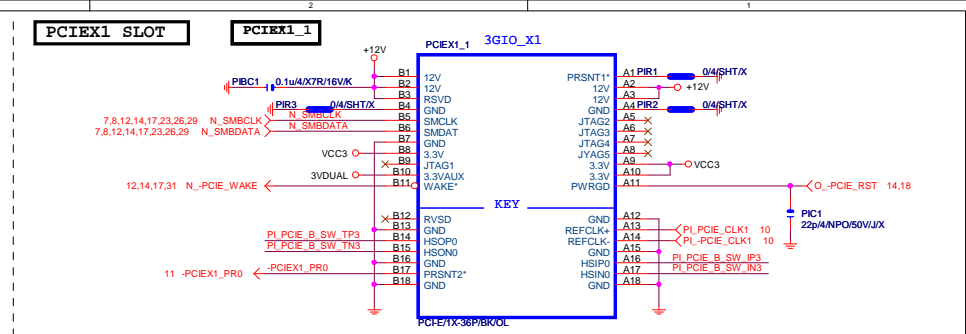
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

Gigabyte Technology			
PCI EXPRESS * 16			
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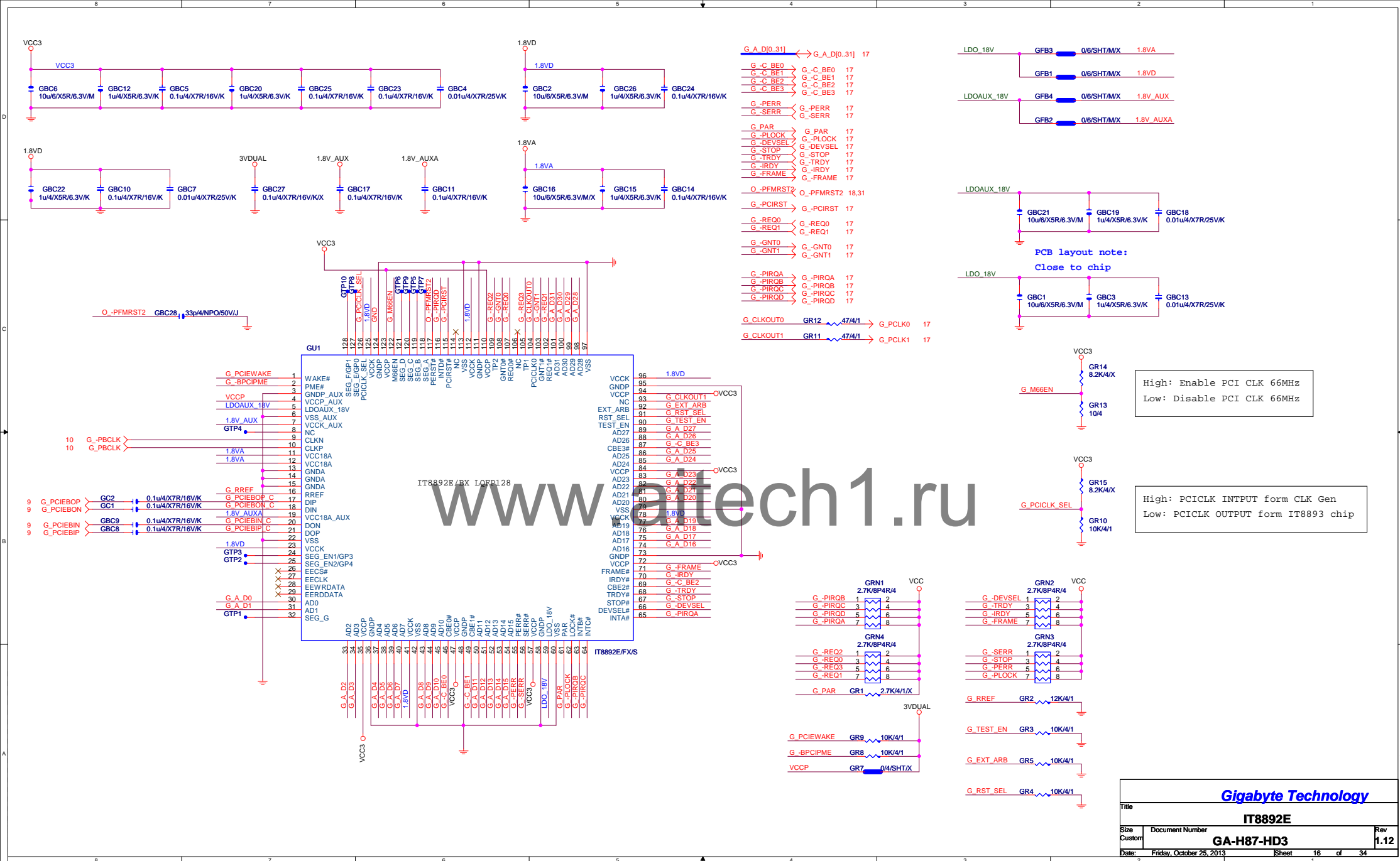


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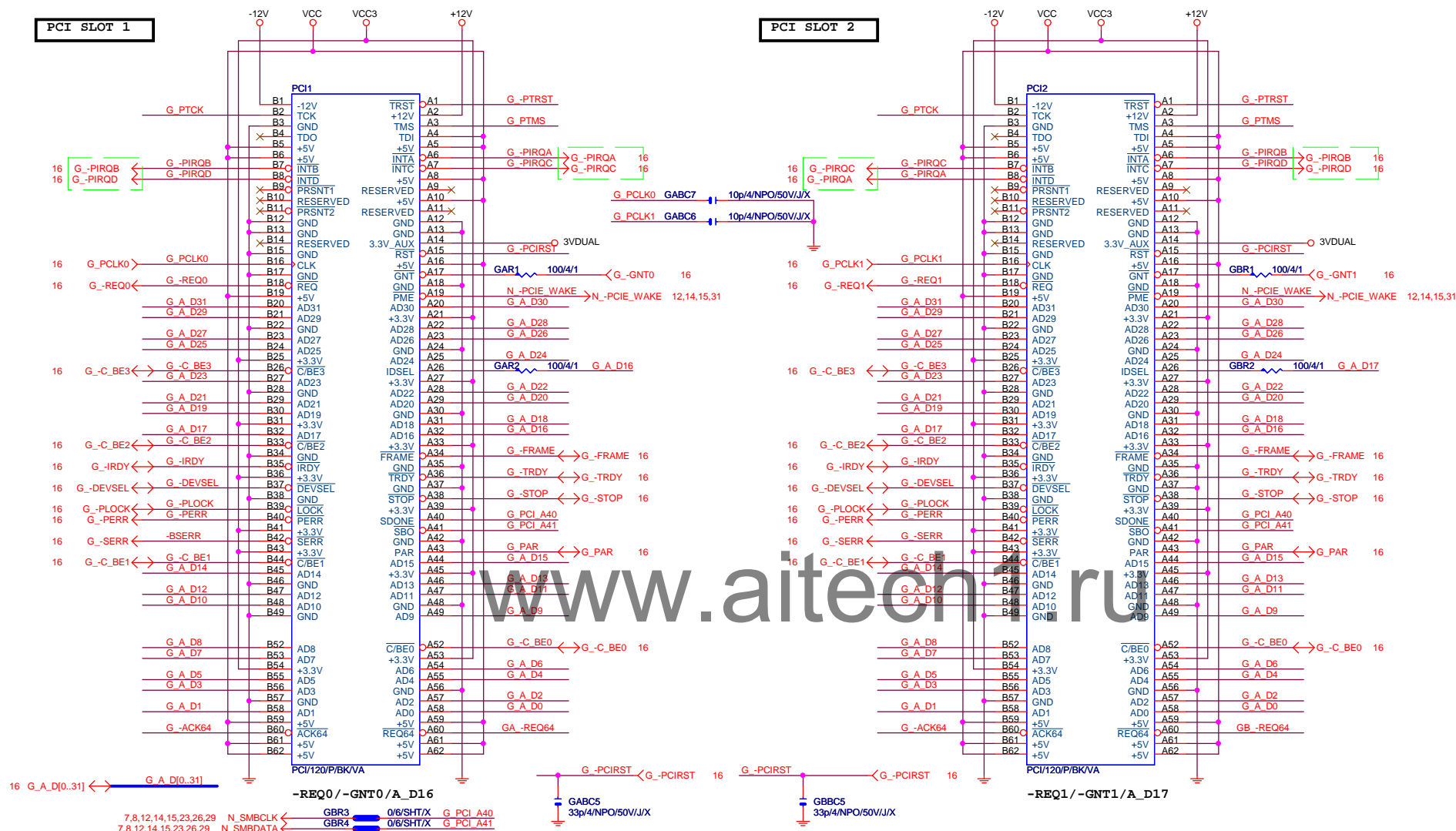
	N_PCIE_4_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4 No devices	H	H
PCIEX4 -> X1	H	H
PCIEX4 Have devices		
PCIEX4 -> X4	L	L
PCIEX1_1/2 --> N/A		

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



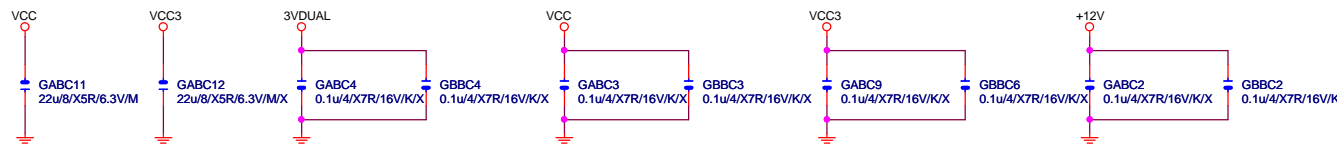
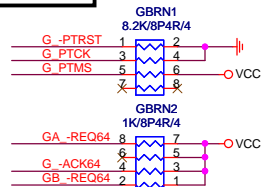
PCI SLOT 1

PCI SLOT 2



PCI PU

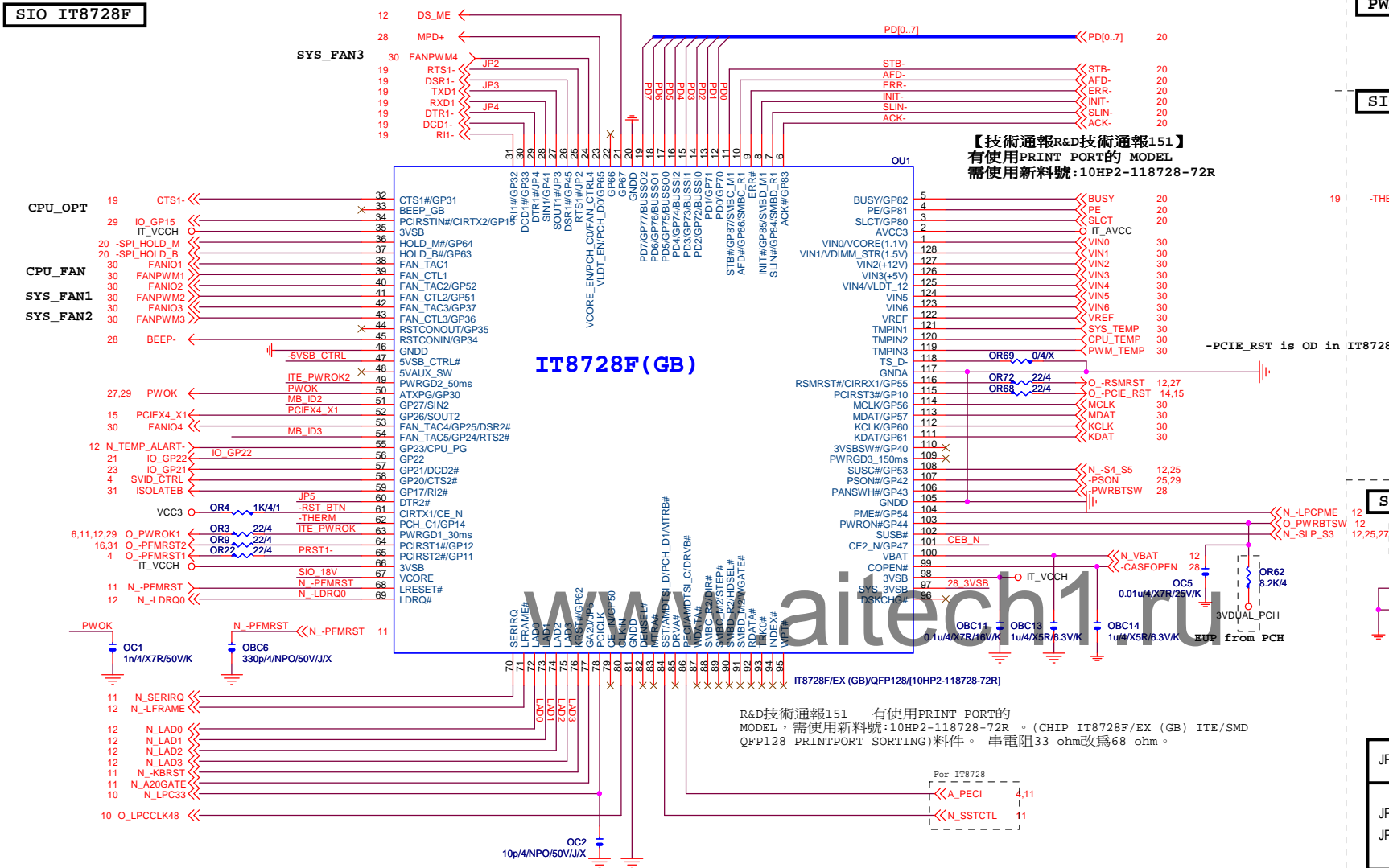
PCI CAP



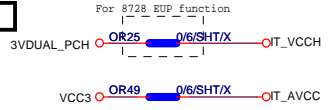
PCI SLOT 1&2

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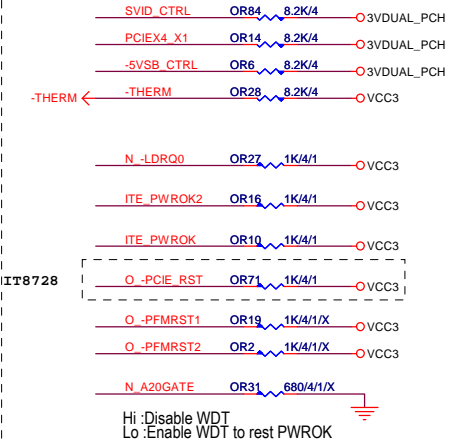
SIO IT8728F



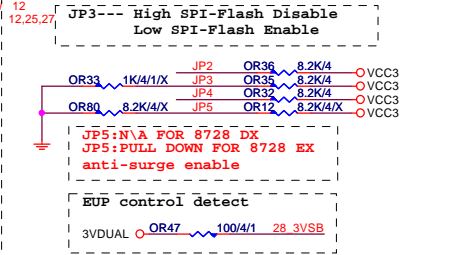
PWR SHT



SIO PU



SIO STRAP

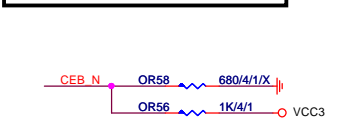


JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	0 1	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

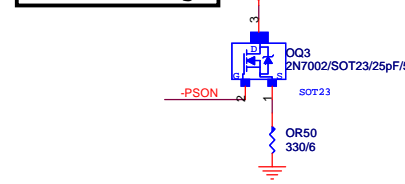
IT8728F NOTE

	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

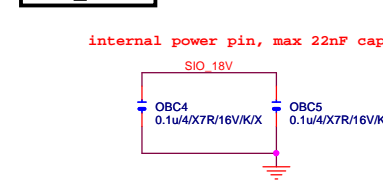
DUAL BIOS OPT STRAP



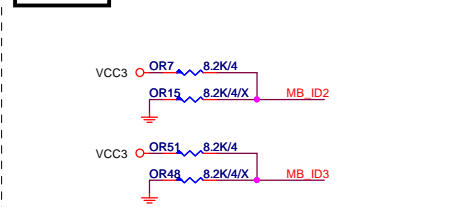
Power leakage



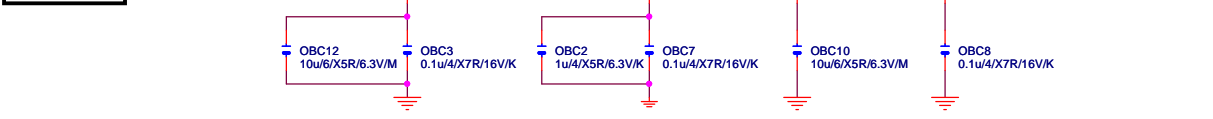
SIO_18V



MB ID



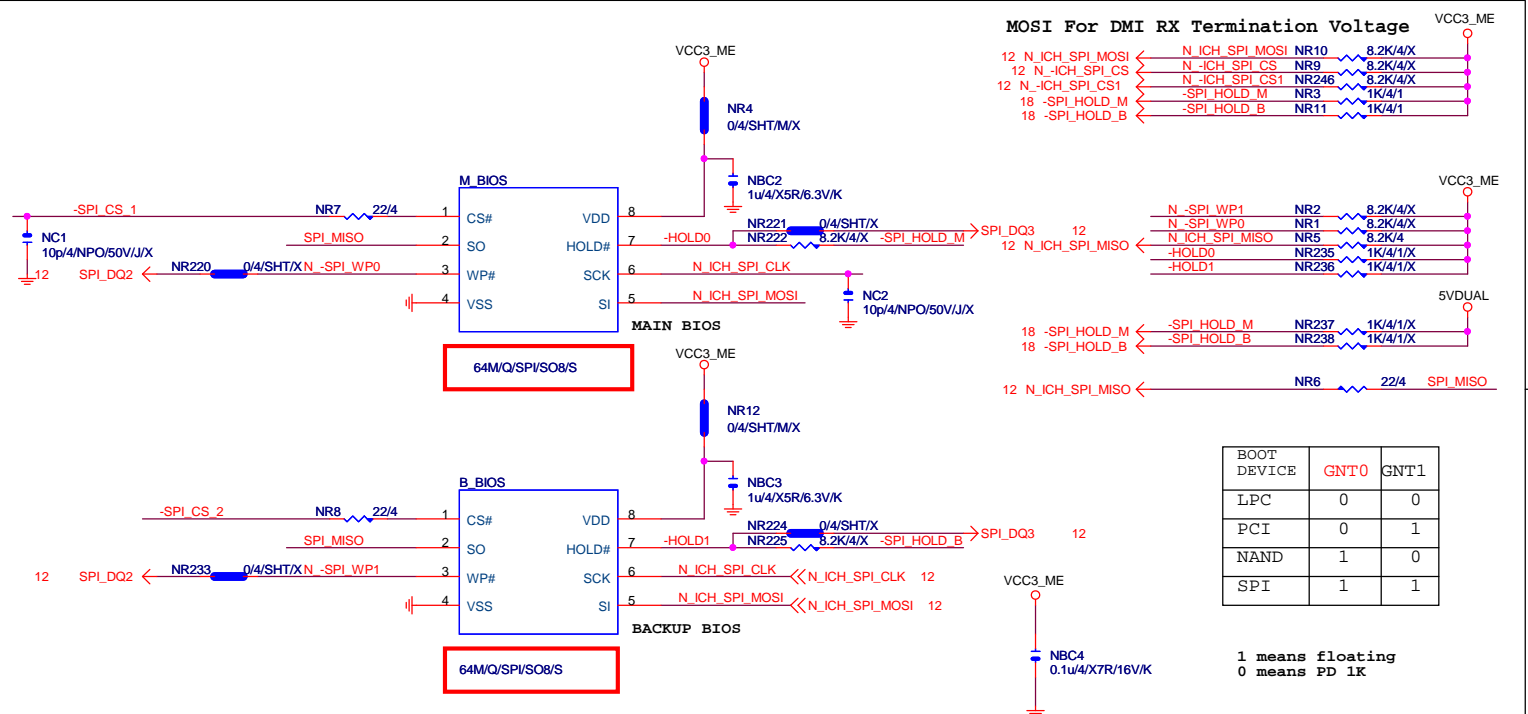
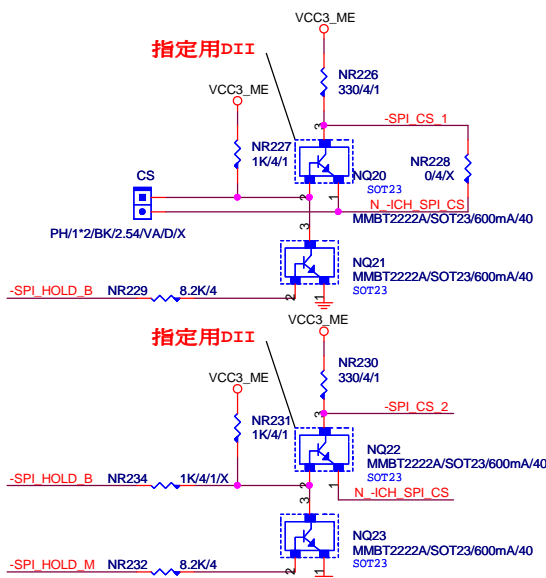
SIO CAP



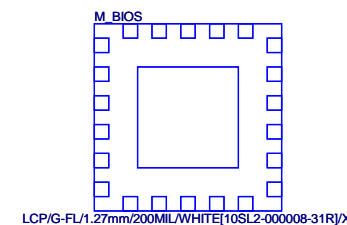
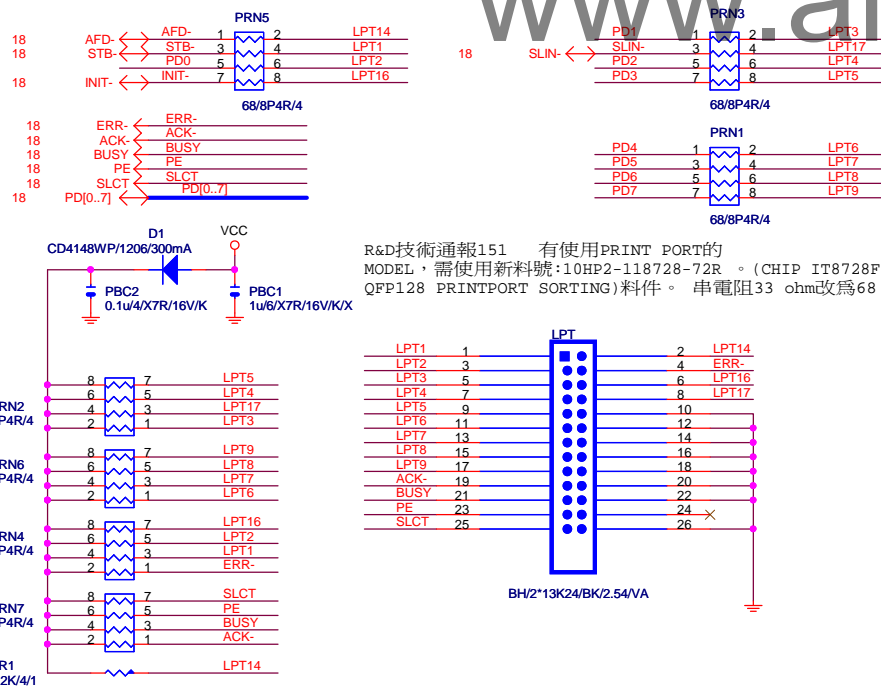
Gigabyte Technology

Title			ITE 8728 LPC IO		
Size	Document Number		GA-H87-HD3		Rev
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DUAL BIOS



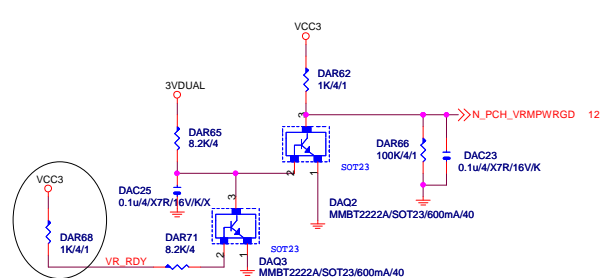
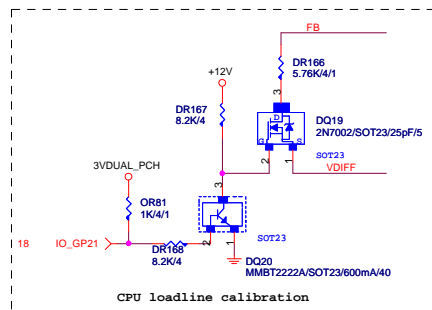
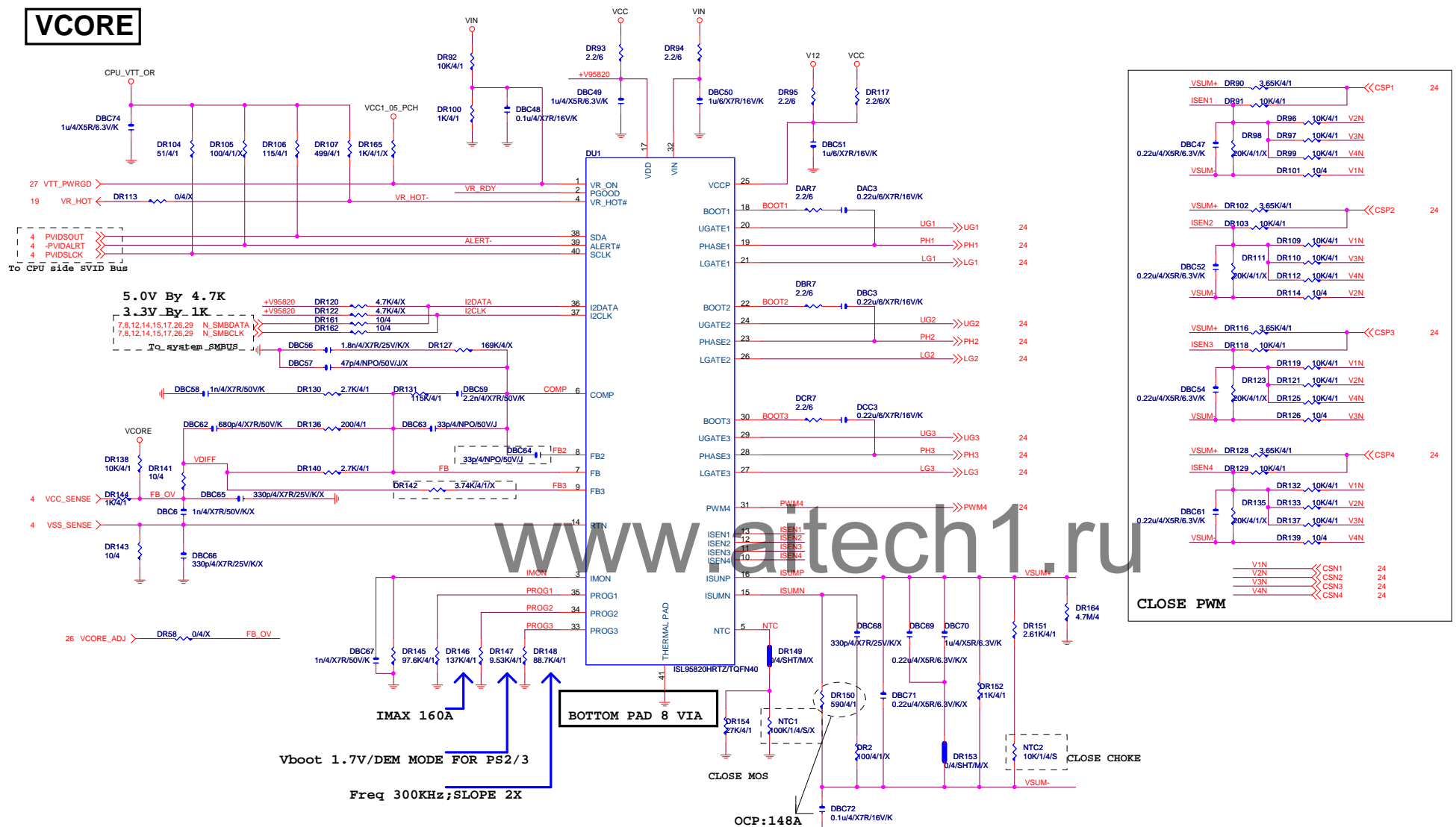
LPT PORT



FOR ON/OFF PLAY



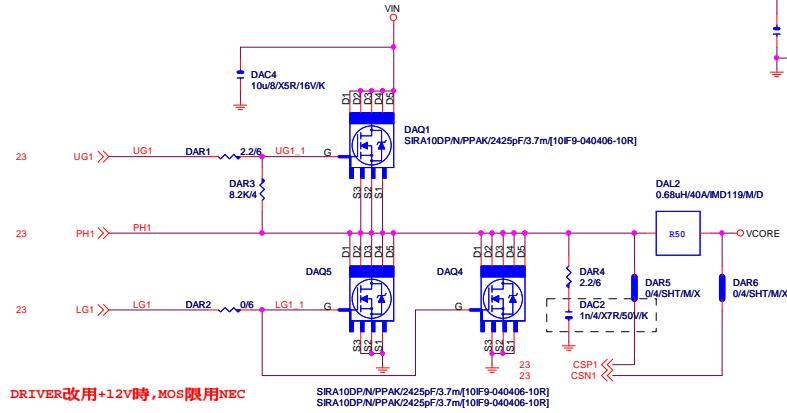
Date: Tuesday, November 26, 2013 Sheet 21 of 34

VCORE

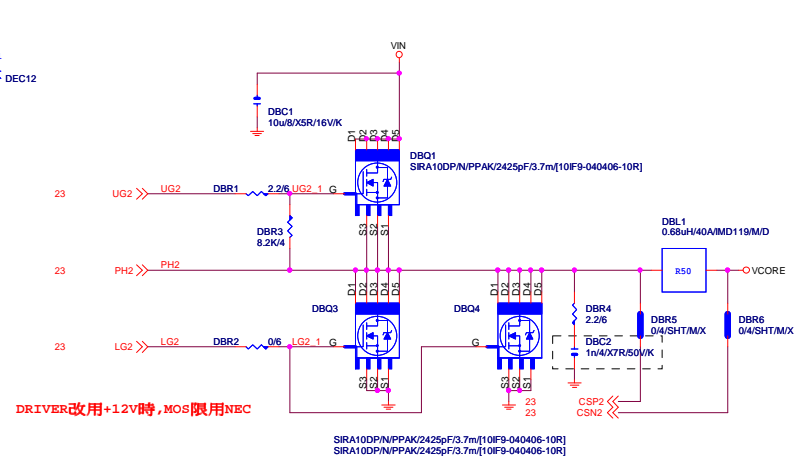
Gigabyte Technology			
Title VCORE_ISL95820			
Size	Document Number	Rev	
Custom	GA-H87-HD3	1.12	
Date:	Friday, October 25, 2013	Sheet	23 of 34

VCORE

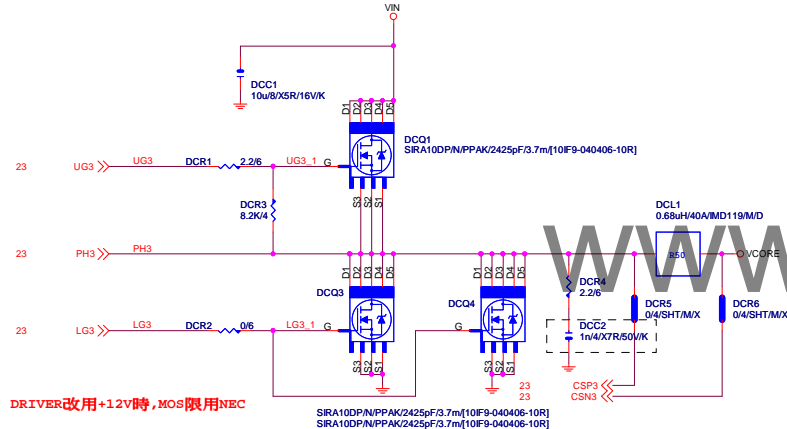
[1]



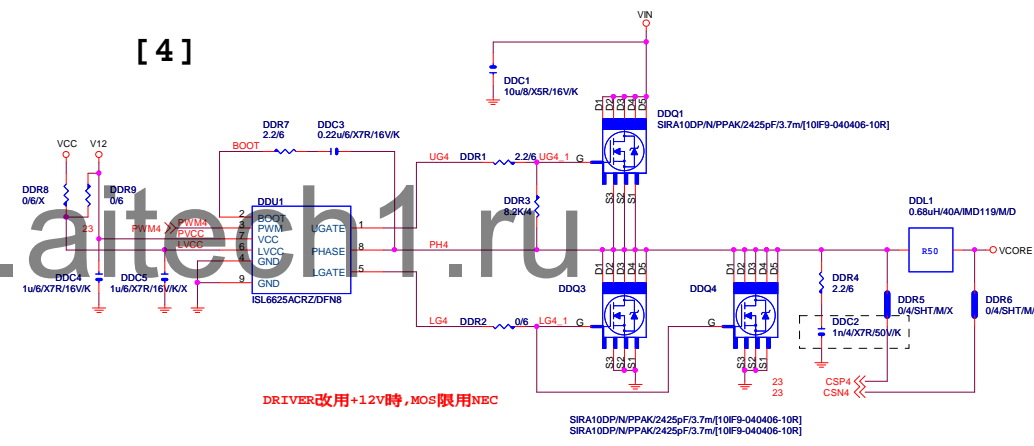
[2]



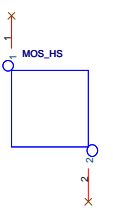
[3]



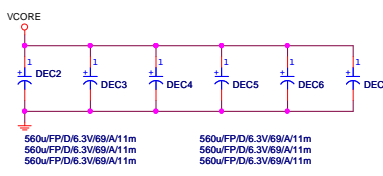
[4]



MOSFET HEATSINK

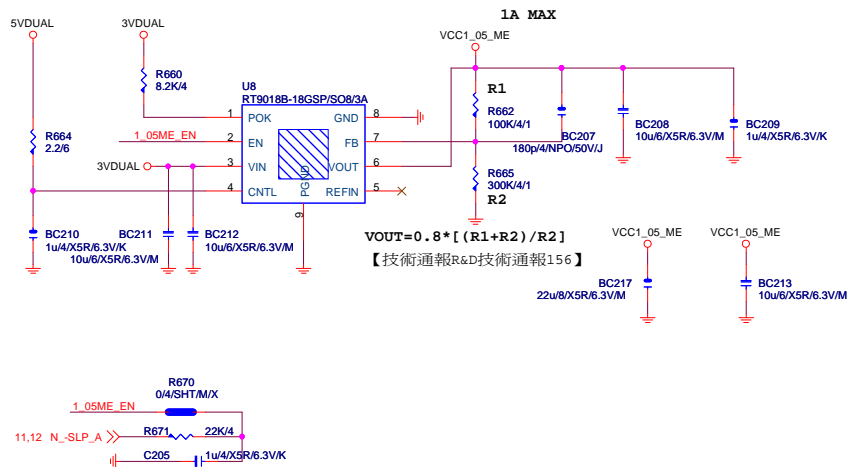


MOS HS[12SP2-S08824-71R_12SP2-S08824-72R_12SP2-S08824-73R]

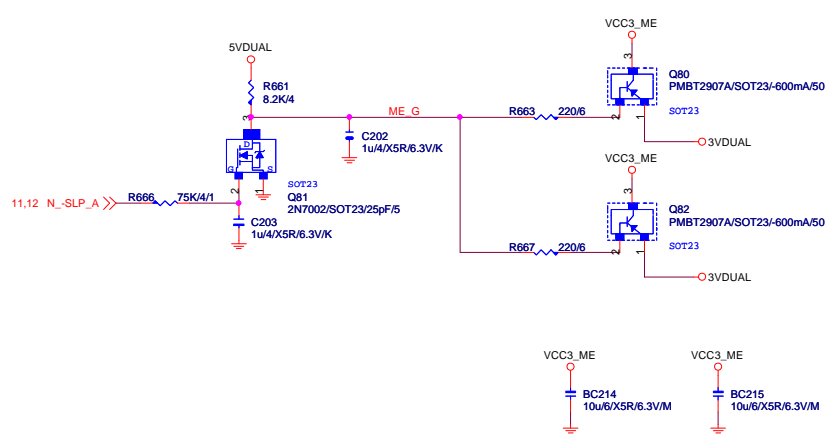


Gigabyte Technology		
Title	ISL95820_2	
Size	Document Number	GA-H87-HD3
Custom		Rev 1.12
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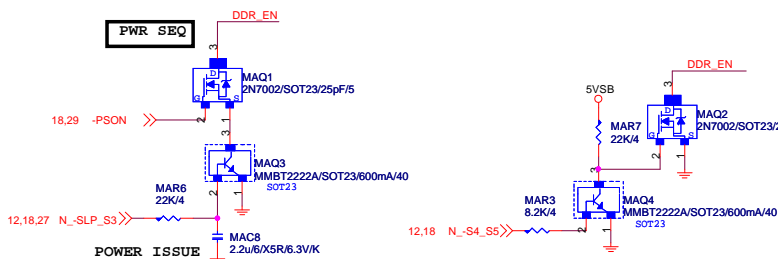
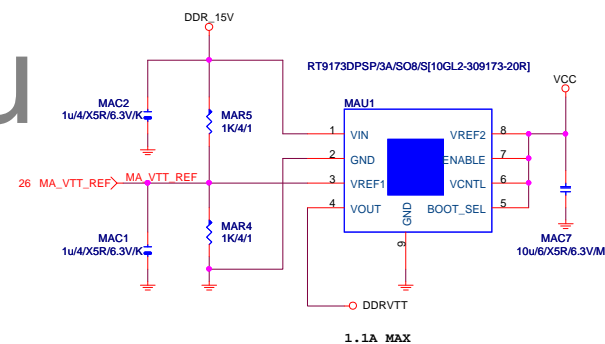
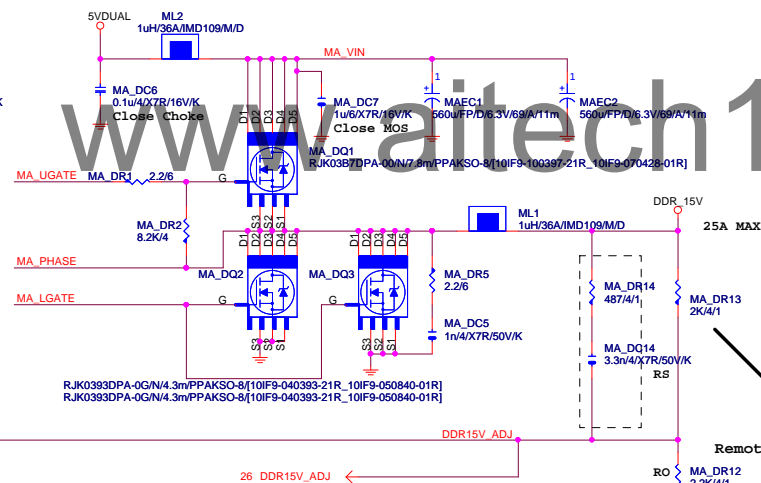
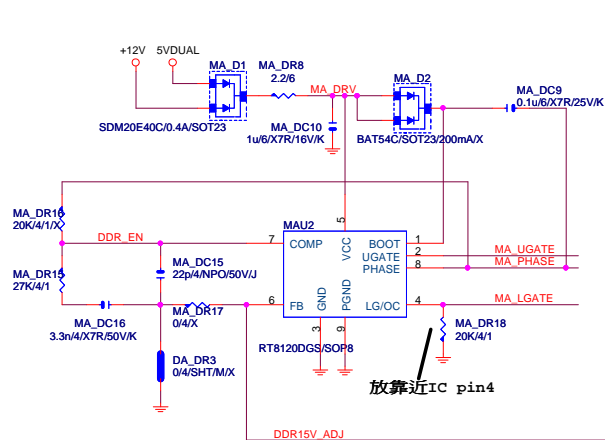
VCC1_05_ME



VCC3_ME



DDR_15V



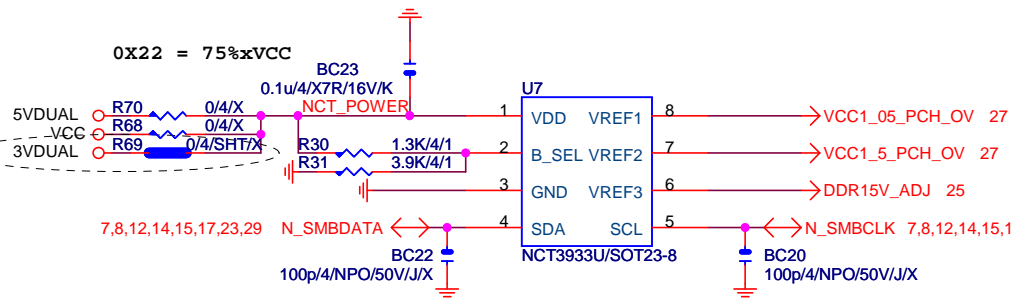
VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A
560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)
VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

```
OCP: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]
```

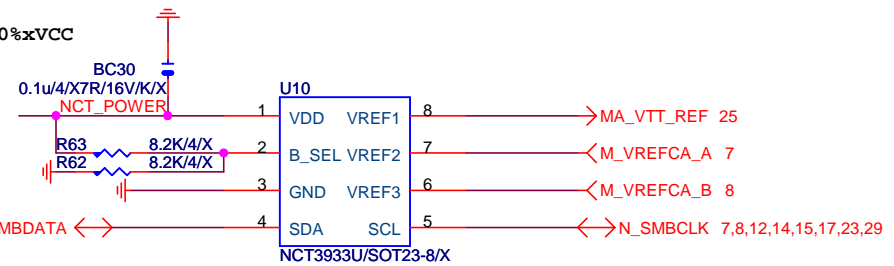
Remote sense 請從最重的負載端點拉回

$$0.8 \cdot [1 + 2K / 2.2K] = 1.527V$$

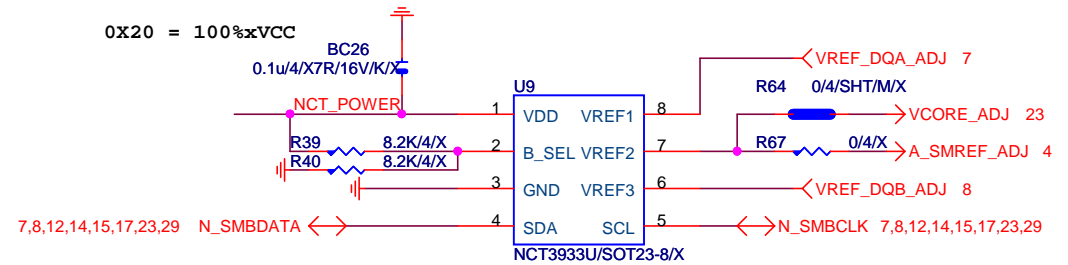
OVER VOLTAGE



0X2A = 0%xVCC



0X20 = 100%xVCC

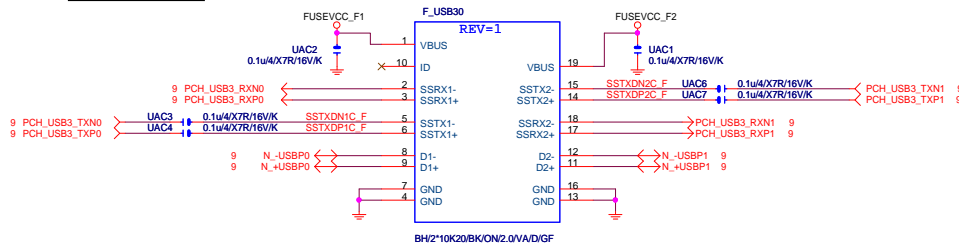


NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

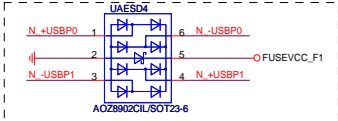
Gigabyte Technology

Title		
CPU CORE VR-2		
Size	Document Number	Rev
Custom	GA-H87-HD3	1.12
Date:	Friday, October 25, 2013	Sheet 26 of 34

Front USB3.0

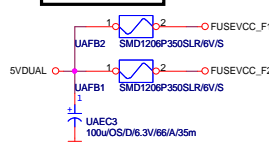


BLUE

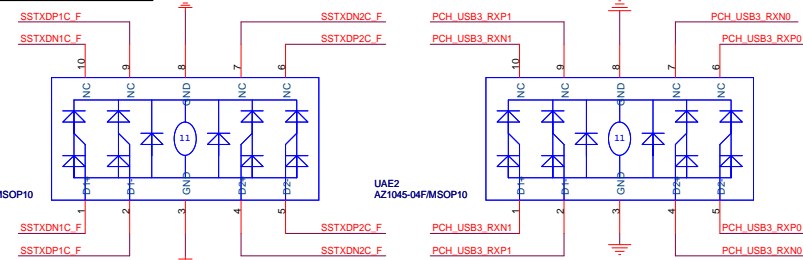


Close to connector

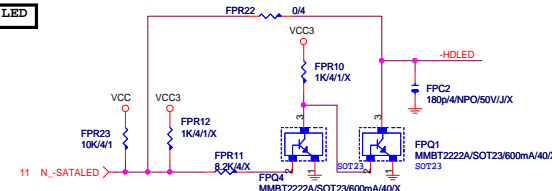
F_USB30 PWR



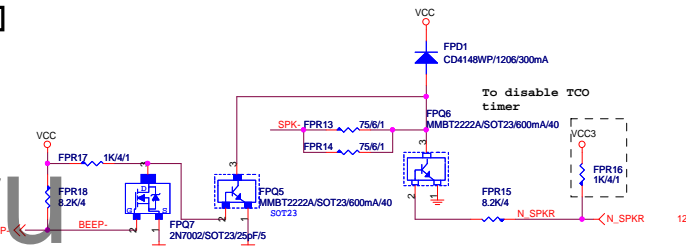
F_USB30 ESD PROTECT



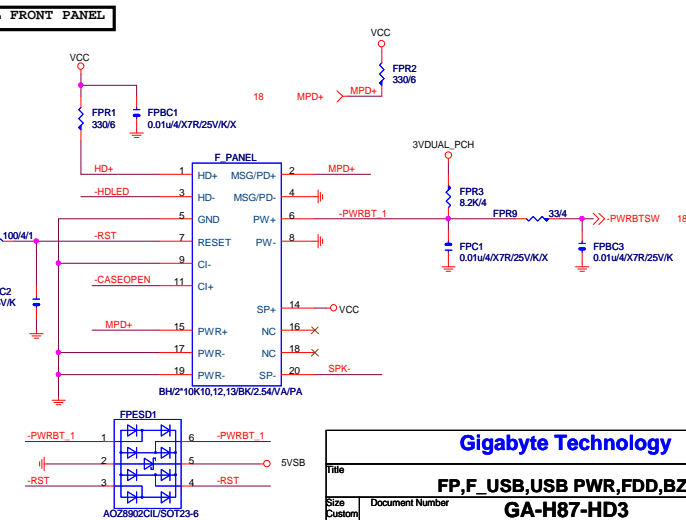
SATA LED



SPKR



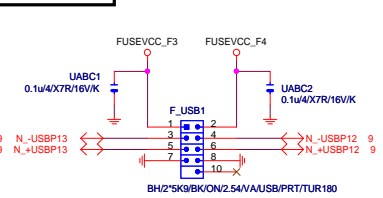
INTEL FRONT PANEL



Gigabyte Technology

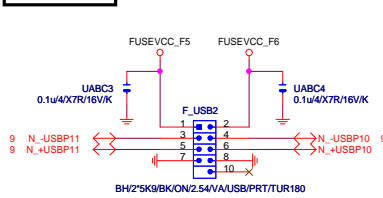
Title		FP,F_USB,USB PWR,FDD,BZ	
Size		Document Number	
Custom		GA-H87-HD3	
Date:		Friday, October 25, 2013	
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FRONT USB1



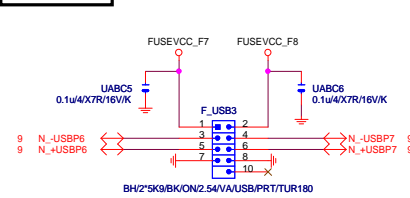
Close to connector

FRONT USB2

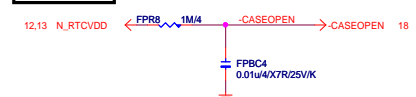


Close to connector

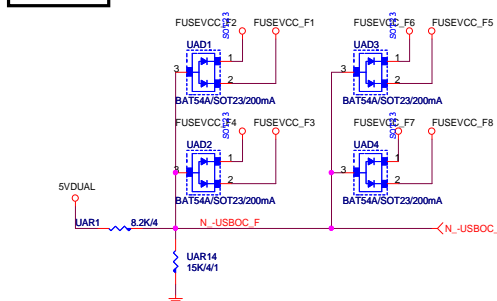
FRONT USB3



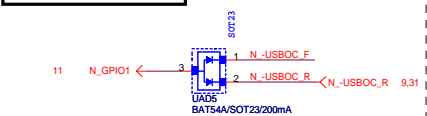
CASE OPEN



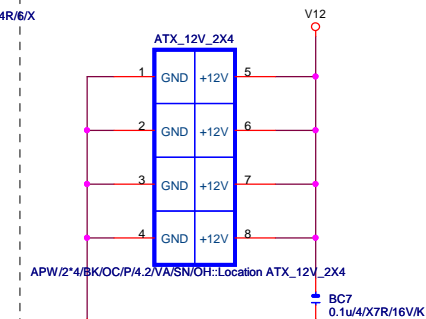
-USBOC_F



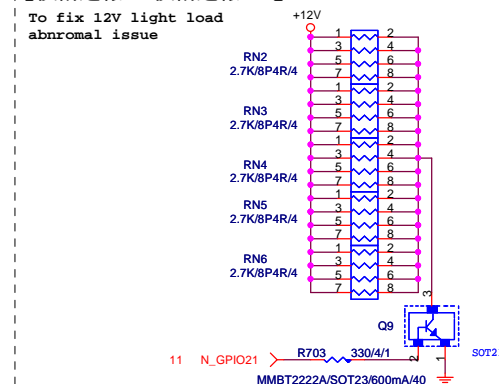
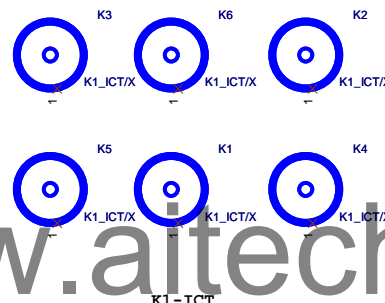
F_USB POWER PROTECT



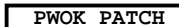
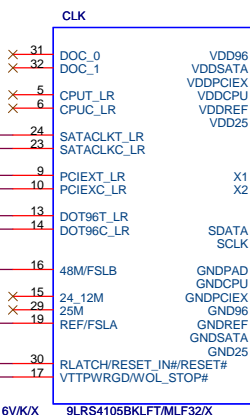
ATXX4 POWER CONNECTOR



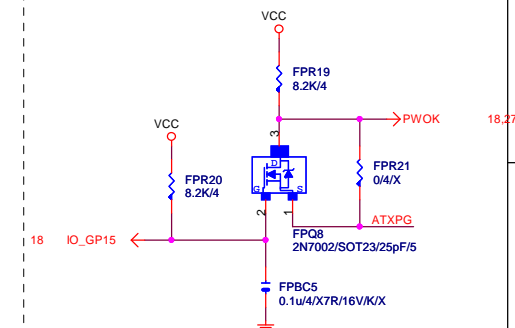
【技術通報R&D技術通報153】



CPU Frequency Selection



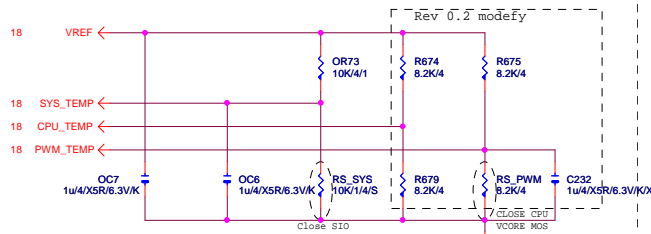
【技術通報R&D技術通報154】



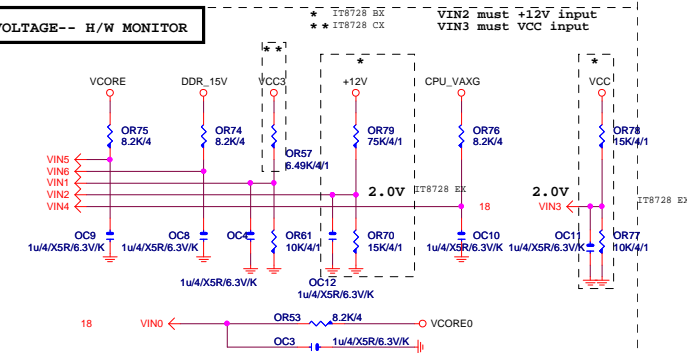
Gigabyte Technology

Title			
ATX POWER CONNECTOR			
Size Custom	Document Number	GA-H87-HD3	Rev 1.12
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TEMP H/W MONITOR

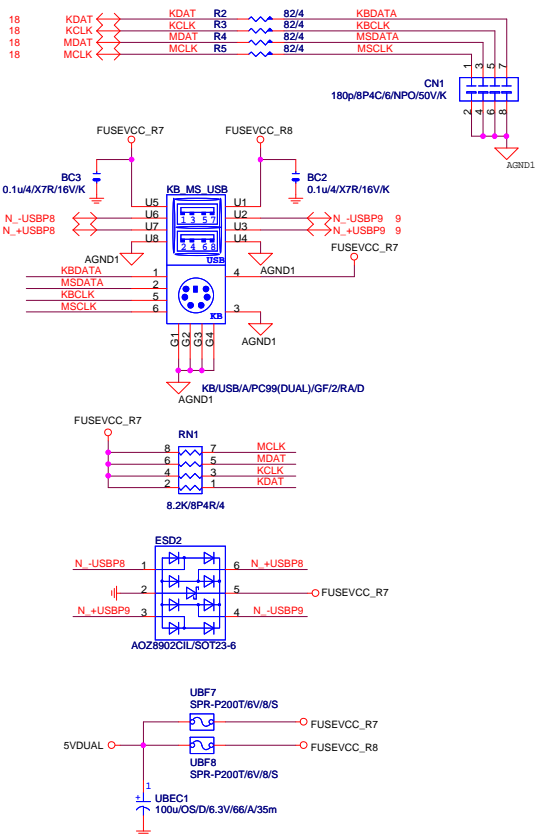


VOLTAGE-- H/W MONITOR

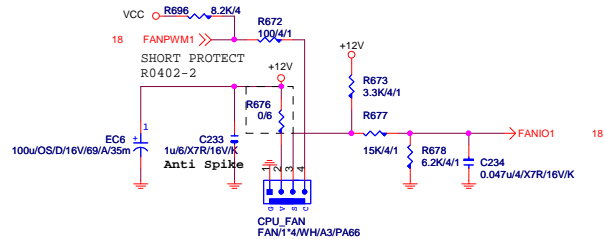


The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB

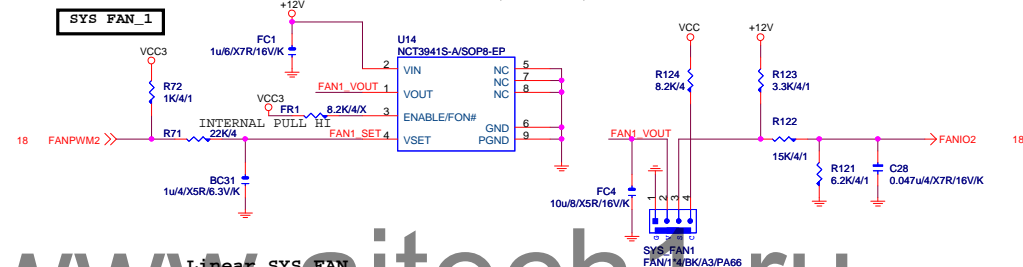


CPU SMART FAN

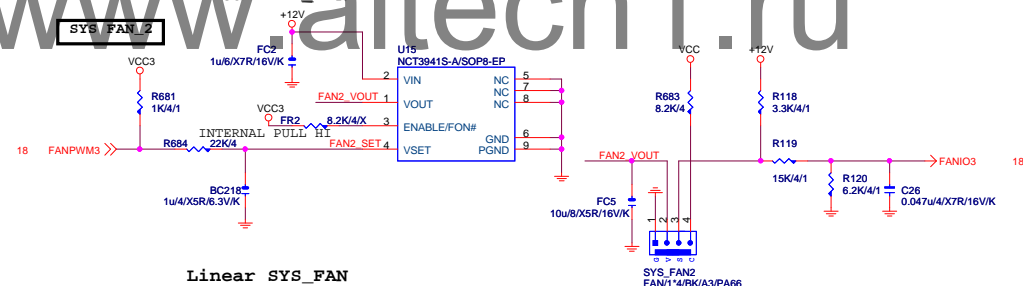


Linear SYS_FAN

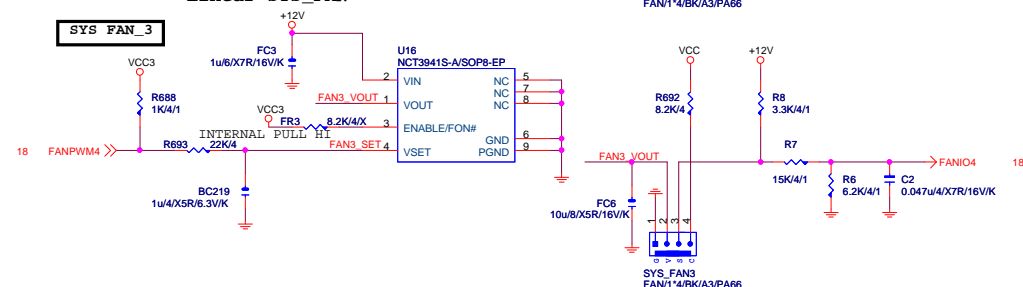
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)



Linear SYS FAN



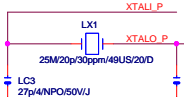
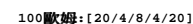
Linear SYS_FAN



Gigabyte Technology

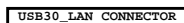
Title						HWM,KB/MS, FAN CTRL					
Size		Document Number								Rev	
Custom		GA-H87-HD3								1.12	
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LAN:INTEL I217



80歐姆:[15/5/5/5/15]

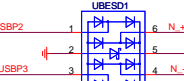
SRCCLK 50MHz: [18/4/10/4/18]



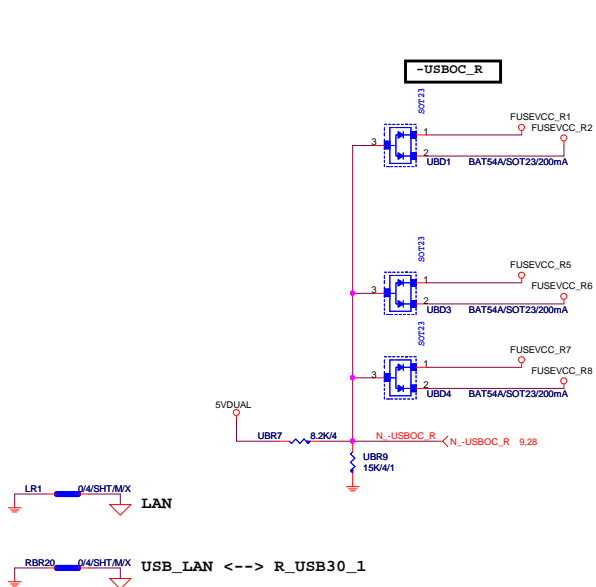
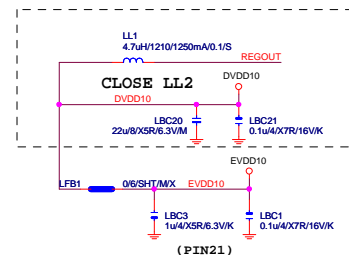
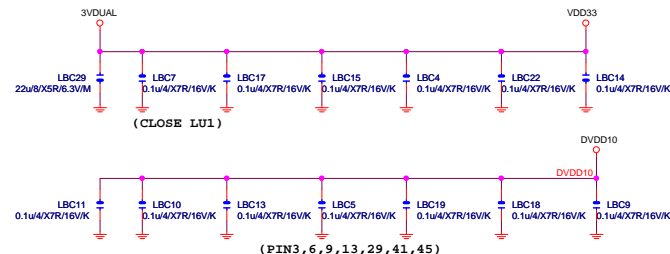
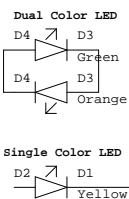
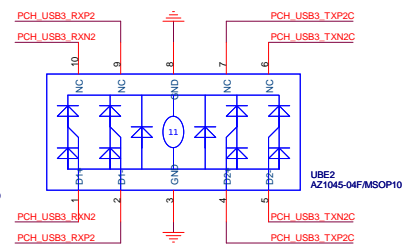
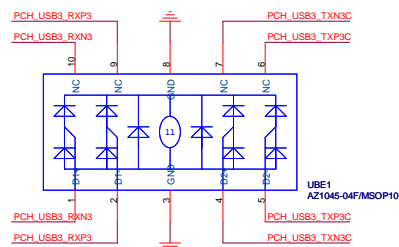
100歐姆:[20/4/8/4/20]

USB30_LAN
USB3+LAN/1G/GQ Y/QS/RA/D/G30/11NR6-702009-K1R1

90 歐姐:[15/4.5/7.5/4.5/15]

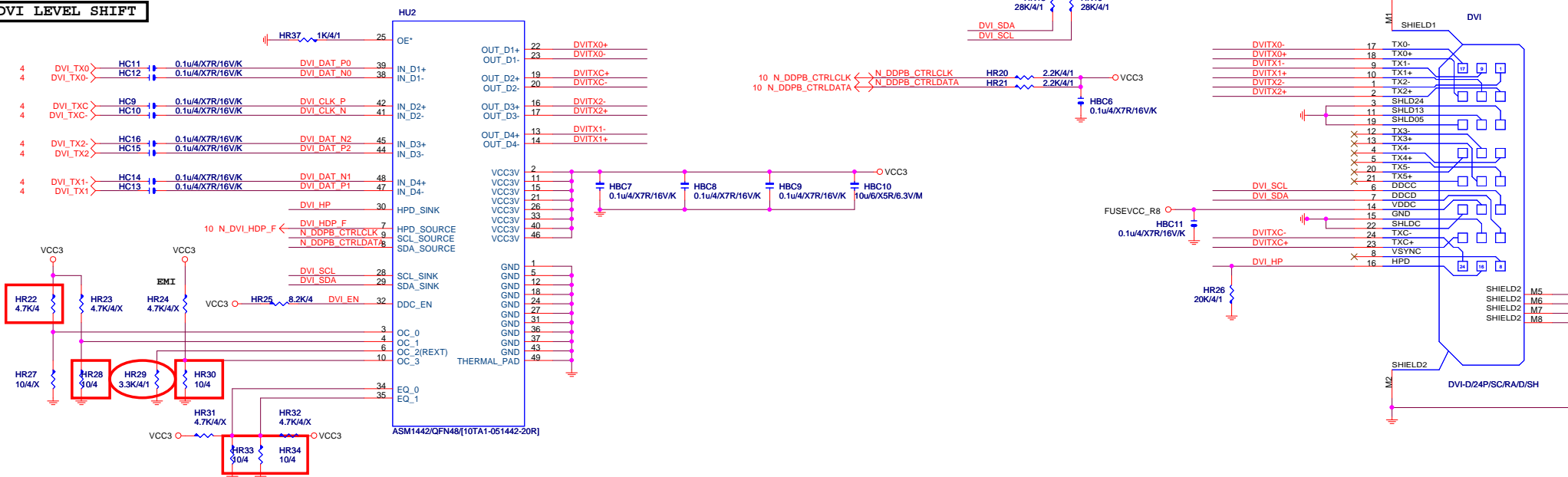


CLOSE USB30 LAN



DVI LEVEL SHIFT

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



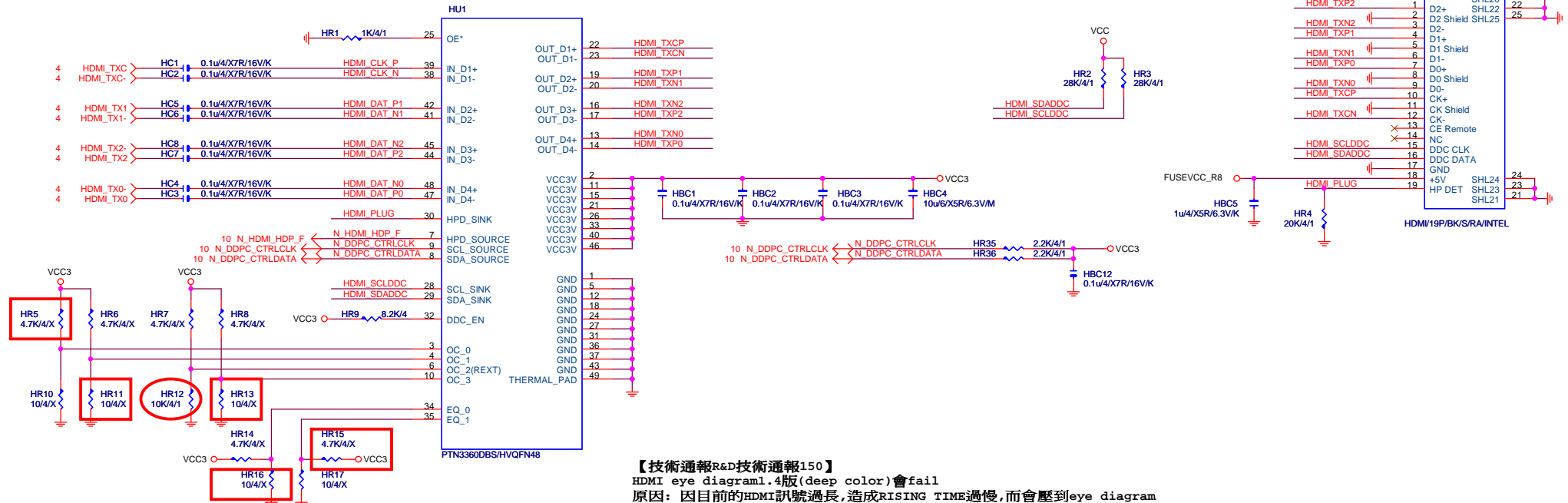
PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR29:10K
ASM1442:紅色框要上,HR29:3.3K

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Gigabyte Technology			
TI TSB43AB23 1394			
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HDMI LEVEL SHIFT

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



【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)

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

GIGABYTE™

Title	HDMI
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Size	Document Number
Custom	

GA-H87-HD3

1.12

Date: Friday, October 25, 2013

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5

Super I/O ITE8720 GPIO Table

3

PWM各相位的擺法如下：

散熱模組料號：

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

23. 2