

Model Name: GA-H81-D3

1.02

SHEET

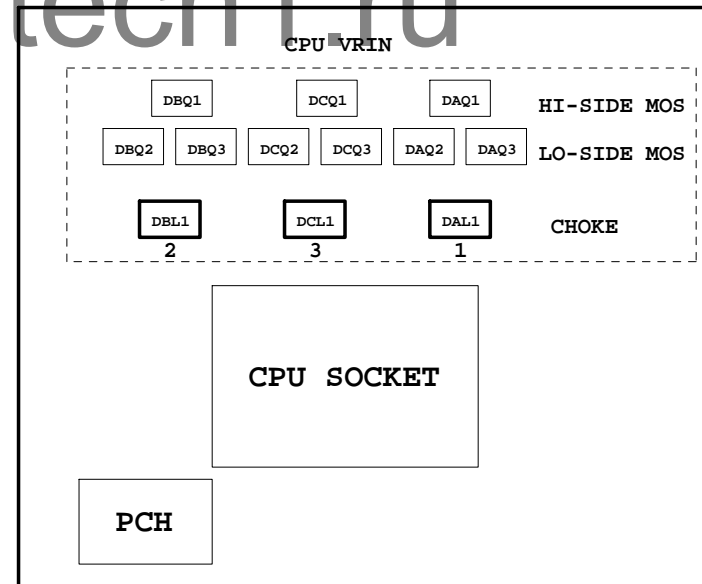
TITLE

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

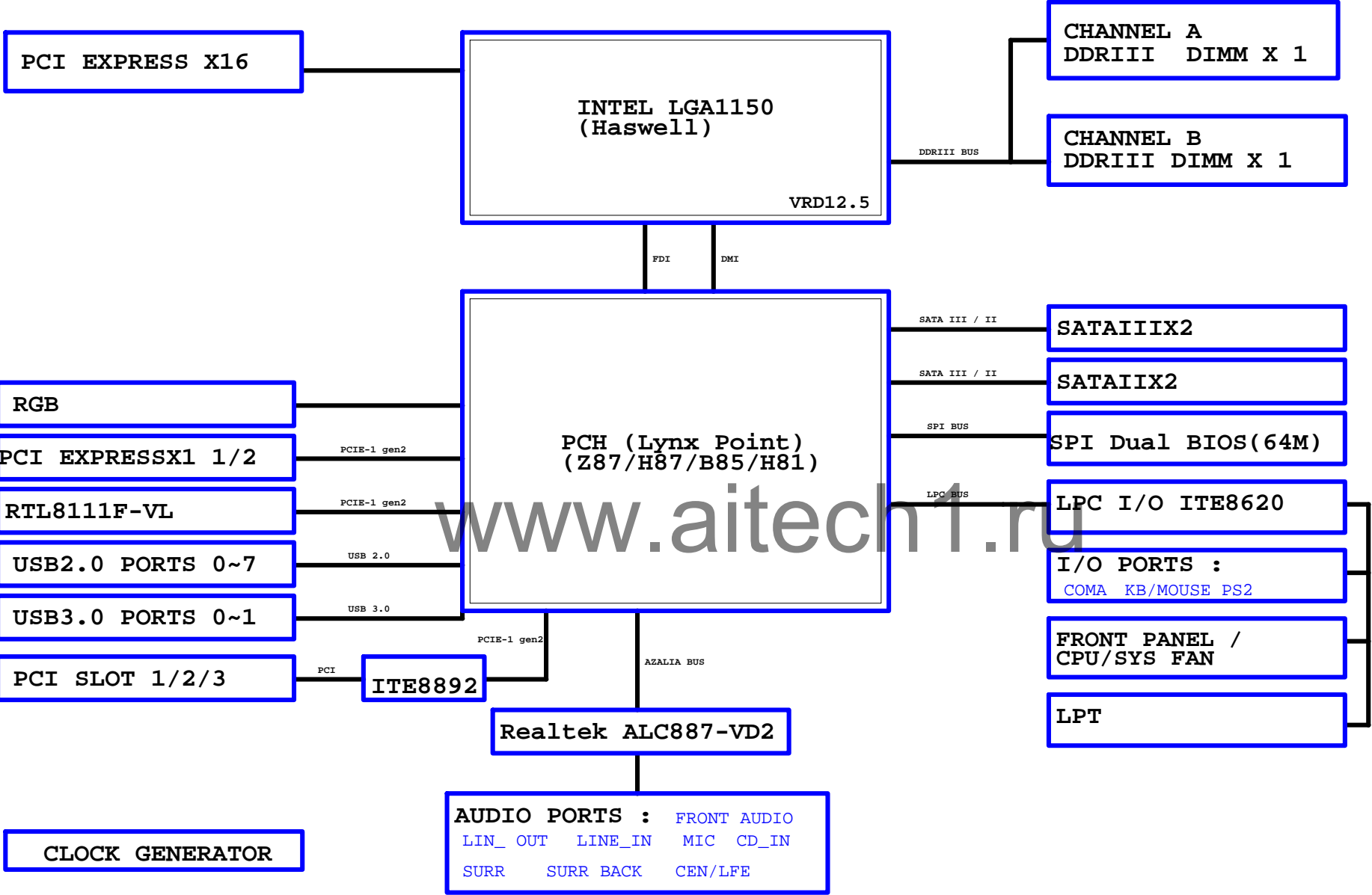
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
35	
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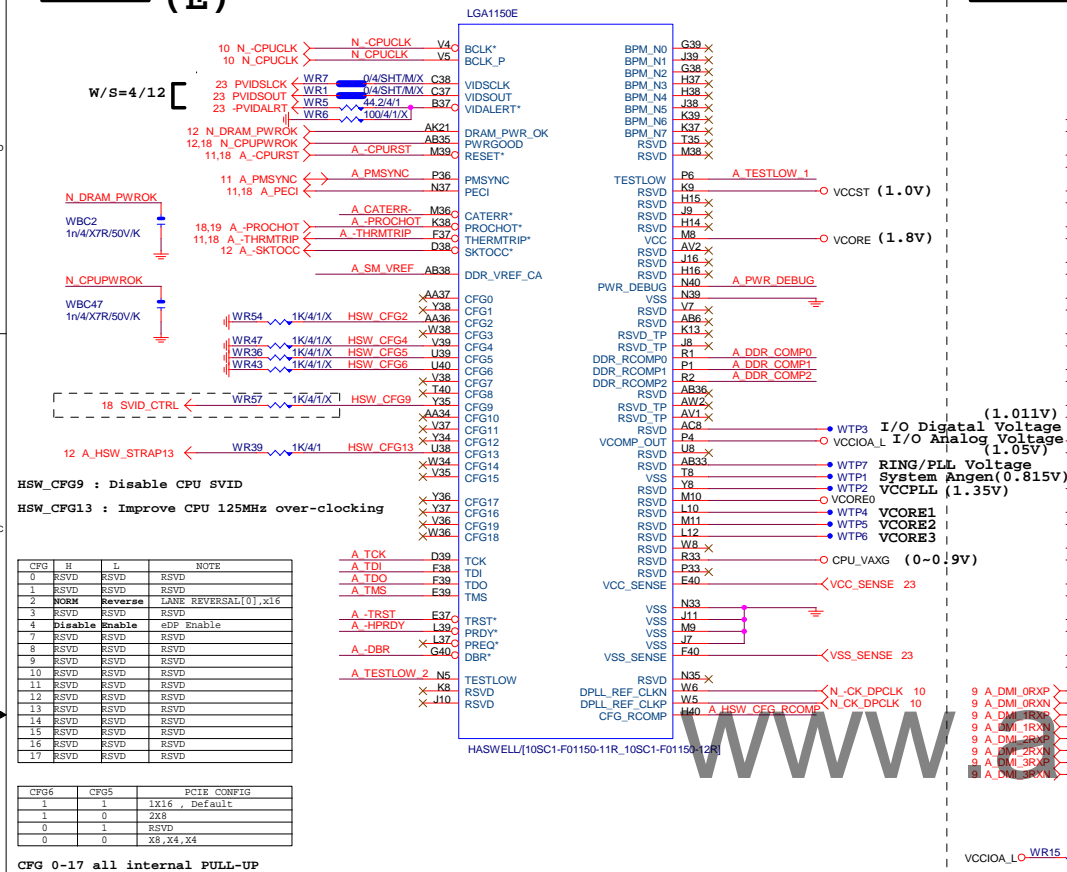
### Component value change history

[illegible][illegible]

BLOCK DIAGRAM



LGA1150 (E)



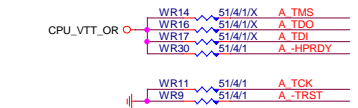
LGA1155 (C)



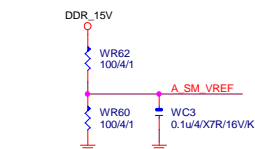
## CPU SVID



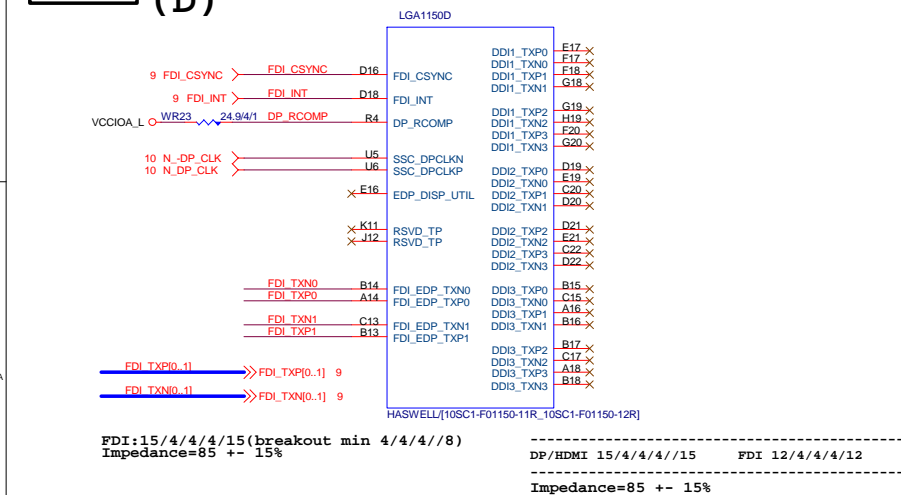
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100	100



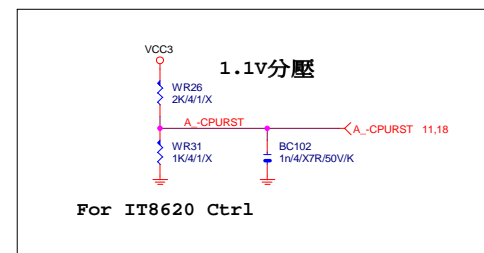
SM REF
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**LGA1150 (D)**



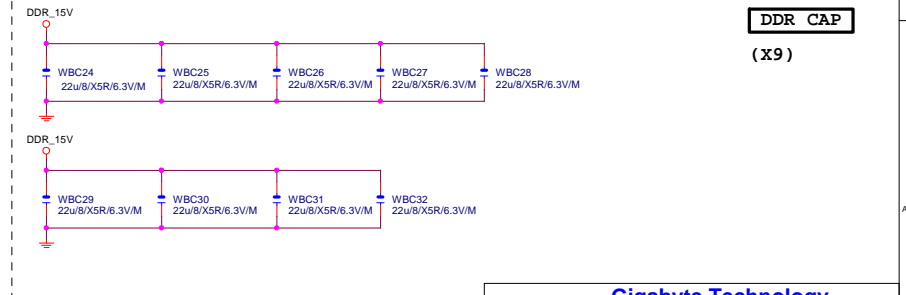
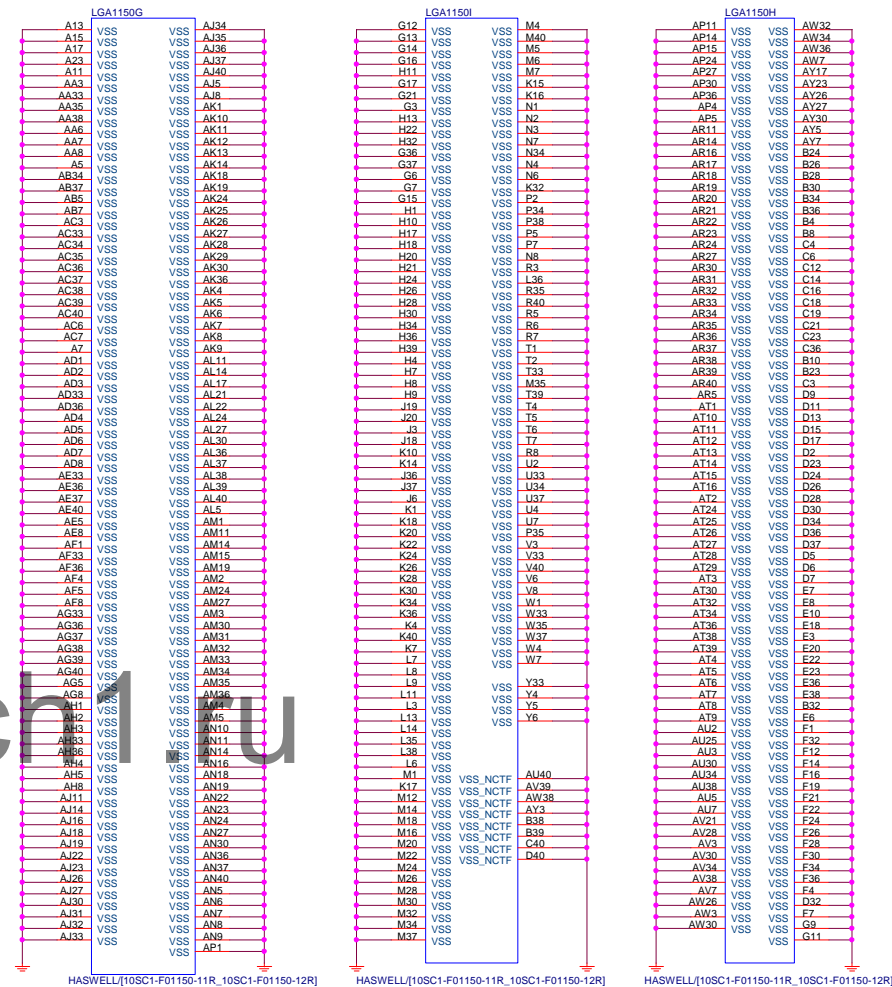
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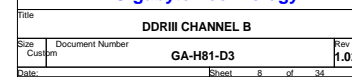
## LGA1150 (A)

LGA1150A		DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA0	AU13	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA1	AV16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA2	AU16	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA3	AW17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA4	AU17	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA5	AW18	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA6	AV17	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA7	AT18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA8	AU18	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA9	AT19	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA10	AW11	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA11	AV19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA12	AU19	DDR0_MA13	DDR0_D13	AH38	MDA12
MAAA13	AT20	DDR0_MA14	DDR0_D14	AK37	MDA14
MAAA14	AW21	DDR0_MA15	DDR0_D15	AK40	MDA15
MAAA15	AU21	DDR0_MA16	DDR0_D16	AM40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_D17	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_D18	AP38	MDA18
AW9		DDR0_ODT2	DDR0_D19	AP39	MDA19
AW8		DDR0_ODT3	DDR0_D20	AM37	MDA20
AW33		DDR0_D21	DDR0_D21	AM38	MDA16
AW33		DDR0_D22	DDR0_D22	AP37	MDA22
AU31		DDR0_D23	DDR0_D23	AP40	MDA23
AU31		DDR0_D24	DDR0_D24	AW37	MDA29
AT33		DDR0_D25	DDR0_D25	AU35	MDA26
AU33		DDR0_D26	DDR0_D26	AW35	MDA27
AT33		DDR0_D27	DDR0_D27	AT37	MDA28
AT31		DDR0_D28	DDR0_D28	AU37	MDA24
AW31		DDR0_D29	DDR0_D29	AT35	MDA30
AW31		DDR0_D30	DDR0_D30	AW35	MDA31
AW12		DDR0_D31	DDR0_D31	AY6	MDA33
AW12		DDR0_D32	DDR0_D32	AU6	MDA37
AW12		DDR0_D33	DDR0_D33	AW6	MDA36
AW12		DDR0_D34	DDR0_D34	AW4	MDA38
AW12		DDR0_D35	DDR0_D35	AW6	MDA32
AW12		DDR0_D36	DDR0_D36	AW4	MDA38
AW12		DDR0_D37	DDR0_D37	AW4	MDA38
AW12		DDR0_D38	DDR0_D38	AW4	MDA38
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AW12		DDR0_D43	DDR0_D43	AW4	MDA38
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AW12		DDR0_D194	DDR0_D194	AW4	MDA38
AW12		DDR0_D195	DDR0_D195	AW4	MDA38
AW12		DDR0_D196	DDR0_D196	AW4	MDA38
AW12		DDR0_D197	DDR0_D197	AW4	MDA38
AW12		DDR0_D198	DDR0_D198	AW4	MDA38
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AW12		DDR0_D200	DDR0_D200	AW4	MDA38
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AW12		DDR0_D204	DDR0_D204	AW4	MDA38
AW12		DDR0_D205	DDR0_D205	AW4	MDA38
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AW12		DDR0_D207	DDR0_D207	AW4	MDA38
AW12		DDR0_D208	DDR0_D208	AW4	MDA38
AW12		DDR0_D209	DDR0_D209	AW4	MDA38
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AW12		DDR0_D217	DDR0_D217	AW4	MDA38
AW12		DDR0_D218	DDR0_D218	AW4	MDA38
AW12		DDR0_D219	DDR0_D219	AW4	MDA38
AW12		DDR0_D220	DDR0_D220	AW4	MDA38
AW12		DDR0_D221	DDR0_D221	AW4	MDA38
AW12		DDR0_D222	DDR0_D222	AW4	MDA38
AW12		DDR0_D223	DDR0_D223	AW4	MDA38
AW12		DDR0_D224	DDR0_D224	AW4	MDA38
AW12		DDR0_D225	DDR0_D225	AW4	MDA38
AW12		DDR0_D226	DDR0_D226	AW4	MDA38
AW12		DDR0_D227	DDR0_D227	AW4	MDA38
AW12		DDR0_D228	DDR0_D228	AW4	MDA38
AW12		DDR0_D229	DDR0_D229	AW4	MDA3

**LGA1150 (G,H,I)**









(B)

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



**放靠近** Device & PCI-E Slot

H81/S/[10HB1-030H81-19R]

PCH PCIe .DMI 15/4/4/4//15 Impedance=85 +- 15%

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

(F)



H81:12/13 N\A



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



(J)



## PCH H/S

## LOW COST PCH HEATSINK



HEAT SINK/N-BG/GBT MK/Z87/KWOG/[12SP2-S04208-61R\_12SP2-S04208-62R\_12SP2-S04208-63R]

## NEW H81 MODEL

Footprint: BGAHSINK-75;  
3mm孔徑

## USB TABLE

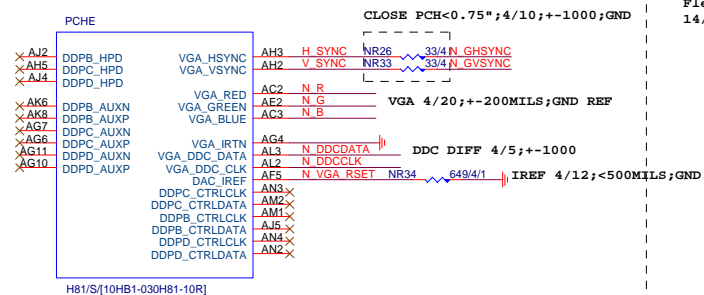
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

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

## Gigabyte Technology

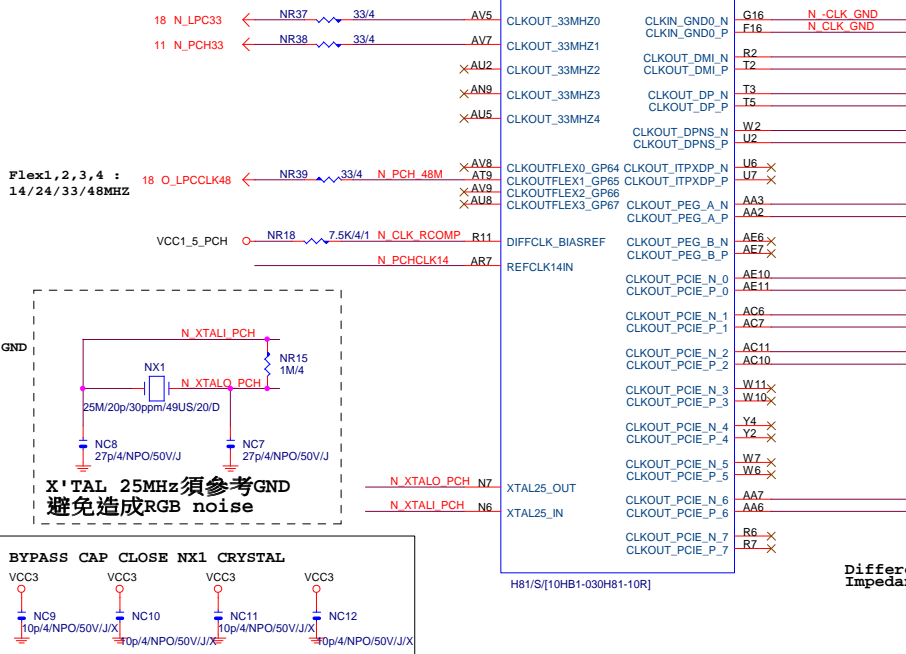
Title				PCH FDI,DMI,USB ,PCIE			
Size	Document Number					Rev	
Custom	GA-H81-D3					1.02	
Date:	Thursday, August 29, 2013			Sheet	9	of	34

**PCH (E)**

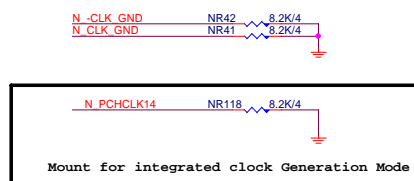


VGA_DISABLE
R,G,B      NC OR GND
IRTN / IREF GND
VGA_HSYNC, VGA_VSYNC, DDC_CLK, DDC_DATA    NC
POWER VCCADAC(AF2), VCCADACBG(AE1) GND

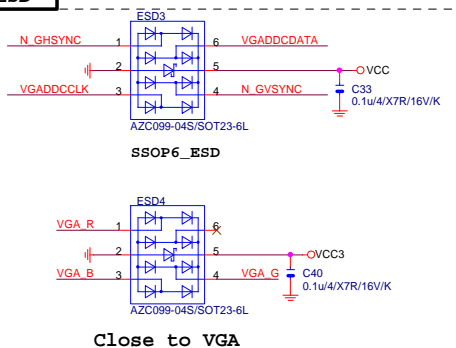
**PCH (G)**



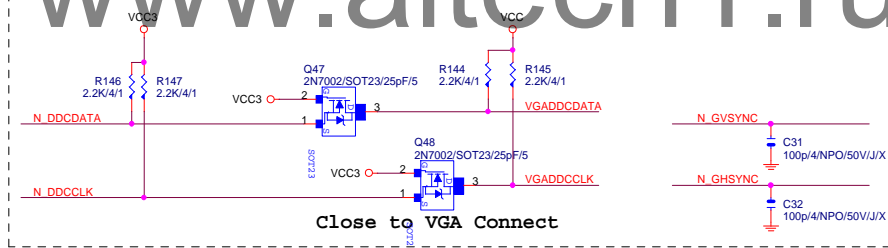
PCH CLK PD
------------



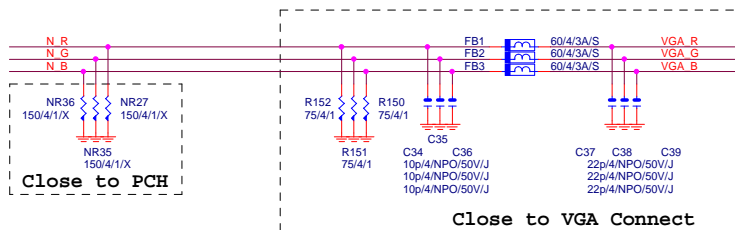
## VGA ESD



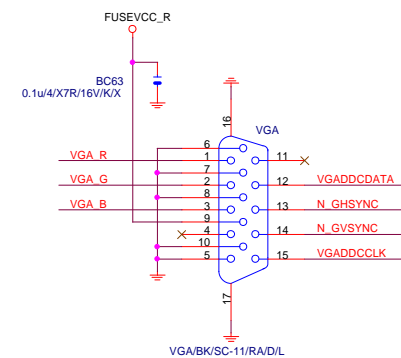
## VGA DDC



## VGA DDC



## VGA CONNECTOR



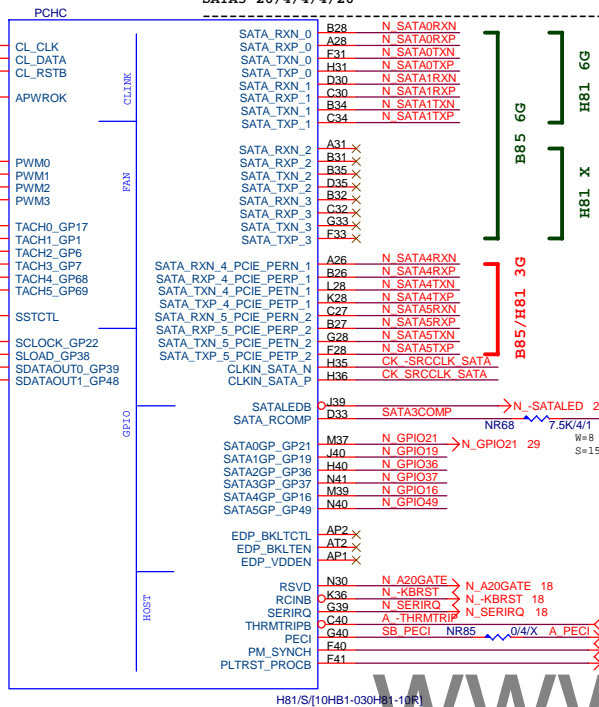
**PCH (C)**

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

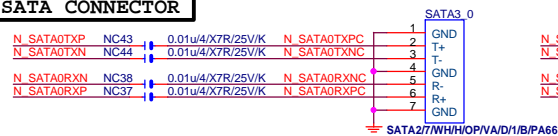
Impedance=85

SATA2 15/4/4/4/15

SATA3 20/4/4/4/20



## SATA CONNECTOR

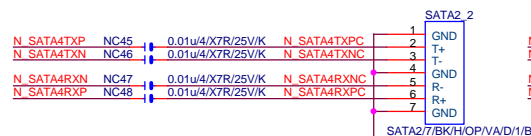


WHITE CONNECTOR

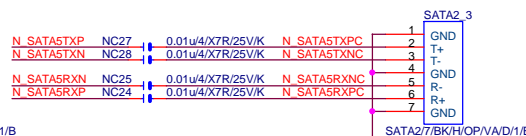


WHITE CONNECTOR

```
[Z87/H87] all SATA3
SATA3(From Z87) - 黑色
SATA3(From Marvell) - 灰色
[B85] SATA2+SATA3
SATA2(From B85) - 黑色
SATA3(From B85) - 白色
```

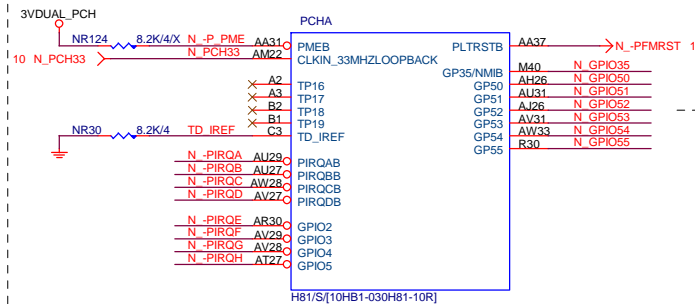


**BLACK CONNECTOR**



BLACK CONNECTOR

**PCH (A)**



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

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

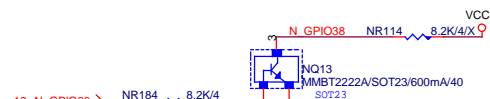
GPIO37 PU ENABLE SBA  
For H87 & B85



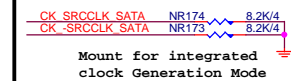
GPI038 Ctrl

MFG Mode

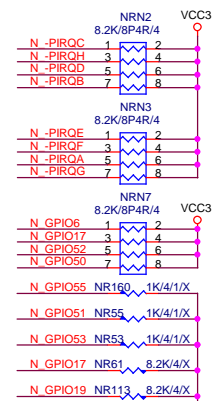
```
N_GPIO38 : Lo --> Enable
           Hi --> Disable
```



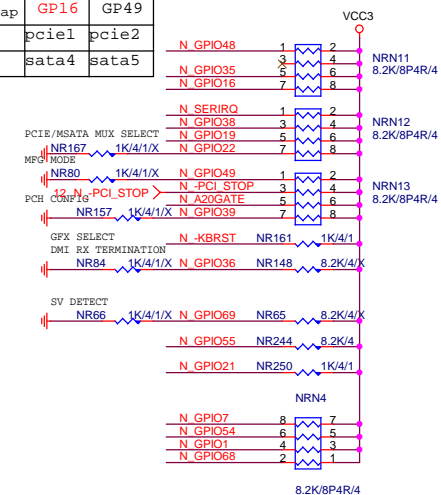
PCH CLK PD



## PCH PU/PD



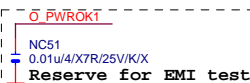
soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5



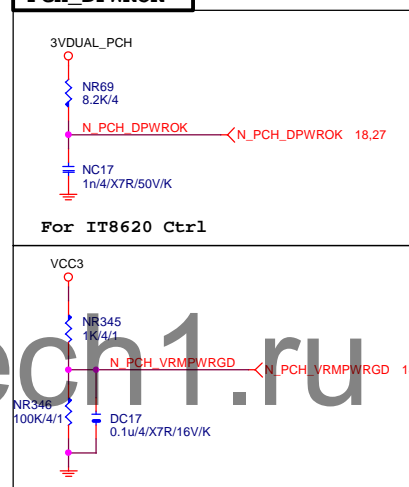
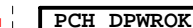
## Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
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Date:	Thursday, August 29, 2013	Sheet	11 of 34

(D)



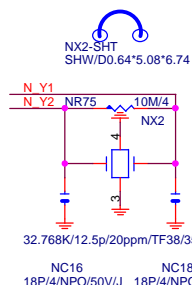
## Permissions



Pin configuration diagram for the NXP i.MX6UL SoC, showing pin numbers, functions, and signal rates. The diagram is organized into sections:

- GPB:Low to enable**
  - NR139: 8.2K/4/X N\_GPIO46 1 2
  - NR155: 8.2K/4/X N\_GPIO45 3 4
  - NR103: 8.2K/4/X N\_GPIO44 5 6
  - N\_GPIO57 7 8
- GPB:Low to enable**
  - A\_SKT0CC 1 2
  - N\_TEMP\_ALARM 3 4
  - N\_RI 5 6
  - N\_GPIO57 7 8
- PCH clock chip**
  - NR106: 1K/4/1 N\_IQIC\_EN NR105: 8.2K/4/X
  - NR153: 1K/4/1X N\_SUSCLK NR154: 8.2K/4/X
- SUSCLK:Low to OD**
  - N\_SUSTAT NR133: 8.2K/4/X
  - D\_GPIO\_HRST NR51: 1K/4/1
  - N\_GPIO28 NR144: 1K/4/1
  - N\_GPIO29 NR96: 1K/4/1
- PLL VR**
  - N\_GPIO28 NR144: 1K/4/1
  - N\_GPIO29 NR96: 1K/4/1
- GP28:Lo disable**
  - N\_GPIO29 NR96: 1K/4/1
- VRM ,Hi enable**
  - N\_GPIO29 NR96: 1K/4/1
- VRM**
  - N\_S\_WARN NR129: 8.2K/4
  - N\_GPIO27 NR60: 8.2K/4
  - N\_GPIO31 NR72: 8.2K/4
  - N\_SLP\_LAN NR73: 8.2K/4/X
  - N\_GPIO72 NR100: 8.2K/4
  - N\_PCIE\_WAKE NR76: 1K/4/1
  - N\_GPIO29 NR95: 1K/4/1X
- 3VDUAL\_PCH**
  - NR145: 8.2K/4/X N\_GPIO20 NR109: 8.2K/4
  - N\_GPIO0 NR115: 8.2K/4
  - N\_SYS\_RST NR164: 8.2K/4
  - N\_GPIO32 NR82: 8.2K/4/X
  - NR48: 8.2K/4/X N\_GPIO33 NR49: 8.2K/4
- VCC3**
  - N\_PCH\_RST NR172: 20K/4/1
  - N\_PCH\_TDI NR170: 200/4/1
  - N\_PCH\_TDO NR141: 200/4/1
  - N\_PCH\_TMS NR169: 200/4/1
  - N\_PCH\_TCK NR87: 200/4/1X
- 3VDUAL**
  - N\_PCH\_RST NR143: 1K/4/1X
  - N\_PCH\_TDI NR171: 100/4/1
  - N\_PCH\_TDO NR168: 100/4/1
  - N\_PCH\_TMS NR142: 100/4/1
  - N\_PCH\_TCK NR108: 51/4/1
  - N\_GPIO18 NR79: 8.2K/4
  - N\_GPIO73 NR134: 8.2K/4
  - N\_GPIO26 NR107: 8.2K/4
  - N\_GPIO25 NR137: 8.2K/4
  - N\_SYS\_RST NC58: 1n/4/X/R50V/K
  - N\_DRAM\_PWROK NC59: 1n/4/X/R50V/K

32.768KHZ



LR\_CMOS

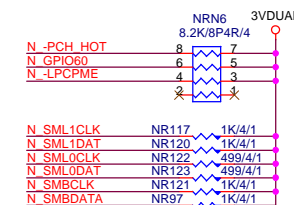
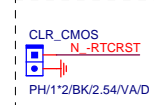
BATTERY  
CR2032

CR2032  
+

3

2 1 N VBATT

BAT  
BAT-SK/BK/P/S/D/S



## Gigabyte Technology

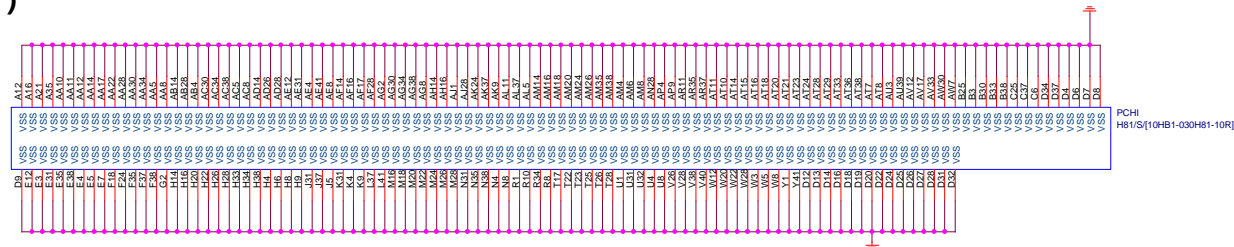
## PCH GPIO , CTRL , AUDIO

GA-H81-D3

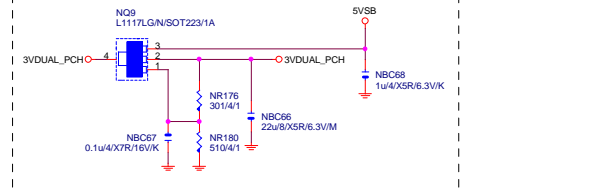
Date: Thursday, August 29, 2013 Sheet 12 of 34

Date: Thursday, August 29, 2013 Sheet 12 of 34

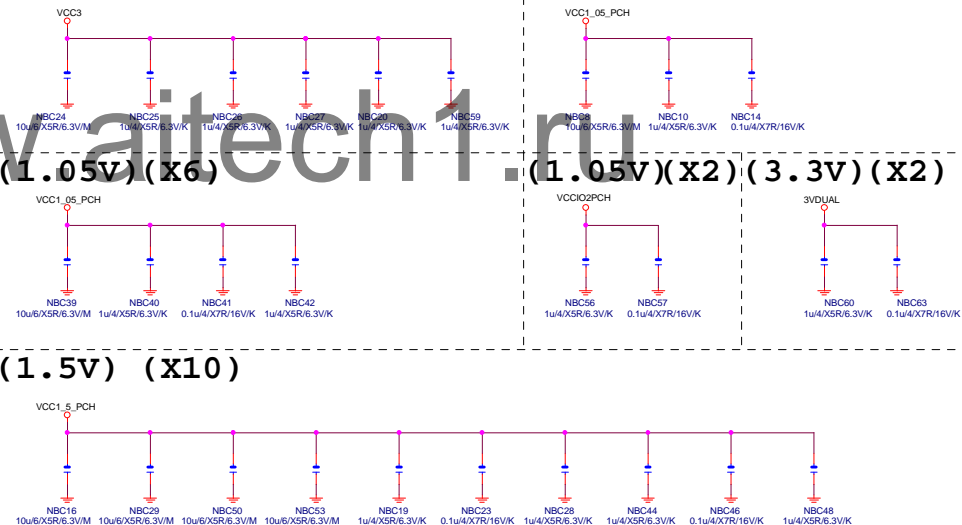
**PCH (I)**



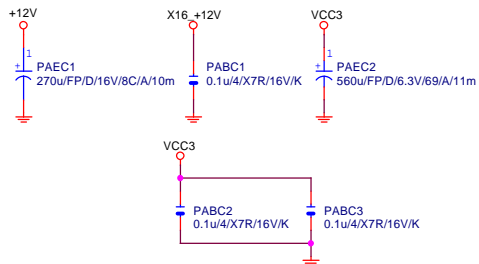
SHT PWR



(1.05V) (x5)

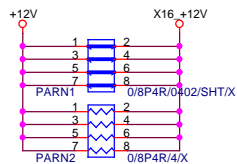


## PCIEX16 CAP



## PCIEX16 PROTECT SHT

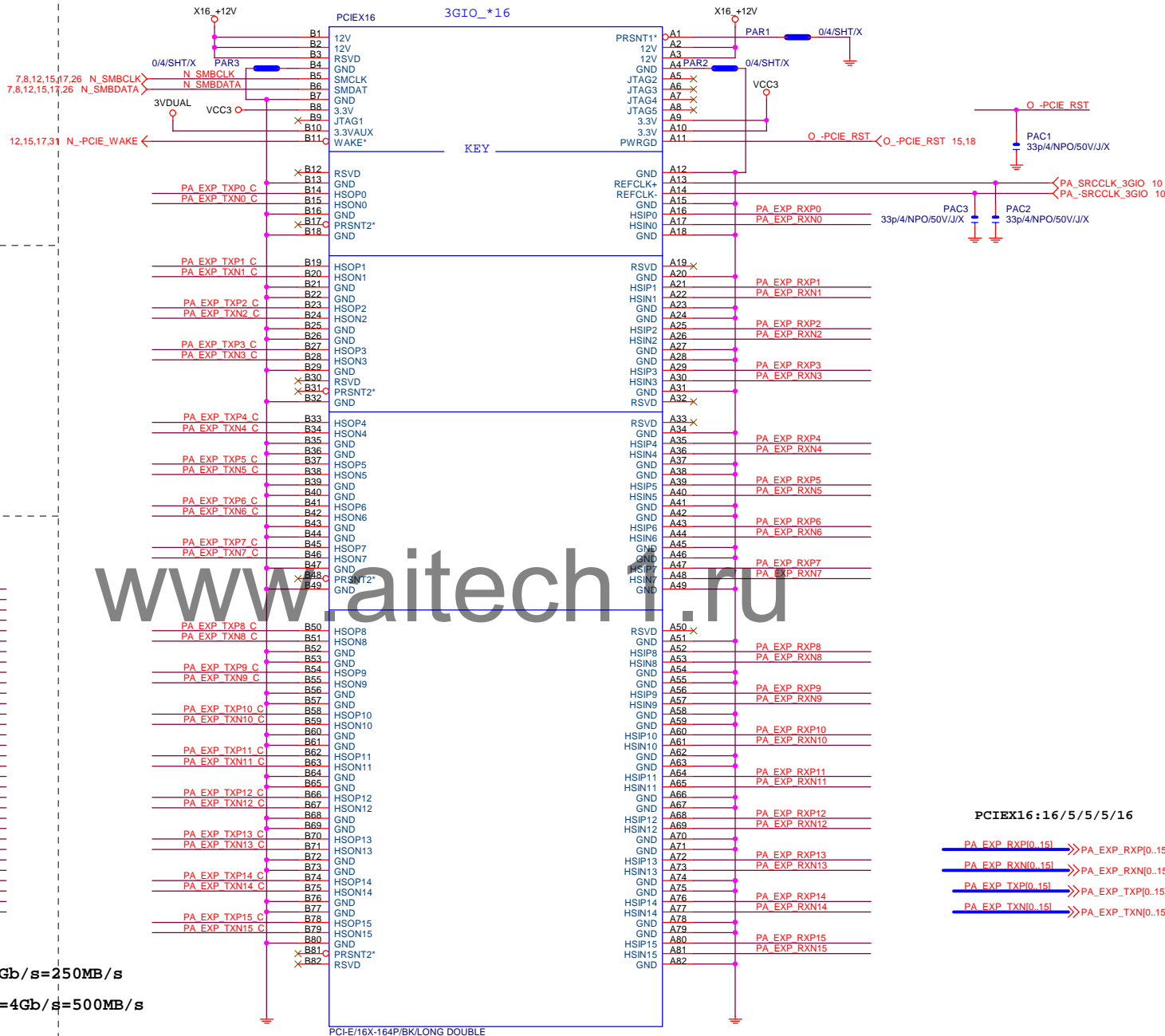
+12 protect short-wire test



## PCIEX16 AC CAP

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

## PCIEX16 SLOT



PCIEX16:16/5/5/5/16

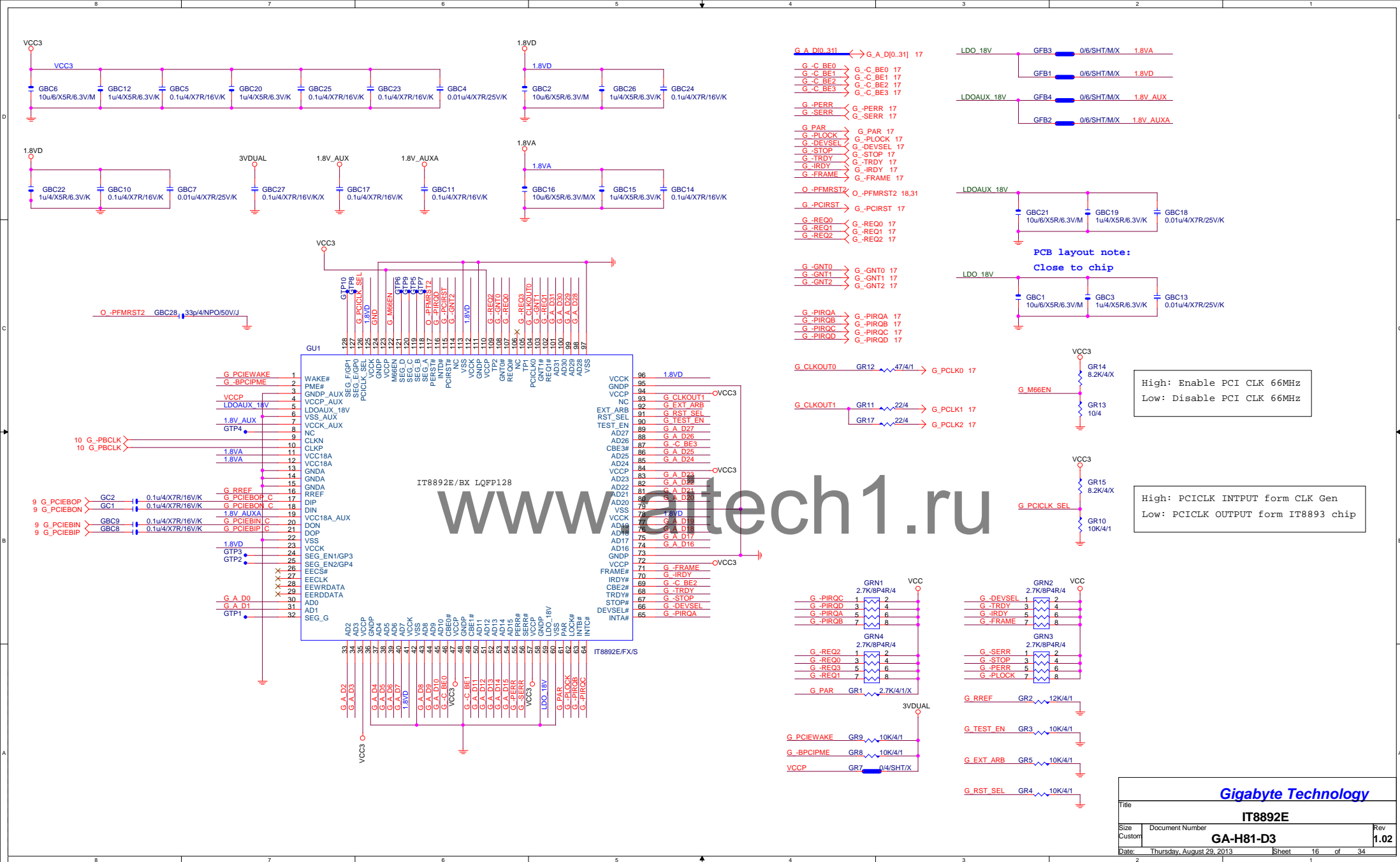
PA EXP RXP0.[15] >>> PA\_EXP\_RXP[0..15] 4  
PA EXP RXN0.[15] >>> PA\_EXP\_RXN[0..15] 4  
PA EXP TXP0.[15] >>> PA\_EXP\_TXP[0..15] 4  
PA EXP TXN0.[15] >>> PA\_EXP\_TXN[0..15] 4

Gigabyte Technology

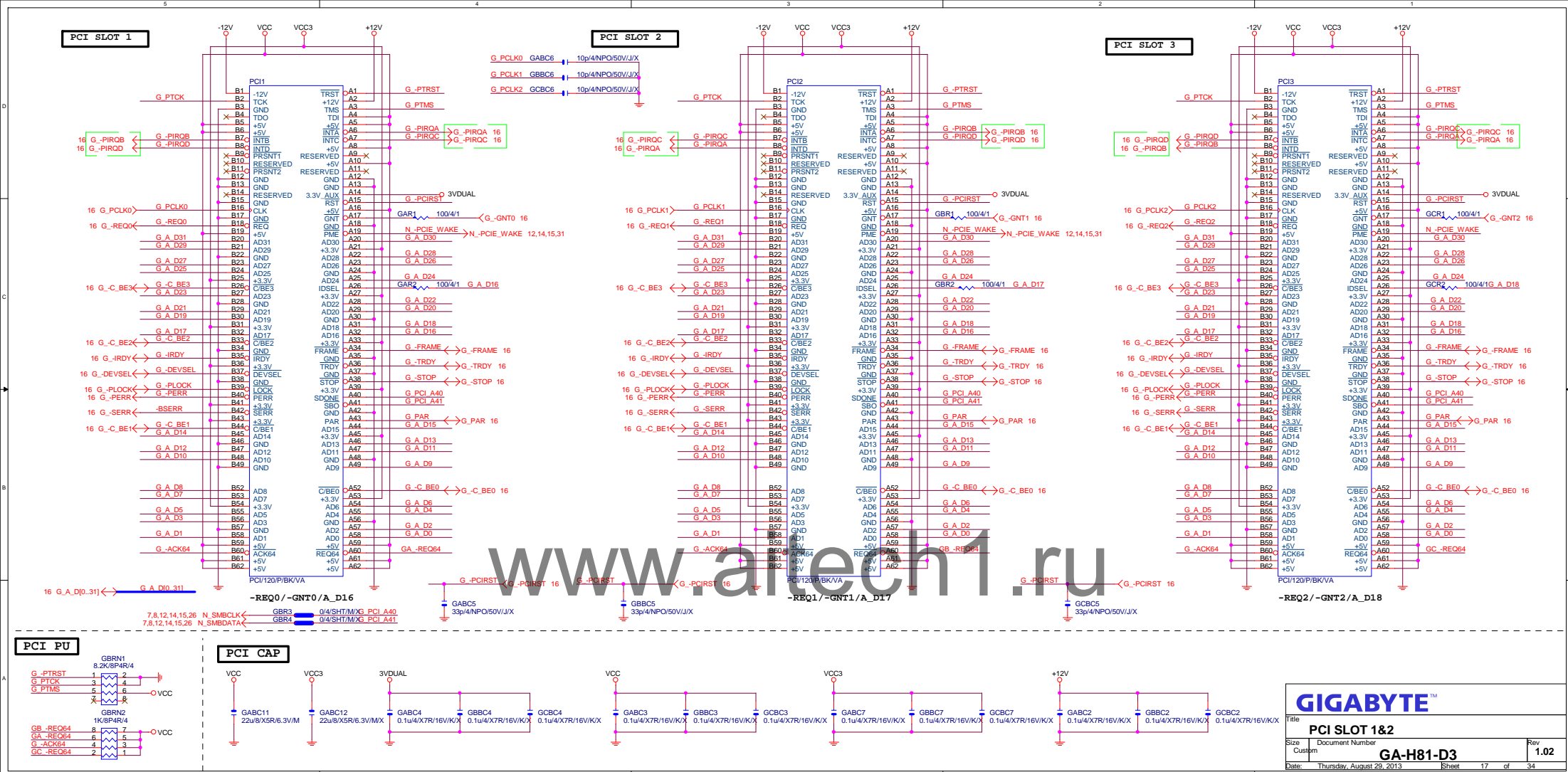
Title			
PCI EXPRESS * 16			
Size	Document Number	Rev	
Custom	GA-H81-D3	1.02	
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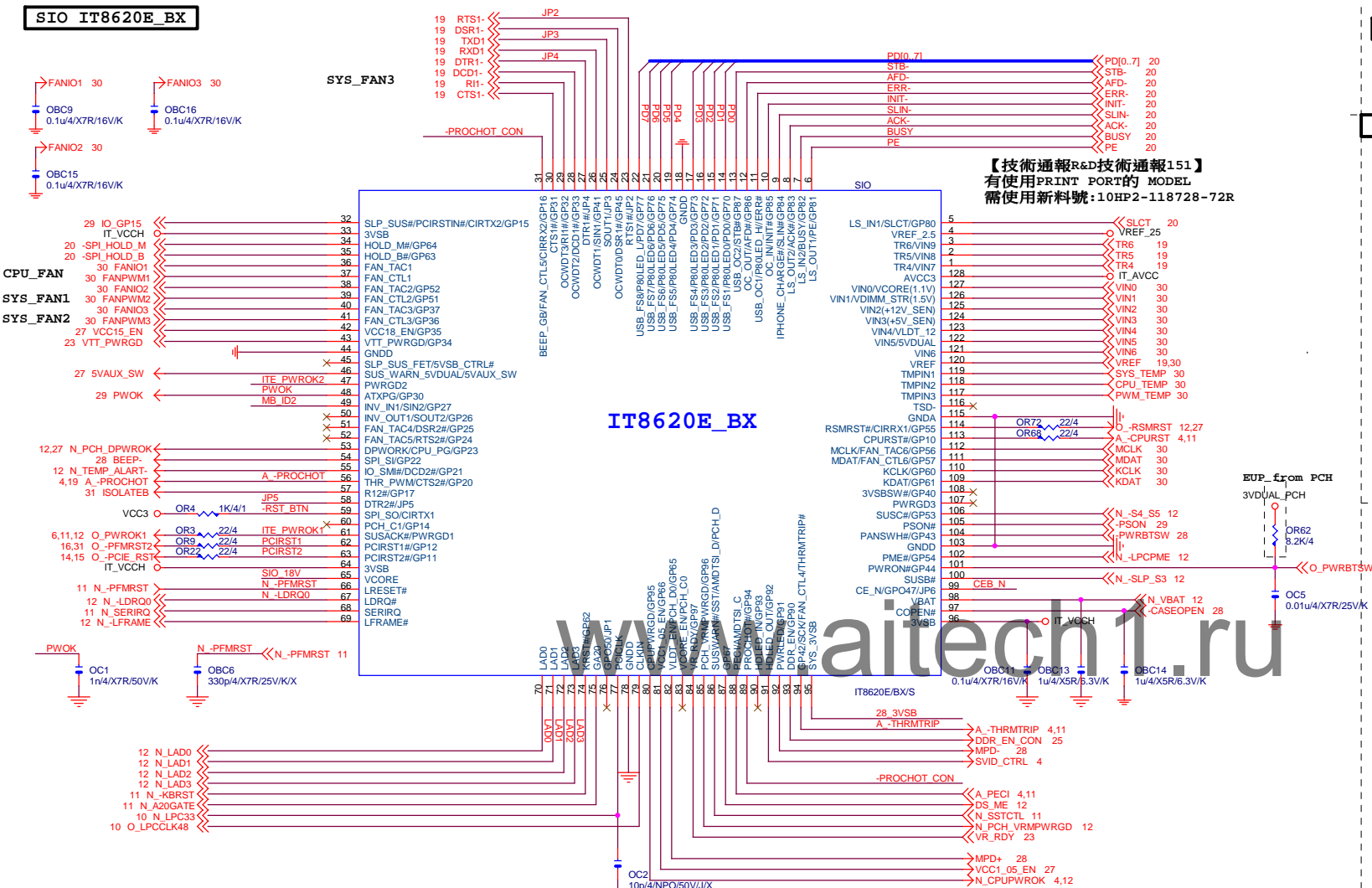




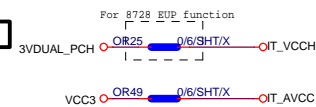




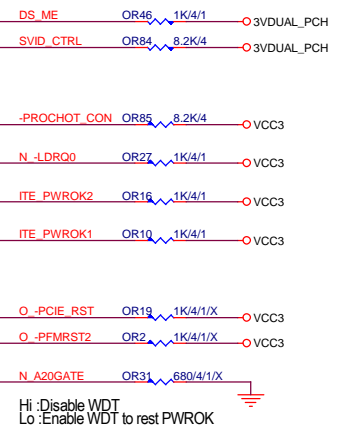
## SIO IT8620E BX



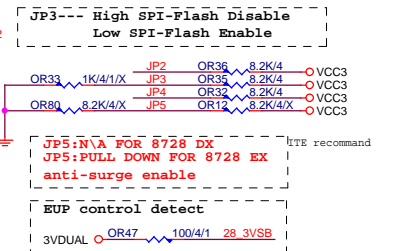
## PWR SHT



## SIO PU



## SIO STRAP

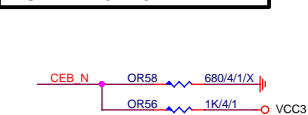


JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

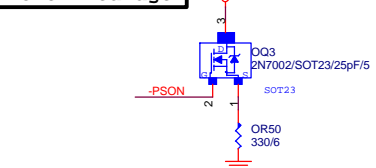
## IT8620E GPIO問題匯整

PIN 50	GP26---
PIN 90/91	第一次接上POWER時會拉 LO
PIN 108	DEFAULT為HDLDED FUNCTION, GP93 BYPASS TO GP92
PIN 111/112	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

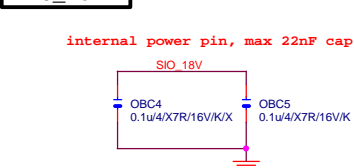
## DUAL BIOS OPT STRAP



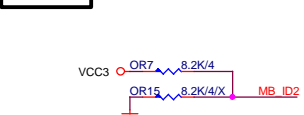
## Power leakage



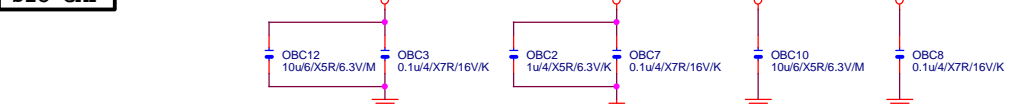
## SIO\_18V



## MB ID



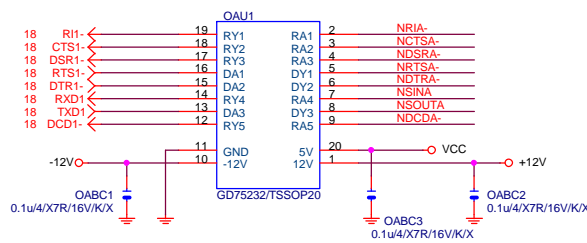
## SIO CAP



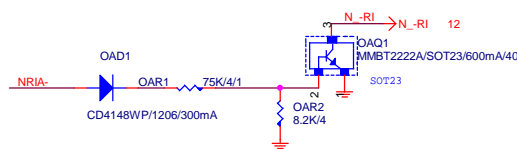
## Gigabyte Technology

Title			ITE 8728 LPC IO		
Size			Custom		
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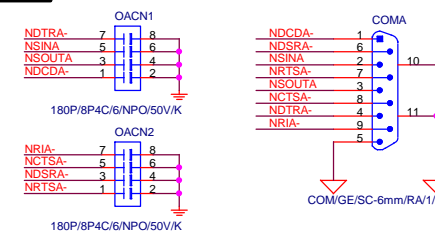
## COMA



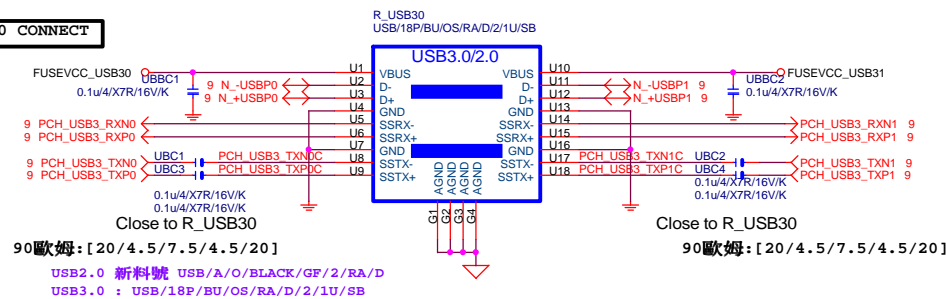
## COM RI



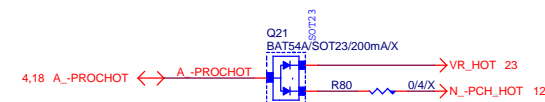
## COM BUFFER



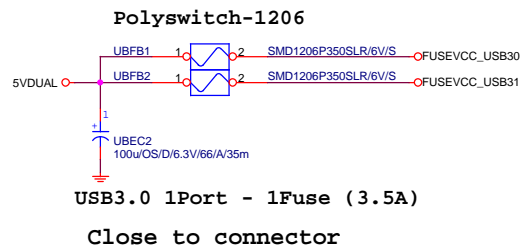
## R\_USB30 CONNECT



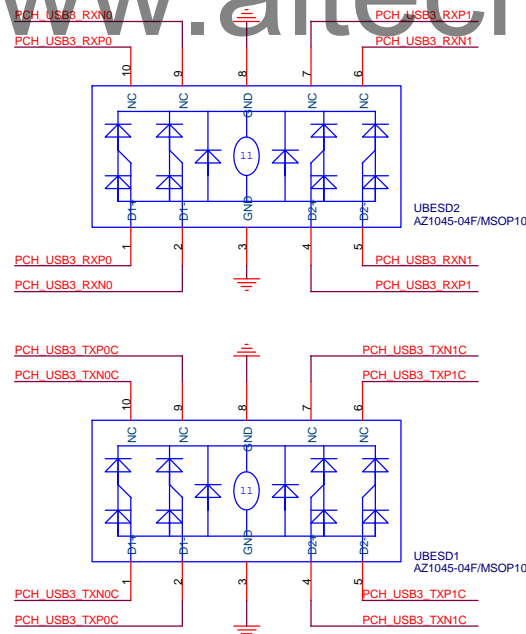
## -PROHOT



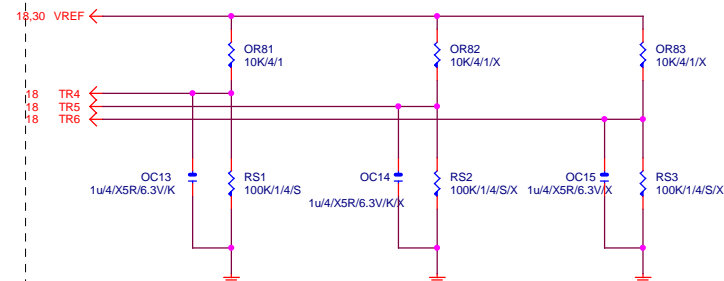
## USB30 PWR



## USB30 ESD PROTECT

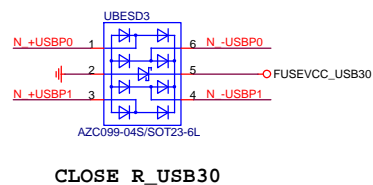


## PROHOT



RS1 close DBQ1、  
RS2 close DDQ1、  
RS3 close DAQ1、  
Others close SIO

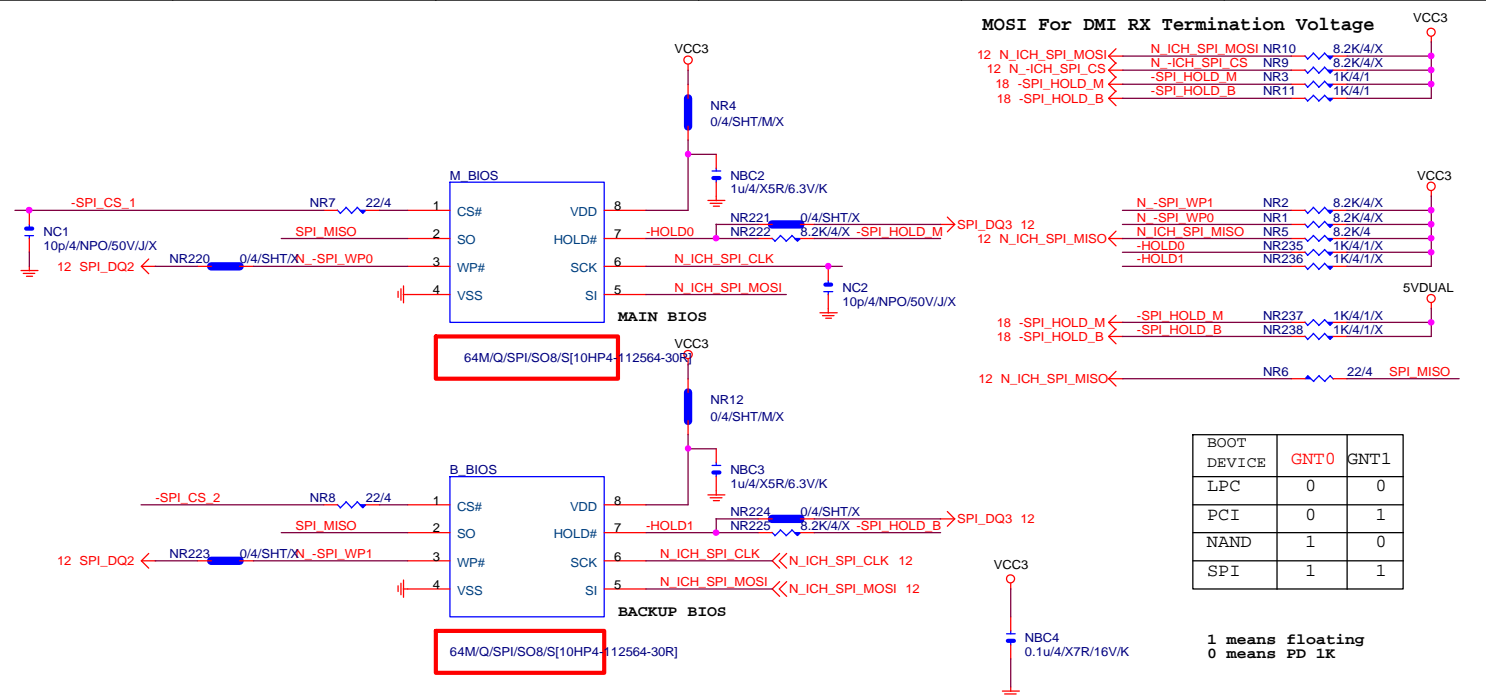
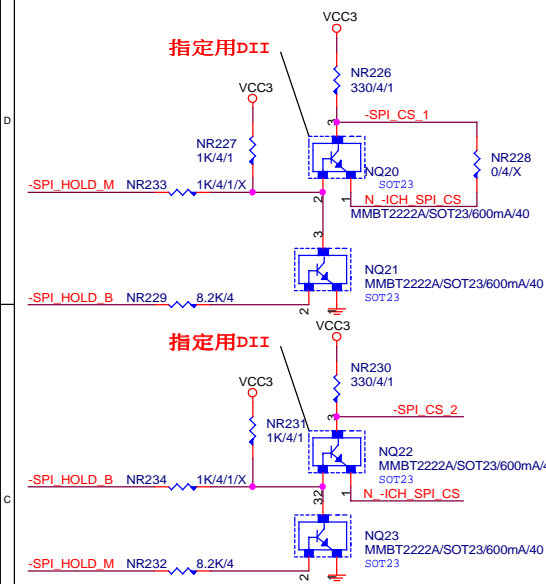
## USB20 ESD PROTECT



Gigabyte Technology

Title		COM & PROHOT/Dynamic O.C.	
Size	Document Number	Rev	
Custom		GA-H81-D3	
Date:	Thursday, August 29, 2013	Sheet	19 of 34

## DUAL BIOS

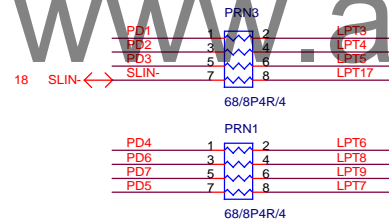
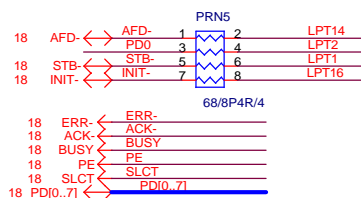


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

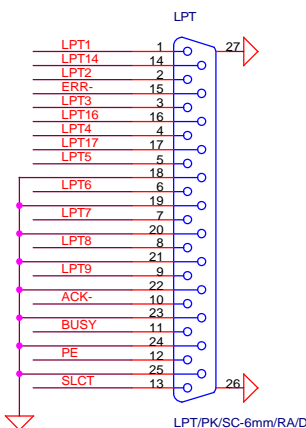
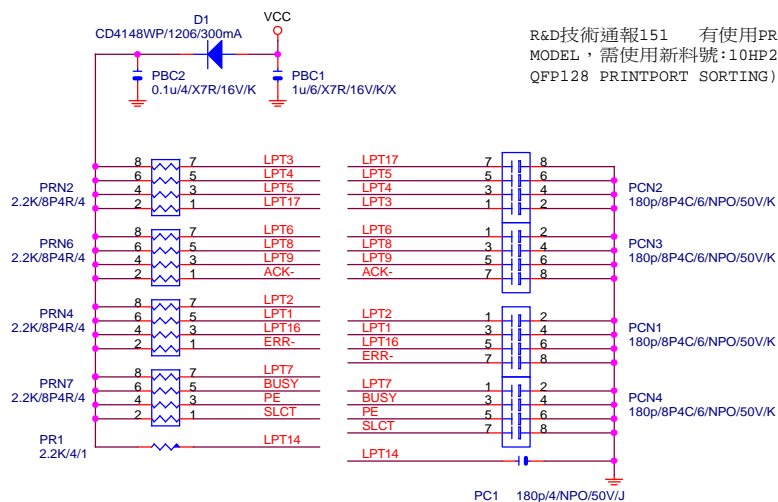
1 means floating  
0 means PD 1K

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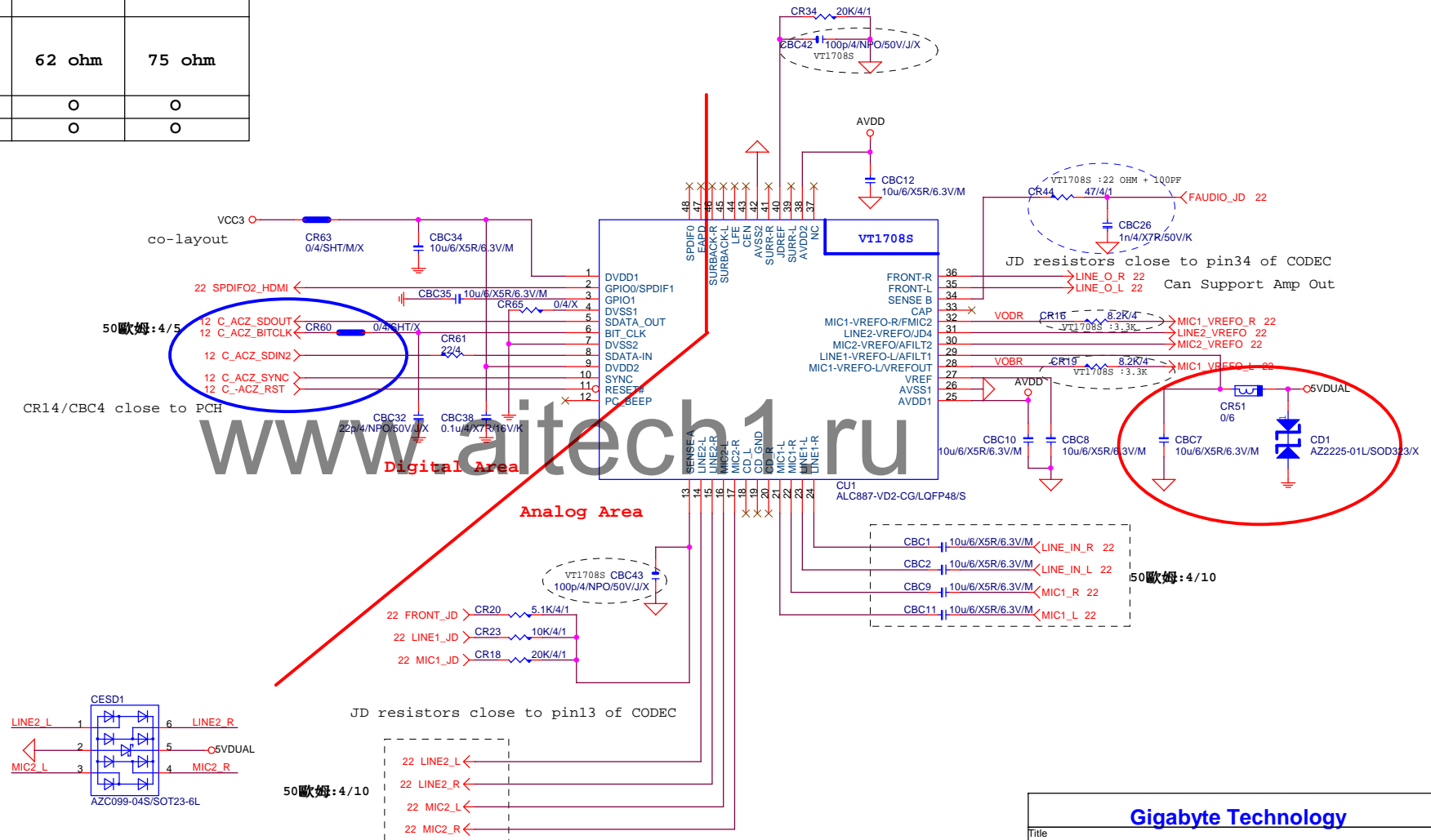
LPT PORT

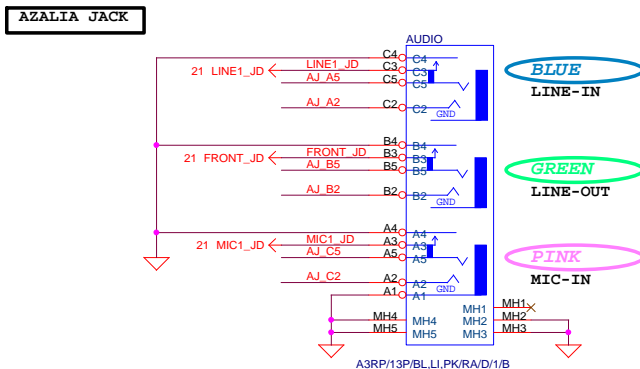
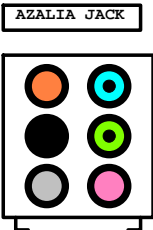
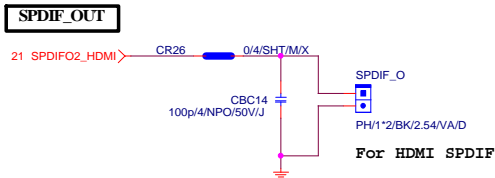
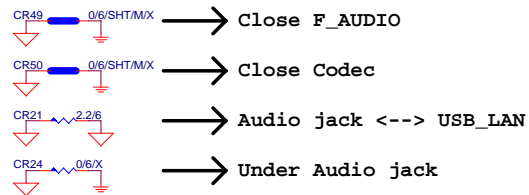


R&D技術通報151 有使用PRINT PORT的  
MODEL，需使用新料號:10HP2-118728-72R。(CHIP IT8728F/EX (GB) ITE/SMD  
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。

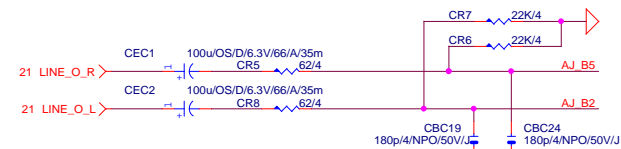


	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	X	O	O



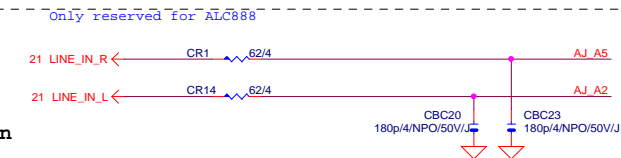


## LINE-OUT

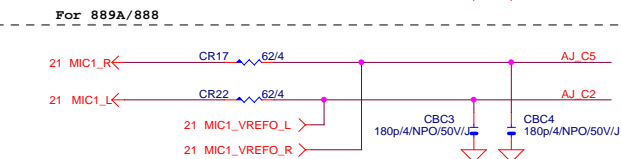


## LINE-IN

Verify MIC function in LINE-in



## MIC-IN

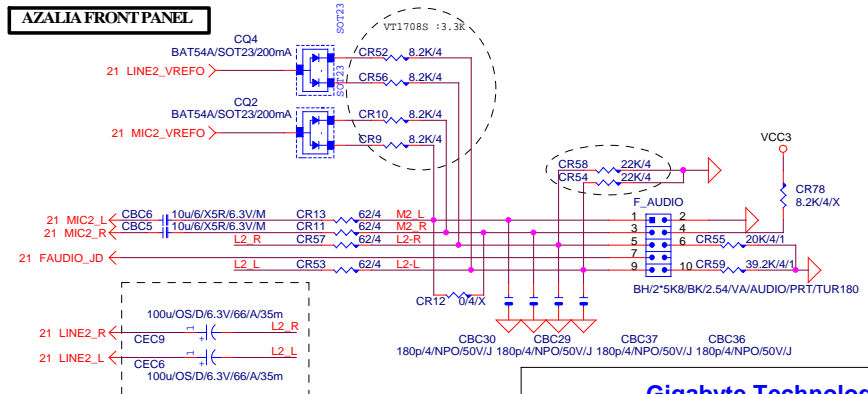


## SURROUND

## CEN/LFE

## SURRBACK

## AZALIA FRONT PANEL



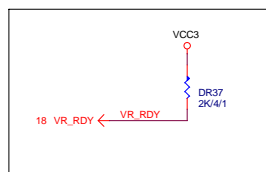
**Gigabyte Technology**

Title			
AUDIO JACK			
Size	Document Number	GA-H81-D3	
Custom		Rev 1.02	
Date:	Thursday, August 29, 2013	Sheet	22 of 34

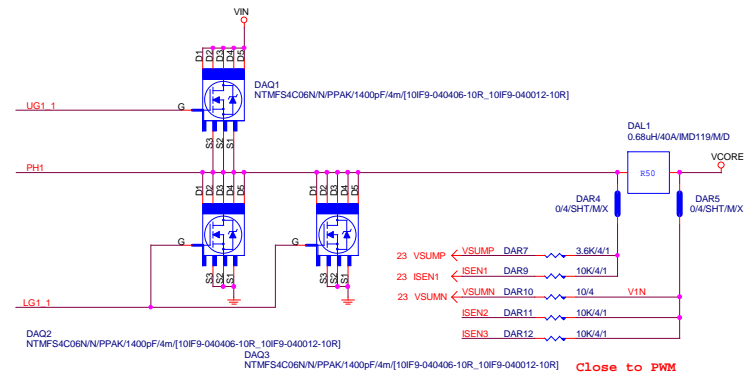
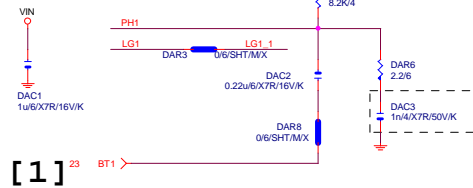
R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
<b>34.0</b>	<b>129</b>
42.2	144

R_PROG2 (Kohm)	Fsw(KHz)	VBOOT
<b>64.9</b>	<b>315</b>	<b>1.75</b>
73.2	315	1.70
80.6	315	1.65
90.9	315	0

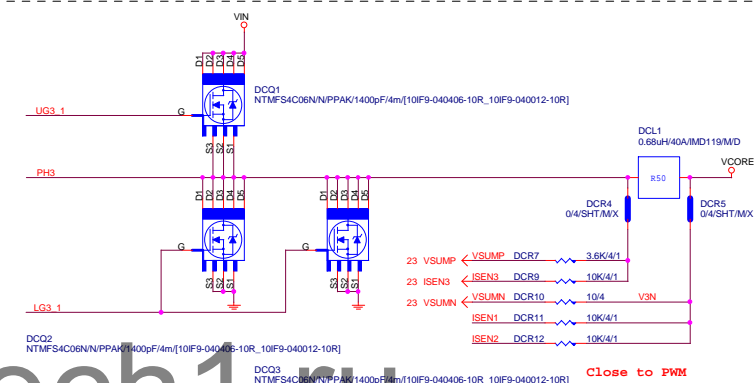
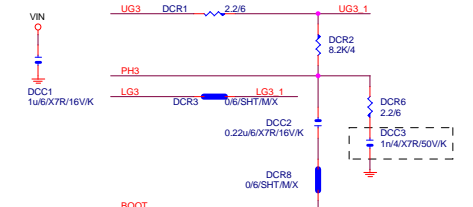
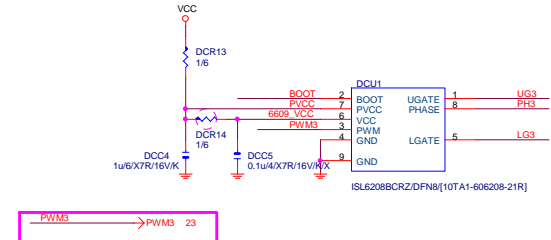
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
<b>3.24</b>	<b>12</b>
5.76	24
9.31	40
13.3	45



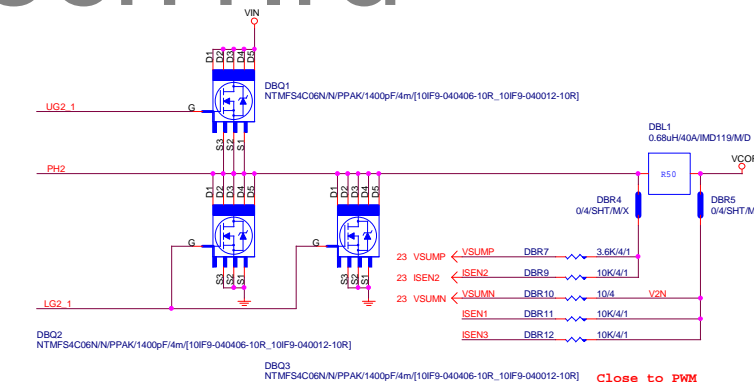
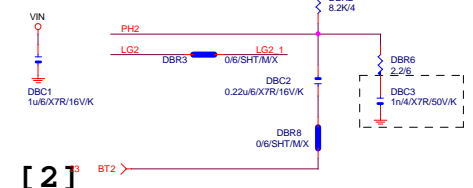
# PHASE 1



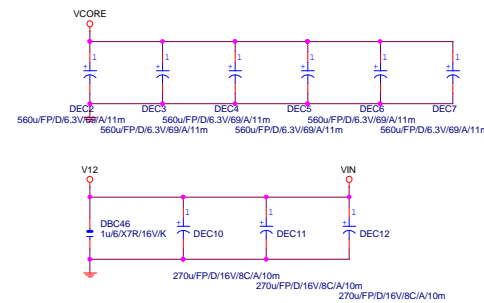
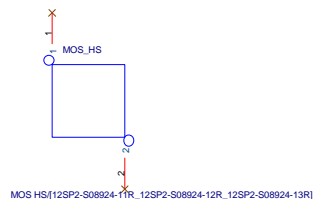
# PHASE 3



# PHASE 2



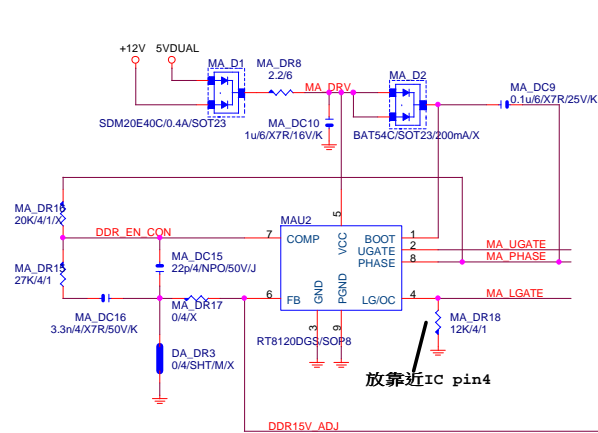
# MOSFET HEATSINK



Gigabyte Technology			
Title		CPU CORE VR-2	
Size	Document Number	GA-H81-D3	Rev
Custom			1.02
Date:	Thursday, August 29, 2013	Sheet	24 of 34

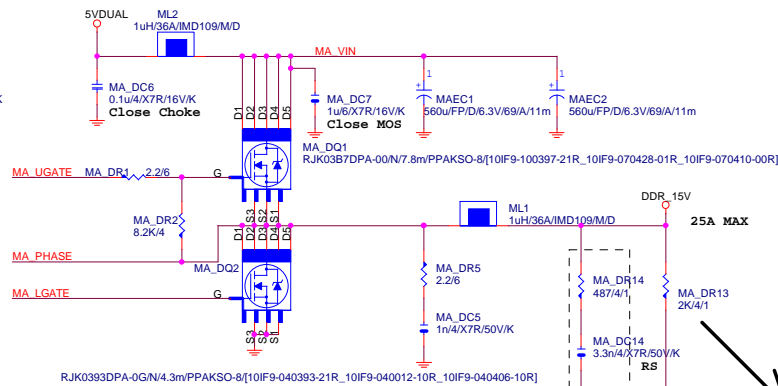


# DDR 15V



放靠近IC pin4

DDR\_EN\_CON 18



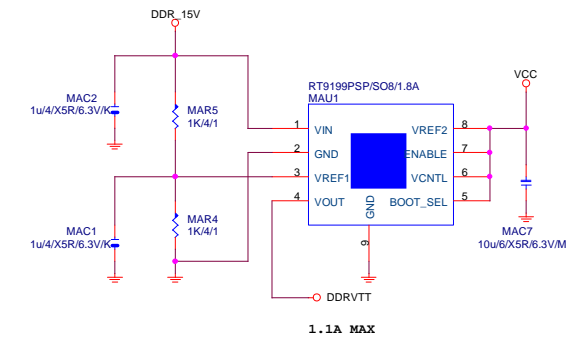
VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1  
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
Coefficient=1.7(85°C), 1(105°C)

VIN Ripple current=4.7X1.7=7.99A(85°C)  
-->故固態電容須2X7.99=15.98>11.45A

OCP: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]

# DDRVTT



1.1A MAX

Remote sense請從最重的負載端點拉回

$$0.8 * (1 + RS / RO) = V_{out}$$

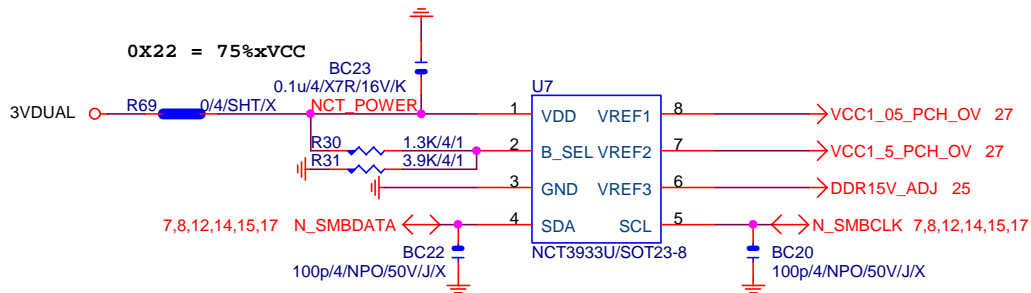
$$0.8 * [1 + 2K / 2.2K] = 1.527V$$

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GIGABYTE™

Title		
DDR15V / M3 POWER		
Size	Document Number	Rev
Custom	GA-H81-D3	1.02
Date:	Thursday, August 29, 2013	Sheet 25 of 34

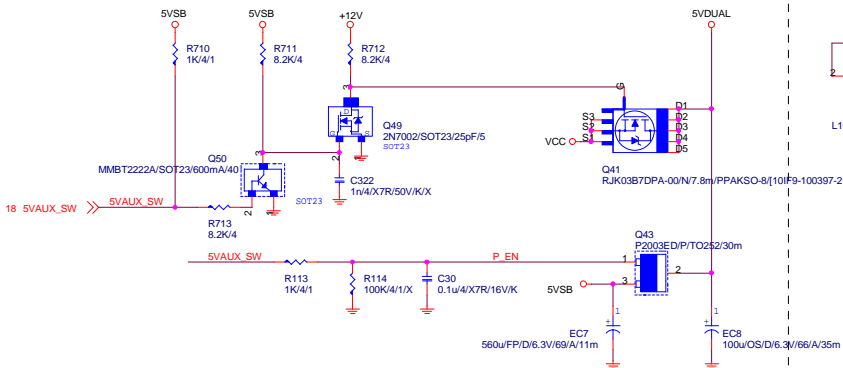
OVER VOLTAGE



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		
CPU CORE VR-2		
Title	Document Number	Rev
	GA-H81-D3	1.02
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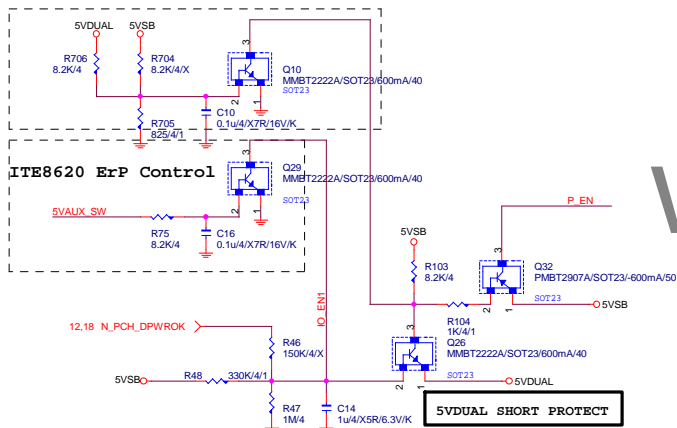
## 5VDUAL



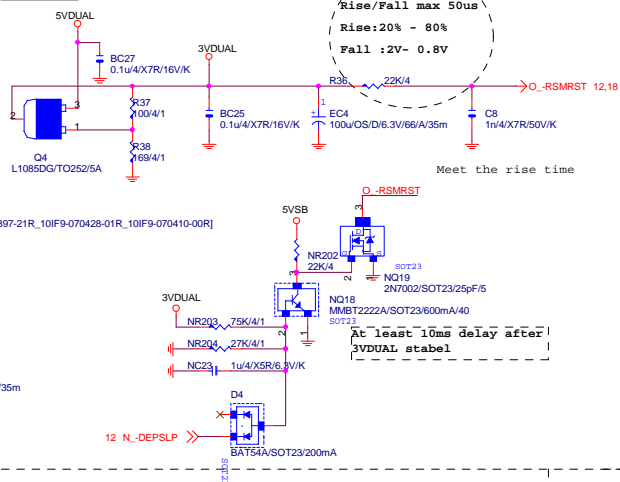
5VSB OVP發生時 : 5VDUAL=0.8V --> 解除時,須拔POWER CORE 才可開機

5VDUAL OVP發生時 : 5VDUAL=6V --> 解除時則恢復正常

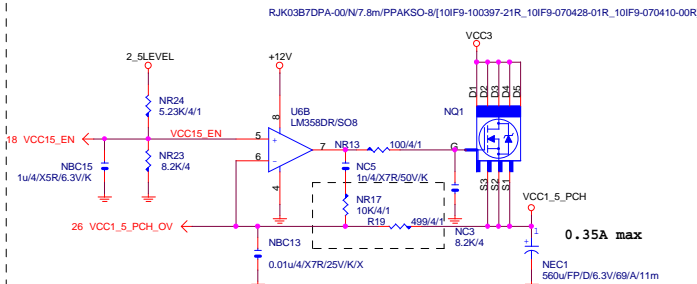
5VDUAL OVP : 6V protection



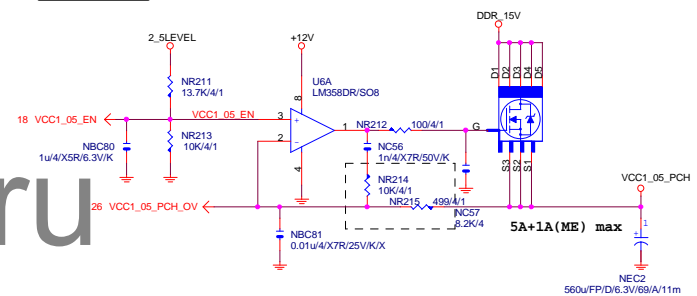
## 3VDUAL



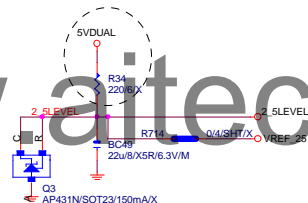
VCC1_5_PCH	
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## VCC1\_05\_PCH



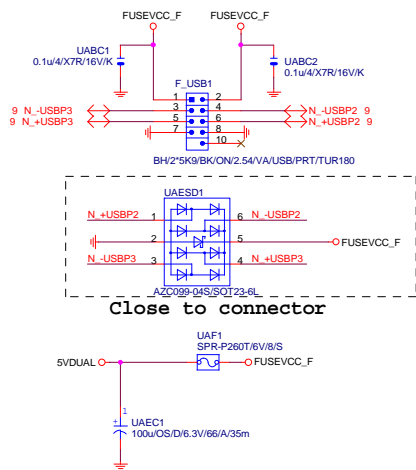
ERP



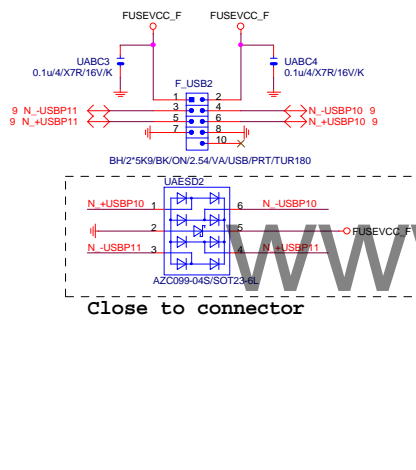
## Gigabyte Technology

Title			
<b>DISCRETE POWER</b>			
Size	Document Number		Rev
Custom	<b>GA-H81-D3</b>		<b>1.02</b>
Date:	Thursday, August 29, 2013	Sheet	27 of 34

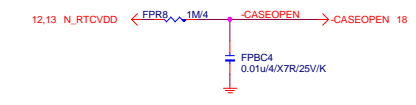
FRONT USB1



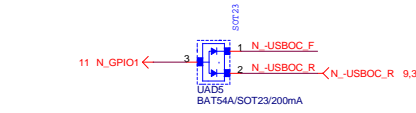
FRONT USB2



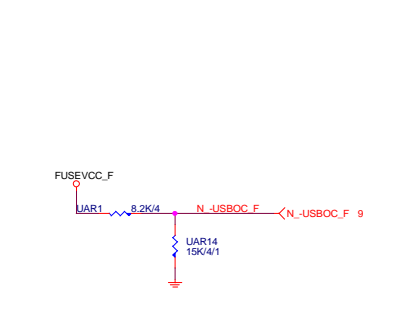
CASE OPEN



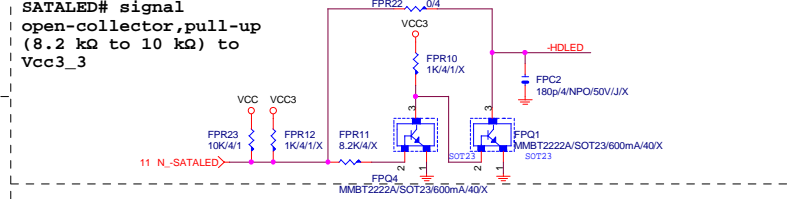
F\_USB POWER PROTECT



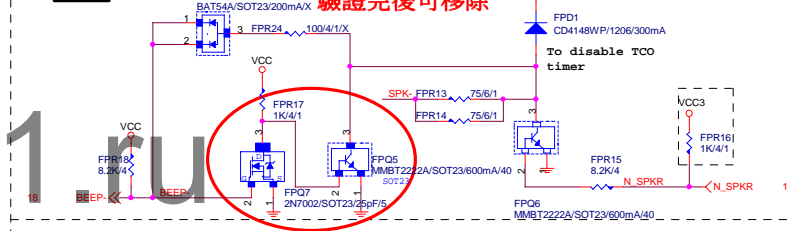
-USB0C\_F



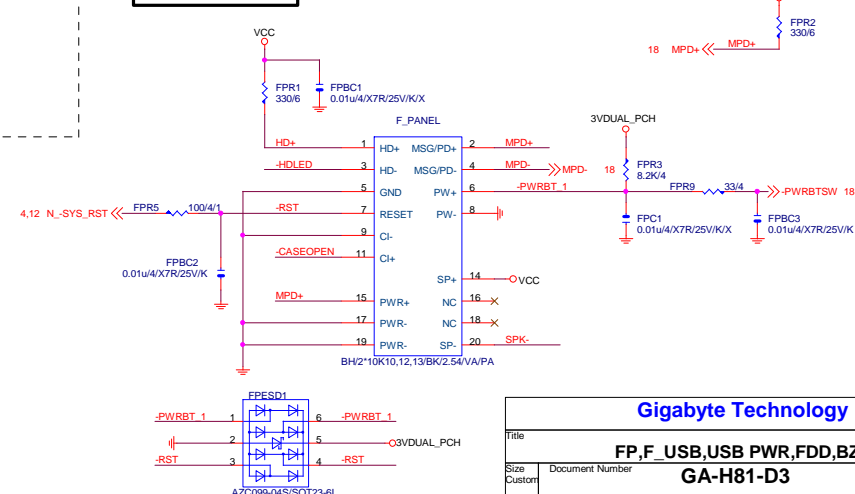
SATA LED



SPKR

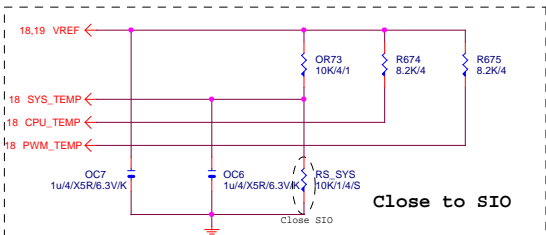


INTEL FRONT PANEL

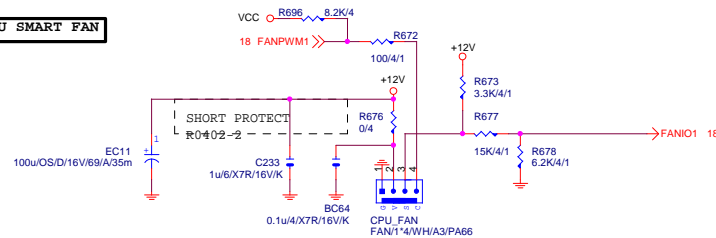


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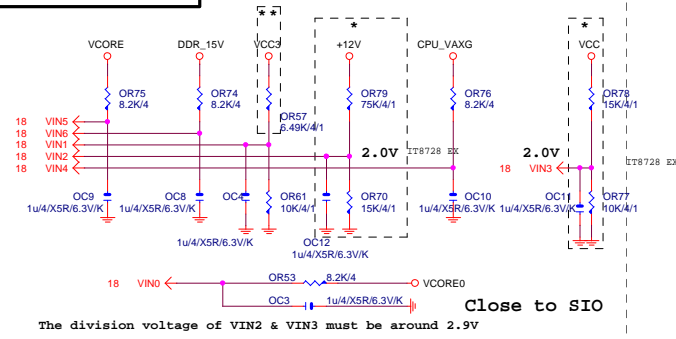
# TEMP H/W MONITOR



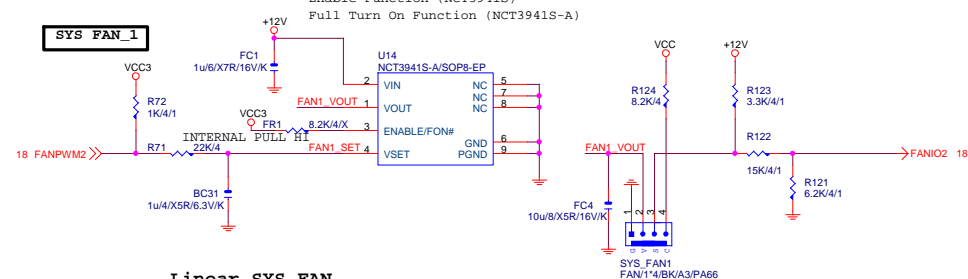
# CPU SMART FAN



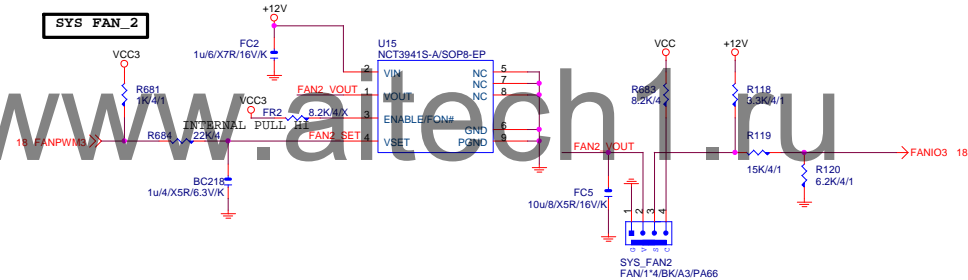
# VOLTAGE-- H/W MONITOR



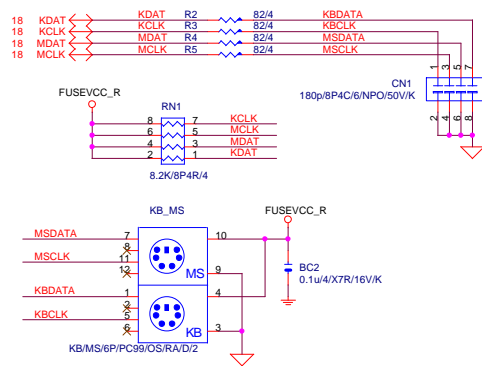
# Linear SYS\_FAN



# Linear SYS\_FAN



# KB/USB



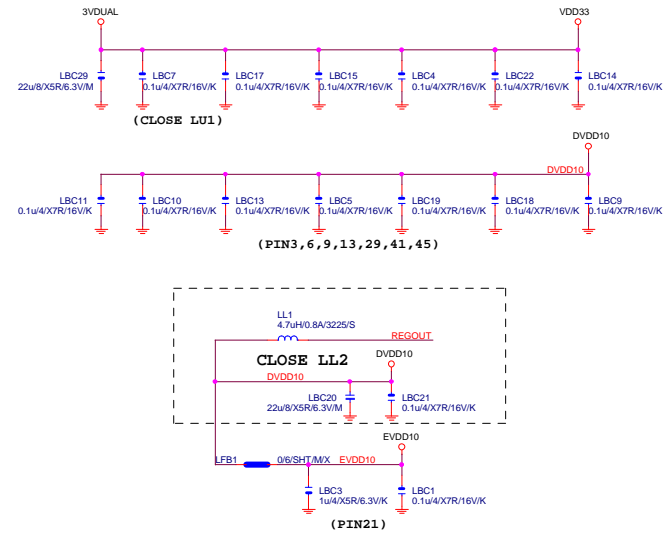
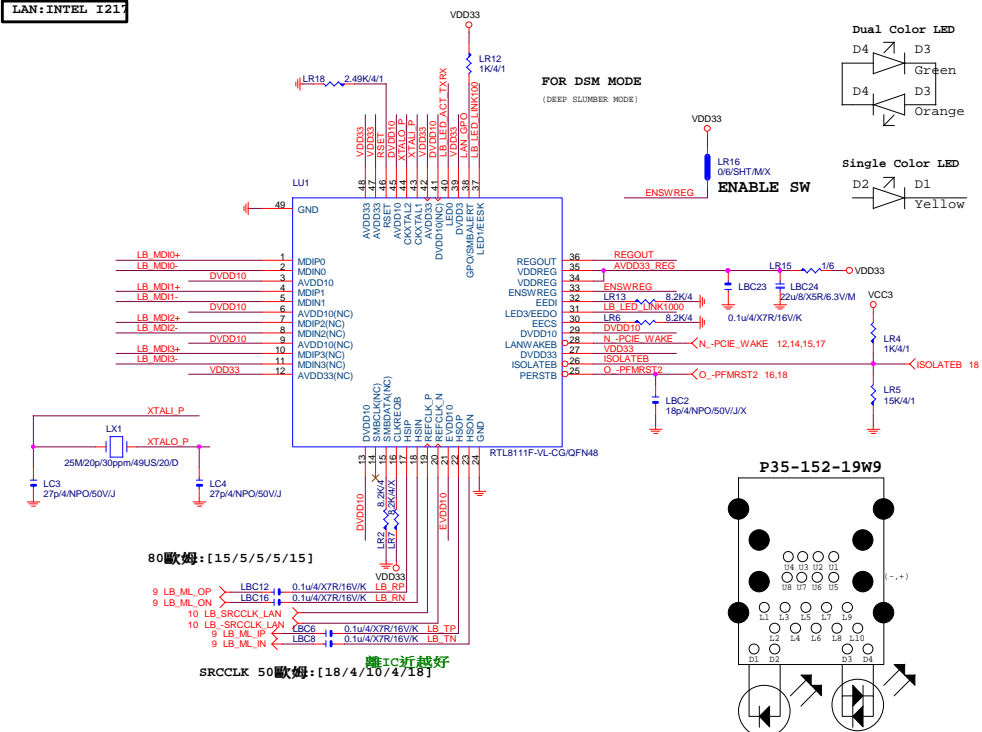
FOR FMI ONLY



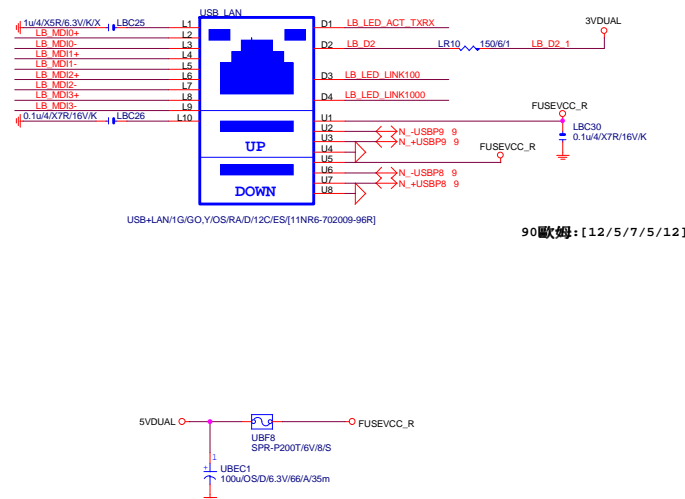
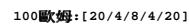
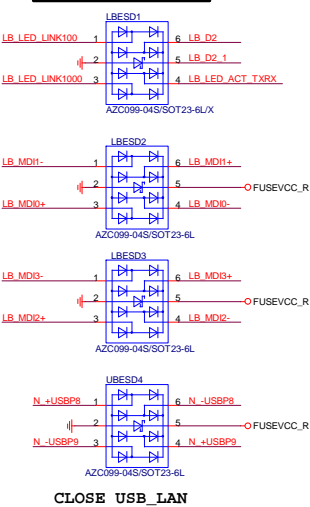
Gigabyte Technology

Title		HWM,KB/MS, FAN CTRL	
Size	Document Number	Rev	
Custom	GA-H81-D3	1.02	
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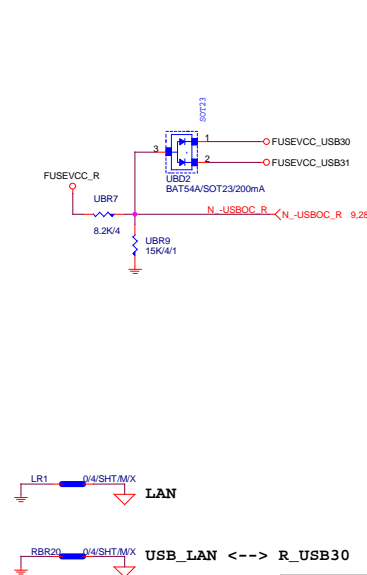
## LAN:INTEL I217



## USB30\_LAN CONNECTOR



## -USB0C\_R



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Gigabyte Technology			
Title			
N/A			
Size	Document Number		Rev
Custom	GA-H81-D3		1.02
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Gigabyte Technology		
Title		
N/A		
Size	Document Number	Rev
Custom	GA-H81-D3	1.02
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