

Model Name: GA-B85-D3V

2.0

SHEET

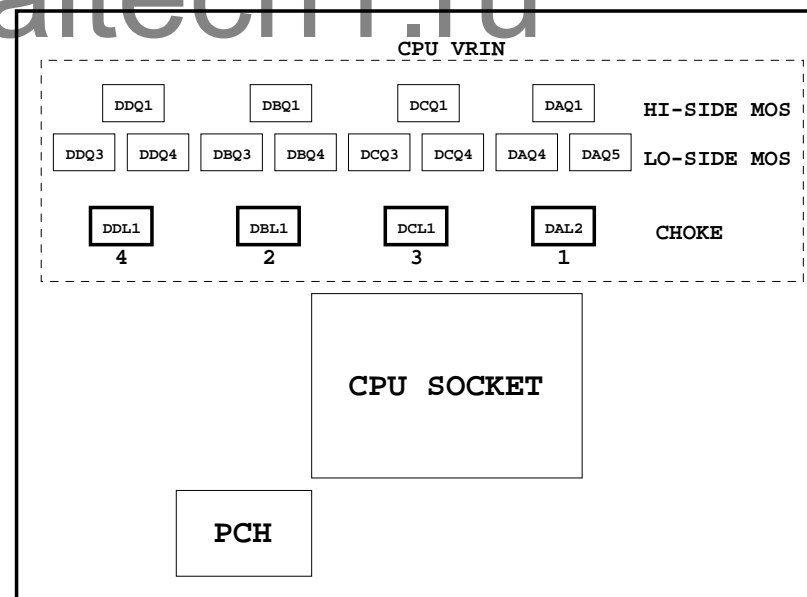
TITLE

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 RTL8111G
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
37	
38	
39	
40	



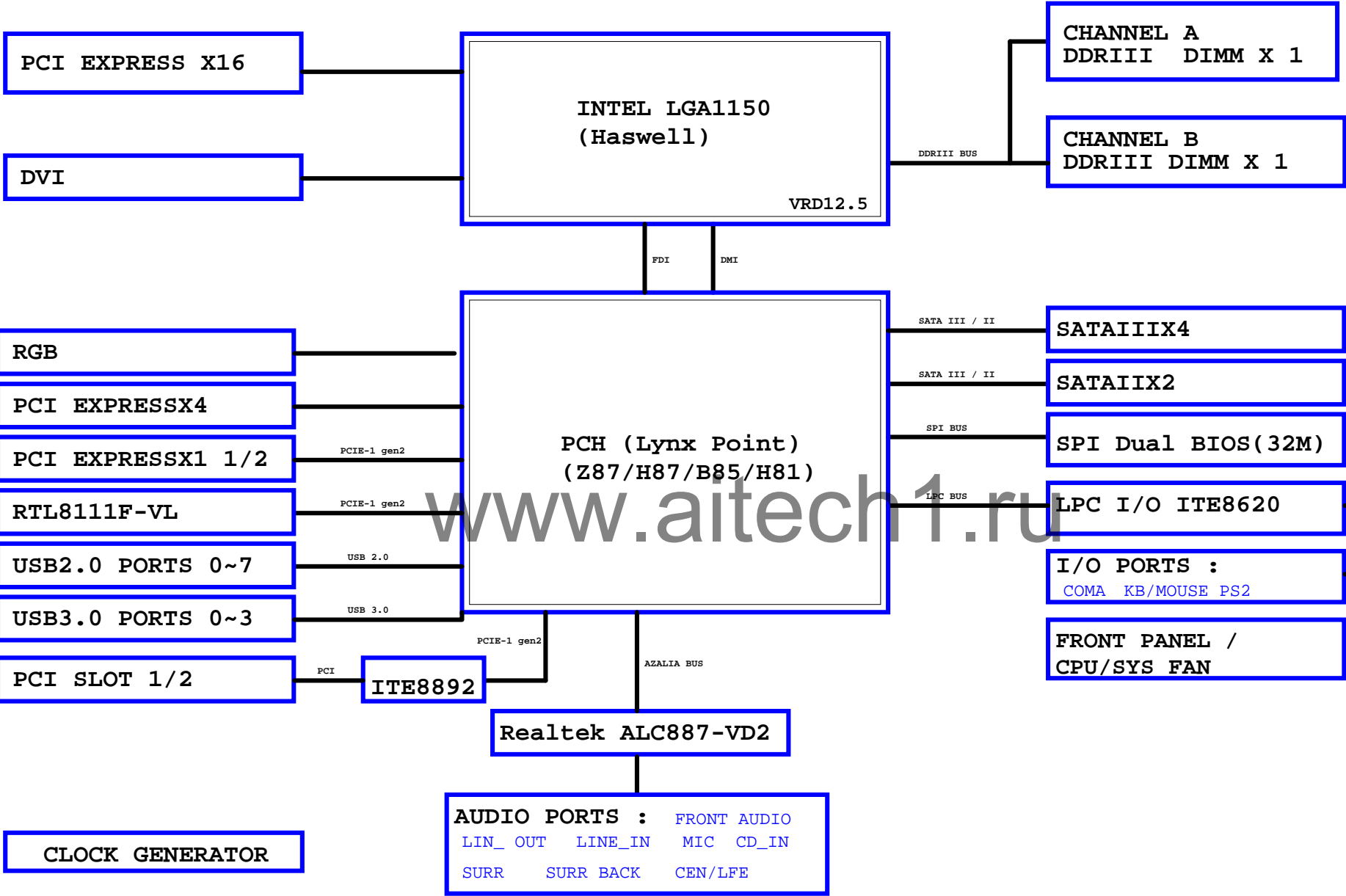
Gigabyte Technology

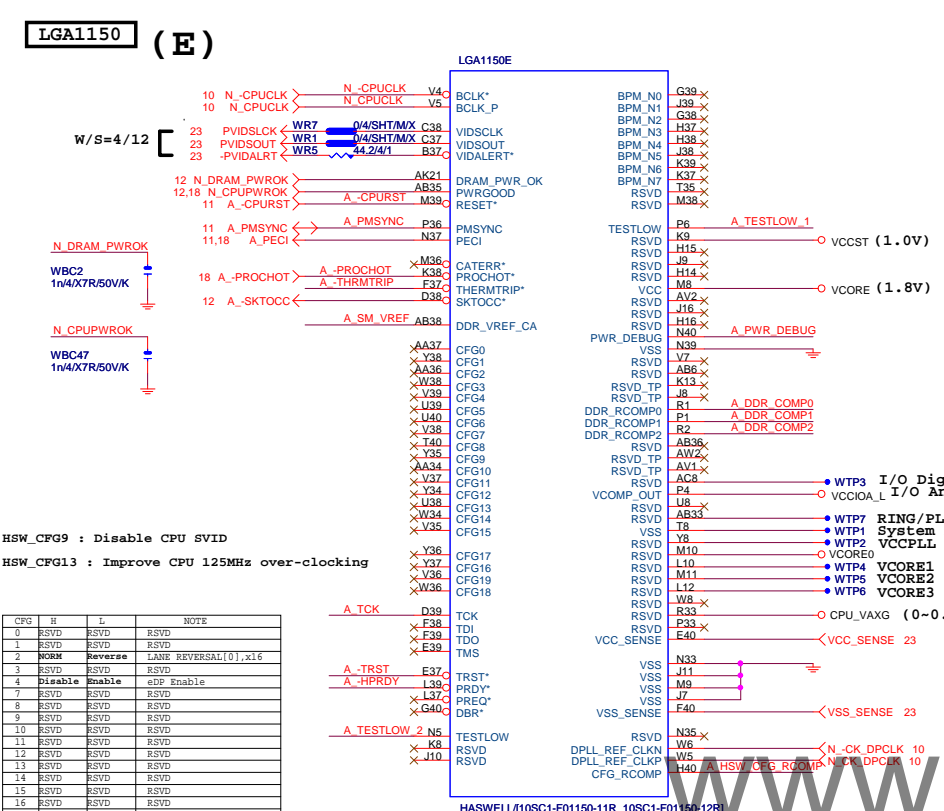
Title			
Cover Sheet			
Size	Document Number	GA-B85-D3V	Rev
Custom			2.0
Date:	Thursday, May 15, 2014	Sheet	1 of 34

## Component value change history

[illegible][illegible]

BLOCK DIAGRAM

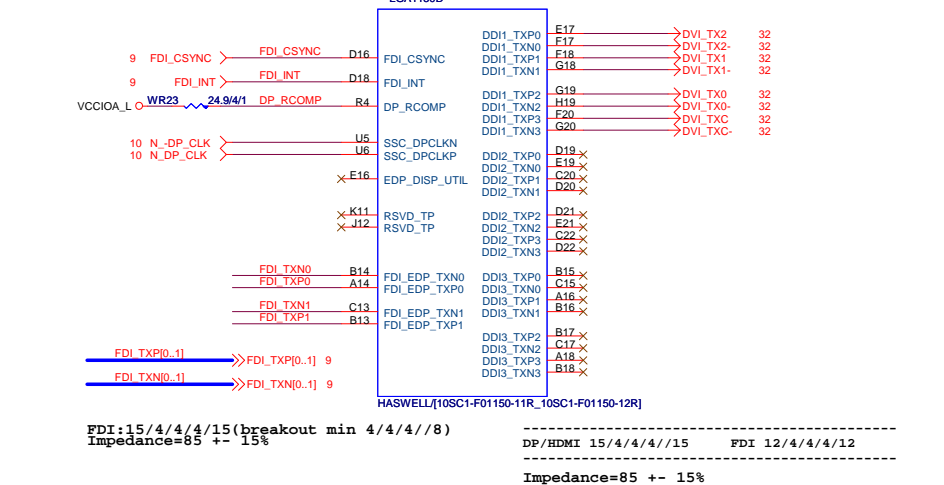




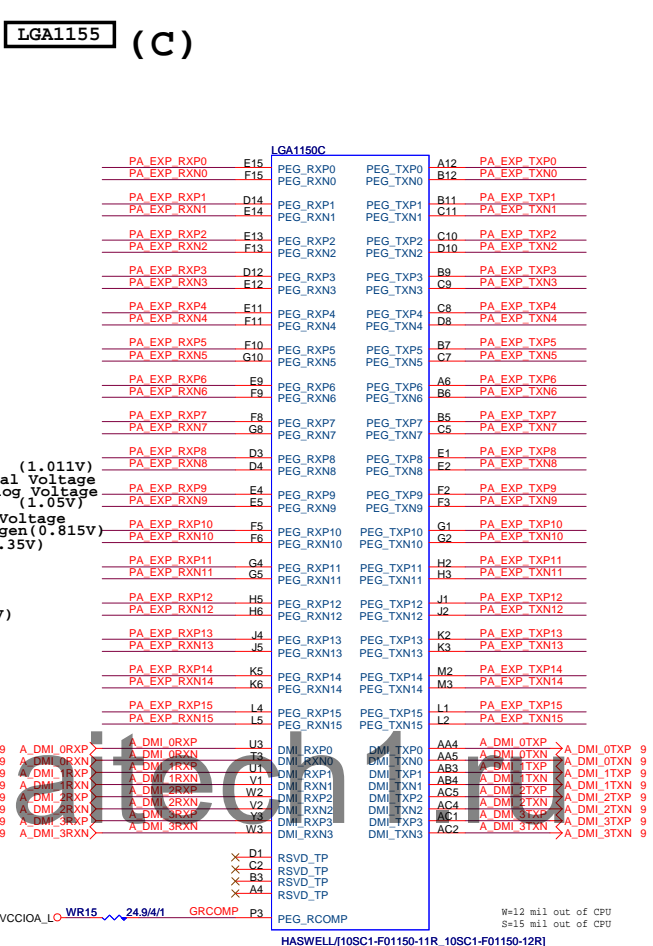
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	RSVD	Reverse	CAVE REVERSAL[0..x16
3	RSVD	RSVD	RSVD
4	Disable	Enable	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP



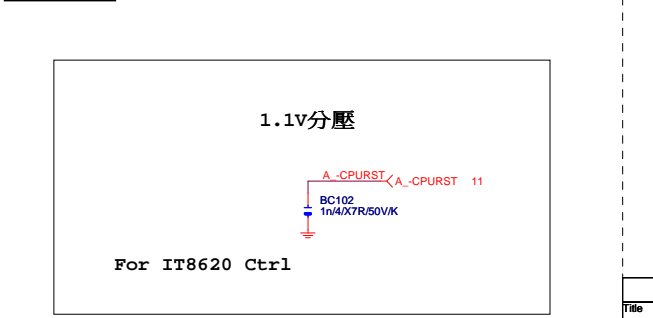
FDI:15/4/4/4/15(breakout min 4/4/4//8)	DP/HDMI 15/4/4/4//15	FDI 12/4/4/4/12
Impedance=85 +- 15%		
	Impedance=85 +- 15%	



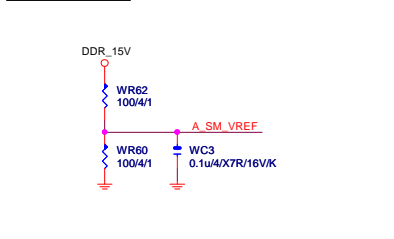
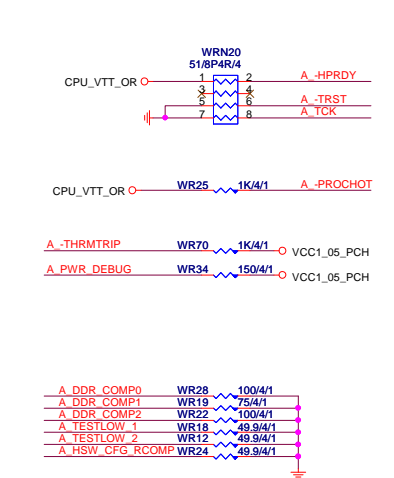
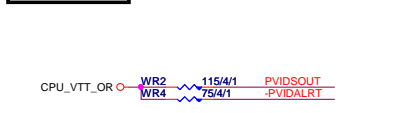
```

PU PEG 20/5/4/5/20 Impedance=80 +- 15%  PA_EXP_RXP[0..15]  >>PA_EXP_RXP[0..15] 1
-----
DMI 12/4/4/4/12 Impedance=85 +- 15%  PA_EXP_RXN[0..15]  >>PA_EXP_RXN[0..15]

```



	For IT8620 Ctrl
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<b>Gigabyte Technology</b>			
<b>Title</b>			
<b>CPU LGA1150-A</b>			
<b>Size</b>	<b>Document Number</b>	<b>GA-B85-D3V</b>	<b>Rev</b>
<b>Custom</b>			<b>2.0</b>
<b>Date:</b>	<b>Thursday, May 15, 2014</b>	<b>Sheet</b>	<b>4 of 34</b>

**LGA1150 (A)**



HASWELL/[10SC1-F01150-11R\_10SC1-F01150-12R]

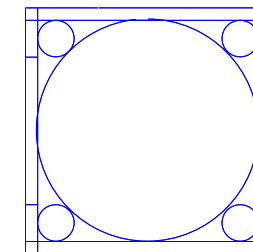
LGA1150 (B)



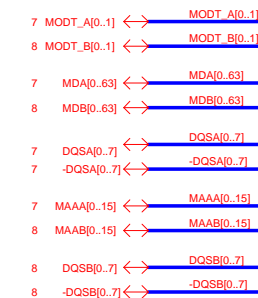
HASWELL/10SC1-F01150-11R\_10SC1-F01150-12R

**LGA1150 (CR)**

LGA1150  
ILM\_BP/1156/CSP/12KRC-0F0001-52R\_12KRC-0F0001-51R]



## DDR BUS



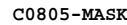
**(F, J)**



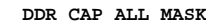
**(G,H,I)**




(x18)



( x9 )



<div style="text-align: center;">  </div>			
Title			
CPU LGA1150-C			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
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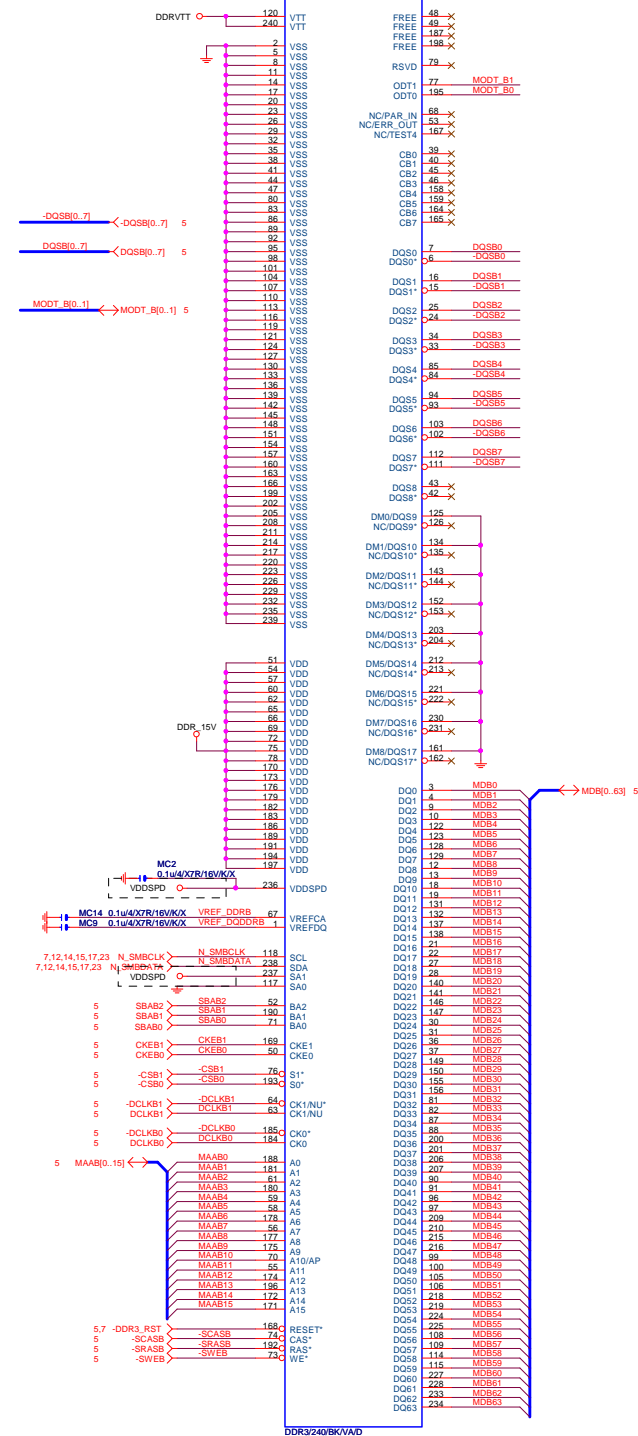




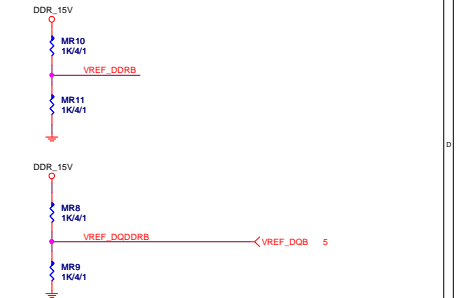
# DDR3

## (B)

DDR3\_2



# DDR3 VREF



DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ  
DDR3 clock=533MHZ  
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

DIMM1 (黑色) CHA

DIMM2 (黑色) CHB

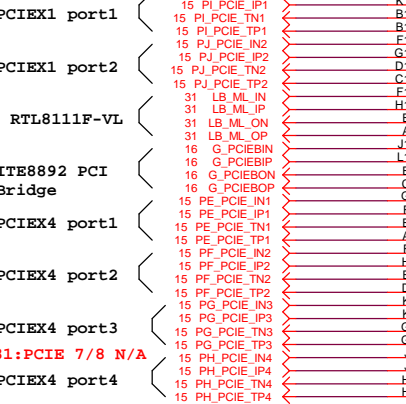
Gigabyte Technology

File	DDR3 CHANNEL B	Rev	2.0
Size	Document Number	GA-B85-D3V	
Custom			
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DMI:12/4/4/4/12(breakout min 8/4/4/4/8)  
Impedance=85 +- 17.5%

4	A_DMI_0TXN	A_DMI_0TXN	L
4	A_DMI_0TXP	A_DMI_0TXP	K
4	A_DMI_0RXN	A_DMI_0RXN	B
4	A_DMI_0RXP	A_DMI_0RXP	G
4	A_DMI_1TXN	A_DMI_1TXN	C
4	A_DMI_1TXP	A_DMI_1TXP	H
4	A_DMI_1RXN	A_DMI_1RXN	D
4	A_DMI_1RXP	A_DMI_1RXP	F
4	A_DMI_2TXN	A_DMI_2TXN	I
4	A_DMI_2TXP	A_DMI_2TXP	J
4	A_DMI_2RXN	A_DMI_2RXN	R
4	A_DMI_2RXP	A_DMI_2RXP	C
4	A_DMI_3TXN	A_DMI_3TXN	K
4	A_DMI_3TXP	A_DMI_3TXP	L
4	A_DMI_3RXN	A_DMI_3RXN	A
4	A_DMI_3RXP	A_DMI_3RXP	B



DH82B85/S/[10HB1-030B85-20R]

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

## 28 PCH\_U

28	PCH_USB3_RXN0	F20	USB3_RXN
28	PCH_USB3_RXP0	G20	USB3_RXP
28	PCH_USB3_TXN0	B18	USB3_TXN
28	PCH_USB3_TXP0	C18	USB3_TXP

28	PCH_USB3_RXN1	G18	USB3_RXN
28	PCH_USB3_RXP1	H18	USB3_RXP
28	PCH_USB3_TXN1	B15	USB3_TXN
28	PCH_USB3_TXP1	B16	USB3_TXP

19	PCH_USB3_RXN4	K20	USB3_RXN
19	PCH_USB3_RXP4	L20	USB3_RXP
19	PCH_USB3_TXN4	D15	USB3_TXN
19	PCH_USB3_TXP4	C15	USB3_TXP

19	PCH_USB3_RXN5	L18	USB3_RXN
19	PCH_USB3_RXP5	K18	USB3_RXP
19	PCH_USB3_TXN5	B14	USB3_TXN
19	PCH_USB3_TXP5	A14	USB3_TXP

VCC3

Pin	Value
NR62	8.2K/4/X
NR63	8.2K/4/X
AK28	TACH6_GP
AT34	TACH7_GP

FDI\_TXI

USB3.0:20/5/7/5  
8/4/4/4/8) : ON

Impedance=85 +-  
Back Panel < 10  
Front Panel < 6

\_\_\_\_\_

	CK_SRCCLK_PC
	CK_SRCCLK_PC

Mount for integrat

[10] N\_PCHCLK14 ← CK\_DOTCLK  
CK\_DOTCLK

NR92 short to  
graphic SKU

\_\_\_\_\_

USB TA

OC[

OC[

11-11-2017 10:00 AM

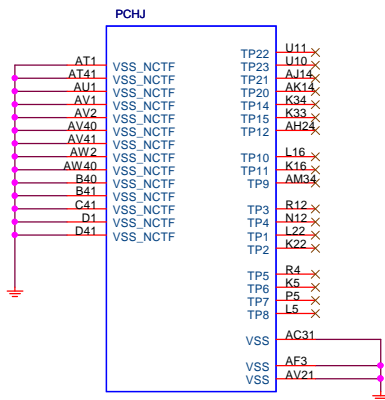
W H81 MODEL  
Footprint: BGAHSINK-75;  
m孔徑

1

<p> <a href="#">R_12SP2-S04208-63R]</a> </p>	<p> Title </p>
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Size	Doc
Custom	
Date:	

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DH82B85/S/[10HB1-030B85-20R]

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

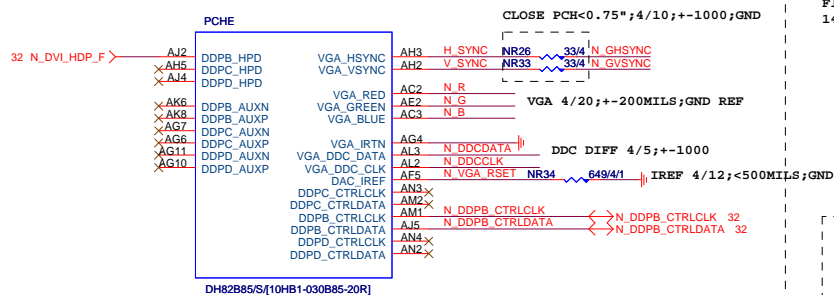
OC[7:4]# for Device 26 (ports 8-13)

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

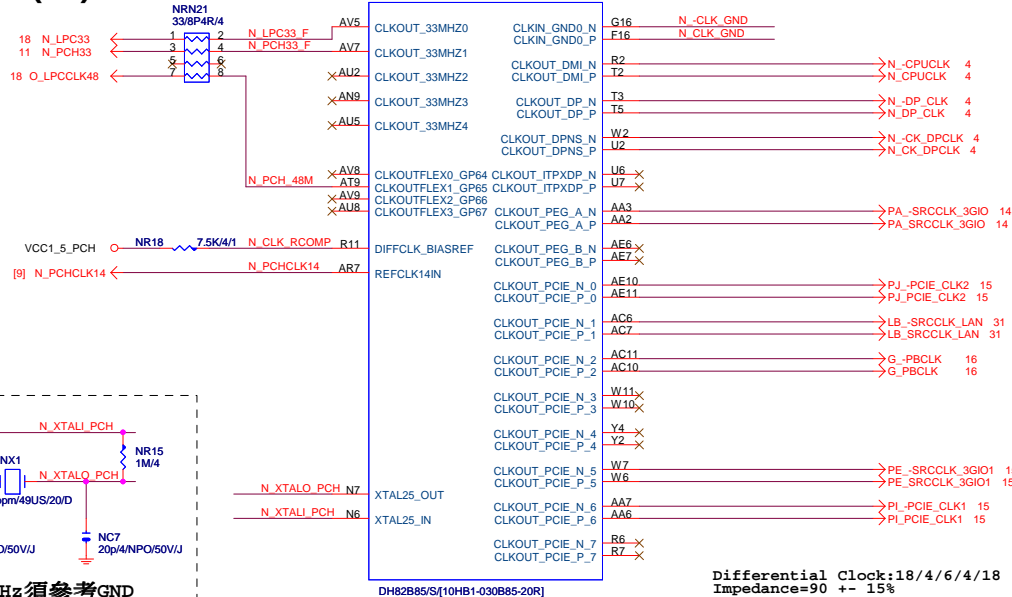
Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number		Rev
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**PCH (E)**



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

**PCH (G)**

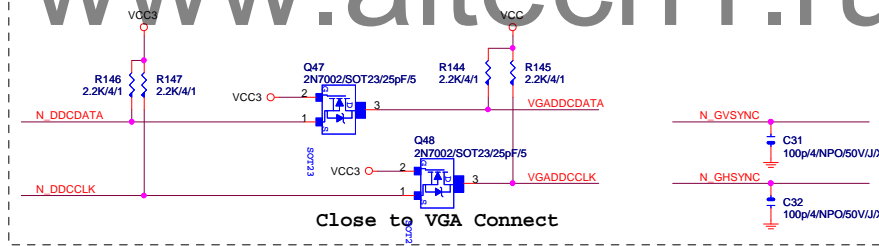


X'TAL 25MHz須參考GND  
避免造成RGB noise  
走線遠離其他40mil以上

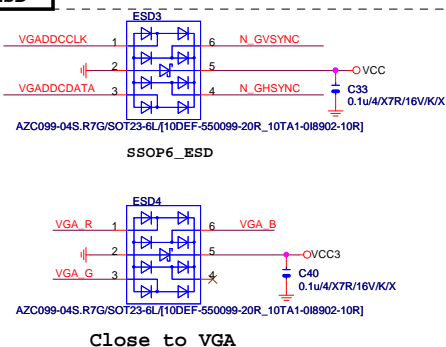
PCH CLK PD



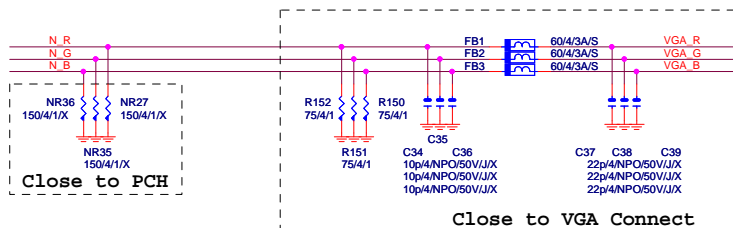
## VGA DDC



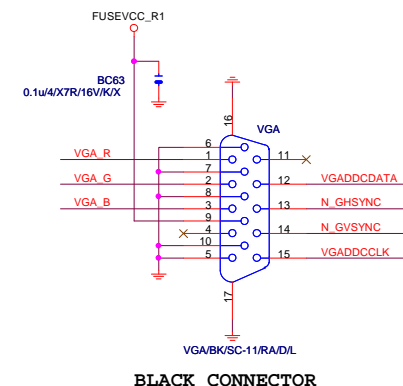
## VGA ESD



## VGA DDC



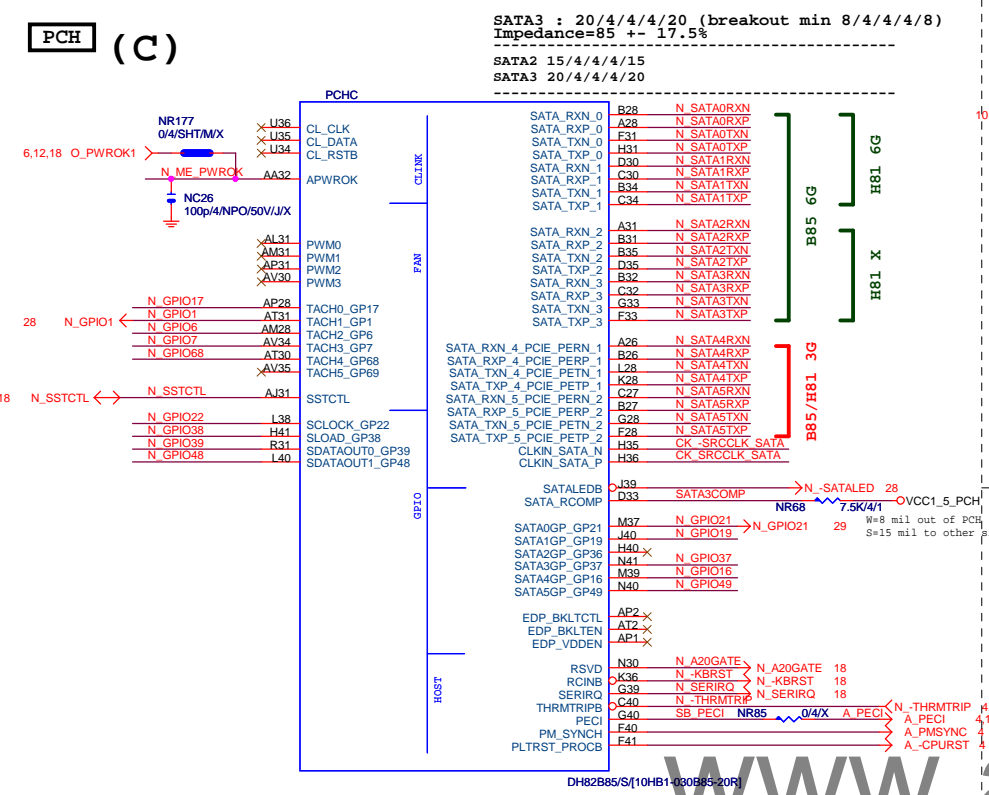
## VGA CONNECTOR



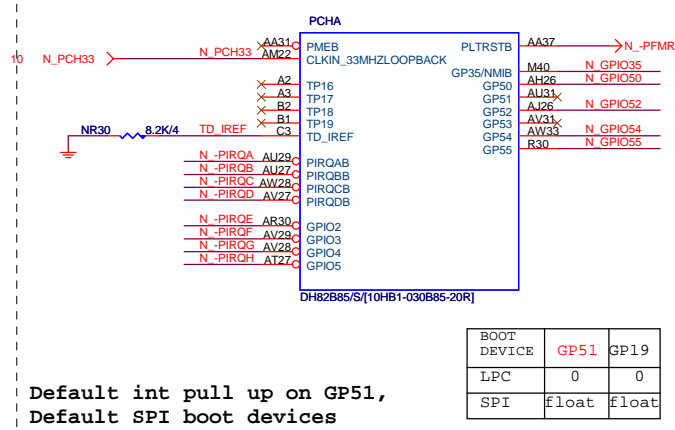
## Gigabyte Technology

Title			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
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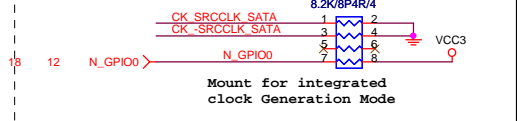
**PCH (C)**



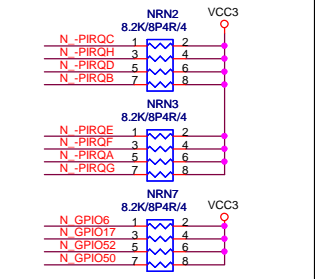
**PCH (A)**



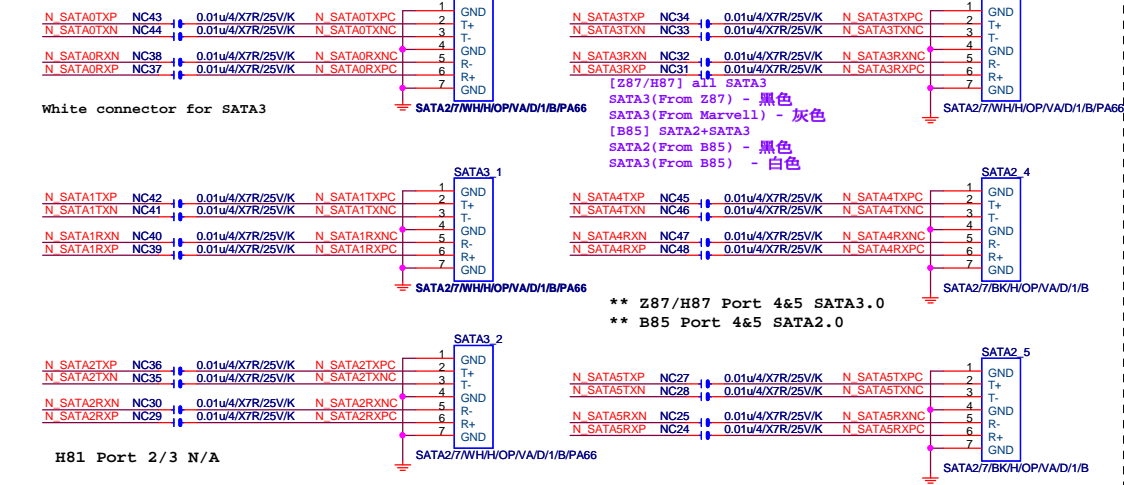
PCH CLK PD



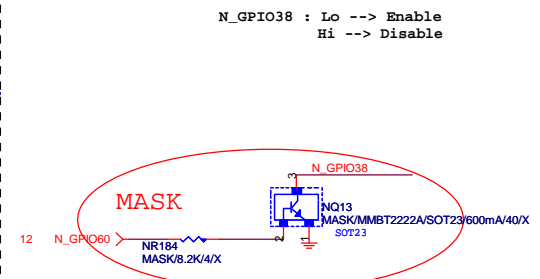
PCH PU/PD



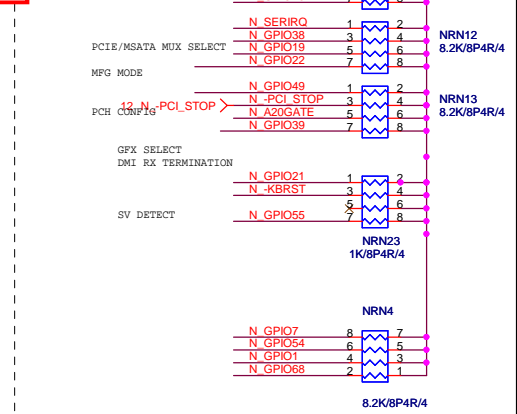
**SATA CONNECTOR**



GPIO38 Ctrl



	soft strap	GP16	GP49
0		pcie1	pcie2
1		sata4	sata5

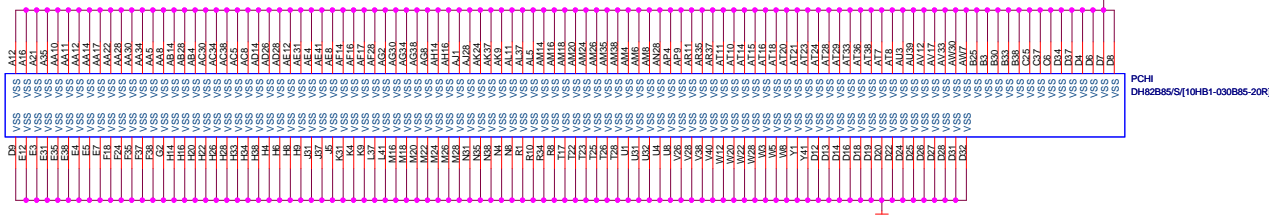


## Gigabyte Technology

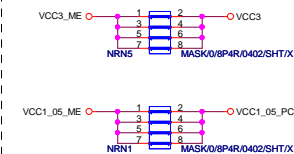
Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
Date:	Thursday, May 15, 2014	Sheet	11 of 34



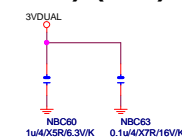
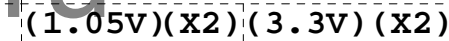
**PCH (I)**



SHT PWR

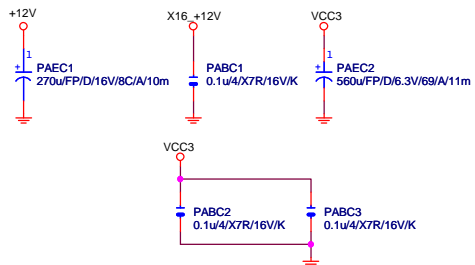


(1.05V) (x5)



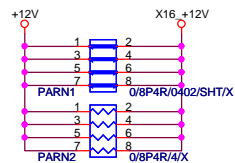


## PCIEX16 CAP



## PCIEX16 PROTECT SHT

```
+12 protect
short-wire test
```



## PCIEX16 AC CAP

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

PCI-E REV:1.1--&gt; 2.5GHZ

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

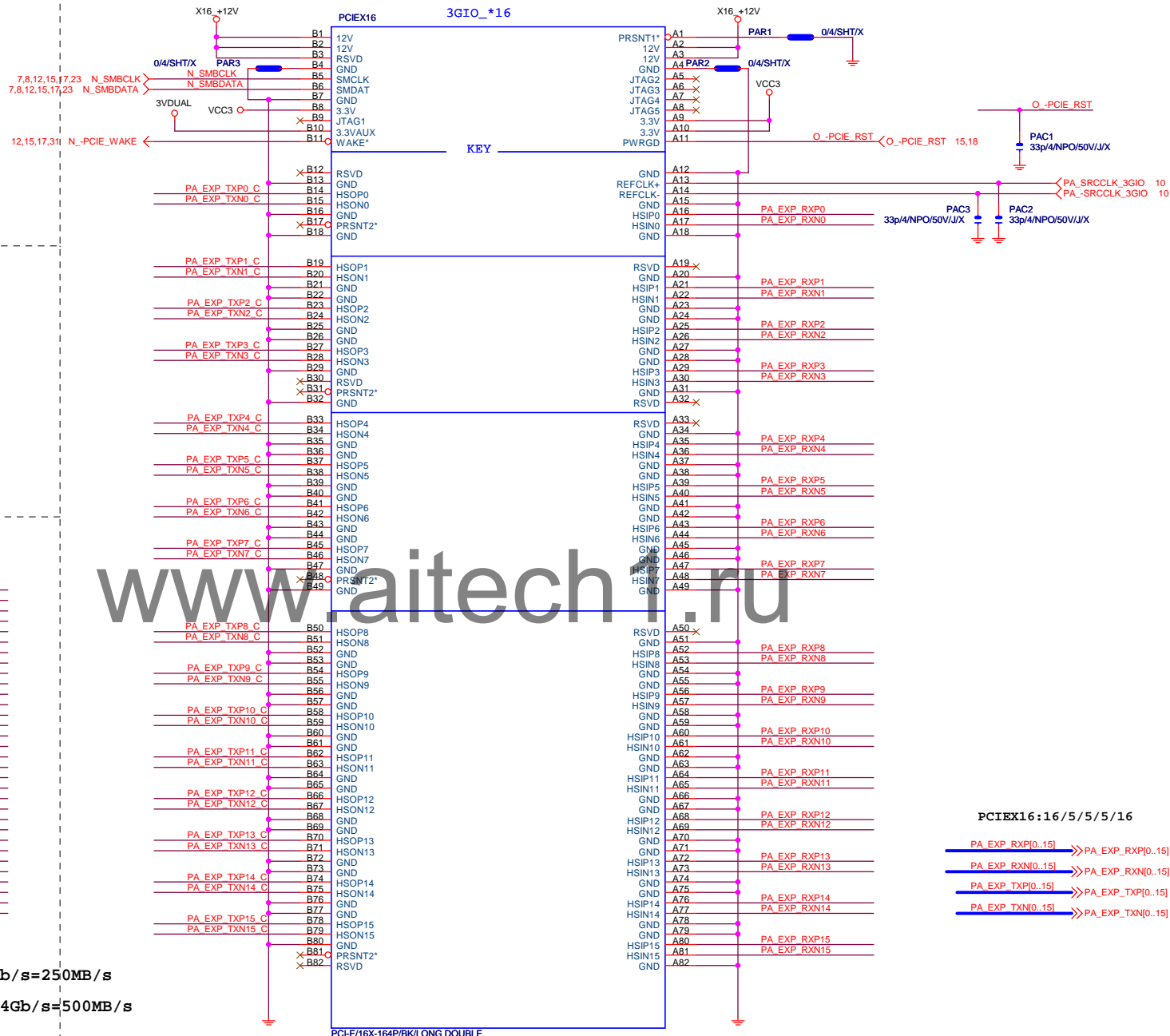
PCE-E X1(雙向) BANDWIDTH=2.5GHz\*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWIDTH=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--&gt; 5GHZ

## PCIEX16 SLOT



PCI-E/16X-164P/BK/1 LONG DOUBLE F

PCIEX16:16/5/5/5/16

PA\_EXP\_RXP[0..15] \\ PA\_EXP\_RXP[0..15] 4

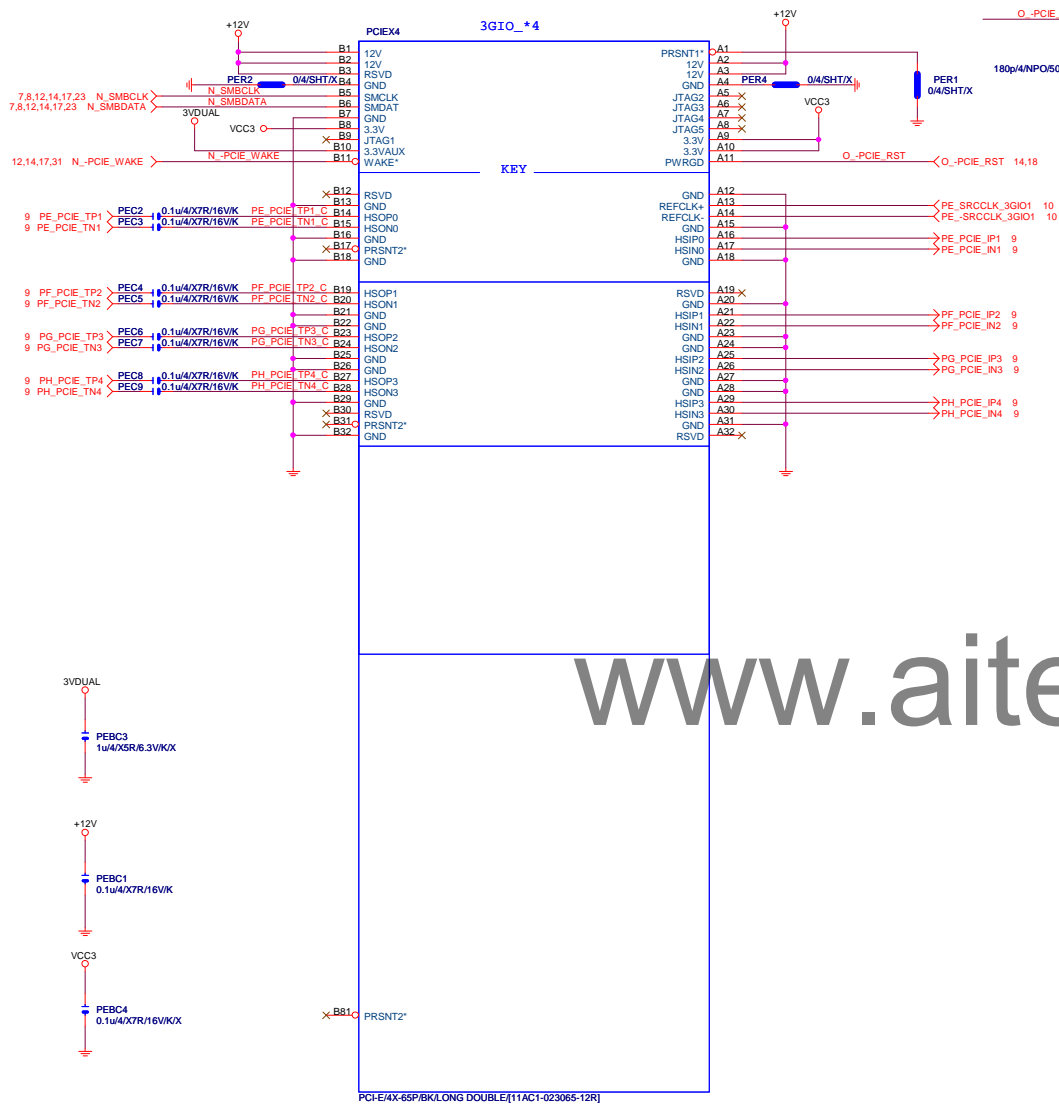
PA\_EXP\_RXN[0..15] >> PA\_EXP\_RXN[0..15] 4

PA\_EXP\_TXP[0..15] >> PA\_EXP\_TXP[0..15] 4

```
>>> PA_EXP_TXN[0..15] 4
```

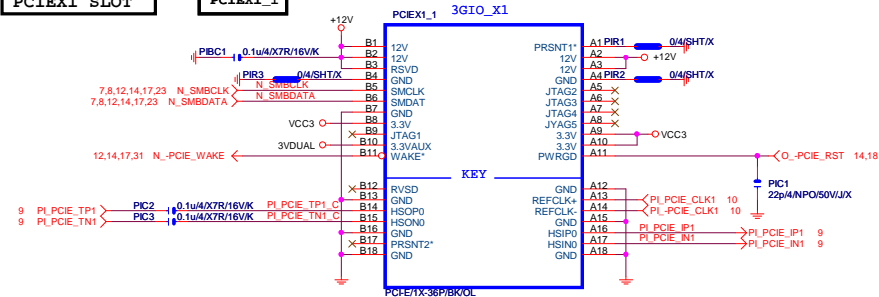
<b>Gigabyte Technology</b>				
Title				
<b>PCI EXPRESS * 16</b>				
Size Custom	Document Number <b>GA-B85-D3V</b>			Rev <b>2</b>
Date:	Thursday, May 15, 2014		Sheet	14 of 34

PCIEX4 SLOT

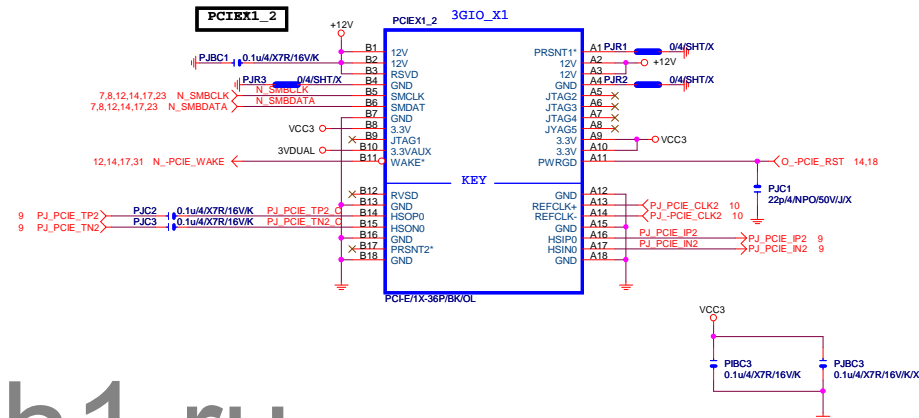


## PCIEX1 SLOT

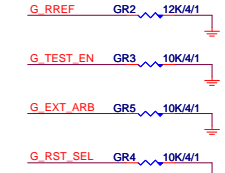
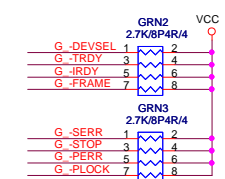
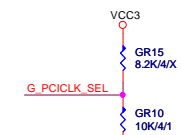
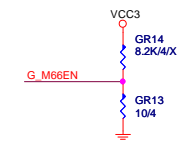
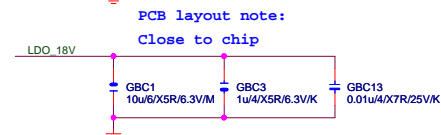
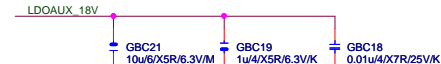
## PCIE\*1\_1




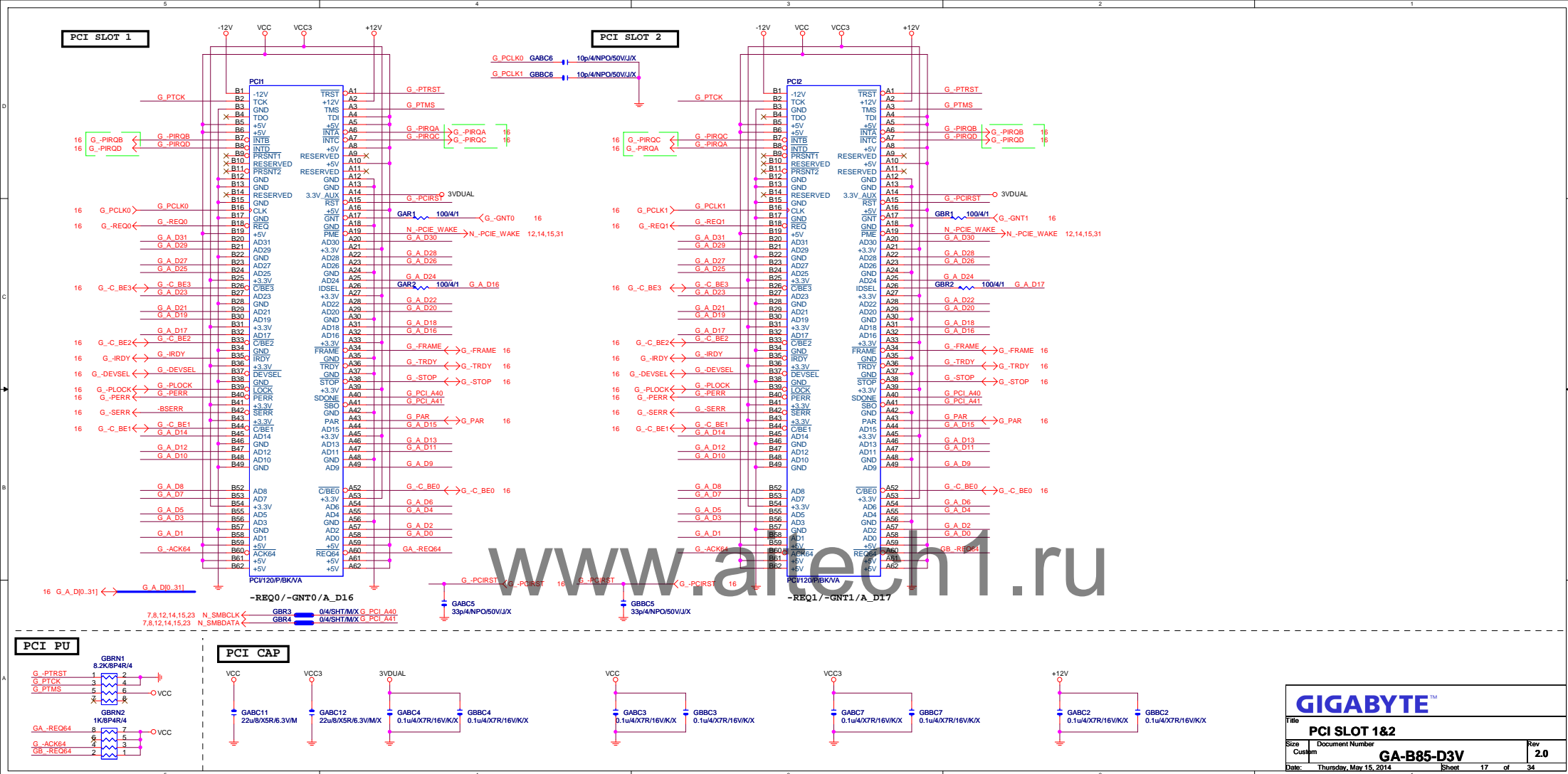
## PCIEX1\_2



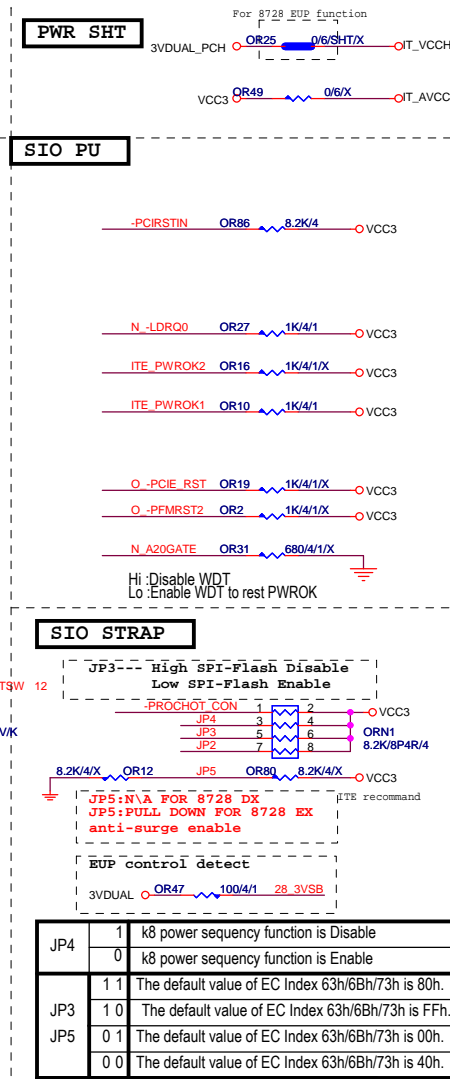
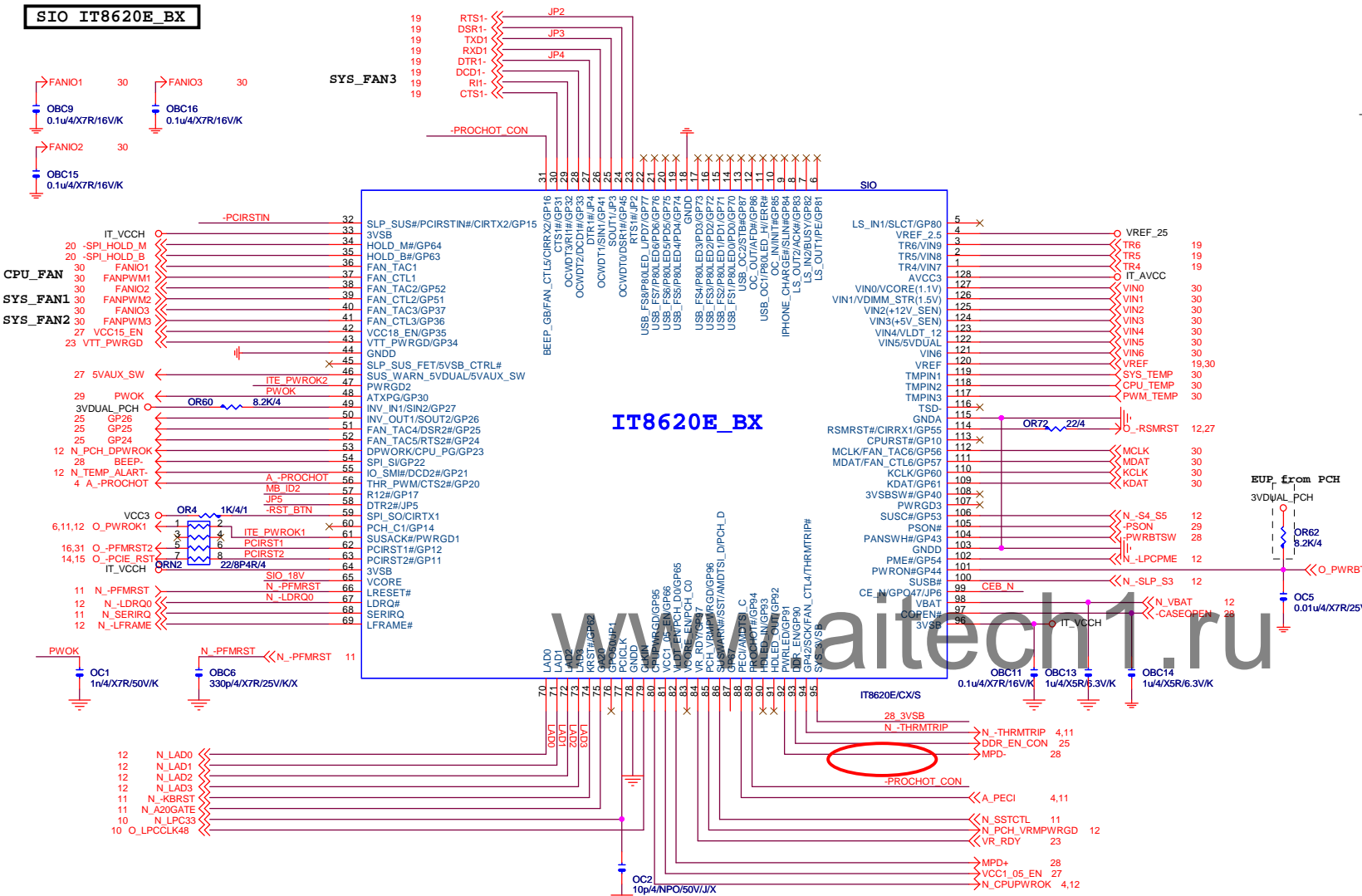




<div style="text-align: center;">  </div>			
Title			
IT8892E			
Size Custom	Document Number		Rev 2.0
	GA-B85-D3V		
Date:	Thursday, May 15, 2014	Sheet	16 of 34

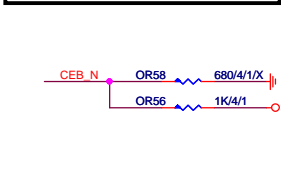


# SIO IT8620E\_BX

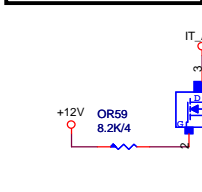


IT8620E GPIO問題調整	
PIN 50	第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLLED FUNCTION, GP93 BYPASS TO GP92
PIN 108	GP40---- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟PAN6 FUNCTION 擇一使用,不然會互相干擾

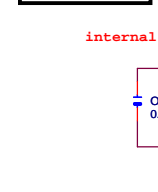
## DUAL BIOS OPT STRAP



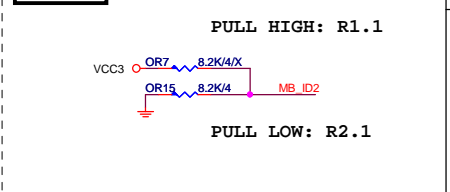
## Power leakage



## SIO\_18V



## MB ID



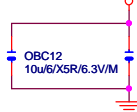
## SIO CAP



## Power leakage



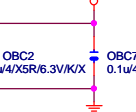
## SIO\_18V



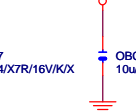
## MB ID



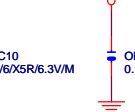
## SIO CAP



## Power leakage



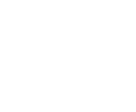
## SIO\_18V



## MB ID

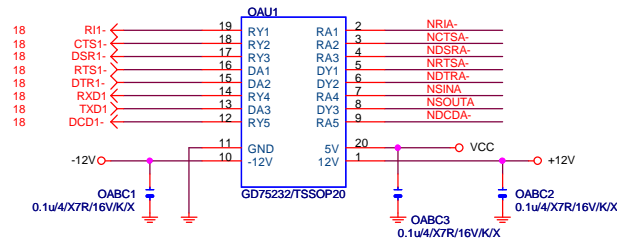


## SIO CAP

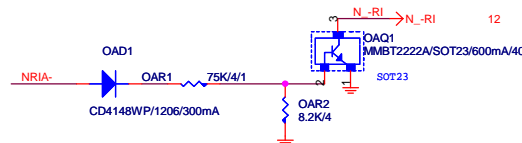


Gigabyte Technology	
Title	ITE 8728 LPC IO
Size	Document Number
Custom	GA-B85-D3V
Date	Thursday, May 15, 2014
Sheet	18 of 34
Rev	2.0

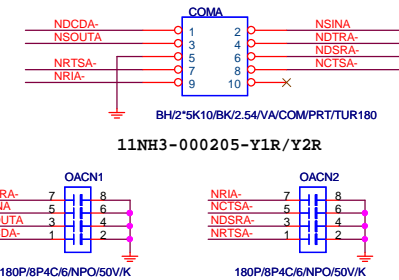
## COMA



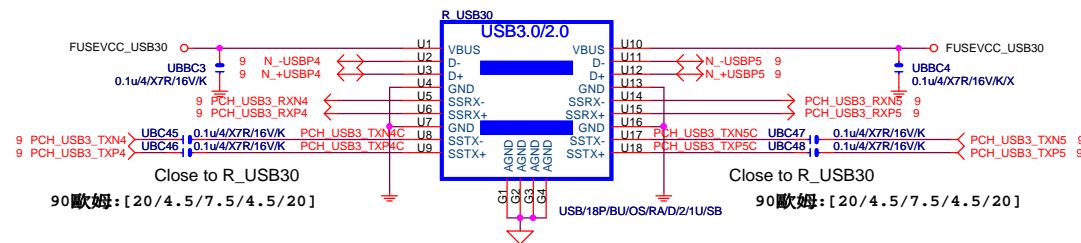
## COM RI



## COM BUFFER

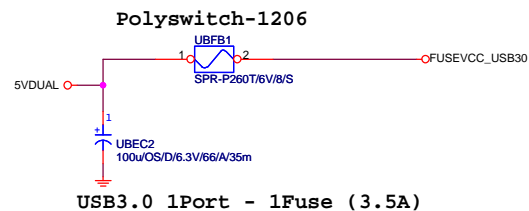


## USB30\_20 CONNECT

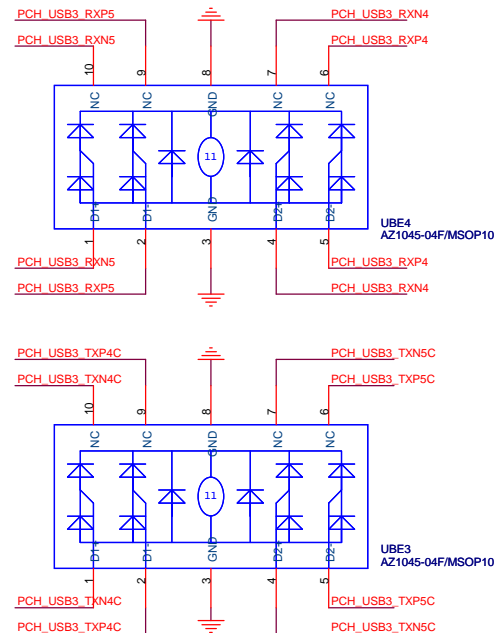


## -PROHOT

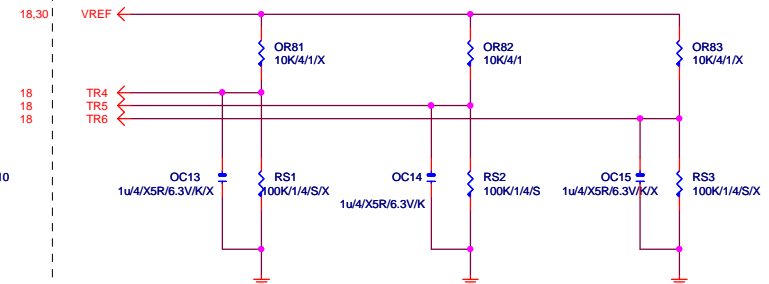
## USB30 PWR



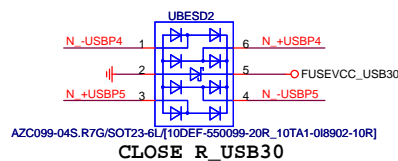
## USB30 ESD PROTECT



## -PROHOT



## USB20 ESD PROTECT

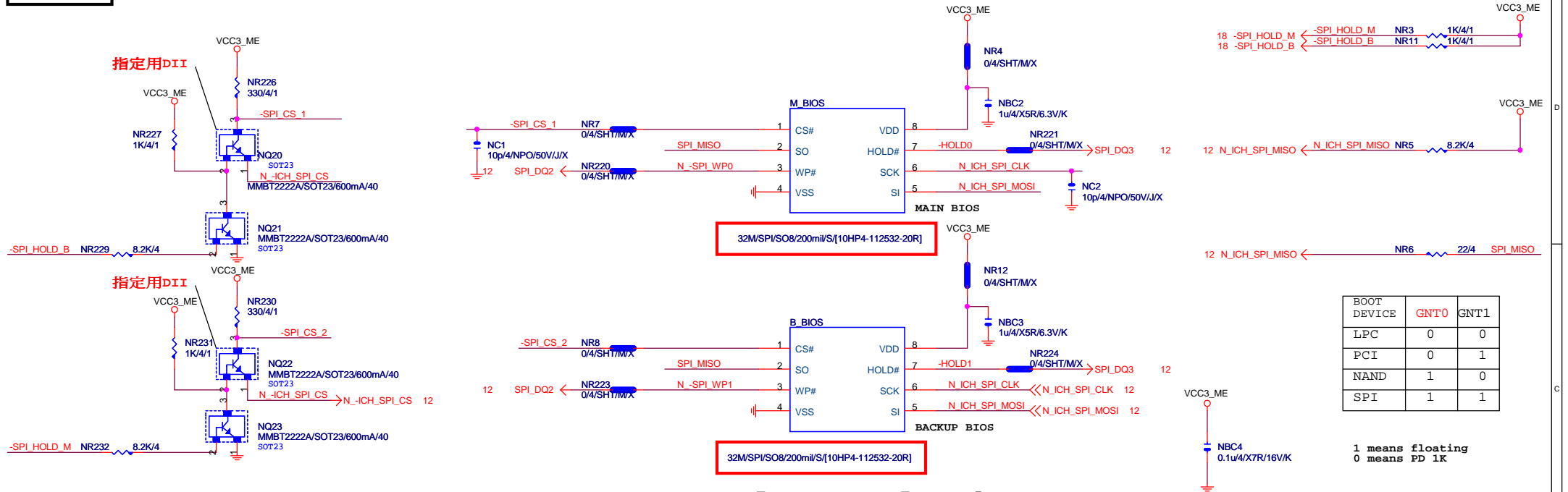


RS1 close DBQ1、  
RS2 close DDQ1、  
RS3 close DAQ1、  
Others close SIO

Gigabyte Technology

Title			
COM & PROHOT/Dynamic O.C.			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
Date:	Thursday, May 15, 2014	Sheet	19 of 34

# DUAL BIOS

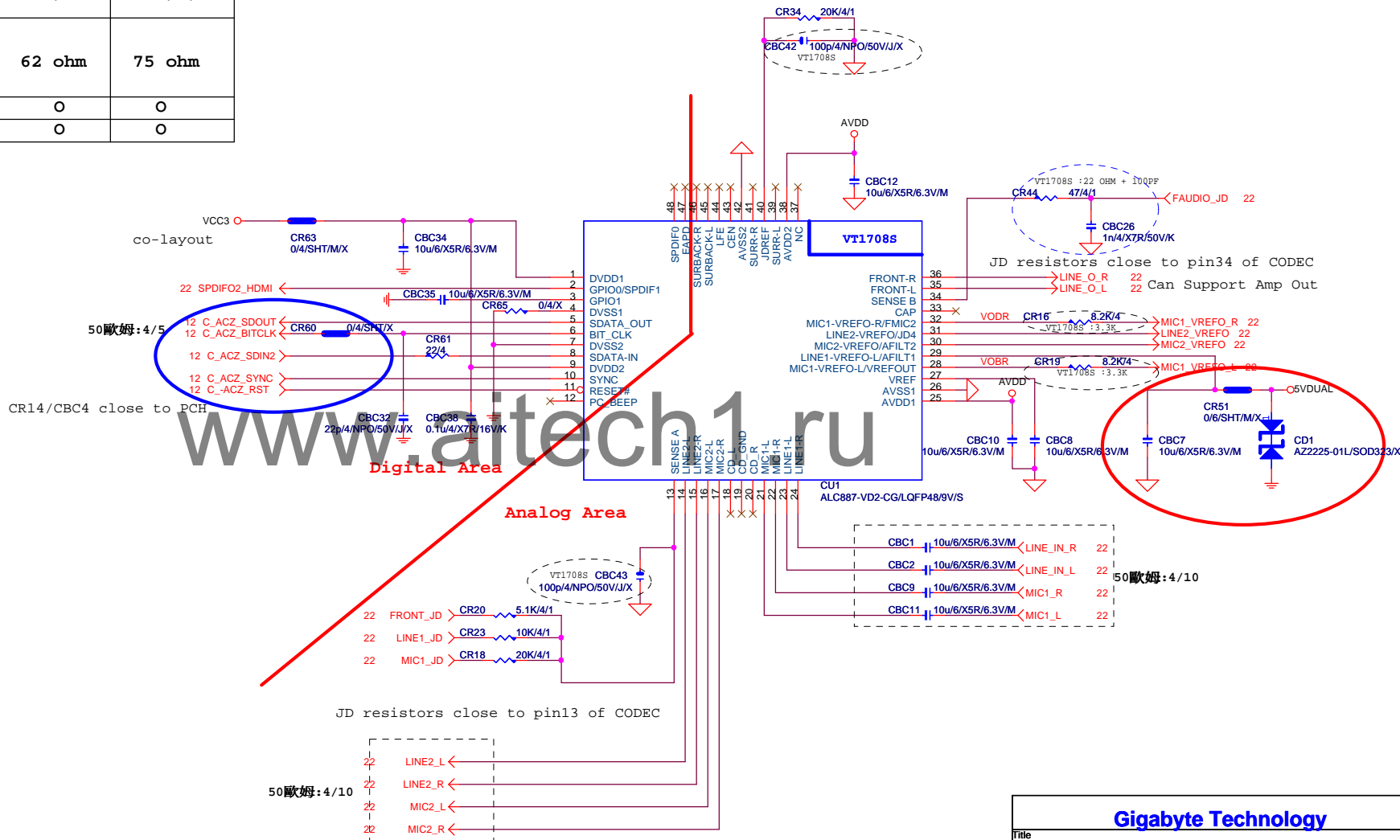


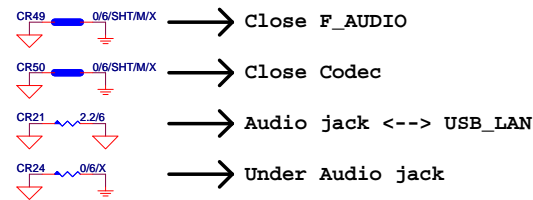
www.aitech1.ru

Gigabyte Technology

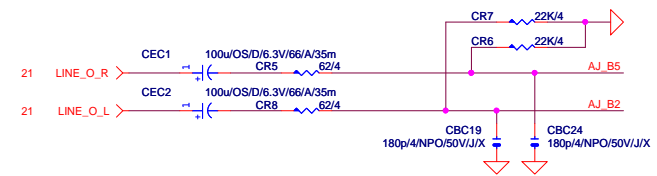
Title			BIOS
Size	Document Number	GA-B85-D3V	
Custom		Rev	2.0
Date:	Thursday, May 15, 2014	Sheet	20 of 34

	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





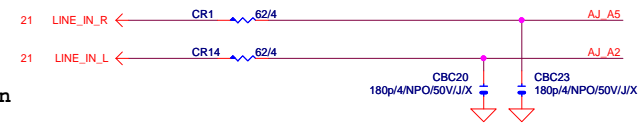
## LINE-OUT



## LINE-IN

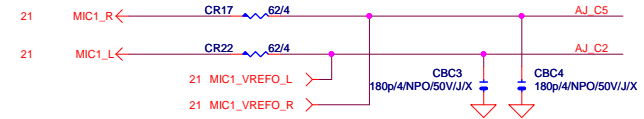
Verify MIC function  
 in LINE-in

Only reserved for ALC888



For 889A/888

## MIC-IN

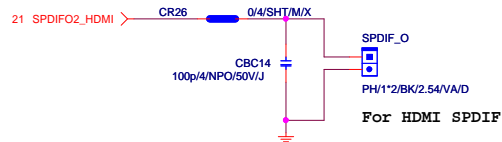


## SURROUND

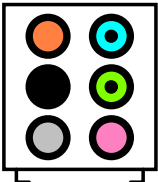
## CEN/LFE

## SURR BACK

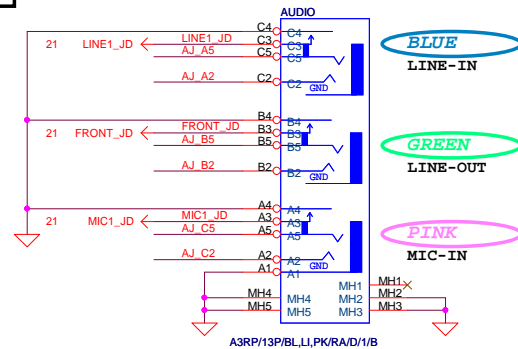
## SPDIF\_OUT



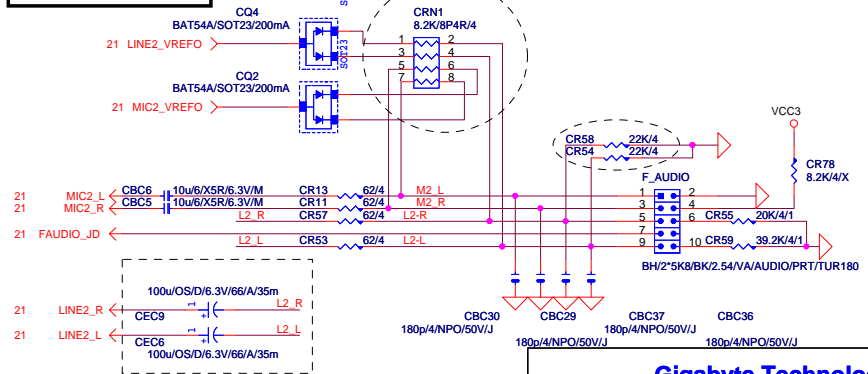
## AZALIA JACK



## AZALIA JACK



## AZALIA FRONT PANEL

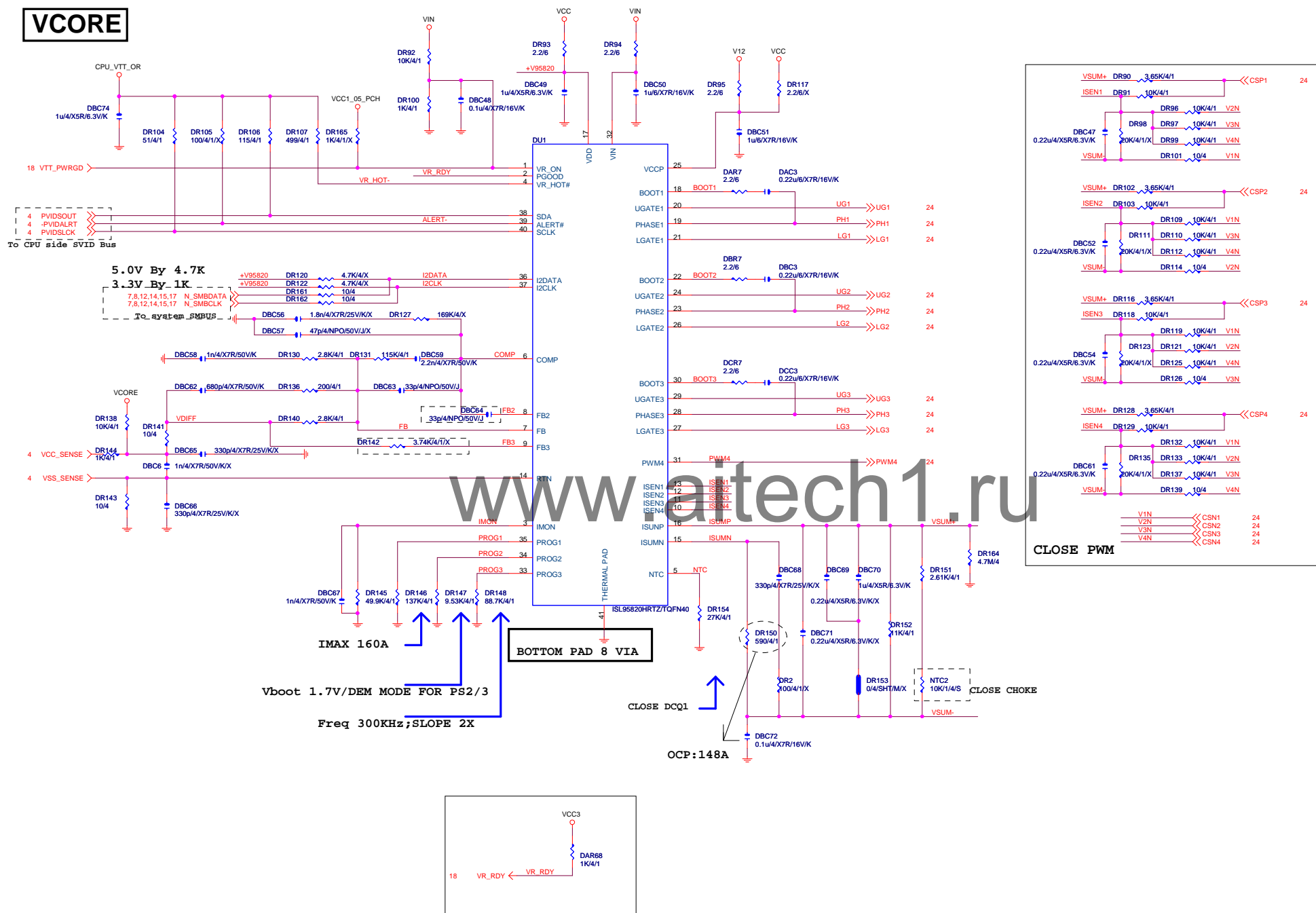


Gigabyte Technology

Title	AUDIO JACK		
Size	Custom	Document Number	GA-B85-D3V
Date:	Thursday, May 15, 2014	Sheet	22 of 34
Rev	2.0		

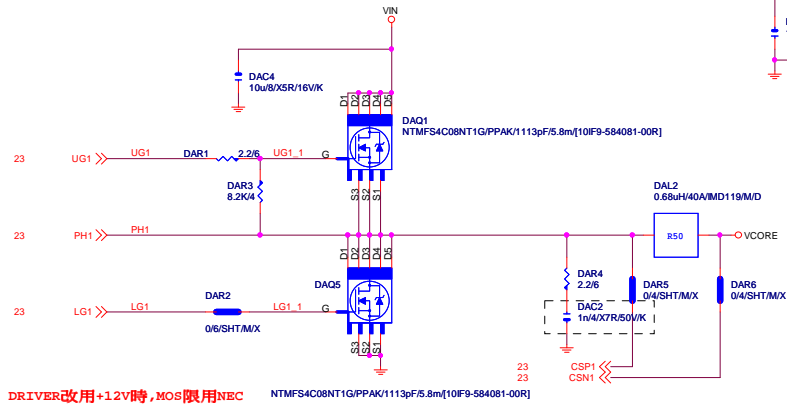
www.aitech1.ru



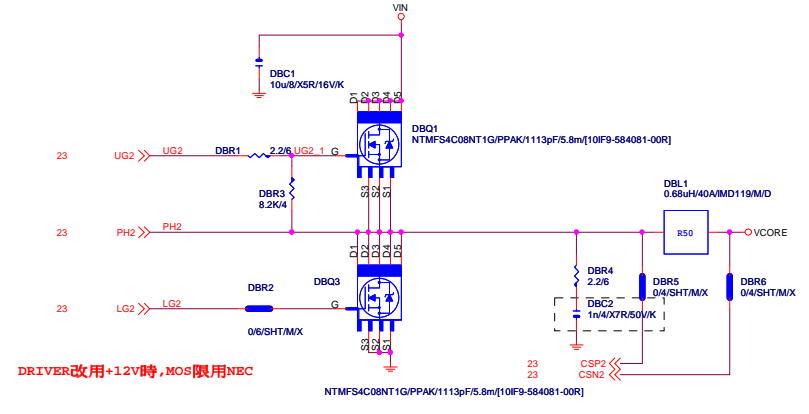
**VCORE**

# VCORE

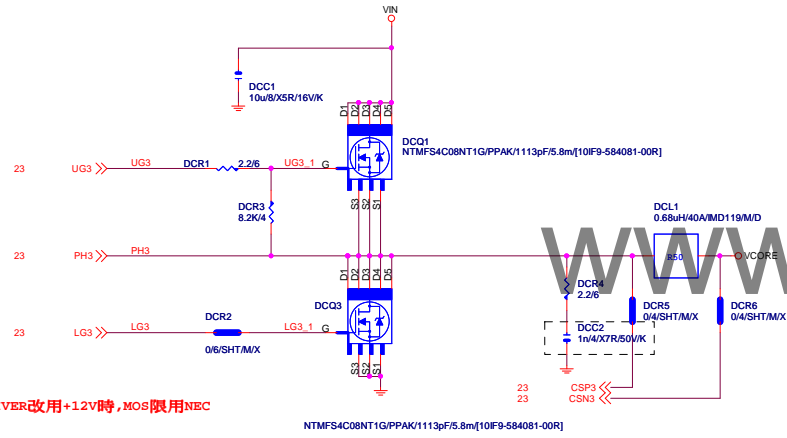
[ 1 ]



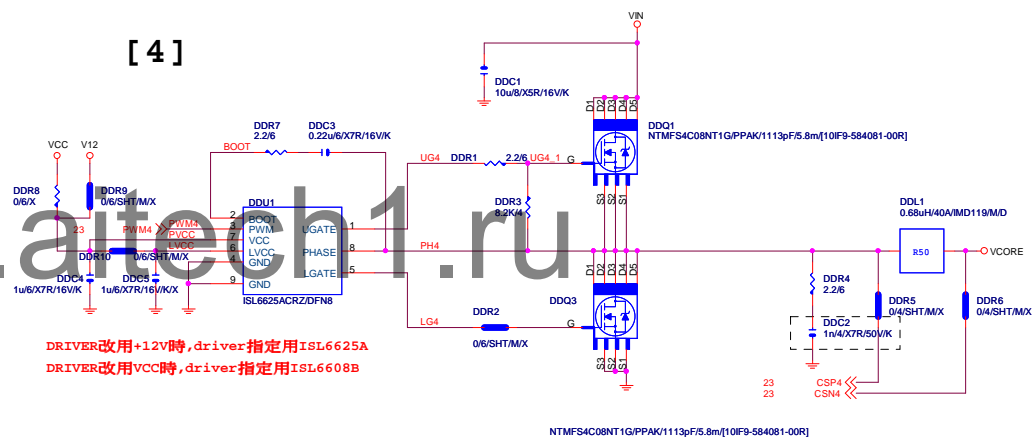
[ 2 ]



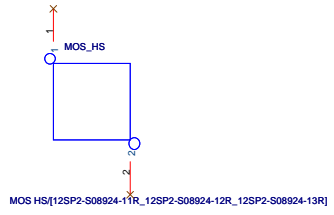
[ 3 ]



[ 4 ]

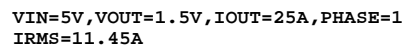


# MOSFET HEATSINK



Gigabyte Technology		
Title	ISL95820_2	
Size	Document Number	GA-B85-D3V
Custom		Rev 2.0
Date	Thursday, May 15, 2014	Sheet 24 of 34

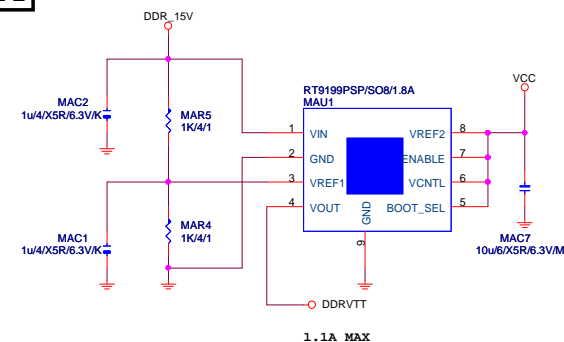
(RICHTER), (NUVOTON), (EMC)做共用  
PIN7分壓阻值須做修改為100K以上電阻值



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:25A for Rds=8.9~10.8m for on@4.5V  
OCP:25A for Rds=5.8~6.95m for on@10V  
OCP:46.55~25A=Roset\*Iocset / Rds(on)  
=27K\*10uA / 5.8~10.8

DDRVTT



Remote sense請從最重的負載端點拉回

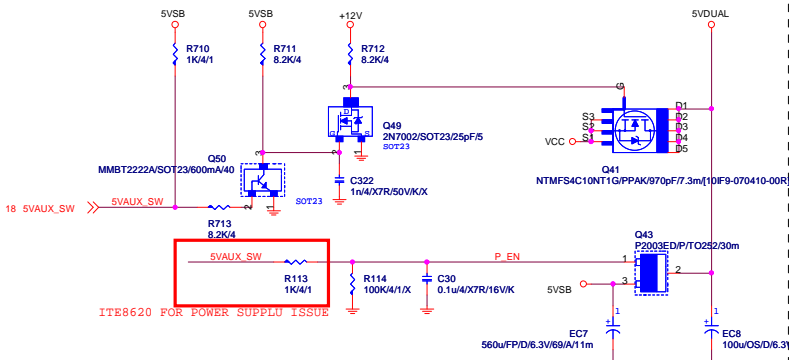
$$0.8 \cdot (1 + R_S/R_O) = V_{out}$$
$$0.8 \cdot [1 + 2K/2.2K] =$$
$$1.527V$$

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

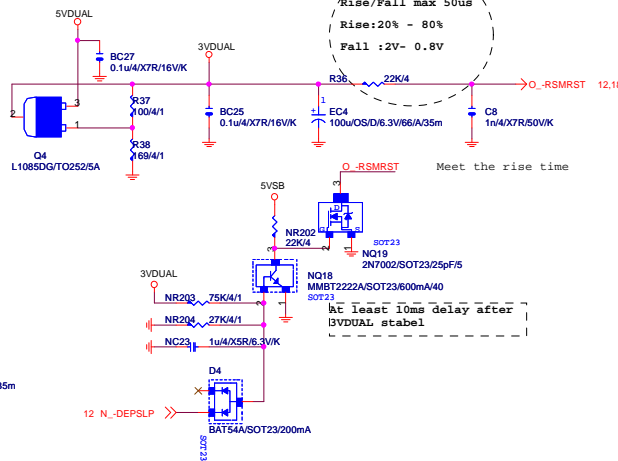
Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-B85-D3V	Rev 2.0
Date:	Thursday, May 15, 2014	Sheet 26 of 34

## 5VDUAL

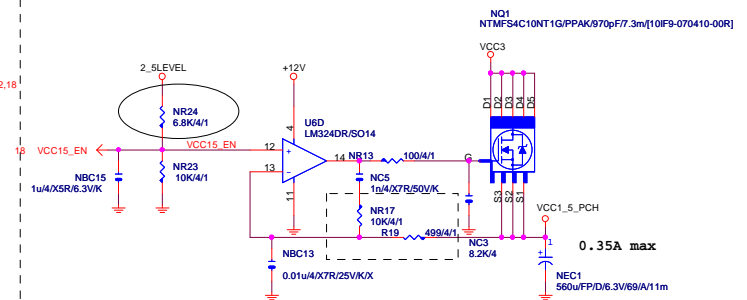


5VSB OVP發生時：5VDUAL=0.8V --> 解除時，須拔POWER CORE 才可開機

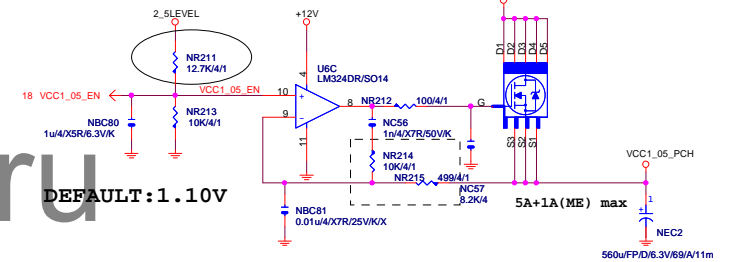
## 3VDUAL



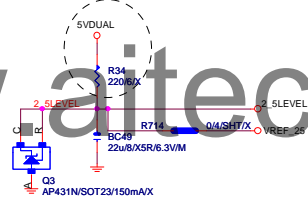
## VCC1\_5\_PCH



## VCC1\_05\_PCH



ERP

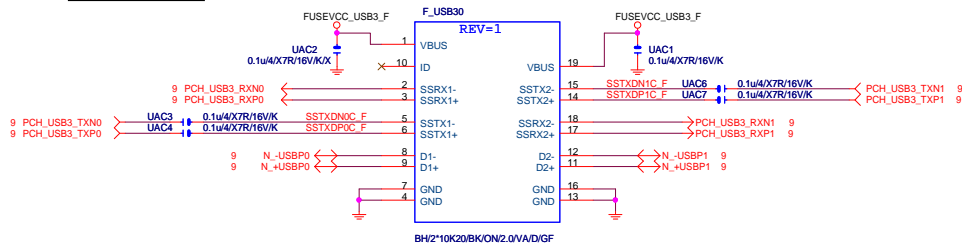


DEFAULT:1.10V

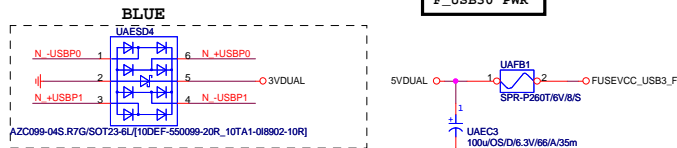
## Gigabyte Technology

Title			
<b>DISCRETE POWER</b>			
Size	Document Number		Rev
Custom	<b>GA-B85-D3V</b>		<b>2.0</b>
Date:	Thursday, May 15, 2014	Sheet	27 of 34

## Front USB3.0

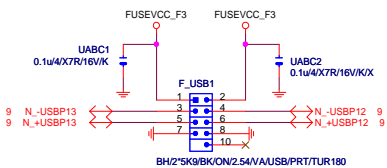


F_USB30 PWR	
-------------	--



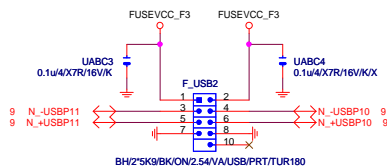
Close to connector

FRONT USB1



Close to connector

FRONT USB2



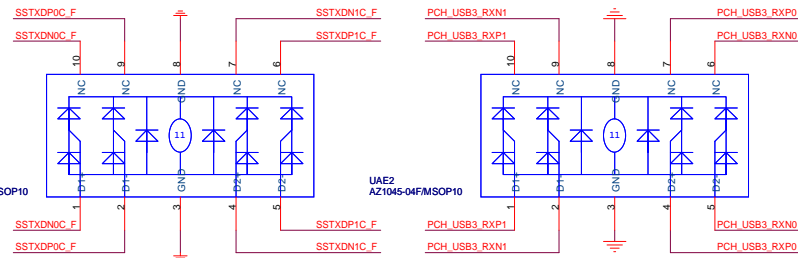
Close to connector

```

USB2.0 Signal & power short protection      |-----
USB2.0 Signal set 4.8V (If bigger than 4.95V , chip maybe fail)
Protection set --> 3VUUAL=3.6V              |_____

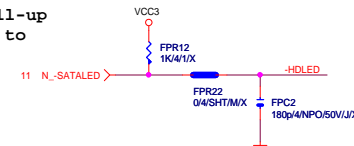
```

F\_USB30 ESD PROTECT

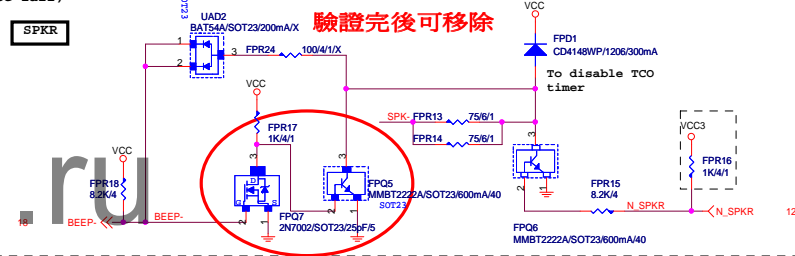


**SATA LED**

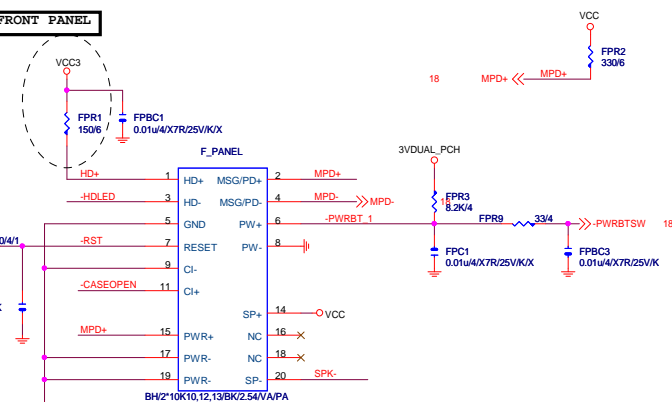
SATALED# signal  
open-collector, pull-up  
(8.2 kΩ to 10 kΩ) to  
Vcc3 3



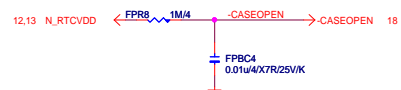
## SPKR



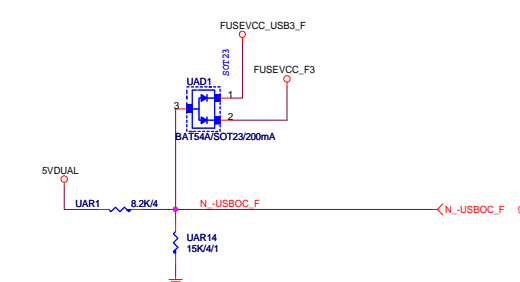
## INTEL FRONT PANEL



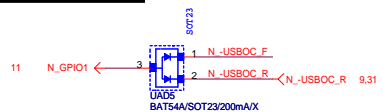
## CASE OPEN



## -USB0C\_F



F_USB POWER PROTECT
---------------------

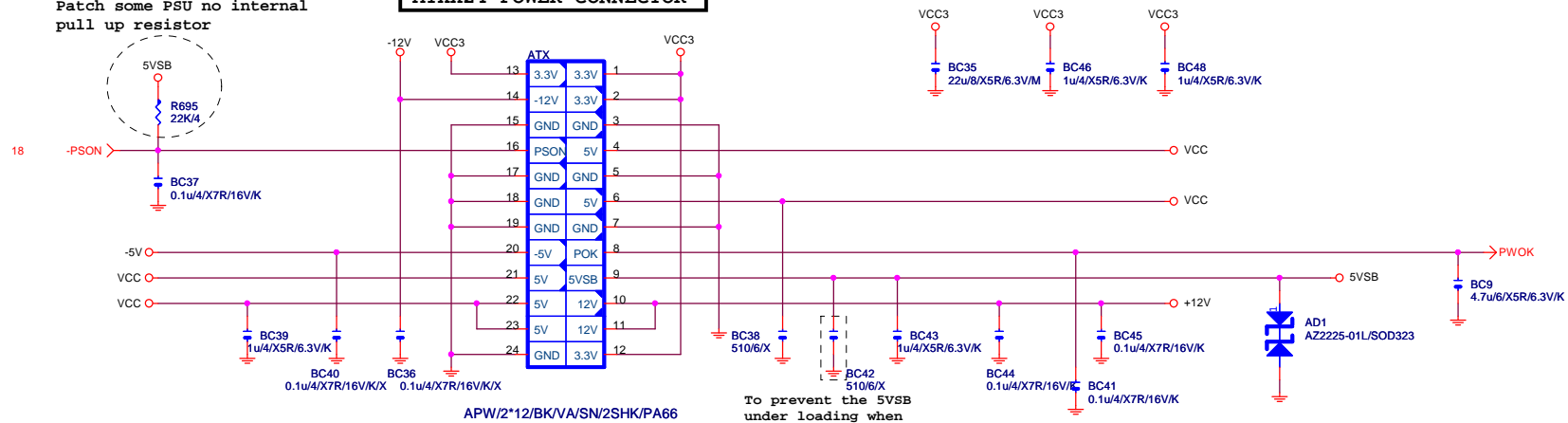


## Gigabyte Technology

Title				<b>FP,F_USB,USB PWR,FDD,BZ</b>			
Size Custom		Document Number				Rev	
		<b>GA-B85-D3V</b>				<b>2.0</b>	
Date: Thursday, May 15, 2014				Sheet 28 of 34			

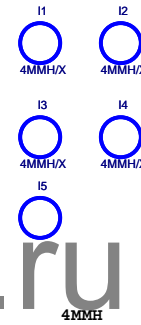
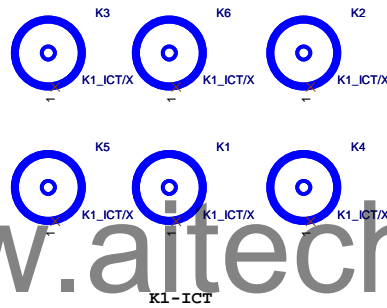
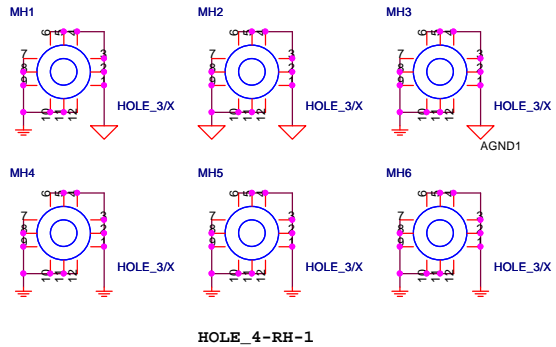
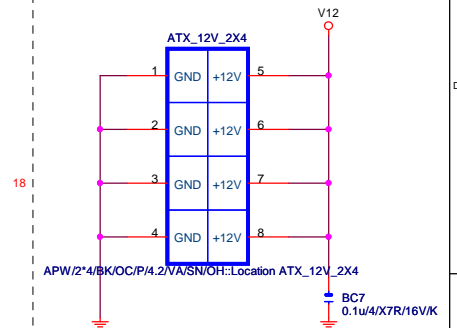
Patch some PSU no internal pull up resistor

## ATXX24 POWER CONNECTOR



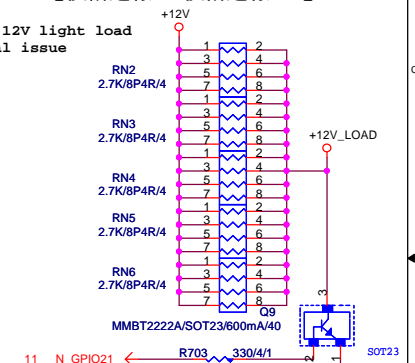
APW/2\*12/BK/VA/SN/2SHK/PA66

## ATXX4 POWER CONNECTOR



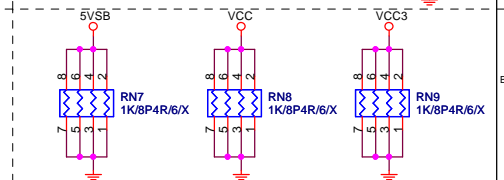
## 【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



## 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-B85-D3V	2.0	
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15,19 VREF ←

16 SYS\_TEMP ←

18 CPU\_TEMP ←

16 PWM\_TEMP ←

OC7  
1u4/X5R/6.3V/K

OC6  
1u4/X5R/6.3V/K

OR73  
10K/4/1

R674  
8.2K/4

R675  
8.2K/4

RS\_SYS  
10K/1/4/S

Close SIO

Close to SIO

[illegible]

Full Turn On Function (NCT3941S-A)

**SYS\_FAN\_1**

VCC3  
R72 1K/4/1  
FANPWM2  
R71  
INTERNAL PULL HI  
FC1 1u/8/XSR/16V/K  
+12V  
FAN1\_VOUT\_1  
VCC3  
FC3 8.2K/4/1  
FAN1\_SET\_4  
U14 NCT3941S-A/SOP8-EP  
VIN  
VOUT  
ENABLE/FON#  
VSET  
NC  
NC  
NC  
GND  
PGND  
5  
7  
8  
9  
6  
18

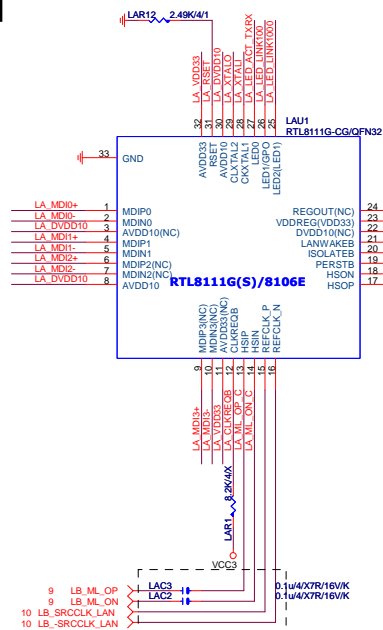
BC31 1u/4/XSR/6.3V/K  
+12V  
R124 8.2K/4/1  
R123 3.3K/4/1  
R122 15K/4/1  
R121 6.2K/4/1  
FAN1\_VOUT  
FC4 10u/8/XSR/16V/K  
D1  
SYS\_FAN1  
FAN1\*14/BK/A3/PA66  
FANIO2  
18

**Linear SYS FAN**

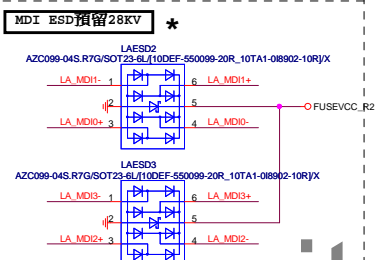
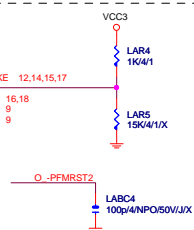
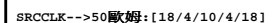
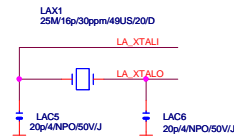
[illegible]

Title				HWM,KB/MS, FAN CTRL			
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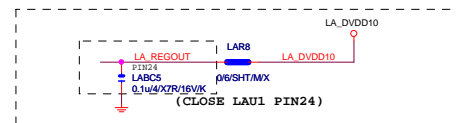
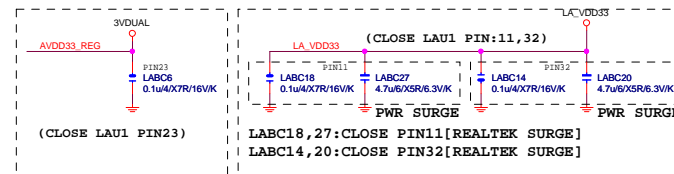
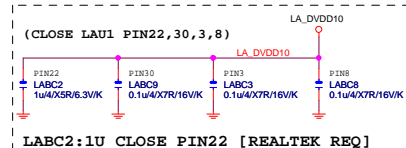
## LAN



LA\_ ML-->80歐姆:[15/5/5/5/15]



## LAN POWER



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

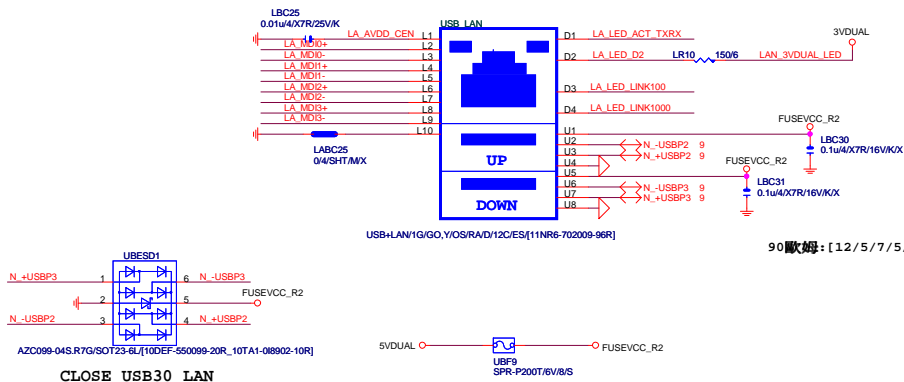
BOM NOTICE \*

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)
[LED獨立走線,可省略外加AZC099料件LAESD1]		

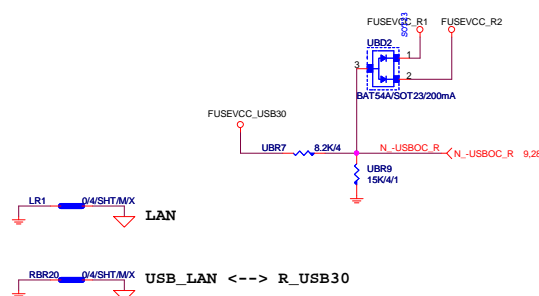
1. 9KV ESD BOM:  
USB\_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:  
USB\_LAN (RU9):11NR6-702009-96R  
LAESD2, LAESD3: 1-4AZC398-04S

## USB30\_LAN CONNECTOR

100歐姆:[20/4/10/4/20]

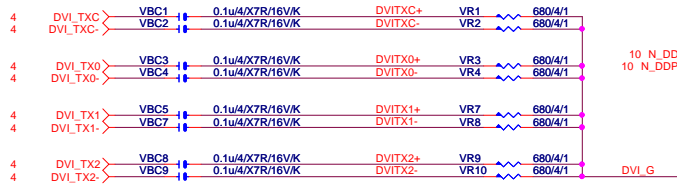


-USBOC R

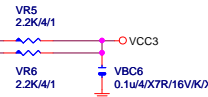


DVI:20/4/6/4/0 Impedance=85 +- 17.5%

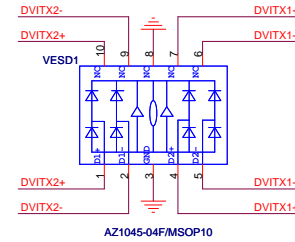
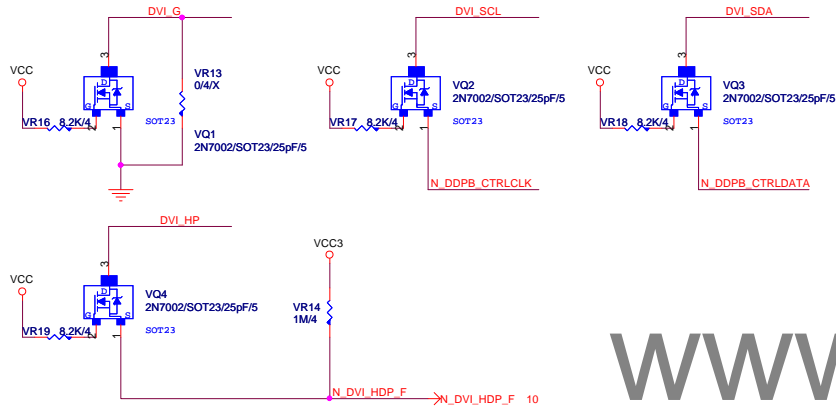
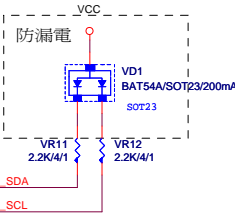
# DVI NON LEVEL SHIFT



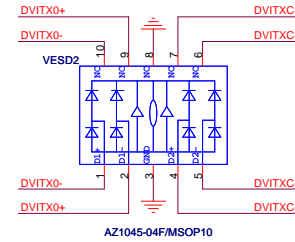
10\_N\_DDPB\_CTRLCLK < N\_DDPB\_CTRLCLK  
10\_N\_DDPB\_CTRLDATA < N\_DDPB\_CTRLDATA



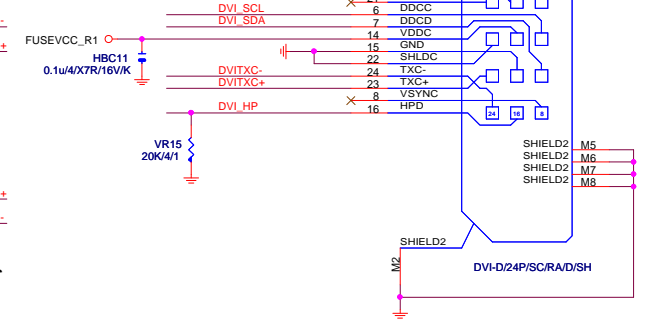
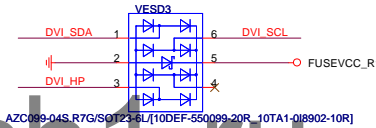
## R&D技術通報 162



Close to connector



Close to connector



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PERICOM 0/0/0/0:Vswing 500mV  
ASM1442  
DEFAULT 0/1/1 SWING:460mV -4dB

Gigabyte Technology

DVI

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Title		
VL805 USB3.0		
Size	Document Number	Rev
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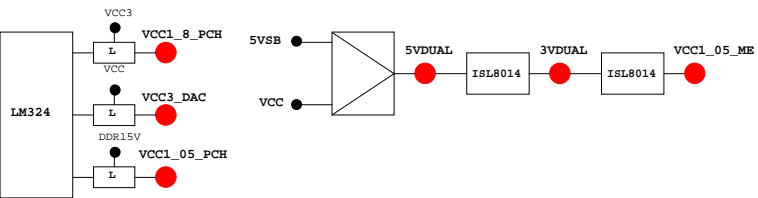
PCB GPIO LIST TABLE

PIN NAME	PWR	AFTER PLUG TEST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	MAIN		GPI	~PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	~PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	~PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	~PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIE1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	~PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	~ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	~REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	~GNT1	N/A
GP52	MAIN		NATIVE	~REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	~GNT2	N/A
GP54	MAIN		NATIVE	~REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	~GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	~SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

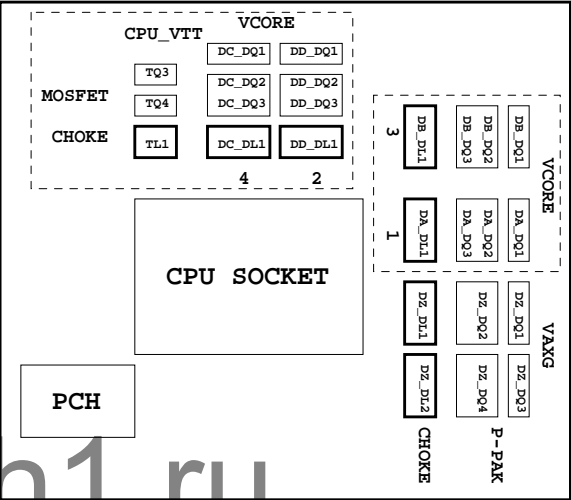
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
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	3V 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			
TABLE LIST			
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