

Model Name: GA-B85-D3V

2.0

SHEET

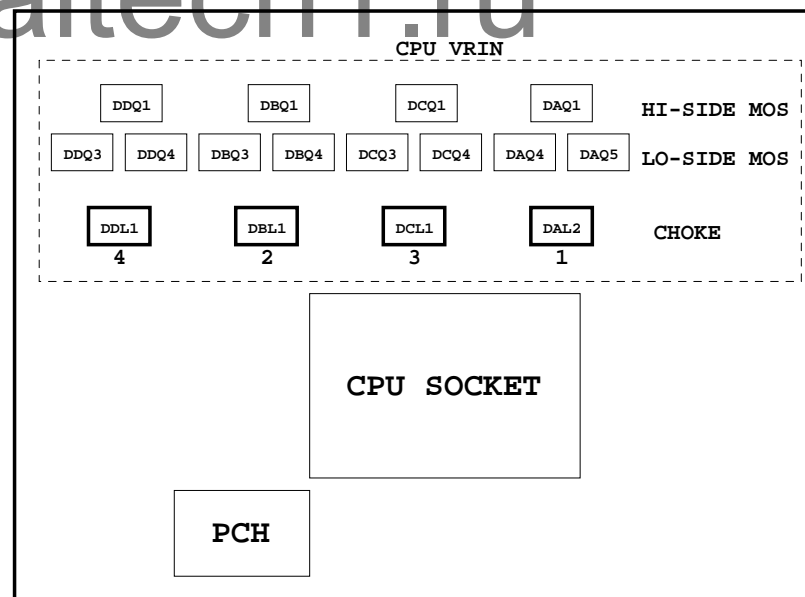
TITLE

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	



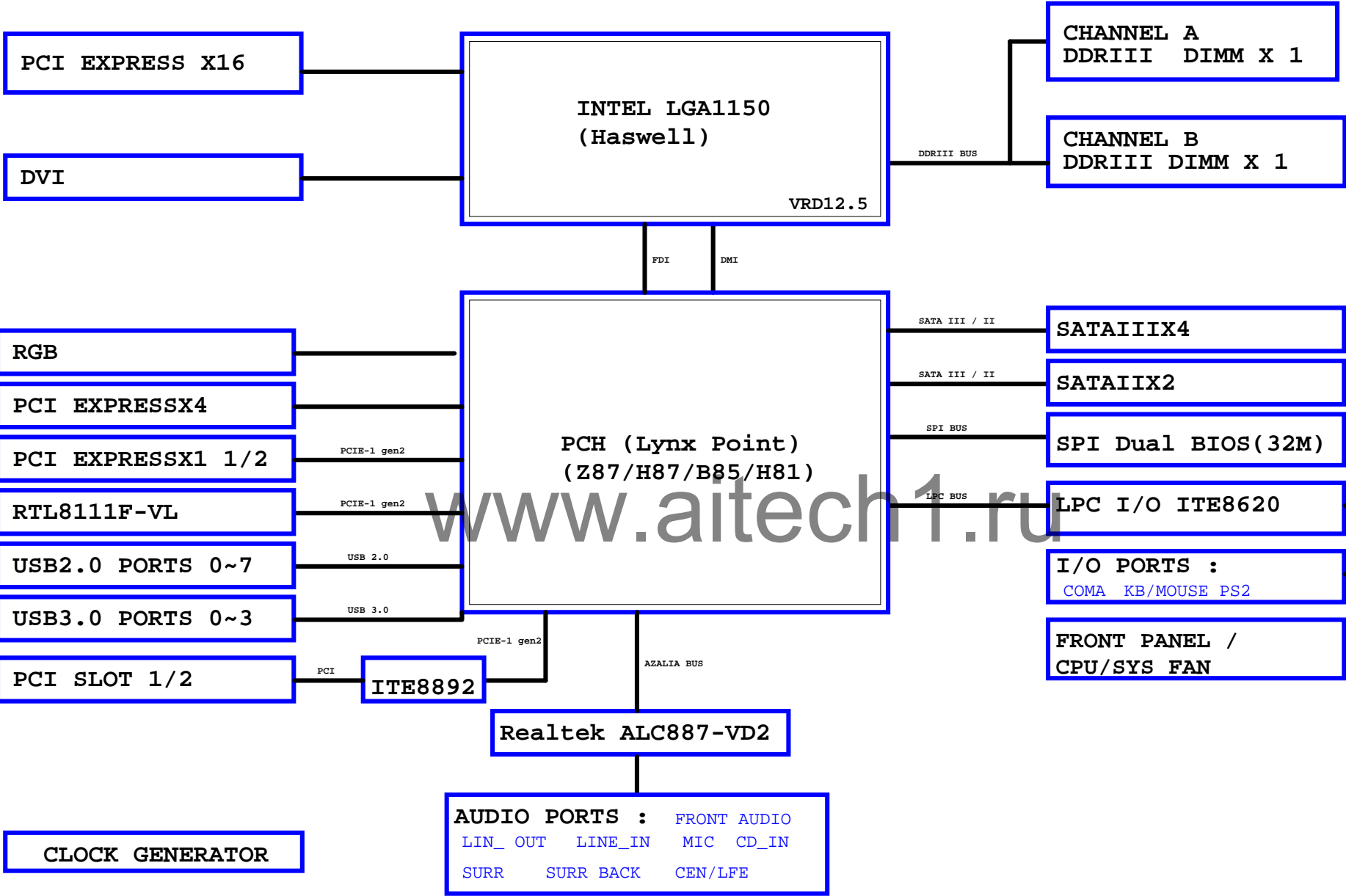
Gigabyte Technology

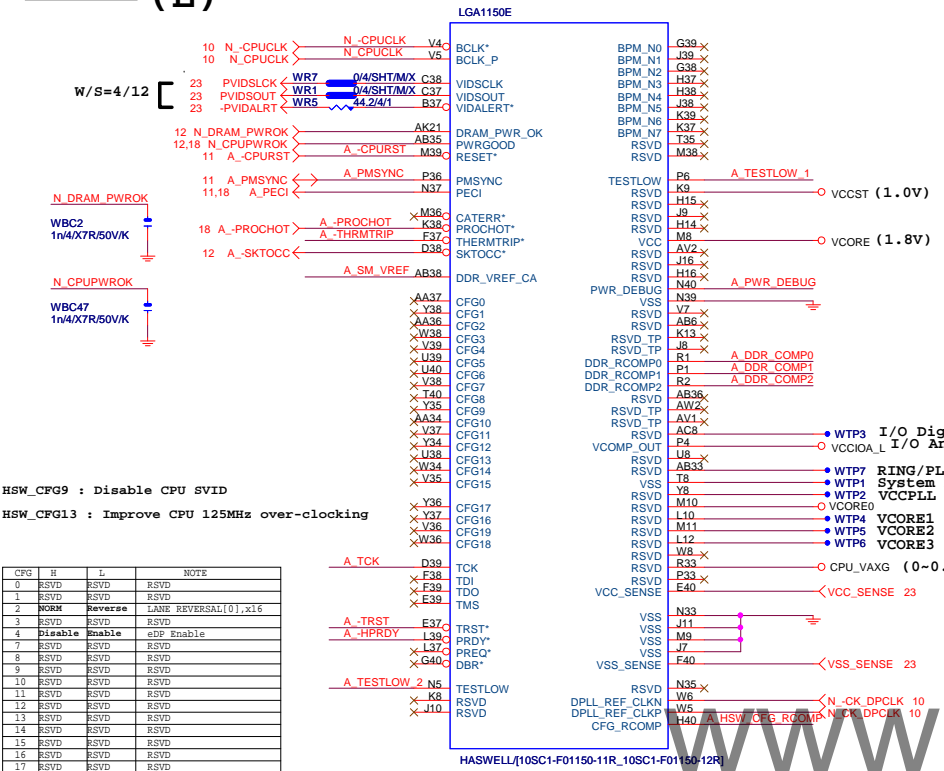
Title			
Cover Sheet			
Size	Document Number	GA-B85-D3V	Rev
Custom			2.0
Date	Thursday, May 15, 2014	Sheet	1 of 34

Component value change history

[illegible][illegible]

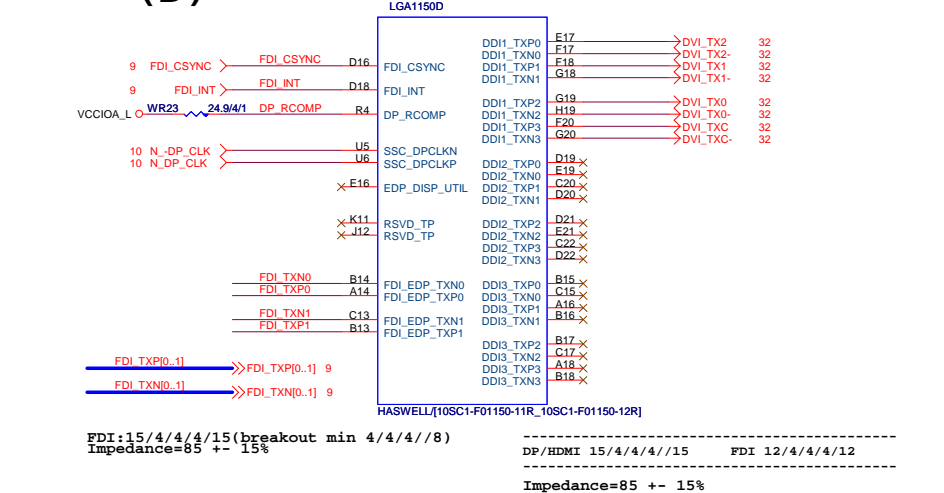
BLOCK DIAGRAM





CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2x8
0	1	RSVD
0	0	1x8, 1x4, 1x2

CFG 0-17 all internal PULL-UP



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

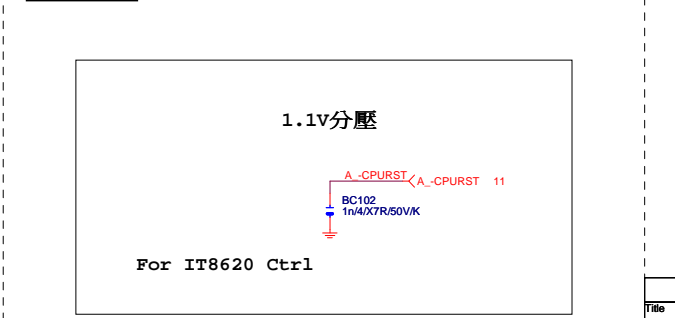
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DP/HDMI 15/4/4/4/15      FDI 12/4/4/4/12
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Impedance=85 +- 15%
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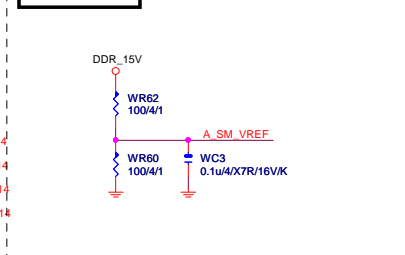
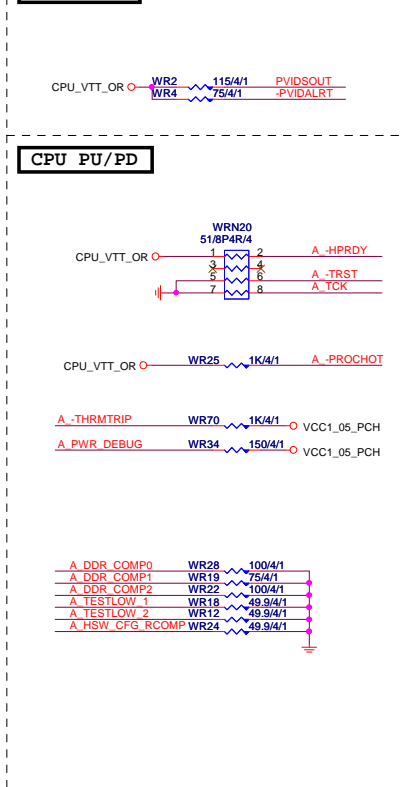
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CPU PEG 20/5/4/5/20 Impedance=80 +- 15%  PA_EXP_RXP[0..15]  >>> PA_EXP_RXP[0..15] 1
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DMI 12/4/4/4/12 Impedance=85 +- 15%  PA_EXP_RXN[0..15]  >>> PA_EXP_RXN[0..15] 1

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For IT8620 Ctrl



Title				CPU LGA1150-A			
Size	Document Number	GA-B85-D3V				Rev	2.0
Custom							
Date:	Thursday, May 15, 2014		Sheet	4	of	34	

LGA1150 (A)

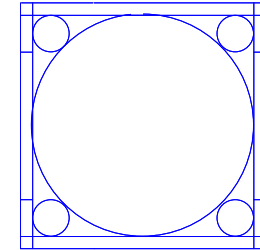
LGA1150 (B)

LGA1150 (CR)

LGA1150A

LGA1150B

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



MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA13	AT20	DDR0_MA13	DDR0_D13	AH38	MDA14
MAAA14	AW21	DDR0_MA14	DDR0_D14	AK40	MDA15
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_D16	AM39	MDA21
MODT_A1	AW8	DDR0_ODT1	DDR0_D17	AP38	MDA18
AW9	AW9	DDR0_ODT2	DDR0_D18	AP39	MDA19
AW8	AW8	DDR0_ODT3	DDR0_D19	AM37	MDA20
AW33	AW33	DDR0_D20	DDR0_D20	AM38	MDA16
AW33	AW33	DDR0_D21	DDR0_D21	AM38	MDA16
AU31	AU31	DDR0_D22	DDR0_D22	AP37	MDA22
AT33	AT33	DDR0_D23	DDR0_D23	AP40	MDA23
AU33	AU33	DDR0_D24	DDR0_D24	AV37	MDA25
AT31	AT31	DDR0_D25	DDR0_D25	AW37	MDA29
AW31	AW31	DDR0_D26	DDR0_D26	AU35	MDA28
AW31	AW31	DDR0_D27	DDR0_D27	AV35	MDA27
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AW31	AW31	DDR0_D32	DDR0_D32	AW6	MDA37
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AW31	AW31	DDR0_D36	DDR0_D36	AR1	MDA41
AW31	AW31	DDR0_D37	DDR0_D37	AR4	MDA45
AW31	AW31	DDR0_D38	DDR0_D38	AN3	MDA42
AW31	AW31	DDR0_D39	DDR0_D39	AN4	MDA43
AW31	AW31	DDR0_D40	DDR0_D40	AR2	MDA44
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AW31	AW31	DDR0_D42	DDR0_D42	AN2	MDA46
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AW31	AW31	DDR0_D44	DDR0_D44	AL1	MDA49
AW31	AW31	DDR0_D45	DDR0_D45	AL4	MDA53
AW31	AW31	DDR0_D46	DDR0_D46	AL4	MDA50
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AW31	AW31	DDR0_D200	DDR0_D200	AU32	DQSA7
AW31	AW31	DDR0_D201	DDR0_D201	AU32	DQSA7
AW31	AW31	DDR0_D202	DDR0_D202	AU32	DQSA7
AW31	AW31	DDR0_D203	DDR0_D203	AU32	DQSA7
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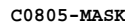
(F, J)



(G,H,I)



(x18)



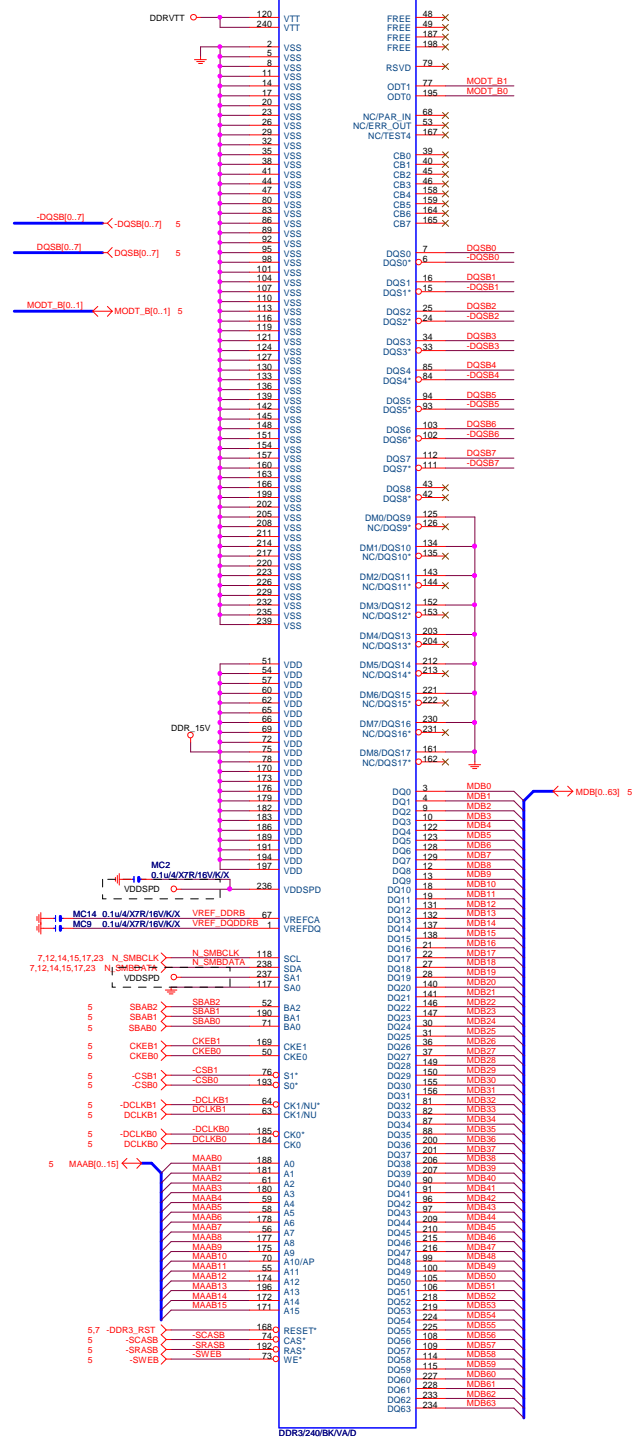
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DDR3

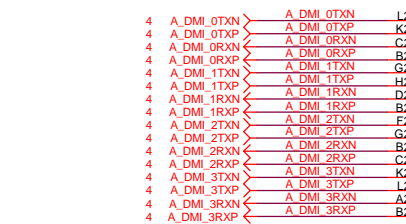
(B)

DDR3_2

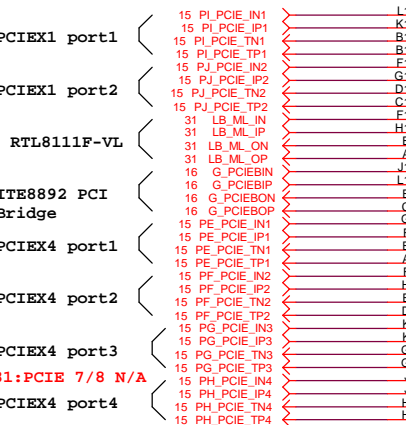


PCH (B)

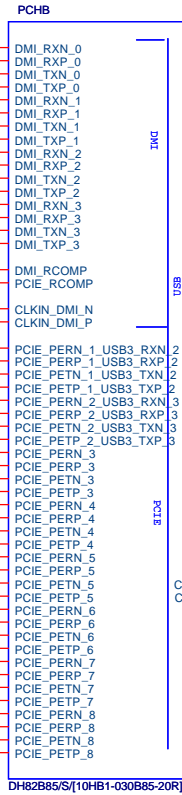
DMI:12/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%



VCC1_5_PCH
W=8 mil out of PCH
S=15 mil to other signals



放靠近 Device & PCI-E Slot



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

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

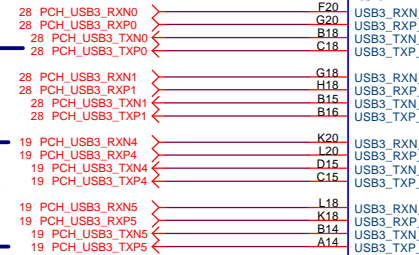
PCH (F)

Port要對應

B85/H81: 6/7/12/13 N/A

H81:USB3.0 N/A

H81:12/13 N/A



VCC3
NR62 8.2K/4/X
NR63 8.2K/4/X

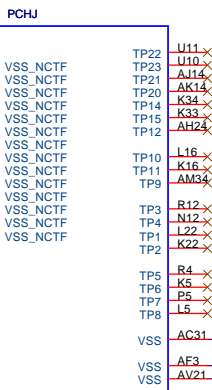
USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

Mount for integrated clock Generation Mode



NR92 short to GND in non graphic SKU

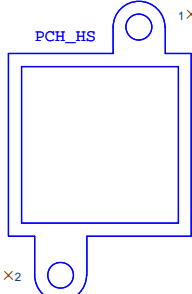
PCH (J)



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

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

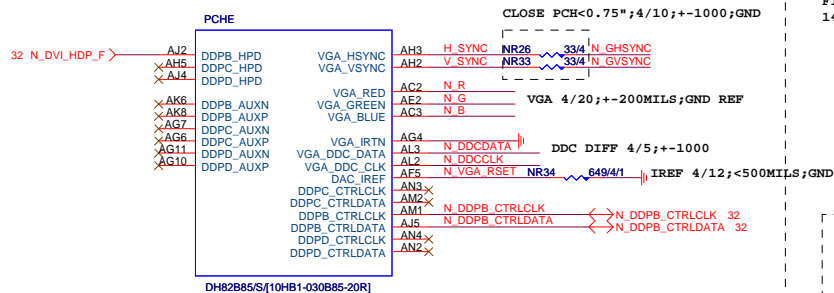
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

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-B85-D3V	2.0
Date:	Thursday, May 15, 2014	Sheet 9 of 34

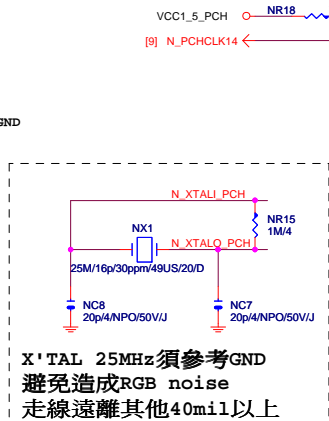
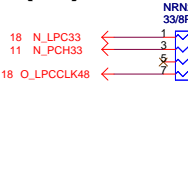
PCH (E)



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)

Flex1,2,3,4 :
 14/24/33/48MHZ



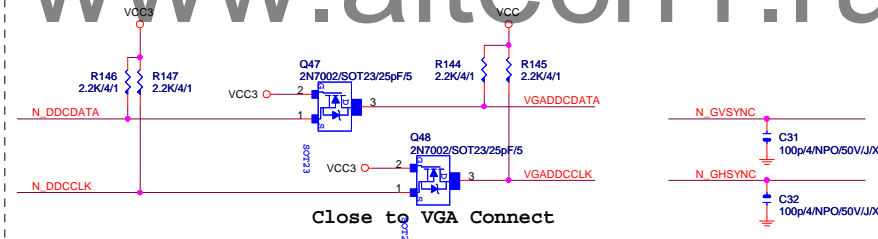
N_XTALO_PCH N7
 N_XTALI_PCH N6

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

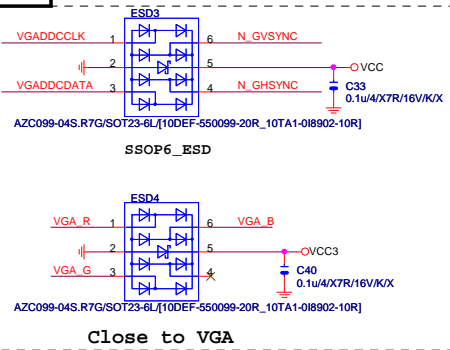
PCH CLK PD



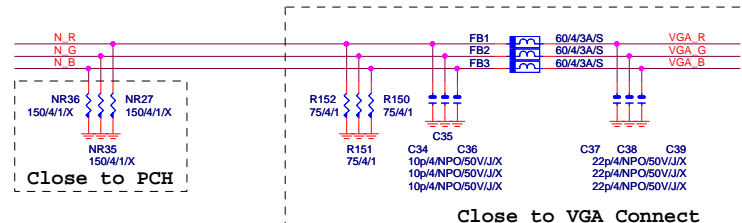
VGA DDC



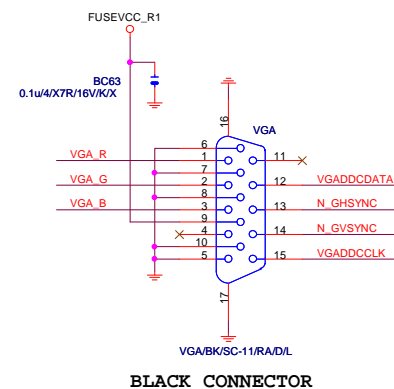
VGA ESD



VGA DDC



VGA CONNECTOR



Gigabyte Technology		
Title PCH DISPLAY ,CLK BUFFER		
Size Custom	Document Number GA-B85-D3V	Rev 2.0
Date: Thursday, May 15, 2014	Sheet 10	of 34

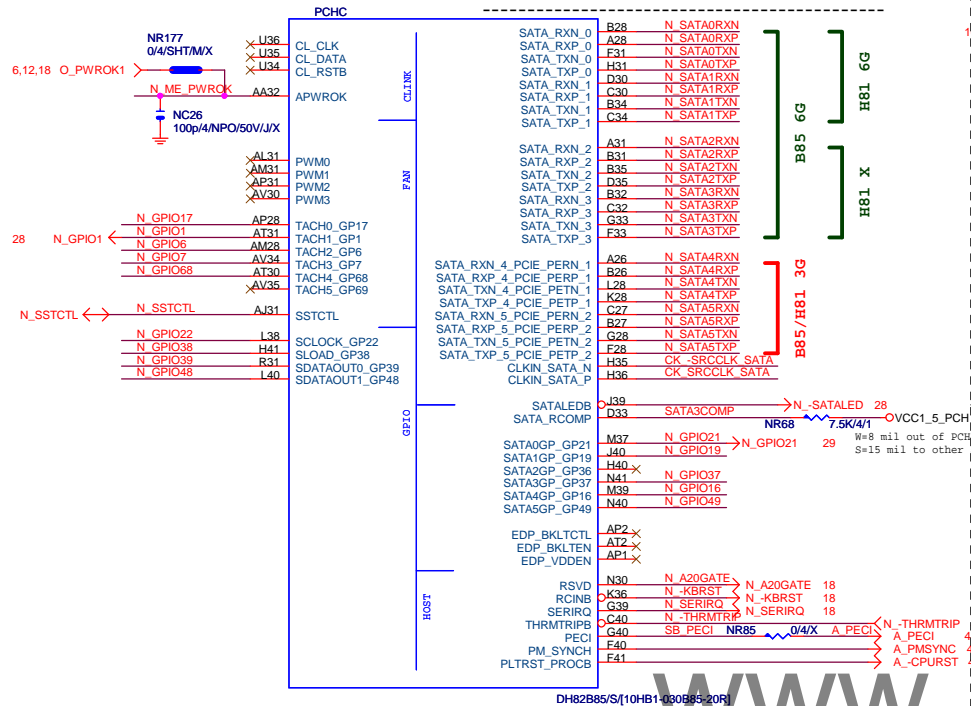
PCH (C)

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

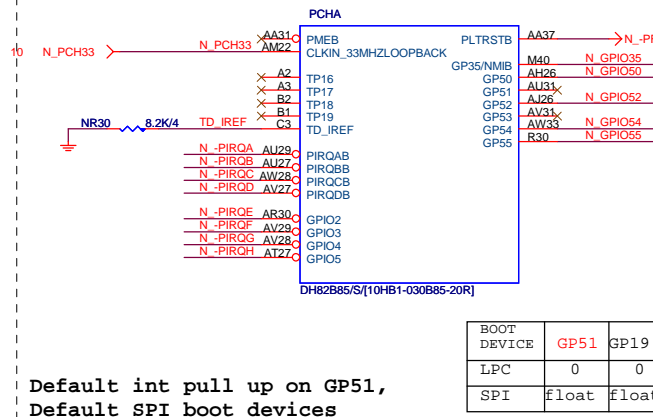
Impedance=85 +- 17.5%

```
SATA2 15/4/4/4/15
```

SATA3 20/4/4/4/20

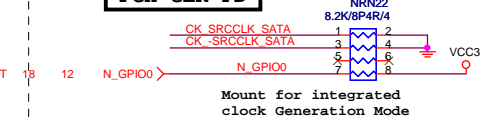


PCH (A)



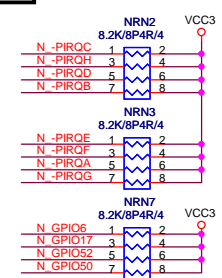
```
Default int pull up on GP51,
Default SPI boot devices
```

PCH CLK PD

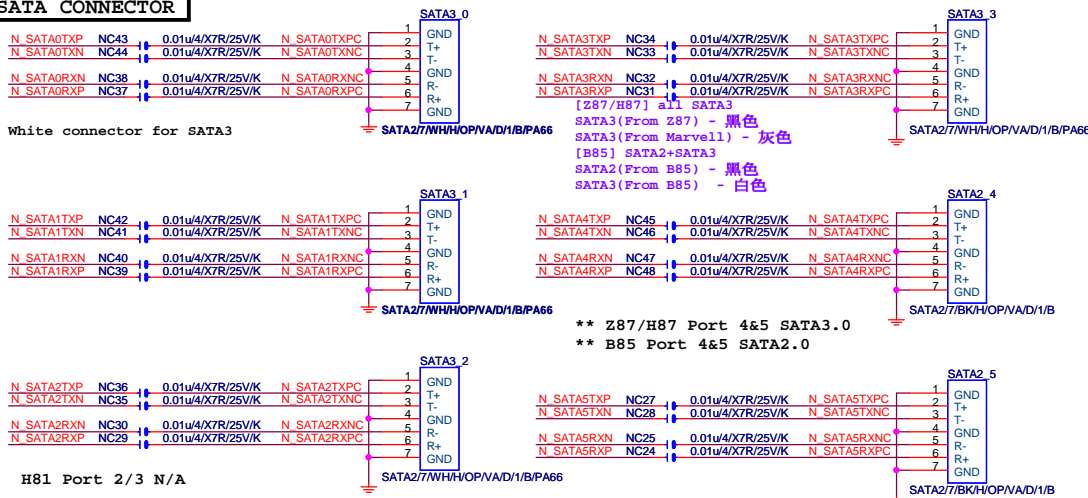


Mount for integrated
clock Generation Mode

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



SATA CONNECTOR

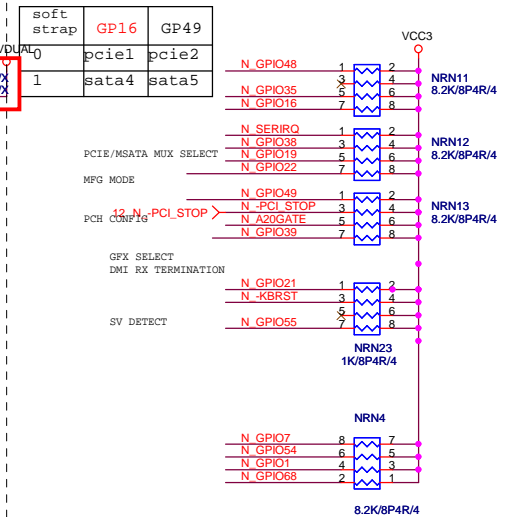
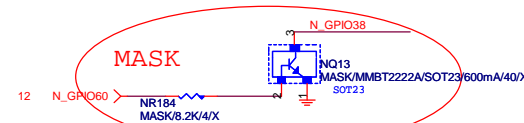


GPIO38 Ctrl

MFG Mode

```
N_GPIO38 : Lo --> Enable
```

Hi --> Disable



Gigabyte Technology

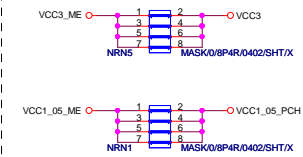
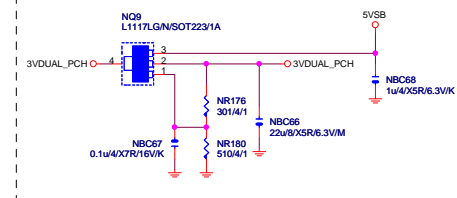
Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
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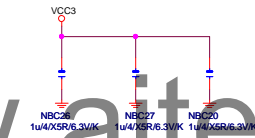
PCH (I)



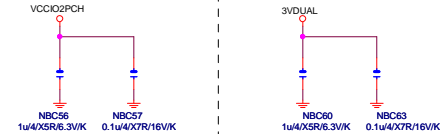
SHT PWR



(1.05V) (x5)



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



VCC1.5_PCH

NBC19 1u4/4XSR/6.3V/K

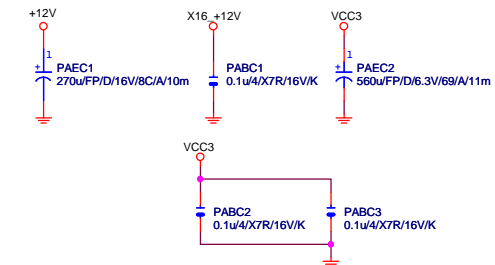
NBC23 0.1u4/4XR/16V/K

NBC28 1u4/4XSR/6.3V/K

NBC44 1u4/4XSR/6.3V/K

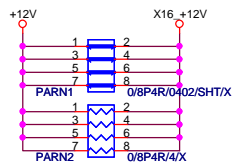
NBC46 0.1u4/4XR/16V/K

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	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	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

PCI-E REV:1.1--> 2.5GHZ

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

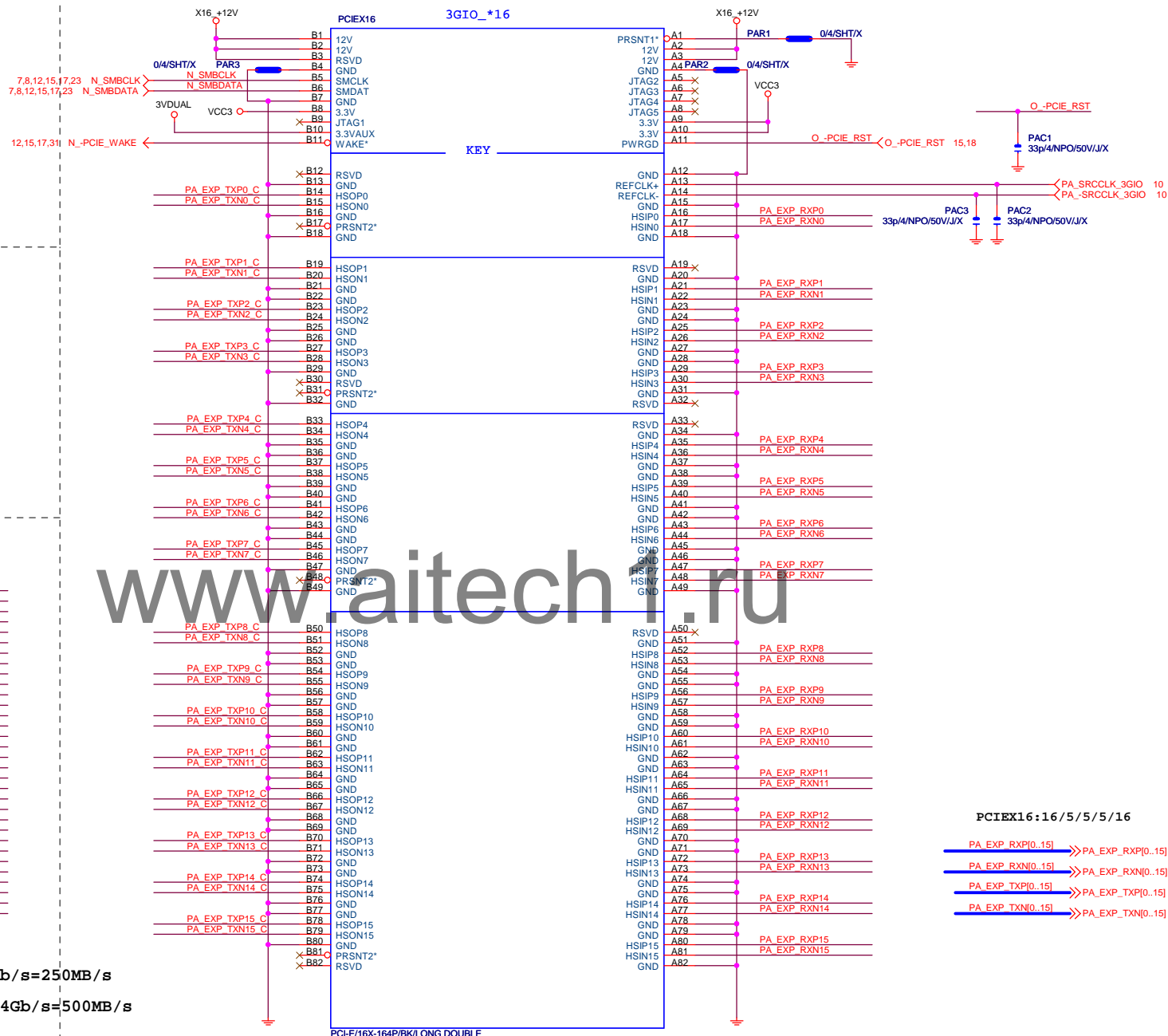
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

PCIEX16 SLOT

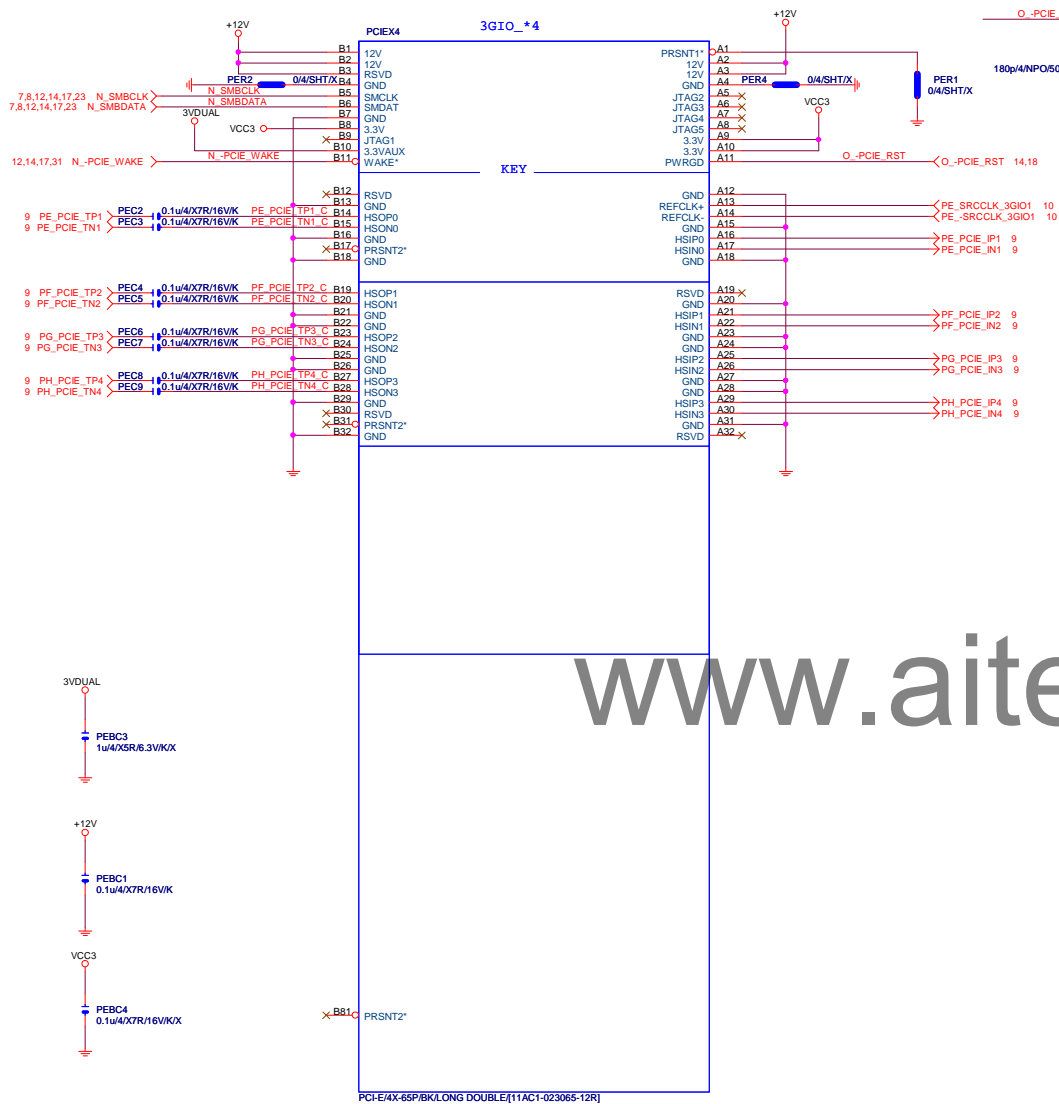


PCIEX16:16/5/5/5/16

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

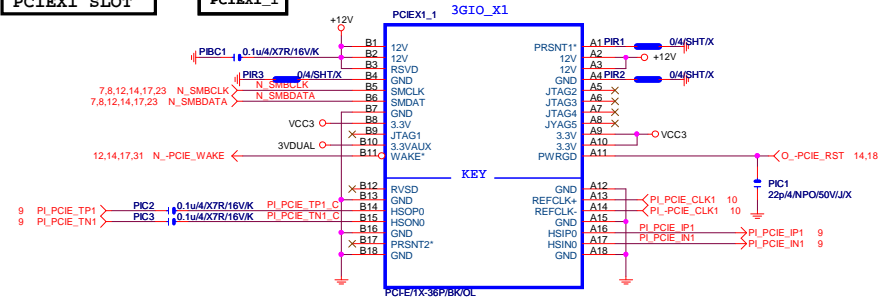
Gigabyte Technology			
PCI EXPRESS * 16			
Size Custom	Document Number	GA-B85-D3V	
Date:	Thursday, May 15, 2014	Sheet	14 of 34
		Rev	2.0

PCIEX4 SLOT

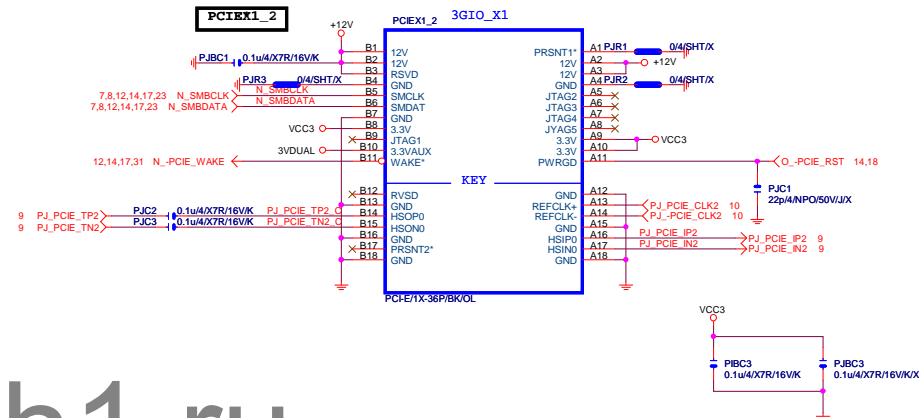


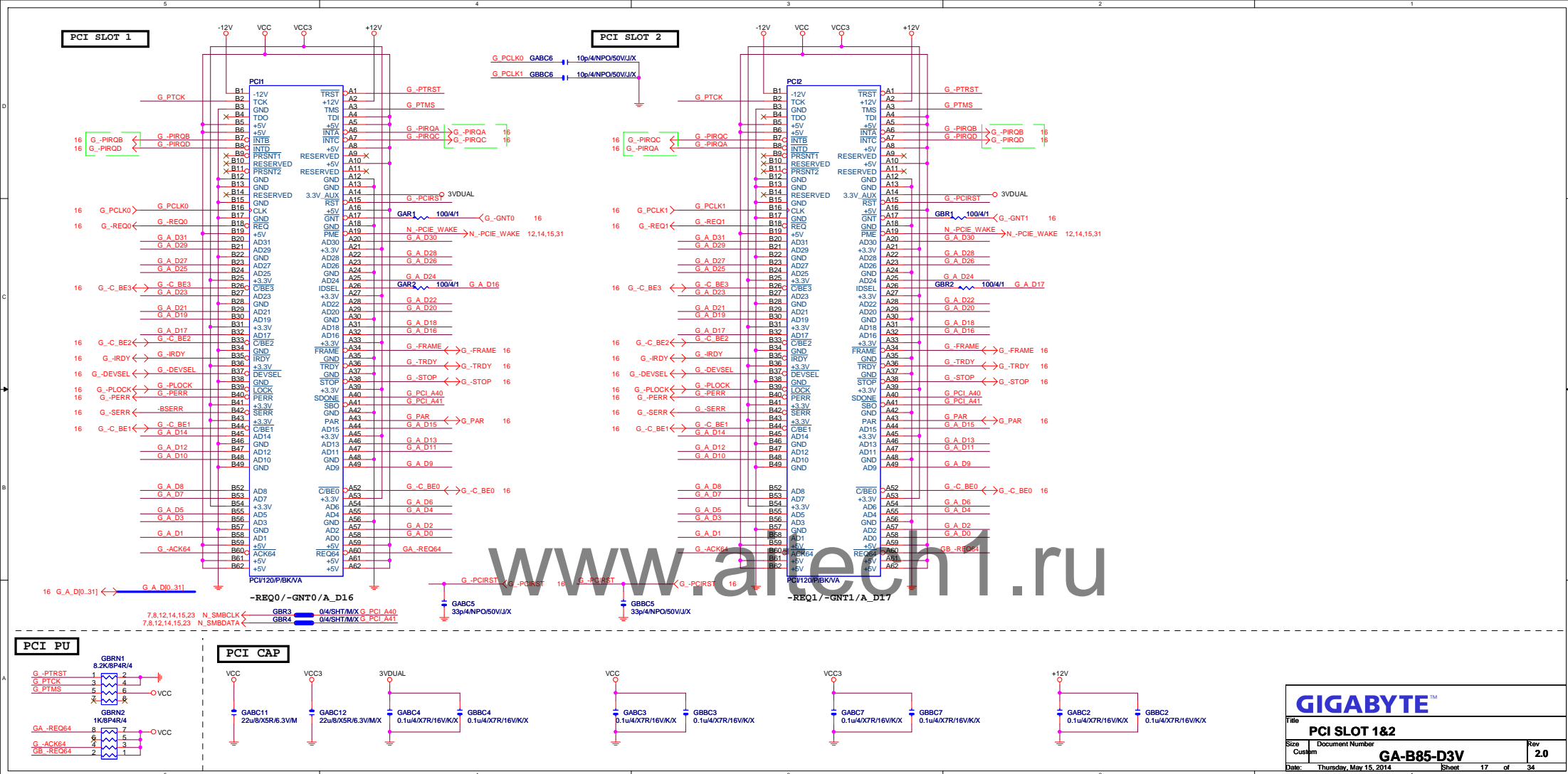
PCIEX1 SLOT

PCIEX1_1

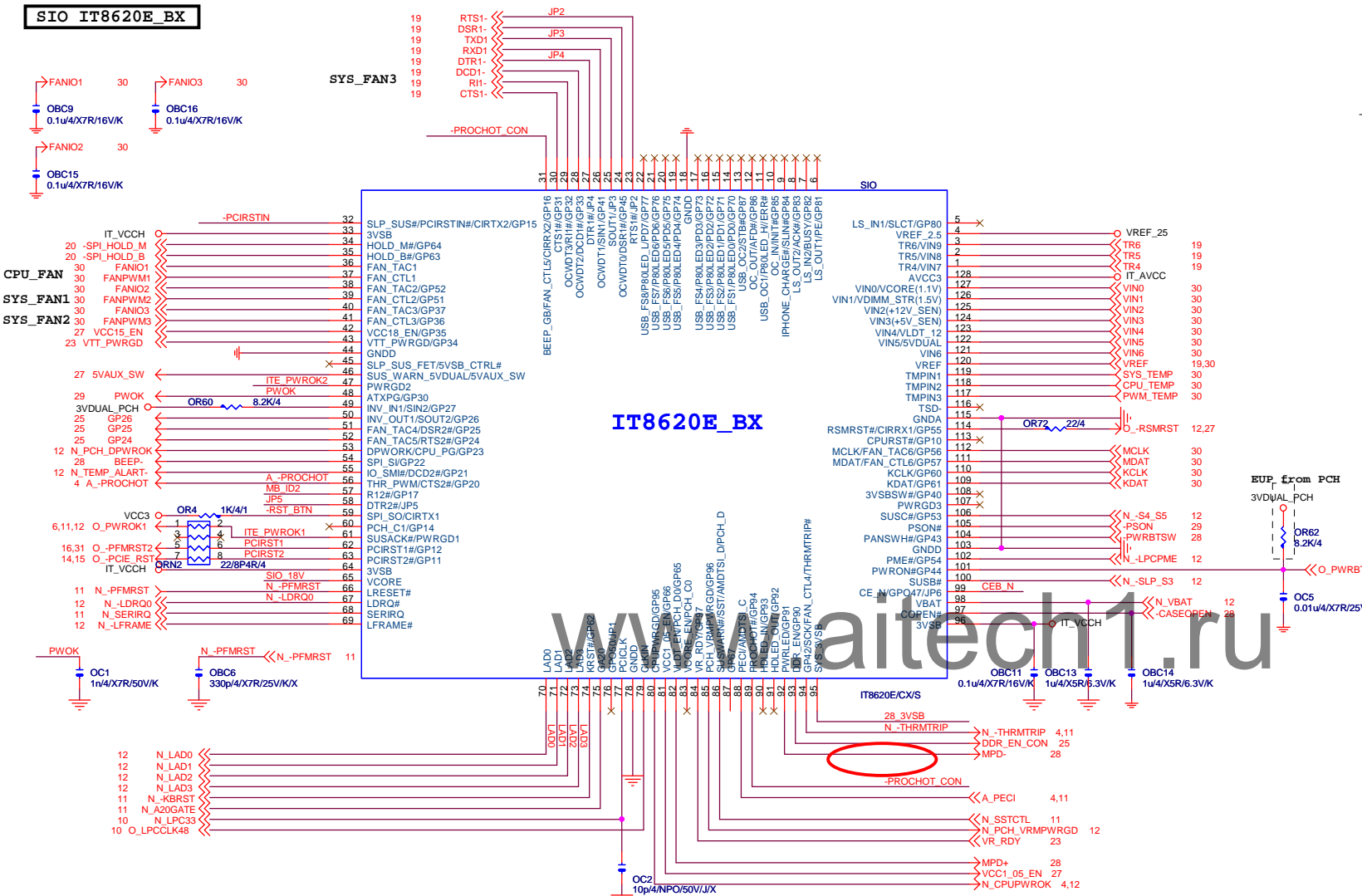


PCIEX1_2



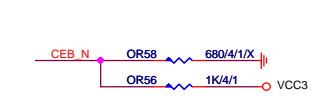


SIO IT8620E_BX

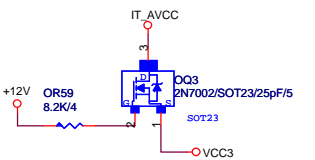


IT8620E GPIO問題調整	
PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HIDLED FUNCTION, GP93 BYPASS TO GP92
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟PAN6 FUNCTION 擇一使用,不然會互相干擾

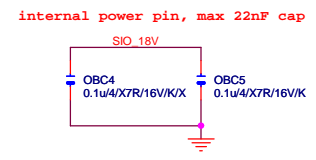
DUAL BIOS OPT STRAP



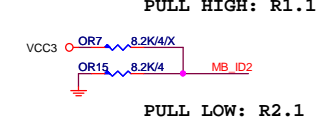
Power leakage



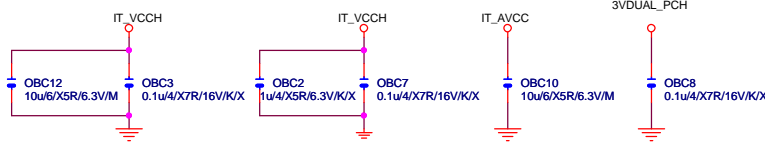
SIO_18V



MB ID

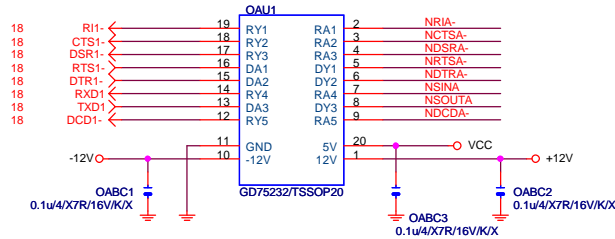


SIO CAP

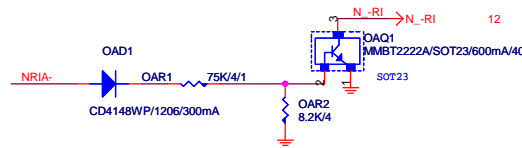


Gigabyte Technology		
Title	ITE 8728 LPC IO	
Size	Document Number	Rev
Custom	GA-B85-D3V	2.0
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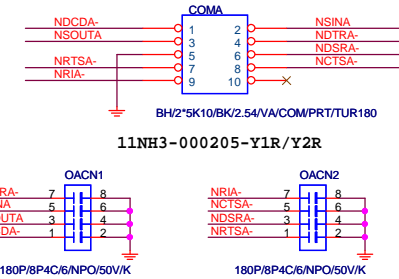
COMA



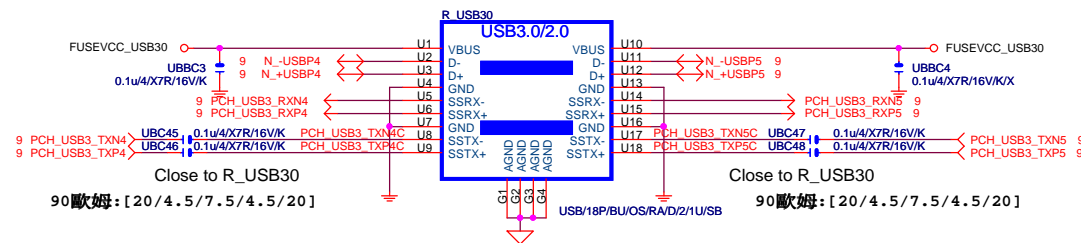
COM RI



COM BUFFER

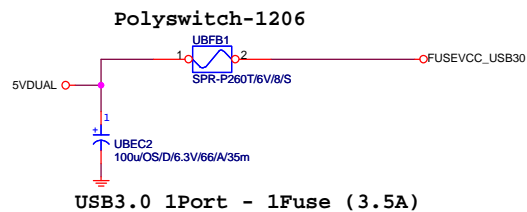


USB30_20 CONNECT

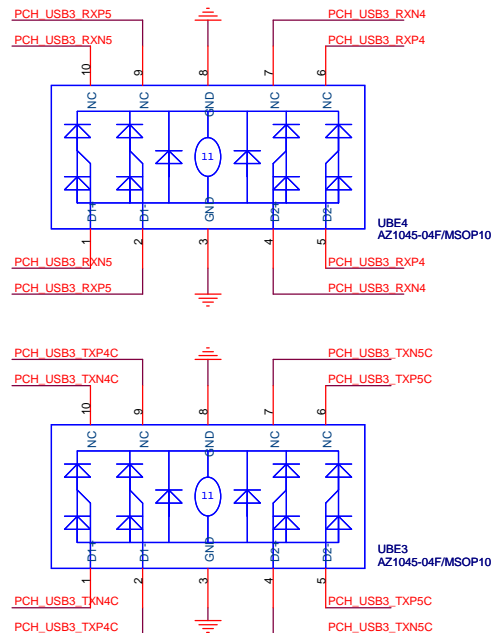


-PROHOT

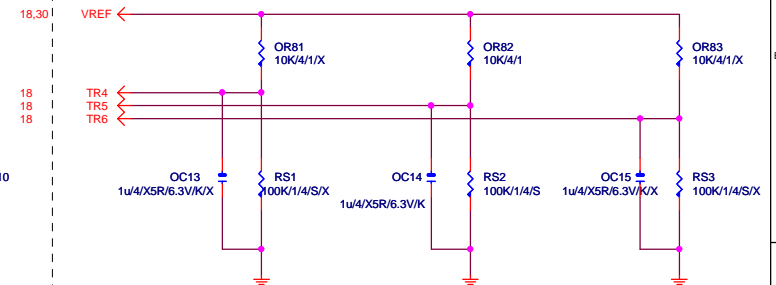
USB30 PWR



USB30 ESD PROTECT

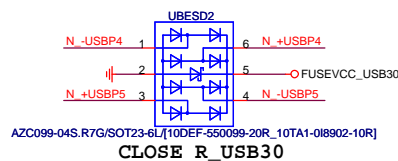


-PROHOT



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

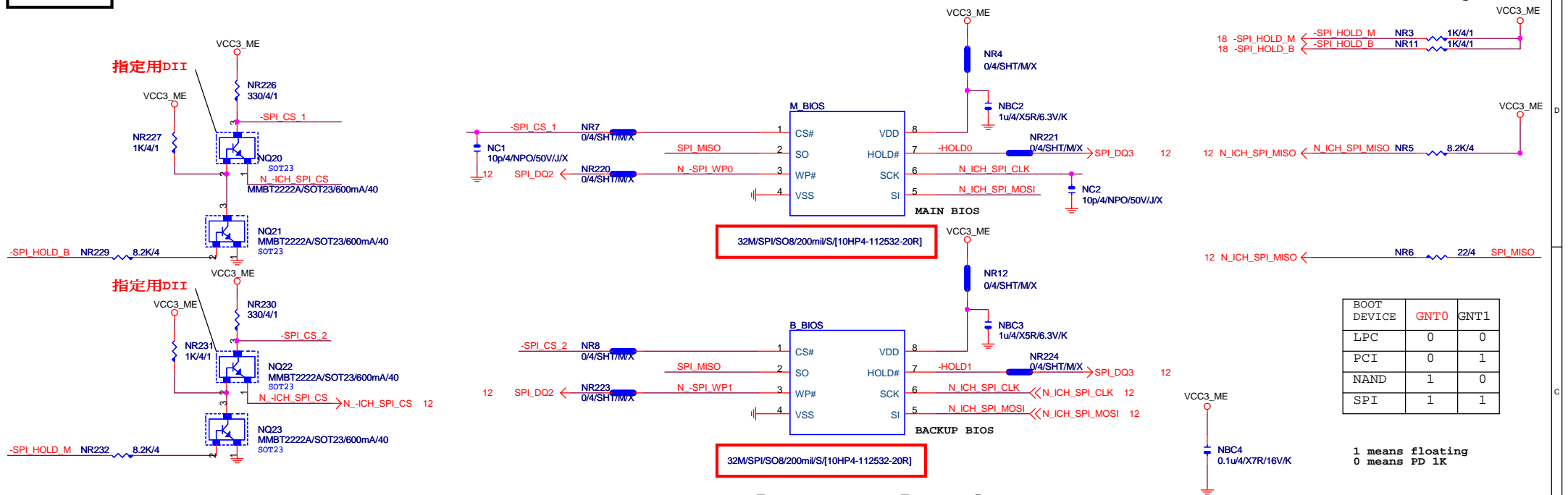
USB20 ESD PROTECT



Gigabyte Technology

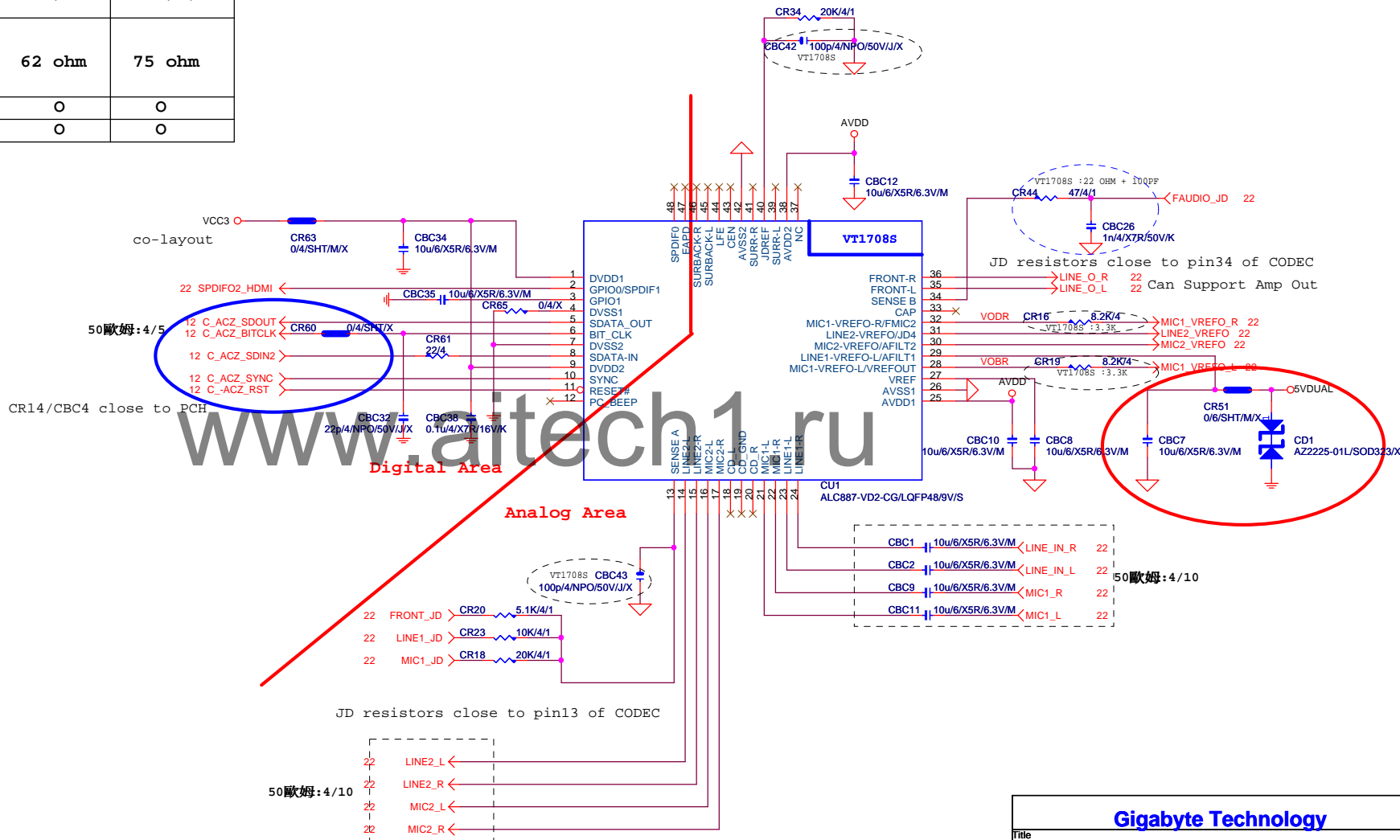
Title			
COM & PROHOT/Dynamic O.C.			
Size	Document Number	Rev	
Custom	GA-B85-D3V	2.0	
Date:	Thursday, May 15, 2014	Sheet	19 of 34

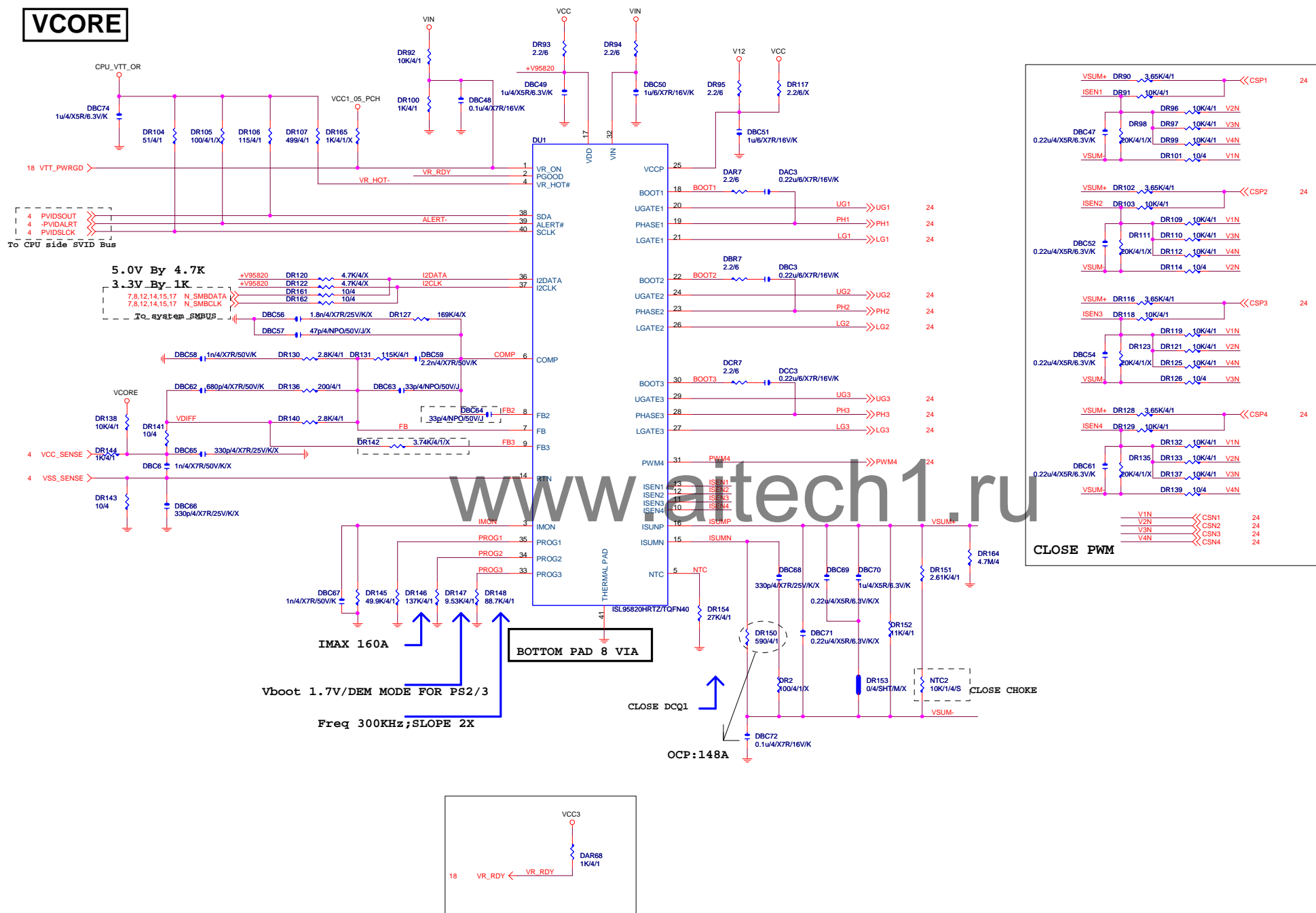
DUAL BIOS



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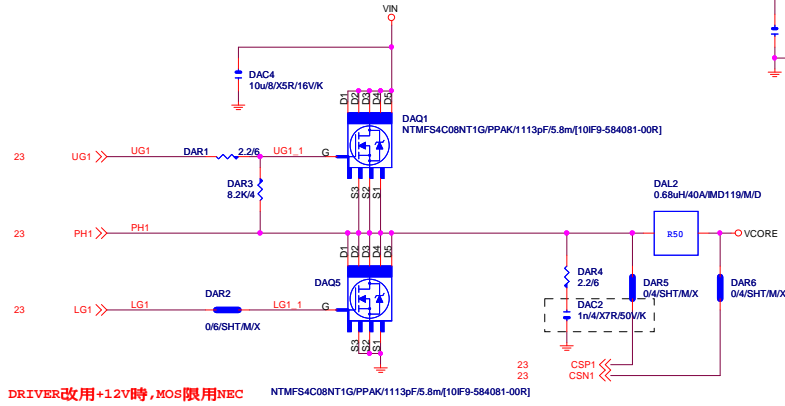
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7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



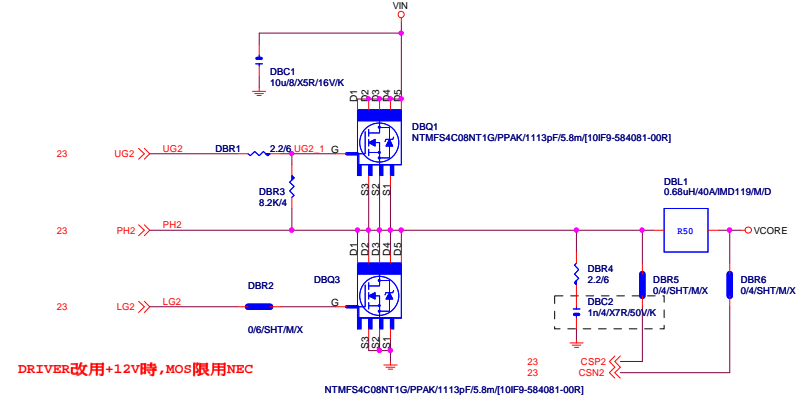
VCORE

VCORE

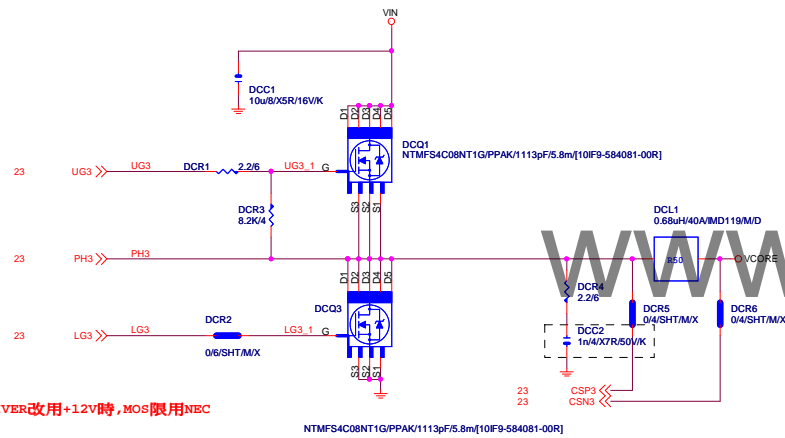
[1]



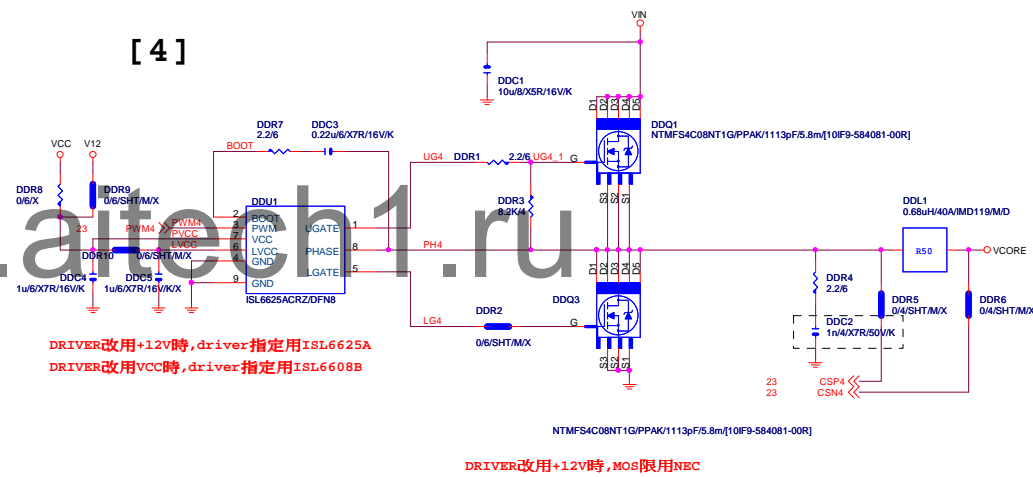
[2]



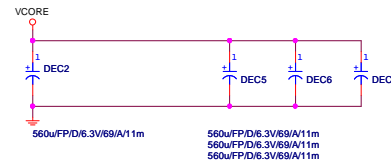
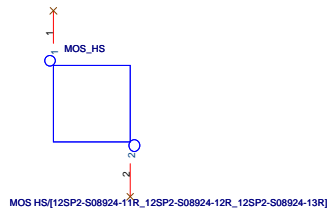
[3]



[4]

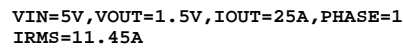


MOSFET HEATSINK



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

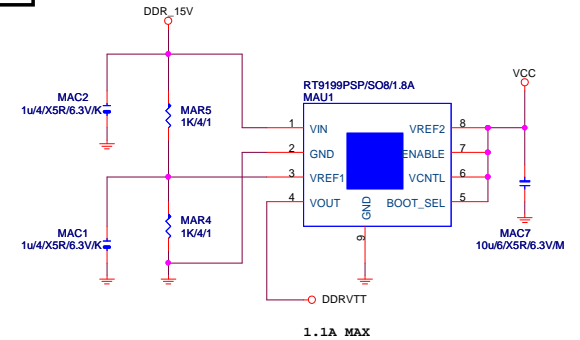
(RICHTER), (NUVOTON), (EMC)做共用
PIN7分壓阻值須做修改為100K以上電阻值



560u/FP/D6.3V/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

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

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
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[illegible]

Fail : 2V~ 0.8V

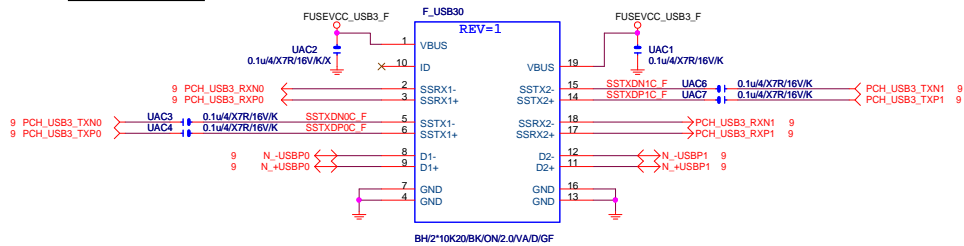
Meet the rise time

at least 10ms delay after 3VDUAL stable

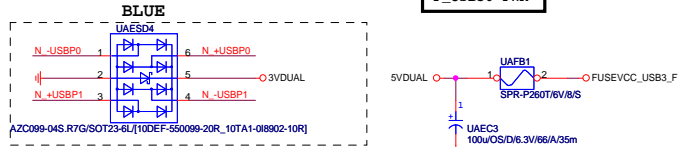
0.35A max

The schematic diagram shows the internal circuitry of the AP431N/SOT23-150mA X-ray source. It features a 5V DUAL supply connected to a 2200K resistor (R34). A 2.5U LEVEL signal is applied to the circuit. The circuit includes a 22uH/XSR6.3VM inductor (R714) and an AP431N/SOT23-150mA X-ray source (G3). The output is labeled 2.5U LEVEL and 2.5U REF.

Front USB3.0

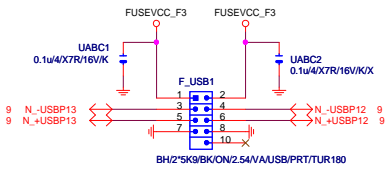


F_USB30 PWR

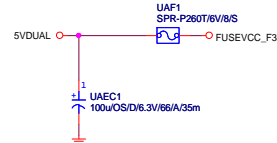


Close to connector

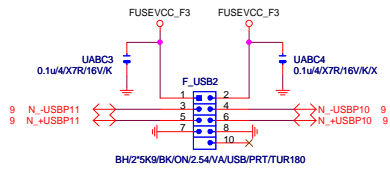
FRONT USB1



Close to connector



FRONT USB2



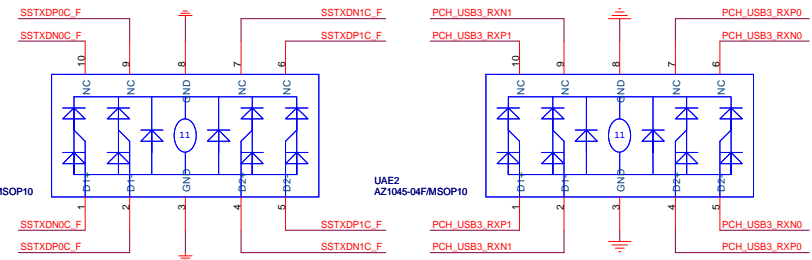
Close to connector

```

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

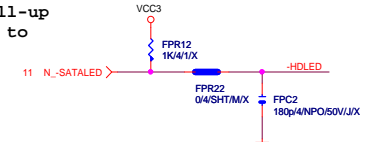
```

F_USB30 ESD PROTECT

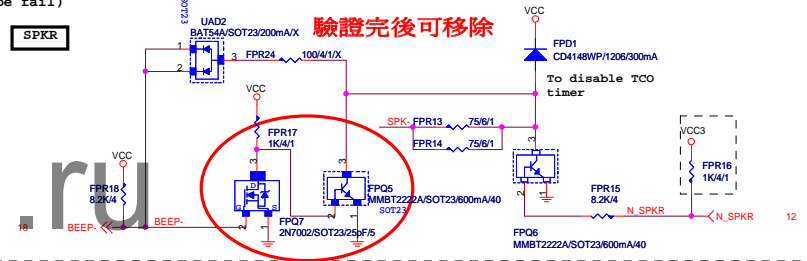


SATA LED

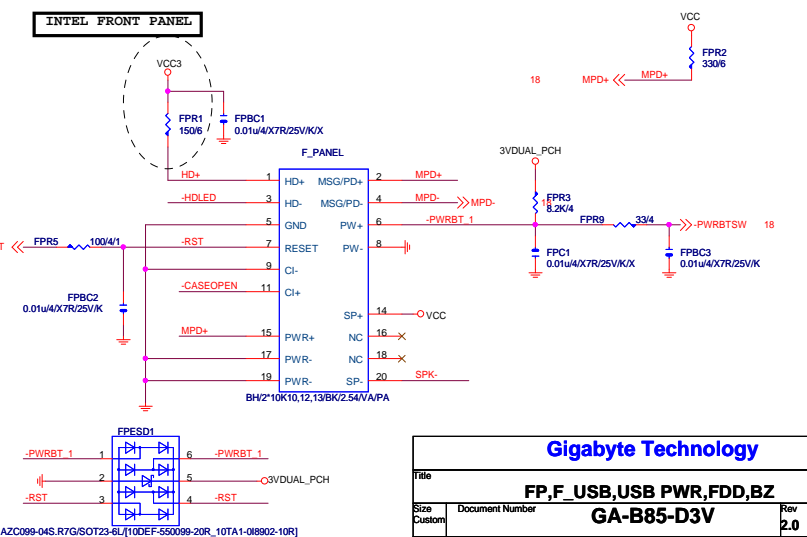
SATALED# signal
open-collector, pull-up
(8.2 kΩ to 10 kΩ) to
Vcc3_3



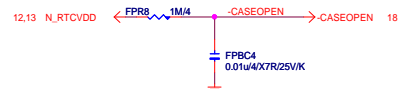
SPKR



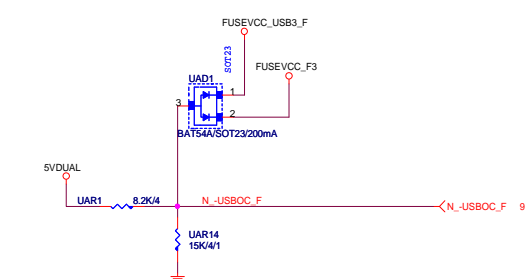
INTEL FRONT PANEL



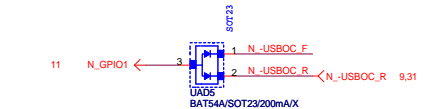
CASE OPEN



-USBOC_F

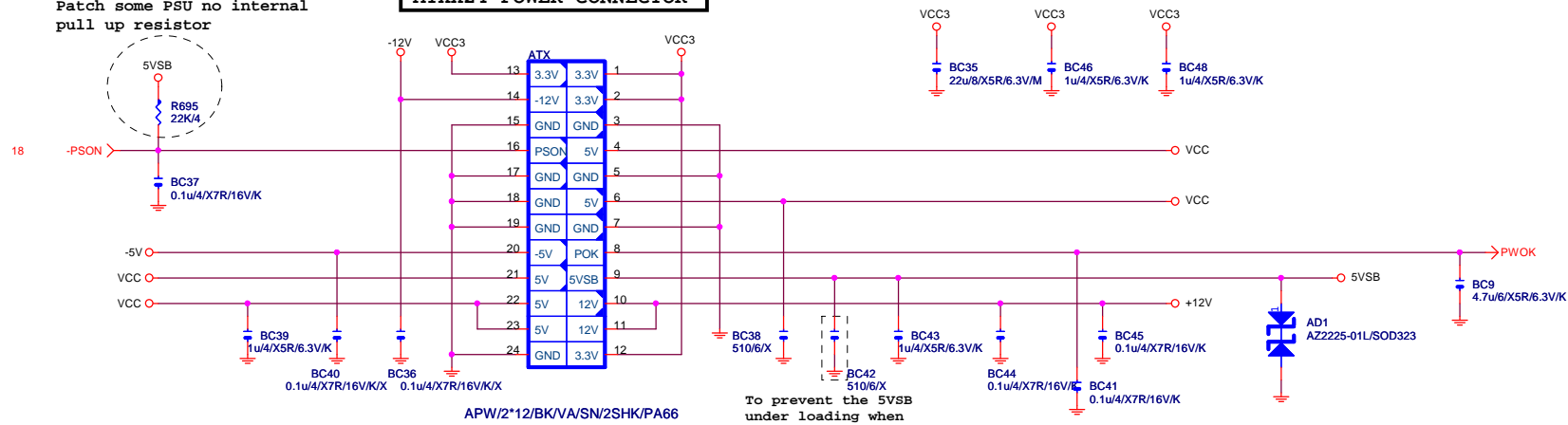


F_USB POWER PROTECT

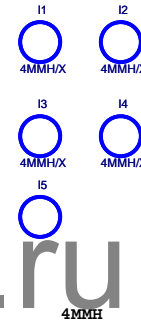
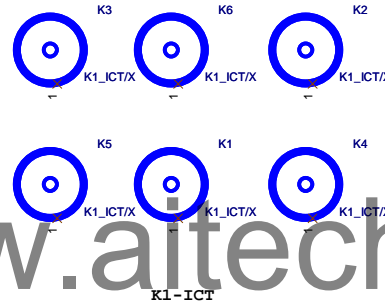
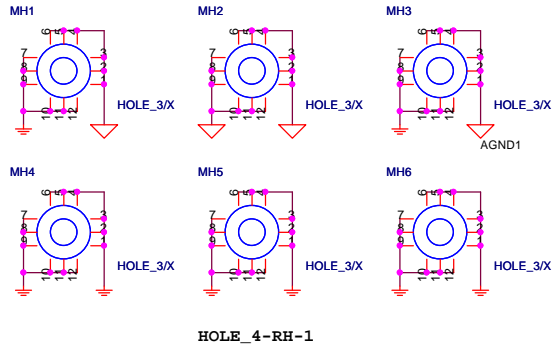
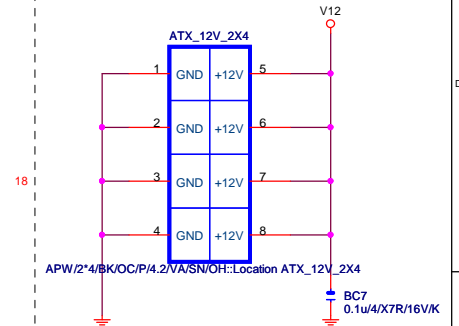


Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

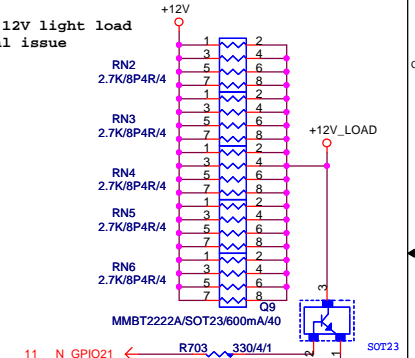


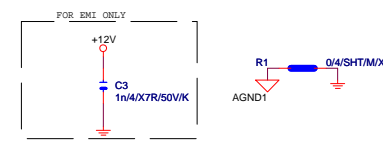
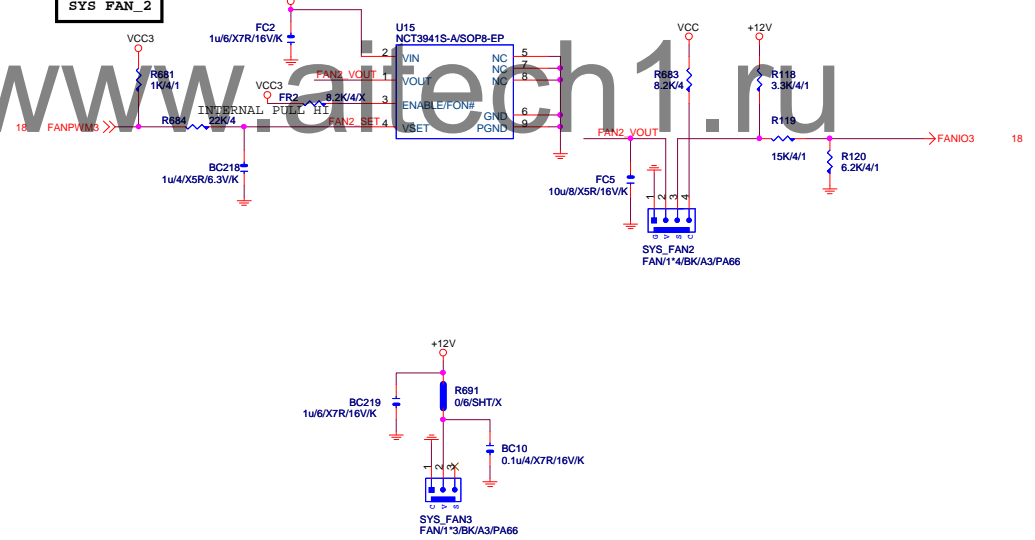
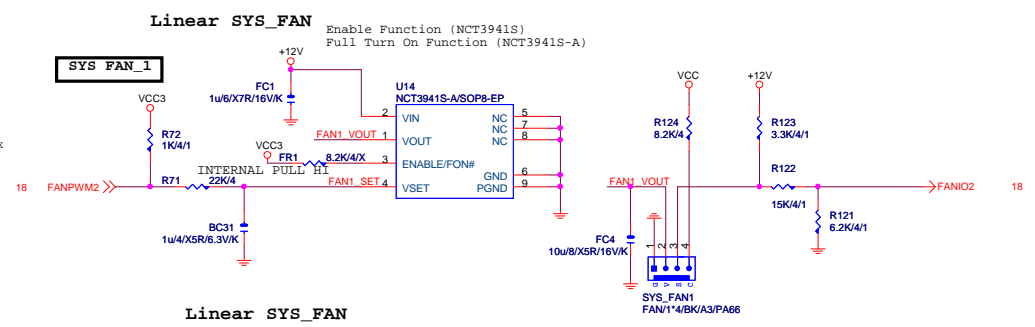
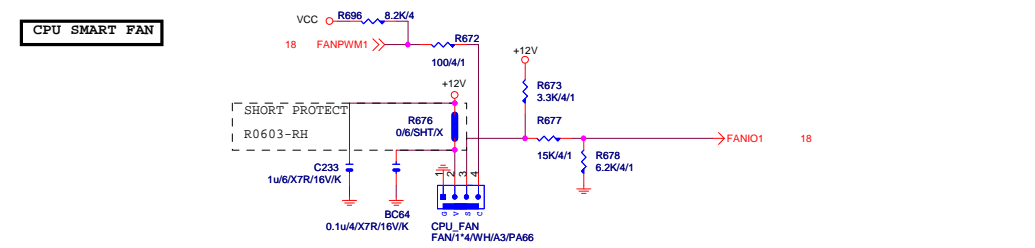
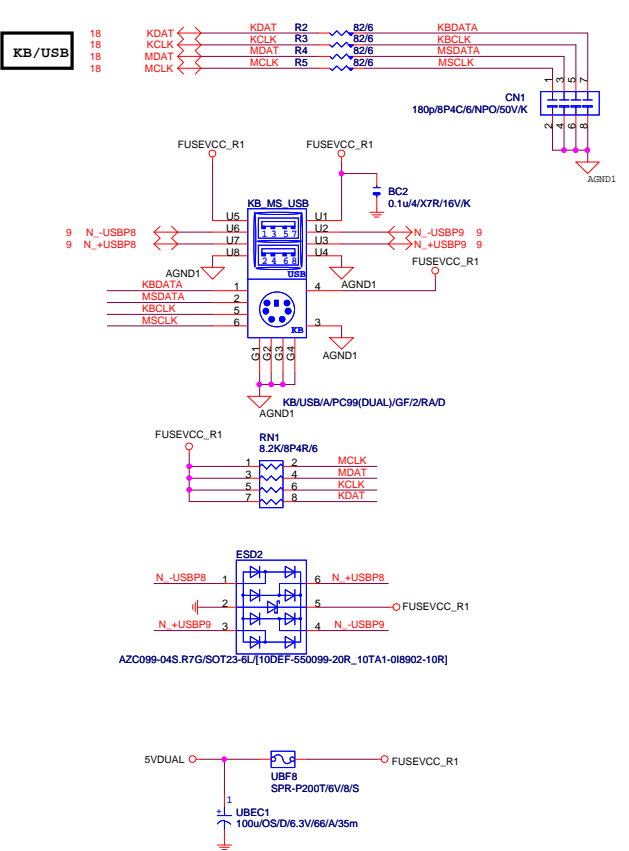
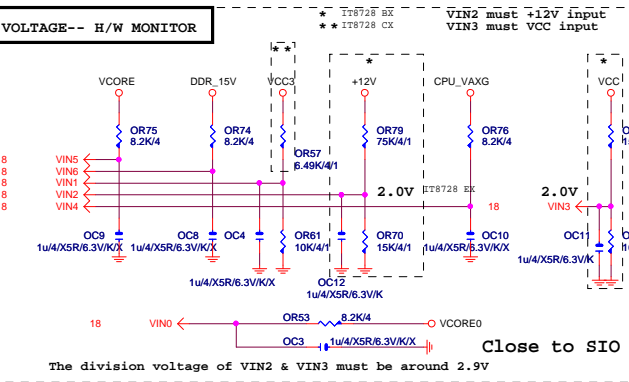
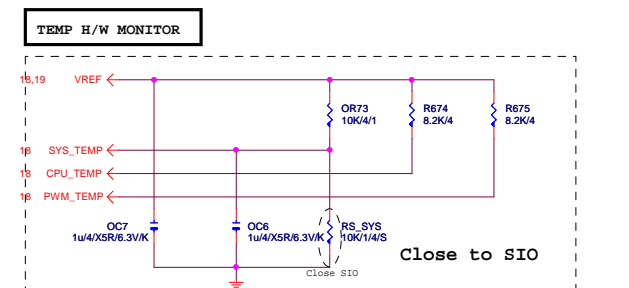
ATXX4 POWER CONNECTOR



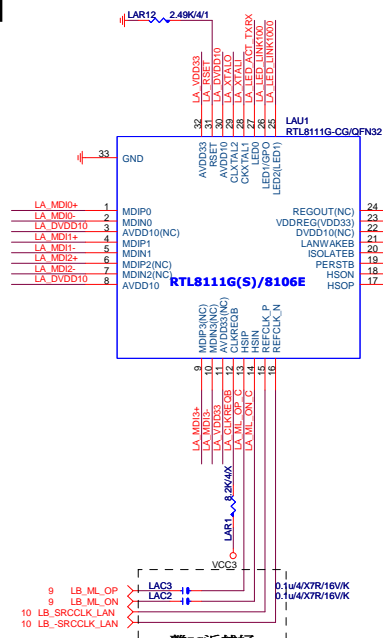
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

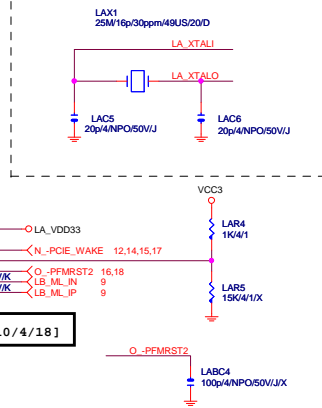




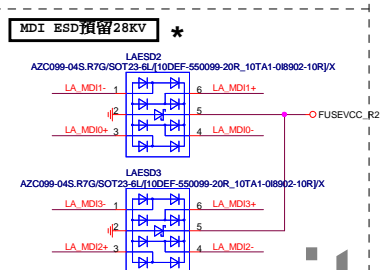
LAN



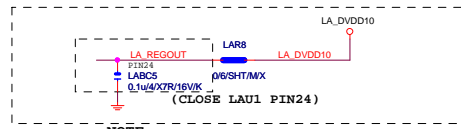
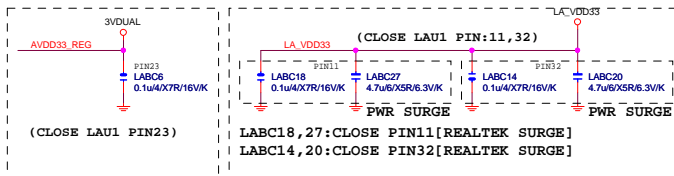
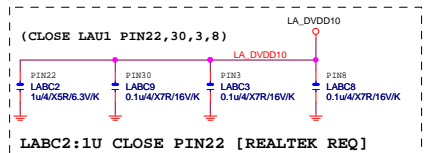
LA_ ML-->80歐姆:[15/5/5/5/15]



SRCCLK-->50歐姆:[18/4/10/4/18]



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]		

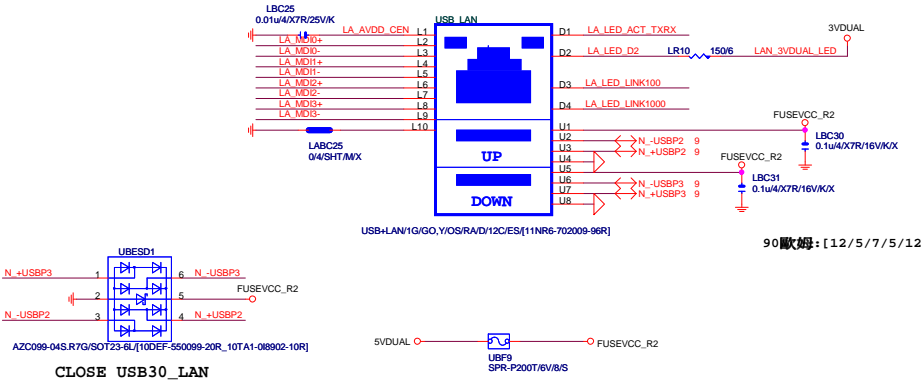
- ```

1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:114FAZC398-04S

```

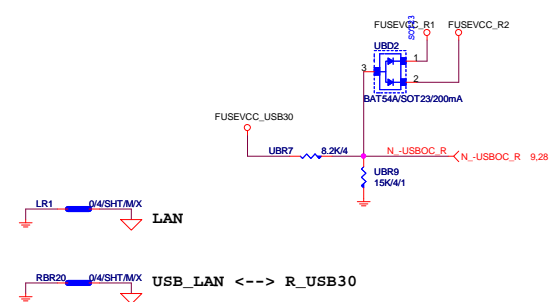
USB30\_LAN CONNECTOR


100歐姆:[20/4/10/4/20]



90 歐姆:[12/5/7/5/12]

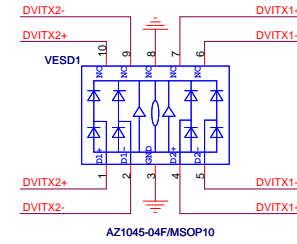
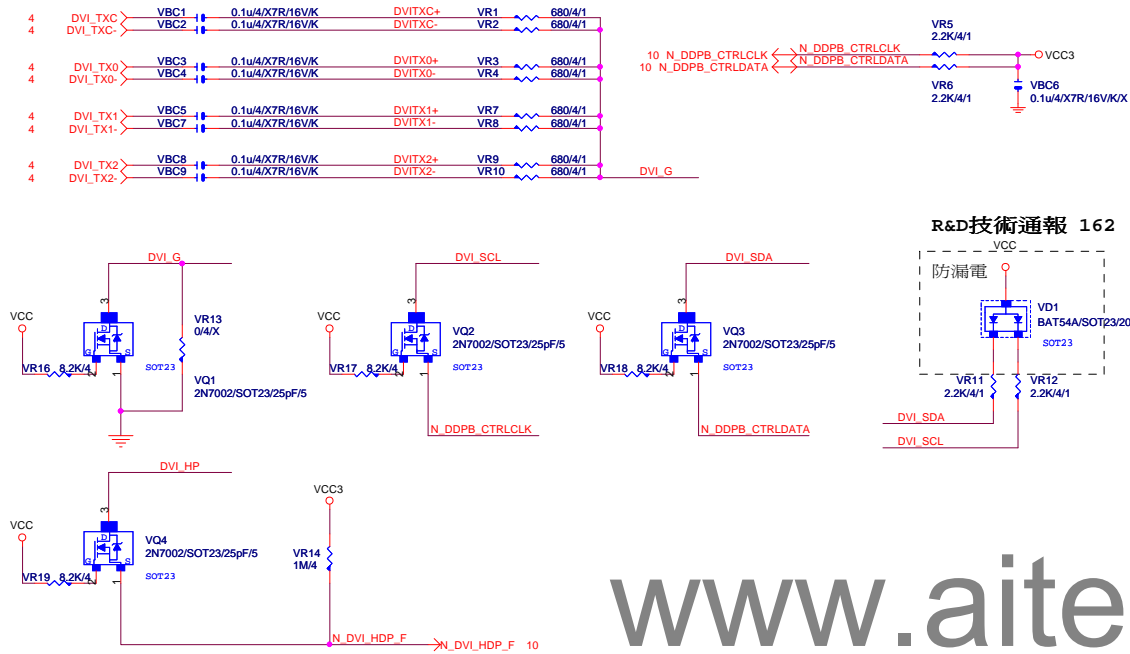
-USBOC\_R



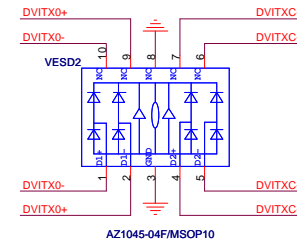
|                                                                                                                  |                        |       |            |
|------------------------------------------------------------------------------------------------------------------|------------------------|-------|------------|
| <br><b>Realtek RTL8111G</b> |                        |       |            |
| Size<br>Custom                                                                                                   | Document Number        |       | Rev<br>2.0 |
| <b>GA-B85-D3V</b>                                                                                                |                        |       |            |
| Date:                                                                                                            | Thursday, May 29, 2014 | Sheet | 31 of 34   |

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

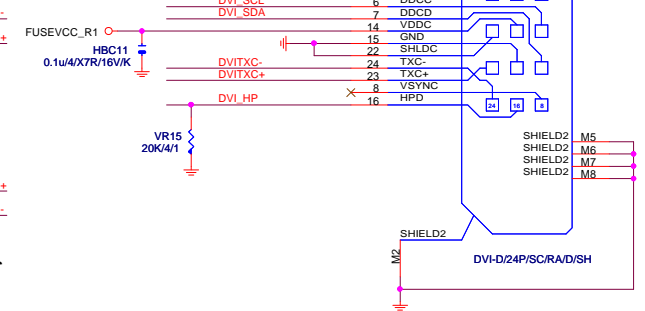
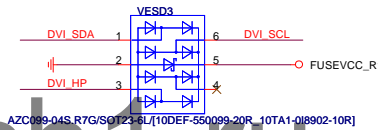
# DVI NON LEVEL SHIFT



Close to connector



Close to connector



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Gigabyte Technology

| Title  |                        |                |
|--------|------------------------|----------------|
| DVI    |                        |                |
| Size   | Document Number        | Rev            |
| Custom | GA-B85-D3V             | 2.0            |
| Date:  | Thursday, May 15, 2014 | Sheet 32 of 34 |

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|                     |                        |                |
|---------------------|------------------------|----------------|
| Gigabyte Technology |                        |                |
| Title               |                        |                |
| VL805 USB3.0        |                        |                |
| Size                | Document Number        | Rev            |
| Custom              | GA-B85-D3V             | 2.0            |
| Date:               | Thursday, May 15, 2014 | Sheet 33 of 34 |

