

# Model Name: GA-H110M-A

SHEET

TITLE

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| 02 | BOM & PCB MODIFY HISTORY   |
| 03 | BLOCK DIAGRAM              |
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| 05 | CPU_LGA1151-B-DDR4         |
| 06 | CPU_LGA1151-C              |
| 07 | CPU_LGA1151-D              |
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| 10 | PCH_CLK BUFFER             |
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| 23 | ISL95858_856 MOS_VCORE     |
| 24 | ISL95858_856 MOS_VCCGT     |
| 25 | VCCSA_VCCIO_VCCPLL         |
| 26 | RT8237_DDR_VDDQ            |
| 27 | RT8237_PCH_VCC1_0_PCH      |

rev 1.0

SHEET

TITLE

|    |                                 |
|----|---------------------------------|
| 28 | DISCRETE POWER                  |
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| 31 | RTD2168 - DP to VGA - IC(N/A)   |
| 32 | RTD2168 - DP to VGA - Conn(N/A) |
| 33 | R_USB30                         |
| 34 | REALTEK - RTL8111G              |
| 35 | USB20_LAN CONNECTOR-RTL8111G    |
| 36 | Realtek ALC887                  |
| 37 | REAR AUDIO JACK                 |
| 38 | F_USB30                         |
| 39 | F_USB20                         |
| 40 | COM , LPT TPM                   |
| 41 | F_PANEL                         |
| 42 | HDMI                            |
| 43 | EMI/ESD                         |
| 44 | POWER MAP                       |
| 45 | TABLE LIST                      |
| 46 | NTC MAP                         |
| 47 |                                 |
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Gigabyte Technology

|             |                          |               |
|-------------|--------------------------|---------------|
| Title       |                          |               |
| Cover Sheet |                          |               |
| Size        | Document Number          | Rev           |
| Custom      | GA-H110M-A               | 1.0           |
| Date:       | Tuesday, August 18, 2015 | Sheet 1 of 50 |

*rev1.0*

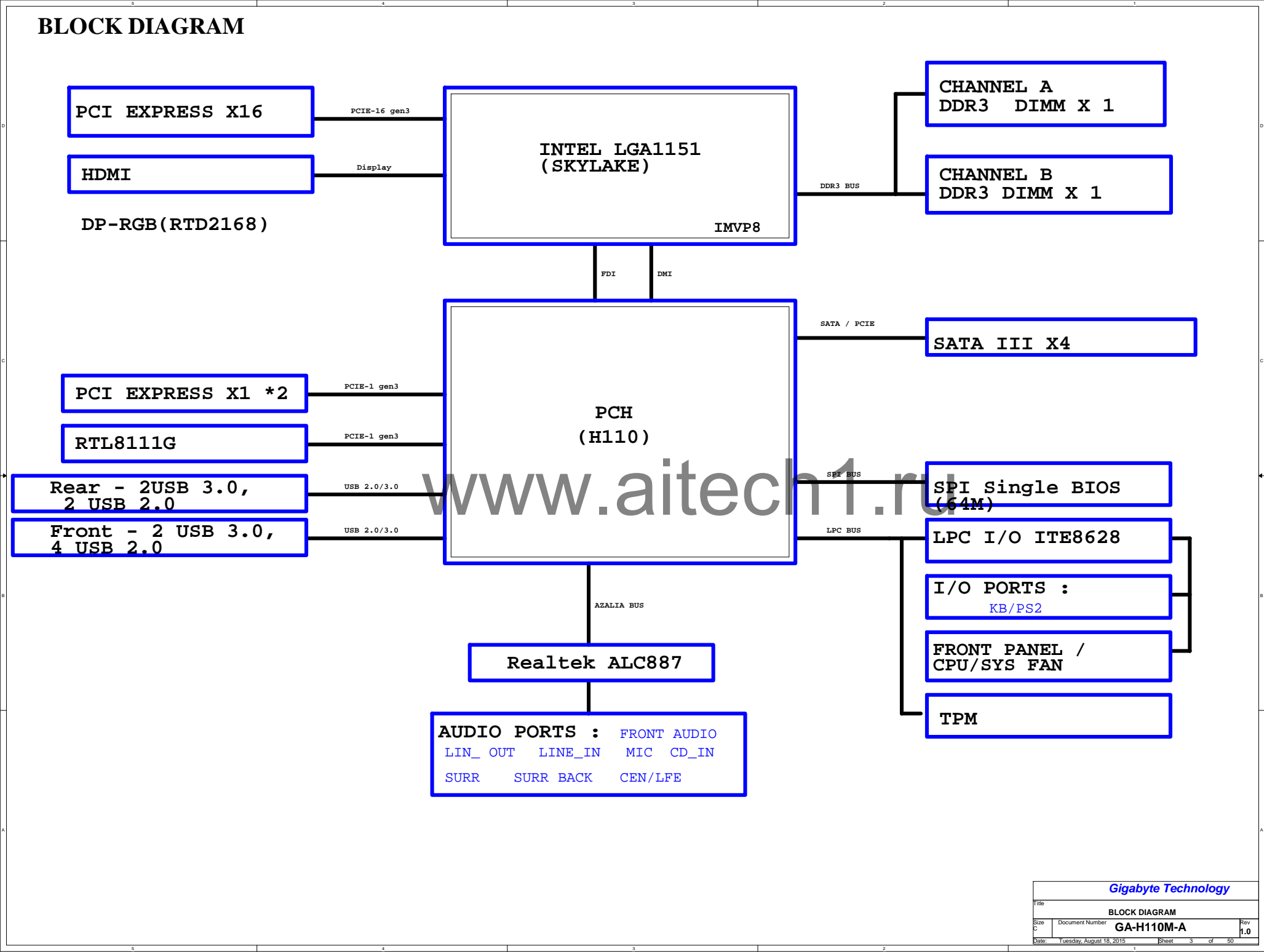
## Circuit or PCB layout change

## Component value change history

2015/03/02

[illegible][illegible]

BLOCK DIAGRAM



\* Rev0.2B

D

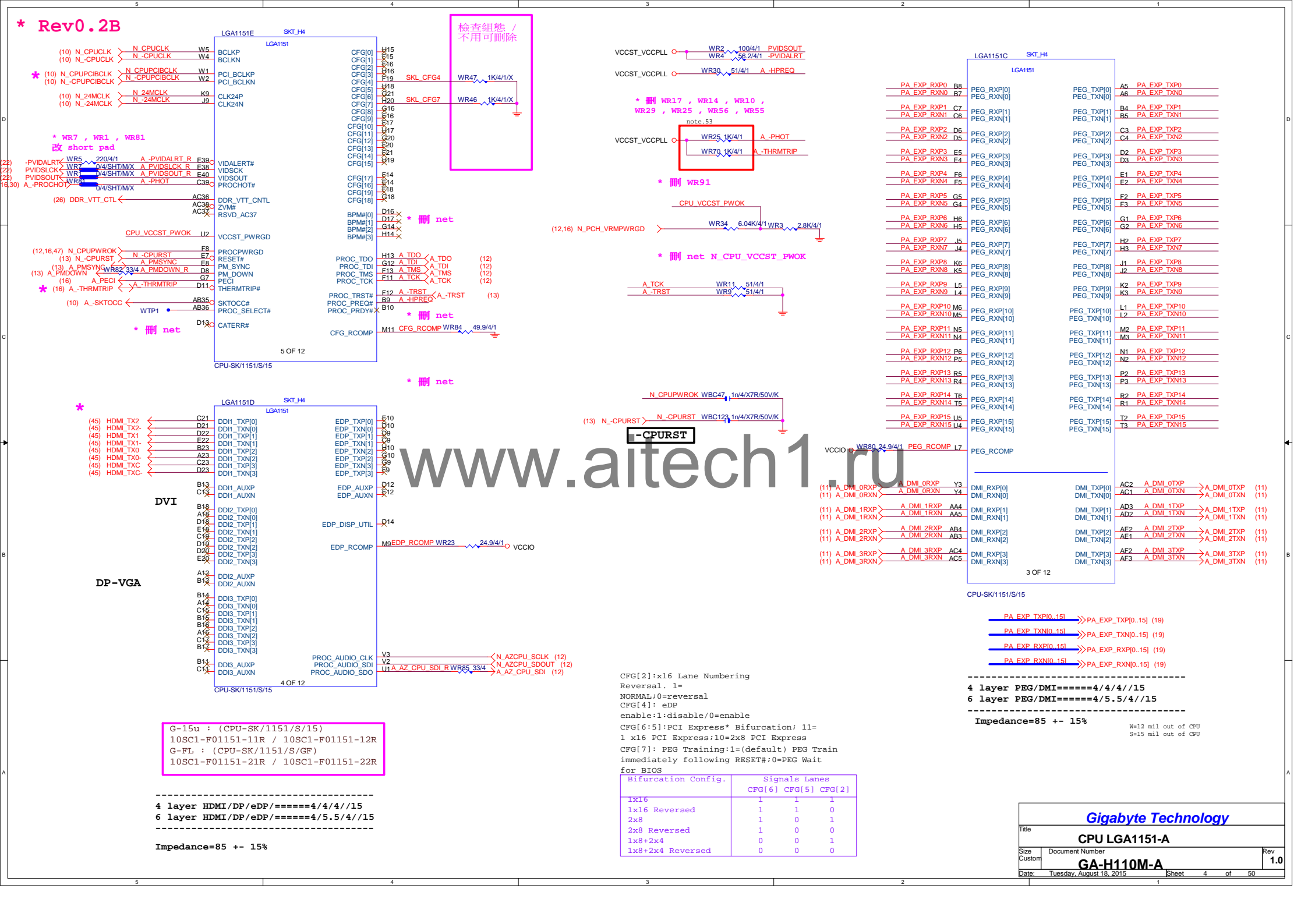
C

A

B

A

A



G-15u : (CPU-SK/1151/S/15)  
10SC1-F01151-11R / 10SC1-F01151-12R  
G-FL : (CPU-SK/1151/S/GF)  
10SC1-F01151-21R / 10SC1-F01151-22R

4 layer HDMI/DP/eDP/=====4/4/4//15  
6 layer HDMI/DP/eDP/=====4/5.5/4//15

Impedance=85 +- 15%

CFG[2]:x16 Lane Numbering  
Reversal. 1=  
NORMAL;0=reversal  
CFG[4]: eDP  
enable:1:disable/0=enable  
CFG[6:5]:PCI Express\* Bifurcation; 1l=  
1 x16 PCI Express;10=2x8 PCI Express  
CFG[7]: PEG Training;1=(default) PEG Train  
immediately following RESET#;0=PEG Wait  
for BIOS

| Bifurcation Config. | Signals | Lanes  |
|---------------------|---------|--------|
| CFG[6]              | CFG[5]  | CFG[2] |
| 1x16                | 1       | 1      |
| 1x16 Reversed       | 1       | 1      |
| 2x8                 | 1       | 0      |
| 2x8 Reversed        | 1       | 0      |
| 1x8+2x4             | 0       | 1      |
| 1x8+2x4 Reversed    | 0       | 0      |

PA EXP TXP[0..15] >>> PA\_EXP\_TXP[0..15] (19)  
PA EXP TXN[0..15] >>> PA\_EXP\_TXN[0..15] (19)  
PA EXP RXP[0..15] >>> PA\_EXP\_RXP[0..15] (19)  
PA EXP RXN[0..15] >>> PA\_EXP\_RXN[0..15] (19)

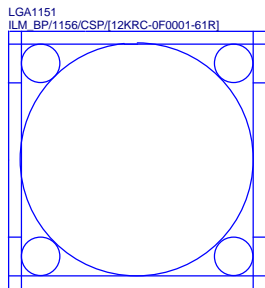
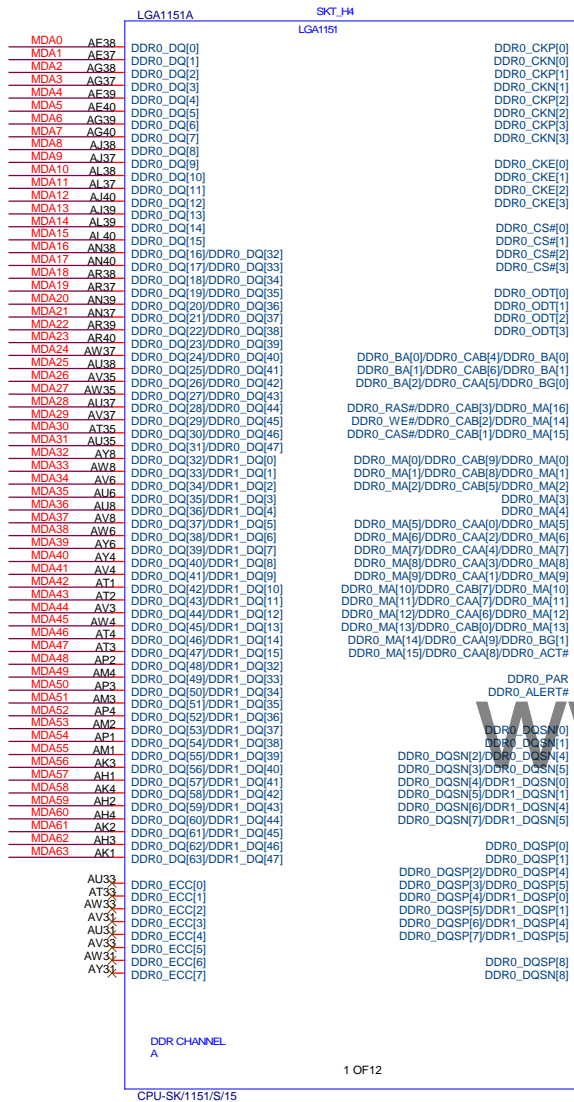
4 layer PEG/DMI=====4/4/4//15  
6 layer PEG/DMI=====4/5.5/4//15

Impedance=85 +- 15%

W=12 mil out of CPU  
S=15 mil out of CPU

|                     |                          |               |
|---------------------|--------------------------|---------------|
| Gigabyte Technology |                          |               |
| CPU LGA1151-A       |                          |               |
| Size                | Document Number          | Rev           |
| Custom              | GA-H110M-A               | 1.0           |
| Date:               | Tuesday, August 18, 2015 | Sheet 4 of 50 |

\* 改DDR4 net



Need check the new CPU ME

BLACK NI

(8) MODT\_A[0..1] ↔ MODT\_AIO\_11

(9) MODT\_B[0..1] ↔ MODT\_BIO\_11

(8) MDA[0..63] ↔ MDB[0..63]

(8) M\_DQSA[0..7] ↔ M\_DQSAIO\_7I

(8) M\_-DQSA[0..7] ↔ M\_-DQSAIO\_7I

(9) MAAA[0..16] ↔ MAAB[0..16]

(9) M\_DQSB[0..7] ↔ M\_-DQSB[0..7]

(9) M\_-DQSB[0..7] ↔ M\_DQSB[0..7]

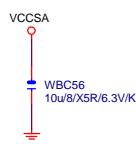
## Gigabyte Technology

|       |               |
|-------|---------------|
| Title | CPU LGA1151-B |
|-------|---------------|

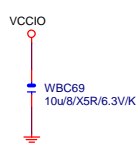
|                |                                      |                   |
|----------------|--------------------------------------|-------------------|
| Size<br>Custom | Document Number<br><b>GA-H110M-A</b> | Rev<br><b>1.0</b> |
| Date:          | Tuesday, August 18, 2015             | Sheet 5 of 50     |

\* 刪 WBC50 電容

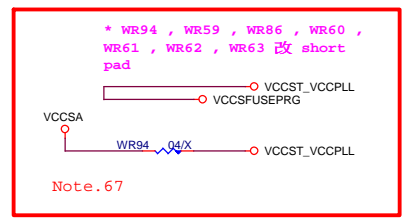
\* \_WBC51 , \_WBC52  
VDDQ 改 VCCSA



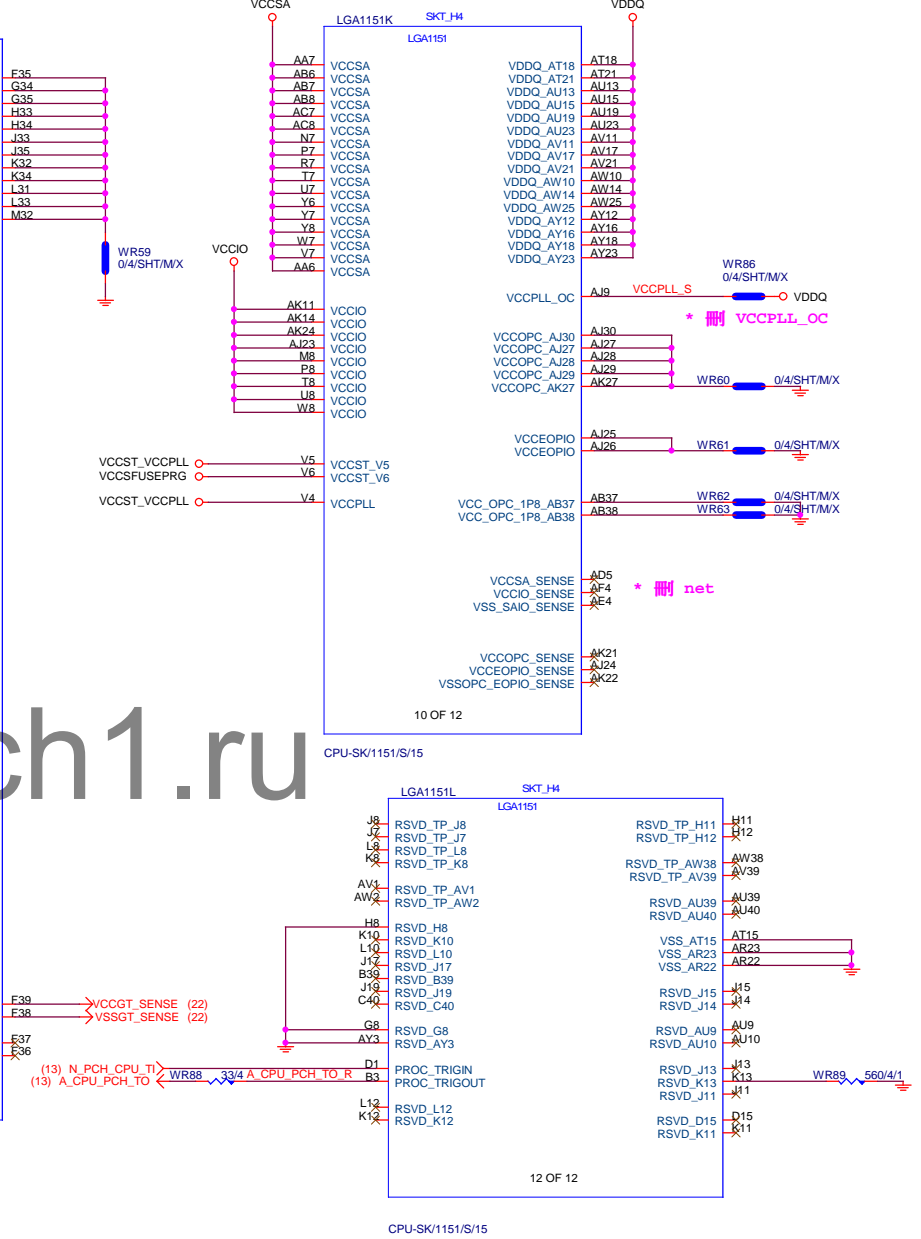
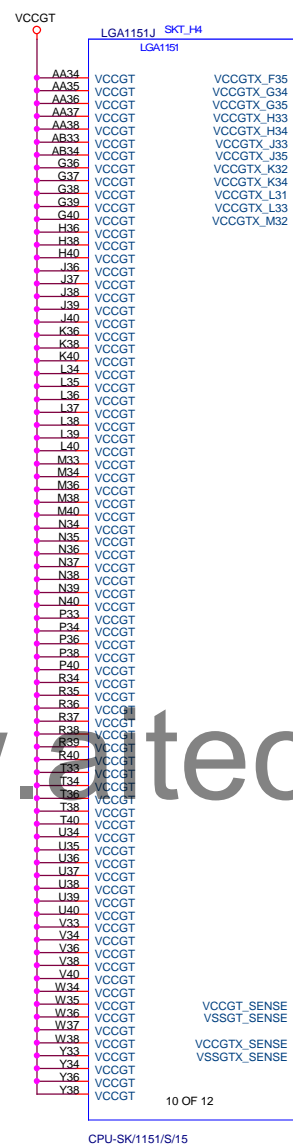
\* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

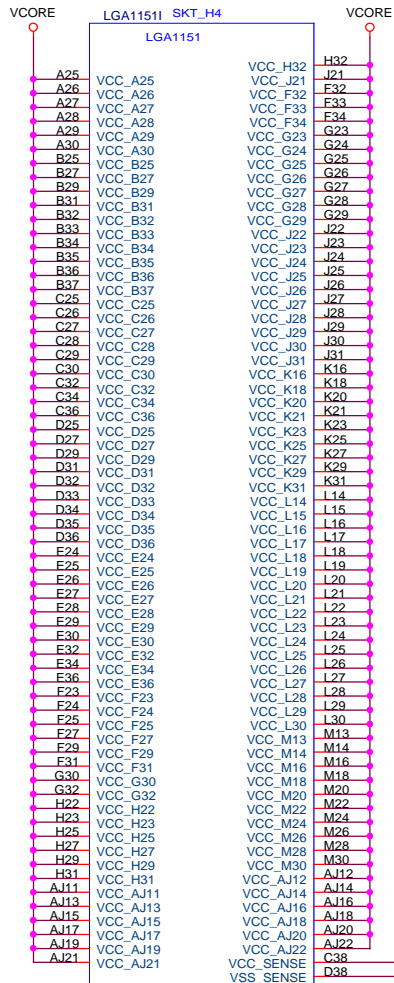


\* 刪 VCCGT 電容



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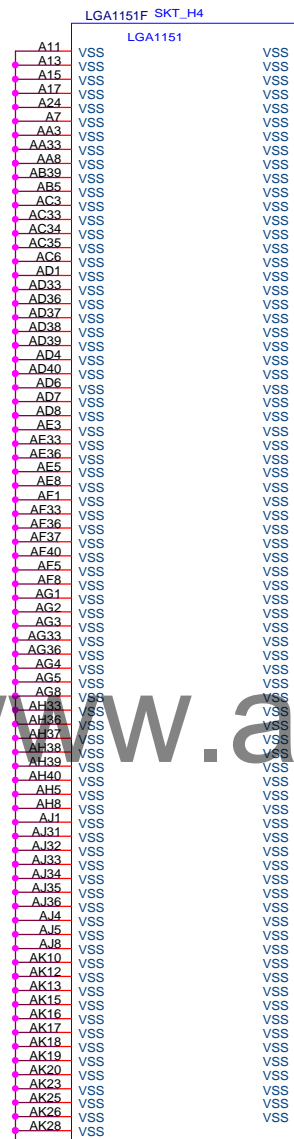




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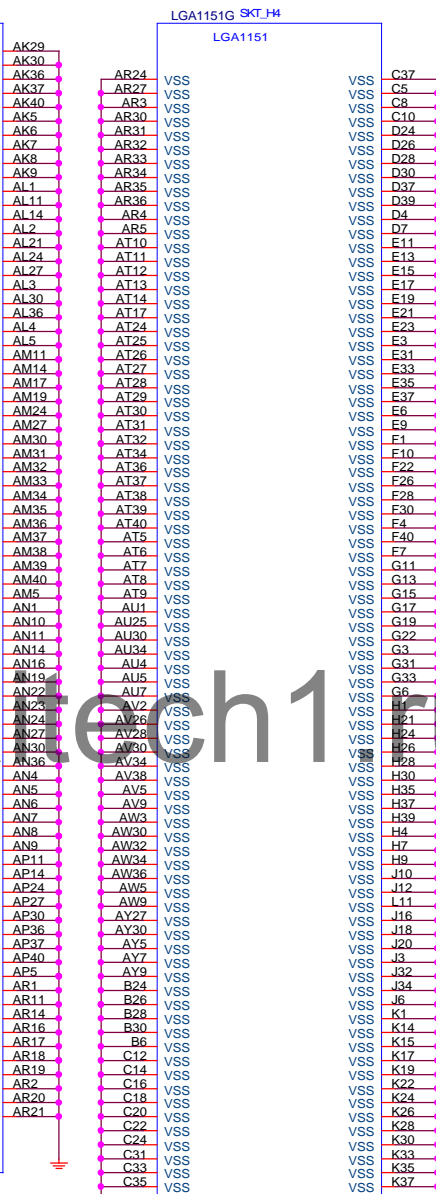
CPU-SK/1151/S/15

\* 刪 Vcore 電容



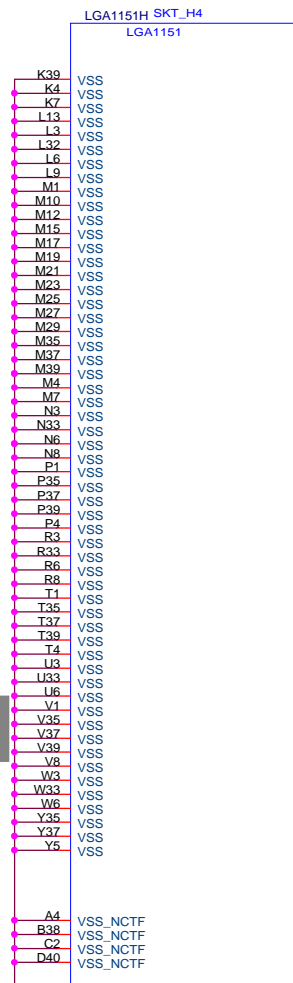
6 OF 12

CPU-SK/1151/S/15



7 OF 12

CPU-SK/1151/S/15



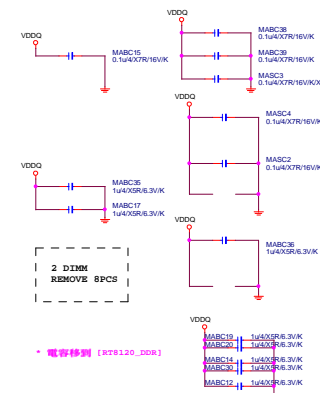
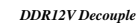
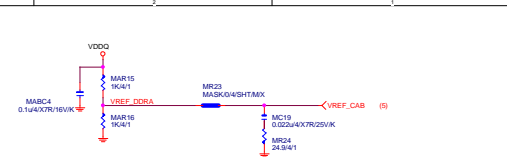
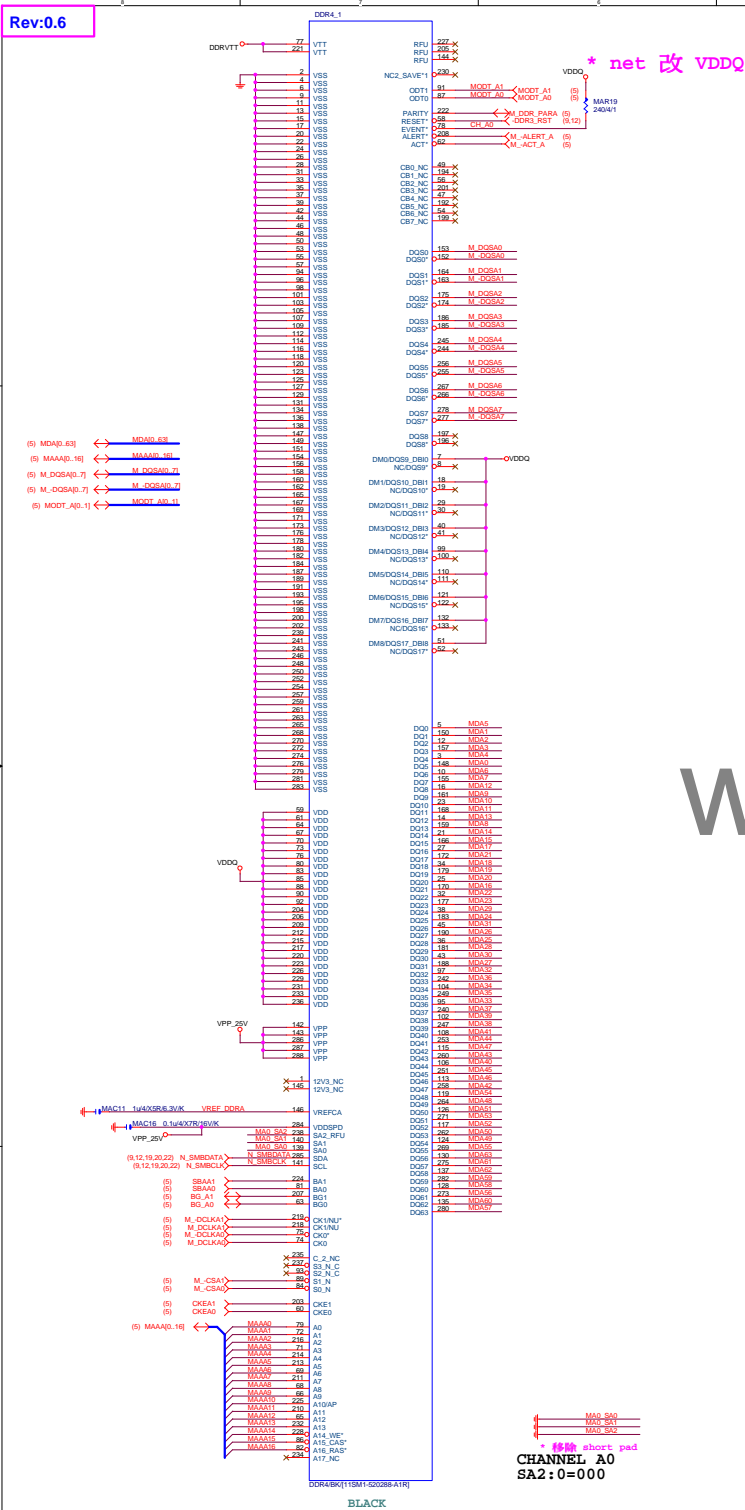
8 OF 12

CPU-SK/1151/S/15

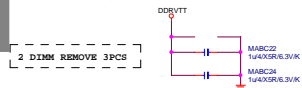
Gigabyte Technology

|        |                          |  |               |         |
|--------|--------------------------|--|---------------|---------|
| Title  |                          |  | CPU LGA1151-C |         |
| Size   | Document Number          |  | Rev           |         |
| Custom | GA-H110M-A               |  | 1.0           |         |
| Date:  | Tuesday, August 18, 2015 |  | Sheet         | 7 of 50 |





### DDRVTT Decouple



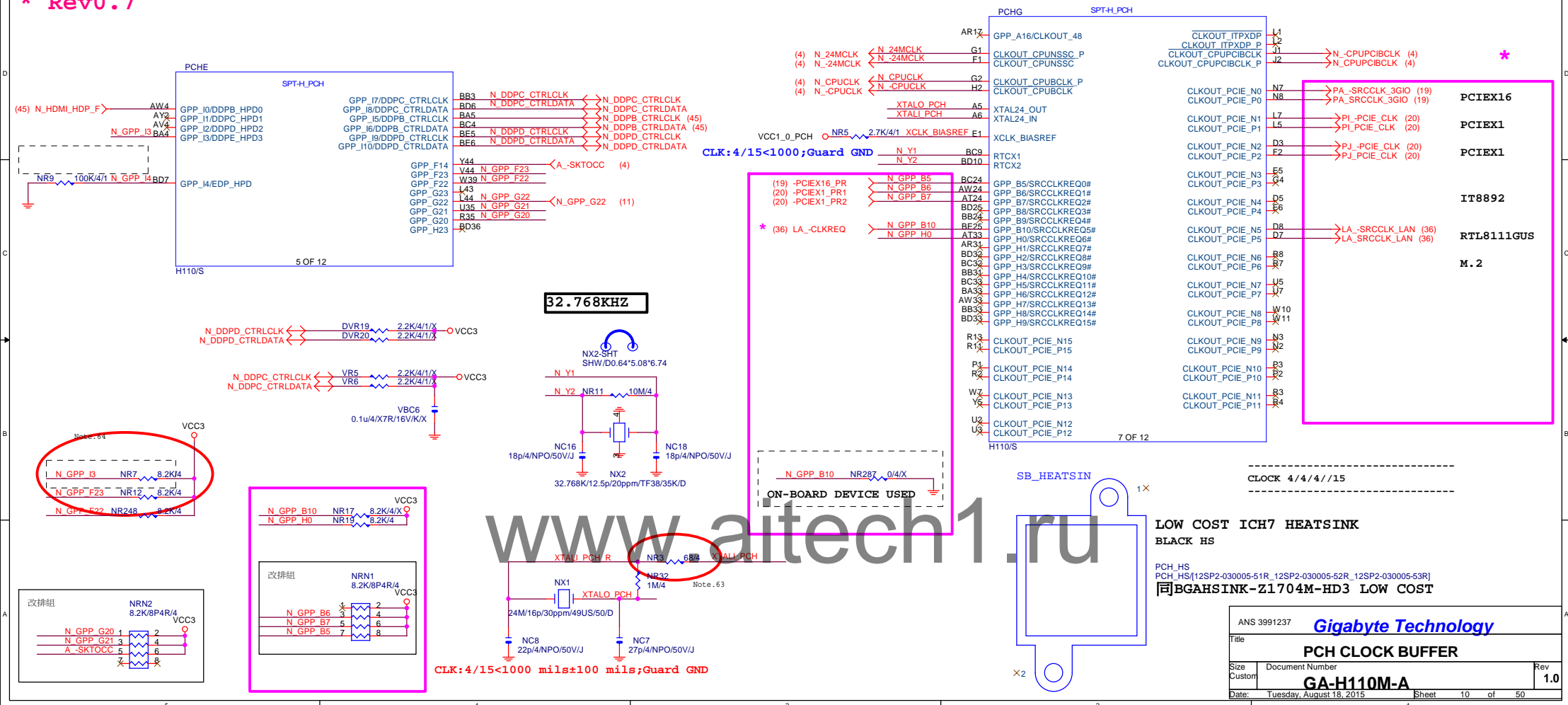
• 副電容

- 副電容

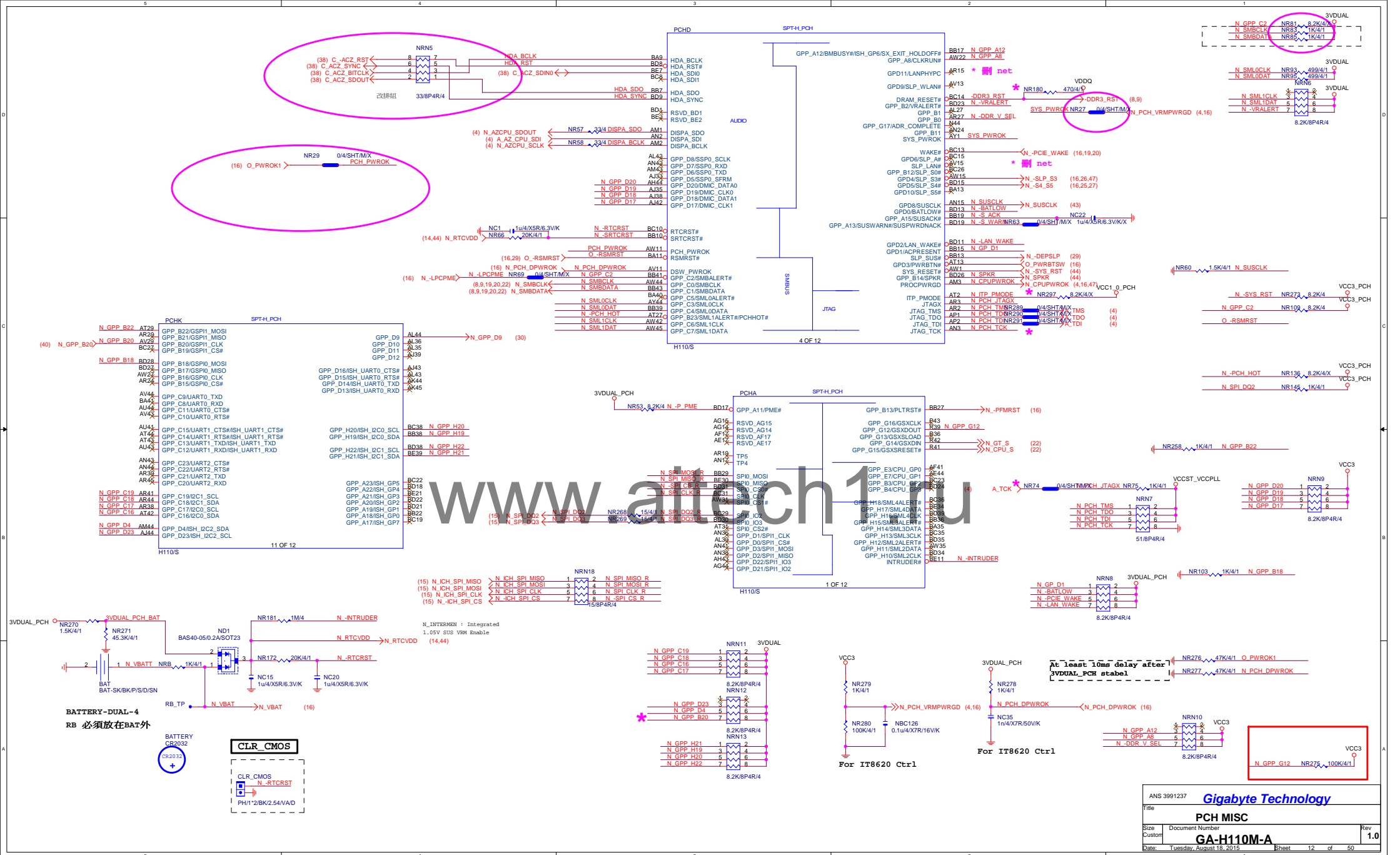




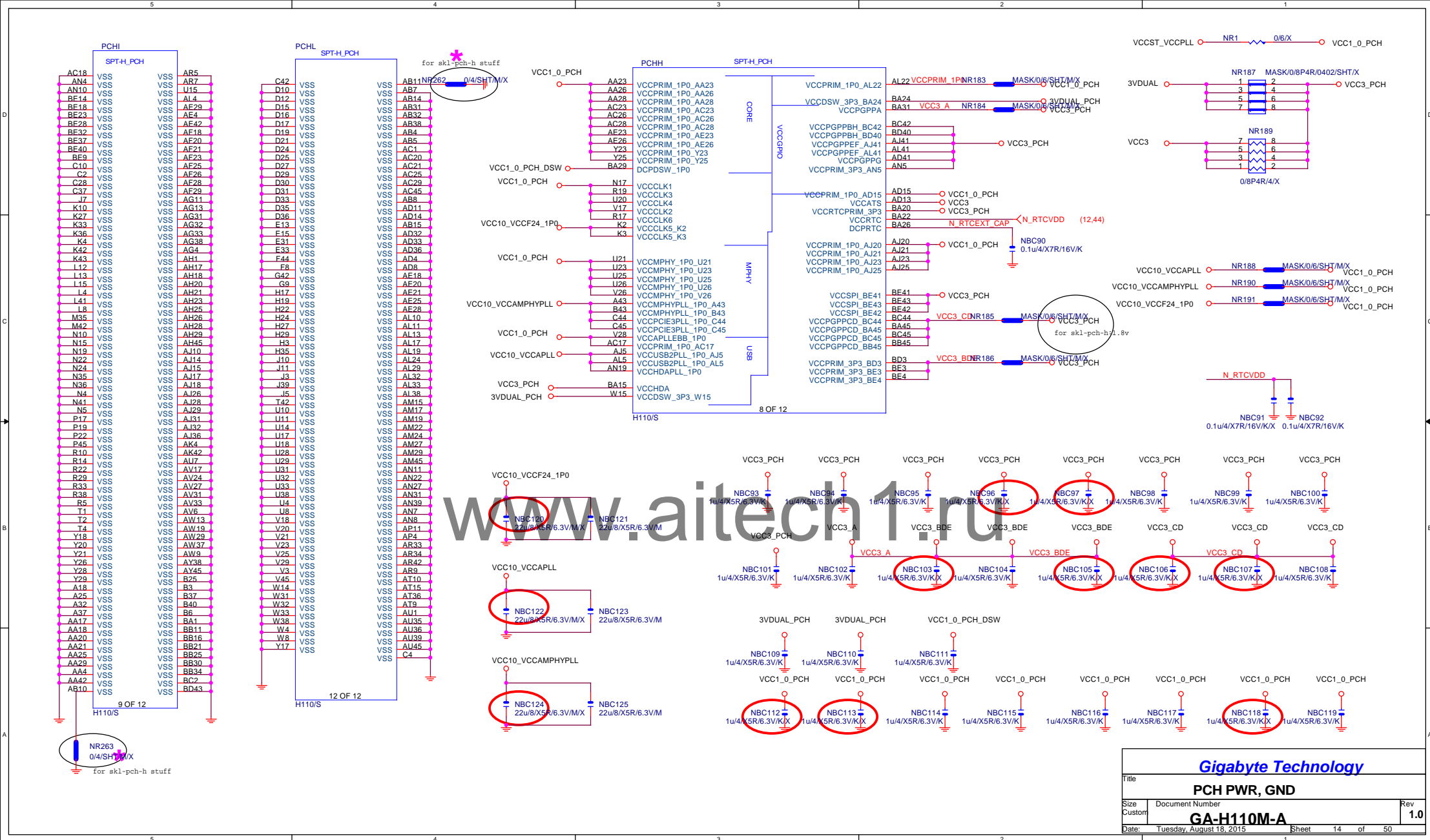
\* Rev0.7







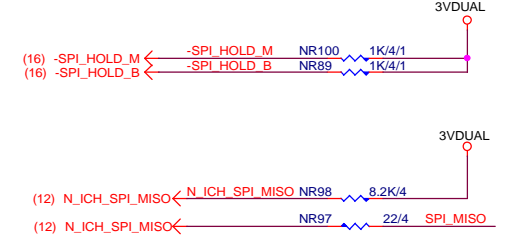
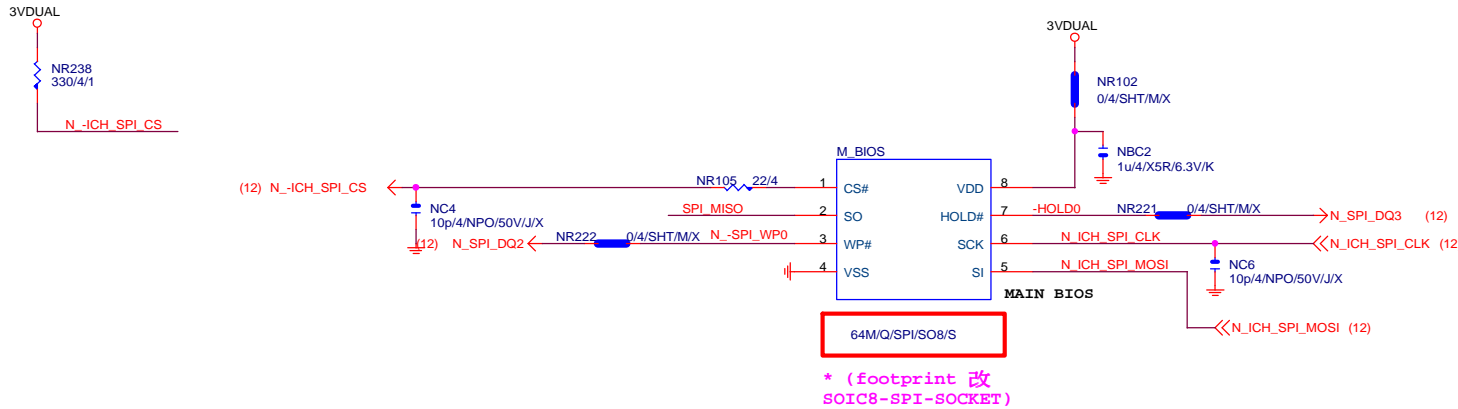




Rev 0.1

BIOS

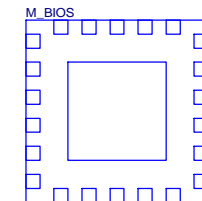
MOSI For DMI RX Termination Voltage



| BOOT<br>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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LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]X

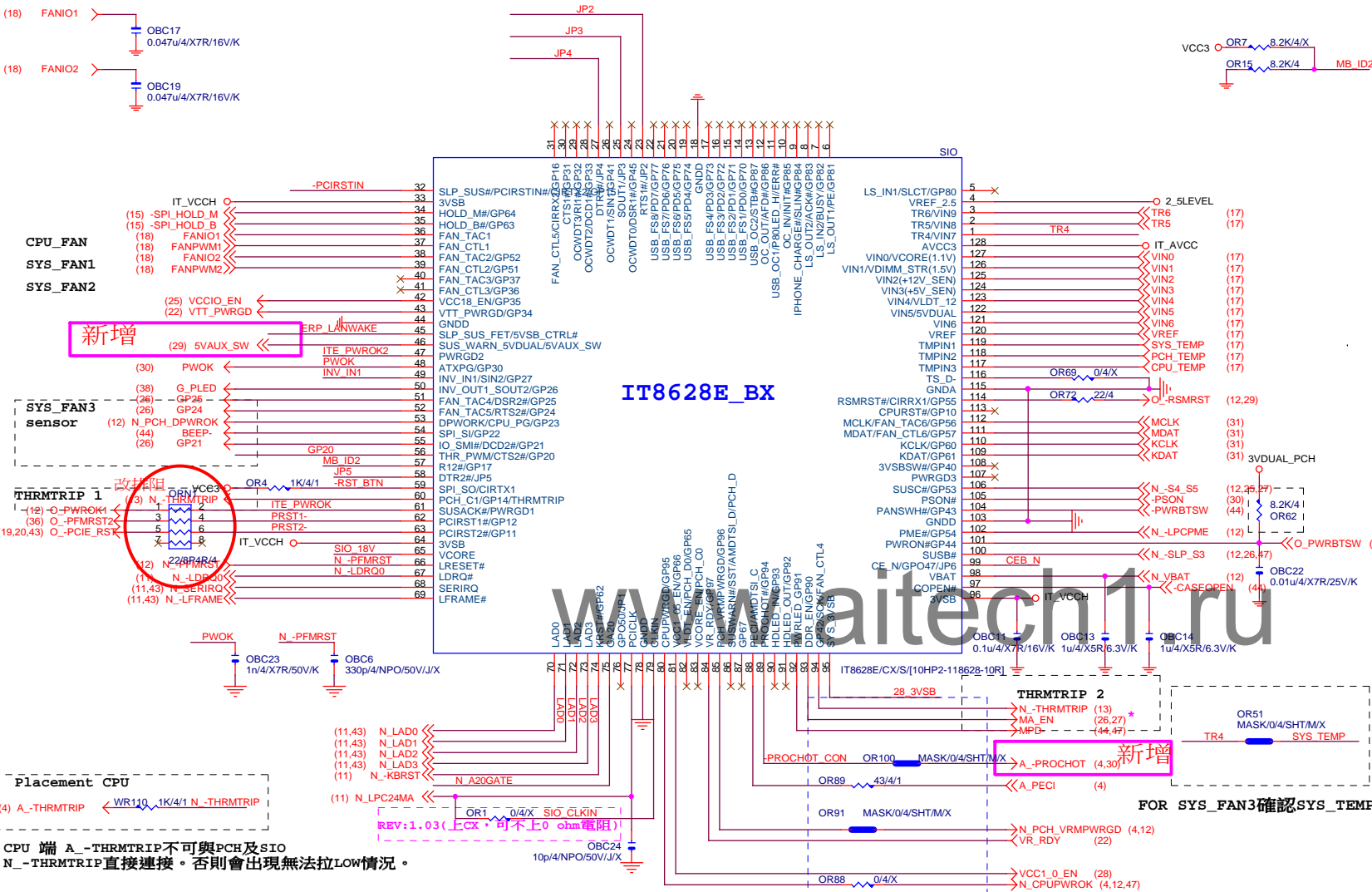
\* 試産先上, PVT 移除

BIOS\_PH

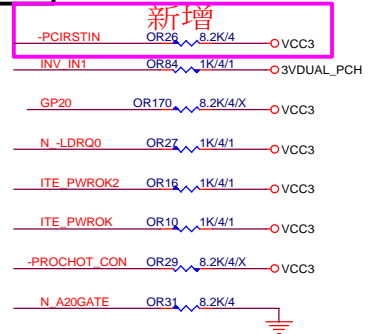
Gigabyte Technology

|        |                          |            |          |
|--------|--------------------------|------------|----------|
| Title  |                          | BIOS       |          |
| Size   | Document Number          | GA-H110M-A | Rev      |
| Custom |                          |            | 1.0      |
| Date:  | Tuesday, August 18, 2015 | Sheet      | 15 of 50 |

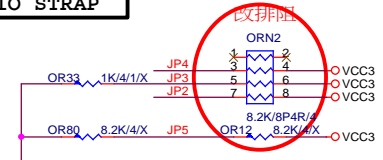




SIO PU



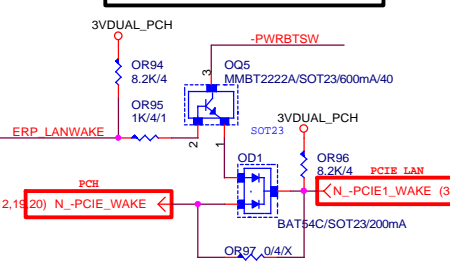
SIO STRAP



|     |     |   |
|-----|-----|---|
| JP2 | 1   | Disable WDT                                       |
| JP2 | 0   | Enable WDT to rest PWROK                          |
| JP3 | 0   | SPI-Flash Disable                                 |
| JP3 | 1   | SPI-Flash Enable                                  |
| JP4 | 1   | k8 power sequency function is Disable             |
| JP4 | 0   | k8 power sequency function is Enable              |
| JP5 | 1   | anti-surge Disable                                |
| JP5 | 0   | anti-surge Enable                                 |
| JP3 | 1 1 | The default value of EC Index 63h/6Bh/73h is 80h. |
| JP3 | 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. |
| JP5 | 0 0 | The default value of EC Index 63h/6Bh/73h is 40h. |

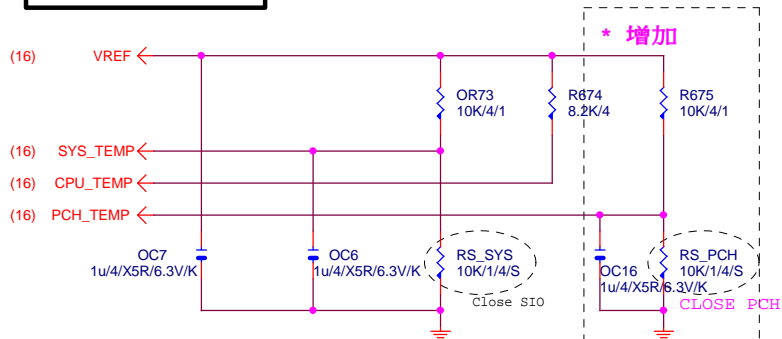
ERP WAKE on LAN (依LAN組態選擇)

(組態一) Realtek/ATHEROS LAN

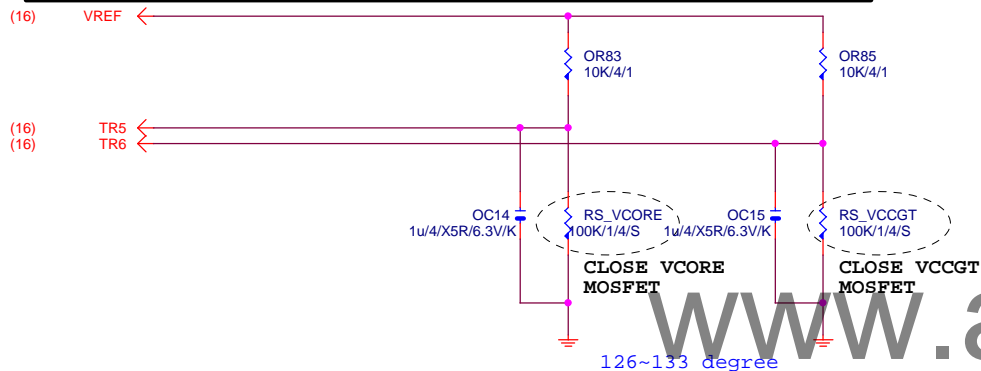


## TEMP H/W MONITOR

REV 1.08



## RS\_VCORE, RS\_VCCGT, CLOSE CPU\_VCORE &amp; VCCGT MOSFET

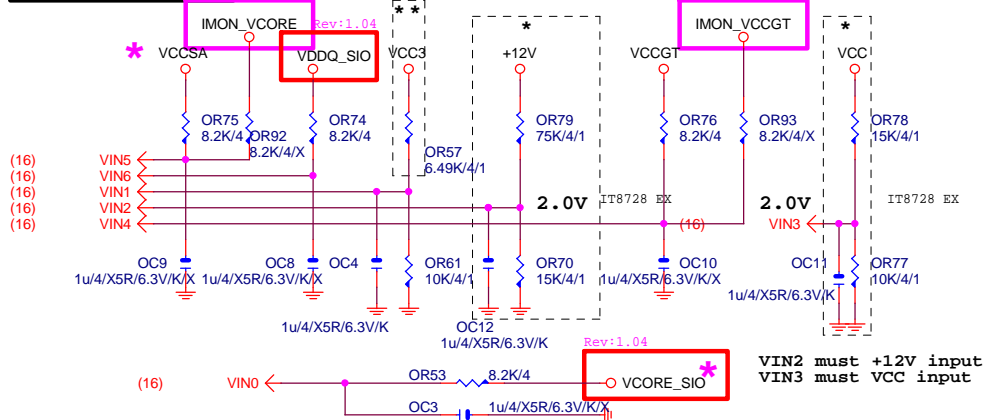
~~PROCHOT: 有mos heartsink不用prochot function~~

## VOLTAGE-- H/W MONITOR

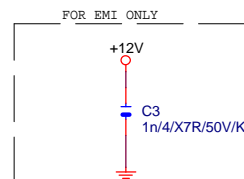
Connect to PWM

\* IT8728 BX  
\*\* IT8728 CX

Connect to PWM



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

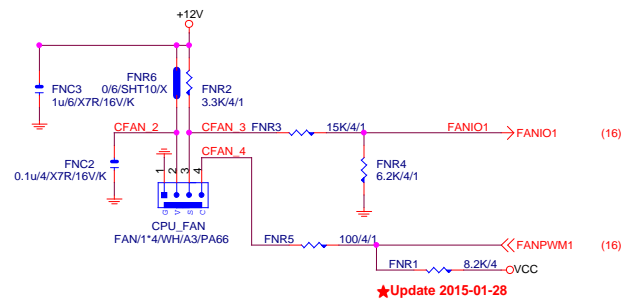


Gigabyte Technology

|        |                          |       |                     |    |     |
|--------|--------------------------|-------|---------------------|----|-----|
| Title  |                          |       | HWM,KB/MS, FAN CTRL |    |     |
| Size   | Document Number          |       |                     |    | Rev |
| Custom | GA-H110M-A               |       |                     |    | 1.0 |
| Date:  | Tuesday, August 18, 2015 | Sheet | 17                  | of | 50  |

# CPU SMART FAN

Rev: 0.7

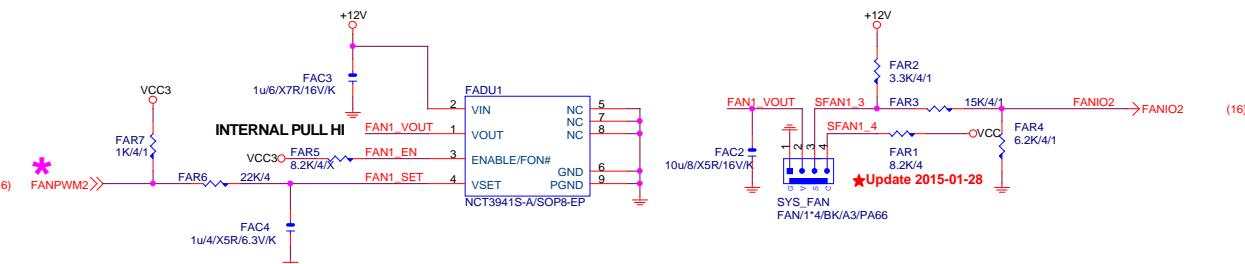


# SYSTEM FAN1

## Linear SYS\_FAN

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

A.

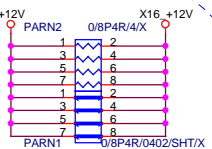


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Gigabyte Technology

|       |                          |                 |            |    |    |
|-------|--------------------------|-----------------|------------|----|----|
| Title |                          |                 | FAN CTRL   |    |    |
| Size  | Custom                   | Document Number | GA-H110M-A |    |    |
| Date: | Tuesday, August 18, 2015 | Sheet           | 18         | of | 50 |
|       |                          |                 | Rev 1.0    |    |    |

Rev 0.2

+12V\_protect  
short-wire test

PA\_EXP\_RXP0\_15] >> PA\_EXP\_RXP0[0..15] (4)  
 PA\_EXP\_RXN0\_15] >> PA\_EXP\_RXN0[0..15] (4)  
 PA\_EXP\_TXP0\_15] >> PA\_EXP\_TXP0[0..15] (4)  
 PA\_EXP\_TXN0\_15] >> PA\_EXP\_TXN0[0..15] (4)

|              |       |                   |                |
|--------------|-------|-------------------|----------------|
| 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 |

PCIE16:16/5/5/5/16

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

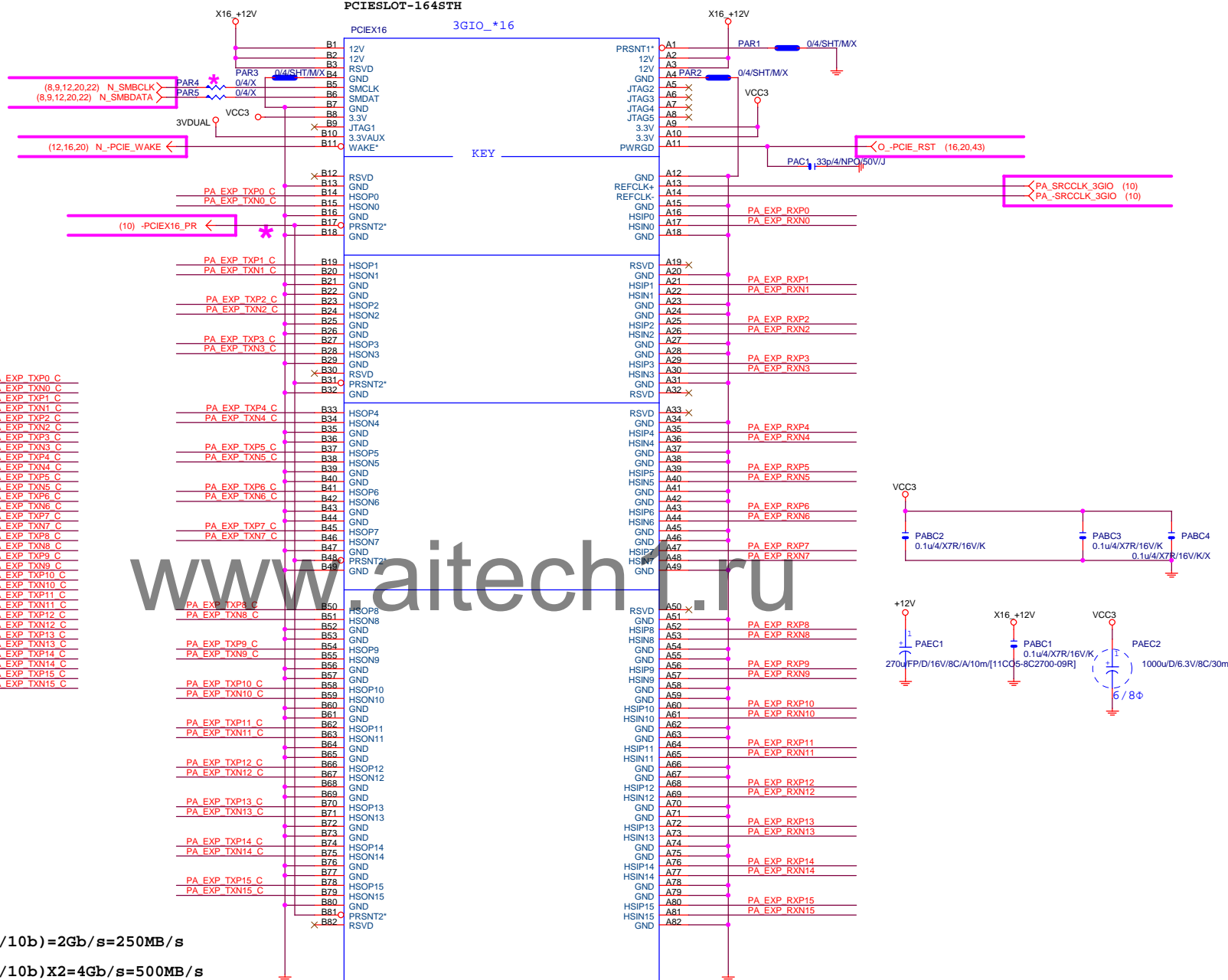
PCE-E X16(單向) BANDWIDTH=2.5GHz\*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--&gt; 5GHZ

PCIESLOT-1645TH

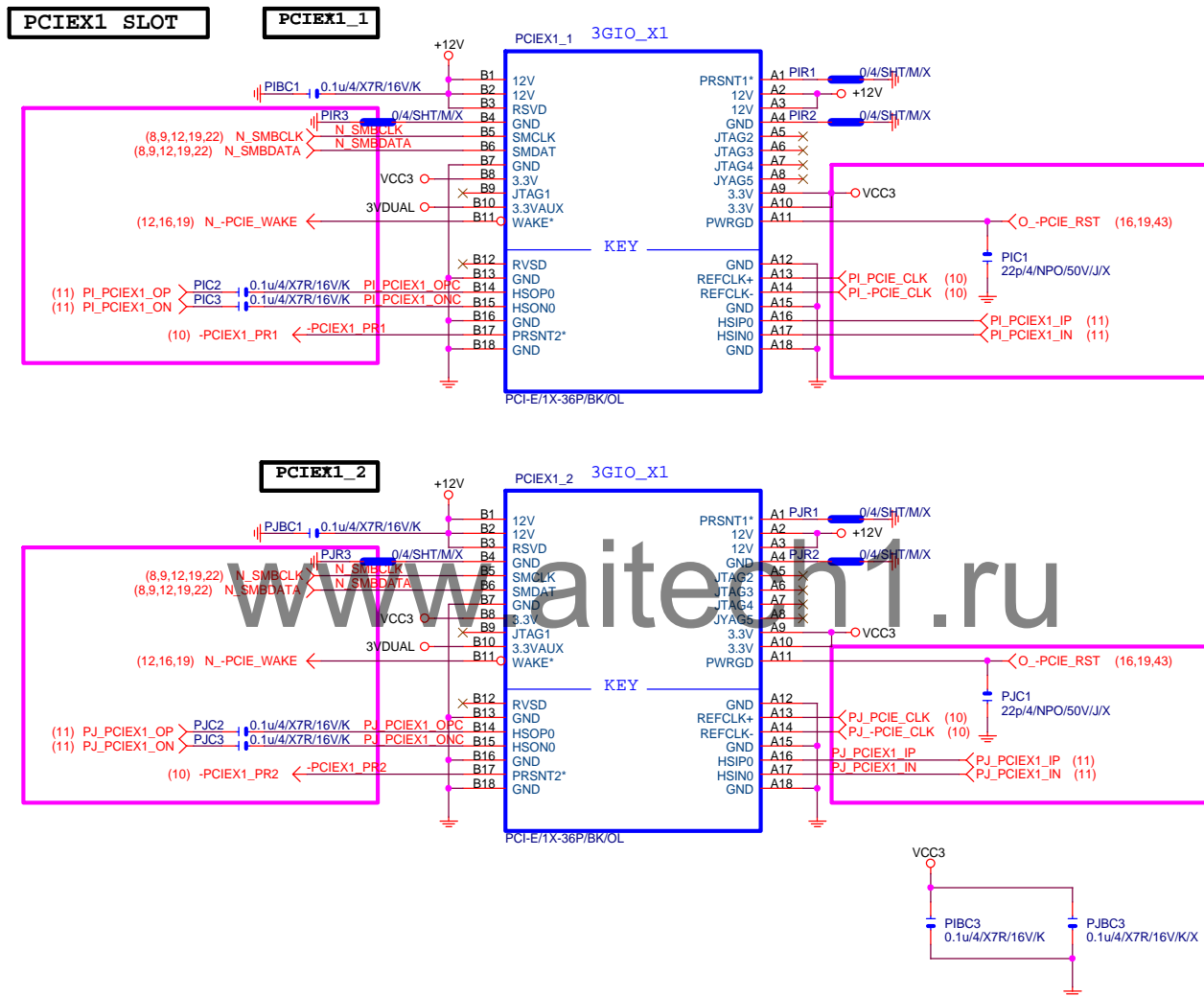
3GIO\_\*16



PCIE/16X-164P/GY/LONG DOUBLE/HK\*2

Gigabyte Technology

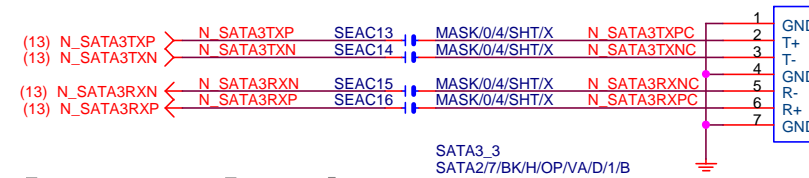
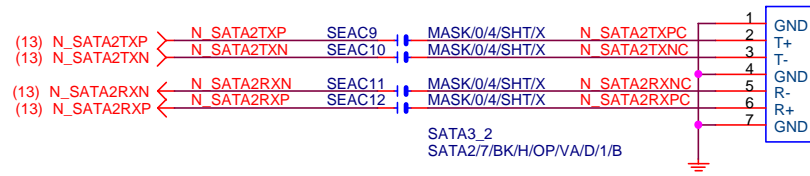
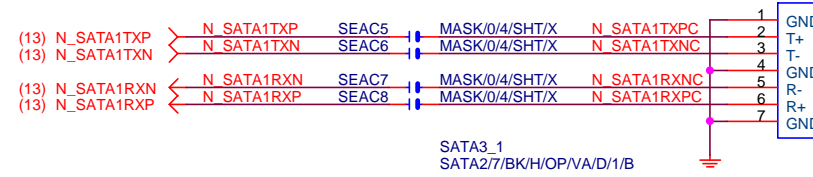
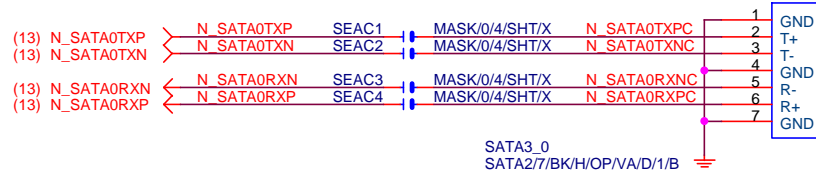
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|--------|--|--|--------------------------|--|
| Title  |  |  | PCI EXPRESS * 16         |  |
| Size   |  |  | Document Number          |  |
| Custom |  |  | GA-H110M-A               |  |
| Date:  |  |  | Tuesday, August 18, 2015 |  |
|        |  |  | Sheet 19 of 50           |  |
|        |  |  | Rev 1.0                  |  |



Gigabyte Technology

|       |                          |                 |            |            |
|-------|--------------------------|-----------------|------------|------------|
| Title |                          | PCIE_X1 1,2     |            | Rev<br>1.0 |
| Size  | Custom                   | Document Number | GA-H110M-A |            |
| Date: | Tuesday, August 18, 2015 | Sheet           | 20 of 50   |            |

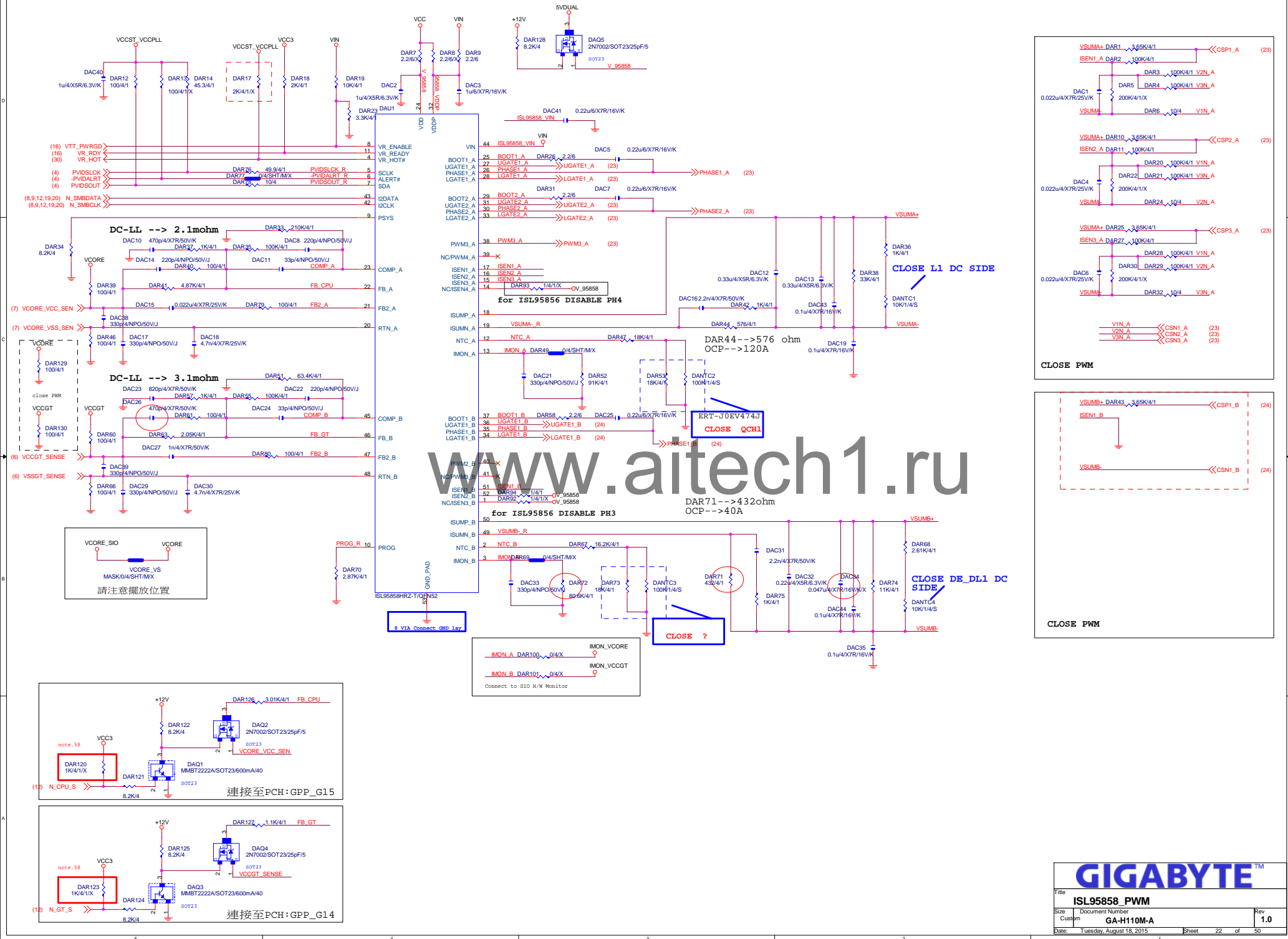
Rev 0.6



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Gigabyte Technology

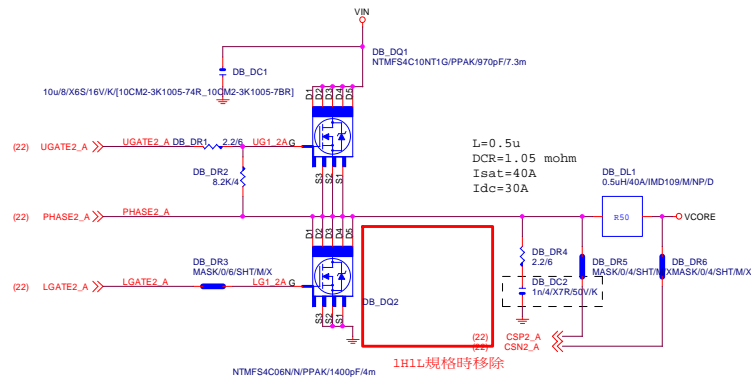
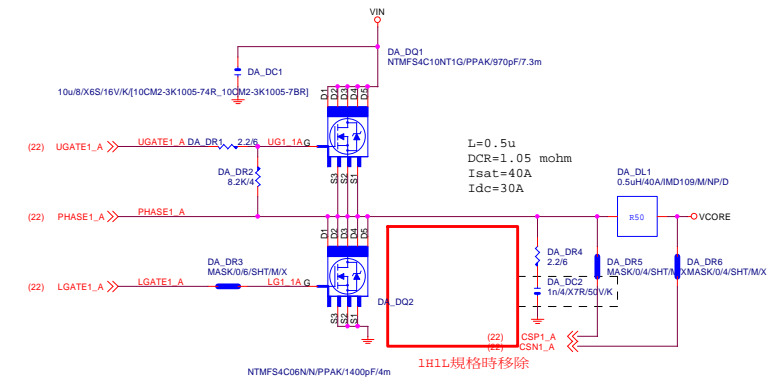
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| Title        |                          |                |
| SATA EXPRESS |                          |                |
| Size         | Document Number          | Rev            |
| Custom       | GA-H110M-A               | 1.0            |
| Date:        | Tuesday, August 18, 2015 | Sheet 21 of 50 |



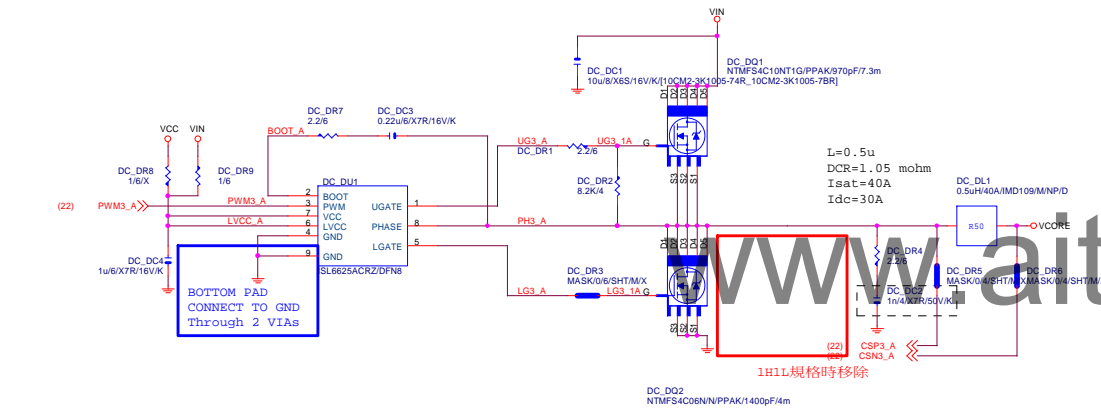
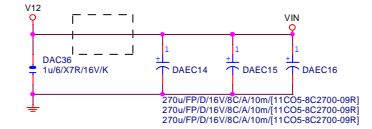


REV:0.14

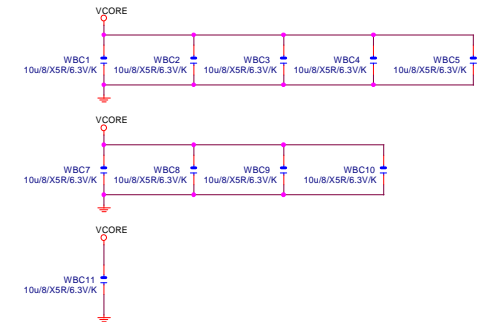
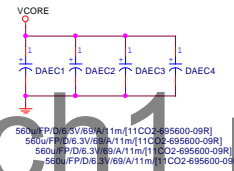
# VCORE



VIN CAP 270u\*3PCS



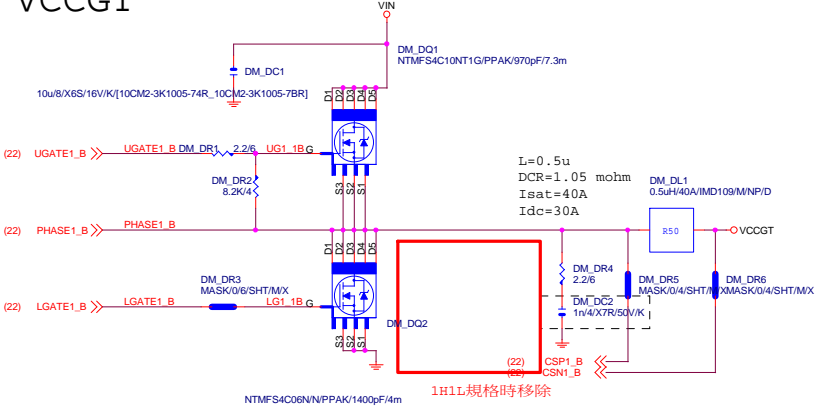
VCORE CAP 560u\*4PCS  
22u\*10PCS



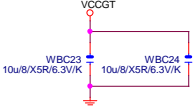
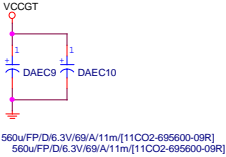
GIGABYTE™

|        |                          |       |              |
|--------|--------------------------|-------|--------------|
| Title  |                          |       | ISL95858_MOS |
| Size   | Document Number          | Rev   | 1.0          |
| Custom | GA-H110M-A               |       |              |
| Date:  | Tuesday, August 18, 2015 | Sheet | 23 of 50     |

VCCGT



VCCGT CAP 560u\*2PCS  
22u\*2PCS



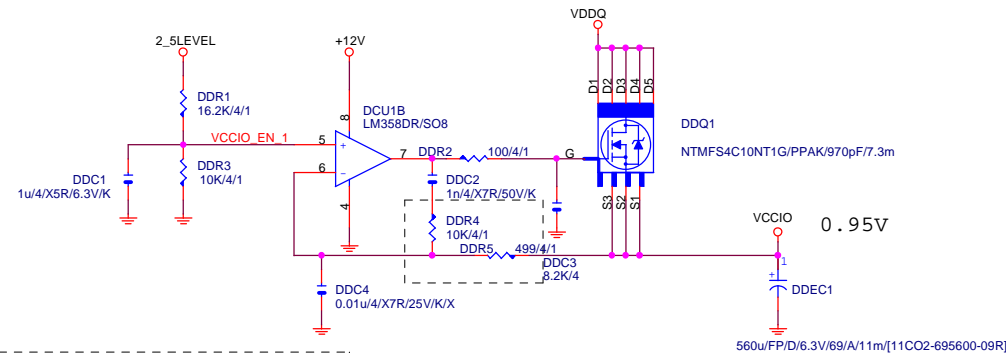
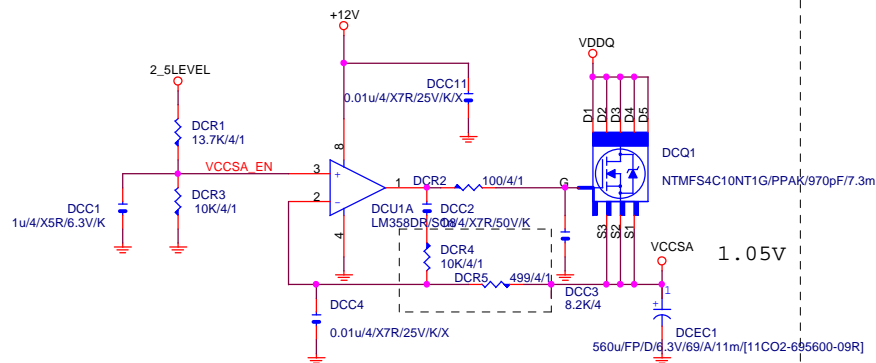
www.aitech1.ru

GIGABYTE™

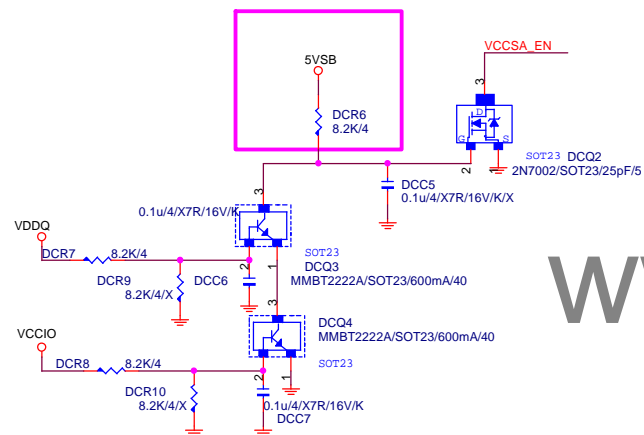
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| Size   |  |  | Document Number          |         |
| Custom |  |  | GA-H110M-A               |         |
| Date:  |  |  | Tuesday, August 18, 2015 | Rev 1.0 |
|        |  |  | Sheet 24 of 50           |         |

VCCSA REV:0.4

VCCIO

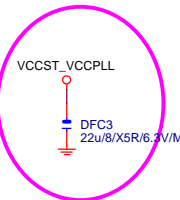
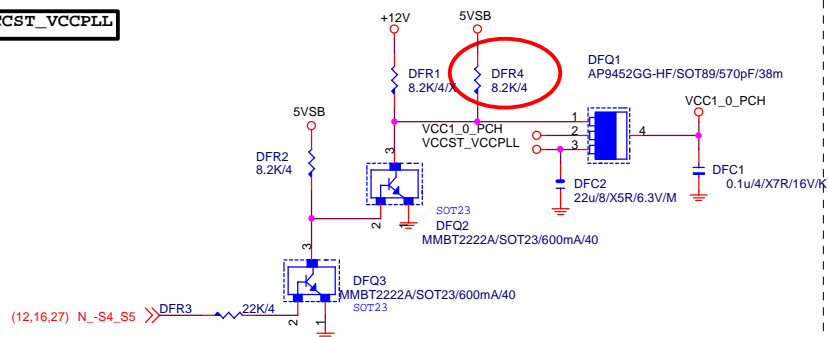


VCCIO\_EN 1 DDR10 0/4/SHT/M/X VCCIO\_EN (16)  
Connect to IT8620



www.aitech1.ru

VCCST\_VCCPLL



| GIGABYTE™                      |                            |       |         |
|--------------------------------|----------------------------|-------|---------|
| Title VCCSA_VCCIO              |                            |       |         |
| Size Custom                    | Document Number GA-H110M-A |       | Rev 1.0 |
| Date: Tuesday, August 18, 2015 | Sheet 25                   | of 50 |         |

**DDR4**

上件

(27) VPP25V\_GD >> MA

(16,27) MA\_EN >>—

MA DR38.MA DC15

VPP\_25V使用8120.8068A.RT8237時上件

|     |     |
|-----|-----|
| PWR | SEQ |
|-----|-----|

CLOSE TO DDR POWER PLANE

DDR\_EN

For power sequence require

VPP\_25V使用8120時上件

|     |     |           |          |
|-----|-----|-----------|----------|
| DDR | CAP | 560u*4PCS | 22u*2PCS |
|-----|-----|-----------|----------|

\* 大電容 x4

560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

DDR VIN CAP  
560u\*1PCS

### CHOKES與CAP料號可變

SUPPORT DDR4 1.2V

25A MAX

L=1u  
DCR=2.5 mohm  
Isat=35A  
Idc=28A

Remote sense請從最重的負載端點拉回

DDRVTT

MAU1上RT9045時上件(不可MASK)

MA\_VTT\_REI

DDRVTT CAP

\* 大電容 x0

# GIGABYTE™

Title  
RT8237 DDR4 POWER

|        |                   |
|--------|-------------------|
| Size   | Document Number   |
| Custom | <b>GA-H110M-A</b> |

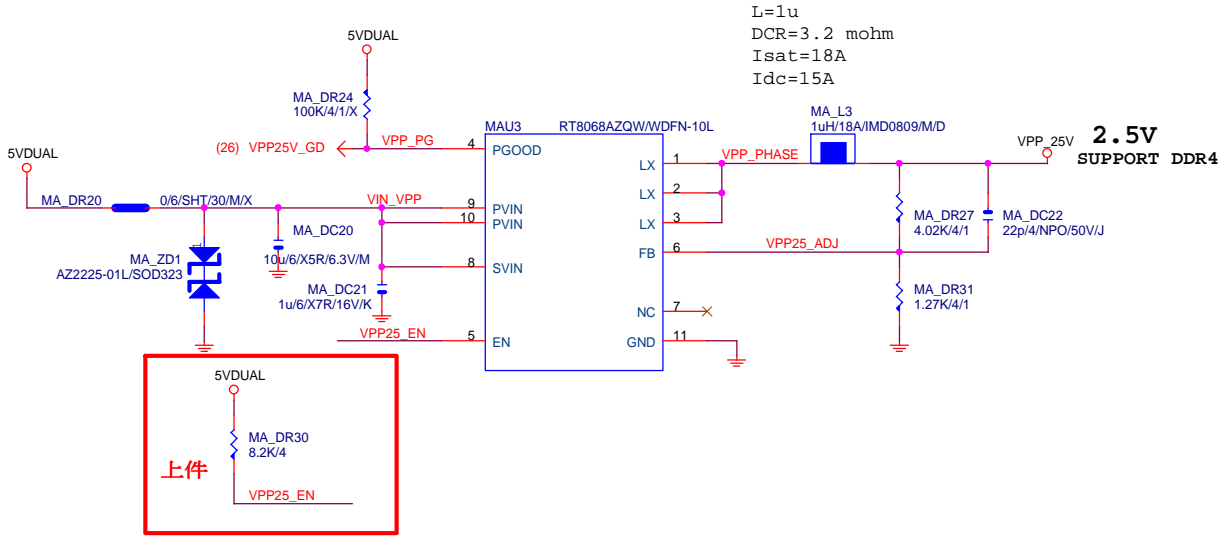
Date: Tuesday, August 18, 2015 Sheet 26 of 50

Date: Tuesday, August 18, 2015 Sheet 26 of 50

REV:0.4

VPP\_25V

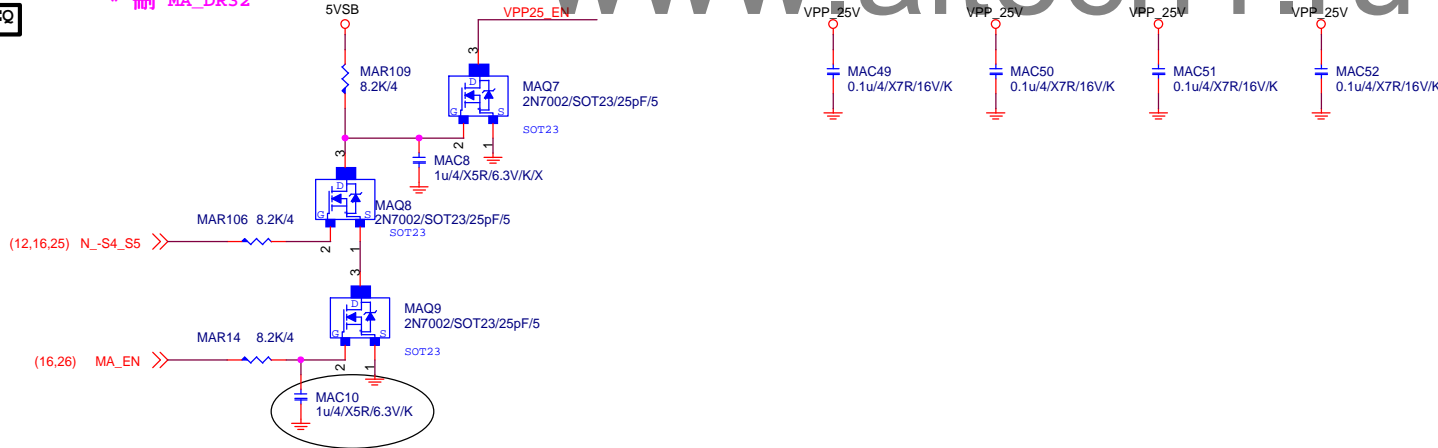
CHOKE與CAP料號可變



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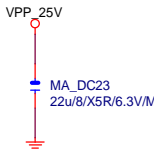
PWR\_SEQ

\* 刪 MA\_DR32



VPP CAP 22u\*1PCS

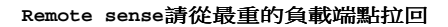
\* 大電容 x0



GIGABYTE™

|                    |                          |                |
|--------------------|--------------------------|----------------|
| Title              |                          |                |
| RT9018_VPP25 POWER |                          |                |
| Size               | Document Number          | Rev            |
| Custom             | GA-H110M-A               | 1.0            |
| Date:              | Tuesday, August 18, 2015 | Sheet 27 of 50 |

1  
+  
NPEC1  
100u/OS/D/16V/69/A/35m/[110

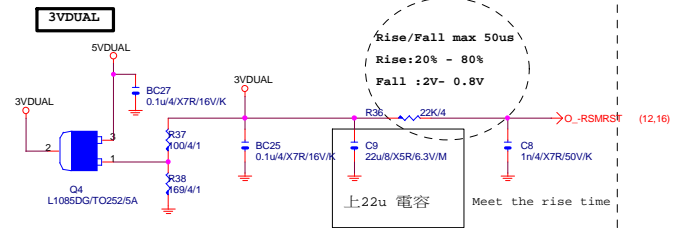
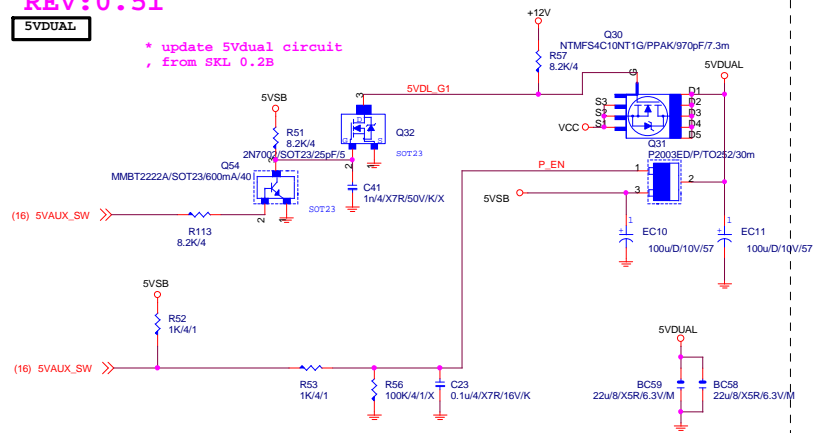


PWR SEQ

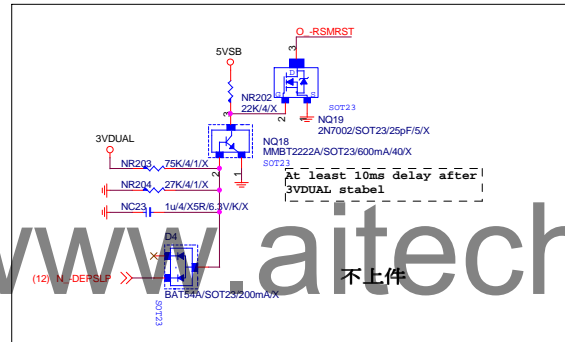
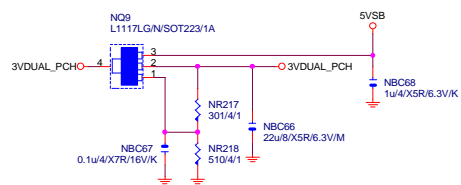


|                         |                          |            |          |
|-------------------------|--------------------------|------------|----------|
| Title                   |                          |            |          |
| <b>RT8237_PCH POWER</b> |                          |            |          |
| Size                    | Document Number          | Rev        |          |
| Custom                  | <b>GA-H110M-A</b>        | <b>1.0</b> |          |
| Date:                   | Tuesday, August 18, 2015 | Sheet      | 28 of 50 |

```
* update 5Vdual circuit
, from SKL 0.2B
```



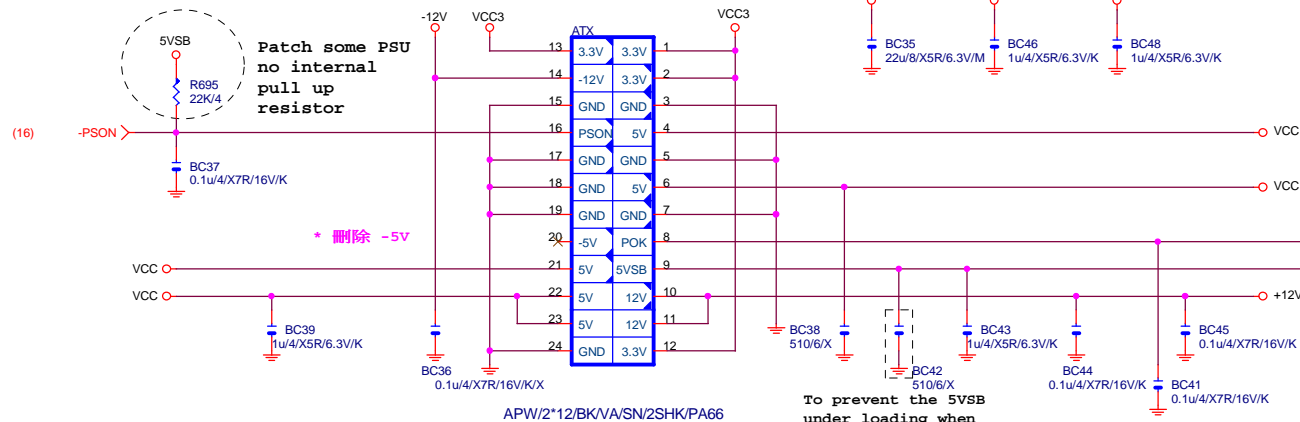
## 3VDUAL\_PCH



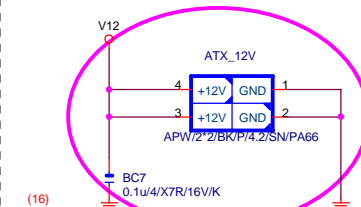
www.aitech1.ru



## ATXX24 POWER CONNECTOR

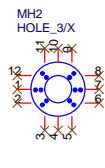
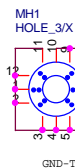


## ATXX4 POWER CONNECTOR

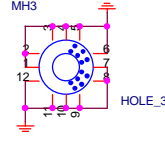


## 螺絲孔

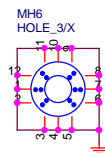
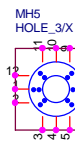
MH1:GND-T  
FOR EMI  
TEST驗證



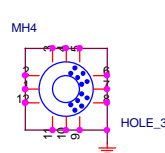
14/12/24  
Modify for EMI  
MH3



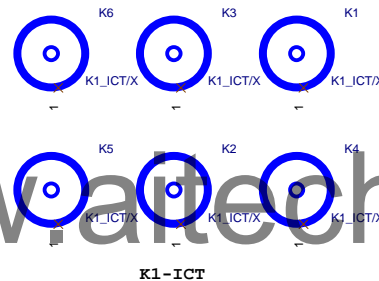
HOLE\_4-RH-1



HOLE\_4-RH-5MM-1



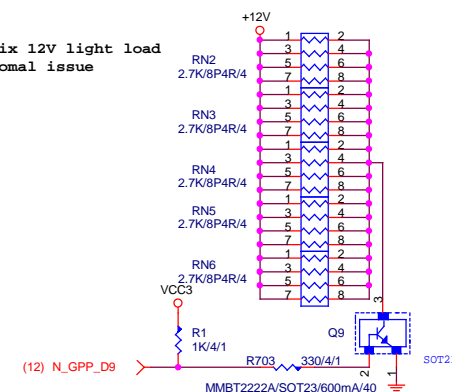
## 固定孔/光學點



To prevent the 5VSB under loading when boot

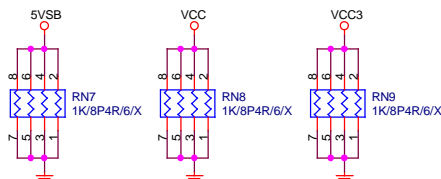
## +12V DUMMY LOAD

To fix 12V light load abnormal issue



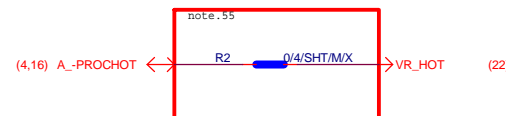
【技術通報R&D技術通報153】

## DUMMY LOAD

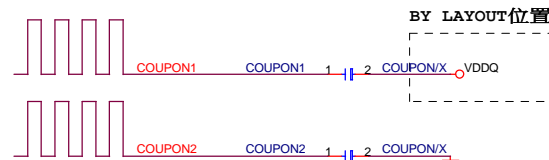


## -PROHOT

\* 保留 ?



## COUPON



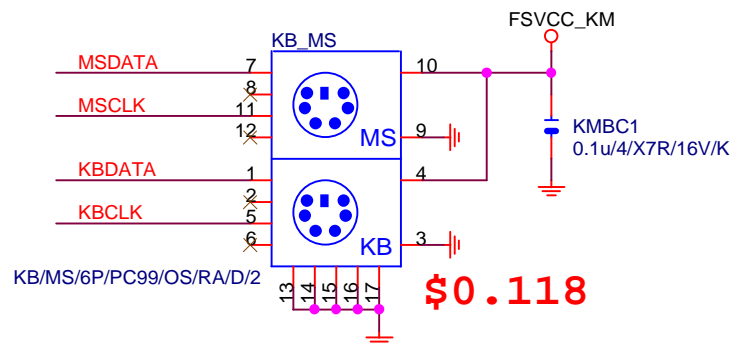
BY LAYOUT位置

## Gigabyte Technology

|                     |                          |                |
|---------------------|--------------------------|----------------|
| Title               |                          |                |
| ATX POWER CONNECTOR |                          |                |
| Size                | Document Number          | Rev            |
| Custom              | GA-H110M-A               | 1.0            |
| Date:               | Tuesday, August 18, 2015 | Sheet 30 of 50 |

KB\_MS\_USB

Rev: 0.7

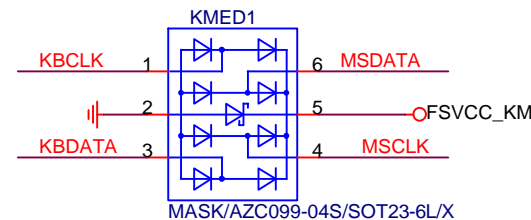
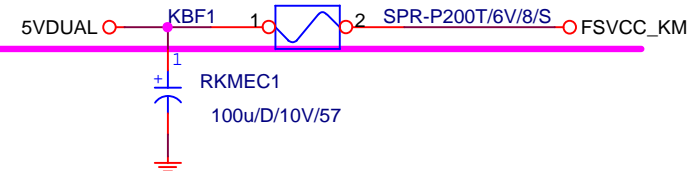


ESD

NET 可變, 與其他USB SHARE

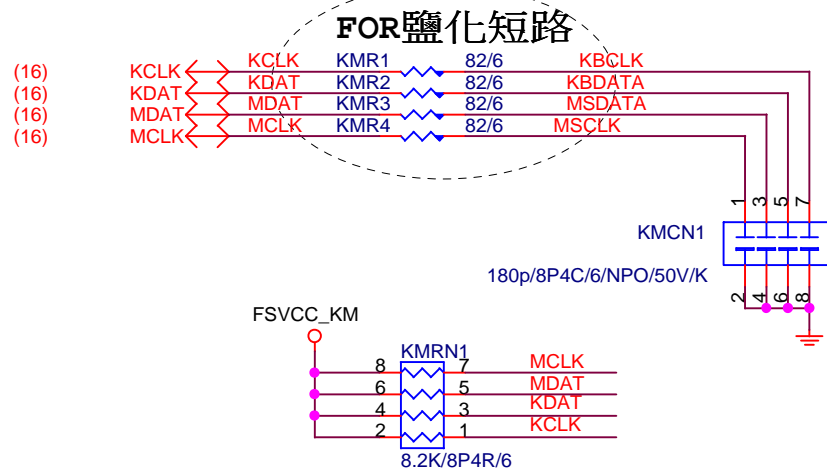
KB PWR

FUSE-0805



KB\_MS\_USB DAMPING/PU

KB\_MS\_USB PWR



Gigabyte Technology

Title

KB\_MS\_USB

Size  
A

Document Number

GA-H110M-A

Rev  
1.0

Date: Tuesday, August 18, 2015

Sheet 31 of 50

RTD2168 R1.03

POWER

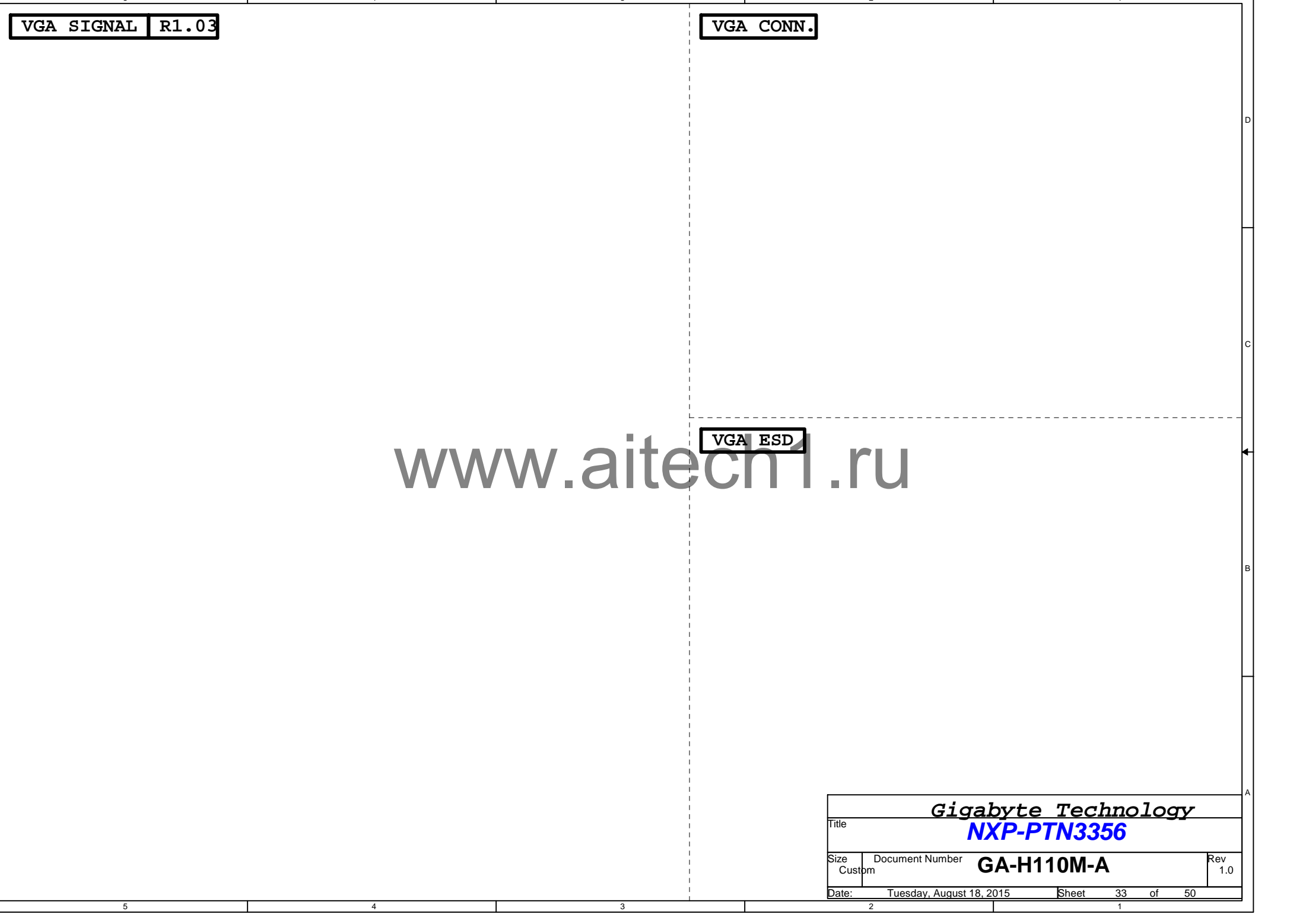
Power on latch

Embedded LDC

DP HPD

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|                     |                          |       |          |
|---------------------|--------------------------|-------|----------|
| Gigabyte Technology |                          |       |          |
| DP-VGA RTD2168      |                          |       |          |
| Size                | Document Number          | Rev   |          |
| Custom              | GA-H110M-A               | 1.0   |          |
| Date:               | Tuesday, August 18, 2015 | Sheet | 32 of 50 |



VGA SIGNAL R1.03

VGA CONN.

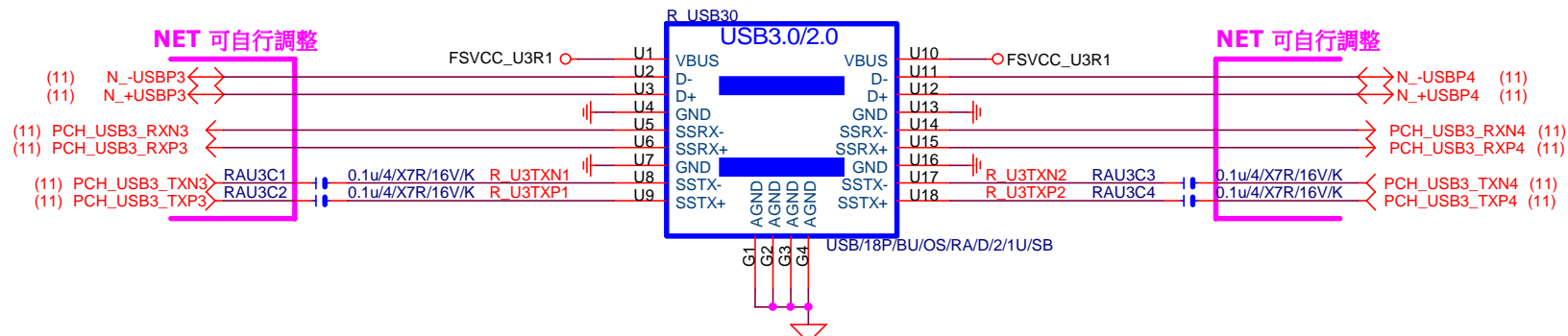
VGA ESD

www.aitech1.ru

|                     |                          |                |
|---------------------|--------------------------|----------------|
| Gigabyte Technology |                          |                |
| Title               |                          |                |
| NXP-PTN3356         |                          |                |
| Size                | Document Number          | Rev            |
| Custom              | GA-H110M-A               | 1.0            |
| Date:               | Tuesday, August 18, 2015 | Sheet 33 of 50 |

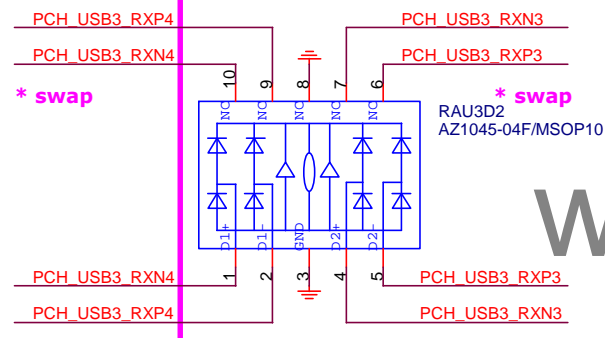
Rev: 0.7

ESD 可自行SWAP PIN ,CONN端 NET 名稱 不可

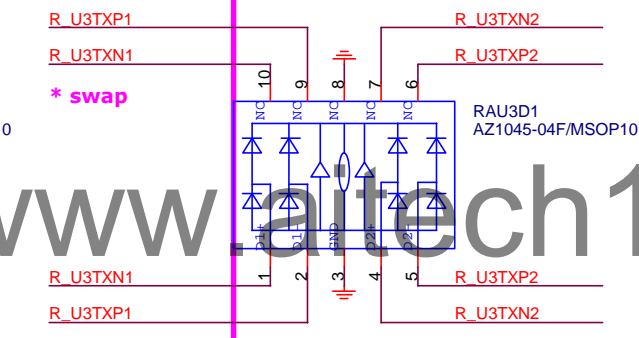


ESD

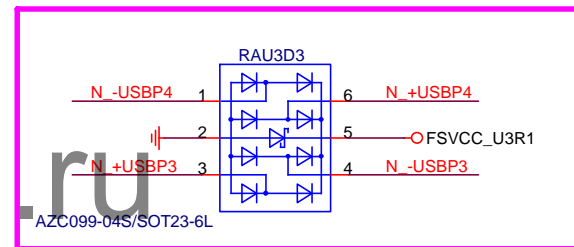
**NET 可自行調整**



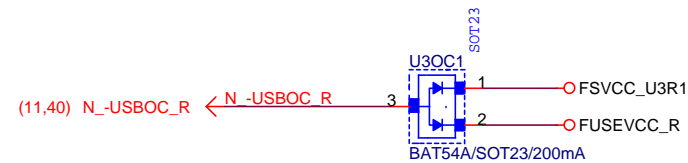
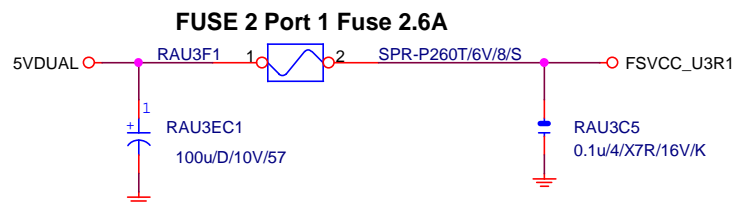
**NET 可自行調整**



**NET 可自行調整**



FUSE



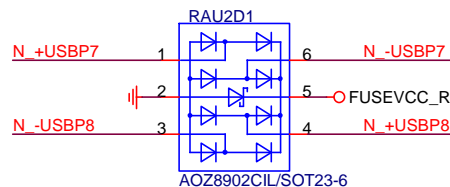
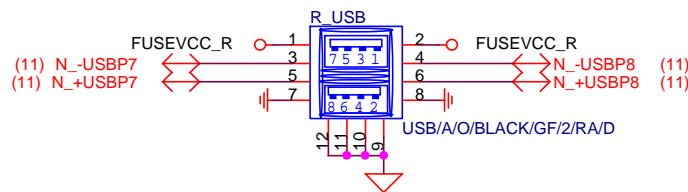
Gigabyte Technology

|                |                          |            |          |
|----------------|--------------------------|------------|----------|
| Title          |                          |            |          |
| R_USB30,USB_OC |                          |            |          |
| Size           | Document Number          | GA-H110M-A |          |
| Custom         |                          |            | Rev 1.0  |
| Date:          | Tuesday, August 18, 2015 | Sheet      | 34 of 50 |

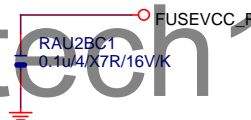
Rev: 0.61

REAR USB1

NET 可變



FUSE 2 Port 1 Fuse 2A

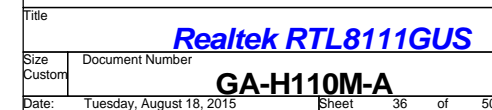


ESD

FUSE

Gigabyte Technology

|                |                          |            |          |
|----------------|--------------------------|------------|----------|
| Title          |                          |            |          |
| R_USB30,USB_OC |                          |            |          |
| Size           | Document Number          | GA-H110M-A |          |
| Custom         |                          |            | Rev 1.0  |
| Date:          | Tuesday, August 18, 2015 | Sheet      | 35 of 50 |



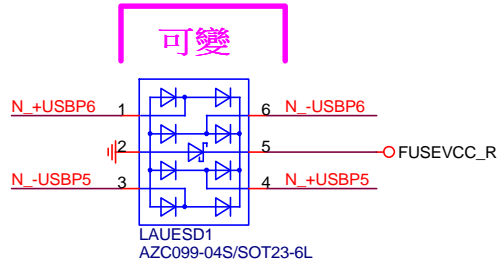
MDI ESD預留 \*



USB\_LAN CONNECTOR R1.06

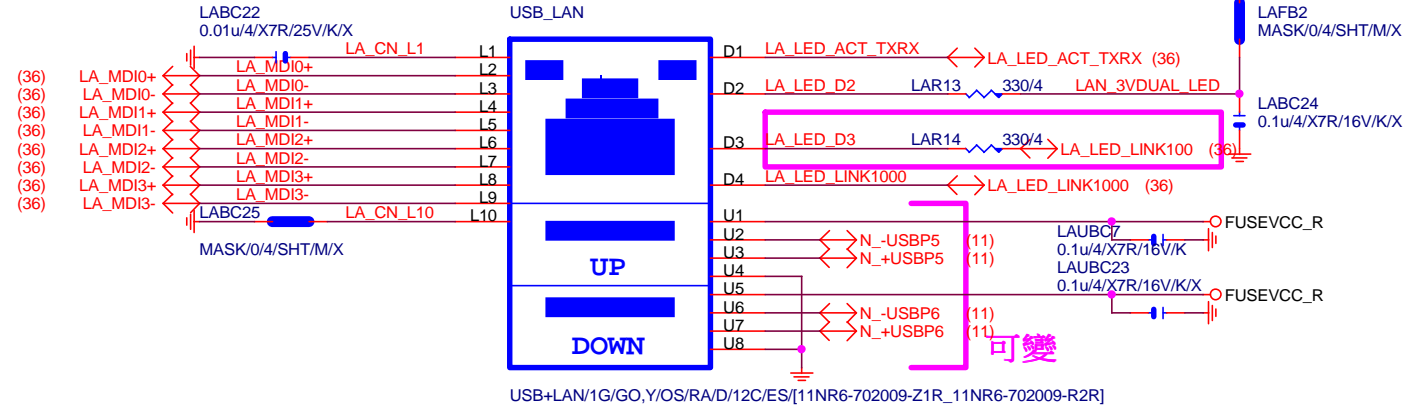
RMA ESD PROTECT

note:可變更USB NAME



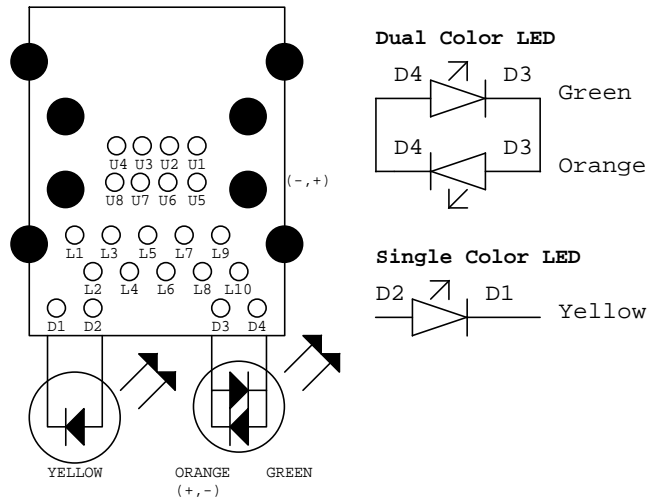
USB\_LAN CONNECTOR

note:可變更USB NAME



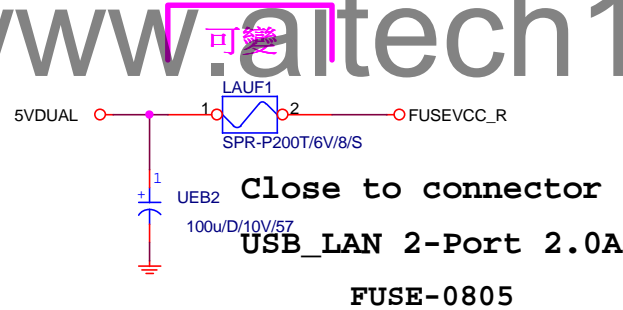
LA\_MDI-->100歐姆:[20/4/8/4/20]

USB\_LAN LAYOUT示意圖



USB POWER

note:可變更FUSE



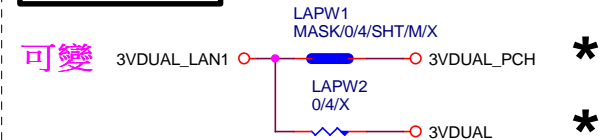
EMI SHORT PAD

PS:視EMI需求



LAN POWER

note: lan power連接及電流

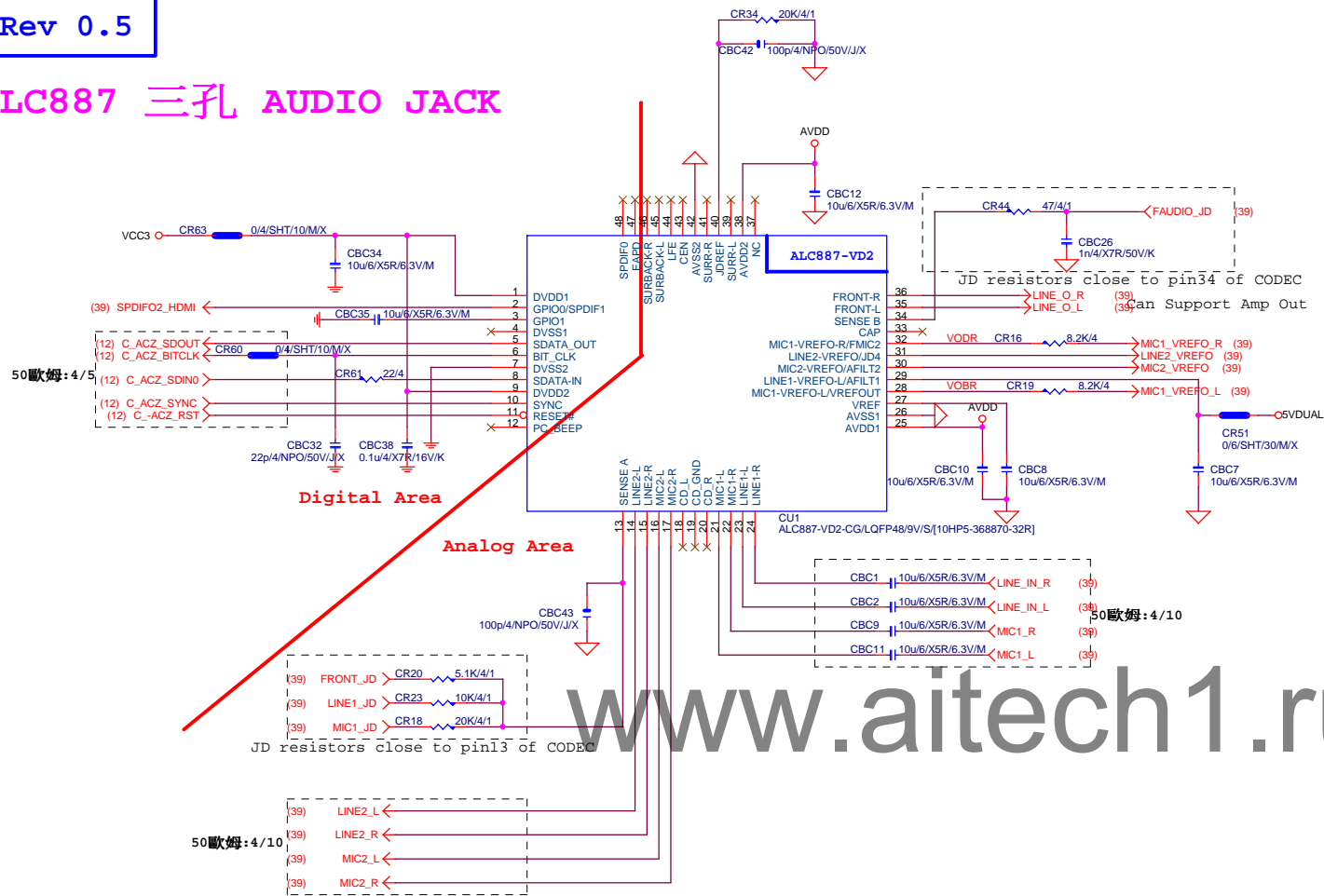


Gigabyte Technology

LAN CONNECTOR-RTL8111G

|        |                          |                |
|--------|--------------------------|----------------|
| Size   | Document Number          | Rev            |
| Custom | GA-H110M-A               | 1.0            |
| Date:  | Tuesday, August 18, 2015 | Sheet 37 of 50 |

## ALC887 三孔 AUDIO JACK

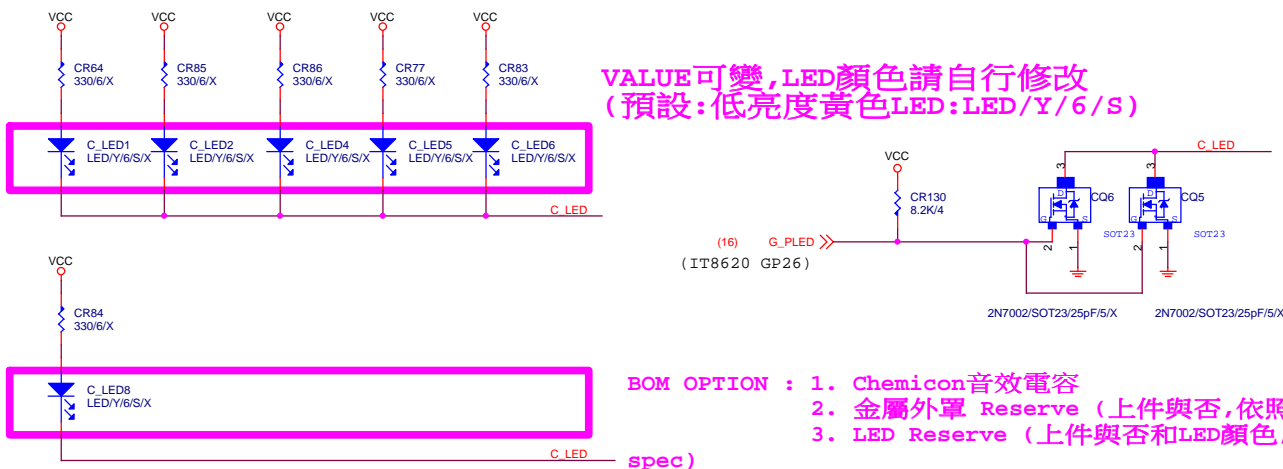


LAYOUT注意:螺絲孔下GND方式

1. MH1空間夠,下DGND
2. MH2一律改為Isolate

|       |         |
|-------|---------|
| ○ MH1 | ○ MH2   |
| DGND  | Isolate |

VALUE可變,LED顏色請自行修改  
(預設:低亮度黃色LED:LED/Y/6/S)



- BOM OPTION :
1. Chemicon音效電容
  2. 金屬外罩 Reserve (上件與否,依照各Model spec)
  3. LED Reserve (上件與否和LED顏色,依照各Model spec)

LAYOUT注意:要加

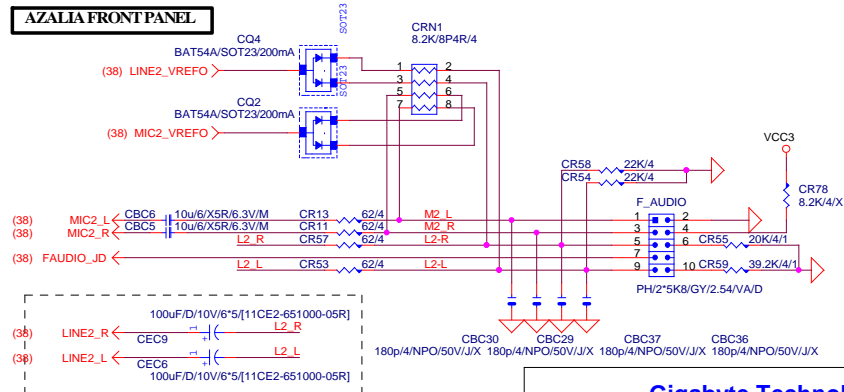
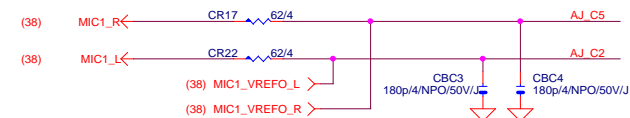
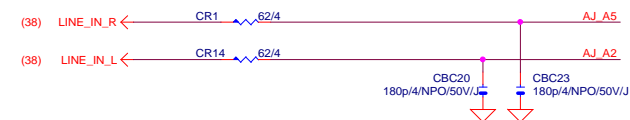
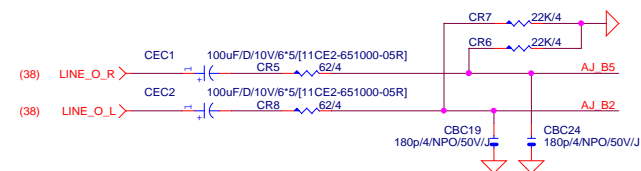
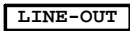
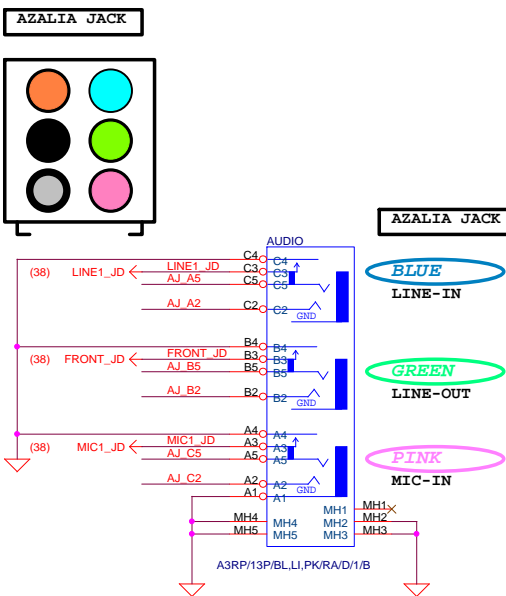
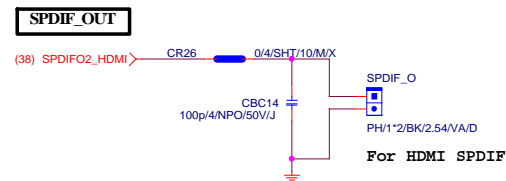
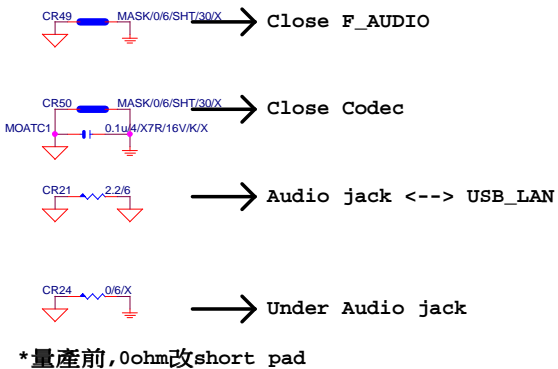
GND切割線

音效區域印刷

Gigabyte Technology

|        |                          |                |                 |
|--------|--------------------------|----------------|-----------------|
| Title  |                          |                | HD AUDIO ALC887 |
| Size   | Document Number          | GA-H110M-A     |                 |
| Custom |                          |                | Rev 1.0         |
| Date:  | Tuesday, August 18, 2015 | Sheet 38 of 50 |                 |

Rev 0.5



## Gigabyte Technology

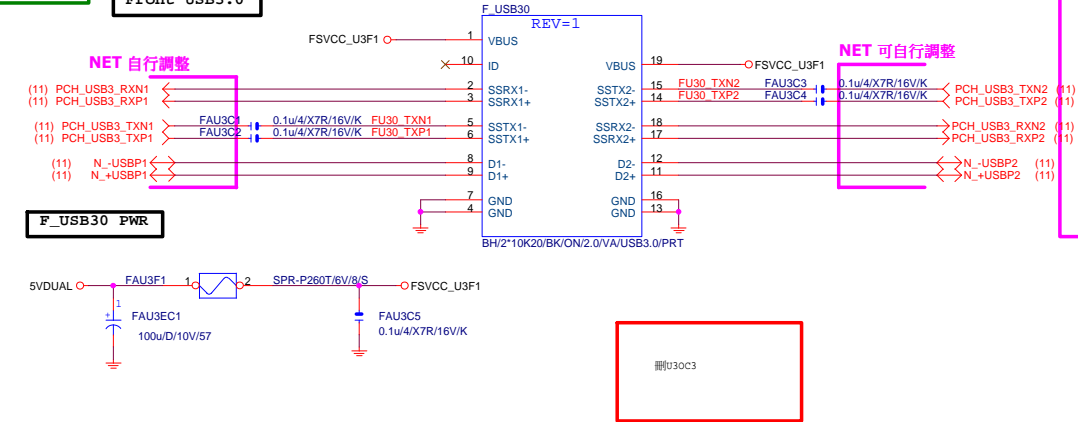
Title **AUDIO JACK**

|                |                 |                   |
|----------------|-----------------|-------------------|
| Size<br>Custom | Document Number | <b>GA-H110M-A</b> |
|----------------|-----------------|-------------------|

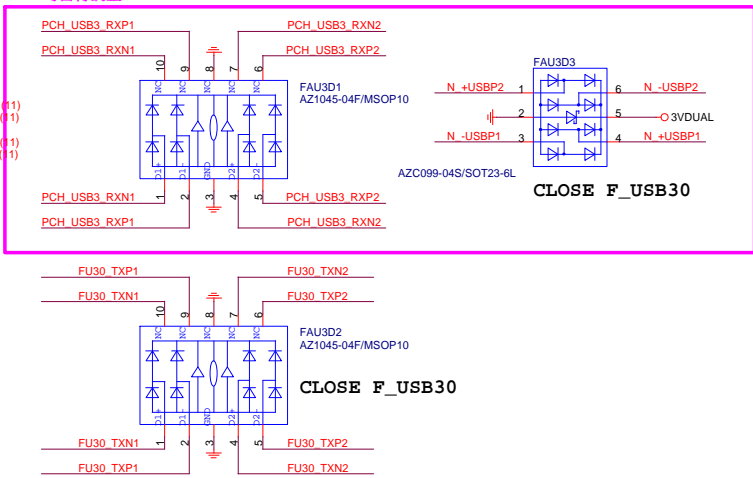
Date: Tuesday, August 18, 2015 Sheet

Rev  
1.0

Front USB3.0

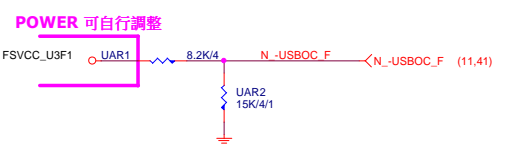


NET 可自行調整

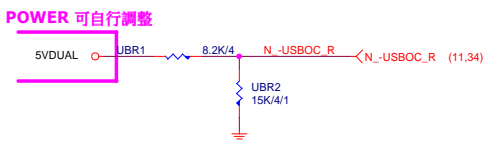


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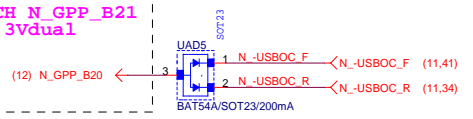
-USBOC\_F



-USBOC\_R



\* 接 PCH N\_GPP\_B21  
PCH PU 3vdual



Gigabyte Technology

|        |                          |            |                         |       |
|--------|--------------------------|------------|-------------------------|-------|
| Title  |                          |            | R_USB30,F_USB30, USB_OC |       |
| Size   | Document Number          | GA-H110M-A |                         | Rev   |
| Custom |                          |            |                         | 1.0   |
| Date:  | Tuesday, August 18, 2015 | Sheet      | 40                      | of 50 |

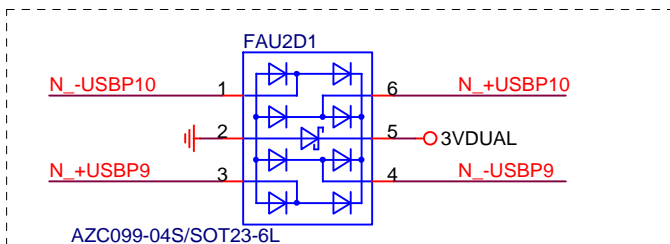
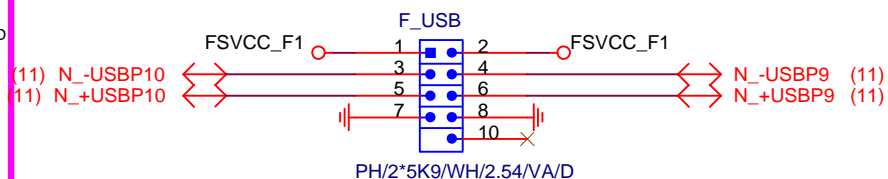
Rev: 0.61

FRONT USB1

FRONT USB2

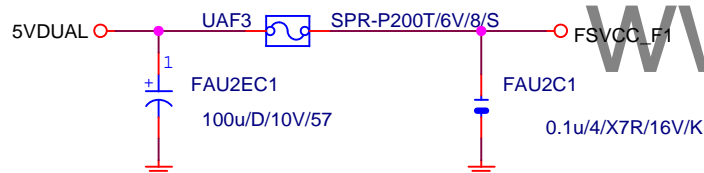
NET 可變

FUSB2X5-HS

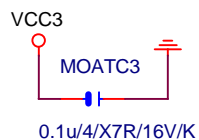
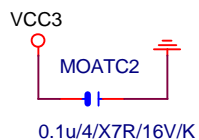
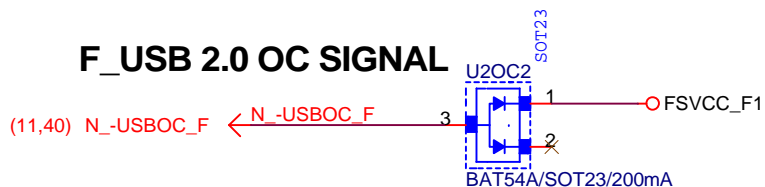


Close to connector

FUSE 2 Port 1 Fuse 2A



F\_USB 2.0 OC SIGNAL



Gigabyte Technology

Title

USB2.0

Size  
A

Document Number

GA-H110M-A

Rev  
1.0

Date: Tuesday, August 18, 2015

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USB20 HUB\_1

Single USB2 HUB used Rev 0.2

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|                     |                            |               |                |
|---------------------|----------------------------|---------------|----------------|
| Gigabyte Technology |                            |               |                |
| Title               |                            | HUB GL850GS_1 |                |
| Size<br>Custom      | Document Number GA-H110M-A |               | Rev<br>1.0     |
| Date:               | Tuesday, August 18, 2015   |               | Sheet 42 of 50 |

COM PORT

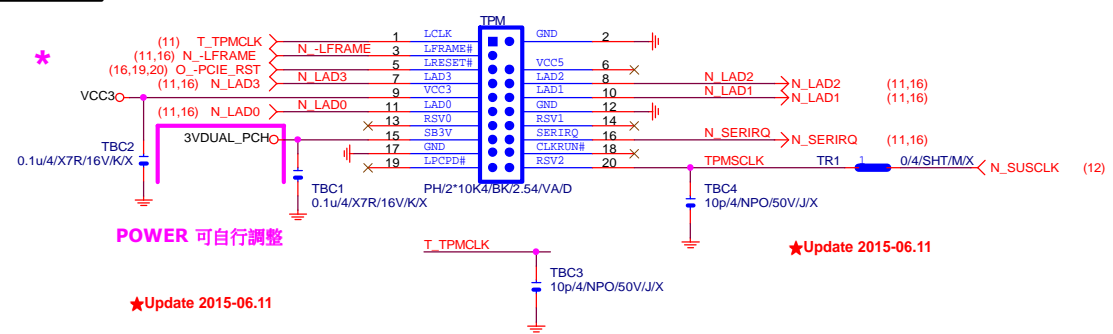
COM RI

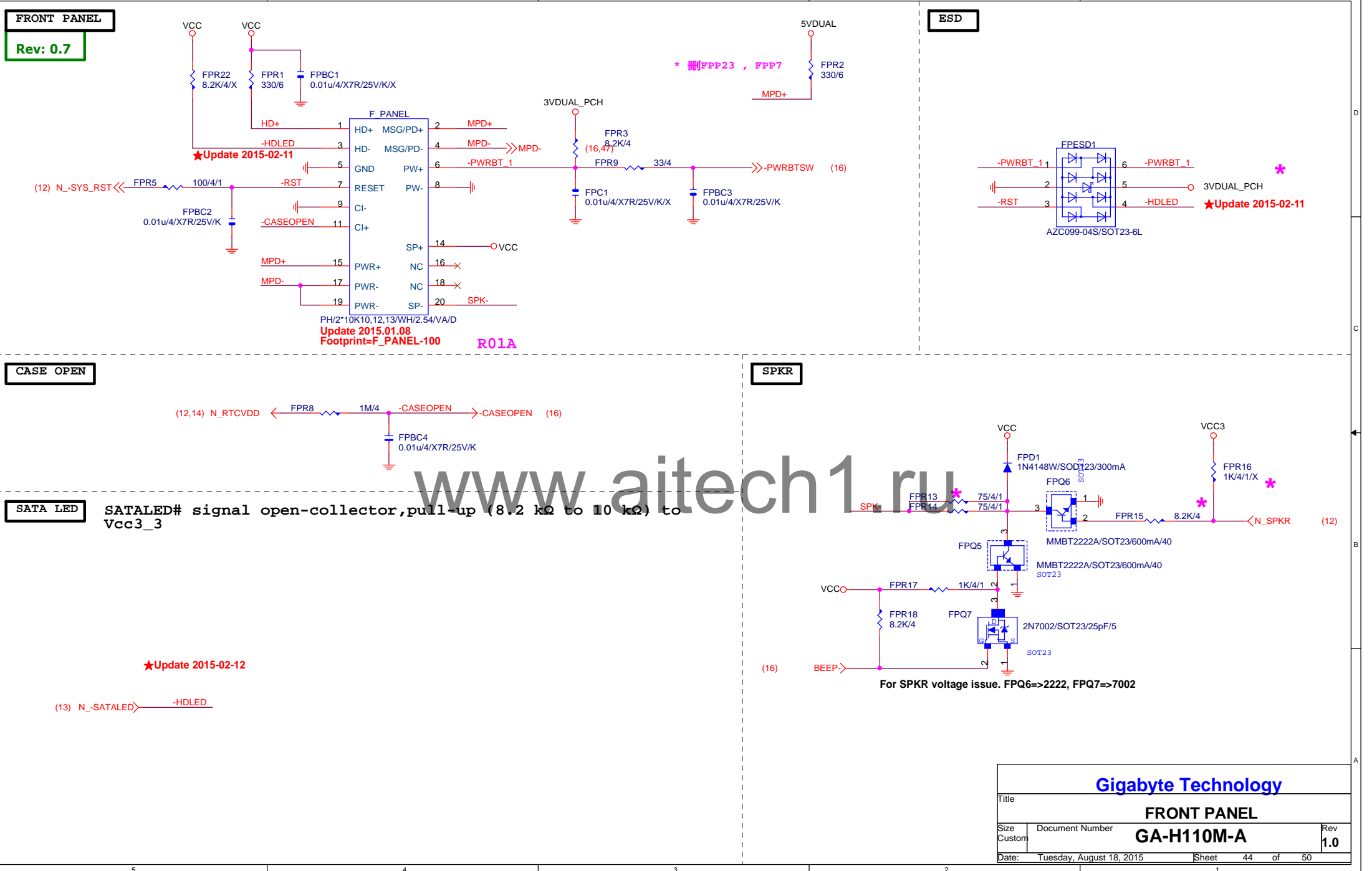
LPT PORT

TPM CONNECT

Thunderbolt

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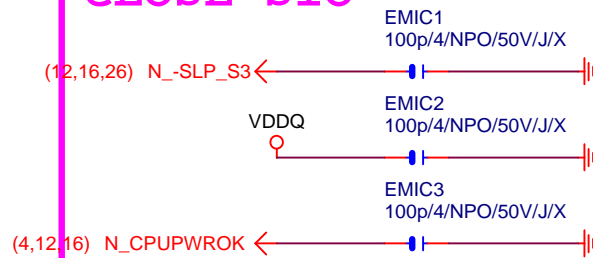






www.aitech1.ru

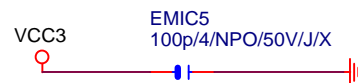
## CLOSE SIO



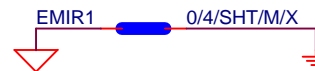
## CLOSE PCH



## close to PCH (NR17)



## R\_USB30\_2 &amp; DVI 之間



## close to SIO (PIN92)MPD-

**GIGABYTE™**

Title

**EMI/ESD**Size  
A

Document Number

**GA-H110M-A**

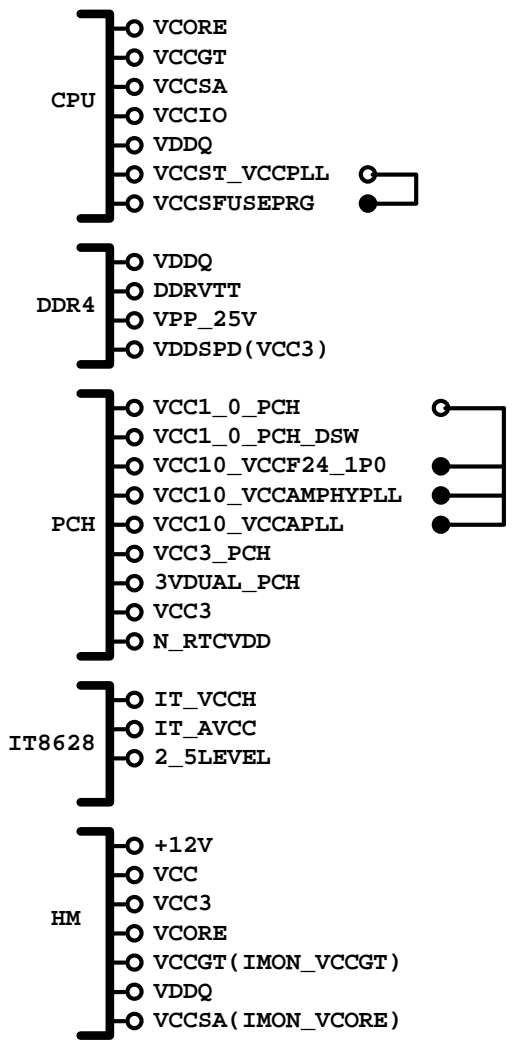
Rev

**1.0**

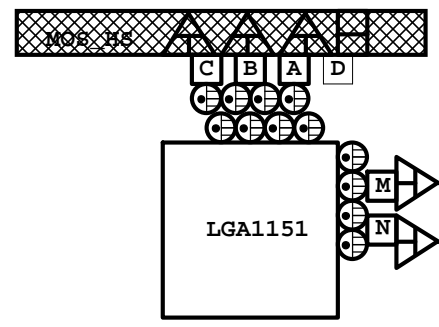
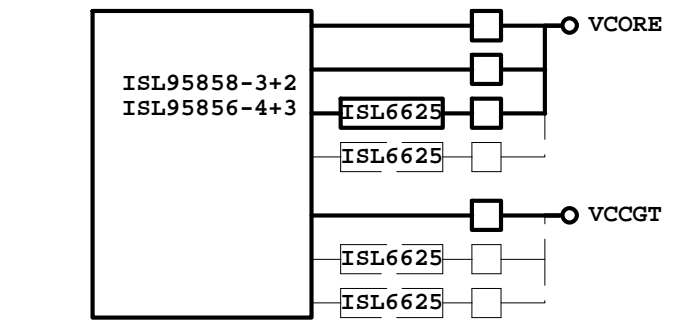
Date: Tuesday, August 18, 2015

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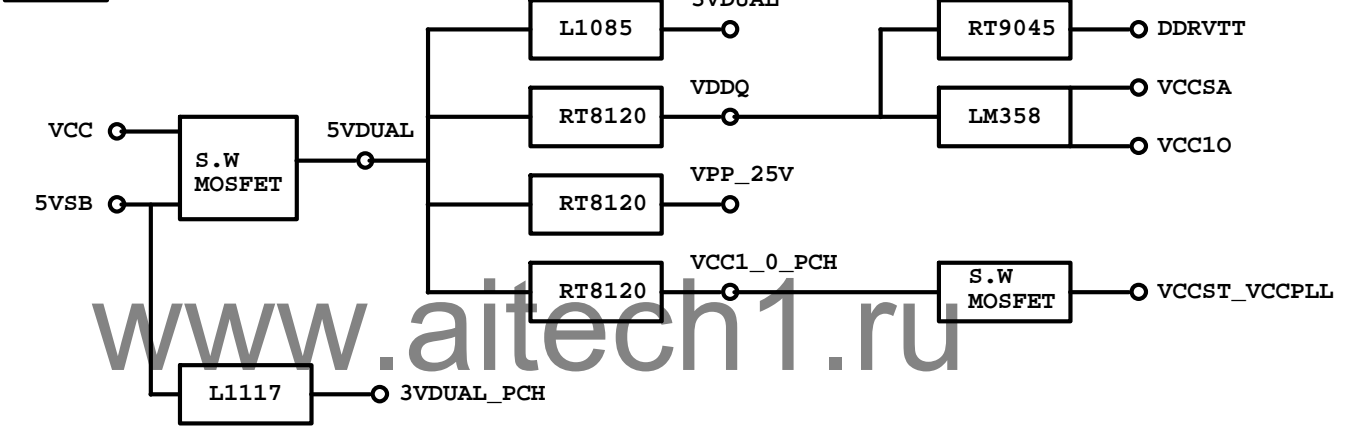
POWER BLOCK MAP



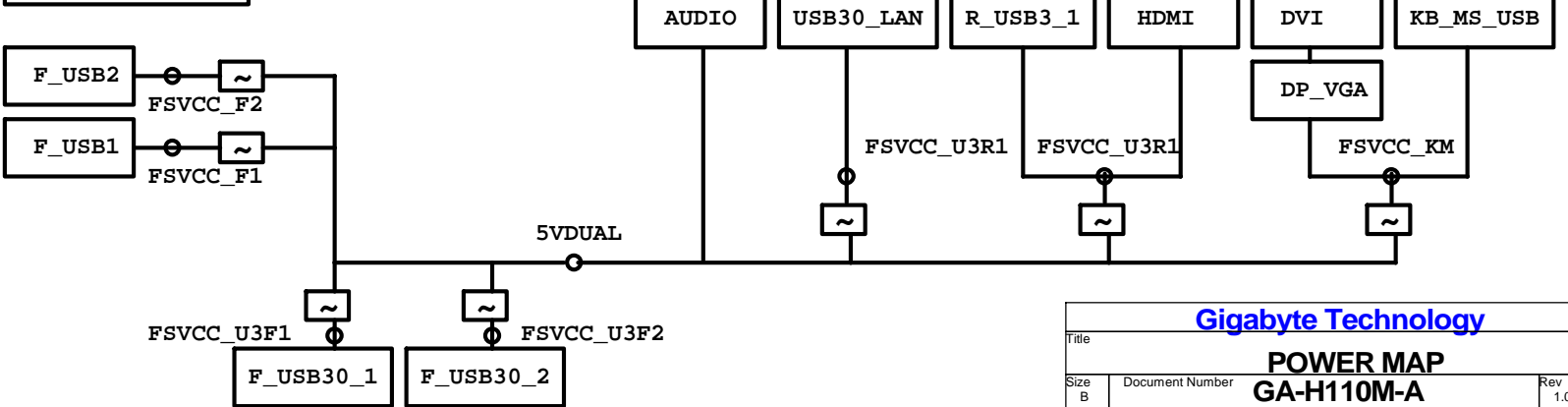
VCORE/VCCGT



POWER



FUSE POWER F/R



固態電容料號.請自行修改

| 日系黑色固態           | Capture Value           |
|------------------|-------------------------|
| 11C02-C85600-01R | 560u/FP/D/6.3V/68/C/8m  |
| 11C05-C82700-01R | 270u/FP/D/16V/88/C/12m  |
| 11C05-C61000-01R | 100u/OS/D/16V/66/C/30m  |
| 11C02-C51000-01R | 100u/FP/D/6.3V/65/C/13m |

| 日系一般固態           | Capture Value         |
|------------------|-----------------------|
| 11C02-685600-01R | 560u/FP/D/6.3V/68/8m  |
| 11C05-882700-01R | 270u/FP/D/16V/88/12m  |
| 11C05-661000-03R | 100u/OS/D/16V/66/30m  |
| 11C02-651000-02R | 100u/OS/D/6.3V/66/30m |

| 台系固態             | Capture Value           |
|------------------|-------------------------|
| 11C02-661000-09R | 100u/OS/D/6.3V/66/A/35m |
| 11C05-691000-09R | 100u/OS/D/16V/69/A/35m  |
| 11C05-8C2700-09R | 270u/FP/D/16V/8C/A/10m  |
| 11C02-695600-09R | 560u/FP/D/6.3V/69/A/11m |

IRON CHOKE

|     | 料號               | Capture Value         | SIZE  | Footprint          |
|-----|------------------|-----------------------|-------|--------------------|
| DIP | 11LC5-M4500C-01R | 0.5uH/40A/IMD109/M/D  | 10*10 | CHOKE05U-40A-1PQ-3 |
| DIP | 11LC5-M2500C-01R | 0.5uH/20A/IMD0809/M/D | 8*8   | CHOKE1U-R50M-IF    |

Ferrite

|     | 料號                     | Capture Value           | SIZE  | Footprint          |
|-----|------------------------|-------------------------|-------|--------------------|
| DIP | 11LC5-F3500C-11R       | 0.5uH/32A/INCG109/FSI/D | 10*10 | CHOKE05U-40A-1PQ-3 |
| DIP | 11LC5-F2500C-11R       | 0.5uH/25A/INC0809/F/D   | 8*8   | CHOKE1U-R50M-IF    |
| SMD | 未建(SIUC1007-R30M-JJ1W) |                         | 10*7  | CHOKE11X8MM-SMD    |

BEAD

|     | 料號               | Capture Value | SIZE | Footprint       |
|-----|------------------|---------------|------|-----------------|
| DIP | 10LFB-15470A-01R | 47/4030/15A/S | 4*3  | BEADC8B-BPH_SMD |

PWM料號

|     | 料號       | Capture Value    | Footprint         |
|-----|----------|------------------|-------------------|
| PWM | ISL95856 | 10TA1-695856-01R | IC52QFN-6x6-G     |
| PWM | ISL95858 | 10TA1-695858-01R | IC52QFN-6x6-G     |
| PWM | IR35201  | 10TA1-635201-00R | IC56QFN-9VRS4339  |
| PWM | IR3570   | 10TA1-603570-00R | IC40MLFP-ISL95835 |

GIGABYTE™

Title

RT8120\_DDR4 POWER

Size Custom

Document Number

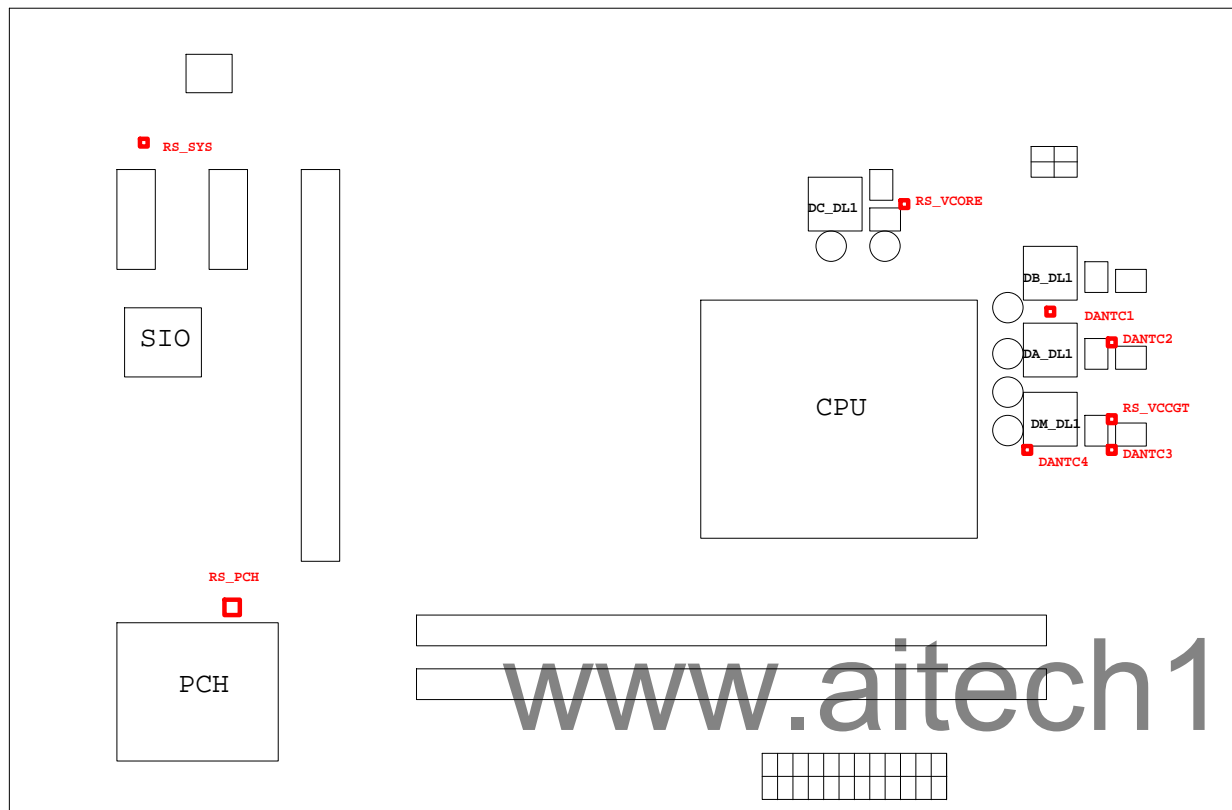
GA-H110M-A

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Rev

1.0



| 熱敏電阻     | 擺放靠近位置 | 走線方式         |
|----------|--------|--------------|
| DANTC4   | DM_DL1 | Differential |
| DANTC1   | DA_DL1 | Differential |
| DANTC3   | DM_DQ1 | Differential |
| DANTC2   | DA_DQ1 | Differential |
| RS_VCORE | DA_DQ1 | N/A          |
| RS_VCCGT | DM_DQ1 | N/A          |
| RS_PCH   | PCH    | N/A          |
| RS_SYS   | CU1    | N/A          |