

Model Name: GA-H110M-S2H

rev:1.0

SHEET

TITLE

| | |
|----|----------------------------|
| 01 | COVER SHEET |
| 02 | BOM & PCB MODIFY HISTORY |
| 03 | BLOCK DIAGRAM |
| 04 | CPU_LGA1151-A |
| 05 | CPU_LGA1151-B-DDR4 |
| 06 | CPU_LGA1151-C |
| 07 | CPU_LGA1151-D |
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| 09 | DDR4 CHANNEL B |
| 10 | PCH_CLK BUFFER |
| 11 | PCH_DMI,USB,PCIE |
| 12 | PCH_MISC |
| 13 | PCH SATA,PCIE,SATA_EXPRESS |
| 14 | PCH_PWR,GND |
| 15 | Dual BIOS |
| 16 | ITE 8628 LPC IO |
| 17 | HWM |
| 18 | FAN CTRL--SIO |
| 19 | PCI EXPRESS*16 SLOT |
| 20 | PCI EXPRESS*1 SLOT |
| 21 | SATA EXPRESS |
| 22 | ISL95858_856 PWM |
| 23 | ISL95858_856 MOS_VCORE |
| 24 | ISL95858_856 MOS_VCCGT |
| 25 | VCCSA_VCCIO_VCCPLL |
| 26 | RT8237_DDR_VDDQ |
| 27 | RT8068_VPP |

SHEET

TITLE

| | |
|----|------------------------------|
| 28 | RT8237_PCH_VCC1_0_PCH |
| 29 | DISCRETE POWER |
| 30 | ATX POWER , A_-PROCHOT |
| 31 | KB_MS_USB |
| 32 | RTD2168 - DP to VGA - IC |
| 33 | RTD2168 - DP to VGA - Conn |
| 34 | R_USB30 |
| 35 | R_USB20 |
| 36 | REALTEK - RTL8111G |
| 37 | USB20_LAN CONNECTOR-RTL8111G |
| 38 | Realtek ALC887 |
| 39 | REAR AUDIO JACK |
| 40 | F_USB30 |
| 41 | F_USB20 |
| 42 | GENESYS GL850S |
| 43 | COM , LPT , TPM |
| 44 | F_PANEL |
| 45 | HDMI |
| 46 | DVI |
| 47 | EMI/ESD |
| 48 | POWER MAP |
| 49 | TABLE LIST |
| 50 | NTC MAP |
| 51 | |

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Gigabyte Technology

| | | | |
|-------------|----------------------------|-------|---------|
| Title | | | |
| Cover Sheet | | | |
| Size | Document Number | Rev | |
| Custom | GA-H110M-S2H | 1.0 | |
| Date: | Friday, September 25, 2015 | Sheet | 1 of 50 |

rev:1.0

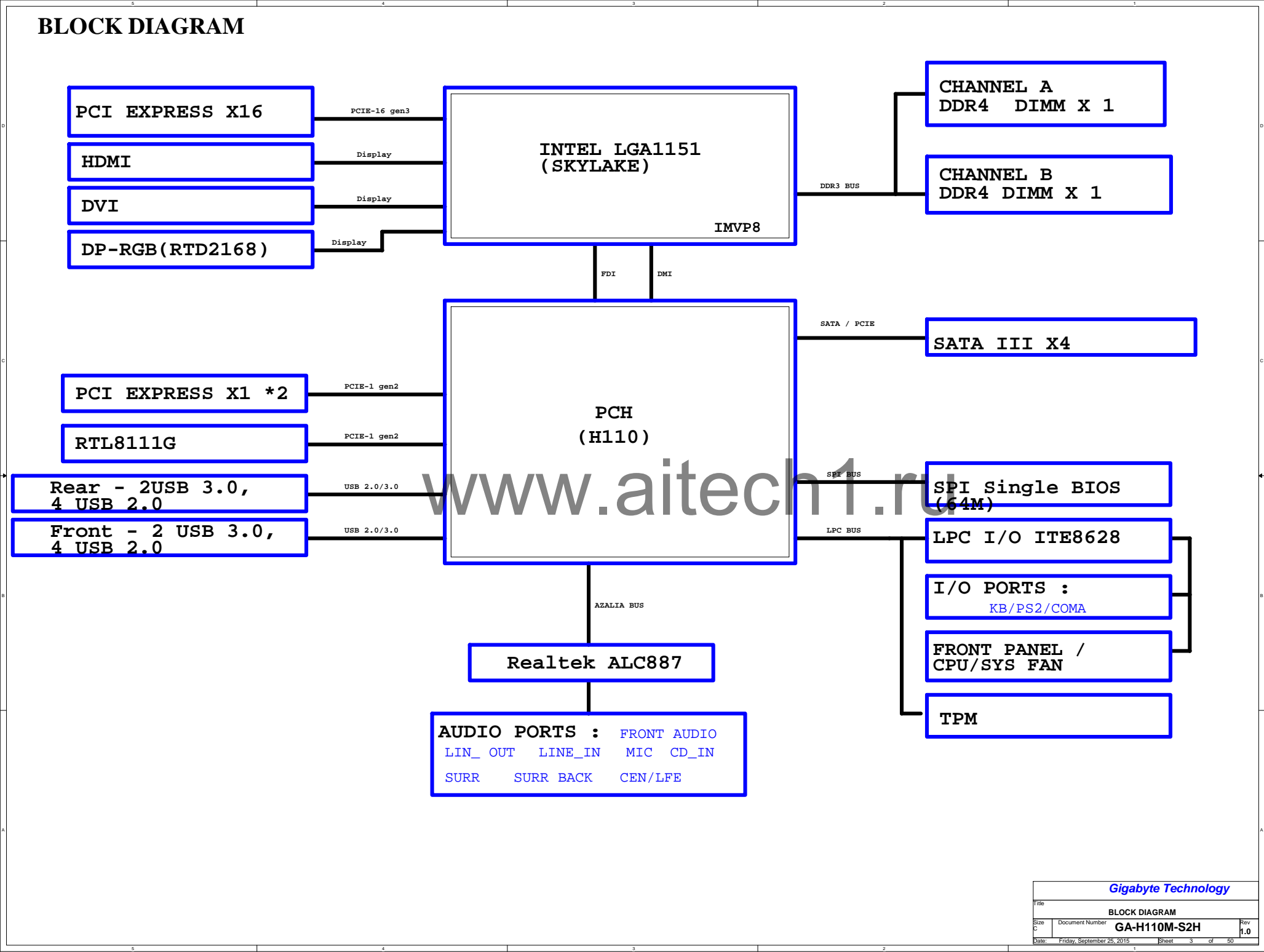
Circuit or PCB layout change

Component value change history

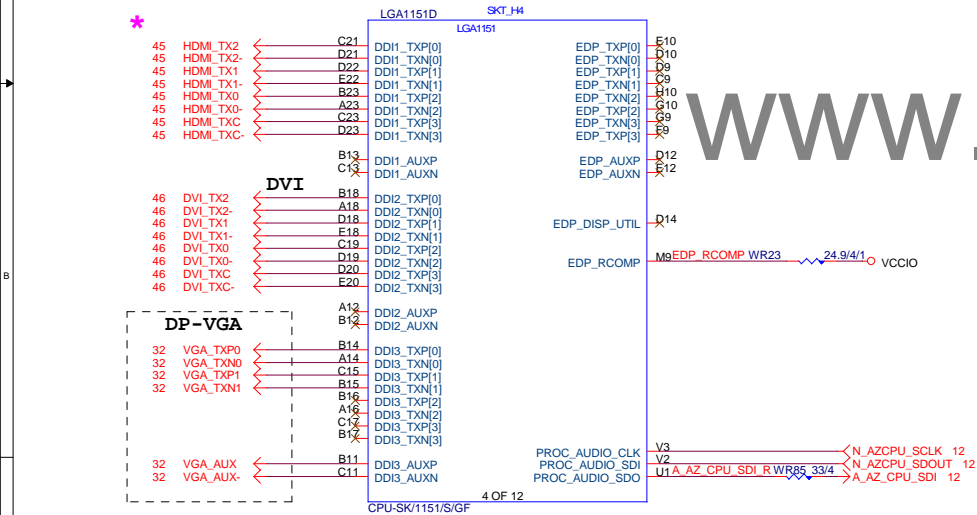
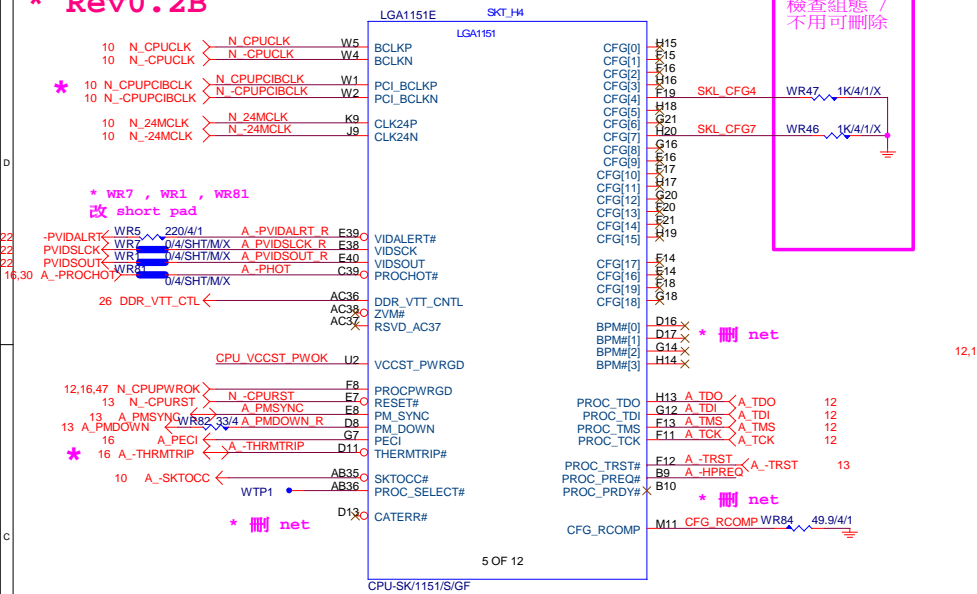
2015/09/01

[illegible][illegible]

BLOCK DIAGRAM



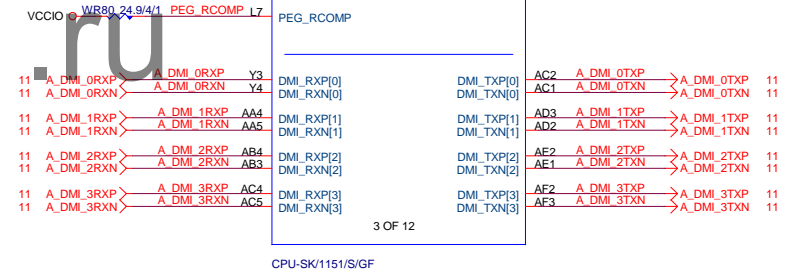
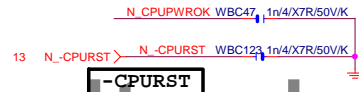
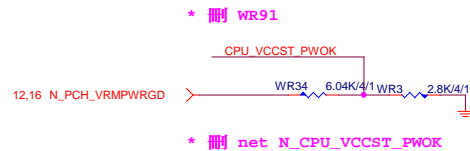
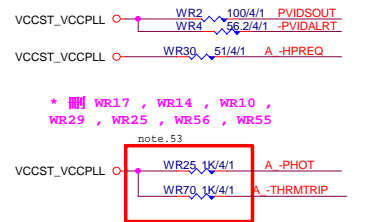
*** Rev0.2B**



```
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%



```

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
```

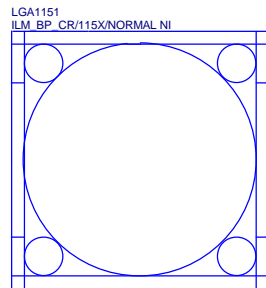
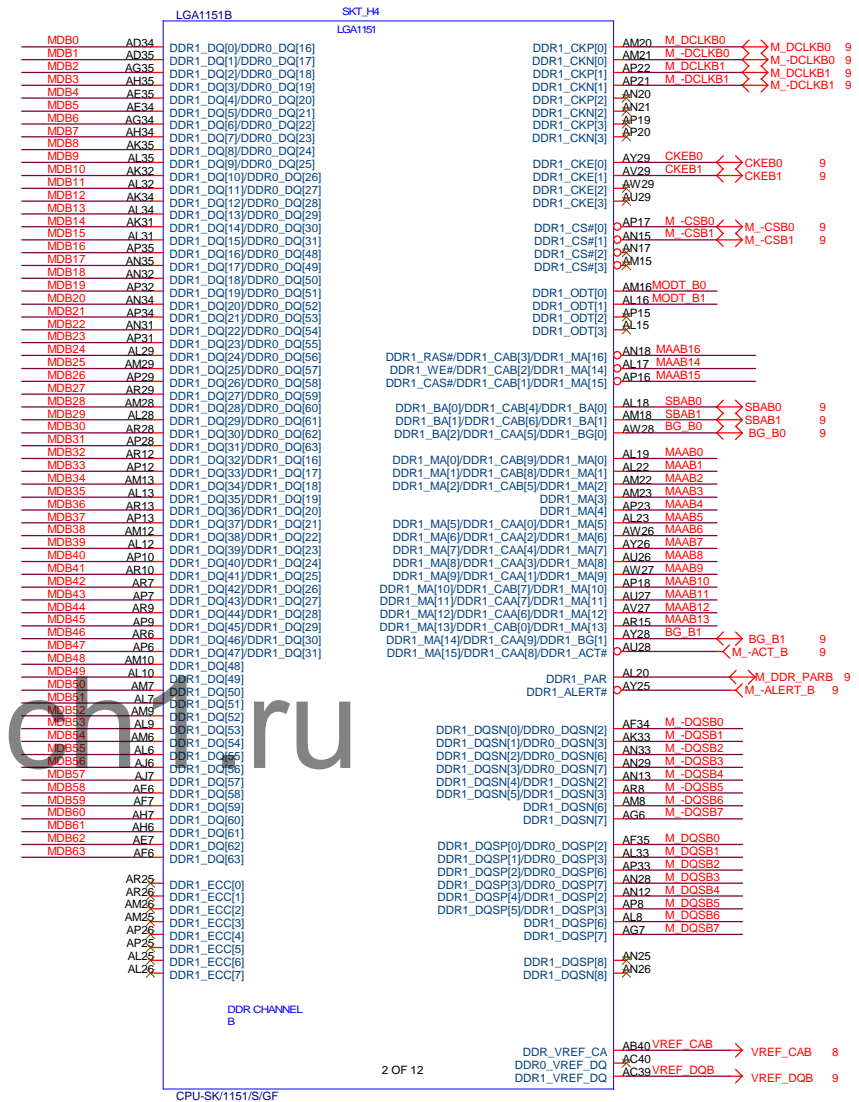
Impedance=85 +- 15%

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

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

| | | | |
|---|----------------------------|-------|------------|
| <p align="center"><i>Gigabyte Technology</i></p> | | | |
| <p>Title: CPU LGA1151-A</p> | | | |
| Size Custom: | Document Number | | Rev |
| | GA-H110M-S2H | | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet | 4 of 50 |

* 改DDR4 net



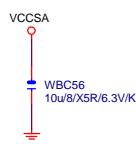
Need check the new CPU ME

8 MODT_A[0..1] ↔ MODT_A[0..1]
 9 MODT_B[0..1] ↔ MODT_B[0..1]
 8 MDA[0..63] ↔ MDA[0..63]
 9 MDB[0..63] ↔ MDB[0..63]
 8 M_DQSA[0..7] ↔ M_DQSA[0..7]
 8 M_-DQSA[0..7] ↔ M_-DQSA[0..7]
 9 AAA[0..16] ↔ AAA[0..16]
 9 AAB[0..16] ↔ AAB[0..16]
 9 M_DQSB[0..7] ↔ M_DQSB[0..7]
 9 M_-DQSB[0..7] ↔ M_-DQSB[0..7]

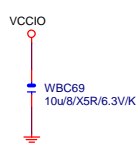
| | | | |
|-----------------------------------|----------------------------|---------------|---------|
| <i>Gigabyte Technology</i> | | | |
| Title | | | |
| Size | | CPU LGA1151-B | |
| Custom | Document Number | GA-H110M-S2H | Rev 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 5 of 50 | |

* 刪 WBC50 電容

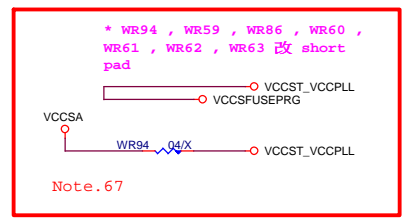
* WBC51 , WBC52
VDDQ 改 VCCSA



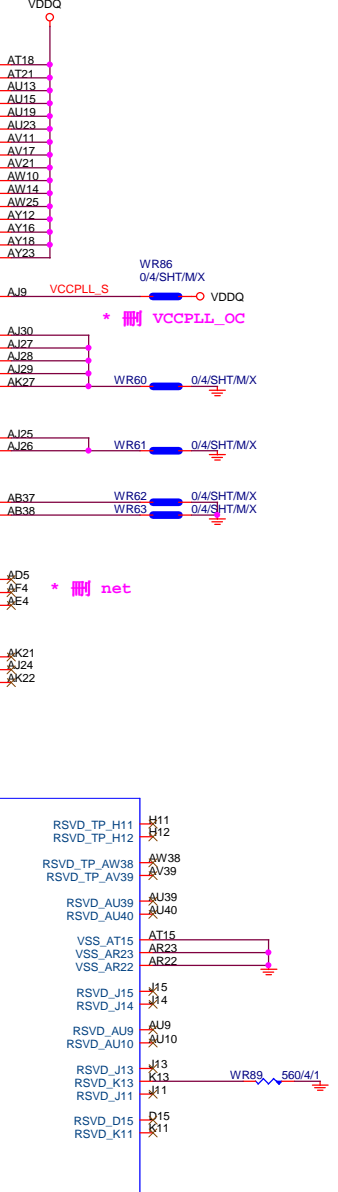
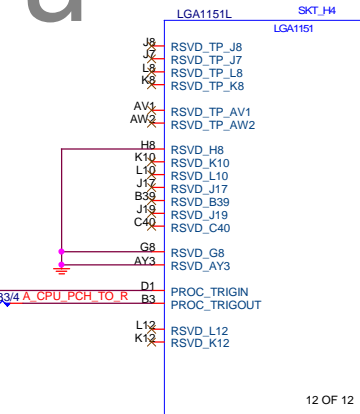
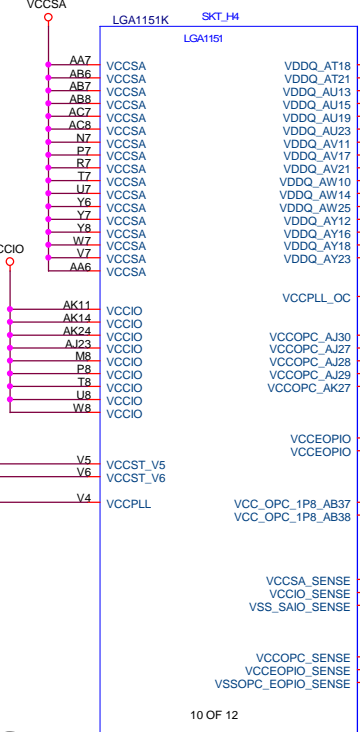
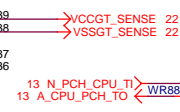
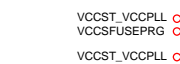
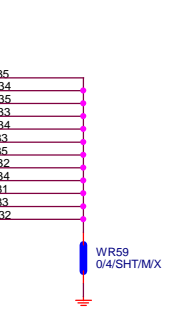
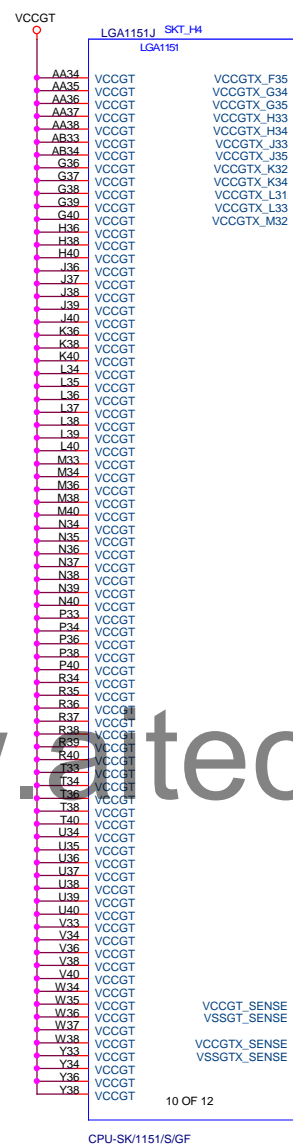
* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

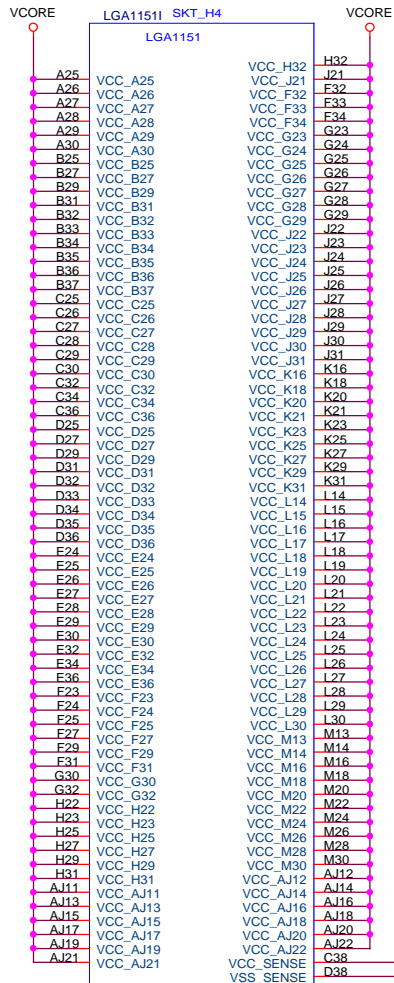


* 刪 VCCGT 電容



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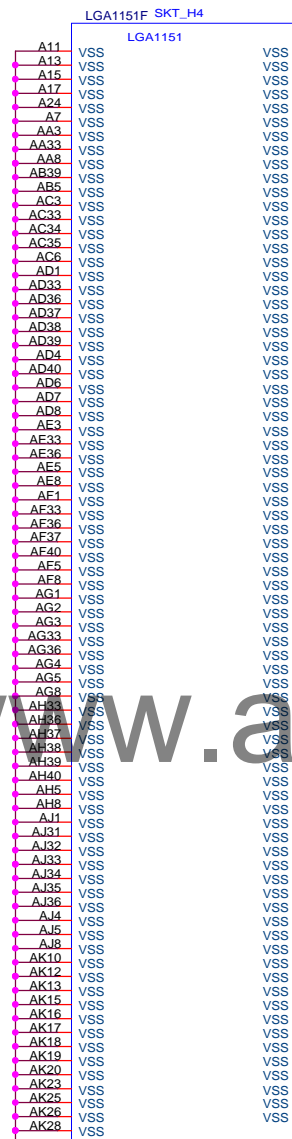




9 OF 12

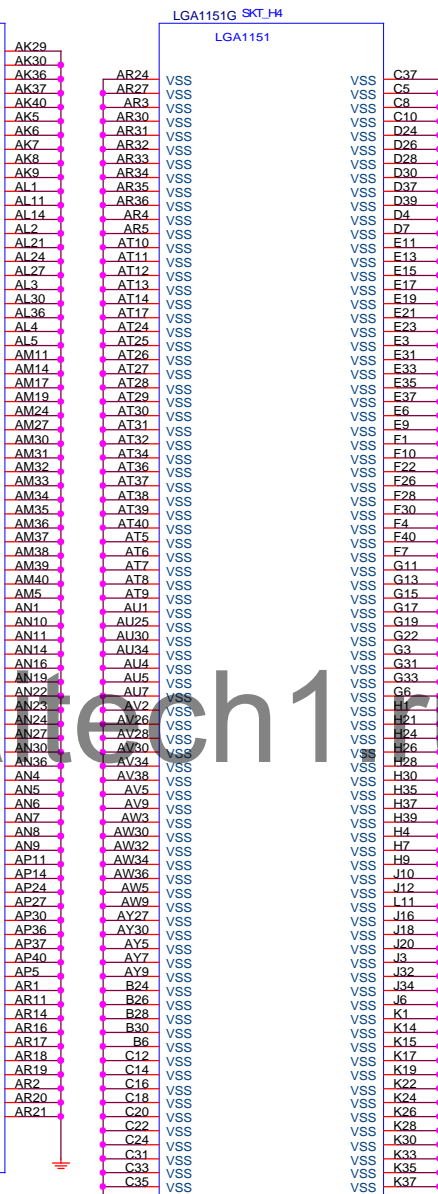
CPU-SK/1151/S/GF

* 刪 Vcore 電容



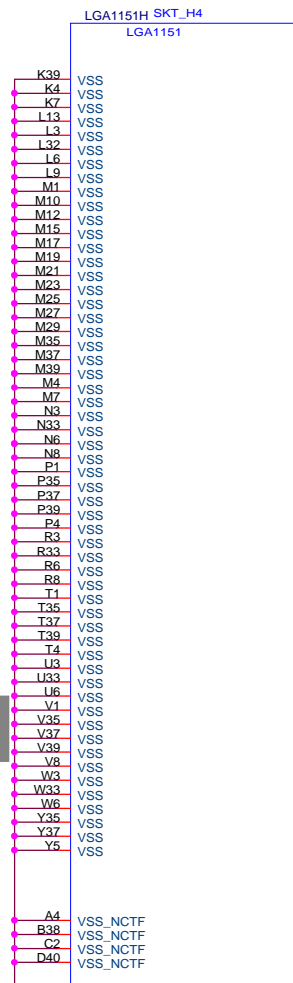
6 OF 12

CPU-SK/1151/S/GF



7 OF 12

CPU-SK/1151/S/GF



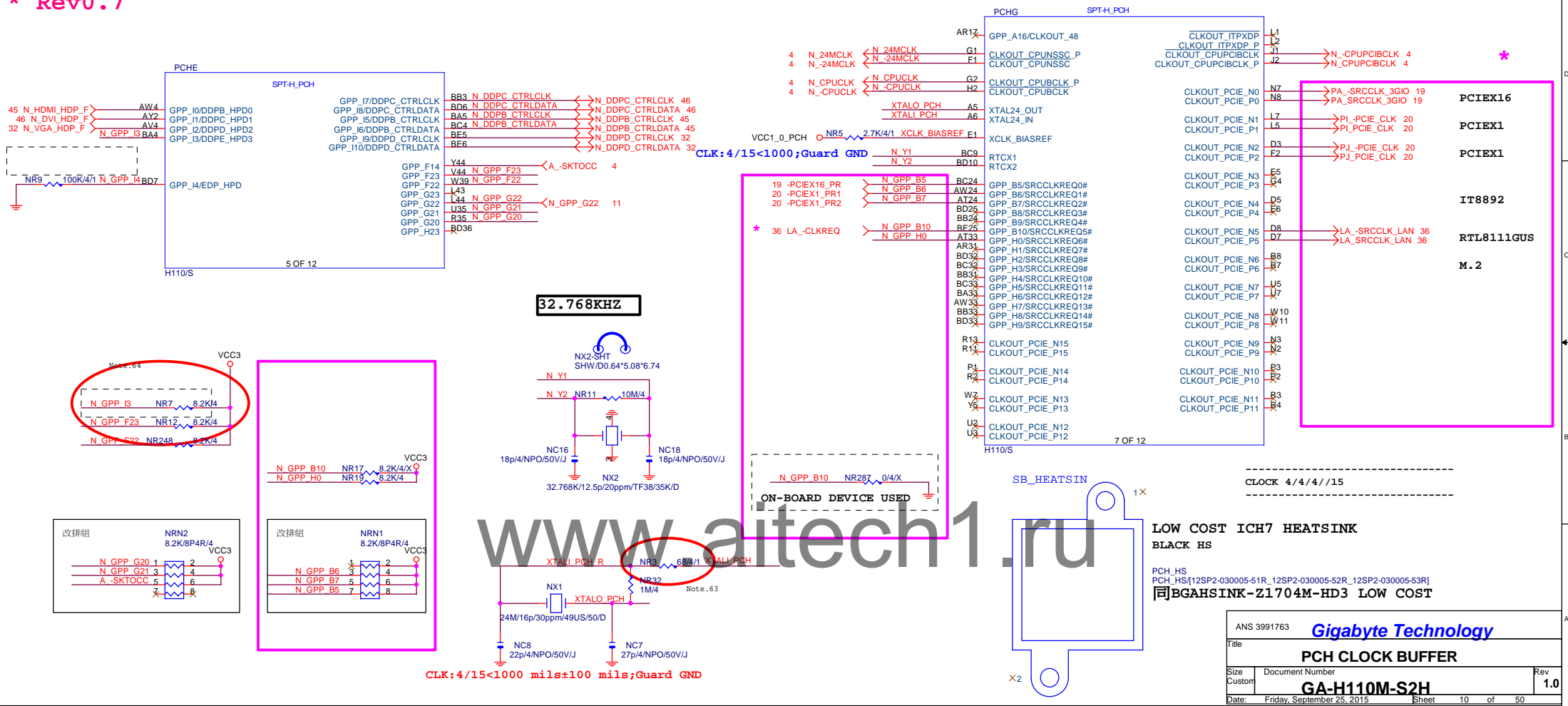
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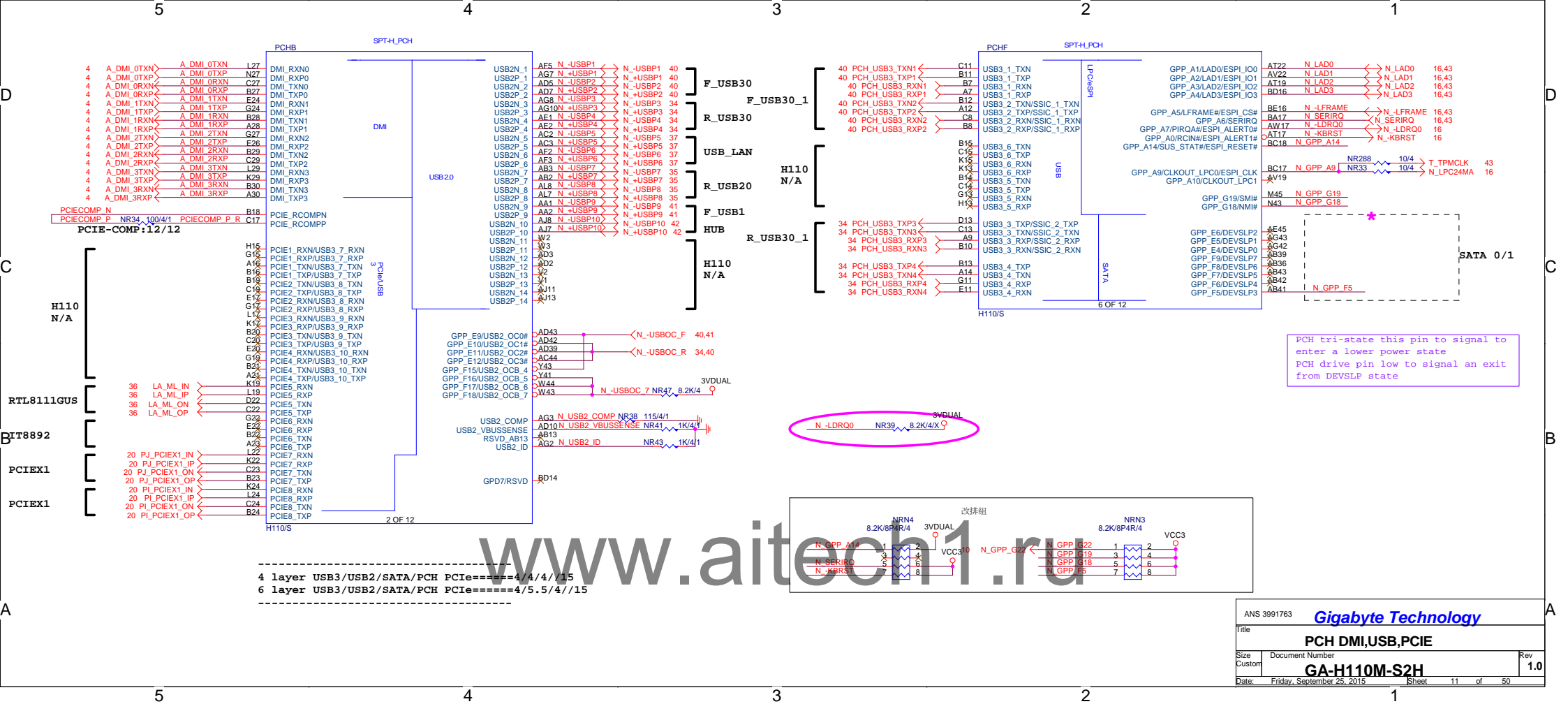
CPU-SK/1151/S/GF

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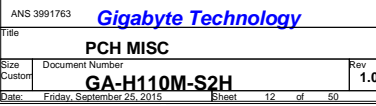
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|--------|----------------------------|-------|---------------|
| Title | | | CPU LGA1151-C |
| Size | Document Number | Rev | 1.0 |
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* Rev0.7



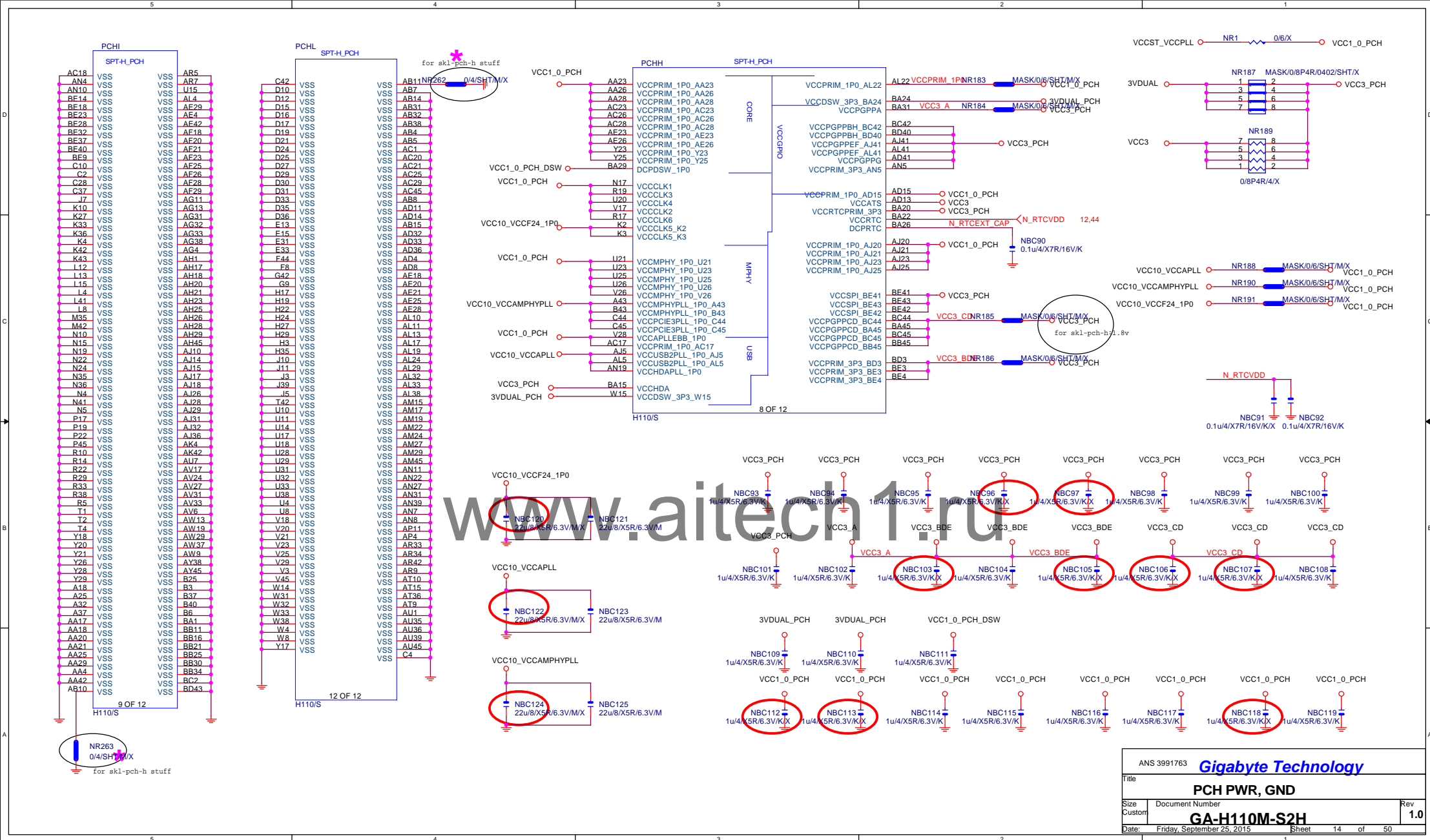


| | | | |
|-------------|----------------------------|---------------------|----------|
| ANS 3991763 | | Gigabyte Technology | |
| Title | | PCH DMI,USB,PCIE | |
| Size | Document Number | Rev | 1.0 |
| Customer | GA-H110M-S2H | | |
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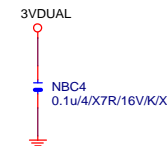
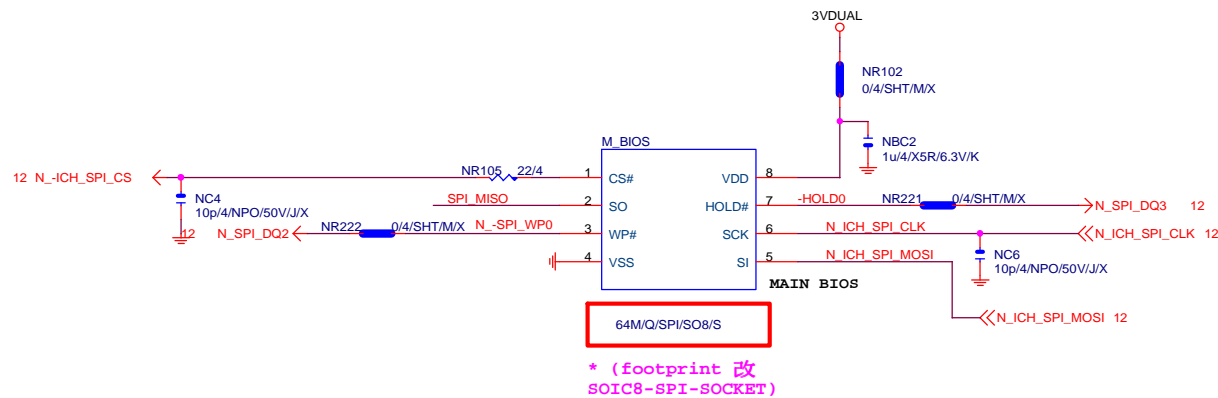
| | |
|--|---|
| | 1 |
|--|---|



Rev 0.1

BIOS

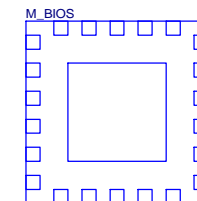
MOSI For DMI RX Termination Voltage



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

1 means floating
0 means PD 1K

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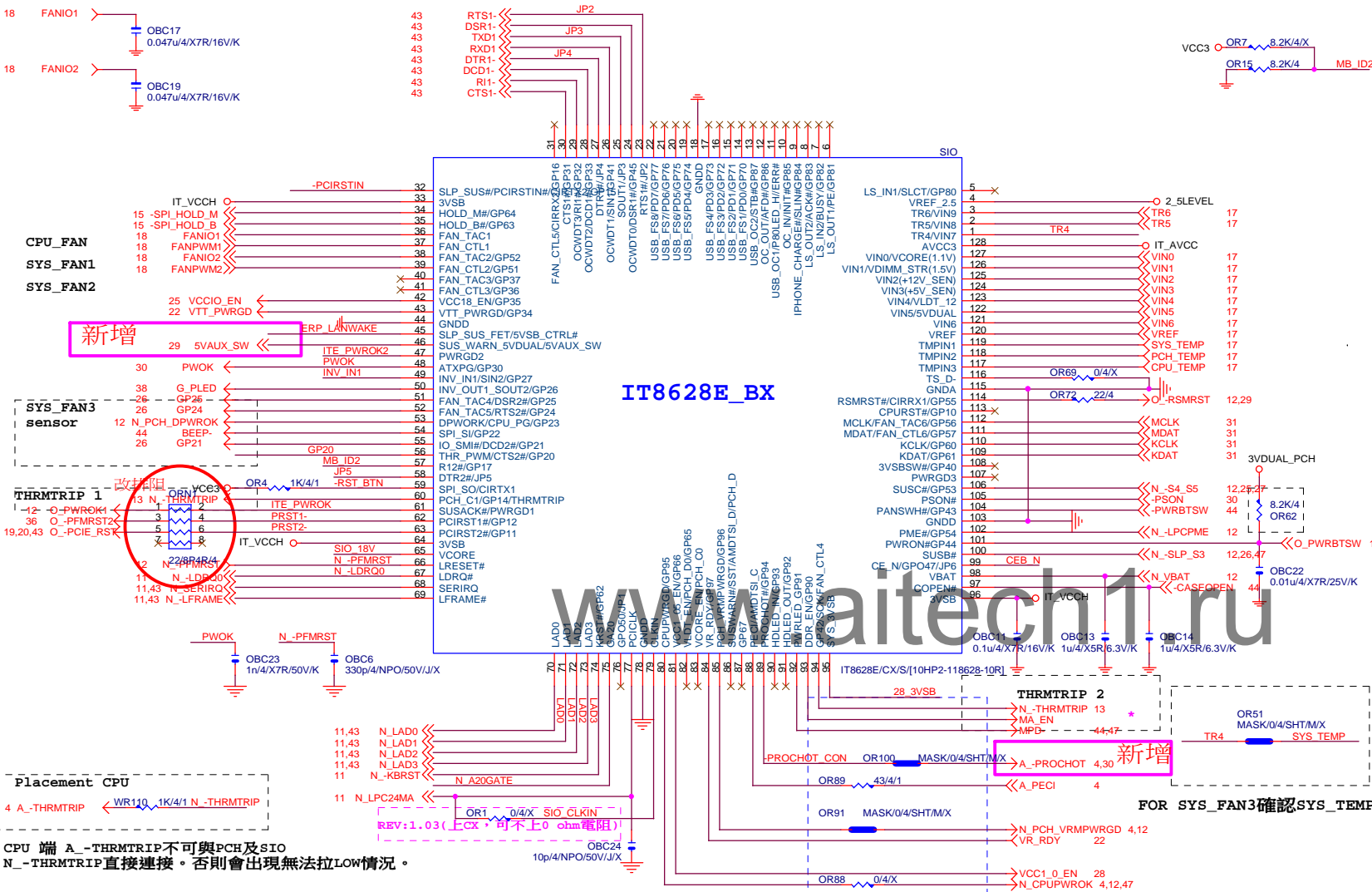
LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]X

* 試産先上, PVT 移除

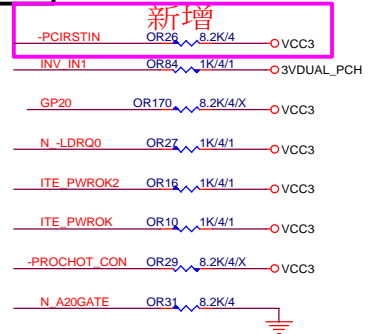
BIOS_PH

Gigabyte Technology

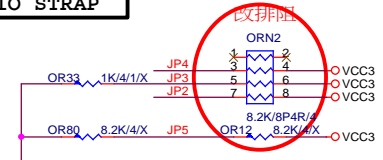
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| Title | BIOS | | |
| Size | Document Number | GA-H110M-S2H | Rev |
| Custom | | | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet | 15 of 50 |



SIO PU



SIO STRAP

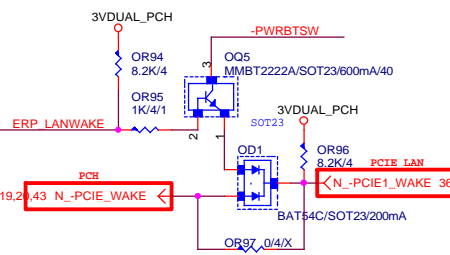


| EUP control detect | |
|--------------------|----------------------|
| 3VDUAL | OR47 100/4/1 28 3VSB |

| | | |
|-----|-----|---|
| 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)

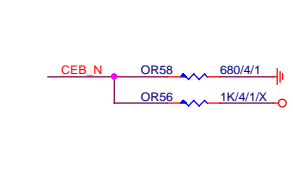
(組態一) Realtek/ATHEROS LAN



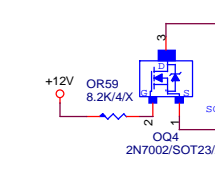
| FAN TABLE | |
|---------------------|----------------------|
| CPU_FAN | FAN_CTL1 FAN_TAC1 |
| SYS_FAN1 | FAN_CTL2 FAN_TAC2 |
| SYS_FAN2 | FAN_CTL3 FAN_TAC3 |
| SYS_FAN3 | FAN_CTL5 FAN_TAC5 |
| OPT_FAN or SYS_FAN4 | N/A |
| THRMTRIP1 | YES PIN60 |
| THRMTRIP2 | YES PIN94 |

| IT8620E GPIO問題匯整 | |
|------------------|---|
| PIN 50 | GP26-第一次接上POWER時會拉 Lo |
| PIN 90/91 | DEFAULT為HDLed FUNCTION, GP93 BYPASS TO GP92 高溫時 GP92 會被拉Lo(ITE BUG) |
| PIN 108 | GP40--- POWER ON 時會拉 Lo |
| PIN 111/112 | MOUSE 跟FAN6 FUNCTION 擇一使用, 不然會互相干擾 |
| PIN 22 | PIN22- 需高於3V, 若低於 接部分COM PORT及LPT裝置 蜂鳴器會異常動作。 |

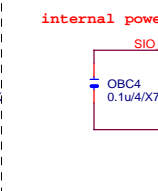
DUAL BIOS OPT STRAP



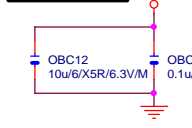
Power leakage



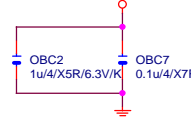
SIO_18V



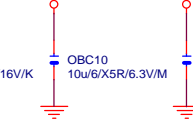
SIO CAP



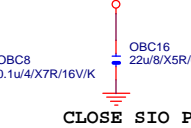
IT_VCCH



IT_AVCC



3VDUAL_PCH



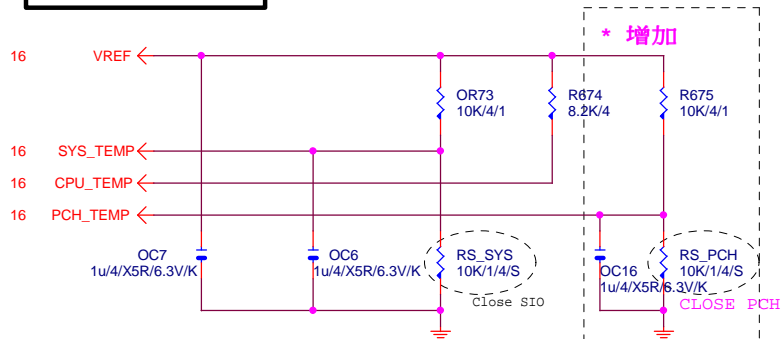
2_5LEVEL



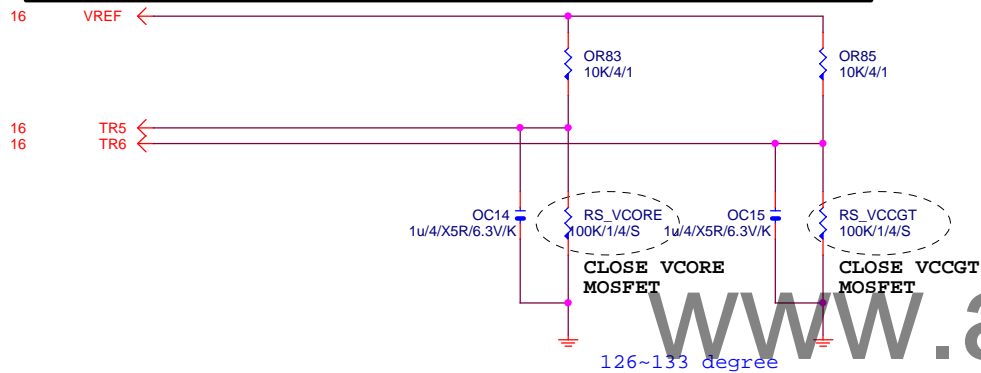
CLOSE SIO PIN4 2_5LEVEL

TEMP H/W MONITOR

REV 1.08



RS_VCORE, RS_VCCGT, CLOSE CPU_VCORE & VCCGT MOSFET

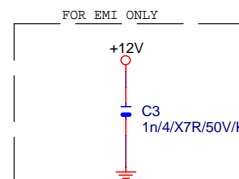
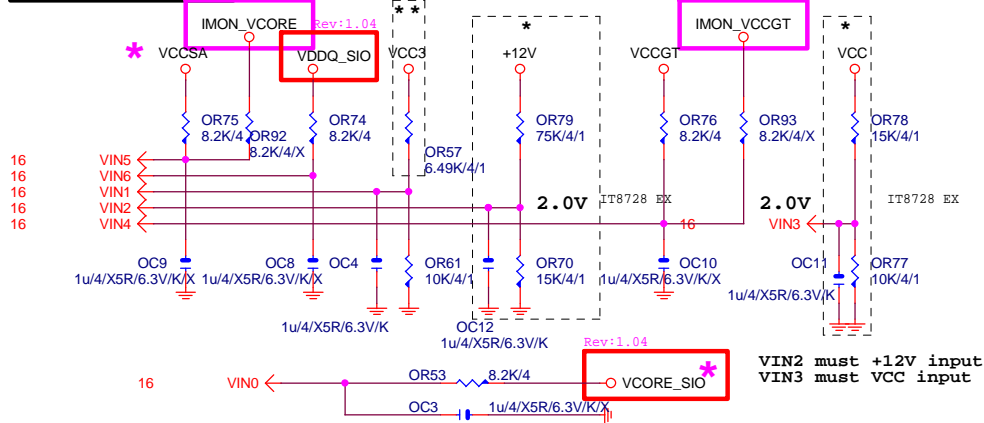
~~PROCHOT: 有mos heartsink不用prochot function~~

VOLTAGE-- H/W MONITOR

Connect to PWM

* IT8728 BX
** IT8728 CX

Connect to PWM



Gigabyte Technology

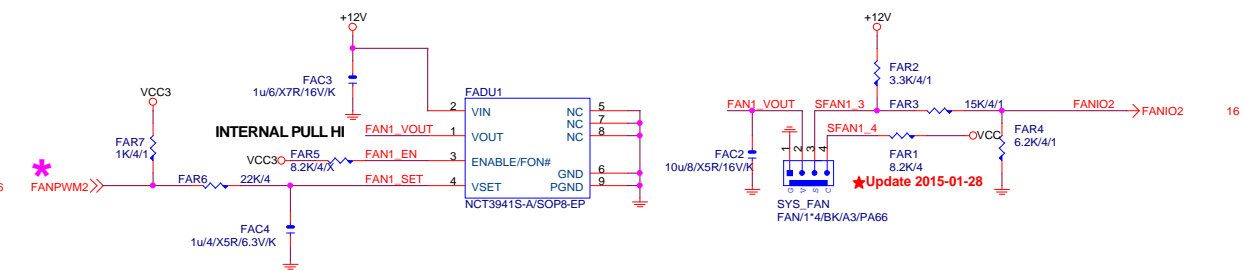
| | | | | |
|--------|----------------------------|-------|---------------------|-------|
| Title | | | HWM,KB/MS, FAN CTRL | |
| Size | Document Number | | Rev | |
| Custom | GA-H110M-S2H | | 1.0 | |
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CPU SMART FAN
Rev: 0.7

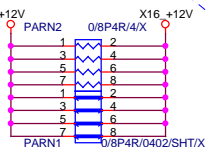
SYSTEM FAN1

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

A.



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 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP0 C |
| PA_EXP_TXN0 | PAC4 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN0 C |
| PA_EXP_TXP1 | PAC6 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP1 C |
| PA_EXP_TXN1 | PAC7 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN1 C |
| PA_EXP_TXP2 | PAC8 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP2 C |
| PA_EXP_TXN2 | PAC9 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN2 C |
| PA_EXP_TXP3 | PAC10 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP3 C |
| PA_EXP_TXN3 | PAC11 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN3 C |
| PA_EXP_TXP4 | PAC12 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP4 C |
| PA_EXP_TXN4 | PAC13 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN4 C |
| PA_EXP_TXP5 | PAC14 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP5 C |
| PA_EXP_TXN5 | PAC15 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN5 C |
| PA_EXP_TXP6 | PAC16 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP6 C |
| PA_EXP_TXN6 | PAC17 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN6 C |
| PA_EXP_TXP7 | PAC18 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP7 C |
| PA_EXP_TXN7 | PAC19 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN7 C |
| PA_EXP_TXP8 | PAC21 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP8 C |
| PA_EXP_TXN8 | PAC20 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN8 C |
| PA_EXP_TXP9 | PAC22 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP9 C |
| PA_EXP_TXN9 | PAC23 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN9 C |
| PA_EXP_TXP10 | PAC24 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP10 C |
| PA_EXP_TXN10 | PAC25 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN10 C |
| PA_EXP_TXP11 | PAC26 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP11 C |
| PA_EXP_TXN11 | PAC27 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN11 C |
| PA_EXP_TXP12 | PAC28 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP12 C |
| PA_EXP_TXN12 | PAC29 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN12 C |
| PA_EXP_TXP13 | PAC30 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP13 C |
| PA_EXP_TXN13 | PAC31 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN13 C |
| PA_EXP_TXP14 | PAC32 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP14 C |
| PA_EXP_TXN14 | PAC33 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN14 C |
| PA_EXP_TXP15 | PAC34 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXP15 C |
| PA_EXP_TXN15 | PAC35 | 0.22u/4/X5R/6.3V/K | PA_EXP_TXN15 C |

PCIE16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

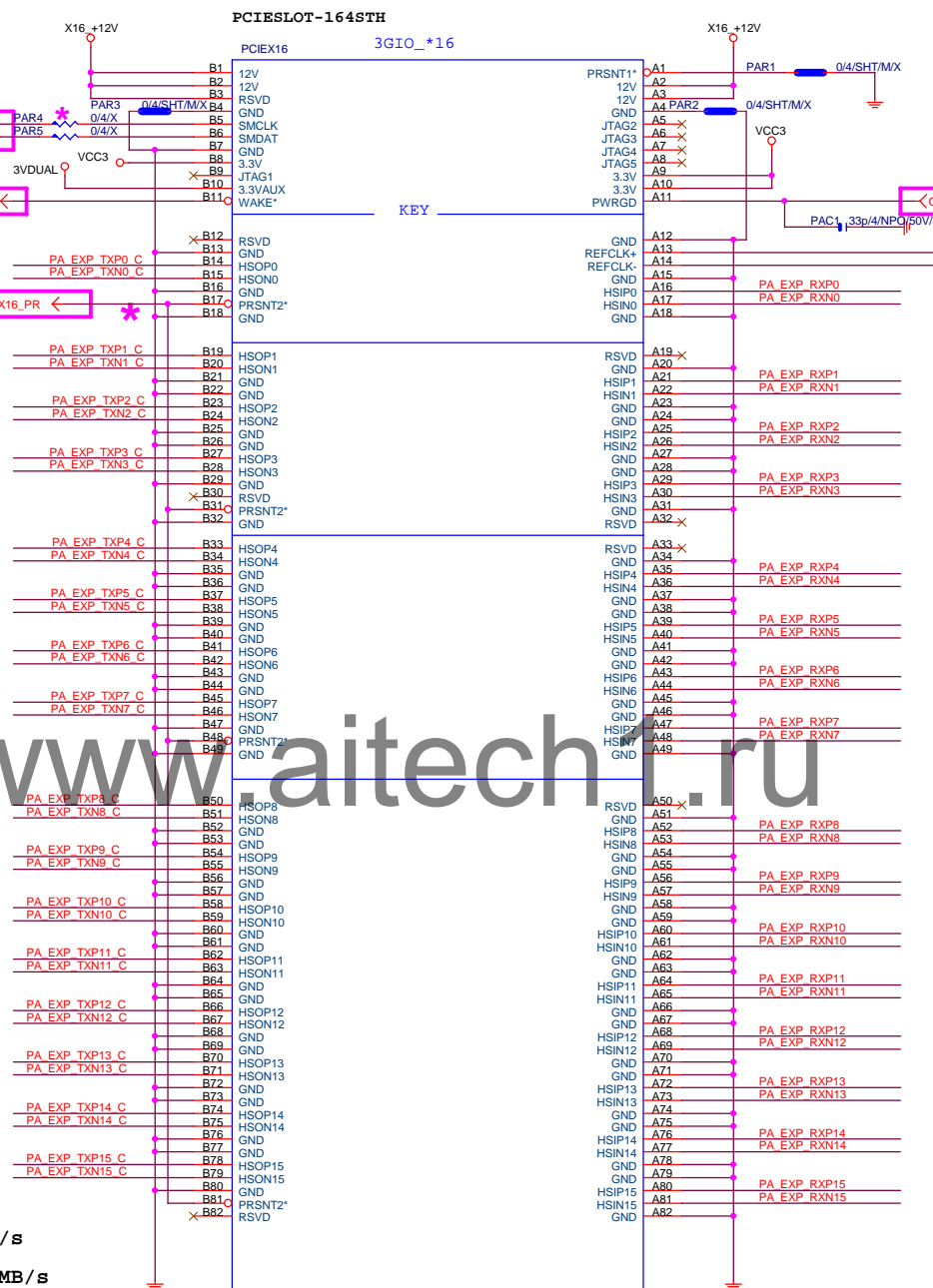
PCE-E X1(單向) BANDWIDTH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

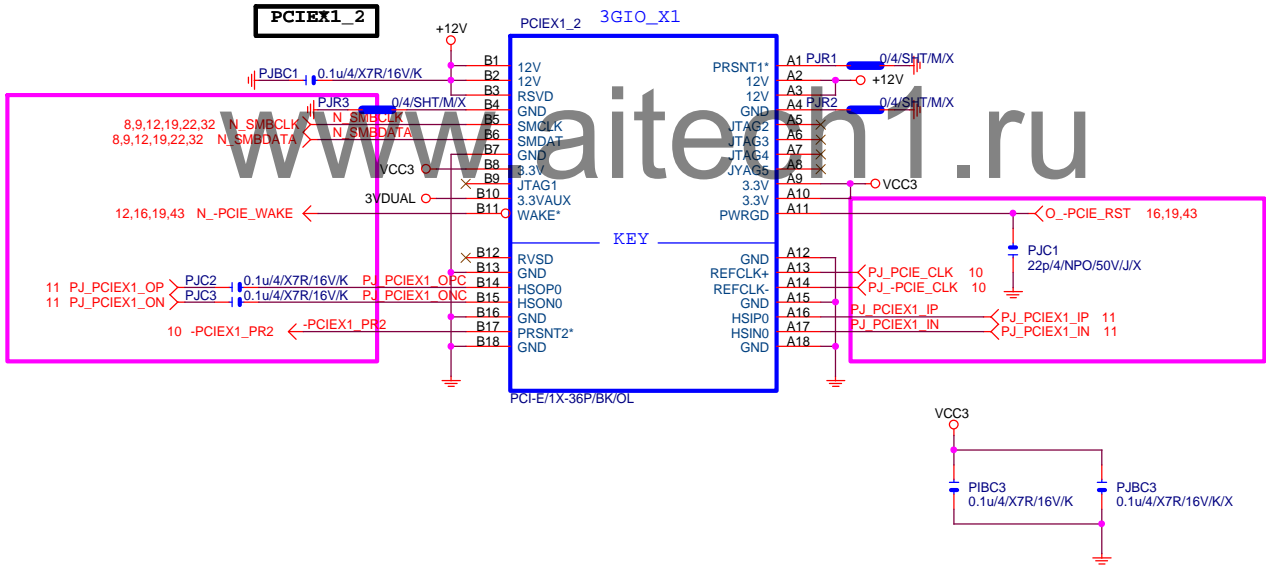
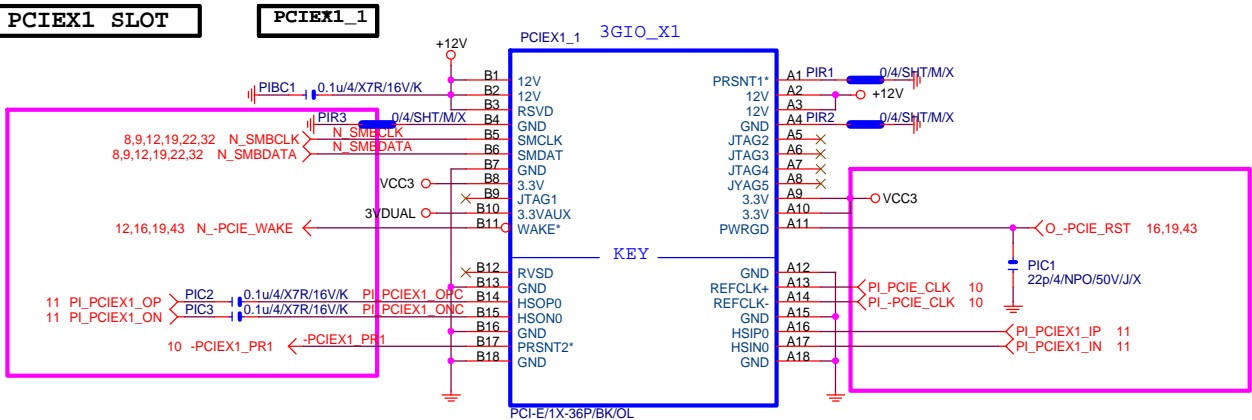
PCE-E X1(雙向) BANDWIDTH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

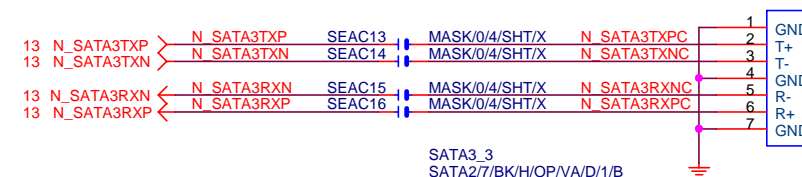
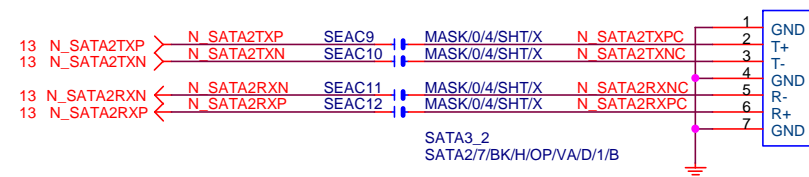
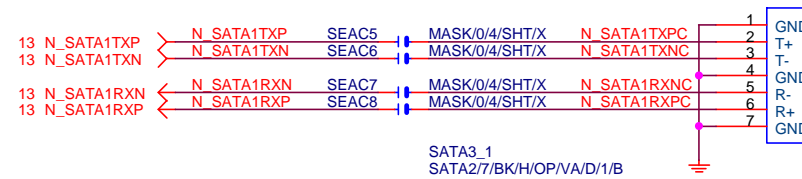
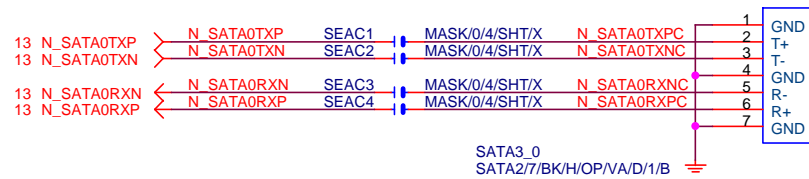
PCE-E X16(雙向) BANDWIDTH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ



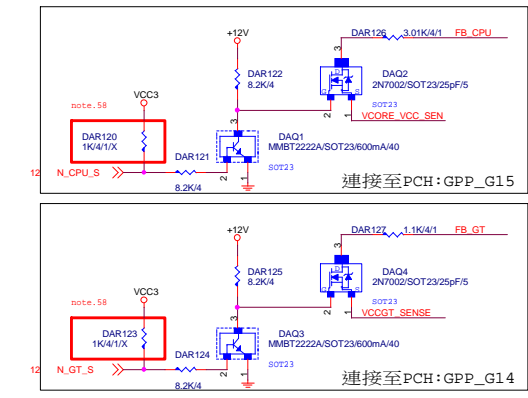
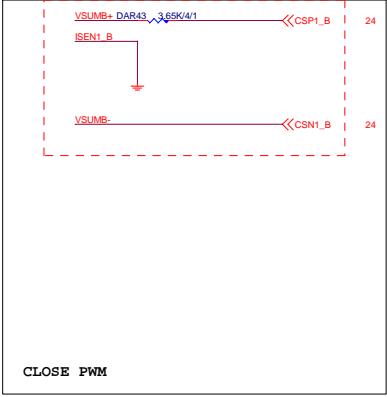
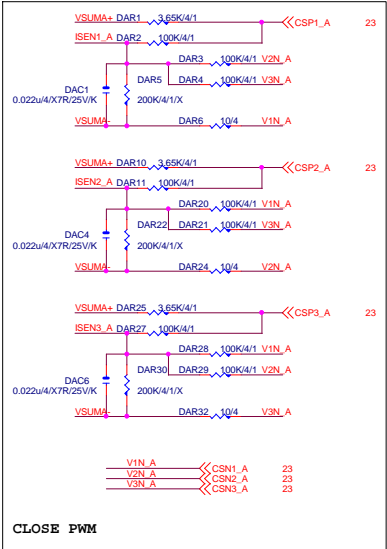
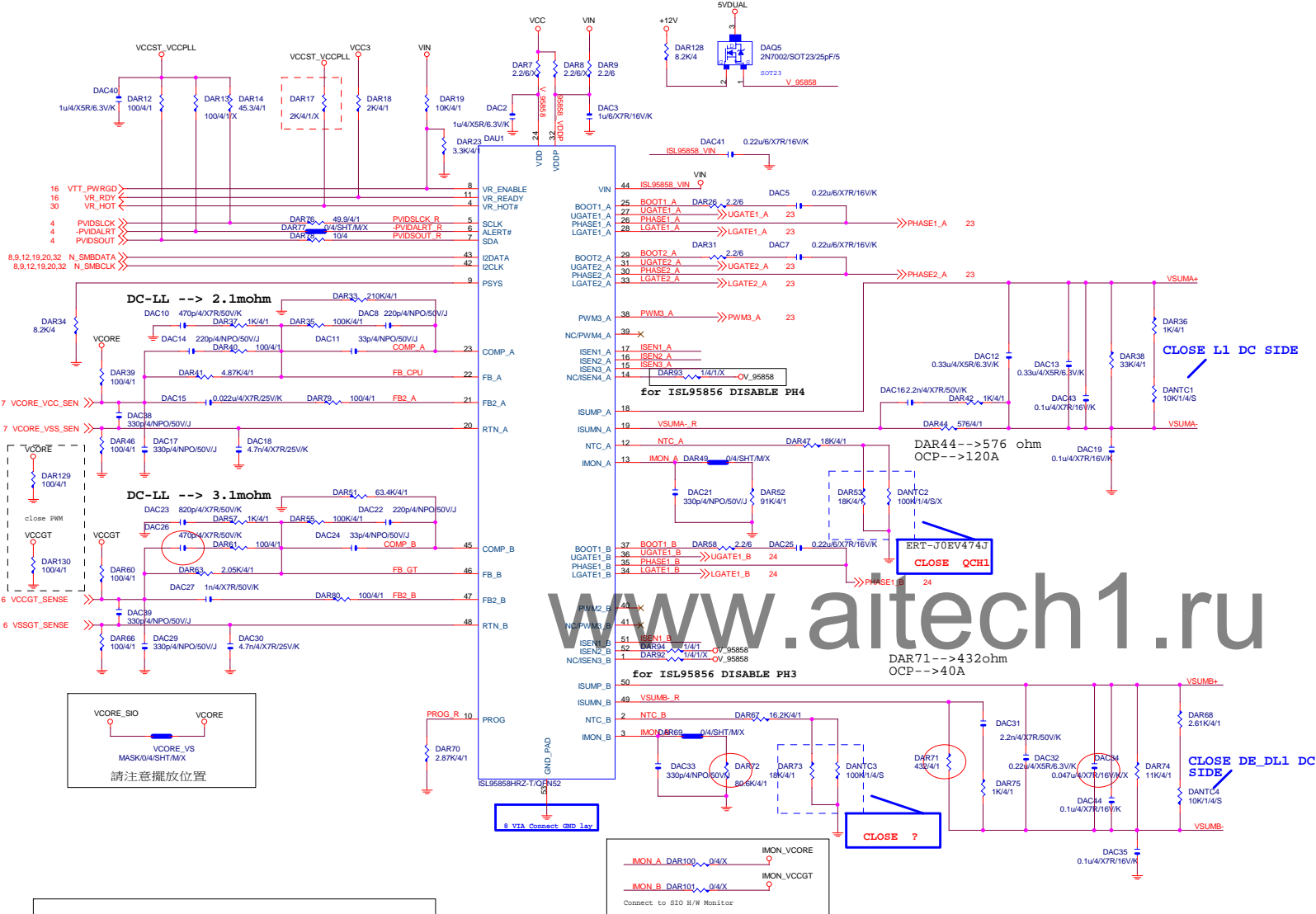


Rev 0.6

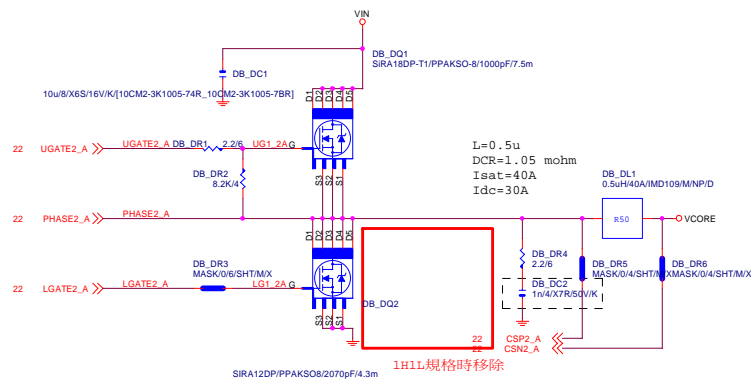


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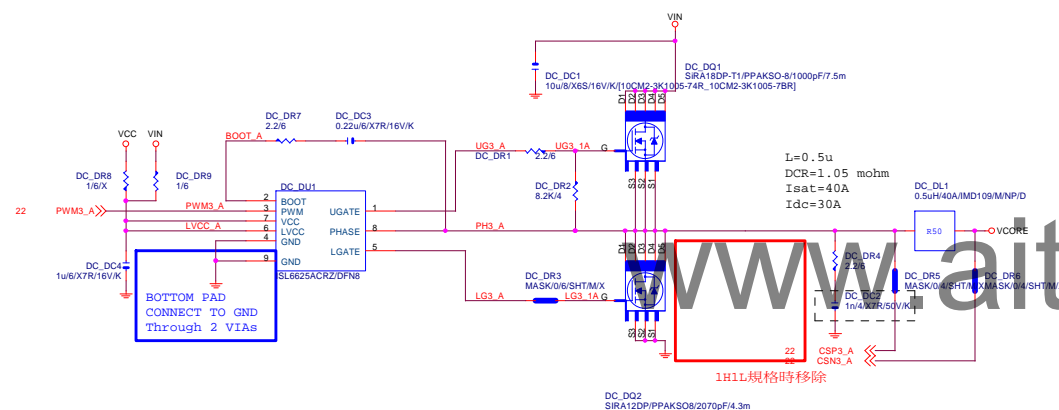
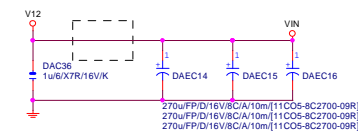
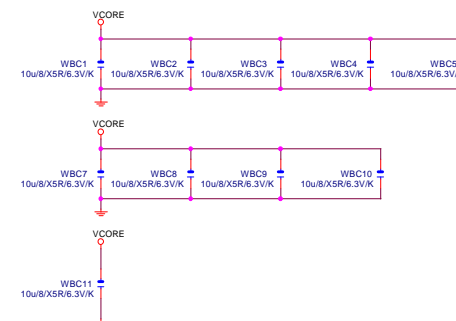
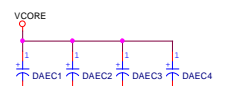
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| Gigabyte Technology | | | |
| Title | | | |
| SATA EXPRESS | | | |
| Size | Document Number | | Rev |
| Custom | GA-H110M-S2H | | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet | 21 of 50 |



VCORE



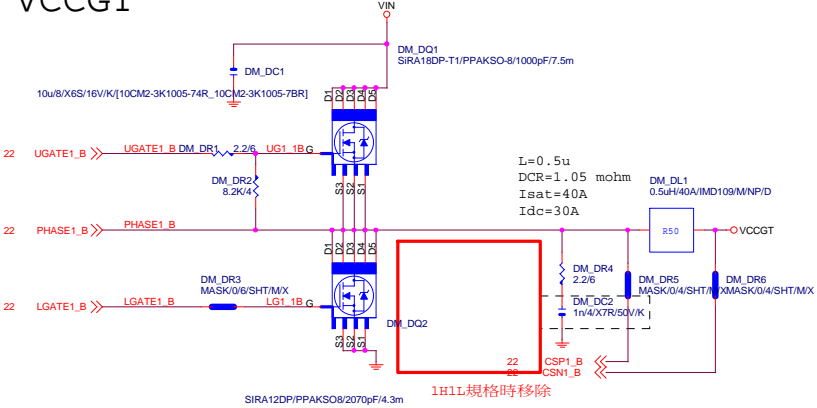
VIN CAP 270u*3PCS

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

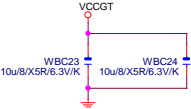
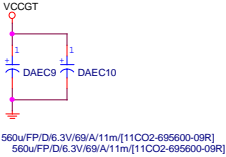
GIGABYTE™

| | | | |
|--------------|----------------------------|-------|----------|
| Title | | | |
| ISL95858_MOS | | | |
| Size | Document Number | Rev | |
| Custom | GA-H110M-S2H | 1.0 | |
| Date: | Friday, September 25, 2015 | Sheet | 23 of 50 |

VCCGT



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



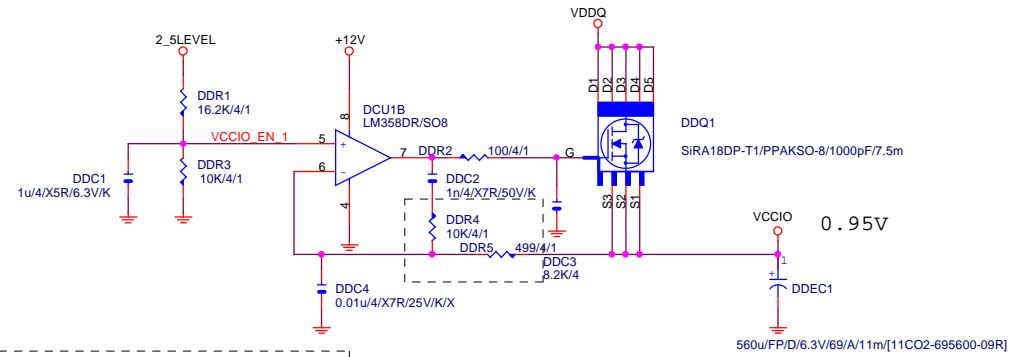
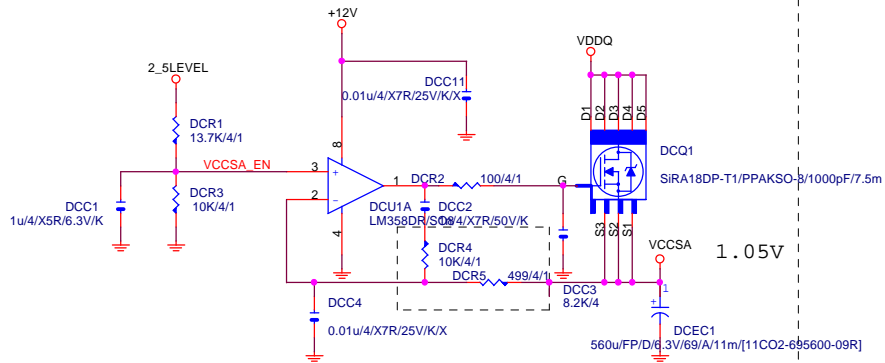
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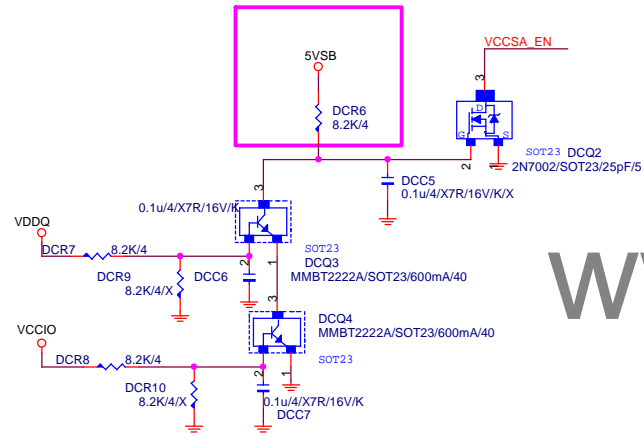
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| Size | Document Number | Rev |
| Custom | GA-H110M-S2H | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 24 of 50 |

VCCSA REV:0.4

VCCIO

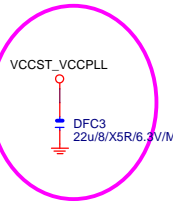
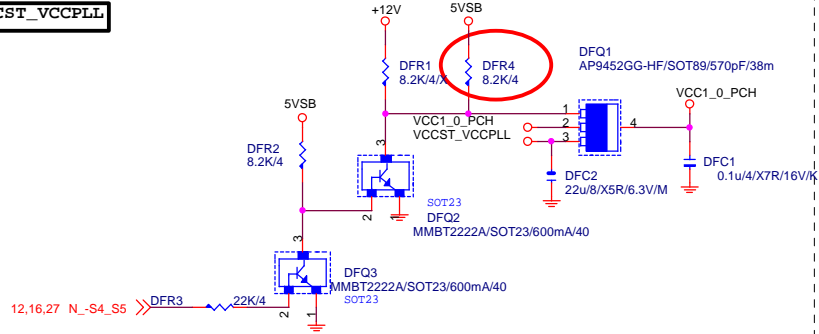


VCCIO_EN 1 DDR10 0/4/SHT/M/X VCCIO_EN 16
Connect to IT8620



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VCCST_VCCPLL



| GIGABYTE™ | | | |
|----------------------------------|------------------------------|---------|--|
| Title VCCSA_VCCIO | | | |
| Size Custom | Document Number GA-H110M-S2H | Rev 1.0 | |
| Date: Friday, September 25, 2015 | Sheet 25 | of 50 | |



For power sequence require

VPP_25V使用8120時上件

DDRVTT CAP

* 大電容 x0

GIGABYTE™

RT8237 DDR4 POWER

| | |
|-----------------|--------------|
| Document Number | GA-H110M-S2H |
|-----------------|--------------|

Friday, September 25, 2015

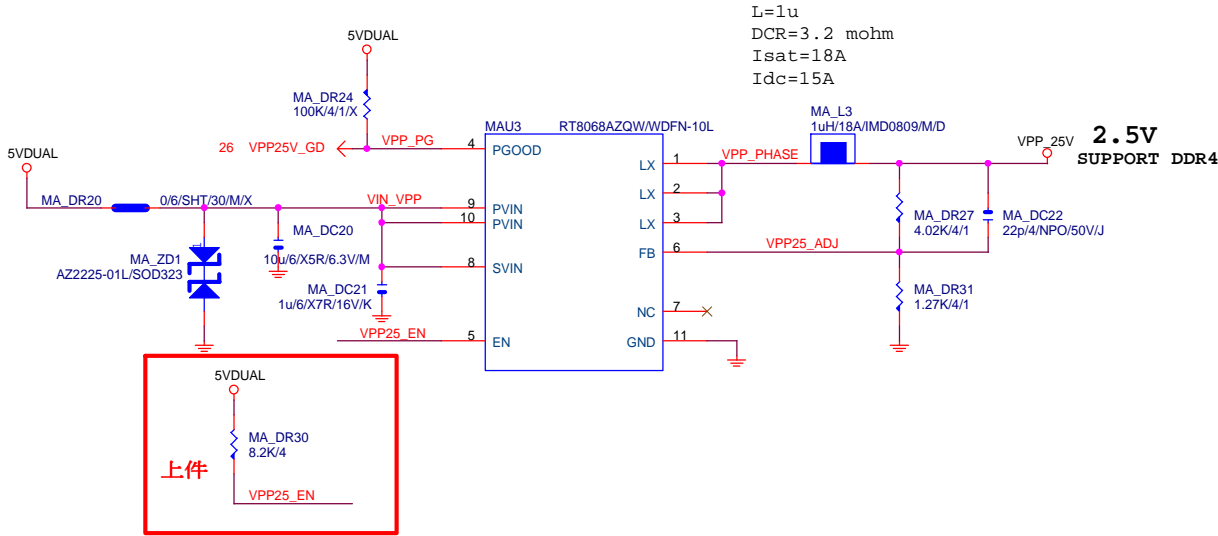
| | |
|-----|-----|
| Rev | 1.0 |
|-----|-----|

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REV:0.4

VPP_25V

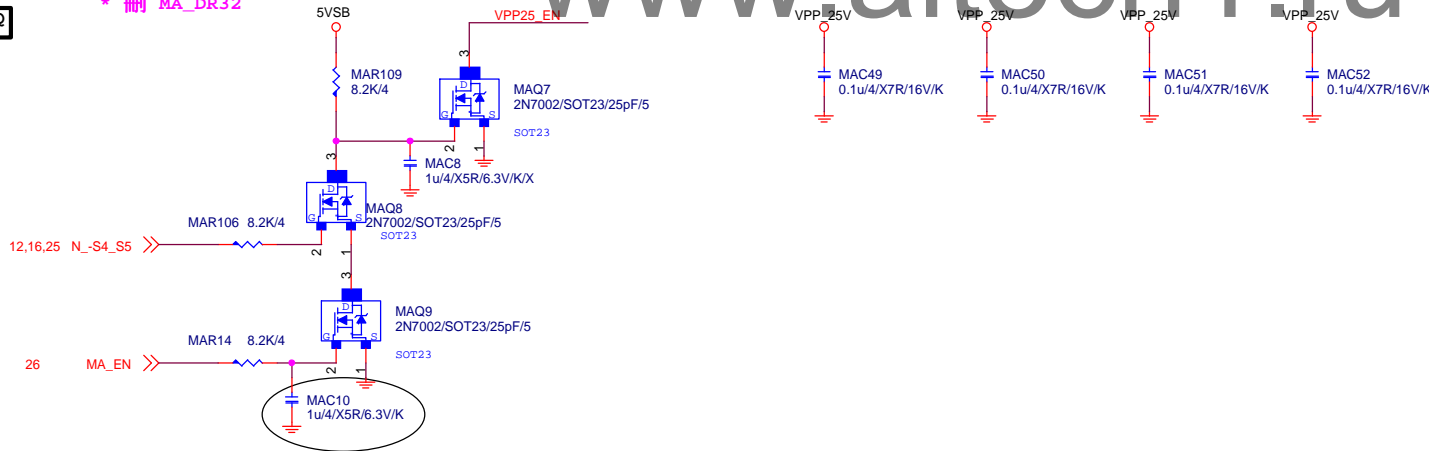
CHOKE與CAP料號可變



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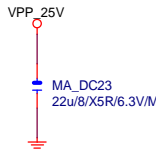
PWR_SEQ

* 刪 MA_DR32



VPP CAP 22u*1PCS

* 大電容 x0



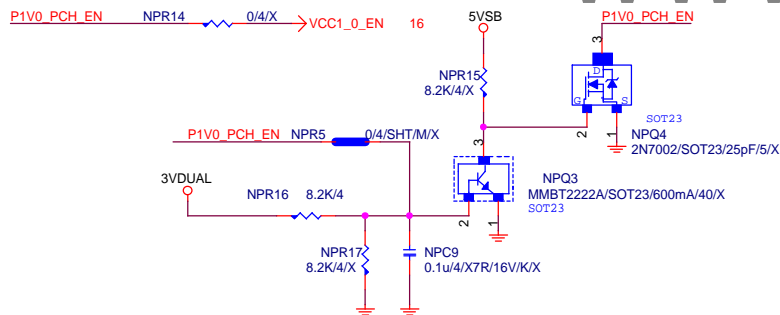
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| | | |
|--------------------|----------------------------|----------------|
| Title | | |
| RT9018_VPP25 POWER | | |
| Size | Document Number | Rev |
| Custom | GA-H110M-S2H | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 27 of 50 |

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



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請放置CHOKE一出來的地方

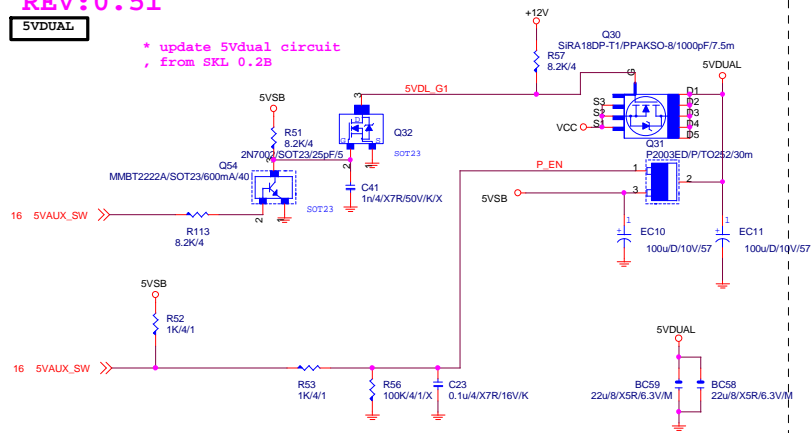
GIGABYTE™

| | | | | |
|----------------------------------|--|-------|-------|-------------------|
| Title RT8237_PCH POWER | | | | |
| Size Custom | Document Number GA-H110M-S2H | | | Rev 1.0 |
| Date: | Friday, September 25, 2015 | Sheet | 28 of | 50 |

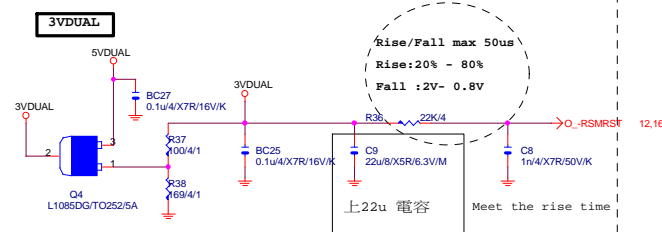
REV:0.51

5VDUAL

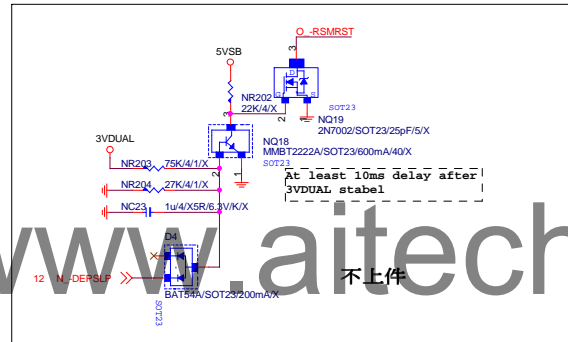
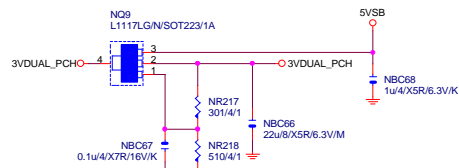
* update 5Vdual circuit
from SKL 0.2B



3VDUAL



3VDUAL_PCH



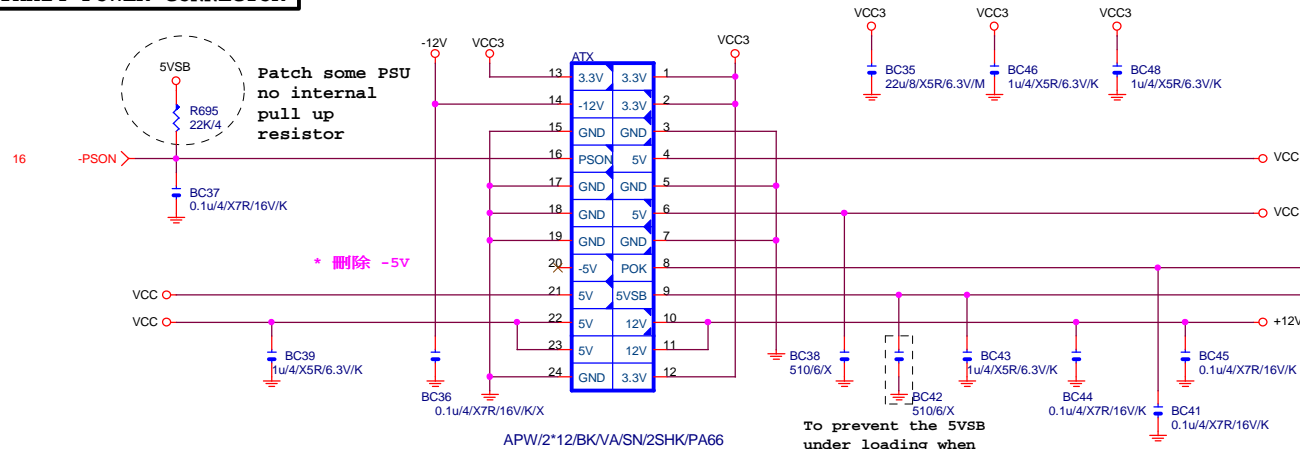
www.aitech1.ru

不上件

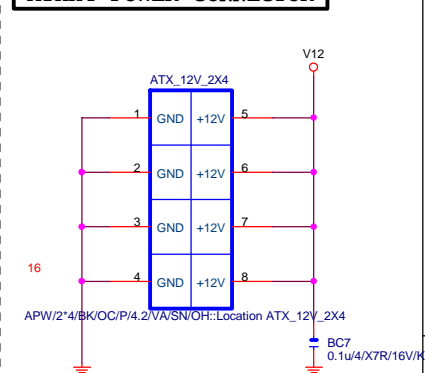
Gigabyte Technology

| | | |
|----------------|----------------------------|----------------|
| Title | | |
| DISCRETE POWER | | |
| Size | Document Number | Rev |
| Custom | GA-H110M-S2H | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 29 of 50 |

ATXX24 POWER CONNECTOR

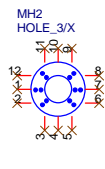
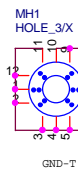


ATXX4 POWER CONNECTOR

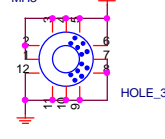


螺絲孔

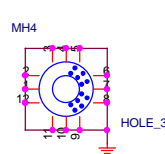
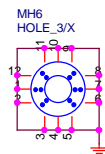
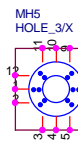
MH1:GND-T
FOR EMI
TEST驗證



14/12/24
Modify for EMI
MH3

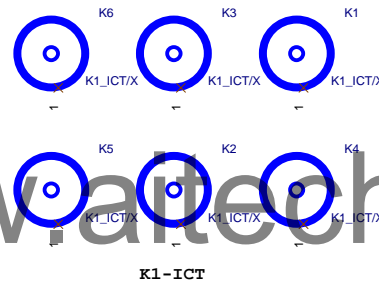


HOLE_4-RH-1



HOLE_4-RH-5MM-1

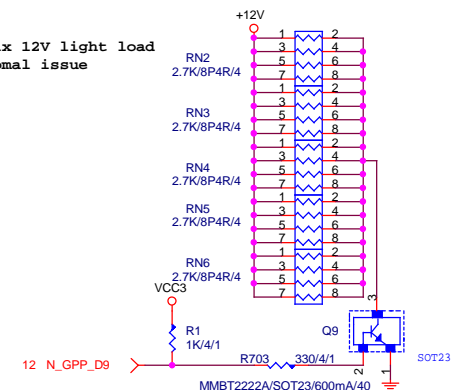
固定孔/光學點



To prevent the 5VSB under loading when boot

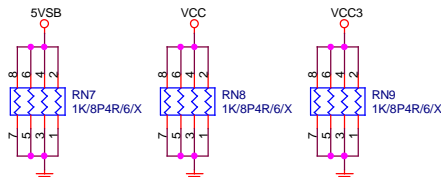
+12V DUMMY LOAD

To fix 12V light load abnormal issue



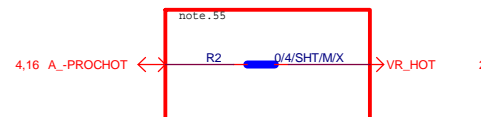
【技術通報R&D技術通報153】

DUMMY LOAD

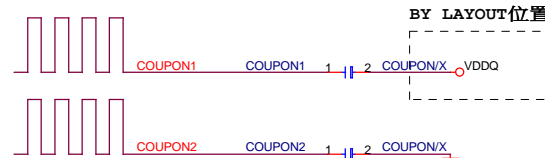


-PROHOT

* 保留 ?



COUPON



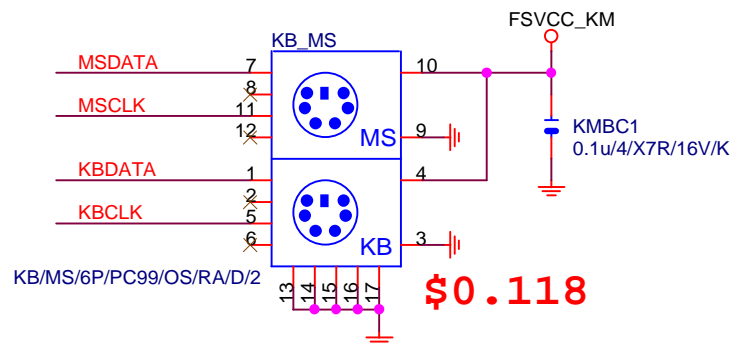
BY LAYOUT位置

Gigabyte Technology

| | | |
|---------------------|----------------------------|----------------|
| Title | | |
| ATX POWER CONNECTOR | | |
| Size | Document Number | Rev |
| Custom | GA-H110M-S2H | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 30 of 50 |

KB_MS_USB

Rev: 0.7

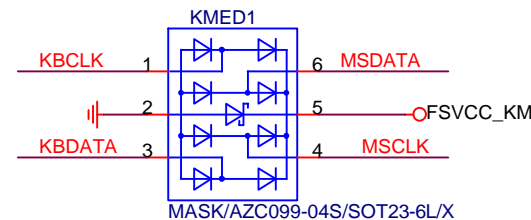
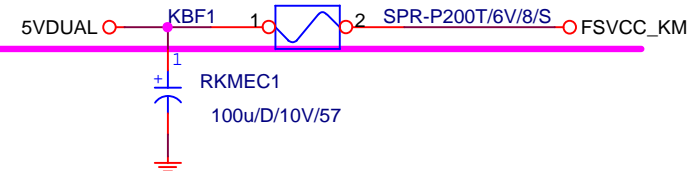


ESD

NET 可變, 與其他USB SHARE

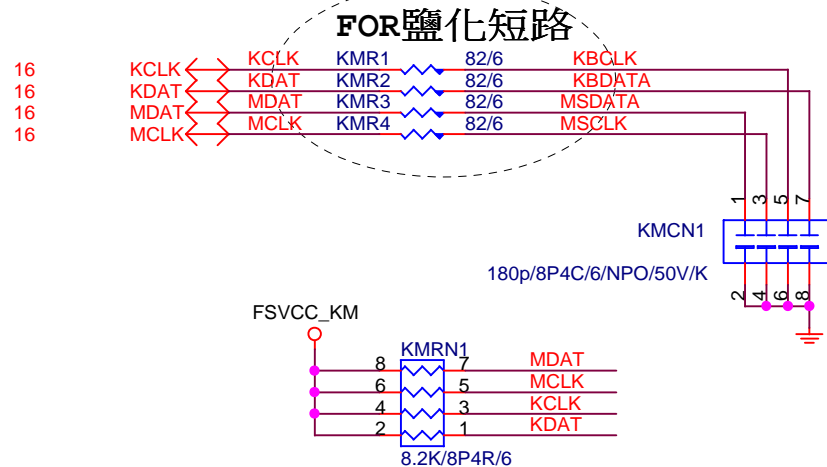
KB PWR

FUSE-0805



KB_MS_USB DAMPING/PU

KB_MS_USB PWR



Gigabyte Technology

Title

KB_MS_USB

Size
A

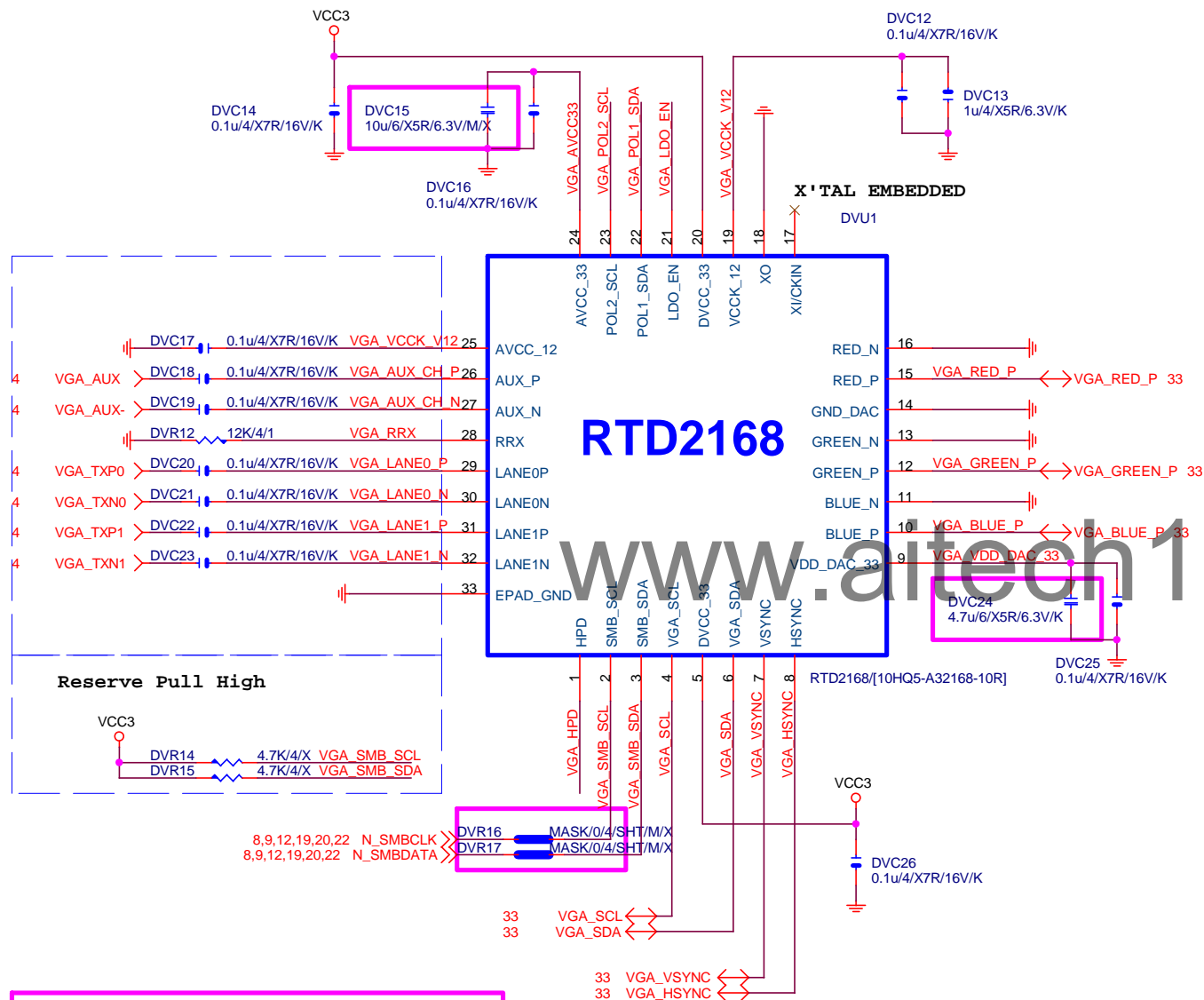
Document Number

GA-H110M-S2H

Rev
1.0

Date: Friday, September 25, 2015

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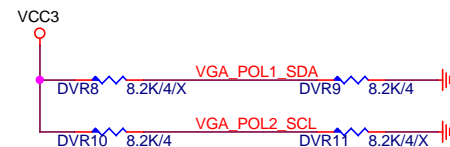
放置PCH端



POWER

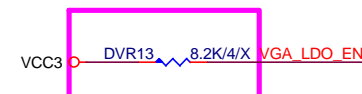


Power on latch



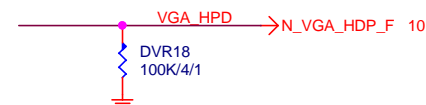
| | | POL1_SDA(PIN22) | |
|---------------------|---|--------------------------|----------------|
| | | 0 | 1 |
| POL2_SCL (PIN23) | 0 | X | EP MODE |
| | 1 | ROM ONLY MODE | EEPROM MODE |

Embedded LDO

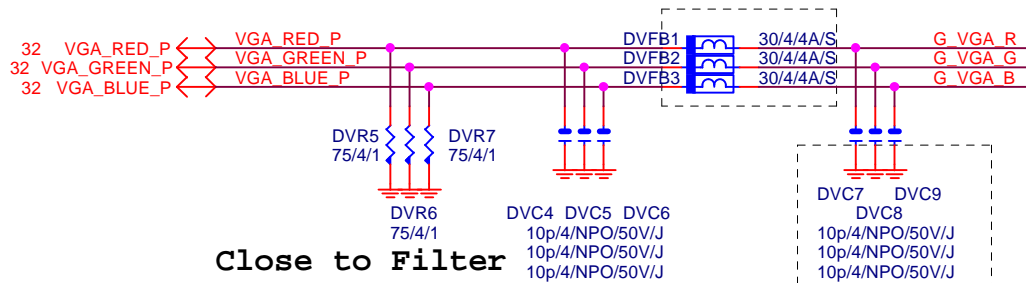
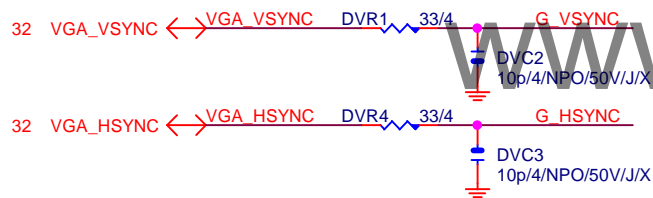
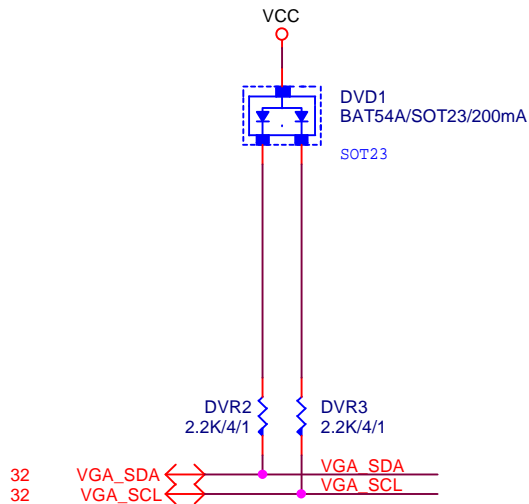


| LDO_EN(PIN21) | |
|-----------------------------|----------------------------|
| 0 | 1 |
| VCCK_V12 from External 1.2V | VCCK_V12 from Embedded LDO |

DP HPD



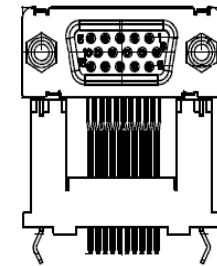
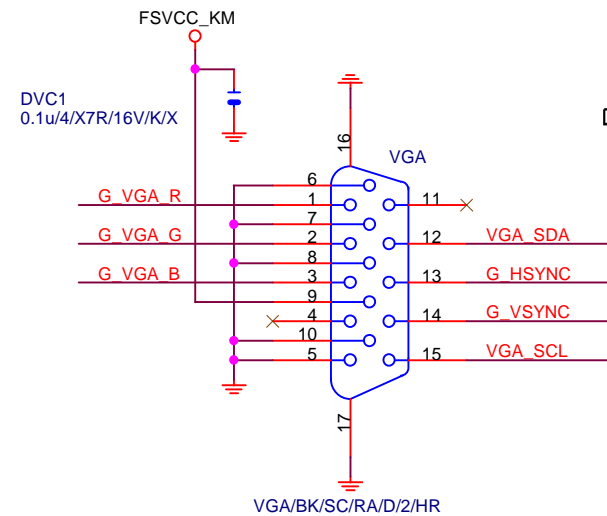
| | |
|------------|-------|
| VGA SIGNAL | R1.03 |
|------------|-------|



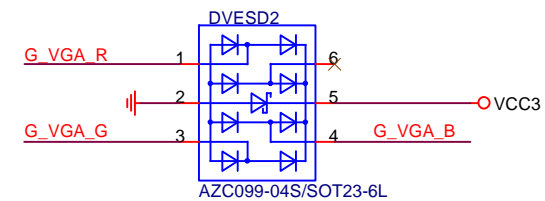
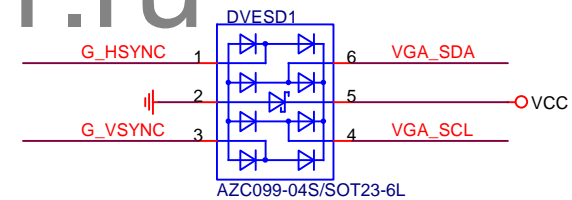
Close to Filter

FOR EMI

VGA CONN.



VGA ESD



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NXP-PTN3356

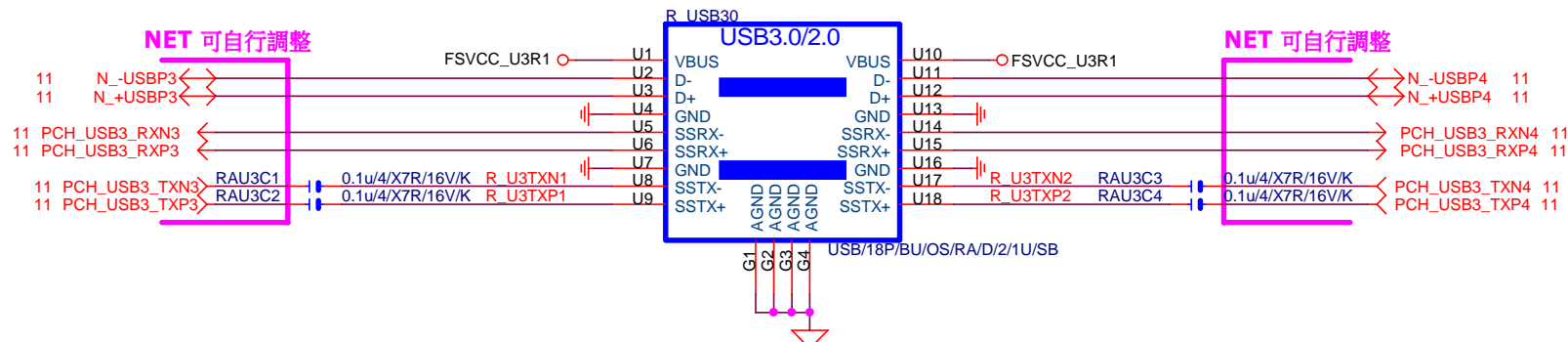
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|--------|-----------------|---------------------|
| Size | Document Number | GA-H110M-S2H |
| Custom | | |

| | |
|-----|-----|
| Rev | 1.0 |
|-----|-----|

| | | | | | |
|-------|----------------------------|-------|----|----|----|
| Date: | Friday, September 25, 2015 | Sheet | 33 | of | 50 |
|-------|----------------------------|-------|----|----|----|

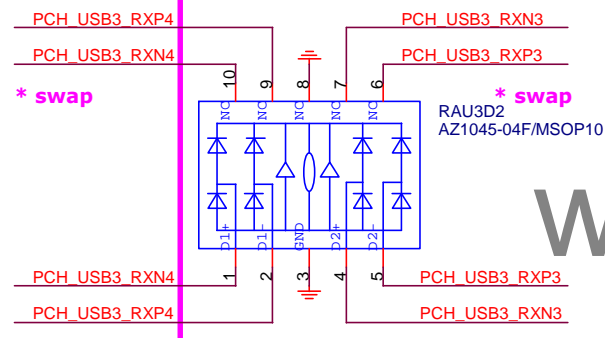
Rev: 0.7

ESD 可自行SWAP PIN ,CONN端 NET 名稱 不可

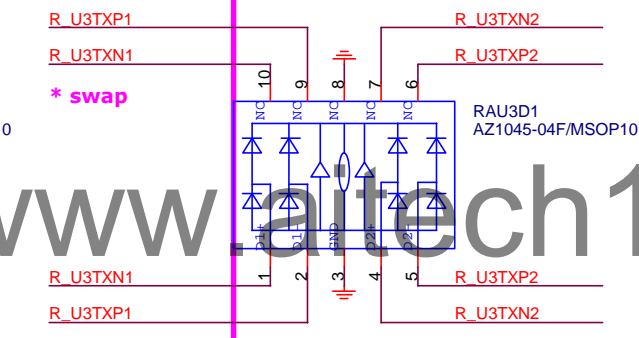


ESD

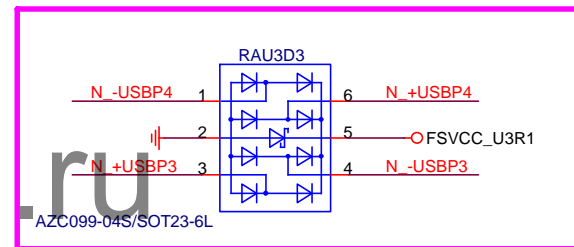
NET 可自行調整



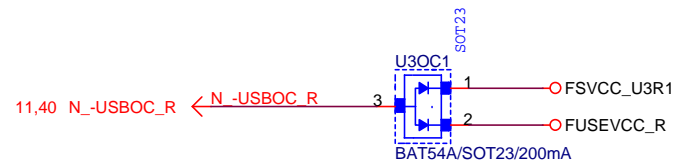
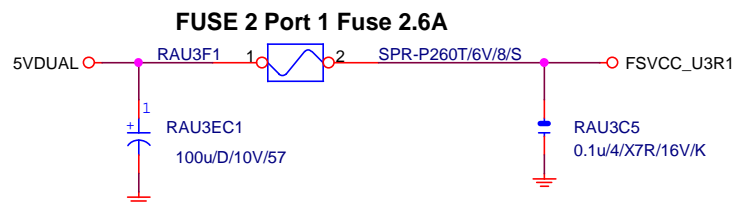
NET 可自行調整



NET 可自行調整



FUSE



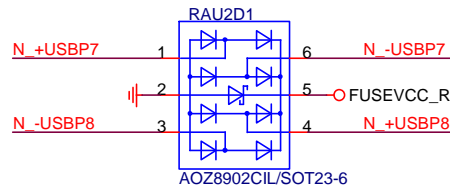
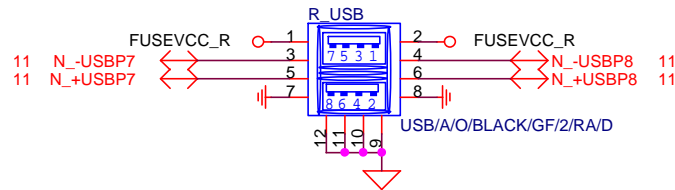
Gigabyte Technology

| | | | | |
|--------|--|--|----------------------------|----------------|
| Title | | | R_USB30,USB_OC | |
| Size | | | Document Number | |
| Custom | | | GA-H110M-S2H | |
| Date: | | | Friday, September 25, 2015 | Sheet 34 of 50 |
| | | | | Rev 1.0 |

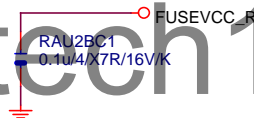
Rev: 0.61

REAR USB1

NET 可變



FUSE 2 Port 1 Fuse 2A

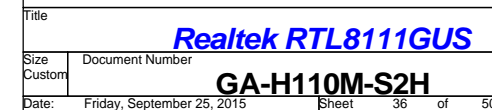


ESD

FUSE

Gigabyte Technology

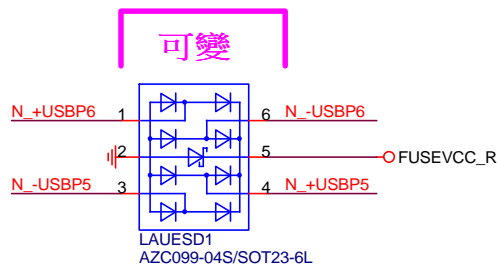
| | | | |
|----------------|----------------------------|--------------|----------|
| Title | | | |
| R_USB30,USB_OC | | | |
| Size | Document Number | GA-H110M-S2H | |
| Custom | | | Rev 1.0 |
| Date: | Friday, September 25, 2015 | Sheet | 35 of 50 |



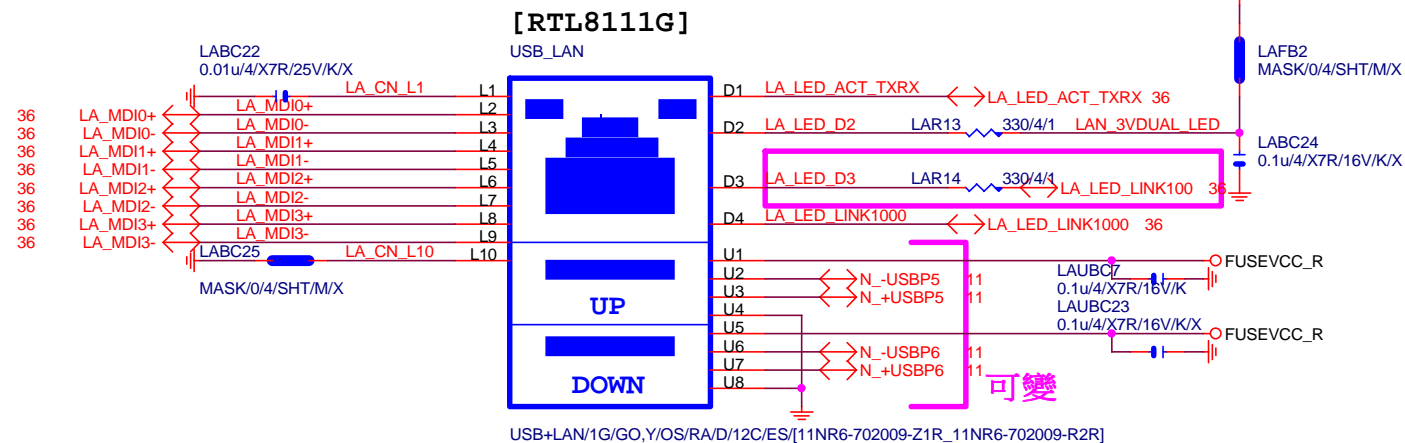
MDI ESD預留 *

R1.06

note:可變更USB NAME

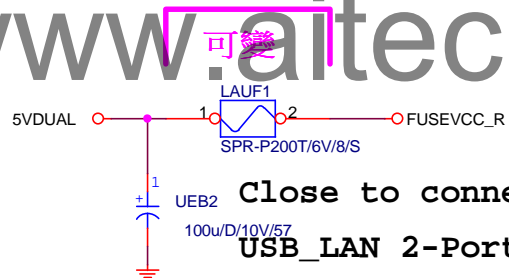


note:可變重USB NAME

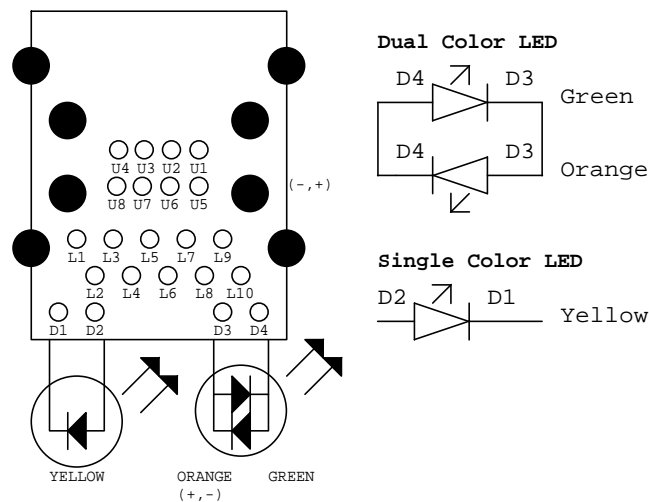


LA MDI-->100歐姆:[20/4/8/4/20]

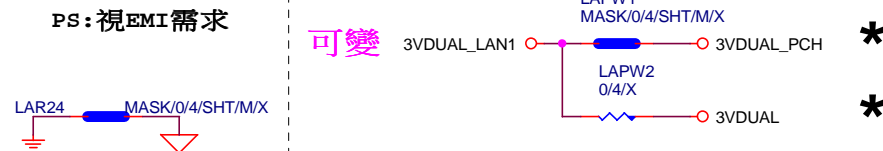
note:可變更FUSE



Close to connector
D/10V/57
USB_LAN 2-Port 2.0A
FUSE-0805



note: lan power連接及電流



Gigabyte Technology

LAN CONNECTOR-RTL8111G

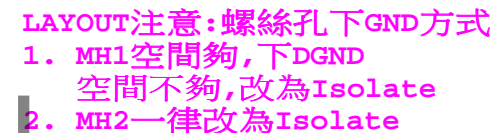
| | |
|--------|-----------------|
| Size | Document Number |
| Custom | |

GA-H110M-S2H

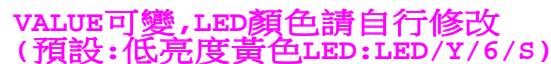
| | |
|-----|-----|
| Rev | 1.0 |
|-----|-----|

Date: Friday, September 25, 2015

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| <input type="radio"/> MH1 | <input type="radio"/> MH2 | |
|---------------------------|---------------------------|--|
| DGND | Isolate | |

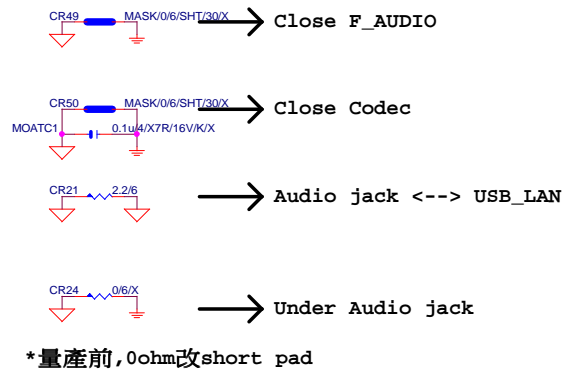


BOM OPTION : 1. Chemicon音效電容
2. 金屬外罩 Reserve (上件與否,依照各Model spec)
3. LED Reserve (上件與否和LED顏色,依照各Model spec)

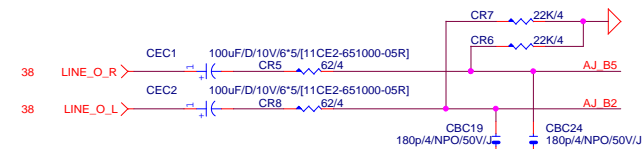
LAYOUT注意:要加
GND切割線

音效區域印刷

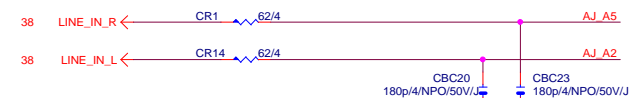
Rev 0.5



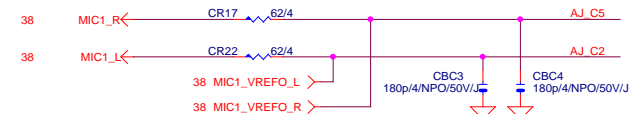
LINE-OUT



LINE-IN

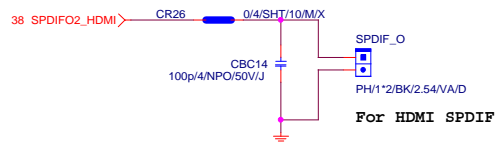


MIC-IN



SURROUND

SPDIF_OUT



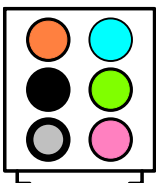
SPDIF_IN

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CEN/LFE

SURRBACK

AZALIA JACK

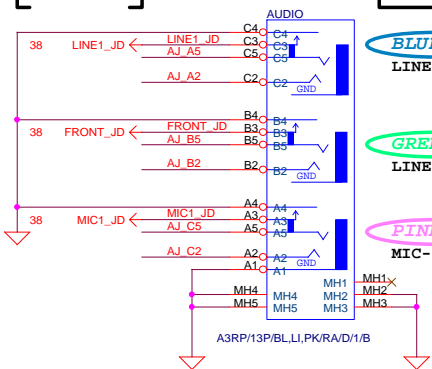


AZALIA JACK

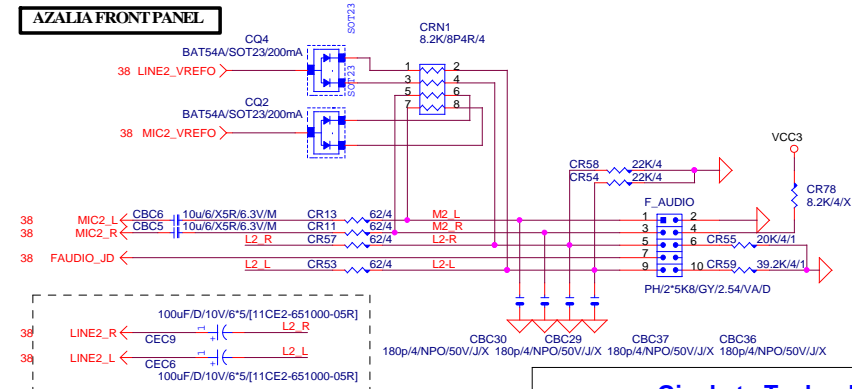
BLUE
LINE-IN

GREEN
LINE-OUT

PINK
MIC-IN



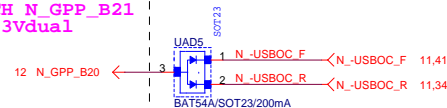
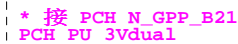
AZALIA FRONT PANEL



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| Title | | |
|------------|----------------------------|----------------|
| AUDIO JACK | | |
| Size | Document Number | Rev |
| Custom | GA-H110M-S2H | 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 39 of 50 |

Front USB3.0

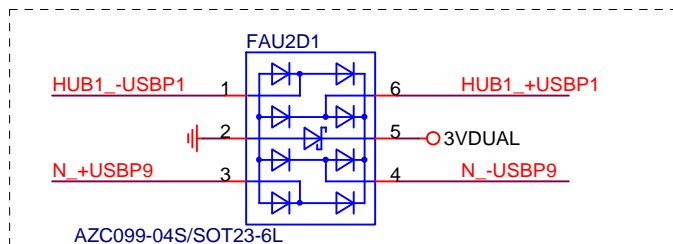
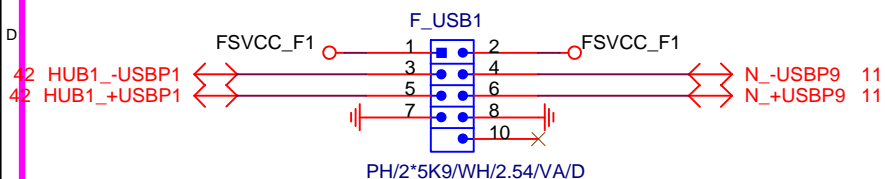


Rev: 0.61

FRONT USB1

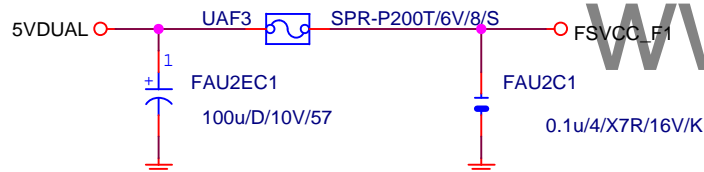
NET 可變

FUSB2X5-HS



Close to connector

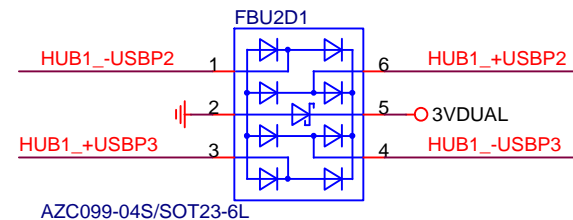
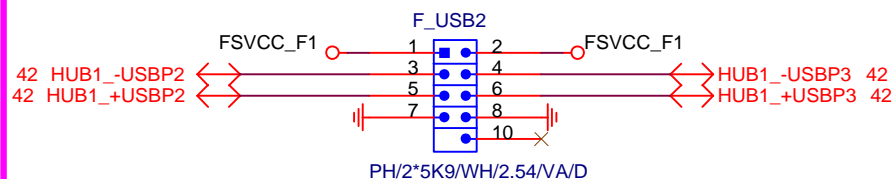
FUSE 2 Port 1 Fuse 2A



FRONT USB2

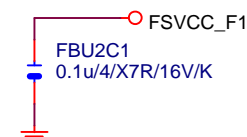
NET 可變

FUSB2X5-HS

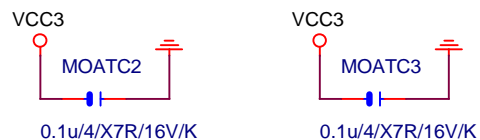
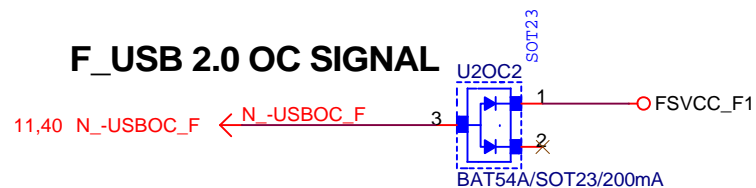


Close to connector

FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL



Gigabyte Technology

Title

USB2.0

Size
A

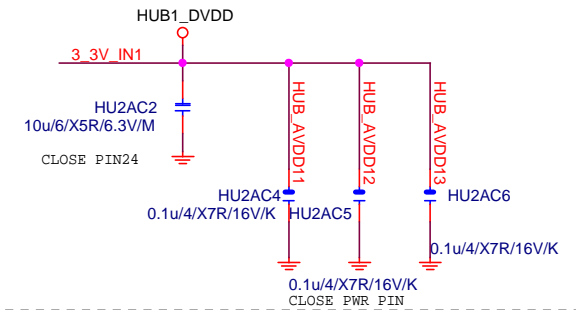
Document Number

GA-H110M-S2H

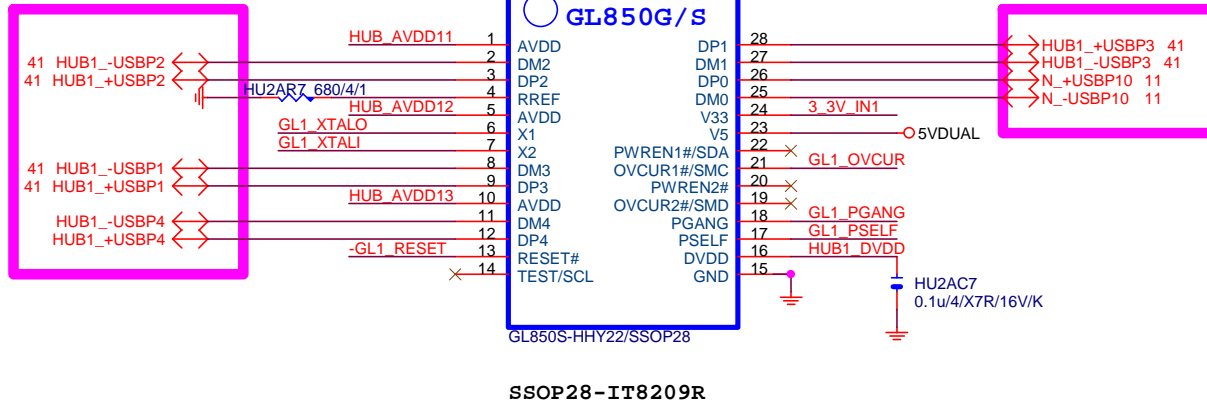
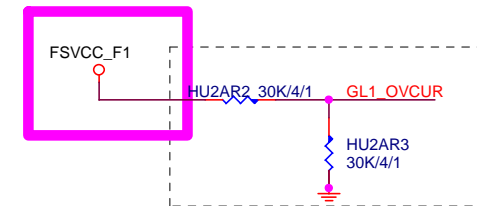
Rev
1.0

Date: Friday, September 25, 2015

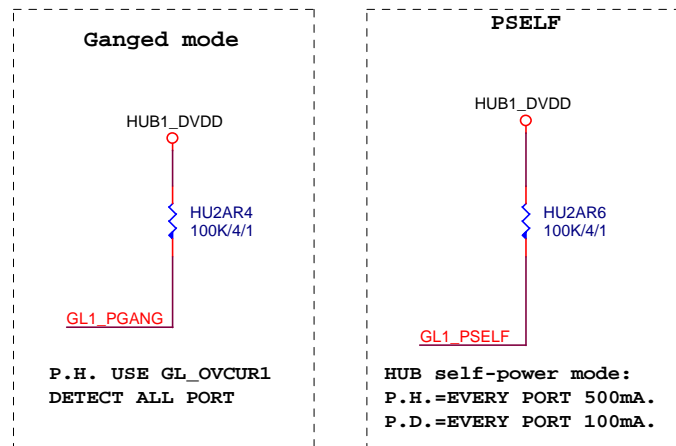
Sheet 41 of 50



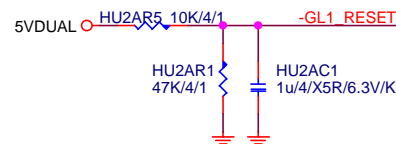
HUB OVER CURRENT SENSE



HUB MODE

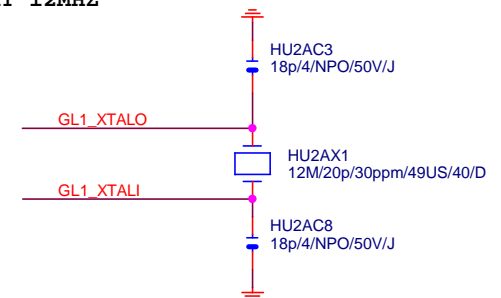


HUB RESET



HUB CRYSTAL

ONLY SUPPORT 12MHZ



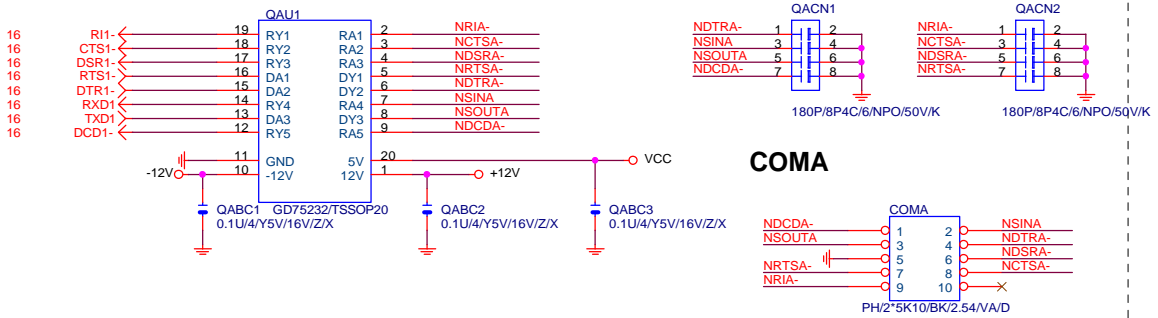
Gigabyte Technology

| | | | |
|---------------|----------------------------|-------|----------|
| Title | | | |
| HUB GL850GS_1 | | | |
| Size | Document Number | Rev | |
| Custom | GA-H110M-S2H | 1.0 | |
| Date: | Friday, September 25, 2015 | Sheet | 42 of 50 |

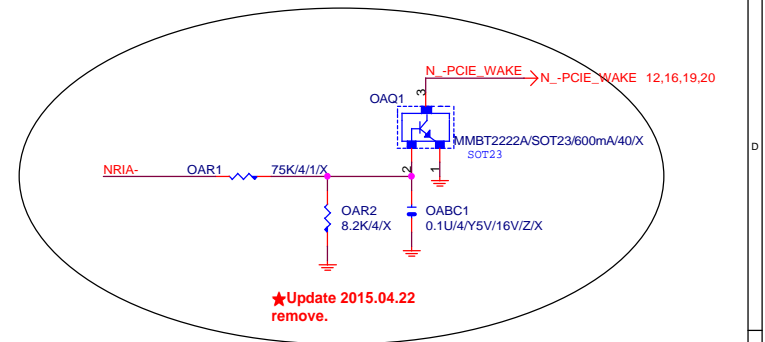
COM PORT

Rev: 0.7

COM PORT

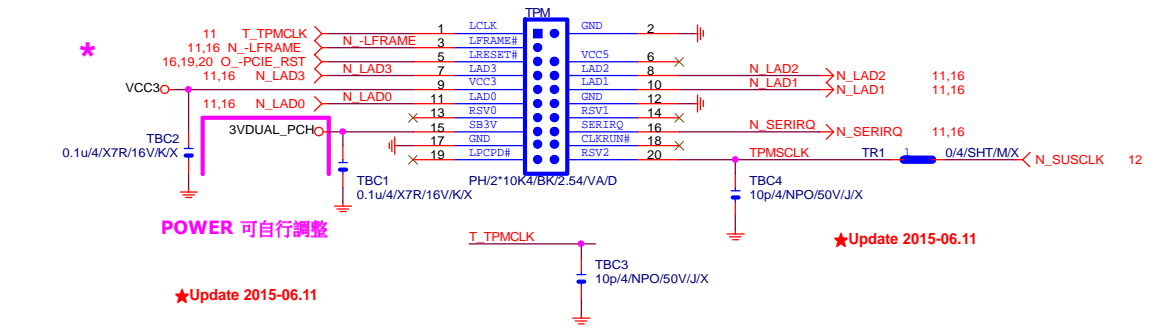


COM RI

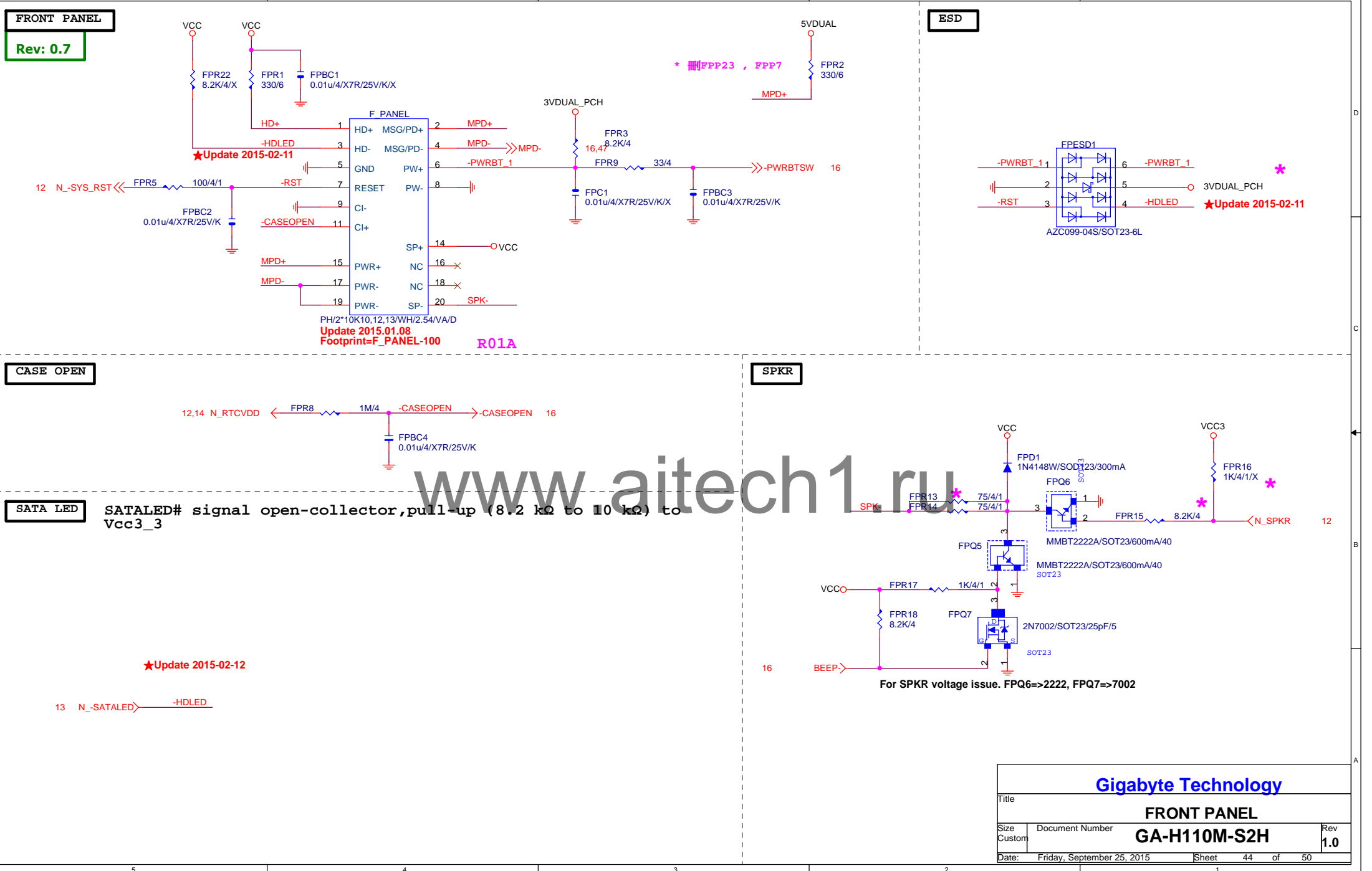


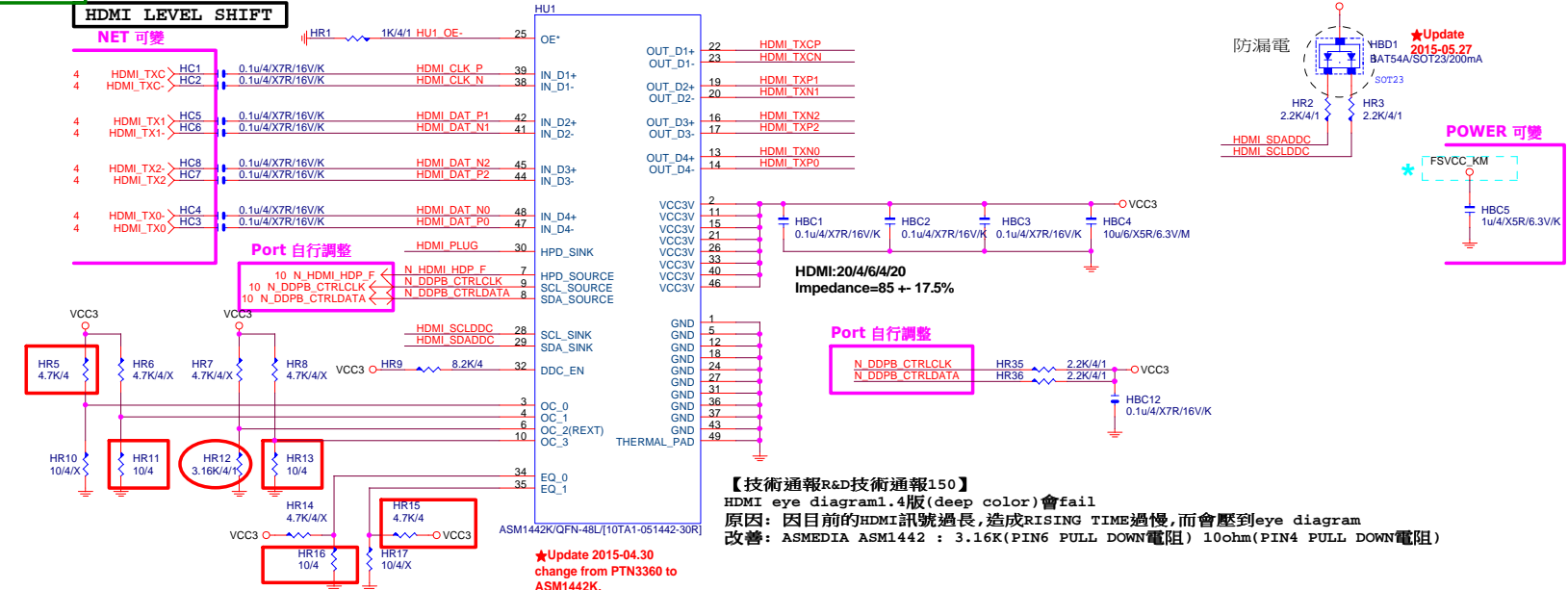
LPT PORT

TPM CONNECT



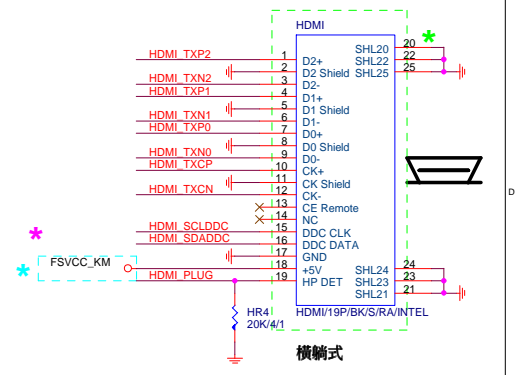
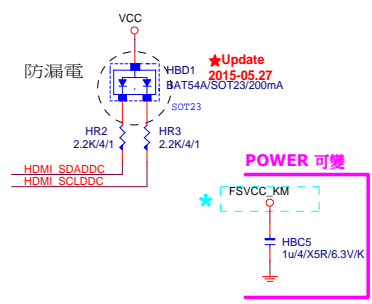
Thunderbolt (N/A)





PTN3360: PIN 4/10/34/35 NC PIN, 都不上值; 只上HR12: 10K
ASM1442: 紅色框要上, HR12: 3.16K

【技術通報R&D技術通報150】
HDMI eye diagram 1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長, 造成RISING TIME過慢, 而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

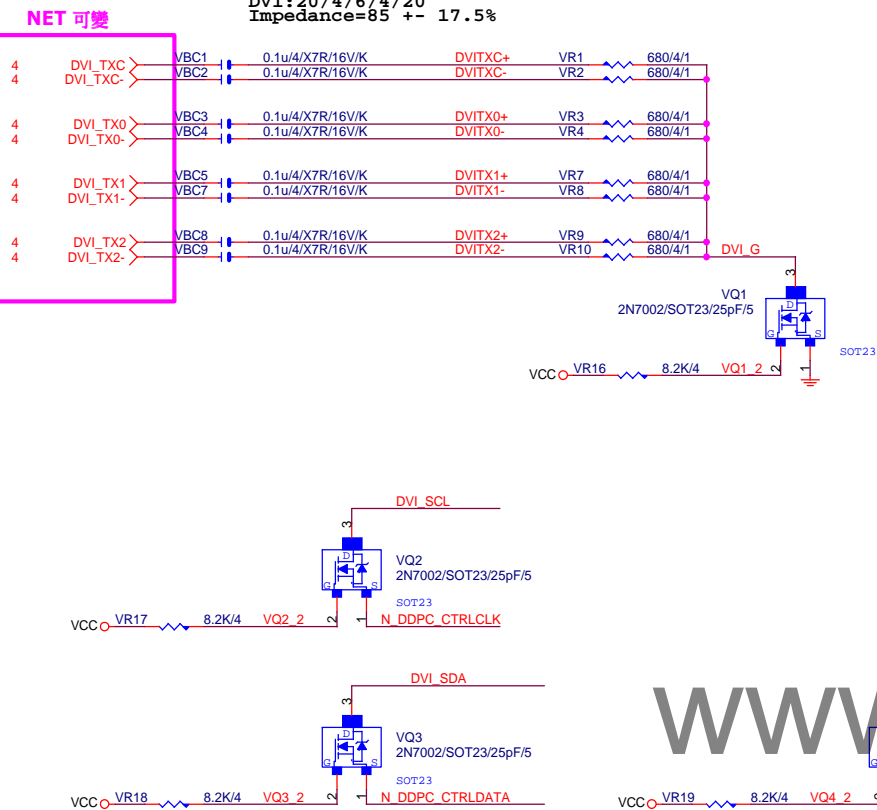


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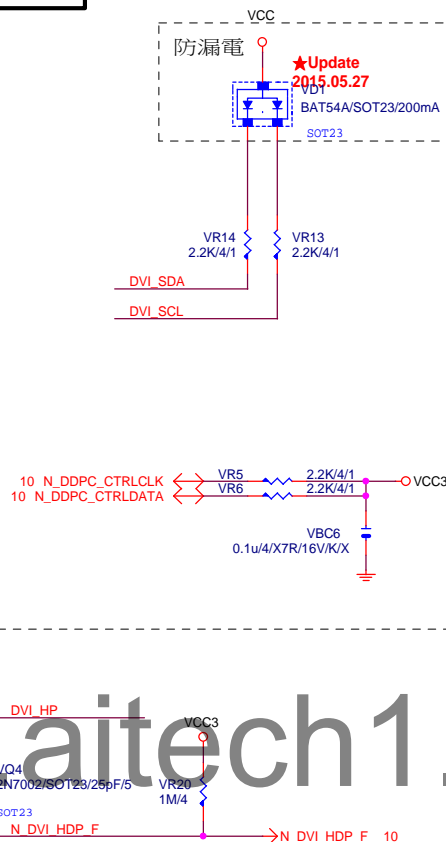
DVI

Rev: 0.51

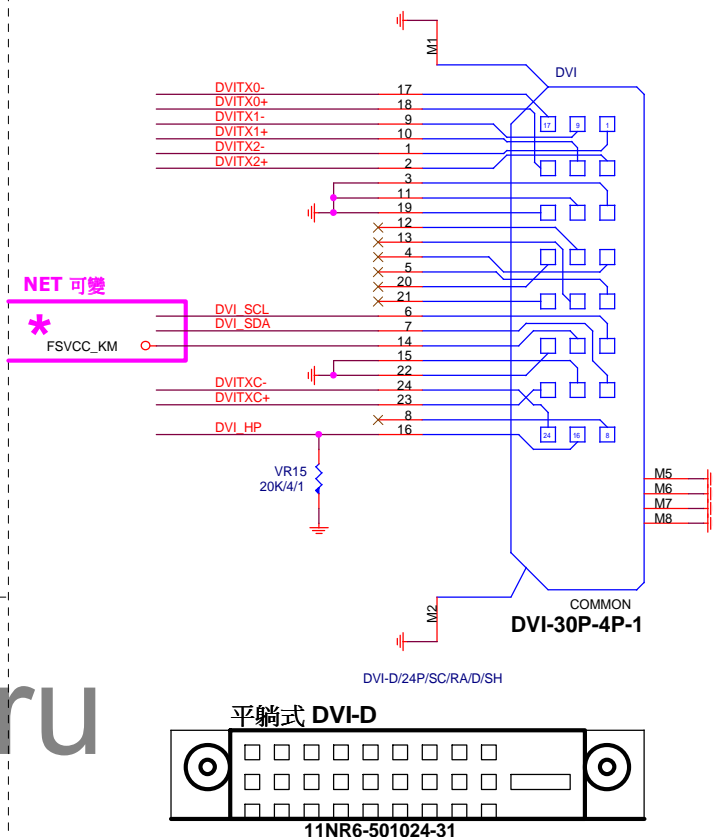
DVI:20/4/6/4/20
Impedance=85 +- 17.5%



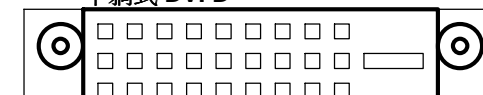
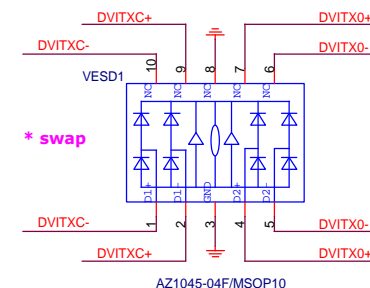
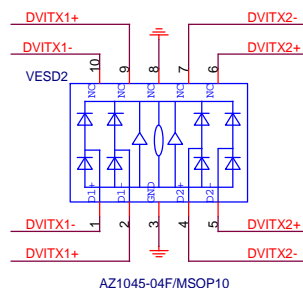
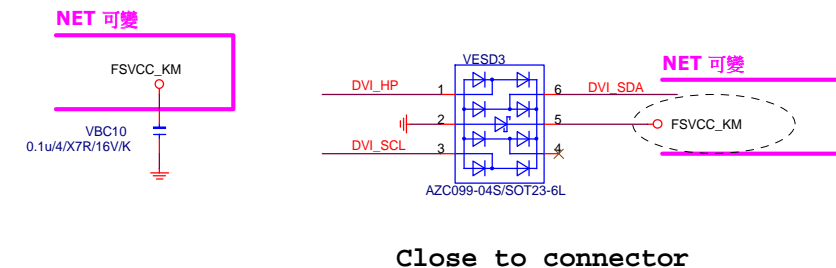
DVI PU



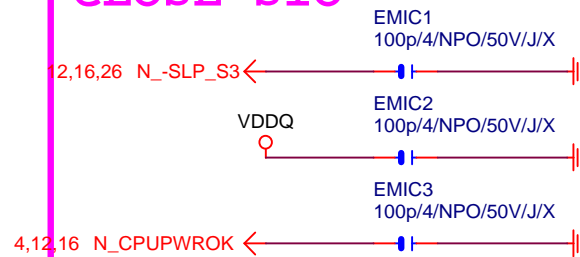
DVI CONN



ESD



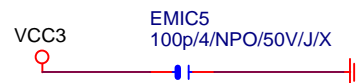
CLOSE SIO



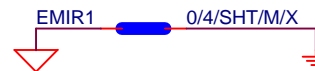
CLOSE PCH



close to PCH (NR17)



R_USB30_2 & DVI 之間

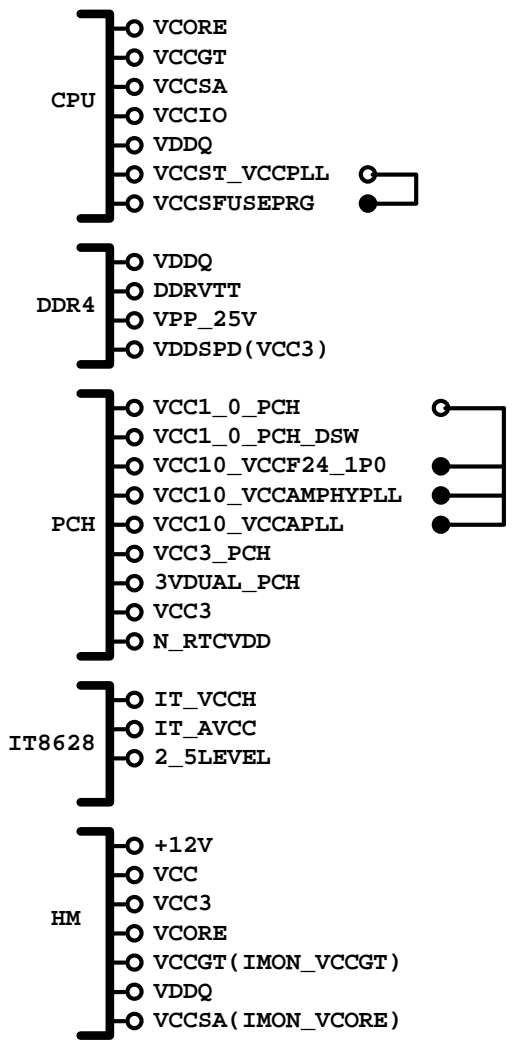


close to SIO (PIN92)MPD-

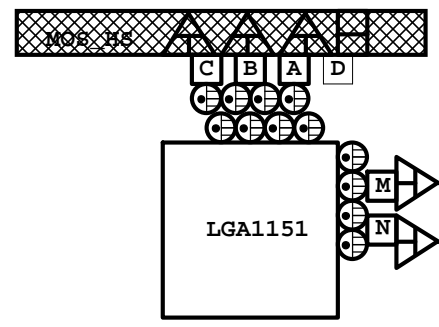
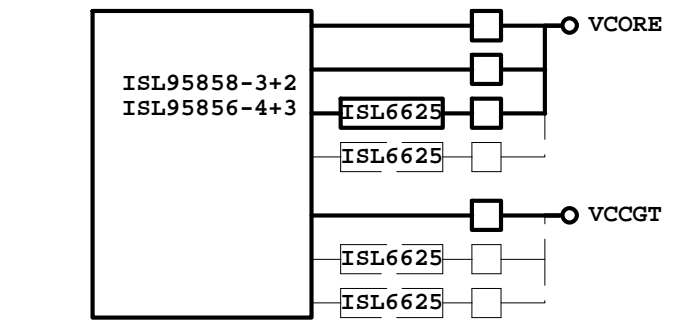
**GIGABYTE™**

| | | |
|-----------|---------------------------------|----------------|
| Title | | |
| EM/ESD | | |
| Size A | Document Number GA-H110M-S2H | Rev 1.0 |
| Date: | Friday, September 25, 2015 | Sheet 47 of 50 |

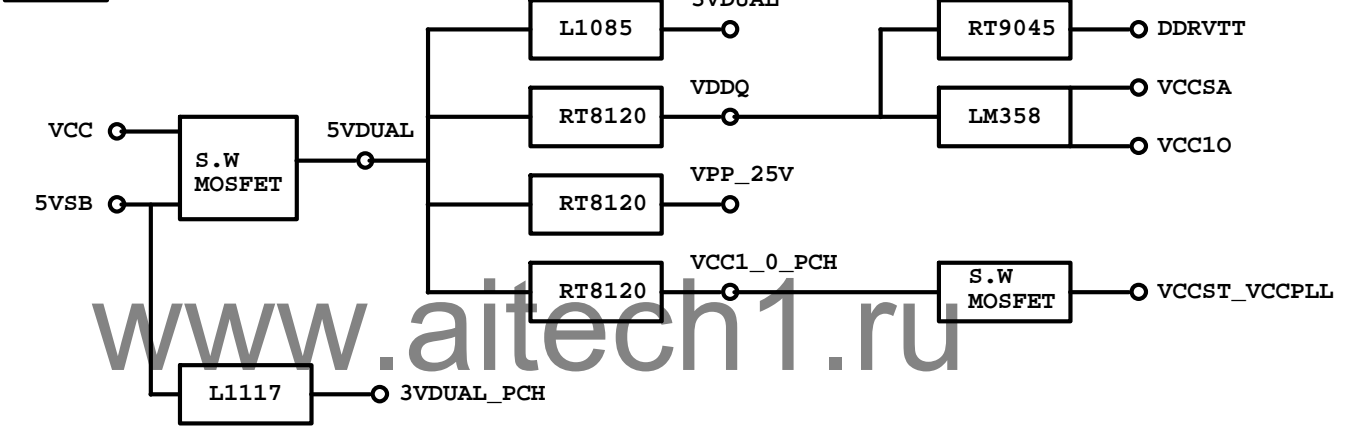
POWER BLOCK MAP



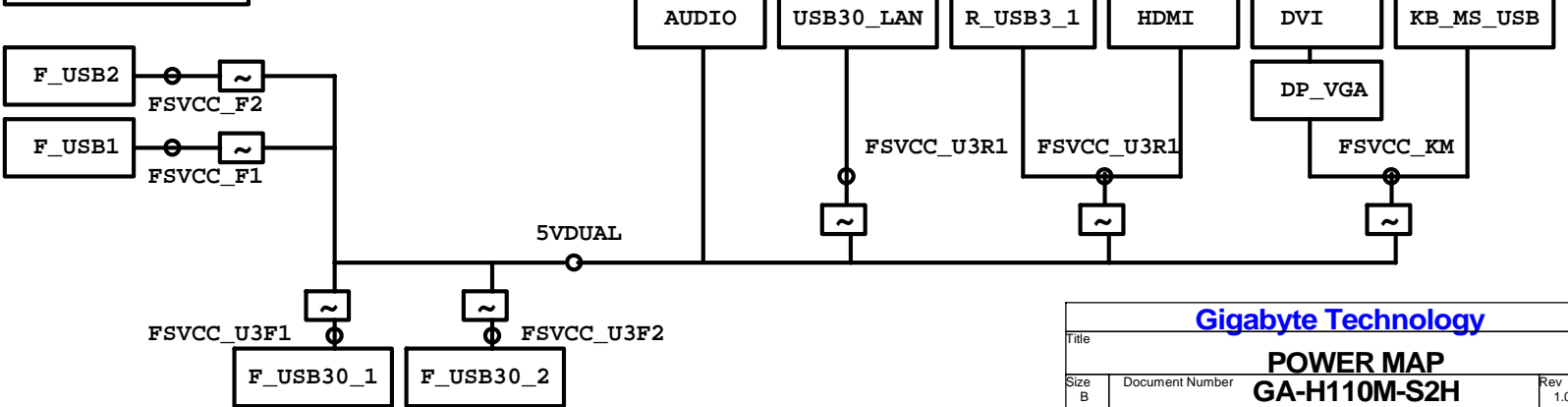
VCORE/VCCGT



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 |



Title

RT8120_DDR4 POWER

Size

Custom

Document Number

GA-H110M-S2H

Date:

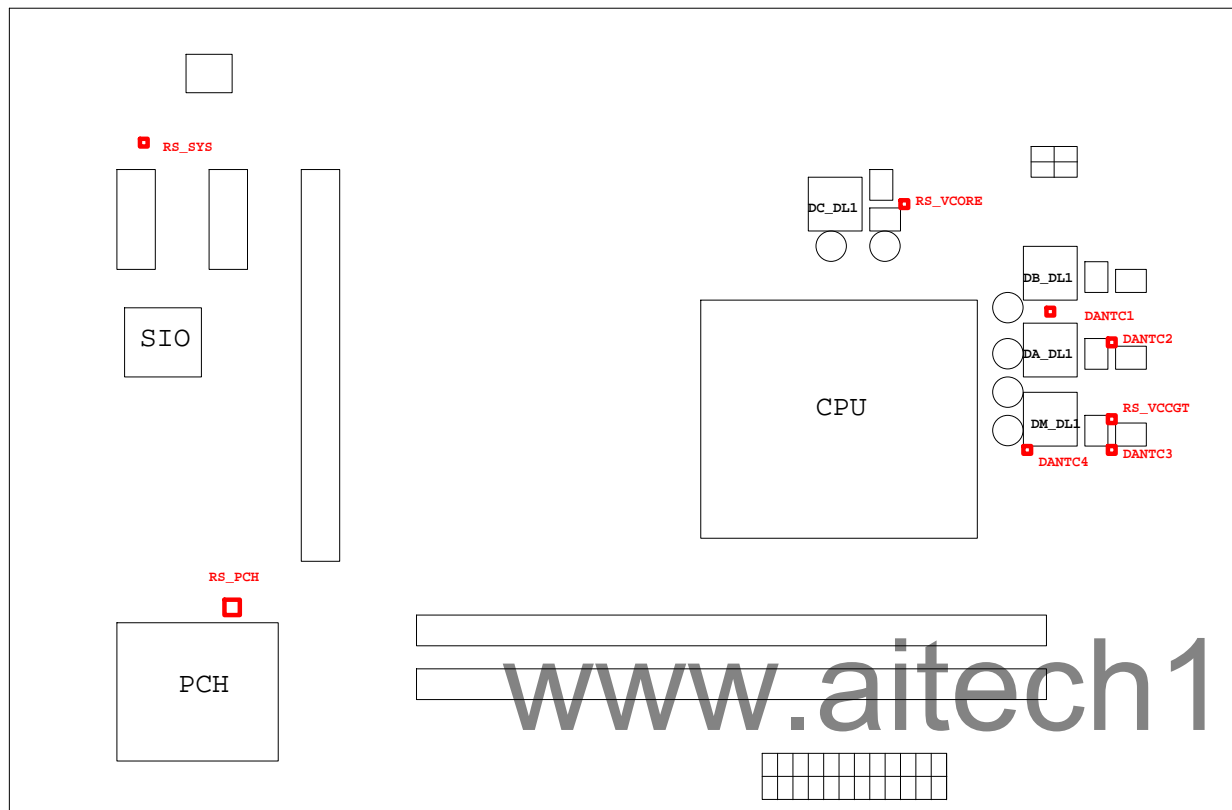
Friday, September 25, 2015

Sheet

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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 |