

Model Name: GA-H61M-S2-B3

Revision 1.0

SHEET

TITLE

SHEET

TITLE

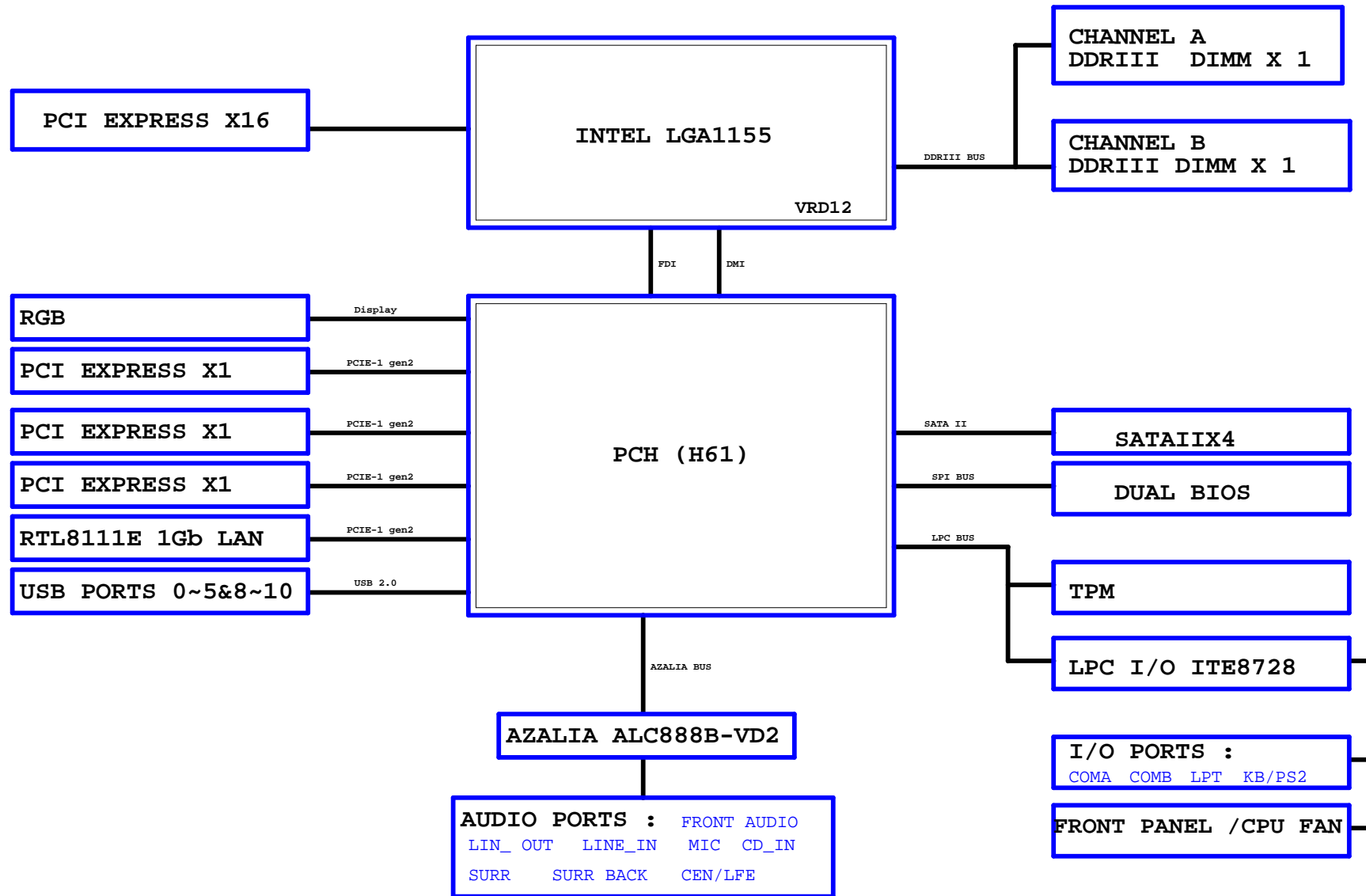
| | |
|----|-----------------------------------|
| 01 | COVER SHEET |
| 02 | BOM & PCB MODIFY HISTORY |
| 03 | BLOCK DIAGRAM |
| 04 | CPU_LGA1155-A |
| 05 | CPU_LGA1155-B |
| 06 | CPU_LGA1155-C |
| 07 | DDR III CHANNEL A |
| 08 | DDR III CHANNEL B |
| 09 | PCH_FDI,DMI,USB,PCIE,NVRAM |
| 10 | PCH_DP,CLK BUFFER |
| 11 | PCH_HOST,SATA,PCI |
| 12 | PCH_GPIO,CTRL,AUDIO |
| 13 | PCH_PWR,GND |
| 14 | PCI EXPRESS*16 SLOT |
| 15 | PCI EXPRESS*1 SLOT |
| 16 | PCI EXPRESS*1x2 SLOT / CLOCK GEN. |
| 17 | ITE 8728 LPC IO |
| 18 | COMA,KB_MS,R_USB,-PROCHOT |
| 19 | HWM,FAN CTRL,OV |
| 20 | DUAL BIOS |
| 21 | FP,FUSB,SPK,SATALED |
| 22 | ALC888B-VD2 |
| 23 | REAR AUDIO JACK |
| 24 | ATHEROS AR8151/USB_LAN |
| 25 | DISCRETE POWER |
| 26 | ATX,-S_WARN,-S_ACK,5VDUAL1 |
| 27 | ISL95870_CPU_VTT |

| | |
|----|-----------------|
| 28 | VCORE ISL6364_1 |
| 29 | VCORE ISL6364_2 |
| 30 | VCORE ISL6364_3 |
| 31 | TPM |
| 32 | LPT |

Gigabyte Technology

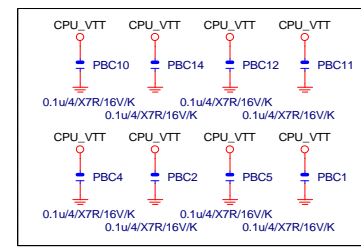
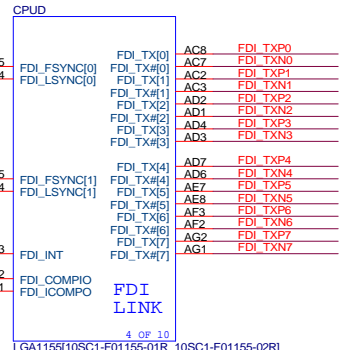
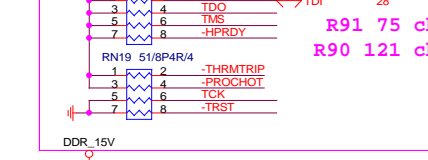
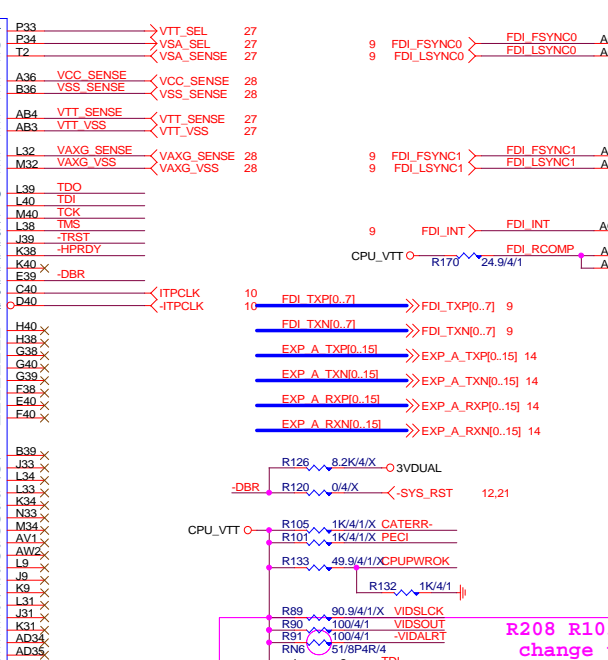
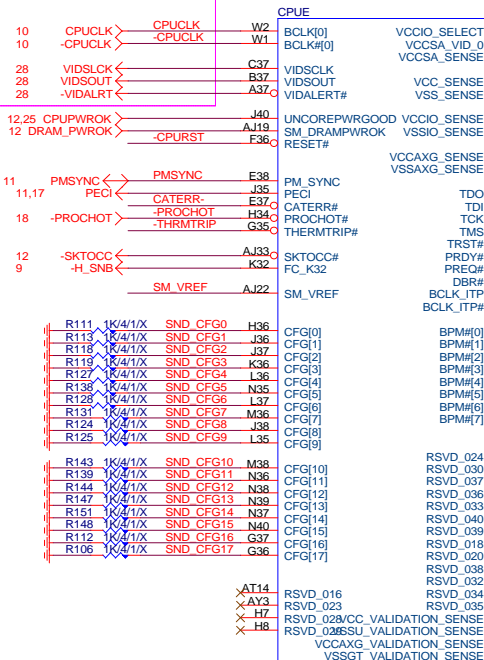
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| Title | | | Cover Sheet |
| Size | Document Number | GA-H61M-S2-B3 | Rev |
| Custom | | | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet | 1 of 31 |

BLOCK DIAGRAM



| | | |
|----------------------------|--------------------------------------|----------------|
| Gigabyte Technology | | |
| Title BLOCK DIAGRAM | | |
| Size | Document Number GA-H61M-S2-B3 | Rev 1.0 |
| Date | Wednesday, May 25, 2011 | Sheet 3 of 31 |

R88 R93 R92 0 change to short

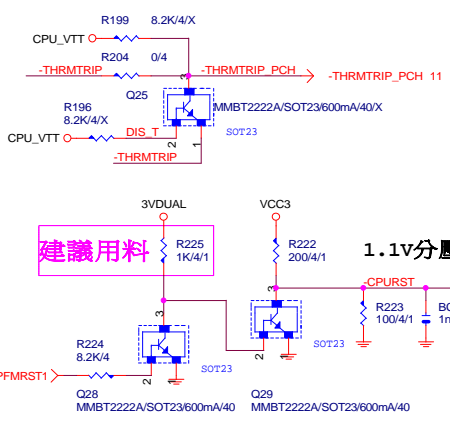


Stitching caps for PCIe, DMI, FDI bus

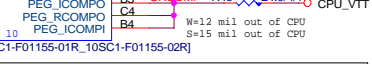
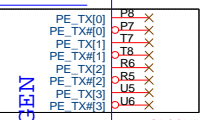
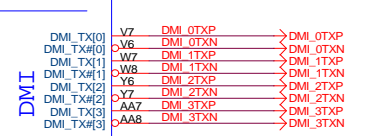
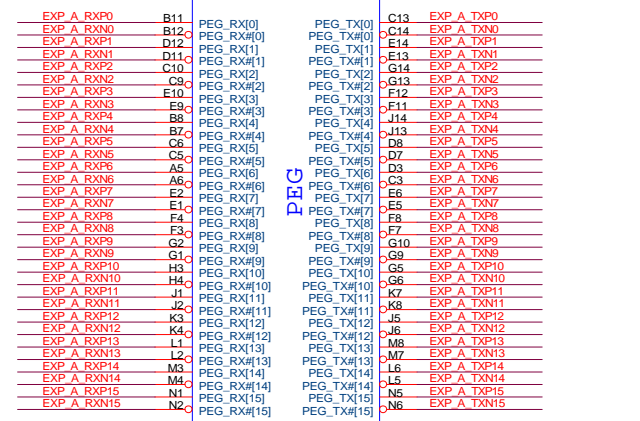
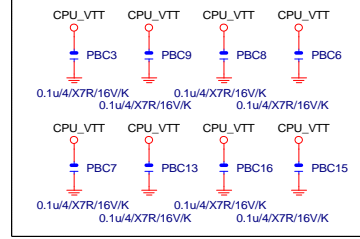
| CFG# | H | L | NOTE |
|------|------|---------|----------------------|
| 0 | RSVD | RSVD | RSVD |
| 1 | RSVD | RSVD | RSVD |
| 2 | NORM | Reverse | LANE REVERSAL[0]_x16 |
| 3 | RSVD | RSVD | RSVD |
| 4 | RSVD | RSVD | RSVD |
| 7 | RSVD | RSVD | RSVD |
| 8 | RSVD | RSVD | RSVD |
| 9 | RSVD | RSVD | RSVD |
| 10 | RSVD | RSVD | RSVD |
| 11 | RSVD | RSVD | RSVD |
| 12 | RSVD | RSVD | RSVD |
| 13 | RSVD | RSVD | RSVD |
| 14 | RSVD | RSVD | RSVD |
| 15 | RSVD | RSVD | RSVD |
| 16 | RSVD | RSVD | RSVD |
| 17 | RSVD | RSVD | RSVD |

| CFG6 | CFG5 | PCIe CONFIG |
|------|------|----------------|
| 1 | 0 | 1x16 , DeFault |
| 0 | 1 | RSVD |
| 0 | 0 | X8 , X4 , X4 |

CFG 0-17 all internal PULL-UP



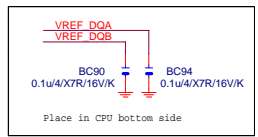
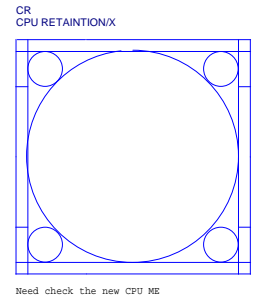
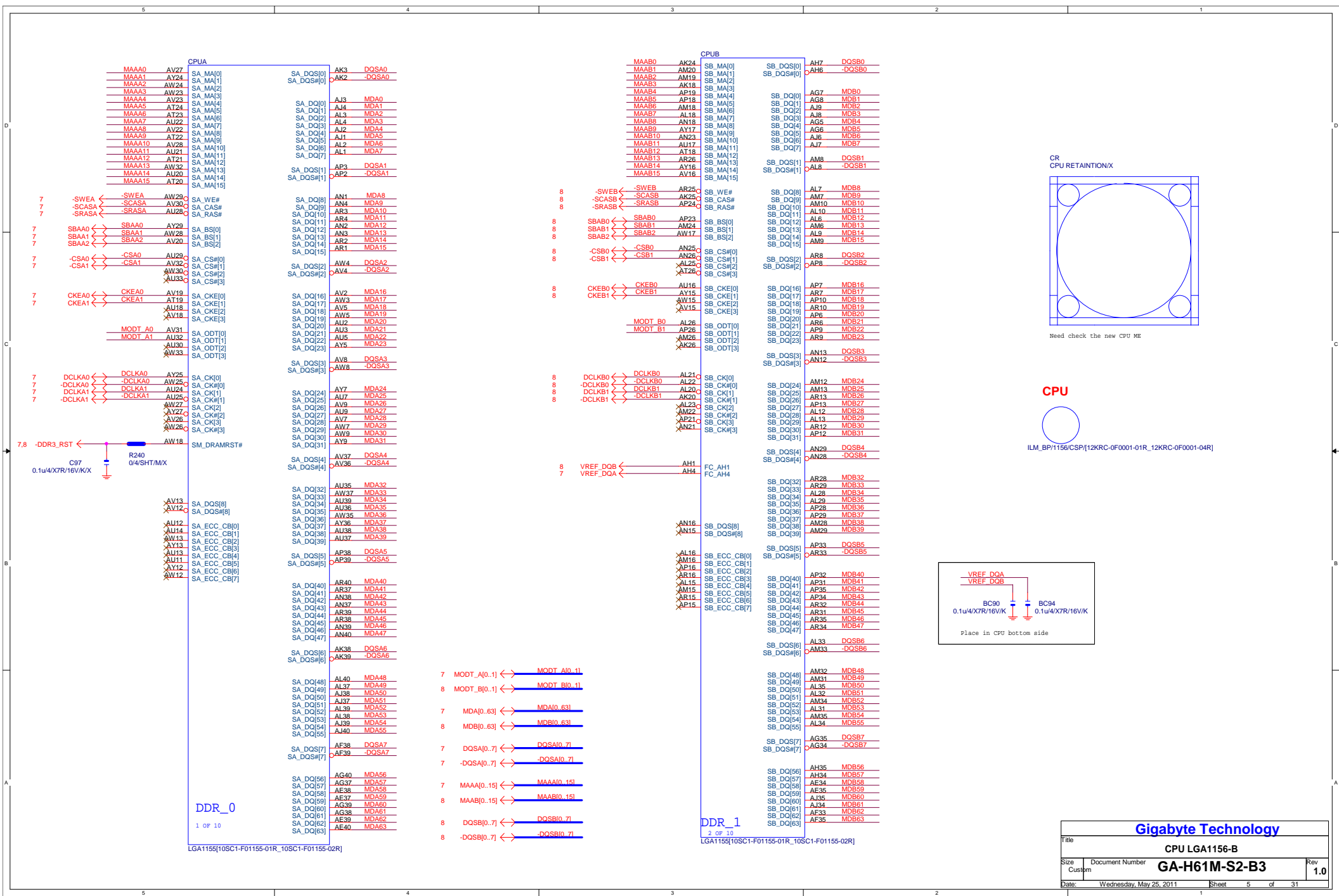
Stitching caps for PCIe, DMI, FDI bus



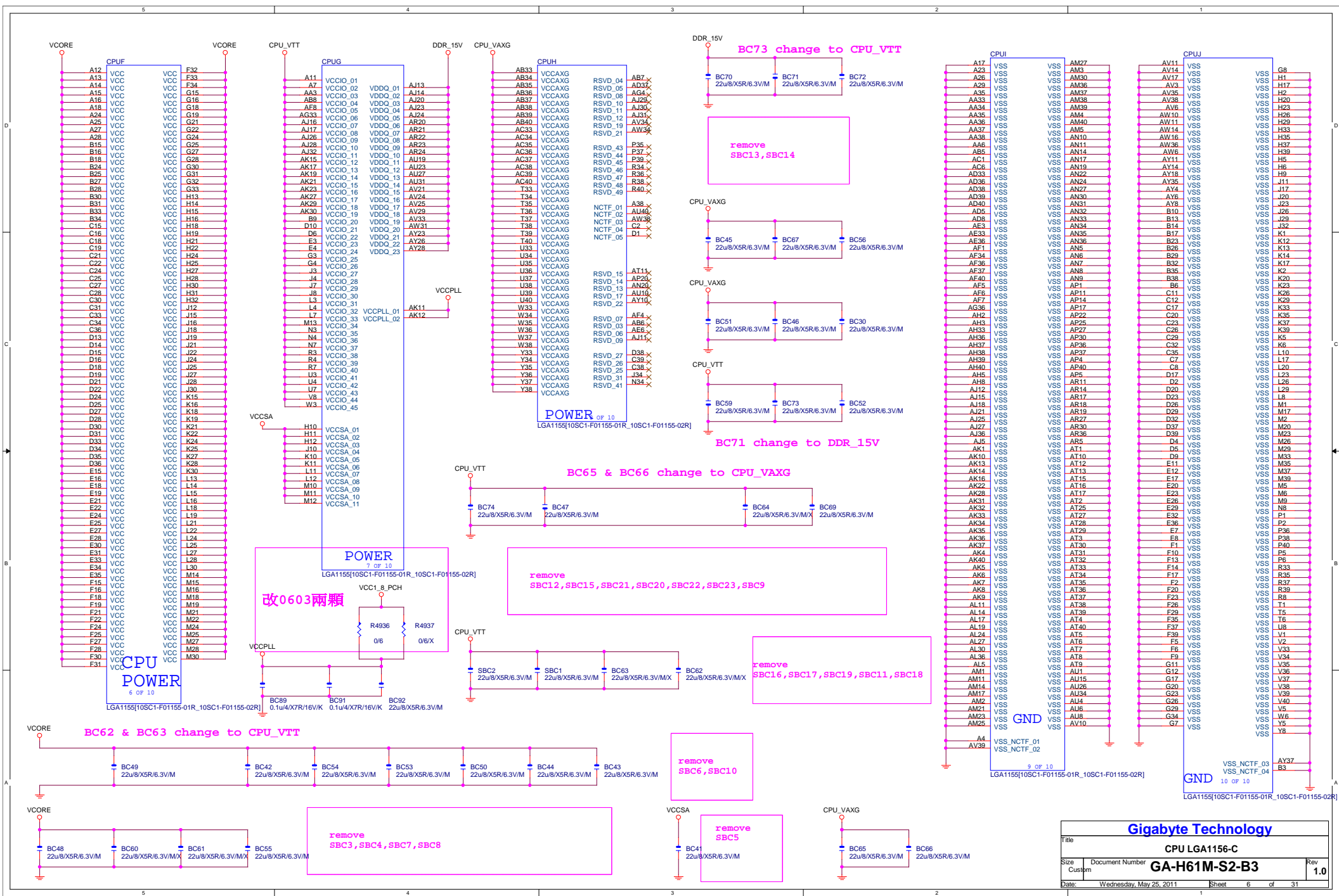
Gigabyte Technology

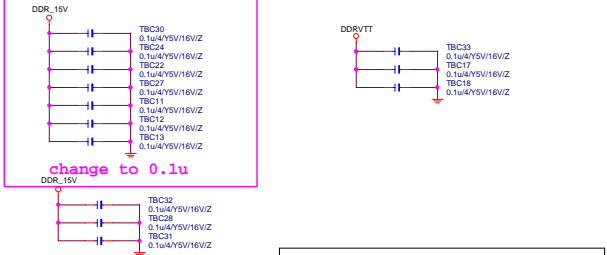
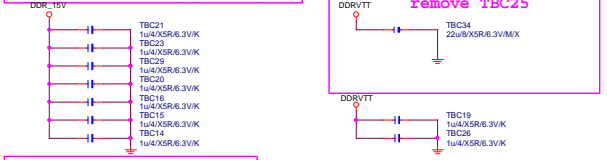
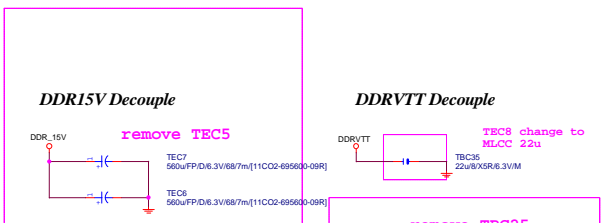
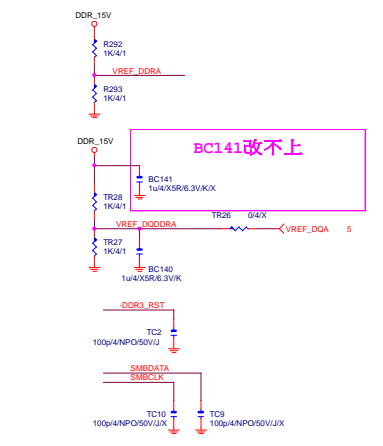
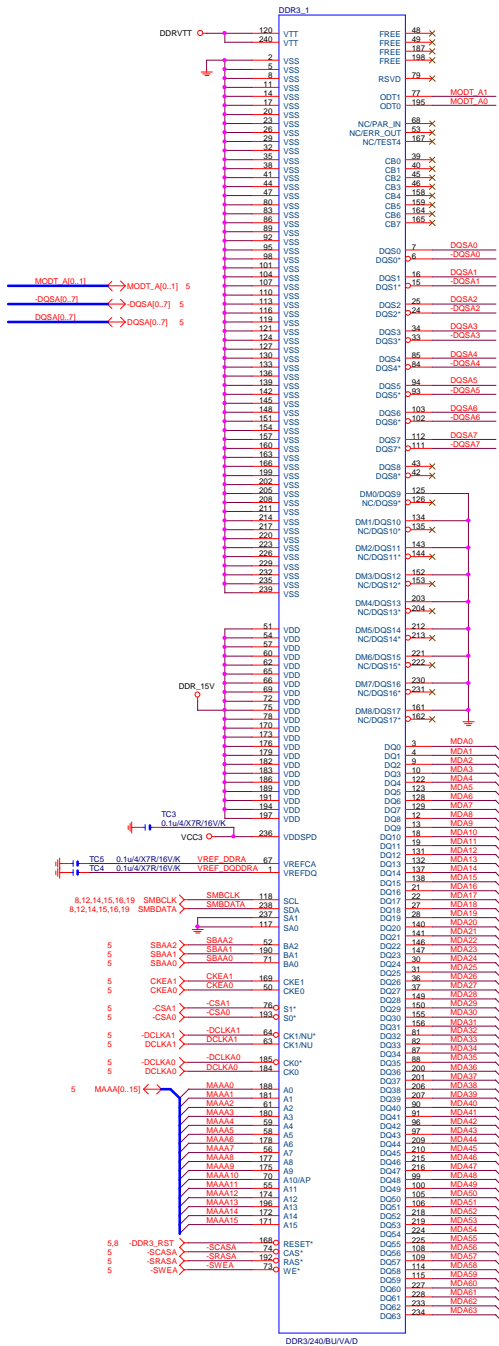
CPU LGA1155-A

| | | |
|-------------|-------------------------|---------------|
| Title | CPU LGA1155-A | |
| Size Custom | Document Number | Rev |
| | GA-H61M-S2-B3 | 1.0 |
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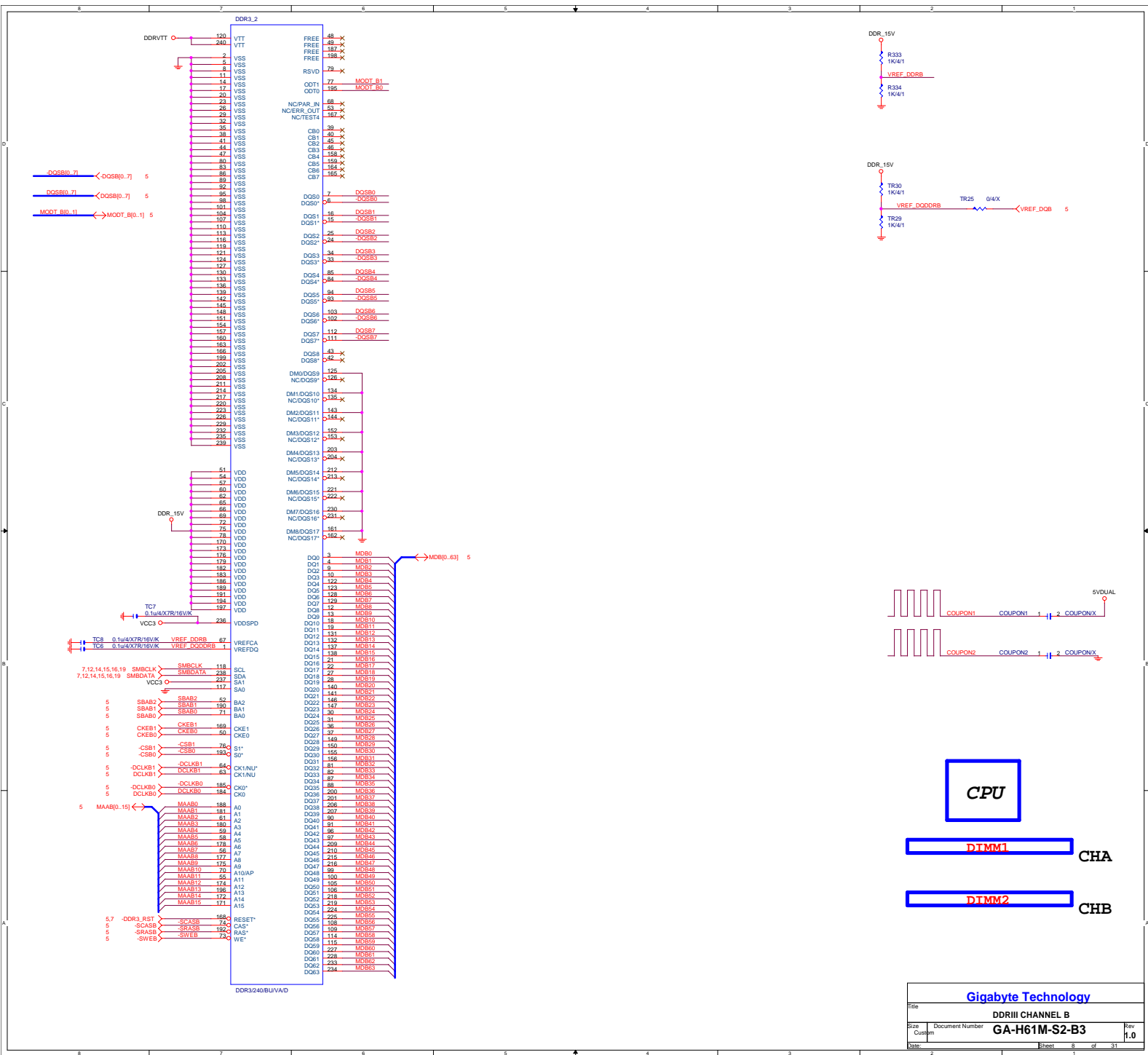


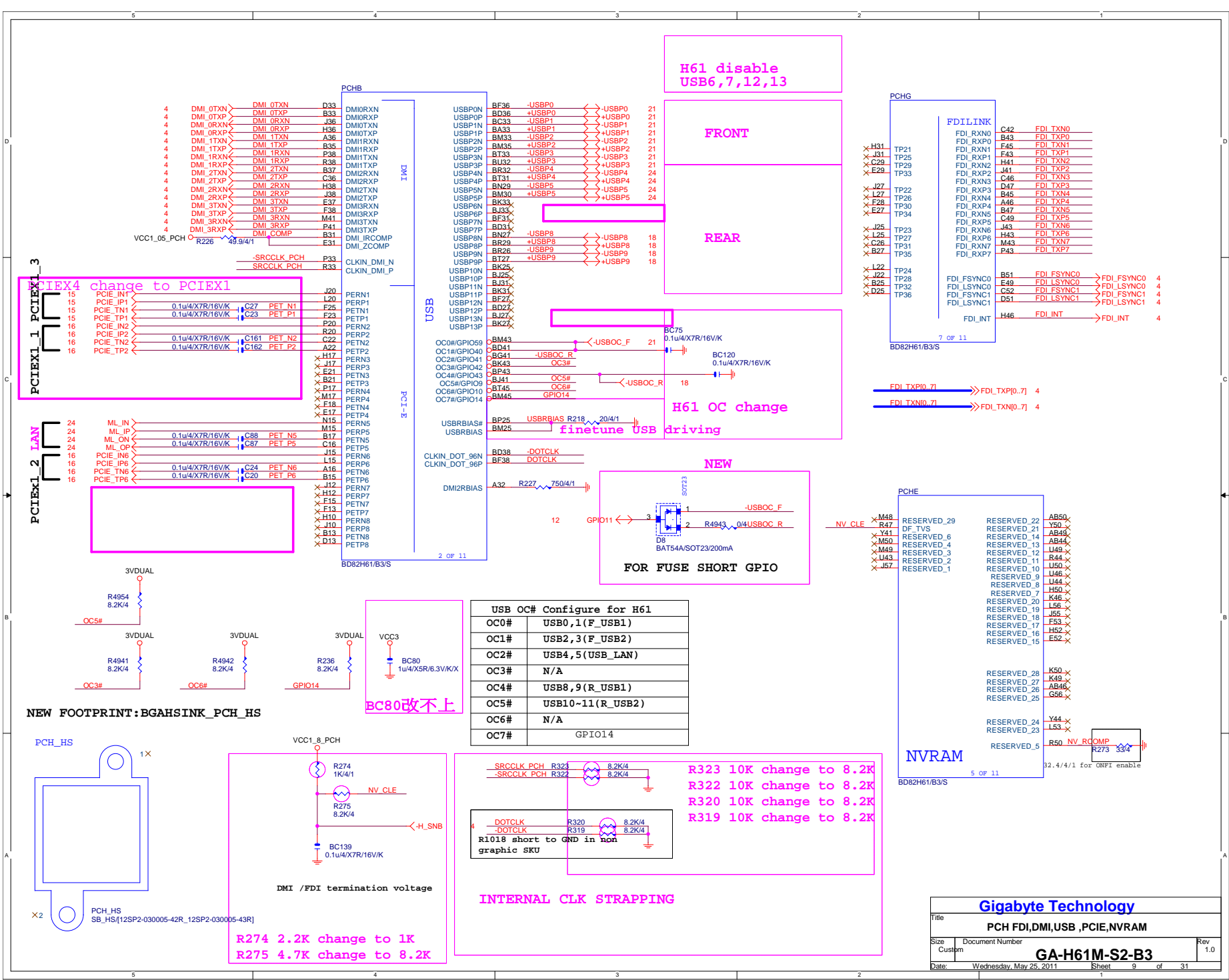
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| Gigabyte Technology | | |
| CPU LGA1156-B | | |
| Size | Document Number | Rev |
| Custom | GA-H61M-S2-B3 | 1.0 |
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| | | |
|-------------------------------|----------------------|------------|
| Gigabyte Technology | | |
| File DDR3 CHANNEL A | | |
| Size | Document Number | Rev |
| Customer | GA-H61M-S2-B3 | 1.0 |
| Date | Sheet | 7 of 31 |





H61 disable
USB6,7,12,13

FRONT

REAR

H61 OC change
finetune USB driving

NEW

FOR FUSE SHORT GPIO

| USB OC# | Configure for H61 |
|---------|-------------------|
| OC0# | USB0,1(F_USB1) |
| OC1# | USB2,3(F_USB2) |
| OC2# | USB4,5(USB_LAN) |
| OC3# | N/A |
| OC4# | USB8,9(R_USB1) |
| OC5# | USB10-11(R_USB2) |
| OC6# | N/A |
| OC7# | GPIO14 |

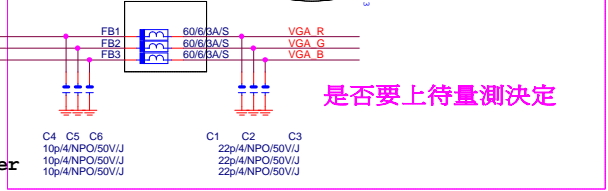
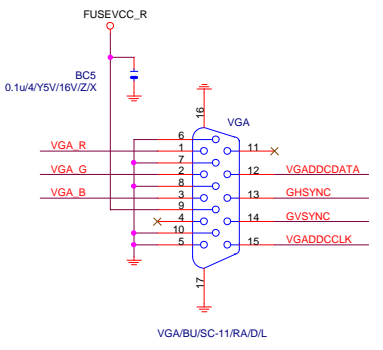
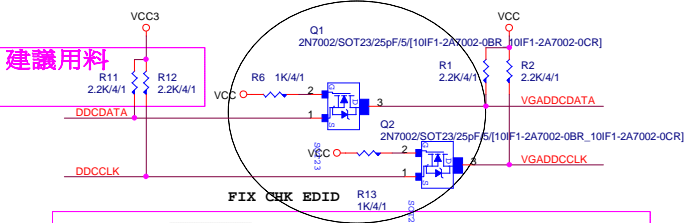
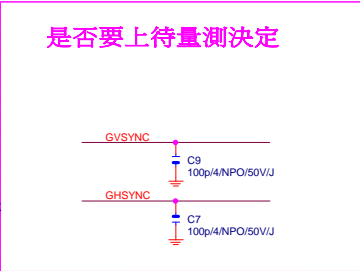
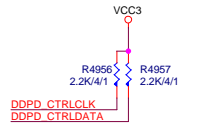
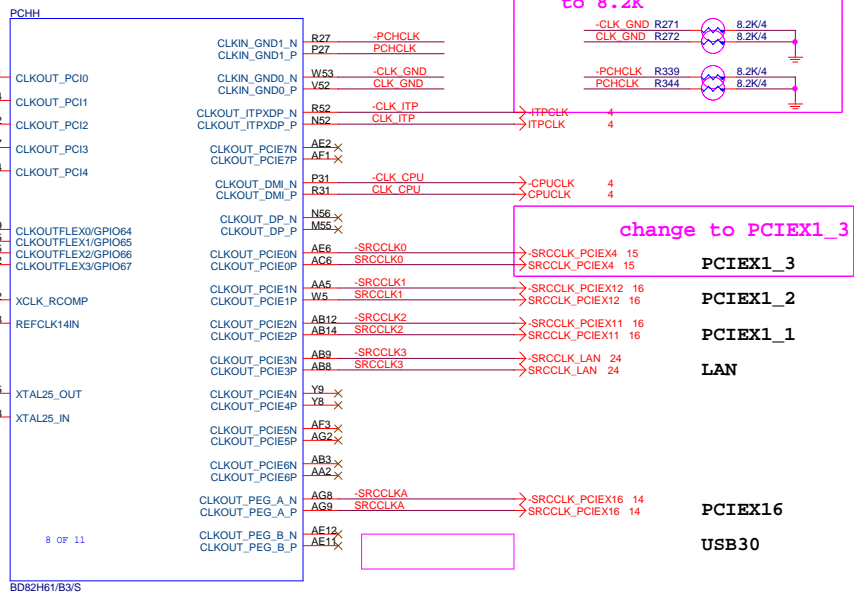
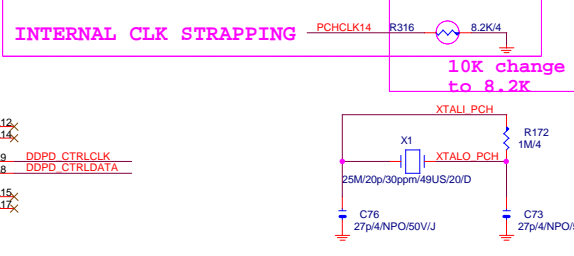
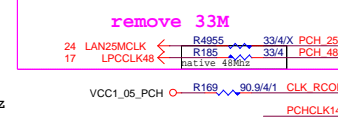
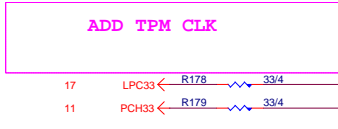
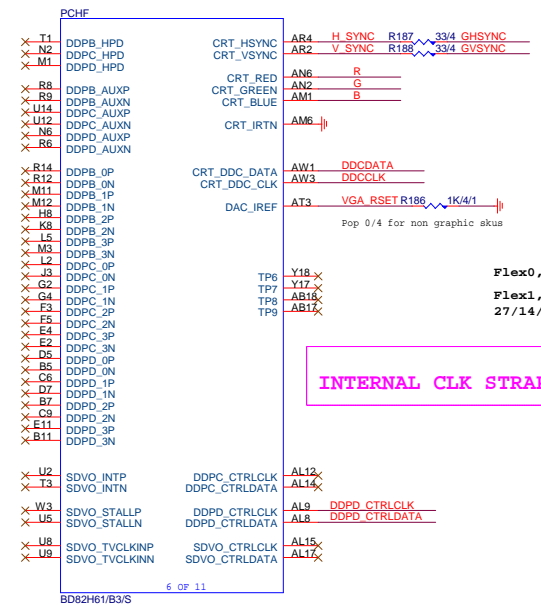
R323 10K change to 8.2K
R322 10K change to 8.2K
R320 10K change to 8.2K
R319 10K change to 8.2K

INTERNAL CLK STRAPPING

R274 2.2K change to 1K
R275 4.7K change to 8.2K

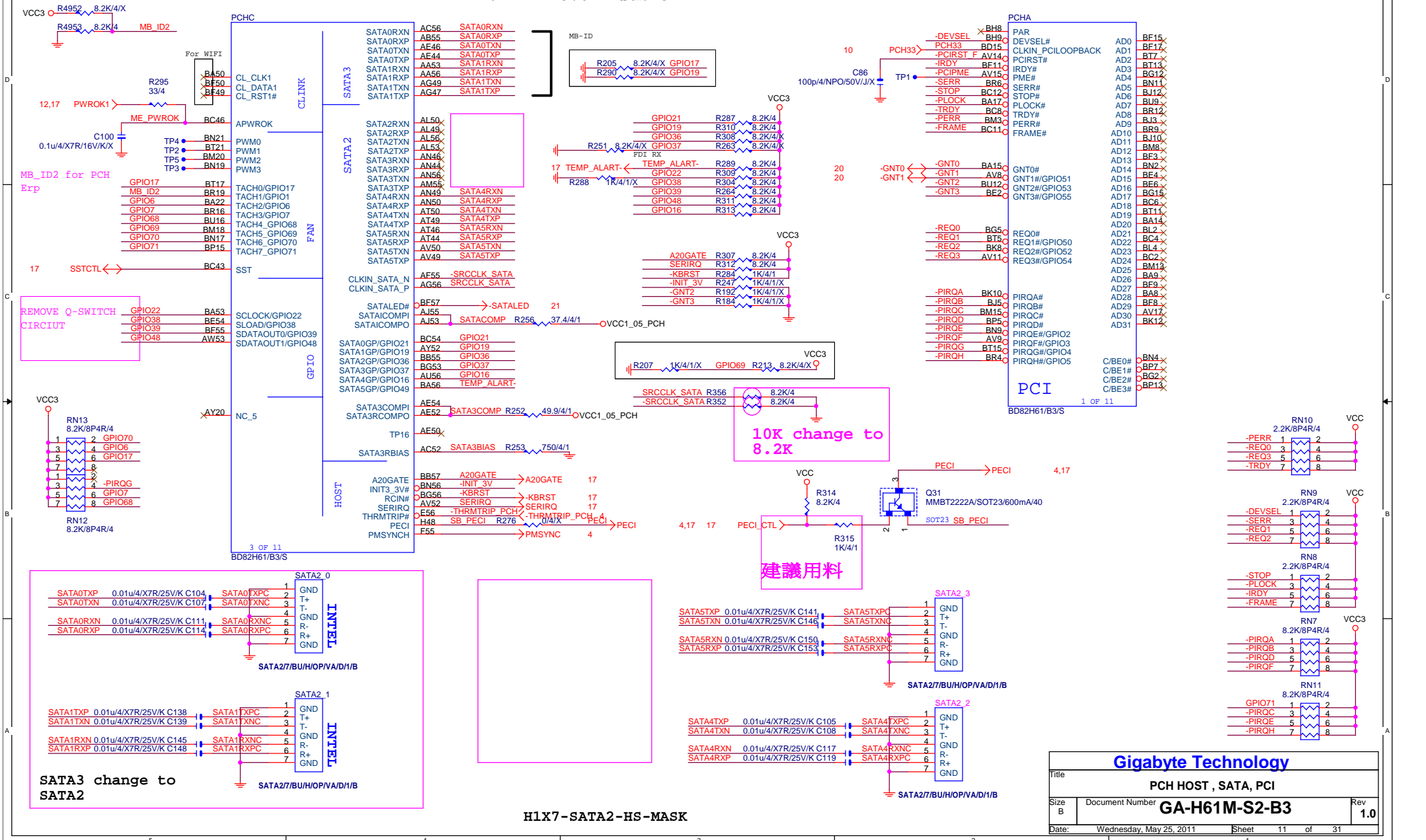
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| | | |
|-------------------------------------|----------------------------------|------------|
| Title PCH FDI,DMI,USB,PCIE,NVRAM | | |
| Size Custom | Document Number GA-H61M-S2-B3 | Rev 1.0 |
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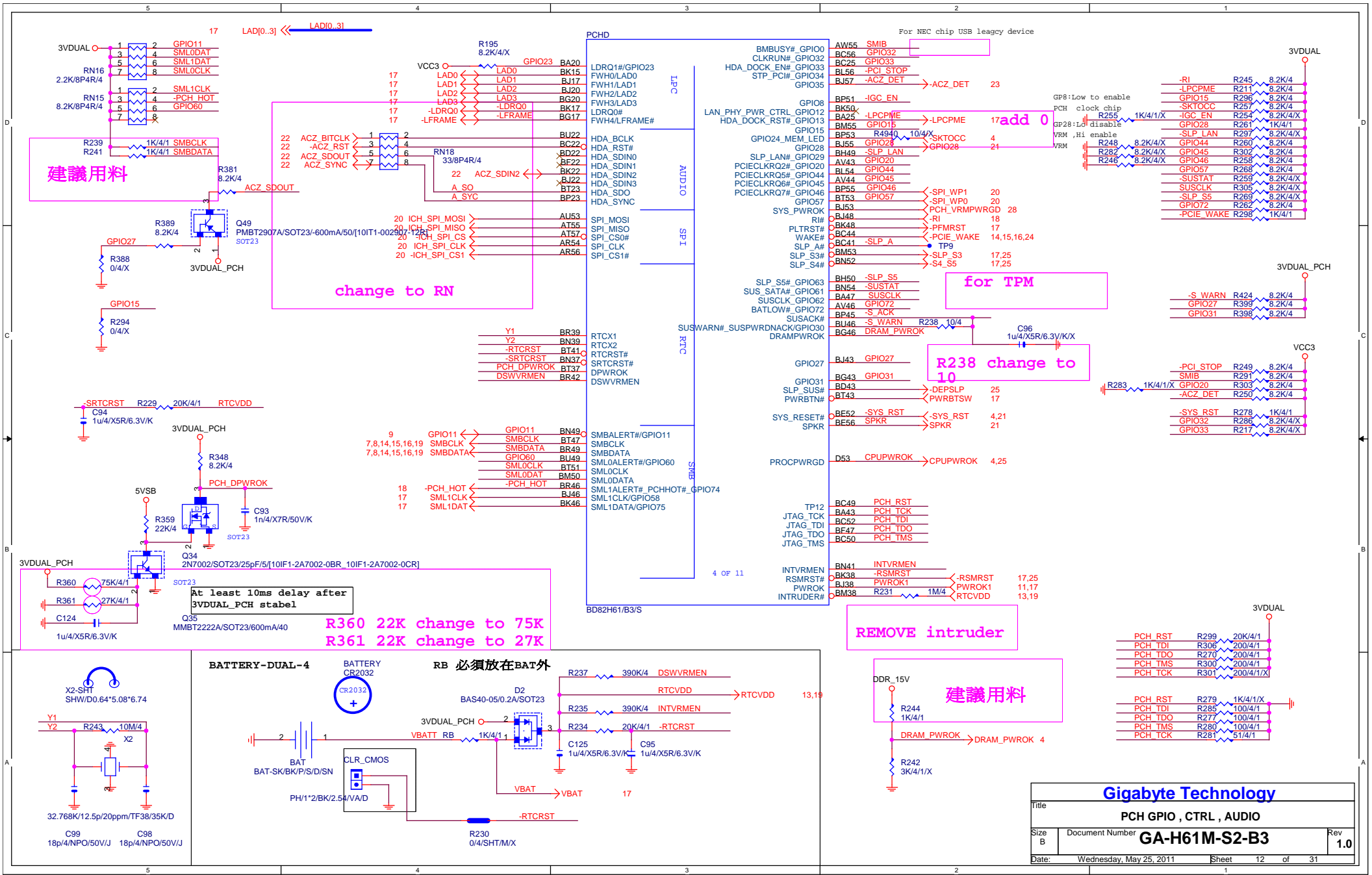


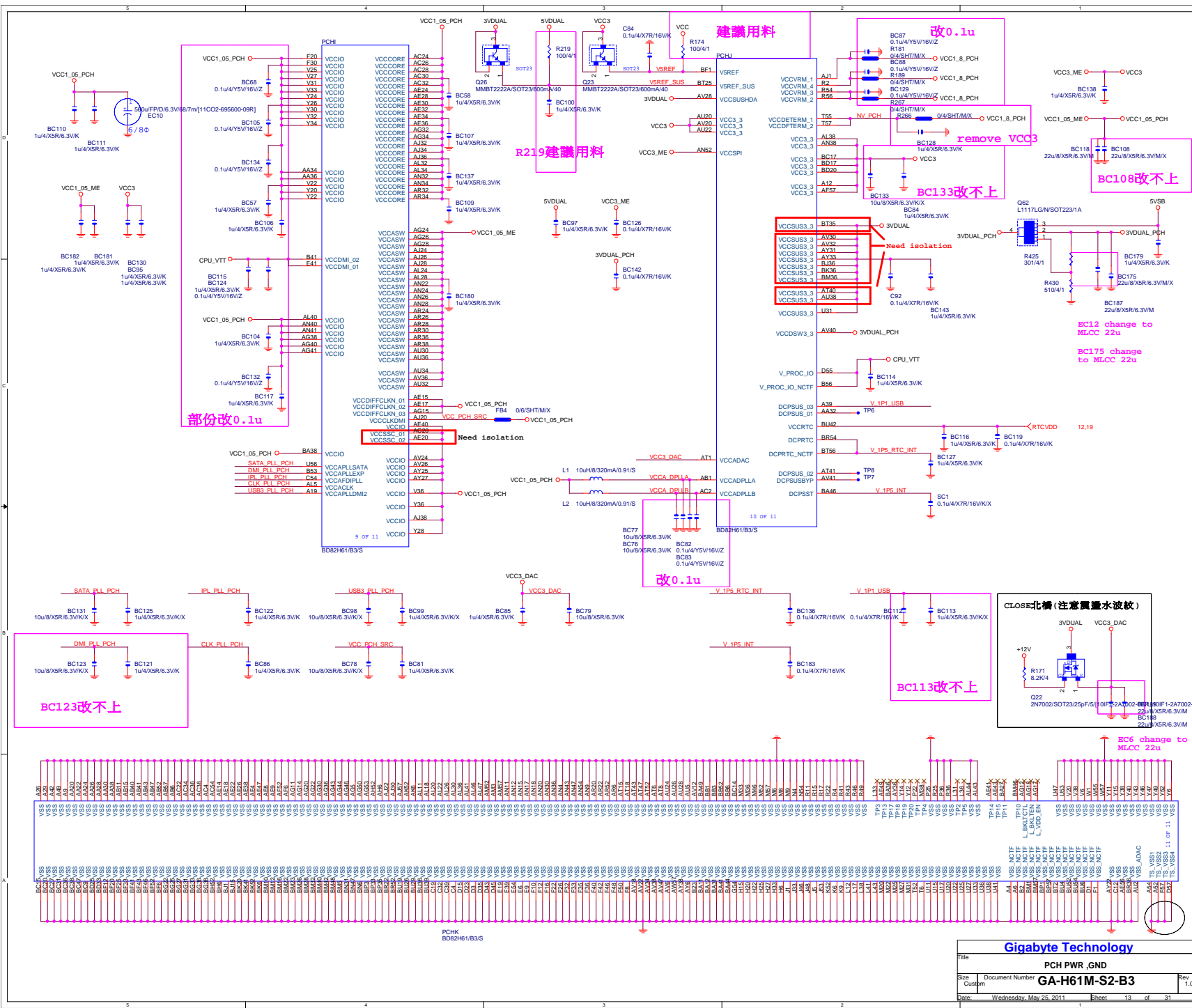
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| Gigabyte Technology | | | |
| Title PCH DISPLAY, CLK BUFFER | | | |
| Size Custom | Document Number GA-H61M-S2-B3 | Rev 1.0 | |
| Date: Wednesday, May 25, 2011 | Sheet | 10 | of 31 |

H61 SATA3.0 Disable

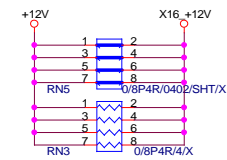
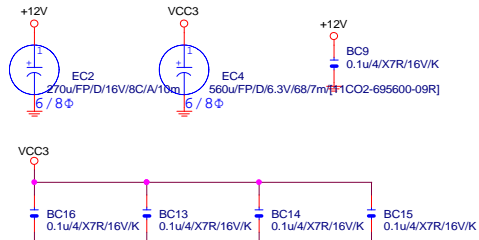


| Gigabyte Technology | | | |
|------------------------------|-------------------------|----------------------|----------------|
| Title: PCH HOST , SATA , PCI | | | |
| Size B | Document Number | GA-H61M-S2-B3 | Rev 1.0 |
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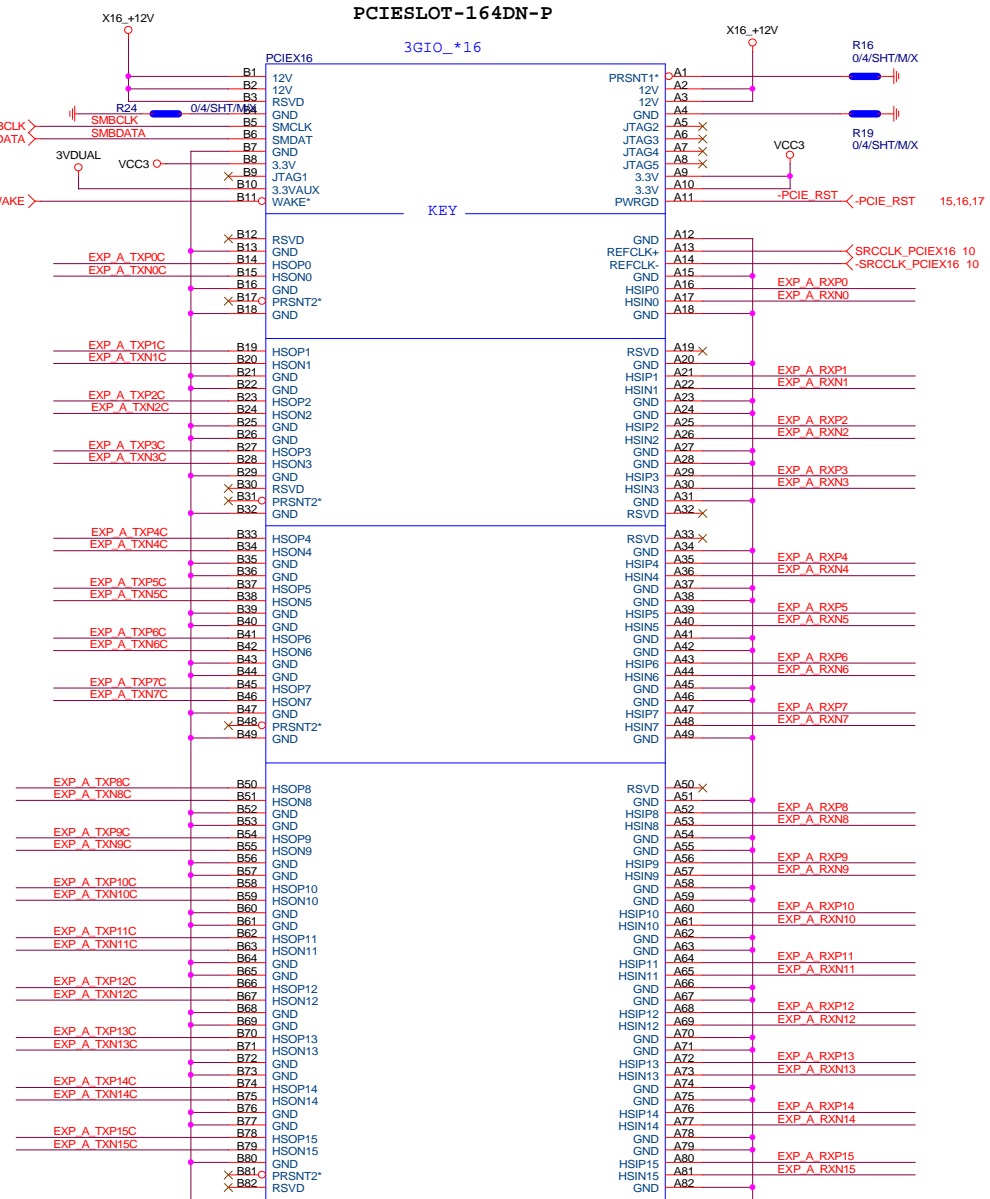


EC6D_8D10MM-RH



EXP_A_RXP[0..15] >> EXP_A_RXP[0..15] 4
 EXP_A_RXN[0..15] >> EXP_A_RXN[0..15] 4
 EXP_A_TXP[0..15] >> EXP_A_TXP[0..15] 4
 EXP_A_TXN[0..15] >> EXP_A_TXN[0..15] 4

| | | | |
|-------------|-----|--------------------|--------------|
| EXP_A_TXP0 | C22 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP0C |
| EXP_A_TXN0 | C26 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN0C |
| EXP_A_TXP1 | C29 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP1C |
| EXP_A_TXN1 | C31 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN1C |
| EXP_A_TXP2 | C33 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP2C |
| EXP_A_TXN2 | C35 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN2C |
| EXP_A_TXP3 | C37 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP3C |
| EXP_A_TXN3 | C40 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN3C |
| EXP_A_TXP4 | C48 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP4C |
| EXP_A_TXN4 | C49 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN4C |
| EXP_A_TXP5 | C52 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP5C |
| EXP_A_TXN5 | C54 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN5C |
| EXP_A_TXP6 | C56 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP6C |
| EXP_A_TXN6 | C58 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN6C |
| EXP_A_TXP7 | C60 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP7C |
| EXP_A_TXN7 | C61 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN7C |
| EXP_A_TXP8 | C63 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP8C |
| EXP_A_TXN8 | C64 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN8C |
| EXP_A_TXP9 | C66 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP9C |
| EXP_A_TXN9 | C67 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN9C |
| EXP_A_TXP10 | C69 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP10C |
| EXP_A_TXN10 | C70 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN10C |
| EXP_A_TXP11 | C71 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP11C |
| EXP_A_TXN11 | C72 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN11C |
| EXP_A_TXP12 | C74 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP12C |
| EXP_A_TXN12 | C75 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN12C |
| EXP_A_TXP13 | C77 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP13C |
| EXP_A_TXN13 | C78 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN13C |
| EXP_A_TXP14 | C79 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP14C |
| EXP_A_TXN14 | C80 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN14C |
| EXP_A_TXP15 | C82 | 0.22u/4/X5R/6.3V/K | EXP_A_TXP15C |
| EXP_A_TXN15 | C83 | 0.22u/4/X5R/6.3V/K | EXP_A_TXN15C |

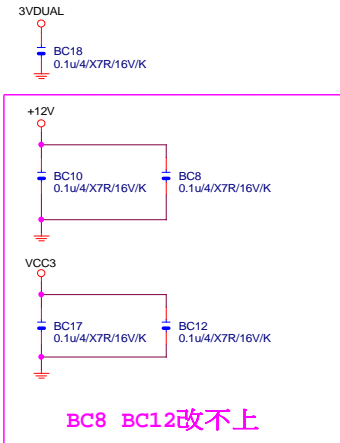


-PCIE_RST
 C15
 22p/4/NPO/50V/J/X
 c15改不上

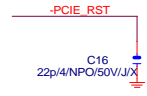
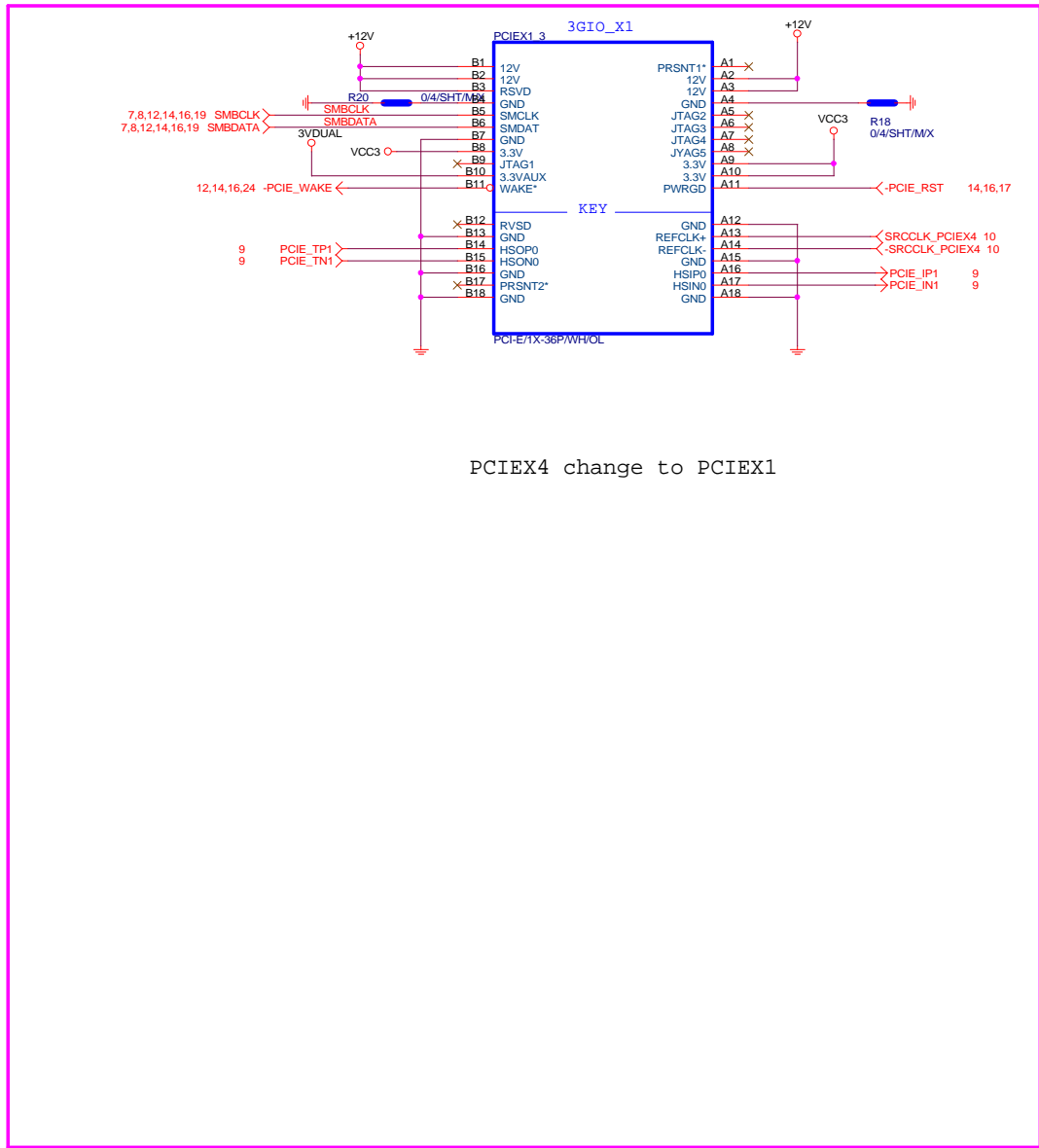
PCI-E/16X-164P/BU-297C/RIGHT PUSH

| | | |
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| Gigabyte Technology | | |
| Title PCI EXPRESS * 16 | | |
| Size Custom | Document Number GA-H61M-S2-B3 | Rev 1.0 |
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PCIESLOT-64D-98D-P

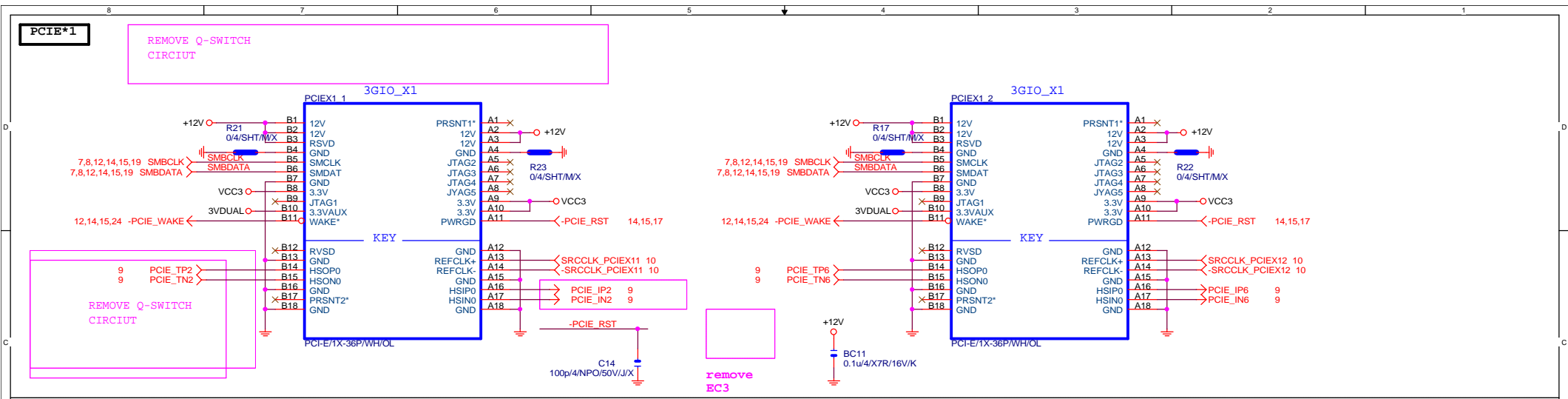


REMOVE RN

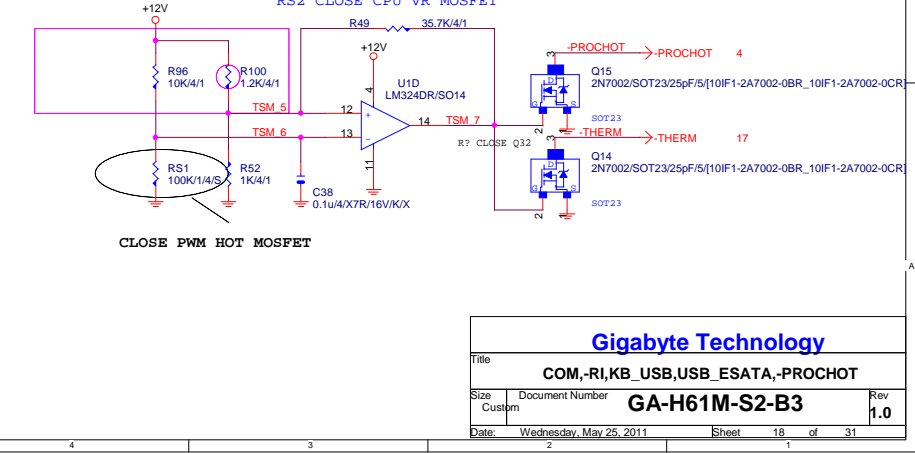
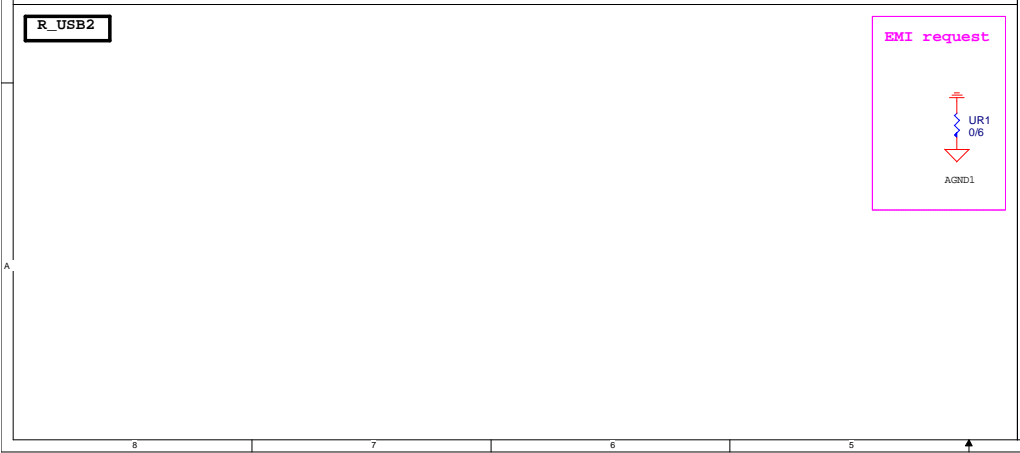
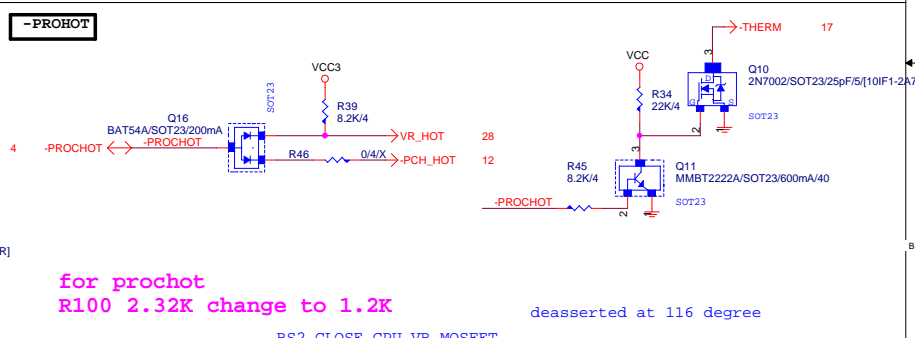
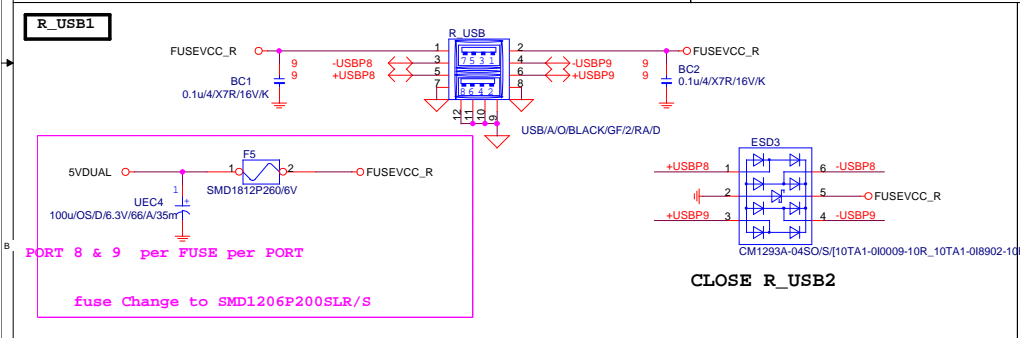
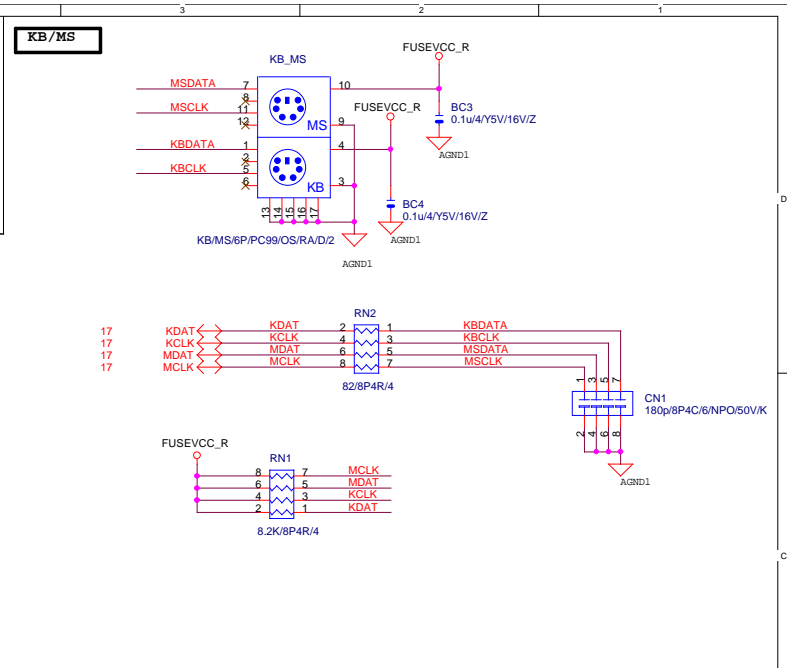
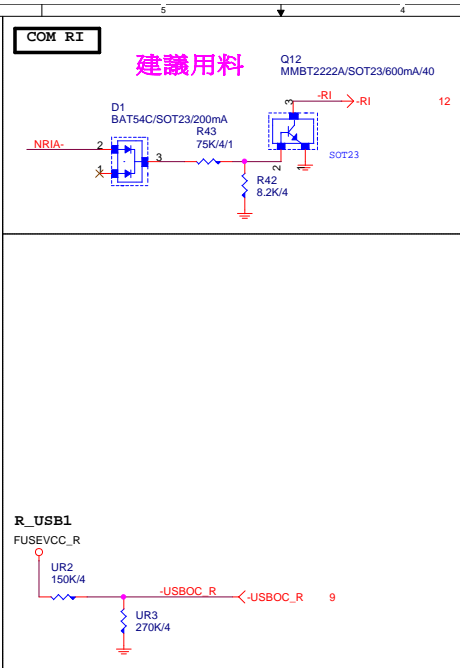
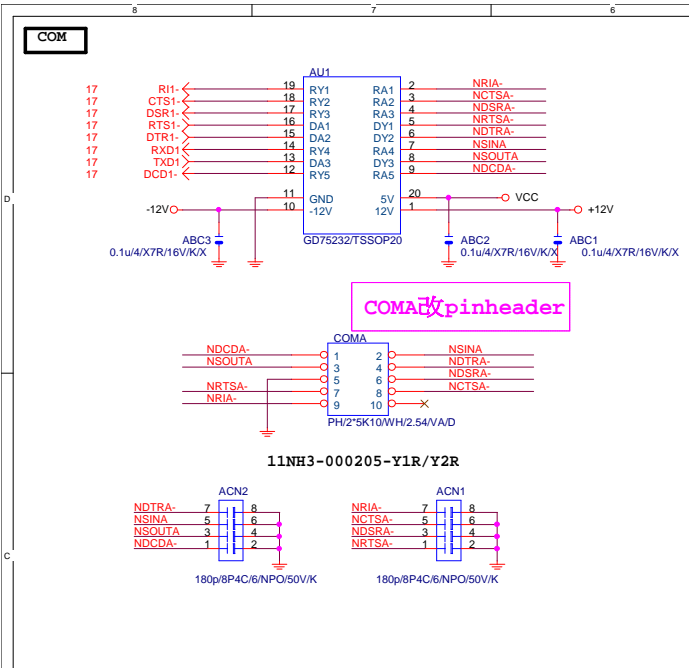


PCIE_X4 change to PCIE_X1

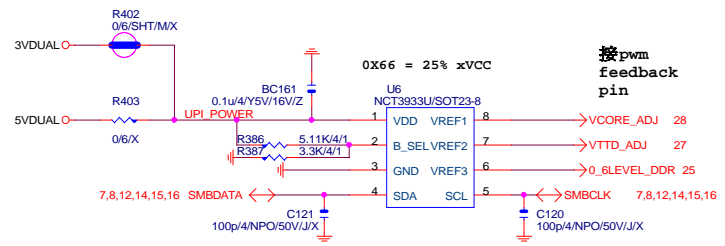
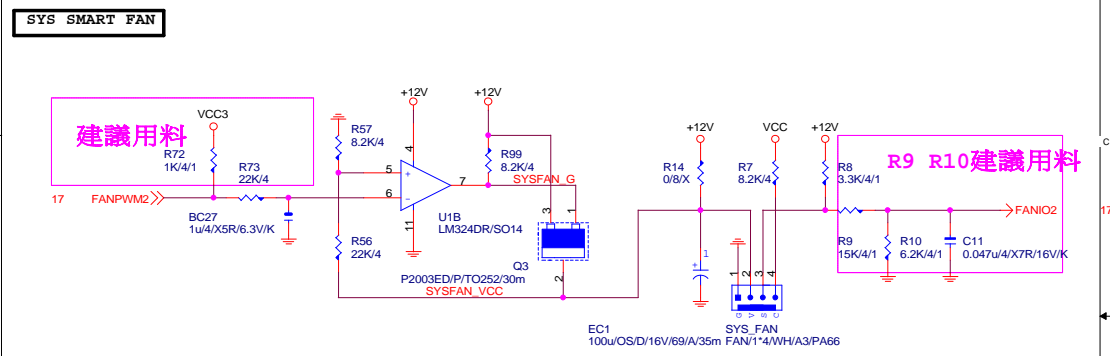
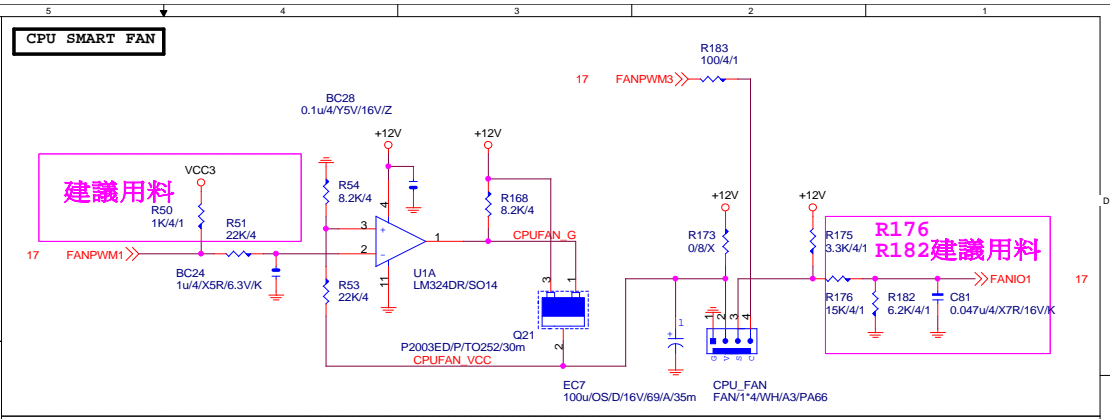
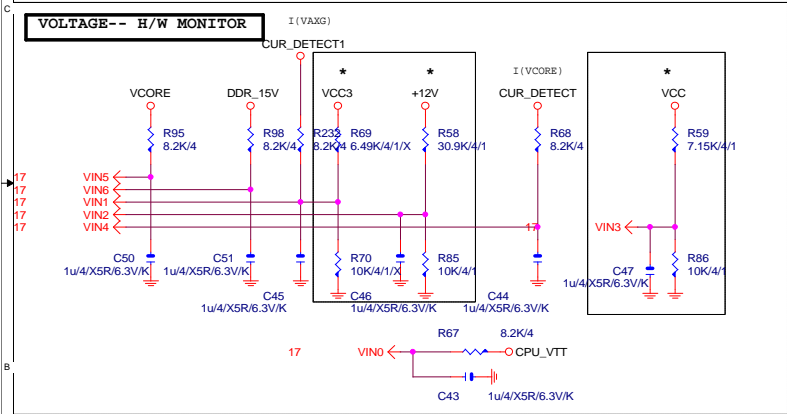
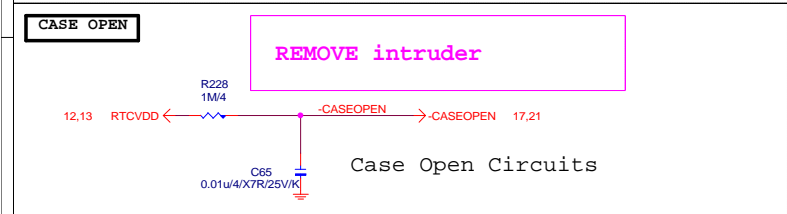
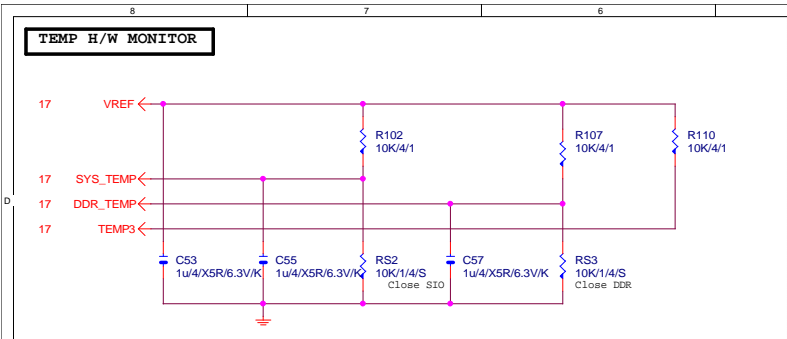
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|----------------------------------|---|-------------------|--|
| Gigabyte Technology | | | |
| Title PCI EXPRESS X 4 PORT | | | |
| Size Custom | Document Number GA-H61M-S2-B3 | Rev 1.0 | |
| Date: Wednesday, May 25, 2011 | Sheet 15 | of 31 | |



| | | |
|-------------------------------|--------------------------------------|----------------|
| Gigabyte Technology | | |
| PCIEX1,X2/CLK GEN | | |
| Size Custom | Document Number GA-H61M-S2-B3 | Rev 1.0 |
| Date: Wednesday, May 25, 2011 | Sheet 16 of 31 | |



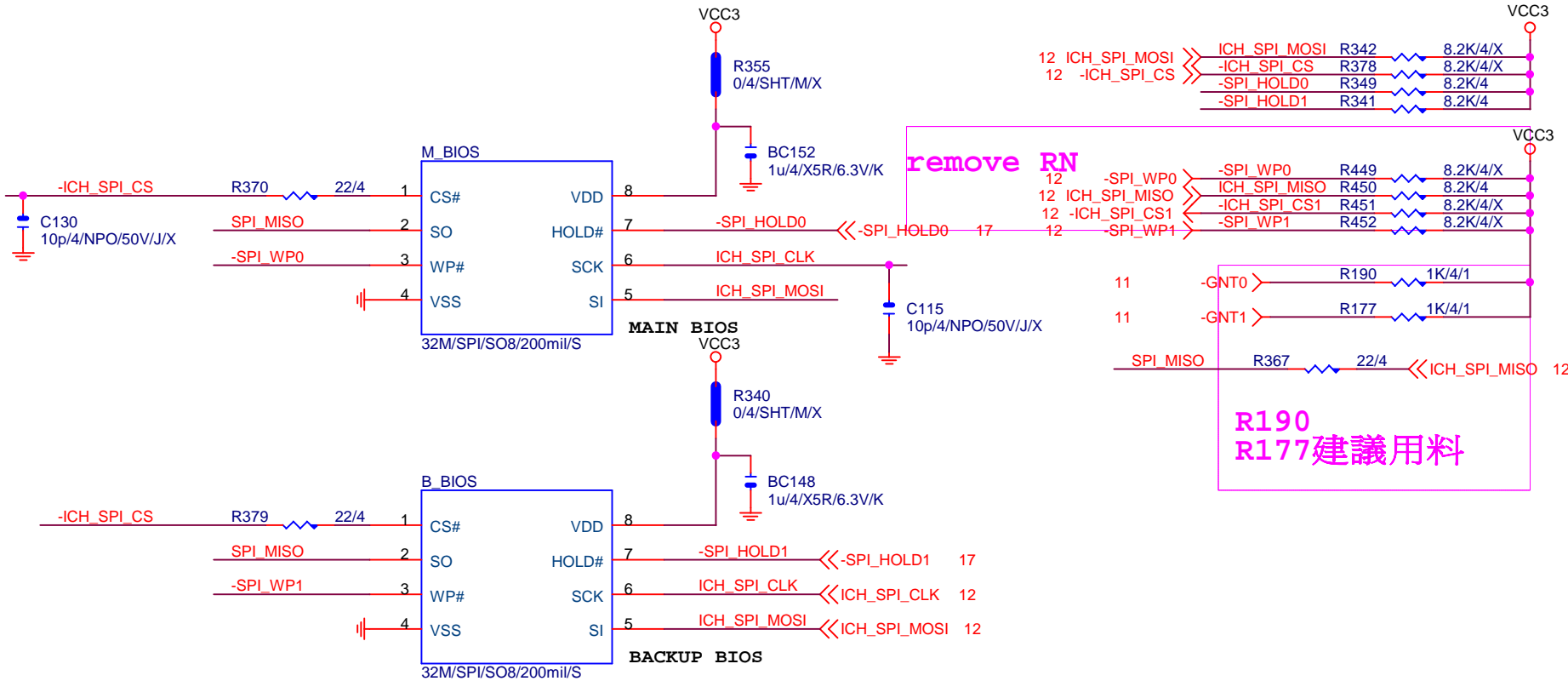
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| Gigabyte Technology | | |
| Title | COM,-RI,KB_USB,USB_ESATA,-PROCHOT | |
| Size | Document Number | Rev |
| Custom | GA-H61M-S2-B3 | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet 18 of 31 |



| | | | |
|------------------------------|-------------------------|----------------------|------------|
| Gigabyte Technology | | | |
| Title HWM,FAN CTRL,OV | | | |
| Size | Document Number | GA-H61M-S2-B3 | Rev |
| Custpm | | | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet | 19 of 31 |

DUAL BIOS

R349 R341 改上件 for ITE 8728 DX

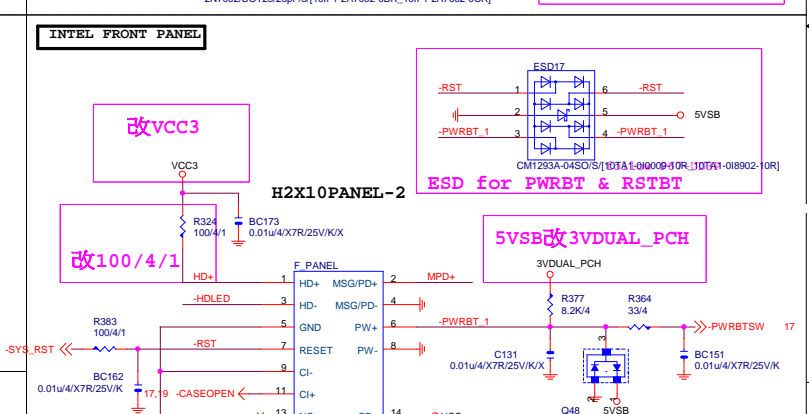
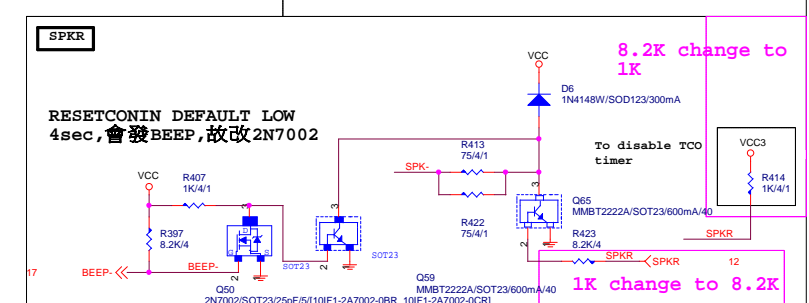
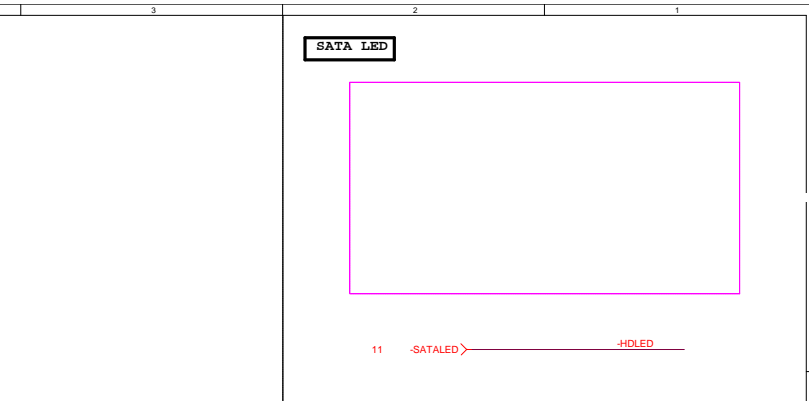
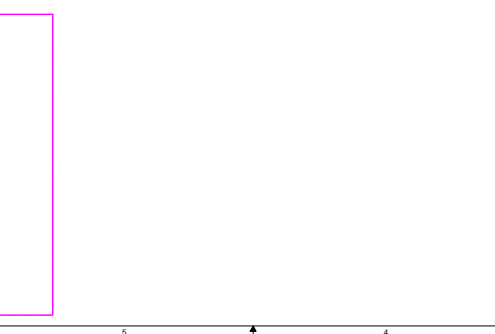
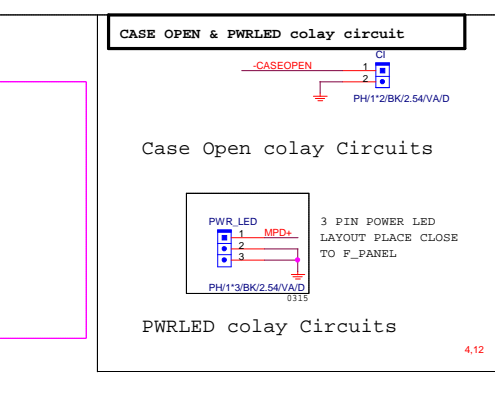
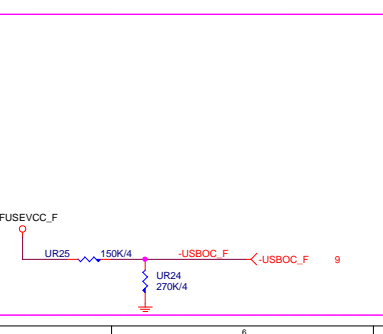
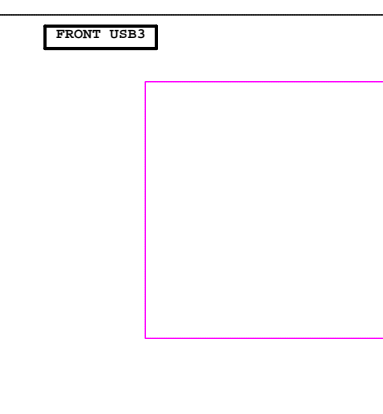
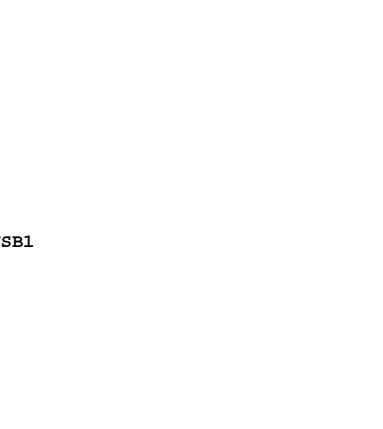
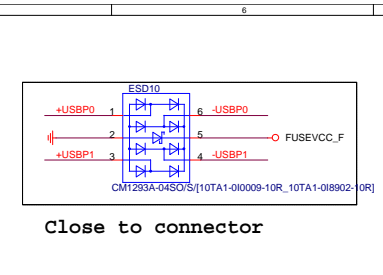
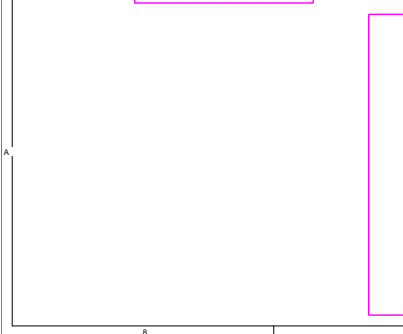
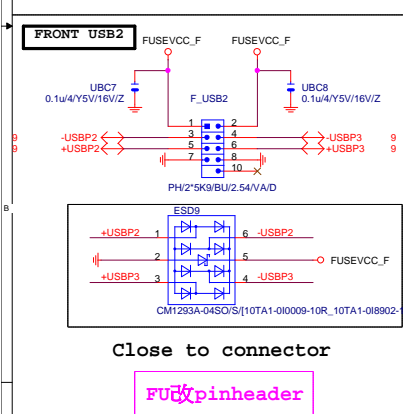
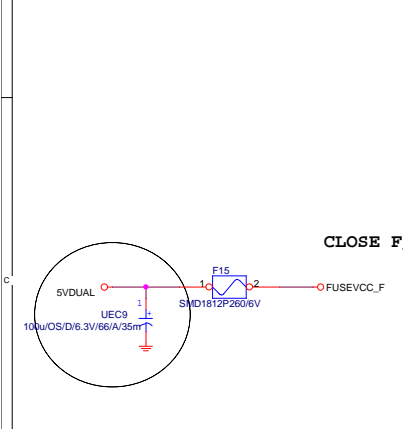
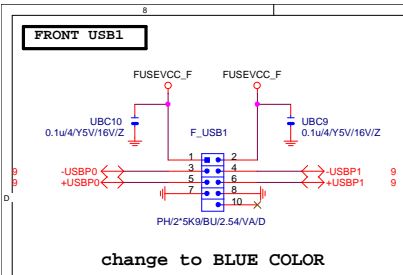


| BOOT DEVICE | GNT1 | GNT0 |
|-------------|------|------|
| LPC | 0 | 0 |
| PCI | 0 | 1 |
| SPI | 1 | 1 |

1 means floating
0 means PD 1K

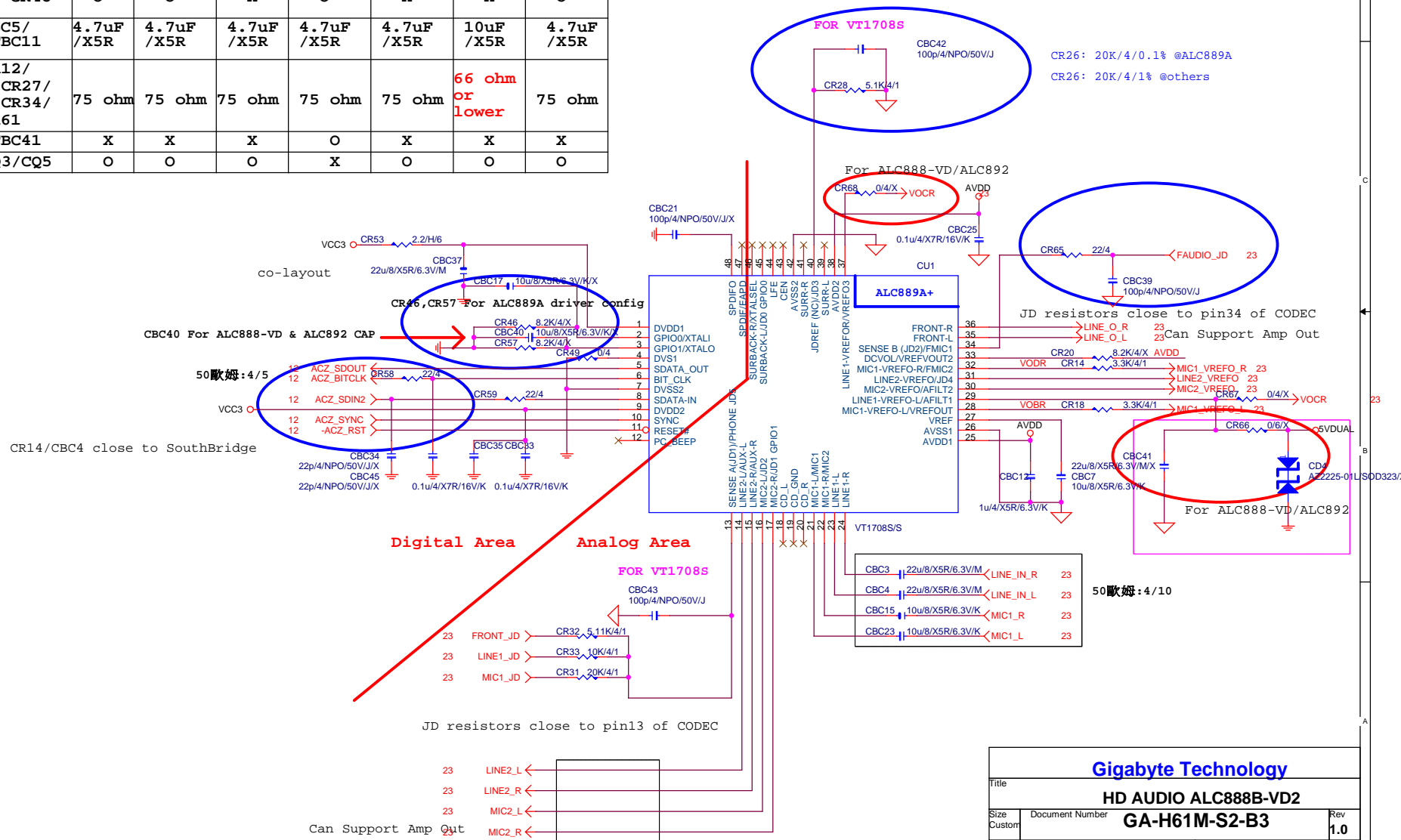
Gigabyte Technology

| | | |
|------------------|-------------------------|----------------|
| Title | | |
| DUAL BIOS | | |
| Size A | Document Number | Rev |
| | GA-H61M-USB3-B3 | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet 20 of 31 |



| | | |
|--------------------------------|-------------------------|----------------|
| Gigabyte Technology | | |
| File | | |
| FP,F_USB,USB PWR,SPKR,SATA LED | | |
| Custort | | |
| Document Number | | |
| GA-H61M-S2-B3 | | |
| Rev | | |
| 1.0 | | |
| Date: | Wednesday, May 25, 2011 | Sheet 21 of 31 |

| | ALC883 | ALC888-VA | ALC888B | ALC888-VD | ALC892R | ALC889 | ALC889A |
|---|-----------|-----------|-----------|-----------|-----------|-----------------|-----------|
| CR46 | X | X | X | X | X | X | O |
| CR57 | X | X | X | X | X | X | O |
| CR49 | O | O | X | X | X | O | O |
| CBC40 | X | X | X | 10uF/X5R | 10uF/X5R | X | X |
| CR20 | O | X | X | X | X | X | X |
| CR26 | 20K/1% | 20K/1% | 20K/1% | 20K/1% | 20K/1% | 20K/1% | 20K/0.1% |
| CR47 | X | X | O | X | O | O | X |
| CR48 | O | O | X | O | X | X | O |
| CBC2/CBC4/CBC5/CBC6/CBC10/CBC11 | 4.7uF/X5R | 4.7uF/X5R | 4.7uF/X5R | 4.7uF/X5R | 4.7uF/X5R | 10uF/X5R | 4.7uF/X5R |
| CR1/CR3/CR10/CR12/CR15/CR19/CR56/CR27/CR55/CR37/CR28/CR34/CR6/CR9/CR51/CR61 | 75 ohm | 75 ohm | 75 ohm | 75 ohm | 75 ohm | 66 ohm or lower | 75 ohm |
| CR66/CR68/CD3/CBC41 | X | X | X | O | X | X | X |
| CR67/CD1/CD2/CQ3/CQ5 | O | O | O | X | O | O | O |



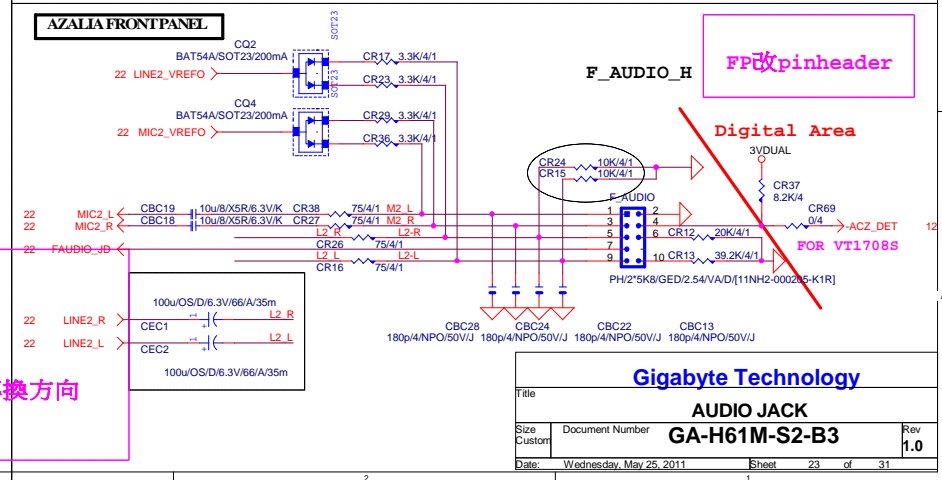
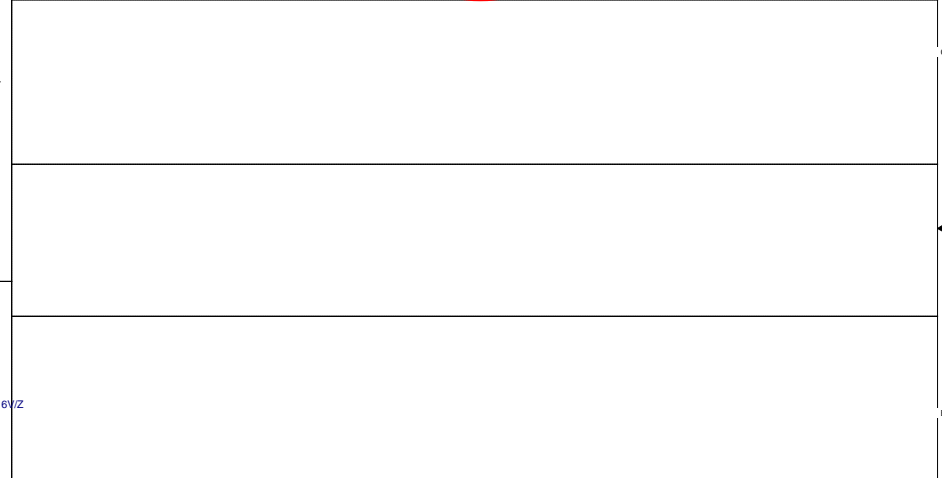
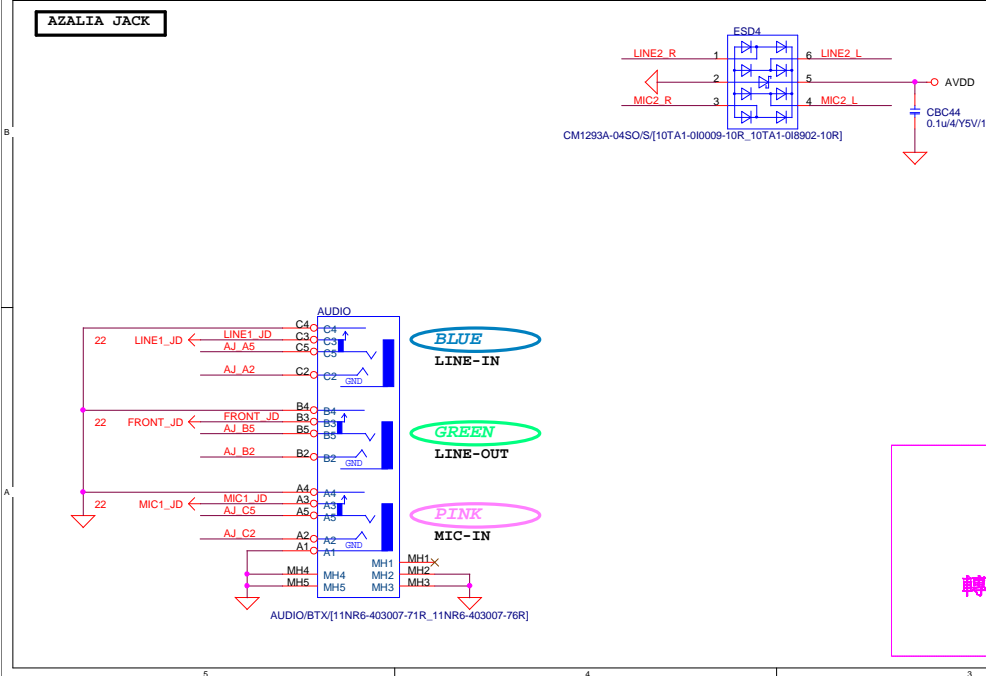
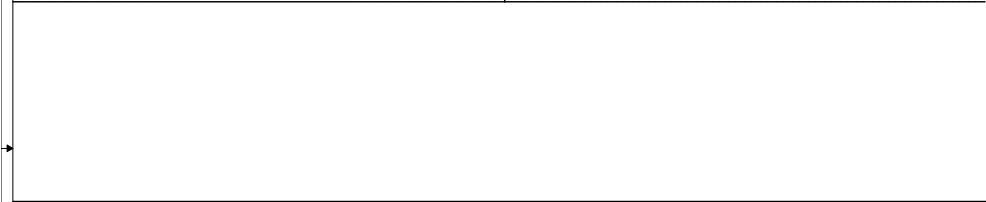
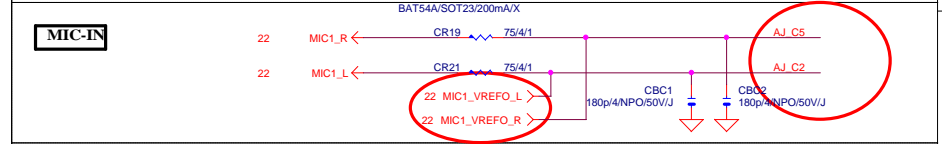
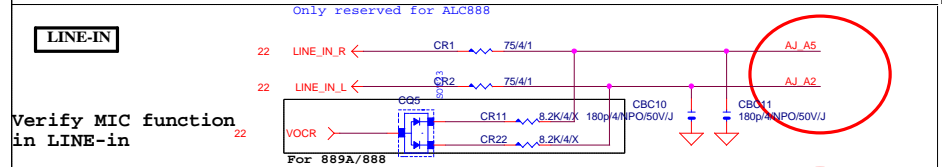
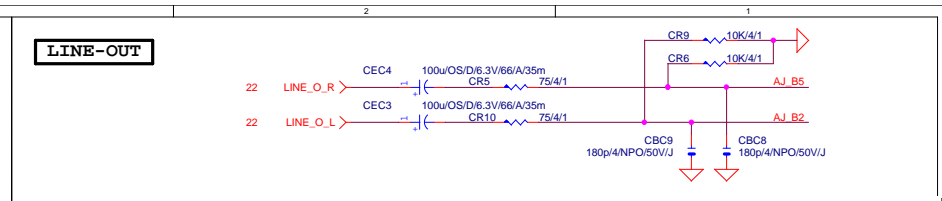
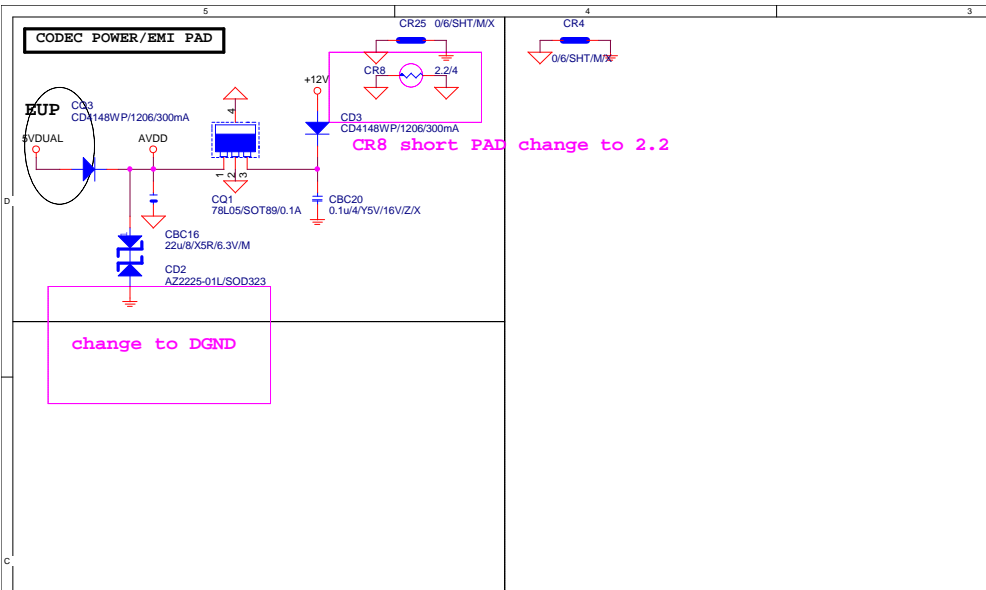
Gigabyte Technology

Title: HD AUDIO ALC888B-VD2

Size: Document Number: GA-H61M-S2-B3

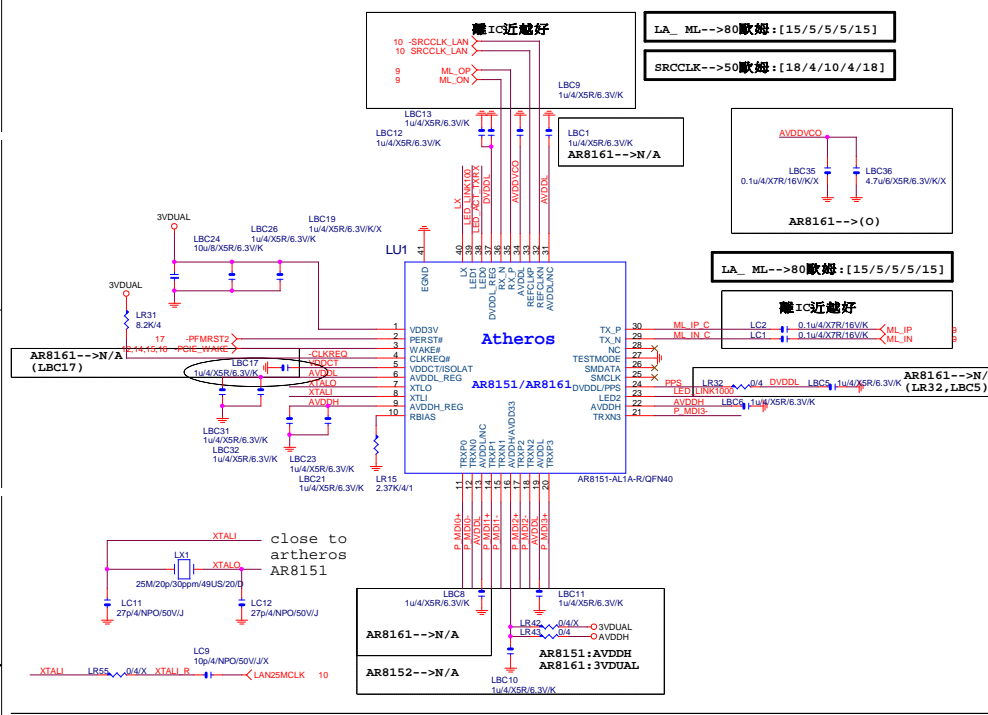
Custom: Rev: 1.0

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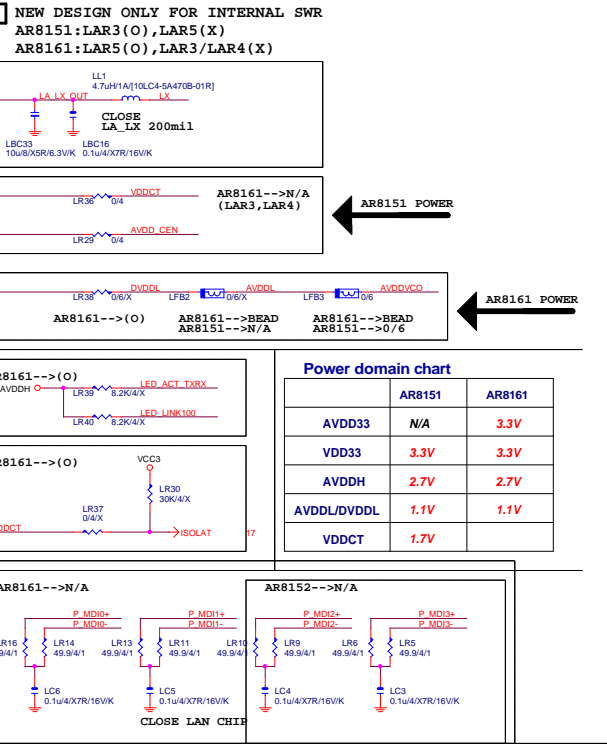


| | | |
|---------------------|-------------------------|----------------|
| Gigabyte Technology | | |
| Title | | |
| AUDIO JACK | | |
| GA-H61M-S2-B3 | | |
| Size | Document Number | Rev |
| Custom | | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet 23 of 31 |

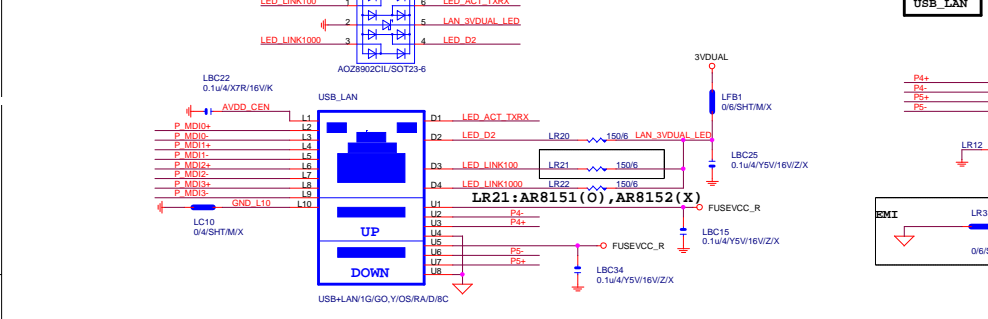
LAN:AR8151/AR8161



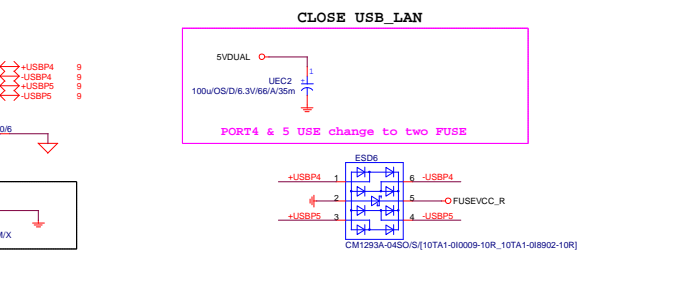
LAN POWER



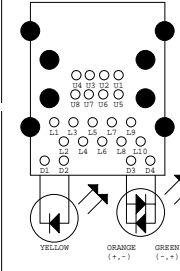
USB_LAN CONNECTOR



USB_LAN



注意:LAN LED PROTECT:(CO-LAYOUT)
1.ESD (6PIN):A0Z8902CCL/SOT23-6 (DEFAULT)
2.SURGE (5PIN):AZ2025-04S/SOT23-5L



USB-->90歐姆:[15/4.5/7.5/4.5/15]

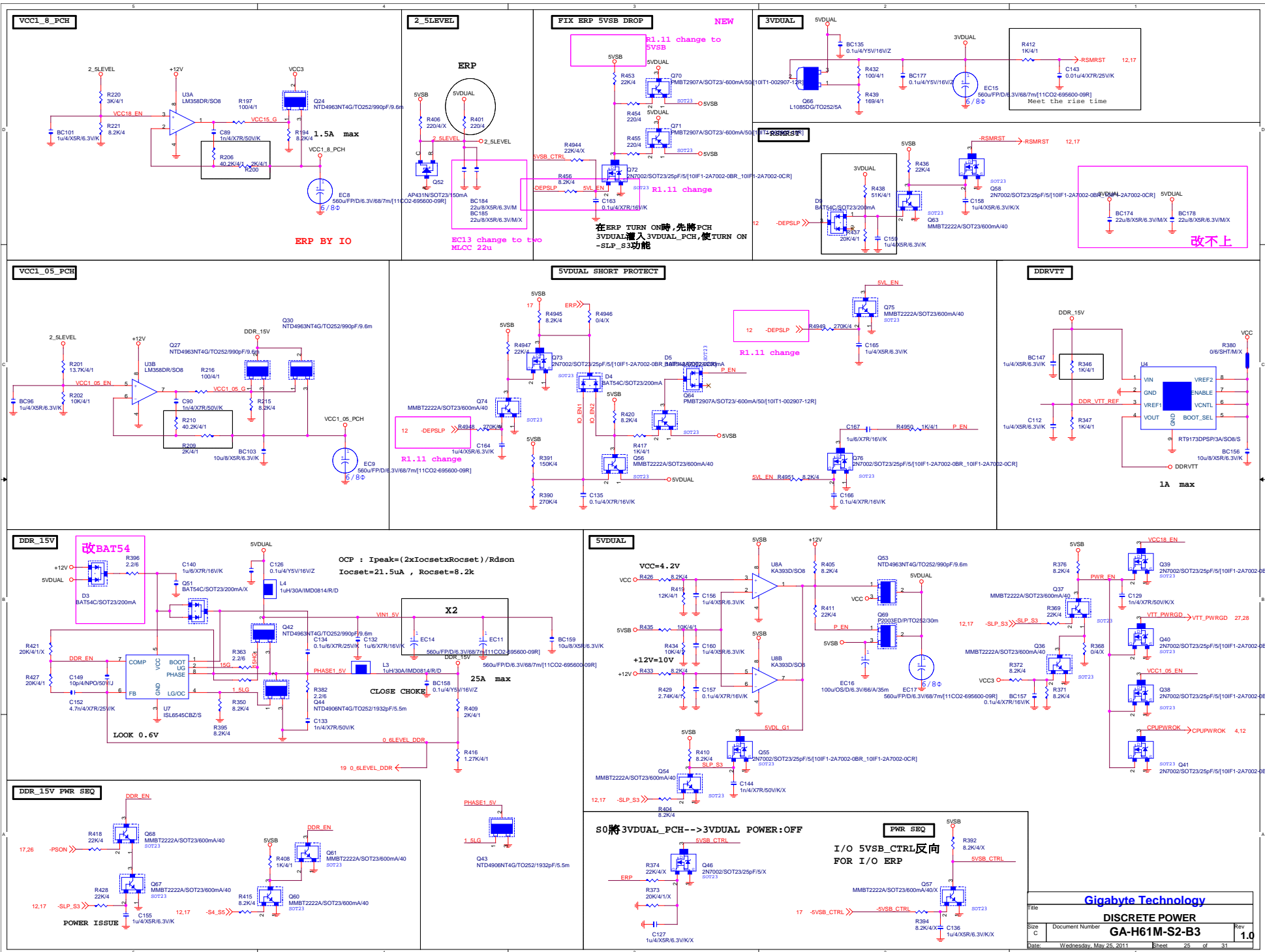
| 料號 | 規格 | 廠商 |
|------------------|---------------------|---------|
| 11NR6-702009-0ER | 1G LAN (12core) | UDE |
| 11NR6-702009-91R | 1G LAN (8 core) | FOXCONN |
| 11NR6-702009-92R | 1G LAN (8 core) | UDE |
| 11NR6-702009-11R | 1G LAN (12core/RED) | UDE |
| 11NR6-702009-12R | 1G LAN (8 core/RED) | FOXCONN |

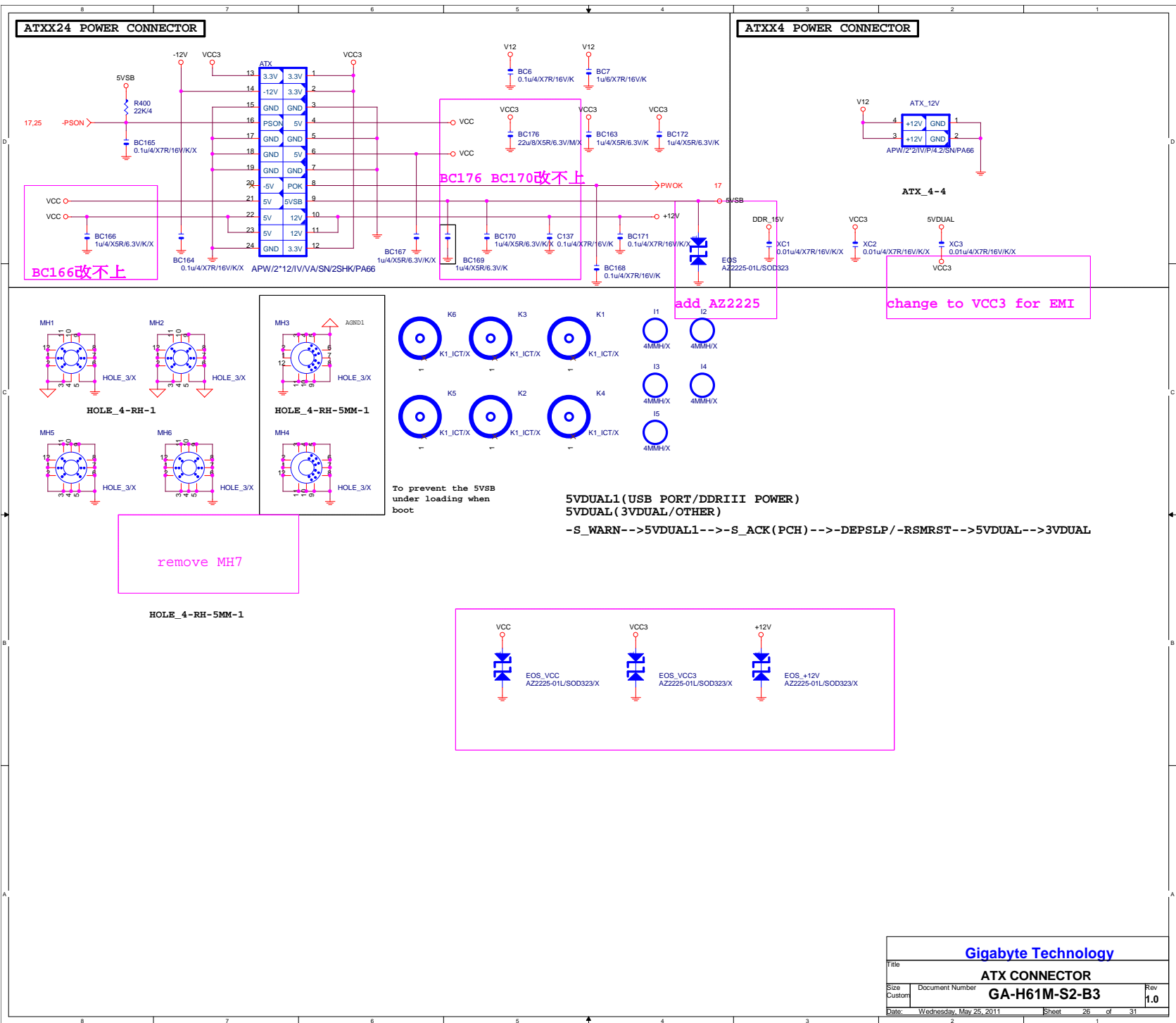
USB_LAN BOM區分:

- (紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
- (黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
- (黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

File: ARTHEROS AR8151/AR8161
Size Custom: GA-H61M-S2-B3
Date: Wednesday, May 25, 2011
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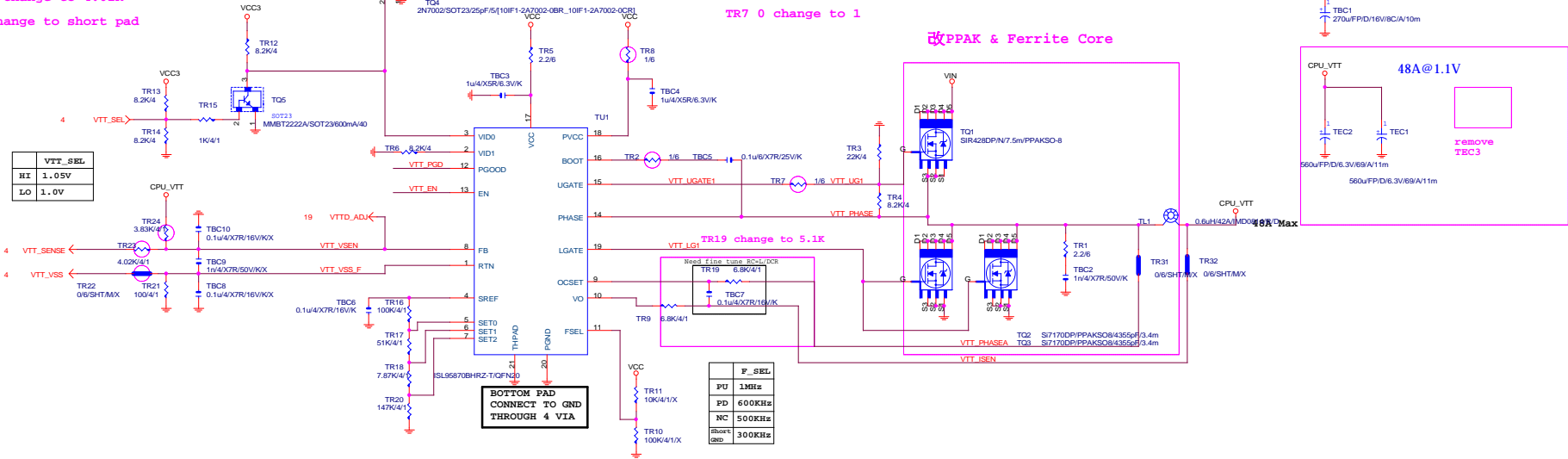


| | | |
|-------------------------------|---------------------------------------|-----------------|
| Gigabyte Technology | | |
| File: ATX CONNECTOR | | |
| Size Custom: | Document Number: GA-H61M-S2-B3 | Rev: 1.0 |
| Date: Wednesday, May 25, 2011 | Sheet: 26 | of 31 |

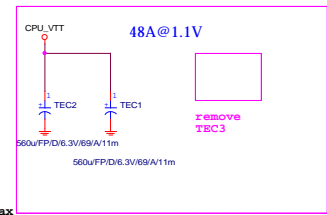
CPU_VTT

TR23 2K change to 3.83K
 TR23 0 change to 4.02K
 TR22 change to short pad

TR8 0 change to 1
 TR2 0 change to 1
 TR7 0 change to 1



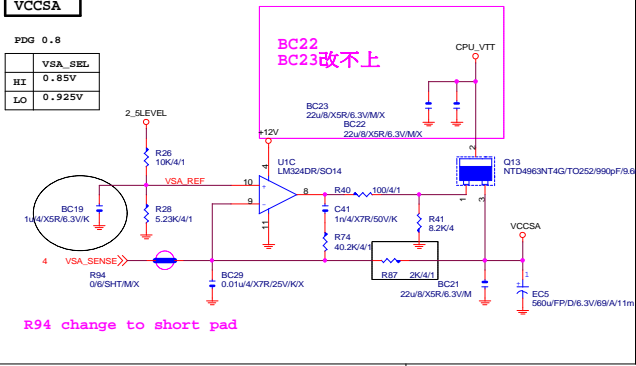
**BOTTOM PAD
 CONNECT TO GND
 THROUGH 4 VIA**



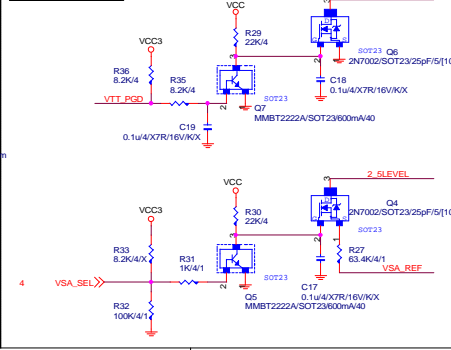
VCCSA

PDG 0.8

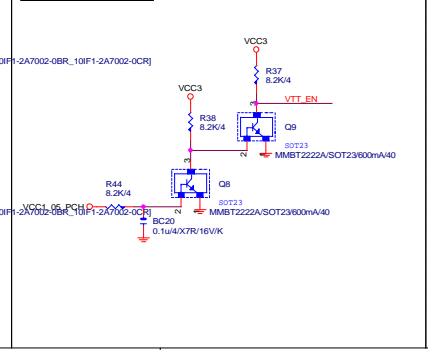
| VSA_SEL | |
|---------|--------|
| HI | 0.85V |
| LO | 0.925V |



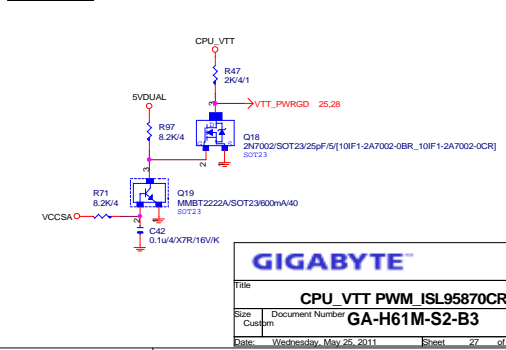
VCCSA PWR SEQ



CPU_VTT PWR SEQ



VTT_PWRGD



GIGABYTE

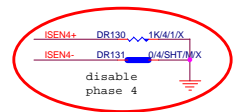
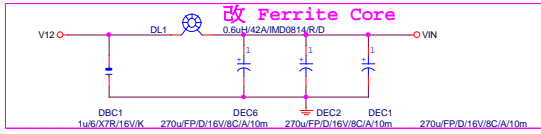
Title: CPU_VTT PWM_ISL95870CRZ
 Size: Document Number: GA-H61M-S2-B3
 Date: Wednesday, May 26, 2011 Sheet: 27 of 31

DR85 150 change to 51
 DR69 6.8K change to 11K
 DR82 0 change to 10
 DR62 2.1K change to 1.1K
 DR65 1.6K change to 1.1K
 DR57 100 change to 8.2K
 DR102 100 change to 8.2K
 DR54 short change to 750
 DR103 short change to 1K
 DR91 6.8K change to 10K
 DR100 3.3K change to 1K
 DR69 11K change to 20K
 DR54 change to 1.2K

DR84 56.2 change to 51
 DR92 2.1K change to 1K

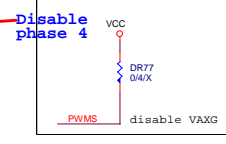
DR52 16.2K change to 24.9K

remove VAXG RDY



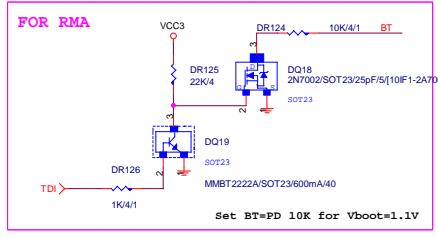
DR46 DR48 DR45 DR47 change to 10
 DR86 change to 750

| | | | |
|--------|---|--------|----|
| PWM1 | → | PWM1 | 30 |
| PWM2 | → | PWM2 | 30 |
| PWM3 | → | PWM3 | 30 |
| PWMS | → | PWMS | 29 |
| ISEN1 | → | ISEN1 | 30 |
| ISEN2 | → | ISEN2 | 30 |
| ISEN3 | → | ISEN3 | 30 |
| ISENS | → | ISENS | 29 |
| PHASE1 | → | PHASE1 | 30 |
| PHASE2 | → | PHASE2 | 30 |
| PHASE3 | → | PHASE3 | 30 |
| PHASES | → | PHASES | 29 |



BOTTOM PAD CONNECT TO GND THROUGH 10 VIA

Close Vcore output choke
 Close Vxg output choke



Gigabyte Technology

CPU CORE VR-1

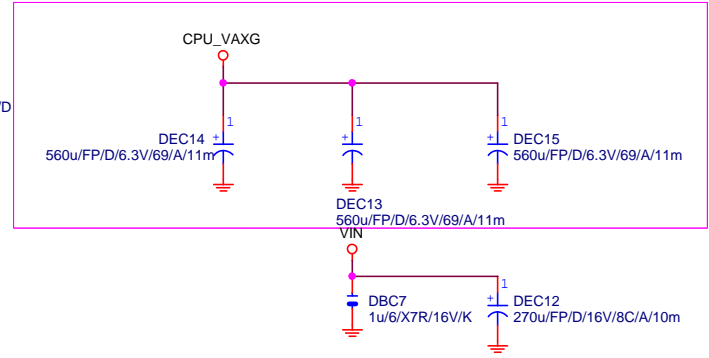
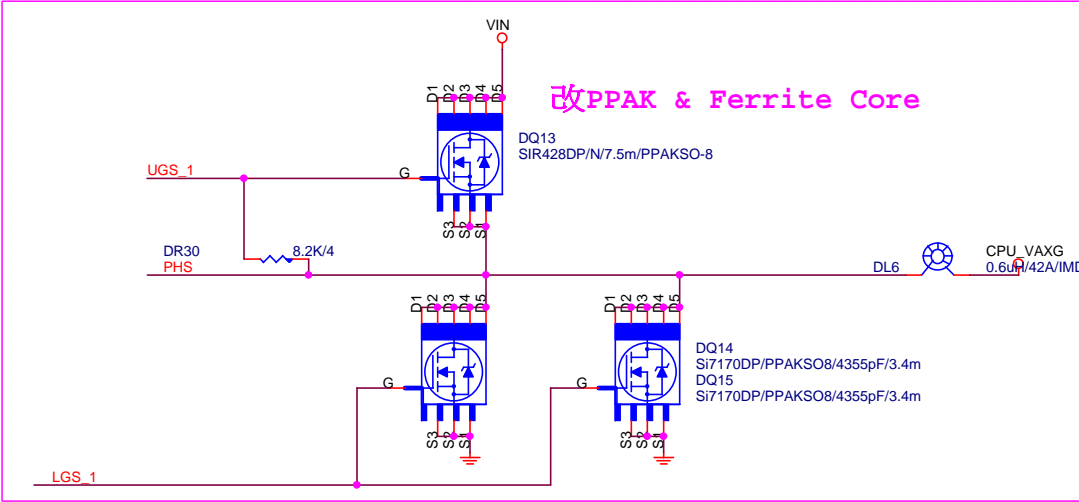
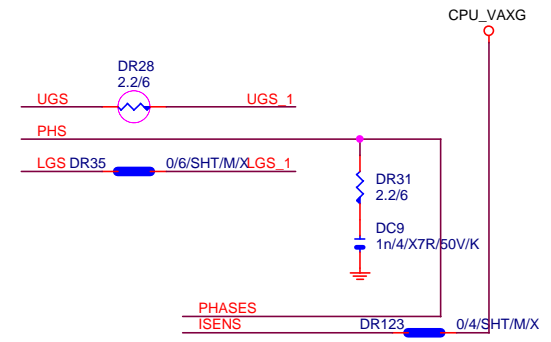
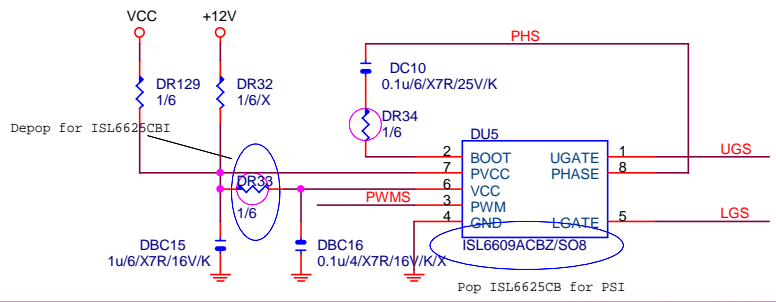
GA-H61M-S2-B3

Rev 1.0

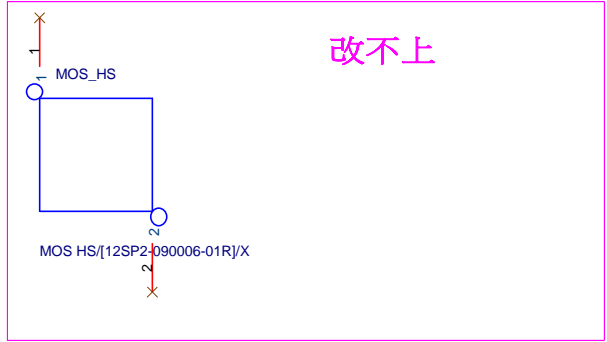
Date: Wednesday, May 25, 2011 Sheet 28 of 31

VAXG

DR33 0 change to 1
 DR34 0 change to 1
 DR28 0 change to 2.2

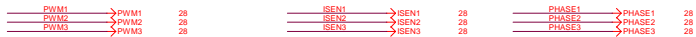


MOS HEATSINK

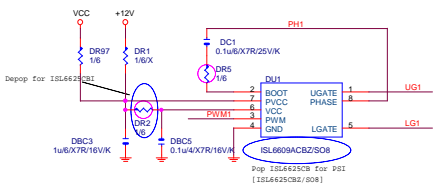


| | | |
|-------------------------------|-------------------------|----------------|
| Gigabyte Technology | | |
| Title CPU CORE VR-2 | | |
| Size | Document Number | Rev |
| Custom | GA-H61M-S2-B3 | 1.0 |
| Date: | Wednesday, May 25, 2011 | Sheet 29 of 31 |

PPAK & Ferrite Core



DR5 0 change to 1
 DR2 0 change to 1
 DR4 0 change to 1
 DR6 0 change to 1



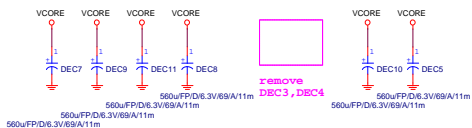
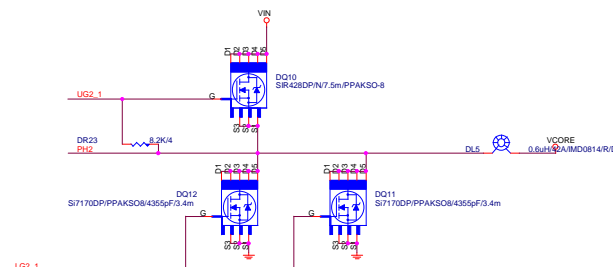
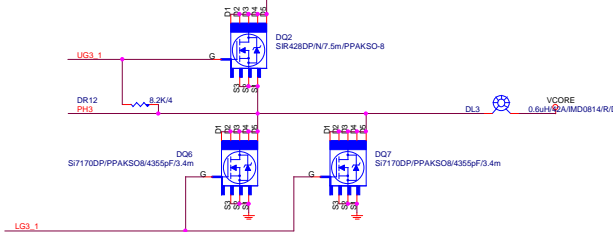
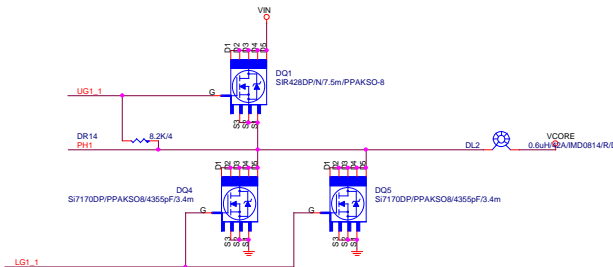
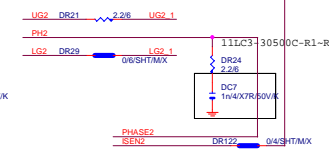
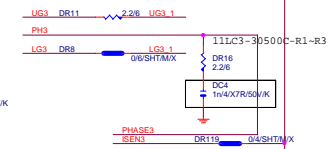
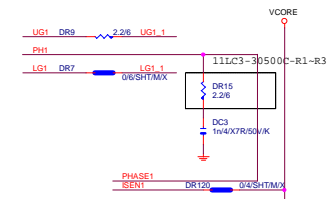
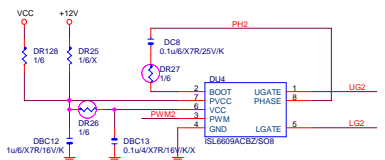
[1]

[3]

[4]

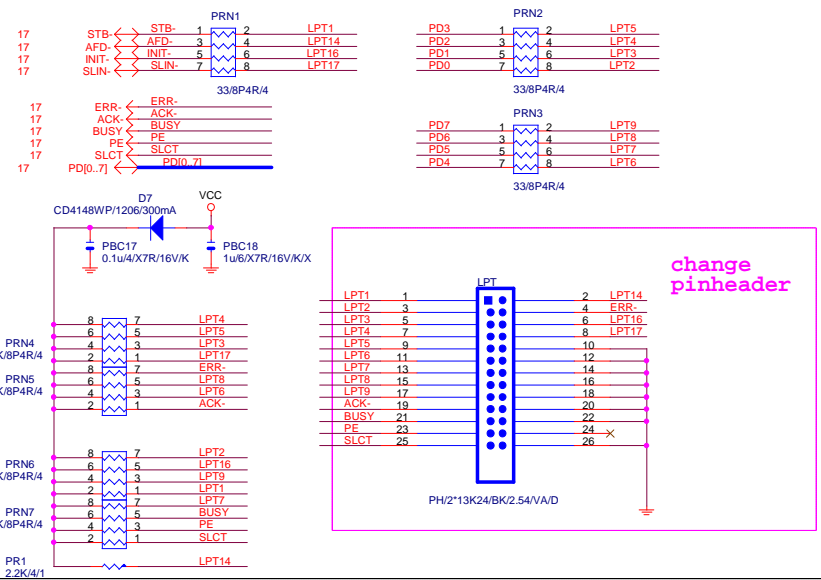
[2]

DR20 0 change to 1
 DR26 0 change to 1
 DR27 0 change to 1



| | | |
|----------------------------|-------------------------|----------------|
| Gigabyte Technology | | |
| CPU CORE VR-3 | | |
| Size | Document Number | Rev |
| Custom | GA-H61M-S2-B3 | 1.0 |
| Date | Wednesday, May 25, 2011 | Sheet 30 of 31 |

LPT PORT



| | | | |
|-------------------------------|---------------------------------------|-----------------|--|
| Gigabyte Technology | | | |
| Title: LPT | | | |
| Size: Custom | Document Number: GA-H61M-S2-B3 | Rev: 1.0 | |
| Date: Wednesday, May 25, 2011 | Sheet: 31 | of 31 | |