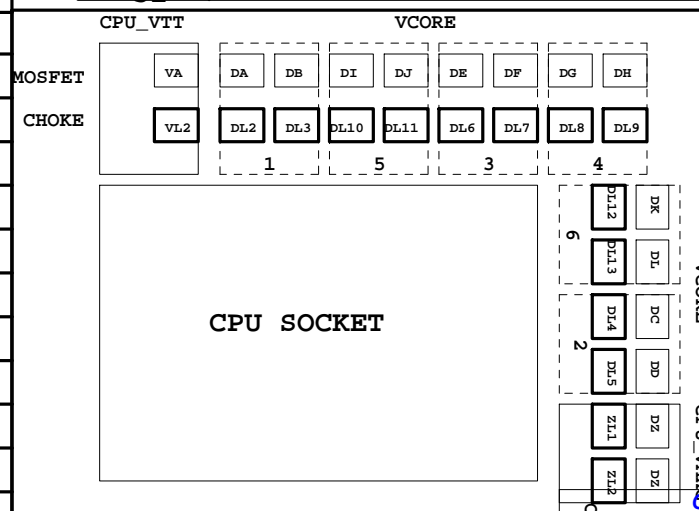


| | |
|----|-----------------------------|
| 01 | COVER SHEET |
| 02 | BOM & PCB MODIFY HISTORY |
| 03 | BLOCK DIAGRAM |
| 04 | CPU_LGA1155-A |
| 05 | CPU_LGA1155-B |
| 06 | CPU_LGA1155-C |
| 07 | DDR III CHANNEL A |
| 08 | DDR III CHANNEL B |
| 09 | PCH_FDI,DMI,USB,PCIE,NVRAM |
| 10 | PCH_DP,CLK BUFFER |
| 11 | PCH_HOST,SATA,PCI |
| 12 | PCH_GPIO,CTRL,AUDIO |
| 13 | PCH_PWR,GND |
| 14 | PCI EXPRESS*16 SLOT |
| 15 | PCI EXPRESS*8 SLOT |
| 16 | PCI EXPRESS*4 SLOT |
| 17 | PCI EXPRESS*16/*8/*4 SWITCH |
| 18 | PCI EXPRESS*1 SLOTS X3 |
| 19 | ITE 8892 |
| 20 | PCI SLOT 1 |
| 21 | HDMI / DVI |
| 22 | MSATA |
| 23 | Dual BIOS |
| 24 | ALC898 |
| 25 | REAR AUDIO JACK |
| 26 | AMPLIFIER |
| 27 | PWM IR3563A |
| 28 | IR 3550-VCORE |
| 29 | PWM IR3570 _VAXG & CPU_VTT |
| 30 | IR3550 _VAXG & CPU_VTT |
| 31 | PWM IR3570_DDR |
| 32 | IR 3598-DDR |

| | |
|----|------------------------|
| 33 | DISCRETE POWER1 |
| 34 | VCCSA POWER |
| 35 | I/O ITE8728 |
| 36 | F_PANEL , F_USB , PHOT |
| 37 | F_USB3.0 |
| 38 | ATX POWER, CLOCK GEN |
| 39 | HWM,KB/MS , FAN CTRL |
| 40 | R_USB30 |
| 41 | INTEL 82579V |
| 42 | Marvell 9172(F+R) |
| 43 | VT6308P 1394 |
| 44 | VL810 USB3_HUB1(R) |
| 45 | VL810 USB3_HUB1(F) |
| 46 | RST, PWR, CLR_CMOS |
| 47 | HDMI412 & 8605 |
| 48 | TBT-1 |
| 49 | TBT-2 |
| 50 | TBT-3 |
| 51 | TABLE LIST |

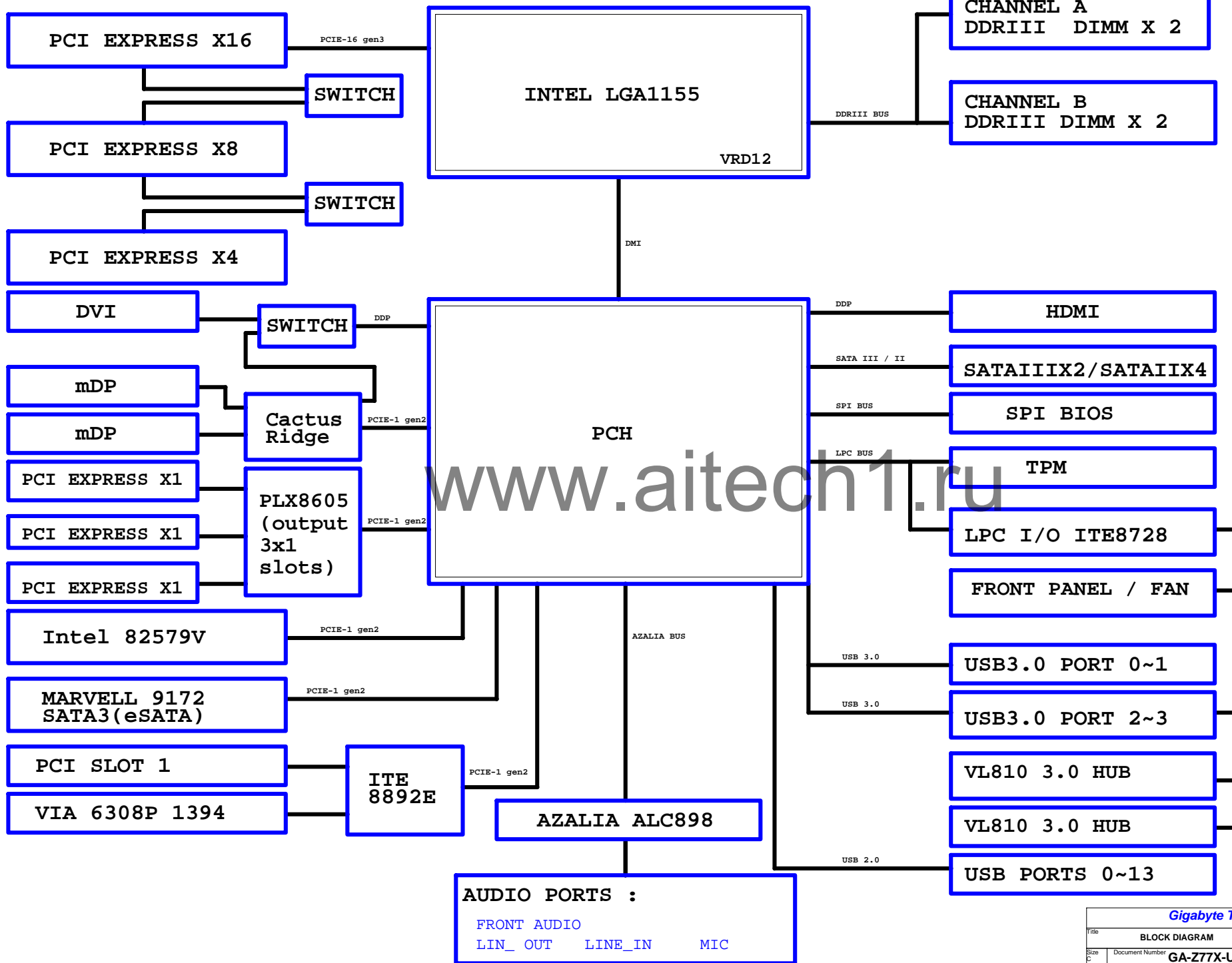


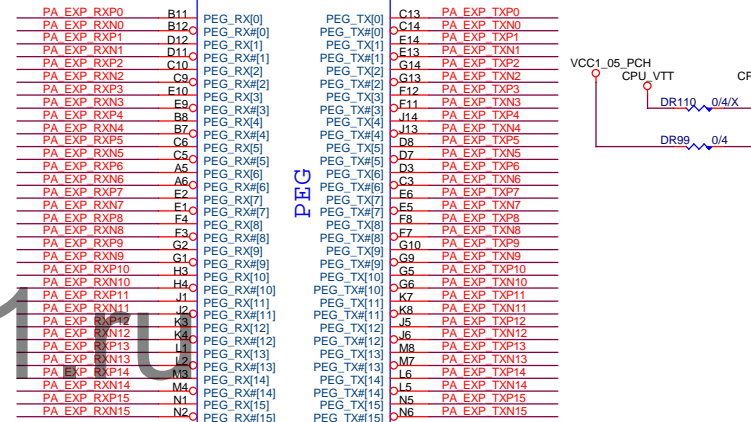
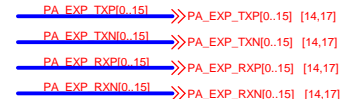
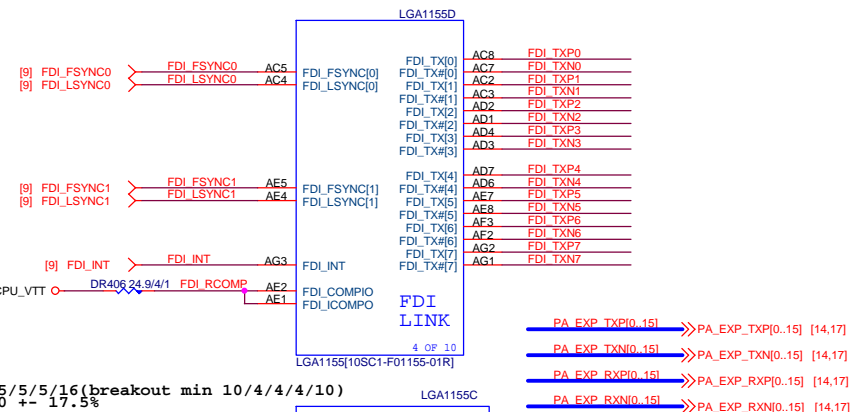
Gigabyte Technology

Component value change history

[illegible][illegible]

BLOCK DIAGRAM



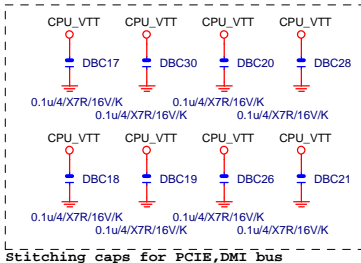
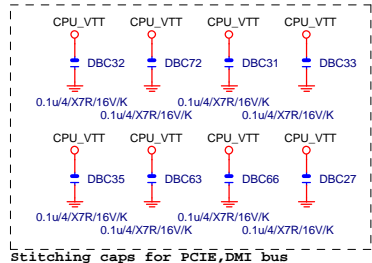
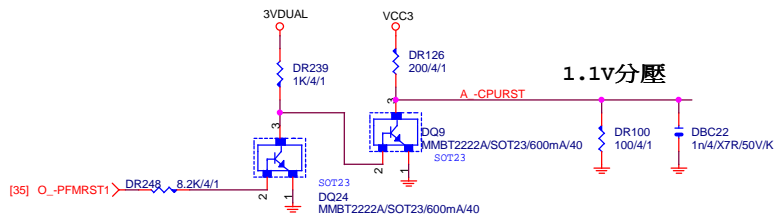
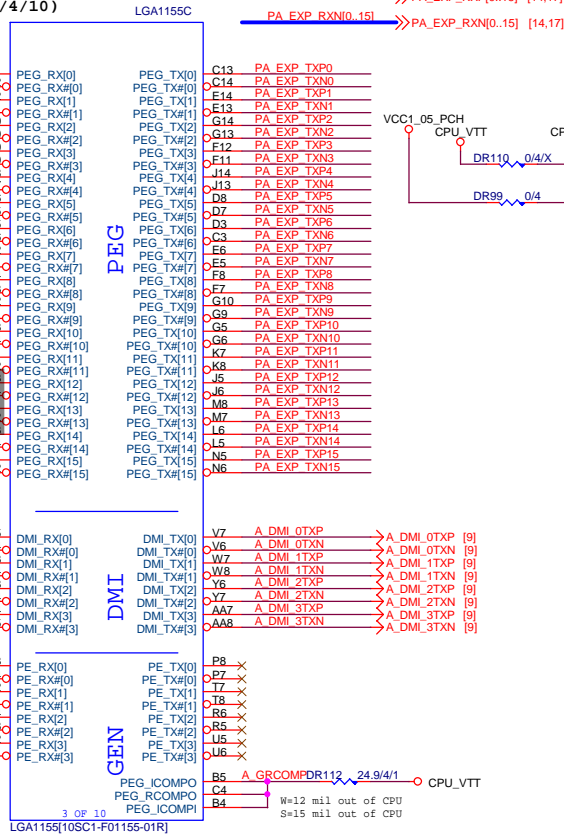
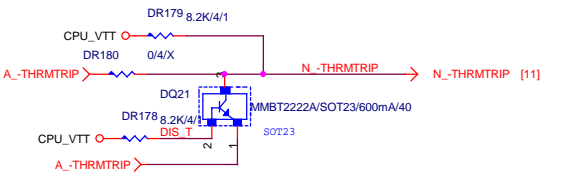
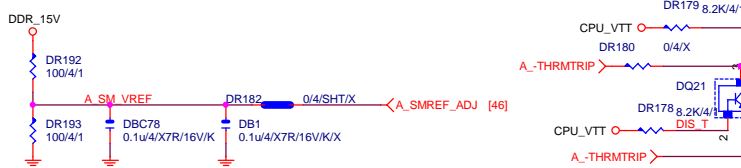


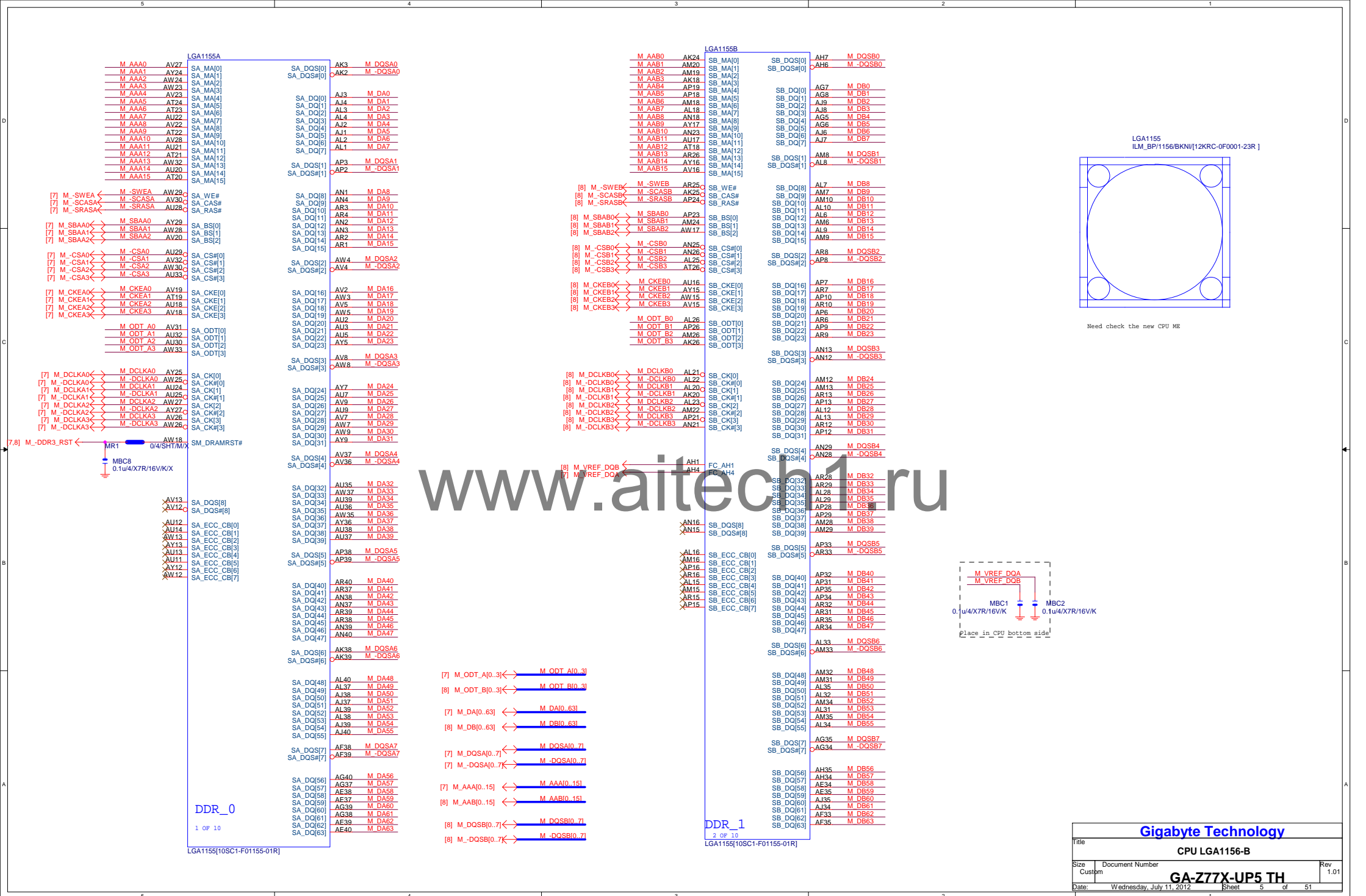
| CFG6 | CFG5 | PCIE CONFIG |
|------|------|----------------|
| 1 | 1 | 1x16 , Default |
| 1 | 0 | 2X8 |
| 0 | 1 | RSVD |
| 0 | 0 | X8,X4,X4 |

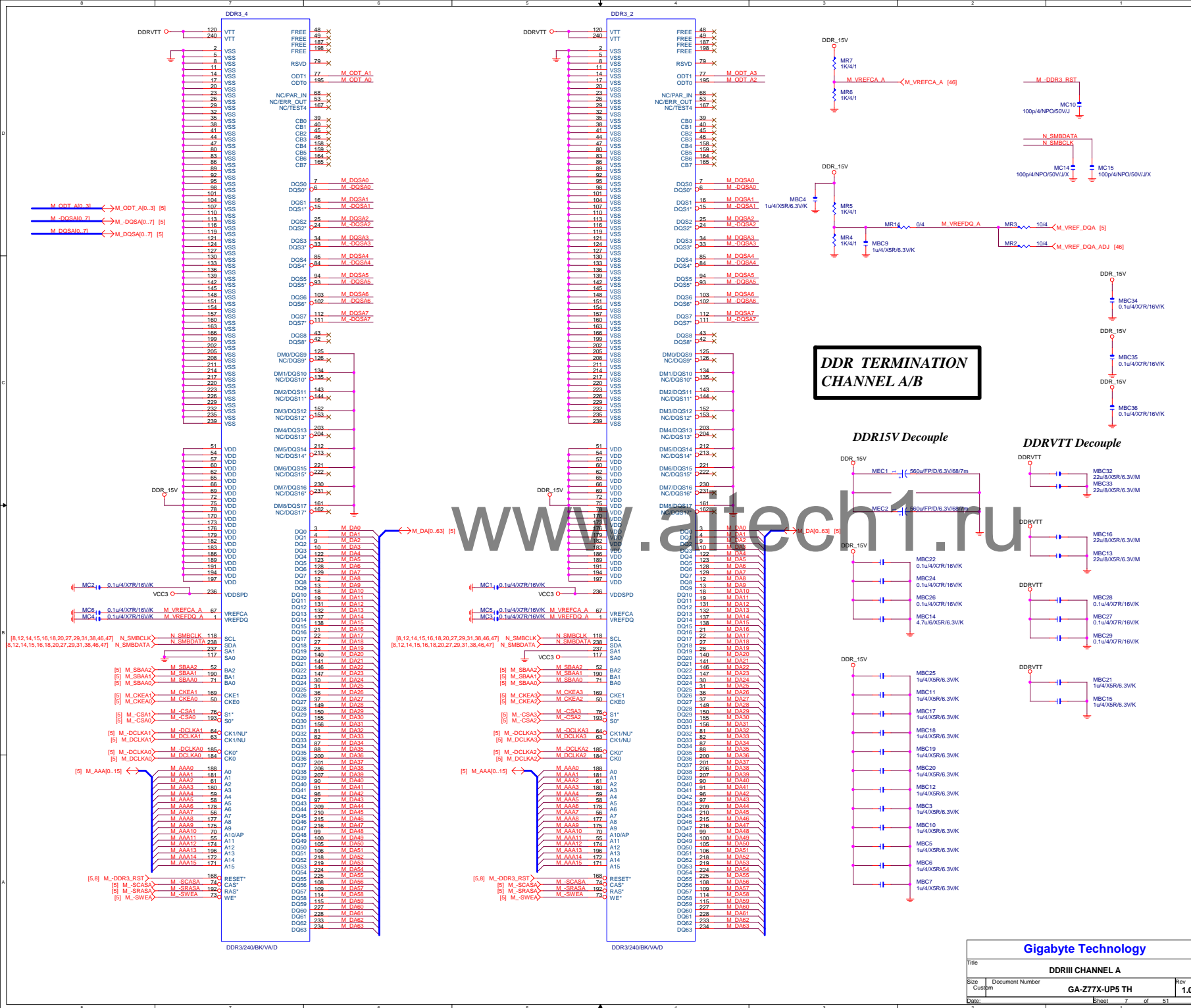
N_DRAM_PWROK

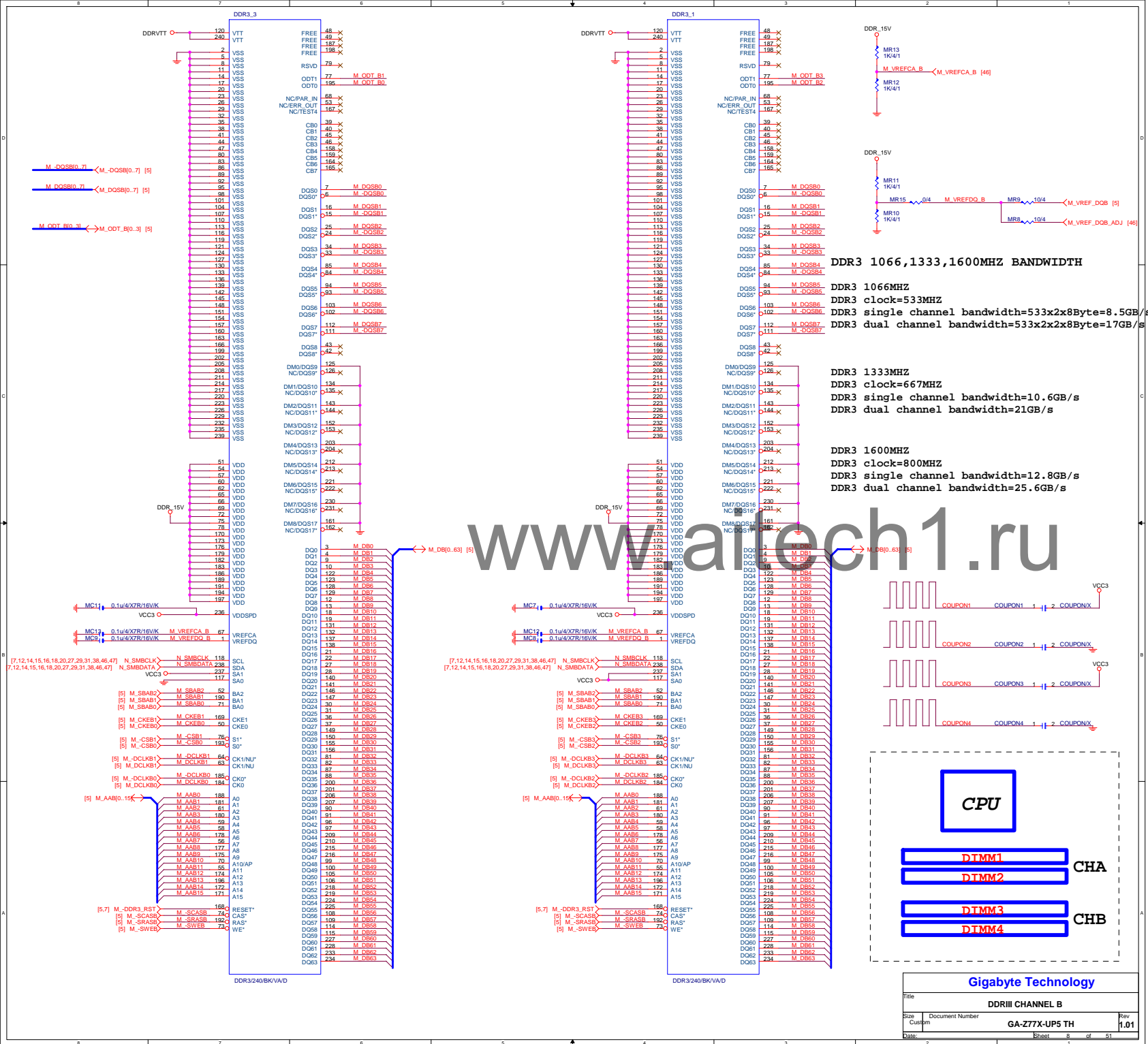
DBC34
100p4/NPO/50V/J/X

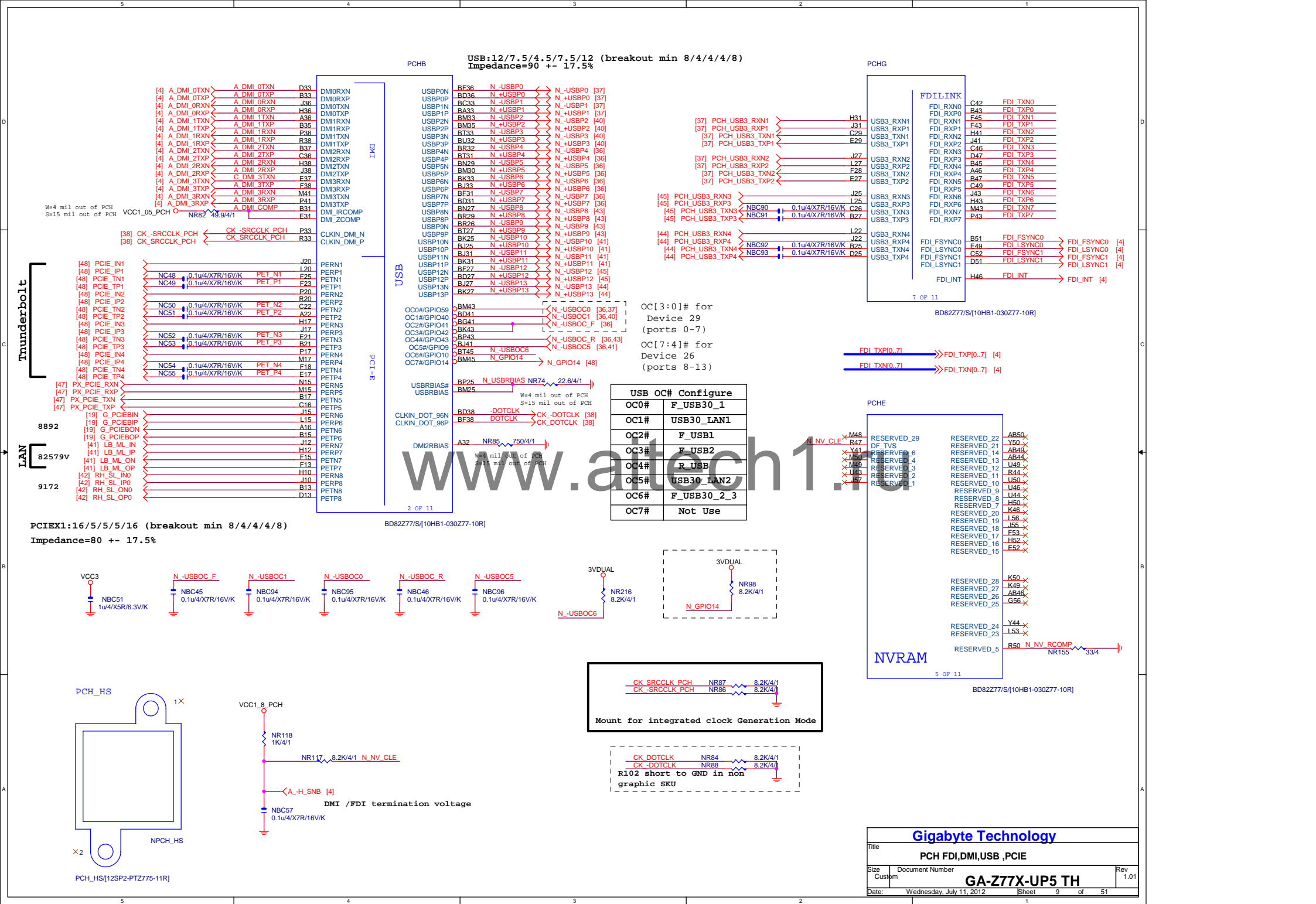
[12] PCH_GP45 DIS_T

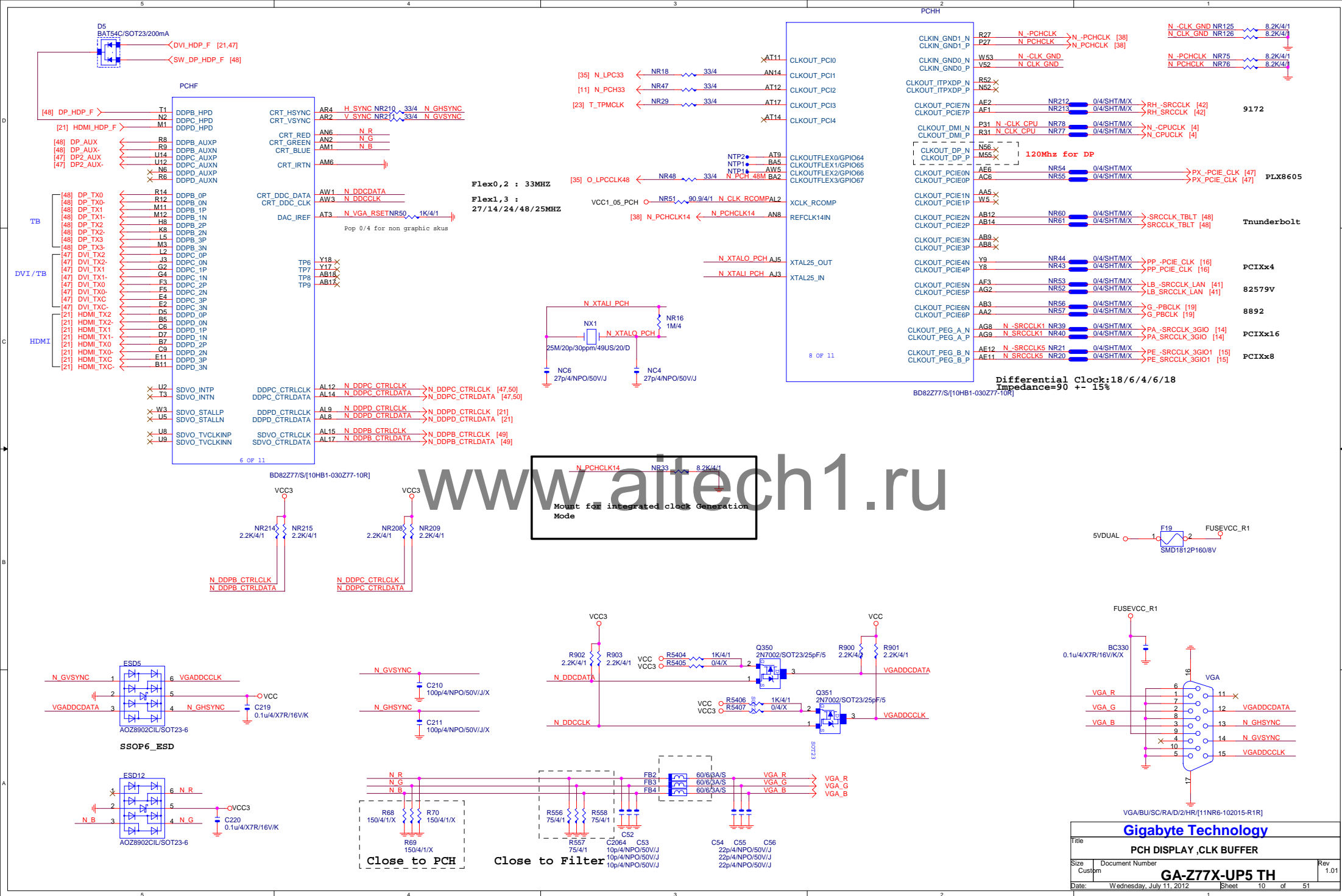












SATA:20/7.5/4.5/7.5/20 (breakout min 8/4/4/8)
Impedance=90 +- 17.5%

PCHC

PCHA

MB-ID

For WIFI

CL_CLK1

CL_DATA1

CL_RST1#

CLINK

SATA3

SATA2

SATA1

SATA0

SATA5

SATA4

SATA3

SATA2

SATA1

SATA0

SATA5

SATA4

SATA3

SATA2

SATA1

SATA0

SATA5

SATA4

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SATA4

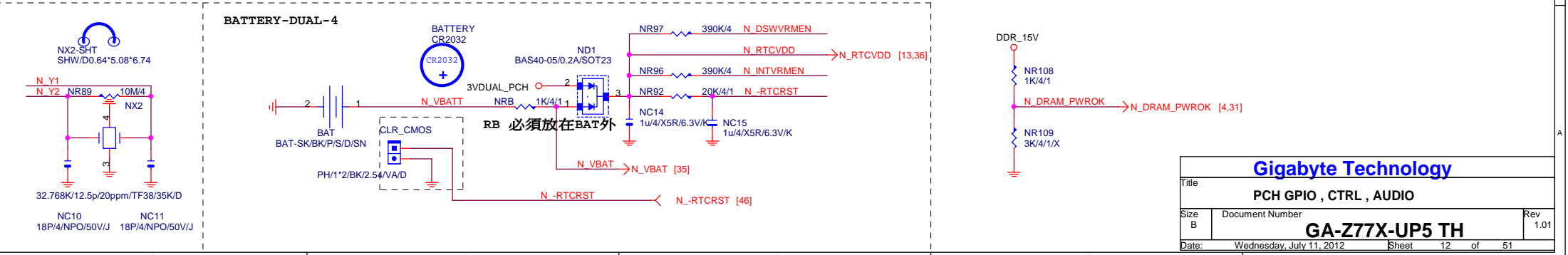
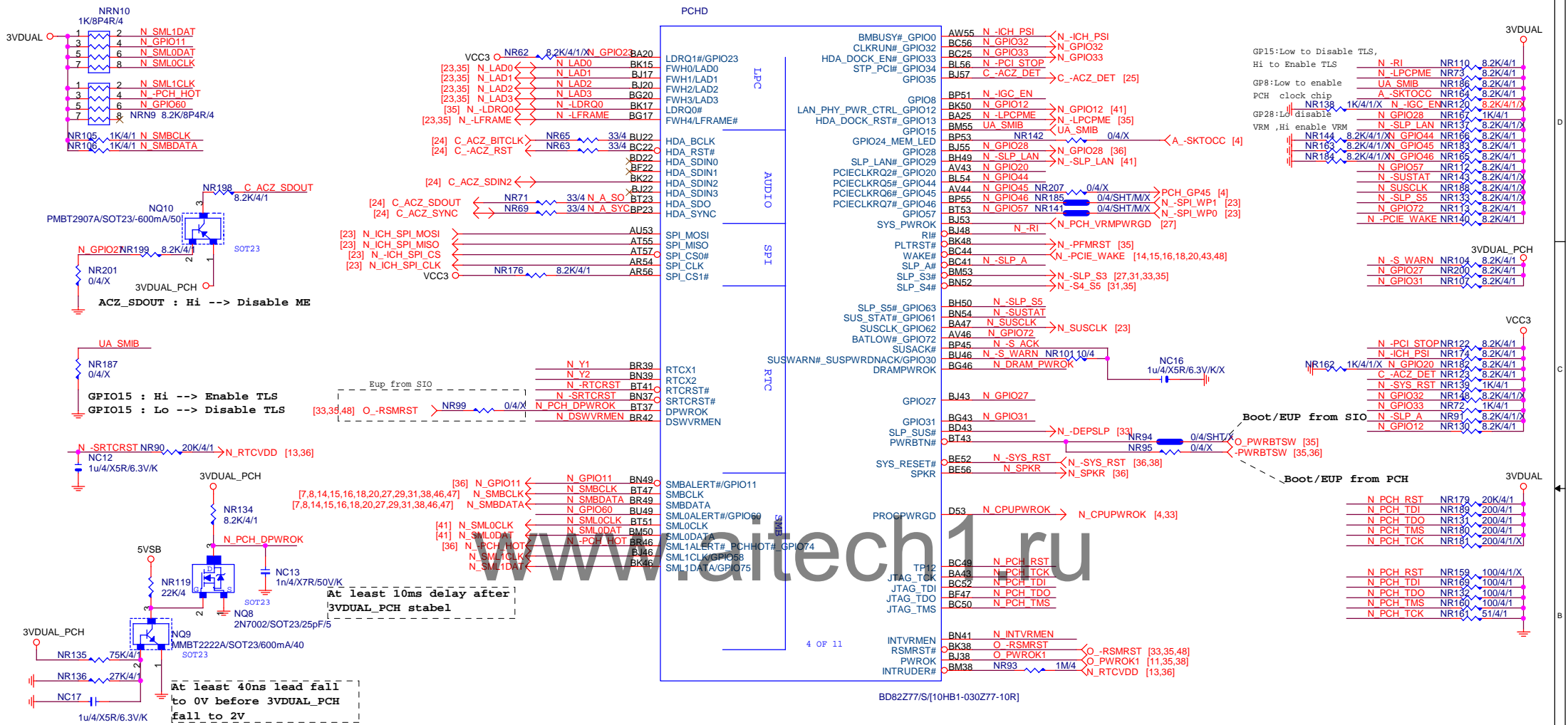
SATA3

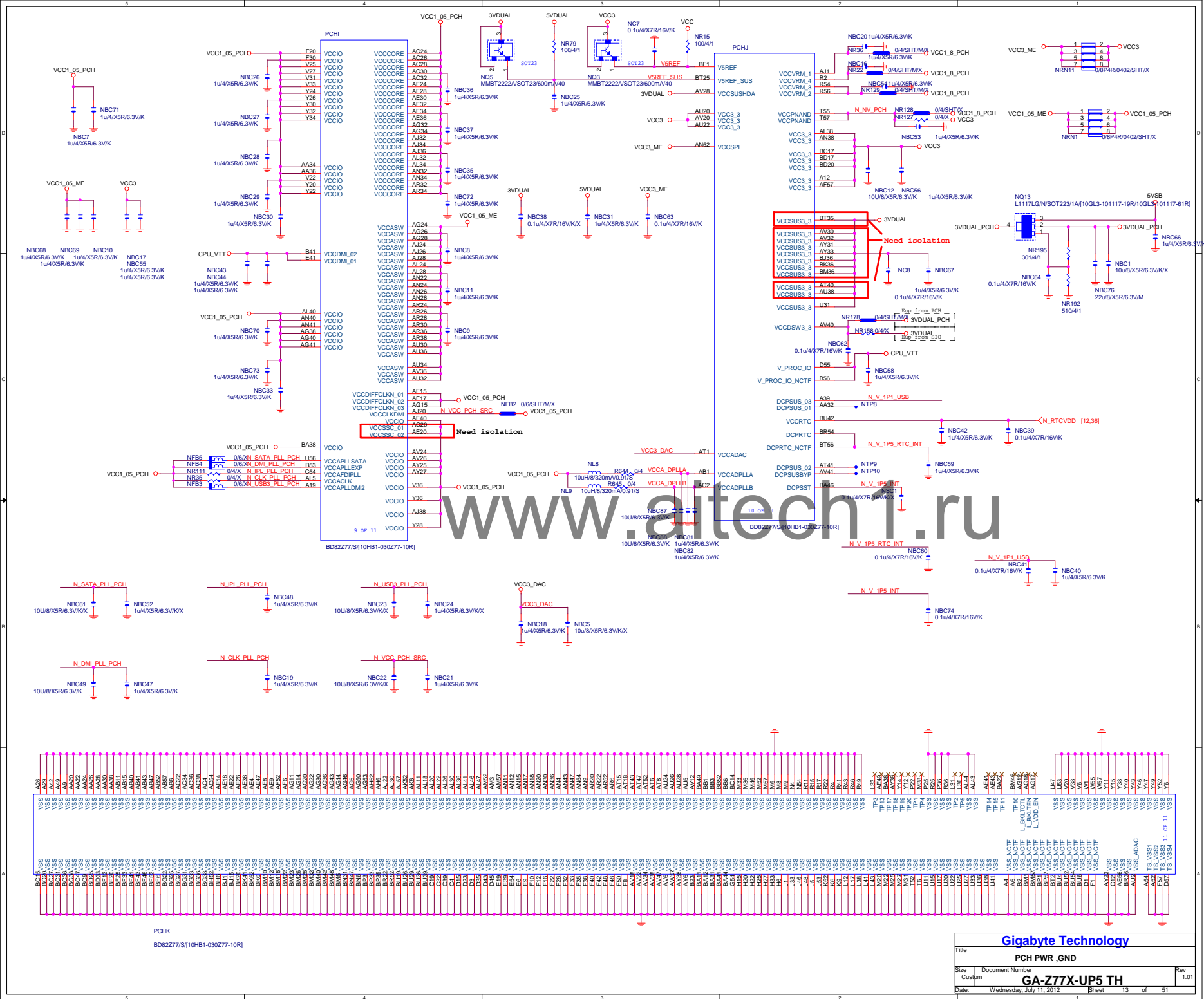
SATA2

SATA1

SATA0

SATA5





**+12 protect
short-wire
test**

PCIE16:16/5/5/5/16

PA EXP RXP0.15] >> PA_EXP_RXP[0.15] [4,17]
PA EXP RXN0.15] >> PA_EXP_RXN[0.15] [4,17]
PA EXP TXP0.15] >> PA_EXP_TXP[0.15] [4,17]
PA EXP TXN0.15] >> PA_EXP_TXN[0.15] [4,17]

| | | | |
|-----------------|-------|--------------------|-------------------|
| 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 | PAC19 | 0.22u/4/X5R/6.3V/K | PA EXP TXP7 C |
| PA EXP TXN7 | PAC18 | 0.22u/4/X5R/6.3V/K | PA EXP TXN7 C |
| PA EXP SW TXP8 | PAC20 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP8 C |
| PA EXP SW TXN8 | PAC21 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN8 C |
| PA EXP SW TXP9 | PAC22 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP9 C |
| PA EXP SW TXN9 | PAC23 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN9 C |
| PA EXP SW TXP10 | PAC24 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP10 C |
| PA EXP SW TXN10 | PAC25 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN10 C |
| PA EXP SW TXP11 | PAC26 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP11 C |
| PA EXP SW TXN11 | PAC27 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN11 C |
| PA EXP SW TXP12 | PAC28 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP12 C |
| PA EXP SW TXN12 | PAC29 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN12 C |
| PA EXP SW TXP13 | PAC30 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP13 C |
| PA EXP SW TXN13 | PAC31 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN13 C |
| PA EXP SW TXP14 | PAC32 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP14 C |
| PA EXP SW TXN14 | PAC33 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN14 C |
| PA EXP SW TXP15 | PAC34 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXP15 C |
| PA EXP SW TXN15 | PAC35 | 0.22u/4/X5R/6.3V/K | PA EXP SW TXN15 C |

PA EXP SW RXP8.15] >> PA_EXP_SW_RXP[8.15] [17]
PA EXP SW RXN8.15] >> PA_EXP_SW_RXN[8.15] [17]
PA EXP SW TXP8.15] >> PA_EXP_SW_TXP[8.15] [17]
PA EXP SW TXN8.15] >> PA_EXP_SW_TXN[8.15] [17]

PCI-E REV:1.1--> 2.5GHZ

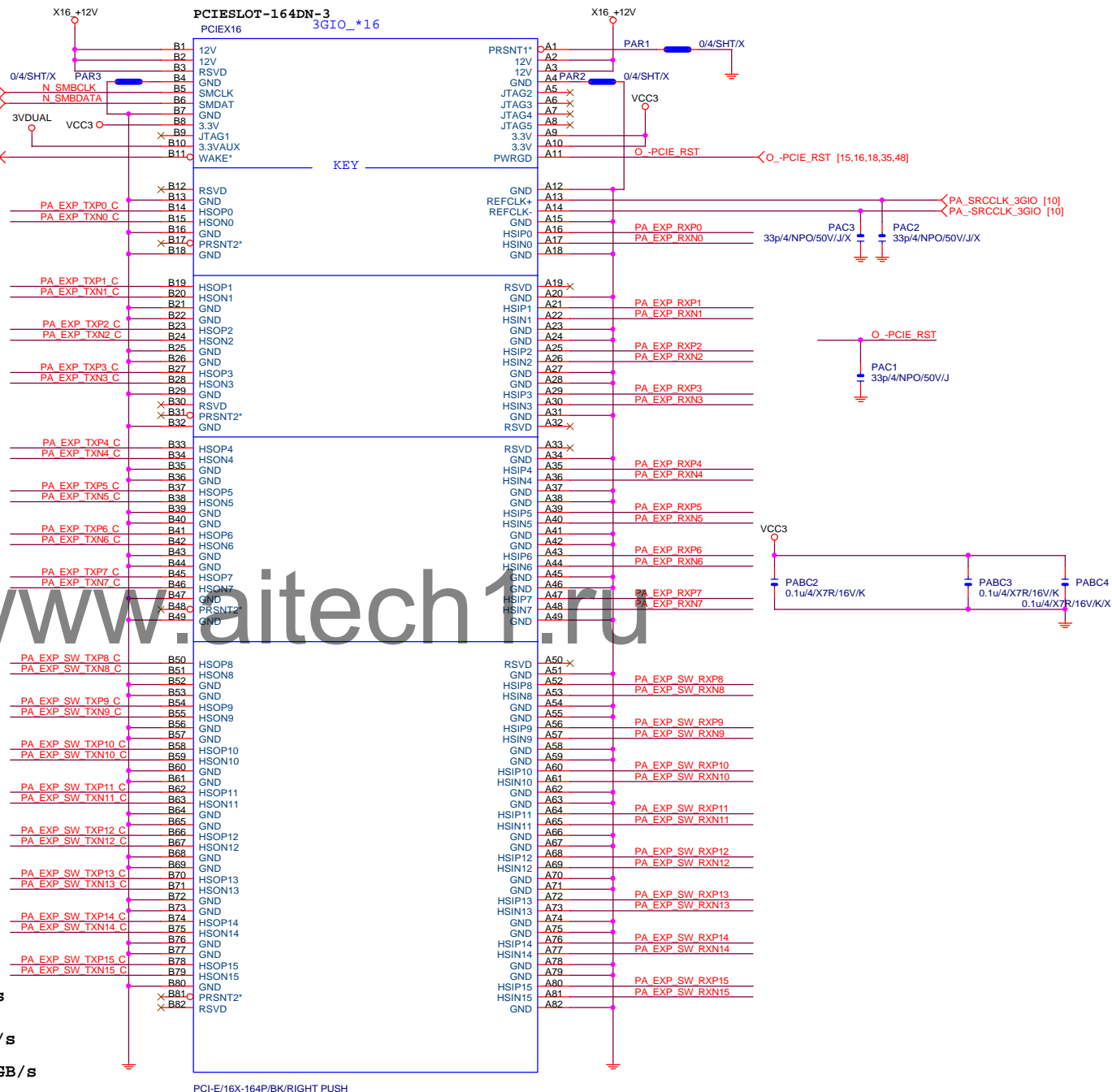
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

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

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

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

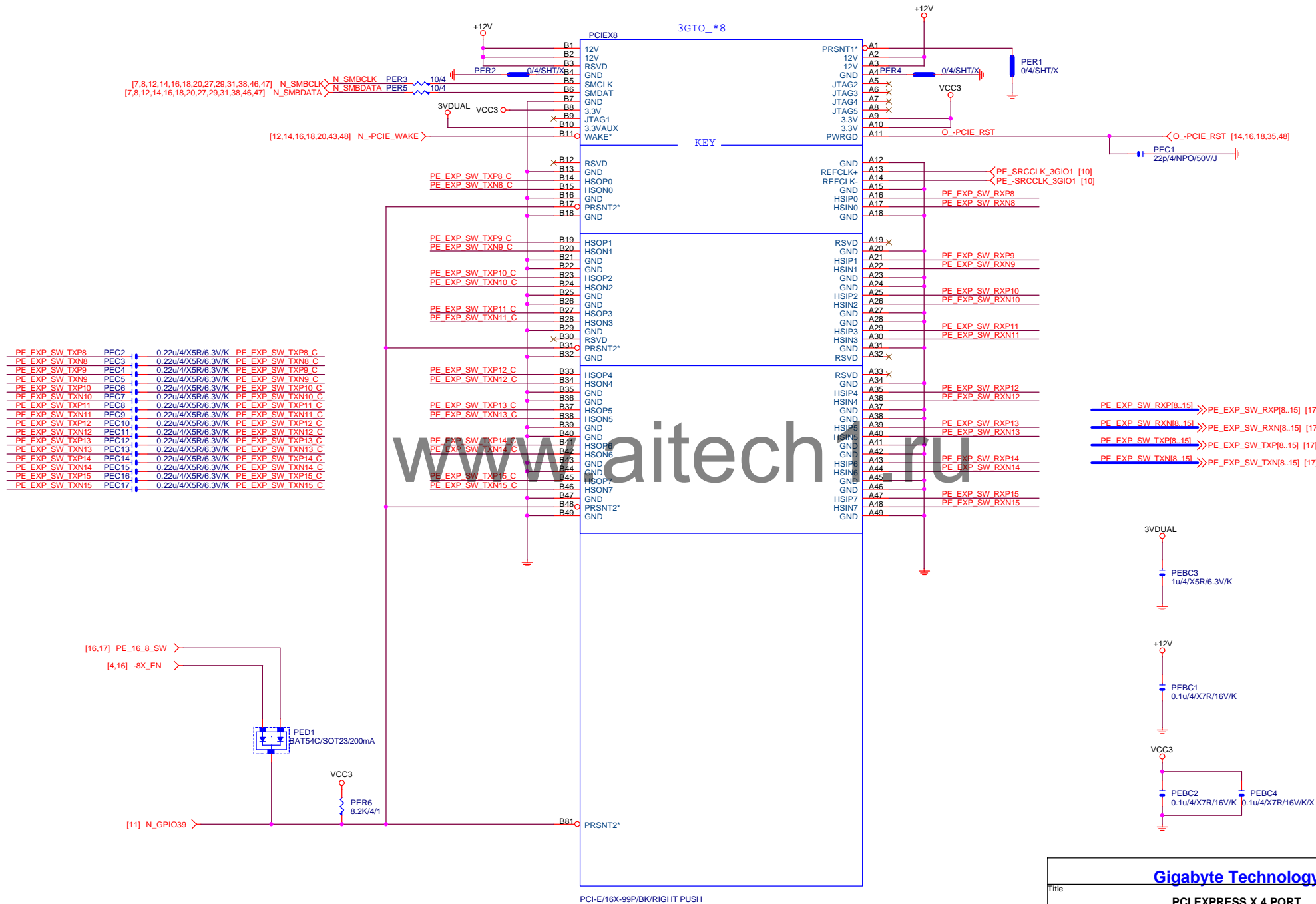
PCI-E REV:2.0--> 5GHZ

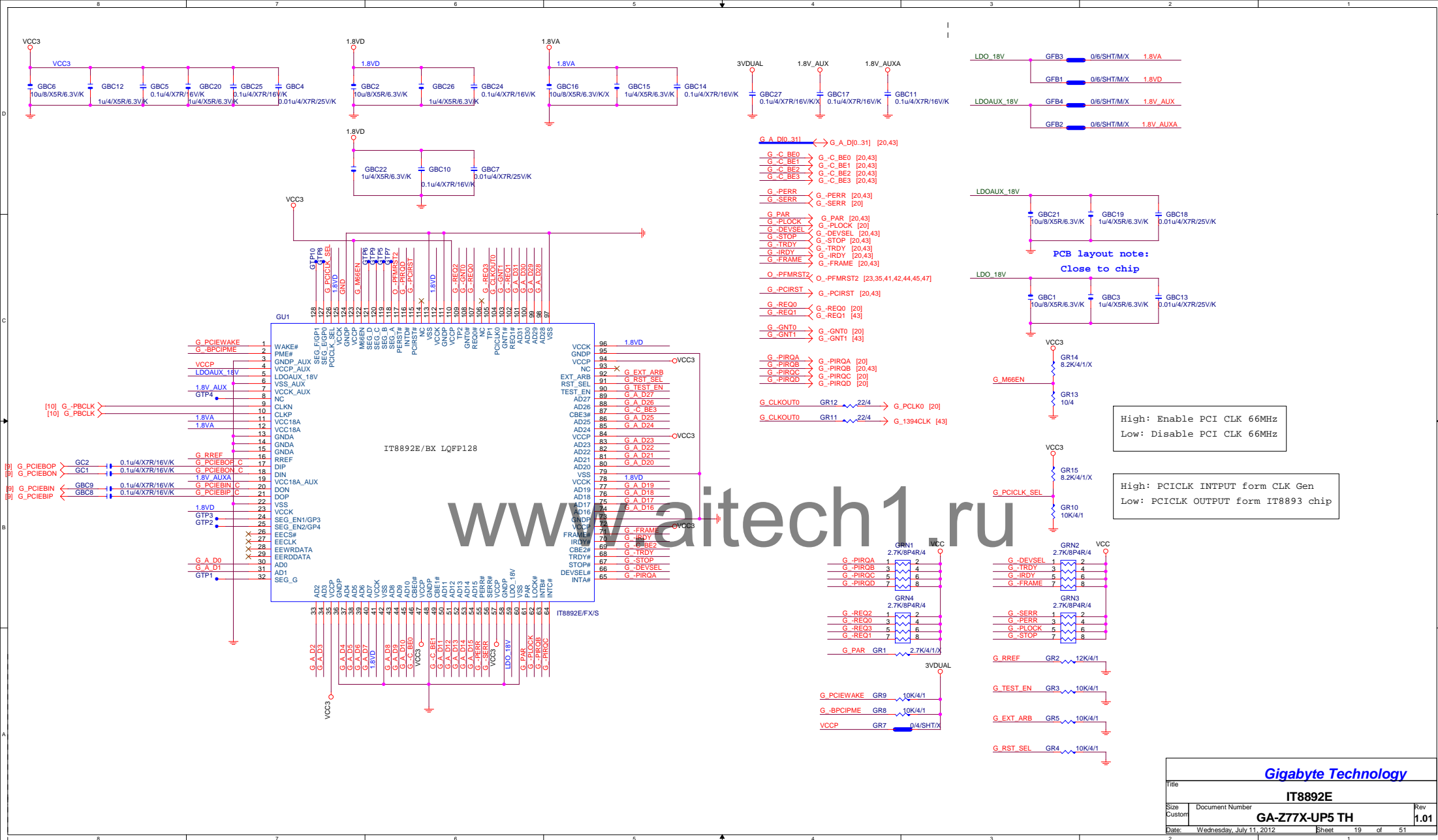


PCI-E/16X-164P/BK/RIGHT PUSH

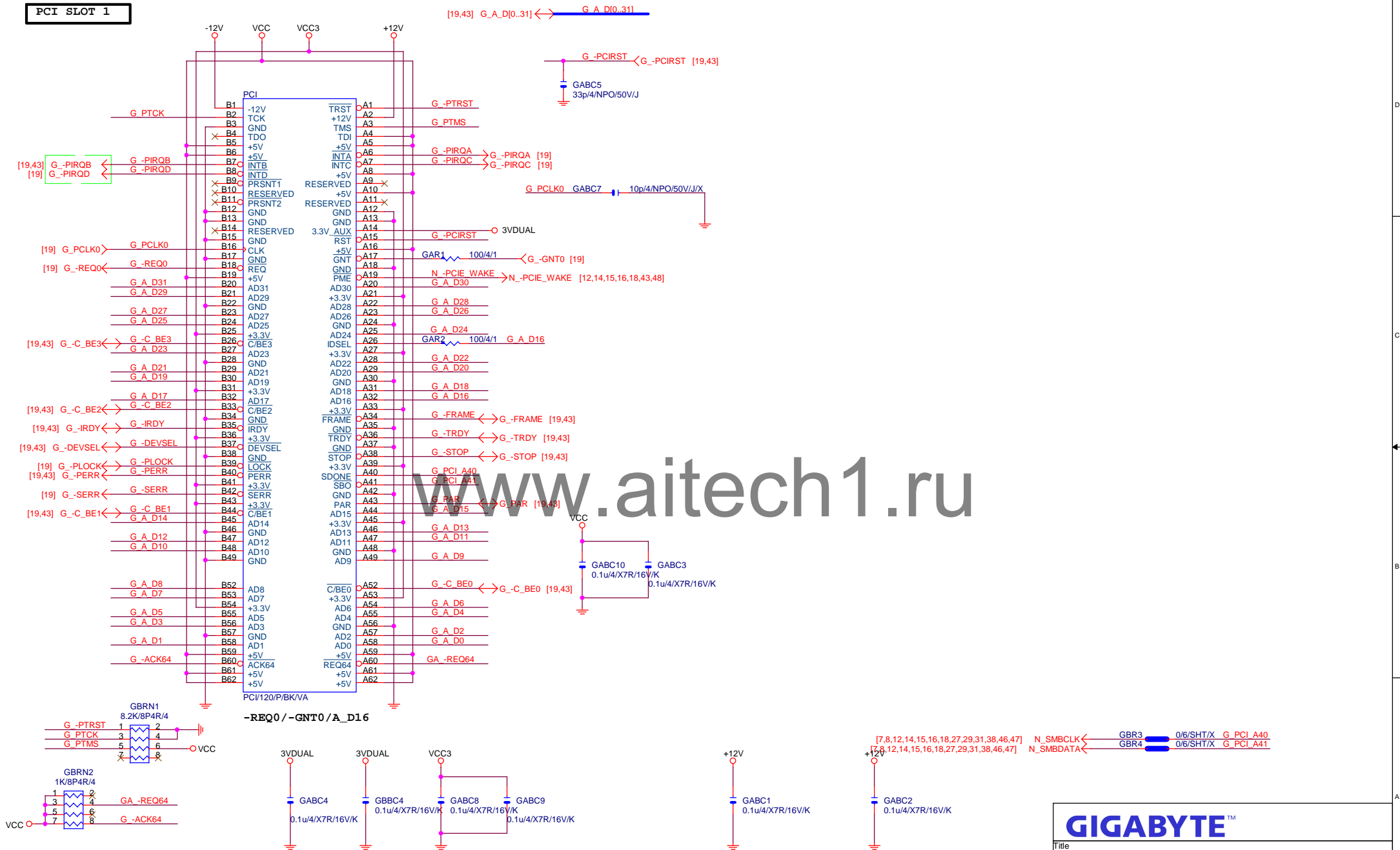
Gigabyte Technology

| | | | |
|------------------|--------------------------|-------|----------|
| Title | | | |
| PCI EXPRESS * 16 | | | |
| Size | Document Number | Rev | |
| Custom | GA-Z77X-UP5 TH | 1.01 | |
| Date: | Wednesday, July 11, 2012 | Sheet | 14 of 51 |

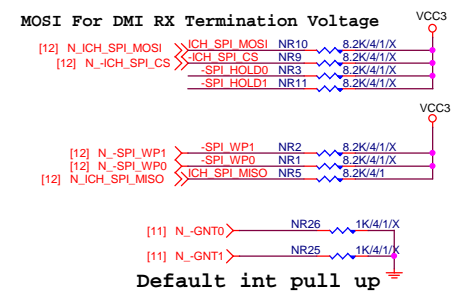
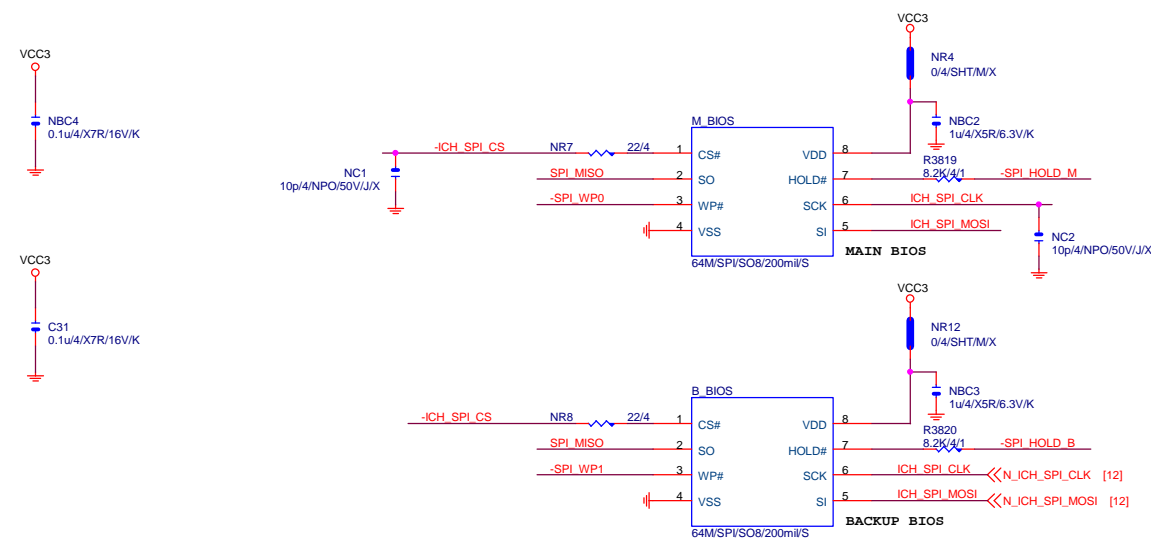




PCI SLOT 1



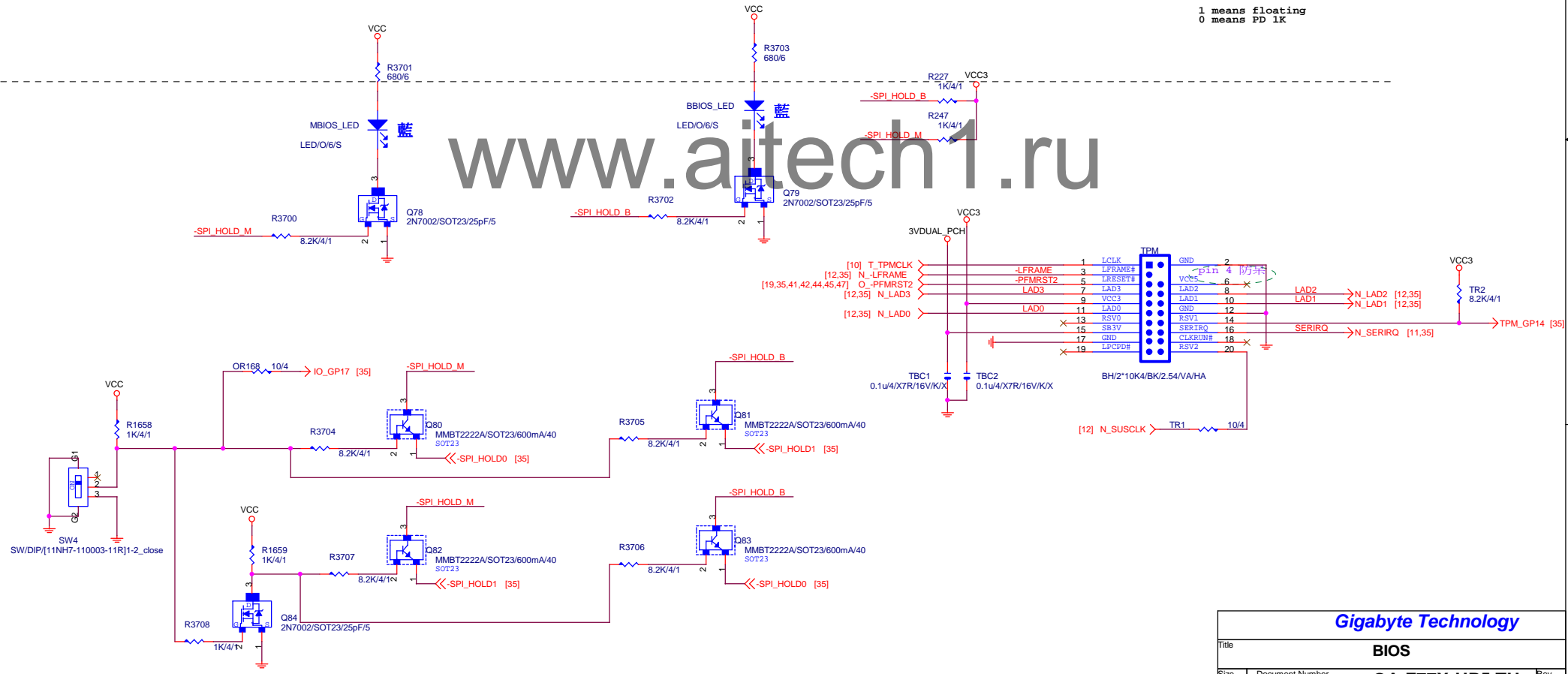
| GIGABYTE™ | | | |
|--------------|--------------------------|-------|----------|
| Title | | | |
| PCI SLOT 1&2 | | | |
| Size | Document Number | Rev | |
| Custom | | 1.01 | |
| Date: | Wednesday, July 11, 2012 | Sheet | 20 of 51 |

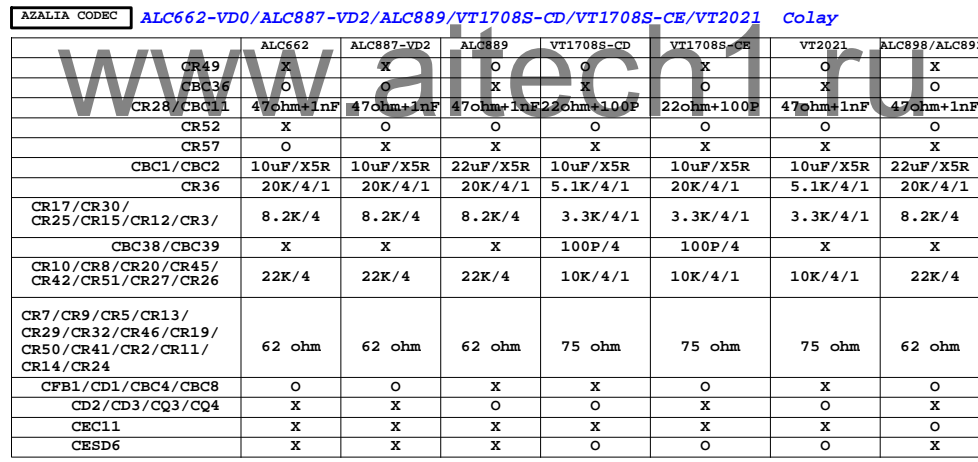
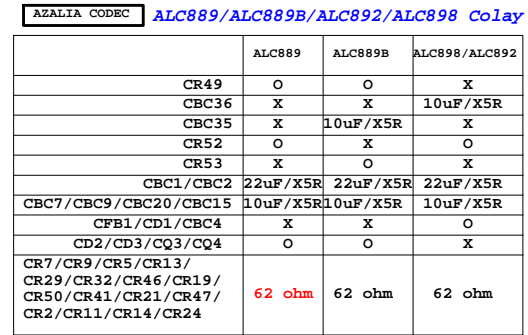


| BOOT DEVICE | GNT0 | GNT1 |
|-------------|------|------|
| LPC | 0 | 0 |
| PCI | 0 | 1 |
| NAND | 1 | 0 |
| SPI | 1 | 1 |

1 means floating
0 means PD 1K

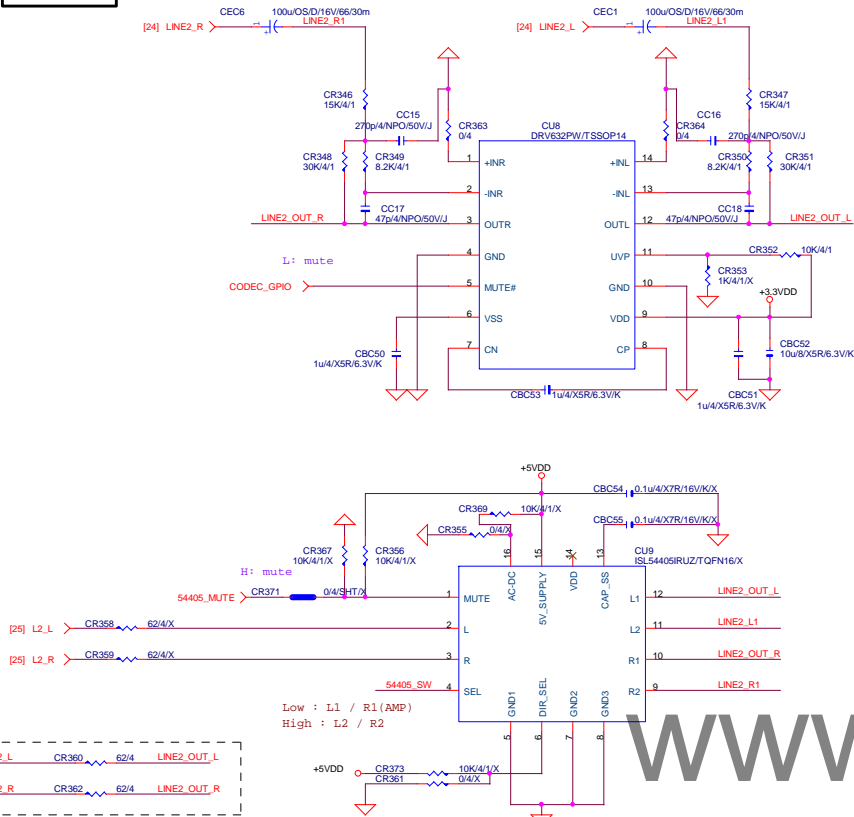
www.aitech1.ru



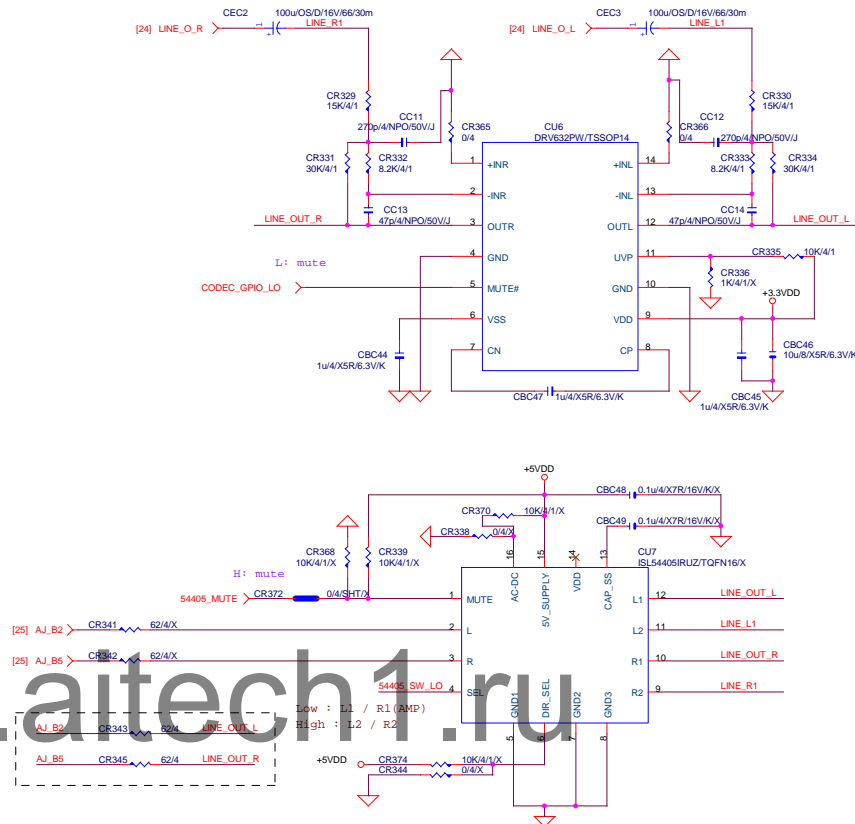


| | | | |
|---------------------------------------|---------------------------------------|--|--------------------|
| Gigabyte Technology | | | |
| Title HD AUDIO ALC889A | | | |
| Size Custom | Document Number GA-Z77X-UP5 TH | | Rev 1.01 |
| Date: Wednesday, July 11, 2012 | Sheet 24 of 51 | | |

HEADPHONE



LINE-OUT



HEADPHONE

AMP_CODEC for 889
AMP_CODEC1 for 898/887-VD2
[24,25] AMP_CODEC ← CR256 10/4/X
[24] AMP_CODEC1 ← CR320 10/4/X
LOW : NORMAL
HIGH : AMPLIFY
inbox driver default low
Realtek driver 為 high

LINE-OUT

LOW : NORMAL
HIGH : AMPLIFY
inbox driver default low
Realtek driver 為 high

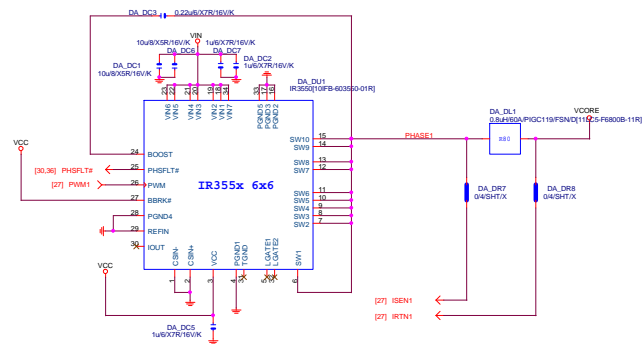
[24] -EAPD
default low, 進作業系統
(inbox/Realtek driver) 為 high

CODEC_GPIO CR354 0/4 CODEC_GPIO_LO
54405_SW CR382 0/4/X 54405_SW_LO

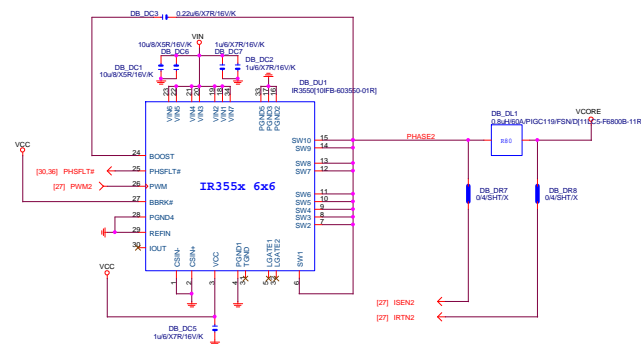
Gigabyte Technology

| | | | |
|--------|--------------------------|----------------|----------------------------|
| Title | | | 8-CH DAC & Anti-Pop / Mute |
| Size | Document Number | GA-Z77X-UP5 TH | |
| Custom | | | Rev 1.01 |
| Date | Wednesday, July 11, 2012 | Sheet 26 | of 51 |

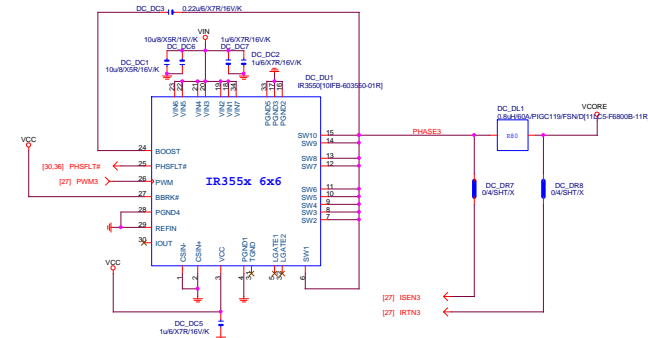
VCORE-PHASE1



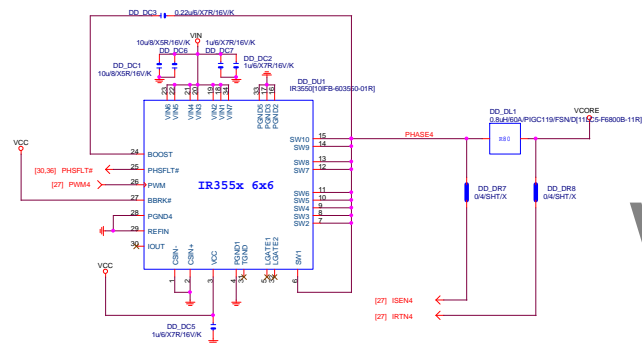
VCORE-PHASE2



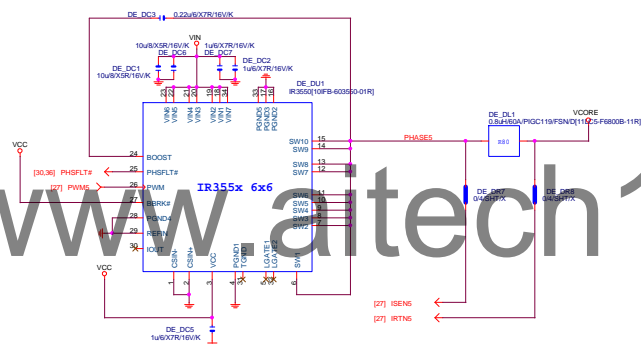
VCORE-PHASE3



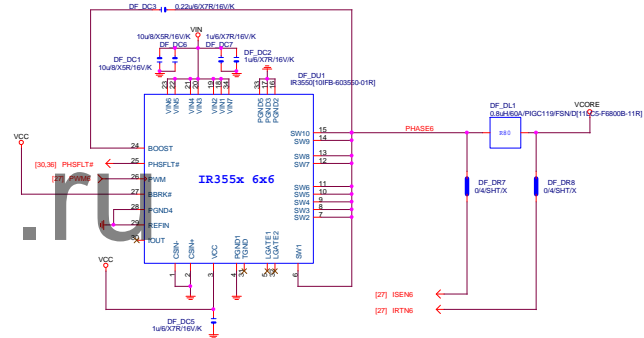
VCORE-PHASE4



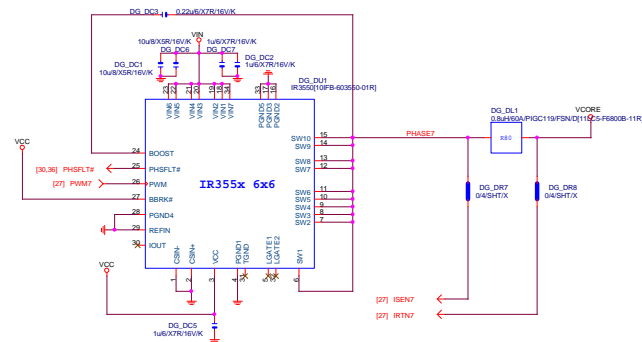
VCORE-PHASE5



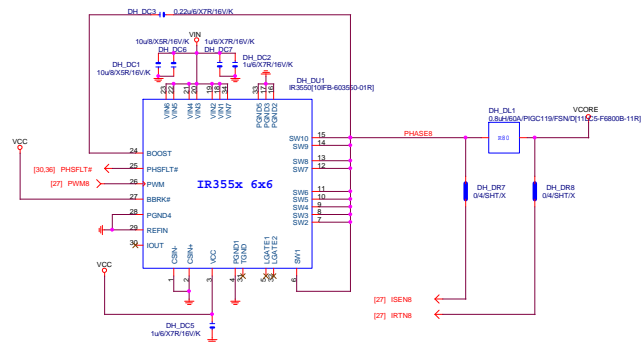
VCORE-PHASE6

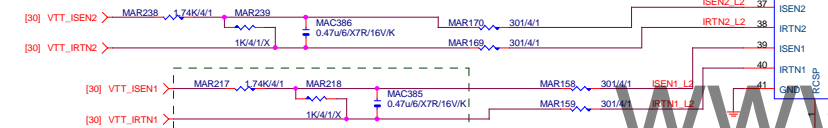
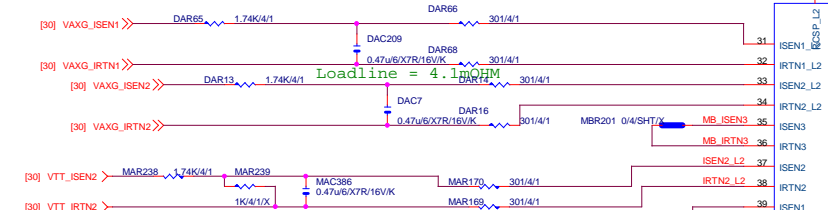
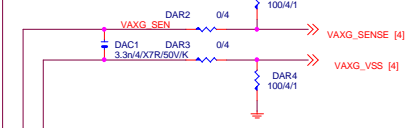
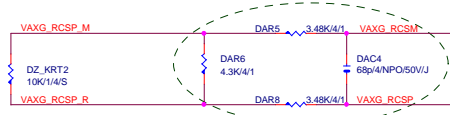
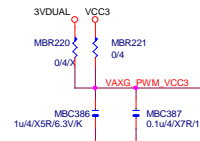
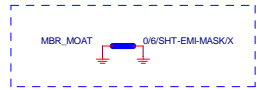


VCORE-PHASE7

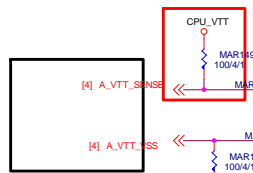
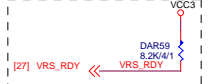
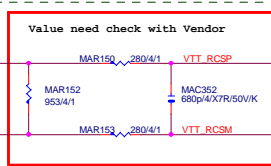


VCORE-PHASE8



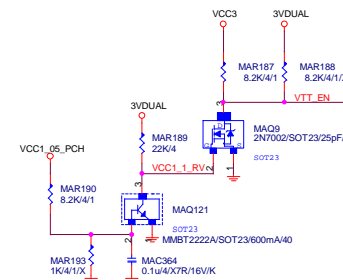


Close to VTT output inductor



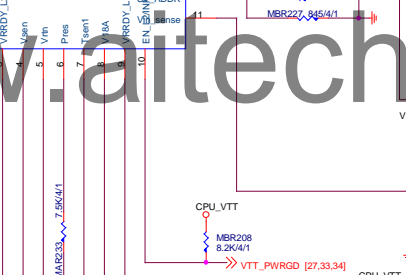
To CPU pin AB3,AB4

[46] VTTD_ADJ -> MAR222 0/4X/VTT_VSEN

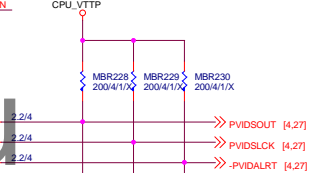
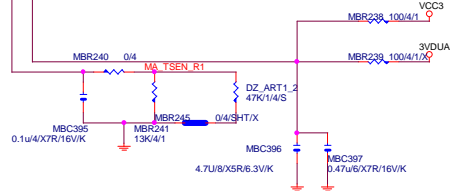


For power sequence require

IR3570



For power sequence ,VTT enable VSA ,then VSA enable Vcore



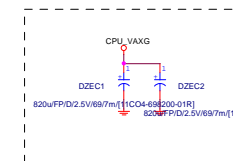
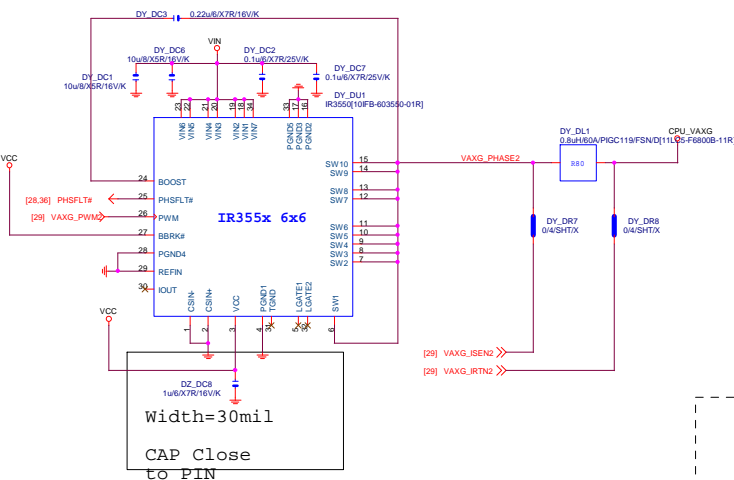
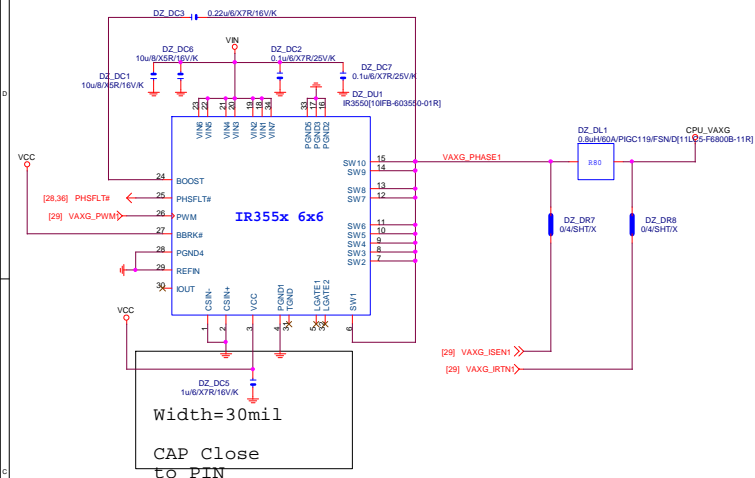
GIGABYTE

VAXG & CPU_VTT POWER IR3570

Size C Document Number GA-Z77X-UP5 TH Rev 1.01

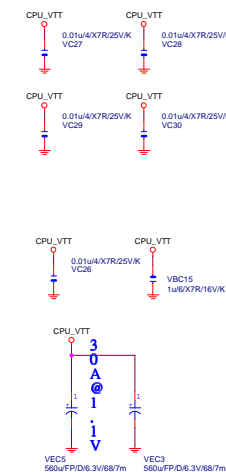
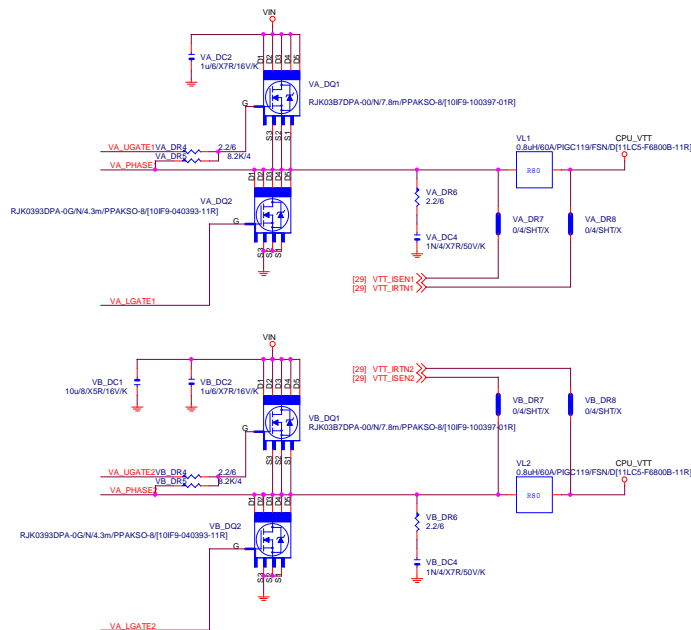
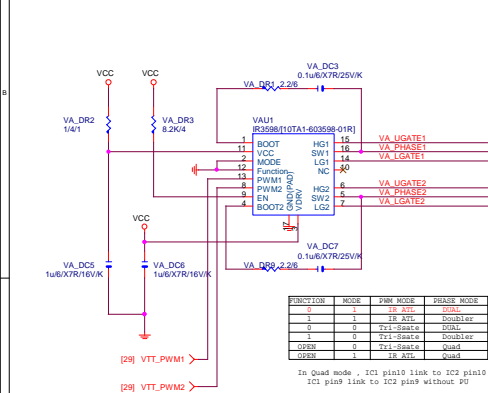
Date: Wednesday, July 11, 2012 Sheet 29 of 51

VAXG Phase

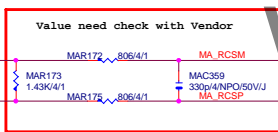
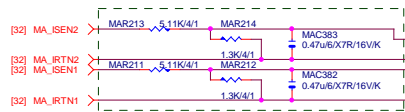
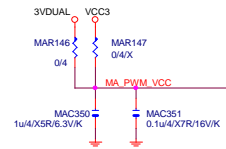
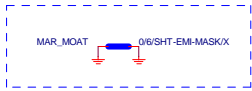


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CPU_VTT

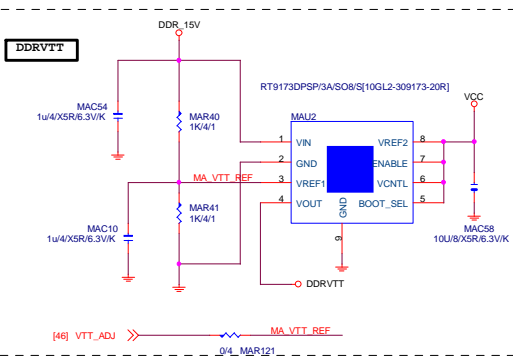


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| Title | | | |
| <Title> | | | |
| Size | Document Number | Rev | |
| Custom | GA-Z77X-UP5 TH | 1 | |
| Date: | Wednesday, July 11, 2012 | Sheet | 30 of 51 |



Close to DDR output inductor

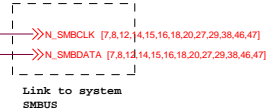
should be routed as differential pair, 7mil width, 8mil spacing



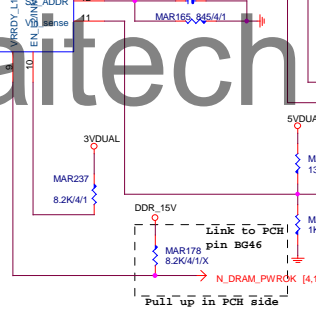
IR3570



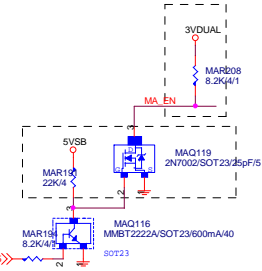
Addr: 74h



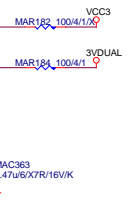
Link to system SMBUS



Link to PCH pin B046
Pull up in PCH side



[12,35] N_S4_Ss



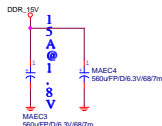
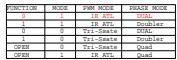
[35,38] -PSON

[12,27,33,35] N_SLP_S3

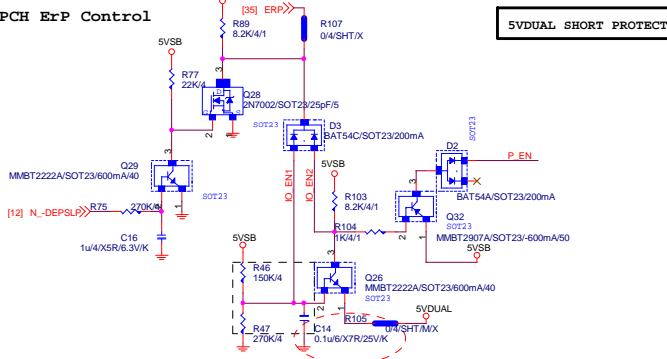
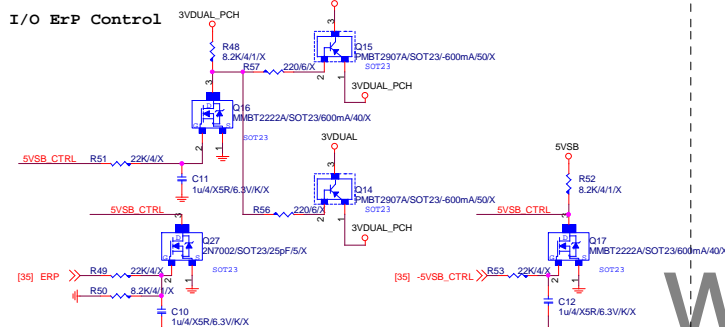
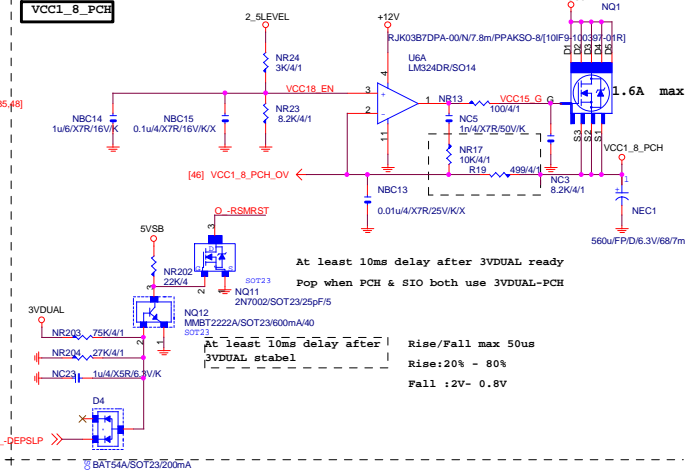
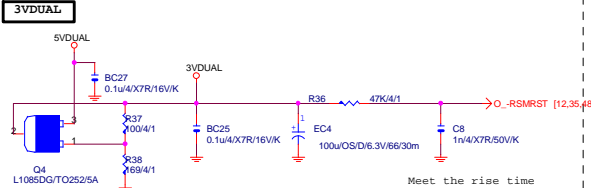
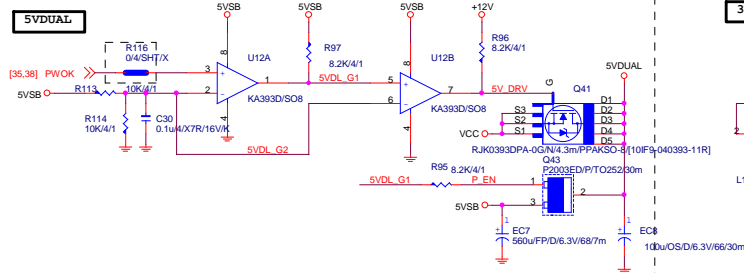
POWER ISSUE

| | | | |
|--------------------------------|-----------------|----------|-------|
| GIGABYTE™ | | | |
| Title DDR POWER IR3570 | | | |
| Size C | Document Number | Rev 1.01 | |
| Date: Wednesday, July 11, 2012 | | Sheet 31 | of 51 |

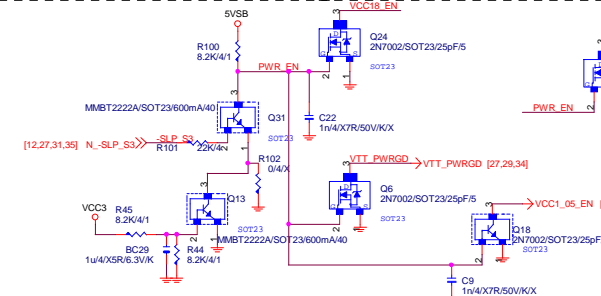
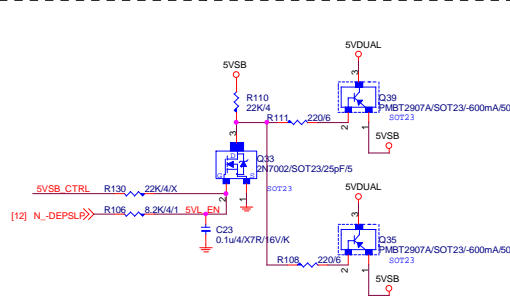
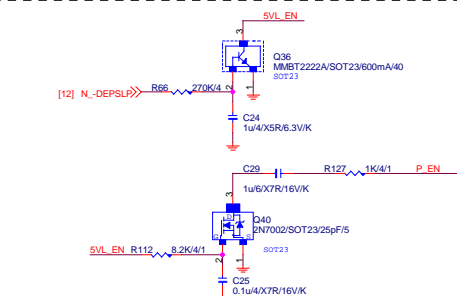
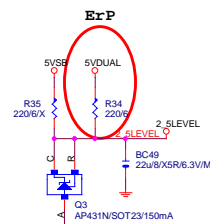
DDR_15V

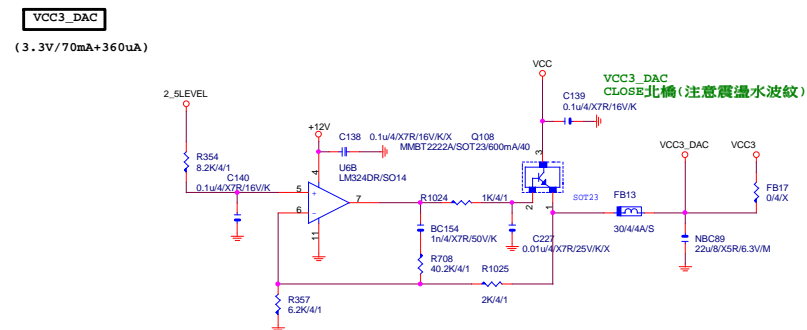
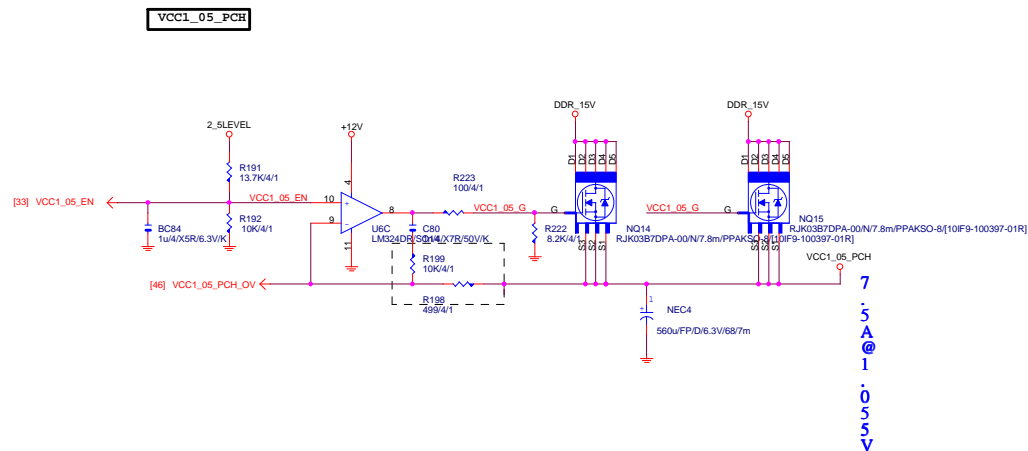


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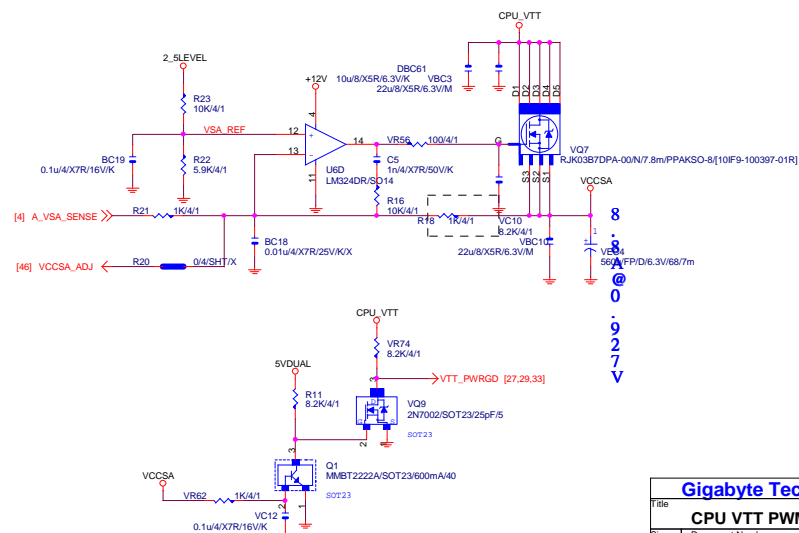
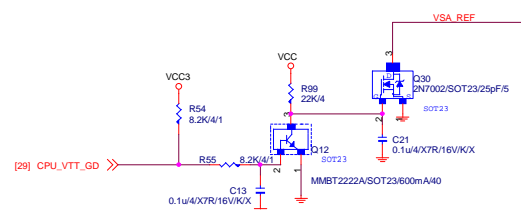


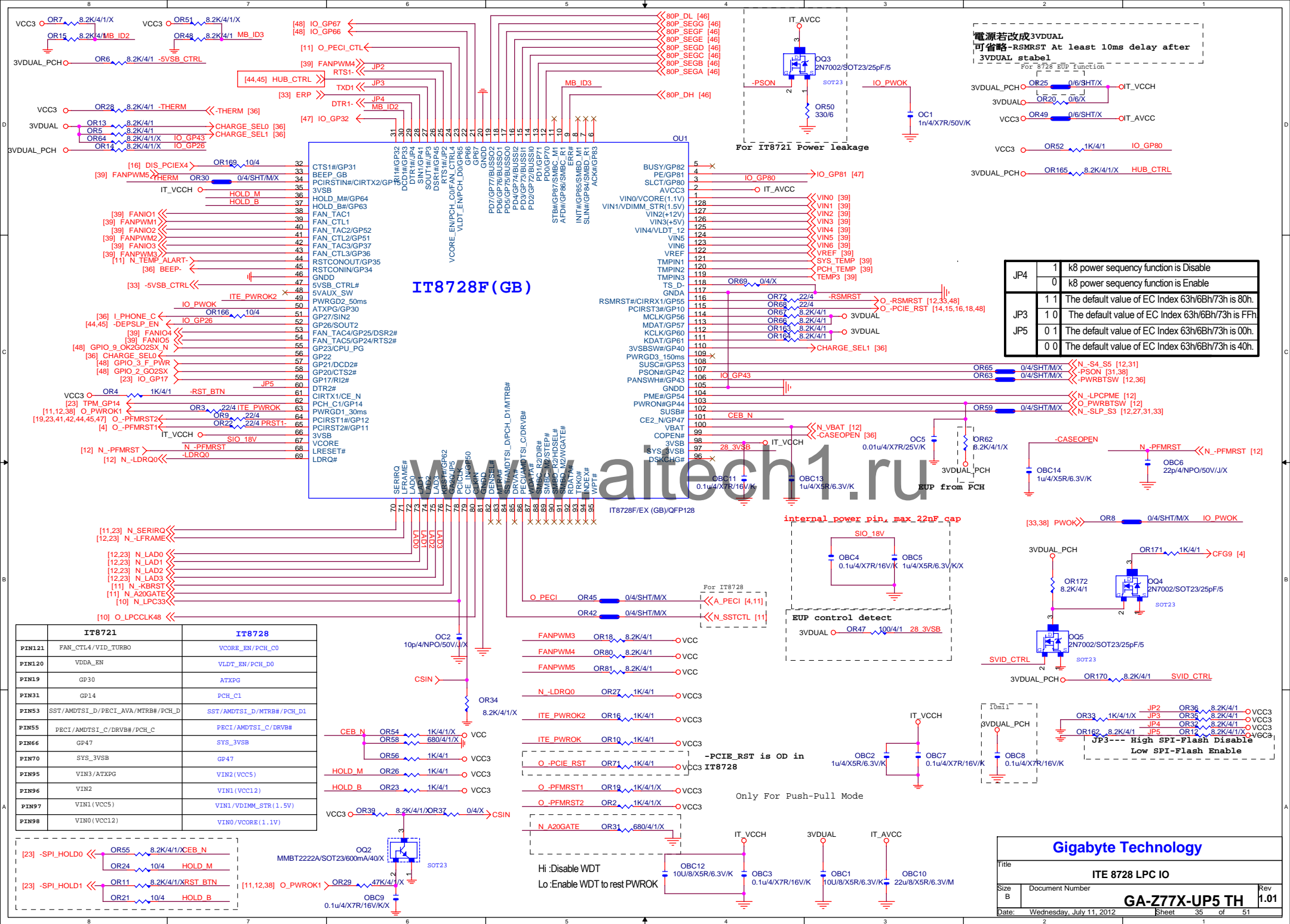
www.aitech1.ru

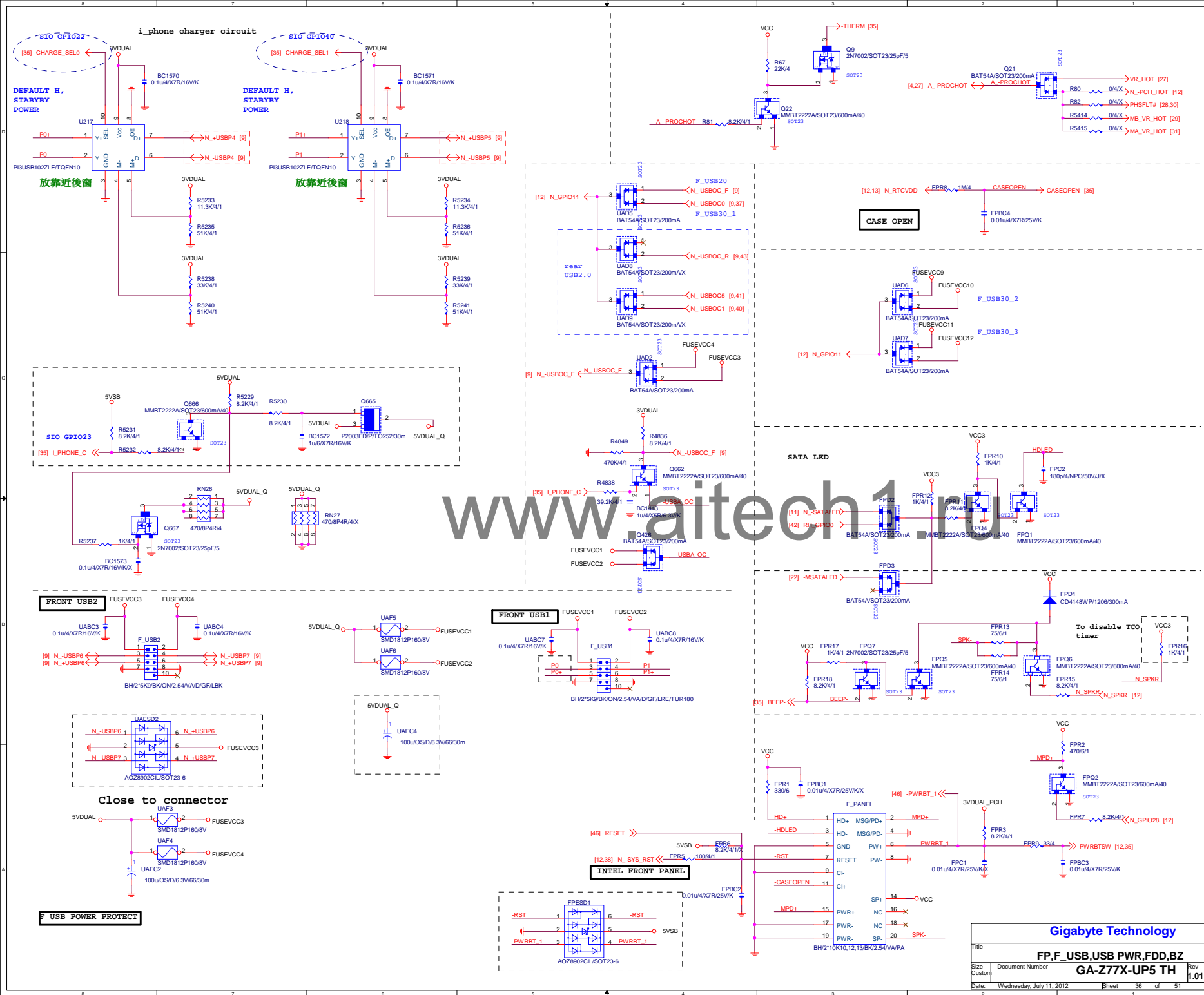


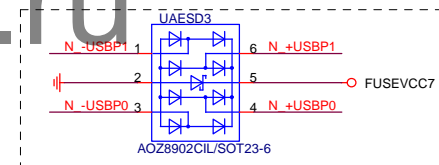
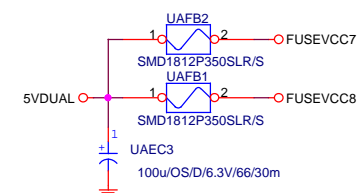
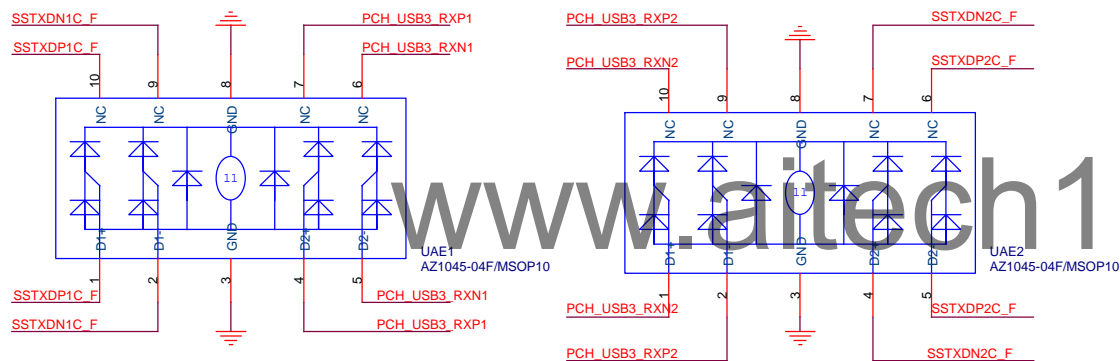
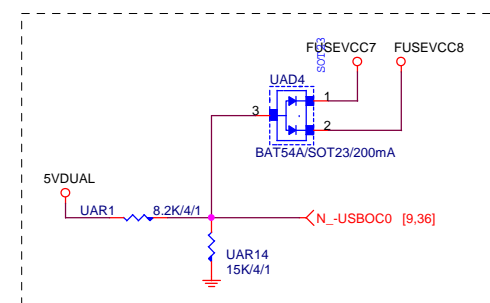
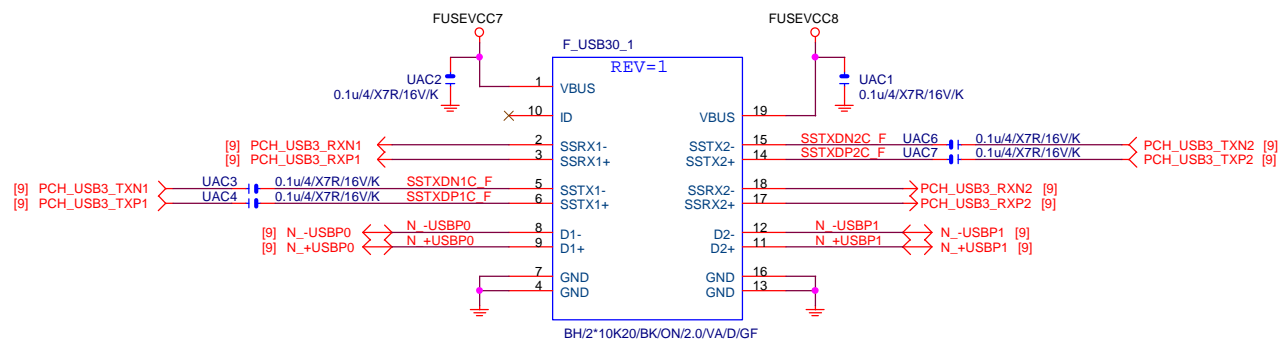


VCC_SA



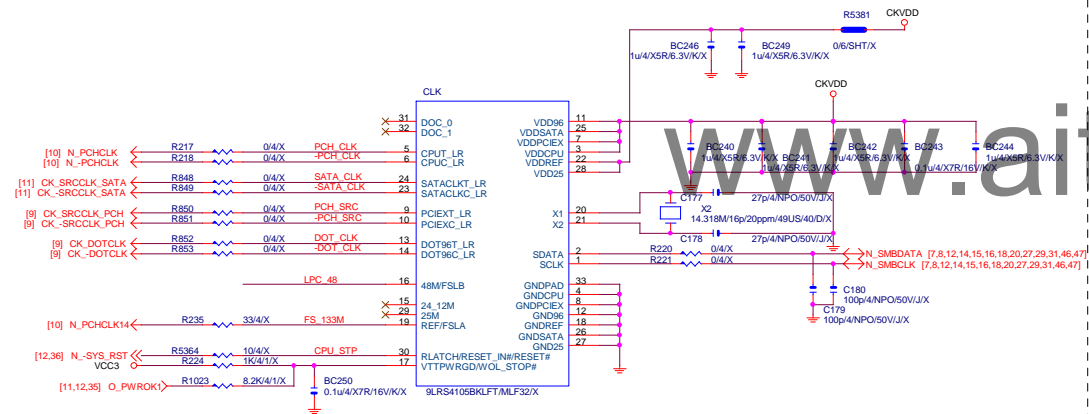
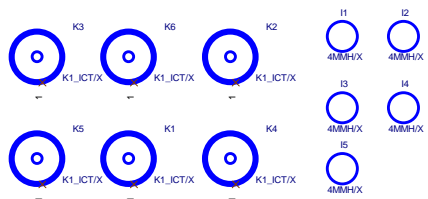
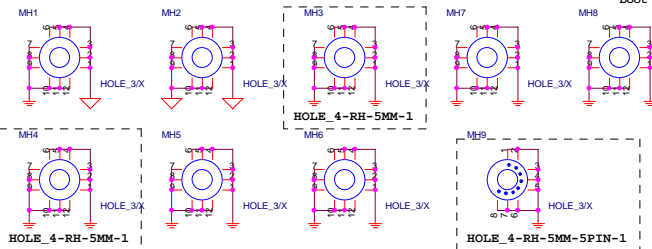
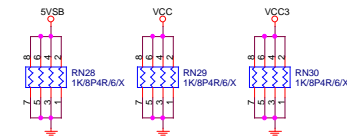
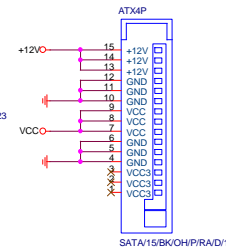
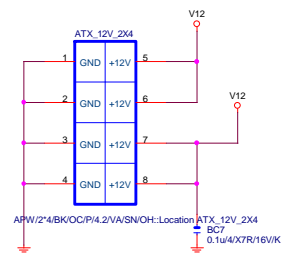
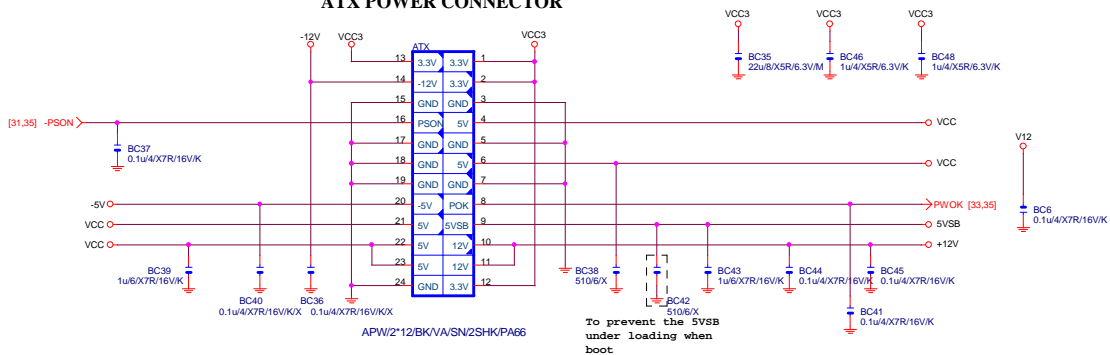






| Gigabyte Technology | | | |
|-------------------------|--------------------------|-------|----------|
| Title | | | |
| FP,F_USB,USB PWR,FDD,BZ | | | |
| Size | Document Number | Rev | |
| B | | 1.01 | |
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ATX POWER CONNECTOR

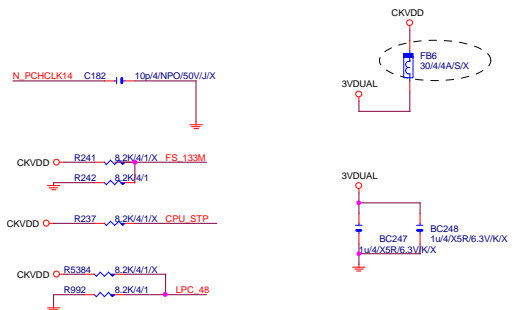


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CLK GEN CK505

CPU Frequency Selection

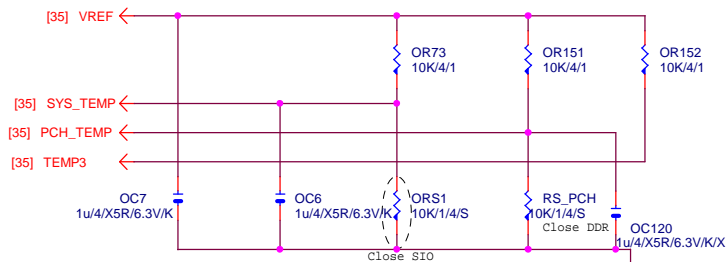
| FSLB | FSLA | CPU |
|------|------|----------------|
| 0 | 0 | 100M <Default> |
| 0 | 1 | 133M |
| 1 | 0 | 200M |
| 1 | 1 | 166M |



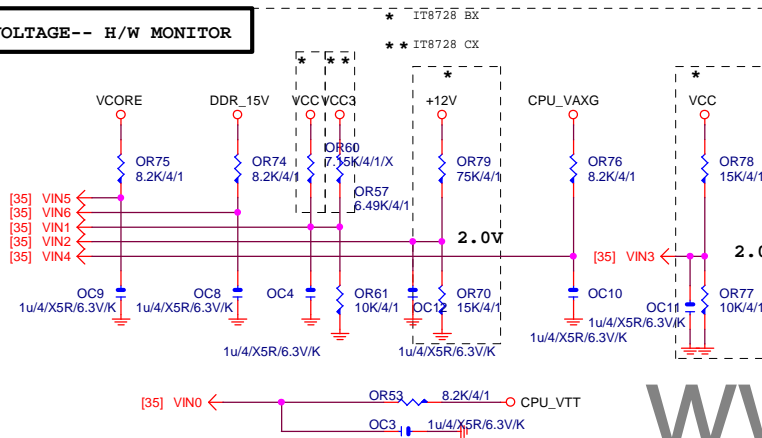
Gigabyte Technology

| | | | |
|-------|--------------------------|----------------|---------------------|
| Title | | | ATX POWER CONNECTOR |
| Size | Document Number | GA-Z77X-UP5 TH | |
| C | | Rev | 1.01 |
| Date: | Wednesday, July 11, 2012 | Sheet | 38 of 51 |

TEMP H/W MONITOR

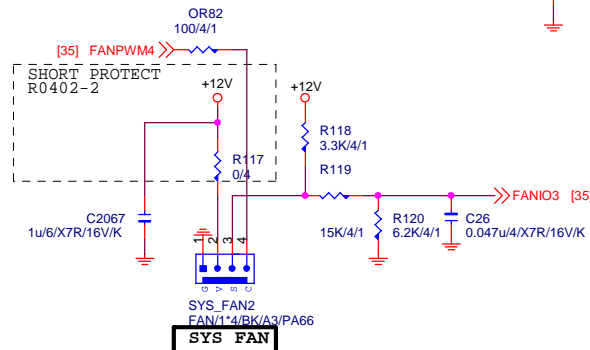
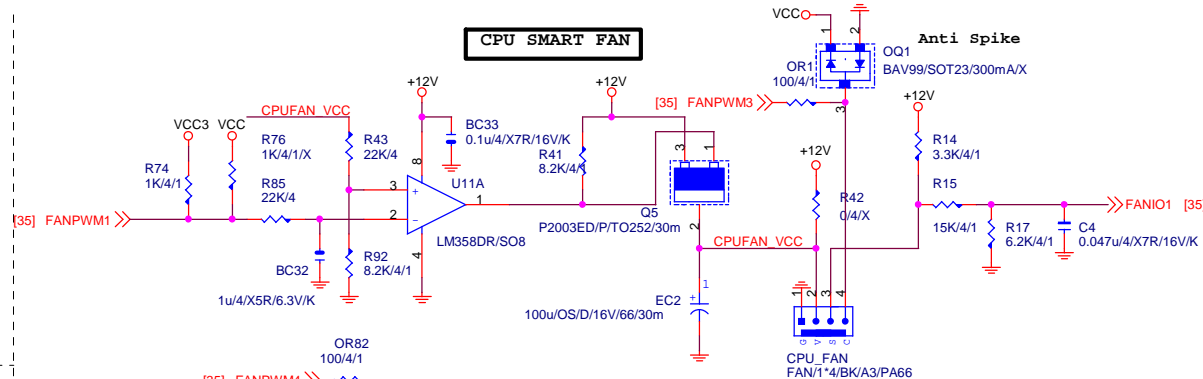


VOLTAGE-- H/W MONITOR

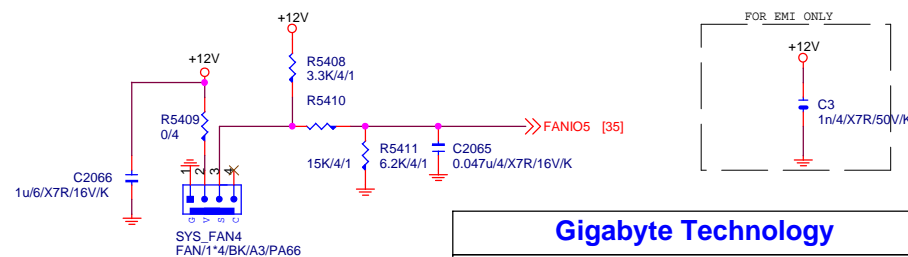
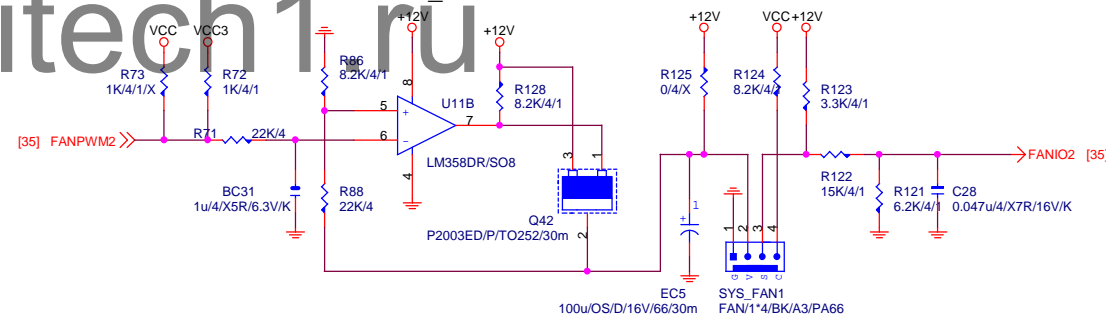


The division voltage of VIN2 & VIN3 must be around 2.9V

CPU SMART FAN



Linear SYS_FAN



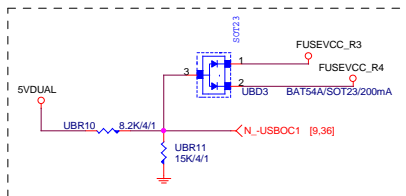
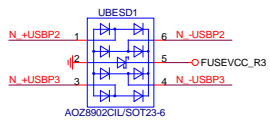
Gigabyte Technology

| Title | | | |
|---------------------|--------------------------|-------|----------|
| HWM,KB/MS, FAN CTRL | | | |
| Size | Document Number | Rev | |
| Custom | GA-Z77X-UP5 TH | 1.01 | |
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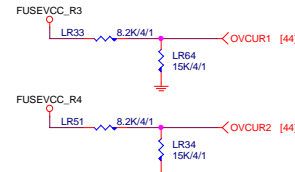
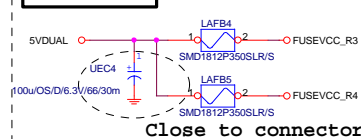
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USB_LAN CONNECTOR

RMA ESD PROTECT



USB X3 POWER

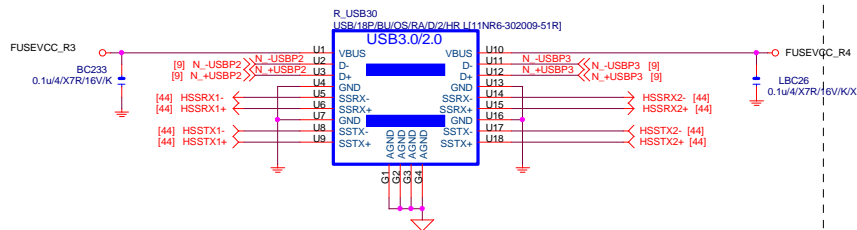


EMI SHORT PAD

PS:視EMI需求



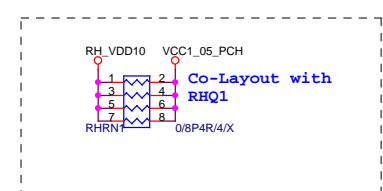
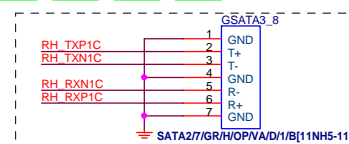
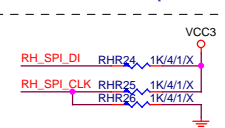
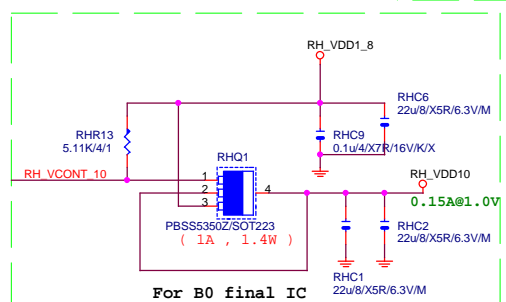
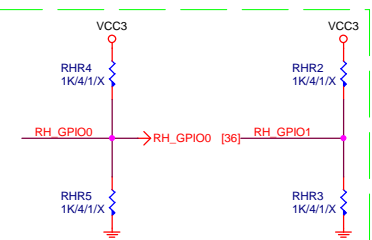
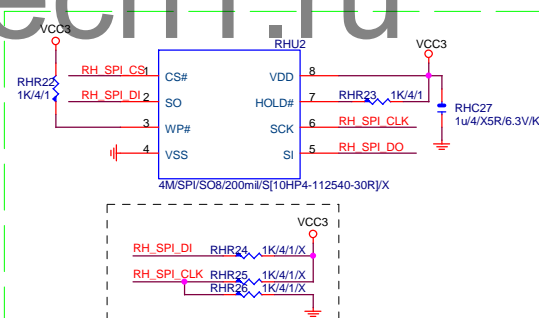
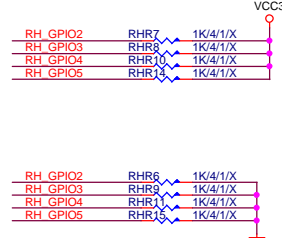
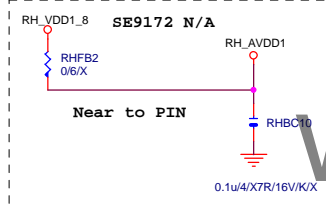
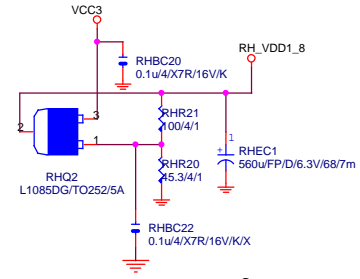
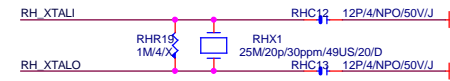
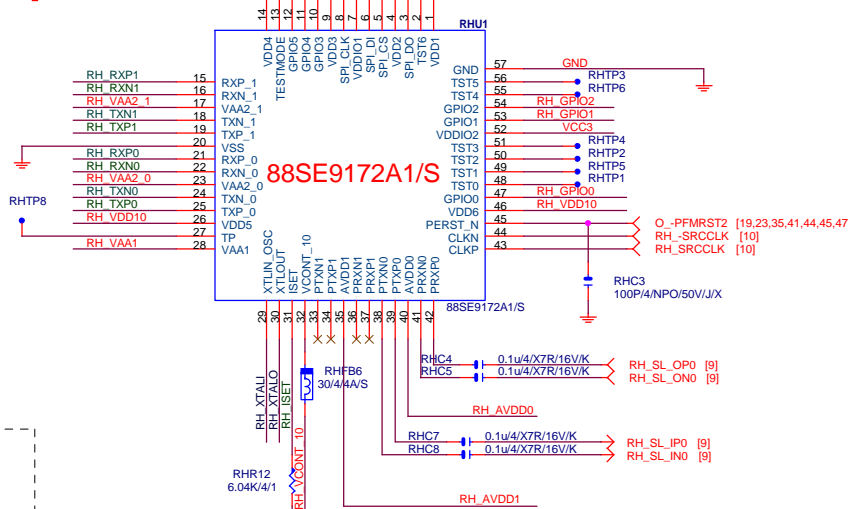
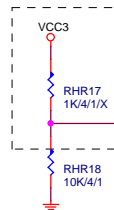
USB3_20



注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

Gigabyte Technology

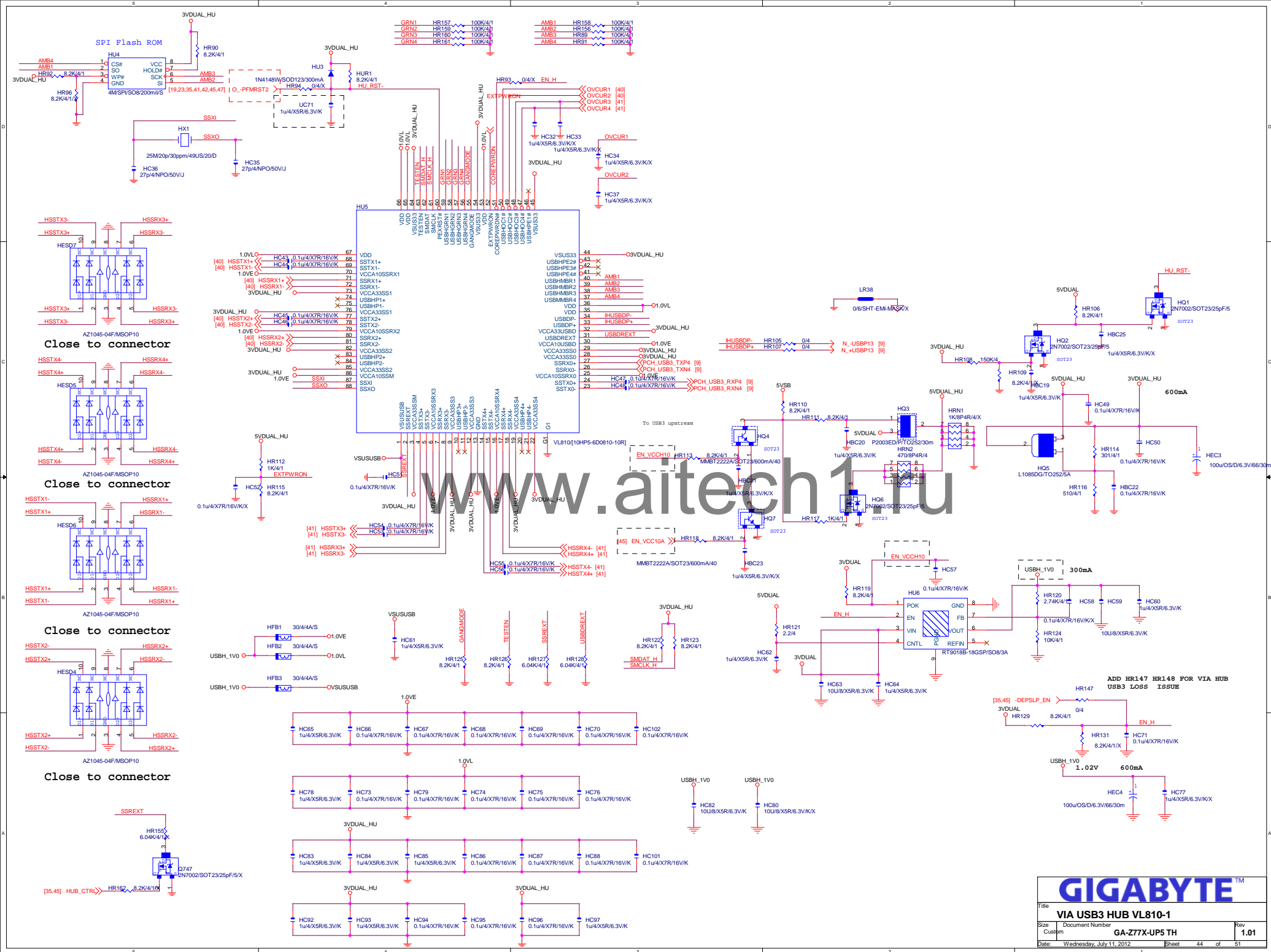
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| File | | R_USB30 | |
| Size | | Document Number | |
| Custom | | GA-Z77X-UP5 TH | |
| Date | | Wednesday, July 11, 2012 | |
| | | Sheet 40 of 51 | |
| | | Rev 1.01 | |

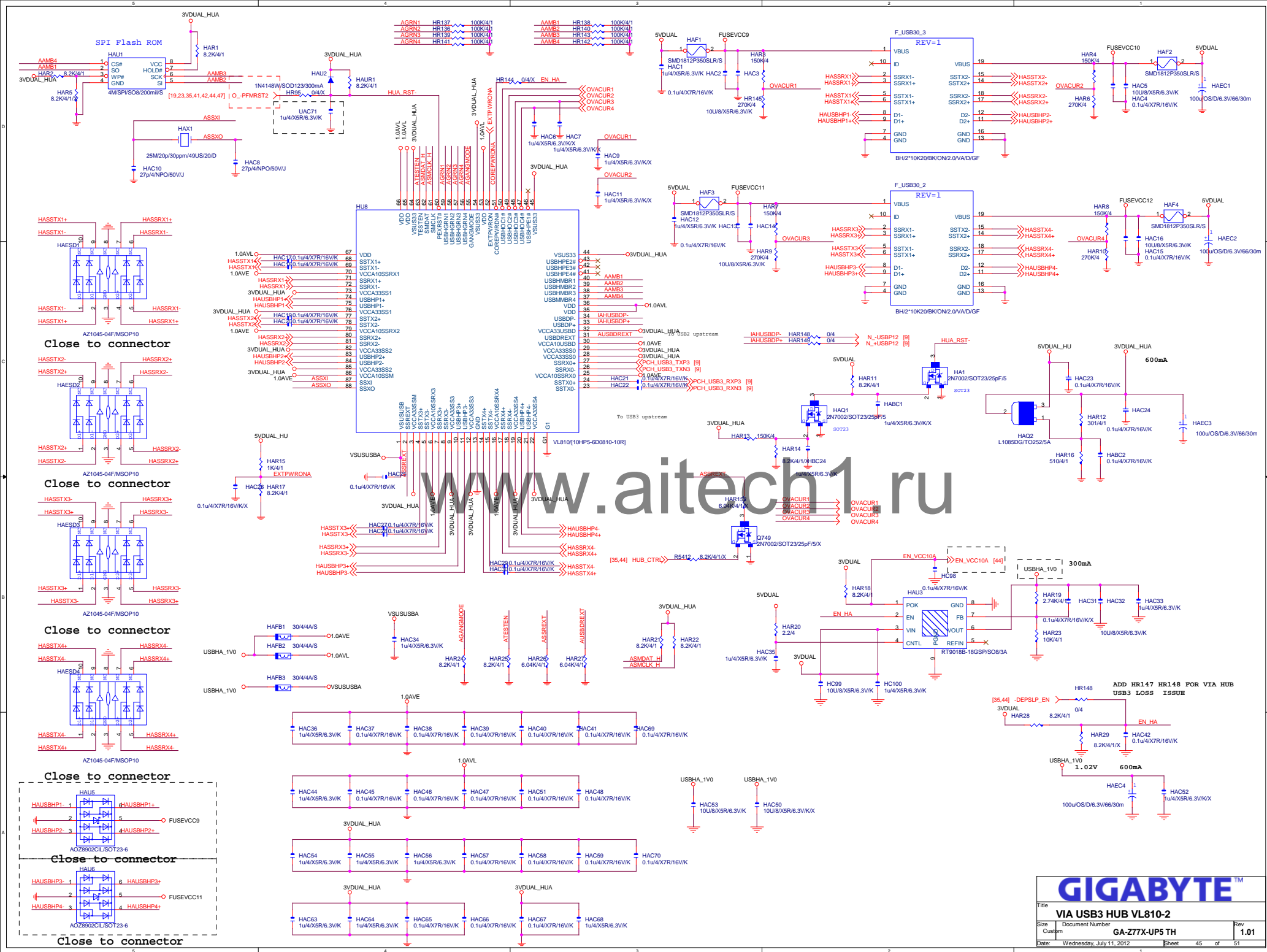


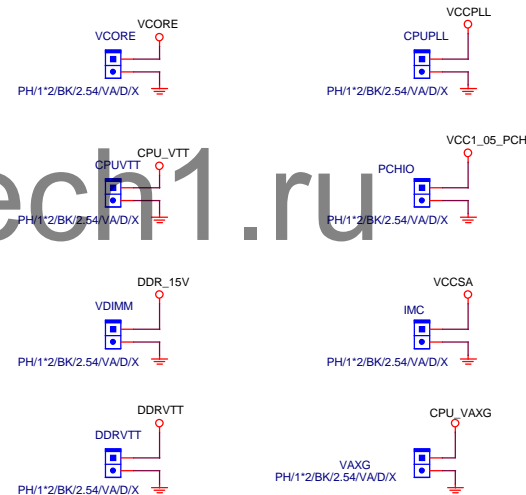
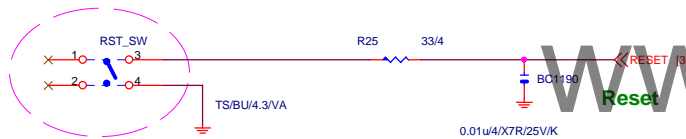
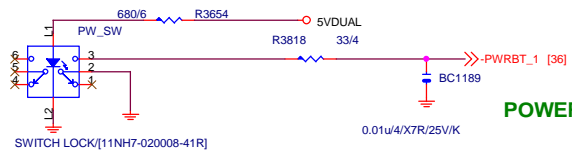
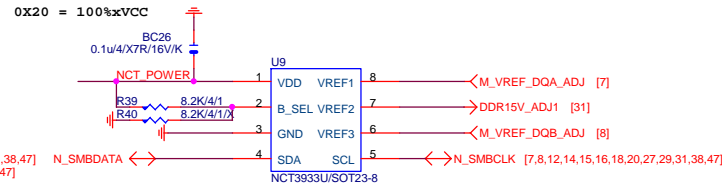
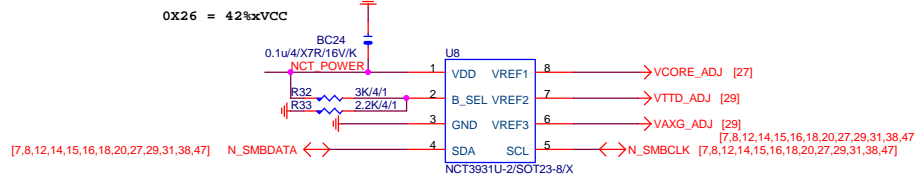
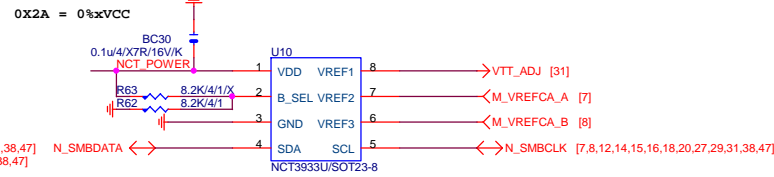
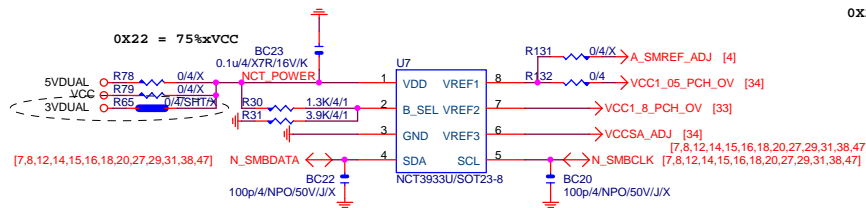
灰色
connector

GIGABYTE™

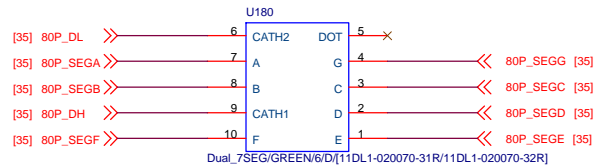
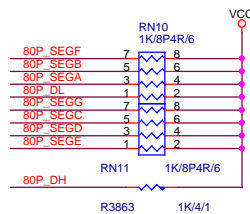
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| Size | Document Number | Rev | |
| Custom | GA-Z77X-UP5 TH | 1.01 | |
| Date: | Wednesday, July 11, 2012 | Sheet | 42 of 51 |





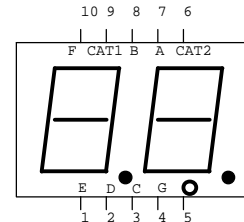


80 PORT

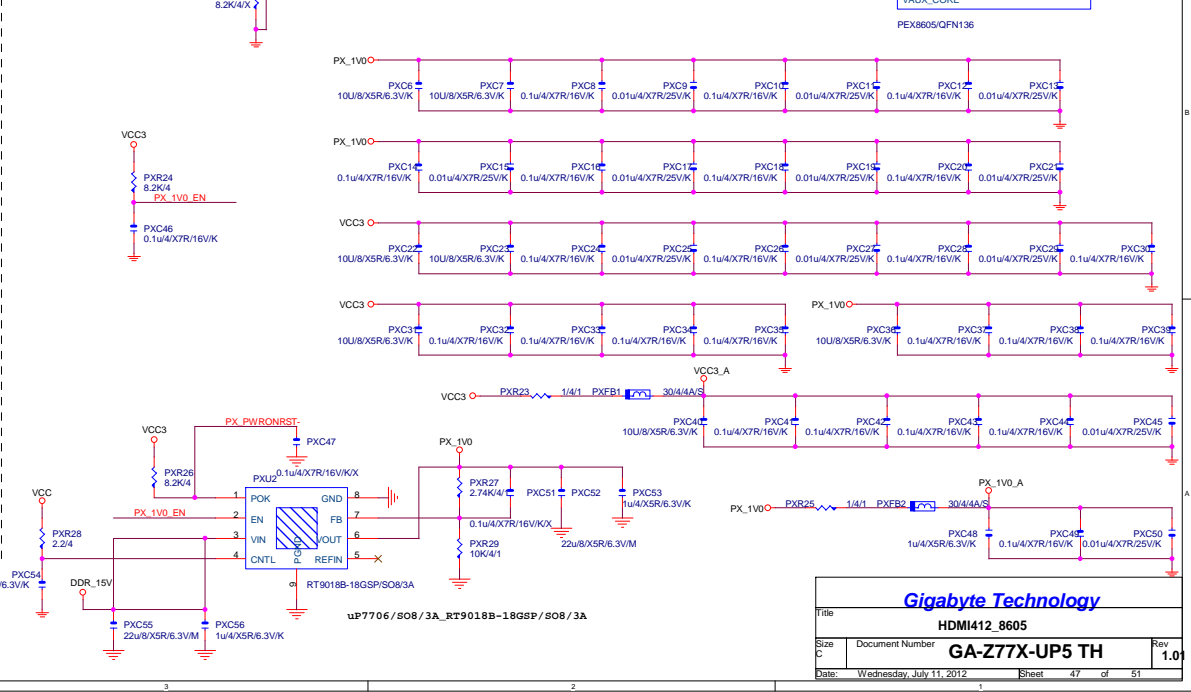
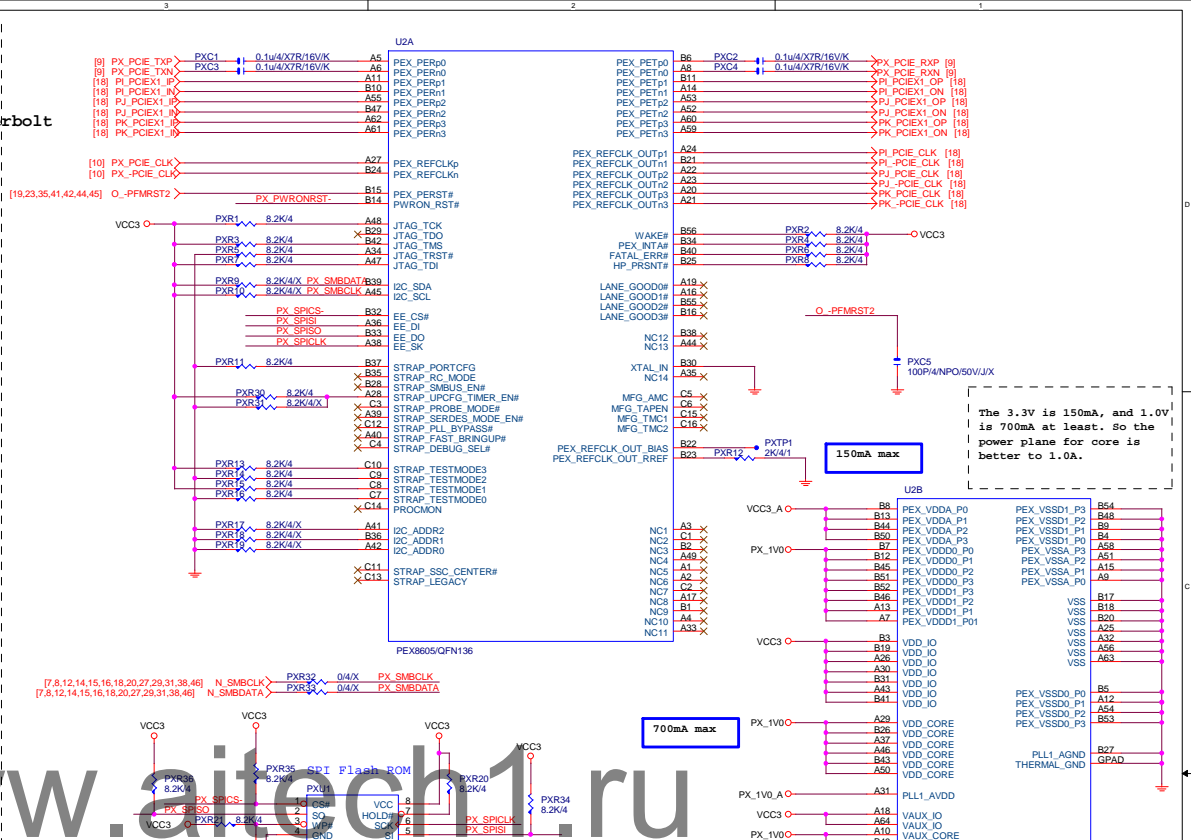


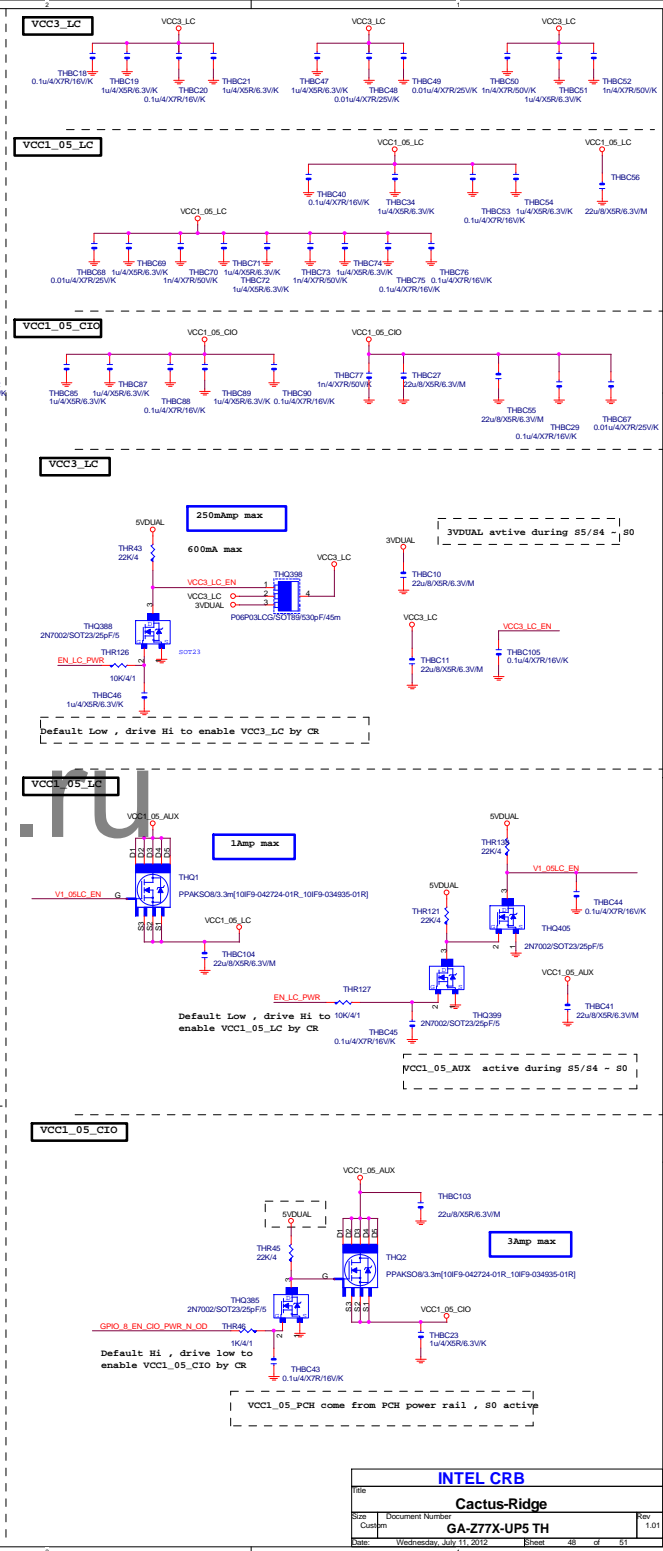
COMMON CATHODE

Physical Package
(TOP VIEW)

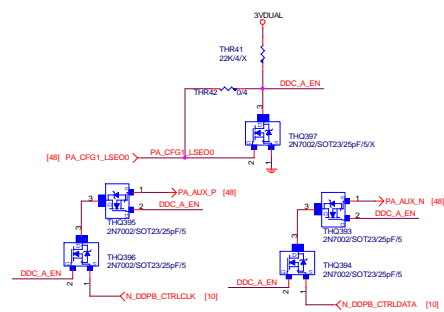
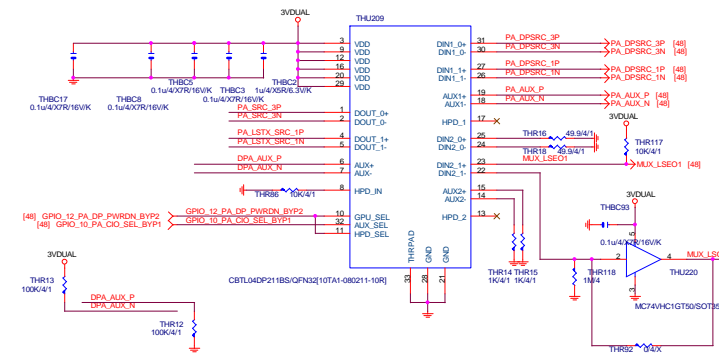


| GIGABYTE™ | | | |
|-----------|--------------------------|-------|----------|
| Title | <Title> | | |
| Size | Document Number | Rev | |
| Custom | GA-Z77X-UP5 TH | 1.01 | |
| Date: | Wednesday, July 11, 2012 | Sheet | 46 of 51 |

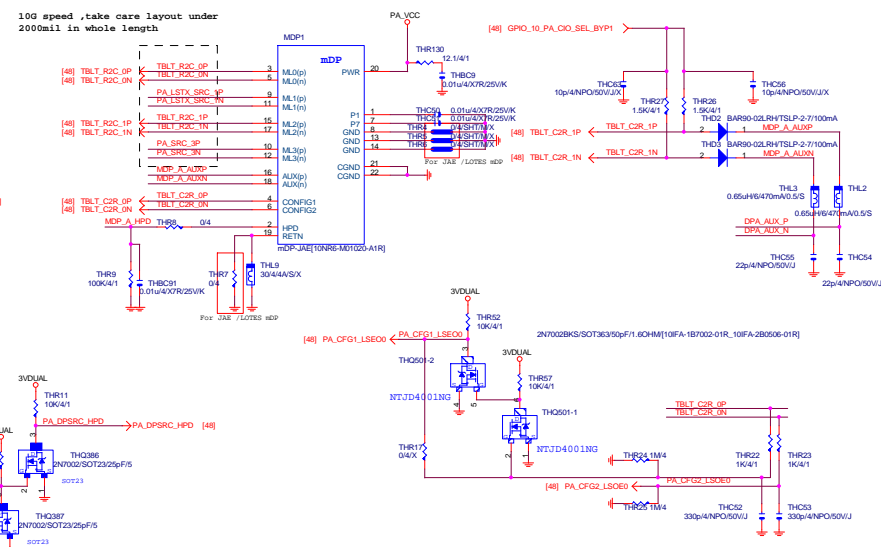




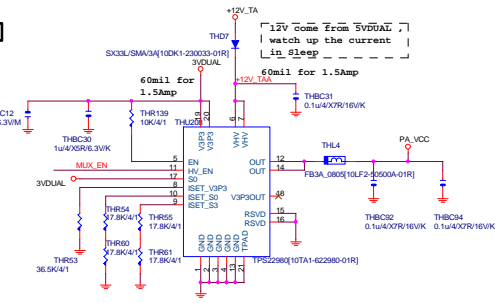
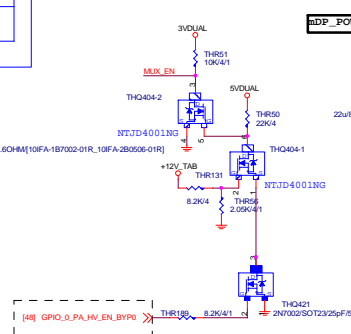
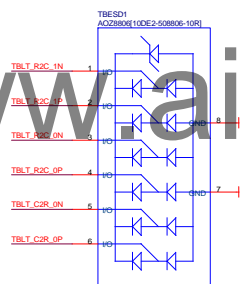
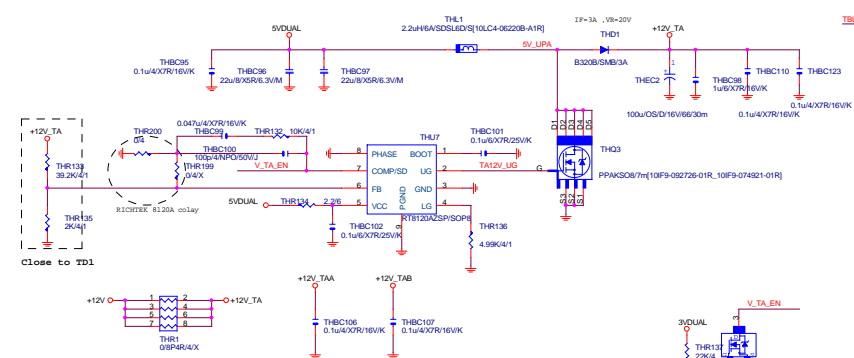
DP_A



10G speed ,take care layout under
2000mil in whole length



+12V_TB



| Power Rail | Current budget | S4/S5 | S3 | S0 |
|-------------|----------------|-------|----|----|
| VCC3P3_POC | 100mA | ON | ON | ON |
| VCC3_LC | 600mA | OFF | ON | ON |
| VCC1_05_LC | 1A | OFF | ON | ON |
| VCC1_05_CIO | 4A | OFF | ON | ON |



| PA_VCC | Power level | Current budget |
|--------|-------------|----------------|
| S4/S5 | 3.3V/12V | 150mA |
| S3 | 3.3V/12V | 150mA |
| S0 | 3.3V/12V | 1.5A |

```

-,- Take care ! S0
-| mode always
-| active

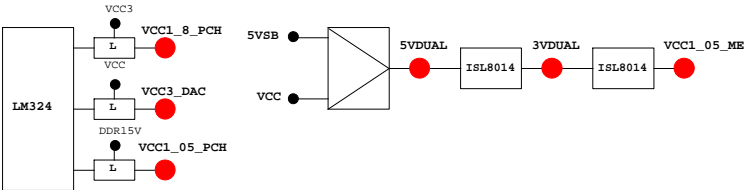
```


| PCH GPIO LIST TABLE | | | | |
|---------------------|------|---------|----------------------|-----------------|
| PIN NAME | PWR | Default | USAGE | NOTE |
| GP0 | MAIN | H-Z | GPI -PECI_REQ | N/A |
| GP1/TACH1 | MAIN | | GPI ICH_FAN_TACH1 | N/A |
| GP2/PIRQE# | MAIN | | GPI -PIRQE | P/U 8.2K VCC3 |
| GP3/PIRQF# | MAIN | | GPI -PIRQF | P/U 8.2K VCC3 |
| GP4/PIRQG# | MAIN | | GPI -PIRQG | P/U 8.2K VCC3 |
| GP5/PIRQH# | MAIN | | GPI -PIRQH | P/U 8.2K VCC3 |
| GP6/TACH2 | MAIN | | GPI ICH_FAN_TACH2 | N/A |
| GP7/TACH3 | MAIN | | GPI ICH_FAN_TACH3 | N/A |
| GP8 | STBY | H | GPO GPIO8 | P/U 8.2K 3VDUAL |
| GP9/OC5# | STBY | | NATIVE OC5# | N/A |
| GP10/OC6# | STBY | | NATIVE OC6# | N/A |
| GP11/SMBALERT# | STBY | | NATIVE -SMBALERT | P/U 8.2K 3VDUAL |
| GP12 | STBY | L | GPI LAN_PHY_PWR_CTRL | P/U 8.2K 3VDUAL |
| GP13 | STBY | L | GPI GPIO13 | P/U 8.2K 3VDUAL |
| GP14/OC7# | STBY | | NATIVE OC7# | N/A |
| GP15 | STBY | L | GPO GPIO15 | N/A |
| GP16 | MAIN | | GPI -SKT0CC | P/U 8.2K VCC3 |
| GP17/TACH0 | MAIN | | GPI ICH_FAN_TACH0 | N/A |
| GP18 | MAIN | | NATIVE MB_ID0 | P/D 8.2K GND |
| GP19 | MAIN | | GPI -LAN1_ISO | P/U 8.2K VCC3 |
| GP20 | MAIN | | NATIVE LED_CTL | P/U 1K VCC3 |
| GP21 | MAIN | | GPI VCC18_FCH_OV2 | P/U 8.2K VCC3 |
| GP22 | MAIN | H-Z | GPI VCORE_OV3 | P/U 8.2K VCC3 |
| GP23 | MAIN | | NATIVE -LDRQ1 | P/U 8.2K VCC3 |
| GP24 | STBY | L | GPO TLS | P/U 8.2K 3VDUAL |
| GP25 | STBY | | NATIVE -CPU_STOP | P/U 8.2K 3VDUAL |
| GP26 | STBY | | NATIVE -ACZ_DET | P/U 8.2K 3VDUAL |
| GP27 | STBY | H | GPO GPIO27 | P/U 8.2K 3VDUAL |
| GP28 | STBY | H | GPO GPIO28 | P/U 8.2K 3VDUAL |
| GP29 | STBY | L | GPI GPIO29 | N/A |
| GP30 | STBY | H-Z | GPI S_PWR_ACK | P/U 100K 3VDUAL |
| GP31 | STBY | H-Z | GPI N/A(Reverse) | P/U 8.2K VCC3 |
| GP32 | MAIN | H | GPO MB_ID1 | P/D 8.2K GND |
| GP33 | MAIN | H | GPO LOAD-LINE | P/U 1K VCC3 |
| GP34 | MAIN | H-Z | GPI -PCI_STOP | P/U 8.2K VCC3 |
| GP35 | MAIN | L | GPO GPIO35 | P/U 8.2K VCC3 |
| GP36 | MAIN | | GPI -LAN1_DSM | P/U 8.2K VCC3 |
| GP37 | MAIN | | GPI N/A | P/U 8.2K VCC3 |
| GP38 | MAIN | H-Z | GPI VCORE_OV2 | P/U 8.2K VCC3 |
| GP39 | MAIN | H-Z | GPI -LAN_DSM | P/U 8.2K VCC3 |
| GP40 | STBY | | NATIVE OC1# | N/A |
| GP41 | STBY | | NATIVE OC2# | N/A |
| GP42 | STBY | | NATIVE OC3# | N/A |
| GP43 | STBY | | NATIVE OC4# | N/A |
| GP44 | STBY | L | NATIVE N/A | P/U 8.2K 3VDUAL |
| GP45 | STBY | | NATIVE -LPCPME | P/U 8.2K 3VDUAL |
| GP46 | STBY | L | NATIVE PWR_LED | P/U 8.2K 3VDUAL |
| GP47 | STBY | | NATIVE PSI_LED | P/U 8.2K 3VDUAL |
| GP48 | MAIN | H-Z | IN EN_PWM | P/U 8.2K VCC3 |
| GP49 | MAIN | H-Z | IN VCC18_OV1 | P/U 8.2K VCC3 |
| GP50 | MAIN | | NATIVE -REQ1 | P/U 2.2K VCC |
| GP51 | MAIN | H | NATIVE -GNT1 | N/A |
| GP52 | MAIN | | NATIVE -REQ2 | P/U 2.2K VCC |
| GP53 | MAIN | H | NATIVE -GNT2 | N/A |
| GP54 | MAIN | | NATIVE -REQ3 | P/U 2.2K VCC |
| GP55 | MAIN | H | NATIVE -GNT3 | N/A |
| GP56 | STBY | | NATIVE N/A(Reverse) | P/U 8.2K 3VDUAL |
| GP57 | STBY | H-Z | IN VCORE_OV1 | P/U 8.2K 3VDUAL |
| GP58 | STBY | H-Z | NATIVE F_USB_OC | P/U 8.2K 3VDUAL |
| GP59 | STBY | | NATIVE USB_OC0# | N/A |
| GP60 | STBY | H-Z | NATIVE N/A(Reverse) | P/U 8.2K 3VDUAL |
| GP61 | STBY | L | NATIVE -SUSTAT | N/A |
| GP62 | STBY | L | NATIVE SUSCLK | N/A |
| GP63 | STBY | L | NATIVE GPIO63 | N/A |
| GP64 | MAIN | L | NATIVE CLKOUTFLEX0 | N/A |
| GP65 | MAIN | L | NATIVE CLKOUTFLEX1 | N/A |
| GP66 | MAIN | L | NATIVE CLKOUTFLEX2 | N/A |
| GP67 | MAIN | L | NATIVE CLKOUTFLEX3 | N/A |
| GP72 | STBY | H-Z | NATIVE VCORE_OV4 | P/U 8.2K 3VDUAL |
| GP73 | STBY | | NATIVE 1_05V_OV1 | P/U 8.2K 3VDUAL |
| GP74 | STBY | H-Z | NATIVE 1_05V_OV2 | P/U 8.2K 3VDUAL |
| GP75 | STBY | H-Z | NATIVE N/A(Reverse) | P/U 8.2K 3VDUAL |

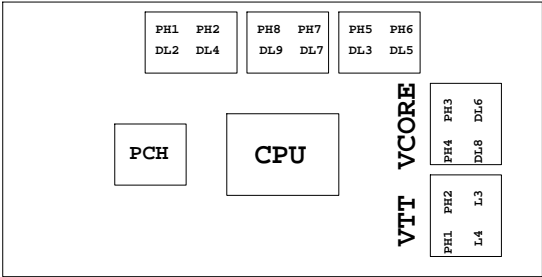
Super I/O ITE8720 GPIO Table

| PIN NAME | USAGE | NOTE |
|----------------------------|------------------|------|
| SVC/PECI_RQT/GP14 | -PECI_REQ | |
| PWROK1/GP13 | PWROK1/ITE_PWROK | |
| KRST#/GP62 | -KBRST | |
| SO/GP50 | -ICH_SPI_CS | |
| IRTX/GP47/CE2_N/JP7 | CEB_N | |
| GP46/IRRX | -LAN2_DSM | |
| PSION#/GP42 | -PSON | |
| PWROK2#/GP41 | PECI_CTL | |
| PCIRST3#/GP10/VDIMM_STR_EN | -PCIE_RST | |
| RSMRST#CIRRXL/GP55 | -RSMRST | |
| PME#/GP54 | -LPCPME | |
| PD5/GP75/BUSSO0 | N/A | |

| PIN NAME | USAGE | NOTE |
|-----------------------------|-------------------|------------------|
| FAN_TAC2/GP52 | FANIO2 | |
| FAN_TAC3/GP37 | FANIO3 | |
| VIDO3/FAN_TAC4/GP25/DSR2# | FANIO4 | |
| FAN_CTL2/GP51 | FANPWM2 | |
| FAN_CTL3/GP36 | FANPWM3 | |
| VID4/GP34 | BEEP- | |
| VID3/GP33 | TURBO1 | |
| VID2/GP32 | TURBO0 | |
| VCORE_GOOD/VID6/GP63 | CPUT_LED1_C | |
| VID5/GP35 | CPUT_LED2_C | |
| VID1/GP31 | CPUT_LED3_C | |
| VID0/GP30 | -LAN1_DSM | NBT_LED1_C |
| SLCT/GP80 | CPU_LED1_C | |
| PE/GP81 | CPU_LED2_C | |
| BUSY/GP82 | CPU_LED3_C | |
| PD3/GP73/BUSSI1 | SB_LED1_C | |
| PD4/GP74/BUSSI2 | SB_LED2_C | |
| VCORE_EN/VID7/GP64 | IT_GP64 | SB_LED3_C |
| PD0/GP70 | NB_LED1_C | |
| PD1/GP71 | NB_LED2_C | |
| PD2/GP72/BUSSI0 | NB_LED3_C | |
| GP22/SCK | LOW_PWR_1 | |
| VID05/GP27/SIN2 | LOW_PWR_2 | |
| PCIRST2#/GP11 | -PWRST1 | |
| PCIRST1#/GP12 | -PWRST2 | |
| 3VSBSW#/GP40 | CSI_F0 | BSEL166_1 |
| SUSC#/GP53 | CSI_F1 | BSEL166_2 |
| GP23/SI | BSEL166_3/CSISBSL | |
| VID00/GP20/CTS2# | CPUT_LED1_C | BSEL166_4 |
| GP65/VDDA_EN/GB_01 | MB_ID2 | |
| PD6/GP76/BUSSO1 | MB_ID3 | |
| PD7/GP77/BUSSO2 | MB_ID4 | |
| AFD#/GP86/SMBD_R | 2X PIN | FST_2X8 |
| INIT#/GP85/SMBD_M | SEC_2x8 | GTLREF_AD2 |
| ACK#/GP83 | DDR_LED1_C | |
| VID01/GP21/DCD2# | DDR_LED2_C | |
| STB#/GP87/SMBD_M | DDR_LED3_C | |
| PWRON#GP44 | VCORE_OV1 | |
| PANSWH#/GP43 | PWRBTSW | |
| KDAT/GP61 | -PWRBTSW | |
| KCLK/GP60 | KDAT | |
| MDAT/GP57 | KCLK | |
| MACL/GP56 | MDAT | |
| GP66/VLDT_EN/GB_02 | NBT_LED1_C | MCLK |
| SVD/PCIRSTIN#/CIRTX/GP15 | PWM2_CR | |
| KDAT/GP61 | PWM2_CR | |
| GP67/CPU_PG/GB_03 | EN_LOADLINE | IT_GP67/-EN_PWM2 |
| SLIN#/GP84/SMBD_R | -EN_PWM2 | |
| PSI_L/FAN_CLT5/CIRRXL2/GP16 | -THERM | |
| VID04/GP26/SOUT2 | DDR18V_PH2_EN | |
| VID02/FAN_TAC5/GP24/DSR2# | DDR18V_LED | |
| VID06/GP17/RI2# | 1_1V_PH_EN | |
| VID07/JP6/DTR2# | JP6 | |
| PD5/GP75/BUSSO0 | SB_LED3_C | |



PWM各相位的擺法如下：



BIOS超電壓對應表：

散熱模組料號：

| 線路圖名稱 | BIOS選項 |
|---------------------|------------------|
| Vcore | CPU Vcore |
| CPU_VTT | CPU Termination |
| CPU_VAXG | CPU Graphic Core |
| VCC1_8_PCH | CPU PLL |
| VCC1_05_PCH | PCH core |
| 3VDUAL | 3VDUAL |
| DDR15V | DRAM voltage |
| DDRVTT | DRAM Terminatio |
| VREF_CA_A/VREF_CA_B | DRAM Address Ref |
| VREF_DQ_A/VREF_DQ_B | DRAM Data Ref |

| | 3 pin FAN control | 4 pin FAN control | FAN speed | Controller |
|---------|-------------------|-------------------|---------------|------------|
| CPU FAN | FANPWM1 | FANPWM3 | FANIO1 | IT8720 |
| | ICH_FAN_PWM2 | ICH_FAN_PWM0 | ICH_FAN_TACH0 | PCH |
| SYS FAN | FANPWM2 | N/A | FANIO2 | IT8720 |
| | ICH_FAN_PWM1 | N/A | ICH_FAN_TACH1 | PCH |
| PWR FAN | N/A | N/A | FANIO3 | IT8720 |
| | | | ICH_FAN_TACH2 | PCH |