# Model Name: P43T-ES3G REV:1.0

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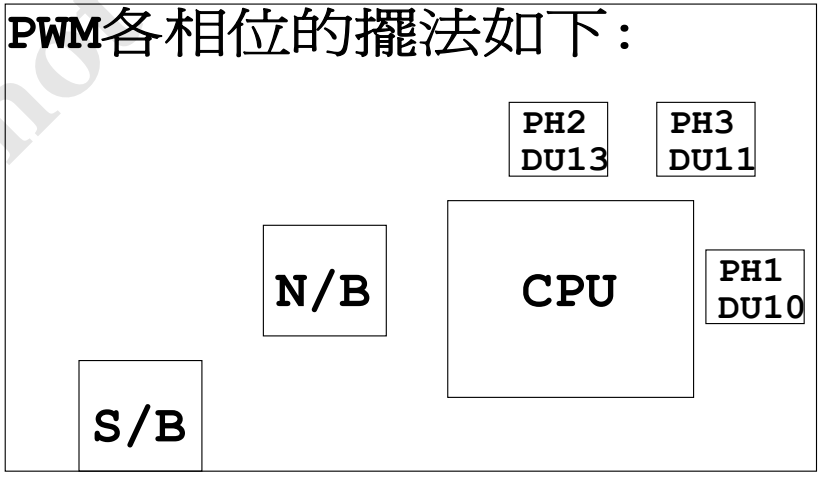
PWM各相位的擺法如下：






Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: P43T-ES3G | Rev: 1.0

Date: Friday, November 13, 2009 | Sheet 1 of 37

# Model Name: GA-P43T-ES3G

# Rev:.1.0

## Component value change history

| Data | Change Item | Reason |
|---|---|---|
| 97/04/01<br>EBOM:01A | 1. P43 CHIPSET E-BOM | |
| 97/04/15<br>EBOM:02 | 1. 修改LED的OWER及阻值;DEL R484,DR78. ADD DR79,,R348 | |
| | 2. ADD DR80,R300 10-->49.9,C158,LBC43 0ohm-->100PF for EMI | |
| | 3. del Q3,Q4,BC11,BC9,R42,R15,PCI_BT1,PCI_BT2,R166,R168 | |
| 97/04/28<br>EBOM:10A | 1. DDR2 VOLTAGE 1.83 --> 1.9V --> 2.0V --> 2.1V .....-->2.5V | |
| 97/05/09<br>PBOM:10B | 1. DR59,DR60 14K---->549ohm,del DR69 | |
| | 2. ADD U9(uP6262),R436,BC133 FOR CPU 超頻 | |
| | 3. CE2,CE3 EC-CAP---->FP-CON CAP FOR CPU FAN ISSUE | |
| 97/05/13<br>PBOM:10C | 1. ADD BACKUP BIOS AND RESISTOR | |
| 97/05/21<br>PBOM:10D | 1.ICH,MCH PCI-E ,JM368的RX,TX串電容BOM 0.1U/Y5V-->0.1U/X7R,RTC RTCVDD -->X7R | |
| | 2.ADD U6 FOR DDR TURN ON 2.1V ISSUE | |
| 97/06/04<br>PBOM:10E | 1.Q49 BAT54C限用DII FOR STR ISSUE | |
| 97/06/18<br>PBOM:10F | 1.C197 0.1U/Y5V--->0.1U/X7R | |
| | 2.ADD MB_ID R283,DEL R282,Q87,Q91,R452,R498,R499,R500 FOR VTT_GMCH 1.2V | |
| | 3.R300 49.9--->100 ohm ,C158 Y5V--->X7R for USB | |
| | 4.DC20 0.01u--->1nf FOR CPU PSI ISSUE | |
| 97/07/22<br>PBOM:10G | 1.換NEW P43 A2 CHIP | |
| 97/08/11<br>PBOM:10H | 1.由10E 改; RR2 68--->44.2 FOR J368 1.8V | |
| 97/09/24<br>EBOM:01 | 1.E-BOM FOR P43-ES3G-0.1 | |
| 97/10/24<br>EBOM:10A | 1.LBC34 100PF----->0 ohm for EMI issue | |
| | 2.DEL R132,R133,Q1,Q2,R58,R59 FOR non CIA2 function | |
| 97/11/07<br>PBOM:10B | 1.FDD 改爲白色 2.改BC38,BC65 改爲1UF | |
| 98/04/24<br>PBOM:10D | 1.部份阻值改爲1%, | |
| 98/05/07<br>PBOM:10E | 1.D8 改成OLD BAT54A,R282 PULL LOW,R323,R330移除 | |
| 98/05/25<br>PBOM:10F | 1.D7,D9,D11,D4,D6,D13改成OLD BAT54A | |
| | 1.ADD EUP FUNCTION | |
| | 2.CODEC CO-LAY,ADD EOS protect diode | |
| | 3.8111C---->8111D | |
| | | |
| P43T-ES3G-10A | 1. PCB內容有誤,包材修改 | |
| | | |

## Circuit or PCB layout change for next version

| DATE | Change Item | Reason |
|---|---|---|
| 97/04/01<br>PCB:0.1 | 1.P43-DS3L | |
| 97/04/23<br>PCB:1.0 | 1. CE3位置請移至EC24左邊 | |
| | 2. 增加 upi6262 VCC Power (R620,R621,Q107) | |
| | 3. 增加R622,R623 FOR DDR18V_OV3 | |
| 97/08/08<br>PCB:1.01 | 1.DDR1200 OC 文字面改爲DDR 1200 | |
| 97/09/23<br>PCB:0.1 | 1.由EP43-DS3L-1.01修改成GA-P43-ES3G-0.1 | |
| | 2.CPU VCORE 改爲3相 | |
| | 3.後窗改爲 1 serial port ,parallel port,aduio 爲 analog 3 port,digital 只有同軸,USB *6,前窗USB *6 | |
| | 4.support easy saver function;PCI SLOT*5 | |
| 97/10/30<br>PCB:1.0 | 1.GA-P43-ES3G-1.0 FOR PVT | |
| 98/04/15<br>PCB:1.01 | 1.GA-P43-ES3G-1.01 修改LL1電感位置 | |
| 2009/10/06<br>PCB:1.1 | 1.ADD EUP FUNCTION | |
| | 2.CODEC CO-LAY,ADD EOS protect diode | |
| | | |
| | | |
| P43T-ES3G-10A | 1. F_PANEL是否要改新的 | |



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Title: BOM & PCB MODIFY HISTORY

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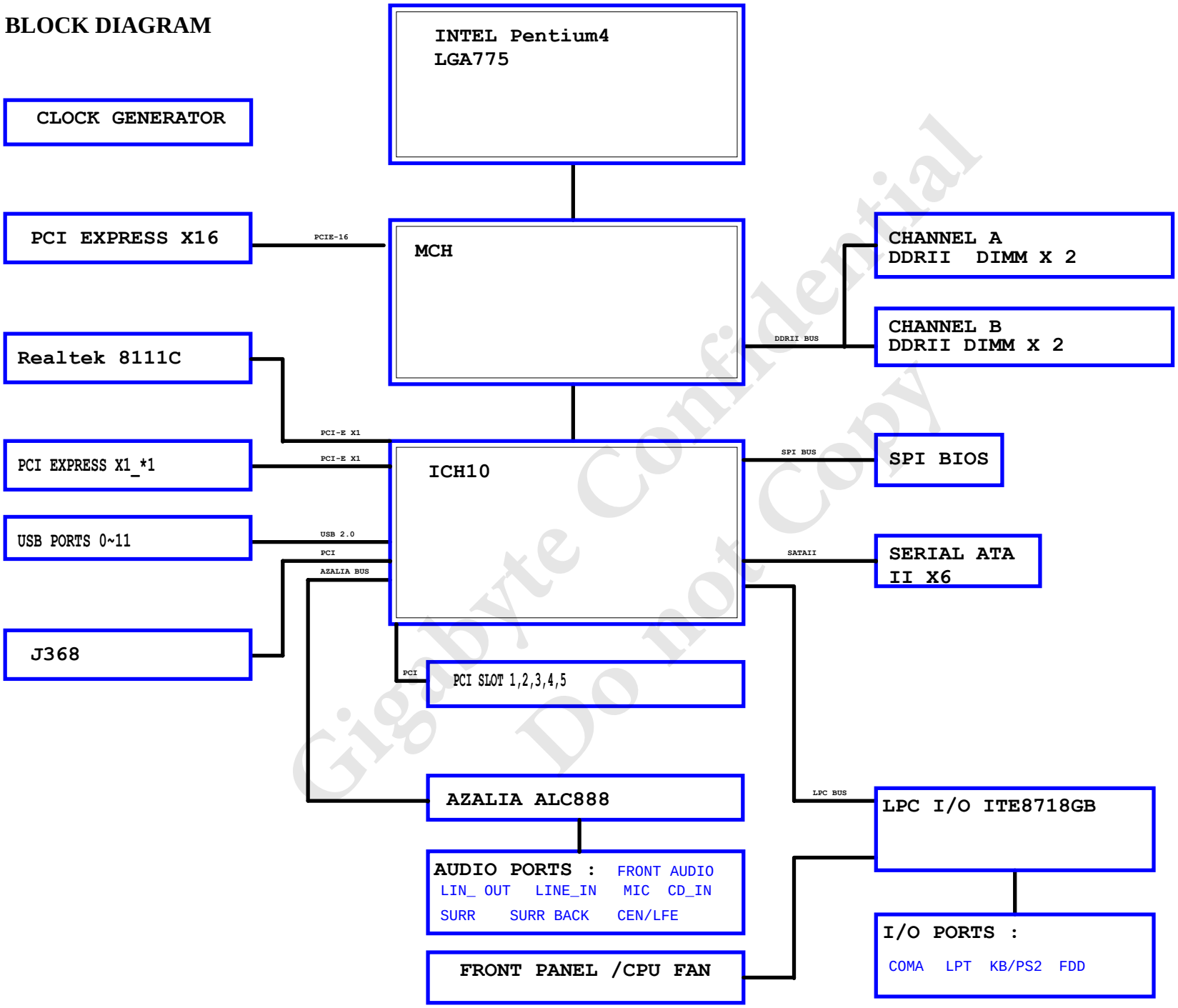
# BLOCK DIAGRAM






| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: BLOCK DIAGRAM | | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
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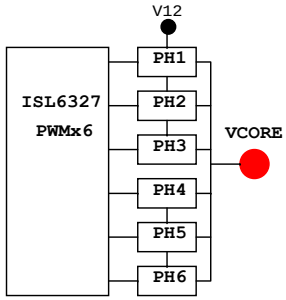
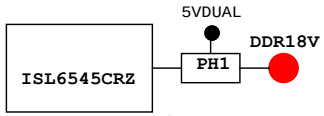
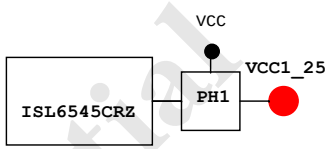
## ICH8 GPIO LIST TABLE

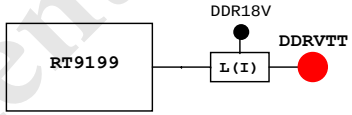
| PIN NAME | PWR WELL | AFTER/ PLTRST | USAGE | NOTE |
|---|---|---|---|---|
| GP0 | MAIN | IN | -ACZ_DET | P/U 8.2K VCC3 |
| GP1/TACH1 | MAIN | IN | ICH_FAN_TACH1 | P/U 8.2K VCC3 |
| GP2/PIRQE# | MAIN | IN | -PIRQE | P/U 8.2K VCC3 |
| GP3/PIRQF# | MAIN | IN | -PIRQF | P/U 8.2K VCC3 |
| GP4/PIRQG# | MAIN | IN | -PIRQG | P/U 8.2K VCC3 |
| GP5/PIRQH# | MAIN | IN | -PIRQH | P/U 8.2K VCC3 |
| GP6/TACH2 | MAIN | IN | ICH_FAN_TACH2 | P/U 8.2K VCC3 |
| GP7/TACH3 | MAIN | IN | ICH_FAN_TACH3 | P/U 8.2K VCC3 |
| GP8 | STBY | IN | GPIO8(DUALBIOS_INPUT) | P/U 8.2K 3VDUAL |
| GP9 | STBY | OUT | WOL_ONLY | P/D 100K GND |
| GP10 | STBY | IN | CLGPIO1 | P/U 8.2K 3VDUAL |
| GP11/SMBALERT# | STBY | OUT | -SMBALRT | P/U 8.2K 3VDUAL |
| GP12 | STBY | IN | MB_ID0 | P/U 8.2K 3VDUAL |
| GP13 | STBY | IN | -LPCPME | P/U 8.2K 3VDUAL |
| GP14 | STBY | IN | CLGPIO2 | P/U 8.2K 3VDUAL |
| GP15 | STBY | OUT | LAN_DISABLE(STP_PCI-) | N/A |
| GP16 | MAIN | OUT/LOW | RESET | N/A |
| GP17/TACH0 | MAIN | IN | ICH_FAN_TACH0 | P/U 8.2K VCC3 |
| GP18 | MAIN | OUT | MB_ID1 | P/U 8.2K VCC3 |
| GP19 | MAIN | IN | SATA1GP | P/U 8.2K VCC3 |
| GP20 | MAIN | OUT | -SPI_WP0 | P/U 1K 3VCL |
| GP21 | MAIN | IN | SATA0GP | P/U 8.2K VCC3 |
| GP22 | MAIN | IN | SCLOCK | P/U 8.2K VCC3 |
| GP23 | MAIN | OUT | -LDRQ1 | P/U 8.2K VCC3 |
| GP24 | STBY | OUT | CLGPIO0 | P/U 8.2K 3VDUAL |
| GP25 | STBY | IN | MB_ID2(STP_CPU-) | P/U 8.2K 3VDUAL |
| GP26/S4_STATE# | STBY | OUT | S4_STATE# | P/U 8.2K 3VDUAL |
| GP27 | STBY | OUT/LOW | GPIO27(EL_STATE0) | P/U 8.2K 3VDUAL |
| GP28 | STBY | OUT/LOW | PWR_LED(EL_STATE1) | N/A |
| GP29/OC5# | STBY | IN | -USBOC_R | P/U FUSEVCC |
| GP30/OC6# | STBY | IN | -USBOC_R | P/U FUSEVCC |
| GP31/OC7# | STBY | IN | -USBOC_R | P/U FUSEVCC |
| GP32 | MAIN | OUT | DUAL_BIOS | P/U 100K+1M VCC3 |
| GP33 | MAIN | OUT | DUAL_BIOS | P/U 8.2K VCC3 |
| GP34 | MAIN | OUT/LOW | GPIO34/SMB_RST | N/A |
| GP35 | MAIN | OUT | SATACLKREQ# | N/A |
| GP36 | MAIN | IN | SATA2GP | P/U 8.2K VCC3 |
| GP37 | MAIN | IN | SATA3GP | P/U 8.2K VCC3 |
| GP38 | MAIN | IN | SLOAD | P/U 8.2K VCC3 |
| GP39 | MAIN | IN | GPIO39 | P/D 8.2K GND |
| GP48 | MAIN | IN | GPIO48 | P/U 8.2K VCC3 |
| GP49 | MAIN | IN | CPUPWROK | P/U 100 VTT_OL |

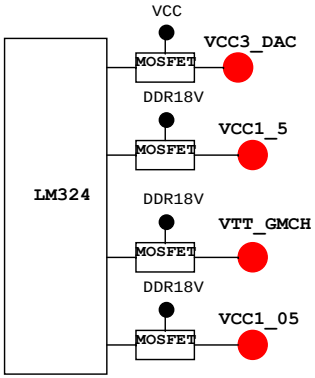
VCORE:6 PHASE PWM--ISL6327CRZ

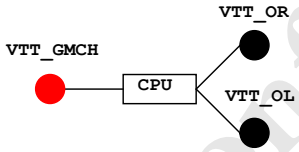


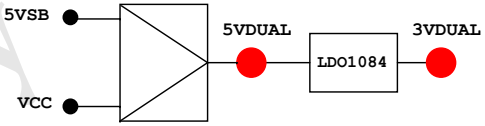






| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: TABLE LIST | | |
| Size: B | Document Number: P43T-ES3G | Rev: 1.0 |
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0.667 X VTT FOR LGA775 PIN H2/F2

R261 49.9/4/1 — VTT_OR — GTLREF1
R236 100/4/1, C103 1u/6/Y5V/10V/Z

0.635 X VTT FOR LGA775 PIN H1/G10

R238 57.6/4/1 — VTT_OR — GTLREF0 — GTLREF0
R237 100/4/1, C104 1u/6/Y5V/10V/Z

HA/REQ:50歐姆+-15% [ 4/11 ]
ADSTB:50歐姆+-15% [4/14]

LGA775A

LGA775 (1/8)

{9} HA[3..16] — HA[3..16]
HA3 L5
HA4 P6
HA5 M5
HA6 L4
HA7 M4
HA8 R4
HA9 T5
HA10 U6
HA11 T4
HA12 U5
HA13 U4
HA14 V5
HA15 V4
HA16 W5

TP_CPU19 N4
TP_CPU20 P5
RSVD_3 K4
RSVD_4 J5

{9} -HREQ0 — -HREQ0 M6
{9} -HREQ1 — -HREQ1 K6
{9} -HREQ2 — -HREQ2 J6
{9} -HREQ3 — -HREQ3 R6
{9} -HREQ4 — -HREQ4 AB6
{9} -HADSTB0 — -HADSTB0 W6

{9} HA[17..35] — HA[17..35]
HA17 Y6
HA18 Y4
HA19 AA4
HA20 AD6
HA21 AA5
HA22 AB5
HA23 AC5
HA24 AB4
HA25 AE5
HA26 AF4
HA27 AG6
HA28 AG4
HA29 AC5
HA30 AH4
HA31 AH5
HA32 AJ5
HA33 AJ6
HA34 AC4
HA35 AE4

{9} -HADSTB1 — -HADSTB1 AD5

RSVD_1
RSVD_2
ADSTB<1>*

ADS* D2 — -HADS — HADS {9}
BNR* C2 — -BNR — BNR {9}
HIT* D4 — -HIT — HIT {9}
RSP* H4 — TP_CPU17
BPRI* G8 — -BPRI — BPRI {9}
DBSY* B2 — -DBSY — DBSY {9}
DRDY* C1 — -DRDY — DRDY {9}
HITM* E4 — -HITM — HITM {9}
IERR* AB2 — -IERR
INIT* P3 — -HINIT — HINIT {21}
LOCK* C3 — -HLOCK — HLOCK {9}
TRDY* E3 — -HTRDY — HTRDY {9}
BINIT* AD3 — TP_CPU18
DEFER* G7 — -DEFER — DEFER {9}
MCERR* AB3
AP<0>* U2 — TP_CPU1
AP<1>* U3 — TP_CPU2
BR<0>* F3 — -BR0 — BR0 {9}
TESTHI_8 G3 — TESTHI8
TESTHI_9 G4 — TESTHI9
TESTHI_10 H5 — TESTHI10
DP<0>* J16 — TP_CPU3
DP<1>* H15 — TP_CPU4
DP<2>* H16 — TP_CPU5
DP<3>* J17 — TP_CPU6
GTLREF0 H1 — GTLREF0
GTLREF1 H2 — GTLREF1
GTLREF2 E24 — TP_CPU22
GTLREF_SEL H29 — TP_CPU7
RESET* G23 — -CPURST — -CPURST {9}
RS<0>* B3 — -RS0 — RS0 {9}
RS<1>* E5 — -RS1 — RS1 {9}
RS<2>* A3 — -RS2 — RS2 {9}

CPU-SK/775/S/15

C107 220p/4/NPO/50V/J/X
C112 220p/4/NPO/50V/J/X

-CPURST — C14 1n/4/X7R/50V/K/X

VTT_OR — R219 62/4 — -IERR
VTT_OL — R235 62/4 — -BR0
VTT_OR — R264 62/4 — -CPURST
VTT_OL — RN19 62/8P4R/4 — TESTHI9, TESTHI10, TESTHI8

CR
CPU RETAINTION/X

SP-CAP X 3PCS

VCORE
SEC1 100U/2V/SPCAP/X
SEC2 100U/2V/SPCAP/X
SEC3 100U/2V/SPCAP/X

Impedance=50 +- 15% for 4 -layer

VCORE
BC70 10u/8/X5R/6.3V/K
BC72 10u/8/X5R/6.3V/K
BC56 10u/8/X5R/6.3V/K
BC57 10u/8/X5R/6.3V/K

VCORE
BC54 10u/8/X5R/6.3V/K
BC53 10u/8/X5R/6.3V/K
BC73 10u/8/X5R/6.3V/K
BC74 10u/8/X5R/6.3V/K

VCORE
BC67 10u/8/X5R/6.3V/K
BC55 10u/8/X5R/6.3V/K
BC71 10u/8/X5R/6.3V/K
BC62 10u/8/X5R/6.3V/K
BC66 10u/8/X5R/6.3V/K
BC61 10u/8/X5R/6.3V/K

+12V — R269 8.2K/4 — Q34 2N7002/SOT23/25pF/5 — R266 1.3K/4/1
VCC3 — R272 1K/4/1 — Q35 MMBT2222A/SOT23/600mA/40 S0T23
{25} GTLREF_UV0
GTLREF0 — R239 0/4/SHT/X — GTLREF3 {7}

+12V — R274 8.2K/4 — Q36 2N7002/SOT23/25pF/5 — R276 576/4/1
VCC3 — R275 1K/4/1 — Q37 MMBT2222A/SOT23/600mA/40 S0T23
{25} GTLREF_UV1
GTLREF1 — R260 0/4/SHT/X — GTLREF2 {7}

CPU GTLREF RATIO

| GTLREF_UV0 | GTLREF_UV1 | Ratio Set |
|---|---|---|
| HIGH | HIGH | 0.67 |
| LOW | HIGH | 0.65 |
| HIGH | LOW | 0.63 |
| LOW | LOW | 0.615 |

Gigabyte Technology

| | | | |
|---|---|---|---|
| Title | P4_LGA775-A | | |
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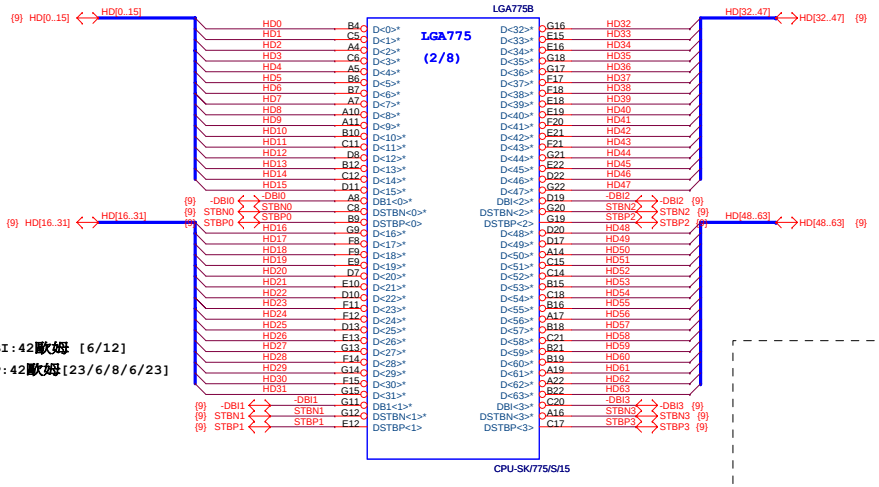
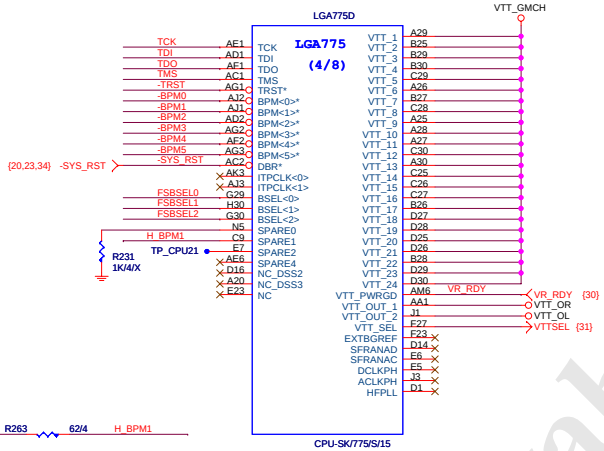
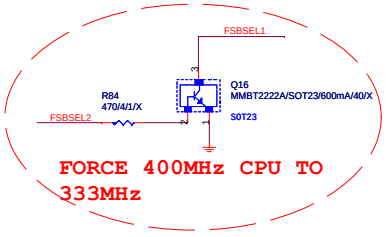


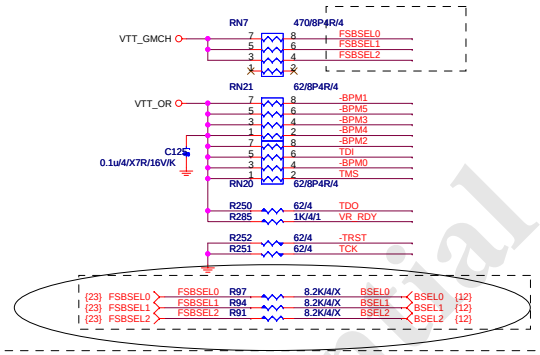

HD/DBI:42歌姆 [6/12]

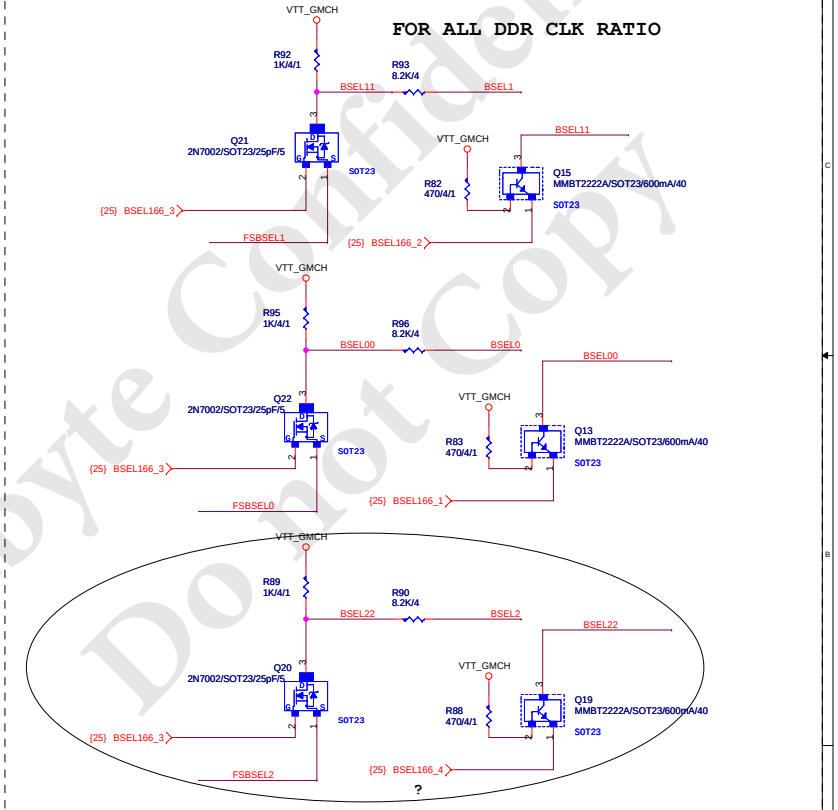
DSTBP:42歌姆[23/6/8/6/23]




**4X Length Guidelines for Quad core processors**
**Signal Name ATX Layer Pin to Pin**
**D[15:0]#, DBI0#, DSTBP0#, DSTBN0# Layer 1 2.2" - 2.7"**
**D[31:16]#, DBI1#, DSTBP1#, DSTBN1# Layer 4 3.0" - 3.5**
**D[47:32]#, DBI2#, DSTBP2#, DSTBN2# Layer 4 3.6" - 4.3**
**D[63:48]#, DBI3#, DSTBP3#, DSTBN3# Layer 1 2.4" - 3.0**




| FSA | FSB | FSC | | | |
|---|---|---|---|---|---|
| FSBSEL0 | FSBSEL1 | FSBSEL2 | Clock | | |
| ? | 1 | 0 | 1 | 100MHz | |
| ? | 1 | 0 | 0 | 133MHz | 3/4 |
| G33 | 0 | 1 | 0 | 200MHz | 2/2.66/3.33/4+ |
| G33 | 0 | 0 | 0 | 266MHz | 2/2.5/3/4~ |
| G33 | 0 | 0 | 1 | 333MHz | 2/2.4/3.2/4# |
| | 0 | 1 | 1 | 400MHz | |

400/533
400/533/667/800
533/667/800/1066
667/800/1066/1333



| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | P4_LGA775-B,D | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
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**Note:**
VCCA & VCOREPLL define doesn't same as old P4 design kit

Trace width doesn't less than 12 Mil

As close as possible to CPU socket

VTT_GMCH L2 10UH/8/S/[10LI2-12100A-13R_10LI2-12100A-02R]
C22 1u/6/Y5V/10V/Z
R102 MASK-50 0/6/SHT-30/MASK/X
VCCA
VSSA
C21 1u/6/Y5V/10V/Z/X
VCOREPLL
L1 10UH/8/S/[10LI2-12100A-13R_10LI2-12100A-02R]

LGA775C
LGA775 (3/8)
CPU-SK/775/S/15

-STPCLK C98 33p/4/NPO/50V/J/X

{25,30} VID[0..7]
{30} VRD_SEL
{23} CPUCLK
{23} -CPUCLK
{20} -SKTOCC
{21} -SMI
{21} -A20M
{21} -FERR
{21} INTR
{21} NMI
{21} -IGNNE
{21} -STPCLK

{25,27} CPU_TEMP R173 0/4/SHT/X
{25} THERMDC R174 0/4/SHT/X
C69 1n/4/X7R/50V/K/X C66 1n/4/X7R/50V/K

{26} VCC_SENSE
{26} VSS_SENSE
VCORE
TP_CPU11 R262 62/4
TP_CPU14
TP_CPU16
{21,25} PECI

H_DPSLP_N {20}
PM_SLP_N {12}
-FORCEPR {26}
CPUPWROK {20}
-PROCHOT {20,26}
-THRMTRIP {21}
PM_DPRSTP {12,20}
R217 0/4/SHT/X -PSI {30}
R100 1K/4/X
TP_CPU10
GTLREF2
GTLREF3
MSID1 R245 62/4
MSID0 R246 62/4
R247 62/4/X
TP_CPU13
TP_CPU15

Pop to disable old Prescott CPU

COMP4~7 可以不上

Place outside of CPU socket

VTT_OL C97 0.1u/4/X7R/16V/K
R222 49.9/4/1/X PM_DPRSTP
R213 49.9/4/1/X COMP4
R211 49.9/4/1 COMP2
R215 49.9/4/1 COMP3
R130 49.9/4/1 COMP0
R216 49.9/4/1 COMP1

VTT_OR C100 0.1u/4/X7R/16V/K
R218 1K/4/1 COMP6
R223 49.9/4/1/X COMP7
R128 24.9/4/1 COMP8

VTT_GMCH C13 0.1u/4/X7R/16V/K
R99 62/4 TESTHI2_7
R240 62/4 -THRMTRIP
R214 62/4 -FERR
R98 62/4 TESTHI0

VTT_OL
R210 51/4/X PM_SLP_N
R243 62/4 TESTHI1
R242 51/4/X H_DPSLP_N
R241 100/4/1/X CPUPWROK
C99 1n/4/X7R/50V/K/X
R212 62/4 H_BPM0
R244 62/4 TESTHI_M

VTT_OR
RN22 680/8P4R/4
7 8 VID3
5 6 VID2
3 4 VID5
1 2 VID4
RN23 680/8P4R/4
7 8 VID6
5 6 VID7
3 4 VID1
1 2 VID0
R265 1K/4/1 VRD_SEL
R248 130/4/1 -FORCEPR
R249 130/4/1 -PROCHOT

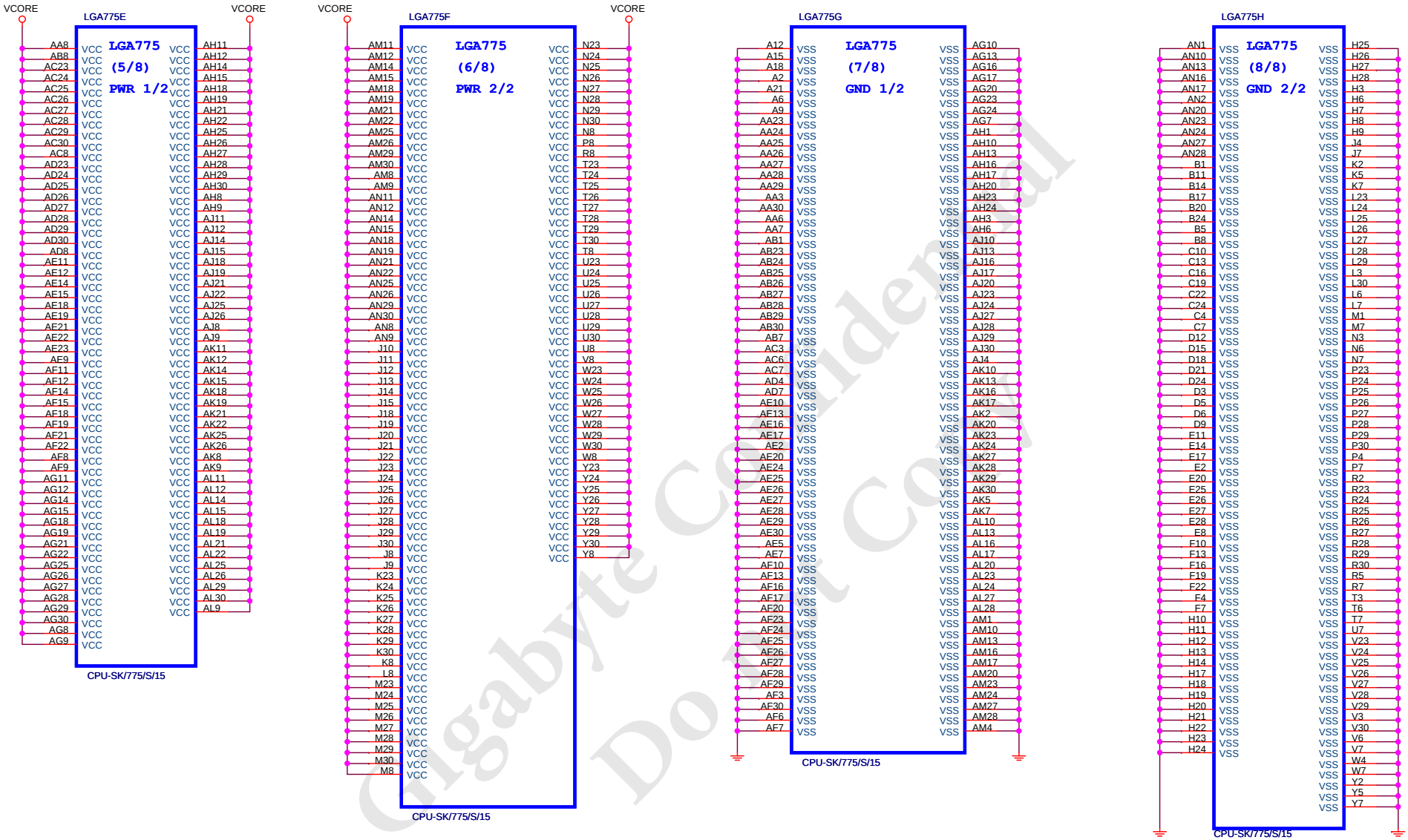
VTT_OR R259 49.9/4/1/X GTLREF2 GTLREF2 {5}
R258 100/4/1/X C102 1u/6/Y5V/10V/Z
R268 49.9/4/1/X GTLREF3 GTLREF3 {5}
R267 100/4/1/X C123 1u/6/Y5V/10V/Z

FB1 MASK-50
VCC1_5 VCC_PLL VCC_PLL
0/8/SHT-50/MASK/X
C15 1u/6/Y5V/10V/Z C16 0.1u/4/X7R/16V/K

PECI:Platform Environment Control Interface

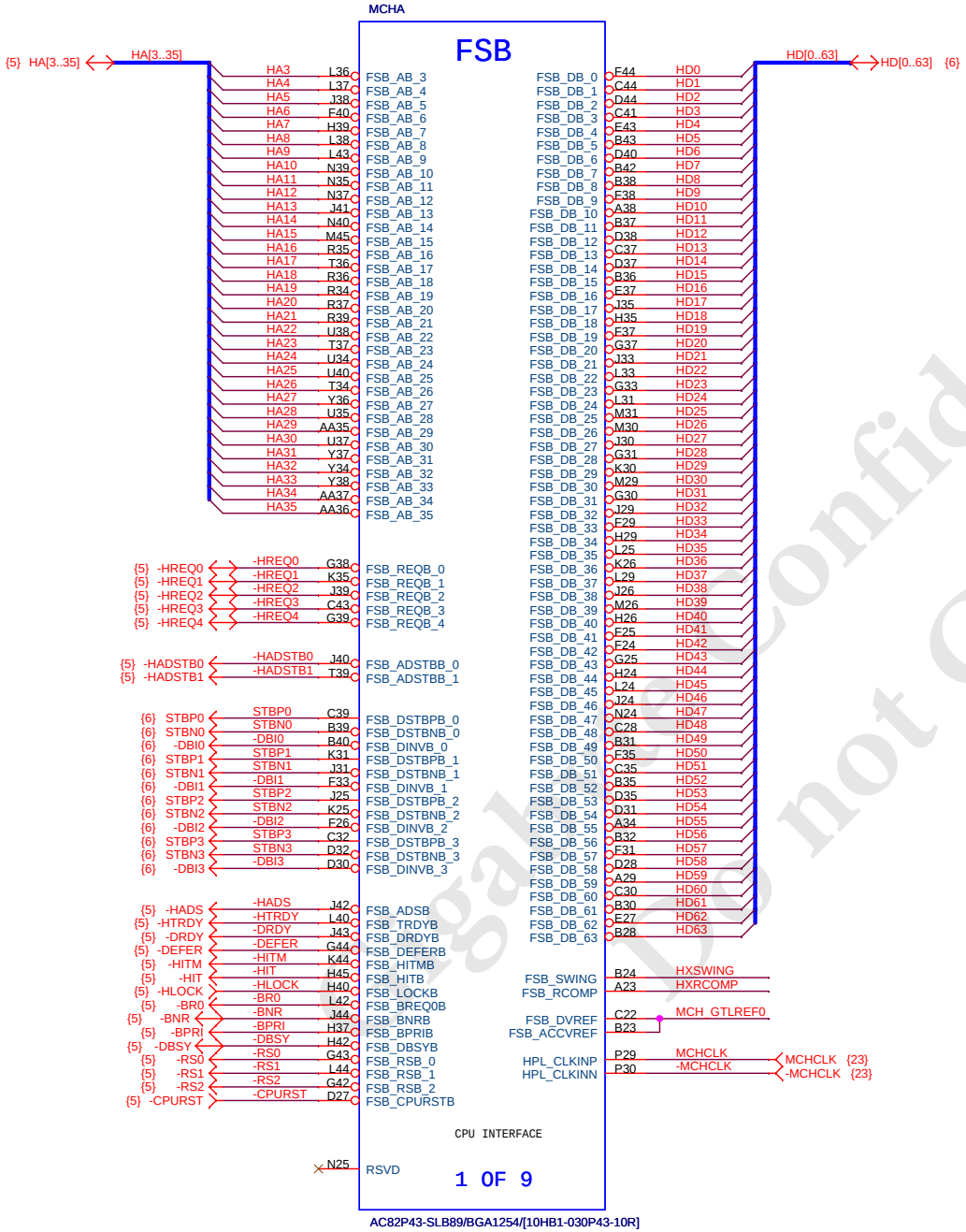


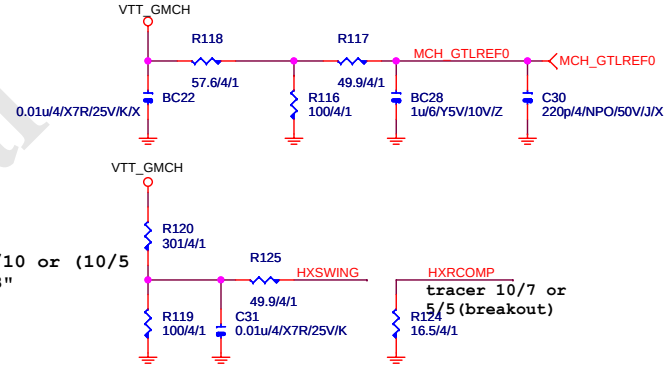
| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: P4_LGA775-C | | |
| Size: B | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 7 of 37 | |

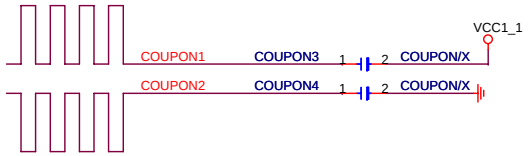





| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: P4_LGA775-E,F,G,H | | |
| Size: B | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 8 of 37 | |



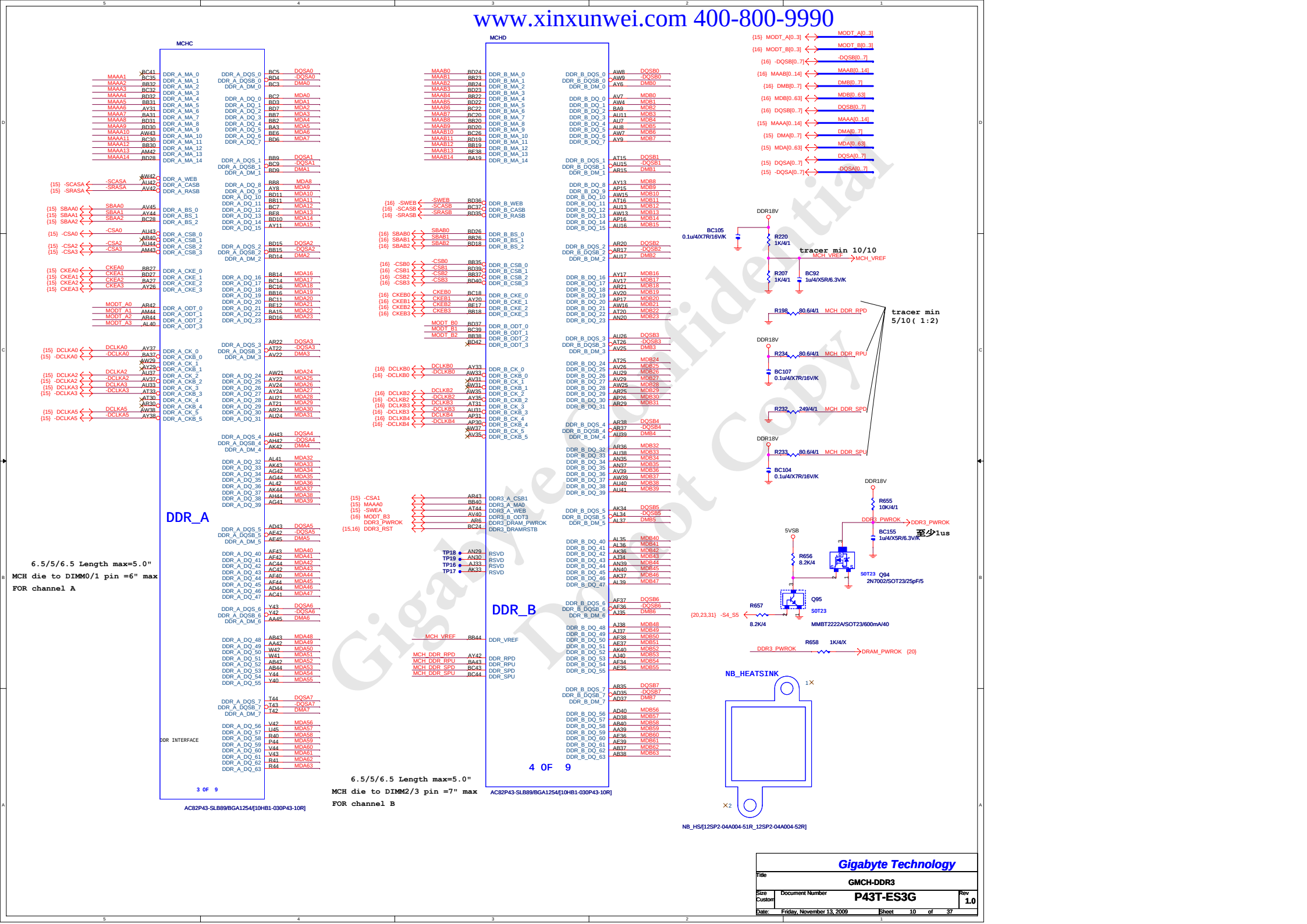






Gigabyte Technology

| | | | |
|---|---|---|---|
| Title | GMCH-HOST | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 9 of 37 | | |

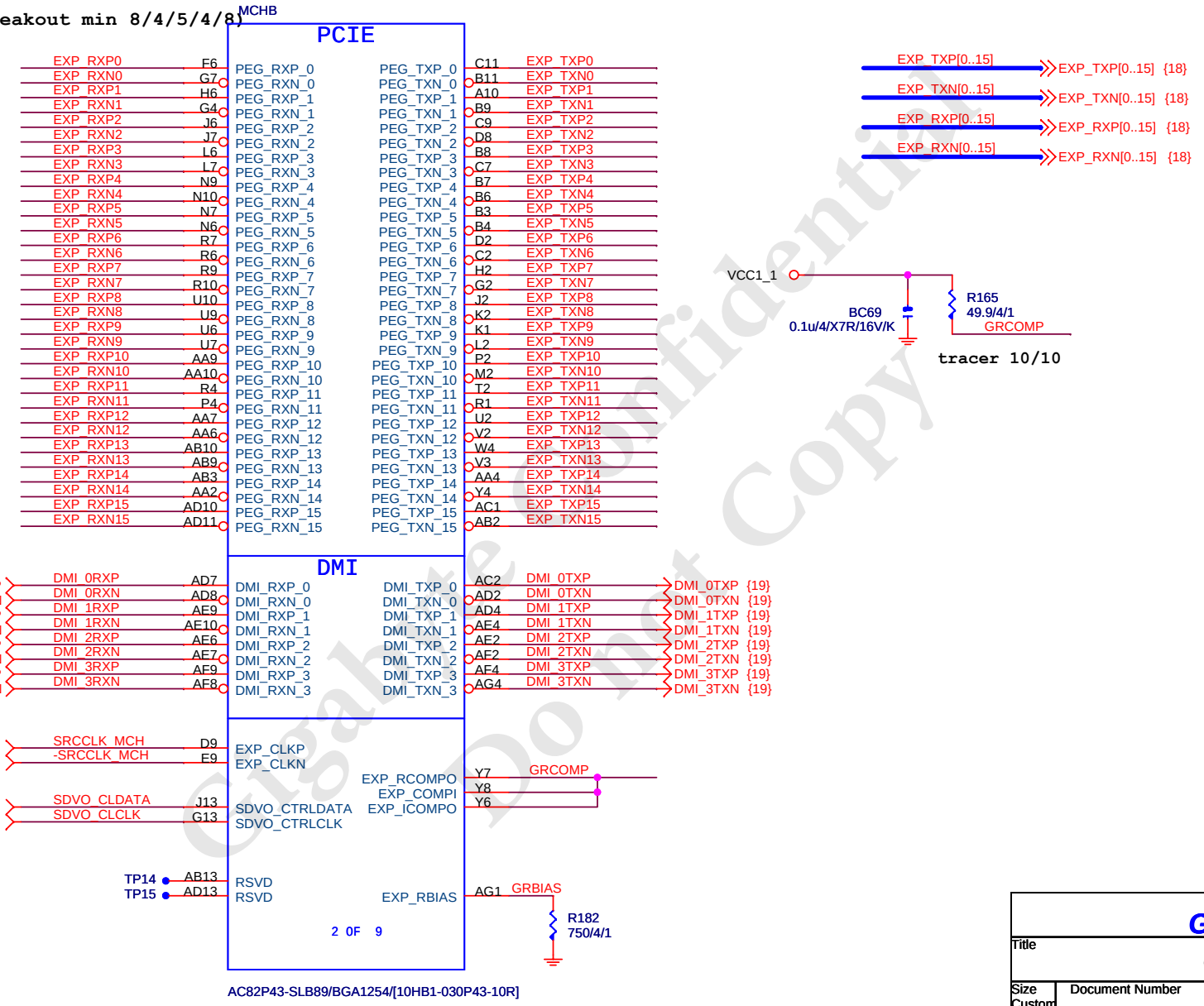





| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | GMCH-DDR3 | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 10 of 37 | | |

PCIEX16:16/5/5/5/16(breakout min 8/4/5/4/8)
Impedance=85 +- 17.5%

DMI:12/4/8/4/12
Impedance=95 +- 17.5%










tracer 10/10



| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title: GMCH-PCI E & DMI | | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 11 of 37 | | |

EXP_SM
0:SDVO OR PCIE
1:BOTH SDVO AND PCIE

EXP_SLR:
0:BTX PCIE are reversed
1:ATX PCIE normal

ITPM:
0:ENABLE ITPM
1:DISABLE ITPM

CEN:
0:DISABLE TLS
1:ENABLE TLS

MCHE

VGA

MISC

AC82P43-SLB89/BGA1254/[10HB1-030P43-10R]

5 OF 9

CL_VREF:4/10

0.349V

BW+ICH8 不要上(SAMPLE)
BW+ICH7 要上



| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title: GMCH-INTERNAL VGA | | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 12 of 37 | | |




Gigabyte Technology

| | | |
|---|---|---|
| Title | GMCH-GND | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 13 of 37 | |

MCHF

POWER

6 OF 9

AC82P43-SLB89/BGA1254/[10HB1-030P43-10R]

MCHG

POWER

7 OF 9

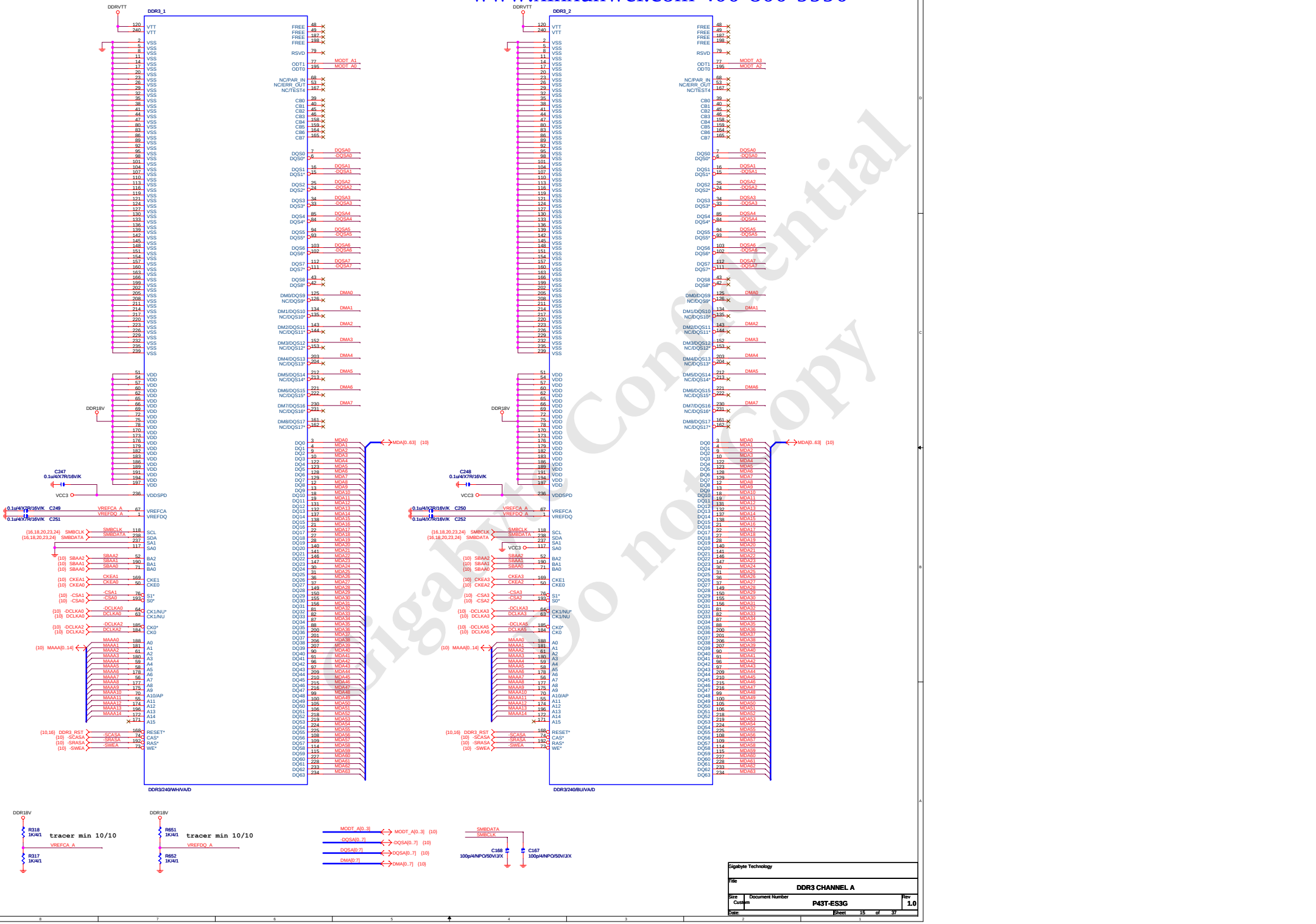
AC82P43-SLB89/BGA1254/[10HB1-030P43-10R]

VCC_CL=~3A

請考慮是否將短路移除

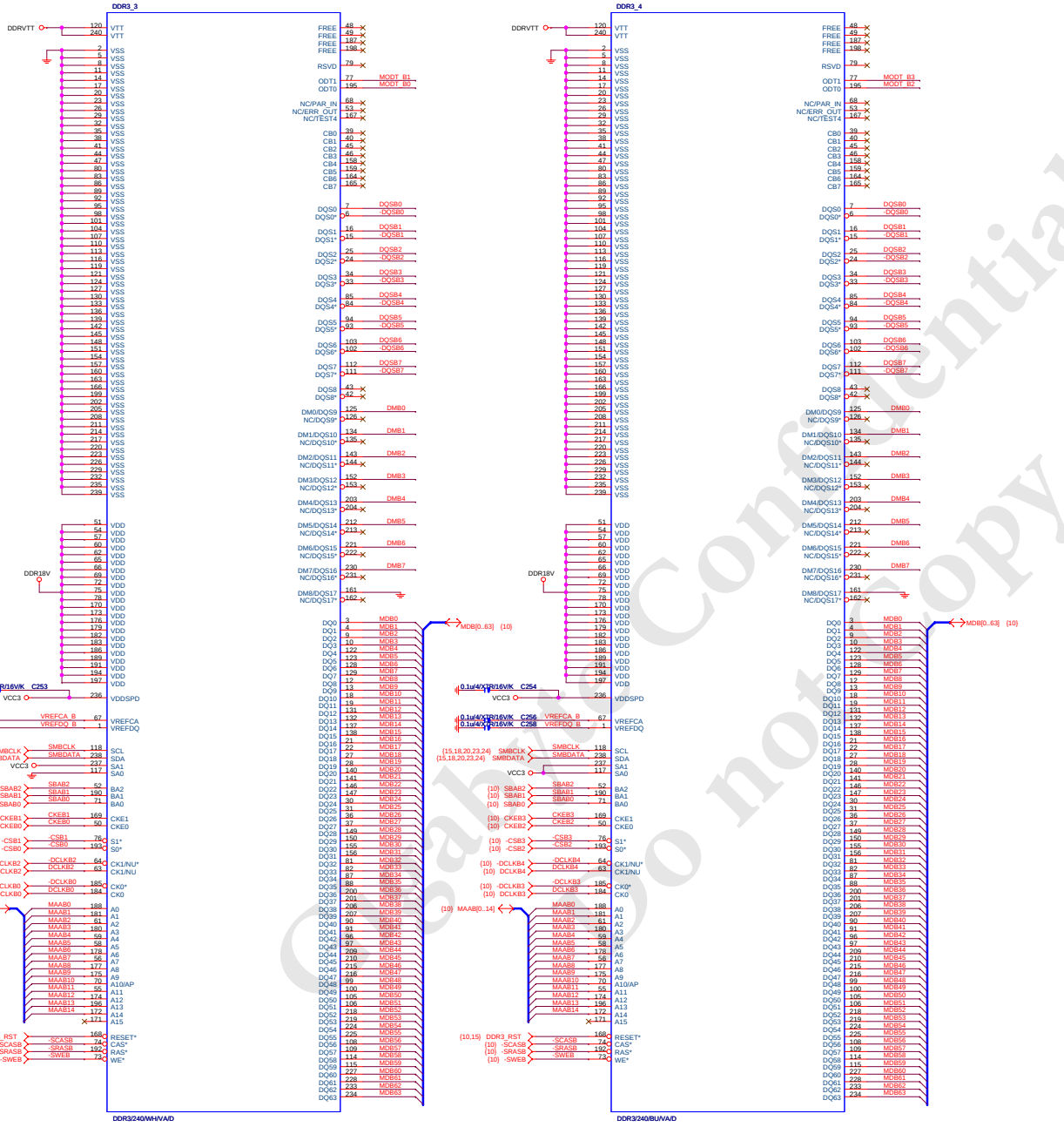


| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title: GMCH-PWR | | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 14 of 37 | | |






| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title | DDR3 CHANNEL A | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: | Sheet 15 of 37 | |

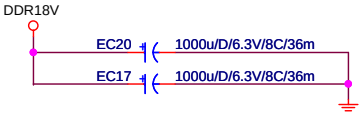


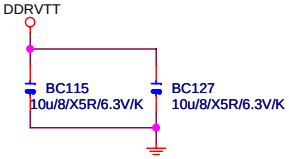



| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title | DDR3 CHANNEL B | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: | Sheet 16 of 37 | |

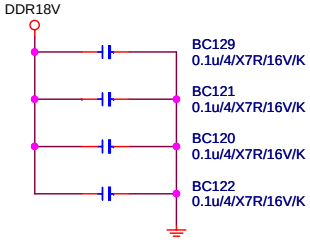
# DDR TERMINATION CHANNEL A

## DDRVTT Decouple

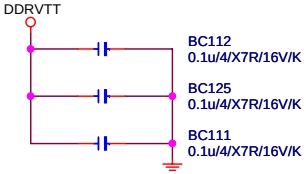


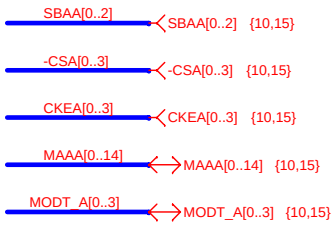




## DDR18V Decouple



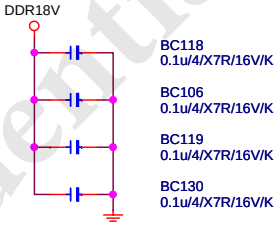

## DDRVTT Decouple



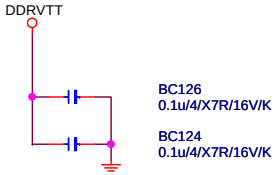



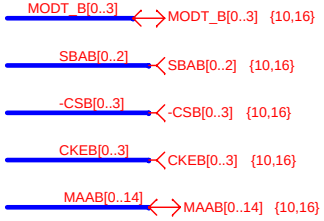

# DDR TERMINATION CHANNEL B

## DDR18V Decouple



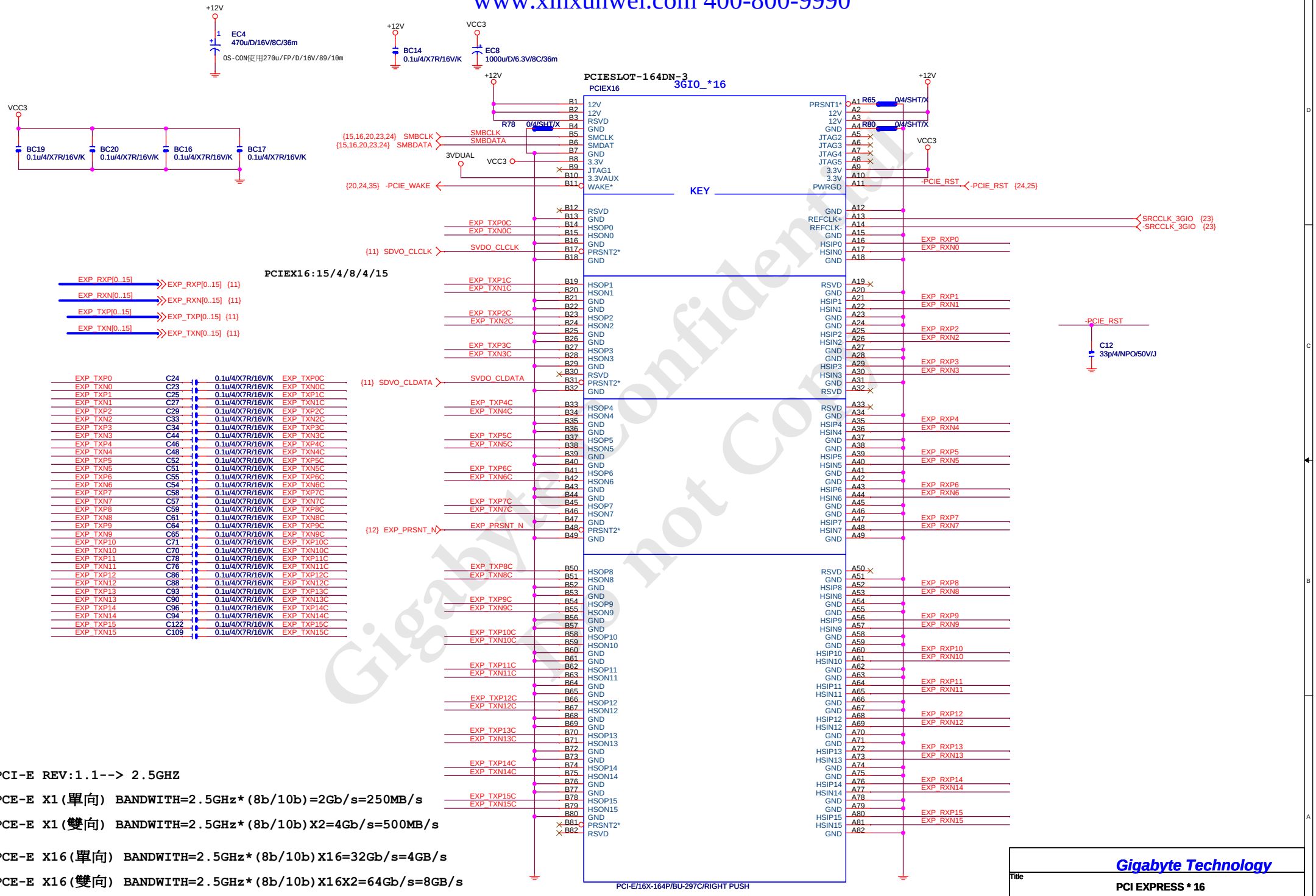

## DDRVTT Decouple






| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title: DDR3 TERMINATOR | | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 17 of 37 | | |




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

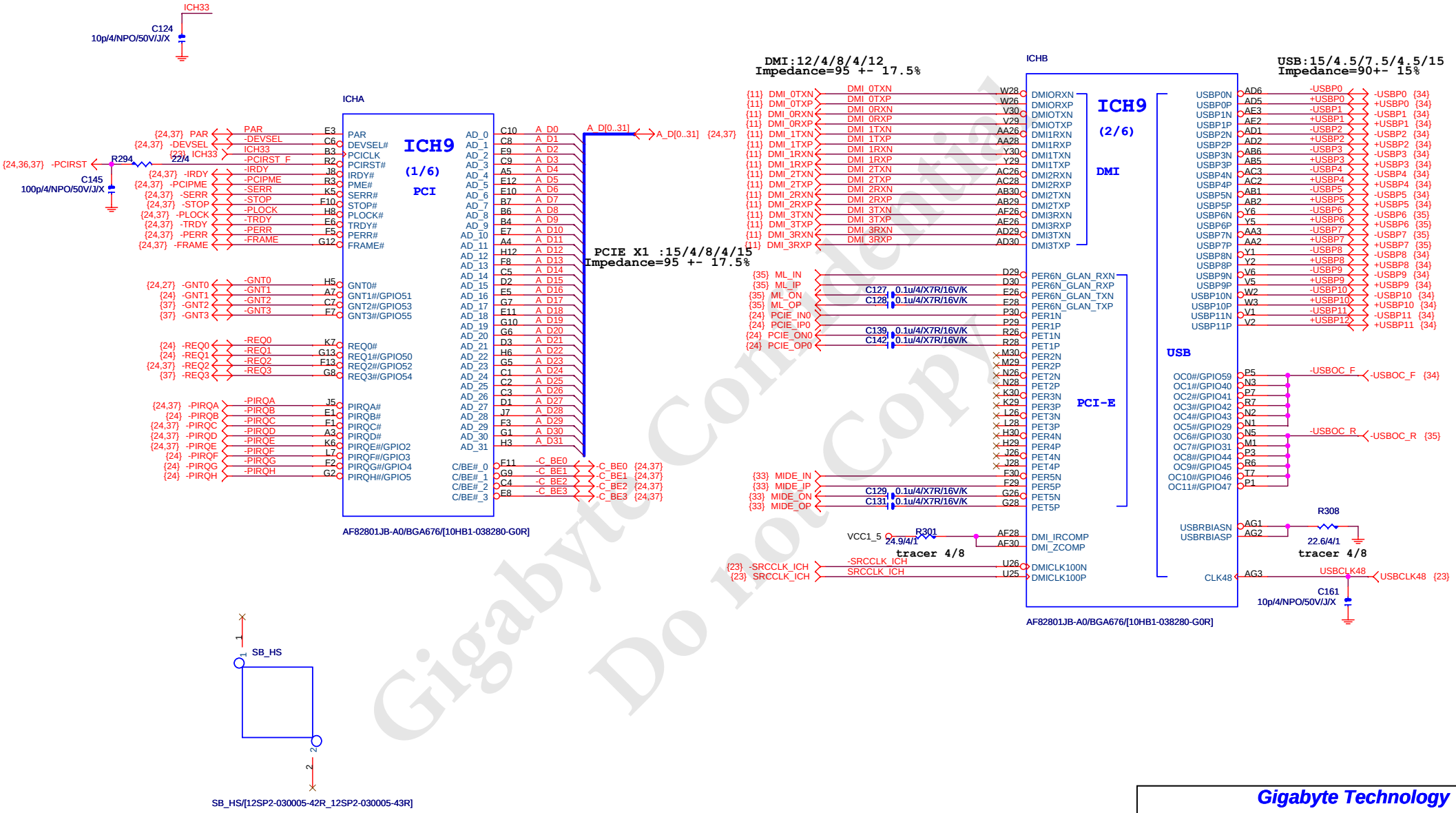
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

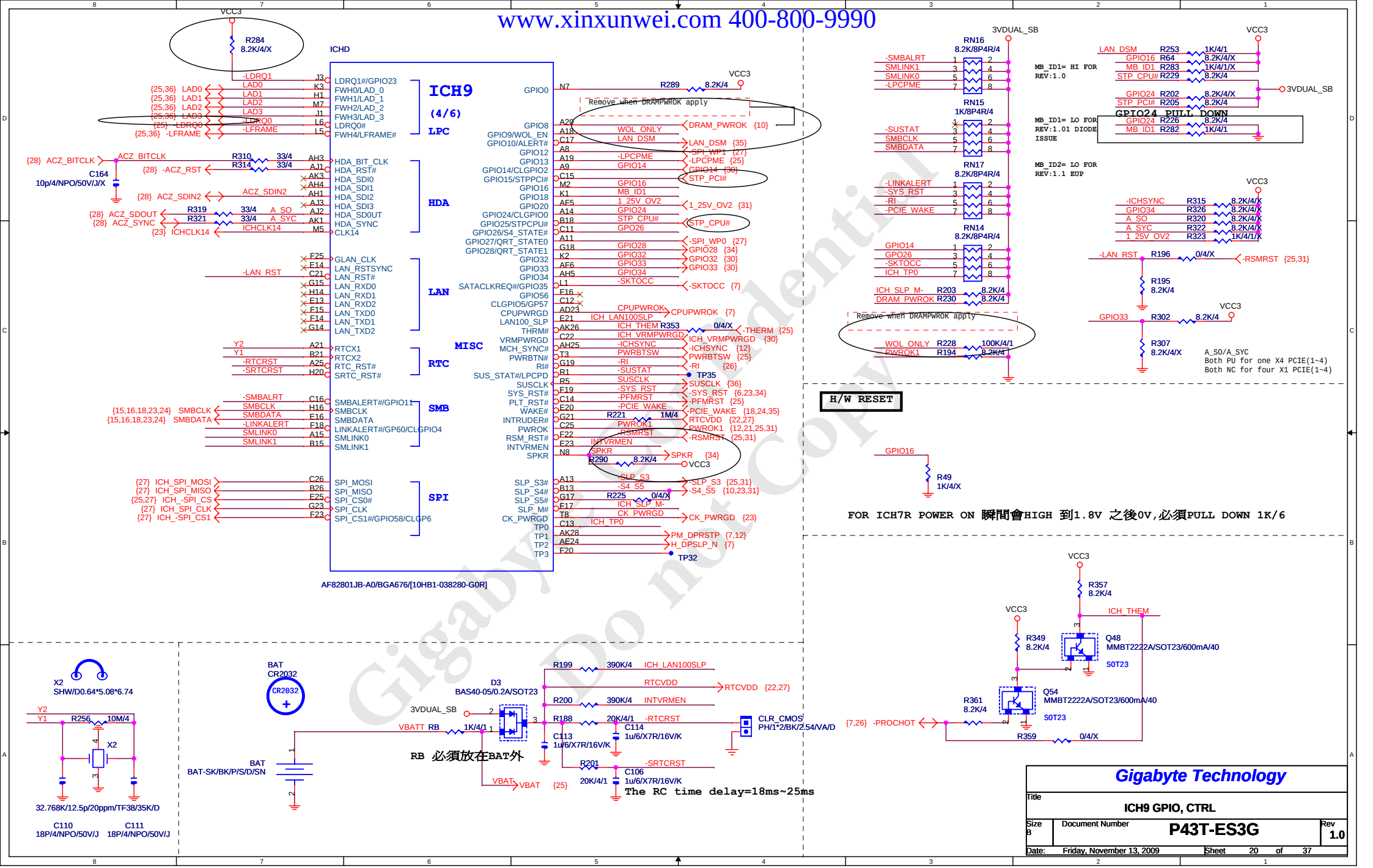


| | |
|---|---|
| Gigabyte Technology | |
| Title | PCI EXPRESS * 16 |
| Size: Custom | Document Number: P43T-ES3G |
| Rev | 1.0 |
| Date: Friday, November 13, 2009 | Sheet 18 of 37 |






| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: ICH9-PCI, DMI, LAN, USB | | |
| Size: B | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 19 of 37 | |






| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | ICH9 GPIO, CTRL | | |
| Size B | Document Number P43T-ES3G | | Rev 1.0 |
| Date: Friday, November 13, 2009 | Sheet 20 of 37 | | |

CL_VREF:4/10
0.405V

VCC1_5
R257 24.9/6/1
ICHC

ICH9 (3/6)

VCC3
R197 3.24K/4/1
R206 453/4/1
C95 0.1u/4/X7R/16V/K

{12} CL_CLK → CL_CLK → A29 GLAN_COMPO
B29 GLAN_COMPI
{12} CL_DATA → CL_DATA → G22 CL_CLK0
TP29 → C18 TP5
TP31 → H21 CL_DATA0
E19 TP4
R254 0/4/X S_VREF_ICH → C27 CL_VREF0
{12,20,25,31} PWROK1 → A16 TP6
T6 CLPWROK
TP30 → B16 TP7
{12} -CL_RST → -CL_RST → G20 CL_RST0#

{31} ICH_FAN_PWM0 → ICH_FAN_PWM0 → AJ21 PWM0
{31} ICH_FAN_PWM1 → ICH_FAN_PWM1 → AJ22 PWM1
{31} ICH_FAN_PWM2 → ICH_FAN_PWM2 → AK22 PWM2

{31} ICH_FAN_TACH0 → ICH_FAN_TACH0 → AH21 GPIO17/TACH0
{31} ICH_FAN_TACH1 → ICH_FAN_TACH1 → AK21 GPIO1/TACH1
ICH_FAN_TACH2 → ICH_FAN_TACH2 → AH22 GPIO6/TACH2
ICH_FAN_TACH3 → AK23 GPIO7/TACH3

SATA

{25} SST_IO → R255 0/4/SHT/X C19 → SST

{31} VTT_GMCH_UV1 → AJ24 GPIO22/SCLOCK
{31} VTT_GMCH_UV2 → AK24 GPIO38/SLOAD
R329 8.2K/4/X MB_ID2 → AH23 GPIO39/SDATAOUT0
VCC3 {30} PSI_CTL → AD20 GPIO48/SDATAOUT1
R335 6.2K/4/X → AJ25 GPIO49
R332 0/4/X

GPIO49/DMI Termination Voltage
:LOW FOR DESKTOP

VCC3
MB_ID2 R650 1K/4/1

GPIO48 : Lo For Media BIOS
Hi For Disty BIOS

SATA0RXN AK17 SATA0RXN
SATA0RXP AJ17 SATA0RXP
SATA0TXN AK19 SATA0TXN
SATA0TXP AJ19 SATA0TXP
SATA1RXN AJ15 SATA1RXN
SATA1RXP AK15 SATA1RXP
SATA1TXN AH16 SATA1TXN
SATA1TXP AF16 SATA1TXP
SATA2RXN AJ13 SATA2RXN
SATA2RXP AK13 SATA2RXP
SATA2TXN AH14 SATA2TXN
SATA2TXP AF14 SATA2TXP
SATA3RXN AJ11 SATA3RXN
SATA3RXP AK11 SATA3RXP
SATA3TXN AF12 SATA3TXN
SATA3TXP AH12 SATA3TXP
SATA4RXN AJ9 SATA4RXN
SATA4RXP AK9 SATA4RXP
SATA4TXN AF10 SATA4TXN
SATA4TXP AH9 SATA4TXP
SATA5RXN AJ7 SATA5RXN
SATA5RXP AK7 SATA5RXP
SATA5TXN AF8 SATA5TXN
SATA5TXP AH7 SATA5TXP
SATACLKN AF18 -SRCCLK_SATA → -SRCCLK_SATA {23}
SATACLKP AF19 SRCCLK_SATA → SRCCLK_SATA {23}

ICH9R

SATA:15/4/8/4/15
Impedance=95 +- 17.5%

SATALED# AE7 -SATALED → -SATALED {34}
SATARBIASN AK6 R327 24.9/4/1
SATABIASP AJ6

SATARBIASN=4MIL

GPIO21/SATA0GP AK25 VTT_GMCH_OV1 {31}
GPIO19/SATA1GP AE20 VTT_GMCH_OV2 {31}
GPIO36/SATA2GP AE21 DDR18V_OV3 → DDR18V_OV3 {31}
GPIO37/SATA3GP AE22 DDR18V_OV2 → DDR18V_OV2 {31}
SATA4GP AF22 SATA4GP
SATA5GP AD21 SATA5GP

HOST

A20GATE P8 A20GATE → A20GATE {25}
A20M# AJ28 -A20M → -A20M {7}

IGNNE# AC22 -IGNNE → -IGNNE {7}
INIT3_3V# M3 -FWHINIT → TP34
INIT# AE23 -HINIT → -HINIT {5}
INTR AH27 INTR → INTR {7}
FERR# AJ27 -FERR → -FERR {7}
NMI AF24 NMI → NMI {7}
RCIN# L3 -KBRST → -KBRST {25}
SERIRQ N6 SERIRQ → SERIRQ {25,36}
SMI# AH26 -SMI → -SMI {7}
STPCLK# AJ29 -STPCLK → -STPCLK {7}
THRMTRIP# AD24 -THRMTRIP → -THRMTRIP {7}
PECI AC23 SB_PECI → PECI → PECI {7,25}
R364 0/4/X

AF82801JB-A0/BGA676/[10HB1-038280-G0R]

5VSB
R366 8.2K/4
R365 1K/4/1
{25} PECI_CTL
PECI
Q59 2N7002/SOT23/25pF/5
SB_PECI

3VDUAL_SB
R204 3.24K/4/1
S_VREF_ICH
R227 453/4/1

ICH10 remove after verify

Can't SWAP PIN

VCC3
RN26 8.2K/8P4R/4
{25,36} SERIRQ → SERIRQ
-KBRST
A20GATE
RN35 1K/8P4R/4
VTT_GMCH_OV1
SATA4GP
VTT_GMCH_OV2
SATA5GP
ICH_FAN_TACH0 R333 8.2K/4/X

DDR18V_OV3 R328 8.2K/4
DDR18V_OV2 R334 8.2K/4
VTT_GMCH_UV1 R331 8.2K/4
VTT_GMCH_UV2 R330 8.2K/4

The ICH8 integrated GbE LAN test mode is activated any time the ICH8 GPIO39 signal is not at a low logic level.

Workaround
Under investigation. Possible workaround is to use a weak pulldown resistor on GPIO39 to ensure signal is always low

SATA:15/4/8/4/15
Impedance=95 +- 17.5%

SATA2_0
SATA0TXP 0.01u/4/X7R/25V/K C233 SATA0TXPC
SATA0TXN 0.01u/4/X7R/25V/K C230 SATA0TXNC
SATA0RXN 0.01u/4/X7R/25V/K C227 SATA0RXNC
SATA0RXP 0.01u/4/X7R/25V/K C224 SATA0RXPC
GND A+ A- GND B- B+ GND
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_1
GND B+ B- GND A- A+ GND
SATA1RXPC C208 0.01u/4/X7R/25V/K SATA1RXP
SATA1RXNC C209 0.01u/4/X7R/25V/K SATA1RXN
SATA1TXNC C214 0.01u/4/X7R/25V/K SATA1TXN
SATA1TXPC C218 0.01u/4/X7R/25V/K SATA1TXP
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_4
SATA4TXP 0.01u/4/X7R/25V/K C188 SATA4TXPC
SATA4TXN 0.01u/4/X7R/25V/K C186 SATA4TXNC
SATA4RXN 0.01u/4/X7R/25V/K C183 SATA4RXNC
SATA4RXP 0.01u/4/X7R/25V/K C181 SATA4RXPC
GND A+ A- GND B- B+ GND
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_5
GND B+ B- GND A- A+ GND
SATA5RXPC C190 0.01u/4/X7R/25V/K SATA5RXP
SATA5RXNC C193 0.01u/4/X7R/25V/K SATA5RXN
SATA5TXNC C194 0.01u/4/X7R/25V/K SATA5TXN
SATA5TXPC C195 0.01u/4/X7R/25V/K SATA5TXP
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_2
SATA2TXP 0.01u/4/X7R/25V/K C229 SATA2TXPC
SATA2TXN 0.01u/4/X7R/25V/K C226 SATA2TXNC
SATA2RXN 0.01u/4/X7R/25V/K C221 SATA2RXNC
SATA2RXP 0.01u/4/X7R/25V/K C217 SATA2RXPC
GND A+ A- GND B- B+ GND
SATA2/7/BU/H/OP/VA/D/1/B

SATA2_3
GND B+ B- GND A- A+ GND
SATA3RXPC C184 0.01u/4/X7R/25V/K SATA3RXP
SATA3RXNC C187 0.01u/4/X7R/25V/K SATA3RXN
SATA3TXNC C189 0.01u/4/X7R/25V/K SATA3TXN
SATA3TXPC C191 0.01u/4/X7R/25V/K SATA3TXP
SATA2/7/BU/H/OP/VA/D/1/B

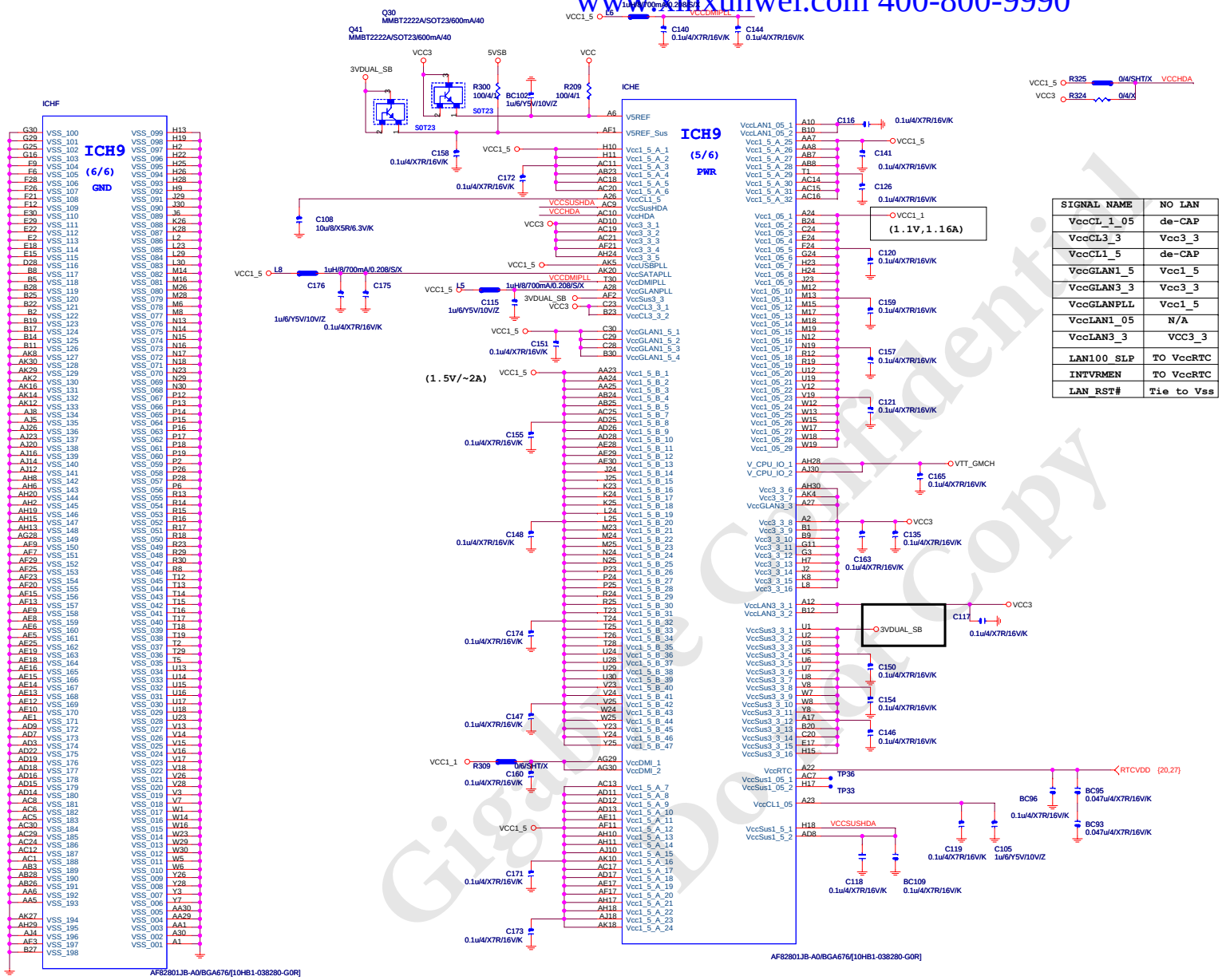


Gigabyte Technology

Title: ICH9- SATA, FAN CTRL

Size: Custom | Document Number: P43T-ES3G | Rev: 1.0

Date: Friday, November 13, 2009 | Sheet 21 of 37




| SIGNAL NAME | NO LAN |
|---|---|
| VccCL_1_05 | de-CAP |
| VccCL3_3 | Vcc3_3 |
| VccCL1_5 | de-CAP |
| VccGLAN1_5 | Vcc1_5 |
| VccGLAN3_3 | Vcc3_3 |
| VccGLANPLL | Vcc1_5 |
| VccLAN1_05 | N/A |
| VccLAN3_3 | VCC3_3 |
| LAN100_SLP | TO VccRTC |
| INTVRMEN | TO VccRTC |
| LAN_RST# | Tie to Vss |



| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: ICH9-PWR & GND | | |
| Size: C | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 22 of 37 | |

# CLK GEN CK505

U15

RTM875T-587-VC-GRT/S

50歐姆:[18/4/10/4/18]

50歐姆:[18/4/10/4/18]

50歐姆:[18/4/10/4/18]

50歐姆:[4/10]

50歐姆:[4/10]

50歐姆:[4/10]

GSEL=1,96Mhz from 14/15,SATACLK from 17/18
GSEL=0,SATACLK from 14/15,PCIECLK from 17/18

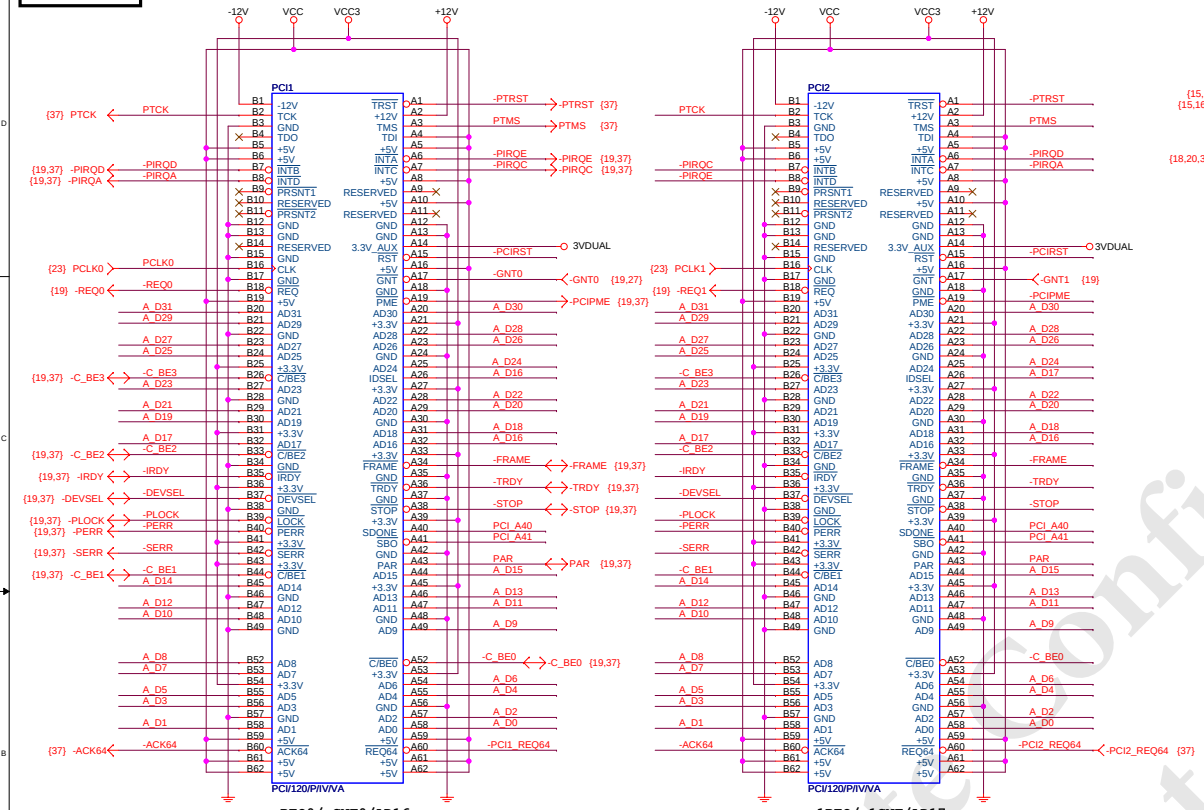
GSEL=1,96Mhz from 14/15,SATACLK from 17/18
GSEL=0,SATACLK from 14/15,PCIECLK from 17/18



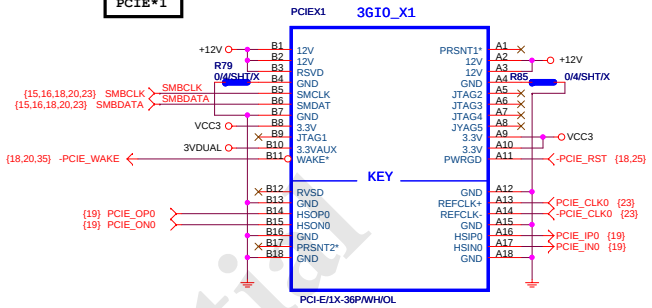
| | |
|---|---|
| Title | CK505 CLK GEN |
| Size | Custom |
| Document Number | P43T-ES3G |
| Rev | 1.0 |
| Date: | Monday, November 16, 2009 |
| Sheet | 23 of 37 |

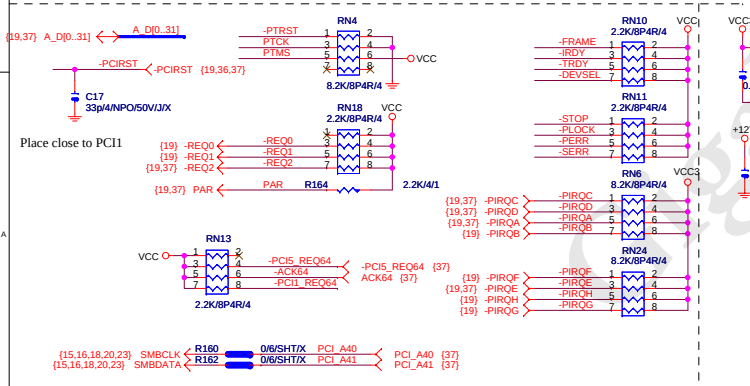
Gigabyte Technology

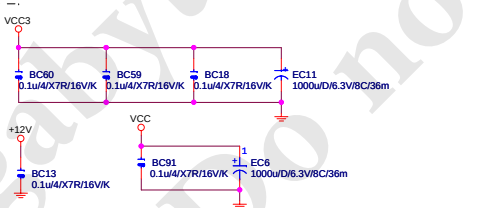
PCI1,2 SLOT




PCIE*1



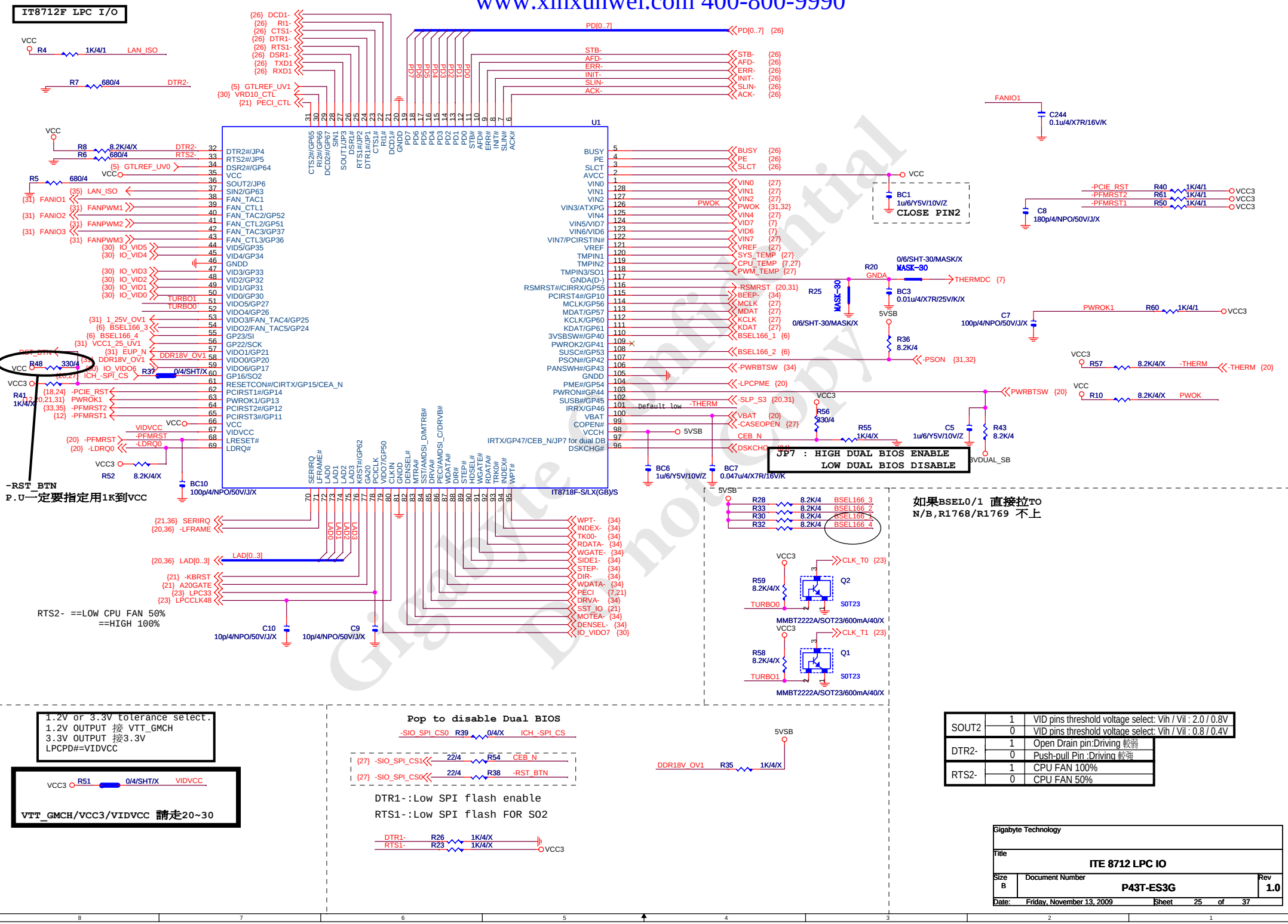






| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | PCI SLOT 1, 2/PCIEX1 | | |
| Size: Custom | Document Number: P43T-ES3G | | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 24 of 37 | | |

# IT8712F LPC I/O




| | | |
|---|---|---|
| SOUT2 | 1 | VID pins threshold voltage select: Vih / Vil : 2.0 / 0.8V |
| | 0 | VID pins threshold voltage select: Vih / Vil : 0.8 / 0.4V |
| DTR2- | 1 | Open Drain pin:Driving 較弱 |
| | 0 | Push-pull Pin :Driving 較強 |
| RTS2- | 1 | CPU FAN 100% |
| | 0 | CPU FAN 50% |

| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | ITE 8712 LPC IO | | |
| Size B | Document Number P43T-ES3G | | Rev 1.0 |
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COMA

AU1
{25} RI1- 19 RY1 RA1 2 NRIA-
{25} CTS1- 18 RY2 RA2 3 NCTSA-
{25} DSR1- 17 RY3 RA3 4 NDSRA-
{25} RTS1- 16 DA1 DY1 5 NRTSA-
{25} DTR1- 15 DA2 DY2 6 NDTRA-
{25} RXD1 14 RY4 RA4 7 NSINA
{25} TXD1 13 DA3 DY3 8 NSOUTA
{25} DCD1- 12 RY5 RA5 9 NDCDA-
11 GND 5V 20
10 -12V 12V 1
-12V VCC +12V
ABC3 0.1u/4/X7R/16V/K
GD75232/TSSOP20
ABC1 0.1u/4/X7R/16V/K
ABC2 0.1u/4/X7R/16V/K

ACN2
NDCDA- 7 8
NSOUTA 5 6
NSINA 3 4
NDTRA- 1 2
180p/8P4C/6/NPO/50V/K

ACN1
NRTSA- 7 8
NDSRA- 5 6
NCTSA- 3 4
NRIA- 1 2
180p/8P4C/6/NPO/50V/K

COMA
NDCDA- 1
NDSRA- 6
NSINA 2
NRTSA- 7
NSOUTA 3
NCTSA- 8
NDTRA- 4
NRIA- 9
5
10
11
COM/GE/SC-6mm/RA/1/D

COM RI

REV:0.1 驗證

Q5
MMBT2222A/SOT23/600mA/40
-RI -RI {20}
NRIA- D2 R71 75K/4/1
CD4148WP/1206/300mA
S0T23
R67 8.2K/4

LPT PORT

PRN6
{25} STB- STB- 1 2 LPT1
{25} AFD- AFD- 3 4 LPT14
{25} INIT- INIT- 5 6 LPT16
{25} SLIN- SLIN- 7 8 LPT17
33/8P4R/4

PRN4
PD1 1 2 LPT3
PD2 3 4 LPT4
PD3 5 6 LPT5
PD0 7 8 LPT2
33/8P4R/4

{25} ERR- ERR-
{25} ACK- ACK-
{25} BUSY BUSY
{25} PE PE
{25} SLCT SLCT
{25} PD[0..7] PD[0..7]

PRN2
PD4 1 2 LPT6
PD6 3 4 LPT8
PD7 5 6 LPT9
PD5 7 8 LPT7
33/8P4R/4

PD1
CD4148WP/1206/300mA
VCC
PBC1 0.1u/4/X7R/16V/K
PC1 1u/6/Y5V/10V/Z/X

PRN3 2.2K/8P4R/4
PRN1 2.2K/8P4R/4
PRN5 2.2K/8P4R/4
PRN7 2.2K/8P4R/4
PR1 2.2K/4/1
LPT17 LPT3 LPT4 LPT5 LPT6 LPT8 LPT9 ACK-
LPT2 LPT1 ERR- LPT16 LPT7 BUSY PE SLCT
LPT14

LPT5 LPT4 LPT3 LPT17 → PCN5 180p/8P4C/6/NPO/50V/K/X
LPT6 LPT8 LPT9 ACK- → PCN6 180p/8P4C/6/NPO/50V/K/X
LPT2 LPT1 ERR- LPT16 → PCN3 180p/8P4C/6/NPO/50V/K/X
LPT7 BUSY PE SLCT → PCN4 180p/8P4C/6/NPO/50V/K/X
LPT14 → PC2 180p/4/NPO/50V/J/X

LPT
LPT1 1
LPT14 14
LPT2 2
ERR- 15
LPT3 3
LPT16 16
LPT4 4
LPT17 17
LPT5 5
LPT6 18
LPT7 6
LPT8 19
LPT9 7
ACK- 20
BUSY 8
PE 21
SLCT 9
22
10
23
11
24
12
25
13
LPT/PK/SC-6mm/RA/D

DYNAMIC CURRENT OC

+12V
{7} VCC_SENSE
{7} VSS_SENSE
DR76 5.1K/4/1
DR71 5.1K/4/1
DR75 5.1K/4/1
DU6A LM324DR/SO14
DR72 5.1K/4/1
DU6B LM324DR/SO14
DR74 453K/4/1
DR73 10K/4/1
DR77 10K/4/1
FB {30}
DU6C LM324DR/SO14
DR78 453K/4/1
CURRENT_OUT_V {27}

-PROHOT

asserted at 131 degree
deasserted at 116 degree

RS2 CLOSE CPU VR MOSFET

+12V
R383 10K/4/1
R369 1.47K/4/1
R378 37.4K/4/1
+12V
DU6D LM324DR/SO14
TSM_5
TSM_6
TSM_7
R379 0/4/X
VR_HOT {30}
-PROCHOT
-PROCHOT {7,20}
Q52 2N7002/SOT23/25pF/5
SOT23
-FORCEPR
-FORCEPR {7}
R? CLOSE Q32
Q56 2N7002/SOT23/25pF/5
SOT23
RS2 100K/1/4/S
R370 1K/4/1
C199 0.1u/4/X7R/16V/K/X
CLOSE PWM HOT MOSFET



Gigabyte Technology
Title
COM & LPT PORT
Size Custom
Document Number P43T-ES3G
Rev 1.0
Date: Friday, November 13, 2009
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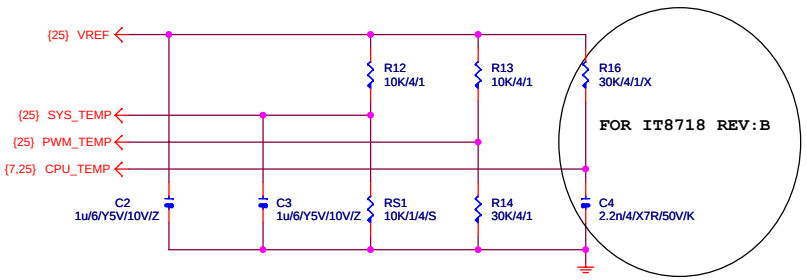
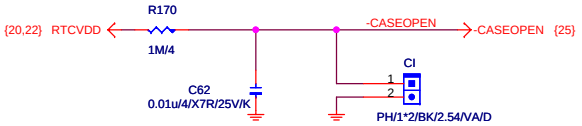
## TEMP H/W MONITOR

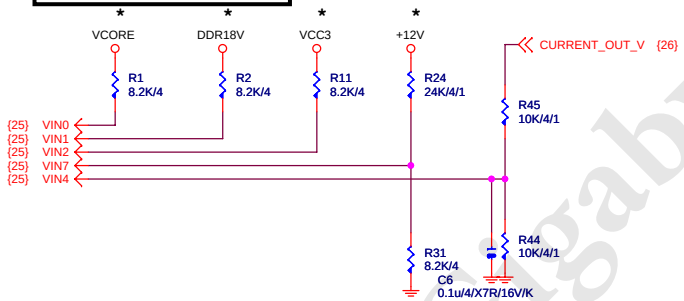



## CASE OPEN

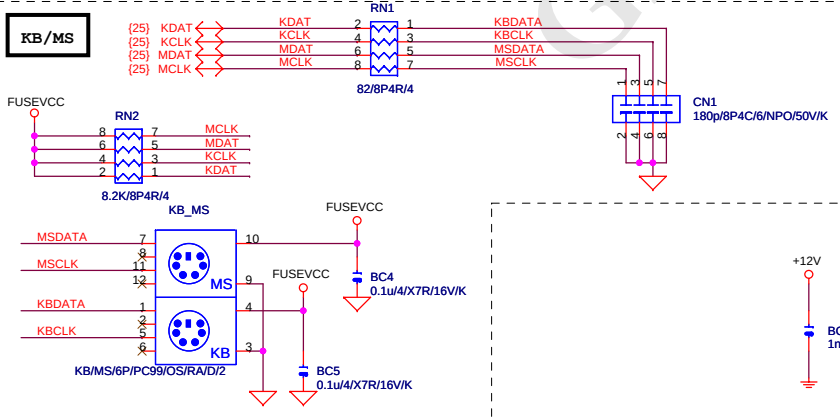



Case Open Circuits

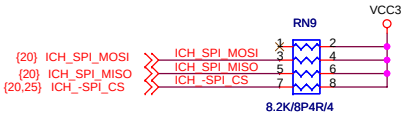
## VOLTAGE-- H/W MONITOR

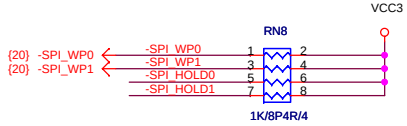



## KB/MS



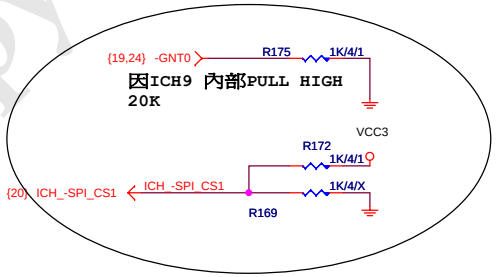


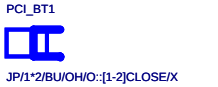


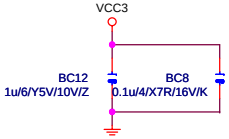



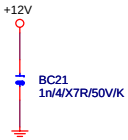


| BOOT DEVICE | GNT0 | CS1 |
|---|---|---|
| SPI | 0 | 1 |
| PCI | 1 | 0 |
| FWH | 1 | 1 |






Gigabyte Technology

Title: BIOS/HW-MONITOR/CI/KB/MS

Size: Custom | Document Number: P43T-ES3G | Rev: 1.0

Date: Friday, December 18, 2009 | Sheet 27 of 37

AZALIA CODEC

## ALC888/ALC888VC Colay

CR8 20K/4/1

CR2: 20K/4/0.1% @ALC889A
CR2: 20K/4/1% @ALC889A+/ALC888Vx

AVDD

CBC14 0.1u/4/X7R/16V/K

CR64 0/4/X VOCR {29}

For poor front panel compatibility

CR60 47/4/1 FAUDIO_JD {29}

CBC41 1n/4/X7R/50V/K

Can Support Amp Out

For Power On-Off POP Noise

VCC3 CR59 2.2/H/6

CBC36 22u/8/X5R/6.3V/M

{29} SPDIF

{29} SPDIF_1

CR65 8.2K/4/X

CBC44 10u/8/X5R/6.3V/K/X

CR66 8.2K/4/X

CR67 0/4

FOR ALC887(888B):X; FOR ALC888:0

{20} ACZ_SDOUT
{20} ACZ_BITCLK

CR56 0/4

22p/4/NPO/50V/J/X CBC37

CR57 22/4

{20} ACZ_SDIN2

{20} ACZ_SYNC
{20} -ACZ_RST

VCC1_5 R47 0/4/SHT/X

VCC3 R46 0/4/X

CBC38 0.1u/4/X7R/16V/K

CBC39 0.1u/4/X7R/16V/K

CU1

ALC880/CMI9880

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| SPDIFO | SPDIF/EAPD | SURBACK-R/XTALSEL | SURBACK-L/JD0 GPIO0 | LFE | CEN | AVSS2 | SURR-R | JDREF (NC)/JD3 | SURR-L | AVDD2 | LINE1-VREFOR/VREFO3 | DVDD1 | GPIO0/XTALI | GPIO1/XTALO | DVS1 | SDATA_OUT | BIT_CLK | DVSS2 | SDATA-IN | DVDD2 | SYNC | RESET# | PC_BEEP |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 |
| SENSE A(JD1)/PHONE JD5 | LINE2-L/AUX-L | LINE2-R/AUX-R | MIC2-L/JD2 | MIC2-R/JD1 GPIO1 | CD_L | CD_GND | CD_R | MIC1-L/MIC1 | MIC1-R/MIC2 | LINE1-L | LINE1-R | FRONT-R | FRONT-L | SENSE B (JD2)/FMIC1 | DCVOL/VREFVOUT2 | MIC1-VREFO-R/FMIC2 | LINE2-VREFO/JD4 | MIC2-VREFO/AFILT2 | LINE1-VREFO-L/AFILT1 | MIC1-VREFO-L/VREFOUT | VREF | AVSS1 | AVDD1 |

ALC888-GR/S

FRONT-R → LINE_O_R {29}
FRONT-L → LINE_O_L {29}

CR61 8.2K/4/X AVDD

VODR → VODR {29}

LINE2-VREFO/JD4 → LINE2_VREFO {29}

MIC2-VREFO/AFILT2 → MIC2_VREFO {29}

CR68 0/4 VOCR → VOCR {29}

VOBR → VOBR {29}

AVDD

CBC11 10u/8/X5R/6.3V/K

CBC13 0.1u/4/X7R/16V/K

CR69 0/6/X 3VDUAL

CBC45 22u/8/X5R/6.3V/M/X

CD3 AZ2225-01L/SOD323/X

For ALC888-VD/ALC892

{29} FRONT_JD CR30 5.1K/4/1
{29} LINE1_JD CR29 10K/4/1
{29} MIC1_JD CR28 20K/4/1
{29} LINE2_L
{29} LINE2_R
{29} MIC2_L
{29} MIC2_R

Can Support Amp Out

CBC12 4.7u/6/X5R/6.3V/K LINE_IN_R {29}
CBC1 4.7u/6/X5R/6.3V/K LINE_IN_L {29}
CBC6 4.7u/6/X5R/6.3V/K MIC1_R {29}
CBC8 4.7u/6/X5R/6.3V/K MIC1_L {29}
CBC3 0.1u/4/X7R/16V/K CD_R {29}
CBC4 0.1u/4/X7R/16V/K CDGND {29}
CBC5 0.1u/4/X7R/16V/K CD_L {29}



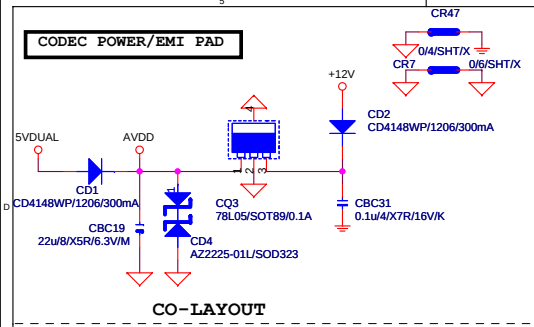
Gigabyte Technology

Title: ALC888

Size: Custom | Document Number: P43T-ES3G | Rev: 1.0

Date: Friday, November 13, 2009 | Sheet 28 of 37

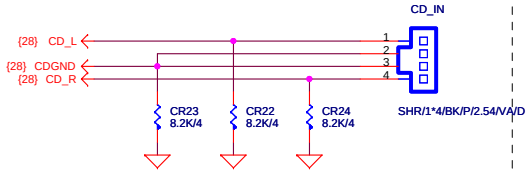
## CODEC POWER/EMI PAD

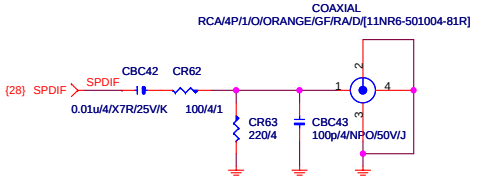



CO-LAYOUT

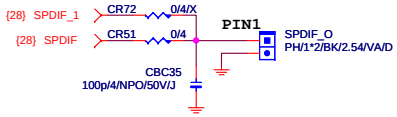
FOR EMI

## CD IN

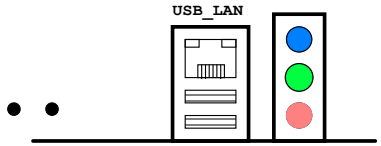


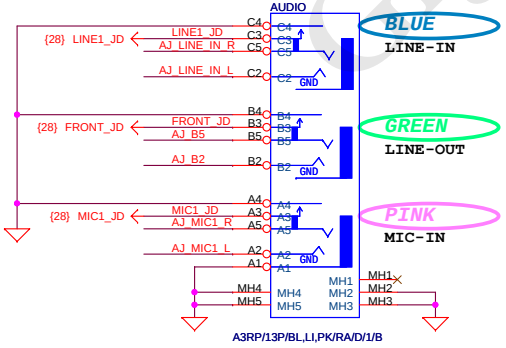




## SPDIF

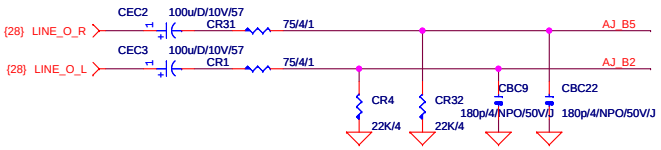



## AZALIA JACK

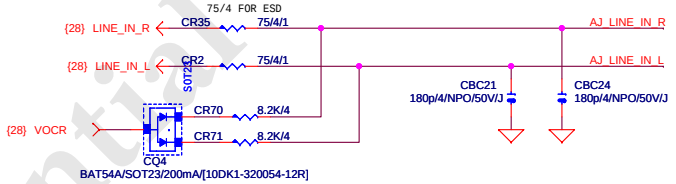


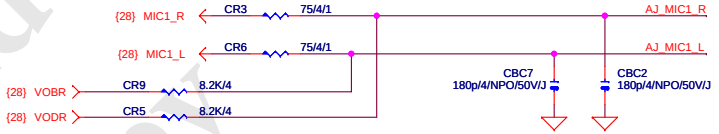

## LINE-OUT



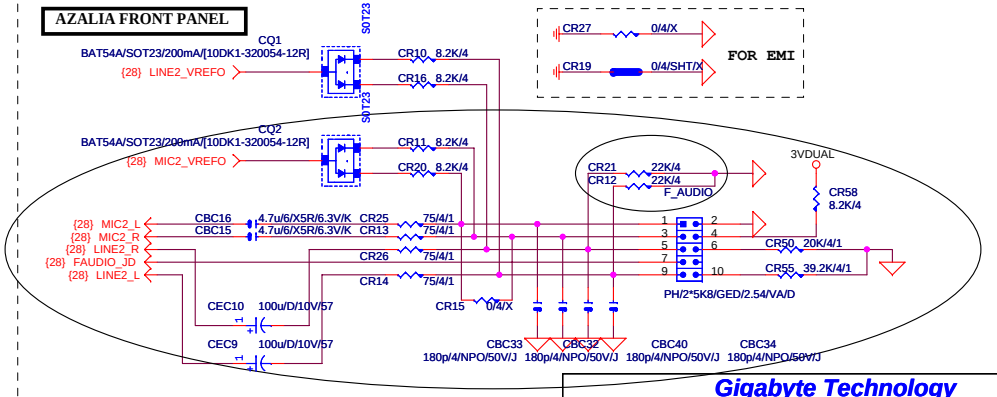

## LINE-IN




## MIC-IN

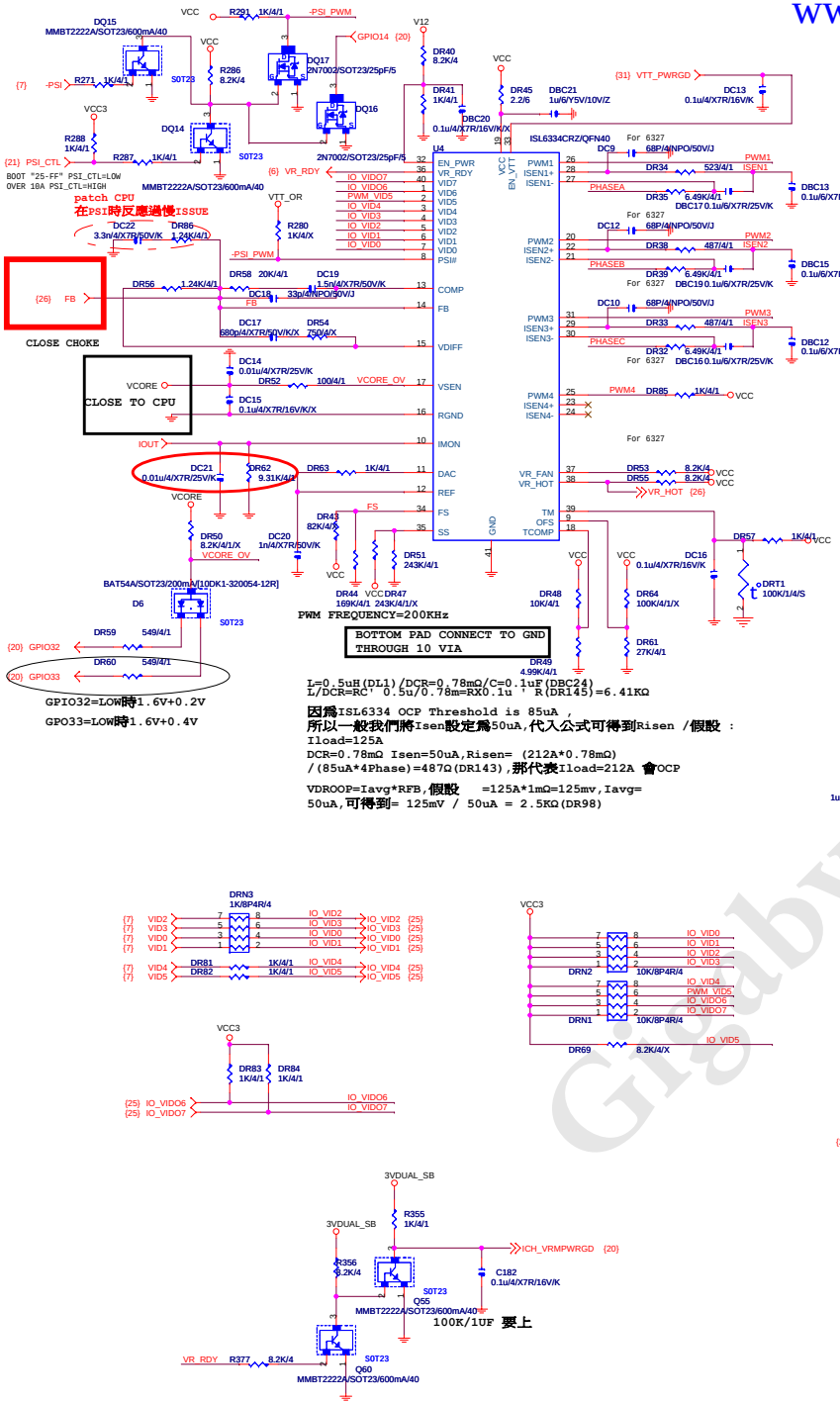


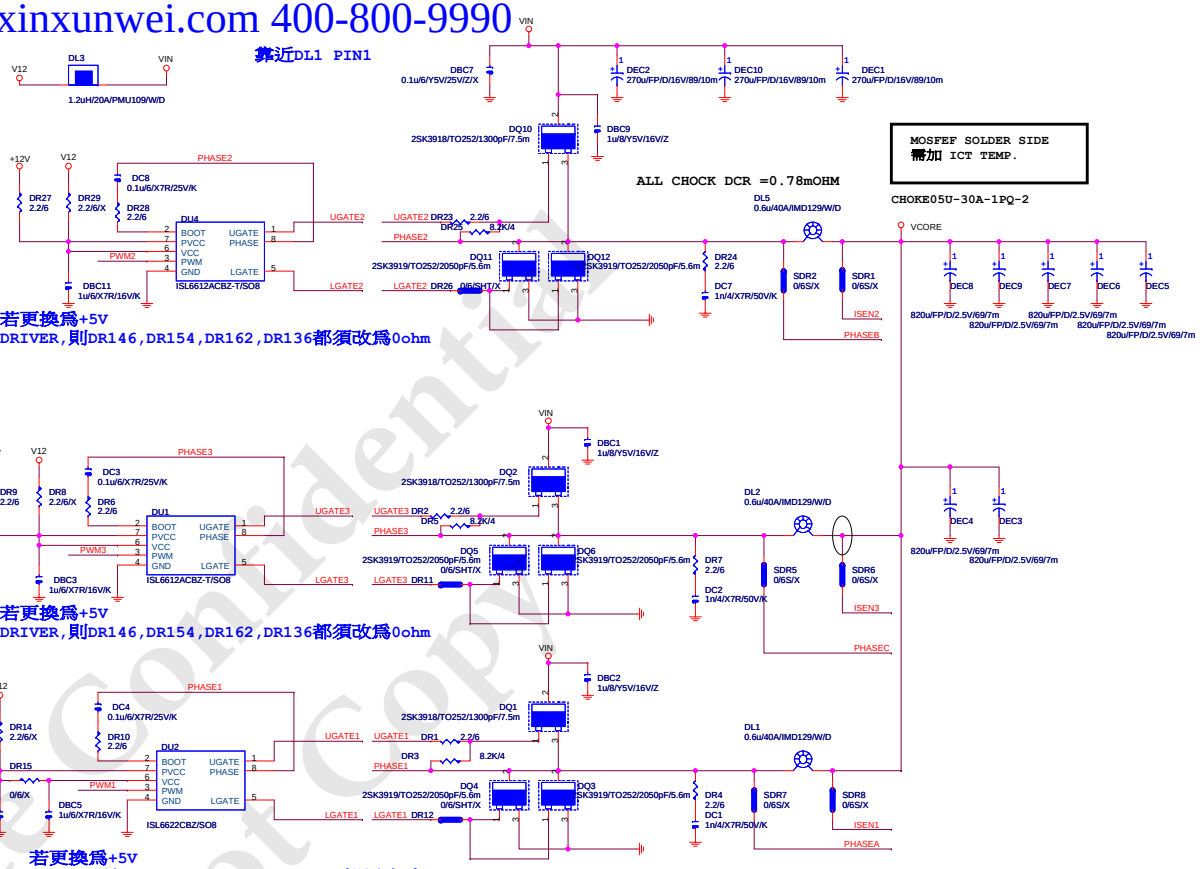

## AZALIA FRONT PANEL




Gigabyte Technology

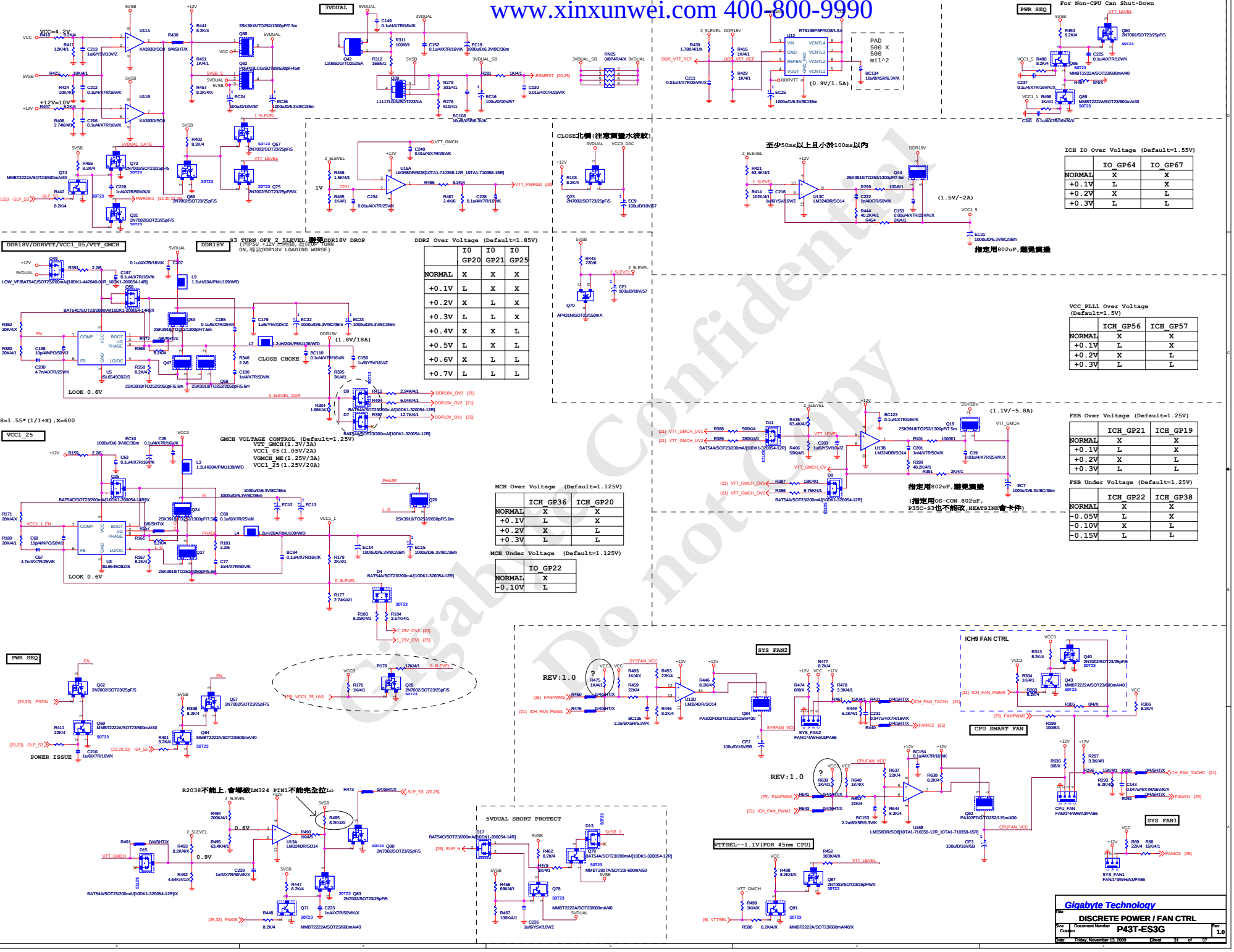
| | | |
|---|---|---|
| Title | AUDIO JACK | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 29 of 37 | |






| | | | |
|---|---|---|---|
| Gigabyte Technology | | | |
| Title | VRD 10.1/ ISL6556 | | |
| Size Custom | Document Number P43T-ES3G | | Rev 1.0 |
| Date: Friday, November 13, 2009 | Sheet 30 of 37 | | |






| Gigabyte Technology | | |
|---|---|---|
| Title | DISCRETE POWER / FAN CTRL | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
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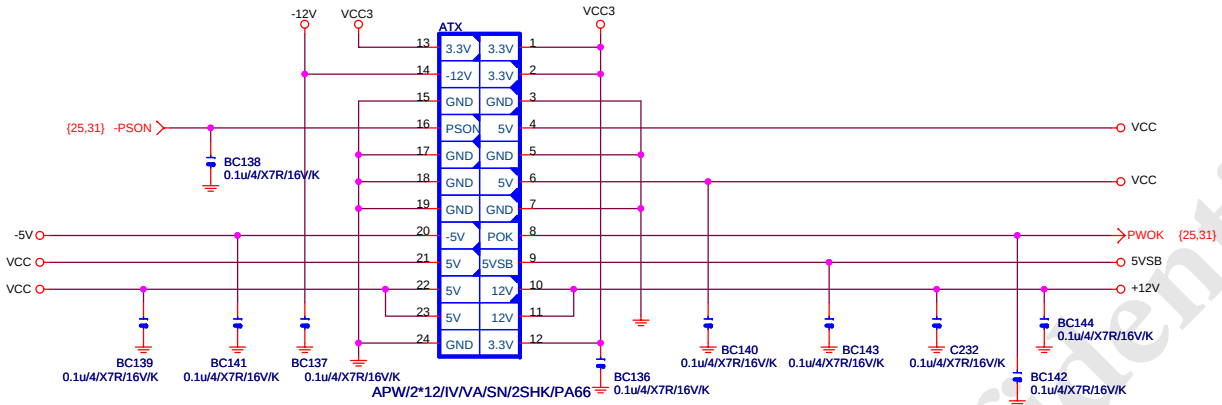
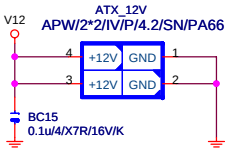
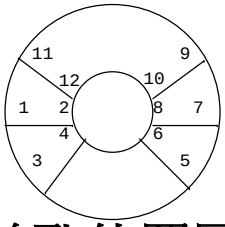
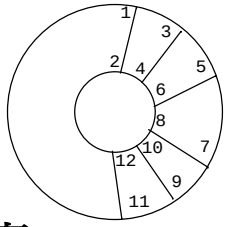
# ATX POWER CONNECTOR

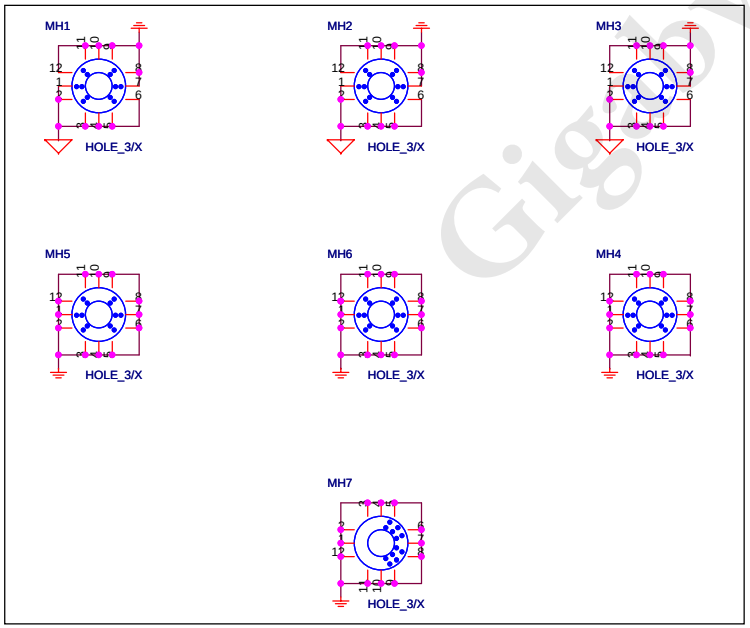


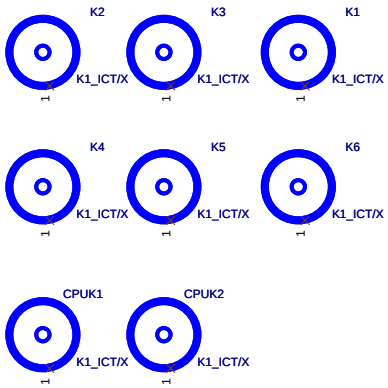



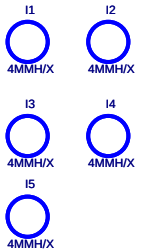




螺絲孔位置圖 (注意Footprint不同)



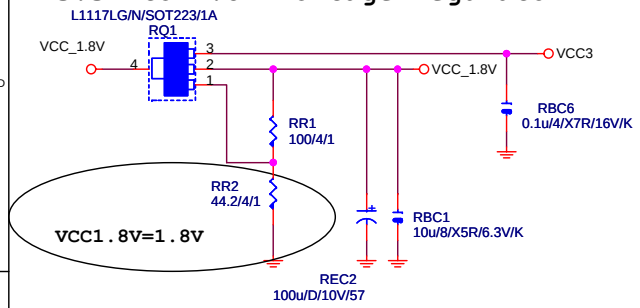



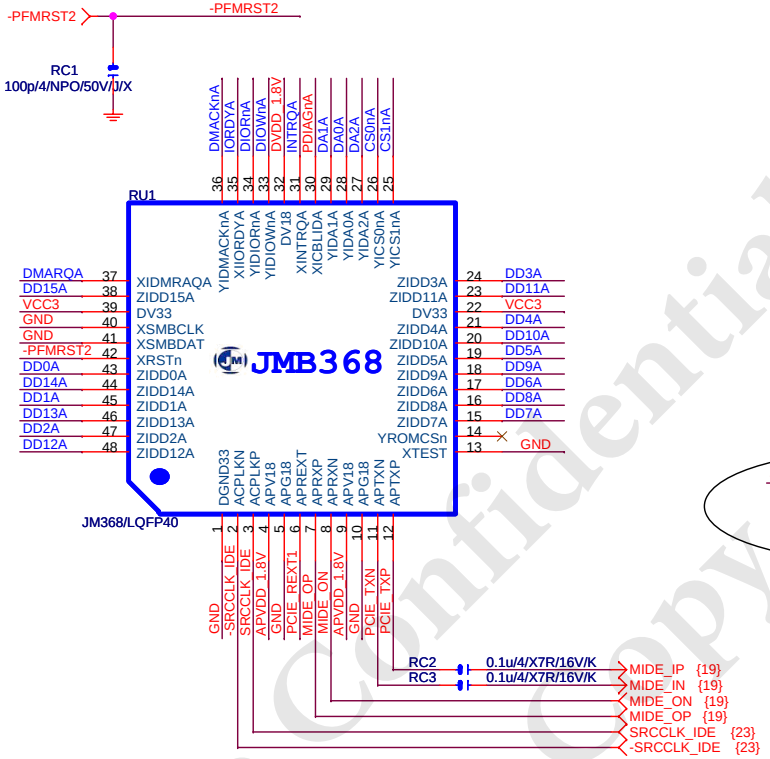



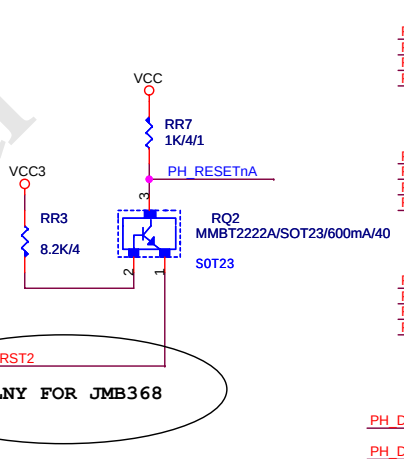


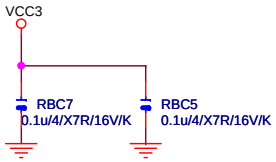

| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: ATX POWER CONNECTOR | | |
| Size: B | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 32 of 37 | |

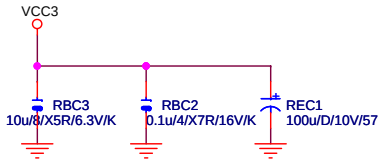
# 3.3V to 1.8V Voltage Regulator

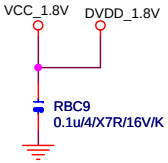


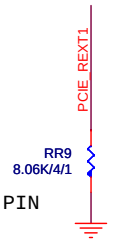



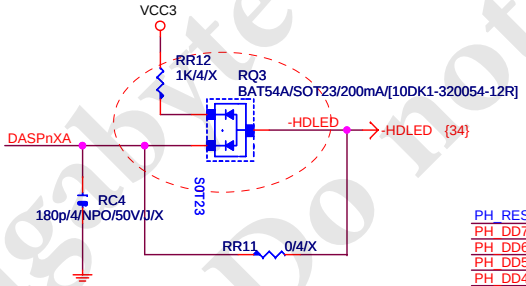



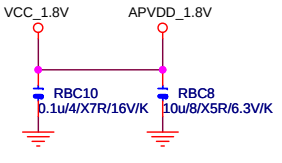



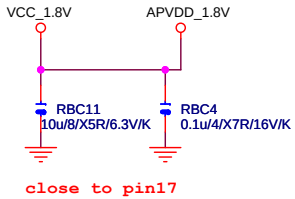



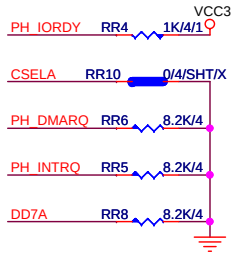



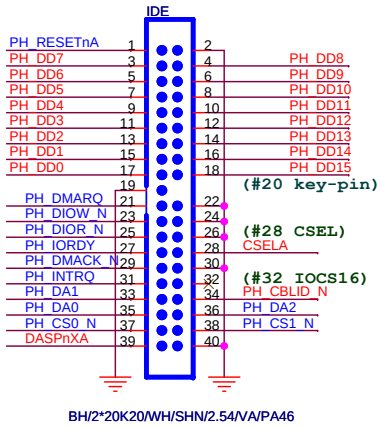




## IDE Connector




BH/2*20K20/WH/SHN/2.54/VA/PA46



| | |
|---|---|
| PH_DD7 | DD7A |
| PH_DD8 | DD8A |
| PH_DD6 | DD6A |
| PH_DD9 | DD9A |
| PH_DD5 | DD5A |
| PH_DD4 | DD4A |
| PH_DD10 | DD10A |
| PH_DD11 | DD11A |
| PH_DD3 | DD3A |
| PH_DD12 | DD12A |
| PH_DD2 | DD2A |
| PH_DD13 | DD13A |
| PH_DD1 | DD1A |
| PH_DD0 | DD0A |
| PH_DD14 | DD14A |
| PH_DD15 | DD15A |
| PH_DIOW_N | DIOWnA |
| PH_DIOR_N | DIORnA |
| PH_DMACK_N | DMACKnA |
| PH_DA1 | DA1A |
| PH_DA0 | DA0A |
| PH_CS0_N | CS0nA |
| PH_DA2 | DA2A |
| PH_CS1_N | CS1nA |
| PH_IORDY | IORDYA |
| PH_DMARQ | DMARQA |
| PH_INTRQ | INTRQA |
| PH_CBLID_N | PDIAGnA |

**Gigabyte Technology**

| | | |
|---|---|---|
| Title: JMR368 | | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
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## FRONT USB1

5VDUAL
SMD1812P160/8V
F5
EC18
1000u/D/6.3V/8C/36m
F_USB1
BC103
0.1u/4/X7R/16V/K
BH/2*5K9/BU/ON/2.54/VA/D/GF

{19} +USBP0 +USBP0
{19} -USBP0 -USBP0
{19} +USBP1 +USBP1
{19} -USBP1 -USBP1

-USBP0 -USBP1
+USBP0 +USBP1

## FRONT USB2

5VDUAL
F4
SMD1812P160/8V
F_USB2
BC90
0.1u/4/X7R/16V/K
BH/2*5K9/BU/ON/2.54/VA/D/GF

{19} +USBP2 +USBP2
{19} -USBP2 -USBP2
{19} +USBP3 +USBP3
{19} -USBP3 -USBP3

-USBP2 -USBP3
+USBP2 +USBP3

## FRONT USB3

## FRONT USB OC

SOT23
D5
BAT54A/SOT23/200mA/[10DK1-320054-12R]
5VDUAL
R270 150K/4
-USBOC_F -USBOC_F {19}
R273 270K/4
D16
SOT23
BAT54A/SOT23/200mA/[10DK1-320054-12R]
5VDUAL
F1
SMD1812P160/8V
F_USB3
BC152
0.1u/4/X7R/16V/K
BH/2*5K9/BU/ON/2.54/VA/D/GF

{19} -USBP4 -USBP4
{19} +USBP4 +USBP4
-USBP5 {19}
+USBP5 {19}
-USBP5
+USBP5

## FLOPPY

VCC
RN3
470/8P4R/4
R53
470/4/1
FDD
BH/2*17K5/WH/SHN/2.54/VA/PA46

DENSEL DENSEL- {25}
INDEX- INDEX- {25}
MOTEA- MOTEA- {25}
DRVA- DRVA- {25}
DIR- DIR- {25}
STEP- STEP- {25}
WDATA- WDATA- {25}
WGATE- WGATE- {25}
TK00- TK00- {25}
WPT- WPT- {25}
RDATA- RDATA- {25}
SIDE1- SIDE1- {25}
DSKCHG- DSKCHG- {25}

## SATA LED

VCC3
R374 1K/4/1
-HDLED
C192 180p/4/NPO/50V/J/X
VCC3
R373 1K/4/1
R367 8.2K/4
{21} -SATALED -SATALED
S0T23
S0T23
Q63 MMBT2222A/SOT23/600mA/40
Q61 MMBT2222A/SOT23/600mA/40

VCC
D14 CD4148WP/1206/300mA
R425 75/6/1
SPK-
VCC
R481 1K/4/1 Q77 MMBT2222A/SOT23/600mA/40
Q76 MMBT2222A/SOT23/600mA/40
R418 75/6/1
Q85 MMBT2222A/SOT23/600mA/40
R482 8.2K/4
R480 1K/4/1
{25} BEEP- BEEP-
S0T23
S0T23
SPKR SPKR {20}

## INTEL FRONT PANEL

PWR_LED
MPD+
PH/1*3/BK/2.54/VA/D
3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL

VCC
R363 330/6
BC128 0.01u/4/X7R/25V/K/X
F_PANEL
HD+
{33} -HDLED -HDLED
5VSB
R396 8.2K/4/X
R400 0/4/SHT/X
{6,20,23} -SYS_RST
Q72
BAT54C/SOT23/200mA/[10DK1-200054-14R]/X
BH/2*10K10,11,12,13,15,17,19/BK/2.54/VA/PA/[]11NH3-000210-B1R_11NH3-000210-B2R

HD+ MSG/PD+ MPD+
HD- MSG/PD-
GND PW+
RESET PW-
RSV
GD+ SP+ VCC
GD- NC
GN+ NC
GN- SP- SPK-

VCC
R360 330/6
MPD+
Q51 MMBT2222A/SOT23/600mA/40
S0T23
R352 1K/4/1
GPIO28 {20}
5VSB
R385 8.2K/4
R382 33/4
-PWRBTSW -PWRBTSW {25}
C196 0.01u/4/X7R/25V/K
Q65 BAV99/SOT23/300mA
5VSB

## REAR USB

FUSEVCC
R_USB
UP
MID 1
MID 2
DOWN
USB/A/BK/OS/RA/D/4/[11NR6-304016-12R]

{19} -USBP8
{19} +USBP8
{19} -USBP9
{19} +USBP9
{19} -USBP10
{19} +USBP10
{19} -USBP11
{19} +USBP11

## USB POWER

5VDUAL
F6
SMD1812P160/8V
F2
SMD1812P160/8V
320MILS
FUSEVCC
BC2
0.1u/4/X7R/16V/K
EC1
1000u/D/6.3V/8C/36m



Gigabyte Technology

Title: FP,USB,USB PWR,FDD,BZ

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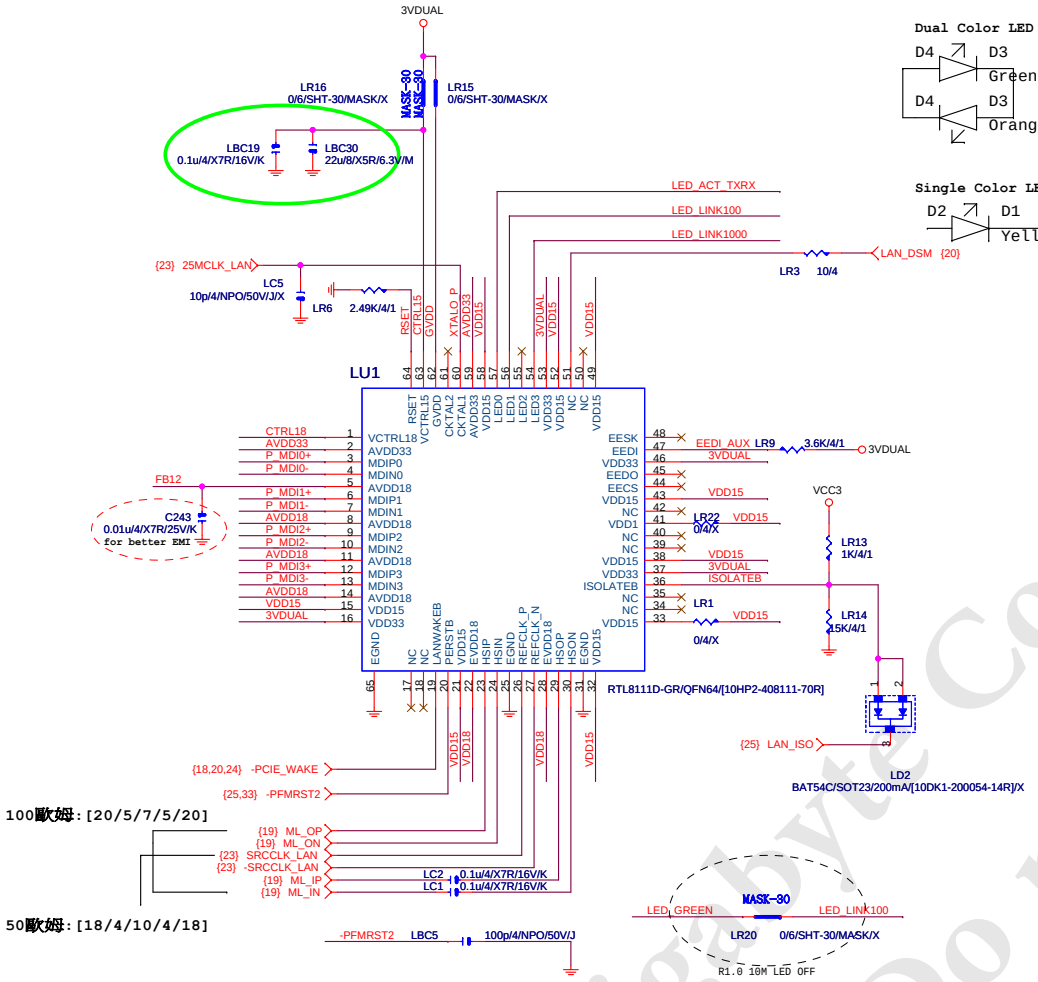
## PCIE-1G LAN



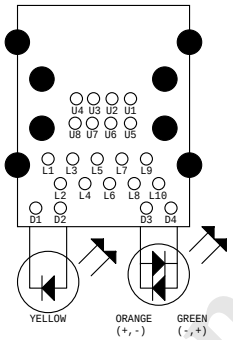

### Dual Color LED




### Single Color LED

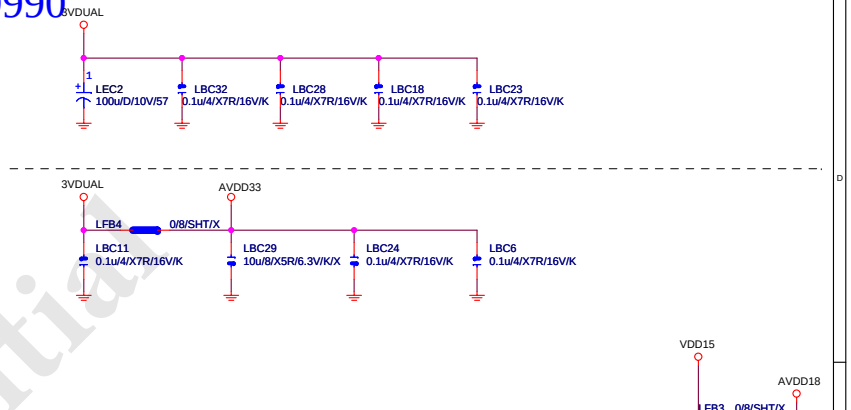


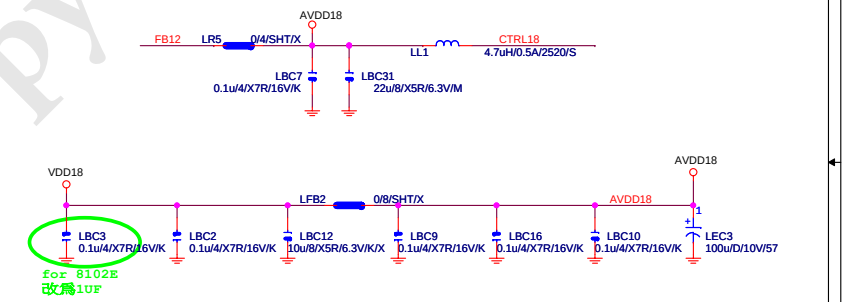

### P35-152-19W9



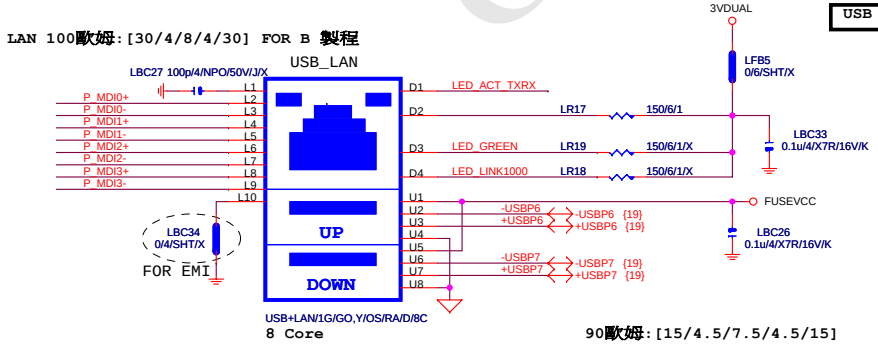

### Power domain chart

| | RTL8111C/D/8102E |
|---|---|
| AVDD33 | 3.3V |
| AVDD18 | 1.2V |
| EVDD18 | 1.2V |
| DVDD15 | 1.2V |



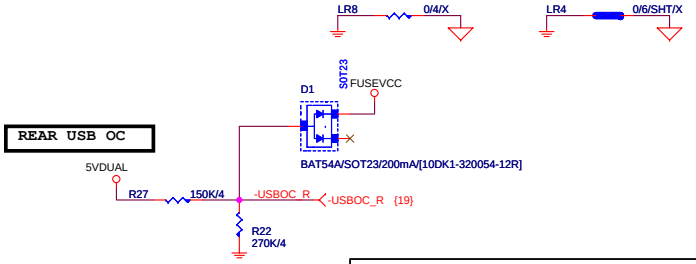

## USB_LAN CONNECTOR




### USB POWER


90歐姆:[15/4.5/7.5/4.5/15]

### REAR USB OC






Gigabyte Technology

Title: RTL8111C

Size: Custom | Document Number: P43T-ES3G | Rev: 1.0

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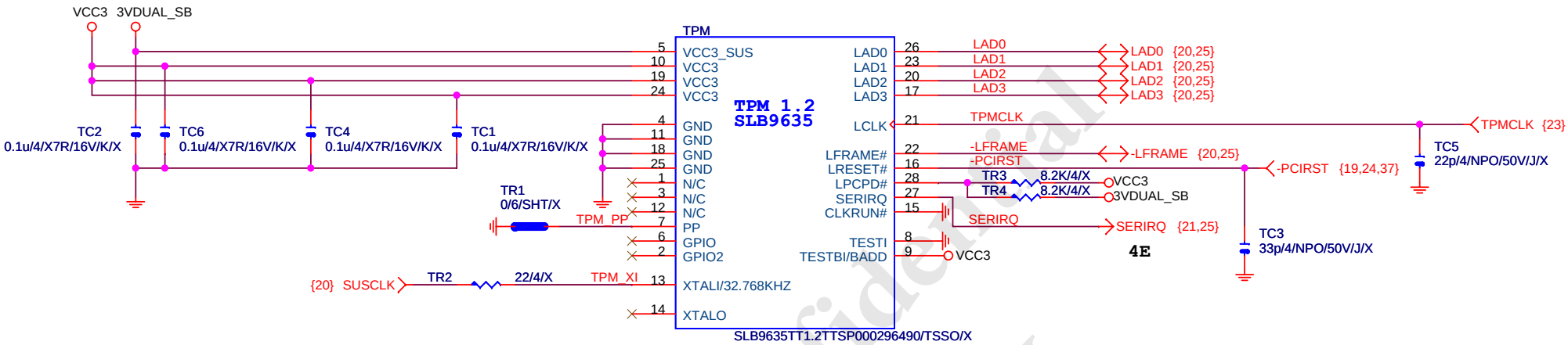
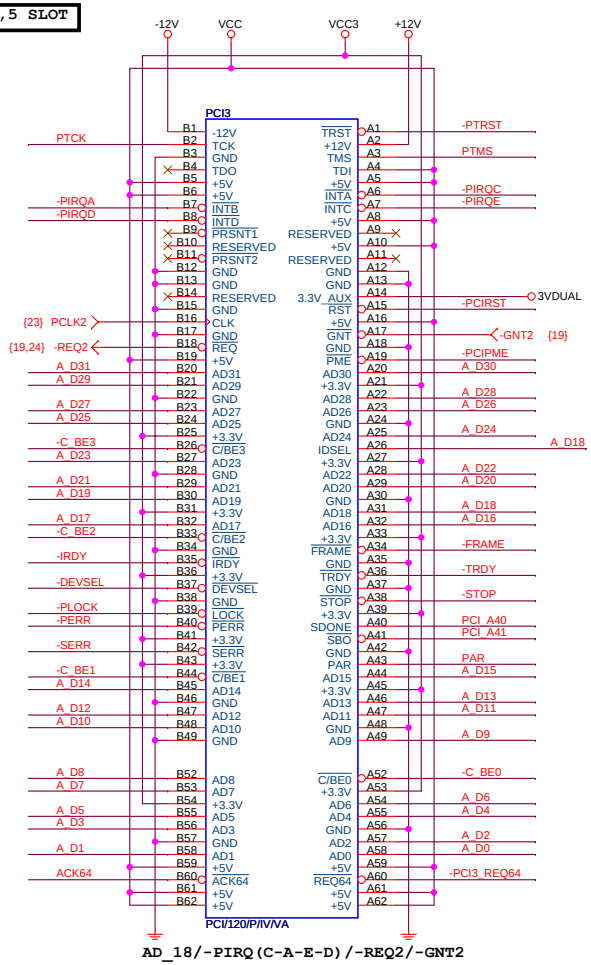
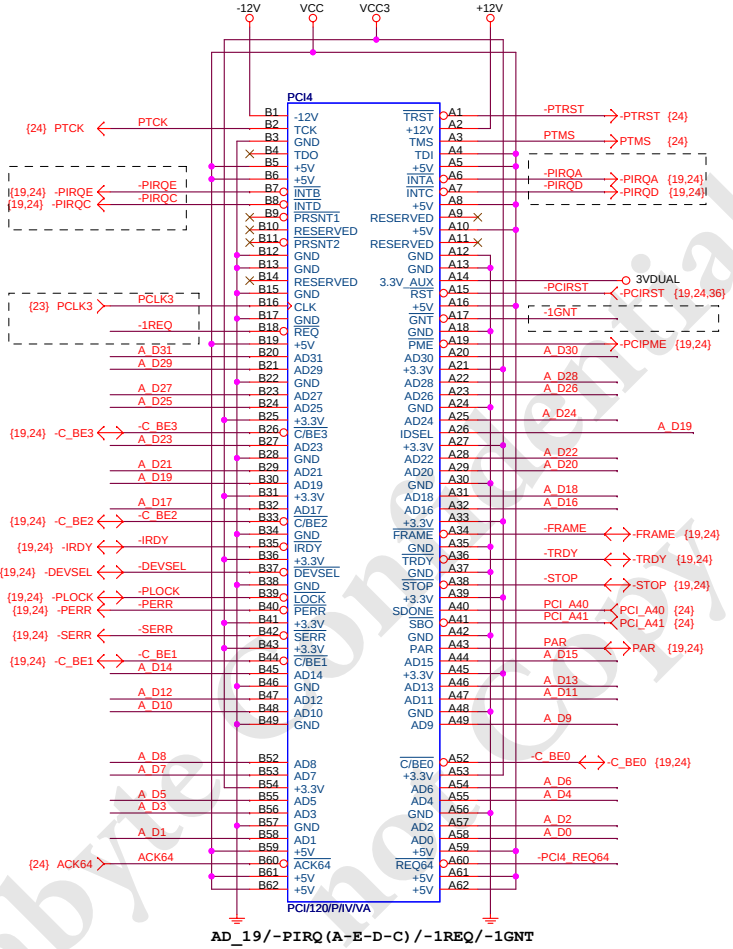


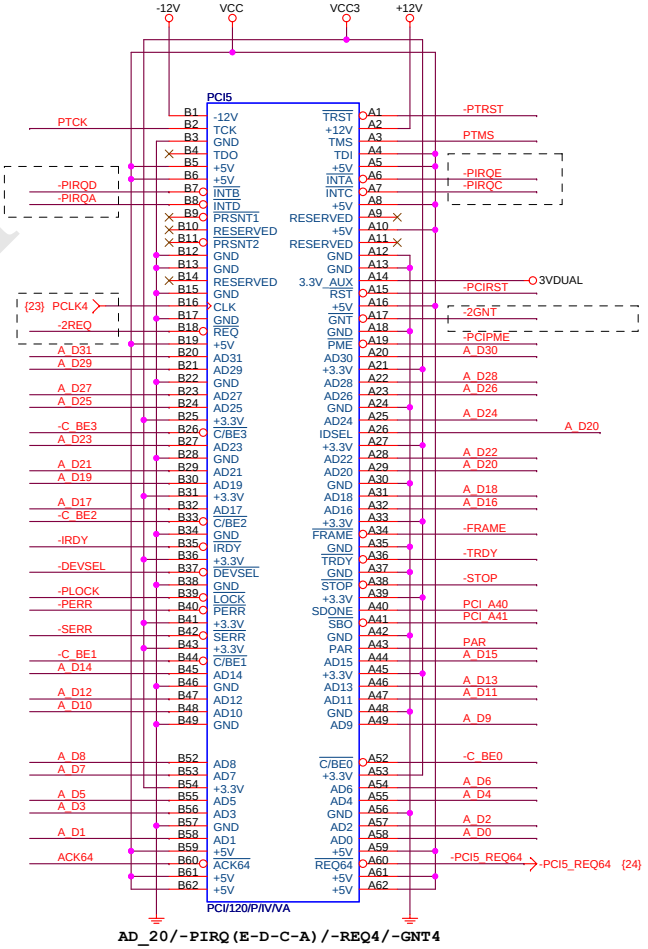



| | | |
|---|---|---|
| GIGABYTE THCHNOLOGIES | | |
| Title: TPM I/F-SLB 9635 TT 1.2 | | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, December 18, 2009 | Sheet 36 of 37 | |

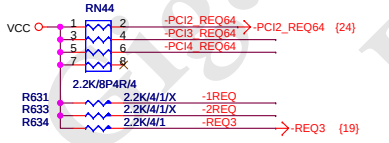
PCI 3,4,5 SLOT

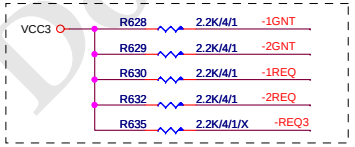


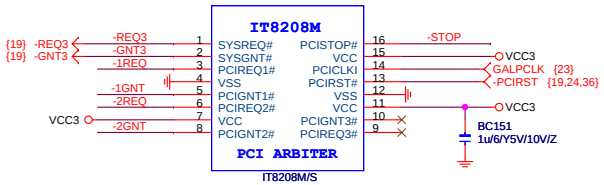



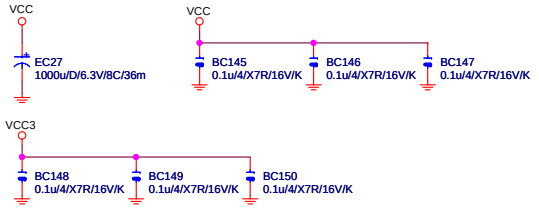










| | | |
|---|---|---|
| Gigabyte Technology | | |
| Title: PCI SLOT 3, 4, 5 | | |
| Size: Custom | Document Number: P43T-ES3G | Rev: 1.0 |
| Date: Friday, November 13, 2009 | Sheet 37 of 37 | |