Model Name: GA-P45T-ES3G REV:1.31

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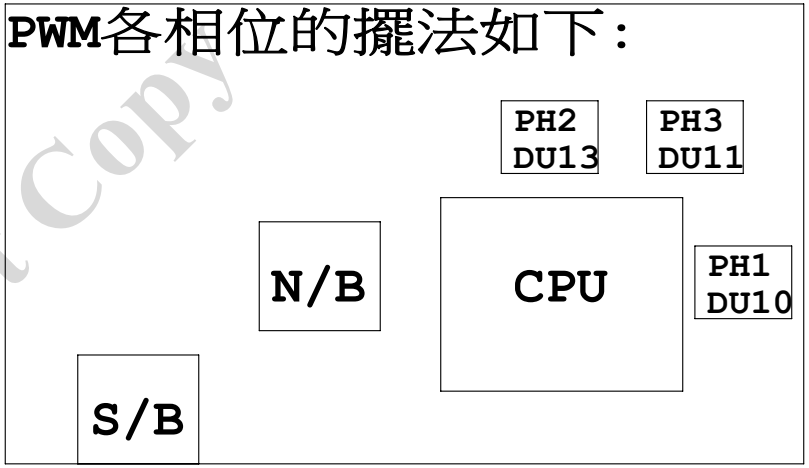
SHEET	TITLE
28	AZALIA ALC888
29	AUDIO JACK
30	VCORE PWM_ISL6334CRZ
31	DISCRETE1 POWER,FAN CTRL
32	ATX POWER
33	JMicron JMB368
34	LAN REALTEK RTL8111D
35	FRONT PANEL,FUSB,FDD
36	TPM I/F-1.2
37	PCI SLOT 3, 4 , 5

PWM各相位的擺法如下：



Gigabyte Technology

Title: Cover Sheet

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Model Name: GA-P45T-ES3G
Rev:.1.31

Component value change history

Data	Change Item	Reason
97/04/01 EBOM:01A	1. P43 CHIPSET E-BOM	
97/04/15 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 EBOM:10A	1. DDR2 VOLTAGE 1.83 --> 1.9V --> 2.0V --> 2.1V .....-->2.5V	
97/05/09 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 PBOM:10C	1. ADD BACKUP BIOS AND RESISTOR	
97/05/21 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 PBOM:10E	1.Q49 BAT54C限用DII FOR STR ISSUE	
97/06/18 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 PBOM:10G	1.換NEW P43 A2 CHIP	
97/08/11 PBOM:10H	1.由10E 改; RR2 68--->44.2 FOR J368 1.8V	
97/09/24 EBOM:01	1.E-BOM FOR P43-ES3G-0.1	
97/10/24 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 PBOM:10B	1.FDD 改為白色 2.改BC38,BC65 改為1UF	
98/04/24 PBOM:10D	1.部份阻值改為1%,	
98/05/07 PBOM:10E	1.D8 改成OLD BAT54A,R282 PULL LOW,R323,R330移除	
98/05/25 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	
P43T-ES3G-11A	1. Add ErP Function	
P43T-ES3G-13A P43T-ES3G-13B	1. F_USB FUSE CHANGE TO SMD1812P350SLR/S 1. ALC888 --> ALC892R 2. PCB"精成"移除	
1027-13C	1. ALC892R --> ALC892	1227-13D 1. VCORE MOSFET Vendor "NEC" change to "ON"

Circuit or PCB layout change for next version

DATE	Change Item	Reason
97/04/01 PCB:0.1	1.P43-DS3L	
97/04/23 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 PCB:1.01	1.DDR1200 OC 文字面改為DDR 1200	
97/09/23 PCB:0.1	1.由EP43-DS3L-1.01修改成GA-P43-ES3G-0.1	
	2.CPU VCORE 改為3相	
	3.後窗改為 1 serial port ,parallel port,aduio 為 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 PCB:1.0	1.GA-P43-ES3G-1.0 FOR PVT	
98/04/15 PCB:1.01	1.GA-P43-ES3G-1.01 修改LL1電感位置	
2009/10/06 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	

P45T-ES3G-10A 1. Add Non-vcore NEC N.G. MOSFET

P45T-ES3G-10B 1. PCB REV1.3 --> REV1.31 (文字面"DDR3 2200+"移除)

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Title: BOM & PCB MODIFY HISTORY

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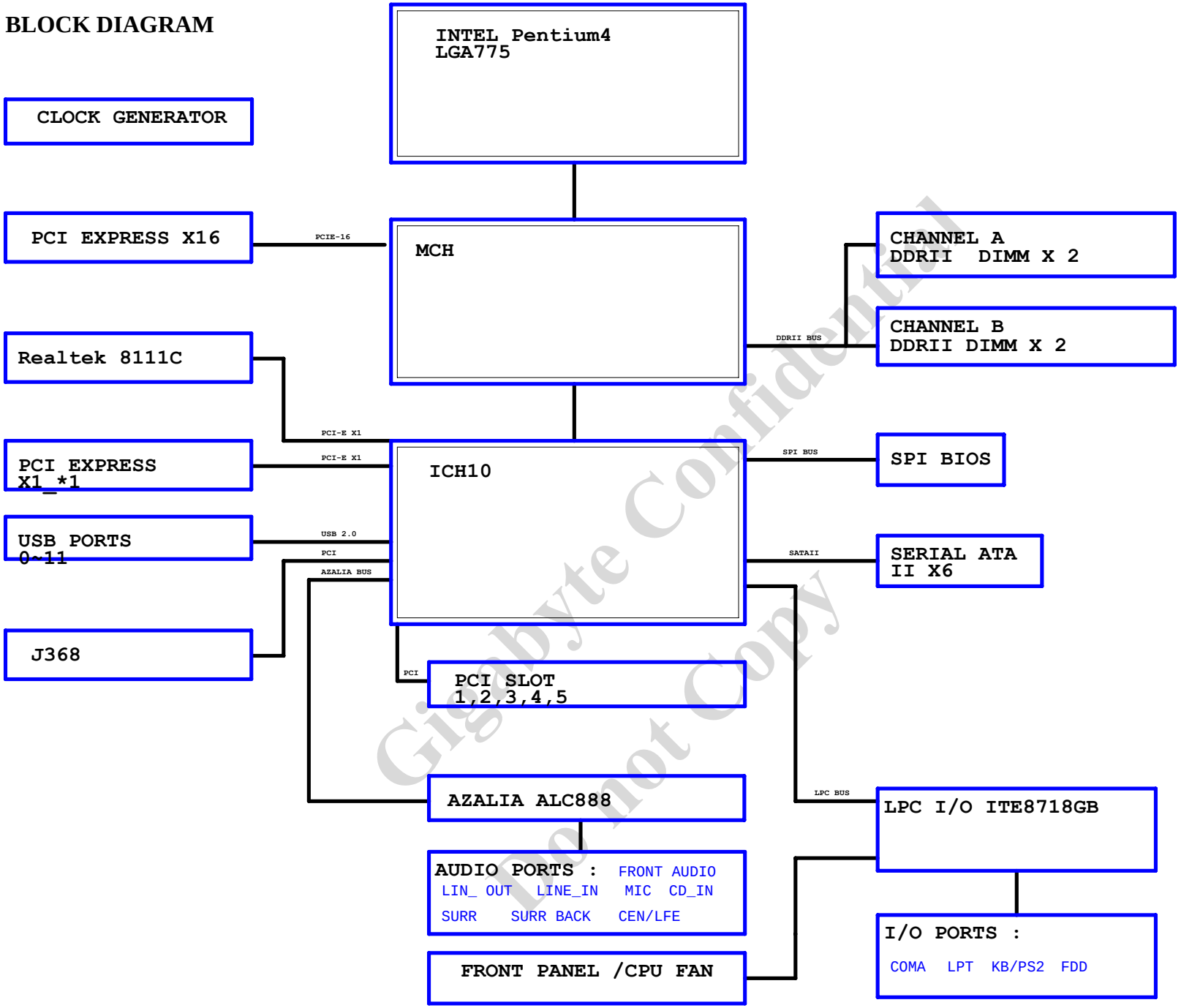
BLOCK DIAGRAM



Gigabyte Technology

Title: BLOCK DIAGRAM

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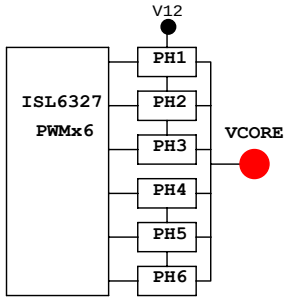
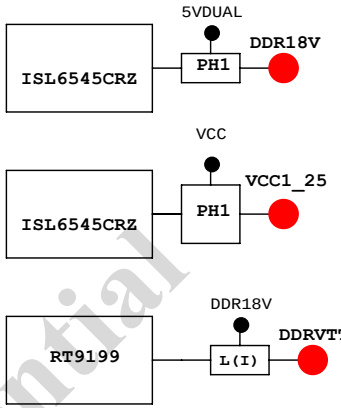
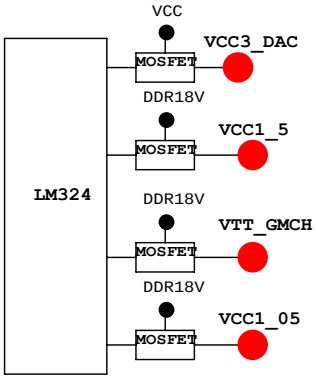
ICH8 GPIO LIST TABLE

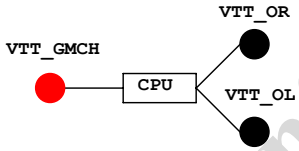
PIN NAME	PWR WELL	AFTER/ PLTRST	USAGE	NOTE
GP0	MAIN	IN	-ACZ_DET	P/U 8.2K VCC3
GP1/TACH1	MAIN	IN	ICH_FAN_TACH1	P/U 8.2K VCC3
GP2/PIRQE#	MAIN	IN	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	IN	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	IN	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	IN	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	IN	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

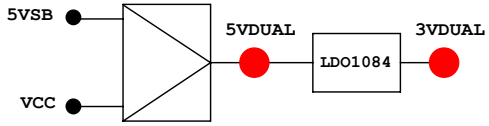
VCORE:6 PHASE PWM--ISL6327CRZ











Gigabyte Technology		
Title: TABLE LIST		
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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

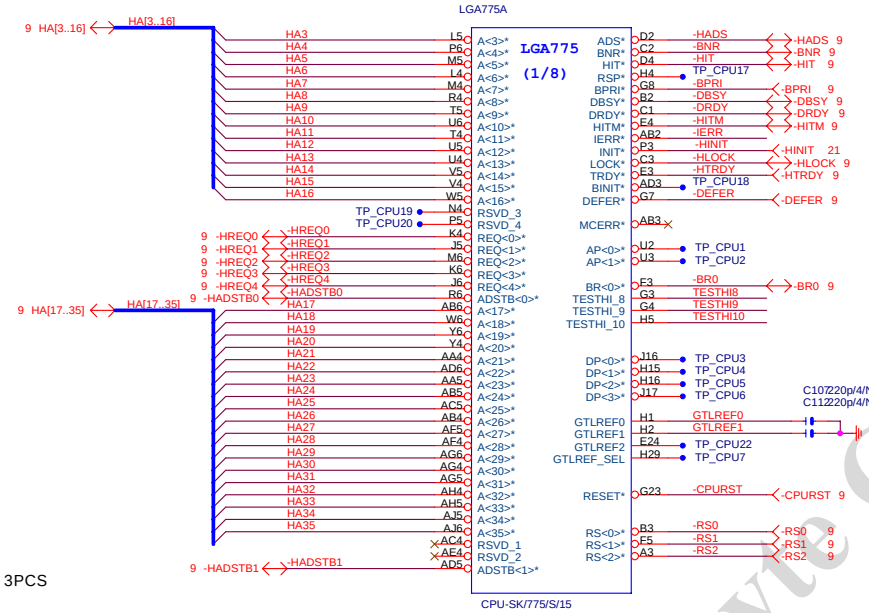
0.635 X VTT FOR LGA775 PIN H1/G10

R238 57.6/4/1 — VTT_OR — GTLREF0
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



CPU-SK/775/S/15

SP-CAP X 3PCS

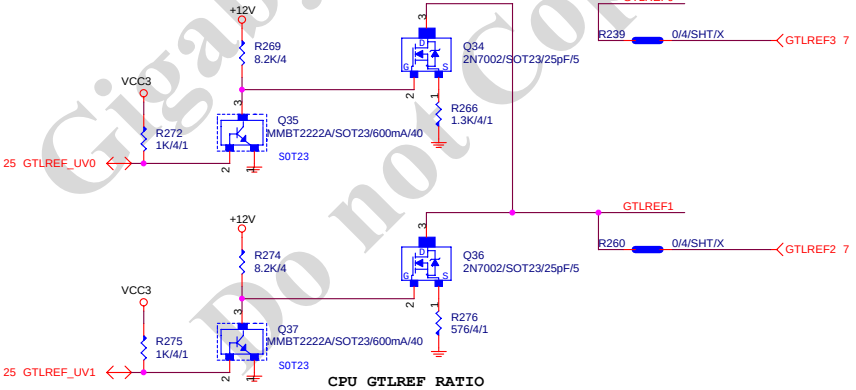
VCORE — SEC1, SEC2, SEC3 — 100U/2V/SPCAP/X

Impedance=50 +- 15% for 4 -layer

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

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

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



CPU GTLREF RATIO

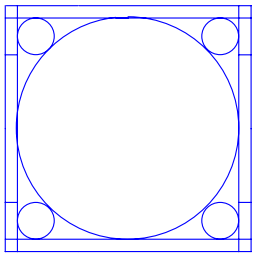
GTLREF_UV0	GTLREF_UV1	Ratio Set
HIGH	HIGH	0.67
LOW	HIGH	0.65
HIGH	LOW	0.63
LOW	LOW	0.615

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

-CPURST — C14 1n/4/X7R/50V/K/X

C107220p/4/NPO/50V/J/X
C112220p/4/NPO/50V/J/X

CR
CPU RETAINTION/X



Gigabyte Technology			
Title: P4_LGA775-A			
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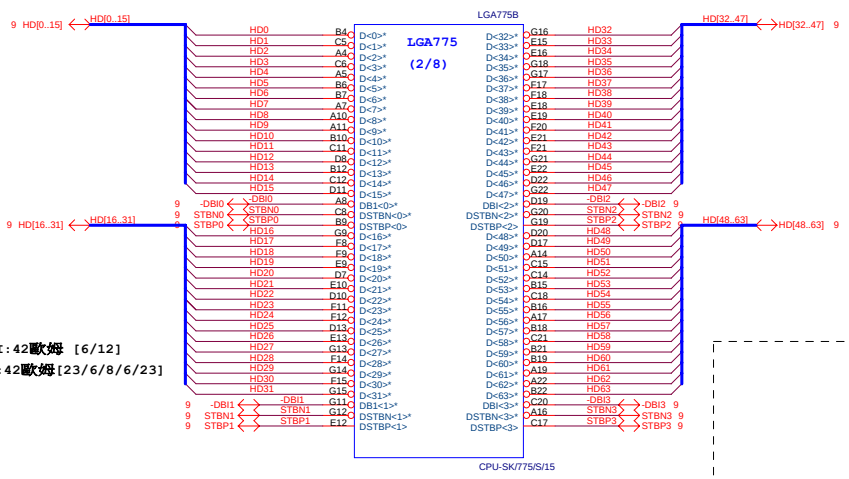
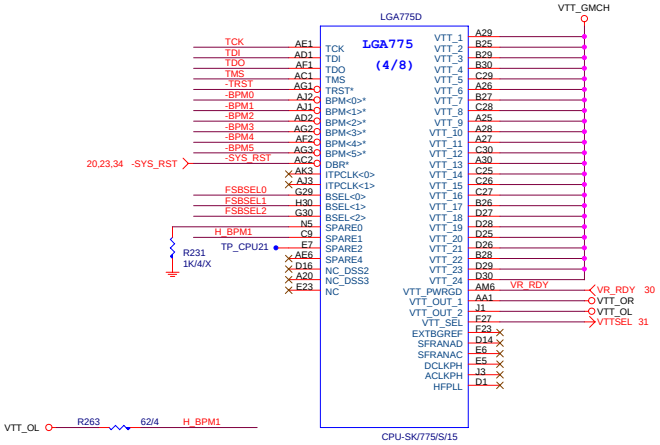
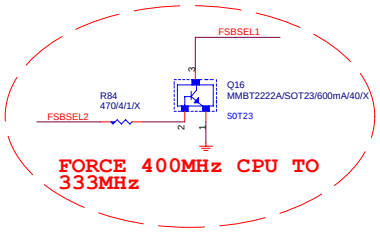


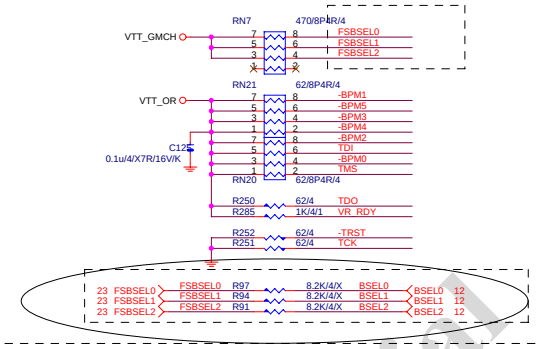
HD/DBI:42歐姆 [6/12]

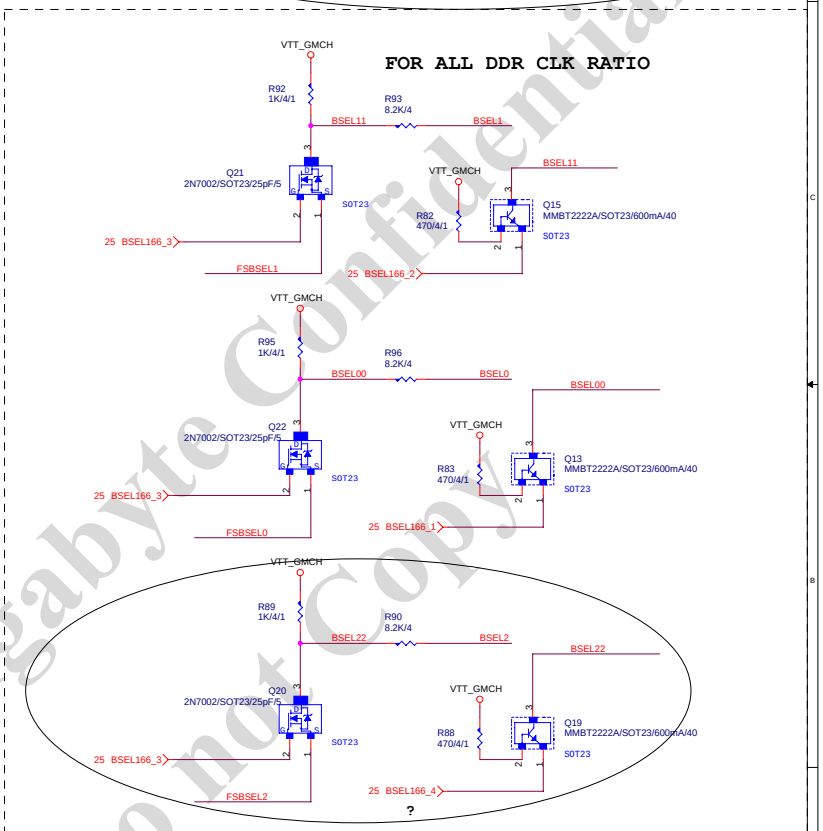
DSTBP:42歐姆[23/6/8/6/23]



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		
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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-30 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
25,27 CPU_TEMP
25 THERMDC
R173 0/4/SHT/X
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

21 -SMI
21 -A20M
21 -FERR
21 INTR
21 NMI
21 -IGNNE
21 -STPCLK

SMI* A20M* FERR*/PBE* LINT0 LINT1 IGNNE* STPCLK* VCCA VSSA VCCIOPLL VCC_PLL VID<0> VID<1> VID<2> VID<3> VID<4> VID<5> VID<6> VID<7> VID_SELECT BCLK<0> BCLK<1> SKTOCC* THERMDA THERMDC THERMDA_2 THERMDC_2 VCC_SENSE VSS_SENSE VCC_MB_REGULATION VSS_MB_REGULATION VCC_D_SENSE VSS_D_SENSE VTT_PKGSENSE Z60_50* SLEW_CTRL* SST_LV* MPG_NOBOOT*

TESTHI_0 TESTHI_1 TESTHI_2 TESTHI_3 TESTHI_4 TESTHI_5 TESTHI_6 TESTHI_7 TESTHI_11 TESTHI_12 TESTHI_13 FORCEPH PWRGOOD PROCHOT* THERMTRIP* COMP<0> COMP<1> COMP<2> COMP<3> COMP<4> COMP<5> COMP<6> COMP<7> COMP<8> RC1 RC2 RC4 RC5 RSVD_1 RSVD_2 PSMI* MSID<1> MSID<0> CPU_BOOT LL_ID<0> LL_ID<1>

TESTHI0 TESTHI1 TESTHI2_7
H_DPSLP_N → H_DPSLP_N 20
PM_SLP_N → PM_SLP_N 12
-FORCEPR → -FORCEPR 26
CPUPWROK → CPUPWROK 20
-PROCHOT → -PROCHOT 20,26
-THRMTRIP → -THRMTRIP 21
COMP0 COMP1 COMP2 COMP3 COMP4
PM_DPRSTP → PM_DPRSTP 12,20
COMP6 R217 0/4/SHT/X → -PSI 30
COMP7 COMP8 H_BPM0 TESTHI_M
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

Place outside of CPU socket

COMP4~7 可以不上

VTT_OL
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
C97 0.1u/4/X7R/16V/K

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

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: GA-P45T-ES3G | Rev: 1.31
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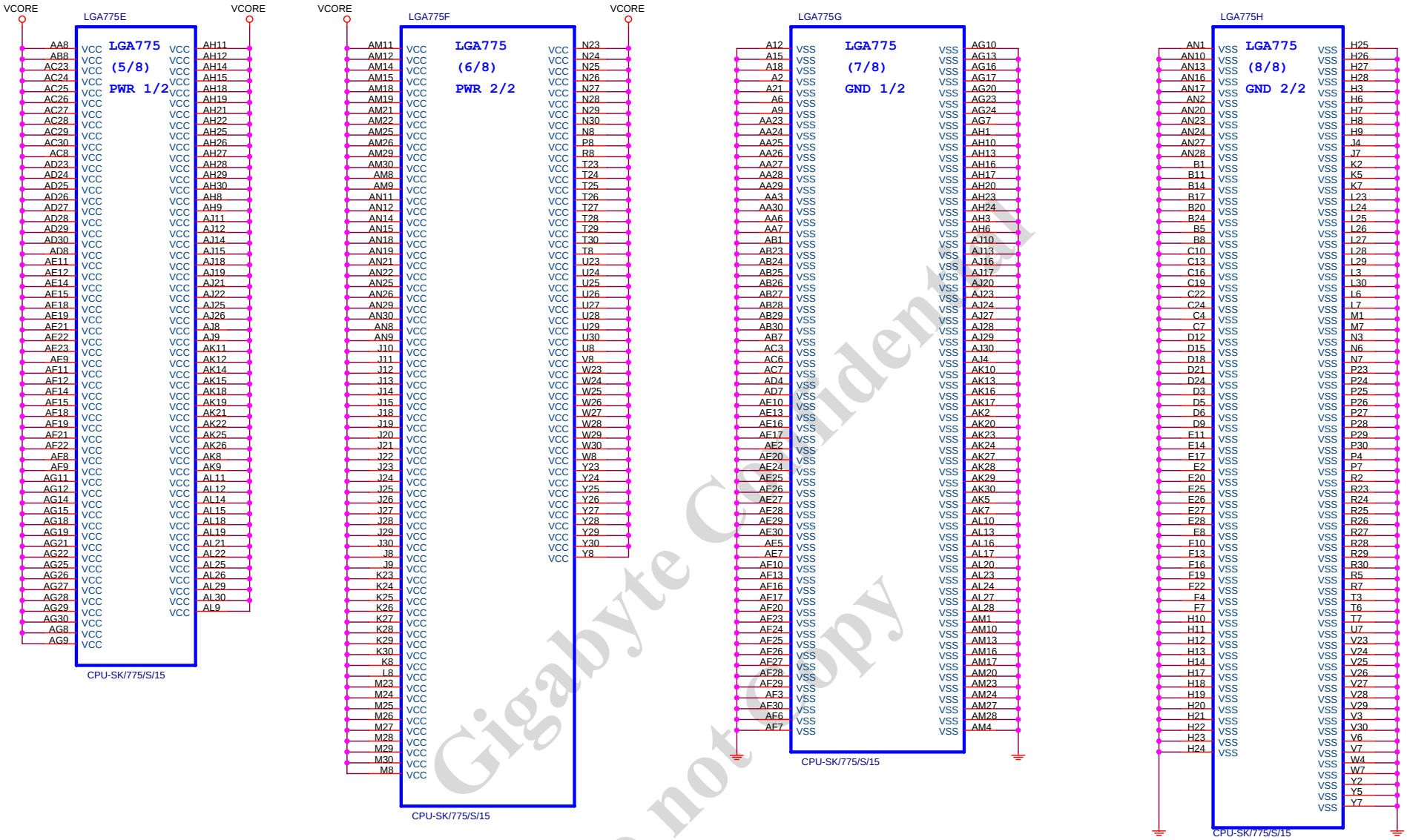
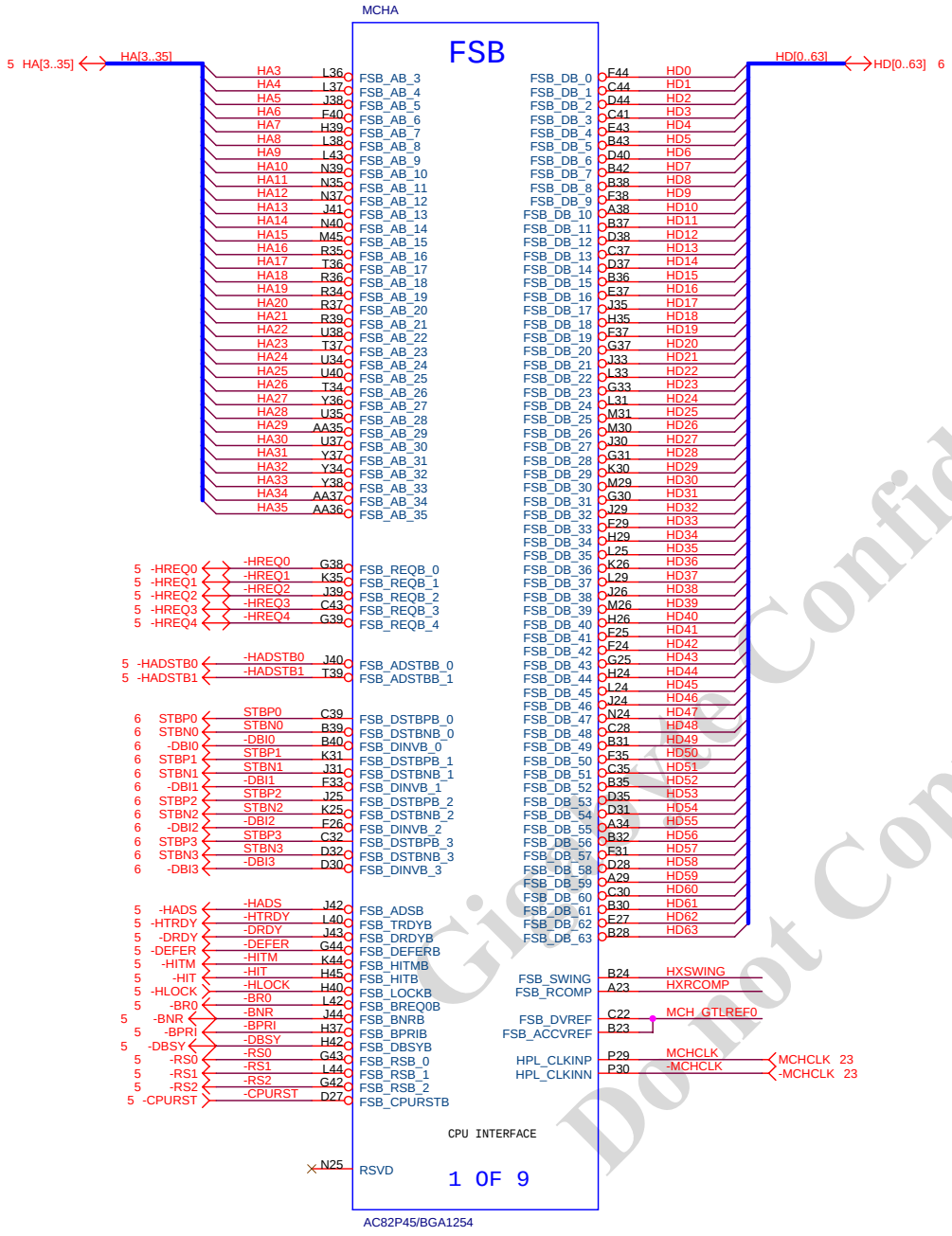
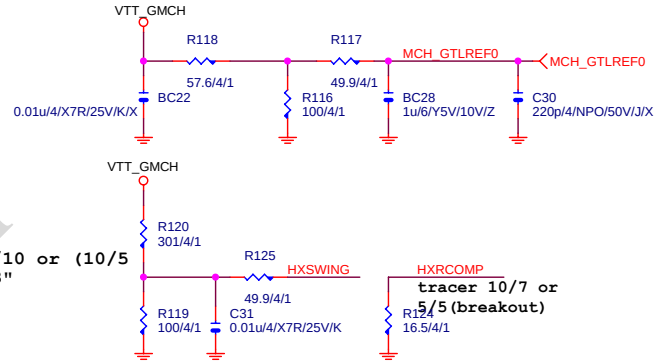


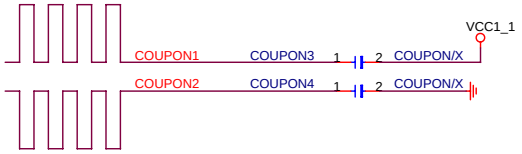
Gigabyte Technology		
Title: P4_LGA775-E,F,G,H		
Size: B	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 8 of 37	





tracer min 10/10 or (10/5 breakout),L1<3"

tracer 10/7 or 5/5(breakout)



Gigabyte Technology		
Title: GMCH-HOST		
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 9 of 37	

MCHC

DDR_A

DDR INTERFACE

3 OF 9

AC82P45/BGA1254

6.5/5/6.5 Length max=5.0"
MCH die to DIMM0/1 pin =6" max
FOR channel A

MCHD

DDR_B

4 OF 9

AC82P45/BGA1254

6.5/5/6.5 Length max=5.0"
MCH die to DIMM2/3 pin =7" max
FOR channel B

tracer min 10/10

tracer min 5/10(1:2)

NB_HEATSINK

NB_HS/[12SP2-04A004-51R_12SP2-04A004-52R]

Gigabyte Technology			
Title	GMCH-DDR3		
Size: Custom	Document Number: GA-P45T-ES3G		Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 10 of 37		

PCIEX16:16/5/5/5/16(breakout min 8/4/5/4/8)

Impedance=85 +- 17.5%

MCHB

PCIE

EXP_RXP0	F6	PEG_RXP_0	PEG_TXP_0	C11	EXP_TXP0
EXP_RXN0	G7	PEG_RXN_0	PEG_TXN_0	B11	EXP_TXN0
EXP_RXP1	H6	PEG_RXP_1	PEG_TXP_1	A10	EXP_TXP1
EXP_RXN1	G4	PEG_RXN_1	PEG_TXN_1	B9	EXP_TXN1
EXP_RXP2	J6	PEG_RXP_2	PEG_TXP_2	C9	EXP_TXP2
EXP_RXN2	J7	PEG_RXN_2	PEG_TXN_2	D8	EXP_TXN2
EXP_RXP3	L6	PEG_RXP_3	PEG_TXP_3	B8	EXP_TXP3
EXP_RXN3	L7	PEG_RXN_3	PEG_TXN_3	C7	EXP_TXN3
EXP_RXP4	N9	PEG_RXP_4	PEG_TXP_4	B7	EXP_TXP4
EXP_RXN4	N10	PEG_RXN_4	PEG_TXN_4	B6	EXP_TXN4
EXP_RXP5	N7	PEG_RXP_5	PEG_TXP_5	B3	EXP_TXP5
EXP_RXN5	N6	PEG_RXN_5	PEG_TXN_5	B4	EXP_TXN5
EXP_RXP6	R7	PEG_RXP_6	PEG_TXP_6	D2	EXP_TXP6
EXP_RXN6	R6	PEG_RXN_6	PEG_TXN_6	C2	EXP_TXN6
EXP_RXP7	R9	PEG_RXP_7	PEG_TXP_7	H2	EXP_TXP7
EXP_RXN7	R10	PEG_RXN_7	PEG_TXN_7	G2	EXP_TXN7
EXP_RXP8	U10	PEG_RXP_8	PEG_TXP_8	J2	EXP_TXP8
EXP_RXN8	U9	PEG_RXN_8	PEG_TXN_8	K2	EXP_TXN8
EXP_RXP9	U6	PEG_RXP_9	PEG_TXP_9	K1	EXP_TXP9
EXP_RXN9	U7	PEG_RXN_9	PEG_TXN_9	L2	EXP_TXN9
EXP_RXP10	AA9	PEG_RXP_10	PEG_TXP_10	P2	EXP_TXP10
EXP_RXN10	AA10	PEG_RXN_10	PEG_TXN_10	M2	EXP_TXN10
EXP_RXP11	R4	PEG_RXP_11	PEG_TXP_11	T2	EXP_TXP11
EXP_RXN11	P4	PEG_RXN_11	PEG_TXN_11	R1	EXP_TXN11
EXP_RXP12	AA7	PEG_RXP_12	PEG_TXP_12	U2	EXP_TXP12
EXP_RXN12	AA6	PEG_RXN_12	PEG_TXN_12	V2	EXP_TXN12
EXP_RXP13	AB10	PEG_RXP_13	PEG_TXP_13	W4	EXP_TXP13
EXP_RXN13	AB9	PEG_RXN_13	PEG_TXN_13	V3	EXP_TXN13
EXP_RXP14	AB3	PEG_RXP_14	PEG_TXP_14	AA4	EXP_TXP14
EXP_RXN14	AA2	PEG_RXN_14	PEG_TXN_14	Y4	EXP_TXN14
EXP_RXP15	AD10	PEG_RXP_15	PEG_TXP_15	AC1	EXP_TXP15
EXP_RXN15	AD11	PEG_RXN_15	PEG_TXN_15	AB2	EXP_TXN15

EXP_TXP[0..15] → EXP_TXP[0..15] 18

EXP_TXN[0..15] → EXP_TXN[0..15] 18

EXP_RXP[0..15] → EXP_RXP[0..15] 18

EXP_RXN[0..15] → EXP_RXN[0..15] 18

VCC1_1 — BC69 0.1u/4/X7R/16V/K — R165 49.9/4/1 GRCOMP

tracer 10/10

DMI:12/4/8/4/12

Impedance=95 +- 17.5%

DMI

19 DMI_0RXP	DMI_0RXP AD7	DMI_RXP_0	DMI_TXP_0	AC2	DMI_0TXP → 19 DMI_0TXP
19 DMI_0RXN	DMI_0RXN AD8	DMI_RXN_0	DMI_TXN_0	AD2	DMI_0TXN → 19 DMI_0TXN
19 DMI_1RXP	DMI_1RXP AE9	DMI_RXP_1	DMI_TXP_1	AD4	DMI_1TXP → 19 DMI_1TXP
19 DMI_1RXN	DMI_1RXN AE10	DMI_RXN_1	DMI_TXN_1	AE4	DMI_1TXN → 19 DMI_1TXN
19 DMI_2RXP	DMI_2RXP AE6	DMI_RXP_2	DMI_TXP_2	AE2	DMI_2TXP → 19 DMI_2TXP
19 DMI_2RXN	DMI_2RXN AE7	DMI_RXN_2	DMI_TXN_2	AF2	DMI_2TXN → 19 DMI_2TXN
19 DMI_3RXP	DMI_3RXP AF9	DMI_RXP_3	DMI_TXP_3	AF4	DMI_3TXP → 19 DMI_3TXP
19 DMI_3RXN	DMI_3RXN AF8	DMI_RXN_3	DMI_TXN_3	AG4	DMI_3TXN → 19 DMI_3TXN

23 SRCCLK_MCH	SRCCLK_MCH D9	EXP_CLKP			
23 -SRCCLK_MCH	-SRCCLK_MCH E9	EXP_CLKN			
			EXP_RCOMPO	Y7	GRCOMP
			EXP_COMPI	Y8	
			EXP_ICOMPO	Y6	
18 SDVO_CLDATA	SDVO_CLDATA J13	SDVO_CTRLDATA			
18 SDVO_CLCLK	SDVO_CLCLK G13	SDVO_CTRLCLK			
TP14	AB13	RSVD			
TP15	AD13	RSVD	EXP_RBIAS	AG1	GRBIAS — R182 750/4/1

2 0F 9

AC82P45/BGA1254

Gigabyte Technology			
Title: GMCH-PCI E & DMI			
Size: Custom	Document Number: GA-P45T-ES3G		Rev: 1.31
Date: Thursday, April 07, 2011	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

CL_VREF:4/10
0.349V

MCHE

VGA

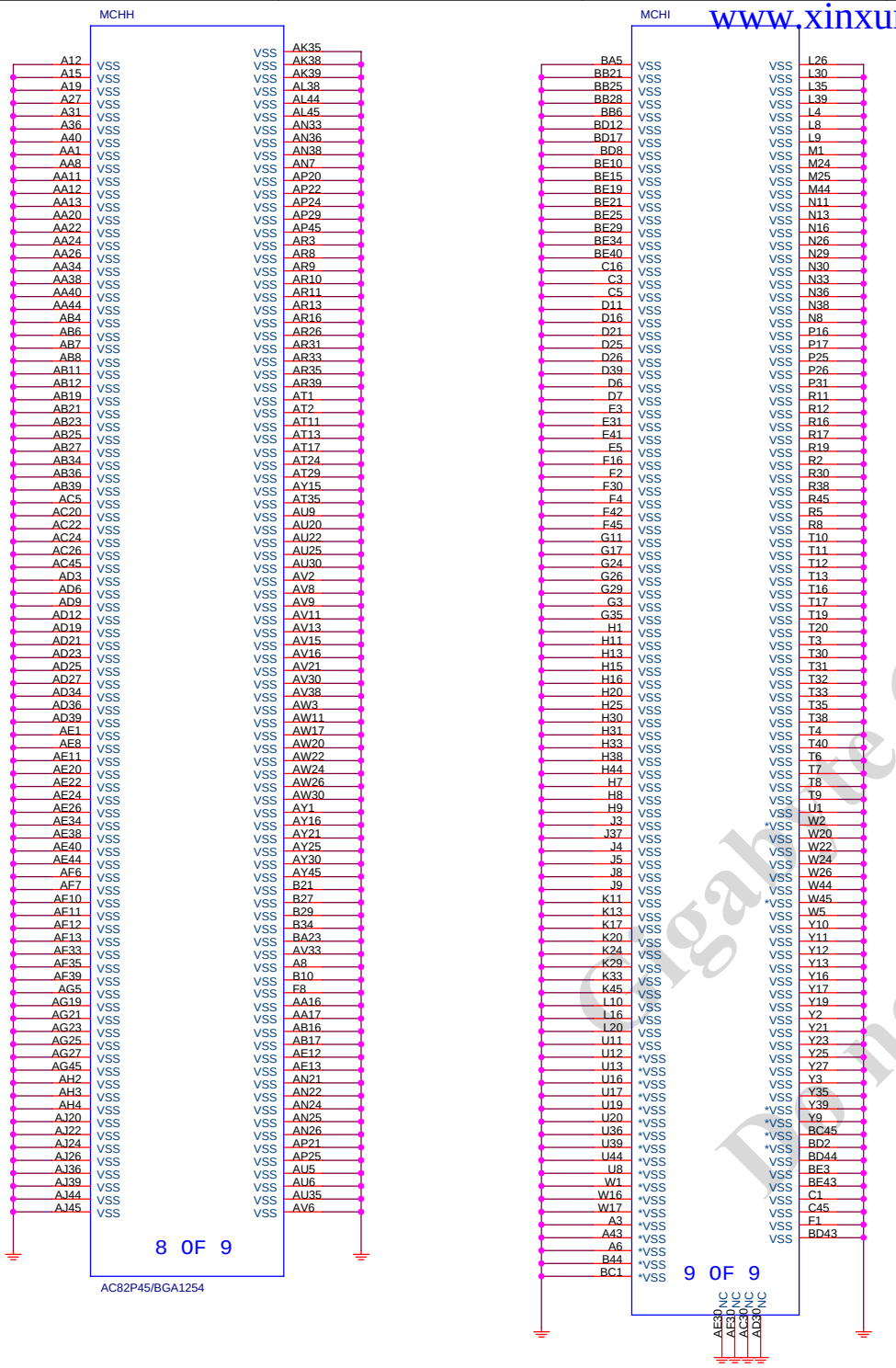
MISC

5 OF 9

AC82P45/BGA1254

BW+ICH8 不要上(SAMPLE)
BW+ICH7 要上

Gigabyte Technology			
Title: GMCH-INTERNAL VGA			
Size: Custom	Document Number: GA-P45T-ES3G		Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 12 of 37		



Gigabyte Technology		
Title	GMCH-GND	
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 13 of 37	

MCHF

POWER

6 OF 9

AC82P45/BGA1254

MCHG

POWER

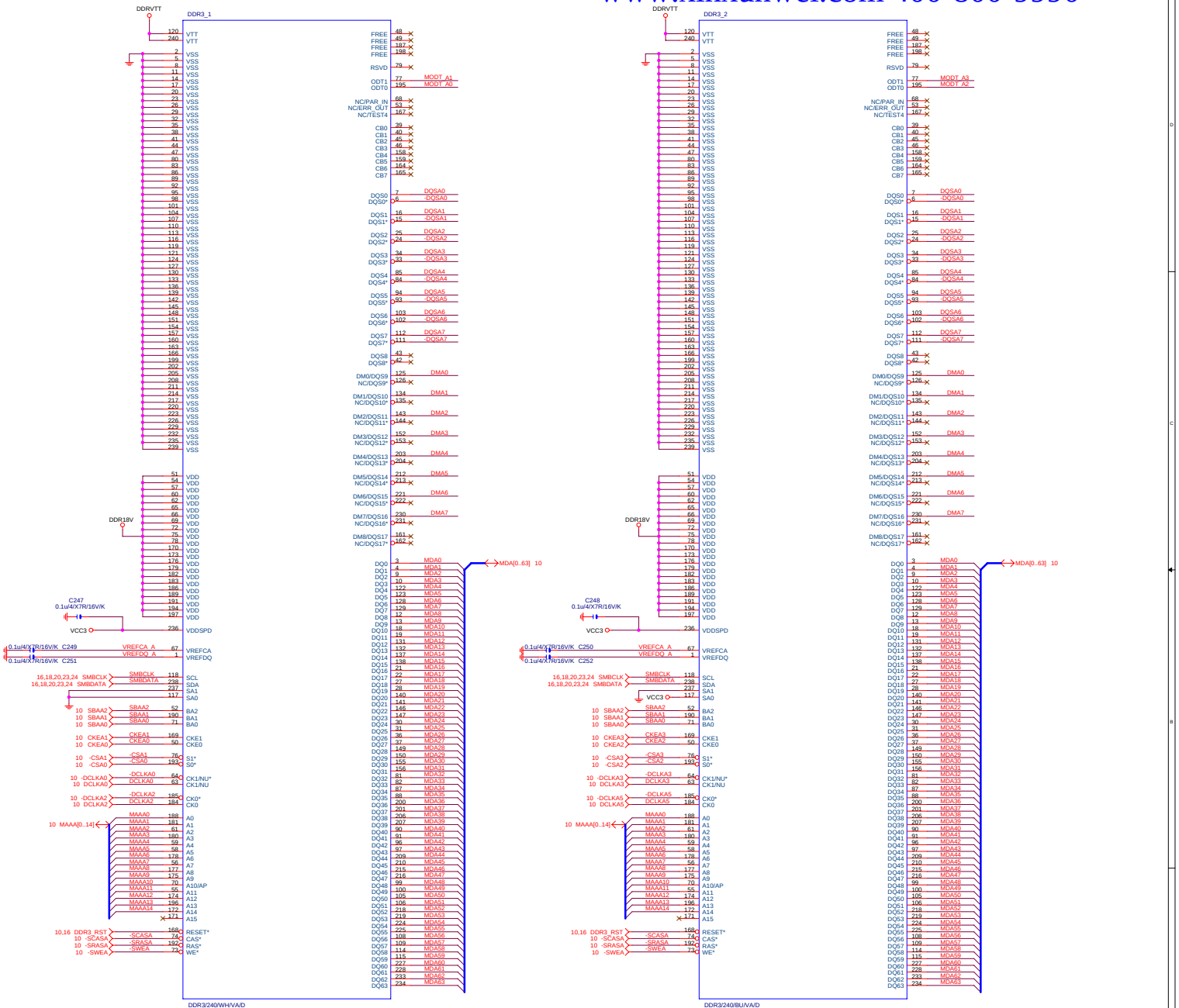
7 OF 9

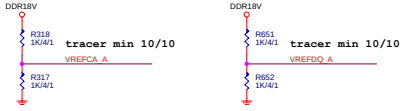
AC82P45/BGA1254

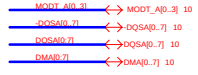
VCC_CL=~3A

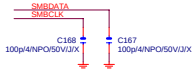
請考慮是否將短路移除

Gigabyte Technology	
Title	GMCH-PWR
Size: Custom	Document Number: GA-P45T-ES3G
Rev	1.31
Date: Thursday, April 07, 2011	Sheet 14 of 37

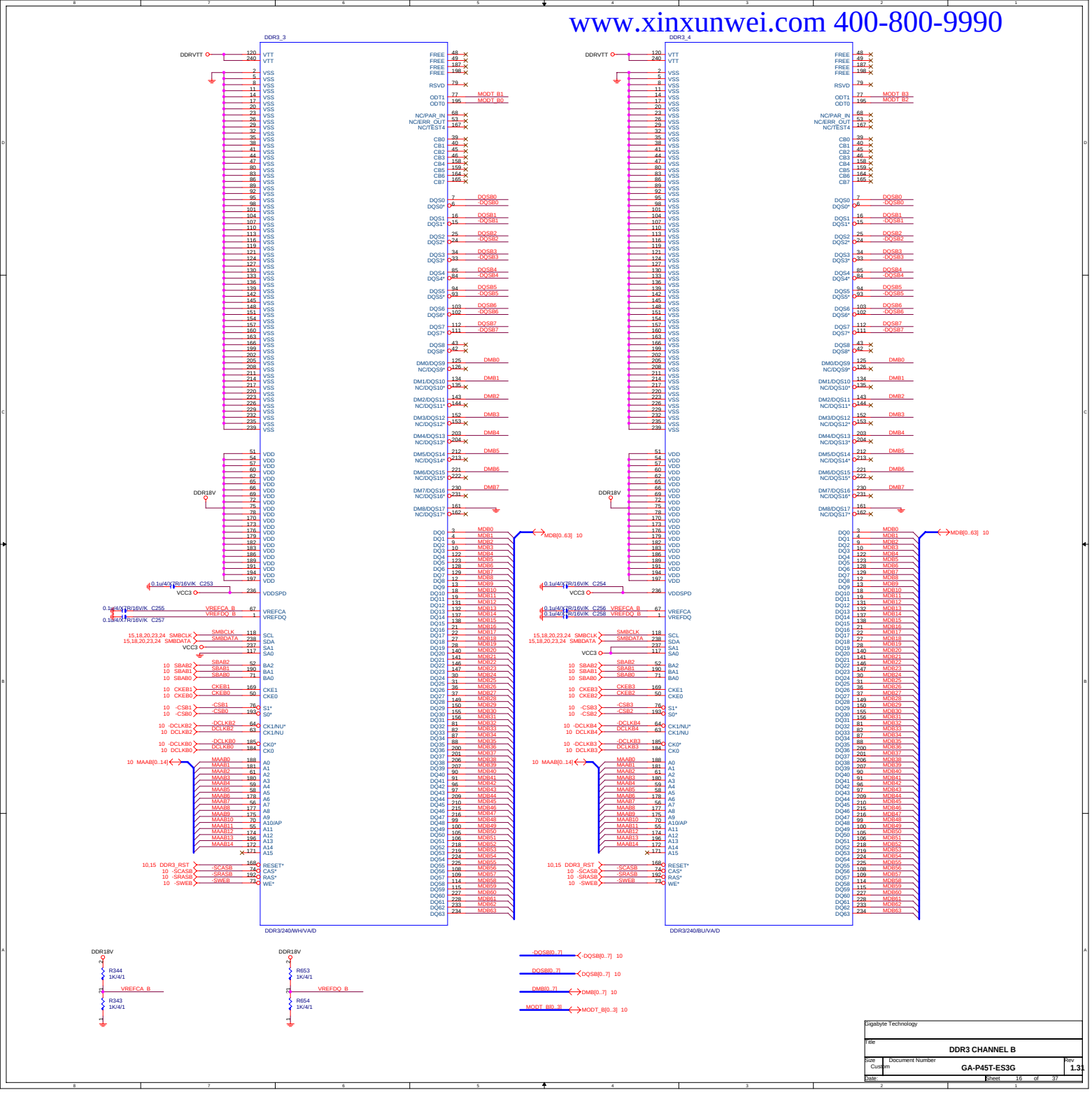








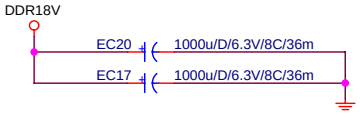
Gigabyte Technology	
Title	DDR3 CHANNEL A
Size: Custom	Document Number: GA-P45T-ES3G
Rev	1.31
Date:	Sheet 15 of 37

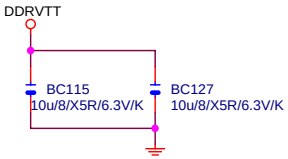


Gigabyte Technology			
Title: DDR3 CHANNEL B			
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31	
Date:	Sheet 16 of 37		

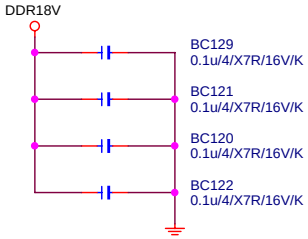
DDR TERMINATION CHANNEL A

DDRVTT Decouple

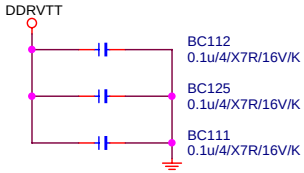


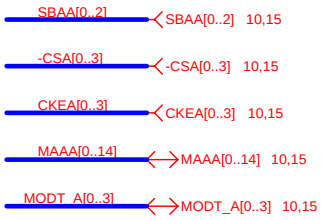


DDR18V Decouple



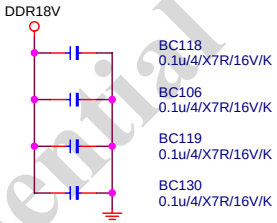
DDRVTT Decouple



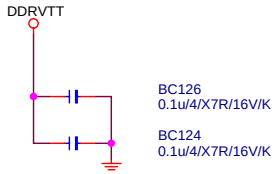


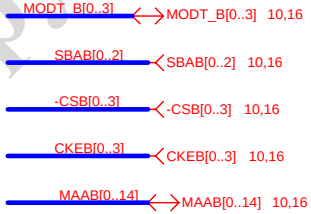
DDR TERMINATION CHANNEL B

DDR18V Decouple



DDRVTT Decouple





Gigabyte Technology		
Title: DDR3 TERMINATOR		
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 17 of 37	

+12V
EC4 470u/D/16V/8C/36m
OS-CON使用270u/FP/D/16V/89/10m

+12V
BC14 0.1u/4/X7R/16V/K
VCC3
EC8 1000u/D/6.3V/8C/36m

VCC3
BC19 0.1u/4/X7R/16V/K
BC20 0.1u/4/X7R/16V/K
BC16 0.1u/4/X7R/16V/K
BC17 0.1u/4/X7R/16V/K

PCIESLOT-164DN-3
PCIEX16
3GIO_*16

+12V
R78 0/4/SHT/X
15,16,20,23,24 SMBCLK
15,16,20,23,24 SMBDATA
3VDUAL
VCC3
20,24,35 -PCIE_WAKE

B1 12V
B2 12V
B3 RSVD
B4 GND
B5 SMCLK
B6 SMDAT
B7 GND
B8 3.3V
B9 JTAG1
B10 3.3VAUX
B11 WAKE*

KEY

B12 RSVD
B13 GND
B14 HSOP0
B15 HSON0
B16 GND
B17 PRSNT2*
B18 GND

B19 HSOP1
B20 HSON1
B21 GND
B22 GND
B23 HSOP2
B24 HSON2
B25 GND
B26 GND
B27 HSOP3
B28 HSON3
B29 GND
B30 RSVD
B31 PRSNT2*
B32 GND

B33 HSOP4
B34 HSON4
B35 GND
B36 GND
B37 HSOP5
B38 HSON5
B39 GND
B40 GND
B41 HSOP6
B42 HSON6
B43 GND
B44 GND
B45 HSOP7
B46 HSON7
B47 GND
B48 PRSNT2*
B49 GND

B50 HSOP8
B51 HSON8
B52 GND
B53 GND
B54 HSOP9
B55 HSON9
B56 GND
B57 GND
B58 HSOP10
B59 HSON10
B60 GND
B61 GND
B62 HSOP11
B63 HSON11
B64 GND
B65 GND
B66 HSOP12
B67 HSON12
B68 GND
B69 GND
B70 HSOP13
B71 HSON13
B72 GND
B73 GND
B74 HSOP14
B75 HSON14
B76 GND
B77 GND
B78 HSOP15
B79 HSON15
B80 GND
B81 PRSNT2*
B82 RSVD

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

+12V
R65 0/4/SHT/X
R80 0/4/SHT/X
VCC3
-PCIE_RST
-PCIE_RST 24,25

A1 PRSNT1*
A2 12V
A3 12V
A4 RSVD
A5 GND
A6 JTAG2
A7 JTAG3
A8 JTAG4
A9 JTAG5
A10 3.3V
A11 3.3V
A12 PWRGD

A13 GND
A14 REFCLK+
A15 REFCLK-
A16 GND
A17 HSIP0
A18 HSIN0
A19 GND

A20 RSVD
A21 GND
A22 HSIP1
A23 HSIN1
A24 GND
A25 GND
A26 HSIP2
A27 HSIN2
A28 GND
A29 GND
A30 HSIP3
A31 HSIN3
A32 GND
A33 RSVD

A34 RSVD
A35 GND
A36 HSIP4
A37 HSIN4
A38 GND
A39 GND
A40 HSIP5
A41 HSIN5
A42 GND
A43 GND
A44 HSIP6
A45 HSIN6
A46 GND
A47 GND
A48 HSIP7
A49 HSIN7
A50 GND

A51 RSVD
A52 GND
A53 HSIP8
A54 HSIN8
A55 GND
A56 GND
A57 HSIP9
A58 HSIN9
A59 GND
A60 GND
A61 HSIP10
A62 HSIN10
A63 GND
A64 GND
A65 HSIP11
A66 HSIN11
A67 GND
A68 GND
A69 HSIP12
A70 HSIN12
A71 GND
A72 GND
A73 HSIP13
A74 HSIN13
A75 GND
A76 GND
A77 HSIP14
A78 HSIN14
A79 GND
A80 GND
A81 HSIP15
A82 HSIN15

SRCCLK_3GIO 23
-SRCCLK_3GIO 23

-PCIE_RST
C12 33p/4/NPO/50V/J

PCIEX16:15/4/8/4/15

EXP_RXP[0..15] → EXP_RXP[0..15] 11
EXP_RXN[0..15] → EXP_RXN[0..15] 11
EXP_TXP[0..15] → EXP_TXP[0..15] 11
EXP_TXN[0..15] → EXP_TXN[0..15] 11

EXP_TXP0	C24	0.1u/4/X7R/16V/K	EXP_TXP0C
EXP_TXN0	C23	0.1u/4/X7R/16V/K	EXP_TXN0C
EXP_TXP1	C25	0.1u/4/X7R/16V/K	EXP_TXP1C
EXP_TXN1	C27	0.1u/4/X7R/16V/K	EXP_TXN1C
EXP_TXP2	C29	0.1u/4/X7R/16V/K	EXP_TXP2C
EXP_TXN2	C33	0.1u/4/X7R/16V/K	EXP_TXN2C
EXP_TXP3	C34	0.1u/4/X7R/16V/K	EXP_TXP3C
EXP_TXN3	C44	0.1u/4/X7R/16V/K	EXP_TXN3C
EXP_TXP4	C46	0.1u/4/X7R/16V/K	EXP_TXP4C
EXP_TXN4	C48	0.1u/4/X7R/16V/K	EXP_TXN4C
EXP_TXP5	C52	0.1u/4/X7R/16V/K	EXP_TXP5C
EXP_TXN5	C51	0.1u/4/X7R/16V/K	EXP_TXN5C
EXP_TXP6	C55	0.1u/4/X7R/16V/K	EXP_TXP6C
EXP_TXN6	C54	0.1u/4/X7R/16V/K	EXP_TXN6C
EXP_TXP7	C58	0.1u/4/X7R/16V/K	EXP_TXP7C
EXP_TXN7	C57	0.1u/4/X7R/16V/K	EXP_TXN7C
EXP_TXP8	C59	0.1u/4/X7R/16V/K	EXP_TXP8C
EXP_TXN8	C61	0.1u/4/X7R/16V/K	EXP_TXN8C
EXP_TXP9	C64	0.1u/4/X7R/16V/K	EXP_TXP9C
EXP_TXN9	C65	0.1u/4/X7R/16V/K	EXP_TXN9C
EXP_TXP10	C71	0.1u/4/X7R/16V/K	EXP_TXP10C
EXP_TXN10	C70	0.1u/4/X7R/16V/K	EXP_TXN10C
EXP_TXP11	C78	0.1u/4/X7R/16V/K	EXP_TXP11C
EXP_TXN11	C76	0.1u/4/X7R/16V/K	EXP_TXN11C
EXP_TXP12	C86	0.1u/4/X7R/16V/K	EXP_TXP12C
EXP_TXN12	C88	0.1u/4/X7R/16V/K	EXP_TXN12C
EXP_TXP13	C93	0.1u/4/X7R/16V/K	EXP_TXP13C
EXP_TXN13	C90	0.1u/4/X7R/16V/K	EXP_TXN13C
EXP_TXP14	C96	0.1u/4/X7R/16V/K	EXP_TXP14C
EXP_TXN14	C94	0.1u/4/X7R/16V/K	EXP_TXN14C
EXP_TXP15	C122	0.1u/4/X7R/16V/K	EXP_TXP15C
EXP_TXN15	C109	0.1u/4/X7R/16V/K	EXP_TXN15C

11 SDVO_CLCLK
11 SDVO_CLDATA
12 EXP_PRSNT_N

EXP_TXP0C EXP_TXN0C
EXP_TXP1C EXP_TXN1C
EXP_TXP2C EXP_TXN2C
EXP_TXP3C EXP_TXN3C
EXP_TXP4C EXP_TXN4C
EXP_TXP5C EXP_TXN5C
EXP_TXP6C EXP_TXN6C
EXP_TXP7C EXP_TXN7C
EXP_PRSNT_N
EXP_TXP8C EXP_TXN8C
EXP_TXP9C EXP_TXN9C
EXP_TXP10C EXP_TXN10C
EXP_TXP11C EXP_TXN11C
EXP_TXP12C EXP_TXN12C
EXP_TXP13C EXP_TXN13C
EXP_TXP14C EXP_TXN14C
EXP_TXP15C EXP_TXN15C

EXP_RXP0 EXP_RXN0
EXP_RXP1 EXP_RXN1
EXP_RXP2 EXP_RXN2
EXP_RXP3 EXP_RXN3
EXP_RXP4 EXP_RXN4
EXP_RXP5 EXP_RXN5
EXP_RXP6 EXP_RXN6
EXP_RXP7 EXP_RXN7
EXP_RXP8 EXP_RXN8
EXP_RXP9 EXP_RXN9
EXP_RXP10 EXP_RXN10
EXP_RXP11 EXP_RXN11
EXP_RXP12 EXP_RXN12
EXP_RXP13 EXP_RXN13
EXP_RXP14 EXP_RXN14
EXP_RXP15 EXP_RXN15

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

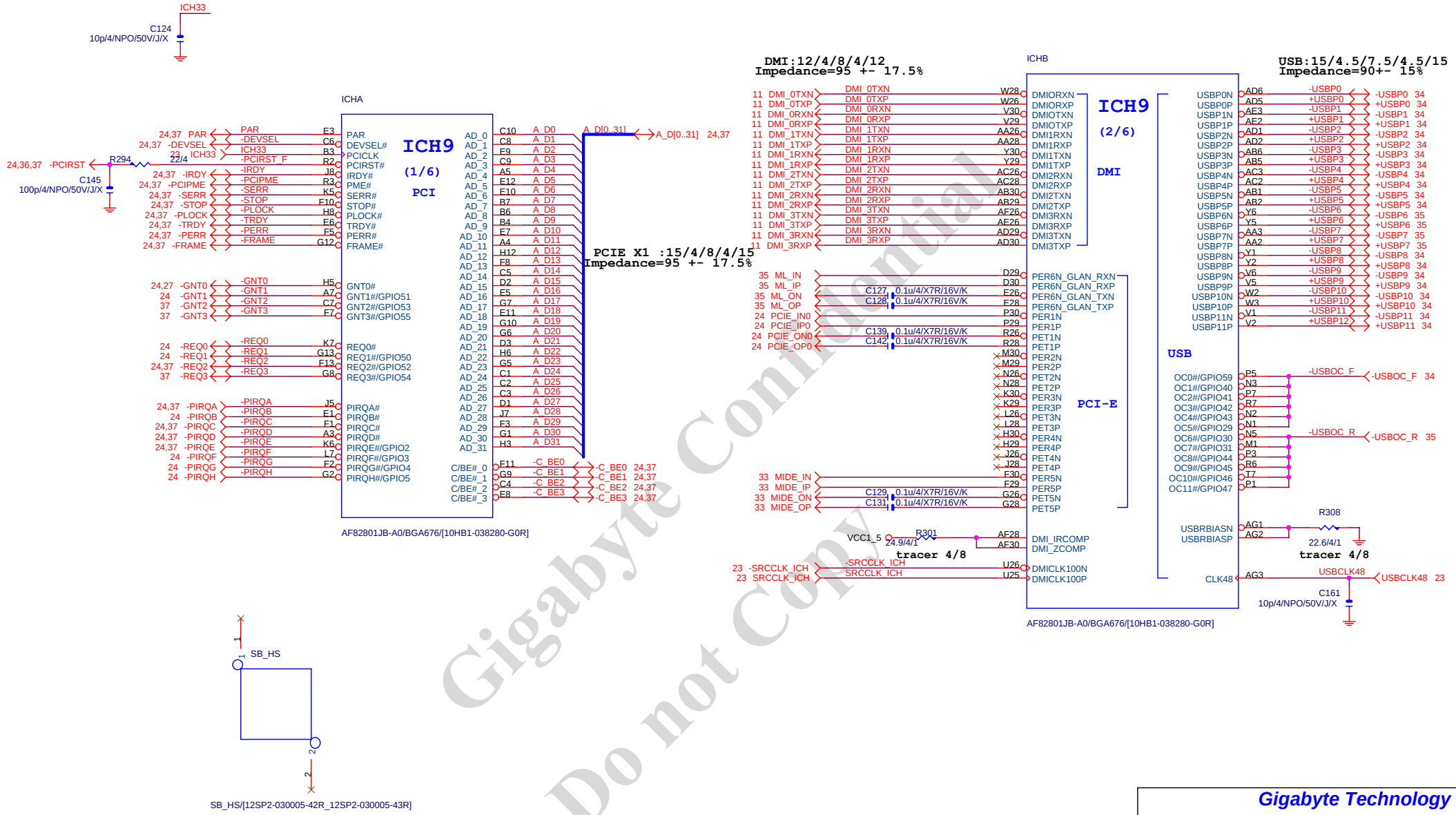
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

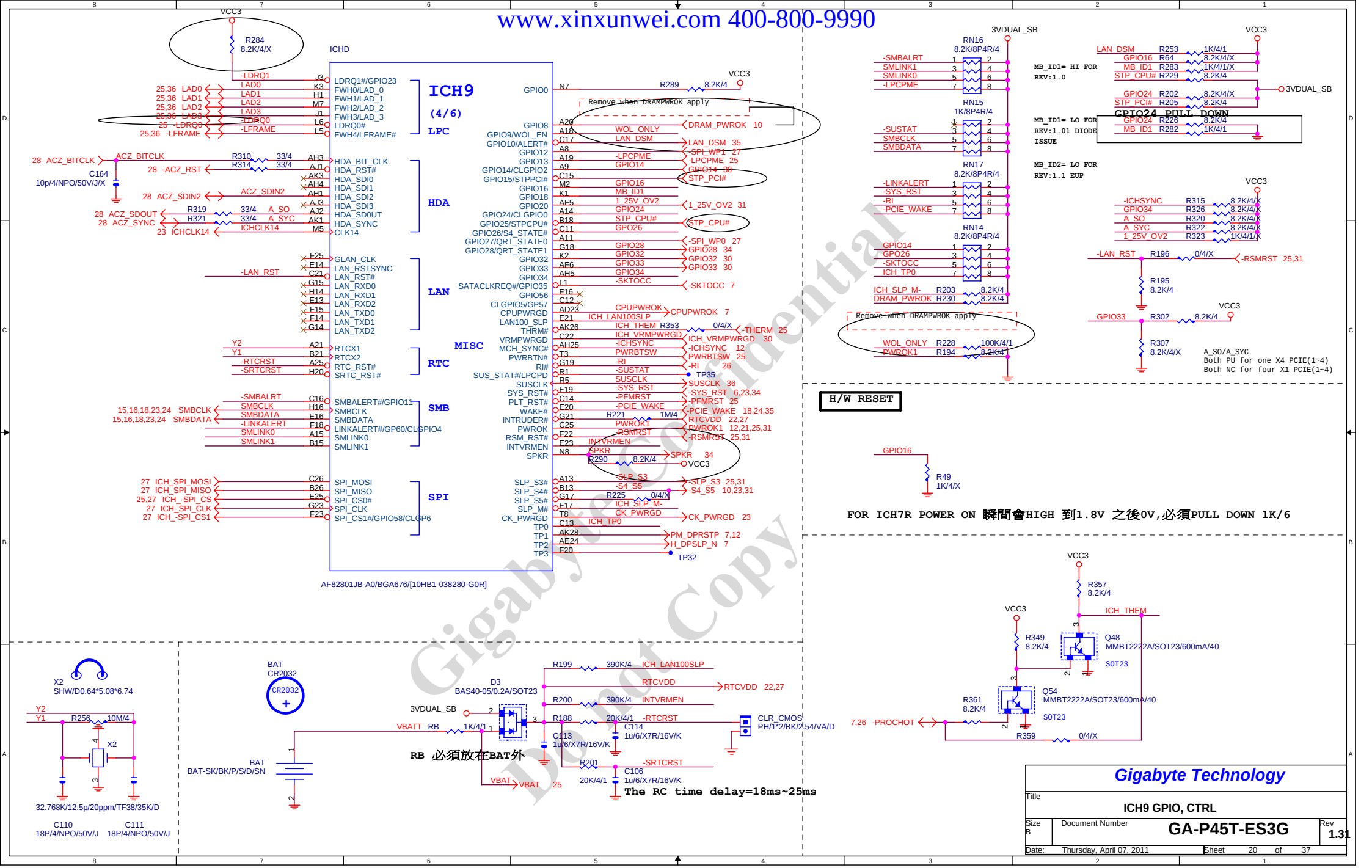
PCI-E REV:2.0--> 5GHZ

Gigabyte Technology

Title	PCI EXPRESS * 16		
Size Custom	Document Number	GA-P45T-ES3G	Rev 1.31
Date: Thursday, April 07, 2011	Sheet 18 of 37		



Gigabyte Technology		
Title: ICH9-PCI, DMI, LAN, USB		
Size: B	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 19 of 37	



Gigabyte Technology			
Title	ICH9 GPIO, CTRL		
Size B	Document Number	GA-P45T-ES3G	Rev 1.31
Date: Thursday, April 07, 2011	Sheet 20 of 37		

CL_VREF:4/10
0.405V

VCC1_5
R257 24.9/6/1
ICHC

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

ICH9 (3/6)

12 CL_CLK → CL_CLK → G22 GLAN_CLK0
TP29
12 CL_DATA → CL_DATA → H21 CL_DATA0
TP31 → E19 TP4
R254 0/4/X S_VREF_ICH → C27 CL_VREF0
12,20,25,31 PWROK1 → A16 TP6 CLPWROK
TP30 → B16 TP7
12 -CL_RST → -CL_RST → G20 CL_RST0#

A29 GLAN_COMPO
B29 GLAN_COMPI

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

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
30 PSI_CTL → AD20 GPIO48/SDATAOUT1
VCC3 R335 8.2K/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

SATA

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 → R327 24.9/4/1 → -SATALED 34
SATARBIASN AK6
SATARBIASP 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 7
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
R227 453/4/1
S_VREF_ICH

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

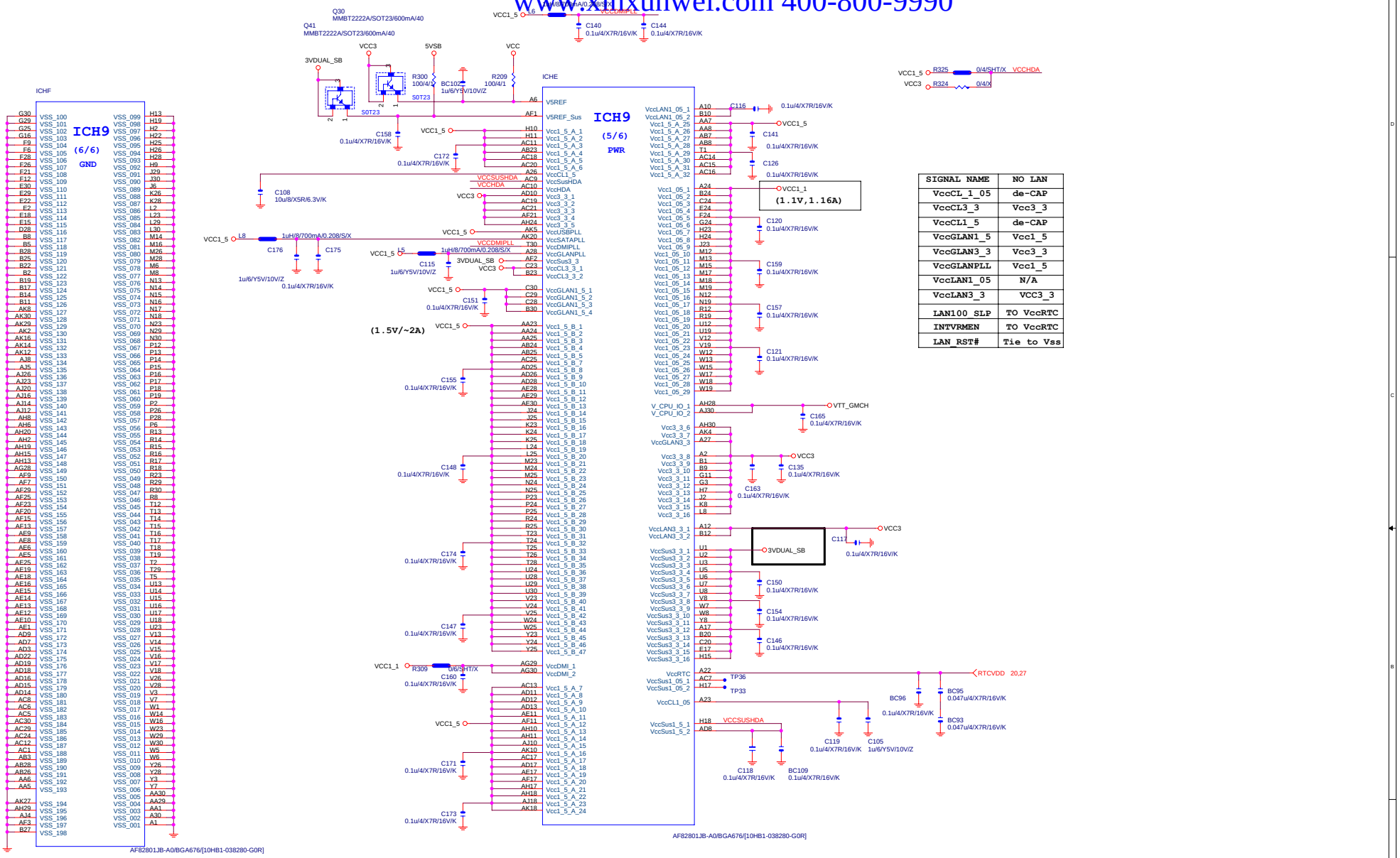
SATA2_4
SATA4TXP 0.01u/4/X7R/25V/K C188 SATA4TXPC
SATA4TXN 0.01u/4/X7R/25V/K C186 SATA4TXNC
SATA4RXN 0.01u/4/X7R/25V/K C183 SATA4RXNC
SATA4RXP 0.01u/4/X7R/25V/K C181 SATA4RXPC
GND A+ A- GND B- B+ GND
SATA2/7/BU/H/OP/VA/D/1/B

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: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	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: GA-P45T-ES3G		Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 22 of 37		

CLK GEN CK505

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]

U15

RTM875T-587-VC-GRT/S

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

Trusted Mode
FOR RTM587
overclocking

EUP

Gigabyte Technology	
Title	CK505 CLK GEN
Size: Custom	Document Number: GA-P45T-ES3G
Rev	1.31
Date: Thursday, April 07, 2011	Sheet 23 of 37

PCI1,2 SLOT

PCI1

PCI120/P/IV/VA

-REQ0/-GNT0/AD16

PCI2

PCI120/P/IV/VA

-1REQ/-1GNT/AD17

PCIE*1

PCIEX1 3GIO_X1

PCI-E/1X-36P/WH/OL

Place close to PCI1

Gigabyte Technology		
Title	PCI SLOT 1, 2/PCIEX1	
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
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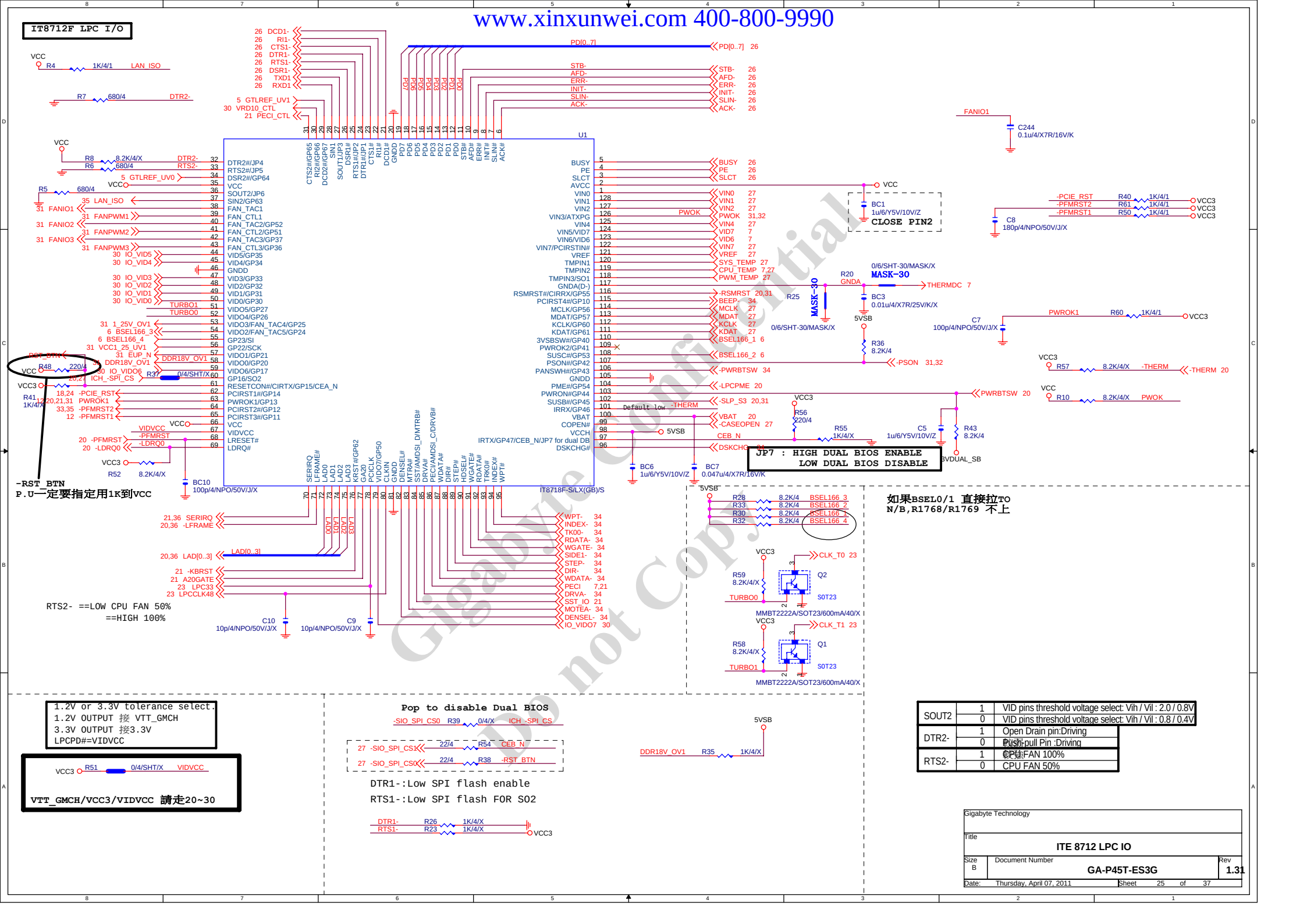
IT8712F LPC I/O



-RST_BTN
P.U一定要指定用1K到VCC

RTS2- ==LOW CPU FAN 50%
==HIGH 100%

JP7 : HIGH DUAL BIOS ENABLE
LOW DUAL BIOS DISABLE

如果BSEL0/1 直接拉TO
N/B,R1768/R1769 不上

1.2V or 3.3V tolerance select.
1.2V OUTPUT 接 VTT_GMCH
3.3V OUTPUT 接3.3V
LPCPD#=VIDVCC

VTT_GMCH/VCC3/VIDVCC 請走20~30

Pop to disable Dual BIOS

DTR1-:Low SPI flash enable
RTS1-:Low SPI flash FOR SO2

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
	0	Push-pull Pin :Driving
RTS2-	1	CPU FAN 100%
	0	CPU FAN 50%

Gigabyte Technology

Title: ITE 8712 LPC IO

Size: B | Document Number: GA-P45T-ES3G | Rev: 1.31

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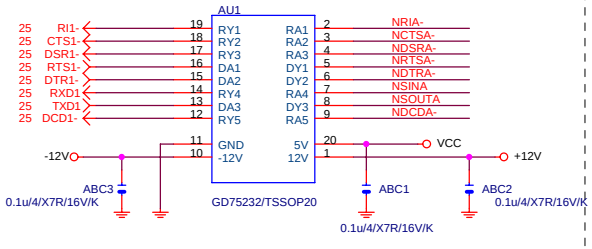
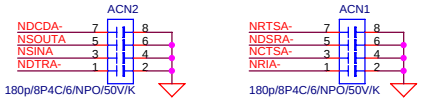
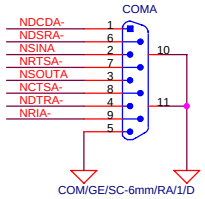
COMA

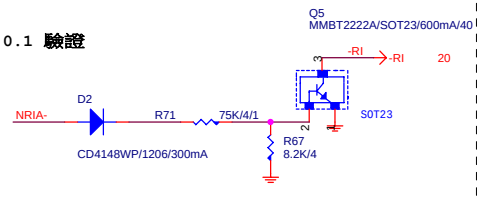




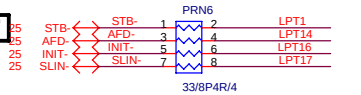


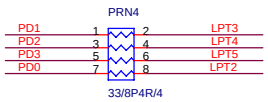
COM RI

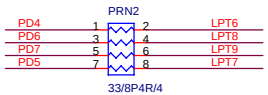
REV:0.1 驗證

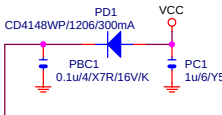


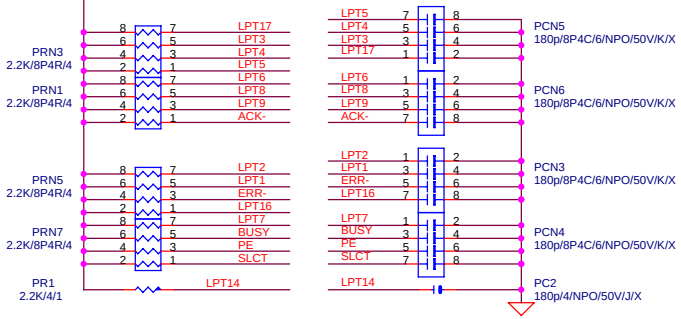
LPT PORT

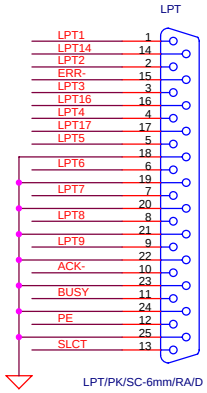




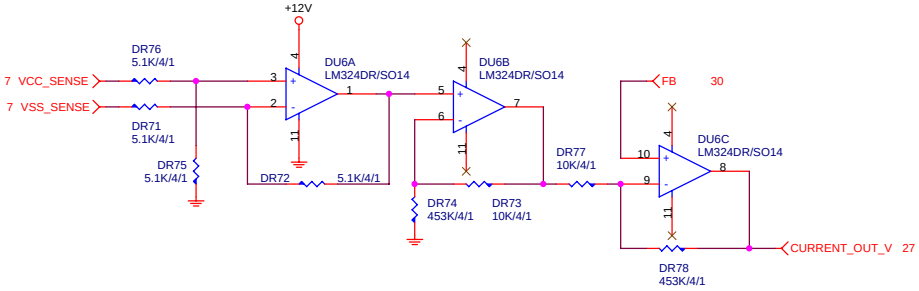








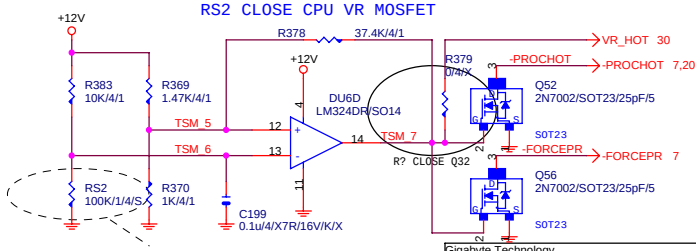
DYNAMIC CURRENT OC



-PROHOT

asserted at 131 degree
deasserted at 116 degree

RS2 CLOSE CPU VR MOSFET



CLOSE PWM HOT MOSFET

Gigabyte Technology

Title: COM & LPT PORT

Size	Document Number	Rev
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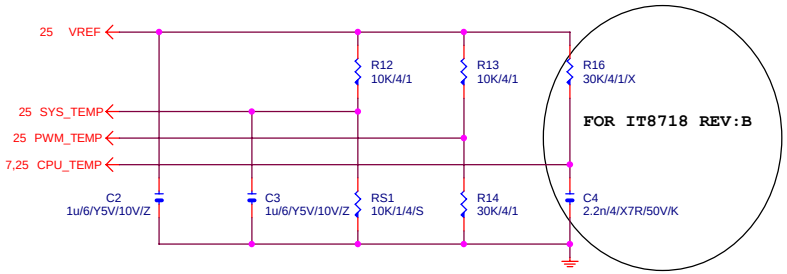
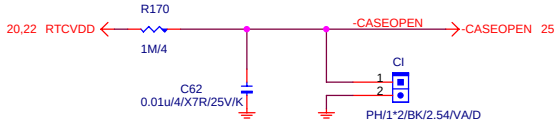
TEMP H/W MONITOR

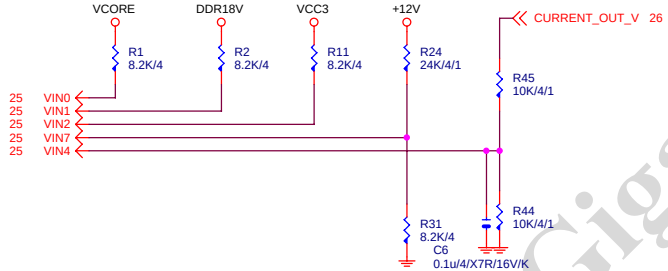


CASE OPEN

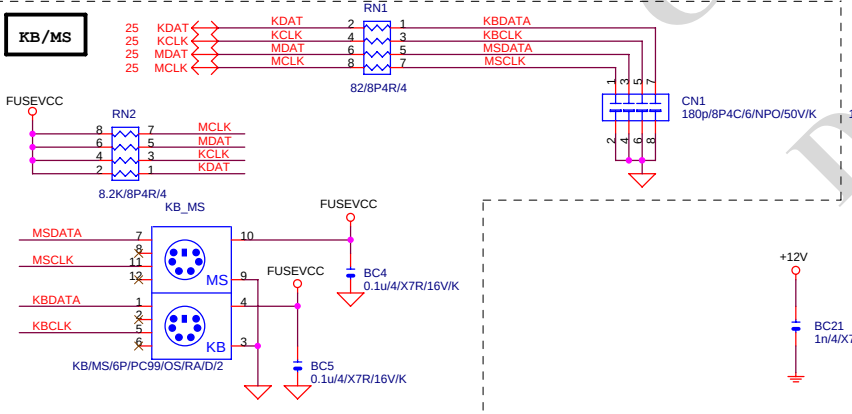


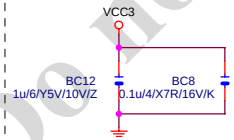
Case Open Circuits

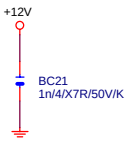
VOLTAGE-- H/W MONITOR

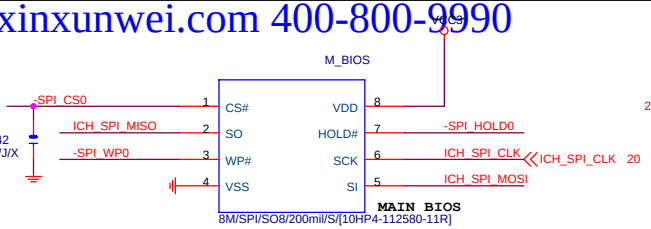


KB/MS

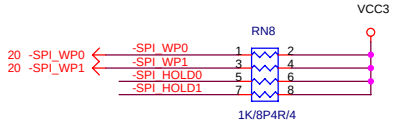


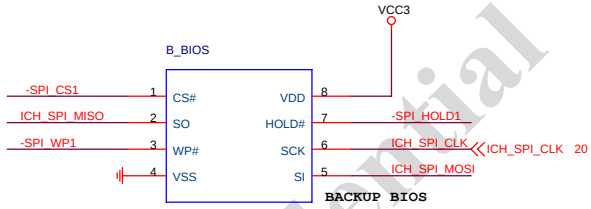






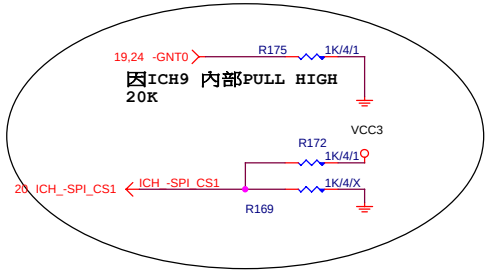
MXIC(4K)/SST(4K)

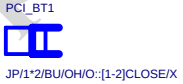




MXIC(4K)/SST(4K)

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: GA-P45T-ES3G | Rev: 1.31

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AZALIA CODEC

CR8 20K/4/1

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

AVDD

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

ALC888/ALC888VC Colay

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

CR66 8.2K/4/X

CR67 0/4/X

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

1	DVDD1	48	SPDIFO
2	GPIO0/XTALI	47	SPDIF/EAPD
3	GPIO1/XTALO	46	SURBACK-R/XTALSEL
4	DVS1	45	SURBACK-L/JD0 GPIO0
5	SDATA_OUT	44	LFE
6	BIT_CLK	43	CEN
7	DVSS2	42	AVSS2
8	SDATA-IN	41	SURR-R
9	DVDD2	40	JDREF (NC)/JD3
10	SYNC	39	SURR-L
11	RESET#	38	AVDD2
12	PC_BEEP	37	LINE1-VREFOR/VREFO3
36	FRONT-R		
35	FRONT-L		
34	SENSE B (JD2)/FMIC1		
33	DCVOL/VREFVOUT2		
32	MIC1-VREFO-R/FMIC2		
31	LINE2-VREFO/JD4		
30	MIC2-VREFO/AFILT2		
29	LINE1-VREFO-L/AFILT1		
28	MIC1-VREFO-L/VREFOUT		
27	VREF		
26	AVSS1		
25	AVDD1		
13	SENSE A(JD1)/PHONE JD5		
14	LINE2-L/AUX-L		
15	LINE2-R/AUX-R		
16	MIC2-L/JD2		
17	MIC2-R/JD1 GPIO1		
18	CD_L		
19	CD_GND		
20	CD_R		
21	MIC1-L/MIC1		
22	MIC1-R/MIC2		
23	LINE1-L		
24	LINE1-R		

FRONT-R 36 → LINE_O_R 29
FRONT-L 35 → LINE_O_L 29
SENSE B (JD2)/FMIC1 34 → CR61 8.2K/4/X → AVDD
DCVOL/VREFVOUT2 33 → VODR → VODR 29
MIC1-VREFO-R/FMIC2 32 → LINE2_VREFO 29
LINE2-VREFO/JD4 31 → MIC2_VREFO 29
MIC2-VREFO/AFILT2 30 → CR68 0/4/X VOCR → VOCR 29
LINE1-VREFO-L/AFILT1 29 → VOBR → VOBR 29
MIC1-VREFO-L/VREFOUT 28
VREF 27
AVSS1 26 → AVDD
AVDD1 25

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

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

ALC892-GR/LQFP48

CR69 0/6 5VDUAL

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

CD3 AZ2225-01L/SOD323

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

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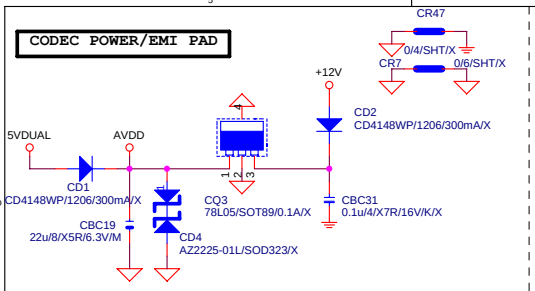
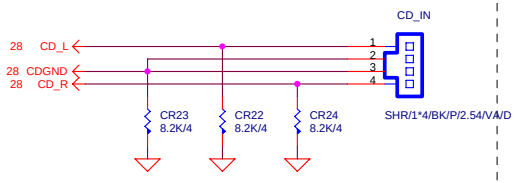
CODEC POWER/EMI PAD

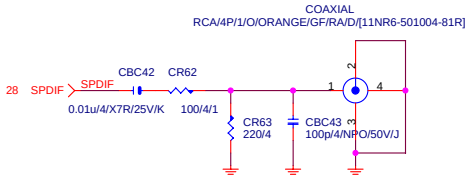


CO-LAYOUT

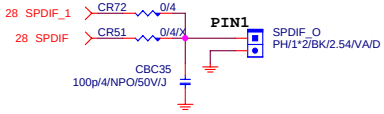
FOR EMI

CD IN

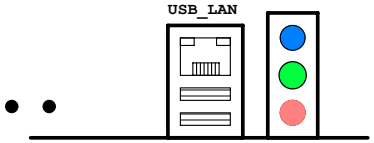


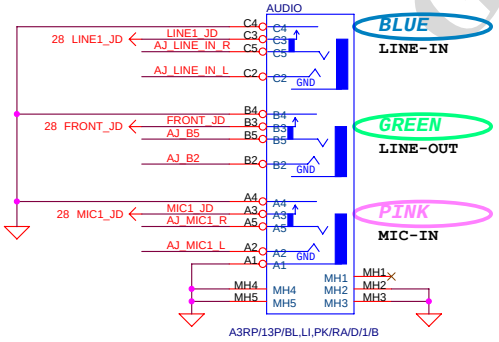


SPDIF

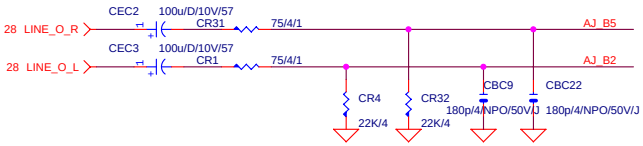


AZALIA JACK

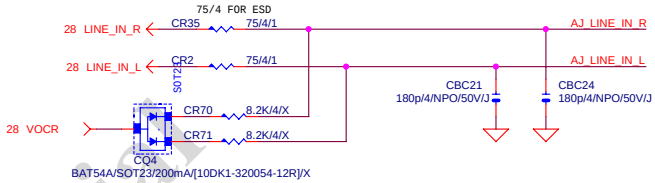




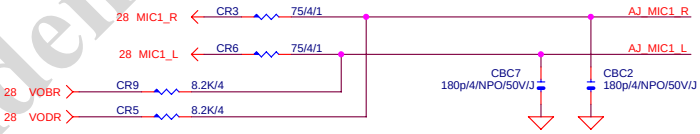
LINE-OUT



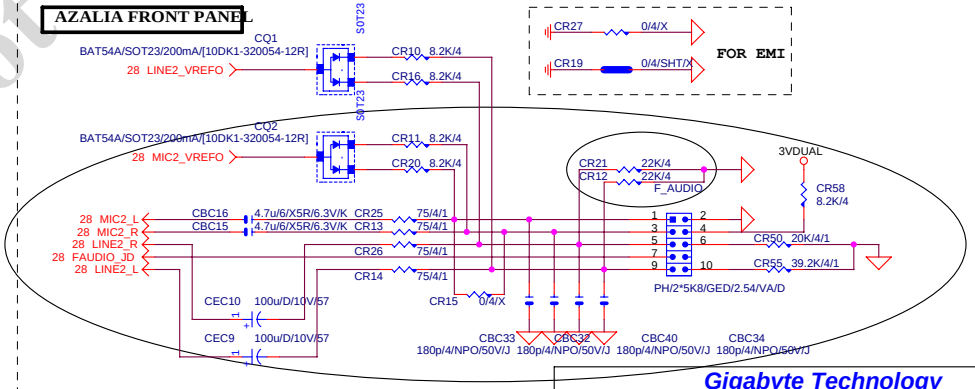
LINE-IN



MIC-IN



AZALIA FRONT PANEL



Gigabyte Technology

Title: AUDIO JACK

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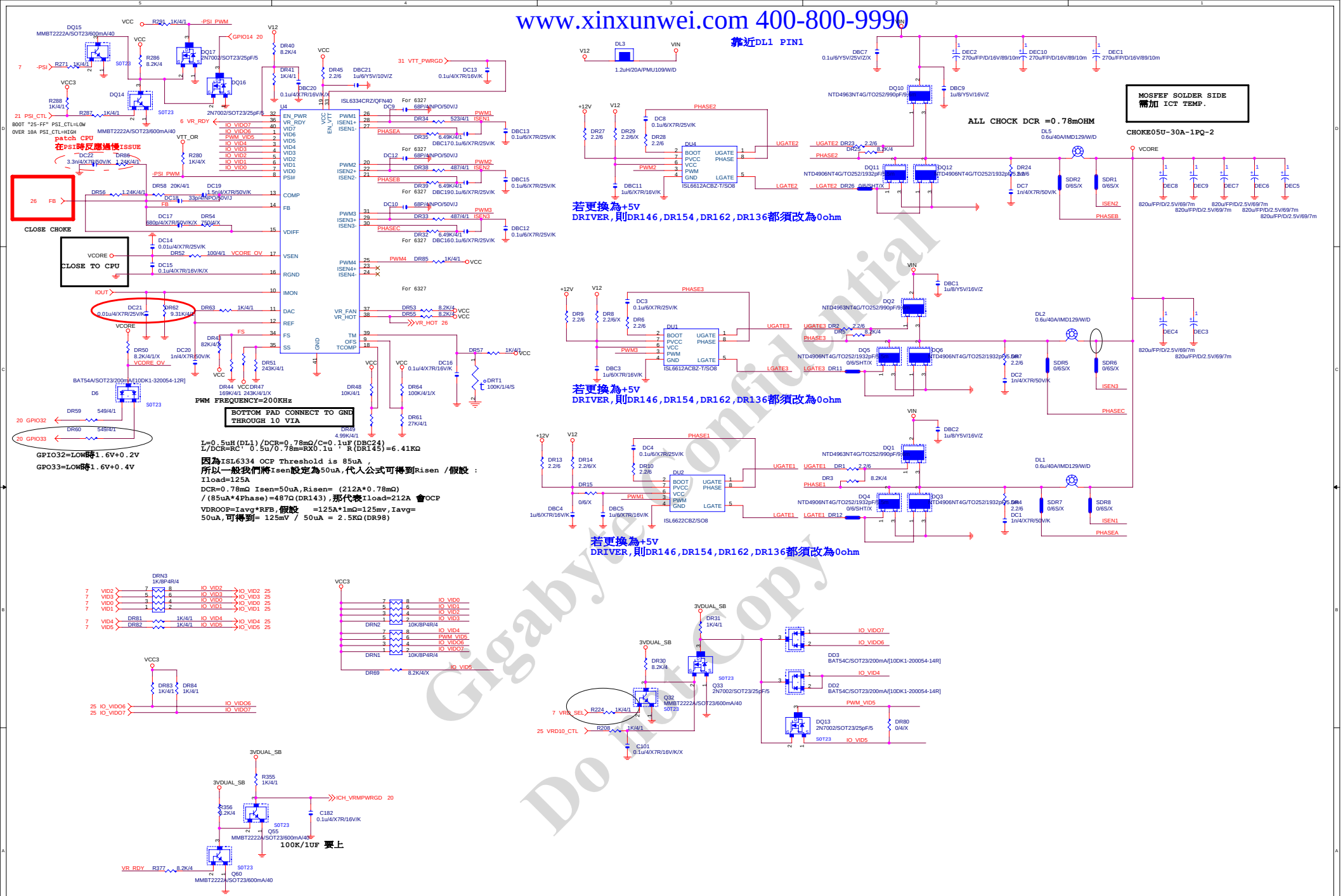
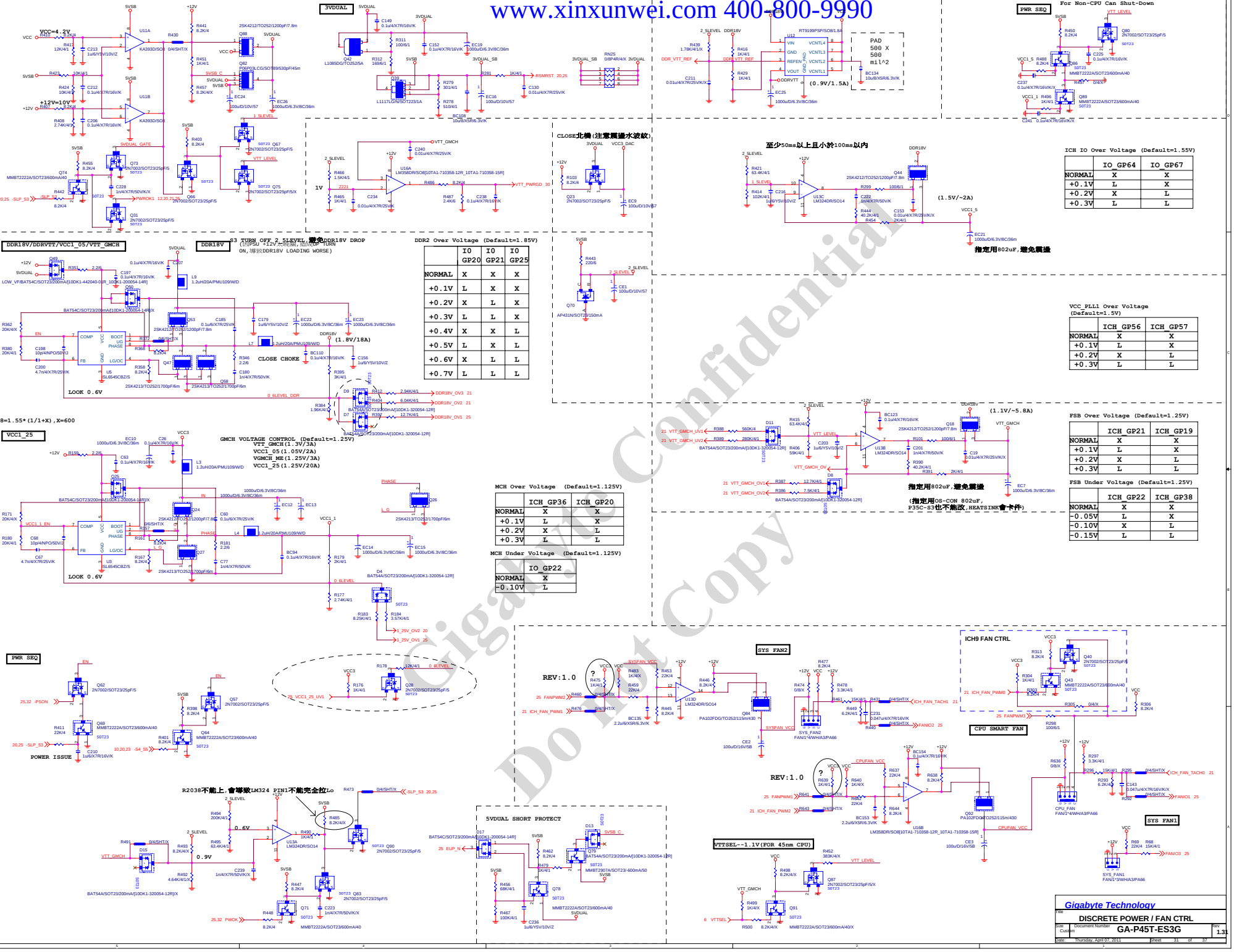
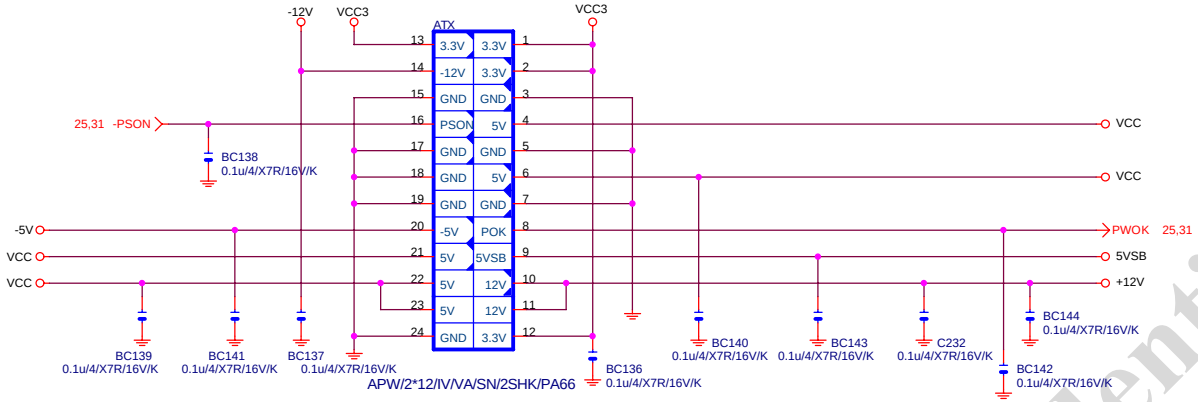
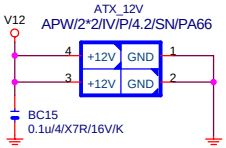
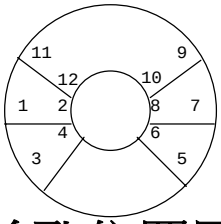


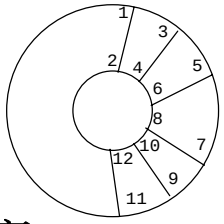


ATX POWER CONNECTOR

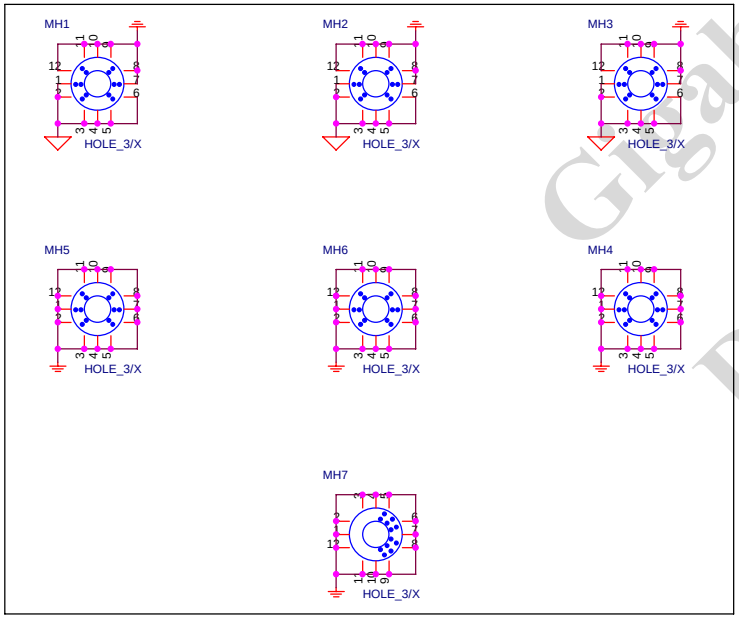


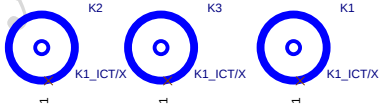


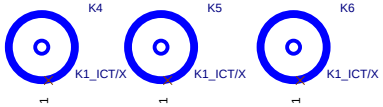


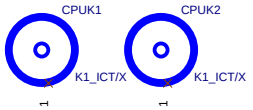


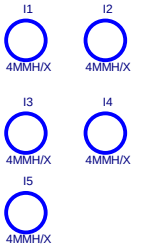
螺絲孔位置圖 (注意Footprint不同)











Gigabyte Technology		
Title: ATX POWER CONNECTOR		
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3.3V to 1.8V Voltage Regulator

L1117LG/N/SOT223/1A

RQ1 VCC_1.8V → VCC3

RR1 100/4/1

RR2 44.2/4/1

VCC1.8V=1.8V

RBC6 0.1u/4/X7R/16V/K

RBC1 10u/8/X5R/6.3V/K

REC2 100u/D/10V/57

25,35 -PFMRST2 → -PFMRST2

RC1 100p/4/NPO/50V/J/X

JMB368

JM368/LQFP40

RU1

DMARQA	37	XIDMRAQA	
DD15A	38	ZIDD15A	
VCC3	39	DV33	
GND	40	XSMBCLK	
GND	41	XSMBDAT	
-PFMRST2	42	XRSTn	
DD0A	43	ZIDD0A	
DD14A	44	ZIDD14A	
DD1A	45	ZIDD1A	
DD13A	46	ZIDD13A	
DD2A	47	ZIDD2A	
DD12A	48	ZIDD12A	
		ZIDD3A	24 DD3A
		ZIDD11A	23 DD11A
		DV33	22 VCC3
		ZIDD4A	21 DD4A
		ZIDD10A	20 DD10A
		ZIDD5A	19 DD5A
		ZIDD9A	18 DD9A
		ZIDD6A	17 DD6A
		ZIDD8A	16 DD8A
		ZIDD7A	15 DD7A
		YROMCSn	14
		XTEST	13 GND

DMACKnA IORDYA DIORnA DIOWnA DVDD_1.8V INTRQA PDIAGnA DA1A DA0A DA2A CS0nA CS1nA (pins 36 35 34 33 32 31 30 29 28 27 26 25)

YIDMACKnA YIIORDYA YIDIORnA YIDIOWnA DV18 XINTRQA XICBLIDA YIDA1A YIDA0A YIDA2A YICS0nA YICS1nA

DGND ACPLKN ACPLKP APV18 APG18 APREXT APRXP APRXN APV18 APG18 APTXN APTXP (pins 1 2 3 4 5 6 7 8 9 10 11 12)

GND -SRCCLK_IDE SRCCLK_IDE APVDD_1.8V GND PCIE_REXT1 MIDE_OP MIDE_ON APVDD_1.8V GND PCIE_TXN PCIE_TXP

RC2 0.1u/4/X7R/16V/K → MIDE_IP 19

RC3 0.1u/4/X7R/16V/K → MIDE_IN 19

MIDE_ON 19

MIDE_OP 19

SRCCLK_IDE 23

-SRCCLK_IDE 23

VCC → RR7 1K/4/1 → PH_RESETnA

VCC3 → RR3 8.2K/4

RQ2 MMBT2222A/SOT23/600mA/40 S0T23

-PFMRST2

OLNY FOR JMB368

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

VCC3 → PH_IORDY RR4 1K/4/1

CSELA RR10 0/4/SHT/X

PH_DMARQ RR6 8.2K/4

PH_INTRQ RR5 8.2K/4

DD7A RR8 8.2K/4

VCC3 → RBC7 0.1u/4/X7R/16V/K, RBC5 0.1u/4/X7R/16V/K

close to IC

VCC3 → RBC3 10u/8/X5R/6.3V/K, RBC2 0.1u/4/X7R/16V/K, REC1 100u/D/10V/57

Close to pin22 and pin39

PCIE_REXT1 → RR9 8.06K/4/1

Near to PIN

VCC3 → RR12 1K/4/X, RQ3 BAT54A/SOT23/200mA/[10DK1-320054-12R]

DASPnXA → -HDLED → -HDLED 34

RC4 180p/4/NPO/50V/J/X

RR11 0/4/X

SOT23

VCC_1.8V DVDD_1.8V → RBC9 0.1u/4/X7R/16V/K

VCC_1.8V APVDD_1.8V → RBC10 0.1u/4/X7R/16V/K, RBC8 10u/8/X5R/6.3V/K

CLOSE TO pin22

VCC_1.8V APVDD_1.8V → RBC11 10u/8/X5R/6.3V/K, RBC4 0.1u/4/X7R/16V/K

close to pin17

IDE Connector

IDE

PH_RESETnA	1	2	
PH_DD7	3	4	PH_DD8
PH_DD6	5	6	PH_DD9
PH_DD5	7	8	PH_DD10
PH_DD4	9	10	PH_DD11
PH_DD3	11	12	PH_DD12
PH_DD2	13	14	PH_DD13
PH_DD1	15	16	PH_DD14
PH_DD0	17	18	PH_DD15
	19		(#20 key-pin)
PH_DMARQ	21	22	
PH_DIOW_N	23	24	
PH_DIOR_N	25	26	(#28 CSEL)
PH_IORDY	27	28	CSELA
PH_DMACK_N	29	30	
PH_INTRQ	31	32	(#32 IOCS16)
PH_DA1	33	34	PH_CBLID_N
PH_DA0	35	36	PH_DA2
PH_CS0_N	37	38	PH_CS1_N
DASPnXA	39	40	

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

Gigabyte Technology

Title	JMR368	
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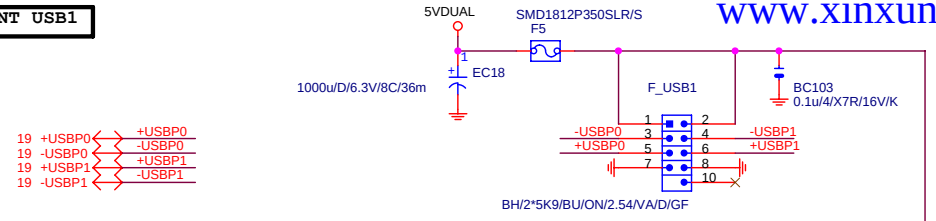
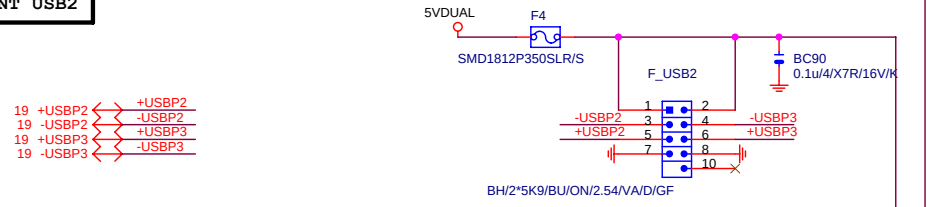
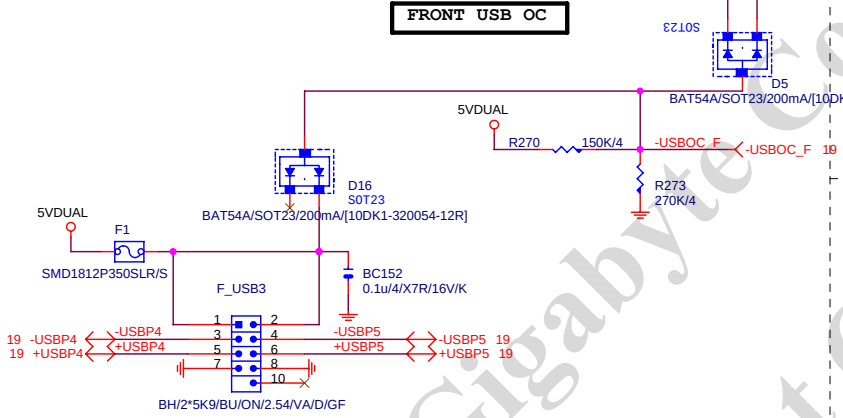
FRONT USB1



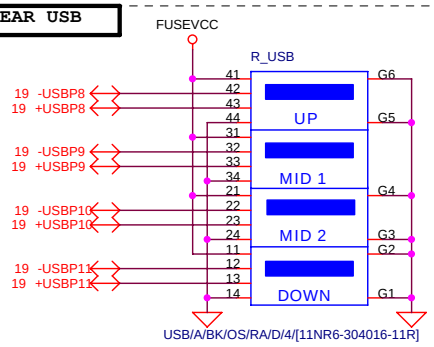
FRONT USB2



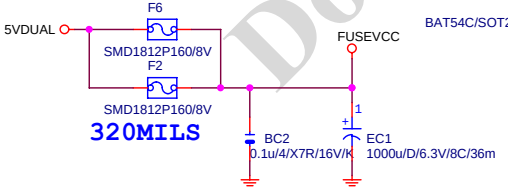
FRONT USB3



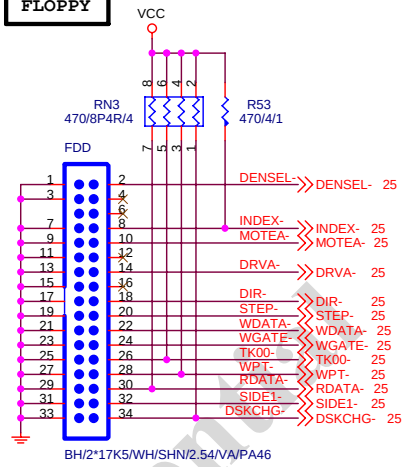
REAR USB



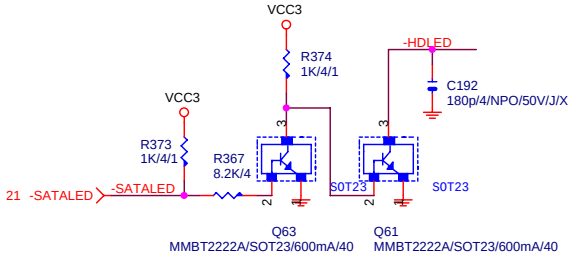
USB POWER

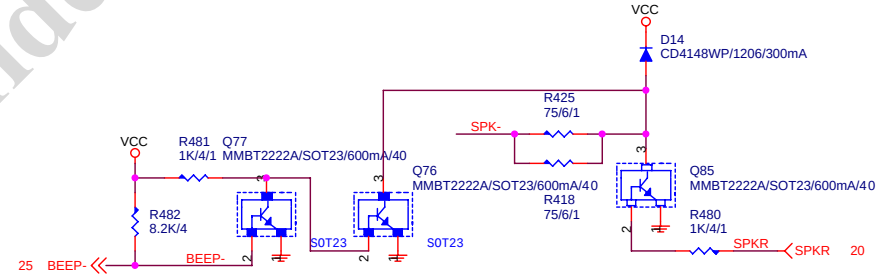


FLOPPY

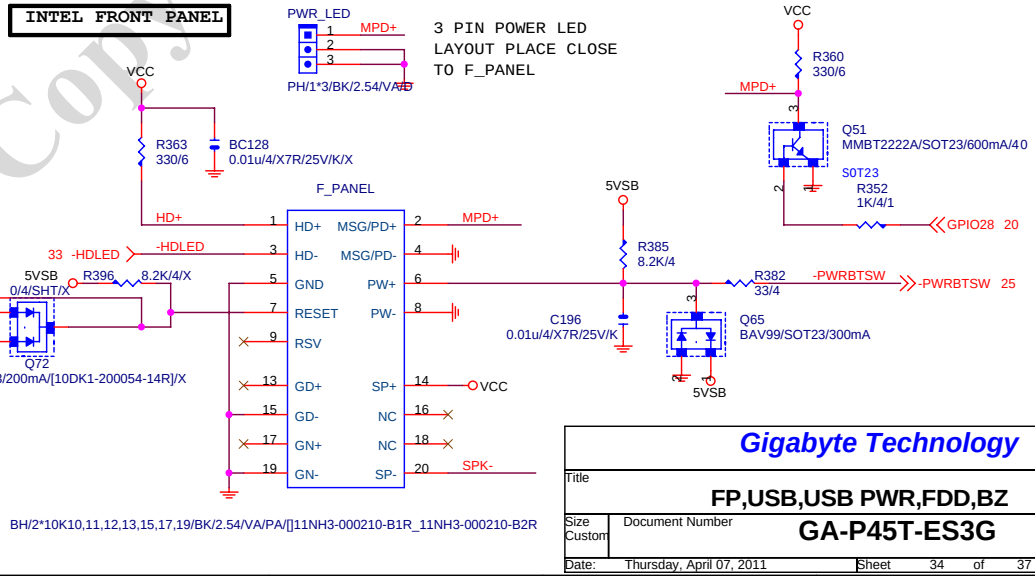


SATA LED



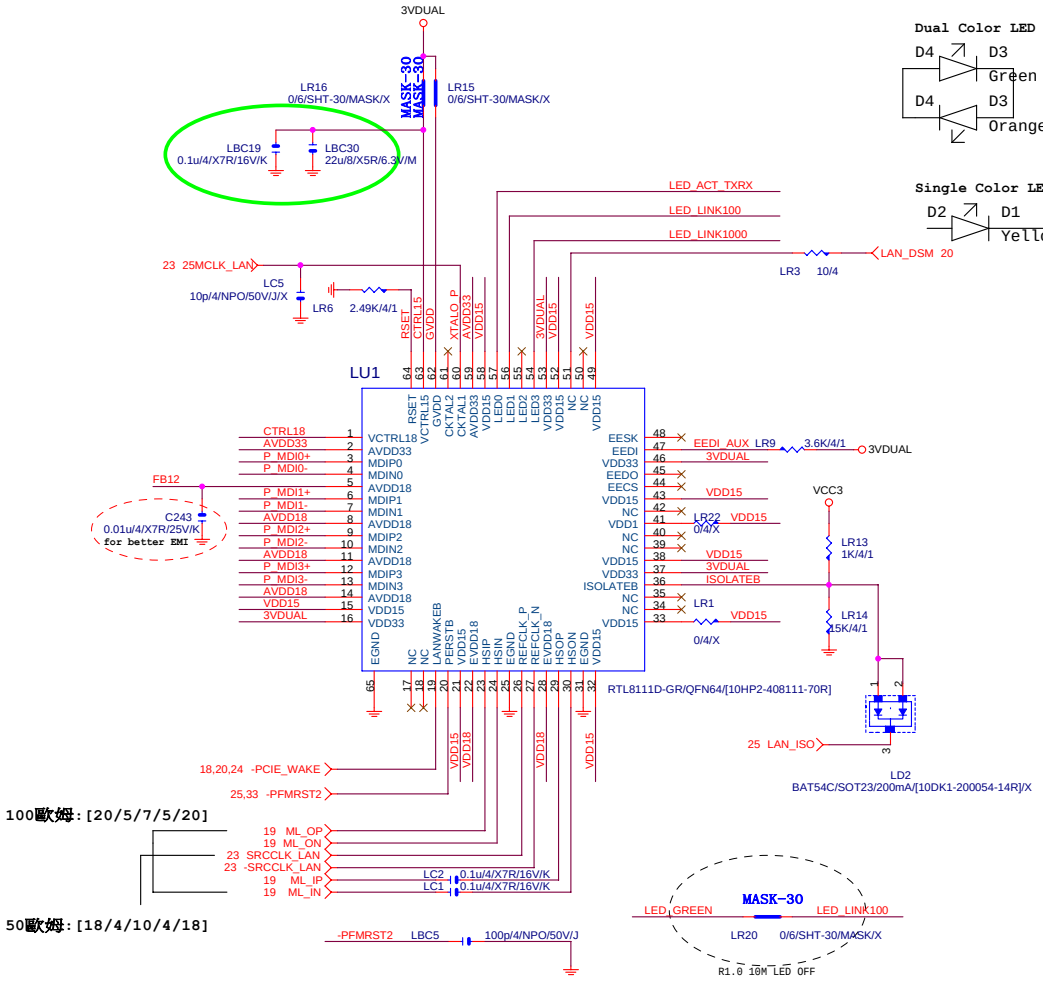


INTEL FRONT PANEL

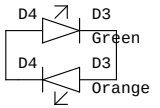


Gigabyte Technology		
Title	FP,USB,USB PWR,FDD,BZ	
Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
Date: Thursday, April 07, 2011	Sheet 34 of 37	

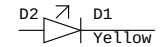
PCIE-1G LAN



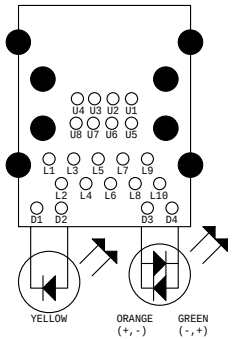
Dual Color LED



Single Color LED

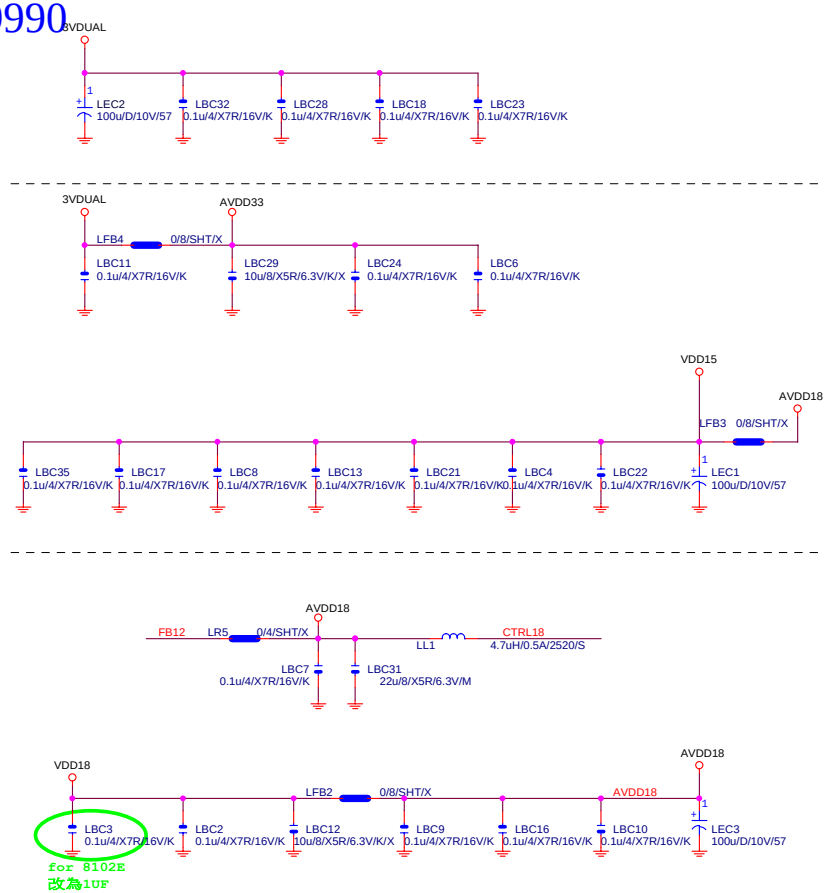


P35-152-19W9

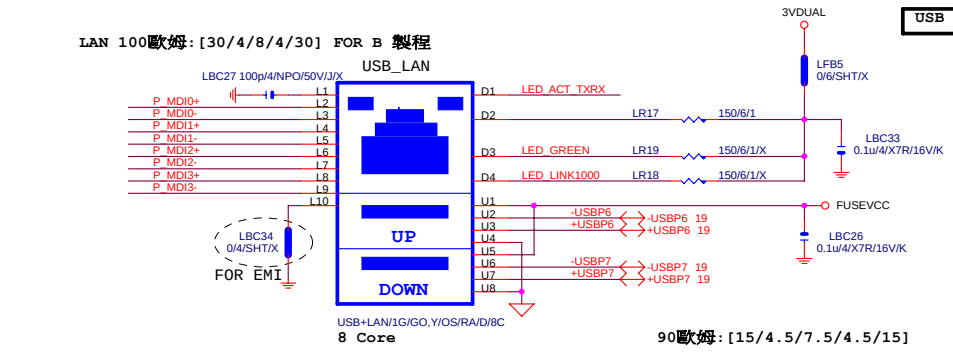


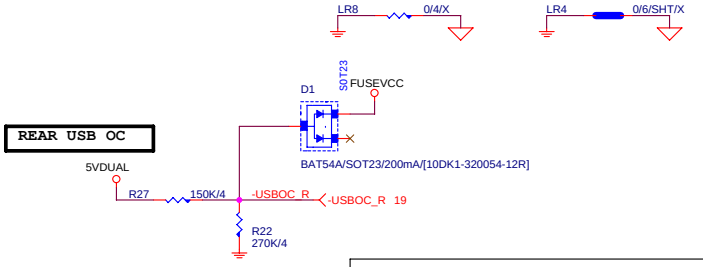
Power domain chart

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



USB_LAN CONNECTOR





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Title: RTL8111C			
Size: Custom	Document Number: GA-P45T-ES3G		Rev: 1.31
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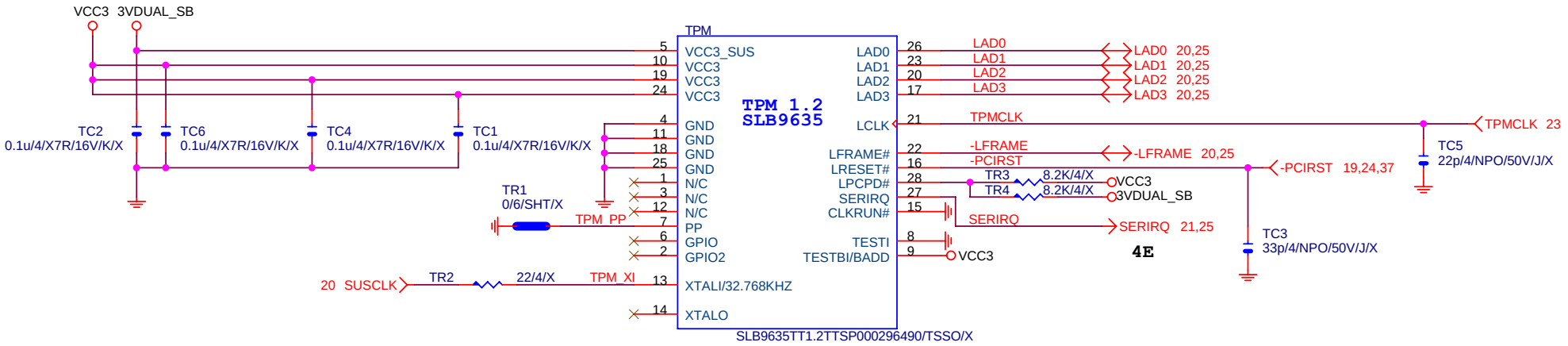

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Size: Custom	Document Number: GA-P45T-ES3G	Rev: 1.31
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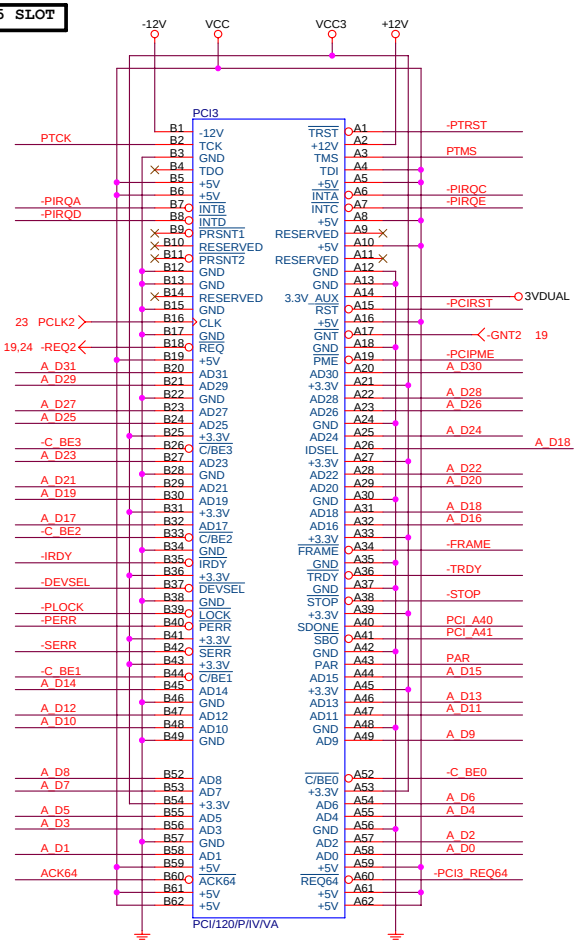
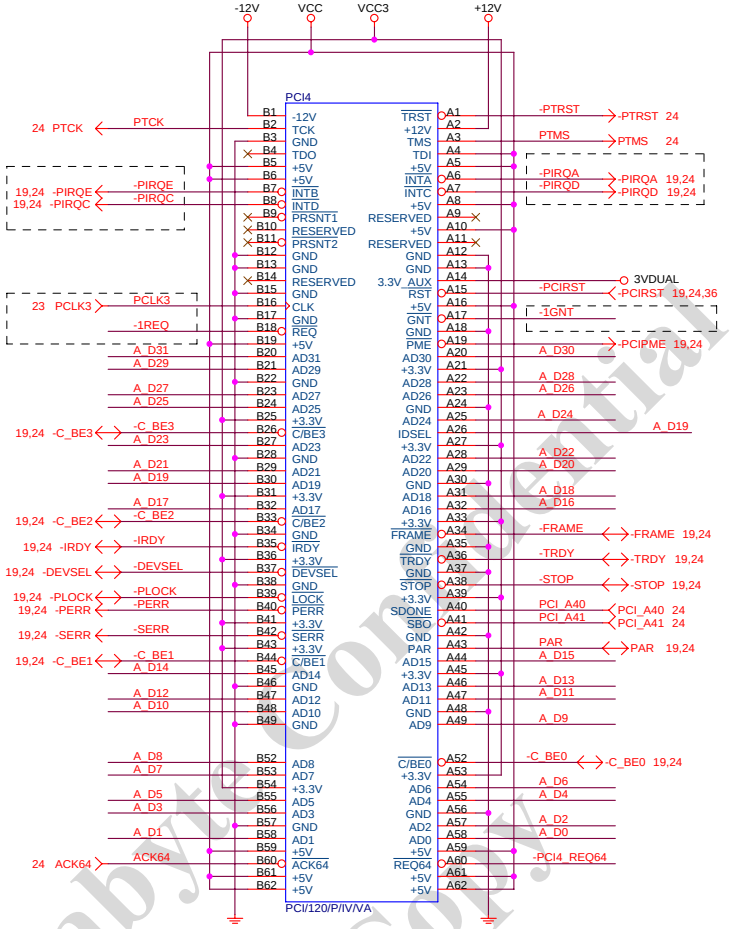
PCI 3,4,5 SLOT



AD_18/-PIRQ(C-A-E-D)/-REQ2/-GNT2



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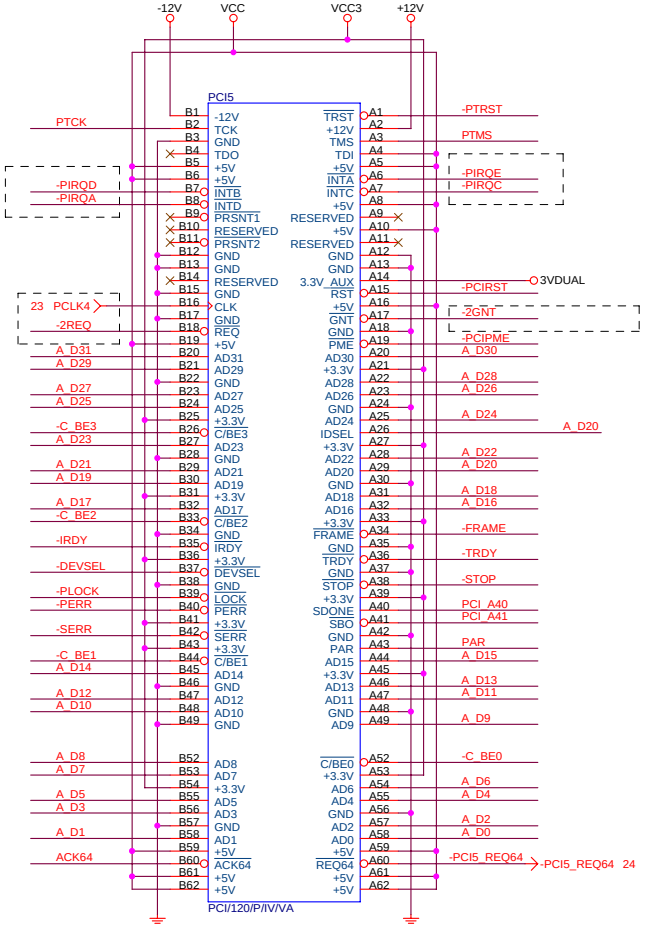
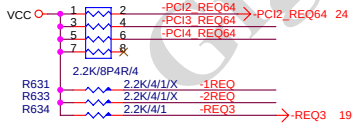
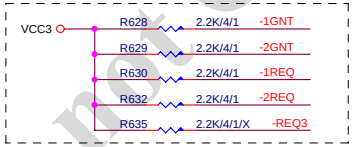
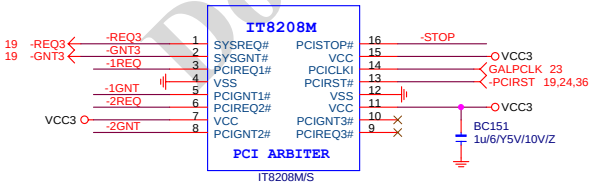
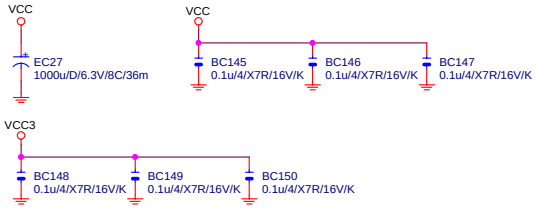


AD_20/-PIRQ(E-D-C-A)/-REQ4/-GNT4









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