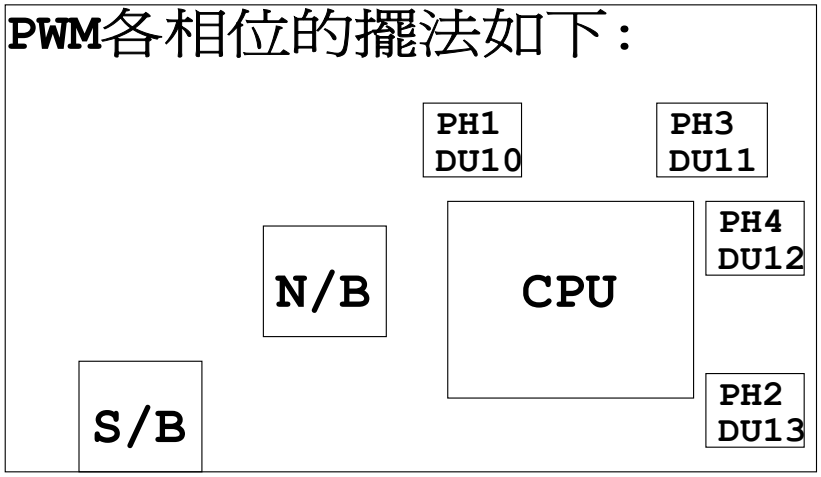
Model Name: GA-EP43-DS3

Rev.1.03

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	POWER MAP
05	P4_LGA775_A
06	P4_LGA775_B
07	P4_LGA775_C
08	P4_LGA775_D
09	GMCH-BEARLAKE_HOST
10	GMCH-BEARLAKE DDRII
11	GMCH-BEARLAKE_PCI E, DMI
12	GMCH-BEARLAKE_INT VGA
13	GMCH-BEARLAKE_GND
14	GMCH-BEARLAKE_PWR
15	DDRII CHANNEL A 1,2
16	DDRII CHANNEL B 1,2
17	DDRII TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH9 PCI, USB, DMI, LAN
20	ICH9 GPIO, CTRL
21	ICH9 SATA, FAN PWM
22	ICH9 VCC, GND
23	CLOCK GEN CK505
24	PCI EXPRESS*1 ,PCI SLOT 1,2
25	ITE8718/GB,RESET DRIVE
26	COM,LPT
27	BIOS,CI,HWM,KB/MS

SHEET	TITLE
28	AZALIA ALC889A
29	AUDIO JACK
30	VCORE PWM ISL6327
31	DISCRETE POWER
32	ATX POWER
33	JMicron JMB363
34	LAN REALTEK RTL8111B
35	FRONT PANEL,FUSB,FDD

PWM各相位的擺法如下：



Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-EP43-DS3 | Rev: 1.03

Date: Wednesday, May 14, 2008 | Sheet 1 of 38

Model Name: GA-EP43-DS3

Rev.1.03

Component value change history

Data	Change Item	Reason
0.1	1. P43 CHIPSET	
	2. 2N7002 DII REMOVE	
	3. RTL8111C REV.B -- >REV.C	
	4. DES阻值調整	
0.2	1. ICH --> ICH10	
	2. ADD R355,R357 8.2K/4 FOR PCIEX4	
10A	1. 包材修改	
	2. REMOVE BC26 0.1u/4	
	3. REMOVE C132,C133 22P/4	
	4. ADD LBC6 100P/4	
	1. 文字面"PCIEX8" , "NB_HS"	
	3. "USB_1394_1" & " USB_1394_2" SWAP	
	4. ADD TPM -PCIRST TC6=33P/4	
	5. DR130 169K/4/1	
10B	1. LED_PWR MODUFY	
	2. "+12V_ISEN" --> "VCC_PLL1" SHORT PROTECT	
	3. PCB REV1.02	
10C	1. GPIO16 R56 1K/4 REMOVE	
	2. DR130 169K/4/1 --> 121K/4/1 (PWM=200KHz)	
	3. Q61,Q97,Q16,Q17加替料10IF4-074860-01R	
10D	1. PCB REV1.02 --> REV1.03	
	2. 增加 CPU_FAN +12V POWER CE3=100uF	
	3. 增加 U15 upi6262 VCC Power (R620,R621,Q107)	
10E	1. U15 upi6262 change to "VCC" power	
10F	1. 包材修改	
	2. X1-SHT --> X2-SHT	
	3. USB_LAN替料移除11NR6-702009-92R	

Circuit or PCB layout change for next version

DATE	Change Item	Reason
0.1	0118 EVT RELEASE	
0.2	1. CPU FSB & DDR TRACE (請貼EP45-DS3R Rev1.01 Layout)	
	2. CONNECT IDE1 --> IDE	
	3. RCA_SPDIF --> R_SPDIF	
	4. UPDATE FOOTPRINT : H1X3FAN-1 , H1X4P-FAN-1 , PCIESLOT-164DN-3	
	5. 文字面 " DualBIOS"	
	6. - SLP_S3 CONTROL PWROK1 CIRCUIT (擺放位置同EP45-DS3R Rev1.01)	
	7. ADD LAN_DSM DETECT (擺放位置同EP45-DS3R Rev1.01)	
	8. ADD VCC_PLL1 RN33 & R396 (擺放位置同EP45-DS3R Rev1.01)	
	9. 預留DTR2- R13 P-DOWN (擺放位置同EP45-DS3R Rev1.01)	
	10. 預留C236 -CPURST Bypass (擺放位置同EP45-DS3R Rev1.01)	
	11. POWER PACK CHANGE TO Q-TDSON8-GDS-3	
	12. CI & PWR_LED擺放位置分開	
	13. ADD R534 FOR +12V SHORT PROTECT	
	14. ADD LBC47 FOR USB_LANPIN.L1	
	15. "VCC1_25V_UV1" & "DDR18V_UV1" 對調	
	16. ADD R548,Q106 FOR "FORCE 400MHz CPU TO 333MHz"	
	17. 文字面:EP43-DS3,EP43-DS3R,EP45-DS3A	
	18. 文字面"Ultra TPM"	
1.0	1. 文字面 "PCIEX16_2" --> "PCIEX4_1"	
	2. ADD TPM -PCIRST TC6=33P/4	
	3. "USB_1394_1" & " USB_1394_2" SWAP	
	4. DDR18V_OV1,DDR18V_OV2,DDR18V_OV3 & VTT_GMCH_UV1,VTT_GMCH_UV2 SWAP	
	5. DR172,DR173,DR174,DR175 PULL-UP POWER From "VCC" ' "+12V"	
	6. L4 的位置轉45度,文字面要改成和 L6 一樣	
	7. CLR_CMOS PIN1方向	
	8. BC50 移至C85的上方 1.03	1. 增加 CPU_FAN +12V POWER CE3=100uF
	9. EC20 移除,改成 Q103	2. 增加 upi6262 VCC Power (R620,R621,Q107
	10. ADD C273 FOR USB POWER	3. 增加 PWM_VID5 & 8268_VID5電阻 (R385)
1.01	1. ADD LL1 POWER NET "AVDD18"	4. DC27,LBC31 "C0603-RH" --> "C0402-2"
1.02	1. CPU_FAN , PWR_FAN 轉向180度	5. EP43-DS3,EP43-DS3R 文字面修改 --> "FSB1333" , "DDR1066"
	2. DU8 PIN17接GND	
	3. LED_PWR MODUFY	
	4. "+12V_ISEN" --> "VCC_PLL1" SHORT PROTECT	

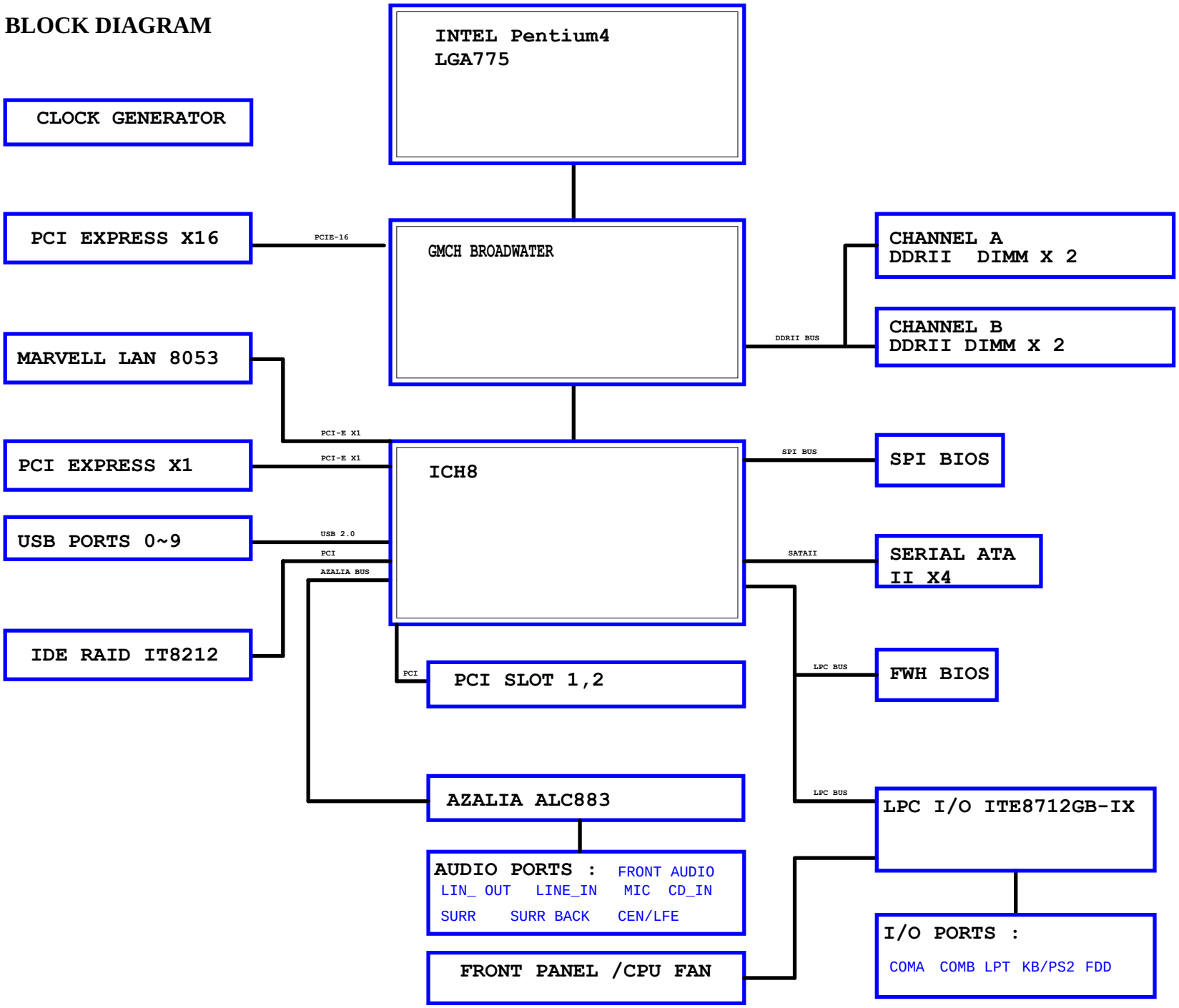
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-EP43-DS3 | Rev: 1.03

Date: Wednesday, May 14, 2008 | Sheet 2 of 38

BLOCK DIAGRAM

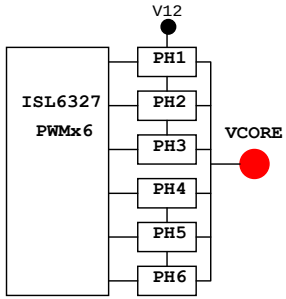


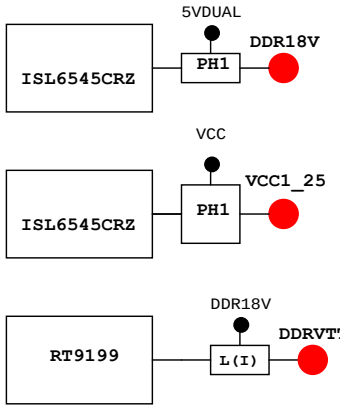
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 3 of 38	

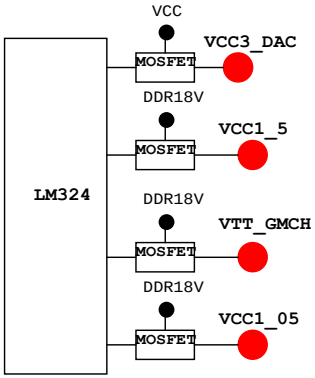
ICH8 GPIO LIST TABLE

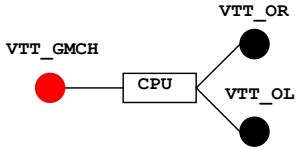
PIN NAME	PWR WELL	AFTER/ PLTRST	USAGE	NOTE
GP0	MAIN	IN	-ACZ_DET	P/U 8.2K VCC3
GP1/TACH1	MAIN	IN	ICH_FAN_TACH1	P/U 8.2K VCC3
GP2/PIRQE#	MAIN	IN	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	IN	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	IN	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	IN	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	IN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

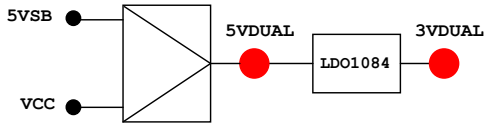
VCORE:6 PHASE PWM--ISL6327CRZ











Gigabyte Technology		
Title: TABLE LIST		
Size: B	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 4 of 38	

0.667 X VTT FOR LGA775 PIN H2/F2

0.635 X VTT FOR LGA775 PIN H1/G10

HA/REQ:50歐姆+-15% [4/11]

ADSTB:50歐姆+-15% [4/14]

LGA775A

LGA775 (1/8)

CPU-SK/775/S/15

CR
CPU RETAINTION/X

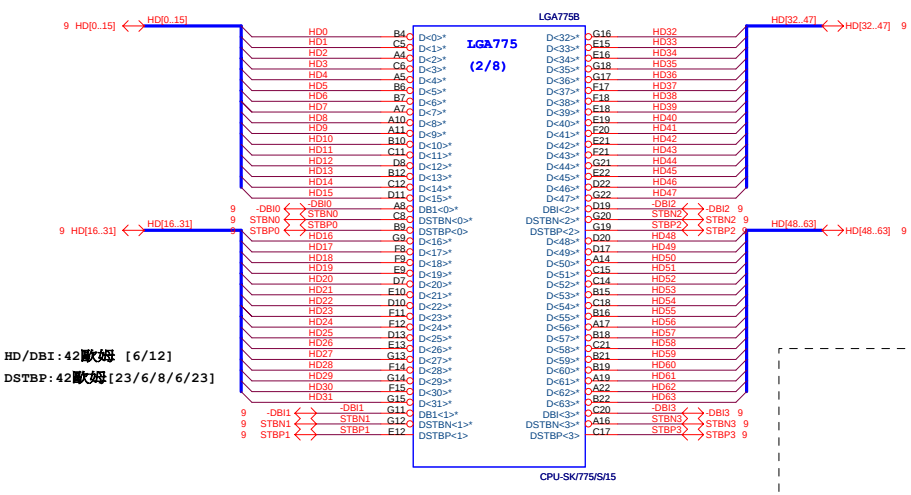
SP-CAP X 3PCS

Impedance=50 +- 15% for 4 -layer

CPU GTLREF RATIO

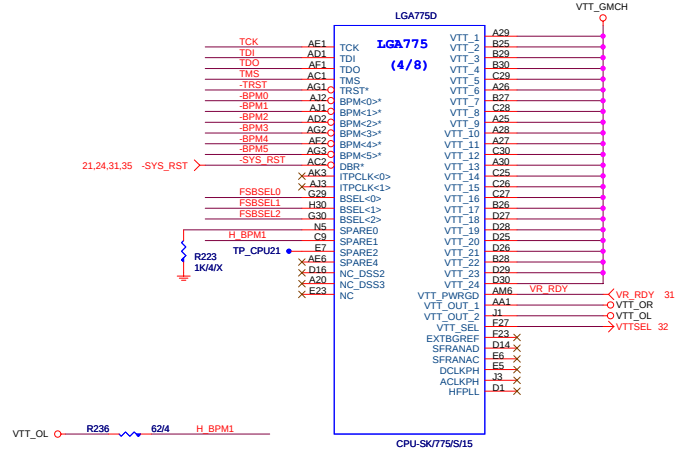
GTLREF_UV0	GTLREF_UV1	Ratio Set
HIGH	HIGH	0.67
LOW	HIGH	0.65
HIGH	LOW	0.63
LOW	LOW	0.615

Gigabyte Technology		
Title	P4_LGA775-A	
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 5 of 38	

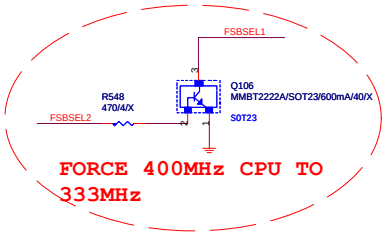


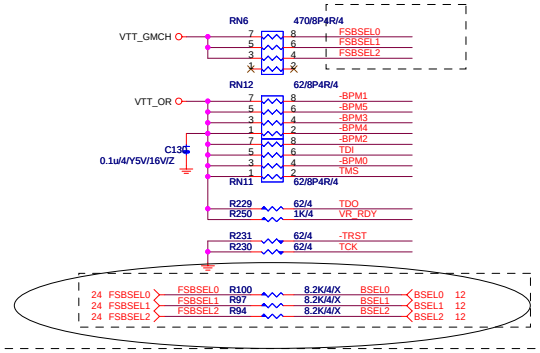
HD/DBI:42歐姆 [6/12]

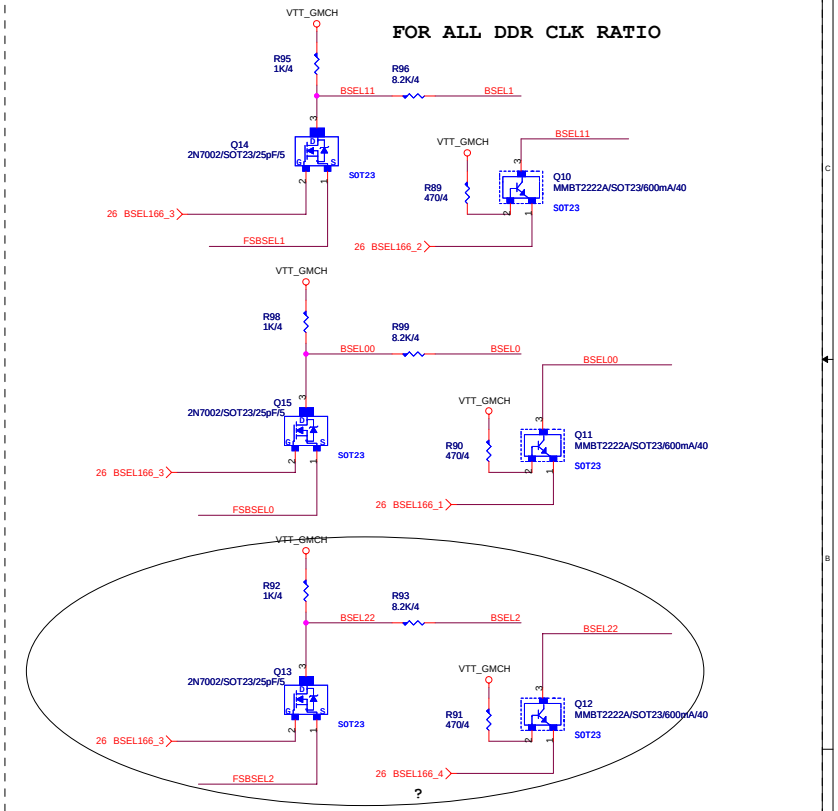
DSTBP:42歐姆[23/6/8/6/23]



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	400/533
G33	0	1	0	200MHz	2/2.66/3.33/4+	400/533/667/800
G33	0	0	0	266MHz	2/2.5/3/4~	533/667/800/1066
G33	0	0	1	333MHz	2/2.4/3.2/4#	667/800/1066/1333
	0	1	1	400MHz		

Gigabyte Technology			
Title	P4_LGA775-B,D		
Size: Custom	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Friday, May 09, 2008	Sheet 6 of 38		

Note:

VCCA & VCOREPLL define doesn't same as old P4 design kit

Trace width doesn't less than 12 Mil

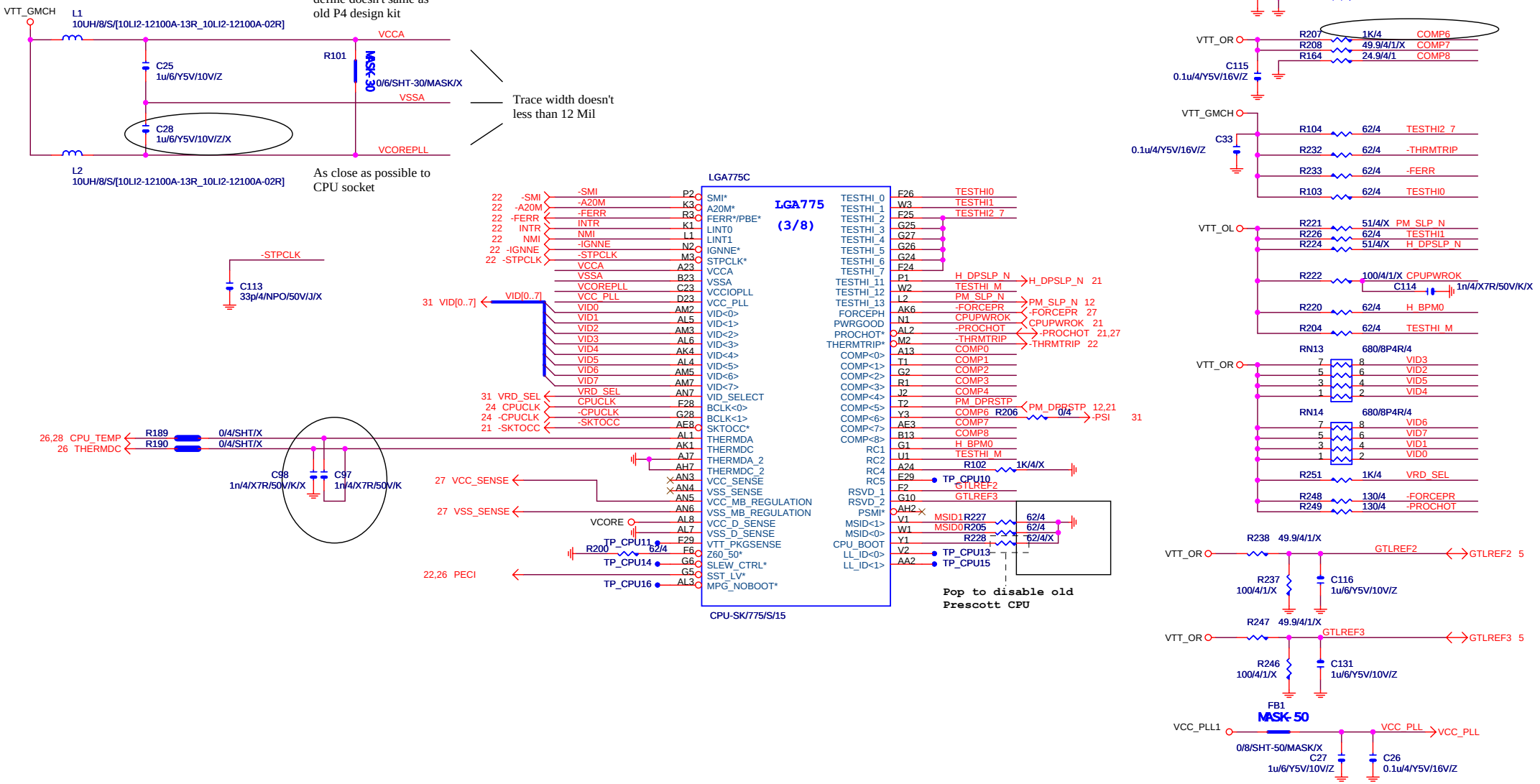
As close as possible to CPU socket

Place outside of CPU socket

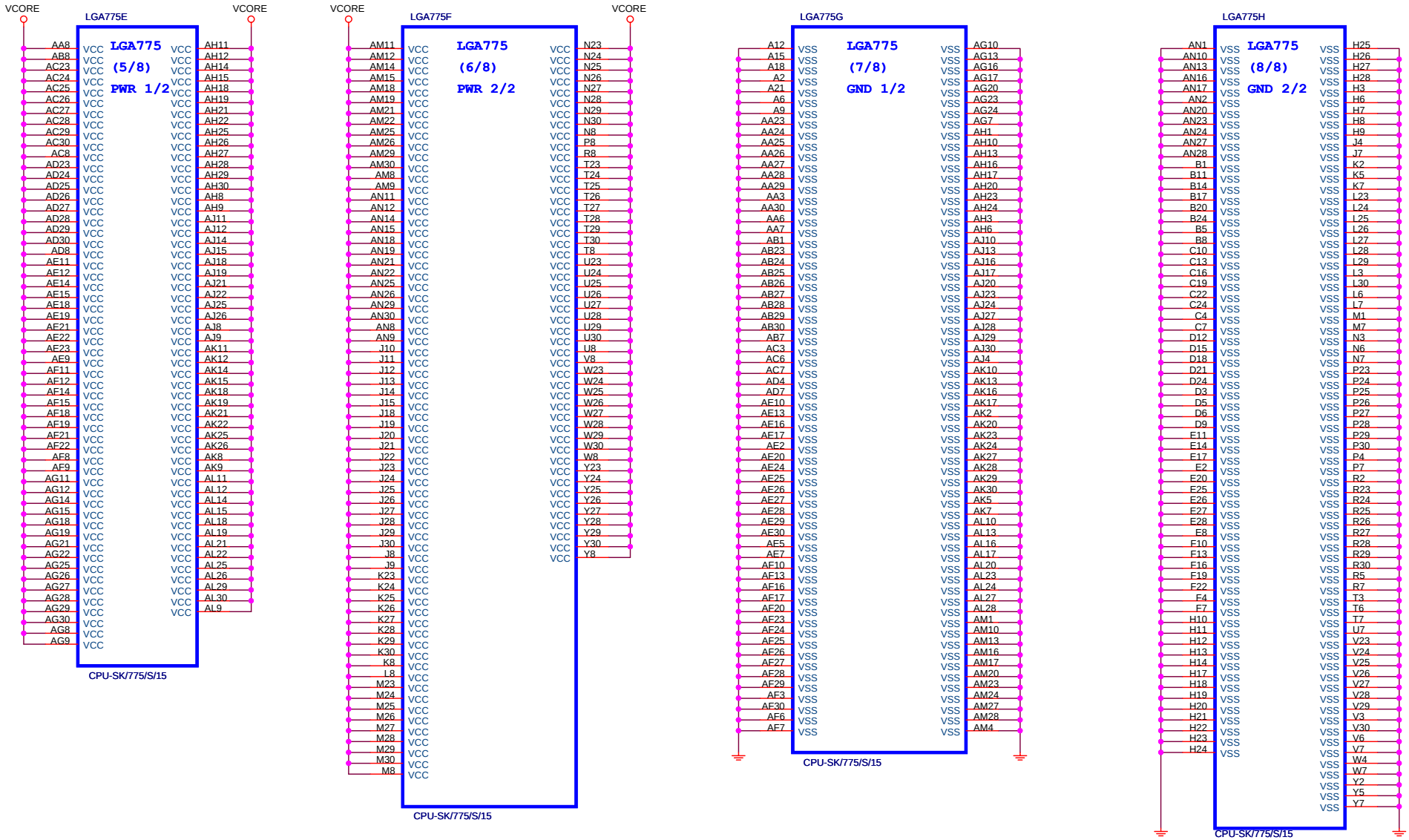
COMP4~7 可以不上

Pop to disable old Prescott CPU

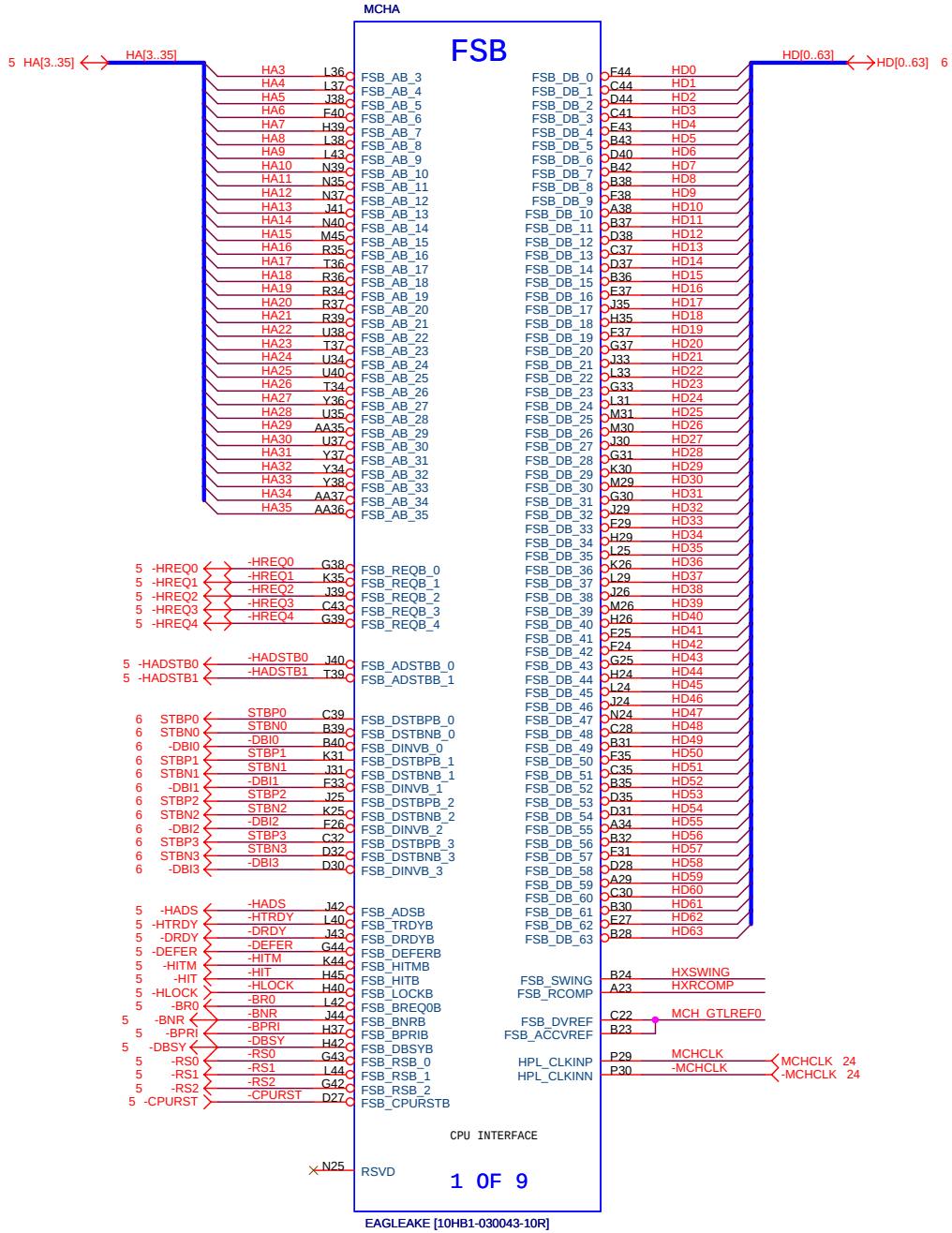
PECI:Platform Environment Control Interface

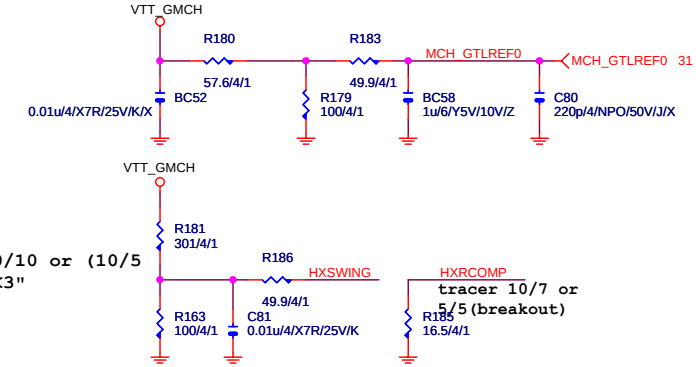


Gigabyte Technology			
Title: P4_LGA775-C			
Size: B	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 7 of 38		



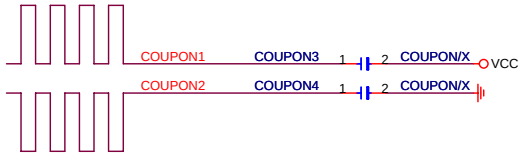
Gigabyte Technology			
Title: P4_LGA775-E,F,G,H			
Size: B	Document Number: GA-EP43-DS3	Rev: 1.03	
Date: Wednesday, April 23, 2008	Sheet 8 of 38		



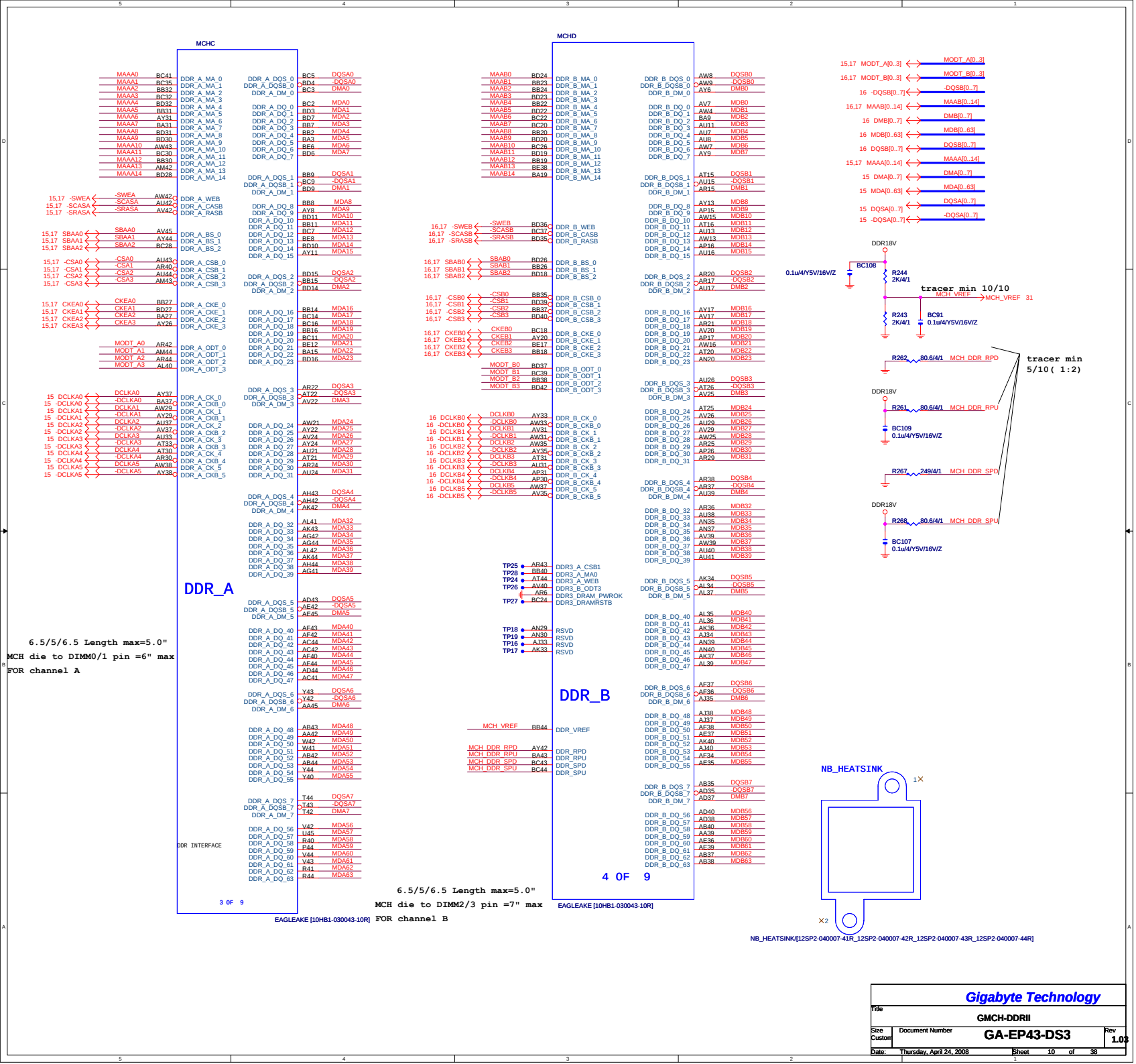


tracer min 10/10 or (10/5 breakout),L1<3"

tracer 10/7 or 5/5(breakout)



Gigabyte Technology			
Title: GMCH-HOST			
Size: Custom	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 9 of 38		



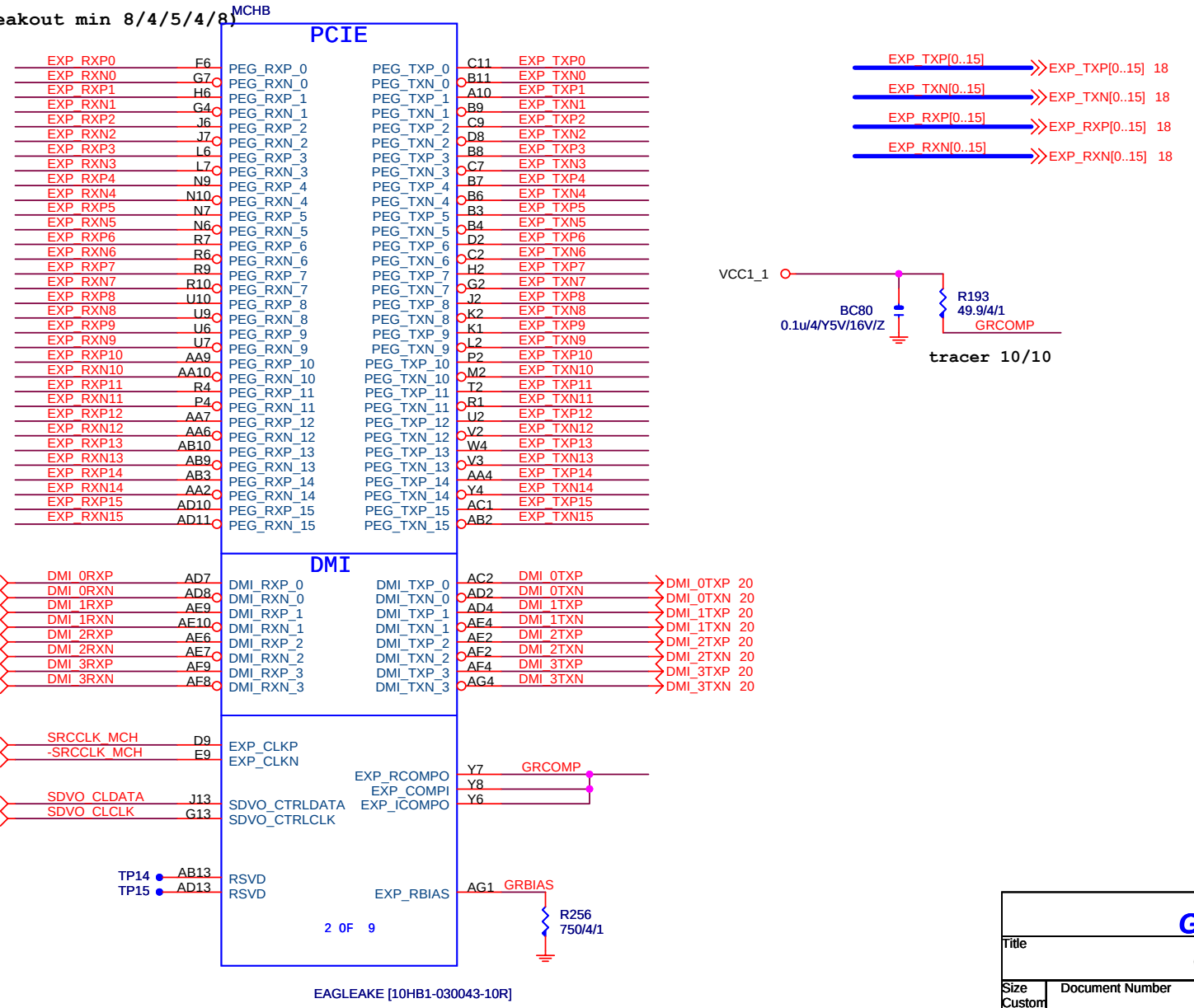
Gigabyte Technology		
Title: GMCH-DDRII		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Thursday, April 24, 2008	Sheet 10 of 38	

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%



EAGLEAKE [10HB1-030043-10R]

Gigabyte Technology		
Title: GMCH-PCI E & DMI		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 11 of 38	

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

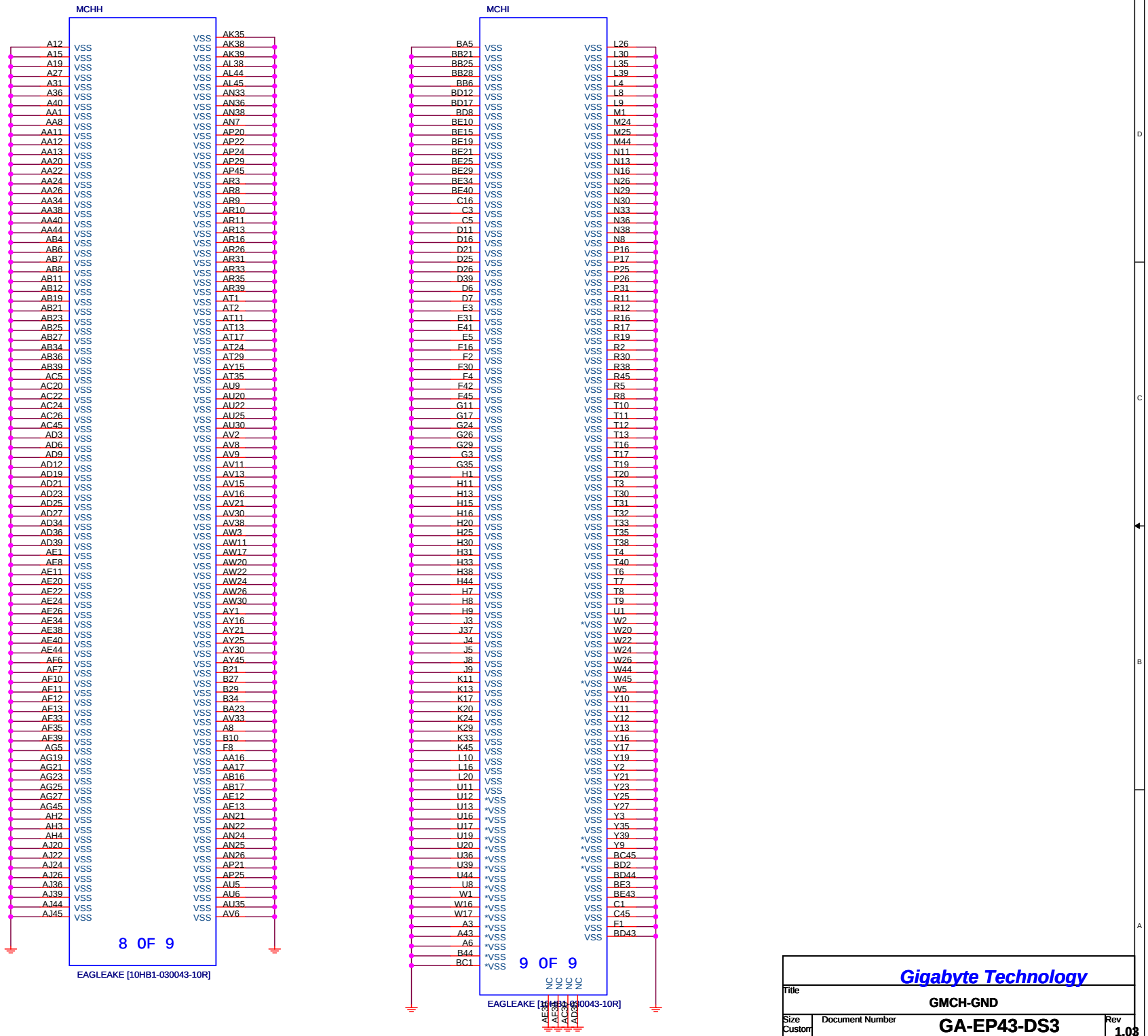
5 OF 9

EAGLEAKE [10HB1-030043-10R]

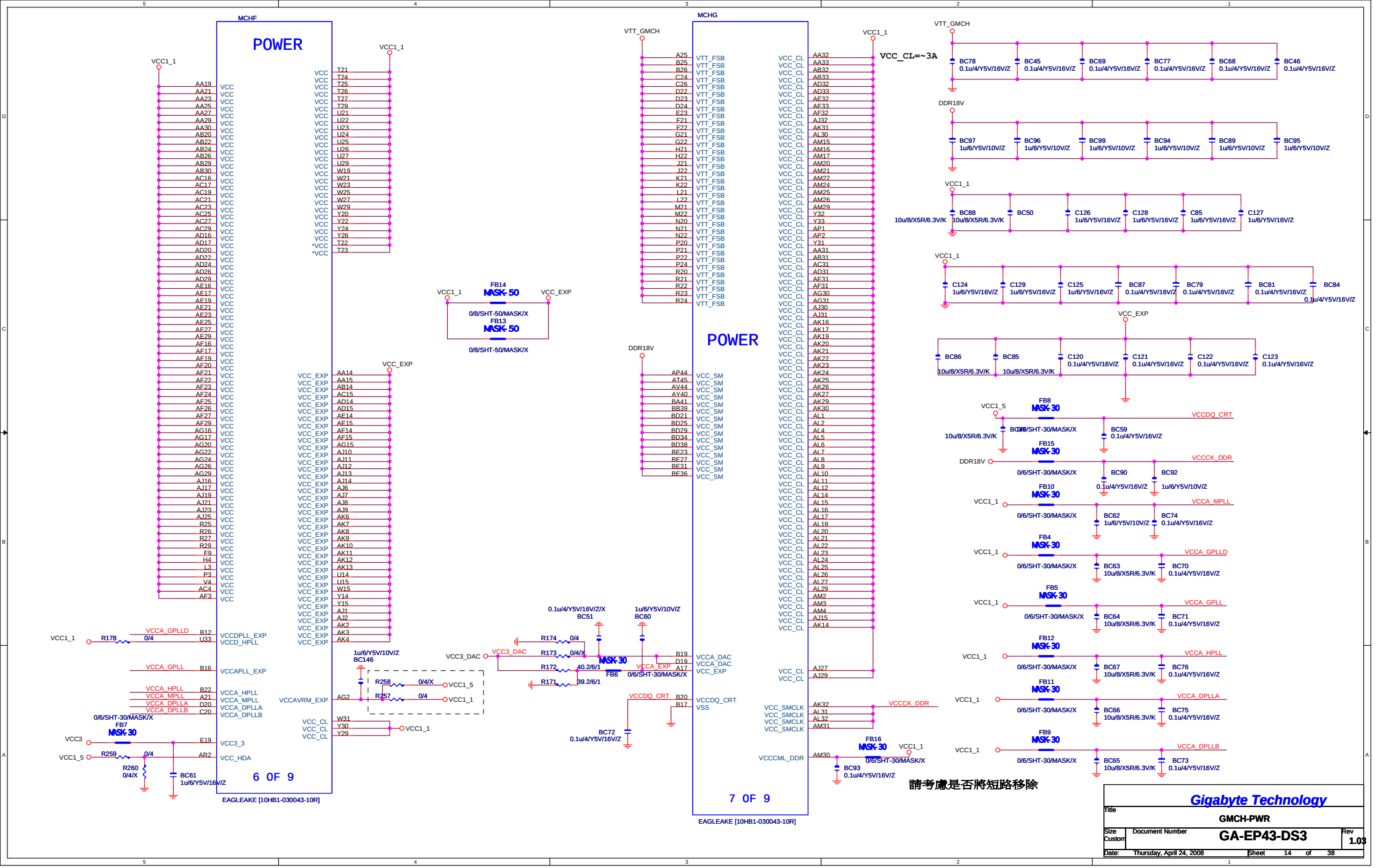
BW+ICH8 不要上(SAMPLE)
BW+ICH7 要上

Gigabyte Technology

Title	GMCH-INTERNAL VGA		
Size: Custom	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 12 of 38		

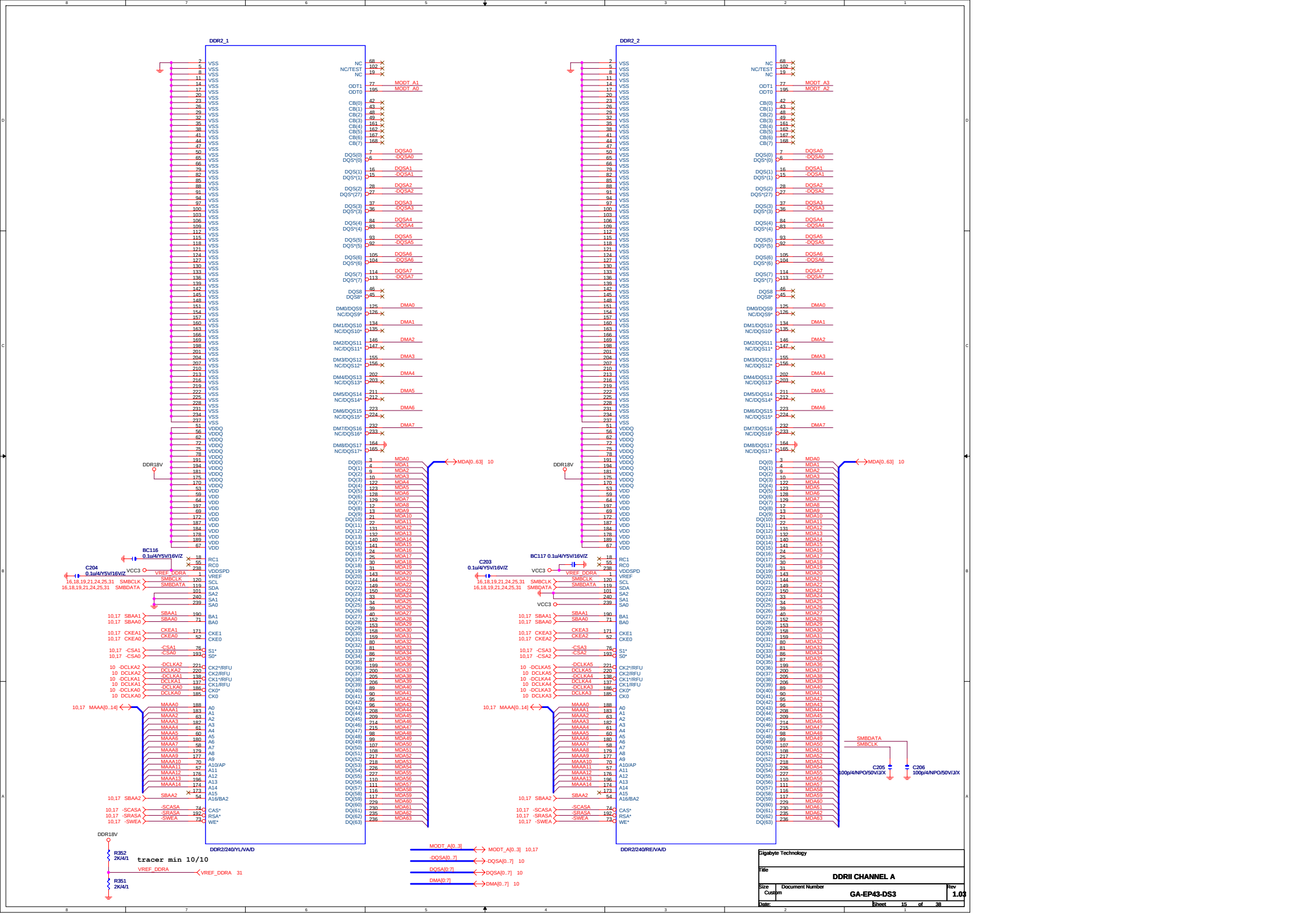


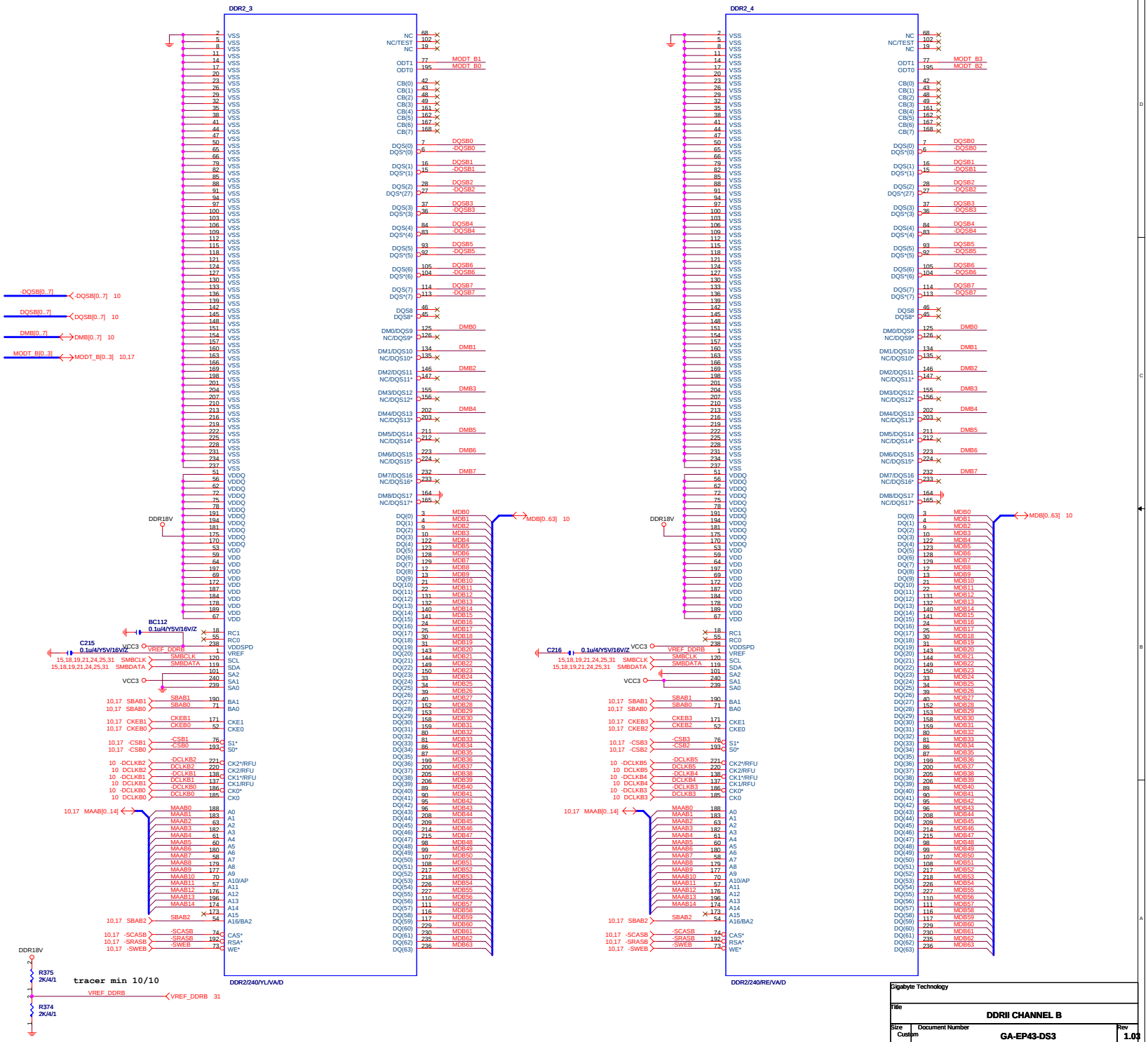
Gigabyte Technology		
Title: GMCH-GND		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 13 of 38	



Title	GMCH-PWR
Size: Custom	Document Number: GA-EP43-DS3
Rev	1.03
Date: Thursday, April 24, 2008	Sheet 14 of 38

Gigabyte Technology

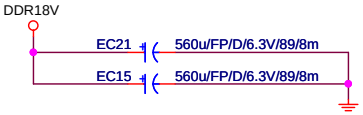

DDR2_1
DDR2_2
DDR2/240/YL/VA/D
DDR2/240/RE/VA/D
DDR18V
BC116 0.1u/4/Y5V/16V/Z
C204 0.1u/4/Y5V/16V/Z
BC117 0.1u/4/Y5V/16V/Z
C203 0.1u/4/Y5V/16V/Z
R352 2K/4/1
R351 2K/4/1
tracer min 10/10
VREF_DDRA
MDA[0..63] 10
MODT_A[0..3]
-DQSA[0..7]
DQSA[0..7]
DMA[0..7]
SMBDATA
SMBCLK
C205 100p/4/NPO/50V/J/X
C206 100p/4/NPO/50V/J/X
Gigabyte Technology
DDRII CHANNEL A
GA-EP43-DS3
Rev 1.03
Sheet 15 of 38

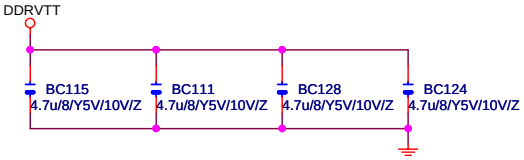


Gigabyte Technology	
Title	DDRII CHANNEL B
Size: Custom	Document Number: GA-EP43-DS3
Rev	1.03
Date:	Sheet 16 of 38

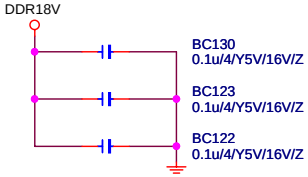
DDR TERMINATION CHANNEL A

DDRVTT Decouple

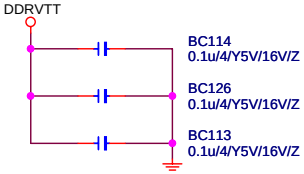


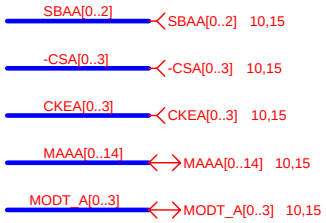


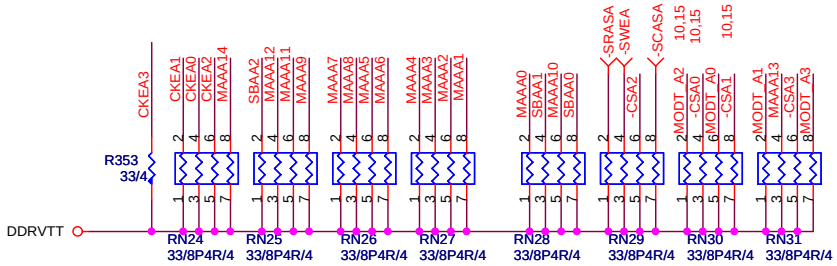
DDR18V Decouple



DDRVTT Decouple

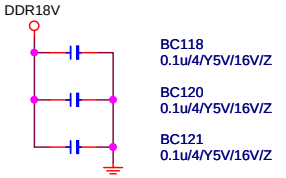




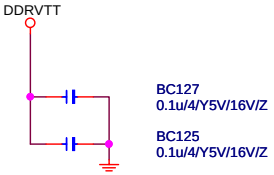


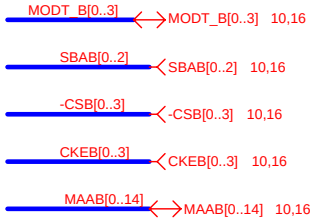
DDR TERMINATION CHANNEL B

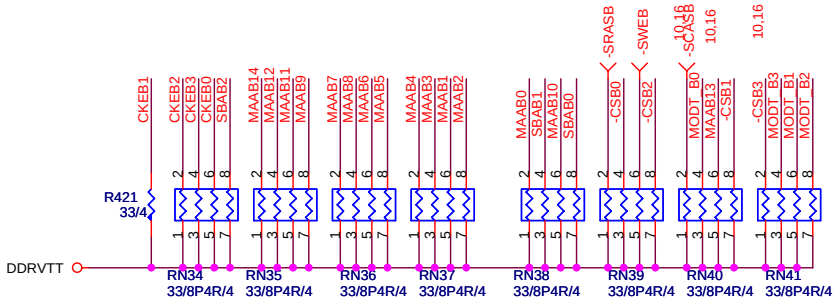
DDR18V Decouple



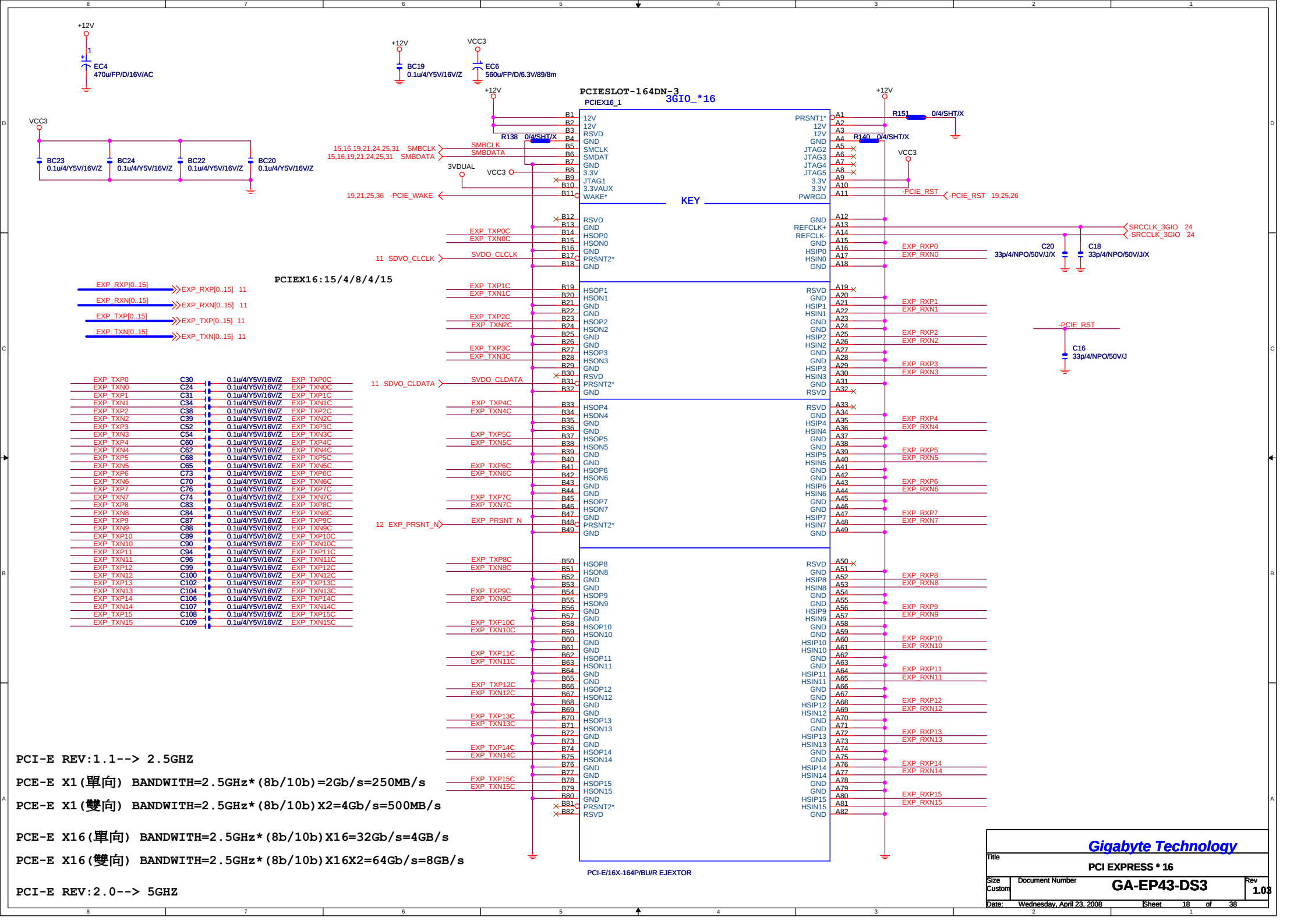
DDRVTT Decouple

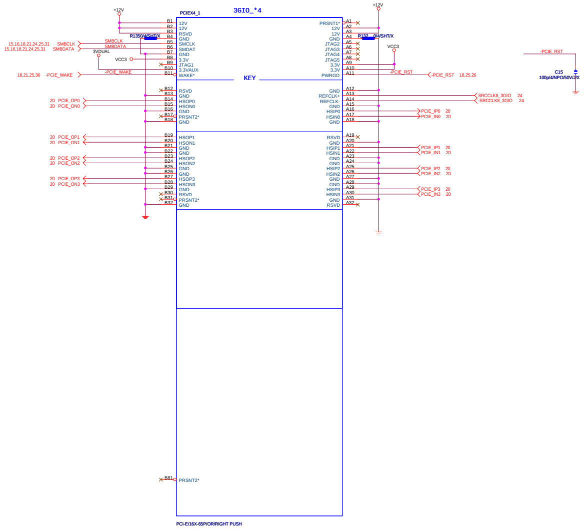






Gigabyte Technology			
Title: DDRII TERMINATOR			
Size: Custom	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Wednesday, April 23, 2008		Sheet 17 of 38	


+12V
EC4
470u/FP/D/16V/AC
BC19
0.1u/4/Y5V/16V/Z
VCC3
EC6
560u/FP/D/6.3V/89/8m
BC23
BC24
BC22
BC20
0.1u/4/Y5V/16V/Z
PCIESLOT-164DN-3
3GIO_*16
PCIEX16_1
R138 0/4/SHT/X
R151 0/4/SHT/X
R140 0/4/SHT/X
KEY
PCIEX16:15/4/8/4/15
EXP_RXP[0..15]
EXP_RXN[0..15]
EXP_TXP[0..15]
EXP_TXN[0..15]
SMBCLK
SMBDATA
SVDO_CLCLK
SVDO_CLDATA
EXP_PRSNT_N
-PCIE_WAKE
-PCIE_RST
SRCCLK_3GIO
-SRCCLK_3GIO
C20
C18
33p/4/NPO/50V/J/X
C16
33p/4/NPO/50V/J
PCI-E/16X-164P/BU/R EJEXTOR
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-EP43-DS3
Rev
1.03
Date:
Wednesday, April 23, 2008
Sheet
18
of
38

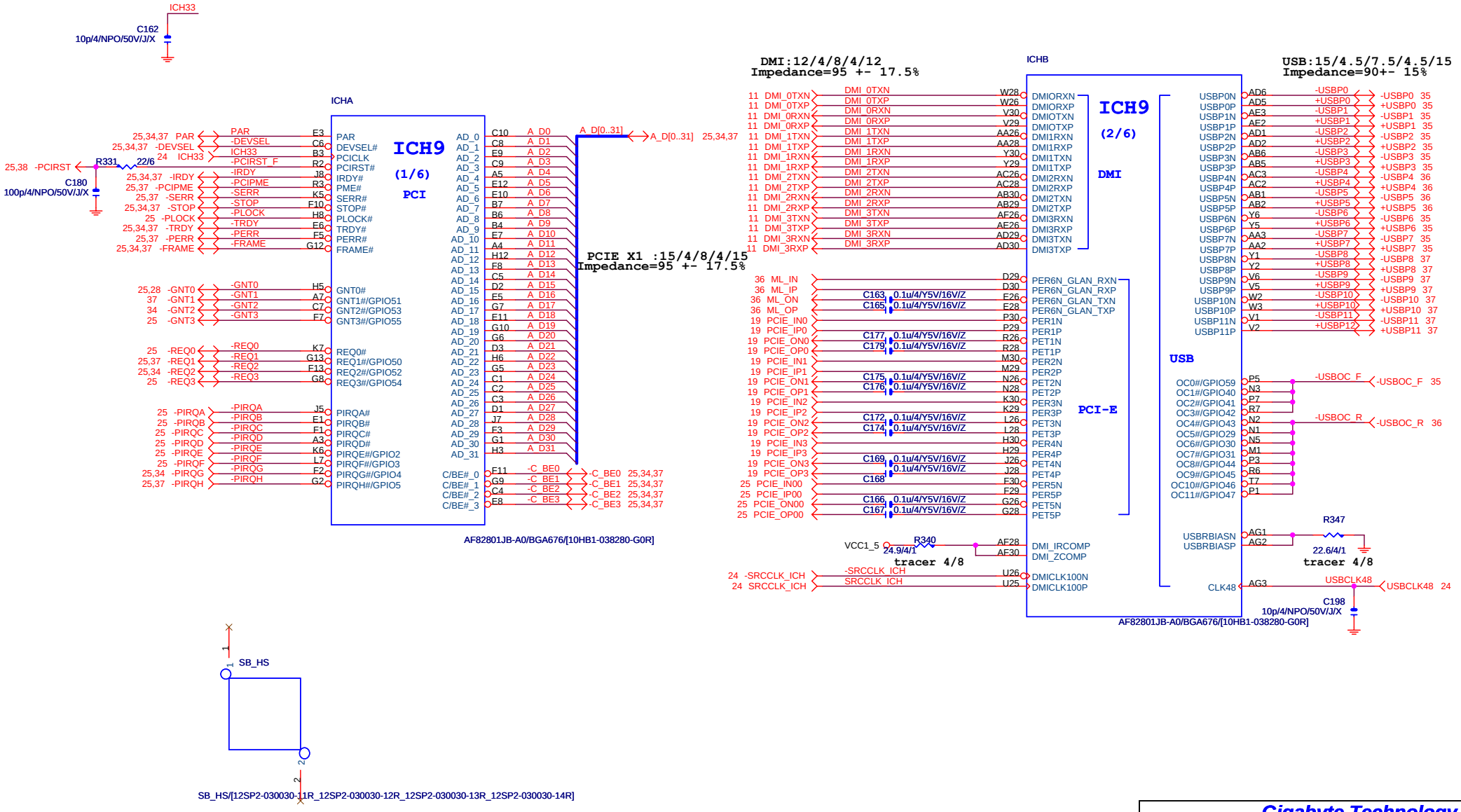


Gigabyte Technology

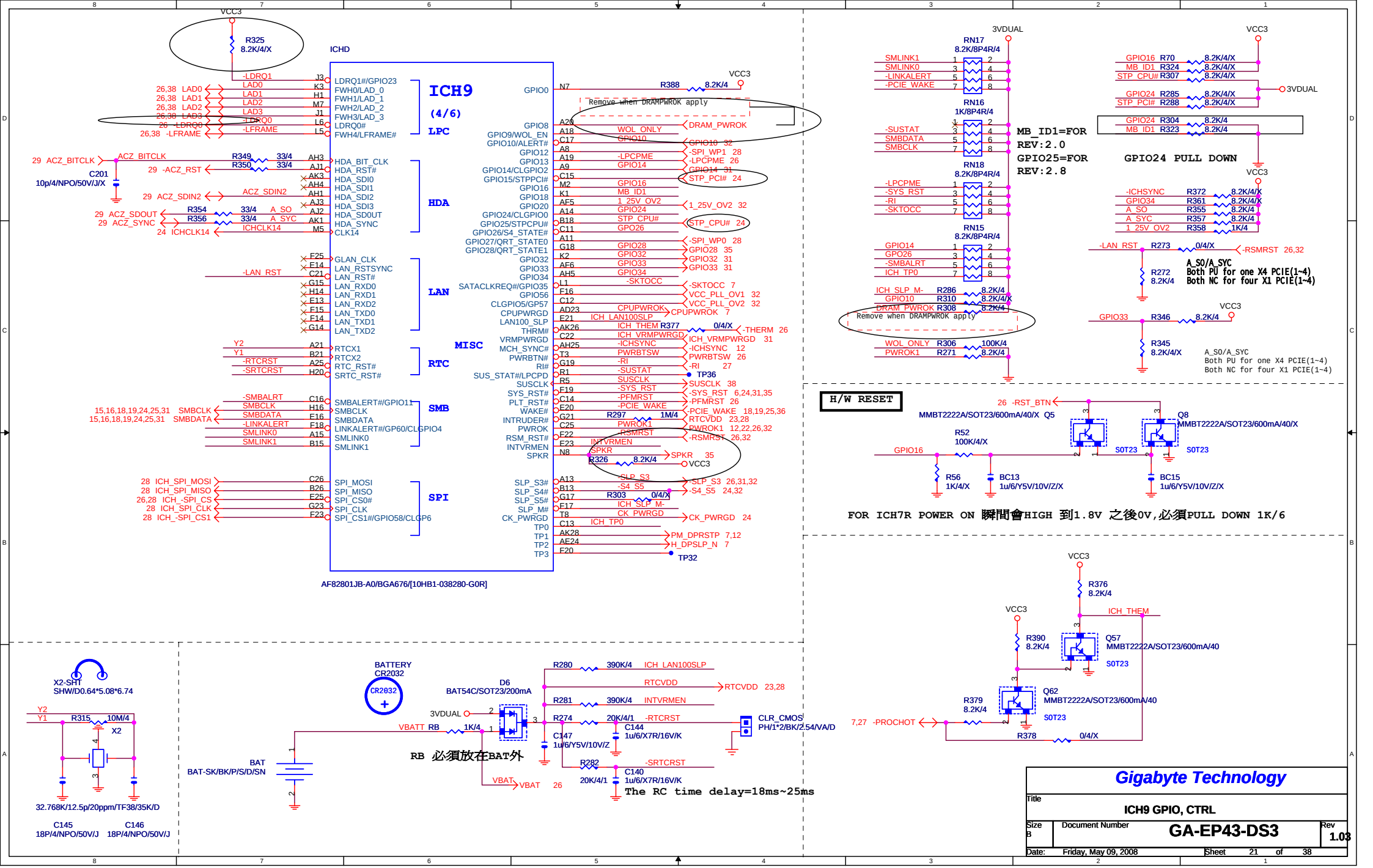
Title: PCI EXPRESS * 16_1

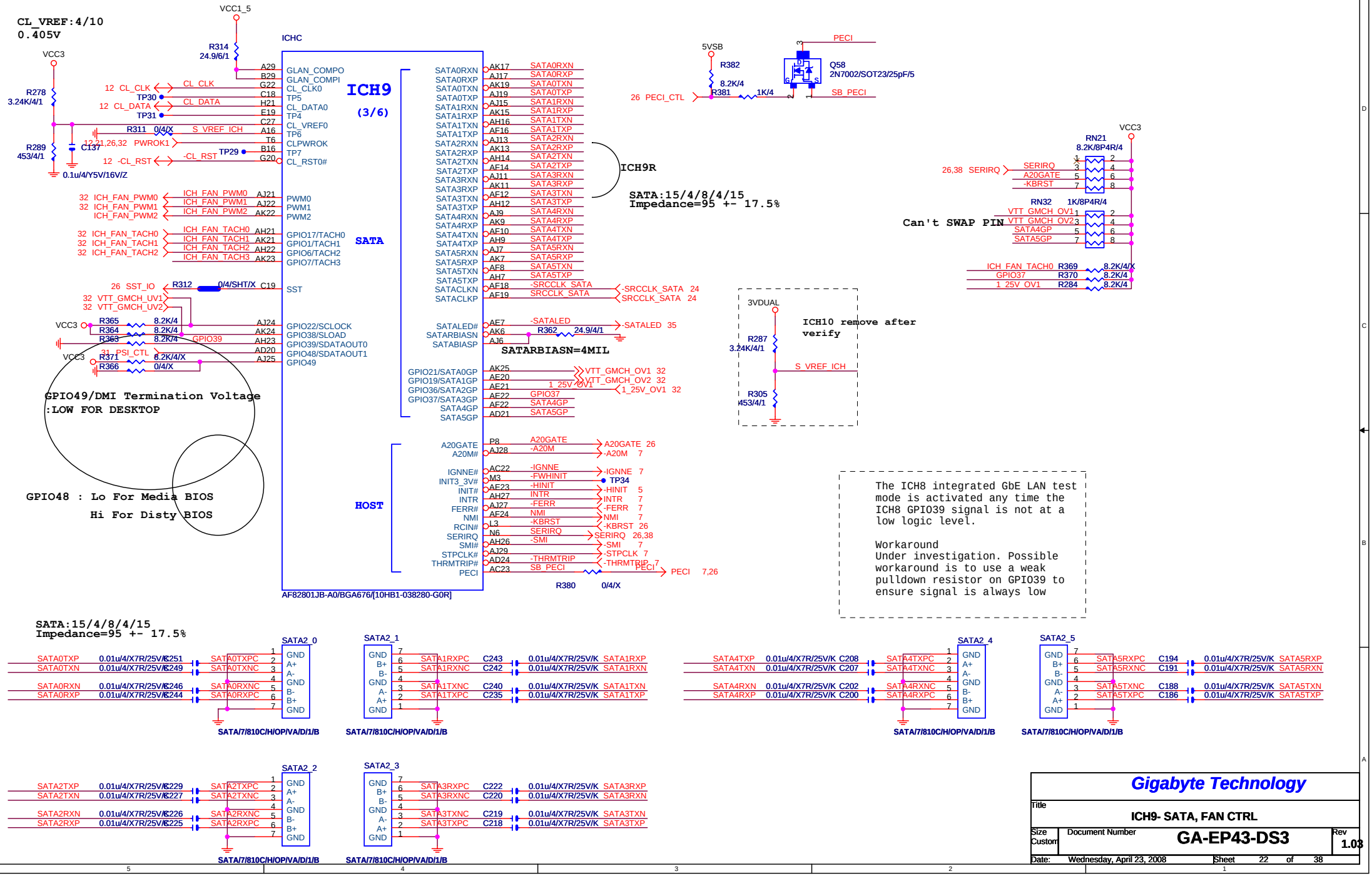
Size: Custom | Document Number: GA-EP43-DS3 | Rev: 1.03

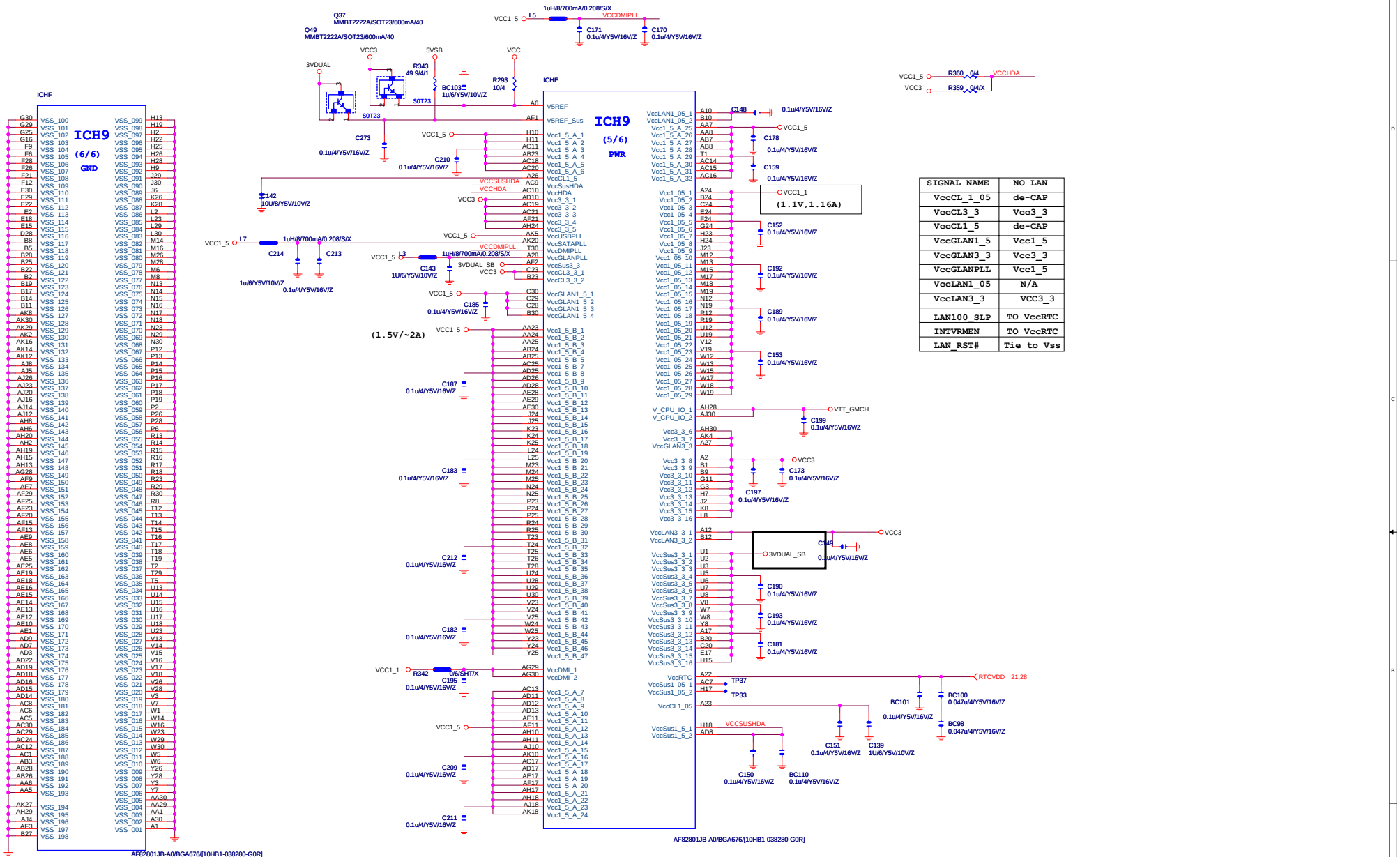
Date: Wednesday, April 23, 2008 | Sheet 19 of 38



Gigabyte Technology		
Title	ICH9-PCI, DMI, LAN, USB	
Size B	Document Number GA-EP43-DS3	Rev 1.03
Date: Wednesday, April 23, 2008	Sheet 20 of 38	

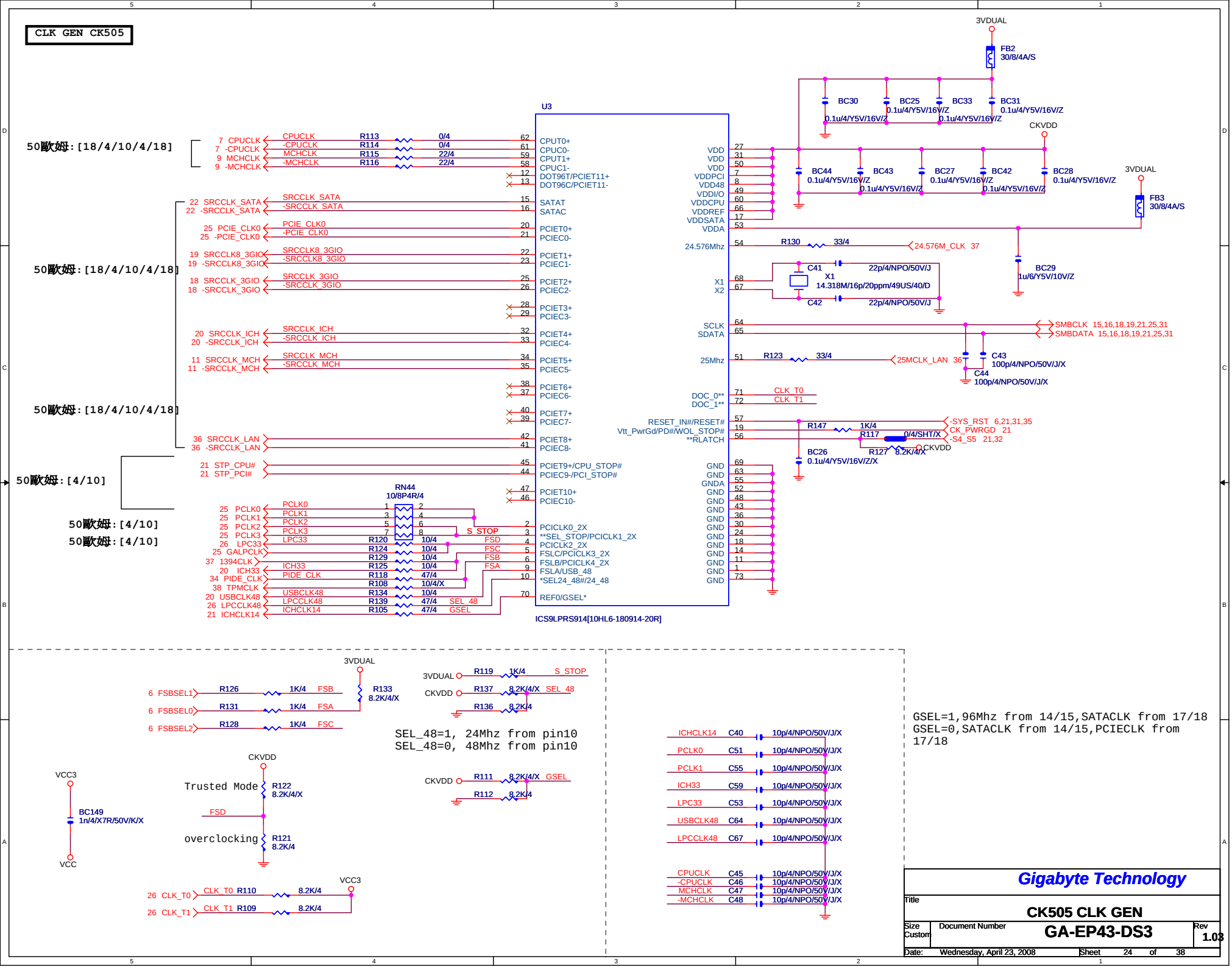

ICH9
(4/6)
ICHD
LPC
HDA
LAN
RTC
SMB
SPI
MISC
AF82801JB-A0/BGA676/[10HB1-038280-G0R]
H/W RESET
MB_ID1=FOR REV:2.0
GPIO25=FOR REV:2.8
GPIO24 PULL DOWN
A_SO/A_SYC
Both PU for one X4 PCIE(1~4)
Both NC for four X1 PCIE(1~4)
FOR ICH7R POWER ON 瞬間會HIGH 到1.8V 之後0V,必須PULL DOWN 1K/6
RB 必須放在BAT外
The RC time delay=18ms~25ms
Gigabyte Technology
ICH9 GPIO, CTRL
GA-EP43-DS3
Rev 1.03
Friday, May 09, 2008
Sheet 21 of 38


CL_VREF:4/10
0.405V
ICHC
ICH9
(3/6)
ICH9R
SATA:15/4/8/4/15
Impedance=95 +- 17.5%
SATA
HOST
Can't SWAP PIN
ICH10 remove after verify
SATARBIASN=4MIL
GPIO49/DMI Termination Voltage
:LOW FOR DESKTOP
GPIO48 : Lo For Media BIOS
Hi For Disty BIOS
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
AF82801JB-A0/BGA676/[10HB1-038280-G0R]
SATA2_0
SATA2_1
SATA2_2
SATA2_3
SATA2_4
SATA2_5
SATA/7/810C/H/OP/VA/D/1/B
Gigabyte Technology
ICH9- SATA, FAN CTRL
GA-EP43-DS3
Rev 1.03
Wednesday, April 23, 2008
Sheet 22 of 38



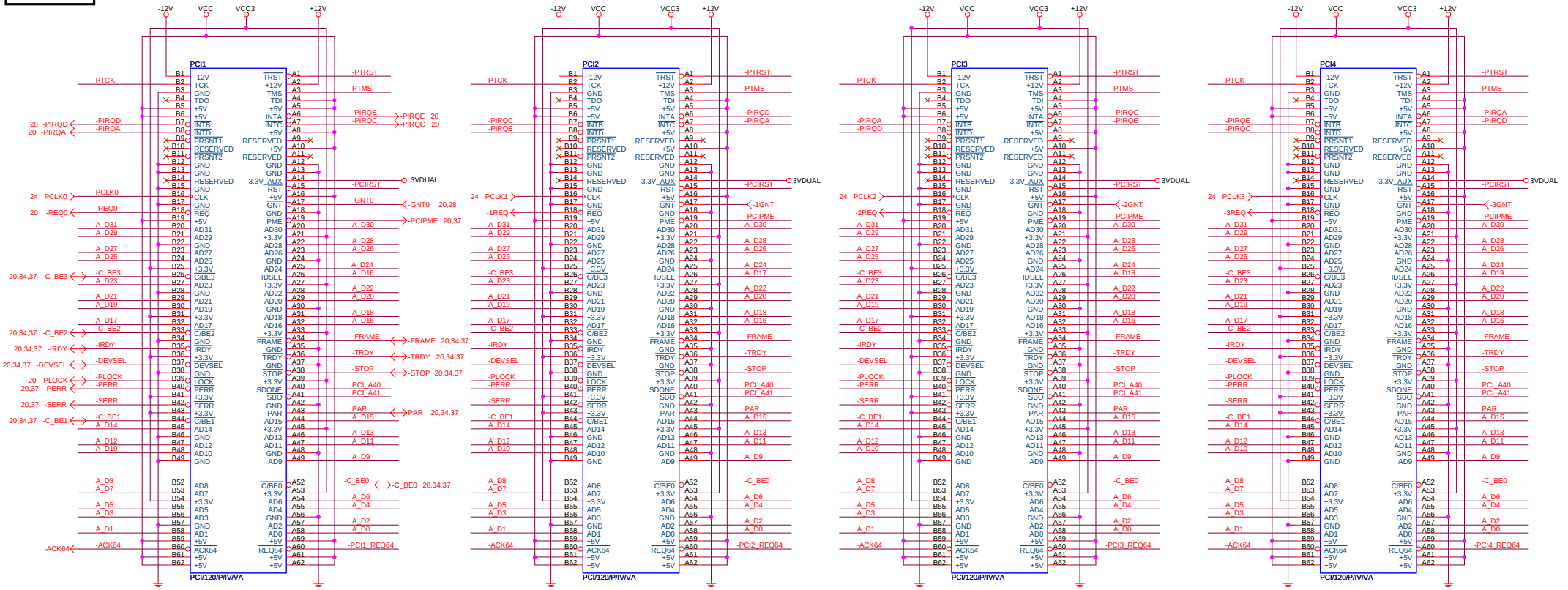
Gigabyte Technology	
Title	ICH9-PWR & GND
Size C	Document Number GA-EP43-DS3 Rev 1.03
Date: Wednesday, April 23, 2008	Sheet 23 of 38

CLK GEN CK505

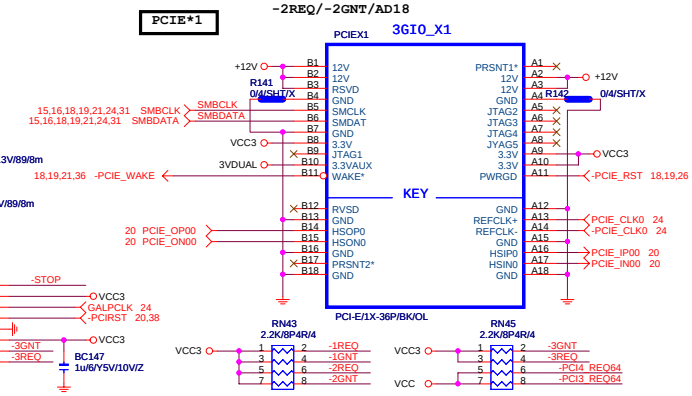


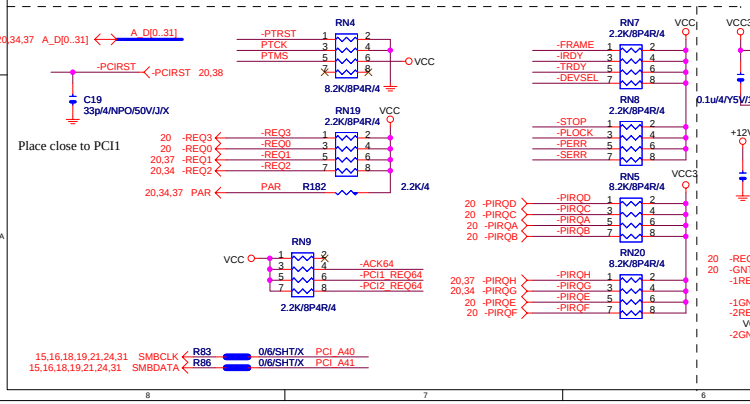
Gigabyte Technology			
Title: CK505 CLK GEN			
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03	
Date: Wednesday, April 23, 2008	Sheet 24 of 38		

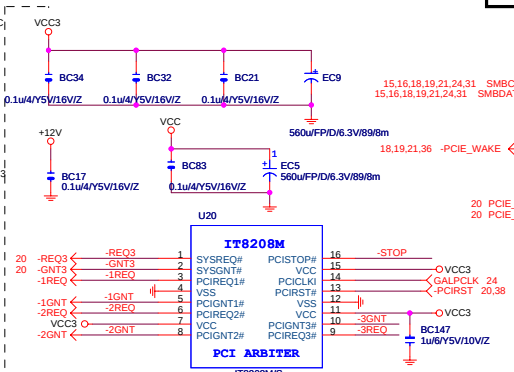
PCI1,2 SLOT

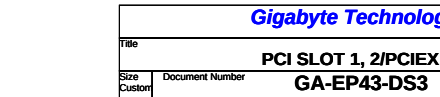


PCIE*1









Gigabyte Technology		
Title: PCI SLOT 1, 2/PCIEX1		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 25 of 38	

IT8712F LPC I/O

-RST_BTN
P.U一定要指定用1K到VCC

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

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

JP7 : HIGH DUAL BIOS ENABLE
LOW DUAL BIOS DISABLE

如果BSEL0/1 直接拉TO
N/B,R1768/R1769 不上

MMBT2222A/SOT23/600mA/40

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

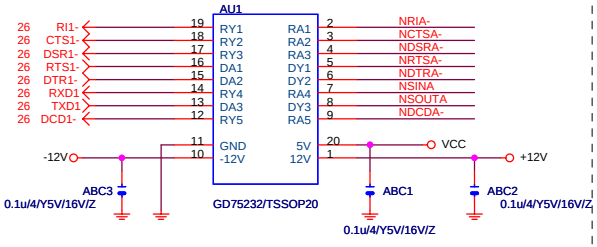
VTT_GMCH/VCC3/VIDVCC 請走20~30

Pop to disable Dual BIOS

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

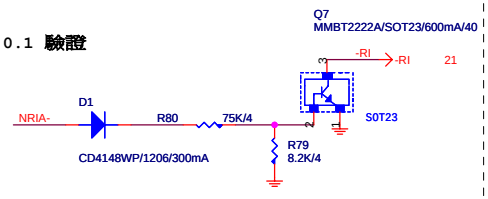
Gigabyte Technology	
Title	ITE 8712 LPC IO
Size B	Document Number GA-EP43-DS3 Rev 1.03
Date: Wednesday, April 23, 2008	Sheet 26 of 38

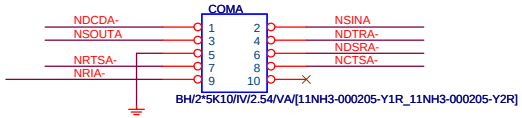
COMA

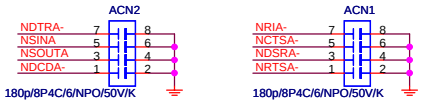


COM RI

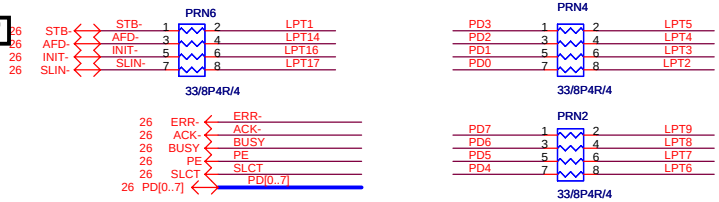
REV:0.1 驗證

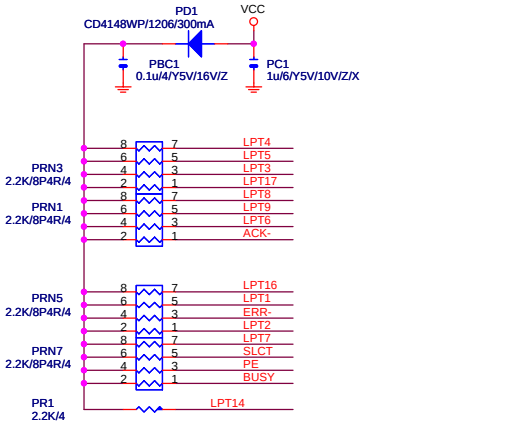




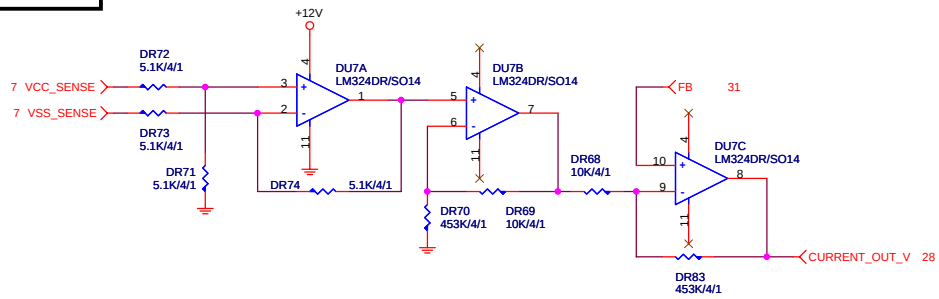


LPT PORT

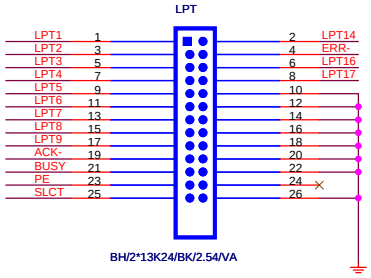




DYNAMIC CURRENT OC



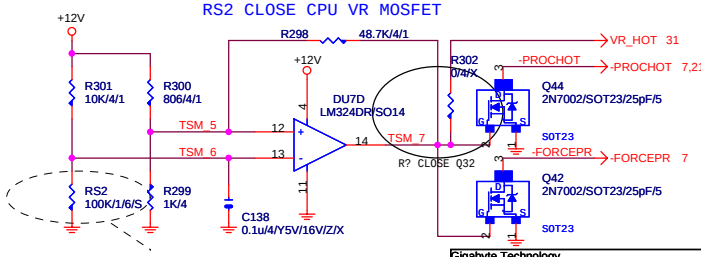
-PROHOT



asserted at 131 degree

deasserted at 116 degree

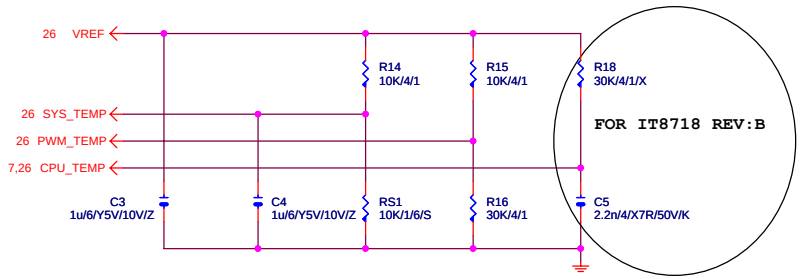
RS2 CLOSE CPU VR MOSFET



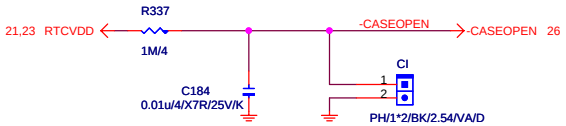
CLOSE PWM HOT MOSFET

Gigabyte Technology		
Title: COM & LPT PORT		
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 27 of 38	

TEMP H/W MONITOR

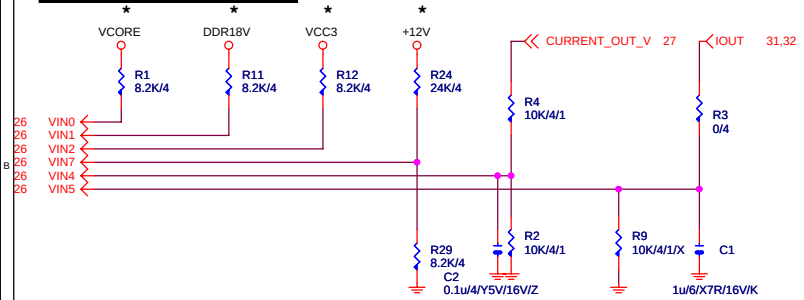


CASE OPEN

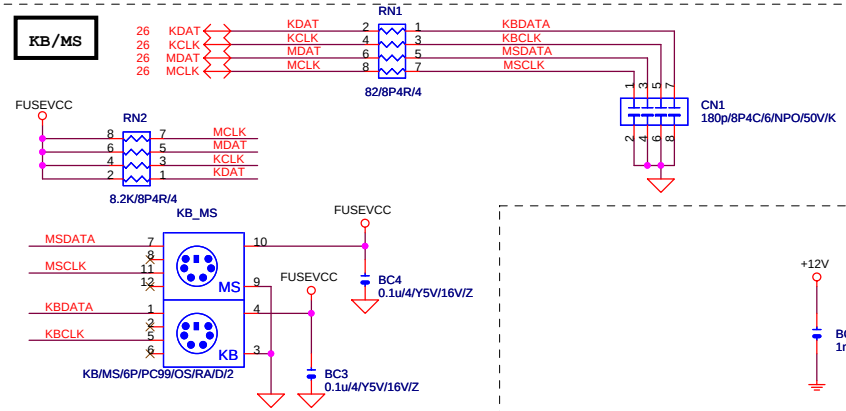


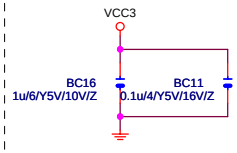
Case Open Circuits

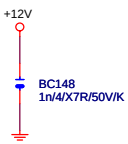
VOLTAGE-- H/W MONITOR

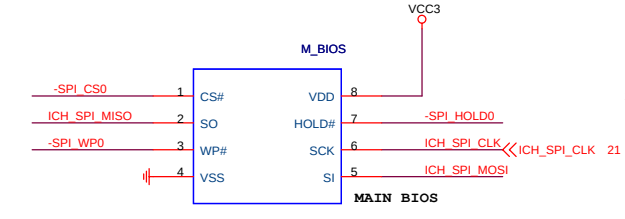


KB/MS

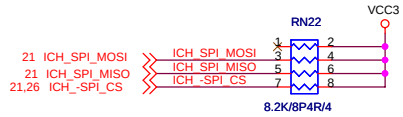


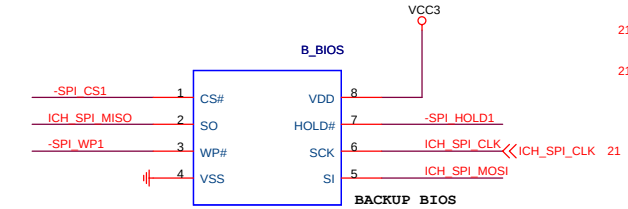




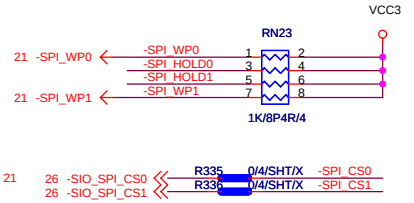


SST25VF080B-50-4C-S2AF/S/[10HP4-112580-11R_10HP4-172580-01R_10HP4-152580-11R]
MXIC(4K)/SST(4K)

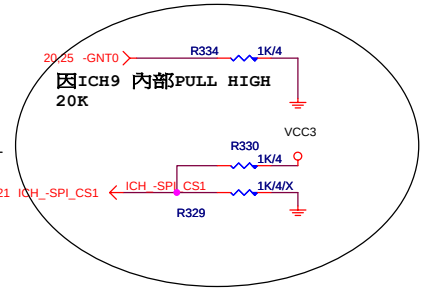


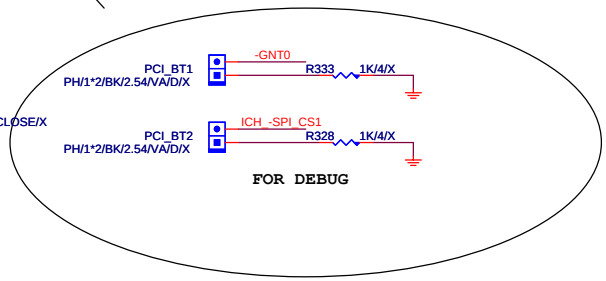


SST25VF080B-50-4C-S2AF/S/[10HP4-112580-11R_10HP4-172580-01R_10HP4-152580-11R]
MXIC(4K)/SST(4K)



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





Gigabyte Technology

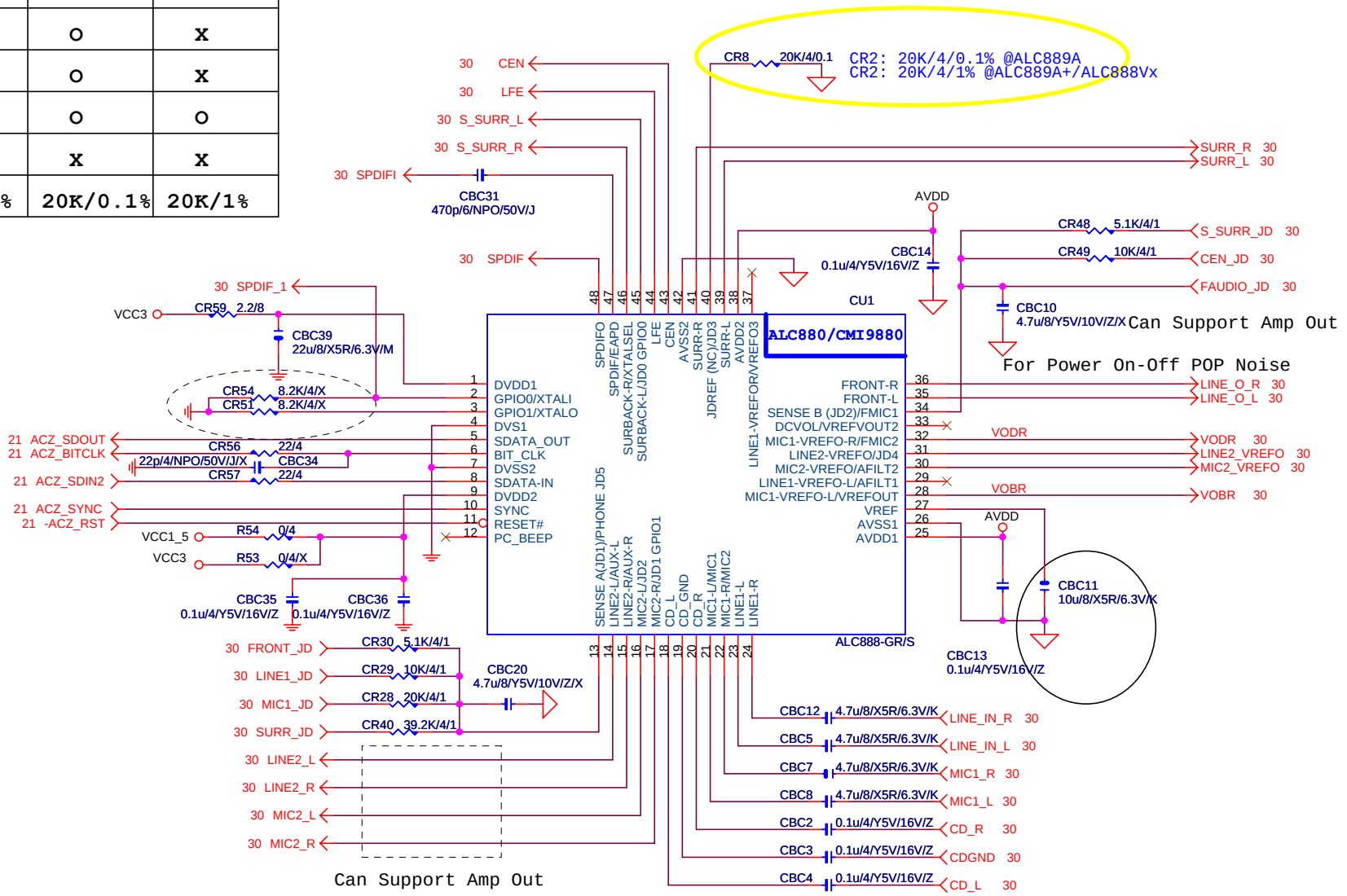
Title: **BIOS/HW-MONITOR/CI/KB/MS**

Size	Document Number	Rev
Custom	GA-EP43-DS3	1.03

Date: Wednesday, April 23, 2008 Sheet 28 of 38

AZALIA CODEC *ALC889A+/ALC889A/ALC888Vx Colay*

	ALC889A+	ALC889A	ALC888Vx
CR107	X	O	X
CR108	X	O	X
CR109	X	O	O
CR110	O	X	X
CR2	20K/1%	20K/0.1%	20K/1%



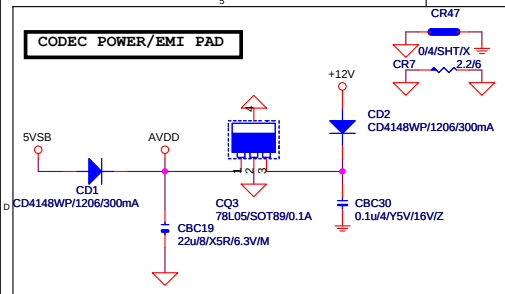
Can Support Amp Out

21 ACZ_SDOUT
21 ACZ_SYNC
21 -ACZ_RST
21 ACZ_BITCLK
21 ACZ_SDIN2

Gigabyte Technology

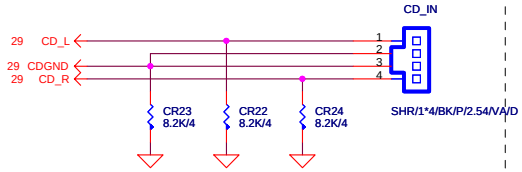
Title	ALC889A		
Size: Custom	Document Number: GA-EP43-DS3		Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 29 of 38		

CODEC POWER/EMI PAD

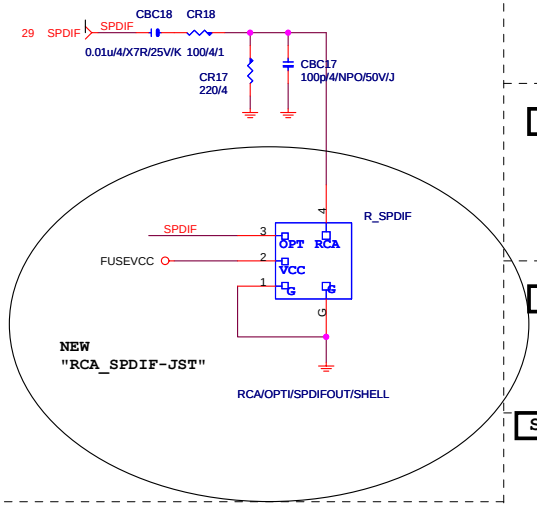


CO-LAYOUT

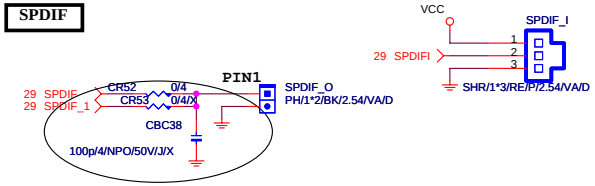
CD IN



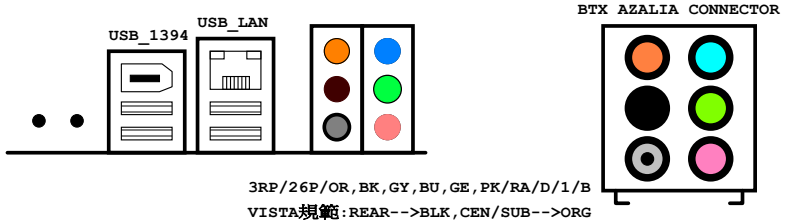
Fpr
EMI

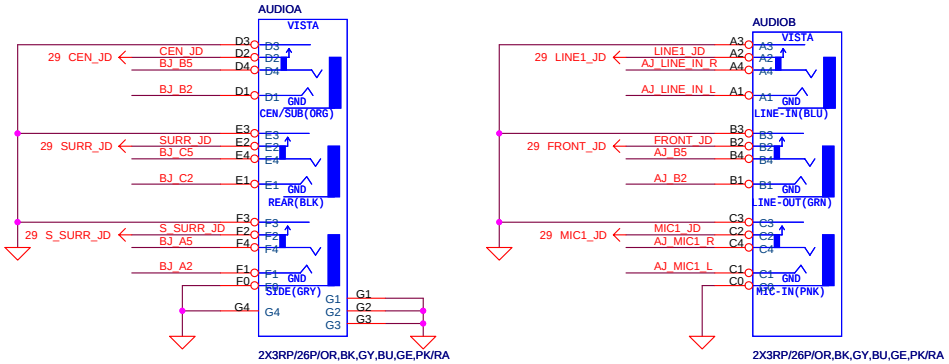


SPDIF

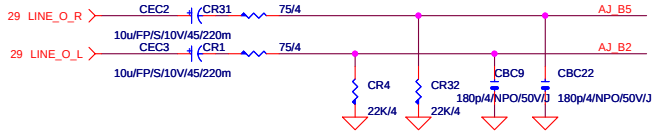


AZALIA JACK

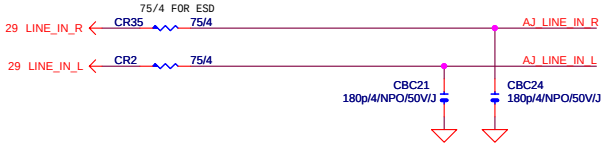




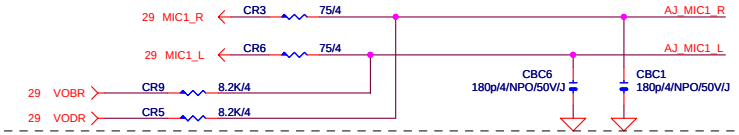
LINE-OUT



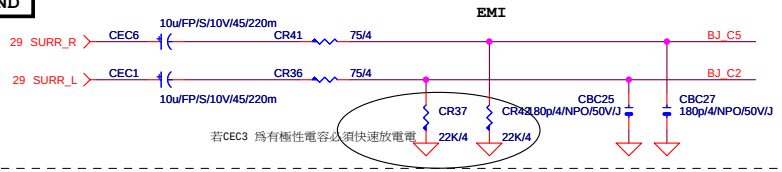
LINE-IN



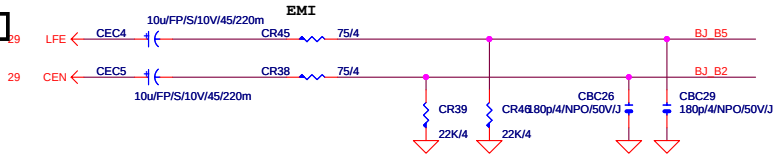
MIC-IN



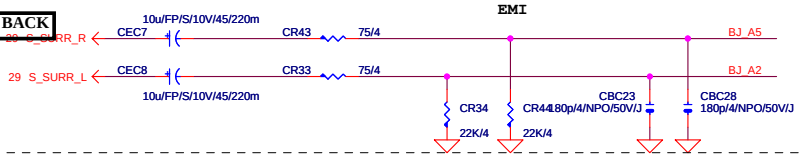
SURROUND



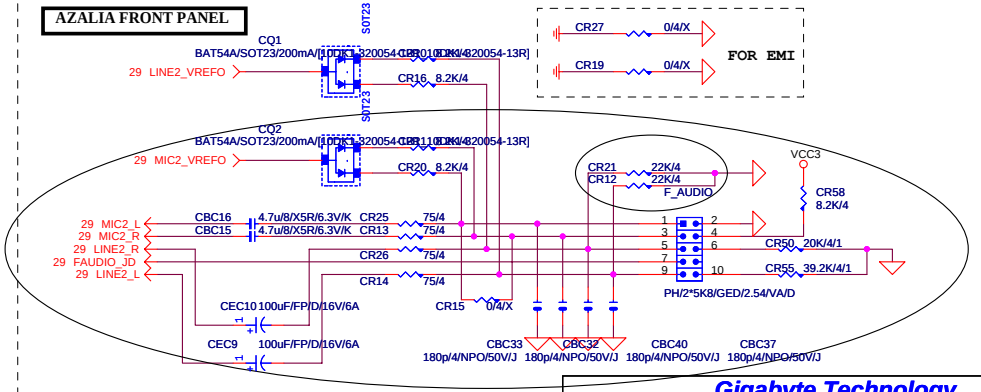
CEN/LFE



SURR BACK

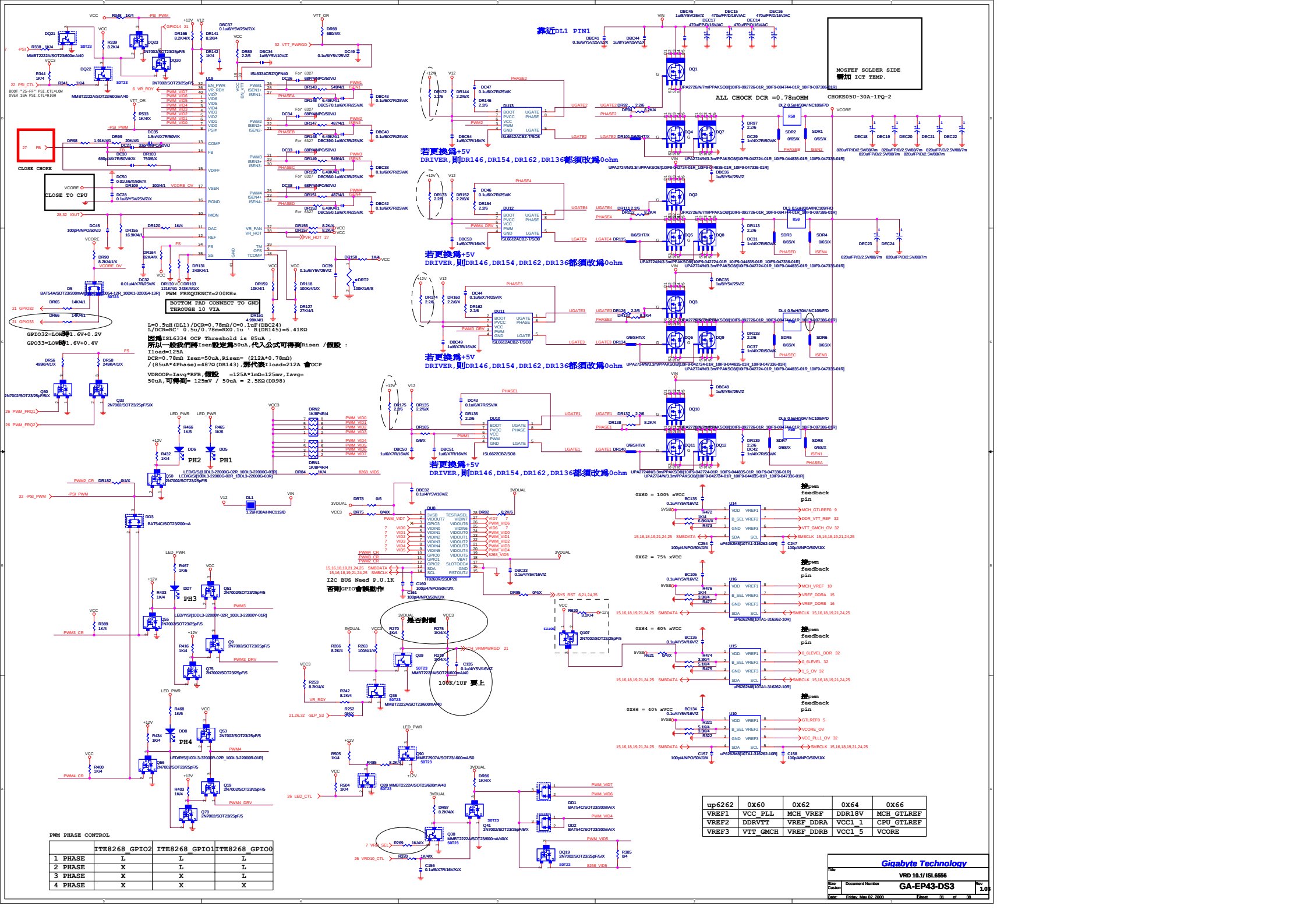


AZALIA FRONT PANEL



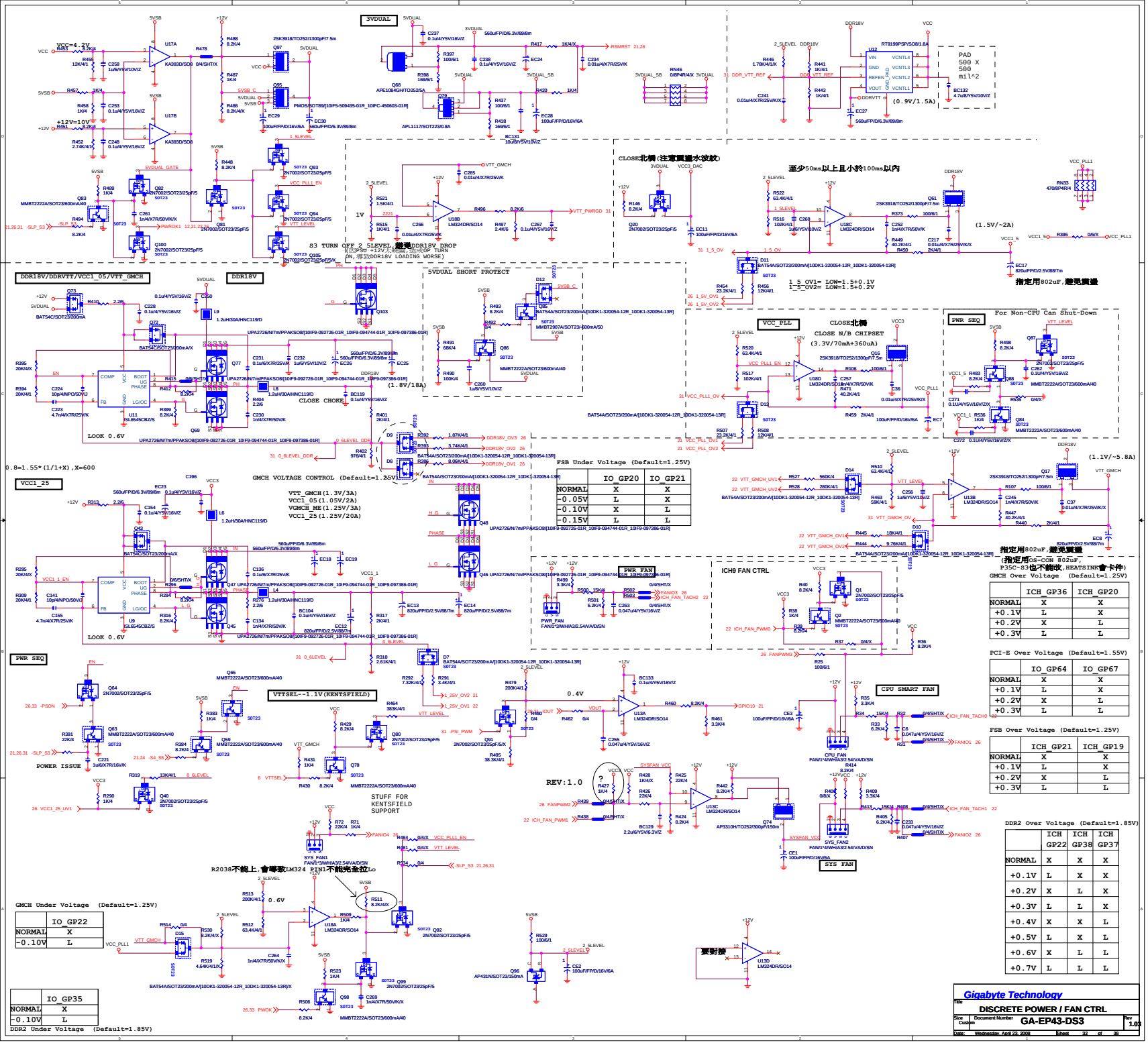
Gigabyte Technology

Title	AUDIO JACK	
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 30 of 38	



	ITE8268_GPIO2	ITE8268_GPIO1	ITE8268_GPIO0
1 PHASE	L	L	L
2 PHASE	X	L	L
3 PHASE	X	X	L
4 PHASE	X	X	X

up6262	0X60	0X62	0X64	0X66
VREF1	VCC_PLL	MCH_VREF	DDR18V	MCH_GTLREF
VREF2	DDRVTT	VREF_DDRA	VCC1_1	CPU_GTLREF
VREF3	VTT_GMCH	VREF_DDRB	VCC1_5	VCORE



	IO_GP20	IO_GP21
NORMAL	X	X
-0.05V	L	X
-0.10V	X	L
-0.15V	L	L

GMCH Over Voltage (Default=1.25V)

	ICH_GP36	ICH_GP20
NORMAL	X	X
+0.1V	L	X
+0.2V	X	L
+0.3V	L	L

PCI-E Over Voltage (Default=1.55V)

	IO_GP64	IO_GP67
NORMAL	X	X
+0.1V	L	X
+0.2V	X	L
+0.3V	L	L

FSB Over Voltage (Default=1.25V)

	ICH_GP21	ICH_GP19
NORMAL	X	X
+0.1V	L	X
+0.2V	X	L
+0.3V	L	L

DDR2 Over Voltage (Default=1.85V)

	ICH GP22	ICH GP38	ICH GP37
NORMAL	X	X	X
+0.1V	L	X	X
+0.2V	X	L	X
+0.3V	L	L	X
+0.4V	X	X	L
+0.5V	L	X	L
+0.6V	X	L	L
+0.7V	L	L	L

GMCH Under Voltage (Default=1.25V)

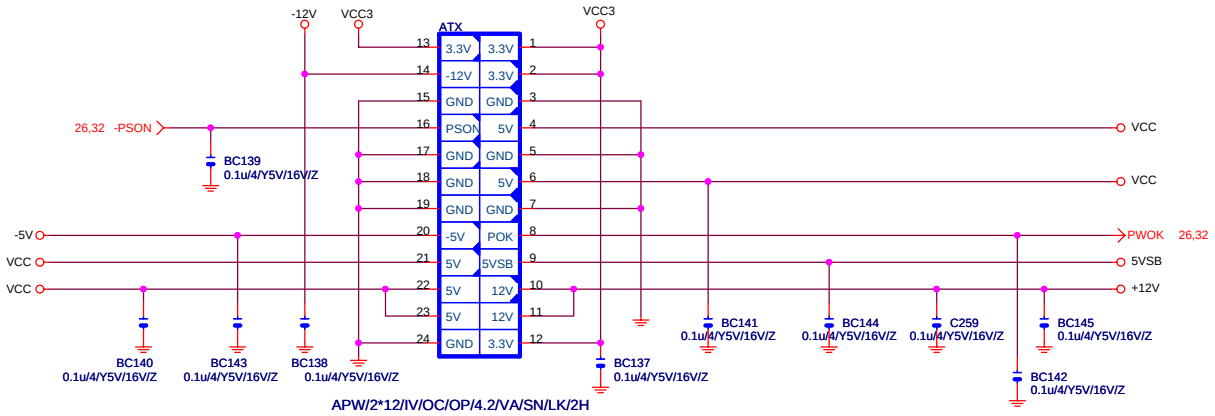
	IO_GP22
NORMAL	X
-0.10V	L

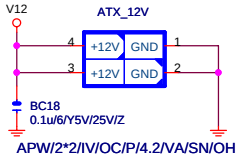
	IO_GP35
NORMAL	X
-0.10V	L

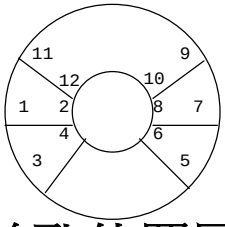
DDR2 Under Voltage (Default=1.85V)

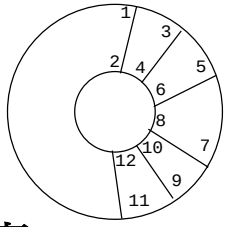
Gigabyte Technology	
Title	DISCRETE POWER / FAN CTRL
Size / Custom	Document Number: GA-EP43-DS3
Rev	1.03
Date: Wednesday, April 23, 2008	Sheet 32 of 38

ATX POWER CONNECTOR

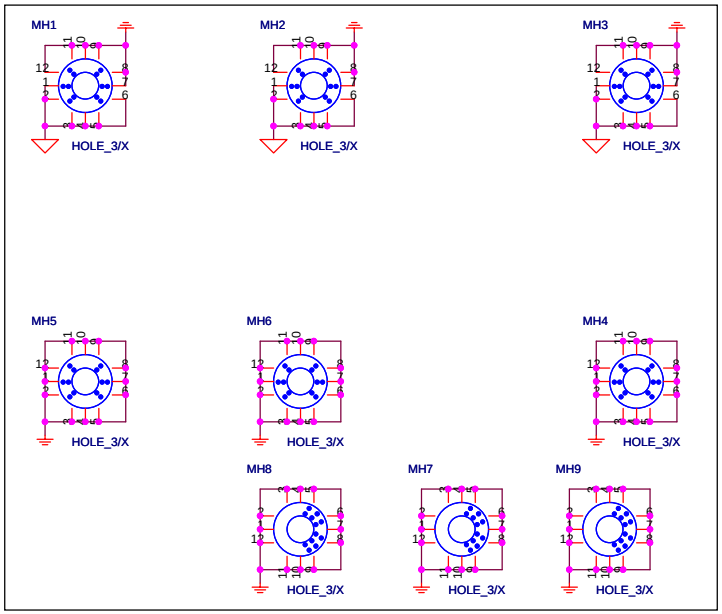


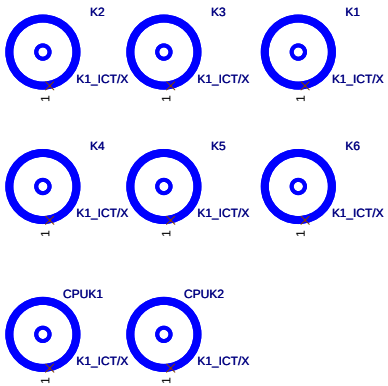


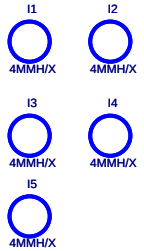




螺絲孔位置圖 (注意Footprint不同)

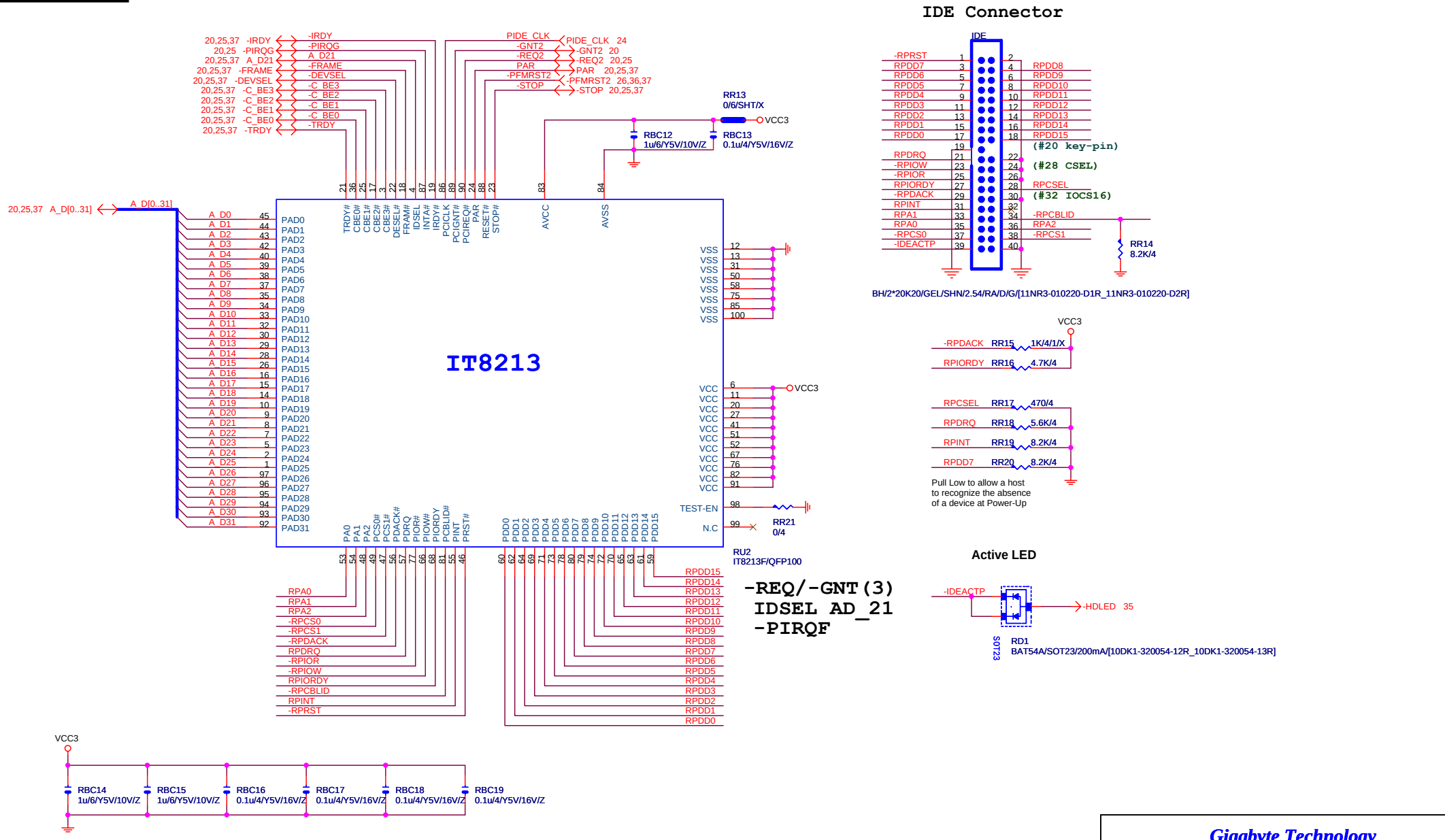




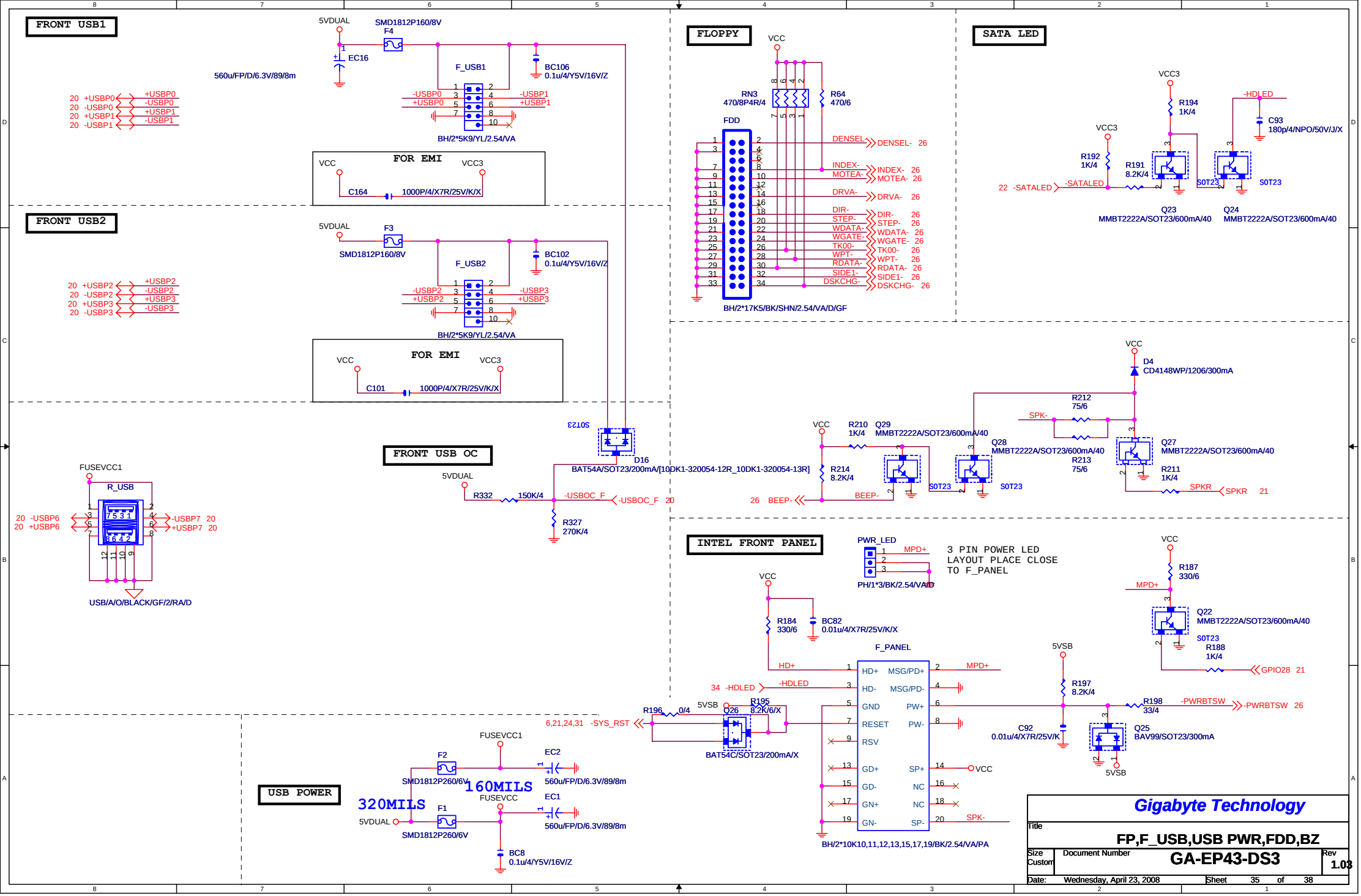


Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: B	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Wednesday, April 23, 2008	Sheet 33 of 38	

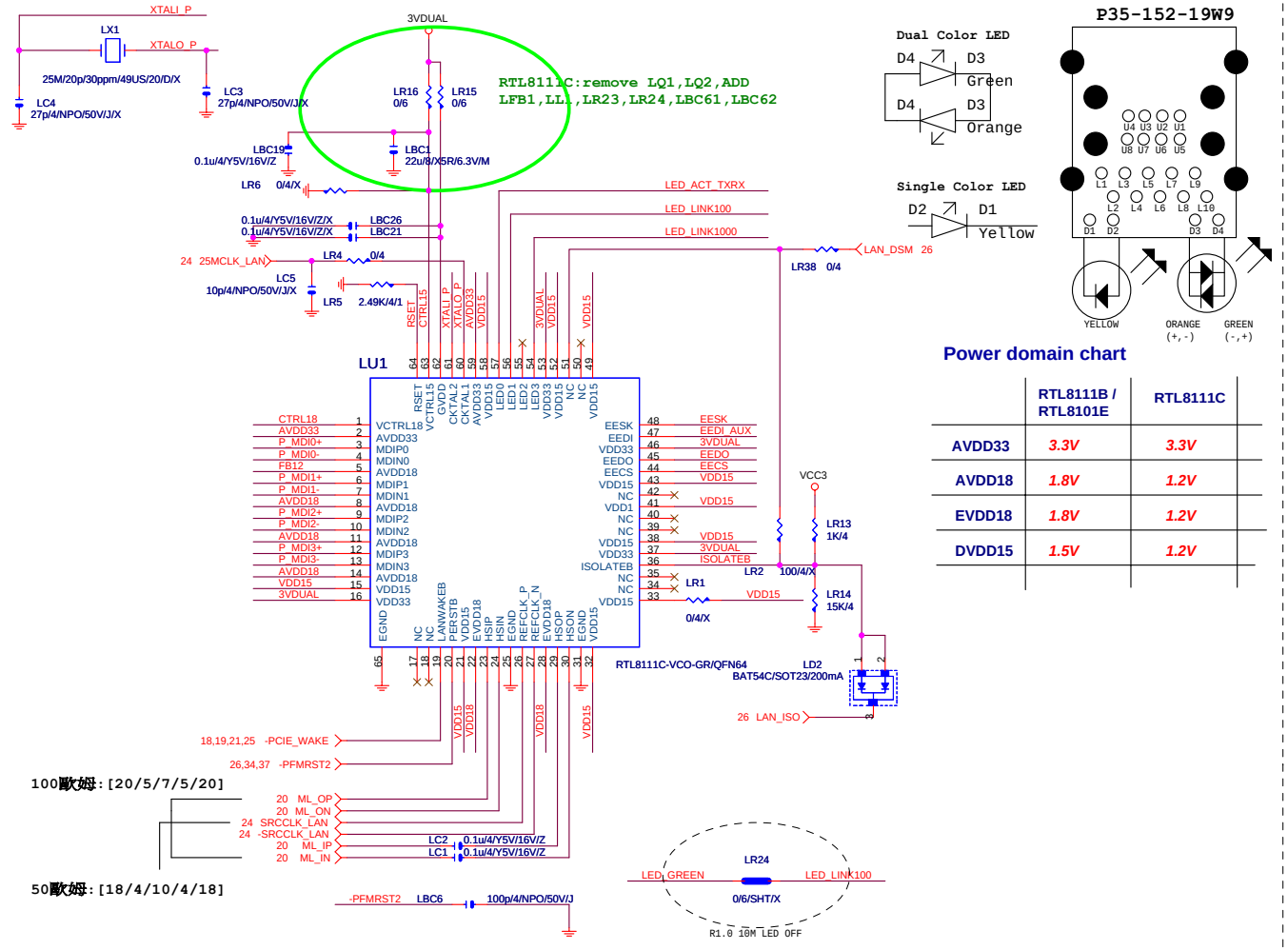
IT8213 1P PATA



Gigabyte Technology			
Title	IT8213 1P PATA		
Size	Document Number	GA-EP43-DS3	Rev 1.03
Date: Wednesday, May 14, 2008	Sheet 34 of 38		


FRONT USB1
5VDUAL
SMD1812P160/8V
F4
EC16
560u/FP/D/6.3V/89/8m
F_USB1
BC106
0.1u/4/Y5V/16V/Z
20 +USBP0
20 -USBP0
20 +USBP1
20 -USBP1
+USBP0
-USBP0
+USBP1
-USBP1
-USBP0
+USBP0
-USBP1
+USBP1
BH/2*5K9/YL/2.54/VA
FOR EMI
VCC
VCC3
C164
1000P/4/X7R/25V/K/X
FRONT USB2
5VDUAL
F3
SMD1812P160/8V
F_USB2
BC102
0.1u/4/Y5V/16V/Z
20 +USBP2
20 -USBP2
20 +USBP3
20 -USBP3
+USBP2
-USBP2
+USBP3
-USBP3
-USBP2
+USBP2
-USBP3
+USBP3
BH/2*5K9/YL/2.54/VA
FOR EMI
VCC
VCC3
C101
1000P/4/X7R/25V/K/X
FRONT USB OC
SOT23
D16
BAT54A/SOT23/200mA/[10DK1-320054-12R_10DK1-320054-13R]
5VDUAL
R332
150K/4
-USBOC_F
-USBOC_F 20
R327
270K/4
FUSEVCC1
R_USB
20 -USBP6
20 +USBP6
-USBP7 20
+USBP7 20
USB/A/O/BLACK/GF/2/RA/D
FLOPPY
VCC
RN3
470/8P4R/4
R64
470/6
FDD
DENSEL
DENSEL- 26
INDEX-
MOTEA-
INDEX- 26
MOTEA- 26
DRVA-
DRVA- 26
DIR-
STEP-
WDATA-
WGATE-
TK00-
WPT-
RDATA-
SIDE1-
DSKCHG-
DIR- 26
STEP- 26
WDATA- 26
WGATE- 26
TK00- 26
WPT- 26
RDATA- 26
SIDE1- 26
DSKCHG- 26
BH/2*17K5/BK/SHN/2.54/VA/D/GF
SATA LED
VCC3
R194
1K/4
-HDLED
C93
180p/4/NPO/50V/J/X
R192
1K/4
R191
8.2K/4
22 -SATALED
-SATALED
SOT23
SOT23
Q23
MMBT2222A/SOT23/600mA/40
Q24
MMBT2222A/SOT23/600mA/40
VCC
D4
CD4148WP/1206/300mA
R212
75/6
SPK-
R210
1K/4
Q29
MMBT2222A/SOT23/600mA/40
Q28
MMBT2222A/SOT23/600mA/40
R213
75/6
Q27
MMBT2222A/SOT23/600mA/40
R214
8.2K/4
R211
1K/4
SPKR
SPKR 21
26 BEEP-
BEEP-
SOT23
SOT23
INTEL FRONT PANEL
PWR_LED
MPD+
3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL
PH/1*3/BK/2.54/VA/D
VCC
R184
330/6
BC82
0.01u/4/X7R/25V/K/X
F_PANEL
HD+
HD+ MSG/PD+
MPD+
34 -HDLED
-HDLED
HD- MSG/PD-
GND PW+
5VSB
R195
8.2K/6/X
R196
0/4
6,21,24,31 -SYS_RST
Q26
RESET PW-
RSV
BAT54C/SOT23/200mA/X
GD+ SP+
VCC
GD- NC
GN+ NC
GN- SP-
SPK-
BH/2*10K10,11,12,13,15,17,19/BK/2.54/VA/PA
5VSB
R197
8.2K/4
R198
33/4
-PWRBTSW
-PWRBTSW 26
C92
0.01u/4/X7R/25V/K
Q25
BAV99/SOT23/300mA
5VSB
VCC
R187
330/6
MPD+
Q22
MMBT2222A/SOT23/600mA/40
SOT23
R188
1K/4
GPIO28 21
USB POWER
FUSEVCC1
F2
SMD1812P260/6V
160MILS
EC2
560u/FP/D/6.3V/89/8m
320MILS
5VDUAL
F1
SMD1812P260/6V
FUSEVCC
EC1
560u/FP/D/6.3V/89/8m
BC8
0.1u/4/Y5V/16V/Z
Gigabyte Technology
Title
FP,F_USB,USB PWR,FDD,BZ
Size
Custom
Document Number
GA-EP43-DS3
Rev
1.03
Date:
Wednesday, April 23, 2008
Sheet
35
of
38

PCIE-1G LAN



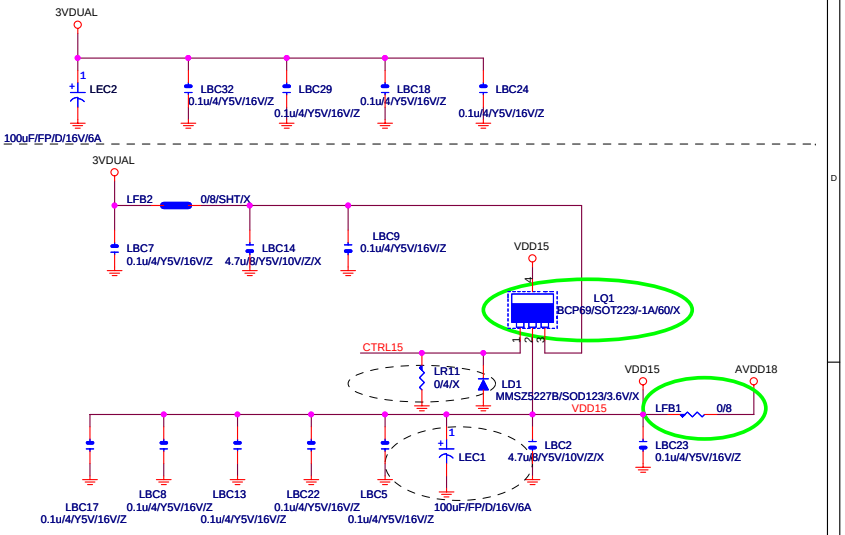
Dual Color LED

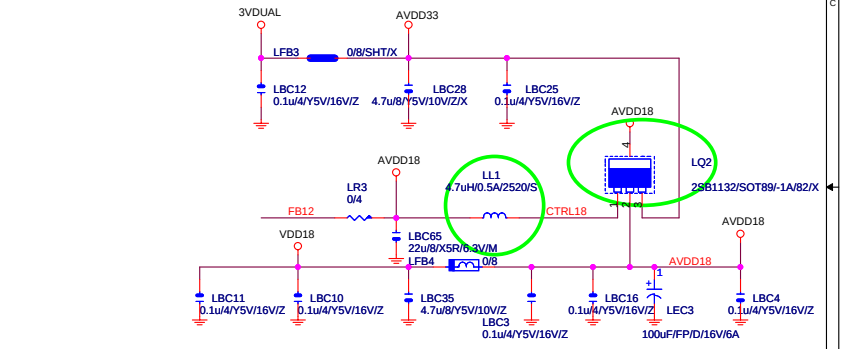
Single Color LED

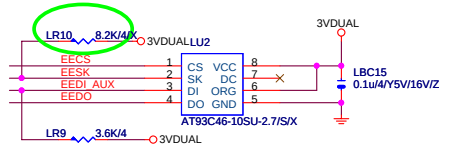
P35-152-19W9

Power domain chart

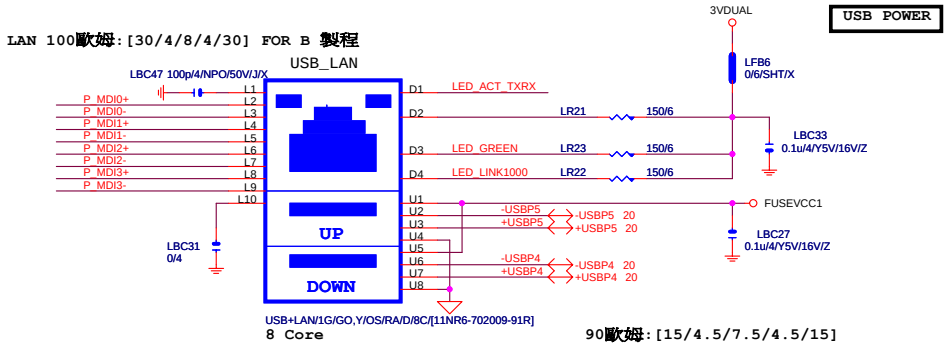
	RTL8111B / RTL8101E	RTL8111C
AVDD33	3.3V	3.3V
AVDD18	1.8V	1.2V
EVDD18	1.8V	1.2V
DVDD15	1.5V	1.2V





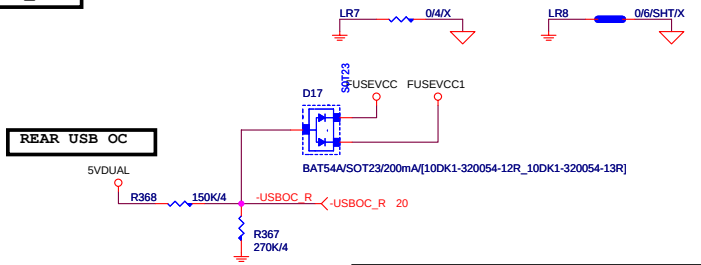


USB_LAN CONNECTOR



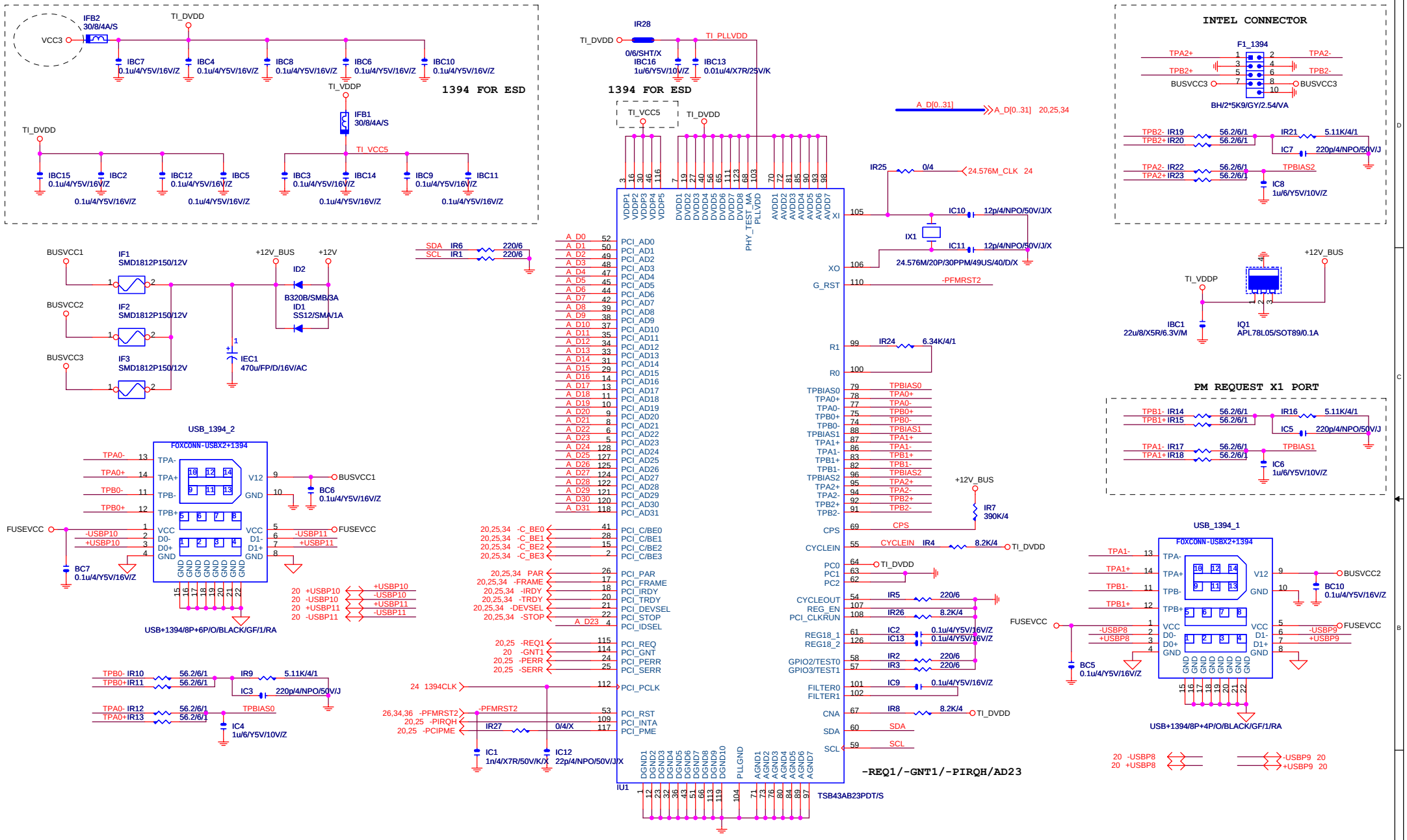
USB POWER

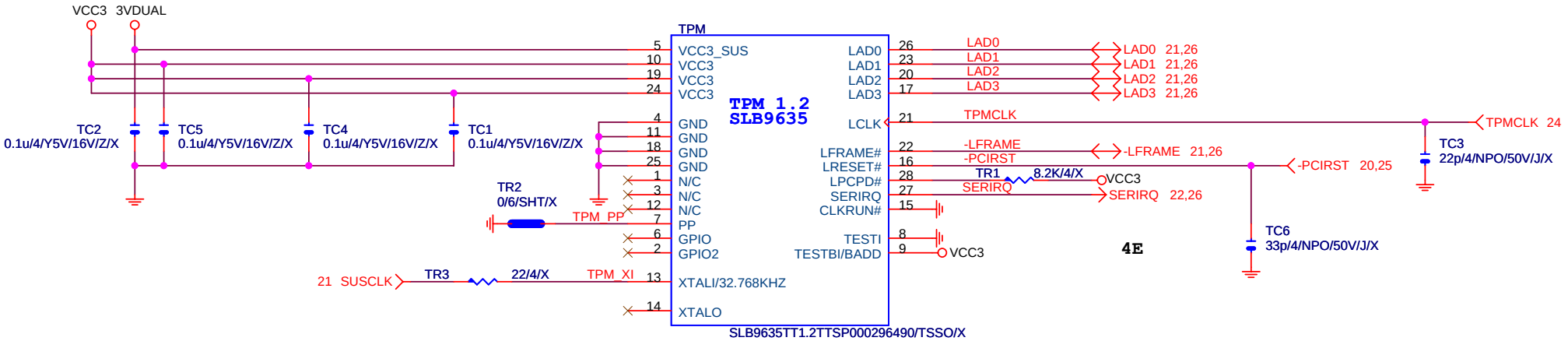
USB_LAN



Gigabyte Technology

Title	RTL8111C	
Size: Custom	Document Number: GA-EP43-DS3	Rev: 1.03
Date: Friday, May 09, 2008	Sheet 36 of 38	


1394 FOR ESD
1394 FOR ESD
INTEL CONNECTOR
PM REQUEST X1 PORT
TSB43AB23PDT/S
-REQ1/-GNT1/-PIRQH/AD23
USB+1394/8P+6P/O/BLACK/GF/1/RA
USB+1394/8P+4P/O/BLACK/GF/1/RA
Gigabyte Technology
TSB43AB23A 1394A
GA-EP43-DS3
1.03
Wednesday, May 14, 2008



GIGABYTE THCHNOLOGIES		
Title: TPM I/F-SLB 9635 TT 1.2		
Size: Custom	Document Number: EP43-DS3	Rev: 1.03
Date: Wednesday, May 14, 2008	Sheet 38 of 38	