GIGABYTE GA-8IG1000 Schematics

Revision 3.1

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	P4_478A
05	P4_478B
06	P4_478C
07	SPRINGDALE HOST
08	SPRINGDALE DDR
09	SPRINGDALE AGP, HUB, CSA, VGA
10	SPRINGDALE PWR
11	DDR1,2 CHANNEL A
12	DDR3,4 CHANNEL B
13	DDR TERMINATION
14	AGP 8X SLOT
15	ICH5 PCI, USB, HUB, LAN
16	ICH5 IDE, GPIO, SATA, CTRL
17	ICH5 VCC, GND
18	DUAL FWH
19	ICS952635 CLOCK GENERATOR
20	PCI SLOT1/SLOT2
21	PCI SLOT3/SLOT4/RESET BUFFER
22	PCI SLOT5/SLOT6

SHEET	TITLE
23	AC '97 CODEC
24	AUDIO JACK, L_OUT, F_AUDIO
25	ITE 8712/IR_CIR/SCR/S_IRQ
26	COMA/VGA_COMB/LPT
27	IDE1/IDE2/FDD
28	FAN/HW MONITOR
29	KB_MS/GAME/FUSEVCC
30	FRONT PANEL
31	R_USB/F_USB1/F_USB2
32	DDR/VDDQ/5VDUAL/VCCVID POWER
33	VCORE POWER
34	ATX/ATX_12V/FAN1655M
35	MARVELL 88E8001
36	TI TSB43AB23(1394)
37	PCI ROUNTIONG
38	GPIO PIN LIST

Digitally signed by fdsf
DN: cn=fdsf, o=fsdfsd, ou=ffsdf, email=fdfsd@fsdff, c=US
Date: 2009.12.15 20:44:37 +07'00'

PROCESS:C

COMPONENT SIDE (0.5 oz. Copper)
VCC SIDE (1 oz. Copper)
GND SIDE (1 oz. Copper)
SOLDER SIDE (0.5 oz. Copper)

GIGABYTE CORP.

Title: COVER SHEET

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

Date: | Sheet 1 of 39

Model Name: GA-8IG1000

Component history

Date	Change Item	Reason
2.0A	RELEASE REV2.0A	
2.0B	PCB 2.01 尺寸304.8X220	
	REMOVE 替料U42 24C02 10HP4-180108-72	
	REMOVE 替料U35 KA393 10TA1-800393-03 FAIRCHILD	
	L1,L2 LIB 變更L0806	
	0.01U,0.047U/6改X7R	
	U11 RTM362-203 CHANGE TO RTM362-205	
	R830 9.31K/6/1 CHANGE TO 47K/6	
	ADD C246 10P/6	
	GAME PORT 改值	
	ADD FOR ALC658 PULL DOWN	
	R1058 1K/6 >3K/6	
	FOR PAT,ICS952635	
2.0C	PCB REV2.01 > REV2.03	
	R1029上8.2K/6	
	R1104 由620/6 改成2K/6	
	R1059 由3.3K/6 改成13K/6	
	R1160 由5.1K/6 改成22K/6	
	C246 10P/6 REMOVE	
	AUDIO1 改成AUDIO	
2.0D	1. CR28,CR29 27K/6 --> 22K/6	
	2. ADD CBC12,CR70 22K/6	
	3. CR67,CR68 100K/6 REMOVE	
	4. IUCD REV2.3 --> REV2.4	
	5. ALC658 REV.C --> REV.C ; REV.B	
2.0D	1. ADD U21 ITE8206 REV.B主料 , REV.A 替料	
	2. C274 1U/6/Y/16V --> 1N/6/X/50V	FOR CMOS CHECKSUM ERROR ISSUE
2.0E-0811	ADD BC522(3VDUAL) & BC336(VCC3) 0.1U/6	FOR EMI
2.0E-0829	COLOR BOX 12BB1-EAI865G-00 --> 12BB1-EAI865GG-00	
2.0F-0904	1. R620 280K/6/1 --> 390K/6/1	FOR DUAL BIOS ISSUE
2.0G-0910	1. R1116 1K/6/1 -> 931/6/1	FOR D-STEPING CELERON CPU
	2. R849 8.2K->22K,R1143 1K->47K,R1141 8.2K->0,R842 1K->22K,R1142 22K REMOVE,Q137 2222->2N7002	Modify Prescott CPU BOOTSEL Control Circuit
2.1A-1013	DDR25 CHANGE LINEAR , VDDQ CHANGE TO252	FOR COST DOWN
2.1B-1028	DDR25V INPUT VCC3 DIODE --> MOSFET	FOR COST DOWN
01-1203	9M8IG1000P-00-21B --> 9M8IG2004P-00-01	FOR COST DOWN
30A-1225	9M8IG2004P-00-01 --> 9M8IG1000PG-00-30A	FOR DVT
30A-1231	9M8IG1000PG-00-30A --> 9M8IG1000G-00-30A	FOR PVT
30A-1231	9M8IG1000G-00-30A --> 9M8IG1000-00-30A	FOR PVT
30B-0113	ADD EC90 3300UF/6.3V	ADD VCORE CAP
	ADD SUR_CEN : INSERT 1-8 PIN	
31A-0217	PCB REV3.0 --> REV3.1	FOR MP
	FOR PSC PROCHOT FUNCTION & DDR 防燒	
31B-0309	1. SOCKET_478 FOXCONN REMOVE	

Circuit or PCB layout history

Date	Change Item	Reason
2.0A	RELEASE	
2.0B	FANIO1,2 重新走線	
	USB 8P4R 改8P4R-SHORT	
2.1	DDR25 CHANGE LINEAR , VDDQ CHANGE TO252	
2.11	DDR25V INPUT VCC3 DIODE --> MOSFET	
31C-0316	R1116 931->806; R1225,R1226 62->1K,R1251 1K->0,R1248 1K,R1252 8.2K,Q204 MMBT222A REMOVE	SET VCCVID TO 1.4V REMOVE DDR +0.3V CHANGE FAN SENSOR

GIGABYTE CORP.

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

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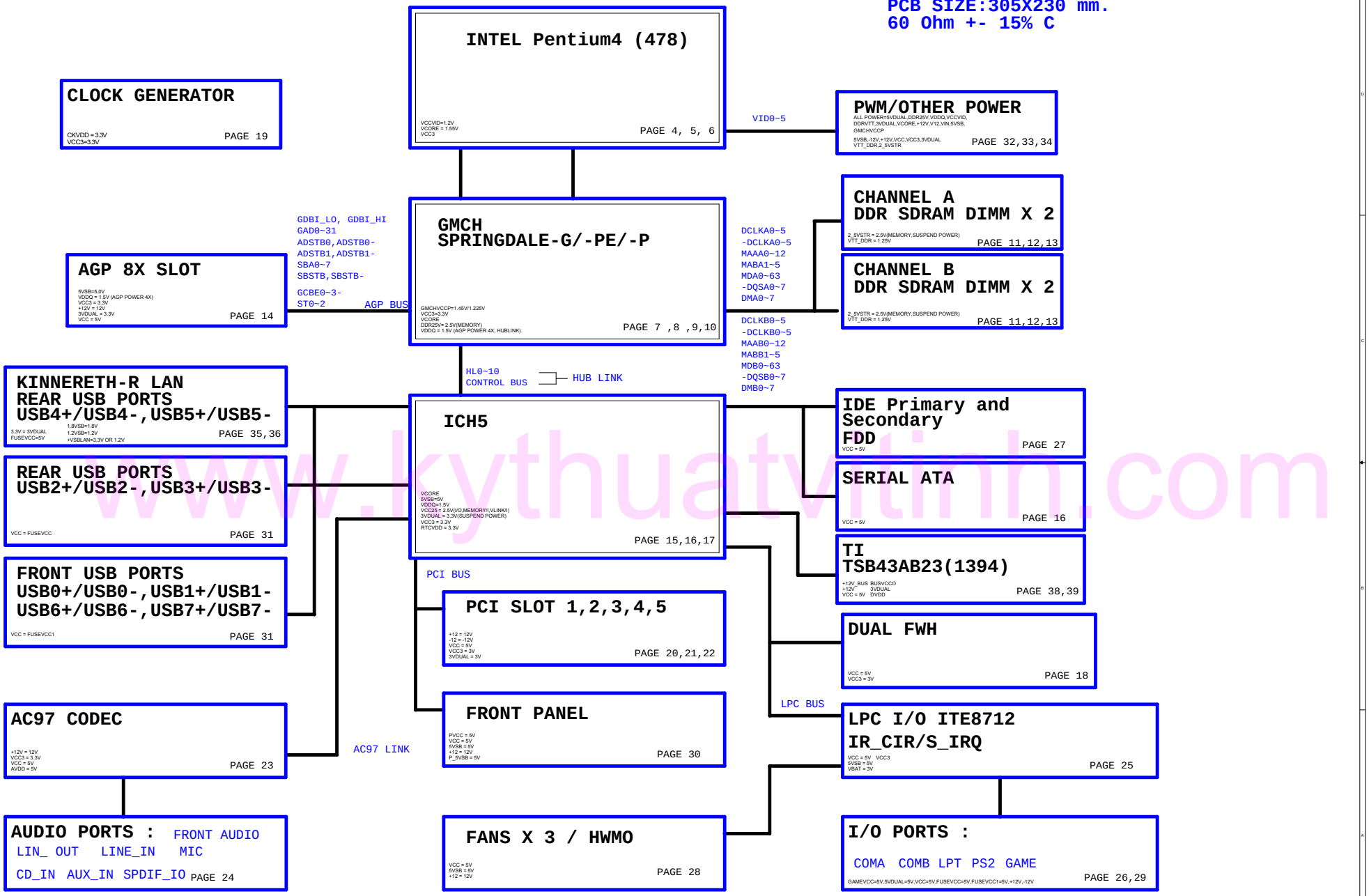
BLOCK DIAGRAM

PCB SIZE:305X230 mm.
60 Ohm +- 15% C



GIGABYTE CORP.

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

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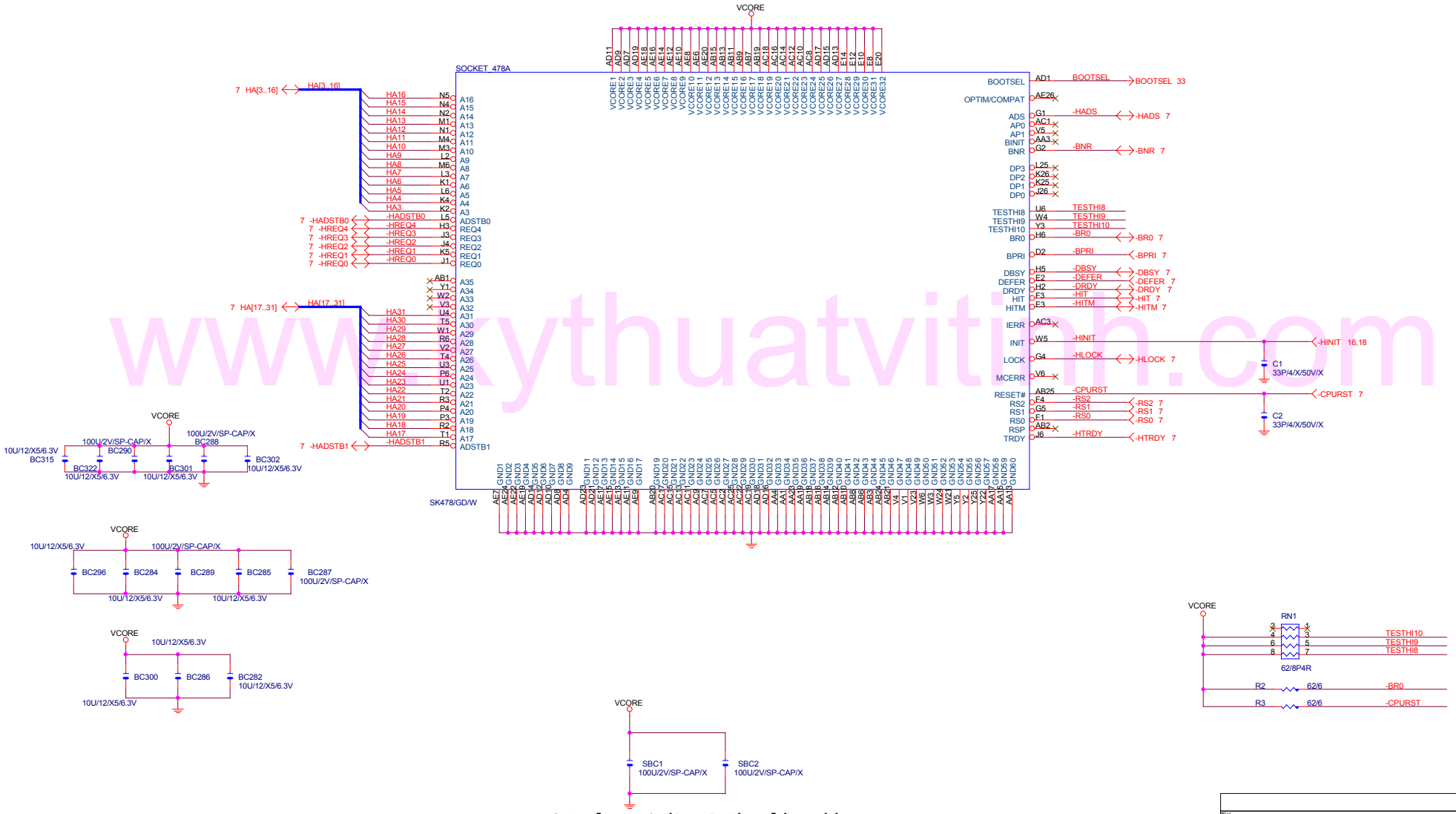

SP-CAP X 4 PCS

CPU SCOKET

CAP place at (D14,D15) solder side

Title	P4 478A	
Size: Custom	Document Number: GA-8IG1000	Rev: 3.1
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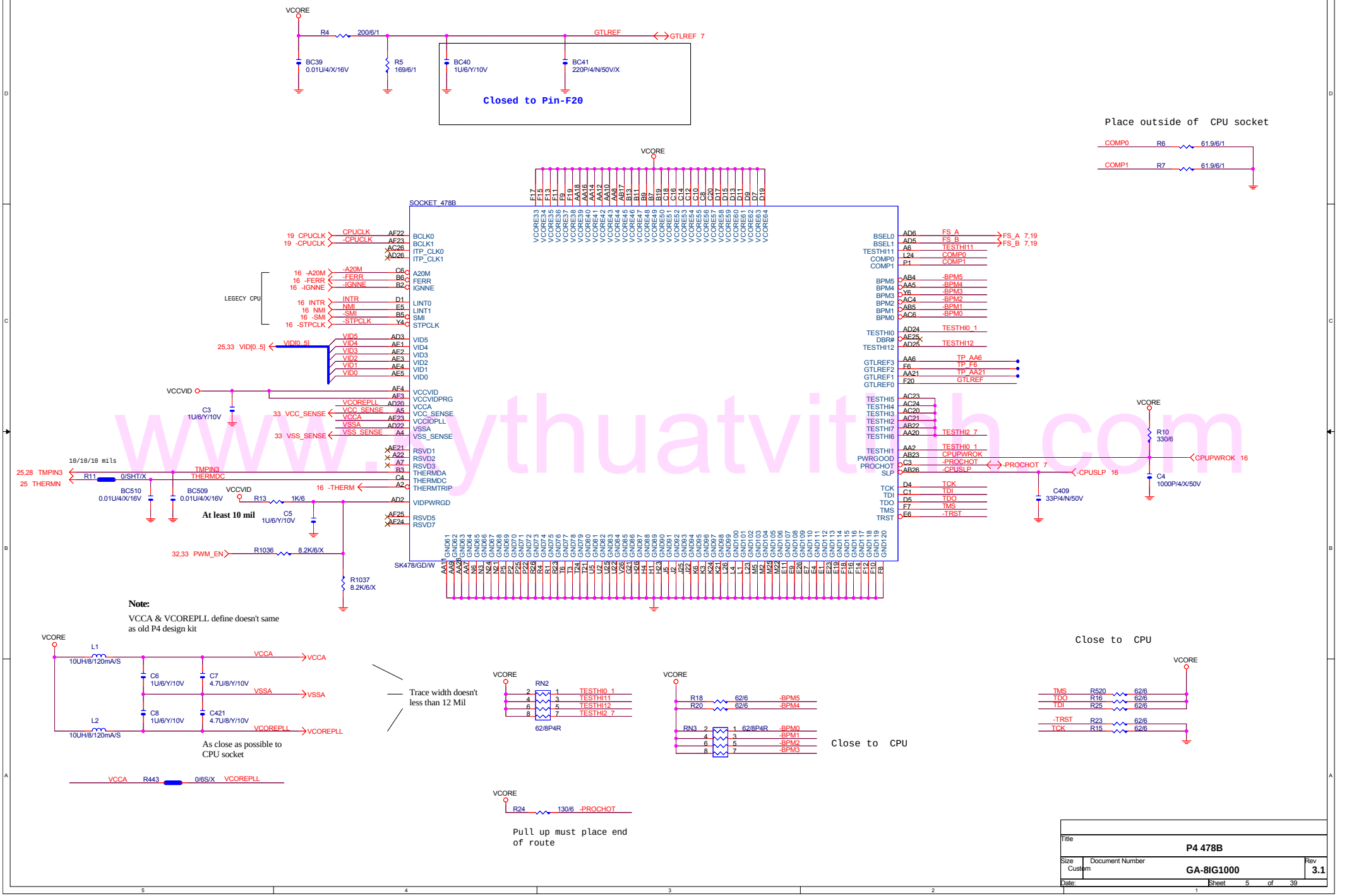

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Size: Custom	Document Number: GA-8IG1000		Rev: 3.1
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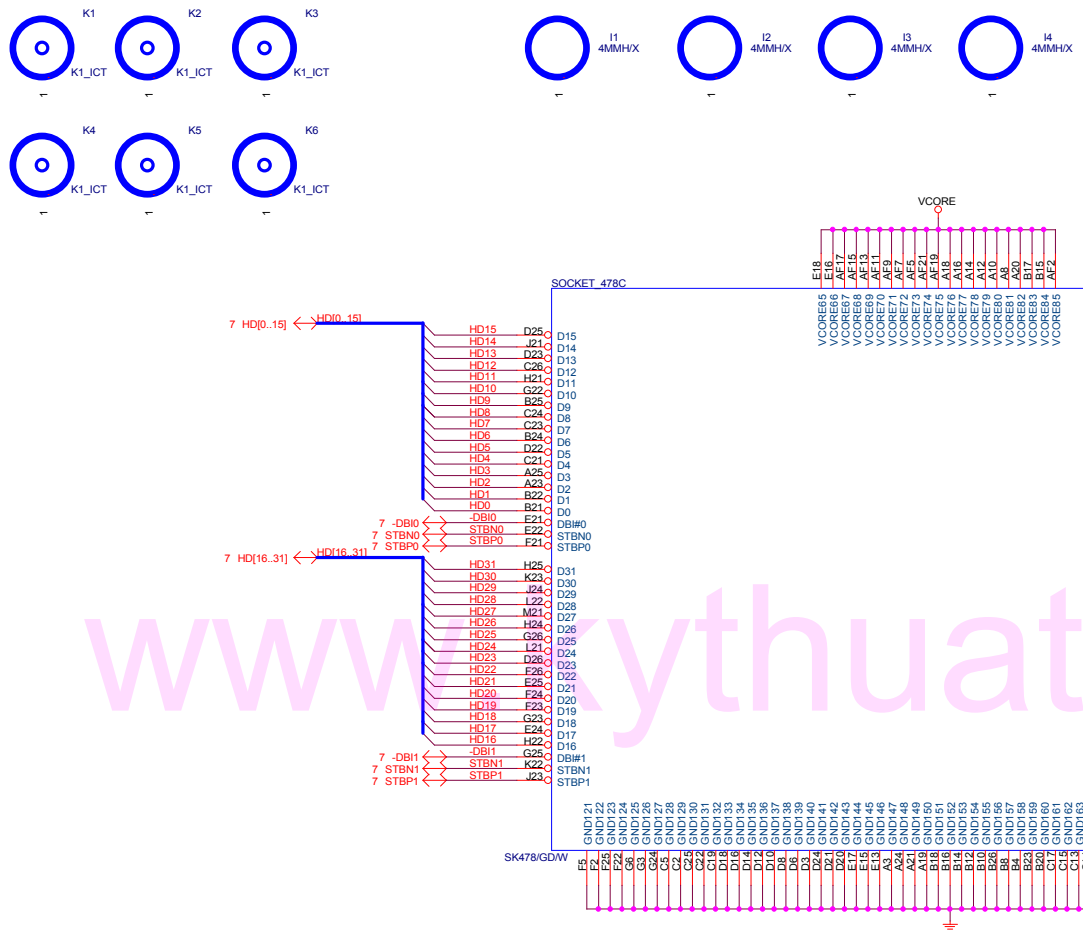

Title	P4 478C	
Size: Custom	Document Number: GA-8IG1000	Rev: 3.1
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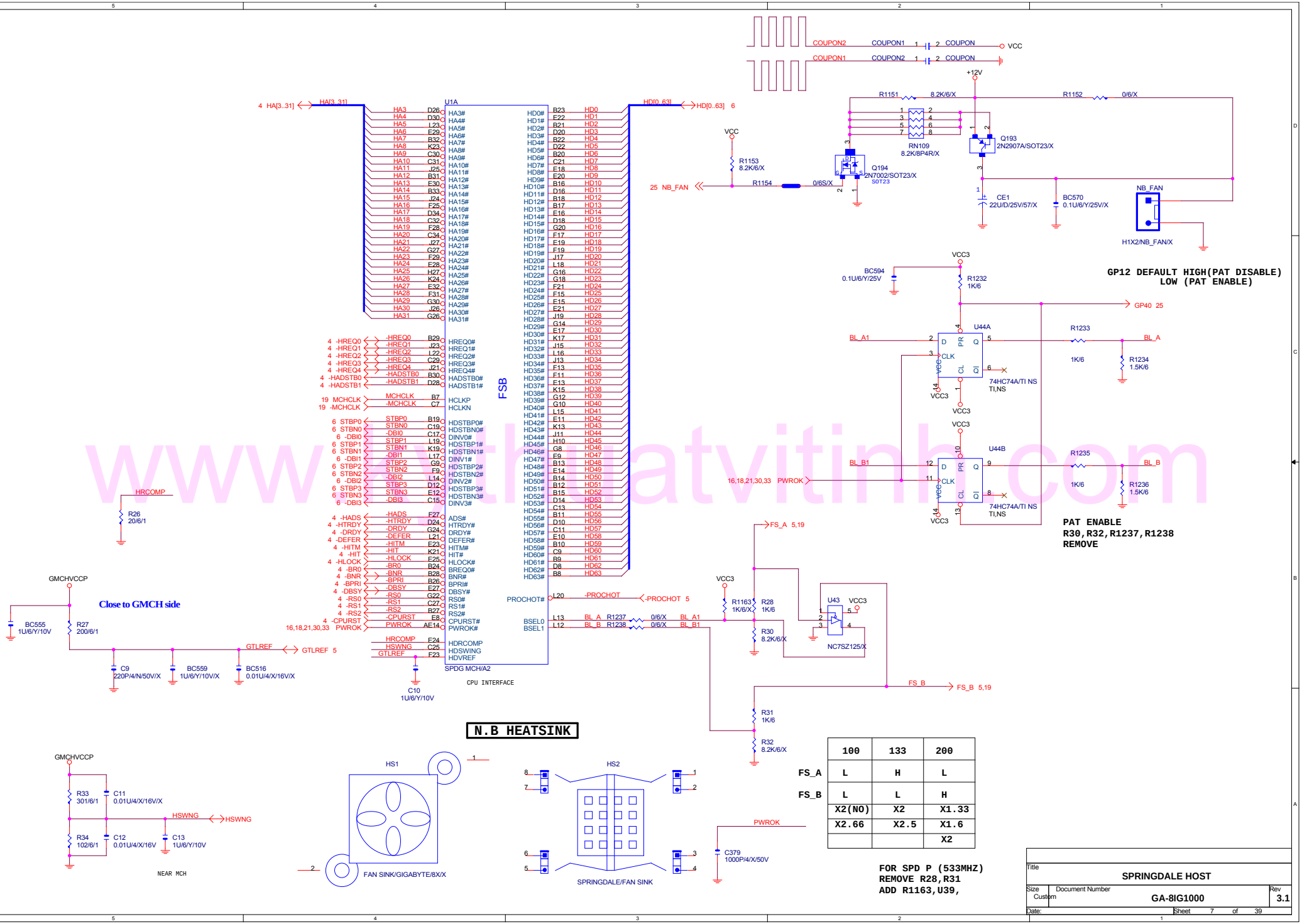

	100	133	200
FS_A	L	H	L
FS_B	L	L	H
	X2(NO)	X2	X1.33
	X2.66	X2.5	X1.6
			X2

Title	SPRINGDALE HOST	
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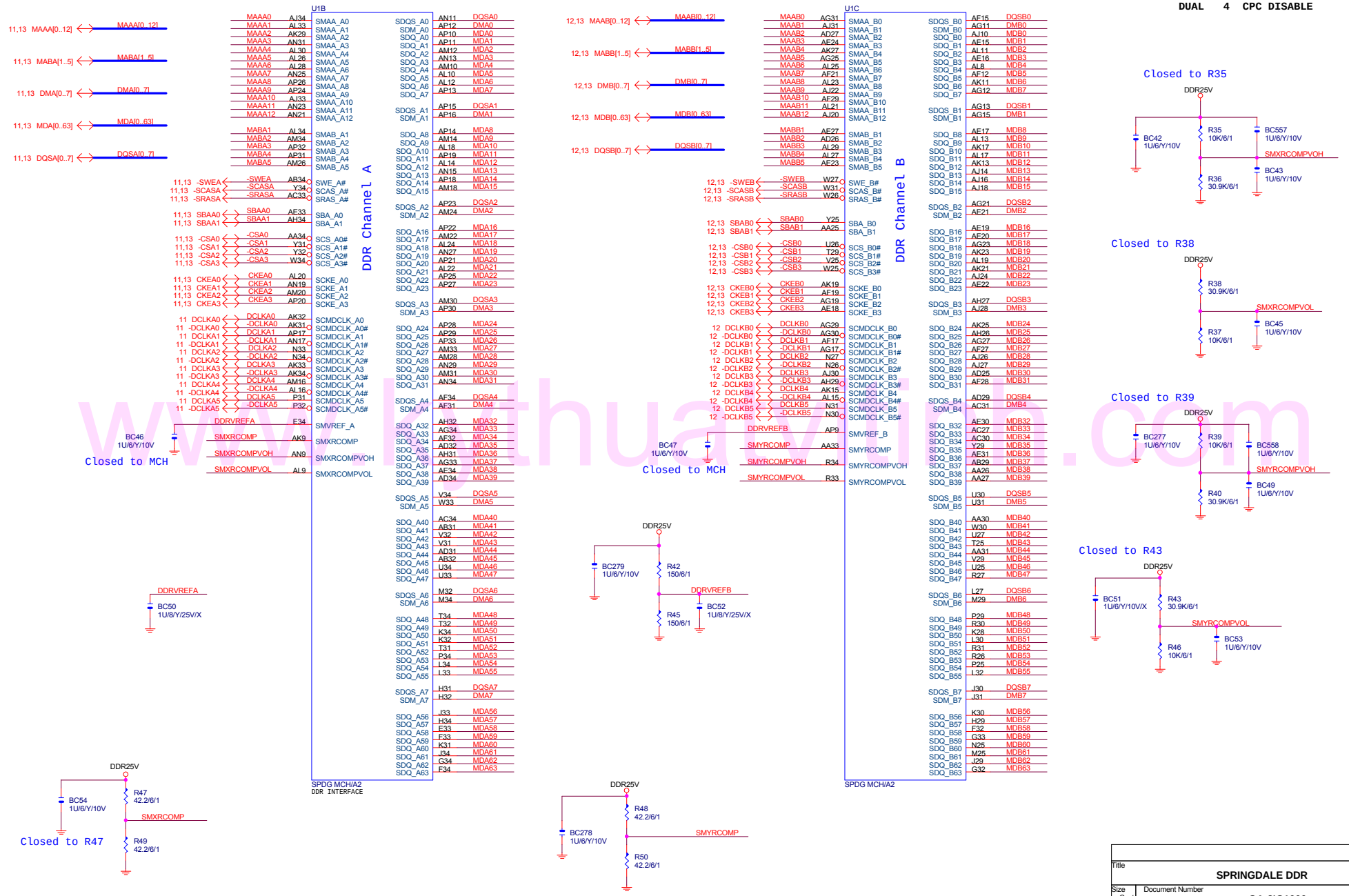
DDR 400 1-2-3-4 CPC DISABLE

DDR 333 SIGNAL 1 CPC ENABLE
2 CPC DISABLE
DUAL 2 CPC ENABLE
DUAL 4 CPC DISABLE



Title	SPRINGDALE DDR
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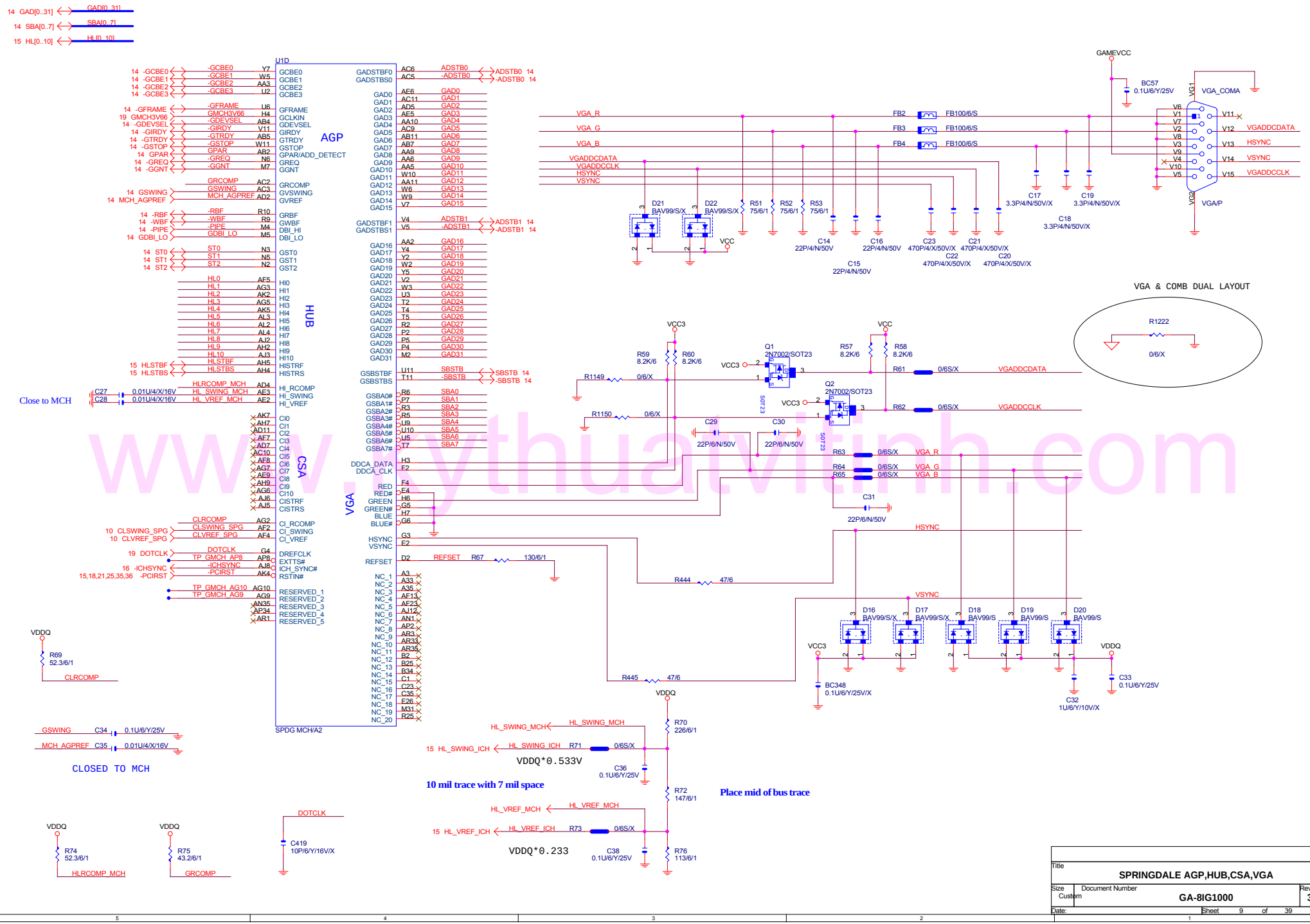

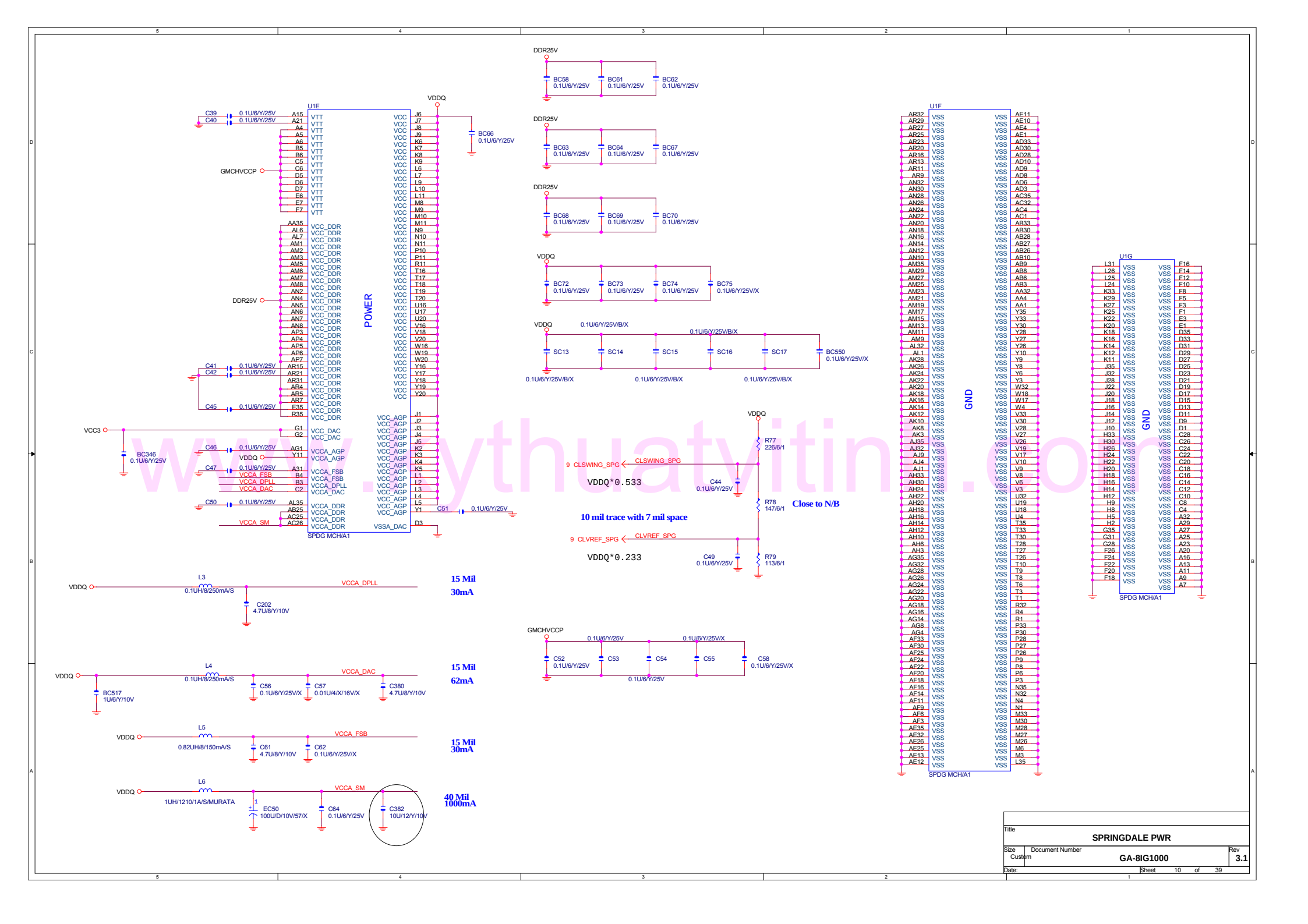

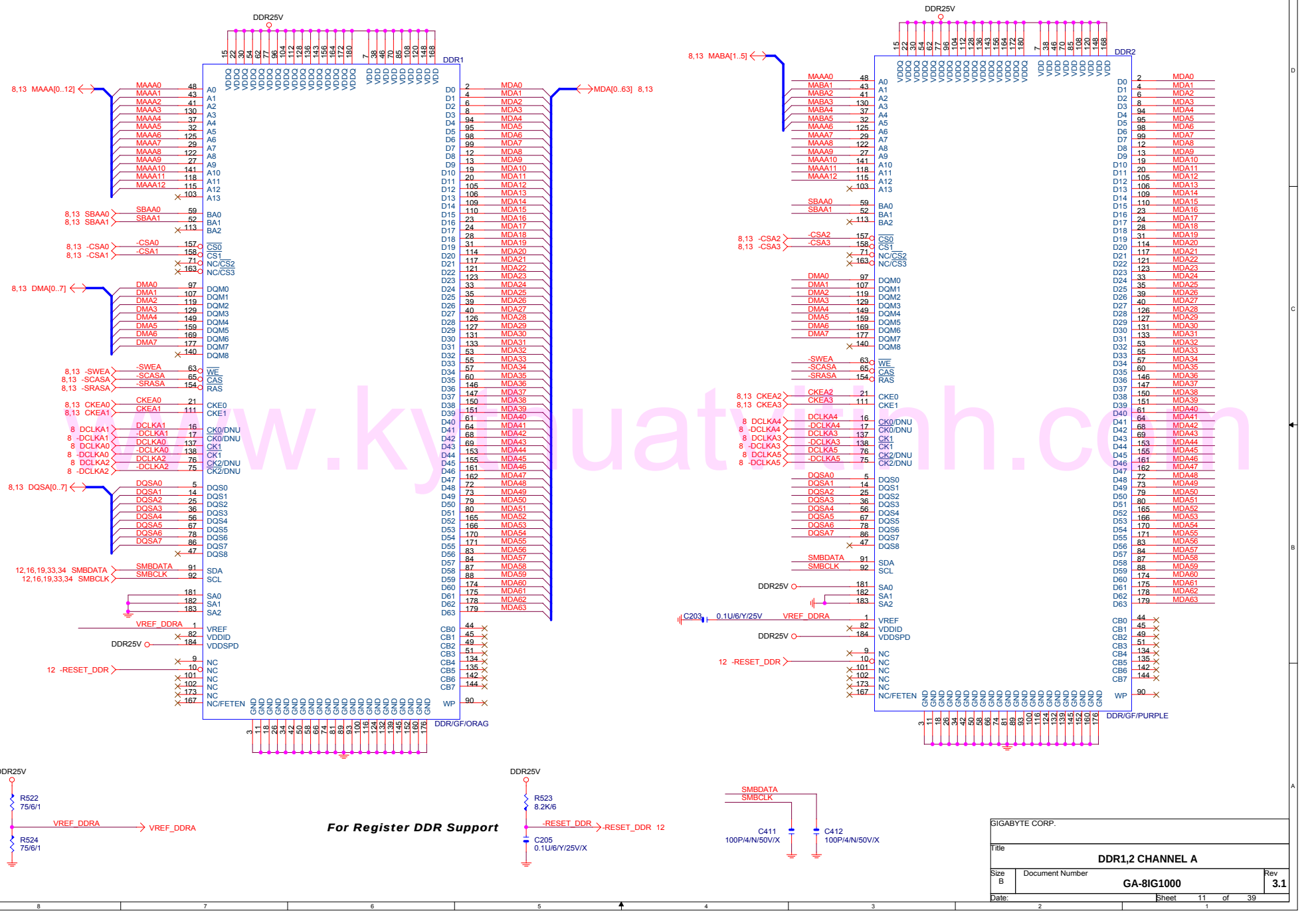

GIGABYTE CORP.		
Title	DDR1,2 CHANNEL A	
Size B	Document Number GA-8IG1000	Rev 3.1
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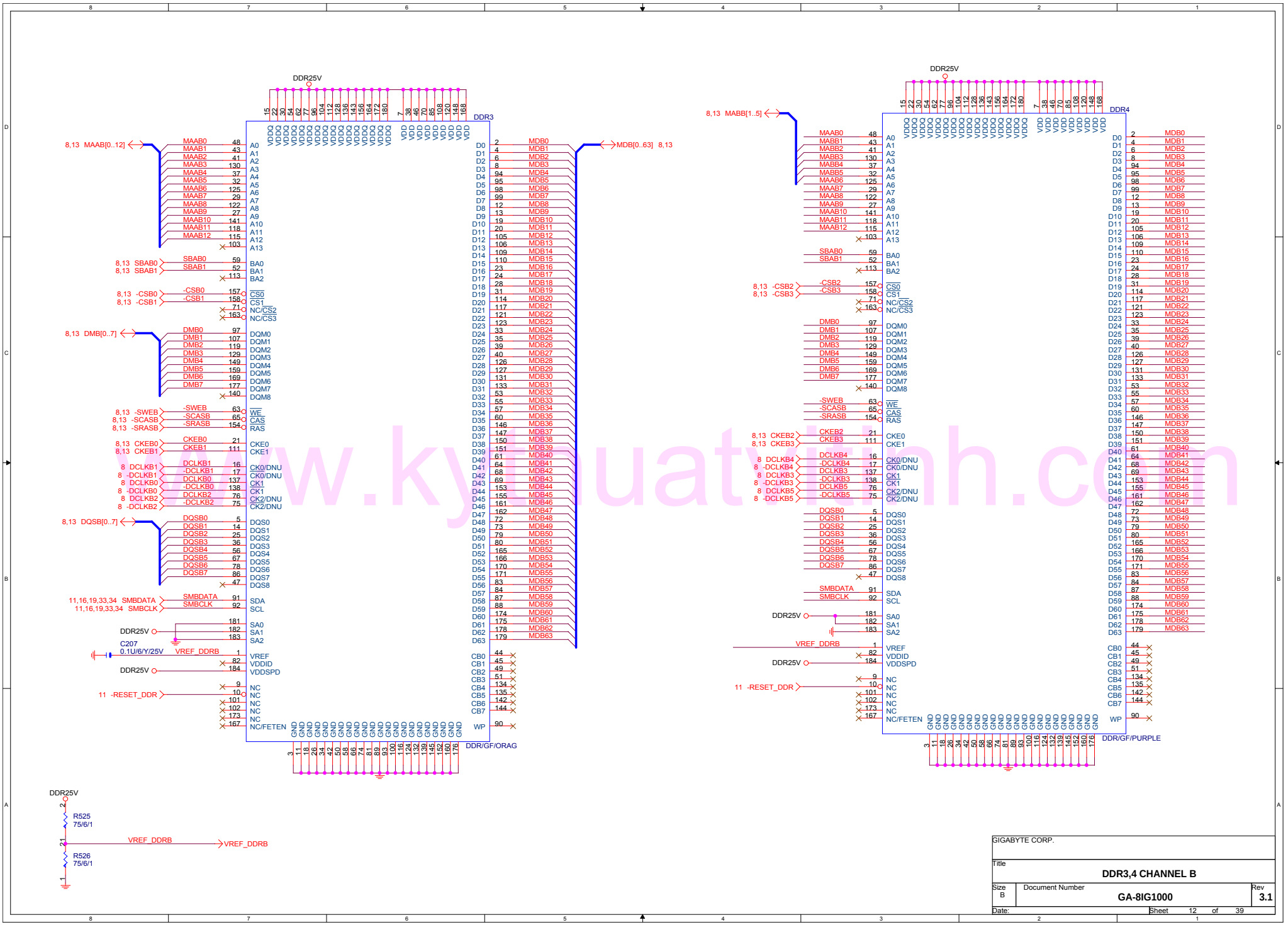
DDR25V
DDR3
DDR4
DDR/GF/ORAG
DDR/GF/PURPLE
8,13 MAAB[0..12]
8,13 SBAB0
8,13 SBAB1
8,13 -CSB0
8,13 -CSB1
8,13 DMB[0..7]
8,13 -SWEB
8,13 -SCASB
8,13 -SRASB
8,13 CKEB0
8,13 CKEB1
8 DCLKB1
8 -DCLKB1
8 DCLKB0
8 -DCLKB0
8 DCLKB2
8 -DCLKB2
8,13 DQSB[0..7]
11,16,19,33,34 SMBDATA
11,16,19,33,34 SMBCLK
C207
0.1U/6/Y/25V
VREF_DDRB
11 -RESET_DDR
8,13 MABB[1..5]
8,13 -CSB2
8,13 -CSB3
8,13 CKEB2
8,13 CKEB3
8 DCLKB4
8 -DCLKB4
8 DCLKB3
8 -DCLKB3
8 DCLKB5
8 -DCLKB5
MDB[0..63] 8,13
R525
75/6/1
R526
75/6/1
GIGABYTE CORP.
Title
DDR3,4 CHANNEL B
Size
B
Document Number
GA-8IG1000
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Date:
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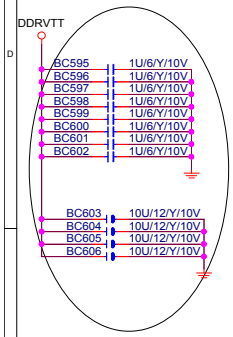
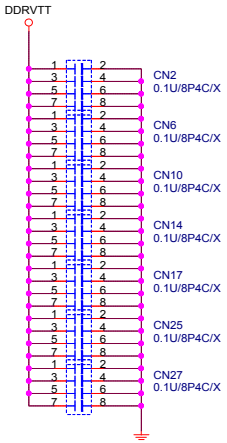
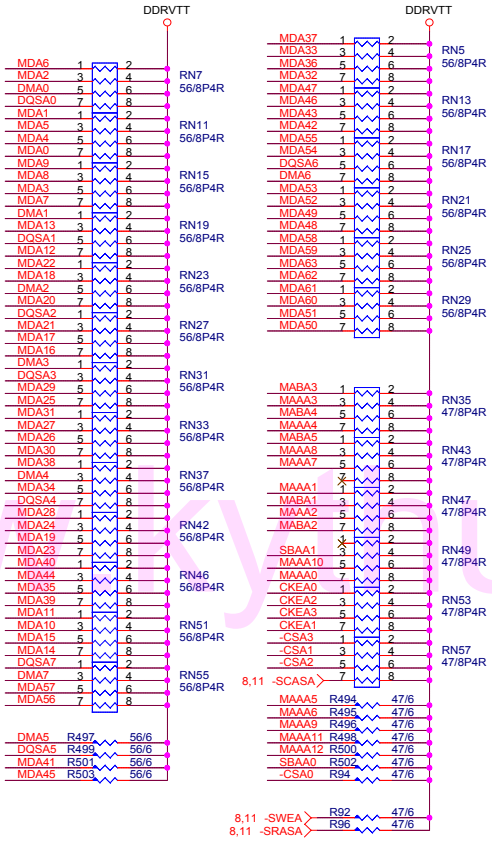
DDR TERMINATION

CHANNEL A

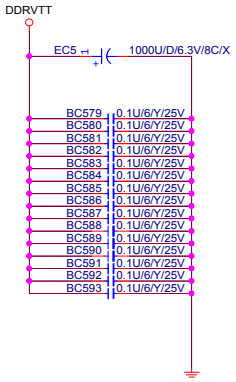
DDRVTT Decouple



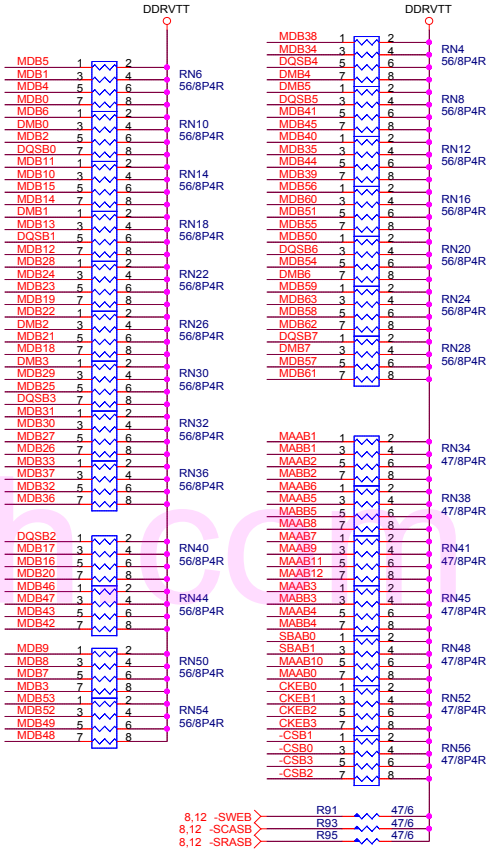




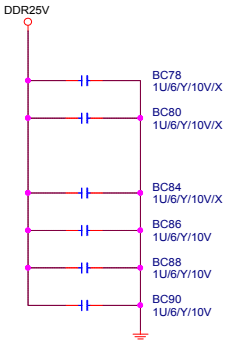
DDRVTT Decouple



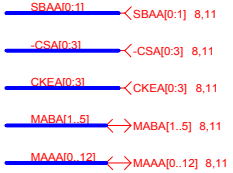
CHANNEL B



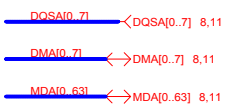
DDR25V Decouple



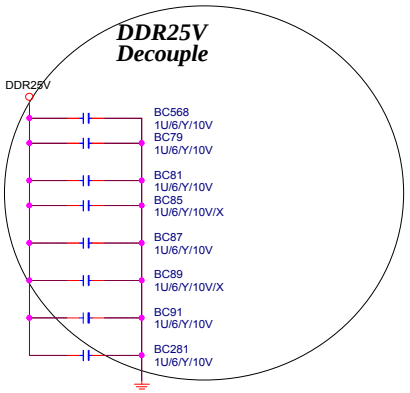
47 Ohms



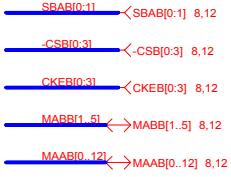
56 Ohms



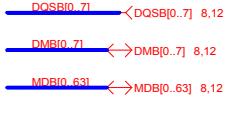
DDR25V Decouple



47 Ohms



56 Ohms



GIGABYTE CORP.		
Title: DDR TERMINATION		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
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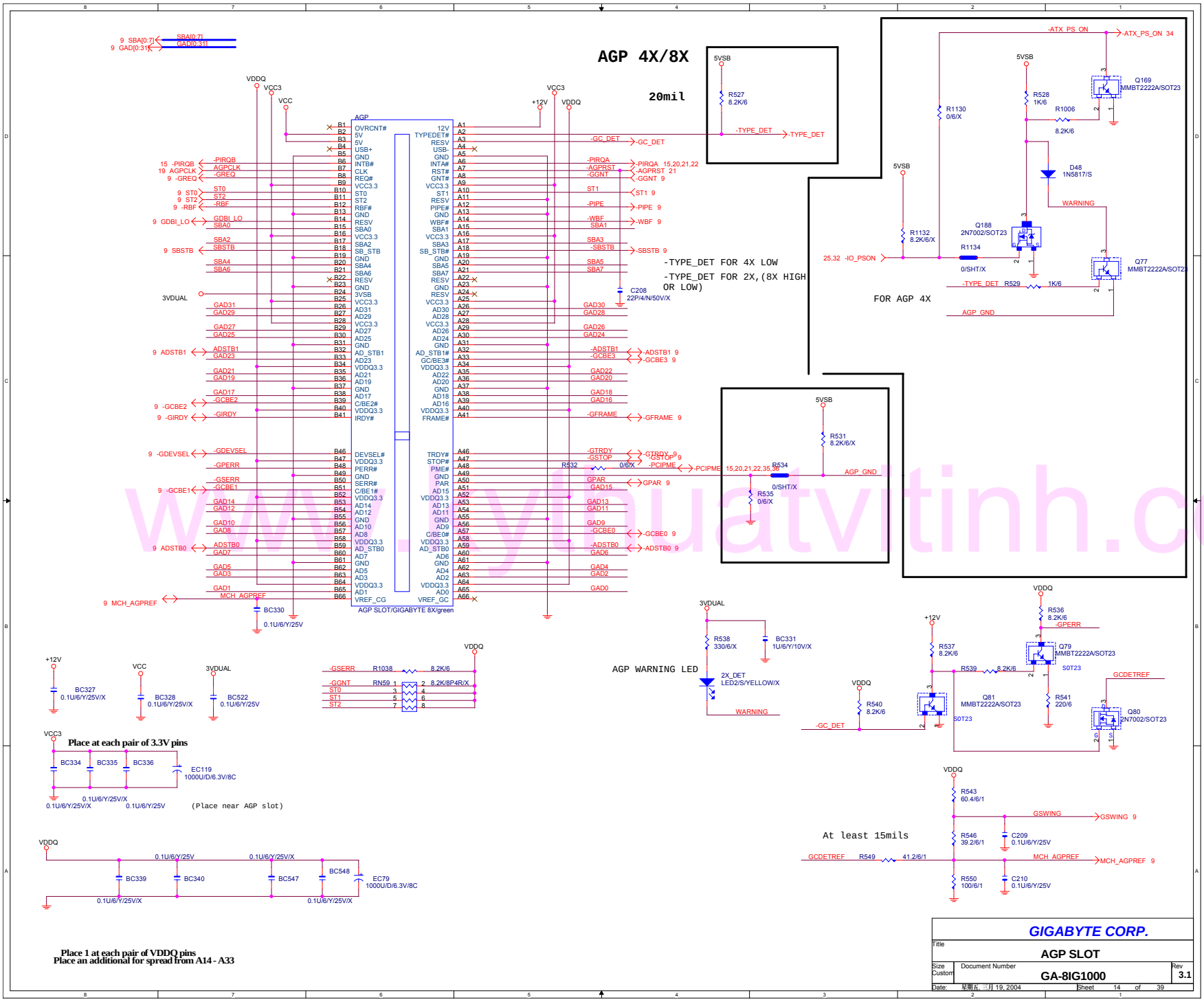
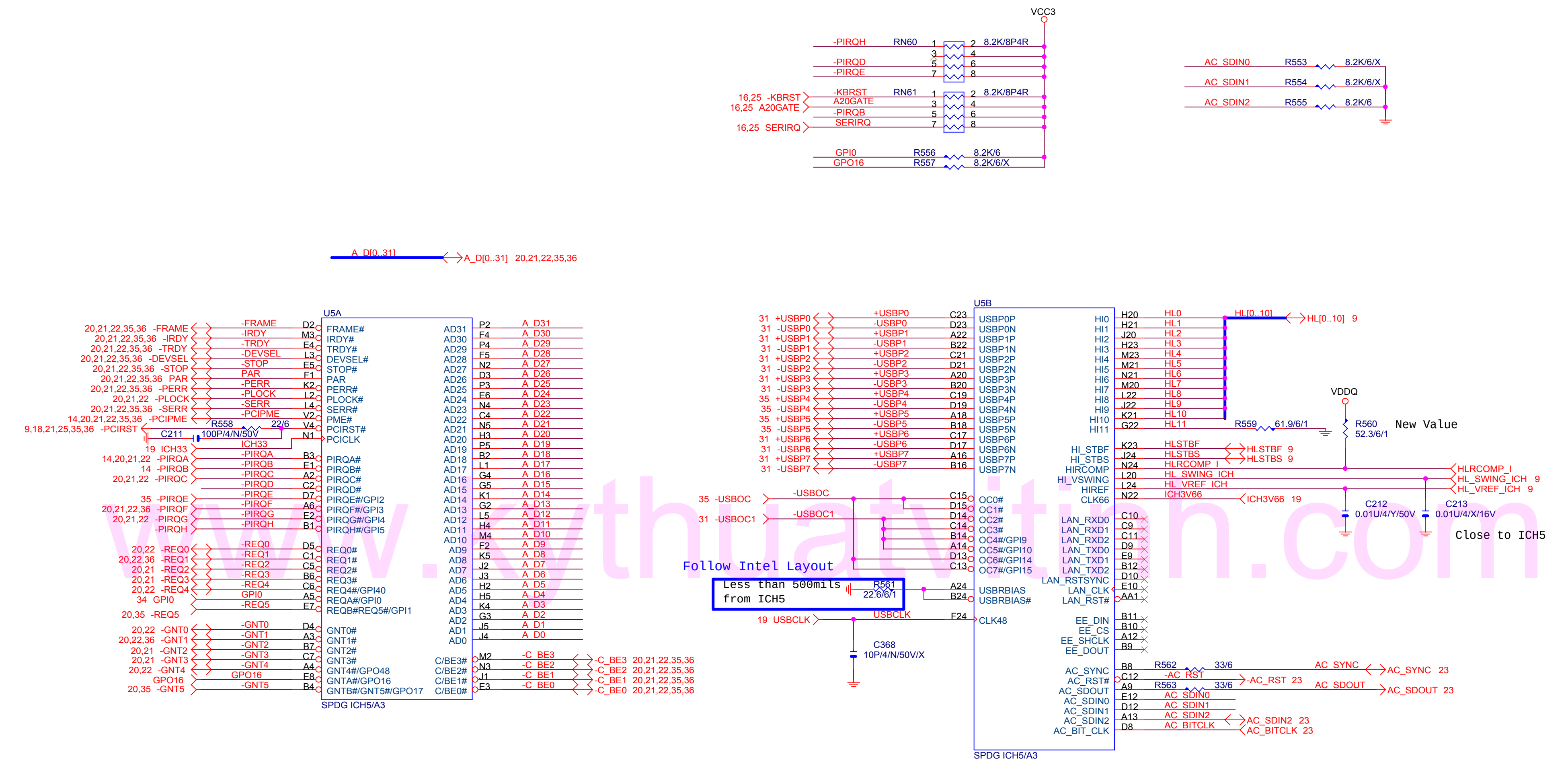


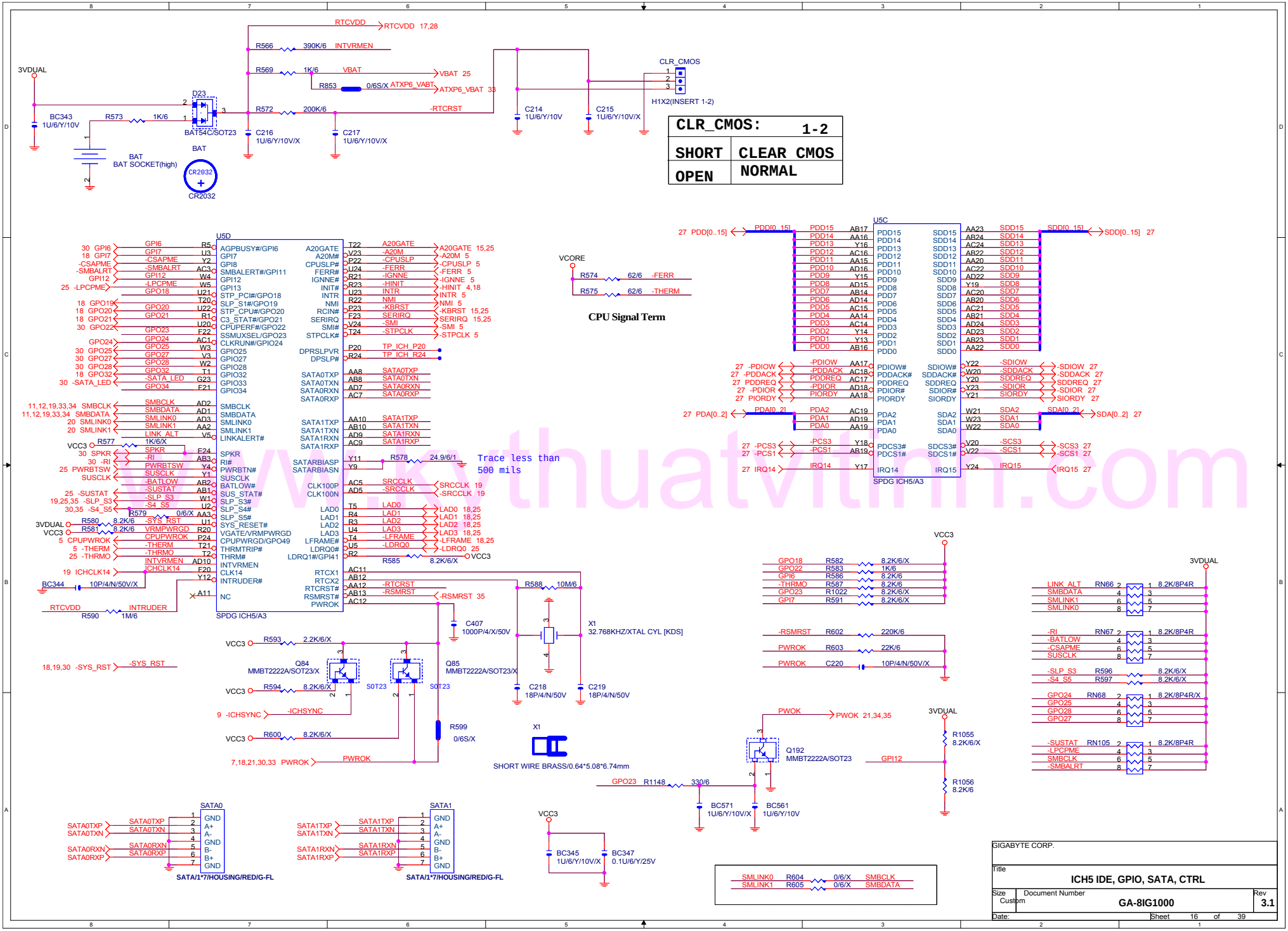


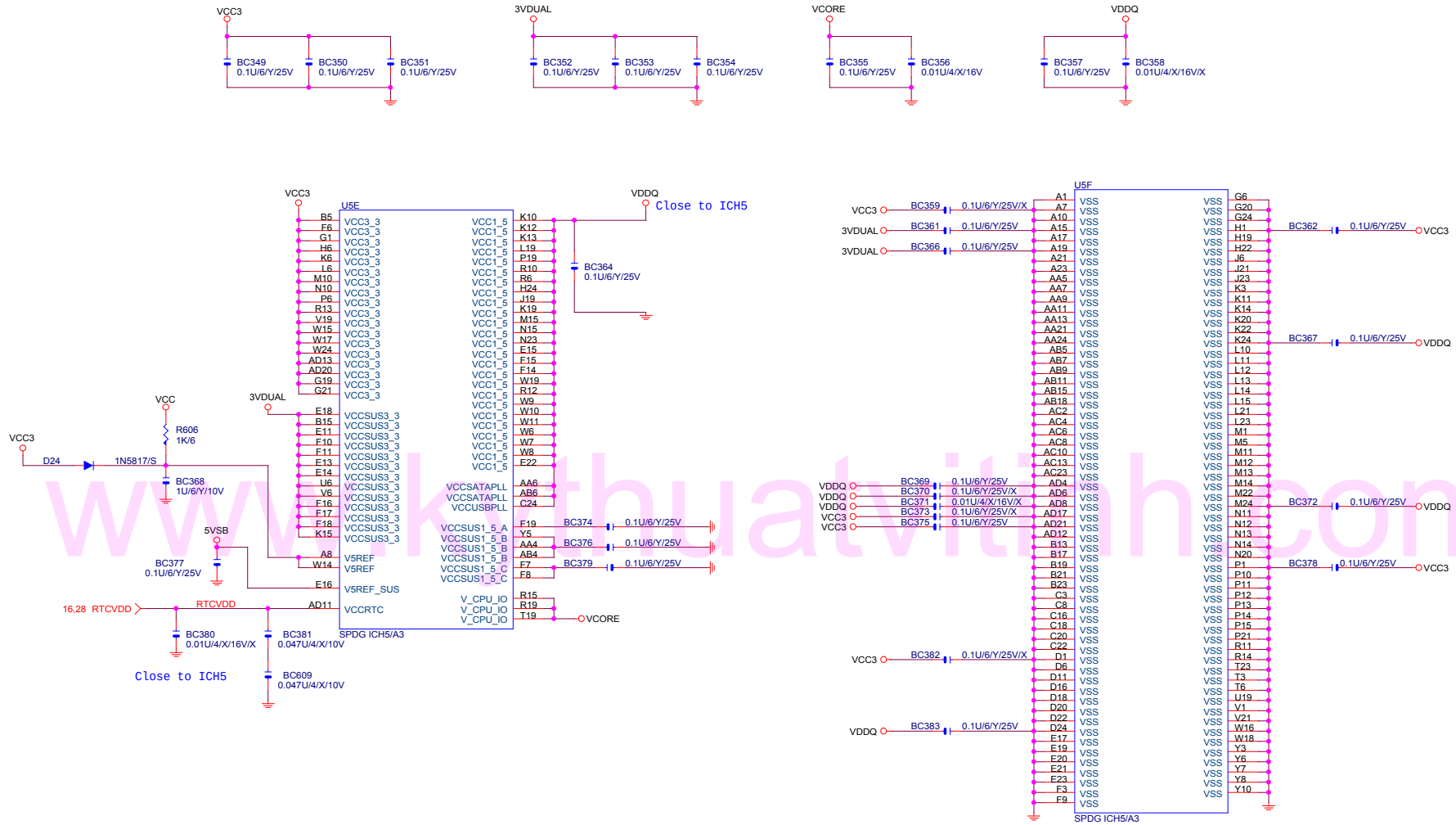
GIGABYTE CORP.

Title: ICH5 PCI, USB, HUB, LAN

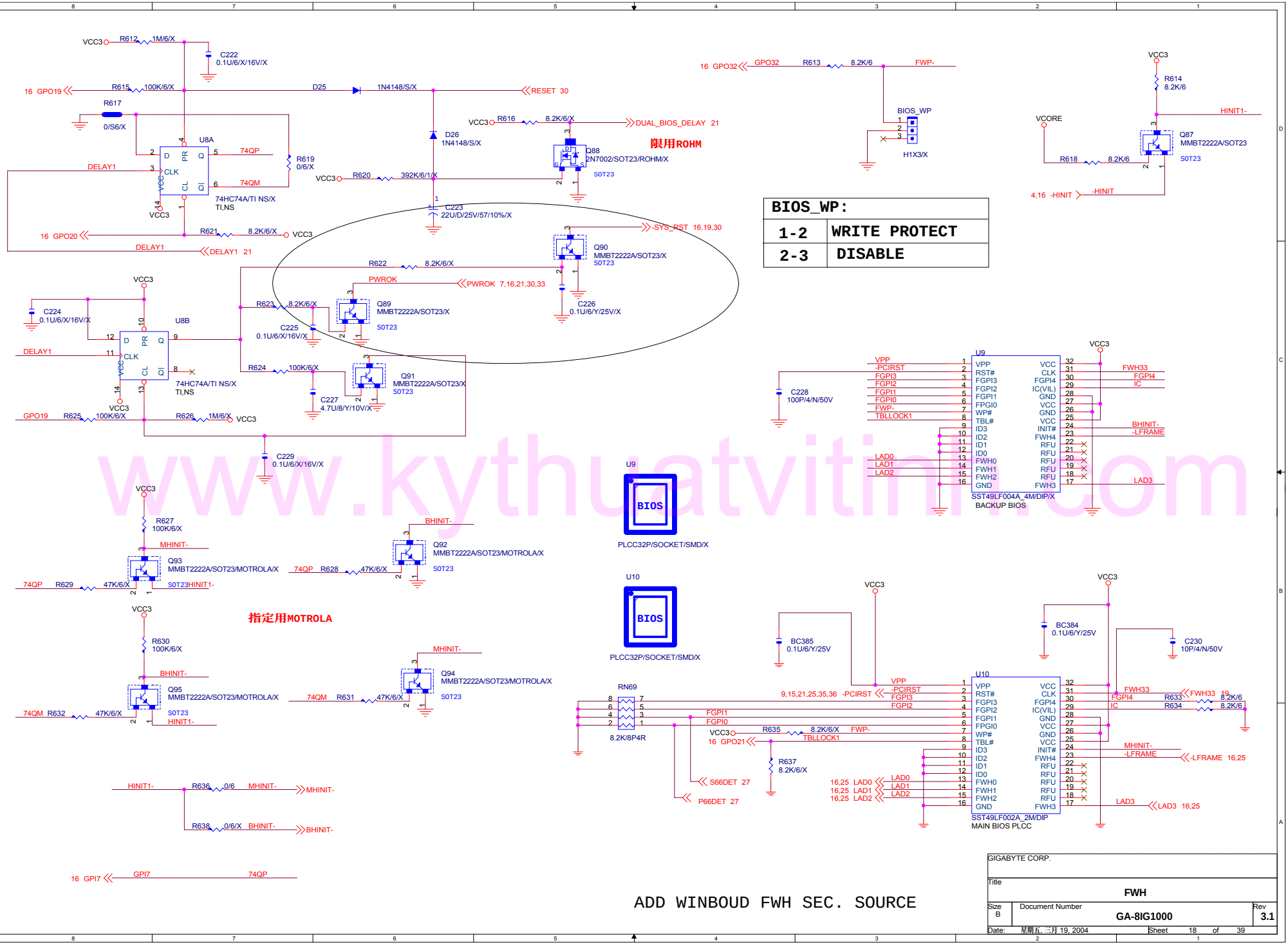
Size	Document Number	Rev
B	GA-8IG1000	3.1

Date:



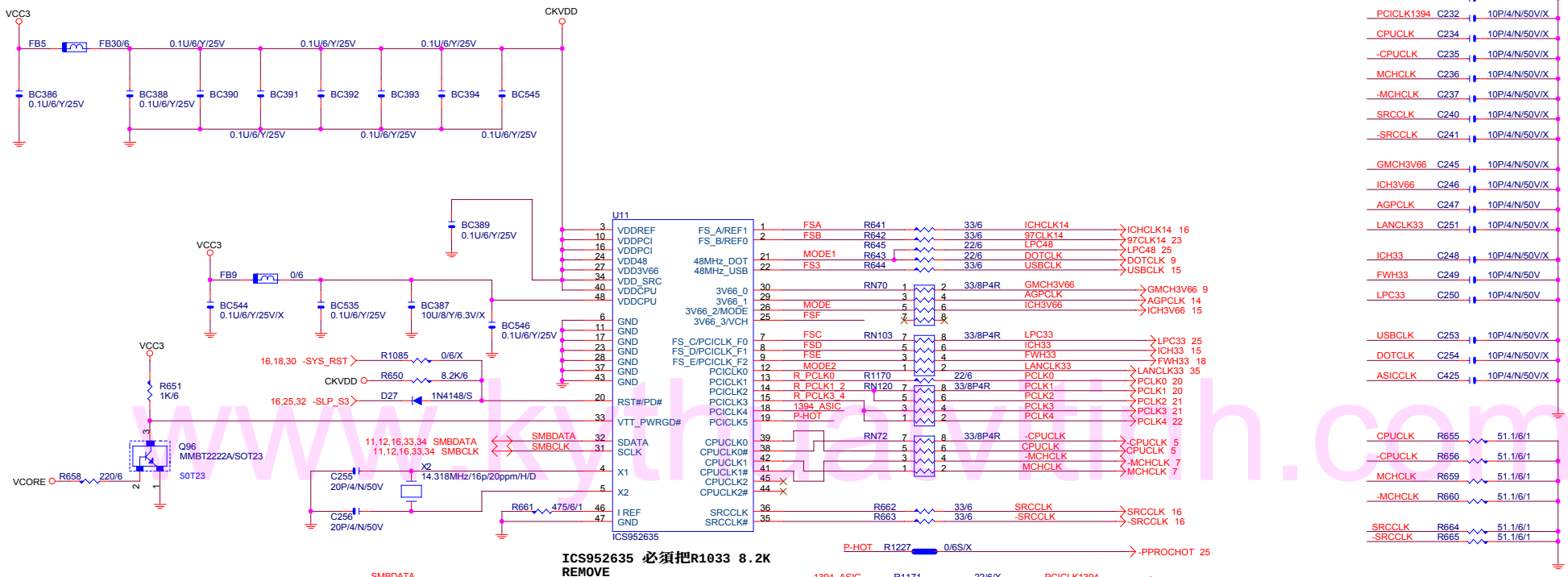


GIGABYTE CORP.		
Title: ICH5 VCC, GND		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
Date:	Sheet 17 of 39	



ADD WINBOUD FWH SEC. SOURCE

GIGABYTE CORP.	
Title	FWH
Size B / Document Number	GA-8IG1000 / Rev 3.1
Date: 星期五, 三月 19, 2004	Sheet 18 of 39



ICS952635 必须把R1033 8.2K REMOVE

ICS + CYPRESS CO-LAYOUT

For Pin 20 PD# MODE

CYPRESS CY28405

FS_E	FS_D	FS_C	FS_B	FS_A	Clock
1	1	0	0	0	100.9MHz
1	1	0	0	1	133.9MHz
1	1	0	1	1	166.9MHz
1	1	0	1	0	200.9MHz

ICS952616

FS_E	FS_3	FS_C	FS_B	FS_A	Clock
1	0	0	0	0	100MHz
1	0	0	0	1	133MHz
1	0	0	1	1	166MHz
1	0	0	1	0	200MHz

GIGABYTE CORP.

Title: CLOCK GENERATOR

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

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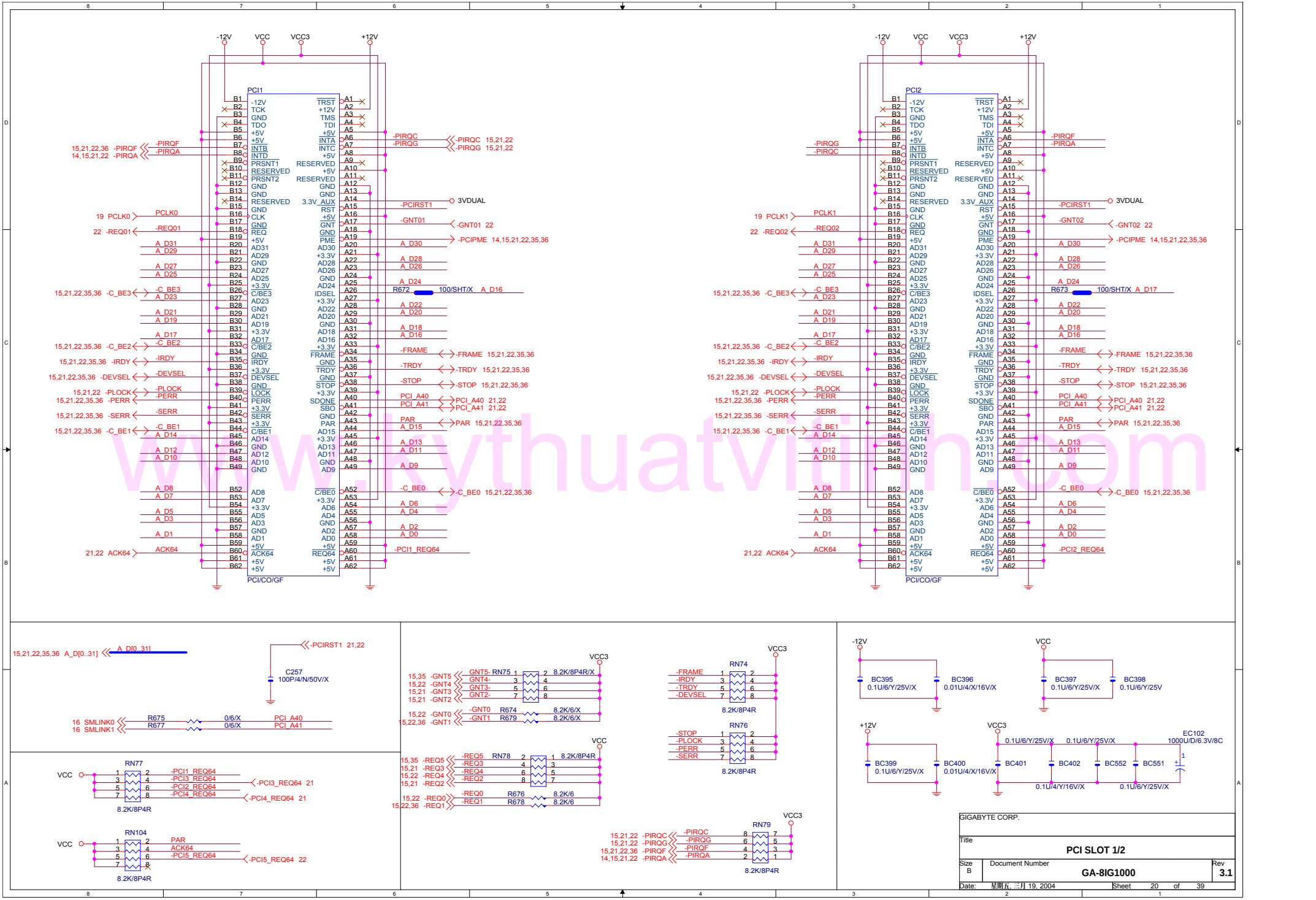
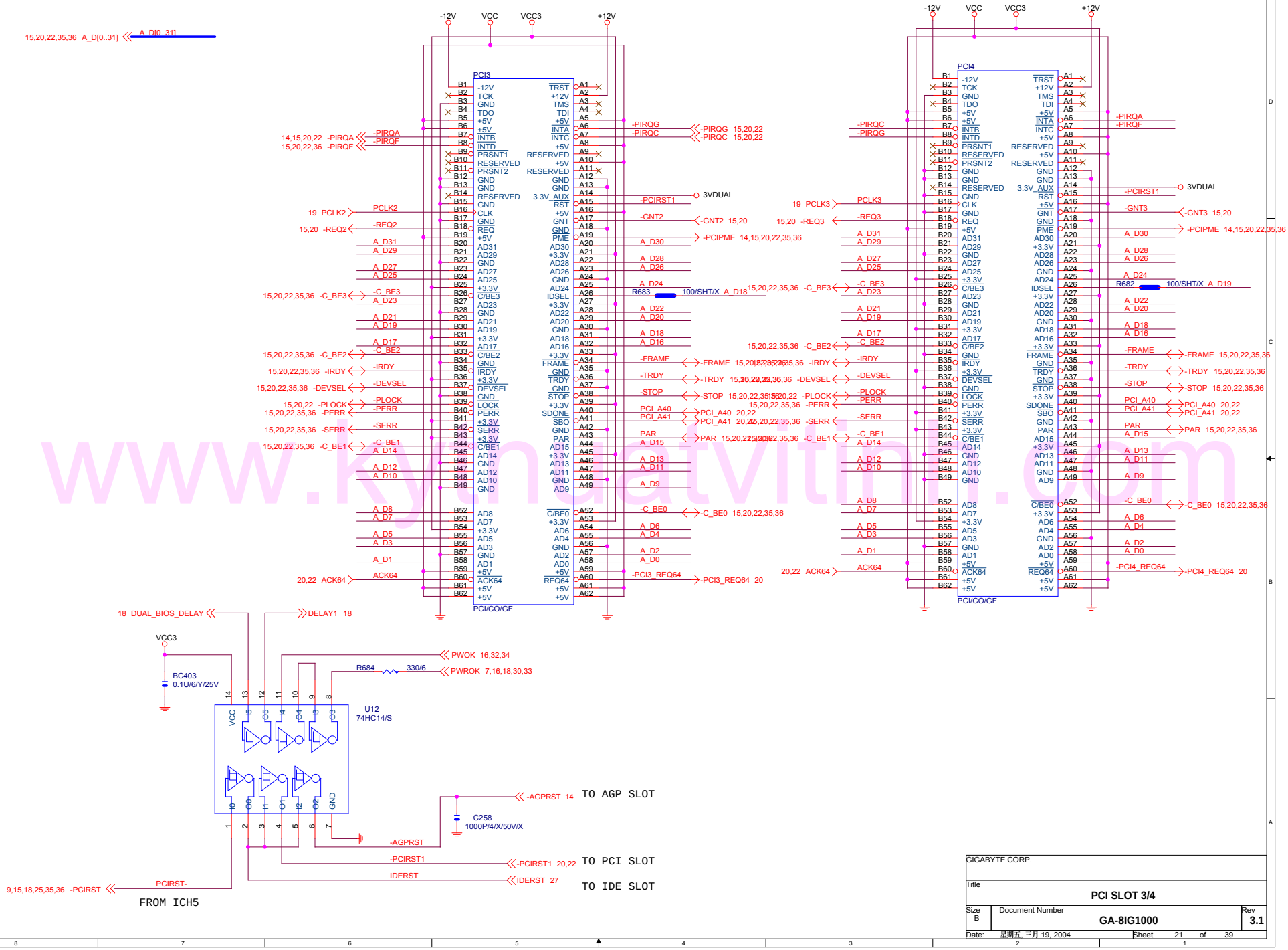
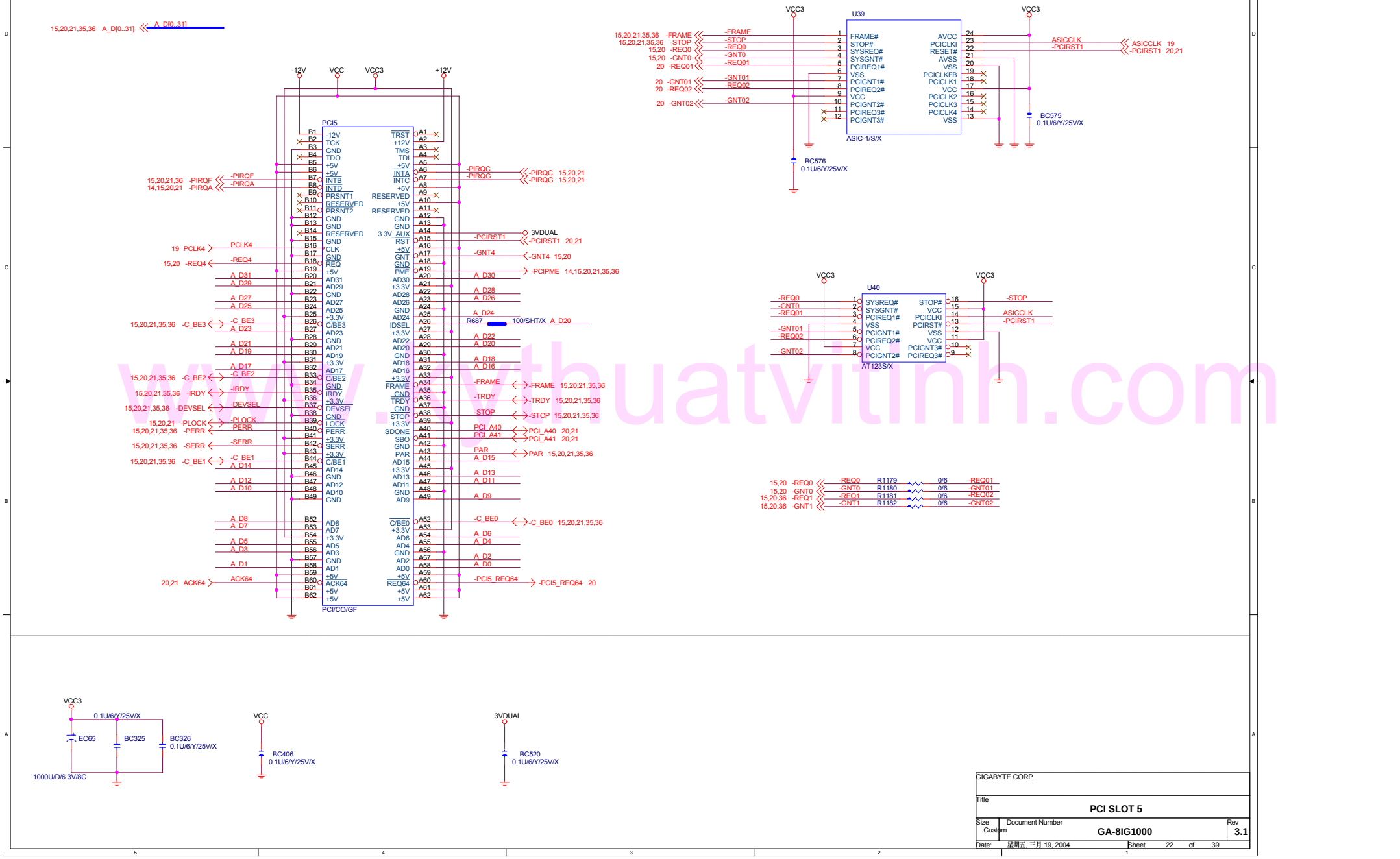


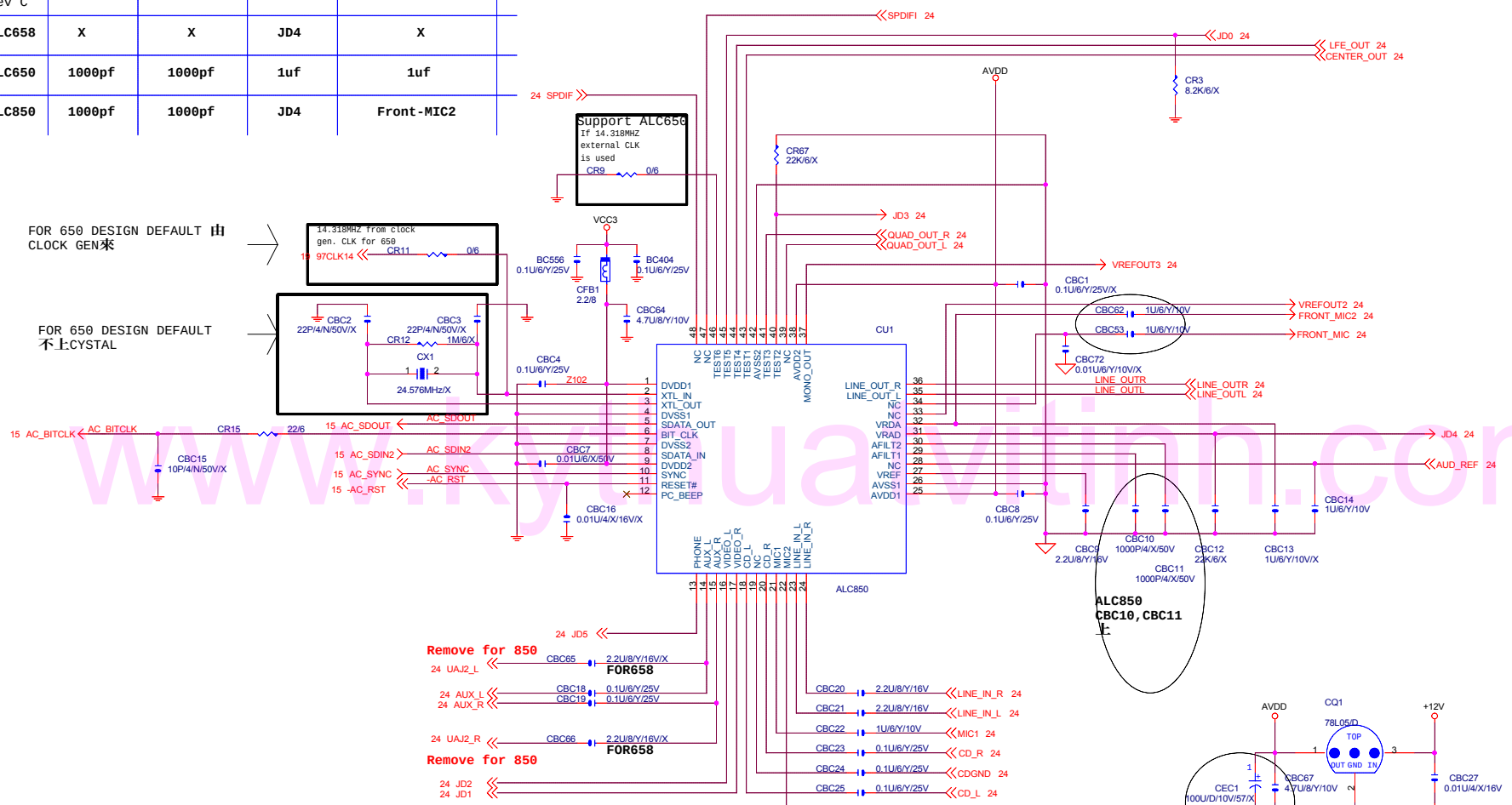
GIGABYTE CORP.		
Title: PCI SLOT 1/2		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
Date: 星期五, 三月 19, 2004	Sheet 20 of 39	





Filter Cap design:

	Pin-29	Pin-30	Pin-31	Pin-32
ALC655 Rev D	1000pf	1000pf	1uf	Front-MIC2
ALC655 Rev C	1000pf	1000pf	1uf	X
ALC658	X	X	JD4	X
ALC650	1000pf	1000pf	1uf	1uf
ALC850	1000pf	1000pf	JD4	Front-MIC2



Arrangement of Jack detection Pin:

	Pin-45(JD0)	Pin-17(JD1)	Pin-16(JD2)	Pin-40(JD3)	Pin-31(JD4)	Pin-13(JD5)
ALC655	for MIC-IN	for FRONT-OUT	for LINE-IN			
ALC658	for MIC-IN	for UAJ1	for UAJ2	for FRONT-OUT Exernal pull high is needed	for LINE-IN Exernal pull high is needed	
ALC850	for MIC-IN	for Front Pannel OUT	for Front Pannel IN	for FRONT-OUT	for LINE-IN	for SurrBack Out

GIGABYTE CORP.			
Title	ALC850		
Size: Custom	Document Number: GA-8IG1000		Rev: 3.1
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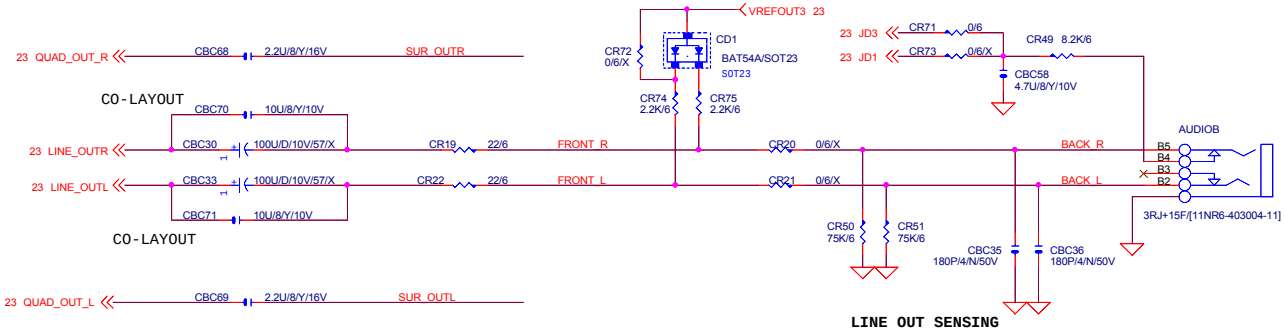
LINE OUT

JDO,JD2,GPIO0 為偵測DEVICE INPUT 時由LOW TO HIGH Edge trigger(pop manual)

1/2(3.14)RC=1/2(3.14)8.2K*4.7U=4.3HZ以上AC 信號全部衰減 TO 0V 不會造成JDO 誤動作(無device 時play wav)



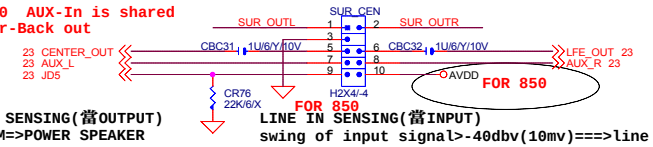
LINE OUT SENSING
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

2x5 header for 850

For 850 if JD5 = low AUX-In is configued as input

For 850 if JD5 = high AUX-In is configued as output, Surr-Back out

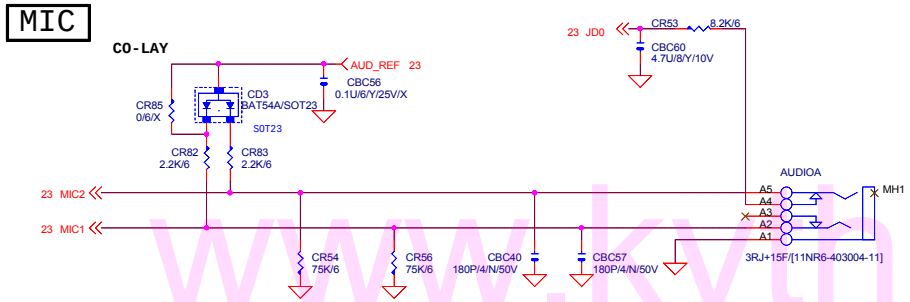
For 850 AUX-In is shared to Surr-Back out



LINE IN SENSING(當OUTPUT)
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

LINE IN SENSING(當INPUT)
swing of input signal>-40dbv(10mv)===>line in device active
swing of input signal<-40dbv(10mv)===>unknown line in device

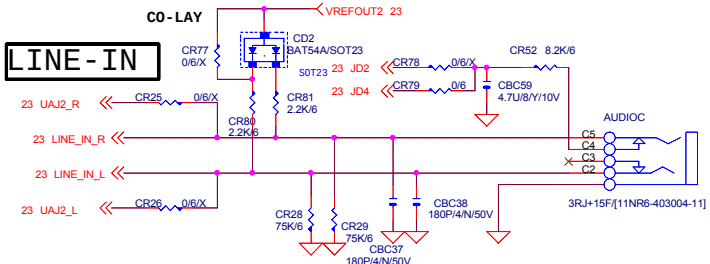
MIC



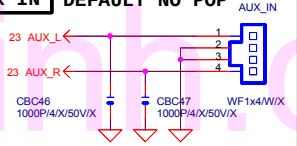
MICROPHONE IN SENSING(當INPUT)(利用vref 偏壓與CR43,CR32 並聯求出阻抗)
7.1k ohm>R>2.3k ohm===>microphone in
R<2.3k ohm or R>7.1k ohm===>unknown device

MICROPHONE IN SENSING(當OUTPUT)
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

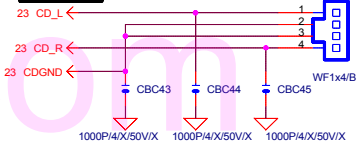
LINE-IN



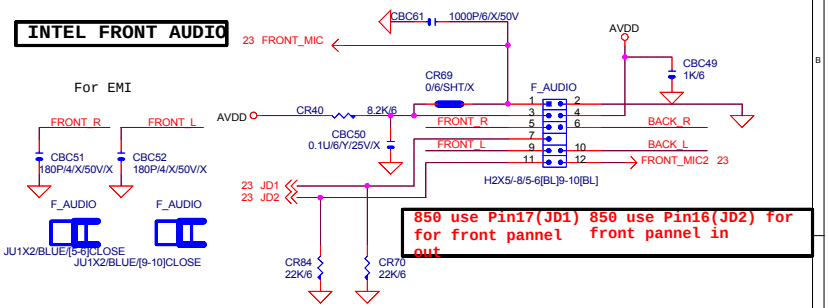
AUX IN DEFAULT NO POP



CD IN

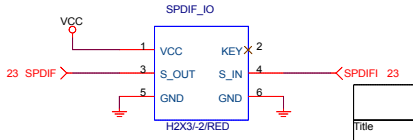


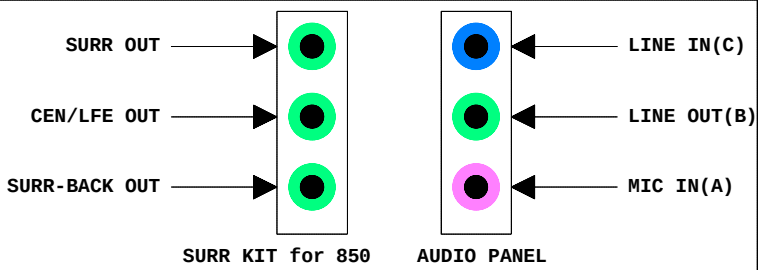
INTEL FRONT AUDIO



850 use Pin17(JD1) for front pannel
850 use Pin16(JD2) for front pannel in out

SPDIF_IO



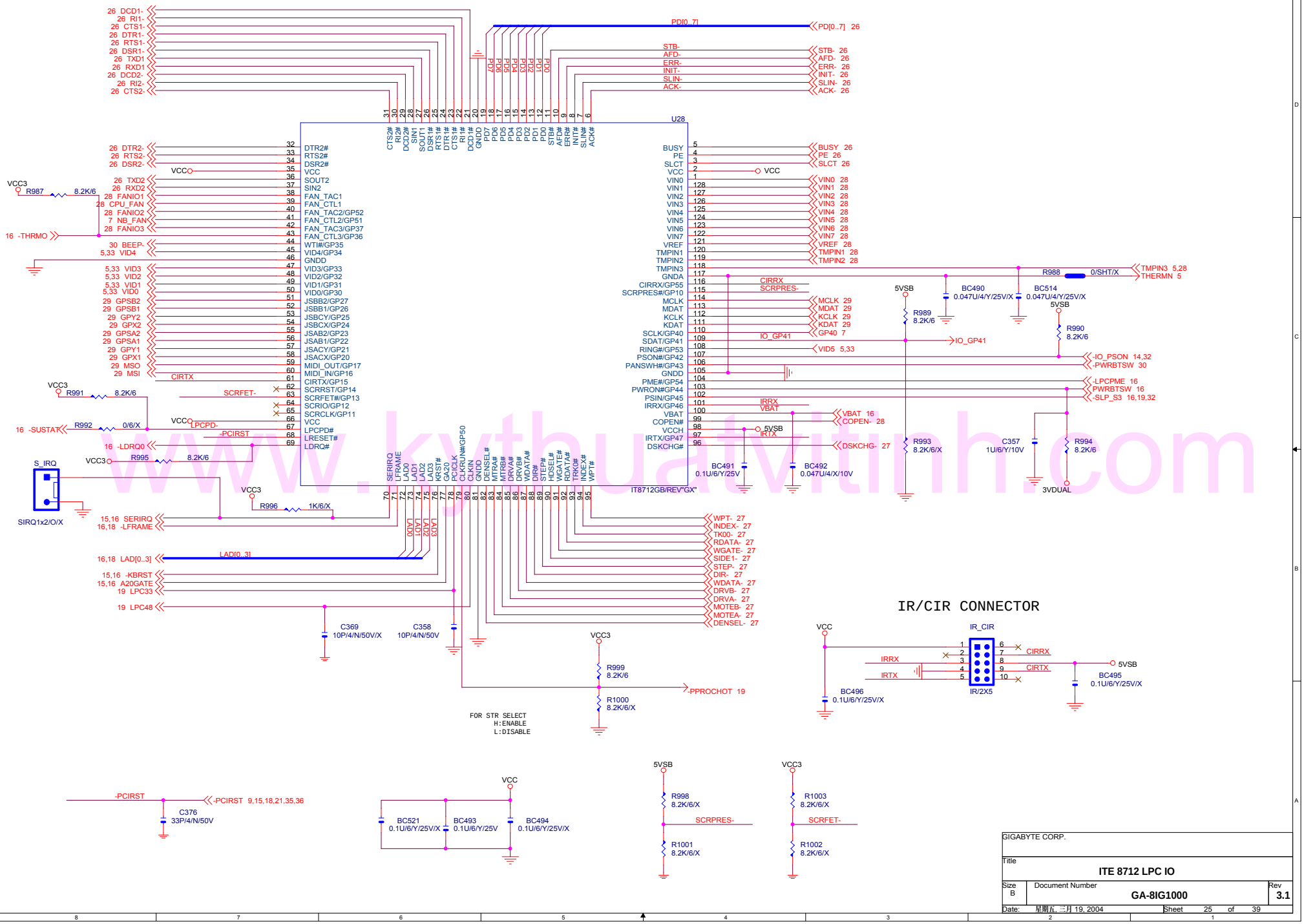


GIGABYTE CORP.

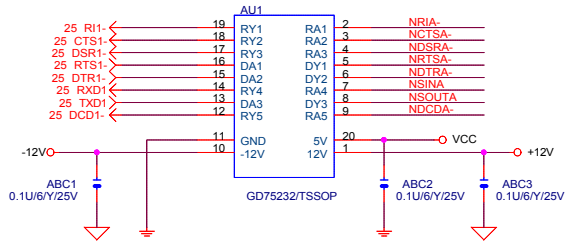
Title: AUDIO OUTPUT,GAME PORT

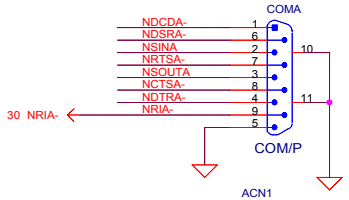
Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

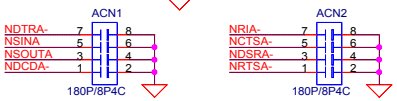
Date: 星期五, 三月 19, 2004 | Sheet 24 of 39

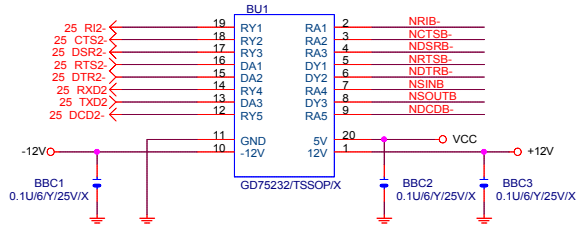


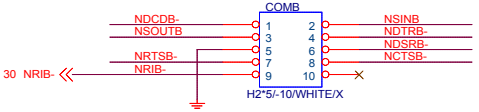
GIGABYTE CORP.	
Title	ITE 8712 LPC IO
Size B	Document Number GA-8IG1000 Rev 3.1
Date: 星期五, 三月 19, 2004	Sheet 25 of 39

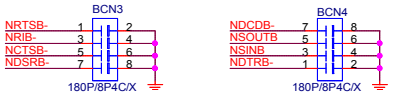


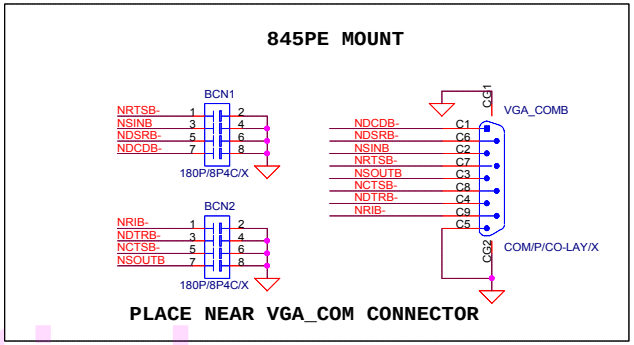


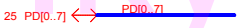


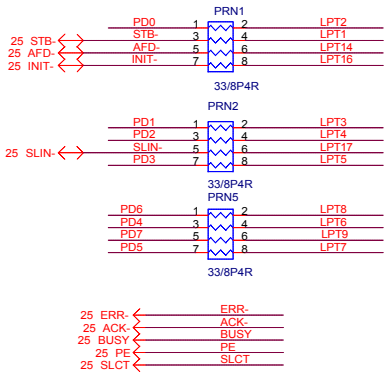


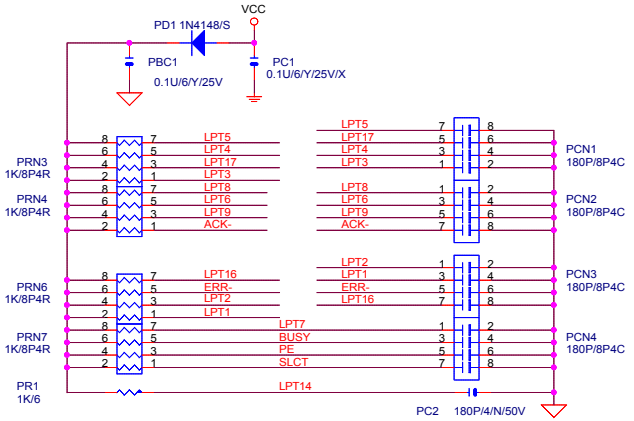


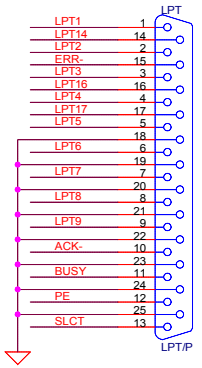




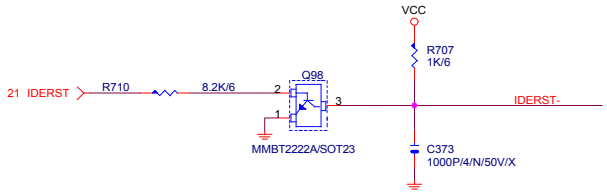


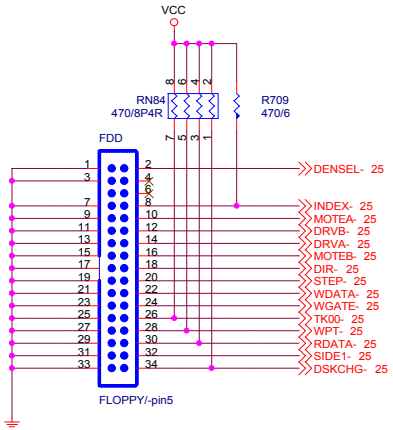


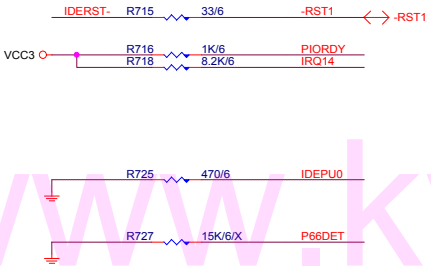


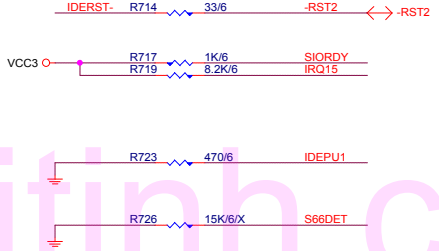


GIGABYTE CORP.		
Title: COM & IR & LPT PORT &FLOOPY		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
Date: 星期五, 三月 19, 2004	Sheet 26 of 39	

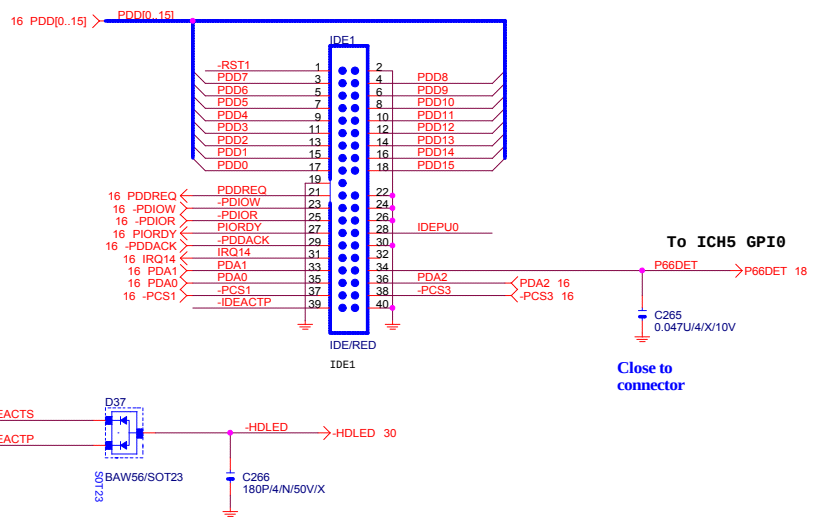




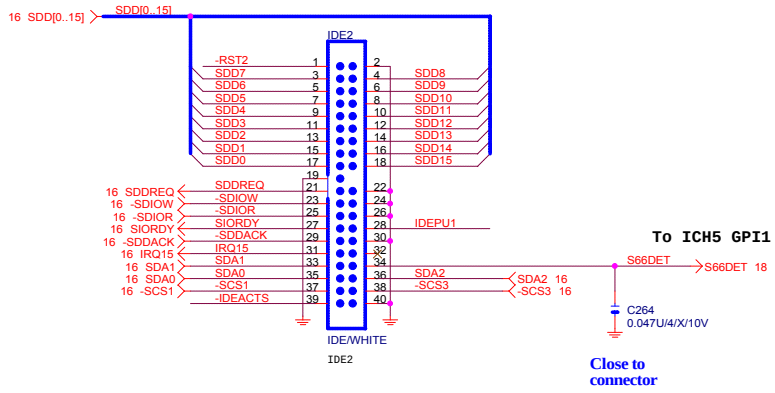




PRIMARY IDE CONNECTOR



SECONDARY IDE CONNECTOR



GIGABYTE CORP.		
Title: IDE CONNECTOR		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
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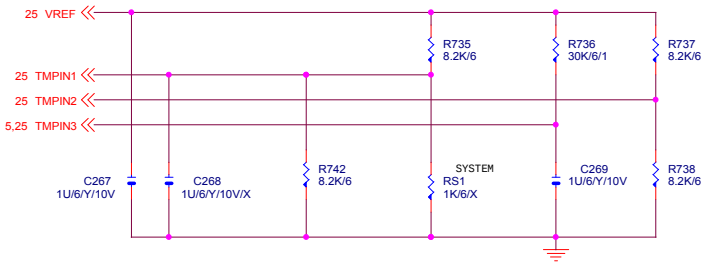
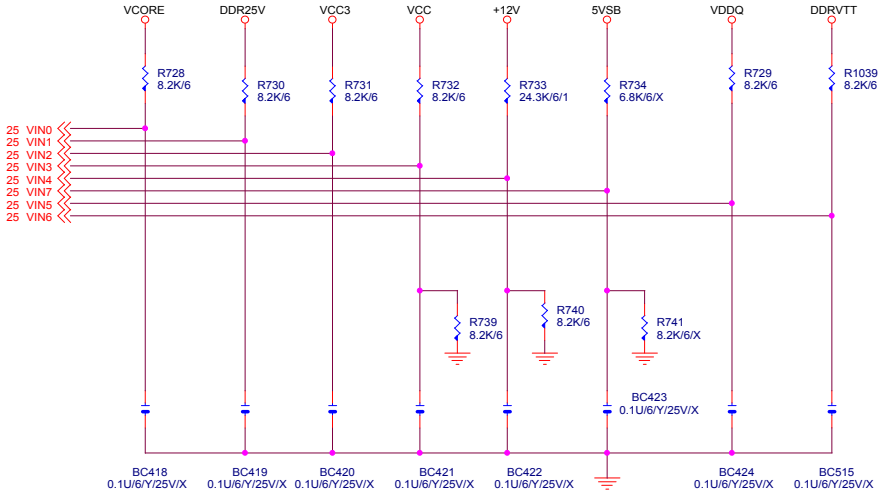
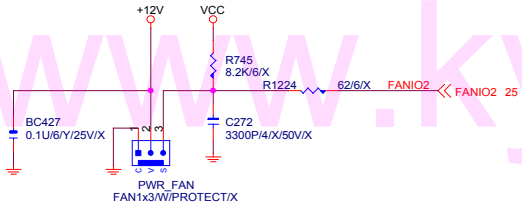
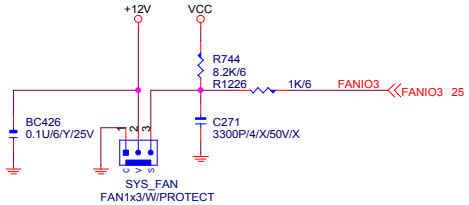
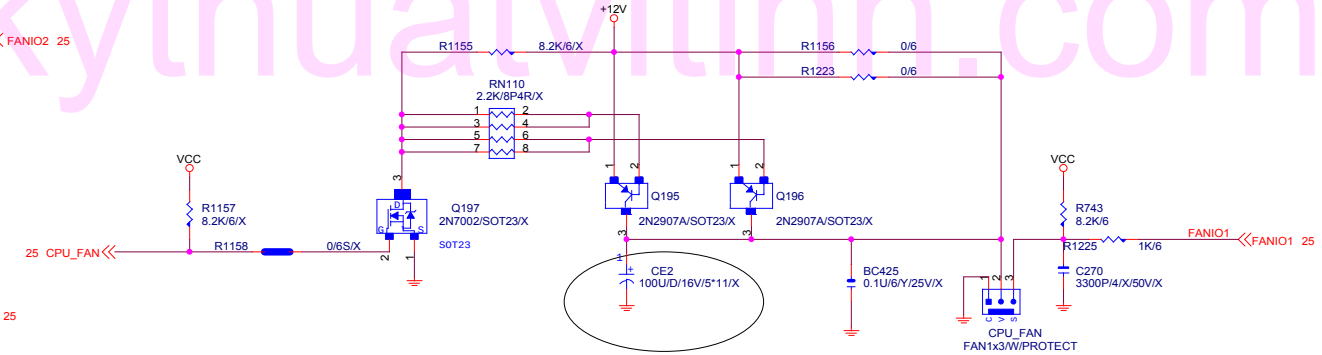
Hardware Monitor circuits

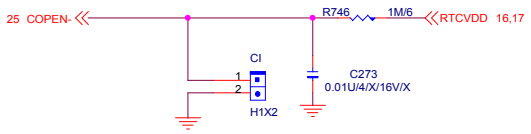




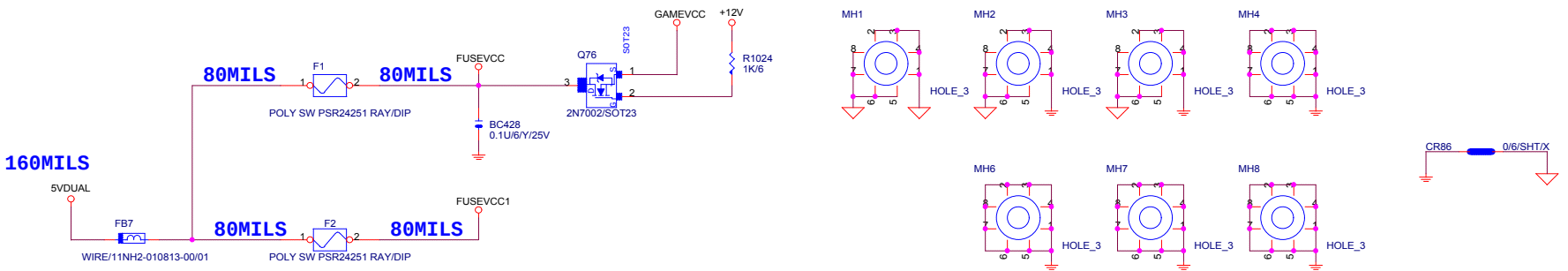


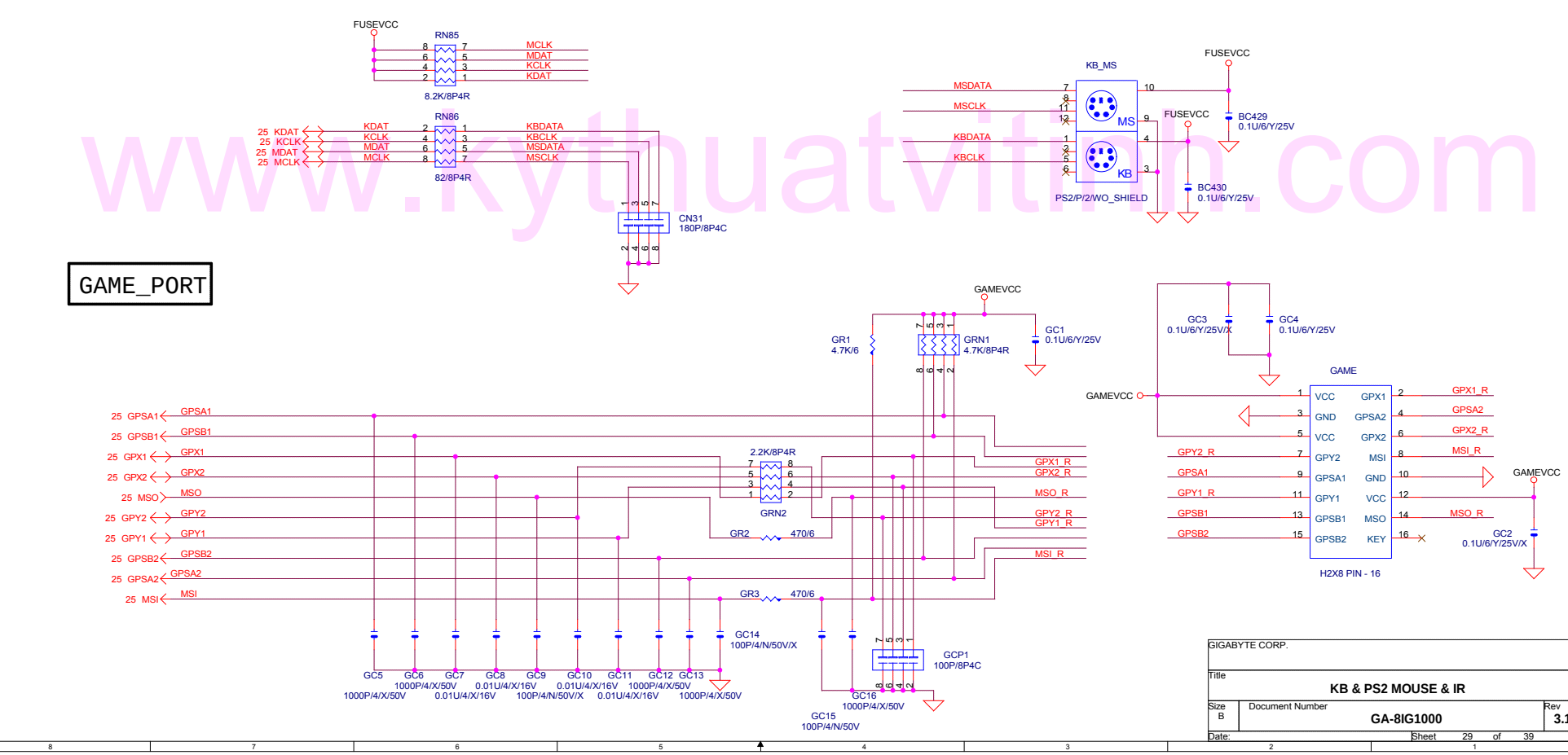




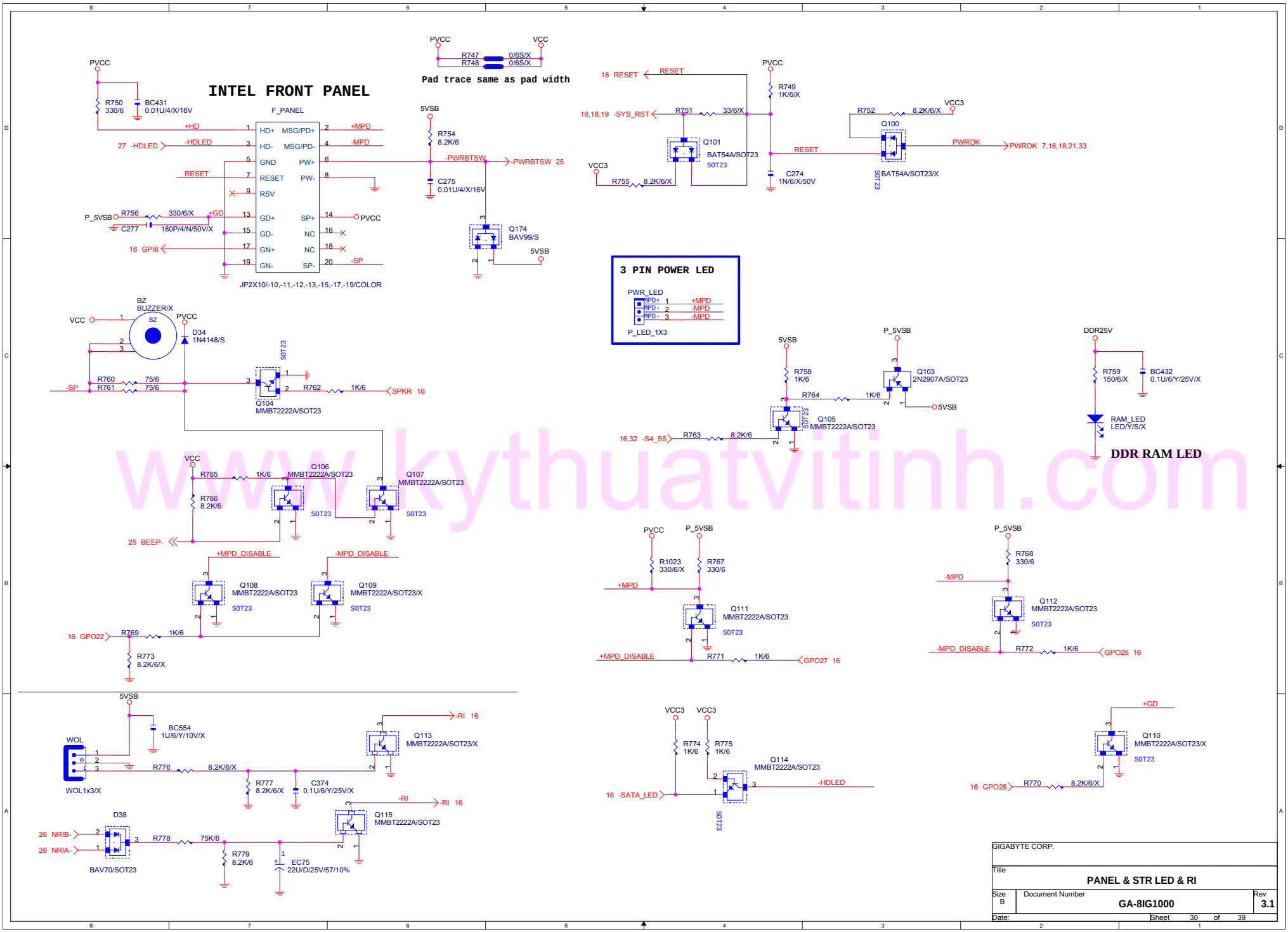


GIGABYTE CORP.		
Title	FAN/HWMO	
Size B	Document Number GA-8IG1000	Rev 3.1
Date: 星期五, 三月 19, 2004	Sheet 28 of 39	





GIGABYTE CORP.		
Title	KB & PS2 MOUSE & IR	
Size B	Document Number GA-8IG1000	Rev 3.1
Date:	Sheet 29 of 39	


INTEL FRONT PANEL
F_PANEL
JP2X10/-10,-11,-12,-13,-15,-17,-19/COLOR
Pad trace same as pad width
3 PIN POWER LED
PWR_LED
P_LED_1X3
DDR RAM LED
PANEL & STR LED & RI
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Size B
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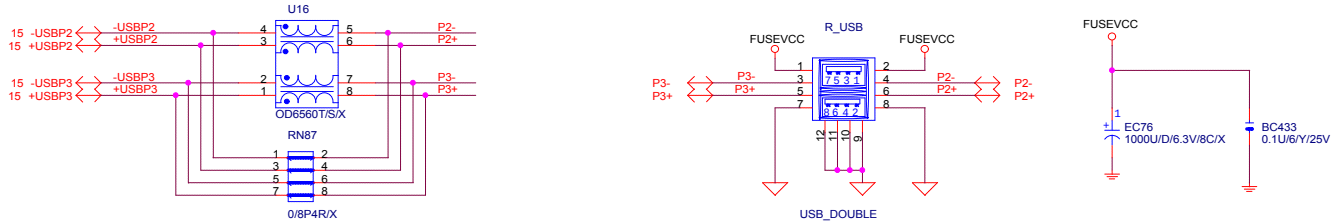
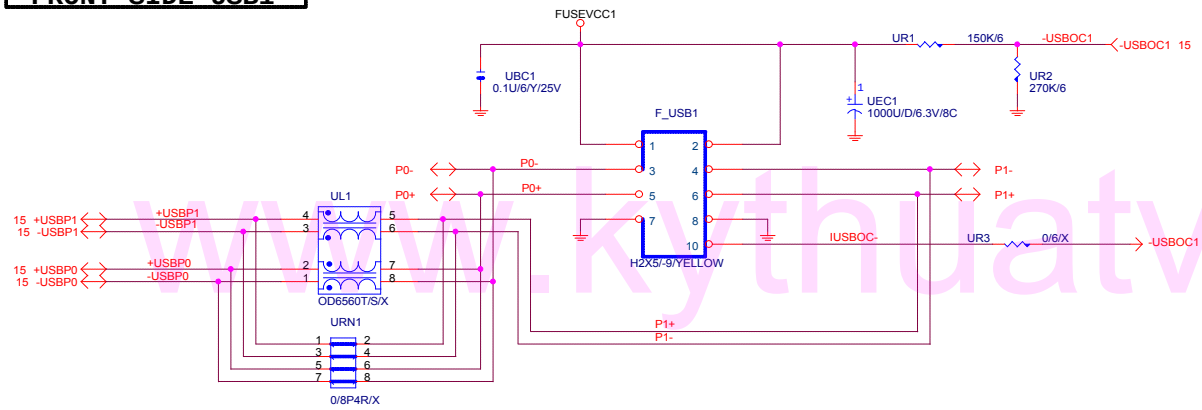
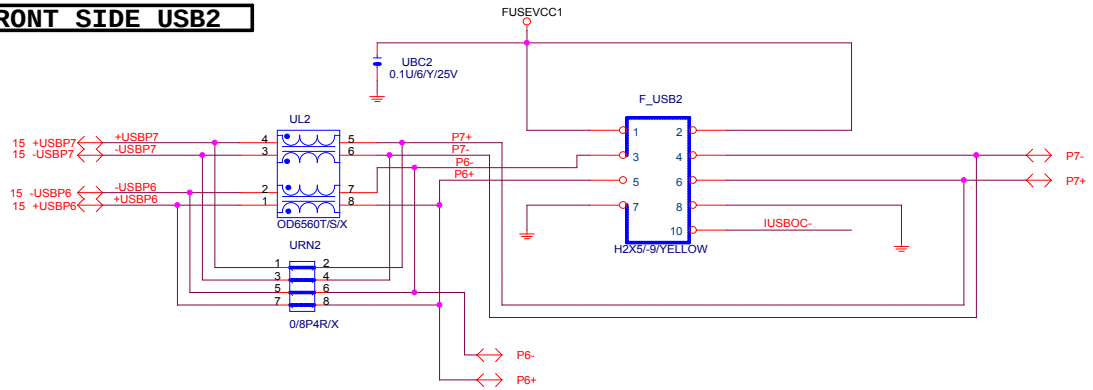
REAR USB



FRONT SIDE USB1

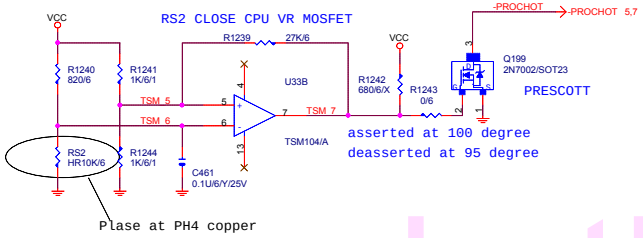


FRONT SIDE USB2

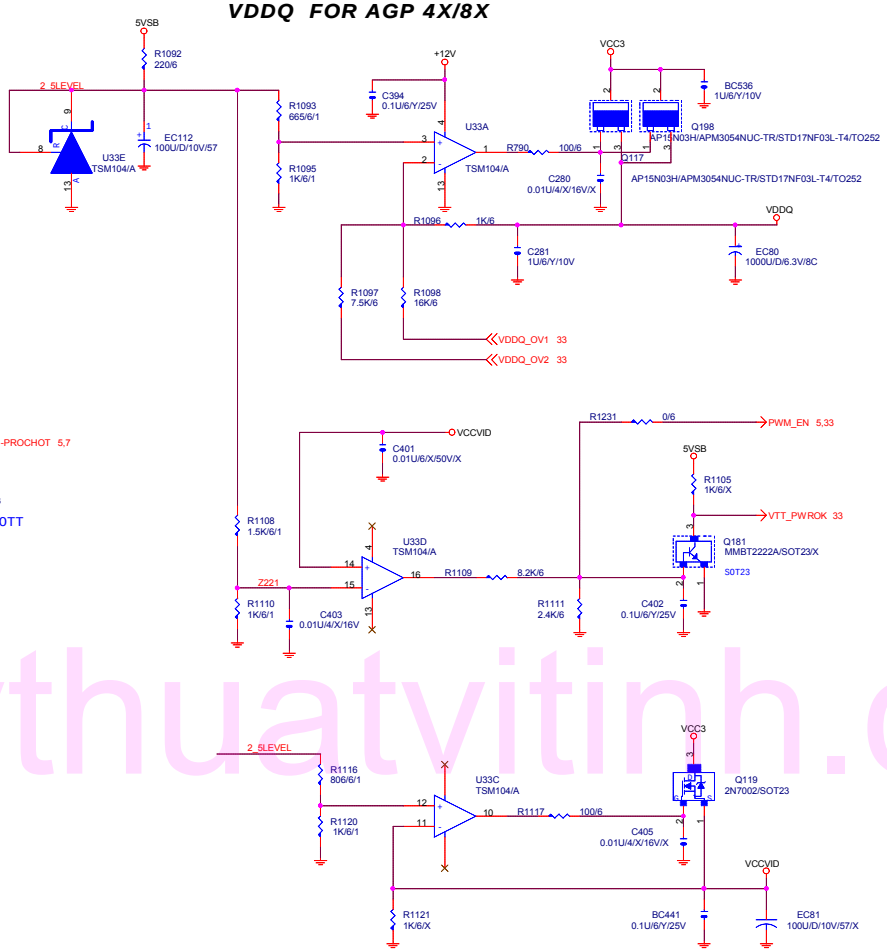


GIGABYTE CORP.		
Title: ICH USB PORT		
Size: B	Document Number: GA-8IG1000	Rev: 3.1
Date:	Sheet 31 of 39	

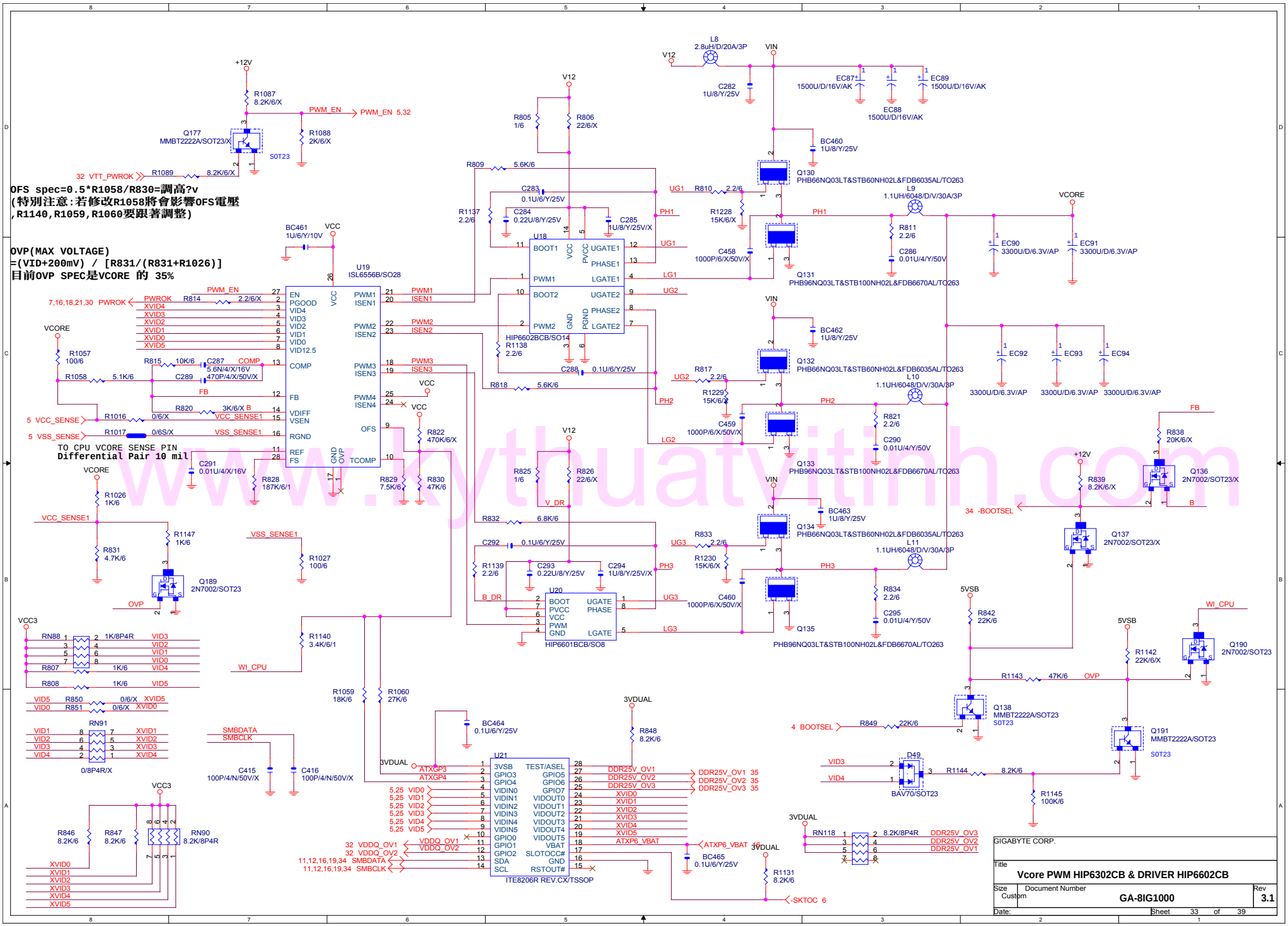
DDR25V FOR DDR DIMM & NB

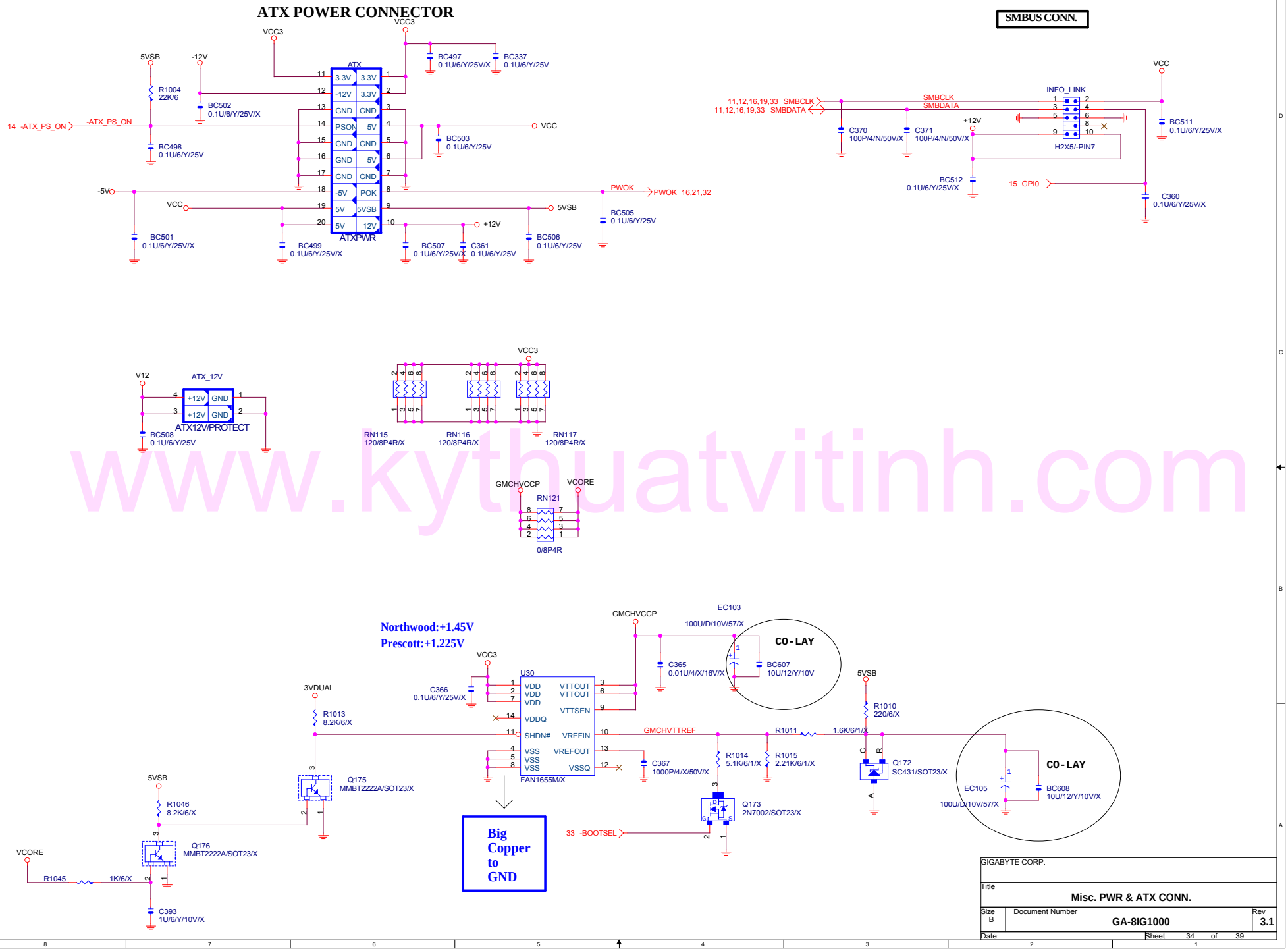


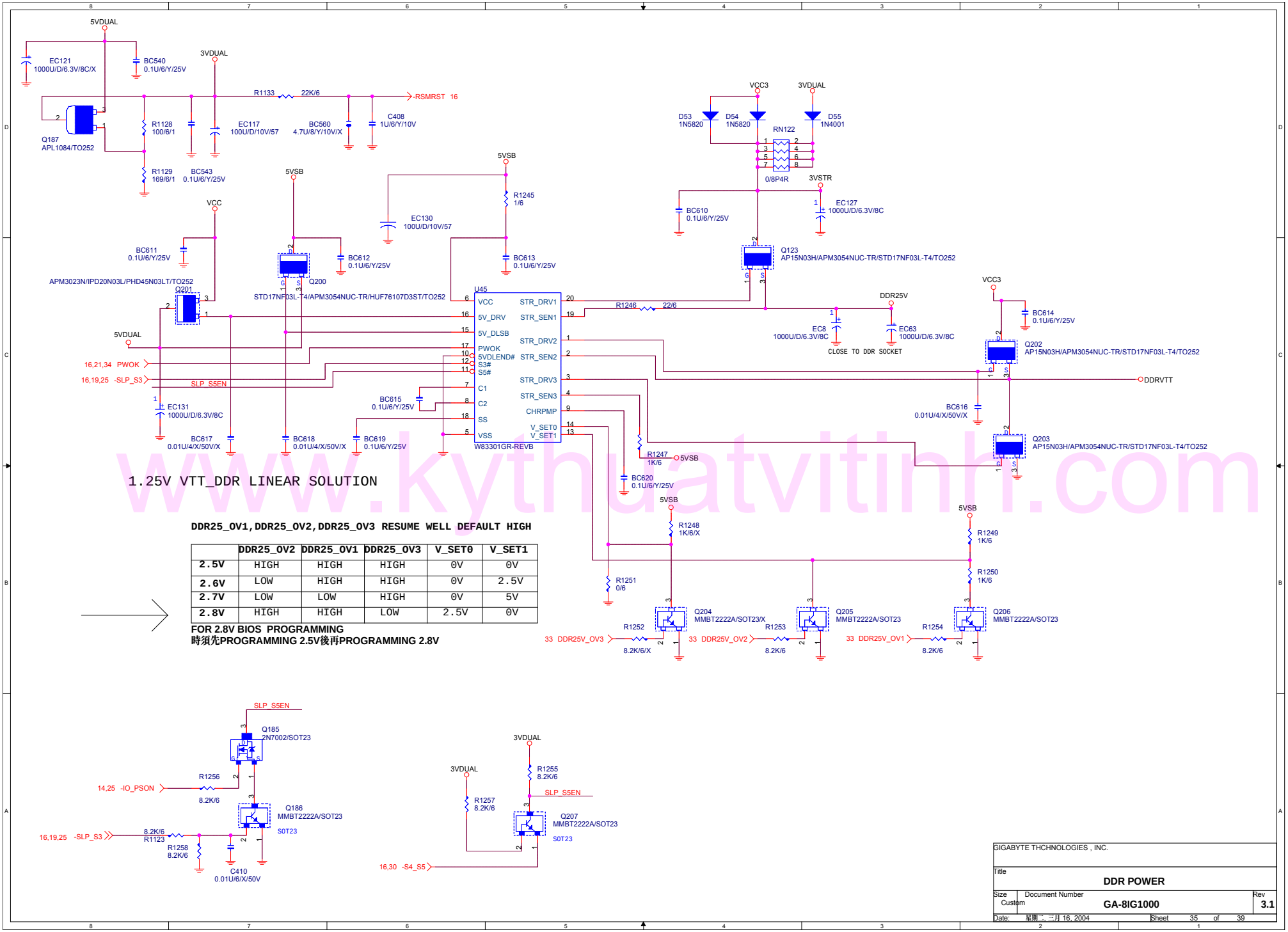
VDDQ FOR AGP 4X/8X



Title	DDR/VDDQ/VCCVID/5VDUAL POWER	
Size	Document Number GA-8IG1000	Rev 3.1
Date: 星期二, 三月 16, 2004	Sheet 32 of 39	

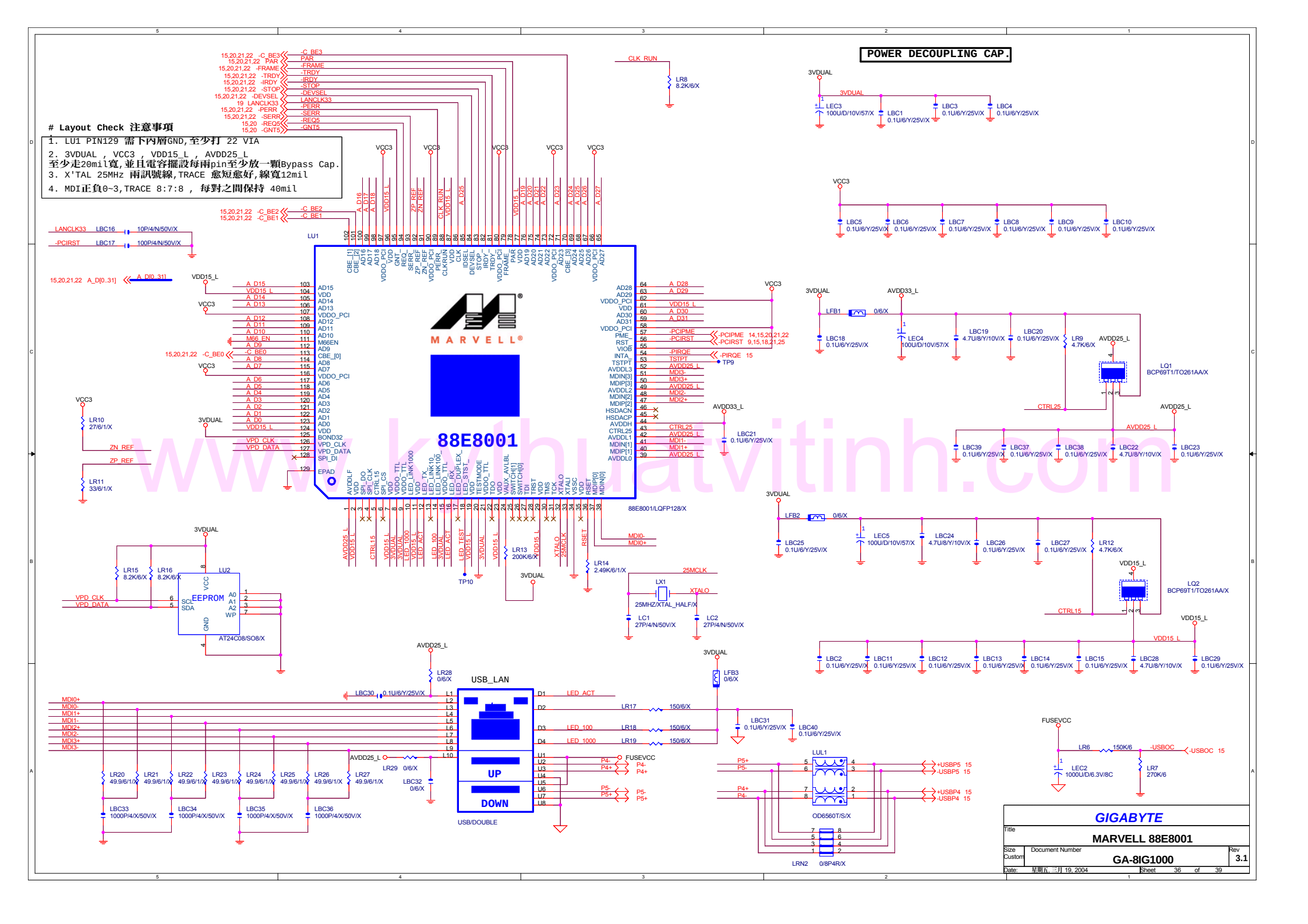






	DDR25_OV2	DDR25_OV1	DDR25_OV3	V_SET0	V_SET1
2.5V	HIGH	HIGH	HIGH	0V	0V
2.6V	LOW	HIGH	HIGH	0V	2.5V
2.7V	LOW	LOW	HIGH	0V	5V
2.8V	HIGH	HIGH	LOW	2.5V	0V

GIGABYTE THCHNOLOGIES , INC.		
Title: DDR POWER		
Size: Custom	Document Number: GA-8IG1000	Rev: 3.1
Date: 星期二, 三月 16, 2004	Sheet 35 of 39	


POWER DECOUPLING CAP.
Layout Check 注意事項
1. LU1 PIN129 需下內層GND,至少打 22 VIA
2. 3VDUAL , VCC3 , VDD15_L , AVDD25_L
至少走20mil寬,並且電容擺設每兩pin至少放一顆Bypass Cap.
3. X'TAL 25MHz 兩訊號線,TRACE 愈短愈好,線寬12mil
4. MDI正負0~3,TRACE 8:7:8 , 每對之間保持 40mil
88E8001
88E8001/LQFP128/X
MARVELL
AT24C08/SO8/X
USB_LAN
USB/DOUBLE
OD6560T/S/X
LRN2 0/8P4R/X
GIGABYTE
MARVELL 88E8001
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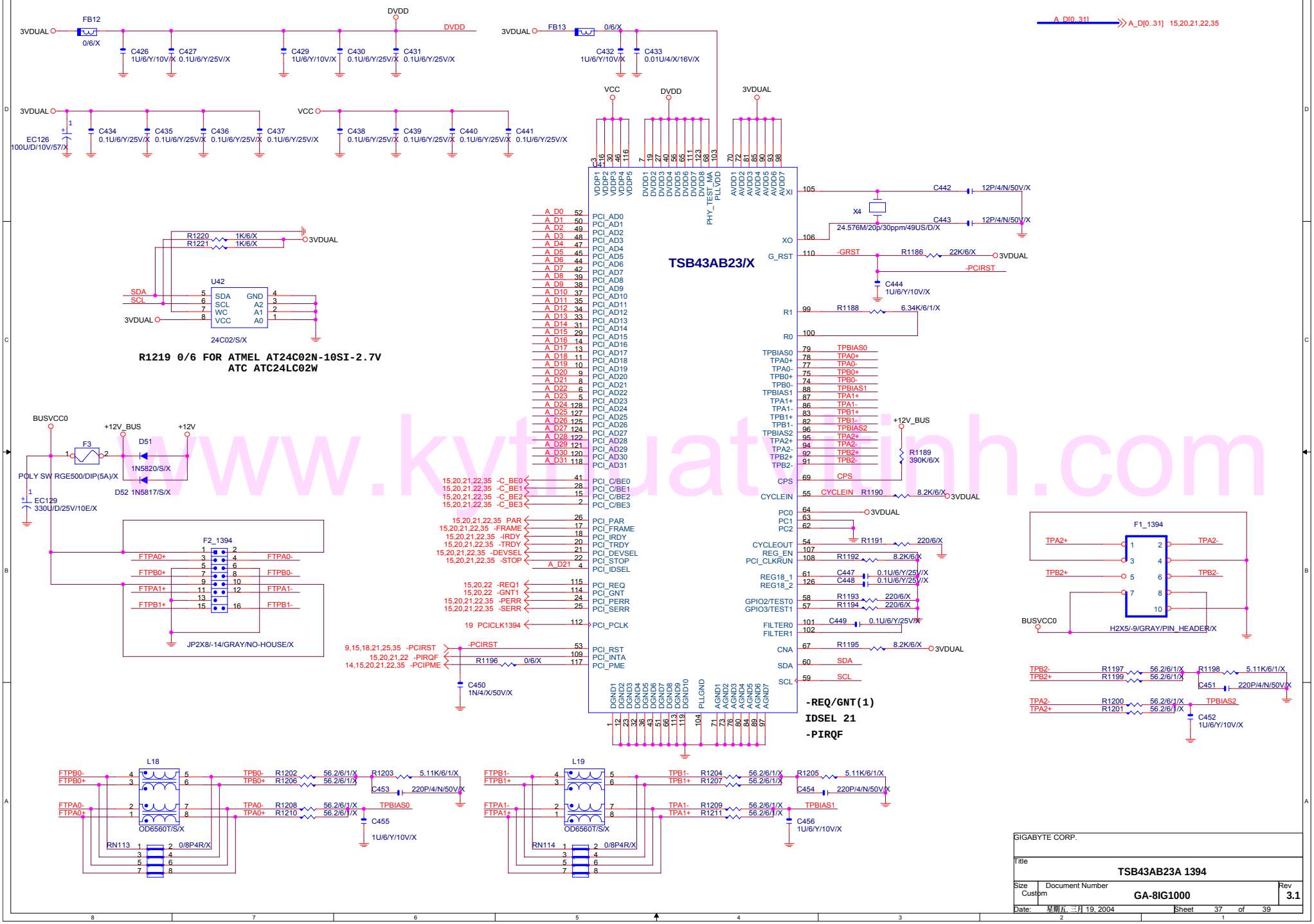

GIGABYTE GA-8IG1000 PCI ROUNTING LIST

PCI DEVICE	IDSEL	INT	CLOCK	REQ	GNT	
PCI SLOT1	16	C,F,G,A	PCLK0	-REQ01	-GNT01	
PCI SLOT2	17	F,G,A,C	PCLK1	-REQ02	-GNT02	
PCI SLOT3	18	G,A,C,F	PCLK2	-REQ2	-GNT2	
PCI SLOT4	19	A,C,F,G	PCLK3	-REQ3	-GNT3	
PCI SLOT5	20	C,F,G,A	PCLK4	-REQ4	-GNT4	
TI 1394	21	F	PCICLK1394	-REQ1	-GNT1	
LAN (Marvell)	25	E	LANCLK33	-REQ5(REQB#)	-GNT5(GNTB#)	

GIGABYTE

Title: PCI ROUNT LIST

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

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GIGABYTE GA-8IG1000 GPIO LIST

SHEET TITLE

GPIP	I/O	FUNCTION
GPI0/REQA-	I	PULL HIGH 8.2K to VCC3, SMB connector.
GPI1/REQ5-		PULL HIGH 8.2K to VCC, REQ5-.
GPI2/PIRQE-		PULL HIGH 8.2K to VCC3, PIRQE-.
GPI3/PIRQF-		PULL HIGH 8.2K to VCC3, PIRQF-.
GPI4/PIRQG-		PULL HIGH 8.2K to VCC, PIRQG-.
GPI5/PIRQH-	NA	PULL HIGH 8.2K to VCC
GPI6/AGPBUSY-	I	PULL 8.2K TO VCC3, PANEL GREEN_BUTTON
GPI7	I	DUAL BIOS FIRST BOOT SELECT.
GPI8	I	PULL 8.2K TO 3VDUAL, -CASPME.
GPI9/OC4-	NA	USB OC4-.
GPI10/OC5-	NA	USB OC5-.
GPI11/-SMBALRT	NA	PULL 8.2K TO 3VDUAL,-SMBALERT.
GPI12	I	PULL 8.2K TO VCC3,M/B REVERSION ID.
GPI13	I	LPC PME.
GPI14/OC6-	NA	USB OC6-.
GPI15/OC7-	NA	USB OC7-.
GPO16/GNTA-	NA	GPO16.
GPO17/GNT5-		GNT5-.
GPO18/STP_PCI-	NA	GPO18.
GPO19/SLP_S1-	O	DUAL BIOS.
GPO20/SLP_CPU-	O	DUAL BIOS.
GPO21/C3_SATA-	O	BLOCK TOP TABLE.
GPO22/CPUPERF-	O	PULL 8.2K TO VCC3,PANEL S3 POWER LED.

SHEET TITLE

GPIP	I/O	FUNCTION
GPO23	NA	PULL 8.2K TO VCC3
GPO24	O	INTEL LAN ENABLE/DISABLE.
GPO25	O	FRONT PANEL -MPD.
GPO27	O	FRONT PANEL +MPD.
GPO28	O	GREEN LED
GPO32	O	BIOS WRITE PROTECT.
GPO33	O	SATA LED.
GPO34	I	CLEAR PASSWORD.

GIGABYTE

Title: GPIO LIST

Size: Custom | Document Number: GA-8IG1000 | Rev: 3.1

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