GIGABYTE GA-8IG1000 Pro-G Schematics

Revision 3.0

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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
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17	ICH5 VCC, GND
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19	ICS952635 CLOCK GENERATOR
20	PCI SLOT1/SLOT2
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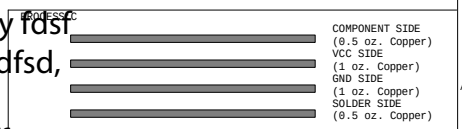
SHEET	TITLE
23	AC '97 CODEC
24	AUDIO JACK, L_OUT, F_AUDIO
25	ITE 8712/IR_CIR/SCR/S_IRQ
26	COMA/VGA_COMB/LPT
27	IDE1/IDE2/FDD
28	FAN/HW MONITOR
29	KB_MS/GAME/FUSEVCC
30	FRONT PANEL
31	R_USB/F_USB1/F_USB2
32	DDR/VDDQ/5VDUAL/VCCVID POWER
33	VCORE POWER
34	ATX/ATX_12V/FAN1655M
35	MARVELL 88E8001
36	TI TSB43AB23(1394)
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 20:43:23 +07'00'



GIGABYTE CORP.

Title: COVER SHEET

Size: Custom | Document Number: GA-8IG1000 Pro-G | Rev: 3.0

Date: | Sheet 1 of 38

Model Name: GA-8IG1000 Pro-G

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-1230	FB9 FB30/6 --> 0/6	FOR PVT
30B-0113	ADD EC90 3300UF/6.3V	ADD VCORE CAP
	ADD SUR_CEN : INSERT 1-8 PIN	
30B-0205	ADD 替料 LU2 AT24C08AN	

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	

GIGABYTE CORP.

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-8IG1000 Pro-G | Rev: 3.0

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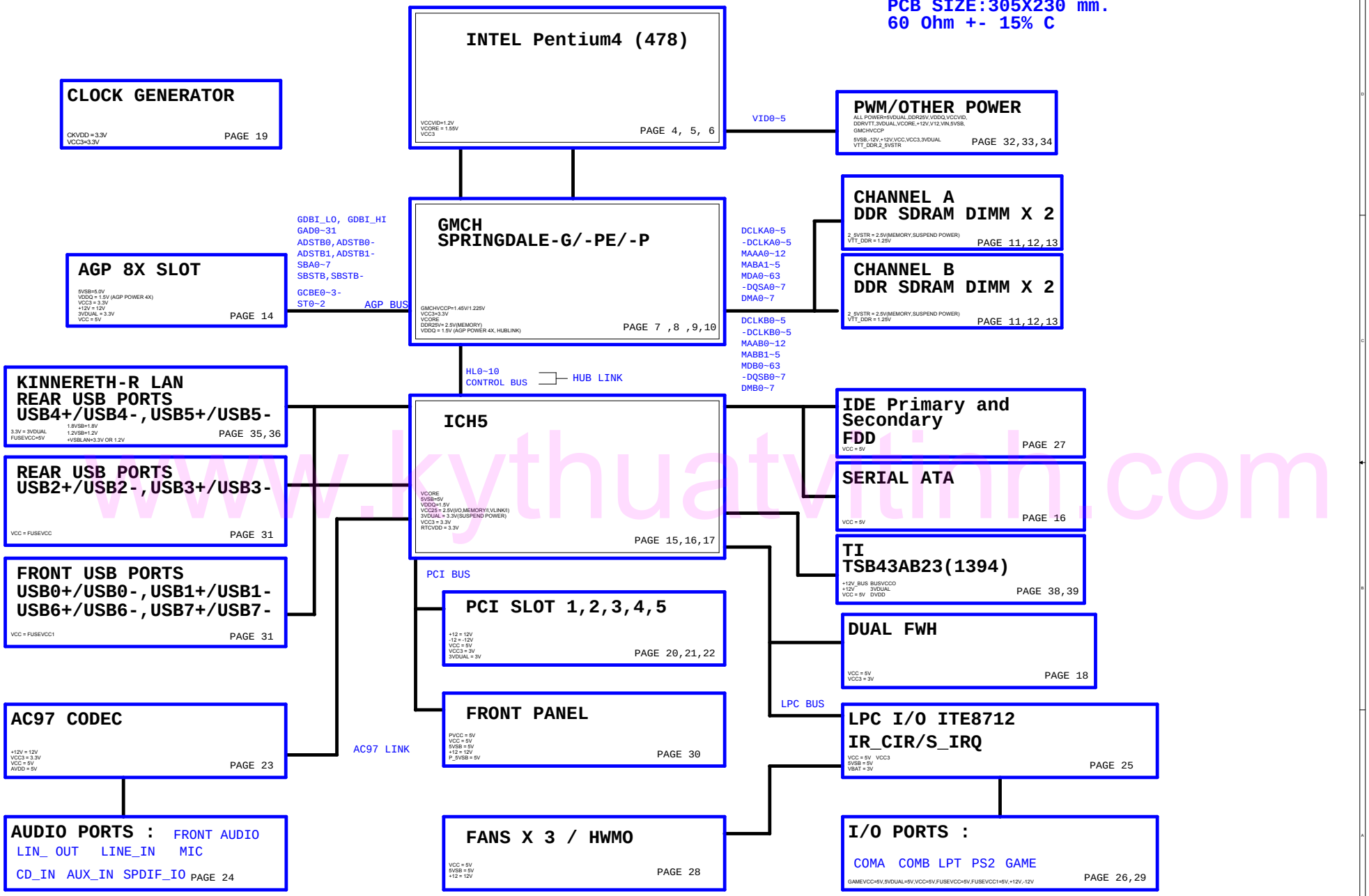
BLOCK DIAGRAM

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

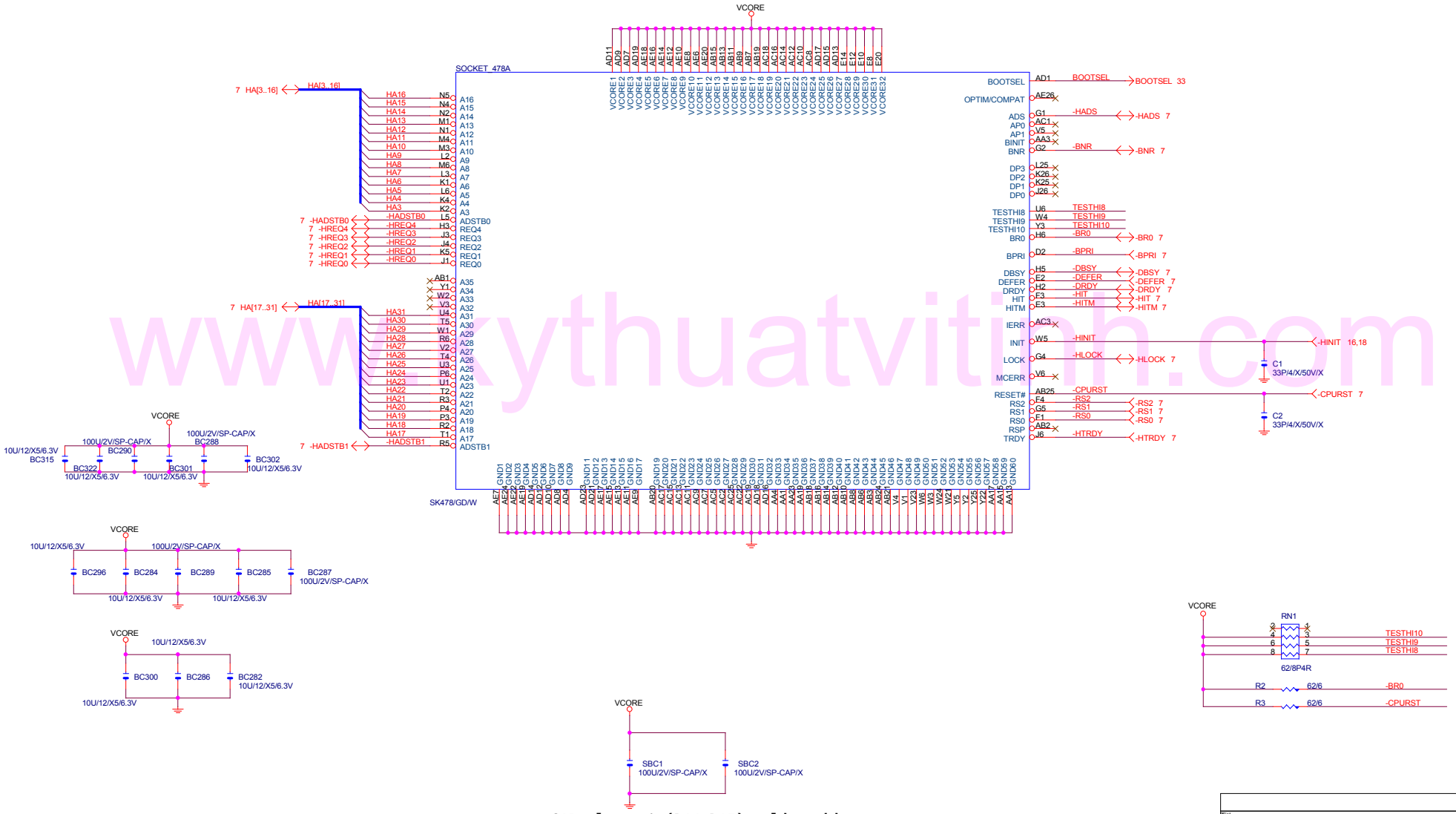


GIGABYTE CORP.

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-8IG1000 Pro-G | Rev: 3.0

Date: | Sheet 3 of 38

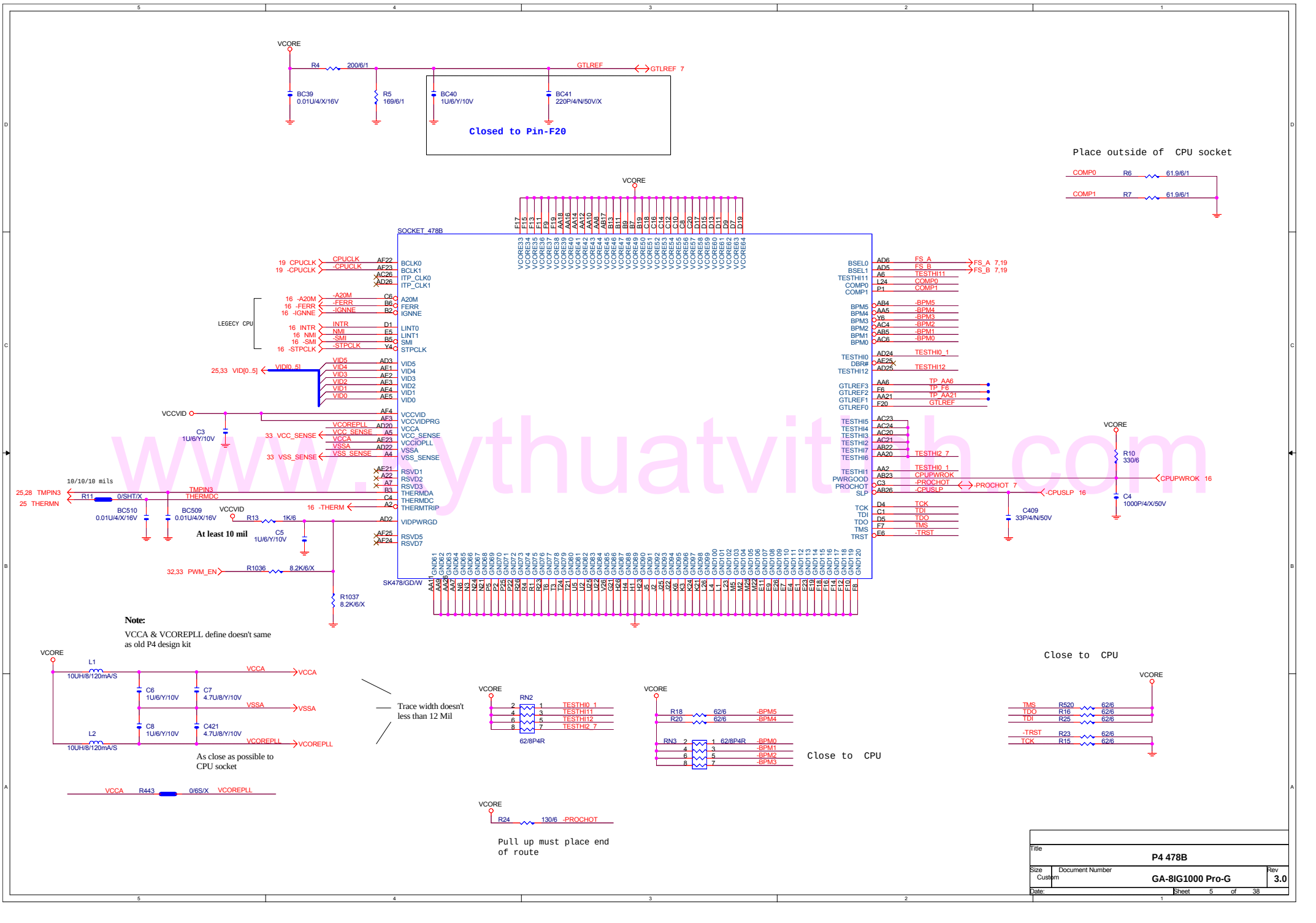


SP-CAP X 4 PCS

CPU SCOKET

CAP place at (D14,D15) solder side

Title	P4 478A	
Size: Custom	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 4 of 38	


VCORE
R4 200/6/1
GTLREF
GTLREF 7
BC39 0.01U/4/X/16V
R5 169/6/1
BC40 1U/6/Y/10V
BC41 220P/4/N/50V/X
Closed to Pin-F20
Place outside of CPU socket
COMP0 R6 61.9/6/1
COMP1 R7 61.9/6/1
SOCKET_478B
SK478/GD/W
LEGECY CPU
CPUCLK
-CPUCLK
BCLK0
BCLK1
ITP_CLK0
ITP_CLK1
-A20M
-FERR
-IGNNE
A20M
FERR
IGNNE
INTR
NMI
-SMI
-STPCLK
LINT0
LINT1
SMI
STPCLK
VID5
VID4
VID3
VID2
VID1
VID0
VID[0..5]
25,33 VID[0..5]
VCCVID
VCCVIDPRG
VCOREPLL
VCC_SENSE
VCCA
VCCIOPLL
VSSA
VSS_SENSE
33 VCC_SENSE
33 VSS_SENSE
C3 1U/6/Y/10V
RSVD1
RSVD2
RSVD3
THERMDA
THERMDC
THERMTRIP
16 -THERM
VIDPWRGD
RSVD5
RSVD7
10/10/10 mils
25,28 TMPIN3
25 THERMN
R11 0/SHT/X
TMPIN3
THERMDC
BC510 0.01U/4/X/16V
BC509 0.01U/4/X/16V
VCCVID
R13 1K/6
C5 1U/6/Y/10V
At least 10 mil
32,33 PWM_EN
R1036 8.2K/6/X
R1037 8.2K/6/X
BSEL0
BSEL1
TESTHI11
COMP0
COMP1
BPM5
BPM4
BPM3
BPM2
BPM1
BPM0
TESTHI0
DBR#
TESTHI12
GTLREF3
GTLREF2
GTLREF1
GTLREF0
TESTHI5
TESTHI4
TESTHI3
TESTHI2
TESTHI7
TESTHI6
TESTHI1
PWRGOOD
PROCHOT
SLP
TCK
TDI
TDO
TMS
TRST
FS_A 7,19
FS_B 7,19
TESTHI11
COMP0
COMP1
-BPM5
-BPM4
-BPM3
-BPM2
-BPM1
-BPM0
TESTHI0_1
TESTHI12
TP_AA6
TP_F6
TP_AA21
GTLREF
TESTHI2_7
TESTHI0_1
CPUPWROK
-PROCHOT
-CPUSLP
TCK
TDI
TDO
TMS
-TRST
PROCHOT 7
-CPUSLP 16
C409 33P/4/N/50V
R10 330/6
CPUPWROK 16
C4 1000P/4/X/50V
Note:
VCCA & VCOREPLL define doesn't same as old P4 design kit
L1 10UH/8/120mA/S
L2 10UH/8/120mA/S
C6 1U/6/Y/10V
C7 4.7U/8/Y/10V
C8 1U/6/Y/10V
C421 4.7U/8/Y/10V
VCCA
VSSA
VCOREPLL
As close as possible to CPU socket
Trace width doesn't less than 12 Mil
VCCA R443 0/6S/X VCOREPLL
RN2
62/8P4R
R18 62/6 -BPM5
R20 62/6 -BPM4
RN3 62/8P4R -BPM0 -BPM1 -BPM2 -BPM3
Close to CPU
R24 130/6 -PROCHOT
Pull up must place end of route
Close to CPU
TMS R520 62/6
TDO R16 62/6
TDI R25 62/6
-TRST R23 62/6
TCK R15 62/6
Title
P4 478B
Size Custom
Document Number
GA-8IG1000 Pro-G
Rev 3.0
Date:
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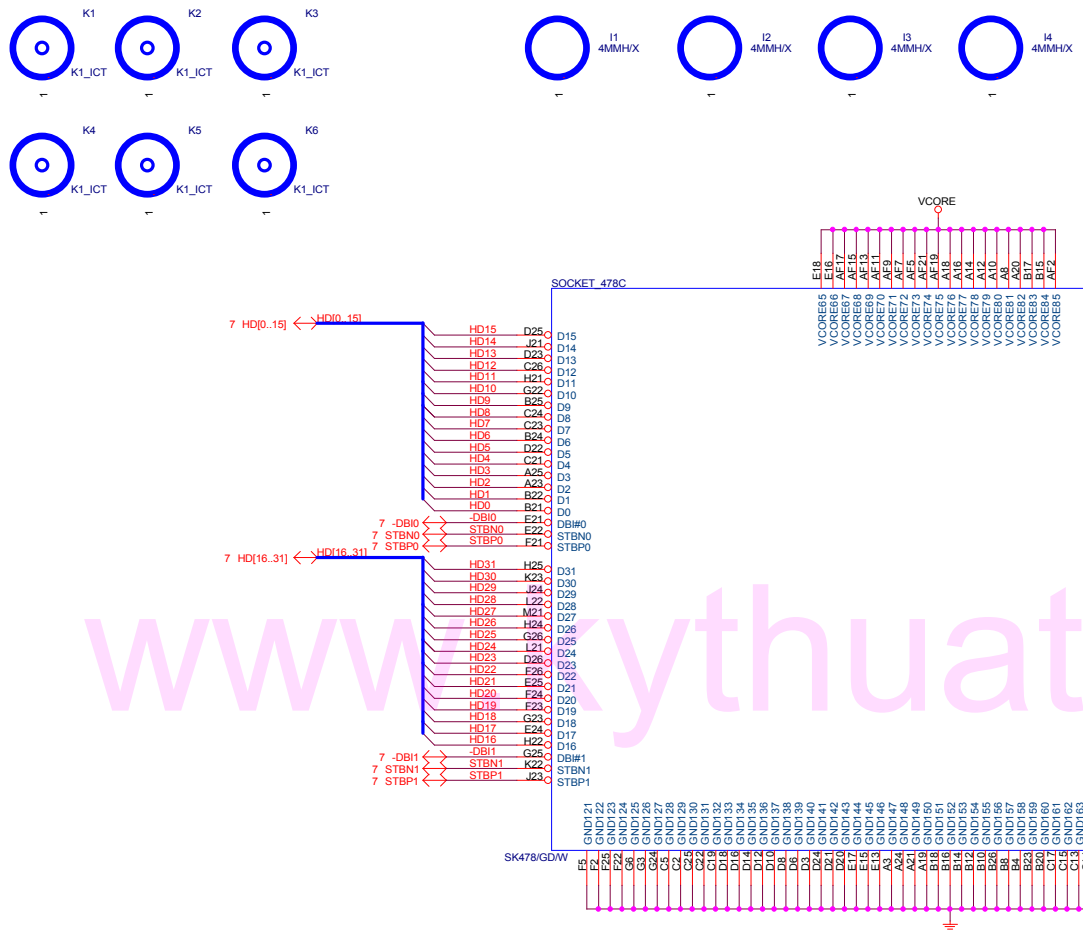

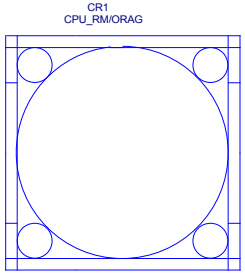

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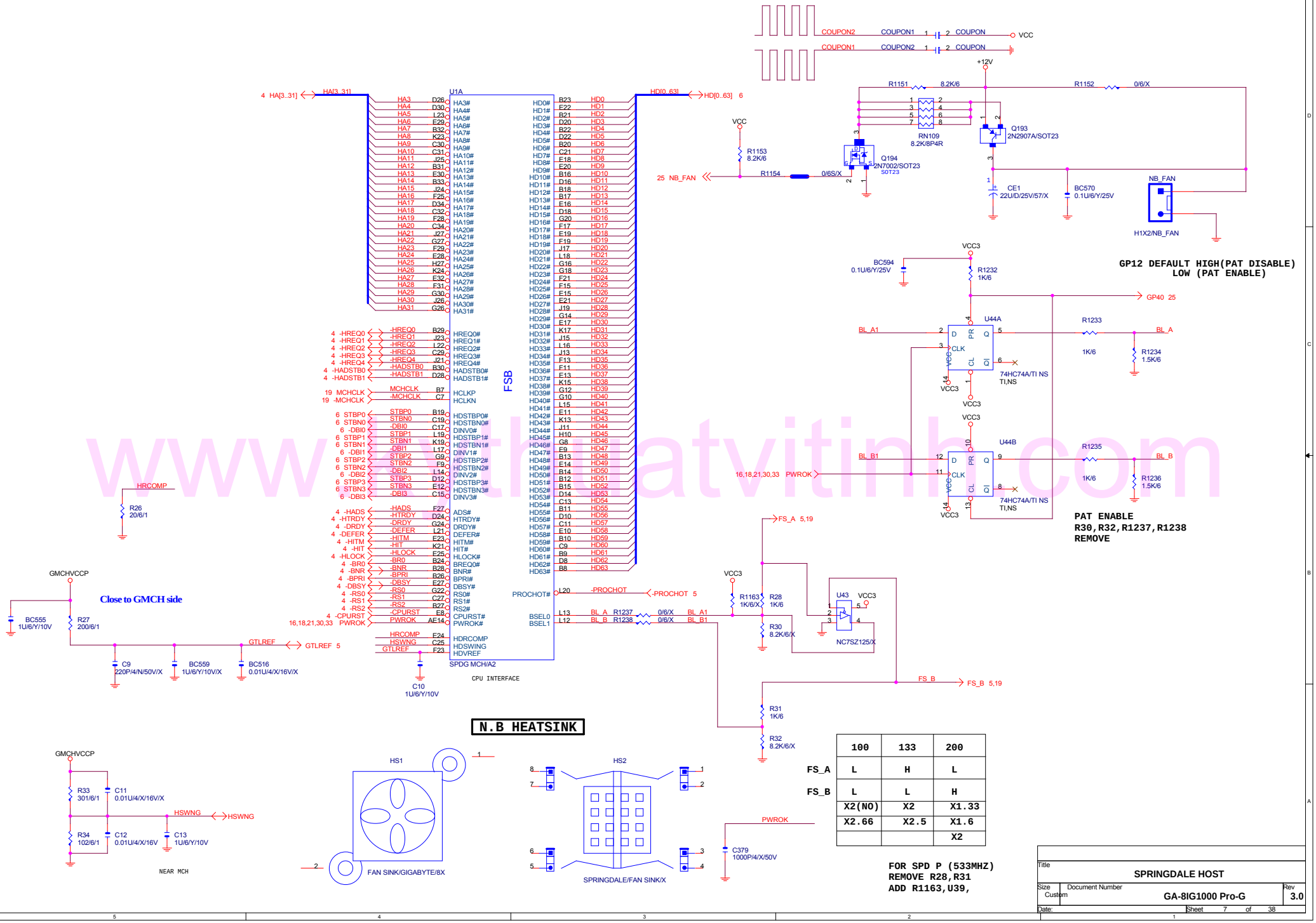
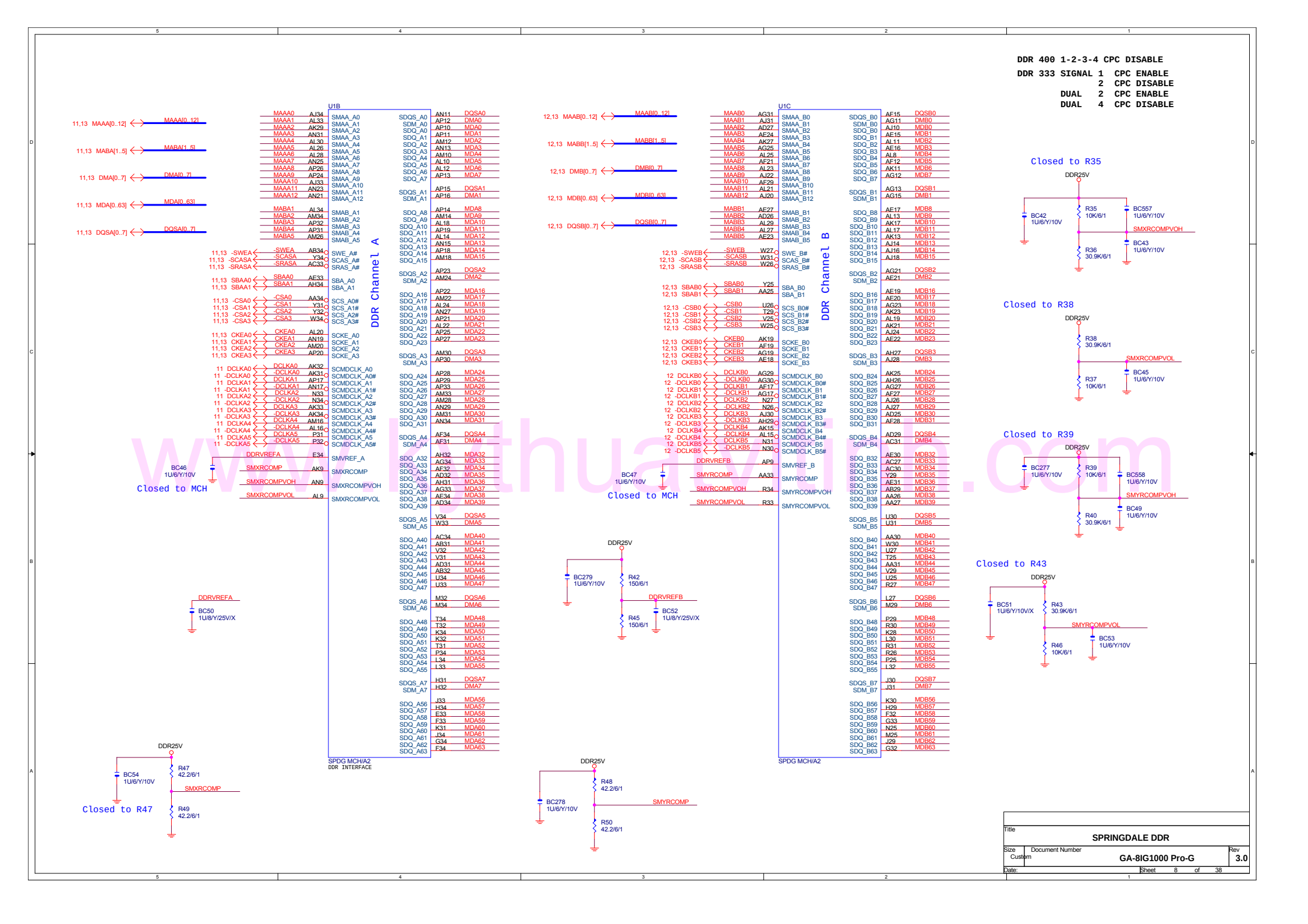
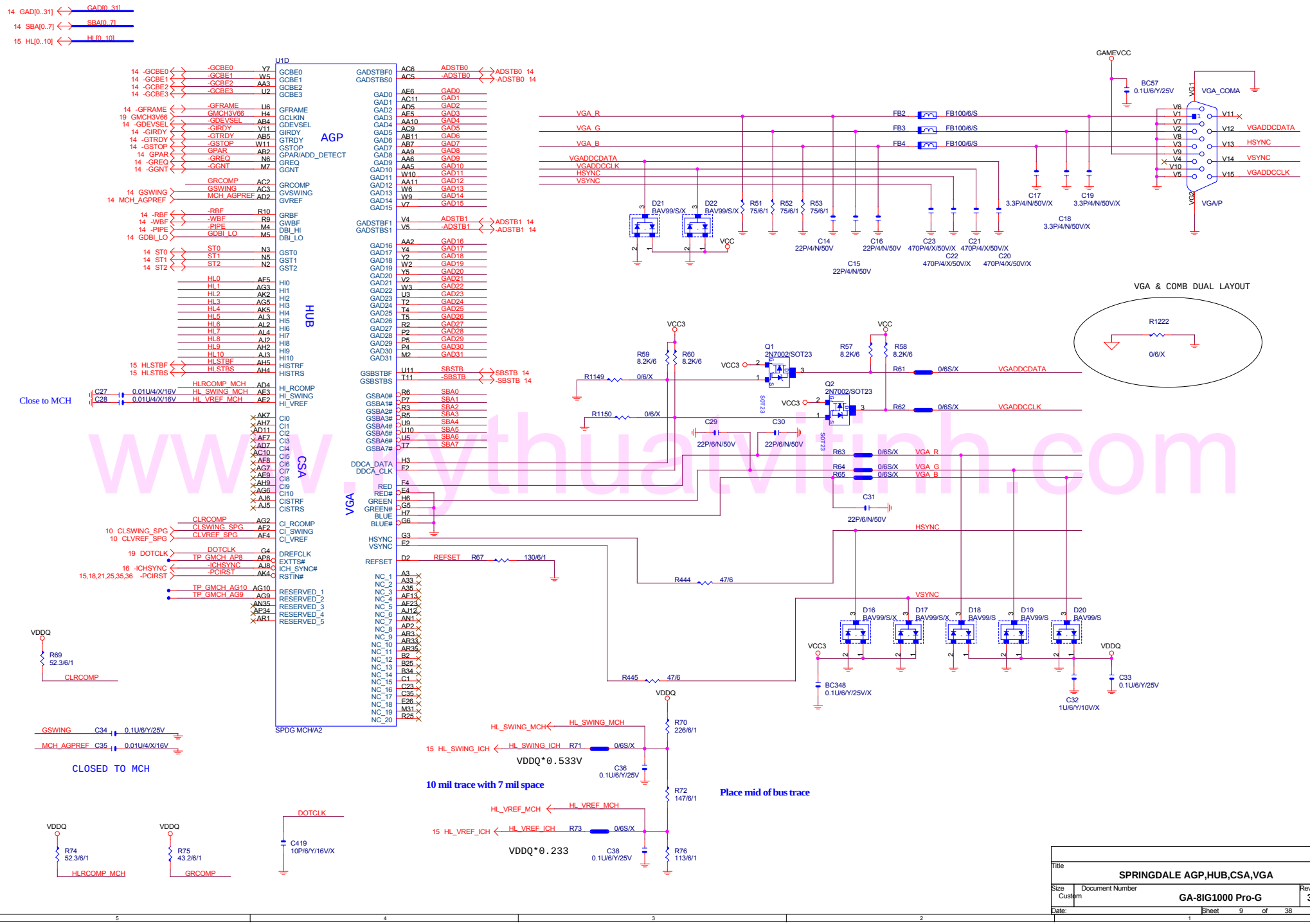
Size: Custom	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 6 of 38	

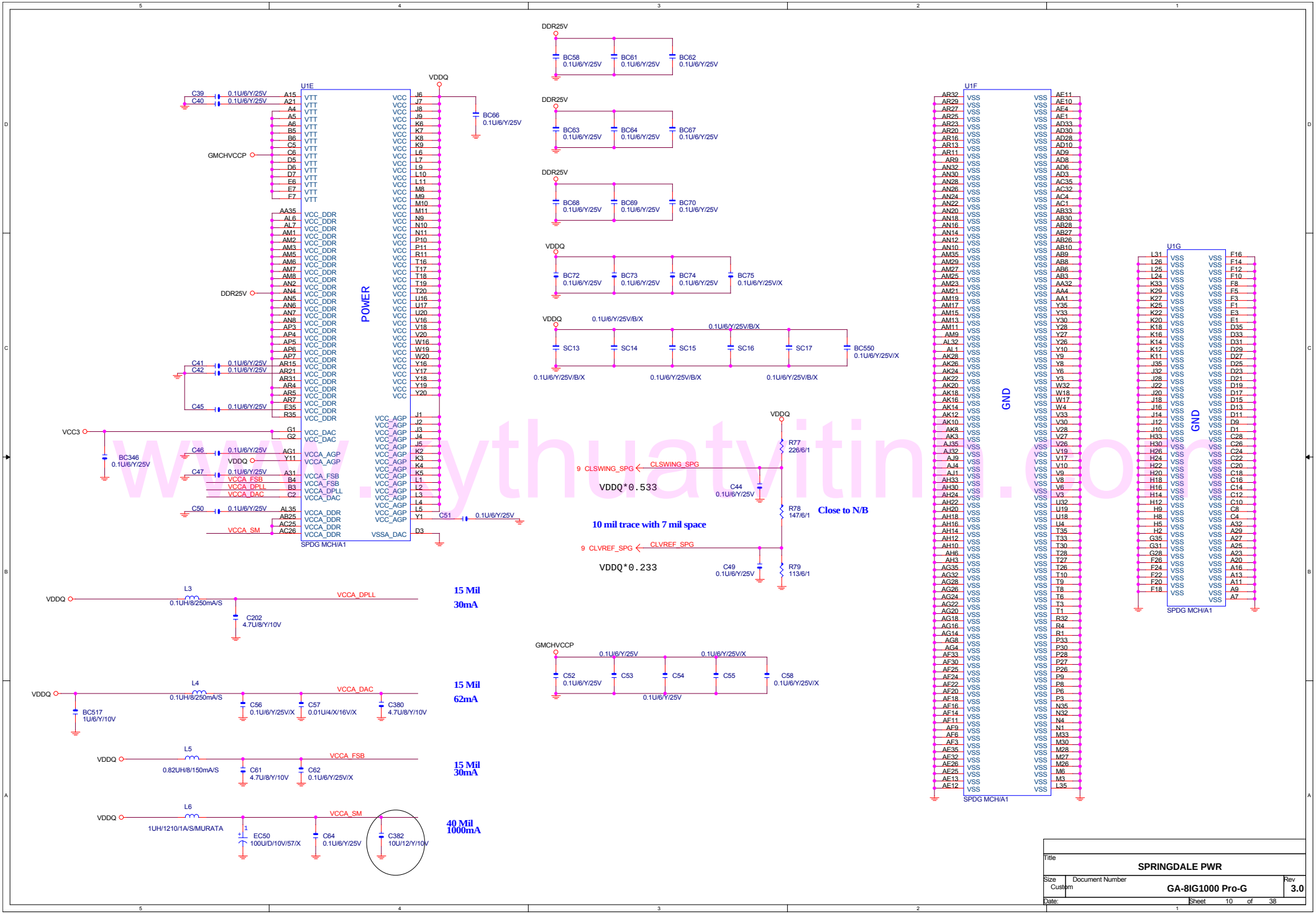


	100	133	200
FS_A	L	H	L
FS_B	L	L	H
	X2(NO)	X2	X1.33
	X2.66	X2.5	X1.6
			X2

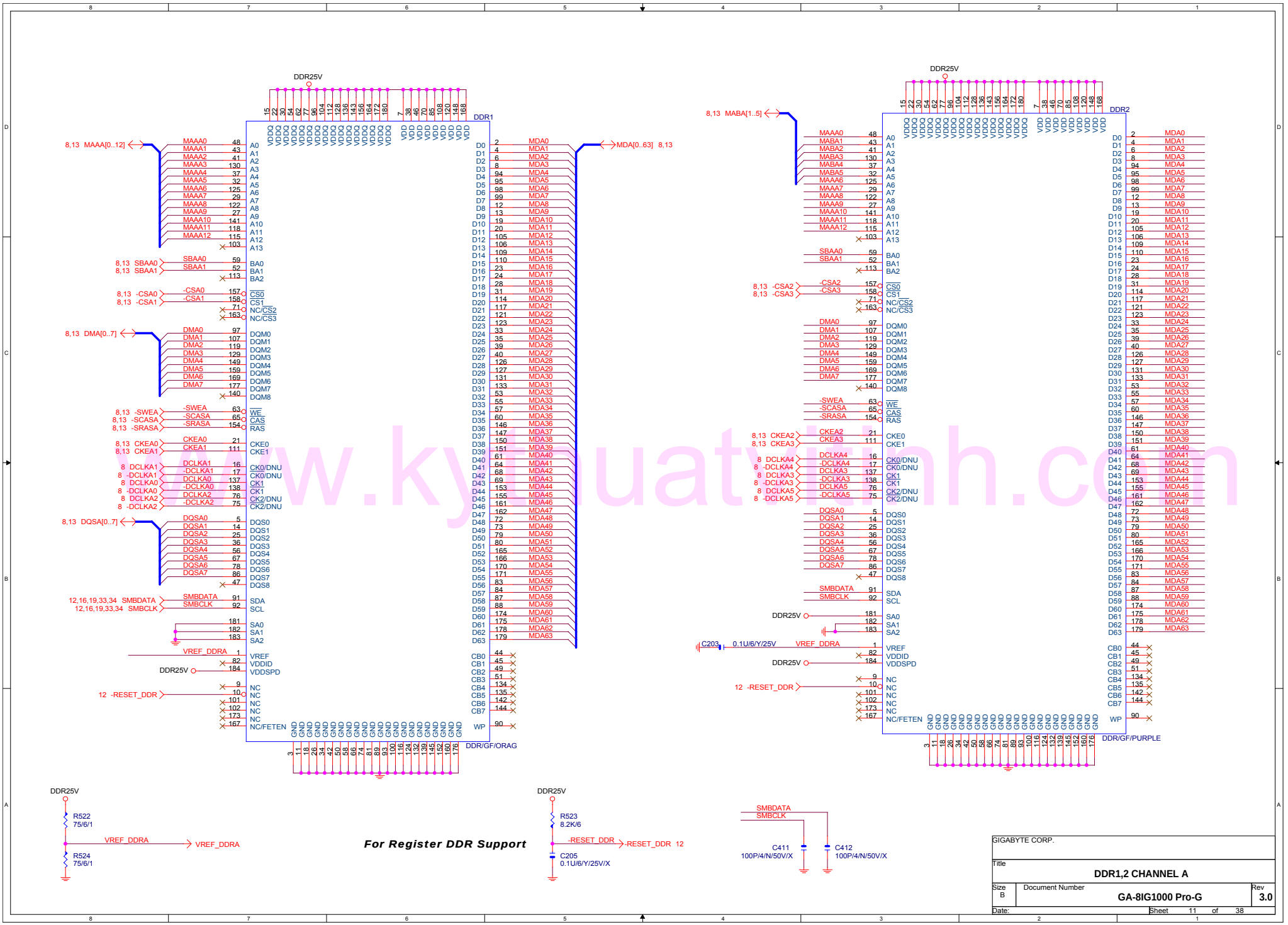
Title	SPRINGDALE HOST	
Size: Custom	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 7 of 38	


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
U1B
DDR Channel A
SPDG MCH/A2
DDR INTERFACE
U1C
DDR Channel B
SPDG MCH/A2
Closed to MCH
Closed to MCH
Closed to R35
Closed to R38
Closed to R39
Closed to R43
Closed to R47
DDR25V
SMXRCOMPVOH
SMXRCOMPVOL
SMYRCOMPVOH
SMYRCOMPVOL
SMXRCOMP
SMYRCOMP
DDRVREFA
DDRVREFB
SPRINGDALE DDR
GA-8IG1000 Pro-G
3.0
Custom
Sheet 8 of 38

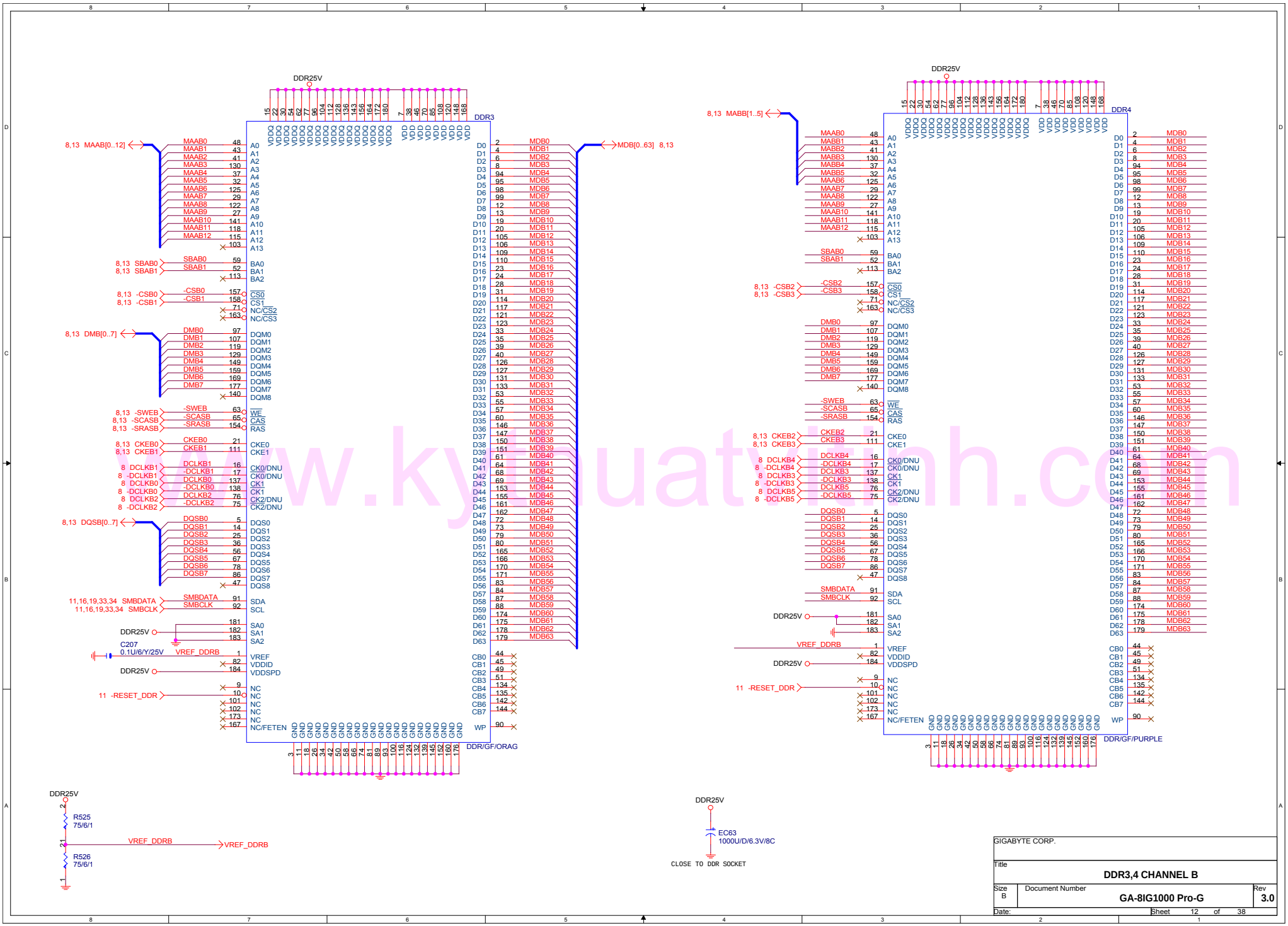




Title	SPRINGDALE PWR	
Size: Custom	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 10 of 38	

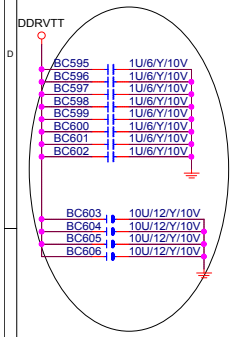


GIGABYTE CORP.		
Title: DDR1,2 CHANNEL A		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 11 of 38	

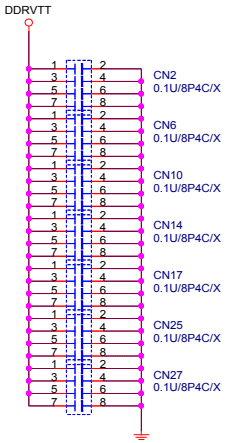

DDR25V
DDR3
DDR4
DDR/GF/ORAG
DDR/GF/PURPLE
MAAB[0..12]
MABB[1..5]
SBAB0
SBAB1
-CSB0
-CSB1
-CSB2
-CSB3
DMB[0..7]
DMB0
DMB1
DMB2
DMB3
DMB4
DMB5
DMB6
DMB7
-SWEB
-SCASB
-SRASB
CKEB0
CKEB1
CKEB2
CKEB3
DCLKB1
-DCLKB1
DCLKB0
-DCLKB0
DCLKB2
-DCLKB2
DCLKB3
-DCLKB3
DCLKB4
-DCLKB4
DCLKB5
-DCLKB5
DQSB[0..7]
DQSB0
DQSB1
DQSB2
DQSB3
DQSB4
DQSB5
DQSB6
DQSB7
SMBDATA
SMBCLK
SA0
SA1
SA2
VREF_DDRB
C207
0.1U/6/Y/25V
-RESET_DDR
MDB[0..63]
R525
75/6/1
R526
75/6/1
EC63
1000U/D/6.3V/8C
CLOSE TO DDR SOCKET
GIGABYTE CORP.
Title
DDR3,4 CHANNEL B
Size
B
Document Number
GA-8IG1000 Pro-G
Rev
3.0
Date:
Sheet 12 of 38

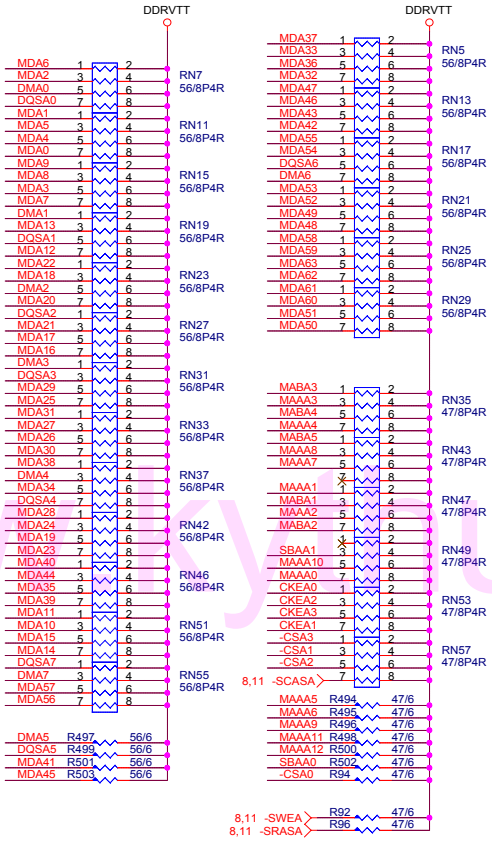
DDR TERMINATION

DDRVTT Decouple

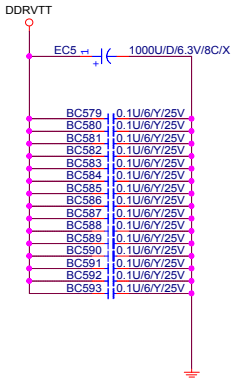


CHANNEL A

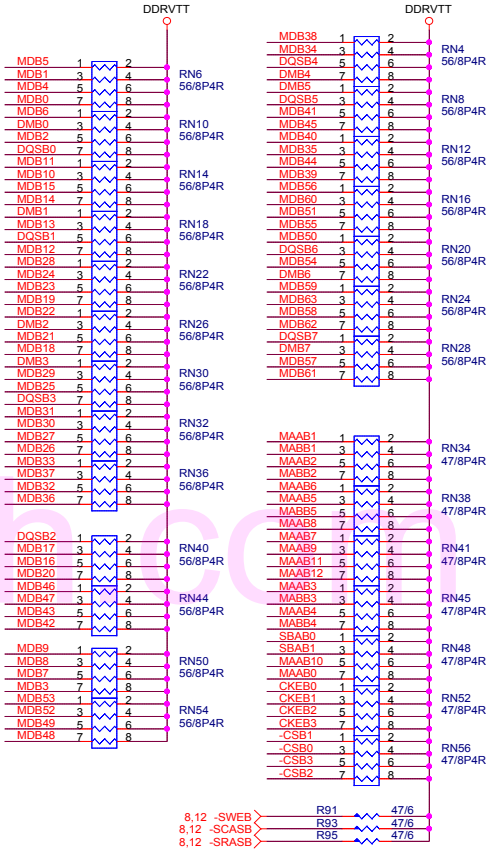




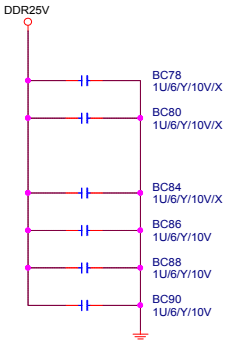
DDRVTT Decouple



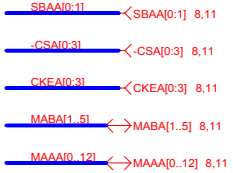
CHANNEL B



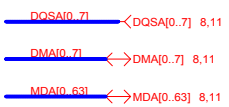
DDR25V Decouple



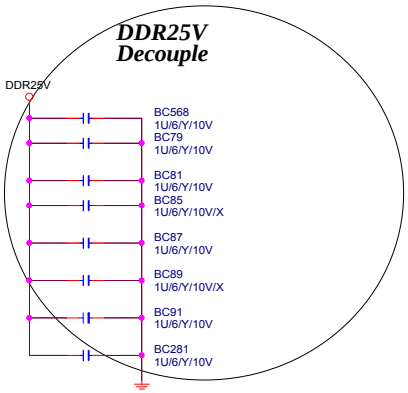
47 Ohms



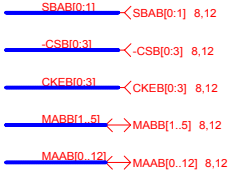
56 Ohms



DDR25V Decouple

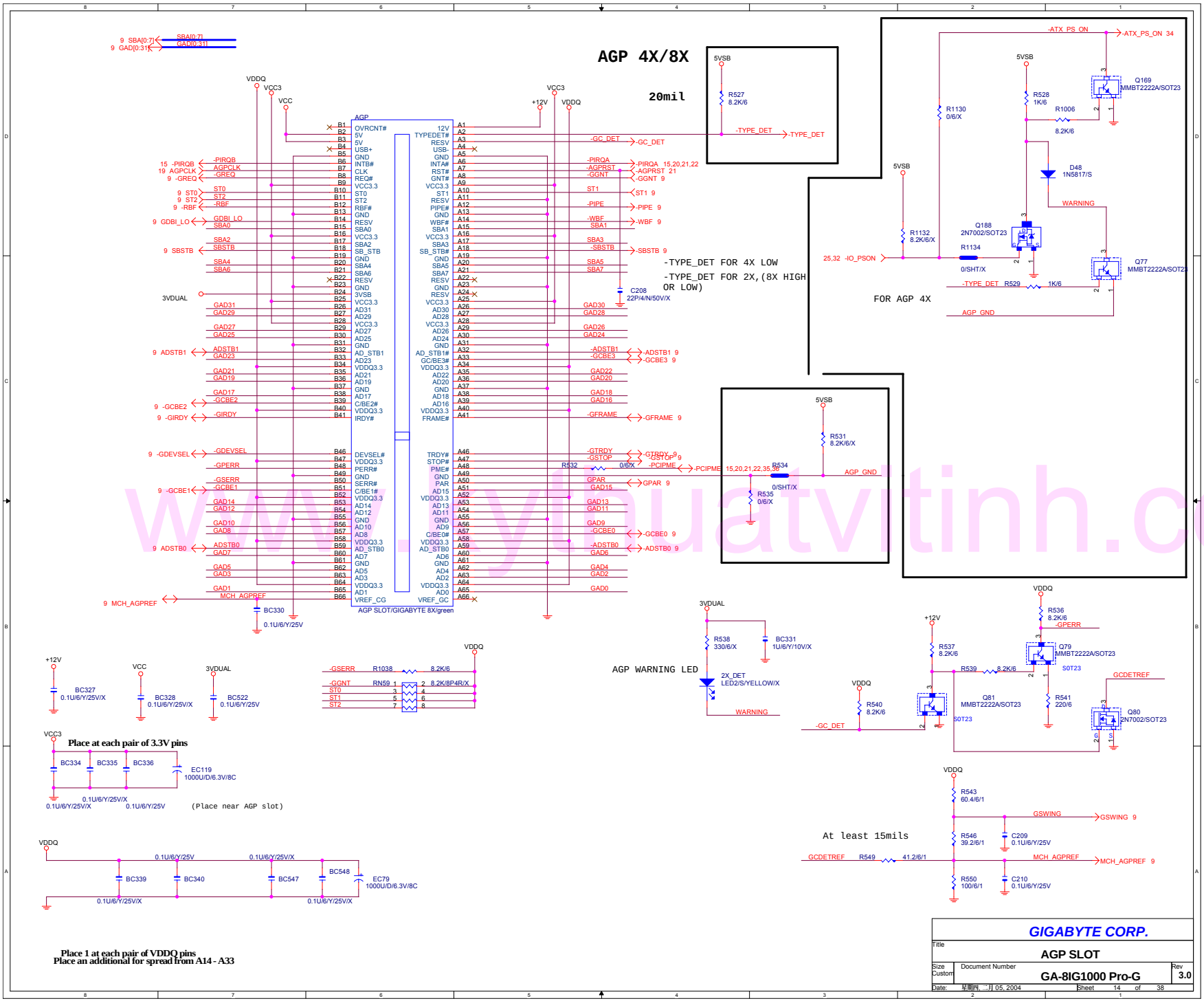


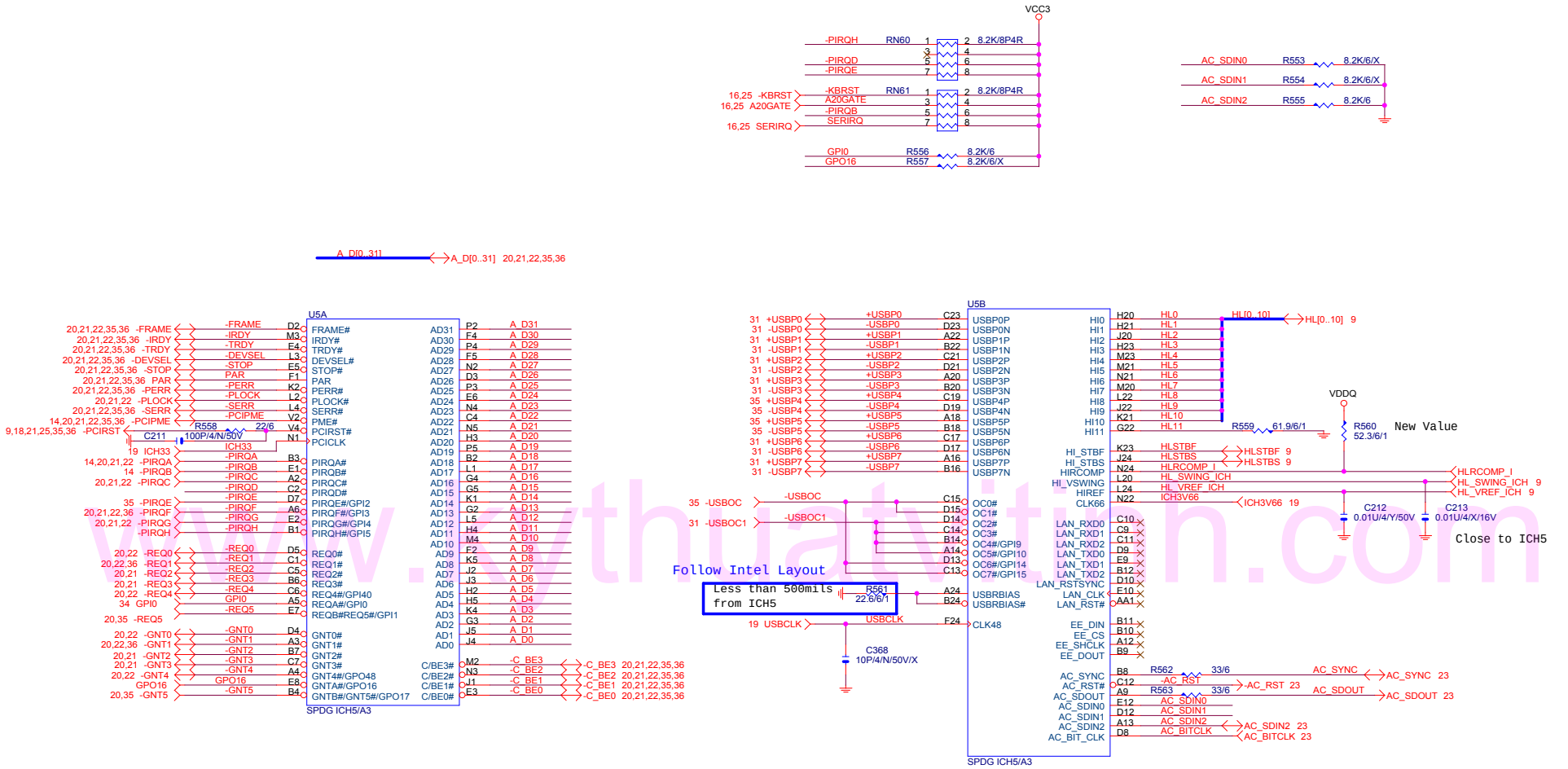
47 Ohms



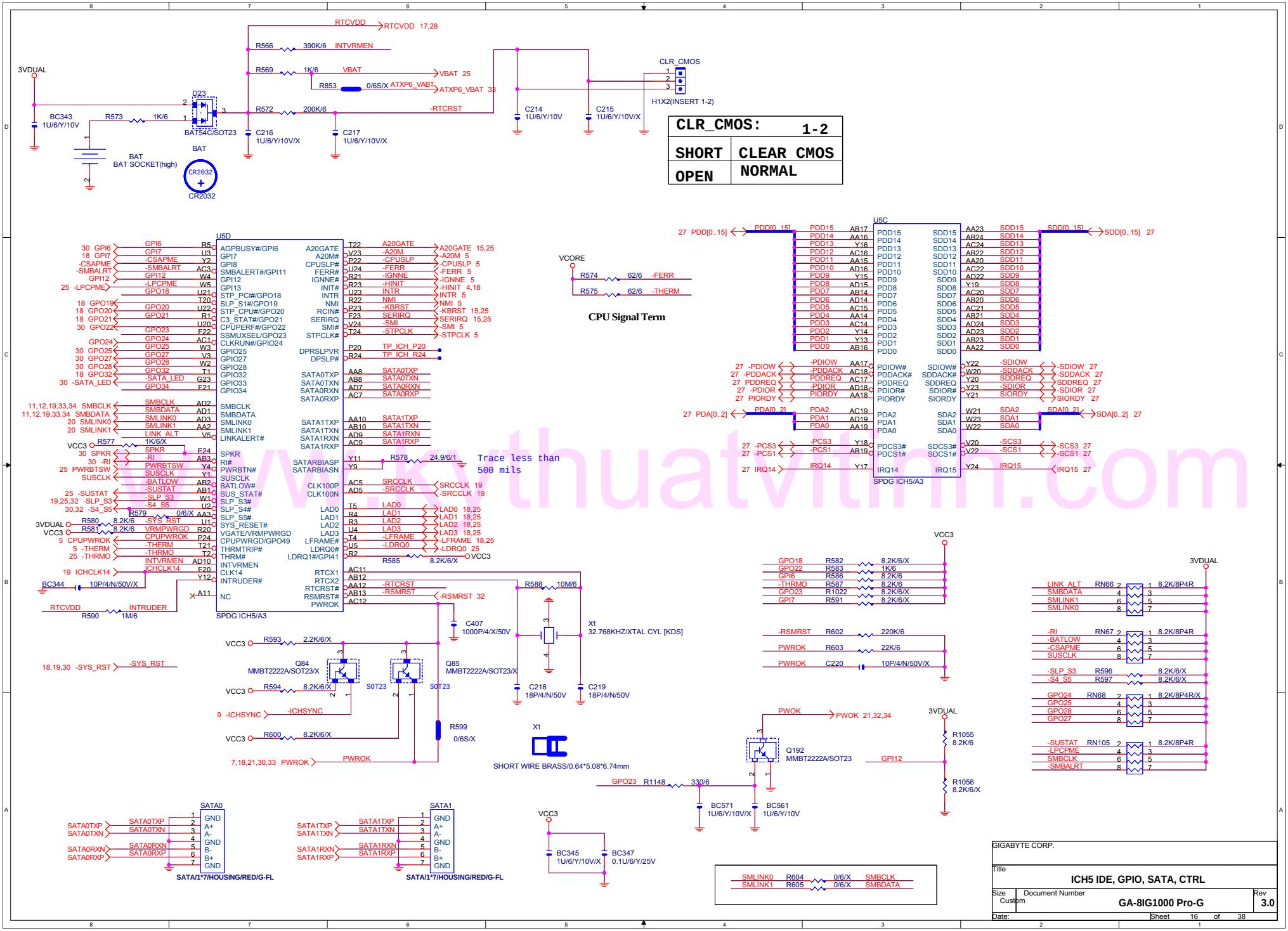
56 Ohms

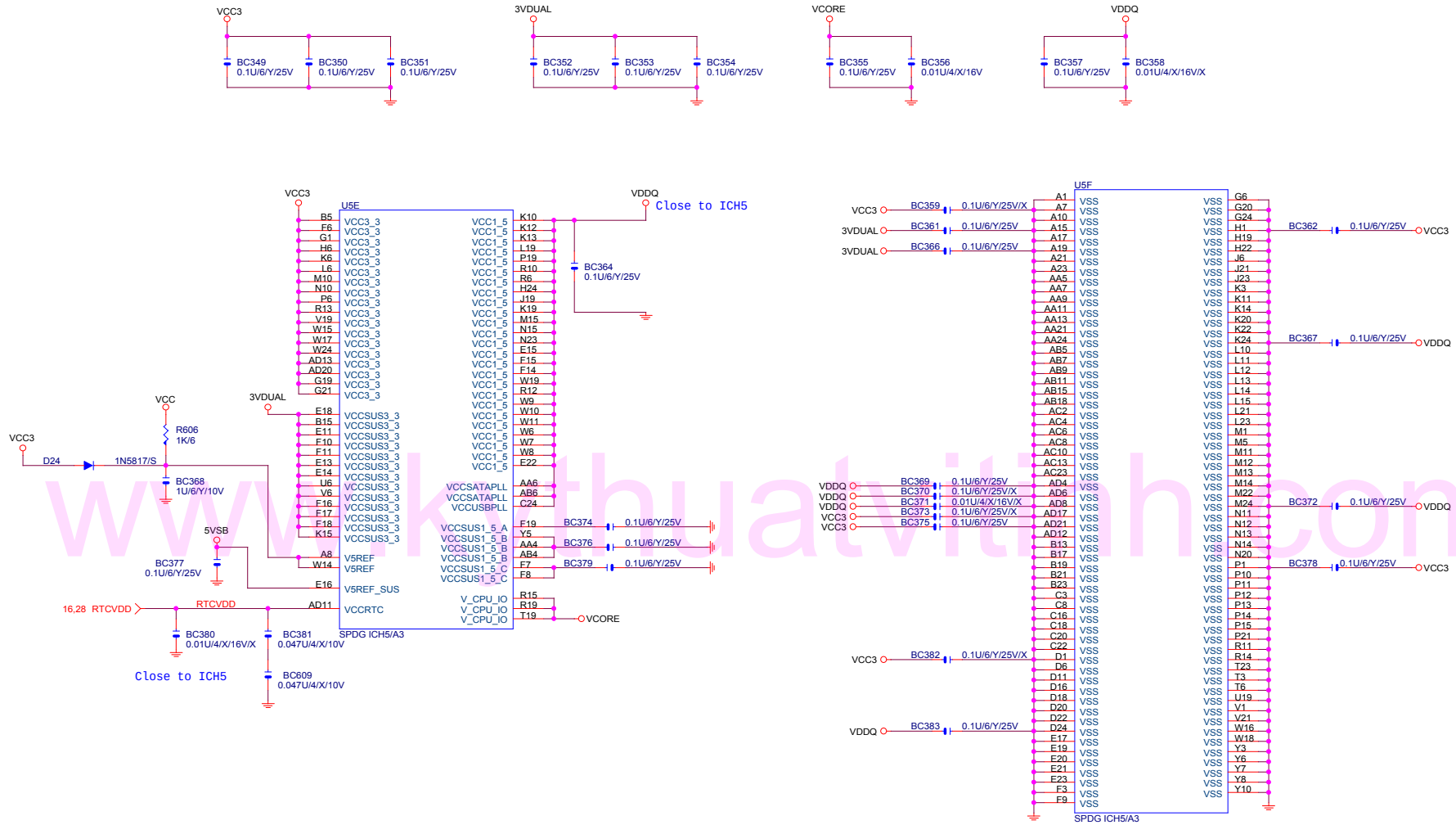
GIGABYTE CORP.		
Title: DDR TERMINATION		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 13 of 38	



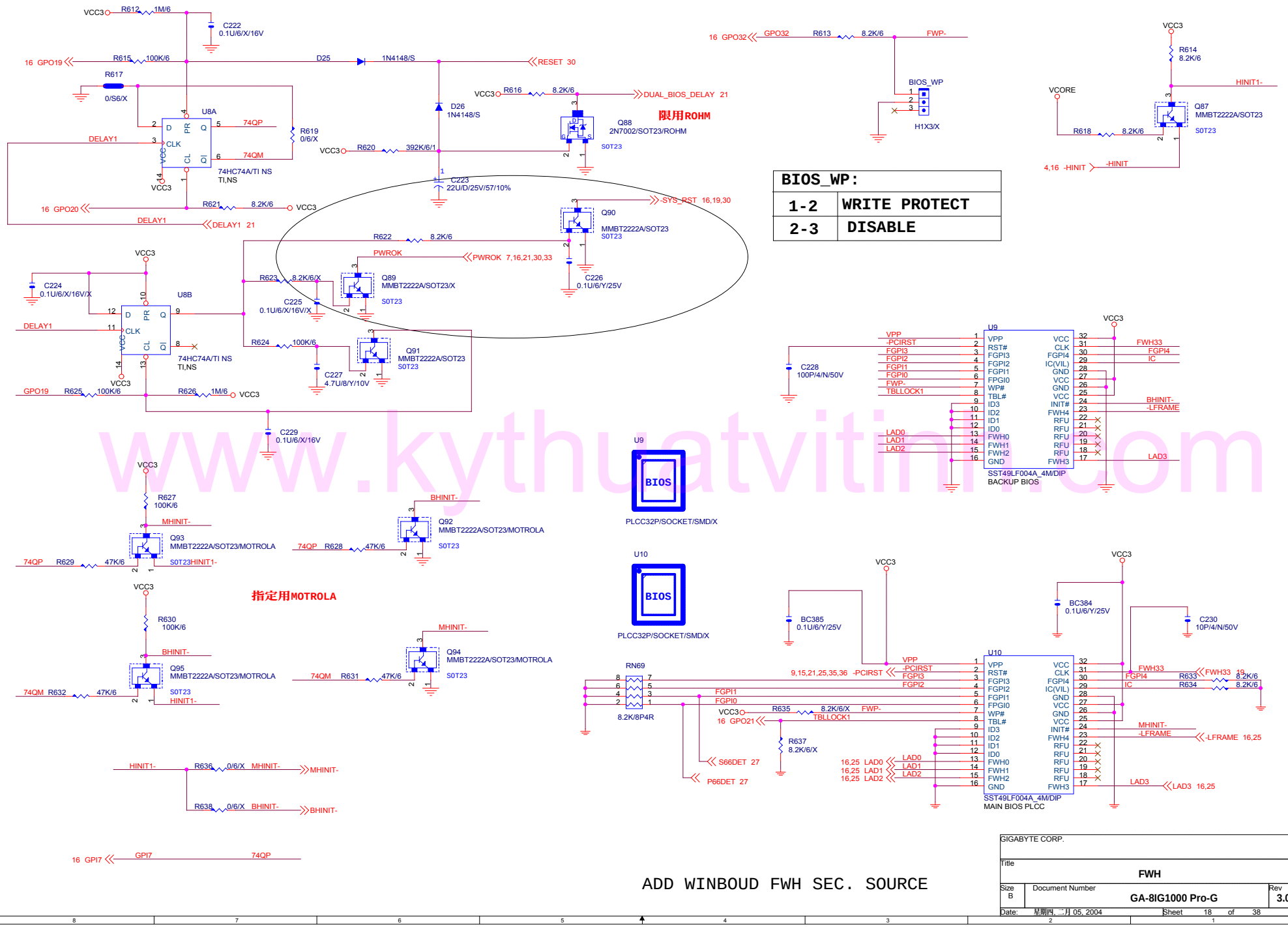


GIGABYTE CORP.		
Title	ICH5 PCI, USB, HUB, LAN	
Size B	Document Number GA-8IG1000 Pro-G	Rev 3.0
Date:	Sheet 15 of 38	





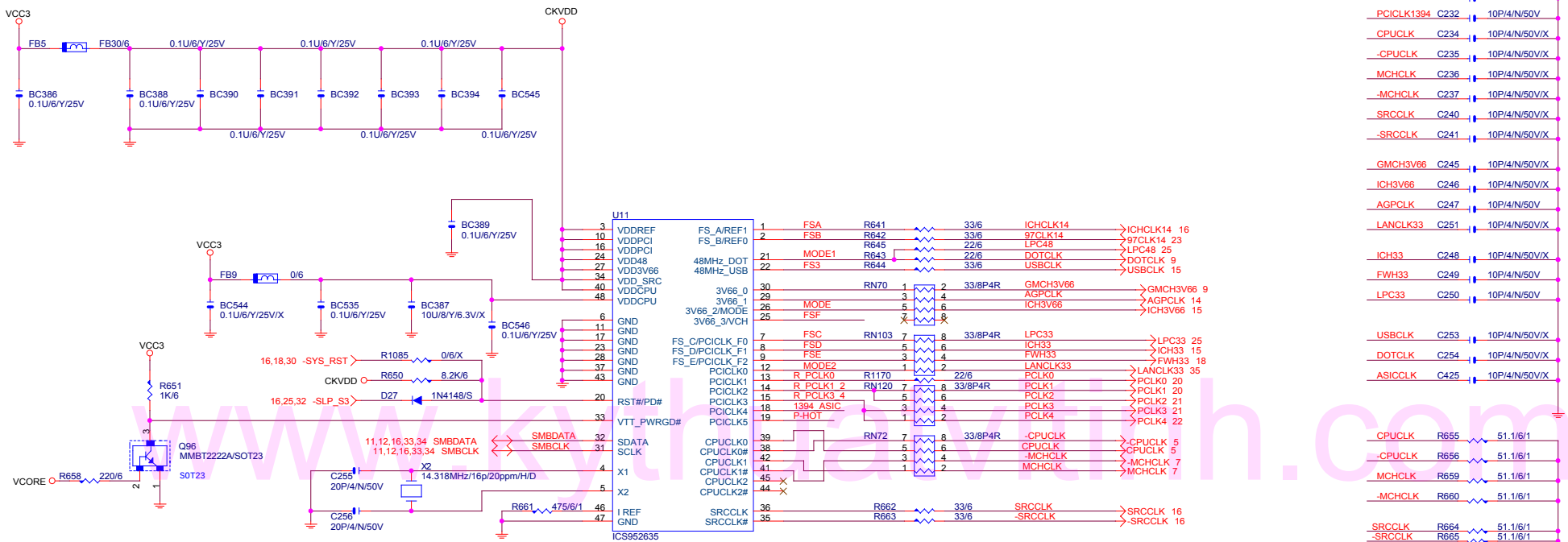
GIGABYTE CORP.		
Title	ICH5 VCC, GND	
Size B	Document Number GA-8IG1000 Pro-G	Rev 3.0
Date:	Sheet 17 of 38	



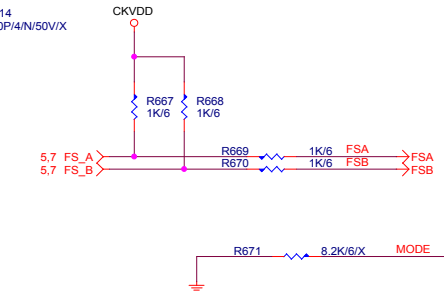
BIOS_WP:	
1-2	WRITE PROTECT
2-3	DISABLE

ADD WINBOUD FWH SEC. SOURCE

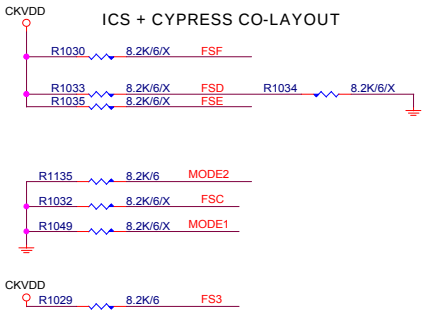
GIGABYTE CORP.		
Title: FWH		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date: 星期四, 二月 05, 2004	Sheet 18 of 38	



ICS952635 必须把R1033 8.2K REMOVE



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

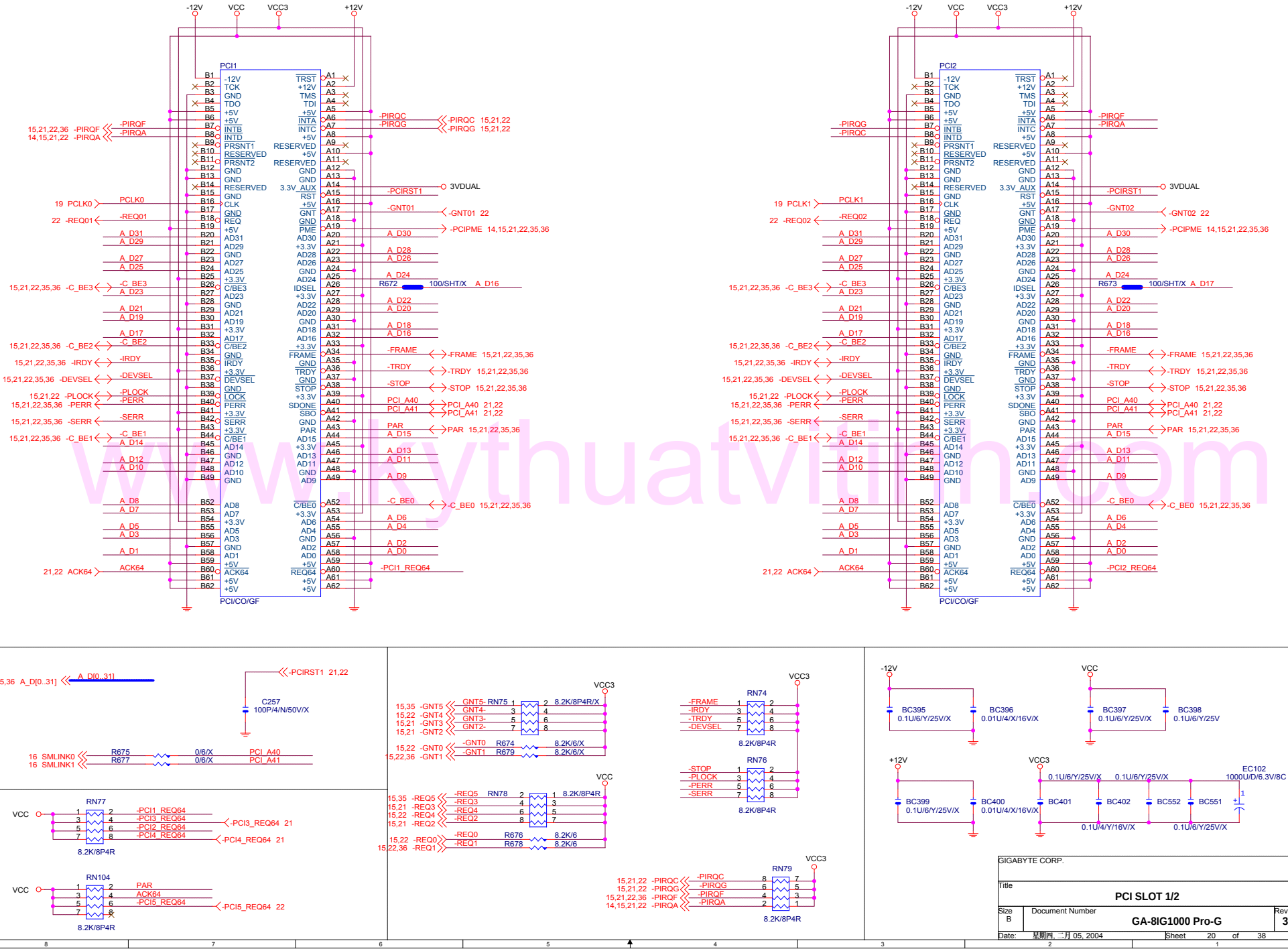
FS_E	FS_3	FS_C	FS_B	FS_A	Clock
1	0	0	0	0	100MHz
1	0	0	0	1	133MHz
1	0	0	1	1	166MHz
1	0	0	1	0	200MHz

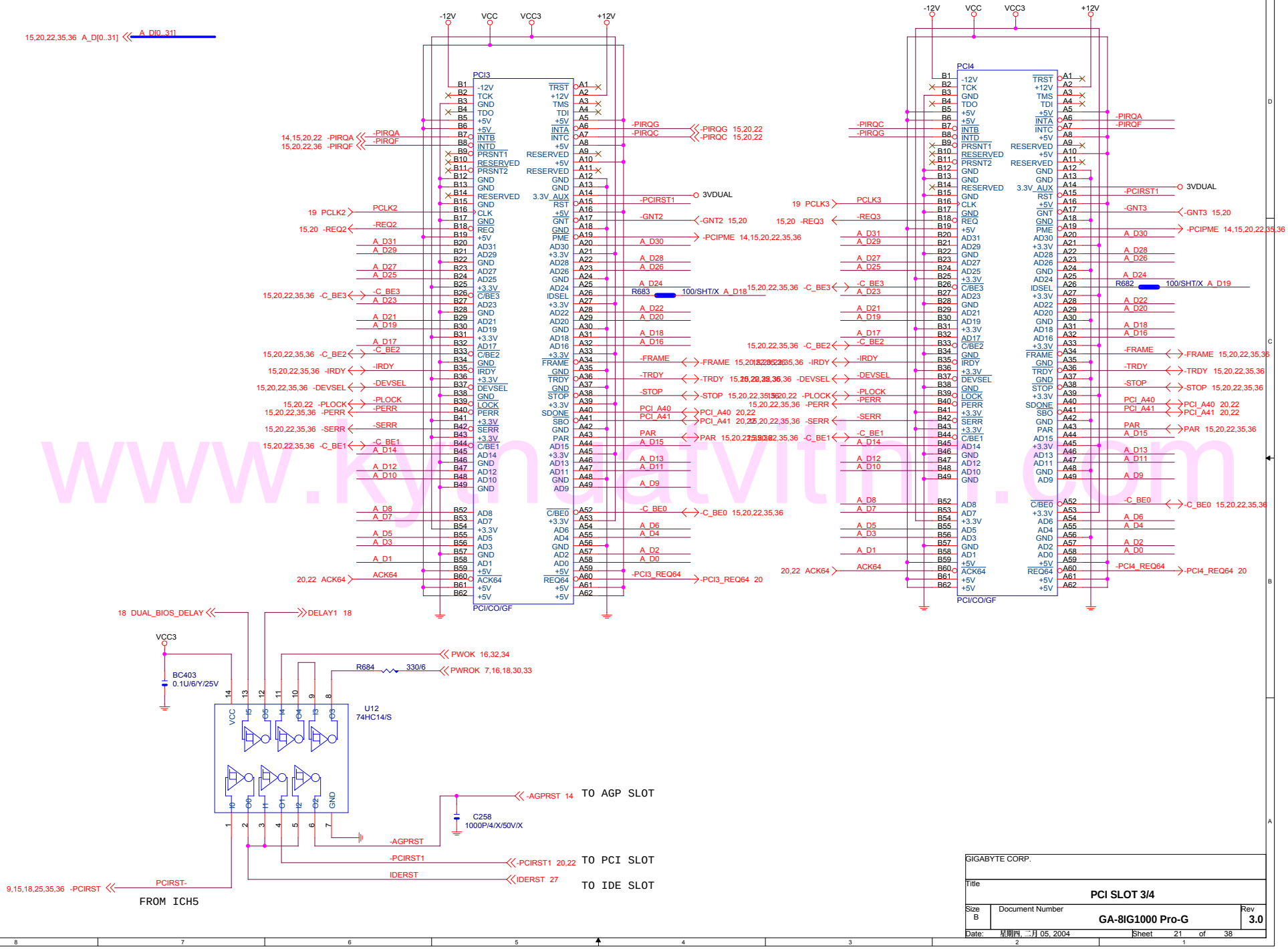
GIGABYTE CORP.

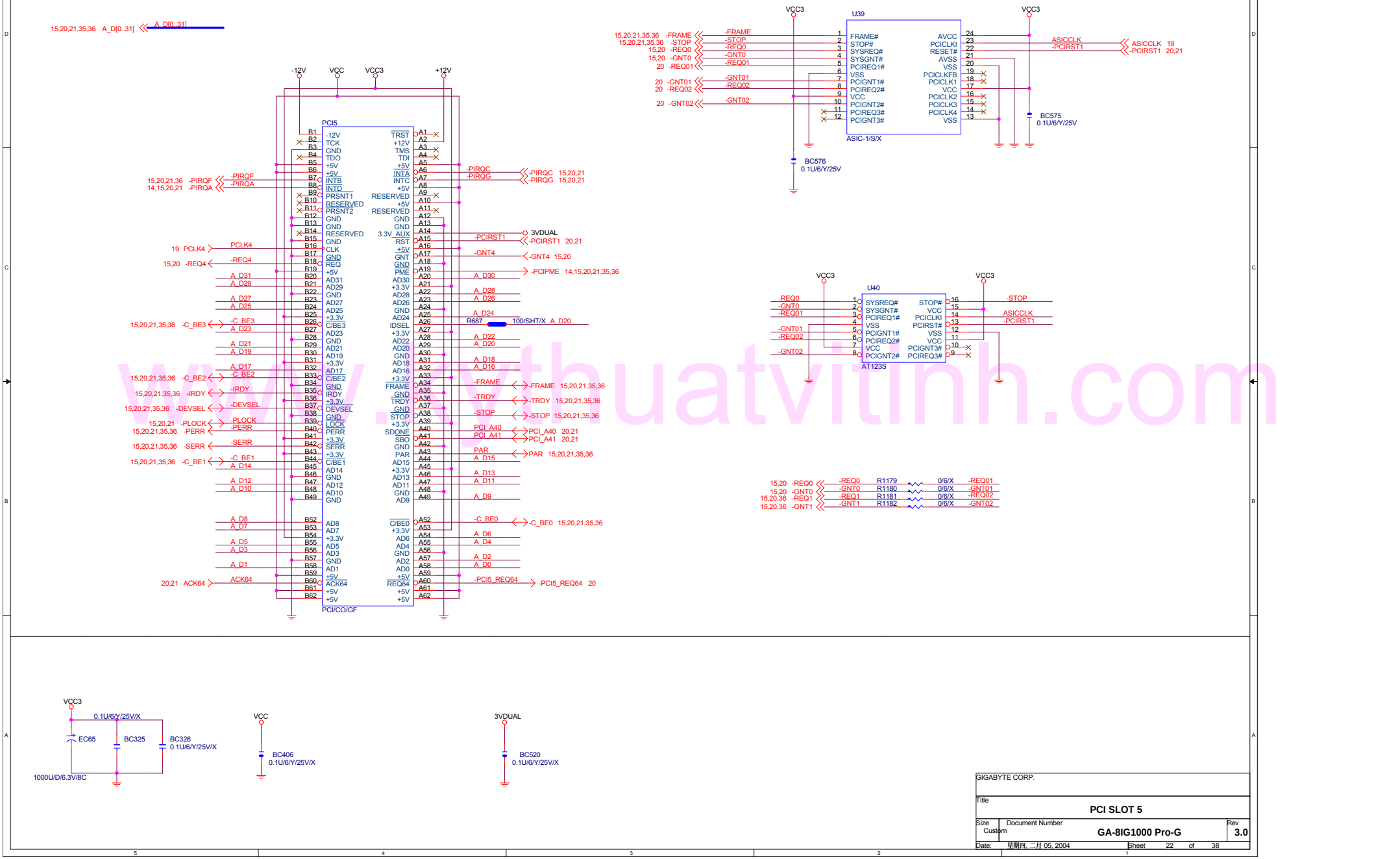
Title: CLOCK GENERATOR

Size: Custom | Document Number: GA-8IG1000 Pro-G | Rev: 3.0

Date: | Sheet 19 of 38



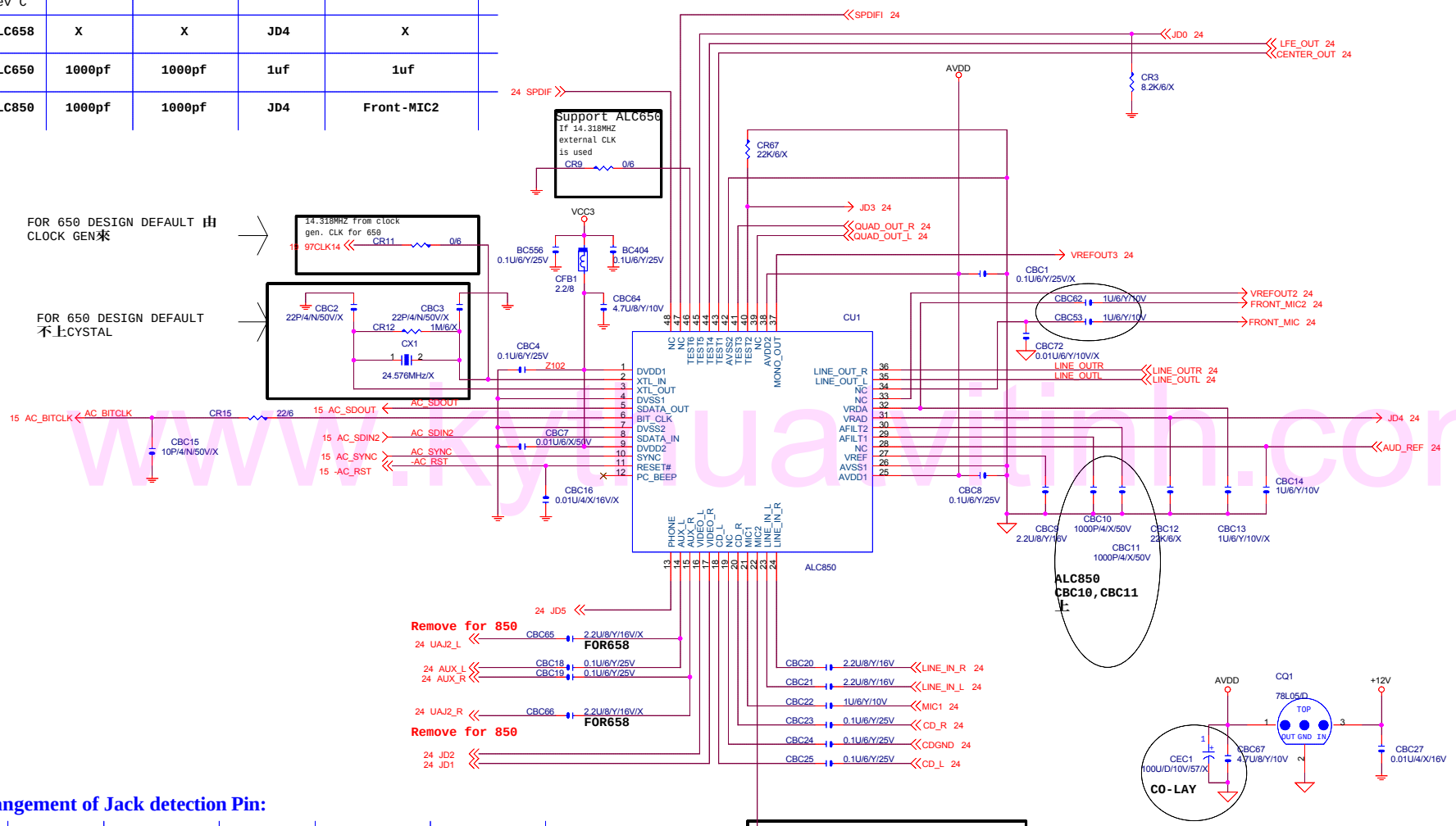




GIGABYTE CORP.		
Title	PCI SLOT 5	
Size: Custom	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date: 星期四, 二月 05, 2004	Sheet 22 of 38	

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:

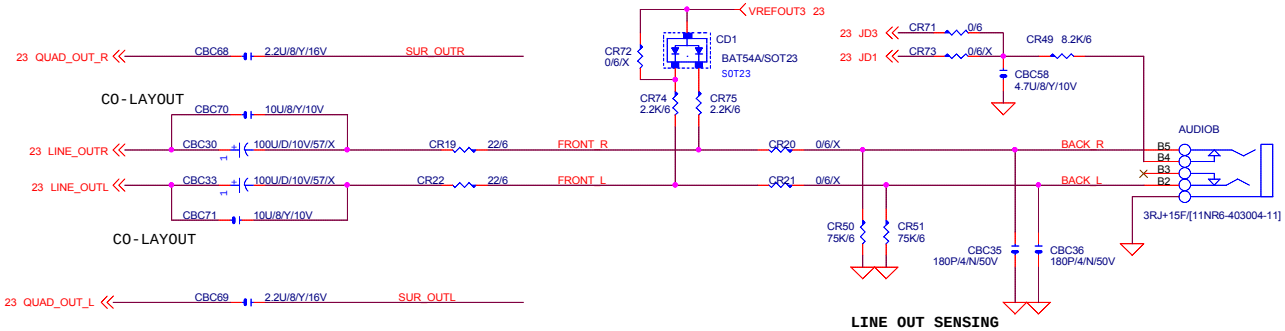
	Pin-45(JD0)	Pin-17(JD1)	Pin-16(JD2)	Pin-40(JD3)	Pin-31(JD4)	Pin-13(JD5)
ALC655	for MIC-IN	for FRONT-OUT	for LINE-IN			
ALC658	for MIC-IN	for UAJ1	for UAJ2	for FRONT-OUT Exernal pull high is needed	for LINE-IN Exernal pull high is needed	
ALC850	for MIC-IN	for Front Pannel OUT	for Front Pannel IN	for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

GIGABYTE CORP.			
Title	ALC850		
Size: Custom	Document Number: GA-8IG1000 Pro-G		Rev: 3.0
Date: 星期四, 二月 05, 2004	Sheet 23 of 38		

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)



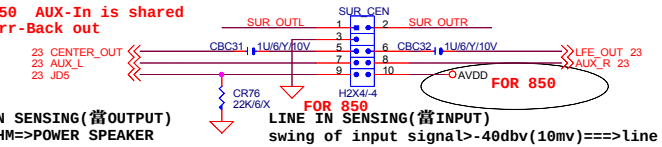
LINE OUT SENSING
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

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

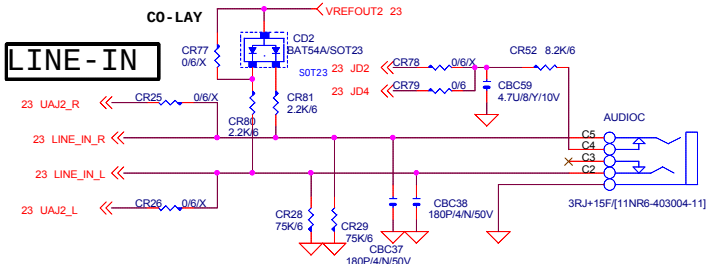
For 850 AUX-In is shared to Surr-Back out



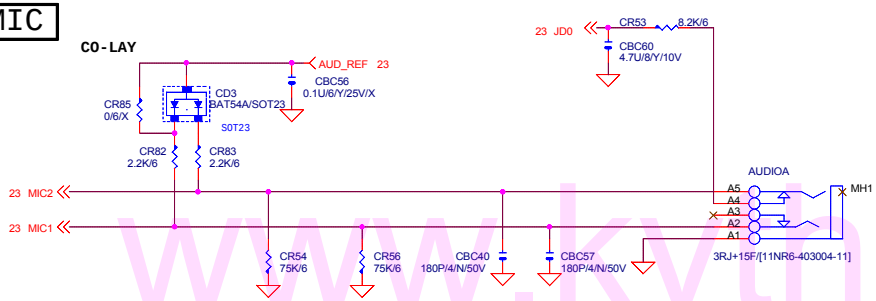
LINE IN SENSING(當OUTPUT)
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

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

LINE-IN



MIC

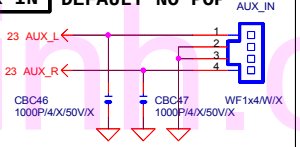


MICROPHONE IN SENSING(當INPUT)(利用vref 偏壓與CR43,CR32 並聯求出阻抗)
7.1k ohm>R>2.3k ohm===>microphone in
R<2.3k ohm or R>7.1k ohm===>unknown device

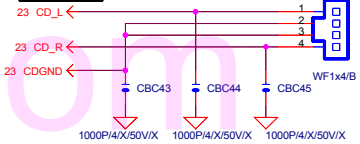
MICROPHONE IN SENSING(當OUTPUT)
R>4K OHM=>POWER SPEAKER
4K OHM>R>400 OHM=>MICROPHONE
R<400 OHM=>HEADPHONE

AUX IN

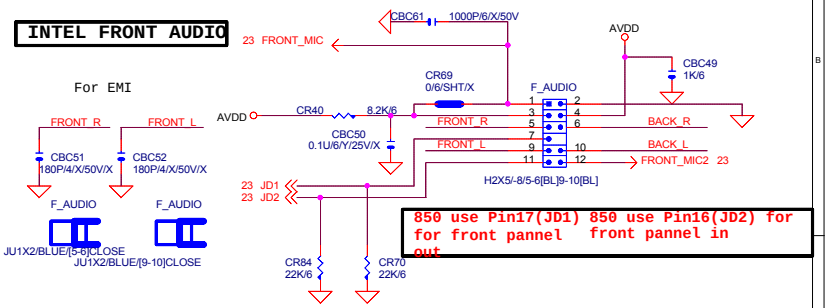
DEFAULT NO POP



CD IN

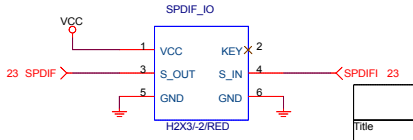


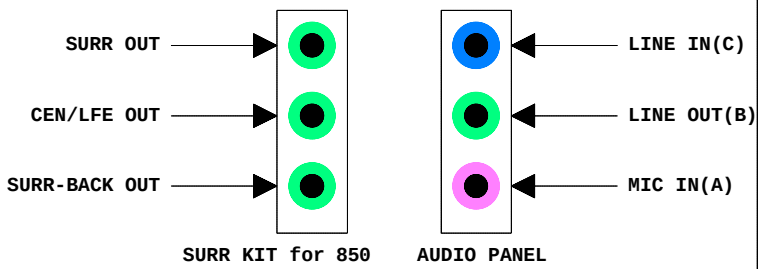
INTEL FRONT AUDIO



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

SPDIF_IO



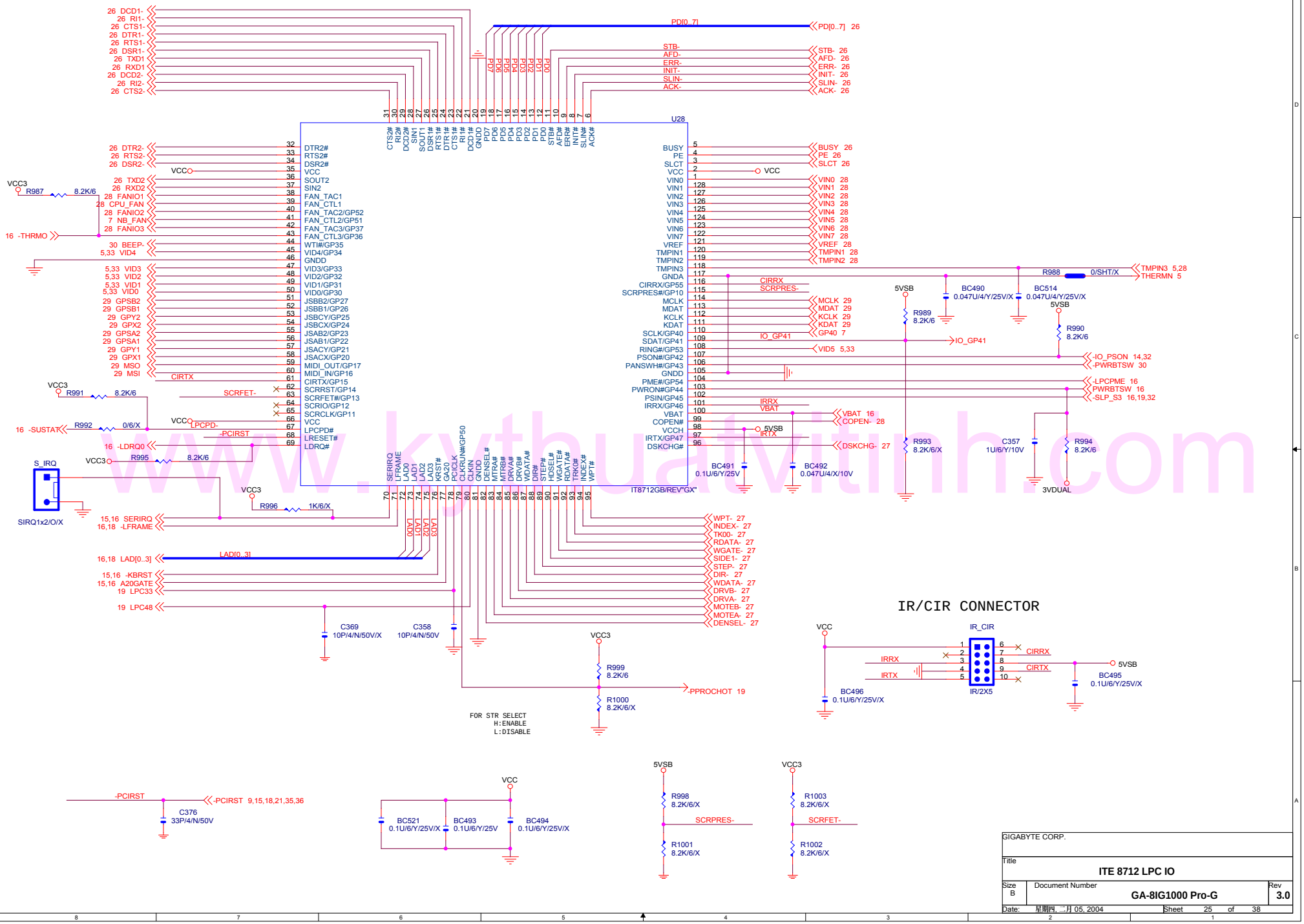


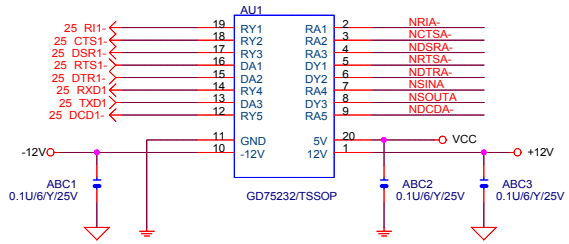
GIGABYTE CORP.

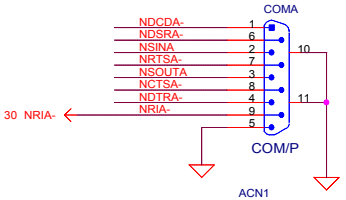
Title: AUDIO OUTPUT,GAME PORT

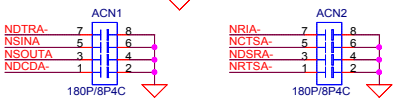
Size: Custom | Document Number: GA-8IG1000 Pro-G | Rev: 3.0

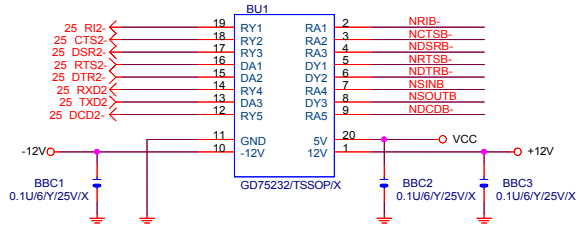
Date: 星期四, 二月 05, 2004 | Sheet 24 of 37

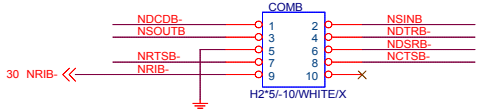


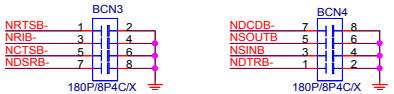


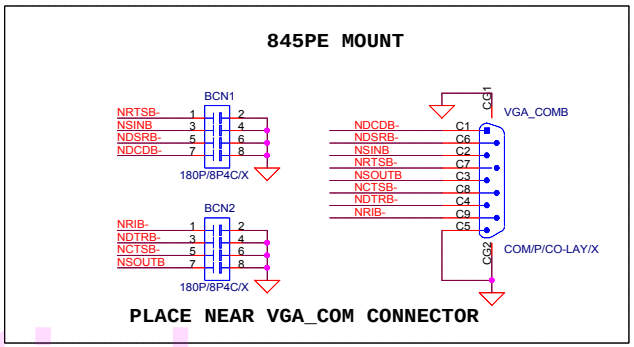


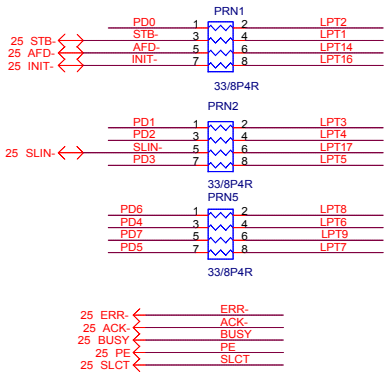


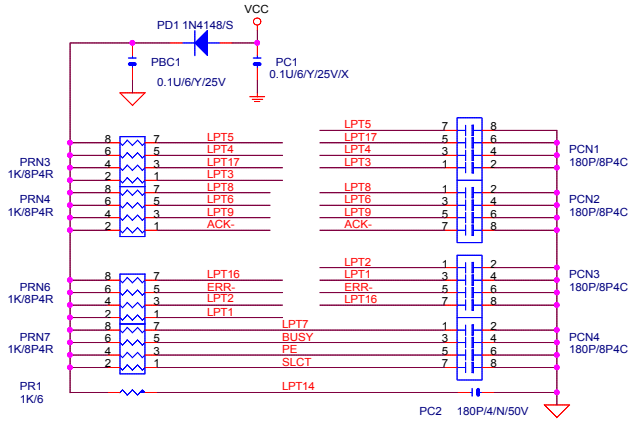


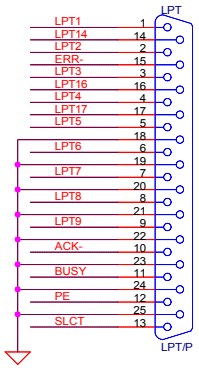




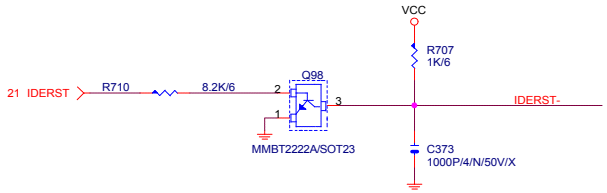


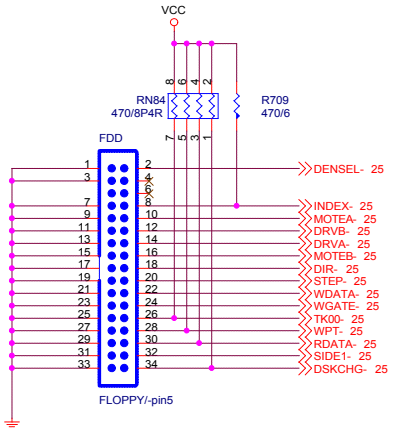


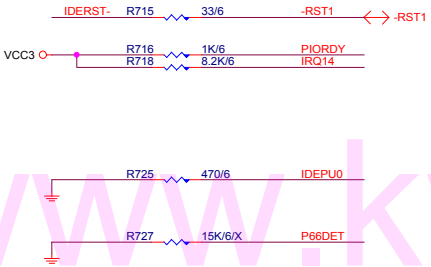


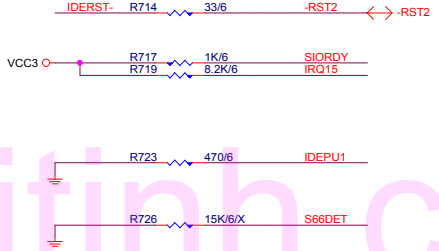


GIGABYTE CORP.		
Title: COM & IR & LPT PORT &FLOOPY		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date: 星期四, 二月 05, 2004	Sheet 26 of 38	

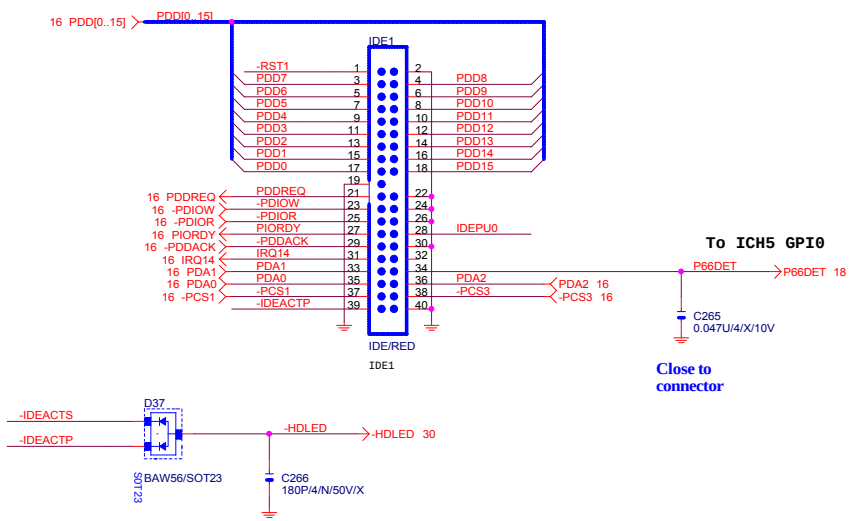




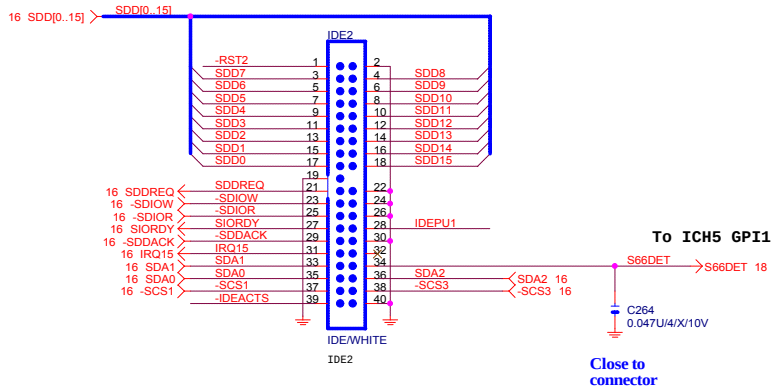




PRIMARY IDE CONNECTOR



SECONDARY IDE CONNECTOR



GIGABYTE CORP.		
Title: IDE CONNECTOR		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
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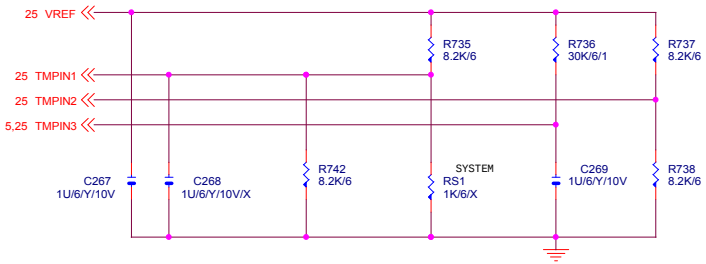
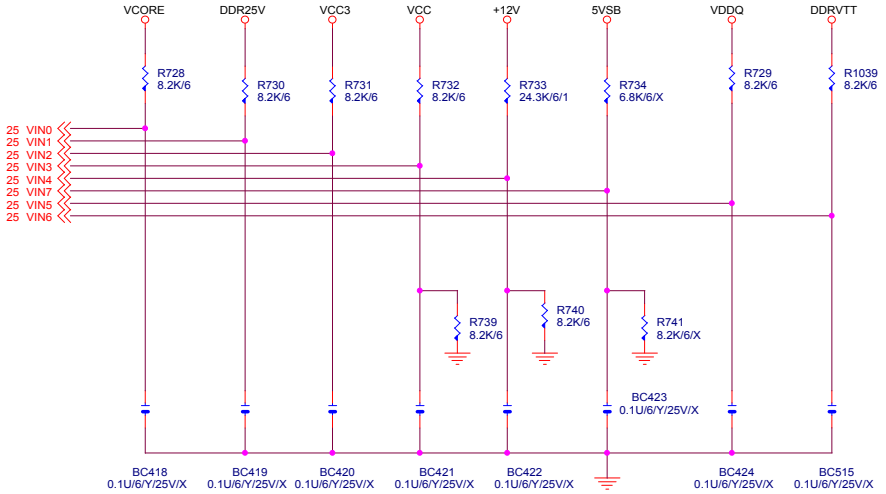
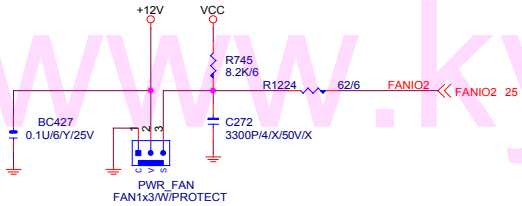
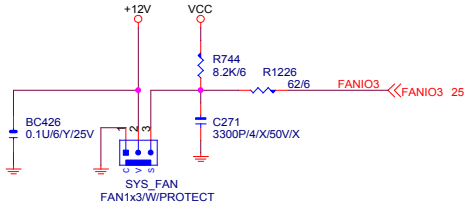
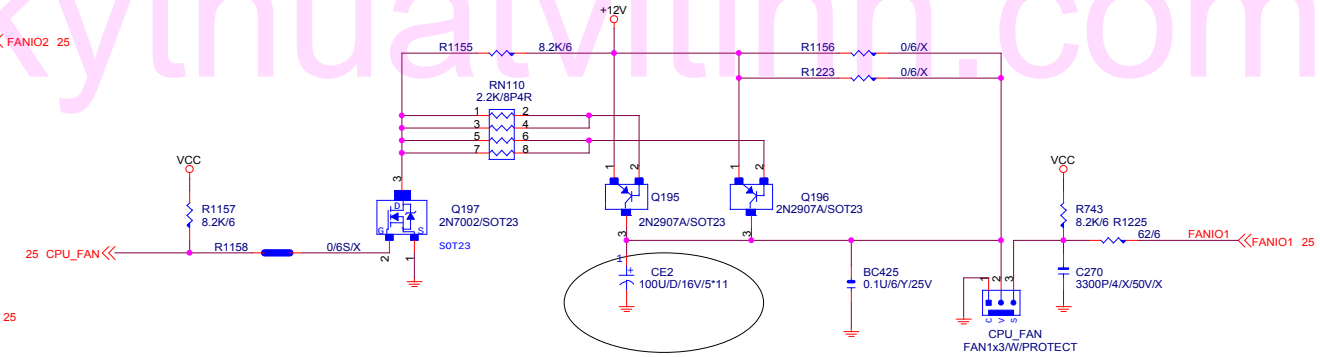
Hardware Monitor circuits

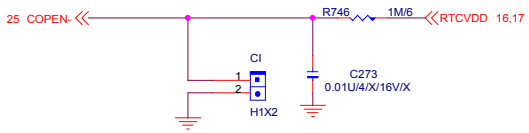




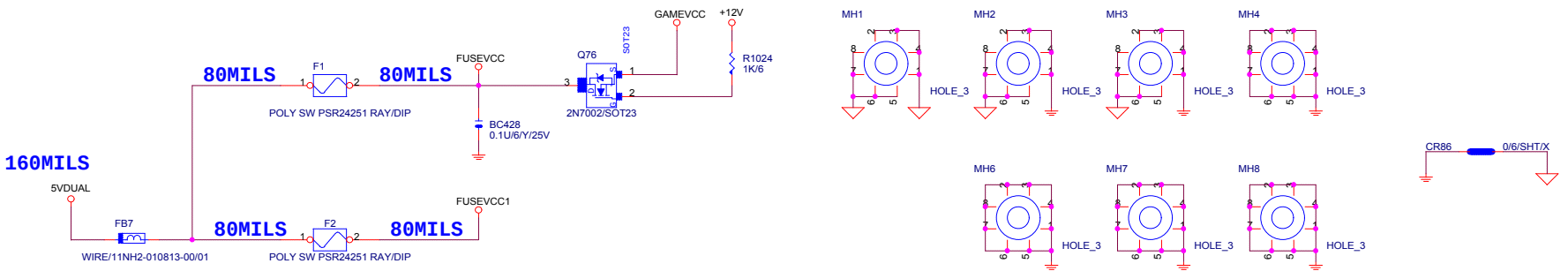


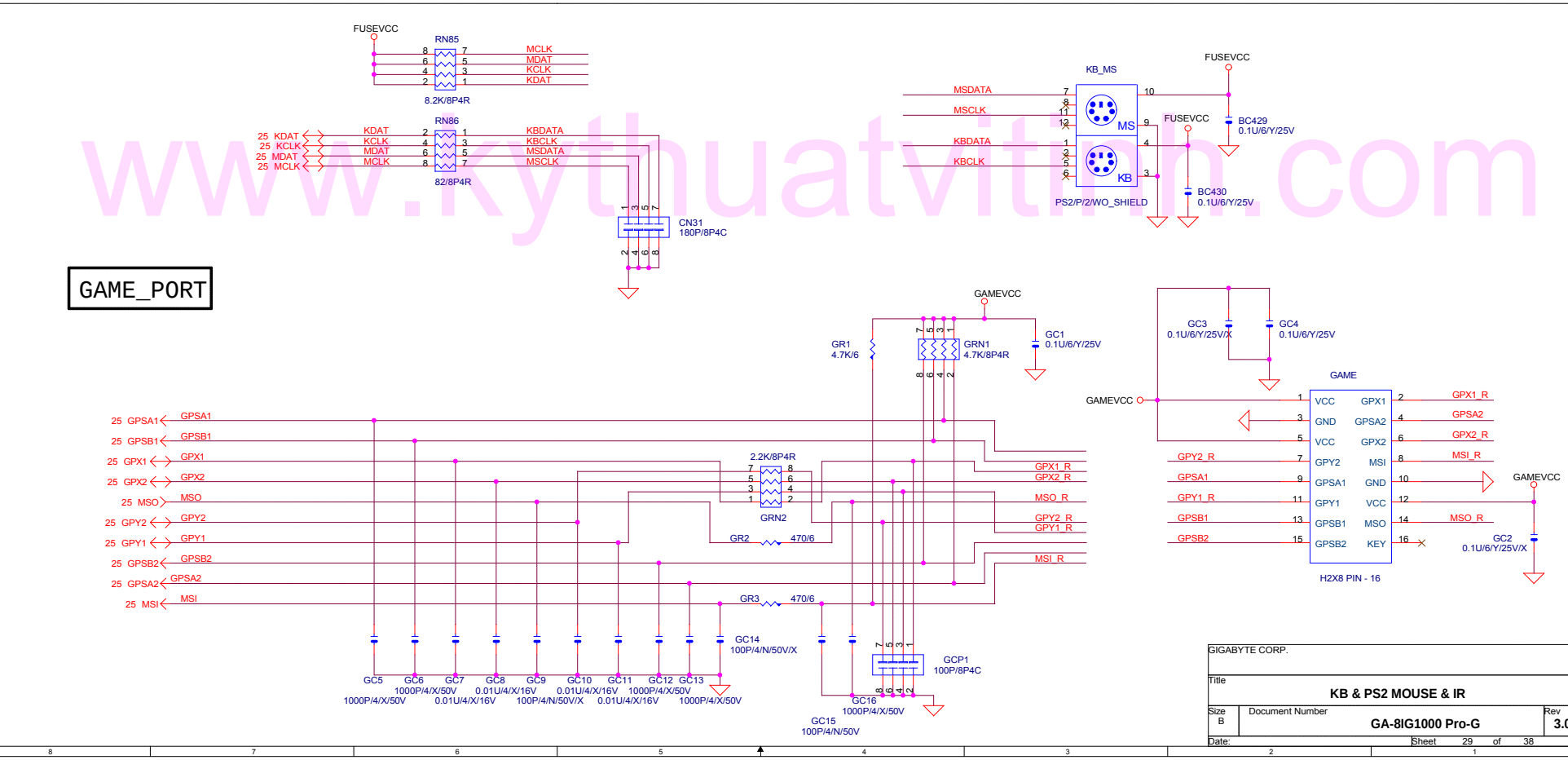




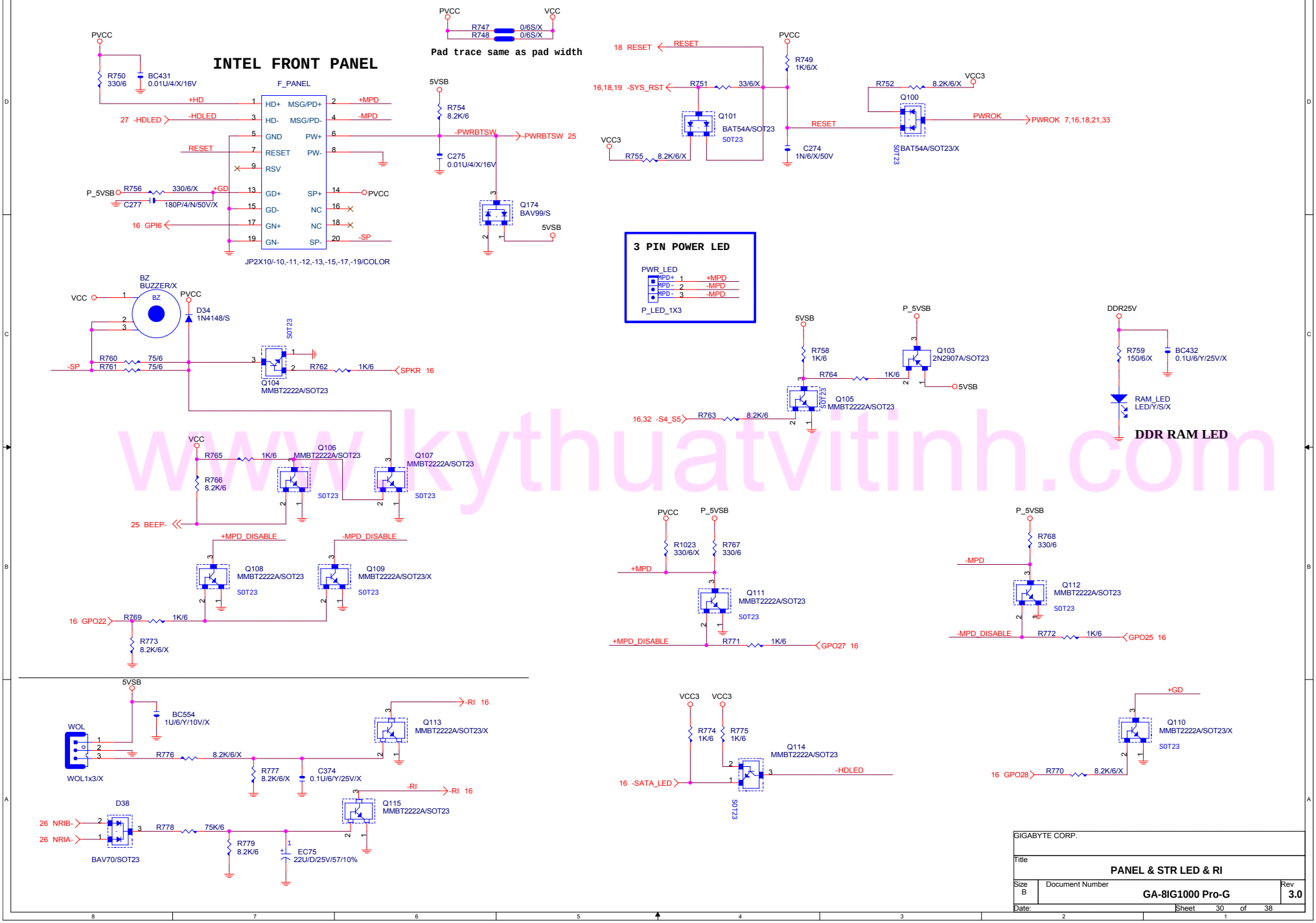


GIGABYTE CORP.		
Title	FAN/HWMO	
Size B	Document Number GA-8IG1000 Pro-G	Rev 3.0
Date: 星期四, 二月 05, 2004	Sheet 28 of 38	

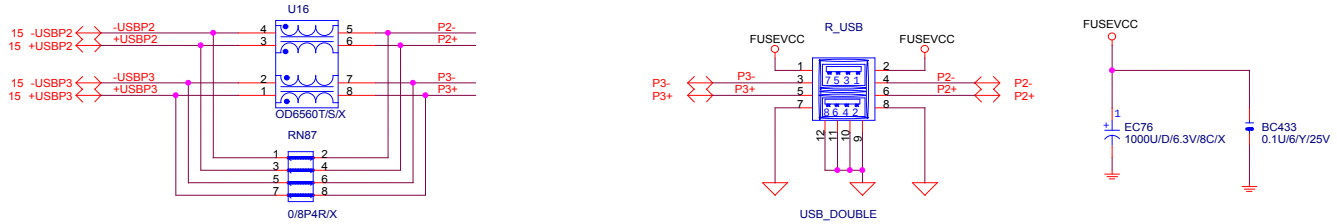




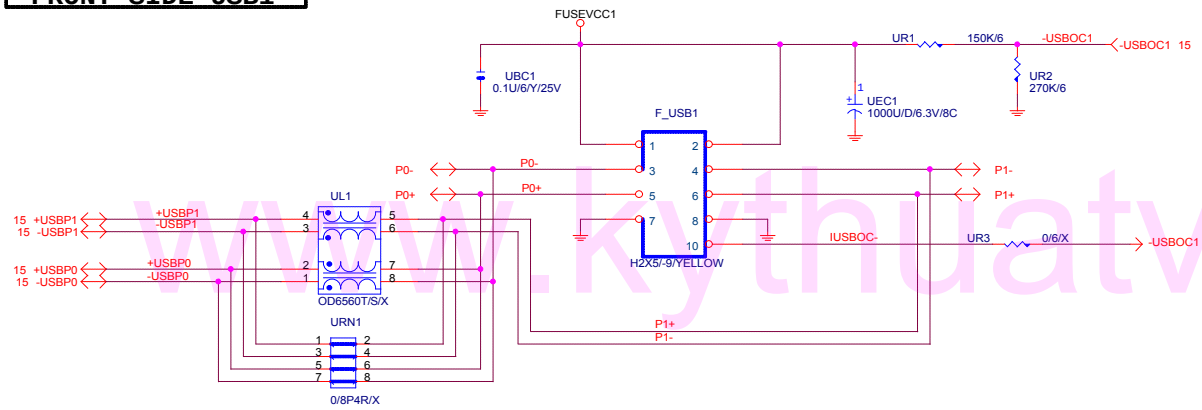
GIGABYTE CORP.		
Title	KB & PS2 MOUSE & IR	
Size B	Document Number GA-8IG1000 Pro-G	Rev 3.0
Date:	Sheet 29 of 38	



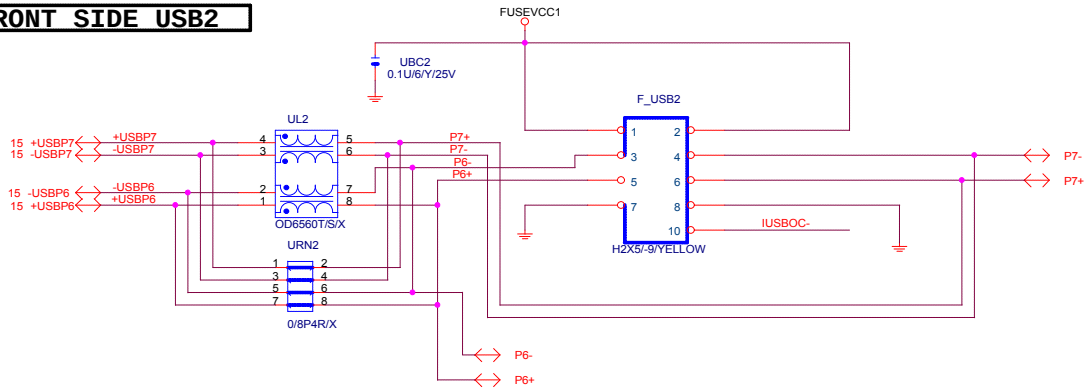
REAR USB



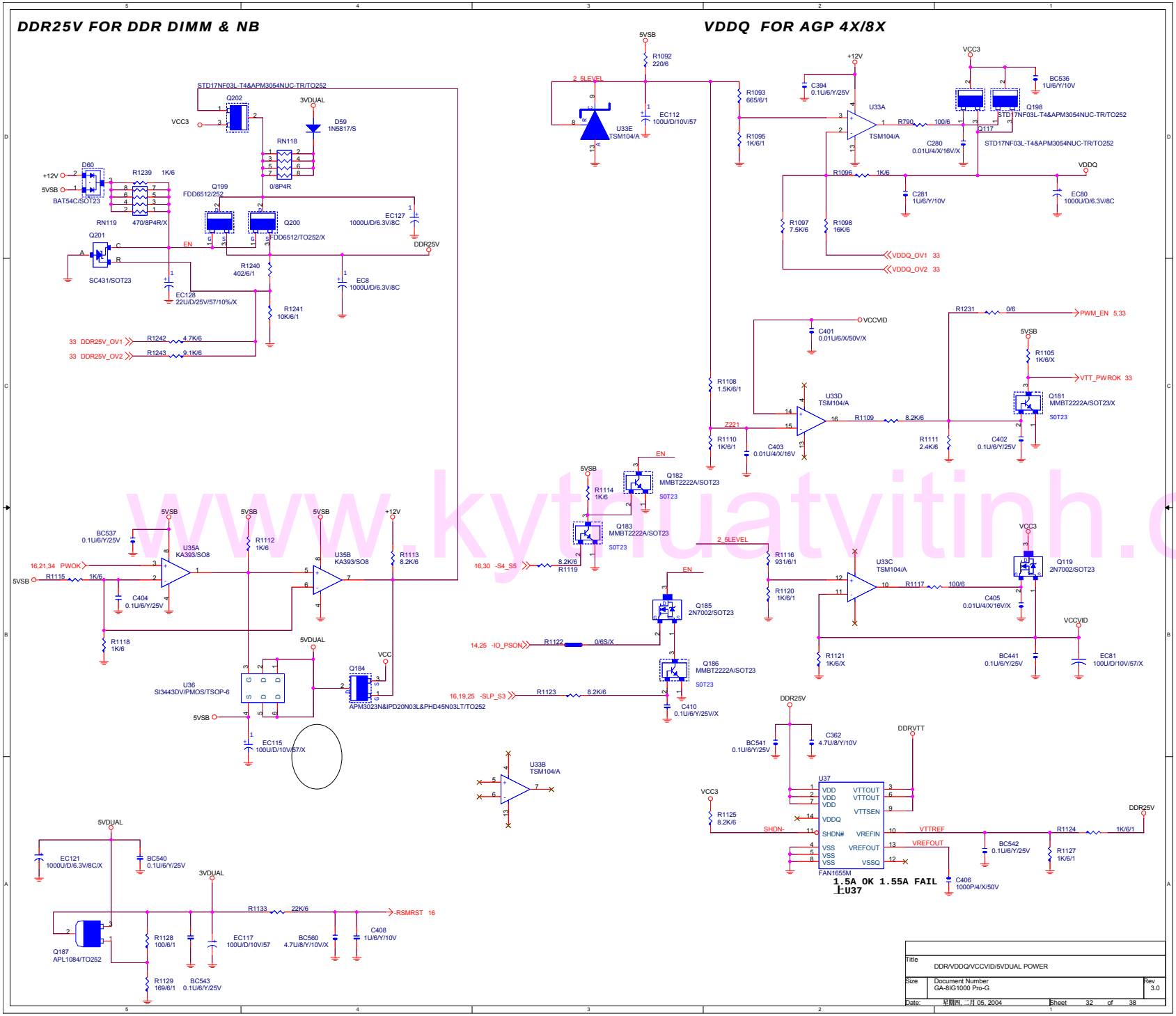
FRONT SIDE USB1

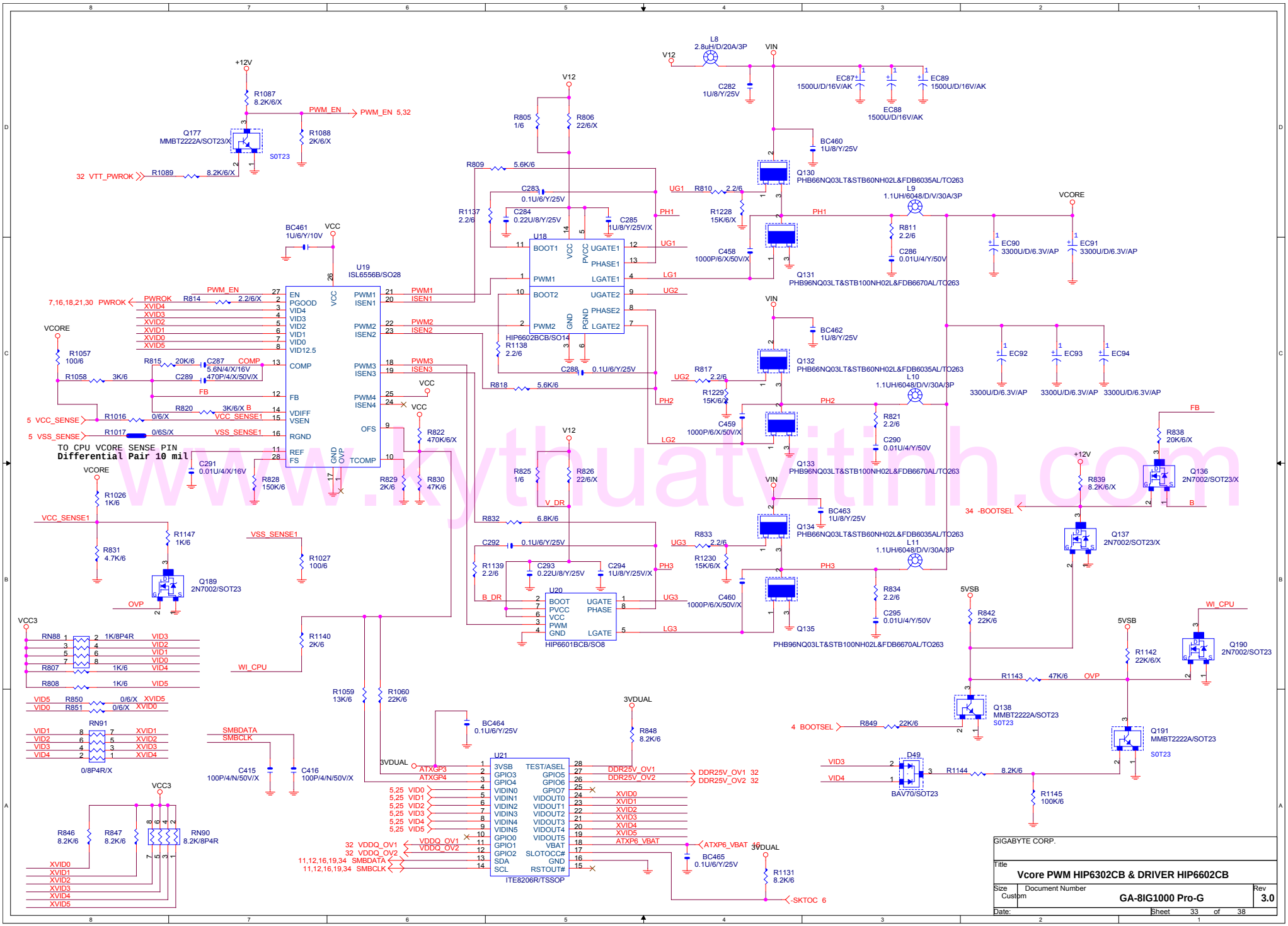


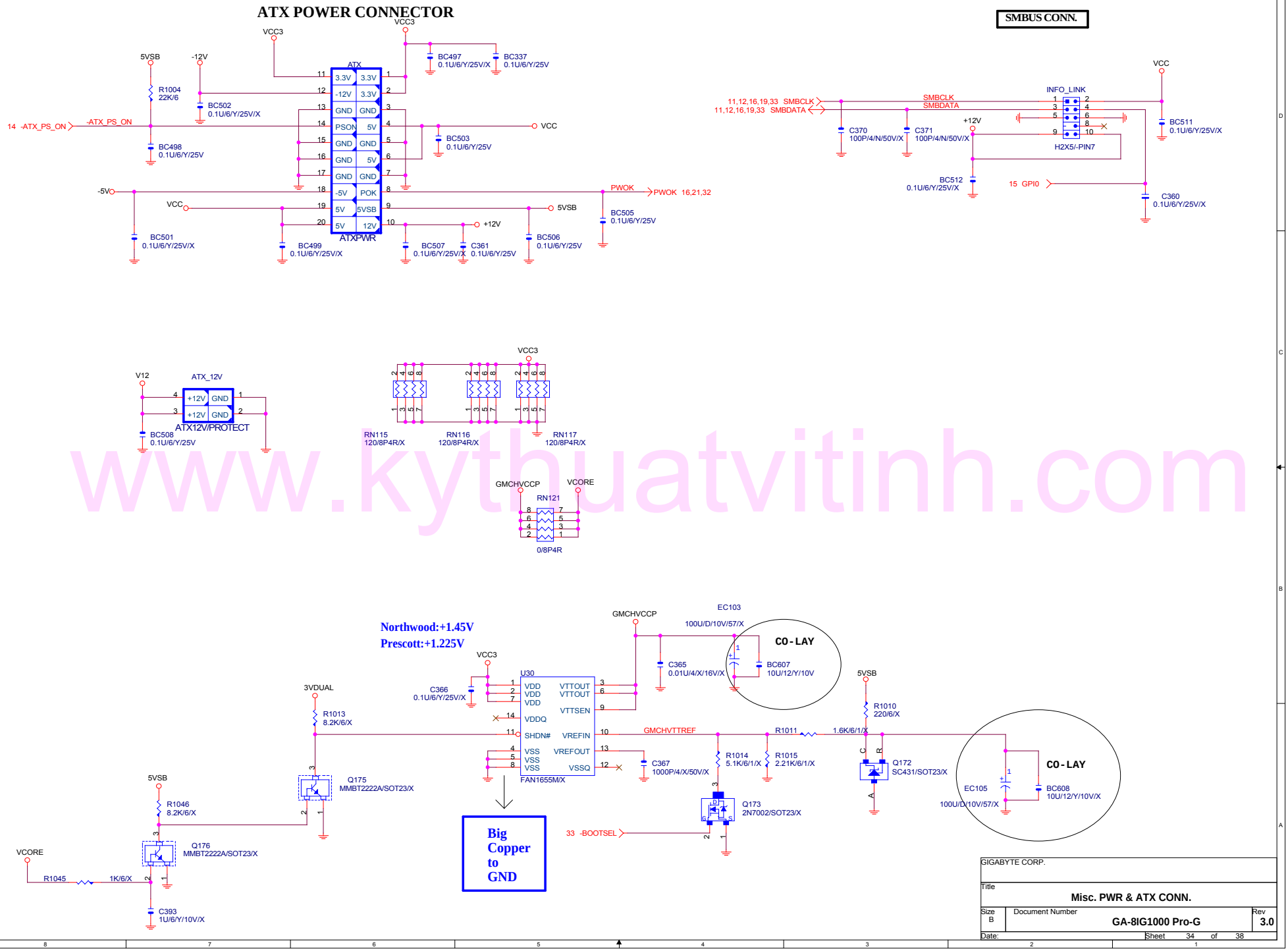
FRONT SIDE USB2

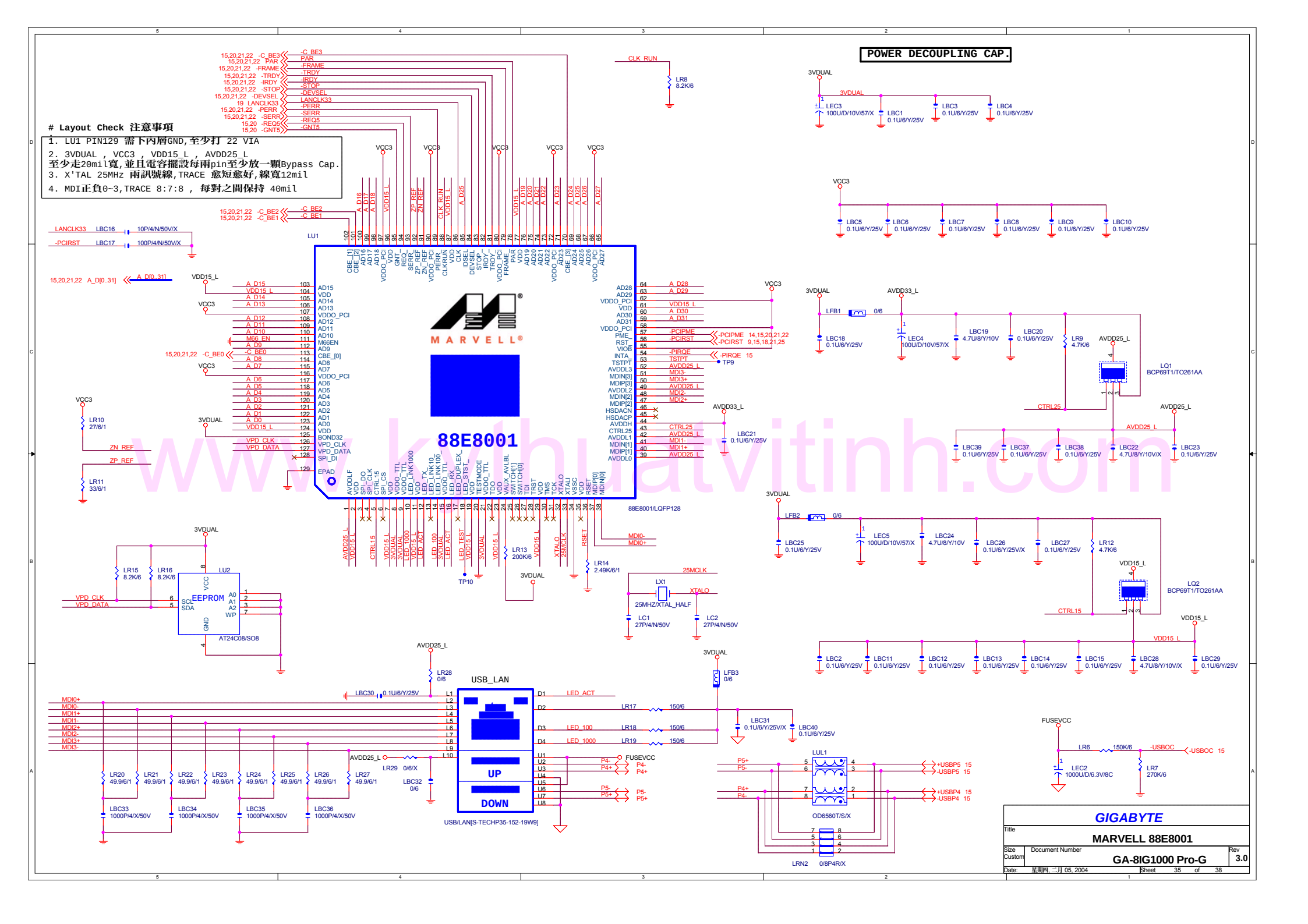


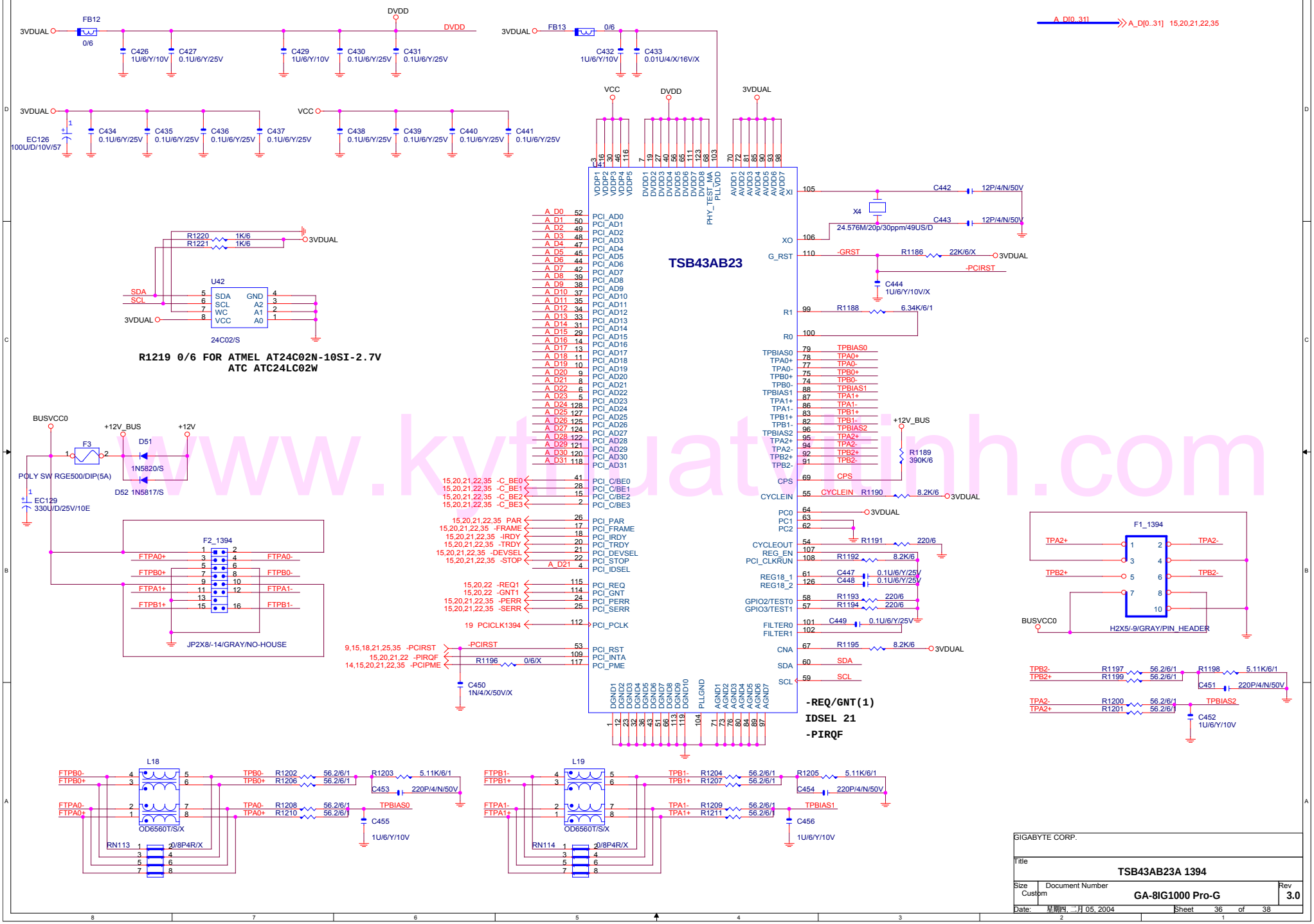
GIGABYTE CORP.		
Title: ICH USB PORT		
Size: B	Document Number: GA-8IG1000 Pro-G	Rev: 3.0
Date:	Sheet 31 of 38	











GIGABYTE GA-8IG1000 Pro-G 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 Pro-G | Rev: 3.0

Date: 星期四, 二月 05, 2004 | Sheet 37 of 38

GIGABYTE GA-8IG1000 Pro-G 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 Pro-G | Rev: 3.0

Date: 星期四, 二月 05, 2004 | Sheet 38 of 38