INTEL PENTIUM 4 (NORTHWOOD) PROCESSOR WITH INTEL 845 (BROOKDALE) CHIPSET
SUPPORT 2 NON-ECC & ECC DDR
INTEL I/O CONTROLLER HUB 2 (ICH2)
ONBOARD ATI RAGE XL (PCI BUS) SVGA
DUAL INTEL LOM 82550 SERIES (SERVER ADAPTER)
ONBOARD ADAPTEC DUAL CHANNEL ULTRA 160 SCSI
SUPPORT ZERO CHANNEL RAID (ADAPTEC RAPTOR OR INTEL RAIDIOS)
ONBOARD WINBOND IPMI CIRCUIT

GA-8IRXR-A

Revision 1.00

01/20/2001

GIGABYTE

GIGABYTE TECHNOLOGY CORPORATION

Title	COVER SHEET	
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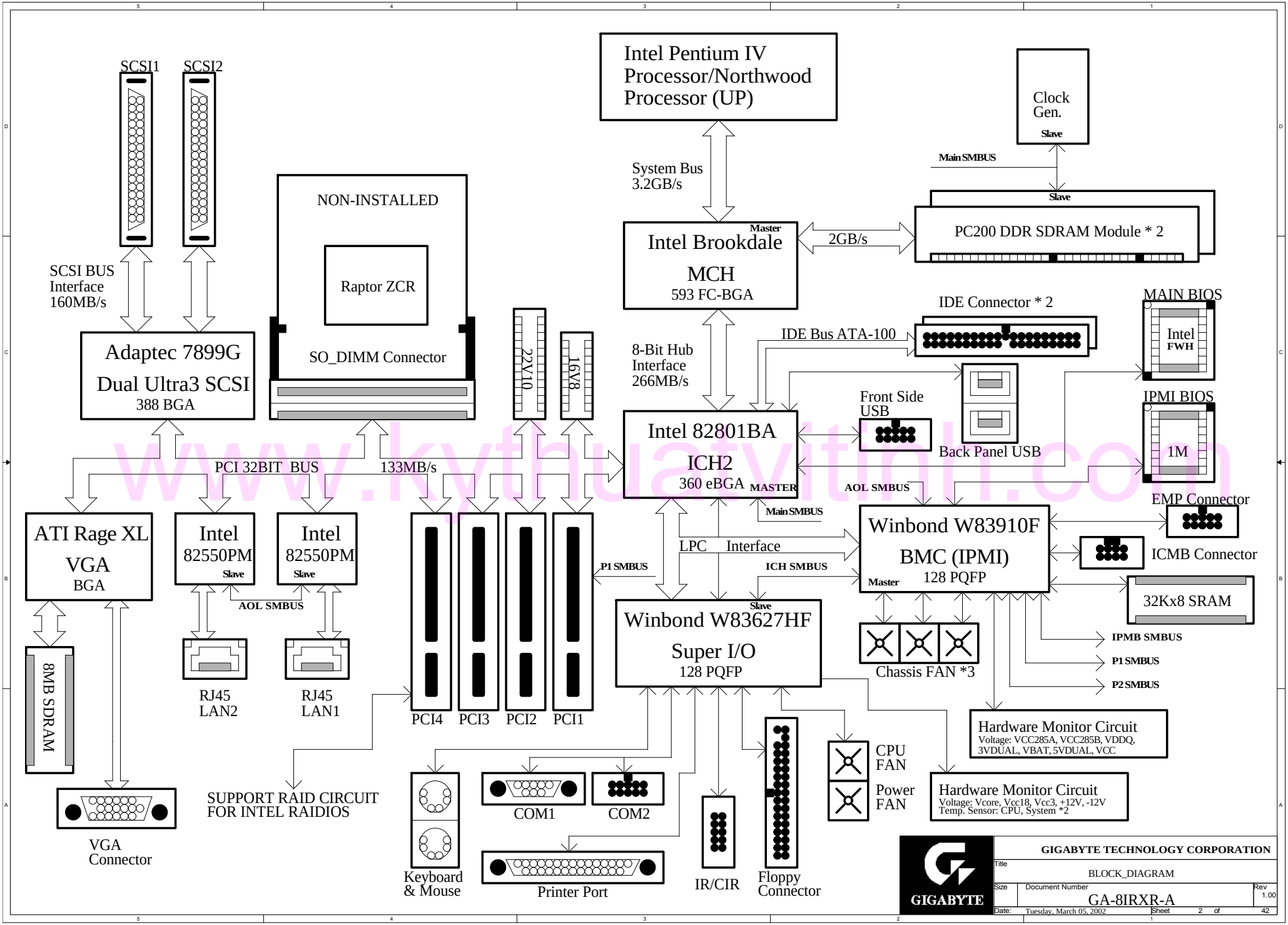

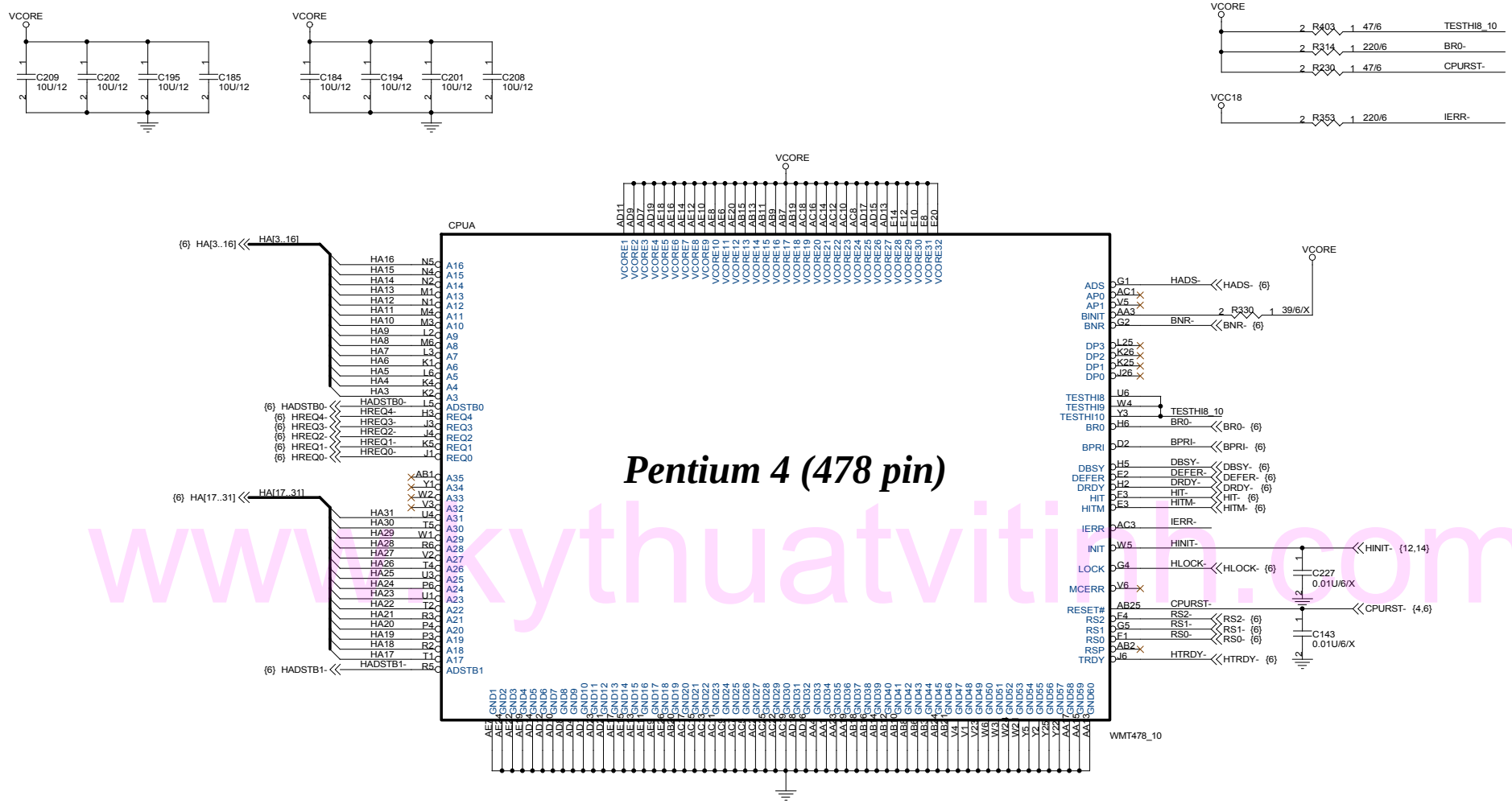

GIGABYTE TECHNOLOGY CORPORATION	
Title	WILLIAMATE 478A
Size	Document Number: GA-8IRXR-A; Rev: 1.00
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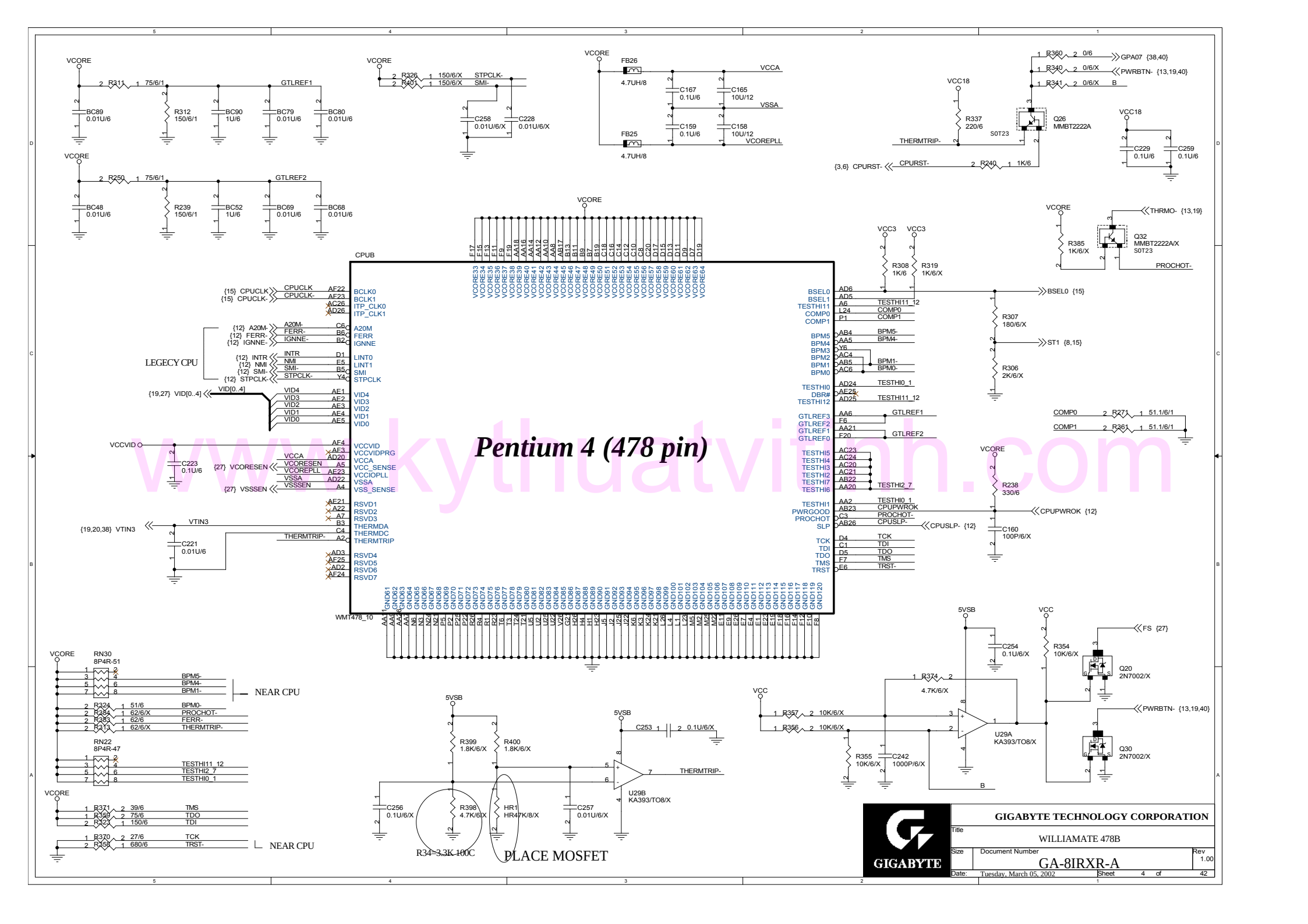

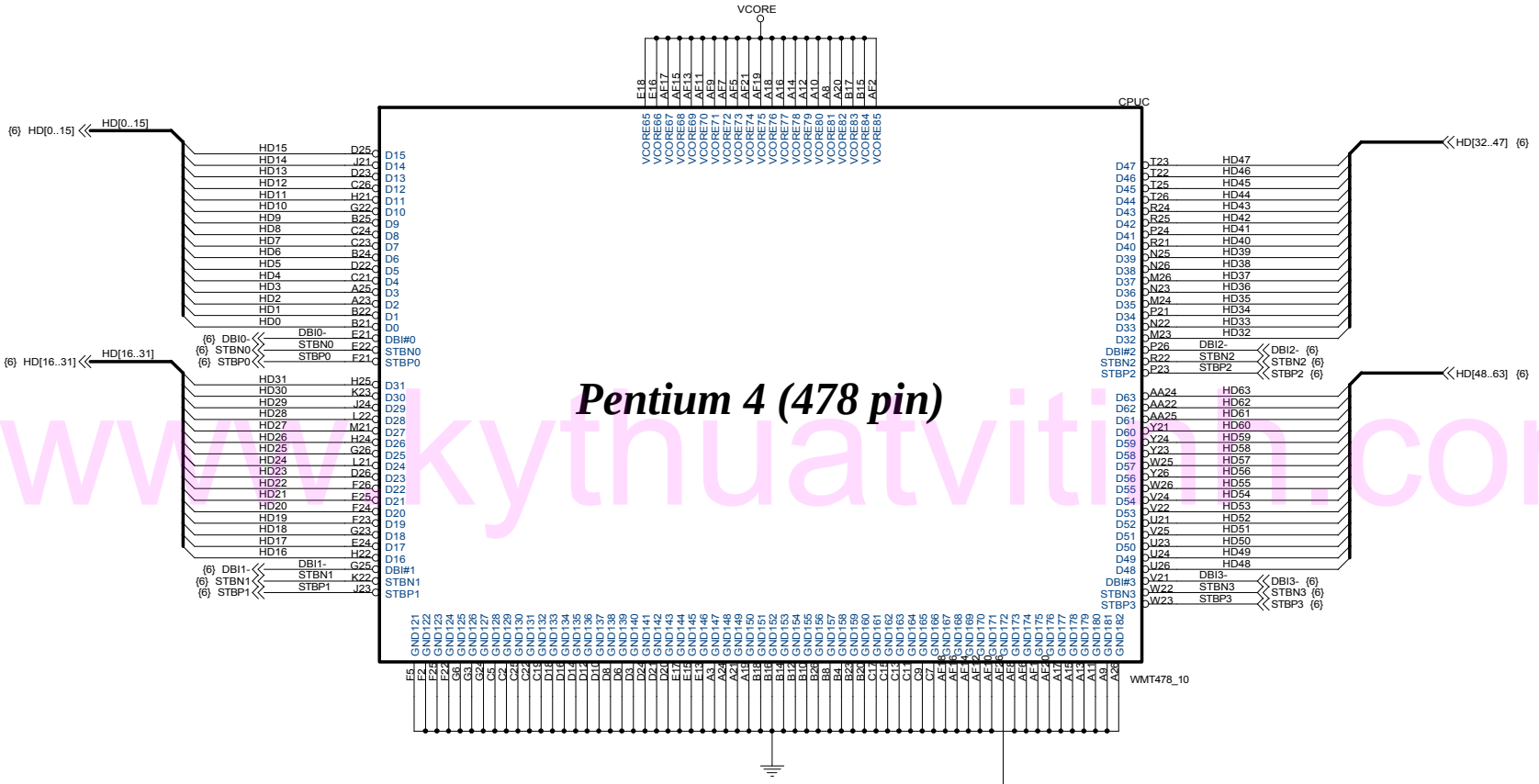

HEATSINK FOR NORTH BRIDGE

GIGABYTE TECHNOLOGY CORPORATION	
Title	WILLIAMATE 478C
Size	Document Number: GA-8IRXR-A
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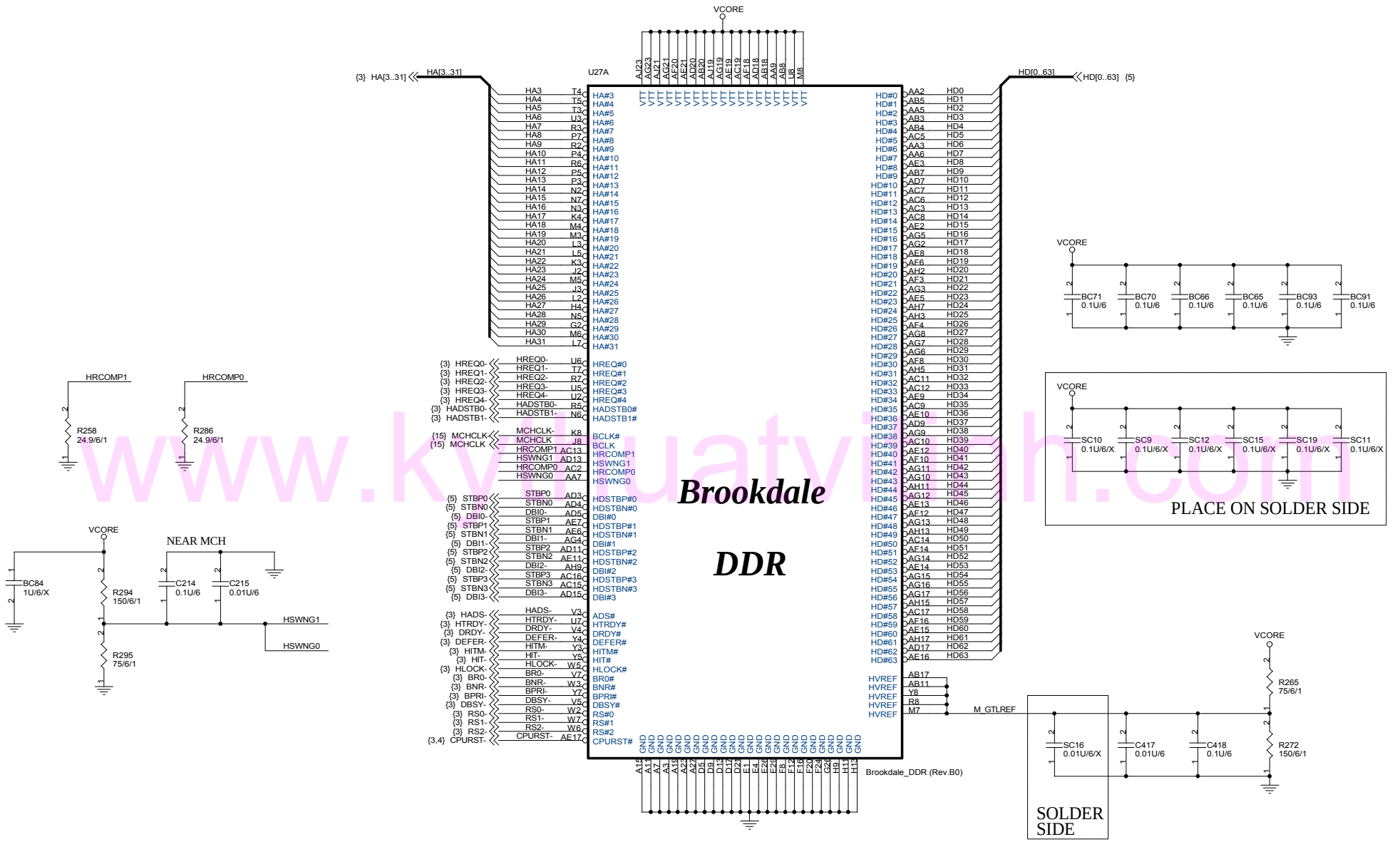

CPU INTERFACE

GIGABYTE TECHNOLOGY CORPORATION	
Title	MCH-BROOKDALE_A
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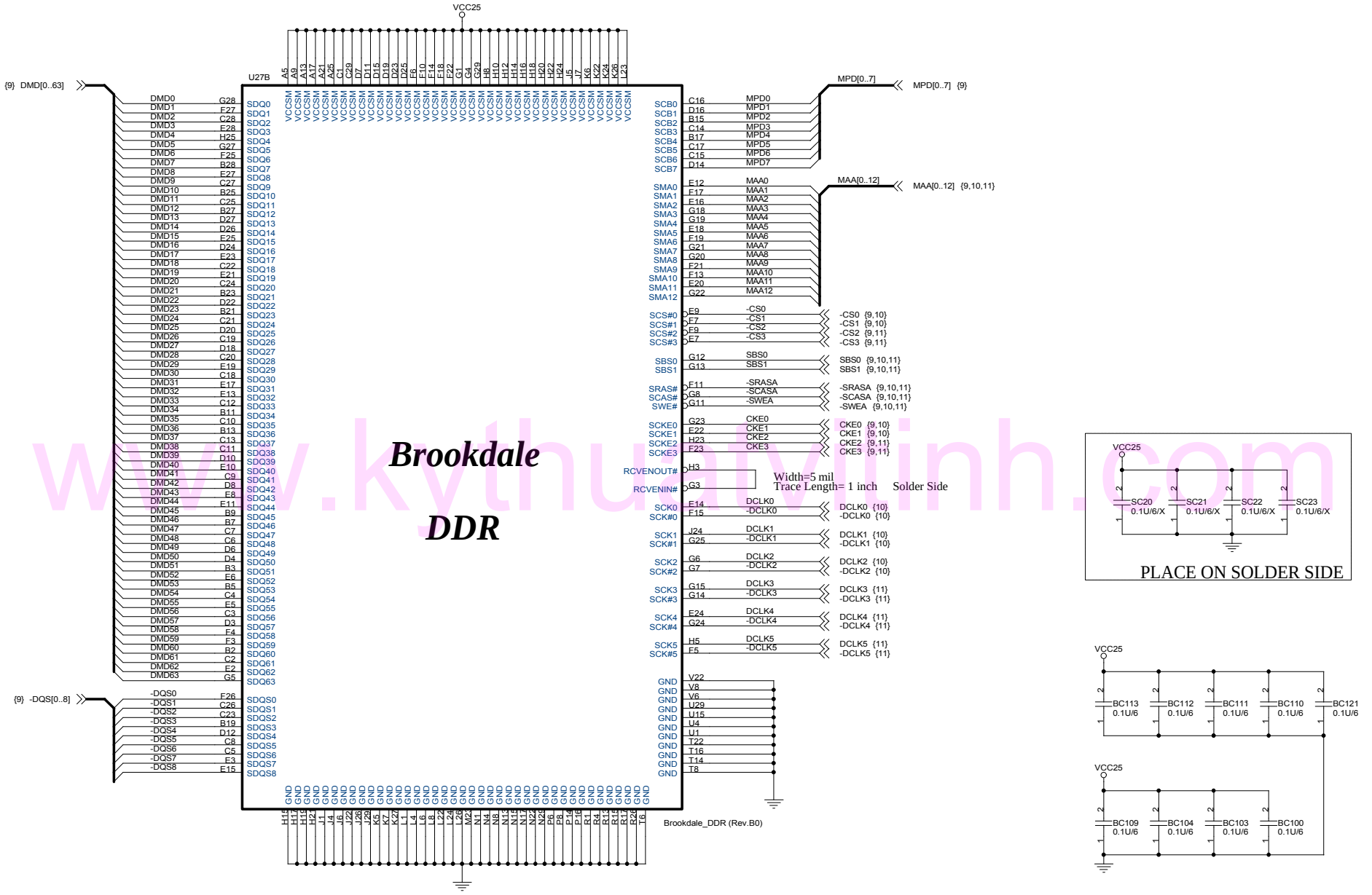

Company	GIGABYTE TECHNOLOGY CORPORATION
Title	MCH-BROOKDALE_B
Size	Document Number: GA-8IRXR-A
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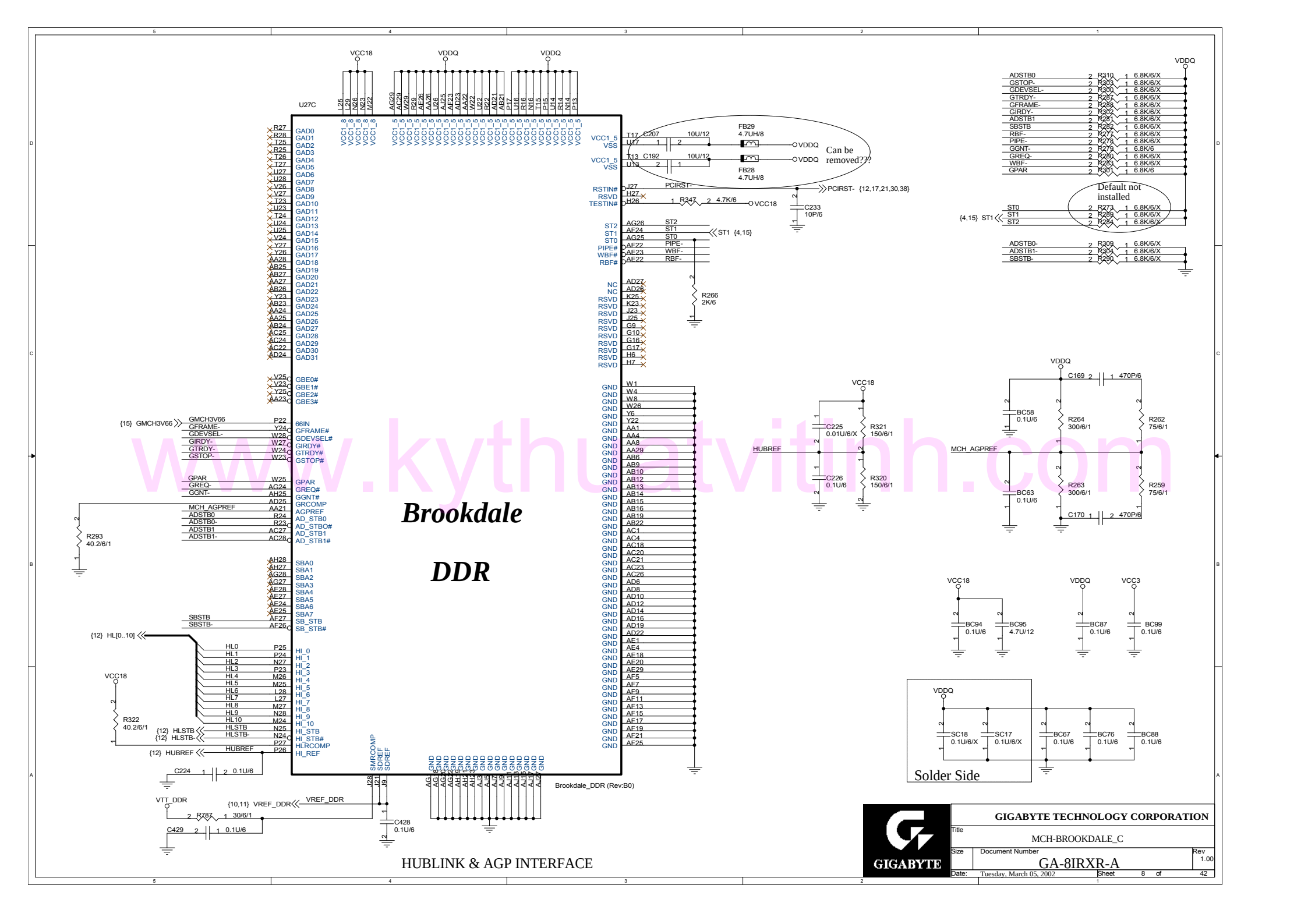
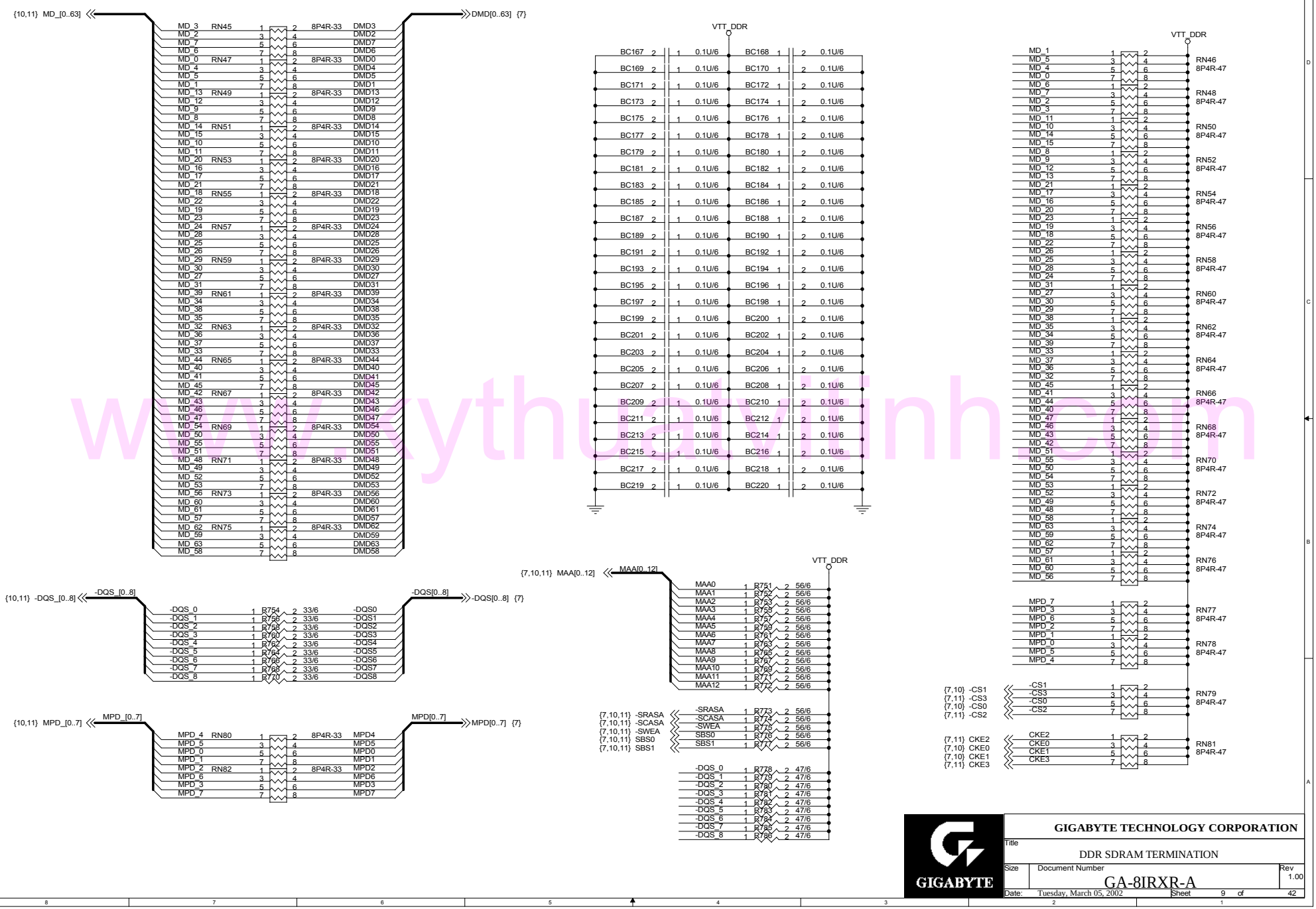
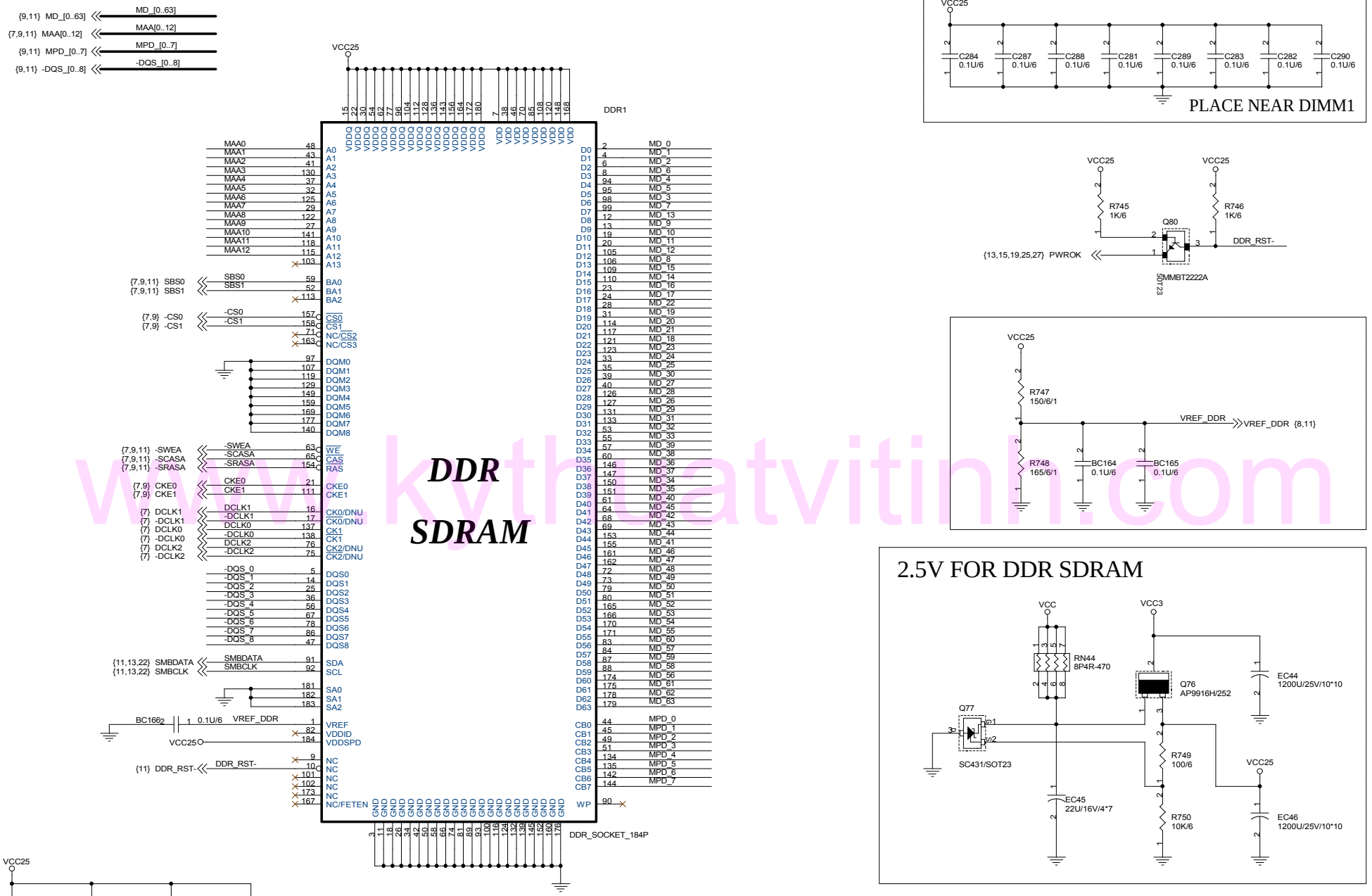


HUBLINK & AGP INTERFACE





REV 1.0 MODIFY LIST
1. Modify the library of SC431. The pin1 & pin2 reverse!

GIGABYTE TECHNOLOGY CORPORATION

Title	DDR1 & VCC25	
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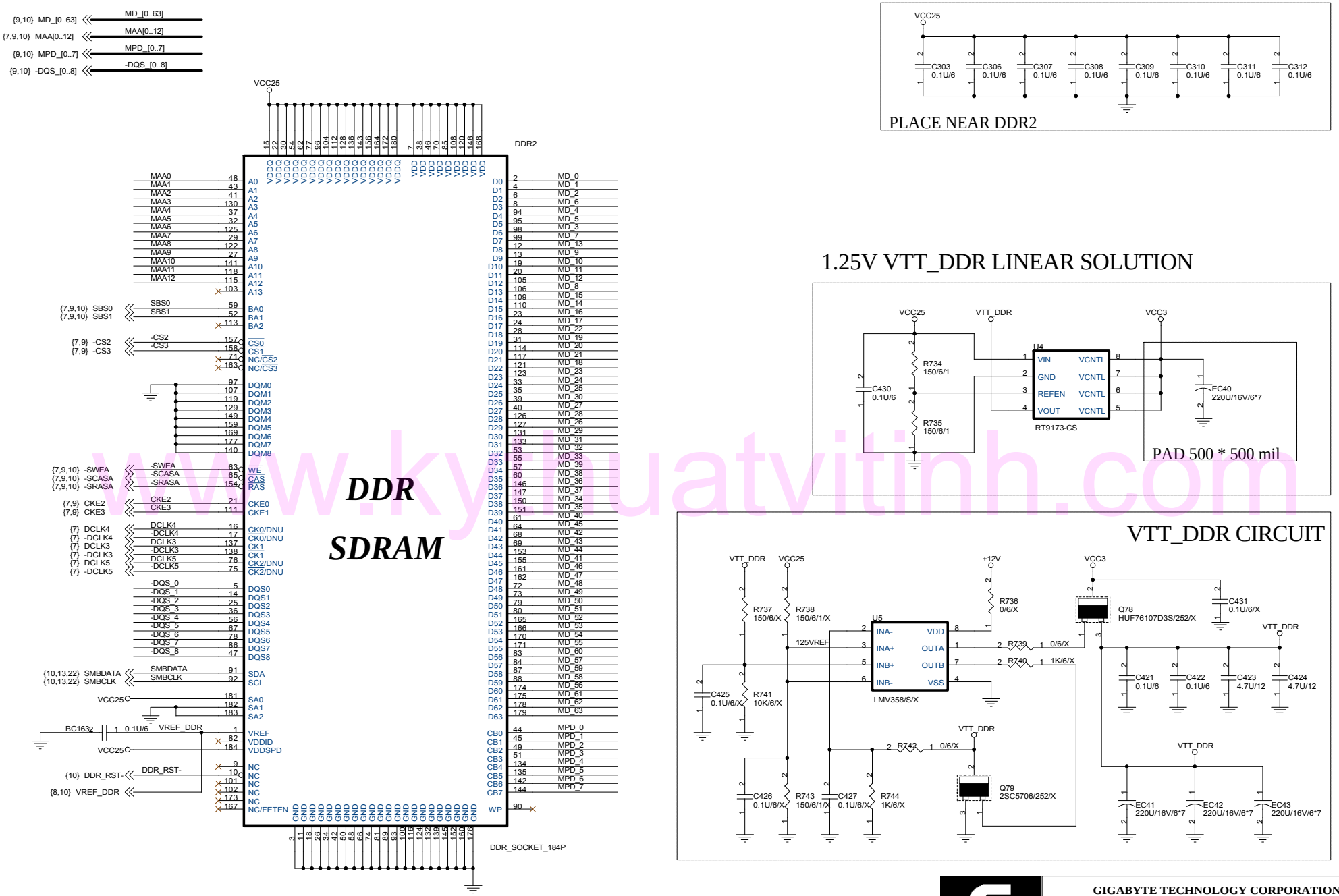

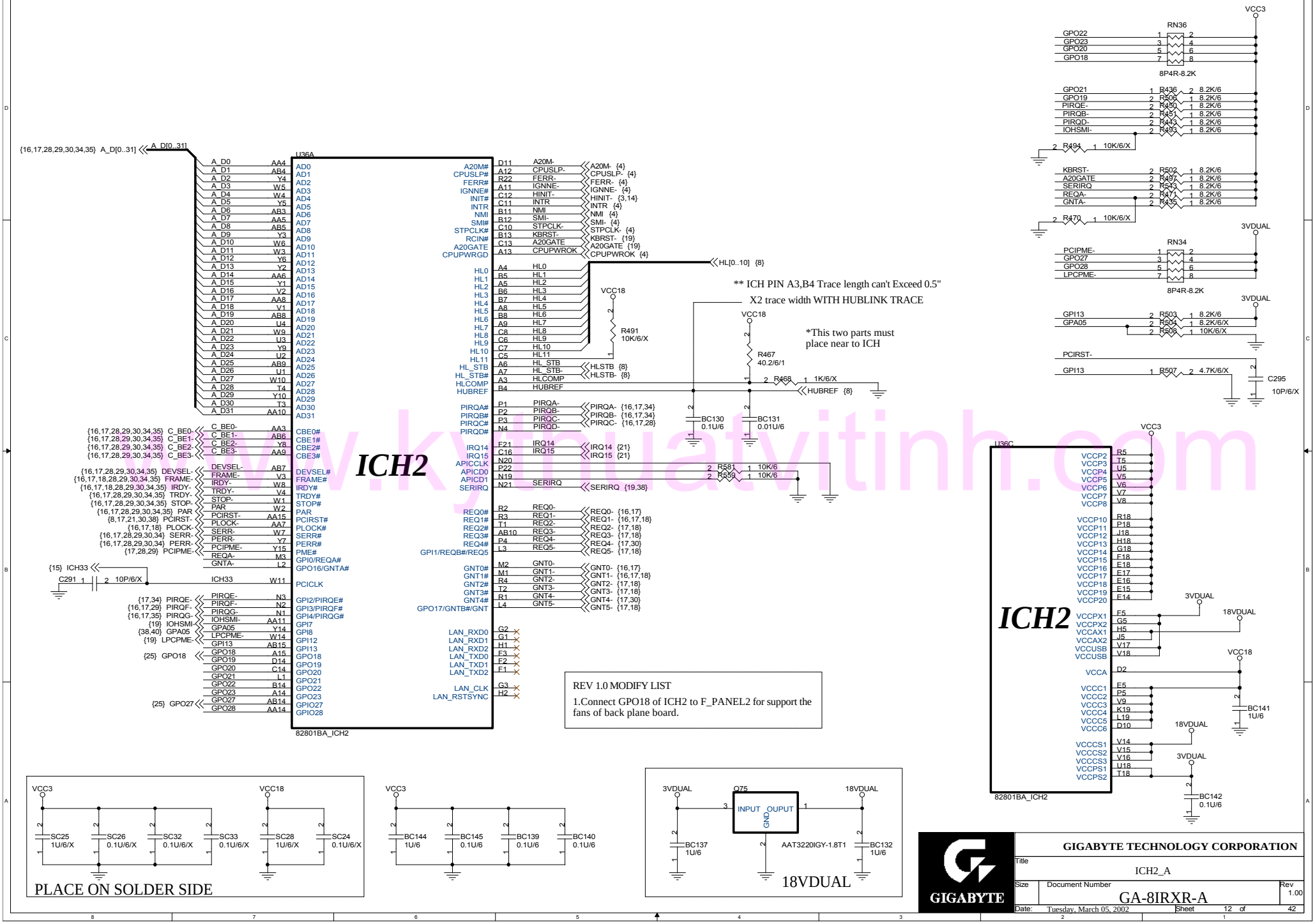
ICH2
U36A
82801BA_ICH2
A_D[0..31]
{16,17,28,29,30,34,35} A_D[0..31]
** ICH PIN A3,B4 Trace length can't Exceed 0.5"
X2 trace width WITH HUBLINK TRACE
*This two parts must place near to ICH
HL[0..10] {8}
HUBREF {8}
SERIRQ {19,38}
REV 1.0 MODIFY LIST
1.Connect GPO18 of ICH2 to F_PANEL2 for support the fans of back plane board.
PLACE ON SOLDER SIDE
18VDUAL
AAT3220IGY-1.8T1
GIGABYTE TECHNOLOGY CORPORATION
Title
ICH2_A
Size
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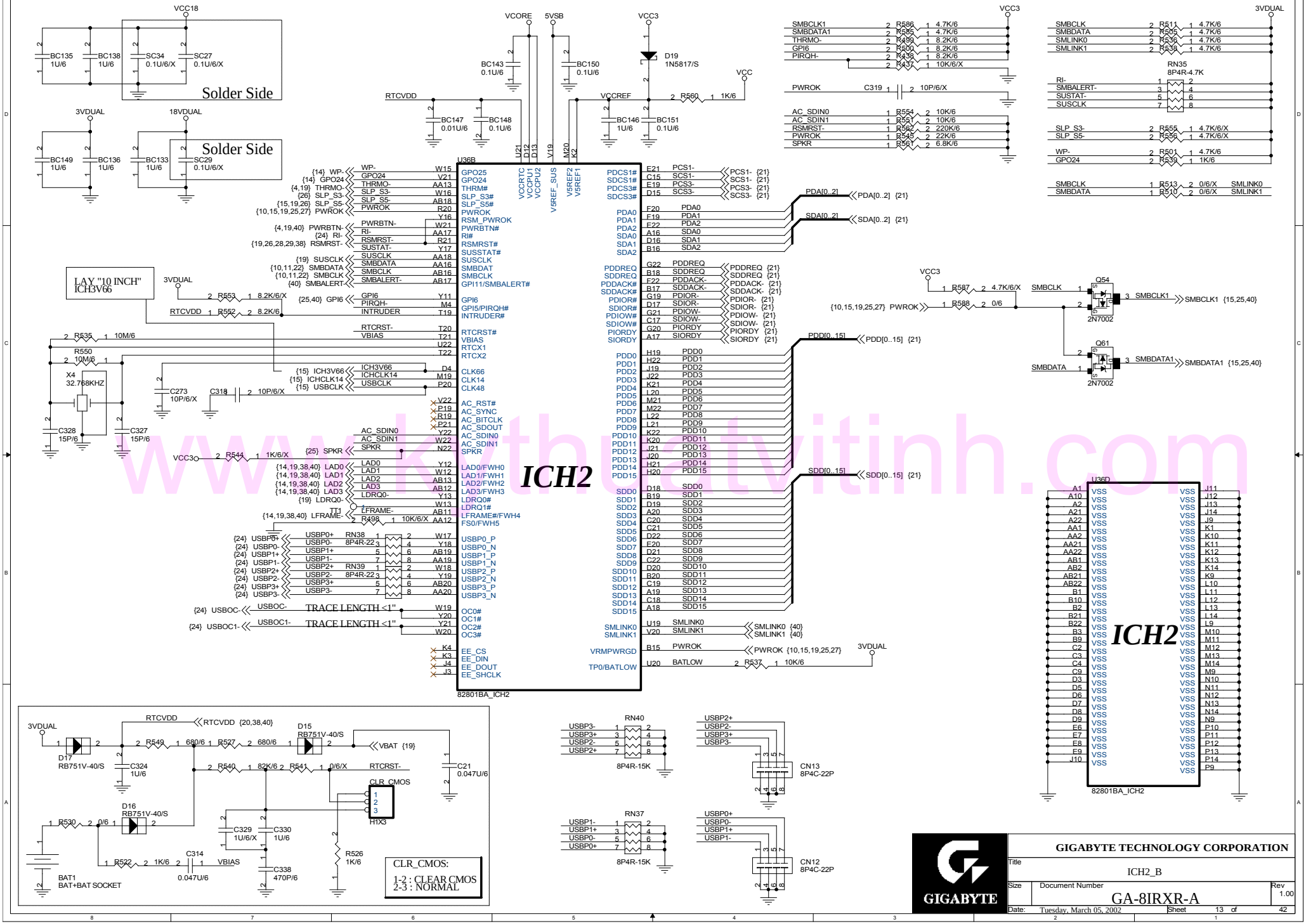

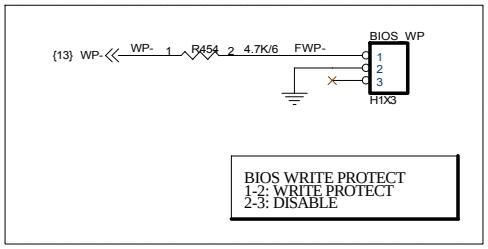

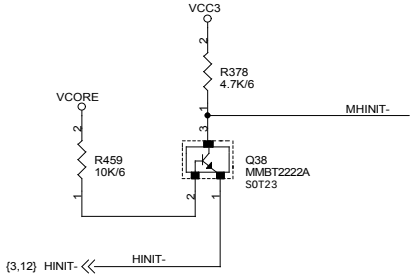

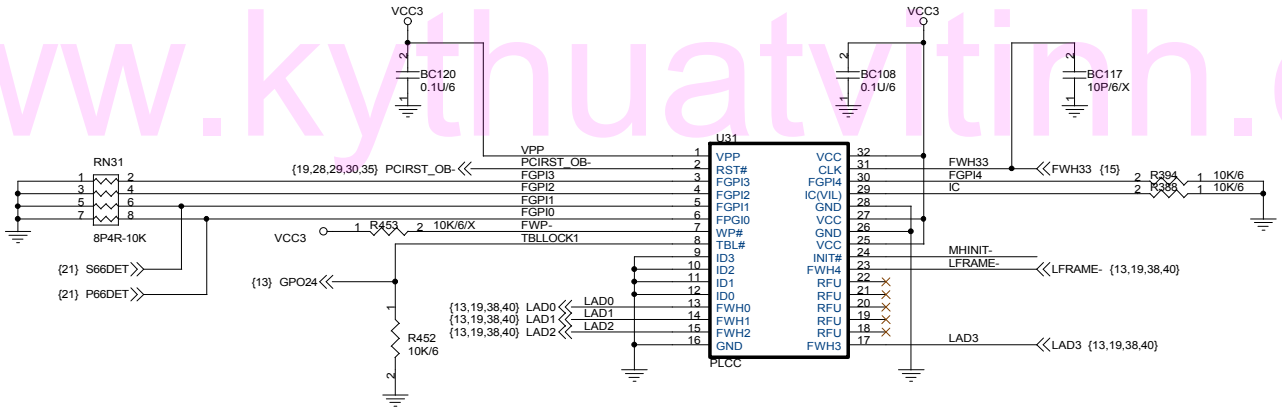

SST49LF004A_4M(SOCKET)

GIGABYTE TECHNOLOGY CORPORATION

Title	FWH	
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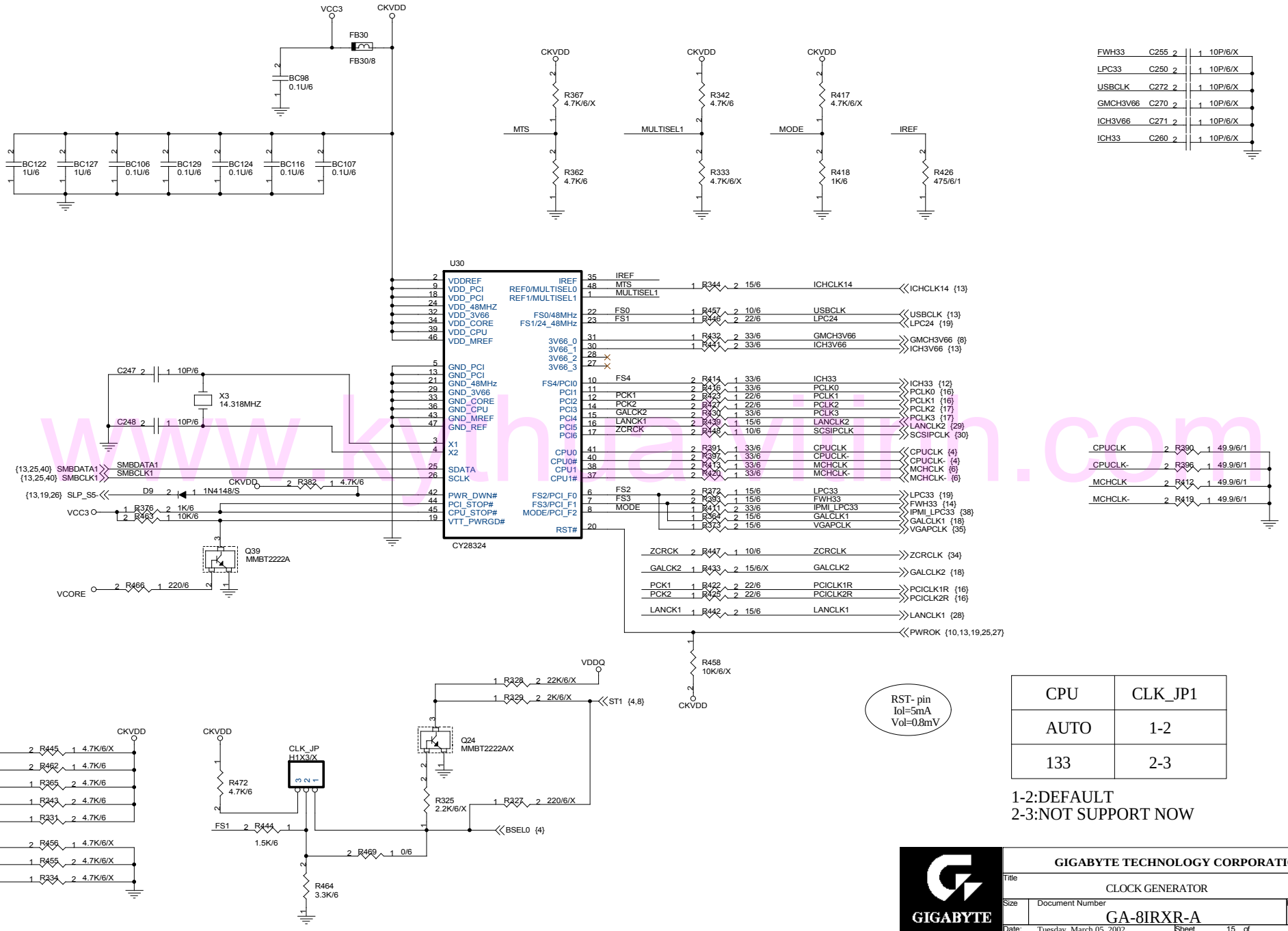

RST- pin
Iol=5mA
Vol=0.8mV

CPU	CLK_JP1
AUTO	1-2
133	2-3

1-2:DEFAULT
2-3:NOT SUPPORT NOW

GIGABYTE TECHNOLOGY CORPORATION

Title	CLOCK GENERATOR	
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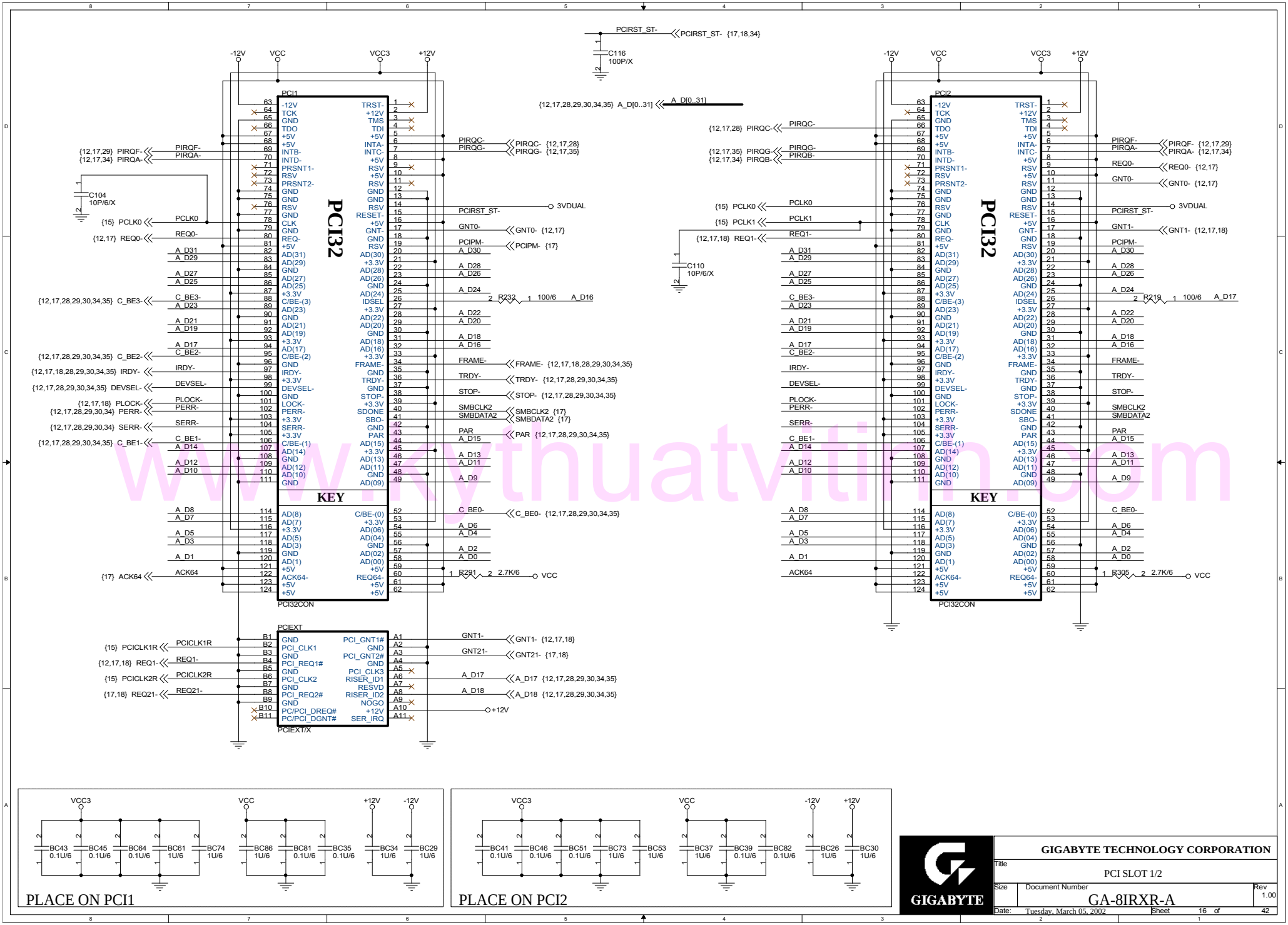

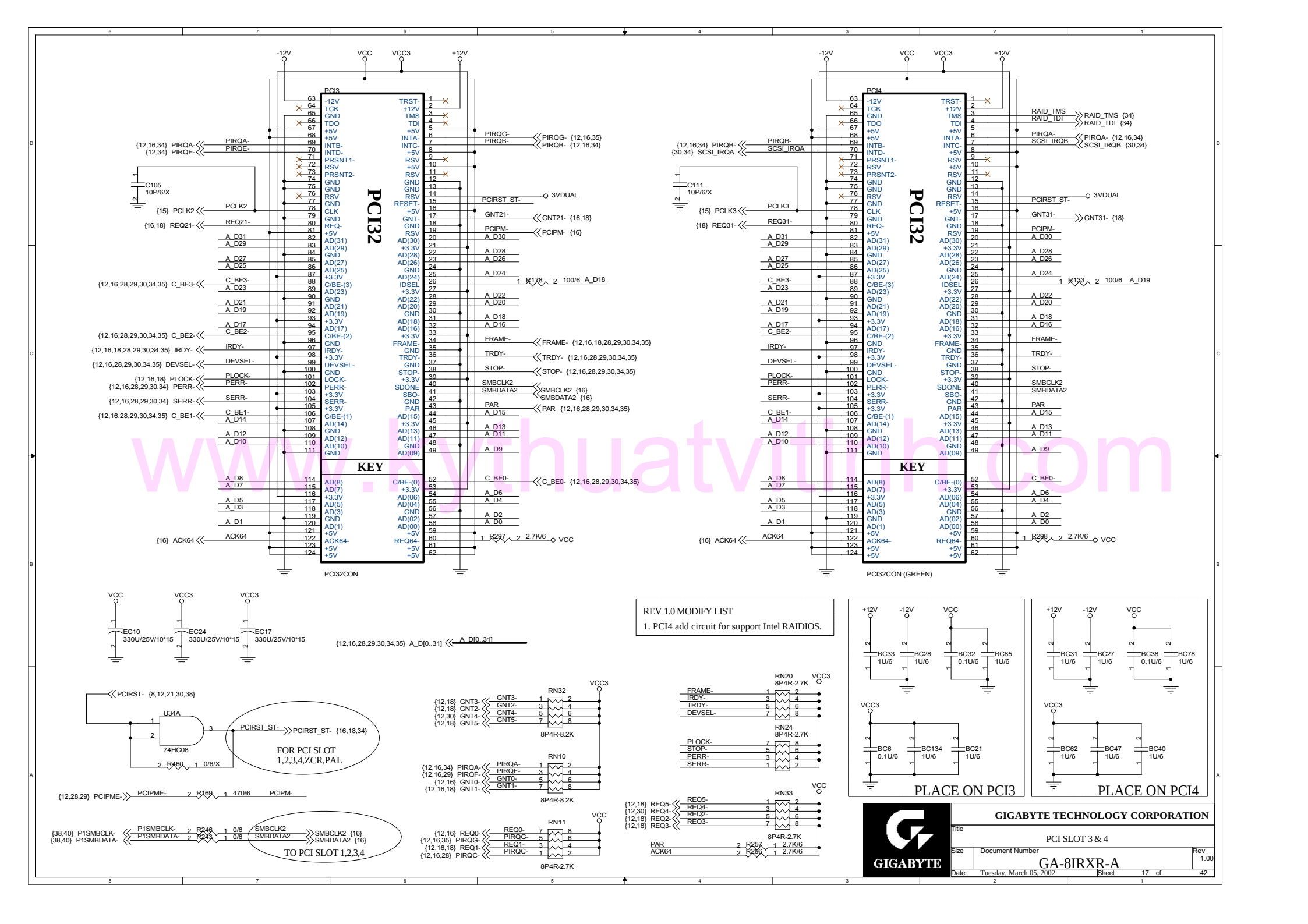

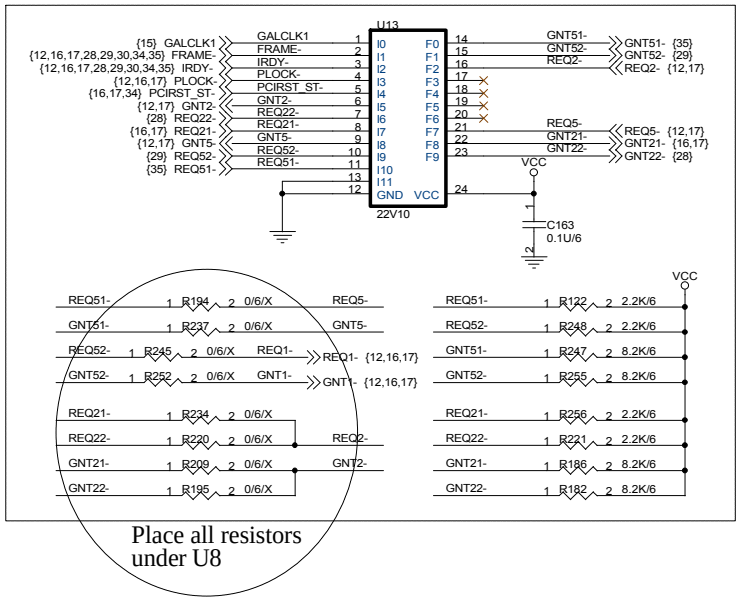

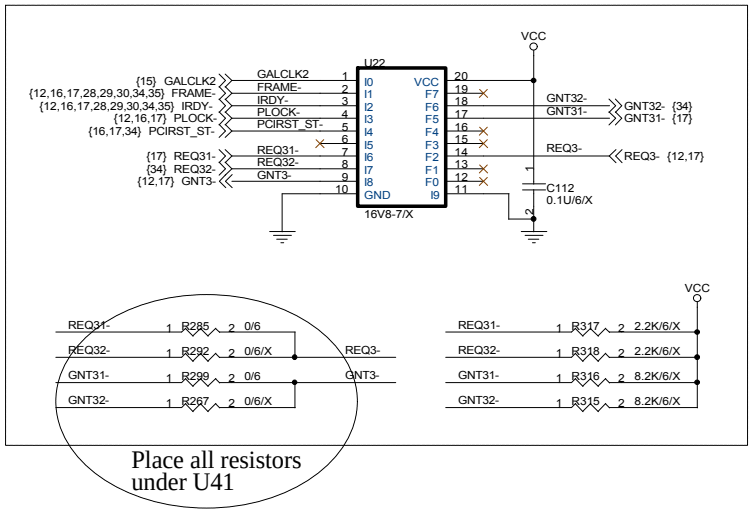

PCI DEVICE REQ,GNT AND INTR ROUNTING

PCI DEVICE	IDSEL	REQ&GNT (4U)	REQ&GNT (1U)	REQ&GNT (2U)	IRQ ROUNTING
PCI1	AD16	REQ0-,GNT0-	REQ0-,GNT0-	REQ0-,GNT0-	PIRQC-,PIRQF-,PIRQG-,PIRQA-
PCI2	AD17	REQ1-,GNT1-	NA	REQ1-,GNT1-	PIRQF-,PIRQG-,PIRQA-,PIRQB-
PCI3	AD18	REQ21-,GNT21- [GAL1]	NA	REQ21-,GNT21- [GAL1]	PIRQG-,PIRQA-,PIRQB-,PIRQE-
PCI4	AD19	REQ31-,GNT31- [GAL2]	NA	NA	PIRQA-,PIRQB-,PIRQE-,PIRQC-
SCSI	AD20	REQ4-,GNT4-	REQ4-,GNT4-	REQ4-,GNT4-	PIRQB-,PIRQE-
LAN1	AD22	REQ22-,GNT22- [GAL1]	REQ2-,GNT2-	REQ22-,GNT22- [GAL1]	PIRQC-
LAN2	AD23	REQ52-,GNT52- [GAL1]	REQ1-,GNT1-	REQ52-,GNT52- [GAL1]	PIRQF-
ATI VGA	AD24	REQ51-,GNT51- [GAL1]	REQ5-,GNT5-	REQ51-,GNT51- [GAL1]	PIRQG-
ZCR	AD25	REQ32-,GNT32- [GAL2]	REQ3-,GNT3-	REQ3-,GNT3-	PIRQA-,PIRQB-,PIRQE-

ICH2 INTR ROUNTING

ITEM	INTERRUPT	REMARK
USB1	PIRQD-	
USB2	PIRQH-	

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Title: PCI SLOT 5 & PAL

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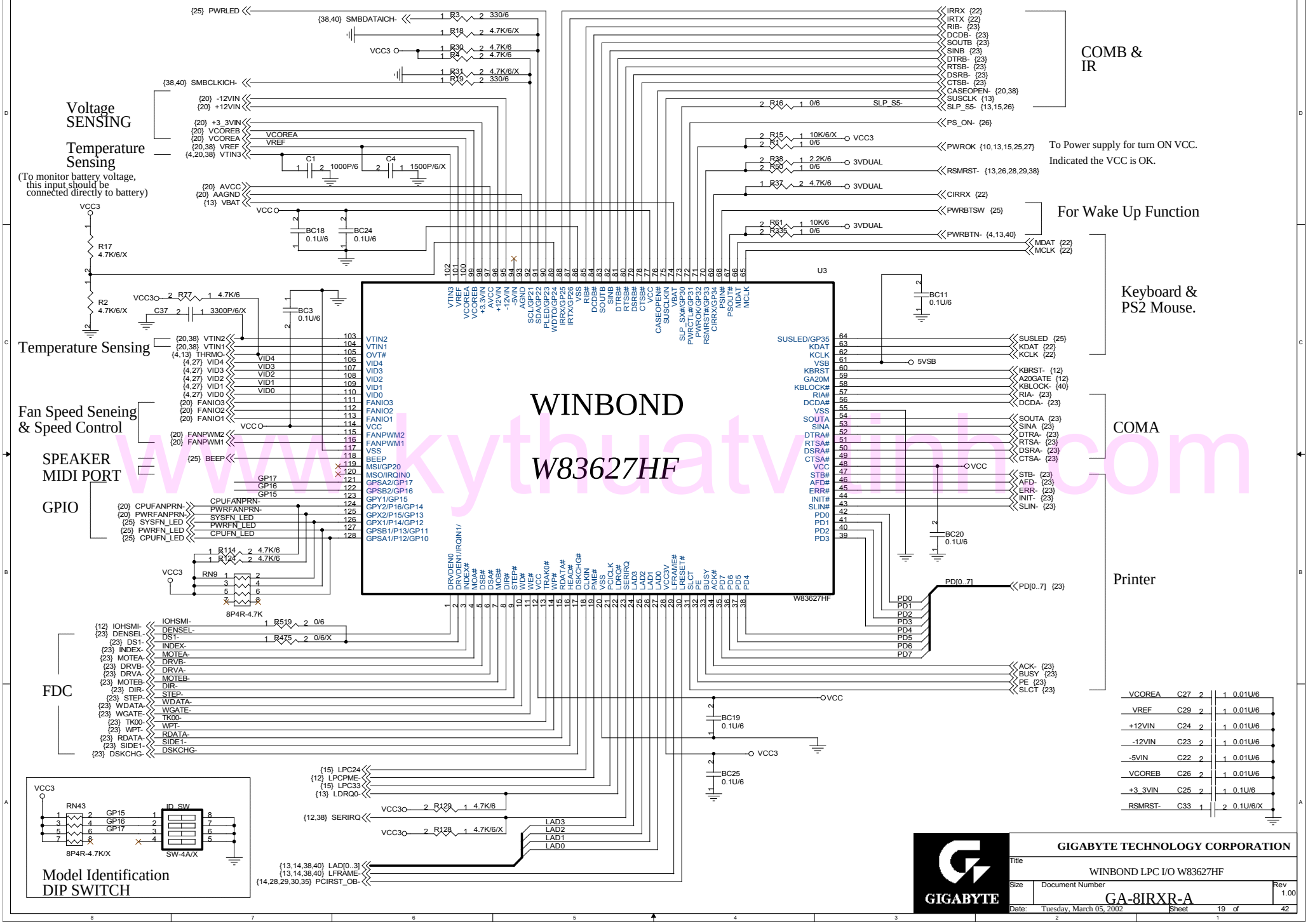
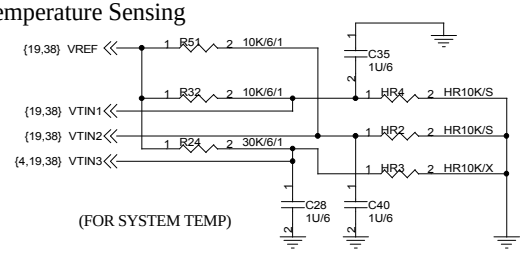
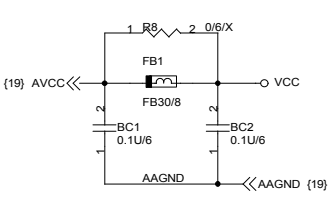


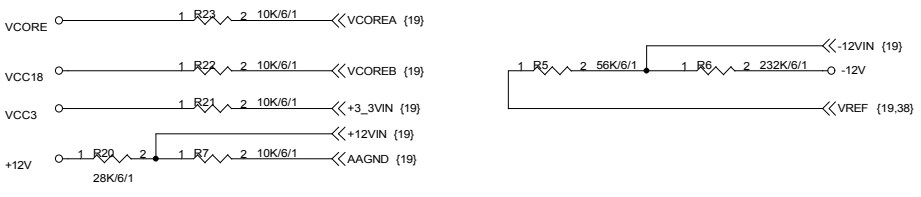
Hardware Monitor circuits

Temperature Sensing

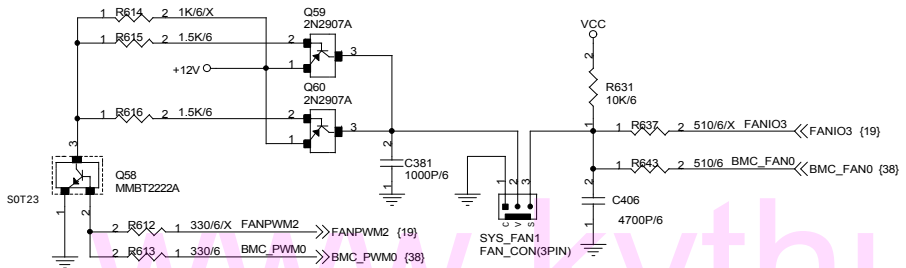


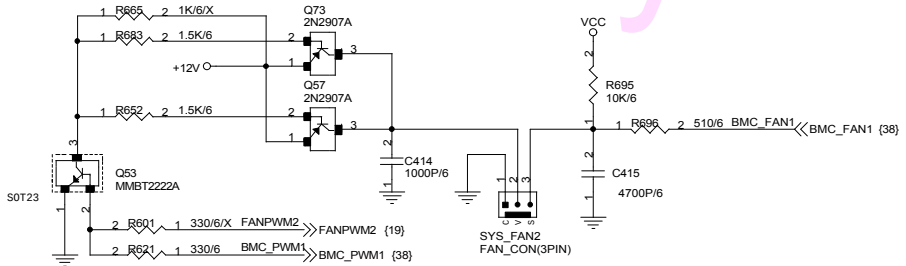


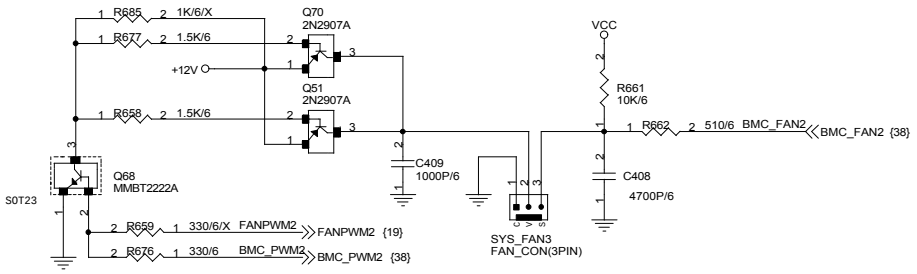
Voltage Sensing

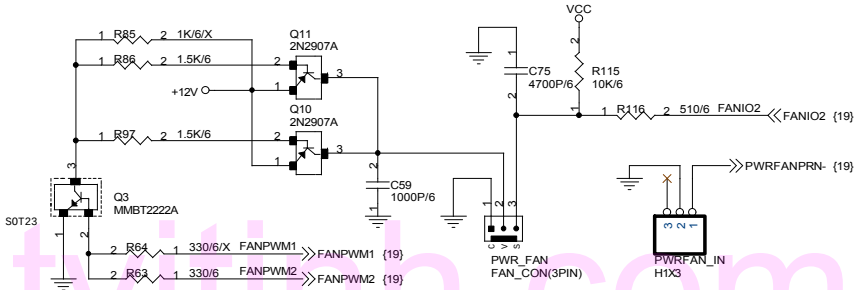


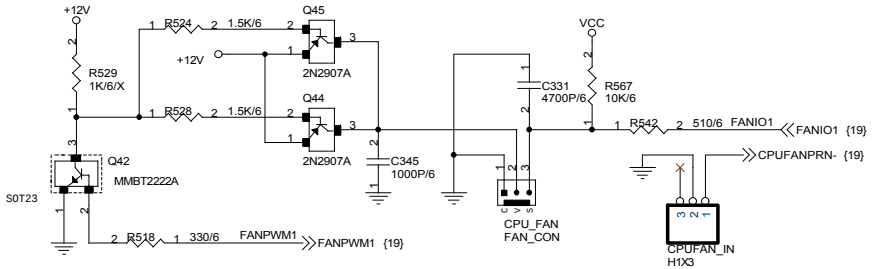
FAN CONNECTOR



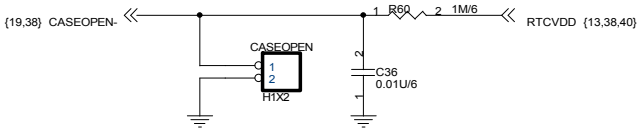








CASE OPEN



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Title	HAREWARE MONITOR	
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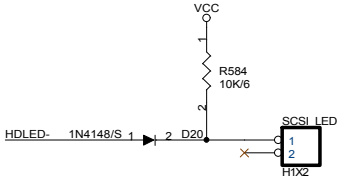
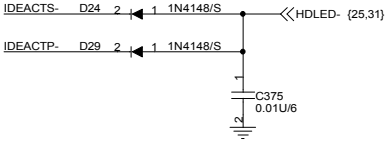
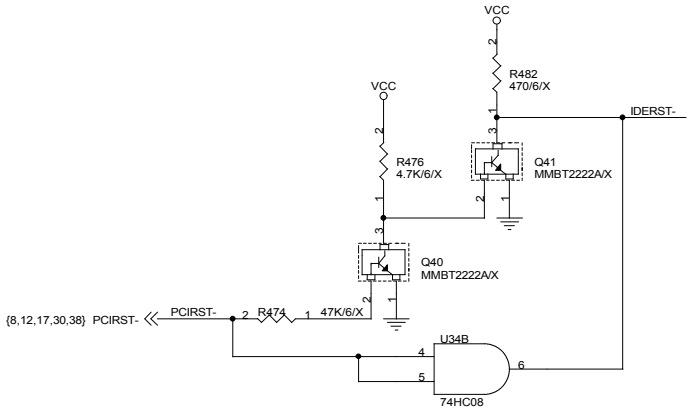
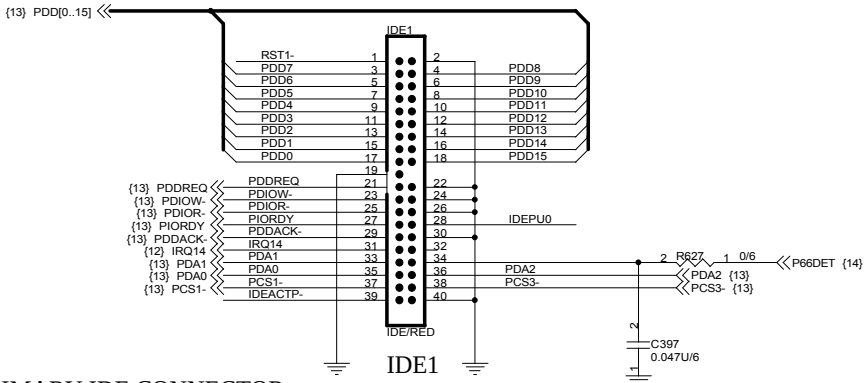


SCSI HD_LED

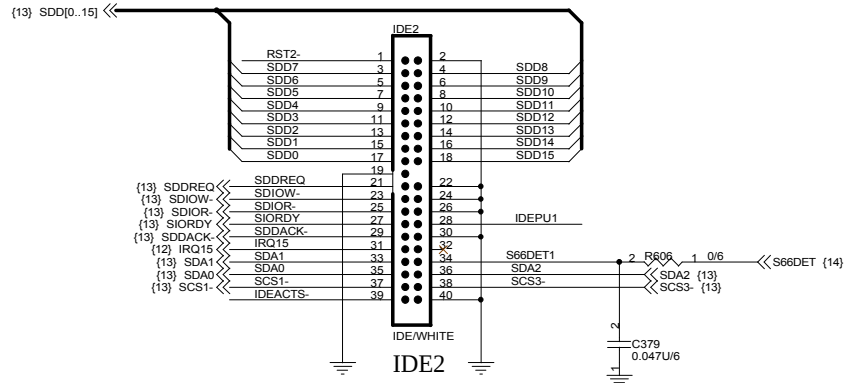






IDE1

PRIMARY IDE CONNECTOR



IDE2

SECONDARY IDE CONNECTOR

GIGABYTE	GIGABYTE TECHNOLOGY CORPORATION	
	Title: IDE CONNECTOR	
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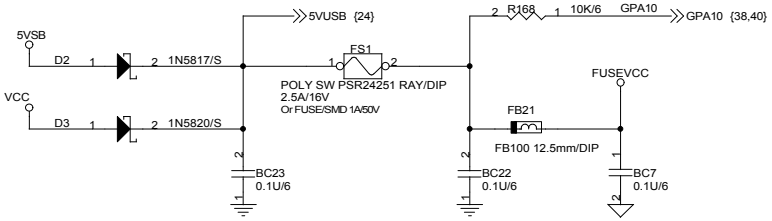

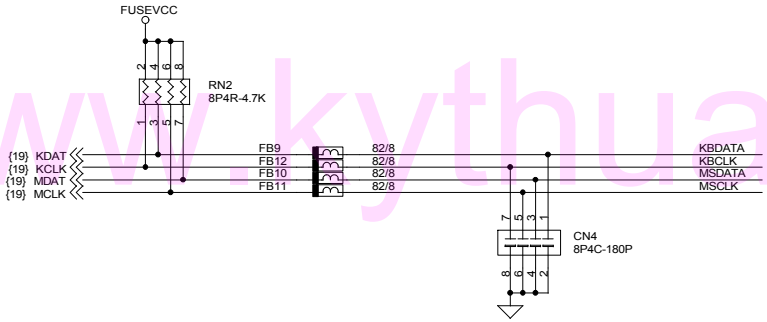

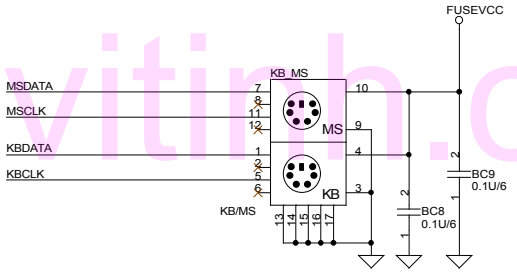

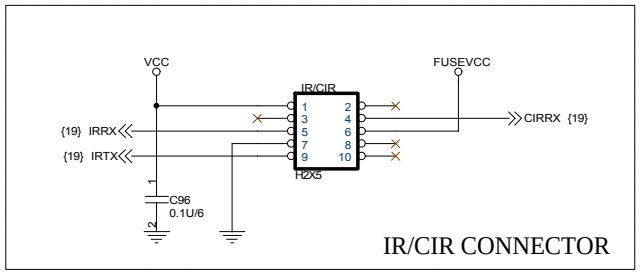

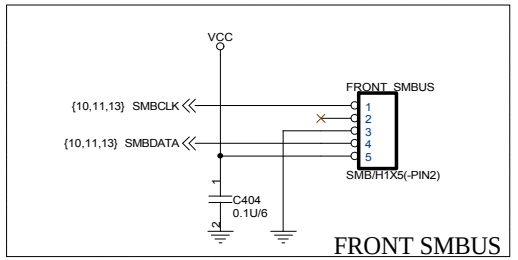

GIGABYTE TECHNOLOGY CORPORATION

Title	KB & PS2 MOUSE & IR	
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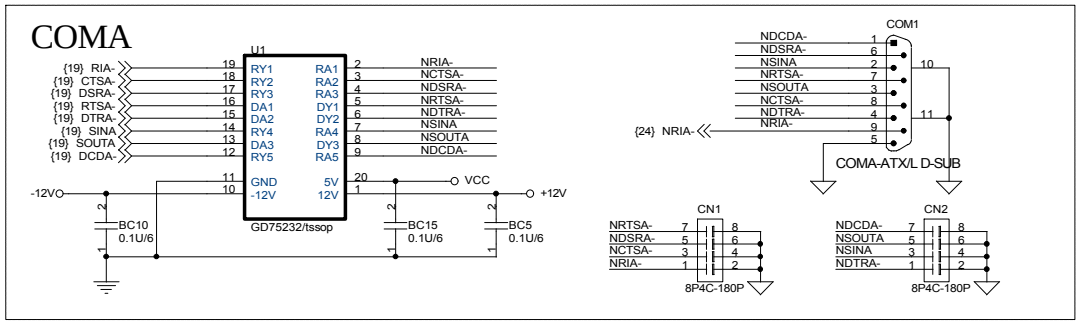

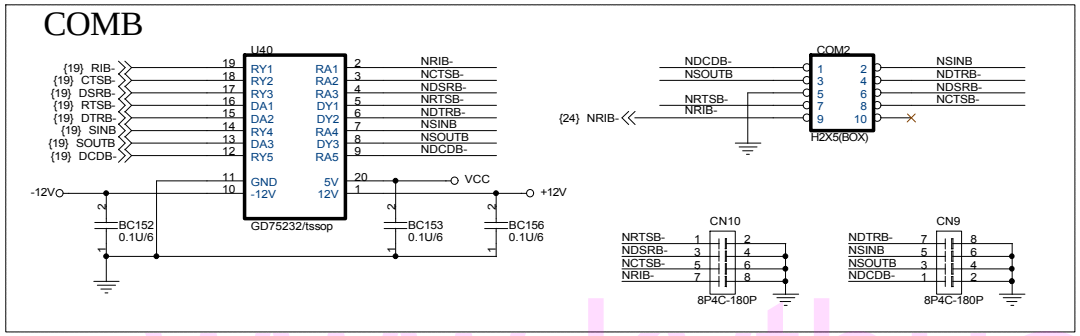

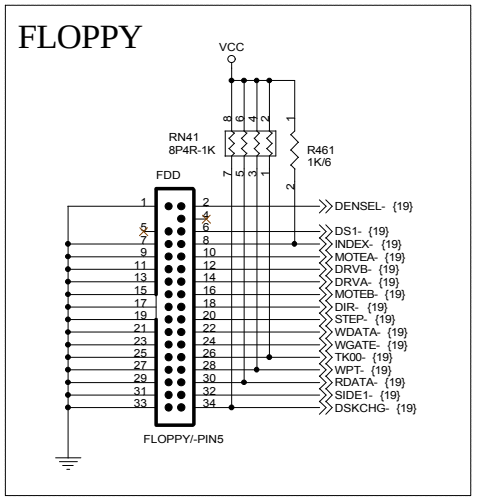

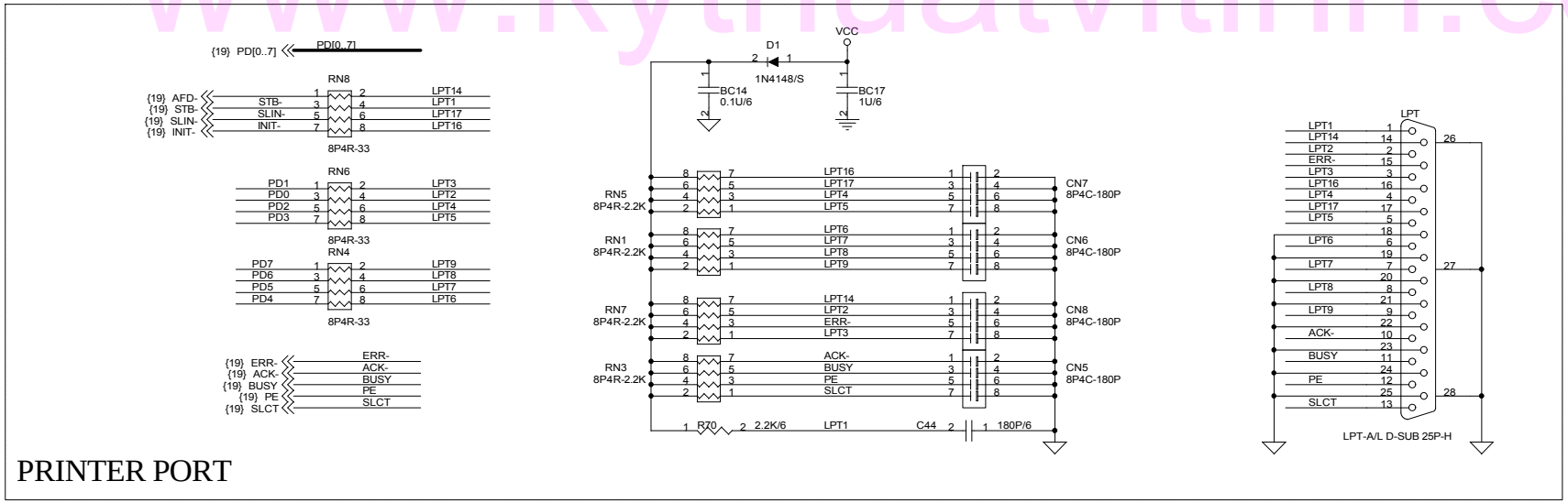

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Title	COM & IR & LPT PORT &FLOOPY	
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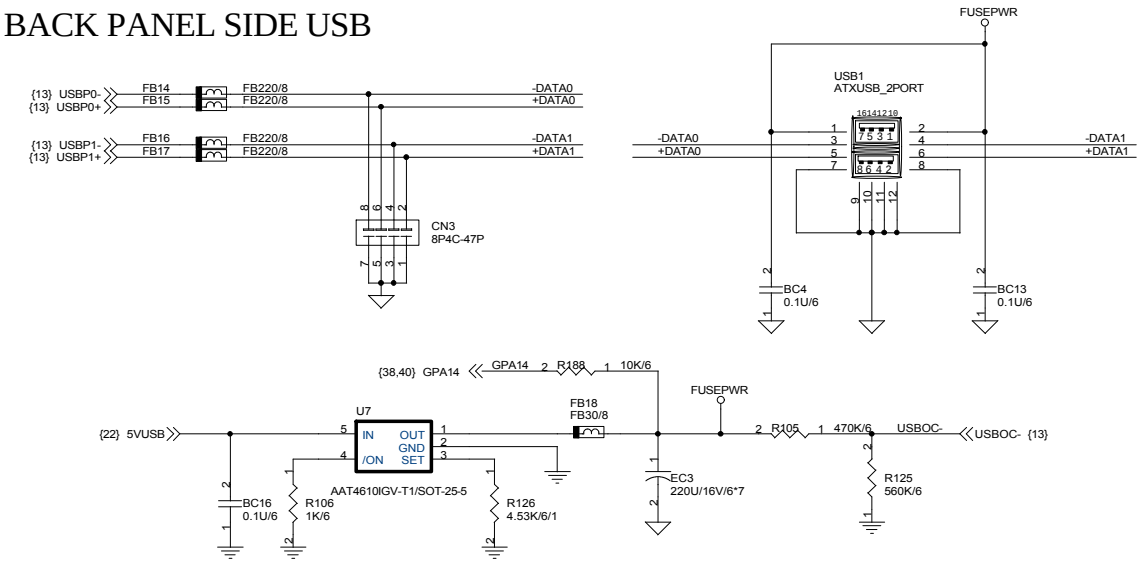
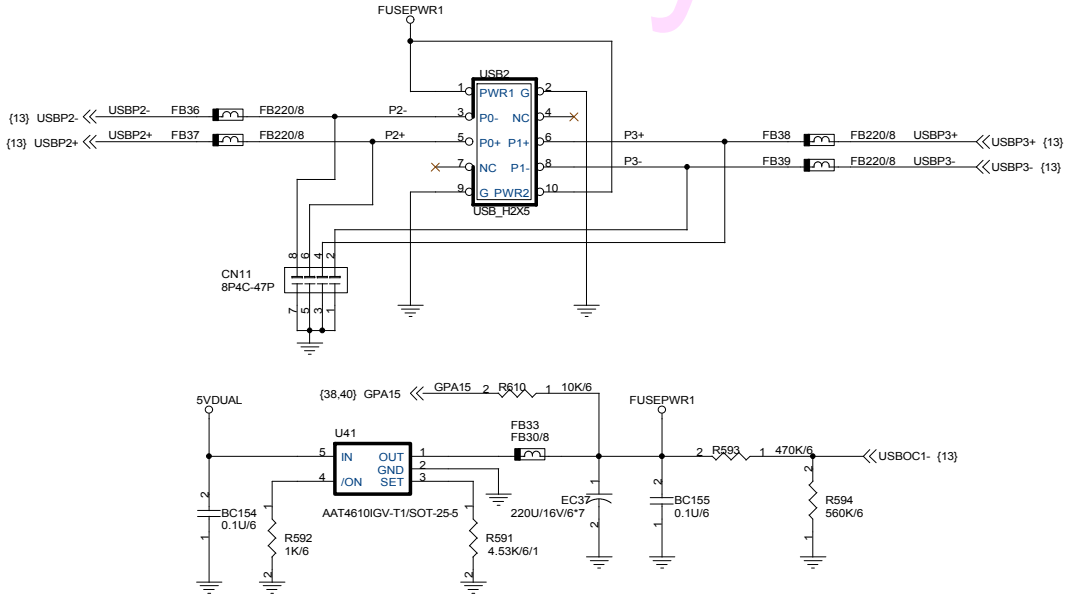
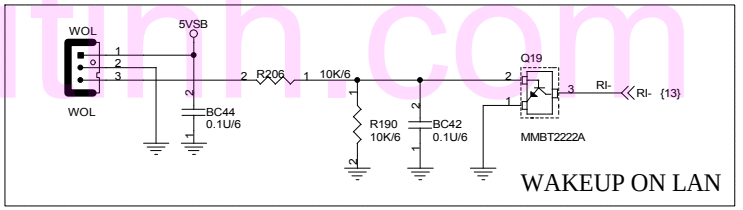
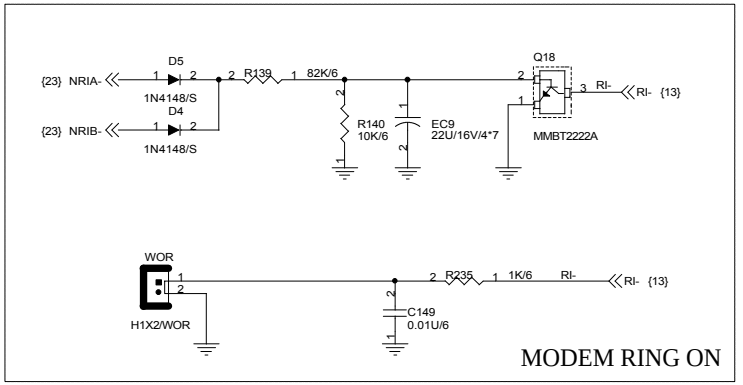
BACK PANEL SIDE USB



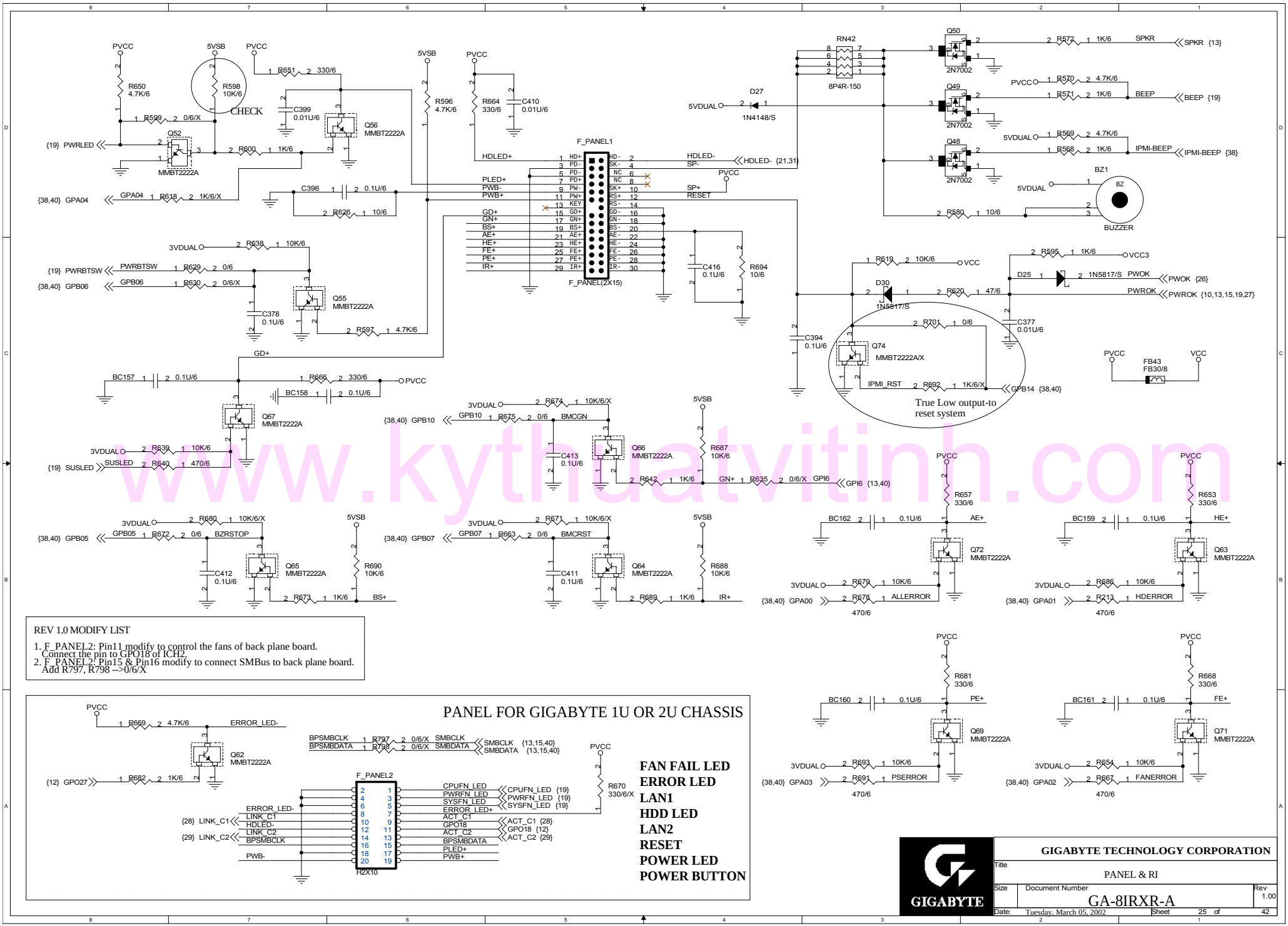
FRONT SIDE USB







GIGABYTE	GIGABYTE TECHNOLOGY CORPORATION	
	Title: ICH USB+LAN PORT	
	Size	Document Number: GA-8IRXR-A — Rev: 1.00
	Date: Tuesday, March 05, 2002	Sheet 24 of 42



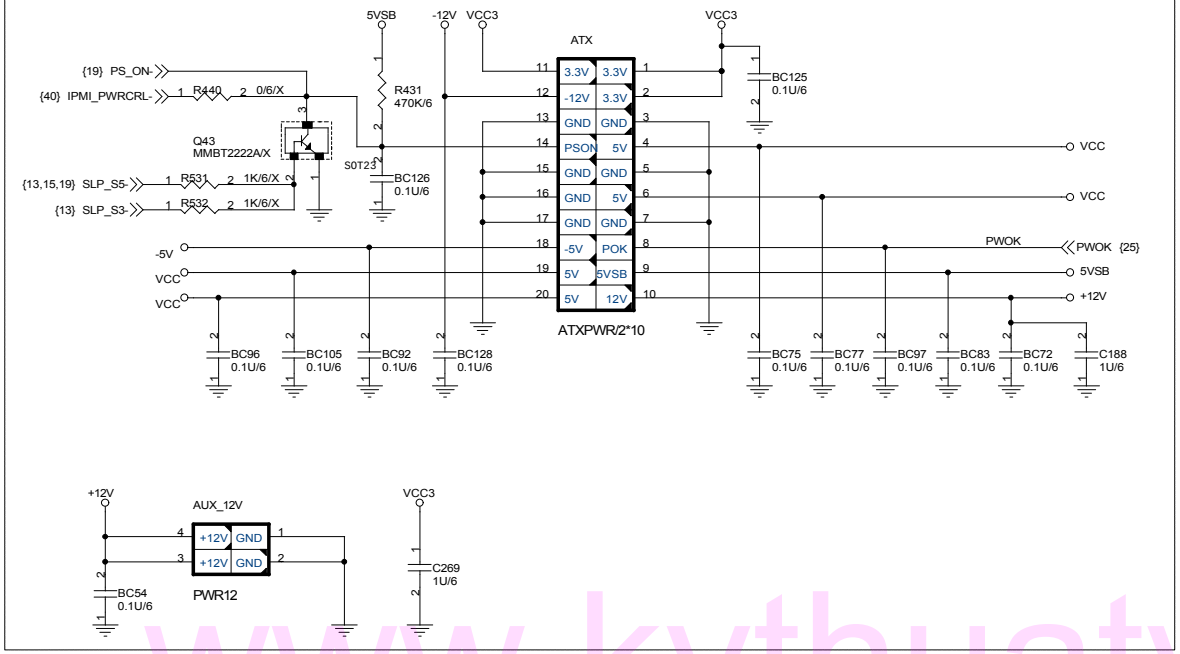
REV 1.0 MODIFY LIST

1. F_PANEL2: Pin11 modify to control the fans of back plane board.
   Connect the pin to GPO18 of ICH2.
2. F_PANEL2: Pin15 & Pin16 modify to connect SMBus to back plane board.
   Add R797, R798 -->0/6/X

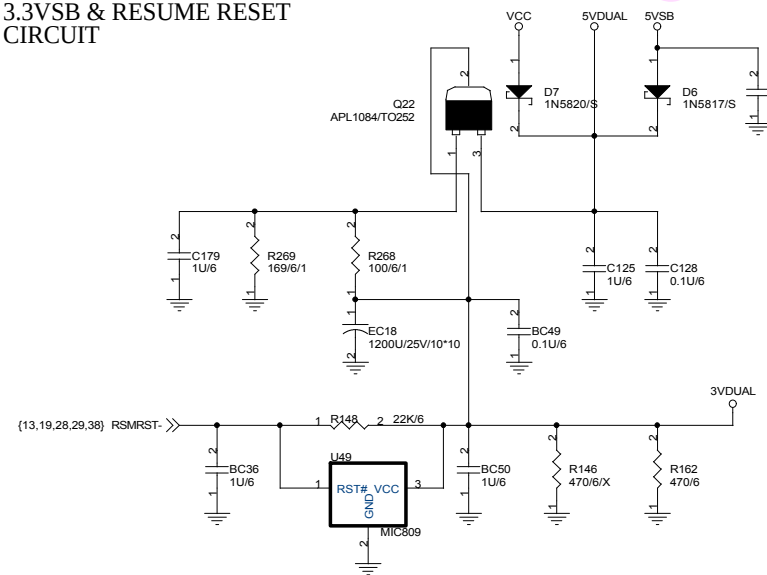
GIGABYTE TECHNOLOGY CORPORATION

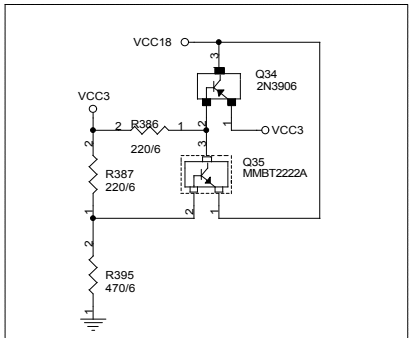
Title	PANEL & RI	
Size	Document Number: GA-8IRXR-A	Rev: 1.00
Date: Tuesday, March 05, 2002	Sheet 25 of 42	

ATX POWER CONNECTOR

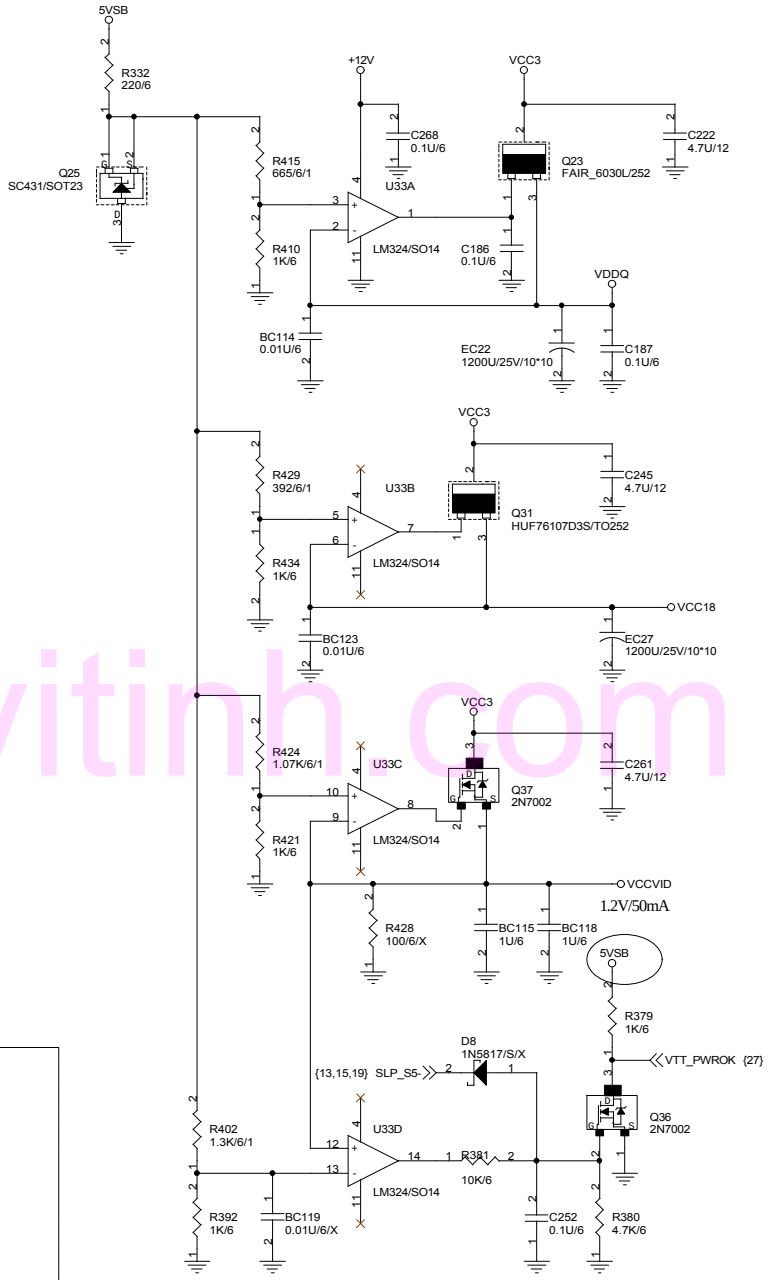


3.3VSB & RESUME RESET CIRCUIT



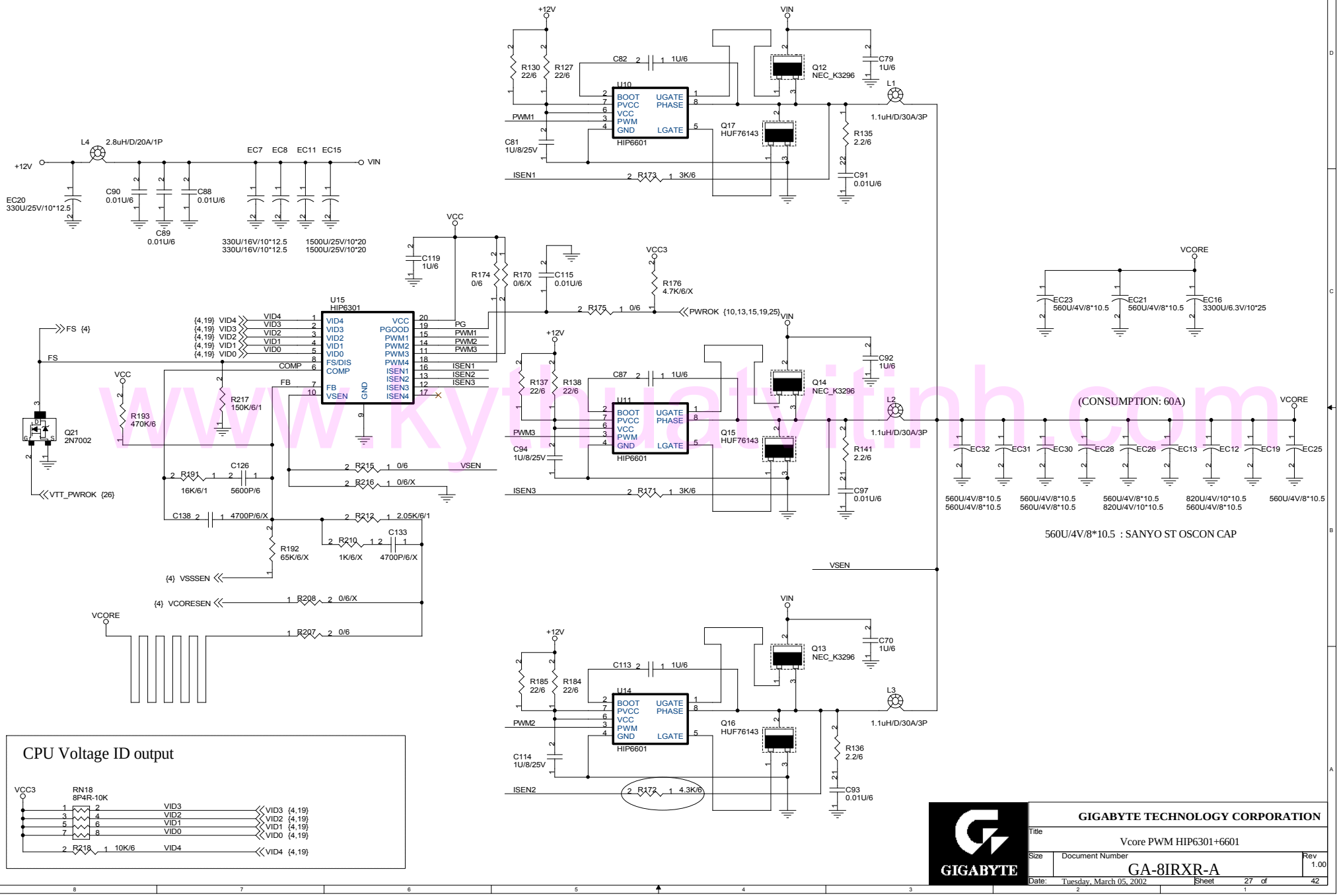


FOR ICH2 POWER SEQUENCE

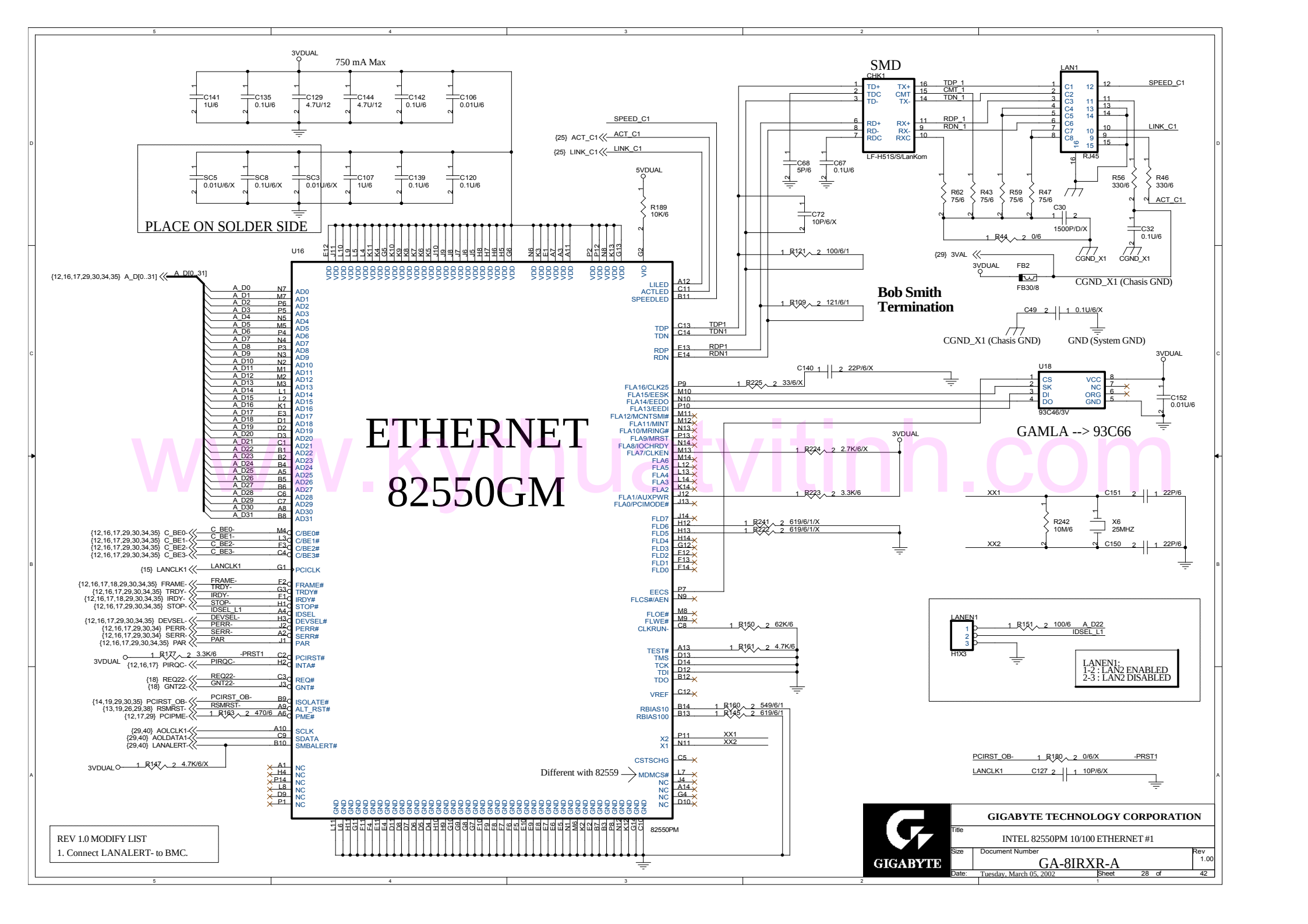


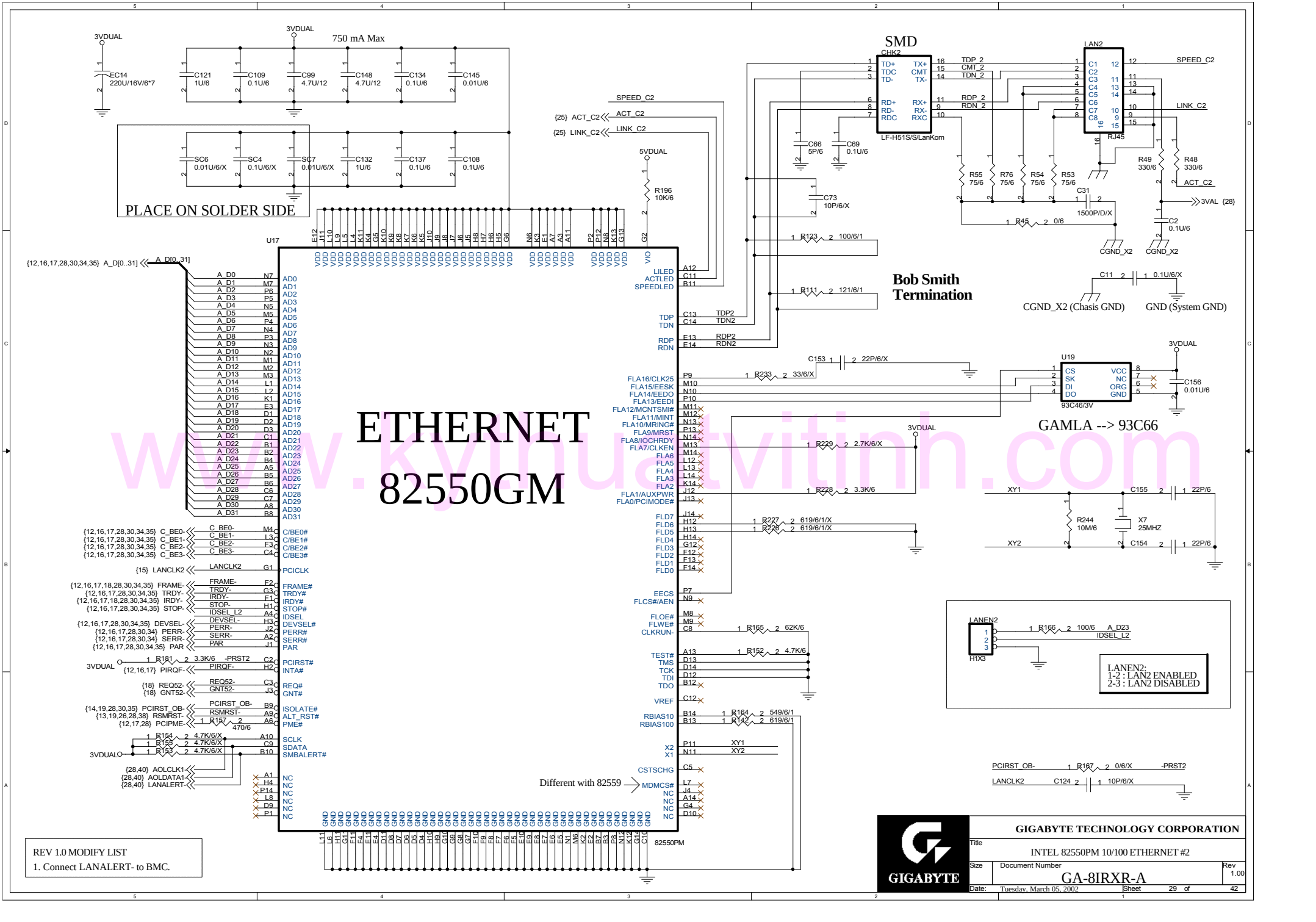
GIGABYTE TECHNOLOGY CORPORATION

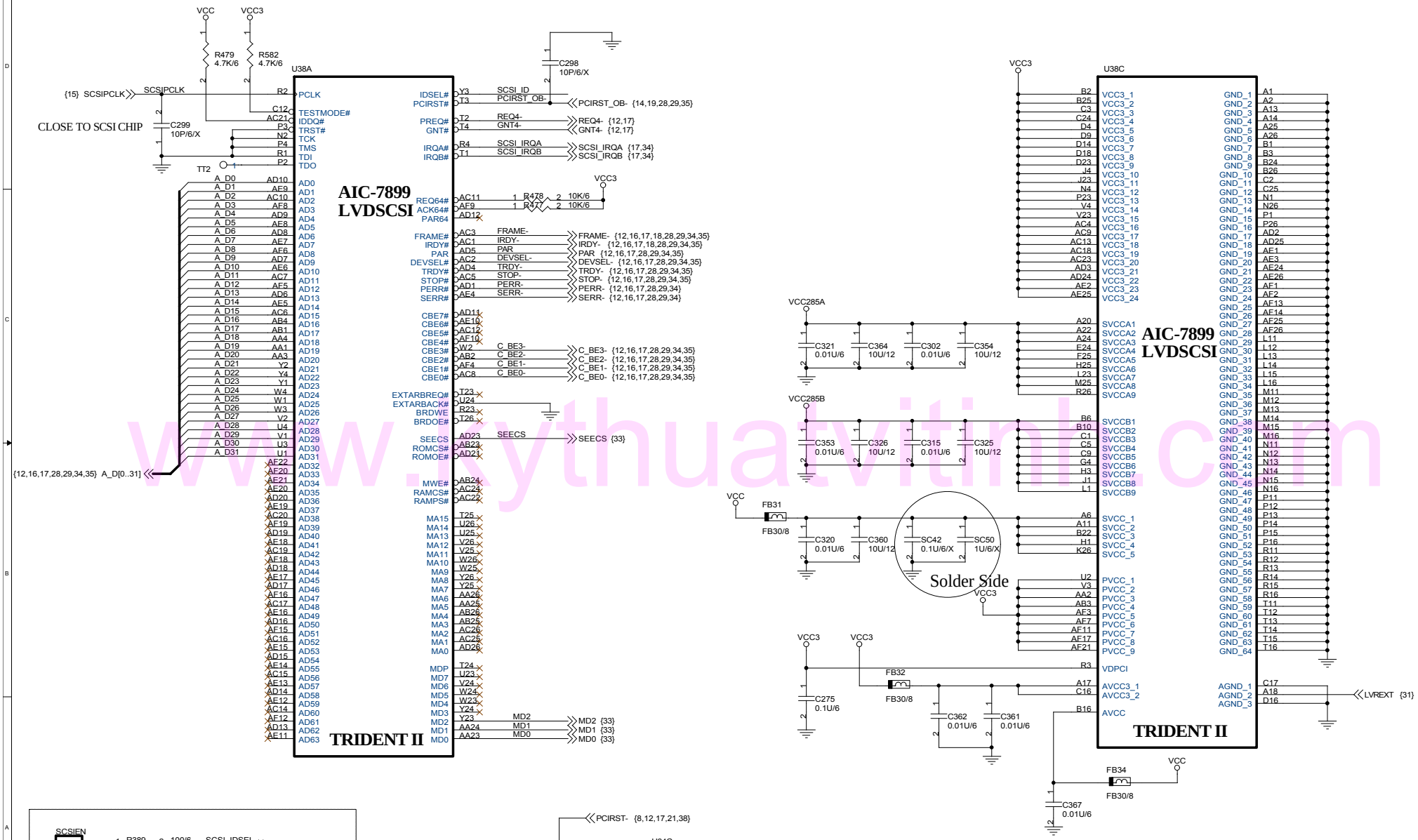
Title	Misc. PWR & ATX CONN.	
Size	Document Number	Rev
	GA-8IRXR-A	1.00
Date: Tuesday, March 05, 2002	Sheet 26 of 42	



Company	GIGABYTE TECHNOLOGY CORPORATION
Title	Vcore PWM HIP6301+6601
Size	Document Number: GA-8IRXR-A
Rev	1.00
Date	Tuesday, March 05, 2002
Sheet	27 of 42

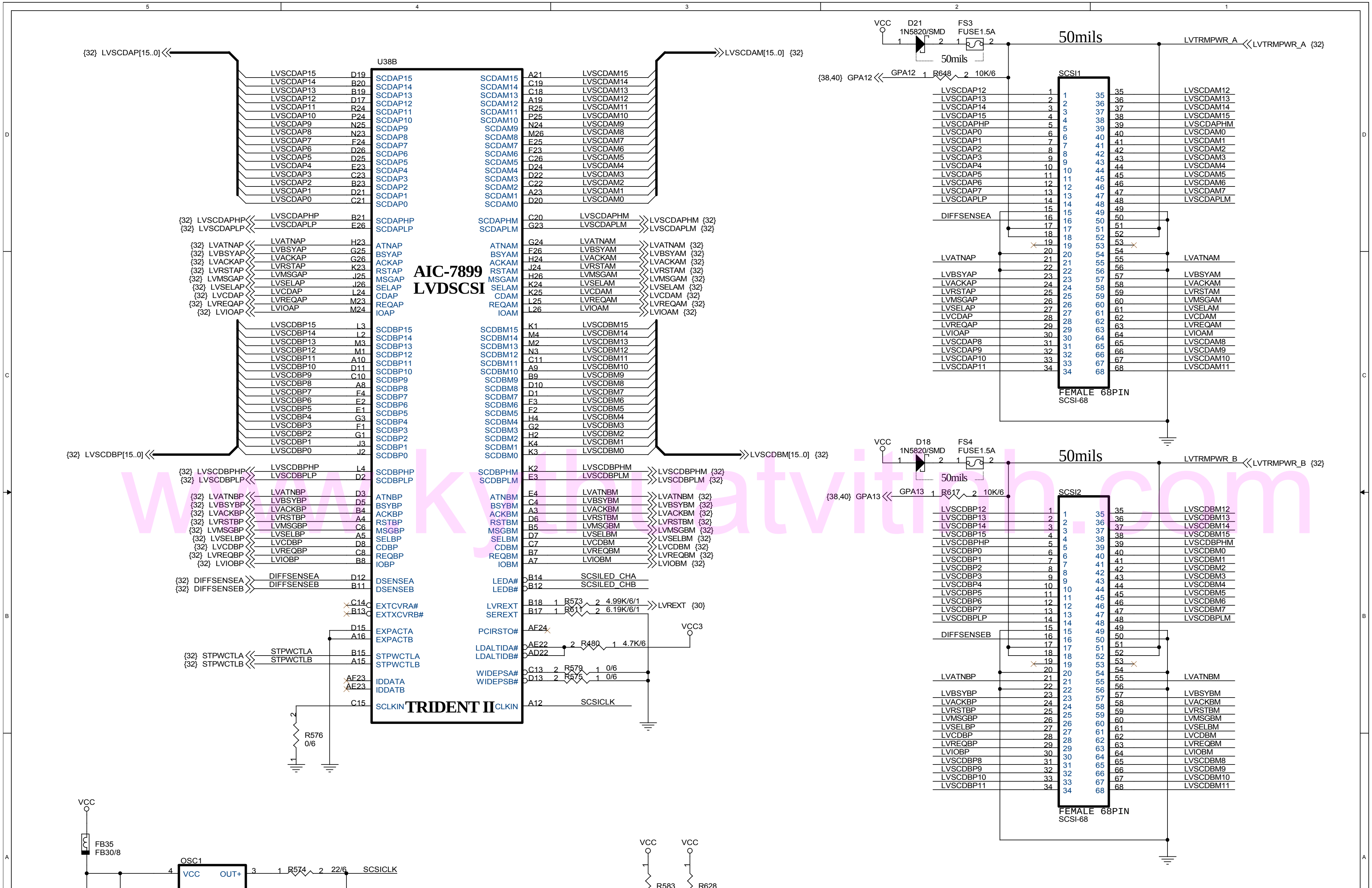






GIGABYTE TECHNOLOGY CORPORATION

Title	AIC 7899G PCI Interface	
Size	Document Number: GA-8IRXR-A	Rev: 1.00
Date: Tuesday, March 05, 2002	Sheet 30 of 42	



GIGABYTE

GIGABYTE TECHNOLOGY CORPORATION

Title: AIC 7899W/7902 CHA & CHB

Size | Document Number: GA-8IRXR-A | Rev 1.00

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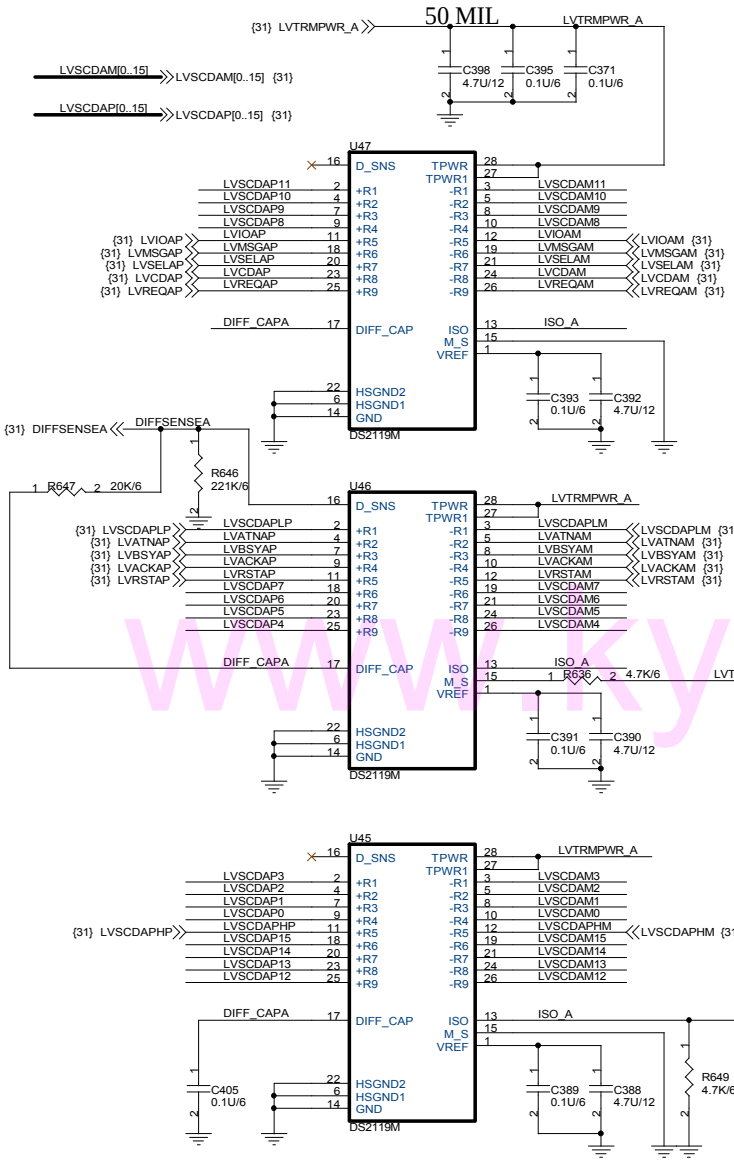
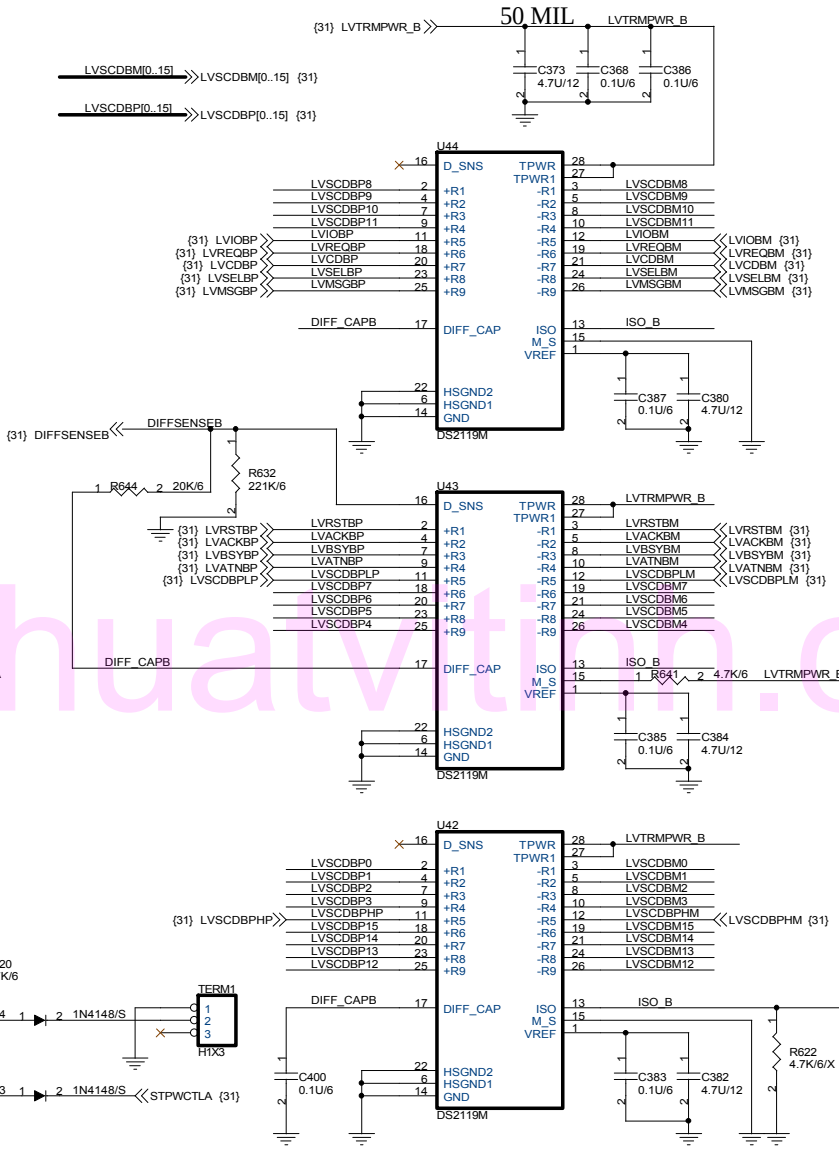
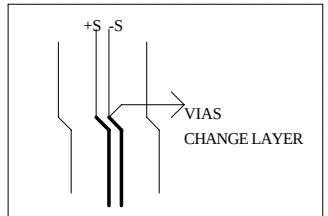
SCSI- Channel A



SCSI- Channel B





@ 5mil/5mil/15mil

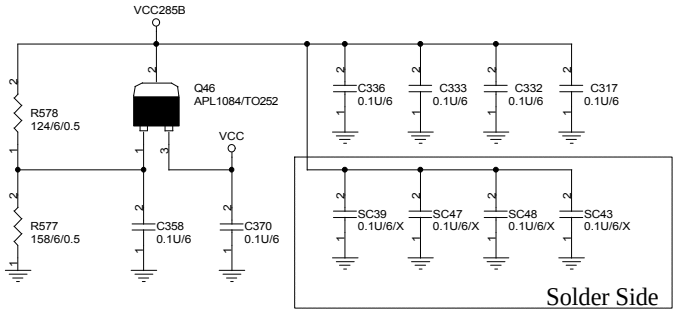
@ Route +S/-S in parallel and Keep them equal length

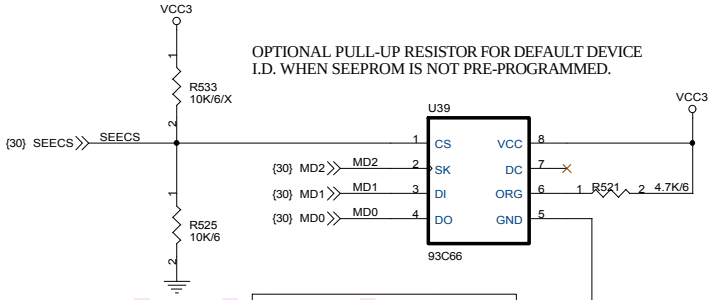
@ Routing +S/-S on the outter layer is prefered, Hi Zo/Lo Cap

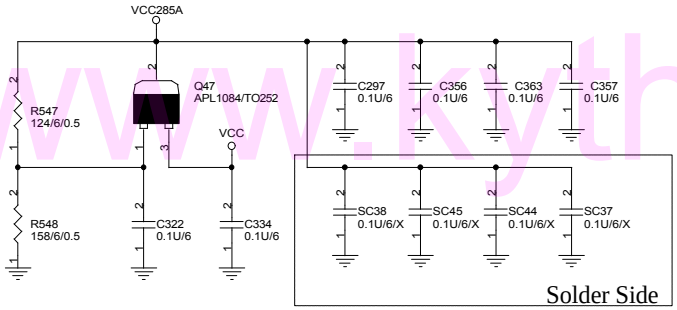
@ REQ, ACK, DATA, PARITY signal pairs are critical traces

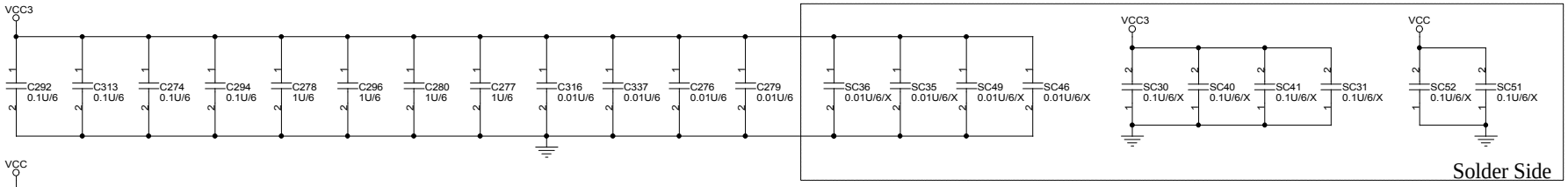
TERM1,TERM2:
1-2: SCSI TERM. ENABLED
2-3: SCSI TERM. AUTO

GIGABYTE TECHNOLOGY CORPORATION	
Title	AIC 7899W/7902 TERMINATORS
Size	Document Number: GA-8IRXR-A — Rev: 1.00
Date: Tuesday, March 05, 2002	Sheet 32 of 42

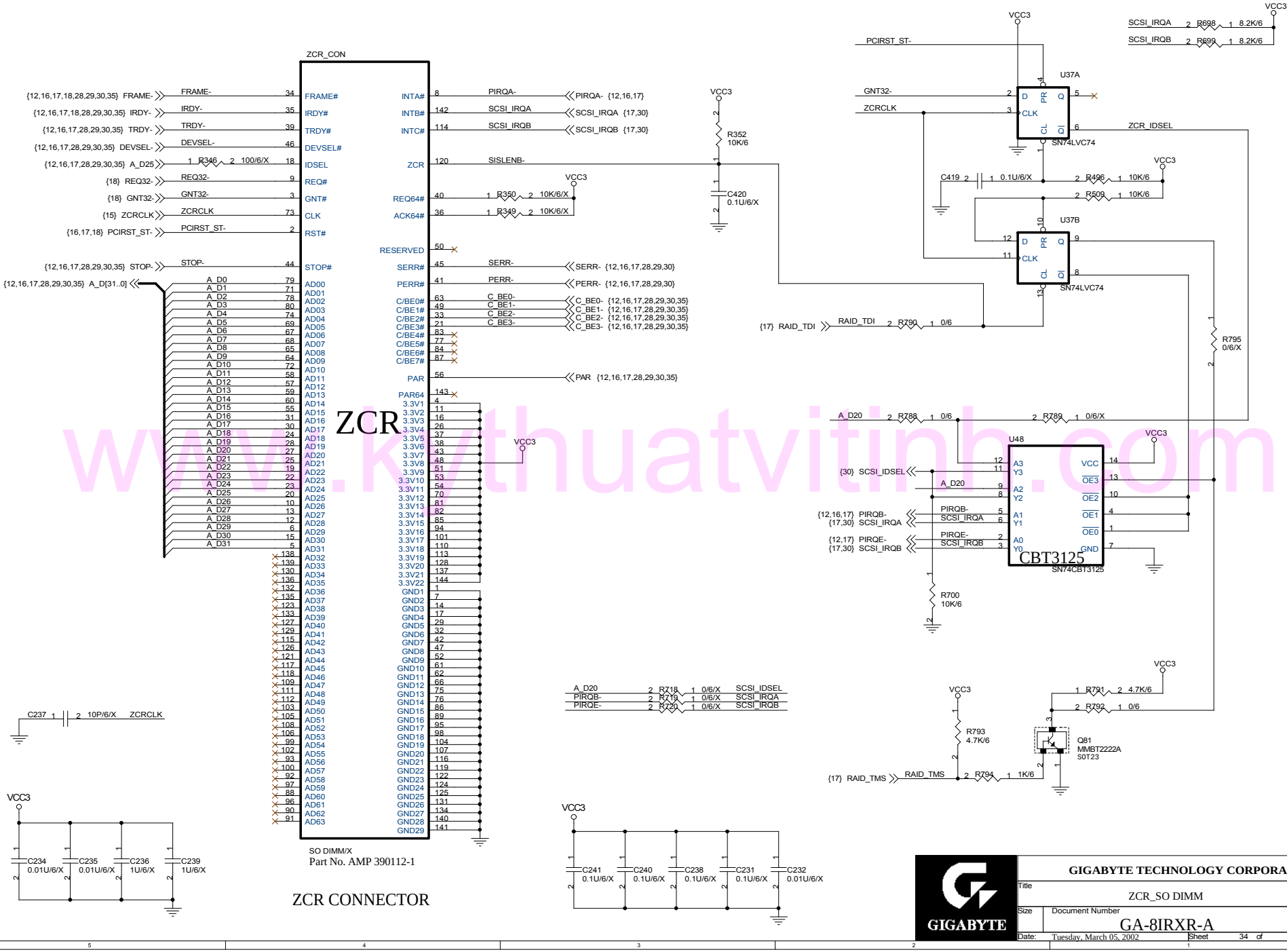








GIGABYTE	GIGABYTE TECHNOLOGY CORPORATION	
	Title: AIC 7899W/7902 POWER	
	Size	Document Number: GA-8IRXR-A — Rev: 1.00
	Date: Tuesday, March 05, 2002	Sheet 33 of 42



Company	GIGABYTE TECHNOLOGY CORPORATION
Title	ZCR_SO DIMM
Size	Document Number: GA-8IRXR-A
Rev	1.00
Date	Tuesday, March 05, 2002
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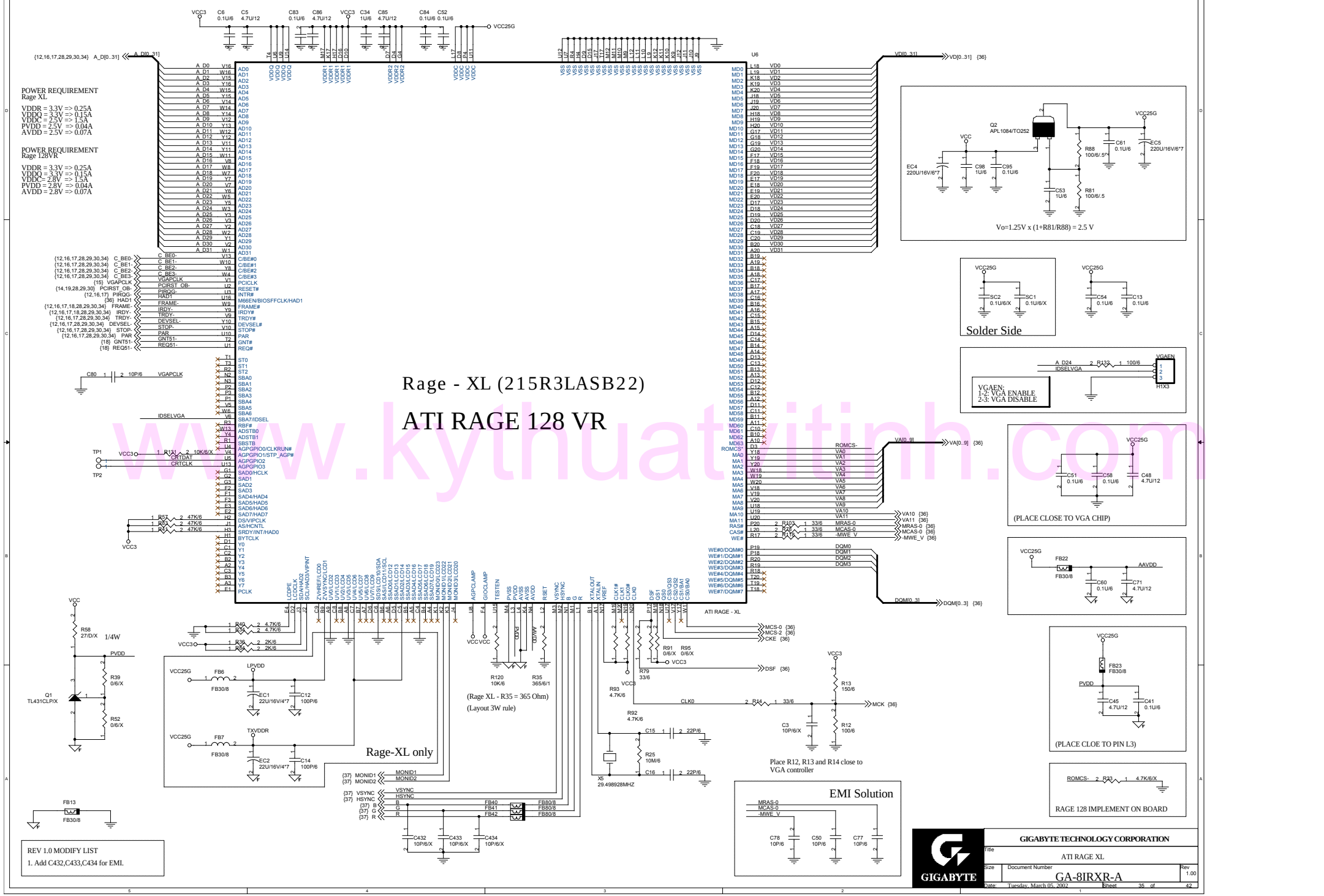
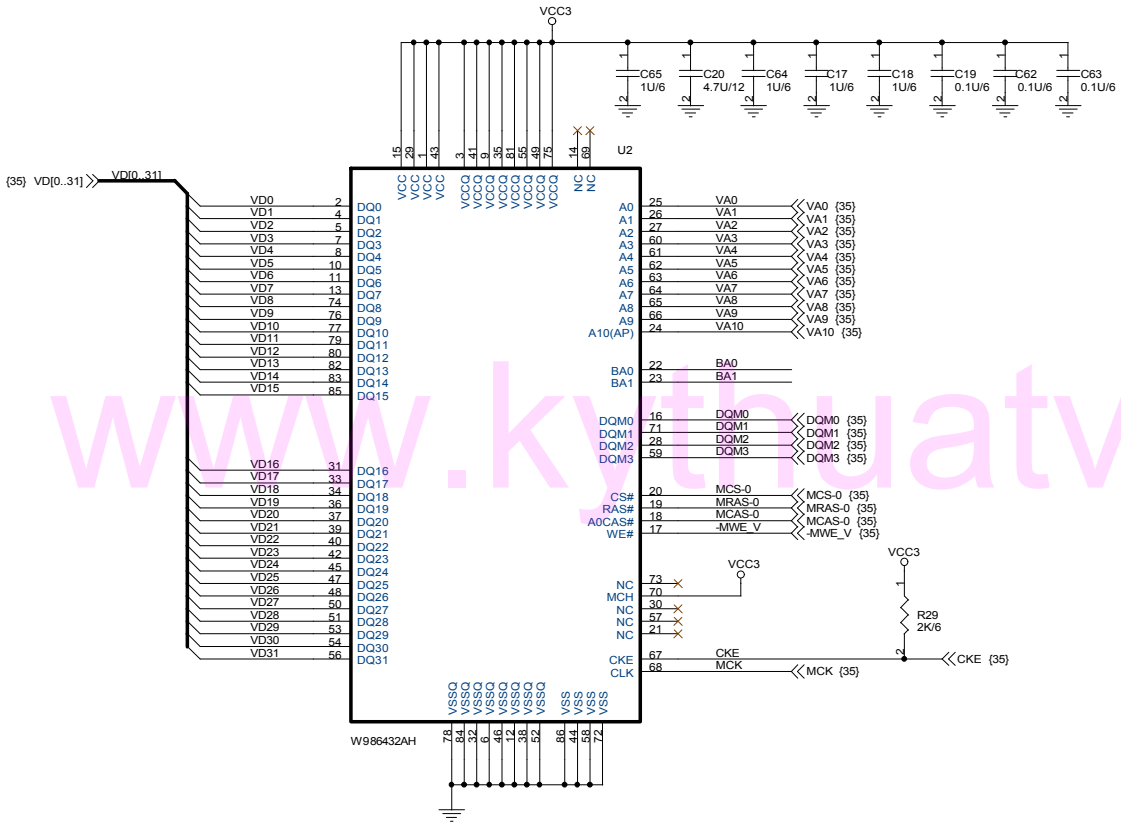
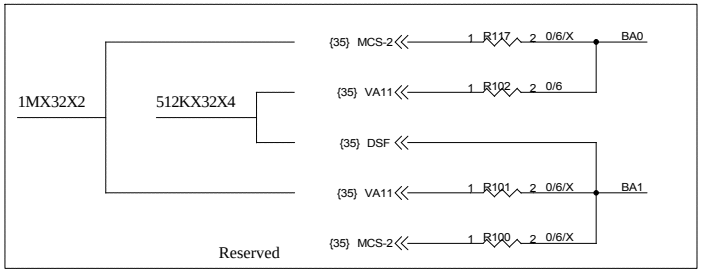
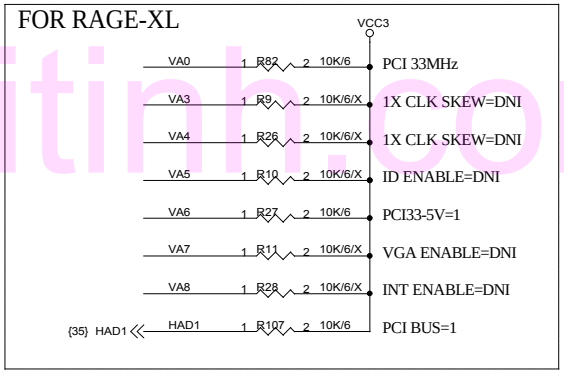

Rage - XL (215R3LASB22)
ATI RAGE 128 VR
www.kythuatvitinh.com
POWER REQUIREMENT
Rage XL
VDDR = 3.3V => 0.25A
VDDQ = 3.3V => 0.15A
VDDC = 2.5V => 1.5A
PVDD = 2.5V => 0.04A
AVDD = 2.5V => 0.07A
POWER REQUIREMENT
Rage 128VR
VDDR = 3.3V => 0.25A
VDDQ = 3.3V => 0.15A
VDDC= 2.8V => 1.5A
PVDD = 2.8V => 0.04A
AVDD = 2.8V => 0.07A
Vo=1.25V x (1+R81/R88) = 2.5 V
Solder Side
VGAEN:
1-2: VGA ENABLE
2-3: VGA DISABLE
(PLACE CLOSE TO VGA CHIP)
(PLACE CLOE TO PIN L3)
Rage-XL only
(Rage XL - R35 = 365 Ohm)
(Layout 3W rule)
Place R12, R13 and R14 close to VGA controller
EMI Solution
RAGE 128 IMPLEMENT ON BOARD
REV 1.0 MODIFY LIST
1. Add C432,C433,C434 for EMI.
GIGABYTE TECHNOLOGY CORPORATION
ATI RAGE XL
GA-8IRXR-A
Rev 1.00
Tuesday, March 05, 2002
Sheet 35 of 42



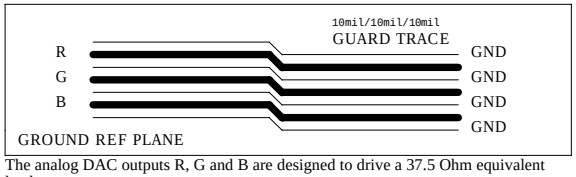
1M x 32 x 2 = R101, R117 Install
512K x 32 x 4 = R102, R79 Install



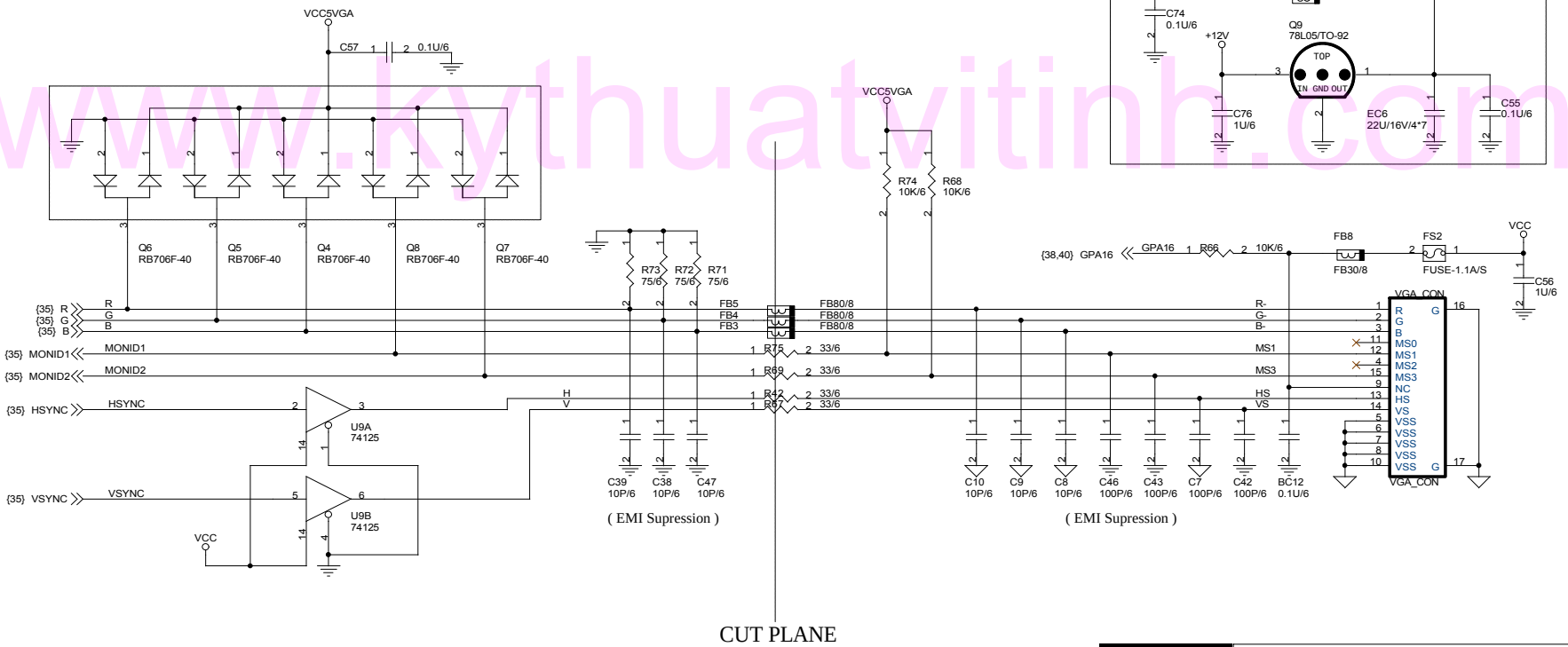


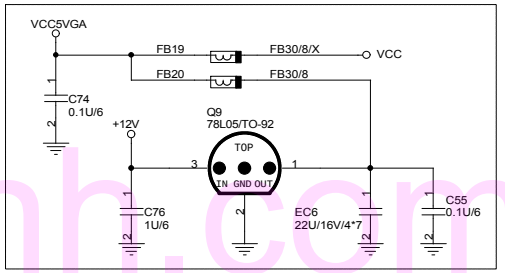
GIGABYTE TECHNOLOGY CORPORATION

Title	FRAME BUFFER SDRAM	
Size	Document Number GA-8IRXR-A	Rev 1.00
Date: Tuesday, March 05, 2002	Sheet 36 of 42	



The analog DAC outputs R, G and B are designed to drive a 37.5 Ohm equivalent load.

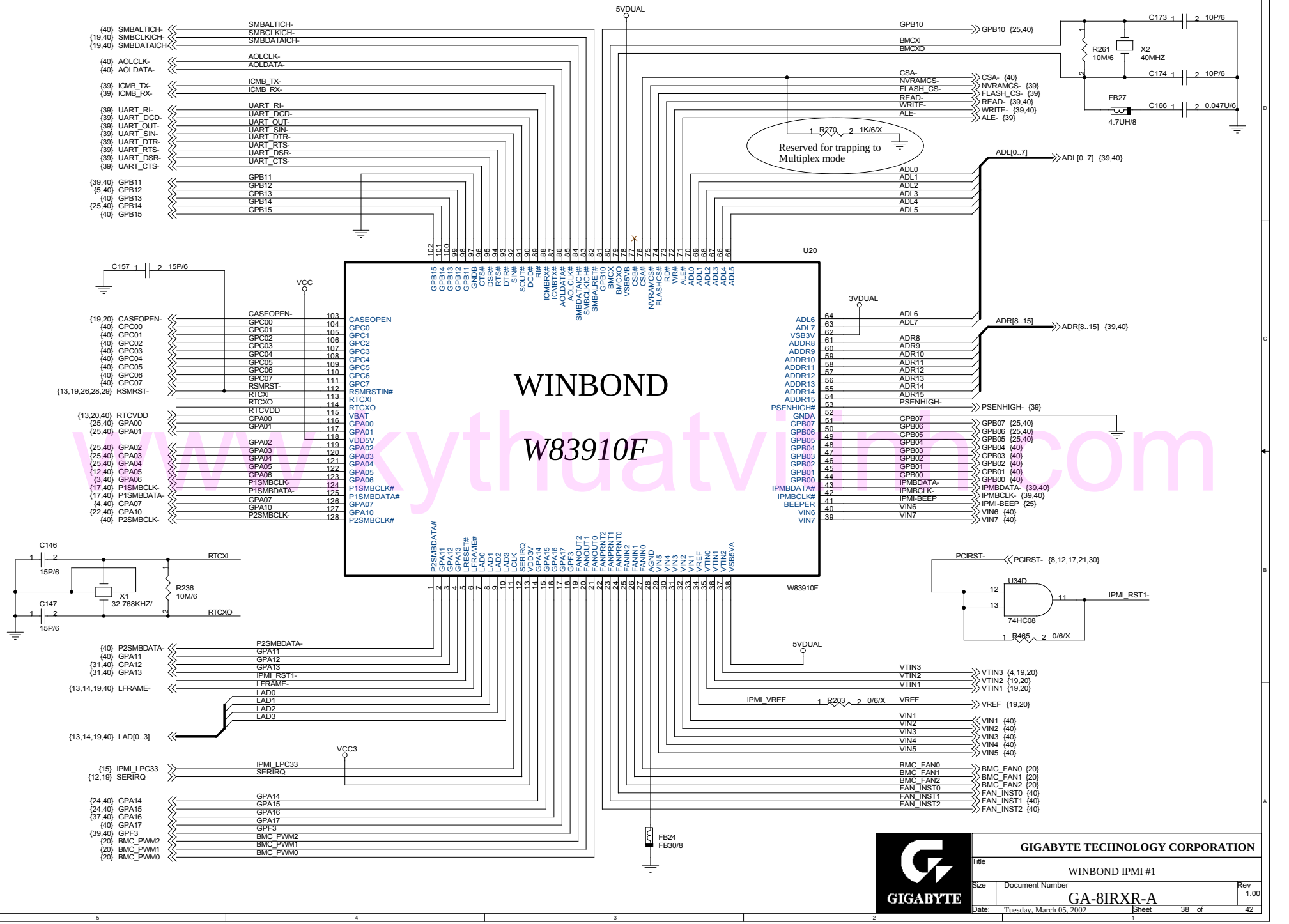


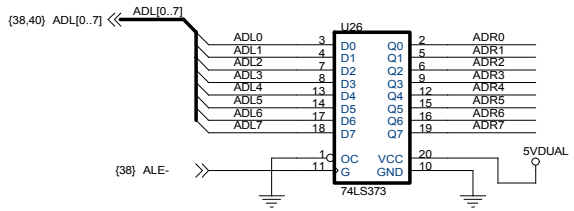


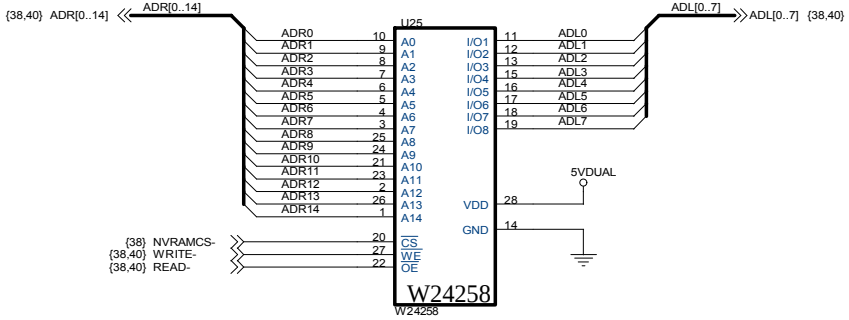
CUT PLANE

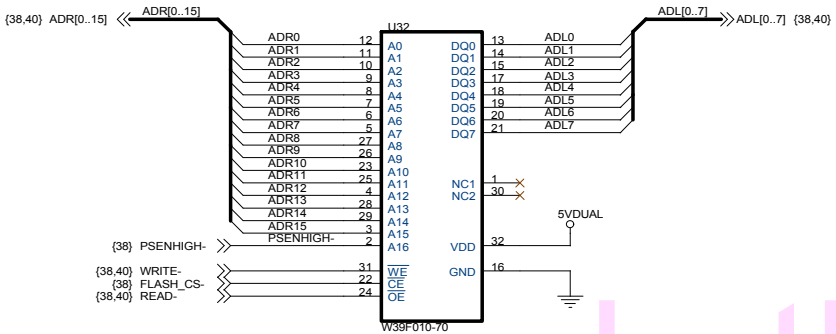
REV 1.0 MODIFY LIST
1. Modify Layout and move 74125 to connector side.

GIGABYTE	GIGABYTE TECHNOLOGY CORPORATION	
Title	VGA CON	
Size	Document Number: GA-8IRXR-A	Rev: 1.00
Date: Tuesday, March 05, 2002	Sheet 37 of 42	

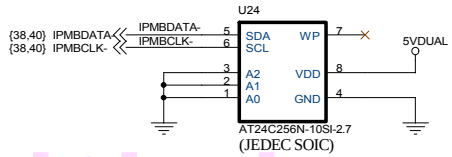




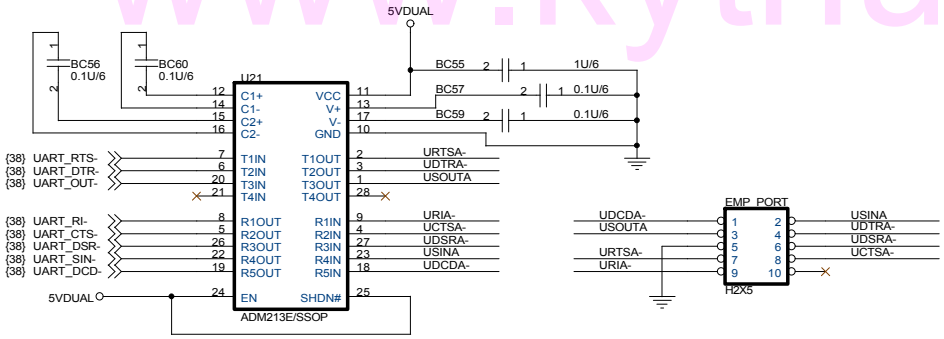


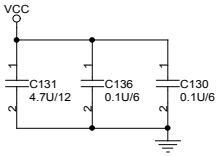


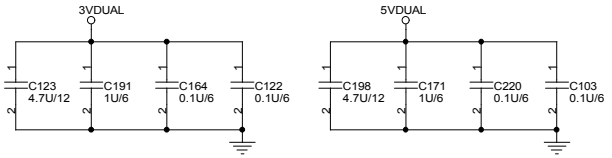
Note: The Flash and RAM access time should be within 70 ns.

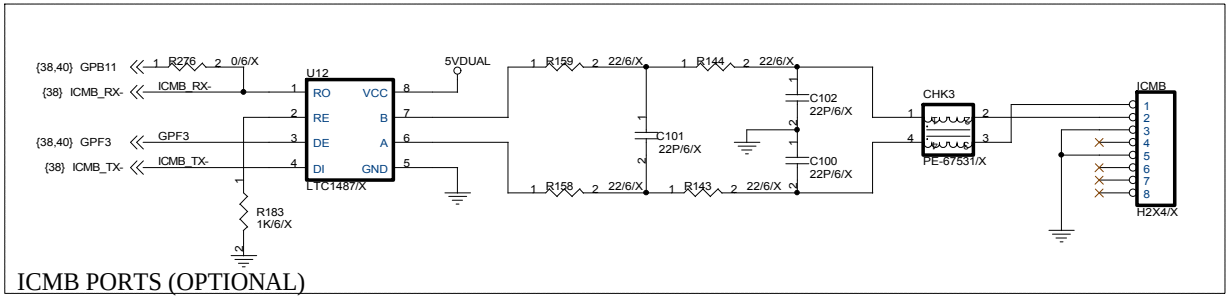


EMP (Emergency Management Port) Connect to MODEM



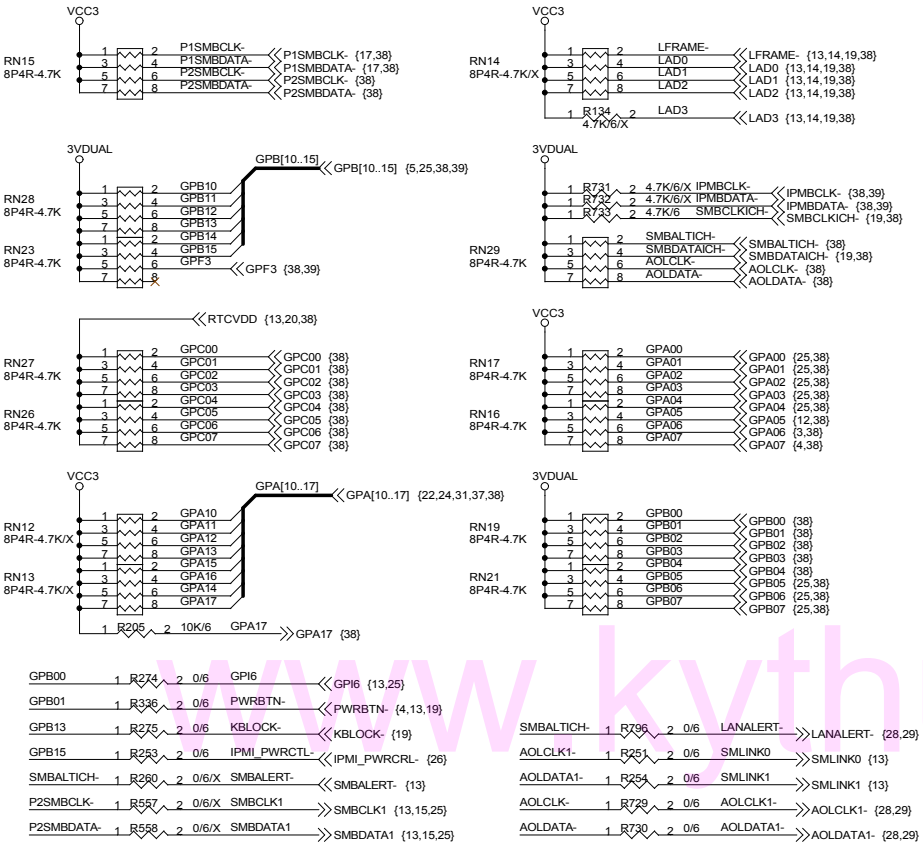


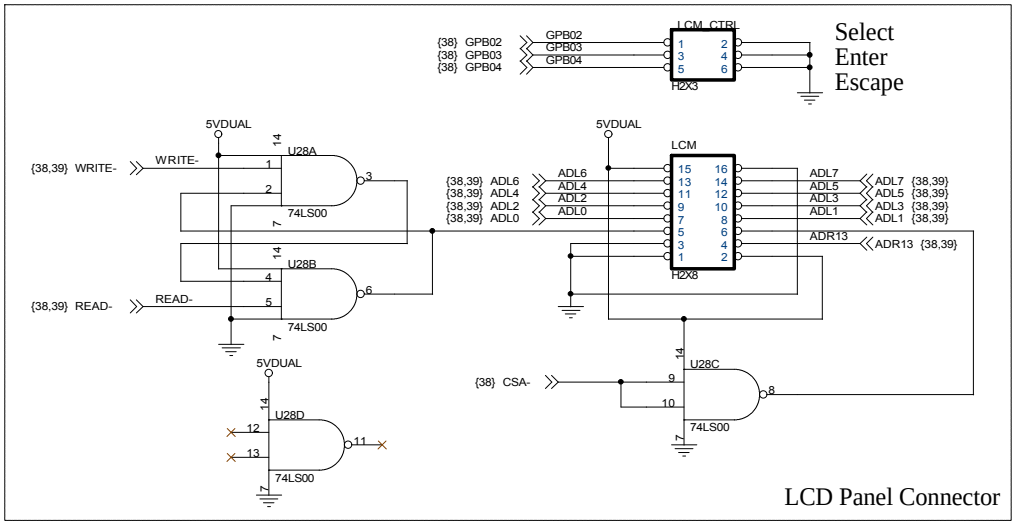


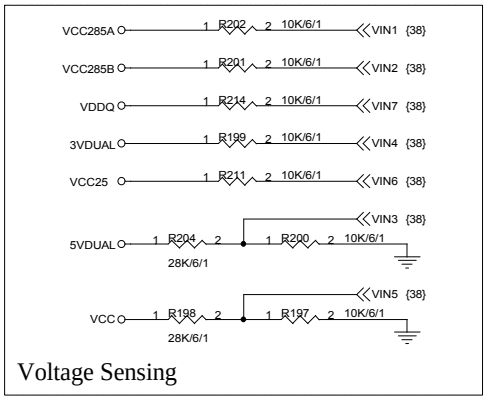


ICMB PORTS (OPTIONAL)

GIGABYTE	GIGABYTE TECHNOLOGY CORPORATION	
	Title: WINBOND IPMI #2	
	Size	Document Number: GA-8IRXR-A — Rev: 1.00
	Date: Tuesday, March 05, 2002	Sheet 39 of 42

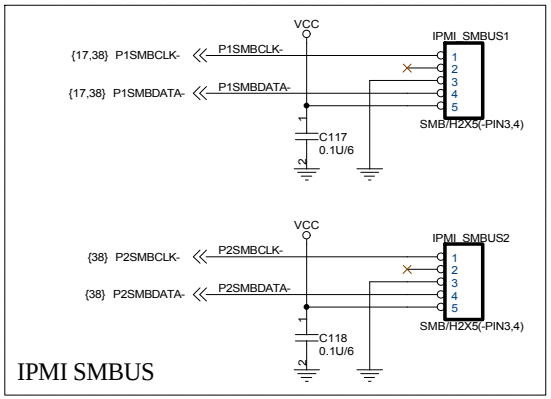


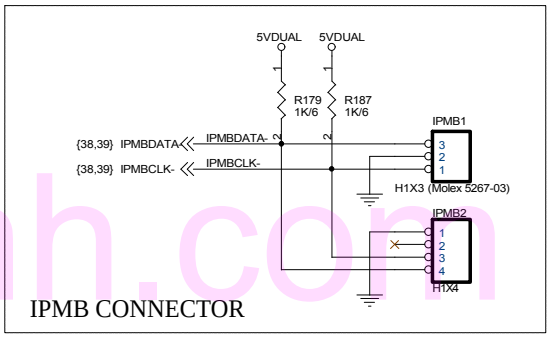


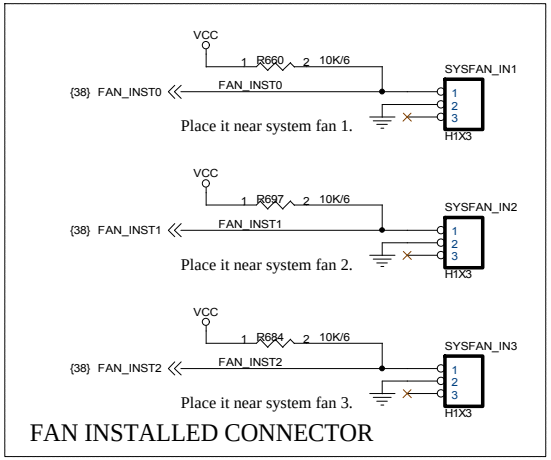


REV 1.0 MODIFY LIST

1. Add R976 for connect LANALERT- to SMBALTICH-.







GIGABYTE TECHNOLOGY CORPORATION

Title	WINBOND IPMI #3	
Size	Document Number: GA-8IRXR-A	Rev: 1.00
Date: Tuesday, March 05, 2002	Sheet 40 of 42	

Model Name: GA-8IRXR-A
Version: 1.00

GPIO ASSIGN LIST

CHIPSET	GPIO	DESCRIPTION
ICH2	GPI0	REQA- (Pull up only)
ICH2	GPI1	REQ5-
ICH2	GPI2	PIRQE- For PCI Device
ICH2	GPI3	PIRQF- For PCI Device
ICH2	GPI4	PIRQG- For PCI Device
ICH2	GPI5	PIRQH- For USB2
ICH2	GPI6	Green Button
ICH2	GPI7	Super I/O Hardware Monitor SMI-
ICH2	GPI8	NMI Signal From IPMI BMC
ICH2	GPI11	SMBALERT- (Pull up only)
ICH2	GPI12	LPCPME-
ICH2	GPI13	(Pull up only)
ICH2	GPO16	GNTA- (Pull up only)
ICH2	GPO17	GNT5- For PCI Device
ICH2	GPO18	For Backplane Fan Stop on Suspend Stage.
ICH2	GPO19	(Pull up only)
ICH2	GPO20	(Pull up only)
ICH2	GPO21	(Pull up only)
ICH2	GPO22	(Pull up only)
ICH2	GPO23	(Pull up only)
ICH2	GPO24	BIOS Table Lock
ICH2	GPO25	BIOS Write Protect
ICH2	GPO27	Error LED
ICH2	GPO28	(Pull up only)

GPIO ASSIGN LIST

CHIPSET	GPIO	DESCRIPTION
W83627HF	GP10	CPU Fan Fail LED
W83627HF	GP11	Power Fan Fail LED
W83627HF	GP12	System Fan Fail LED
W83627HF	GP13	Power Fan Present Input Connector
W83627HF	GP14	CPU Fan Present Input Connector
W83627HF	GP15	Model Identification Switch For Hitachi.
W83627HF	GP16	Model Identification Switch For Hitachi.
W83627HF	GP17	Model Identification Switch For Hitachi.
W83627HF	GP20	
W83627HF	GP21	SMBUS CLK (SLAVE)
W83627HF	GP22	SMBUS DATA (SLAVE)
W83627HF	GP23	Power LED
W83627HF	GP24	
W83627HF	GP25	IR RX
W83627HF	GP26	IR TX
W83627HF	GP30	SLP_S5
W83627HF	GP31	Power Control: Power Supply ON "PS_ON-"
W83627HF	GP32	Power OK
W83627HF	GP33	Resume Reset
W83627HF	GP34	CIR RX
W83627HF	GP35	SUSLED (Green LED)

GPIO ASSIGN LIST

CHIPSET	GPIO	POWER	DESCRIPTION
W83910F	GPA00	VCC	For All Error LED: Active Low
W83910F	GPA01	VCC	For Hard Disk Error LED: Active Low
W83910F	GPA02	VCC	For Fan Error LED: Active Low
W83910F	GPA03	VCC	For Power Supply Error LED: Active Low
W83910F	GPA04	VCC	For System Power LED: Active Low
W83910F	GPA05	VCC	For System NMI: Active High
W83910F	GPA06	VCC	For CPU Internal Error Detect: Active Low
W83910F	GPA07	VCC	For CPU Thermal Trip Signal Detect: Active Low
W83910F	GPA10	VCC	For Keyboard/Mouse Fuse Error
W83910F	GPA11	VCC	
W83910F	GPA12	VCC	For SCSI Channel1 Fuse Error
W83910F	GPA13	VCC	For SCSI Channel2 Fuse Error
W83910F	GPA14	VCC	For Backplane USB Fuse Error
W83910F	GPA15	VCC	For Front Side USB Fuse Error
W83910F	GPA16	VCC	For VGA Connector Power Fuse Error
W83910F	GPA17	VCC	
W83910F	GPB00	VSB	For System Green Function: Active Low to ICH2
W83910F	GPB01	VSB	For Power Button Signal to ICH2: Active Low
W83910F	GPB02	VSB	For LCD Panel "SELECT"
W83910F	GPB03	VSB	For LCD Panel "ENTER"
W83910F	GPB04	VSB	For LCD Panel "ESCAPE"
W83910F	GPB05	VSB	For Buzzer Stop Button: Active High
W83910F	GPB06	VSB	For System Power Button: Active High
W83910F	GPB07	VSB	For System Reset Button: Active High
W83910F	GPB10	VSB	For System Green Function Button: Active High
W83910F	GPB11	VSB	For ICMB Port
W83910F	GPB12	VSB	For CPU Present Detection: Low--> CPU Installed
W83910F	GPB13	VSB	For KBLock Function From BMC: Active Low
W83910F	GPB14	VSB	For System Reset From BMC: Active High
W83910F	GPB15	VSB	For System Power Control From BMC: Active Low
W83910F	GPC00	VBAT	
W83910F	GPC01	VBAT	
W83910F	GPC02	VBAT	
W83910F	GPC03	VBAT	
W83910F	GPC04	VBAT	
W83910F	GPC05	VBAT	
W83910F	GPC06	VBAT	
W83910F	GPC07	VBAT	

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Model Name: GA-8IRXR-A

Version: 1.00

Component value change history

Date	Change Item	Reason

Circuit or PCB layout change for next version

Date	Change Item	Reason

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Title: BOM CHANGE HISTORY

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