Model Name: GA-7VM400AMF

Revision 1.0

SHEET	TITLE
1	BOM & PCB MODIFY HISTORY
2	COVER SHEET
3	BLOCK DIAGRAM
4,5	AMD CPU SOCKET A
6,7,8	KM400 HOST; DDR; AGP,VLINK,POWER/GOUND
9	CLOCK GENERATOR (ICS950913CF)
10,11,12	VT8237 (SOUTH BIRDGE)
13,14	DDR SDRAM DIMMS 1,2 DDR TERMINATION
15	AGP SLOT
16	PCI SLOT 1,2,3
17	IDE,USB
18	LPCIO_IT8705
19	BIOS
20	COM,PRT,FDD,KB/MS,IR
21	AC 97 CODEC
22	AUDIO JACK,GAME PORT
23	RTL8110S & USB CONNECTOR
24	PANEL,STR LED,FANS
25	DDR POWER
26	ATX CONN,3VDUAL,VDDQ DC POWER
27	VCORE PHASE PWM FAIRCHILD FAN5091M
28	VID,FID CONTROL
29	TI TSB43AB23

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

GIGABYTE

Title: COVER SHEET

Size: Custom | Document Number: GA-7VM400AMF | Rev: 1.0

Date: Wednesday, December 17, 2003 | Sheet 1 of 29

Model Name: GA-7VM400AMF

Version:1.0

Component value change history **2003.09.22**

Date	Change Item	Reason
2003/10/28	0.1 BOM ISSUED.	Modify from 7VM400AMFP 0.1. Change model name. Change NB form KKM400A/A1 to KM400A/A2.
2003/11/24	1.0A BOM RELEASE	SOLVE DDR COMPATIBILITY
2003/12/09	1.0B BOM RELEASE	COST DOWN
2003/12/17	Add VT8237/CD China Version.	1.0B BOM ECN

Circuit or PCB layout change for next version

Date	Change Item	Reason
2003/10/01	VER: 0.1 PCB	0.1 GERBER OUT
2003/11/20	VER: 1.0 PCB	1.0 GERBER OUT

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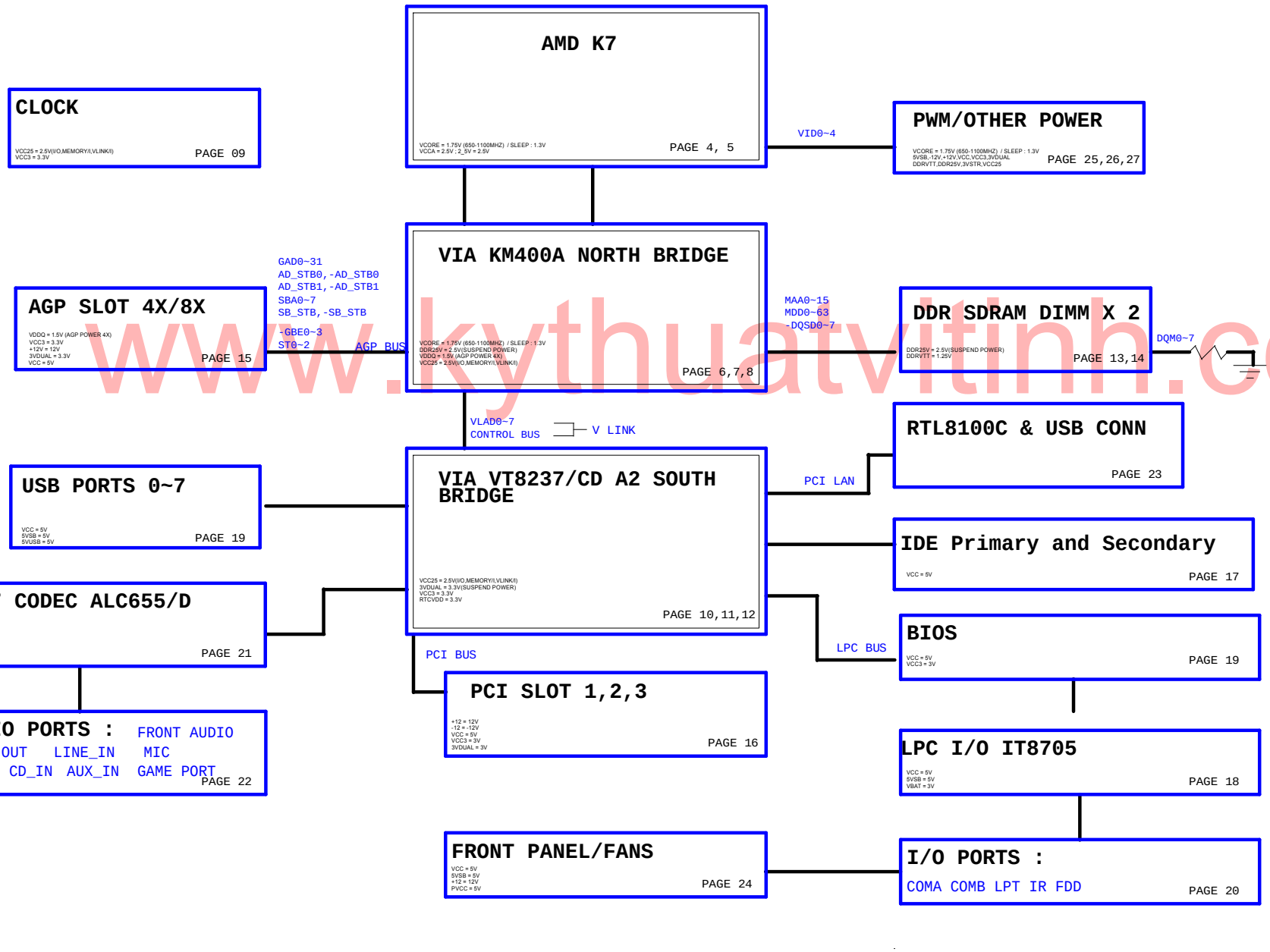
Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-7VM400AMF | Rev: 1.0

Date: Wednesday, December 17, 2003 | Sheet 2 of 29

GA-7VM400AMF BLOCK DIAGRAM

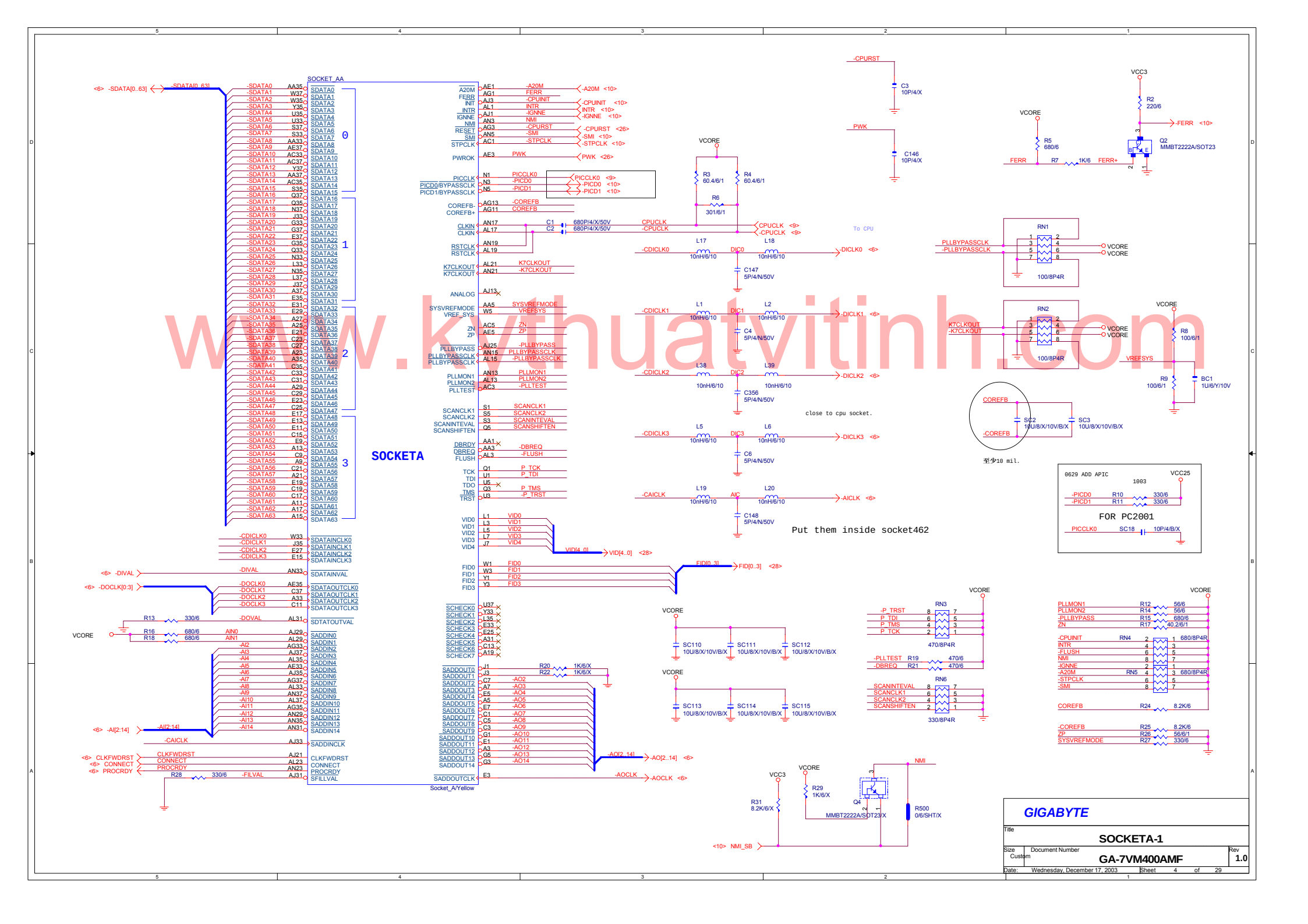


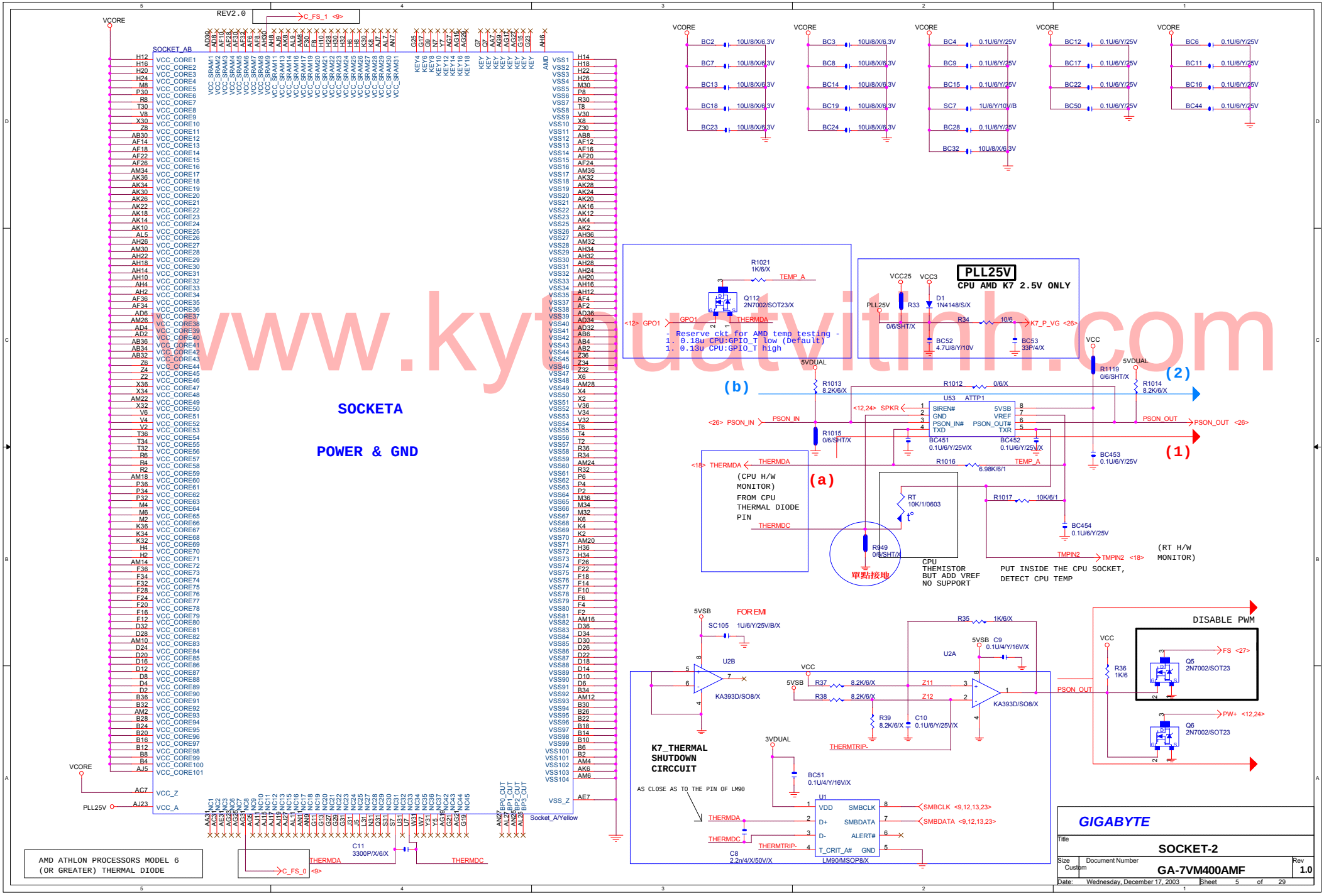
GIGABYTE

Title: BLOCK DIAGRAM

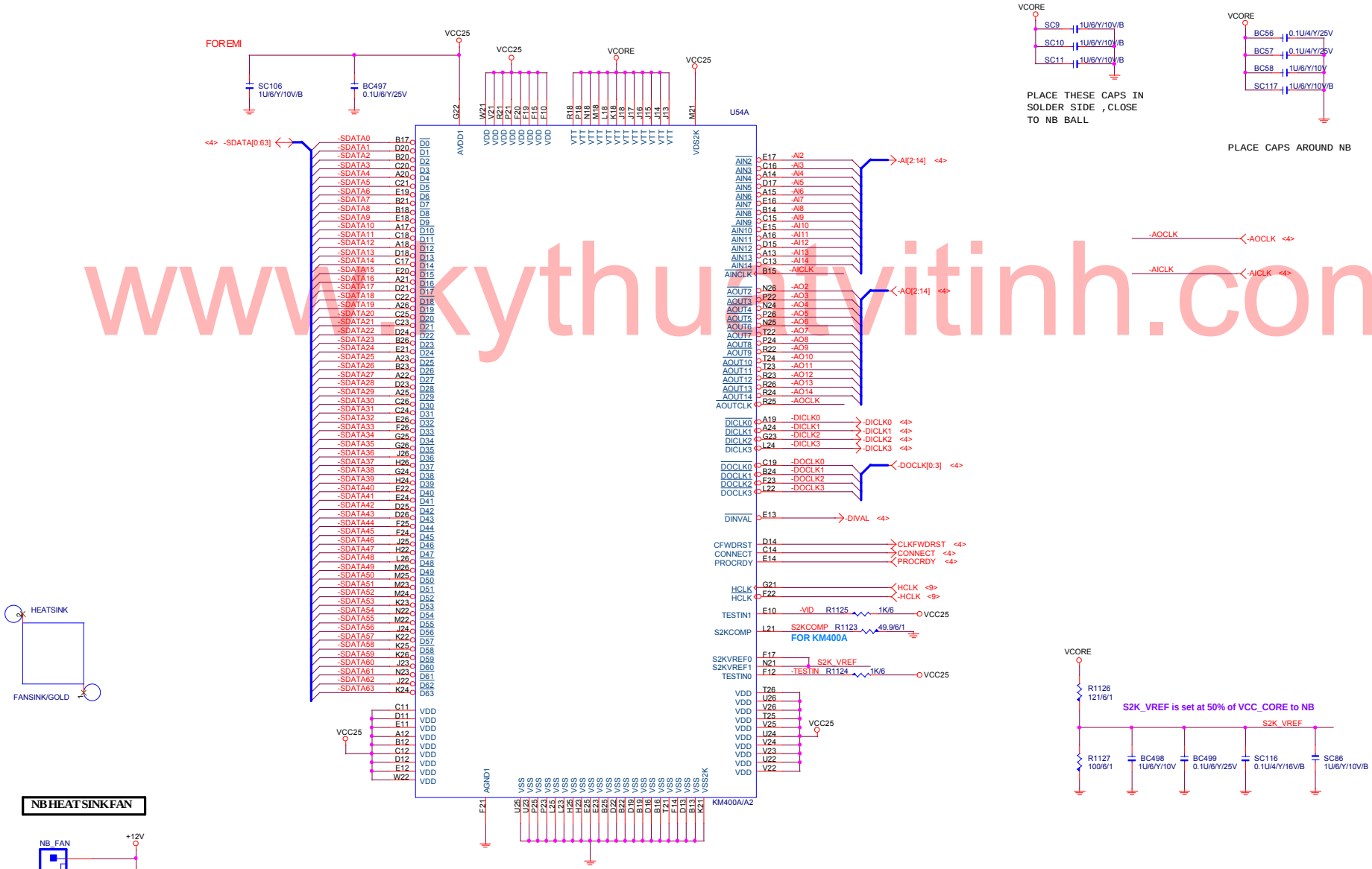
Size: Custom | Document Number: GA-7VM400AMF | Rev: 1.0

Date: Wednesday, December 17, 2003 | Sheet 3 of 29



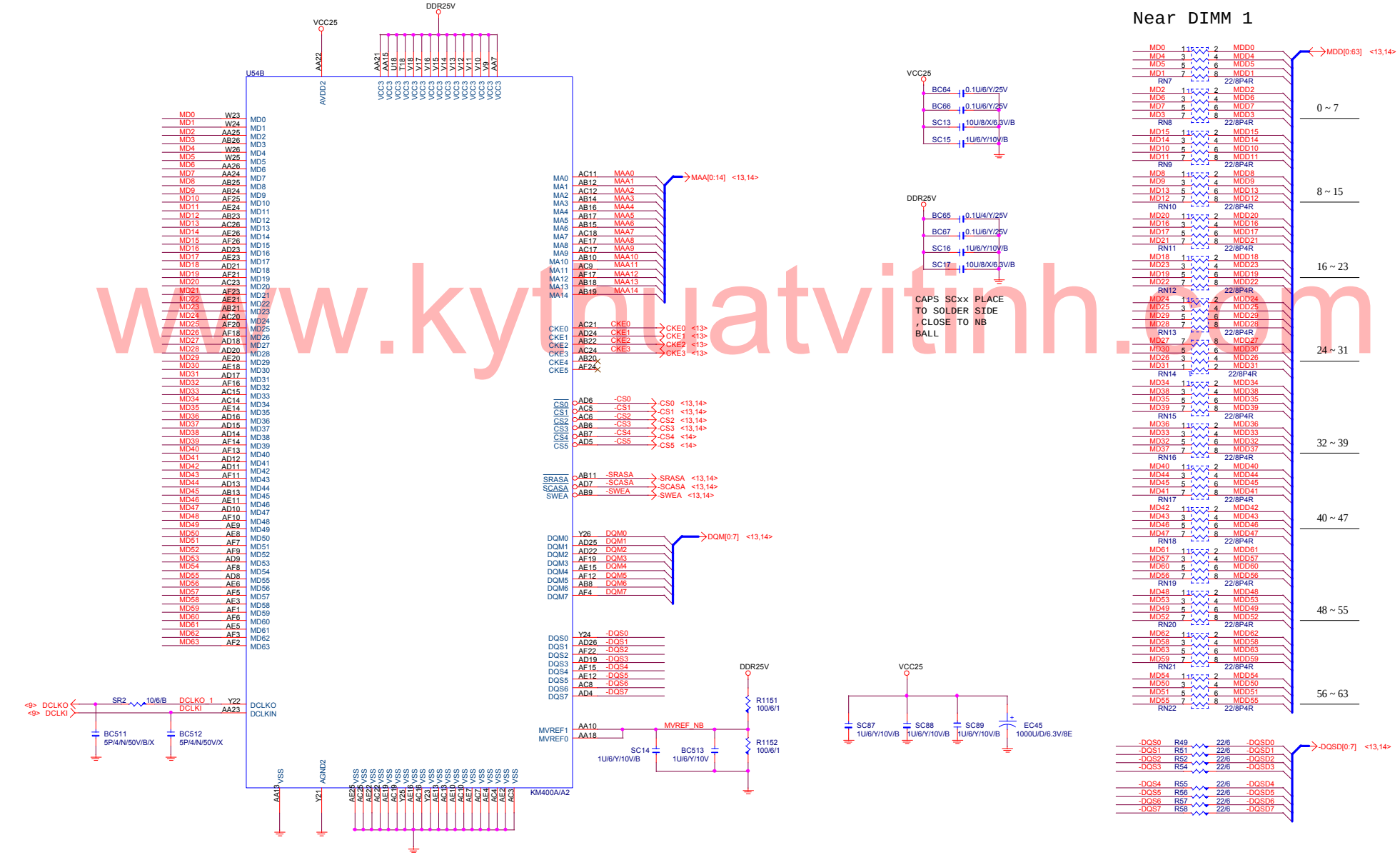


VT-KM400A (S2K BUS)



GIGABYTE		
Title: KM400A (S2K BUS)		
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
Date: Wednesday, December 17, 2003	Sheet 6 of 29	

VT-KM400A (DDR BUS)



DDR MD DAMPPING

Near DIMM 1

GIGABYTE		
Title: KM400A (DDR bus)		
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
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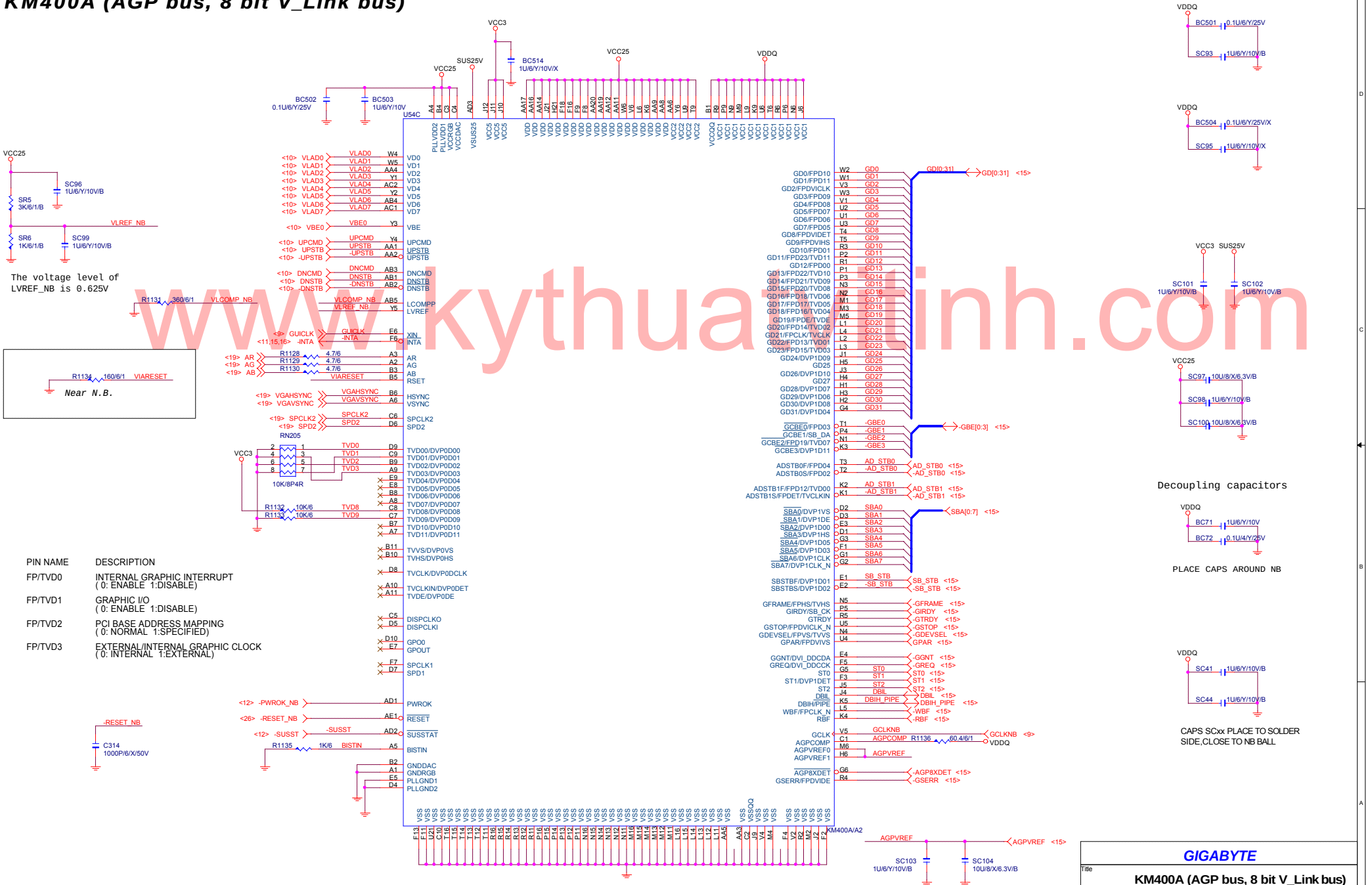
KM400A (AGP bus, 8 bit V_Link bus)



The voltage level of LVREF_NB is 0.625V

Near N.B.

Decoupling capacitors

PLACE CAPS AROUND NB

CAPS SCxx PLACE TO SOLDER SIDE,CLOSE TO NB BALL

PIN NAME	DESCRIPTION
FP/TVD0	INTERNAL GRAPHIC INTERRUPT (0: ENABLE 1:DISABLE)
FP/TVD1	GRAPHIC I/O (0: ENABLE 1:DISABLE)
FP/TVD2	PCI BASE ADDRESS MAPPING (0: NORMAL 1:SPECIFIED)
FP/TVD3	EXTERNAL/INTERNAL GRAPHIC CLOCK (0: INTERNAL 1:EXTERNAL)

GIGABYTE

Title	KM400A (AGP bus, 8 bit V_Link bus)	
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
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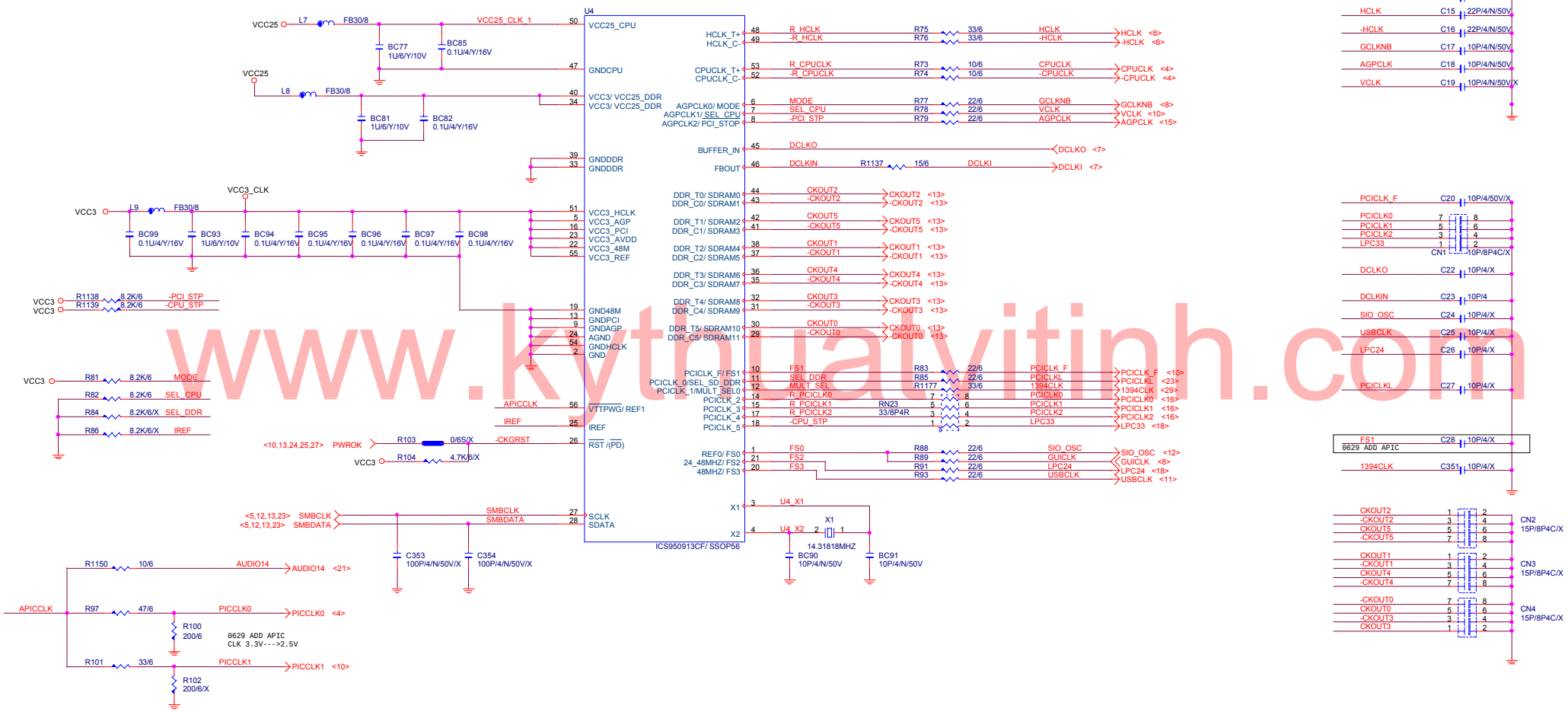
CLOCK GENERATOR



SW1	CPU CLOCK	
	100MHZ	AUTO
1	ON	OFF

KM400A/CD STRAPPING FSB100/133/166/200MHZ

	CPU/CLK GEN.		8235CD/CE		8237 CD		AMD CPU FSB SENSE TABLE		
	FS1	FS0	SDA2	SDA0	PDA2	PDA0	C_FS_1	C_FS_0	FSB FREQ
100MHZ	1	0	0	0	0	0	1	0	RESERVE
133MHZ	1	1	0	1	0	1	1	1	133MHZ
166MHZ	0	1	1	1	1	1	0	1	166MHZ
200MHZ	0	0	1	0	1	0	0	0	200MHZ

CLK H/W TRAP FREQ TABLE H/W AUTO TRAP (100/133/166/200MHZ)

CPU	AGP	PCI	FS3	FS2	FS1	FS0
100.00	66.66	33.33	0	1	1	0
133.33	66.66	33.33	0	1	1	1
166.66	66.66	33.33	0	1	0	1
200.00	66.66	33.33	0	1	0	0

GIGABYTE

Title	CLOCK GENERATOR	
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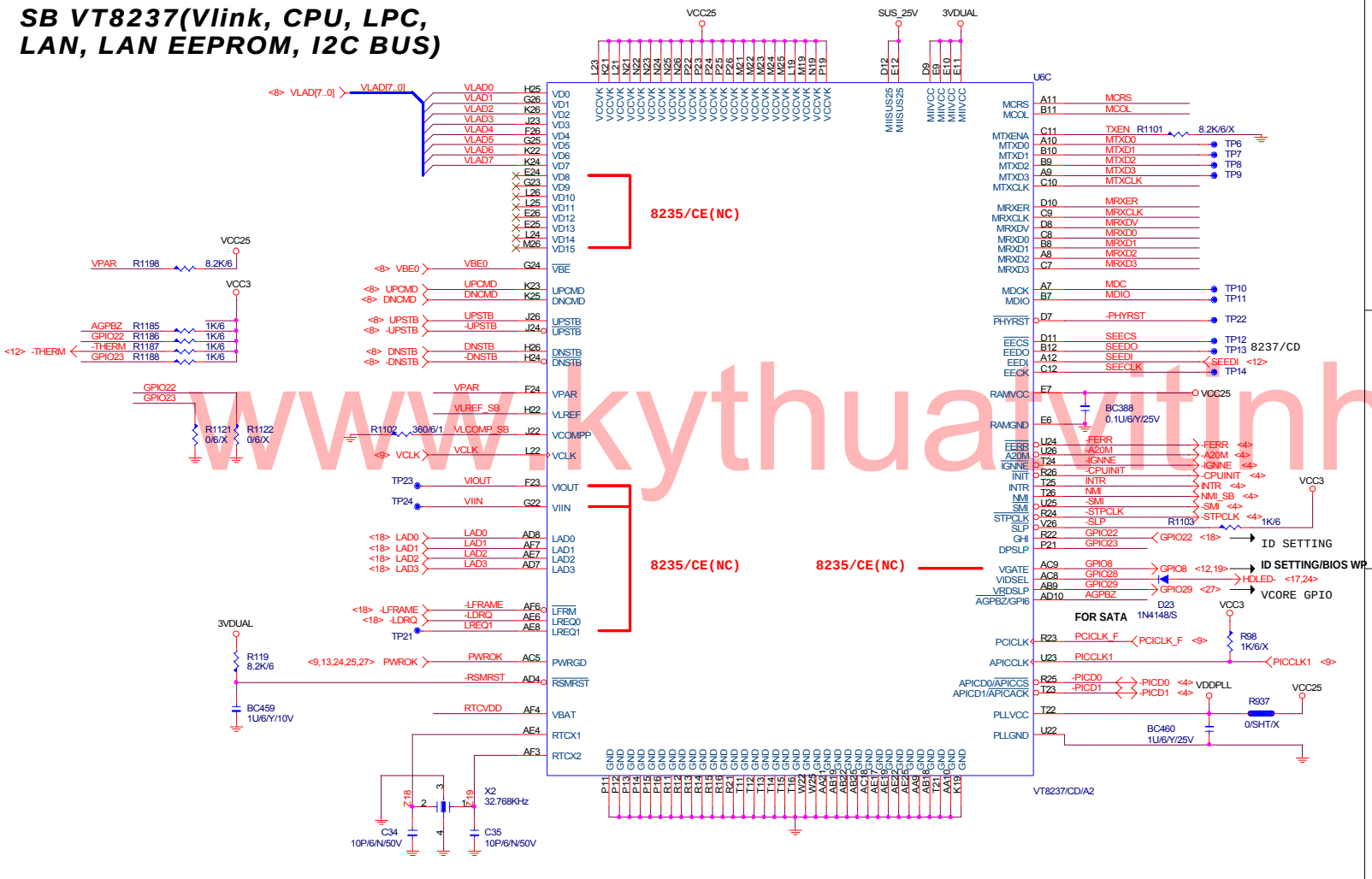
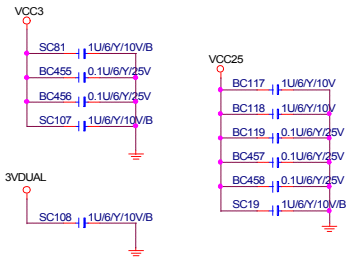
SB VT8237(Vlink, CPU, LPC, LAN, LAN EEPROM, I2C BUS)

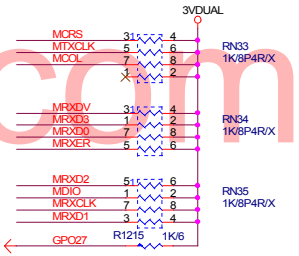


Decoupling capacitors

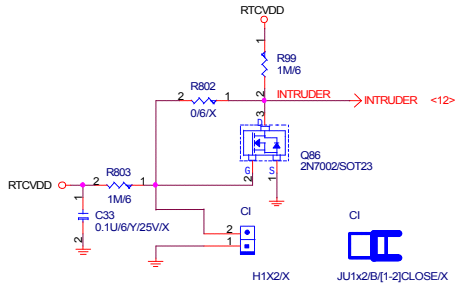


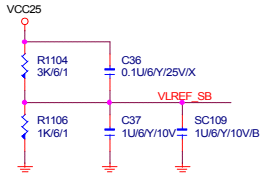
CLOSE VT8235 SOLDER

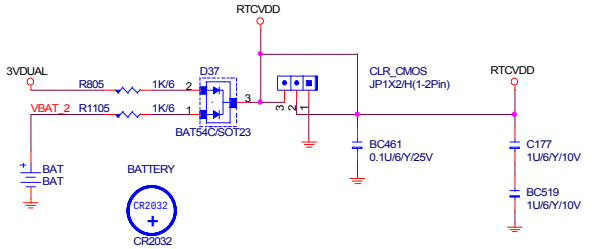
Internal MAC P.U



Case Open Circuits

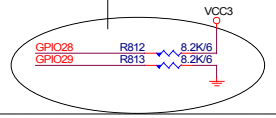






CLR_CMOS 1-2	
SHORT	CLEAR CMOS
OPEN	NORMAL

請遠離S/B 2MM



GIGABYTE

Title	VT8237CD/A2(Vlink, CPU, LPC, LAN, I2C)	
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
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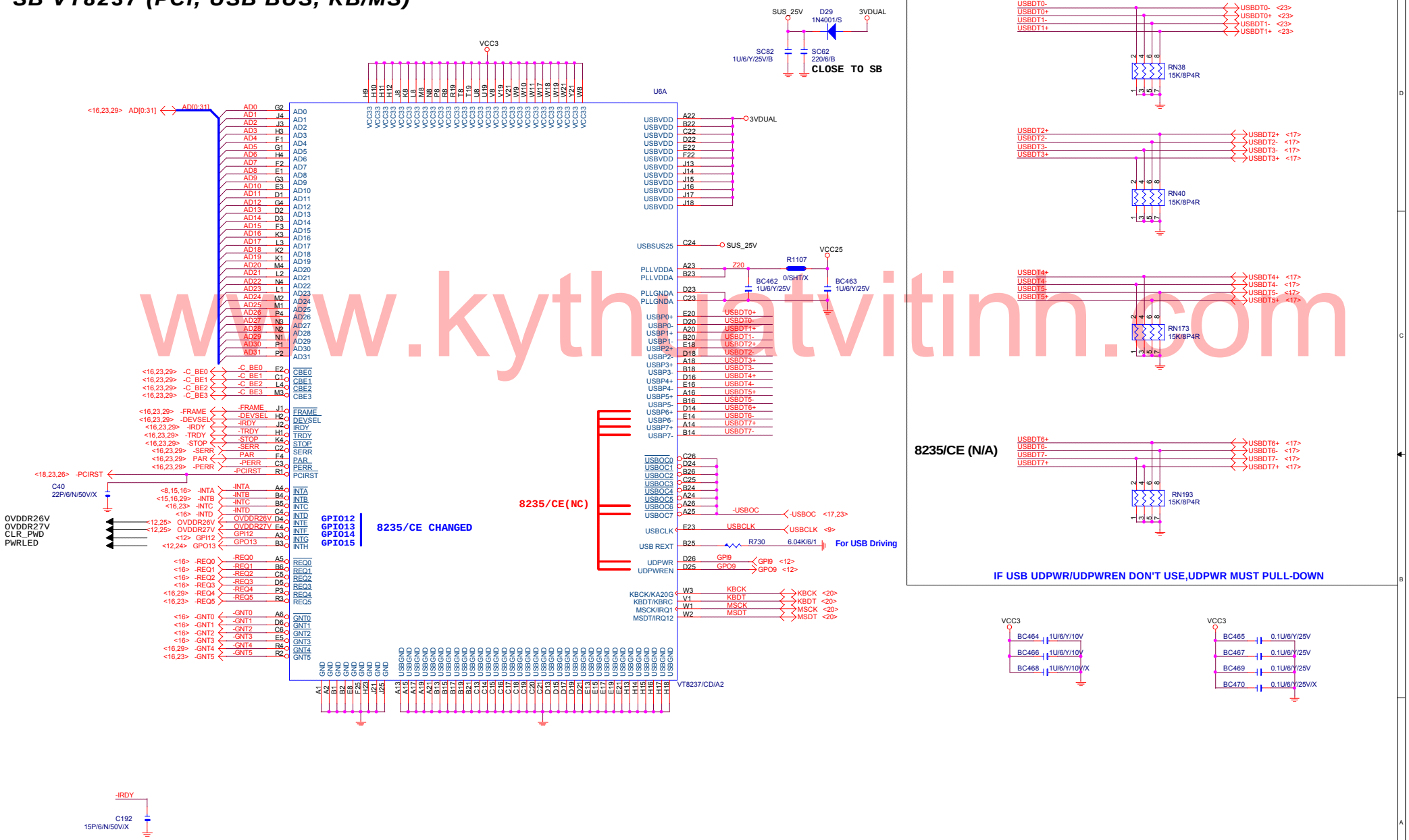
SB VT8237 (PCI, USB BUS, KB/MS)



GIGABYTE

Title	VT8237CD/A2 (PCI, USB BUS, KB/MS)
Size: Custom	Document Number: GA-7VM400AMF
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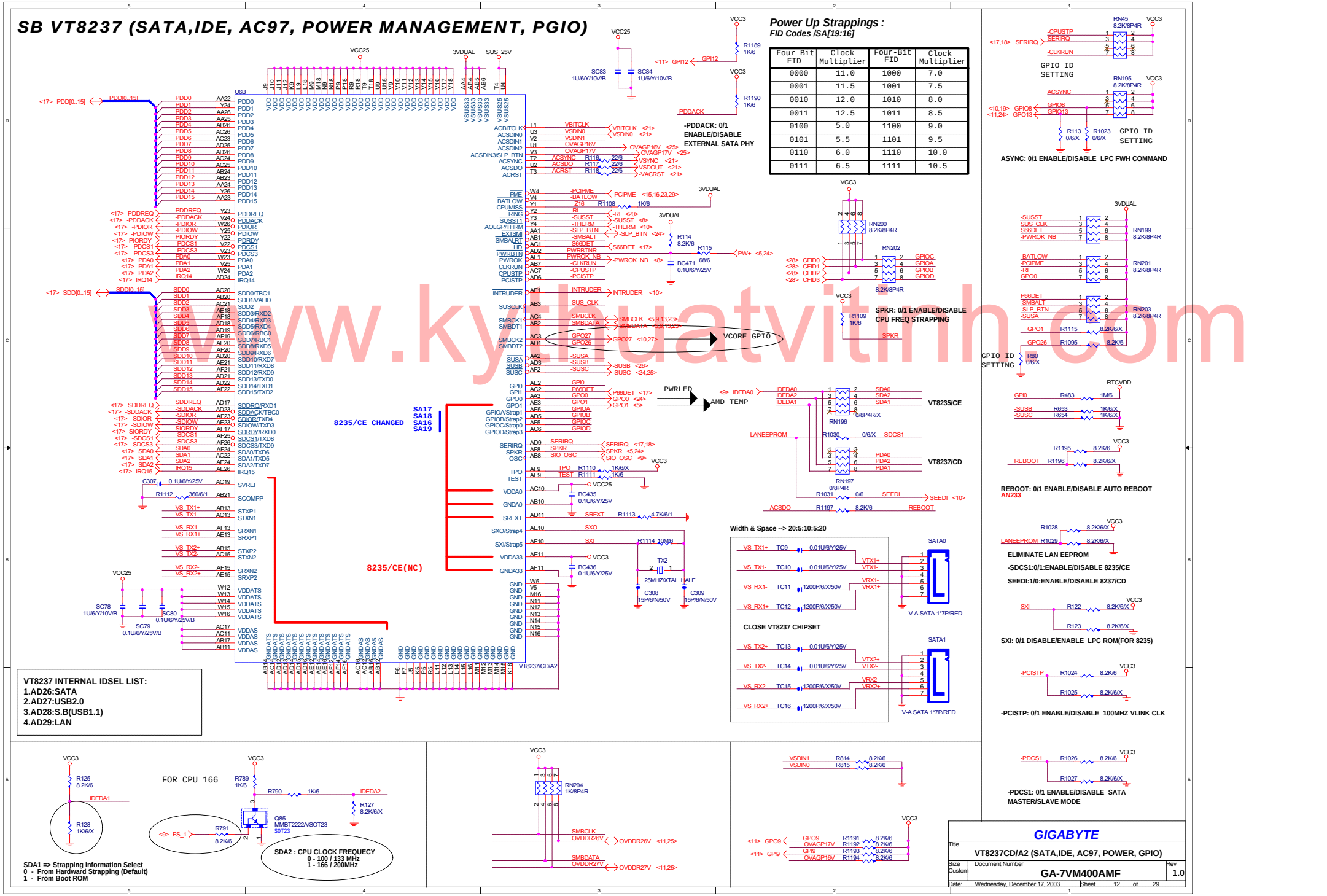
Date: Wednesday, December 17, 2003	Sheet 11 of 29

SB VT8237 (SATA,IDE, AC97, POWER MANAGEMENT, PGIO)



Power Up Strappings :

FID Codes /SA[19:16]

Four-Bit FID	Clock Multiplier	Four-Bit FID	Clock Multiplier
0000	11.0	1000	7.0
0001	11.5	1001	7.5
0010	12.0	1010	8.0
0011	12.5	1011	8.5
0100	5.0	1100	9.0
0101	5.5	1101	9.5
0110	6.0	1110	10.0
0111	6.5	1111	10.5

GIGABYTE

Title: VT8237CD/A2 (SATA,IDE, AC97, POWER, GPIO)

Size: Custom | Document Number: GA-7VM400AMF | Rev: 1.0

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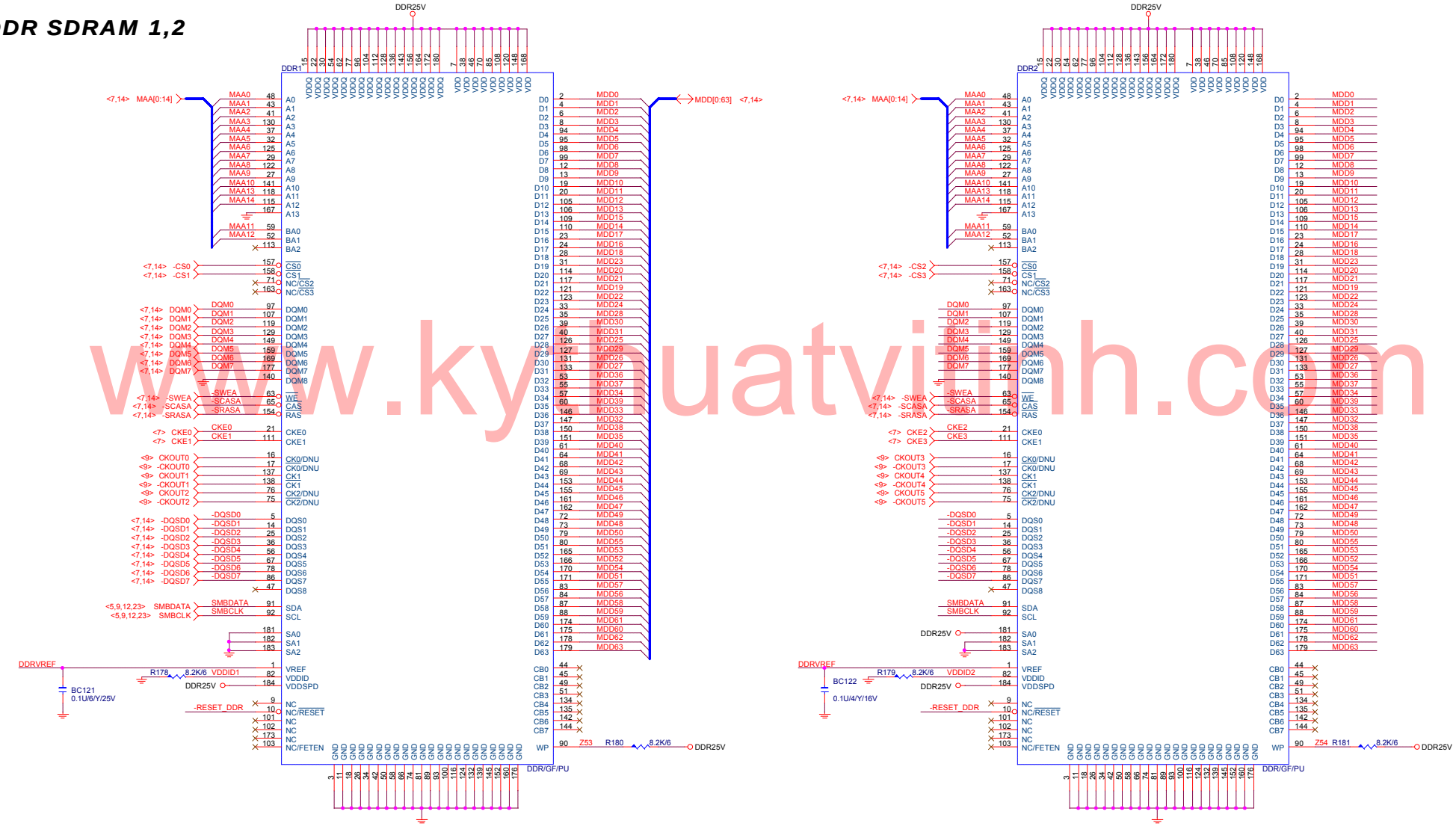
DDR SDRAM 1,2



GIGABYTE

Title	DDR UNBUFFERED 1,2	
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
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MAA[0:14] <> MAA[0:14] <7,13>

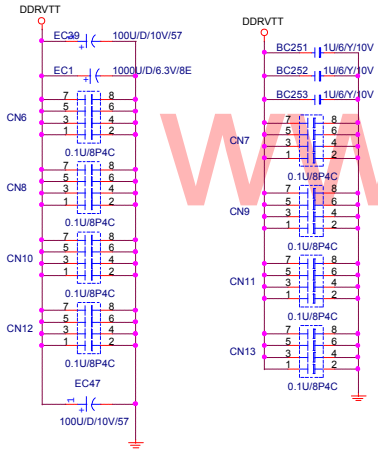
MDD[0:63] <> MDD[0:63] <7,13>

DQM[0:7] <> DQM[0:7] <7,13>

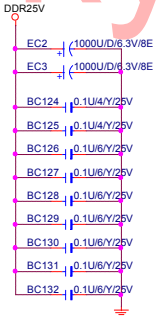
-CS[0:5] <> -CS[0:5] <7,13>

-DQSD[0:7] <> -DQSD[0:7] <7,13>

DDRVTT Decouple

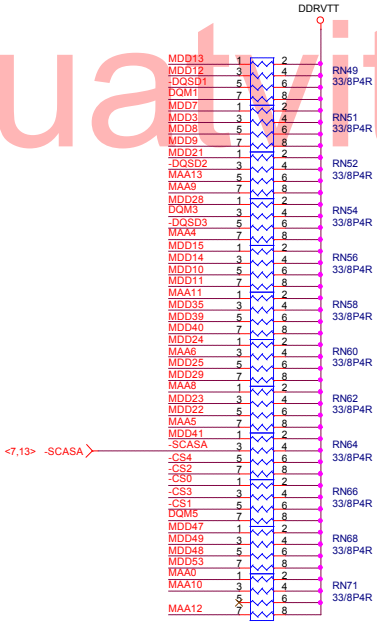


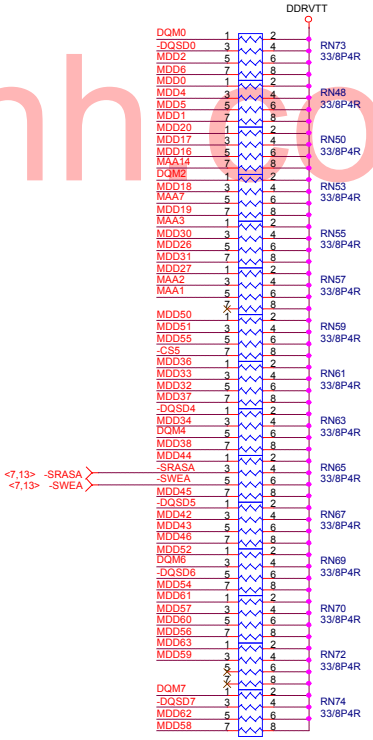
DDR25V Decouple

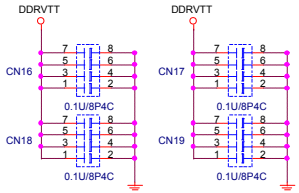


NOTE: Place Detribute 4 pcs per DDR module.

DDR TERMINATION



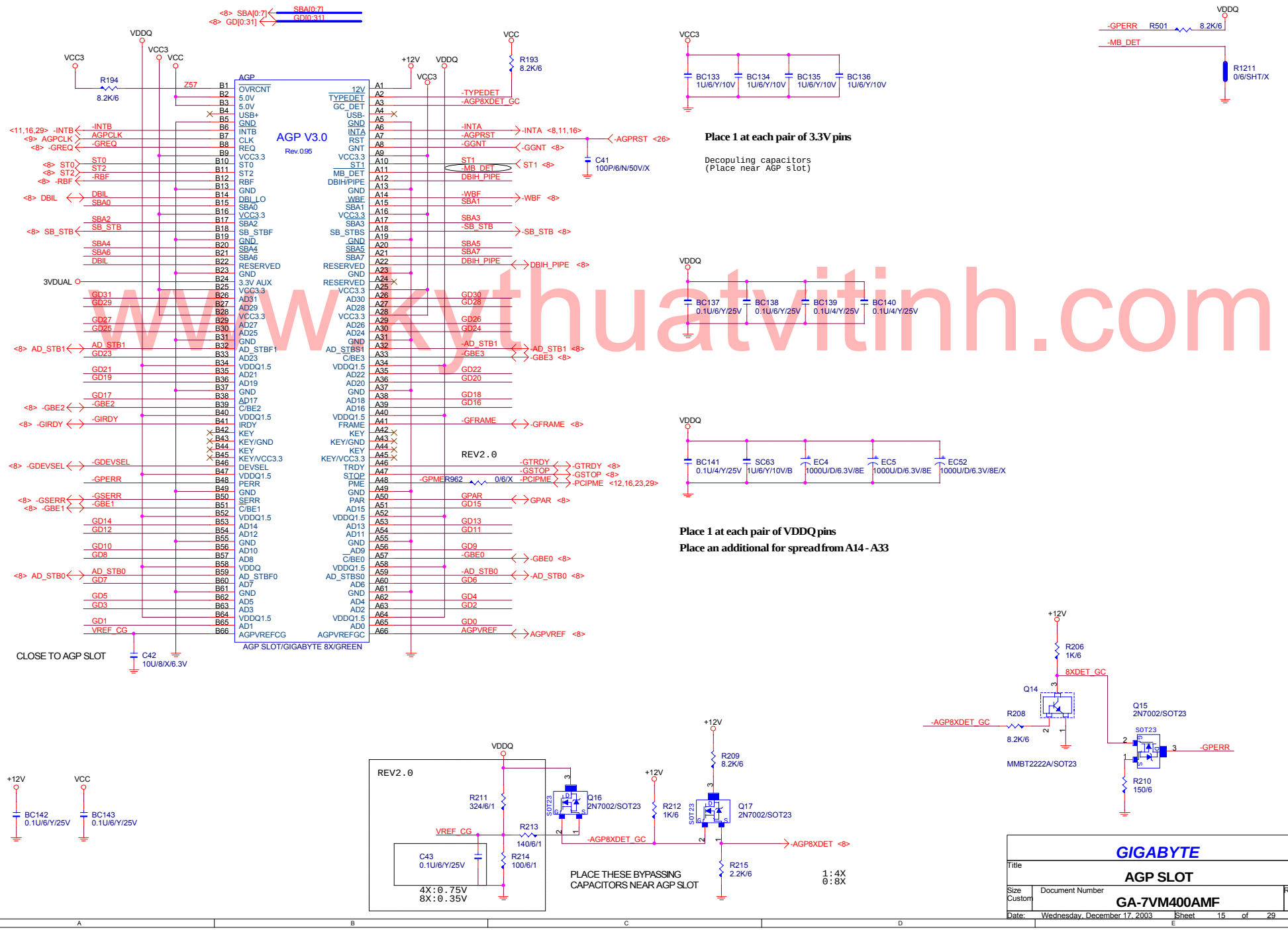


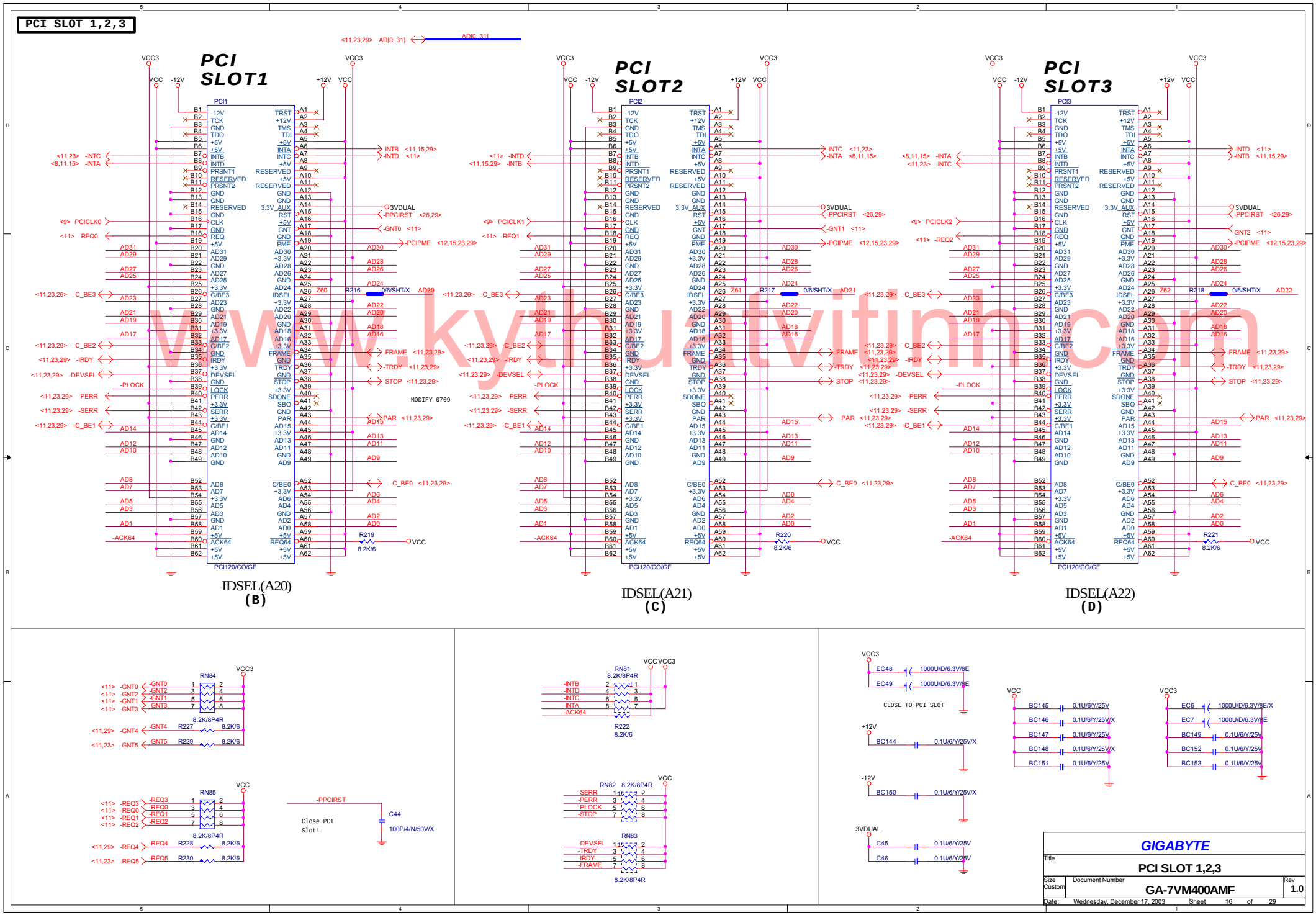


NOTE: Place these decoupling capacitors close to VTT_MEM termination resistors. (one decoupling coapcitor for each two R-packs)

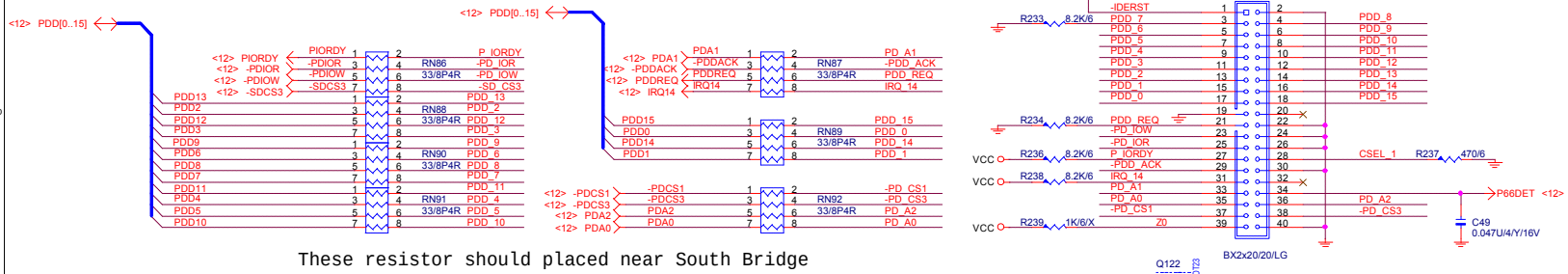
GIGABYTE

Title	DDR UNBUFFERED 3	
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
Date: Wednesday, December 17, 2003	Sheet 14 of 29	

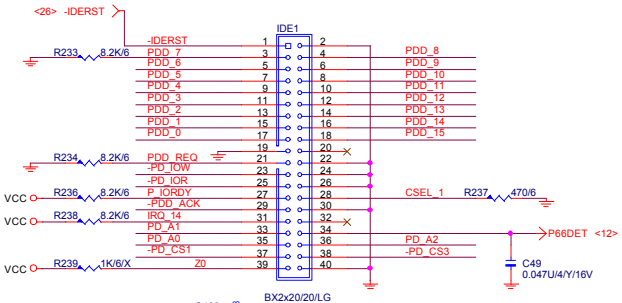




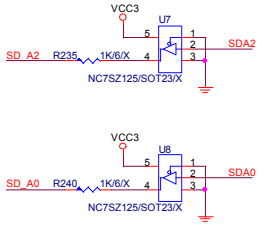
PRIMARY IDE



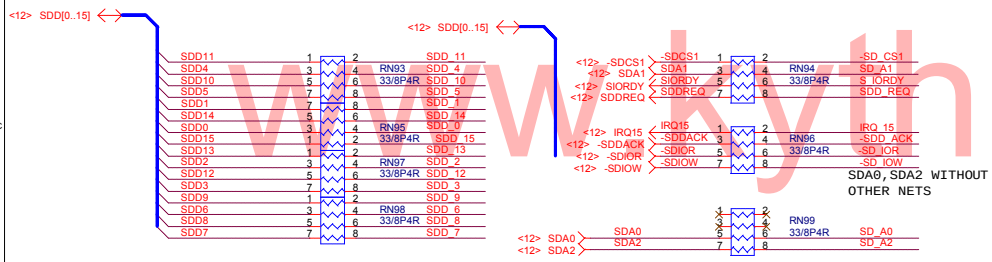
These resistor should placed near South Bridge



CD,DVD ROM STRAPPING ISSUE

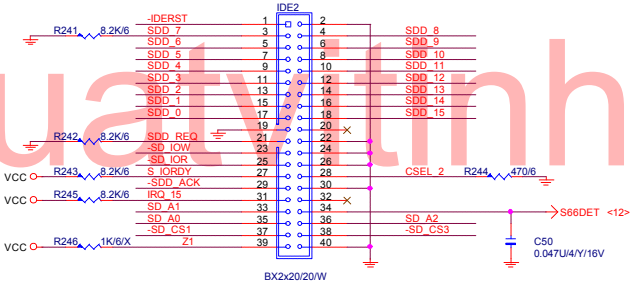


SECONDARY IDE

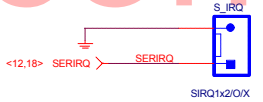


SDA0,SDA2 WITHOUT OTHER NETS

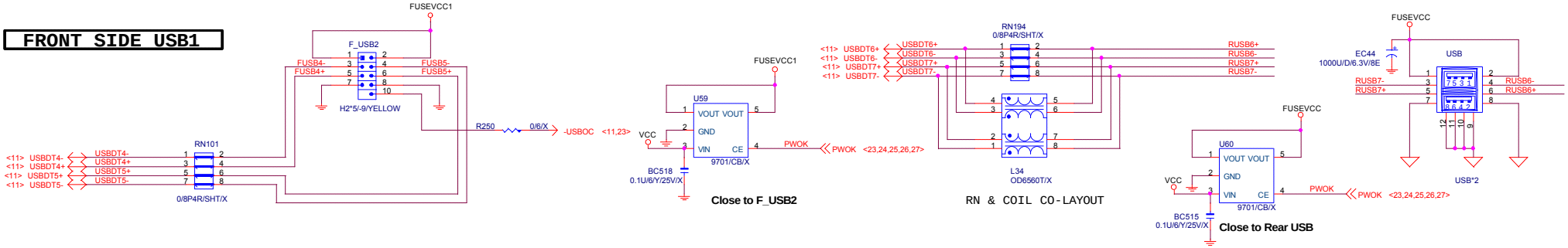
These resistor should placed near South Bridge



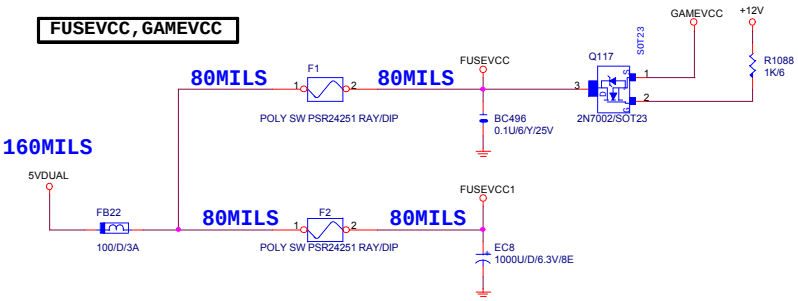
SIRQ

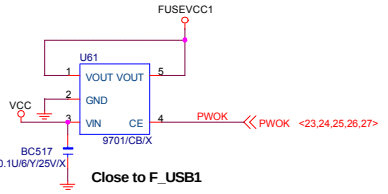


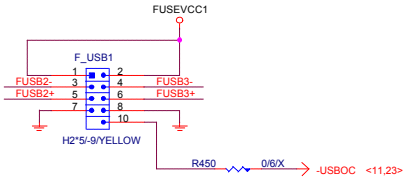
FRONT SIDE USB1

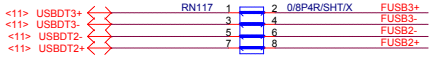


FUSEVCC,GAMEVCC







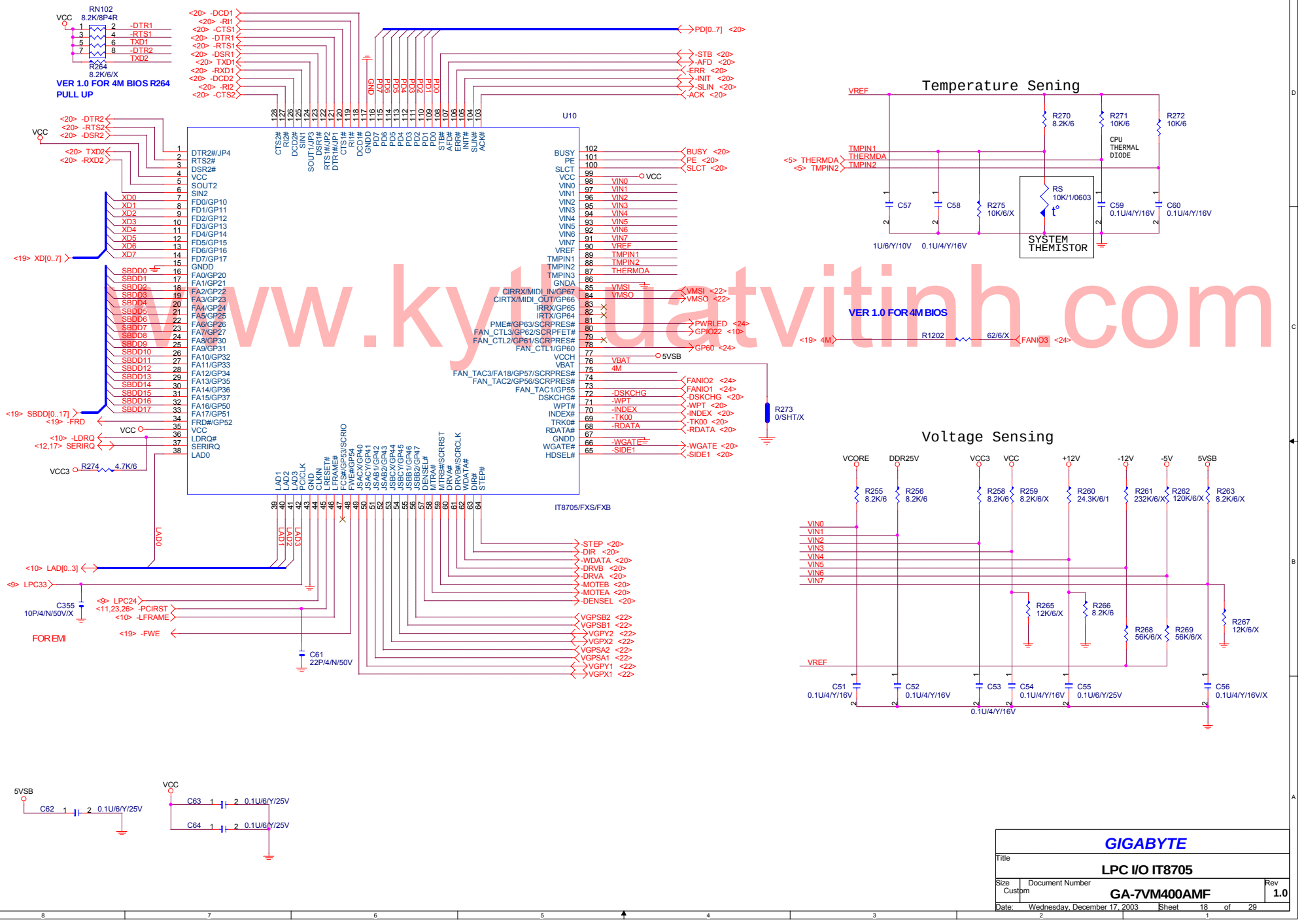


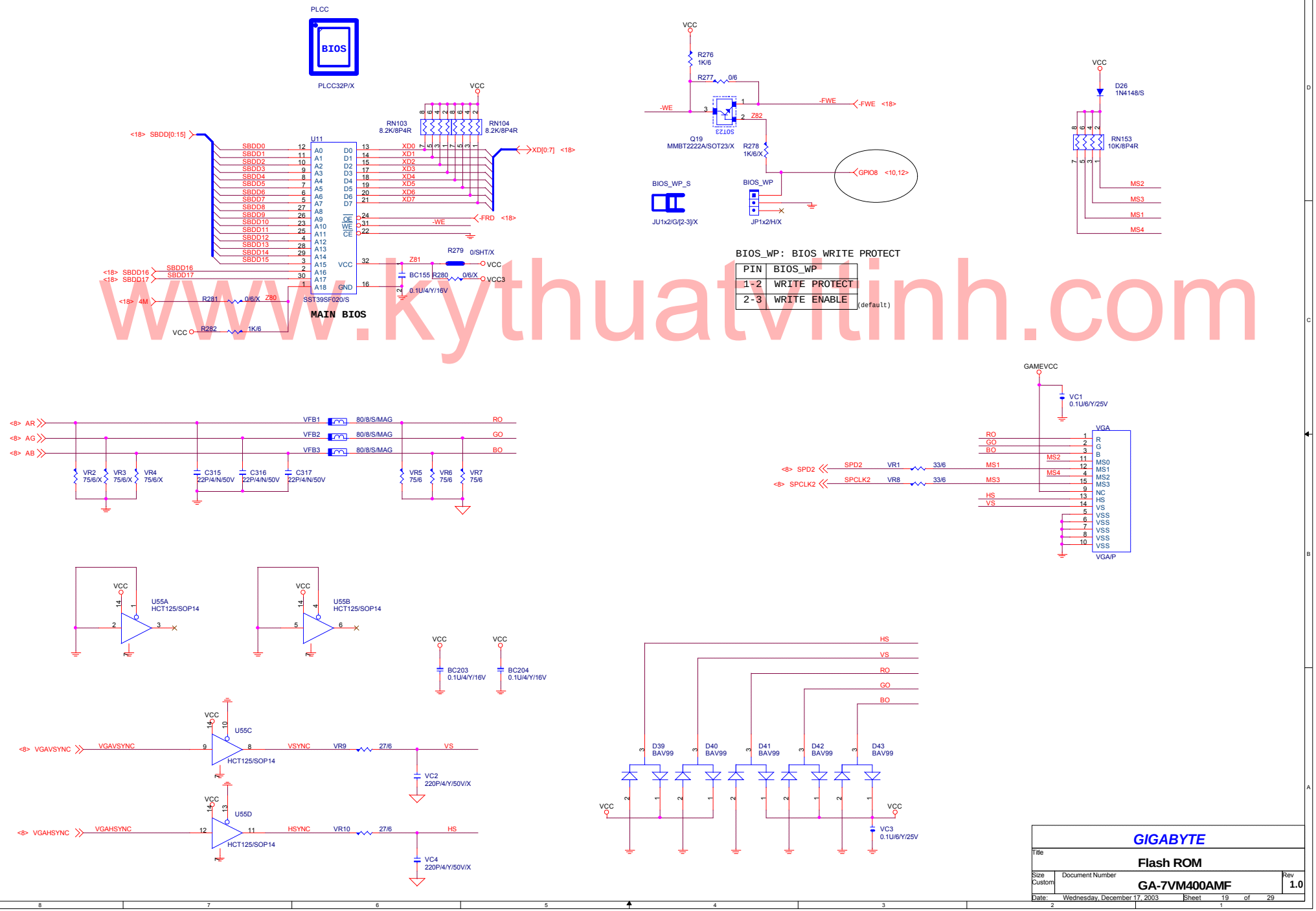
GIGABYTE

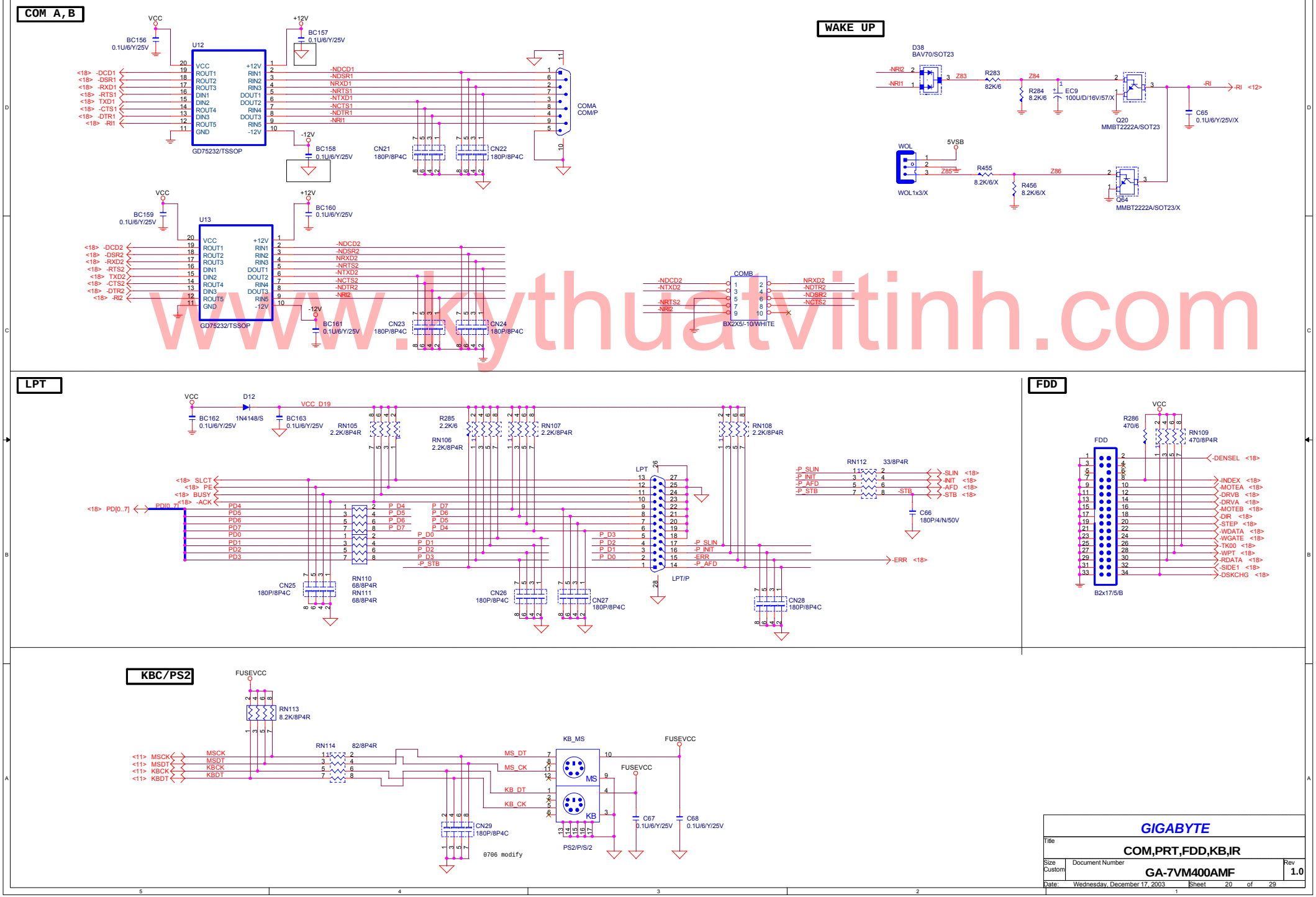
Title: IDE, USB

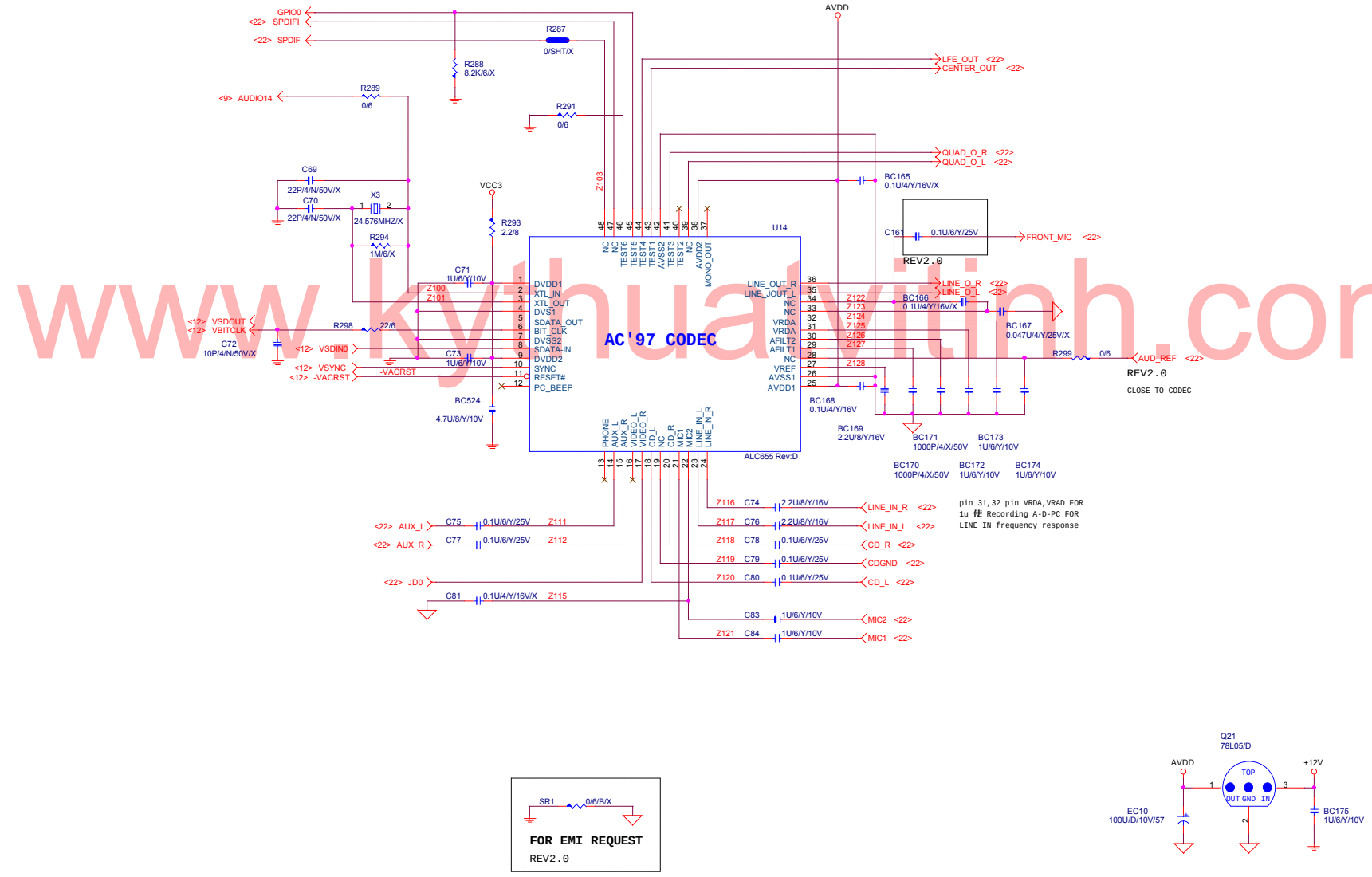
Size	Document Number	Rev
Custom	GA-7VM400AMF	1.0

Date: Wednesday, December 17, 2003 Sheet 17 of 29

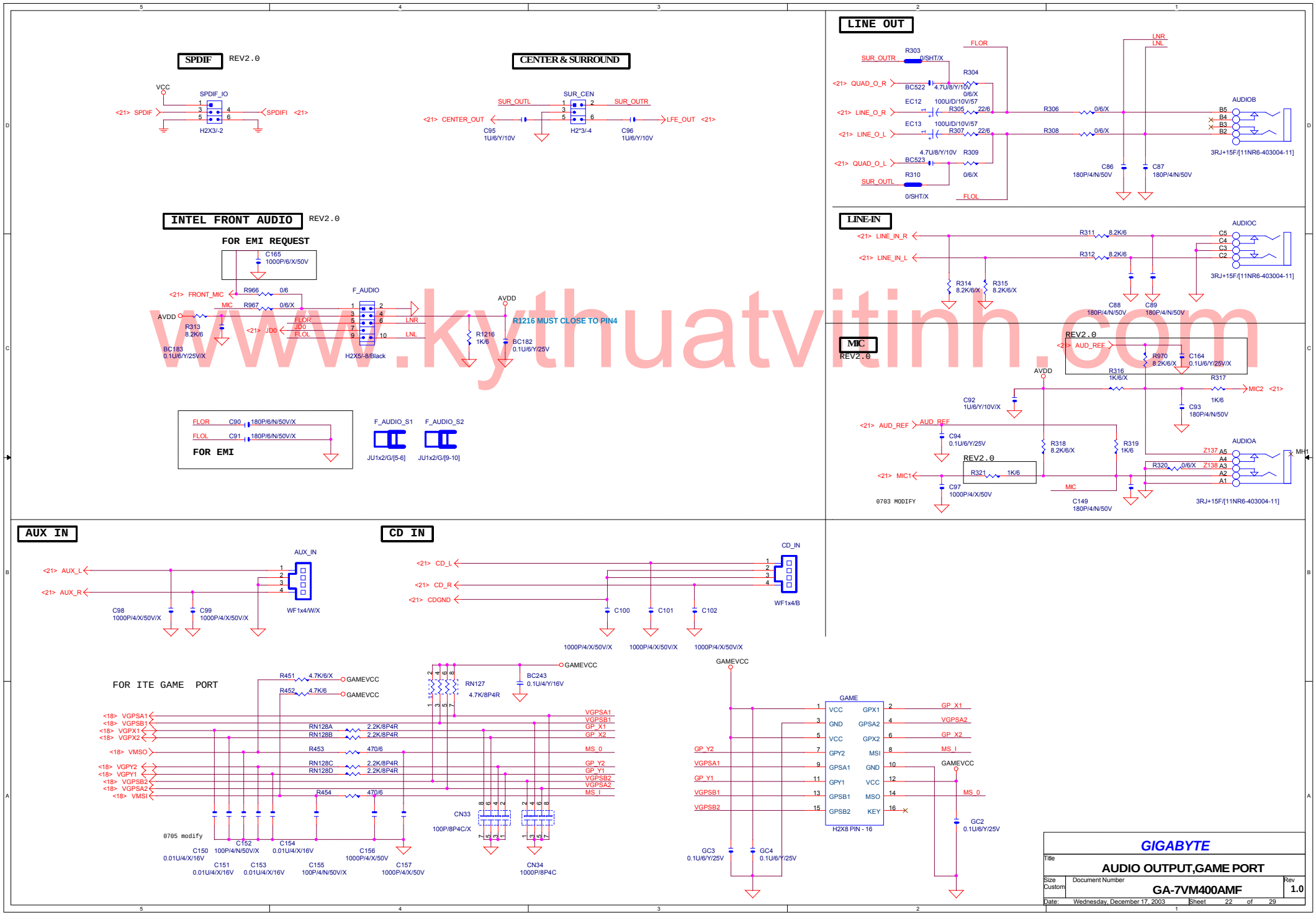








GIGABYTE		
Title	AUDIO (CREATIVE CT5880)	
Size: Custom	Document Number: GA-7VM400AMF	Rev: 1.0
Date: Wednesday, December 17, 2003	Sheet 21 of 29	



	10/100 8100C	Giga 8110S	Giga 8110SB
AVDDH	N/A	3.3V	3.3V
V_12P	2.5V	N/A	3.3V
AVDDL	3.3V	2.5V	2.5V
V_DAC	N/A	2.5V	2.5V
DVDD	2.5V	1.8V	1.3V
DVDD_A	2.5V	1.8V	1.3V

		Dual Color LED	
	Yellow	Green	Orange
10Mb	---	OFF	OFF
100Mb	---	ON	OFF
1Gb	---	OFF	ON
Link	ON	---	---
Active	Blink	---	---

LU1:
100M:RTL8100C
1G:RTL8110S

LR15:
100M:5.9K/6/1
1G:2.49K/6/1

LR35:
100M:N/A
1G:0/6

FOR EMI

RTL8100C

LR26~LR29:
100M:N/A
1G:49.9/6/1

LBC28, LBC29:
100M:N/A
1G:0.01U/6

LBC23:
100M:N/A
1G:N/A

LR17:
100M:N/A
1G:0/6

IDESEL 30
-REQ/-GNT(5)
-INTC

LR4:
93C46:N/A
93C56:8.2K/6

POWER DECOUPLING CAP.

LR16:
100M:N/A
1G:0/8

LFB1:
100M:N/A
1G:0/8

LFB2:
100M:0/8
1G:N/A

LFB3:
100M:0/8
1G:N/A

LQ1:
100M:N/A
2SB1132

For : Gigabyte LAN

LQ3:
100M:2N2907A
1G:N/A

DVDD:
100M:2.5V
1G:1.8V

USB

LAN EEPROM

Spacing : at least 50 mils between each differential pair

USB_LAN

UP

DOWN

USB/LAN[S-TECHP35-152-11Z9]

FOR 1G:P35-152-19W9

FOR 100M:P35-152-11Z9

LBC25:
100M:0.1U/6
1G:0.01U/6

FOR EMI

For 8100C

For 8110S

LR22, LR23, LBC26 Close to Lan Chip
Realtek suggestion (TX+, TX-).

LR24, LR25, LBC27 Close to Lan Chip
Realtek Suggestion (RX+, RX-).

Close to USB_Lan

GIGABYTE

Title	LAN RTL8110C	
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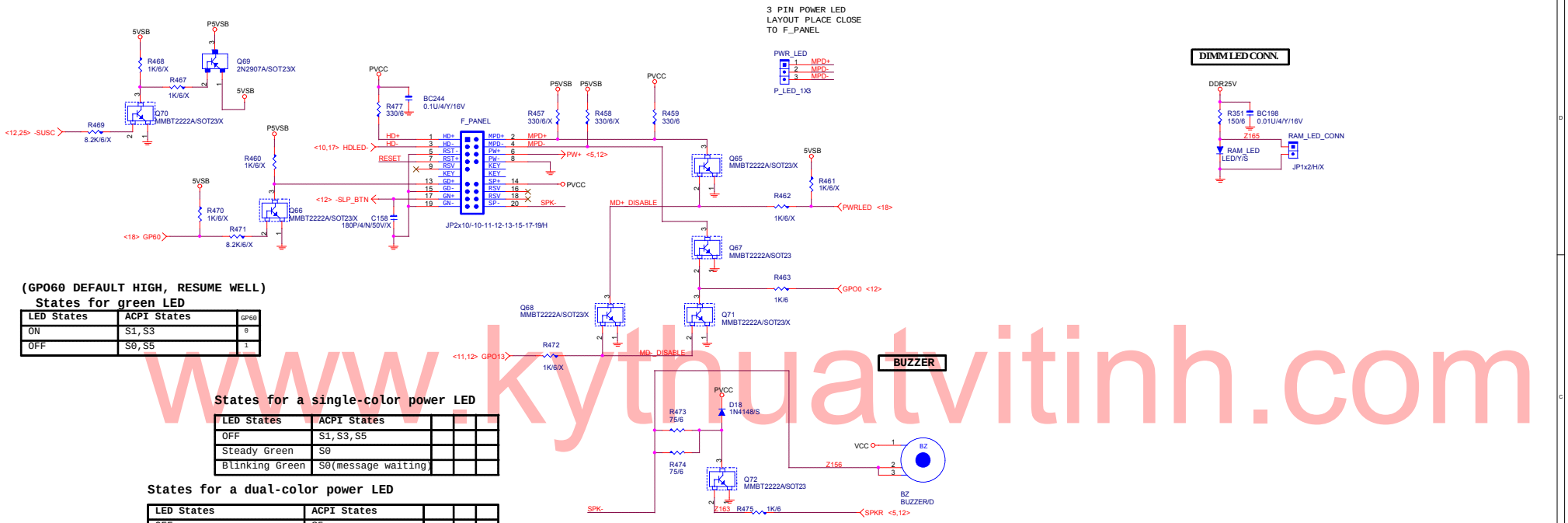


(GPO60 DEFAULT HIGH, RESUME WELL)

States for green LED

LED States	ACPI States	GP60
ON	S1,S3	0
OFF	S0,S5	1

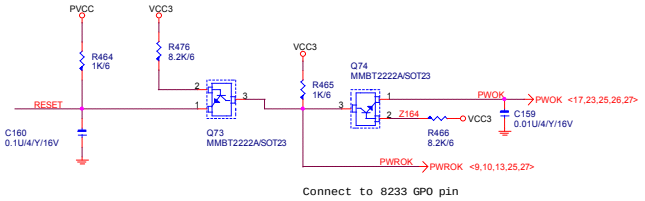
States for a single-color power LED

LED States	ACPI States			
OFF	S1,S3,S5			
Steady Green	S0			
Blinking Green	S0(message waiting)			

States for a dual-color power LED

LED States	ACPI States			
OFF	S5			
Steady Green	S0			
Blinking Green	S0(message waiting)			
Steady Yellow	S1,S3			
Blinking Yellow	S1,S3(message waiting)			

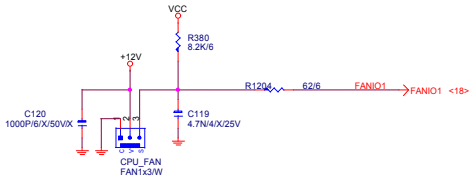
RESET



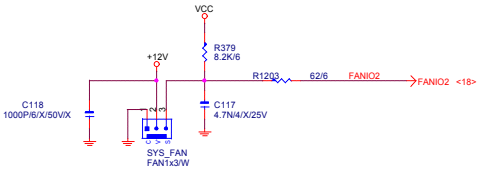
PVCC 在VCC PLANE 切割互連

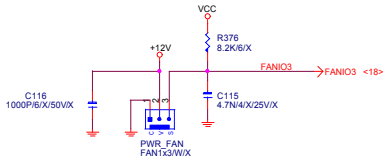
NOTE:ALLEGRO use NET connect.

CPU FAN



SYSTEM FAN W=0.167W





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Title: PANEL, STR LED & FANS

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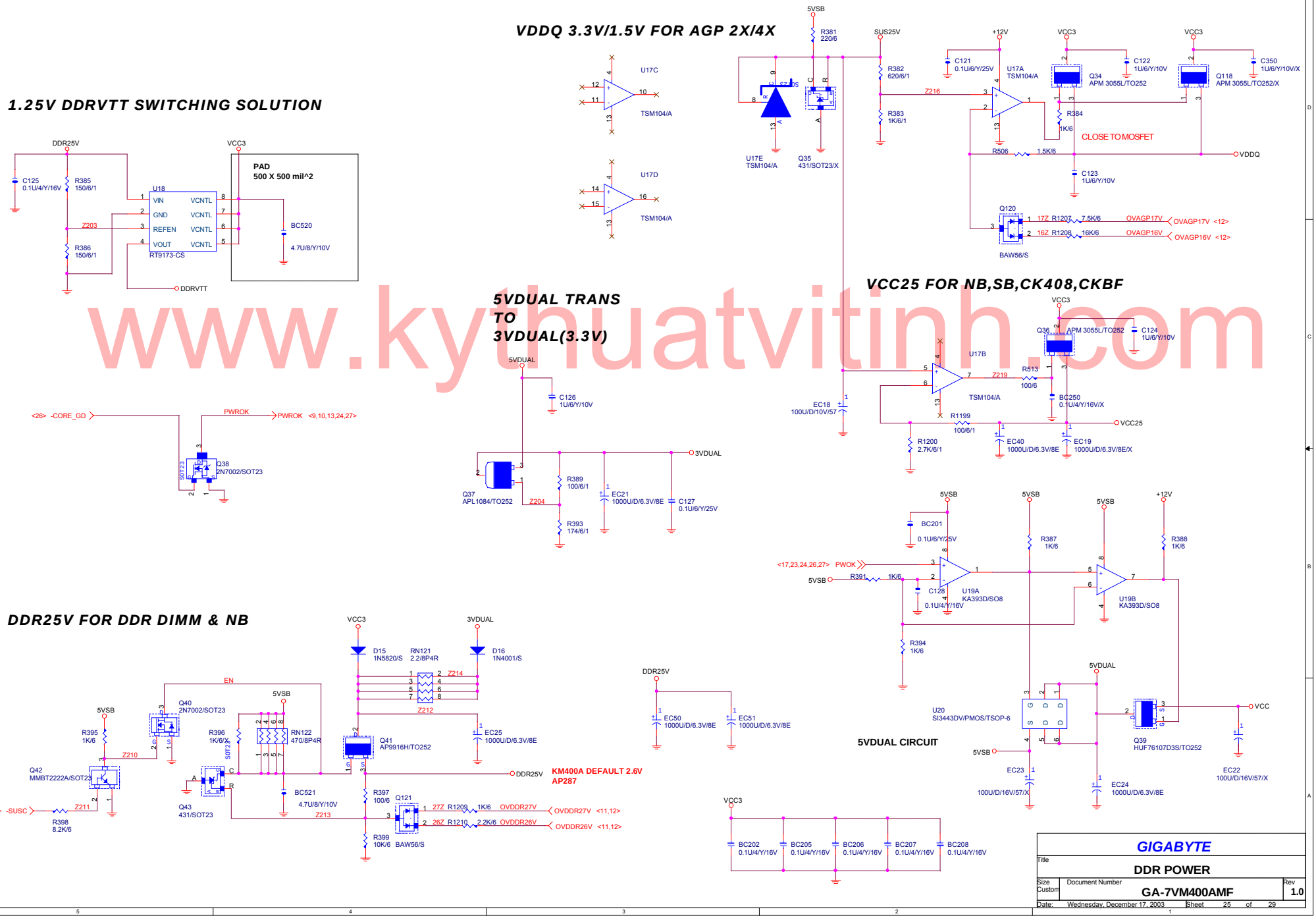
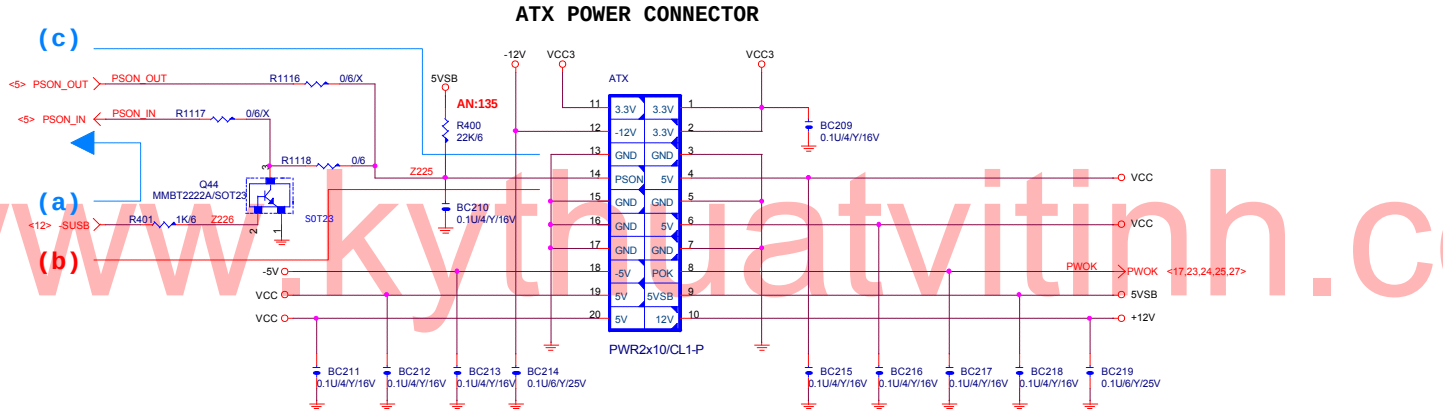
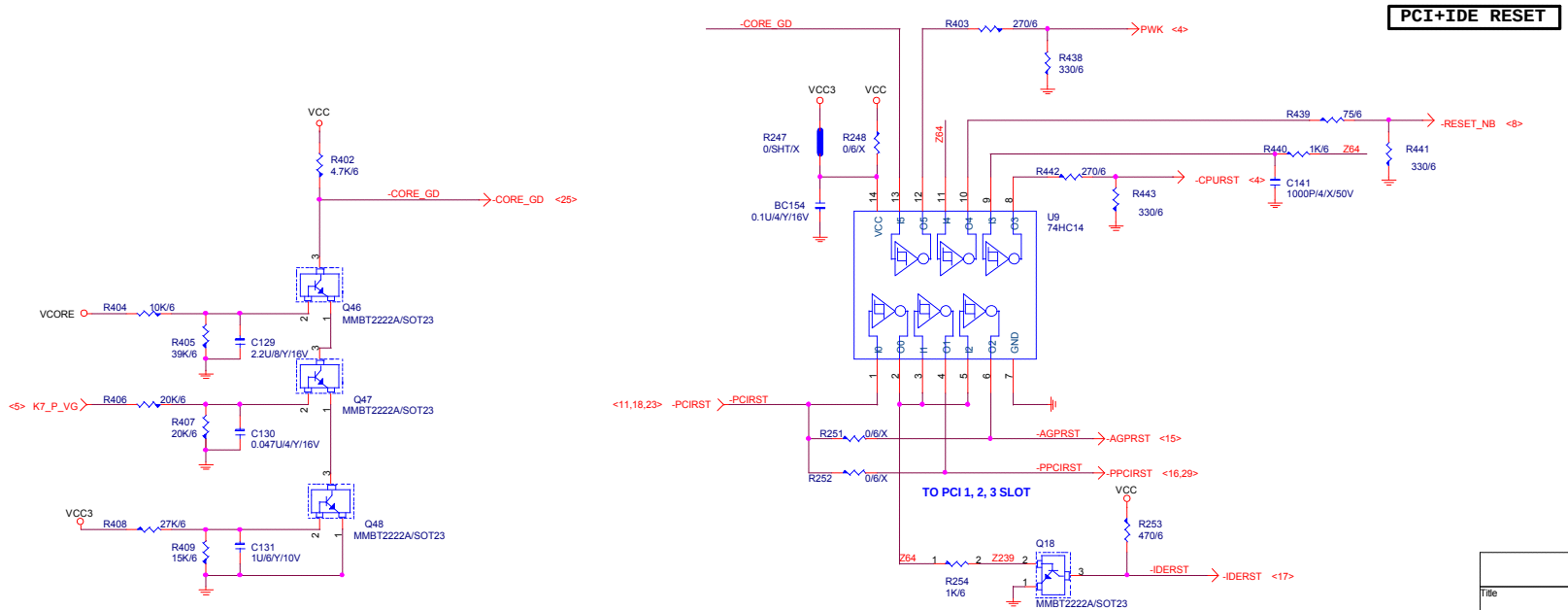


ATX CONN, DC POWER





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Title	ATX, DC POWER	
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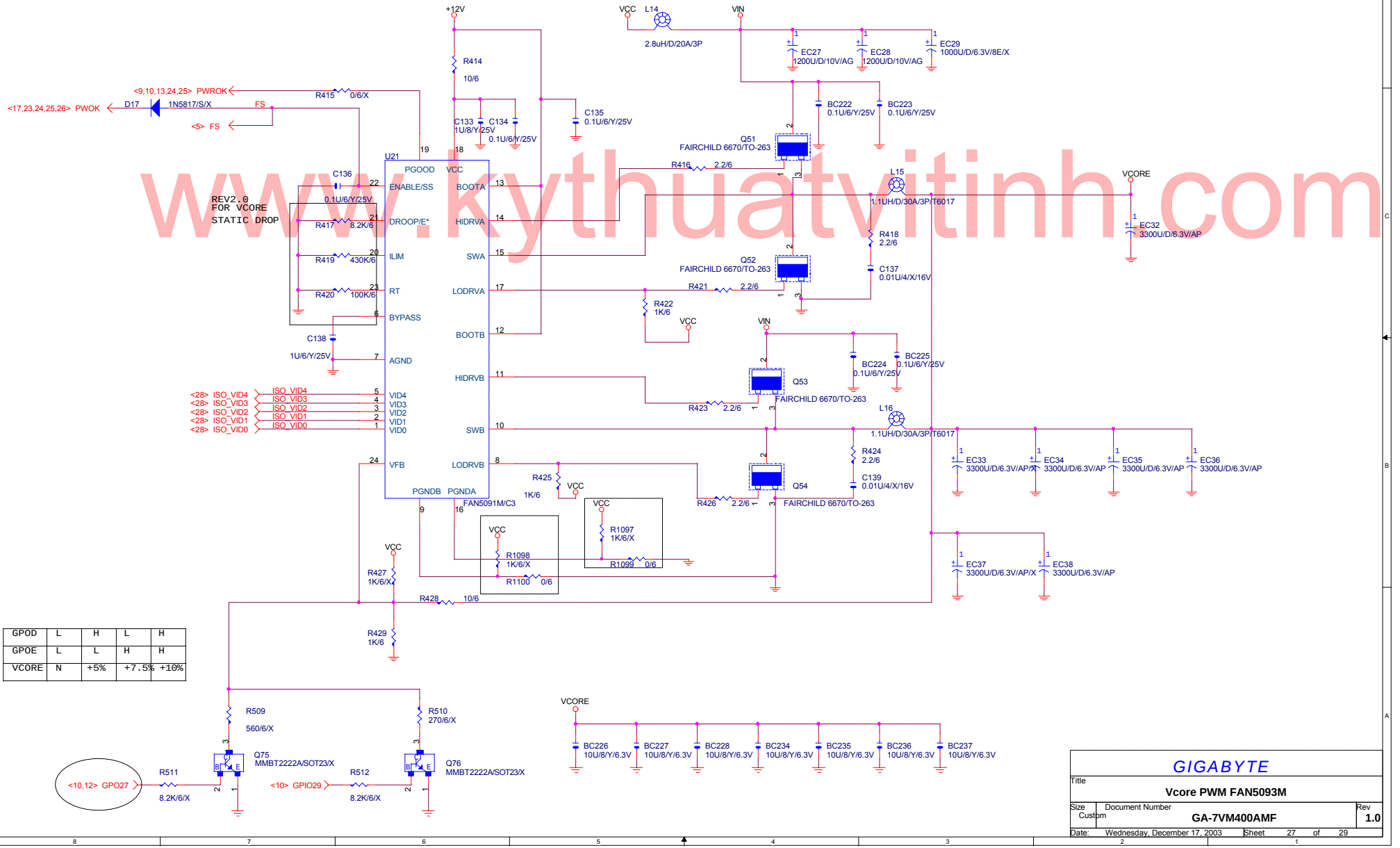

GPOD	L	H	L	H
GPOE	L	L	H	H
VCORE	N	+5%	+7.5%	+10%

GIGABYTE

Title: Vcore PWM FAN5093M

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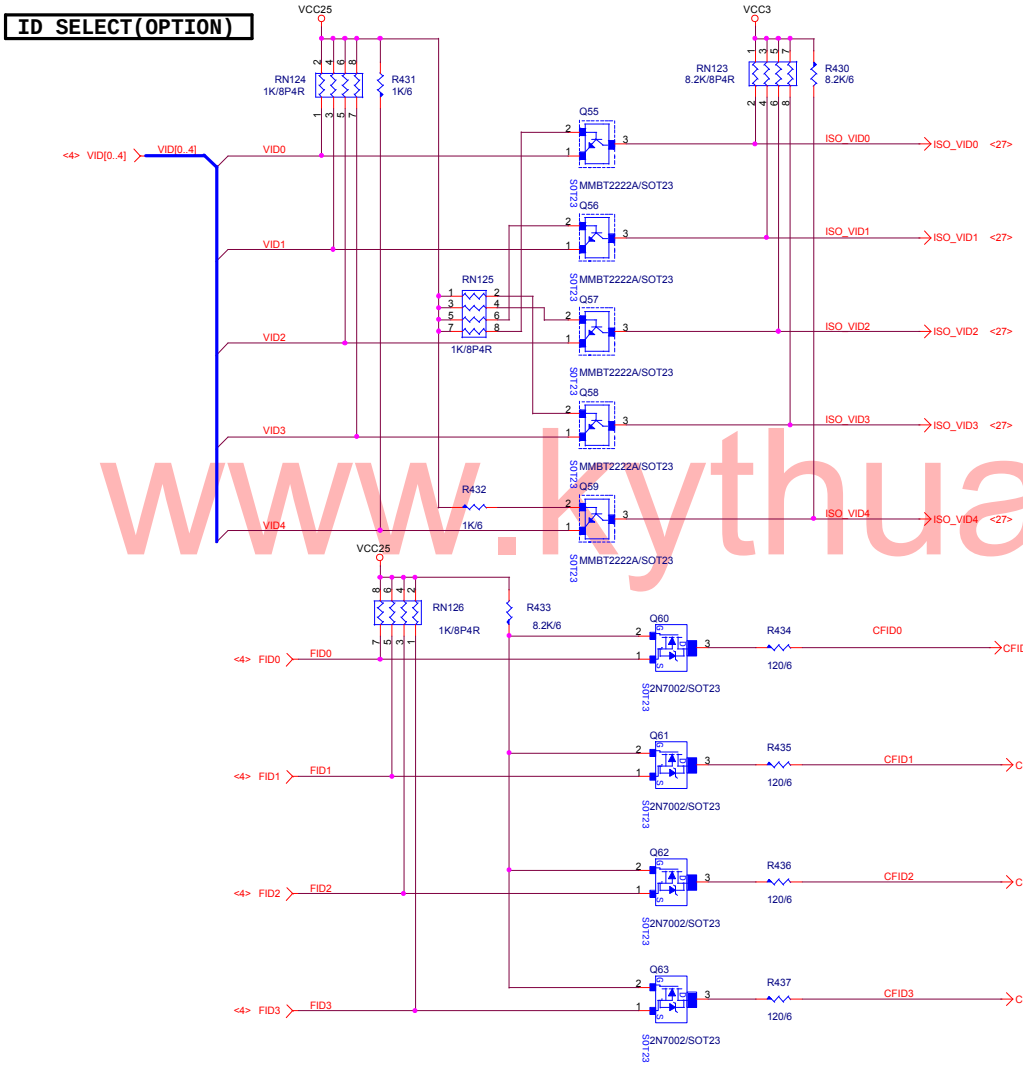
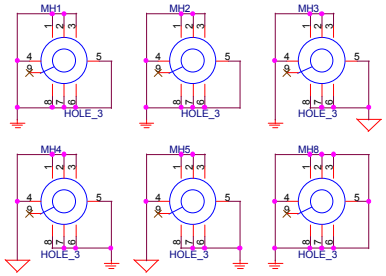
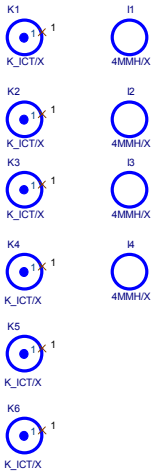
ID SELECT(OPTION)



VID[4..0]	VCC_CORE	VID[4..0]	VCC_CORE
00000	1.850	10000	1.450
00001	1.825	10001	1.425
00010	1.800	10010	1.400
00011	1.775	10011	1.375
00100	1.750	10100	1.350
00101	1.725	10101	1.325
00110	1.700	10110	1.300
00111	1.675	10111	1.275
01000	1.650	11000	1.250
01001	1.625	11001	1.225
01010	1.600	11010	1.200
01011	1.575	11011	1.175
01100	1.550	11100	1.150
01101	1.525	11101	1.125
01110	1.500	11110	1.100
01111	1.475	11111	





SW1 : Frequency Override.

O: ON X : OFF

RATIO	1	2	3	4	5
AUTO	X	X	X	X	O
5X	O	O	X	O	X
5.5X	X	O	X	O	X
6X	O	X	X	O	X
6.5X	X	X	X	O	X
7X	O	O	O	X	X
7.5X	X	O	O	X	X
8X	O	X	O	X	X
8.5X	X	X	O	X	X
9X	O	O	X	X	X
9.5X	X	O	X	X	X
10X	O	X	X	X	X
10.5X	X	X	X	X	X
11X	O	O	O	O	X
11.5X	X	O	O	O	X
12X	O	X	O	O	X
>=12.5X	X	X	O	O	X

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Title: VCORE VOLTAGE ADJUST

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