GIGABYTE GA-8I865GMK-775 Schematics

Revision 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04~07	CPU LGA775A
08	SPRINGDALE HOST
09	SPRINGDALE DDR
10	SPRINGDALE AGP, HUB, CSA, VGA
11	SPRINGDALE PWR
12	DDR1,2 CHANNEL A
13	DDR3,4 CHANNEL B
14	DDR TERMINATION
15	AGP 8X SLOT
16	ICH5 PCI, USB, HUB, LAN
17	ICH5 IDE, GPIO, SATA, CTRL
18	ICH5 VCC, GND
19	DUAL FWH
20	ICS952603 CLOCK GENERATOR
21	PCI SLOT1/SLOT2
22	PCI SLOT3,RESET
23	SMSC LPC IO
24	IDE
25	COM,LPT,FDD

SHEET	TITLE
26	KB,MS
27	USB CONN
28	AC97 AD1888
29	AUDIO JACK
30	FRONT PANEL
31	POWER,CPU_FAN
32	VCORE PWM
33	ATX POWER
34	WINBOND DDR POWER
35	INTEL 82562G PHY
36	1394 TI TSB43AB23
37	PCI ROUTING LIST
38	GPIO LIST

Digitally signed by dd
DN: cn=dd, o=dd, ou=dd, email=dddd@yahoo.com, c=US
Date: 2009.11.05 19:41:32 +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

Title: COVER SHEET

Size: Custom | Document Number: GA-8I865GMK-775 | Rev: 1.0

Date: | Sheet 1 of 38

Model Name: GA-8I865GMK-775

REV 1.0

Component history

2005/06/17

Date	Change Item	Reason
07/14	gerber out	
08/17	gerber out:PCB REV 1.0	1.MODIFY MIC1(A3)-->AGND
		2.CPU VCORE CHOKE
		3.DEL1394
		4.BIOS ROM:4M-->3M
08/23		1.DC11:ECN-->10CM0-166801-2B
08/26	PVT BOM:9MI865GMFT-00-10A	1.ADD 1394 FUNCTION
09/01	ECN	加替料:IU1[10HP2-804323-20]
09/13		DEL FAIRCHILD MOSFET:10IF4-506296-01;10IF4-358896-01
2004/12/27	BOM:9M8I865GMFT-00-10C	1.Vcore Choke: DL2,3,4[11LC3-30600C-B1/B2/B3]
		2.Fairchild 5009M Driver Ver:C to E
		3.MARVELL 88E8001 LAN CHIP VER:A3 to A4
2005/03/04	PCB:MODEL-->8I865GMFK-775 REV 0.1	1.LAN 88E8001-->INTEL 82562G
		2.ADD ESD FUNCTION(USB+SPR)
2005/05/10	PCB:MODEL-->8I865GMFK-775 REV 1.0	
	BOM:9M8I865GMFT-00-10A	
2005/05/16	BOM:9M8I865GMK-00-10A	1.REMOVE 1394
2005/06/16	BOM:9M8I865GMK-00-10B	1.LANRST# Delay 10ms

Circuit or PCB layout history

Date	Change Item	Reason

GIGABYTE

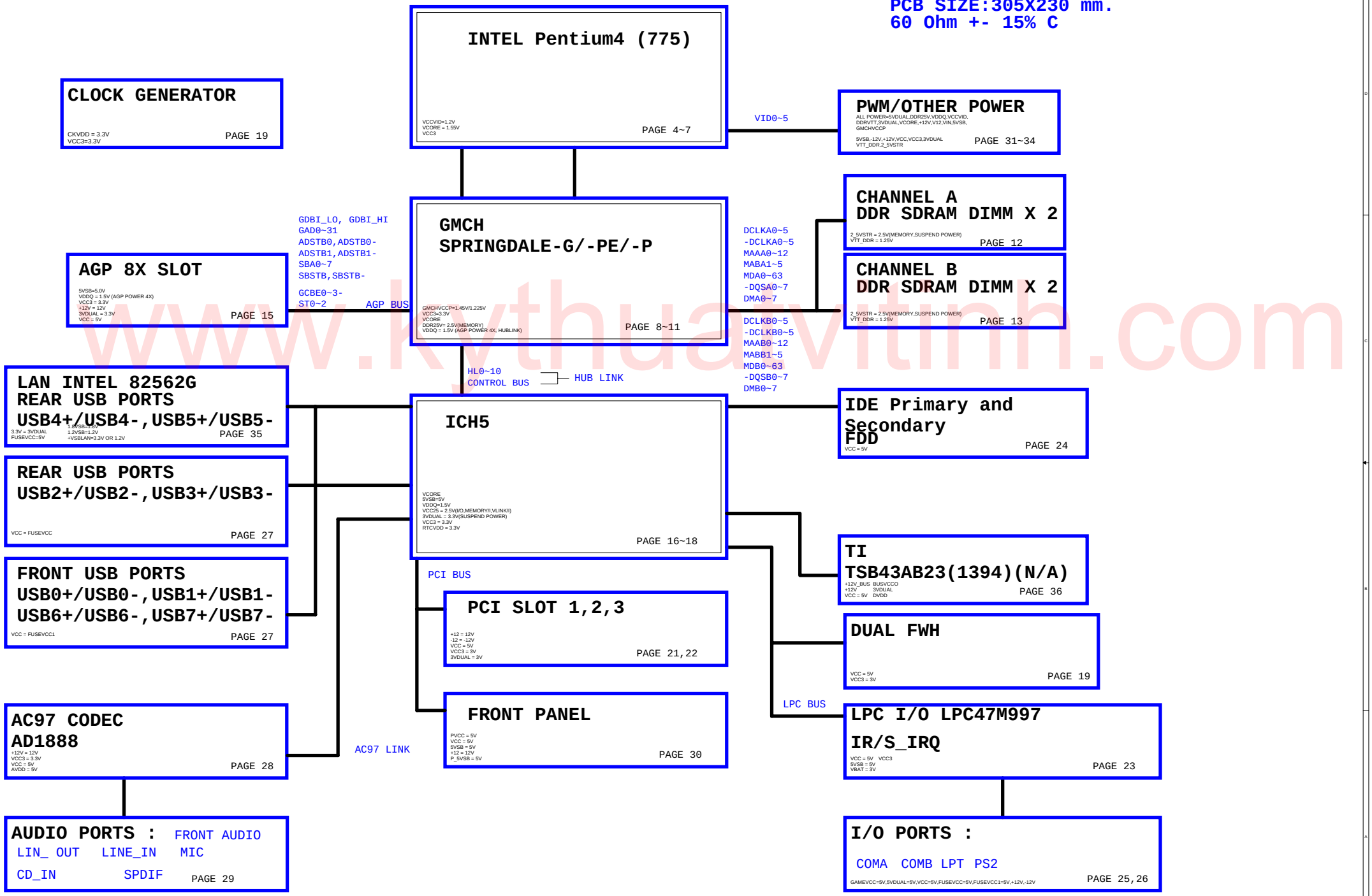
Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-8I865GMK-775 | Rev: 1.0

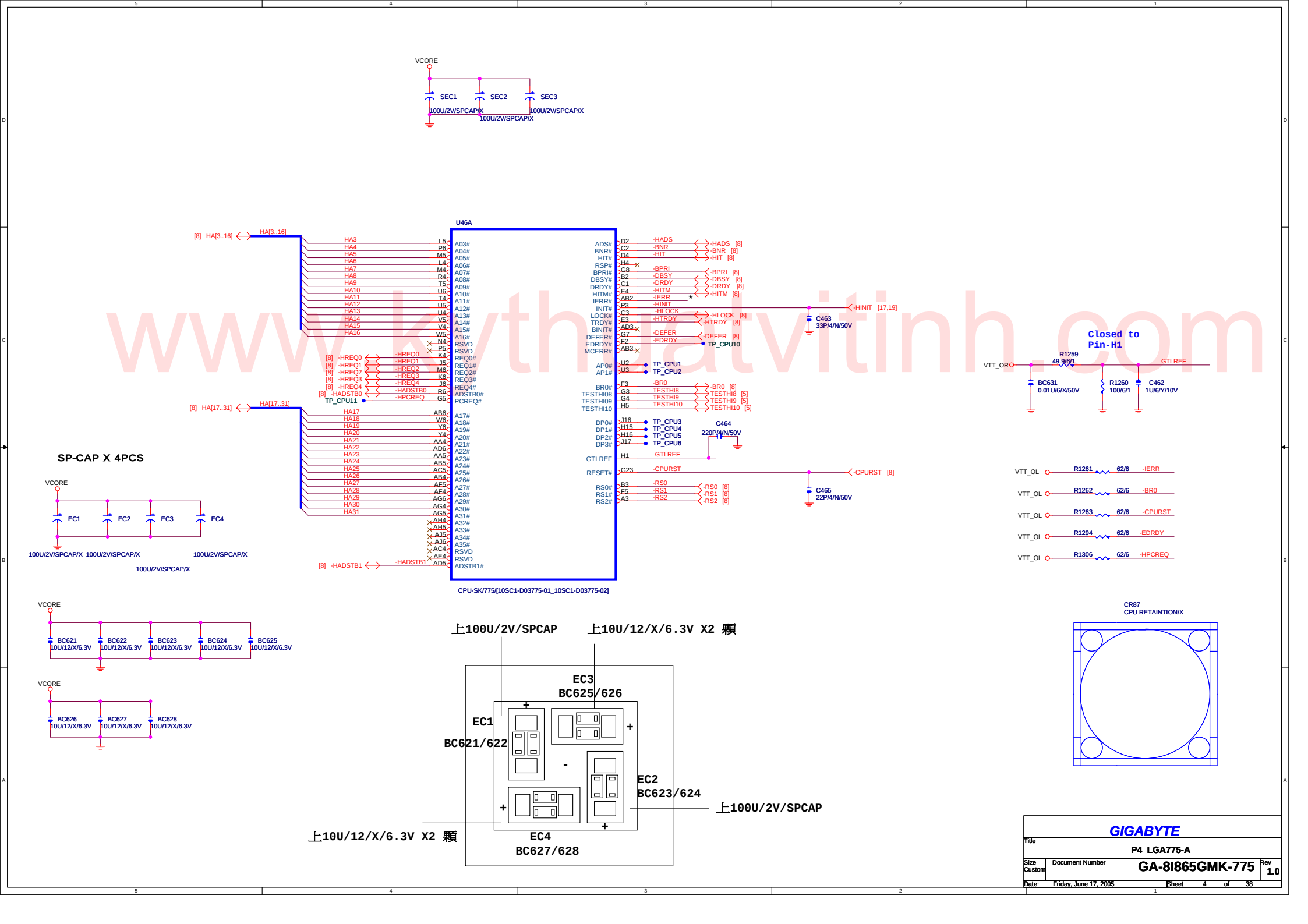
Date: | Sheet 2 of 38

BLOCK DIAGRAM

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

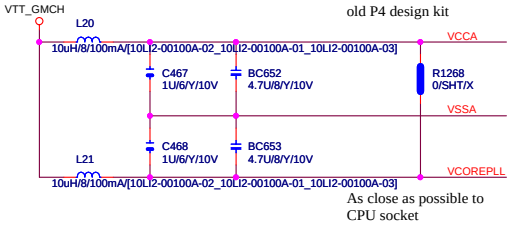


GIGABYTE			
Title	BOM & PCB MODIFY HISTORY		
Size: Custom	Document Number: GA-8I865GMK-775		Rev: 1.0
Date:		Sheet 3 of 38	



Note:

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



Trace width doesn't less than 12 Mil

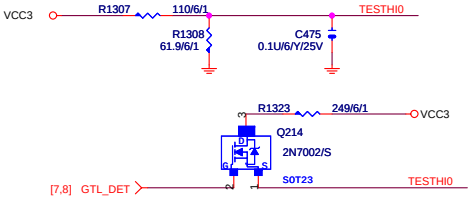
As close as possible to CPU socket

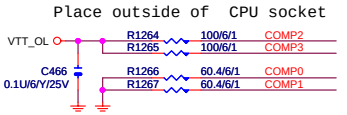
CPU

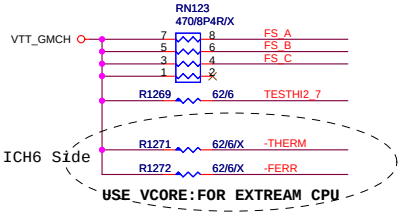
NA	FSB	FSA		
FSBSEL3	FSBSEL1	FSBSEL0	Clock	
1	0	1	100MHz	
0	0	1	133MHz	X
0	1	1	166MHz	
0	1	0	200MHz	
0	0	0	266MHz	

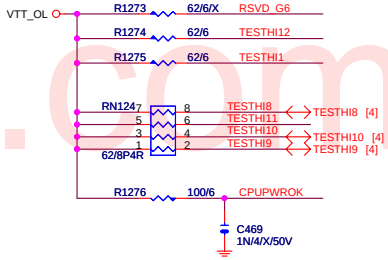
ICS952603

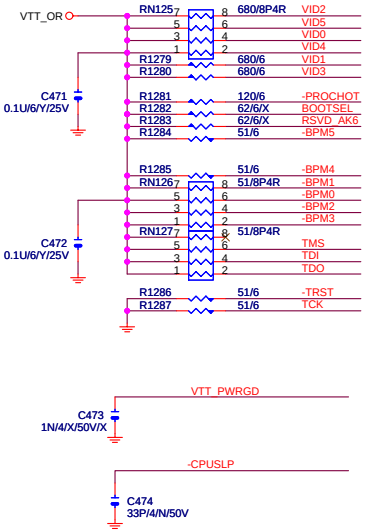
FS_E	FS_3	FS_C	FS_B	FS_A	Clock
1	0	0	0	0	100MHz
1	0	0	0	1	133MHz
1	0	0	1	1	166MHz
1	0	0	1	0	200MHz

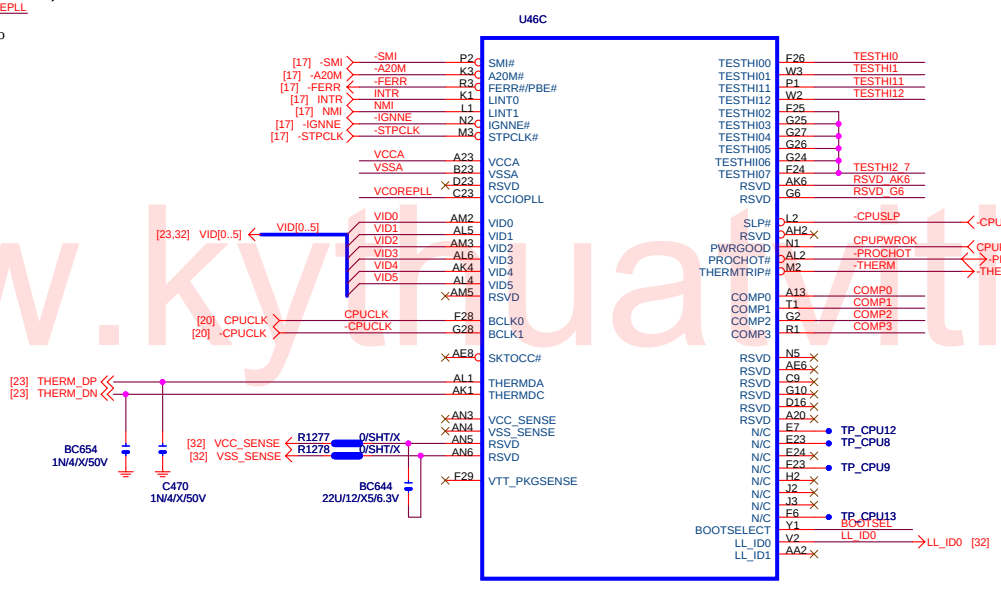


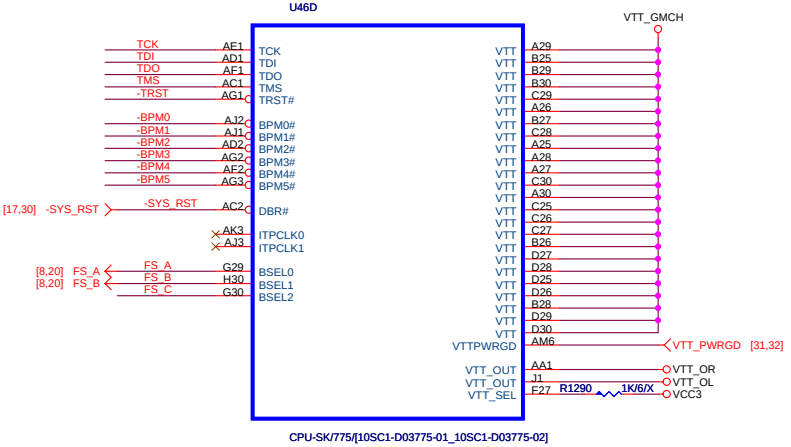












GIGABYTE			
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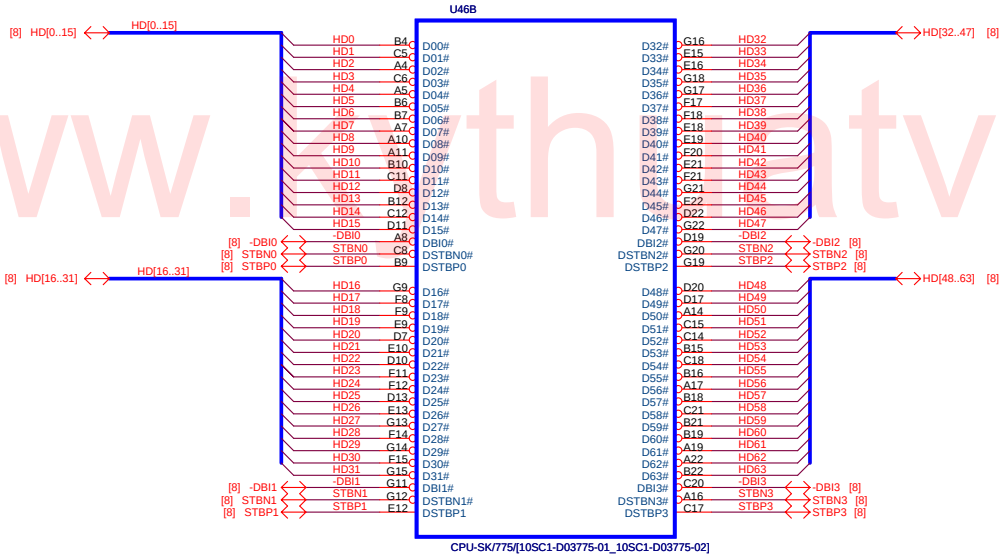
Size: Custom	Document Number: GA-8I865GMK-775		Rev: 1.0
Date: Friday, June 17, 2005	Sheet 5 of 38		



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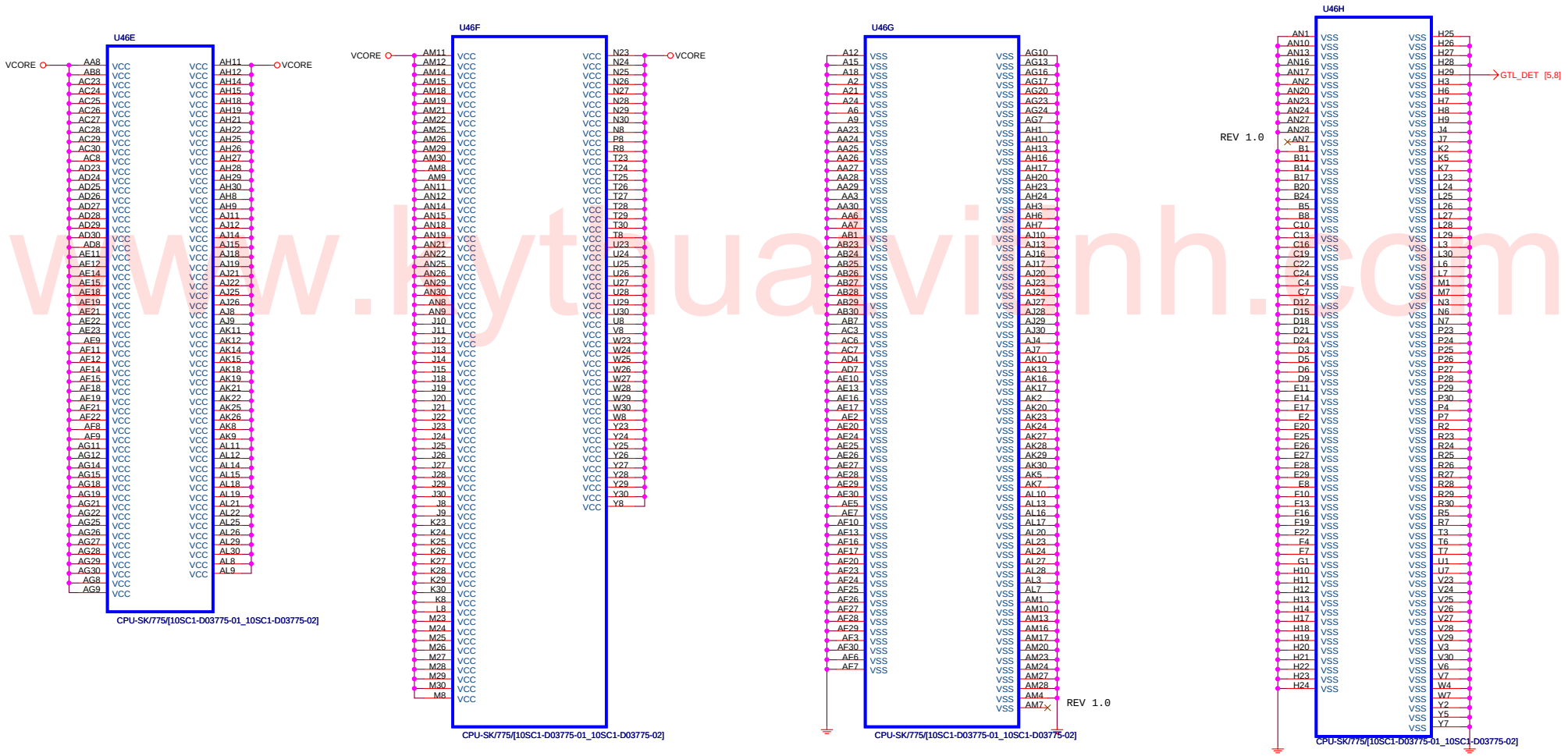
Date: Friday, June 17, 2005	Sheet 6 of 38	



GIGABYTE

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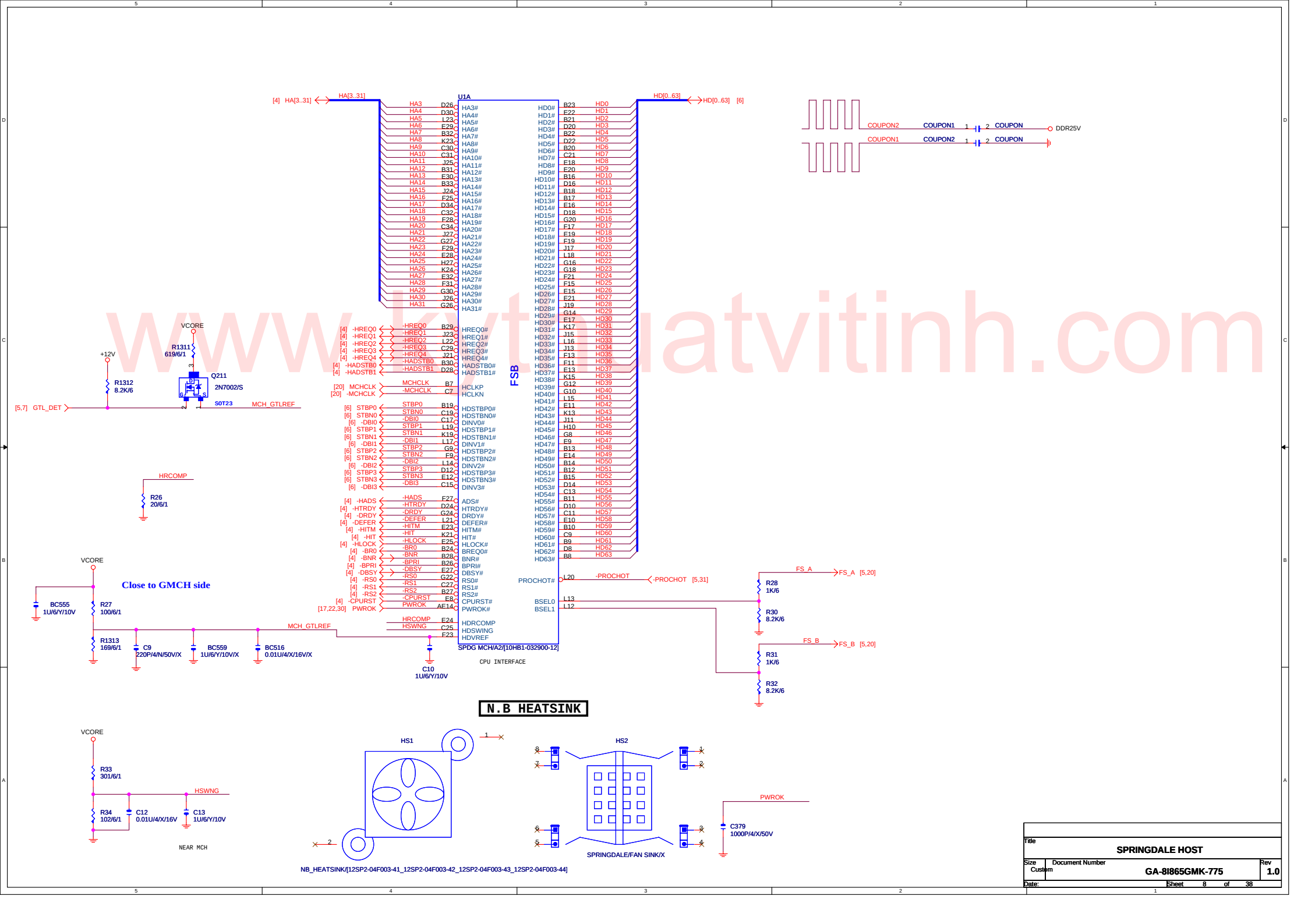
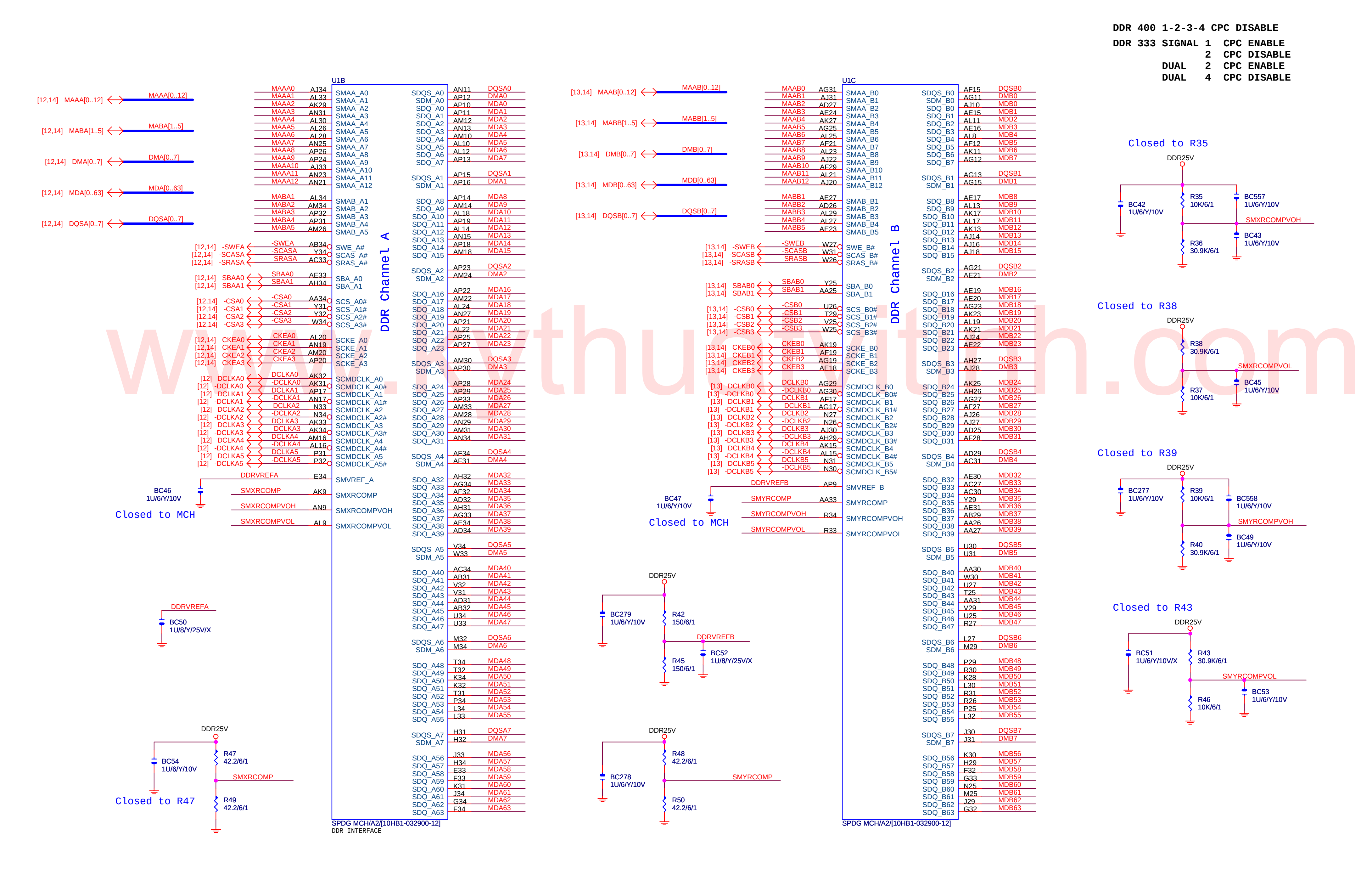
Date: Friday, June 17, 2005		Sheet 7 of 38	

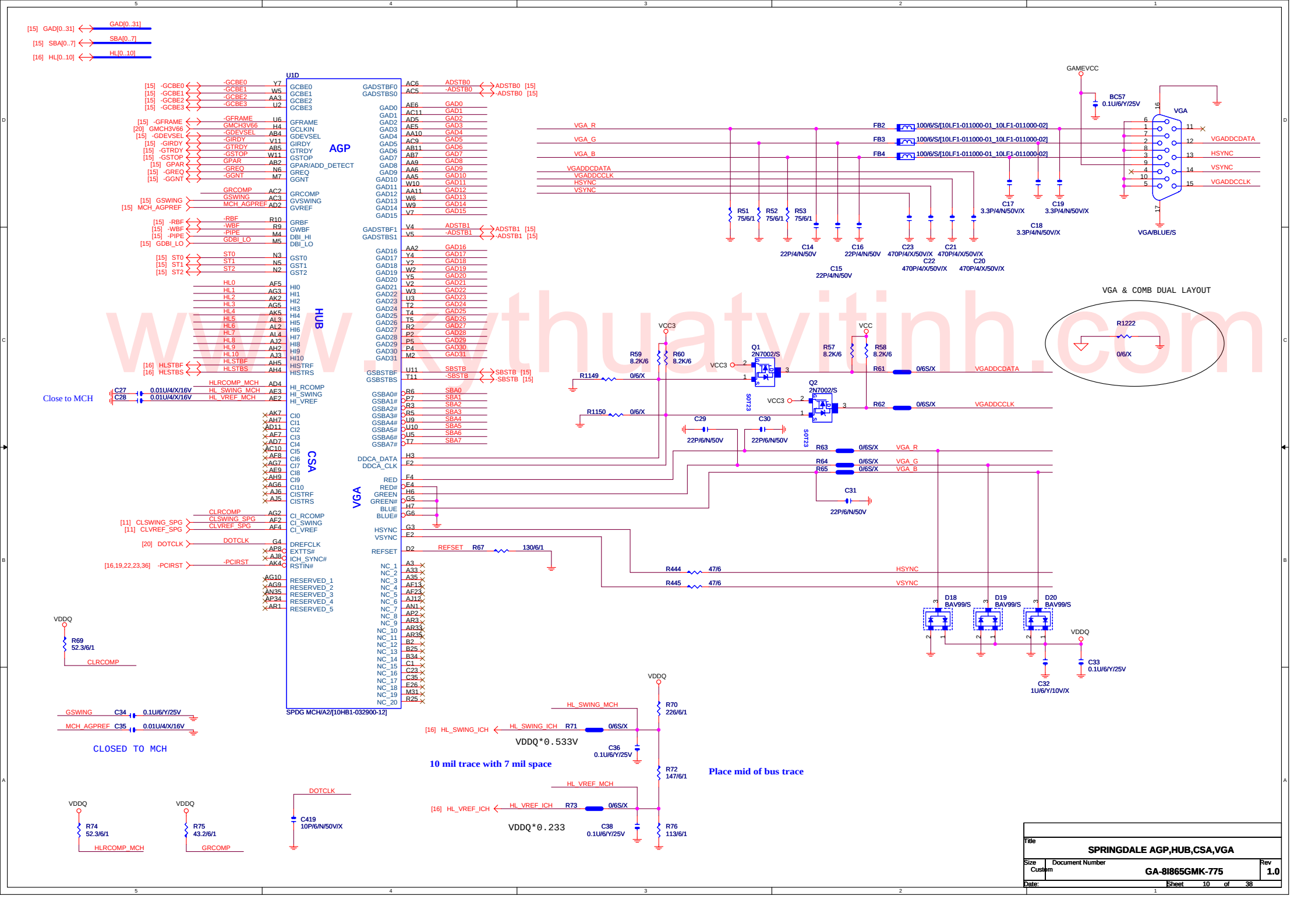


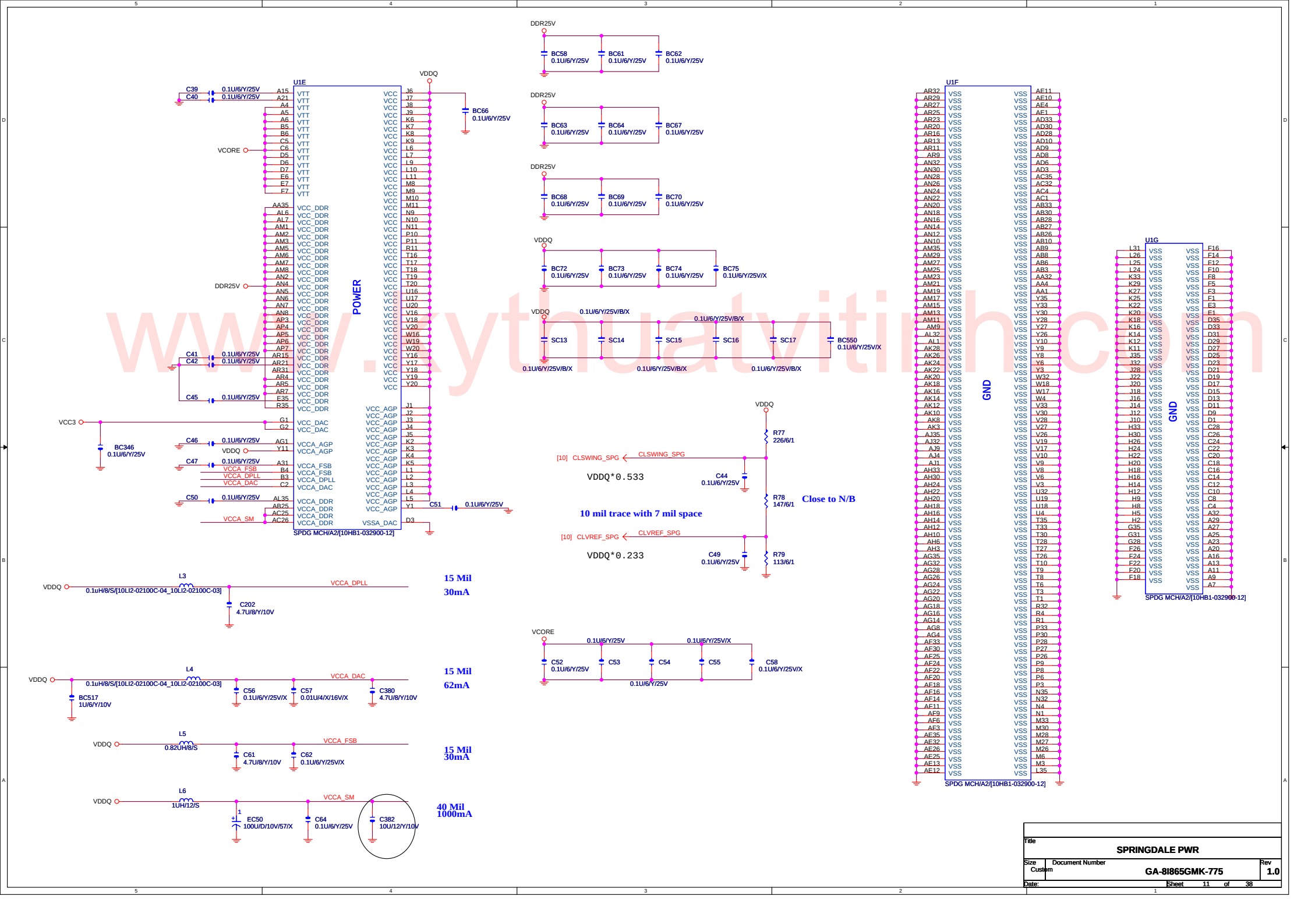
Title	SPRINGDALE HOST
Size	Custom
Document Number	GA-8I865GMK-775
Rev	1.0
Date:	Sheet 8 of 38



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/[10HB1-032900-12]
DDR INTERFACE
U1C
DDR Channel B
SPDG MCH/A2/[10HB1-032900-12]
[12,14] MAAA[0..12]
[12,14] MABA[1..5]
[12,14] DMA[0..7]
[12,14] MDA[0..63]
[12,14] DQSA[0..7]
[13,14] MAAB[0..12]
[13,14] MABB[1..5]
[13,14] DMB[0..7]
[13,14] MDB[0..63]
[13,14] DQSB[0..7]
Closed to MCH
Closed to MCH
Closed to R47
Closed to R35
Closed to R38
Closed to R39
Closed to R43
DDR25V
SMVREF_A
SMXRCOMP
SMXRCOMPVOH
SMXRCOMPVOL
SMVREF_B
SMYRCOMP
SMYRCOMPVOH
SMYRCOMPVOL
DDRVREFA
DDRVREFB
BC46 1U/6/Y/10V
BC50 1U/8/Y/25V/X
BC54 1U/6/Y/10V
R47 42.2/6/1
R49 42.2/6/1
BC47 1U/6/Y/10V
BC279 1U/6/Y/10V
R42 150/6/1
R45 150/6/1
BC52 1U/8/Y/25V/X
BC278 1U/6/Y/10V
R48 42.2/6/1
R50 42.2/6/1
BC42 1U/6/Y/10V
R35 10K/6/1
BC557 1U/6/Y/10V
R36 30.9K/6/1
BC43 1U/6/Y/10V
R38 30.9K/6/1
R37 10K/6/1
BC45 1U/6/Y/10V
BC277 1U/6/Y/10V
R39 10K/6/1
BC558 1U/6/Y/10V
R40 30.9K/6/1
BC49 1U/6/Y/10V
BC51 1U/6/Y/10V/X
R43 30.9K/6/1
R46 10K/6/1
BC53 1U/6/Y/10V

Title	SPRINGDALE DDR
Size: Custom	Document Number: GA-8I865GMK-775
Rev	1.0
Date:	Sheet 9 of 38




U1E
POWER
SPDG MCH/A2/[10HB1-032900-12]
U1F
GND
SPDG MCH/A2/[10HB1-032900-12]
U1G
GND
SPDG MCH/A2/[10HB1-032900-12]
DDR25V
VDDQ
VCORE
VCC3
BC58 0.1U/6/Y/25V
BC61 0.1U/6/Y/25V
BC62 0.1U/6/Y/25V
BC63 0.1U/6/Y/25V
BC64 0.1U/6/Y/25V
BC67 0.1U/6/Y/25V
BC68 0.1U/6/Y/25V
BC69 0.1U/6/Y/25V
BC70 0.1U/6/Y/25V
BC72 0.1U/6/Y/25V
BC73 0.1U/6/Y/25V
BC74 0.1U/6/Y/25V
BC75 0.1U/6/Y/25V/X
BC66 0.1U/6/Y/25V
BC550 0.1U/6/Y/25V/X
SC13
SC14
SC15
SC16
SC17
0.1U/6/Y/25V/B/X
C39 0.1U/6/Y/25V
C40 0.1U/6/Y/25V
C41 0.1U/6/Y/25V
C42 0.1U/6/Y/25V
C45 0.1U/6/Y/25V
C46 0.1U/6/Y/25V
C47 0.1U/6/Y/25V
C50 0.1U/6/Y/25V
C51 0.1U/6/Y/25V
BC346 0.1U/6/Y/25V
VCCA_FSB
VCCA_DPLL
VCCA_DAC
VCCA_SM
[10] CLSWING_SPG
CLSWING_SPG
VDDQ*0.533
C44 0.1U/6/Y/25V
R77 226/6/1
R78 147/6/1
Close to N/B
10 mil trace with 7 mil space
[10] CLVREF_SPG
CLVREF_SPG
VDDQ*0.233
C49 0.1U/6/Y/25V
R79 113/6/1
C52 0.1U/6/Y/25V
C53
C54
C55
C58 0.1U/6/Y/25V/X
L3 0.1uH/8/S/[10LI2-02100C-04_10LI2-02100C-03]
C202 4.7U/8/Y/10V
15 Mil
30mA
L4 0.1uH/8/S/[10LI2-02100C-04_10LI2-02100C-03]
BC517 1U/6/Y/10V
C56 0.1U/6/Y/25V/X
C57 0.01U/4/X/16V/X
C380 4.7U/8/Y/10V
15 Mil
62mA
L5 0.82UH/8/S
C61 4.7U/8/Y/10V
C62 0.1U/6/Y/25V/X
15 Mil
30mA
L6 1UH/12/S
EC50 100U/D/10V/57/X
C64 0.1U/6/Y/25V
C382 10U/12/Y/10V
40 Mil
1000mA
Title
SPRINGDALE PWR
Size
Custom
Document Number
GA-8I865GMK-775
Rev
1.0
Date:
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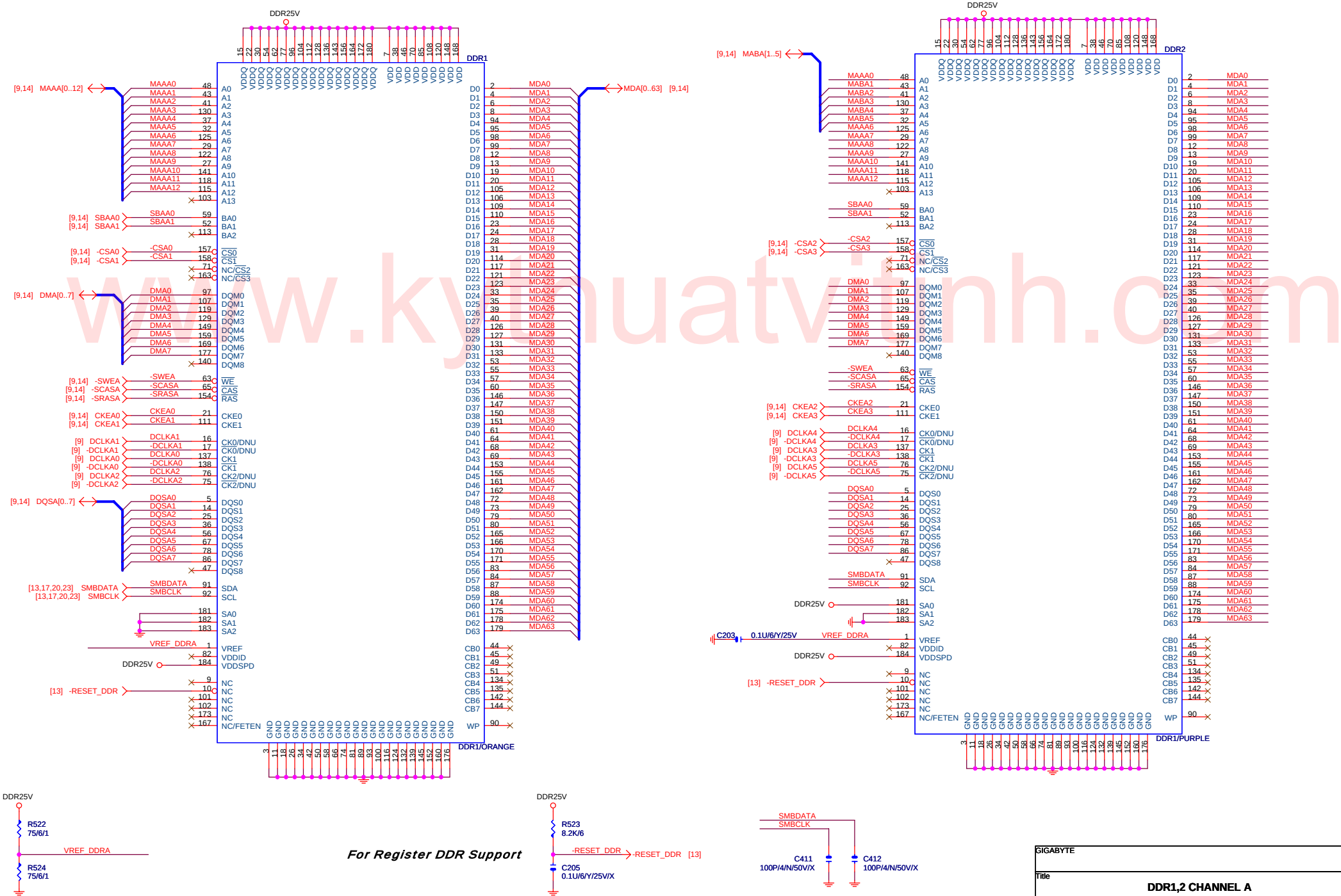
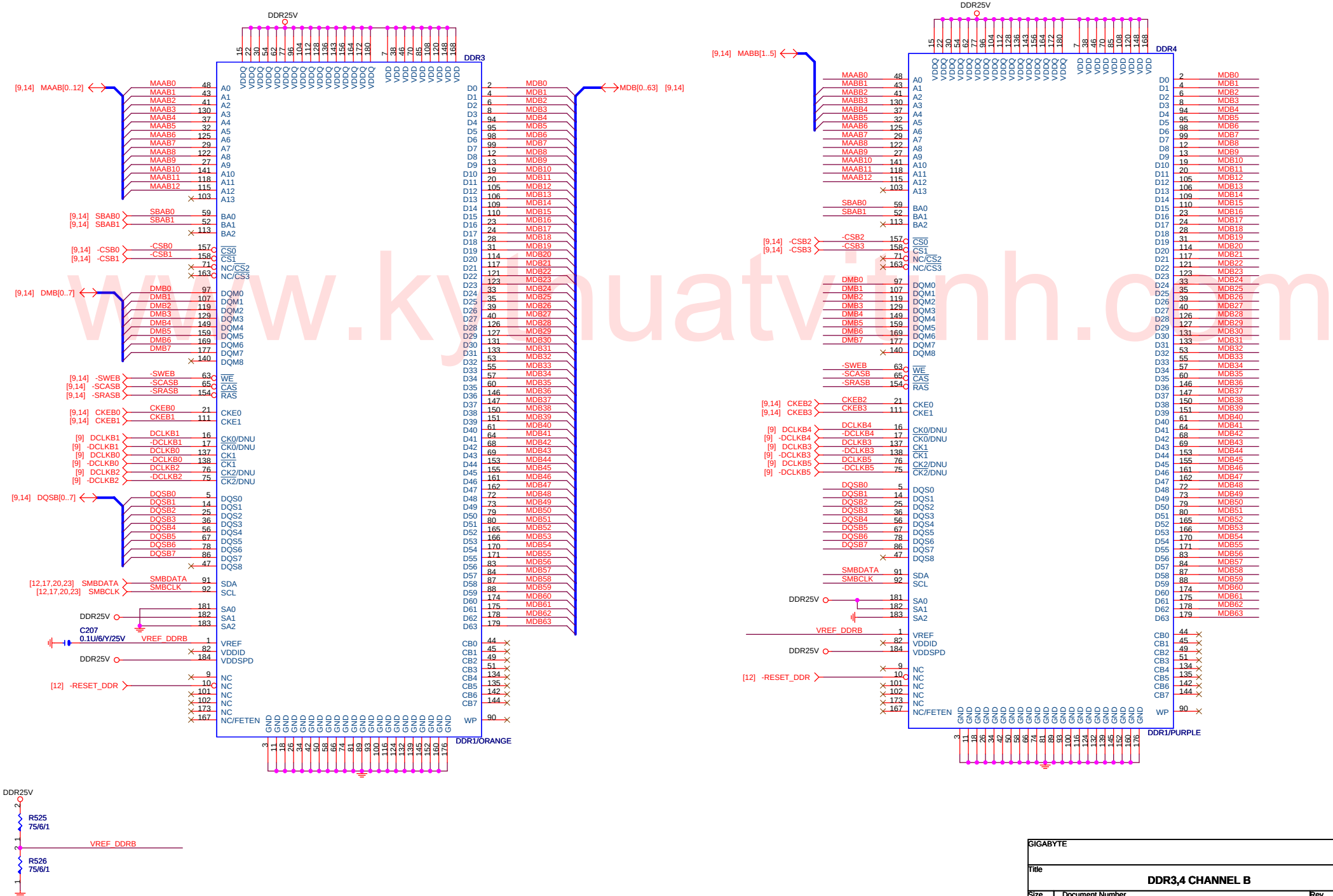


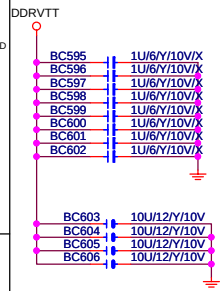


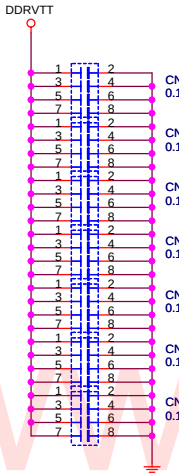
GIGABYTE	
Title	DDR3,4 CHANNEL B
Size: B	Document Number: GA-8I865GMK-775
Rev	1.0
Date:	Sheet 13 of 38

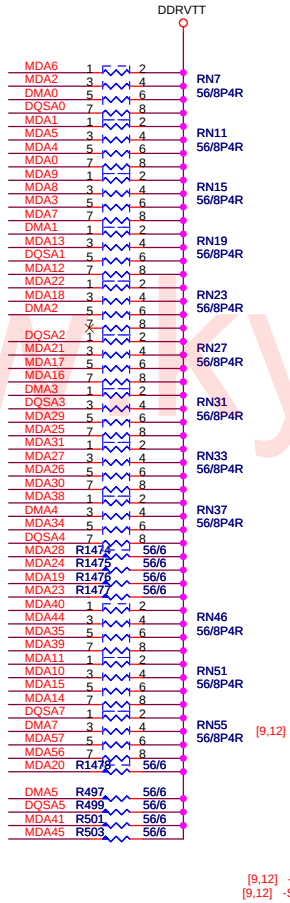
DDR TERMINATION

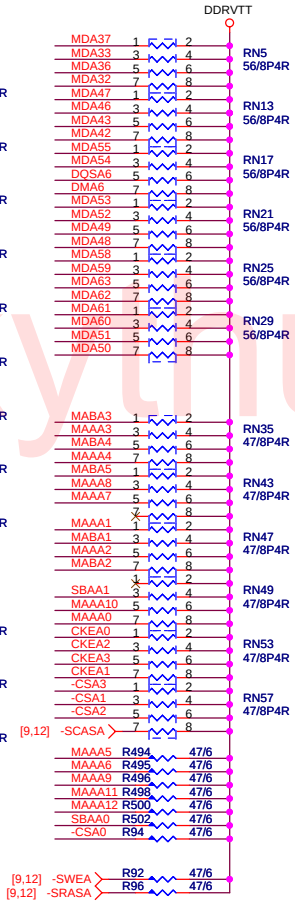
CHANNEL A

DDRVTT Decouple

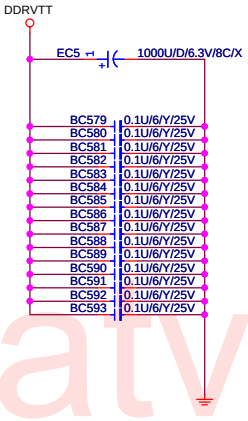




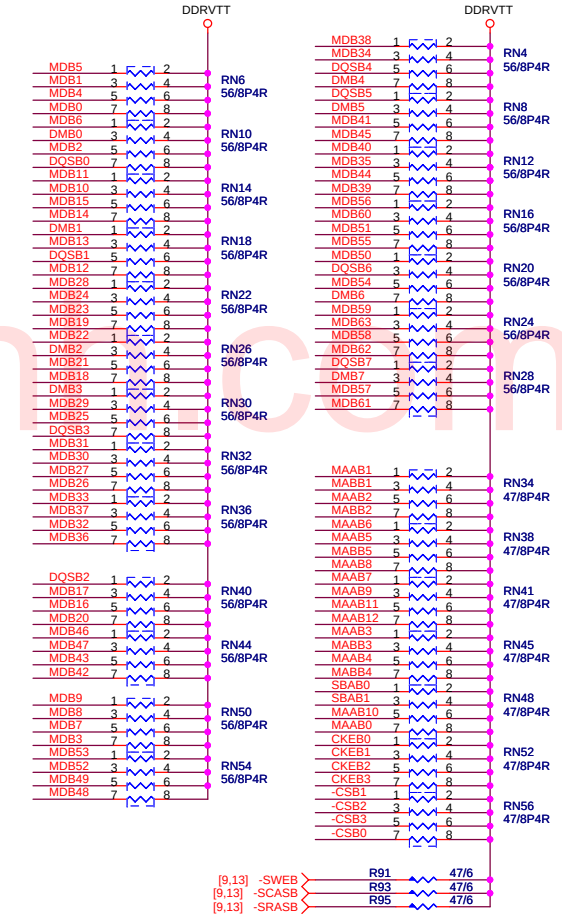




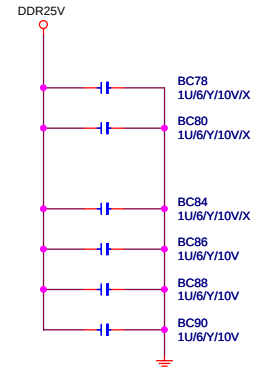
DDRVTT Decouple



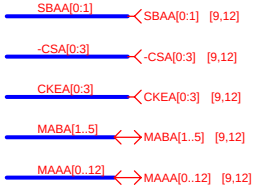
CHANNEL B



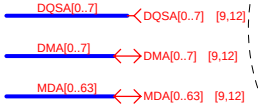
DDR25V Decouple



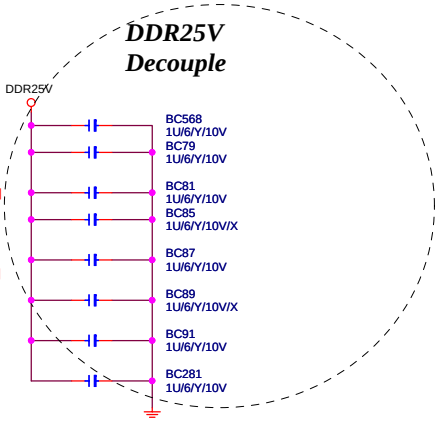
47 Ohms



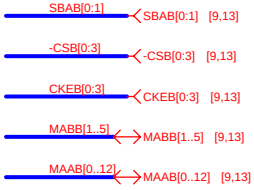
56 Ohms



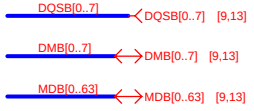
DDR25V Decouple



47 Ohms



56 Ohms

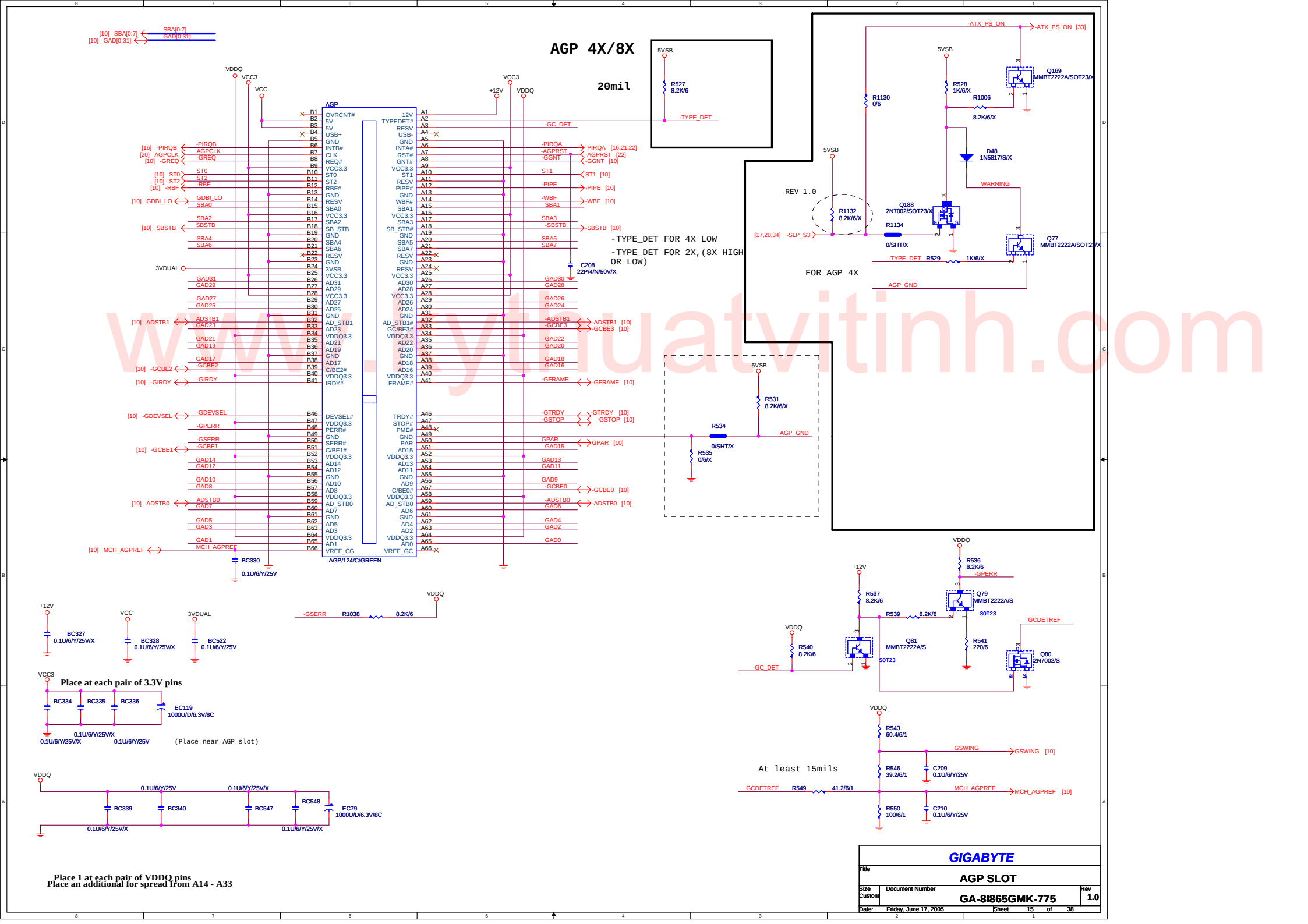


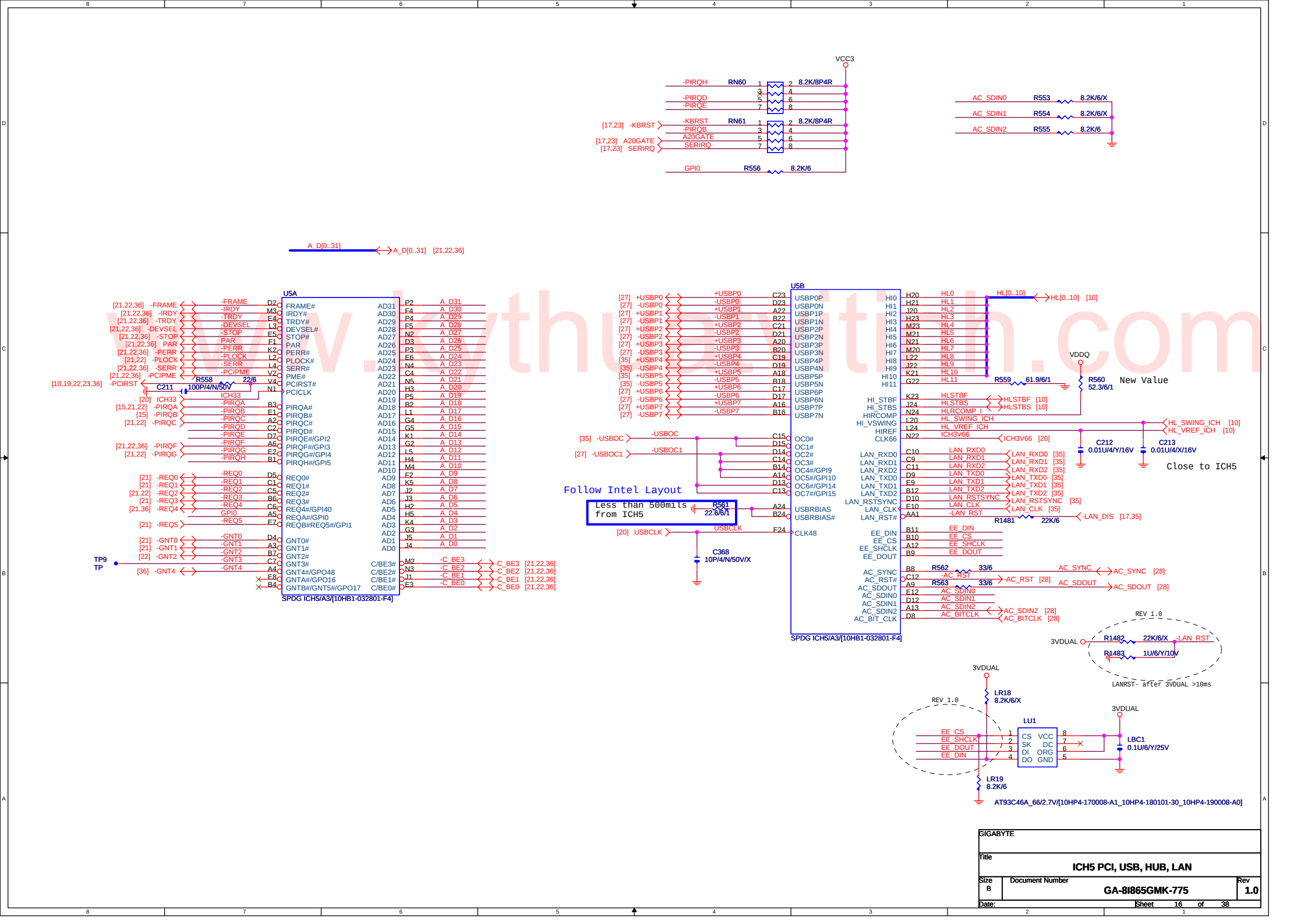
GIGABYTE

Title: DDR TERMINATION

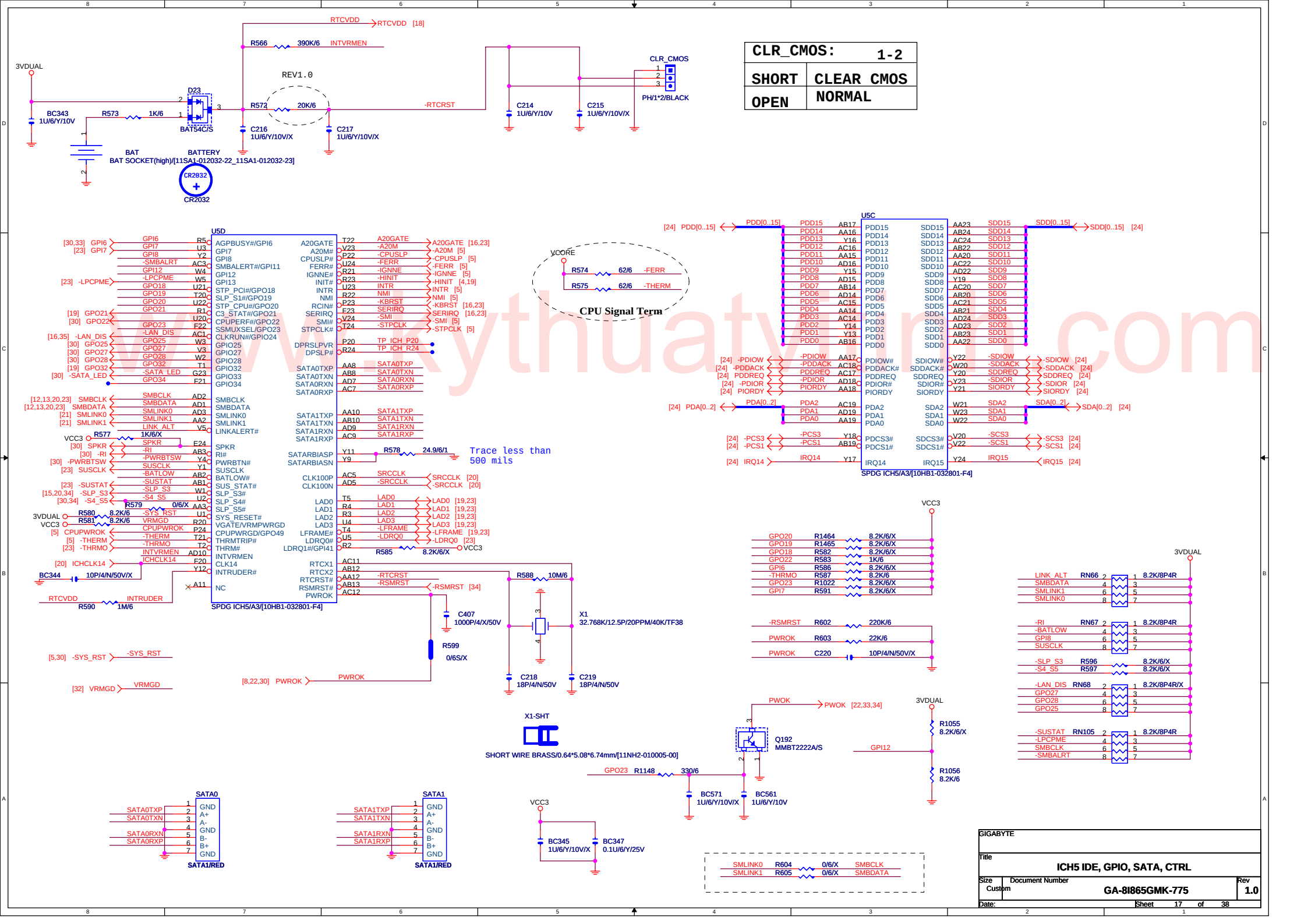
Size	Document Number	Rev
B	GA-8I865GMK-775	1.0

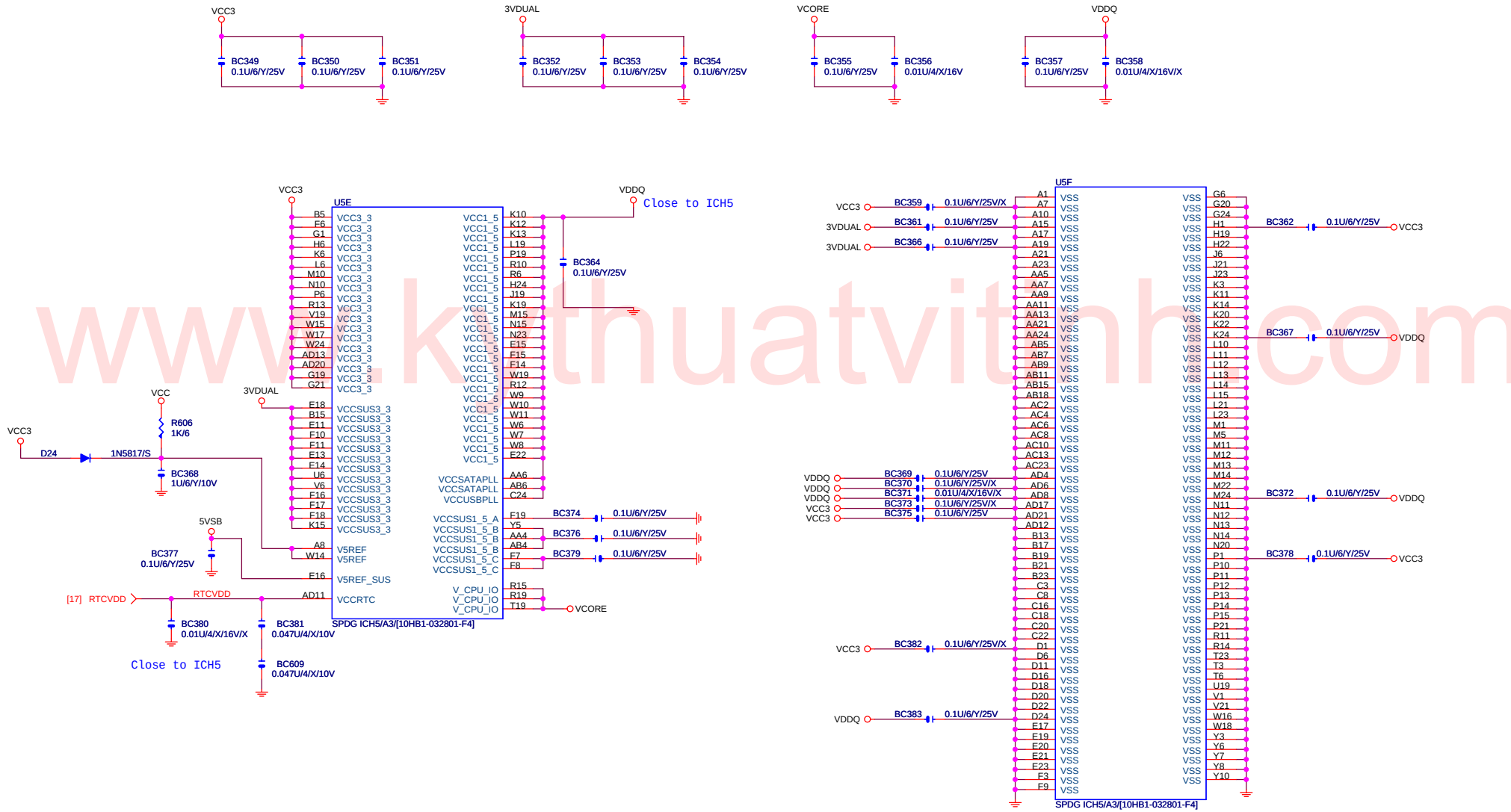
Date: Sheet 14 of 38



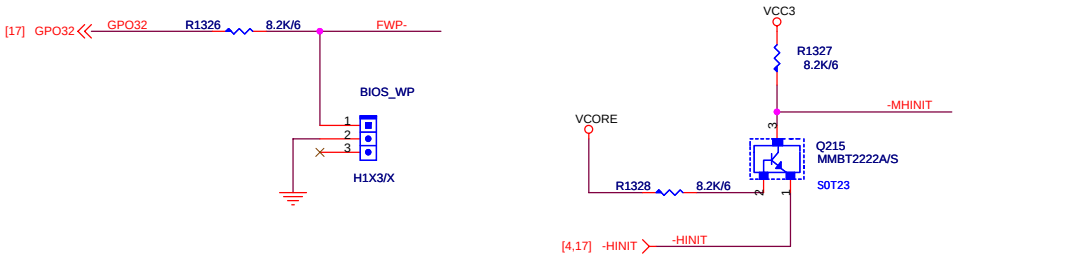


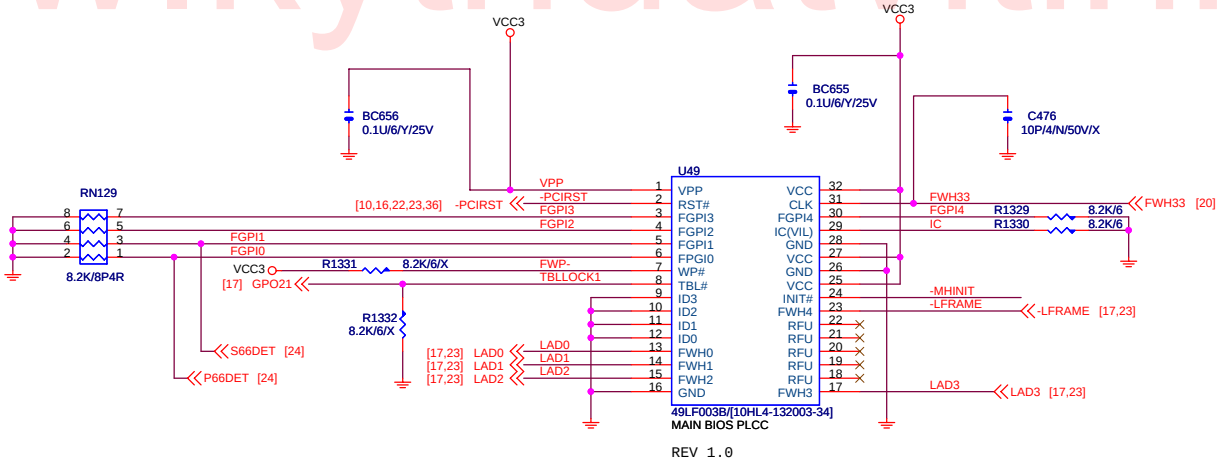
GIGABYTE	
Title	ICH5 PCI, USB, HUB, LAN
Size: B	Document Number: GA-8I865GMK-775
Rev: 1.0	
Date:	Sheet 16 of 38


CLR_CMOS: 1-2
SHORT CLEAR CMOS
OPEN NORMAL
REV1.0
CPU Signal Term
Trace less than 500 mils
SHORT WIRE BRASS/0.64*5.08*6.74mm/[11NH2-010005-00]
SPDG ICH5/A3/[10HB1-032801-F4]
BAT SOCKET(high)/[11SA1-012032-22_11SA1-012032-23]
PH/1*2/BLACK
GIGABYTE
Title
ICH5 IDE, GPIO, SATA, CTRL
Size Custom
Document Number
GA-8I865GMK-775
Rev 1.0
Date:
Sheet 17 of 38



GIGABYTE		
Title	ICH5 VCC, GND	
Size B	Document Number GA-8I865GMK-775	Rev 1.0
Date:	Sheet 18 of 38	

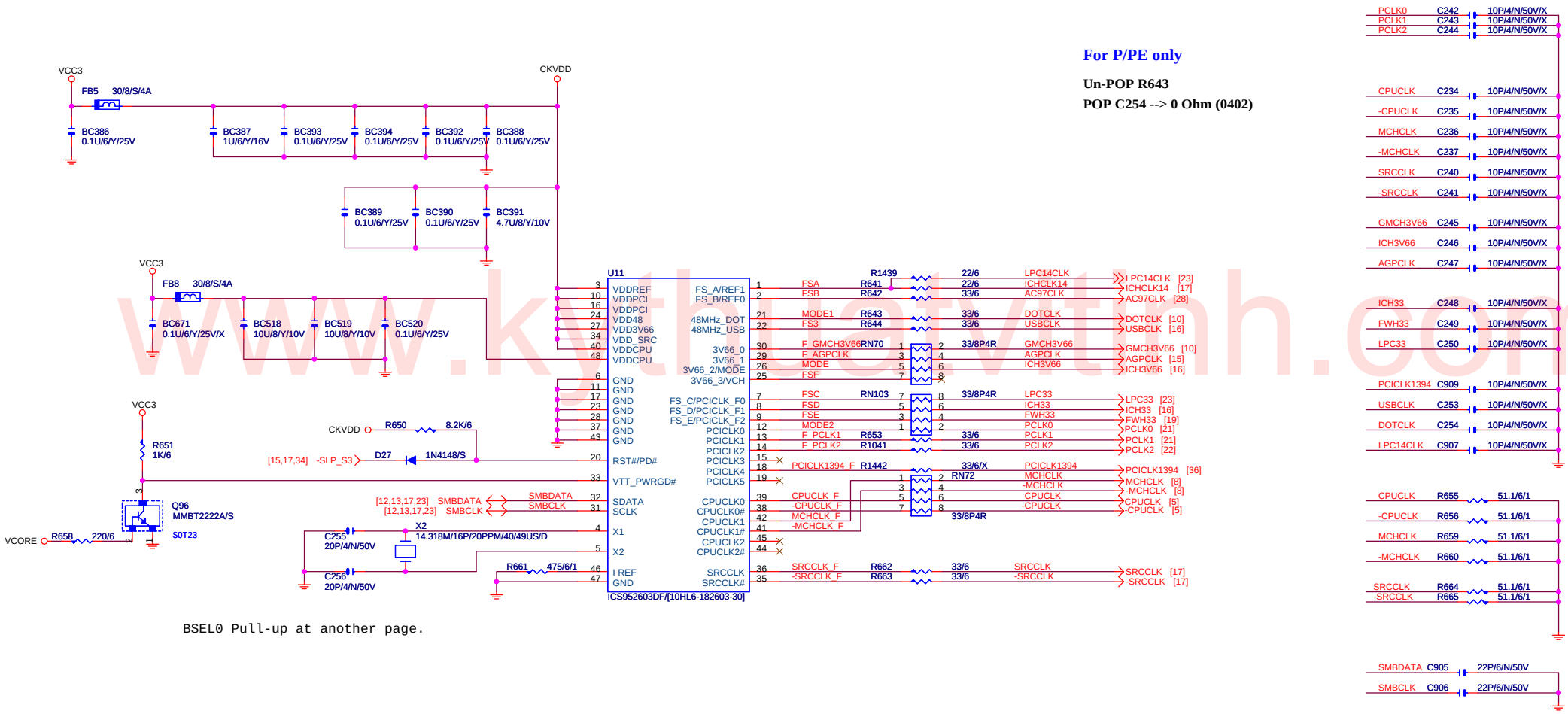




REV 1.0

ADD WINBOUD FWH SEC. SOURCE

GIGABYTE		
Title: FWH		
Size: B	Document Number: GA-8I865GMK-775	Rev: 1.0
Date: Friday, June 17, 2005	Sheet 19 of 38	

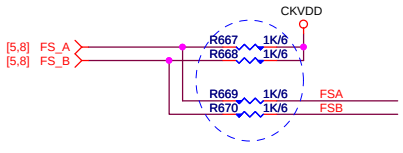


For P/PE only

Un-POP R643

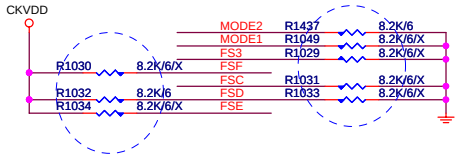
POP C254 --> 0 Ohm (0402)

BSEL0 Pull-up at another page.



Close to Clock GEN

ICS + CYPRESS CO-LAYOUT



Close to Clock GEN

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

ICS952603

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

For Pin 20 PD#
MODE

GIGABYTE

Title: **CLOCK GENERATOR**

Size: Custom | Document Number: **GA-8I865GMK-775** | Rev: **1.0**

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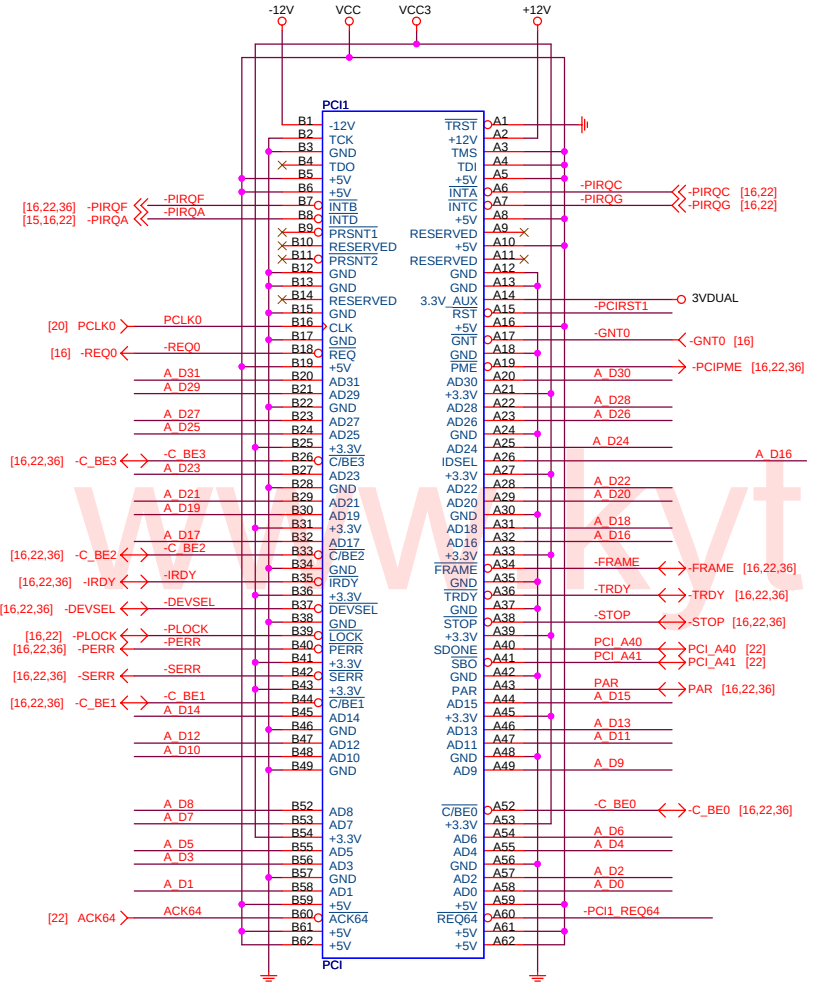
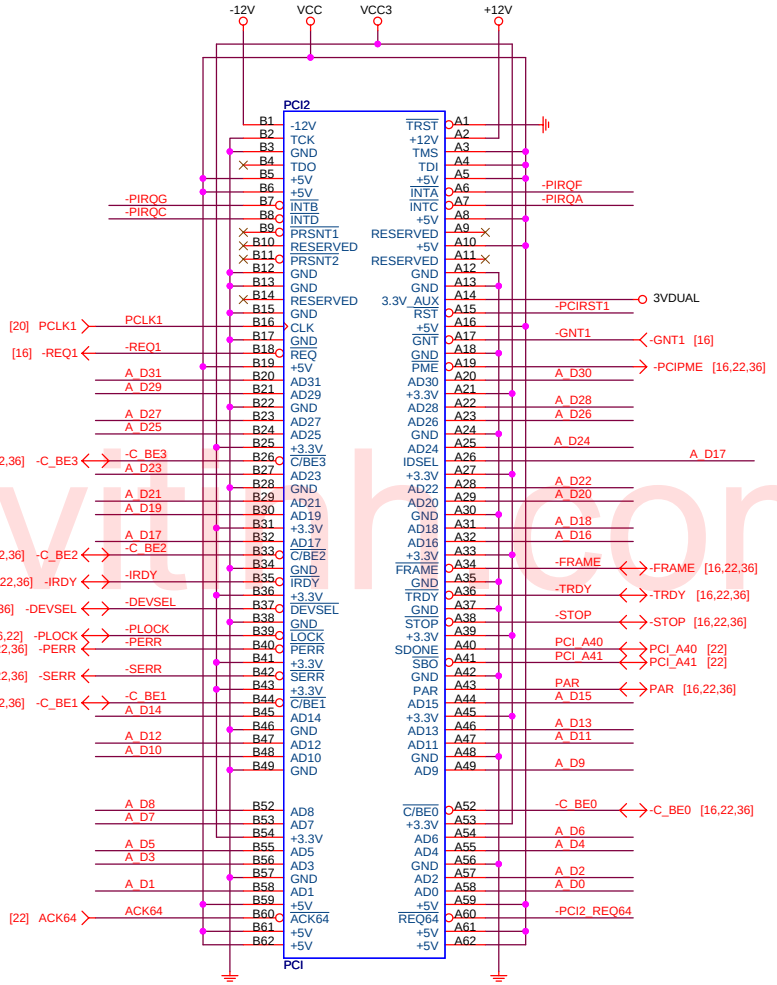
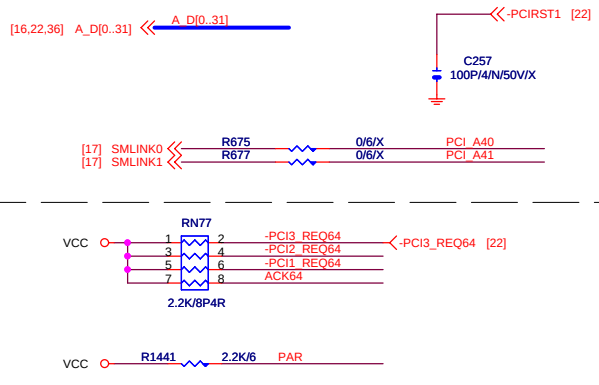
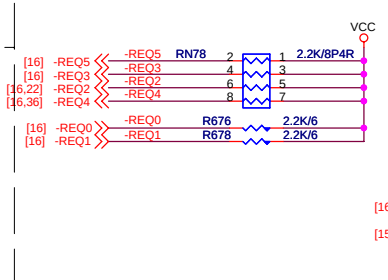


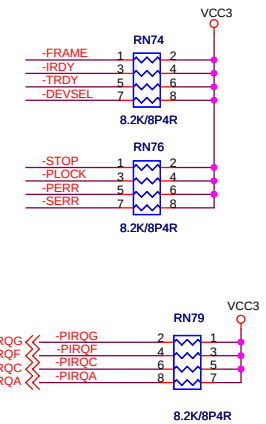
AD_16/-REQ0,-GNT0/-PIRQC,F,G,A

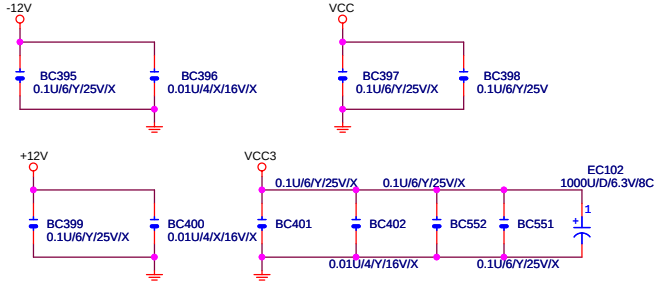


AD_17/-REQ1,-GNT1/-PIRQF,G,A,C









GIGABYTE		
Title: PCI SLOT 1/2		
Size: B	Document Number: GA-8I865GMK-775	Rev: 1.0
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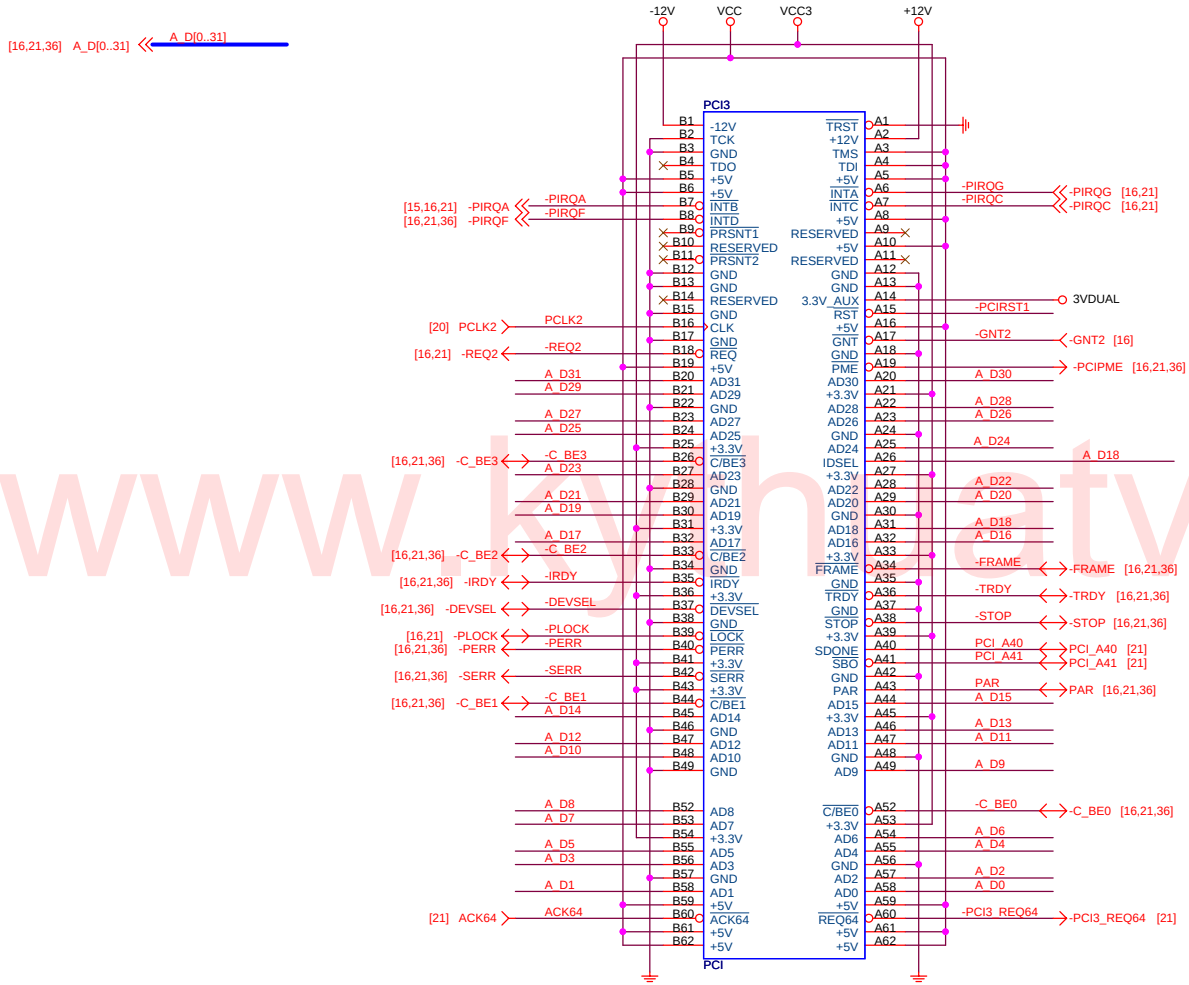
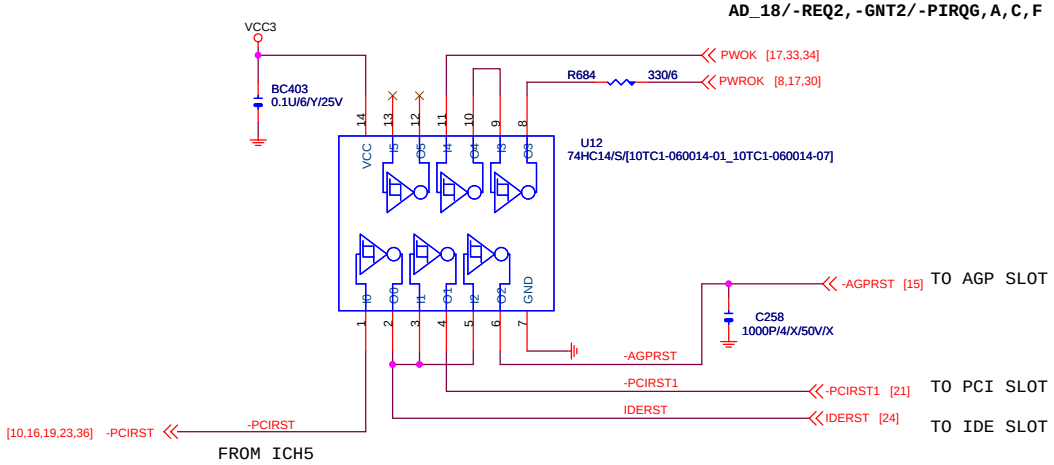
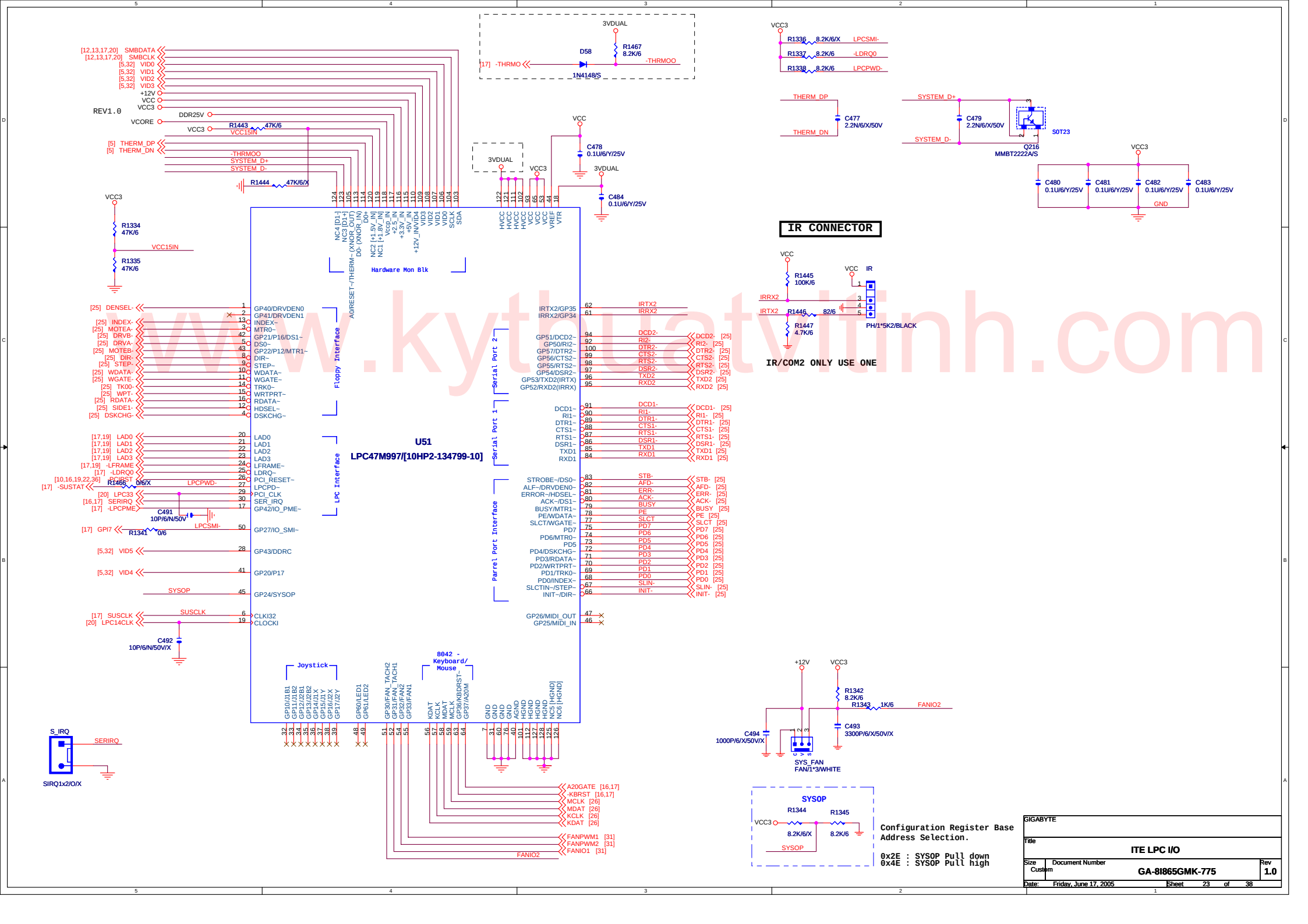
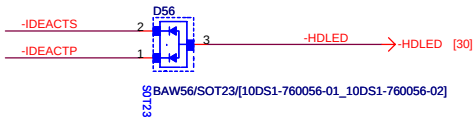
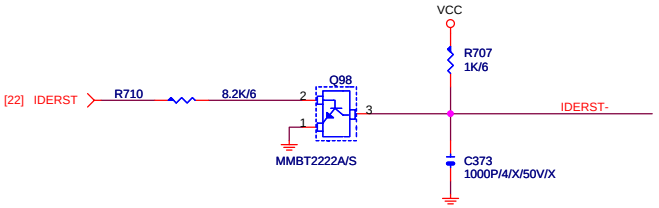


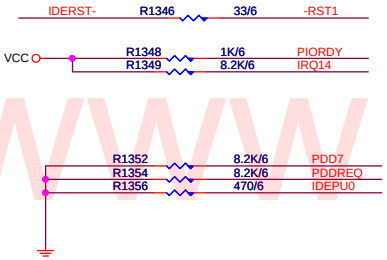


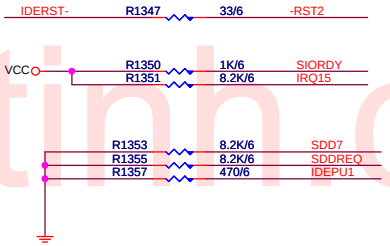
GIGABYTE		
Title	PCI SLOT 3	
Size B	Document Number GA-8I865GMK-775	Rev 1.0
Date: Friday, June 17, 2005	Sheet 22 of 38	

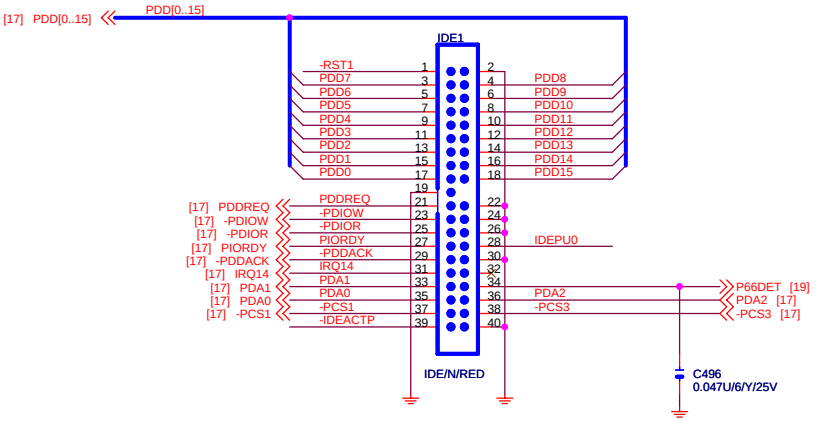


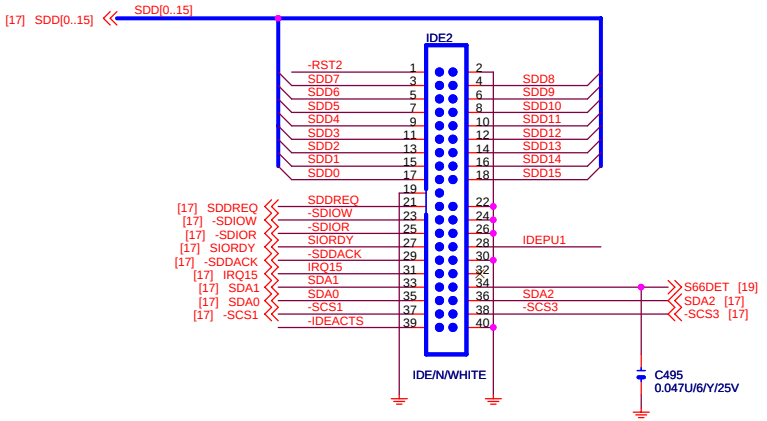












BIOS:CABLE DETECT AND DEVICE DETECT

GIGABYTE		
Title	IDE CONNECTOR	
Size B	Document Number GA-8I865GMK-775	Rev 1.0
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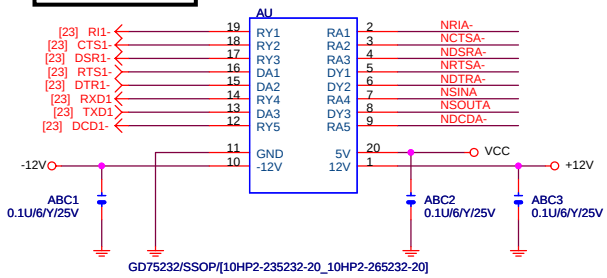
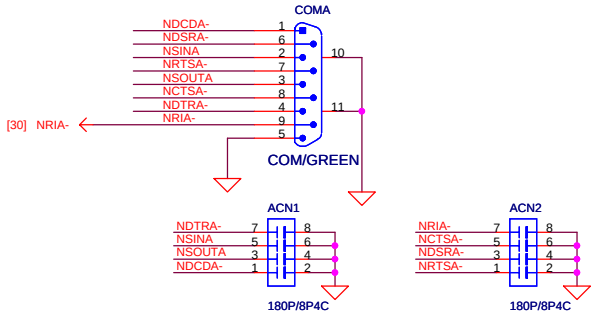
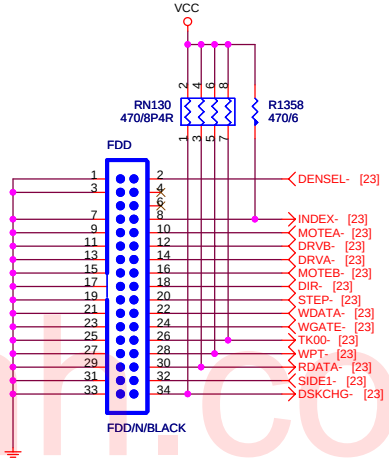
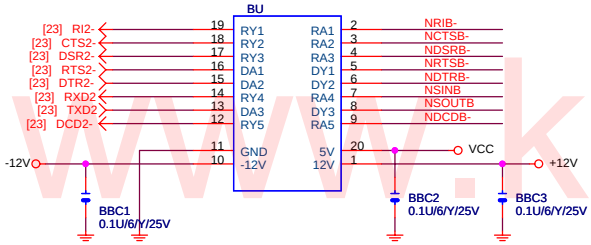
模組化線路

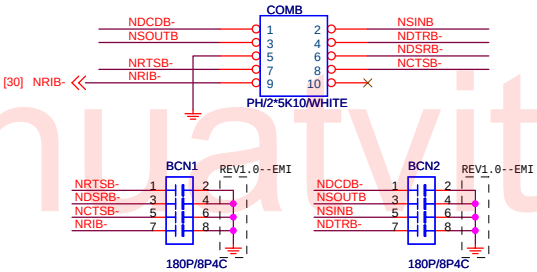


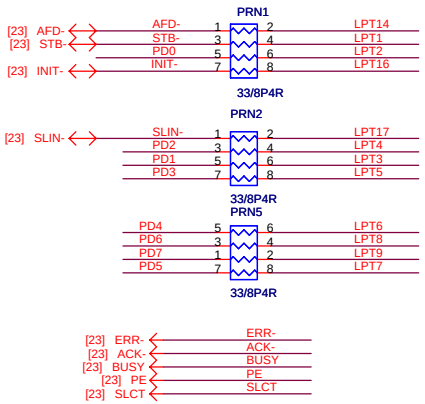


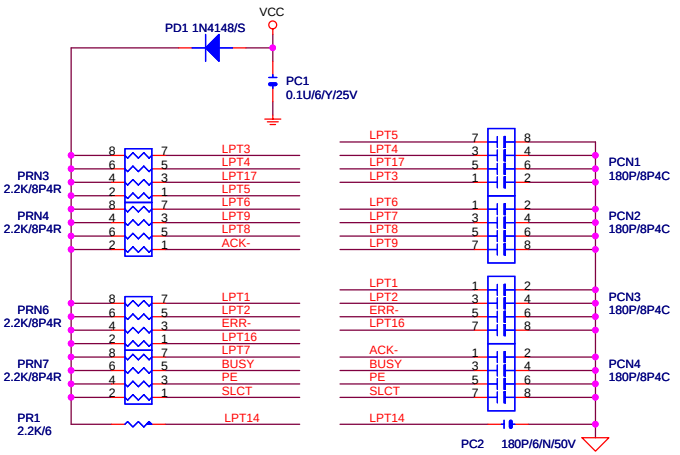


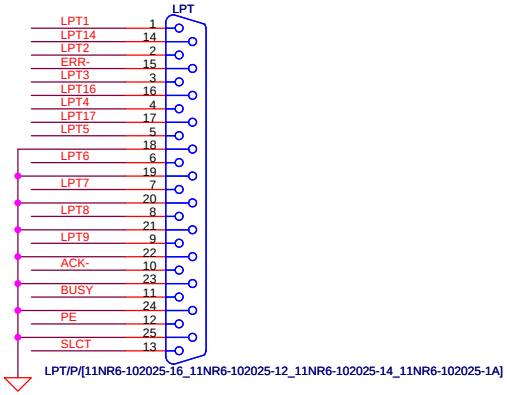
COMB











GIGABYTE		
Title: COM & IR & LPT PORT &FLOOPY		
Size: B	Document Number: GA-8I865GMK-775	Rev: 1.0
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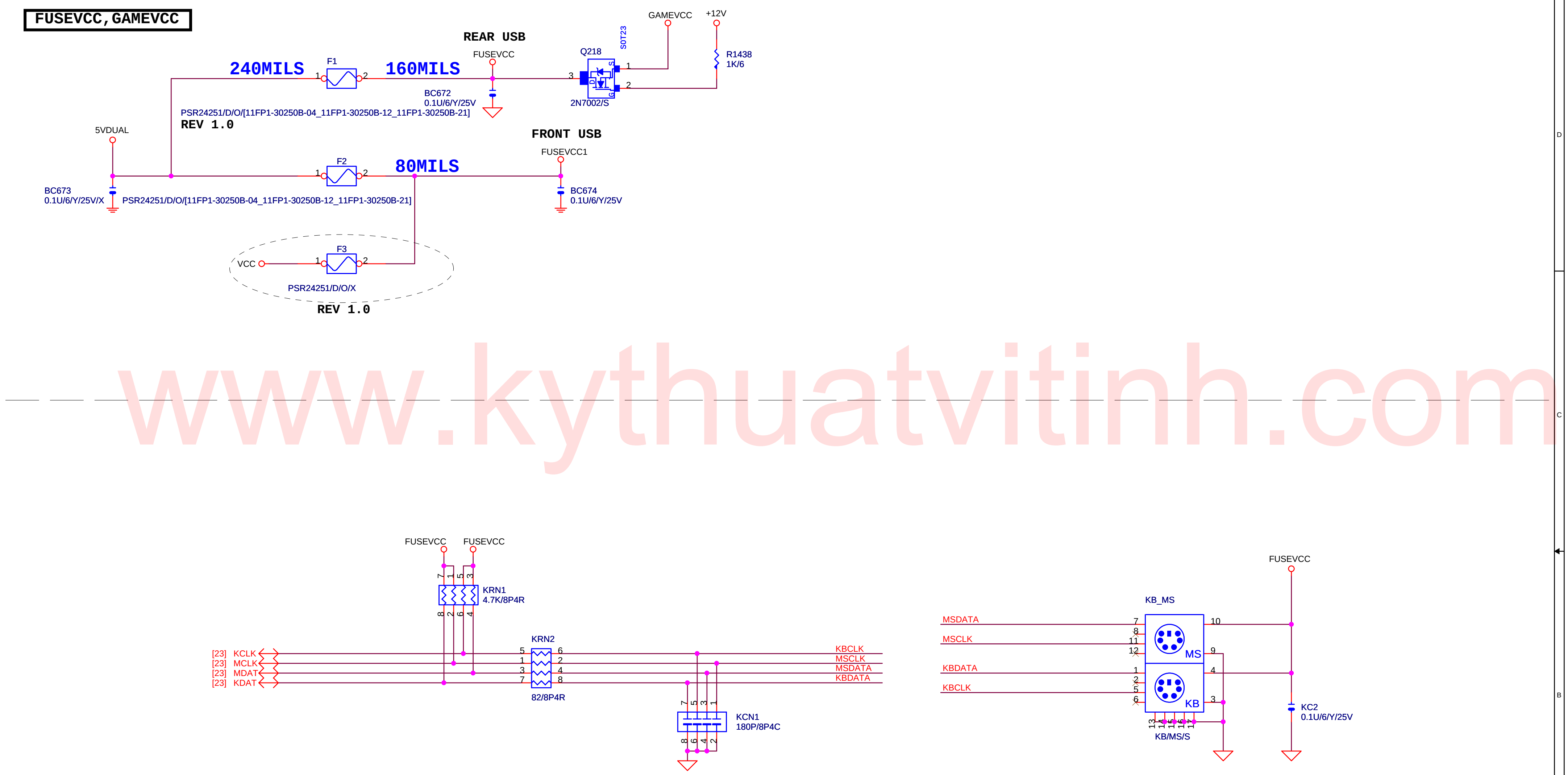

GIGABYTE

Title: **KB & PS2 MOUSE & IR**

Size	Document Number	Rev
B	GA-8I865GMK-775	1.0

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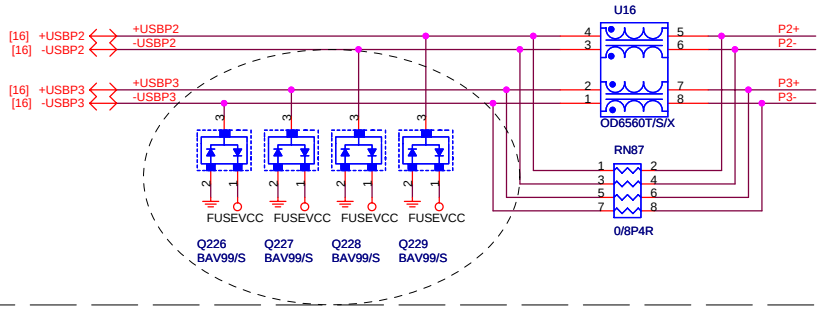
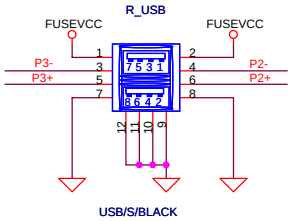
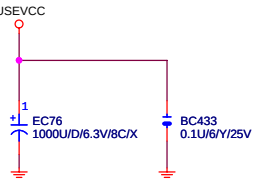
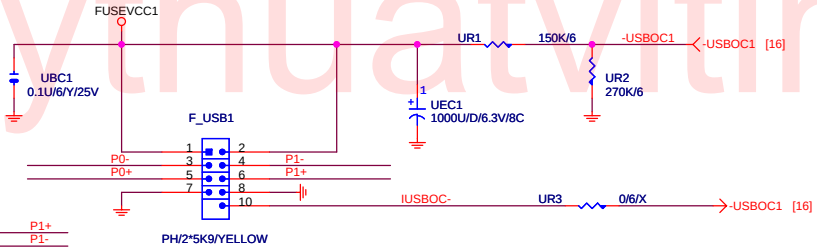
REAR USB

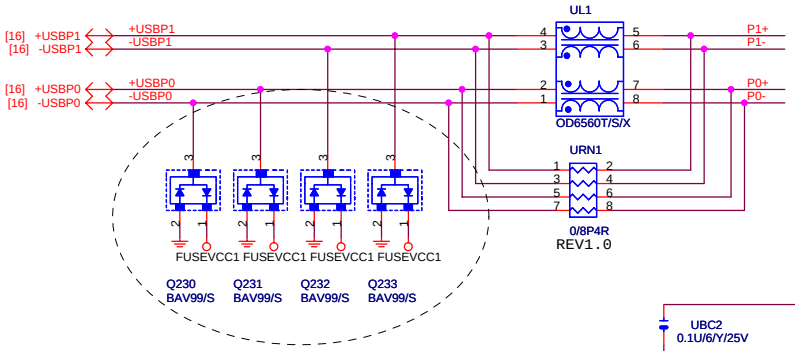




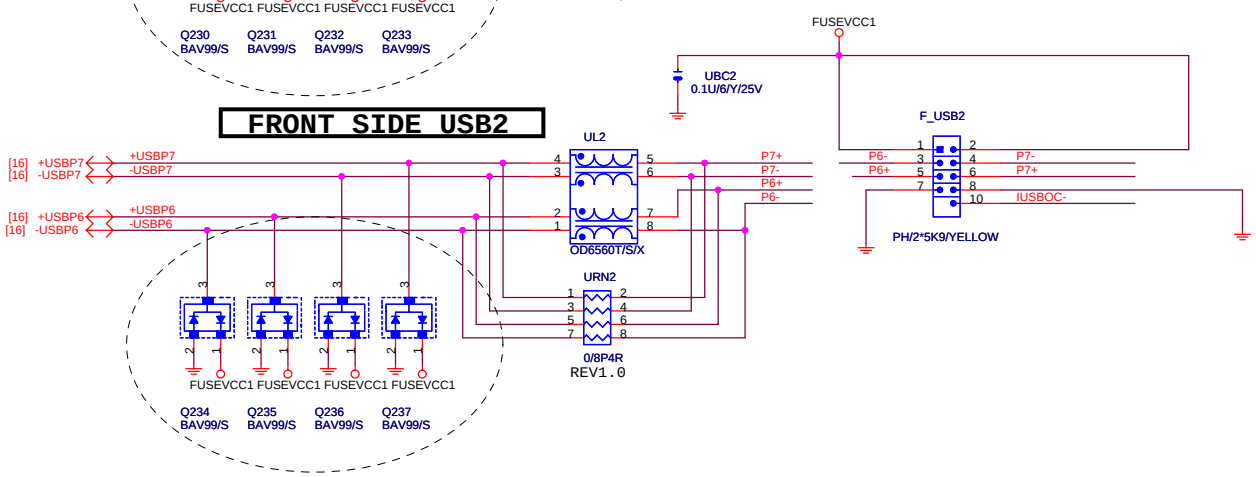


FRONT SIDE USB1





FRONT SIDE USB2



GIGABYTE		
Title	ICH USB PORT	
Size B	Document Number GA-8I865GMK-775	Rev 1.0
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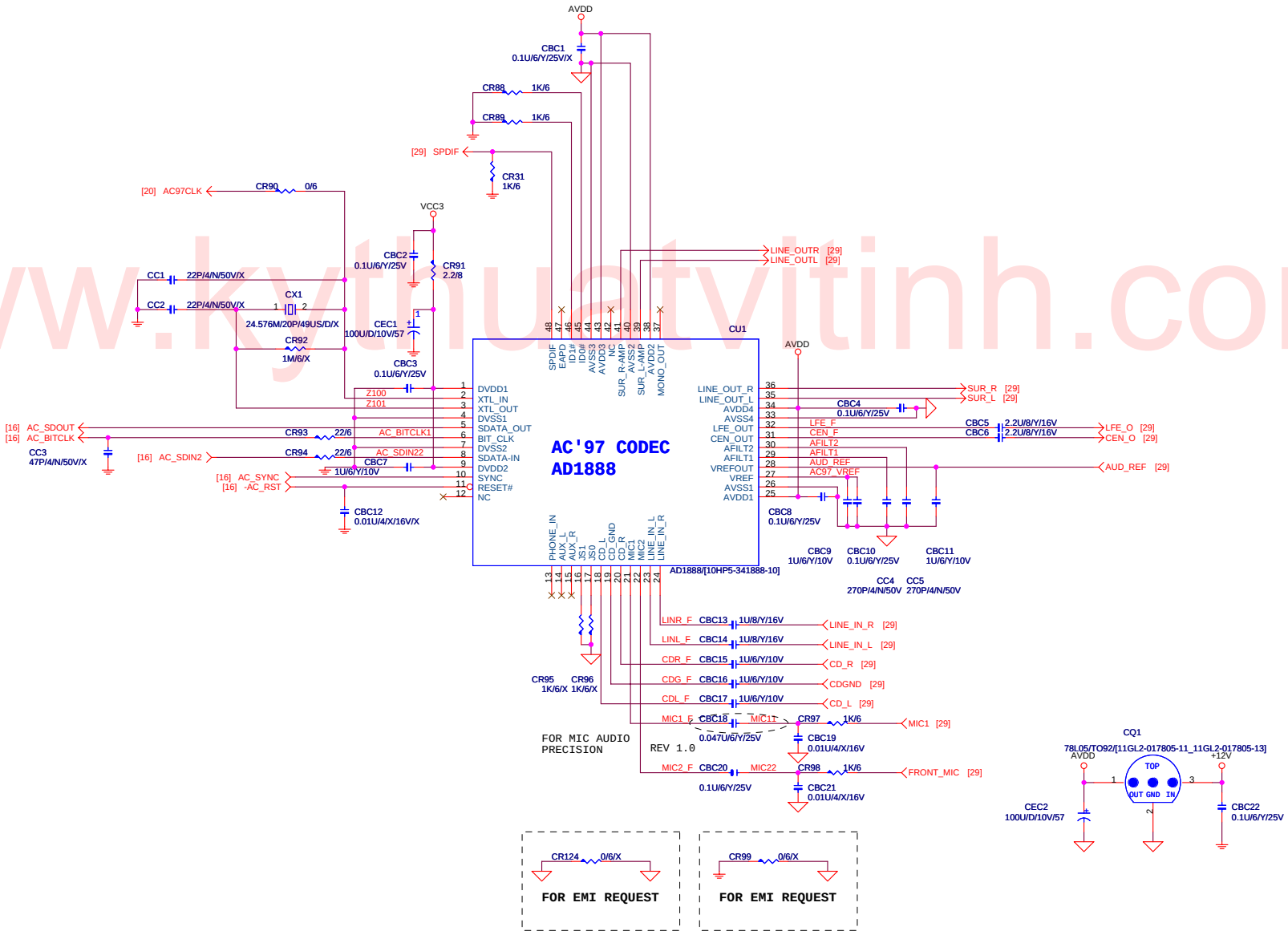

GIGABYTE		
Title: AC97-ADI1888		
Size: Custom	Document Number: GA-8I865GMK-775	Rev: 1.0
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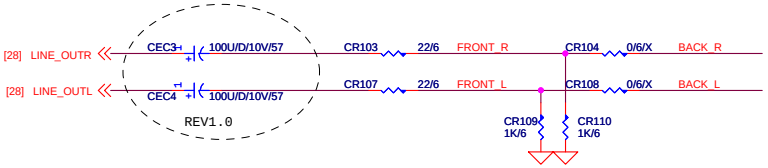
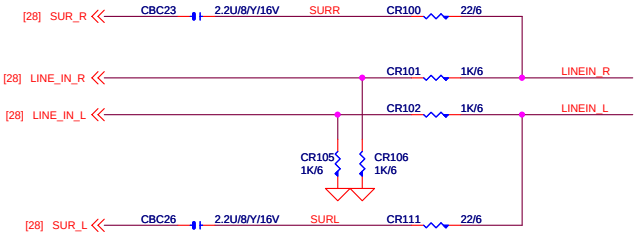
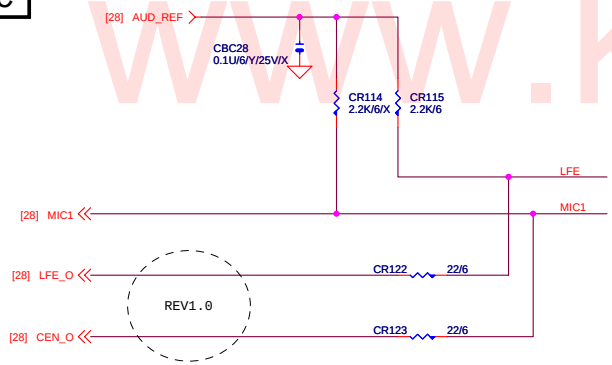
LINE OUT



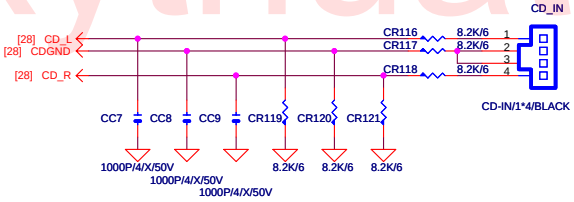
LINE-IN



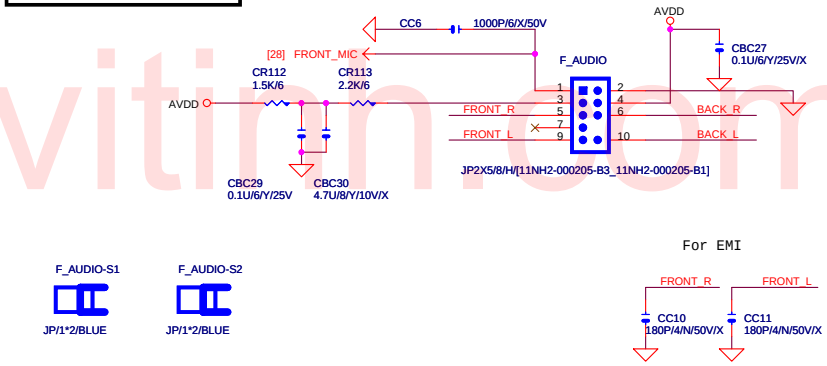
MIC



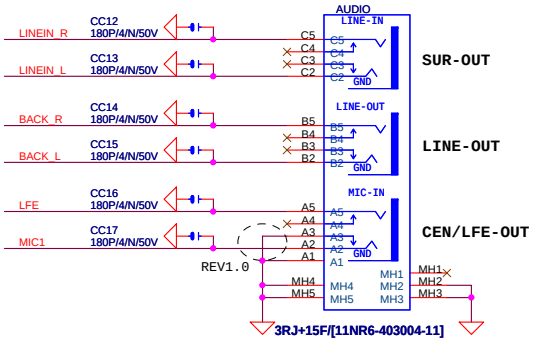
CD IN



INTEL FRONT AUDIO



AC97 JACK



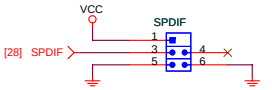
SUR-OUT

LINE-OUT

CEN/LFE-OUT

MIC與LFE AUDIO CONNECTOR產生迴受,A3 DEFAULT接AGND

SPDIF



GIGABYTE

Title: AUDIO OUTPUT,GAME PORT

Size: Custom | Document Number: GA-8I865GMK-775 | Rev: 1.0

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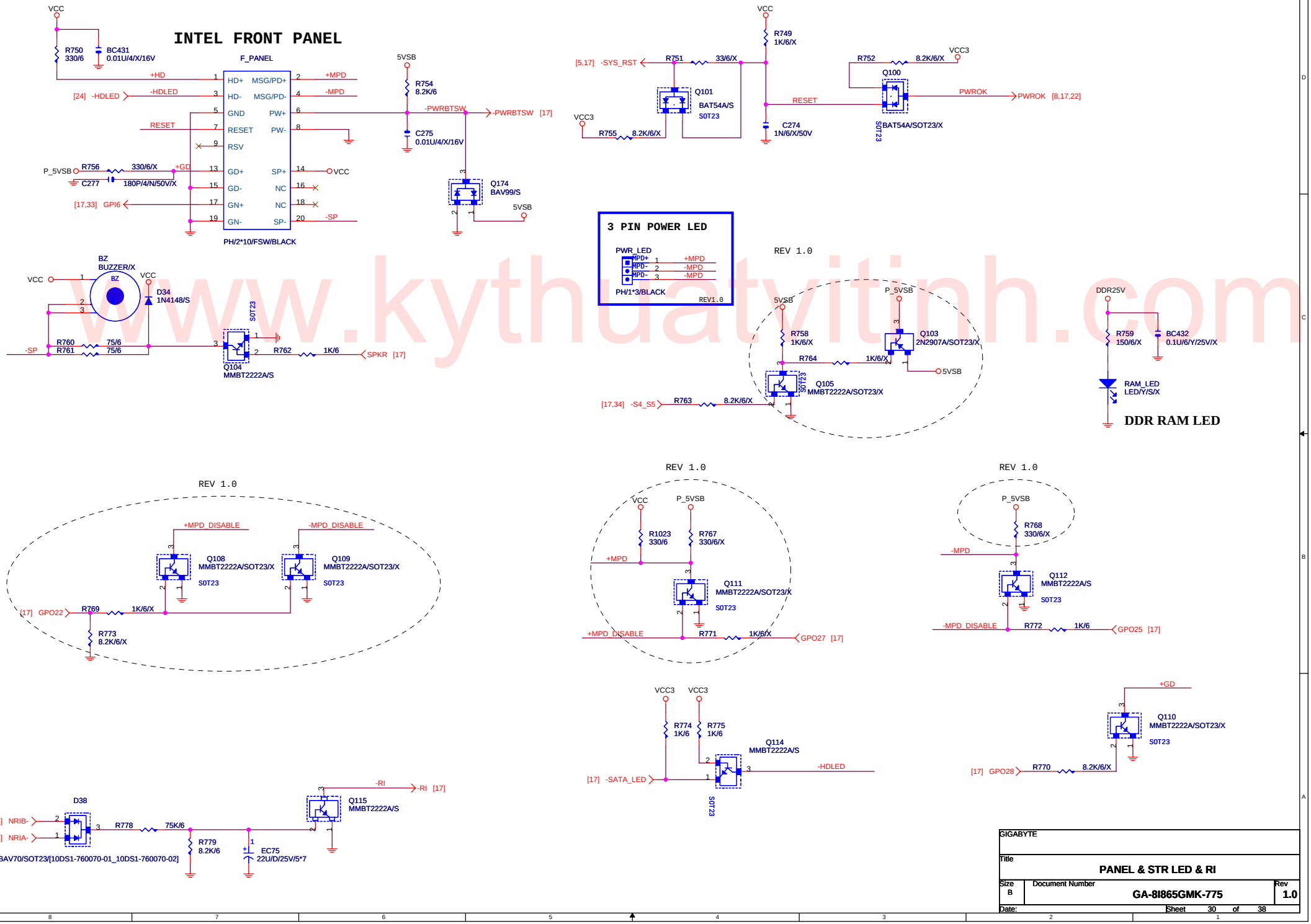
INTEL FRONT PANEL
F_PANEL
PH/2*10/FSW/BLACK
3 PIN POWER LED
PWR_LED
PH/1*3/BLACK
REV1.0
REV 1.0
DDR RAM LED
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GIGABYTE
PANEL & STR LED & RI
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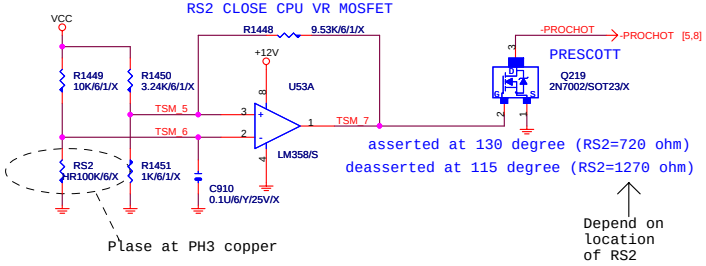
PROCESSOR HOT

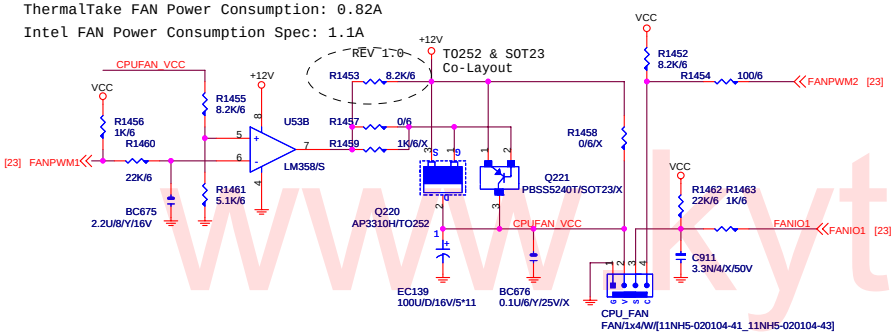
U-ATX PROCESSOR HOT NO POP

RS2 CLOSE CPU VR MOSFET



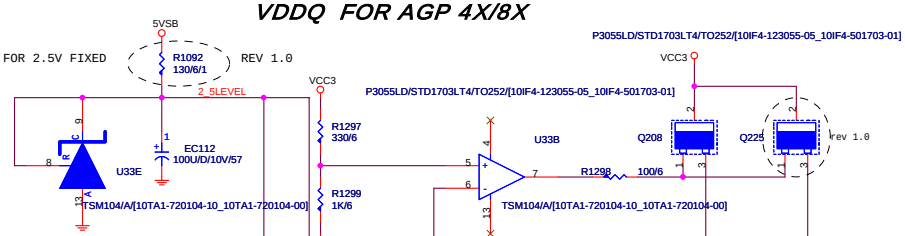
ThermalTake FAN Power Consumption: 0.82A

Intel FAN Power Consumption Spec: 1.1A

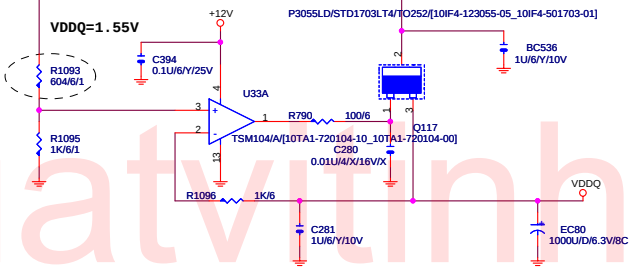


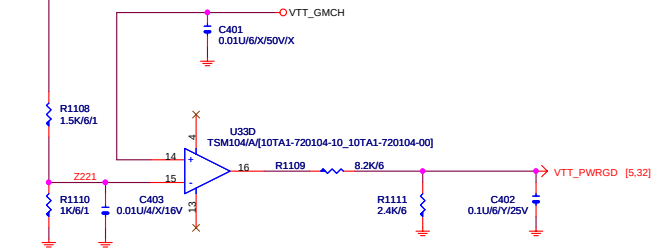
CPU_FAN PIN3,4 CO-LAYOUT

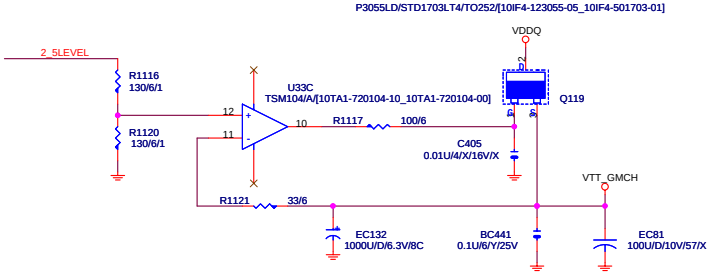
VDDQ FOR AGP 4X/8X



VDDQ=1.55V







VTT_GMCH=1.4V~1.0V

Title	POWER,CPU_FAN,PROCHOT	
Size	Document Number GA-8I865GMK-775	Rev 1.0
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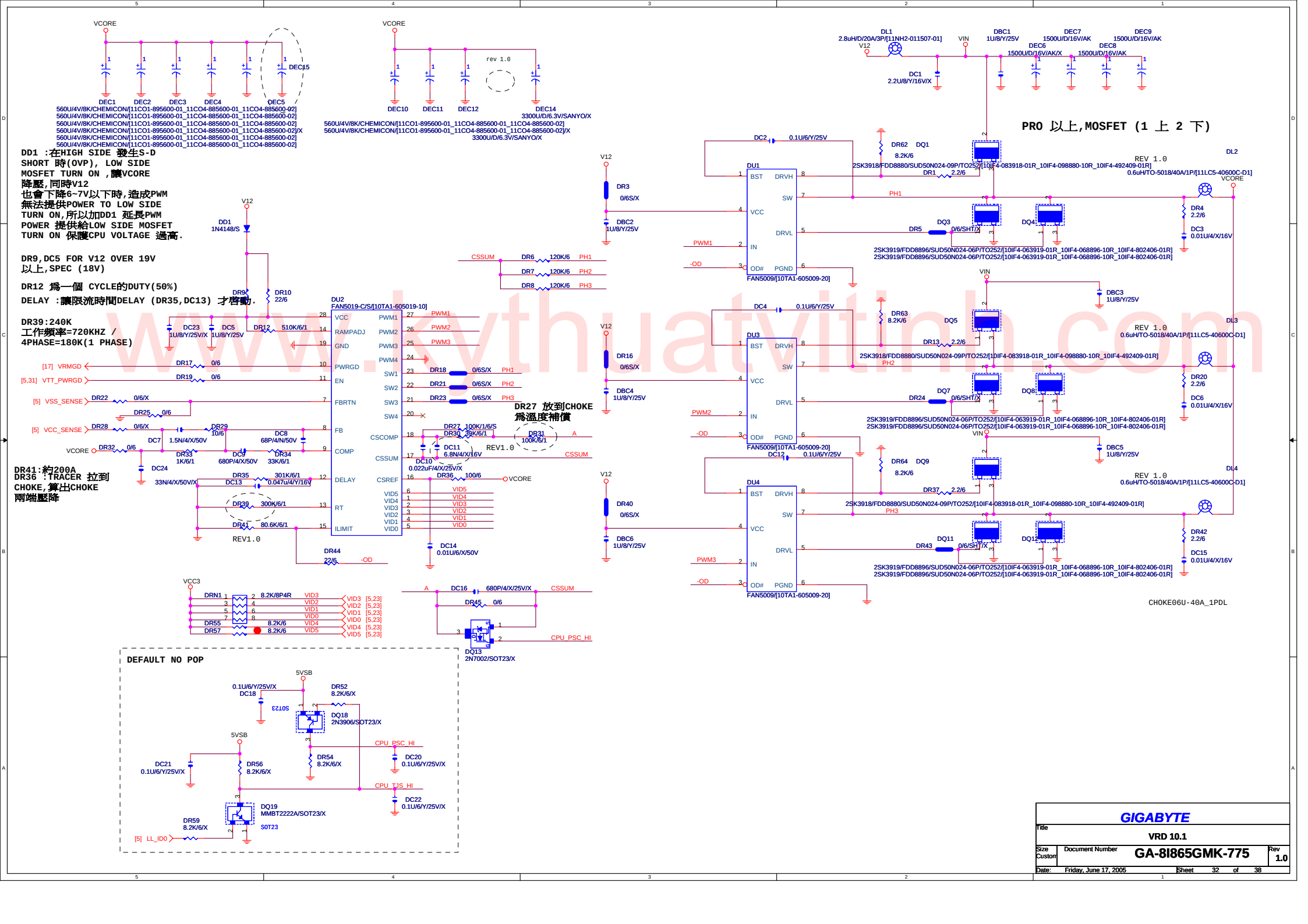
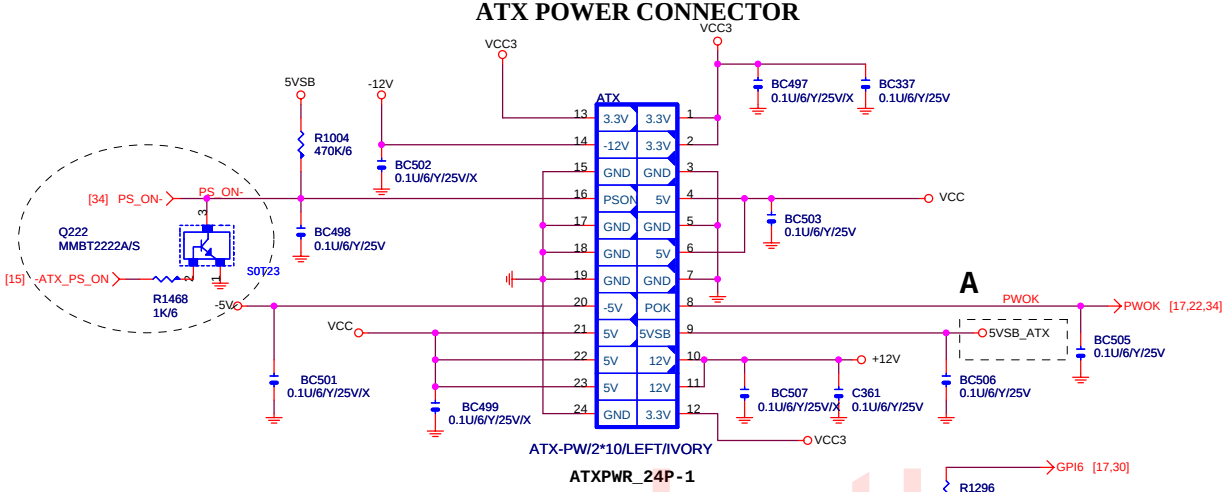
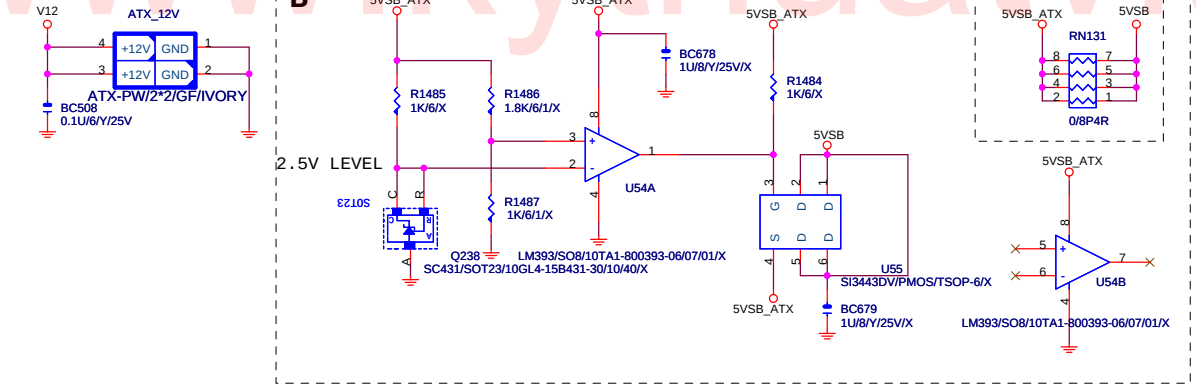
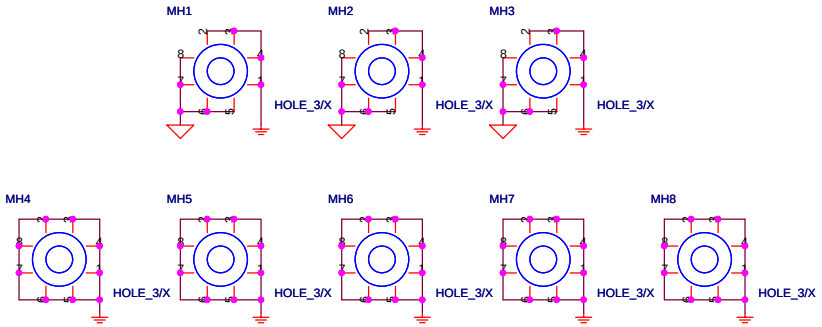
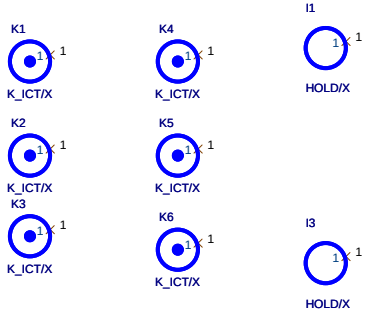


ATX POWER CONNECTOR



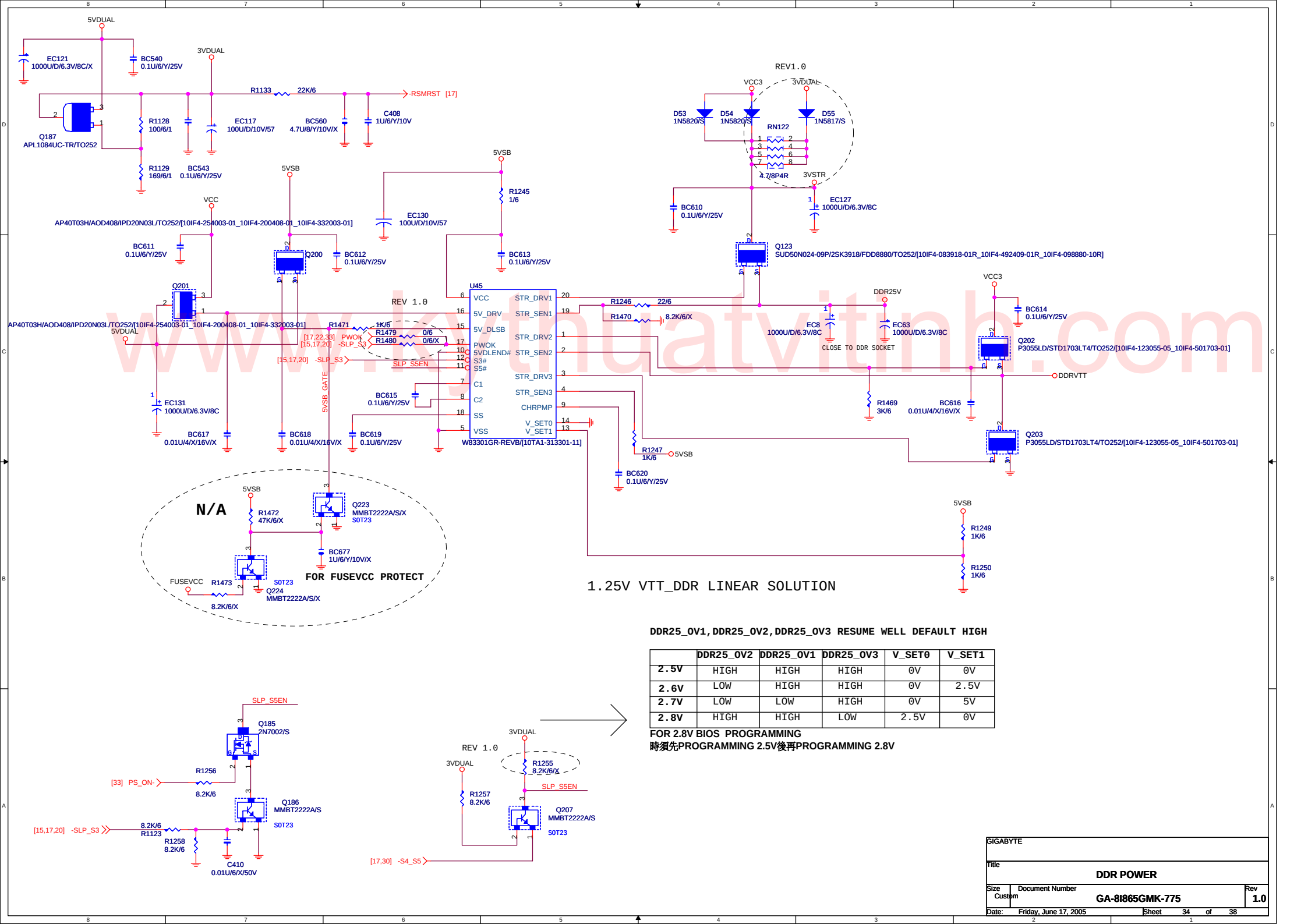






(08/12) HOLE_3-2

GIGABYTE		
Title: Misc. PWR & ATX CONN.		
Size: B	Document Number: GA-8I865GMK-775	Rev: 1.0
Date:	Sheet 33 of 38	

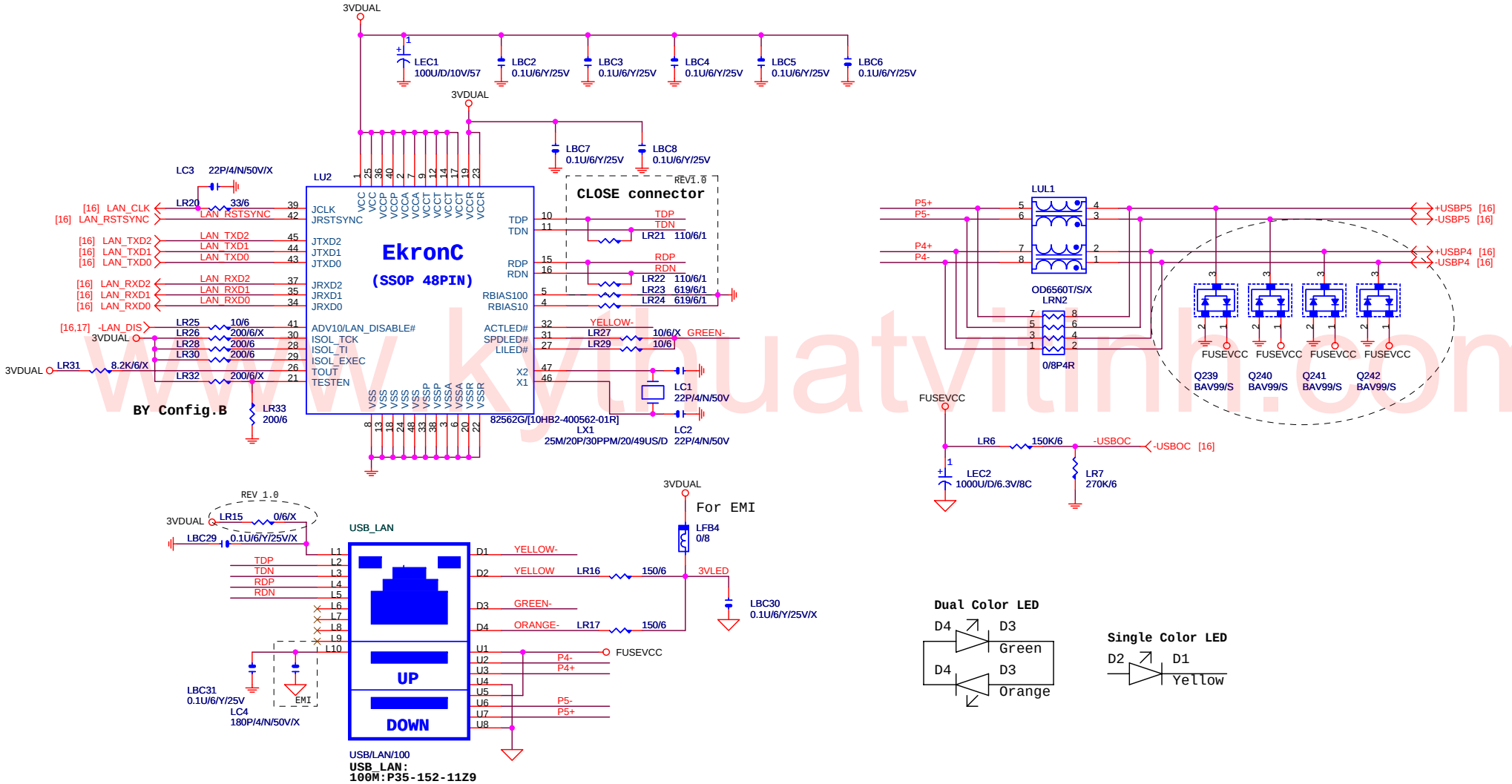


DDR25_OV1,DDR25_OV2,DDR25_OV3 RESUME WELL DEFAULT HIGH

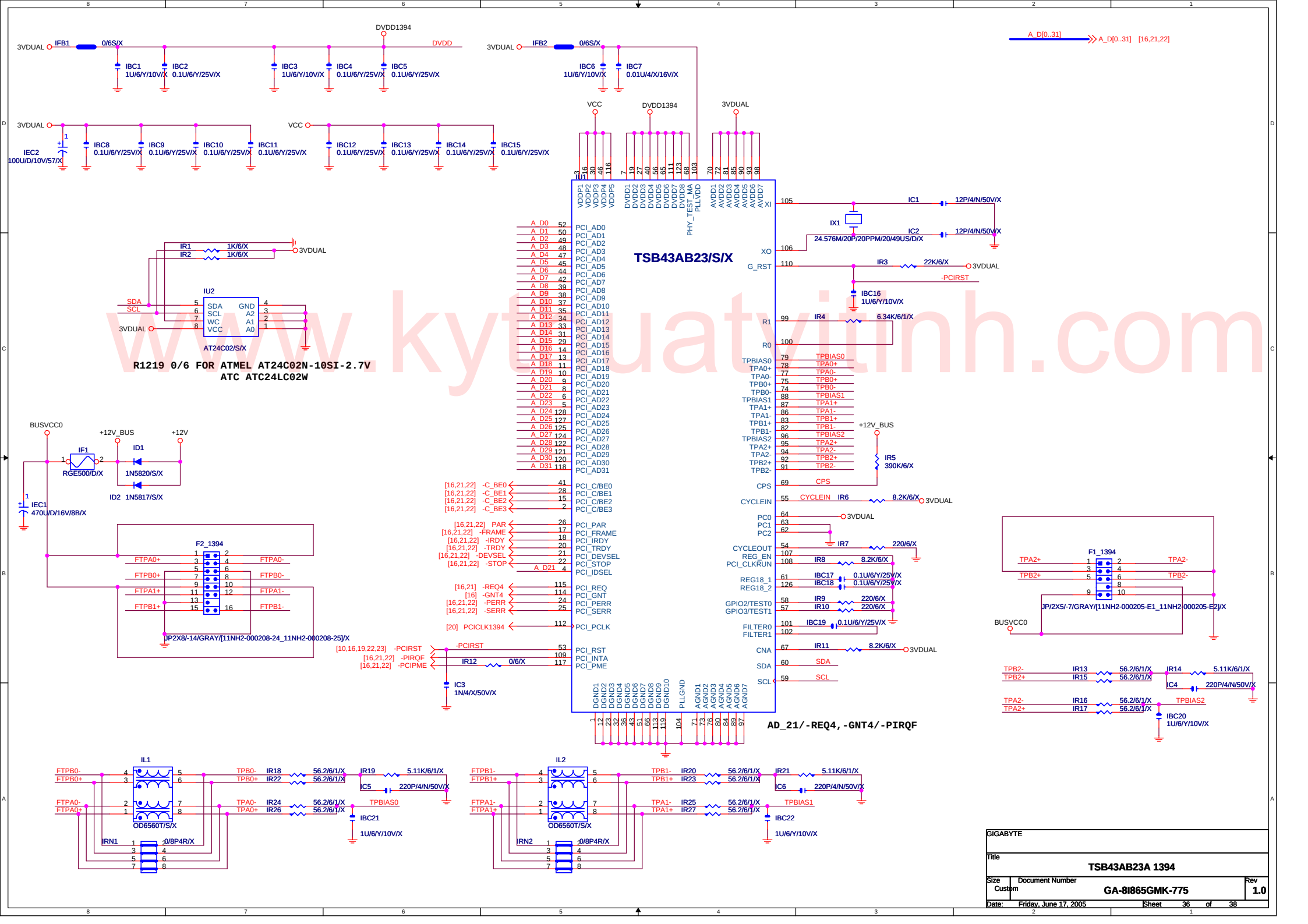
	DDR25_OV2	DDR25_OV1	DDR25_OV3	V_SET0	V_SET1
2.5V	HIGH	HIGH	HIGH	0V	0V
2.6V	LOW	HIGH	HIGH	0V	2.5V
2.7V	LOW	LOW	HIGH	0V	5V
2.8V	HIGH	HIGH	LOW	2.5V	0V

FOR 2.8V BIOS PROGRAMMING
時須先PROGRAMMING 2.5V後再PROGRAMMING 2.8V

GIGABYTE			
Title: DDR POWER			
Size: Custom	Document Number: GA-8I865GMK-775		Rev: 1.0
Date: Friday, June 17, 2005	Sheet 34 of 38		



GIGABYTE		
Title: INTEL 82562G		
Size: B	Document Number: GA-8I865GMK-775	Rev: 1.0
Date: Friday, June 17, 2005	Sheet 35 of 38	



GIGABYTE GA-8I865GMK-775 PCI ROUNTING LIST

PCI DEVICE	IDSEL	INT	CLOCK	REQ	GNT	
PCI SLOT1	16	C,F,G,A	PCLK0	-REQ0	-GNT0	
PCI SLOT2	17	F,G,A,C	PCLK1	-REQ1	-GNT1	
PCI SLOT3	18	G,A,C,F	PCLK2	-REQ2	-GNT2	
TI 1394	21	F	PCICLK1394	-REQ4	-GNT4	
LAN (Marvell)	25	E	LANCLK33	-REQ5	-GNT5	

GIGABYTE

Title: PCI ROUNT LIST

Size: Custom | Document Number: GA-8I865GMK-775 | Rev: 1.0

Date: Friday, June 17, 2005 | Sheet 37 of 38

GIGABYTE GA-8I865GMK-775 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

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