Model Name: 8I915P-MF

Revision 2.2

SHEET	TITLE
01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	P4_LGA775_A
05	P4_LGA775_B
06	P4_LGA775_C
07	P4_LGA775_D
08	VCORE POWER
09	GMCH-GRANTSDALE_HOST
10	GMCH-GARNTSDALE_DDR
11	GMCH-GRANTSDALE_PCI E, DMI
12	GMCH-GRANTSDALE_INT VGA
13	GMCH-GRANTSDALE_GND
14	GMCH-GRANTSDALE_PWR
15	DDR CHANNEL A
16	DDR CHANNEL B
17	DDR TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH6 PCI, USB, DMI, LAN
20	ICH6 IDE, GPIO, SATA, CTRL
21	ICH6 VCC, GND
22	CLK GEN

SHEET	TITLE
23	PCI SLOT 1
24	PCI EXPRESS*1 SLOT 1,2
25	ITE8712HX
26	HWMO/FAN/FWH BIOS
27	KB_MS/GAME
28	COM/LPT/FDD
29	(FRONT+REAR)USB/RING/IDE
30	AZALIA CODEC ALC880/CMI9880
31	AUDIO JACK
32	LAN RTL8110S/8100C
33	ATX POWER CONN.
34	ALL POWER
35	1394 TSB43AB23
36	FRONT PANEL/BZ

PCB VANDER:育富(TB),智恩(TA),鴻達

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

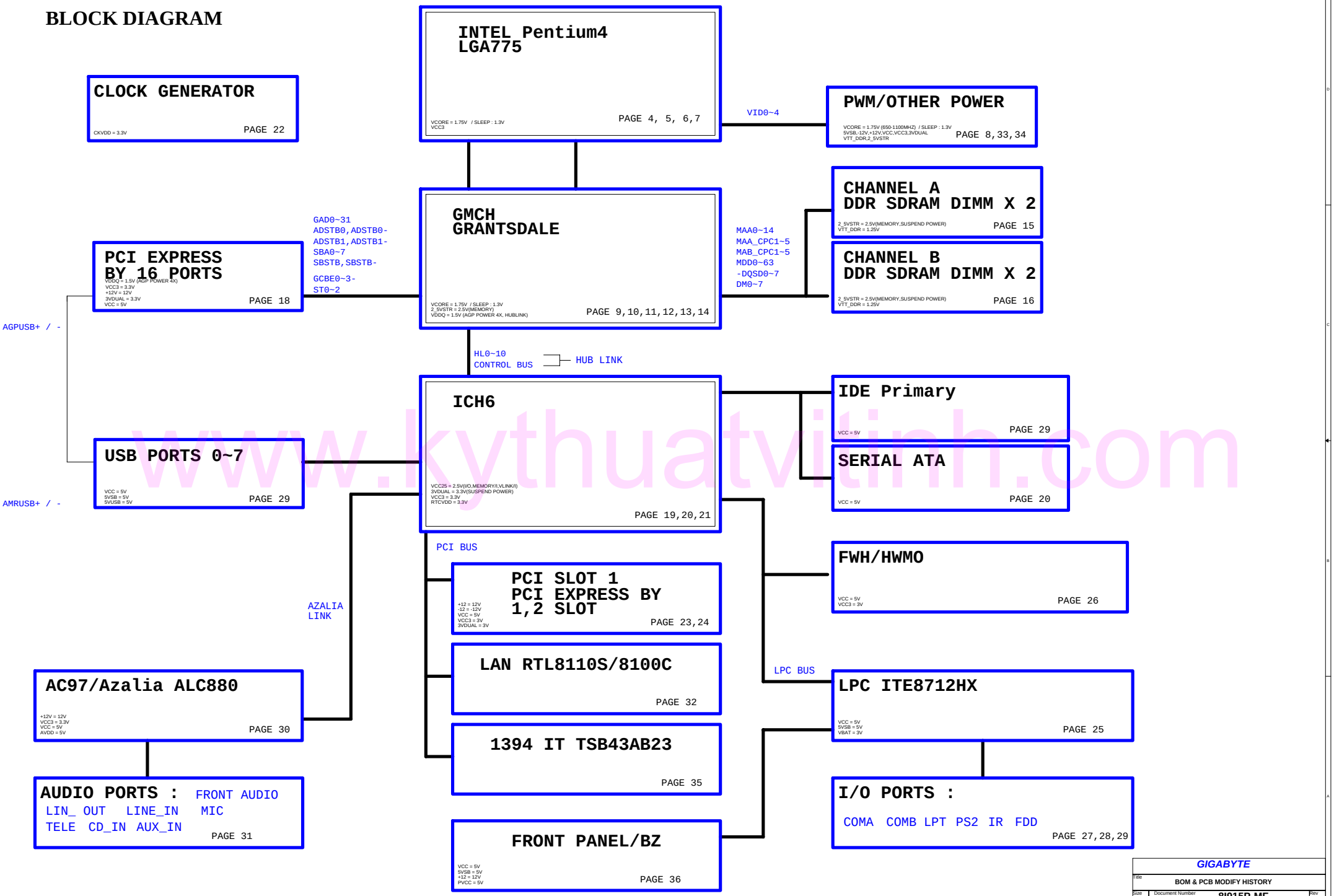
GIGABYTE

Title: Cover Sheet

Size: Custom | Document Number: 8I915P-MF | Rev: 2.2

Date: Monday, December 20, 2004 | Sheet 1 of 37

BLOCK DIAGRAM



GIGABYTE

Title	BOM & PCB MODIFY HISTORY	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 2 of 37	

Model Name: 8I915P-MF
Version: 2.2

Component value change history

2004/12/02

Data	Change Item	Reason
12/11	REV 0.1進LAYOUT	
12/23	PM MODIFY SPEC PCIX2,PCIEX1	
12/24	IT8712/IX MODIFY	
12/25	DEL 1394 SIGNAL CHOKE/8P4R/SHT	
12/29	DDR POWER/FUSE FOR KB_MS	
01/05	ich6 add 1000 p 0402於-ichsync pin for A1	
01/07	MODIFY RN98~102 -->R0603 TYPE FOR LAYOUT	
	PWM FAN5019 ADD DIODE/CAP	
01/08	-SYS_RST ADD 0/6	
	1394 SCH NET DVDD-->DVDD1394	
01/09	ADD VCC/VCC3 CROSS CAP	
01/13	E-BOM :8GDGMF-00-01	
02/13	E-BOM :8I915GMF-00-02	1.VCORE PWM LOAD LINE(PH2-->PH4)
		2.GRANTSDALE/ICH6(A0/A0)-->(A2/A1)
		3.VGA(HSYNC/VSYNC)-->74HCT32
		4.BY ITE8212/IX(RESET/PWROK)-->DRIVE BY 74HC14
		5.PCB MODEL NAME:8GDGMF-->8I915G-MF
		6.CAP COST DOWN BY MEASURE
02/25		1.IDE RESET
03/29	rev 0.3-->modify function	1.FRONT USB PWR(VCC/5VDUAL)
		2.AZALIA CODEC FUNCTION
		3.VCORE SP-CAP+MOSFET CHOKE/DIP
04/09	VCORE PWM CHANGE PLACEMENT	TOP(X3PHASE)+RIGHT(X1PHASE),PWM RIGHT DOWN
04/13	EMI ADD X12PCS (0402)CAP ON DDR	
04/21	AUDIO REARX6PORT+FRONTX2PORT	
04/30	BOM:8I915GMF-00-10A	1.MODIFY AUDIO
		2.ADD CPU_FAN FOR SMART
05/03	BOM:8I915PMF-00-10A	1.MODIFY 915P CHIPSET
		2.VGA/P-->COM/P
05/17	BOM:8I915PMF-00-10B	1.改DDRVTT造成POWER/ON-OFF當FF-->C256:100/6
		2.CLK GEN X'TAL CAP:C176,C179-->22P/4/N/50V

Circuit or PCB layout change for next version

Data	Change Item	Reason
05/27	U22 4M MODIFY TO 2M ROM	
06/09	BOM:8I915PMF-00-10C	1.RN61~64,67:8.2K/8P4R-->2.2K/8P4R
		2.Q259加替料P06P03
		3.PCB加替料(育富):已經證清爲承認書製作錯誤,廠商改正
07/20	BOM:8I915PMF-00-20A	1.修改REV 2.0及1394 FUSE 5A及包材
08/17	BOM:8I915PMF-00-20B	1.修改F_USB POWER爲VCC-->5VDUAL
10/07	BOM:8I915PMF-00-20D	1.VCORE CHOKE:DL2,3,4,5[11LC3-20500C-R1/R2/R3/R4]
		2.ADD替料:ST1703LT4
10/26	BOM:8I915PMF-00-20E	1.解決Q189,MMBT2222A之Ib/Ic放大比率不足R1136,R1139=8.2K/6
		2.ADD替料Q45[10IF4-250420-01]
11/22	BOM:8I915PMF-00-22A	1.更改VCORE CHOKE;ICT TEST POINT;1066CPU FIX 800;INTEL MODIFY CIRCUIT
12/01	BOM:8I915PMF-00-22A-ECN	U9 915G/B1-->915P/B1
12/02	修改包材(刪除12CF1-1CM001-12)	

GIGABYTE

Title: BOM & PCB MODIFY HISTORY

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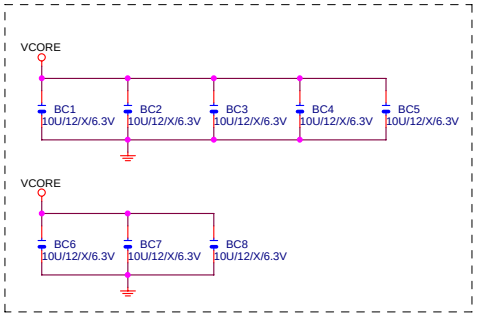
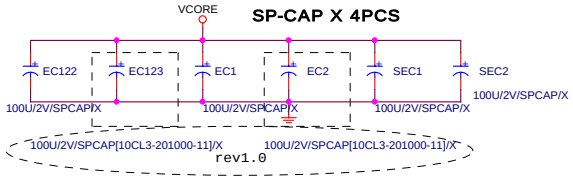
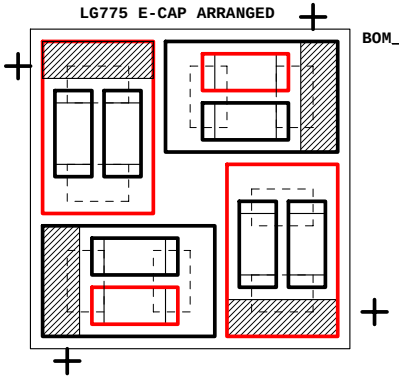
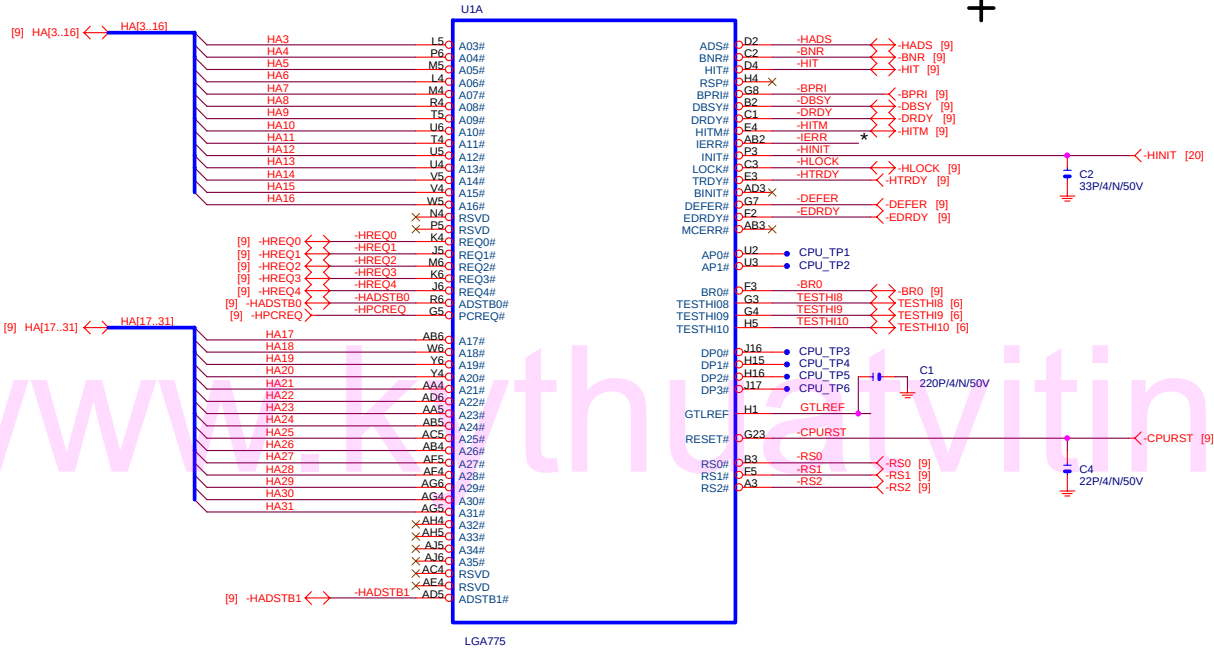


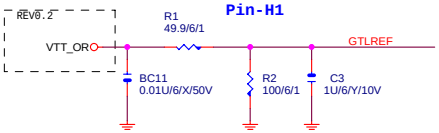


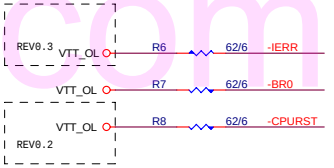


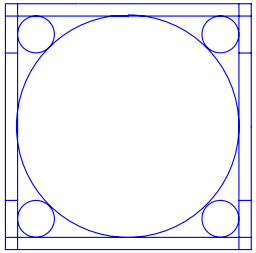
BOM上SP-CPx2+10uFx2,外部電容不留



Closed to Pin-H1







GIGABYTE		
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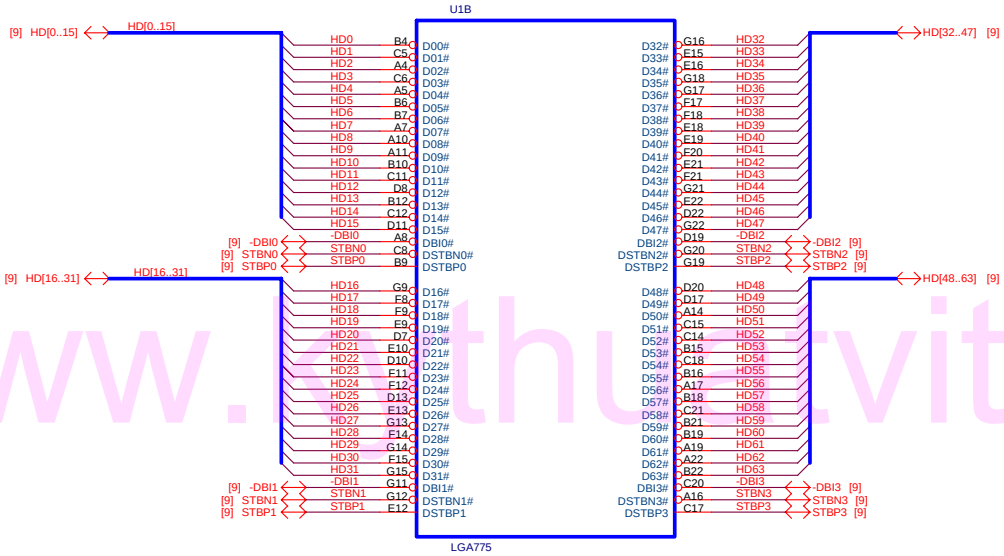
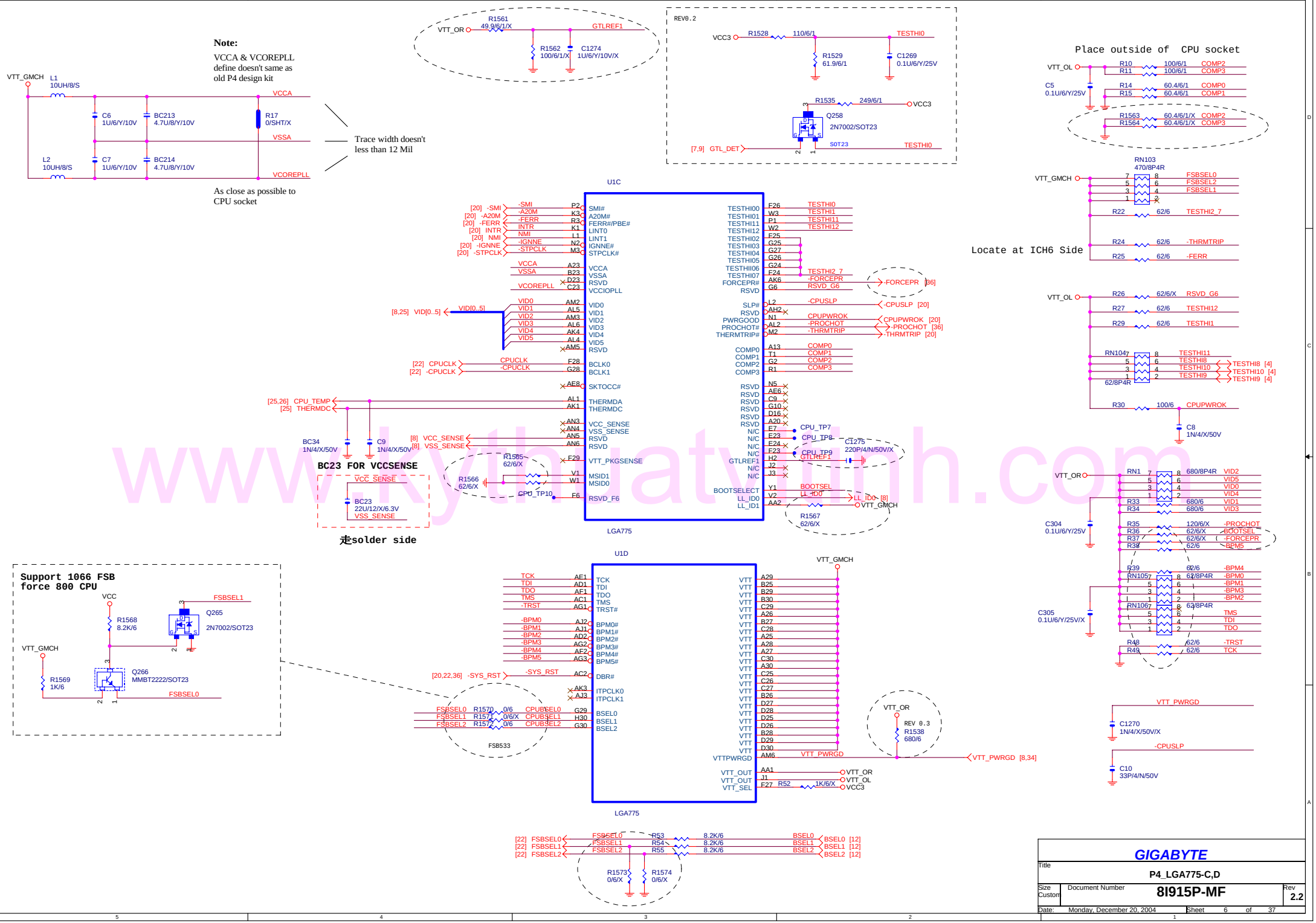
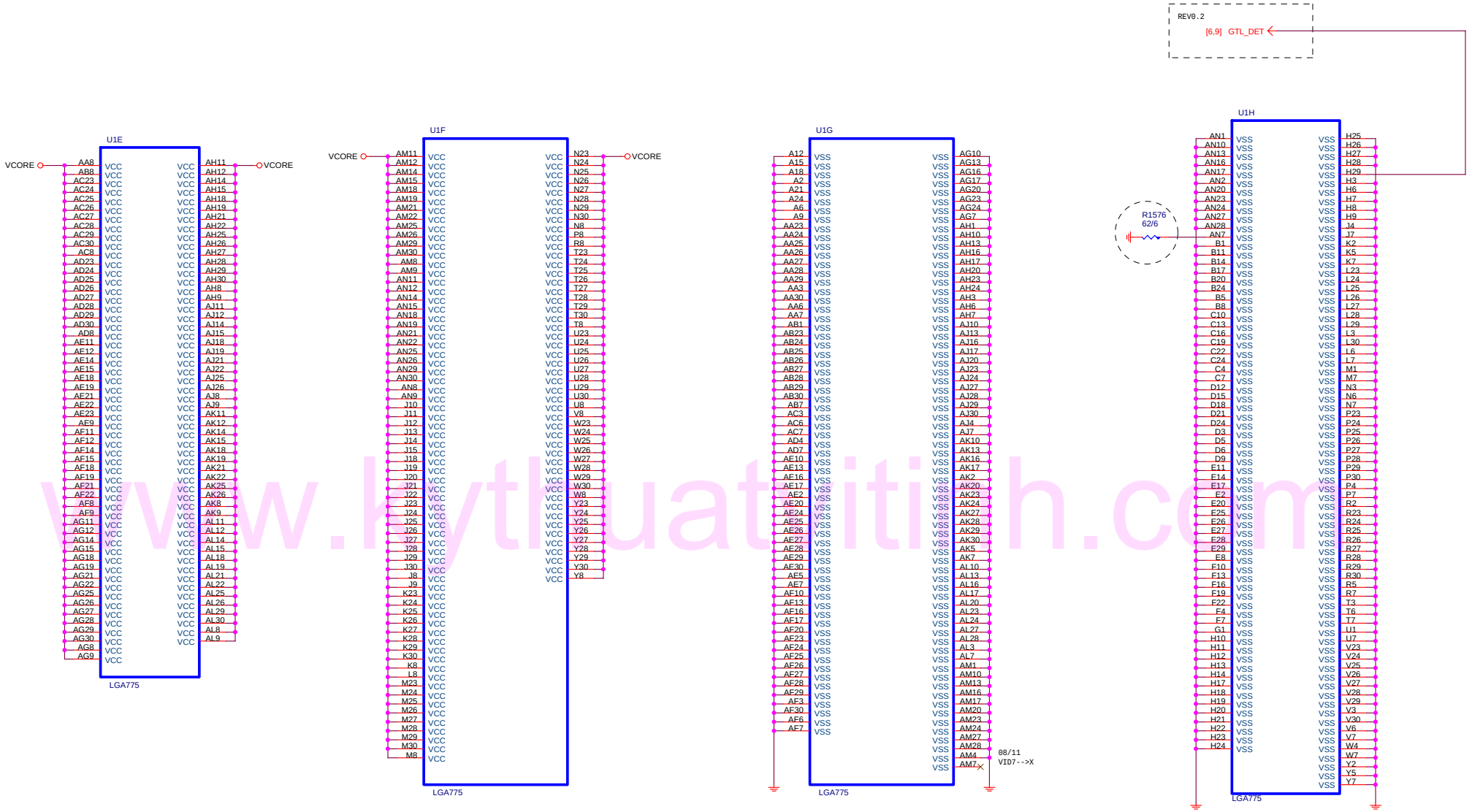
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 4 of 37	



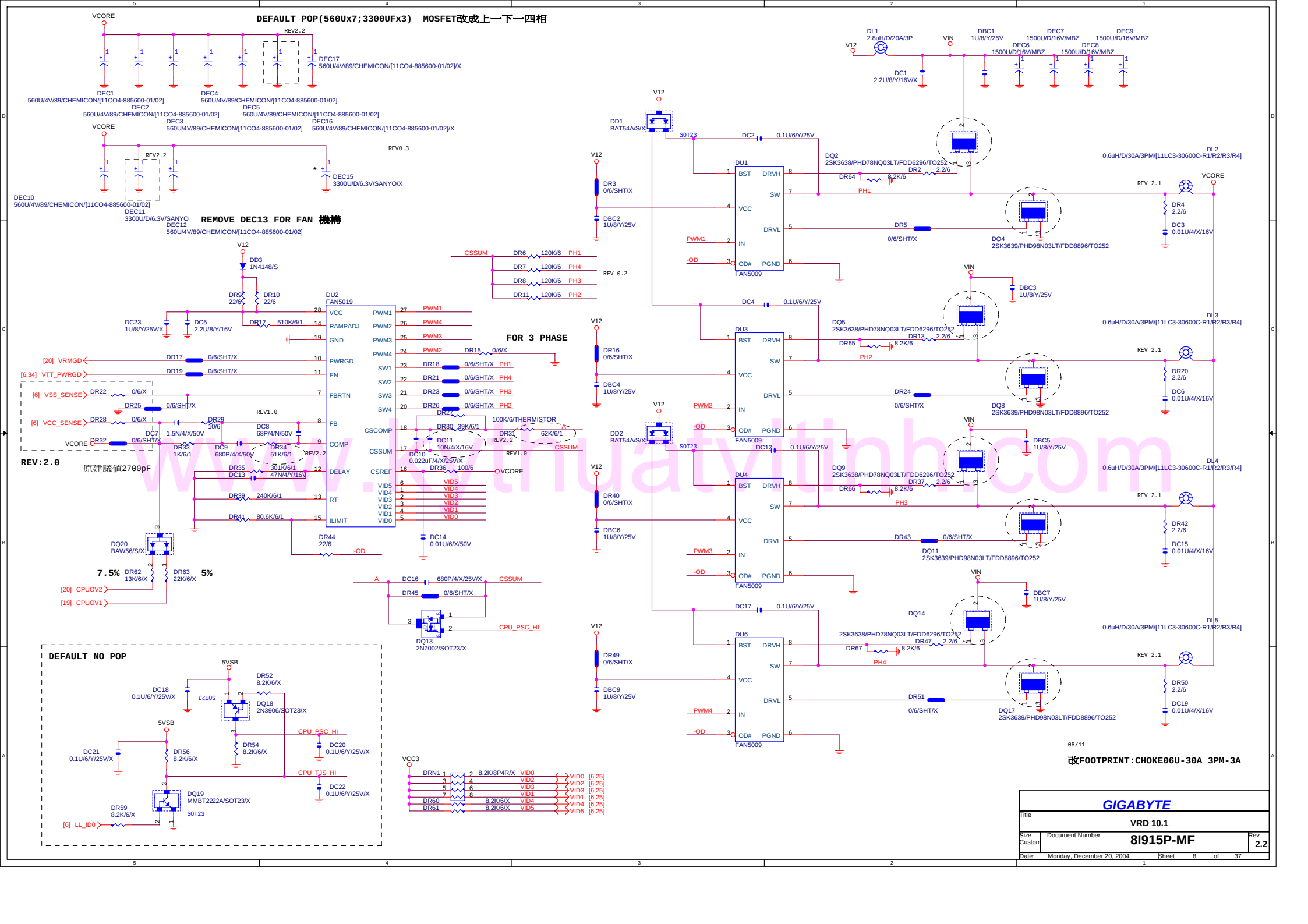
GIGABYTE

Title	P4_LGA775-B	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 5 of 37	





GIGABYTE		
Title	P4_LGA775-E,F,G,H	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 7 of 37	


DEFAULT POP(560Ux7;3300UFx3) MOSFET改成上一下一四相
REMOVE DEC13 FOR FAN 機構
FOR 3 PHASE
REV:2.0
原建議值2700pF
DEFAULT NO POP
7.5%
5%
08/11
改FOOTPRINT:CHOKE06U-30A_3PM-3A
GIGABYTE
VRD 10.1
8I915P-MF
Rev 2.2
Monday, December 20, 2004
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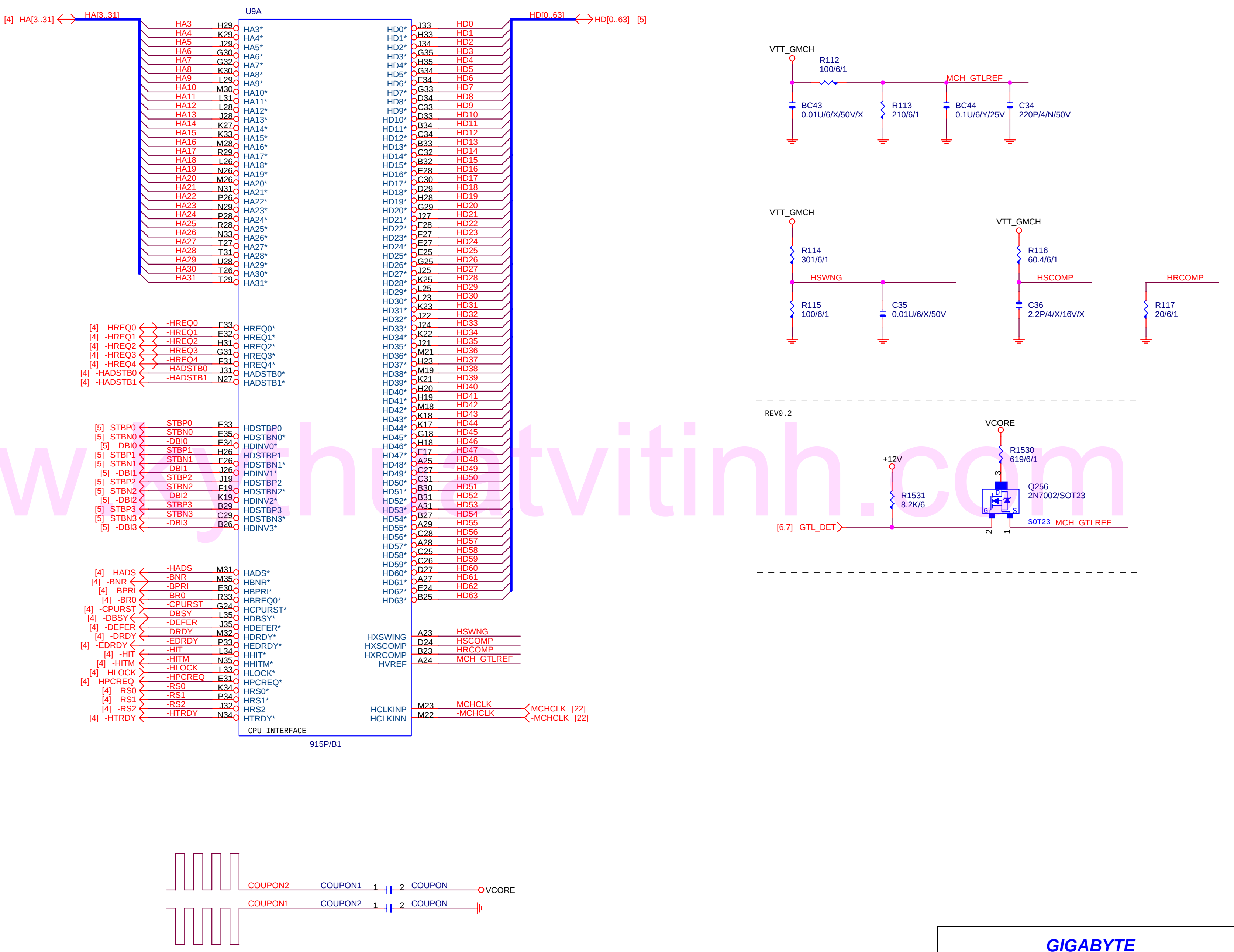
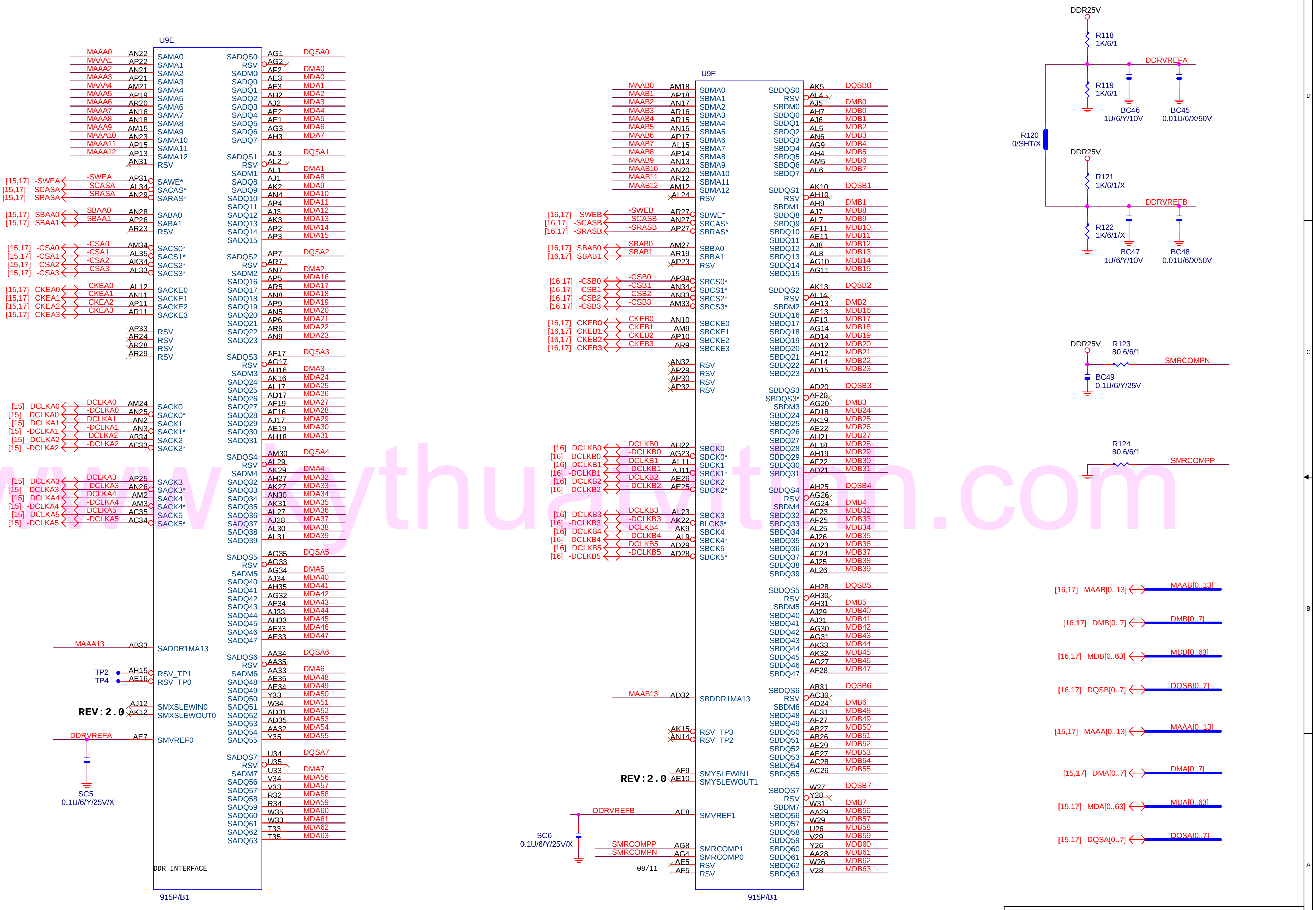


GIGABYTE

Title: GMCH-HOST

Size	Document Number	Rev
Custom	8I915P-MF	2.2

Date: Monday, December 20, 2004 Sheet 9 of 37

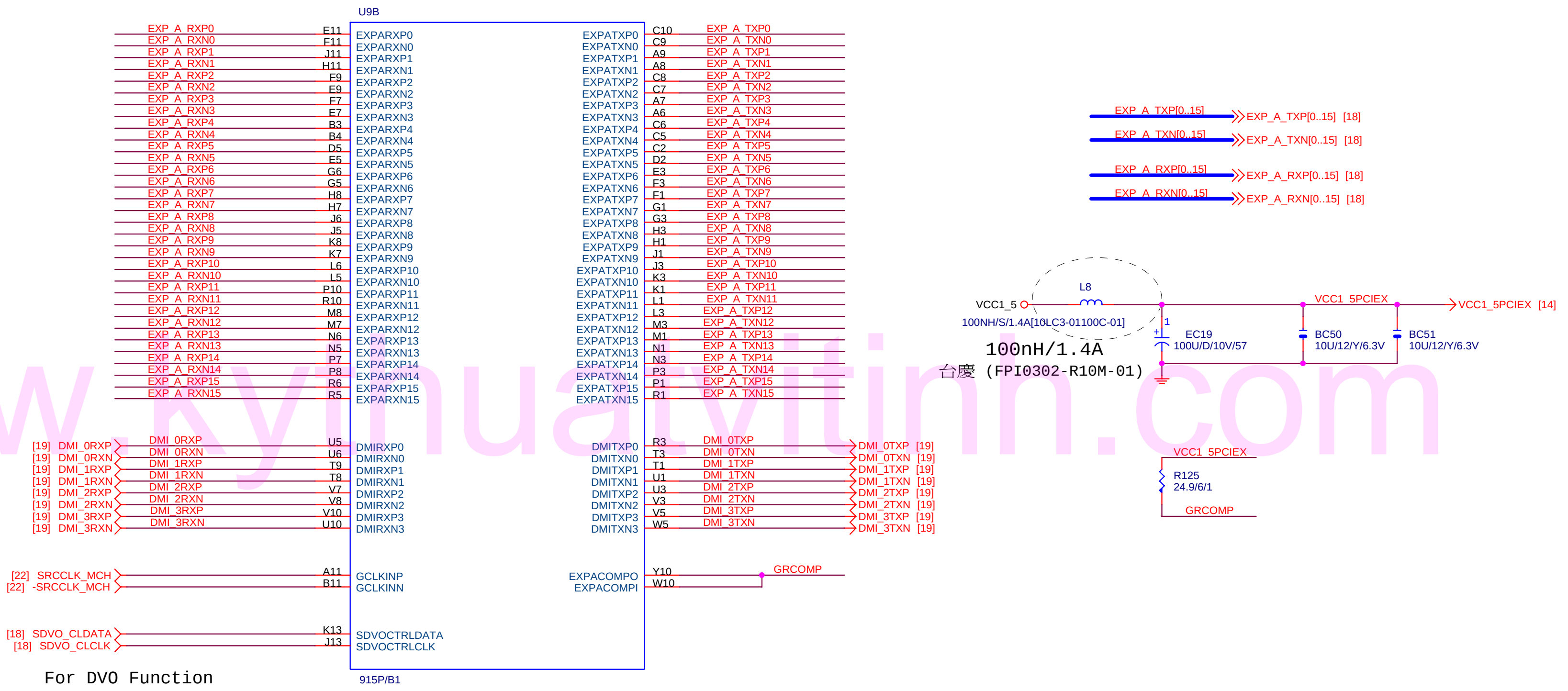


GIGABYTE

Title: **GMCH-DDR**

Size	Document Number	Rev
Custom	8I915P-MF	2.2

Date: Monday, December 20, 2004 | Sheet 10 of 37

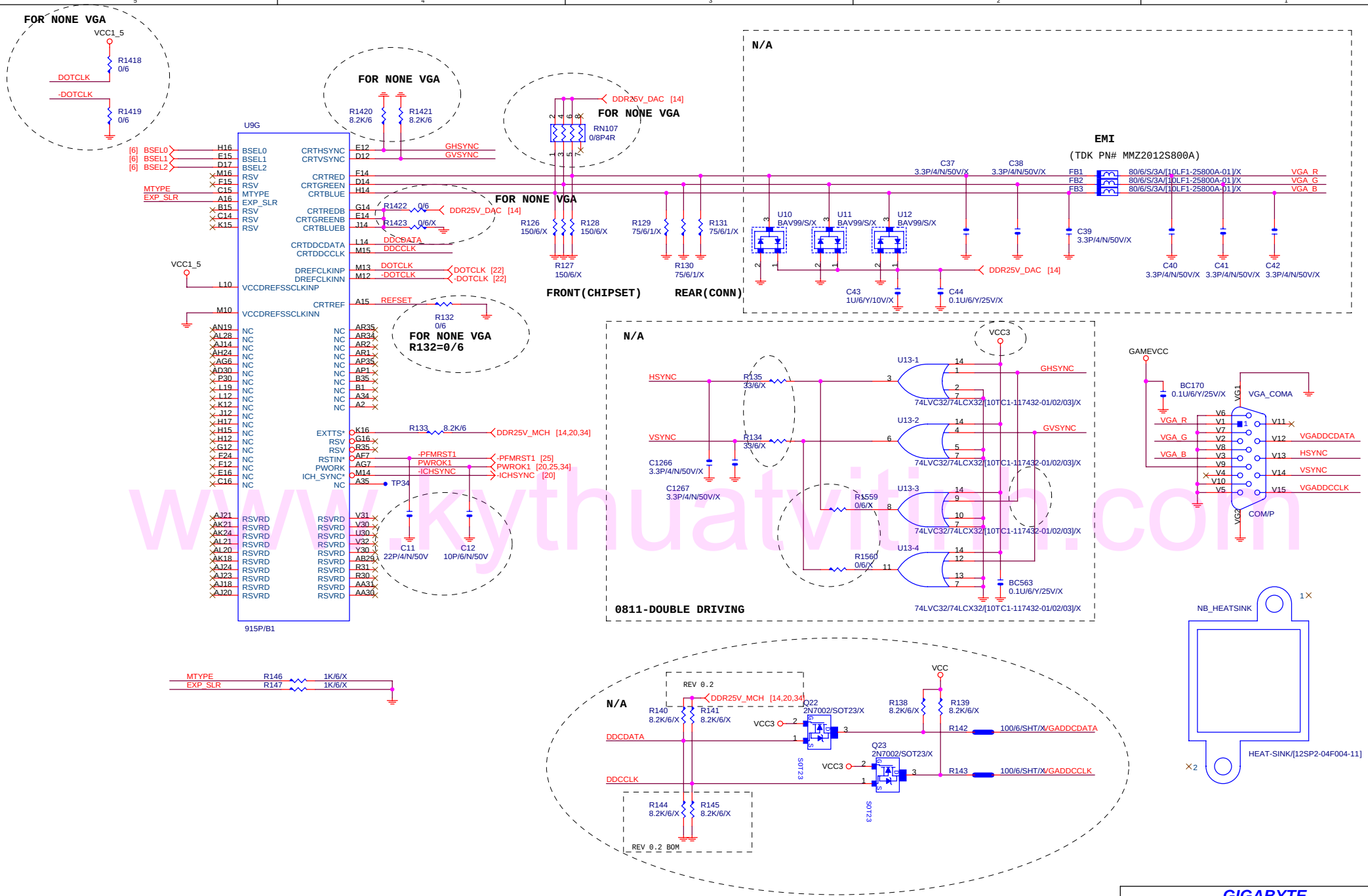


GIGABYTE

Title: GMCH-PCI E & DMI

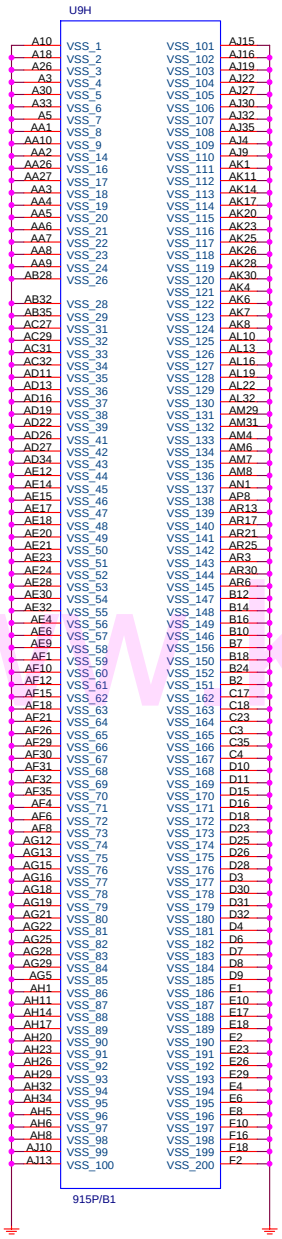
Size	Document Number	Rev
Custom	8I915P-MF	2.2

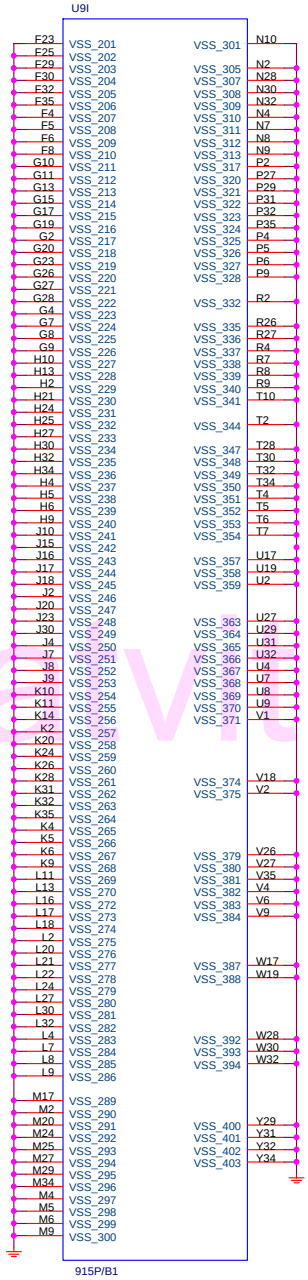
Date: Monday, December 20, 2004 — Sheet 11 of 37



GIGABYTE

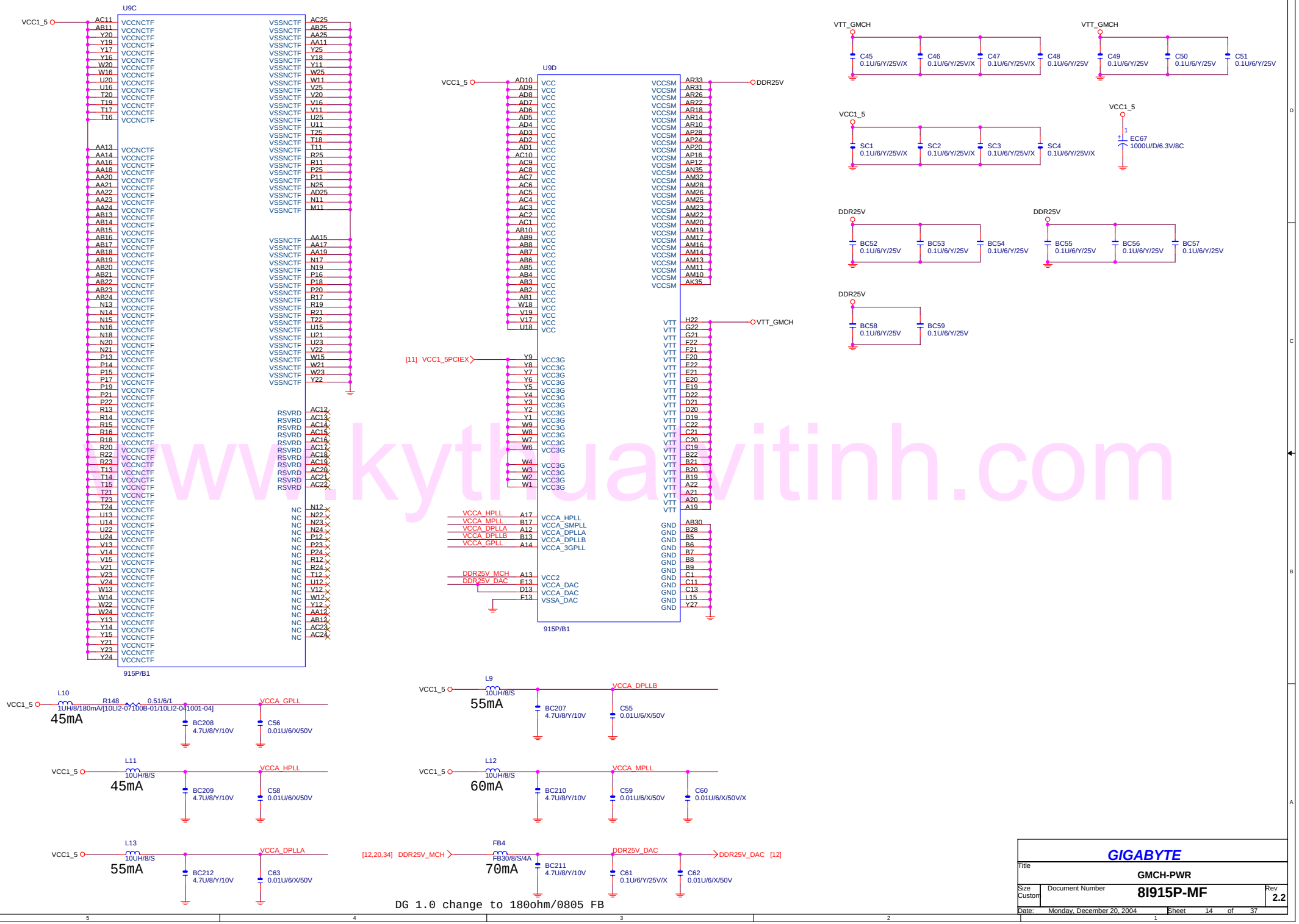
Title	GMCH-INTERNAL VGA	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 12 of 37	

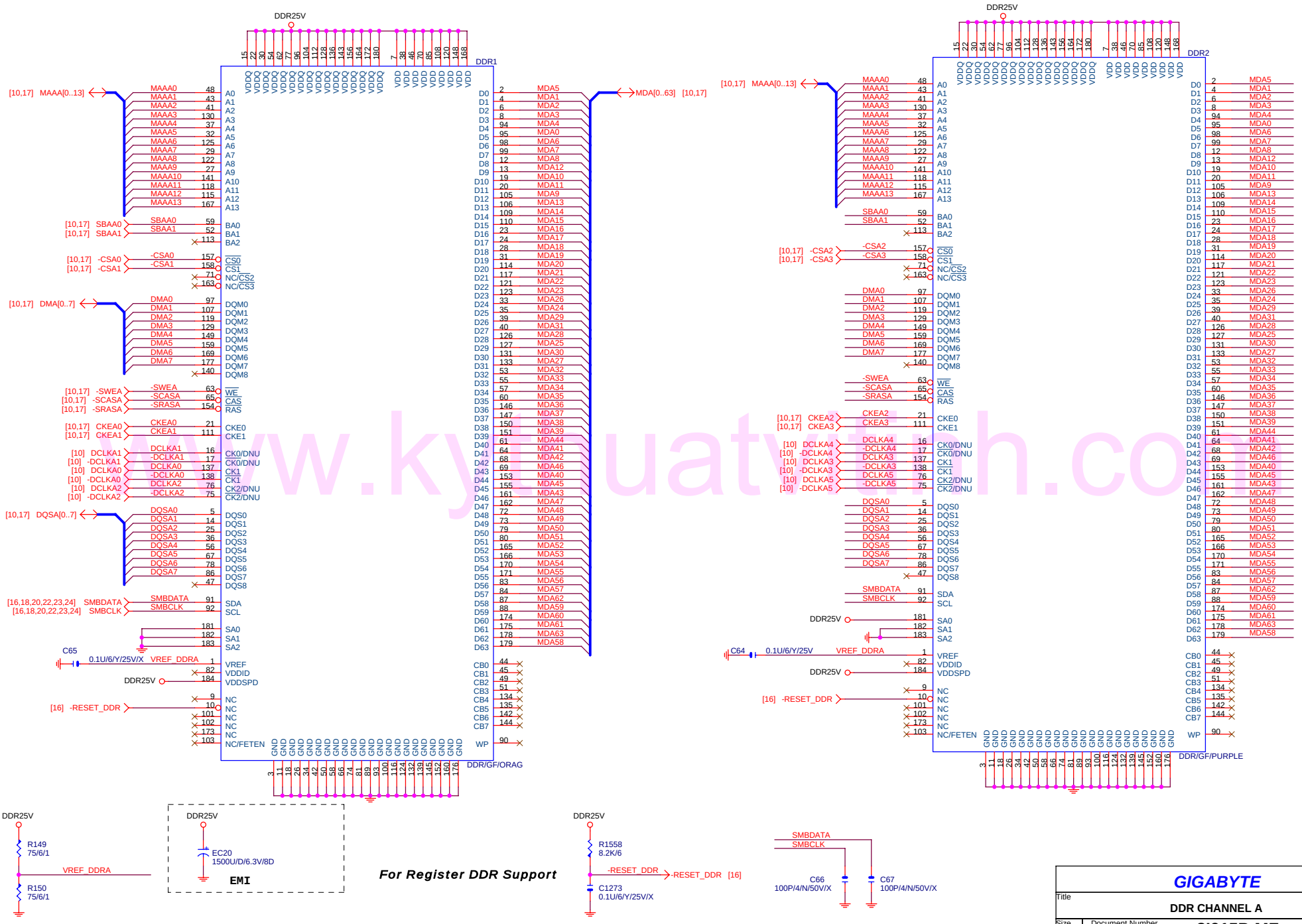




GIGABYTE

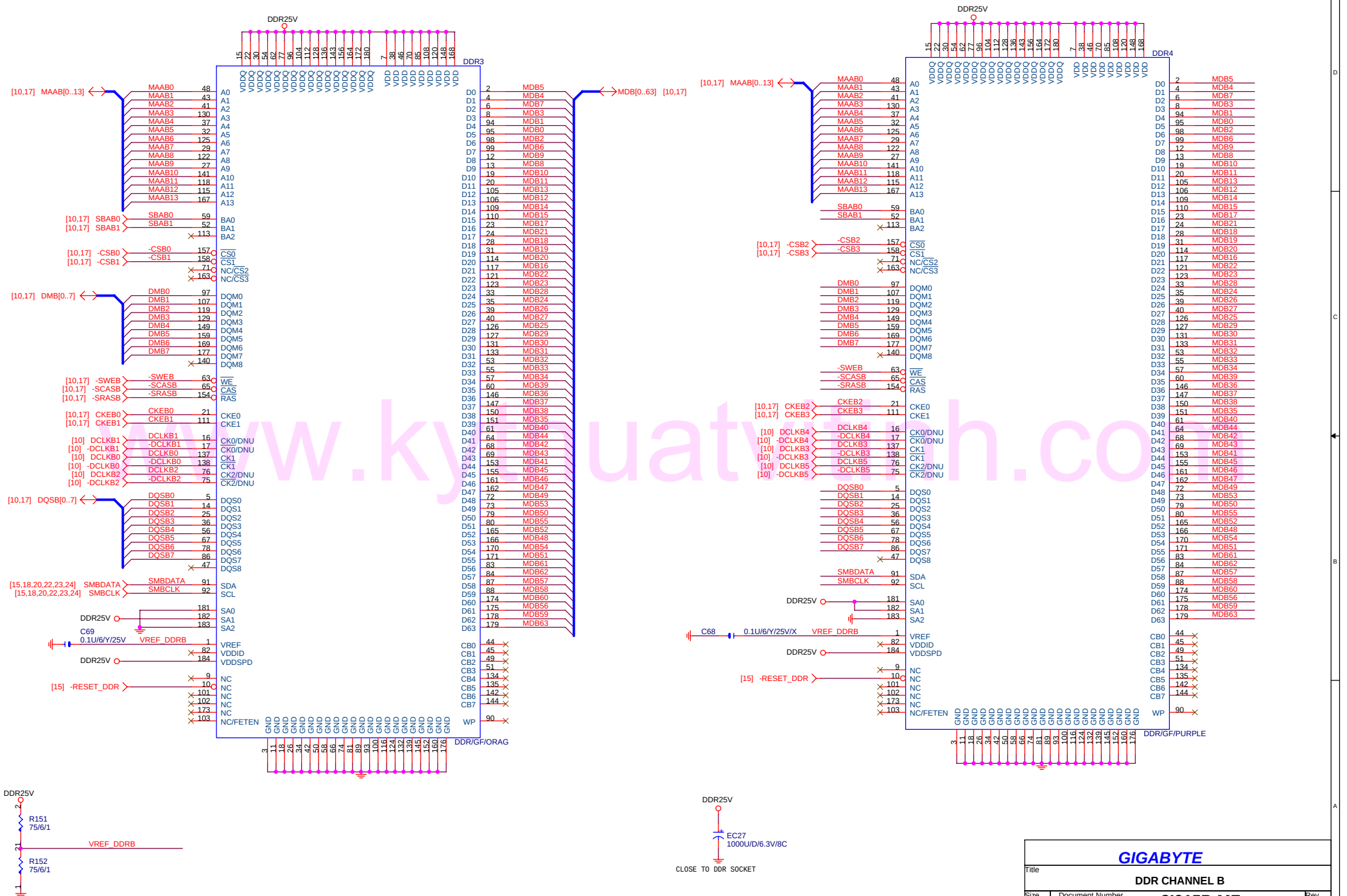
Title	GMCH-GND	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 13 of 37	





GIGABYTE

Title	DDR CHANNEL A	
Size B	Document Number 8I915P-MF	Rev 2.2
Date: Monday, December 20, 2004	Sheet 15 of 37	

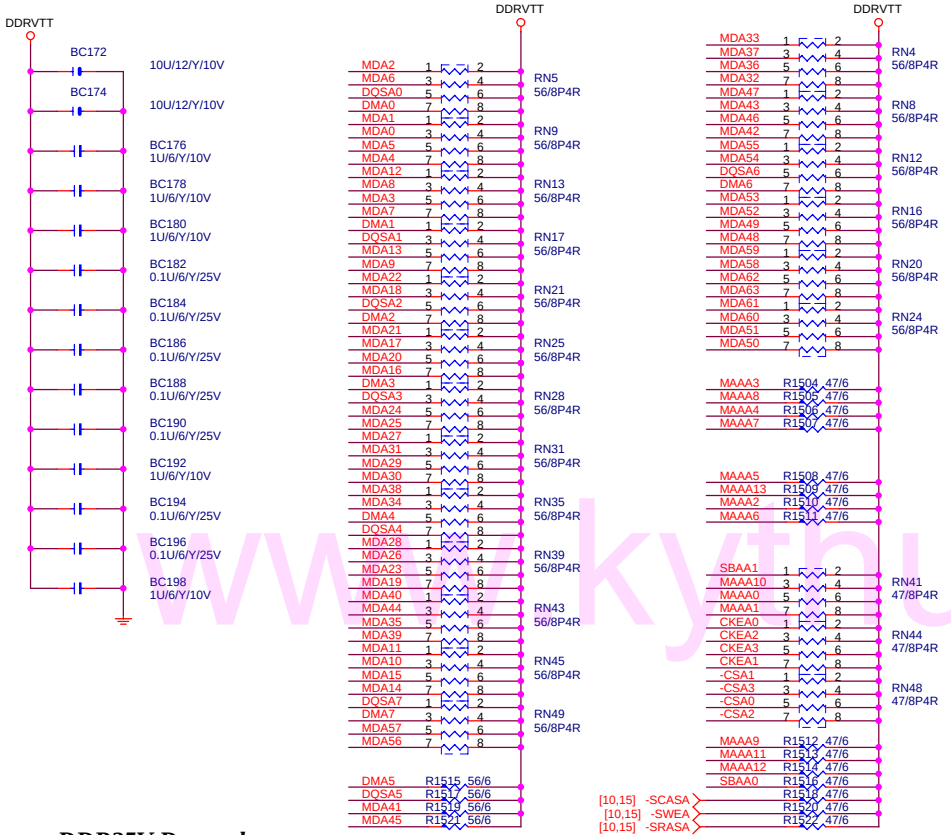


GIGABYTE

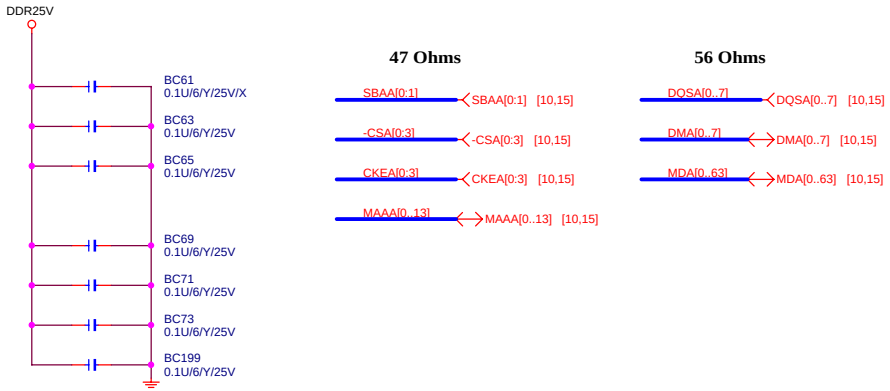
Title	DDR CHANNEL B	
Size B	Document Number 8I915P-MF	Rev 2.2
Date: Monday, December 20, 2004	Sheet 16 of 37	

DDRVTT Decouple

DDR TERMINATION CHANNEL A

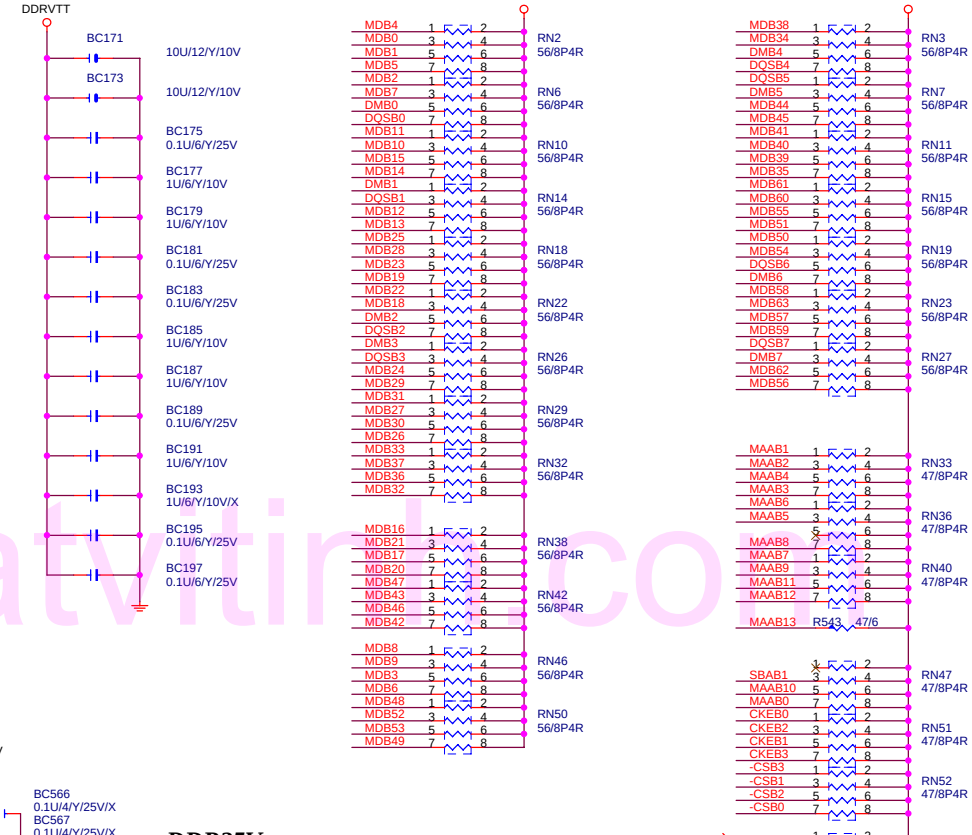


DDR25V Decouple

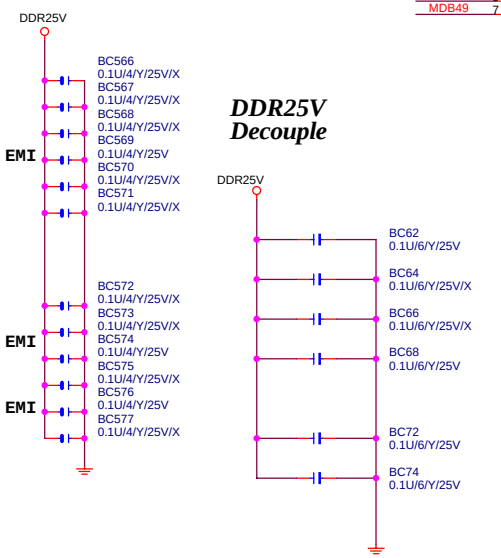


DDRVTT Decouple

CHANNEL B

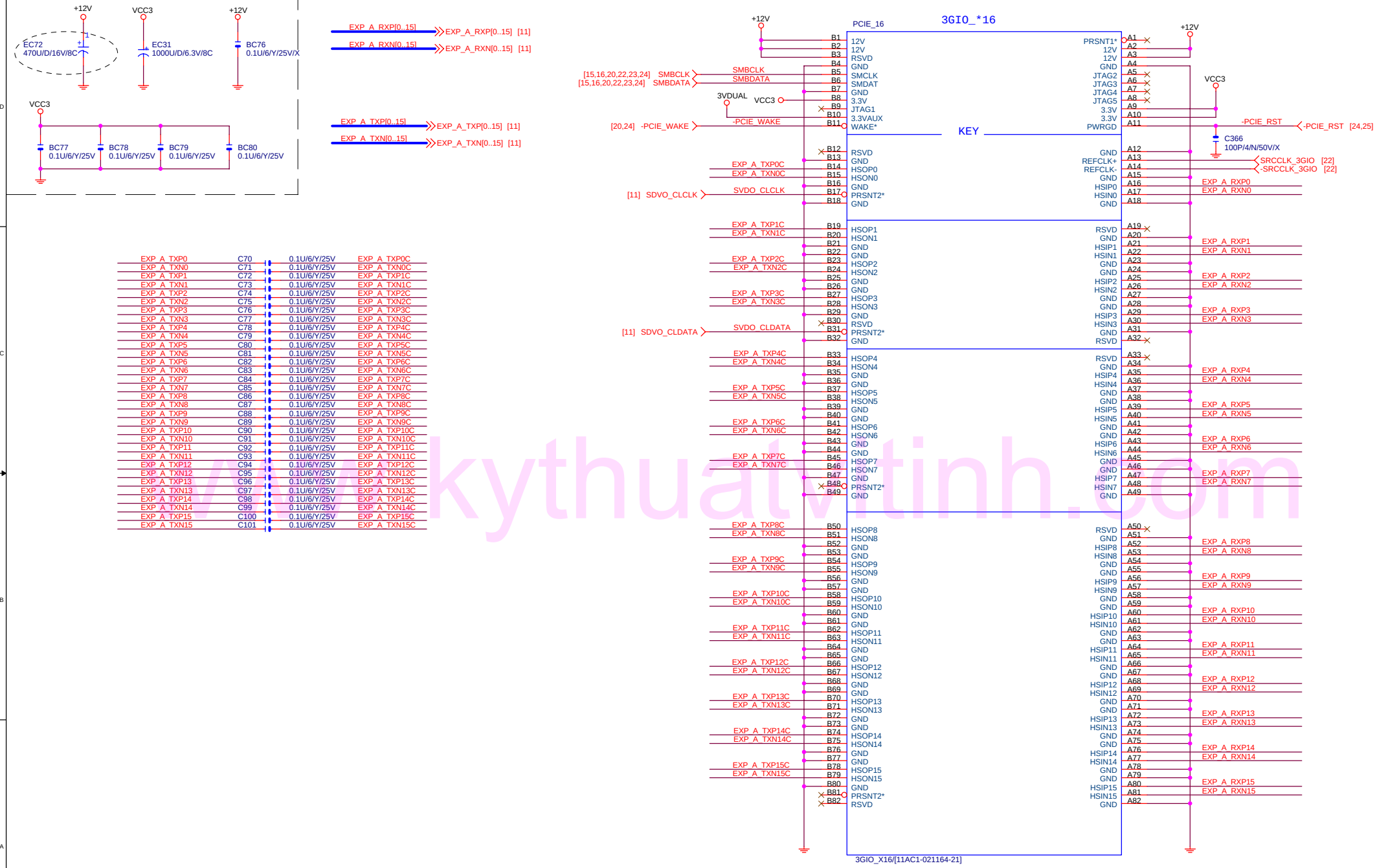


DDR25V Decouple

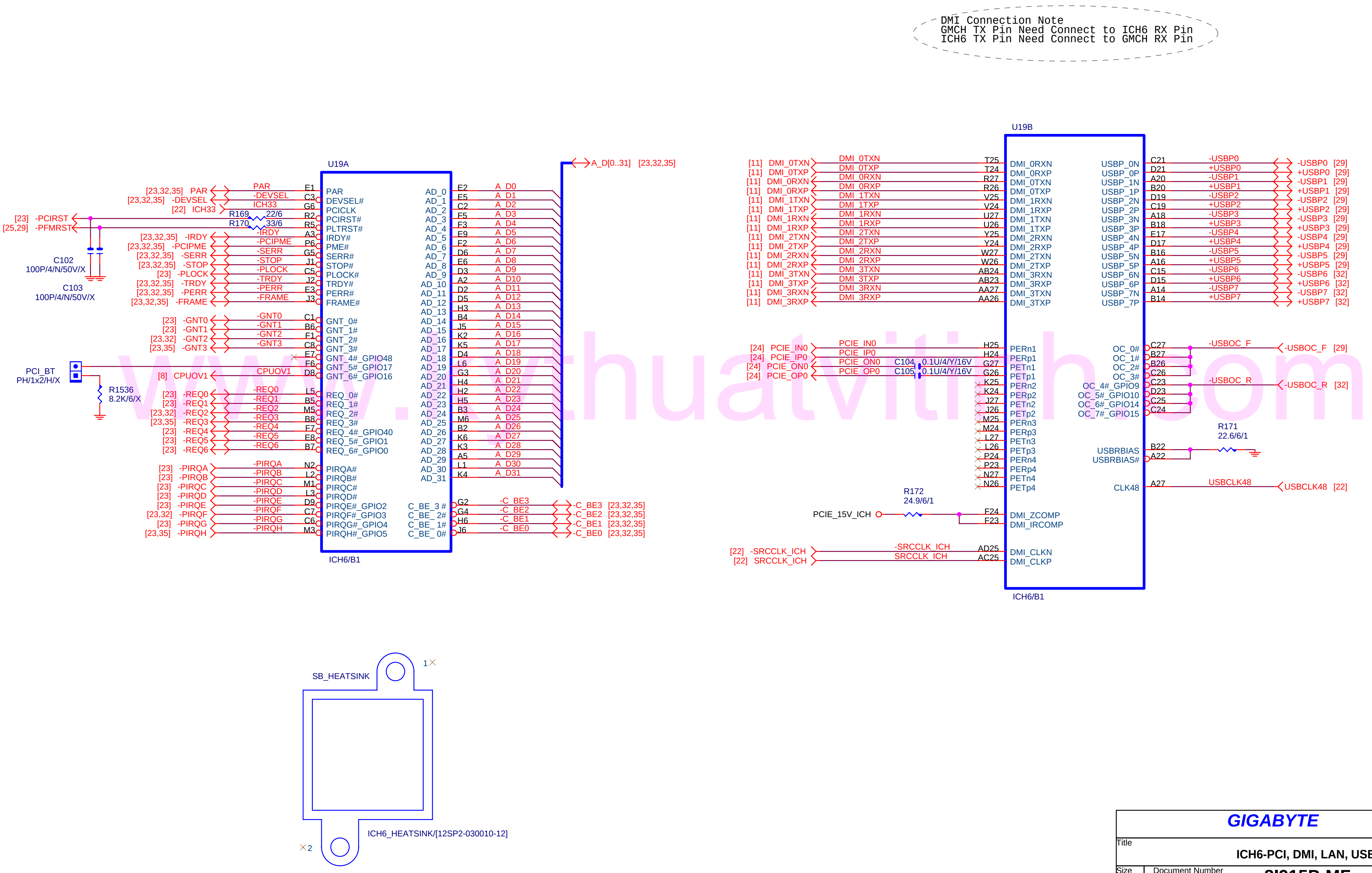


GIGABYTE

Title	DDR TERMINATOR	
Size B	Document Number 8I915P-MF	Rev 2.2
Date: Monday, December 20, 2004	Sheet 17 of 37	



GIGABYTE		
Title	PCI EXPRESS * 16	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 18 of 37	

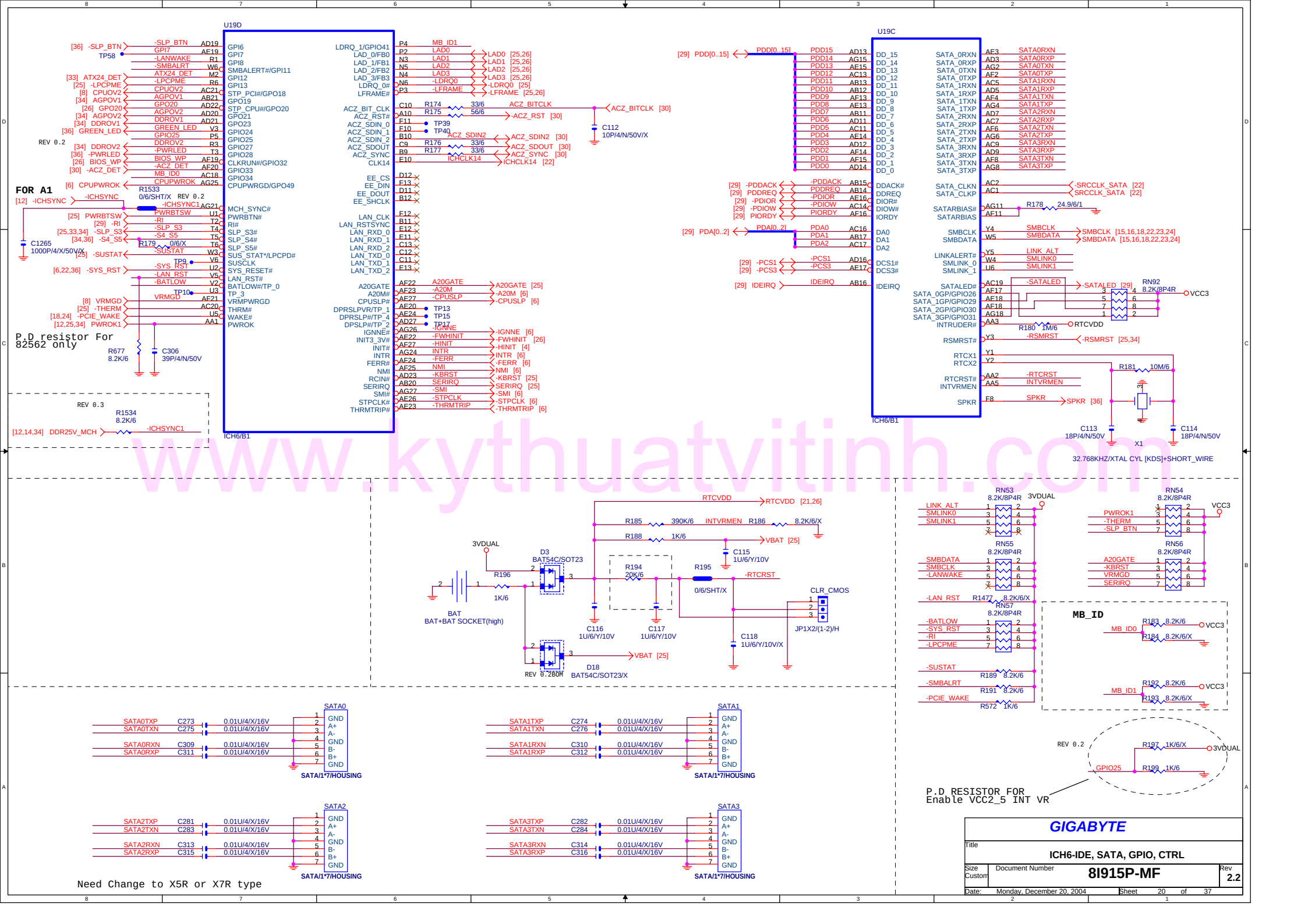


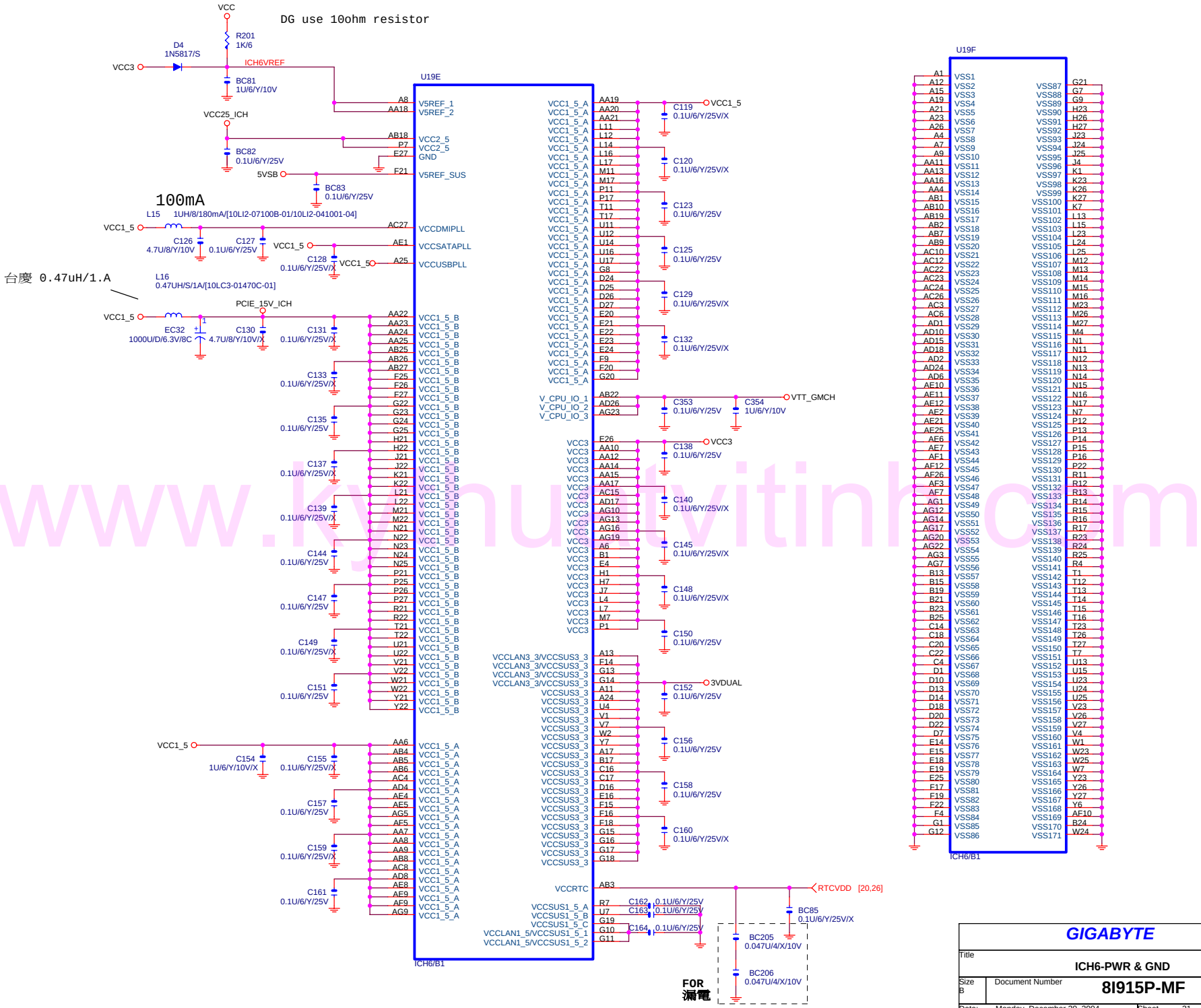
GIGABYTE

Title: ICH6-PCI, DMI, LAN, USB

Size	Document Number	Rev
B	8I915P-MF	2.2

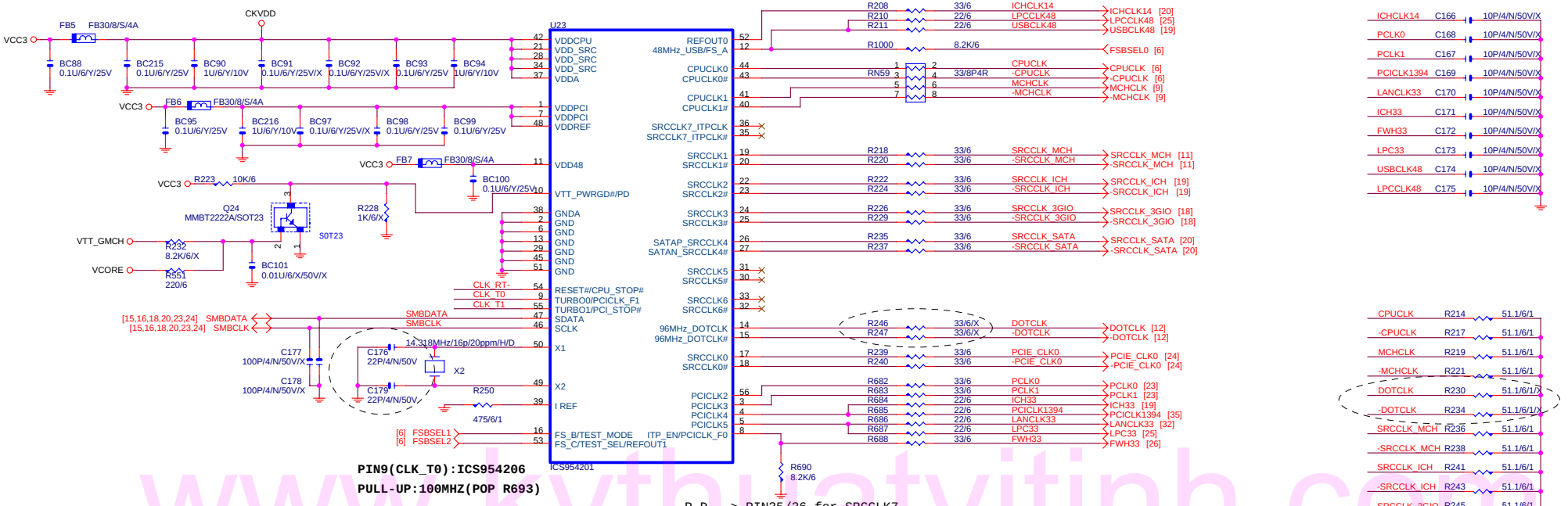
Date: Monday, December 20, 2004 Sheet 19 of 37





GIGABYTE

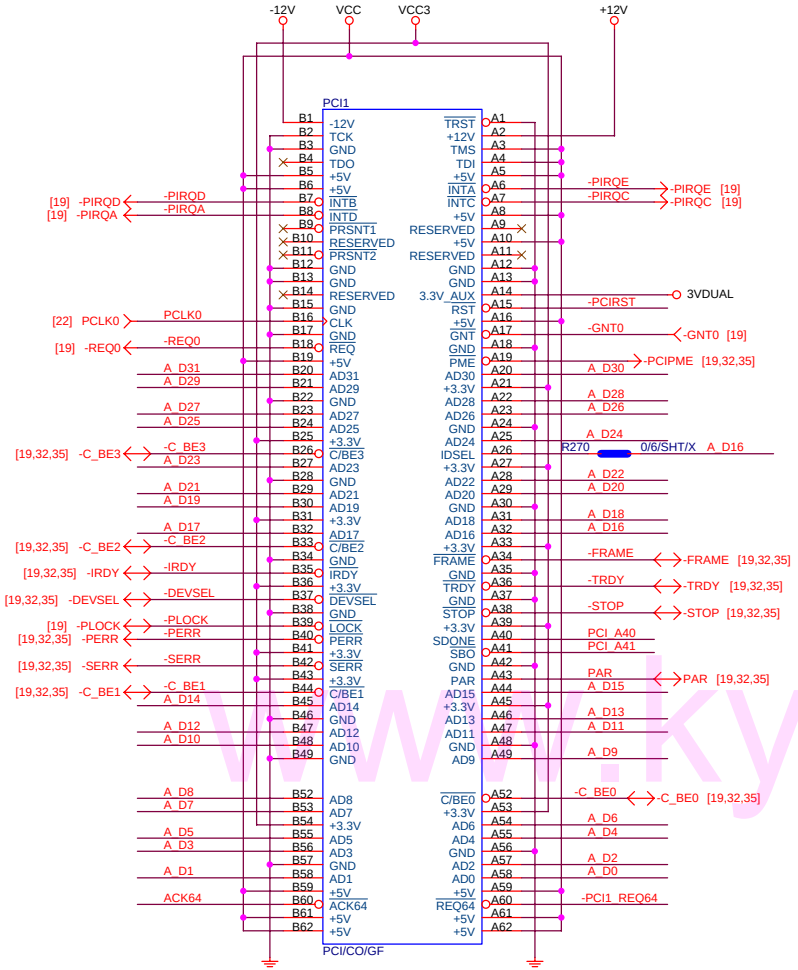
Title	ICH6-PWR & GND	
Size B	Document Number 8I915P-MF	Rev 2.2
Date: Monday, December 20, 2004	Sheet 21 of 37	



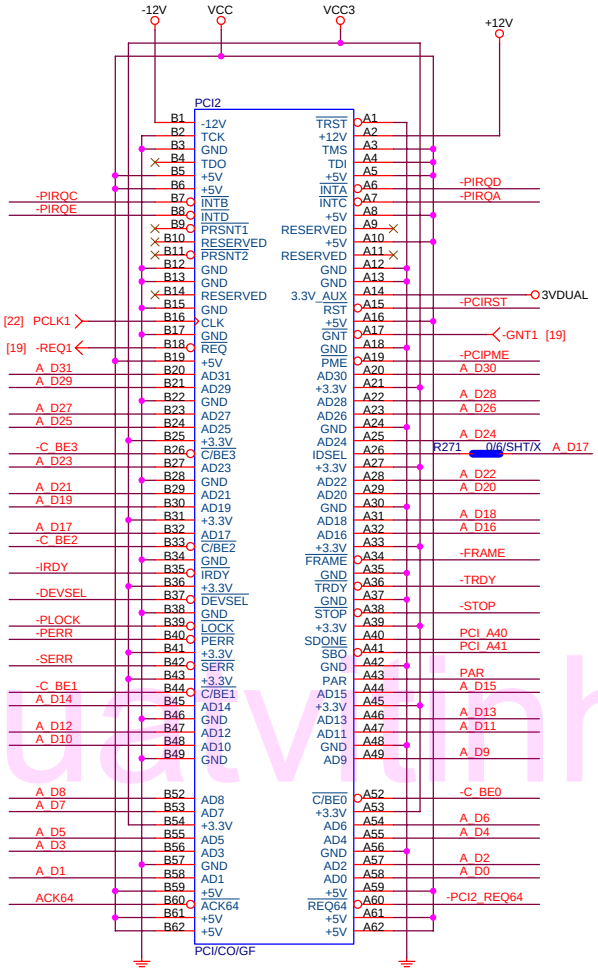
GIGABYTE

Title	CK410M/GBT_CLK GEN	
Size: Custom	Document Number: 8I915P-MF	Rev: 2.2
Date: Monday, December 20, 2004	Sheet 22 of 37	

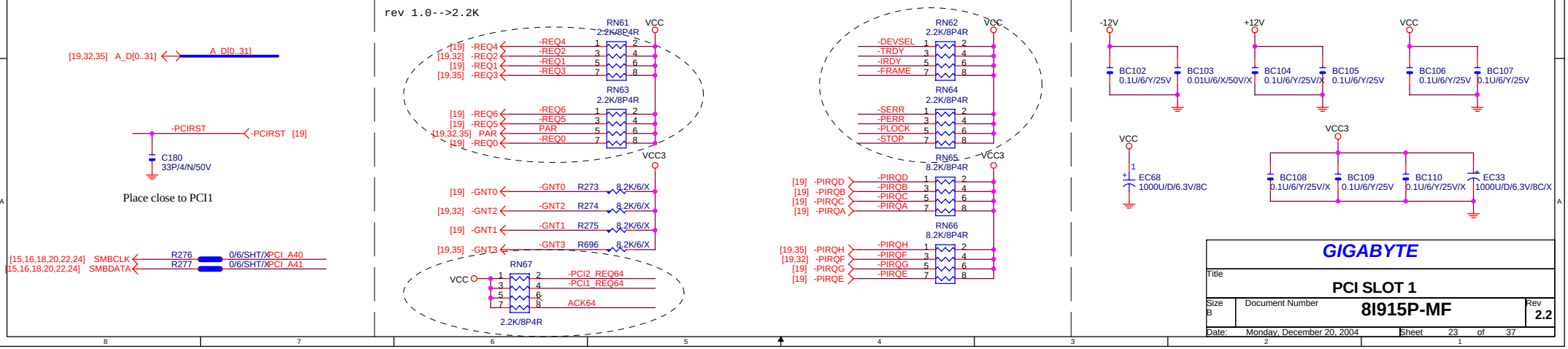
rev 0.3 modify PCI SOLT TEST function

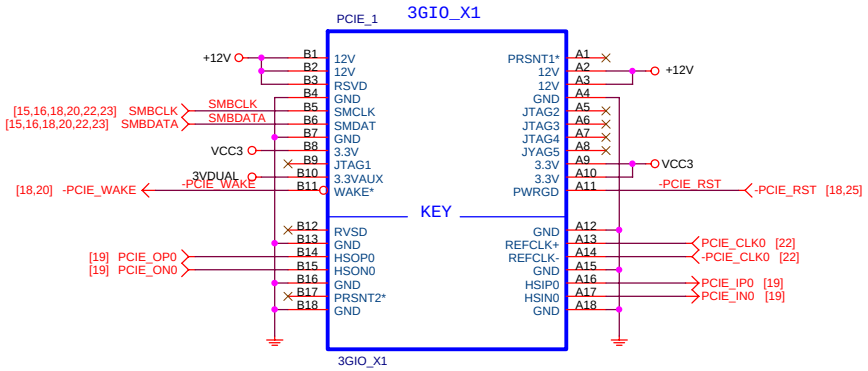


AD16/-PIRQ(E-D-C-A)/-REQ0/-GNT0



AD17/-PIRQ(D-C-A-E)/-REQ1/-GNT1



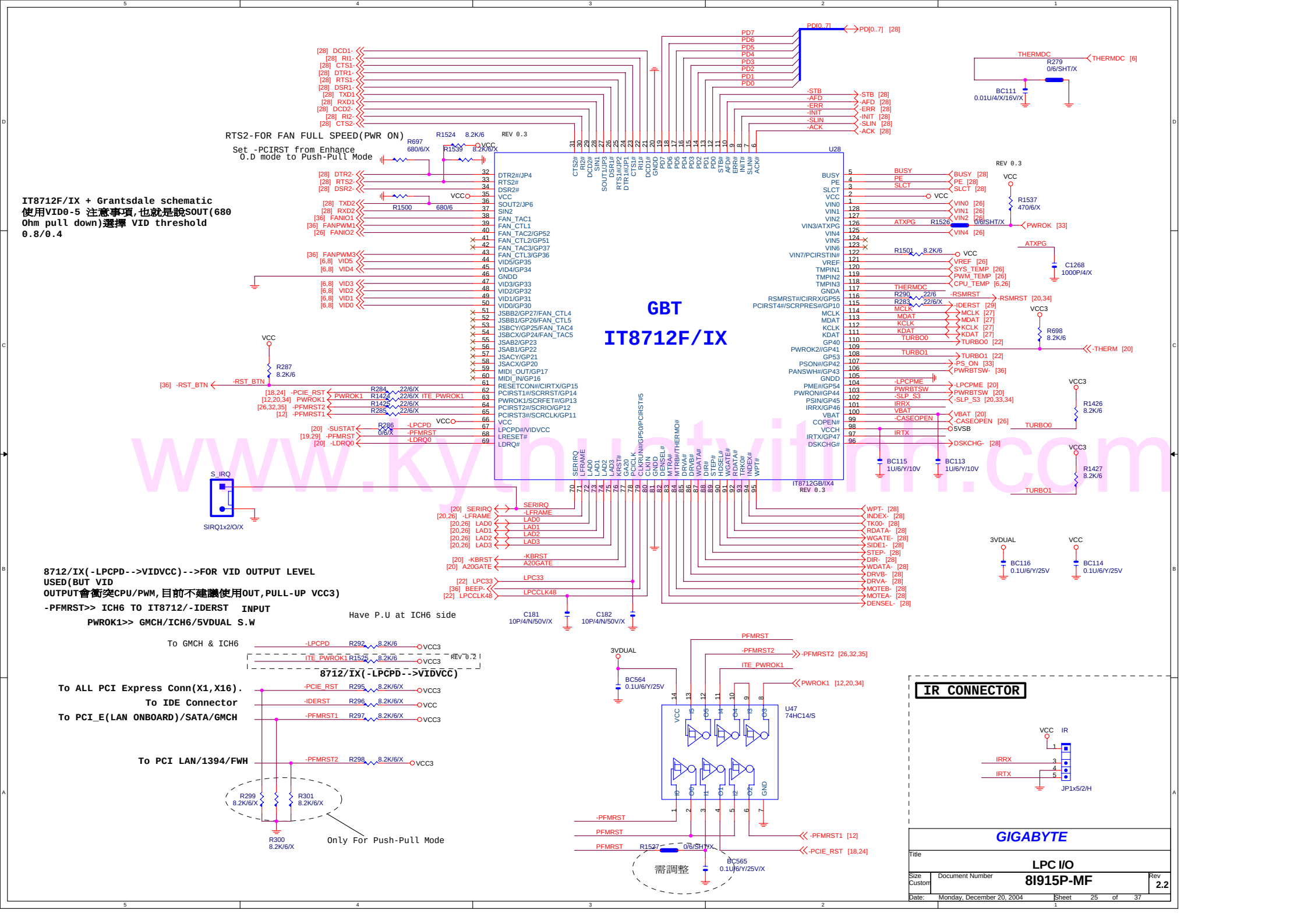


GIGABYTE

Title: PCI E SLOT 1

Size	Document Number	Rev
B	8I915P-MF	2.2

Date: Monday, December 20, 2004 Sheet 24 of 37


IT8712F/IX + Grantsdale schematic
使用VID0-5 注意事項,也就是說SOUT(680
Ohm pull down)選擇 VID threshold
0.8/0.4
RTS2-FOR FAN FULL SPEED(PWR ON)
Set -PCIRST from Enhance
O.D mode to Push-Pull Mode
GBT
IT8712F/IX
IT8712GB/IX4
REV 0.3
8712/IX(-LPCPD-->VIDVCC)-->FOR VID OUTPUT LEVEL
USED(BUT VID
OUTPUT會衝突CPU/PWM,目前不建議使用OUT,PULL-UP VCC3)
-PFMRST>> ICH6 TO IT8712/-IDERST INPUT
PWROK1>> GMCH/ICH6/5VDUAL S.W
Have P.U at ICH6 side
8712/IX(-LPCPD-->VIDVCC)
To GMCH & ICH6
To ALL PCI Express Conn(X1,X16).
To IDE Connector
To PCI_E(LAN ONBOARD)/SATA/GMCH
To PCI LAN/1394/FWH
Only For Push-Pull Mode
需調整
IR CONNECTOR
GIGABYTE
LPC I/O
8I915P-MF
2.2
Monday, December 20, 2004
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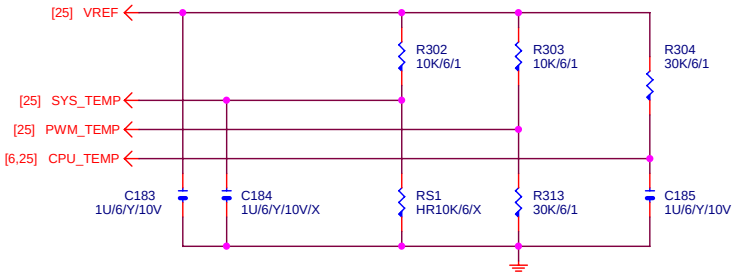
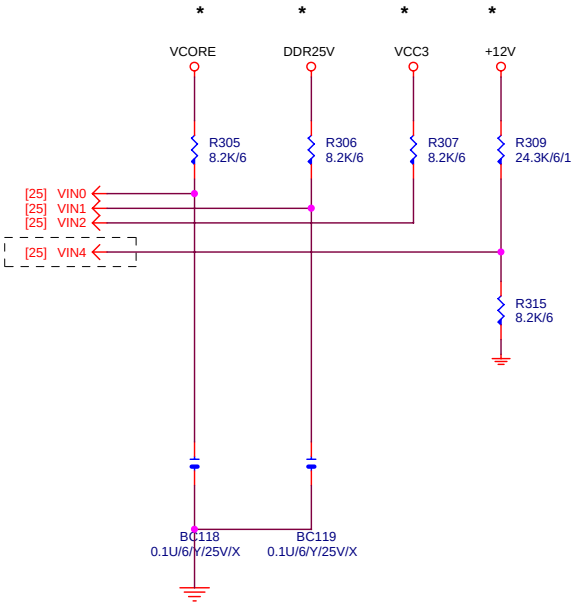
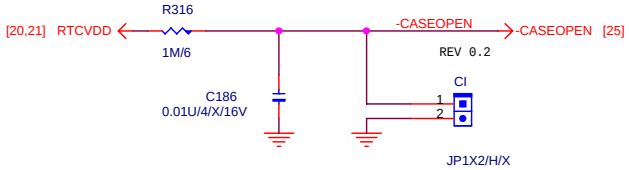
TEMP. SENSE



VOLTAGE SENSE

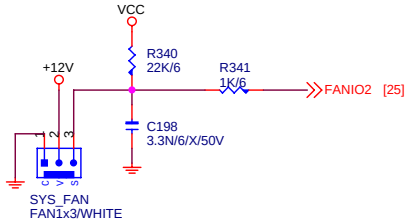


CASE OPEN (N/A)

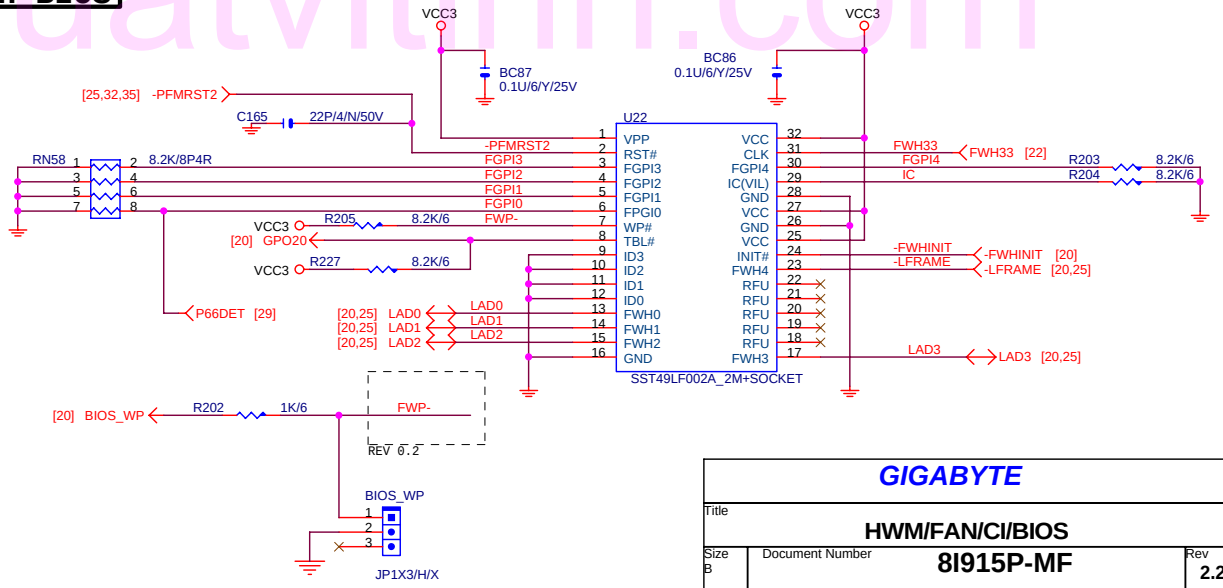


Case Open Circuits

SYS FAN



FWH BIOS



GIGABYTE

Title	HWM/FAN/CI/BIOS	
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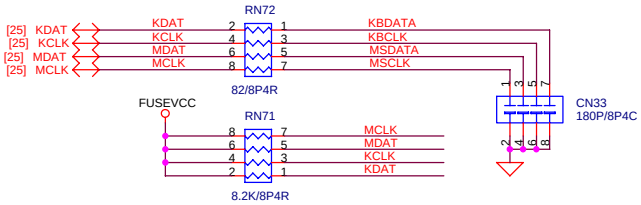
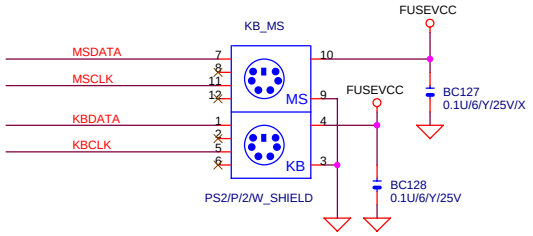
KB/MS

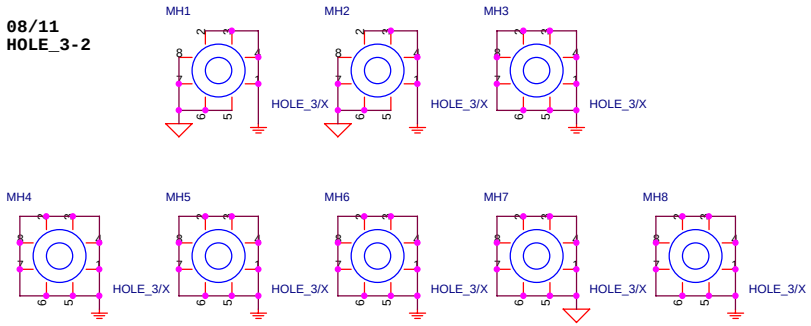


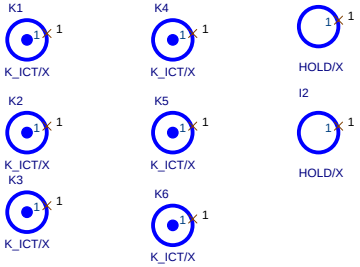


GAME PORT (N/A)

rev 0.4

08/11
HOLE_3-2





GIGABYTE		
Title: PS/2 KB & MS		
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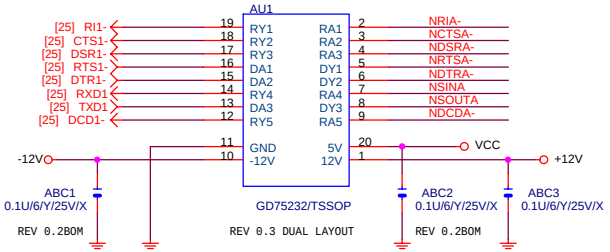
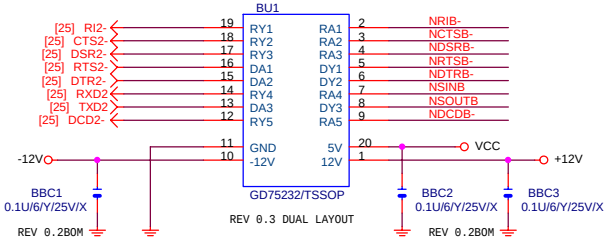
COMA/COMB

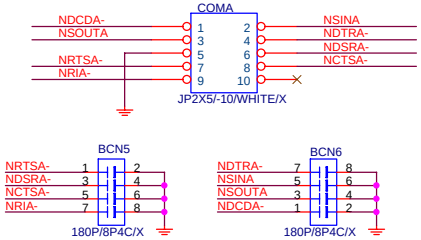


Foot Print Change

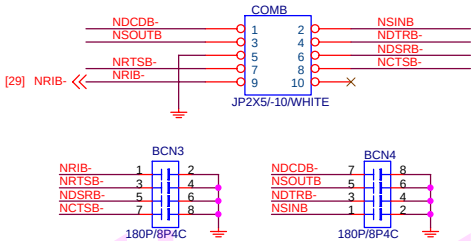


INTERNAL COMA

rev 0.4

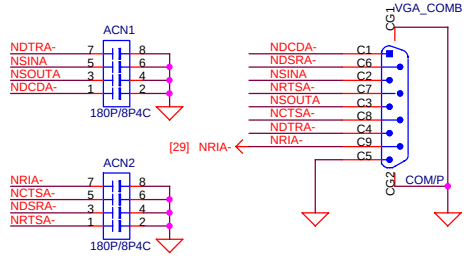


INTERNAL COMB



REAR COMA

rev 0.4

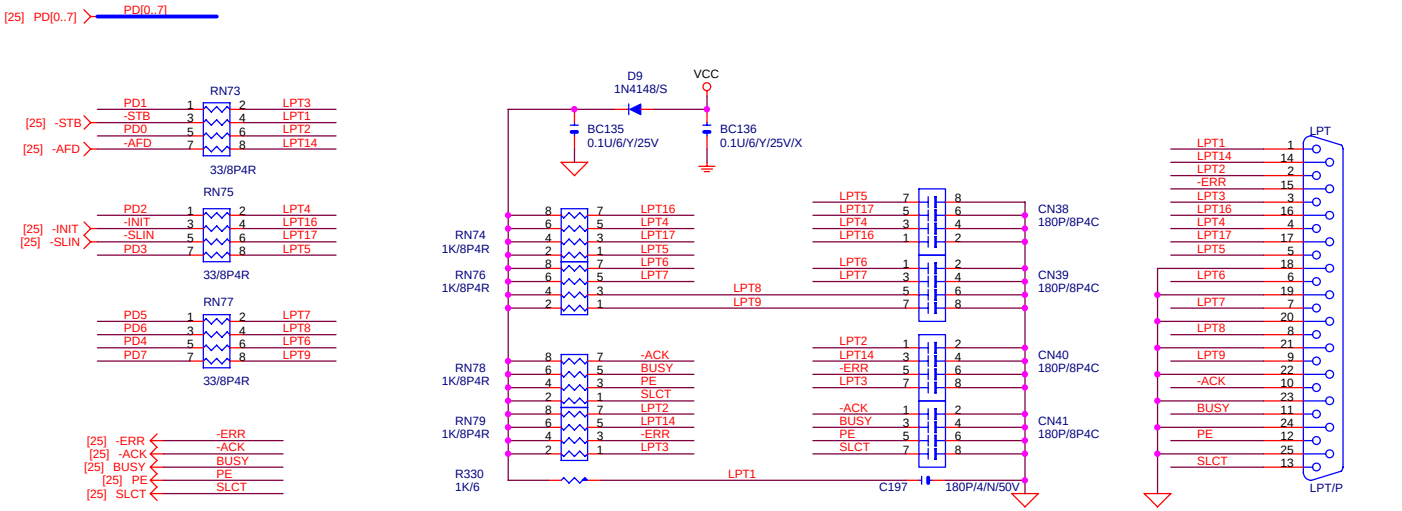


PLACE NEAR VGA_COM CONNECTOR

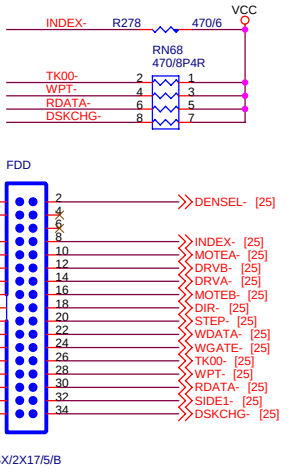
凡ATX系列 (含 NXP, PRO, Ultra, 戰鬥版, both 915P or 915G…) 只support 一個COM port.

凡uATX系列 (含915P or 915G) 需support 兩個COM port

LPT



FLOPPY



GIGABYTE

Title	COM, LPT, FDD	
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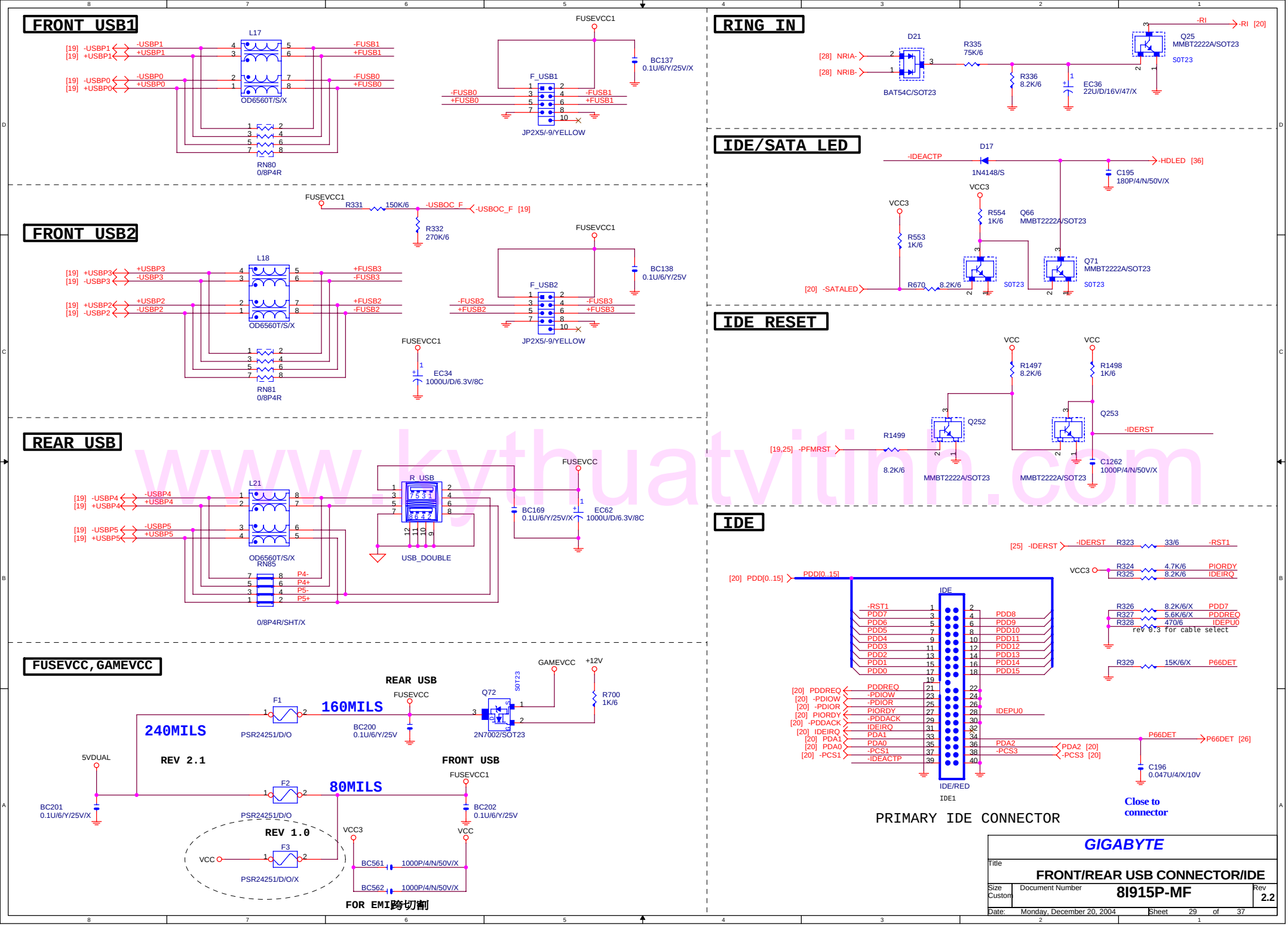

(CR20=N.C for ALC880)

"$" means for ALC880 only
"*" means for CMI9880 only

For CMI9880 A3 version
CR64=N/A & CR65=5.1K/6/1

For ACM9880 A4 version
CR64=5.1K/6/1 & CR65=DNI

CR98=10ohm for ALC880
CR98=150ohm for CMI9880

Can Support Amp Out

Can Support Amp Out

Azalia Port F

Azalia Port E

CR55 39.2K for ALC880
CR55 40.2K for CMI9880

For CMI9880

GIGABYTE		
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CR33 0/SHT/X

CR32 2.2/6

FOR EMI REQUEST

When CMI9880
CR84 = 150ohm
CR86 = 150ohm
CR85 = 150ohm
CR93 = 47K ohm

When ALC880
CR84 = 8.2Kohm
CR86 = 8.2Kohm
CR85 = 10ohm
CR93 = DNI

VCC3 CR84 8.2K/6 CR86 8.2K/6 CR85 10/6 CR93 47K/6/X
CFB1 0/6/SHT/X
CBC49 0.01U/4/X/50V
CBC54 100P/4/50V/X
CBC50 100P/4/50V
[30] SPDIFI SPDIFI
SPDIF_I RCA/JACK/YELLOW/[11NR6-501002-A1]

+12V CD2 1N4148/S
5VSB CD1 1N4148/S
AVDD CQ3 78L05/D TOP OUT GND IN
CEC4 100U/D/10V/5*7
CBC19 0.1U/6/Y/25V/X

[30] SPDIF SPDIF CBC51 0.01U/4/X/50V CR87 100/6 CFB2 0/6/SHT/X CR88 220/6 CBC52 100P/4/50V CBC55 100P/4/50V/X
SPDIF_O RCA/JACK/ORG/[11NR6-501002-B1]

CD IN

[30] CD_L
[30] CD_R
[30] CDGND
CD_IN WF1x4/B
CR67 8.2K/6 CR68 8.2K/6 CR69 8.2K/6
47Kohm For CMI9880
8.2Kohm for ALC880

CR111 0/6/X
REV 1.1
FOR EMI REQUEST
-12V CBC56 0.1U/6/Y/25V/X

Azalia Jack

CMI9880 Port A is Side SURROUND, Port H is Back SURROUND
ALC880 Port A is SURROUND, Port H is SIDE

Normal --> pin4/pin3 open
Plug jack --> pin4/pin3 close

AUDIO1
[30] LINE1_JD LINE1_JD AJ_C5 AJ_C2 LINE-IN Azalia Port C
[30] FRONT_JD FRONT_JD AJ_B5 AJ_B2 FRONT Azalia Port D
[30] MIC1_JD MIC1_JD AJ_A5 AJ_A2 MIC-IN Azalia Port B
AZALIA_JACK1/[11NR6-403006-01/02]

AUDIO2
[30] SURR_JD SURR_JD BJ_C5 BJ_C2
[30] CEN_JD CEN_JD BJ_B5 BJ_B2
[30] S_SURR_JD S_SURR_JD BJ_A5 BJ_A2
AZALIA_JACK2/[11NR6-403006-22]

Orange Back side Speaker
ALC880 - SURROUND
CMI9880 - Back SURR
Black CEN/LFE Azalia Port G
Gray Left & Right Side Speaker
ALC880 - SURR Back or SIDE
CMI9880 - Side SURR

LINE OUT FRONT OUT

[30] LINE_O_R CBC31 10U/8/Y/10V CEC2 100U/D/10V/57/X CBC32 10U/8/Y/10V
[30] LINE_O_L CEC3 100U/D/10V/57/X
[30] VODR CQ6 BAT54A/X CR101 8.2K/6/X CR102 8.2K/6/X
CR34 0/6S/X AJ_B5
CR35 0/6S/X AJ_B2
CR36 47K/6/X CR37 47K/6/X For CMI9880
CBC17 180P/4/N/50V CBC18 180P/4/N/50V

LINE-IN

[30] LINE_IN_R
[30] LINE_IN_L
[30] VOCR CR109 8.2K/6
[30] VOAR CR110 8.2K/6
CR38 0/6S/X AJ_C5
CR39 0/6S/X AJ_C2
CR40 47K/6/X CR41 47K/6/X For CMI9880
CBC23 180P/4/N/50V CBC24 180P/4/N/50V

MIC

[30] MIC2
[30] MIC1
CR42 0/6S/X AJ_A5
CR43 0/6S/X AJ_A2
CR45 47K/6/X CR46 47K/6/X For CMI9880
CBC27 180P/4/N/50V CBC28 180P/4/N/50V

SURROUND

[30] SURR_R CBC37 1U/6/Y/16V
[30] SURR_L CBC38 1U/6/Y/16V
[30] VOAR CQ7 BAT54A/X CR103 8.2K/6/X CR104 8.2K/6/X
CR89 0/6/X For CMI9880
CR90 0/6/X
CR72 0/6/SHT/X For ALC880
CR73 0/6/SHT/X
CR74 47K/6/X CR75 47K/6/X For CMI9880
Put Close Audio Jack Side
CBC39 180P/4/N/50V CBC40 180P/4/N/50V

CEN/LFE

[30] LFE CBC41 1U/6/Y/16V
[30] CEN CBC42 1U/6/Y/16V
[30] VOGR CQ8 BAT54A/X CR105 8.2K/6/X CR106 8.2K/6/X
CR76 0/6S/X BJ_B5
CR77 0/6S/X BJ_B2
CR78 47K/6/X CR79 47K/6/X For CMI9880
Put Close Audio Jack Side
CBC43 180P/4/N/50V CBC44 180P/4/N/50V

SURR BACK

[30] S_SURR_R CBC45 1U/6/Y/16V
[30] S_SURR_L CBC46 1U/6/Y/16V
[30] VOHR CQ9 BAT54A/X CR107 8.2K/6/X CR108 8.2K/6/X
CR91 0/6/X For CMI9880
CR92 0/6/X
CR80 0/6/SHT/X For ALC880
CR81 0/6/SHT/X
CR82 47K/6/X CR83 47K/6/X For CMI9880
Put Close Audio Jack Side
CBC47 180P/4/N/50V CBC48 180P/4/N/50V

GIGABYTE

Title	AUDIO JACK	
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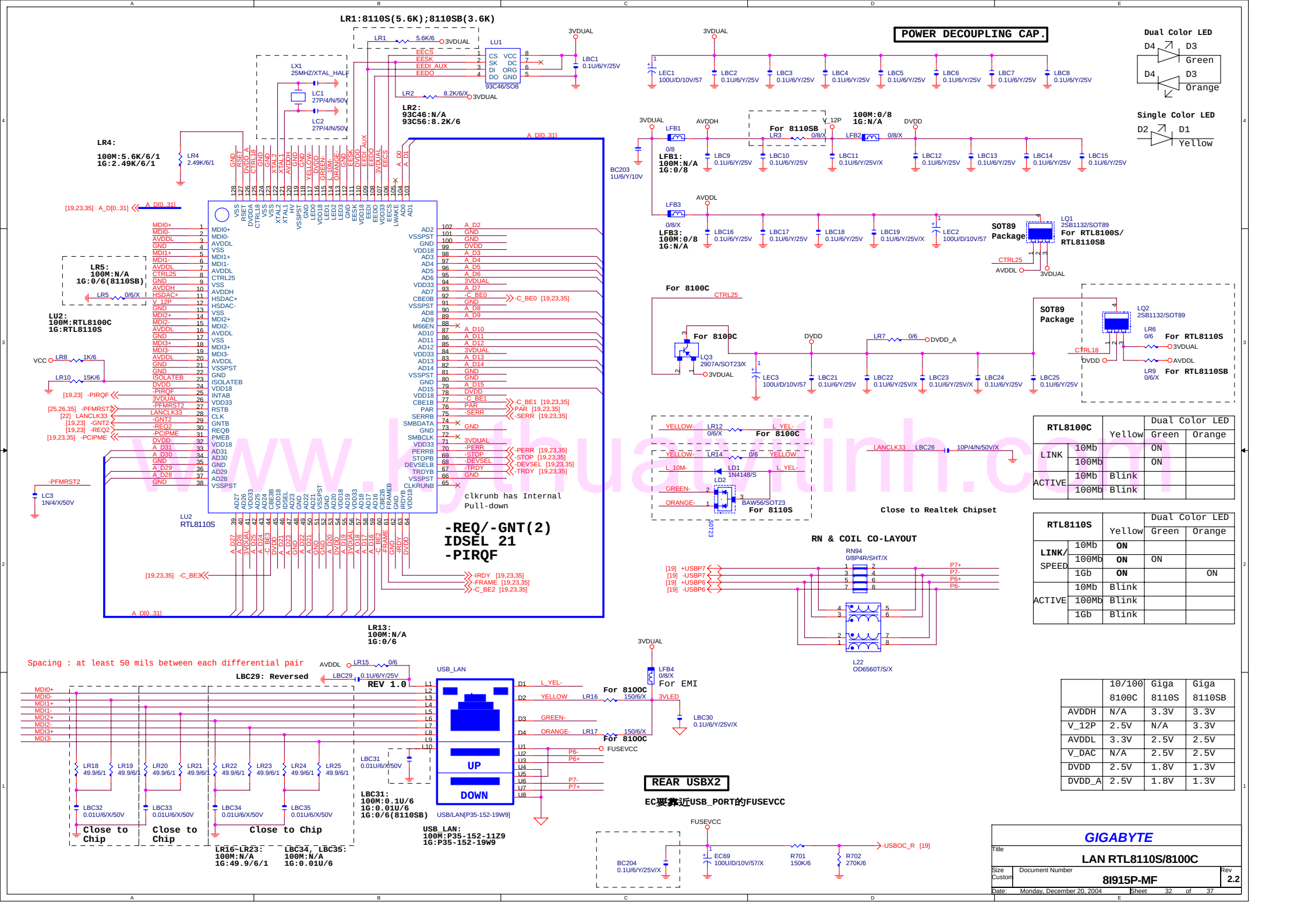
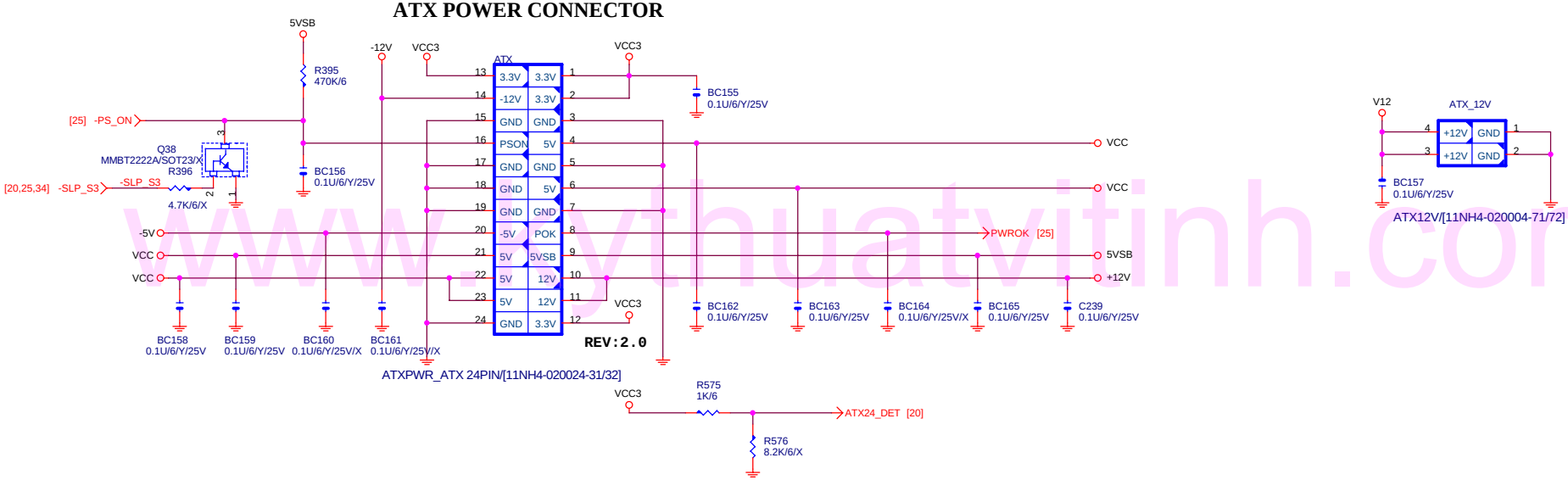


ATX POWER CONNECTOR



GIGABYTE		
Title: ATX POWER CONNECTOR		
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5VDUAL CIRCUIT

REV:2.0

此FUSEVCC防燒線路有IO
5VSB(MS)漏電1.1V,造成不開機

3VDUAL CIRCUIT

DDR25V/VCC1_5/VTT_GMCH/DDRVTT

AGPOV1 LOW=1.5+0.1V
AGPOV2 LOW=1.5+0.2V

9.5m ohm

rev 0.4

need 0.8V Level

DDROV1 LOW=2.6+0.1V
DDROV2 LOW=2.6+0.2V

BOTTOM PAD
USE 6 VIAs
CONNECT TO
GND

改DDRVTT造成POWER/ON-OFF當FF-->C256:100/6

REV:2.0

REV:2.0

GIGABYTE			
Title: Discrete Power			
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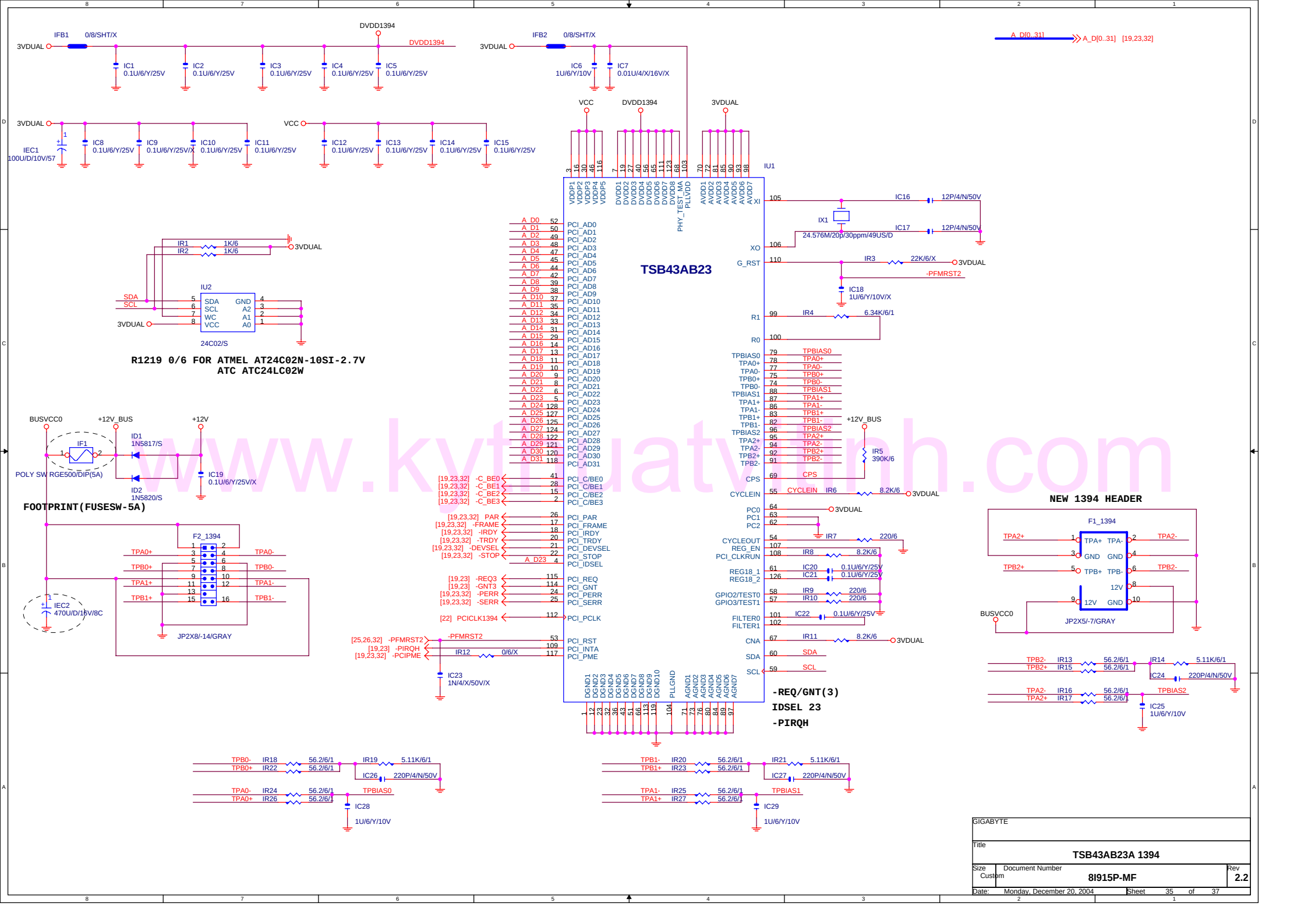
TSB43AB23
R1219 0/6 FOR ATMEL AT24C02N-10SI-2.7V
ATC ATC24LC02W
FOOTPRINT(FUSESW-5A)
NEW 1394 HEADER
-REQ/GNT(3)
IDSEL 23
-PIRQH
A_D[0..31] [19,23,32]
DVDD1394
3VDUAL
VCC
IU1
IU2
F1_1394
F2_1394
JP2X5/-7/GRAY
JP2X8/-14/GRAY
24C02/S
GIGABYTE
TSB43AB23A 1394
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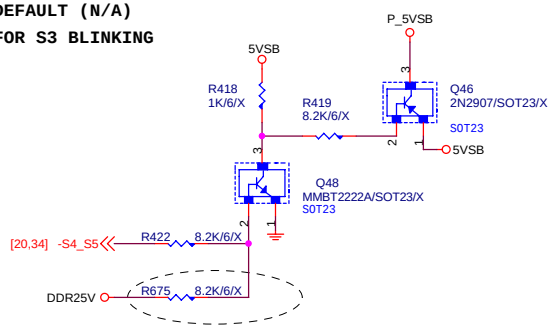
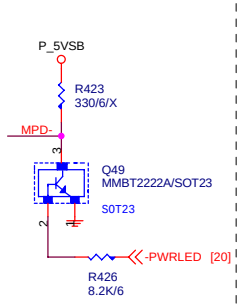
INTEL FRONT PANEL

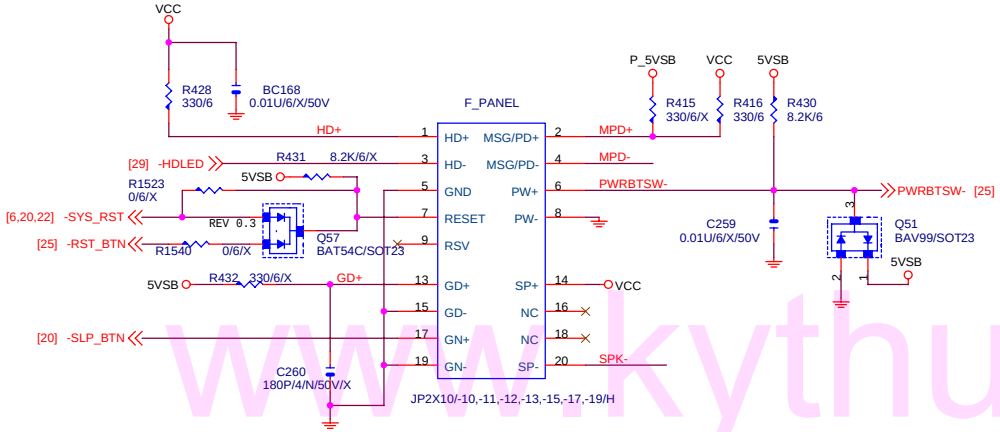
3 PIN POWER LED
LAYOUT PLACE CLOSE
TO F_PANEL

PWR_LED
JP1X3/H

DEFAULT (N/A)
FOR S3 BLINKING





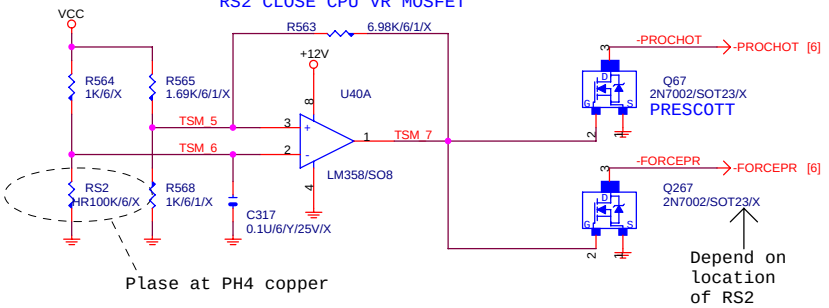


PROCESSOR HOT

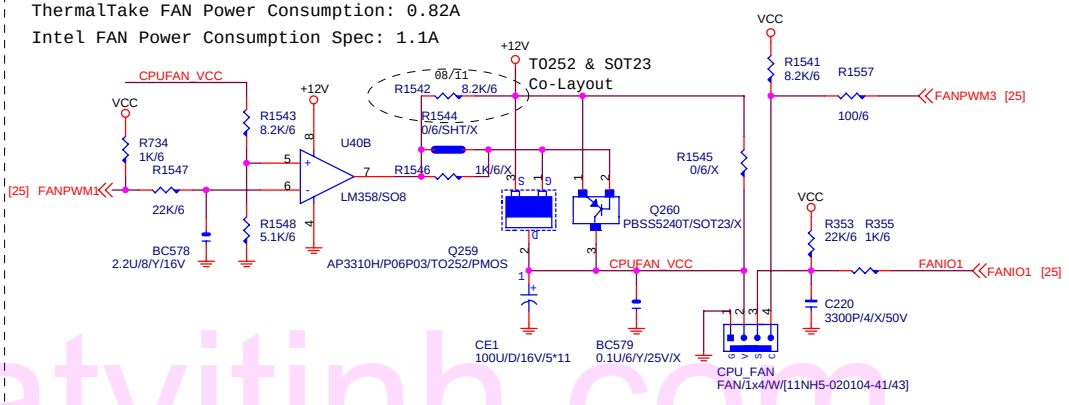
U-ATX PROCESSOR HOT NO POP

asserted at 130 degree (RS2=720 ohm)
deasserted at 115 degree (RS2=1270 ohm)

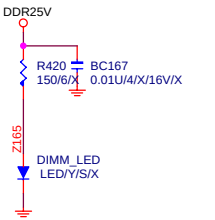
RS2 CLOSE CPU VR MOSFET



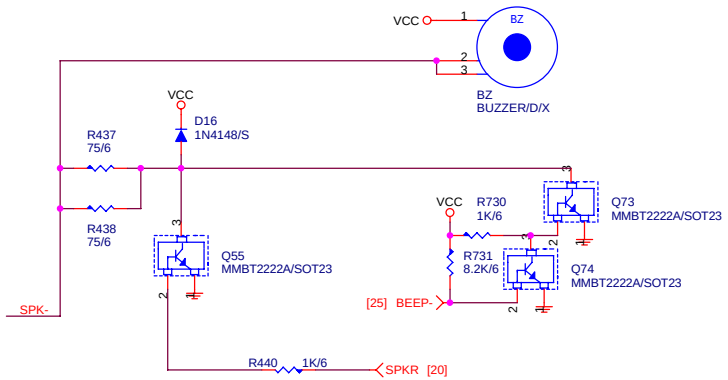
ThermalTake FAN Power Consumption: 0.82A
Intel FAN Power Consumption Spec: 1.1A

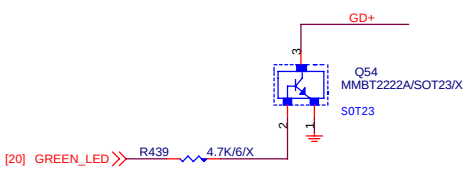


CPU_FAN PIN3,4 CO-LAYOUT



BUZZER





States for green LED

NO1 GPO22 only S1 PROGRAMMING LOW

LED States	ACPI States	GPO28
ON	S1,S3	0
OFF	S0,S5	1

(GPO22 DEFAULT HIGH, main power)

States for a single-color power LED

LED States	ACPI States	GPO25	GPO27	GPO24
OFF	S1,S3,S5	1	1	NO1
Steady Green	S0	1	1	1
Blinking Green	S0(message waiting)	1	B	1

LED States	ACPI States	GPO25	GPO27	GPO22
OFF	S5	1	1	X
Steady Green	S0	1	1	1
Blinking Green	S0(message waiting)	1	B	1
Steady Yellow	S1,S3	1	0	NO1
Blinking Yellow	S1,S3(message waiting)	1	B	NO1

GIGABYTE

Title: FRONT PANEL

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ICH6 GPIO Table:

NAME	PWR LANE	USAGE	NAME	PWR LANE	USAGE
GPI0	V5REF	M/B ID (-REQ6)	GPI41	VCC3	M/B ID1
GPI1	V5REF	-REQ5	GPO48	VCC3	-GNT4(TP)
GPI2	V5REF	-PIRQE	GPO49	V-CPUIO	CPUPWOK
GPI3	V5REF	-PIRQF			
GPI4	V5REF	-PIRQG			
GPI5	V5REF	-PIRQH			
GPI6	VCC3	-SLP_BTN			
GPI7	VCC3	DUAL BIOS(TP)			
GPI8	3VDAUL	-LANWAKE			
GPI9	3VDAUL	-USBOC4			
GPI10	3VDAUL	-USBOC5			
GPI11	3VDAUL	-SMBALT			
GPI12	VCC3	ATX_DET			
GPI13	3VDAUL	-LPCPME			
GPI14	3VDAUL	-USBOC6			
GPI15	3VDAUL	-USBOC7			
GPO16	VCC3	CPU OV1 (-GNT6)			
GPO17	VCC3	-GNT5(TP)			
GPO18	VCC3	CPU OV2			
GPO19	VCC3	DUAL BIOS(AGPOV1)			
GPO20	VCC3	BIOS T-BLOCK			
GPO21	VCC3	DUAL BIOS(AGPOV2)			
GPO23	VCC3	DDR OV1			
GPIO24	3VDAUL	GREEN LED			
GPIO25	3VDAUL	2.5V REGULATOR(P.D)			
GPI26	VCC3	SATA_GP0			
GPIO27	3VDAUL	DDR OV2			
GPIO28	3VDAUL	-PWRLED			
GPI29	VCC3	SATA GP1			
GPI30	VCC3	SATA GP2			
GPI31	VCC3	SATA GP3			
GPIO32	VCC3	BIOS WP			
GPIO33	VCC3	AZALIA DET			
GPIO34	VCC3	PWRLED(MB_ID0)			
GPI40	V5REF	-REQ4			

PWROK/RESET Table:

ITE8712BHX PIN	NET NAME	TARGET
PIN62/-PCIRST1	-PCIE_RST	1. PCI-E * 1 Slot1 2. PCI-E * 16 Slot
PIN64/-PCIRST2	-PFMRST2	1. Onboard PCI Lan 2. Onboard 1394 Chip 3. OnBoard FWH
PIN65/-PCIRST3	-PFMRST1	1. GMCH
PIN115/-PCIRST4	-IDERST	Reserved For IDE
PIN63/PWROK1	PWROK1	1. GMCH 2. ICH6
PIN109/PWROK2	-THERM	1. ICH6

GIGABYTE THCHNOLOGIES , INC.

Title	GPIO/RESET TABLE	
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