Model Name:GA-G41MT-ES2L

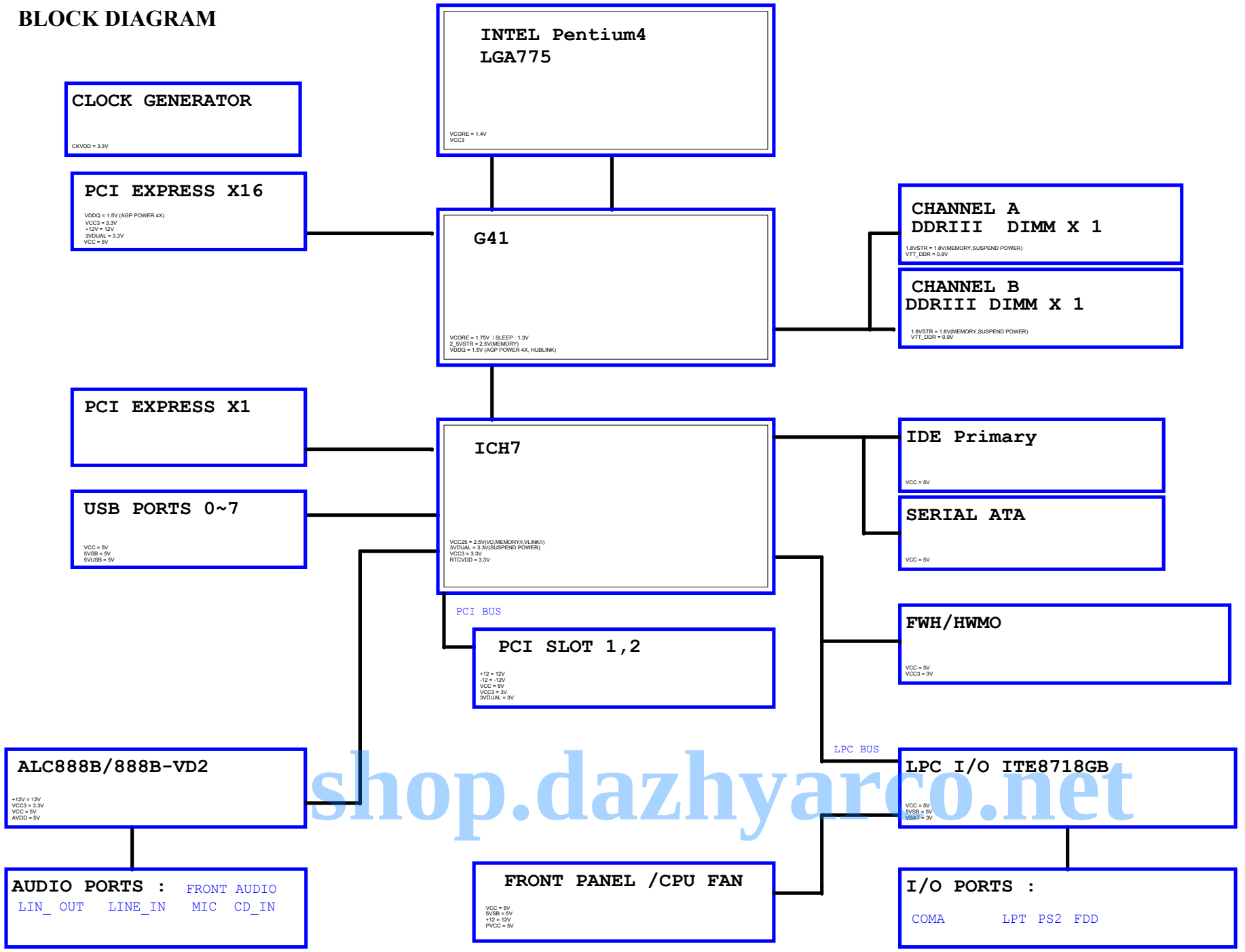
Revision 1.3

SHEET	TITLE
01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	P4_LGA775_A
05	P4_LGA775_B,D
06	P4_LGA775_C
07	P4_LGA775_E,F,G,H
08	G41_HOST
09	G41_DDRII
10	G41_PCI E, DMI
11	G41_VGA
12	G41_GND
13	G41_PWR
14	PCI EXPRESS*16 SLOT
15	DDR3 CHANNEL A
16	DDR3 CHANNEL B
17	DDR3 TERMINATION
18	ICH7 PCI, USB, DMI, LAN
19	ICH7 IDE, GPIO, SATA, CTRL
20	ICH7 VCC, GND
21	CK505 CLOCK.
22	PCI SLOT 1,2,PCIE*1
23	IDE/FLOPPY
24	ITE 8718 GB
25	COM_LPT
26	CI,HWM,KB/MS,DUALBIOS
27	ALC888B/888B-VD2

SHEET	TITLE
28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM_ISL6312
31	ATX, OTHERS POWER
32	FRONT PANEL
33	REALTEK RTL8111E/8105E

Gigabyte Technology		
Title: Cover Sheet		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 1 of 33	

BLOCK DIAGRAM



Gigabyte Technology		
Title: BOM & PCB MODIFY HISTORY		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 2 of 33	

Model Name:GA-G41MT-ES2L

Version: 1.3

Component value change history

2010/04/15

Data	Change Item	Reason
2009/06/12	R0.1 MODIFY FROM EG41M-US2H R1.02.DDR3,I/O 8718/LX,LAN RTL811C/811D CO-LAY.	
2009/06/22	MODIFY F_PANEL FOOTPRINT.CI FUNCTION.	
2009/10/01	MODIFY REV 1.0	
2009/10/13	ADD SUPPORT ALC892	
2010/01/06	MODIFY REV 1.0 R1.1,LAN RTL8111E.	
2010/02/05	R1.1 MODIFY CODEC ALC888B-VD2.	
2010/03/02	R1.11.VIA TO VIA SPACE.	
2010/04/15	R1.3 MODIFY FRONT USB FUSE 3.5A FOR 3X POWER.	
	ADD ErP Ready TEXT.	

Circuit or PCB layout change for next version

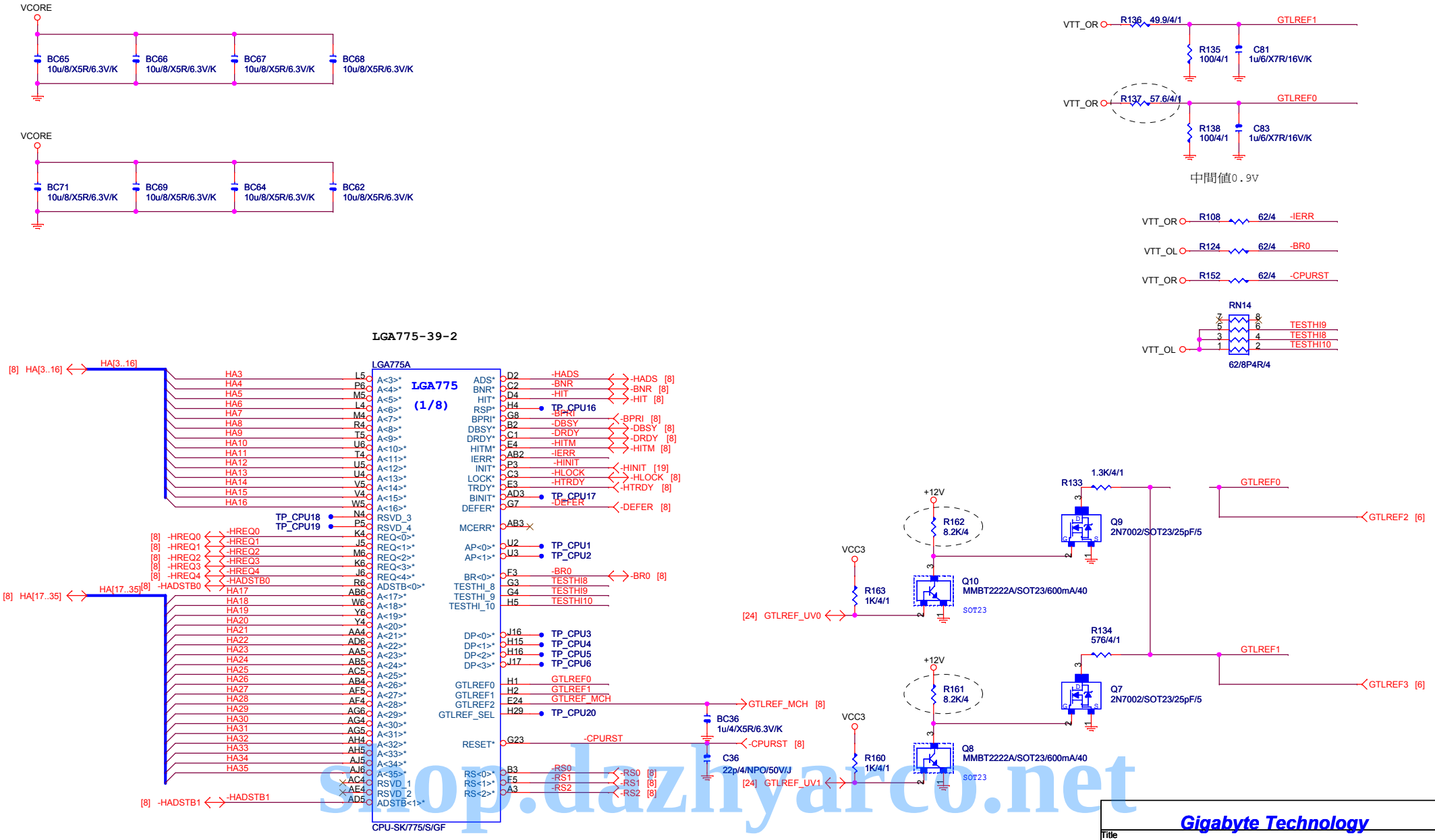
DATE	Change Item	Reason

Gigabyte Technology

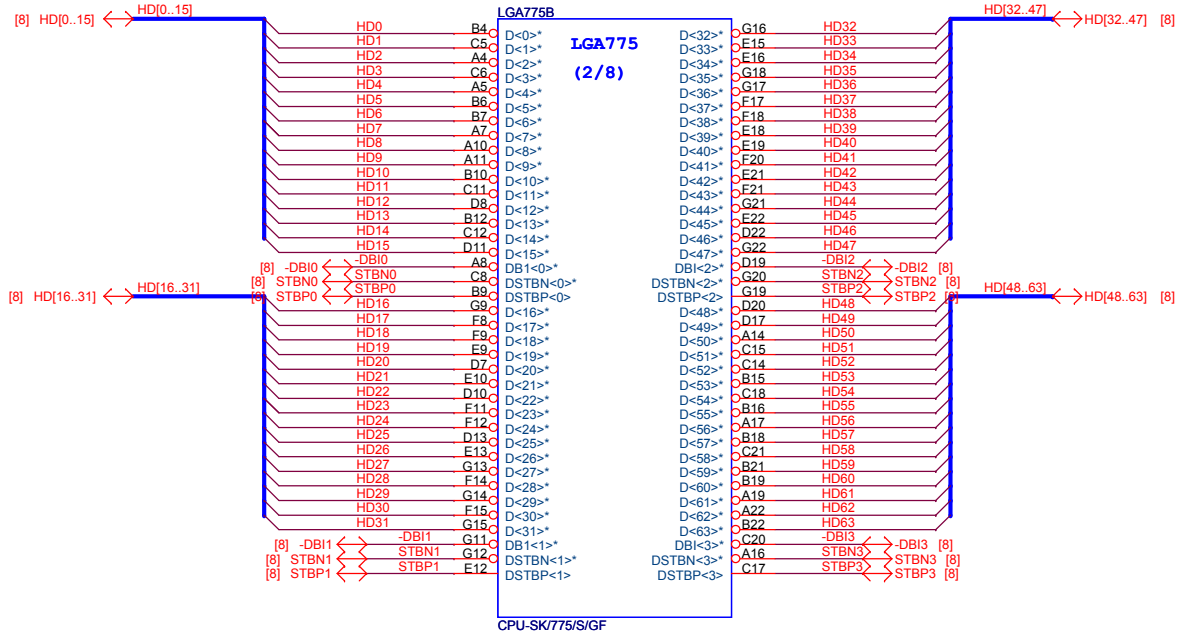
Title: BOM & PCB MODIFY HISTORY

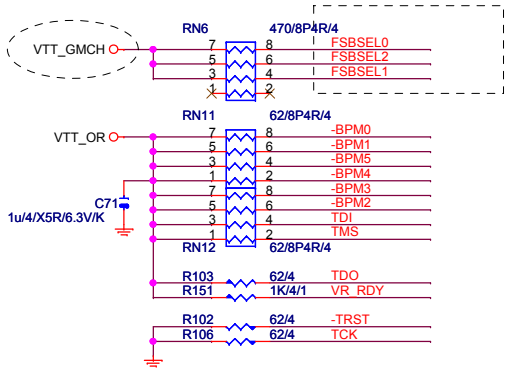
Size: Custom | Document Number: GA-G41MT-ES2L | Rev: 1.3

Date: Friday, April 16, 2010 | Sheet 3 of 33

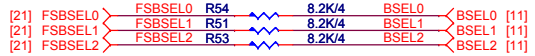


Gigabyte Technology		
Title: P4_LGA775-A		
Size: B	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 4 of 33	





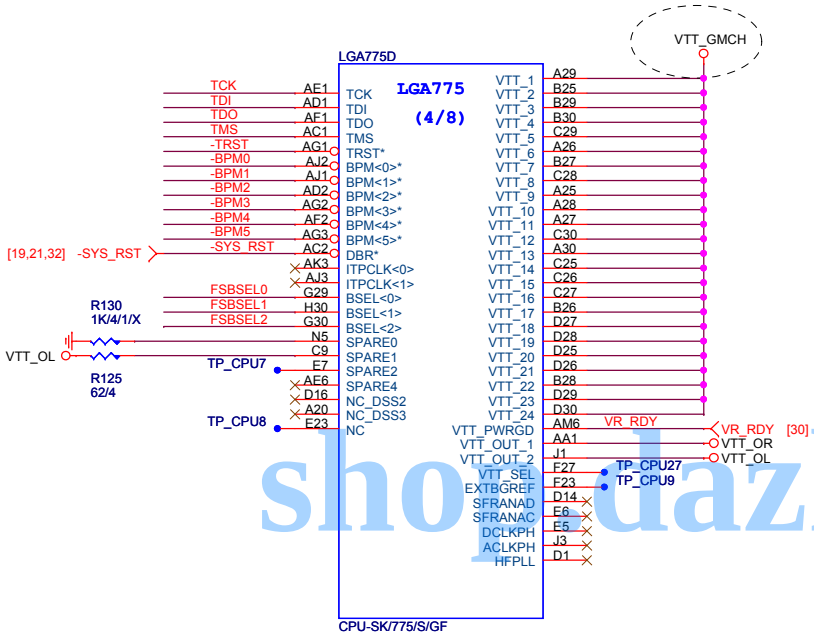
TO CLK GEN

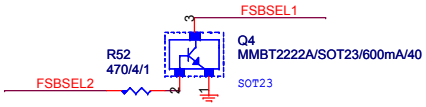


TO NB

CPU

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



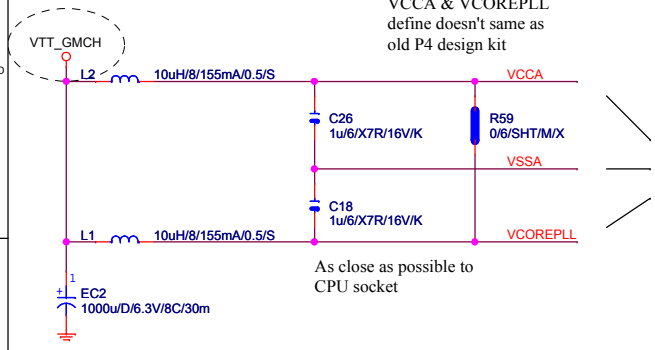


FIX FSB1600 LATCH FAIL

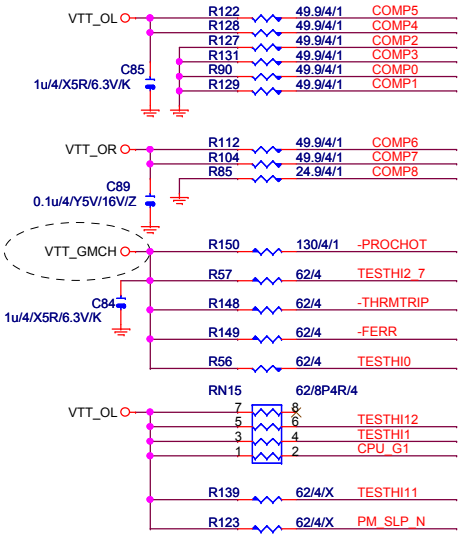
Gigabyte Technology		
Title: P4_LGA775-B,D		
Size: B	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 5 of 33	

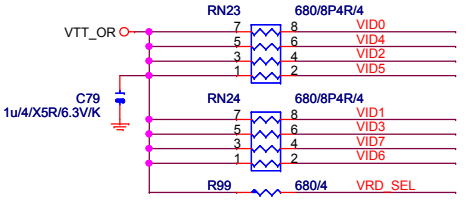
Note:

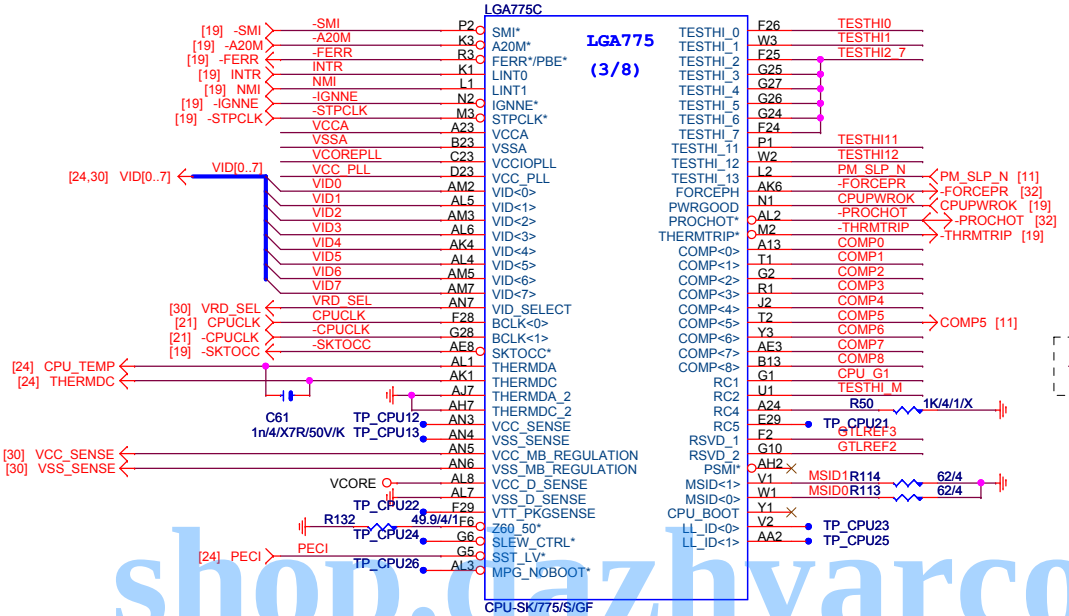
VCCA & VCOREPLL define doesn't same as old P4 design kit

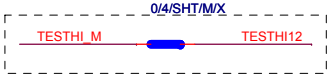


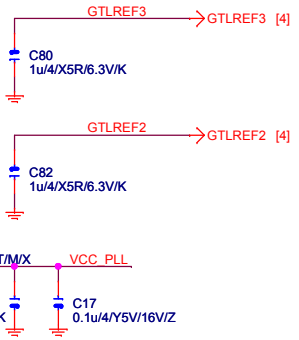
Place outside of CPU socket





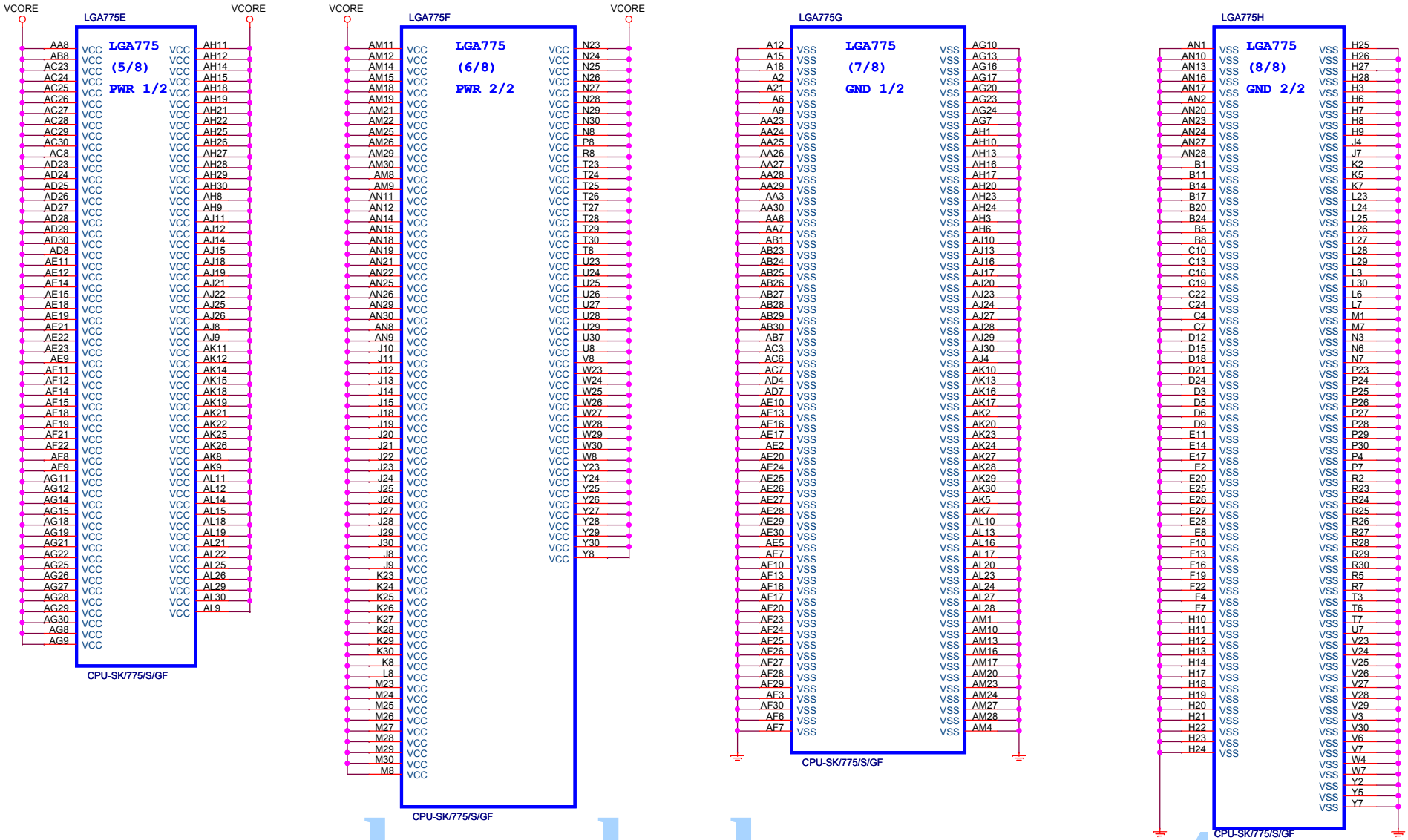




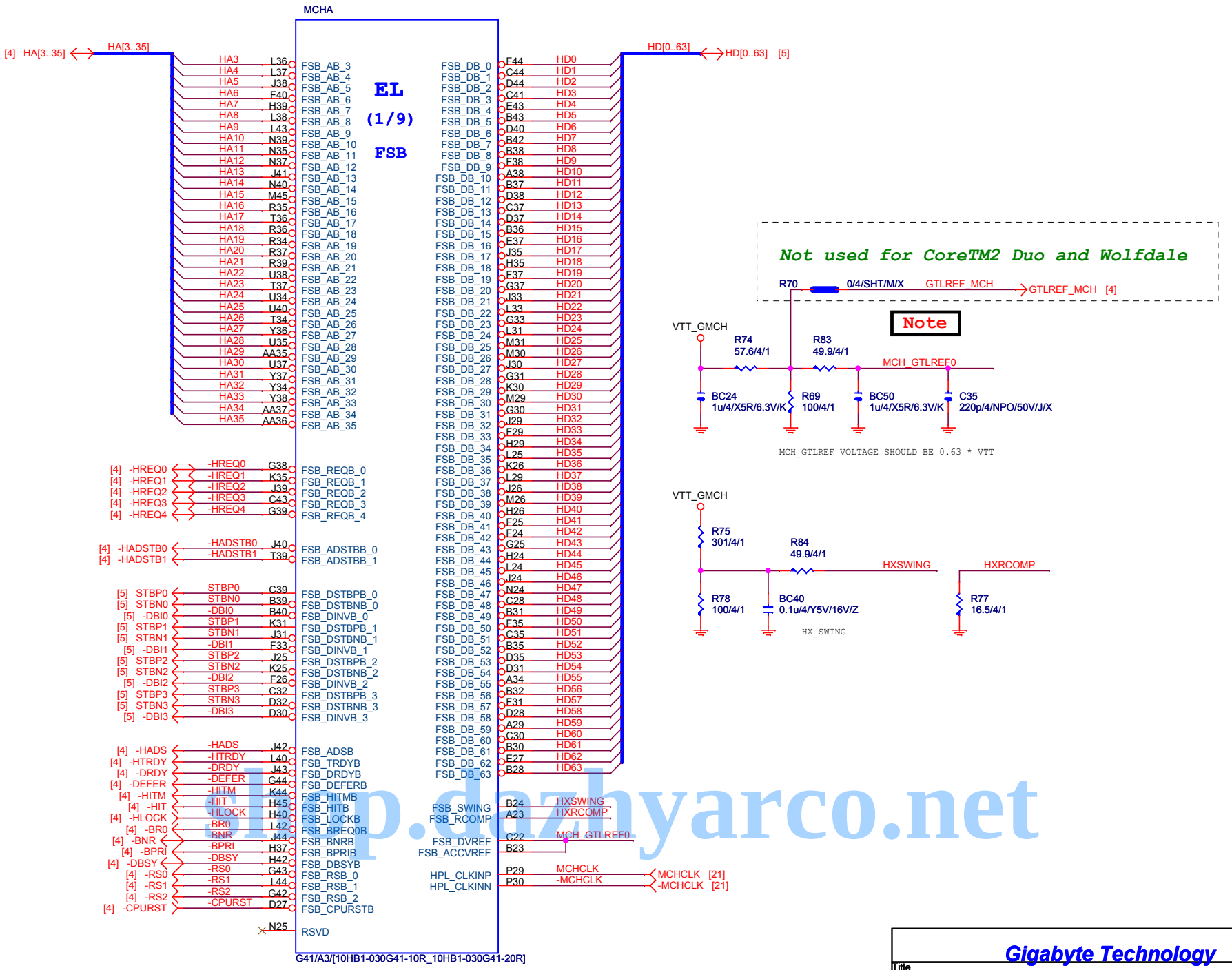


PECI:Platform Environment Control Interface

Gigabyte Technology		
Title: P4_LGA775-C		
Size: B	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 6 of 33	

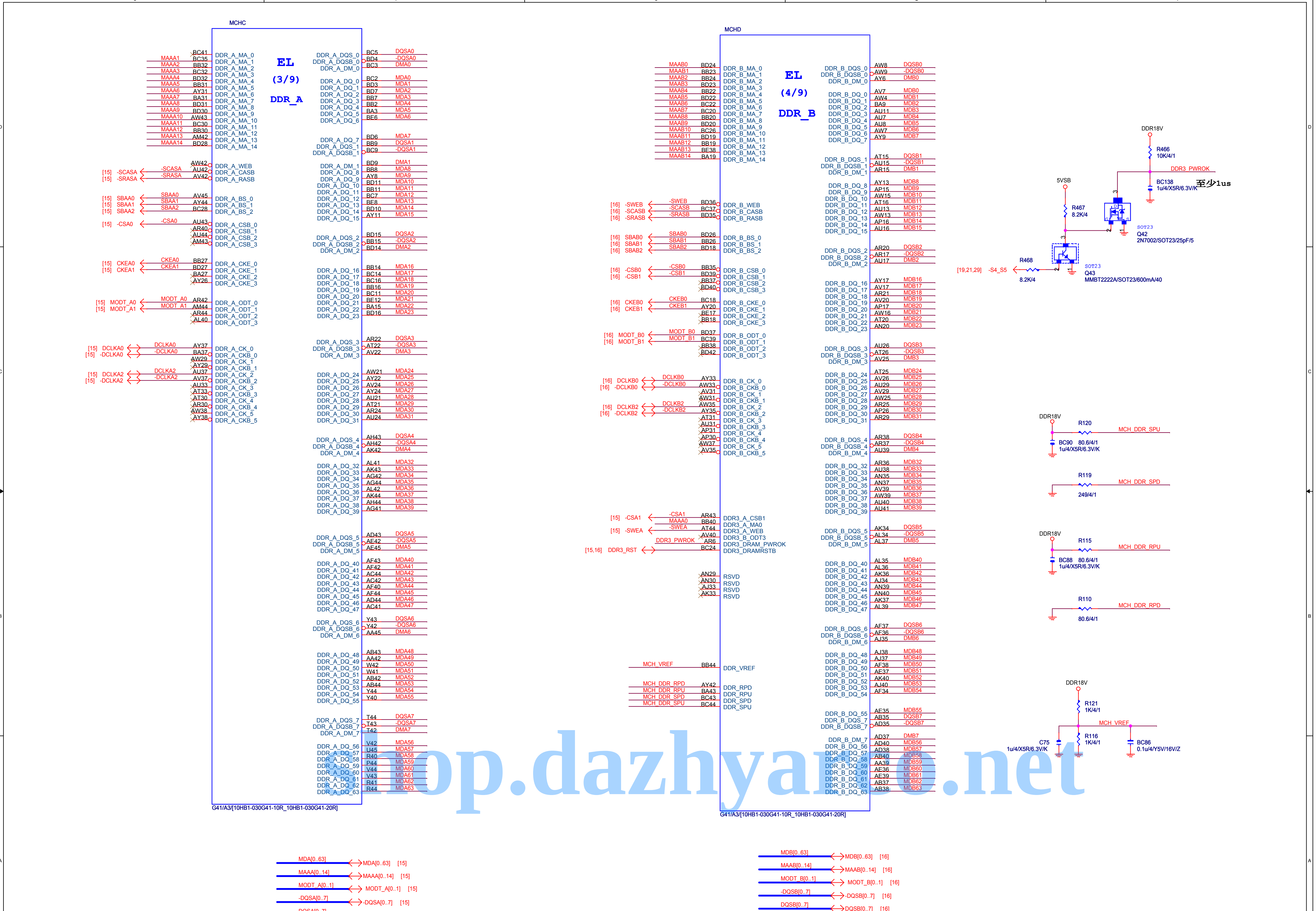


Gigabyte Technology		
Title: P4_LGA775-E,F,G,H		
Size: B	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 7 of 33	



Gigabyte Technology

Title	GMCH-HOST		
Size: Custom	Document Number: GA-G41MT-ES2L		Rev: 1.3
Date: Friday, April 16, 2010	Sheet 8 of 33		

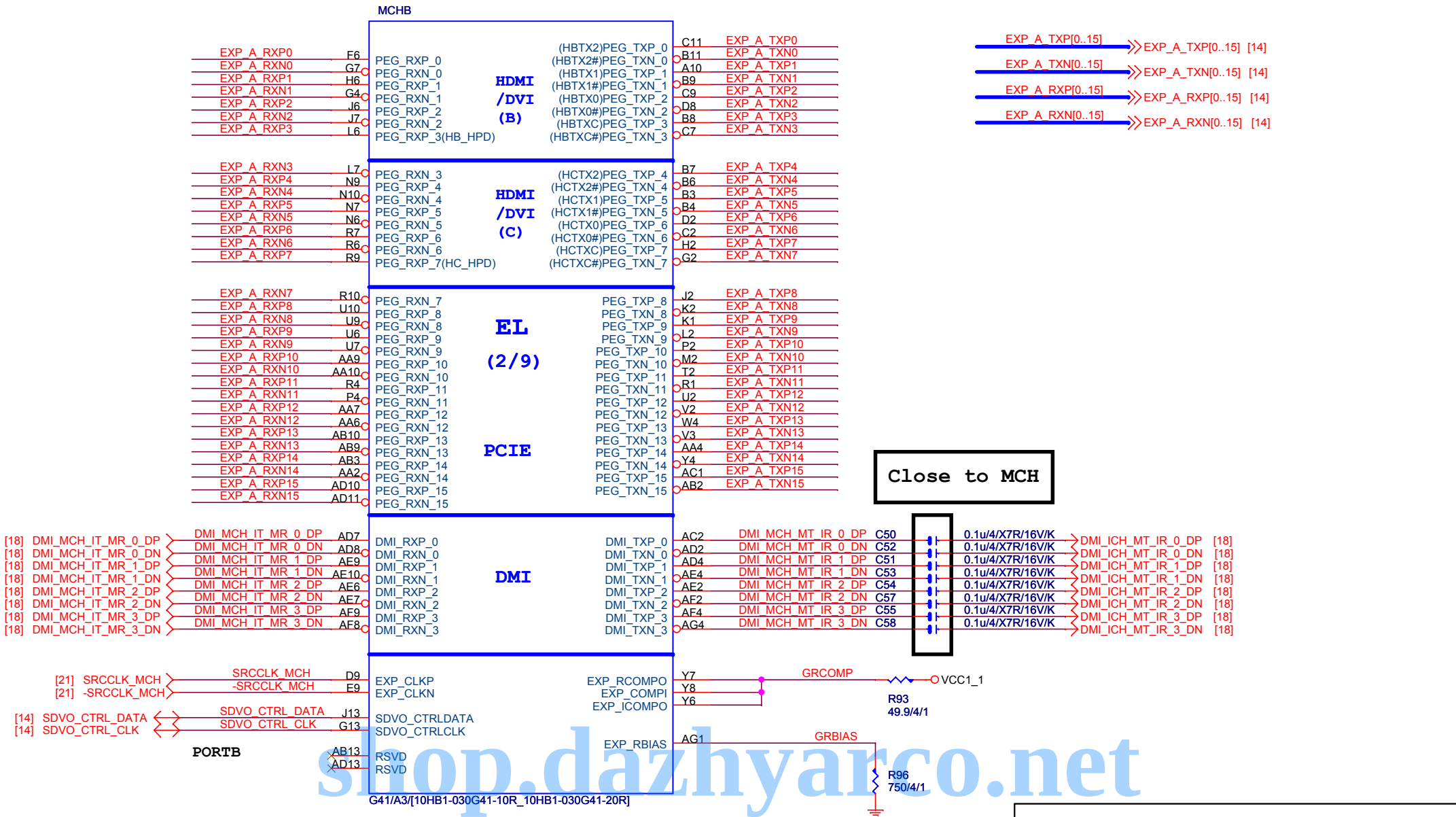

MCHC
EL
(3/9)
DDR_A
G41/A3/[10HB1-030G41-10R_10HB1-030G41-20R]
MCHD
EL
(4/9)
DDR_B
G41/A3/[10HB1-030G41-10R_10HB1-030G41-20R]
DDR18V
R466
10K/4/1
DDR3_PWROK
BC138
1u/4/X5R/6.3V/K
至少1us
5VSB
R467
8.2K/4
Q42
2N7002/SOT23/25pF/5
R468
8.2K/4
Q43
MMBT2222A/SOT23/600mA/40
MCH_DDR_SPU
MCH_DDR_SPD
MCH_DDR_RPU
MCH_DDR_RPD
MCH_VREF
MDA[0..63]
MAAA[0..14]
MODT_A[0..1]
-DQSA[0..7]
DQSA[0..7]
DMA[0..7]
MDB[0..63]
MAAB[0..14]
MODT_B[0..1]
-DQSB[0..7]
DQSB[0..7]
DMB[0..7]

Gigabyte Technology

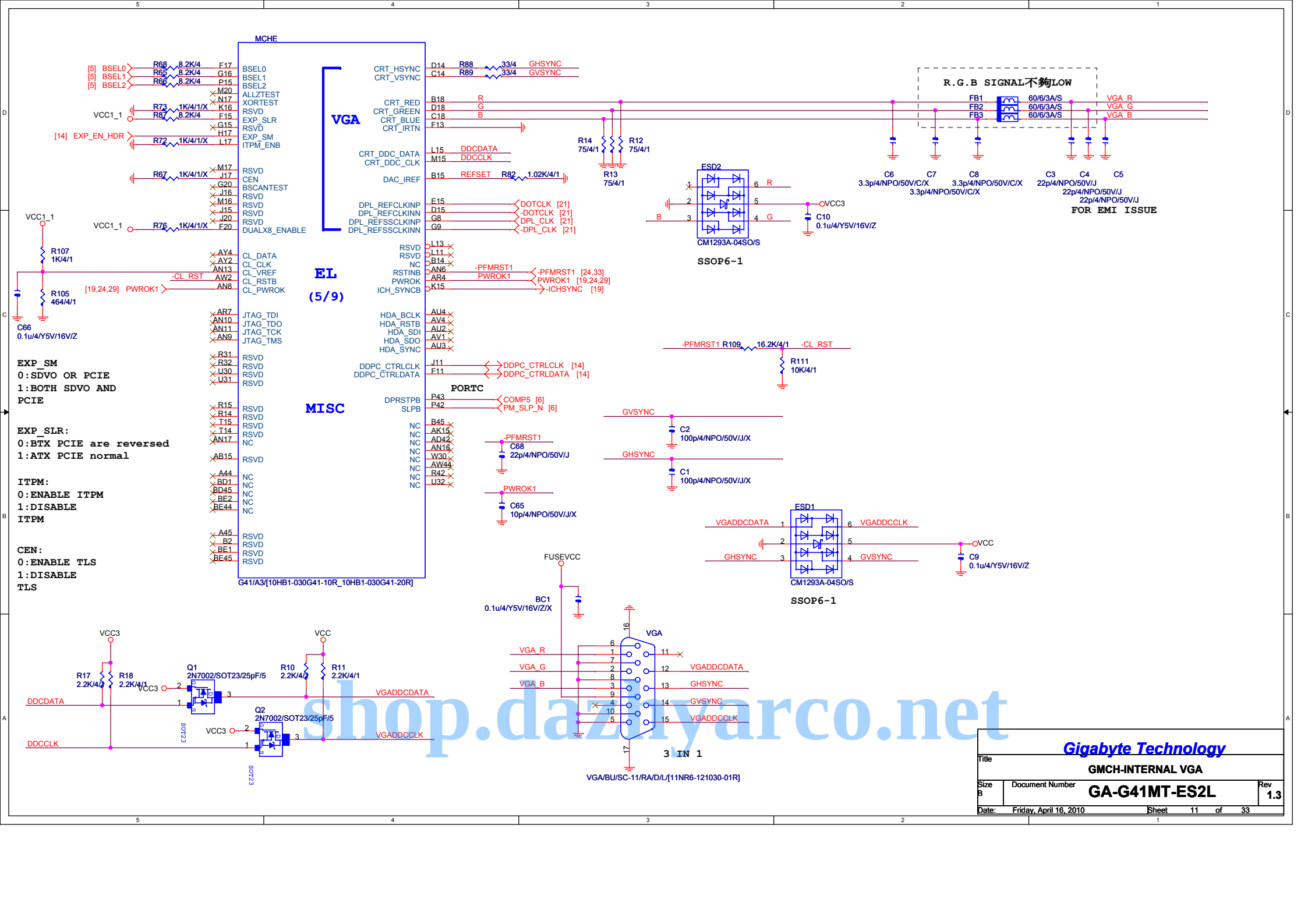
Title: GMCH-MEMORY

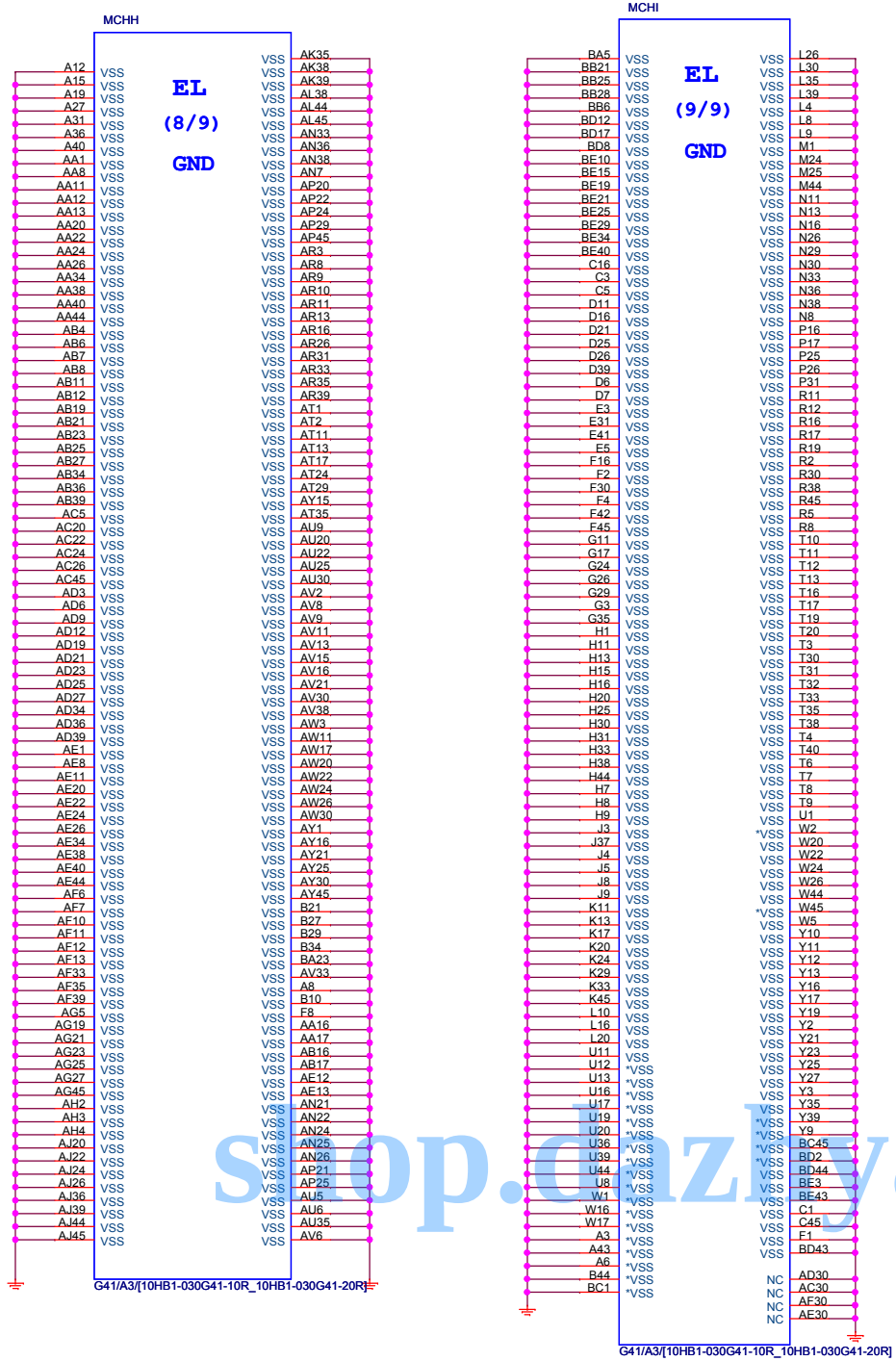
Size: C | Document Number: GA-G41MT-ES2L | Rev: 1.3

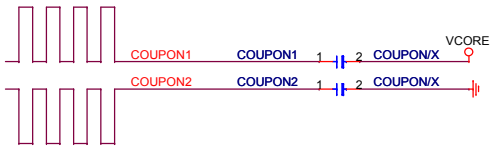
Date: Friday, April 16, 2010 | Sheet 9 of 33

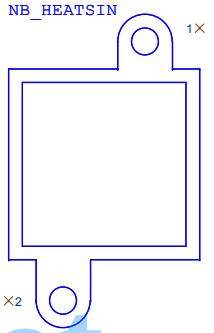


Gigabyte Technology		
Title: GMCH-PCI E & DMI		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 10 of 33	







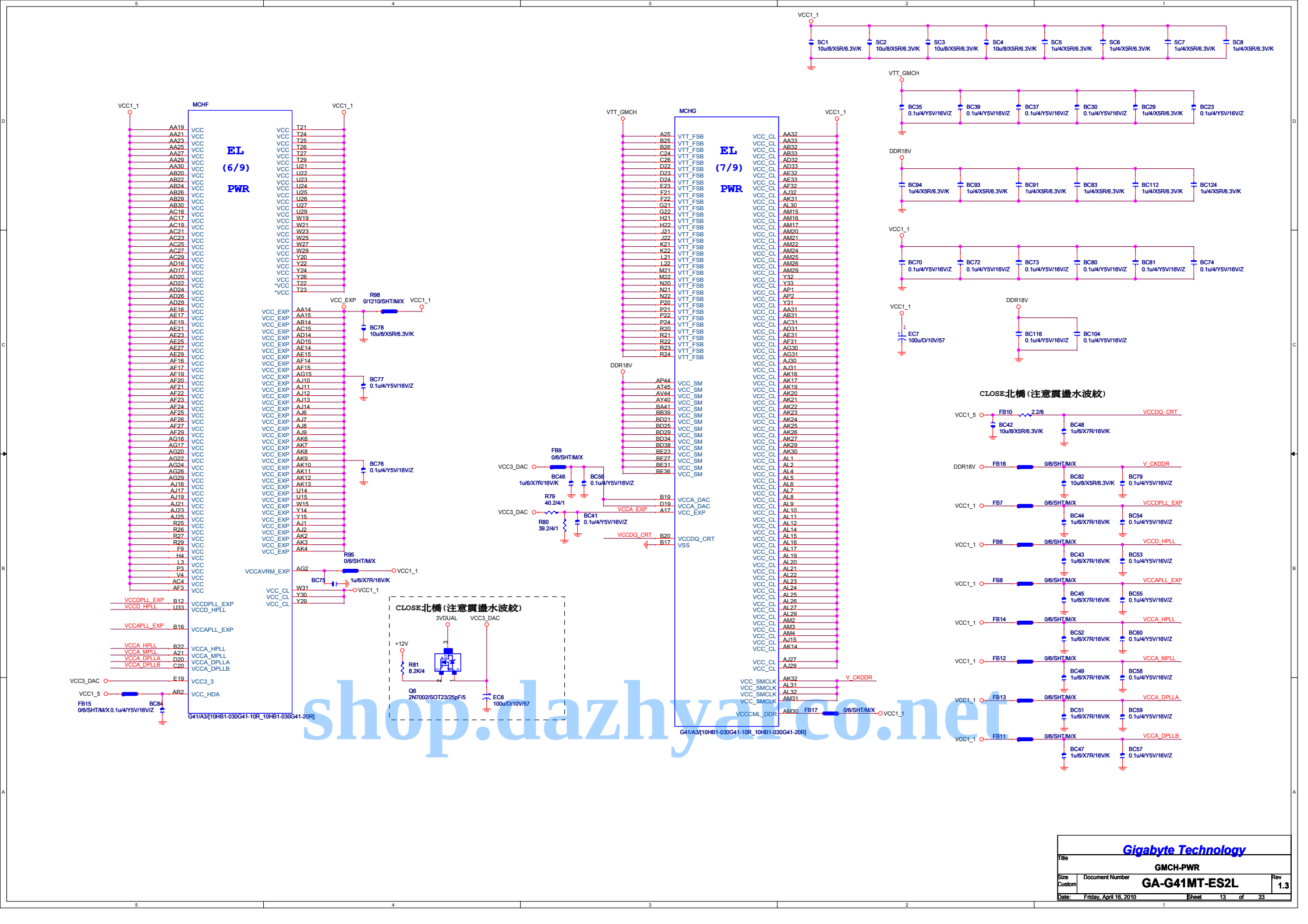


Gigabyte Technology

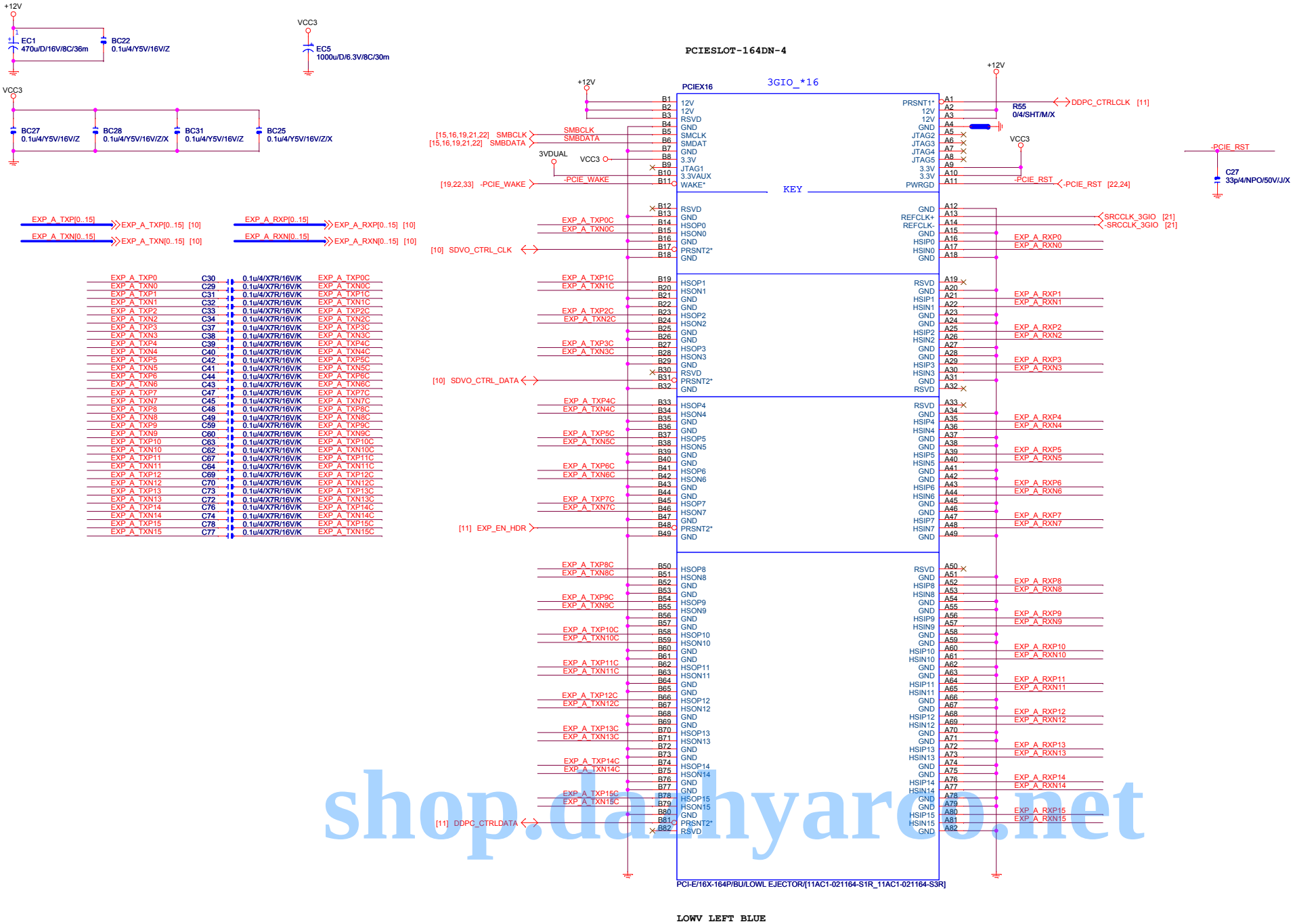
Title: GMCH-GND

Size: Custom | Document Number: GA-G41MT-ES2L | Rev: 1.3

Date: Friday, April 16, 2010 | Sheet 12 of 33



Gigabyte Technology		
Title	GMCH-PWR	
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 13 of 33	



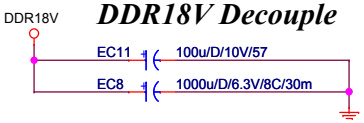
EXP_A_TXP0	C30	0.1u/4/X7R/16V/K	EXP_A_TXP0C
EXP_A_TXN0	C29	0.1u/4/X7R/16V/K	EXP_A_TXN0C
EXP_A_TXP1	C31	0.1u/4/X7R/16V/K	EXP_A_TXP1C
EXP_A_TXN1	C32	0.1u/4/X7R/16V/K	EXP_A_TXN1C
EXP_A_TXP2	C33	0.1u/4/X7R/16V/K	EXP_A_TXP2C
EXP_A_TXN2	C34	0.1u/4/X7R/16V/K	EXP_A_TXN2C
EXP_A_TXP3	C37	0.1u/4/X7R/16V/K	EXP_A_TXP3C
EXP_A_TXN3	C38	0.1u/4/X7R/16V/K	EXP_A_TXN3C
EXP_A_TXP4	C39	0.1u/4/X7R/16V/K	EXP_A_TXP4C
EXP_A_TXN4	C40	0.1u/4/X7R/16V/K	EXP_A_TXN4C
EXP_A_TXP5	C42	0.1u/4/X7R/16V/K	EXP_A_TXP5C
EXP_A_TXN5	C41	0.1u/4/X7R/16V/K	EXP_A_TXN5C
EXP_A_TXP6	C44	0.1u/4/X7R/16V/K	EXP_A_TXP6C
EXP_A_TXN6	C43	0.1u/4/X7R/16V/K	EXP_A_TXN6C
EXP_A_TXP7	C47	0.1u/4/X7R/16V/K	EXP_A_TXP7C
EXP_A_TXN7	C45	0.1u/4/X7R/16V/K	EXP_A_TXN7C
EXP_A_TXP8	C48	0.1u/4/X7R/16V/K	EXP_A_TXP8C
EXP_A_TXN8	C49	0.1u/4/X7R/16V/K	EXP_A_TXN8C
EXP_A_TXP9	C59	0.1u/4/X7R/16V/K	EXP_A_TXP9C
EXP_A_TXN9	C60	0.1u/4/X7R/16V/K	EXP_A_TXN9C
EXP_A_TXP10	C63	0.1u/4/X7R/16V/K	EXP_A_TXP10C
EXP_A_TXN10	C62	0.1u/4/X7R/16V/K	EXP_A_TXN10C
EXP_A_TXP11	C67	0.1u/4/X7R/16V/K	EXP_A_TXP11C
EXP_A_TXN11	C64	0.1u/4/X7R/16V/K	EXP_A_TXN11C
EXP_A_TXP12	C69	0.1u/4/X7R/16V/K	EXP_A_TXP12C
EXP_A_TXN12	C70	0.1u/4/X7R/16V/K	EXP_A_TXN12C
EXP_A_TXP13	C73	0.1u/4/X7R/16V/K	EXP_A_TXP13C
EXP_A_TXN13	C72	0.1u/4/X7R/16V/K	EXP_A_TXN13C
EXP_A_TXP14	C76	0.1u/4/X7R/16V/K	EXP_A_TXP14C
EXP_A_TXN14	C74	0.1u/4/X7R/16V/K	EXP_A_TXN14C
EXP_A_TXP15	C78	0.1u/4/X7R/16V/K	EXP_A_TXP15C
EXP_A_TXN15	C77	0.1u/4/X7R/16V/K	EXP_A_TXN15C

Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-G41MT-ES2L		Rev: 1.3
Date: Friday, April 16, 2010	Sheet 14 of 33		

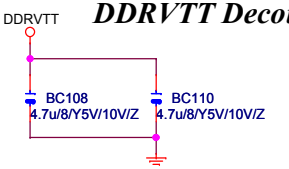
Gigabyte Technology			
Title: DDR3 CHANNEL B			
Size: Custom	Document Number: GA-G41MT-ES2L		Rev: 1.3
Date:	Sheet 16 of 33		

DDR TERMINATION CHANNEL A

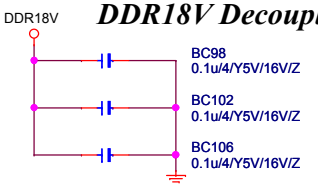
DDR18V Decouple



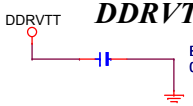
DDRVTT Decouple



DDR18V Decouple

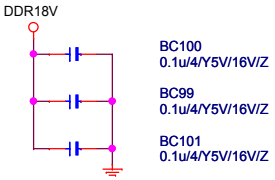


DDRVTT Decouple

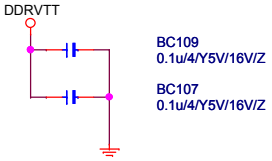


DDR TERMINATION CHANNEL B

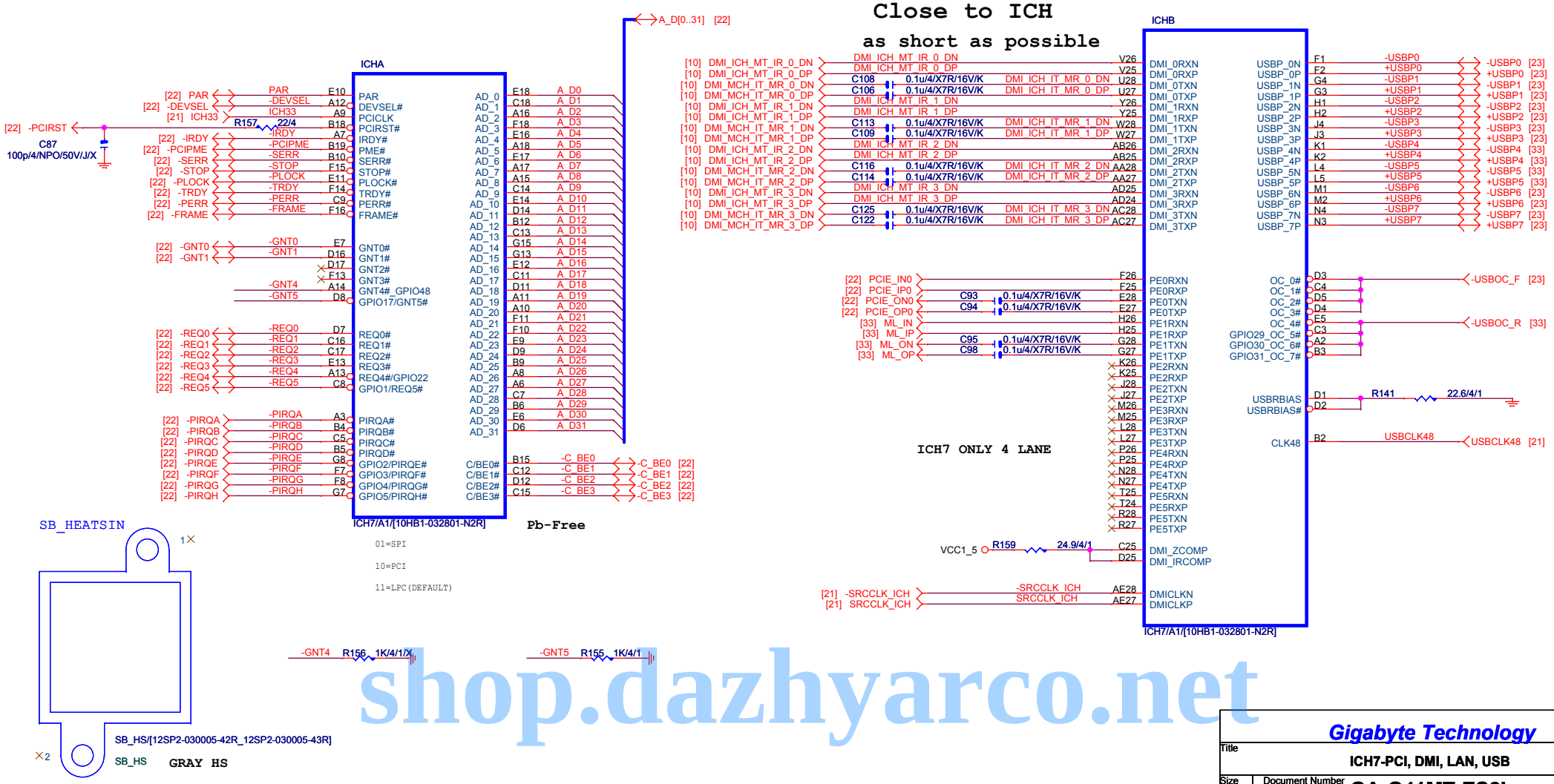
DDR18V Decouple



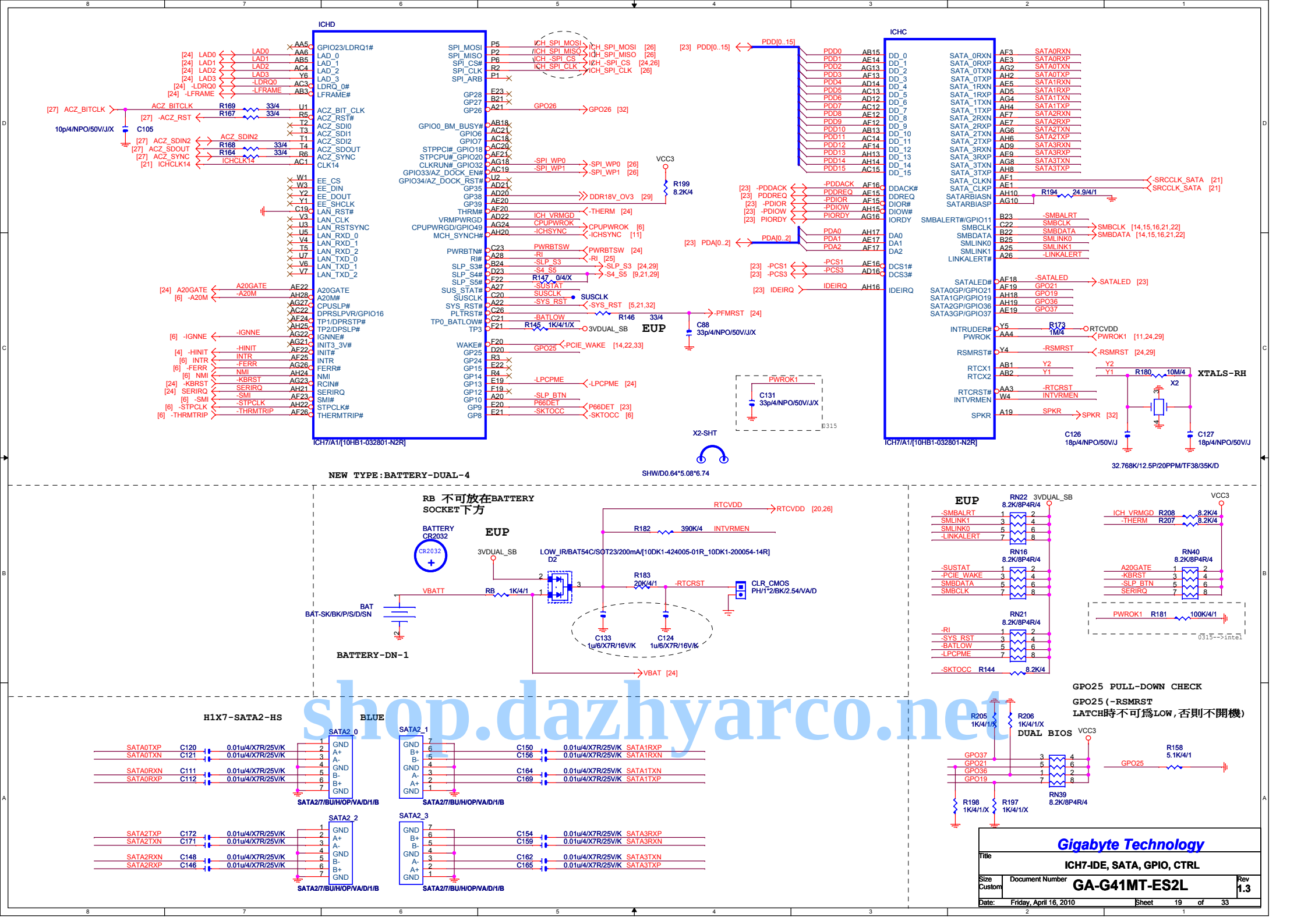
DDRVTT Decouple

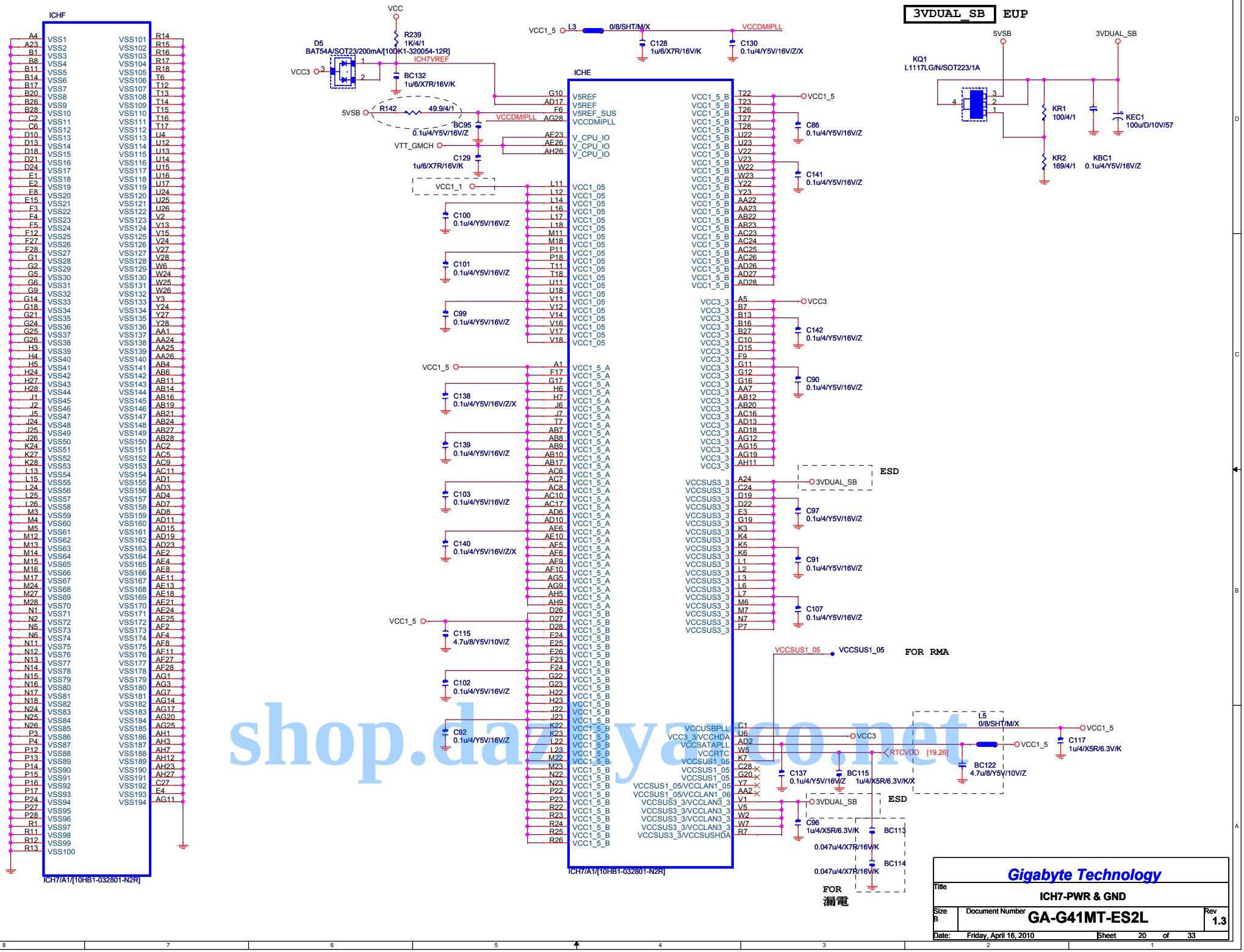


Gigabyte Technology			
Title: DDRII TERMINATOR			
Size: Custom	Document Number: GA-G41MT-ES2L		Rev: 1.3
Date: Friday, April 16, 2010	Sheet 17 of 33		

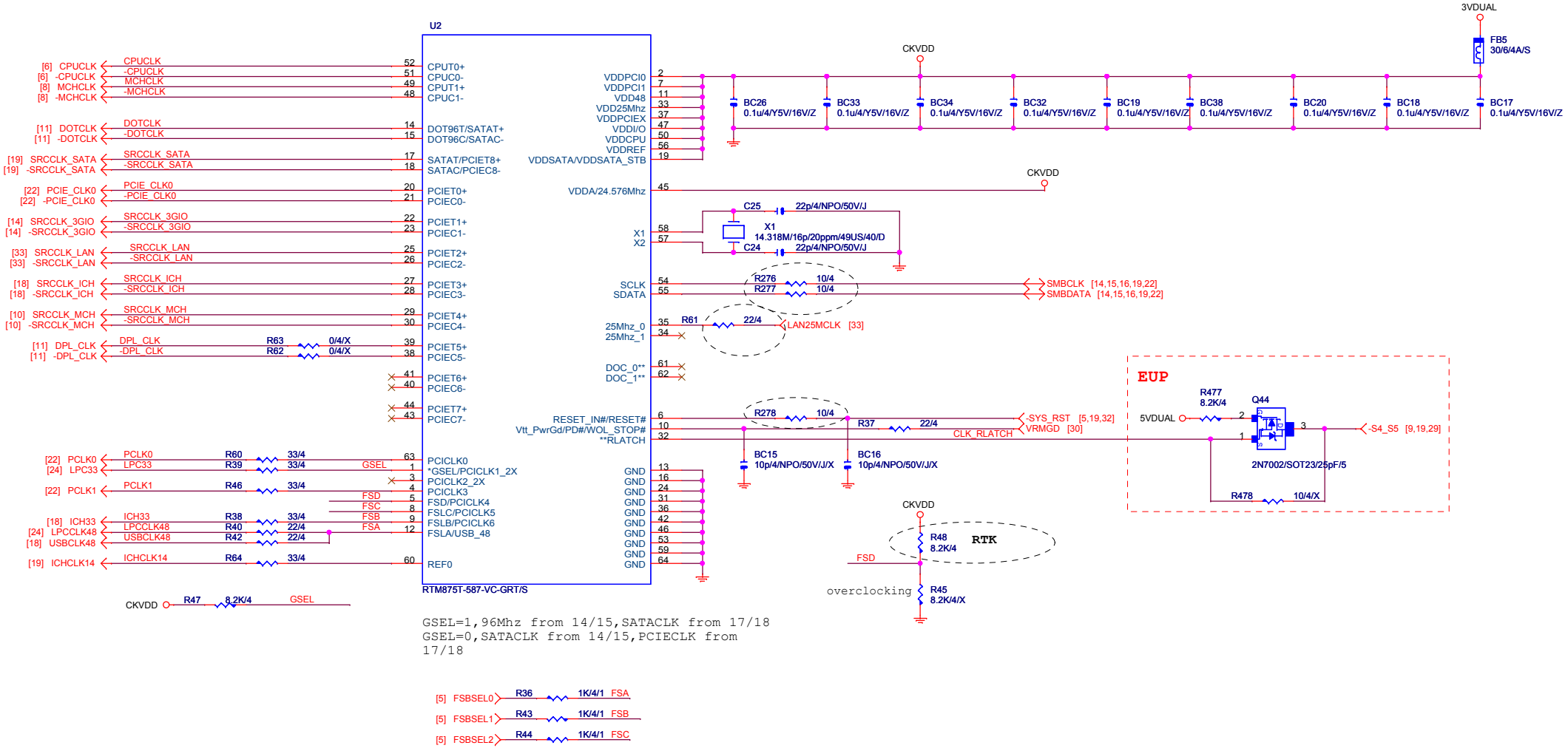


Gigabyte Technology		
Title	ICH7-PCI, DMI, LAN, USB	
Size B	Document Number GA-G41MT-ES2L	Rev 1.3
Date: Friday, April 16, 2010	Sheet 18 of 33	





CLK GEN CK505

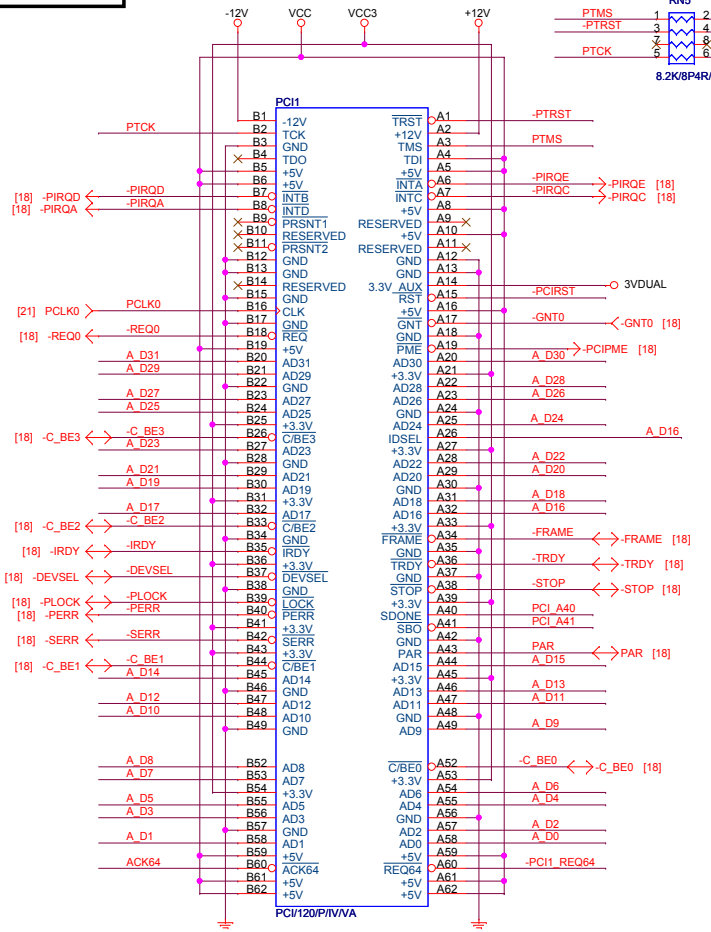


GSEL=1,96Mhz from 14/15,SATACLK from 17/18
GSEL=0,SATACLK from 14/15,PCIECLK from 17/18

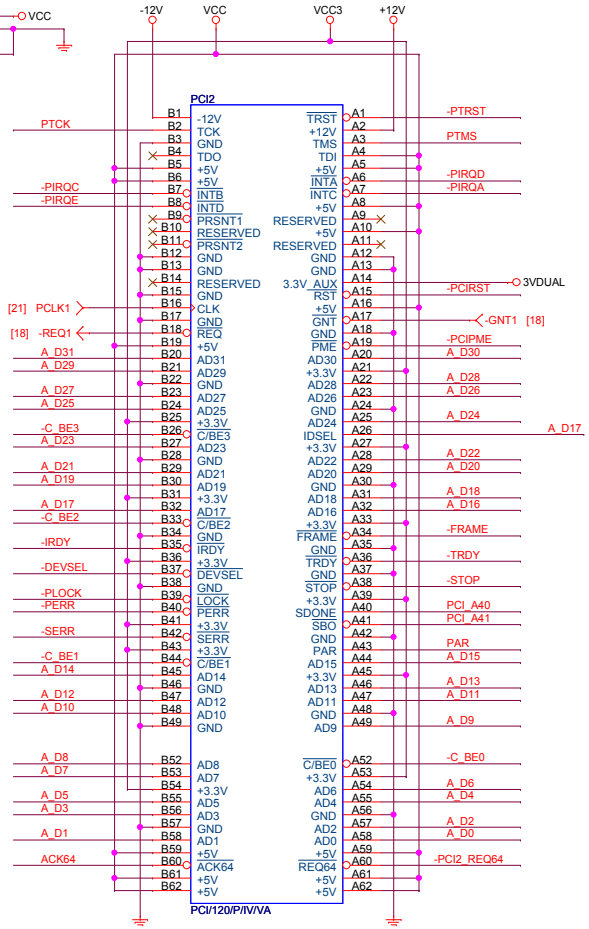
[5] FSBSEL0 R36 1K/4/1 FSA
[5] FSBSEL1 R43 1K/4/1 FSB
[5] FSBSEL2 R44 1K/4/1 FSC

Gigabyte Technology		
Title: CK505 CLK GEN		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
Date: Friday, April 16, 2010	Sheet 21 of 33	

PCI1,2 SLOT

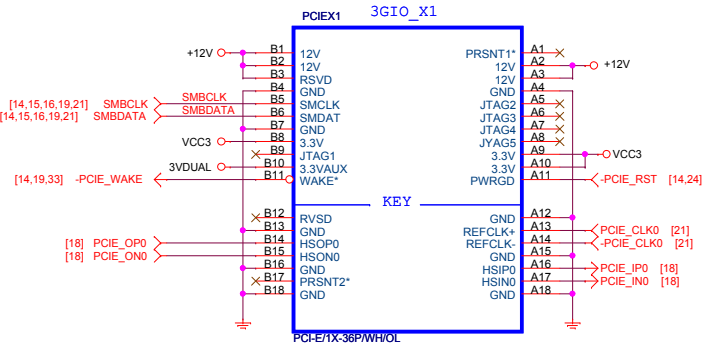


AD_16/-PIRQ(E-D-C-A)/-REQ0/-GNT0

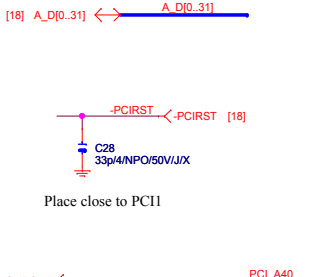


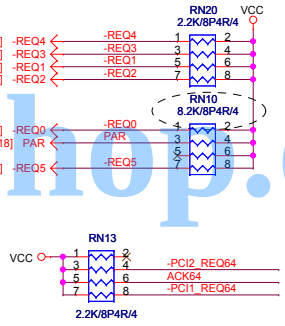
AD_17/-PIRQ(D-C-A-E)/-REQ1/-GNT1

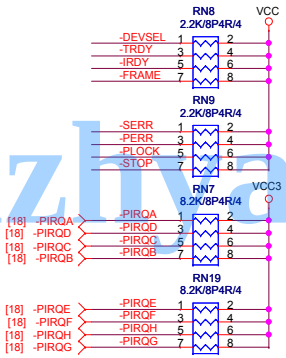
PCIE*1

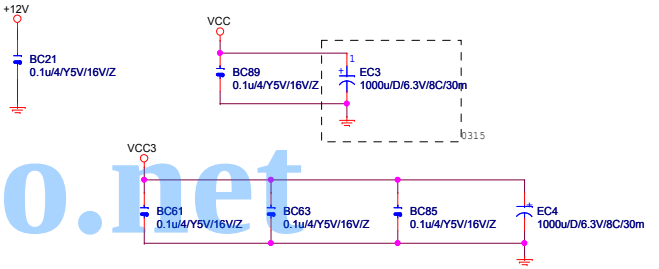


WHITE









Gigabyte Technology		
Title: PCI SLOT 1, 2/PCIEX1		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
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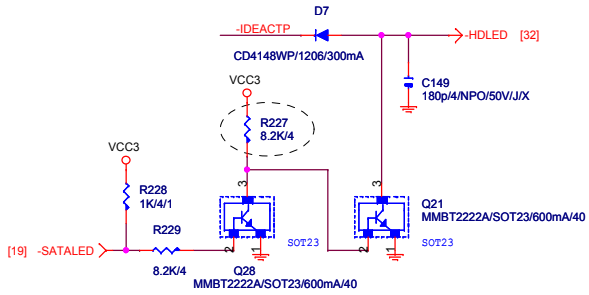
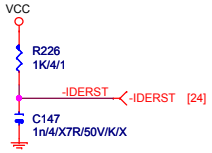
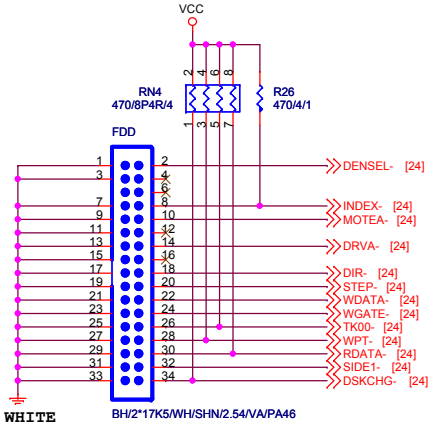
IDE/SATA LED



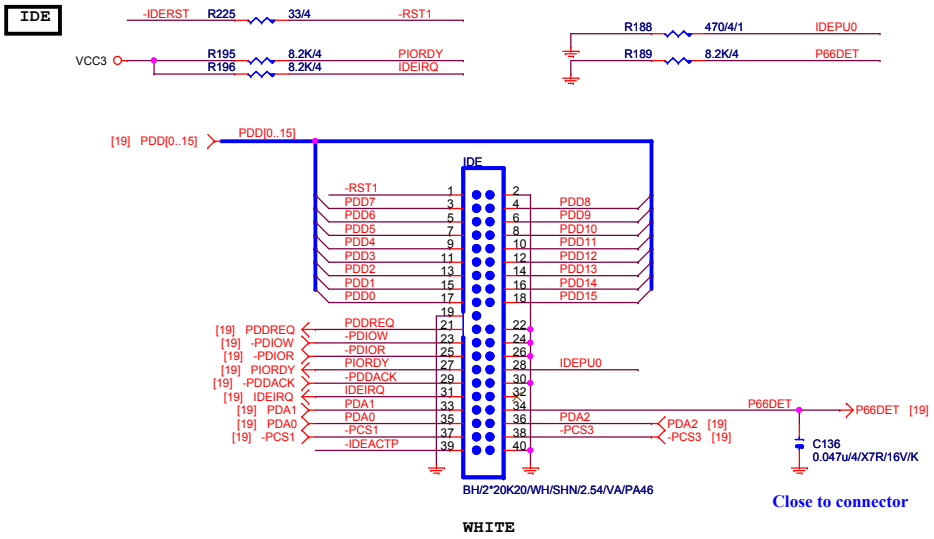
IDE RESET



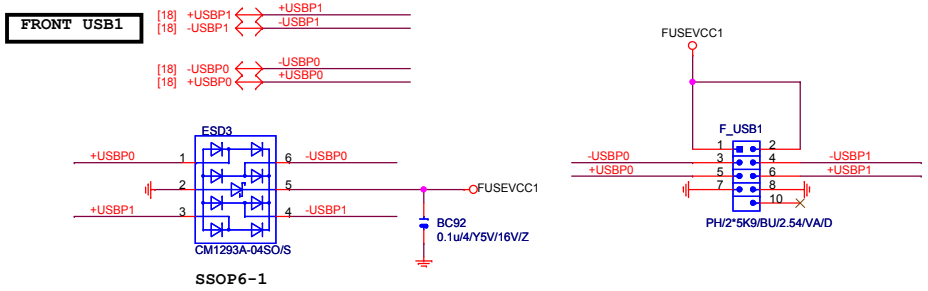
FLOPPY



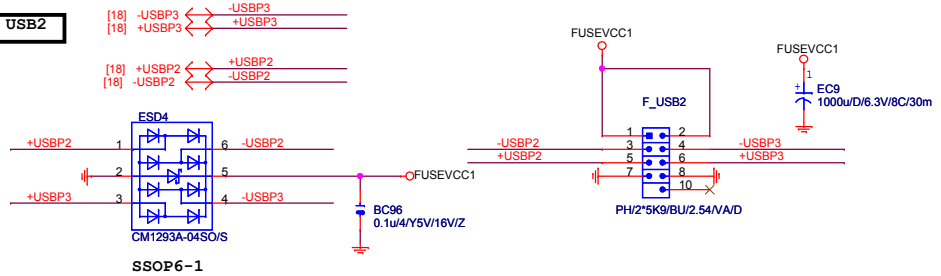
IDE

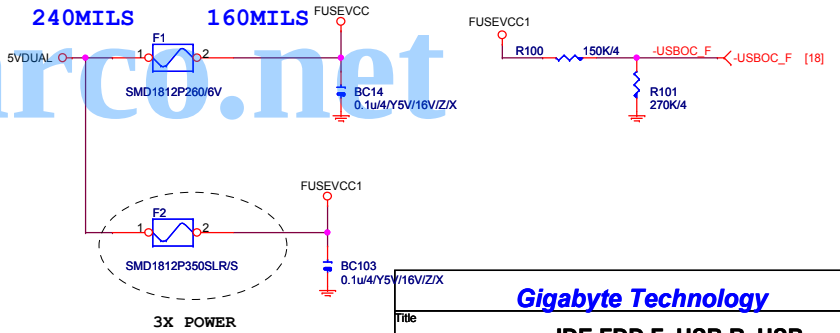


FRONT USB1



FRONT USB2





Gigabyte Technology

Title: IDE,FDD,F_USB,R_USB

Size: B | Document Number: GA-G41MT-ES2L | Rev: 1.3

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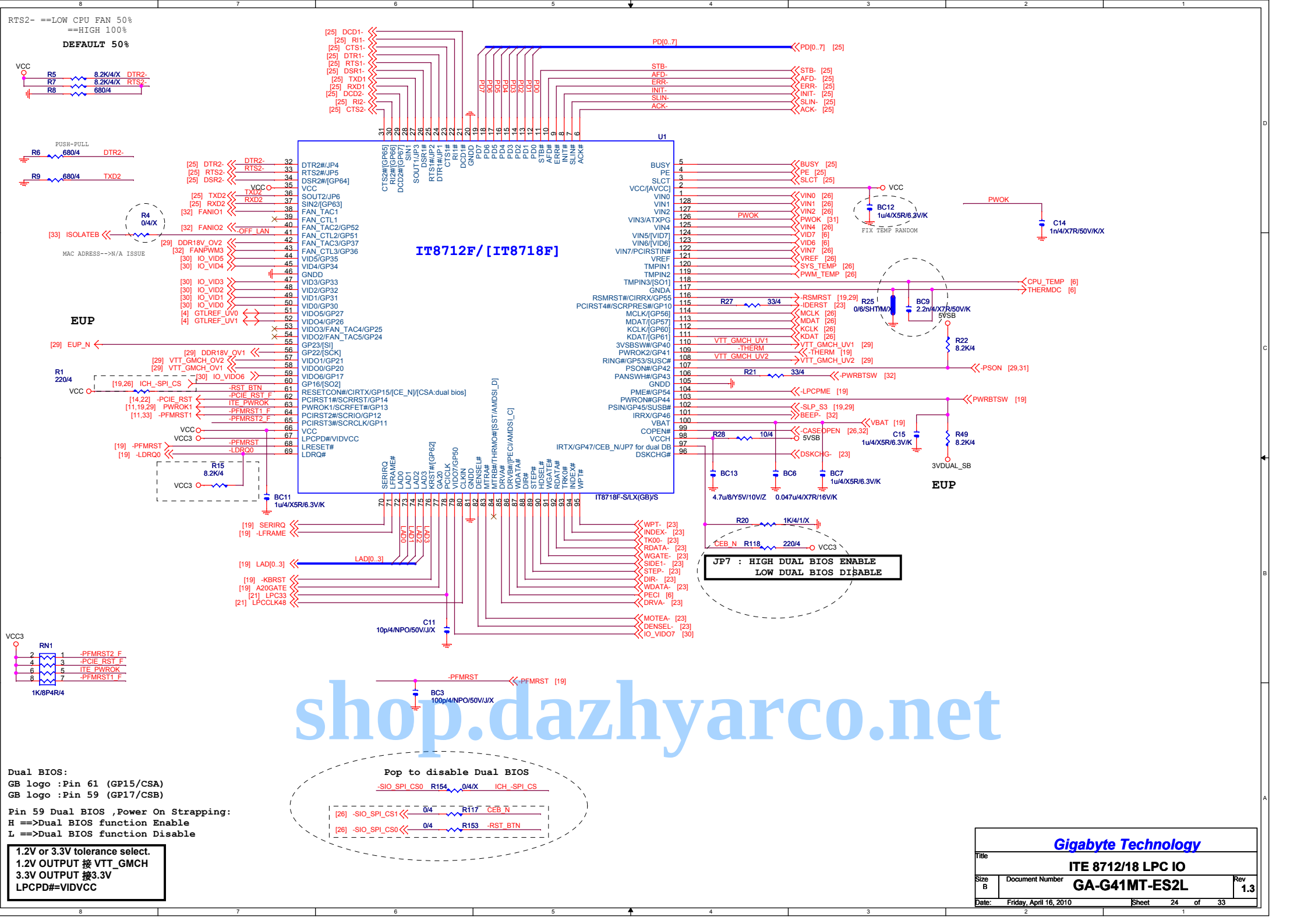
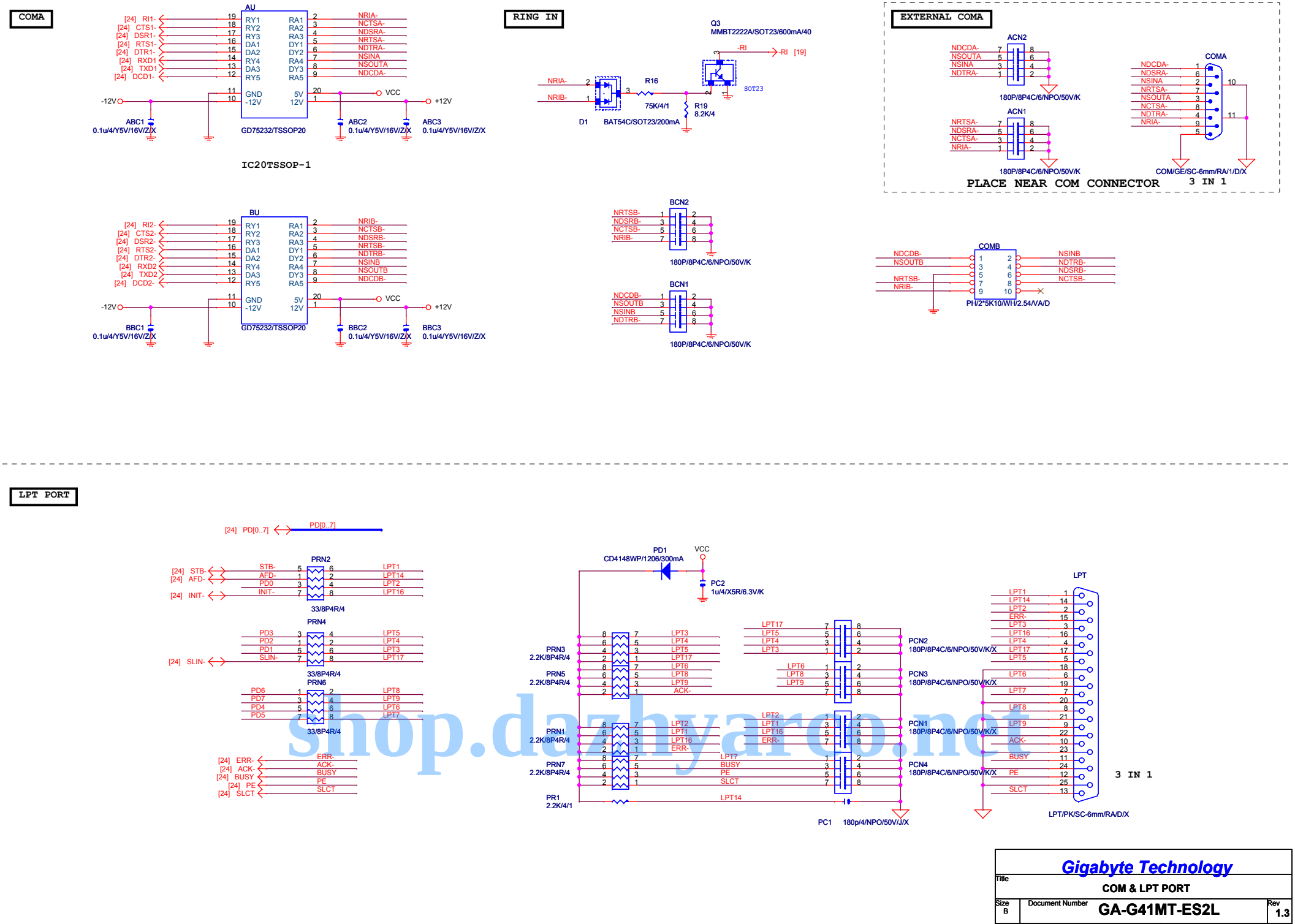
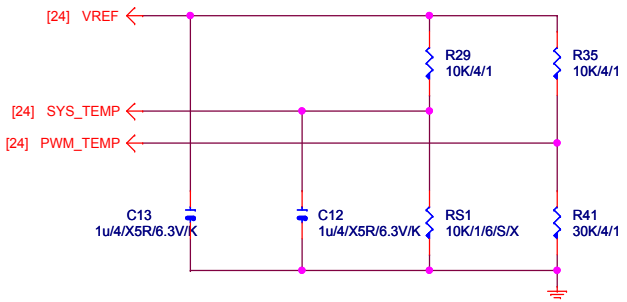
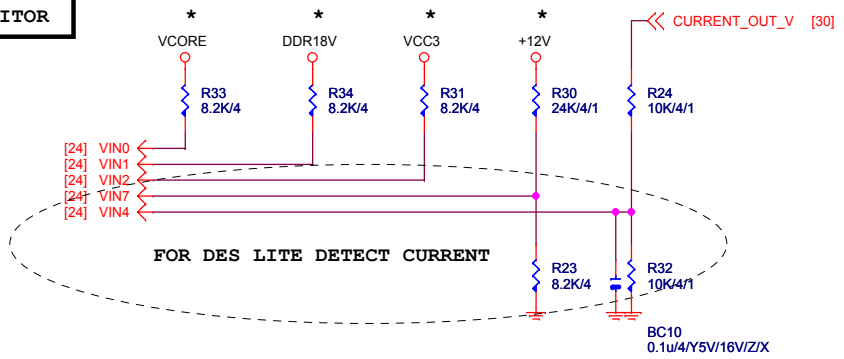




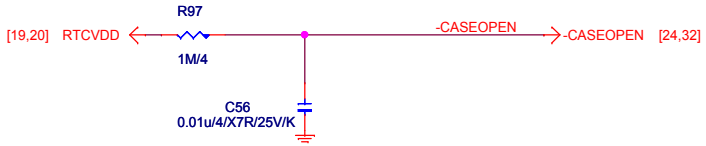
TEMP H/W MONITOR



VOLTAGE-- H/W MONITOR

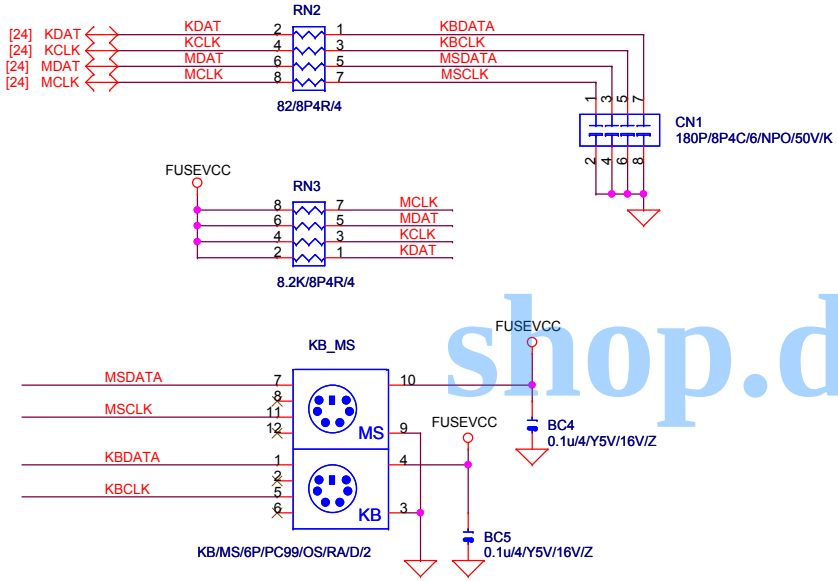


CASE OPEN

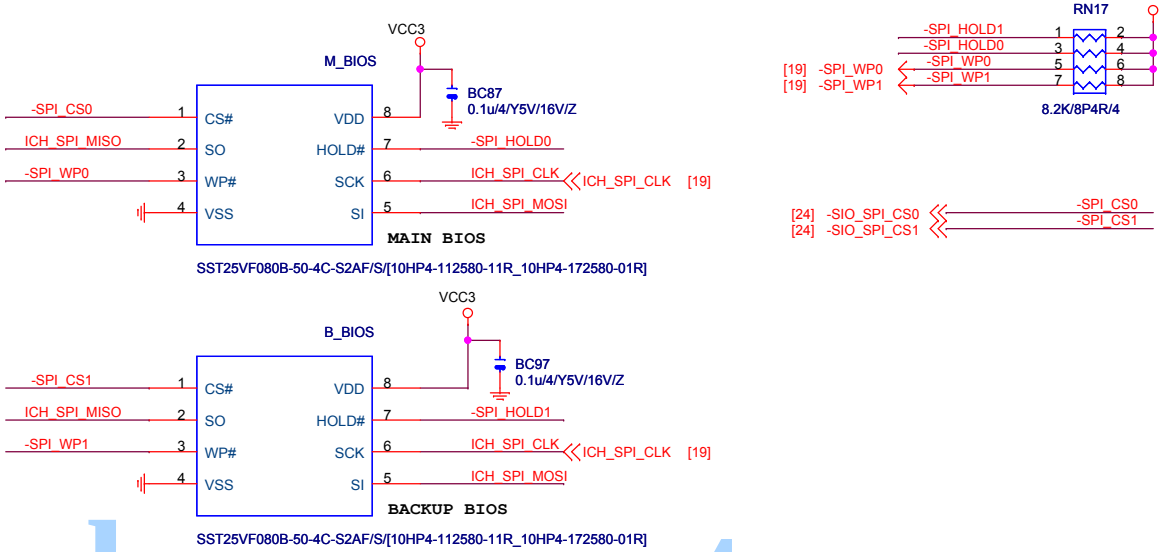


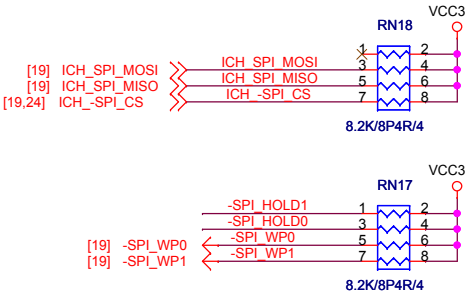
Case Open Circuits

KB/MS



DUAL BIOS





Gigabyte Technology		
Title: HW-MONITOR/CI/KB/MS/BIOS		
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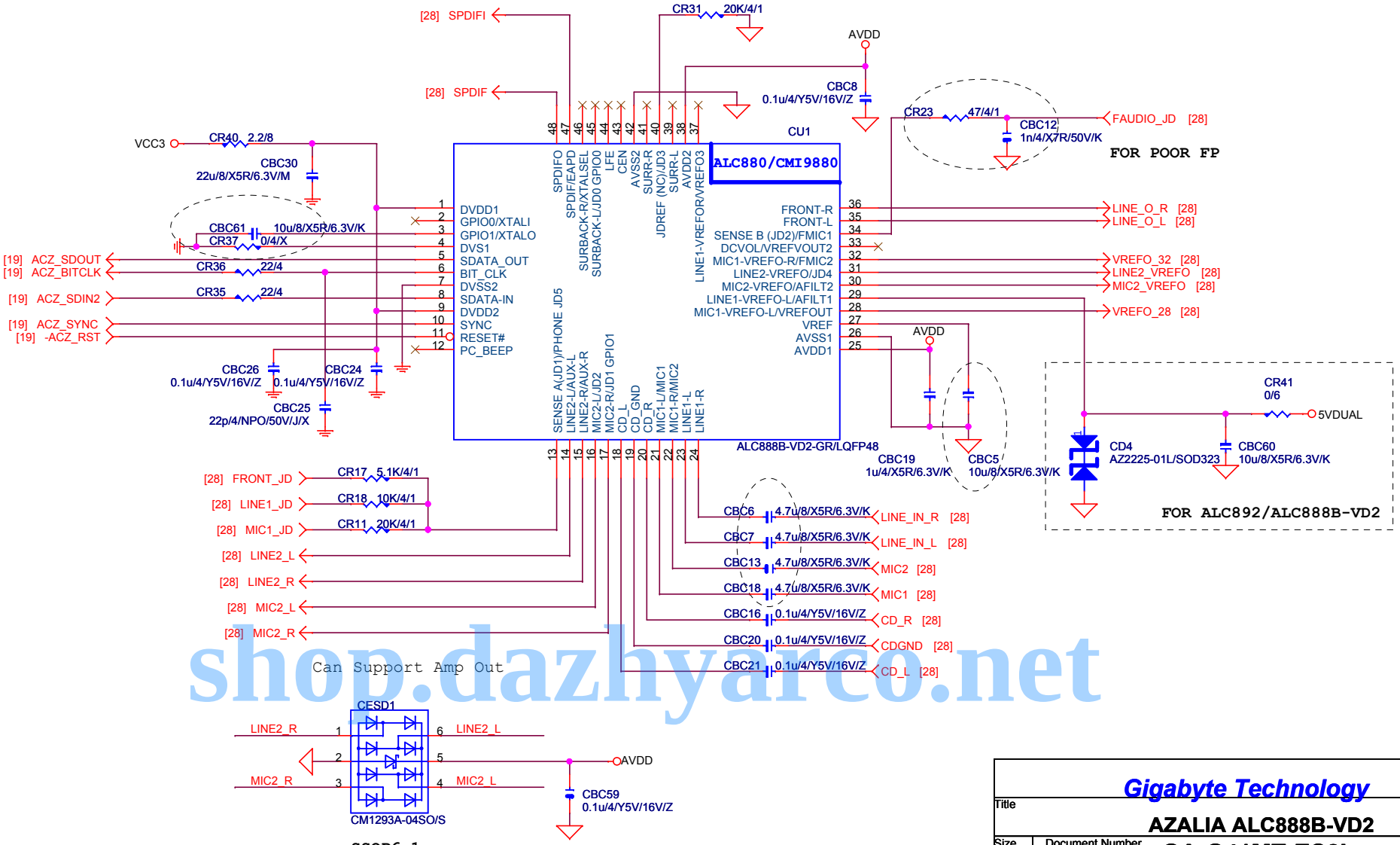
AZALIA CODEC

ONLY SUPPORT
ALC888B/ALC892R/ALC892/ALC887-VD



Gigabyte Technology		
Title: AZALIA ALC888B-VD2		
Size: Custom	Document Number: GA-G41MT-ES2L	Rev: 1.3
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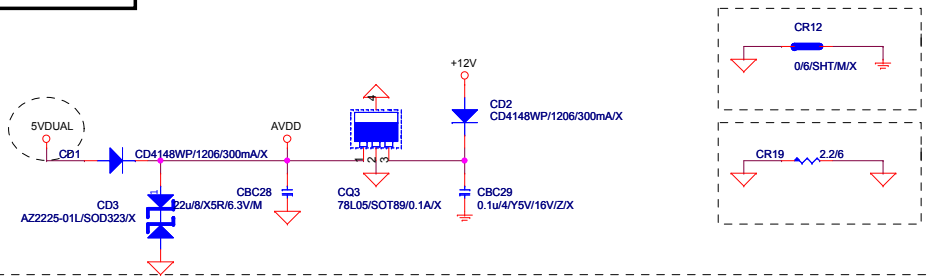
CODEC POWER/EMI PAD



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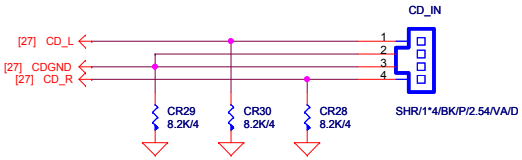
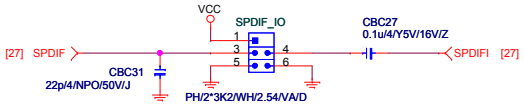
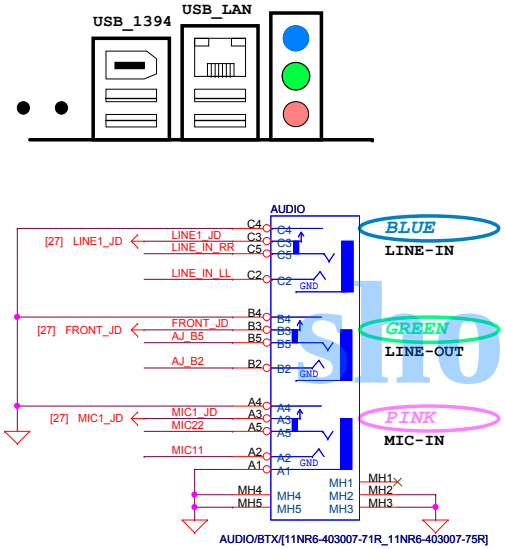


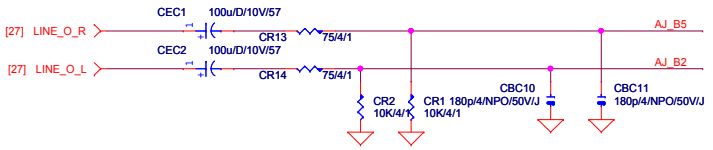
SPDIF IN



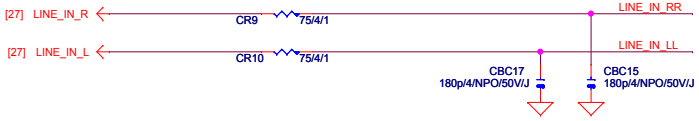
AZALIA JACK



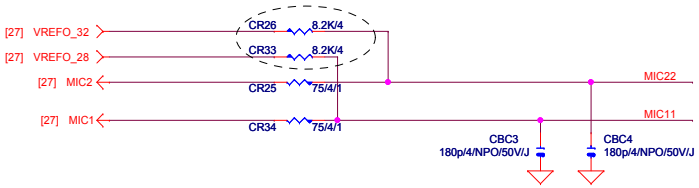
LINE-OUT



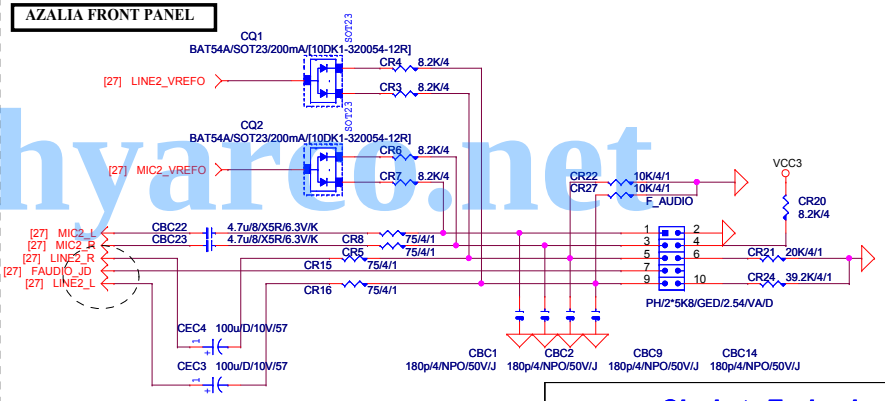
LINE-IN



MIC-IN



AZALIA FRONT PANEL



Gigabyte Technology

Title: AUDIO JACK

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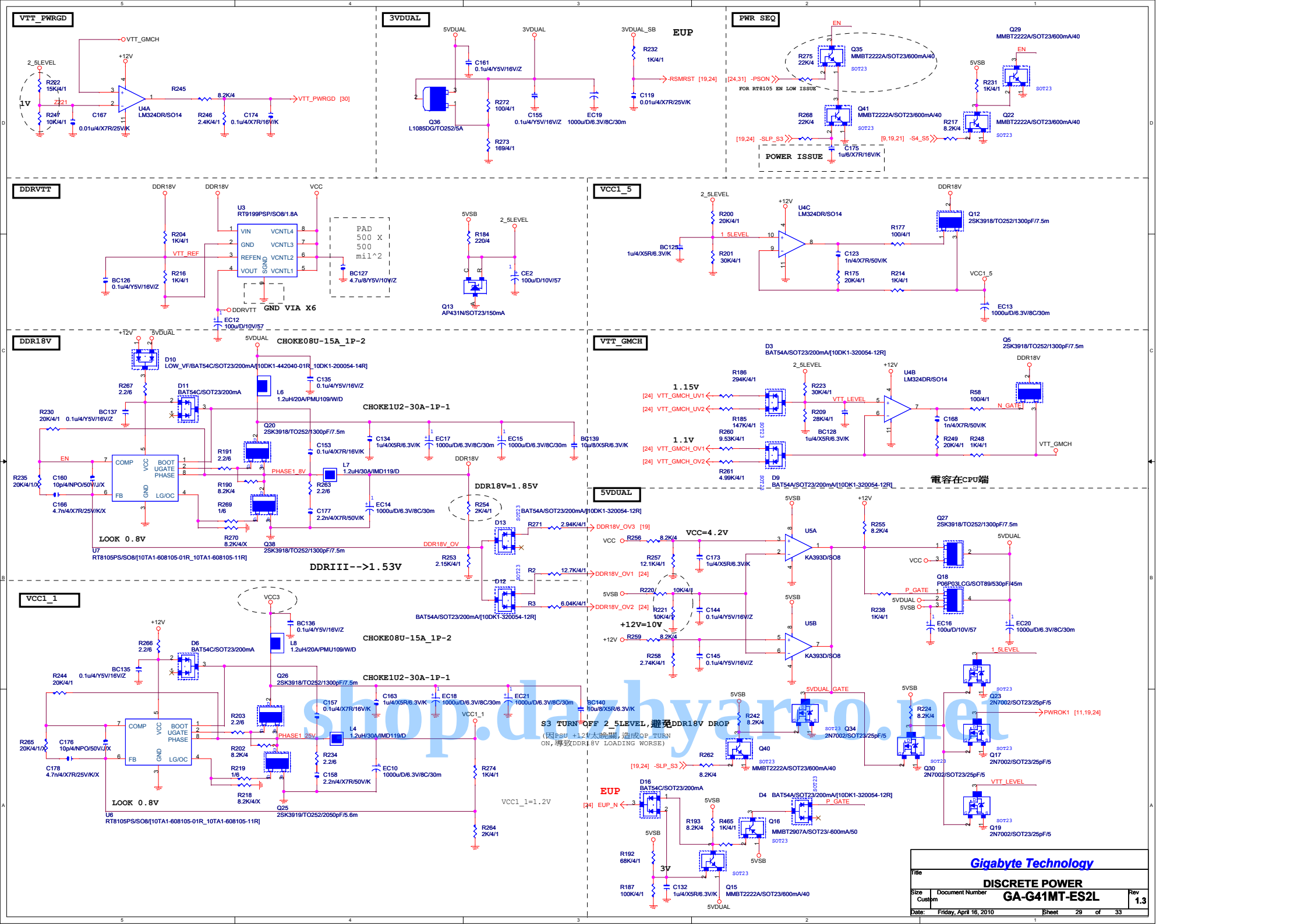
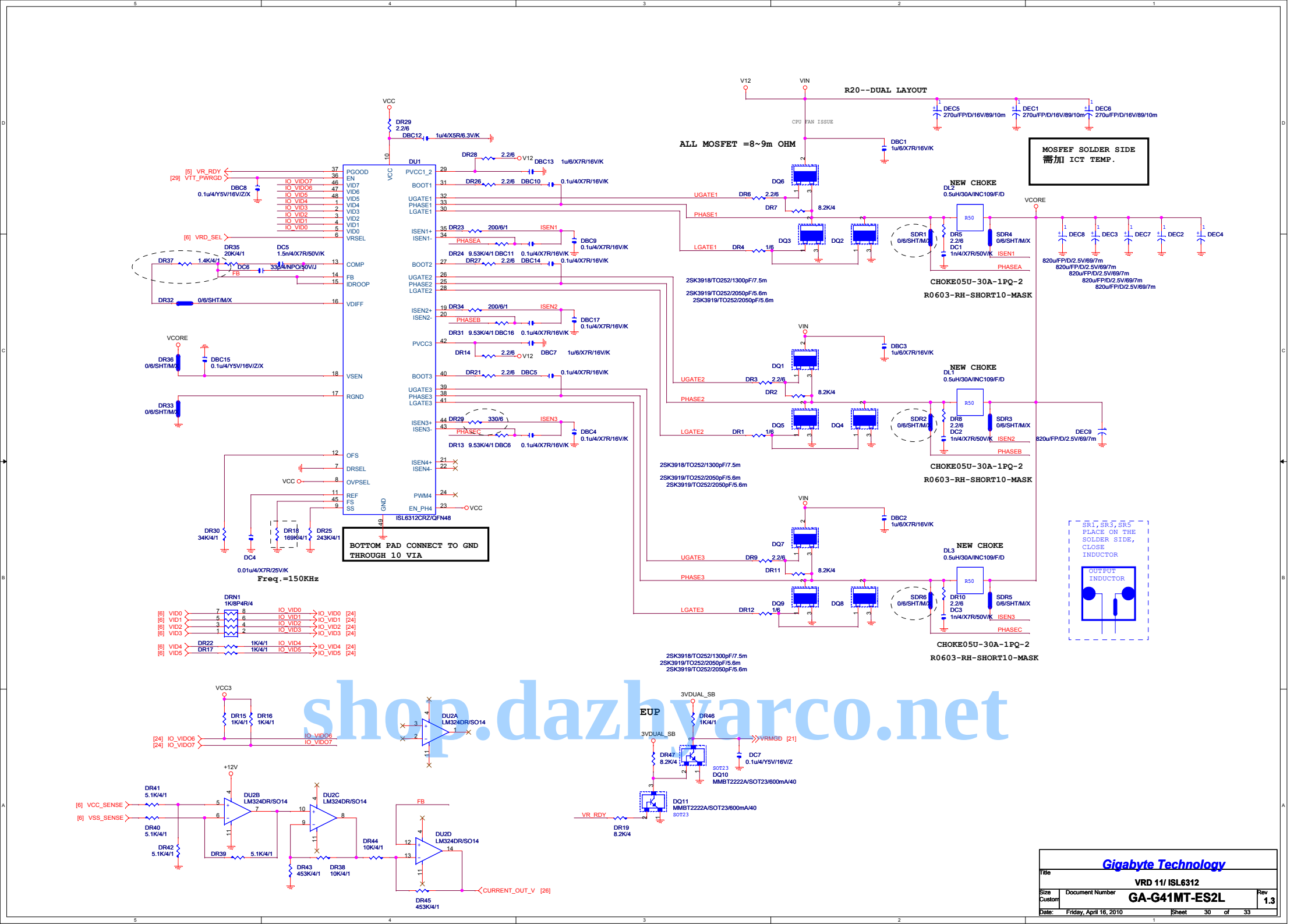
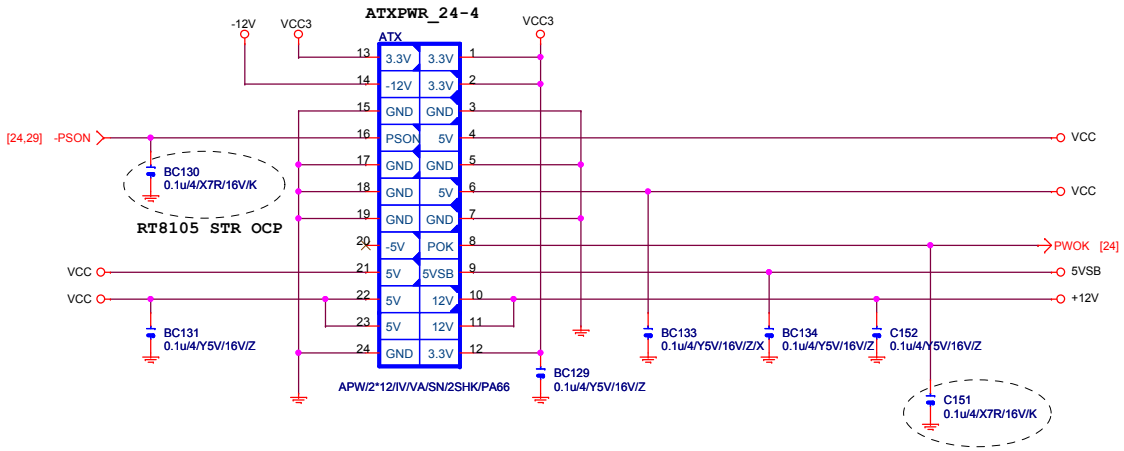
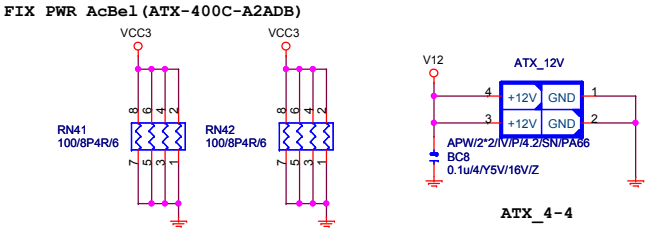
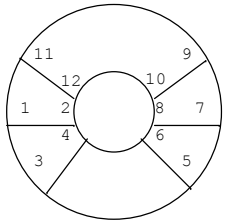


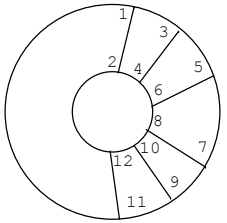


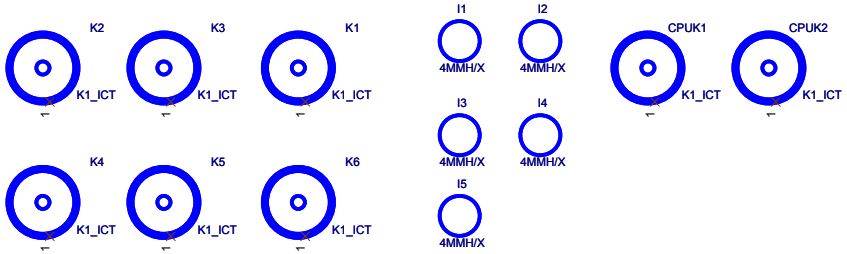
ATX POWER CONNECTOR

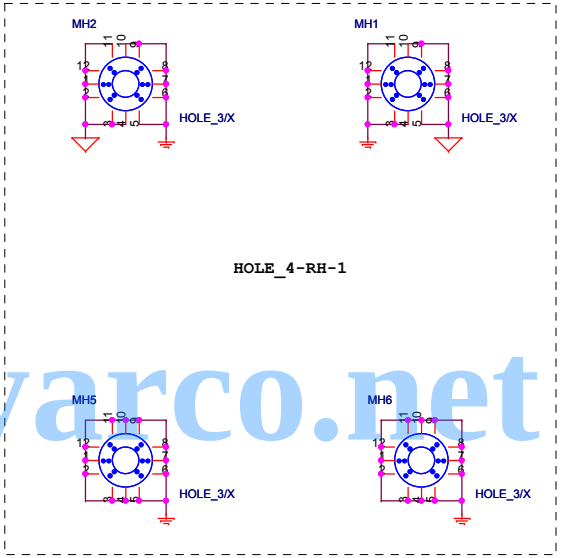


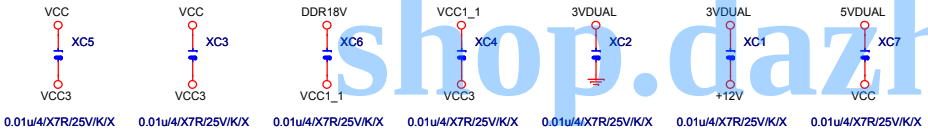












Gigabyte Technology			
Title: ATX POWER CONNECTOR			
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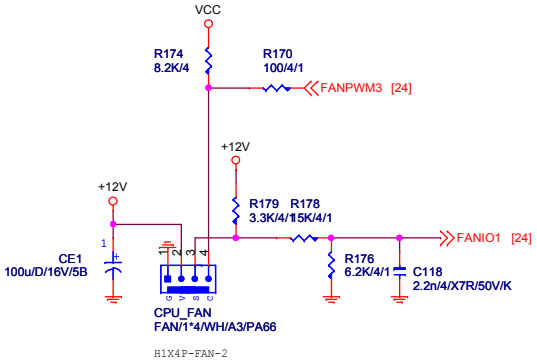
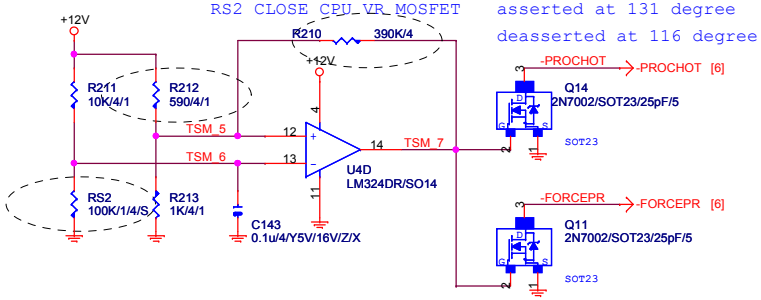
CPU SMART FAN

SMART FAN

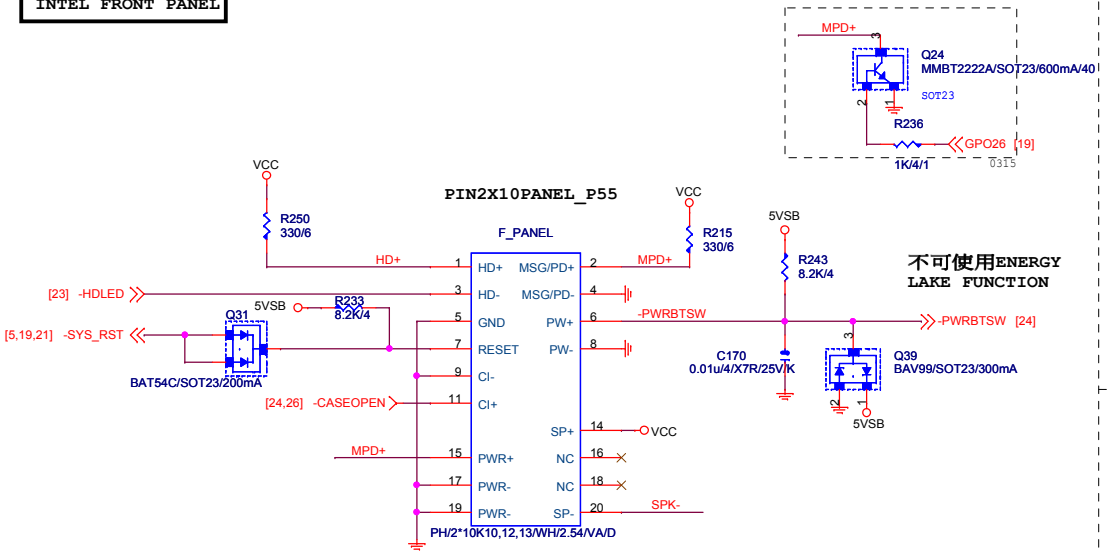


PROCESSOR HOT

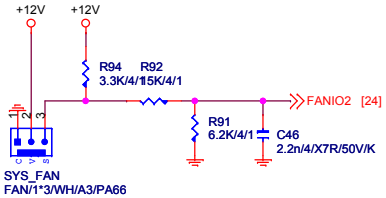
RS2 CLOSE CPU_VR_MOSFET asserted at 131 degree deasserted at 116 degree



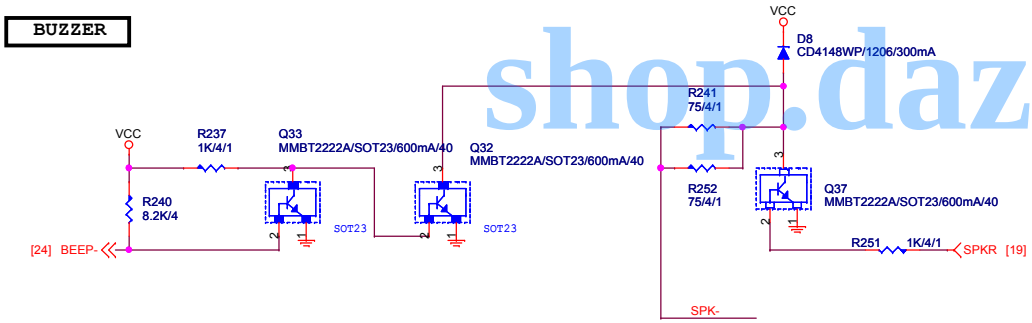
INTEL FRONT PANEL



SYS_FAN



BUZZER



Gigabyte Technology

Title: FRONT PANEL

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PCIE-1G LAN

XTAL2:外部CLK IN

[21] LAN25MCLK

LR16 2.49K/4/1

RSET需LAYOUT GND GUARD

VDD33

LR35 1K/4/1

LU1

RTL8111E-VB-GR/QFN48

FOR DSM MODE

(DEEP SLUMBER MODE)

LR39 0/6/SHT/M/X

ENABLE SW

ENSWREG

Dual Color LED

D4 D3 Green

D4 D3 Orange

Single Color LED

D2 D1 Yellow

LR23 1/6

LBC61 0.1u/4/Y5V/16V/Z

LBC62 4.7u/8/X5R/6.3V/K

LR40 8.2K/4

LR41 8.2K/4

LED_LINK1000

VDD10

-PCIE_WAKE [14,19,22]

ISOLATEB [24]

-PFMRST1 [11,24]

VCC3

LR33 1K/4/1

LR34 15K/4/1

P35-152-19W9

YELLOW ORANGE GREEN

(+,-) (-,+)

LR37 8.2K/4

LR38 8.2K/4

[18] ML_OP

[18] ML_ON

[21] SRCCLK_LAN

[21] -SRCCLK_LAN

[18] ML_IP

[18] ML_IN

LC3 0.1u/4/X7R/16V/K

LC4 0.1u/4/X7R/16V/K

CLOSE LAN CHIP

-PFMRST1 LBC34 100p/4/NPO/50V/J/X

3VDUAL

LEC7 100u/D/10V/57

LBC35 0.1u/4/Y5V/16V/Z

LBC36 0.1u/4/Y5V/16V/Z

LBC51 0.1u/4/Y5V/16V/Z

LBC66 0.1u/4/Y5V/16V/Z

LBC67 0.1u/4/Y5V/16V/Z

LBC70 0.1u/4/Y5V/16V/Z

VDD33

(CLOSE LU1)

VDD10

LBC69 0.1u/4/Y5V/16V/Z

LBC44 0.1u/4/Y5V/16V/Z

LBC45 0.1u/4/Y5V/16V/Z

LBC65 0.1u/4/Y5V/16V/Z

LBC47 0.1u/4/Y5V/16V/Z

LBC48 0.1u/4/Y5V/16V/Z

LBC50 0.1u/4/Y5V/16V/Z

(PIN3,6,9,13,29,41,45)

LL1 4.7uH/1A/[10LC3-5A470B-01R]

REGOUT

CLOSE LL1

VDD10

LBC64 4.7u/8/X5R/6.3V/K

LBC71 0.1u/4/Y5V/16V/Z

LFB3 0/6

EVDD10

LBC59 1u/4/X5R/6.3V/K

LBC57 0.1u/4/Y5V/16V/Z

(PIN21)

USB_LAN CONNECTOR

FOR EMI

LBC12 0.01u/4/X7R/25V/K/X

USB_LAN

P_MDI0+ P_MDI0- P_MDI1+ P_MDI1- P_MDI2+ P_MDI2- P_MDI3+ P_MDI3-

UP

DOWN

LBC20 0.01u/4/X7R/25V/K

USB+LAN/1G/GO,Y/OS/RA/D/1

3VDUAL

LFB2 0/6/SHT/M/X

LED_ACT_TXRX

LED_LINK100

LED_LINK1000

LR14 150/6

LR15 150/6/X

LR17 150/6/X

LBC19 0.1u/4/Y5V/16V/Z/X

P4- P4+ P5- P5+

RTL8111D(L) -->N/A

FUSEVCC

LBC7 0.1u/4/Y5V/16V/Z/X

USB_LAN

EMI

LR5 0/6/SHT/M/X

FUSEVCC

LR11 150K/4

-USBOC_R [18]

LEC1 1000u/D/6.3V/8C/30m

LR10 270K/4

P4+ +USBP4 [18]

P4- -USBP4 [18]

P5+ +USBP5 [18]

P5- -USBP5 [18]

Gigabyte Technology		
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