Model Name:GA-G41MT-S2P

Revision 1.31

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,PCIE*1,2
23	IDE/FLOPPY/F_USB/R_USB
24	ITE 8718 GB
25	COM_LPT
26	CI,HWM,KB/MS,DUALBIOS
27	VIA VT2021

SHEET	TITLE
28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM_ISL6312
31	ATX, OTHERS POWER
32	FRONT PANEL
33	ARTHEROS AR8151

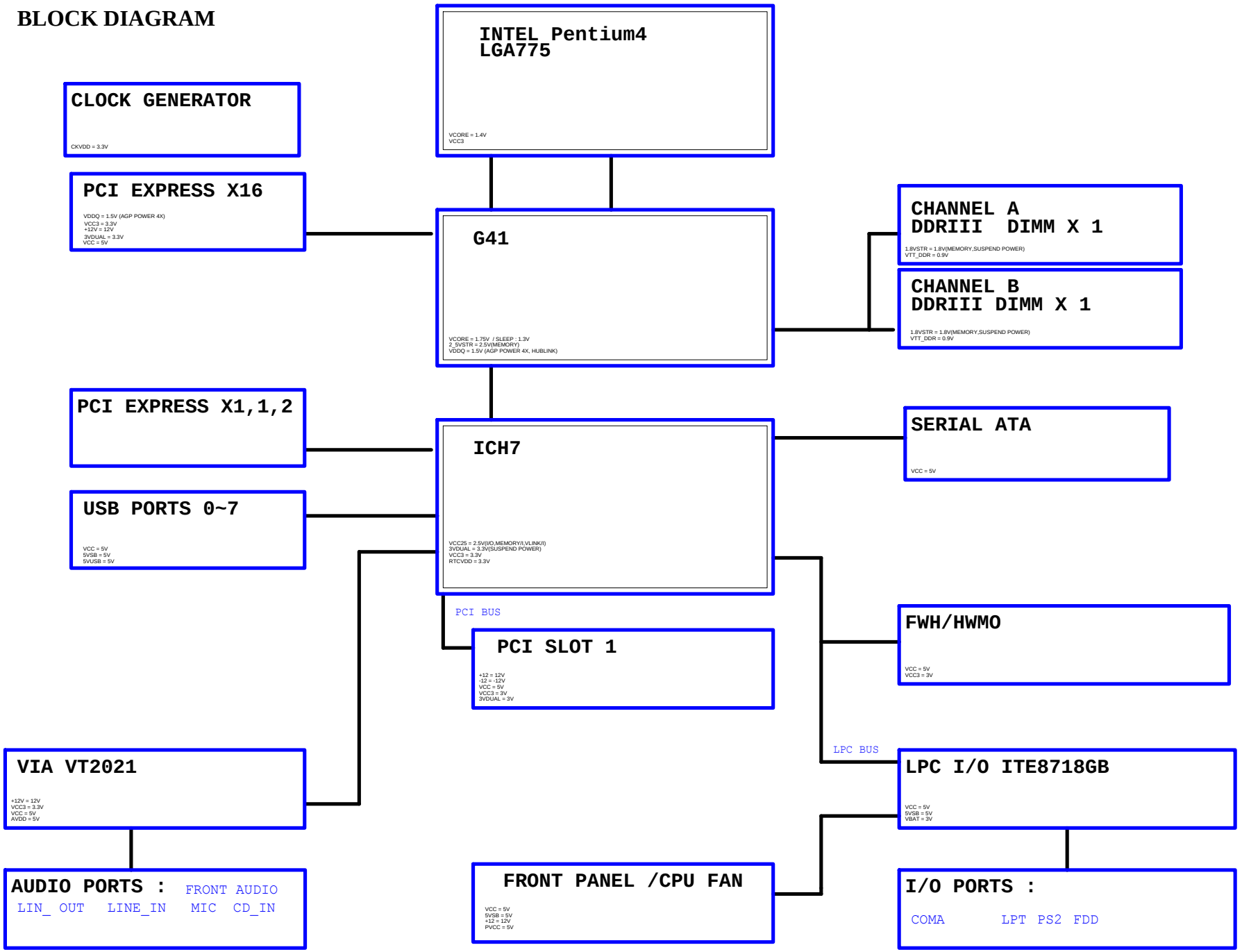
Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-G41MT-S2P | Rev: 1.31

Date: Thursday, December 23, 2010 | Sheet 1 of 33

BLOCK DIAGRAM



Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-G41MT-S2P | Rev: 1.31

Date: Thursday, December 23, 2010 | Sheet 2 of 33

Model Name:GA-G41MT-S2P

Version: 1.31

Component value change history

2010/12/23

Data	Change Item	Reason
2010/11/29	CHOKE 0.8U/35A非鍍面	
2010/12/01	MODIFY LAN AR8151	
2010/12/16	R1.31 MODIFY PWM LOAD LINE,TEMPERATE AVERAGE.CODEC VT2021.	
2010/12/20	PBOM.MODIFY 電解電容,NB_HS.	
2010/12/23	MODIFY -PROCHOT SETTING.	

Circuit or PCB layout change for next version

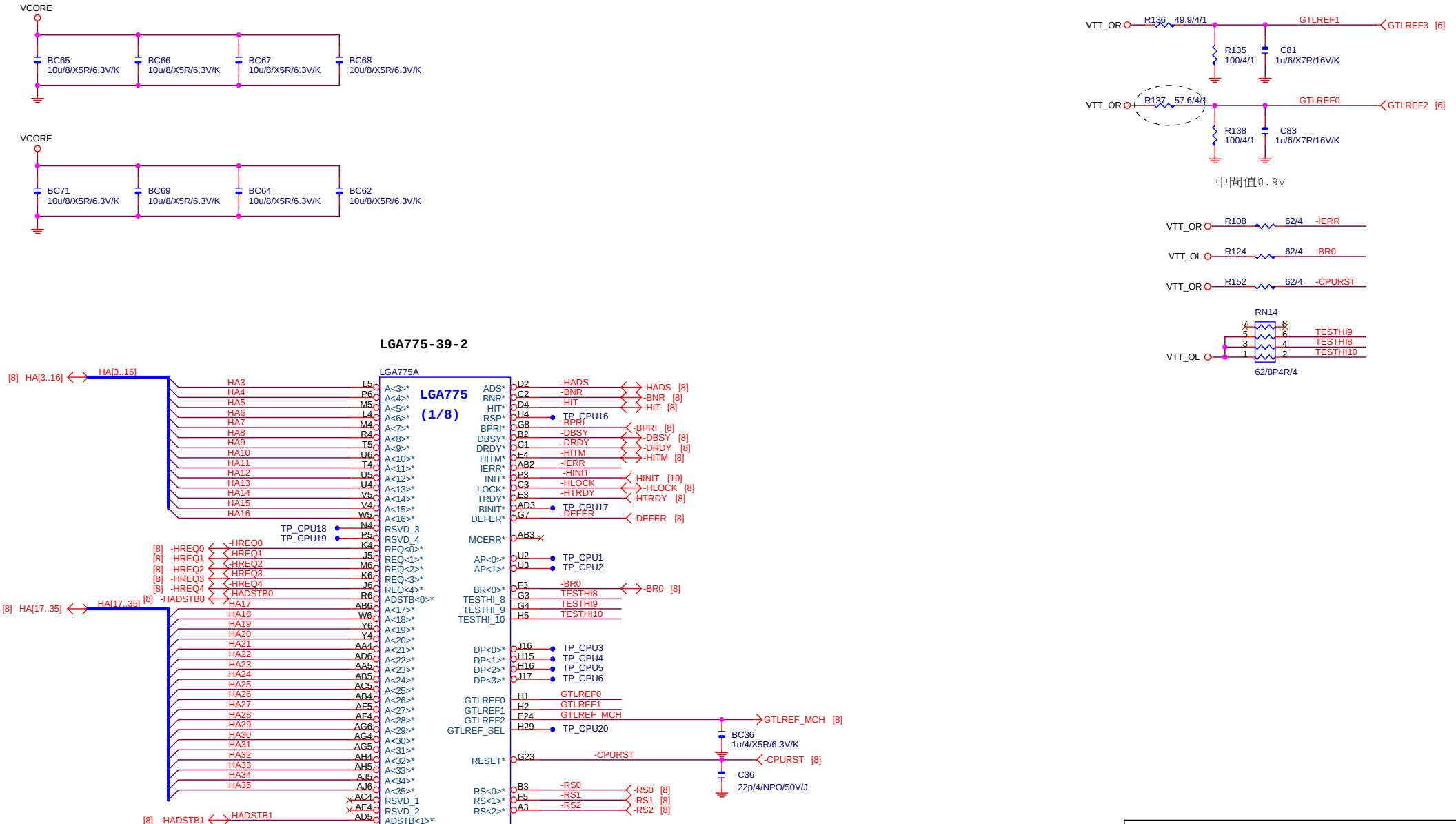
DATE	Change Item	Reason

Gigabyte Technology

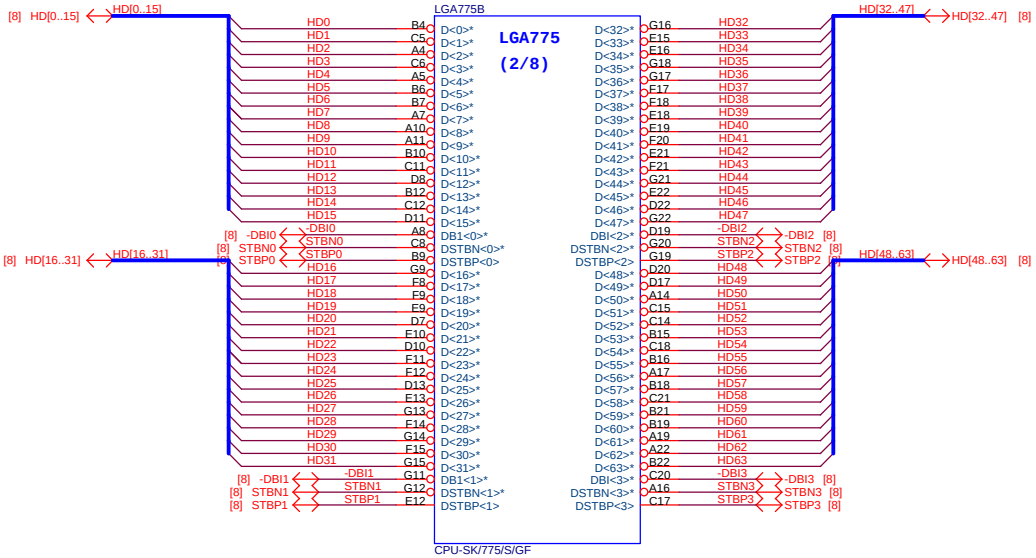
Title: BOM & PCB MODIFY HISTORY

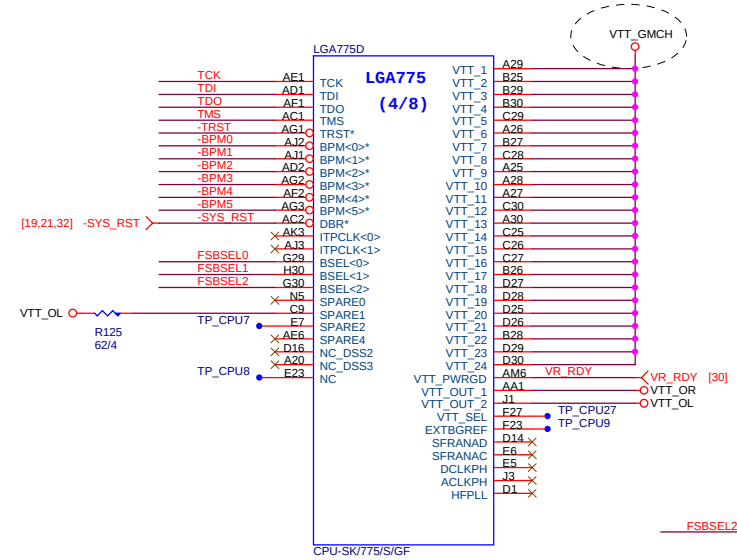
Size: Custom | Document Number: GA-G41MT-S2P | Rev: 1.31

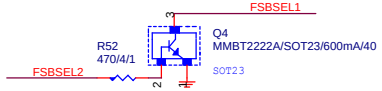
Date: Thursday, December 23, 2010 | Sheet 3 of 33



Gigabyte Technology			
Title: P4_LGA775-A			
Size: B	Document Number: GA-G41MT-S2P		Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 4 of 33		





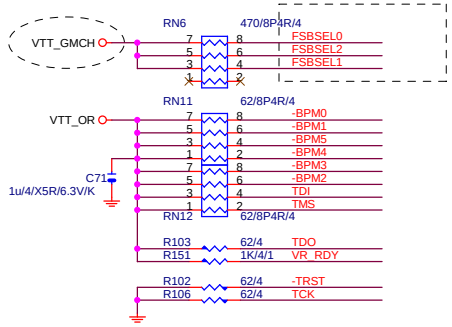


FIX FSB1600 LATCH FAIL

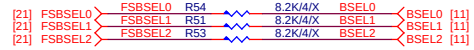
CPU

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

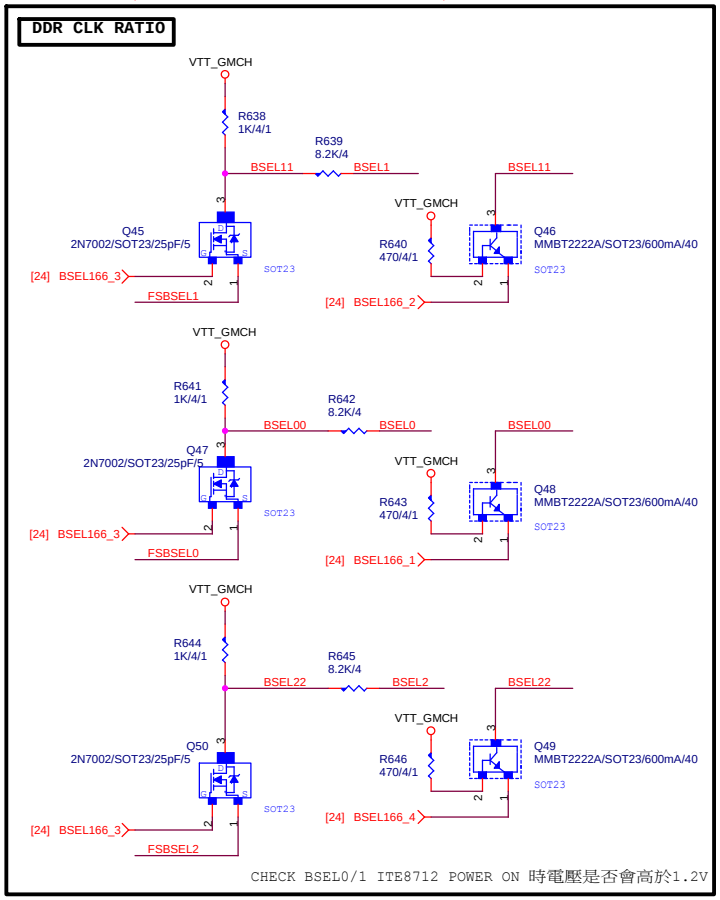
X



TO CLK GEN



TO NB



Gigabyte Technology	
Title	P4_LGA775-B,D
Size: Custom	Document Number: GA-G41MT-S2P
Rev	1.31
Date: Thursday, December 23, 2010	Sheet 5 of 33

Note:

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

Trace width doesn't less than 12 Mil

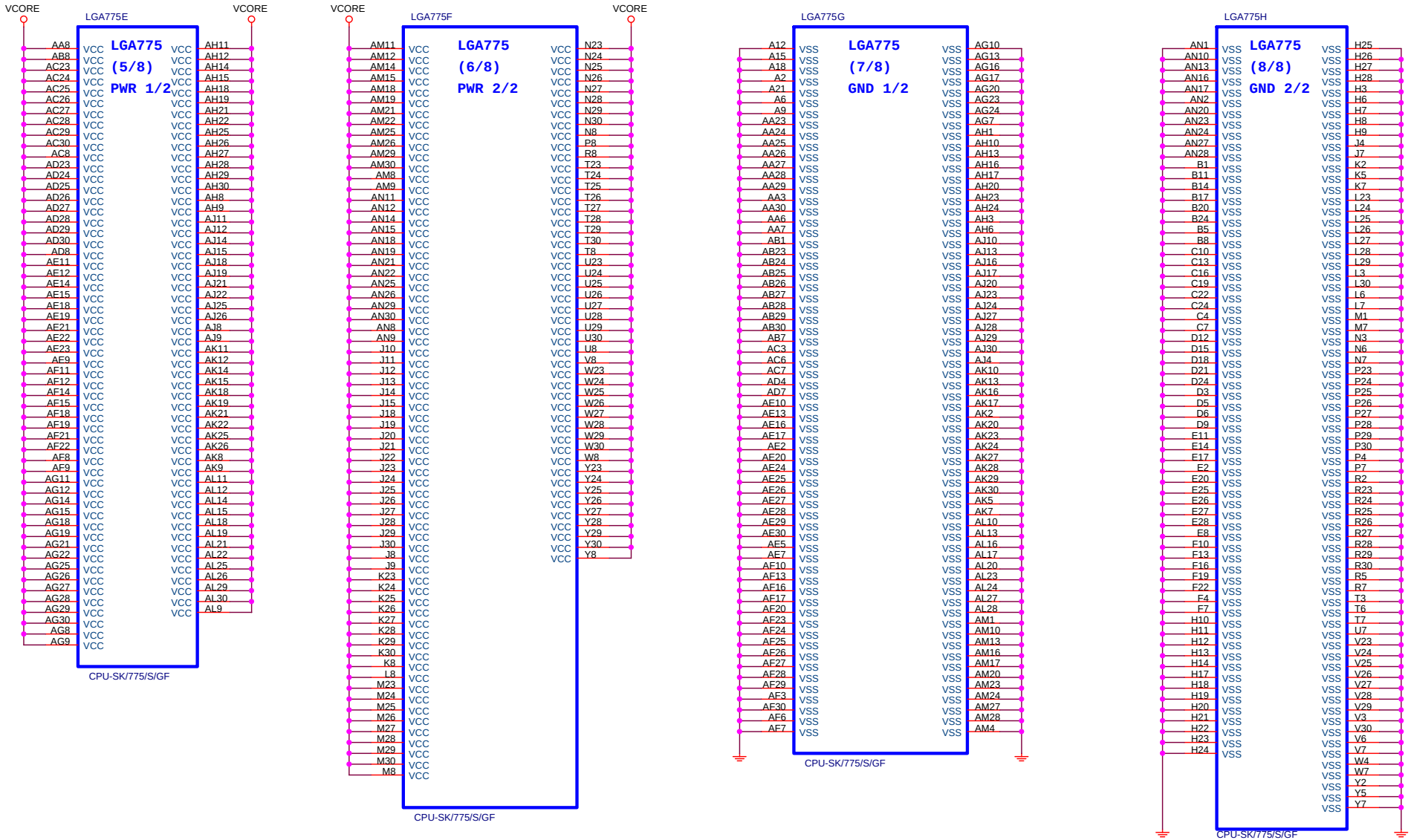
As close as possible to CPU socket

Place outside of CPU socket

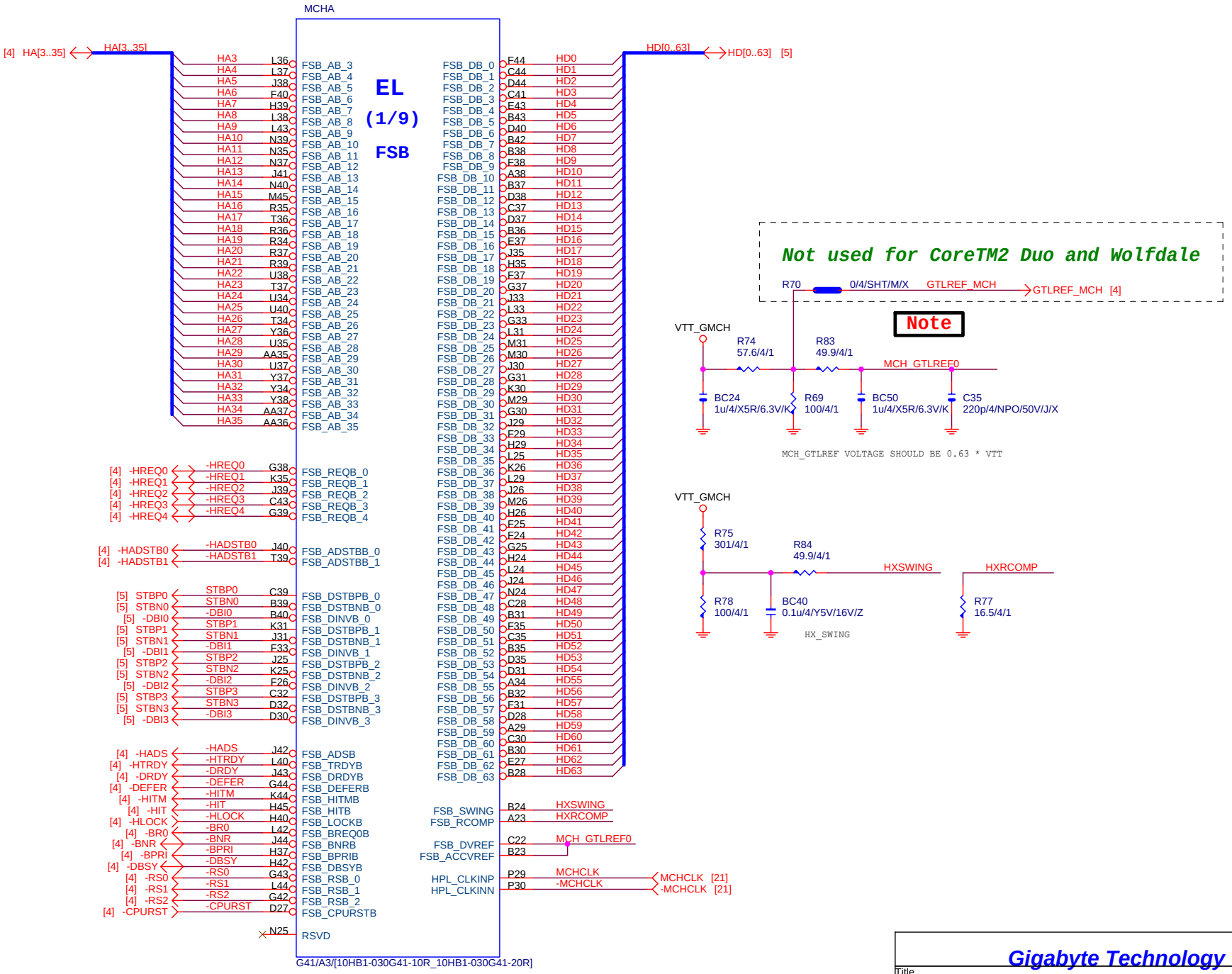
PECI:Platform Environment Control Interface

Title	P4_LGA775-C
Size	B
Document Number	GA-G41MT-S2P
Rev	1.31
Date:	Thursday, December 23, 2010
Sheet	6 of 33

Gigabyte Technology



Gigabyte Technology			
Title	P4_LGA775-E,F,G,H		
Size B	Document Number GA-G41MT-S2P		Rev 1.31
Date: Thursday, December 23, 2010	Sheet 7 of 33		



Gigabyte Technology

Title: GMCH-HOST

Size: Custom | Document Number: GA-G41MT-S2P | Rev: 1.31

Date: Thursday, December 23, 2010 | Sheet 8 of 33

MCHC

EL (3/9) DDR_A

MAAA1	BC41	DDR_A_MA_0	DDR_A_DQS_0	BC5	DQSA0
MAAA2	BC35	DDR_A_MA_1	DDR_A_DQSB_0	BD4	-DQSA0
MAAA3	BB32	DDR_A_MA_2	DDR_A_DM_0	BC3	DMA0
MAAA4	BC32	DDR_A_MA_3			
MAAA5	BD32	DDR_A_MA_4	DDR_A_DQ_0	BC2	MDA0
MAAA6	BB31	DDR_A_MA_5	DDR_A_DQ_1	BD3	MDA1
MAAA7	AY31	DDR_A_MA_6	DDR_A_DQ_2	BD7	MDA2
MAAA8	BA31	DDR_A_MA_7	DDR_A_DQ_3	BB7	MDA3
MAAA9	BD31	DDR_A_MA_8	DDR_A_DQ_4	BB2	MDA4
MAAA10	BD30	DDR_A_MA_9	DDR_A_DQ_5	BA3	MDA5
MAAA11	AW43	DDR_A_MA_10	DDR_A_DQ_6	BE6	MDA6
MAAA12	BC30	DDR_A_MA_11			
MAAA13	BB30	DDR_A_MA_12	DDR_A_DQ_7	BD6	MDA7
MAAA14	AM42	DDR_A_MA_13	DDR_A_DQS_1	BB9	DQSA1
	BD28	DDR_A_MA_14	DDR_A_DQSB_1	BC9	-DQSA1
	AW42	DDR_A_WE	DDR_A_DM_1	BD9	DMA1
[15] -SCASA	AU42	DDR_A_CASB	DDR_A_DQ_8	BB8	MDA8
[15] -SRASA	AV42	DDR_A_RASB	DDR_A_DQ_9	AY8	MDA9
			DDR_A_DQ_10	BD11	MDA10
			DDR_A_DQ_11	BB11	MDA11
			DDR_A_DQ_12	BC7	MDA12
			DDR_A_DQ_13	BE8	MDA13
			DDR_A_DQ_14	BD10	MDA14
			DDR_A_DQ_15	AY11	MDA15
[15] SBAA0	AV45	DDR_A_BS_0			
[15] SBAA1	AY44	DDR_A_BS_1			
[15] SBAA2	BC28	DDR_A_BS_2			
			DDR_A_DQS_2	BD15	DQSA2
[15] -CSA0	AU43	DDR_A_CSB_0	DDR_A_DQSB_2	BB15	-DQSA2
	AR40	DDR_A_CSB_1	DDR_A_DM_2	BD14	DMA2
	AU44	DDR_A_CSB_2			
	AM43	DDR_A_CSB_3			
			DDR_A_DQ_16	BB14	MDA16
[15] CKEA0	BB27	DDR_A_CKE_0	DDR_A_DQ_17	BC14	MDA17
[15] CKEA1	BD27	DDR_A_CKE_1	DDR_A_DQ_18	BC16	MDA18
	BA27	DDR_A_CKE_2	DDR_A_DQ_19	BB16	MDA19
	AY26	DDR_A_CKE_3	DDR_A_DQ_20	BC11	MDA20
			DDR_A_DQ_21	BE12	MDA21
[15] MODT_A0	AR42	DDR_A_ODT_0	DDR_A_DQ_22	BA15	MDA22
[15] MODT_A1	AM44	DDR_A_ODT_1	DDR_A_DQ_23	BD16	MDA23
	AR44	DDR_A_ODT_2			
	AL40	DDR_A_ODT_3			
			DDR_A_DQS_3	AR22	DQSA3
[15] DCLKA0	AY37	DDR_A_CK_0	DDR_A_DQSB_3	AT22	-DQSA3
[15] -DCLKA0	BA37	DDR_A_CKB_0	DDR_A_DM_3	AY22	DMA3
	AW29	DDR_A_CK_1			
	AY29	DDR_A_CKB_1			
[15] DCLKA2	AU37	DDR_A_CK_2	DDR_A_DQ_24	AW21	MDA24
[15] -DCLKA2	AV37	DDR_A_CKB_2	DDR_A_DQ_25	AY22	MDA25
	AU33	DDR_A_CK_3	DDR_A_DQ_26	AY24	MDA26
	AT33	DDR_A_CKB_3	DDR_A_DQ_27	AV24	MDA27
	AT30	DDR_A_CK_4	DDR_A_DQ_28	AU21	MDA28
	AR30	DDR_A_CKB_4	DDR_A_DQ_29	AT21	MDA29
	AW38	DDR_A_CK_5	DDR_A_DQ_30	AR24	MDA30
	AY38	DDR_A_CKB_5	DDR_A_DQ_31	AU24	MDA31
			DDR_A_DQS_4	AH43	DQSA4
			DDR_A_DQSB_4	AH42	-DQSA4
			DDR_A_DM_4	AK42	DMA4
			DDR_A_DQ_32	AL41	MDA32
			DDR_A_DQ_33	AK43	MDA33
			DDR_A_DQ_34	AG42	MDA34
			DDR_A_DQ_35	AG44	MDA35
			DDR_A_DQ_36	AL42	MDA36
			DDR_A_DQ_37	AK44	MDA37
			DDR_A_DQ_38	AH44	MDA38
			DDR_A_DQ_39	AG41	MDA39
			DDR_A_DQS_5	AD43	DQSA5
			DDR_A_DQSB_5	AE42	-DQSA5
			DDR_A_DM_5	AE45	DMA5
			DDR_A_DQ_40	AF43	MDA40
			DDR_A_DQ_41	AF42	MDA41
			DDR_A_DQ_42	AC44	MDA42
			DDR_A_DQ_43	AC42	MDA43
			DDR_A_DQ_44	AF40	MDA44
			DDR_A_DQ_45	AF44	MDA45
			DDR_A_DQ_46	AD44	MDA46
			DDR_A_DQ_47	AC41	MDA47
			DDR_A_DQS_6	Y43	DQSA6
			DDR_A_DQSB_6	Y42	-DQSA6
			DDR_A_DM_6	AA45	DMA6
			DDR_A_DQ_48	AB43	MDA48
			DDR_A_DQ_49	AA42	MDA49
			DDR_A_DQ_50	W42	MDA50
			DDR_A_DQ_51	W41	MDA51
			DDR_A_DQ_52	AB42	MDA52
			DDR_A_DQ_53	AB44	MDA53
			DDR_A_DQ_54	Y44	MDA54
			DDR_A_DQ_55	Y40	MDA55
			DDR_A_DQS_7	T44	DQSA7
			DDR_A_DQSB_7	T43	-DQSA7
			DDR_A_DM_7	T42	DMA7
			DDR_A_DQ_56	V42	MDA56
			DDR_A_DQ_57	U45	MDA57
			DDR_A_DQ_58	R40	MDA58
			DDR_A_DQ_59	P44	MDA59
			DDR_A_DQ_60	V44	MDA60
			DDR_A_DQ_61	V43	MDA61
			DDR_A_DQ_62	R41	MDA62
			DDR_A_DQ_63	R44	MDA63

G41/A3/[10HB1-030G41-10R_10HB1-030G41-20R]

MCHD

EL (4/9) DDR_B

MAAB0	BD24	DDR_B_MA_0	DDR_B_DQS_0	AW8	DQSB0
MAAB1	BB23	DDR_B_MA_1	DDR_B_DQSB_0	AW9	-DQSB0
MAAB2	BB24	DDR_B_MA_2	DDR_B_DM_0	AY6	DMB0
MAAB3	BD23	DDR_B_MA_3			
MAAB4	BB22	DDR_B_MA_4	DDR_B_DQ_0	AV7	MDB0
MAAB5	BD22	DDR_B_MA_5	DDR_B_DQ_1	AW4	MDB1
MAAB6	BC22	DDR_B_MA_6	DDR_B_DQ_2	BA9	MDB2
MAAB7	BC20	DDR_B_MA_7	DDR_B_DQ_3	AU11	MDB3
MAAB8	BB20	DDR_B_MA_8	DDR_B_DQ_4	AU7	MDB4
MAAB9	BD20	DDR_B_MA_9	DDR_B_DQ_5	AU8	MDB5
MAAB10	BC26	DDR_B_MA_10	DDR_B_DQ_6	AW7	MDB6
MAAB11	BD19	DDR_B_MA_11	DDR_B_DQ_7	AY9	MDB7
MAAB12	BB19	DDR_B_MA_12			
MAAB13	BE38	DDR_B_MA_13	DDR_B_DQS_1	AT15	DQSB1
MAAB14	BA19	DDR_B_MA_14	DDR_B_DQSB_1	AU15	-DQSB1
			DDR_B_DM_1	AR15	DMB1
			DDR_B_DQ_8	AY13	MDB8
			DDR_B_DQ_9	AP15	MDB9
			DDR_B_DQ_10	AW15	MDB10
			DDR_B_DQ_11	AT16	MDB11
			DDR_B_DQ_12	AU13	MDB12
			DDR_B_DQ_13	AW13	MDB13
			DDR_B_DQ_14	AP16	MDB14
			DDR_B_DQ_15	AU16	MDB15
[16] -SWEB	BD35	DDR_B_WEB			
[16] -SCASB	BC37	DDR_B_CASB	DDR_B_DQS_2	AR20	DQSB2
[16] -SRASB	BD35	DDR_B_RASB	DDR_B_DQSB_2	AR17	-DQSB2
			DDR_B_DM_2	AU17	DMB2
[16] SBAB0	BD26	DDR_B_BS_0			
[16] SBAB1	BB26	DDR_B_BS_1			
[16] SBAB2	BD18	DDR_B_BS_2			
			DDR_B_DQ_16	AY17	MDB16
[16] -CSB0	BB35	DDR_B_CSB_0	DDR_B_DQ_17	AV17	MDB17
[16] -CSB1	BD39	DDR_B_CSB_1	DDR_B_DQ_18	AR21	MDB18
	BB37	DDR_B_CSB_2	DDR_B_DQ_19	AV20	MDB19
	BD40	DDR_B_CSB_3	DDR_B_DQ_20	AP17	MDB20
			DDR_B_DQ_21	AW16	MDB21
[16] CKEB0	BC18	DDR_B_CKE_0	DDR_B_DQ_22	AT20	MDB22
[16] CKEB1	AY20	DDR_B_CKE_1	DDR_B_DQ_23	AN20	MDB23
	BE17	DDR_B_CKE_2			
	BB18	DDR_B_CKE_3			
[16] MODT_B0	BD37	DDR_B_ODT_0			
[16] MODT_B1	BC39	DDR_B_ODT_1			
	BB38	DDR_B_ODT_2			
	BD42	DDR_B_ODT_3			
			DDR_B_DQS_3	AU26	DQSB3
[16] DCLKB0	AY33	DDR_B_CK_0	DDR_B_DQSB_3	AT26	-DQSB3
[16] -DCLKB0	AW33	DDR_B_CKB_0	DDR_B_DM_3	AV25	DMB3
	AV31	DDR_B_CK_1			
	AW31	DDR_B_CKB_1			
[16] DCLKB2	AW35	DDR_B_CK_2	DDR_B_DQ_24	AT25	MDB24
[16] -DCLKB2	AY35	DDR_B_CKB_2	DDR_B_DQ_25	AV26	MDB25
	AT31	DDR_B_CK_3	DDR_B_DQ_26	AU29	MDB26
	AU33	DDR_B_CKB_3	DDR_B_DQ_27	AV29	MDB27
	AP31	DDR_B_CK_4	DDR_B_DQ_28	AW25	MDB28
	AP30	DDR_B_CKB_4	DDR_B_DQ_29	AR25	MDB29
	AW37	DDR_B_CK_5	DDR_B_DQ_30	AP26	MDB30
	AV35	DDR_B_CKB_5	DDR_B_DQ_31	AR29	MDB31
			DDR_B_DQS_4	AR38	DQSB4
			DDR_B_DQSB_4	AR37	-DQSB4
			DDR_B_DM_4	AU39	DMB4
			DDR_B_DQ_32	AR36	MDB32
			DDR_B_DQ_33	AU38	MDB33
			DDR_B_DQ_34	AN35	MDB34
			DDR_B_DQ_35	AN37	MDB35
			DDR_B_DQ_36	AV39	MDB36
			DDR_B_DQ_37	AW39	MDB37
			DDR_B_DQ_38	AU40	MDB38
			DDR_B_DQ_39	AU41	MDB39
[15] -CSA1	AR43	DDR3_A_CSB1	DDR_B_DQS_5	AK34	DQSB5
MAAA0	BB40	DDR3_A_MA0	DDR_B_DQSB_5	AL34	-DQSB5
[15] -SWEA	AT44	DDR3_A_WEB	DDR_B_DM_5	AL37	DMB5
	AV40	DDR3_B_ODT3			
DDR3_PWROK	AR6	DDR3_DRAM_PWROK			
[15,16] DDR3_RST	BC24	DDR3_DRAMRSTB			
			DDR_B_DQ_40	AL35	MDB40
			DDR_B_DQ_41	AL36	MDB41
			DDR_B_DQ_42	AK36	MDB42
			DDR_B_DQ_43	AJ34	MDB43
			DDR_B_DQ_44	AN39	MDB44
			DDR_B_DQ_45	AN40	MDB45
			DDR_B_DQ_46	AK37	MDB46
			DDR_B_DQ_47	AL39	MDB47
			DDR_B_DQS_6	AF37	DQSB6
			DDR_B_DQSB_6	AF36	-DQSB6
			DDR_B_DM_6	AJ35	DMB6
			DDR_B_DQ_48	AJ38	MDB48
			DDR_B_DQ_49	AJ37	MDB49
			DDR_B_DQ_50	AF38	MDB50
			DDR_B_DQ_51	AE37	MDB51
			DDR_B_DQ_52	AK40	MDB52
			DDR_B_DQ_53	AJ40	MDB53
			DDR_B_DQ_54	AF34	MDB54
			DDR_B_DQS_7	AE35	MDB55
			DDR_B_DQSB_7	AB35	DQSB7
				AD35	-DQSB7
			DDR_B_DM_7	AD37	DMB7
			DDR_B_DQ_56	AD40	MDB56
			DDR_B_DQ_57	AD38	MDB57
			DDR_B_DQ_58	AB40	MDB58
			DDR_B_DQ_59	AA39	MDB59
			DDR_B_DQ_60	AE36	MDB60
			DDR_B_DQ_61	AE39	MDB61
			DDR_B_DQ_62	AB37	MDB62
			DDR_B_DQ_63	AB38	MDB63
MCH_VREF	BB44	DDR_VREF			
MCH_DDR_RPD	AY42	DDR_RPD			
MCH_DDR_RPU	BA43	DDR_RPU			
MCH_DDR_SPD	BC43	DDR_SPD			
MCH_DDR_SPU	BC44	DDR_SPU			
	AN29	RSVD			
	AN30	RSVD			
	AJ33	RSVD			
	AK33	RSVD			

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
SOT23
Q42 2N7002/SOT23/25pF/5

R468 8.2K/4
[19,21,29] -S4_S5
SOT23
Q43 MMBT2222A/SOT23/600mA/40

DDR18V
R120 MCH_DDR_SPU
BC90 80.6/4/1 1u/4/X5R/6.3V/K

R119 MCH_DDR_SPD 249/4/1

DDR18V
R115 MCH_DDR_RPU
BC88 80.6/4/1 1u/4/X5R/6.3V/K

R110 MCH_DDR_RPD 80.6/4/1

DDR18V
R121 1K/4/1
MCH_VREF
C75 1u/4/X5R/6.3V/K
R116 1K/4/1
BC86 0.1u/4/Y5V/16V/Z

MDA[0..63] <> MDA[0..63] [15]
MAAA[0..14] <> MAAA[0..14] [15]
MODT_A[0..1] <> MODT_A[0..1] [15]
-DQSA[0..7] <> -DQSA[0..7] [15]
DQSA[0..7] <> DQSA[0..7] [15]
DMA[0..7] <> DMA[0..7] [15]

MDB[0..63] <> MDB[0..63] [16]
MAAB[0..14] <> MAAB[0..14] [16]
MODT_B[0..1] <> MODT_B[0..1] [16]
-DQSB[0..7] <> -DQSB[0..7] [16]
DQSB[0..7] <> DQSB[0..7] [16]
DMB[0..7] <> DMB[0..7] [16]

Gigabyte Technology

Title: GMCH-MEMORY

Size: C | Document Number: GA-G41MT-S2P | Rev: 1.31

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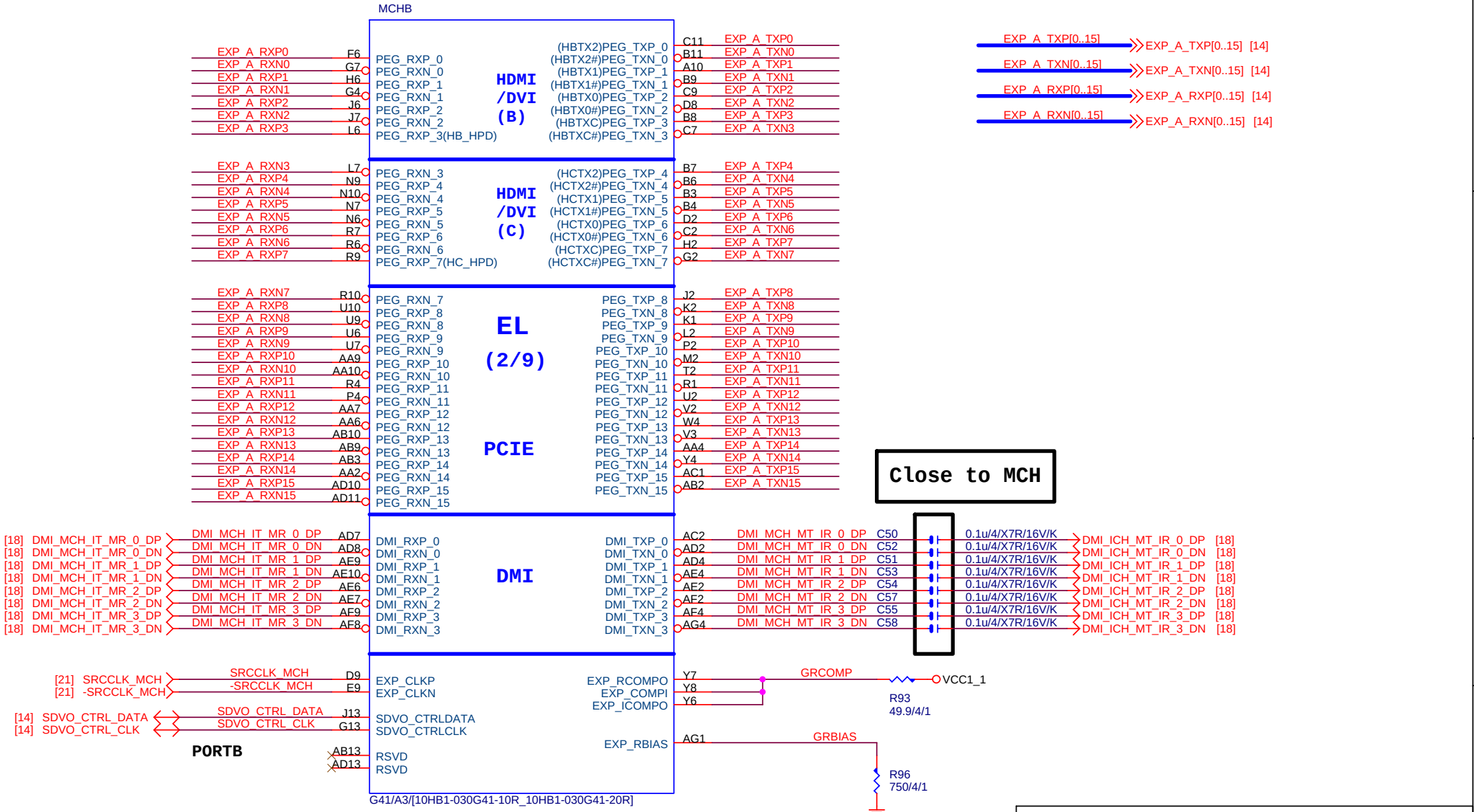

Gigabyte Technology			
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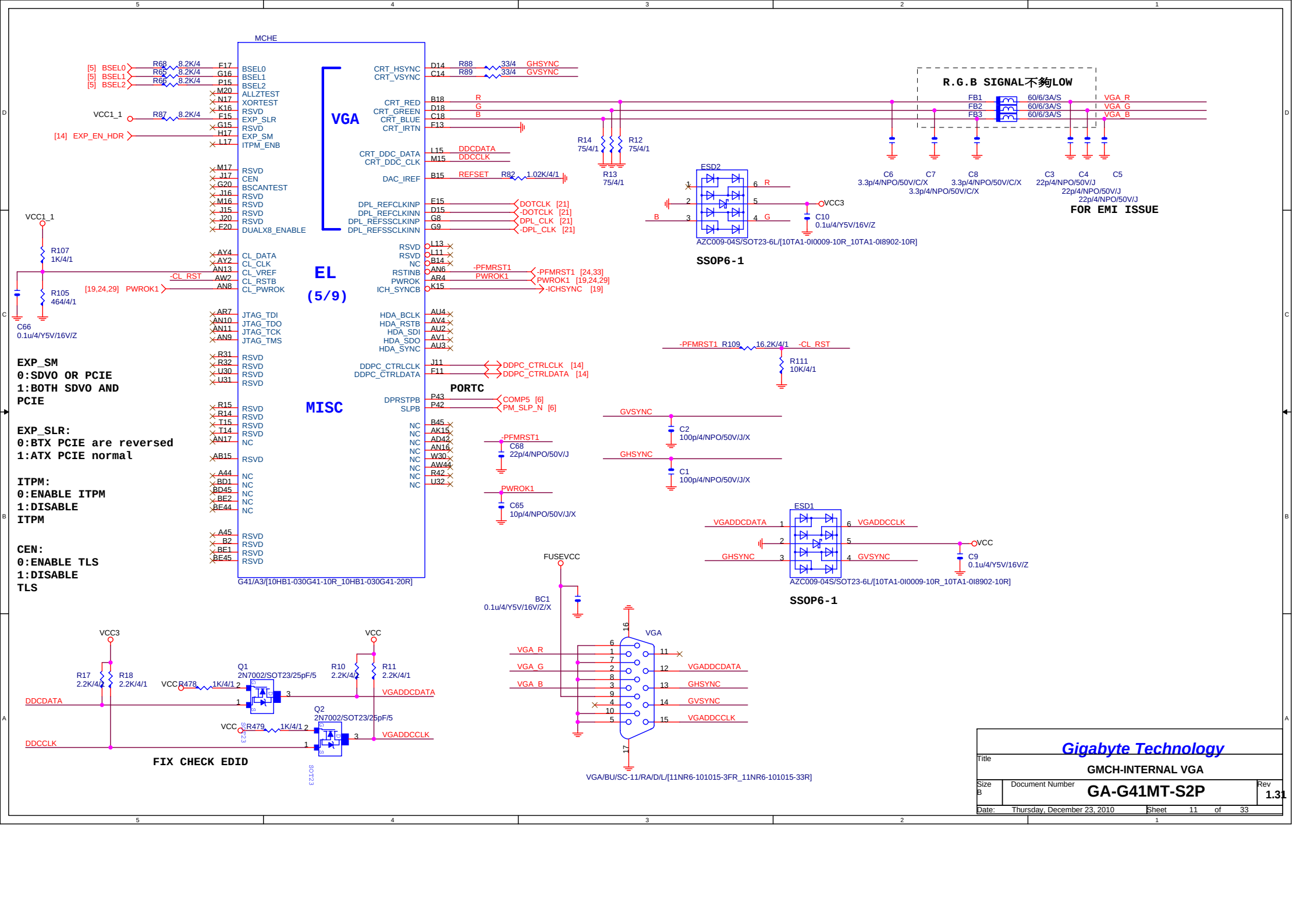
Size: Custom	Document Number: GA-G41MT-S2P		Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 10 of 33		


MCHE
VGA
EL
(5/9)
MISC
PORTC
BSEL0
BSEL1
BSEL2
ALLZTEST
XORTEST
RSVD
EXP_SLR
EXP_SM
ITPM_ENB
CEN
BSCANTEST
DUALX8_ENABLE
CL_DATA
CL_CLK
CL_VREF
CL_RSTB
CL_PWROK
JTAG_TDI
JTAG_TDO
JTAG_TCK
JTAG_TMS
CRT_HSYNC
CRT_VSYNC
CRT_RED
CRT_GREEN
CRT_BLUE
CRT_IRTN
CRT_DDC_DATA
CRT_DDC_CLK
DAC_IREF
DPL_REFCLKINP
DPL_REFCLKINN
DPL_REFSSCLKINP
DPL_REFSSCLKINN
RSTINB
PWROK
ICH_SYNCB
HDA_BCLK
HDA_RSTB
HDA_SDI
HDA_SDO
HDA_SYNC
DDPC_CTRLCLK
DDPC_CTRLDATA
DPRSTPB
SLPB
G41/A3/[10HB1-030G41-10R_10HB1-030G41-20R]
R.G.B SIGNAL不夠LOW
FOR EMI ISSUE
SSOP6-1
AZC009-04S/SOT23-6L/[10TA1-0I0009-10R_10TA1-0I8902-10R]
EXP_SM
0:SDVO OR PCIE
1:BOTH SDVO AND
PCIE
EXP_SLR:
0:BTX PCIE are reversed
1:ATX PCIE normal
ITPM:
0:ENABLE ITPM
1:DISABLE
ITPM
CEN:
0:ENABLE TLS
1:DISABLE
TLS
FIX CHECK EDID
VGA/BU/SC-11/RA/D/L/[11NR6-101015-3FR_11NR6-101015-33R]
Gigabyte Technology
Title
GMCH-INTERNAL VGA
Size
B
Document Number
GA-G41MT-S2P
Rev
1.31
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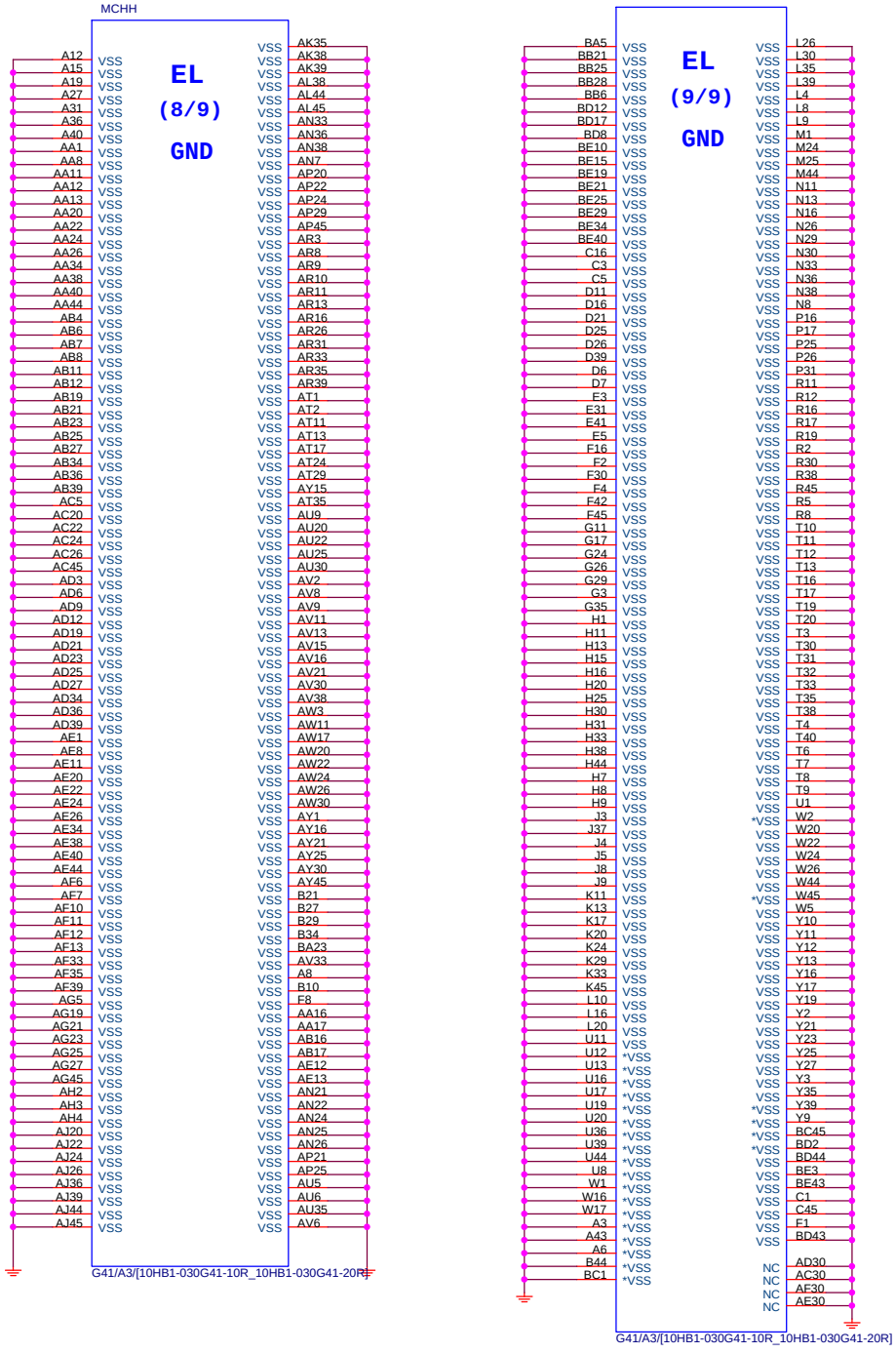
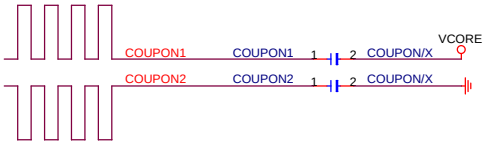
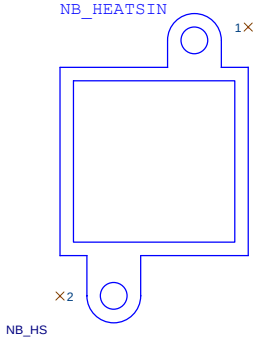


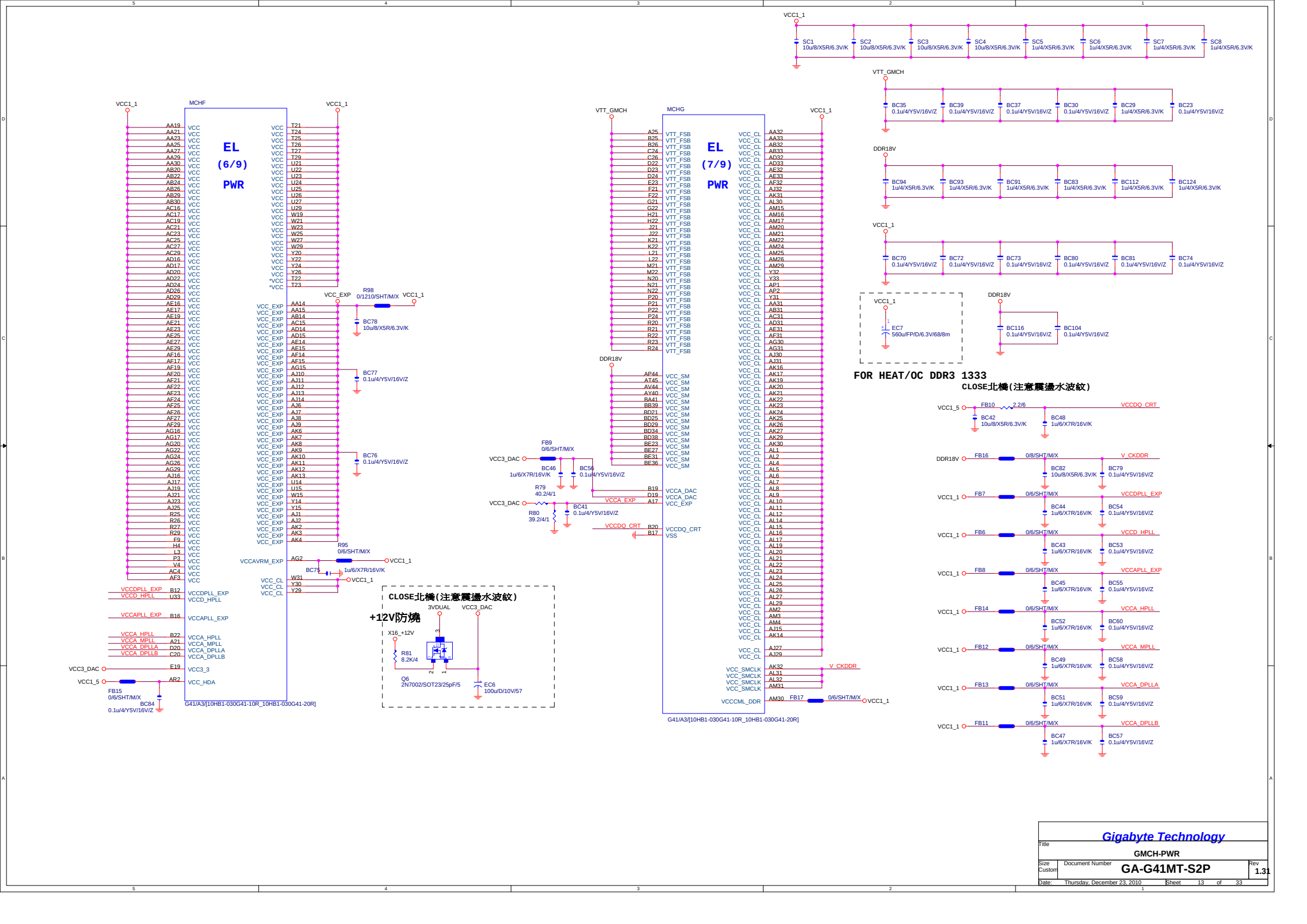




BGASINK445A-L

NEW COST DOWN

Gigabyte Technology			
Title: GMCH-GND			
Size: Custom	Document Number: GA-G41MT-S2P		Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 12 of 33		



Gigabyte Technology			
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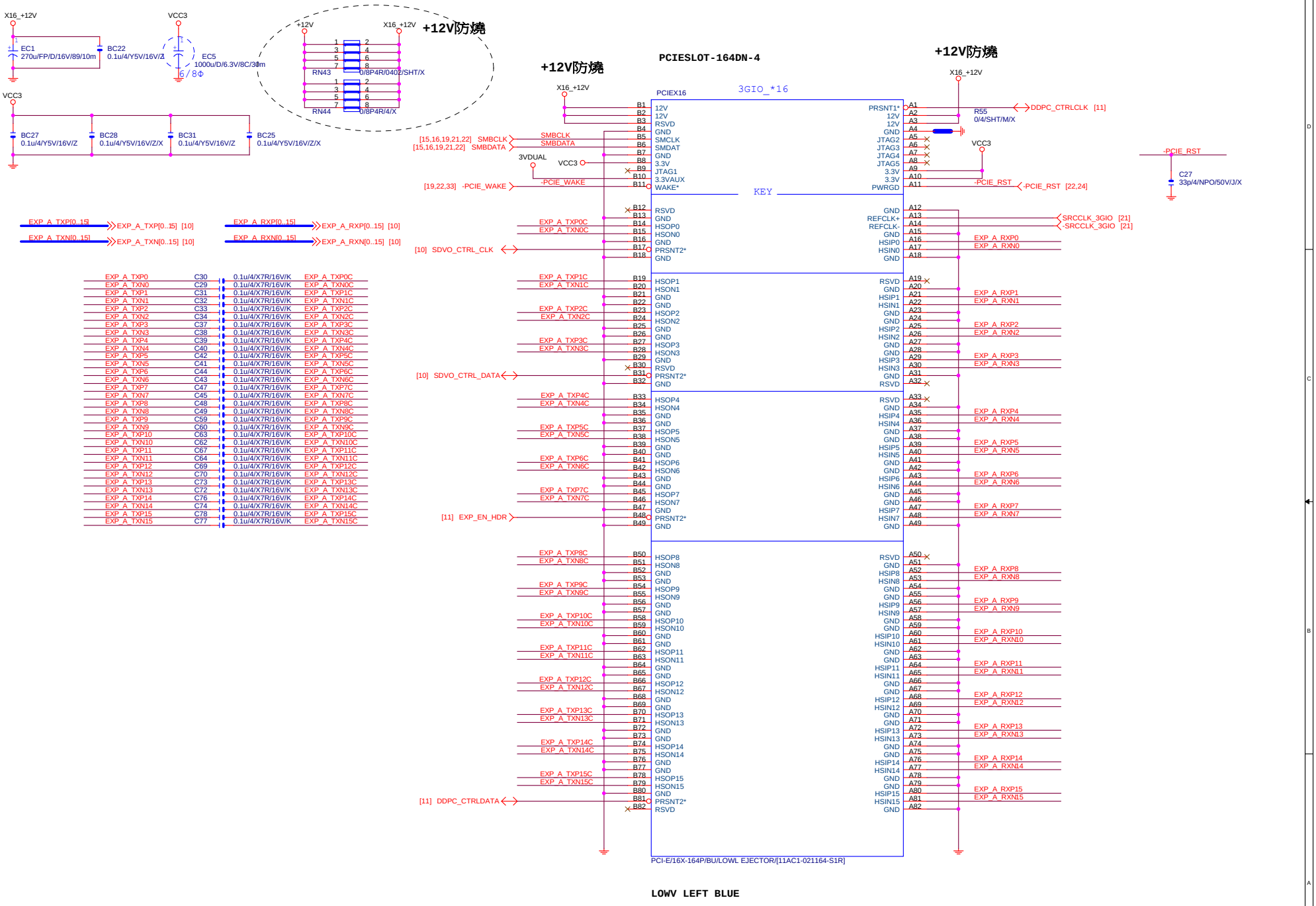
Size: Custom	Document Number: GA-G41MT-S2P		Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 13 of 33		



Gigabyte Technology			
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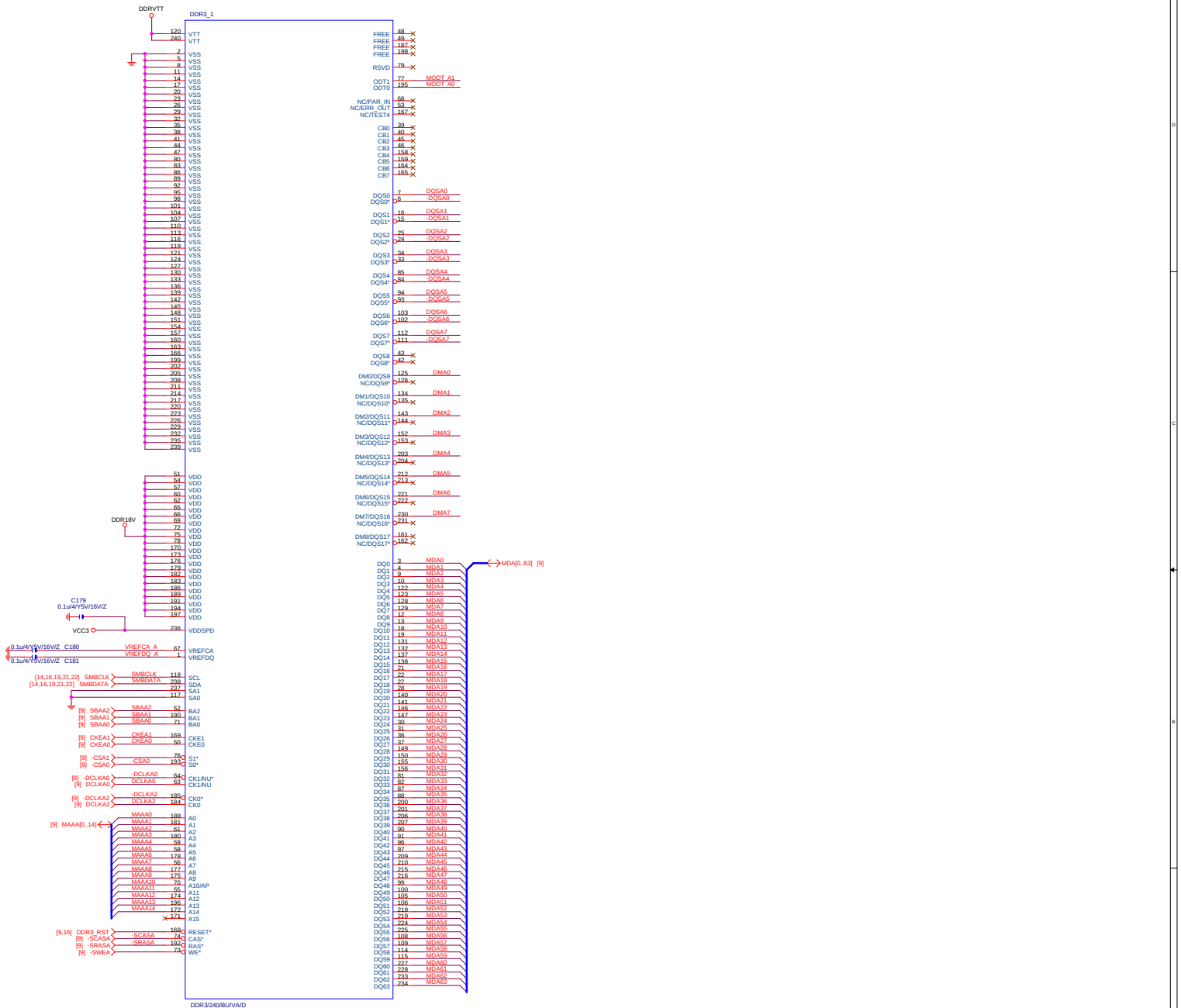
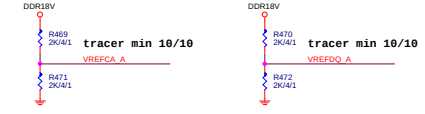
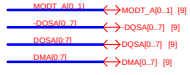
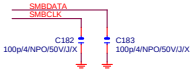
Size: Custom	Document Number: GA-G41MT-S2P		Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 14 of 33		









Gigabyte Technology		
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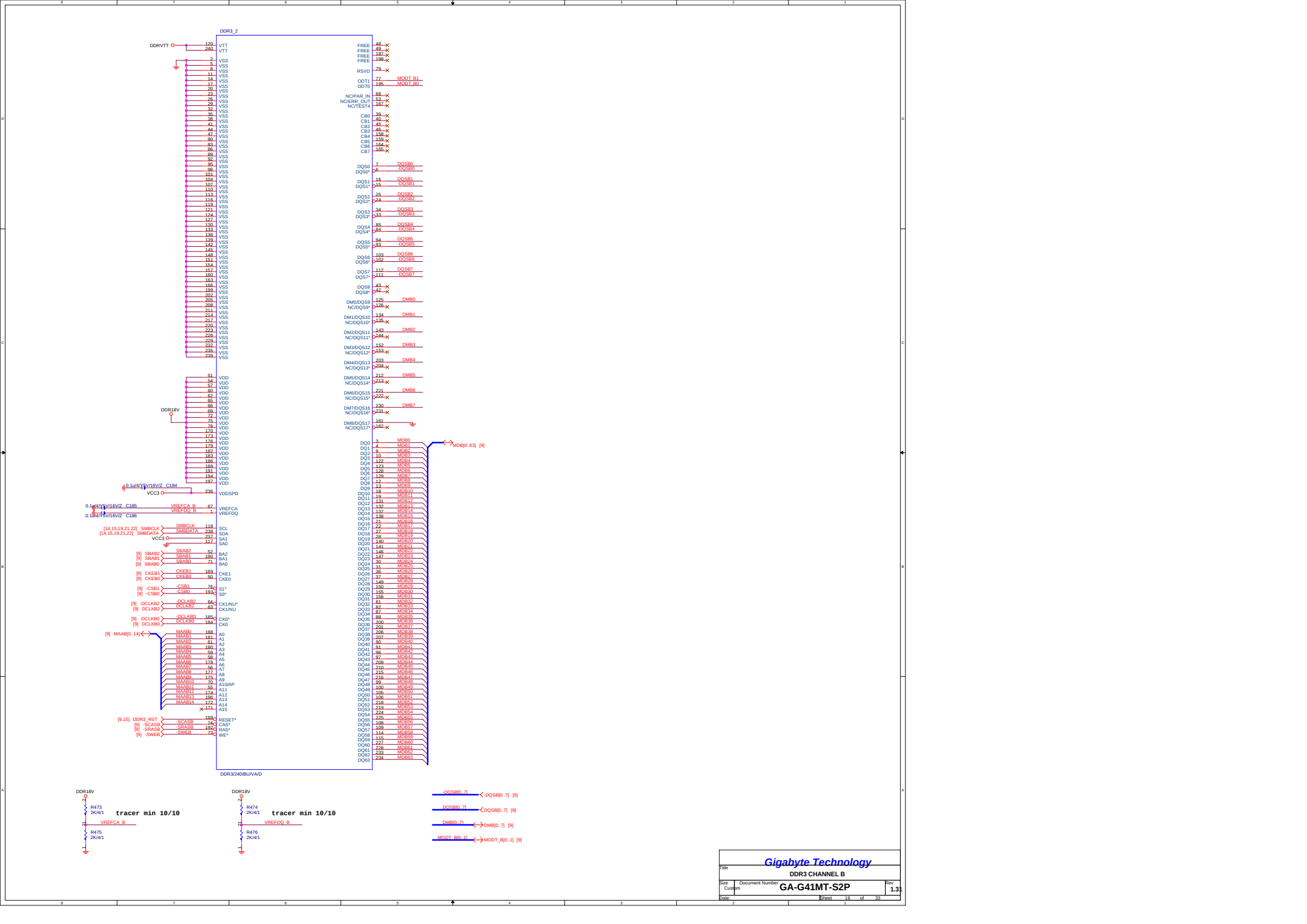
Size: Custom	Document Number: GA-G41MT-S2P	Rev: 1.31
Date:	Sheet 15 of 33	


DDR3_2
DDRVTT
DDR18V
VCC3
0.1u/4/Y5V/16V/Z C184
0.1u/4/Y5V/16V/Z C185
0.1u/4/Y5V/16V/Z C186
VREFCA_B
VREFDQ_B
[14,15,19,21,22] SMBCLK
[14,15,19,21,22] SMBDATA
[9] SBAB2
[9] SBAB1
[9] SBAB0
[9] CKEB1
[9] CKEB0
[9] -CSB1
[9] -CSB0
[9] -DCLKB2
[9] DCLKB2
[9] -DCLKB0
[9] DCLKB0
[9] MAAB[0..14]
[9,15] DDR3_RST
[9] -SCASB
[9] -SRASB
[9] -SWEB
FREE
RSVD
ODT1
ODT0
NC/PAR_IN
NC/ERR_OUT
NC/TEST4
CB0
CB1
CB2
CB3
CB4
CB5
CB6
CB7
DQS0
DQS0*
DQS1
DQS1*
DQS2
DQS2*
DQS3
DQS3*
DQS4
DQS4*
DQS5
DQS5*
DQS6
DQS6*
DQS7
DQS7*
DQS8
DQS8*
DM0/DQS9
NC/DQS9*
DM1/DQS10
NC/DQS10*
DM2/DQS11
NC/DQS11*
DM3/DQS12
NC/DQS12*
DM4/DQS13
NC/DQS13*
DM5/DQS14
NC/DQS14*
DM6/DQS15
NC/DQS15*
DM7/DQS16
NC/DQS16*
DM8/DQS17
NC/DQS17*
MODT_B1
MODT_B0
DQSB0
-DQSB0
DQSB1
-DQSB1
DQSB2
-DQSB2
DQSB3
-DQSB3
DQSB4
-DQSB4
DQSB5
-DQSB5
DQSB6
-DQSB6
DQSB7
-DQSB7
DMB0
DMB1
DMB2
DMB3
DMB4
DMB5
DMB6
DMB7
MDB[0..63] [9]
DDR3/240/BU/VA/D
DDR18V
R473 2K/4/1
R475 2K/4/1
VREFCA_B
tracer min 10/10
R474 2K/4/1
R476 2K/4/1
VREFDQ_B
tracer min 10/10
-DQSB[0..7]
DQSB[0..7]
DMB[0..7]
MODT_B[0..1]
DQSB[0..7] [9]
-DQSB[0..7] [9]
DMB[0..7] [9]
MODT_B[0..1] [9]
Gigabyte Technology
Title
DDR3 CHANNEL B
Size
Custom
Document Number
GA-G41MT-S2P
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1.31
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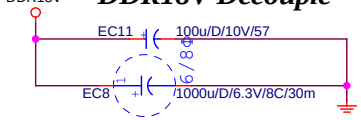
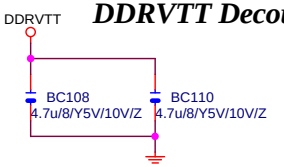
DDR TERMINATION CHANNEL A

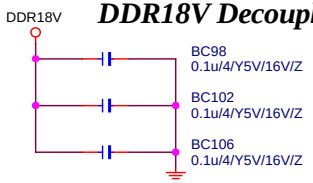
DDR18V Decouple



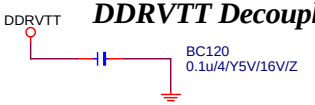
DDRVTT Decouple



DDR18V Decouple

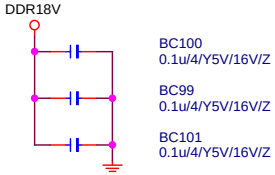


DDRVTT Decouple

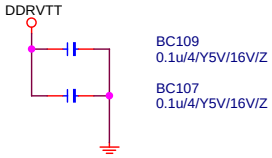


DDR TERMINATION CHANNEL B

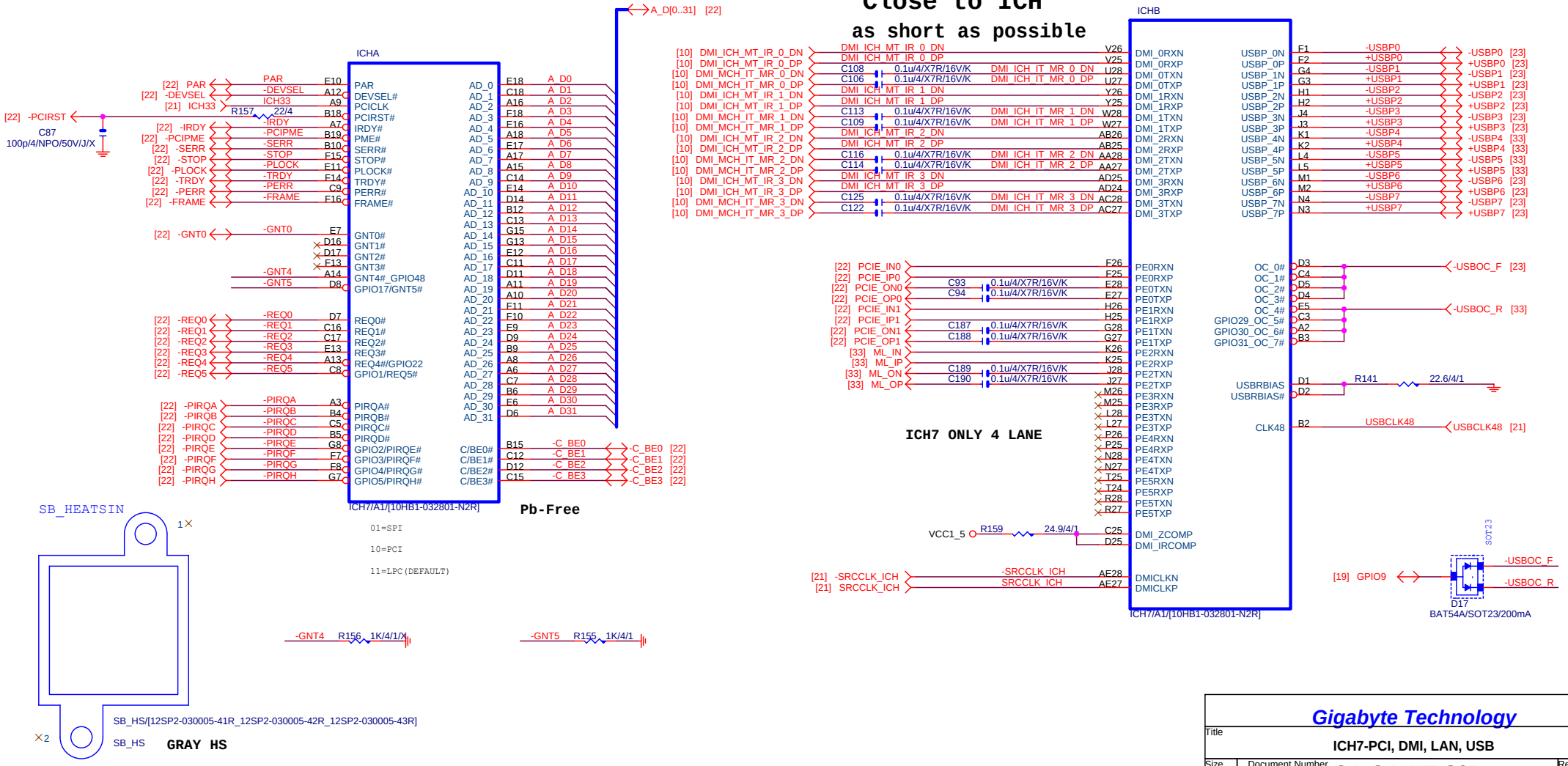
DDR18V Decouple



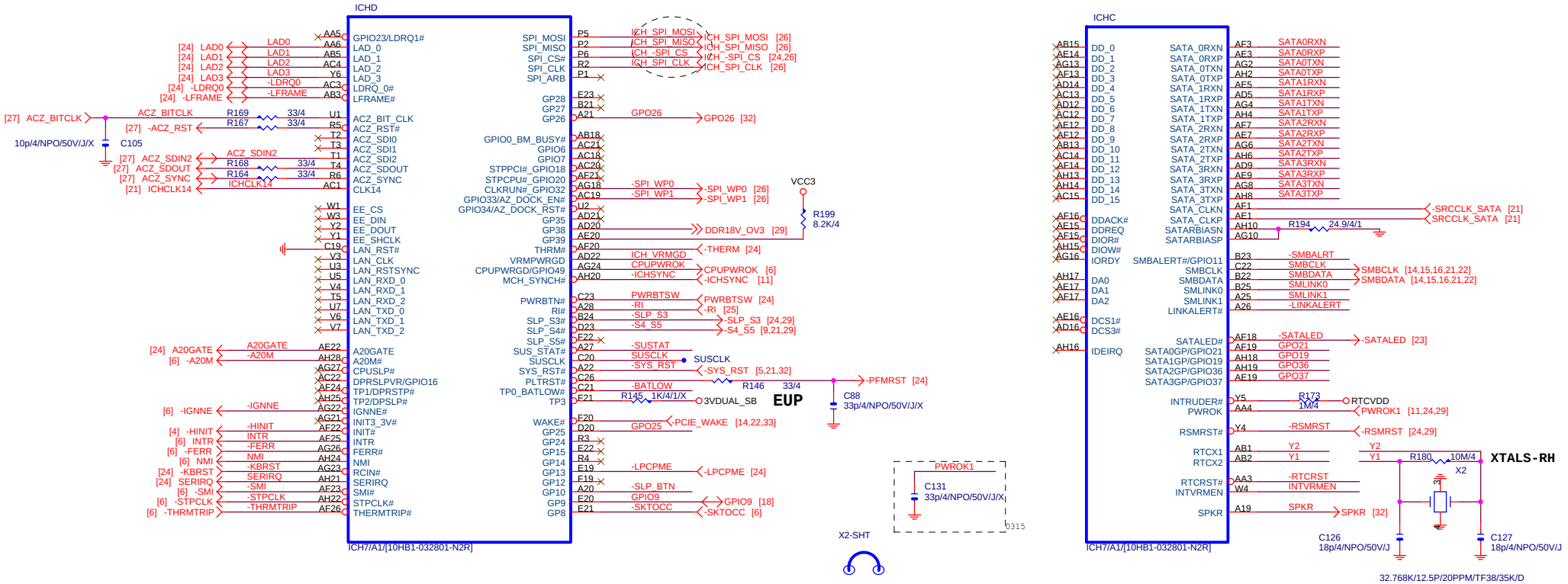
DDRVTT Decouple

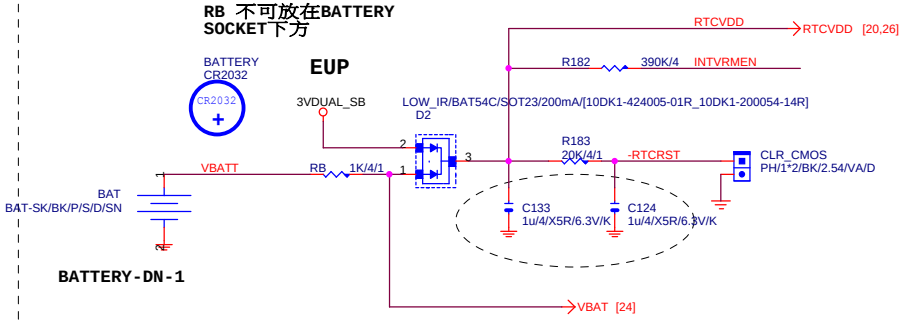


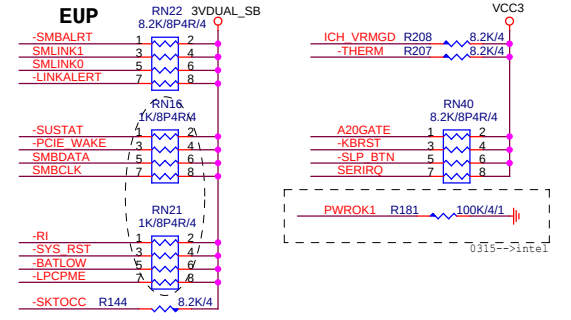
Gigabyte Technology		
Title: DDRII TERMINATOR		
Size: Custom	Document Number: GA-G41MT-S2P	Rev: 1.31
Date: Thursday, December 23, 2010	Sheet 17 of 33	

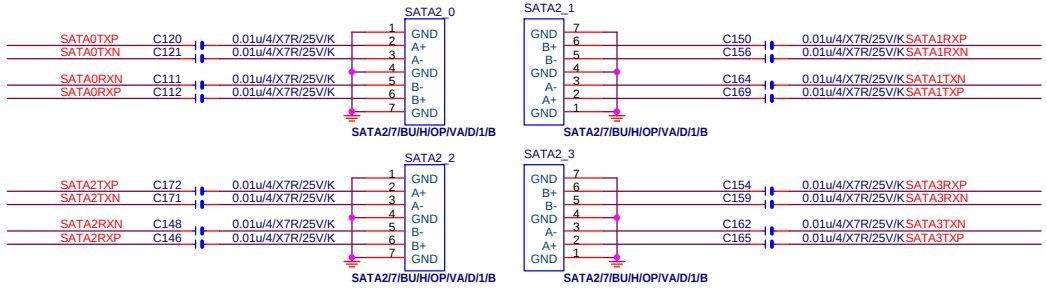


Gigabyte Technology		
Title	ICH7-PCI, DMI, LAN, USB	
Size B	Document Number GA-G41MT-S2P	Rev 1.31
Date: Thursday, December 23, 2010	Sheet 18 of 33	









Gigabyte Technology	
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Size: Custom	Document Number: GA-G41MT-S2P
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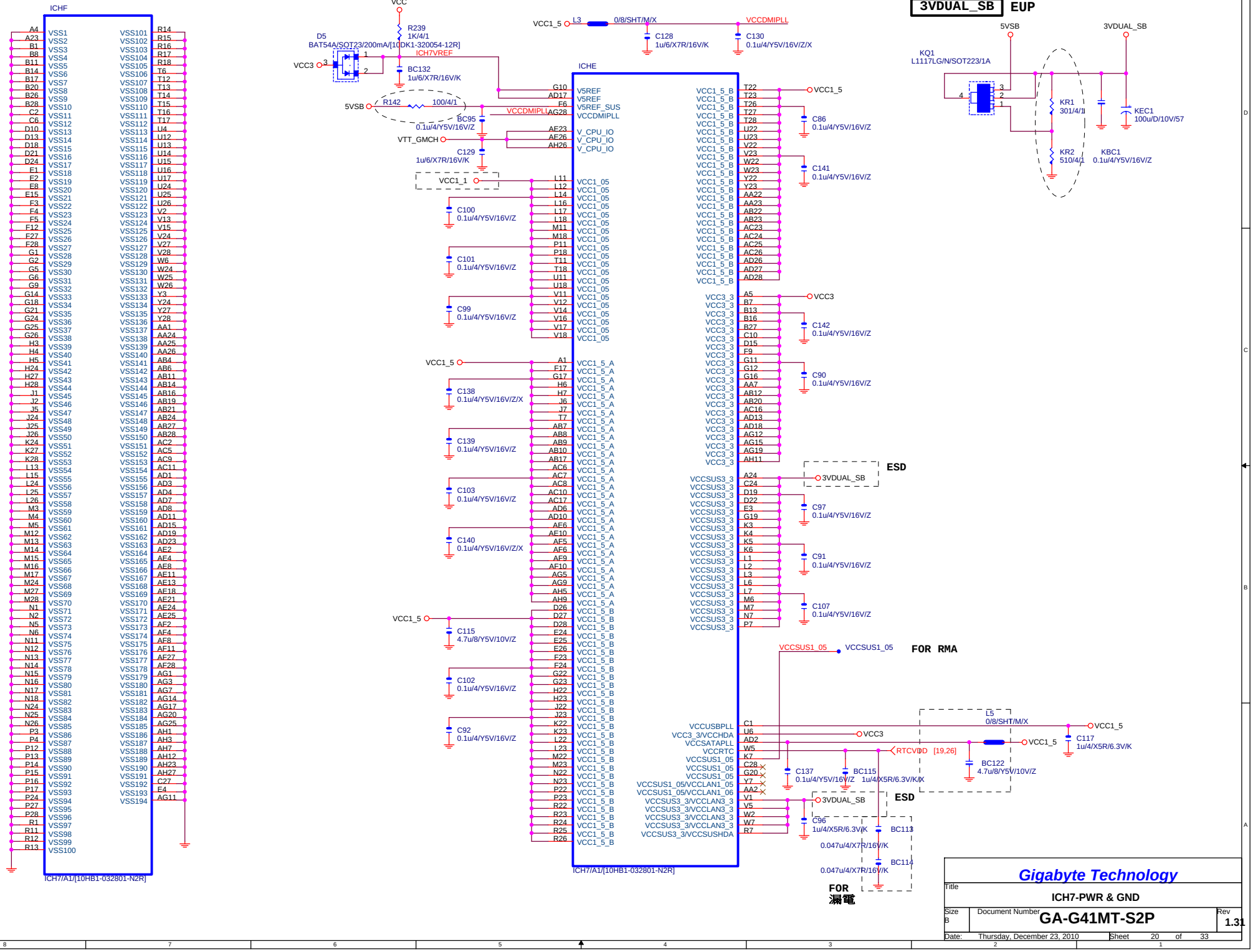
Date: Thursday, December 23, 2010	Sheet 19 of 33



Gigabyte Technology			
Title: ICH7-PWR & GND			
Size: B	Document Number: GA-G41MT-S2P		Rev: 1.31
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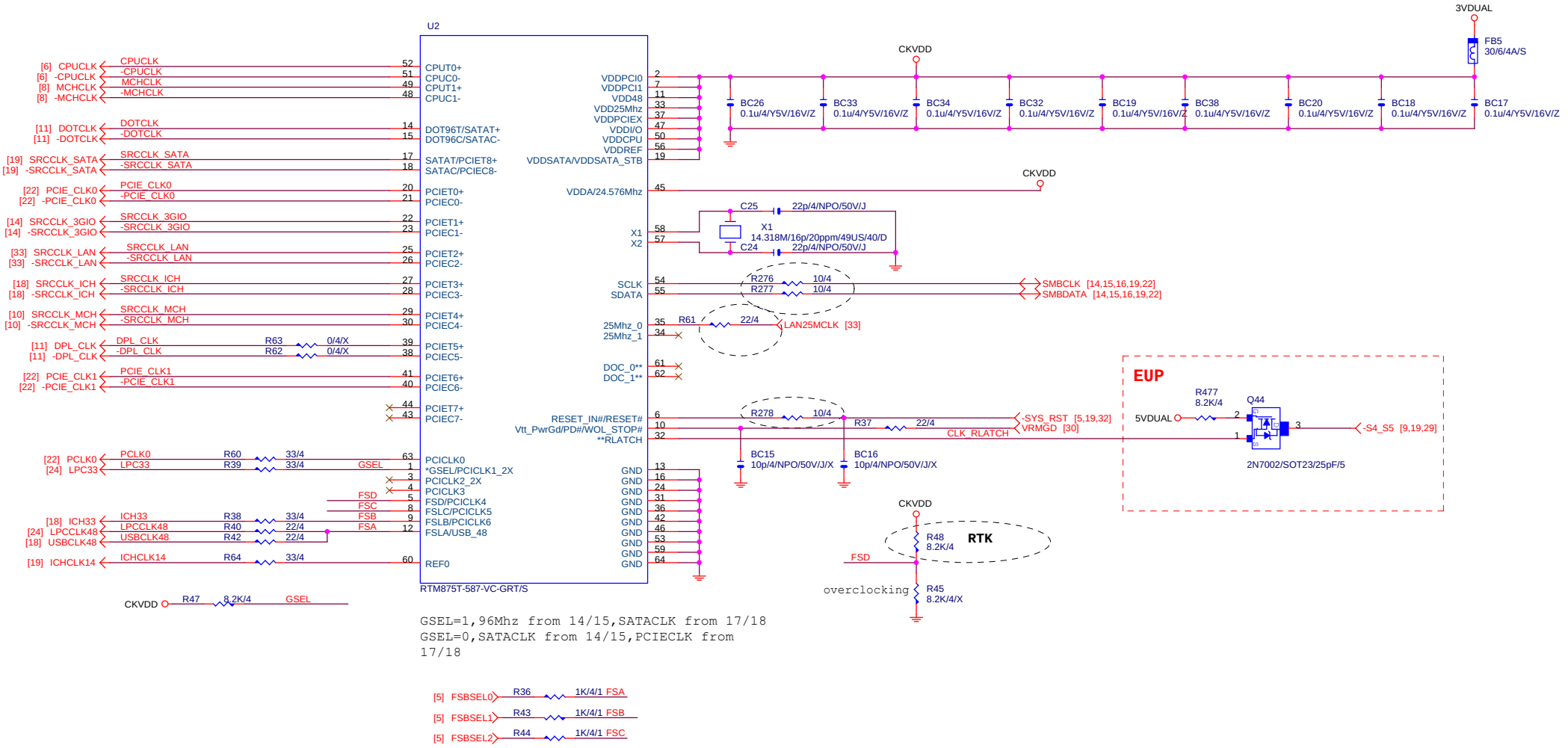
CLK GEN CK505



Gigabyte Technology		
Title: CK505 CLK GEN		
Size: Custom	Document Number: GA-G41MT-S2P	Rev: 1.31
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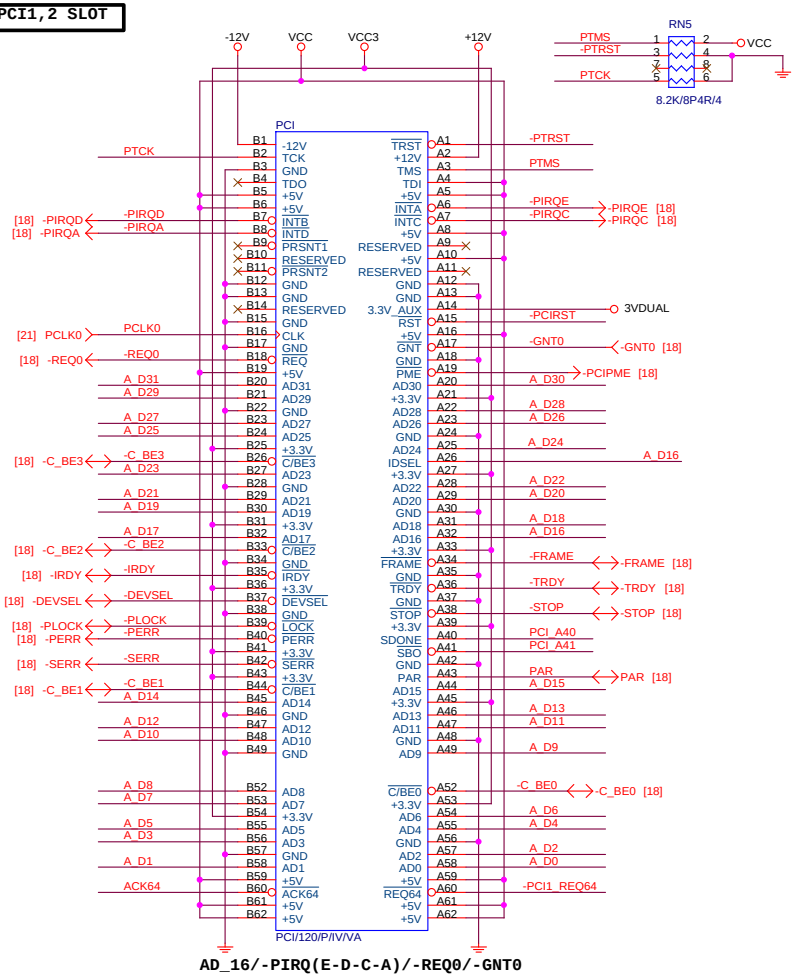
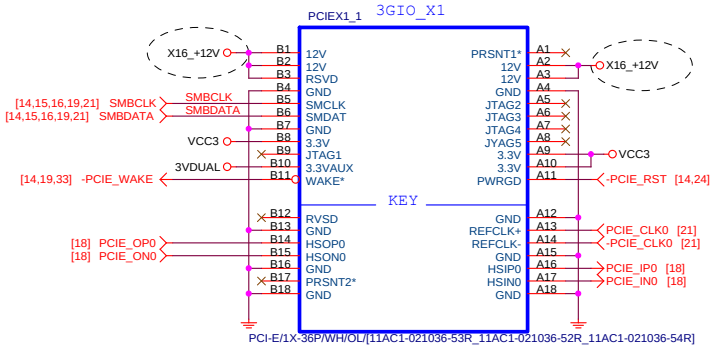
PCI1,2 SLOT



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

PCIE*1,2



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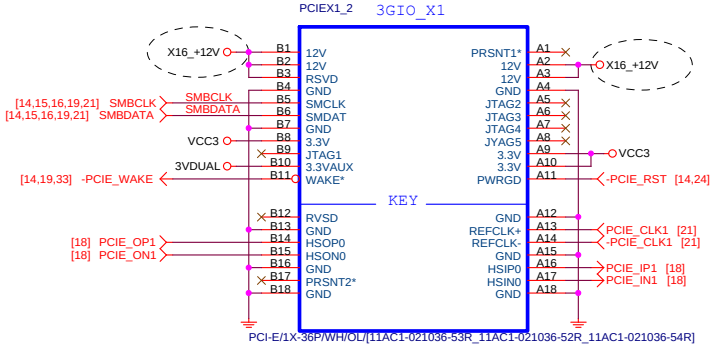

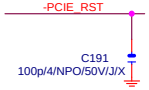

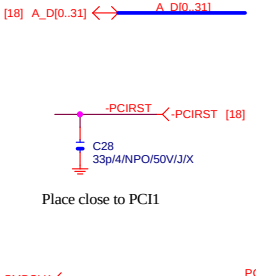

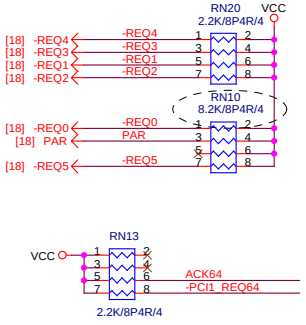

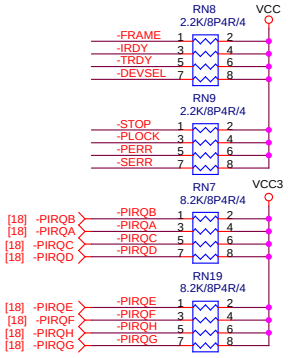

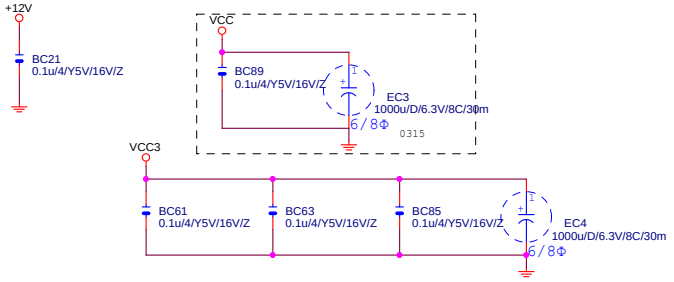

Gigabyte Technology

Title	PCI SLOT 1, 2/PCIEX1	
Size: Custom	Document Number: GA-G41MT-S2P	Rev: 1.31
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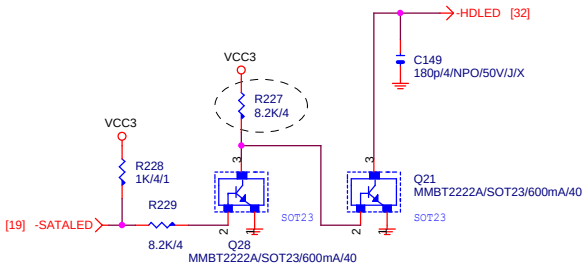
IDE/SATA LED



IDE RESET

N/A

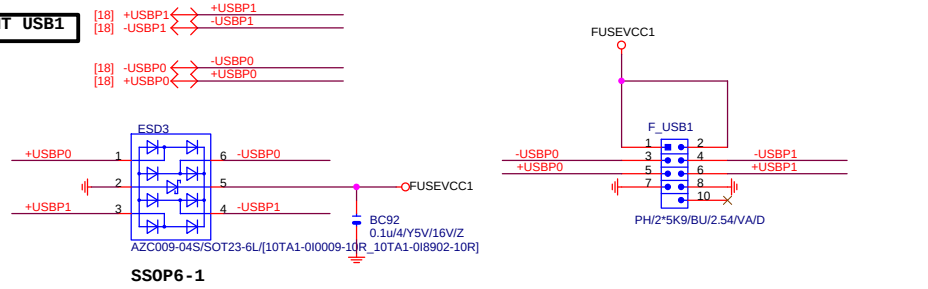
FLOPPY

N/A

IDE

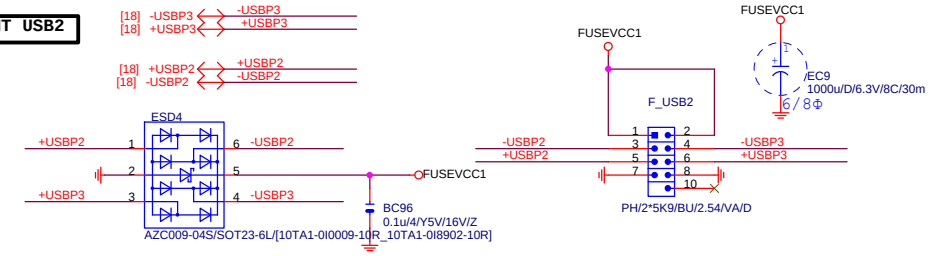
N/A

FRONT USB1

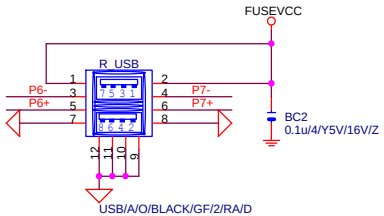


SSOP6-1

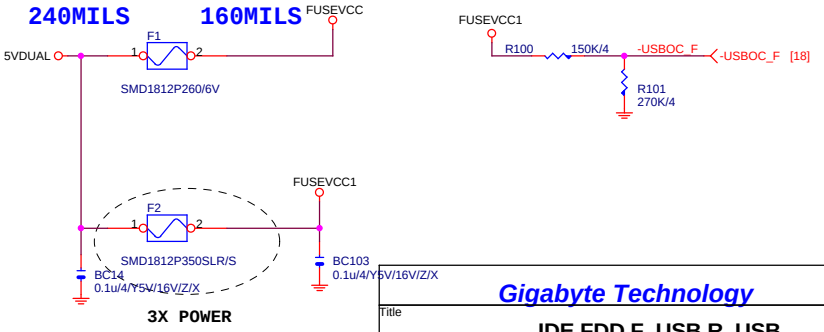
FRONT USB2



SSOP6-1



POP USBX2



3X POWER

Gigabyte Technology		
Title: IDE,FDD,F_USB,R_USB		
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RTS2- ==LOW CPU FAN 50%
==HIGH 100%
DEFAULT 50%

FOR AR8161

EUP

IT8712F/[IT8718F]

IT8718F-S/LX(GB)-W/QFP128

JP7 : HIGH DUAL BIOS ENABLE
LOW DUAL BIOS DISABLE

Pop to disable Dual BIOS

Dual BIOS:
GB logo :Pin 61 (GP15/CSA)
GB logo :Pin 59 (GP17/CSB)

Pin 59 Dual BIOS ,Power On Strapping:
H ==>Dual BIOS function Enable
L ==>Dual BIOS function Disable

1.2V or 3.3V tolerance select.
1.2V OUTPUT 接 VTT_GMCH
3.3V OUTPUT 接3.3V
LPCPD#=VIDVCC

Gigabyte Technology		
Title: ITE 8712/18 LPC IO		
Size: B	Document Number: GA-G41MT-S2P	Rev: 1.31
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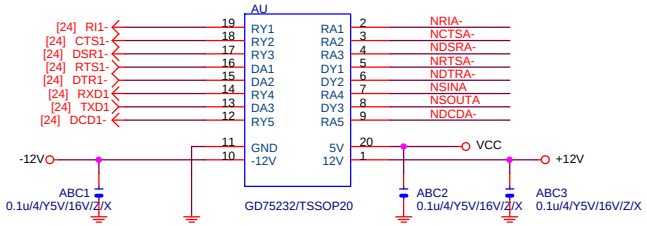
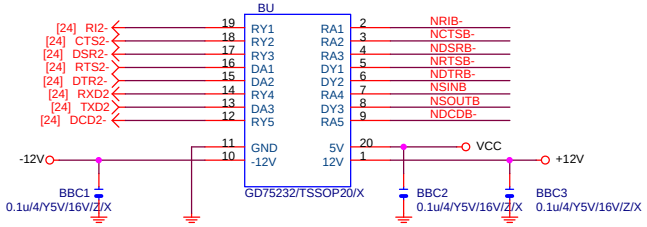
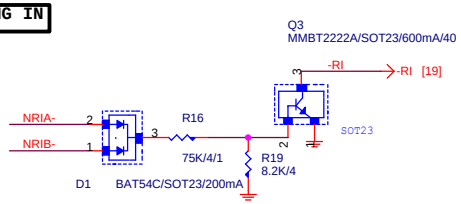
COMA

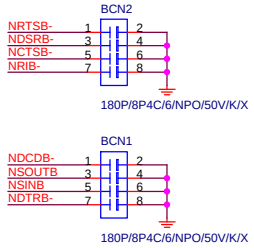


IC20TSSOP-1

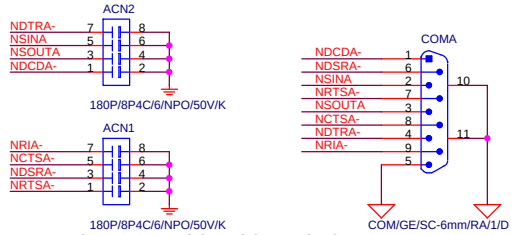


RING IN

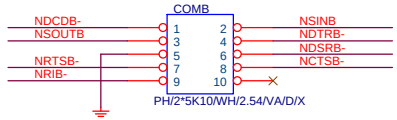




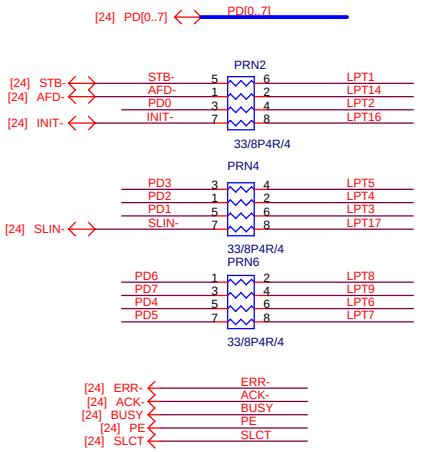
EXTERNAL COMA

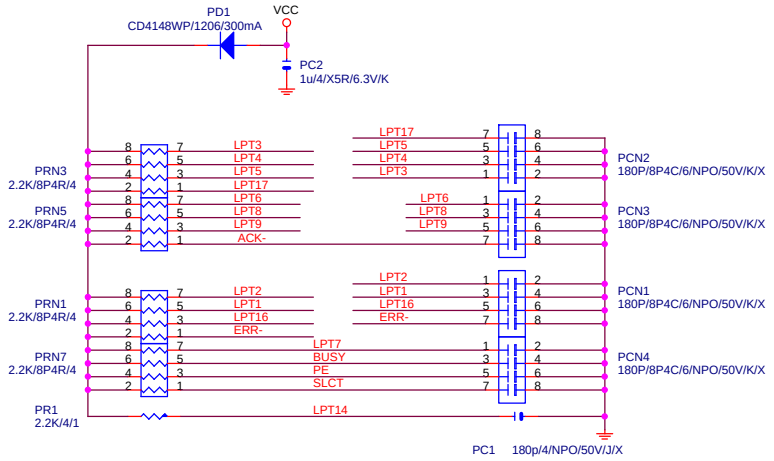


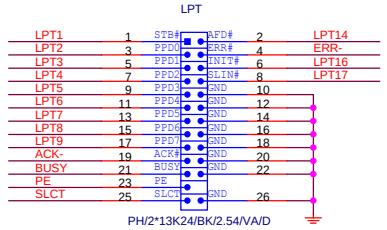
PLACE NEAR COM CONNECTOR



LPT PORT







PIN2X13_LPT-CUT24

Gigabyte Technology			
Title: COM & LPT PORT			
Size: B	Document Number: GA-G41MT-S2P		Rev: 1.31
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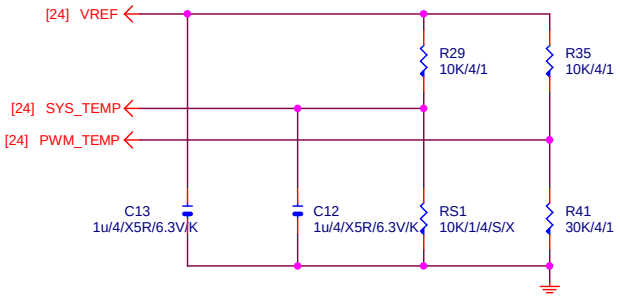
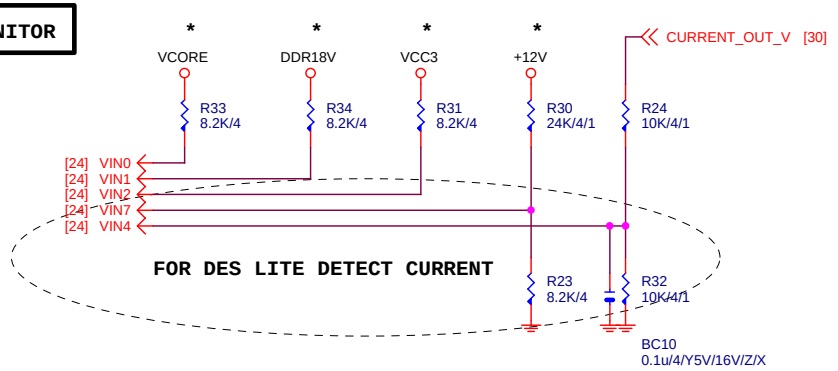
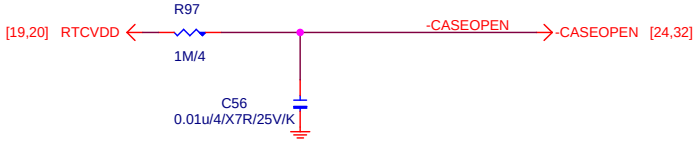
TEMP H/W MONITOR



VOLTAGE-- H/W MONITOR

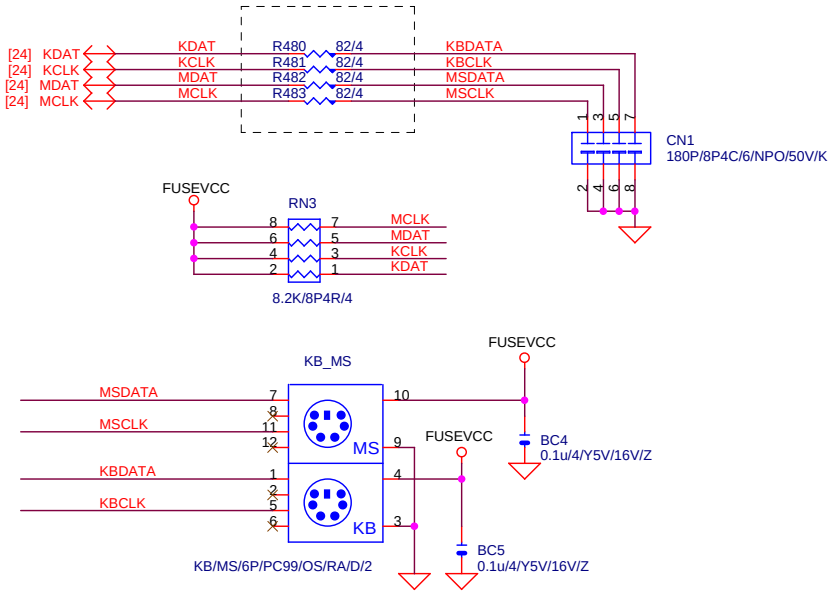


CASE OPEN

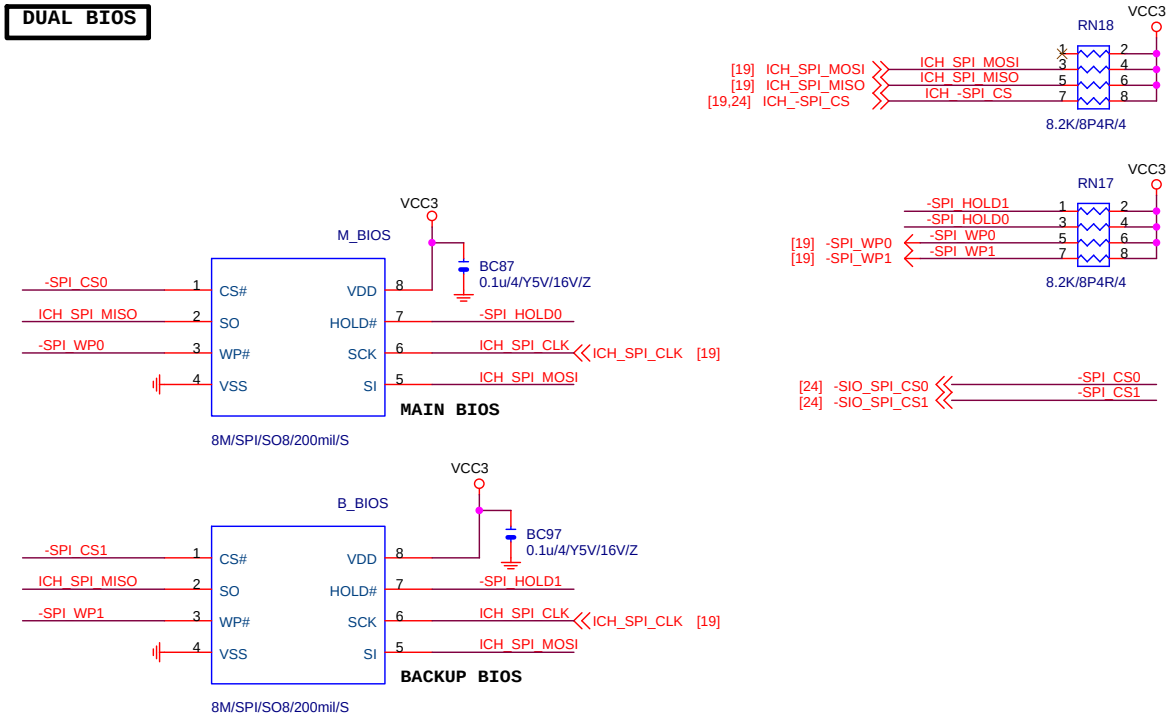


Case Open Circuits

KB/MS



DUAL BIOS



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

ALC892/ALC889A/ALC889/ALC888B Colay

	ALC888B	ALC888 -VA	ALC889A	ALC888 -VD	ALC892
CR59	X	O	O	O	O
CR53,58	X	X	O	X	X
CR56	O	O	O	O	X
CR63	X	X	X	X	O
CR34	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%

5.1K/4/1% @VT2021
20K/4/0.1% @ALC889A
20K/4/1% @ALC889A+/ALC888Vx

CR62 5.1K/4/1

CR63 8.2K/4/X

CR64 10/4/X → VOCR [28]

AVDD

CBC60 0.1u/4/Y5V/16V/Z

CU1

ALC889A+

VCC3 CR65 2.2/8

CBC62 22u/8/X5R/6.3V/M

co-layout

CR67 8.2K/4/X

CBC63 10u/8/X5R/6.3V/K/X

CR68 8.2K/4/X

CR69 0/4

50歐姆:4/5

[19] ACZ_SDOUT
[19] ACZ_BITCLK
CR71 22/4

[19] ACZ_SDIN2
CR72 22/4

VCC3

[19] ACZ_SYNC
[19] -ACZ_RST

CR14/CBC4 close to SouthBridge

CBC64 0.1u/4/Y5V/16V/Z

CBC65 0.1u/4/Y5V/16V/Z

1 DVDD1
2 GPIO0/XTALI
3 GPIO1/XTALO
4 DVS1
5 SDATA_OUT
6 BIT_CLK
7 DVSS2
8 SDATA-IN
9 DVDD2
10 SYNC
11 RESET#
12 PC_BEEP

48 SPDIFO
47 SPDIF/EAPD
46 SURBACK-R/XTALSEL
45 SURBACK-L/JD0 GPIO0
44 LFE
43 CEN
42 AVSS2
41 SURR-R
40 JDREF (NC)/JD3
39 SURR-L
38 AVDD2
37 LINE1-VREFOR/VREFO3

36 FRONT-R
35 FRONT-L
34 SENSE B (JD2)/FMIC1
33 DCVOL/VREFVOUT2
32 MIC1-VREFO-R/FMIC2
31 LINE2-VREFO/JD4
30 MIC2-VREFO/AFILT2
29 LINE1-VREFO-L/AFILT1
28 MIC1-VREFO-L/VREFOUT
27 VREF
26 AVSS1
25 AVDD1

13 SENSE A(JD1)/PHONE JD1
14 LINE2-L/AUX-L
15 LINE2-R/AUX-R
16 MIC2-L/JD2
17 MIC2-R/JD1 GPIO1
18 CD_L
19 CD_GND
20 CD_R
21 MIC1-L/MIC1
22 MIC1-R/MIC2
23 LINE1-L
24 LINE1-R

VT2021/LQFP48

CR66 47/4/1 → FAUDIO_JD [28]

CBC61 1n/4/X7R/50V/K

JD resistors close to pin34 of CODEC

Can Support Amp Out

LINE_O_R [28]
LINE_O_L [28]

VODR CR70 3.3K/4/1 → MIC1_VREFO_R [28]
LINE2_VREFO [28]
MIC2_VREFO [28]

CR73 10/4 → VOCR [28]

VOBR CR74 3.3K/4/1 → MIC1_VREFO_L [28]

AVDD

CBC67 10u/8/X5R/6.3V/K

CBC66 0.1u/4/Y5V/16V/Z

CR75 0/6/X → 5VDUAL

CD6 AZ2225-01L/SOD323/X

CBC68 10u/8/X5R/6.3V/K/X

FOR ALC892

50歐姆:4/10

CBC69 10u/8/X5R/6.3V/K → LINE_IN_R [28]
CBC70 10u/8/X5R/6.3V/K → LINE_IN_L [28]
CBC71 10u/8/X5R/6.3V/K → MIC1_R [28]
CBC72 10u/8/X5R/6.3V/K → MIC1_L [28]

Digital Area Analog Area

[28] FRONT_JD CR76 5.1K/4/1
[28] LINE1_JD CR77 10K/4/1
[28] MIC1_JD CR78 20K/4/1

JD resistors close to pin13 of CODEC

[28] LINE2_L
[28] LINE2_R
[28] MIC2_L
[28] MIC2_R

Can Support Amp Out

Gigabyte Technology

Title: ALC889/ALC892/VT2021

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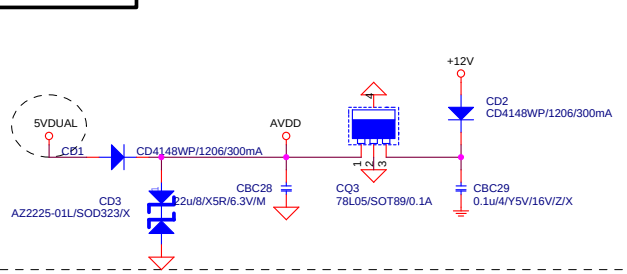
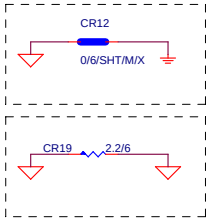
CODEC POWER/EMI PAD

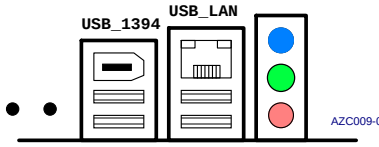


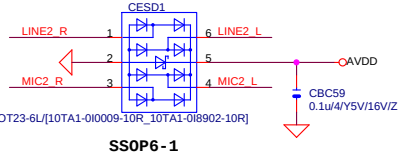


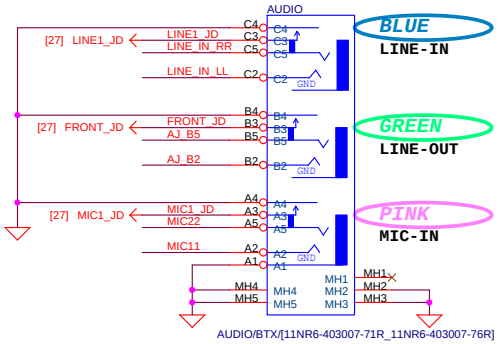
CD IN N/A

SPDIF IN N/A

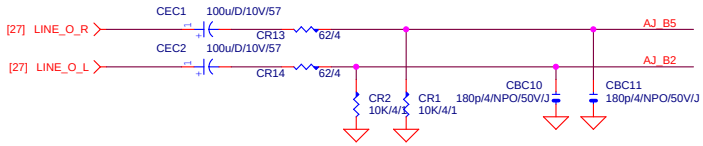
AZALIA JACK



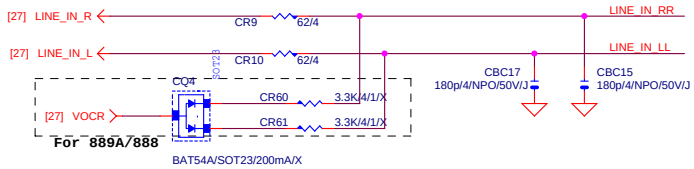




LINE-OUT

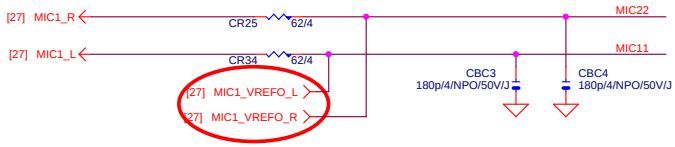


LINE-IN



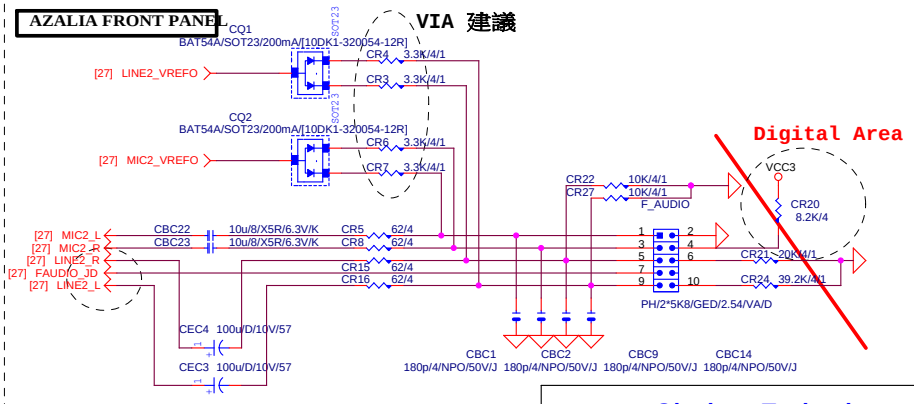
VIA 不SUPPORT

MIC-IN



AZALIA FRONT PANEL

VIA 建議



Gigabyte Technology		
Title	AUDIO JACK	
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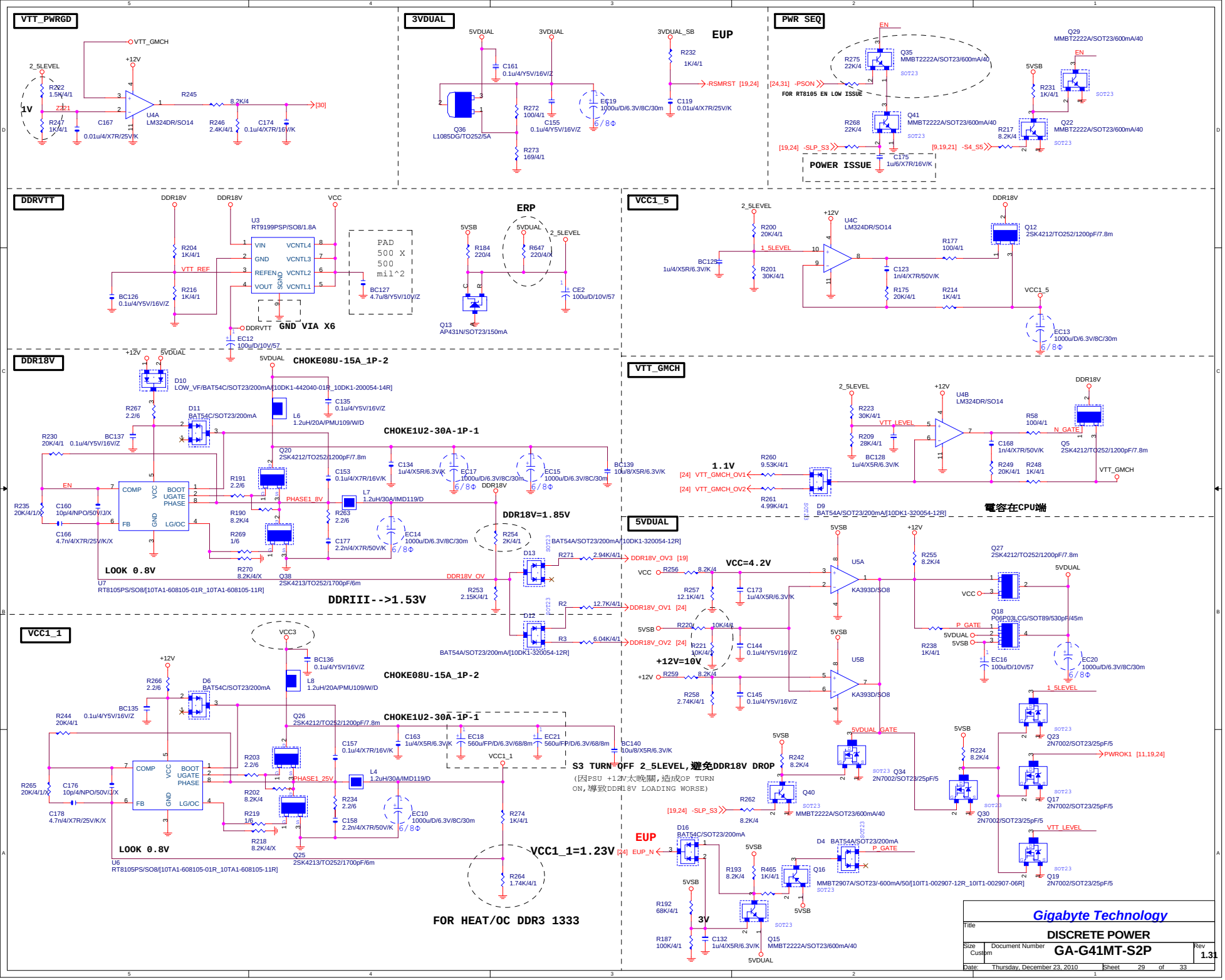
VTT_PWRGD
3VDUAL
EUP
PWR SEQ
DDRVTT
ERP
VCC1_5
DDR18V
CHOKE08U-15A_1P-2
CHOKE1U2-30A-1P-1
LOOK 0.8V
DDRIII-->1.53V
DDR18V=1.85V
VTT_GMCH
1.1V
電容在CPU端
5VDUAL
VCC=4.2V
+12V=10V
VCC1_1
CHOKE08U-15A_1P-2
CHOKE1U2-30A-1P-1
LOOK 0.8V
VCC1_1=1.23V
FOR HEAT/OC DDR3 1333
S3 TURN OFF 2_5LEVEL,避免DDR18V DROP
(因PSU +12V太晚關,造成OP TURN ON,導致DDR18V LOADING WORSE)
EUP
POWER ISSUE
GND VIA X6
Gigabyte Technology
DISCRETE POWER
GA-G41MT-S2P
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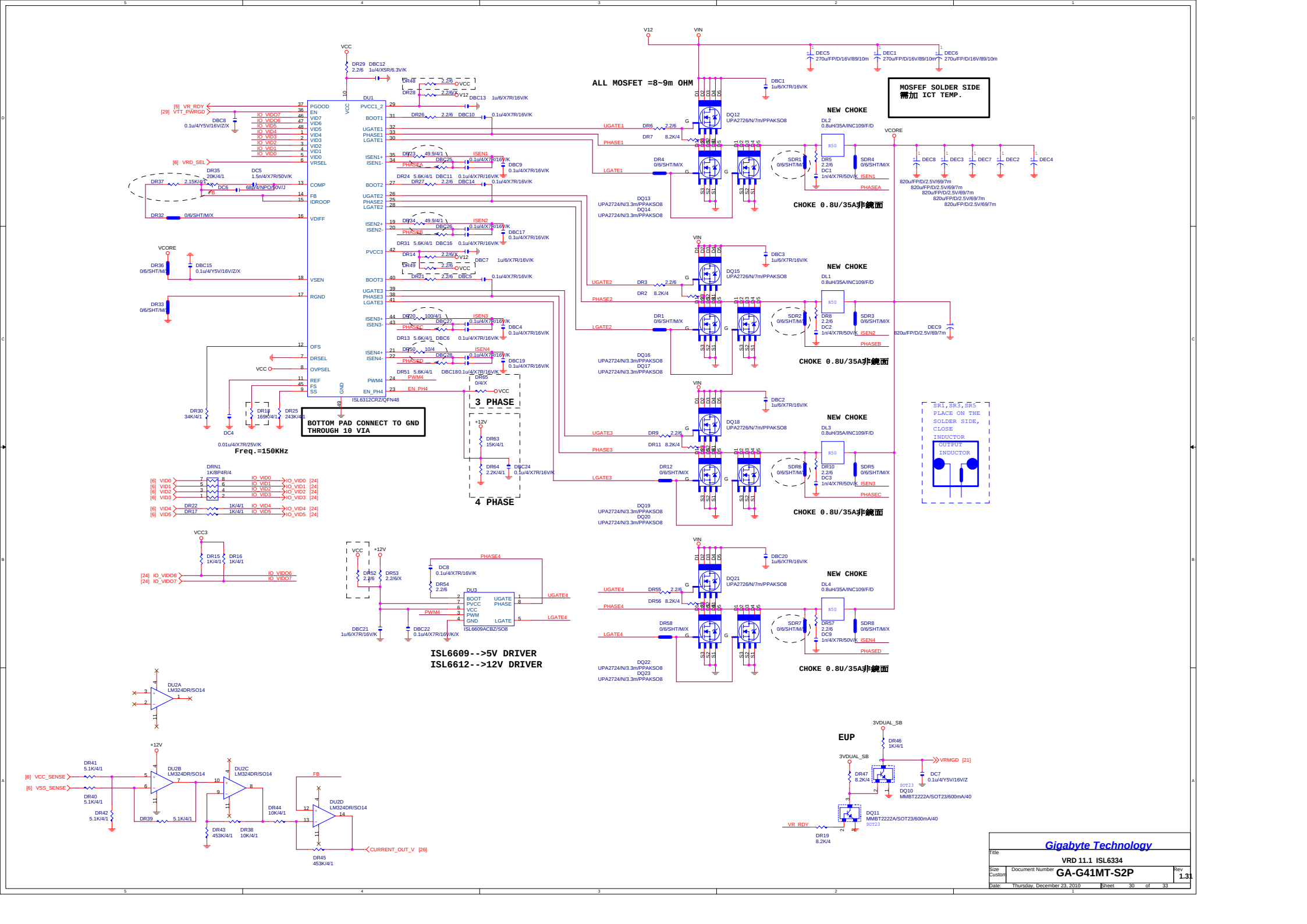
ALL MOSFET =8~9m OHM
MOSFET SOLDER SIDE 需加 ICT TEMP.
NEW CHOKE
CHOKE 0.8U/35A非鏡面
3 PHASE
4 PHASE
Freq.=150KHz
BOTTOM PAD CONNECT TO GND THROUGH 10 VIA
ISL6609-->5V DRIVER
ISL6612-->12V DRIVER
EUP
SR1, SR3, SR5 PLACE ON THE SOLDER SIDE, CLOSE INDUCTOR
OUTPUT INDUCTOR
ISL6312CRZ/QFN48
ISL6609ACBZ/SO8
Gigabyte Technology
VRD 11.1 ISL6334
GA-G41MT-S2P
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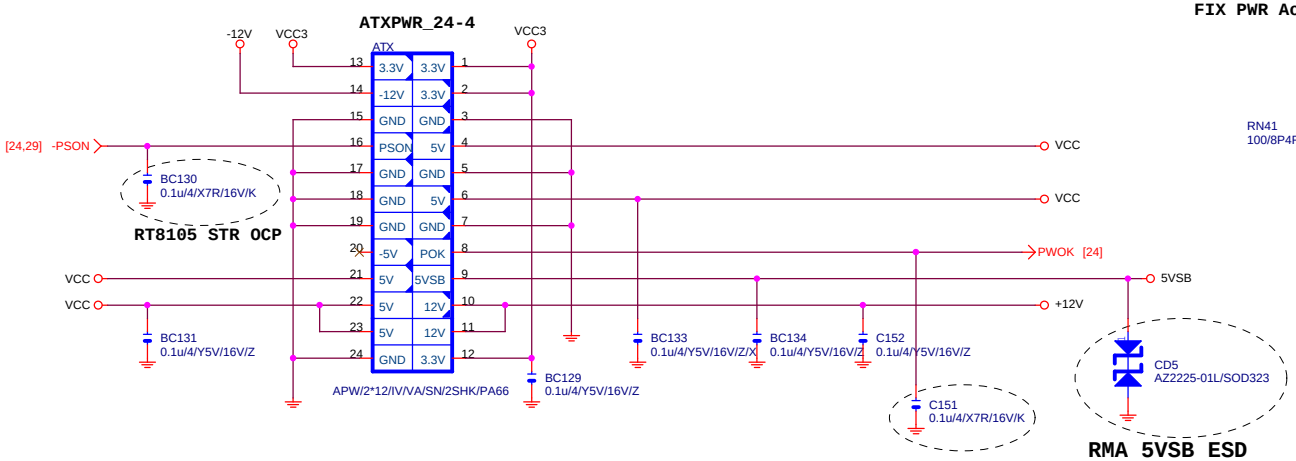
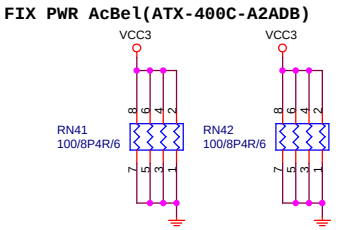
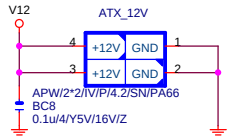
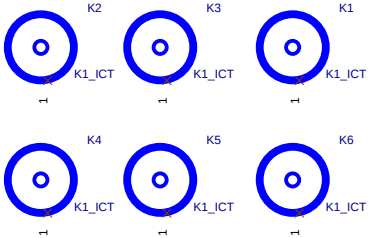
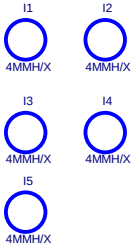
ATX POWER CONNECTOR

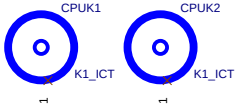


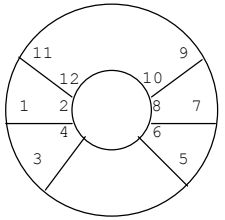


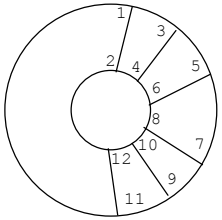


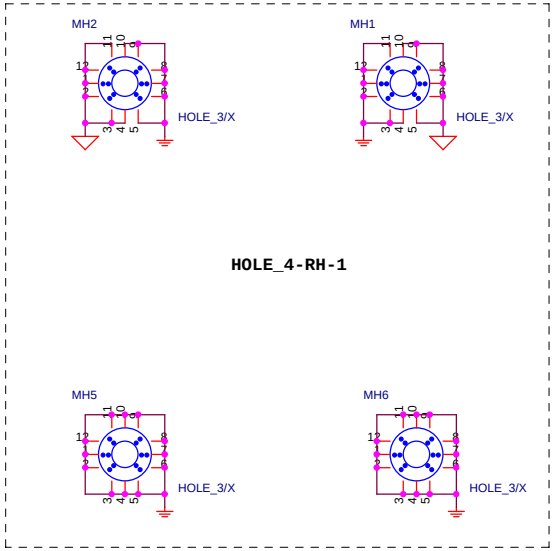


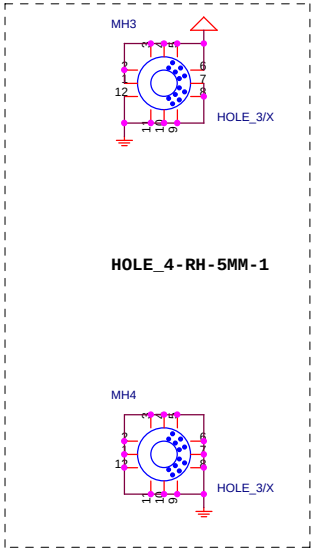


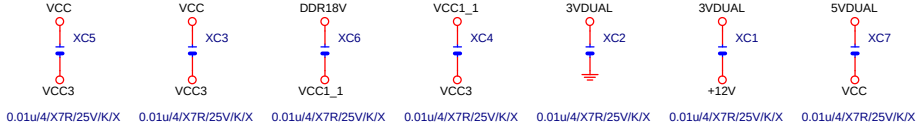












Gigabyte Technology			
Title: ATX POWER CONNECTOR			
Size: B	Document Number: GA-G41MT-S2P		Rev: 1.31
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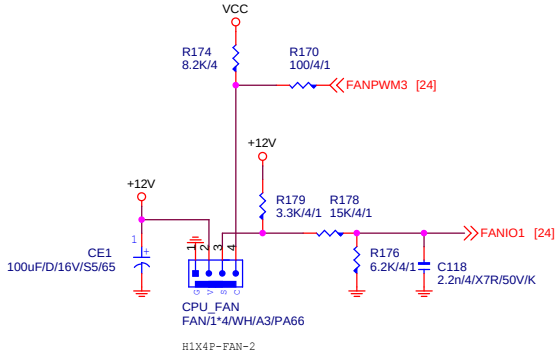
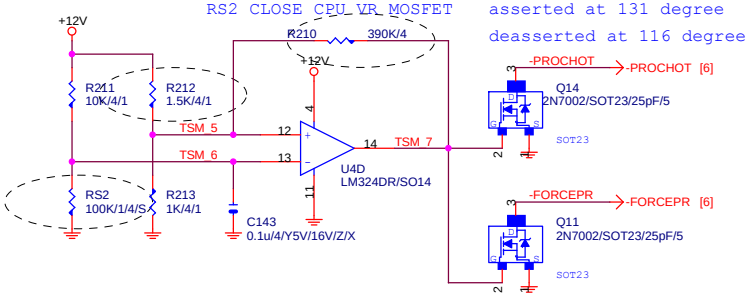
CPU SMART FAN

SMART FAN

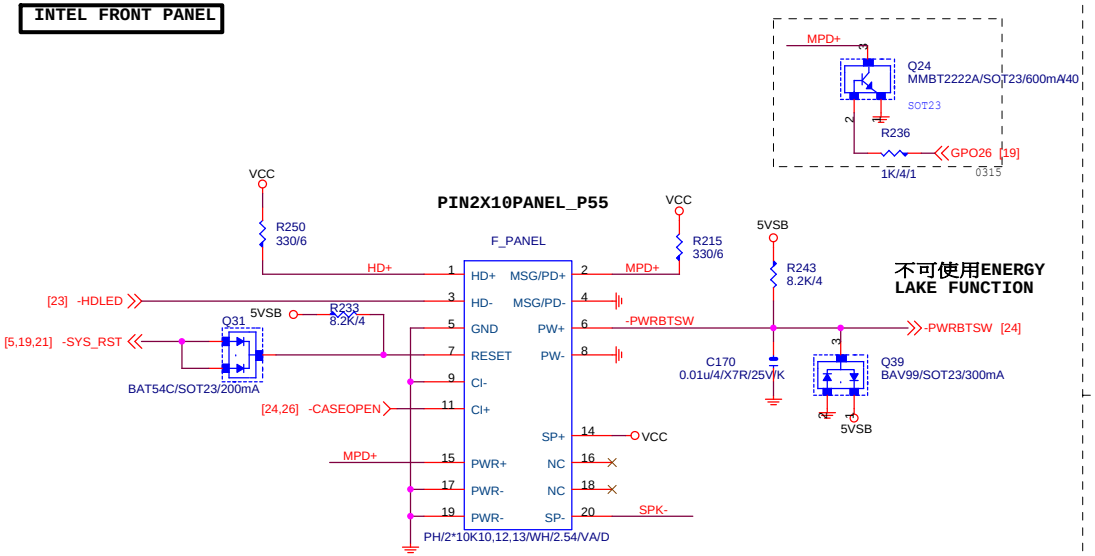


PROCESSOR HOT

RS2 CLOSE CPU_VR_MOSFET asserted at 131 degree
deasserted at 116 degree

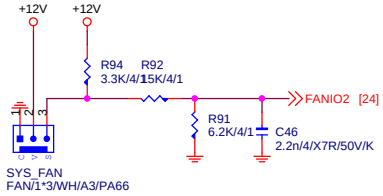


INTEL FRONT PANEL

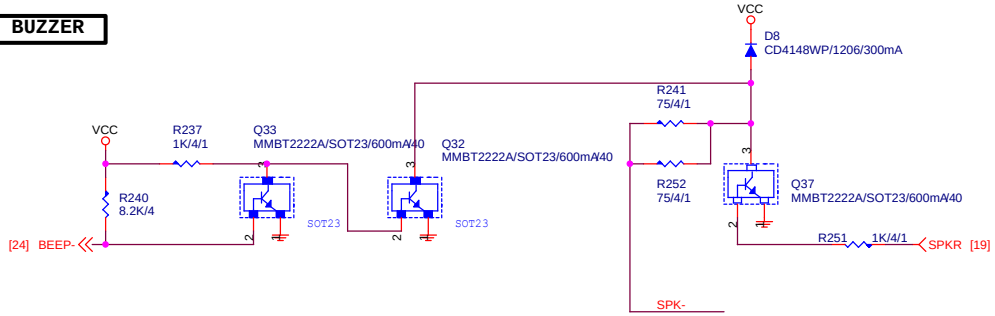


不可使用ENERGY LAKE FUNCTION

SYS_FAN



BUZZER



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Title: FRONT PANEL

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PCIE-1G LAN

AR8131/AR8132 SWR:
LL1,LBC27,LBC16(O),LR30(X)

AR8152 LDO OUTPUT(PIN4):LL1(X)
1.AL1A:LR30(O),LBC27,26(O)
2.BL1A:LR30(O),LBC27,26(X)

VDDCT LR30 0/6/X VDDCT_REG
LR37 0/4/X ISOLAT [24]
AR8161-->LR37(O),LBC17(X)

[21] -SRCCLK_LAN
[21] SRCCLK_LAN
[18] ML_OP
[18] ML_ON

LBC9 1u/4/X5R/6.3V/K
LBC13 1u/4/X5R/6.3V/K
LBC12 1u/4/X5R/6.3V/K
LBC1 1u/4/X5R/6.3V/K
AR8161-->N/A

3VDUAL
LBC24 10u/8/X5R/6.3V/K
LBC26 1u/4/X5R/6.3V/K
LBC19 1u/4/X5R/6.3V/K
LR31 8.2K/4

LU1

1	VDD3V	TX_P	30
2	PERST#	TX_N	29
3	WAKE#	NC	28
4	CLKREQ#/VDDCT_REG	TEST-MODE	27
5	VDDCT	SMDATA	26
6	AVDDL_REG	SMCLK	25
7	XTLO	DVDDL	24
8	XTLI	LED2/CLKREQ#	23
9	AVDDH_REG	AVDDH	22
10	RBIAS	TRXN3/NC	21

EGND 41
LX 40
LED1 39
LED0 38
DVDDL_REG 37
RX_N 36
RX_P 35
AVDDL 34
REFCLKP 33
REFCLKN 32
AVDDL 31

TRXP0 11
TRXN0 12
AVDDL/NC 13
TRXP1 14
TRXN1 15
AVDDH/NC 16
TRXP2/NC 17
TRXN2/NC 18
AVDDL/NC 19
TRXP3/NC 20

Atheros
AR8151/AR8152
AR8151-AL1A-R/QFN40

[11,24] -PFMRST1
[14,19,22] -PCIE_WAKE
VDDCT_REG
VDDCT
AVDDL
XTALI_P
AVDDH

LBC17 1u/4/X5R/6.3V/K
LBC29 0.1u/4/Y5V/16V/Z
LBC30 1u/4/X5R/6.3V/K/X
AR8161-->N/A
LBC31 1u/4/X5R/6.3V/K
LBC32 1u/4/X5R/6.3V/K
LBC23 1u/4/X5R/6.3V/K
LBC21 1u/4/X5R/6.3V/K
LR15 2.37K/4/1

LC2 0.1u/4/X7R/16V/K
LC1 0.1u/4/X7R/16V/K
ML_IP [18]
ML_IN [18]

LBC5 1u/4/X5R/6.3V/K
DVDDL
LED_LINK1000
AVDDH
P_MDI3-
LR32 8.2K/4/X
3VDUAL
LBC6 1u/4/X5R/6.3V/K

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

LC9 10p/4/NPO/50V/J
XTALI_P
LAN25MCLK [21]

LBC8 1u/4/X5R/6.3V/K
LBC11 1u/4/X5R/6.3V/K
LR42 0/4/X 3VDUAL
LR43 0/4 AVDDH
LBC10 1u/4/X5R/6.3V/K
AR8161-->N/A
AR8152-->N/A
AR8151:AVDDH
AR8161:3VDUAL

AR8161-->N/A
P_MDI0+ P_MDI0- LR16 49.9/4/1 LR14 49.9/4/1 LC6 0.1u/4/X7R/16V/K
P_MDI1+ P_MDI1- LR13 49.9/4/1 LR11 49.9/4/1 LC5 0.1u/4/X7R/16V/K
AR8152-->N/A
P_MDI2+ P_MDI2- LR10 49.9/4/1 LR9 49.9/4/1 LC4 0.1u/4/X7R/16V/K
P_MDI3+ P_MDI3- LR6 49.9/4/1 LR5 49.9/4/1 LC3 0.1u/4/X7R/16V/K
CLOSE LAN CHIP

CHOKE4U7-500MA-1

LL1 4.7uH/1A/[10LC4-5A470B-01R]
LX
CLOSE PIN40
LBC27 10u/8/X5R/6.3V/K
LBC16 1u/4/X5R/6.3V/K

LR29 VDDCT AVDD_CEN
LR36 0/6
0/6/SHT/M/X
LR39 DVDDL AVDDL
LR38 0/6/X
0/6/SHT/M/X
LR40 0/4/X PPS [24]

FOR INTERNAL SWR
AR8151:LR36(O),LR38(X)
AR8161:LR38(O),LR36(X)

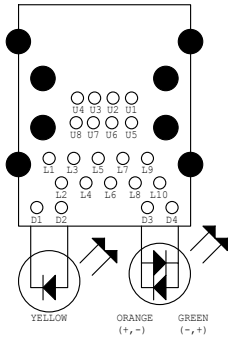
Dual Color LED
D4 D3 Green
D4 D3 Orange

Single Color LED
D2 D1 Yellow

LED0(ACT) LED1(LINK) LED2(LINK1G)

CLKREQ# PULL-UP FOR EFUSE:
1.AR8151:LR31(O),LR32(X)
2.AR8152:LR31(X),LR32(O)

P35-152-19W9



USB_LAN CONNECTOR

1G :USB+LAN/1G/GO,Y/OS/RA/D/1
100M:USB+LAN/100/GO,Y/OS/RA/D/1

LBC22 0.1u/4/X7R/16V/K
AVDD_CEN
USB_LAN
P_MDI0+ P_MDI0- P_MDI1+ P_MDI1- P_MDI2+ P_MDI2- P_MDI3+ P_MDI3-
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10
D1 LED_ACT
D2 LR20 150/6
D3 LED_GREEN LR21 150/6
D4 LED_LINK1000 LR22 150/6
U1 U2 U3 U4 U5 U6 U7 U8
P4- P4+ P5- P5+
UP
DOWN
LR21:AR8151(O),AR8152(X)

3VDUAL
LFB1 0/6/SHT/M/X
LBC25 0.1u/4/Y5V/16V/Z/X
FUSEVCC
LBC15 0.1u/4/Y5V/16V/Z/X

LC10 0.01u/4/X7R/25V/K
AVDD_CEN
LR25 0/4/X

USB+LAN/1G/GO,Y/OS/RA/D/8C/[11NR6-702009-92R_11NR6-702009-91R]

LR25:AR8151(X),AR8152(O)
因100M LAN
CONNECTOR差異

USB_LAN

5VDUAL
LR56 150K/4
LEC1 1000u/D/6.3V/8C/30m
LR57 270K/4
SOT23
D19 BAT54A/SOT23/200mA
FUSEVCC
-USBOC_R [18]

EMI
LR54 0/6/SHT/M/X

P4+ +USBP4 [18]
P4- -USBP4 [18]
P5+ +USBP5 [18]
P5- -USBP5 [18]

Gigabyte Technology

Title: **ARTHEROS AR8151/AR8161**

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