

SHEET

TITLE

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03	BOM & PCB MODIFY HISTORY
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05	P4 LGA775 B,D
06	P4 LGA775 C
07	P4 LGA775 E,F,G,H
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09	G31 DDRII
10	G31 PCI E, DMI
11	G31 VGA
12	G31 GND
13	G31 PWR
14	PCI EXPRESS*16 SLOT
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16	DDRII CHANNEL B
17	DDRII 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/HX
25	COM LPT
26	CI, HWM, KB/MS, DUALBIOS
27	ALC883

SHEET

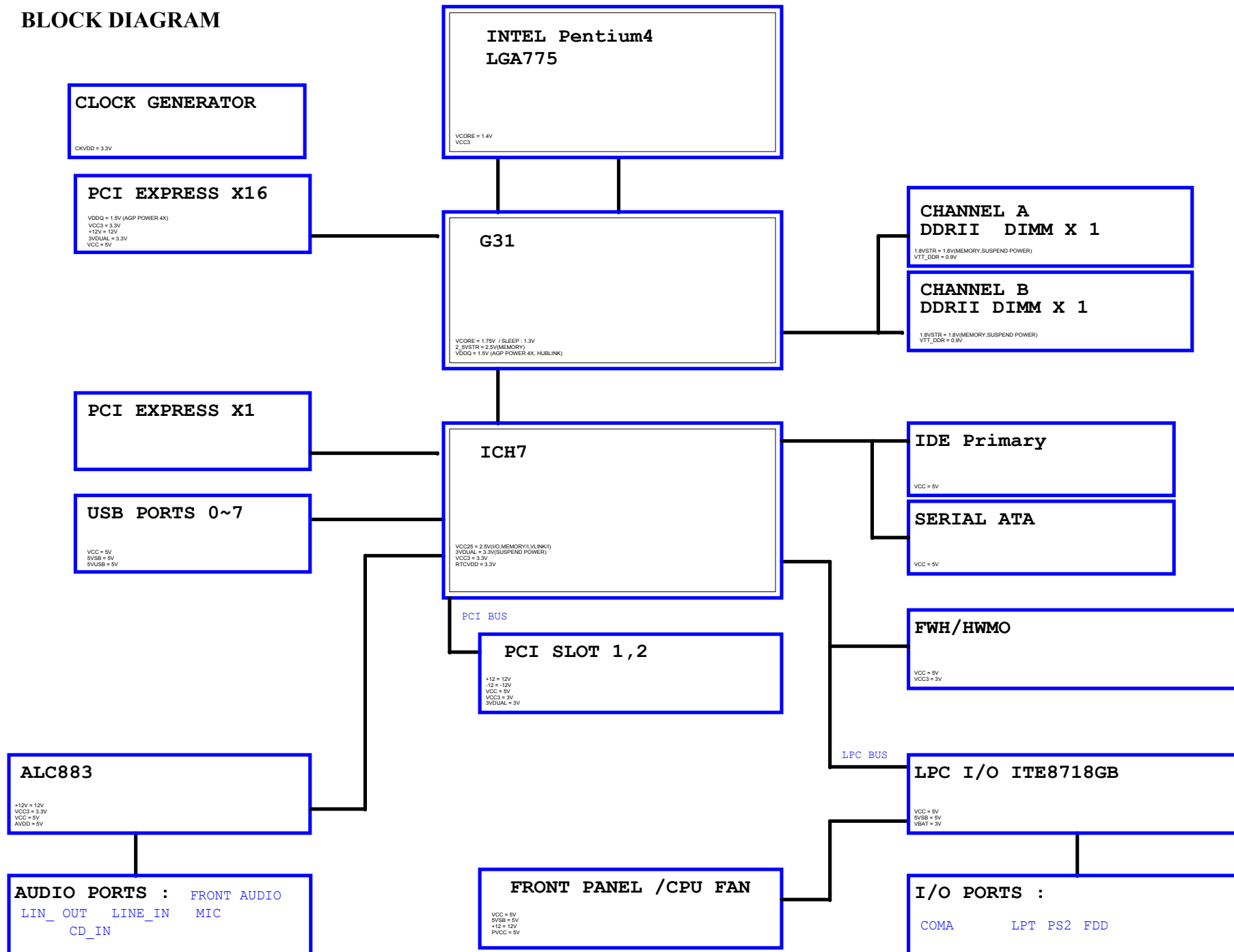
TITLE

28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM ISL6312
31	ATX, OTHERS POWER
32	FRONT PANEL
33	REALTEK RTL8111C/8102E

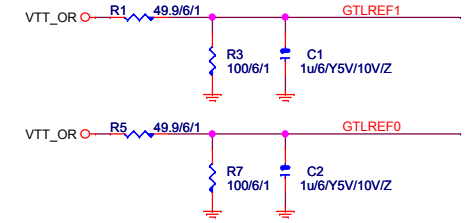
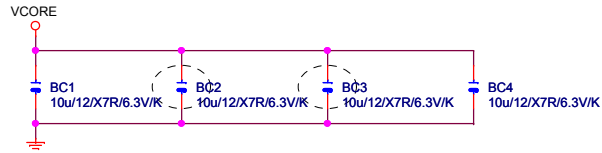
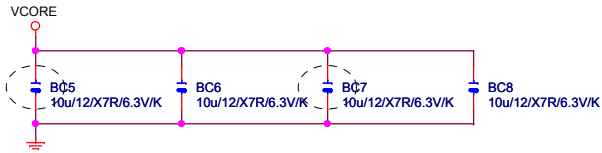
Gigabyte Technology

Title			
Cover Sheet			
Size	Document Number	GA-G31M-ES2L	Rev
Custom			1.11
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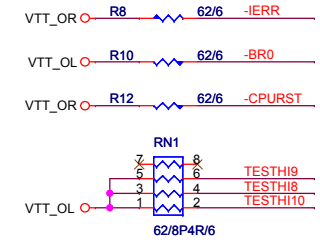
# BLOCK DIAGRAM







中間値0.9V



LGA775-39

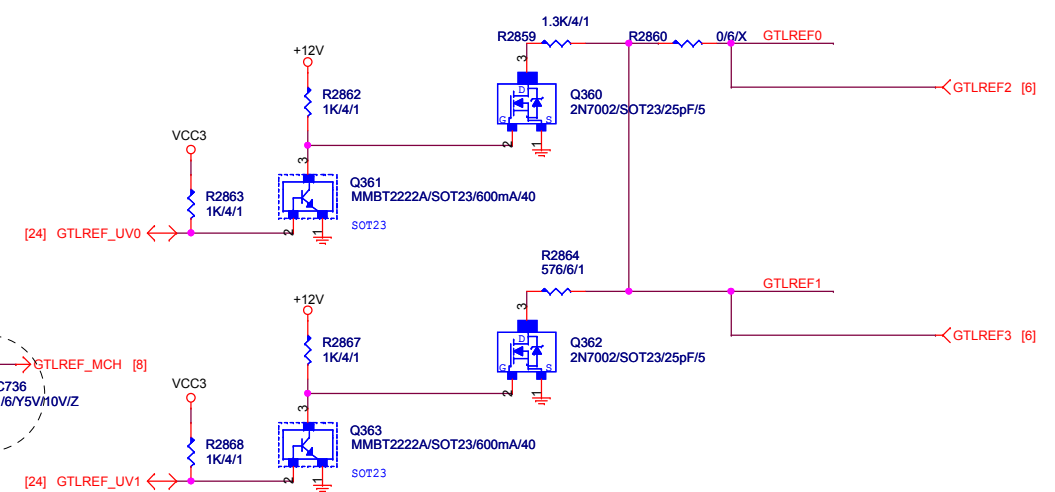
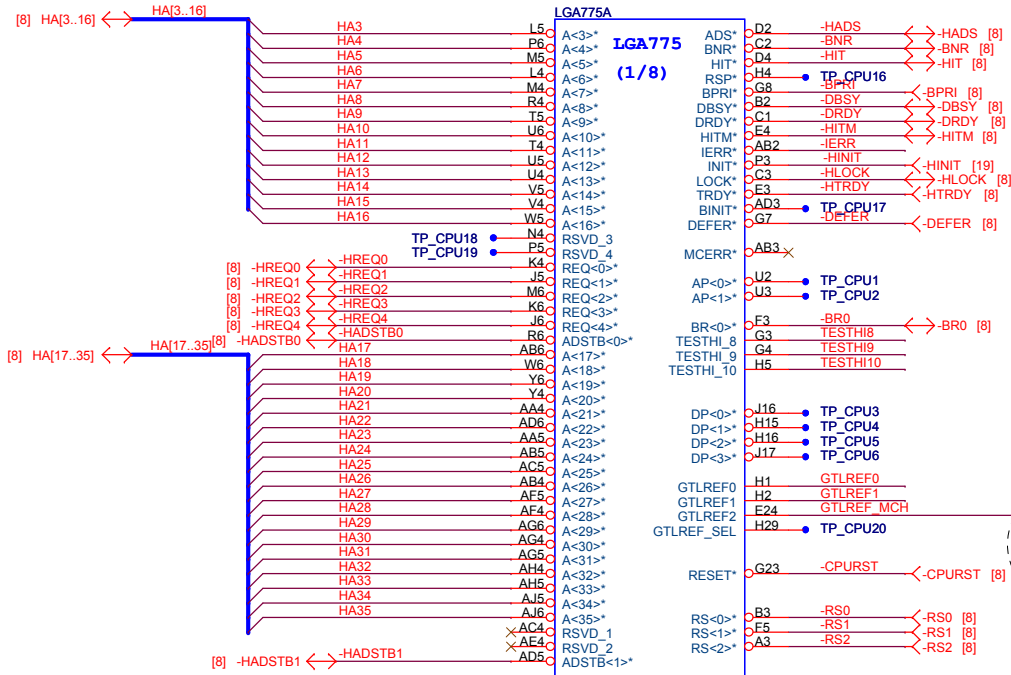
LGA775A

LGA775 (1/8)

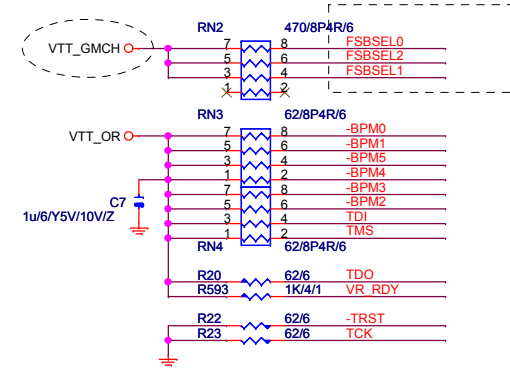
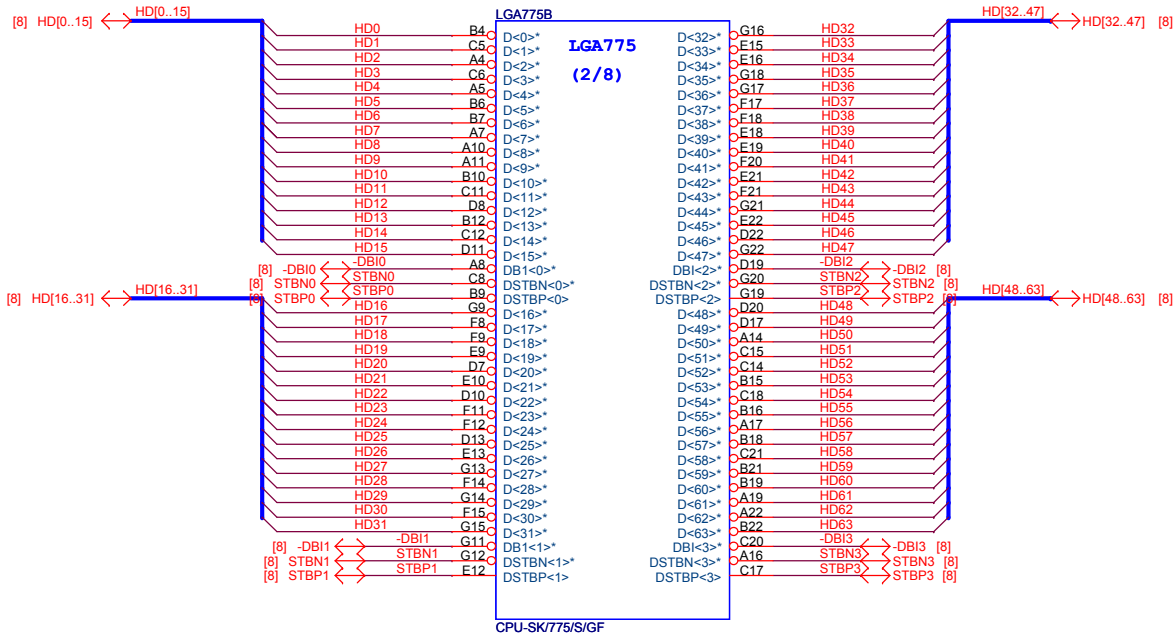
TP\_CPU18

TP\_CPU19

CPU-SK775/S/GF

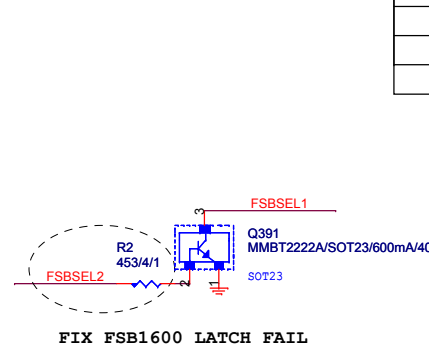
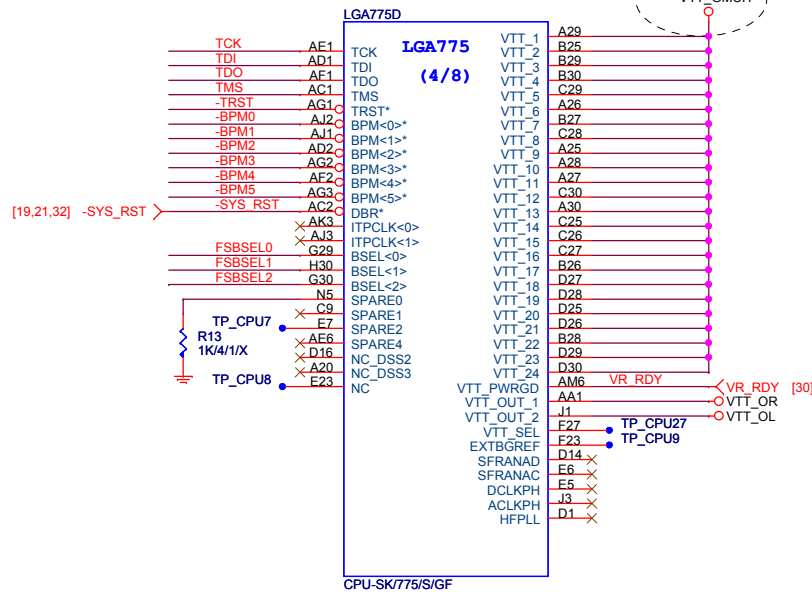


<b>Gigabyte Technology</b>			
<b>P4_LGA775-A</b>			
Size	Document Number	<b>GA-G31M-ES2L</b>	
Rev	<b>1.11</b>		
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**CPU**

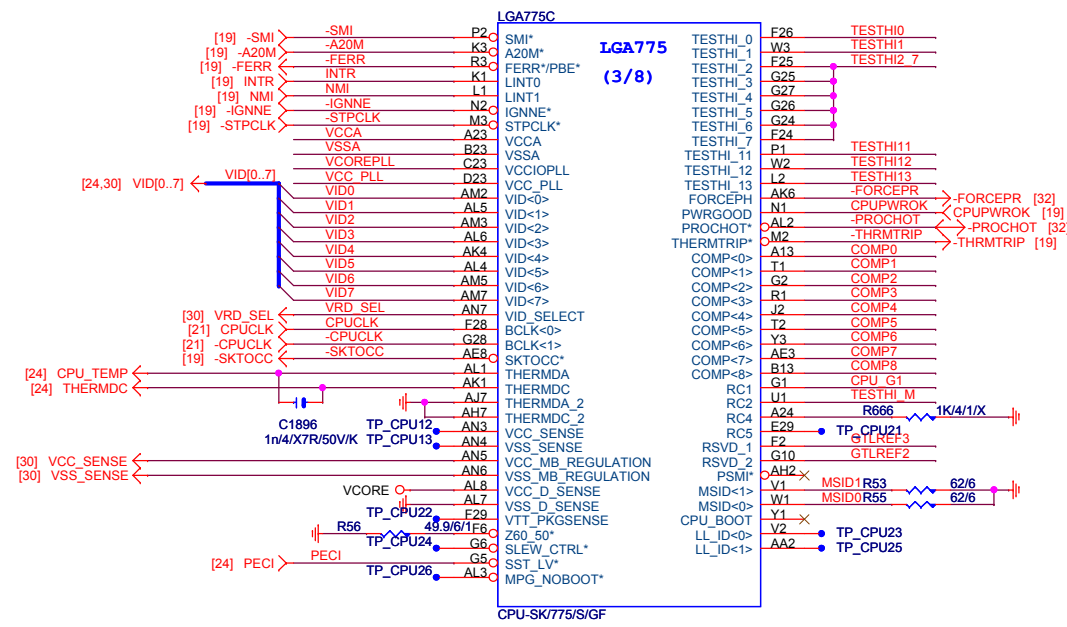
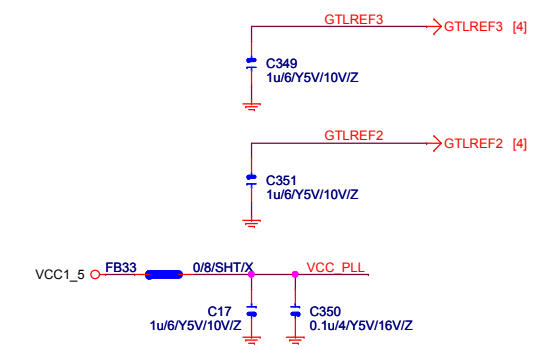
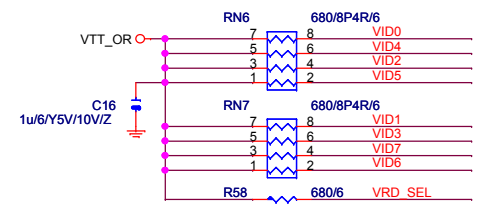
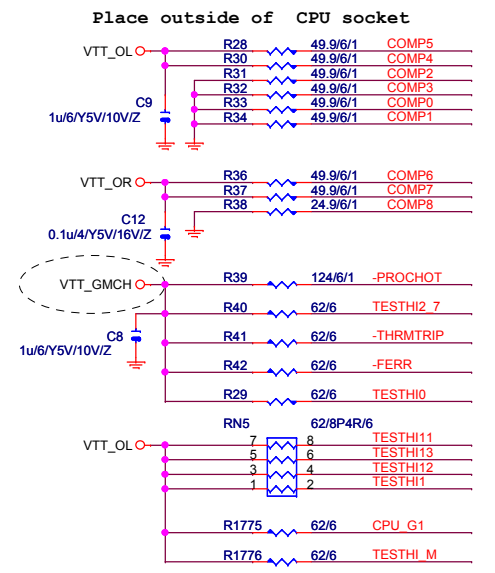
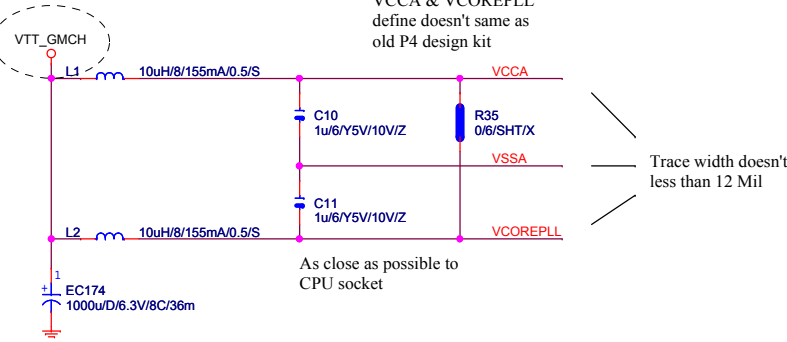
NA	FSB	FSA	Clock
FSBSEL3	FSBSEL1	FSBSEL0	Clock
1	0	1	100MHz
0	0	1	1.33MHz
0	1	1	1.66MHz
0	1	0	2.00MHz
0	0	0	2.66MHz



FIX FSB1600 LATCH FAIL

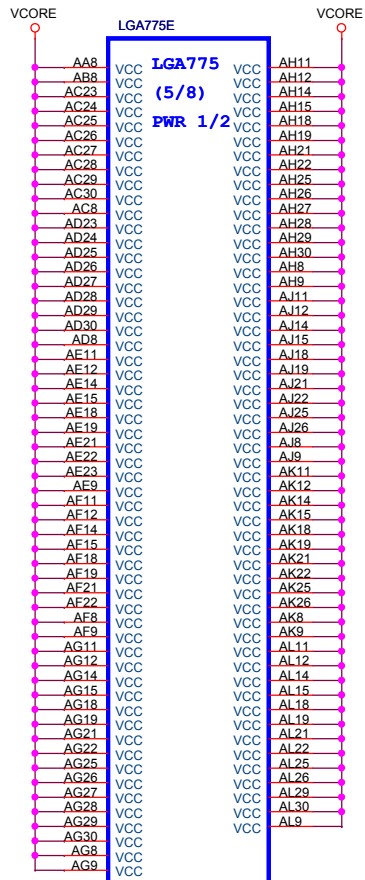
<b>Gigabyte Technology</b>		
Title <b>P4_LGA775-B,D</b>		
Size B	Document Number <b>GA-G31M-ES2L</b>	Rev <b>1.11</b>
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**Note:**  
VCCA & VCOREPLL  
define doesn't same as  
old P4 design kit

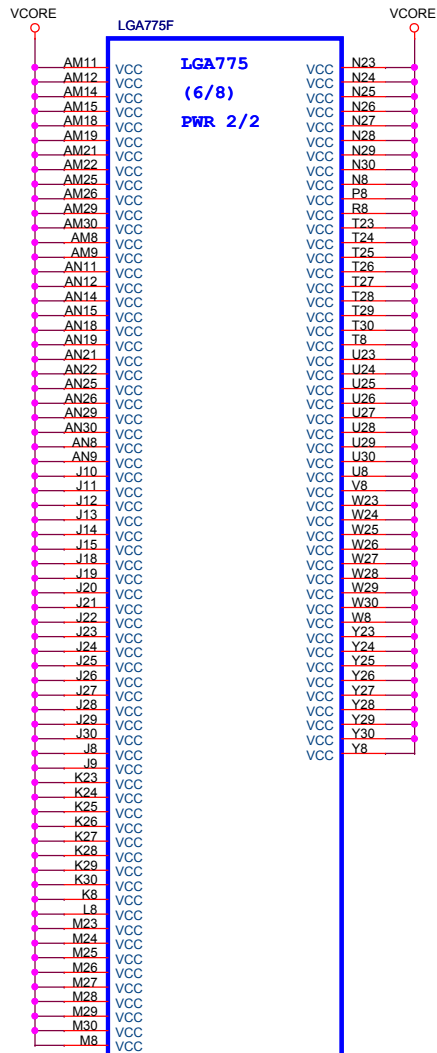


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<b>P4_LGA775-C</b>		
Size B	Document Number	Rev 1.11
	<b>GA-G31M-ES2L</b>	
Date:	Thursday, July 17, 2008	Sheet 6 of 33

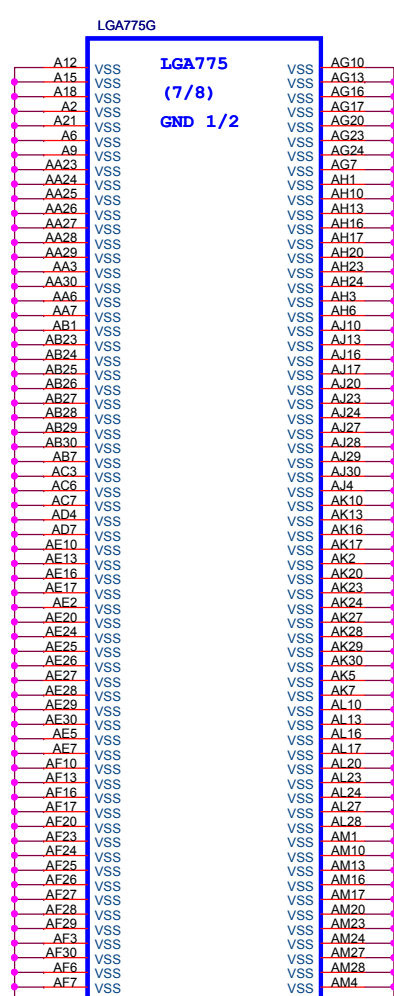
PECI: Platform Environment Control Interface



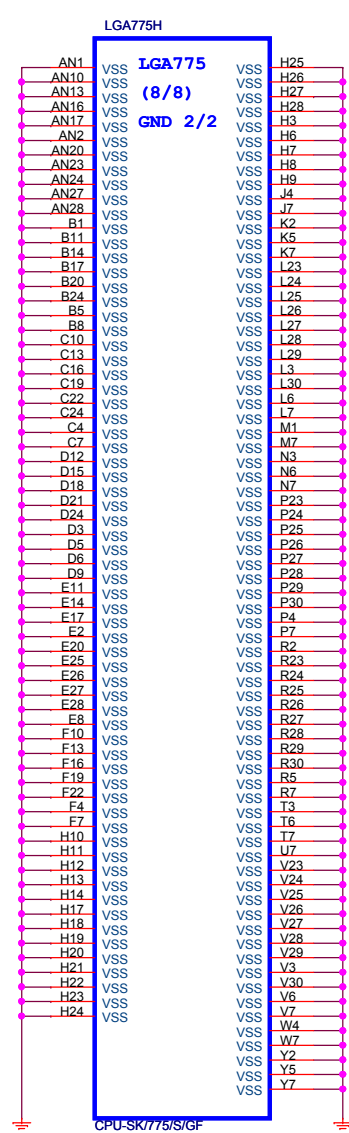
CPU-SK/775/S/GF



CPU-SK/775/S/GF

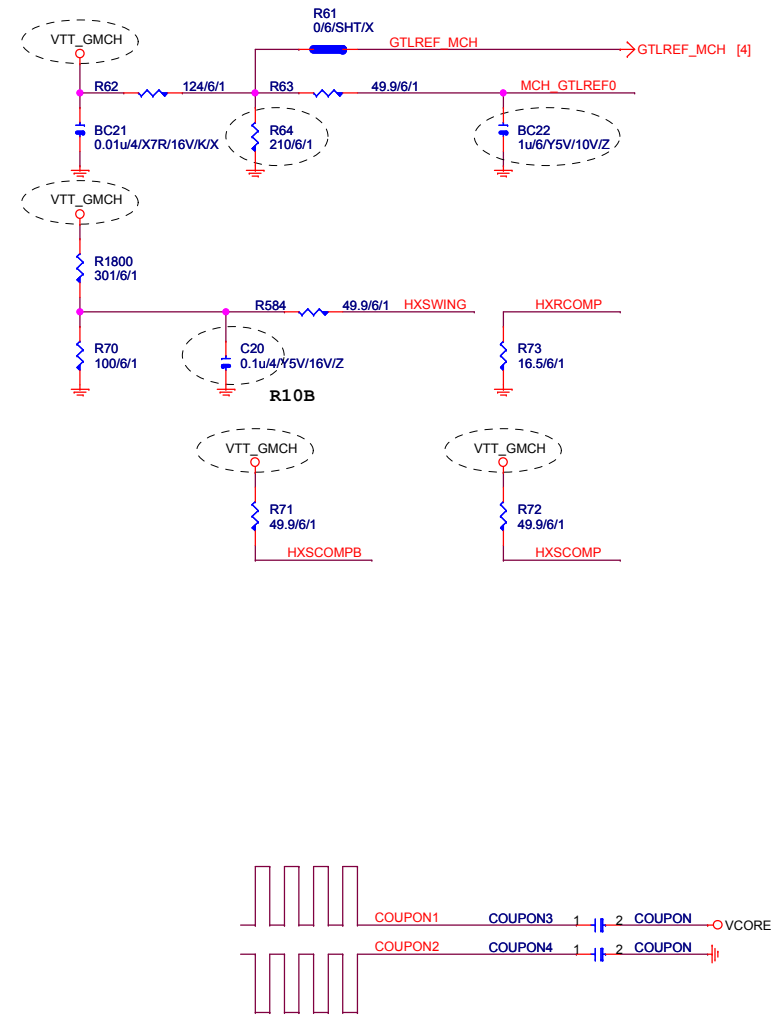
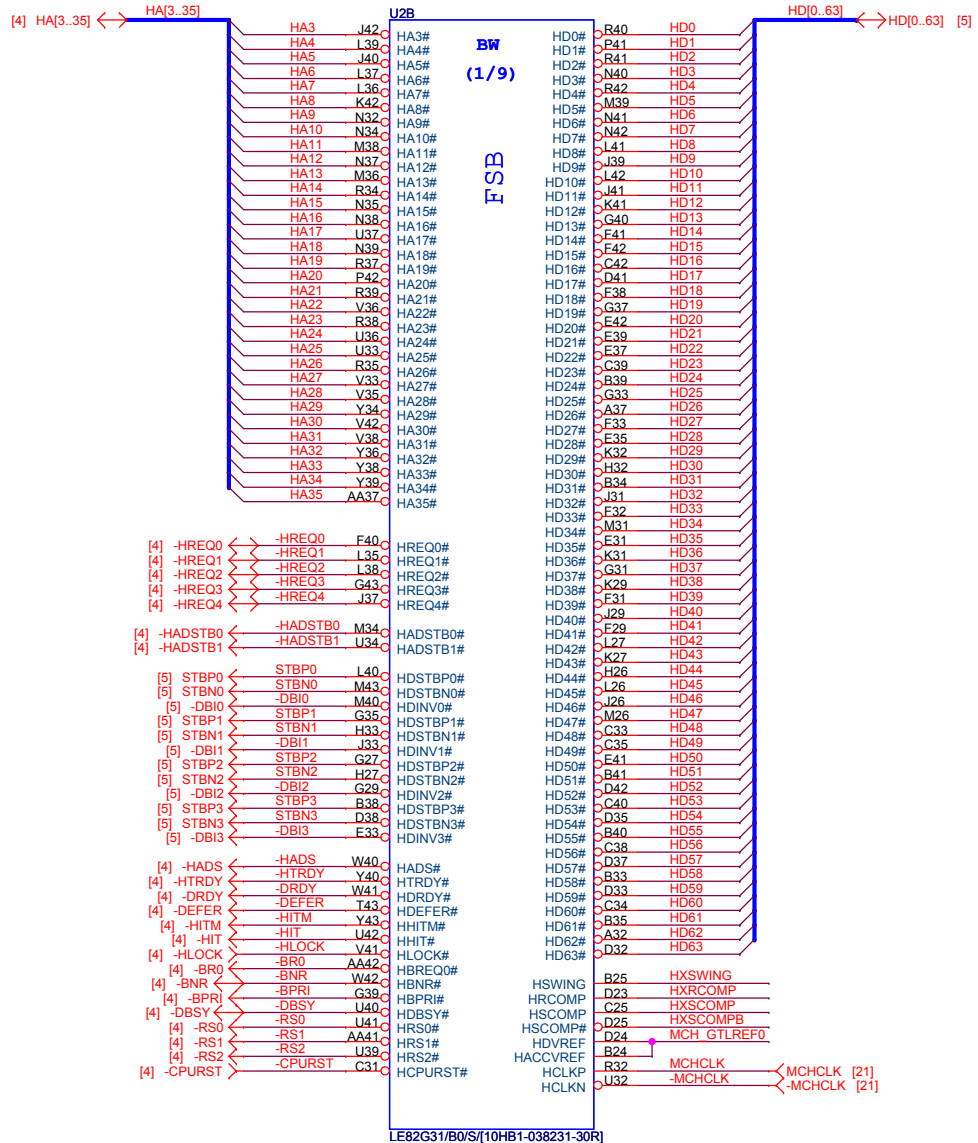


CPU-SK/775/S/GF



CPU-SK/775/S/GF

<b>Gigabyte Technology</b>		
<b>Title</b> P4_LGA775-E,F,G,H		
<b>Size</b> B	<b>Document Number</b> GA-G31M-ES2L	<b>Rev</b> 1.11
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<b>Gigabyte Technology</b>		
<b>Title</b>		
<b>GMCH-HOST</b>		
<b>Size</b>	<b>Document Number</b>	<b>Rev</b>
3	<b>GA-G31M-ES2L</b>	<b>1.11</b>
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U2C

Pin list for U2C channel A including SMA, SDQS, SDQ, SDO, SCKE, SCLK, SODT, SDQS, and SDM pins with their respective component values and reserved status.

LE82G31B0S(10HB1-038231-30R)

CHANNEL A

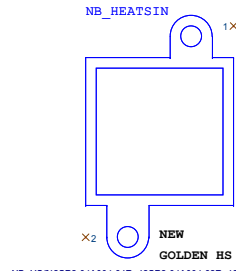
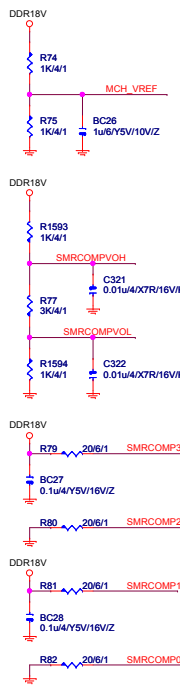
U2D

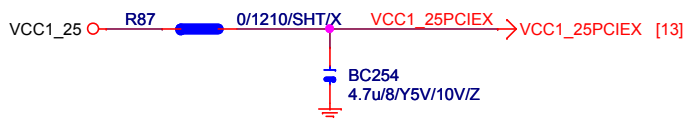
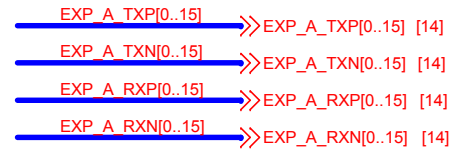
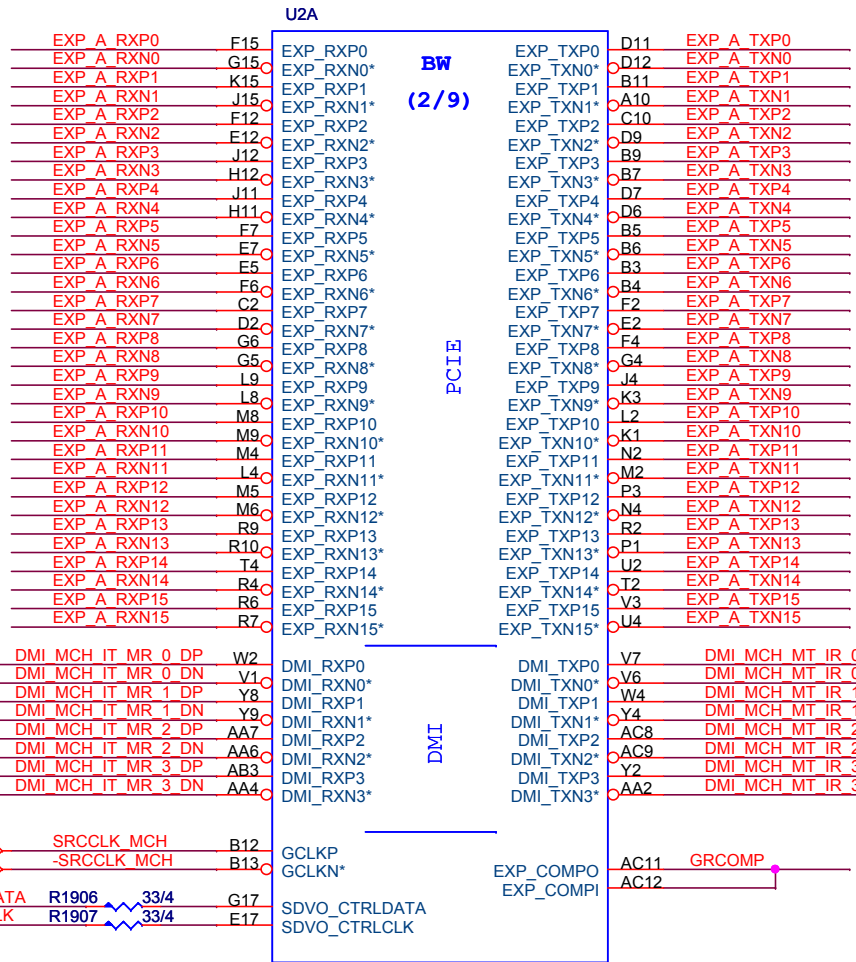
Pin list for U2D channel B including SMA, SDQS, SDQ, SDO, SCKE, SCLK, SODT, SDQS, and SDM pins with their respective component values and reserved status.

LE82G31B0S(10HB1-038231-30R)

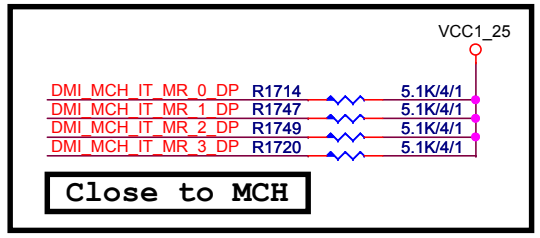
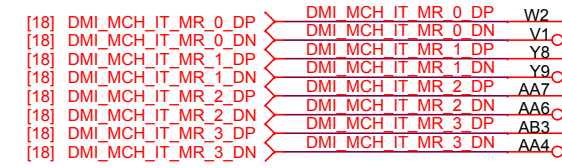
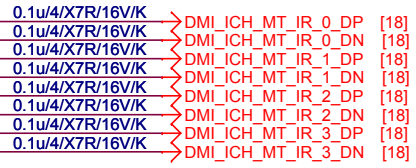
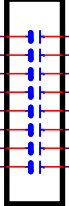
CHANNEL B

Pin list for U2D channel C including MODT, DQS, DQ, and DQSA pins with their respective component values.

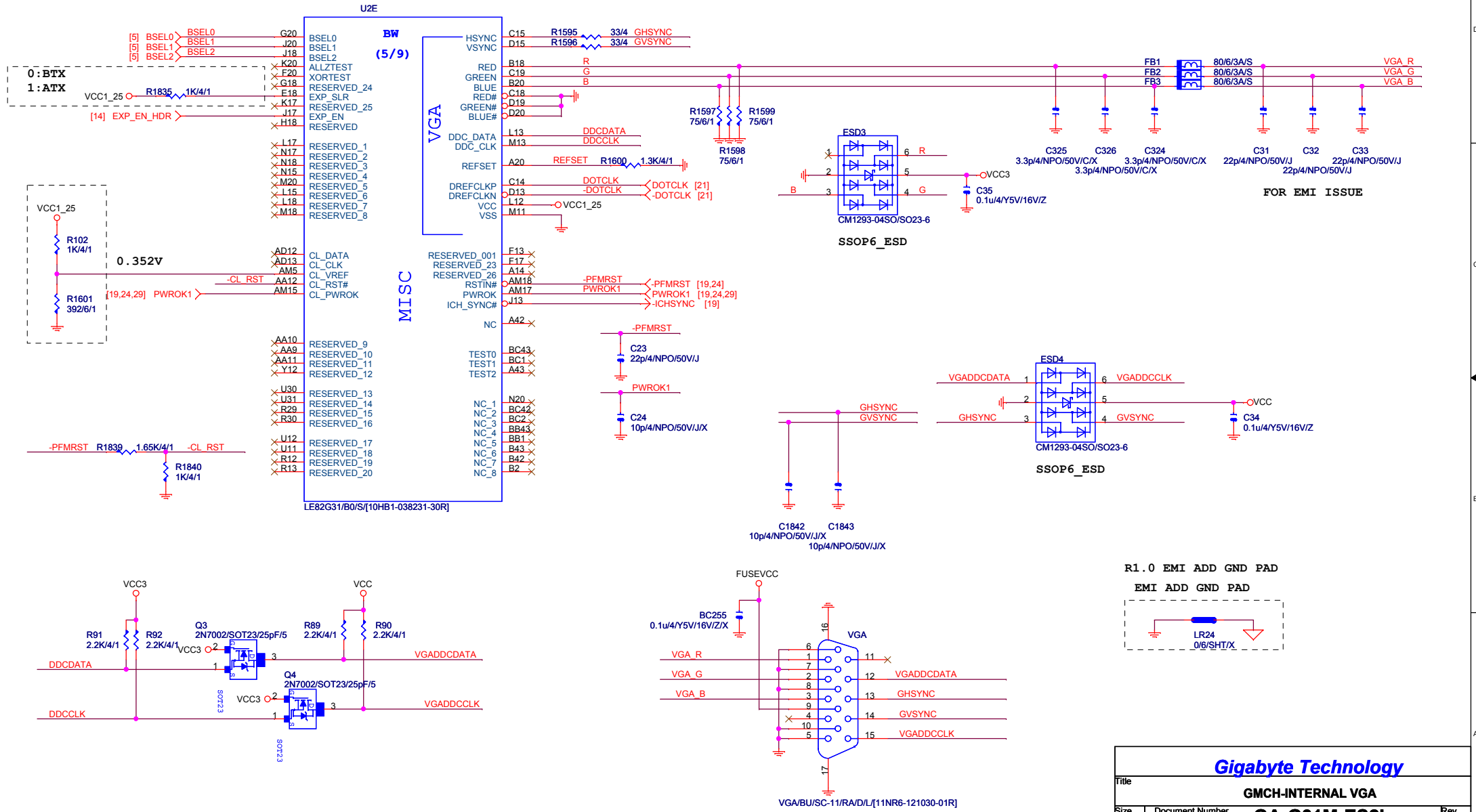




**Close to MCH**

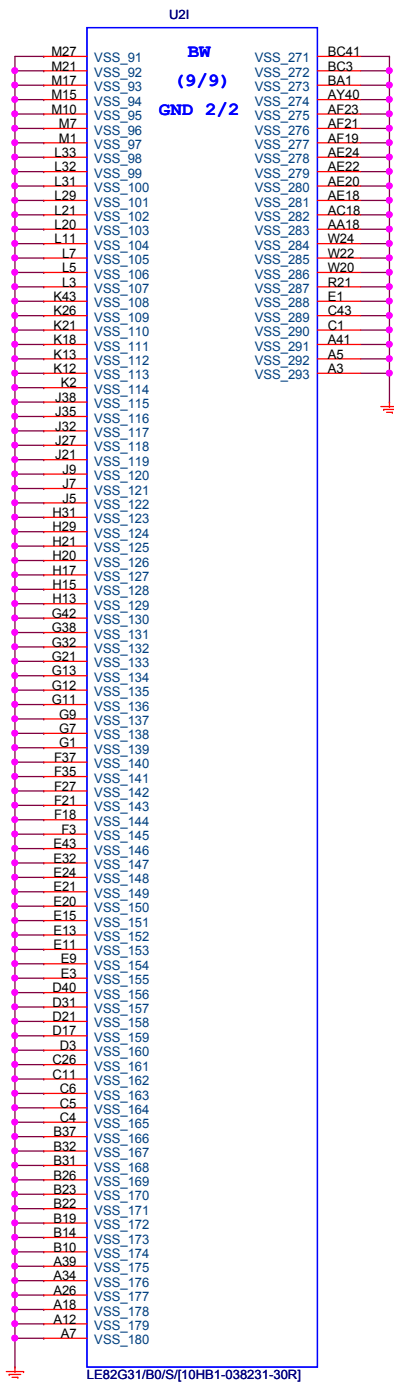
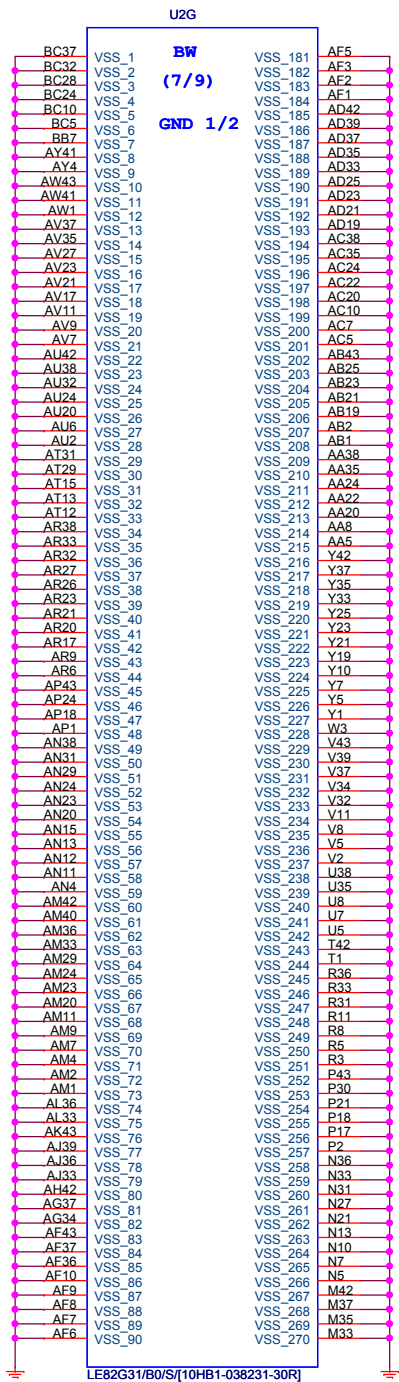


<b>Gigabyte Technology</b>			
Title <b>GMCH-PCI E &amp; DMI</b>			
Size	Document Number	<b>GA-G31M-ES2L</b>	
Custom		Rev	<b>1.11</b>
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R1.0 EMI ADD GND PAD  
EMI ADD GND PAD

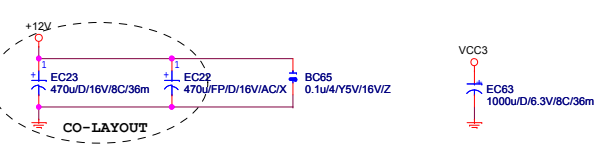
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Size <b>B</b>	Document Number <b>GA-G31M-ES2L</b>	Rev <b>1.11</b>	
Date: <b>Thursday, July 17, 2008</b>	Sheet <b>11</b>	of <b>33</b>	



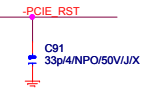
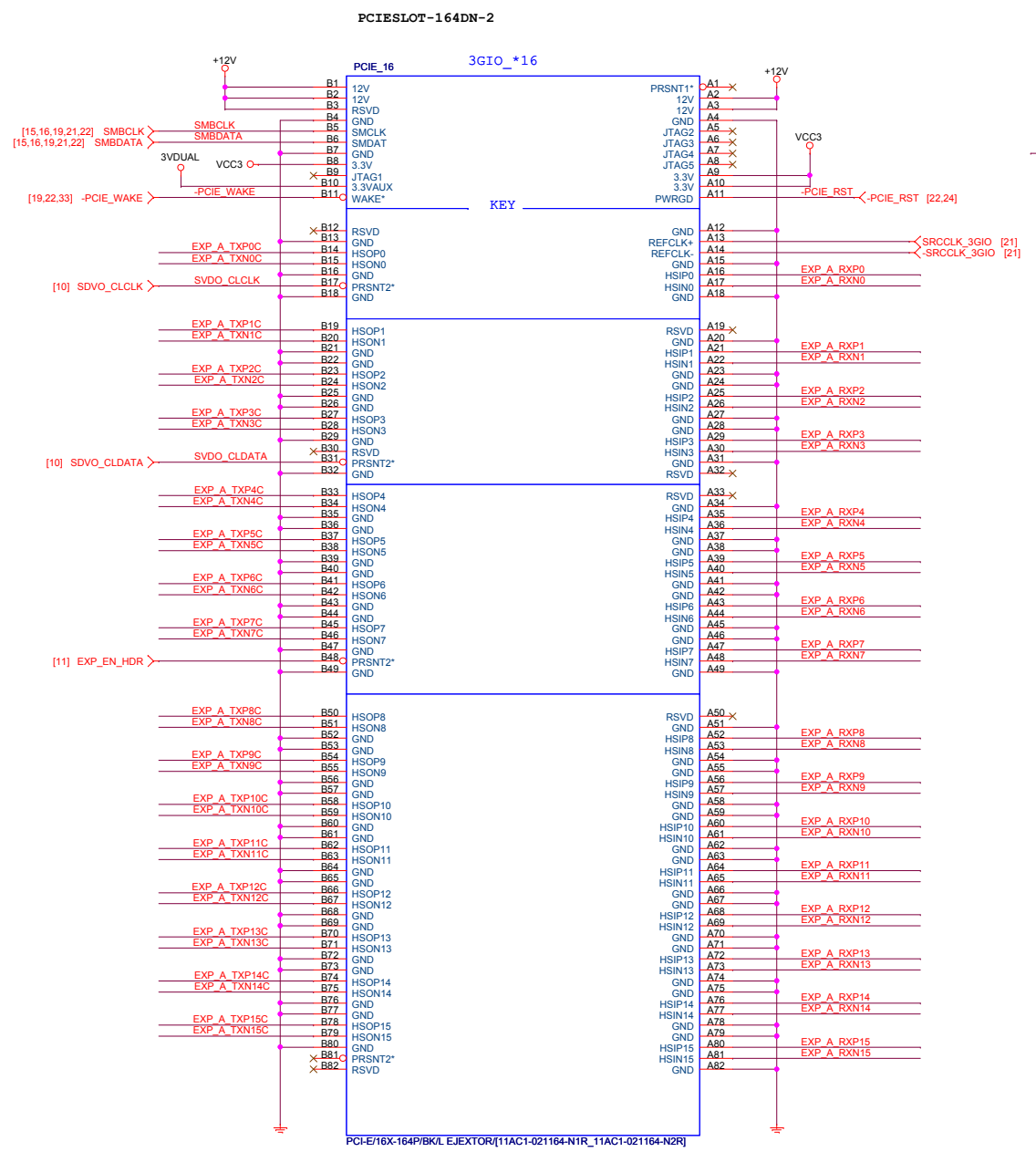
**Gigabyte Technology**

Title		
<b>GMCH-GND</b>		
Size	Document Number	Rev
Custom	<b>GA-G31M-ES2L</b>	<b>1.1</b>
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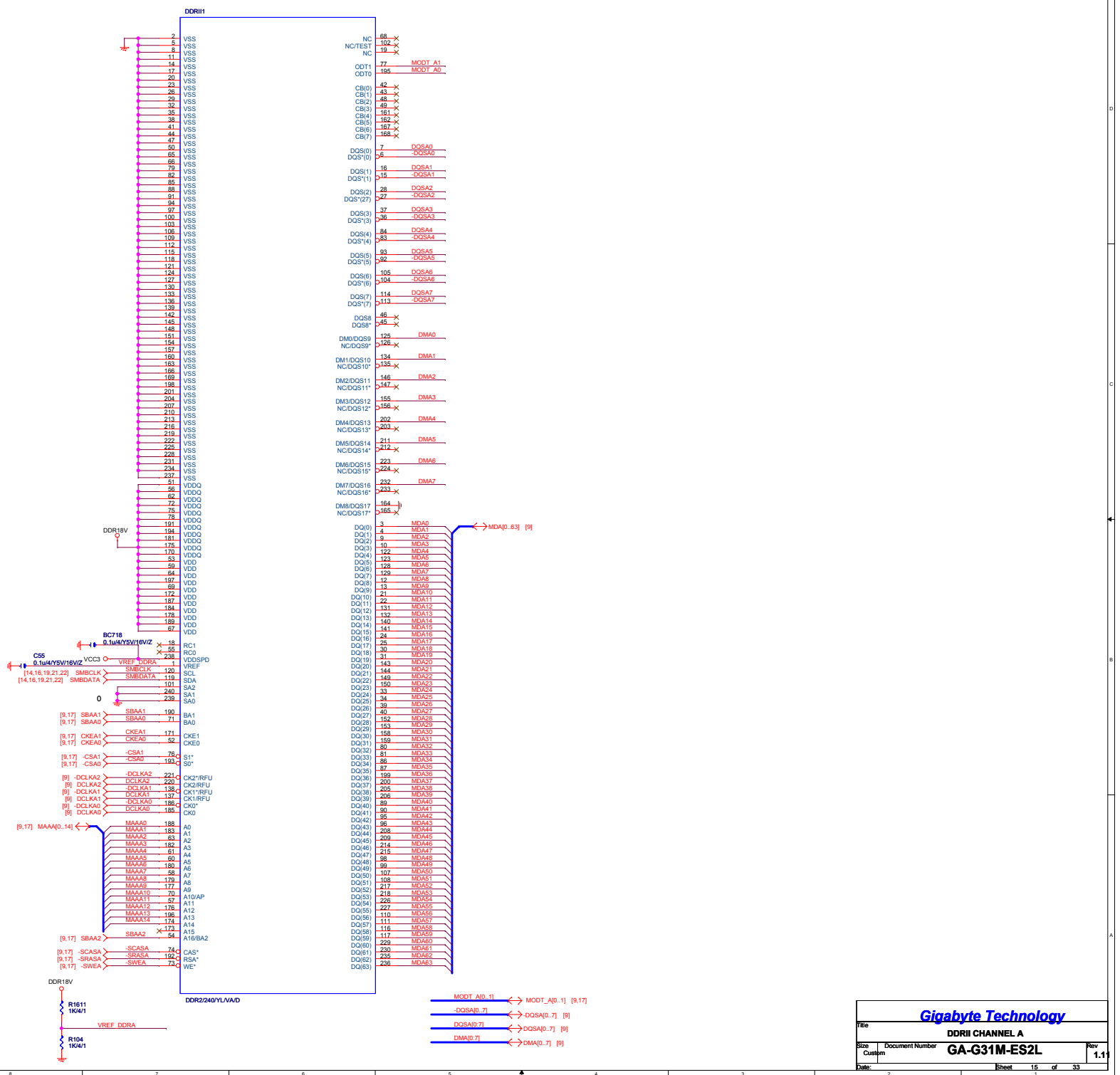


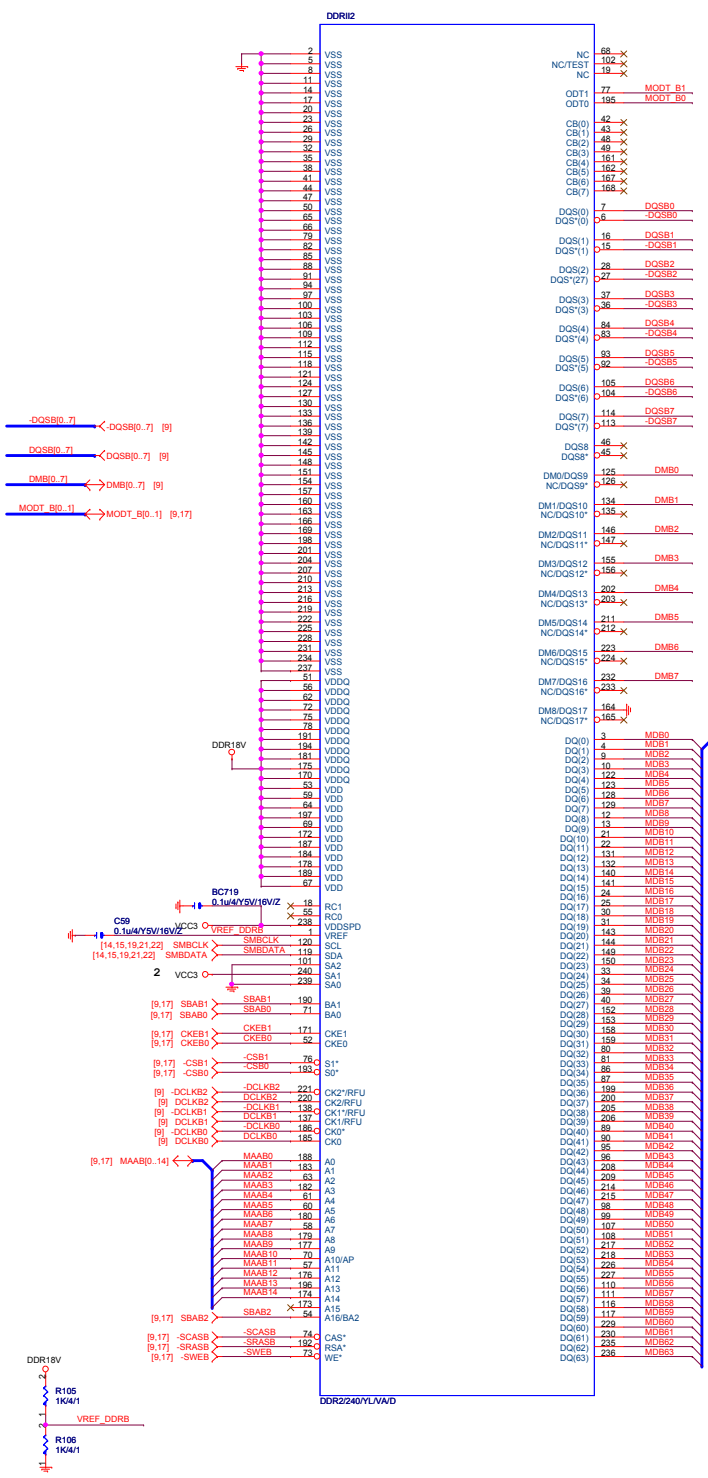
EXP_A_TXP0	C92	0.1u4/X7R/16V/K	EXP_A_TXP0C
EXP_A_TXN0	C93	0.1u4/X7R/16V/K	EXP_A_TXN0C
EXP_A_TXP1	C94	0.1u4/X7R/16V/K	EXP_A_TXP1C
EXP_A_TXN1	C95	0.1u4/X7R/16V/K	EXP_A_TXN1C
EXP_A_TXP2	C96	0.1u4/X7R/16V/K	EXP_A_TXP2C
EXP_A_TXN2	C97	0.1u4/X7R/16V/K	EXP_A_TXN2C
EXP_A_TXP3	C98	0.1u4/X7R/16V/K	EXP_A_TXP3C
EXP_A_TXN3	C99	0.1u4/X7R/16V/K	EXP_A_TXN3C
EXP_A_TXP4	C100	0.1u4/X7R/16V/K	EXP_A_TXP4C
EXP_A_TXN4	C101	0.1u4/X7R/16V/K	EXP_A_TXN4C
EXP_A_TXP5	C102	0.1u4/X7R/16V/K	EXP_A_TXP5C
EXP_A_TXN5	C103	0.1u4/X7R/16V/K	EXP_A_TXN5C
EXP_A_TXP6	C104	0.1u4/X7R/16V/K	EXP_A_TXP6C
EXP_A_TXN6	C105	0.1u4/X7R/16V/K	EXP_A_TXN6C
EXP_A_TXP7	C106	0.1u4/X7R/16V/K	EXP_A_TXP7C
EXP_A_TXN7	C107	0.1u4/X7R/16V/K	EXP_A_TXN7C
EXP_A_TXP8	C108	0.1u4/X7R/16V/K	EXP_A_TXP8C
EXP_A_TXN8	C109	0.1u4/X7R/16V/K	EXP_A_TXN8C
EXP_A_TXP9	C110	0.1u4/X7R/16V/K	EXP_A_TXP9C
EXP_A_TXN9	C111	0.1u4/X7R/16V/K	EXP_A_TXN9C
EXP_A_TXP10	C112	0.1u4/X7R/16V/K	EXP_A_TXP10C
EXP_A_TXN10	C113	0.1u4/X7R/16V/K	EXP_A_TXN10C
EXP_A_TXP11	C114	0.1u4/X7R/16V/K	EXP_A_TXP11C
EXP_A_TXN11	C115	0.1u4/X7R/16V/K	EXP_A_TXN11C
EXP_A_TXP12	C116	0.1u4/X7R/16V/K	EXP_A_TXP12C
EXP_A_TXN12	C117	0.1u4/X7R/16V/K	EXP_A_TXN12C
EXP_A_TXP13	C118	0.1u4/X7R/16V/K	EXP_A_TXP13C
EXP_A_TXN13	C119	0.1u4/X7R/16V/K	EXP_A_TXN13C
EXP_A_TXP14	C120	0.1u4/X7R/16V/K	EXP_A_TXP14C
EXP_A_TXN14	C121	0.1u4/X7R/16V/K	EXP_A_TXN14C
EXP_A_TXP15	C122	0.1u4/X7R/16V/K	EXP_A_TXP15C
EXP_A_TXN15	C123	0.1u4/X7R/16V/K	EXP_A_TXN15C



LEFT BLUE

<b>Gigabyte Technology</b>		
Title		
PCI EXPRESS * 16		
Size	Document Number	Rev
Custom	<b>GA-G31M-ES2L</b>	1.1
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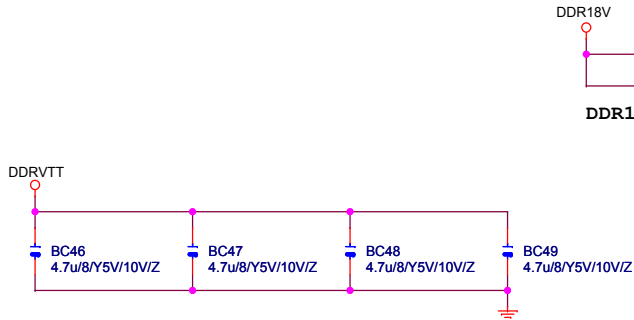
68	NC	X
102	NC/TEST	X
103	NC	X
77	MODT_B1	
105	MODT_B0	
ODT1		
ODT0		
42	CB(0)	X
43	CB(1)	X
46	CB(2)	X
49	CB(3)	X
161	CB(4)	X
162	CB(5)	X
167	CB(6)	X
168	CB(7)	X
7	DQS(0)	
5	DQS(0)	
16	DQS(1)	
15	DQS(1)	
28	DQS(2)	
27	DQS(2)	
37	DQS(3)	
36	DQS(3)	
84	DQS(4)	
83	DQS(4)	
93	DQS(5)	
92	DQS(5)	
105	DQS(6)	
104	DQS(6)	
114	DQS(7)	
113	DQS(7)	
46	DQS8	X
45	DQS8	X
126	DM0/DS9	
128	DM0/DS9	
134	DM1/DS10	
135	DM1/DS10	
146	DM2/DS11	
147	DM2/DS11	
155	DM3/DS12	
156	DM3/DS12	
202	DM4/DS13	
203	DM4/DS13	
211	DM5/DS14	
212	DM5/DS14	
223	DM6/DS15	
224	DM6/DS15	
232	DM7/DS16	
233	DM7/DS16	
164	DM8/DS17	
165	DM8/DS17	
3	DQ(0)	
4	DQ(1)	
5	DQ(2)	
10	DQ(3)	
122	DQ(4)	
123	DQ(5)	
128	DQ(6)	
129	DQ(7)	
12	DQ(8)	
13	DQ(9)	
21	DQ(10)	
22	DQ(11)	
131	DQ(12)	
132	DQ(13)	
140	DQ(14)	
141	DQ(15)	
24	DQ(16)	
25	DQ(17)	
30	DQ(18)	
31	DQ(19)	
143	DQ(20)	
144	DQ(21)	
149	DQ(22)	
150	DQ(23)	
33	DQ(24)	
34	DQ(25)	
39	DQ(26)	
40	DQ(27)	
192	DQ(28)	
193	DQ(29)	
168	DQ(30)	
169	DQ(31)	
80	DQ(32)	
81	DQ(33)	
86	DQ(34)	
87	DQ(35)	
199	DQ(36)	
200	DQ(37)	
205	DQ(38)	
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214	DQ(46)	
215	DQ(47)	
98	DQ(48)	
99	DQ(49)	
107	DQ(50)	
108	DQ(51)	
217	DQ(52)	
218	DQ(53)	
226	DQ(54)	
227	DQ(55)	
110	DQ(56)	
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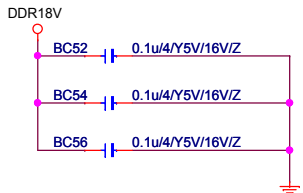


# DDR TERMINATION CHANNEL A

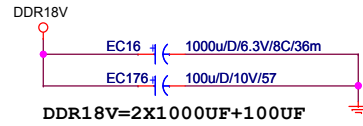
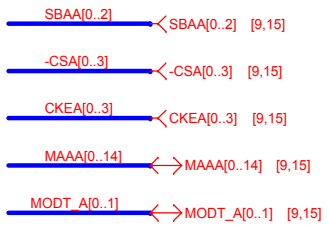
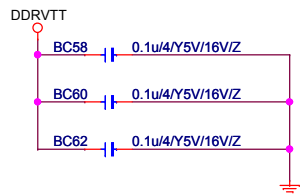
## DDRVTT Decouple



## DDR18V Decouple

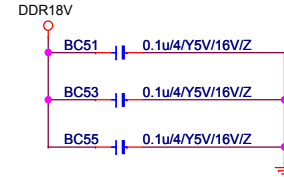


## DDRVTT Decouple

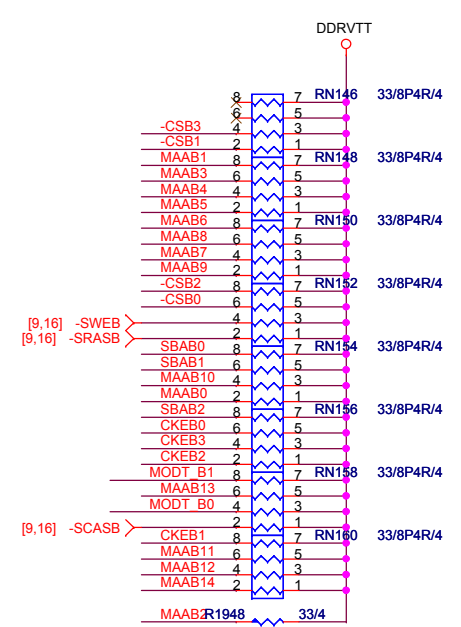
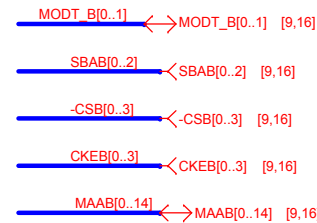
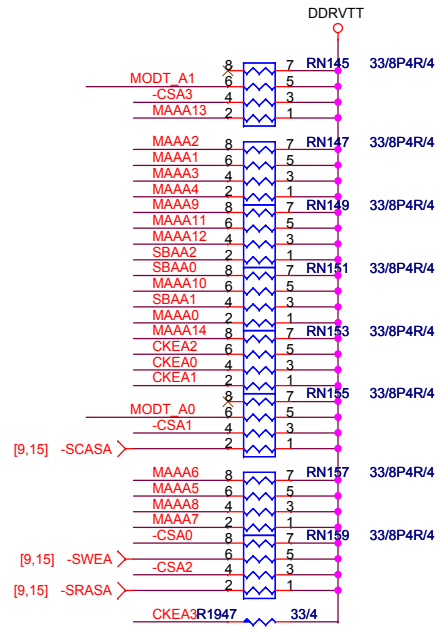
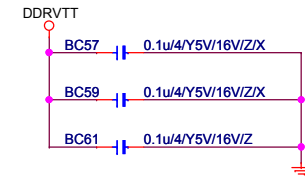


# DDR TERMINATION CHANNEL B

## DDR18V Decouple

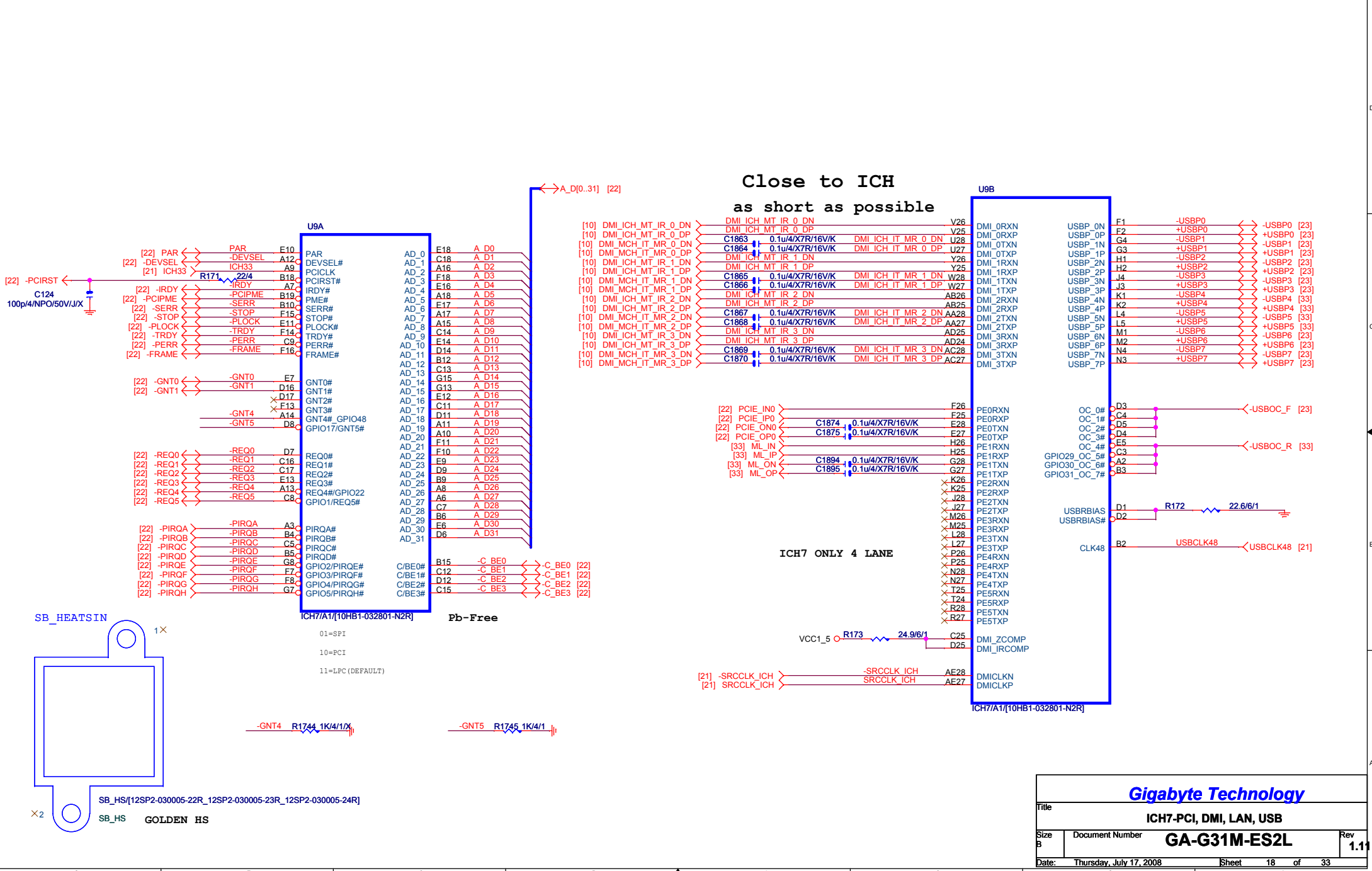


## DDRVTT Decouple



**Gigabyte Technology**

Title		
DDR II TERMINATOR		
Size Custom	Document Number	Rev
	<b>GA-G31M-ES2L</b>	<b>1.11</b>
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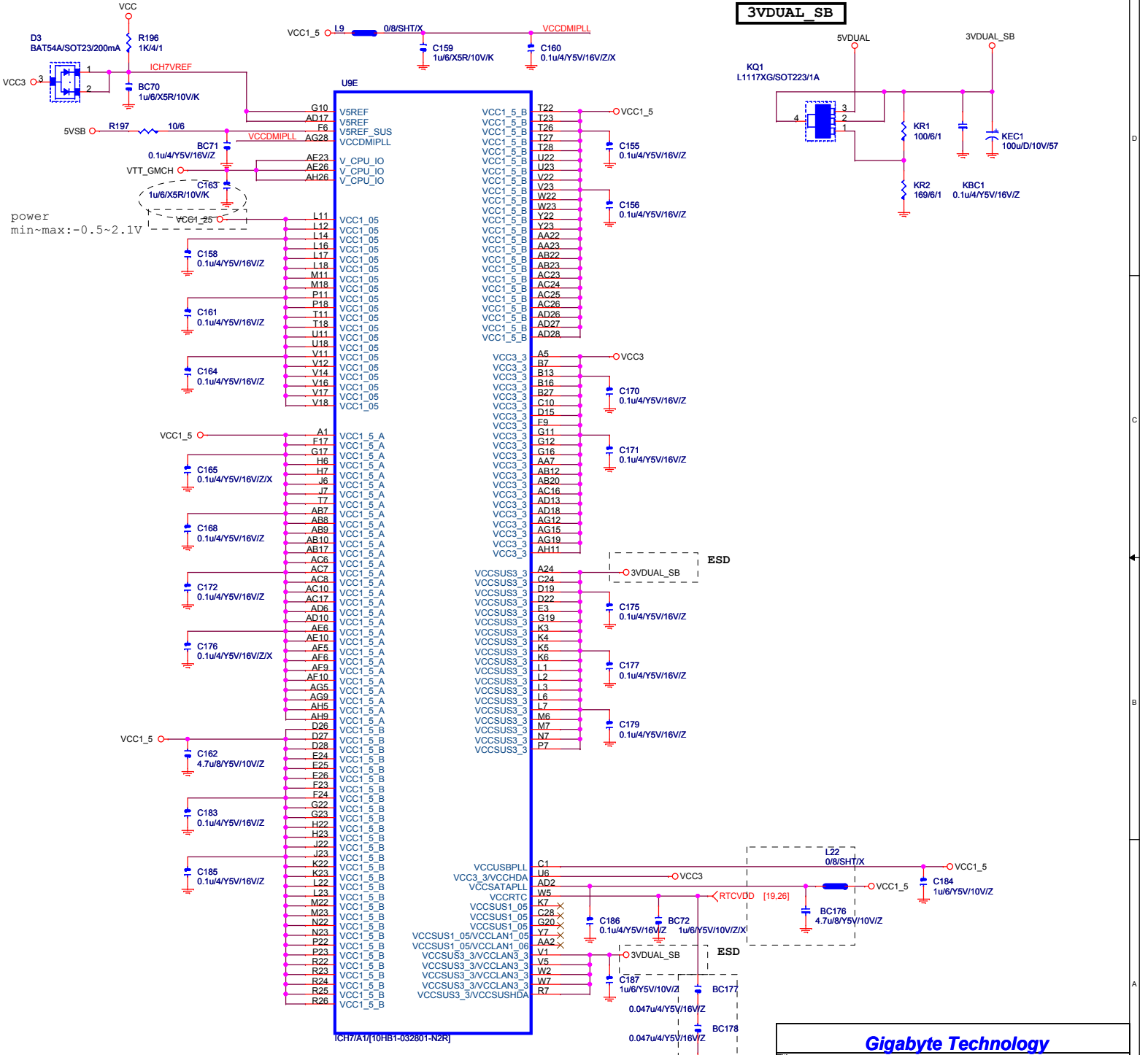


8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



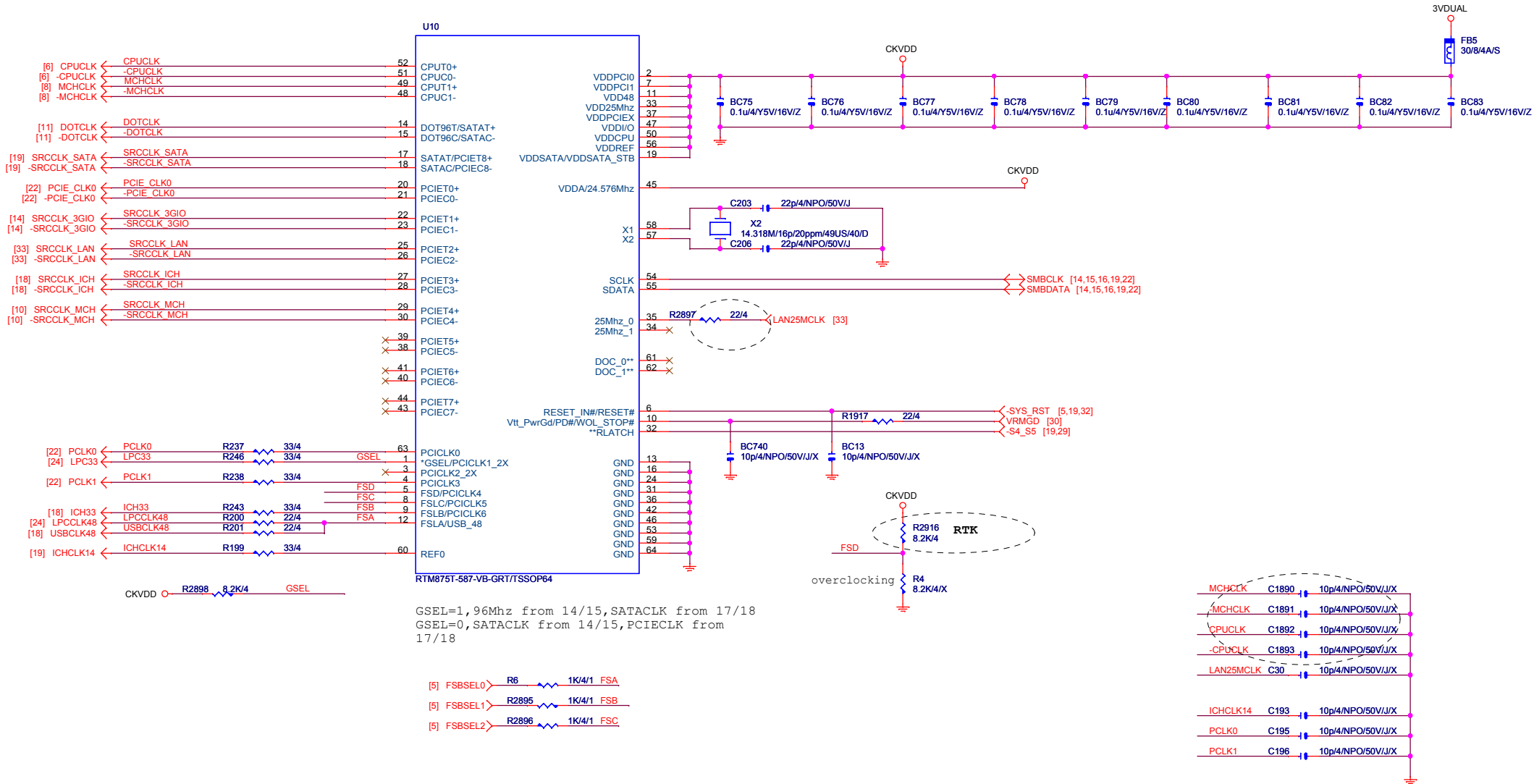
U9F		
A4	VSS1	R14
A23	VSS2	R15
B1	VSS3	R16
B8	VSS4	R17
B11	VSS5	R18
B14	VSS6	T12
B17	VSS6	T13
B20	VSS7	T14
B26	VSS8	T14
B28	VSS10	T15
C2	VSS11	T16
D6	VSS12	T17
D10	VSS13	U4
D13	VSS13	U12
D18	VSS14	U13
D21	VSS15	U14
D24	VSS17	U15
E1	VSS18	U16
E2	VSS19	U17
E8	VSS19	U24
E15	VSS20	U25
F3	VSS21	U26
F4	VSS22	V2
F5	VSS24	V13
F12	VSS25	V15
F27	VSS26	V24
F28	VSS26	V27
G1	VSS27	V28
G2	VSS29	W6
G5	VSS30	W24
G6	VSS31	W25
G9	VSS32	W26
G14	VSS33	Y3
G18	VSS33	Y24
G21	VSS34	Y27
G24	VSS36	Y28
G25	VSS37	AA1
G26	VSS38	AA24
H3	VSS39	AA25
H4	VSS39	AA26
H5	VSS40	AB4
H24	VSS42	AB6
H27	VSS43	AB11
H28	VSS44	AB14
J1	VSS45	AB16
J5	VSS46	AB21
J24	VSS47	AB24
J25	VSS48	AB27
J26	VSS50	AB28
K24	VSS51	AC2
K27	VSS52	AC5
K28	VSS52	AC9
L13	VSS53	AC11
L15	VSS54	AD1
L24	VSS55	AD3
L25	VSS57	AD4
L26	VSS58	AD7
M3	VSS59	AD8
M4	VSS59	AD11
M5	VSS60	AD15
M12	VSS62	AD19
M13	VSS63	AD23
M14	VSS64	AE2
M15	VSS65	AE4
M16	VSS65	AE8
M17	VSS66	AE11
M24	VSS68	AE13
M27	VSS69	AE18
M28	VSS70	AE21
N1	VSS71	AE24
N2	VSS72	AE2
N5	VSS73	AF4
N6	VSS74	AF8
N11	VSS75	AF8
N12	VSS76	AF11
N13	VSS77	AF27
N14	VSS78	AF28
N15	VSS78	AG1
N16	VSS79	AG3
N17	VSS80	AG7
N18	VSS81	AH7
N18	VSS82	AG14
N24	VSS83	AG17
N25	VSS84	AG20
N26	VSS85	AG25
P3	VSS85	AH1
P4	VSS86	AH3
P12	VSS88	AH7
P13	VSS89	AH12
P14	VSS90	AH23
P15	VSS91	AH27
P16	VSS92	C27
P17	VSS93	E4
P24	VSS94	AG11
P27	VSS95	
P28	VSS96	
R1	VSS97	
R11	VSS98	
R12	VSS99	
R13	VSS100	



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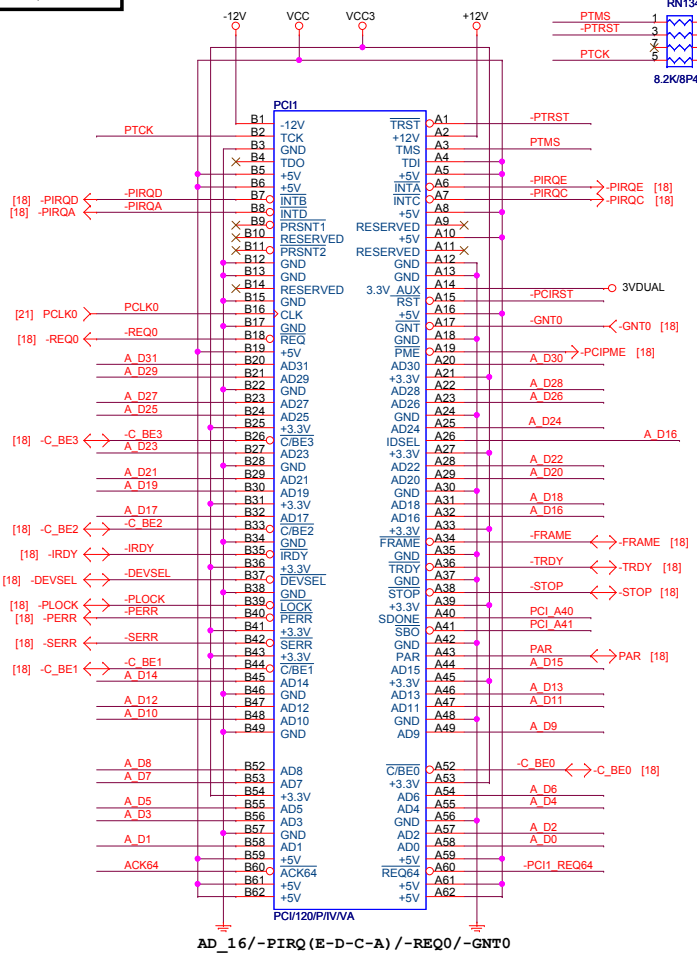
Title <b>ICH7-PWR &amp; GND</b>		
Size B	Document Number <b>GA-G31M-ES2L</b>	Rev <b>1.11</b>
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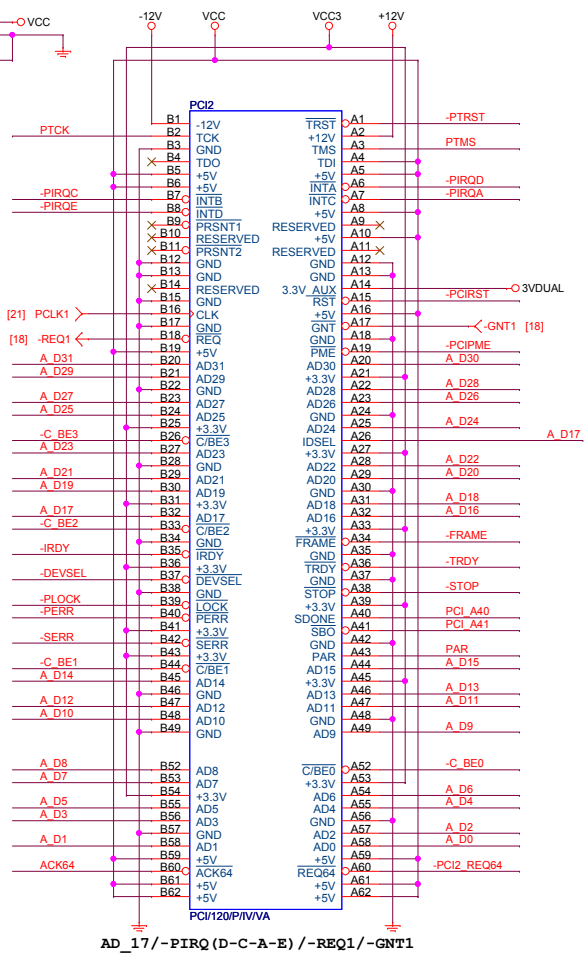


**PCI1, 2 SLOT**

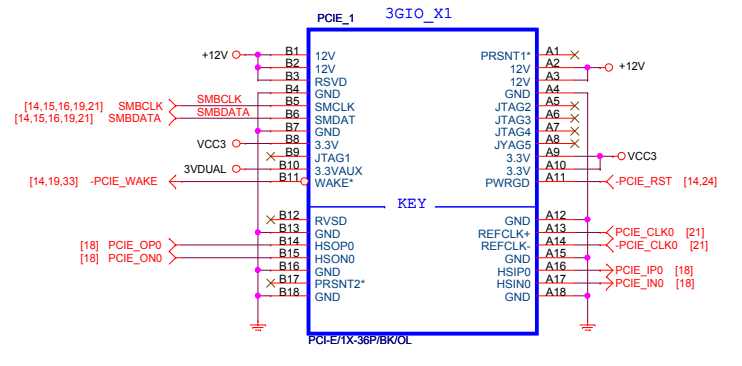
**PCIe\*1**



AD\_16/-PIRQ (E-D-C-A) /-REQ0/-GNT0

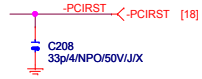


AD\_17/-PIRQ (D-C-A-E) /-REQ1/-GNT1

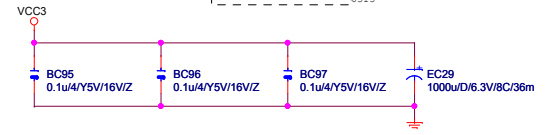
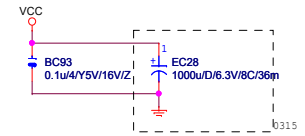
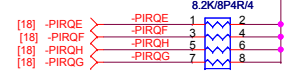
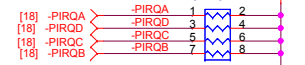
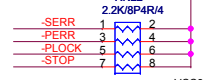
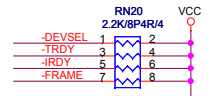
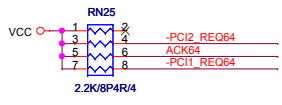
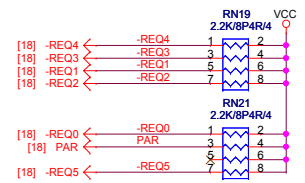


PCIe\_1 3GIO\_X1

PCI-E/1X-36P/BK/OL



Place close to PC11

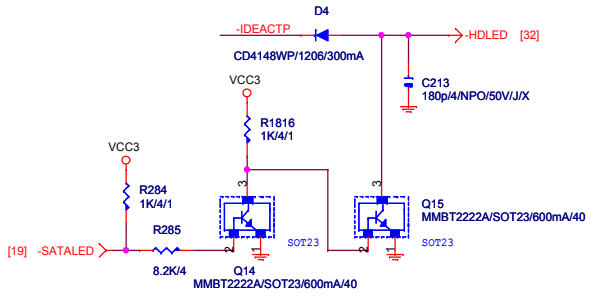


**Gigabyte Technology**

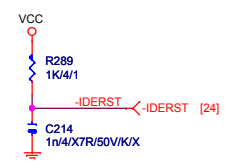
**PCI SLOT 1, 2/PCIEX1**  
**GA-G31M-ES2L**

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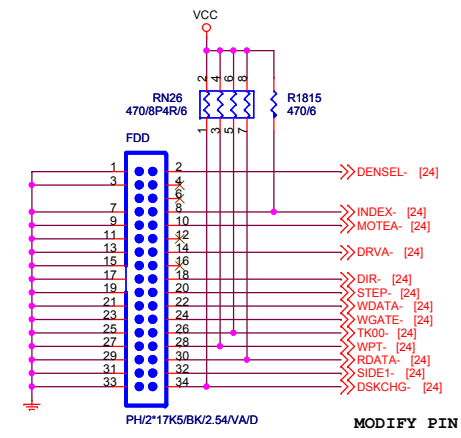
**IDE/SATA LED**



**IDE RESET**



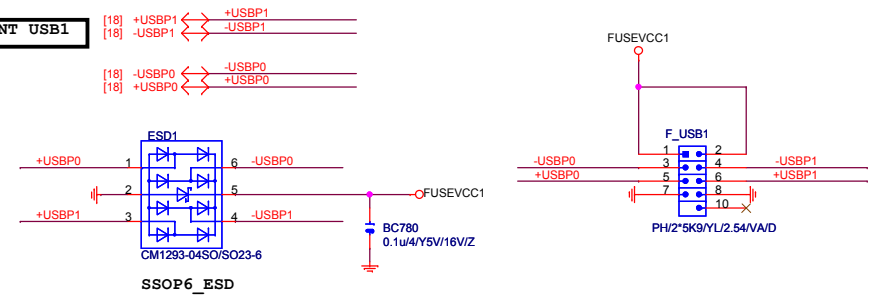
**FLOPPY**



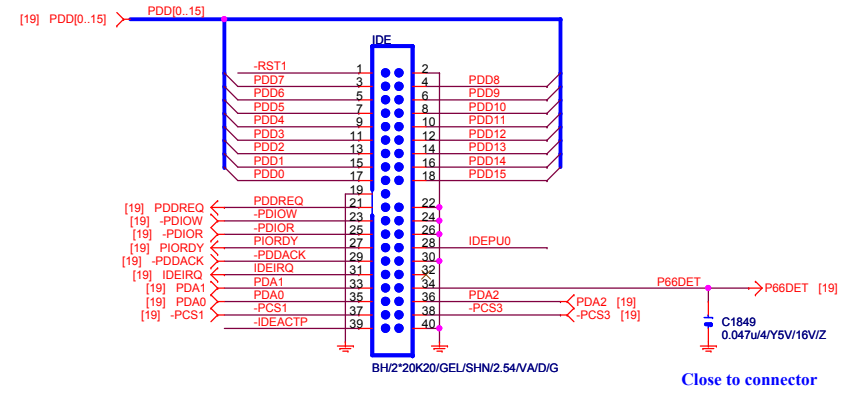
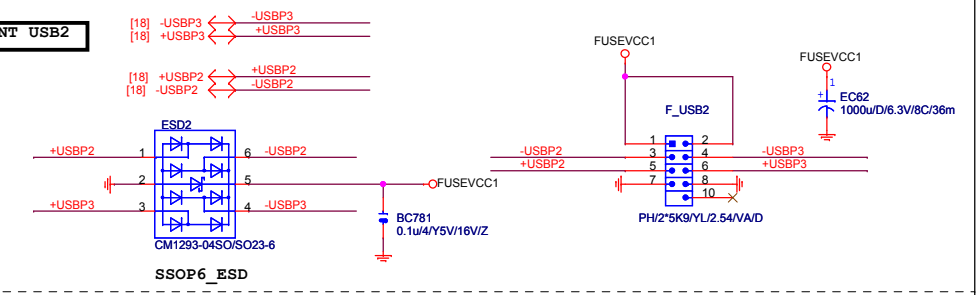
**MODIFY PIN HEADER**



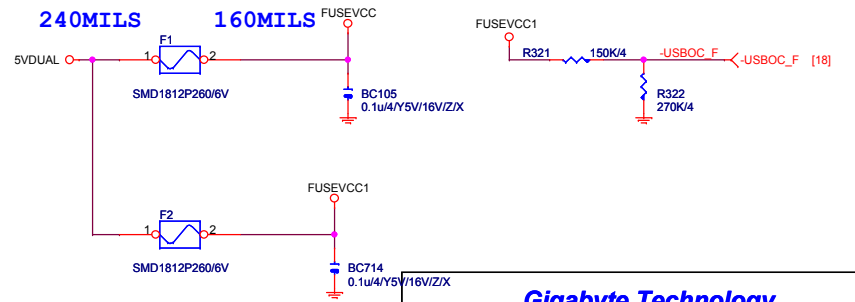
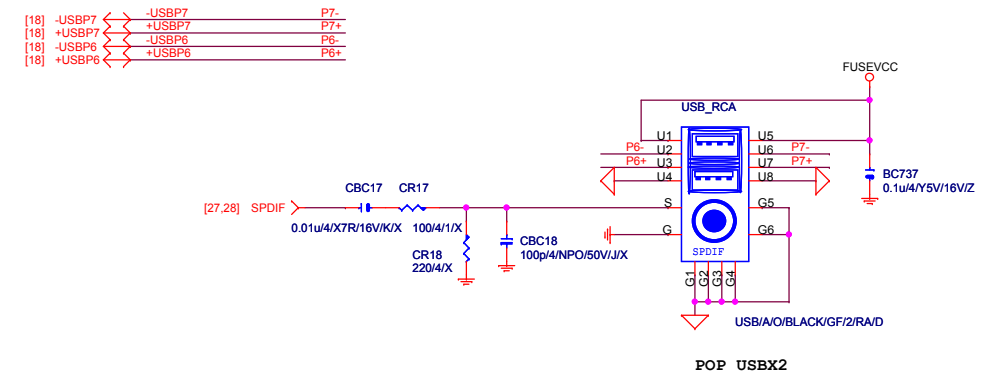
**FRONT USB1**



**FRONT USB2**



**Close to connector**

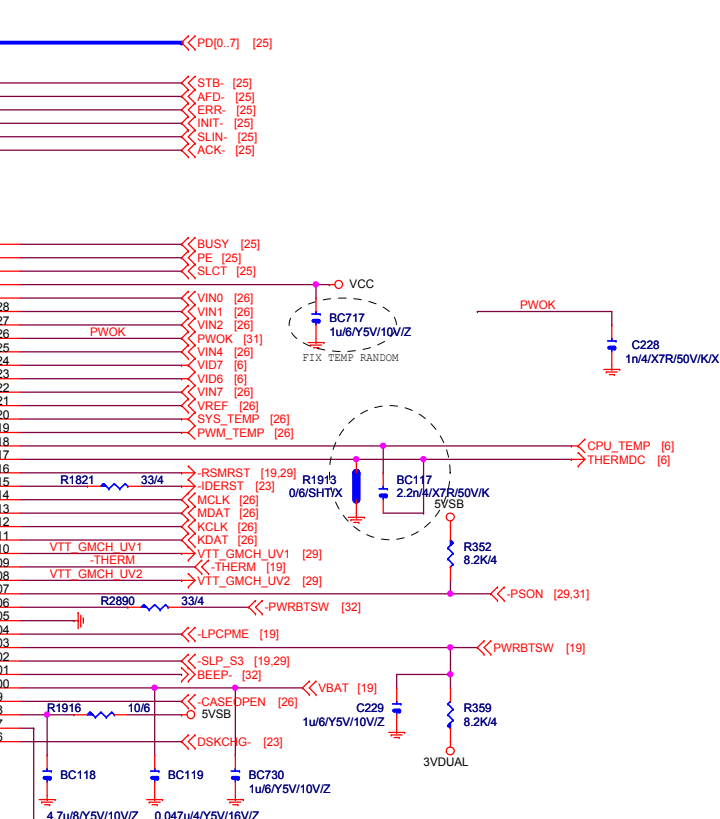
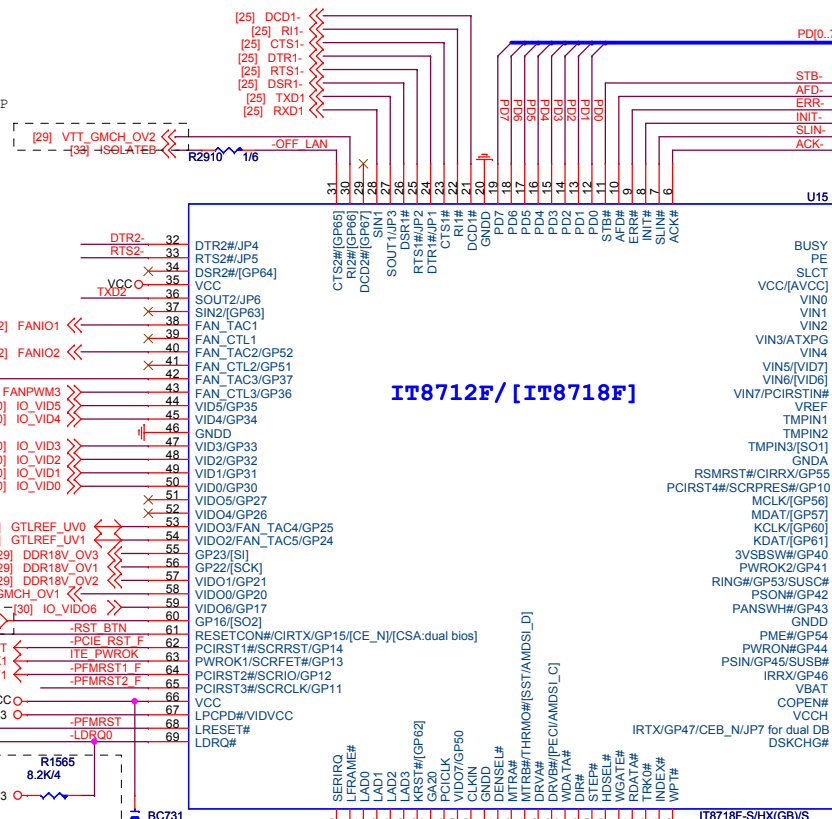
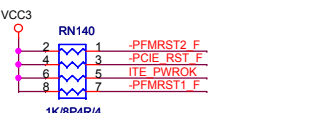
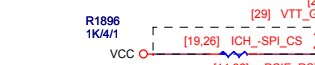
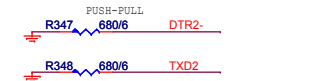
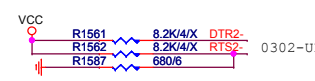


**Gigabyte Technology**

Title			<b>IDE,FDD,F_USB,USB_RCA</b>		
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RTS2- ==LOW CPU FAN 50%  
==HIGH 100%

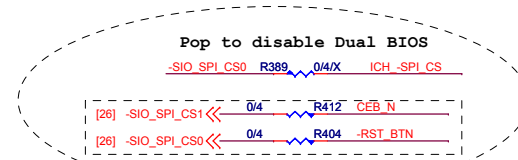
DEFAULT 50%



JP7 : HIGH DUAL BIOS ENABLE  
LOW DUAL BIOS DISABLE

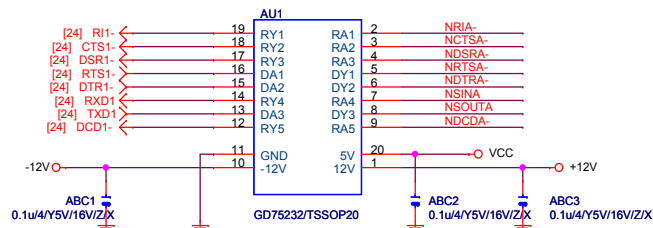
Dual BIOS:  
GB logo : Pin 61 (GP15/CSA)  
GB logo : Pin 59 (GP17/CSB)  
Pin 59 Dual BIOS ,Power On Strapping:  
H ==>Dual BIOS function Enable  
L ==>Dual BIOS function Disable

1.2V or 3.3V tolerance select.  
1.2V OUTPUT 接 VTT\_GMCH  
3.3V OUTPUT 接 3.3V  
LPCPD#=#VIDVCC

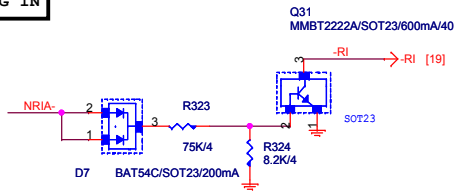




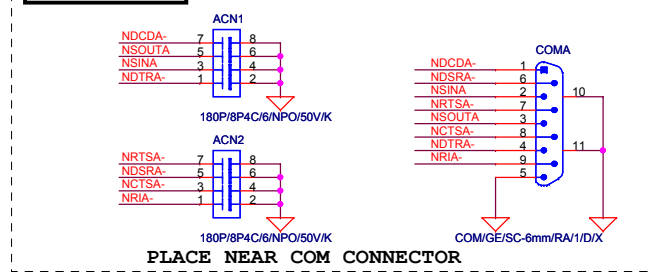
**COMA**



**RING IN**

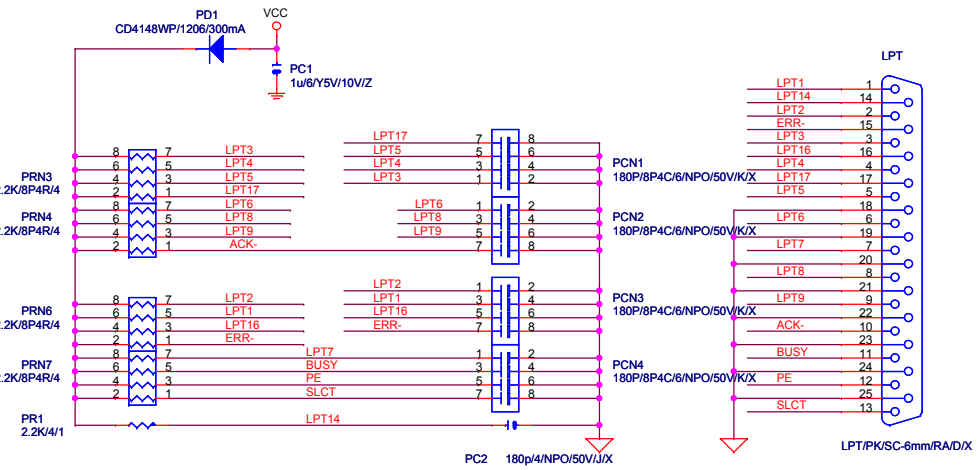
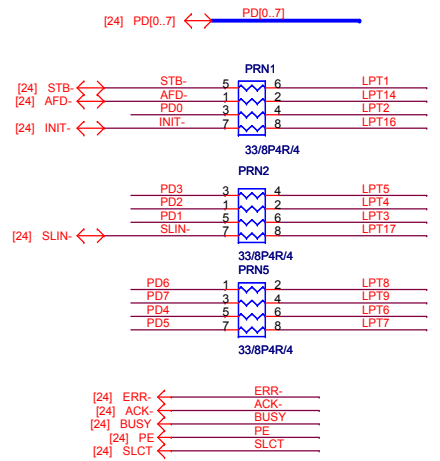


**EXTERNAL COMA**

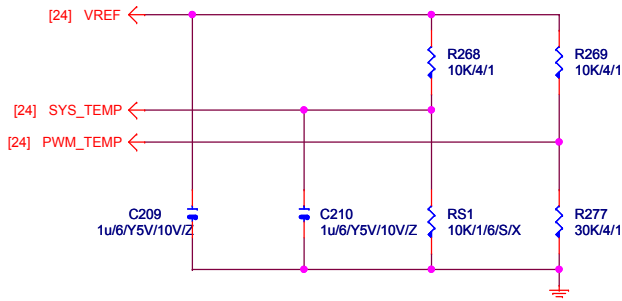


PLACE NEAR COM CONNECTOR

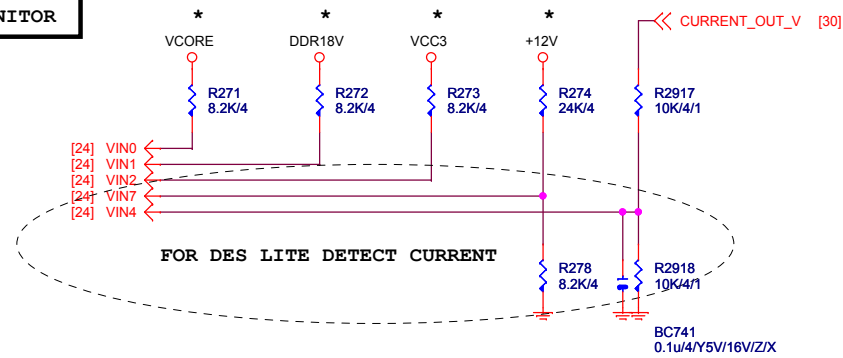
**LPT PORT**



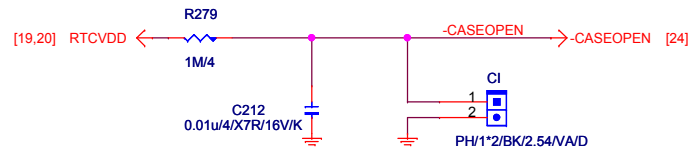
**TEMP H/W MONITOR**



**VOLTAGE-- H/W MONITOR**

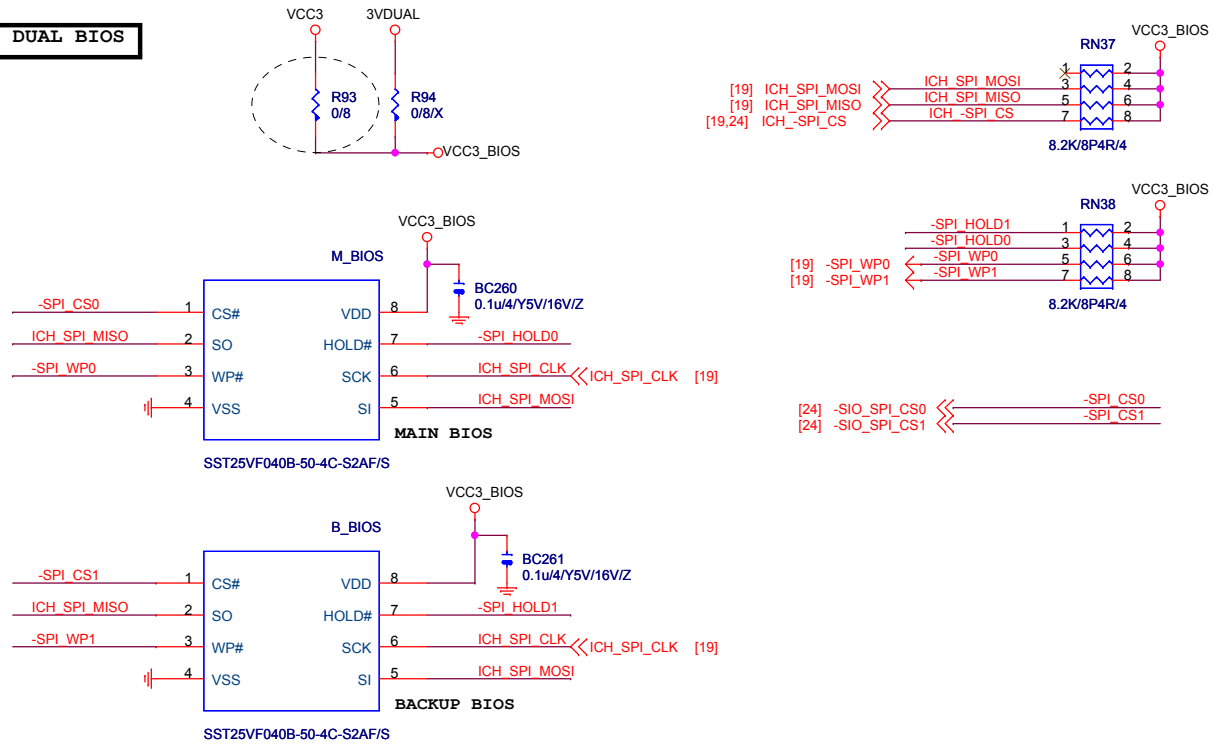


**CASE OPEN**

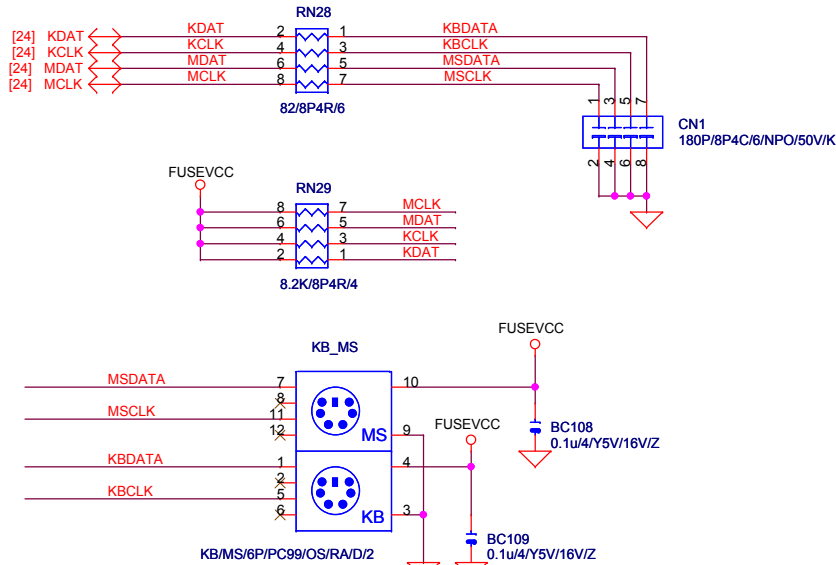


Case Open Circuits

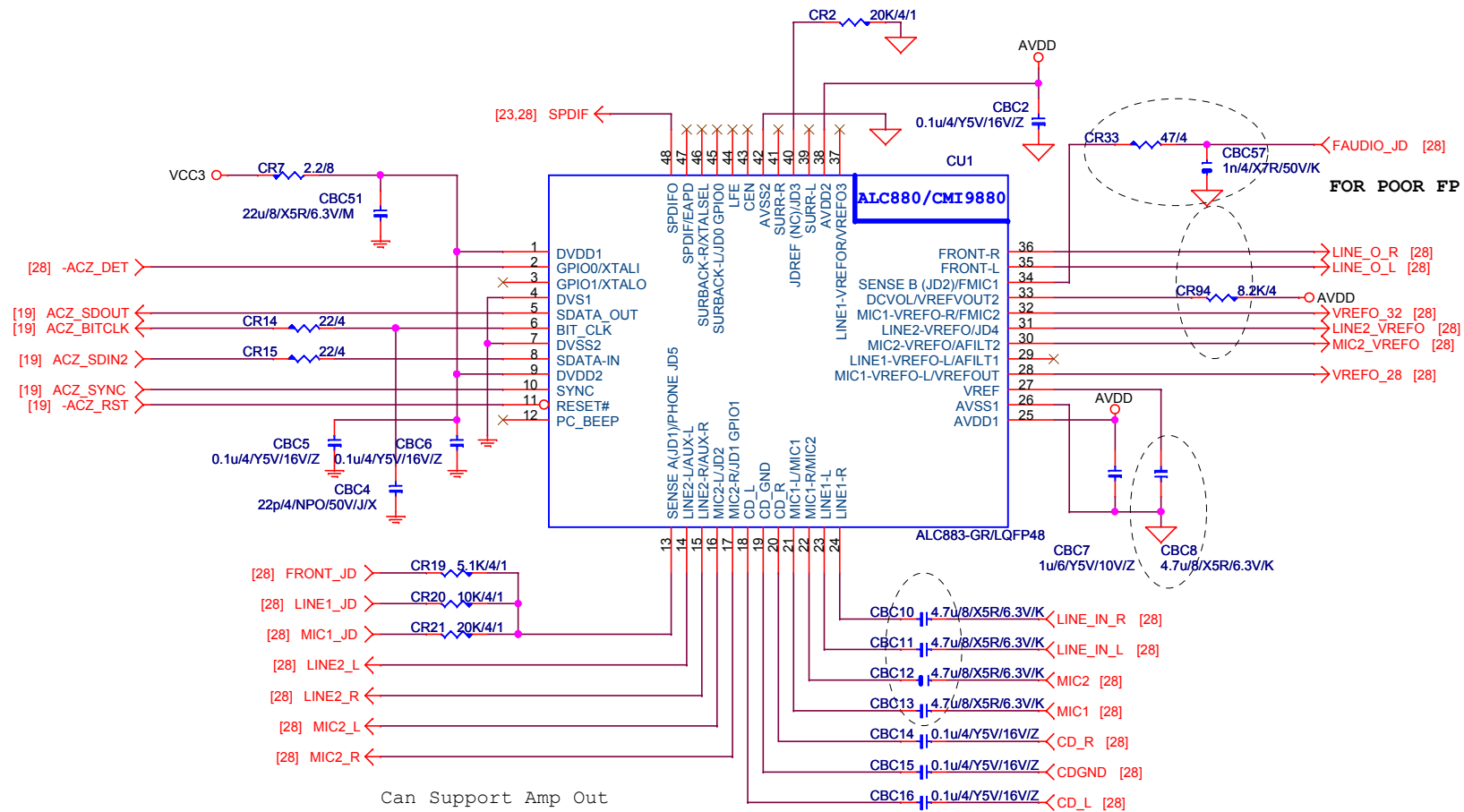
**DUAL BIOS**



**KB/MS**



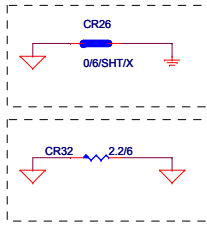
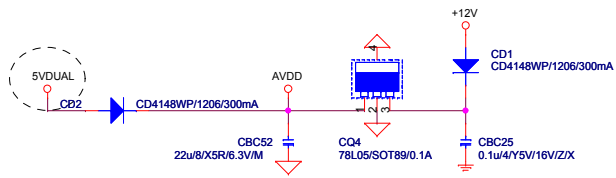
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<b>HW-MONITOR/CI/KB/MS/BIOS</b>			
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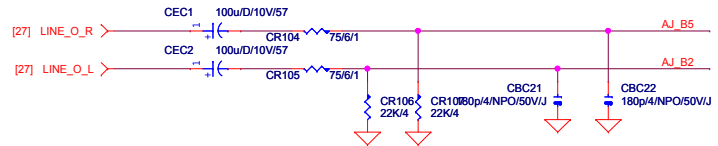
Gigabyte Technology

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AZALIA ALC883		
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	GA-G31M-ES2L	1.1
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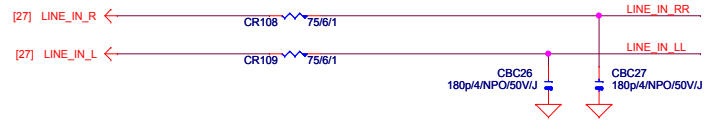
**CODEC POWER/EMI PAD**



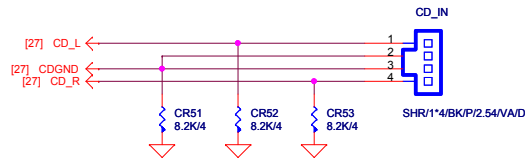
**LINE-OUT**



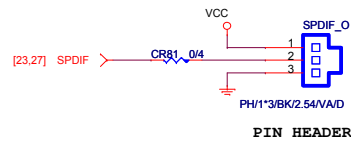
**LINE-IN**



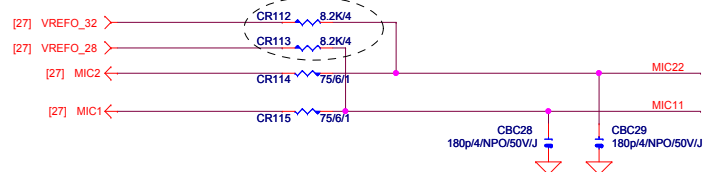
**CD IN**



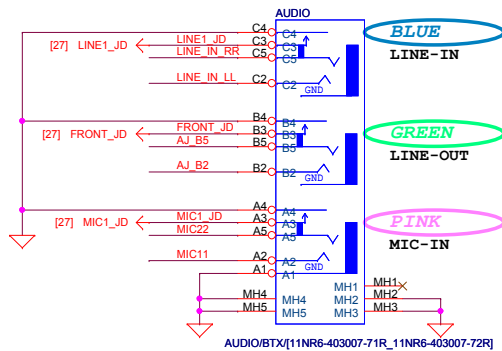
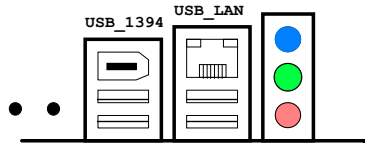
**SPDIF IN**



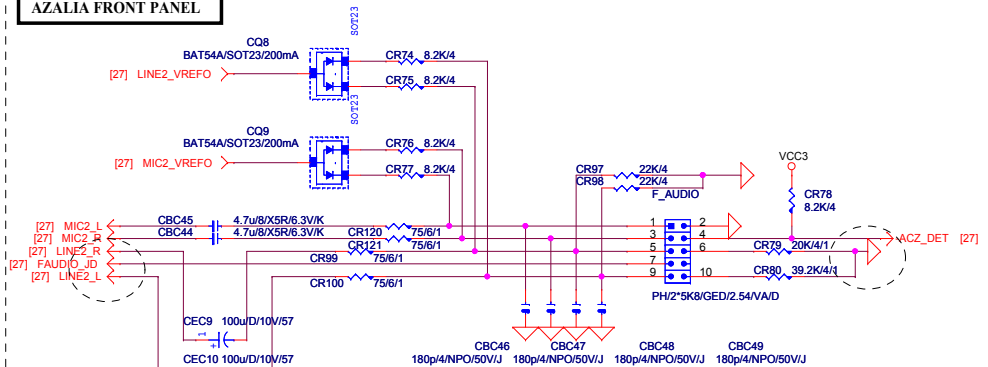
**MIC-IN**



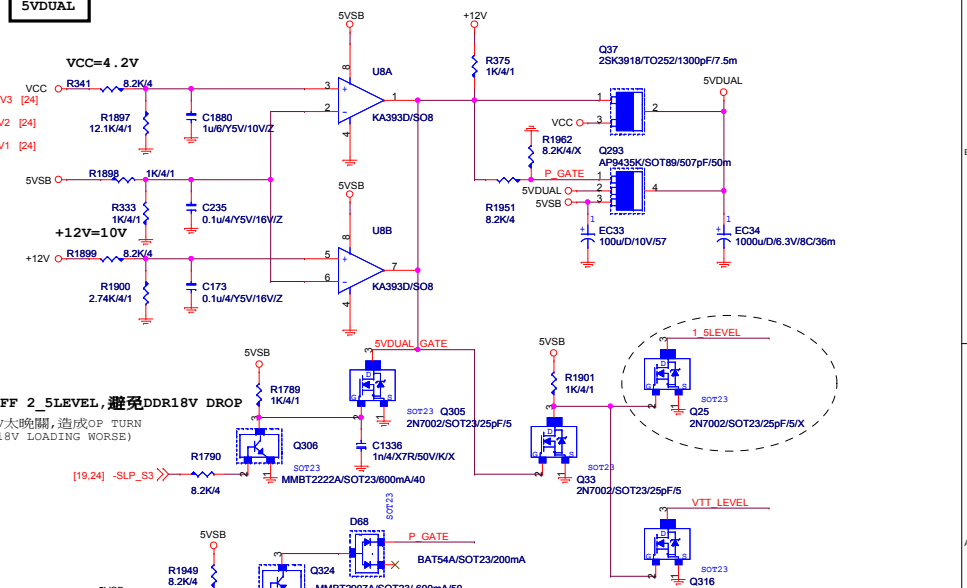
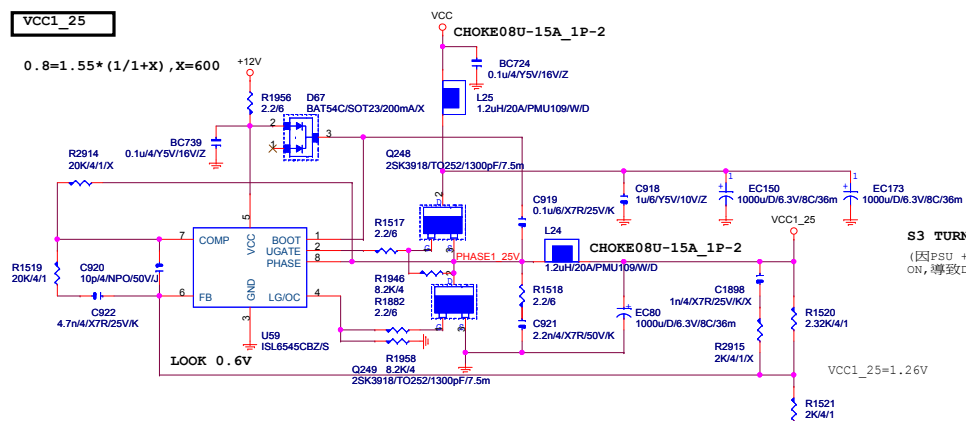
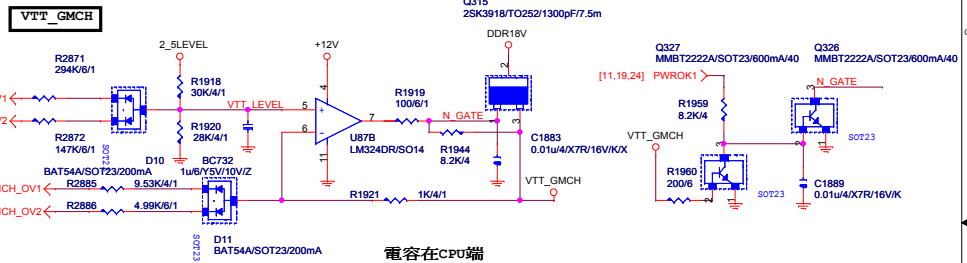
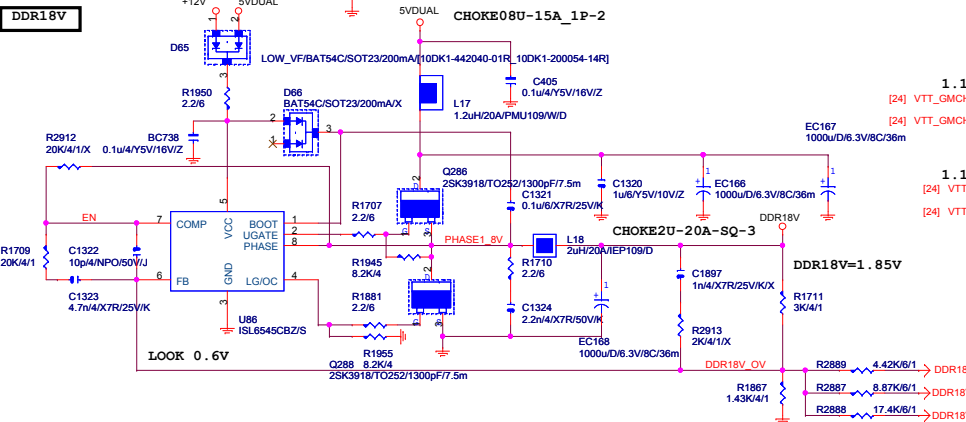
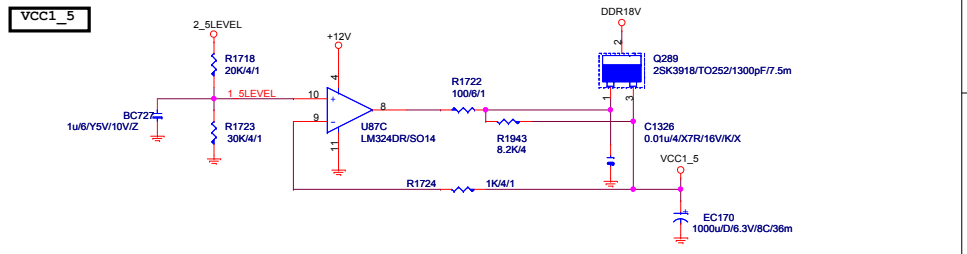
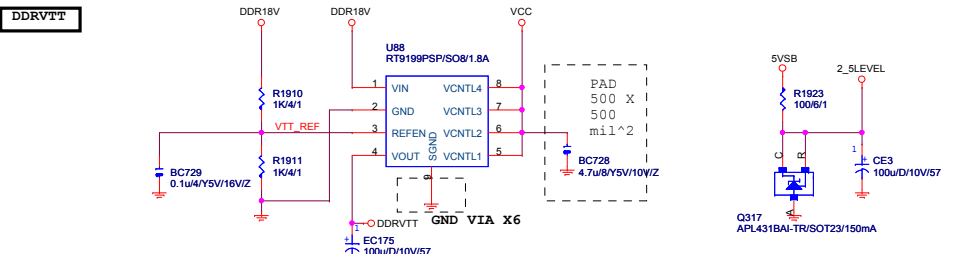
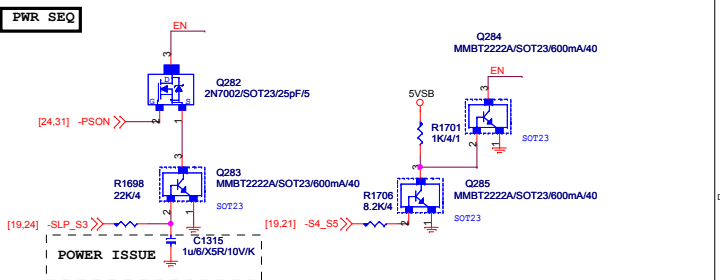
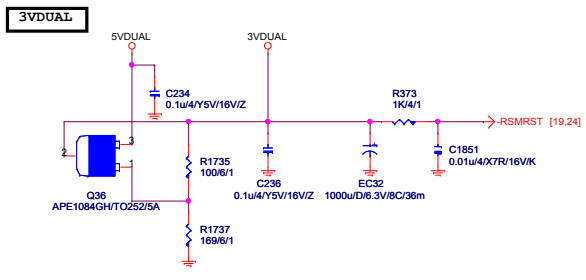
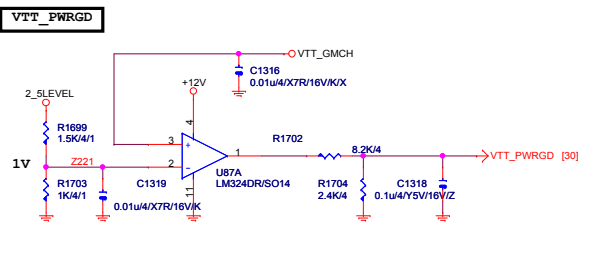
**AZALIA JACK**



**AZALIA FRONT PANEL**



<b>Gigabyte Technology</b>		
<b>AUDIO JACK</b>		
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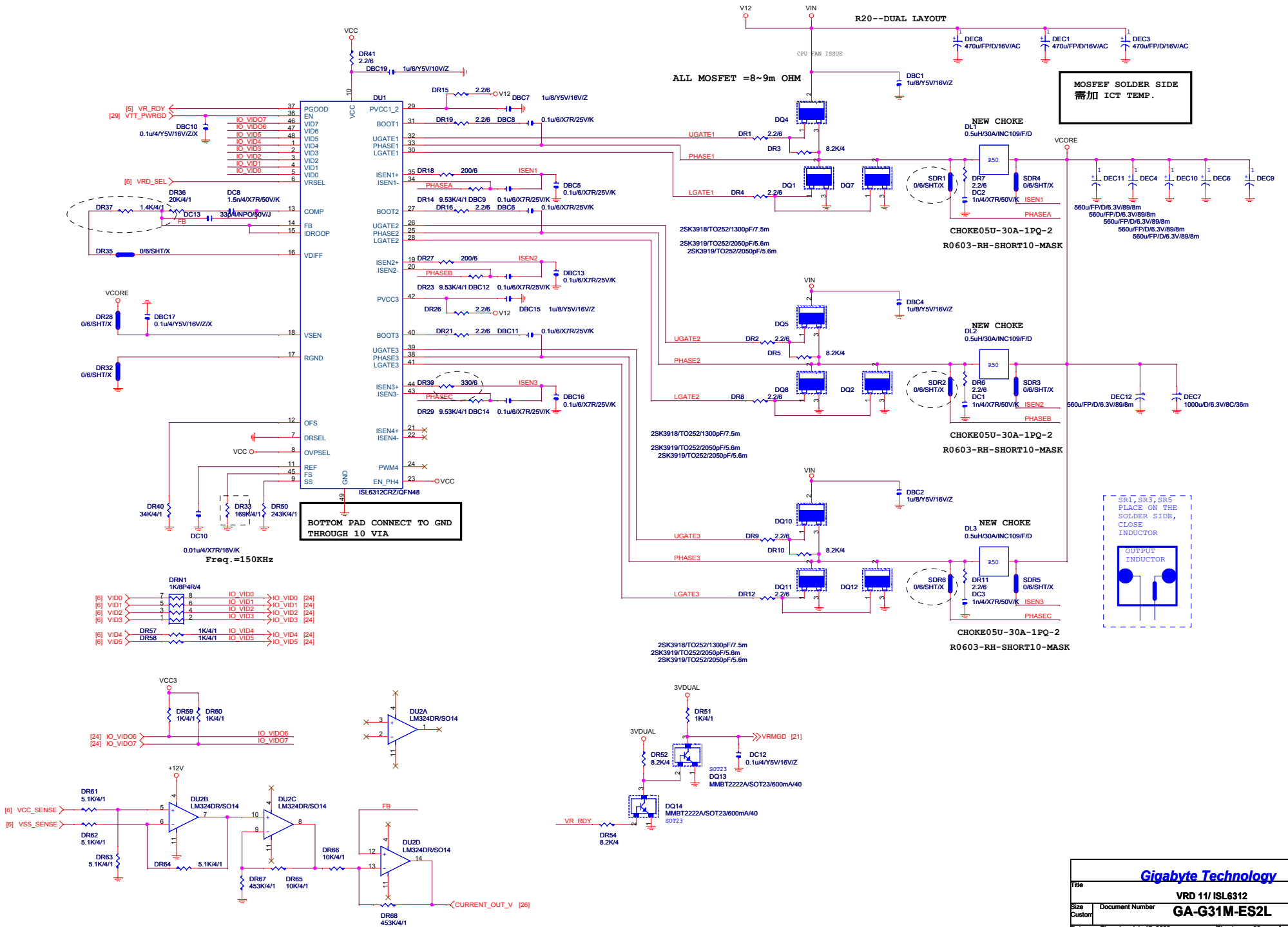
S3 TURN OFF 2\_5LEVEL, 避免DDR18V DROP  
 (因PSU +12V太晚關, 造成OP TURN ON, 導致DDR18V LOADING WORSE)

**Gigabyte Technology**

**DISCRETE POWER / FAN CTRL**

**GA-G31M-ES2L**

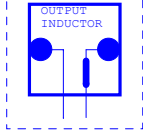
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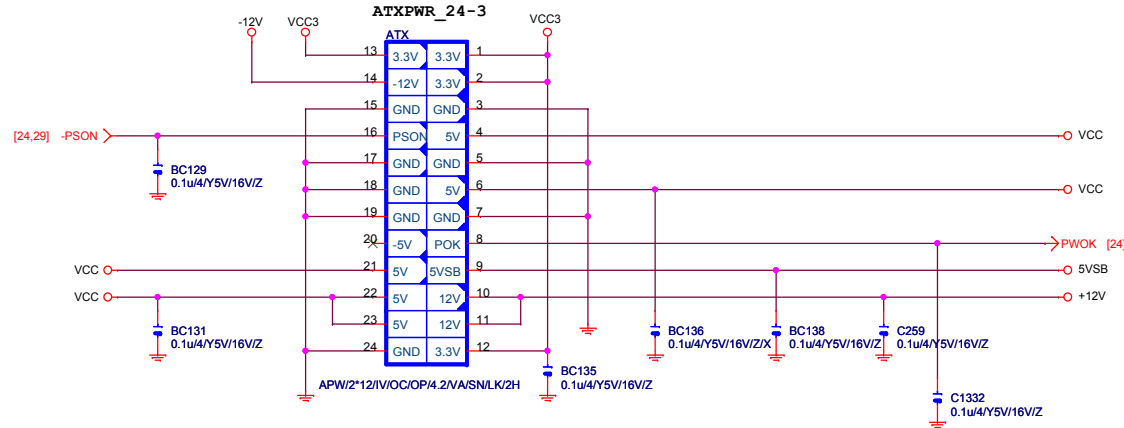
MOSFET SOLDER SIDE  
需加 ICT TEMP.

BOTTOM PAD CONNECT TO GND  
THROUGH 1.0 VIA

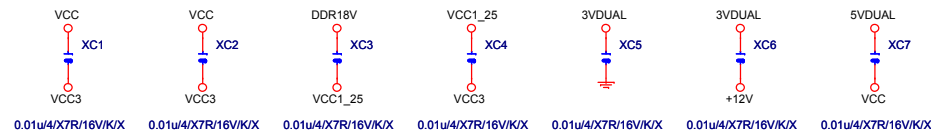
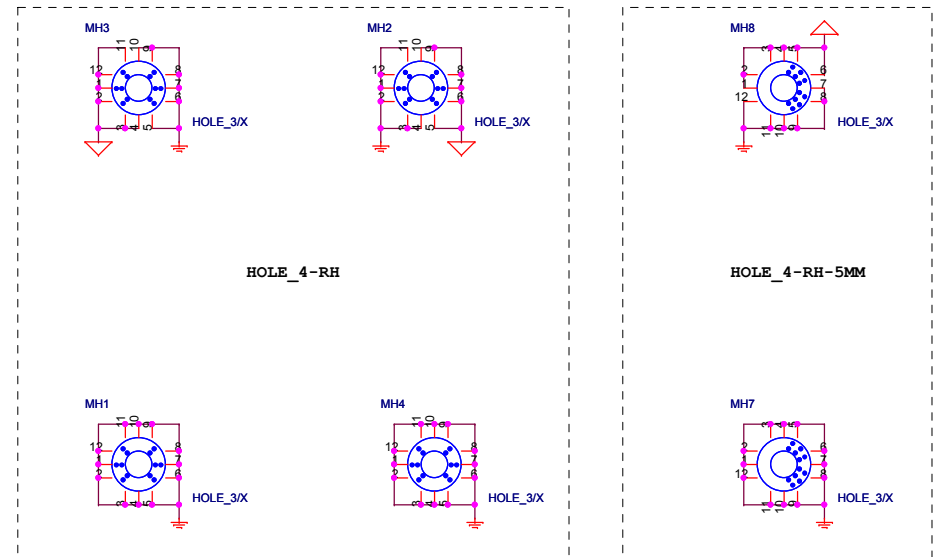
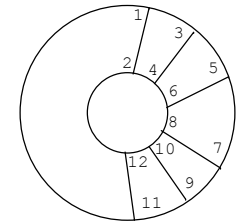
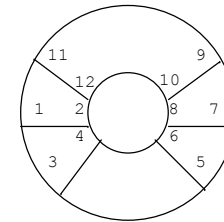
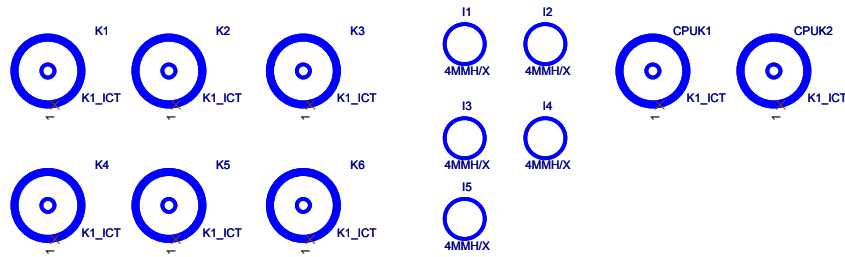
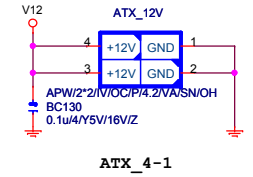
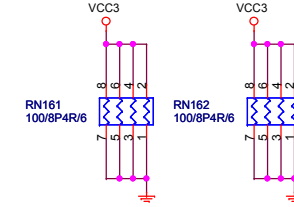
S1, S3, S5  
PLACE ON THE  
SOLDER SIDE,  
CLOSE  
INDUCTOR



# ATX POWER CONNECTOR



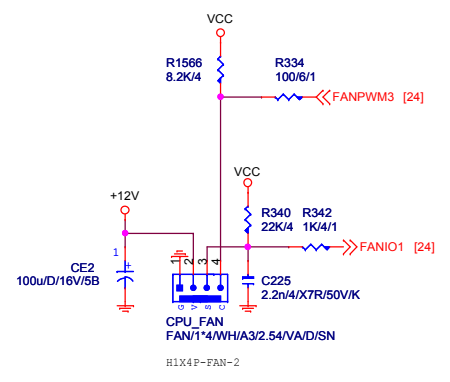
## FIX PWR AcBel (ATX-400C-A2ADB)



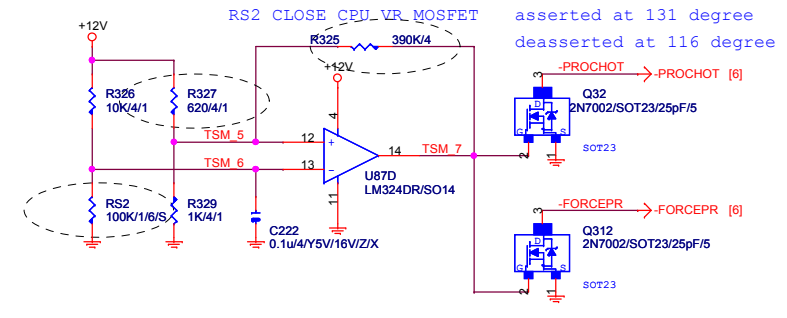
**Gigabyte Technology**

Title		<b>ATX POWER CONNECTOR</b>	
Size B	Document Number	<b>GA-G31M-ES2L</b>	
Date:	Thursday, July 17, 2008	Sheet	31 of 33
		Rev	1.11

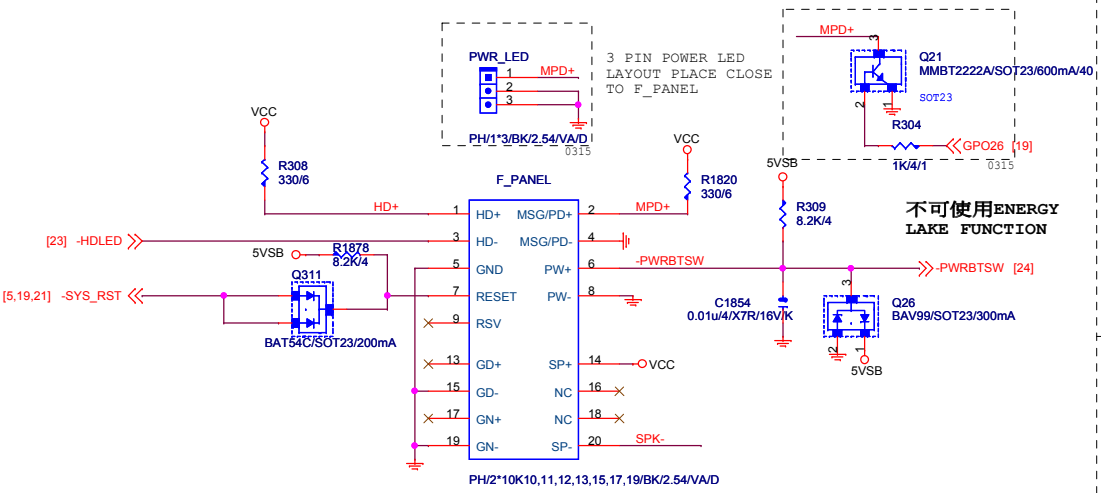
**CPU SMART FAN SMART FAN**



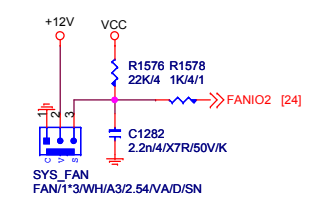
**PROCESSOR HOT**



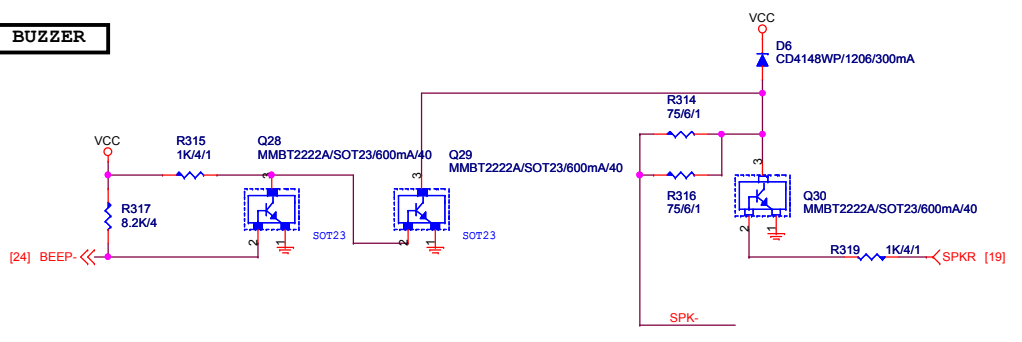
**INTEL FRONT PANEL**



**SYS\_FAN**

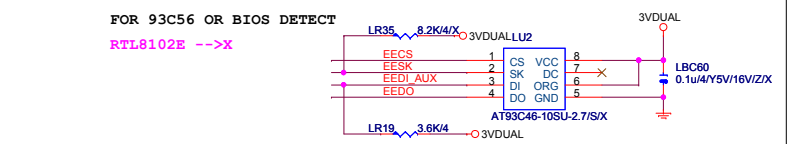
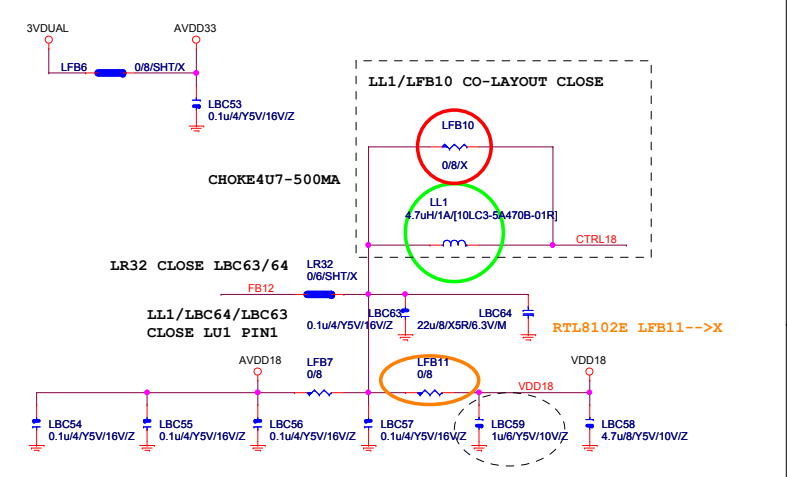
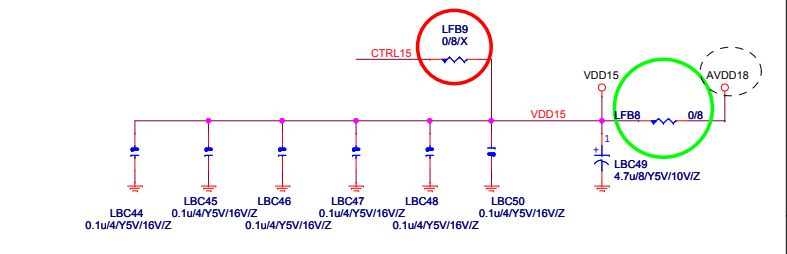
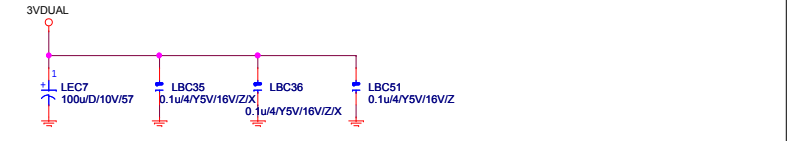
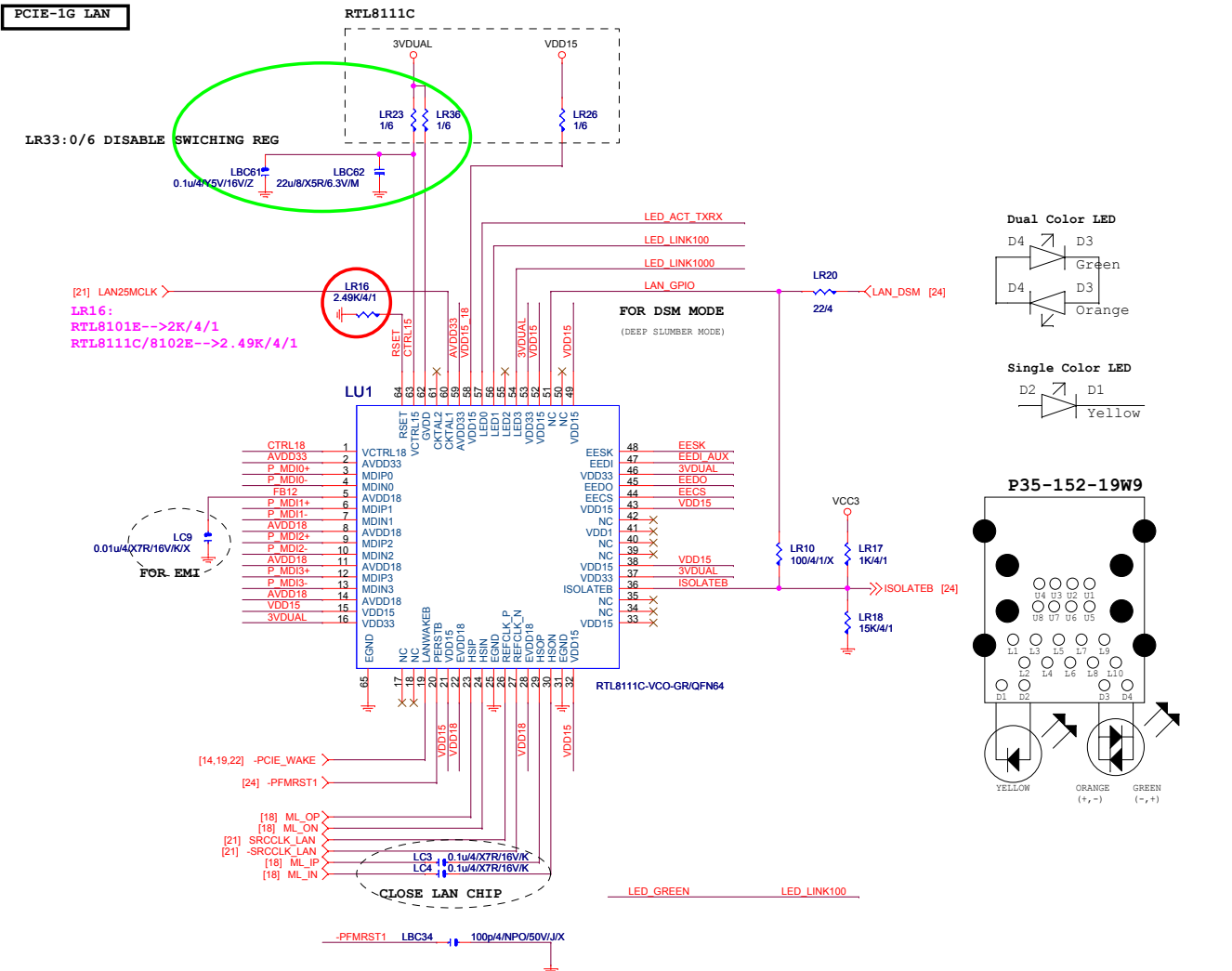


**BUZZER**

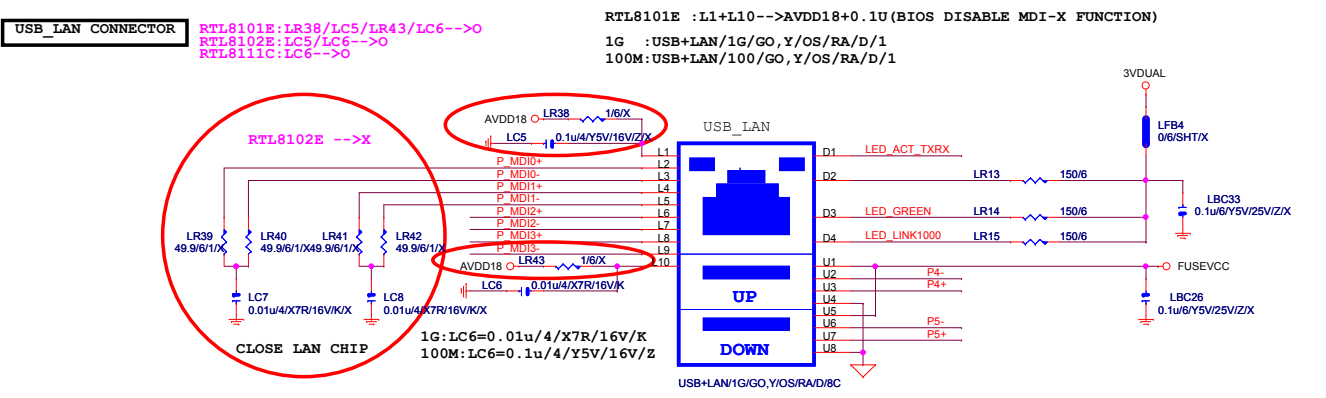




**PCIE-1G LAN**



**USB\_LAN CONNECTOR**



**USB\_LAN**

