

# Model Name : GA-G31M-ES2C

Revision 1.12

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	G31 HOST
09	G31 DDRII
10	G31 PCI E, DMI
11	G31 VGA
12	G31 GND
13	G31 PWR
14	PCI EXPRESS*16 SLOT
15	DDRII CHANNEL A
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

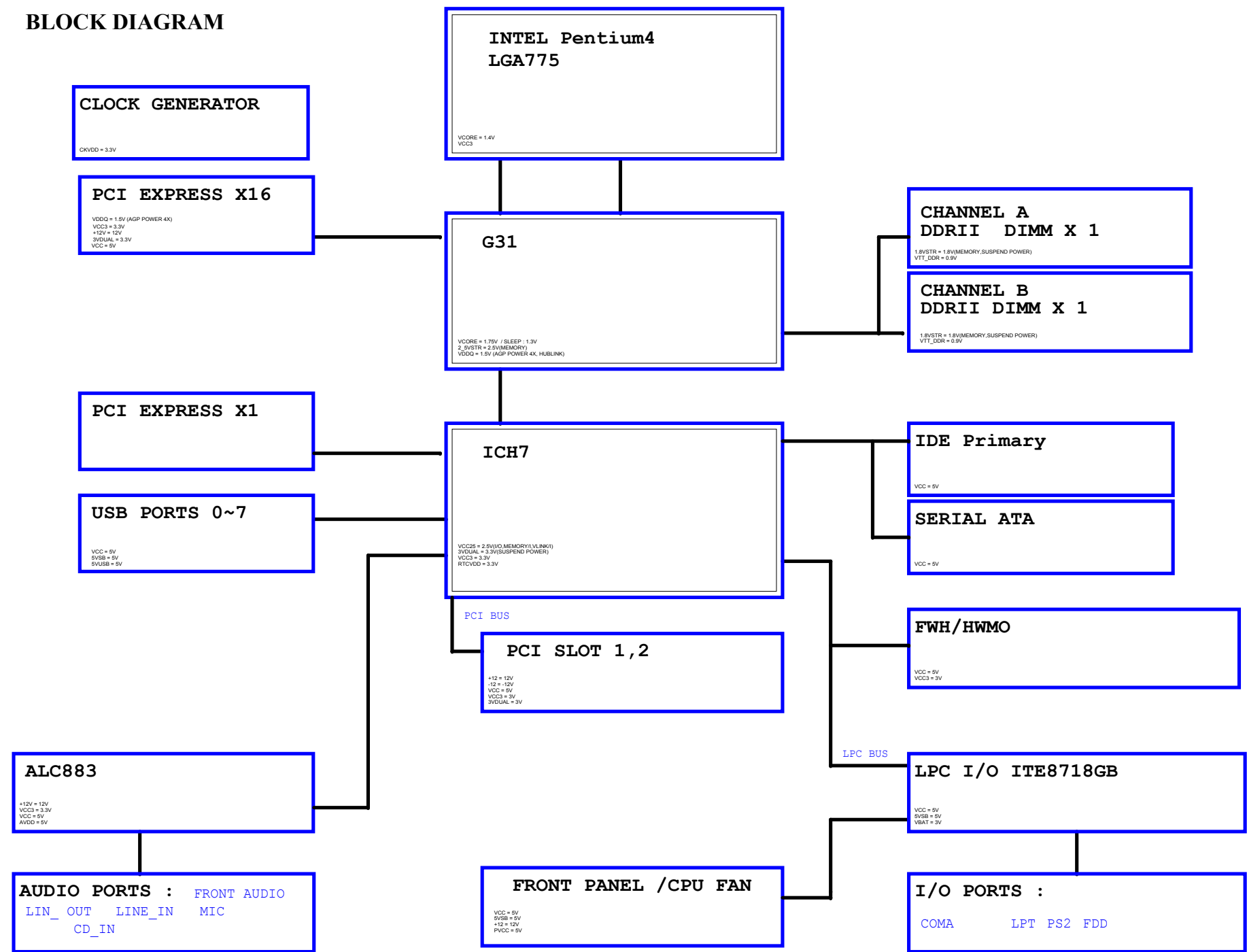
SHEET TITLE

28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM RT9214
31	ATX, OTHERS POWER
32	FRONT PANEL
33	REALTEK RTL8111C/8102E

<b>Gigabyte Technology</b>			
Title Cover Sheet			
Size Custom	Document Number <b>GA-G31M-ES2C</b>	Rev <b>1.12</b>	
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BLOCK DIAGRAM





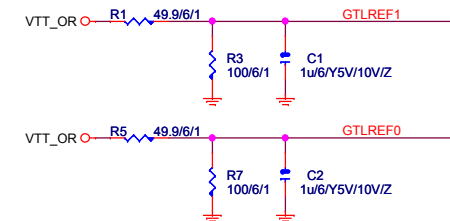
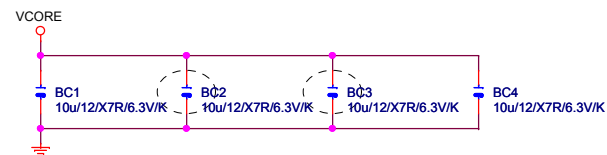
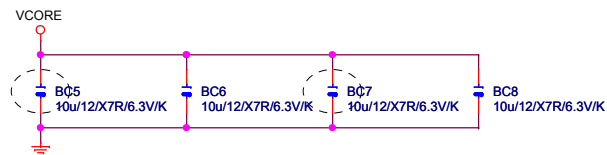
**Version: 1.12**

## 2008/11/25

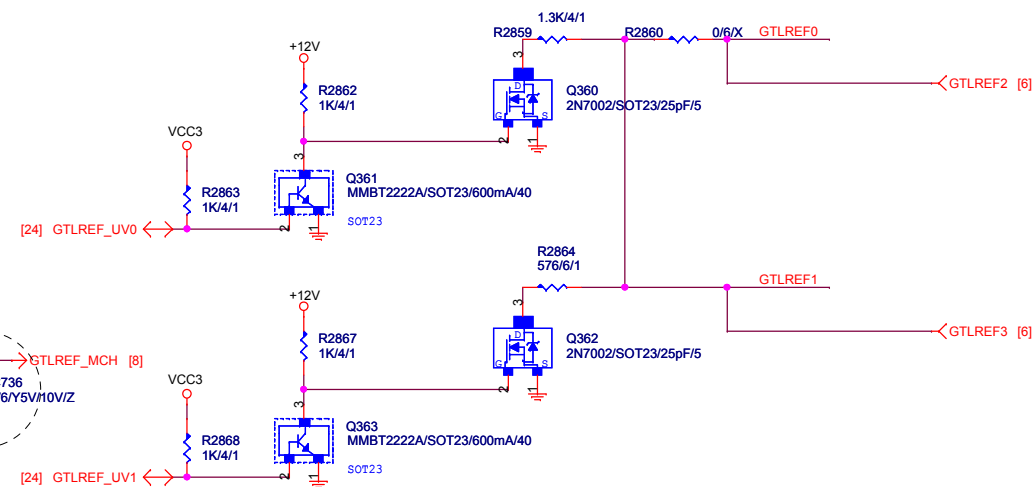
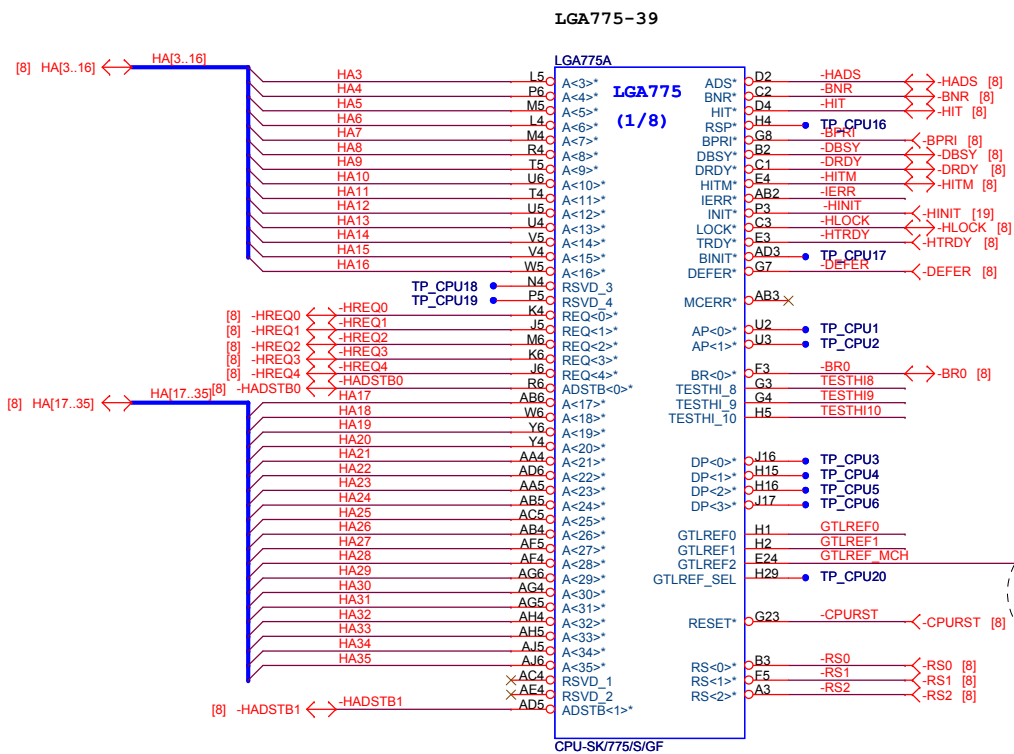
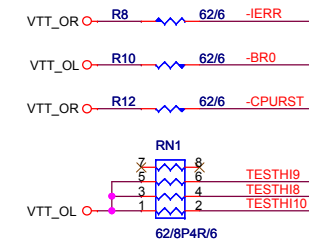
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<b><i>Gigabyte Technology</i></b>			
<b>BOM &amp; PCB MODIFY HISTORY</b>			
Size Custom	Document Number	<b>GA-G31M-ES2C</b>	Rev <b>1.12</b>
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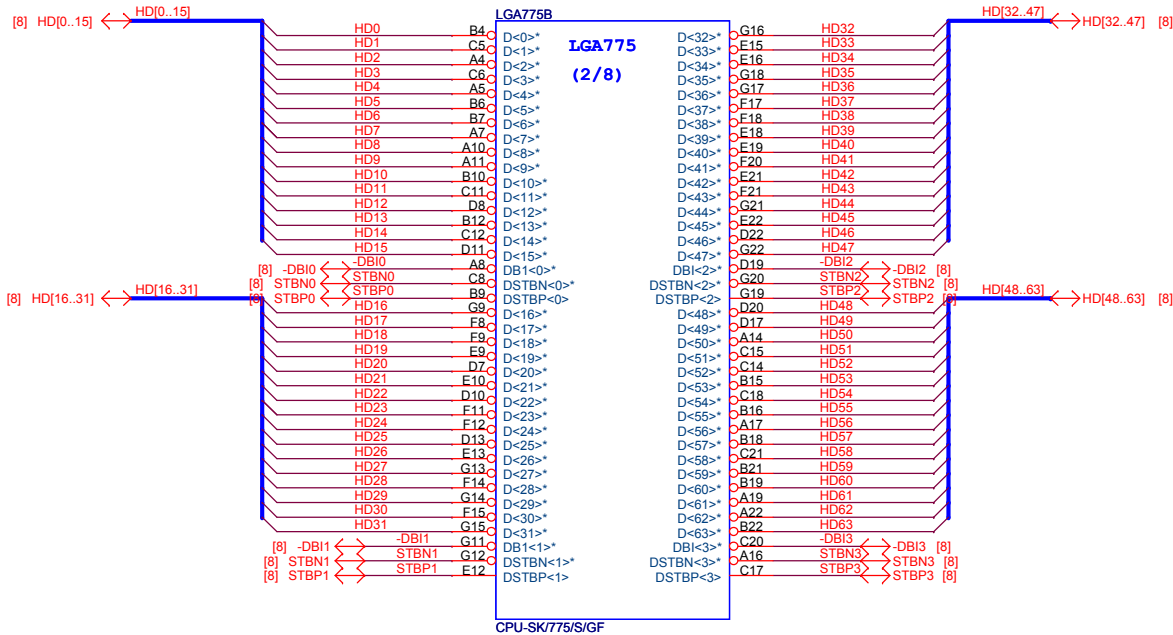




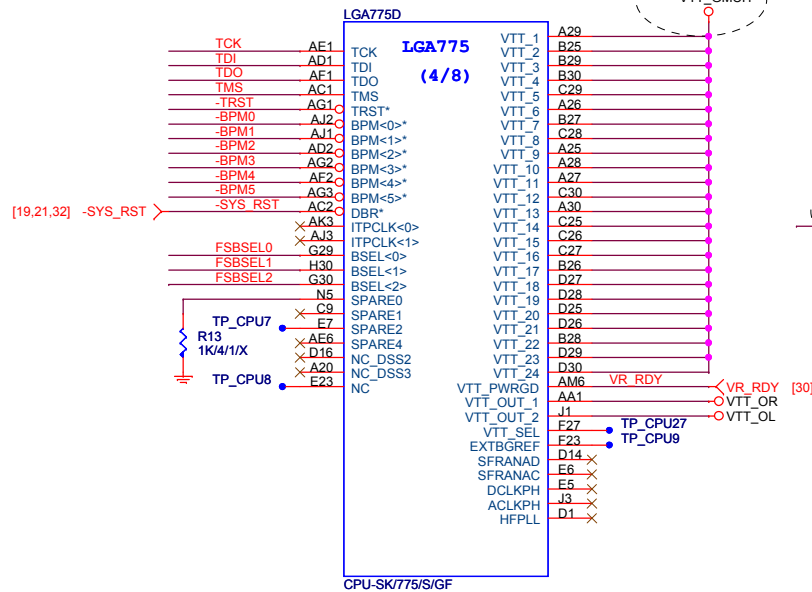
中間値0.9V



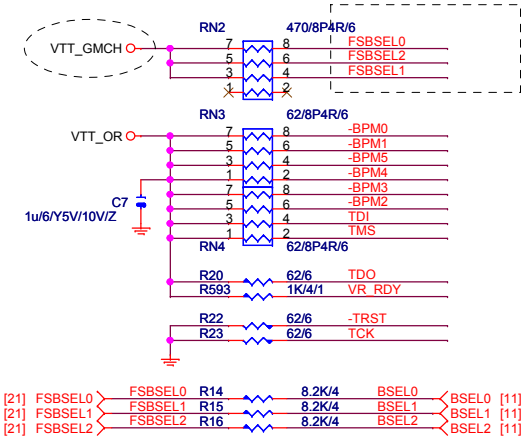
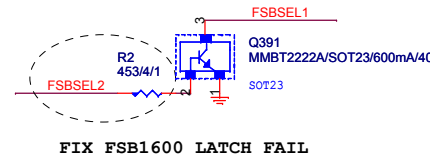




CPU-SK/775/S/GF



CPU-SK/775/S/GF



TO CLK GEN

TO NB

## CPU

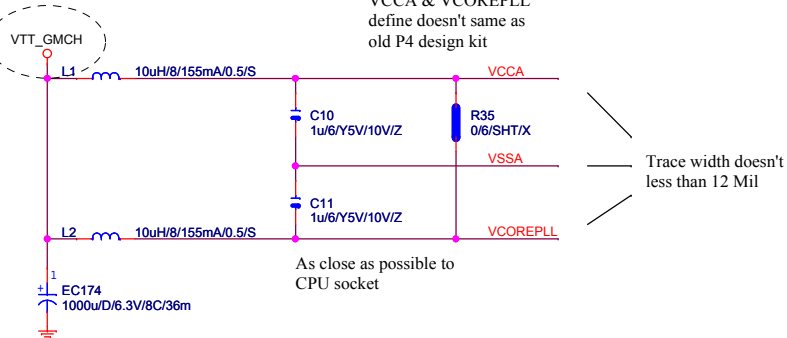
NA	FSB	FSA	
FSBSEL3	FSBSEL1	FSBSEL0	Clock
1	0	1	100MHz
0	0	1	133MHz
0	1	1	166MHz
0	1	0	200MHz
0	0	0	266MHz

X

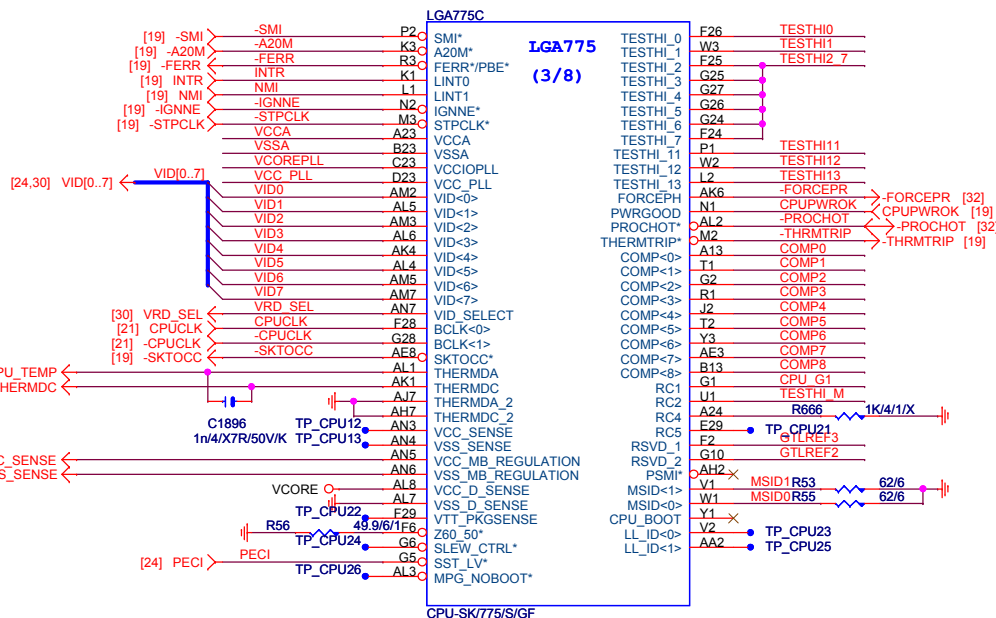
Gigabyte Technology			
Title			
P4_LGA775-B,D			
Size	Document Number	Rev	
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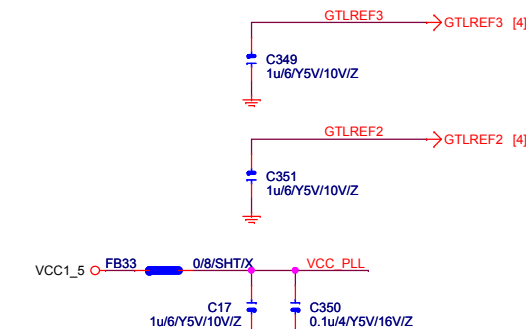
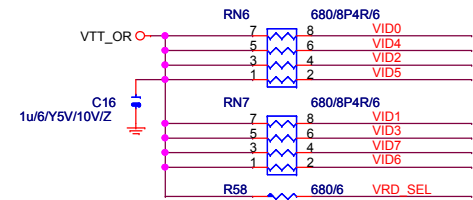
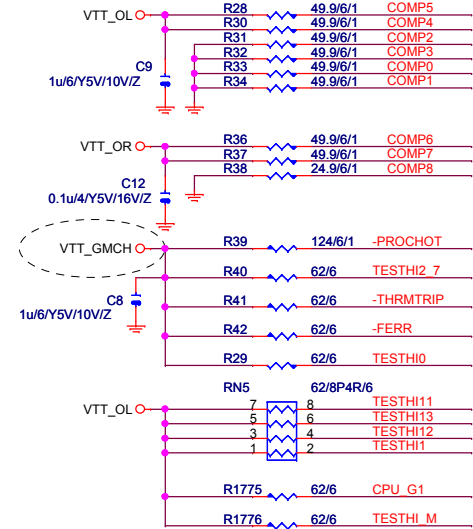
**Note:**  
VCCA & VCOREPLL  
define doesn't same as  
old P4 design kit



As close as possible to  
CPU socket



Place outside of CPU socket



Gigabyte Technology			
Title			
P4_LGA775-C			
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PECI:Platform Environment Control Interface



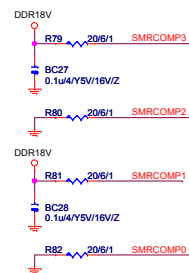
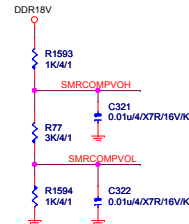
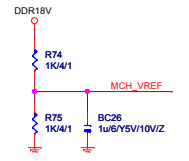
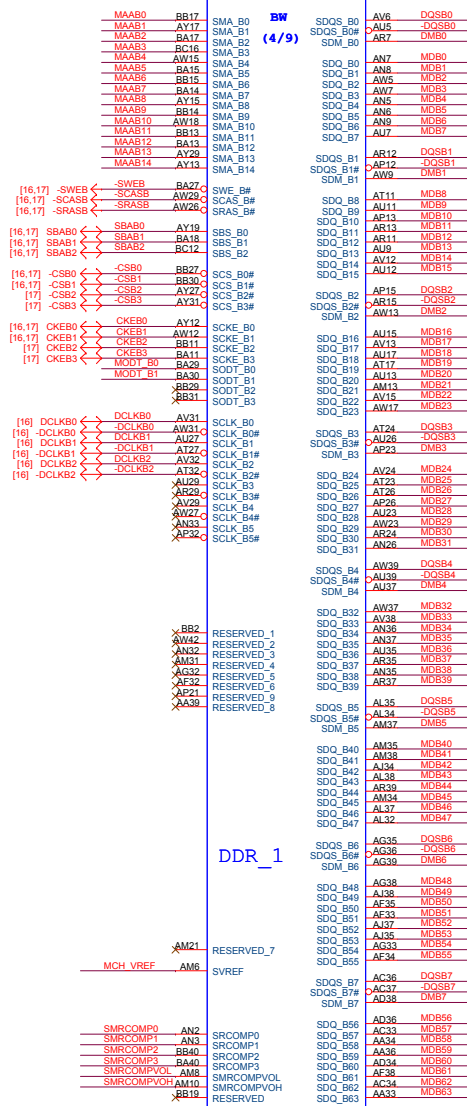
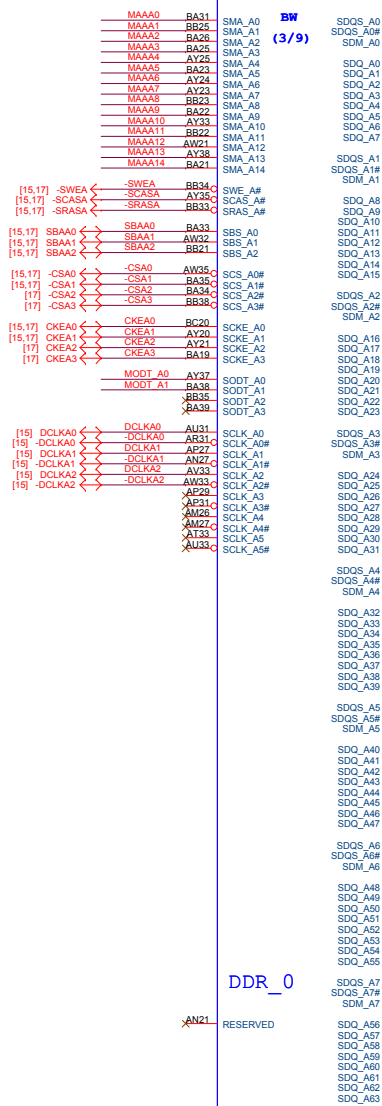




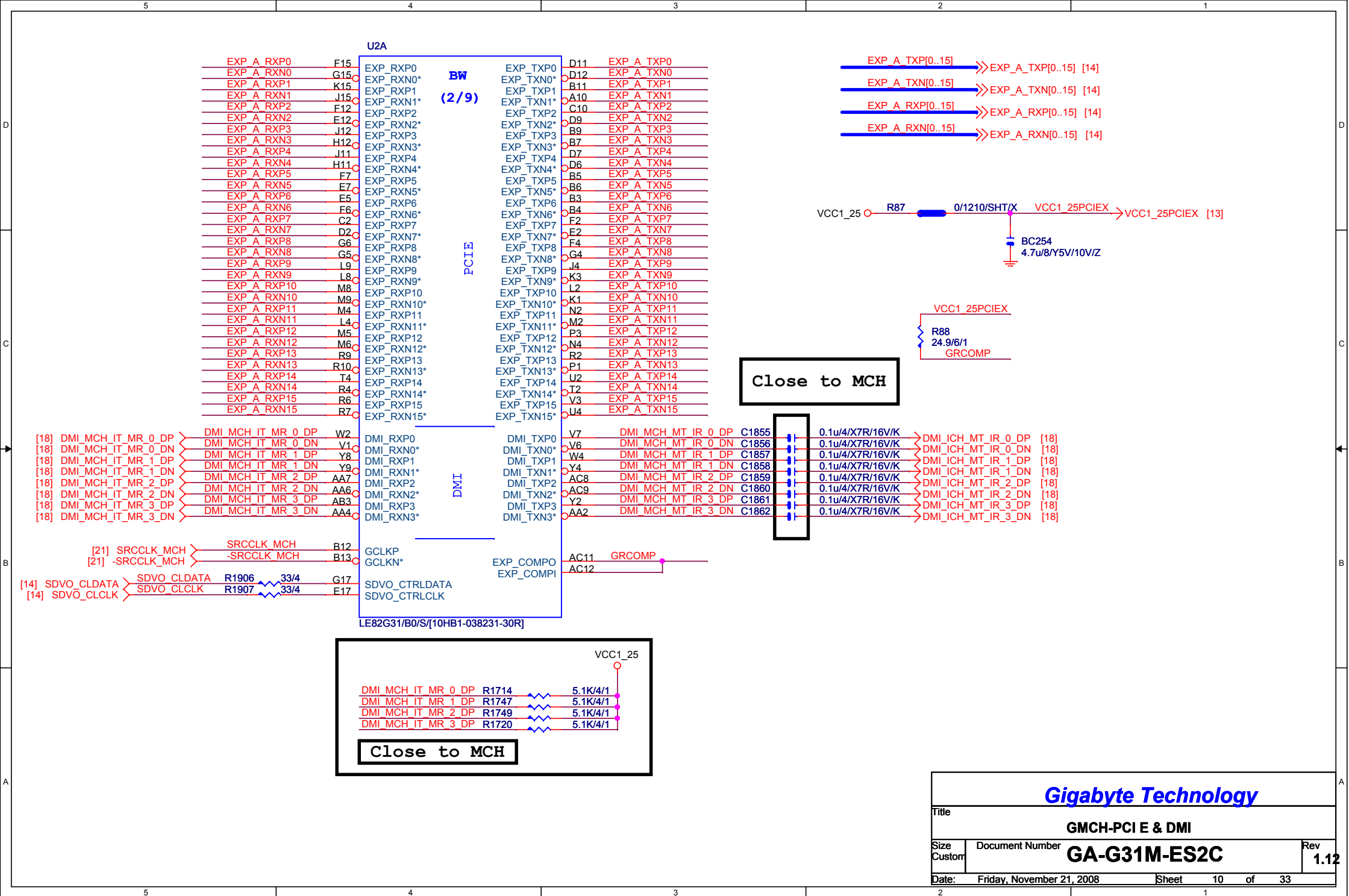


Title			
GMCH-HOST			
Size B	Document Number	GA-G31M-ES2C	Rev 1.12
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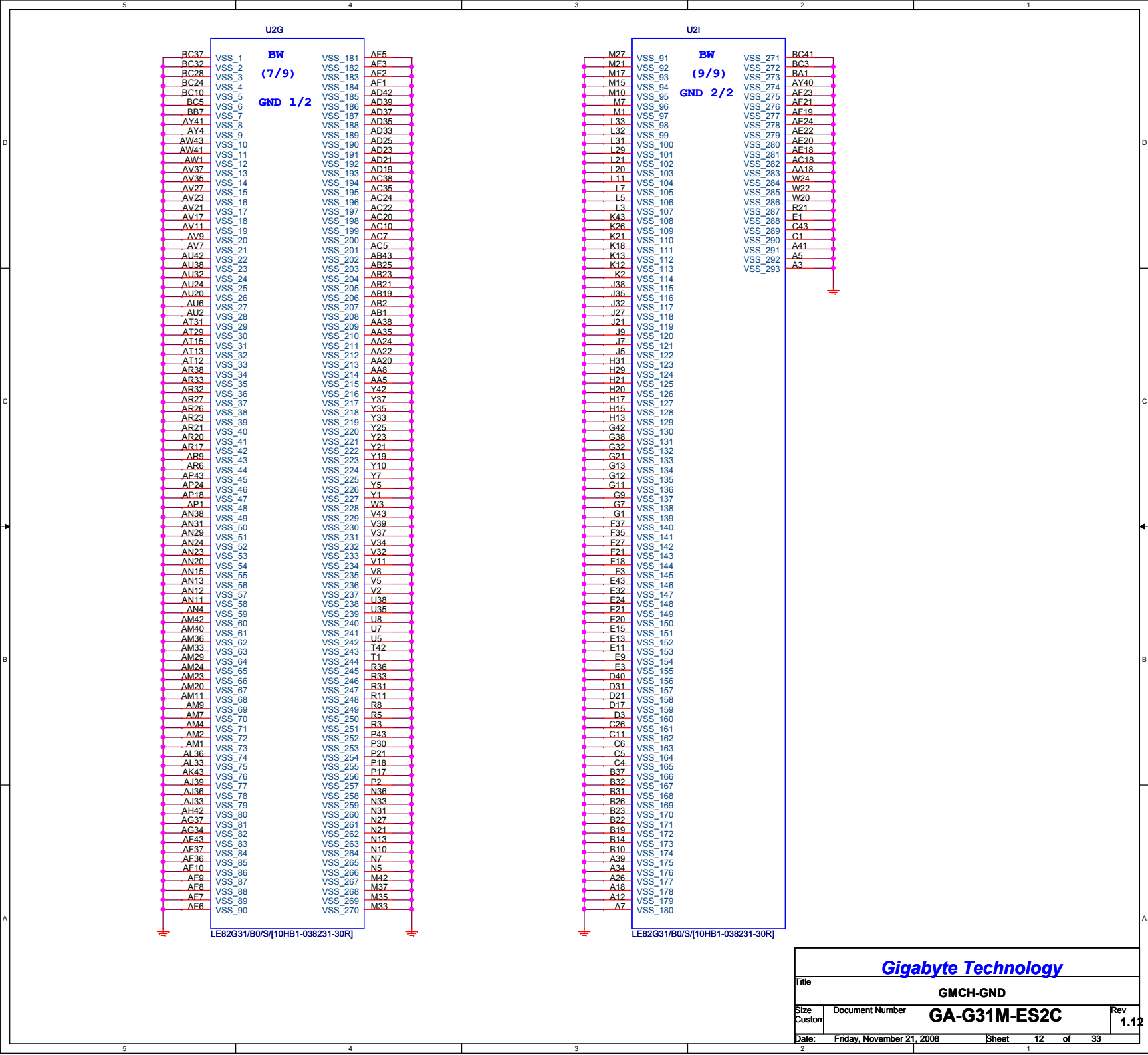












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Title

GMCH-GND

Size  
Custom

Document Number

GA-G31M-ES2C

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1.12

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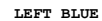








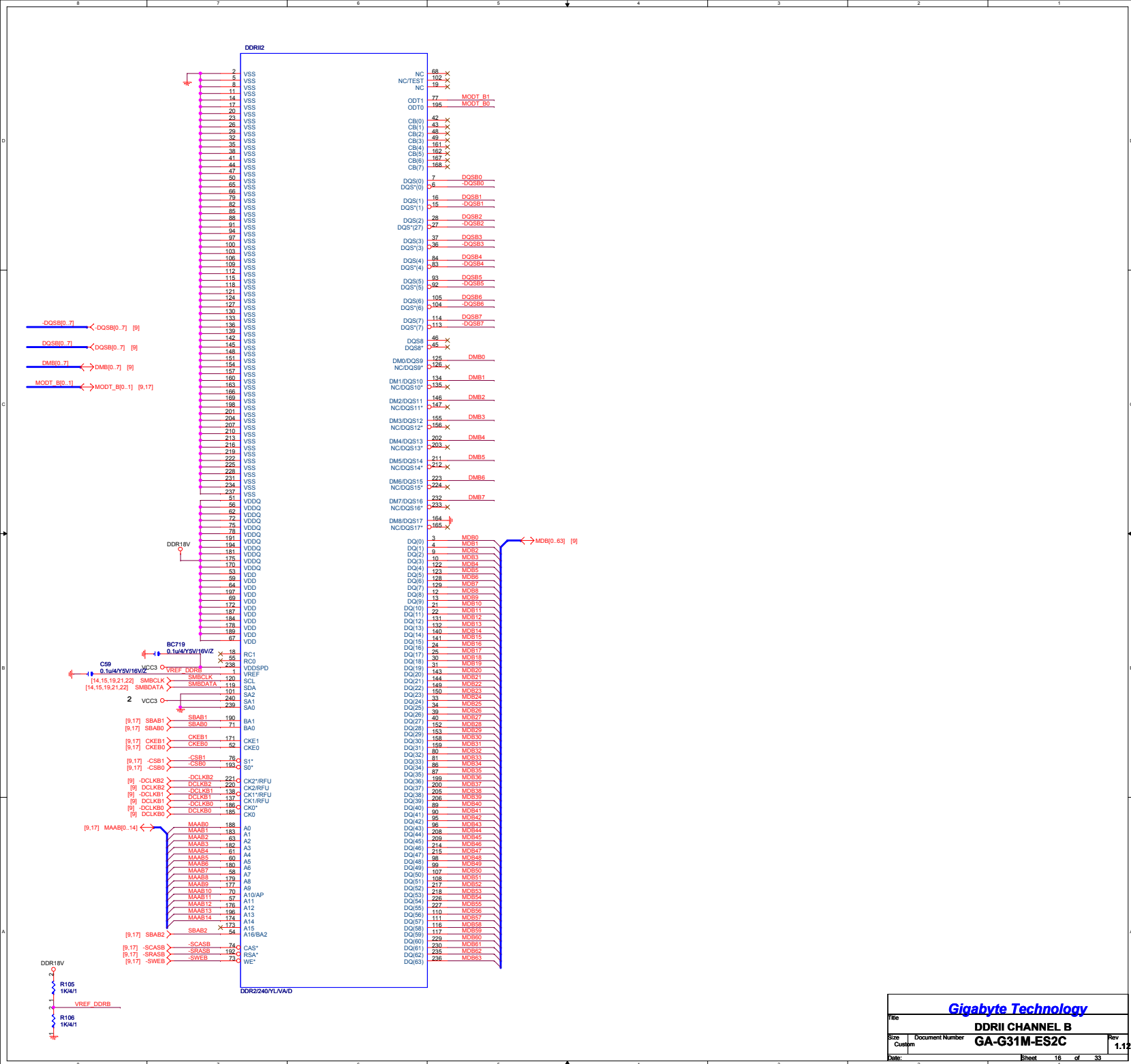
EXP A TPX0	C92	1.01uW/XTR/16V/K	EXP A TPX0C
EXP A TXN0	C93	1.01uW/XTR/16V/K	EXP A TXN0C
EXP A TXP1	C94	1.01uW/XTR/16V/K	EXP A TXP1C
EXP A TXN1	C95	1.01uW/XTR/16V/K	EXP A TXN1C
EXP A TPX2	C96	1.01uW/XTR/16V/K	EXP A TPX2C
EXP A TXN2	C97	1.01uW/XTR/16V/K	EXP A TXN2C
EXP A TPX3	C98	1.01uW/XTR/16V/K	EXP A TPX3C
EXP A TXN3	C99	1.01uW/XTR/16V/K	EXP A TXN3C
EXP A TPX4	C100	1.01uW/XTR/16V/K	EXP A TPX4C
EXP A TXN4	C101	1.01uW/XTR/16V/K	EXP A TXN4C
EXP A TPX5	C102	1.01uW/XTR/16V/K	EXP A TPX5C
EXP A TXN5	C103	1.01uW/XTR/16V/K	EXP A TXN5C
EXP A TPX6	C104	1.01uW/XTR/16V/K	EXP A TPX6C
EXP A TXN6	C105	1.01uW/XTR/16V/K	EXP A TXN6C
EXP A TPX7	C106	1.01uW/XTR/16V/K	EXP A TPX7C
EXP A TXN7	C107	1.01uW/XTR/16V/K	EXP A TXN7C
EXP A TPX8	C108	1.01uW/XTR/16V/K	EXP A TPX8C
EXP A TXN8	C109	1.01uW/XTR/16V/K	EXP A TXN8C
EXP A TPX9	C110	1.01uW/XTR/16V/K	EXP A TPX9C
EXP A TXN9	C111	1.01uW/XTR/16V/K	EXP A TXN9C
EXP A TPX10	C112	1.01uW/XTR/16V/K	EXP A TPX10C
EXP A TXN10	C113	1.01uW/XTR/16V/K	EXP A TXN10C
EXP A TPX11	C114	1.01uW/XTR/16V/K	EXP A TPX11C
EXP A TXN11	C115	1.01uW/XTR/16V/K	EXP A TXN11C
EXP A TPX12	C116	1.01uW/XTR/16V/K	EXP A TPX12C
EXP A TXN12	C117	1.01uW/XTR/16V/K	EXP A TXN12C
EXP A TPX13	C118	1.01uW/XTR/16V/K	EXP A TPX13C
EXP A TXN13	C119	1.01uW/XTR/16V/K	EXP A TXN13C
EXP A TPX14	C120	1.01uW/XTR/16V/K	EXP A TPX14C
EXP A TXN14	C121	1.01uW/XTR/16V/K	EXP A TXN14C
EXP A TPX15	C122	1.01uW/XTR/16V/K	EXP A TPX15C
EXP A TXN15	C123	1.01uW/XTR/16V/K	EXP A TXN15C







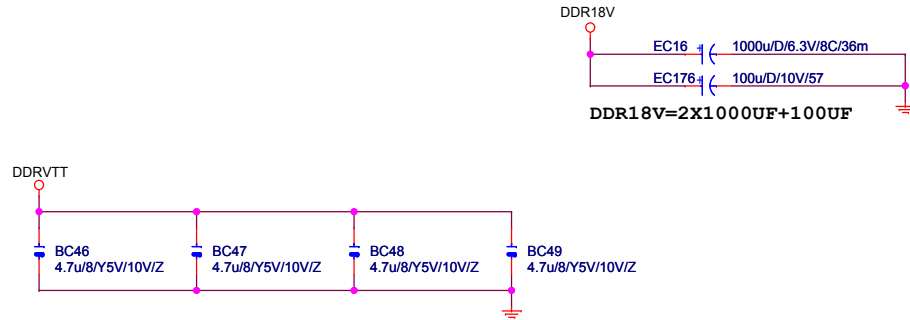




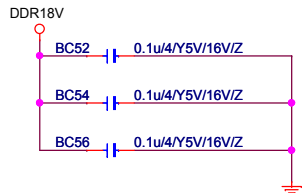


# DDR TERMINATION CHANNEL A

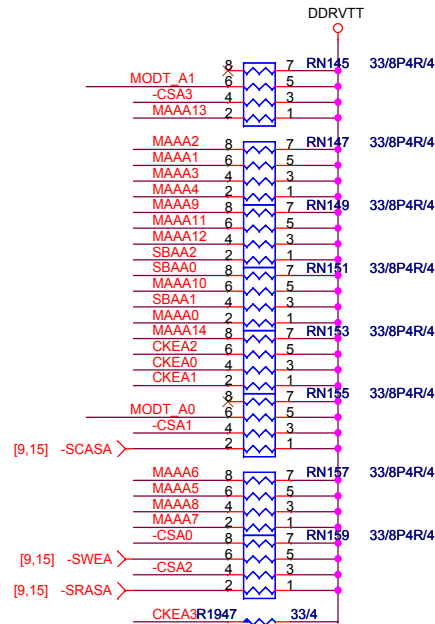
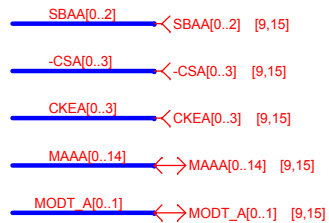
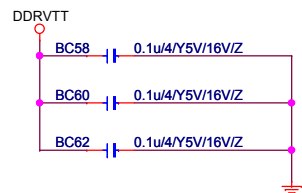
## DDRVTT Decouple



## DDR18V Decouple

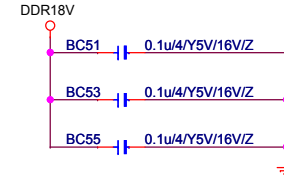


## DDRVTT Decouple

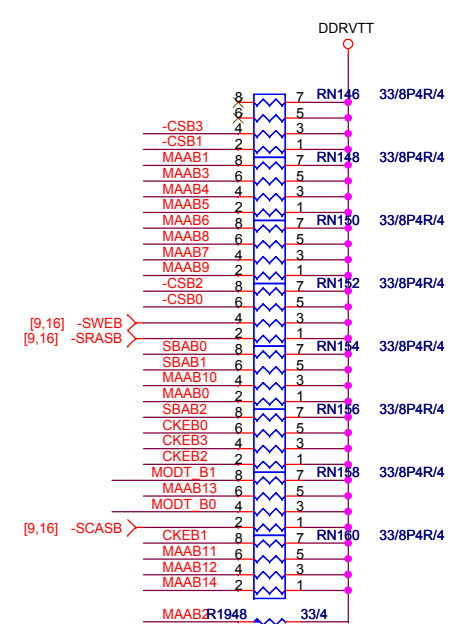
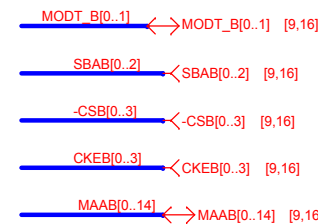
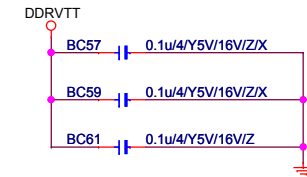


# DDR TERMINATION CHANNEL B

## DDR18V Decouple

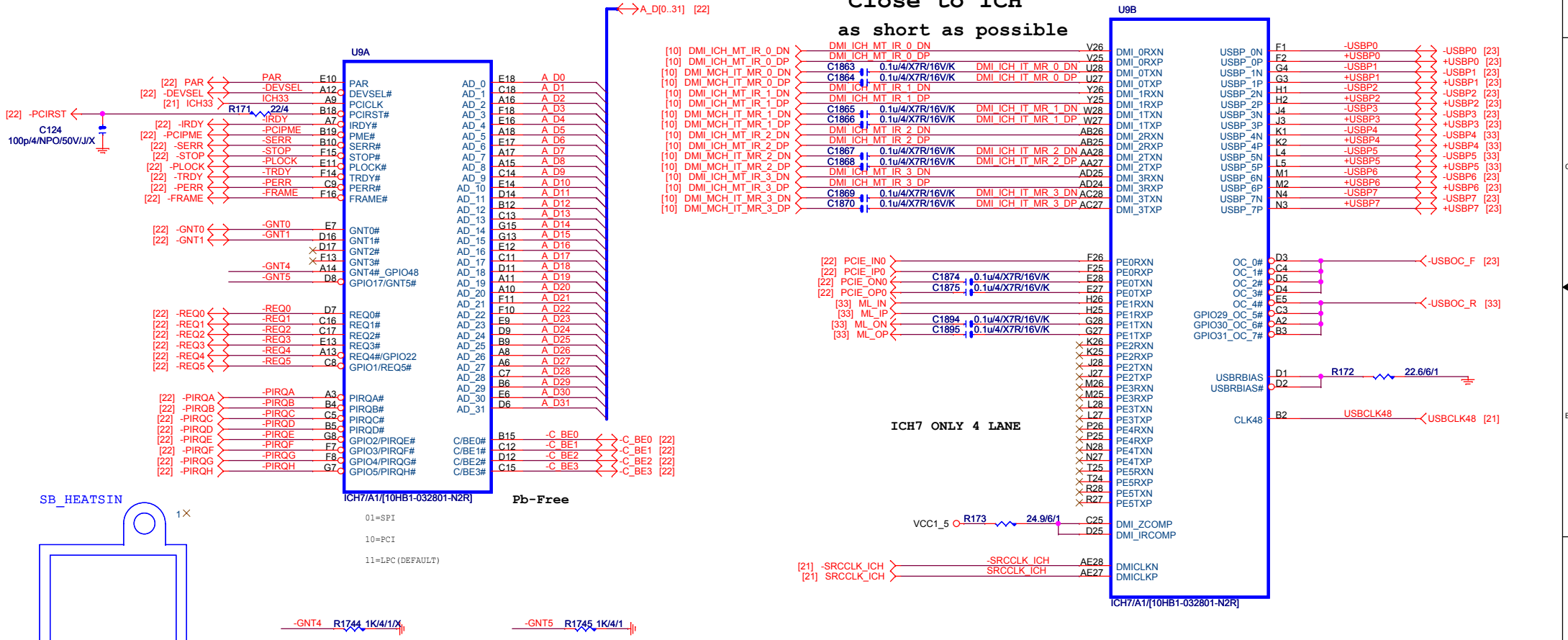


## DDRVTT Decouple



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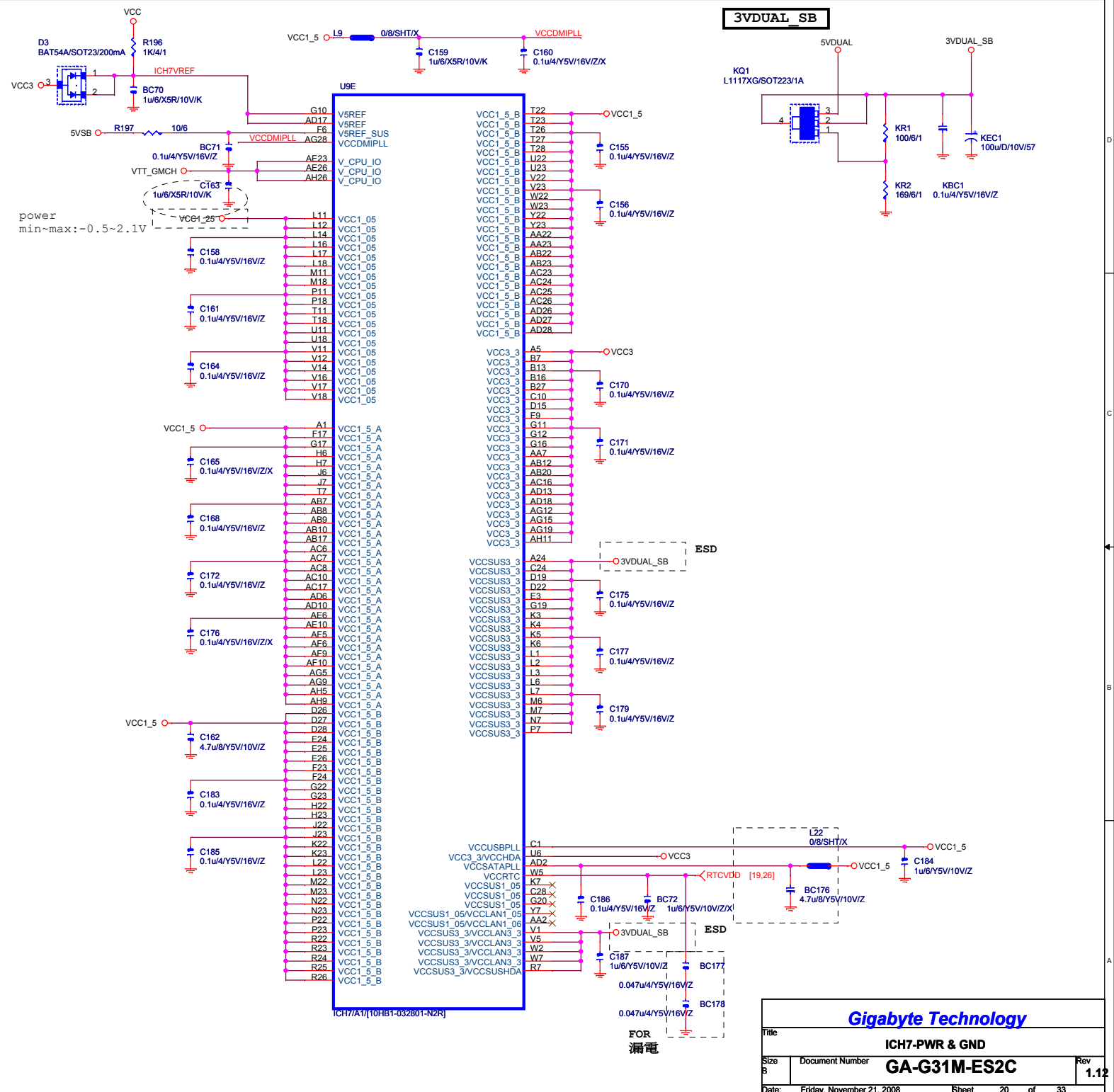




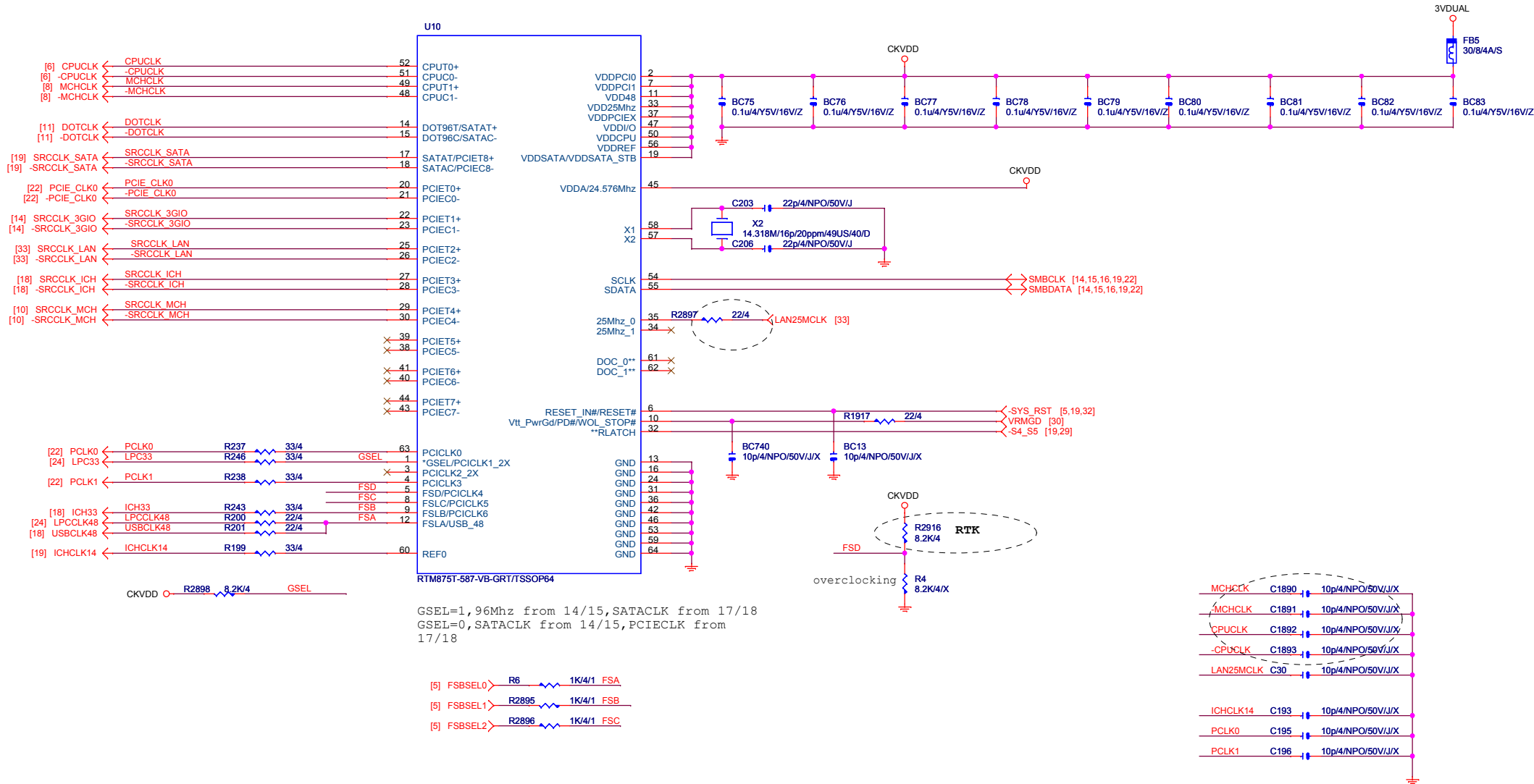




U9F		
A4	VSS1	VSS101
A23	VSS2	VSS102
B1	VSS3	VSS103
B8	VSS4	VSS104
B11	VSS5	VSS105
B14	VSS6	VSS106
B17	VSS7	VSS107
B20	VSS8	VSS108
B26	VSS9	VSS109
B28	VSS10	VSS110
C2	VSS11	VSS111
C6	VSS12	VSS112
D10	VSS13	VSS113
D13	VSS14	VSS114
D18	VSS15	VSS115
D21	VSS16	VSS116
D24	VSS17	VSS117
E1	VSS18	VSS118
E2	VSS19	VSS119
E8	VSS20	VSS120
E15	VSS21	VSS121
F3	VSS22	VSS122
F4	VSS23	VSS123
F5	VSS24	VSS124
F12	VSS25	VSS125
F27	VSS26	VSS126
F28	VSS27	VSS127
G1	VSS28	VSS128
G2	VSS29	VSS129
G5	VSS30	VSS130
G6	VSS31	VSS131
G9	VSS32	VSS132
G14	VSS33	VSS133
G18	VSS34	VSS134
G21	VSS35	VSS135
G24	VSS36	VSS136
G25	VSS37	VSS137
G26	VSS38	VSS138
H3	VSS39	VSS139
H4	VSS40	VSS140
H5	VSS41	VSS141
H24	VSS42	VSS142
H27	VSS43	VSS143
H28	VSS44	VSS144
J1	VSS45	VSS145
J5	VSS46	VSS146
J24	VSS47	VSS147
J25	VSS48	VSS148
J26	VSS49	VSS149
J26	VSS50	VSS150
K24	VSS51	VSS151
K27	VSS52	VSS152
K28	VSS53	VSS153
L13	VSS54	VSS154
L15	VSS55	VSS155
L24	VSS56	VSS156
L25	VSS57	VSS157
L26	VSS58	VSS158
M3	VSS59	VSS159
M4	VSS60	VSS160
M5	VSS61	VSS161
M12	VSS62	VSS162
M13	VSS63	VSS163
M14	VSS64	VSS164
M15	VSS65	VSS165
M16	VSS66	VSS166
M17	VSS67	VSS167
M24	VSS68	VSS168
M27	VSS69	VSS169
M28	VSS70	VSS170
N1	VSS71	VSS171
N2	VSS72	VSS172
N5	VSS73	VSS173
N6	VSS74	VSS174
N11	VSS75	VSS175
N12	VSS76	VSS176
N13	VSS77	VSS177
N14	VSS78	VSS178
N15	VSS79	VSS179
N16	VSS80	VSS180
N17	VSS81	VSS181
N18	VSS82	VSS182
N24	VSS83	VSS183
N25	VSS84	VSS184
N26	VSS85	VSS185
P3	VSS86	VSS186
P4	VSS87	VSS187
P12	VSS88	VSS188
P13	VSS89	VSS189
P14	VSS90	VSS190
P15	VSS91	VSS191
P16	VSS92	VSS192
P17	VSS93	VSS193
P24	VSS94	VSS194
P27	VSS95	
P28	VSS96	
R1	VSS97	
R11	VSS98	
R12	VSS99	
R13	VSS100	

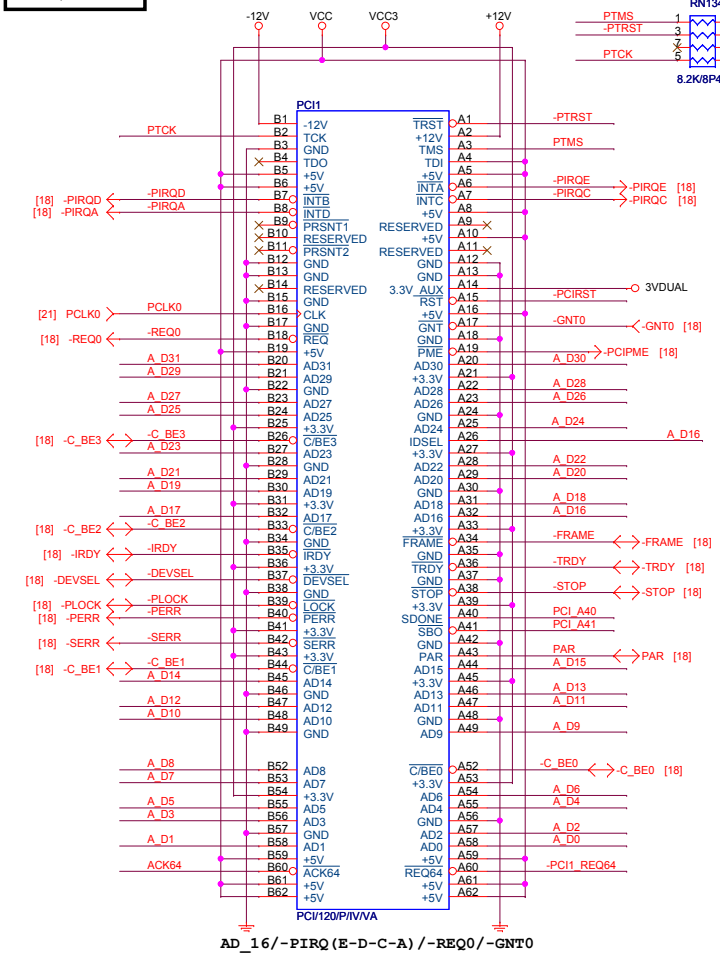




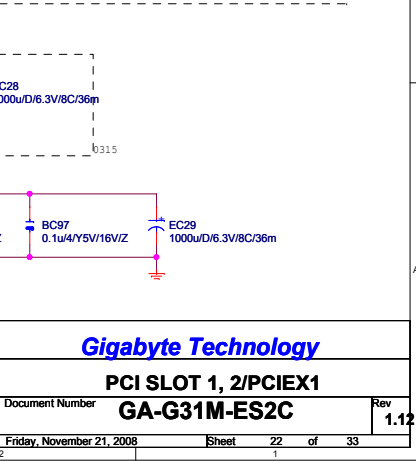
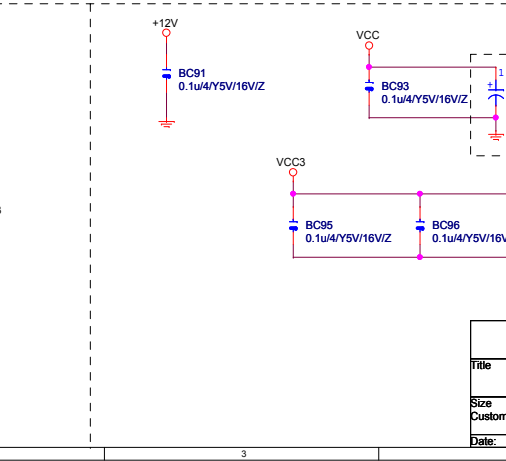
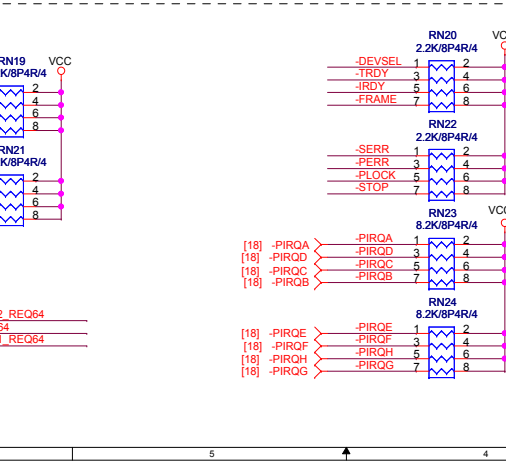
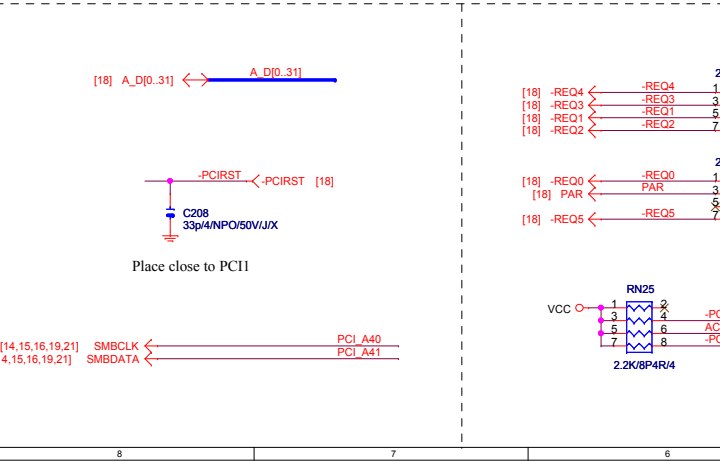
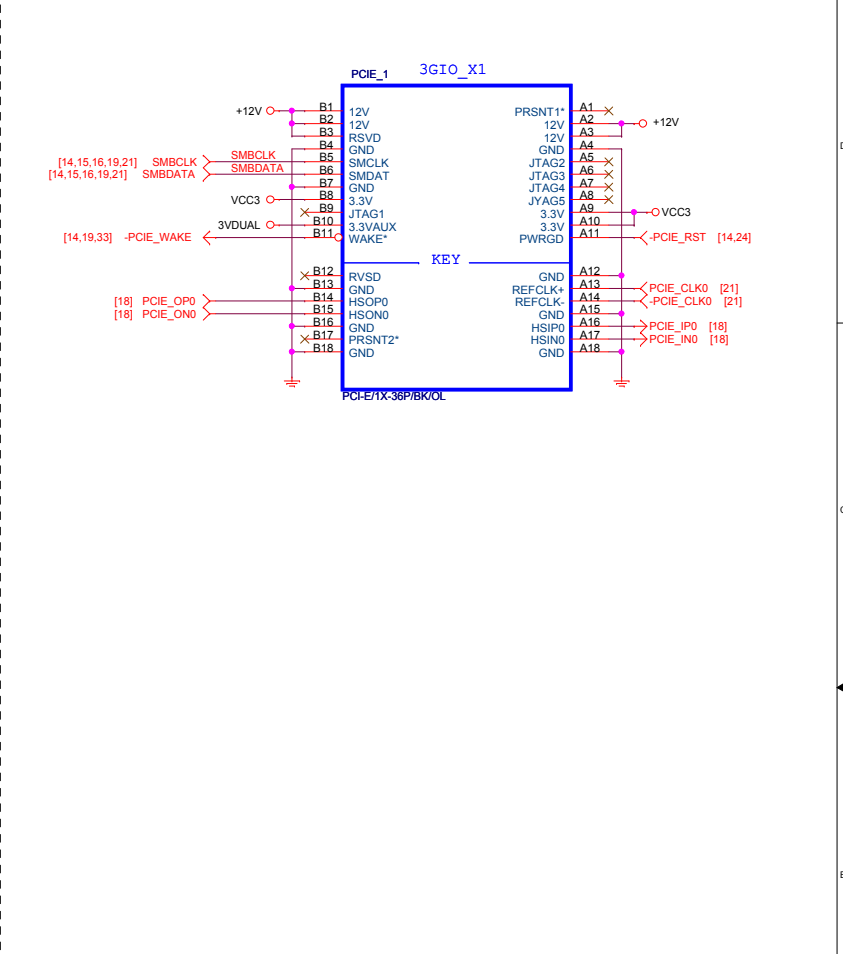




PCI1, 2 SLOT

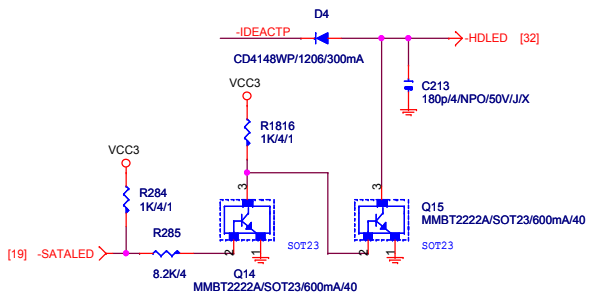


PCI-E\*1

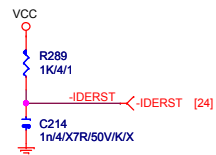




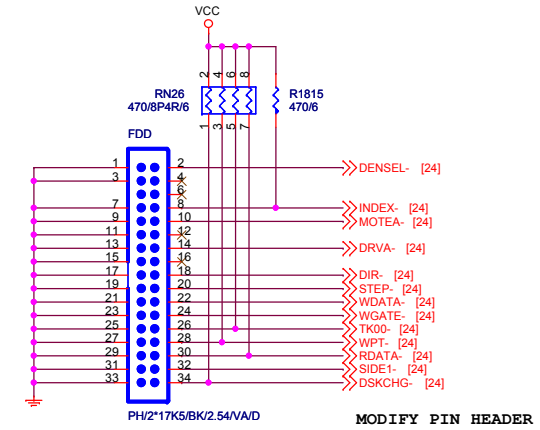
# IDE/SATA LED



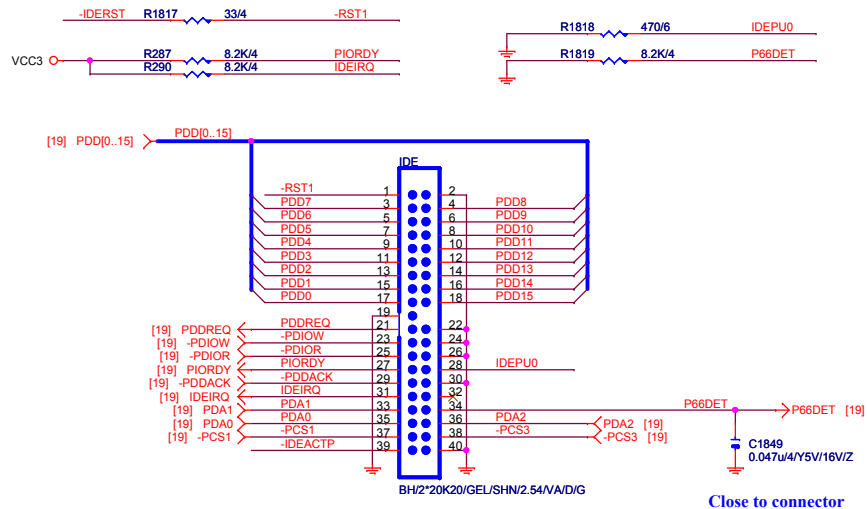
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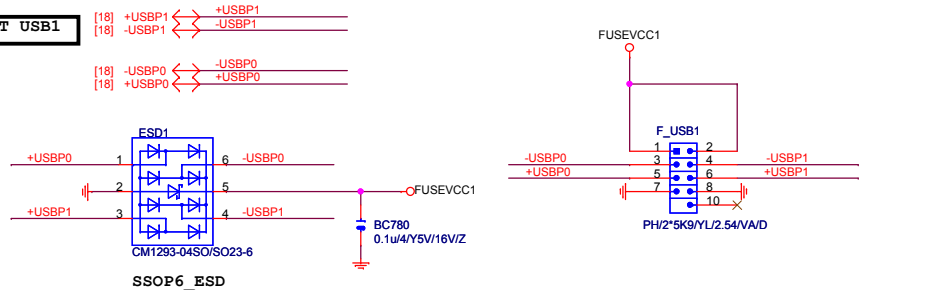
# FLOPPY



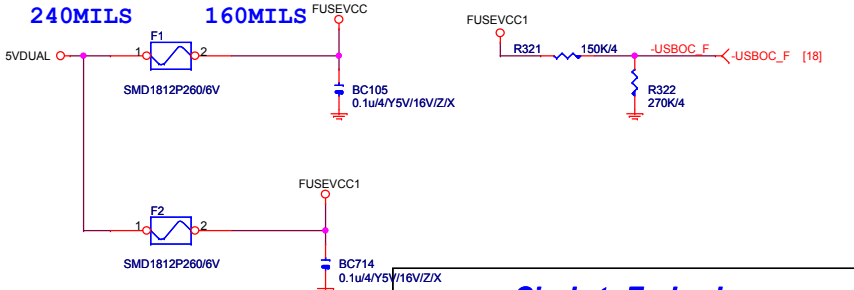
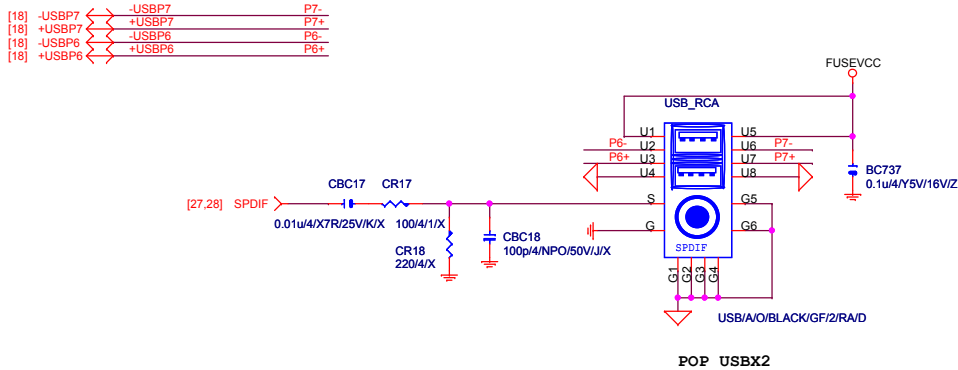
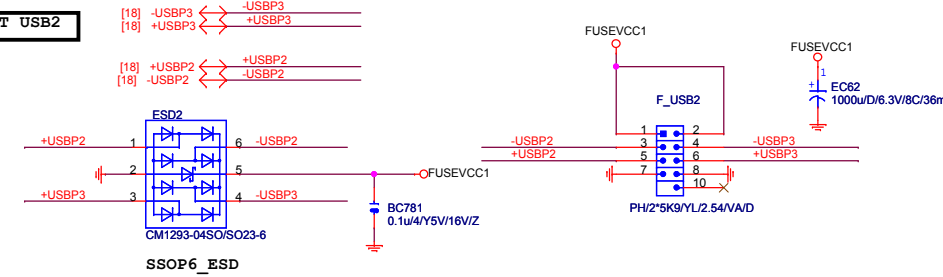
# IDE



# FRONT USB1



# FRONT USB2

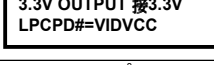
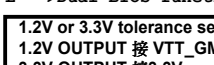
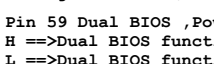
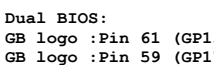
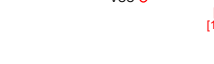
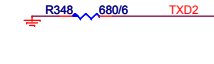


Gigabyte Technology



RTS2- ==LOW CPU FAN 50%  
==HIGH 100%

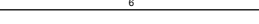
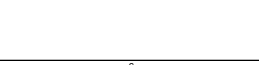
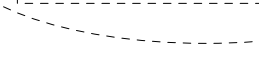
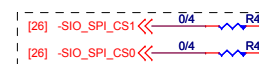
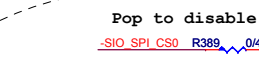
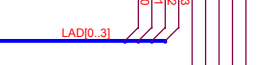
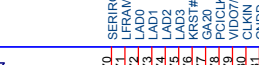
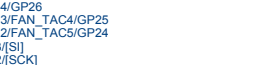
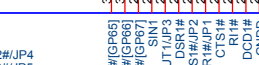
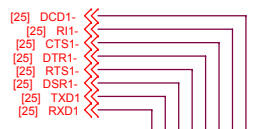
DEFAULT 50%



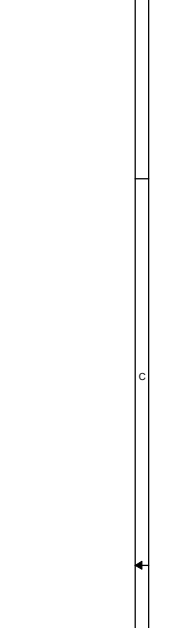
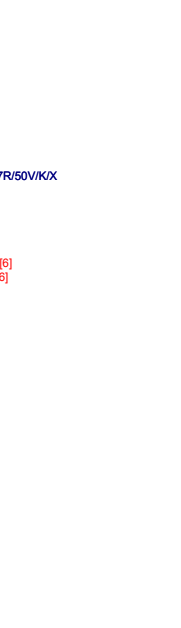
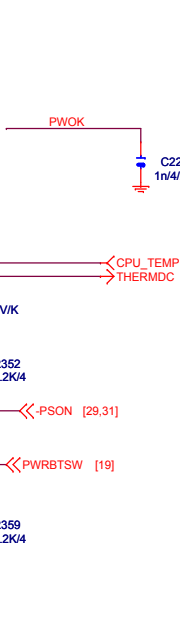
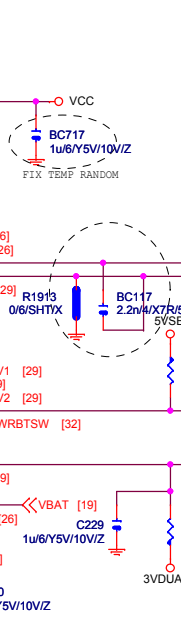
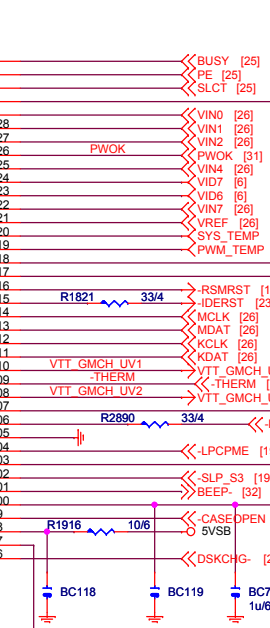
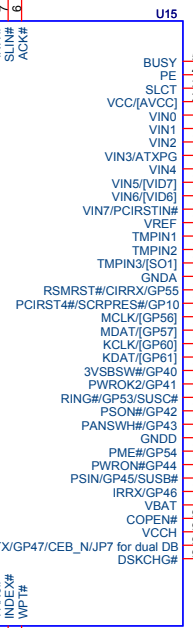
Dual BIOS:  
GB logo :Pin 61 (GP15/CSA)  
GB logo :Pin 59 (GP17/CSB)

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

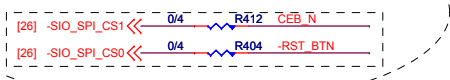
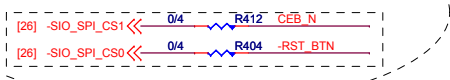
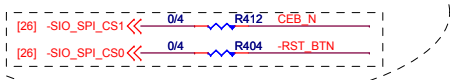
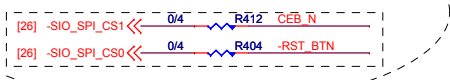
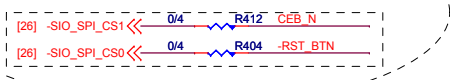
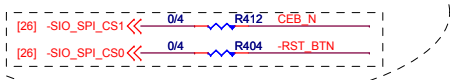
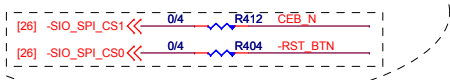
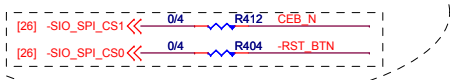
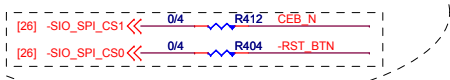
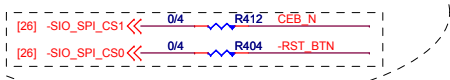
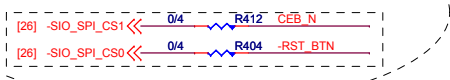
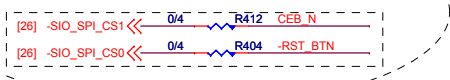
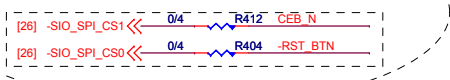
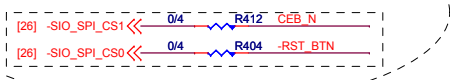
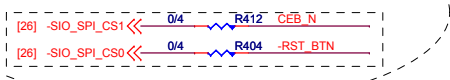
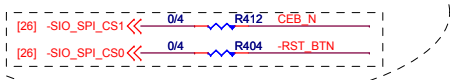
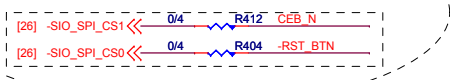
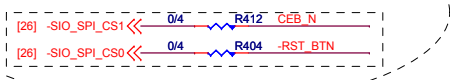
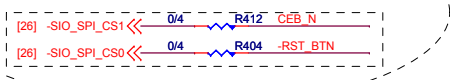
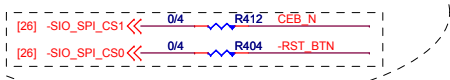
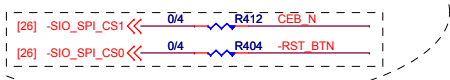
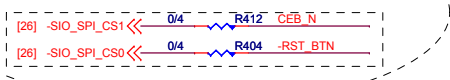
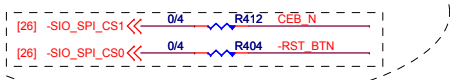
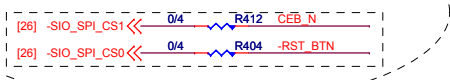
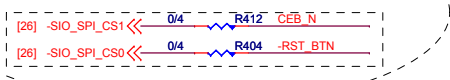
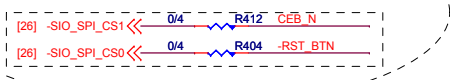
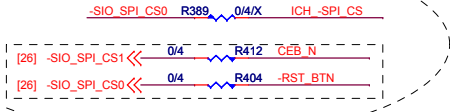


IT8712F/[IT8718F]

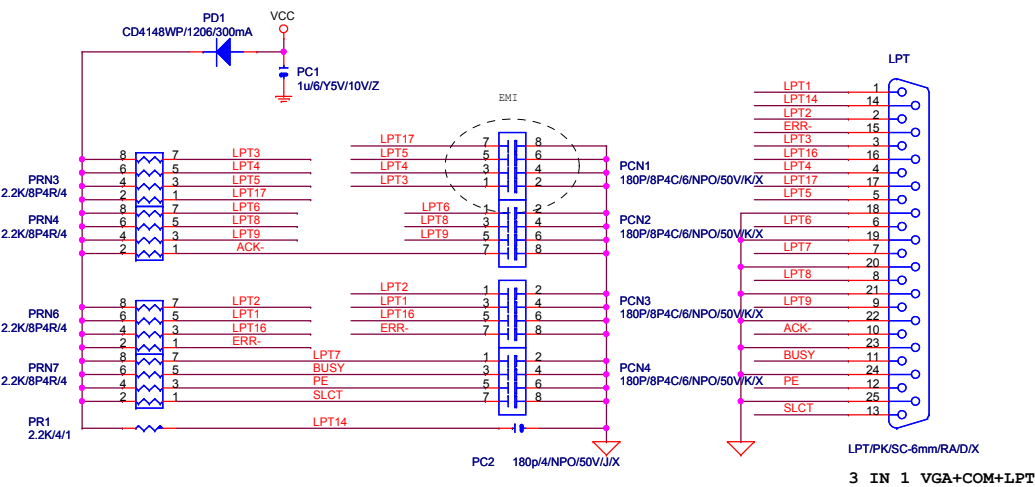
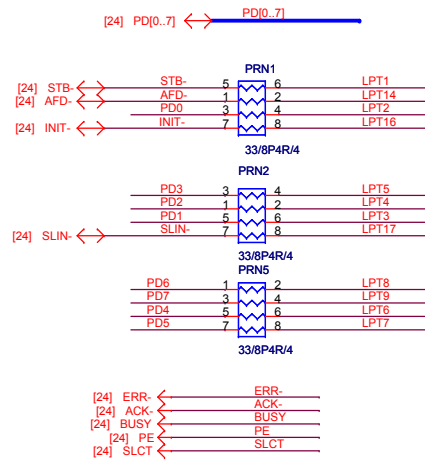
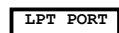
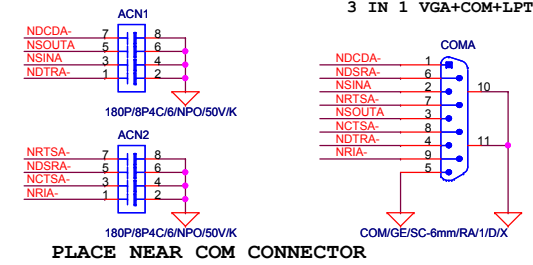
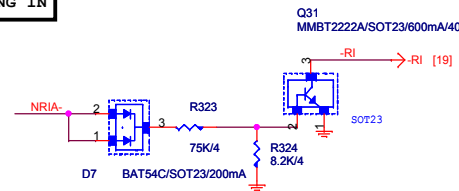
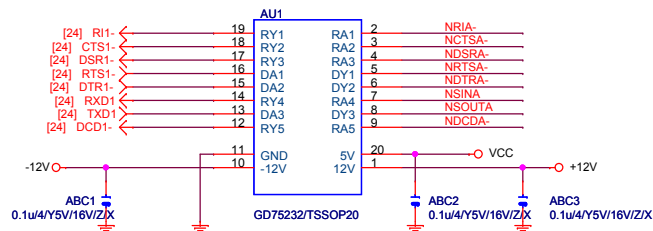


JP7 : HIGH DUAL BIOS ENABLE  
LOW DUAL BIOS DISABLE

Pop to disable Dual BIOS

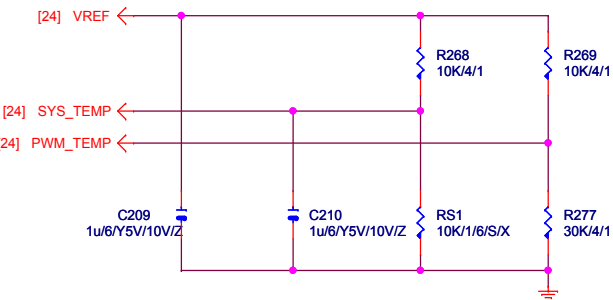




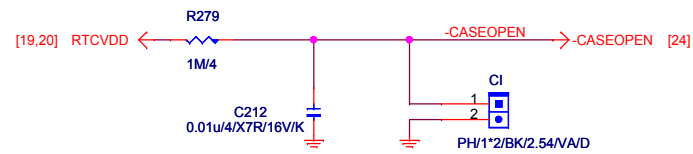




TEMP H/W MONITOR

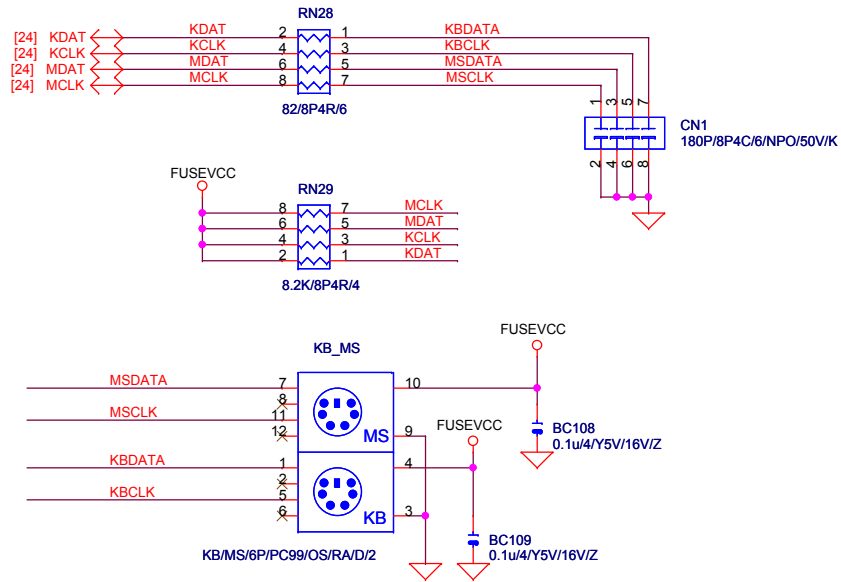


CASE OPEN

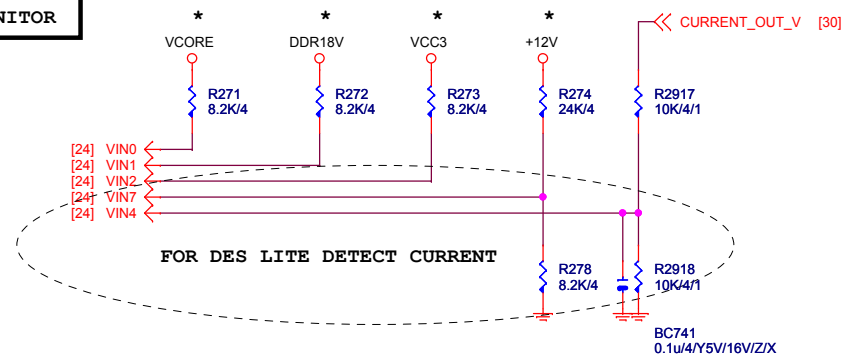


## Case Open Circuits

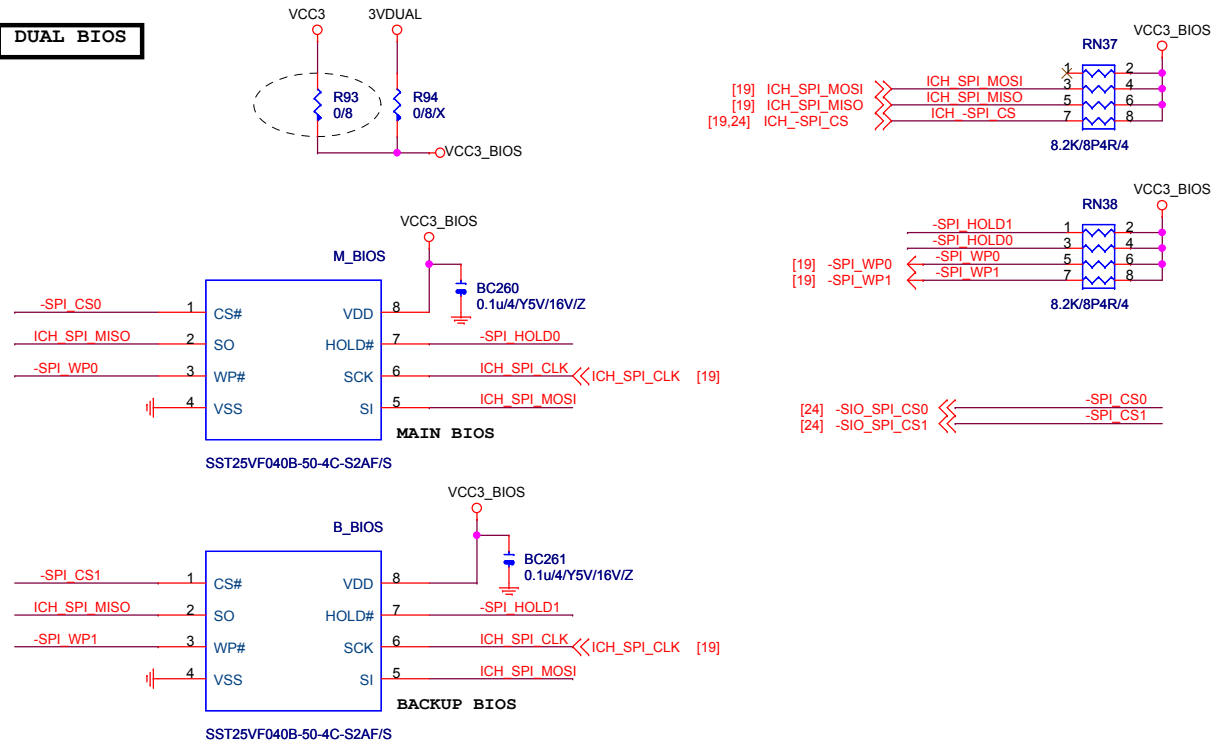
## KB/MS



VOLTAGE-- H/W MONITOR



**DUAL BIOS**



## Gigabyte Technology

**HW-MONITOR/CI/KB/MS/BIOS**

Size Custom	Document Number <b>GA-G31M-ES2C</b>	Rev <b>1.12</b>
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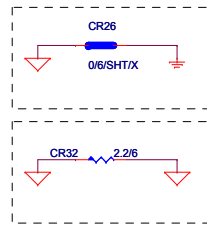
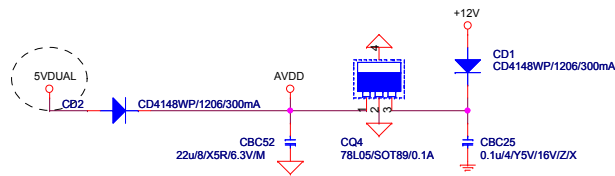
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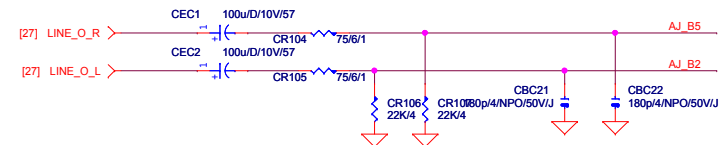




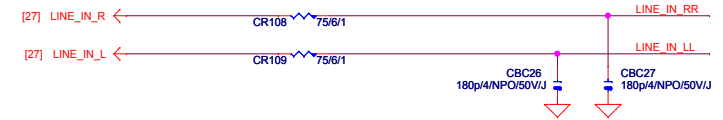
## CODEC POWER/EMI PAD



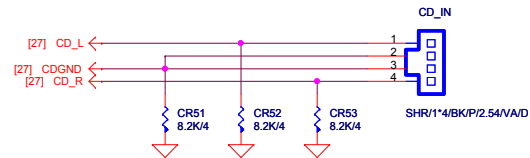
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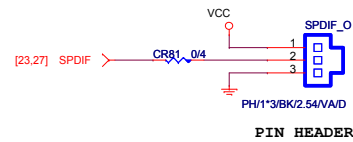
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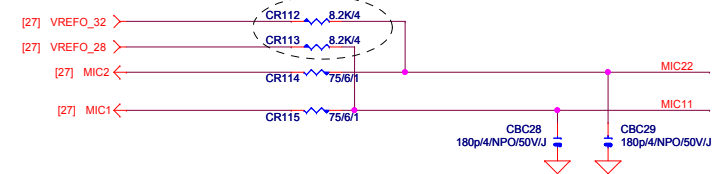
## CD IN



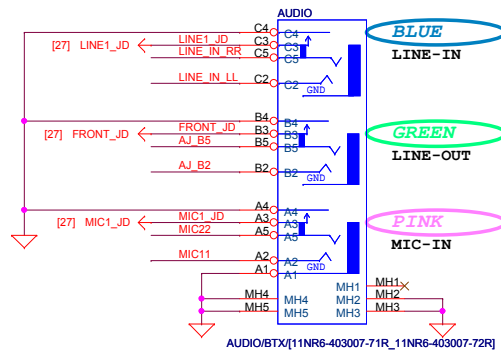
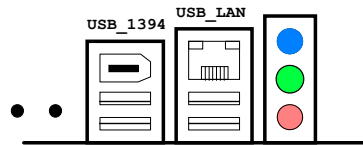
## SPDIF IN



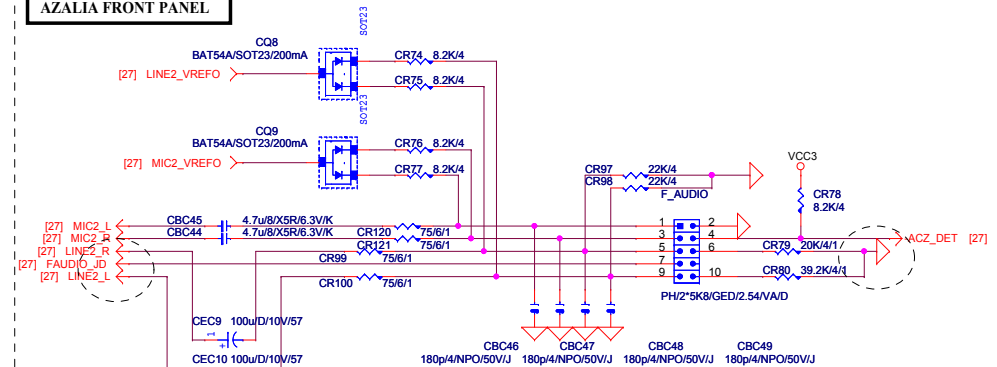
## MIC-IN



## AZALIA JACK



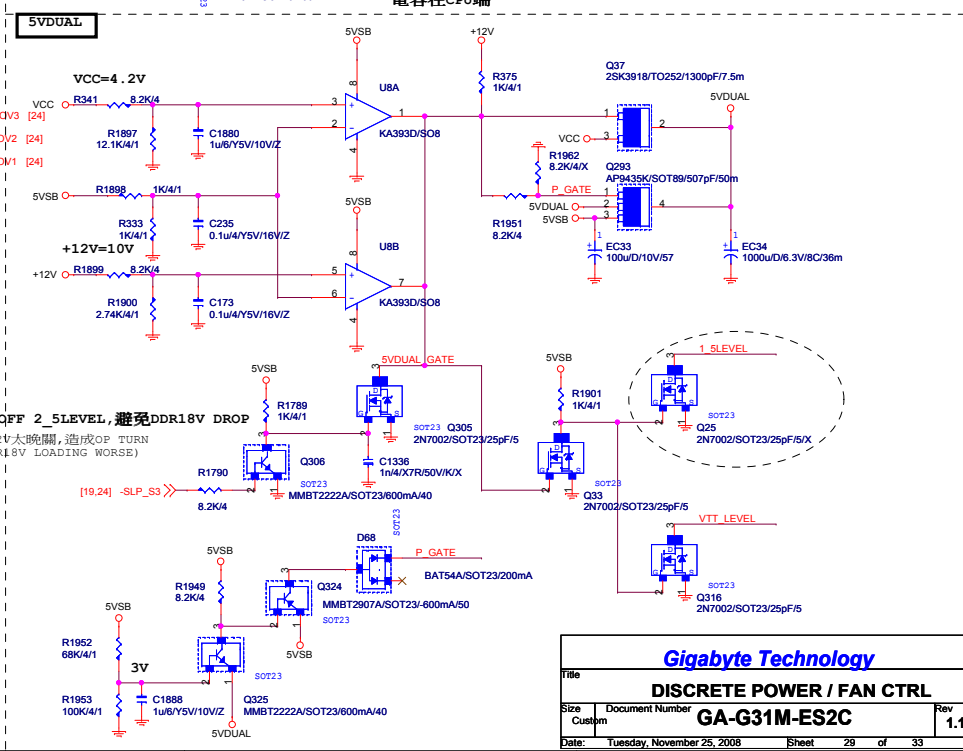
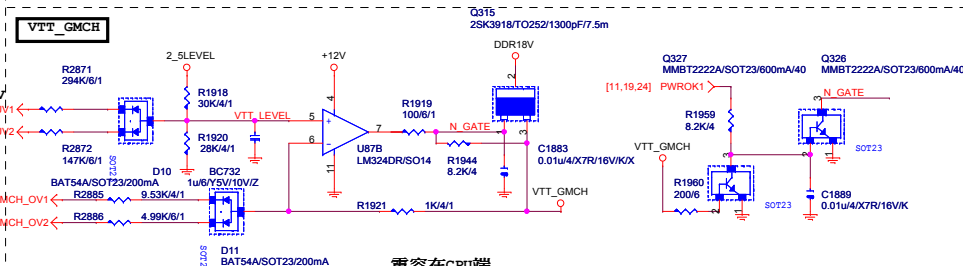
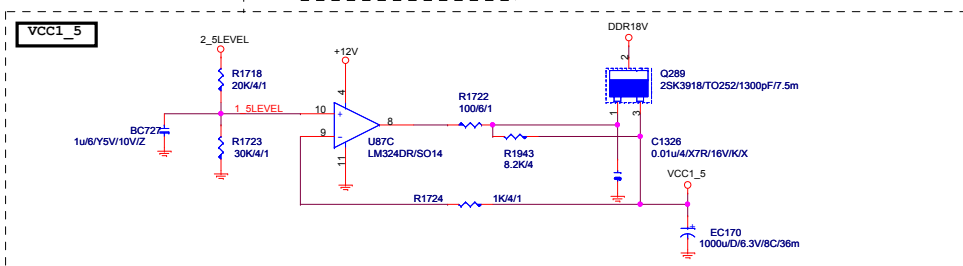
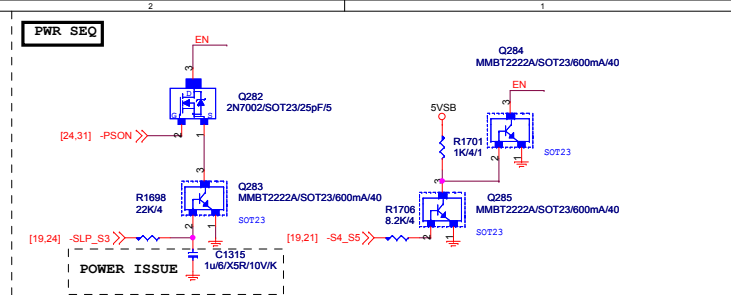
## AZALIA FRONT PANEL



Gigabyte Technology

Title			
AUDIO JACK			
Size	Document Number	Rev	
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Date:	Friday, November 21, 2008	Sheet	28 of 33



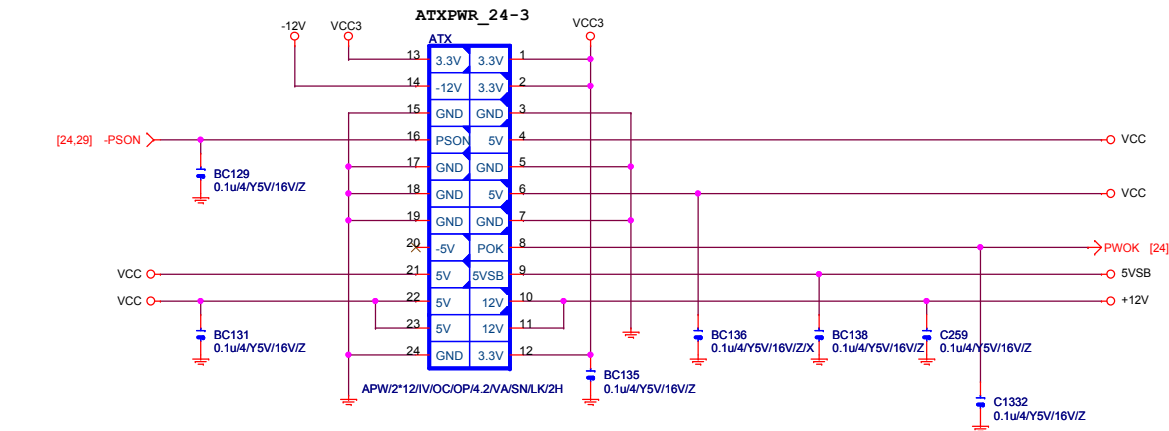




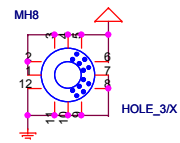
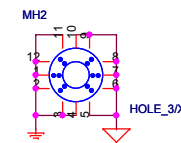
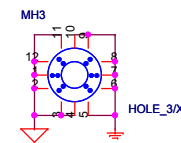
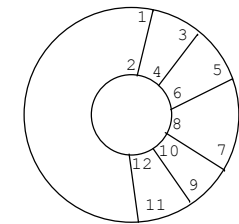
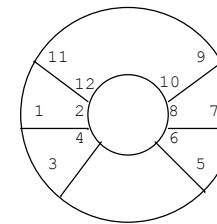
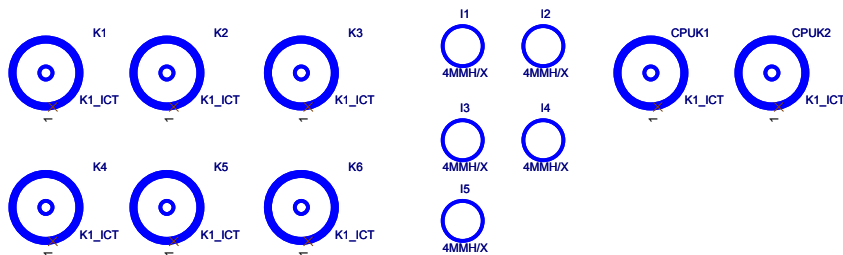
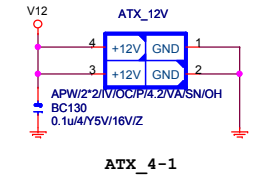
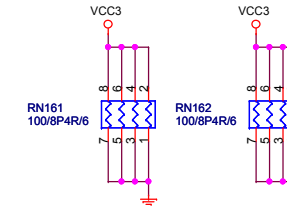




# ATX POWER CONNECTOR

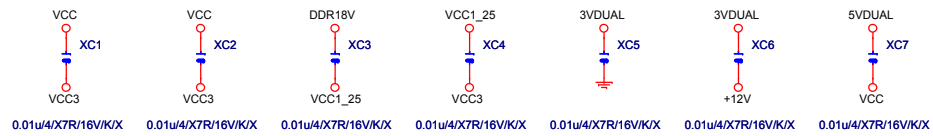
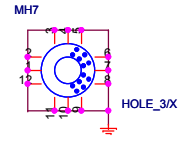
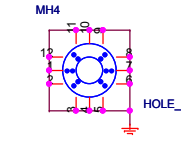
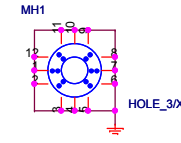


## FIX PWR AcBel (ATX-400C-A2ADB)



HOLE\_4-RH

HOLE\_4-RH-5MM



Gigabyte Technology

ATX POWER CONNECTOR

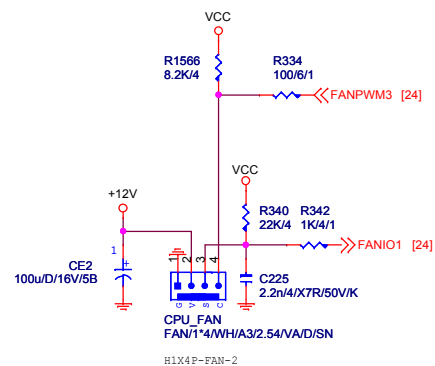
GA-G31M-ES2C

Rev 1.12

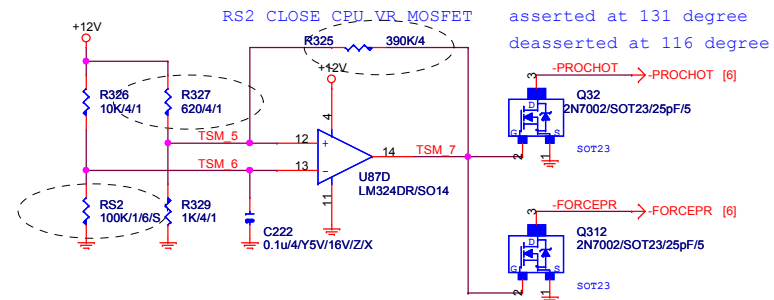
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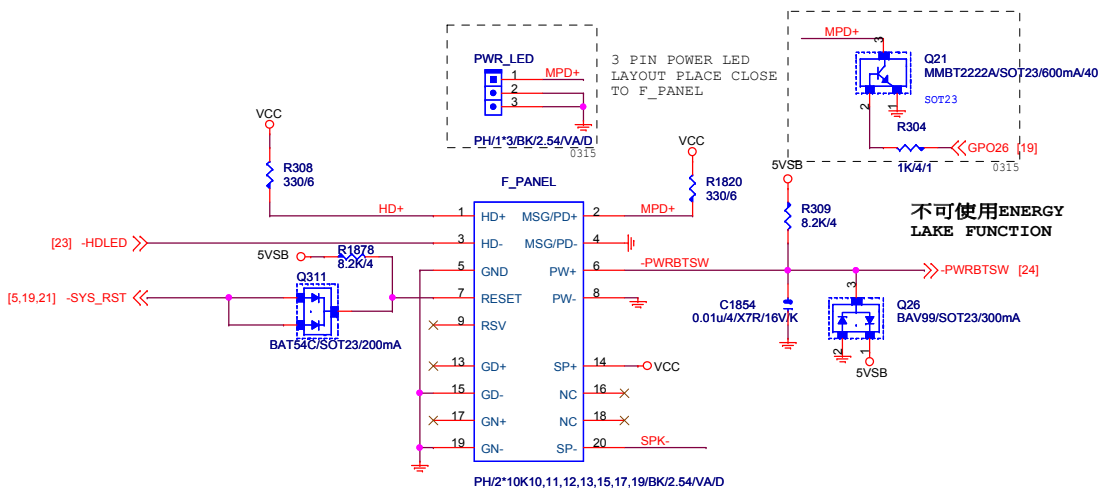
CPU SMART FAN	SMART FAN
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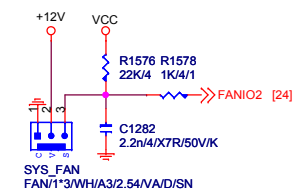
PROCESSOR HOT



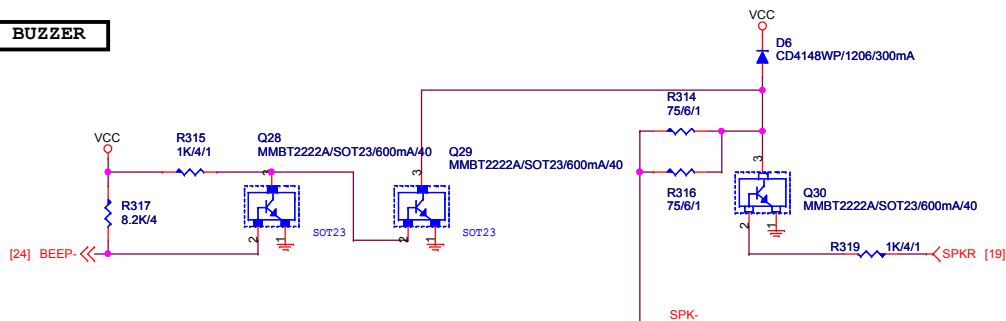
## INTEL FRONT PANEL



## SYS FAN

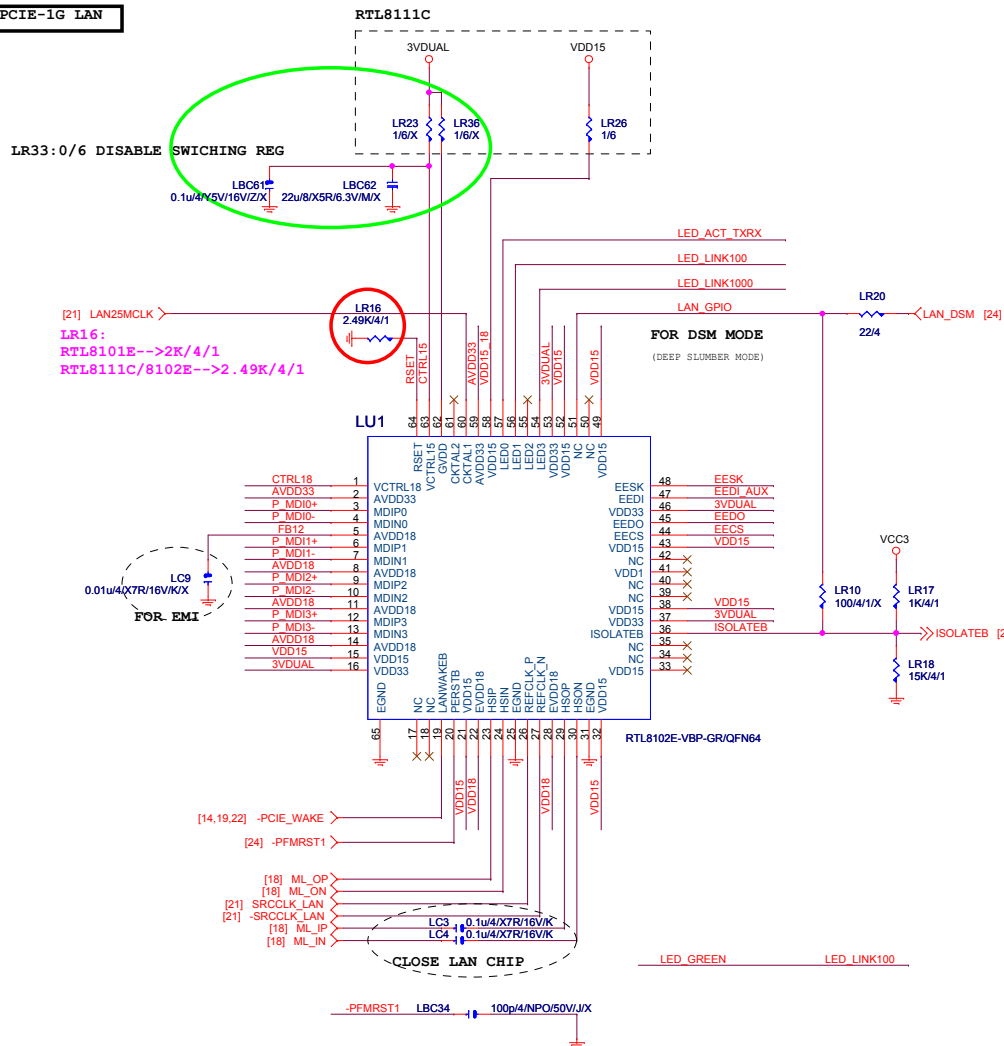


## BUZZER





## PCIE-1G LAN

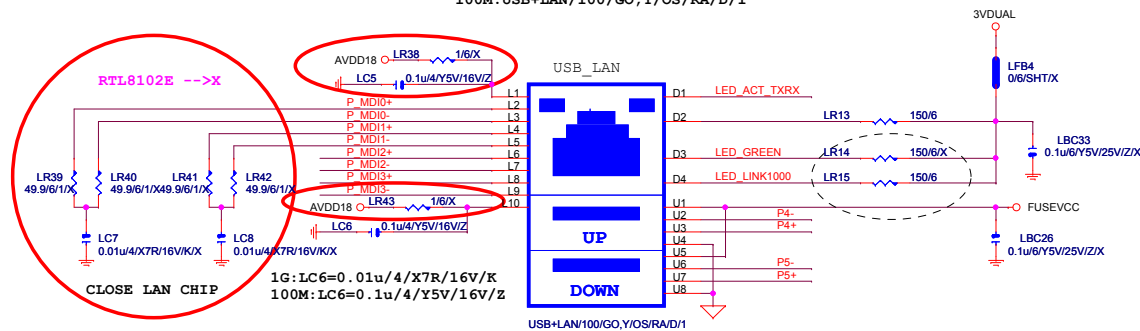


## USB\_LAN CONNECTOR

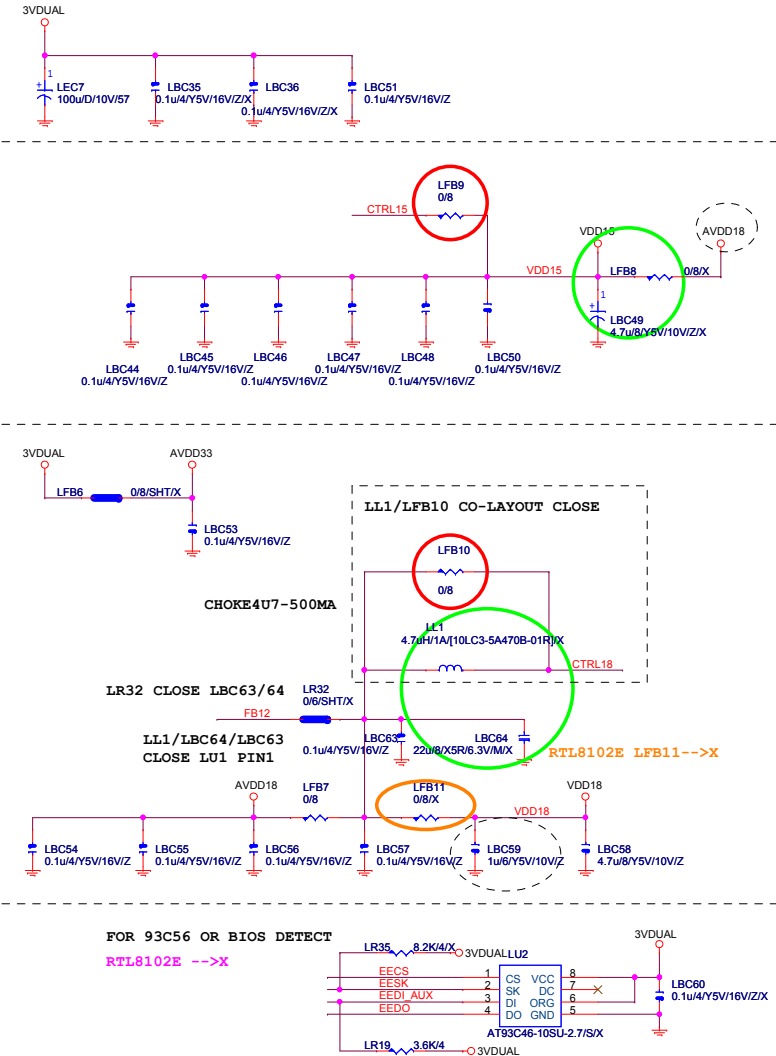
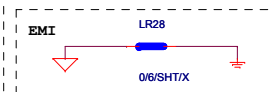
```
RTL8101E:LR38/LC5/LR43/LC6-->O
RTL8102E:LC5/LC6-->O
RTL8111C:LC6-->O
```

```
RTL8101E :L1+L10-->AVDD18+0.1U(BIOS DISABLE MDI-X FUNCTION)
```

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



USB LAN



## Gigabyte Technology

**REALTEK RTL8111C/8102E**

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