

Model Name:GA-G31M-ES2C

Revision 1.12

SHEET

TITLE

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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

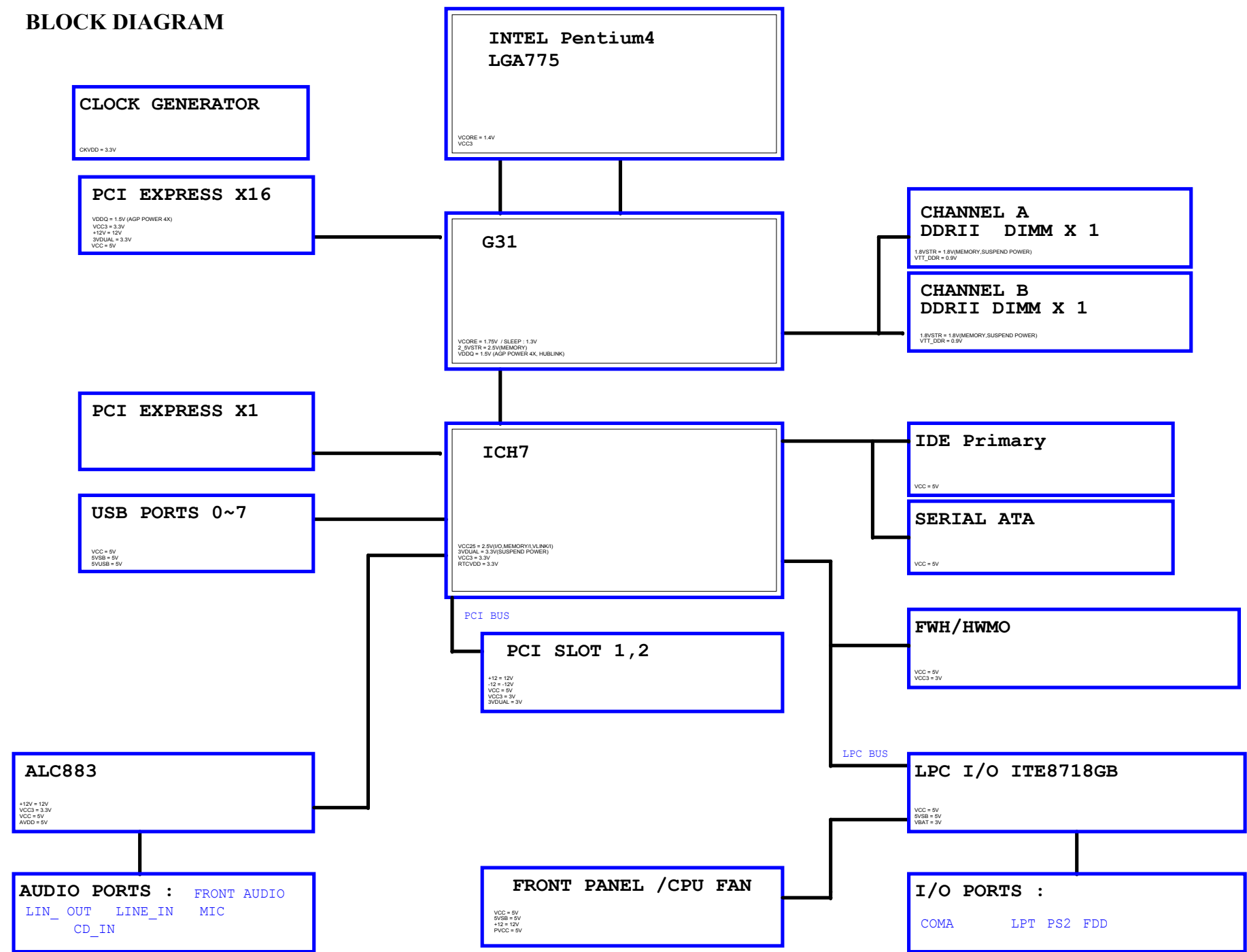
TITLE

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

Gigabyte Technology

Title			
Cover Sheet			
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BLOCK DIAGRAM

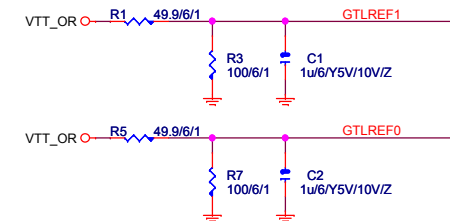
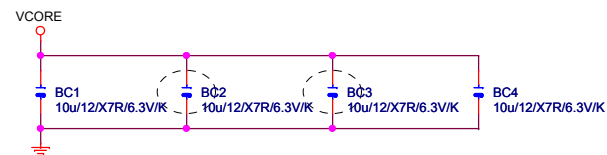
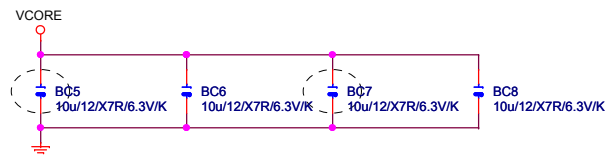


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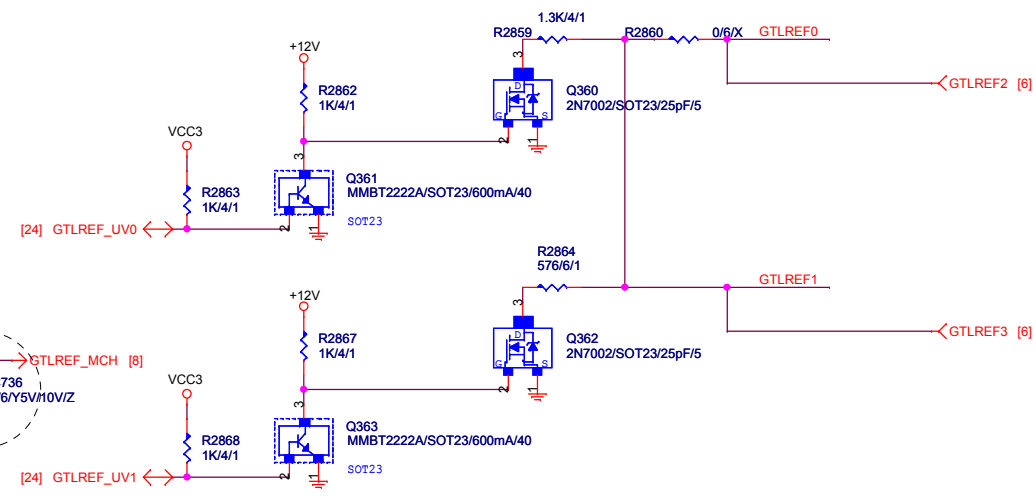
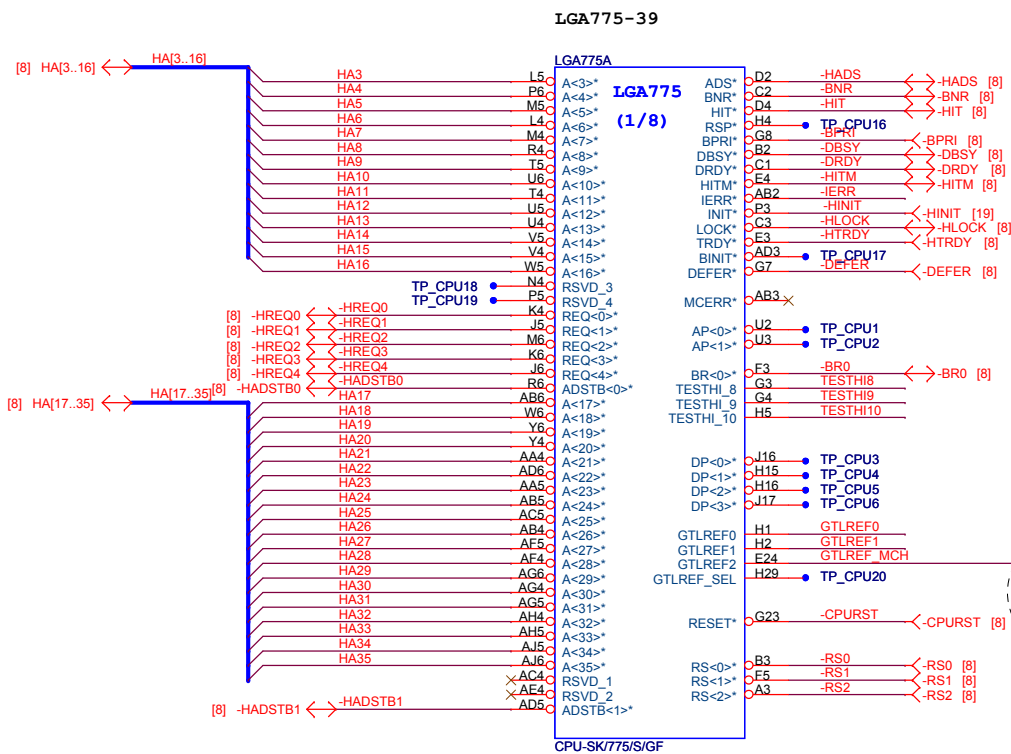
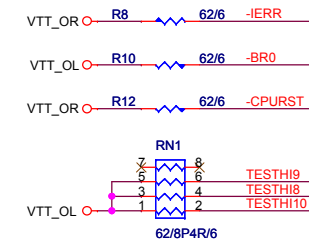
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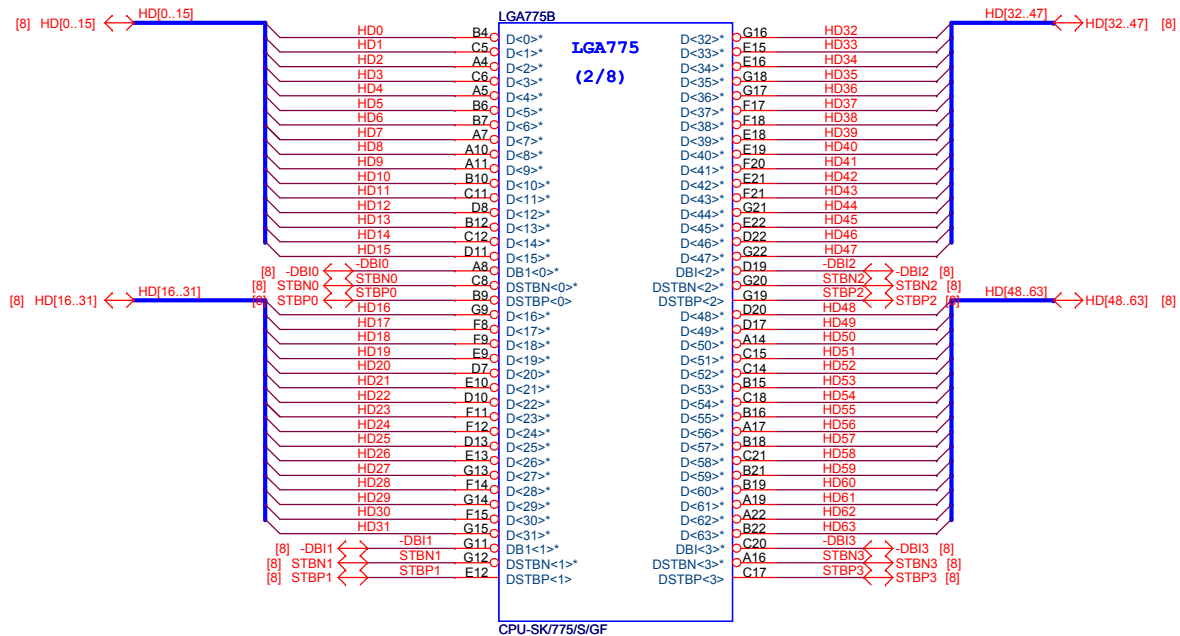
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<i>Gigabyte Technology</i>			
BOM & PCB MODIFY HISTORY			
Size Custom	Document Number	GA-G31M-ES2C	Rev 1.12
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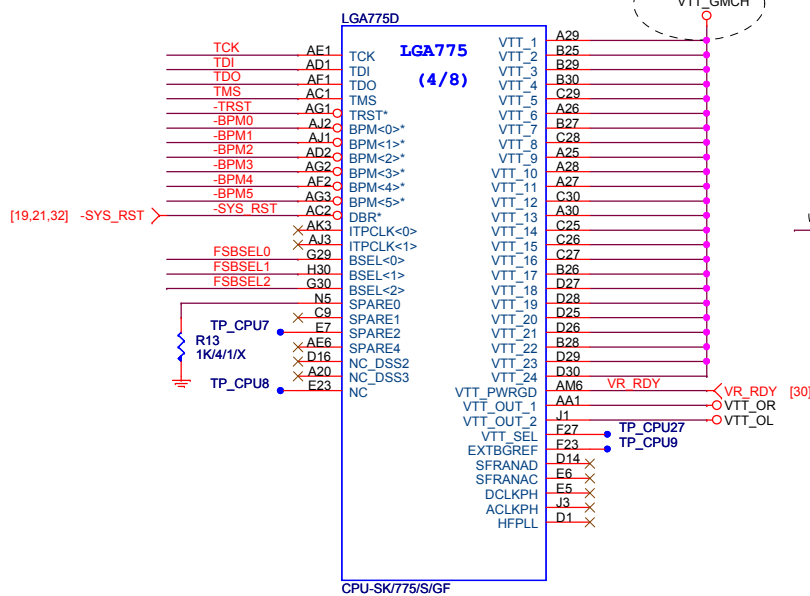


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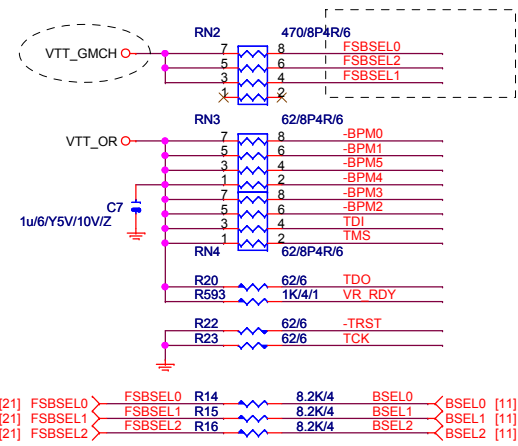
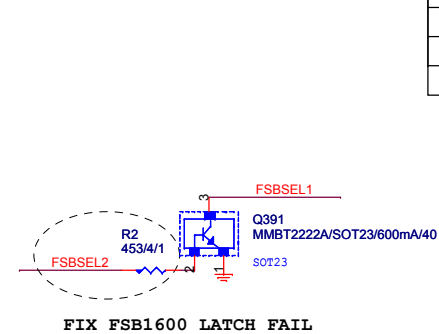




CPU-SK/775/S/GF



CPU-SK/775/S/GF



TO CLK GEN

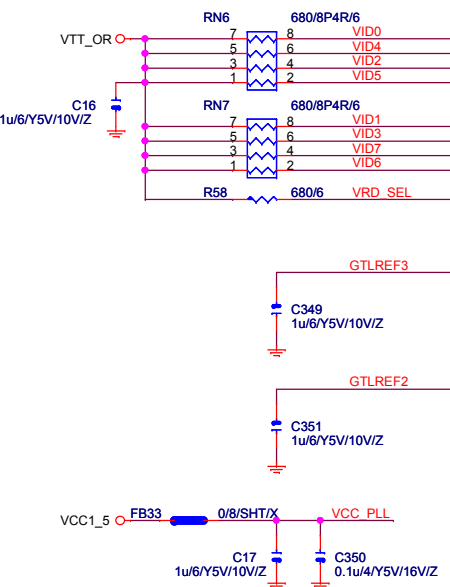
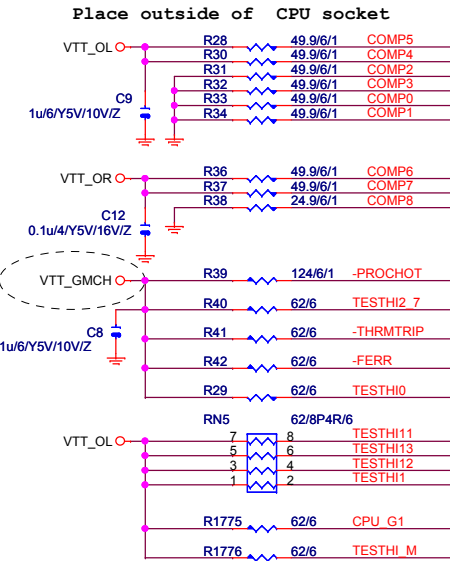
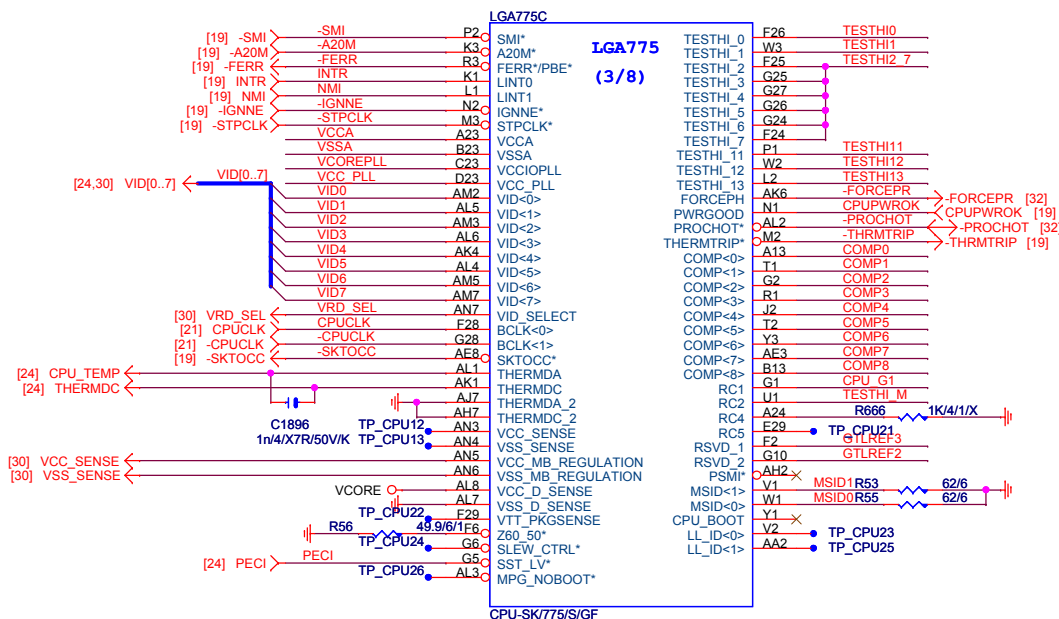
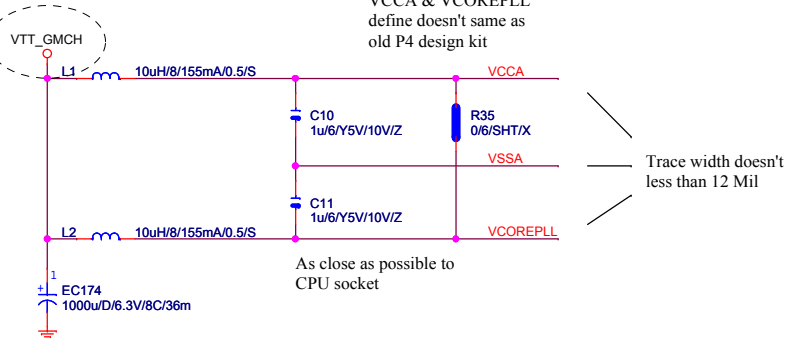
TO NB

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

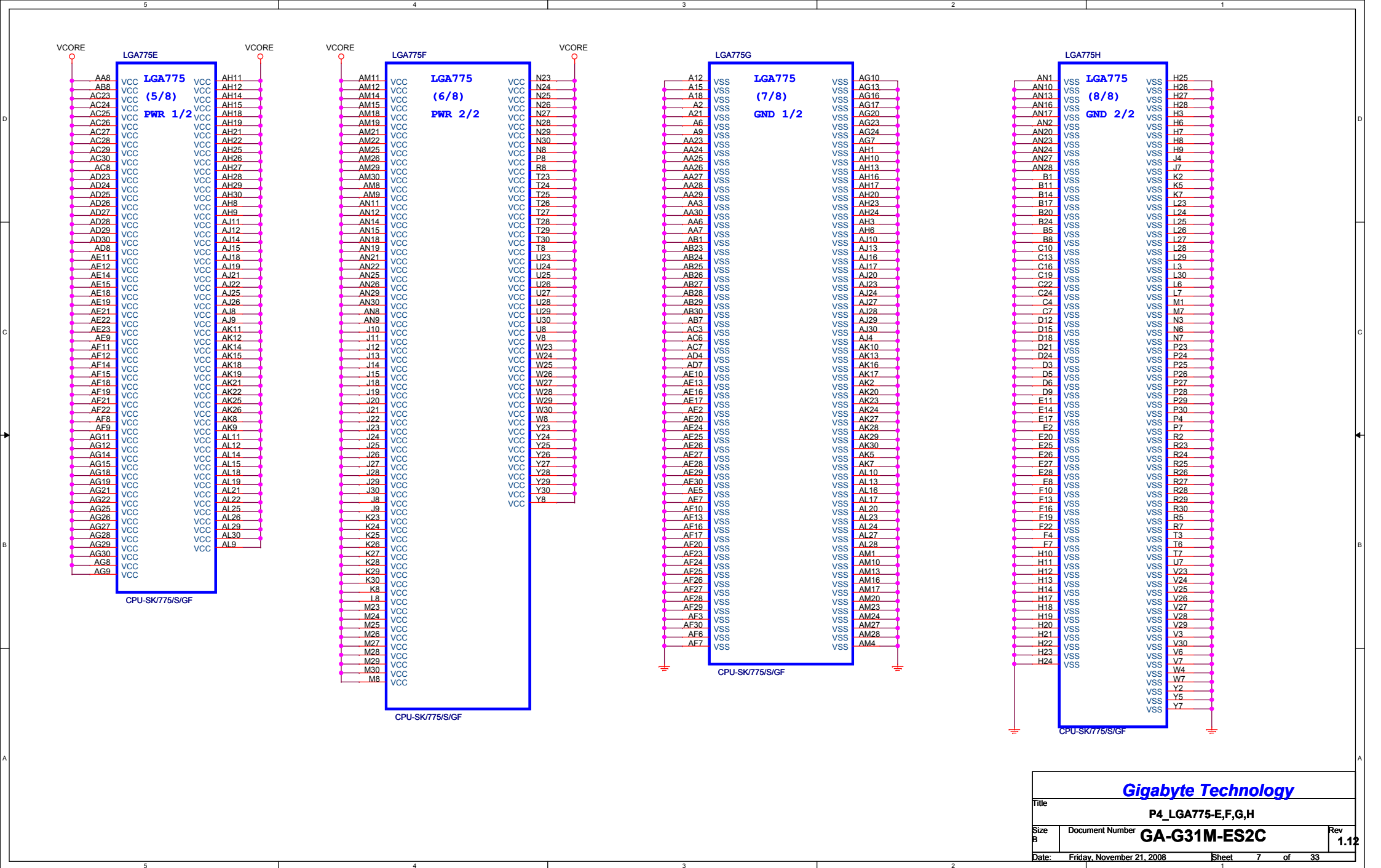
X

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



Gigabyte Technology			
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P4_LGA775-C			
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PECI:Platform Environment Control Interface





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U2C

BW
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MAAA0 BA31 SMA_A0 SDQS_A0
 MAA01 BB25 SMA_A1 SDQS_A1#
 MAA02 BA26 SMA_A2 SDQS_A1#
 MAA03 BA25 SMA_A3 SDQS_A1#
 MAA04 AY25 SMA_A4 SDQS_A1#
 MAA05 BA23 SMA_A5 SDQS_A1#
 MAA06 AY24 SMA_A6 SDQS_A1#
 MAA07 AY23 SMA_A7 SDQS_A1#
 MAA08 BB23 SMA_A8 SDQS_A1#
 MAA09 BA22 SMA_A9 SDQS_A1#
 MAA10 AY23 SMA_A10 SDQS_A1#
 MAA11 BB22 SMA_A11 SDQS_A1#
 MAA12 AY23 SMA_A12 SDQS_A1#
 MAA13 AY38 SMA_A13 SDQS_A1#
 MAA14 BA21 SMA_A14 SDQS_A1#

[15.17] -SWEA ← BB3AC SWE_A#
 [15.17] -SCASA ← AY35C SCAS_A#
 [15.17] -SRASA ← BB33C SRAS_A#

[15.17] SBA00 ← BA33 SBA_A0
 [15.17] SBA01 ← BB32 SBA_A1
 [15.17] SBA02 ← BB32 SBA_A2

[15.17] CSA0 ← AW35C CSA_A0#
 [15.17] CSA1 ← BA35C CSA_A1#
 [17] CSA2 ← BA34C CSA_A2#
 [17] CSA3 ← BB38C CSA_A3#

[15.17] CKEA0 ← BC20 SCKE_A0
 [15.17] CKEA1 ← AY20 SCKE_A1
 [15.17] CKEA2 ← AY21 SCKE_A2
 [17] CKEA3 ← BA19 SCKE_A3

MODT_A0 AY37
 MODT_A1 BA38
 MODT_A2 BB38
 MODT_A3 BA39

[15] DCLKA0 ← AR31C DCLK_A0#
 [15] DCLKA1 ← AP27C DCLK_A1#
 [15] DCLKA2 ← AN27C DCLK_A2#
 [15] DCLKA3 ← AW33C DCLK_A3#

[15] DCLKA0 ← AR31C DCLK_A0#
 [15] DCLKA1 ← AP27C DCLK_A1#
 [15] DCLKA2 ← AN27C DCLK_A2#
 [15] DCLKA3 ← AW33C DCLK_A3#

SDQS_A4 DQS4
 SDQS_A4# DQS4#
 SDQS_A5 DQS5
 SDQS_A5# DQS5#

SDQS_A6 DQS6
 SDQS_A6# DQS6#
 SDQS_A7 DQS7
 SDQS_A7# DQS7#

SDQS_A8 DQS8
 SDQS_A8# DQS8#
 SDQS_A9 DQS9
 SDQS_A9# DQS9#

SDQS_A10 DQS10
 SDQS_A10# DQS10#
 SDQS_A11 DQS11
 SDQS_A11# DQS11#

SDQS_A12 DQS12
 SDQS_A12# DQS12#
 SDQS_A13 DQS13
 SDQS_A13# DQS13#

SDQS_A14 DQS14
 SDQS_A14# DQS14#
 SDQS_A15 DQS15
 SDQS_A15# DQS15#

SDQS_A16 DQS16
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SDQS_A18 DQS18
 SDQS_A18# DQS18#
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 SDQS_A19# DQS19#

SDQS_A20 DQS20
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 SDQS_A21# DQS21#

SDQS_A22 DQS22
 SDQS_A22# DQS22#
 SDQS_A23 DQS23
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SDQS_A48 DQS48
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 SDQS_A49# DQS49#

SDQS_A50 DQS50
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SDQS_A52 DQS52
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SDQS_A62 DQS62
 SDQS_A62# DQS62#
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 SDQS_A63# DQS63#

DDR_0

AN21

LE82G31B0/S[10HB1-038231-30R]

CHANNEL A

U2D

BW
(4/9)

MAAB0 BB17 SMA_B0 SDQS_B0
 MAAB1 AY17 SMA_B1 SDQS_B0#
 MAAB2 BA17 SMA_B2 SDQS_B0#
 MAAB3 BC16 SMA_B3 SDQS_B0#
 MAAB4 AW15 SMA_B4 SDQS_B0#
 MAAB5 BA15 SMA_B5 SDQS_B0#
 MAAB6 BB15 SMA_B6 SDQS_B0#
 MAAB7 BA14 SMA_B7 SDQS_B0#
 MAAB8 AY15 SMA_B8 SDQS_B0#
 MAAB9 BA14 SMA_B9 SDQS_B0#
 MAAB10 AW15 SMA_B10 SDQS_B0#
 MAAB11 BB13 SMA_B11 SDQS_B0#
 MAAB12 BA13 SMA_B12 SDQS_B0#
 MAAB13 AY20 SMA_B13 SDQS_B0#
 MAAB14 AY13 SMA_B14 SDQS_B0#

[16.17] -SWEA ← BB27C SWE_B#
 [16.17] -SCASB ← AW29C SCAS_B#
 [16.17] -SRASB ← BB26C SRAS_B#

[16.17] SBA00 ← BA19 SBA_B0
 [16.17] SBA01 ← BB18 SBA_B1
 [16.17] SBA02 ← BC12 SBA_B2

[16.17] CSB0 ← BB27C CSB_B0#
 [16.17] CSB1 ← BB30C CSB_B1#
 [16.17] CSB2 ← AY27C CSB_B2#
 [16.17] CSB3 ← AY31C CSB_B3#

[16.17] CKEB0 ← AW12 SCKE_B0
 [16.17] CKEB1 ← BB11 SCKE_B1
 [16.17] CKEB2 ← BA11 SCKE_B2
 [16.17] CKEB3 ← BA11 SCKE_B3

MODT_B0 BA29
 MODT_B1 BA30
 MODT_B2 BB29
 MODT_B3 BB31

[16] DCLKB0 ← AR31C DCLK_B0#
 [16] DCLKB1 ← AP27C DCLK_B1#
 [16] DCLKB2 ← AN27C DCLK_B2#
 [16] DCLKB3 ← AW33C DCLK_B3#

[16] DCLKB0 ← AR31C DCLK_B0#
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DDR_1

AN21

MCH_VREF

SVREF

SMRCOMP0

SMRCOMP1

SMRCOMP2

SMRCOMP3

SMRCOMPVOL

SMRCOMPVOH

RESERVED

RESERVED

RESERVED

RESERVED

RESERVED

RESERVED

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RESERVED

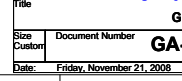
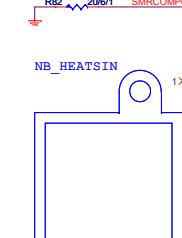
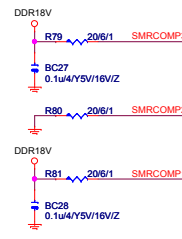
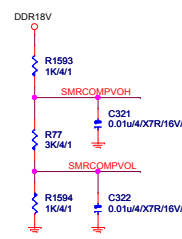
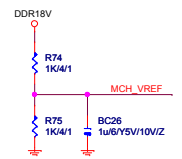
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RESERVED

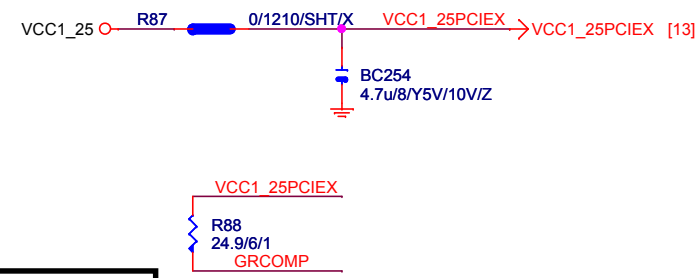
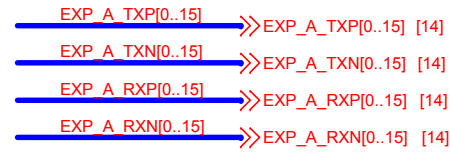
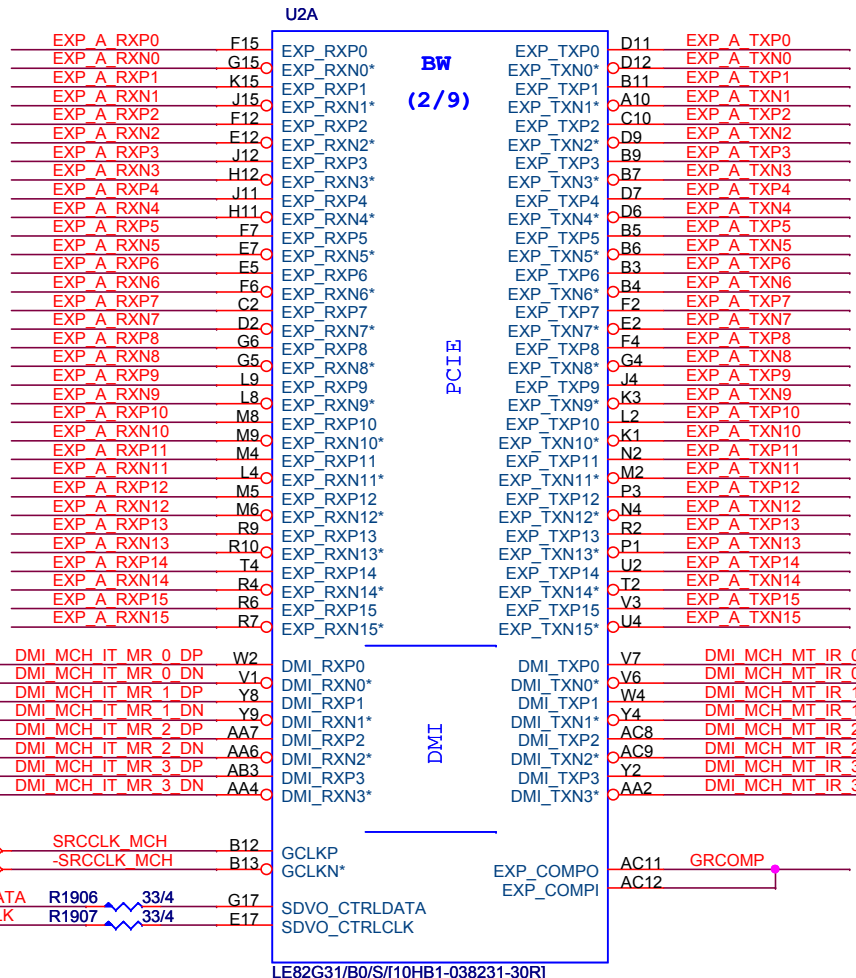
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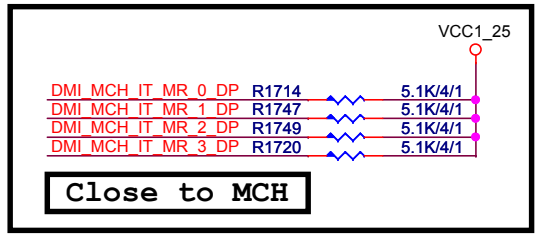
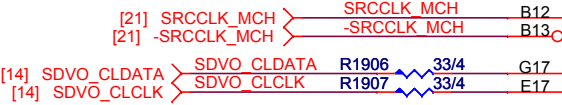
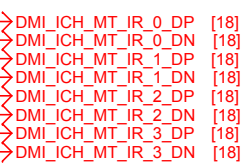
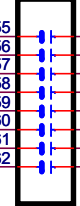
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 [16.17] MODT_B0[0..1] ← MODT_B0[0..1]
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 [16.17] MAAB0[0..14] ← MAAB0[0..14]
 [16] DMB0[0..7] ← DMB0[0..7]
 [16] DMB0[0..63] ← DMB0[0..63]
 [16] DQSB0[0..7] ← DQSB0[0..7]
 [15.17] MAA0[0..14] ← MAA0[0..14]
 [15] DMA0[0..7] ← DMA0[0..7]
 [15] MDA0[0..63] ← MDA0[0..63]
 [15] DQSA0[0..7] ← DQSA0[0..7]
 [15] -DQSA0[0..7] ← -DQSA0[0..7]



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Close to MCH

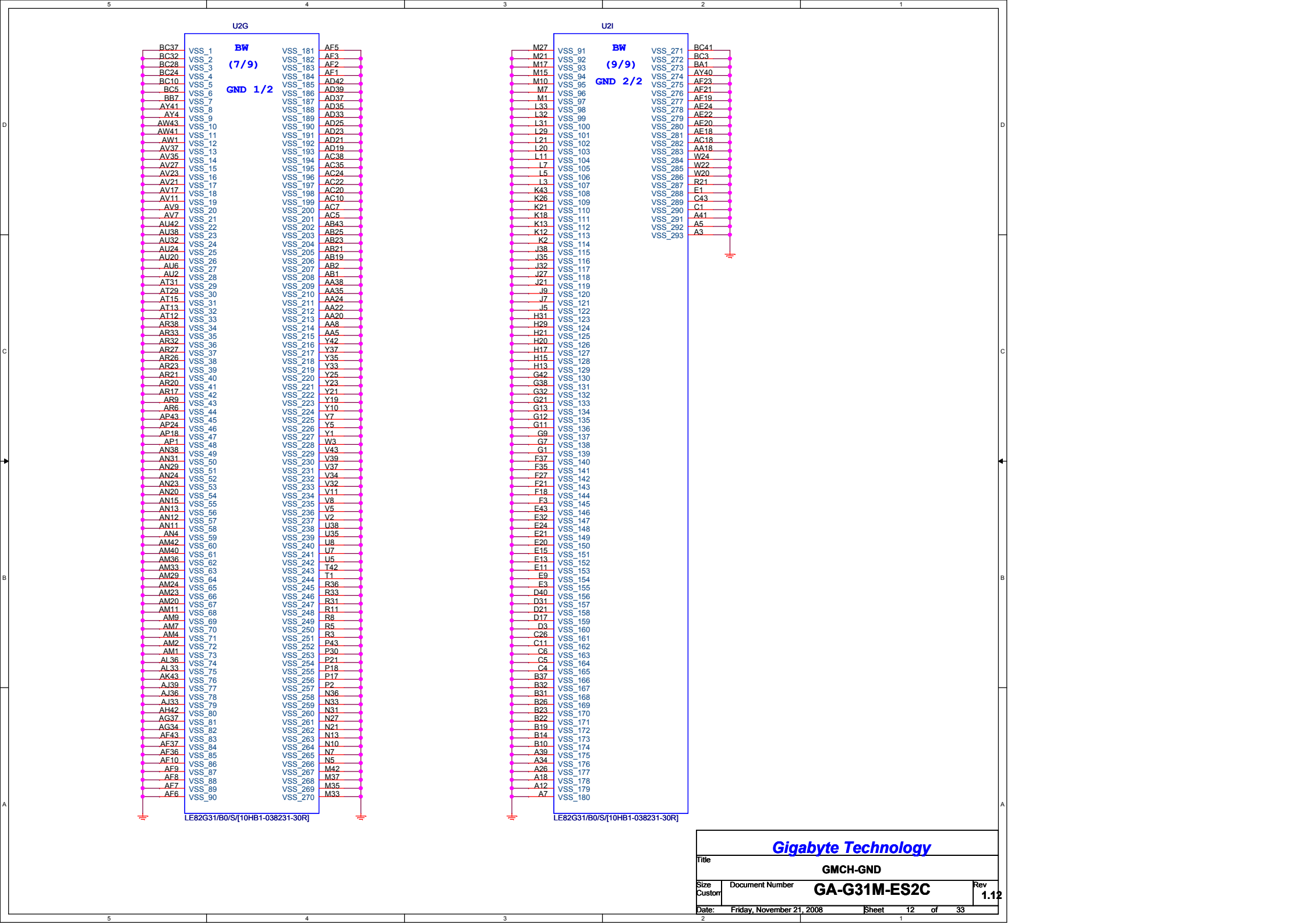


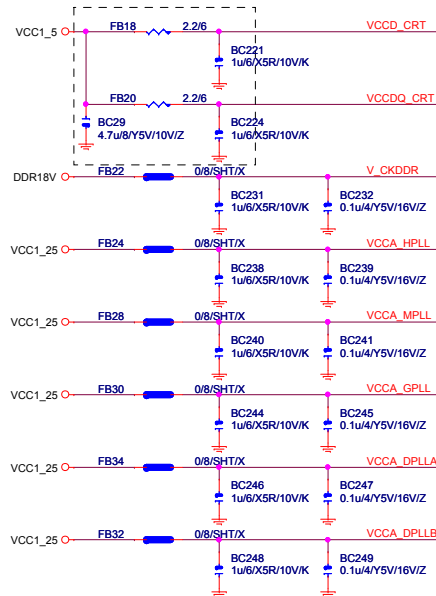
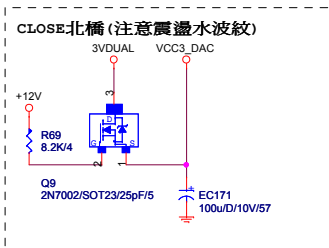
Gigabyte Technology

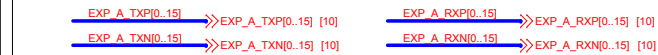
Title GMCH-PCI E & DMI

Size Custom Document Number GA-G31M-ES2C Rev 1.12

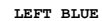
Date: Friday, November 21, 2008 Sheet 10 of 33

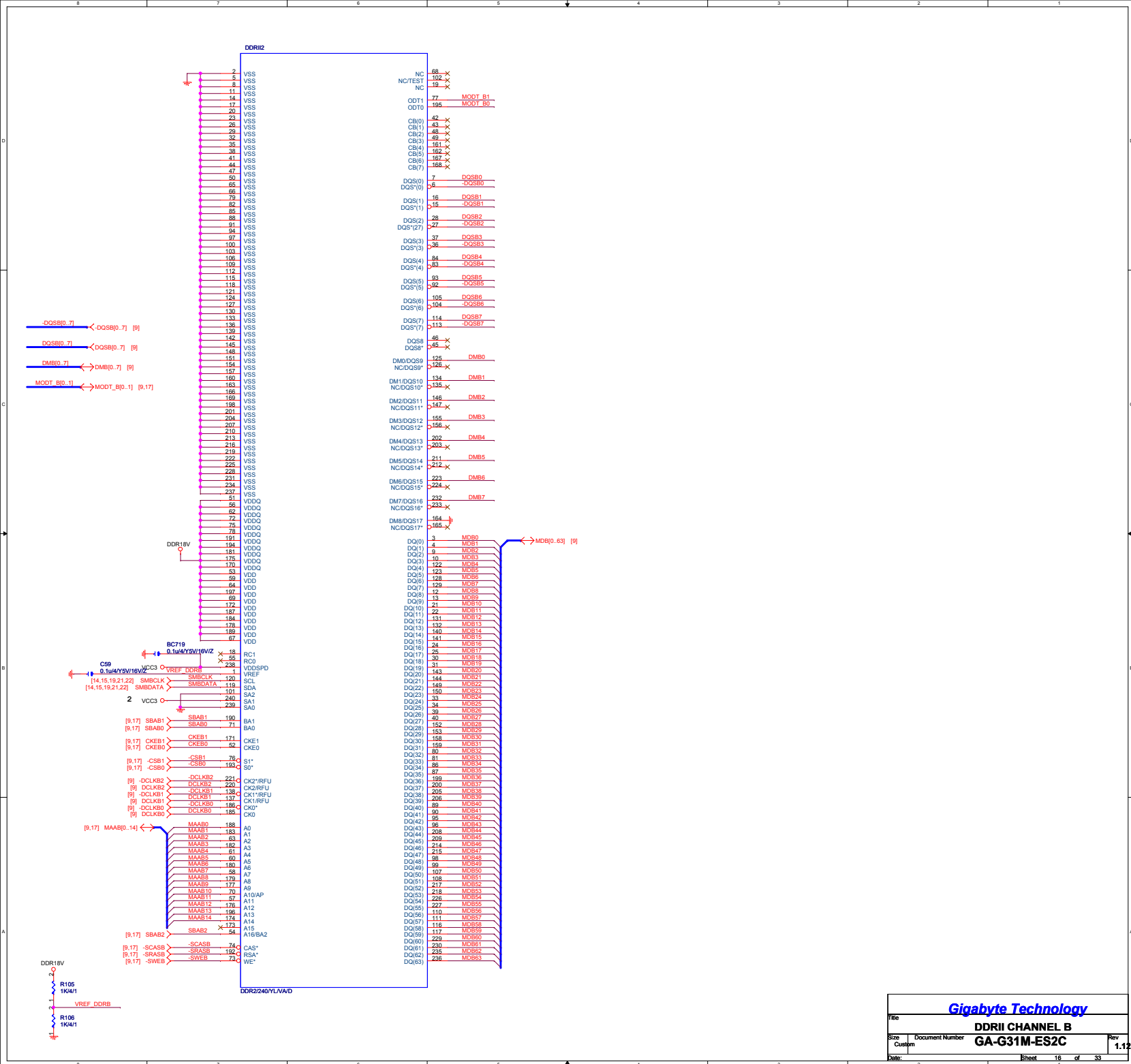






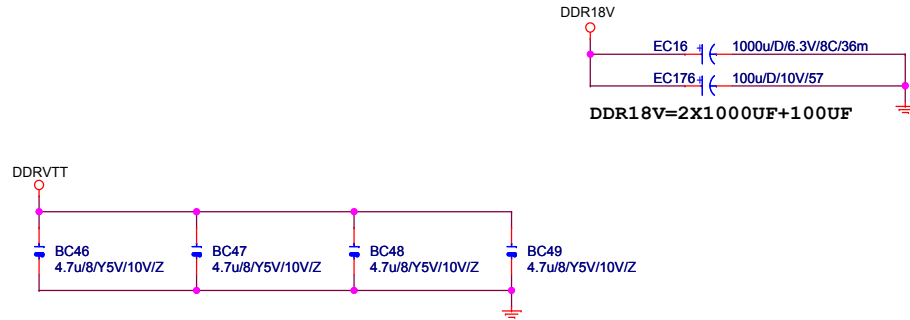
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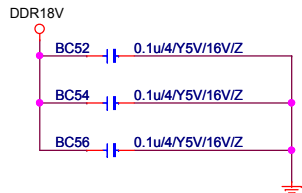


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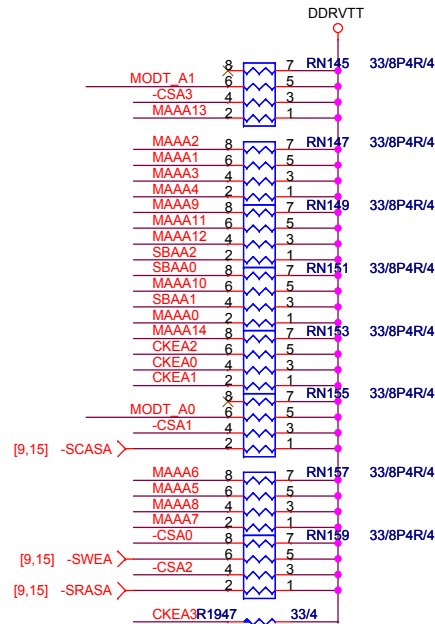
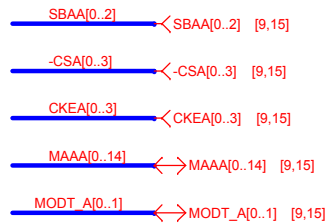
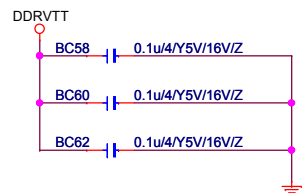
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DDR18V Decouple

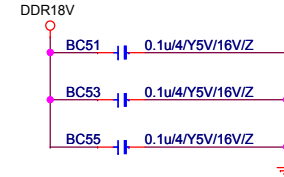


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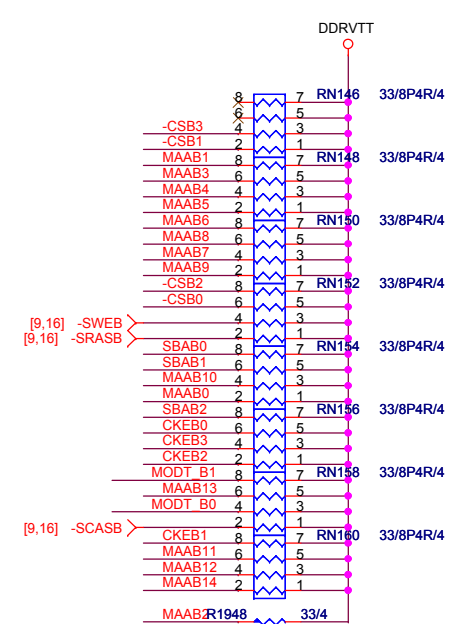
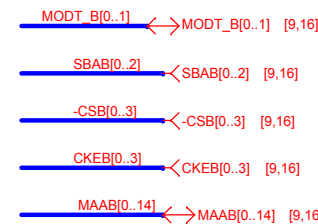
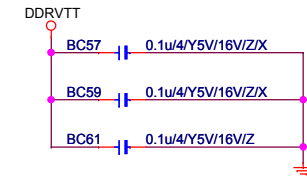


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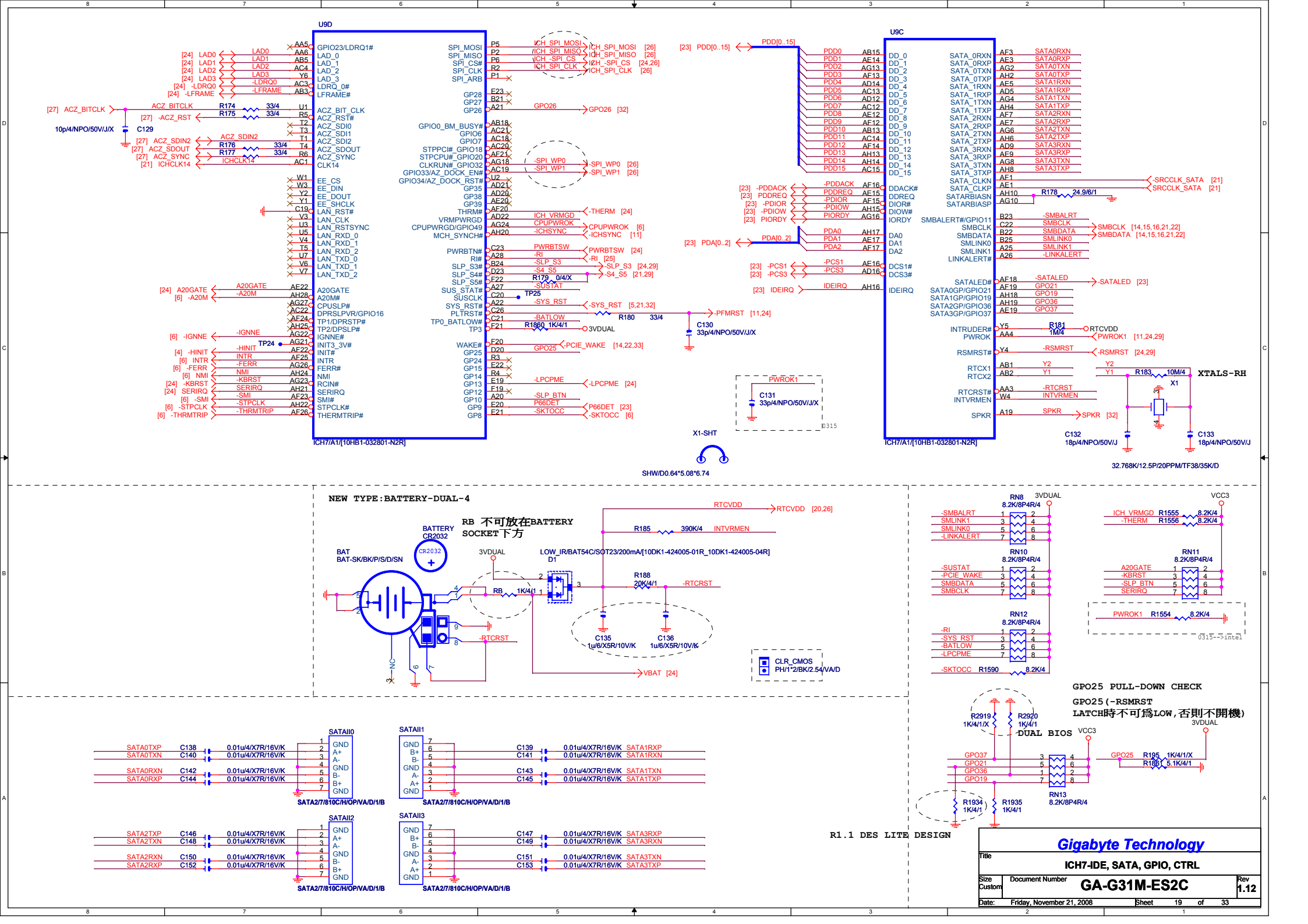
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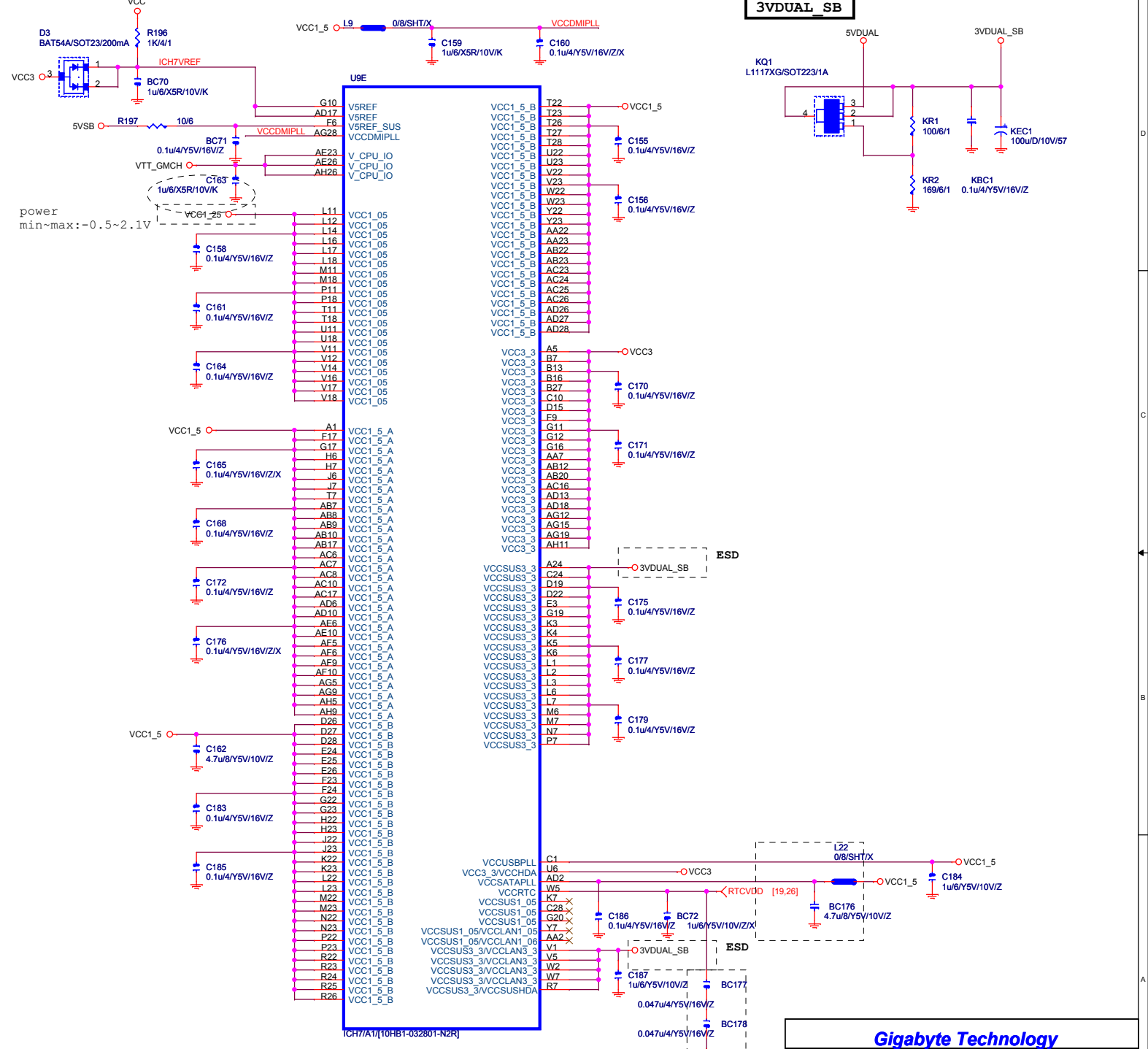
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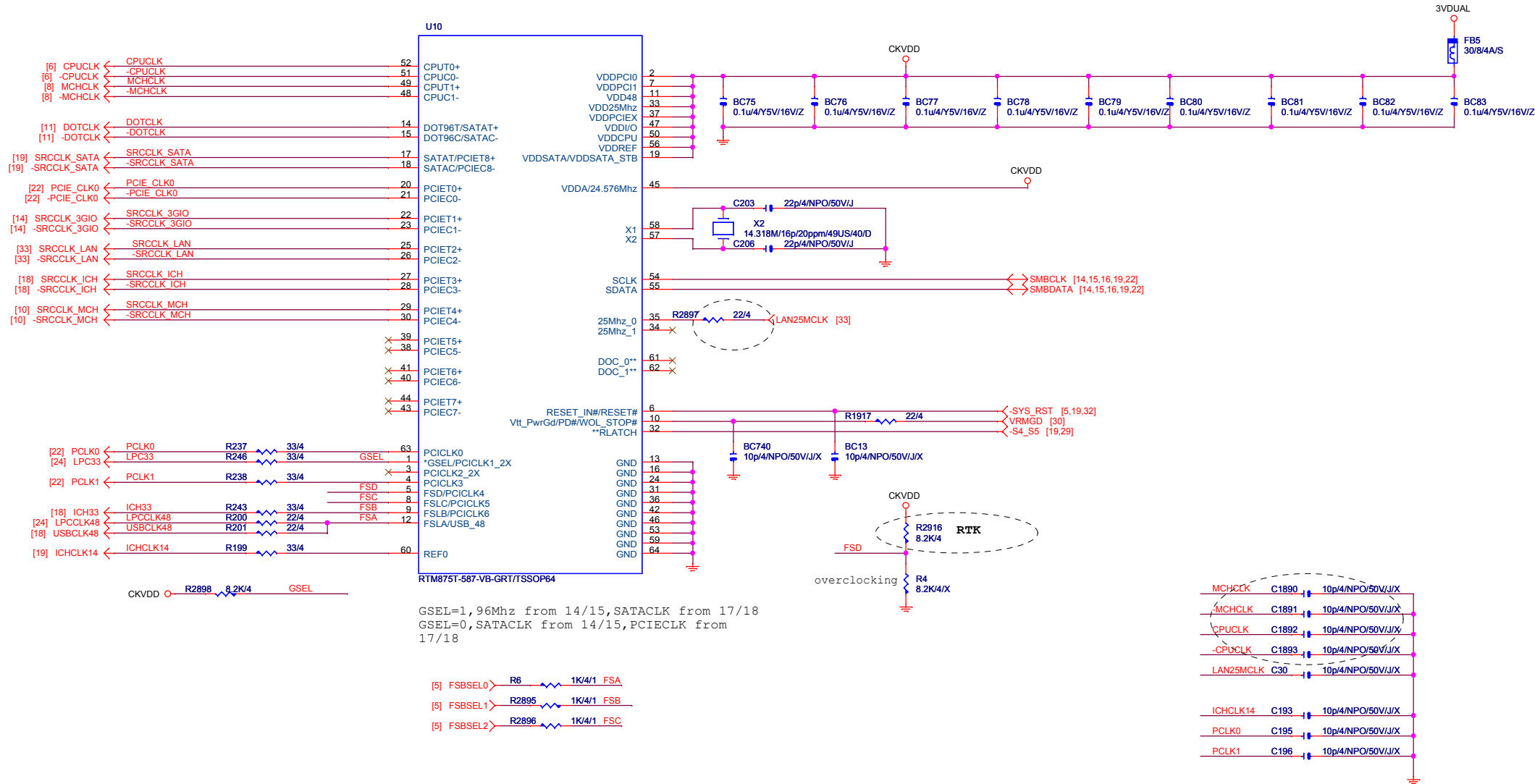


Gigabyte Technology

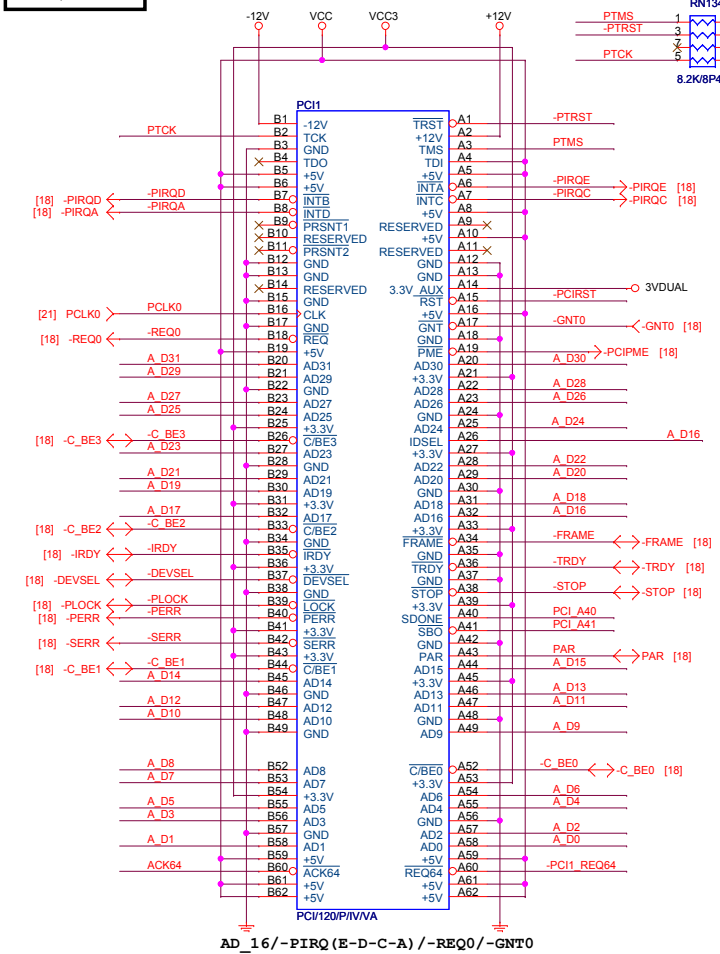


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B8	VSS4	VSS104	R17
B11	VSS5	VSS105	R18
B14	VSS6	VSS106	T8
B17	VSS7	VSS107	T12
B20	VSS8	VSS108	T13
B26	VSS9	VSS109	T14
B28	VSS10	VSS110	T15
C2	VSS11	VSS111	T16
C6	VSS12	VSS112	T17
D10	VSS13	VSS113	U4
D13	VSS14	VSS114	U13
D18	VSS15	VSS115	U14
D21	VSS16	VSS116	U15
D24	VSS17	VSS117	U16
E1	VSS18	VSS118	U17
E2	VSS19	VSS119	U24
E8	VSS20	VSS120	U25
E15	VSS21	VSS121	U26
F3	VSS22	VSS122	V2
F4	VSS23	VSS123	V13
F5	VSS24	VSS124	V15
F12	VSS25	VSS125	V16
F27	VSS26	VSS126	V27
F28	VSS27	VSS127	V28
G1	VSS28	VSS128	W6
G2	VSS29	VSS129	W24
G5	VSS30	VSS130	W25
G6	VSS31	VSS131	W26
G9	VSS32	VSS132	Y3
G14	VSS33	VSS133	Y24
G18	VSS34	VSS134	Y27
G21	VSS35	VSS135	Y28
G24	VSS36	VSS136	AA1
G25	VSS37	VSS137	AA24
G26	VSS38	VSS138	AA25
H3	VSS39	VSS139	AA26
H4	VSS40	VSS140	AB4
H24	VSS41	VSS141	AB6
H27	VSS43	VSS143	AB11
H28	VSS44	VSS144	AB14
J1	VSS45	VSS145	AB16
J5	VSS46	VSS146	AB19
J24	VSS47	VSS147	AB21
J25	VSS48	VSS148	AB24
J26	VSS49	VSS149	AB27
K24	VSS50	VSS150	AB28
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K28	VSS52	VSS152	AC9
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L15	VSS54	VSS154	AC6
L24	VSS55	VSS155	AC7
L25	VSS56	VSS156	AC8
L26	VSS57	VSS157	AC10
M3	VSS58	VSS158	AC17
M4	VSS59	VSS159	AD6
M5	VSS60	VSS160	AD10
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M13	VSS63	VSS163	AE10
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M16	VSS66	VSS166	AE10
M17	VSS67	VSS167	AG5
M24	VSS68	VSS168	AG9
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N5	VSS73	VSS173	AF4
N6	VSS74	VSS174	AF8
N11	VSS75	VSS175	AF11
N12	VSS76	VSS176	AG3
N13	VSS77	VSS177	AG7
N14	VSS78	VSS178	AG14
N15	VSS79	VSS179	AG17
N16	VSS80	VSS180	AG20
N17	VSS81	VSS181	AG24
N18	VSS82	VSS182	AH1
N24	VSS83	VSS183	AH3
N25	VSS84	VSS184	AH7
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P4	VSS86	VSS186	AH23
P12	VSS87	VSS187	AH27
P13	VSS88	VSS188	E4
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P15	VSS90	VSS190	E4
P16	VSS91	VSS191	E4
P17	VSS92	VSS192	E4
P24	VSS93	VSS193	E4
P27	VSS94	VSS194	E4
P28	VSS95	VSS195	E4
P29	VSS96	VSS196	E4
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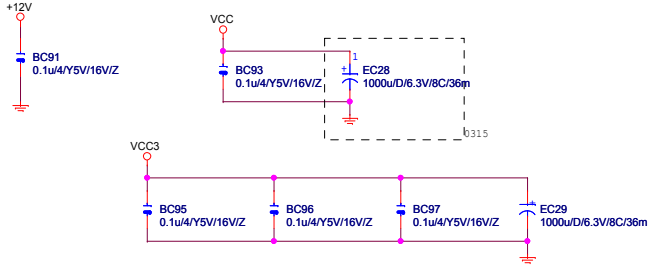
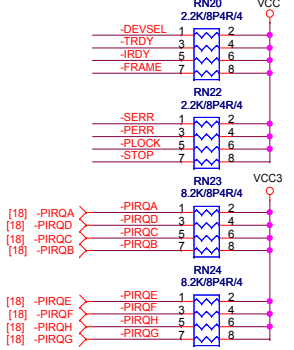
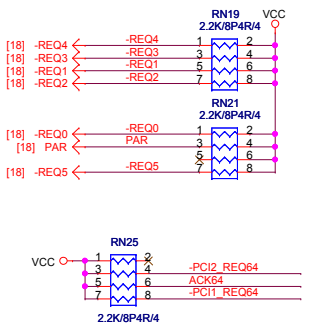
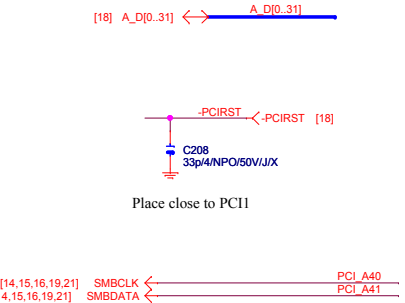
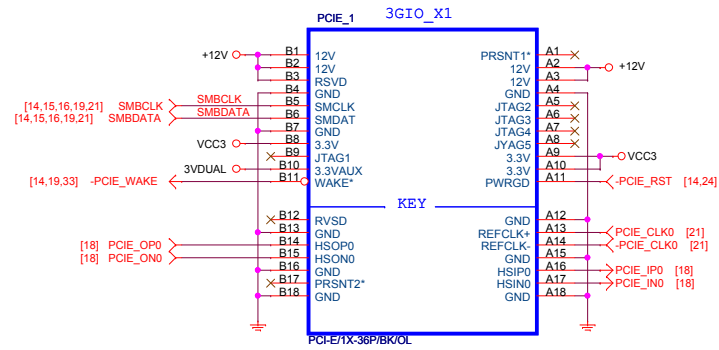




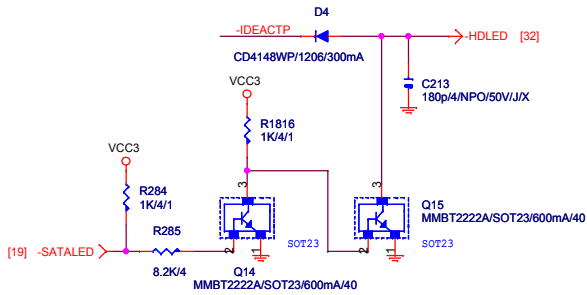
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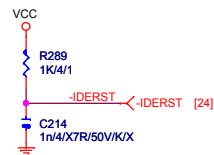
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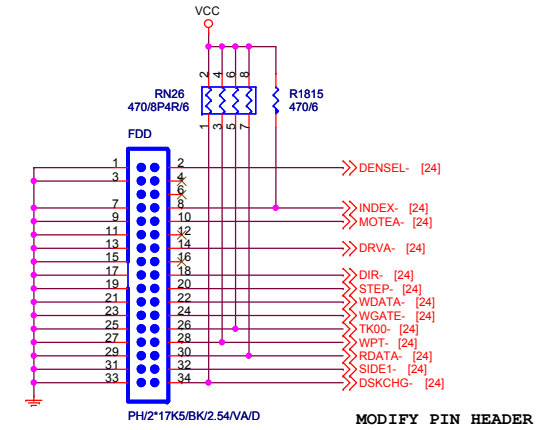
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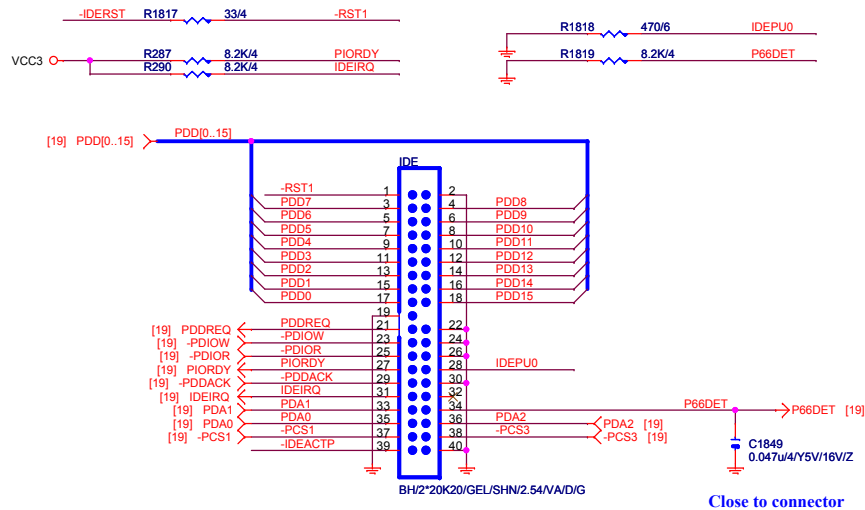
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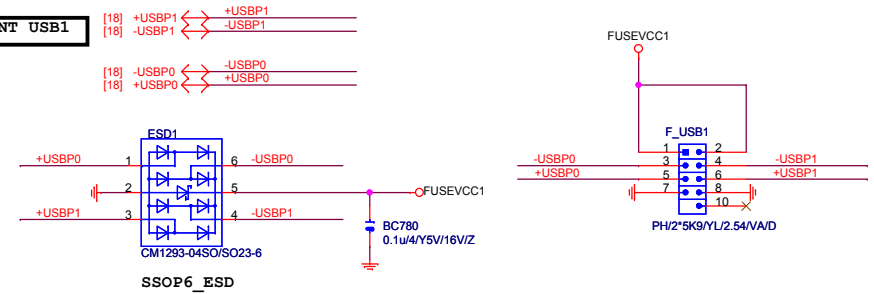
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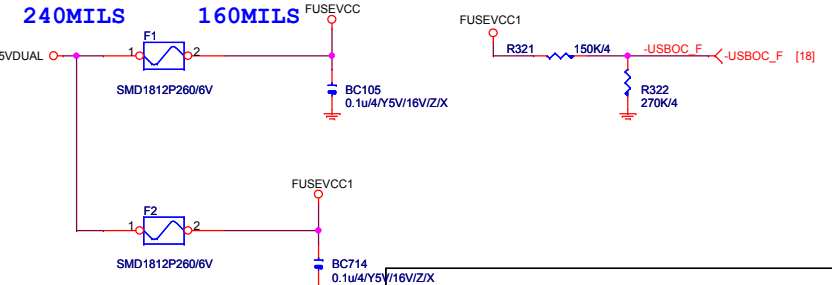
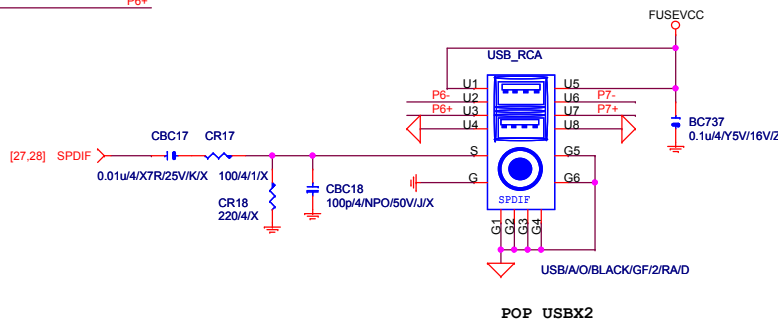
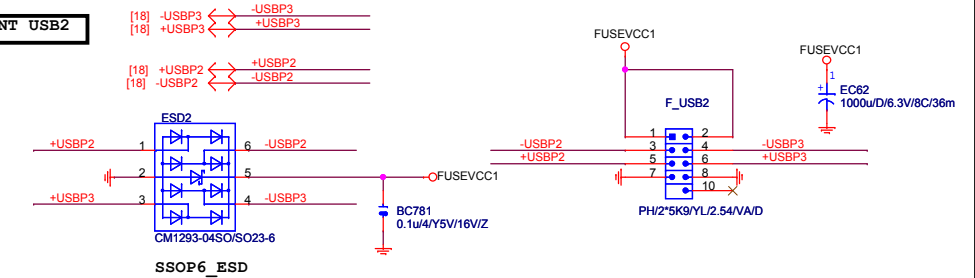
IDE



FRONT USB1



FRONT USB2

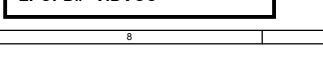
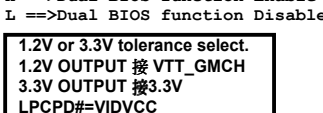
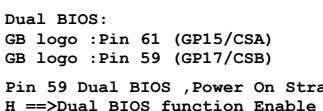
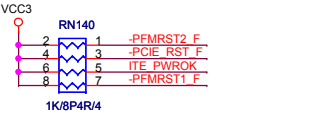
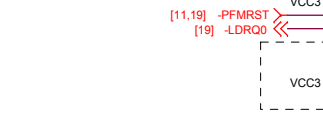
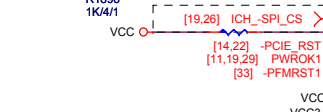
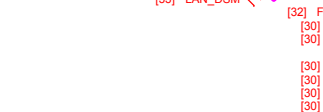
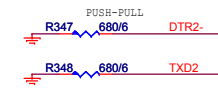


Gigabyte Technology

Title		IDE,FDD,F USB,USB RCA	
Size	Document Number	GA-G31M-ES2C	
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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

Pop to disable Dual BIOS

-SIO_SPI_CS0 R389 0/4X ICH_SPI_CS

-SIO_SPI_CS1 R412 0/4X CEB_N

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

-SIO_SPI_CS0 R404 0/4X -RST_BTN

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-SIO_SPI_CS0 R404 0/4X -RST_BTN

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-SIO_SPI_CS0 R404 0/4X -RST_BTN

IT8712F/[IT8718F]

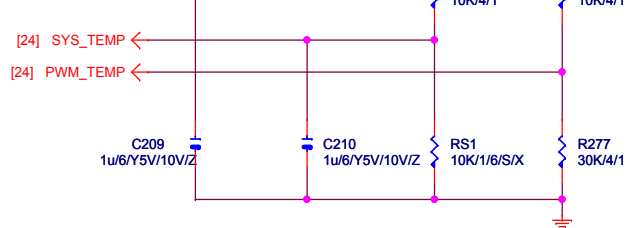
IT8718F-S/HX(GB)/S

JP7 : HIGH DUAL BIOS ENABLE
LOW DUAL BIOS DISABLE

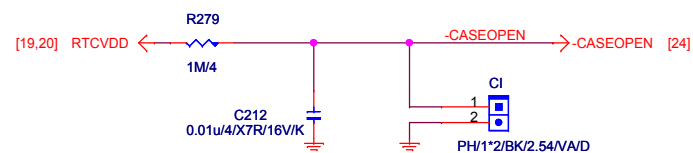
Gigabyte Technology

Title			ITE 8712/18 LPC IO
Size	Document Number	GA-G31M-ES2C	
B		Rev	1.12
Date:			Friday, November 21, 2008
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TEMP H/W MONITOR

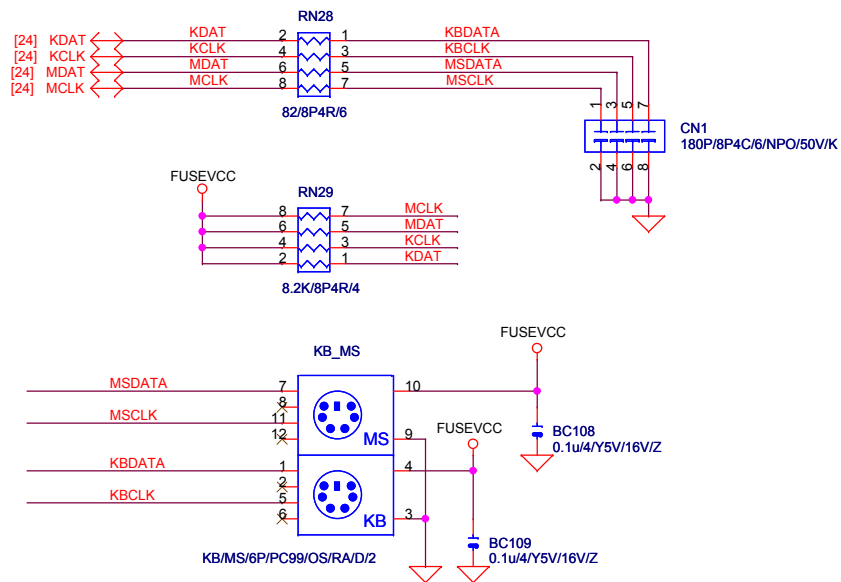


CASE OPEN

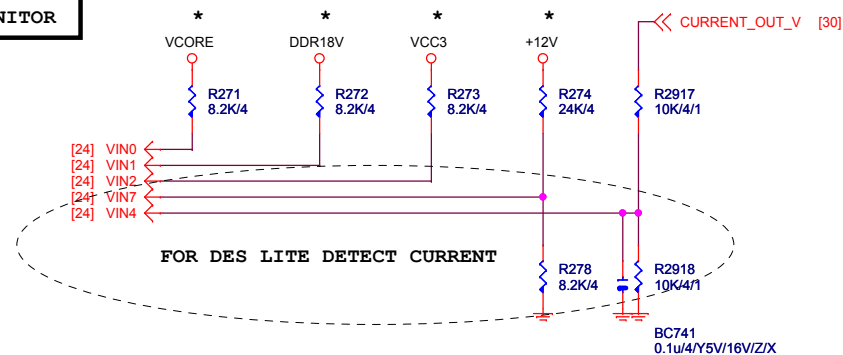


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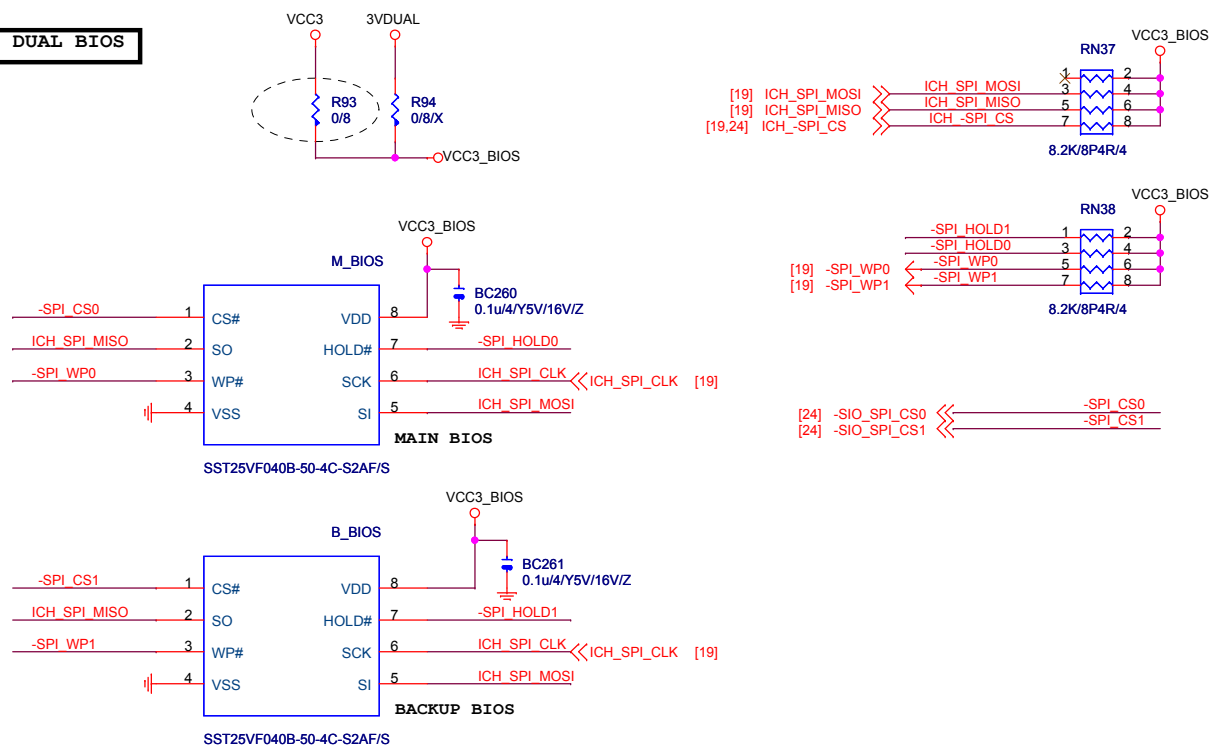
KB/MS



VOLTAGE-- H/W MONITOR



DUAL BIOS



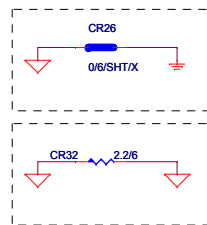
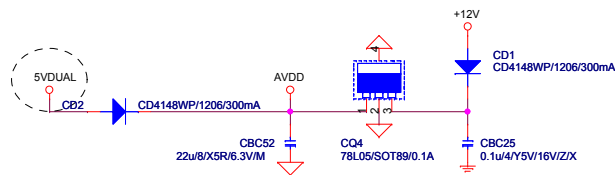
Gigabyte Technology

HW-MONITOR/CI/KB/MS/BIOS

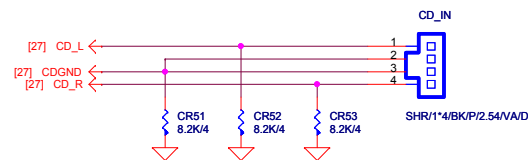
Size Custom	Document Number GA-G31M-ES2C	Rev 1.12
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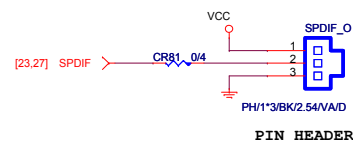
CODEC POWER/EMI PAD



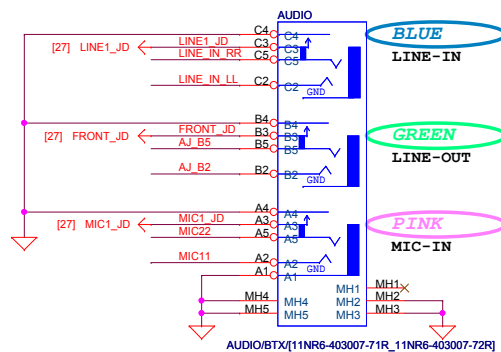
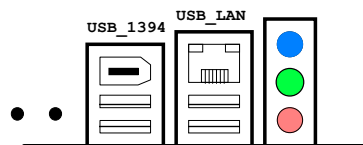
CD	IN
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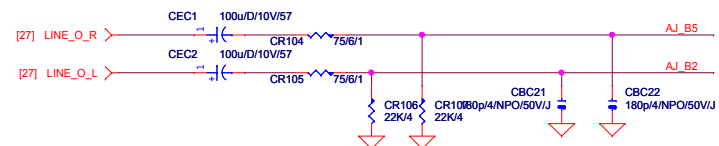
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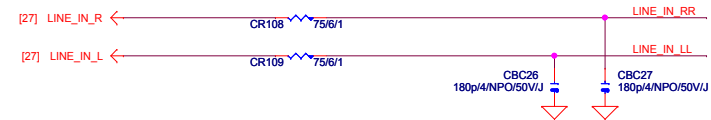
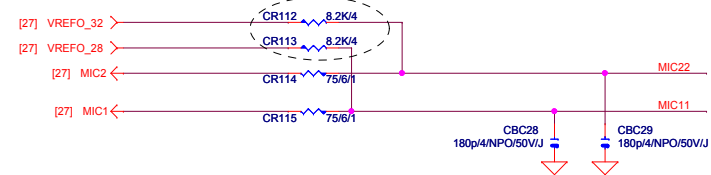
AZALIA JACK



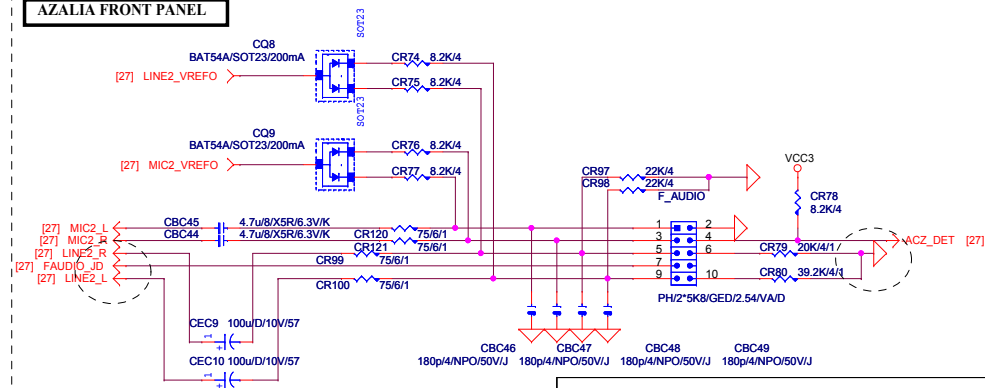
LINE-OUT

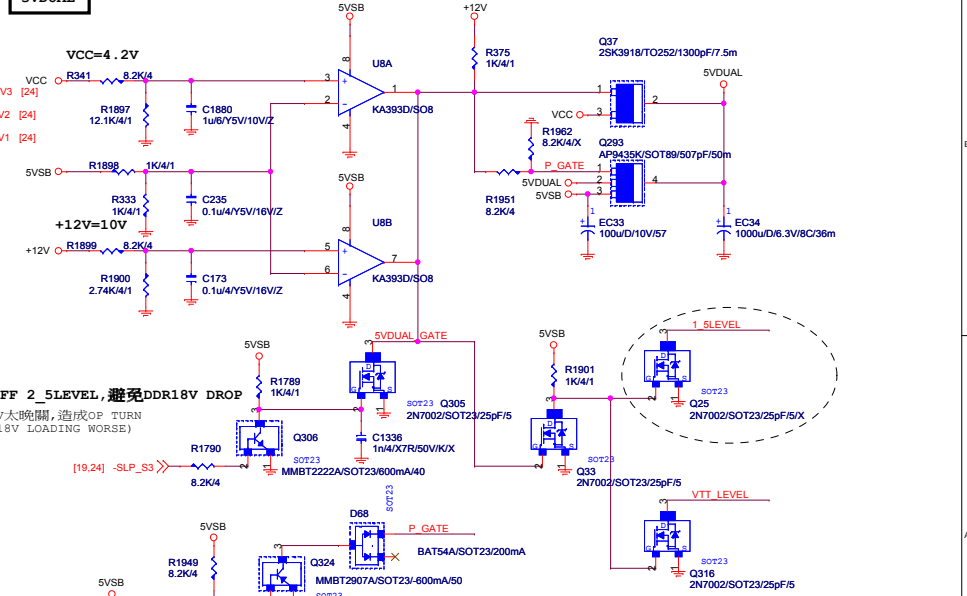
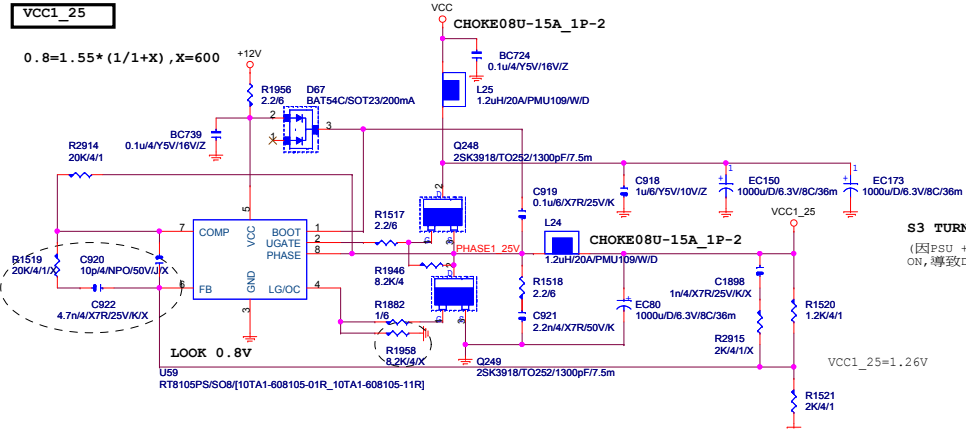
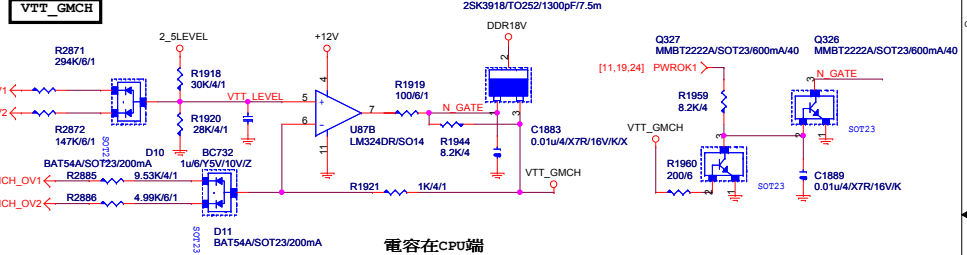
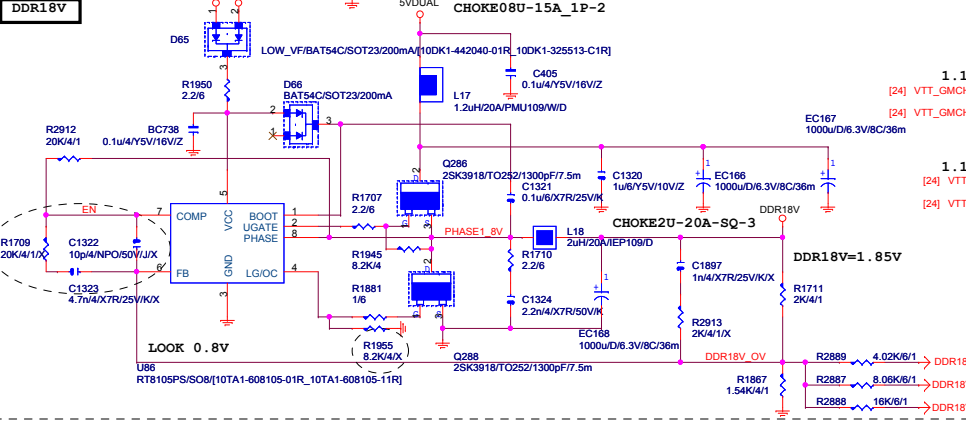
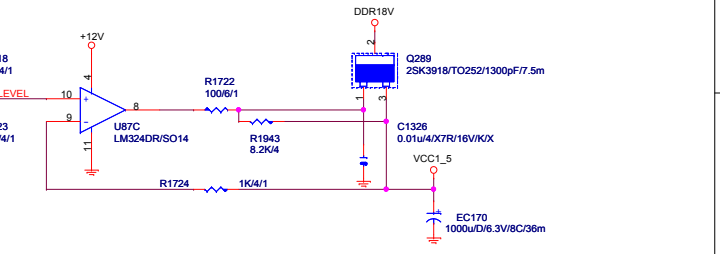
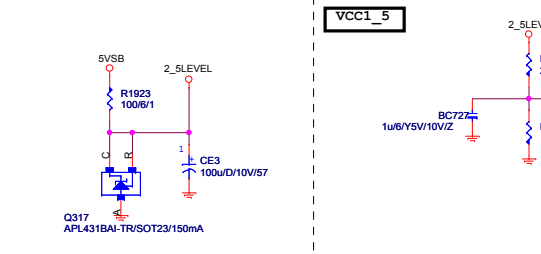
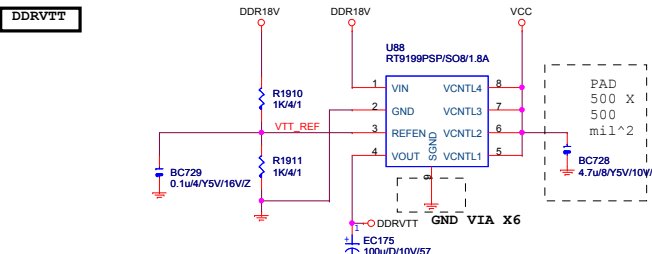
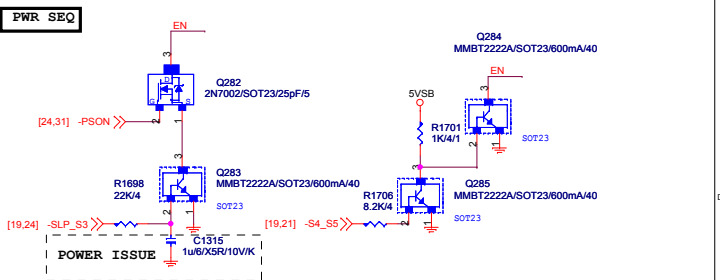
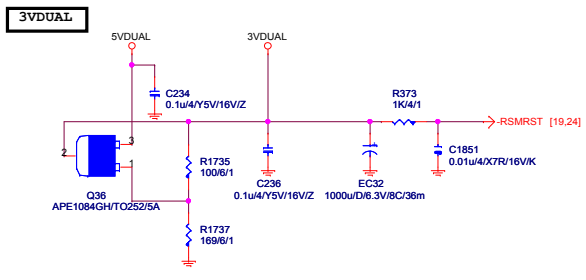
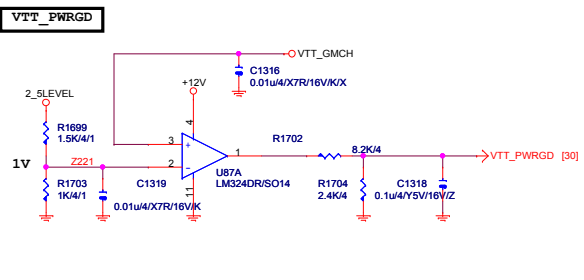


LINE-IN

**MIC-IN**

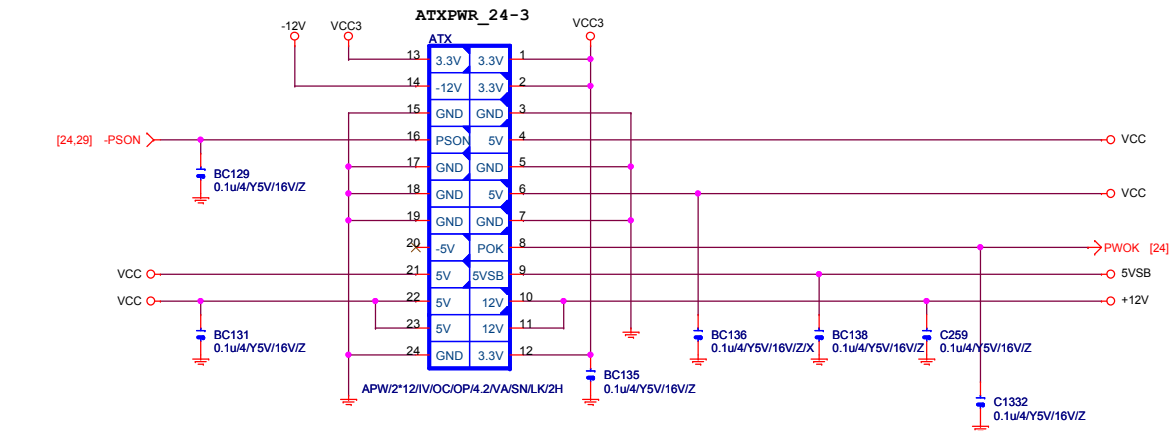
AZALIA FRONT PANEL



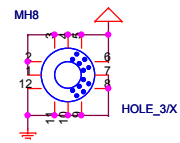
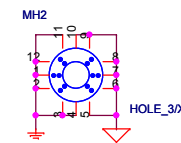
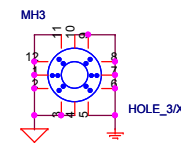
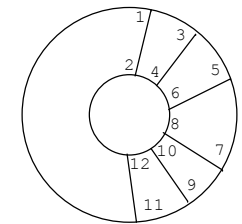
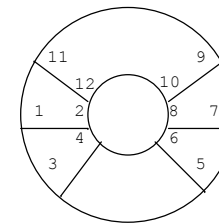
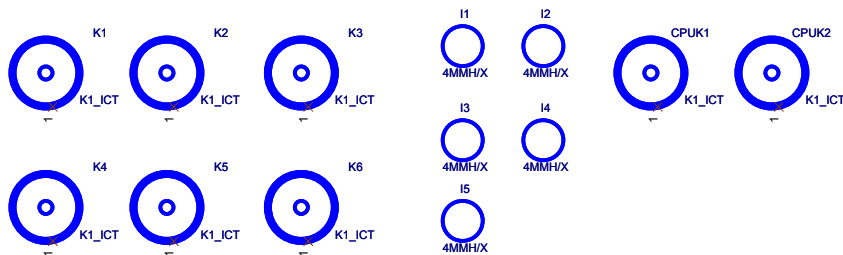
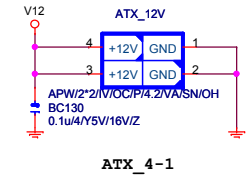
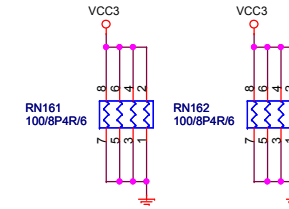


S3 TURN OFF 2_5LEVEL, 避免DDR18V DROP
(因PSU +12V太晚關, 造成OP TURN ON, 導致DDR18V LOADING WORSE)

ATX POWER CONNECTOR

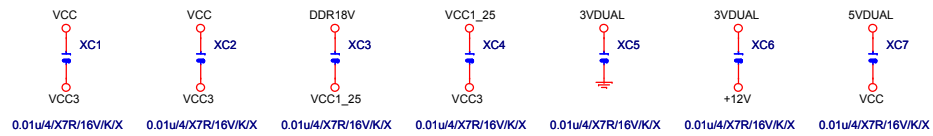
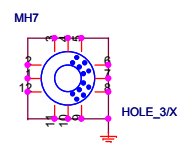
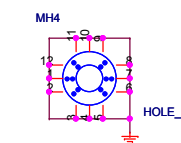
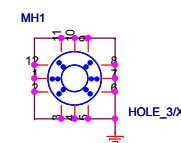


FIX PWR AcBel (ATX-400C-A2ADB)



HOLE_4-RH

HOLE_4-RH-5MM



Gigabyte Technology

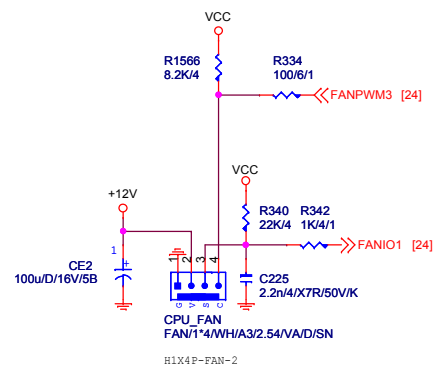
ATX POWER CONNECTOR

GA-G31M-ES2C

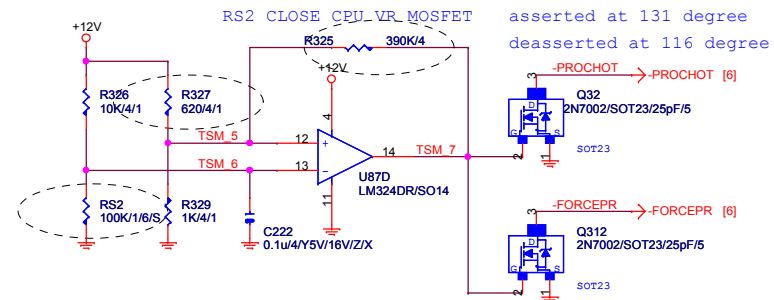
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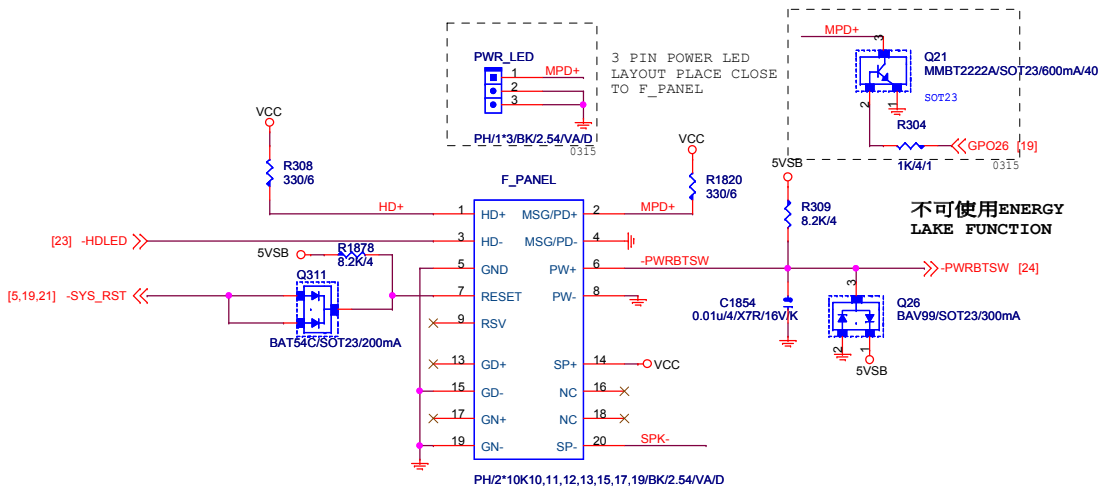
CPU SMART FAN	SMART FAN
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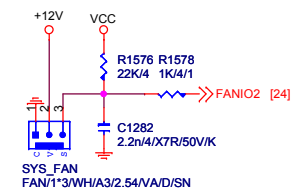
PROCESSOR HOT



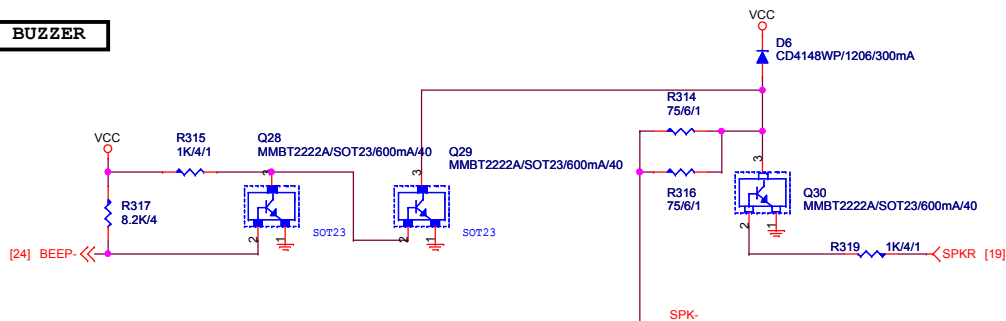
INTEL FRONT PANEL



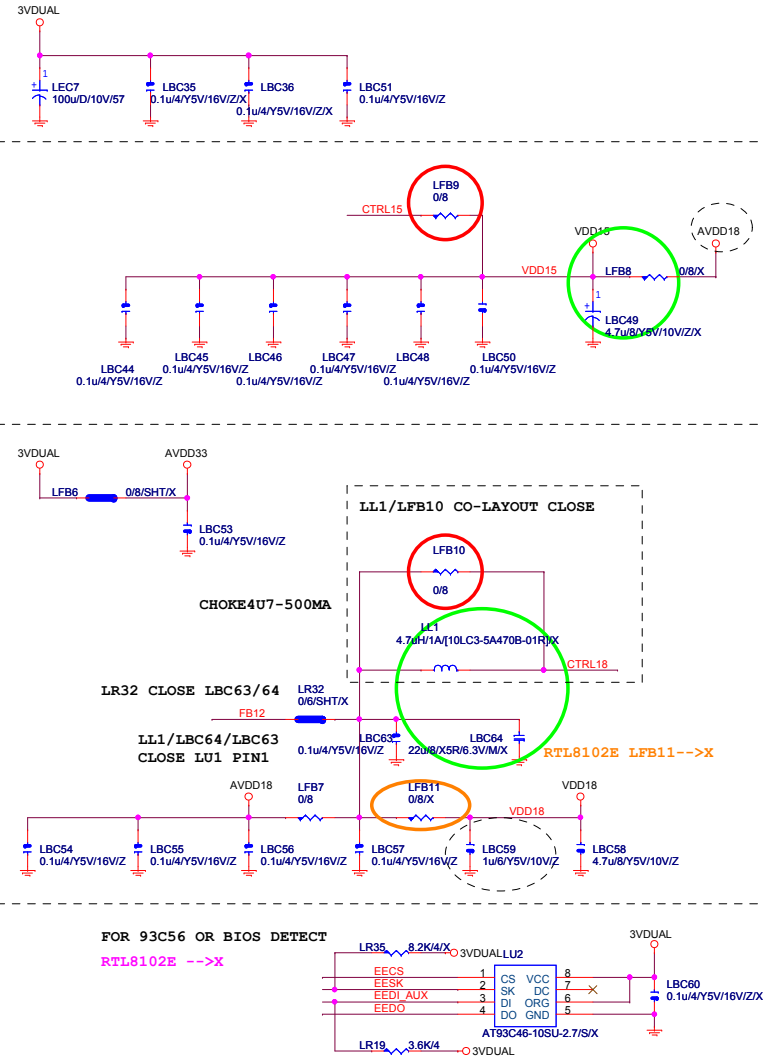
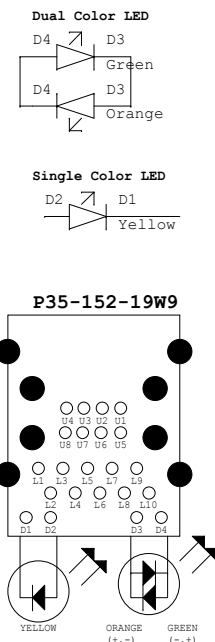
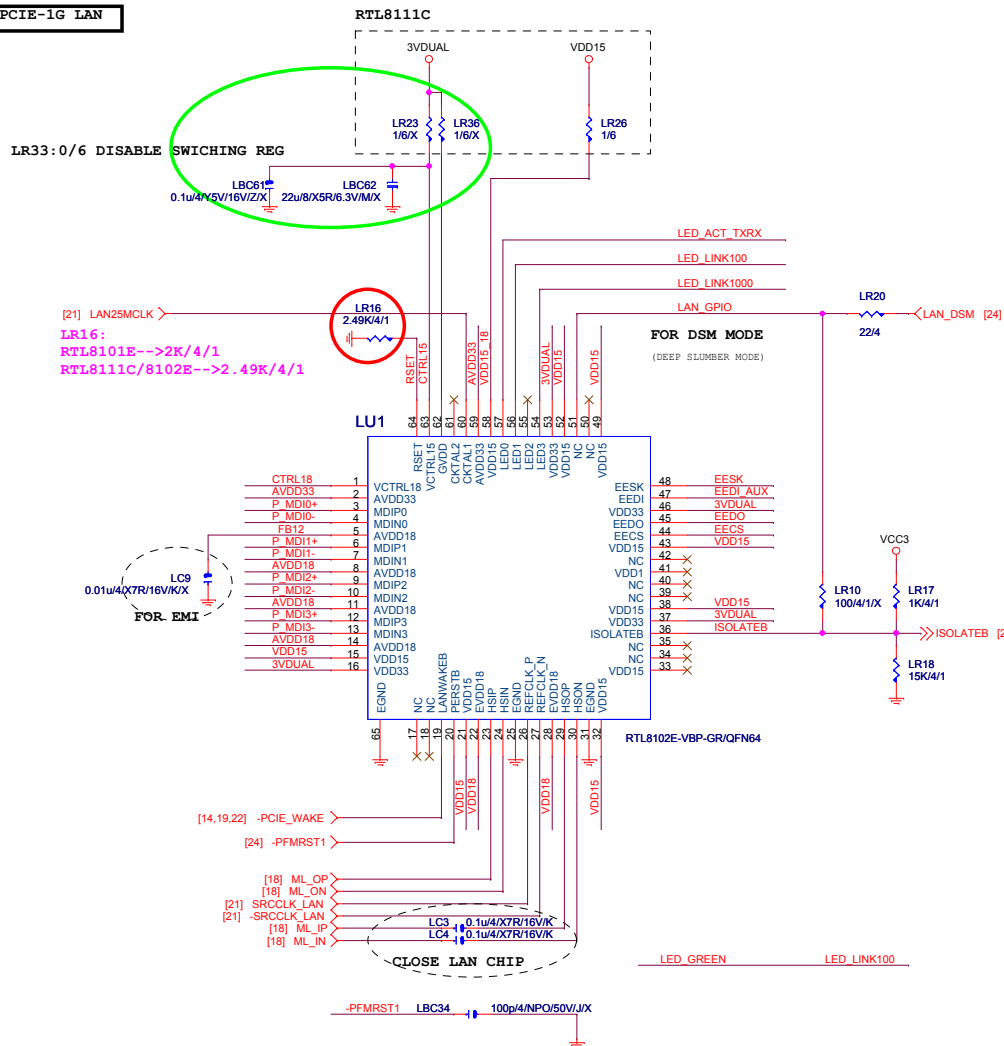
SYS FAN



BUZZER



PCIE-1G LAN

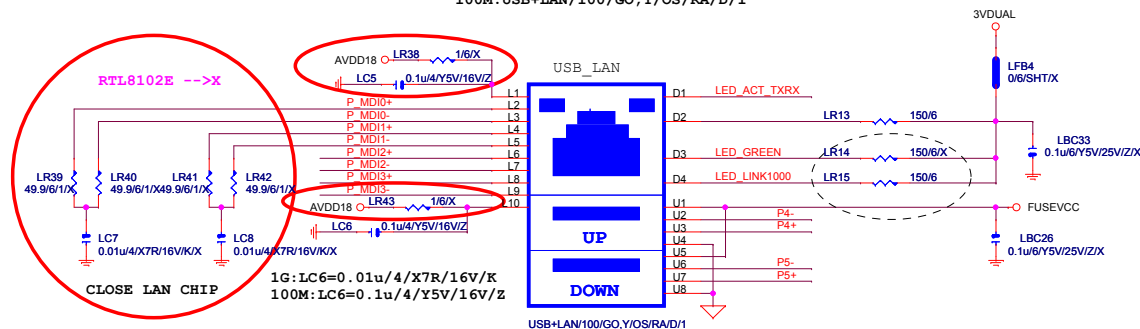


USB_LAN CONNECTOR

```
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

