

Model Name:GA-G41M-Combo

Revision 1.4

SHEET TITLE

01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	P4_LGA775_A
05	P4_LGA775_B,D
06	P4_LGA775_C
07	P4_LGA775_E,F,G,H
08	G41_HOST
09	G41_DDRII/DDRIII
10	G41_PCI E, DMI
11	G41_VGA
12	G41_GND
13	G41_PWR
14	PCI EXPRESS*16 SLOT
15	DDR2/3 CHANNEL A
16	DDR2/3 CHANNEL B
17	DDR2/3 TERMINATION
18	ICH7 PCI, USB, DMI, LAN
19	ICH7 IDE, GPIO, SATA, CTRL
20	ICH7 VCC, GND
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22	PCI SLOT 1,2,PCIE*1
23	IDE/FLOPPY
24	ITE 8718 GB
25	COM_LPT
26	CI,HWM,KB/MS,DUALBIOS
27	VT1708S

SHEET TITLE

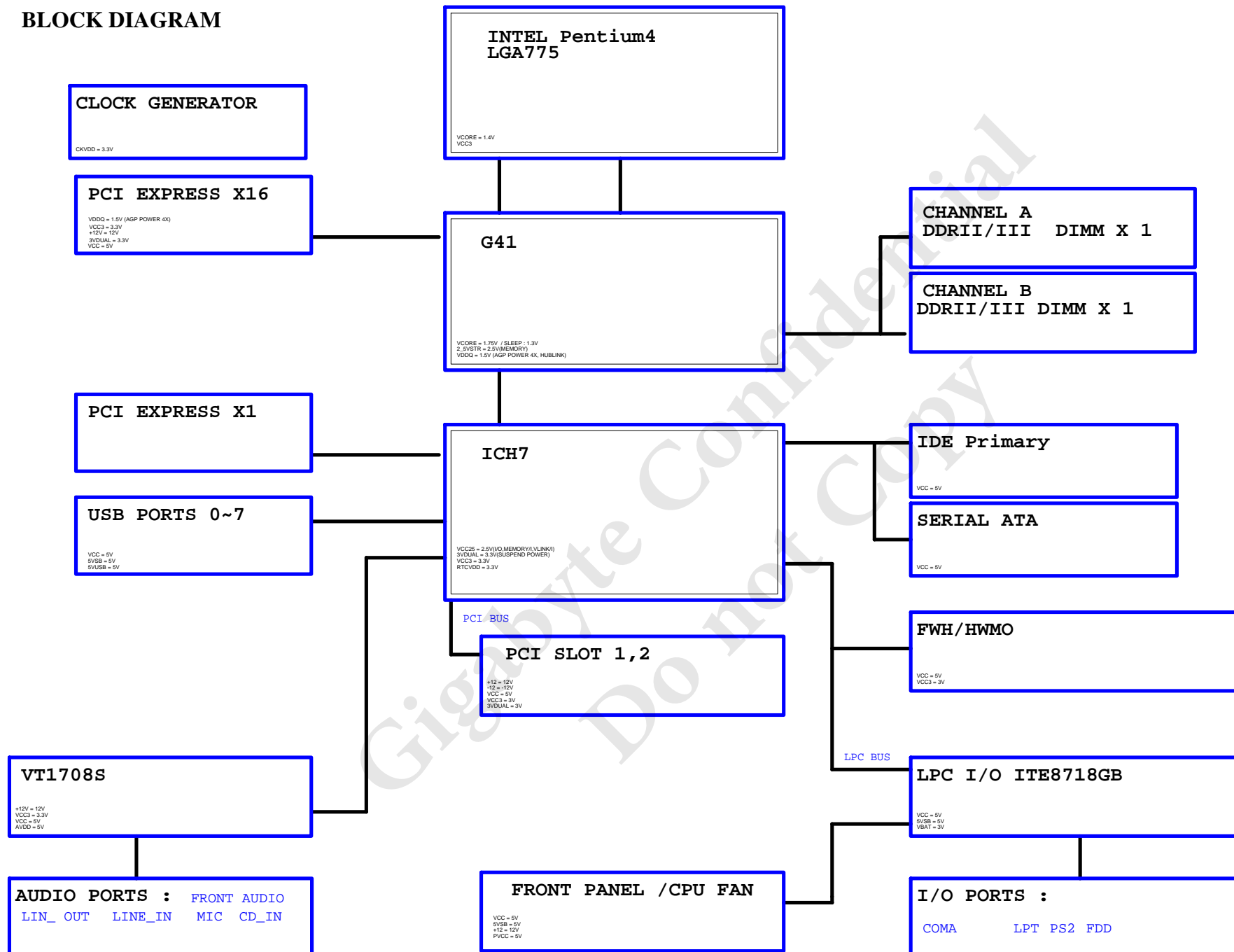
28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM_ISL6312
31	ATX, OTHERS POWER
32	FRONT PANEL
33	ATHEROS AR8151/8152

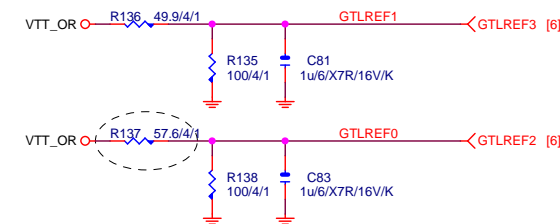
Gigabyte Technology

Cover Sheet

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BLOCK DIAGRAM





VTT_OR R108 62/4 -IERR

VTT_OL R124 62/4 -BR0

VTT_OR R152 62/4 -CPURST

RN14

62/BP4/R4

TESTHI9

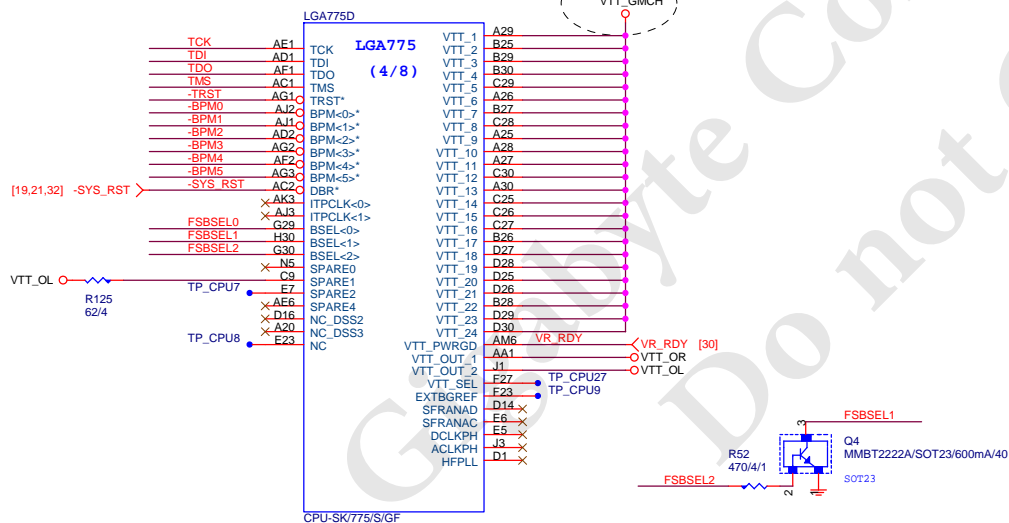
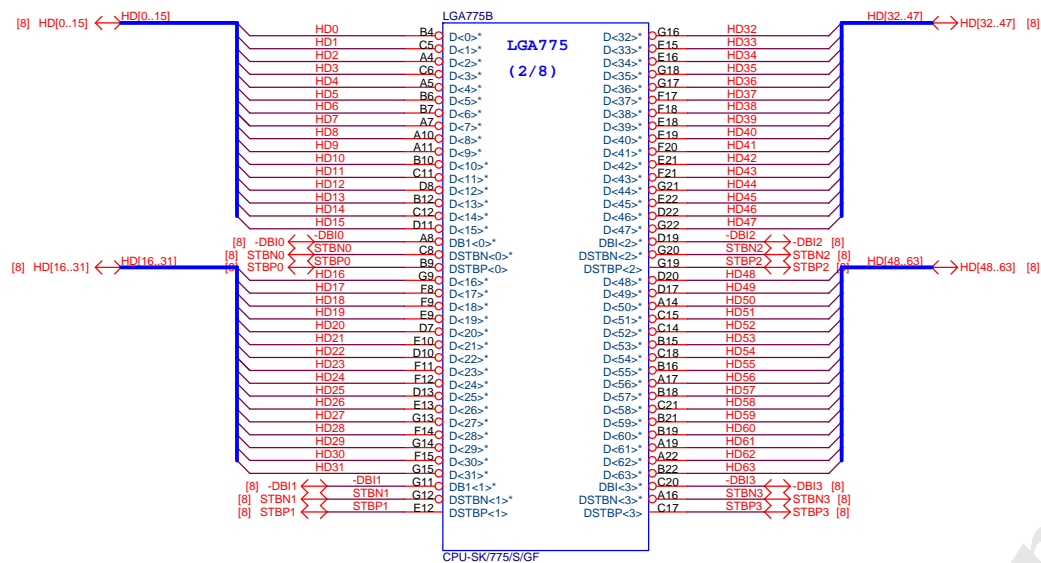
TESTHI8

TESTHI7

TESTHI6

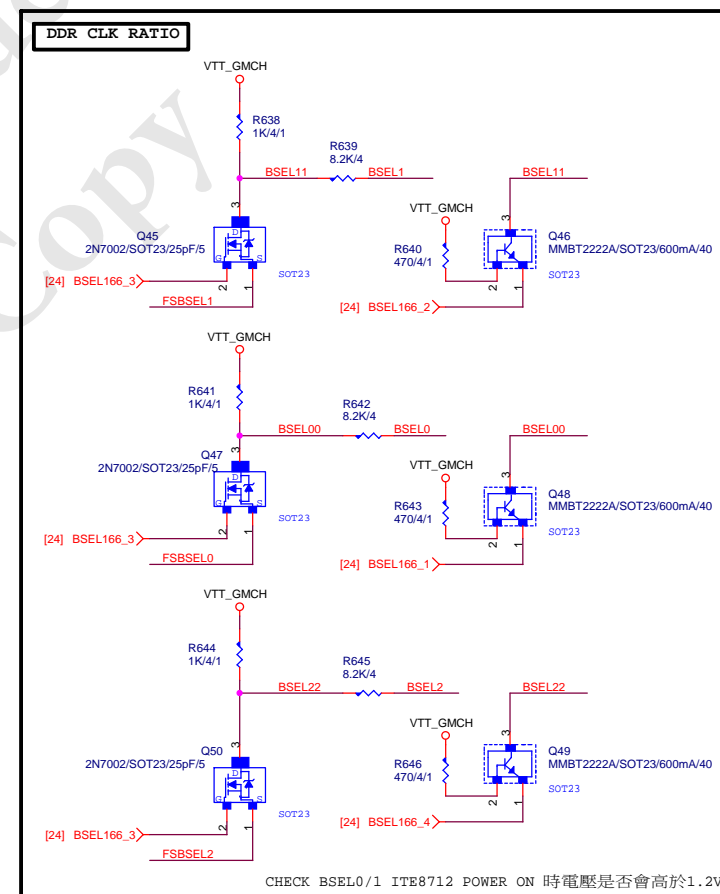
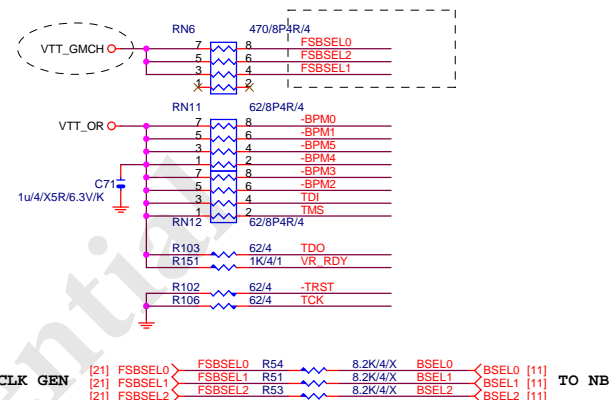


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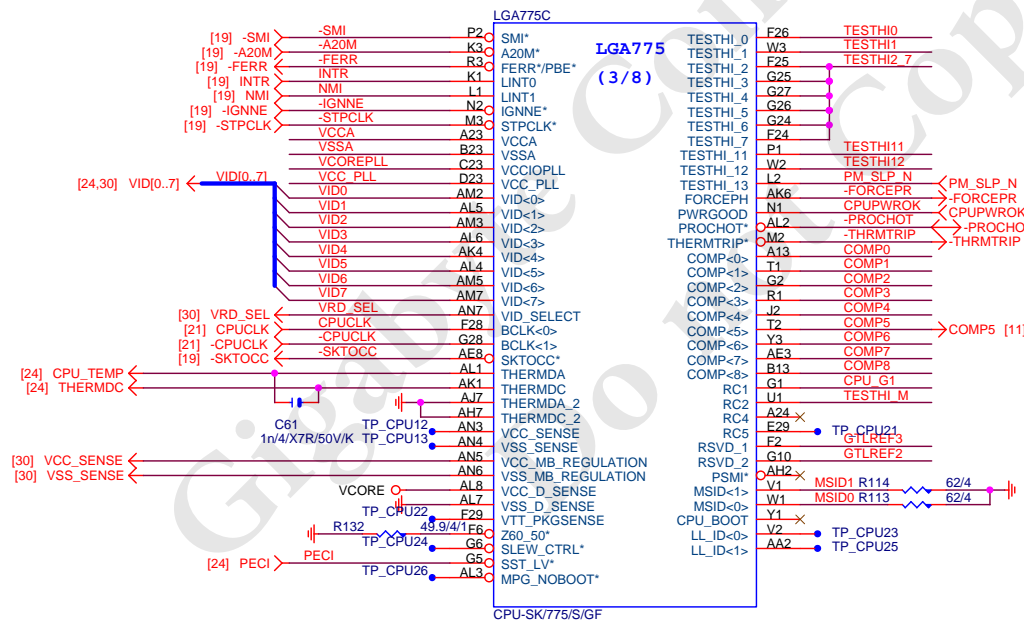
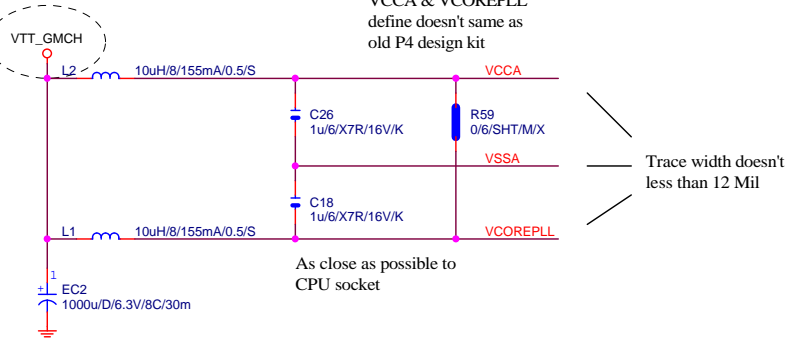
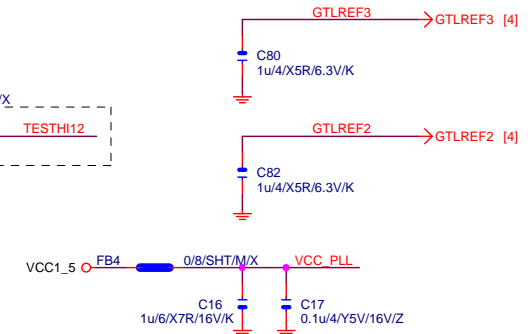
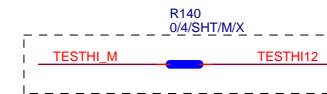
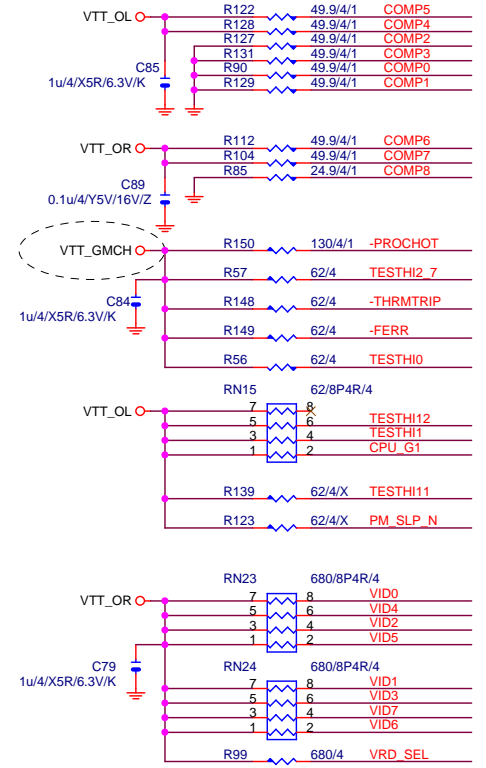
FIX FSB1600 LATCH FAIL

	FSA	FSB	FSC		
	FSBSEL0	FSBSEL1	FSBSEL2	Clock	
?	1	0	1	100MHz	
?	1	0	0	133MHz	3/4
G33	0	1	0	200MHz	2/2.66/3.33/4#
G33	0	0	0	266MHz	2/2.5/3/4~
G33	0	0	1	333MHz	2/2.4/3.2/4#



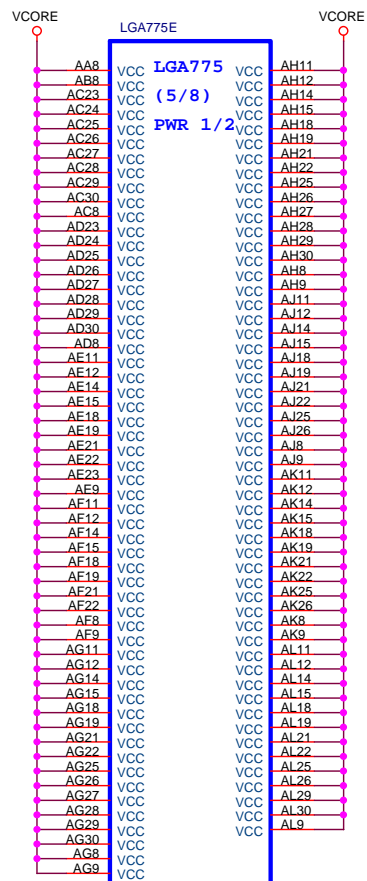
Note:

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

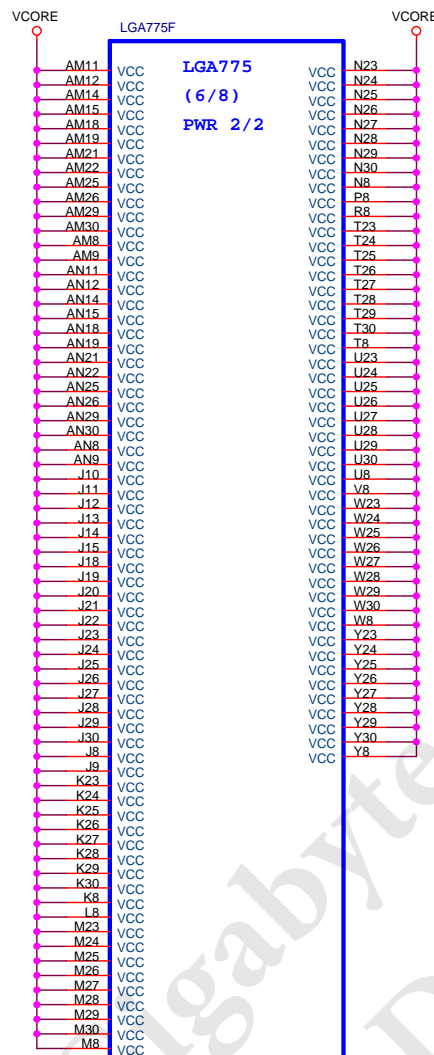
**Place outside of CPU socket****Gigabyte Technology**

Title				
P4_LGA775-C				
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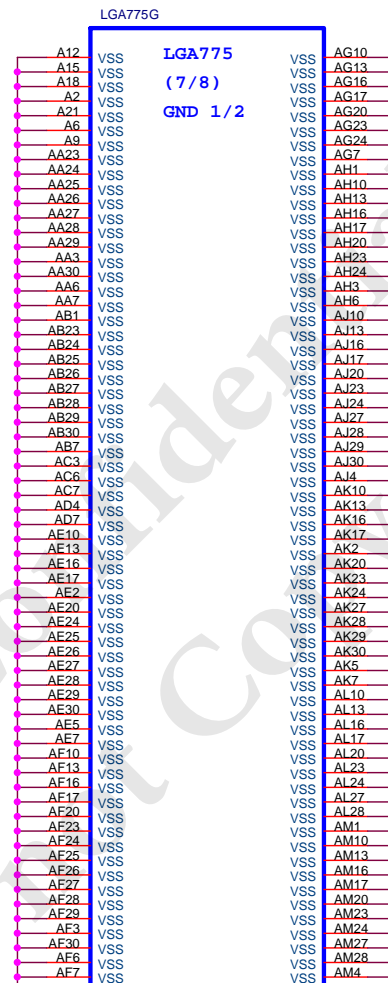
PECI:Platform Environment Control Interface



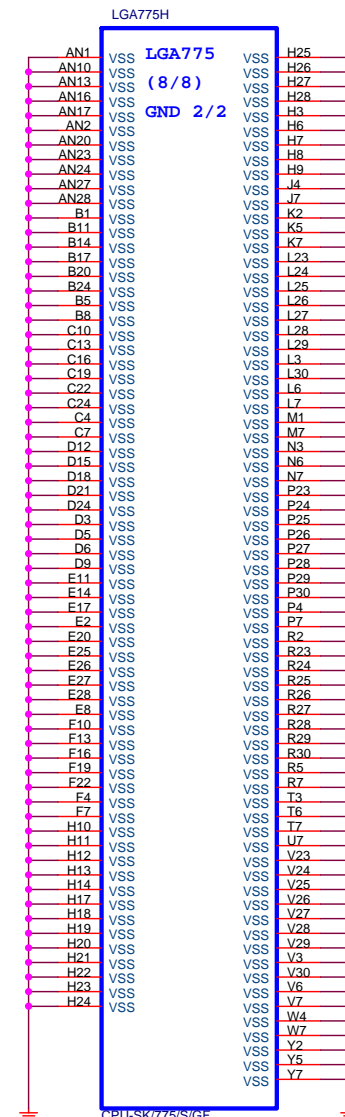
CPU-SK/775/S/GF



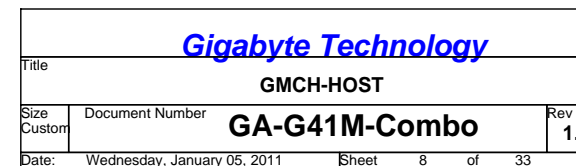
CPU-SK/775/S/GF

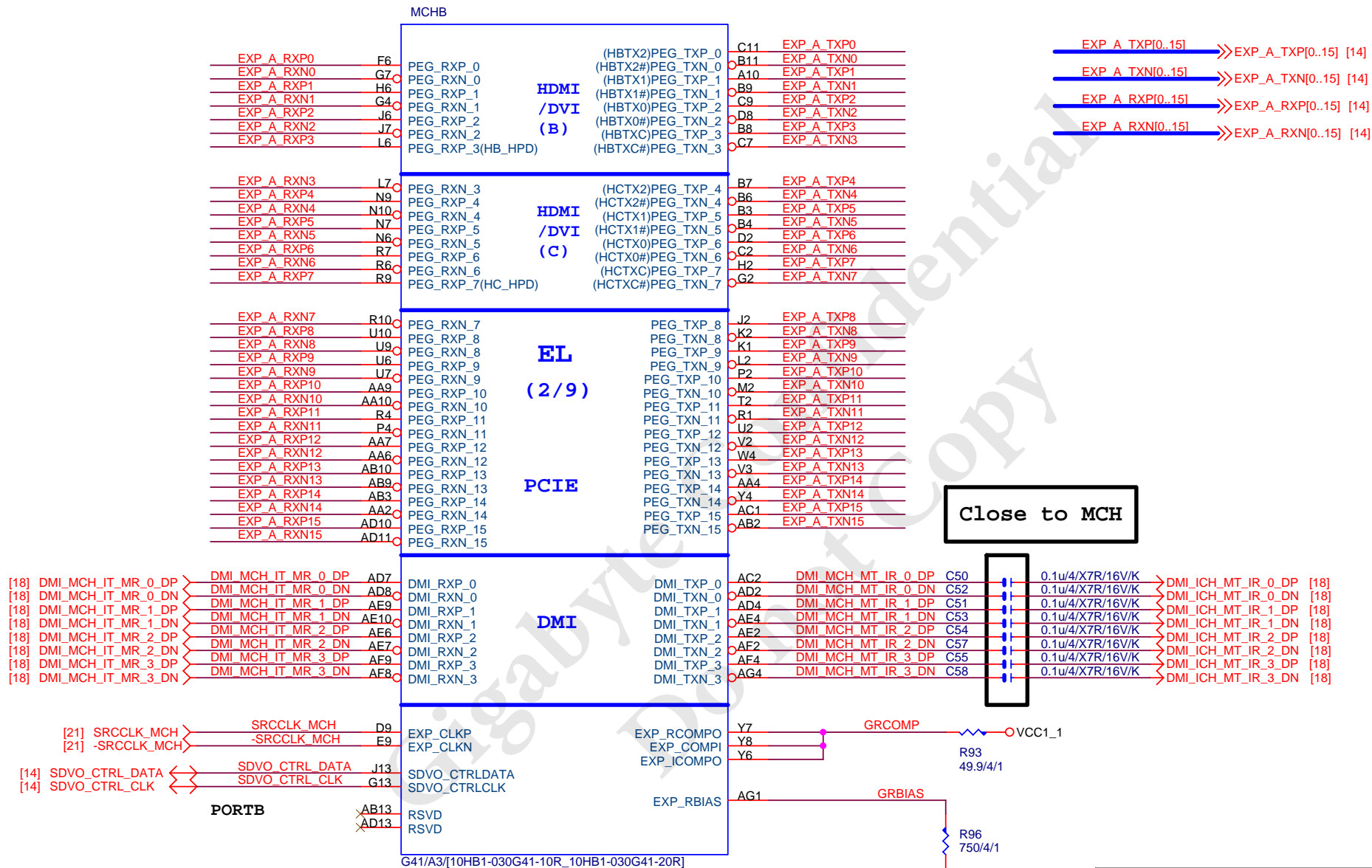


CPU-SK/775/S/GF



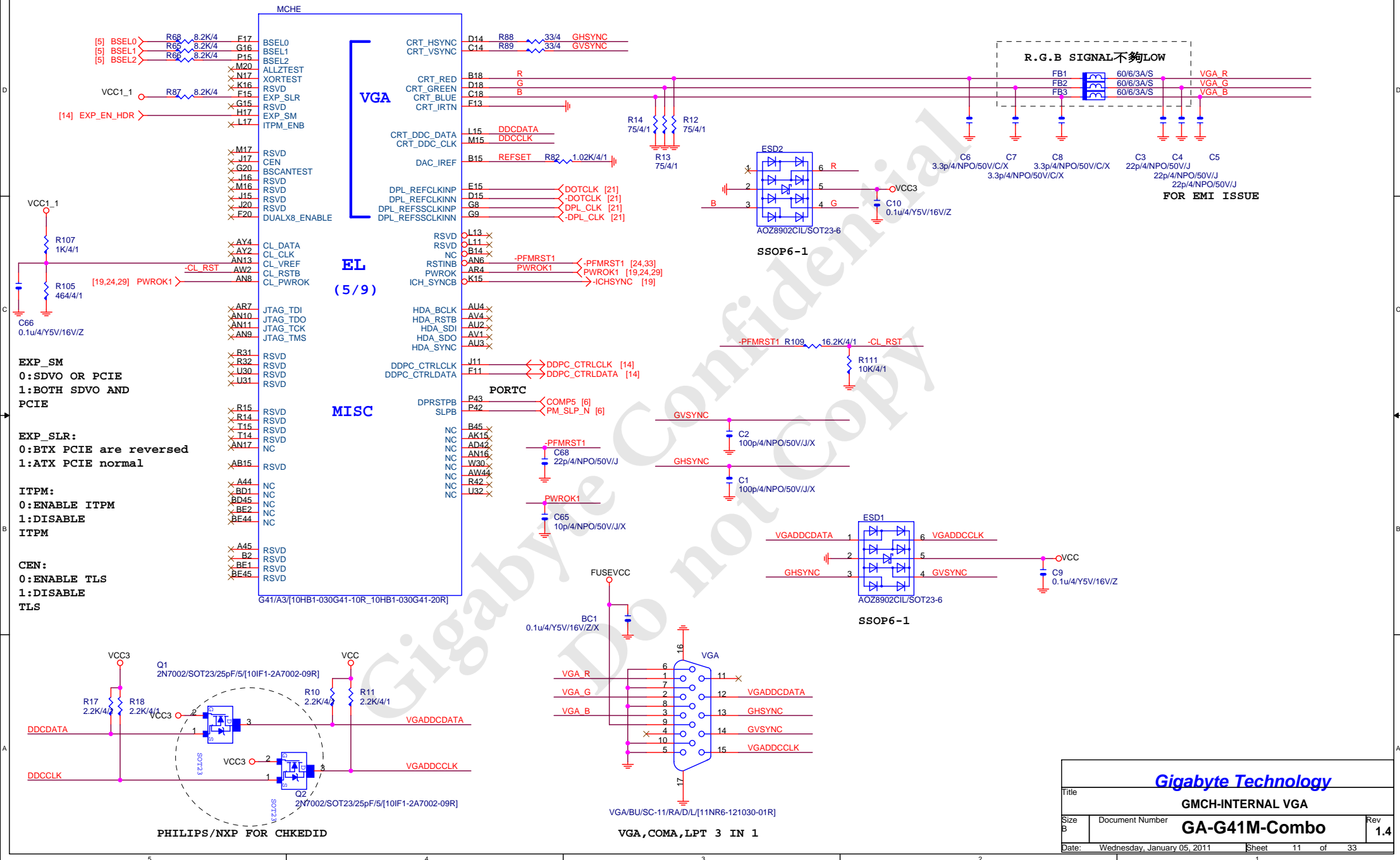
CPU-SK/775/S/GF





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Title		
GMCH-PCI E & DMI		
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MCHH

A12	VSS		VSS	AK35
A15	VSS		VSS	AK38
A19	VSS	EL	VSS	AK39
A27	VSS	(8/9)	VSS	AL38
A31	VSS		VSS	BB6
A36	VSS		VSS	BD12
A40	VSS		VSS	BD17
AA1	VSS		VSS	BD8
AA8	VSS	GND	VSS	BE10
AA11	VSS		VSS	BE15
AA12	VSS		VSS	BE19
AA13	VSS		VSS	BE22
AA20	VSS		VSS	BE24
AA22	VSS		VSS	BE29
AA24	VSS		VSS	BE34
AA26	VSS		VSS	BE40
AA34	VSS		VSS	C16
AA38	VSS		VSS	C3
AA40	VSS		VSS	C5
AA44	VSS		VSS	D11
AB4	VSS		VSS	D16
AB6	VSS		VSS	D21
AB7	VSS		VSS	D25
AB8	VSS		VSS	D26
AB11	VSS		VSS	D38
AB12	VSS		VSS	D6
AB19	VSS		VSS	D7
AB21	VSS		VSS	E3
AB23	VSS		VSS	E31
AB25	VSS		VSS	E41
AB27	VSS		VSS	E5
AB34	VSS		VSS	F16
AB36	VSS		VSS	F2
AB39	VSS		VSS	F30
AC5	VSS		VSS	F4
AC20	VSS		VSS	F42
AC22	VSS		VSS	F45
AC24	VSS		VSS	G11
AC26	VSS		VSS	G17
AC45	VSS		VSS	G24
AD3	VSS		VSS	G26
AD6	VSS		VSS	G29
AD9	VSS		VSS	G3
AD12	VSS		VSS	G35
AD19	VSS		VSS	H1
AD21	VSS		VSS	H11
AD23	VSS		VSS	H13
AD25	VSS		VSS	H15
AD27	VSS		VSS	H16
AD34	VSS		VSS	H20
AD36	VSS		VSS	H25
AD39	VSS		VSS	H30
AE1	VSS		VSS	H31
AE8	VSS		VSS	H33
AE11	VSS		VSS	H38
AE20	VSS		VSS	H44
AE22	VSS		VSS	H7
AE24	VSS		VSS	H8
AE26	VSS		VSS	H9
AE34	VSS		VSS	J3
AE38	VSS		VSS	J37
AE40	VSS		VSS	J4
AE44	VSS		VSS	J5
AF6	VSS		VSS	J8
AF7	VSS		VSS	J9
AF10	VSS		VSS	K11
AF11	VSS		VSS	K13
AF12	VSS		VSS	K17
AF13	VSS		VSS	K24
AF33	VSS		VSS	K29
AF36	VSS		VSS	K33
AF39	VSS		VSS	K45
AG5	VSS		VSS	L10
AG19	VSS		VSS	L16
AG21	VSS		VSS	L20
AG23	VSS		VSS	U11
AG25	VSS		VSS	U12
AG27	VSS		VSS	U13
AG45	VSS		VSS	U16
AH2	VSS		VSS	U17
AH3	VSS		VSS	U19
AH4	VSS		VSS	U20
AJ20	VSS		VSS	U36
AJ22	VSS		VSS	U39
AJ24	VSS		VSS	U44
AJ26	VSS		VSS	U8
AJ36	VSS		VSS	W1
AJ39	VSS		VSS	W16
AJ44	VSS		VSS	W17
AJ45	VSS		VSS	A3
			VSS	A43
			VSS	A6
			VSS	B44
			VSS	BC1

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

BA5	VSS		VSS	L26
BB21	VSS		VSS	L30
BB25	VSS	EL	VSS	L35
BB28	VSS	(9/9)	VSS	L39
BB6	VSS		VSS	L4
BD12	VSS		VSS	L8
BD17	VSS		VSS	L9
BD8	VSS		VSS	M1
BE10	VSS	GND	VSS	M24
BE15	VSS		VSS	M25
BE19	VSS		VSS	M44
BE22	VSS		VSS	N11
BE24	VSS		VSS	N13
BE29	VSS		VSS	N16
BE34	VSS		VSS	N26
BE40	VSS		VSS	N29
C16	VSS		VSS	N30
C3	VSS		VSS	N33
C5	VSS		VSS	N36
D11	VSS		VSS	N38
D16	VSS		VSS	N8
D21	VSS		VSS	P16
D25	VSS		VSS	P17
D26	VSS		VSS	P25
D38	VSS		VSS	P26
D6	VSS		VSS	P31
D7	VSS		VSS	R11
E3	VSS		VSS	R12
E31	VSS		VSS	R16
E41	VSS		VSS	R17
E5	VSS		VSS	R19
F16	VSS		VSS	R2
F2	VSS		VSS	R30
F30	VSS		VSS	R38
F4	VSS		VSS	R45
F42	VSS		VSS	R5
F45	VSS		VSS	R8
G11	VSS		VSS	T10
G17	VSS		VSS	T11
G24	VSS		VSS	T12
G26	VSS		VSS	T13
G29	VSS		VSS	T16
G3	VSS		VSS	T17
G35	VSS		VSS	T19
H1	VSS		VSS	T20
H11	VSS		VSS	T3
H13	VSS		VSS	T30
H15	VSS		VSS	T31
H16	VSS		VSS	T32
H20	VSS		VSS	T33
H25	VSS		VSS	T35
H30	VSS		VSS	T38
H31	VSS		VSS	T4
H33	VSS		VSS	T40
H38	VSS		VSS	T6
H44	VSS		VSS	T7
H7	VSS		VSS	T8
H8	VSS		VSS	T9
H9	VSS		VSS	U1
J3	VSS		VSS	W2
J37	VSS		VSS	W20
J4	VSS		VSS	W22
J5	VSS		VSS	W24
J8	VSS		VSS	W26
J9	VSS		VSS	W44
K11	VSS		VSS	W45
K13	VSS		VSS	W5
K17	VSS		VSS	Y10
K24	VSS		VSS	Y11
K29	VSS		VSS	Y12
K33	VSS		VSS	Y13
K45	VSS		VSS	Y16
L10	VSS		VSS	Y17
L16	VSS		VSS	Y19
L20	VSS		VSS	Y2
U11	VSS		VSS	Y21
U12	VSS		VSS	Y23
U13	VSS		VSS	Y25
U16	VSS		VSS	Y27
U17	VSS		VSS	Y3
U19	VSS		VSS	Y35
U20	VSS		VSS	Y39
U36	VSS		VSS	Y9
U39	VSS		VSS	BC45
U44	VSS		VSS	BD2
U8	VSS		VSS	BD44
W1	VSS		VSS	BE3
W16	VSS		VSS	BE43
W17	VSS		VSS	C1
A3	VSS		VSS	C45
A43	VSS		VSS	BD43
A6	VSS		VSS	
B44	VSS		VSS	AD30
BC1	VSS		VSS	AC30
			VSS	AE30
			VSS	AE30

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



NB_HEATSIN

1X

X2

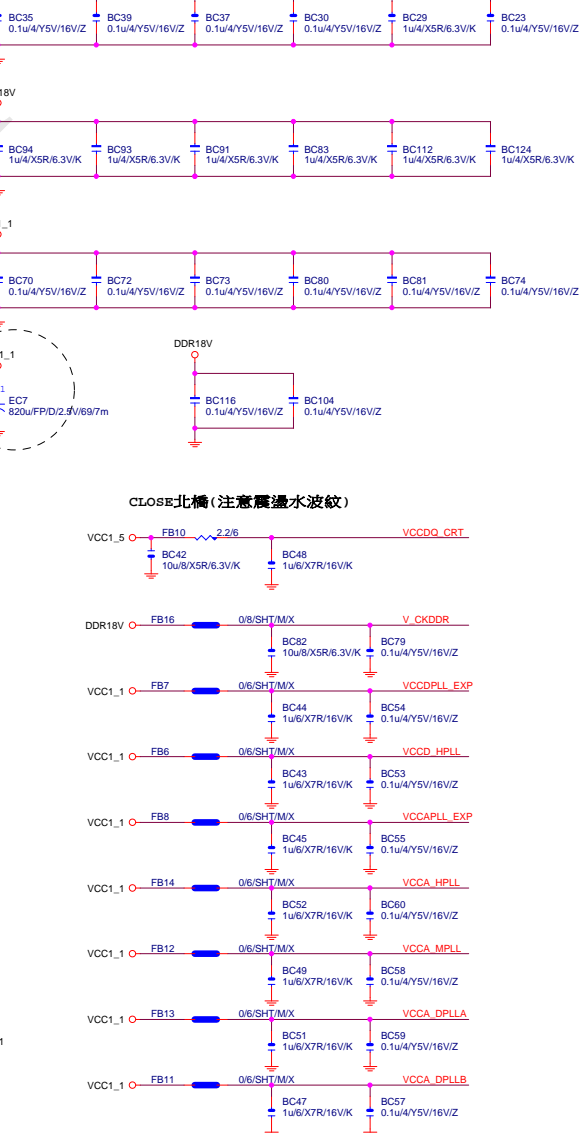
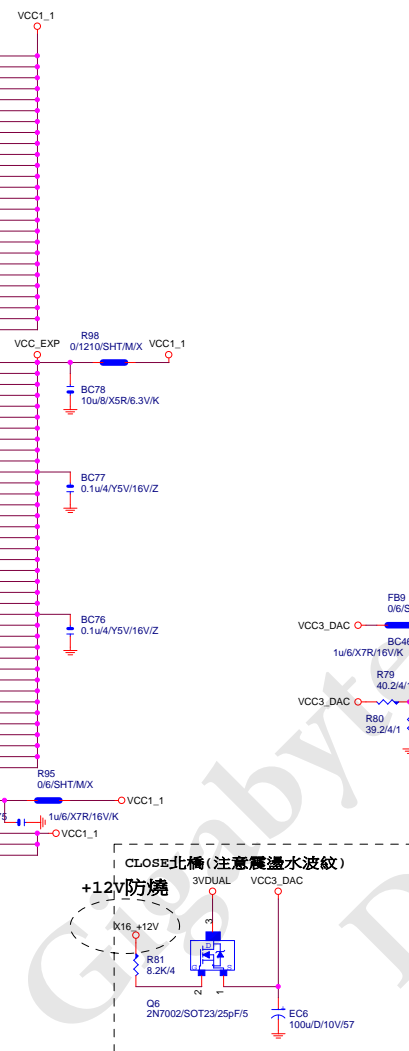
NB_HS

NB_HEATSINK[12SP2-04A004-42R_12SP2-04A004-43R]

BGASINK445A-L GRAY 20MM

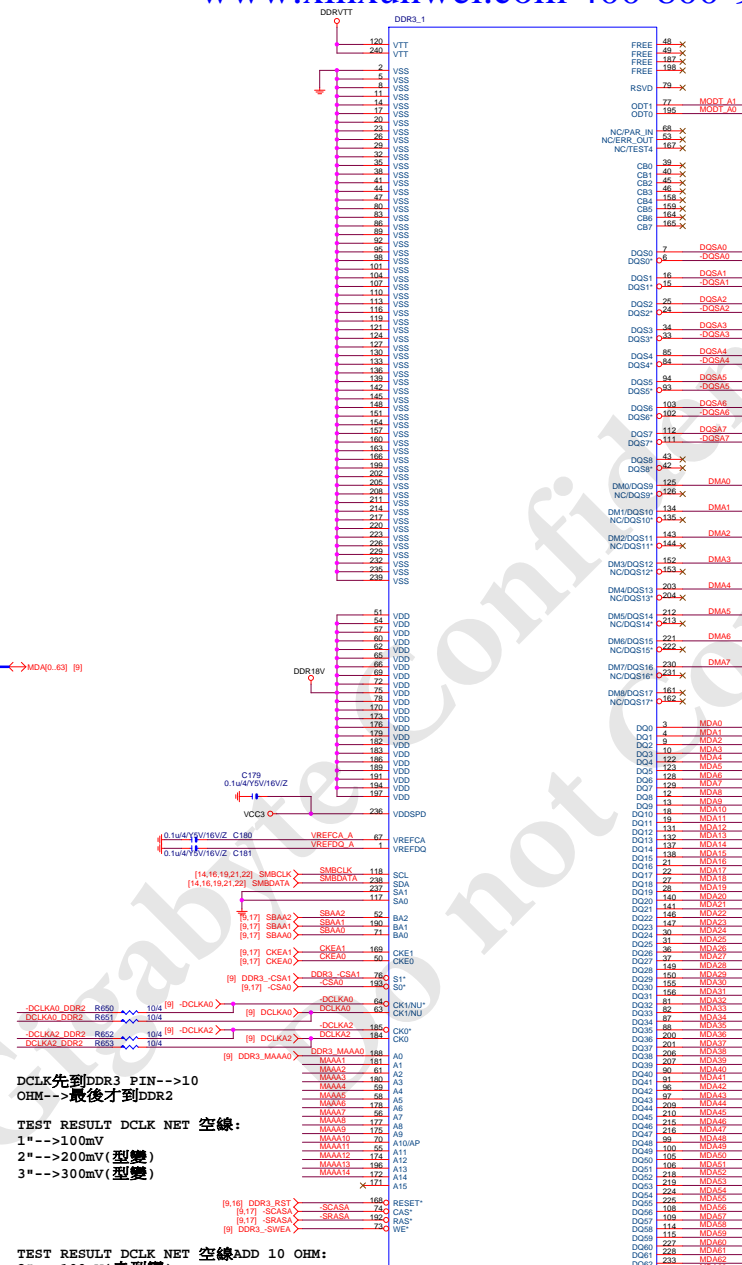
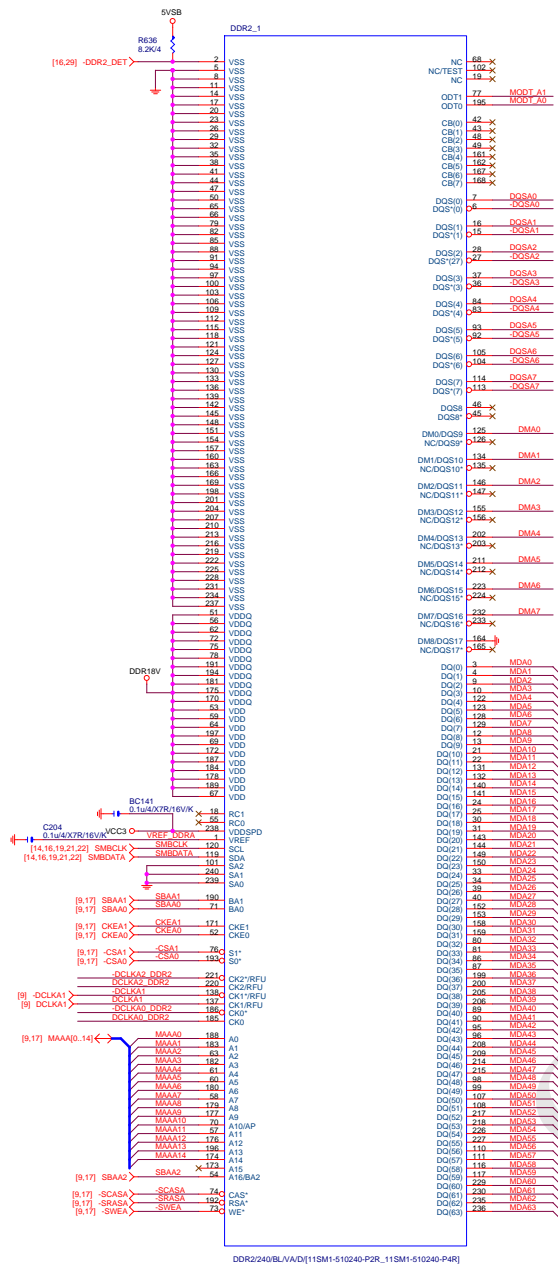
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CLOSE北橋(注意震盪水波紋)

<i>Gigabyte Technology</i>			
Title GMCH-PWR			
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DCLK 先到 DDR3 PIN --> 10

OHM --> 最后才到 DDR2

TEST RESULT DCLK NET 空线:

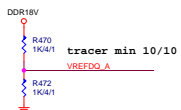
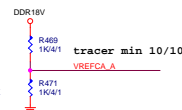
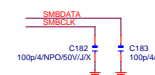
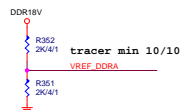
1" --> 10mV

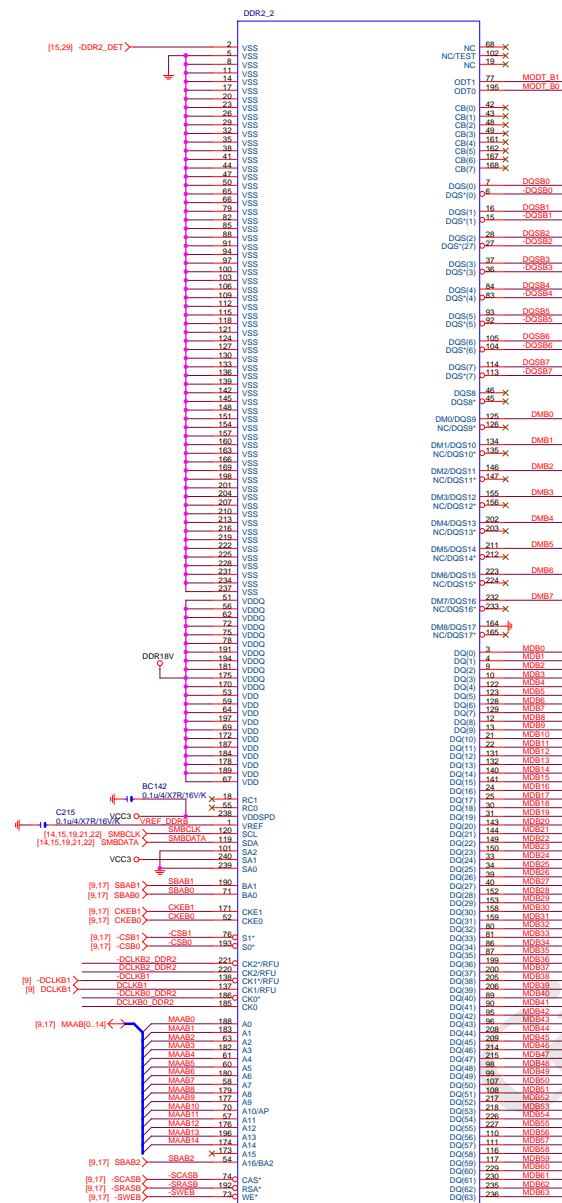
2" --> 20mV (型变)

3" --> 30mV (型变)

TEST RESULT DCLK NET 空线 ADD 10 OHM:

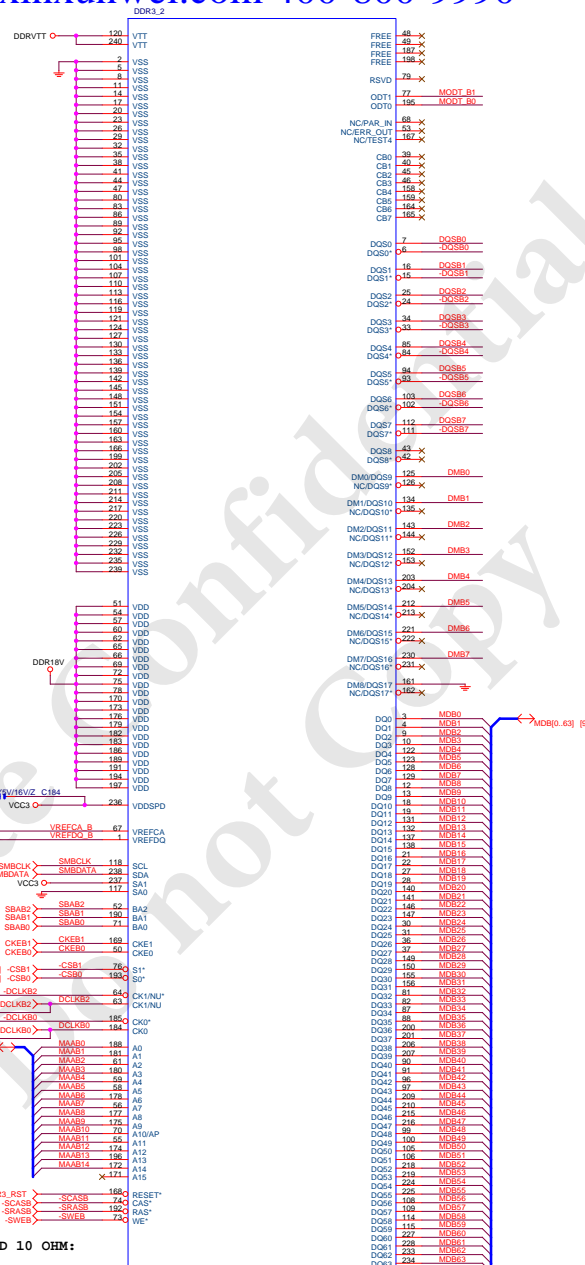
3" --> 10mV (未型变)





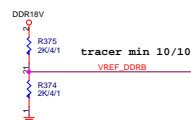
00R2/240/BL/VA/D/11SM1-510240-P2R_11SM1-510240-P4R

R1.4 DDR2 SLOT -->BLUE

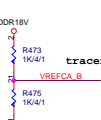


DDR3/240/WH/VA/D/11SM1-511240-82R_11SM1-511240-83R

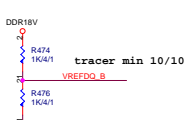
R1.4 DDR3 SLOT -->WHITE



tracer min 10/10



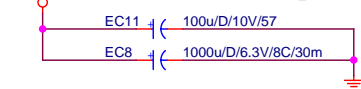
tracer min 10/10



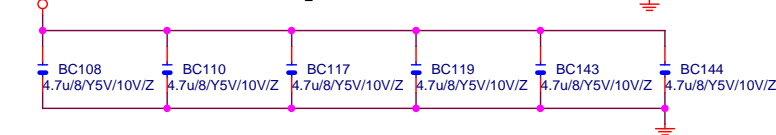
tracer min 10/10

DDR TERMINATION CHANNEL A

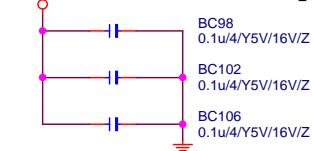
DDR18V Decouple



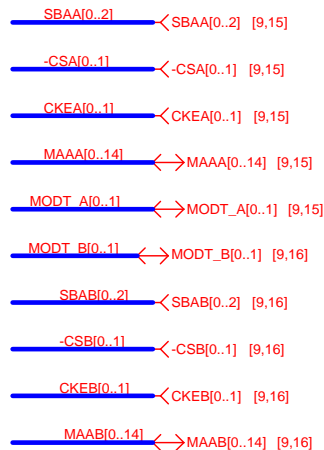
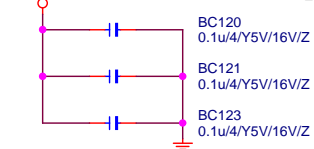
DDRVTT Decouple



DDR18V Decouple

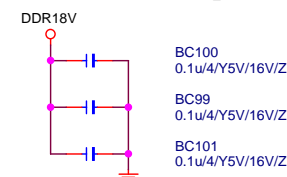


DDRVTT Decouple

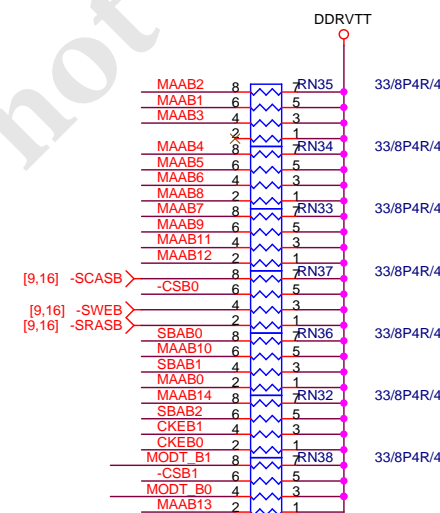
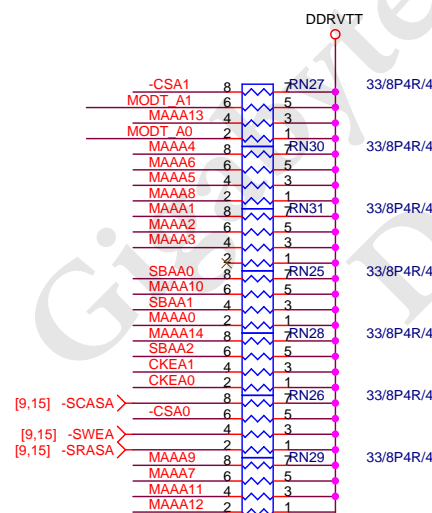
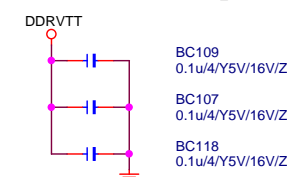


DDR TERMINATION CHANNEL B

DDR18V Decouple

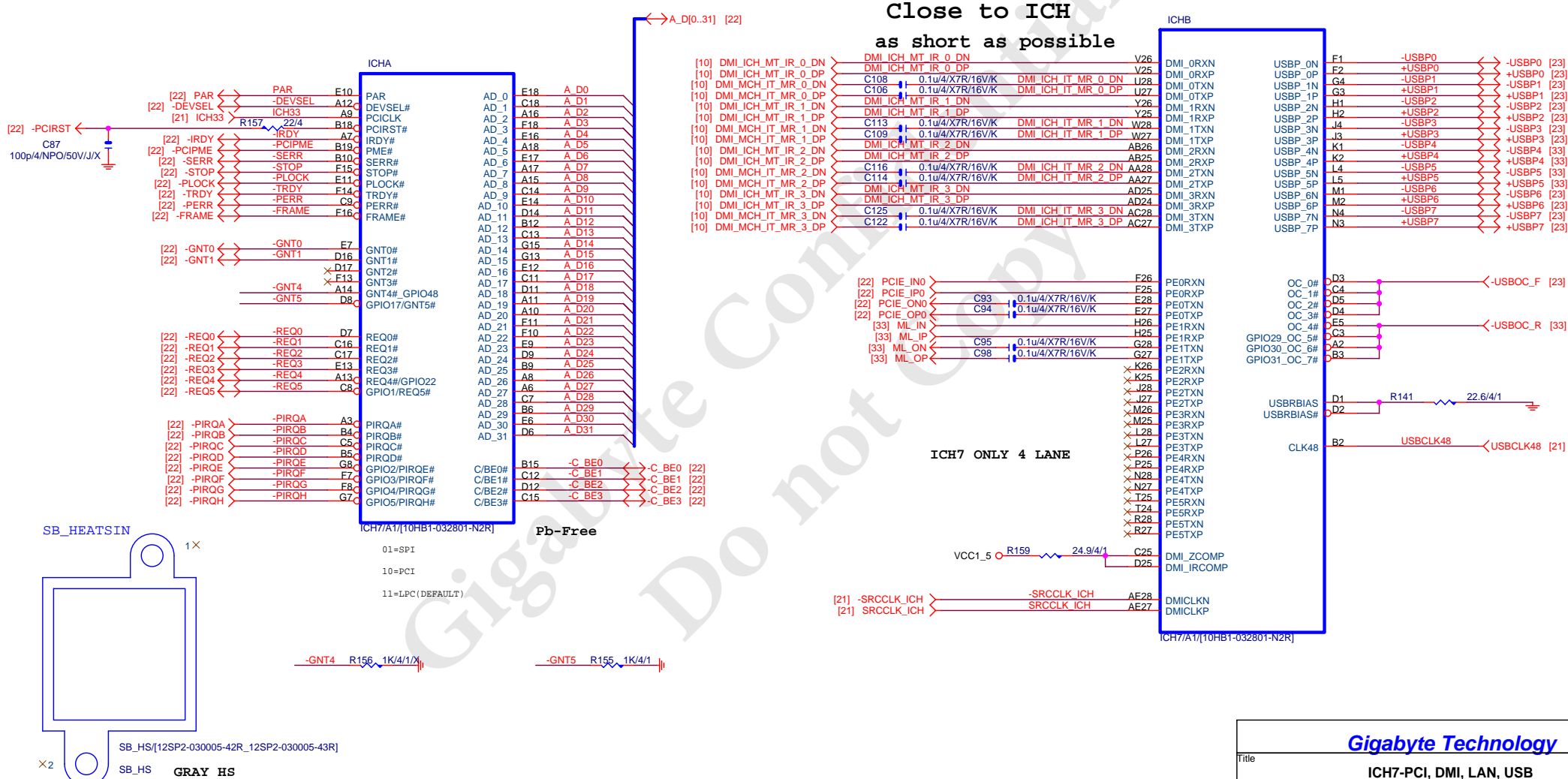


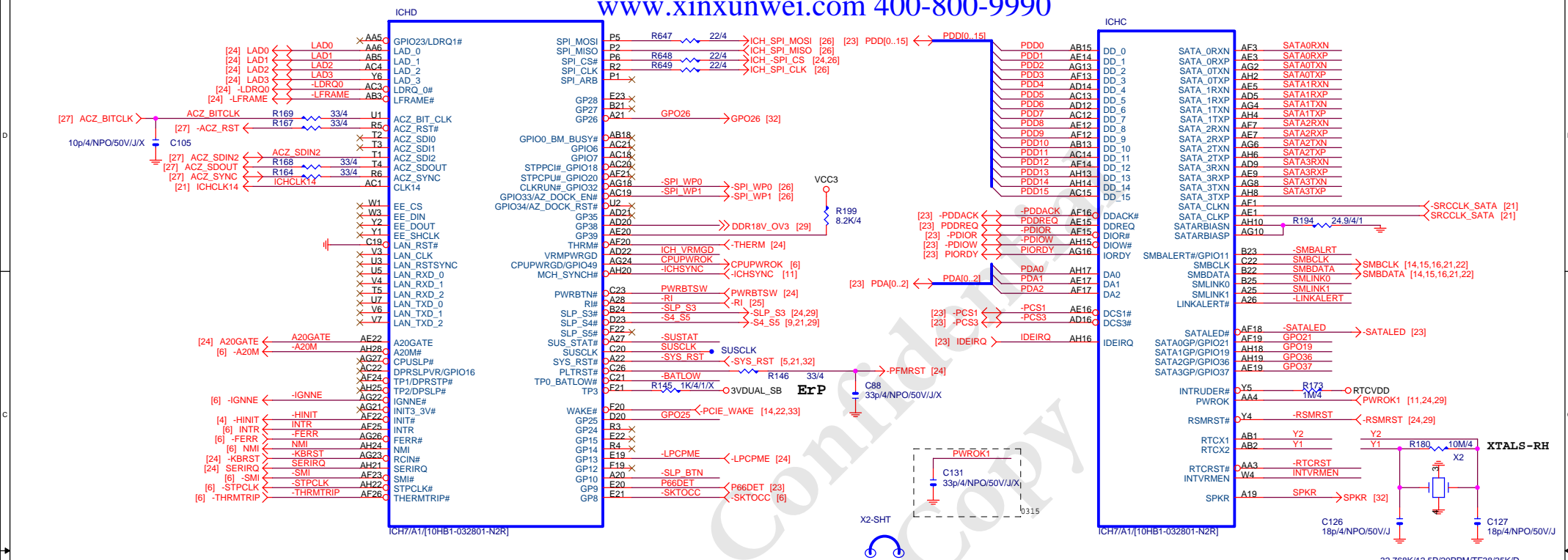
DDRVTT Decouple



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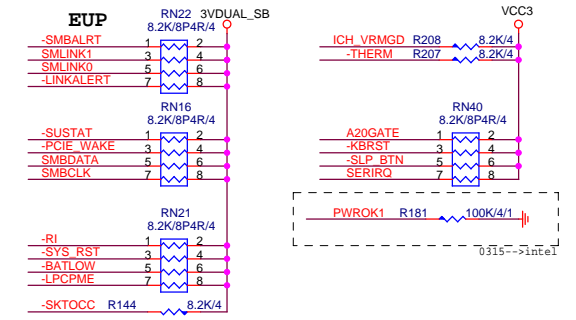
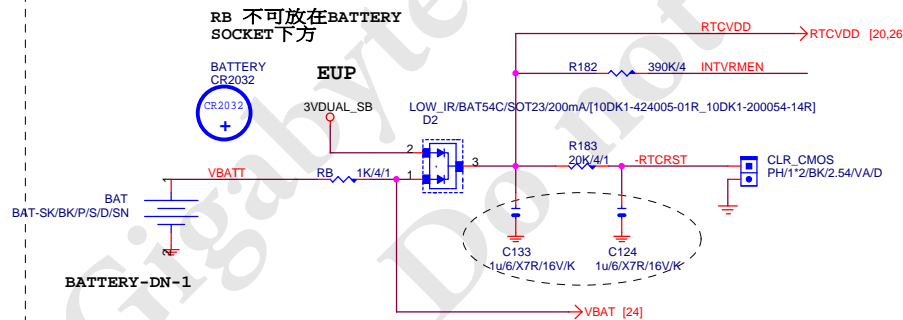
Title			DDRII TERMINATOR	
Size	Document Number	GA-G41M-Combo		Rev
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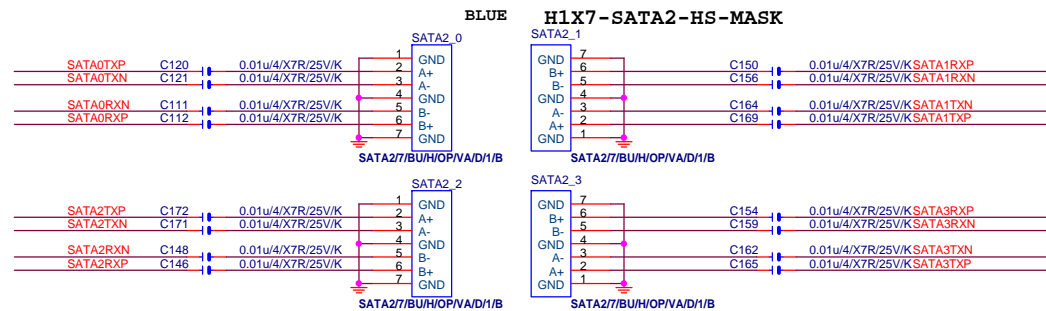
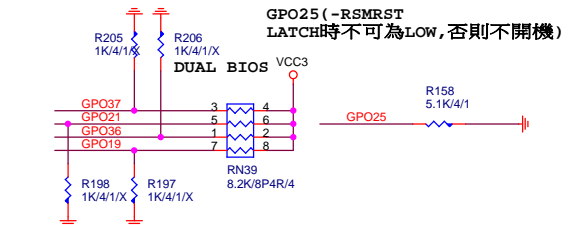


NEW TYPE:BATTERY-DUAL-4

SHW/D0.64*5.08*6.74



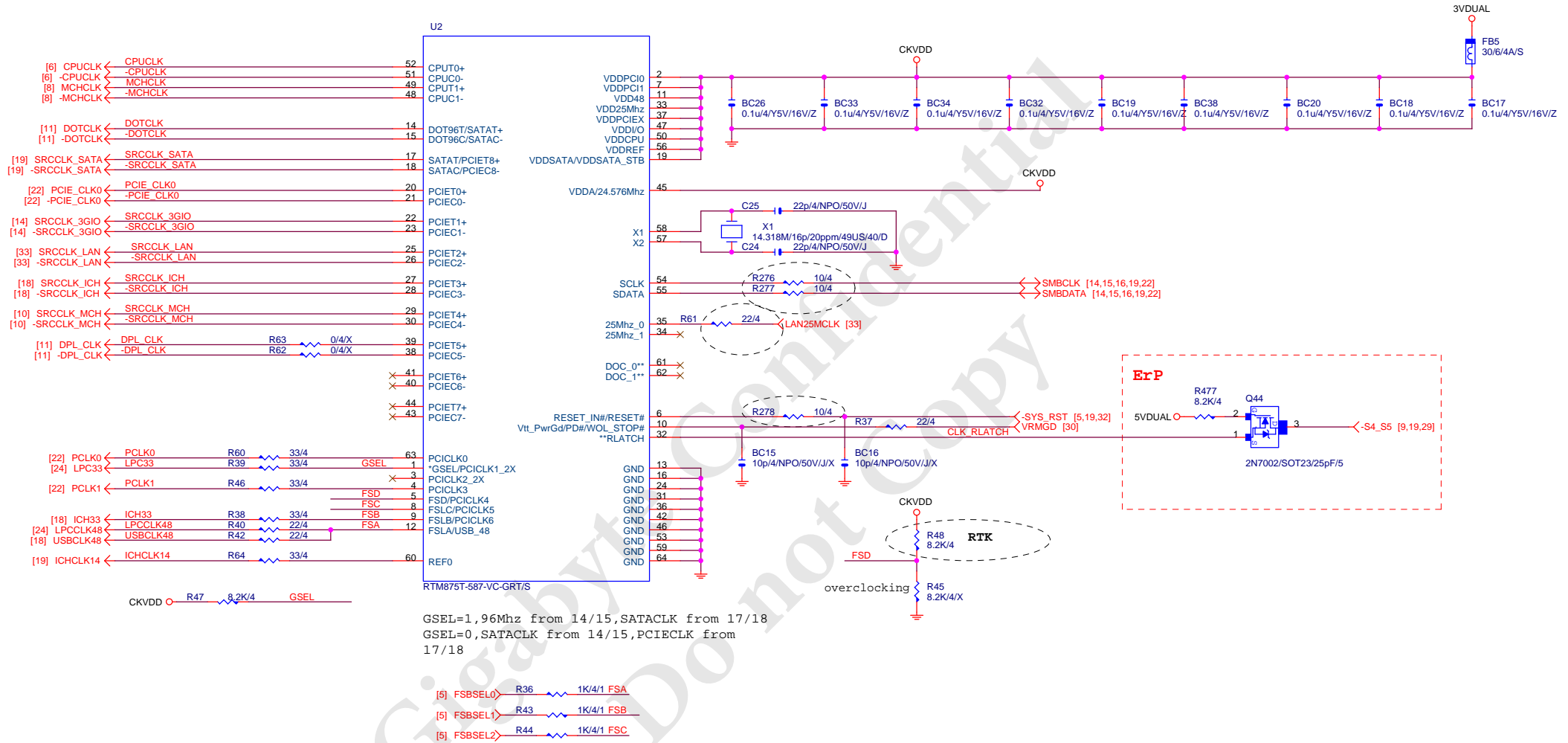
GPO25 PULL-DOWN CHECK
GPO25(-RSMRST
LATCH時不可為LOW,否則不開機)



**GA-G41M-Combo**

1.4

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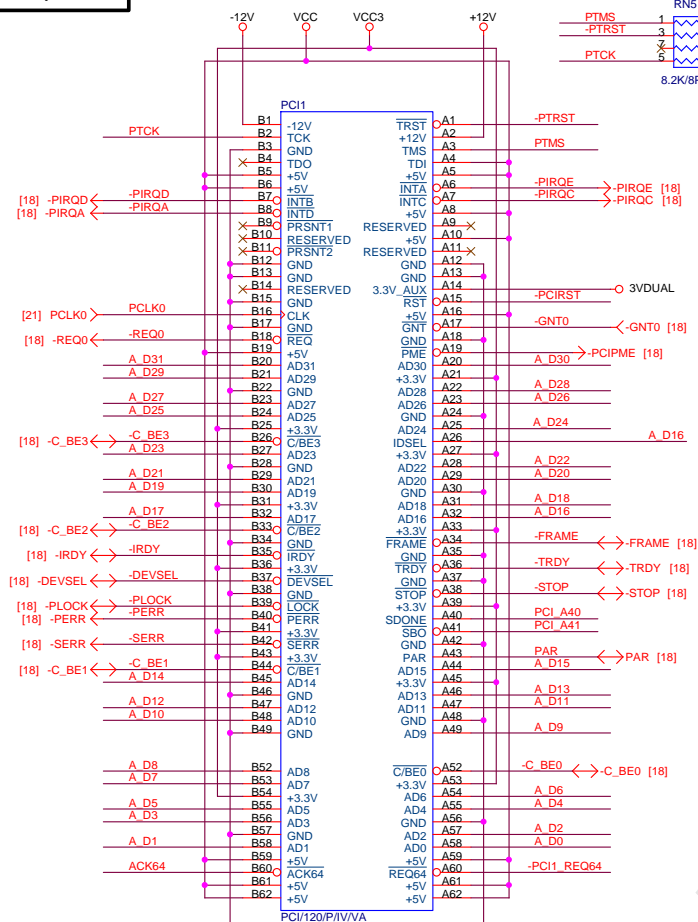


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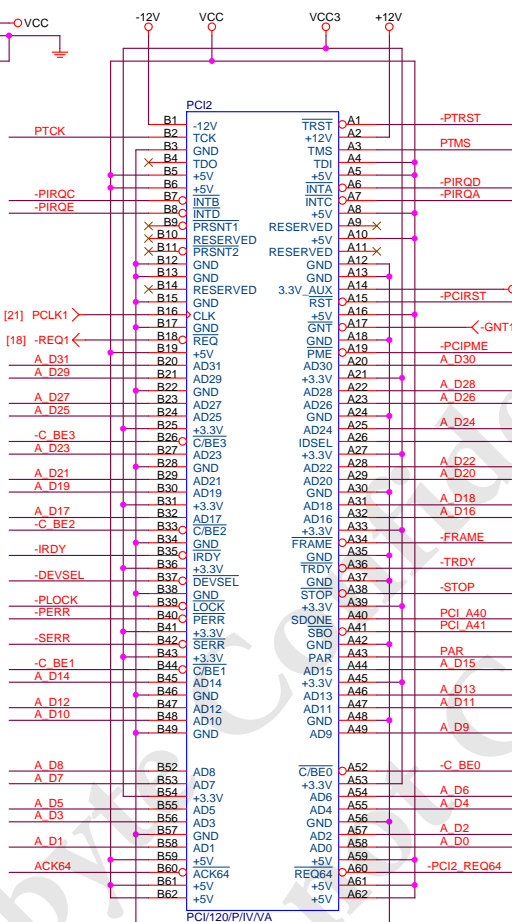
Title				CK505 CLK GEN	
Size				GA-G41M-Combo	
Date:				Wednesday, January 05, 2011	Sheet 21 of 33
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PCI1,2 SLOT

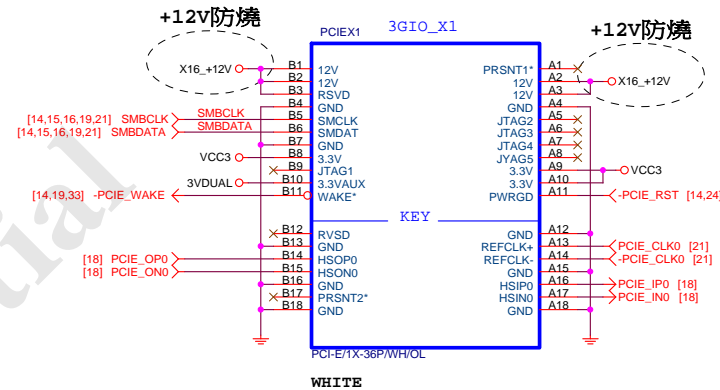
PCI1*1



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



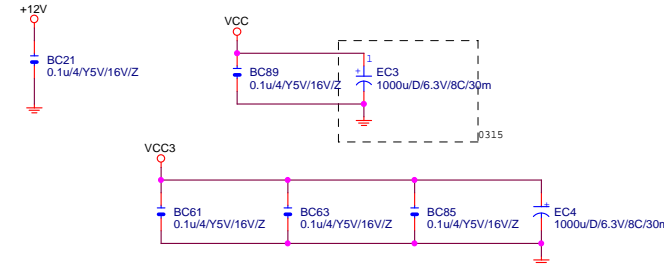
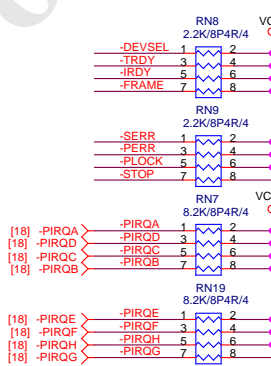
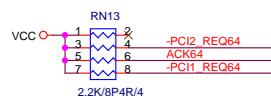
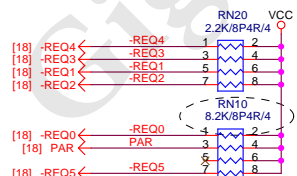
AD_17/-PIRQ(D-C-A-E)/-REQ1/-GNT1



[18] A_D[0..31] <-> A_D[0..31]

-PCIRST <-> -PCIRST [18]

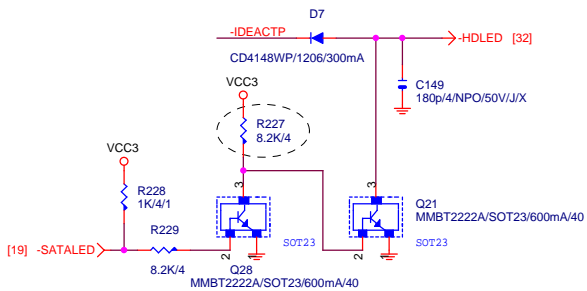
Place close to PCI1



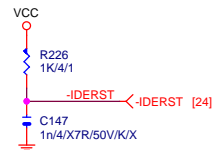
Gigabyte Technology

Title			PCI SLOT 1, 2/PCIEX1	
Size			GA-G41M-Combo	
Document Number			Rev 1.4	
Date			Wednesday, January 05, 2011	
Sheet			22 of 33	

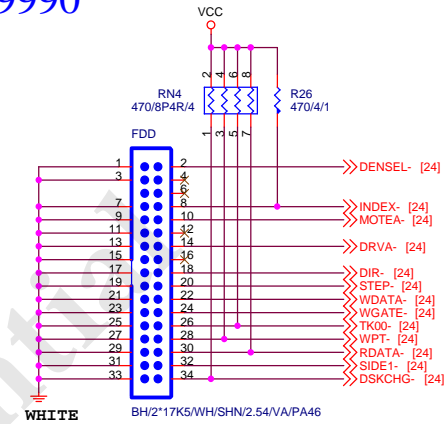
IDE/SATA LED



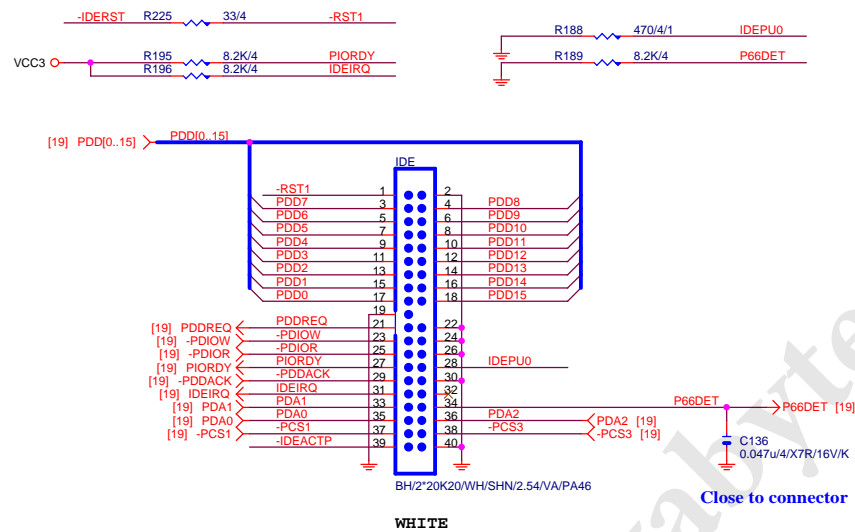
IDE RESET



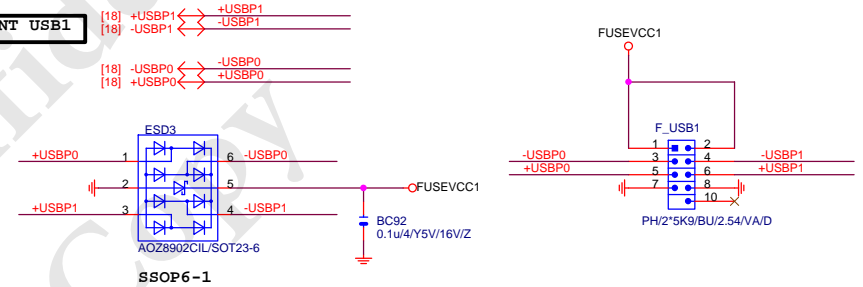
FLOPPY



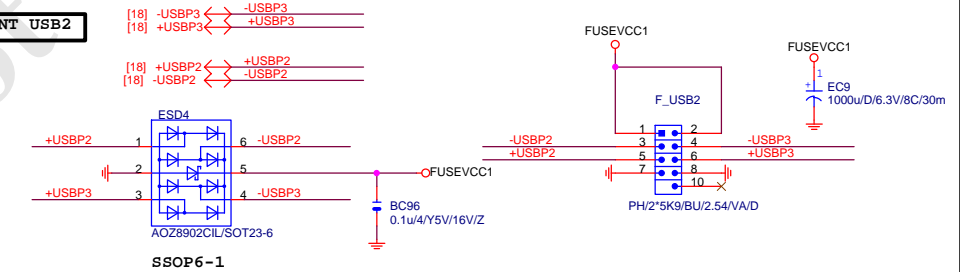
IDE



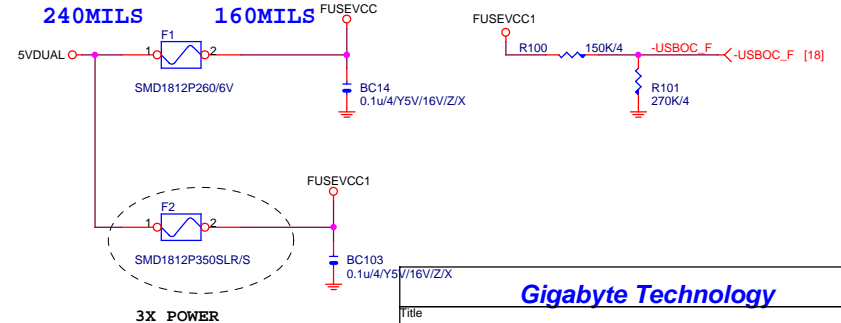
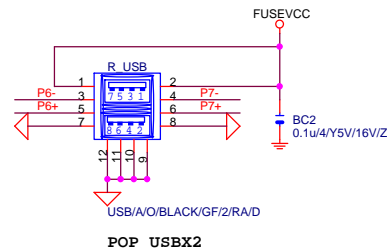
FRONT USB1



FRONT USB2



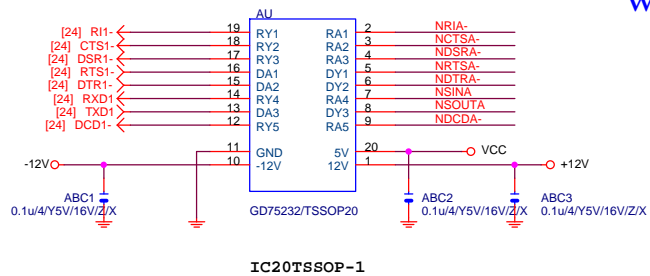
[18] -USBP7 <-> -USBP7
[18] +USBP7 <-> +USBP7
[18] -USBP6 <-> -USBP6
[18] +USBP6 <-> +USBP6



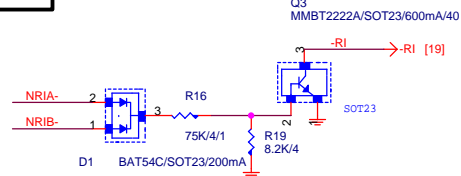
Gigabyte Technology

Title		IDE,FDD,F_USB,R_USB	
Size	Document Number	GA-G41M-Combo	
Date:	Wednesday, January 05, 2011	Sheet	23 of 33
Rev	1.4		

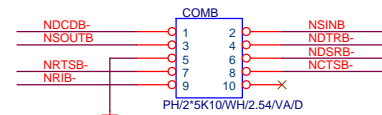
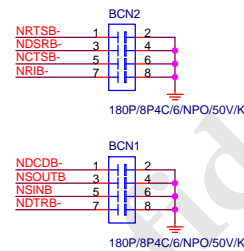
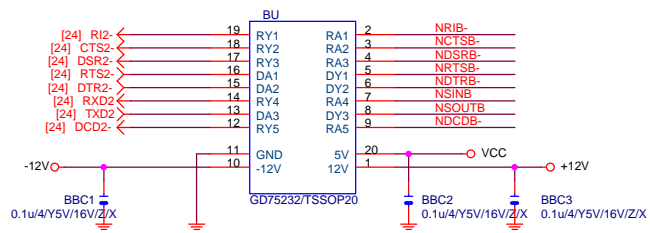
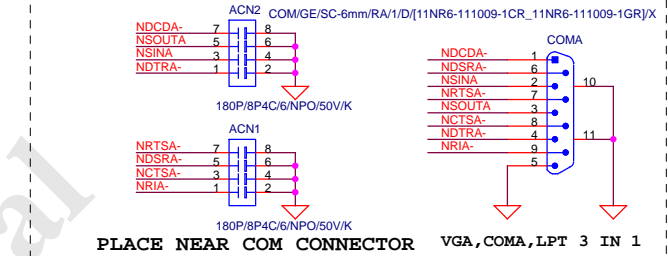
COMA



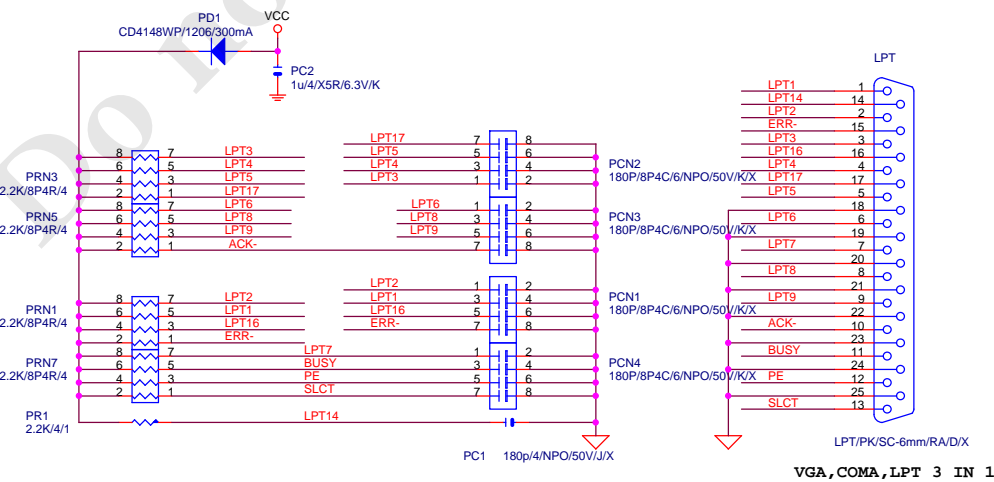
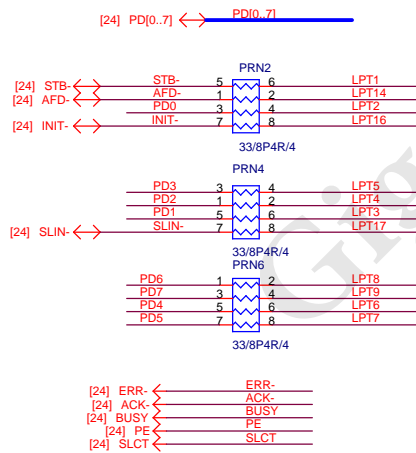
RING IN



EXTERNAL COMA

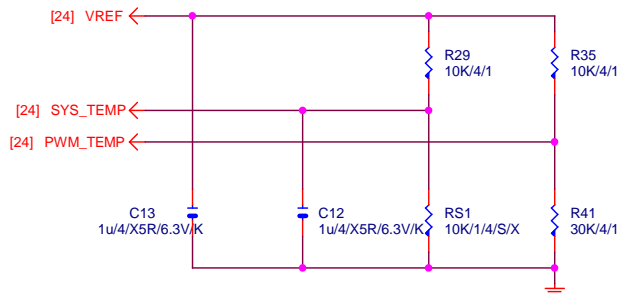
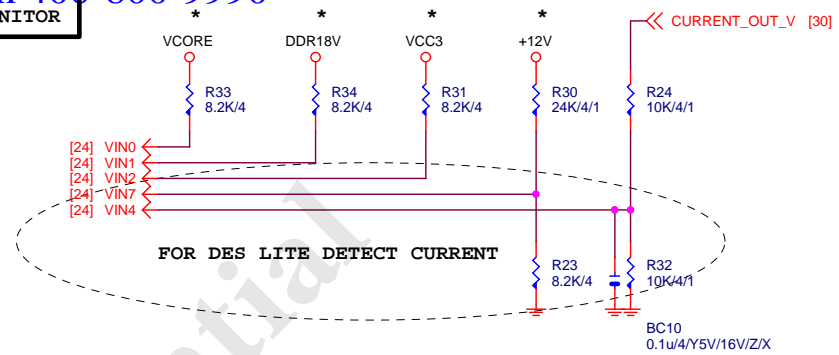
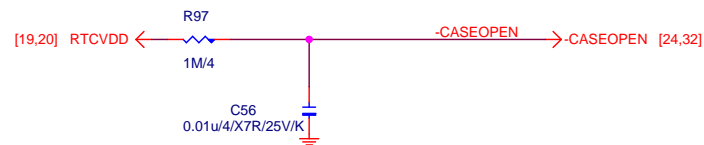


LPT PORT

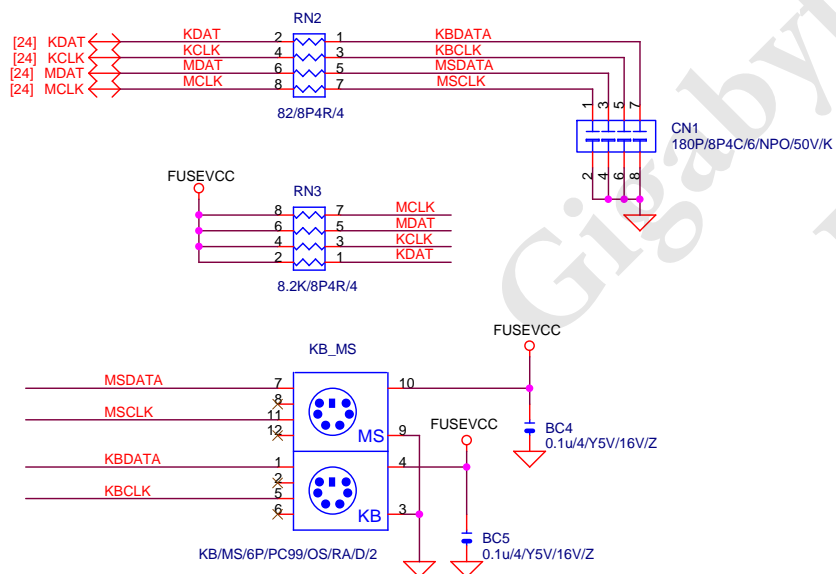
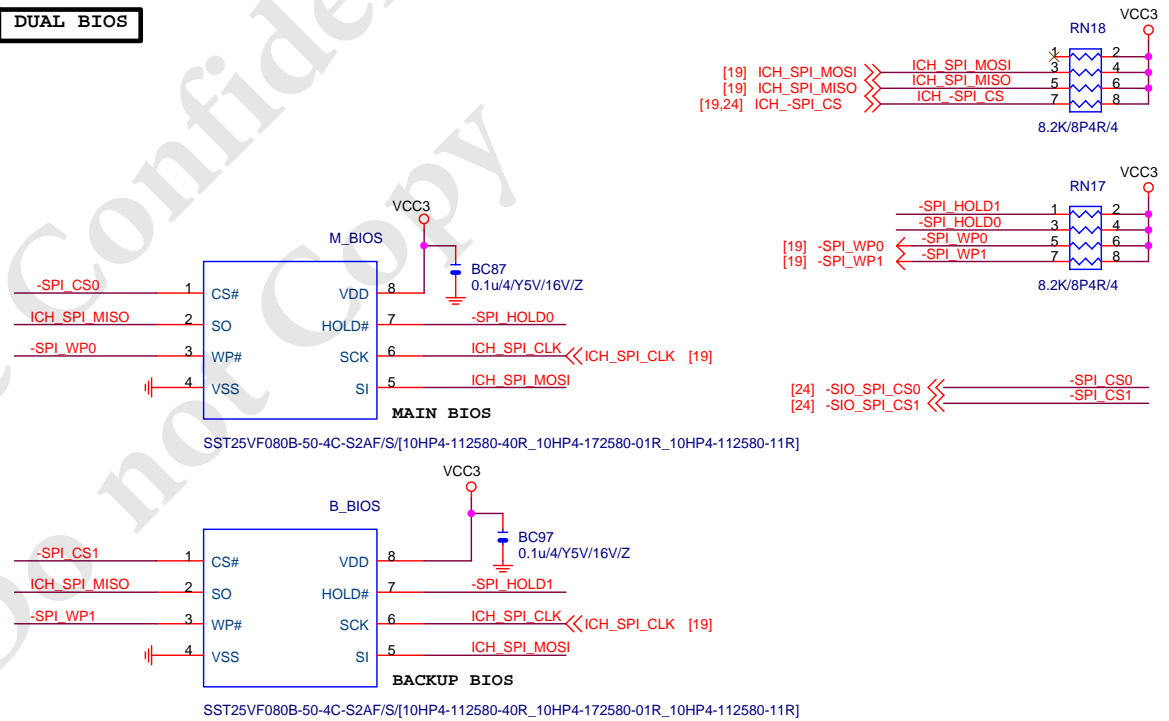


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COM & LPT PORT			
Title	COM & LPT PORT		
Size	Document Number	GA-G41M-Combo	
B			Rev 1.4
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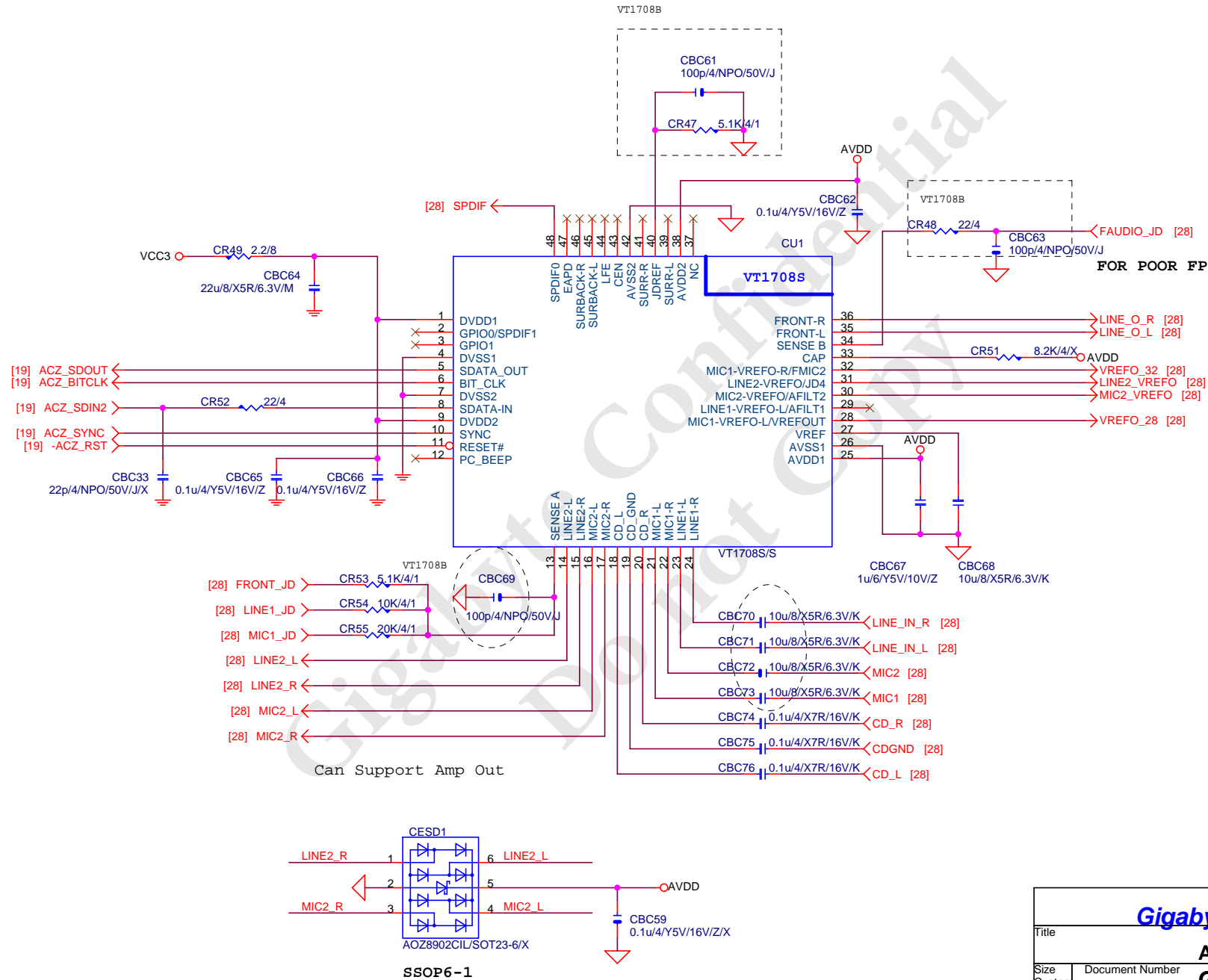
TEMP H/W MONITOR**VOLTAGE-- H/W MONITOR****CASE OPEN**

Case Open Circuits

KB/MS**DUAL BIOS****Gigabyte Technology**

Title			
HW-MONITOR/CI/KB/MS/BIOS			
Size	Document Number	Rev	
Custom	GA-G41M-Combo	1.4	
Date:	Wednesday, January 05, 2011	Sheet	26 of 33

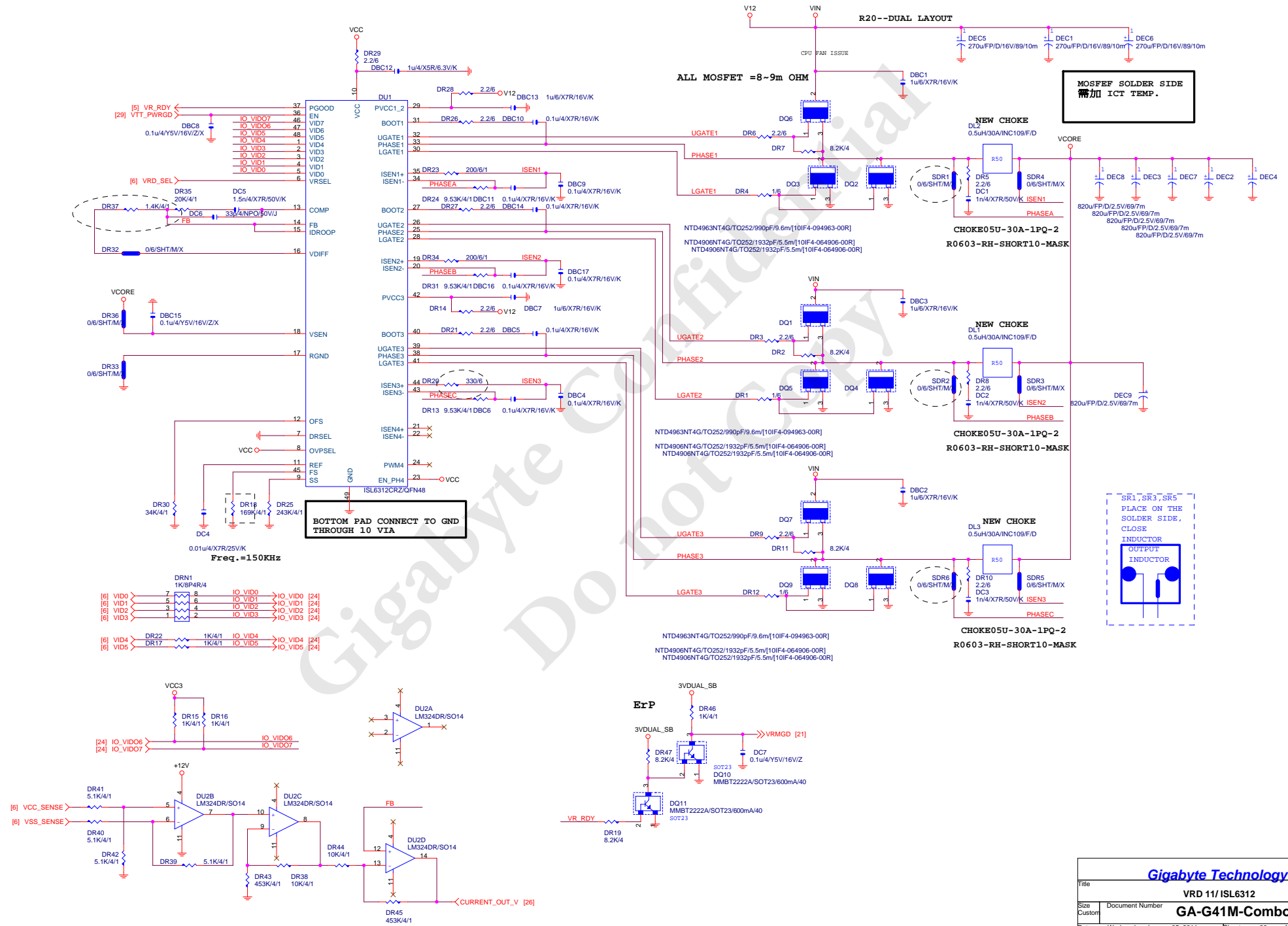
AZALIA CODEC



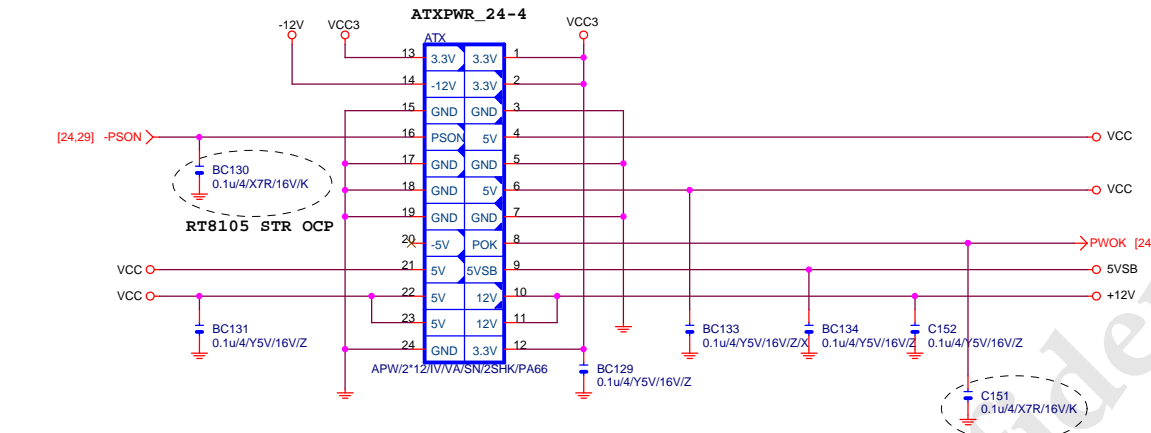
Gigabyte Technology

Title			AZALIA VT1708S	
Size	Document Number	GA-G41M-Combo		Rev
Custom				1.4
Date:	Wednesday, January 05, 2011	Sheet	27	of 33

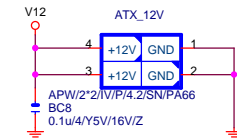
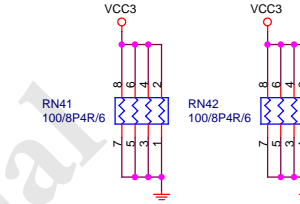
MIC-IN



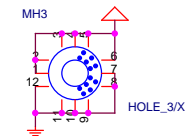
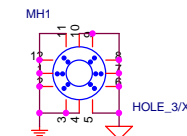
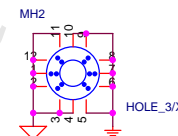
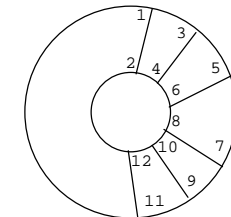
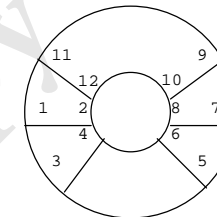
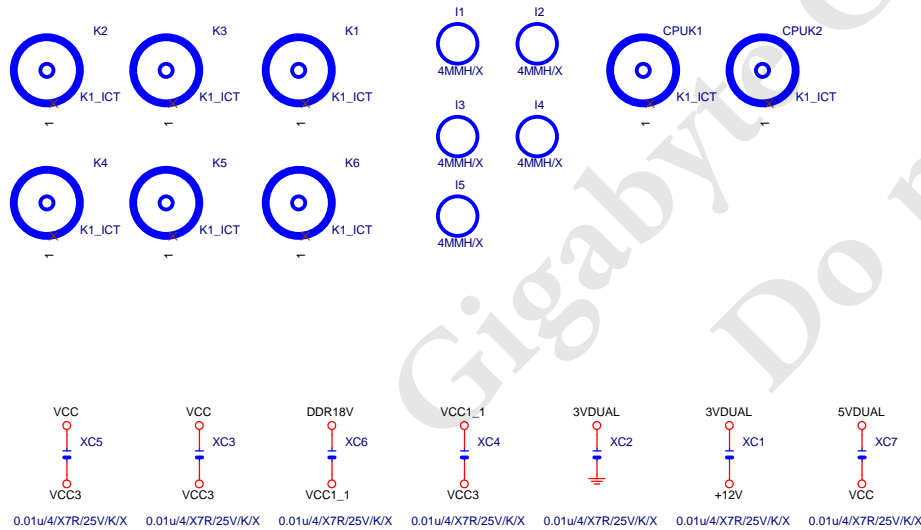
ATX POWER CONNECTOR



FIX PWR AcBel(ATX-400C-A2ADB)

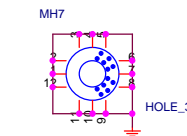
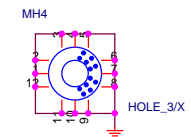
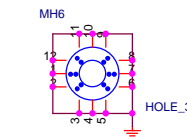
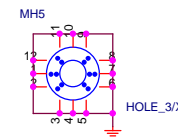


ATX_4-4



HOLE_4-RH-1

HOLE_4-RH-5MM-1

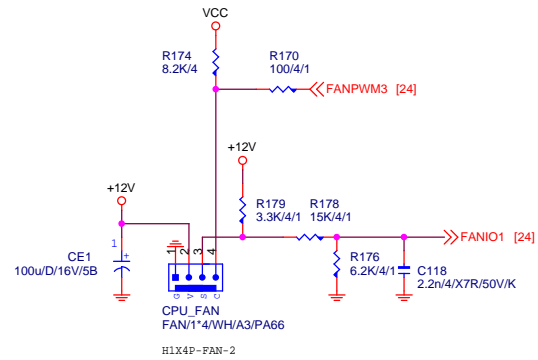


HOLE_4-RH-5MM-1

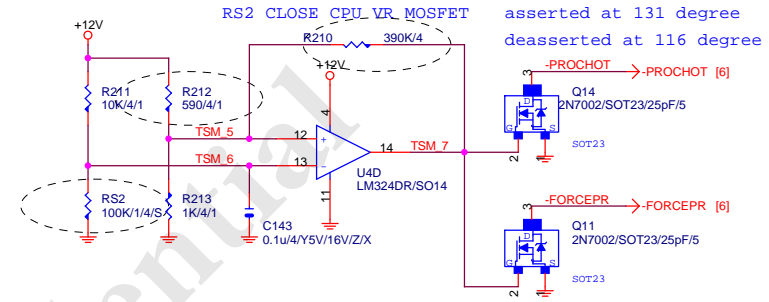
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size B	Document Number	Rev
	GA-G41M-Combo	1.4
Date:	Wednesday, January 05, 2011	Sheet 31 of 33

CPU SMART FAN SMART FAN

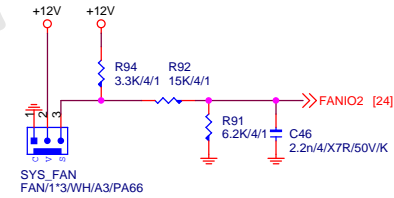
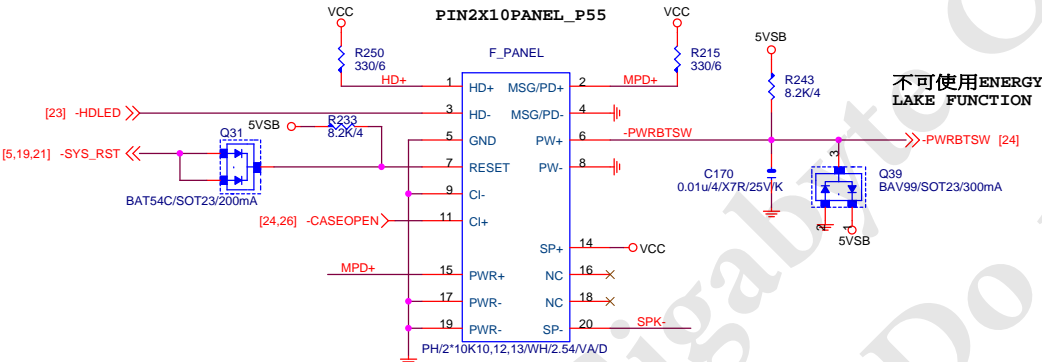


PROCESSOR HOT

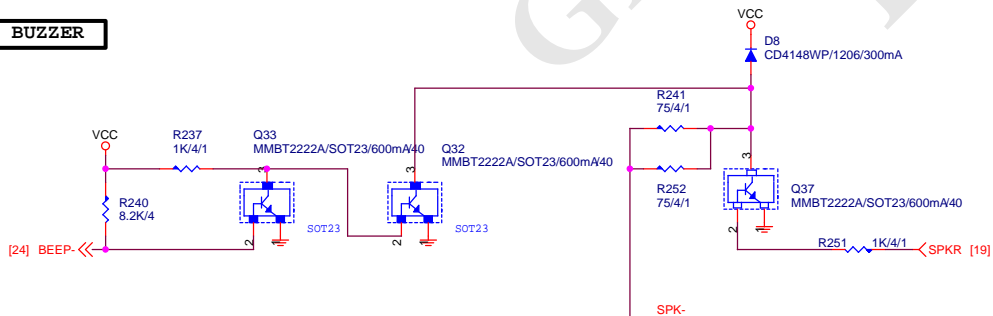


INTEL FRONT PANEL

SYS_FAN



BUZZER



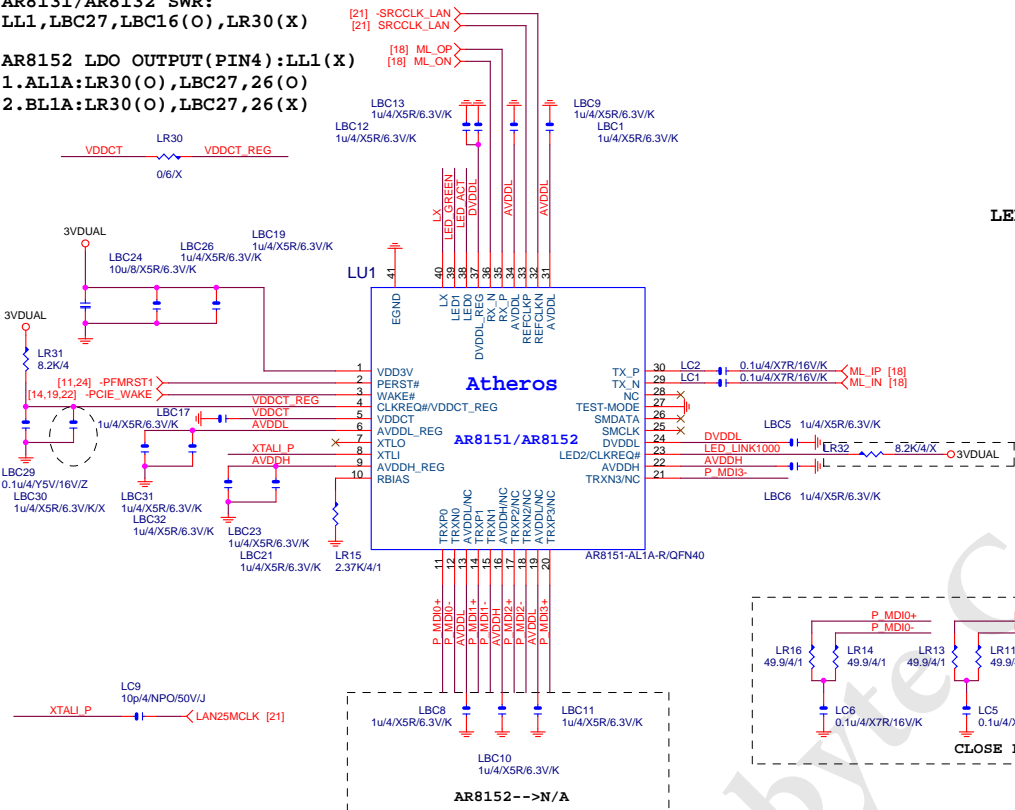
Gigabyte Technology

Title			
FRONT PANEL			
Size	Document Number	Rev	
Custom	GA-G41M-Combo	1.4	
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PCIE-1G LAN

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

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

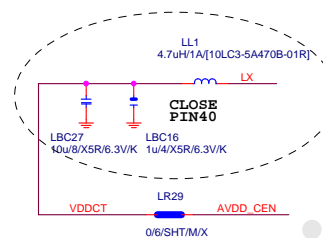


LED0 (ACT) LED1 (LINK) LED2 (LINK1G)

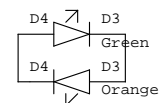
CLKREQ# PULL-UP FOR EFUSE:

- 1.AR8151:LR31(O),LR32(X)
2.AR8152:LR31(X),LR32(O)

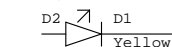
CHOK4U7-500MA-1



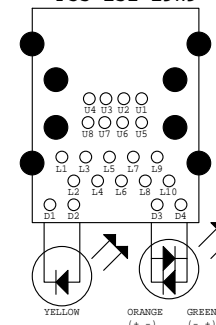
Dual Color LED



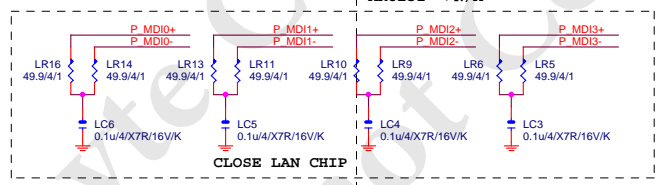
Single Color LED



P35-152-19W9

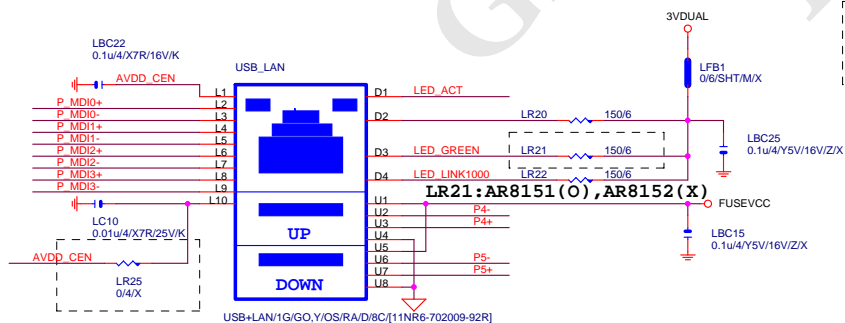


AR8152-->N/A



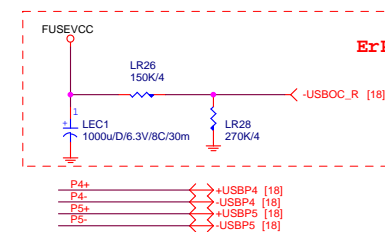
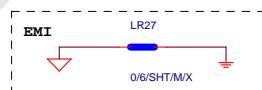
USB_LAN CONNECTOR

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



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

USB_LAN



Gigabyte Technology

ATHEROS AR8151M/AR8152M

Size	Document Number	GA-G41M-Combo
Custom		

1.4