

Model Name:GA-P41T-D3P Revision 1.31

SHEET TITLE

01	COVER SHEET
02	BLOCK DIAGRAM
03	BOM & PCB MODIFY HISTORY
04	P4_LGA775_A
05	P4_LGA775_B,D
06	P4_LGA775_C
07	P4_LGA775_E,F,G,H
08	Eaglelake HOST
09	Eaglelake DDR
10	Eaglelake PCI_EXP_16,DMI
11	Eaglelake VGA
12	Eaglelake GND
13	Eaglelake 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,DUAL BIOS
27	ALC888

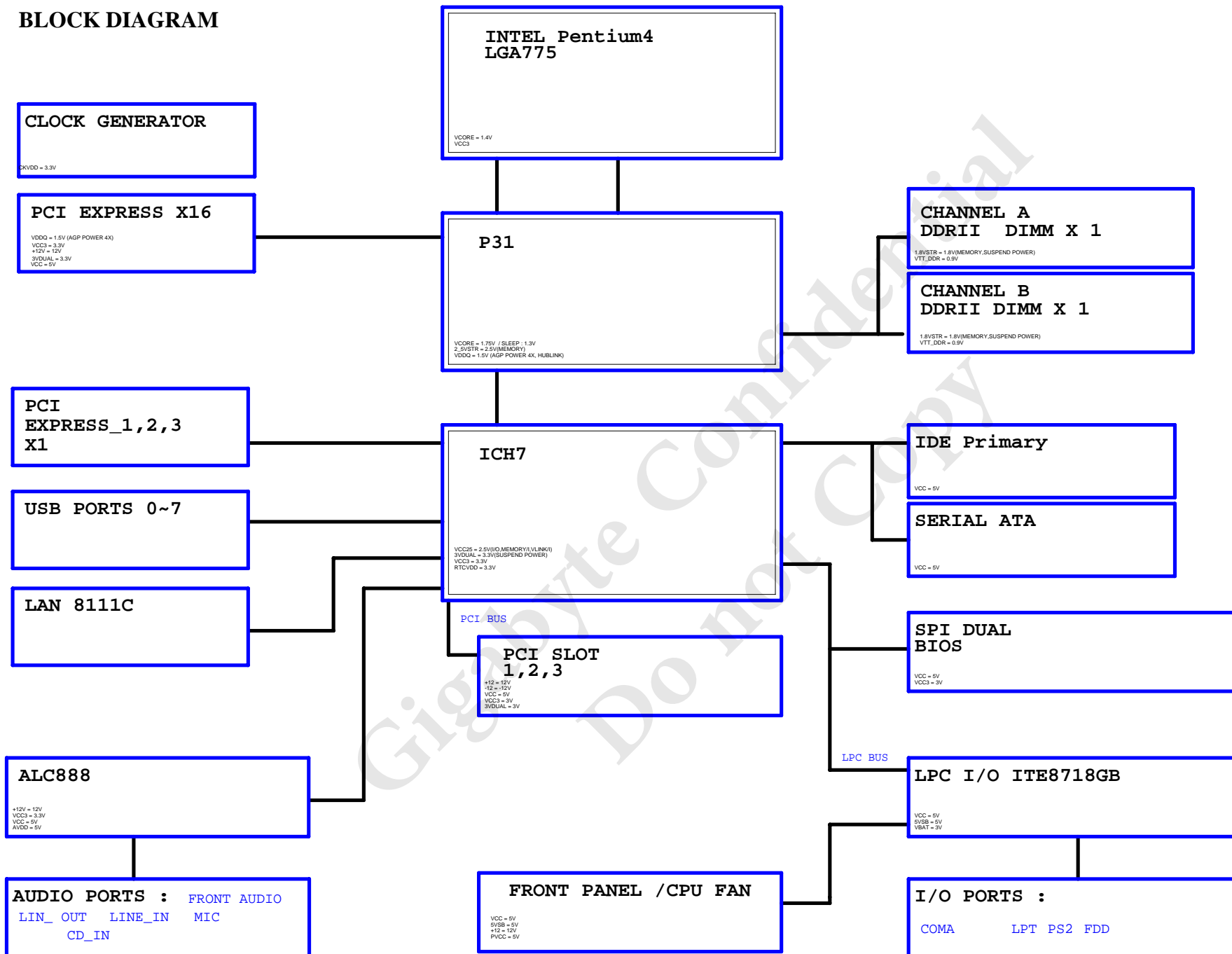
SHEET TITLE

28	REAR AUDIO JACK
29	DISCRETE POWER
30	VCORE PWM_ISL6312
31	ATX, OTHERS POWER
32	FRONT PANEL
33	REALTEK RTL8111D
34	PCI SLOT3,PCIE*2,3

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Title			
Cover Sheet			
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## BLOCK DIAGRAM



**Model Name:GA-P41T-D3**

**Version: 1.31**

## Component value change history

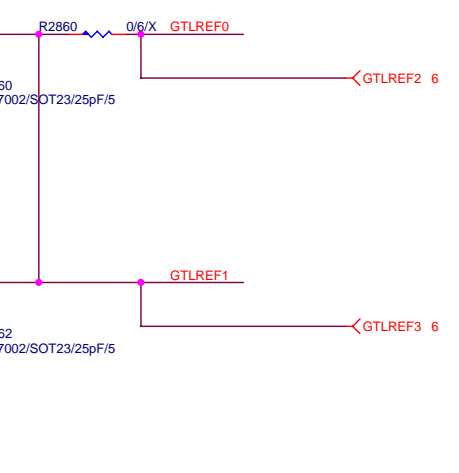
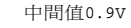
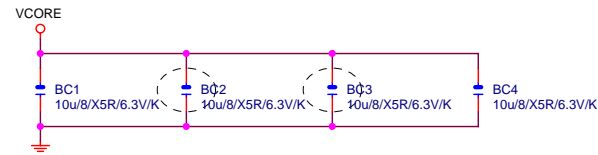
2007/08/02

Data	Change Item	Reason
2007/08/03		EBOM:9MG31MS2L-00-10B
2007/08/22 EBOM:10A	1.G31 CHIP -->P31 CHIP, remove VGA function,	add comb port
	2.ADD 1 PCI SLOT,2 PCIE SLOT	
2007/09/10 PBOM:10A	1.R375 8.2K-->1K ,R1951 1K-->8.2K	
	2.R327 2.67K-->649 ,R325 8.45K-->1M,DR37 1.4K-->1.54K,DR30 330-->365	
	3.R2913 1.18K-->2.21K,R2914 360-->931	
2008/05/14 PBOM:11A	1.ADD DES LITE ,FERRITE CHOKE	
	2.B0 CHIP , SMD POLY FUSE	
2008/06/26 EBOM:20B	1.20A BOM為 PCB2.0使用,故以20B FOR PCB:2.01	
	2.修改為RTM587 CLOCK GEN,RTL8111C,ALC883,DUAL BIOS,FORNT USB ADD PROTECT DIODE	
2008/07/21 PBOM:10A	1.ALC883--->888; DR30 316-->365 ;BC747 0.1U\X5V-->X7R;IDE red--->green	
	2.ADD C1908 10PF / R1896 1K-->330 ohm add c1908 22pf ,22ohm-->0ohm for bios CS0 glitch issue	
	3.DEL R2935, ADD R2936 FOR MAIN POWER BIOS--recharad 說的	
2008/07/31 PBOM:10B	1.DQ13 2N7002--->MMBT2222A FOR CPU FSB LATCH	ERROR ISSUE
2008/08/21 PBOM:10C	1.CLOCK GEN POWER CAP 0.1U/Y5V---->0.1U/X7R	FOR CPU INFORMATION FAIL ISSUE
	2.ADD PCB CR ,CL	
P41T-ES3G-10A	1. SC1~SC8轉背板	
P41T-ES3G-13A	2. F4,F5 10FP1-06160B-CLR -> 10FP1-06350B-10R	
P41T-D3-14A	1. 電解改固態電容	
	2. ALC892R	
0929-14B	1. ALC892R --> ALC892	
P41T-D3P-13A	1. 3 PHASE TO252 -->4 PHASE POWER-PACK	
	2. ALC892 --> ALC889	
13B	3. MOSFET --> NEC+ON	
	5. Add USB_LAN "11NR6-702009-92R_93R"	
13C	1. DR80 200/6/1 --> 200/4/1	
13D	1. RTL8111E-VB --> RTL8111E-VL	
13E	1. aALC889 line-in CBC10,CBC11 10u --> 22u	

Circuit or PCB layout change  
for next version

[illegible]

<b><i>Gigabyte Technology</i></b>			
<b>BOM &amp; PCB MODIFY HISTORY</b>			
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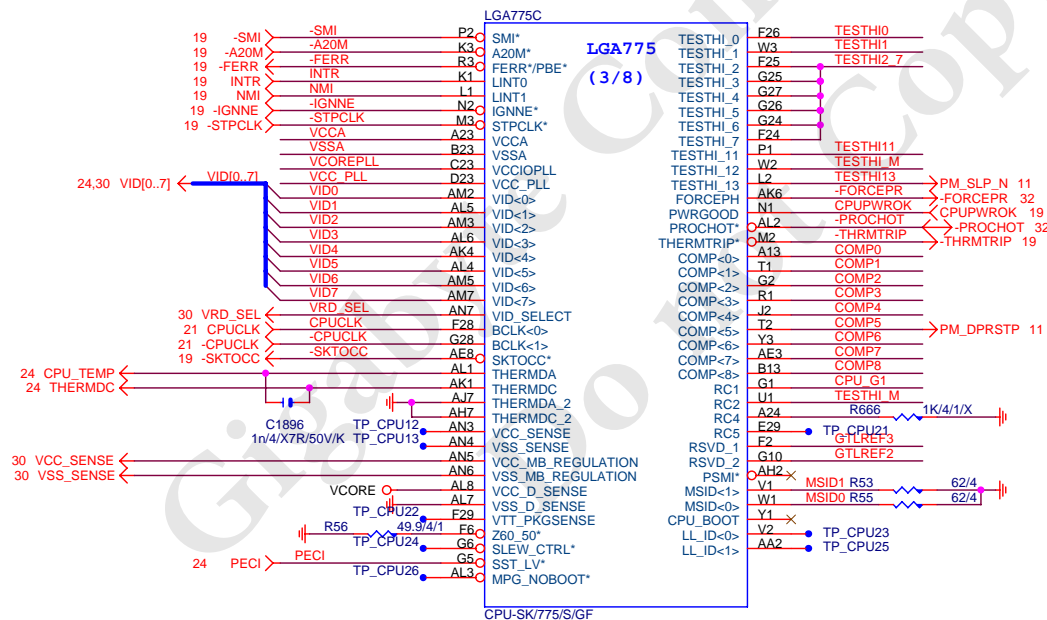
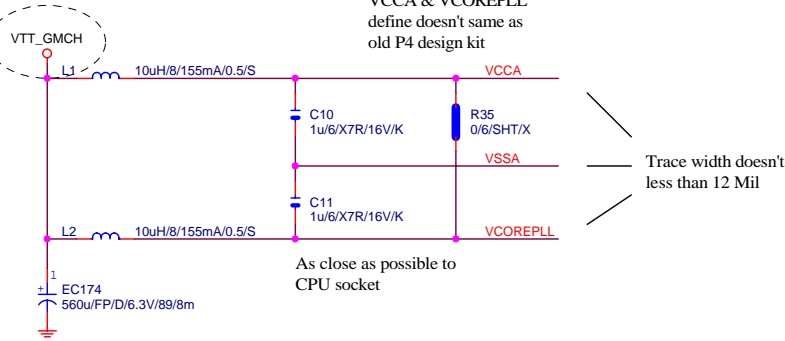
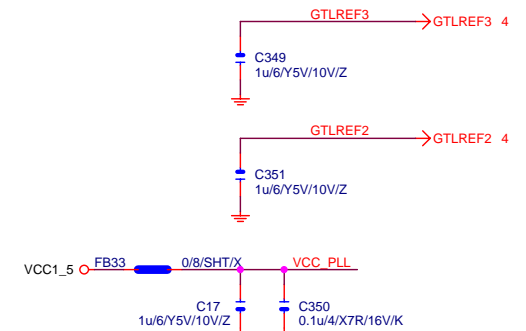
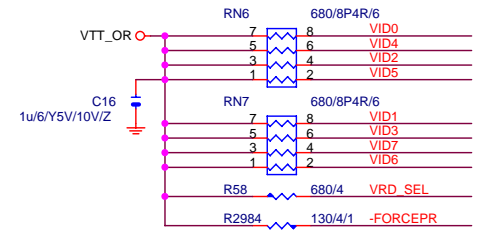
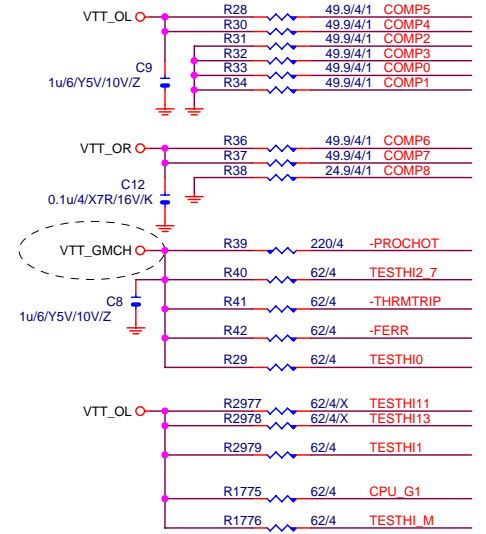


<b><i>Gigabyte Technology</i></b>				
Title				
<b>P4_LGA775-A</b>				
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**Note:**

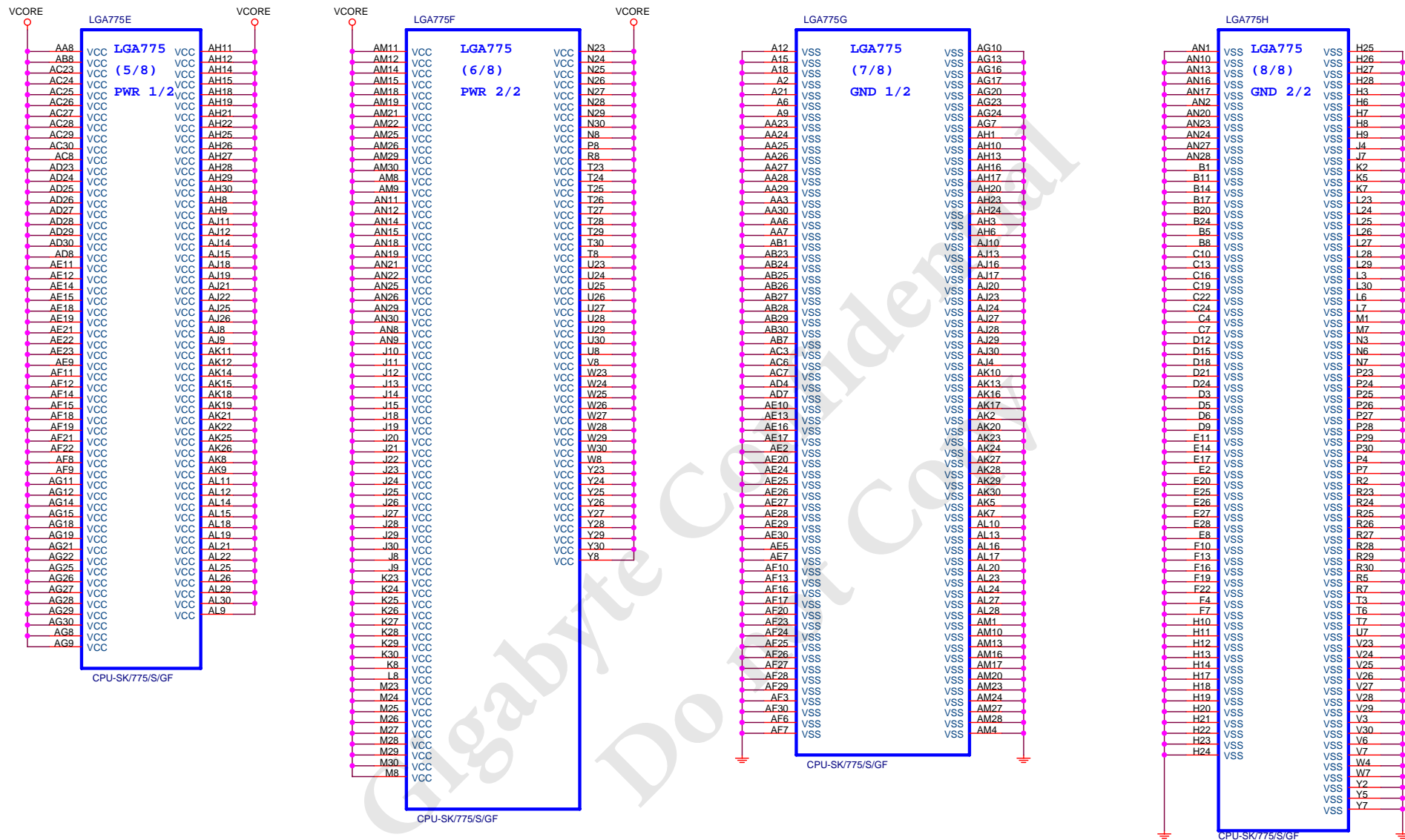
VCCA & VCOREPLL  
define doesn't same as  
old P4 design kit

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

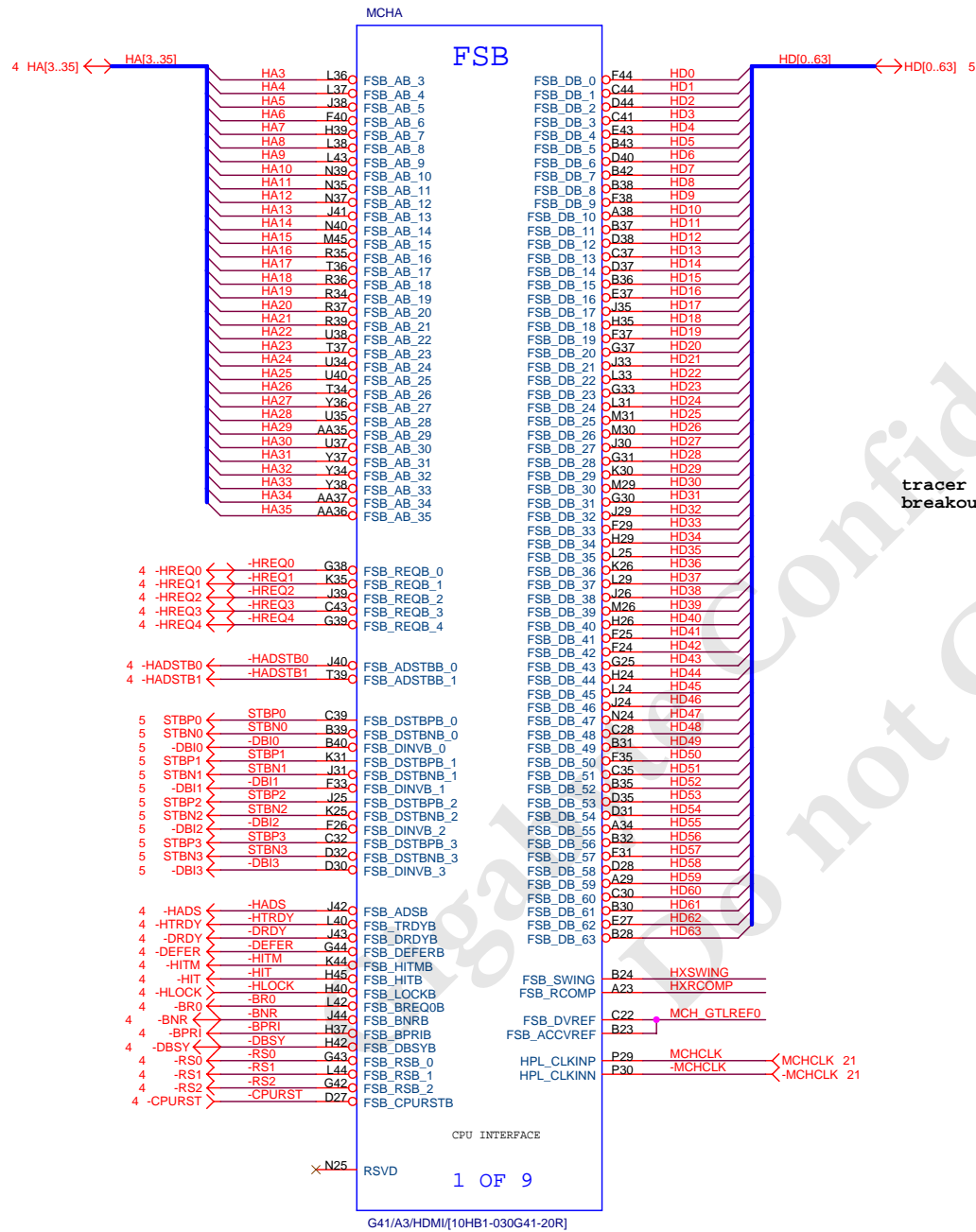
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Size	Document Number	GA-P41T-D3P		Rev
B				1.31

PECI:Platform Environment Control Interface

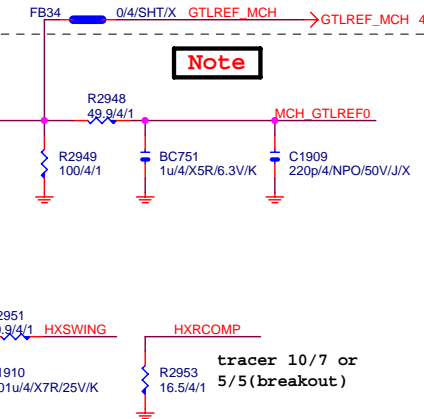
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Title			P4_LGA775-E,F,G,H	
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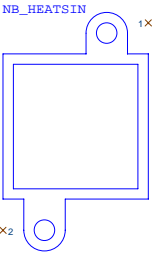
Not used for CoreTM2 Duo and Wolfdale



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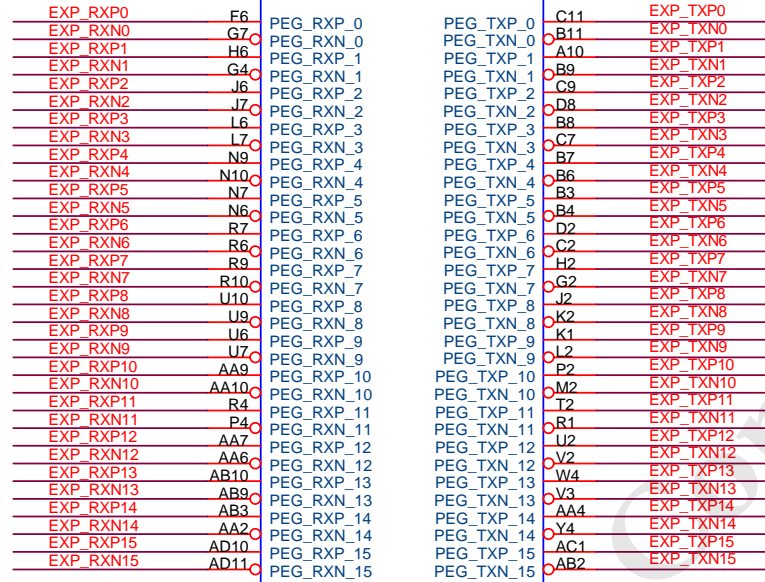
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Size	Document Number	GA-P41T-D3P	
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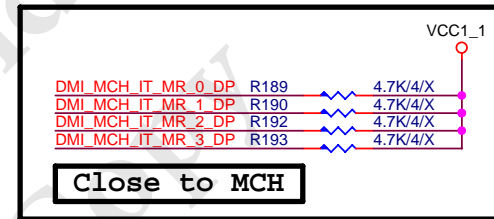
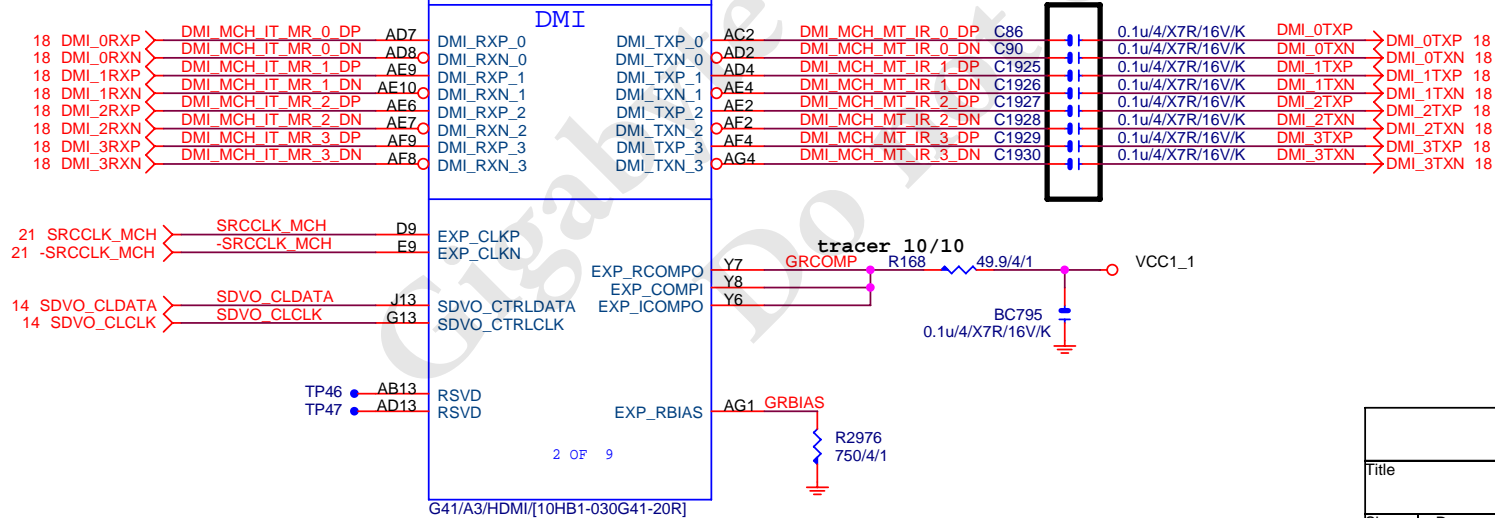


PCIE16:16/5/5/5/16(breakout min 8/4/5/4/8)

Impedance=85 +/- 17.5%



EXP\_TXP[0..15] >> EXP\_TXP[0..15] 14  
 EXP\_TXN[0..15] >> EXP\_TXN[0..15] 14  
 EXP\_RXP[0..15] >> EXP\_RXP[0..15] 14  
 EXP\_RXN[0..15] >> EXP\_RXN[0..15] 14

DMI:12/4/8/4/12  
Impedance=95 +/- 17.5%

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GMCH-PCI E & DMI			
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EXP\_SM

0:SDVO OR PCIE

1:BOTH SDVO AND

PCIE

EXP\_SLR:

0:BTX PCIE are reversed

1:ATX PCIE normal

MCHE

4/10//15&lt;500 MILS

VGA

MISC

5 OF 9

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

1th RGB:7.5/6 &lt; 300 MILS

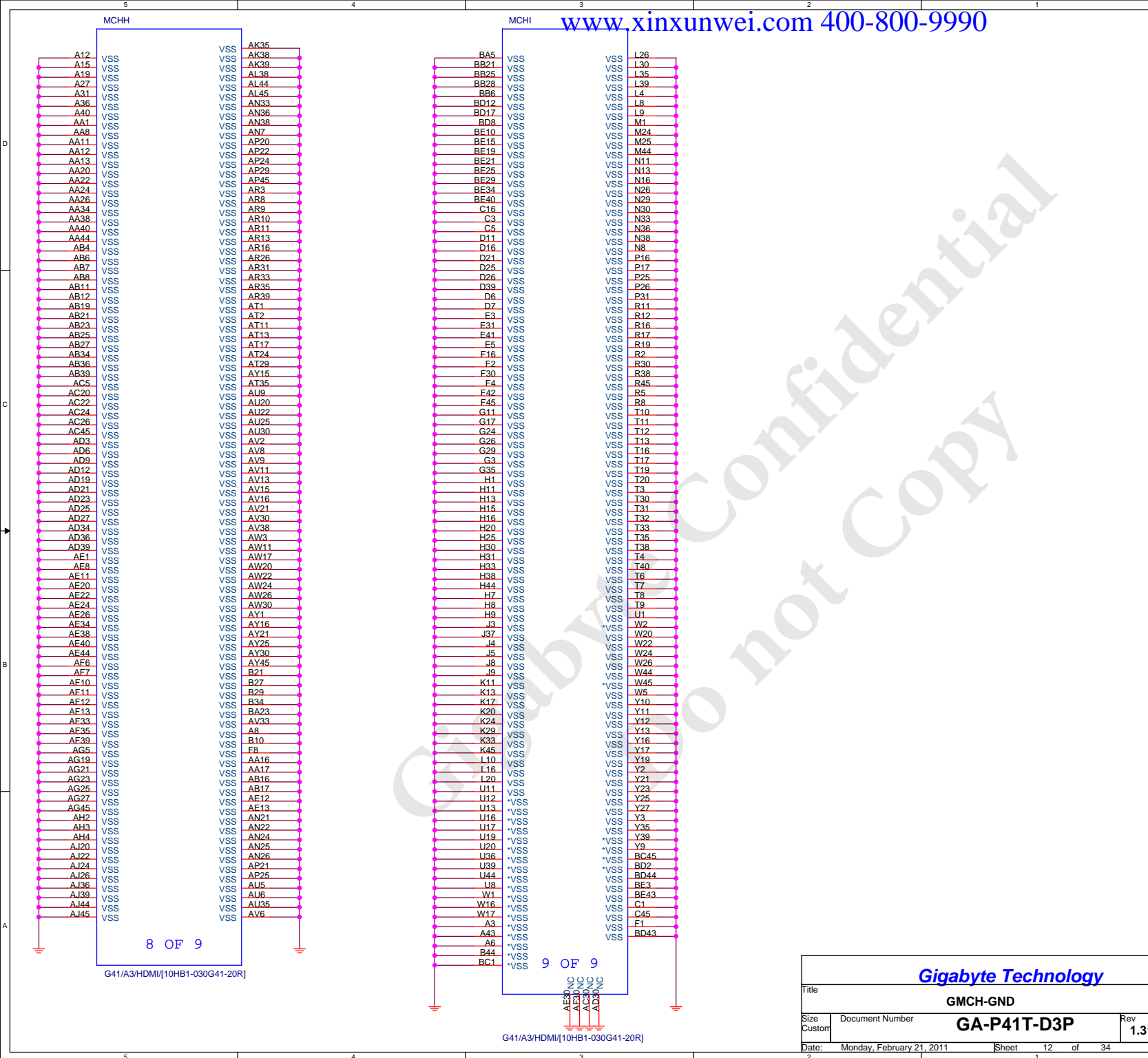
2th RGB:4/20 &lt;5"~8" inch

ON-BOARD VGA 75ohm  
non-ON-BOARD VGA 0ohmON-BOARD VGA 1.02k  
non-ON-BOARD VGA 0ohmBW+ICH8 不要上(SAMPLE)  
BW+ICH7 要上

G41CHIP 都要上

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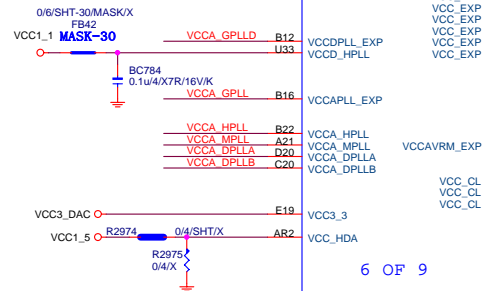
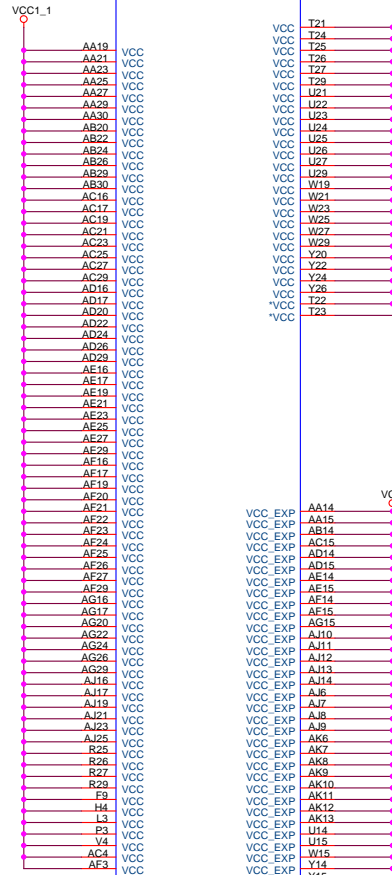
Title		
GMCH-INTERNAL VGA		
Size	Document Number	Rev
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Title			GMCH-GND
Size	Document Number	GA-P41T-D3P	
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## POWER

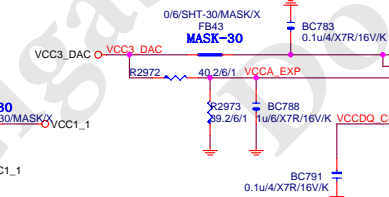
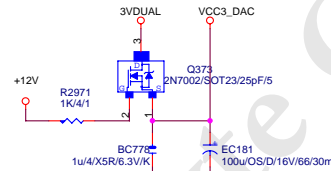


6 OF 9

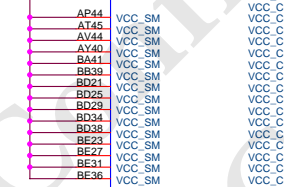
G41/A3/HDMI[10HB1-030G41-20R]

CLOSE北橋 (注意震盪水波紋)

VCC3\_DAC



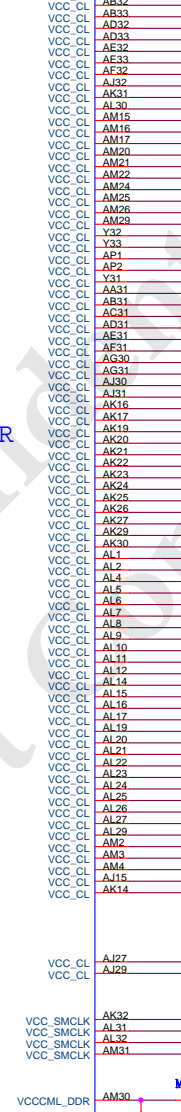
## POWER



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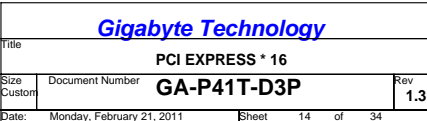
G41/A3/HDMI[10HB1-030G41-20R]

VCC\_CL=-3A

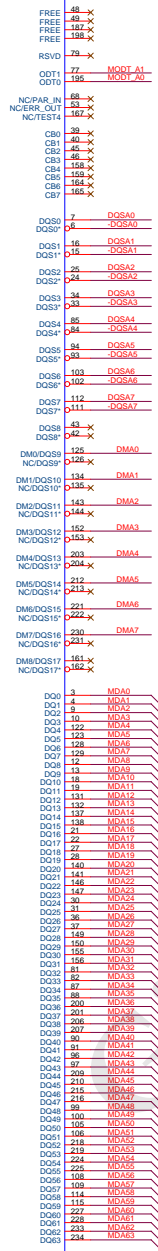


請考慮是否將短路移除

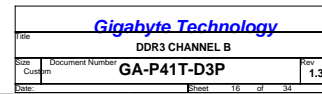
Gigabyte Technology		
GMCH-PWR		
Size	Document Number	Rev
Custom	GA-P41T-D3P	1.31
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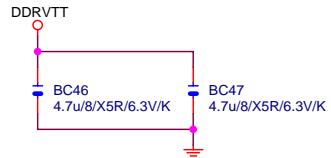
Gigabyte Technology			
Title DDR3 CHANNEL A			
Size Custom	Document Number GA-P41T-D3P		Rev 1.3
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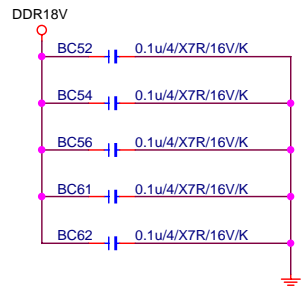


## DDR TERMINATION CHANNEL A

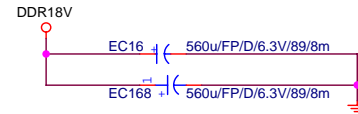
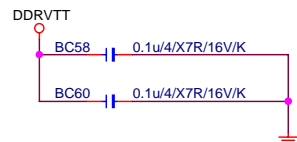
### DDRVTT Decouple



### DDR18V Decouple

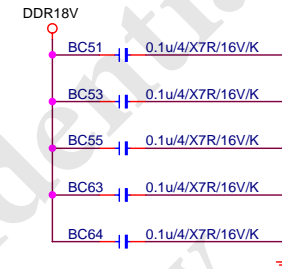


### DDRVTT Decouple

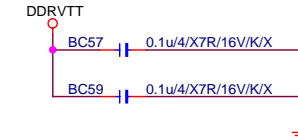


## DDR TERMINATION CHANNEL B

### DDR18V Decouple



### DDRVTT Decouple



**Gigabyte Technology**

Title			DDRII TERMINATOR
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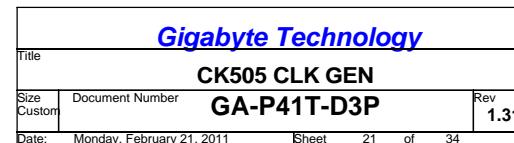


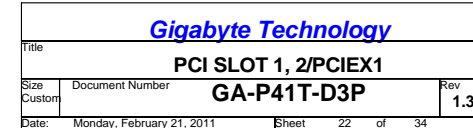
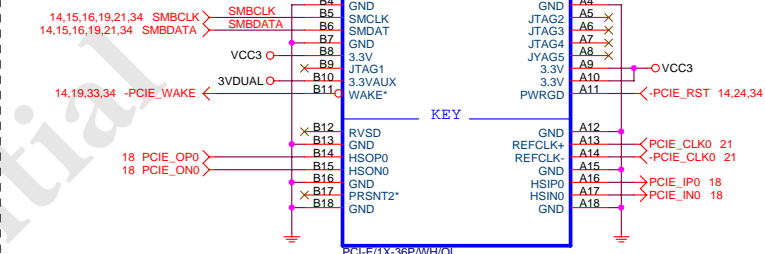


## ICH7-PWR & GND

Size B	Document Number <b>GA-P41T-D3P</b>	Rev <b>1.31</b>
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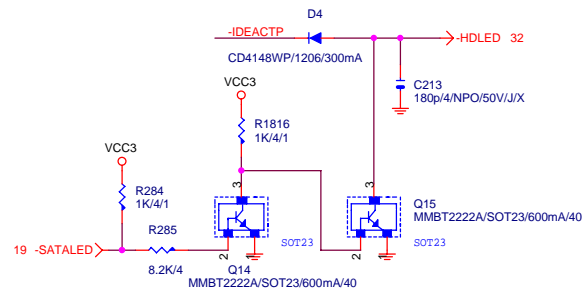
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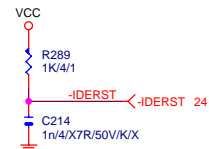




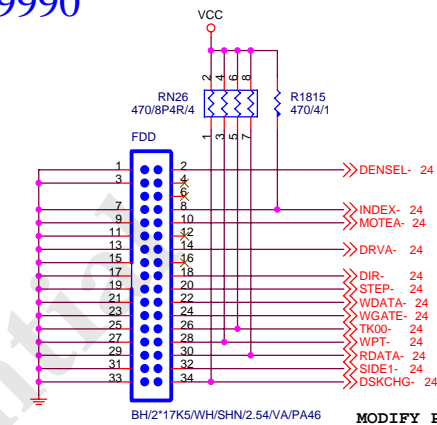
## IDE/SATA LED



## IDE RESET

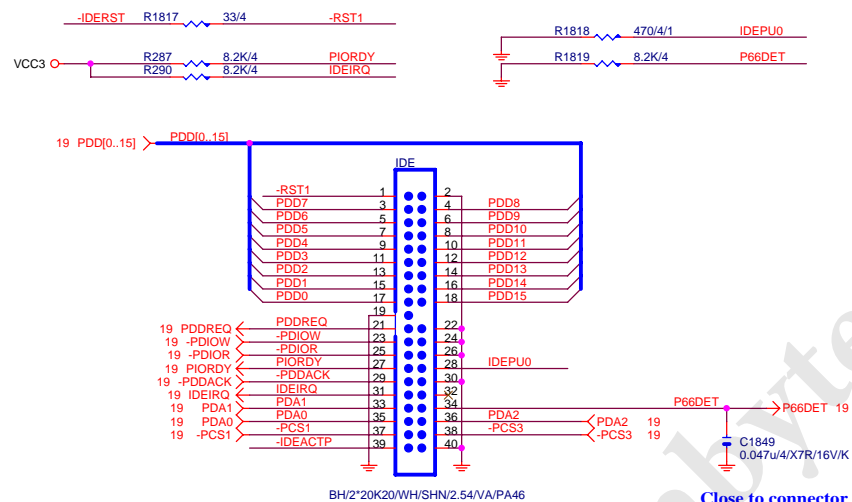


## FLOPPY

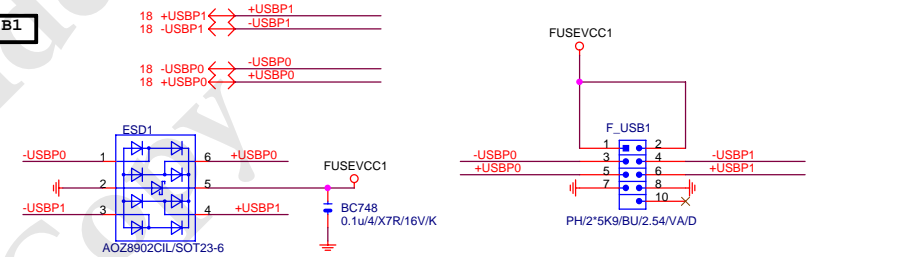


MODIFY PIN HEADER

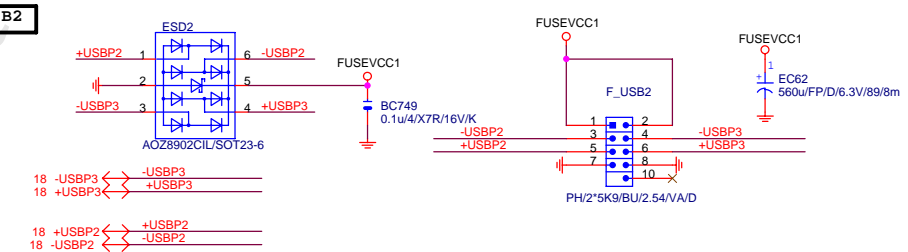
## IDE



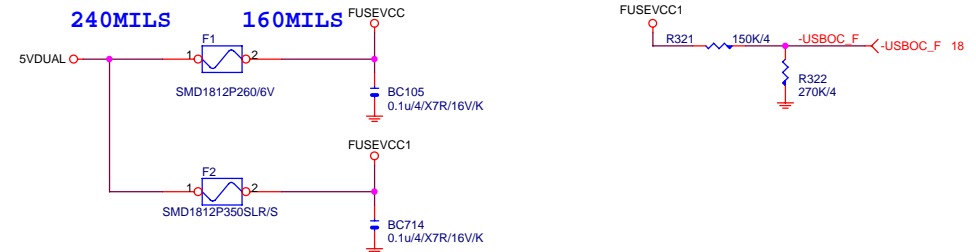
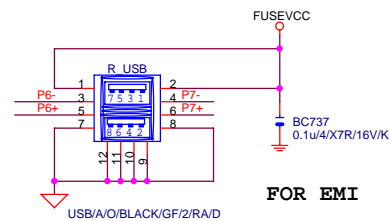
## FRONT USB1



## FRONT USB2



18 -USBP7 <- -USBP7 P7-  
18 +USBP7 <- +USBP7 P7+  
18 -USBP6 <- -USBP6 P6-  
18 +USBP6 <- +USBP6 P6+



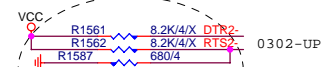
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Title		
IDE,FDD,F_USB		
GA-P41T-D3P		
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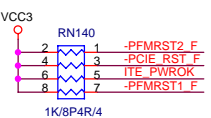
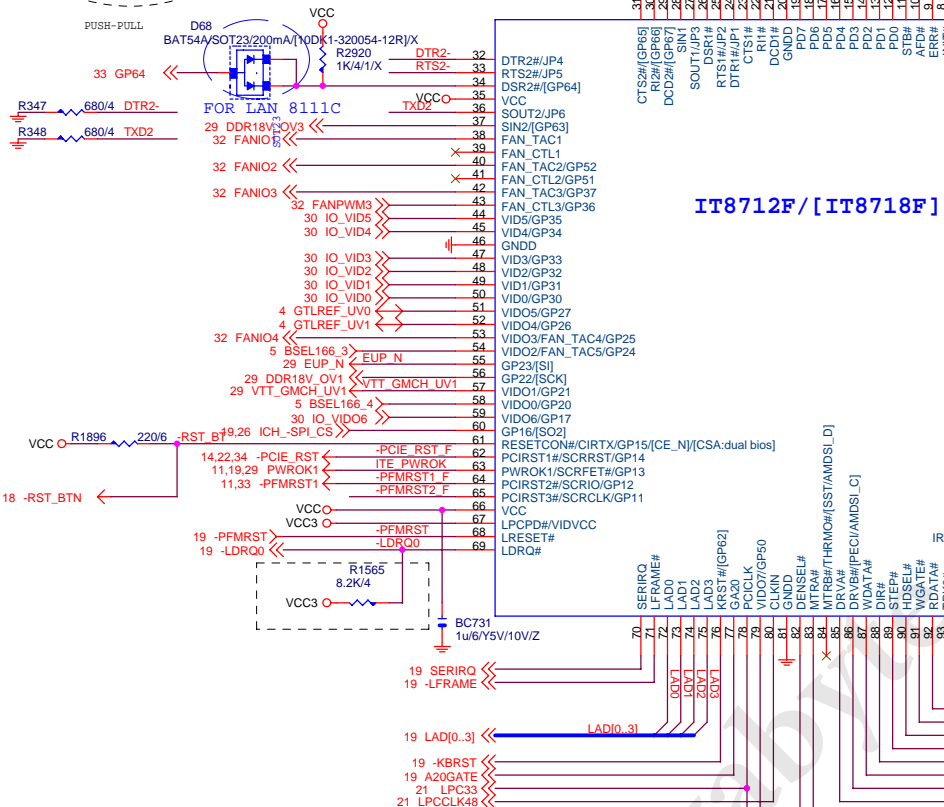
RTS2- ==LOW CPU FAN 50%

==HIGH 100%

DEFAULT 50%

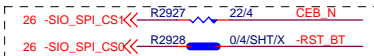


SOUT2	1	VID pins threshold voltage select: Vih / Vil : 2.0 / 0.8V
	0	VID pins threshold voltage select: Vih / Vil : 0.8 / 0.4V



Pop to disable Dual BIOS

-SIO\_SPL\_CS0 R2926 0/4/X ICH-SPL\_CS



Dual BIOS:

GB logo :Pin 61 (GP15/CSA)

GB logo :Pin 59 (GP17/CSB)

Pin 59 Dual BIOS ,Power On Strapping:

H ==&gt;Dual BIOS function Enable

L ==&gt;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

PDIO\_71

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

U15

BUSY 5  
PE 4  
SLCT 3  
VCC(AVCC) 2  
VIN0 1  
VIN1 128  
VIN2 127  
VIN3/ATXPG 126  
VIN4 124  
VINE/VID7 123  
VINE/VID6 122  
VIN7/PCIRST# 121  
VREF 120  
TMPIN1 119  
TMPIN2 118  
TMPIN3(SO1) 117  
GND 116  
RSMRST/CIRRX/GP55 115  
PCIRST4#/SCRRES#/GP10 114  
MCLK(GP56) 113  
MDAT(GP57) 112  
KCLK(GP60) 111  
KDAT(GP61) 110  
3VSSBW/GP40 109  
PWROK2/GP41 108  
RING#/GP3/SUSC# 107  
PSON#/GP42 106  
PANSWH#/GP43 105  
GND 104  
PME#/GP54 103  
PWROK/GP44 102  
PSIN/GP45/SUSB# 101  
IRRX/GP46 100  
VBAT 99  
COPEN# 98  
VCC 97  
VCPEN# 96

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

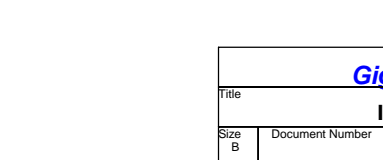
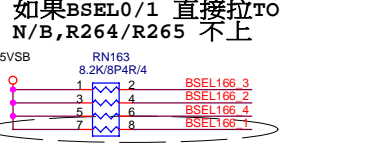
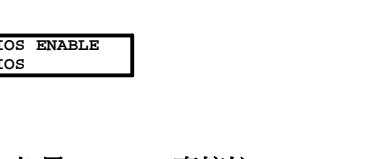
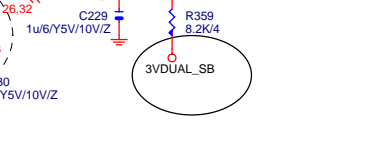
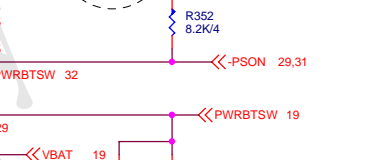
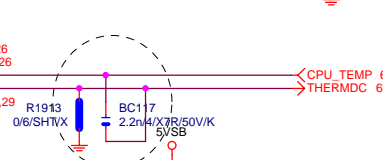
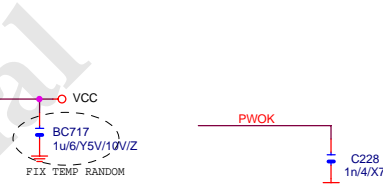
STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

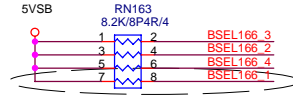
STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25

STB- 25  
AFD- 25  
ERR- 25  
INIT- 25  
SLIN- 25  
ACK- 25



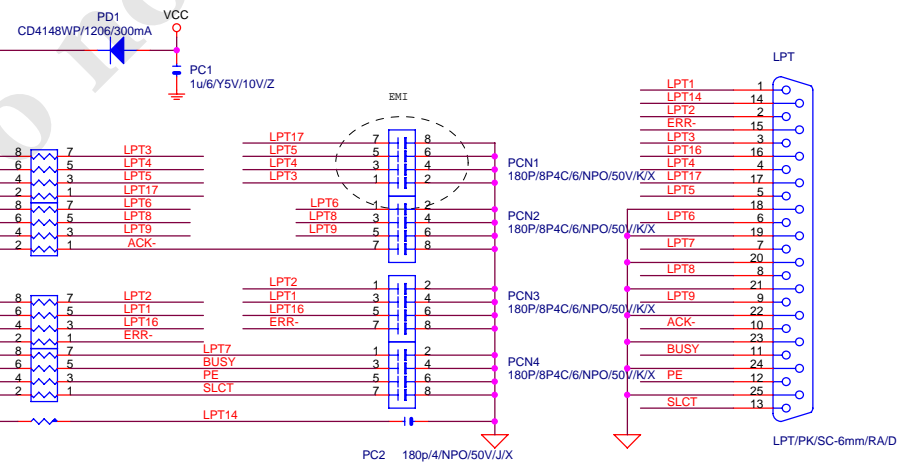
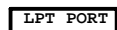
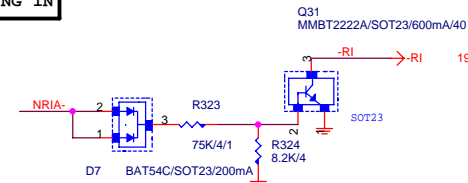
如果BSEL0/1 直接拉到  
N/B,R264/R265 不上



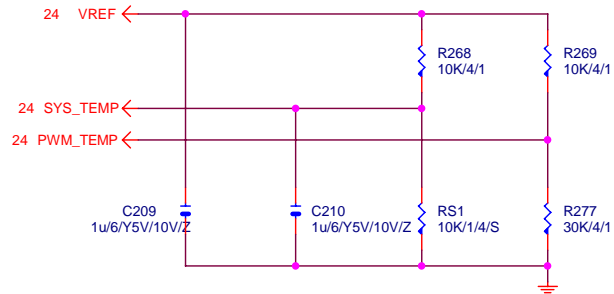
Gigabyte Technology

Title			ITE 8718 LPC IO
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Date:	Monday, February 21, 2011	Sheet	24 of 34

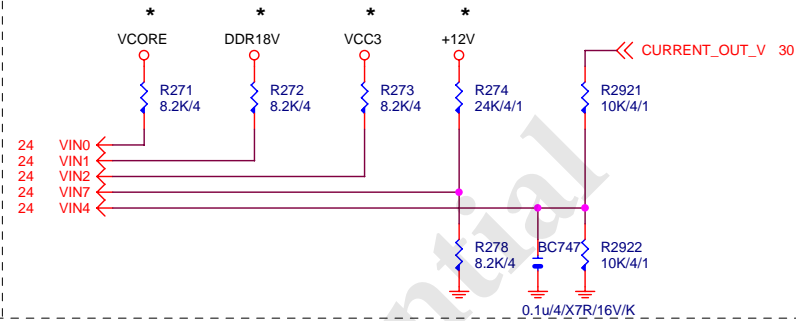




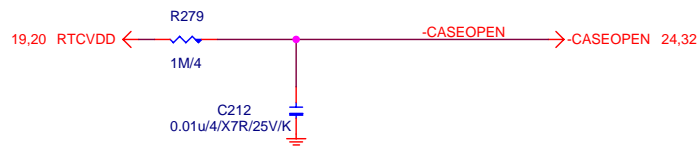
## TEMP H/W MONITOR



## VOLTAGE-- H/W MONITOR

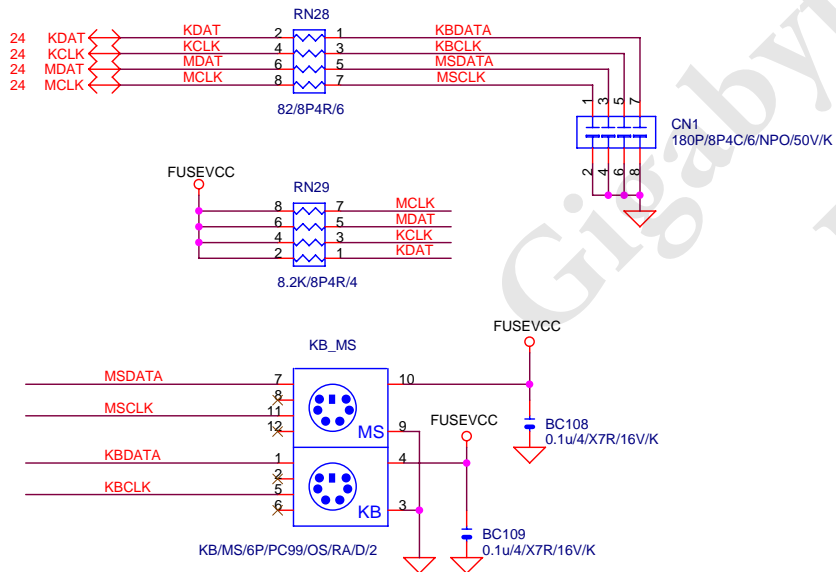


## CASE OPEN

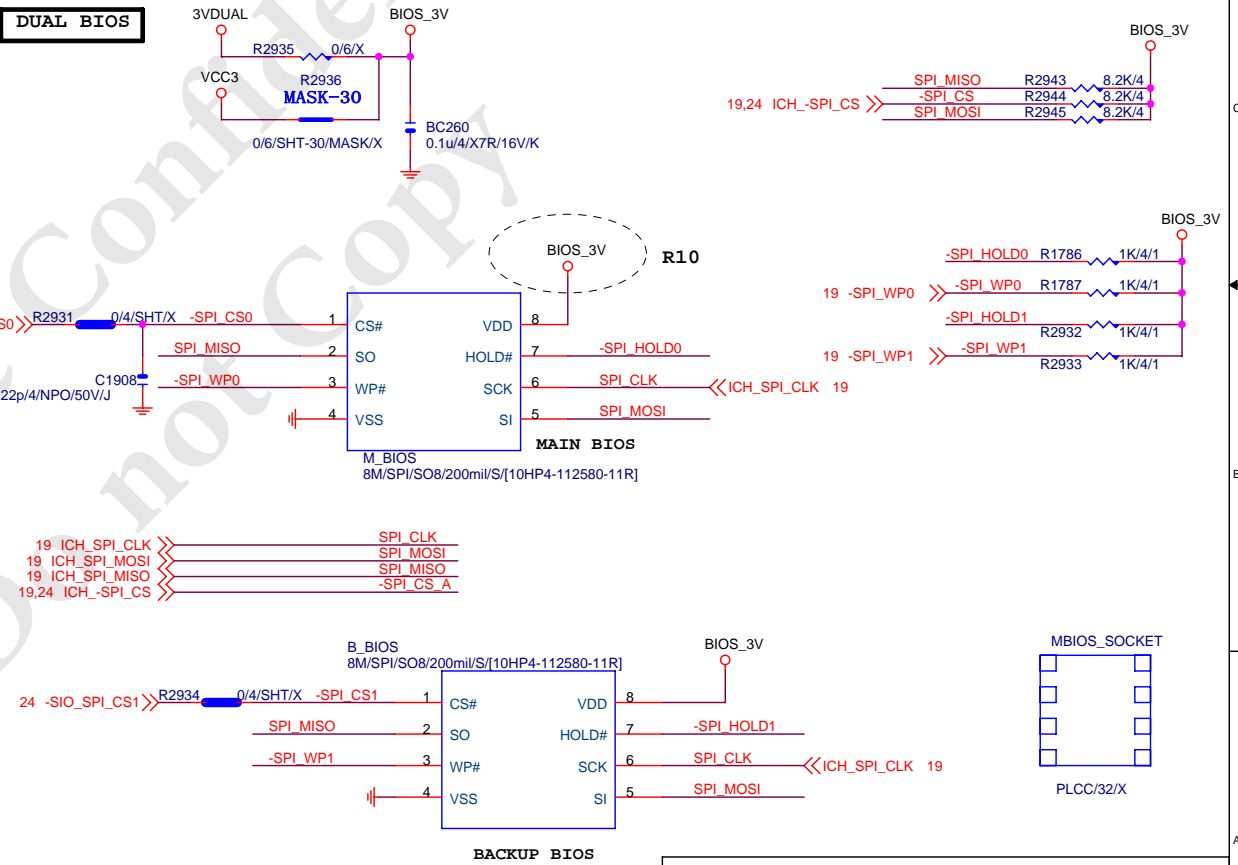


## Case Open Circuits

## KB/MS



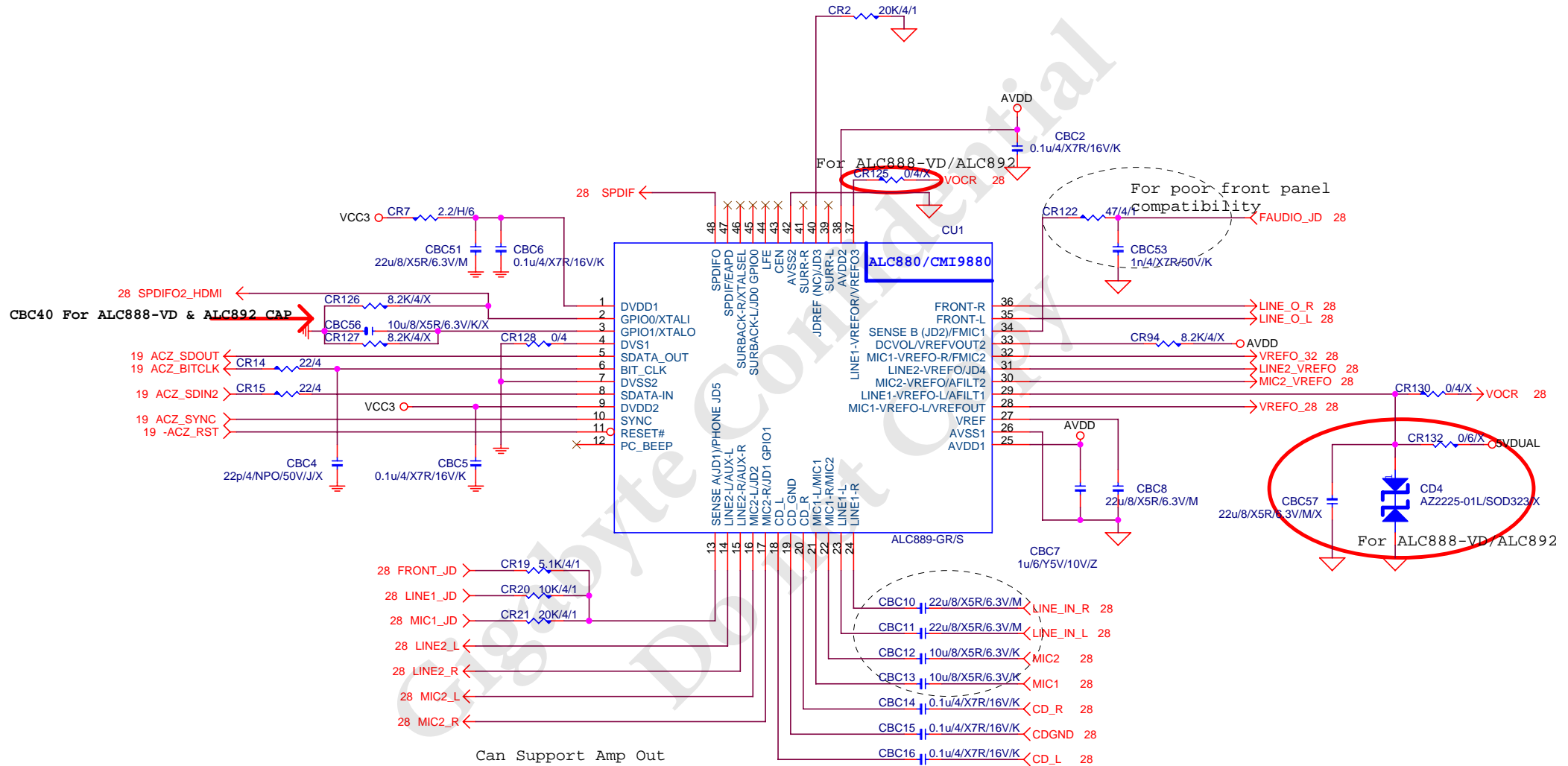
## DUAL BIOS



Gigabyte Technology

Title			HW-MONITOR/CI/KB/MS/BIOS
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## AZALIA CODEC

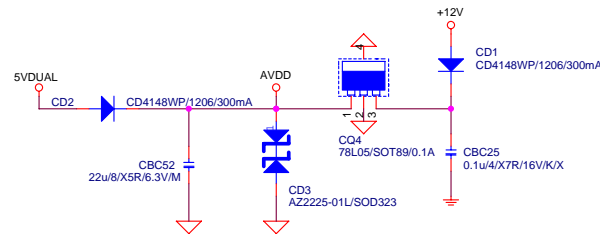


Can Support Amp Out

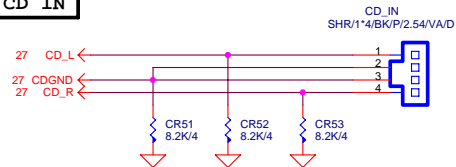
Gigabyte Technology

Title			AZALIA ALC888	
Size	Document Number	GA-P41T-D3P		Rev
Custom				1.31
Date:	Monday, February 21, 2011	Sheet	27	of 34

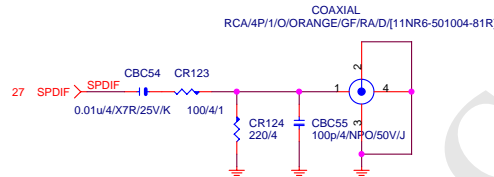
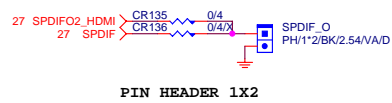
# CODEC POWER/EMI PAD



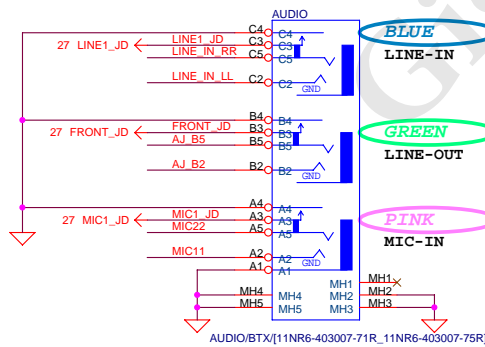
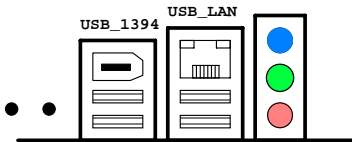
# CD IN



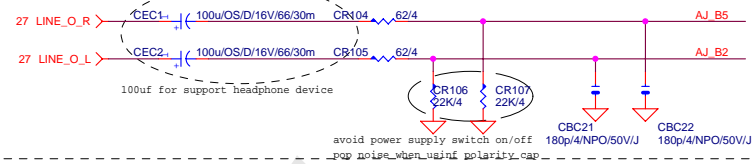
# SPDIF



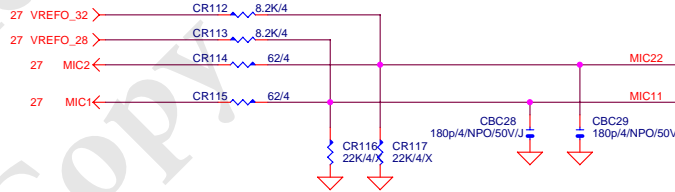
# AZALIA JACK



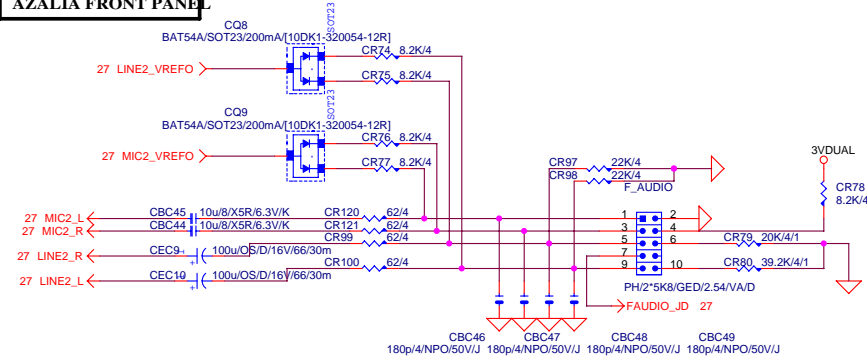
# LINE-IN



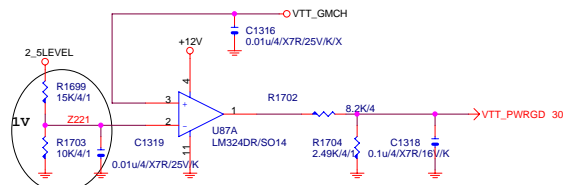
# MIC-IN



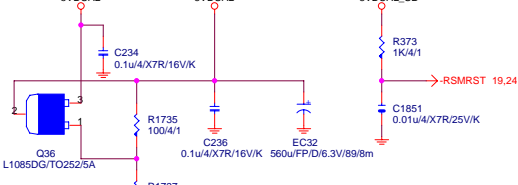
# AZALIA FRONT PANEL



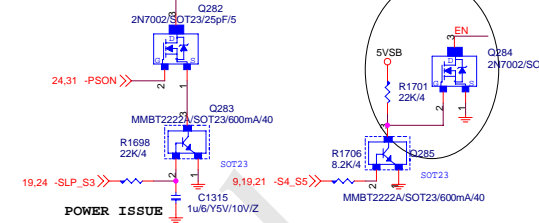
## VTT\_PWRGD



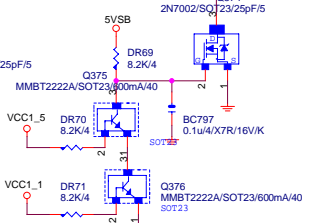
## 3VDUAL



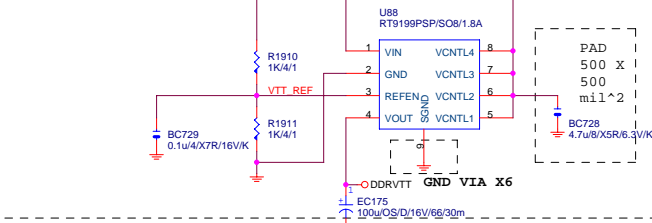
## VTT\_LEVEL



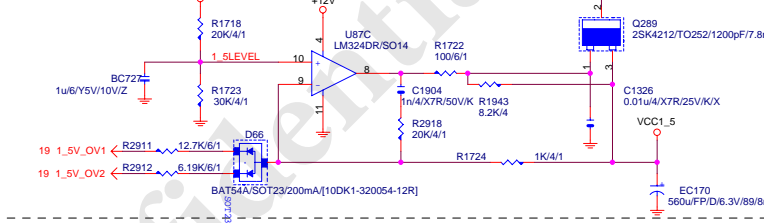
## FOR NON-CPU CAN SHUT-DOWN



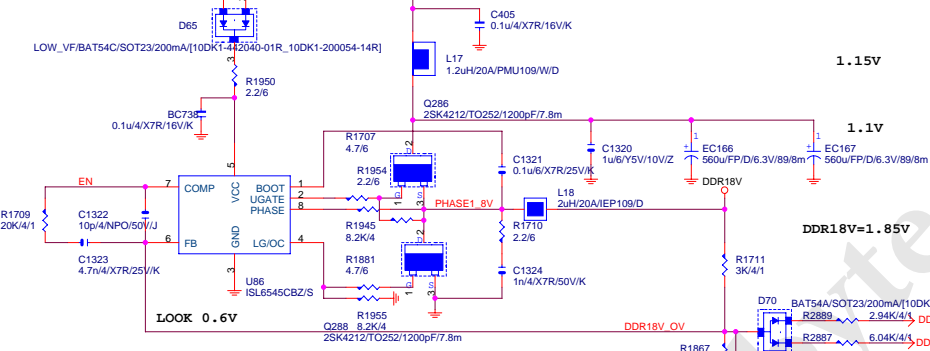
## DDR\_VTT



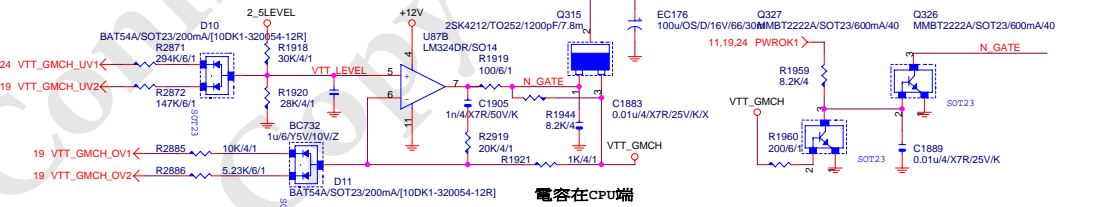
## VCC1\_5



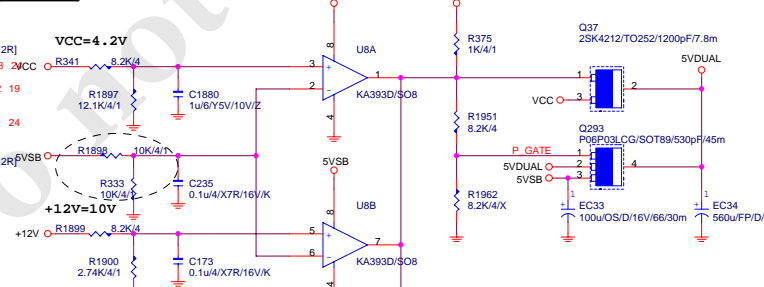
## DDR18V



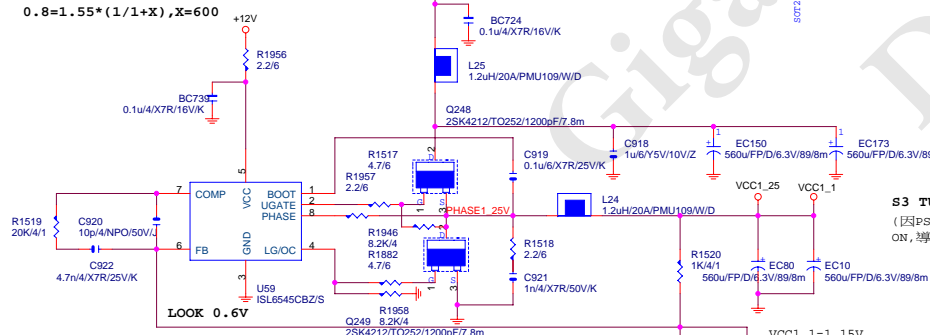
## VTT\_GMCH



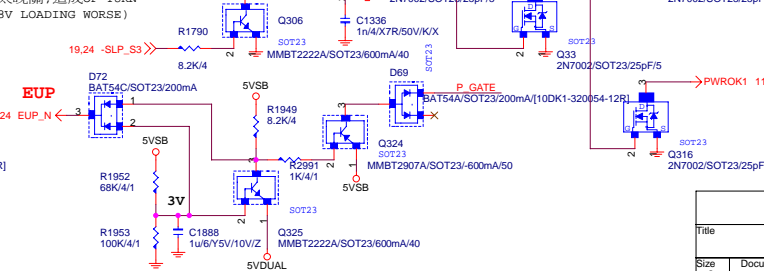
## 5VDUAL



## VCC1\_25

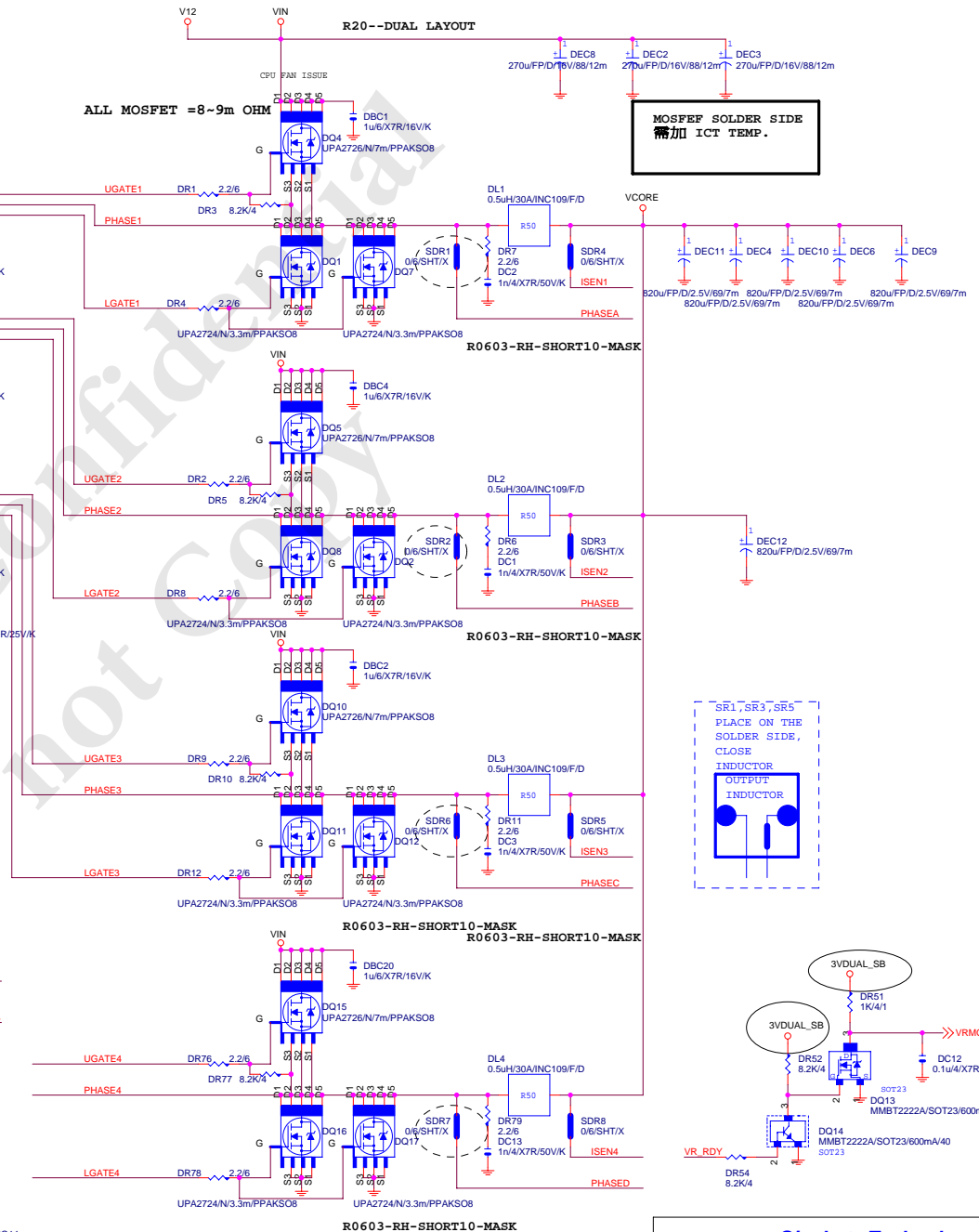
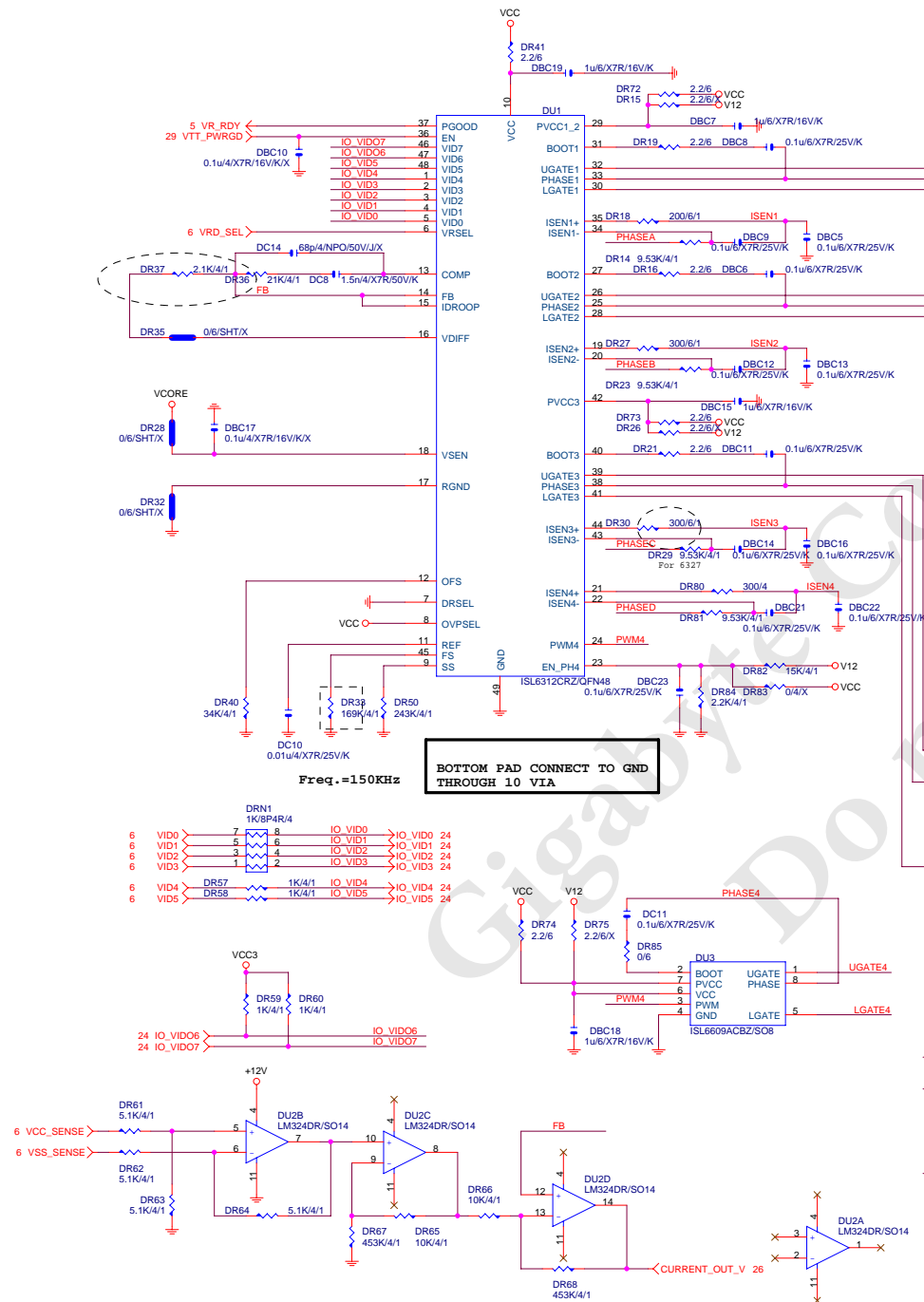


S3 TURN OFF 2\_5LEVEL, 避免DDR18V DROP  
(因PSU +12V太晚關,造成OP TURN ON,導致DDR18V LOADING WORSE)

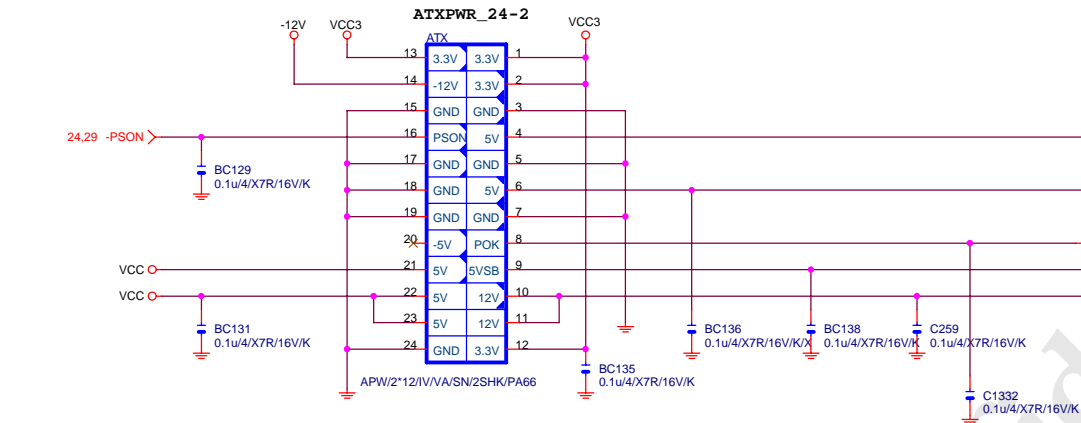


OCF :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$   
 $I_{ocset} = 21.5\mu A$ ,  $R_{ocset} = 8.2k$   
 OCF :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$   
 $= (2 \times 21.5\mu A \times 8.2k) / 7.5m$   
 $= 47A$

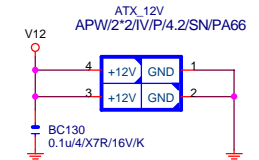
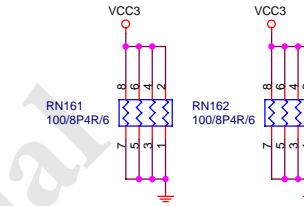
注意 : Rocset的阻值要依據Lo side Rds(on)改變  
 一般Ipeak設定在50~60A即可



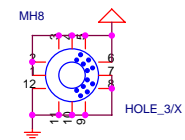
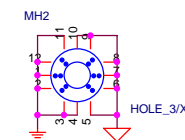
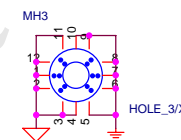
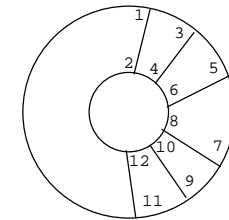
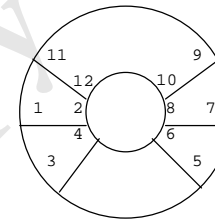
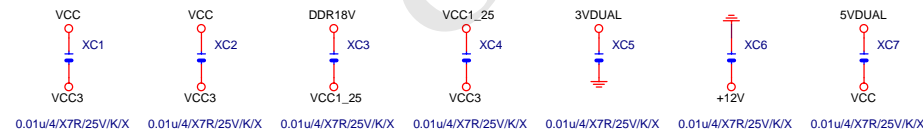
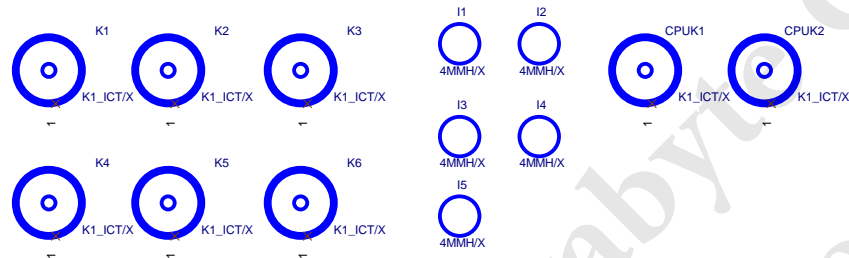
## ATX POWER CONNECTOR



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

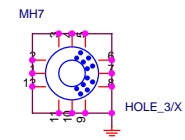
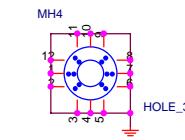
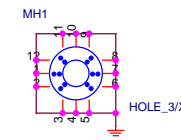


ATX\_4-1



HOLE\_4-RH-1

HOLE\_4-RH-5MM-1



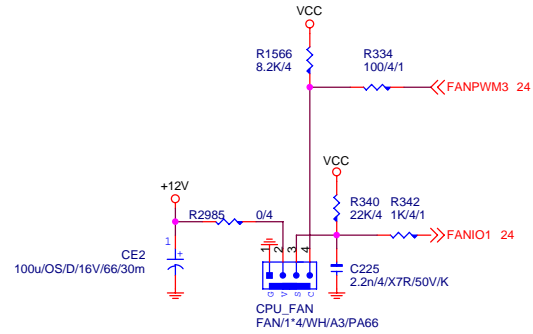
Gigabyte Technology

Title  
ATX POWER CONNECTORSize B Document Number  
GA-P41T-D3PRev  
1.31

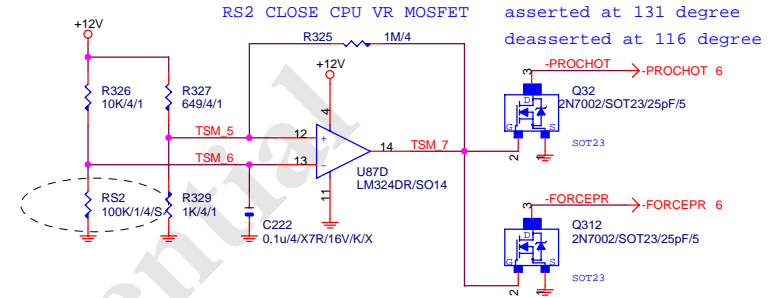
Date: Monday, February 21, 2011

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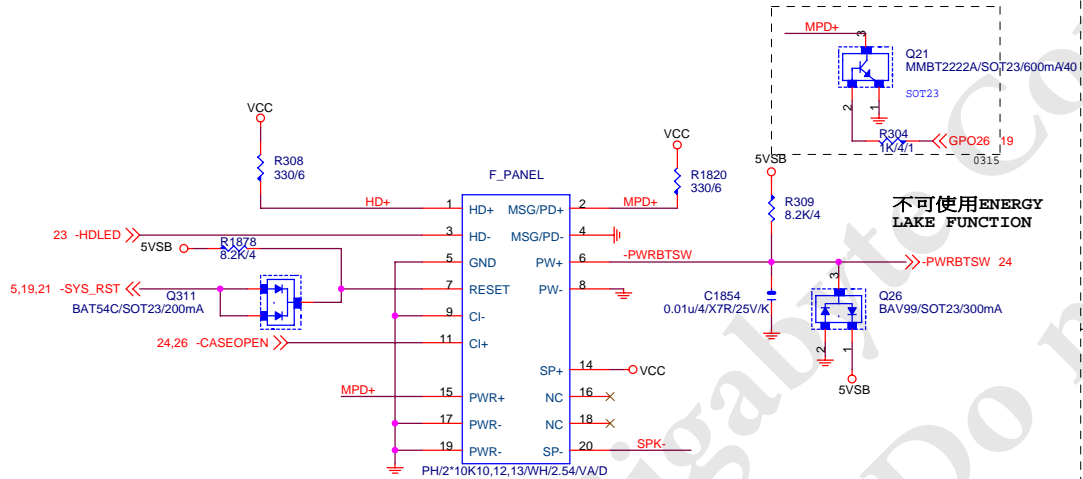
CPU SMART FAN SMART FAN



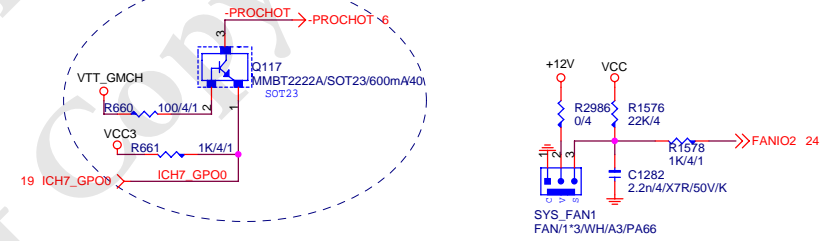
PROCESSOR HOT



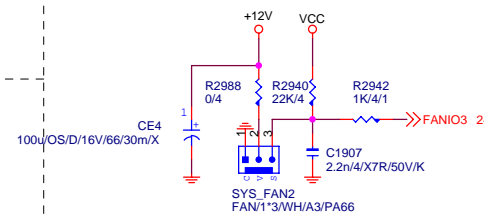
INTEL FRONT PANEL



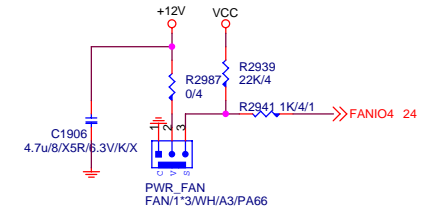
SYS\_FAN1



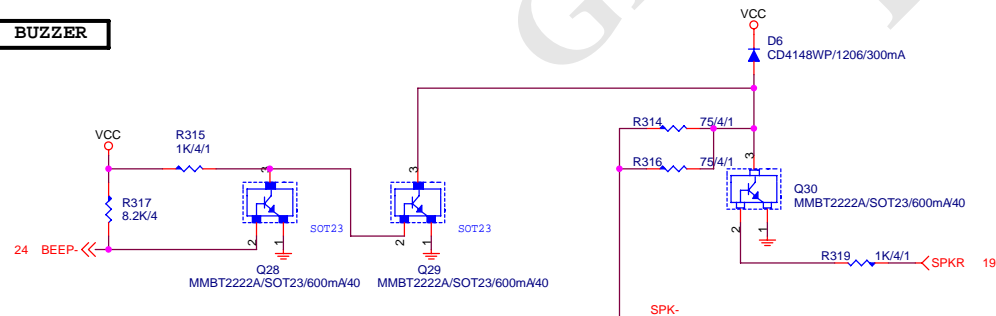
SYS\_FAN2



PWR\_FAN



BUZZER



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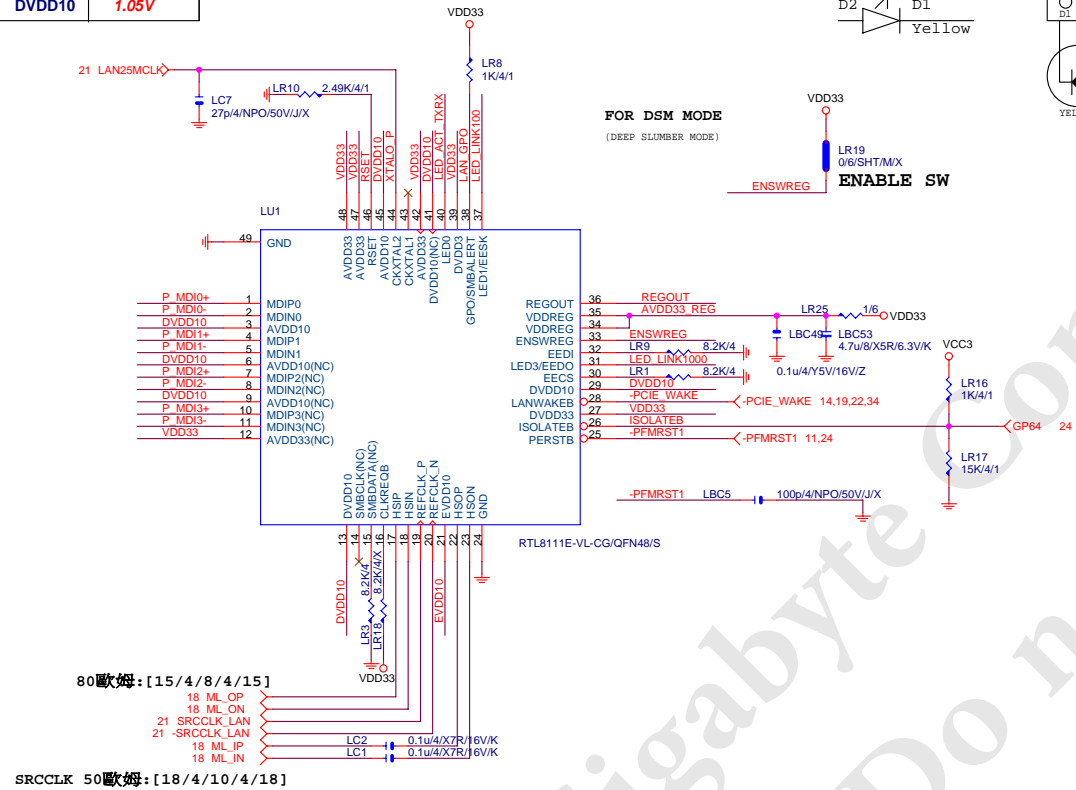
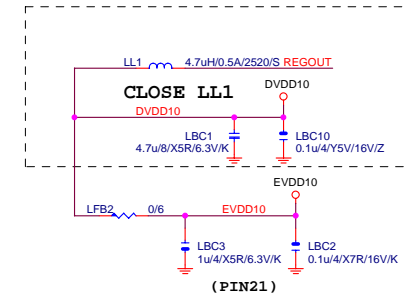
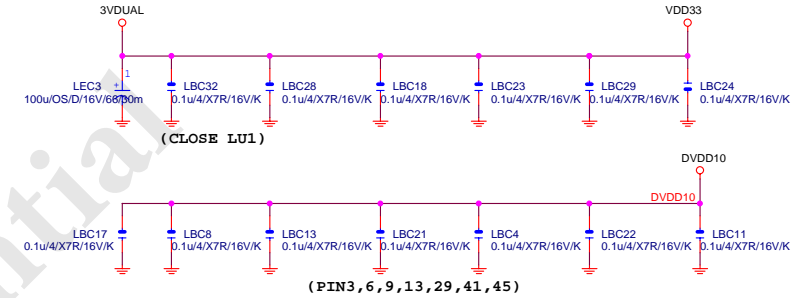
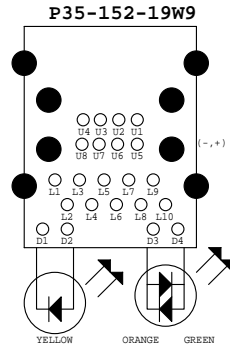
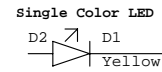
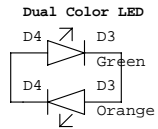
Title			
FRONT PANEL / FAN CTRL			
Size			
Custom			
Date: Monday, February 21, 2011			
Sheet 32 of 34			
Rev 1.31			



## PCIE-1G LAN

### Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



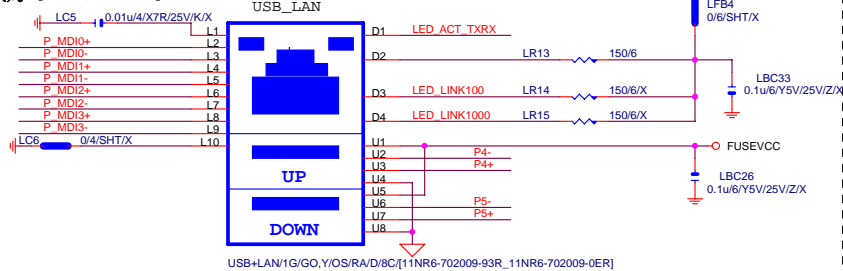
## USB\_LAN CONNECTOR

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

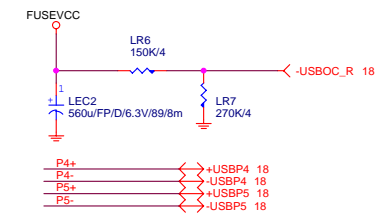
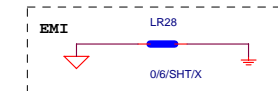
1G :USB+LAN/1G/GO,Y/OS/RA/D/1

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

100歐姆:[20/4/8/4/20]

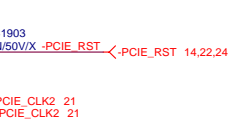
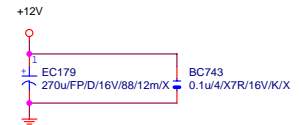


## USB\_LAN



## Gigabyte Technology

Title			
REALTEK RTL8111E			
Size	Document Number		Rev
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14,15,16,19,21,22 SMBCLK  PCI\_A40  
14,15,16,19,21,22 SMBDATA  PCI\_A41