

# GA-8GEM800 Schematics

Revision:1.0

SHEET TITLE

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03	BLOCK DIAGRAM
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07	GMCH-BROOKDALE-GE_A
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SHEET TITLE

24	PS/2 K/B & M/S
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27	LINE OUT/IN/MIC/FRONT AUDIO & GAME
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29	MISC. PWR & ATX POWER
30	VCORE PWM
31	DDR POWER
32	REALTEK 8100C

Model Name: GA-8GEM800

Version: 1.0

24.3cm X 22.0cm 60+-15% C Type

Component value change history

PAGE	Change Item	Reason
0.1	Modify from GA-8GEM667 REV1.0F BOM First release	
1.0A	For PVT BOM	
	Remove PWM heat sink	
	Remove Prochot BOM Add EMI solution	
1.0B	Remove CC40:10P/6	Modify EMI issue.
	R722:8.2K/6 change to 1K/6.	Modify FUSEVCC protect issue.

Circuit or PCB layout change for next version

鴻達,慶生,統盟

PAGE	Change Item	Reason
0.1	Modify from GA-8GEM667 REV1.0	
1.0	For PVT PCB	

<b>GIGABYTE</b>		
Title: BOM & PCB MODIFY HISTORY		
Size Custom	Document Number: GA-8GEM800	Rev: 1.0
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# BLOCK DIAGRAM

**INTEL Pentium4 (478)**

VCCORE = 1.75V / SLEEP: 1.3V  
VCC3

PAGE 4, 5, 6

**CLOCK GENERATOR**

CKVDD = 3.3V

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**PWM/OTHER POWER**

VCCORE = 1.75V (650-1100MHZ) / SLEEP: 1.3V  
SVSB = 12V + 12V, VCC, VCC3, 3VDDUAL  
VTT\_DDR = 2.5VSTR

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**GMCH BROOKDALE-GE-DDR**

VCCORE = 1.75V / SLEEP: 1.3V  
2.5VSTR = 2.5V(MEMORY)  
VDDQ = 1.5V (AGP POWER 4X, HUBLINK)

PAGE 7, 8, 9

**AGP SLOT 4X**

VDDQ = 1.5V (AGP POWER 4X)  
VCC3 = 3.3V  
+12V = 12V  
3VDDUAL = 3.3V  
VCC = 5V

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GAD0-31  
ADSTB0, ADSTB0-  
ADSTB1, ADSTB1-  
SBA0-7  
SBSTB, SBSTB-  
GCB0-3-  
ST0-2

AGP BUS

MAA0-14  
MAA\_CPC1-5  
MAB\_CPC1-5  
MDD0-63  
-DQSD0-7  
DM0-7

**DDR SDRAM DIMM X 2**

2.5VSTR = 2.5V(MEMORY, SUSPEND POWER)  
VTT\_DDR = 1.52V

PAGE 10, 11, 12

**FRONT USB CONN.**

PAGE 22

**ICH4**

VCC25 = 2.5V(I/O, MEMORY, VLINK)  
3VDDUAL = 3.3V(SUSPEND POWER)  
VCC3 = 3.3V  
RTCVDD = 3.3V

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HLO-10  
CONTROL BUS

HUB LINK

**IDE Primary and Secondary**

VCC = 5V

PAGE 24

**FWH**

VCC = 5V  
VCC3 = 3V

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**PCI SLOT 1,2,3**

+12 = 12V  
-12 = -12V  
VCC = 5V  
VCC3 = 3V  
3VDDUAL = 3V

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PCI BUS

LPC BUS

**LPC I/O ITE8712**

FDD IR/CIR S\_IRQ GAME

VCC = 5V  
VCC3 = 3V

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**I/O PORTS :**

COMA COMB LPT PS2

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**FRONT PANEL /FANS**

VCC = 5V  
SVSB = 5V  
+12 = 12V  
RVCC = 5V

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**REAR USB PORTS**

VCC = 5V  
SVSB = 5V  
SVUSB = 5V

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AGPUSB+ / -

AMRUSB+ / -

**AC97 CODEC ALC655**

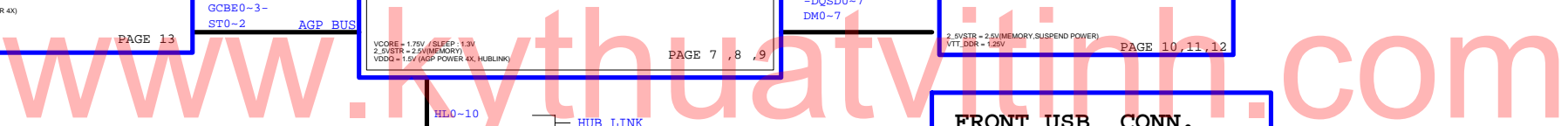
+12V = 12V  
VCC3 = 3.3V  
VCC = 5V  
AVDD = 5V

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**AUDIO PORTS :** FRONT AUDIO  
LIN\_ OUT LINE\_IN MIC CD\_IN

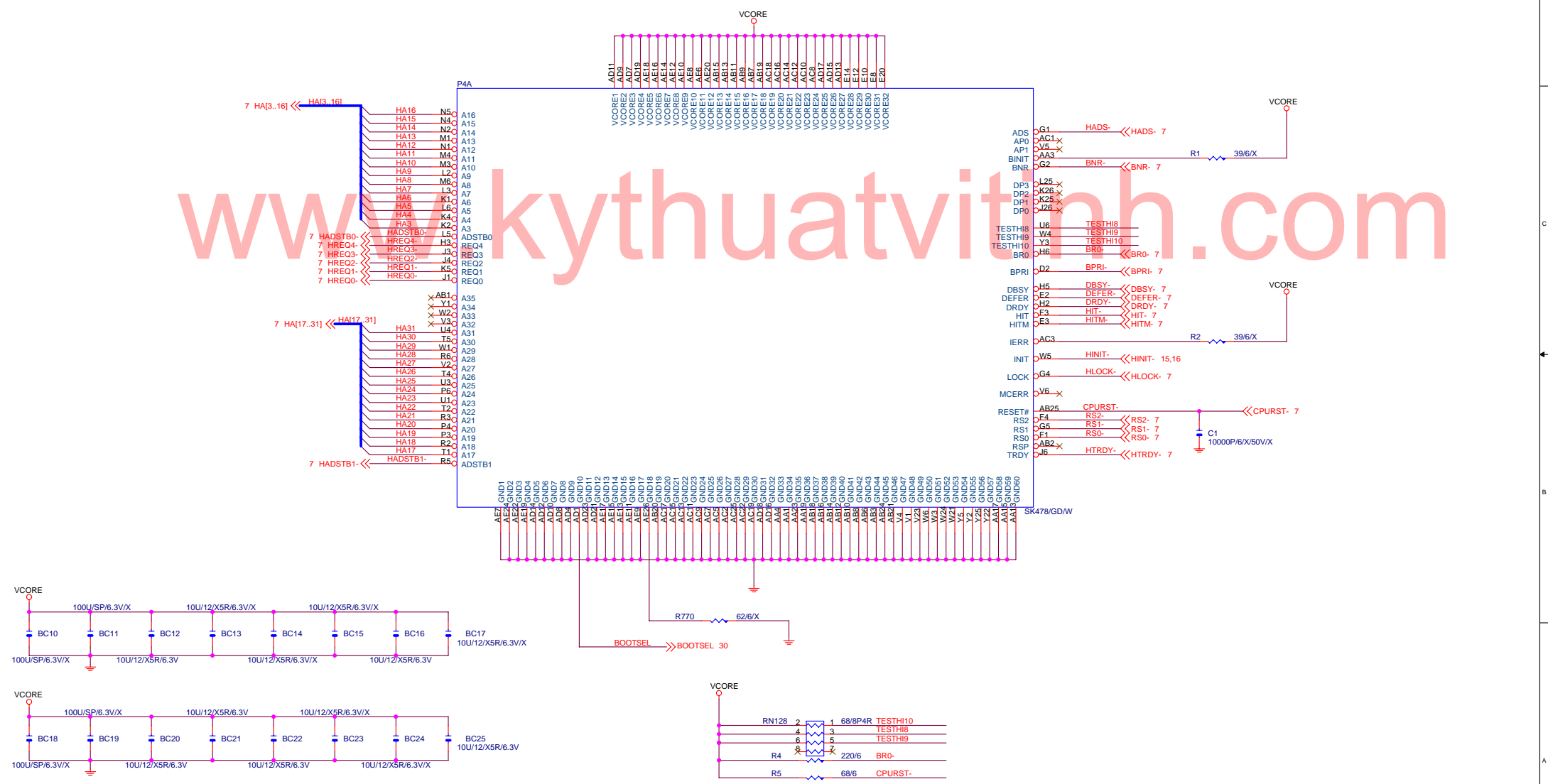
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AC97 LINK

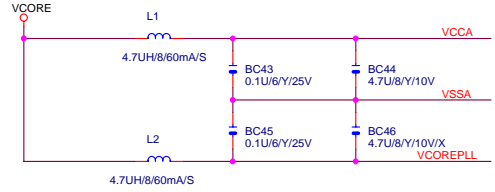
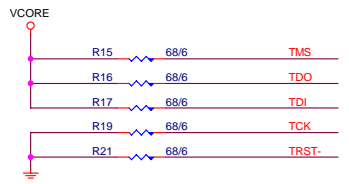
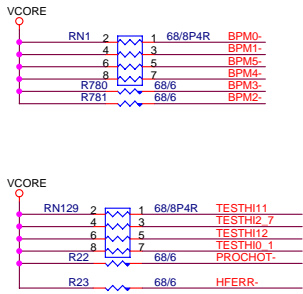
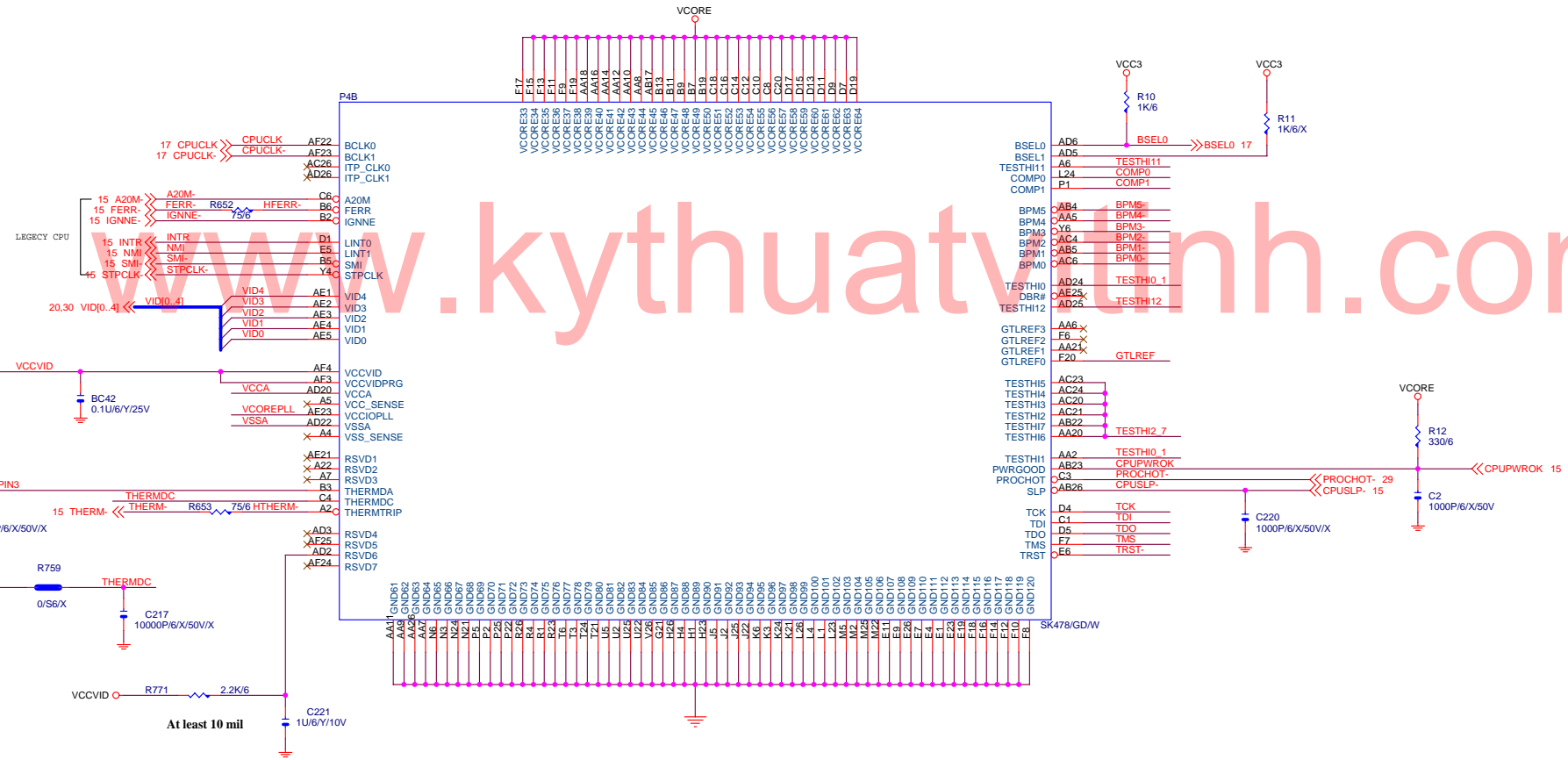
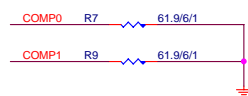
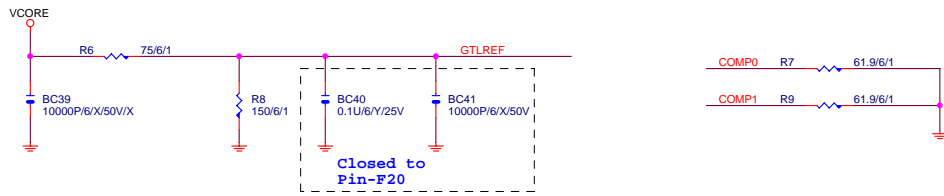


<b>GIGABYTE</b>			
<b>BOM &amp; PCB MODIFY HISTORY</b>			
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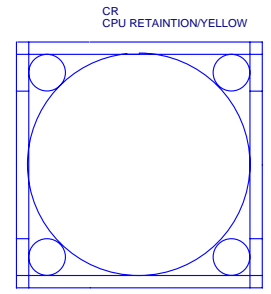
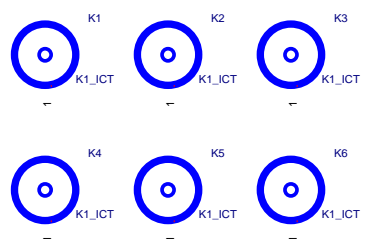
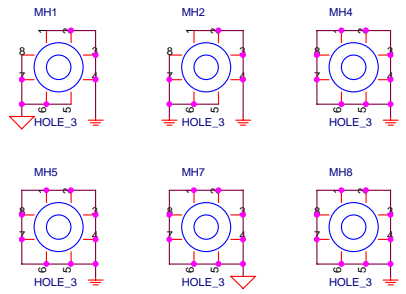
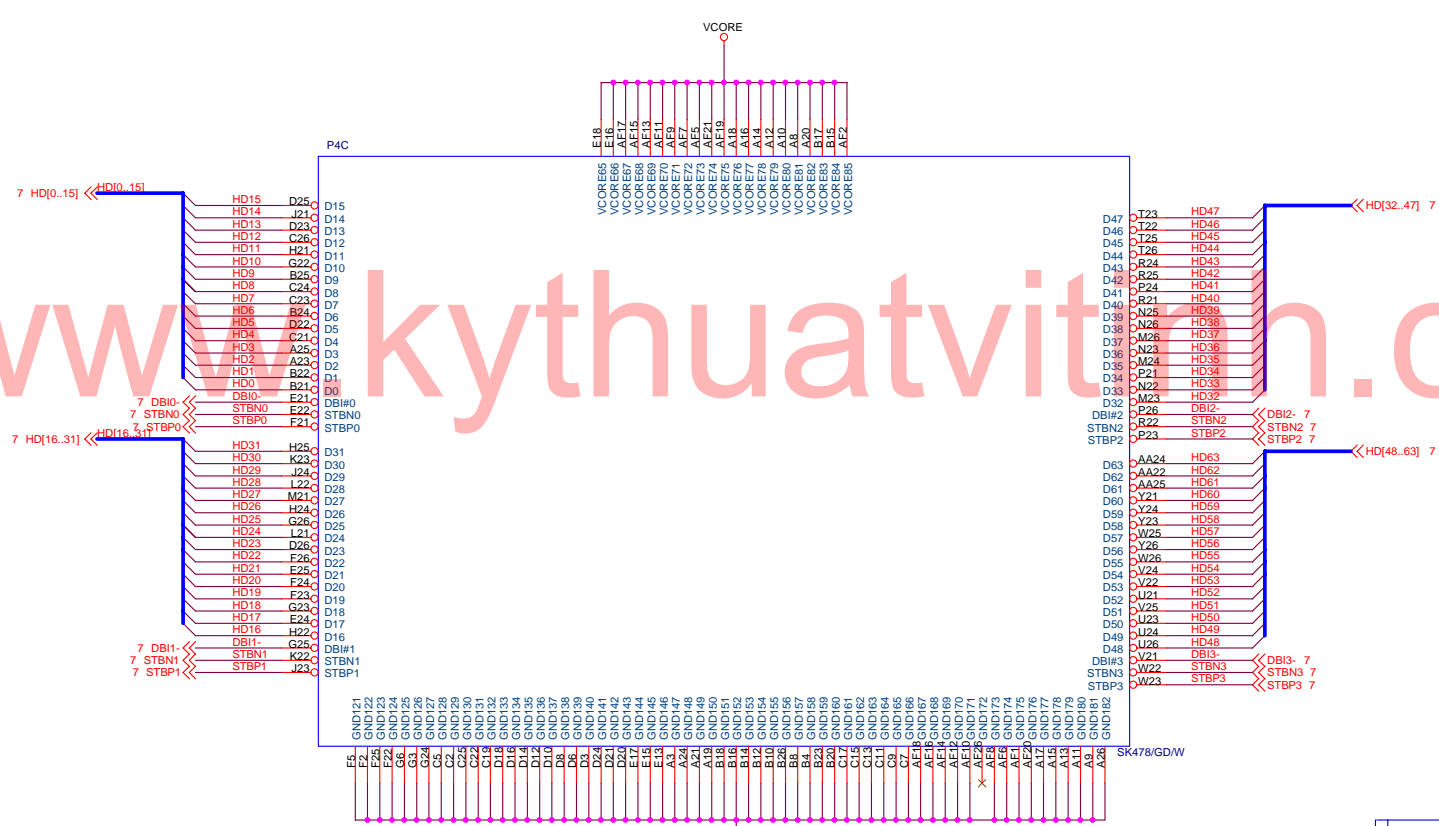


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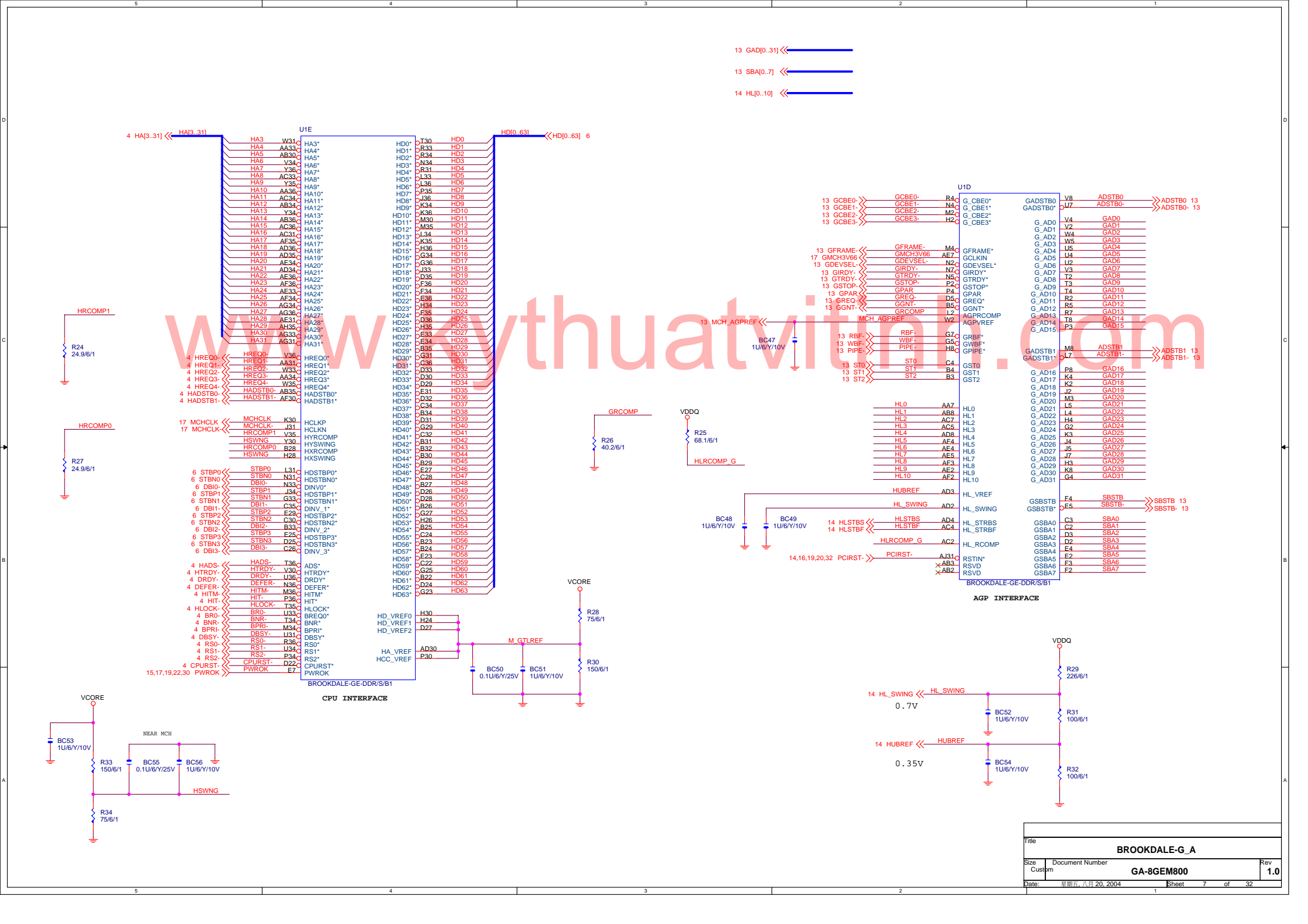


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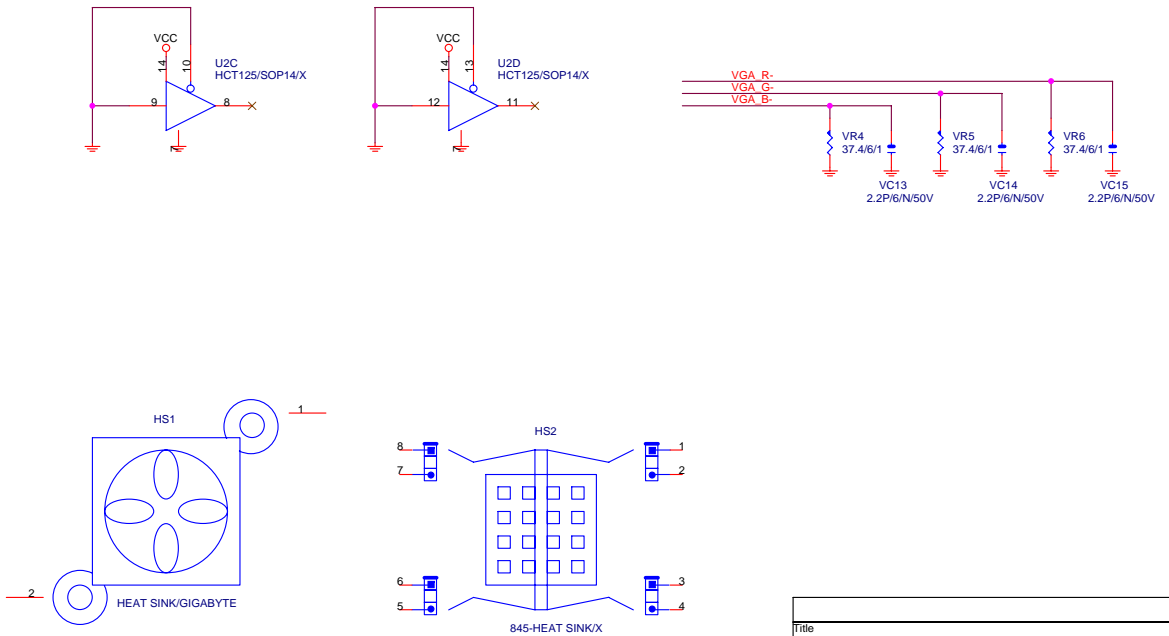
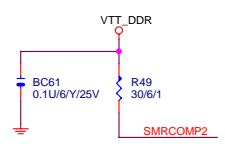
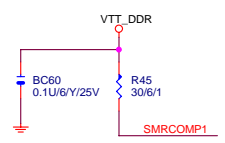
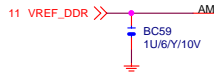


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- 11,12 MAA[0..12] >> MAA0..12
- 11,12 MAA\_CPC[1..5] >> MAA\_CPC1..5
- 11,12 MAB\_CPC[1..5] >> MAB\_CPC1..5
- 10 DM[0..7] >> DM0..7
- 10 MD[0..63] >> MD0..63
- 10 -DQS[0..7] >> -DQS0..7

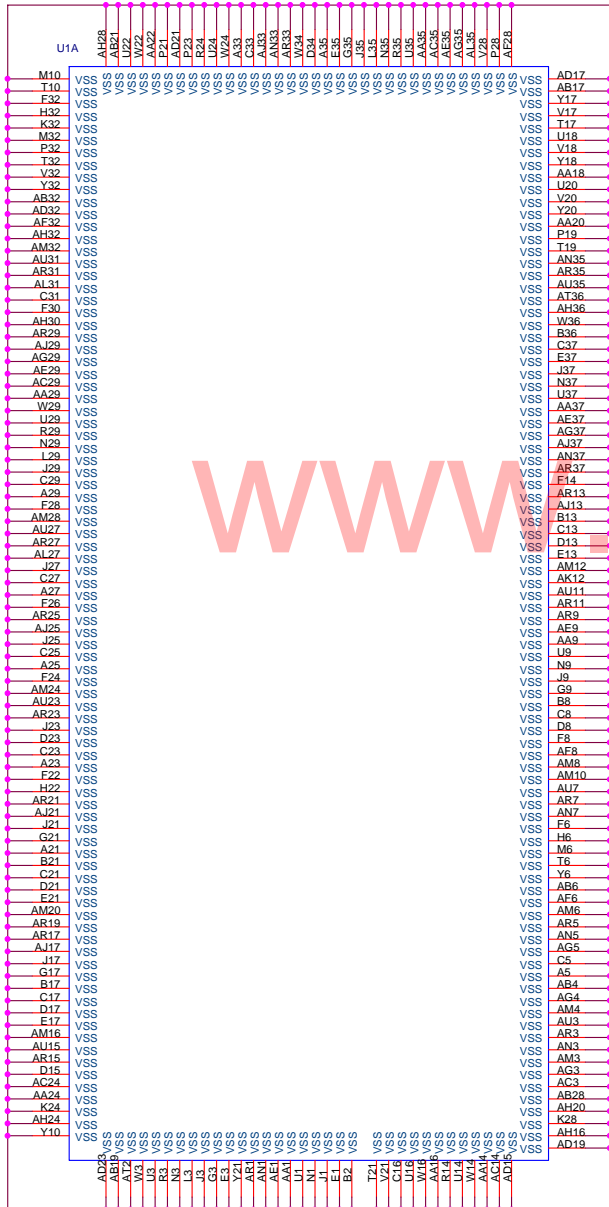
U1C		U1F	
MAA0	AL25	SMAA0	SDQS0
MAA_CPC1	AN25	SMAA1	SDM0
MAA_CPC2	AP23	SMAA2	AN4
MAA3	AK20	SMAA3	MD0
MAA_CPC4	AL19	SMAA4	MD1
MAA_CPC5	AL17	SMAA5	MD2
MAA6	AP19	SMAA6	MD3
MAA7	AP17	SMAA7	MD4
MAA8	AN17	SMAA8	MD5
MAA9	AK16	SMAA9	MD6
MAA10	AK26	SMAA10	MD7
MAA11	AL15	SMAA11	AT7
MAA12	AN15	SMAA12	-DQS1
MAB_CPC1	AP25	SMAB1	DM1
MAB_CPC2	AN23	SMAB2	AT5
MAB_CPC4	AN19	SMAB4	MD8
MAB_CPC5	AK18	SMAB5	MD9
			MD10
			MD11
			MD12
			MD13
			MD14
			MD15
			AT8
			MD15
			AT12
			-DQS2
			DM2
			AT10
			MD16
			MD17
			MD18
			MD19
			MD20
			MD21
			MD22
			MD23
			AT17
			-DQS3
			DM3
			AT15
			MD24
			MD25
			MD26
			MD27
			MD28
			MD29
			MD30
			MD31
			AT24
			-DQS4
			DM4
			AT22
			MD32
			MD33
			MD34
			MD35
			MD36
			MD37
			MD38
			MD39
			AT29
			-DQS5
			DM5
			AP26
			MD40
			MD41
			MD42
			MD43
			MD44
			MD45
			MD46
			MD47
			AT34
			-DQS6
			DM6
			AR32
			MD48
			MD49
			MD50
			MD51
			MD52
			MD53
			MD54
			MD55
			AL36
			-DQS7
			DM7
			AN36
			MD56
			MD57
			MD58
			MD59
			MD60
			MD61
			MD62
			MD63

Total trace = 100 mils

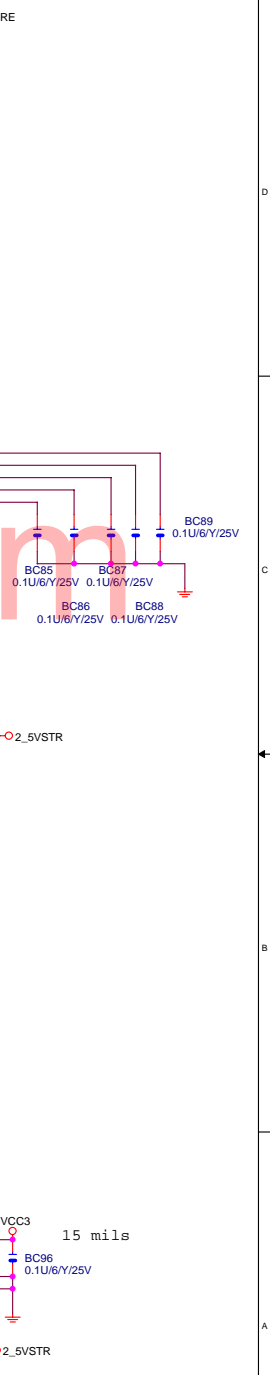
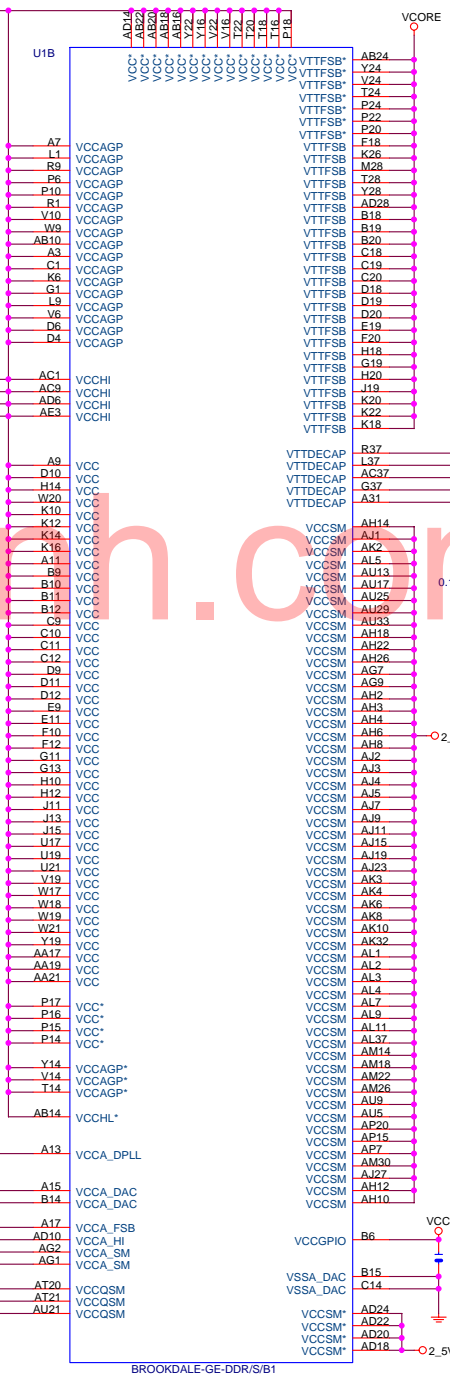
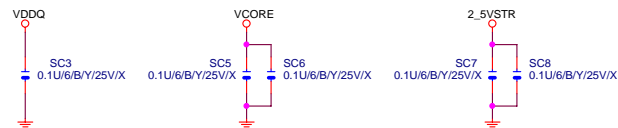
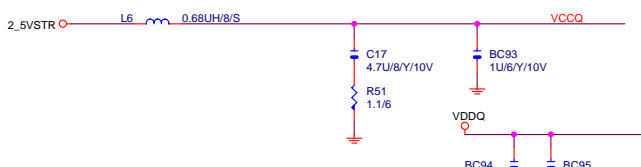
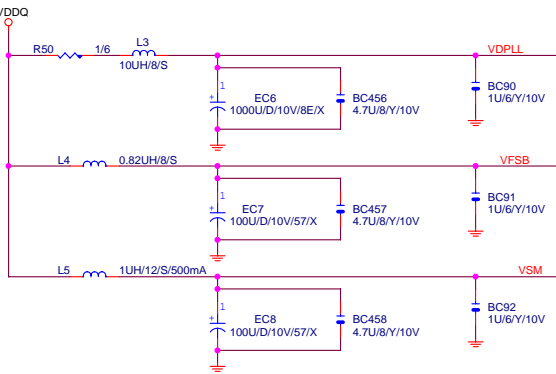
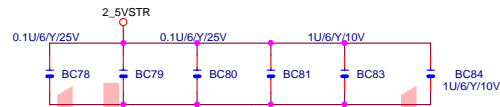
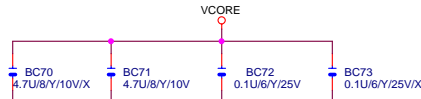
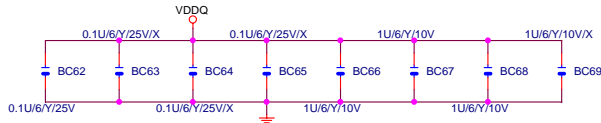


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11,12 DM[0..7] >> >>DM[0..7] 8

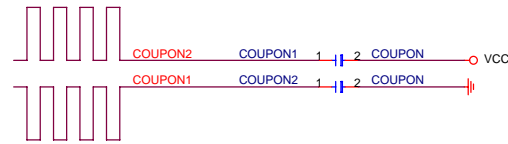
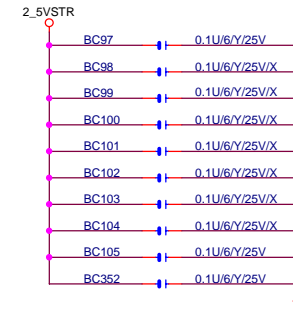
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DM 0	RN3	1	2 0/8P4R/X	DM0
-DQS 0		3	4	-DQS0
MD 2		5	6	MD2
MD 6		7	8	MD6
MD 0	RN5	1	2 0/8P4R/X	MD0
MD 4		3	4	MD4
MD 5		5	6	MD5
MD 1		7	8	MD1
MD 12	RN6	1	2 0/8P4R/X	MD12
MD 13		3	4	MD13
-DQS 1		5	6	-DQS1
DM 1		7	8	DM1
MD 14	RN7	1	2 0/8P4R/X	MD14
MD 15		3	4	MD15
MD 10		5	6	MD10
MD 11		7	8	MD11
-DQS 2	RN9	1	2 0/8P4R/X	-DQS2
DM 2		3	4	DM2
MD 18		5	6	MD18
MD 22		7	8	MD22
MD 29	RN11	1	2 0/8P4R/X	MD29
MD 25		3	4	MD25
-DQS 3		5	6	-DQS3
DM 3		7	8	DM3
MD 26	RN12	1	2 0/8P4R/X	MD26
MD 30		3	4	MD30
MD 27		5	6	MD27
MD 31		7	8	MD31
MD 32	RN13	1	2 0/8P4R/X	MD32
MD 36		3	4	MD36
MD 33		5	6	MD33
MD 37		7	8	MD37
MD 39	RN14	1	2 0/8P4R/X	MD39
MD 35		3	4	MD35
MD 40		5	6	MD40
MD 44		7	8	MD44
-DQS 4	RN15	1	2 0/8P4R/X	-DQS4
DM 4		3	4	DM4
MD 34		5	6	MD34
MD 38		7	8	MD38
MD 45	RN16	1	2 0/8P4R/X	MD45
MD 41		3	4	MD41
DM 5		5	6	DM5
-DQS 5		7	8	-DQS5
MD 48	RN17	1	2 0/8P4R/X	MD48
MD 49		3	4	MD49
MD 52		5	6	MD52
MD 53		7	8	MD53
MD 50	RN18	1	2 0/8P4R/X	MD50
MD 51		3	4	MD51
MD 60		5	6	MD60
MD 61		7	8	MD61
DM 6	RN19	1	2 0/8P4R/X	DM6
-DQS 6		3	4	-DQS6
MD 54		5	6	MD54
MD 55		7	8	MD55
MD 56	RN20	1	2 0/8P4R/X	MD56
MD 57		3	4	MD57
DM 7		5	6	DM7
-DQS 7		7	8	-DQS7
MD 59	RN21	7	8 0/8P4R/X	MD59
MD 63		5	6	MD63
MD 58		3	4	MD58
MD 62		1	2	MD62

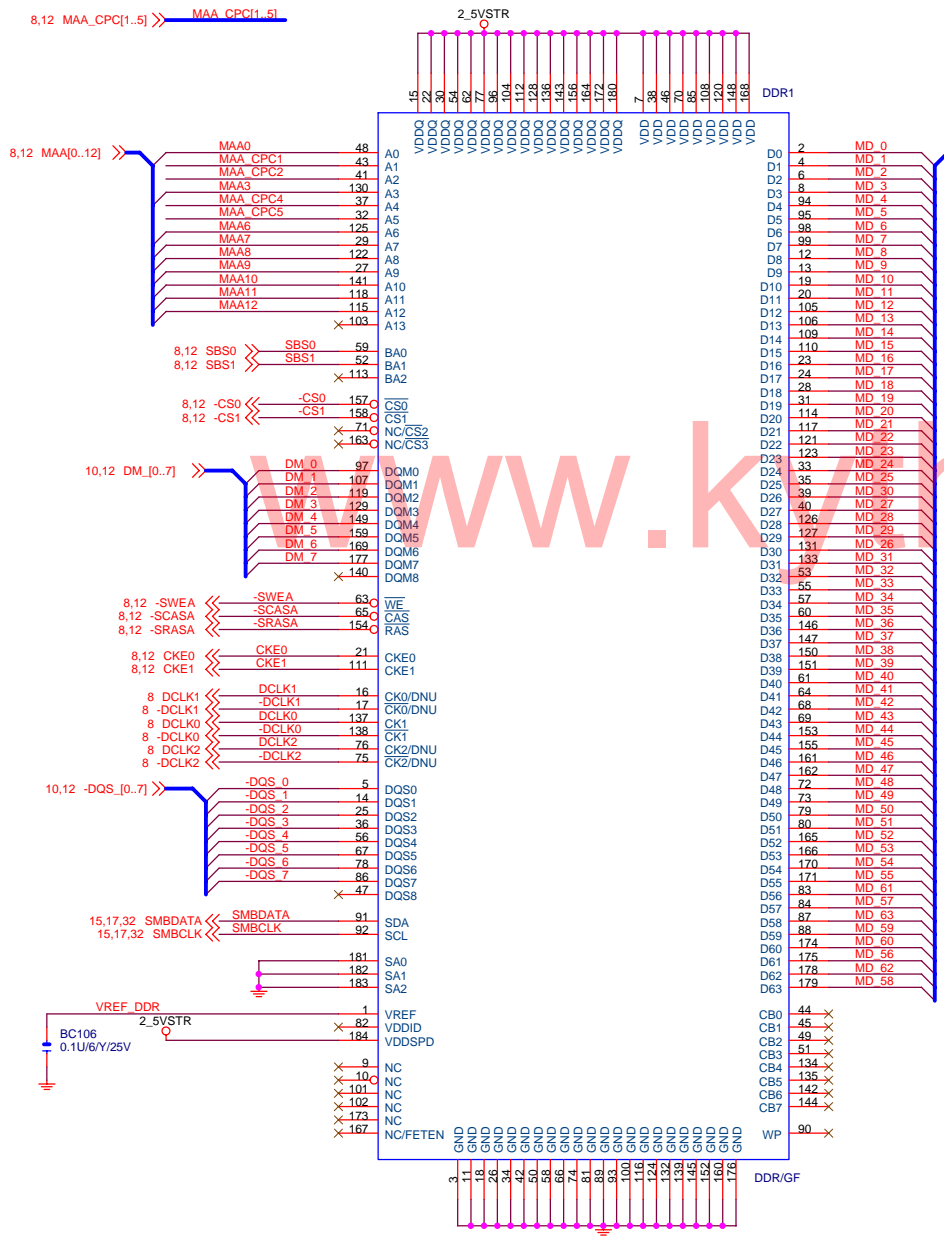
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MD 16		3	4	MD16
MD 17		5	6	MD17
MD 21		7	8	MD21
MD 42	RN4	1	2 0/8P4R/X	MD42
MD 46		3	4	MD46
MD 43		5	6	MD43
MD 47		7	8	MD47

MD 7	RN8	1	2 0/8P4R/X	MD7
MD 3		3	4	MD3
MD 8		5	6	MD8
MD 9		7	8	MD9
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MD 24		5	6	MD24
MD 28		7	8	MD28

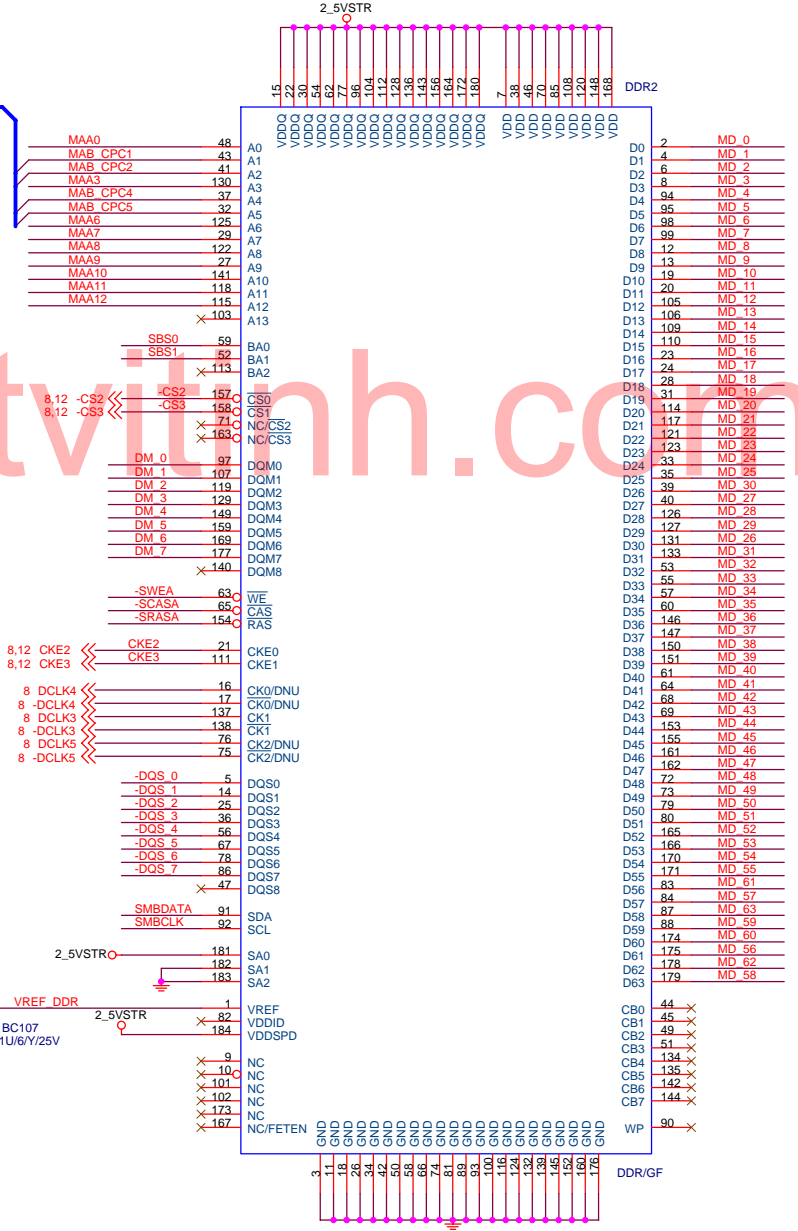
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GIGABYTE		
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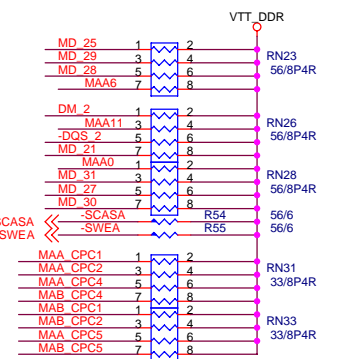
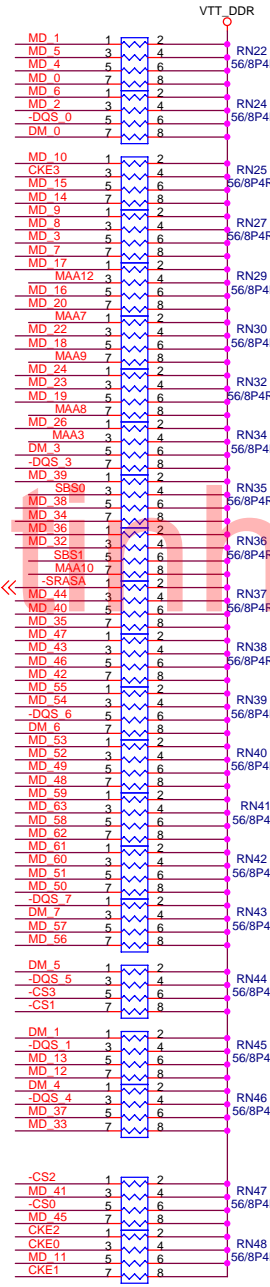
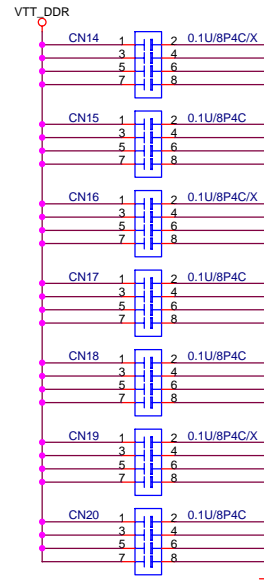
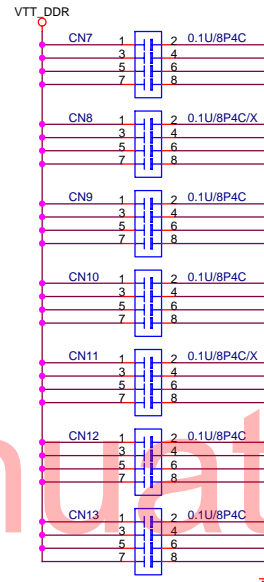


MD[0..63] 10,12

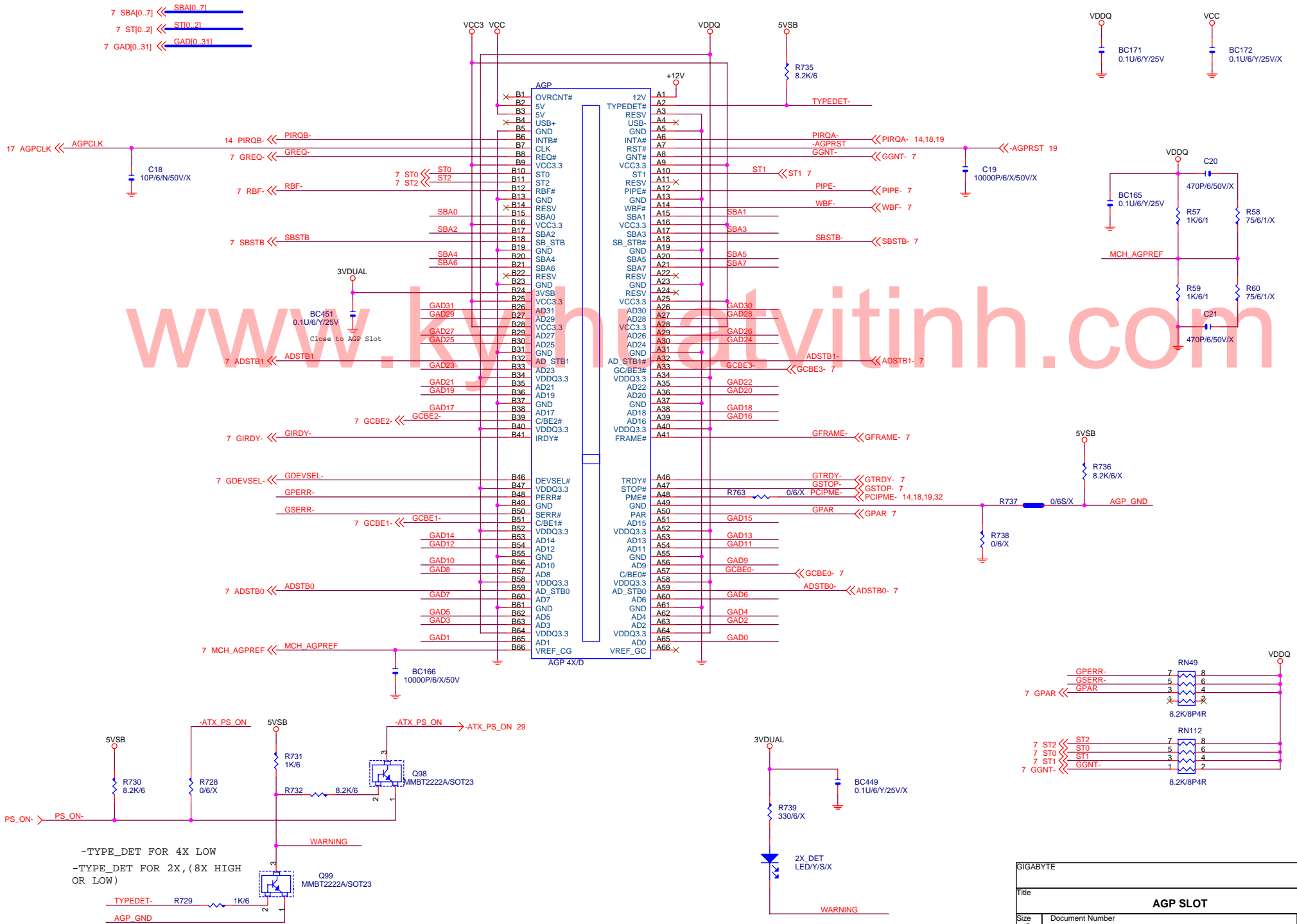


GIGABYTE		
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<b>DDR1,2</b>		
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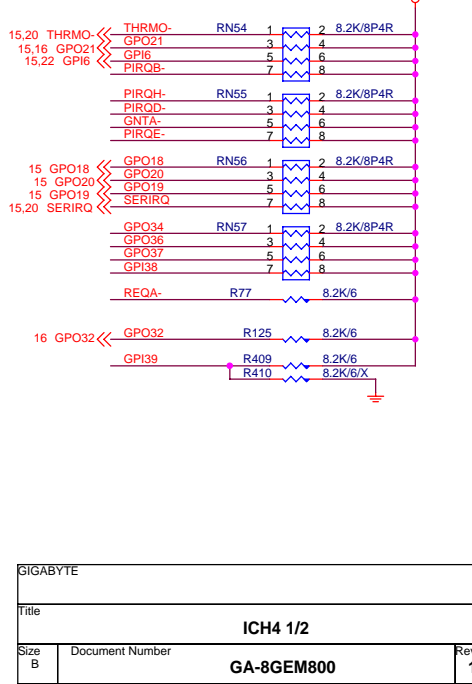
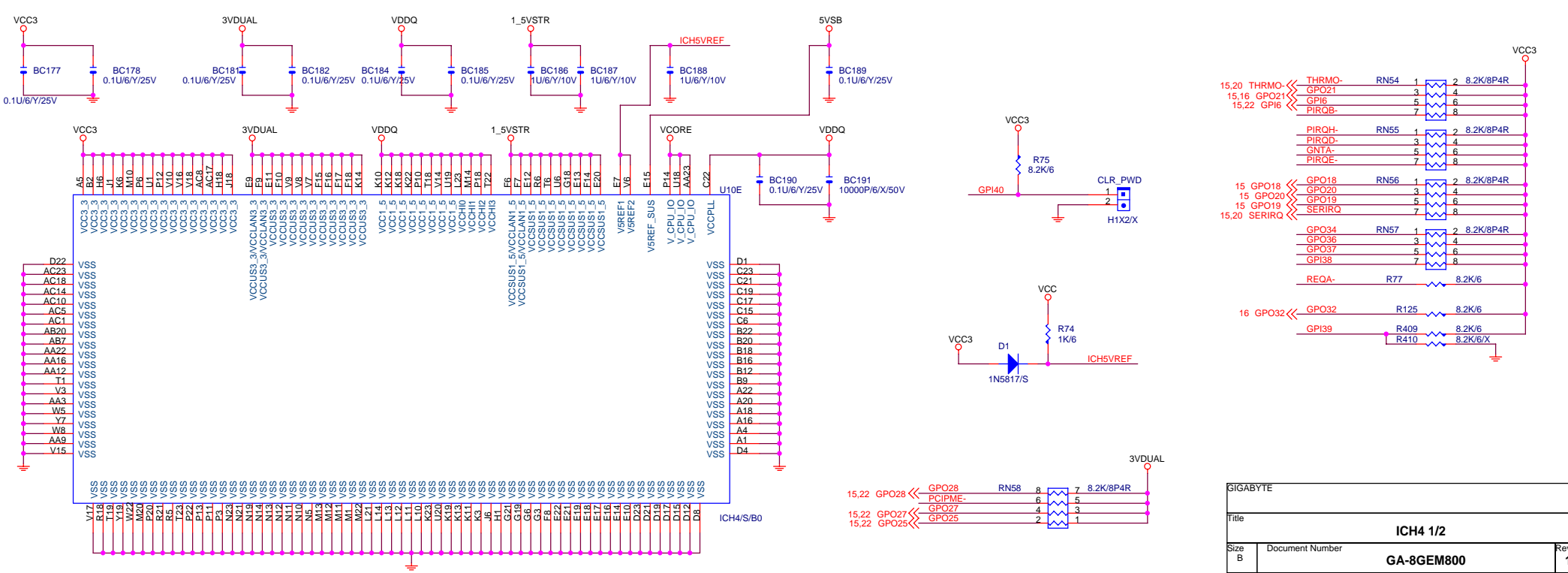
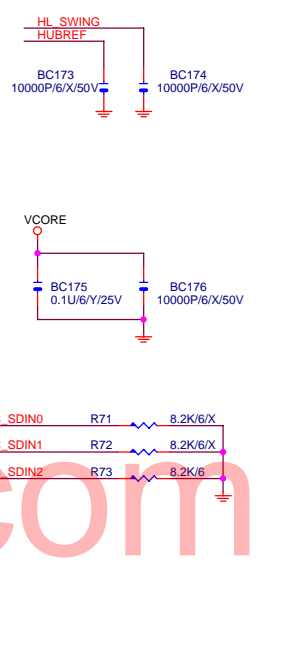
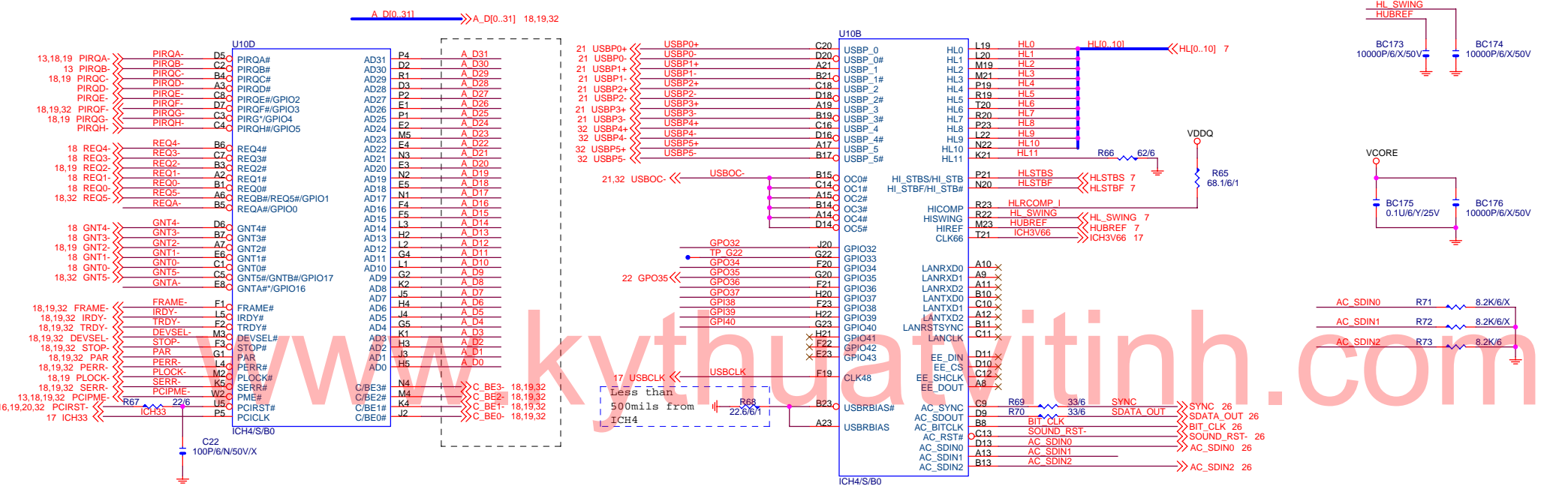


- 10,11 MD\_[0..63] << MD [0..63]
- 10,11 DM\_[0..7] << MPD [0..7]
- 10,11 -DQS\_[0..7] << -DQS [0..7]
- 8,11 MAA[0..12] << MAA[0..12]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 -CS[0..3] << -CS[0..3]
- 8,11 MAA\_CPC[1..5] << MAA\_CPC[1..5]
- 8,11 MAB\_CPC[1..5] << MAB\_CPC[1..5]

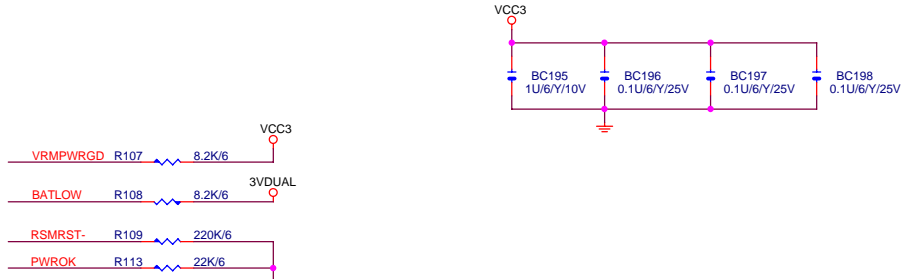
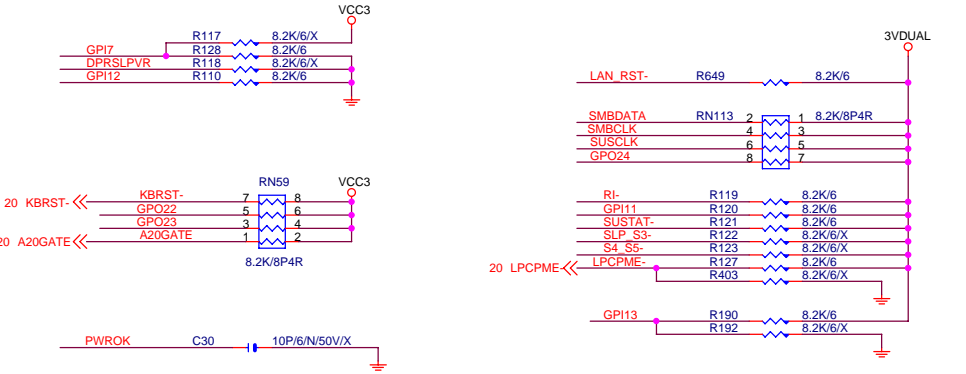
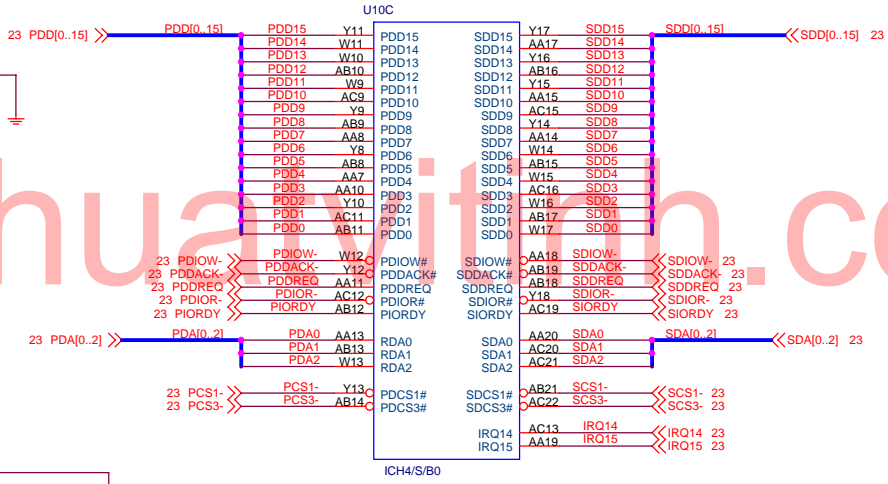
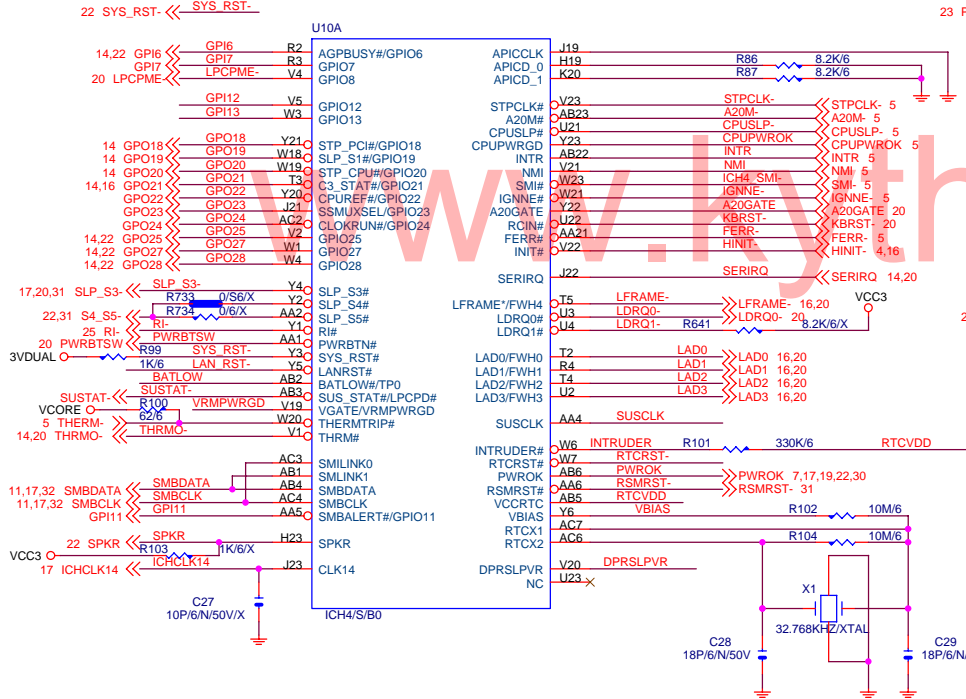
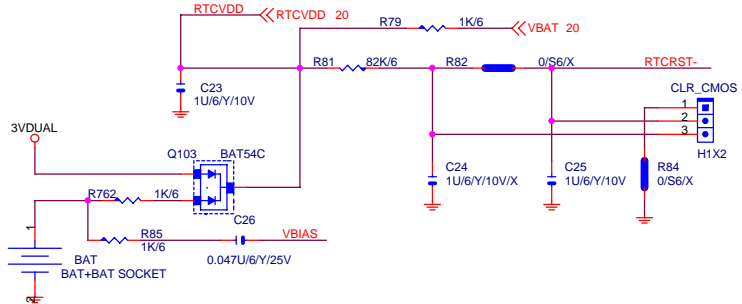


Layout 時整組線路均需靠近 AGP SLOT

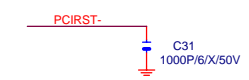
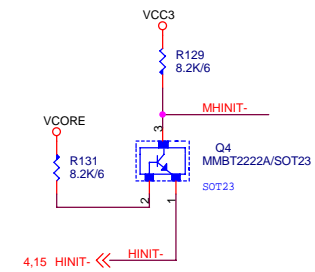
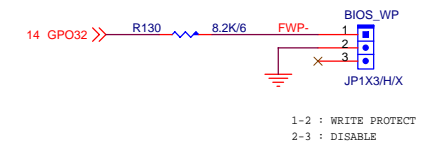
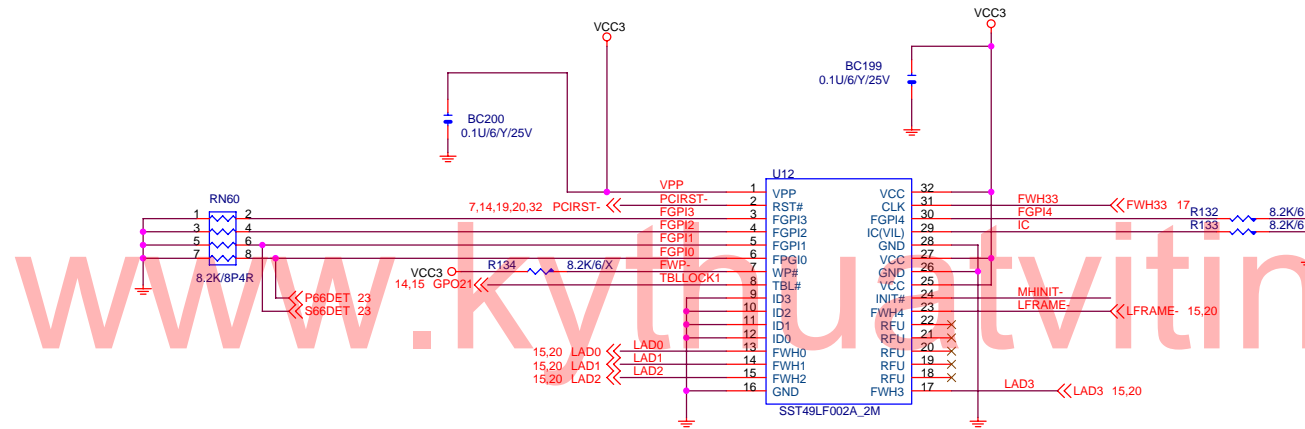
GIGABYTE		
Title		
<b>AGP SLOT</b>		
Size	Document Number	Rev
Custom	<b>GA-8GEM800</b>	<b>1.0</b>
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Title	<b>GA-8GEM800</b>	
Size B	Document Number	Rev <b>1.0</b>
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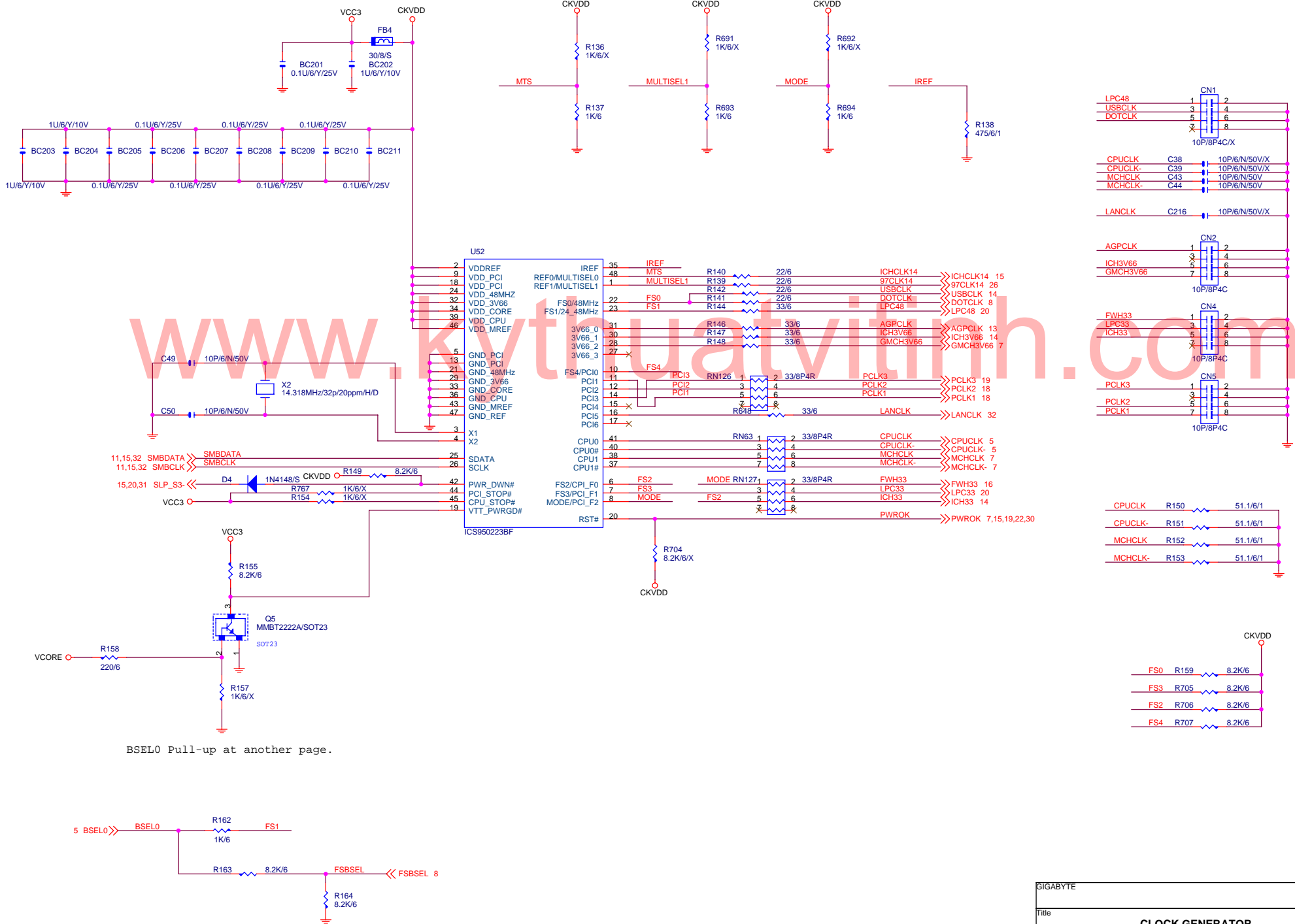


GIGABYTE		
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<b>ICH4 2/2</b>		
Size	Document Number	Rev
Custom	<b>GA-8GEM800</b>	<b>1.0</b>
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GIGABYTE			
Title			
<b>FWH(DUAL BIOS)</b>			
Size	Document Number		Rev
B	<b>GA-8GEM800</b>		<b>1.0</b>
Date:	星期五, 八月 20, 2004	Sheet	16 of 32

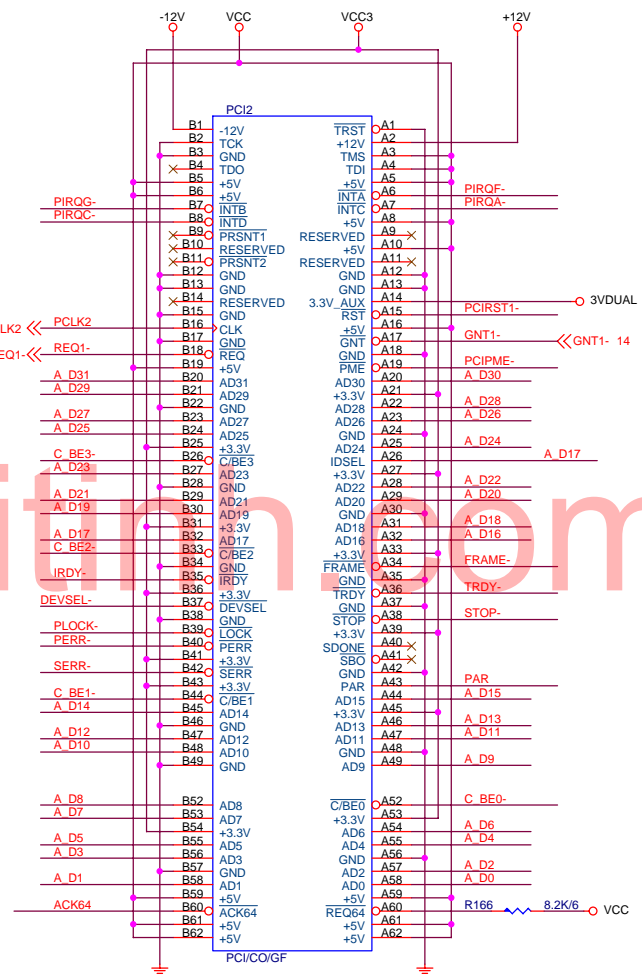
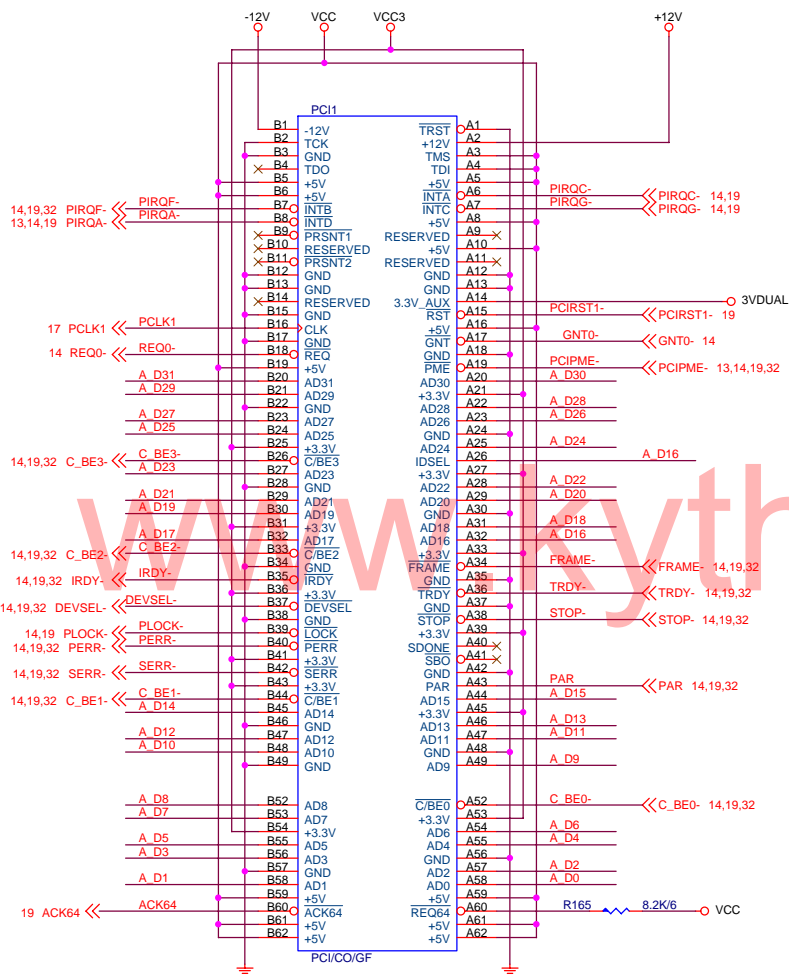




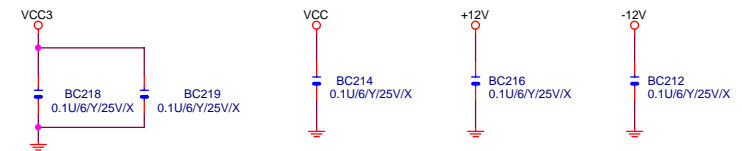
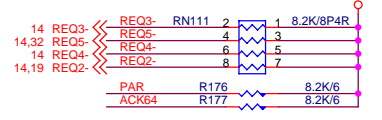
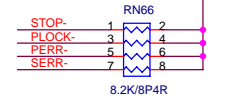
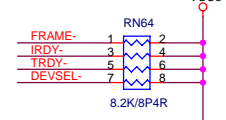
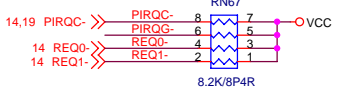
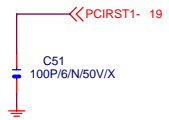
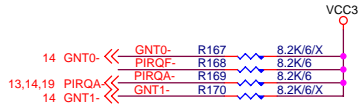
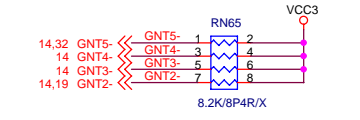
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BSEL0 Pull-up at another page.

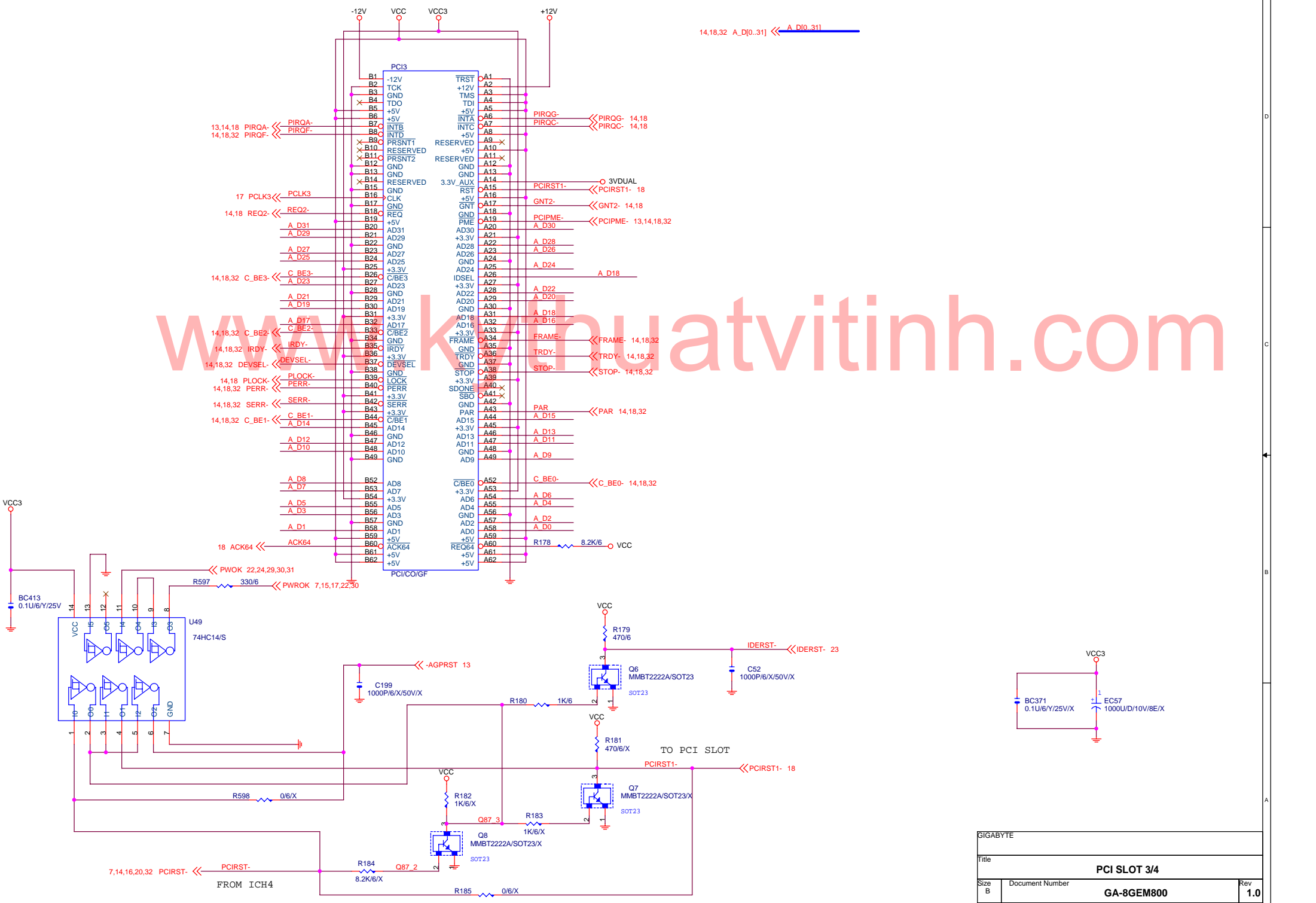
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Size	Document Number	Rev
Custom	<b>GA-8GEM800</b>	<b>1.0</b>
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14,19,32 A\_D[0..31] << A\_D[0..31]

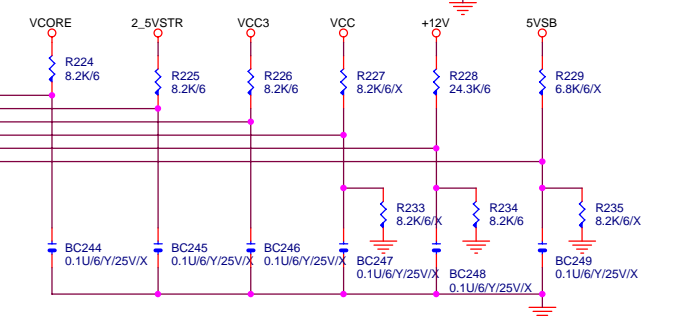
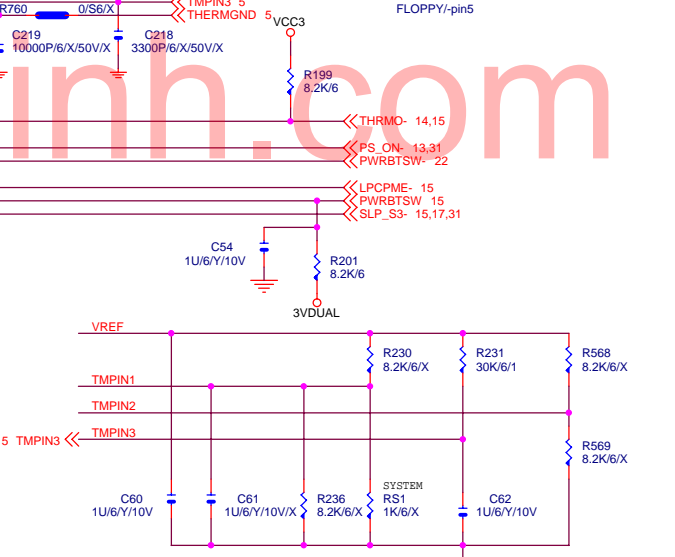
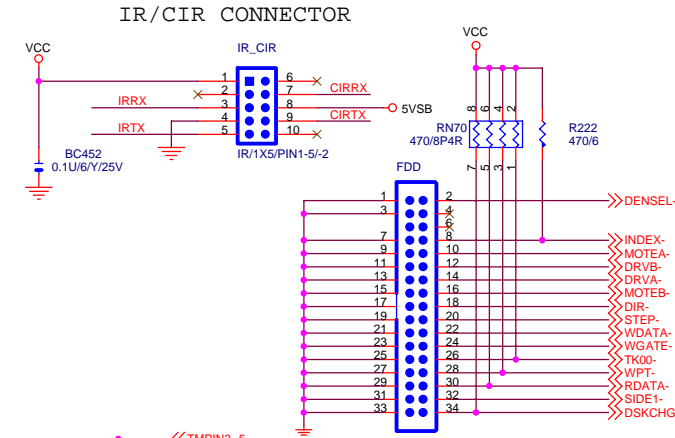
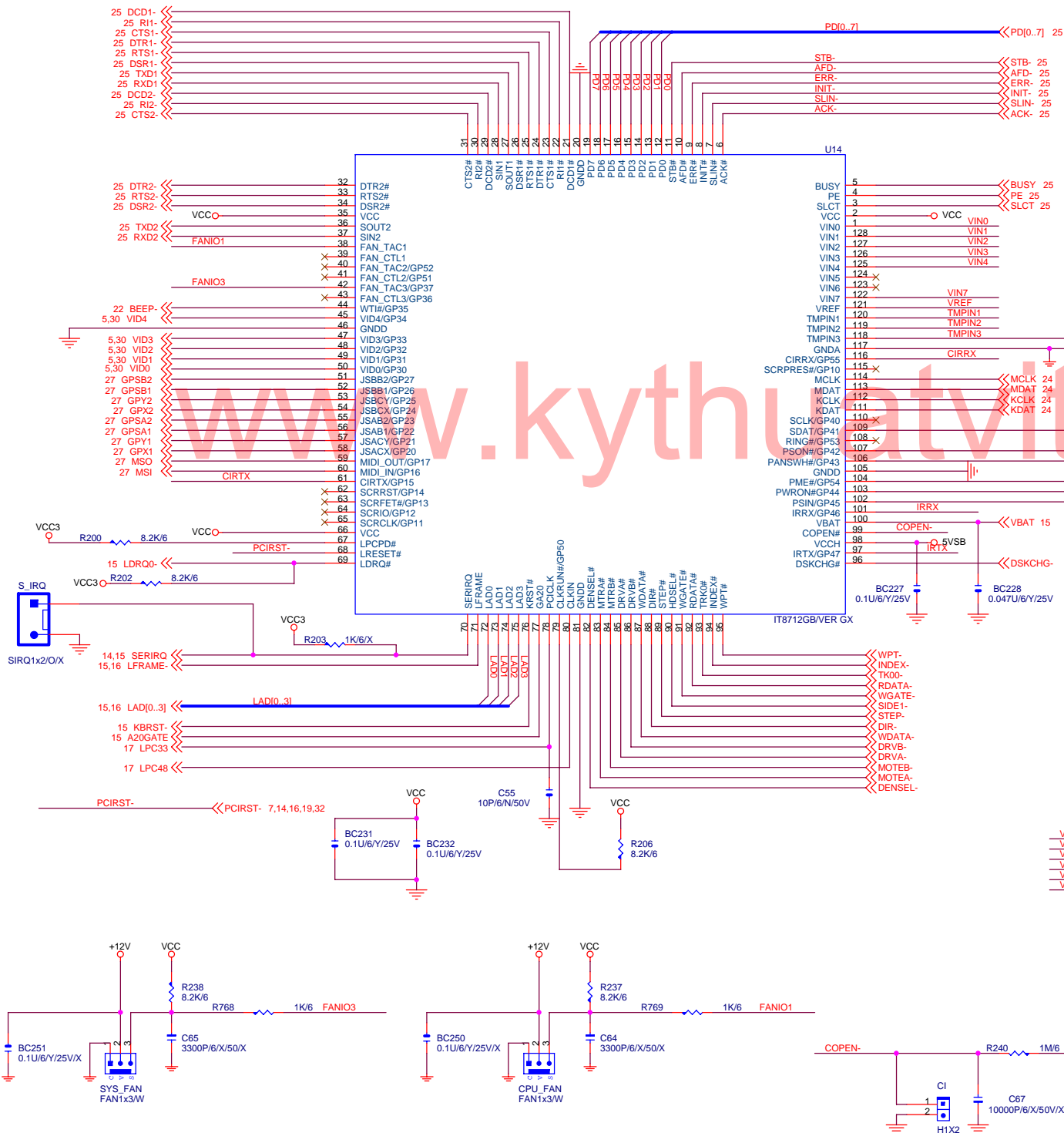


GIGABYTE	
Title <b>PCI SLOT 1/2</b>	
Size B	Document Number <b>GA-8GEM800</b>
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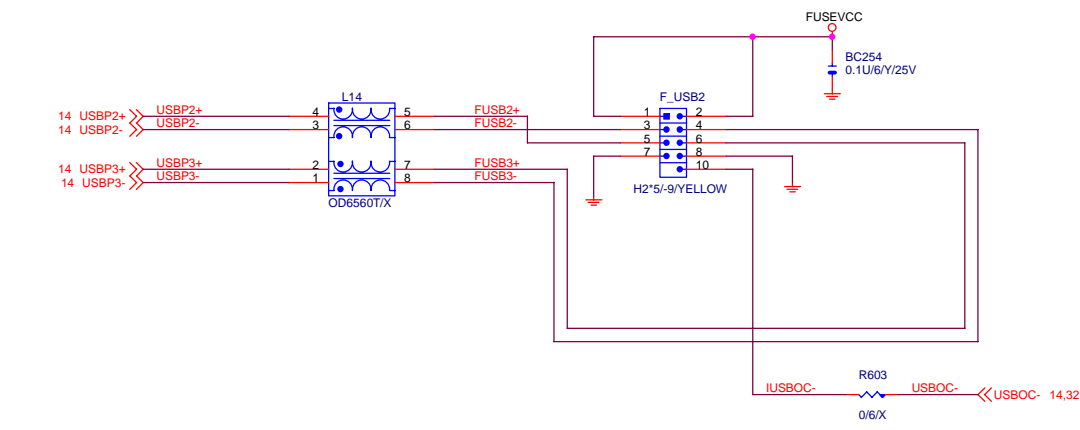
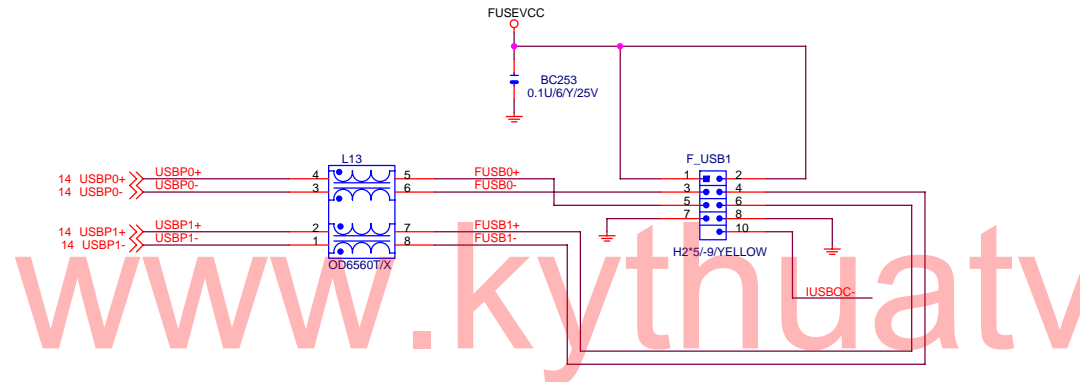
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GIGABYTE	
Title <b>PCI SLOT 3/4</b>	
Size B	Document Number <b>GA-8GEM800</b>
Date: 2004年8月20日	Rev <b>1.0</b>
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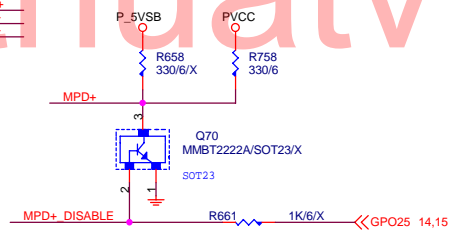
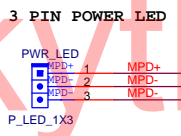
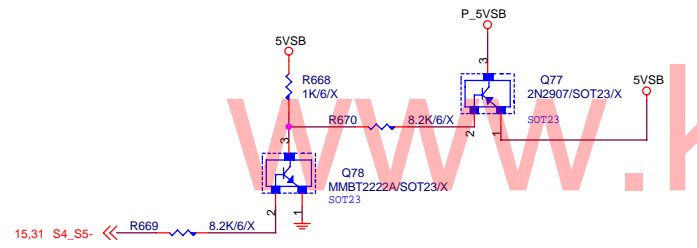
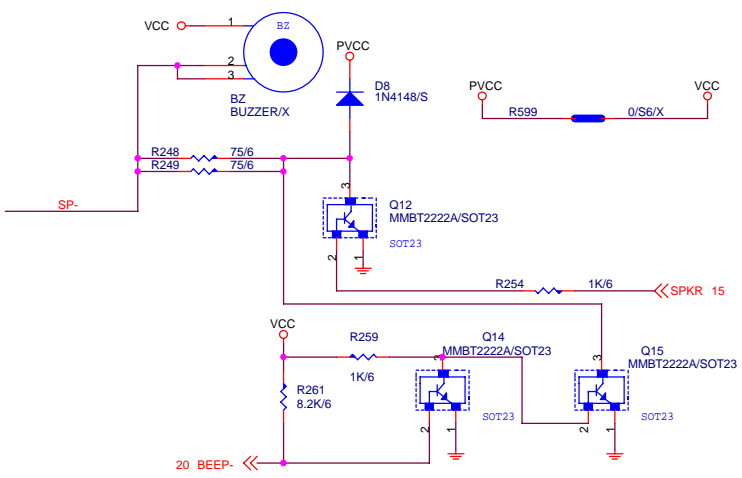
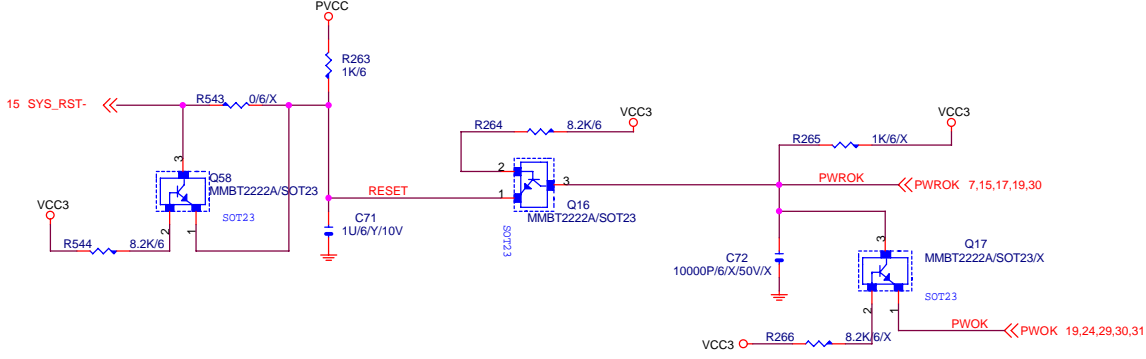
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ITE 8712 LPC IO		
Size B	Document Number	Rev 1.0
GA-8GEM800		
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### ICH4 USB2.0



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GIGABYTE			
Title			
<b>ICH USB+LAN PORT</b>			
Size	Document Number		Rev
B		<b>GA-8GEM800</b>	<b>1.0</b>
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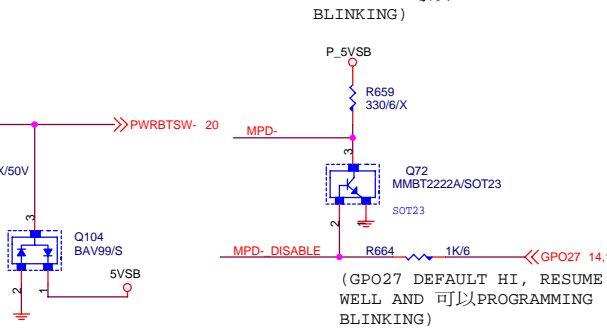
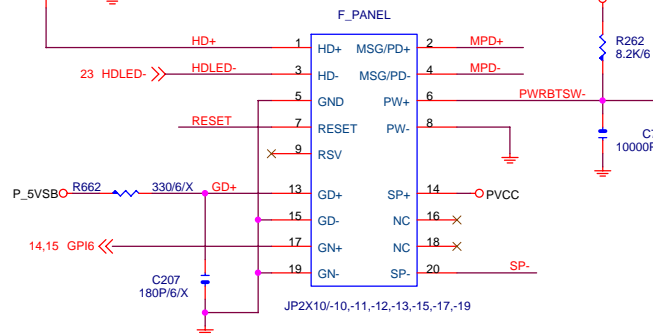


(GPO28 DEFAULT HIGH, RESUME WELL)

States for green LED

LED States	ACPI States	GPO28
ON	S1, S3	0
OFF	S0, S5	1

**INTEL FRONT PANEL**



**States for a single-color power LED**

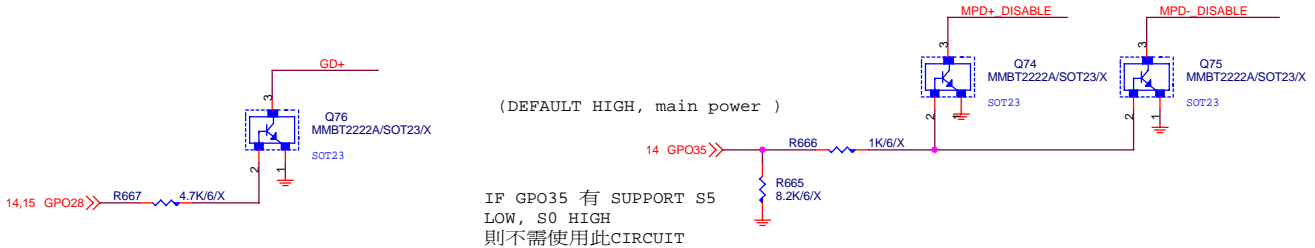
LED States	ACPI States	GPO25	GPO27	GPO35
OFF	S1, S3, S5	1	1	NO1
Steady Green	S0	0	1	0
Blinking Green	S0(message waiting)	0	B	0

NO1 GPO35 只需在 S1 PROGRAMMING LOW

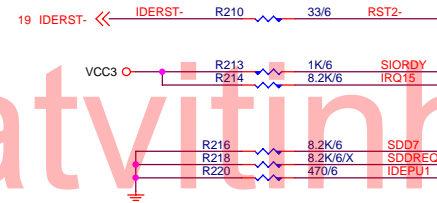
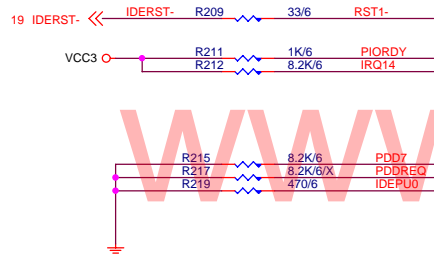
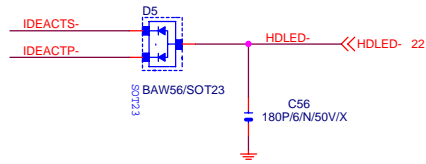
**States for a dual-color power LED**

LED States	ACPI States	GPO25	GPO27	GPO35
OFF	S5	1	1	X
Steady Green	S0	0	1	0
Blinking Green	S0(message waiting)	0	B	0
Steady Yellow	S1, S3	1	0	NO1
Blinking Yellow	S1, S3(message waiting)	1	B	NO1

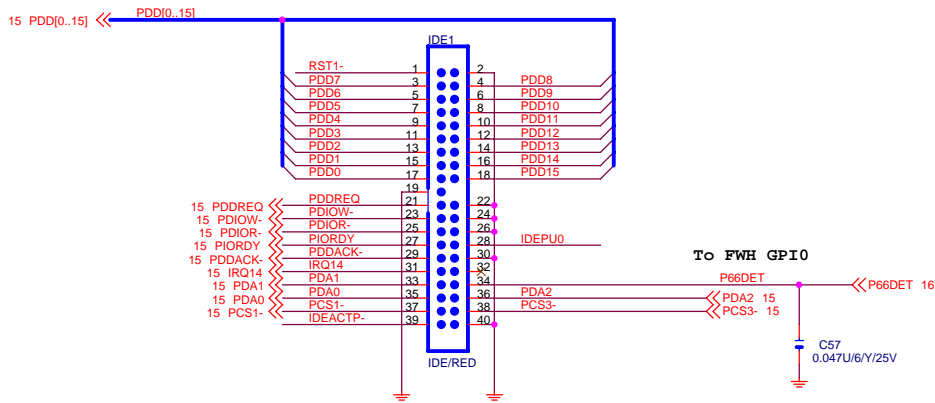
(DEFAULT HIGH, main power)



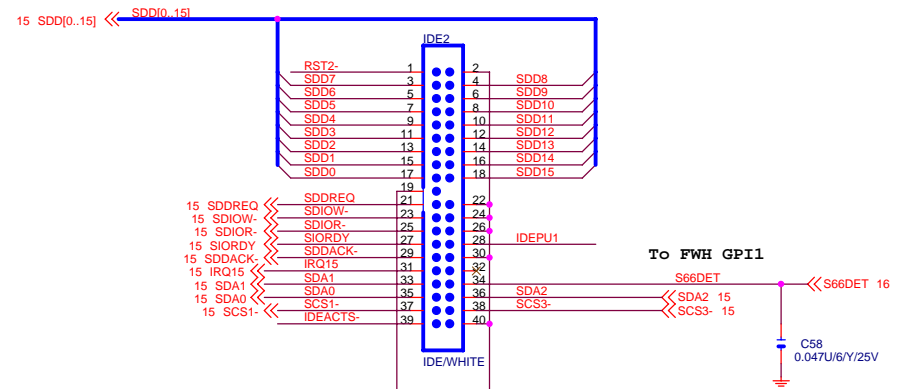
IF GPO35 有 SUPPORT S5 LOW, S0 HIGH 則不需使用此CIRCUIT



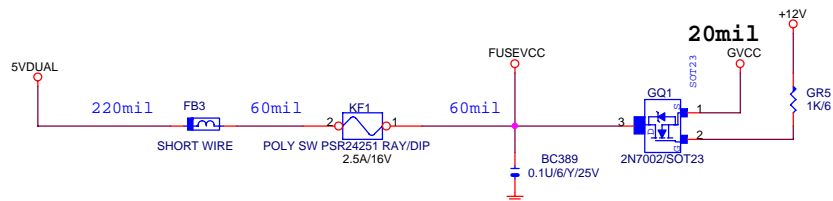
PRIMARY IDE CONNECTOR



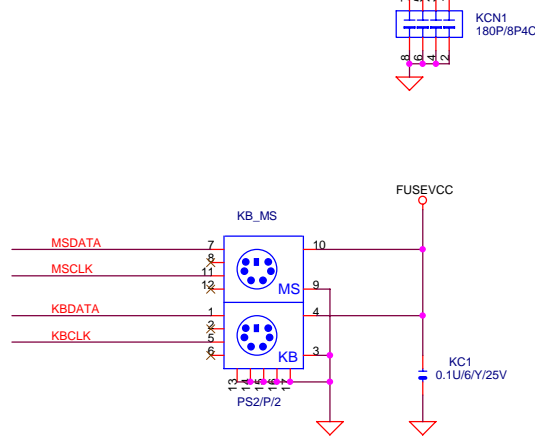
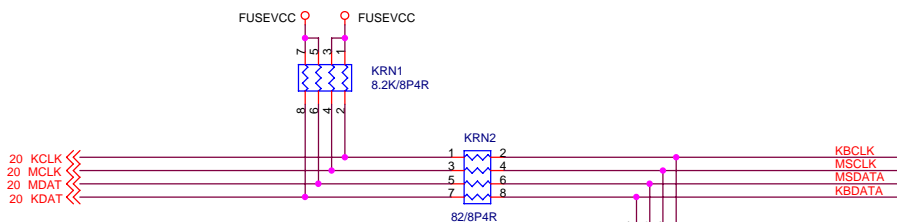
SECONDARY IDE CONNECTOR



GIGABYTE			
Title			
<b>IDE CONNECTOR</b>			
Size B	Document Number	<b>GA-8GEM800</b>	Rev <b>1.0</b>
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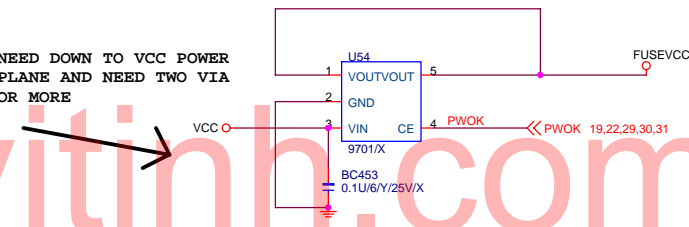


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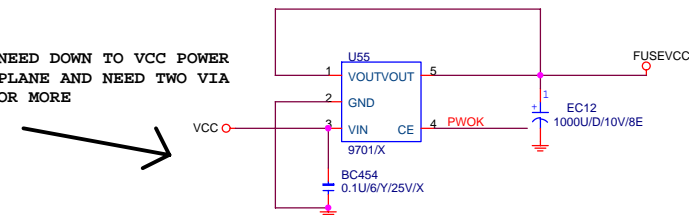
**NEAR F\_USB1 CONNECTOR**

NEED DOWN TO VCC POWER PLANE AND NEED TWO VIA OR MORE



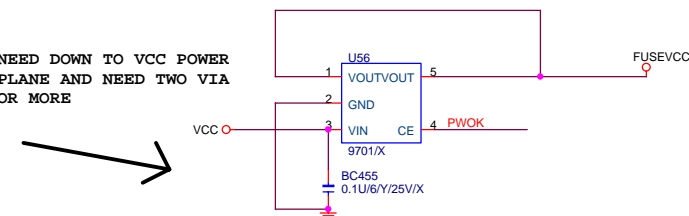
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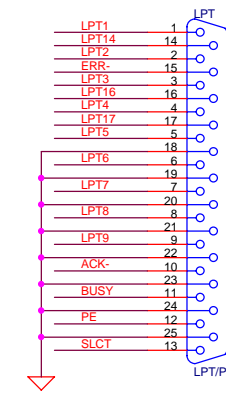
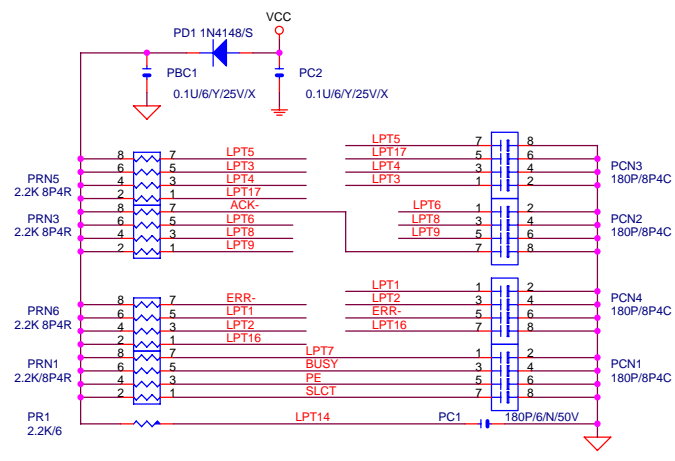
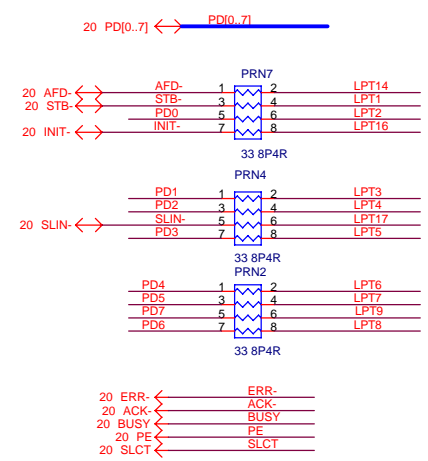
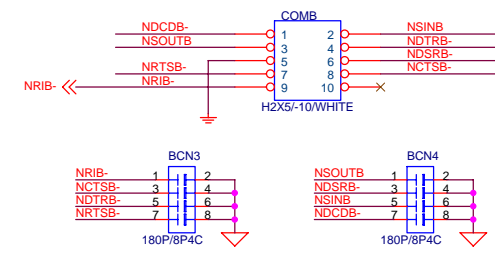
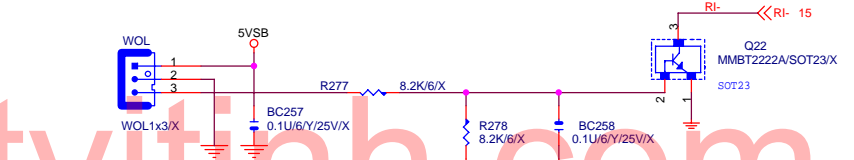
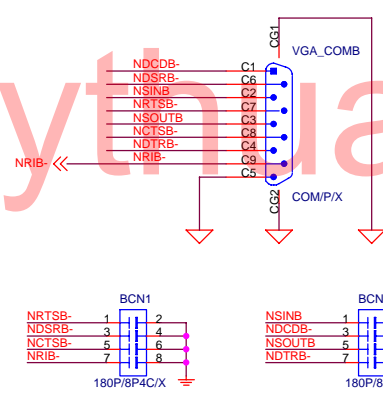
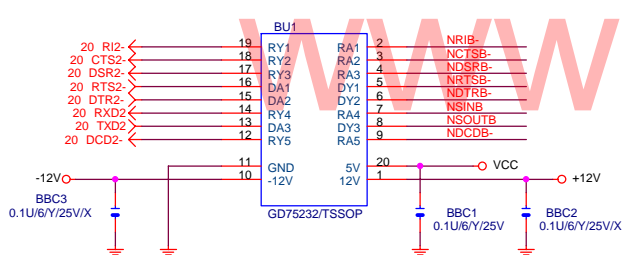
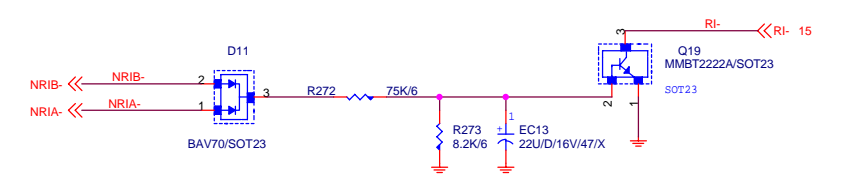
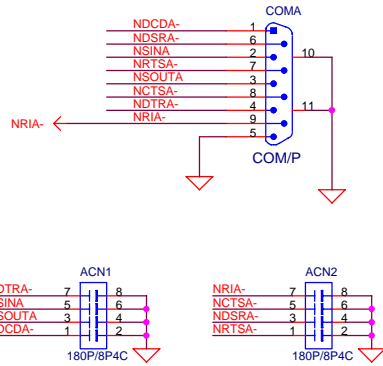
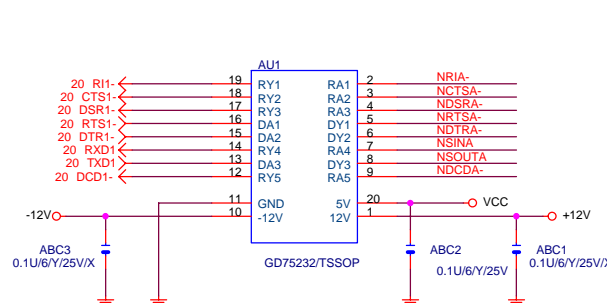


**NEAR USB\_LAN CONNECTOR**

NEED DOWN TO VCC POWER PLANE AND NEED TWO VIA OR MORE

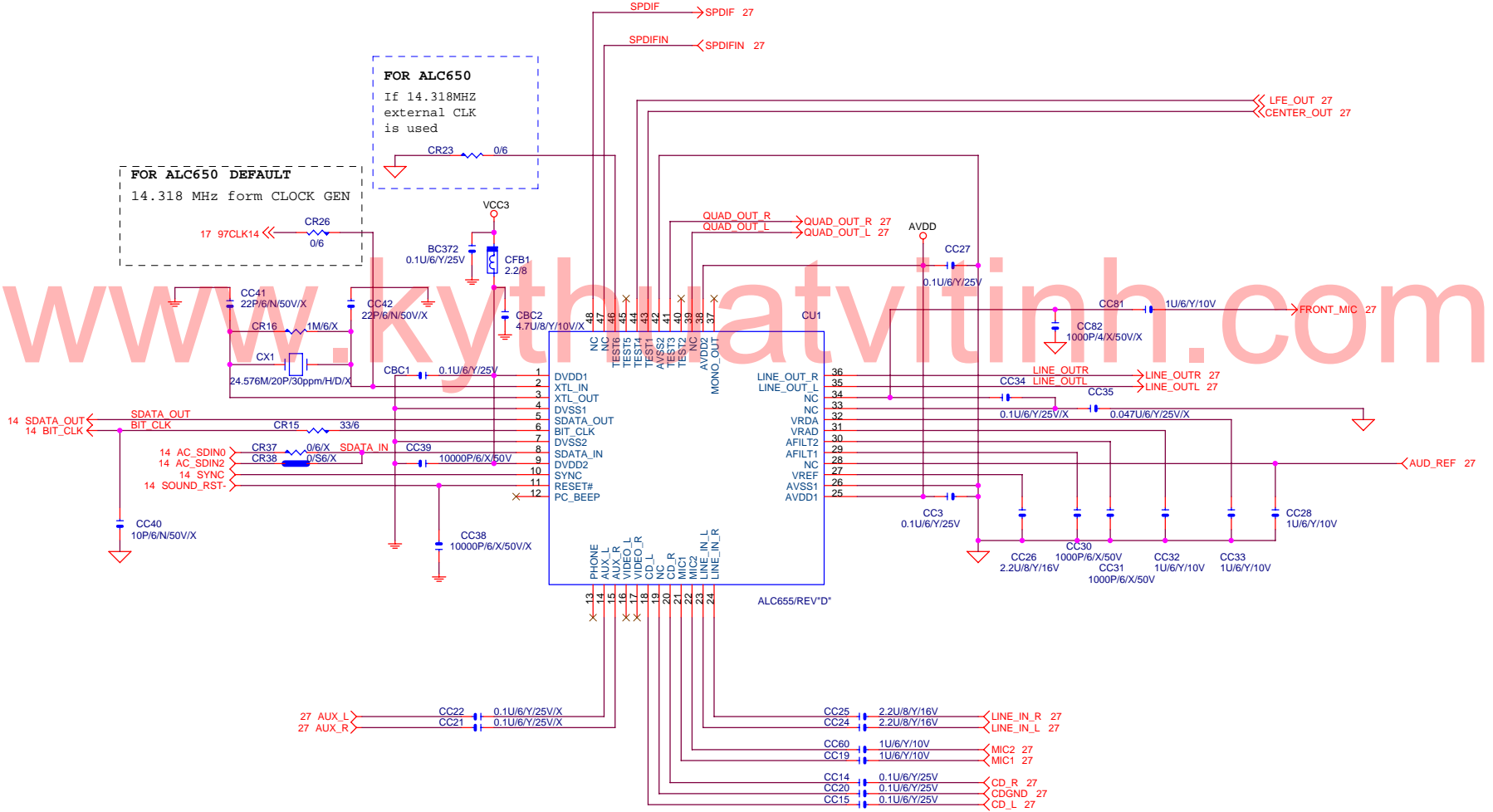




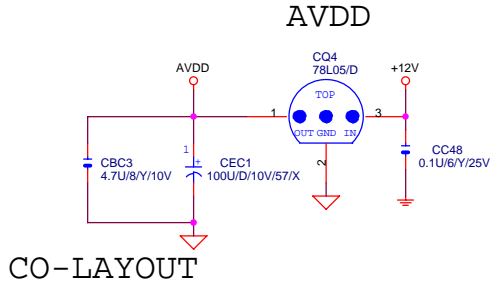


GIGABYTE CORP.

Title		
COM & IR & LPT PORT & FLOOPY		
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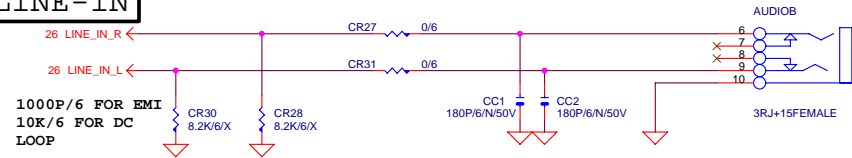


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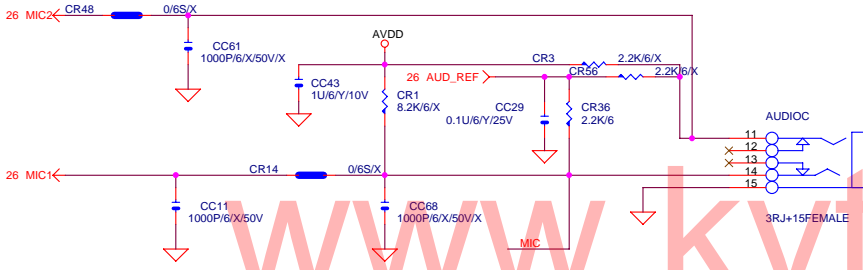


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<b>AC97</b>		
Size	Document Number	Rev
B	<b>GA-8GEM800</b>	<b>1.0</b>
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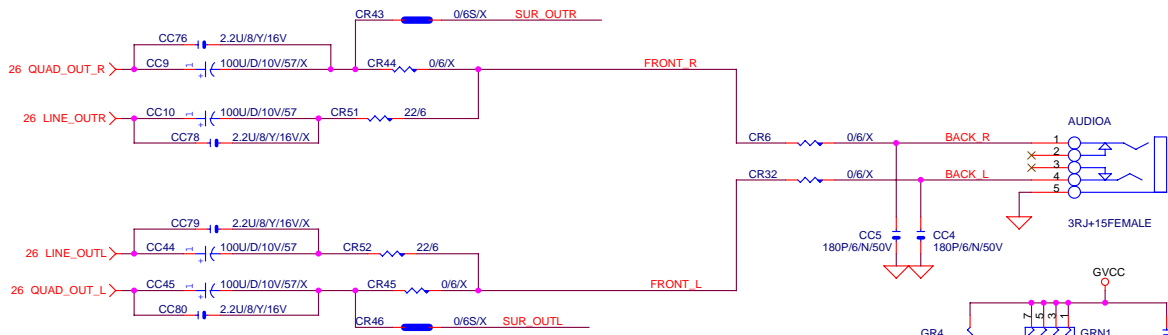
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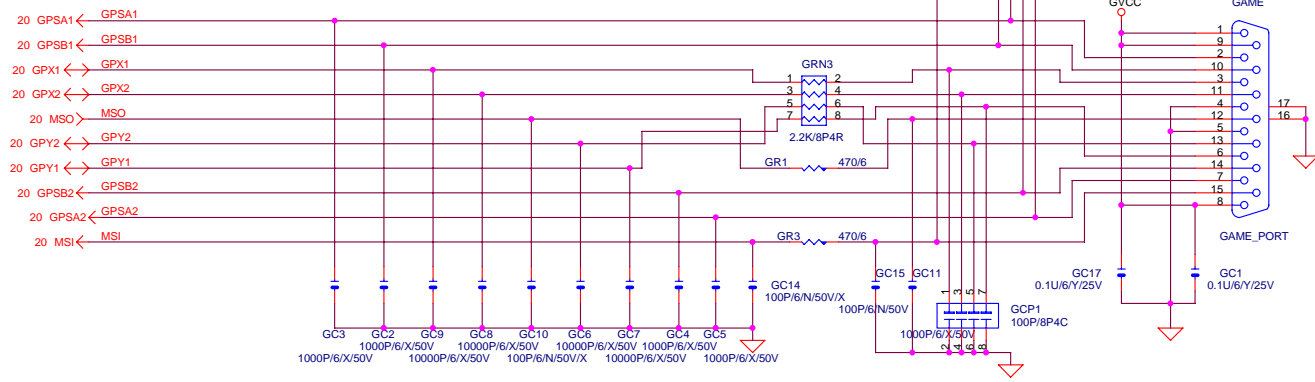
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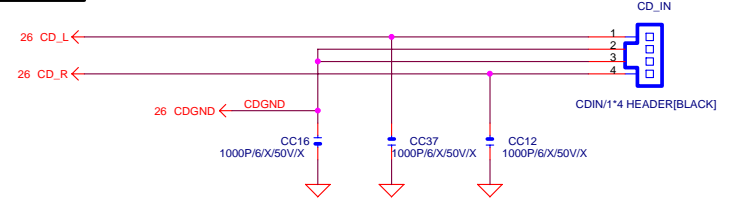
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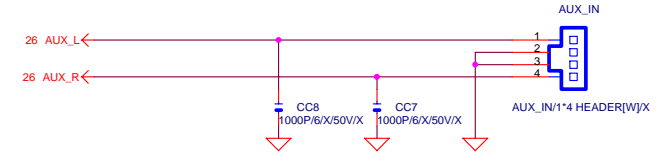
**GAME\_PORT**



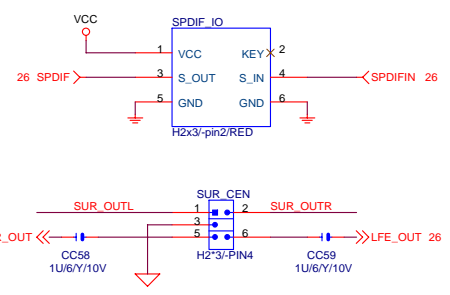
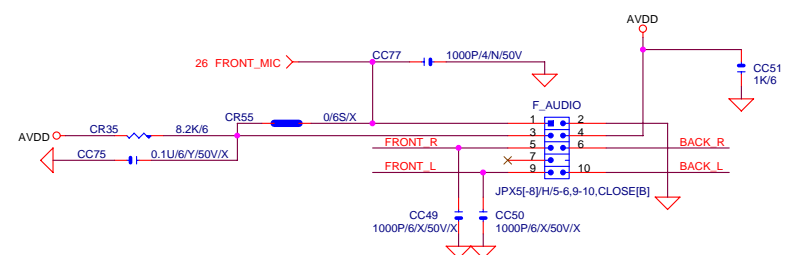
**CDIN**



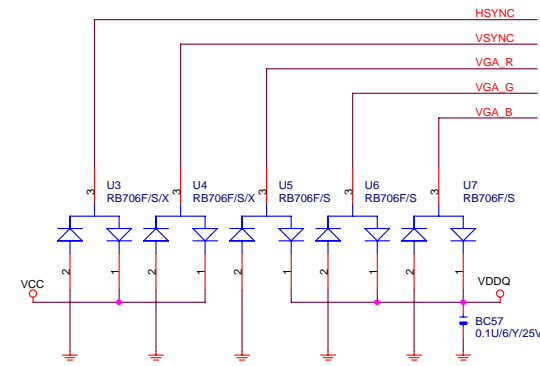
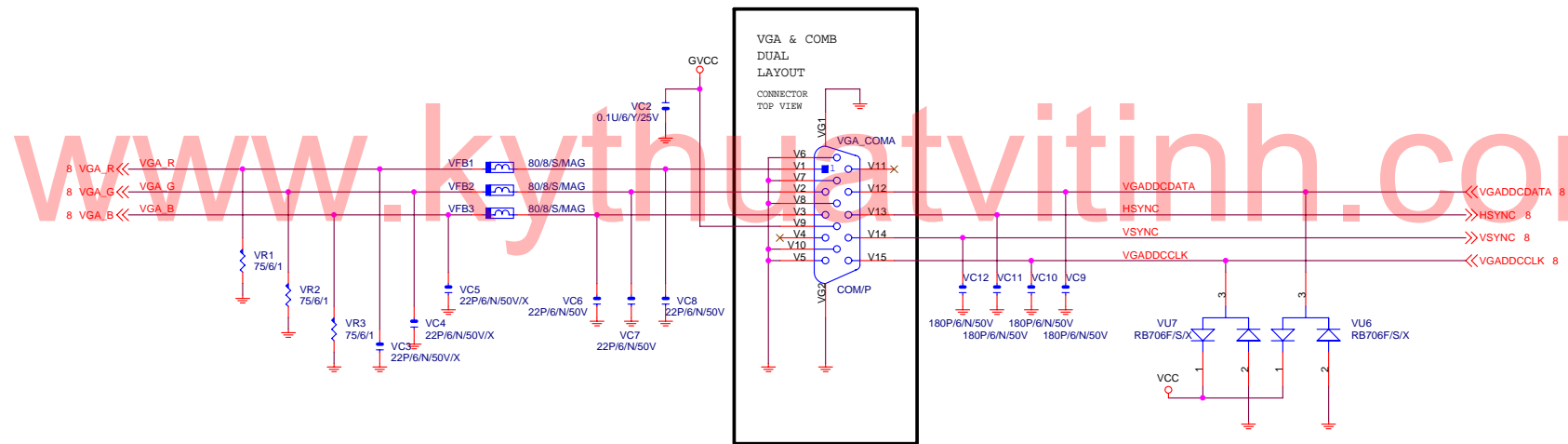
**AUX\_IN**



**INTEL FRONT AUDIO**

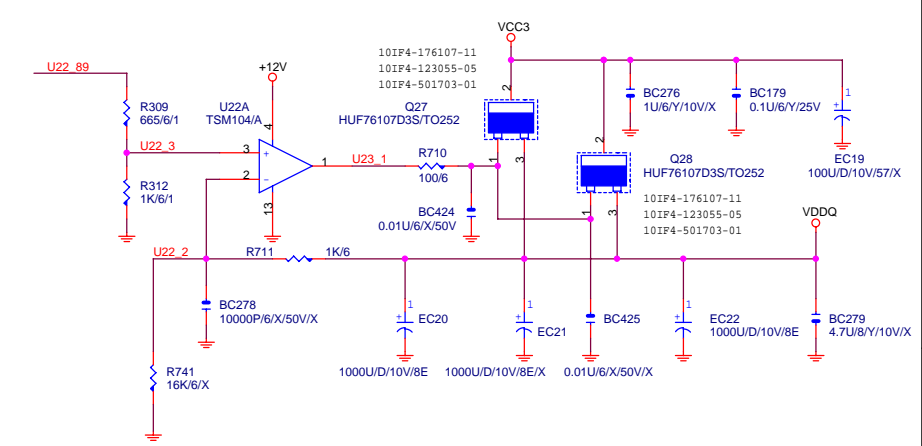
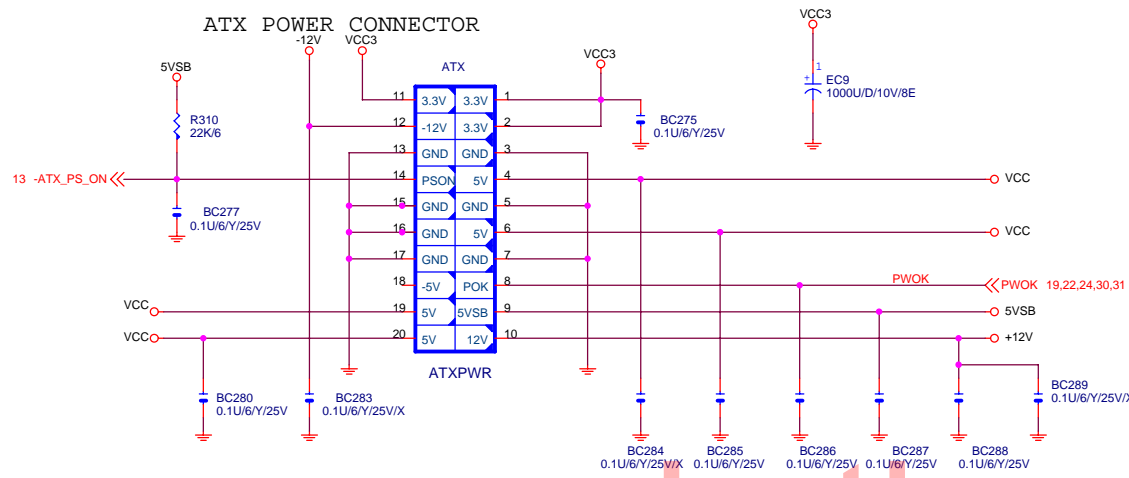


GIGABYTE CORP.			
Title	PHONE JACK, GAME PORT		
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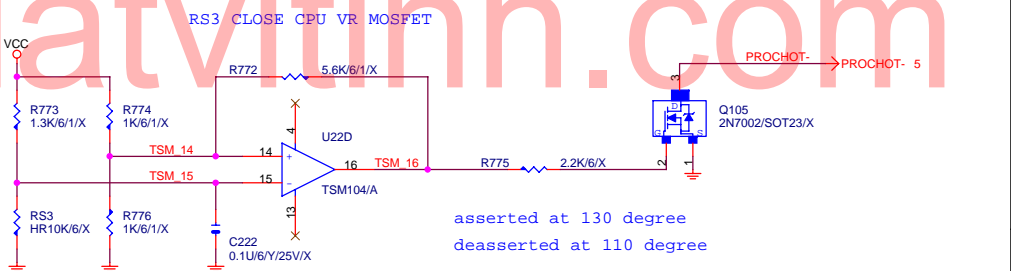


Title			VGA CONNECTOR		
Size	Document Number				Rev
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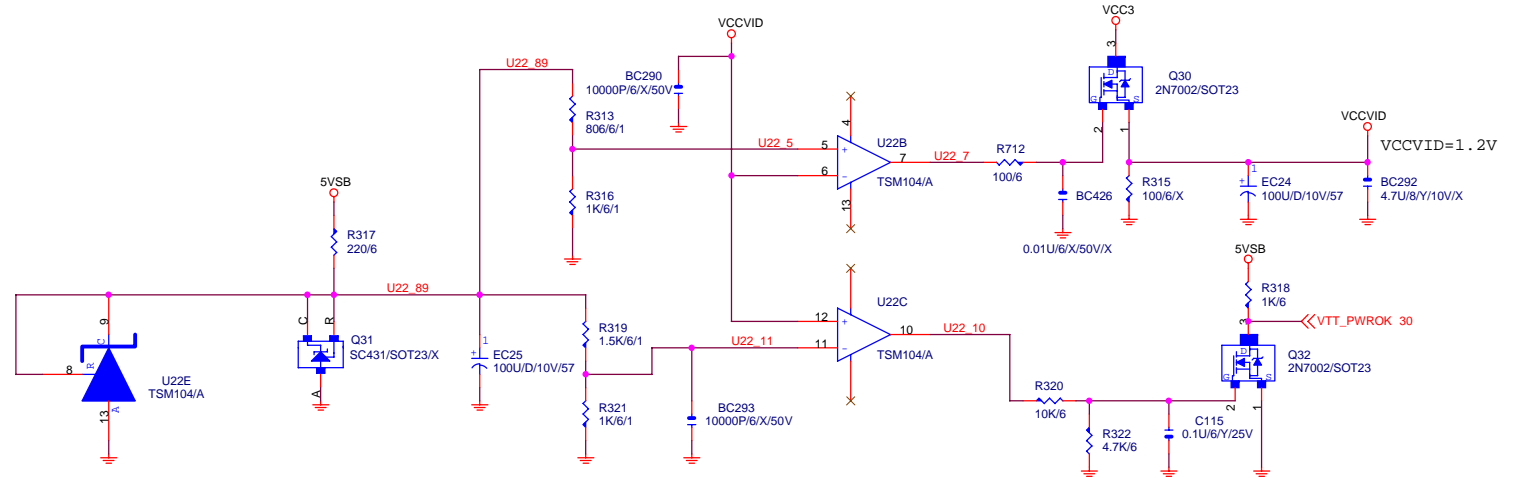
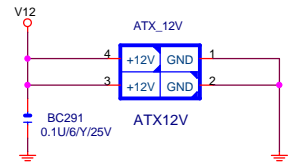
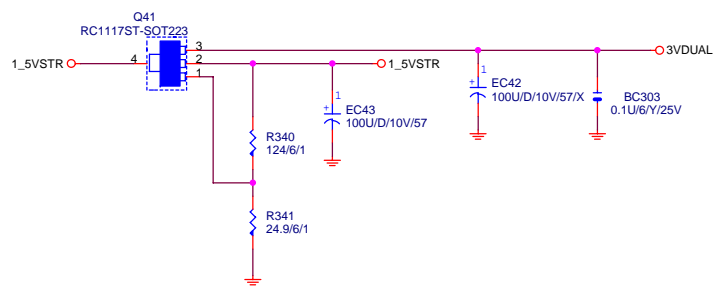
### ATX POWER CONNECTOR



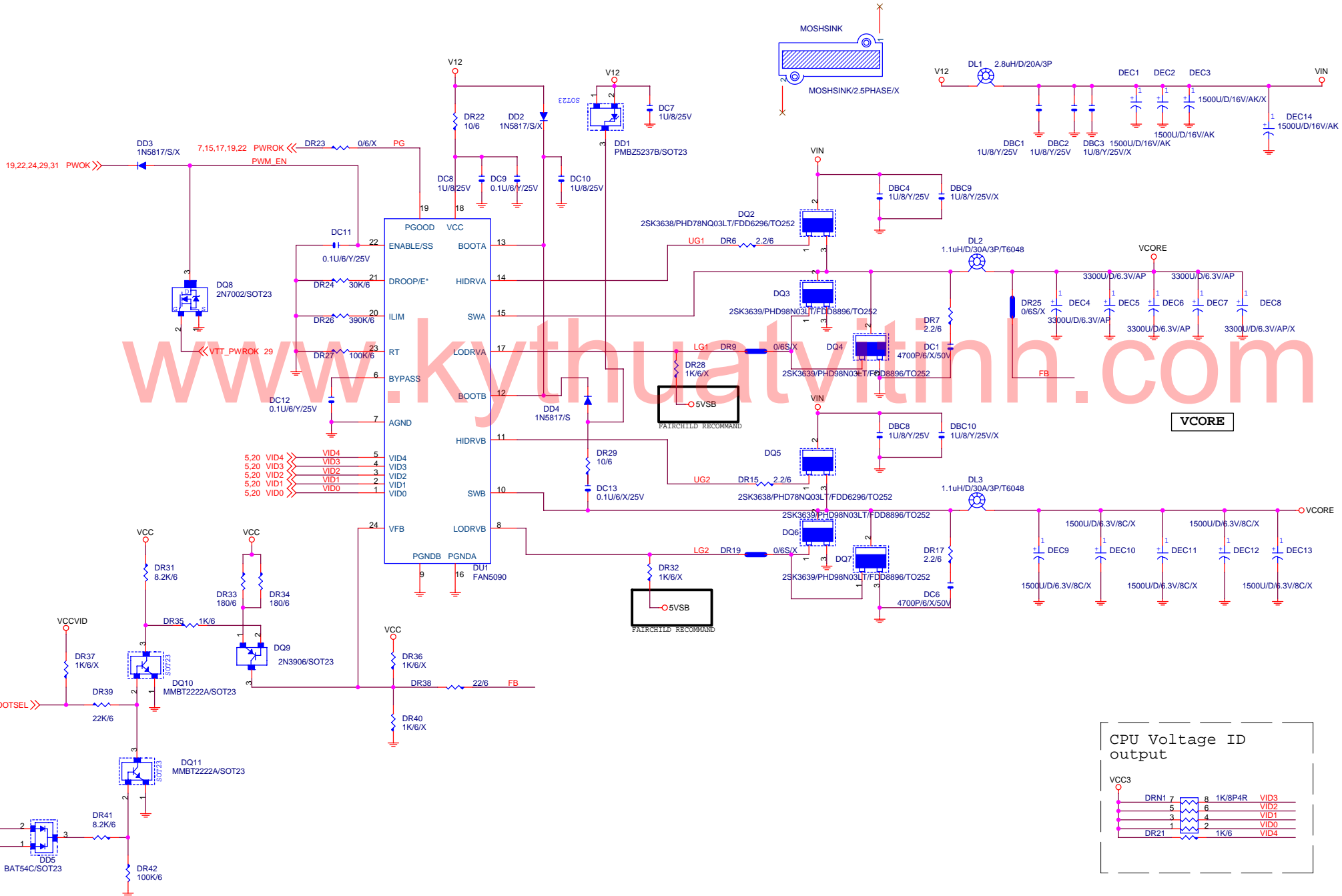
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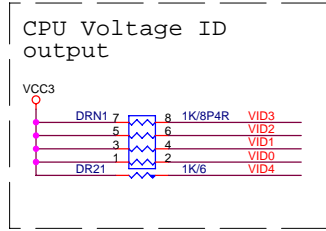
asserted at 130 degree  
deasserted at 110 degree



GIGABYTE			
Title			
<b>Misc. PWR &amp; ATX CONN.</b>			
Size B	Document Number	<b>GA-8GEM800</b>	
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			Rev <b>1.0</b>

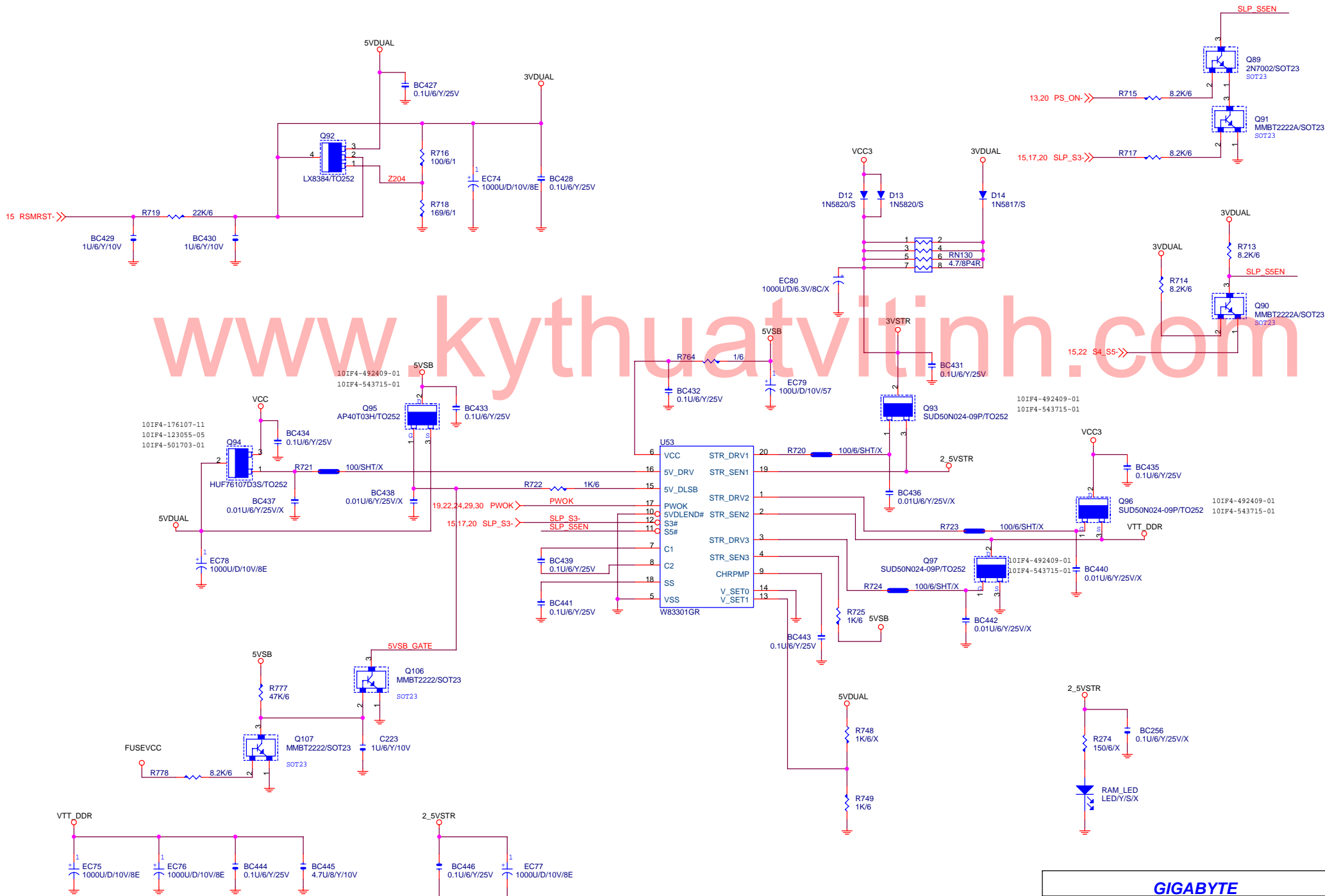


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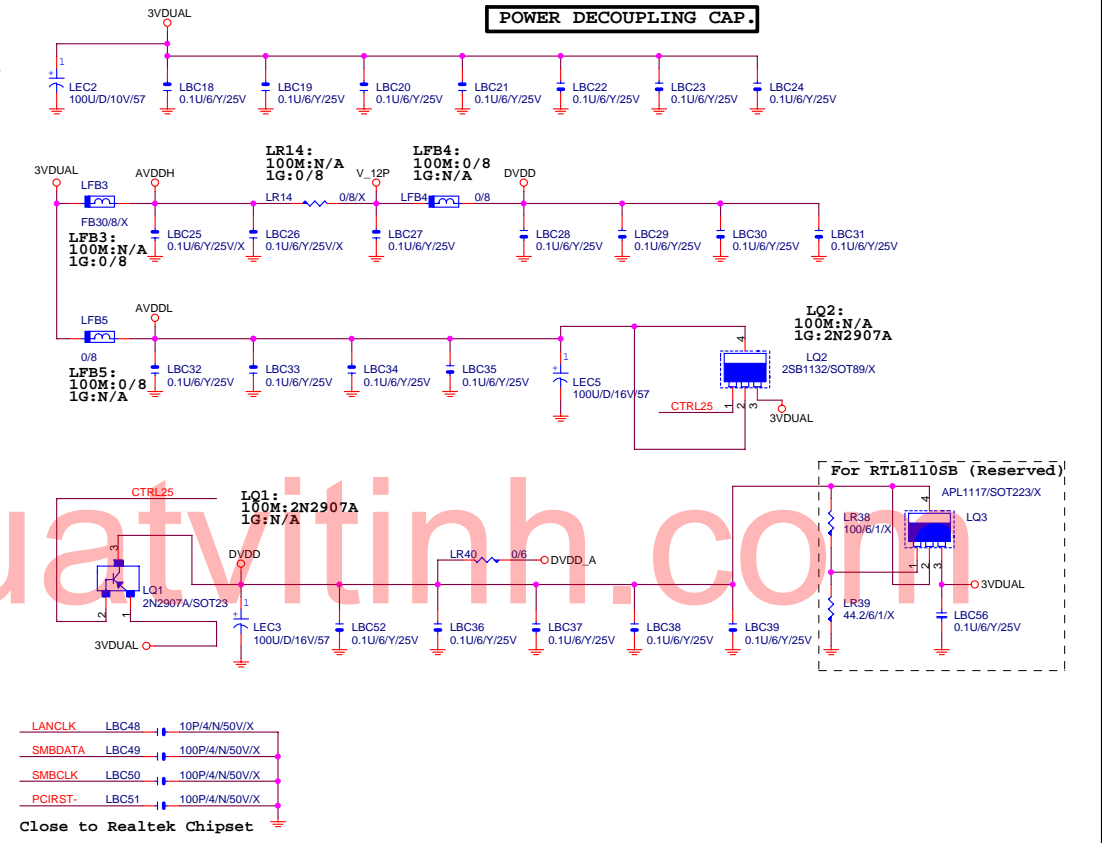
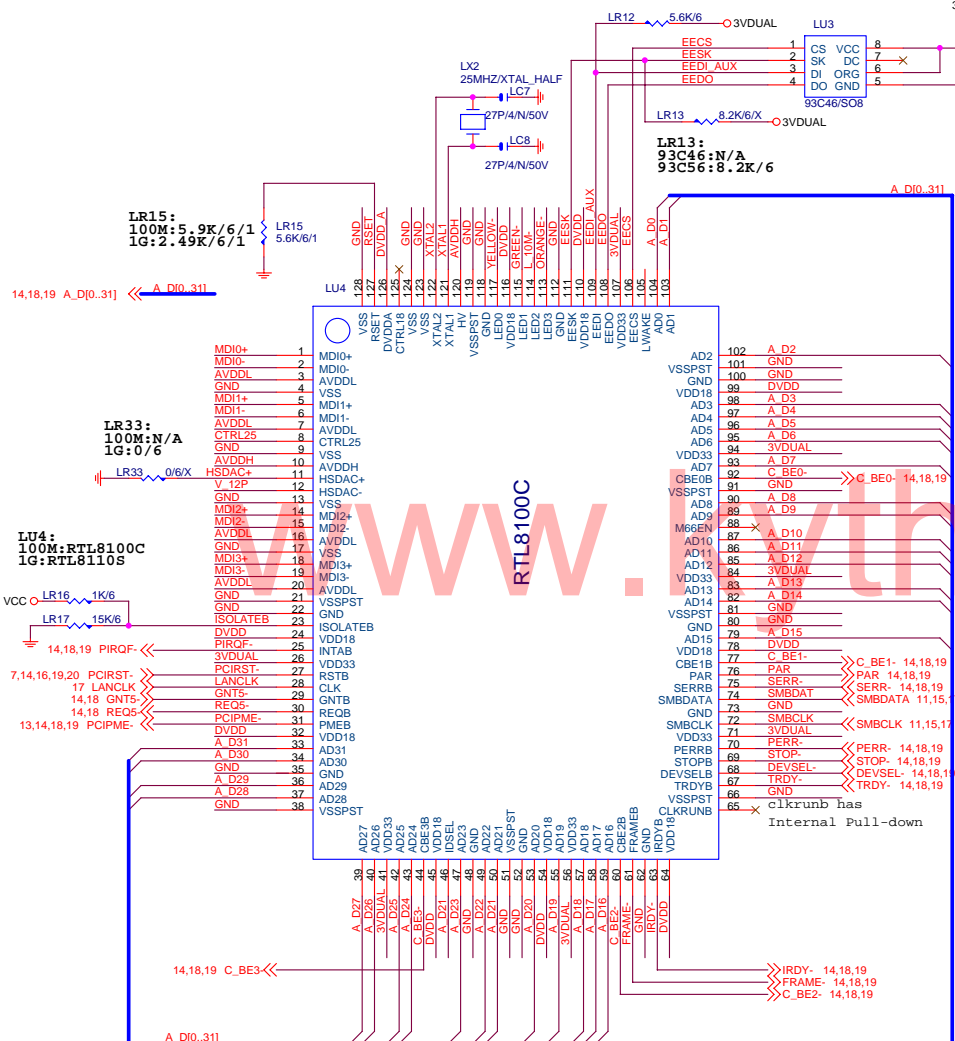


GIGABYTE			
Title			
<b>Vcore PWM HIP6301/6302CB</b>			
Size	Document Number	Rev	
Custom	<b>GA-8GEM800</b>	<b>1.0</b>	
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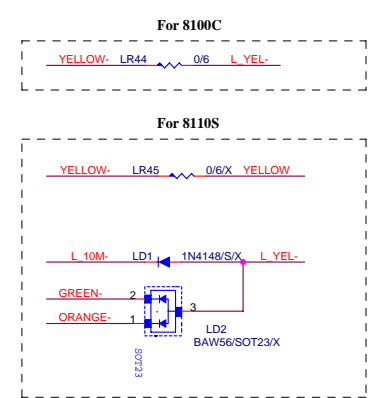
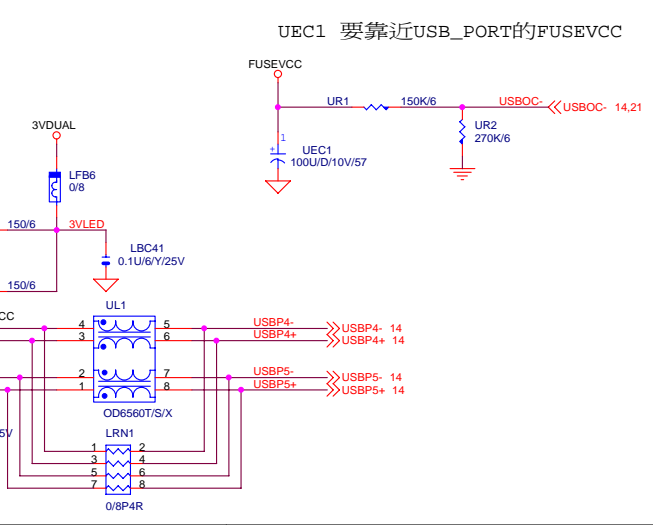
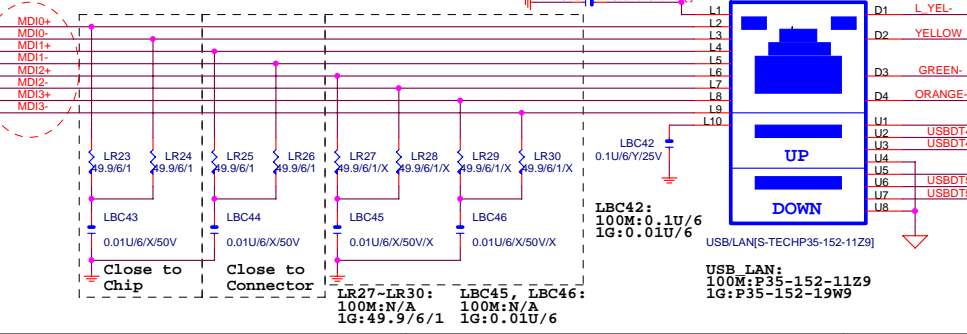
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Title		
GIGABYTE		
DDR POWER		
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Spacing : at least 50 mils between each differential pair



<b>GIGABYTE</b>		
Title <b>RTL8110S-32/RTL8100C 10/100/1G LAN</b>		
Size Custom	Document Number <b>GA-8GEM800</b>	Rev <b>1.0</b>
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