

Model Name: GA-Q77M-D2H

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCI EXPRESS*16 SLOT
10	PCH_FDI,DMI,USB,PCIE
11	PCH_DP,CLK BUFFER
12	PCH_HOST,SATA,PCI
13	PCH_GPIO,CTRL,AUDIO
14	PCH_PWR,GND
15	PCH_HDMI,DVI,DP
16	PCI EXPRESS*4 SLOT
17	PCI & PCIEX1 SLOT
18	INTEL 82579 LAN
19	ITE 8728 LPC IO
20	COM,LPT,80 Port
21	BIOS, TPM
22	VCORE /VAXG PWM_ISL95836-1
23	VCORE /VAXG PWM_ISL95836-2
24	RT8120-DDR POWWER
25	RT8120-VTT POWER
26	DISCRET POWER1
27	DISCRET POWER2

SHEET

TITLE

28	ATX,RUSB,PROCHOT-
29	VT2021 CODEC
30	REAR AUDIO JACK
31	FP,FUSB,SPKR
32	HWM,KB/MS, FAN CTRL
33	
34	
35	
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Title			
Cover Sheet			
Size	Document Number	Rev	
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**Model Name:** GA-Q77M-D2H

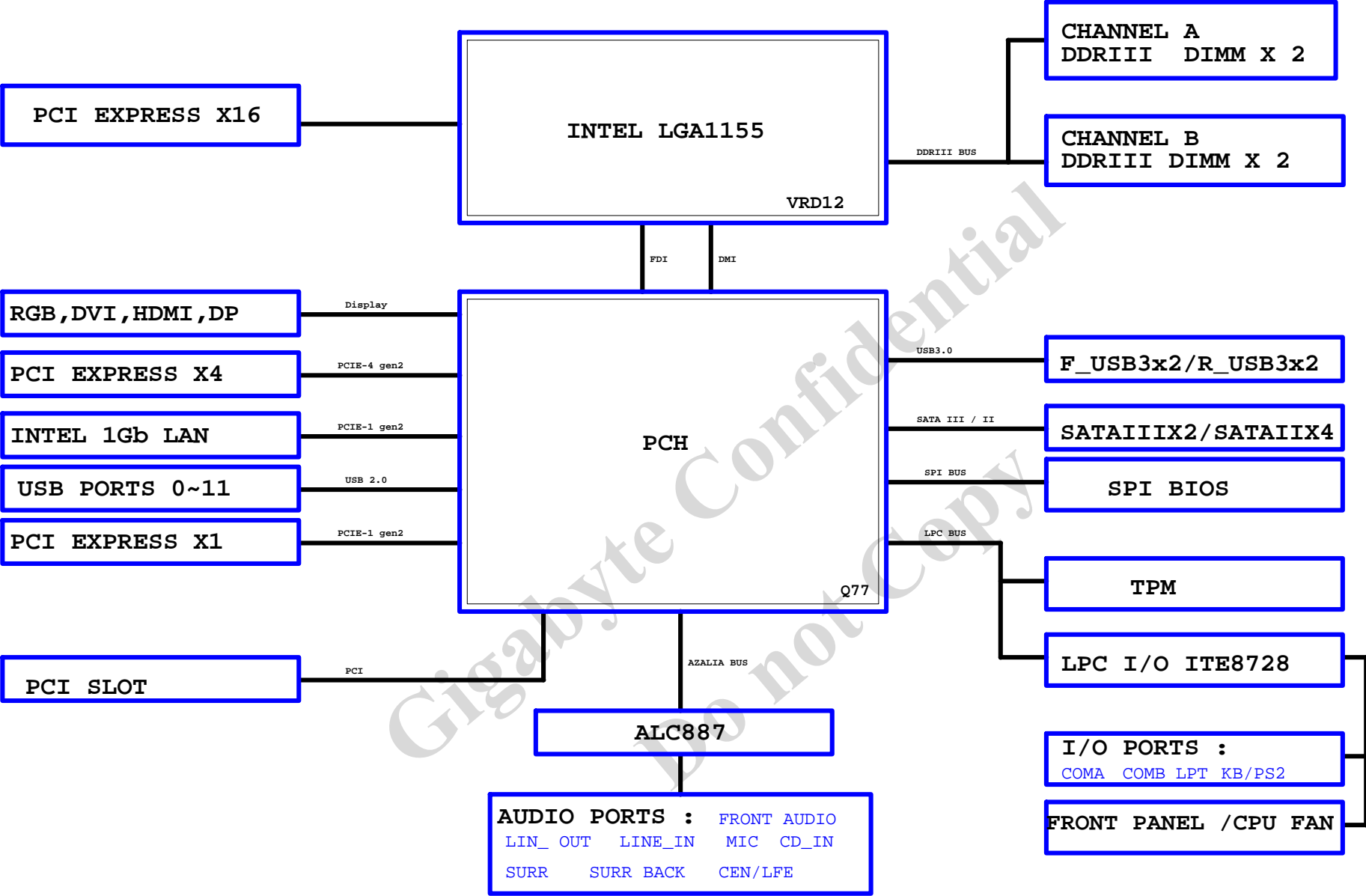
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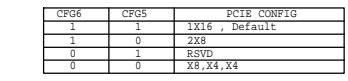
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## Circuit or PCB layout change

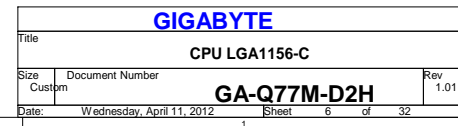
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BLOCK DIAGRAM

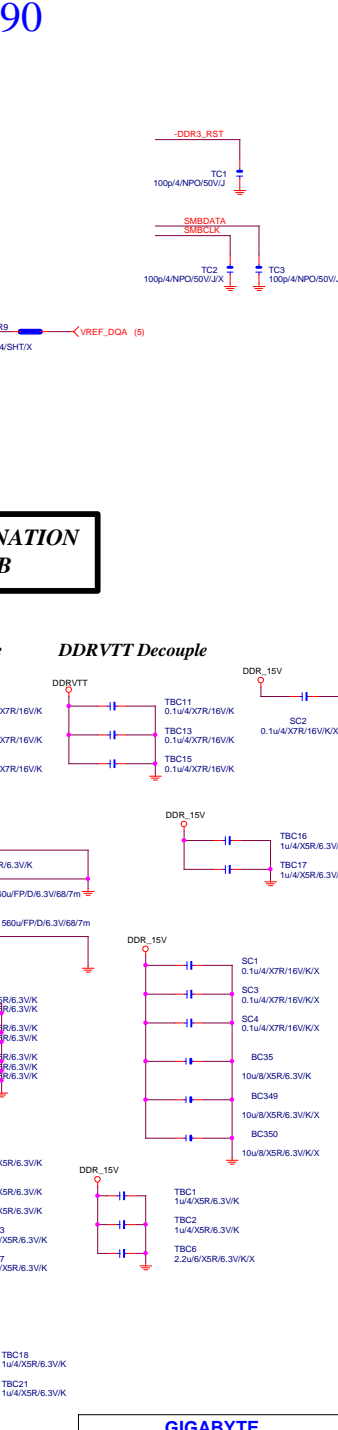
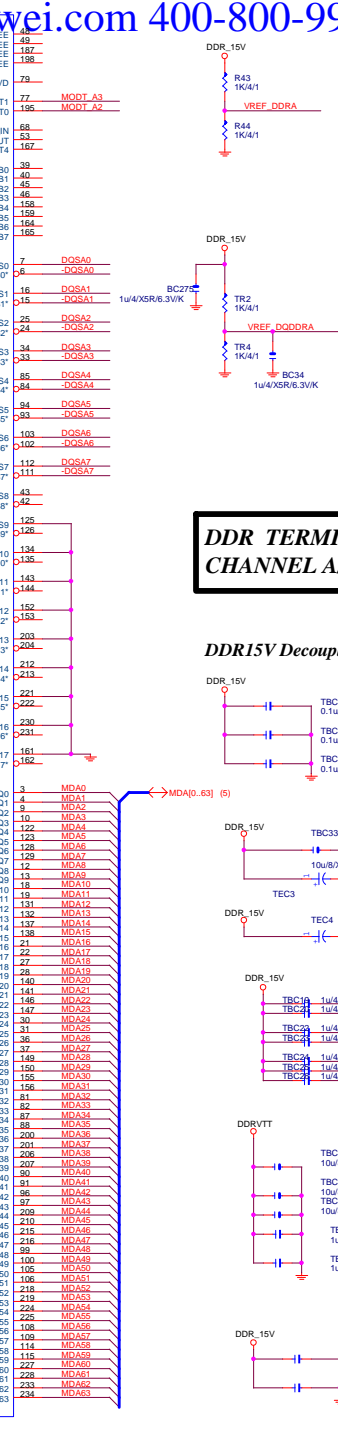
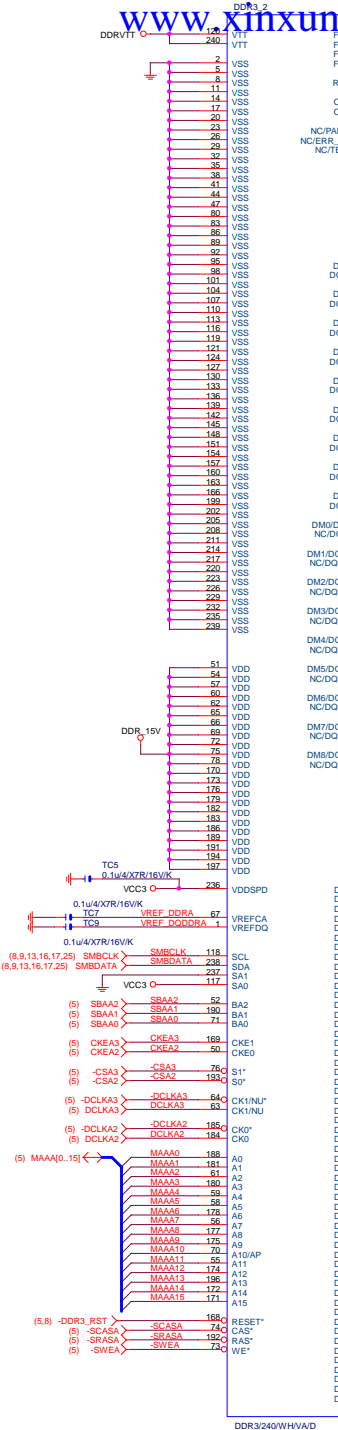
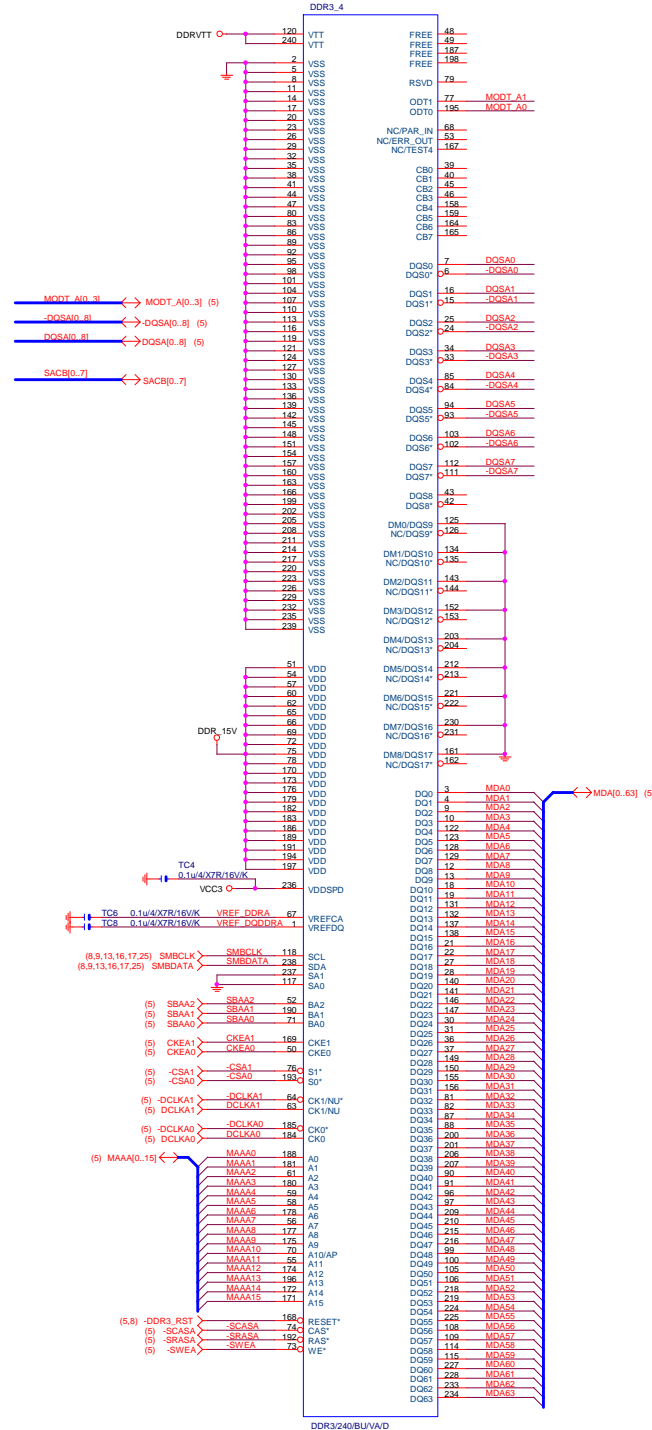












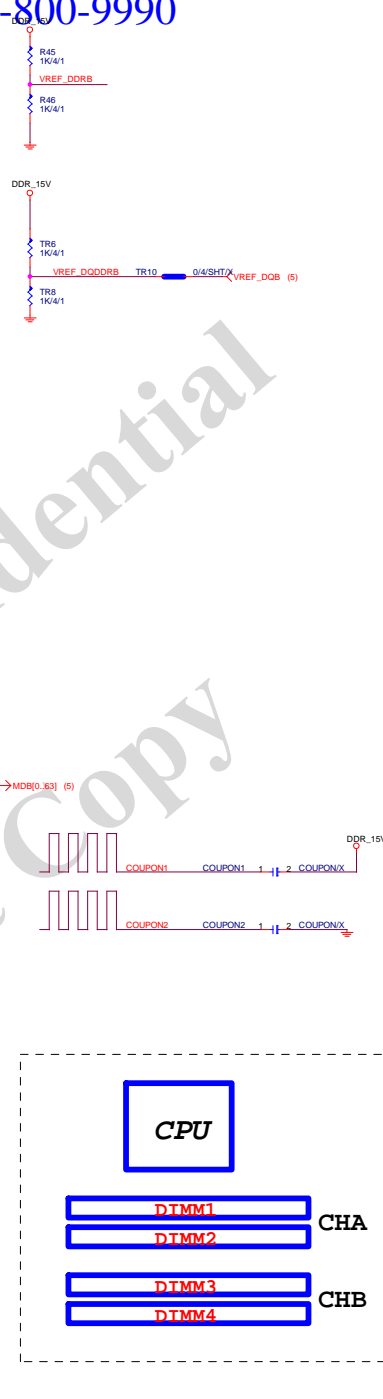
DDR TERMINATION CHANNEL A/B

DDR15V Decouple

DDRVTT Decouple

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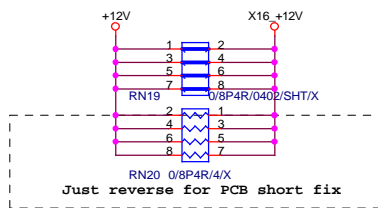
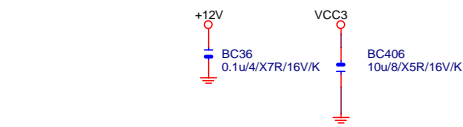
Title	DDR3 CHANNEL A
Size	Document Number
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CHB

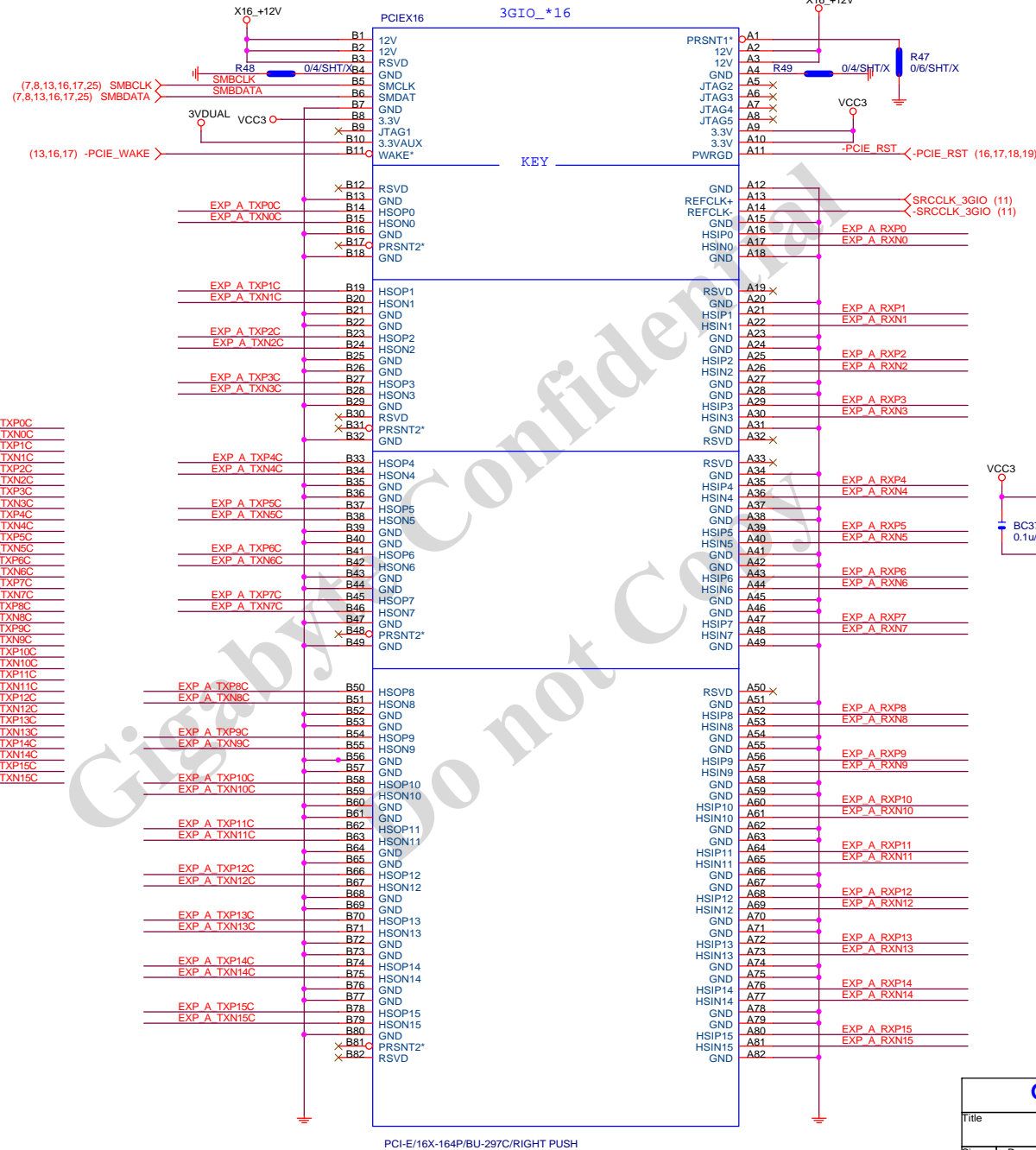




EXP A RXP0[0..15] >>> EXP\_A\_RXP[0..15] (4)  
EXP A RXN0[0..15] >>> EXP\_A\_RXN[0..15] (4)

EXP A TXP0[0..15] >>> EXP\_A\_TXP[0..15] (4)  
EXP A TXN0[0..15] >>> EXP\_A\_TXN[0..15] (4)

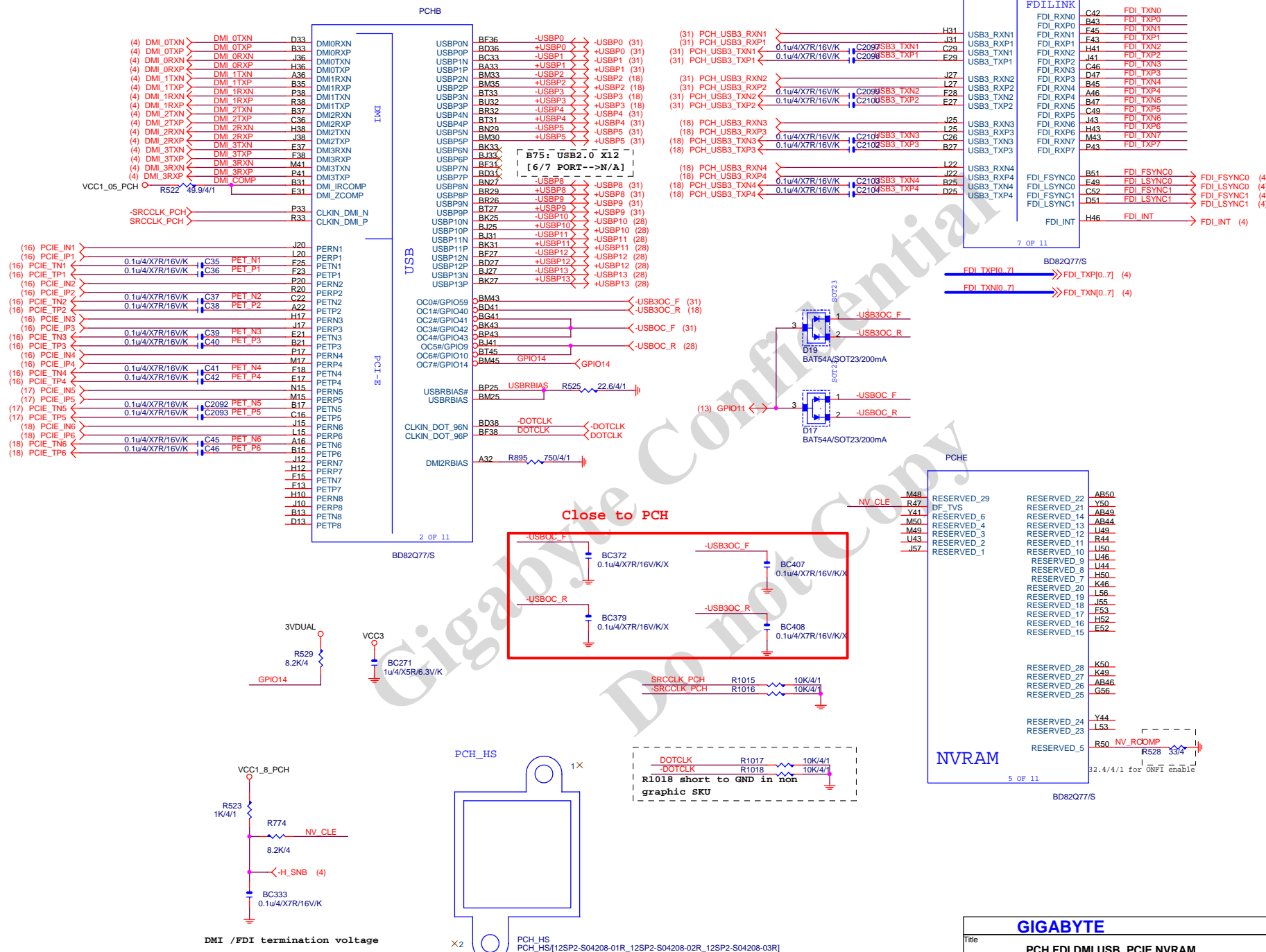
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EXP A TXN0	C3	0.22u4/X5R/6.3V/K	EXP A TXN0C
EXP A TXP1	C4	0.22u4/X5R/6.3V/K	EXP A TXP1C
EXP A TXN1	C5	0.22u4/X5R/6.3V/K	EXP A TXN1C
EXP A TXP2	C6	0.22u4/X5R/6.3V/K	EXP A TXP2C
EXP A TXN2	C7	0.22u4/X5R/6.3V/K	EXP A TXN2C
EXP A TXP3	C8	0.22u4/X5R/6.3V/K	EXP A TXP3C
EXP A TXN3	C9	0.22u4/X5R/6.3V/K	EXP A TXN3C
EXP A TXP4	C10	0.22u4/X5R/6.3V/K	EXP A TXP4C
EXP A TXN4	C11	0.22u4/X5R/6.3V/K	EXP A TXN4C
EXP A TXP5	C12	0.22u4/X5R/6.3V/K	EXP A TXP5C
EXP A TXN5	C13	0.22u4/X5R/6.3V/K	EXP A TXN5C
EXP A TXP6	C14	0.22u4/X5R/6.3V/K	EXP A TXP6C
EXP A TXN6	C15	0.22u4/X5R/6.3V/K	EXP A TXN6C
EXP A TXP7	C16	0.22u4/X5R/6.3V/K	EXP A TXP7C
EXP A TXN7	C17	0.22u4/X5R/6.3V/K	EXP A TXN7C
EXP A TXP8	C18	0.22u4/X5R/6.3V/K	EXP A TXP8C
EXP A TXN8	C19	0.22u4/X5R/6.3V/K	EXP A TXN8C
EXP A TXP9	C20	0.22u4/X5R/6.3V/K	EXP A TXP9C
EXP A TXN9	C21	0.22u4/X5R/6.3V/K	EXP A TXN9C
EXP A TXP10	C22	0.22u4/X5R/6.3V/K	EXP A TXP10C
EXP A TXN10	C23	0.22u4/X5R/6.3V/K	EXP A TXN10C
EXP A TXP11	C24	0.22u4/X5R/6.3V/K	EXP A TXP11C
EXP A TXN11	C25	0.22u4/X5R/6.3V/K	EXP A TXN11C
EXP A TXP12	C26	0.22u4/X5R/6.3V/K	EXP A TXP12C
EXP A TXN12	C27	0.22u4/X5R/6.3V/K	EXP A TXN12C
EXP A TXP13	C28	0.22u4/X5R/6.3V/K	EXP A TXP13C
EXP A TXN13	C29	0.22u4/X5R/6.3V/K	EXP A TXN13C
EXP A TXP14	C30	0.22u4/X5R/6.3V/K	EXP A TXP14C
EXP A TXN14	C31	0.22u4/X5R/6.3V/K	EXP A TXN14C
EXP A TXP15	C32	0.22u4/X5R/6.3V/K	EXP A TXP15C
EXP A TXN15	C33	0.22u4/X5R/6.3V/K	EXP A TXN15C

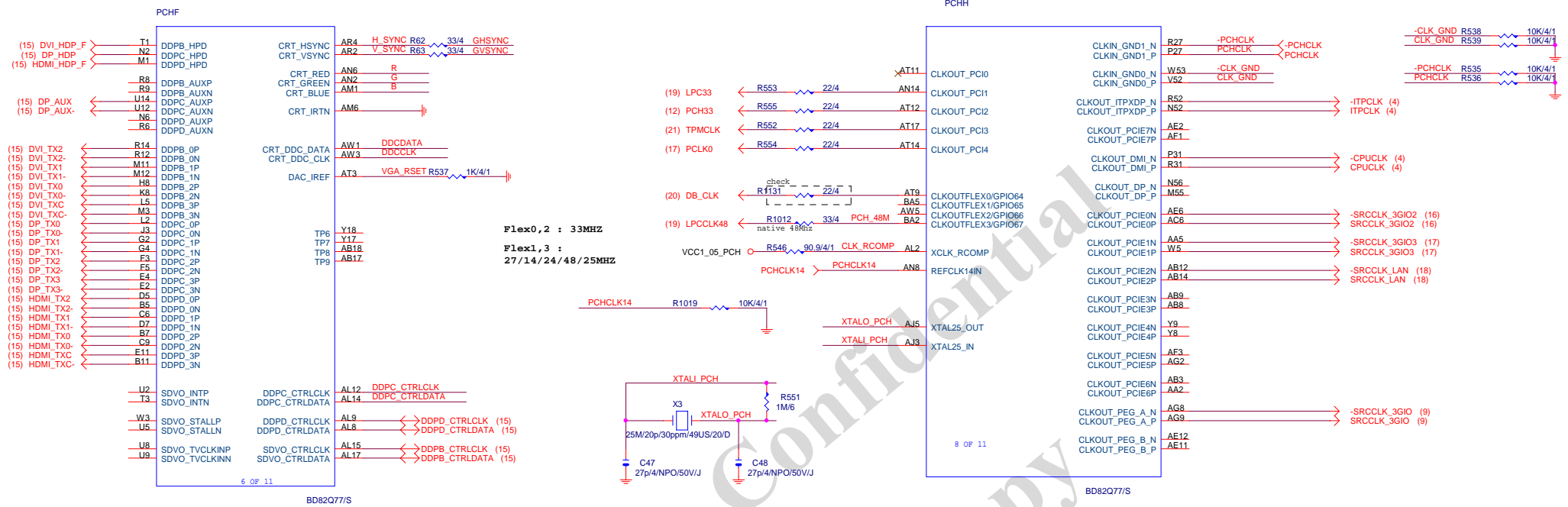


PCI-E/16X-164P/BU-297C/RIGHT PUSH

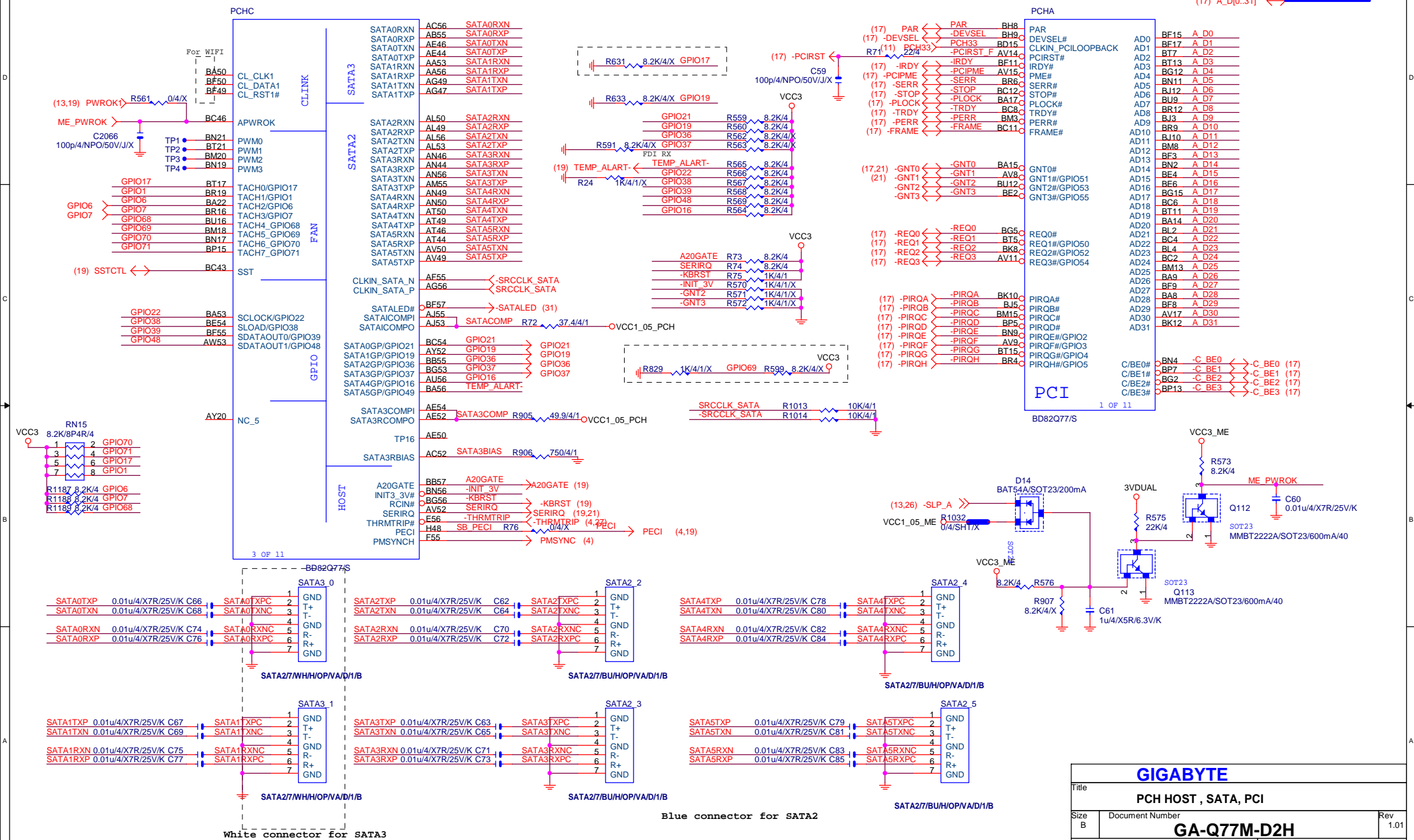
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PCI EXPRESS * 16			
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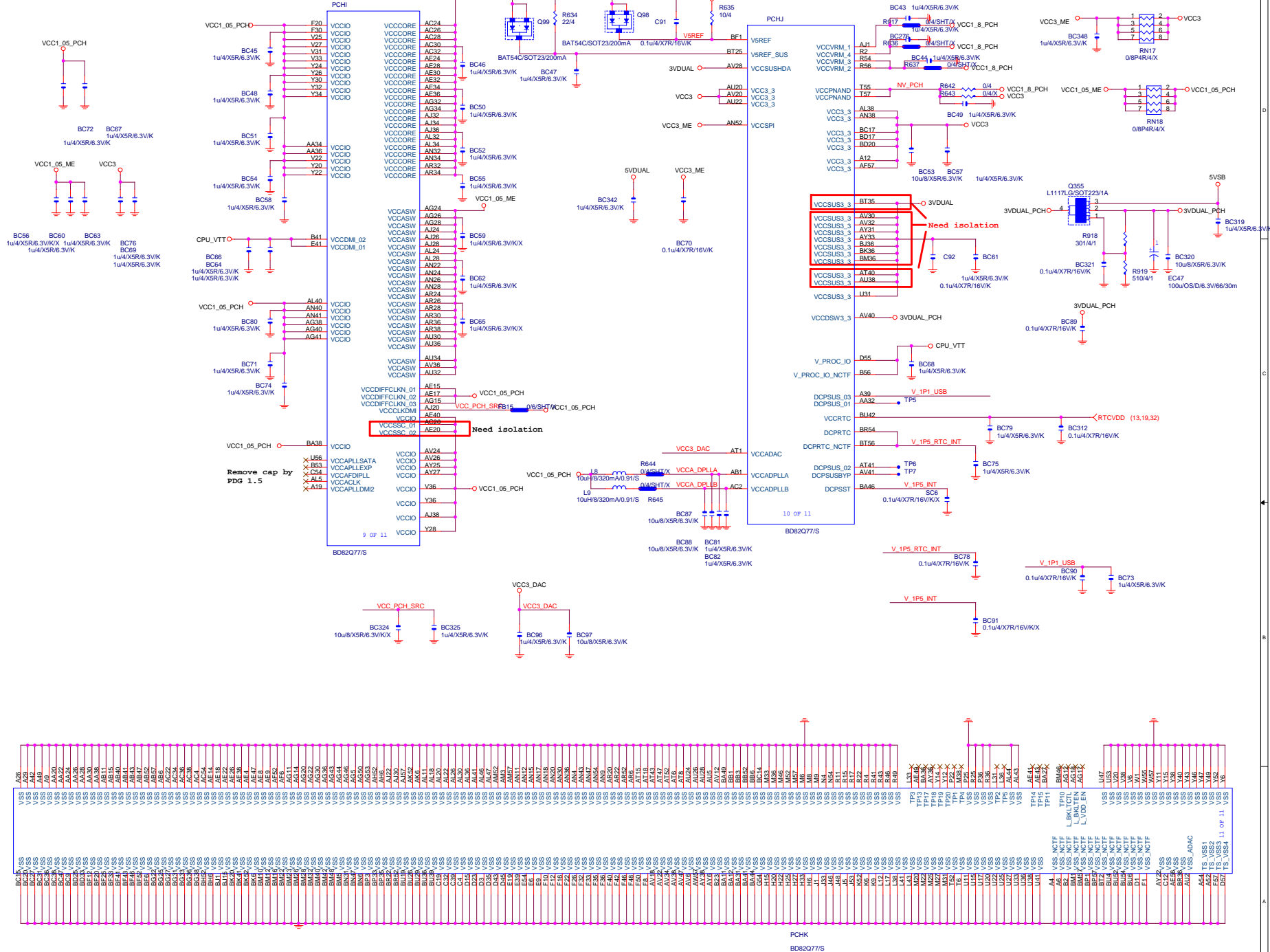


<b>GIGABYTE</b>			
Title			
<b>PCH DISPLAY ,CLK BUFFER</b>			
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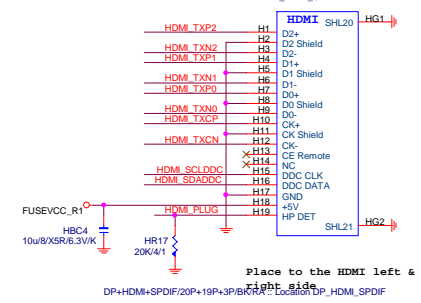
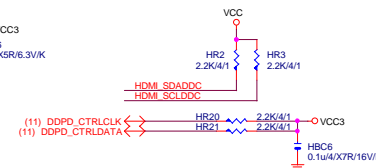
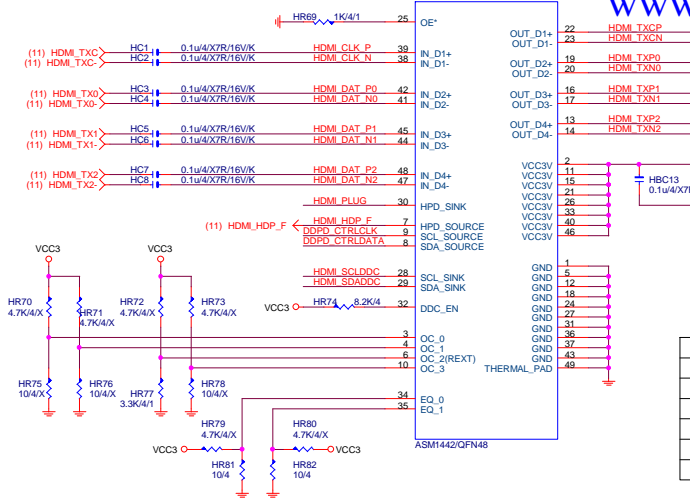




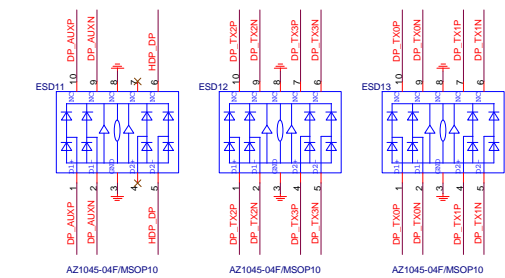
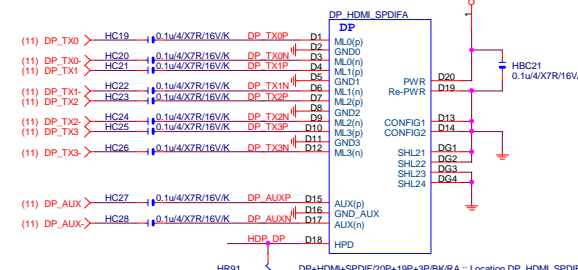
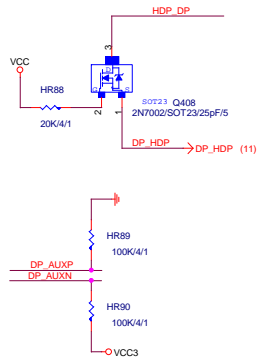
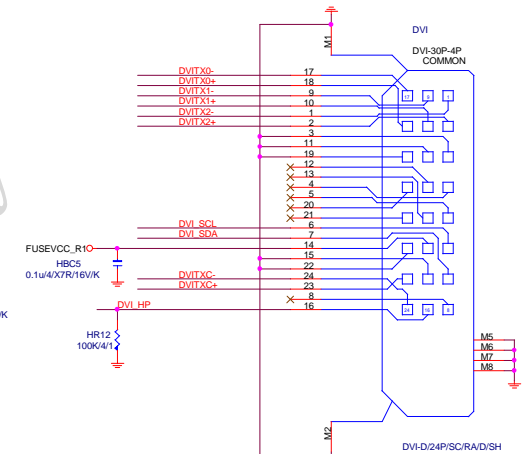
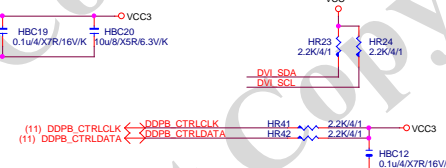
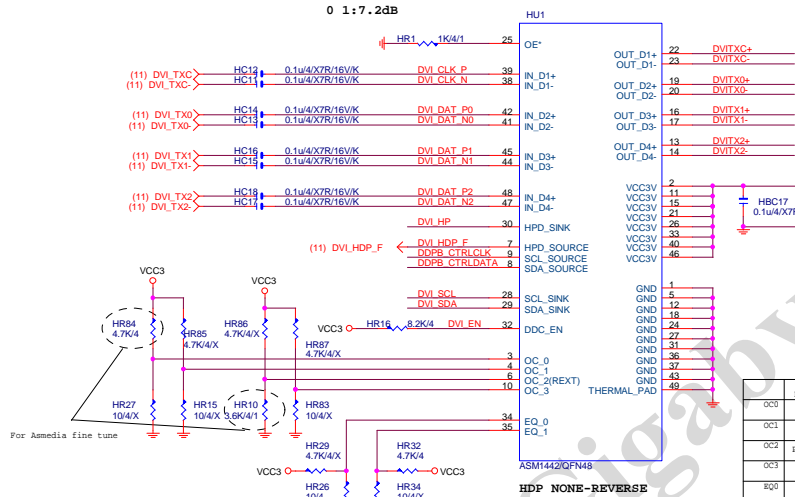


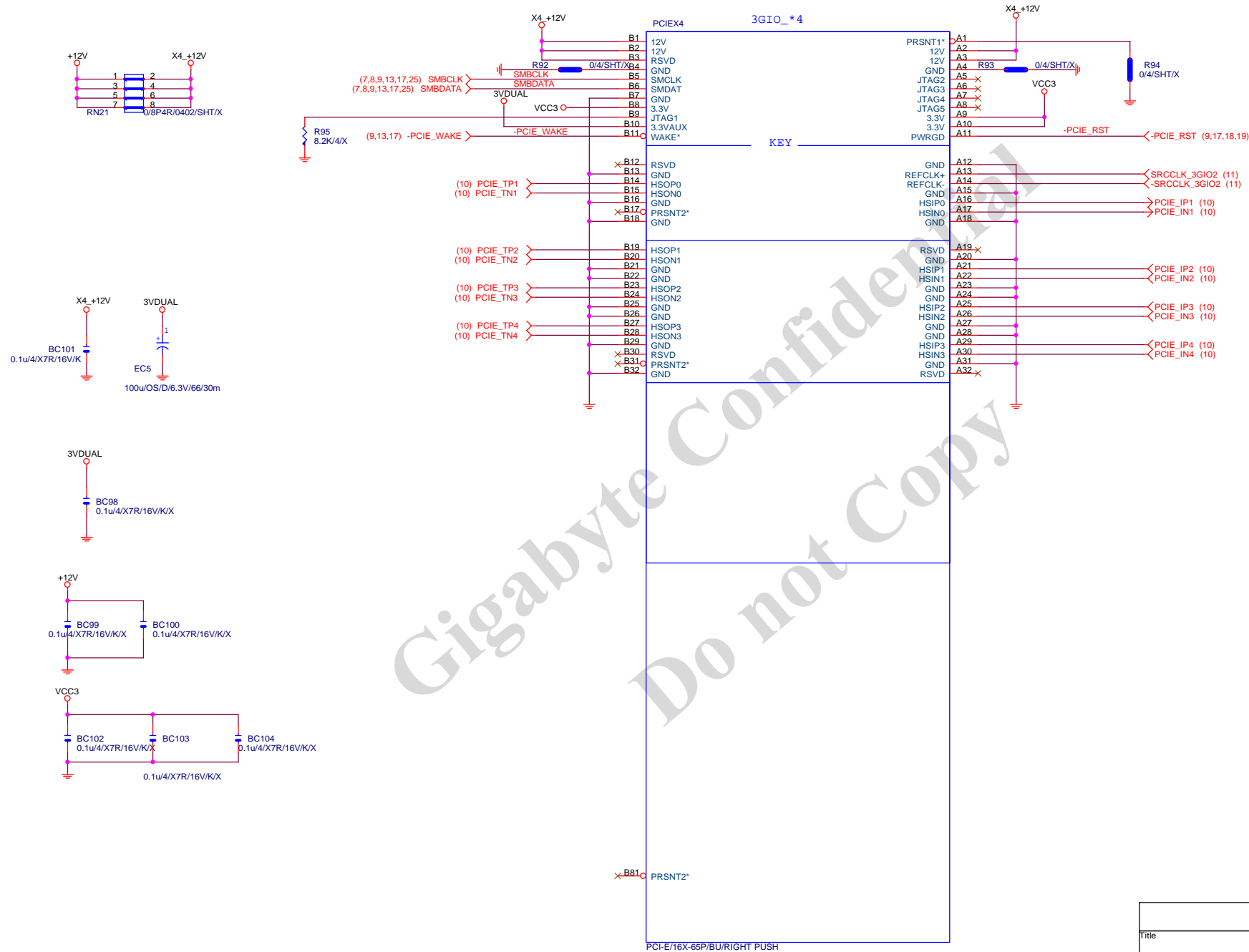




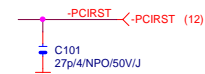
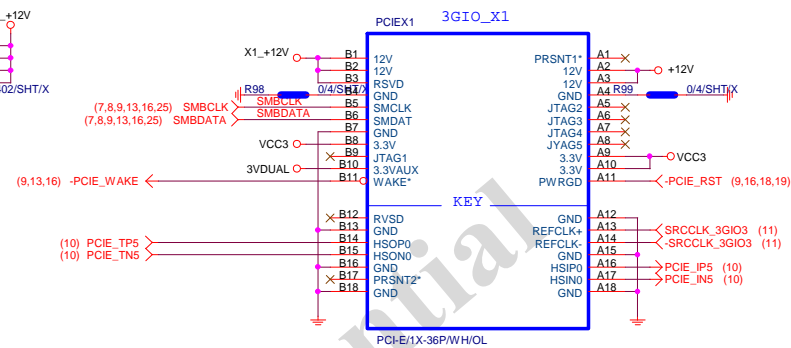


0 1:7.2dB

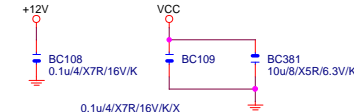
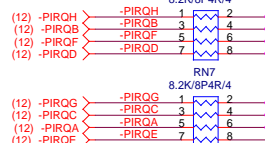
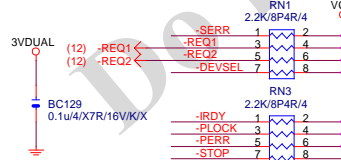
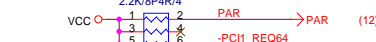
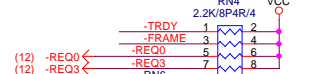
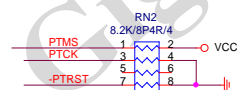


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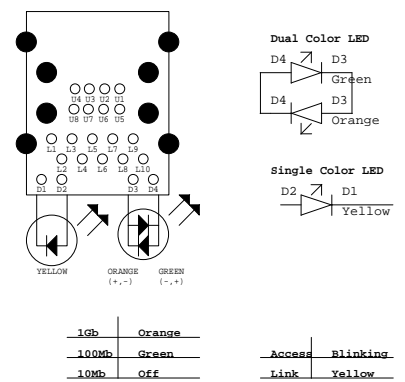
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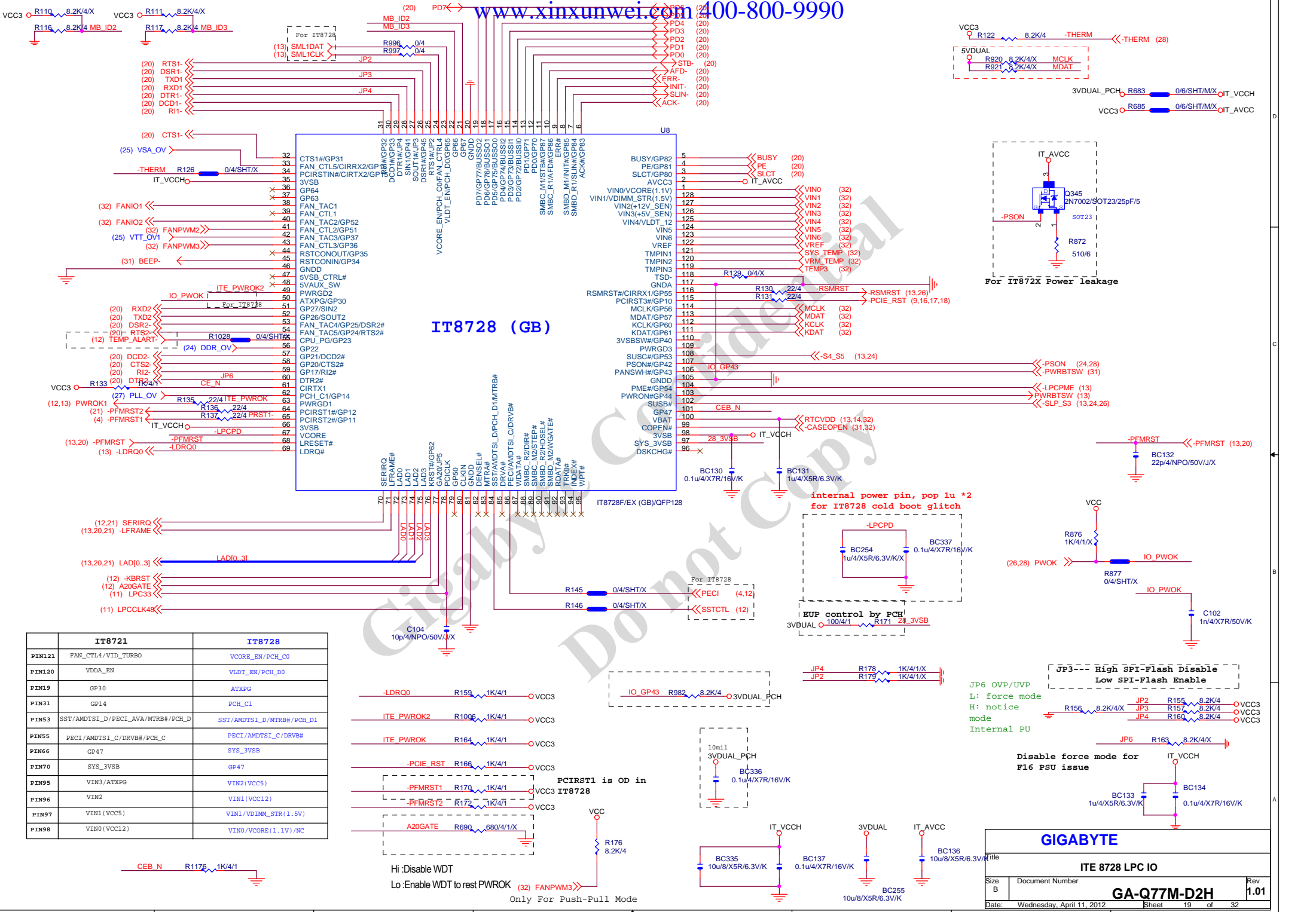


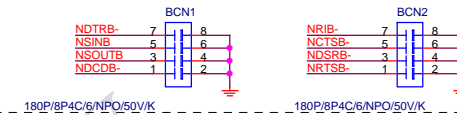
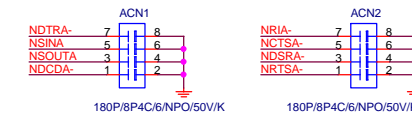
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(7,8,9,13,16,25) SMBDATA < R106 0/6/SHT/X PCI A41



Title			
PCIEX1,PCI SLOT			
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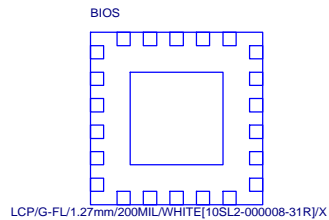
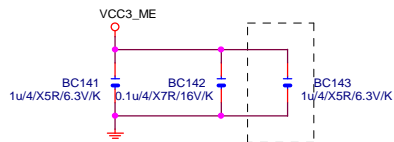


80 PORT



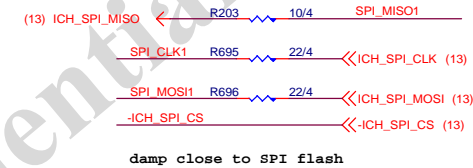
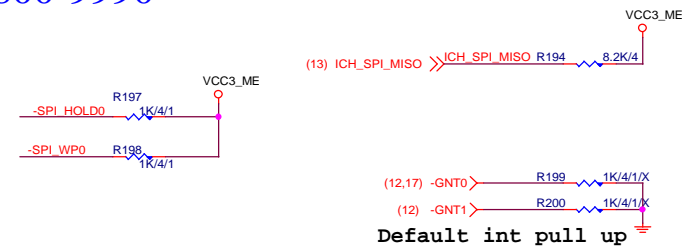
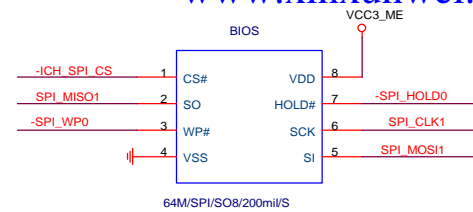
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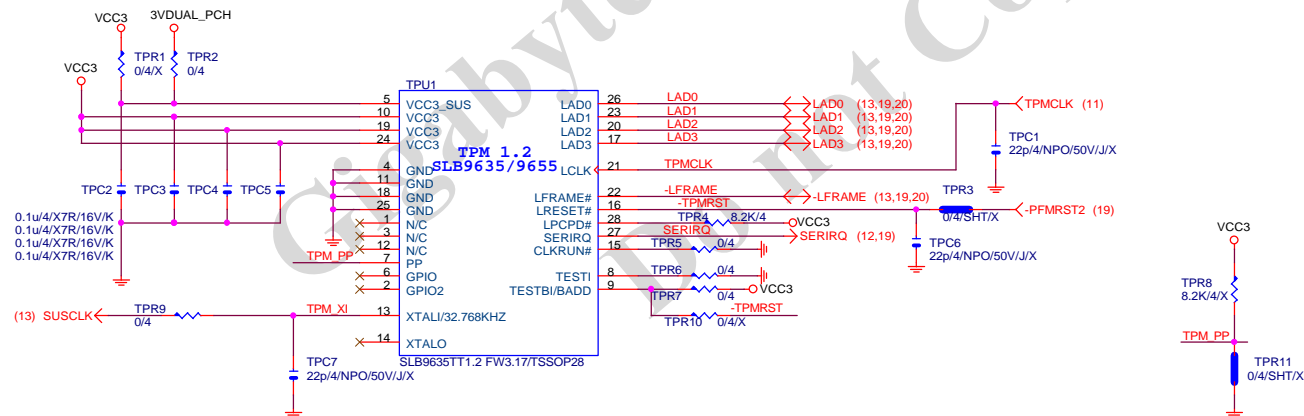


BOOT DEVICE	GNT1	GP19
LPC	0	0
PCI	1	0
SPI	1	1

1 means floating  
0 means PD 1K



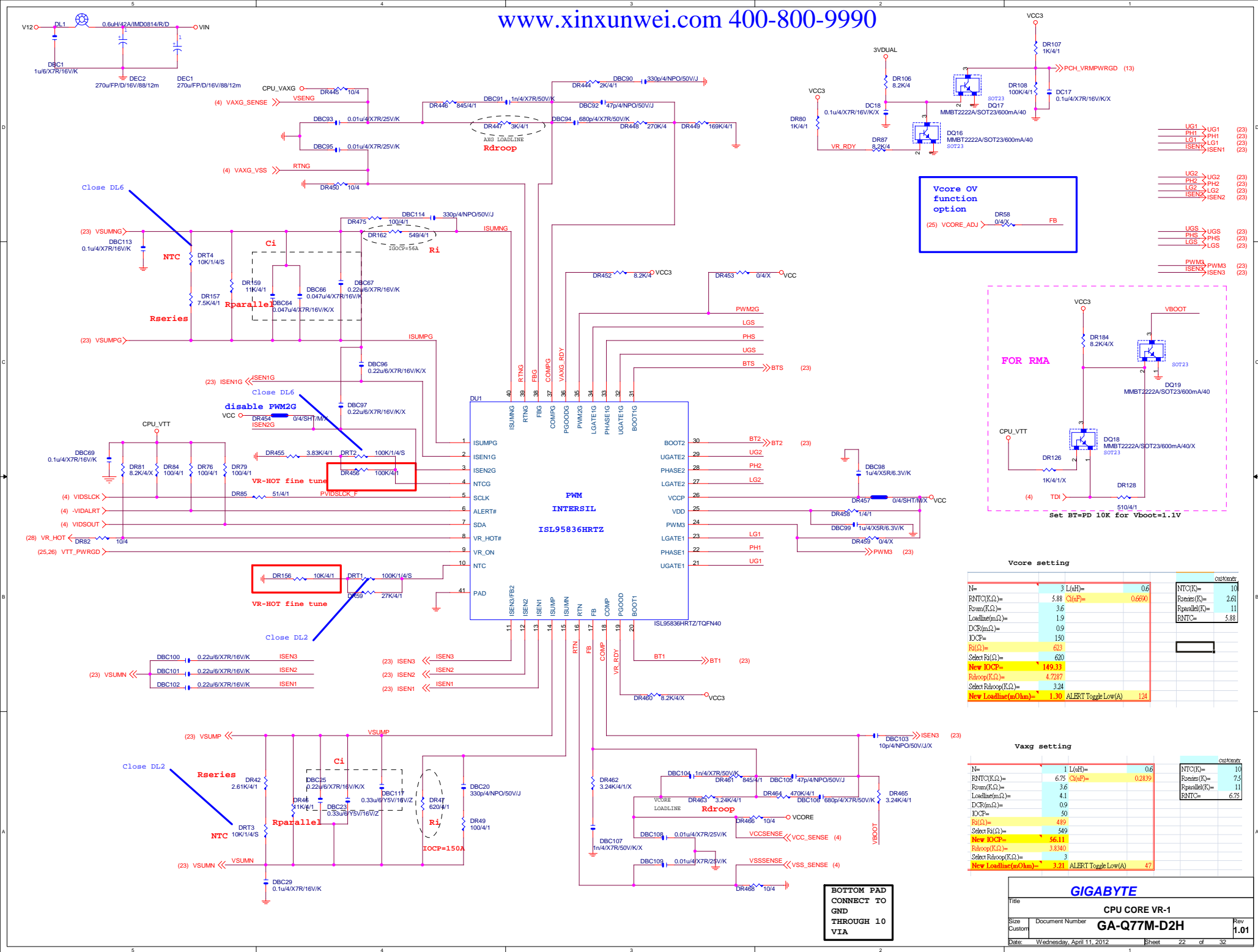
TPM

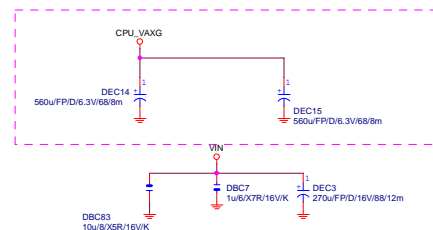
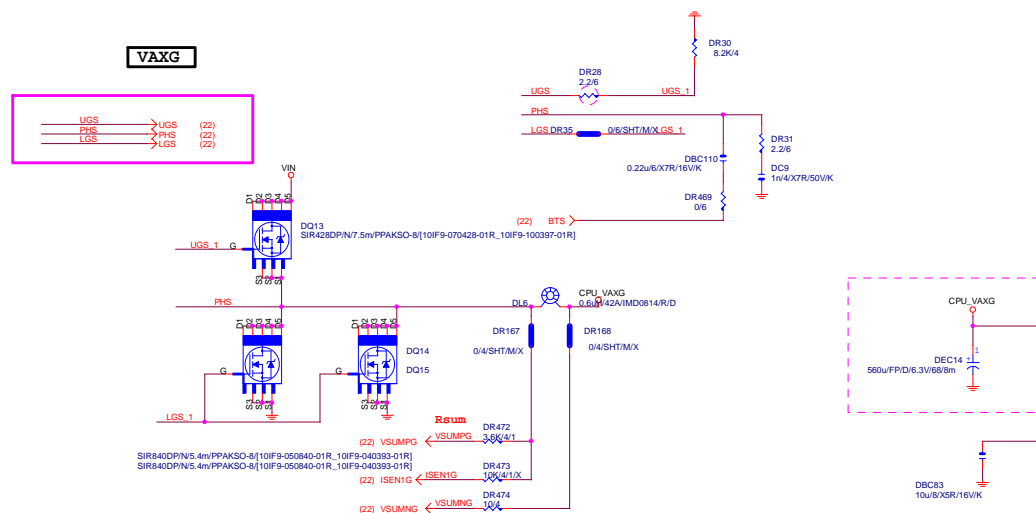
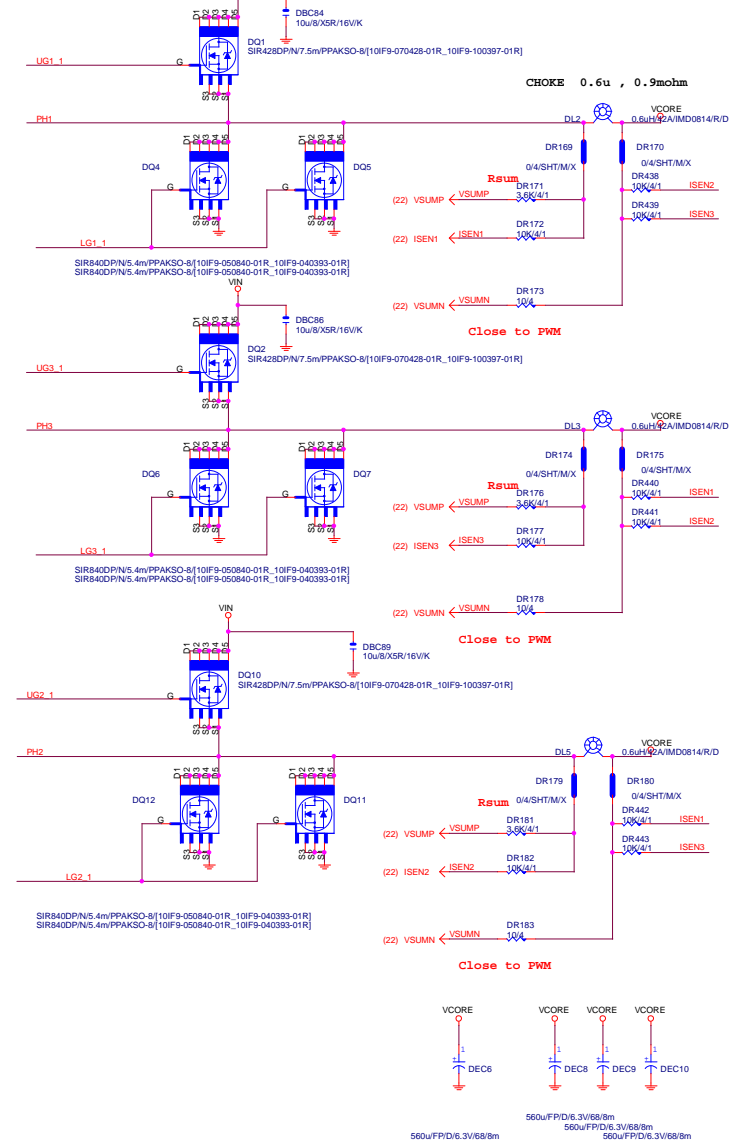
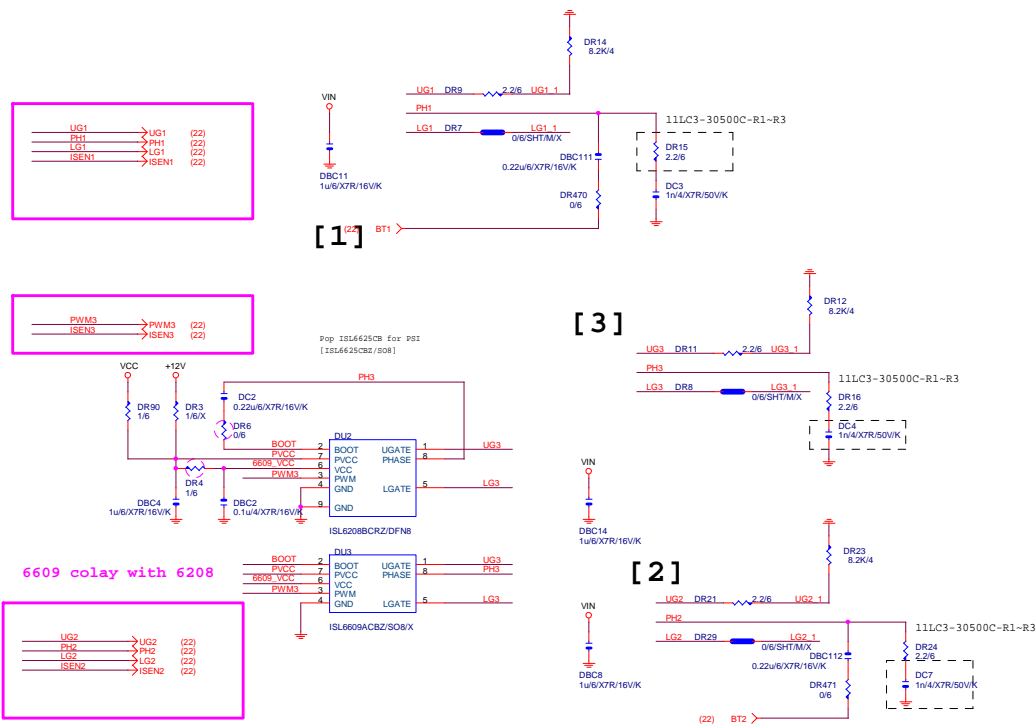


	SLB9635	SLB9655
TPR2, TPR4, TPR5, TPR6, TPR7, TPR9	MOUNT	N/A
TPR1, TPR10	N/A	MOUNT

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Title BIOS			
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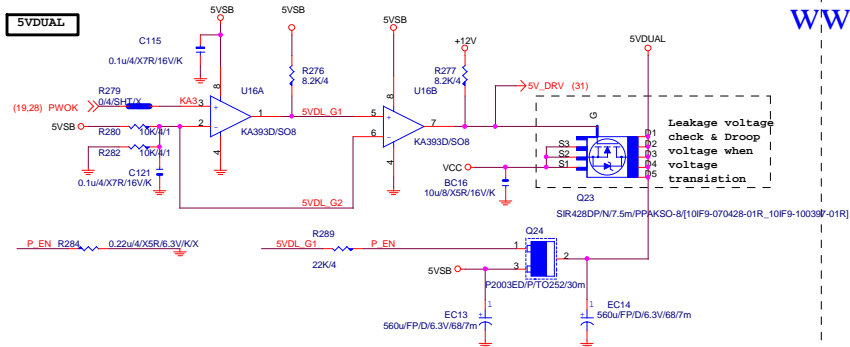




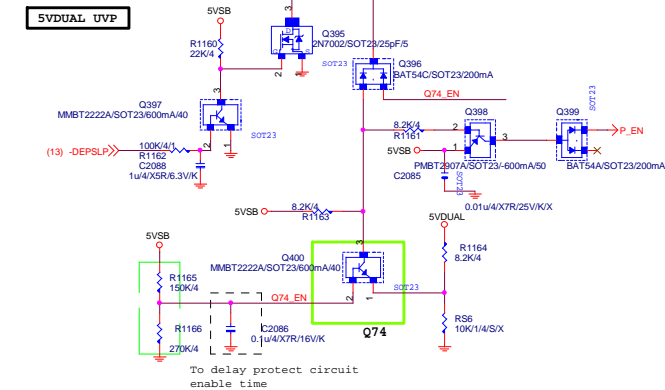




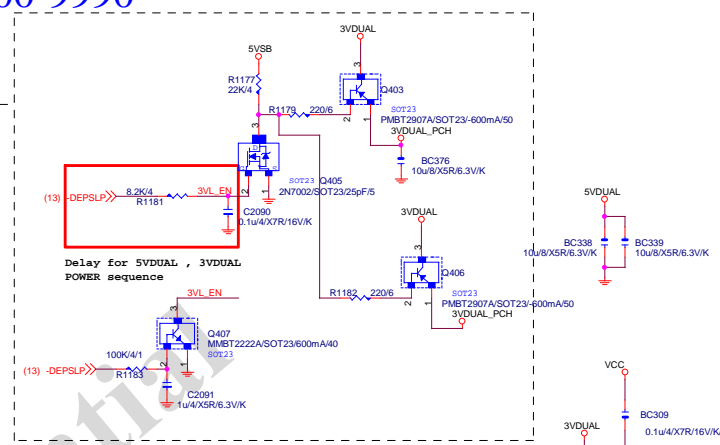
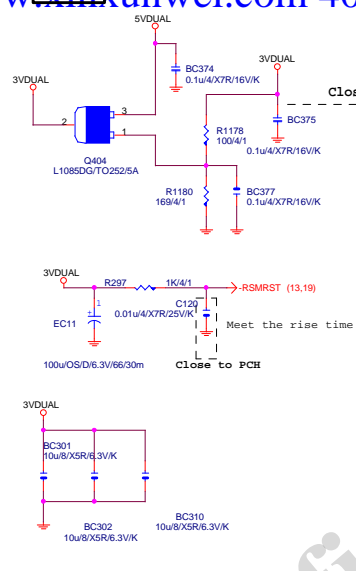
## 5VDUAL



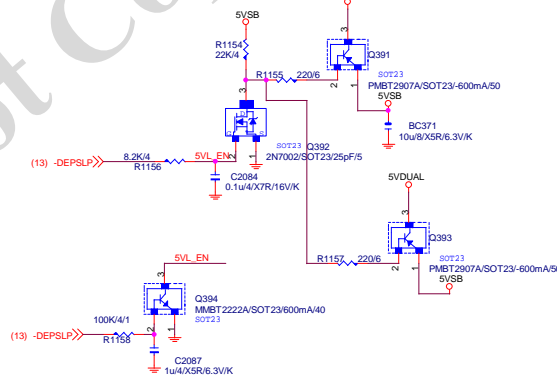
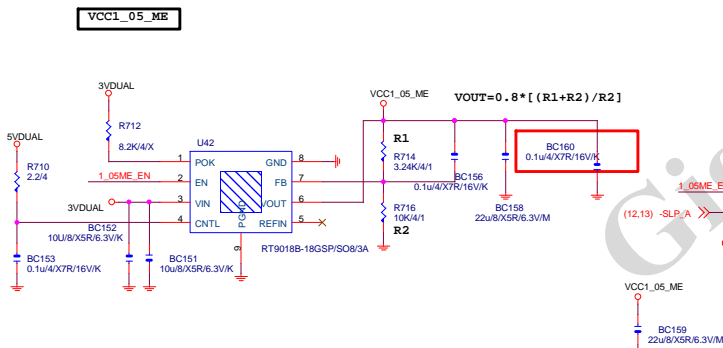
## 5VDUAL UVP



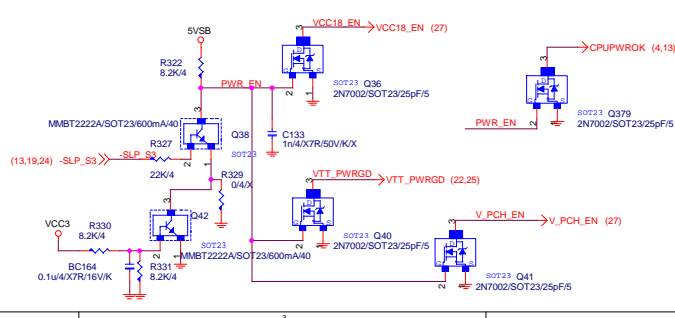
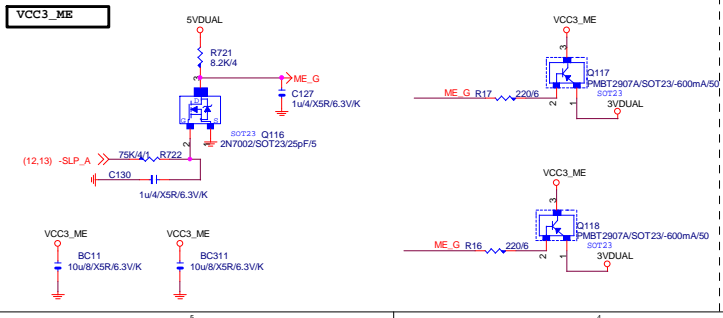
## 3VDUAL



## VCC1\_05\_ME



## VCC3\_ME

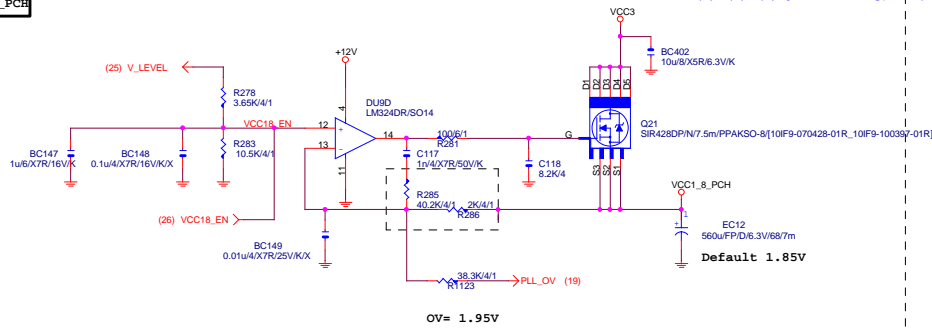


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Title			
DISCRETE POWER			
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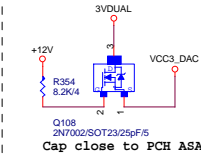
VCC1\_8\_PCH



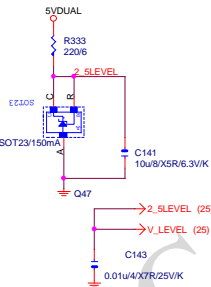
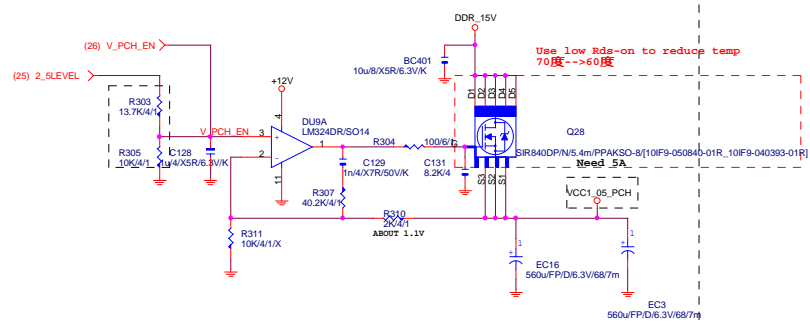
VCC3\_DAC

(3.3V/70mA+360uA)

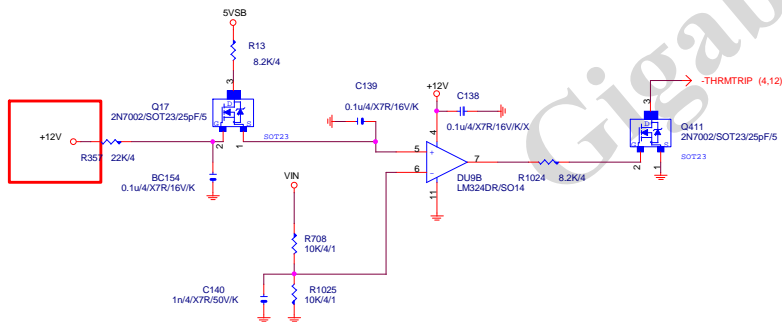
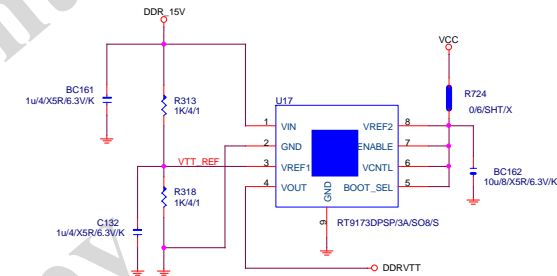
CLOSE PCH (注意震盪水波紋)



VCC1\_05\_PCH



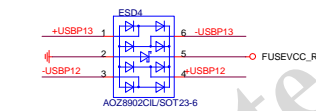
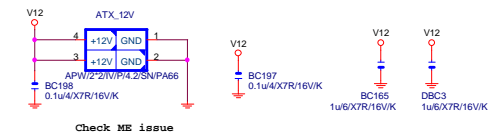
DDRVTT



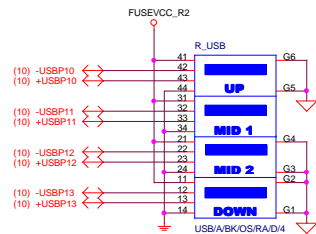
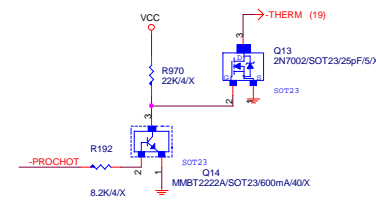
GIGABYTE

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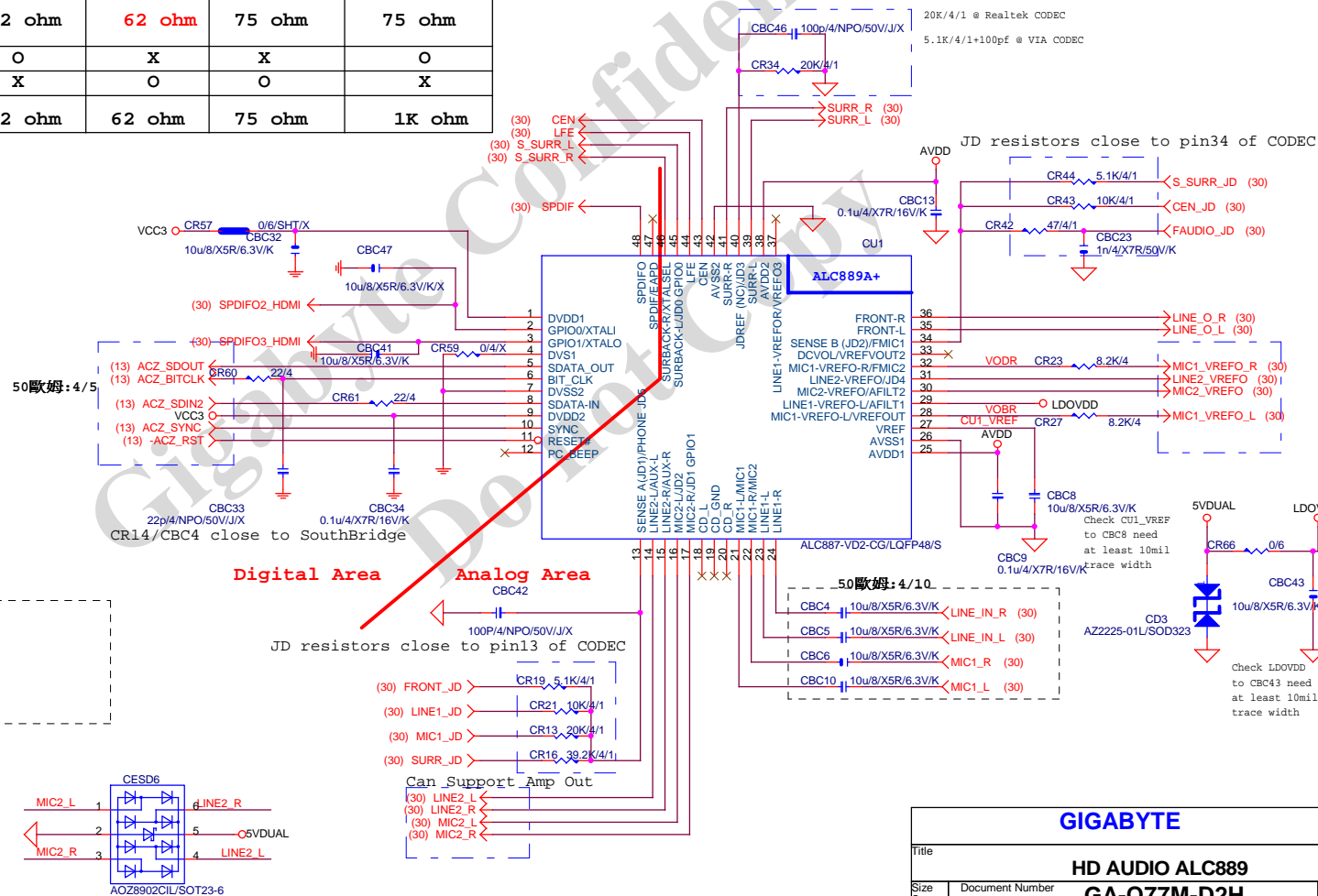
1.01

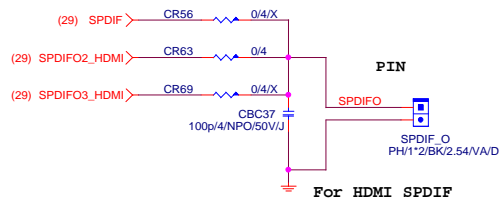
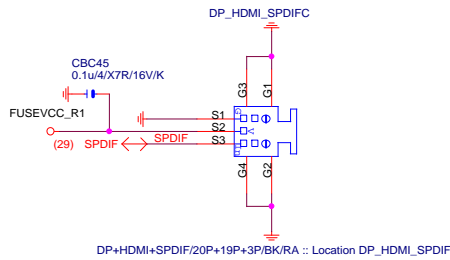


**-PROHOT**



	ALC662	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR59	X	X	O	O	X
CR	X	X	X	X	0.1u/4
CBC41	O	O	X	X	O
CR42/CBC23	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR63	X	O	O	O	O
CR56	O	X	X	X	X
CBC4/CBC5	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R
CR19	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR34	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC42/CBC46	N/A	N/A	N/A	100P/4	100P/4
CR14/CR33/CR28/CR45/ CR41/CR46/CR2/CR4/ CR35/CR39	22K/4	22K/4	22K/4	10K/4	10K/4
CR32/CR15/CR51/CR25 /CR52/CR40/CR3/CR1/ CR9/CR6/CR36/CR38	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR66/CD3/CBC43	O	O	X	X	O
CD1/CD2/CQ4/CQ5/CBC36	X	X	O	O	X
CR12/CR17/CR22/CR26	62 ohm	62 ohm	62 ohm	75 ohm	1K ohm





A 2x3 grid of colored circles. The top row contains an orange circle and a cyan circle. The middle row contains a black circle and a lime green circle. The bottom row contains a grey circle and a pink circle.

(29) LINE1\_JD ← LINE1\_AJ  
AJ A2

(29) FRONT\_JD ← FRONT\_AJ  
AJ B2

(29) MIC1\_JD ← MIC1\_AJ  
AJ C2

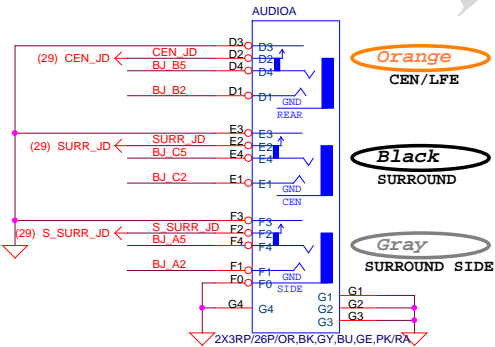
AUDIOB

A3  
A5  
A1  
B3  
B5  
B1  
C3  
C5  
C1  
C0

LINE-IN  
LINE-OUT  
MIC-IN

BLU LINE-IN  
GRN LINE-IN  
PIN MIC+

2X3RP26P/OR,BK,GY,BU,GE,PK,RA



(29) LINE\_IN\_R ← CR12 62/4

(29) LINE\_IN\_L ← CR17 62/4

CBO21 180pF/4/NPO/50V/J

CBO22 180pF/4/NPO/50V/J

AJ A5

AJ A2

(29) MIC1\_R ← CR22 62/4

(29) MIC1\_L ← CR26 62/4

(29) MIC1\_VREF\_O\_L

(29) MIC1\_VREF\_O\_R

CB2 180pF/4NPO/50V/J

CB3 180pF/4NPO/50V/J

A.J. C5

A.J. C2

EMI

(29) SURR\_R CEC9 100uF/OS/D/6.3V/66/30mm CR51 62/4

(29) SURR\_L CEC5 100uF/OS/D/6.3V/66/30mm CR25 62/4

CR28 22K/4

CR45 22K/4

BJT C5

BJT C2

CBC14 180pF/4/NPO/50V/J

CBC27 180pF/4/NPO/50V/J

Figure 10 shows a schematic diagram of an EMI filter circuit. The circuit includes a common mode choke (CEC4) and two differential mode inductors (CEC10, CEC20) in series with the power lines. A common mode capacitor (CEC22) is connected to ground. The output is connected to a load (BJ B5) through a common mode capacitor (CEC28). The input is connected to a common mode capacitor (CEC24) and a common mode capacitor (CEC26). The circuit is labeled with component values: 100u/OS/D/6.3V/66/30m, 22K/4, 22K/4, 180p/4/NPO/50V/J, and 180p/4/NPO/50V/J. The input is labeled (29) LFE and (29) CEN. The output is labeled B.J. B5 and B.J. B2.

(29) S\_SURRE\_R

(29) S\_SURRE\_L

CEC2

CEC1

100u/OS/D/6.3V/66/30m

CR3

62/4

100u/OS/D/6.3V/66/30m

CR1

62/4

RMI

CR2

22K/4

CR4

22K/4

BJ\_A5

BJ\_A2

CBC1

180p/4/NPO/50V/J

CBC2

180p/4/NPO/50V/J

**AZALIA FRONT PANEL**

Diagram illustrating the front panel connections for the AZALIA board, showing various components and their connections.

**Components and Connections:**

- Q3:** BAT54A/SOT23/200mA, connected to (29) LINE2\_VREFO.
- Q1:** BAT54A/SOT23/200mA, connected to (29) MIC2\_VREFO.
- CR37, CR50, CR5, CR8:** 8.2K/4 resistors.
- CR9, CR6:** 62/4 resistors.
- CR36, CR38:** 62/4 resistors.
- CR7:** 0/4/X resistor.
- CR35, CR39:** 22K/4 resistors.
- CR10:** 8.2K/4/X resistor.
- Capacitors:** 10u/8/X5R/6.3V/K, 100u/OS/D/6.3V/66/30m, 100p/4/NPO/50V/J.
- Audio Section:** F-AUDIO (1-10 pins), connected to (29) MIC2\_L, (29) MIC2\_R, (29) FAUDIO\_ID, and (29) LINE2\_R, (29) LINE2\_L.
- Digital Area:** 3VDUAL supply, connected to (29) ACZ\_DET (13).

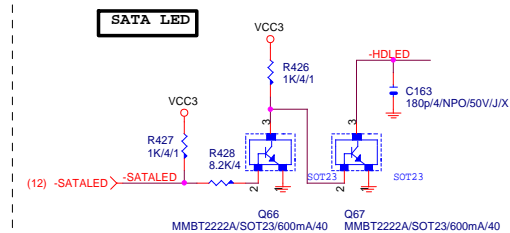
**Notes:**

- 100u/OS/D/6.3V/66/30m
- 100p/4/NPO/50V/J
- 180p/4/NPO/50V/J
- 180p/4/NPO/50V/J
- 180p/4/NPO/50V/J
- 180p/4/NPO/50V/J

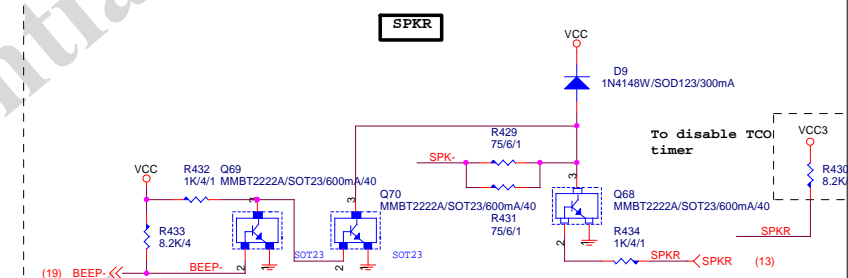
**GIGABYTE**

Title

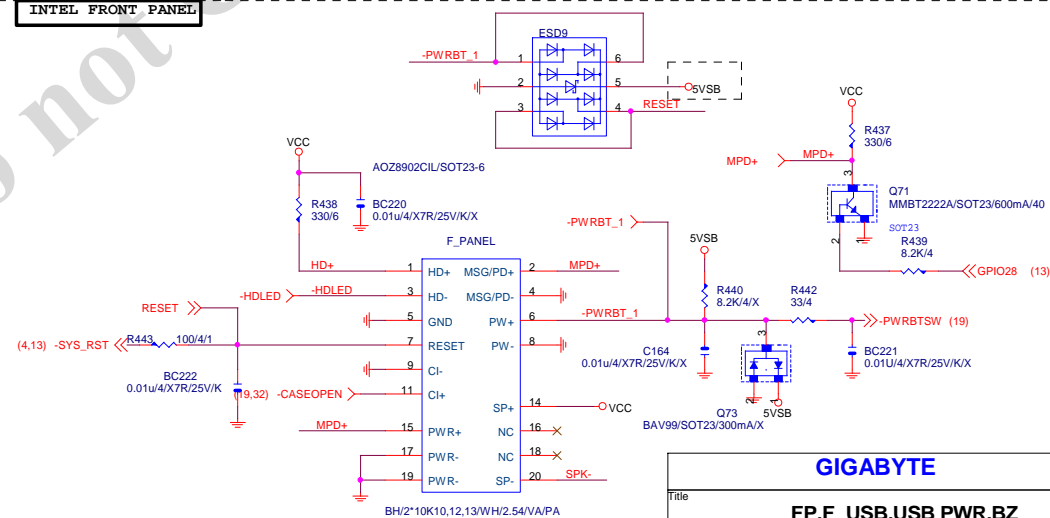
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Close to connector

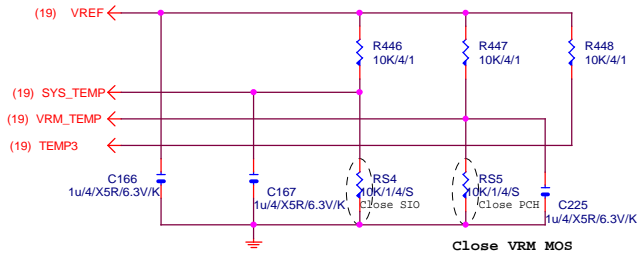


INTEL FRONT PANEL

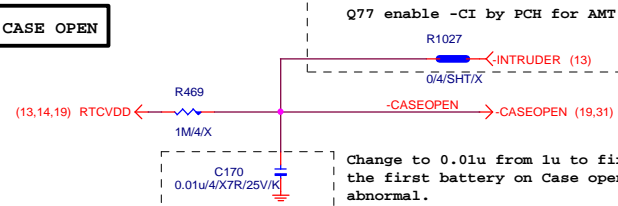


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TEMP H/W MONITOR

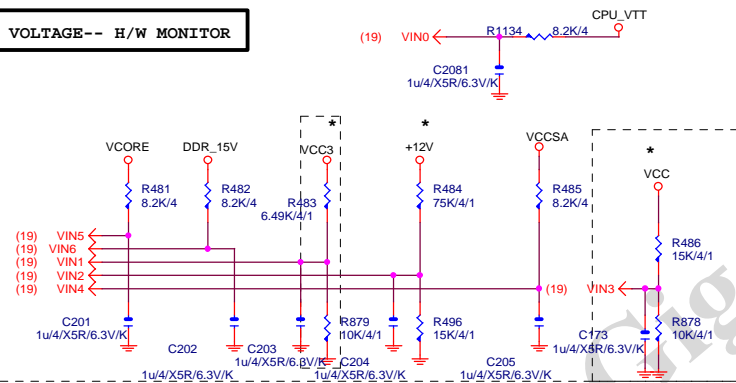


## CASE OPEN

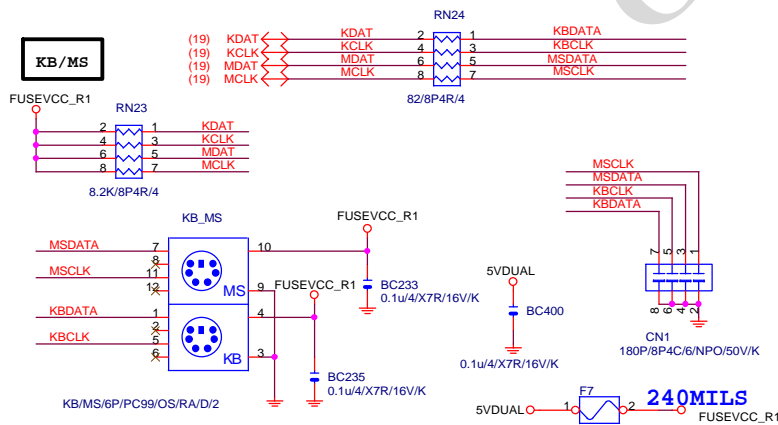


## Case Open Circuits

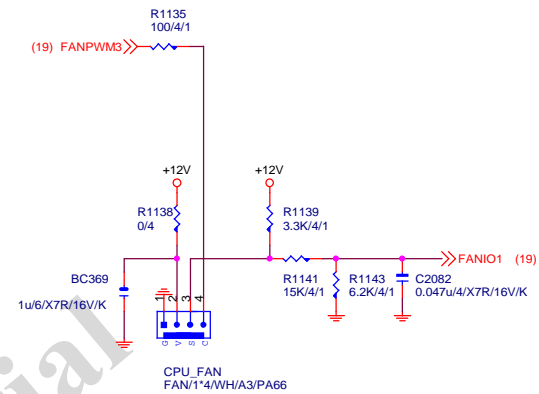
VOLTAGE-- H/W MONITOR



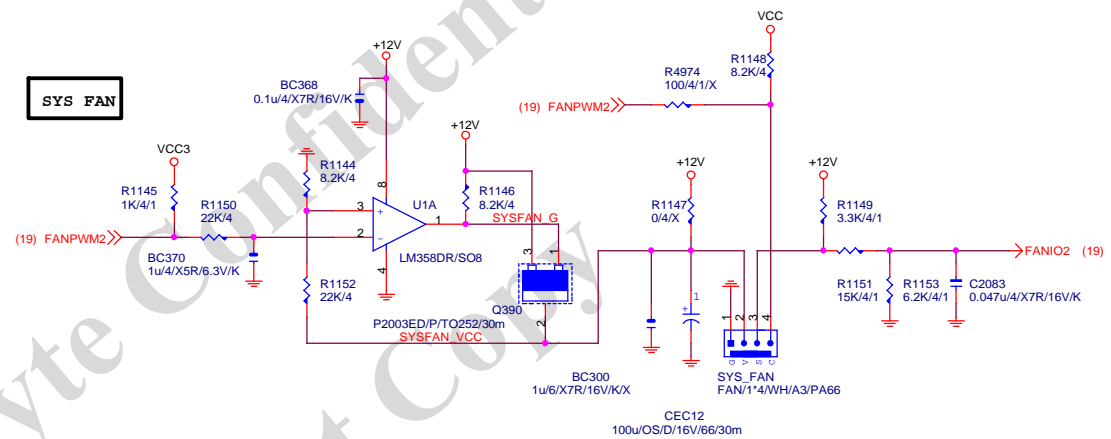
## KB/MS



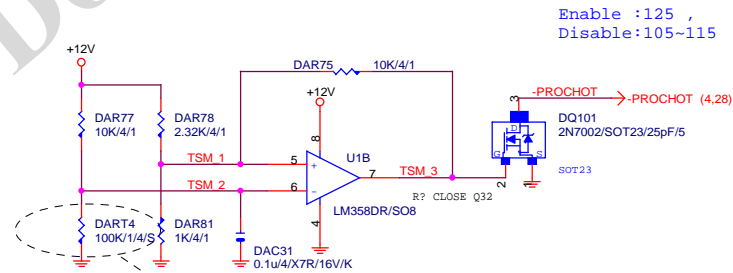
## CPU SMART FAN



## SYS FAN



-PROHOT



CLOSE PWM HOT MOSFET

**GIGABYTE**

Title				
HWM,KB/MS, FAN CTRL				
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