

# Model Name: GA-P67-DS3-B3 2.0

SHEET

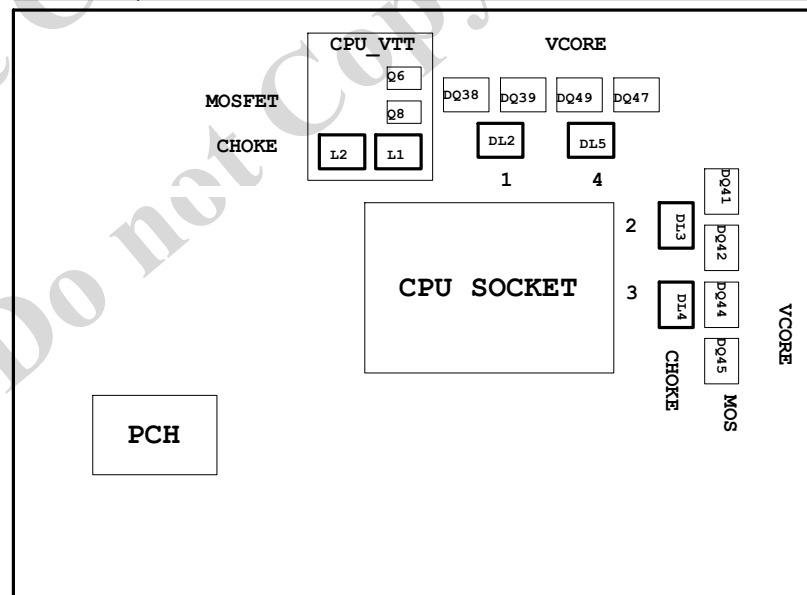
TITLE

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	PCH FDI,DMI,USB,PCIE,NVRAM
10	PCH DP,CLK BUFFER
11	PCH HOST,SATA,PCI
12	PCH GPIO,CTRL,AUDIO
13	PCH PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESSX4 SLOT / PCIE X1 SLOT
16	IT8892
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, LPT, TPM
20	Dual BIOS
21	ALC887-VD2
22	REAR AUDIO JACK
23	VCORE PWM ISL6364CRZ-1
24	VCORE PWM ISL6364CRZ-2
25	DISCRETE POWER
26	DDR 15V & VCC1 05 PCH PWM ISL6545CBZ
27	CPU VTT PWM ISL95870

SHEET

TITLE

28	VCCSA POWER
29	F PANEL , F USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
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## GA-P67-DS3-B3

### Component value change history

[illegible]

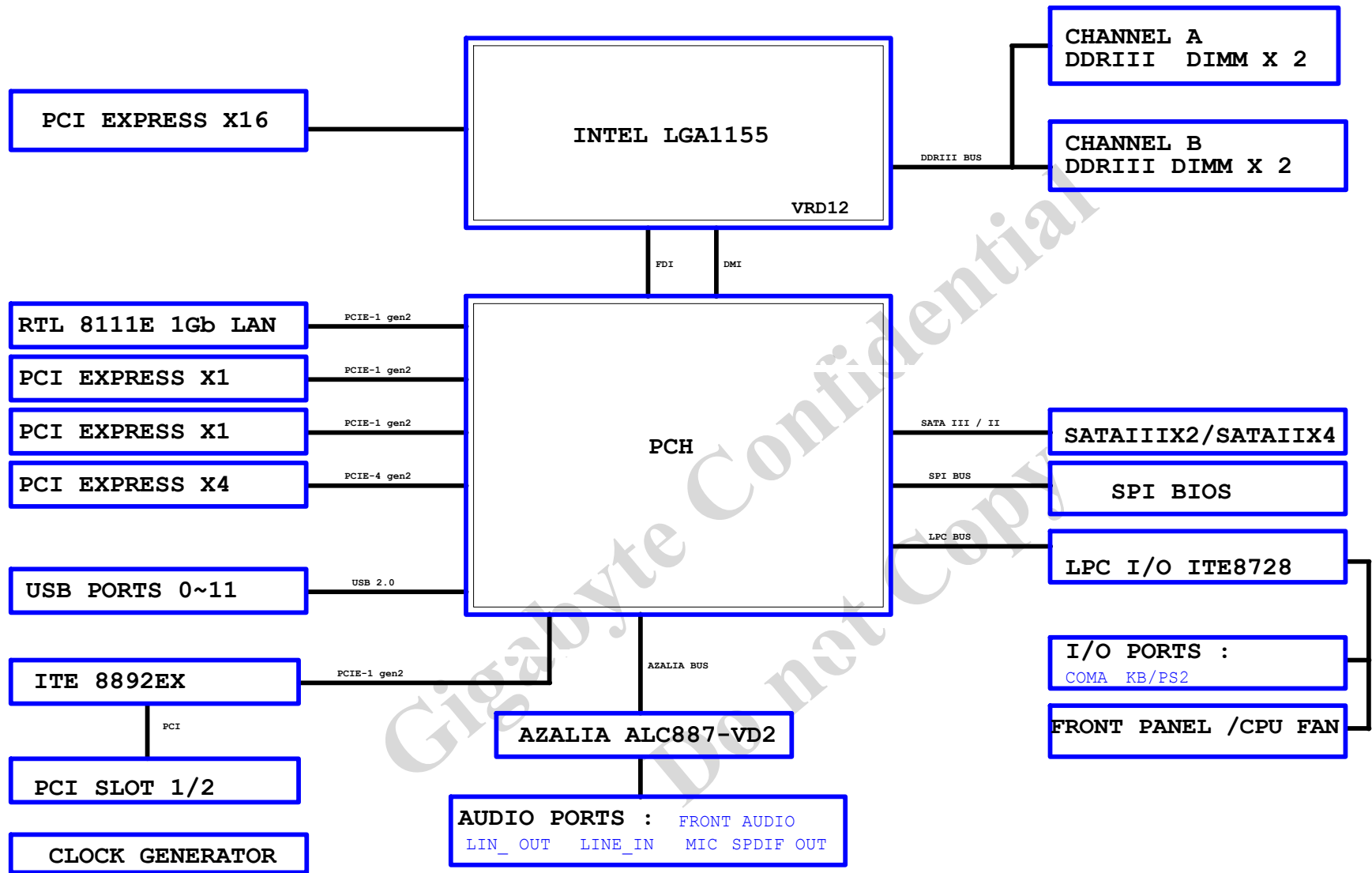
## Circuit or PCB layout change

DATE	Change Item	Reason
2010/07/05 PCB:0.1	1.NEW MODEL: P67A-D3-0.1	
2010/08/18 PCB:0.2	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1.update MOS_HS footprint 2.20z copper pcb	
2010/10/05 PCB:0.1	由GA-P67A-UD3-0.2 修改	
2010/10/18 PCB:0.2	1.確認SATA 6GB PORT0 OR PORT1???	
	2.NO TURBO USB3.0 ,SUR1~SUR8 ----->SHORT WIRE	
2011/01/10 PCB:0.2	1.NEW MODEL: P67A-D3-0.2 由 P65A-D3-0.2修改	
	1.co-lay 電容移除	
	2.CPU VCORE 電容多留不用的MASK起來	
	3.0 OHM---->SHORT-WIRE	
2011/02/08 PCB:0.1	由0.2修改---->RENAME GA-P67A-D3-B3	
	1.co-lay 電容移除	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除,調整MOS_HS與CHOKE及電容的位置避免撞件	
	3.PCH VCC1_05 switch power----->linear power	
2011/02/24 PCB:1.0	1.CR49,CR50 short-wire ----->open,add LR15 FOR AUDIO line out SNR issue	
	2.DR290,DR293,DR312,DR333,DR351,R264,CR31 0 OHM---->SHORT-WIRE	
	3.背面電容mask	
	4.ADD TBC40,TBC41 to reduce CPU VTT power ripple	
2011/04/07 PCB:0.1	1.由P67A-D3-B3 修改	
	2.DEL ETRON USB3.0	
	4.F_USB1爲PURE USB2.0 只SUPPORT software ON- OFF CHARGE	
	5.PCIEX1_1,PCIEX1_2,PCIEX4 (PURE不SHARE),	
2011/04/27 PCB:0.1	1.由 P67-DS3-B3 0.1修改	
	2.add VCORE VAXG POWER 3.msATA 4.HDMI	
2011/05/13 PCB:1.0	<b>DR250,DR254 移到正面</b>	
	1.DR424 MASK	
	2.UPDATE MINI PCIE SCH6 FOOTPRINT	
2011/06/30 PCB:0.1	1.由 GA-Z68P-S3-0.1修改 TO P67-S3-0.1	
	2.DEL HDMI,MSATA,VAXG POWER,ADD SATA2_5	
2011/08/18 PCB:2.0	1.P67-S3 RENAME P67-DS3-B3-2.0 FOR FVT	
	2.ADD R717 FOR SYS_FAN2 ISSUE	
	3.ADD R718 FOR 8728 EX ANTI-SURGE ENABLE	

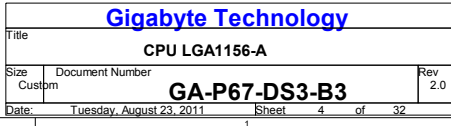
4.ADD PR41 FOR ITE8893

<b><i>Gigabyte Technology</i></b>			
Title <b>BOM &amp; PCB MODIFY HISTORY</b>			
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# BLOCK DIAGRAM



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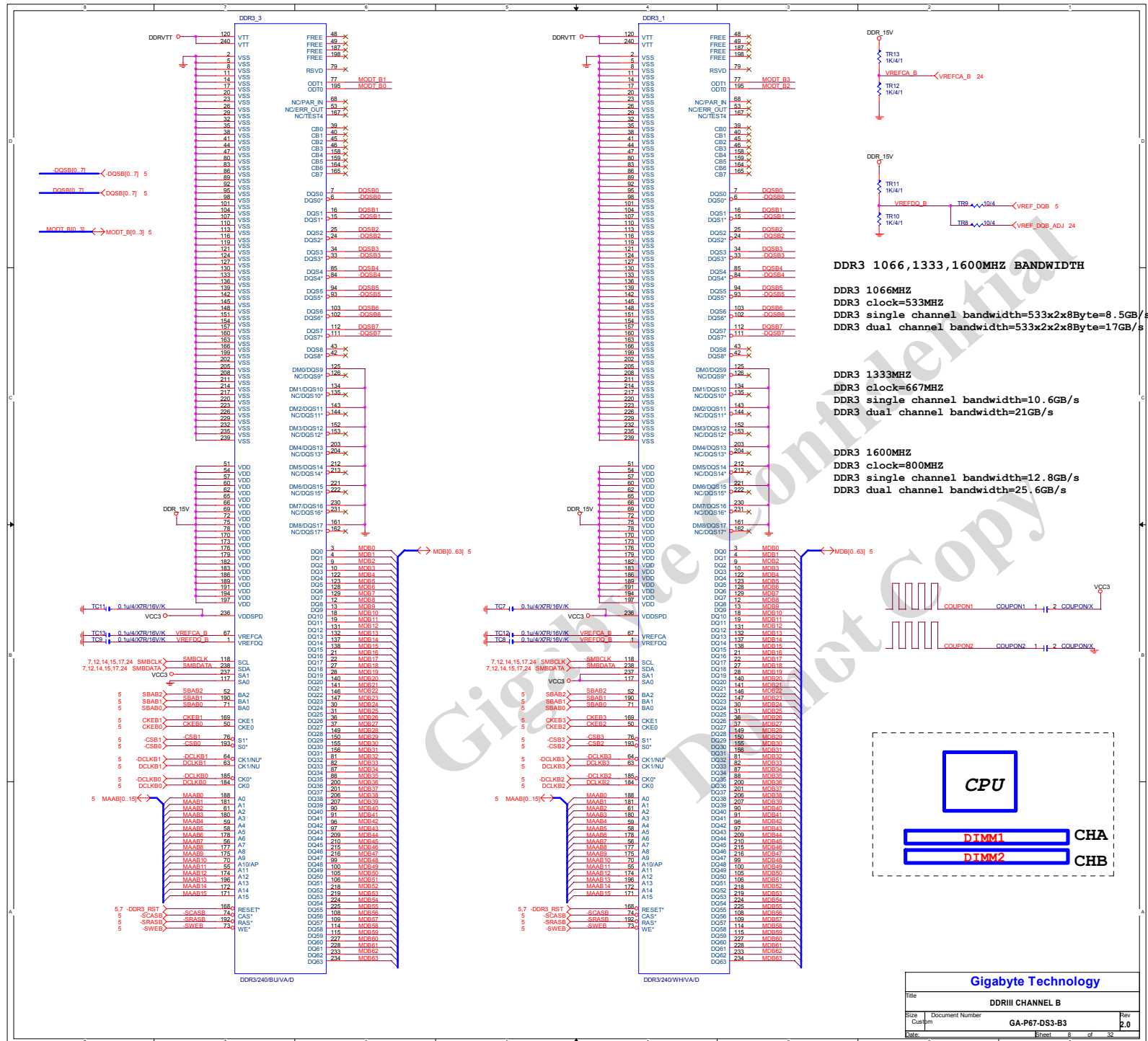




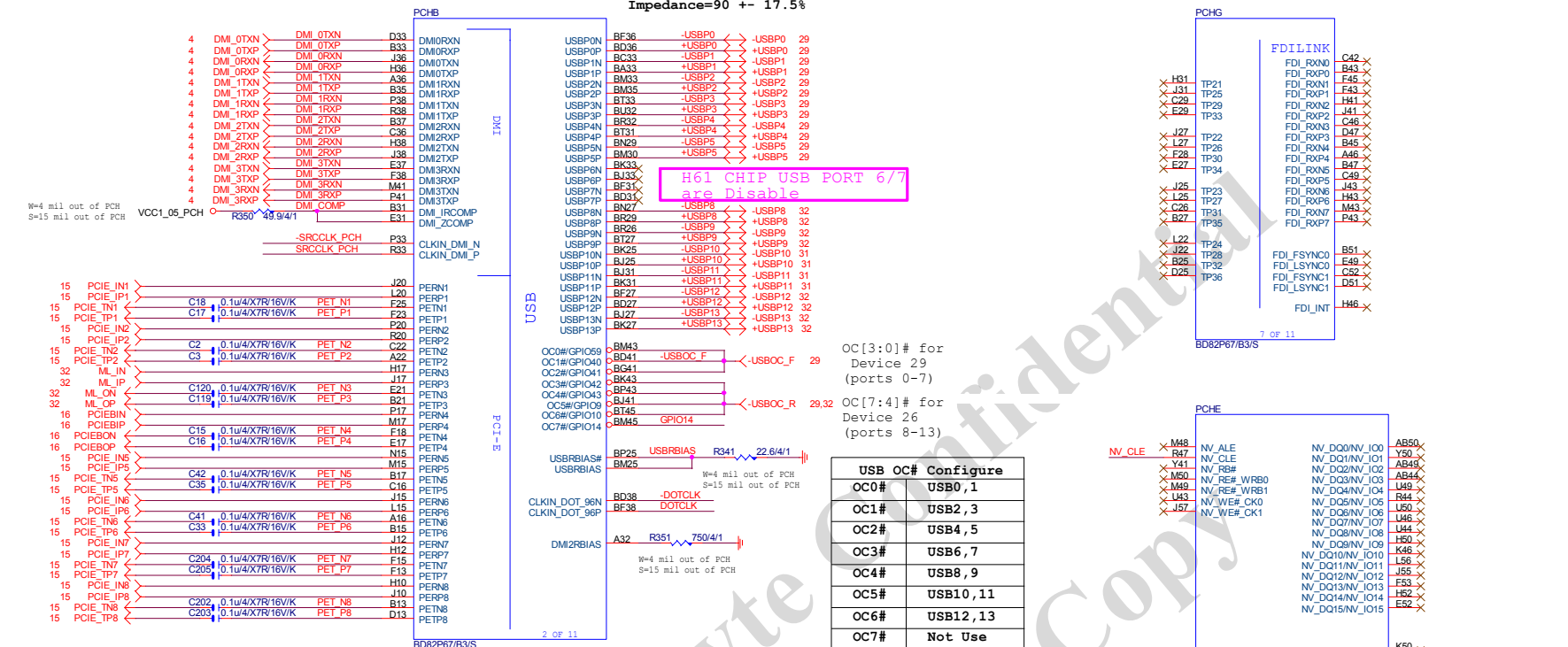




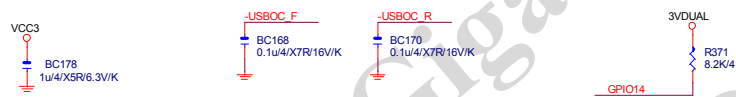






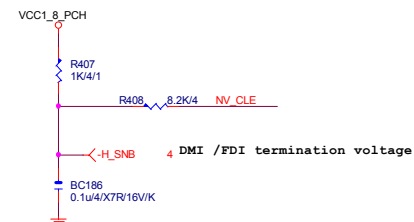


PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)  
Impedance=80 +- 17.5%



PCH\_HS      1X      P67/ H67  
MODEL上有銘版的HS

- 1.舊料號(PCH HS 貼銘板)  
(1) 12SP2-050072-01R---國格  
(2) 12SP2-050072-02R---志航  
(3) 12SP2-050072-03R---信緯
- 2.新料號(PCH HS 無銘板)  
(1) 12SP2-050072-11R---國格  
(2) 12SP2-050072-12R---志航  
(3) 12SP2-050072-13R---信緯

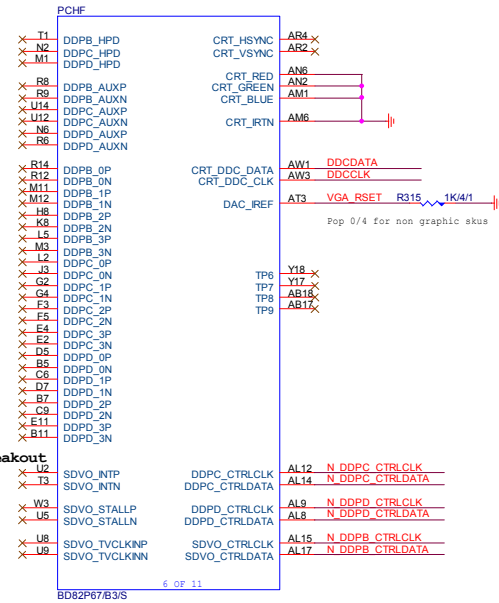


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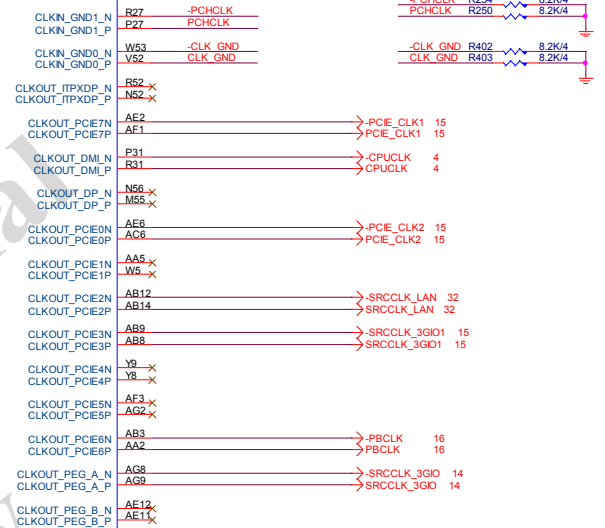
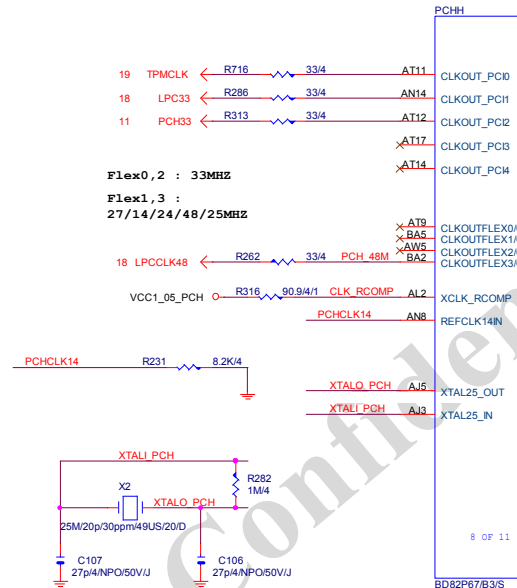
PCH FDI,DMI,USB ,PCIE

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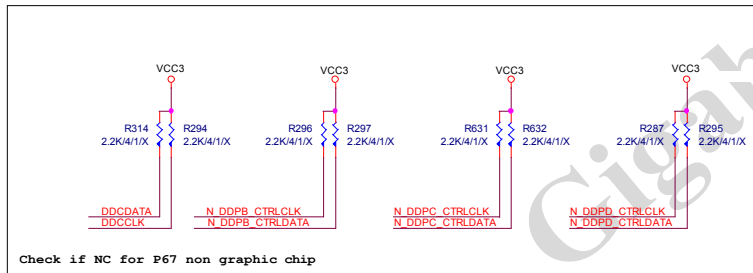
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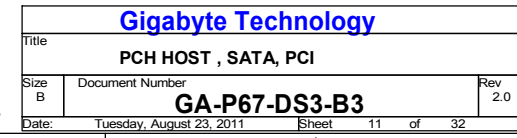
HDMI : 20/4/6/4/20 (breakout  
12/4/4/4/12)



Differential Clock: 18/6/4/6/18  
Impedance=90 +- 15%

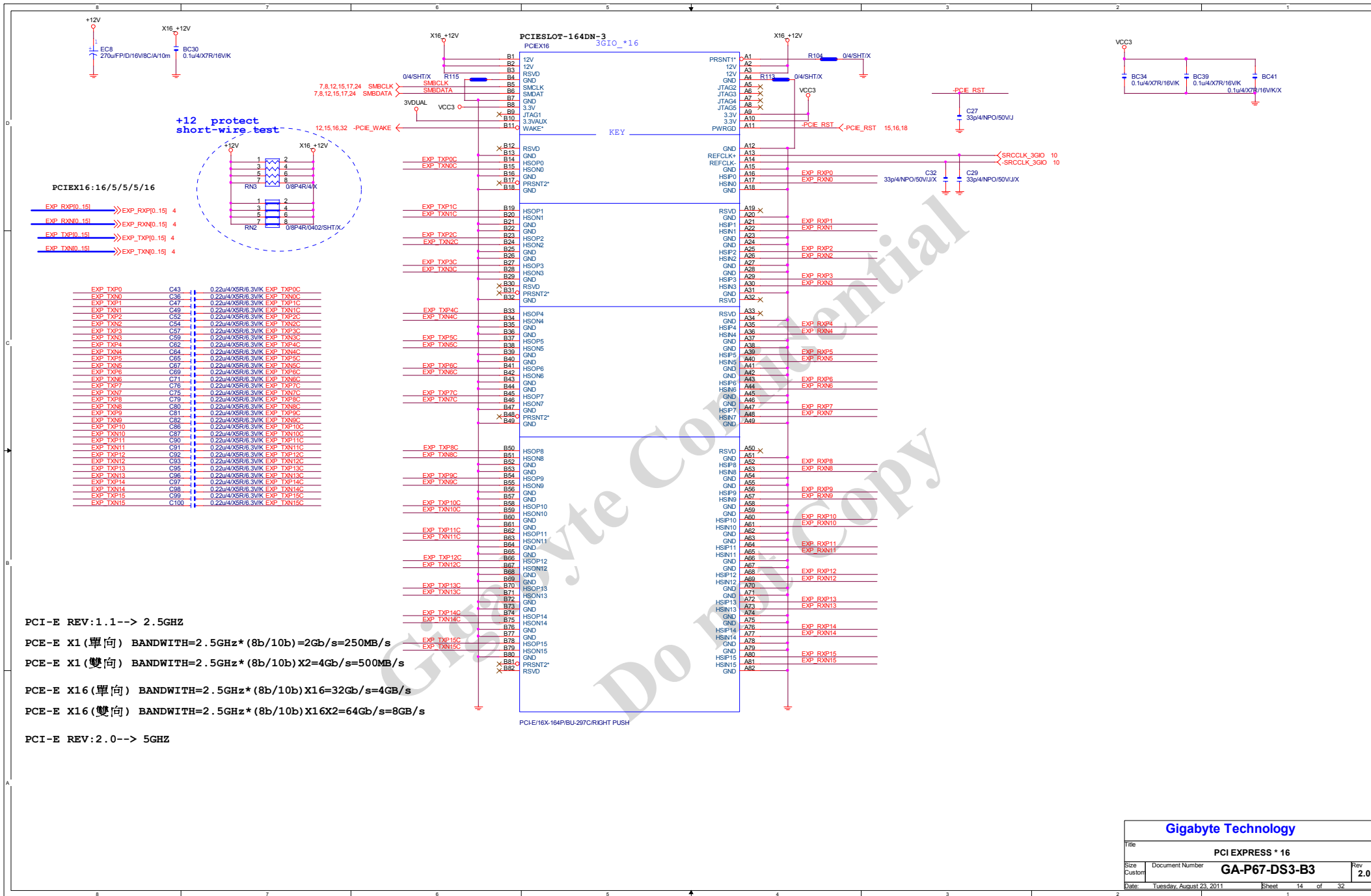


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Title		PCH DISPLAY , CLK BUFFER	
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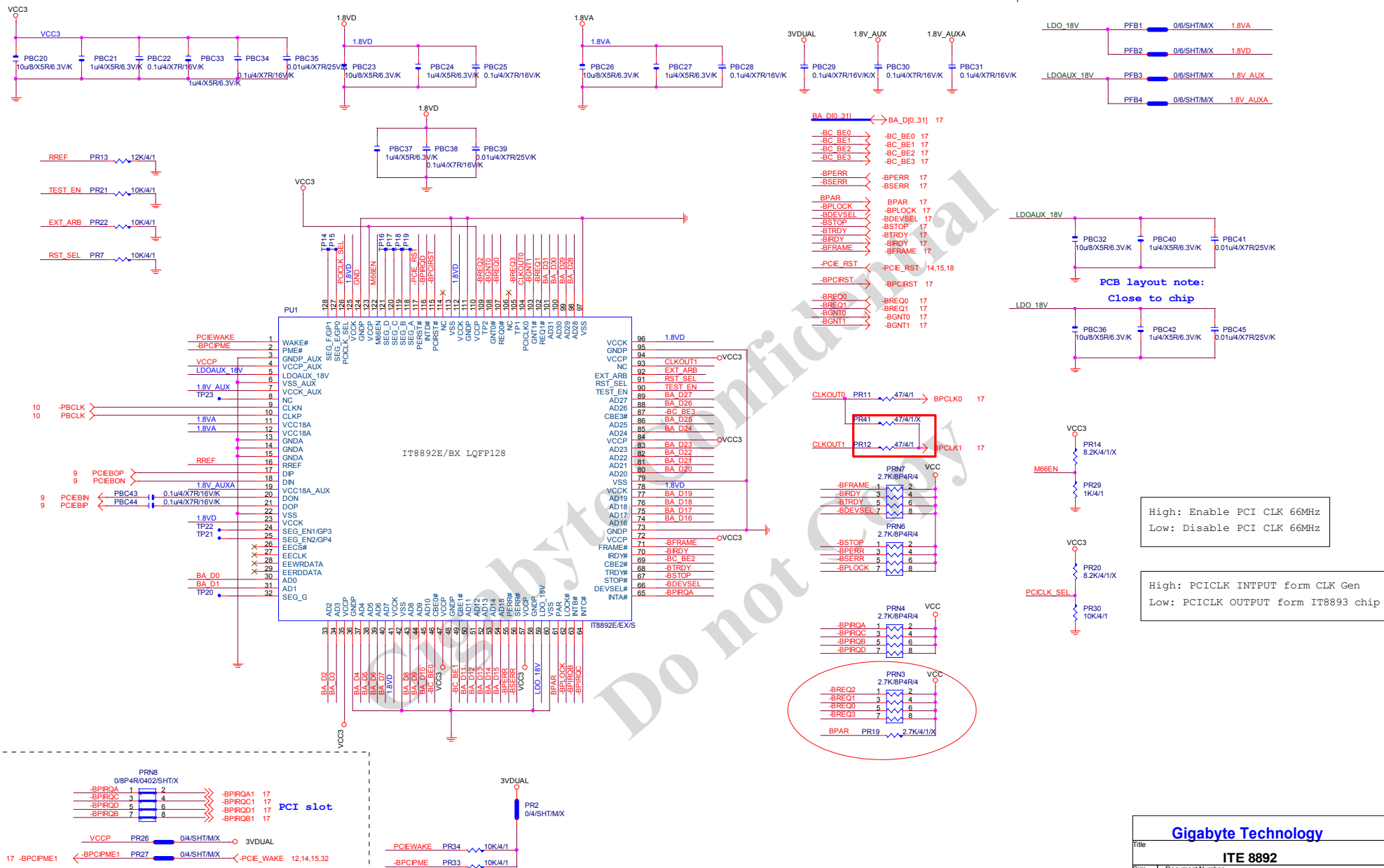






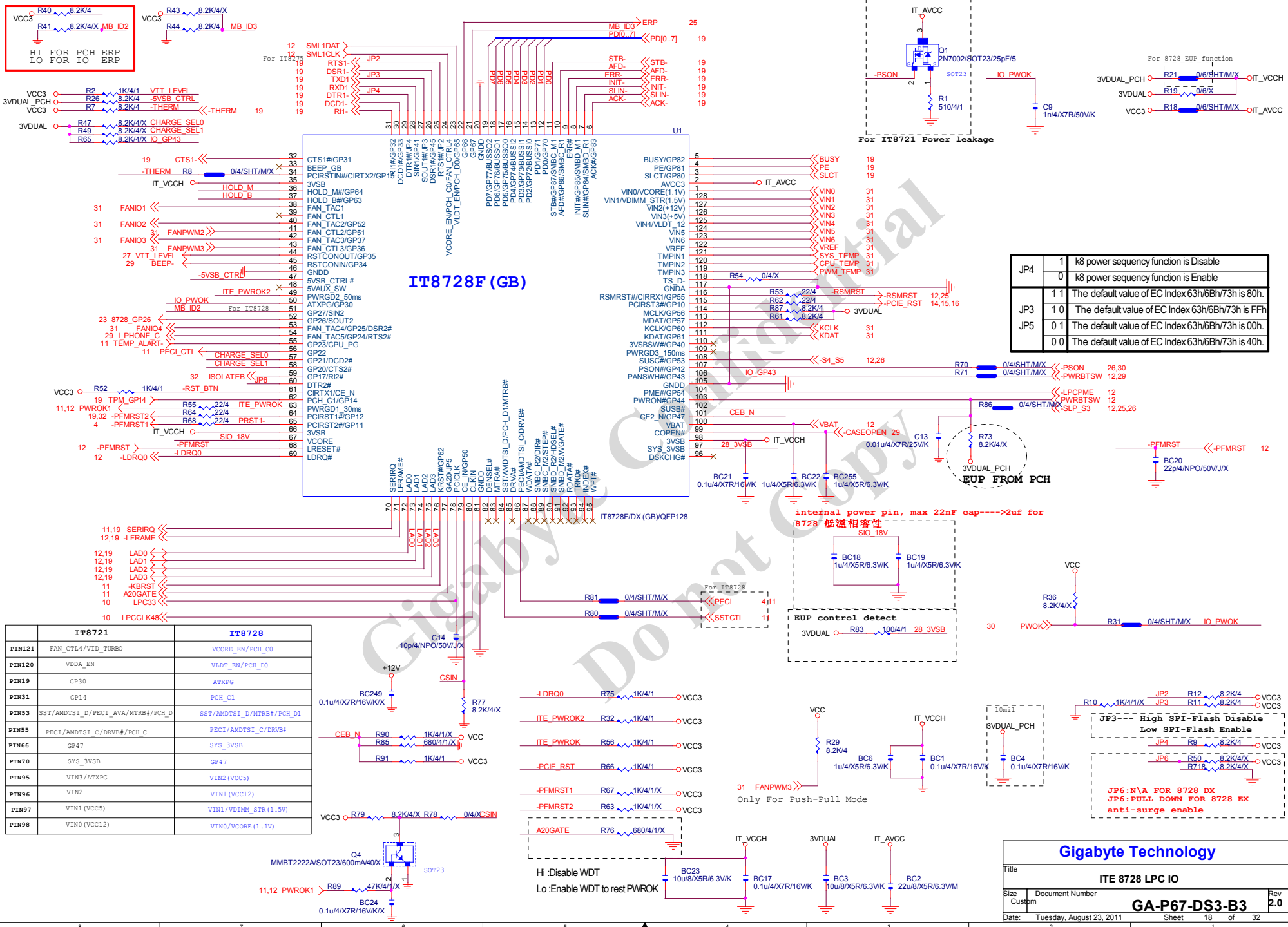




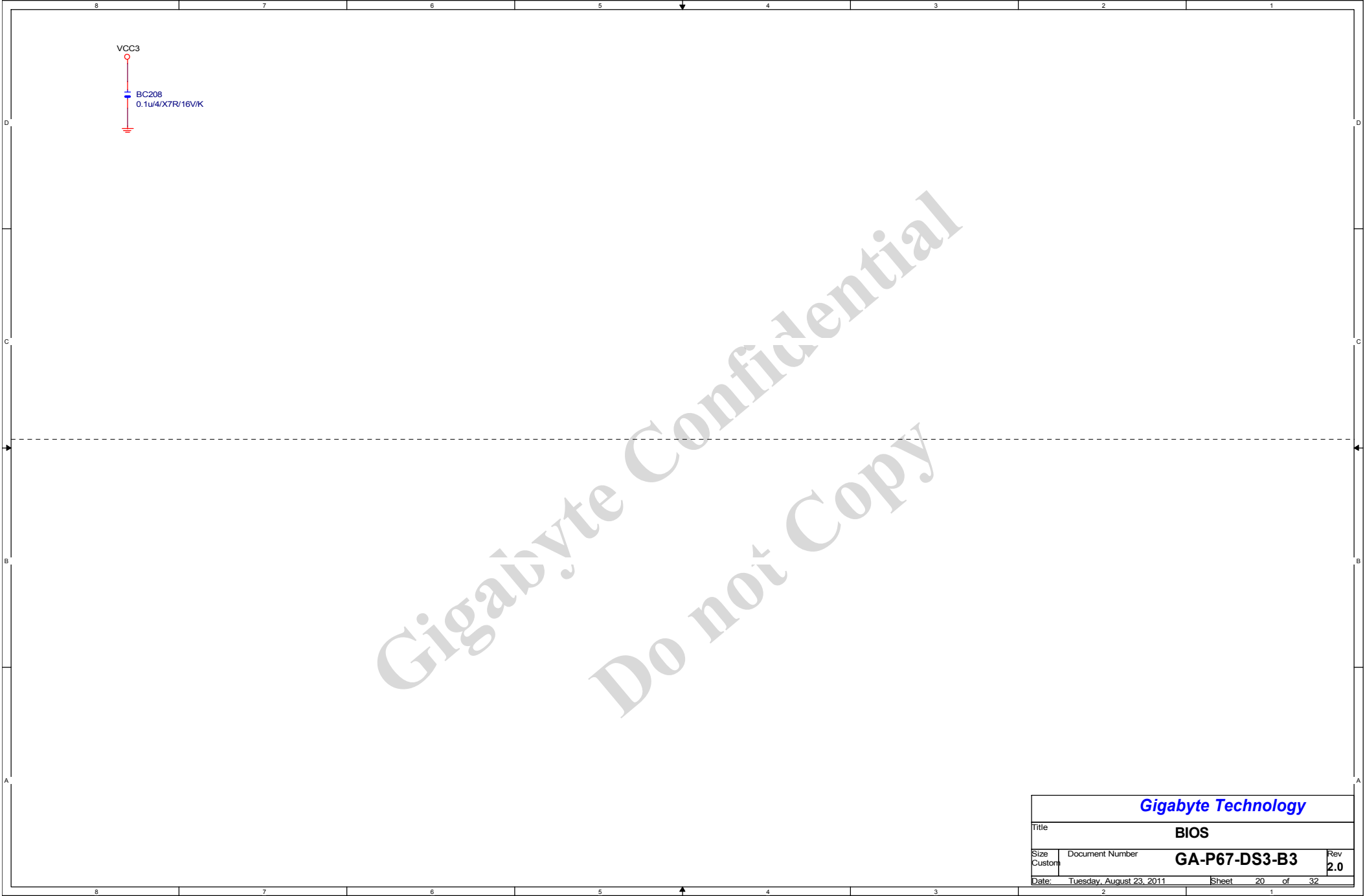


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Title			
ITE 8892			
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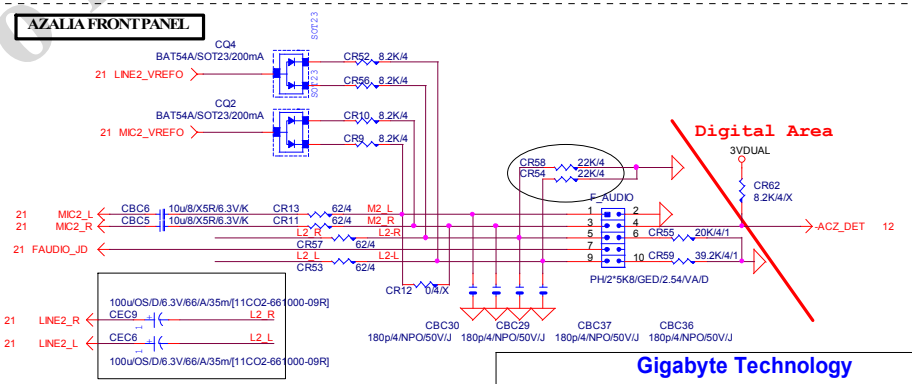
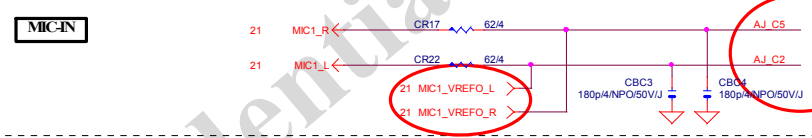
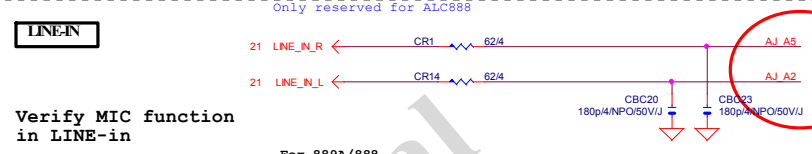
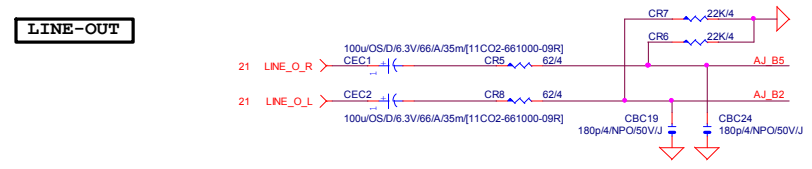
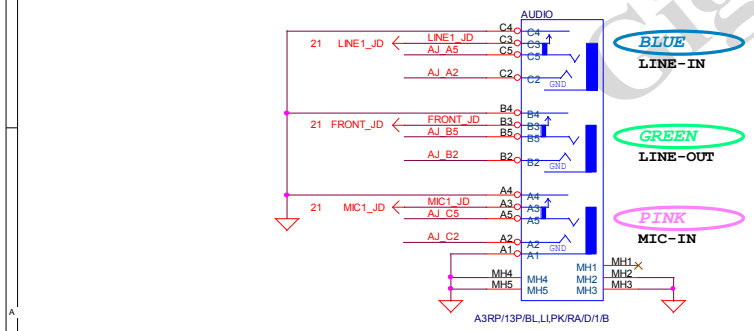
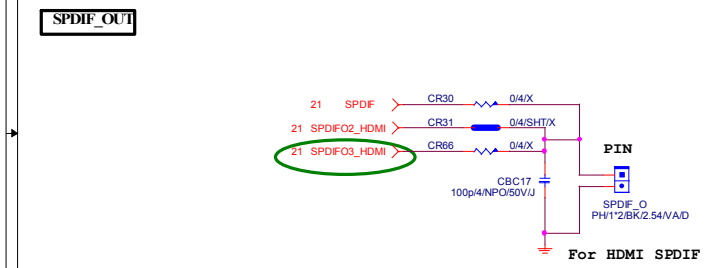
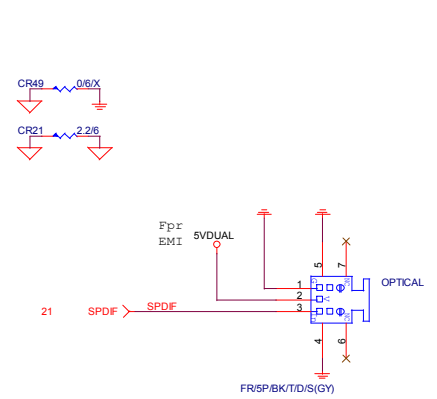
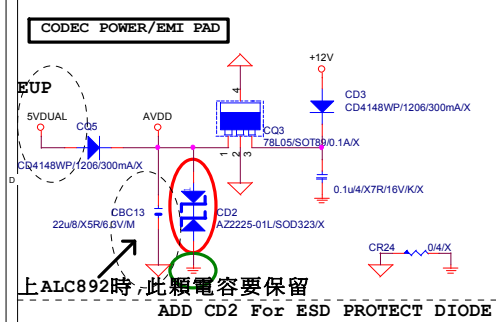




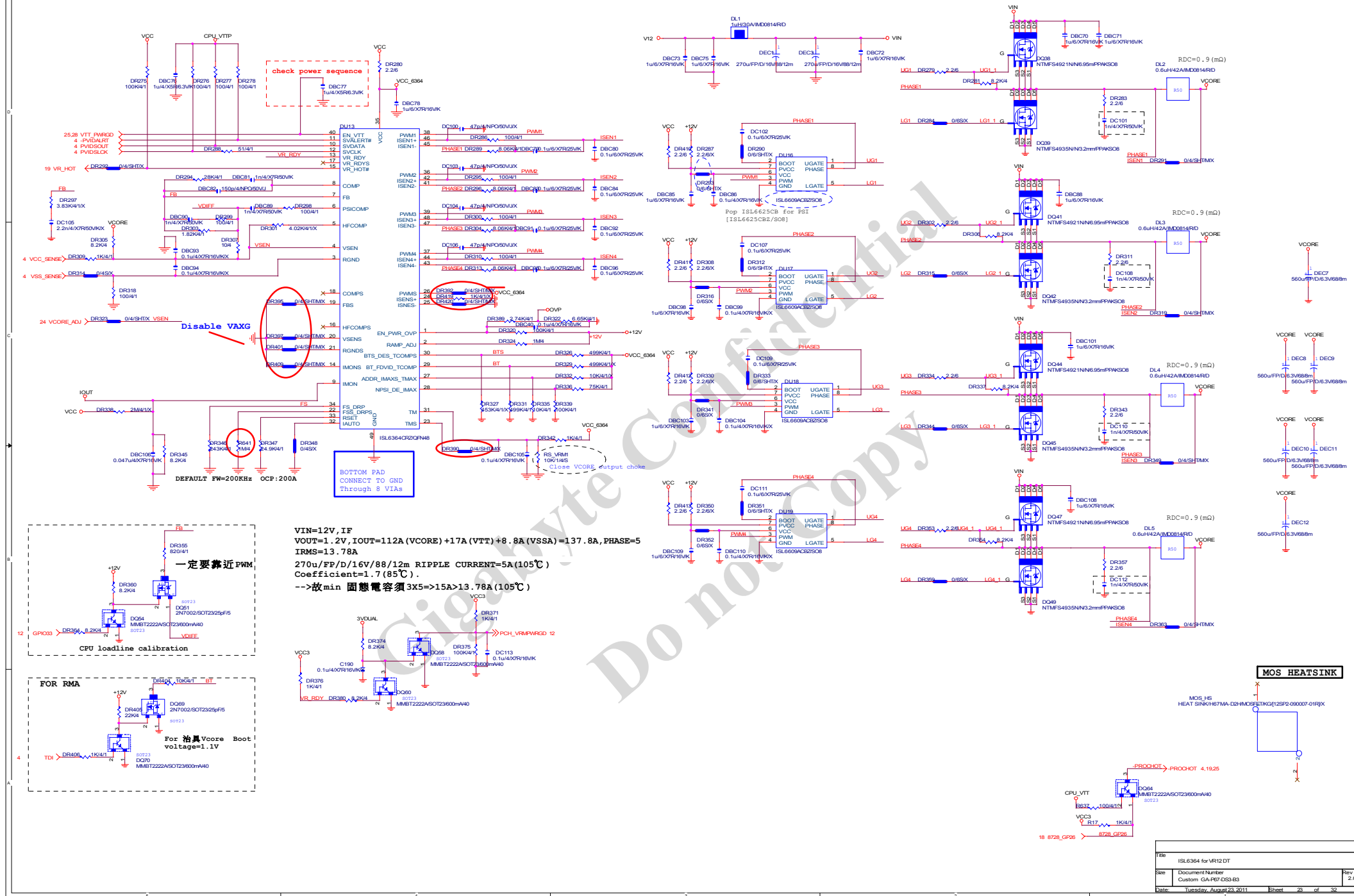


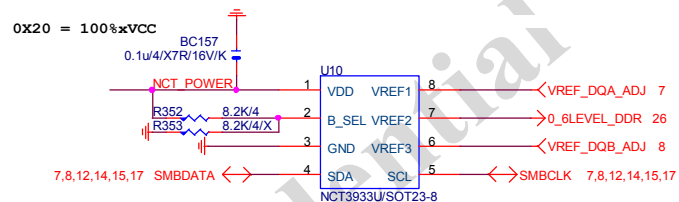
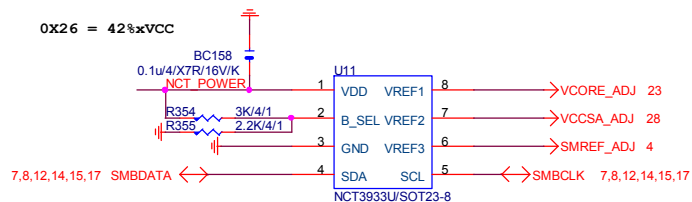
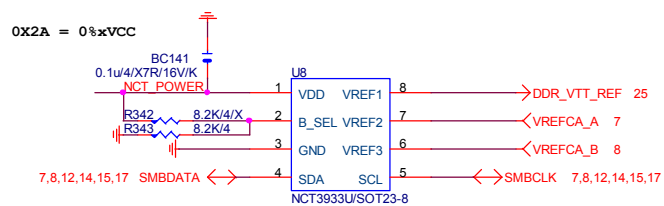
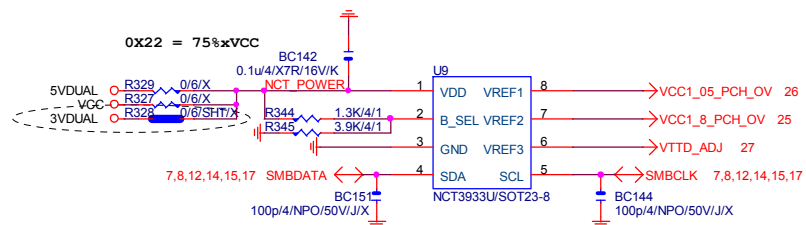






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up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAV	VREF_DDRB_DQ	CPU_VTT	SMREF

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Title			
CPU CORE VR-2			
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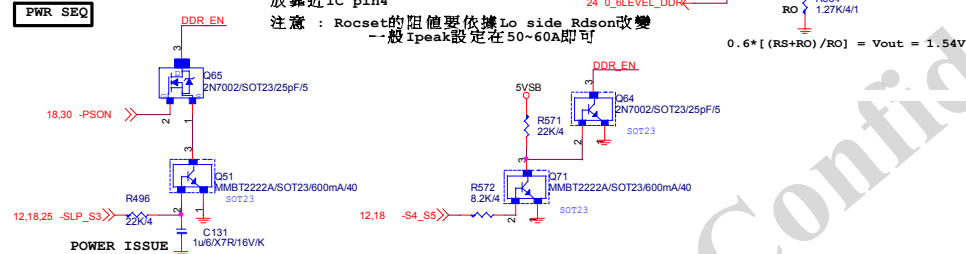
VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1  
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
Coefficient=1.7(85°C), 1(105°C)

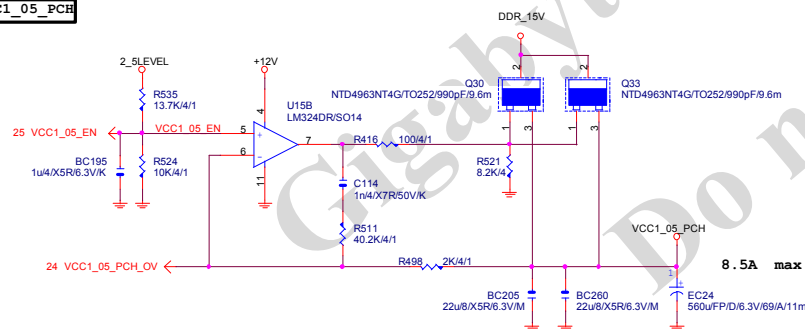
VIN Ripple current=4.7X1.7=7.99A(85°C)  
-->故固態電容須2X7.99=15.98>11.45A

OCP :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$   
 typ  $I_{ocset} = 20\mu A$  ,  $R_{ocset} = 8.2k$   
 OCP :  $53.71A = (2 \times 20\mu A \times 8.2k) / (5.5m)$

## PWR SEQ



VCC1\_05\_PCH



VIN=3.3V,VOUT=1.05V,IOUT=8.5A,PHASE=1  
IRMS=3.959A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
Coefficient=1.7(85°C), 1(105°C)

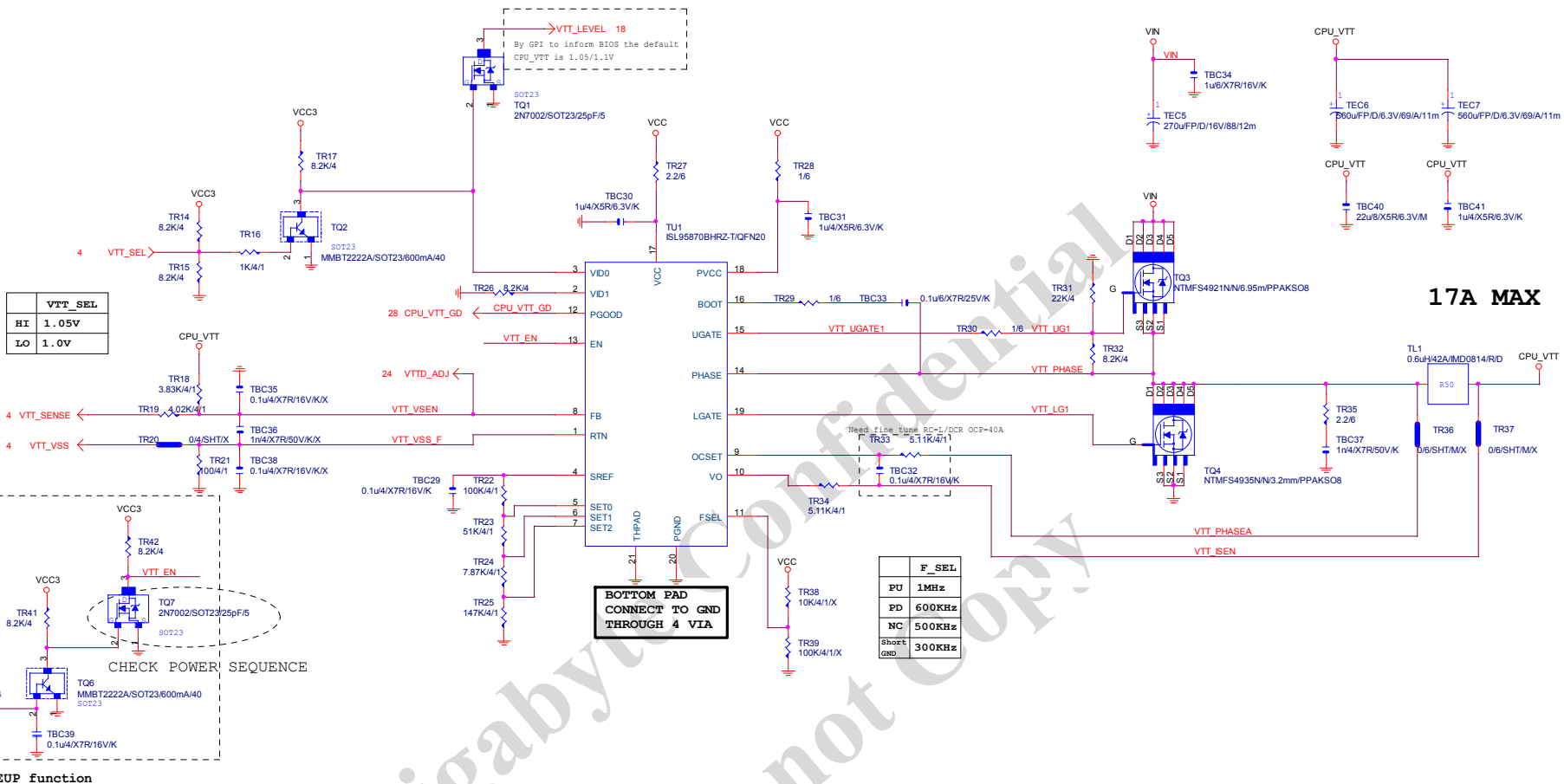
VIN Ripple current=4.7X1.7=7.99A(85°C)  
-->故固態電容須2X7.99=15.98>11.45A

```

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=8.2k
OCP : 46.86A=(2x20uax8.2k)/7m

```





	F_SE
PU	1MHz
PD	600KHz
NC	500KHz
Short GND	300KHz

17A MAX

## CHECK POWER! SEQUENCE

## Patch EUP function

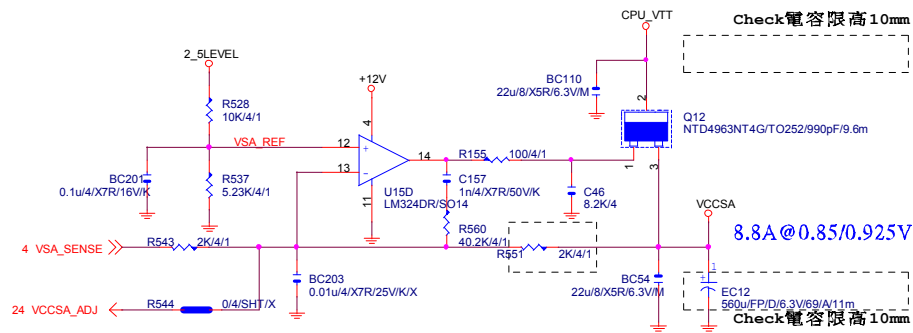
**GIGABYTE**

Title	CPU_VTT_PWM_ISL95870
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Size	Document Number
Custom	<b>GA-P67-DS3-B3</b>

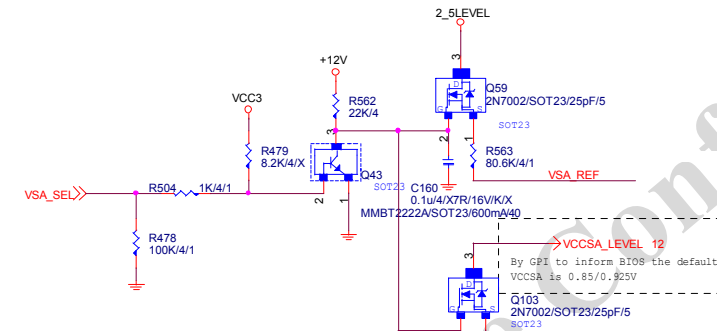
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# VCC\_SA

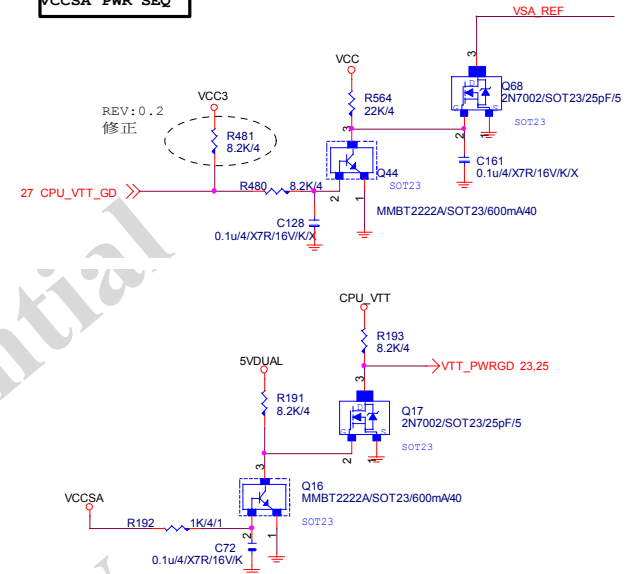


PDG 1.01

VSA_SEL	
HI	0.85V
LO	0.925V



# VCCSA\_PWR\_SEQ



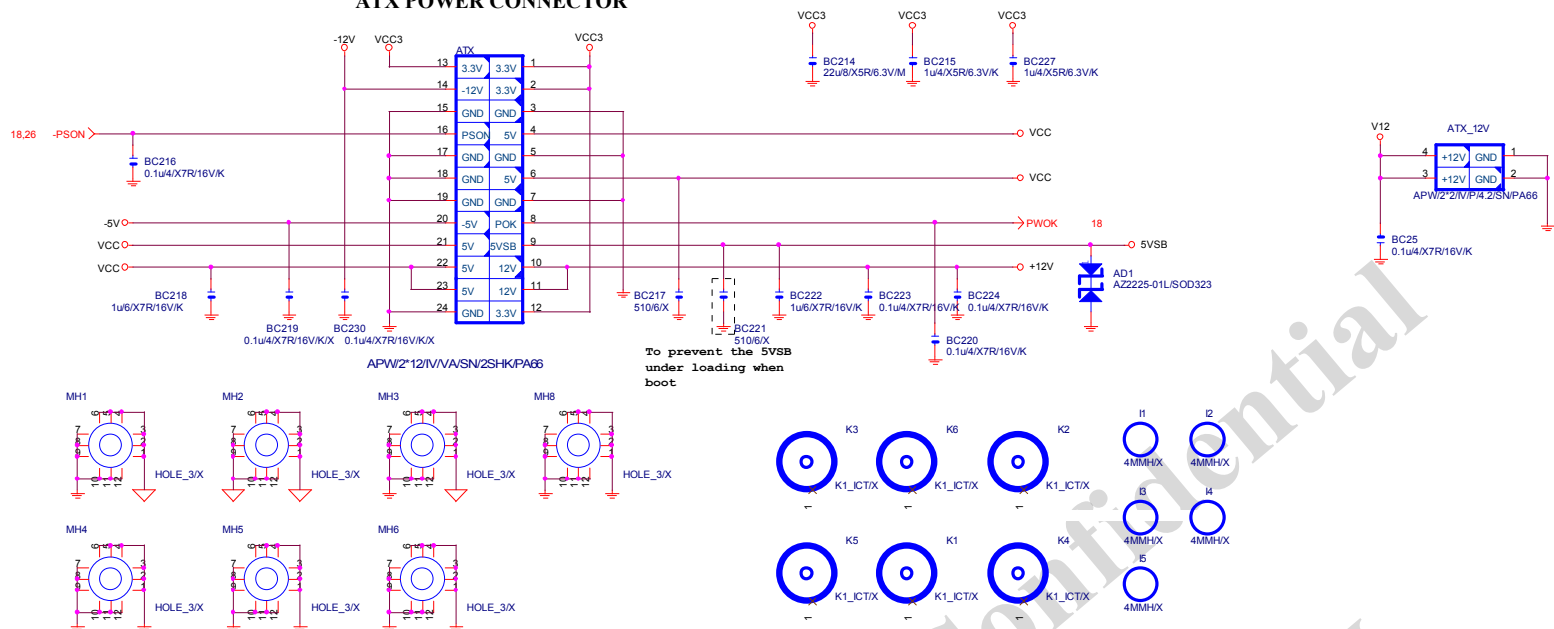
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CPU VTT PWM_ISL6312		
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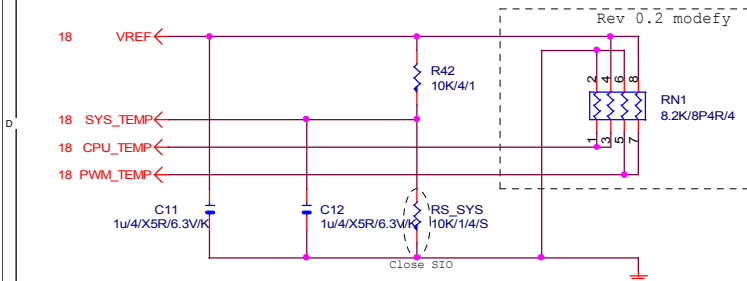


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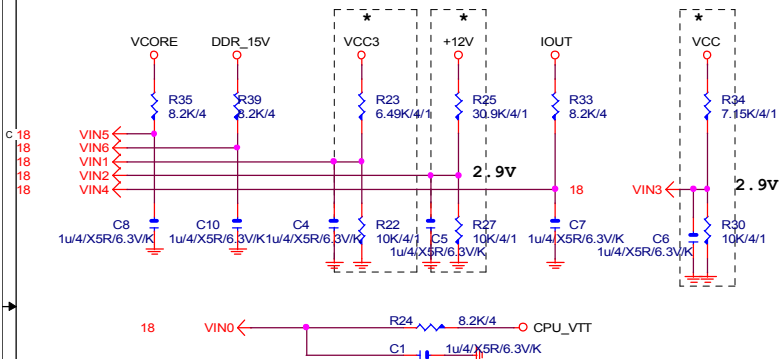
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Title			
<b>ATX POWER CONNECTOR</b>			
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## TEMP H/W MONITOR

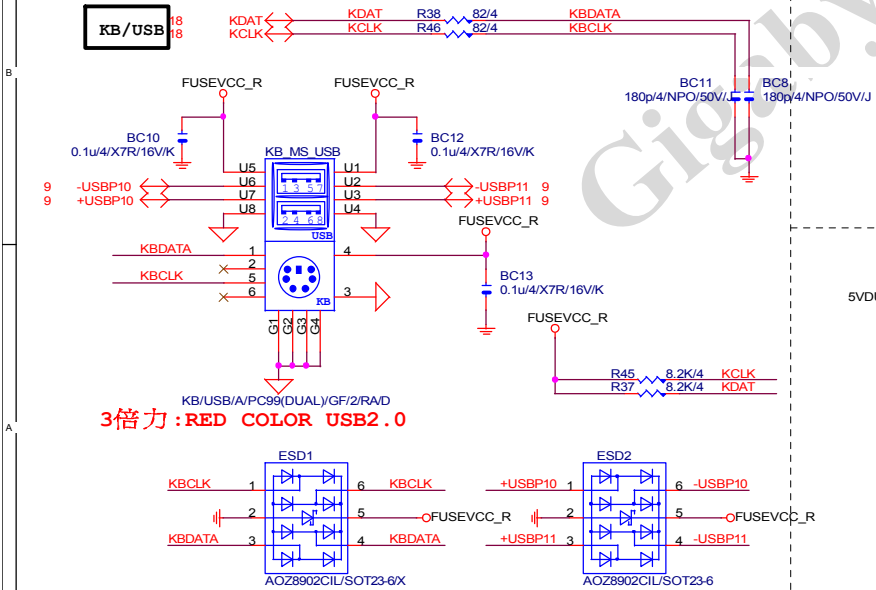


VOLTAGE-- H/W MONITOR

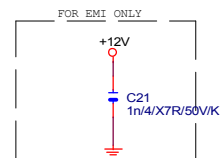
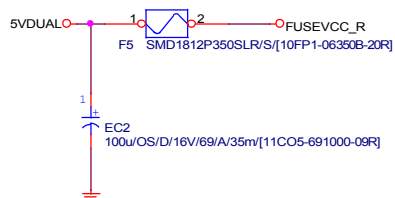
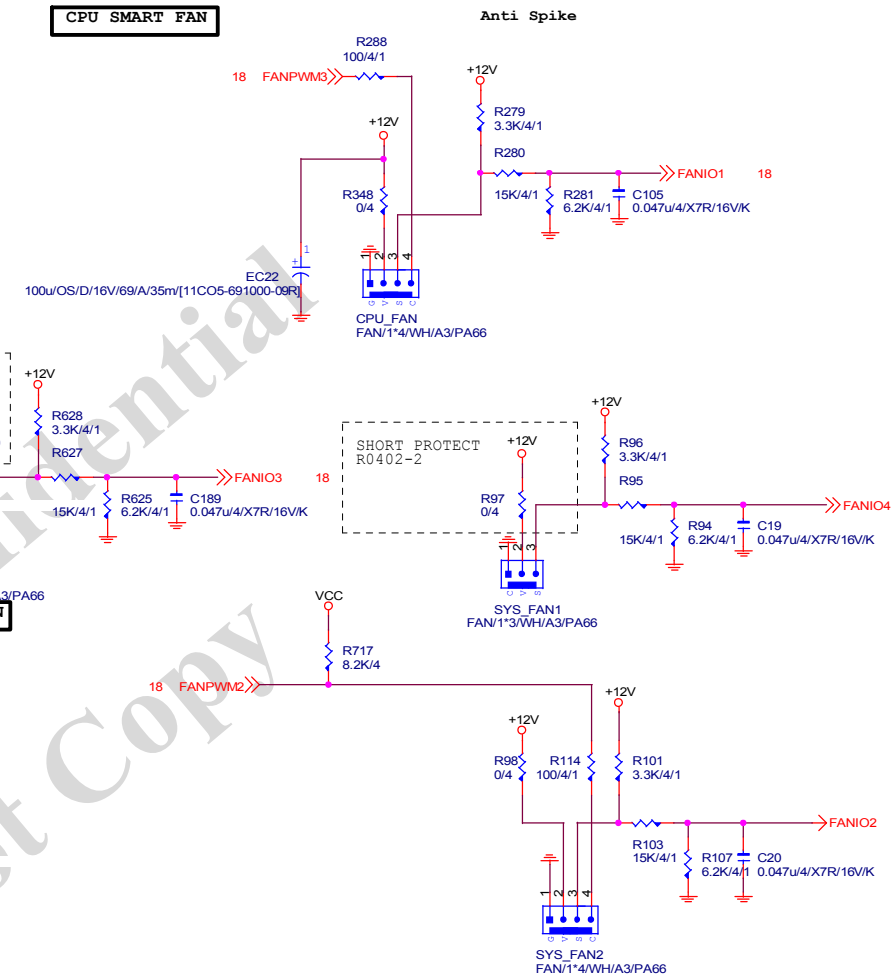


The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB



## CPU SMART FAN



## Gigabyte Technology

Title	HWM,KB/MS, FAN CTRL
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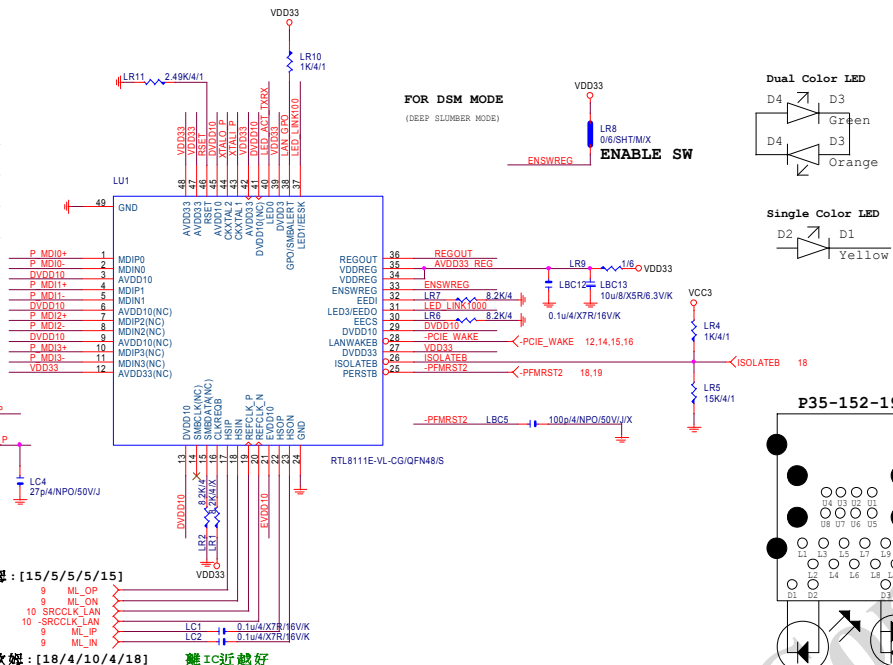
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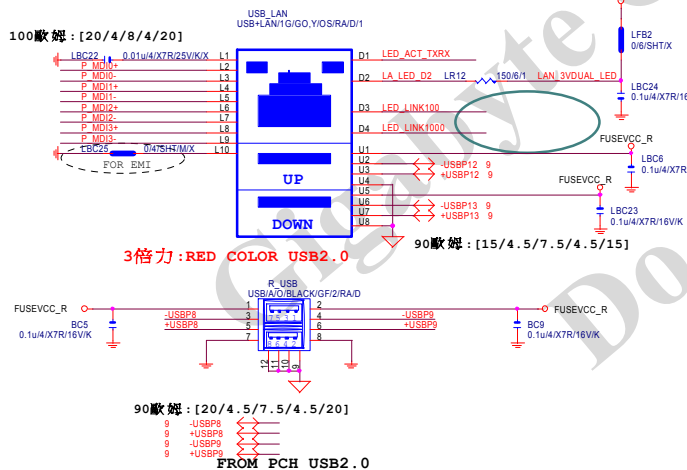
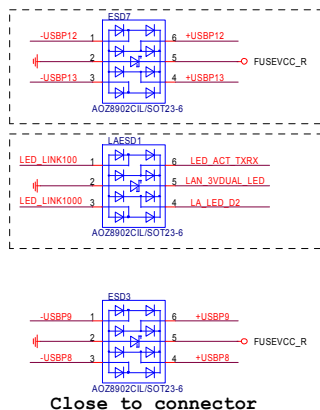
# PCIE-1G LAN

## Power domain chart

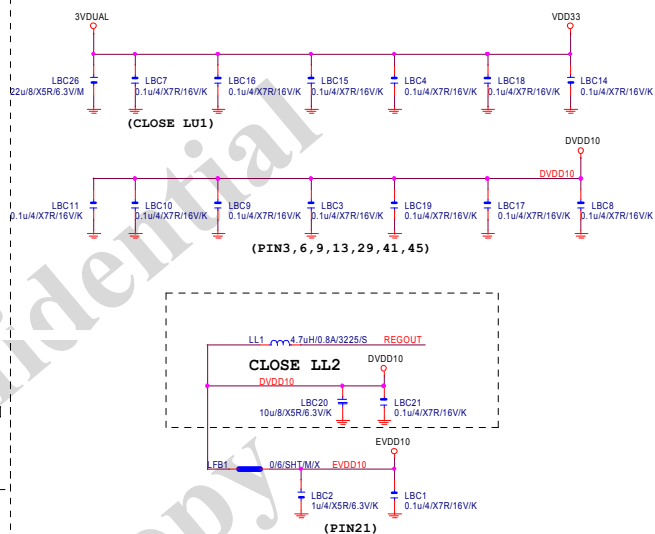
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



# USB30 LAN CONNECTOR



Close to connector



Gigabyte Technology

REALTEK RTL8111E

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