

## Model Name: GA-P61-S3-B3

1.2

SHEET

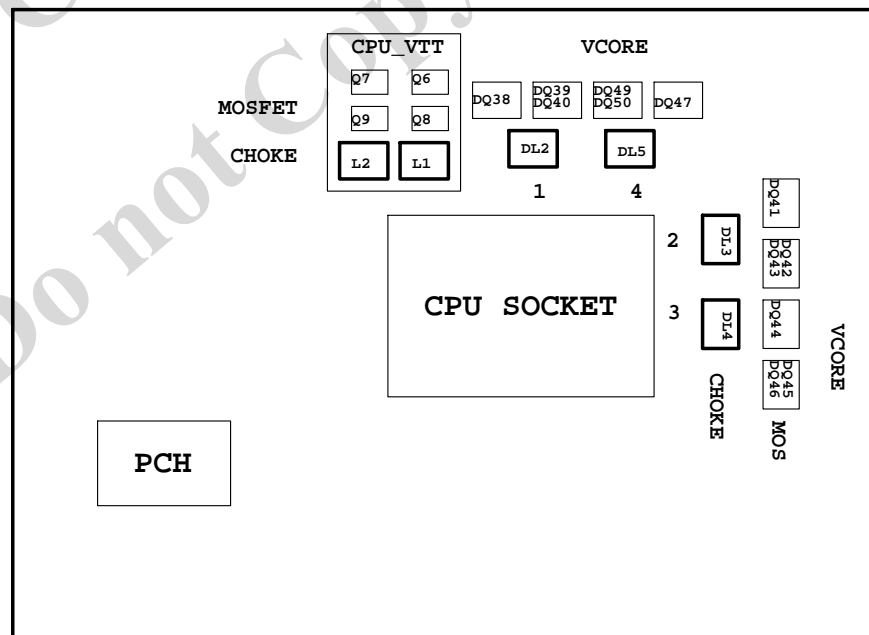
TITLE

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 EXPRESS*4 SLOT
16	PCI EXPRESS*1 SLOTS X2
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, -PROHOT, ESATA CONNECT
20	Dual BIOS
21	ALC892
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_ISL6322G

SHEET

TITLE

28	VCCSA POWER
29	F_PANEL , F_USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	NEC USB3.0
34	TABLE LIST
35	
36	
37	
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40	



Gigabyte Technology

Title			
Cover Sheet			
Size	Document Number	Rev	
Custom	GA-P61-S3-B3	1.2	
Date:	Wednesday, December 07, 2011	Sheet	1 of 34

## GA-P61-S3-B3

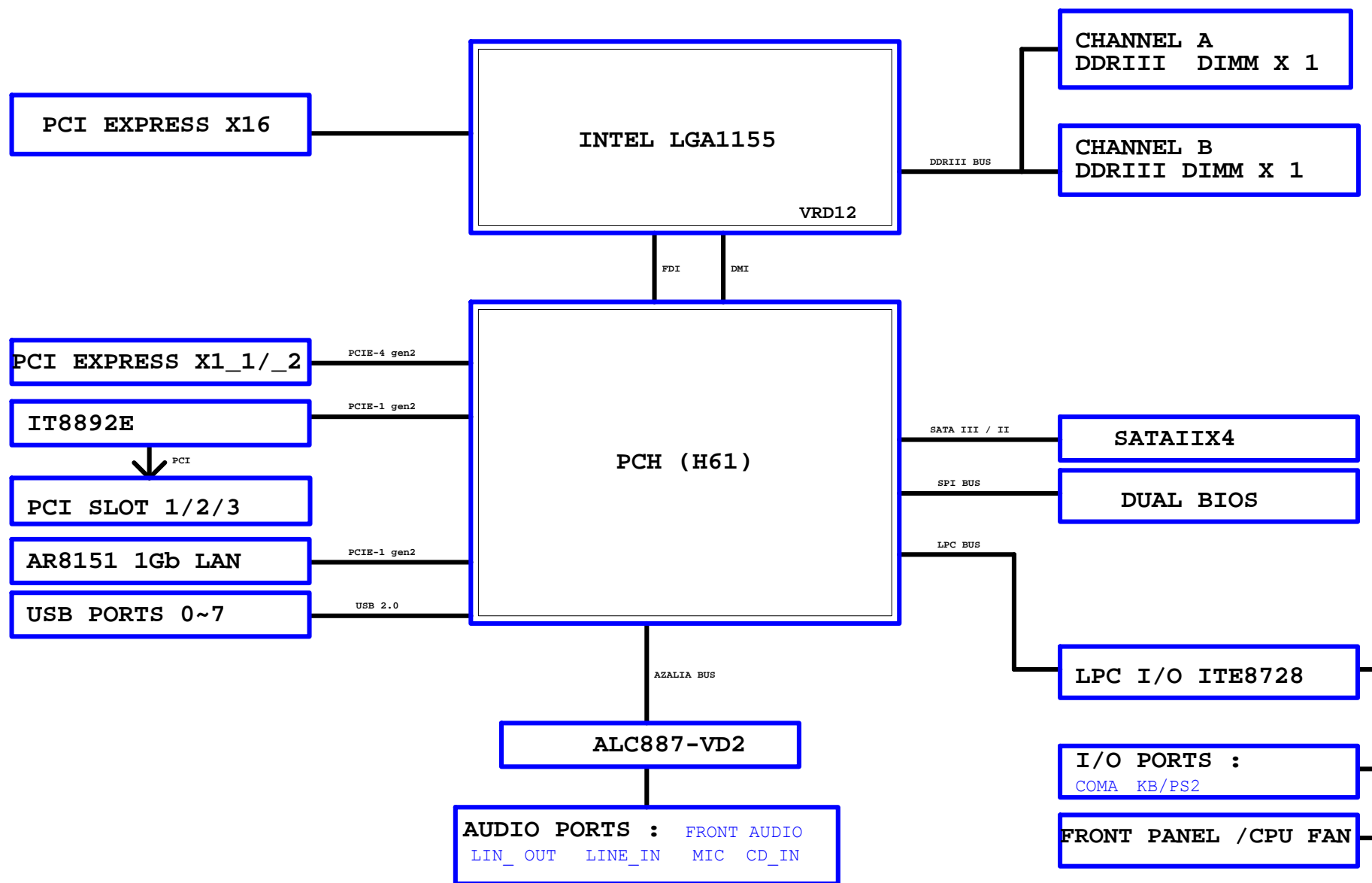
### Component value change history

[illegible]

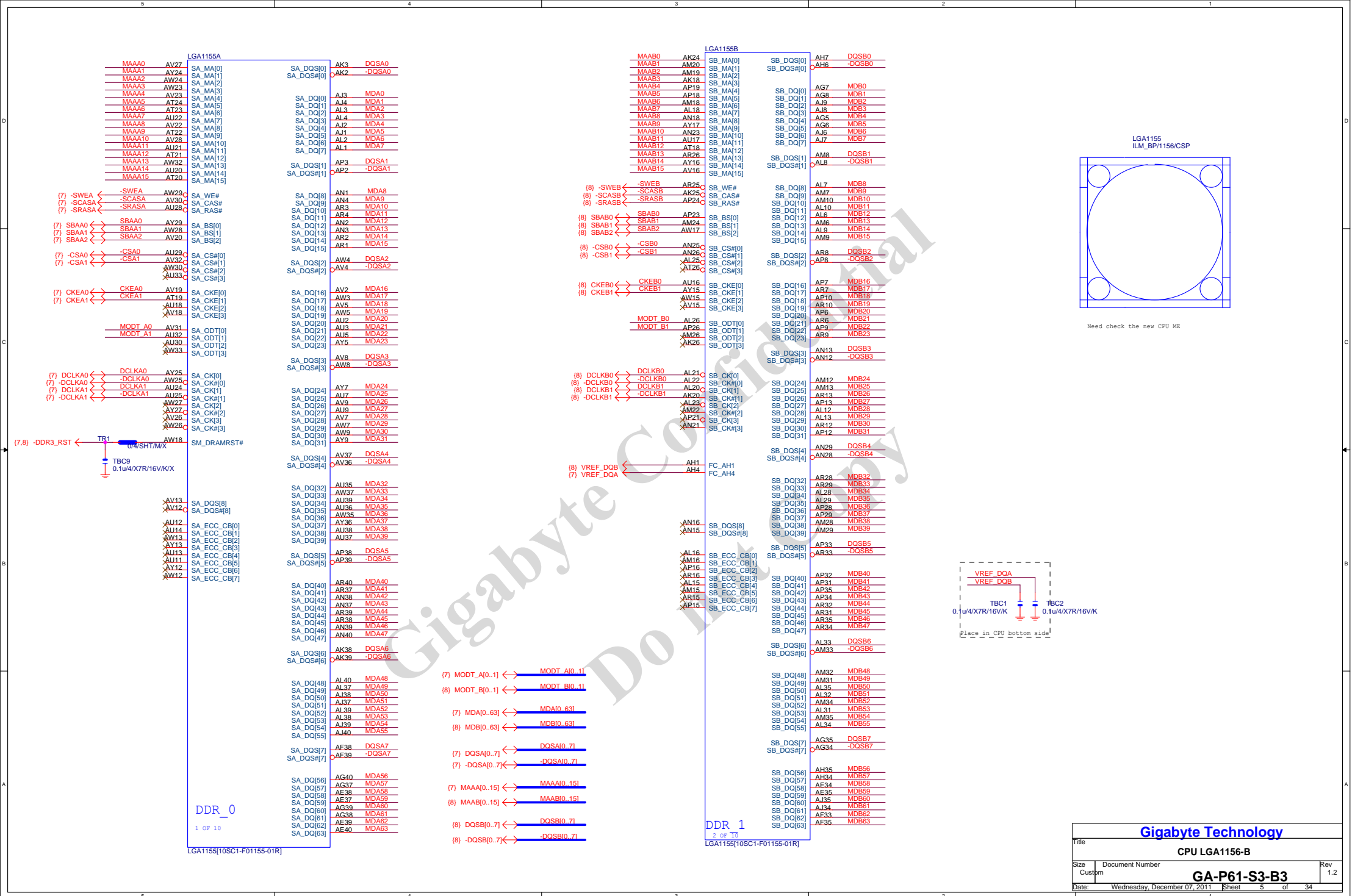
## Circuit or PCB layout change

[illegible]

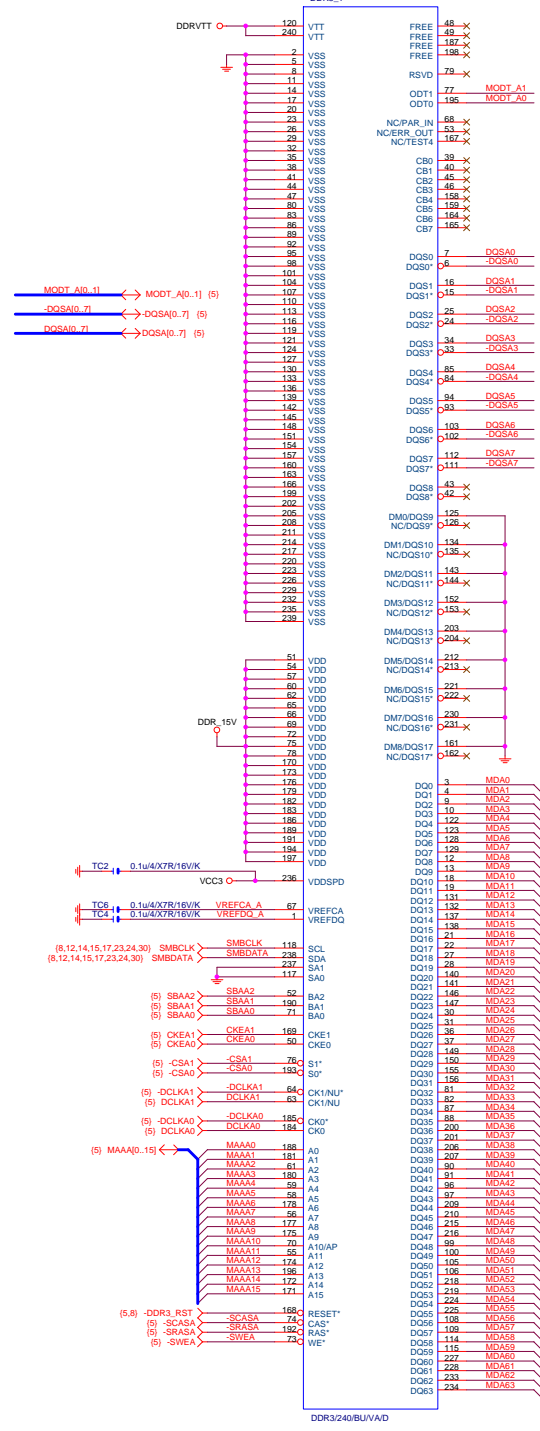
# BLOCK DIAGRAM



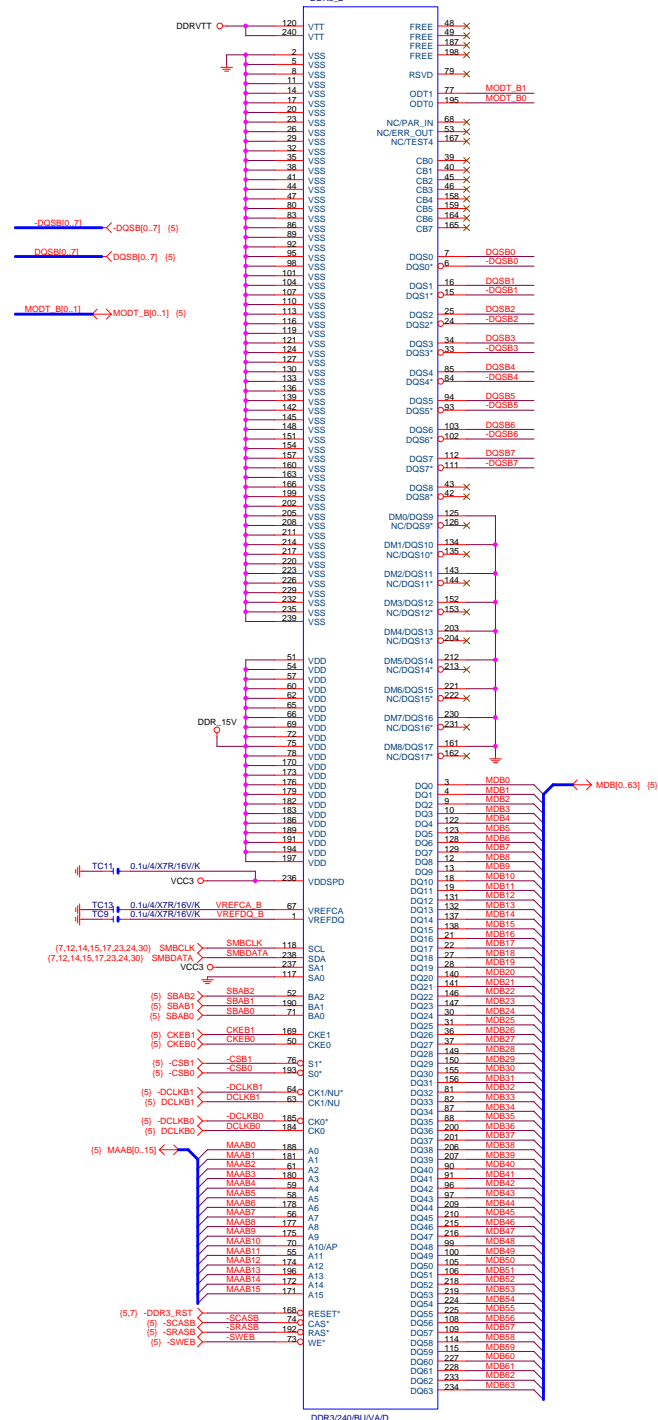




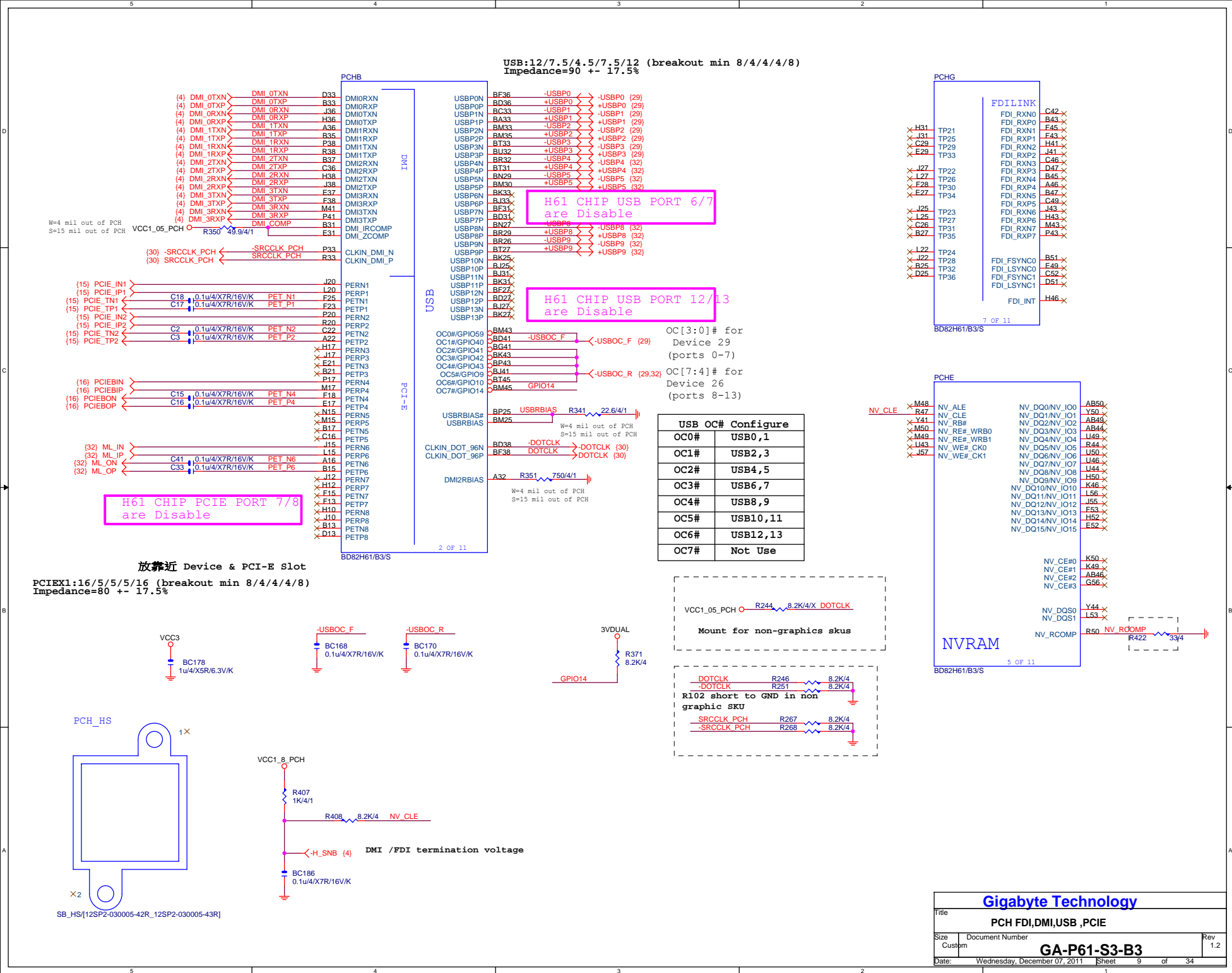


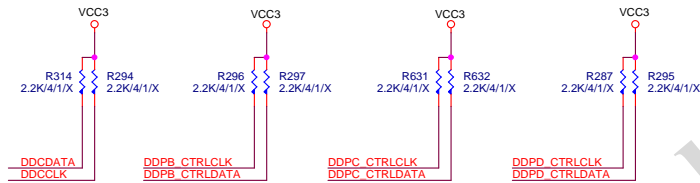
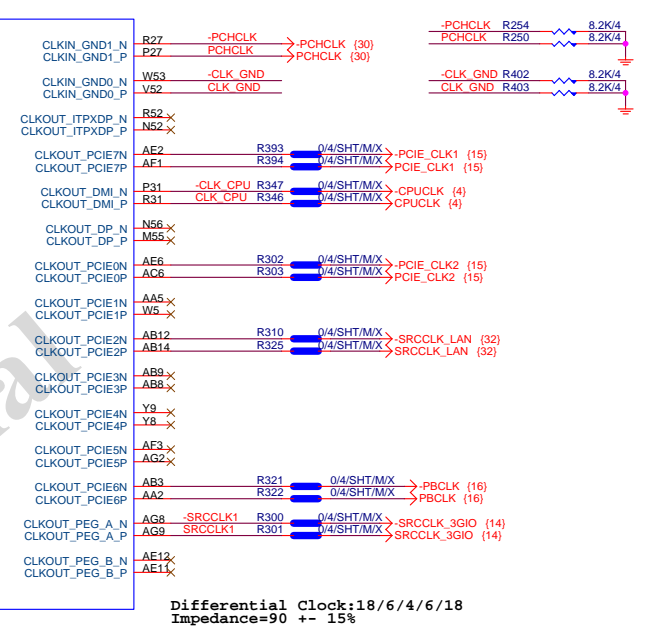
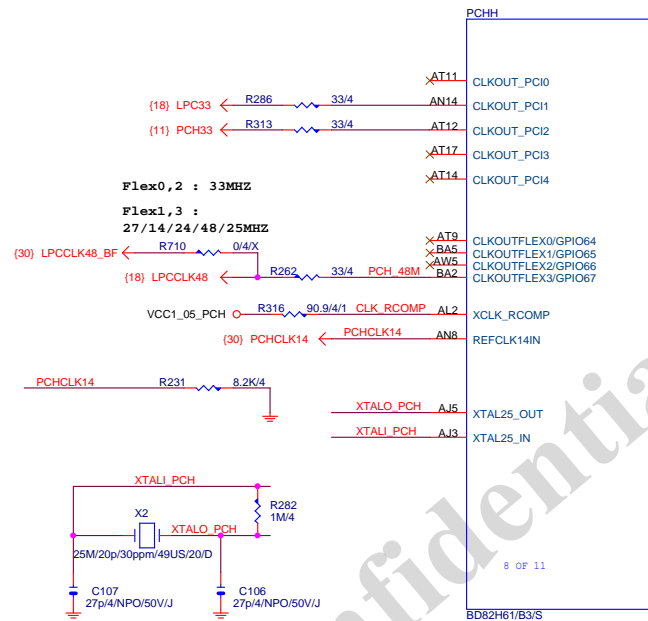
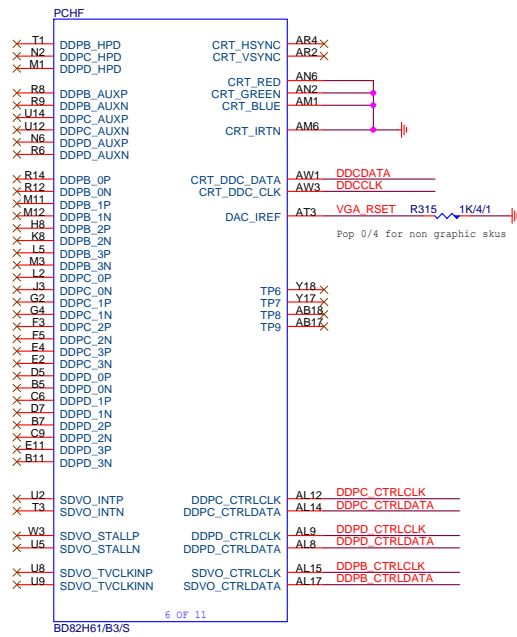








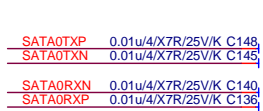
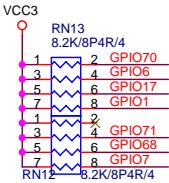
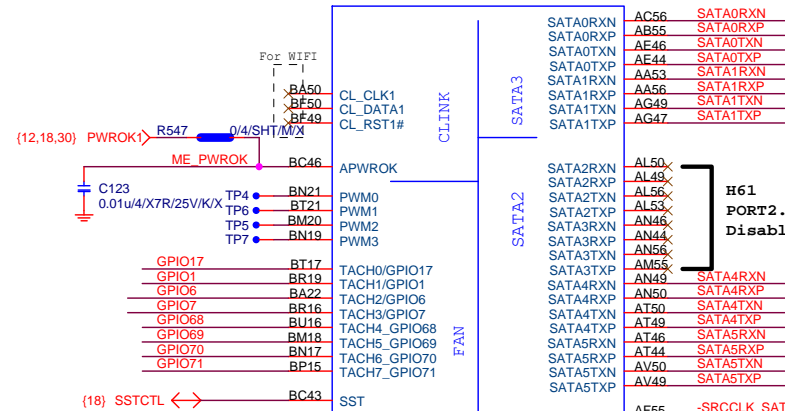




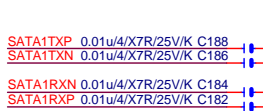
Check if NC for P67 non graphic chip

SATA:20/4.5/7.5/4.5/20 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%

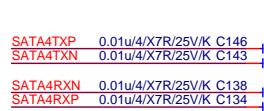
PCHC



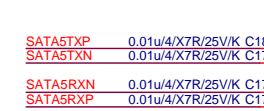
SATA27/BU/H/OP/VA/D1/B



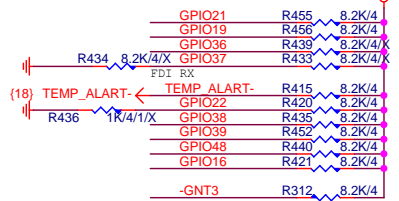
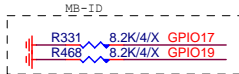
SATA27/BU/H/OP/VA/D1/B



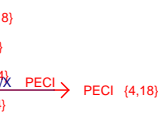
SATA27/BU/H/OP/VA/D1/B



SATA27/BU/H/OP/VA/D1/B

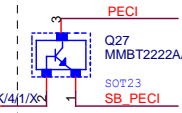


BD82H61/B3/S

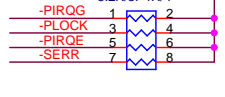
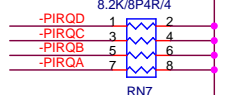
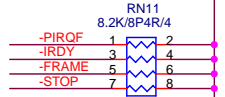
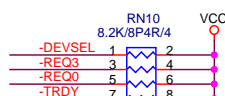
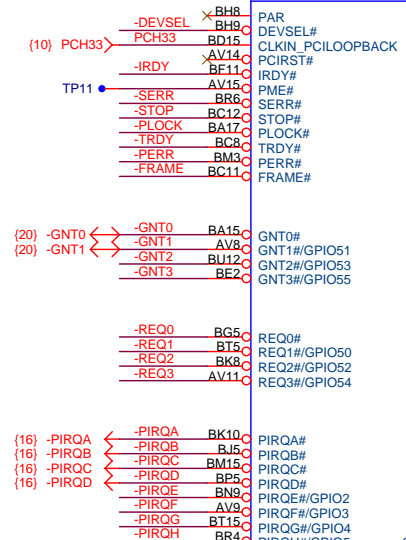


(18) PECTL\_CTL

To prevent PCH PECTL crosstalk to CPU when disable PCH PECTL

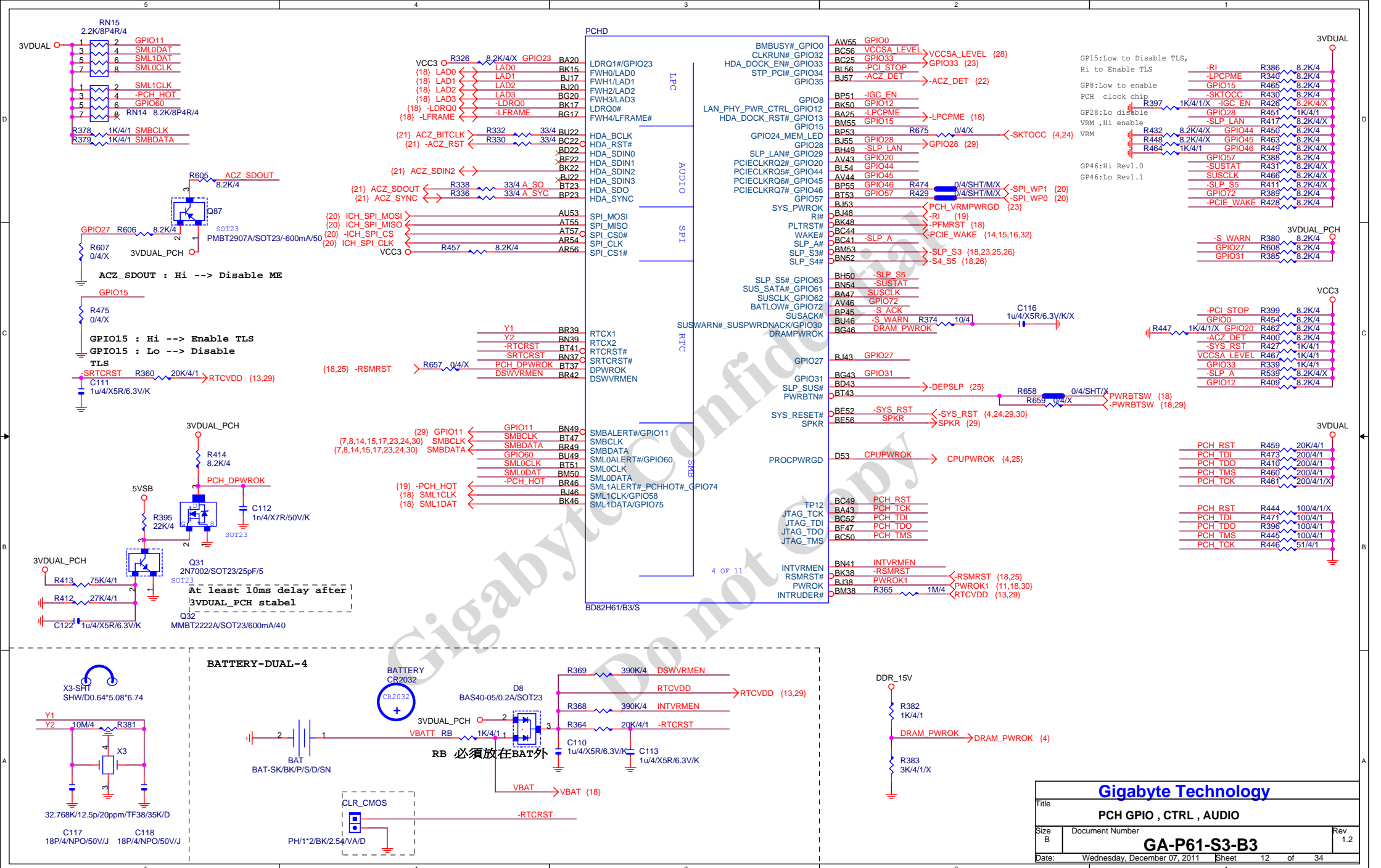


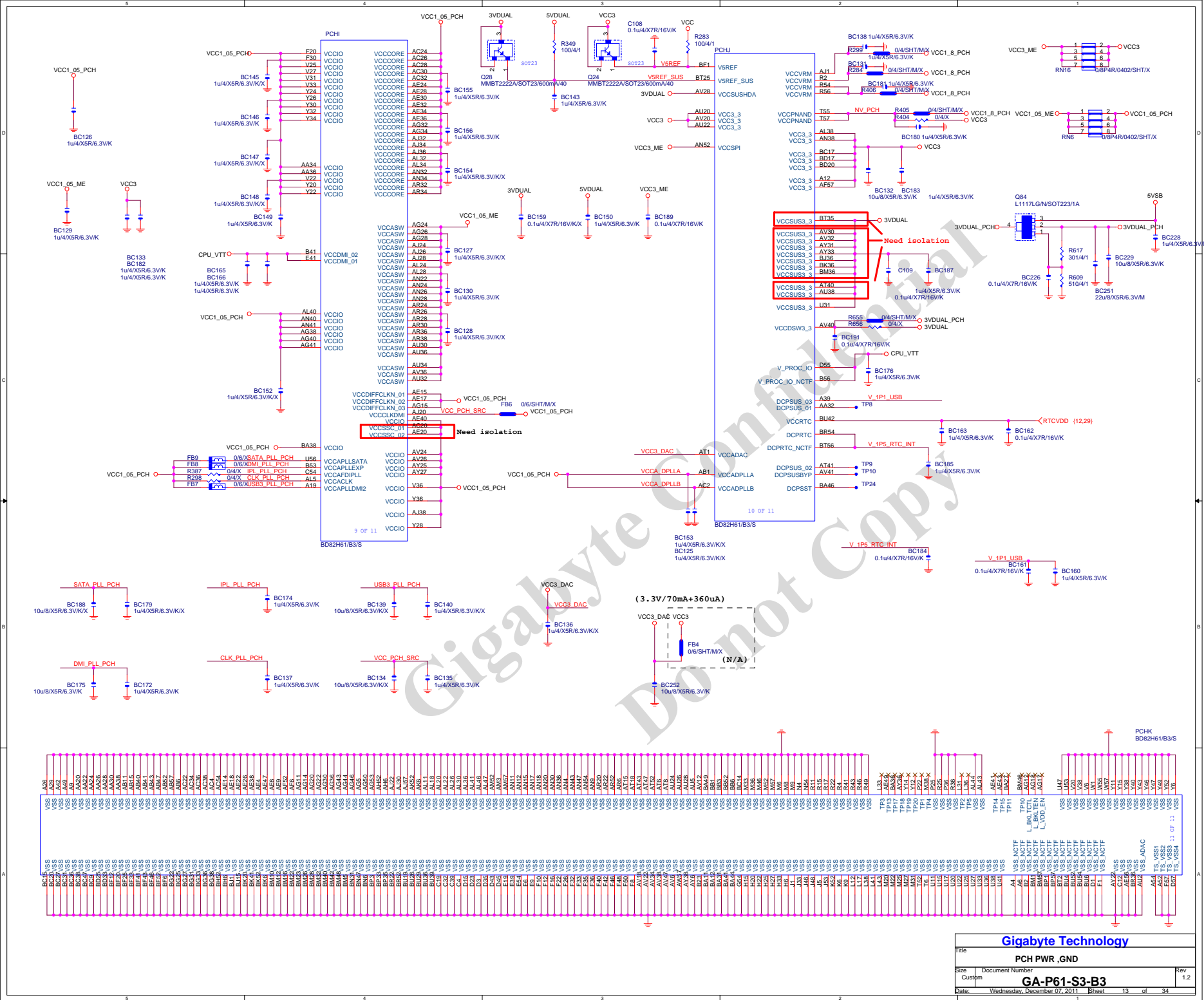
PCHA

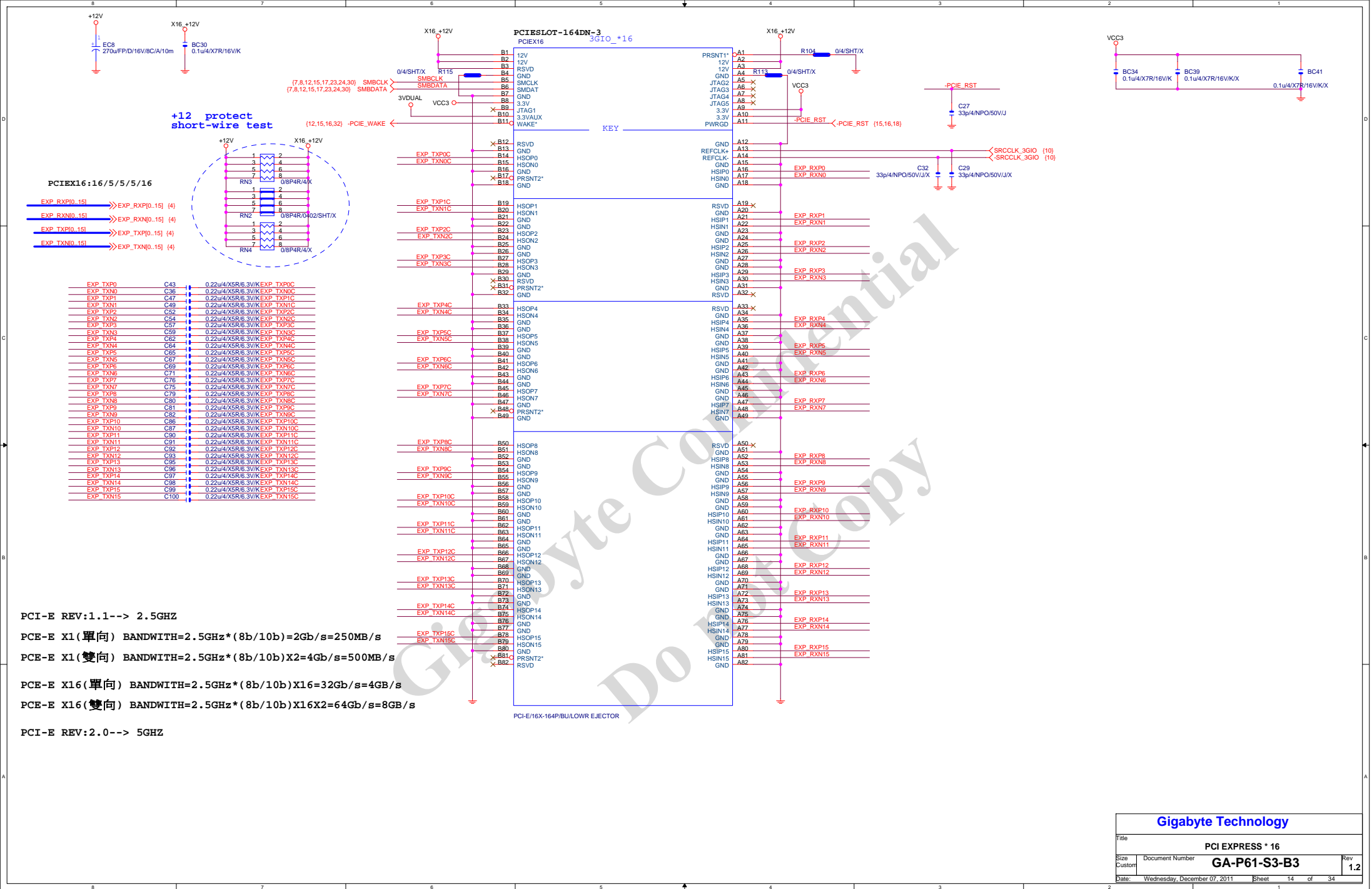


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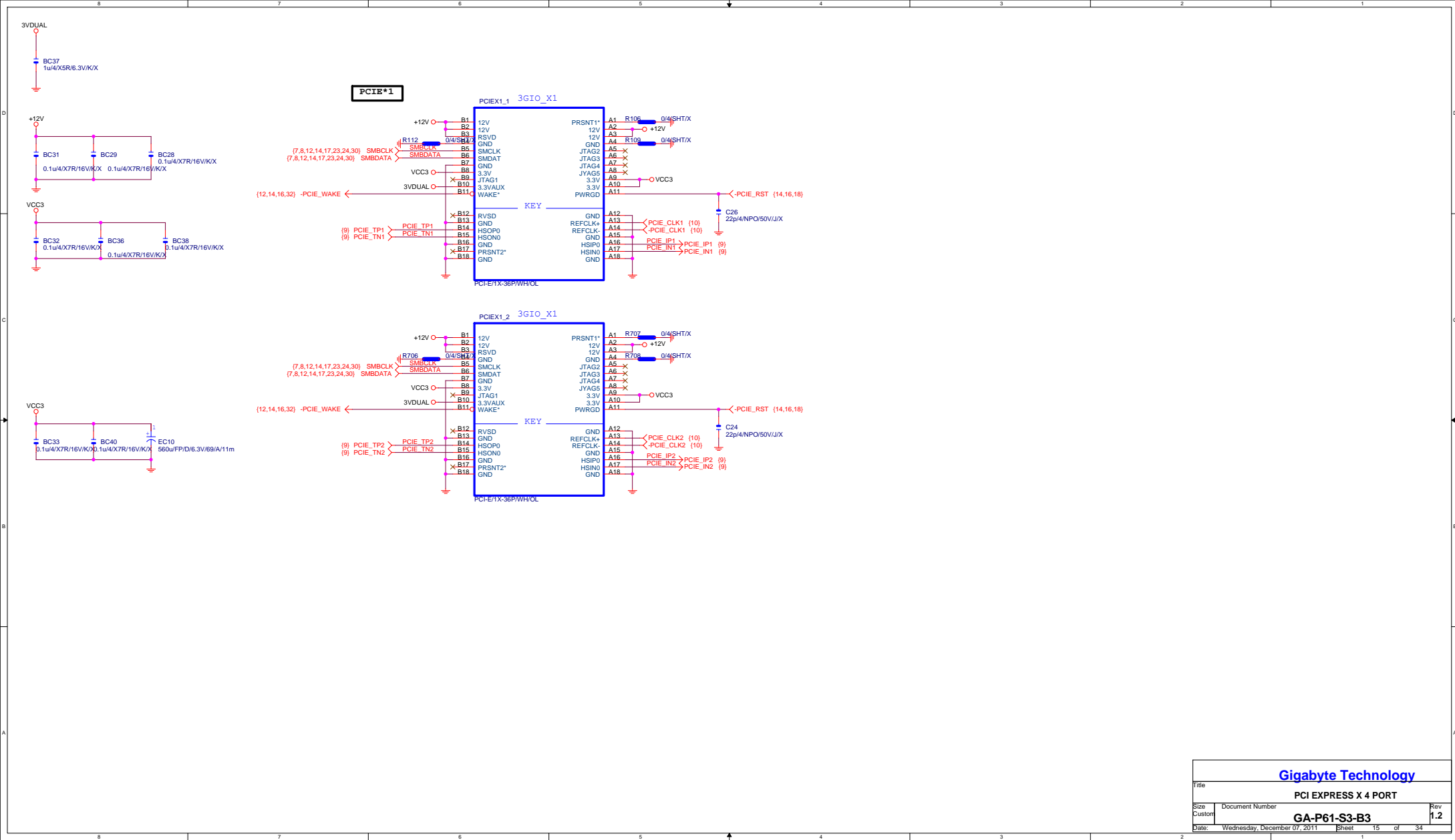
Title			
PCH HOST , SATA, PCI			
Size B	Document Number		Rev 1.2
GA-P61-S3-B3			
Date:	Wednesday, December 07, 2011	Sheet 11 of 34	





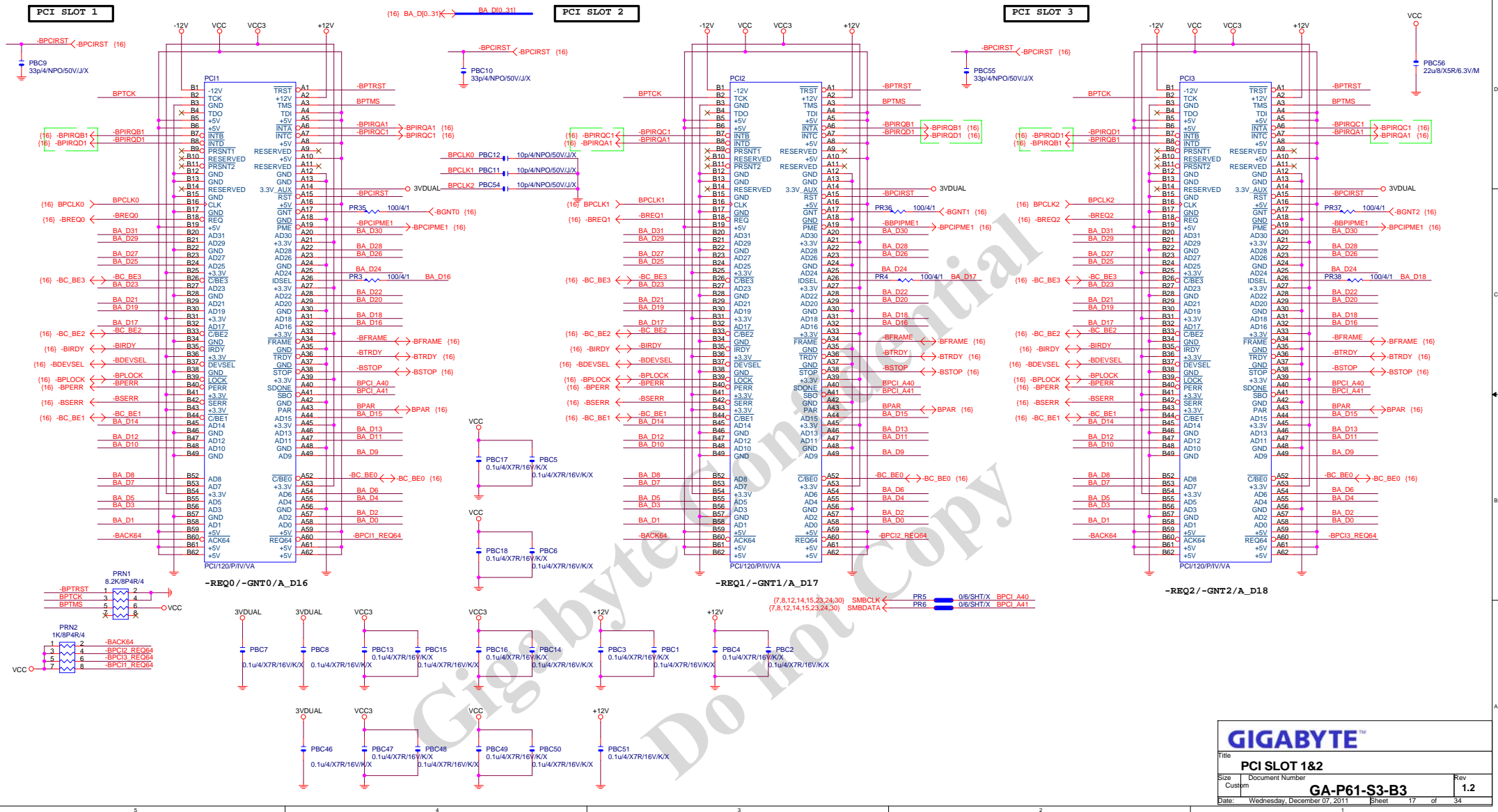


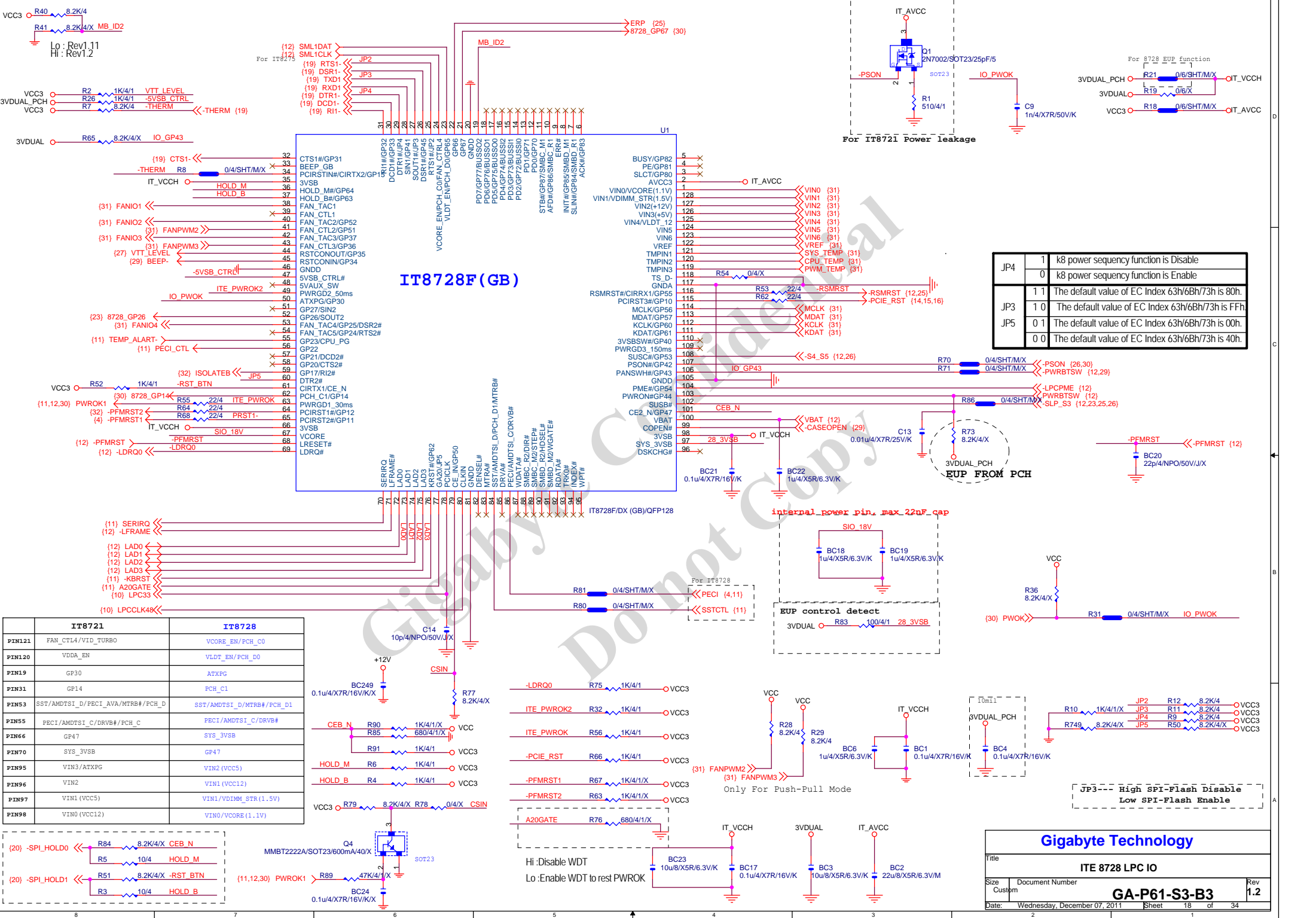




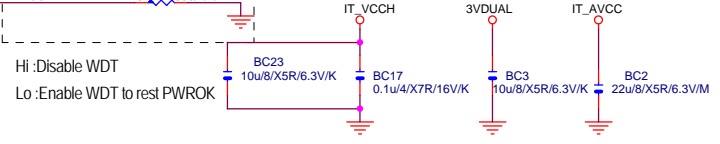
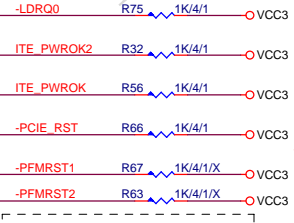
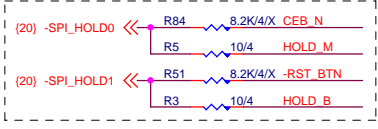








	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2 (VCC5)
PIN96	VIN2	VIN1 (VCC12)
PIN97	VIN1 (VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0 (VCC12)	VIN0/VCORE(1.1V)

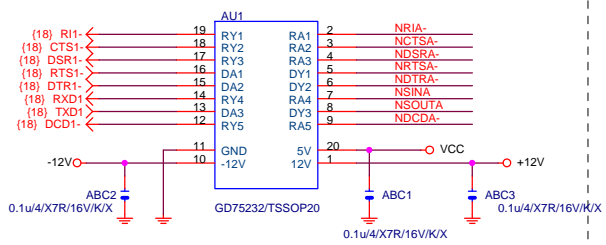


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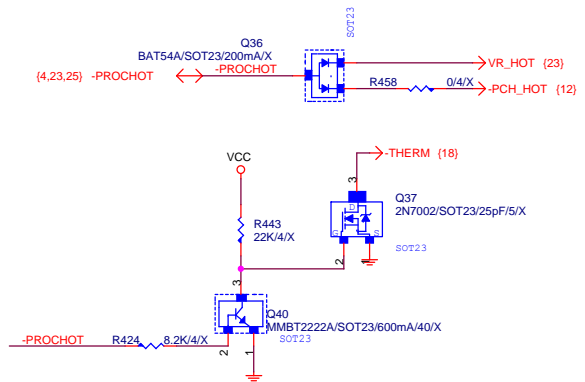
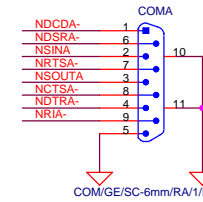
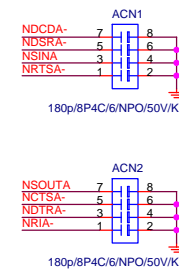
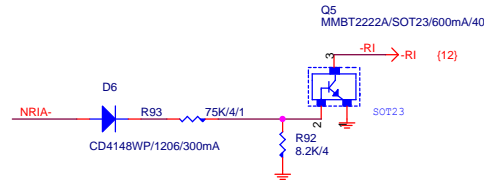
ITE 8728 LPC IO

Size	Custom	Document Number	GA-P61-S3-B3	Rev	1.2
Date:	Wednesday, December 07, 2011	Sheet	18	of	34

## COMA

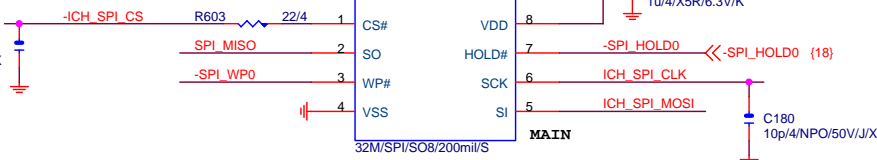
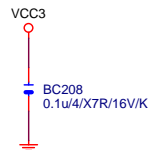


## COM RI

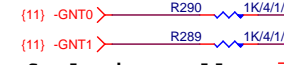
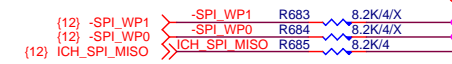
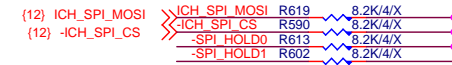


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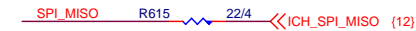
Title			
COM & PROHOT/Dynamic O.C.			
Size	Document Number		Rev
Custom	GA-P61-S3-B3		1.2
Date:	Wednesday, December 07, 2011	Sheet	19 of 34



### MOSI For DMI RX Termination Voltage



### Default int pull up



BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating  
0 means PD 1K

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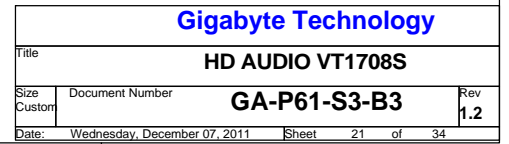
Title			BIOS
Size	Document Number	GA-P61-S3-B3	
Custom			Rev 1.2
Date:	Wednesday, December 07, 2011	Sheet 20 of 34	

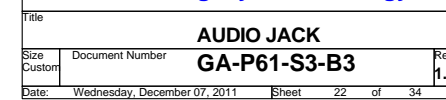
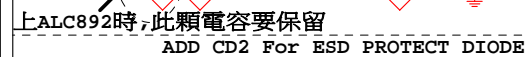
CR34: 20K/4/1% @Realtek cdec  
CR34: 5.1k/4/1% @VIA cdec  
CBC39 100P @VIA codec

CR34: 20K/4/1% @Realtek cdec

CR34: 5.1k/4/1% @VIA cdec

CBC39 100P @VIA codec







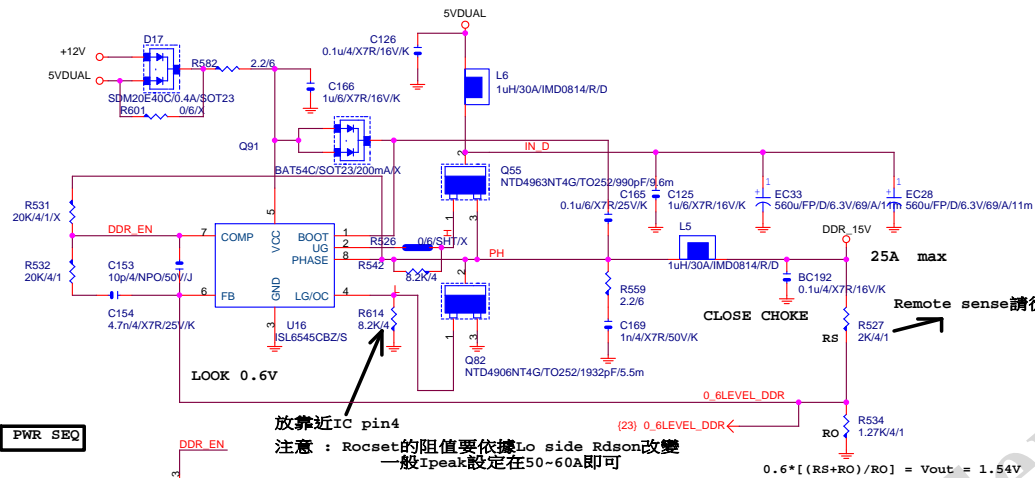


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Do not Copy

Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-P61-S3-B3	Rev 1.2
Date	Wednesday, December 07, 2011	Sheet 24 of 34



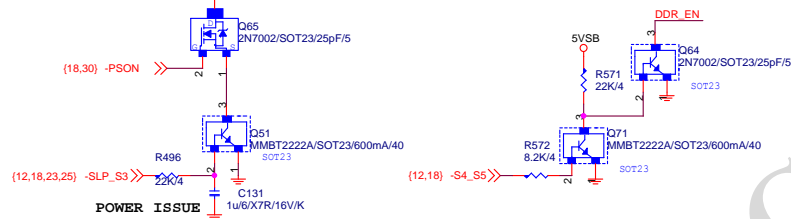
# DDR18V



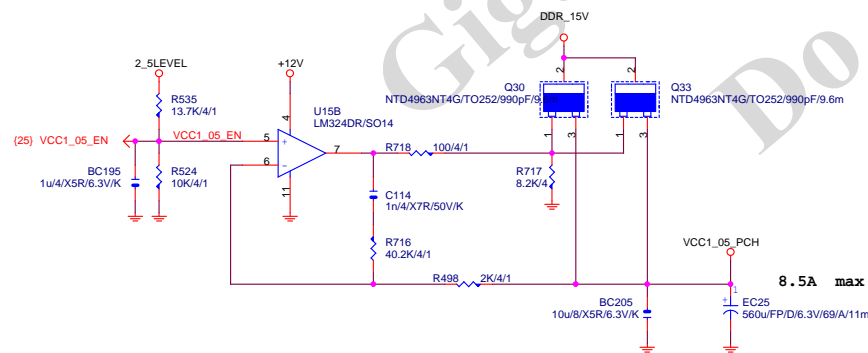
VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1  
IRMS=11.45A  
560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
Coefficient=1.7(85°C),1(105°C)  
VIN Ripple current=4.7X1.7=7.99A(85°C)  
-->故固態電容須2x7.99=15.98>11.45A

OCP : Ipeak=(2xIocsetxRocset)/Rdson  
typ Iocset=20uA , Rocset=4.7k  
OCP : 59.6A=(2x20uAx8.2k)/(5.5m)

## PWR SEQ



## VCC1\_05\_PCH



VIN=3.3V,VOUT=1.05V,IOUT=7.5A,PHASE=1  
IRMS=3.4875A  
1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A  
Coefficient=1.7(85°C),1(105°C)  
VIN Ripple current=1.14X1.7=1.938A(85°C)  
-->故電解電容須2X1.938=3.876>3.4875A

OCP : Ipeak=(2xIocsetxRocset)/Rdson  
typ Iocset=20uA , Rocset=8.2k  
OCP : 58.57A=(2x20uAx8.2k)/5.6m

Gigabyte Technology

DDR\_15V

Size Custom Document Number GA-P61-S3-B3 Rev 1.2  
Date: Wednesday, December 07, 2011 Sheet 26 of 34

## CPU\_VTT

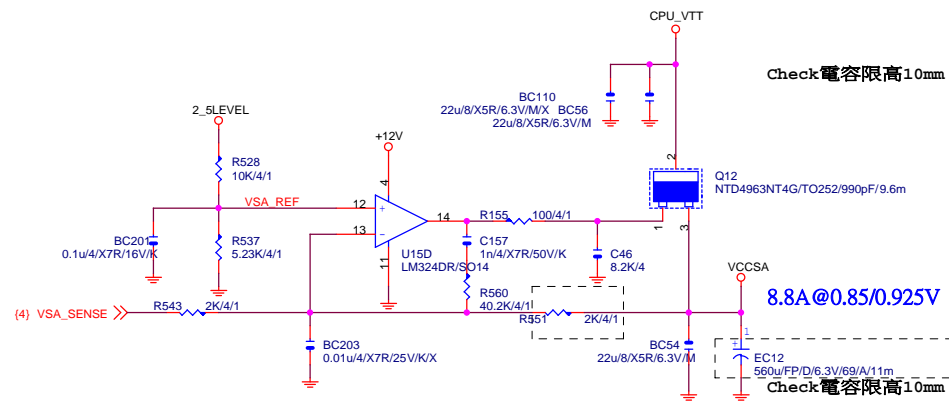
VTT_SEL	
HI	1.05V
LO	1.0V

BOTTOM PAD  
CONNECT TO GND  
THROUGH 4 VIA

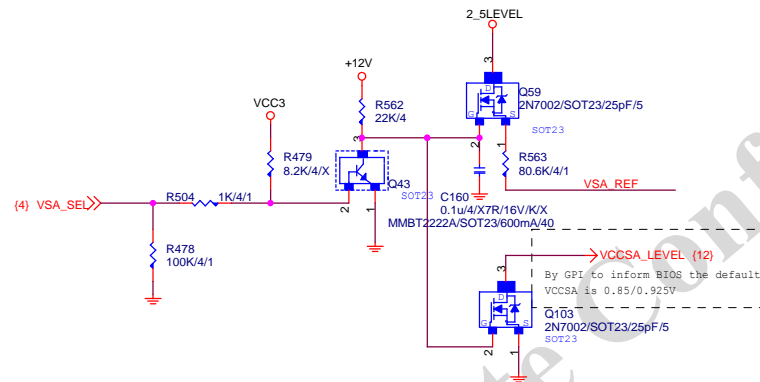
F_SEL	
FU	1MHz
PD	600KHz
NC	500KHz
Blank gnd	300KHz

GIGABYTE			
Title CPU_VTT_PWM_ISL6322CRZ			
Size	Document Number	Rev	
Custm	GA-P61-S3-B3	1.2	
Date:	Wednesday, December 07, 2011	Sheet	27 of 34

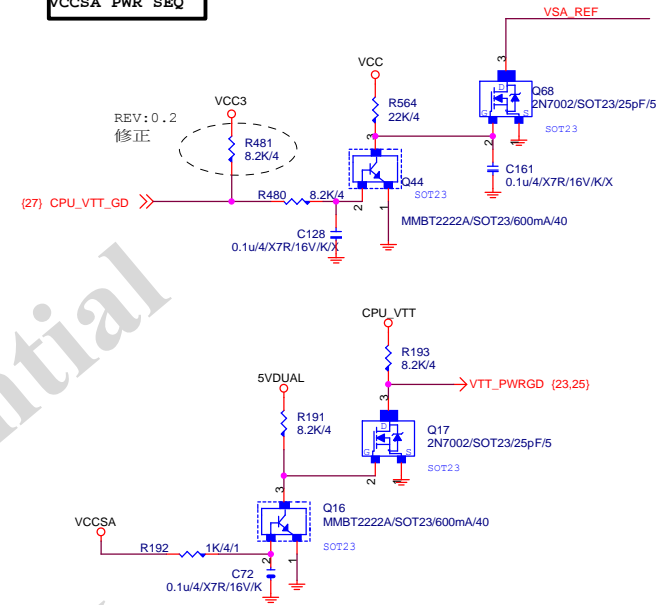
## VCC\_SA

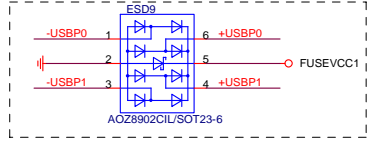
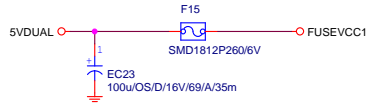
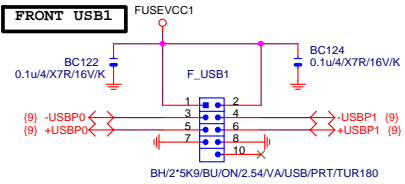


	VSA_SEL
HI	0.85V
LO	0.925V

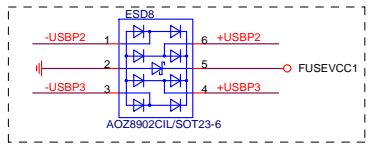
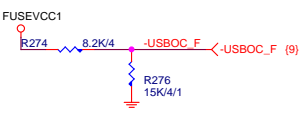
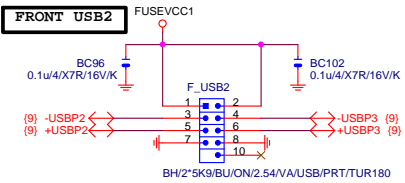


## VCCSA PWR SEQ

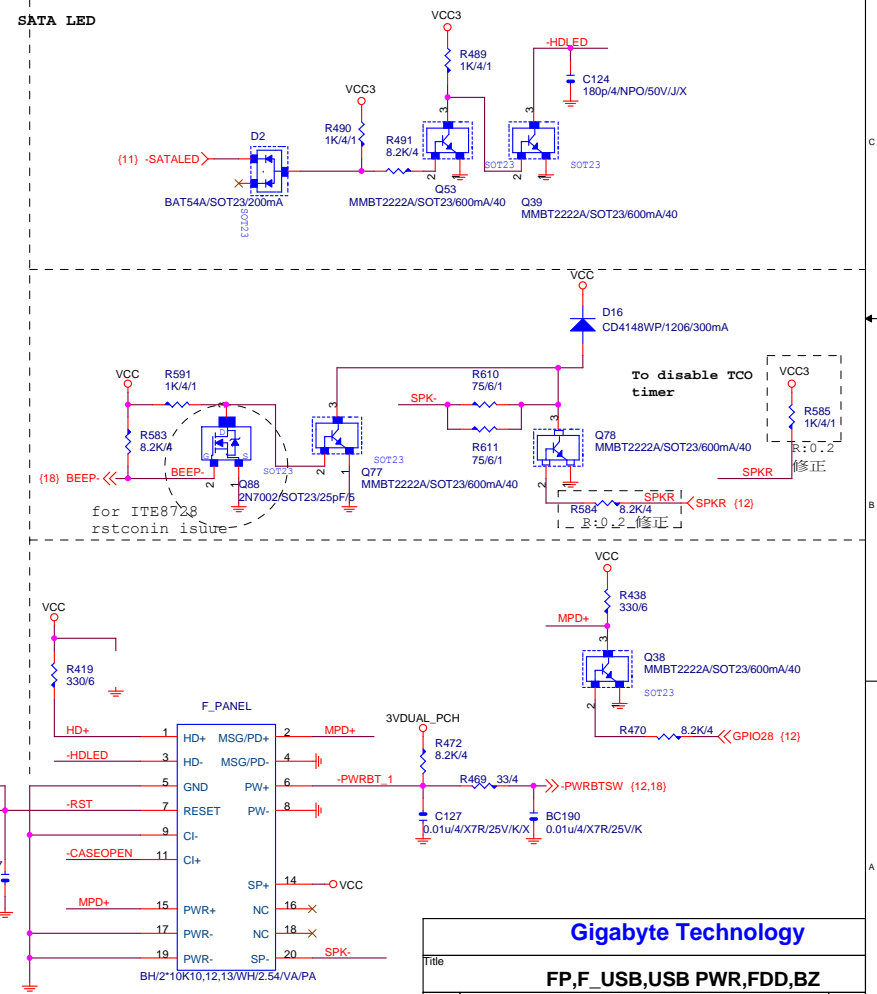
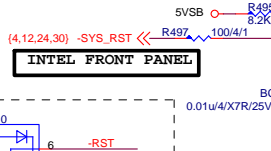
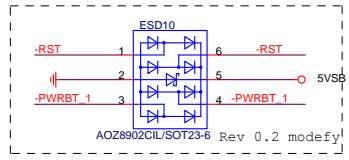
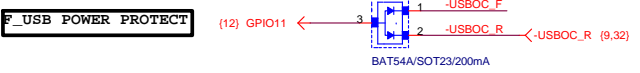




Close to connector



Close to connector



CASE OPEN

Gigabyte Technology			
Title			
FF,P_USB,USB PWR,FDD,BZ			
Size	Document Number	GA-P61-S3-B3	
Custom		Rev	1.2
Date:	Wednesday, December 07, 2011	Sheet	29 of 34



VCC3

BC214  
22u8/X5R/6.3V/M

VCC3

BC215  
1u4/X5R/6.3V/K

VCC3

BC227  
1u4/X5R/6.3V/K

VCC

VCC

PWOX (18)

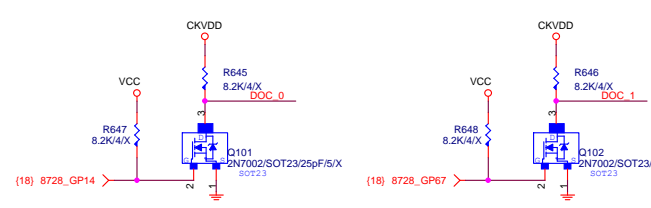
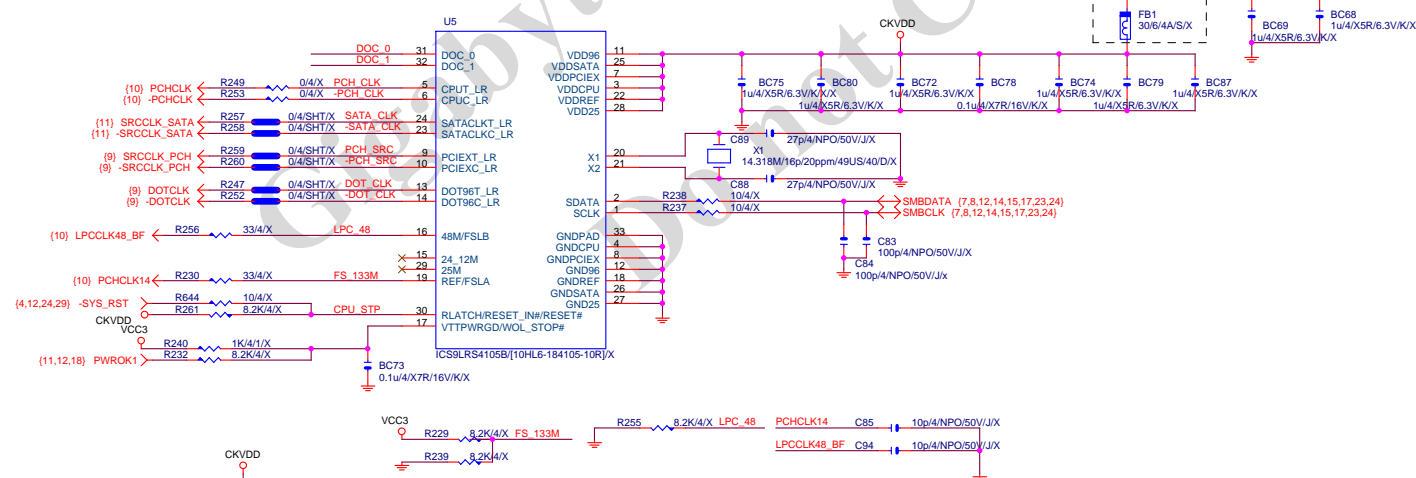
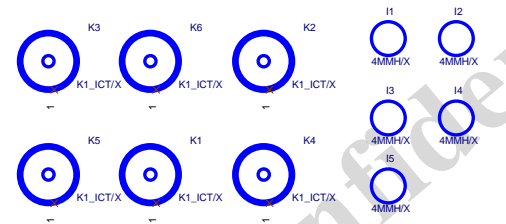
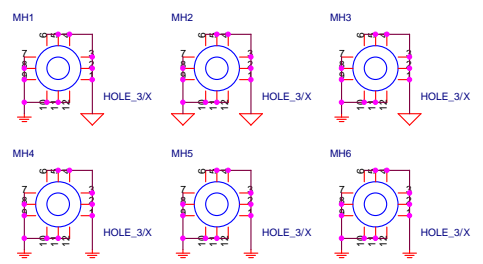
+12V

BC222  
1u6/X7R/16V/K

BC223  
0.1u4/X7R/16V/K

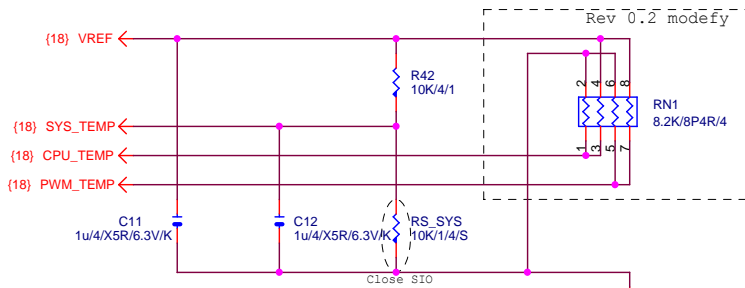
BC224  
0.1u4/X7R/16V/K

BC220  
0.1u4/X7R/16V/K

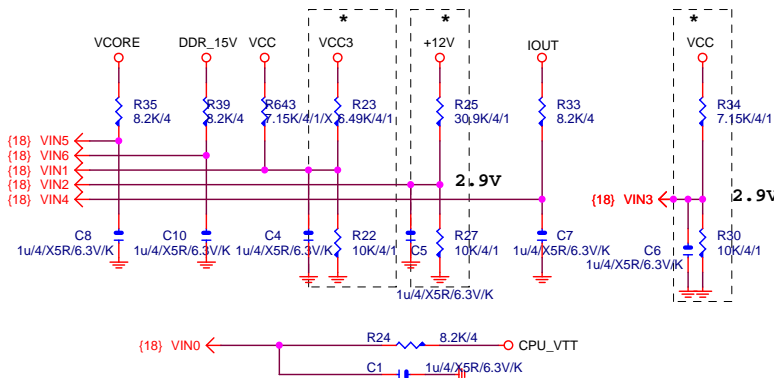


FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M

# TEMP H/W MONITOR

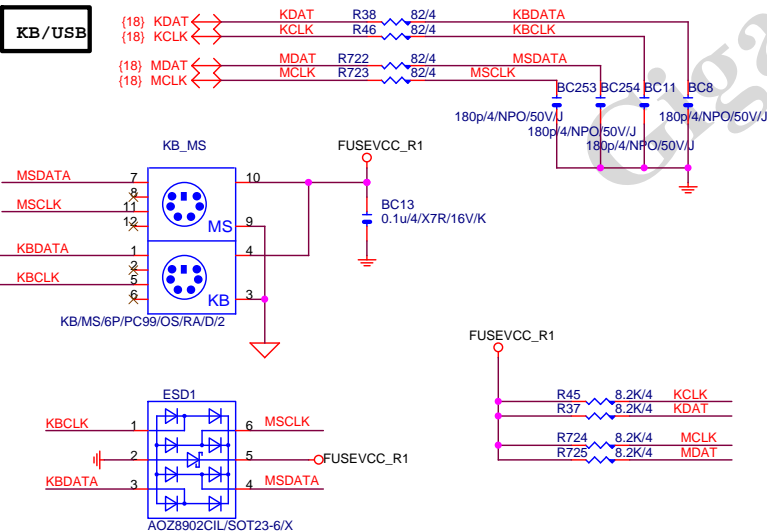


# VOLTAGE-- H/W MONITOR

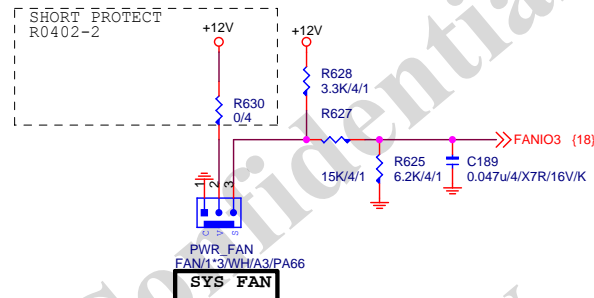


The division voltage of VIN2 & VIN3 must be around 2.9V

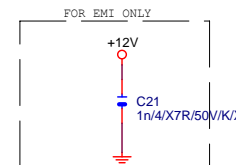
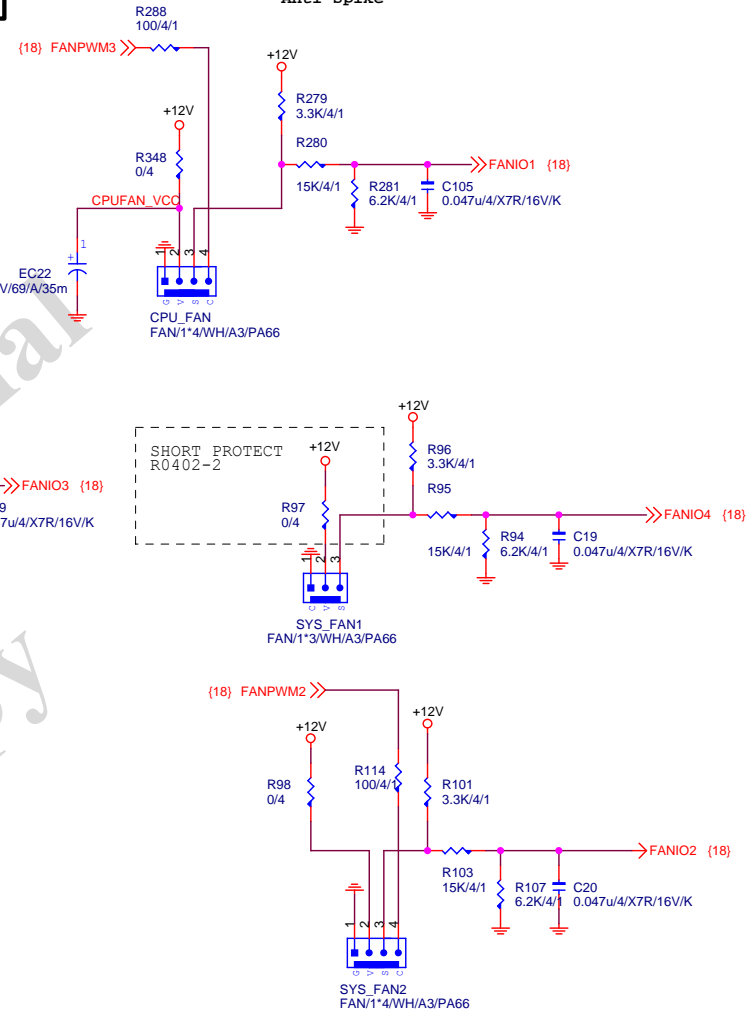
# KB/USB



# CPU SMART FAN



# Anti Spike

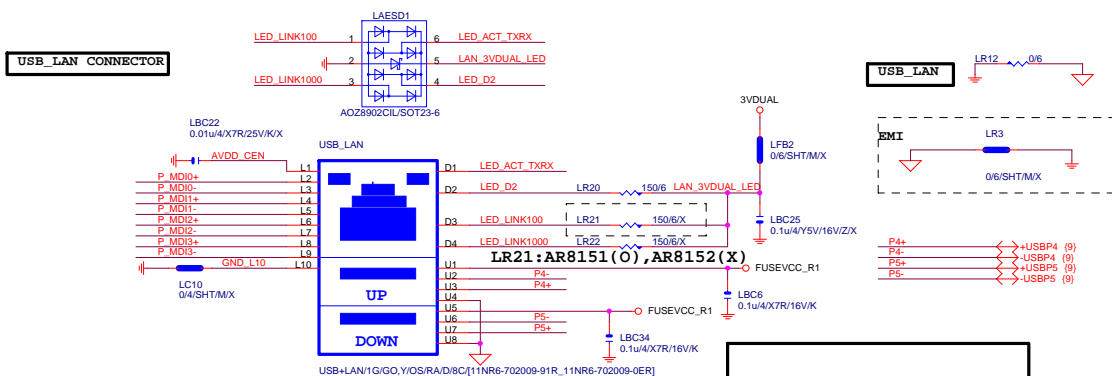
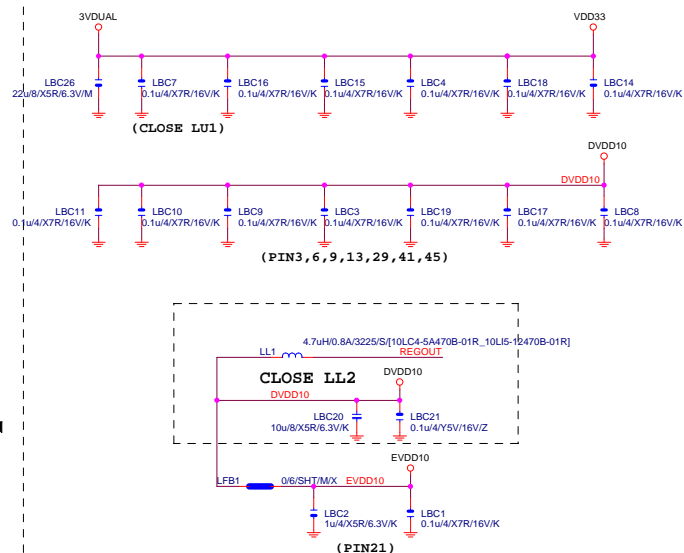
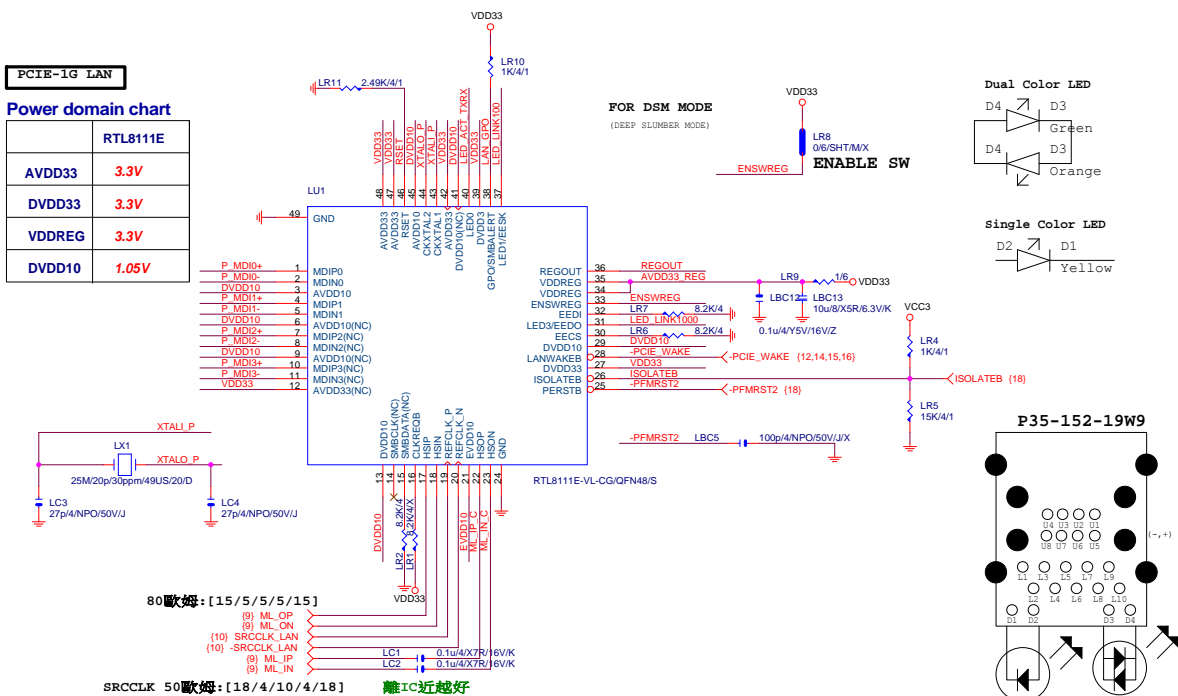


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Title		
HWM,KB/MS, FAN CTRL		
Size	Document Number	Rev
Custom	GA-P61-S3-B3	1.2
Date:	Wednesday, December 07, 2011	Sheet 31 of 34

### Power domain chart

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



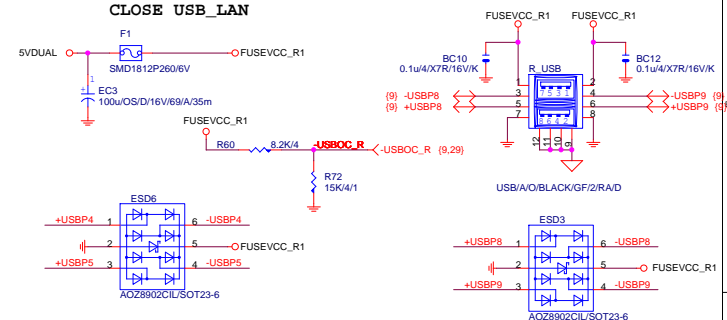
**注意:** LAN LED PROTECT: (CO-LAYOUT)  
1.ESD(6PIN):AOZ8902CIL/SOT23-6(DEFAULT)  
2.SURGE(5PIN):AZ2025-04S/SOT23-5L

料號	規格	廠商
11NR6-702009-0ER	1G LAN (12core)	UDE
11NR6-702009-91R	1G LAN(8 core)	FOXCONN
11NR6-702009-92R	1G LAN(8 core)	UDE
11NR6-702009-11R	1G LAN(12core/RED)	UDE
11NR6-702009-12R	1G LAN(8 core/RED)	FOXCONN

USB\_LAN BOM區分:

1. (紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2. (黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3. (黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

F1



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Title				
EJ168				
Size	Document Number			Rev
Custom	GA-P61-S3-B3			1.2
Date:	Wednesday, December 07, 2011	Sheet	33	of 34

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File <b>Marvell 9172 SATA 3.0</b>		
Size Custom	Document Number <b>GA-P61-S3-B3</b>	Rev <b>1.2</b>
Date: <u>Wednesday, December 07, 2011</u> Sheet <u>34</u> of <u>34</u>		