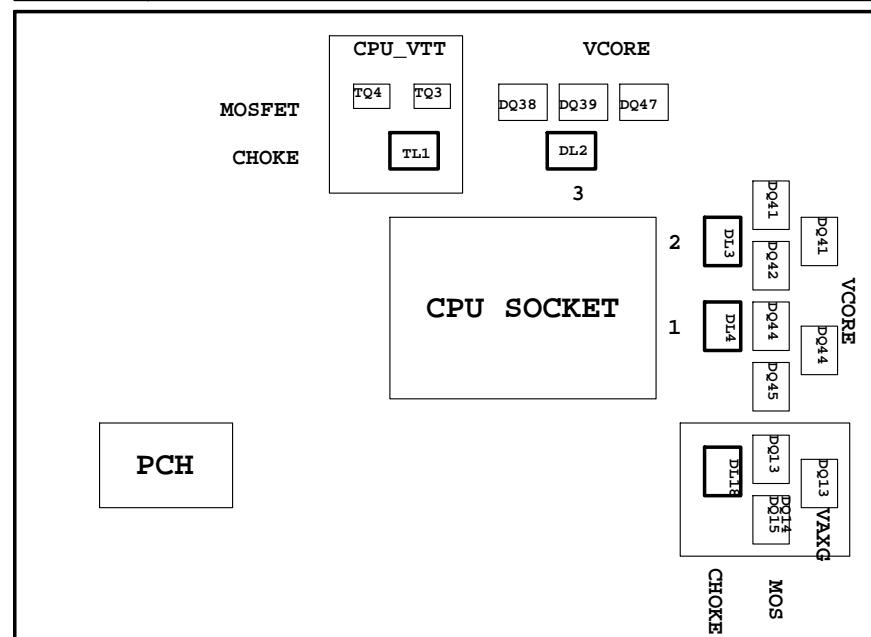


SHEET TITLE

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
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	PCI SLOT 1~2
17	I/O ITE8728
18	COM, LPT, TPM
19	Dual BIOS
20	VIA2021
21	REAR AUDIO JACK
22	ISL95836_VCORE_1
23	ISL95836_VCORE_2
24	DISCRETE POWER
25	PCH CORE / VOLTAGE CONSOLE
26	RT8120_CPU_VTT
27	VCCSA POWER

SHEET TITLE

28	F_PANEL , F_USB
29	ATX POWER, CLOCK GEN
30	HWM,KB/MS , FAN CTRL
31	ARTHEROS AR8161/AR8151
32	mSATA
33	RT8120_DDR POWER
34	DVI
35	
36	
37	
38	
39	
40	



Gigabyte Technology

Title		Cover Sheet	
Size	Document Number	GA-H77-DS3H	
Custom			Rev 1.02
Date:	Tuesday, June 05, 2012	Sheet 1	of 35

## GA-H77-DS3H

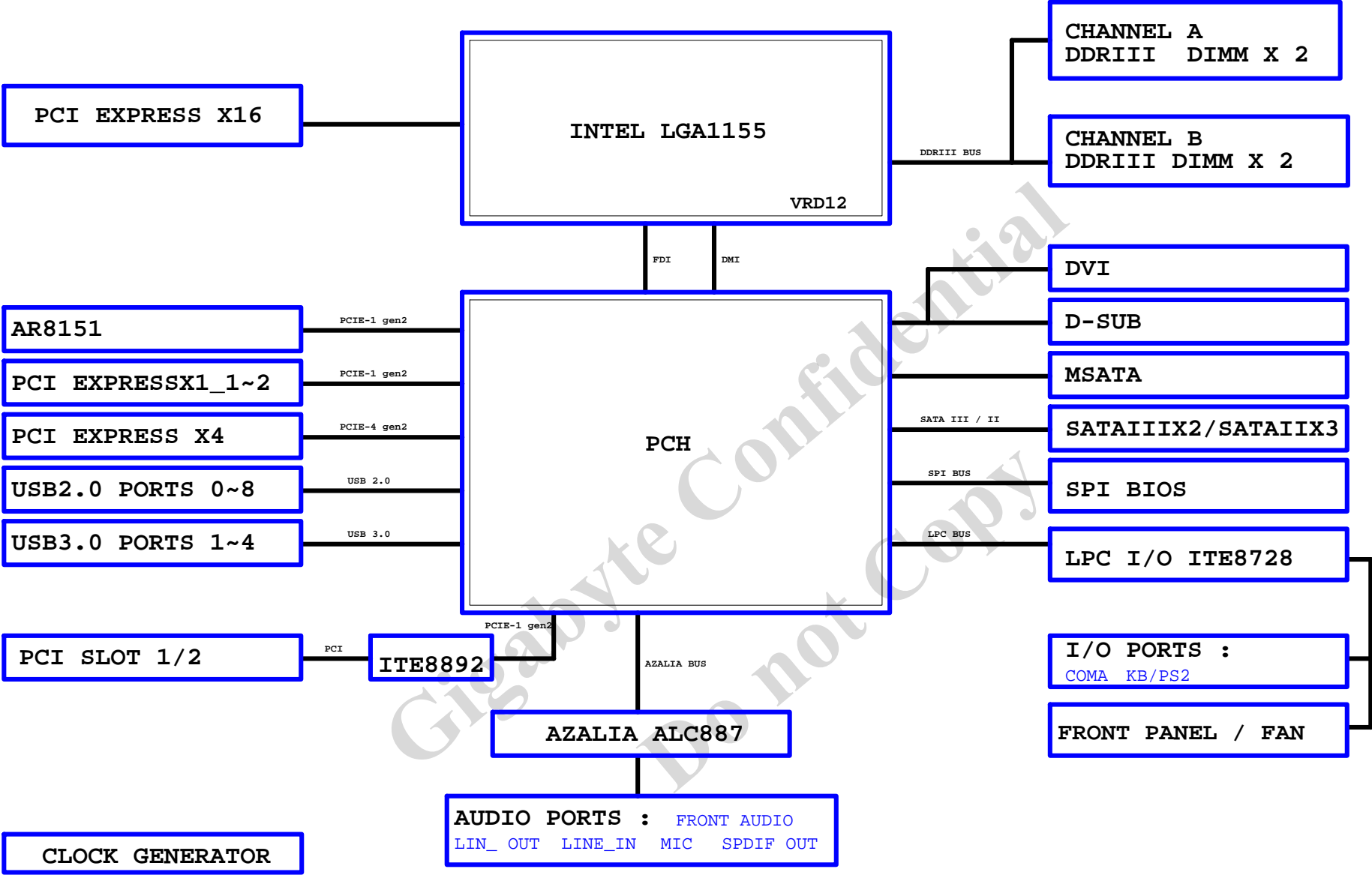
### Component value change history

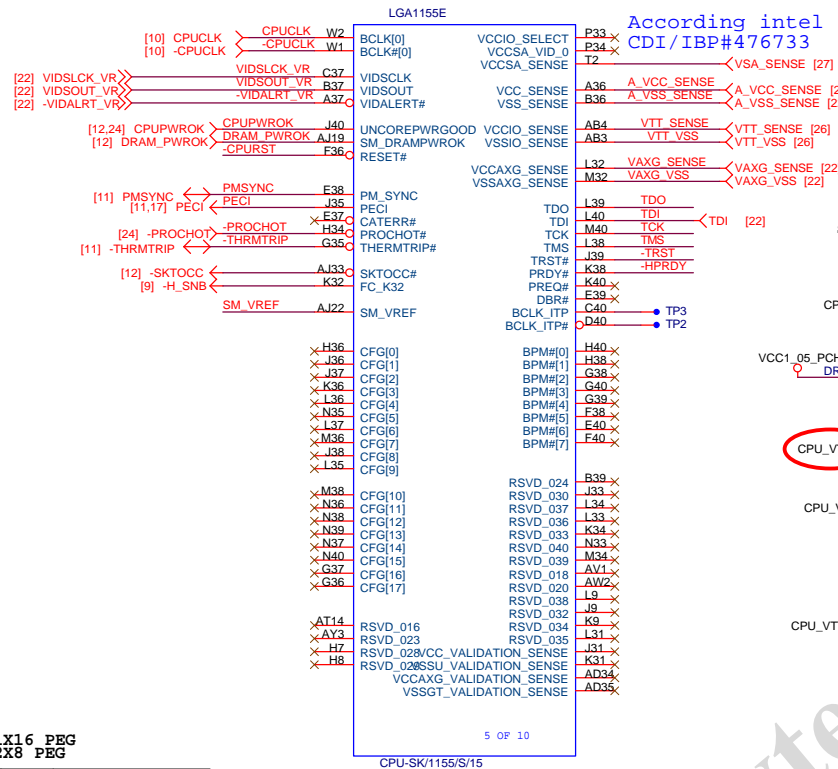
[illegible]

## Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM

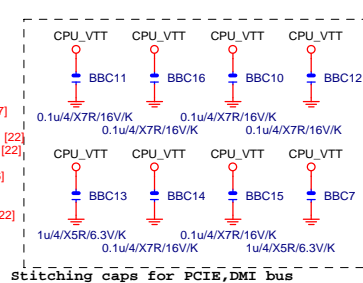
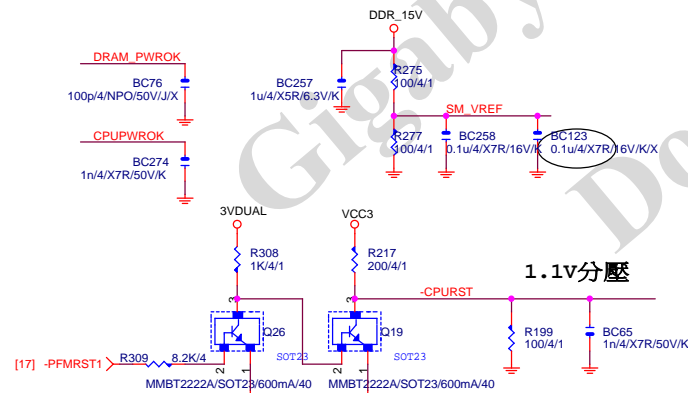




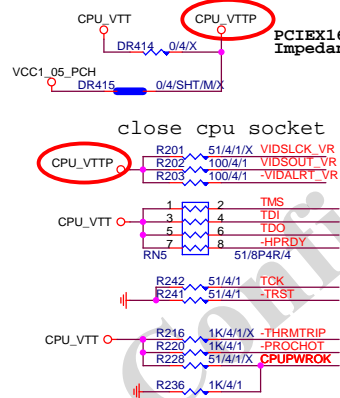
CFG5=1 1x16 PEG			
CFG5=0 2x8 PEG			
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	<b>NORM</b>	<b>Reverse</b>	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2X8
0	1	RSVD
0	0	X8, X4, X4

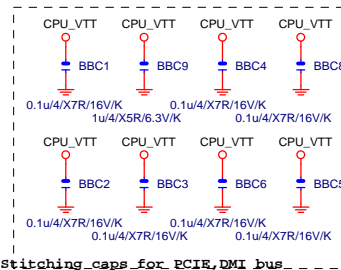
CFG 0-17 all internal PULL-UP



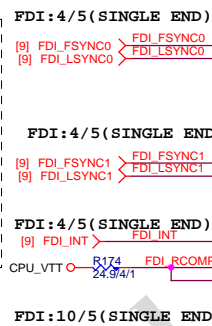
-----  
Stitching caps for PCIE,DMI bus



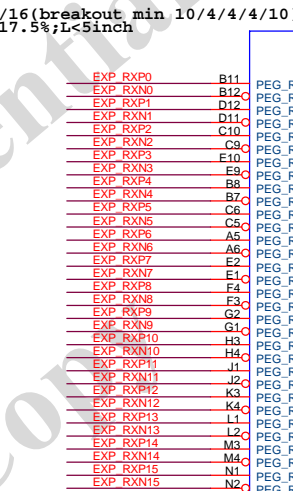
DMI:12/4/5/4/12(breakout min 8/4/4/4/8)  
Impedance=85 +- 17.5%



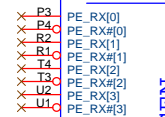
Stitching\_caps\_for\_PCIE,DMI bus



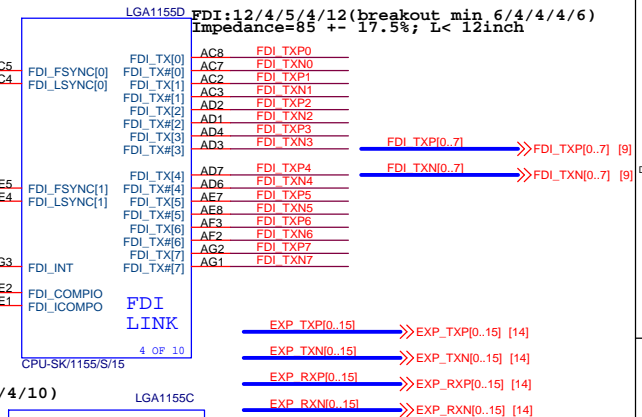
FDI:10/5(SINGLE END



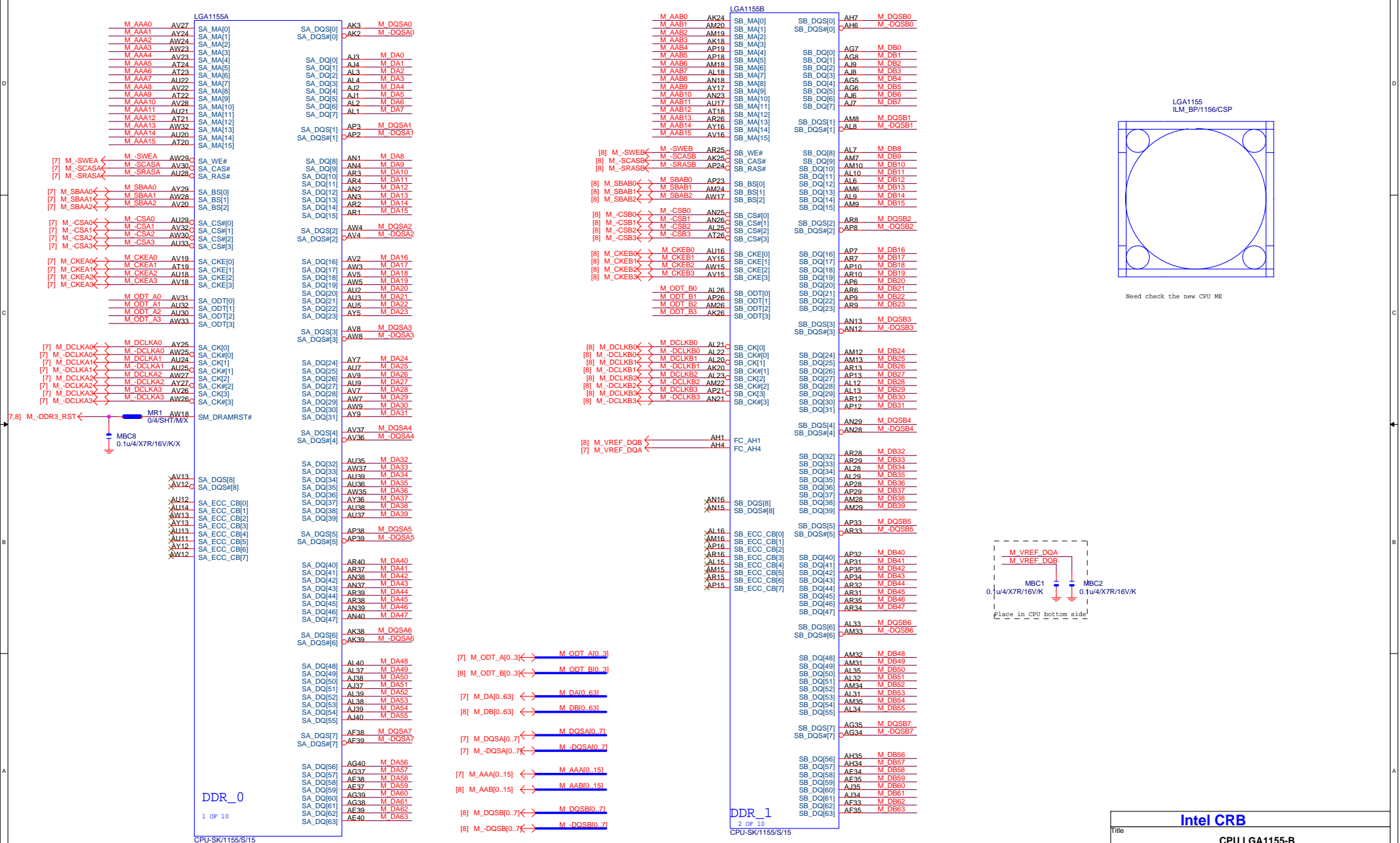
DMI:12/4/5/4/12(breakout min 8/4/4/4/8)  
Impedance=85 +- 17.5%



REG. ICOMBC



<b>Gigabyte Technology</b>			
Title			
<b>CPU LGA1155-A</b>			
Size	Document Number	Rev	
Custom	<b>GA-H77-DS3H</b>	1.02	
Date:	Tuesday, June 05, 2012	Sheet	4 of 35





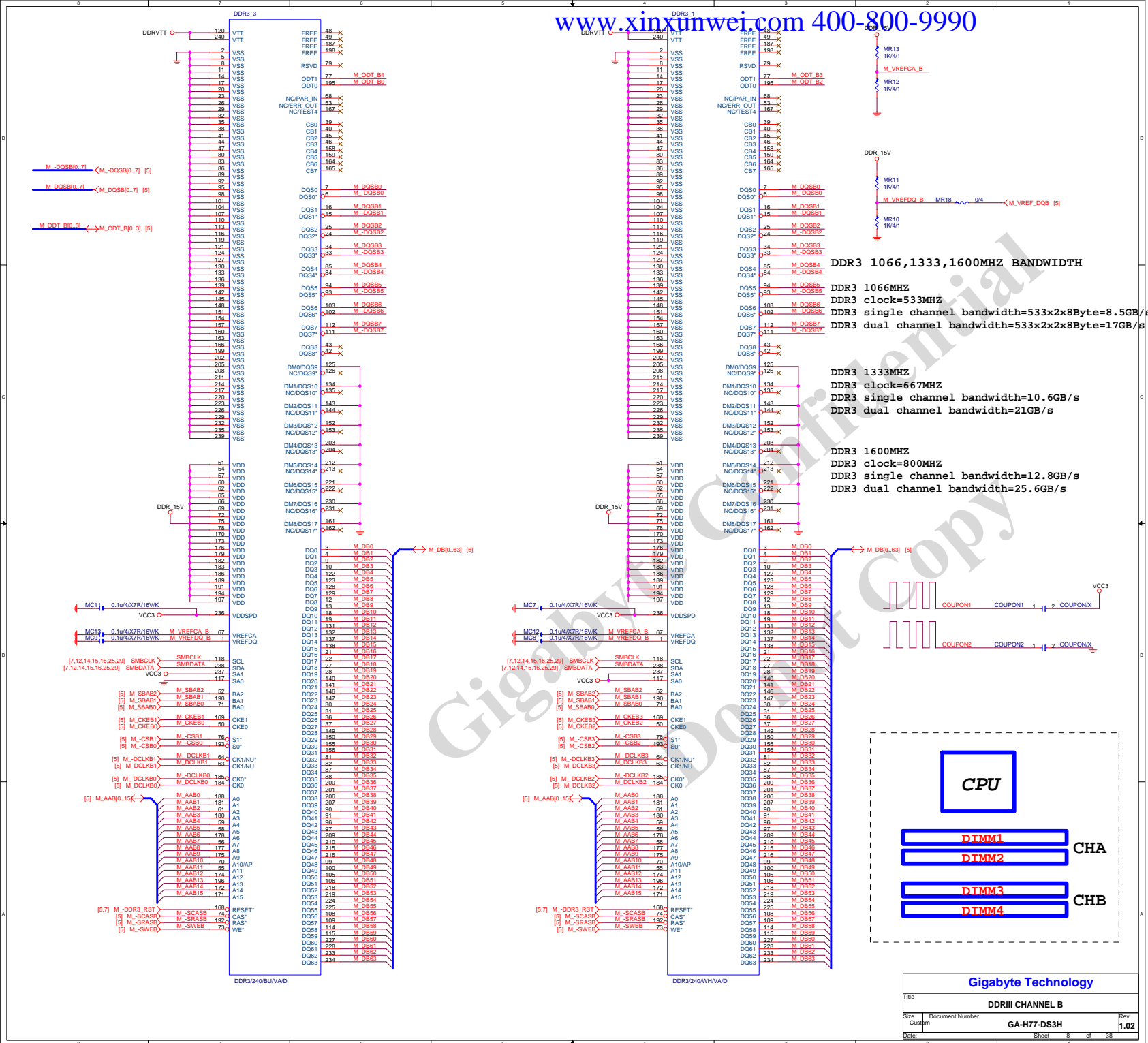




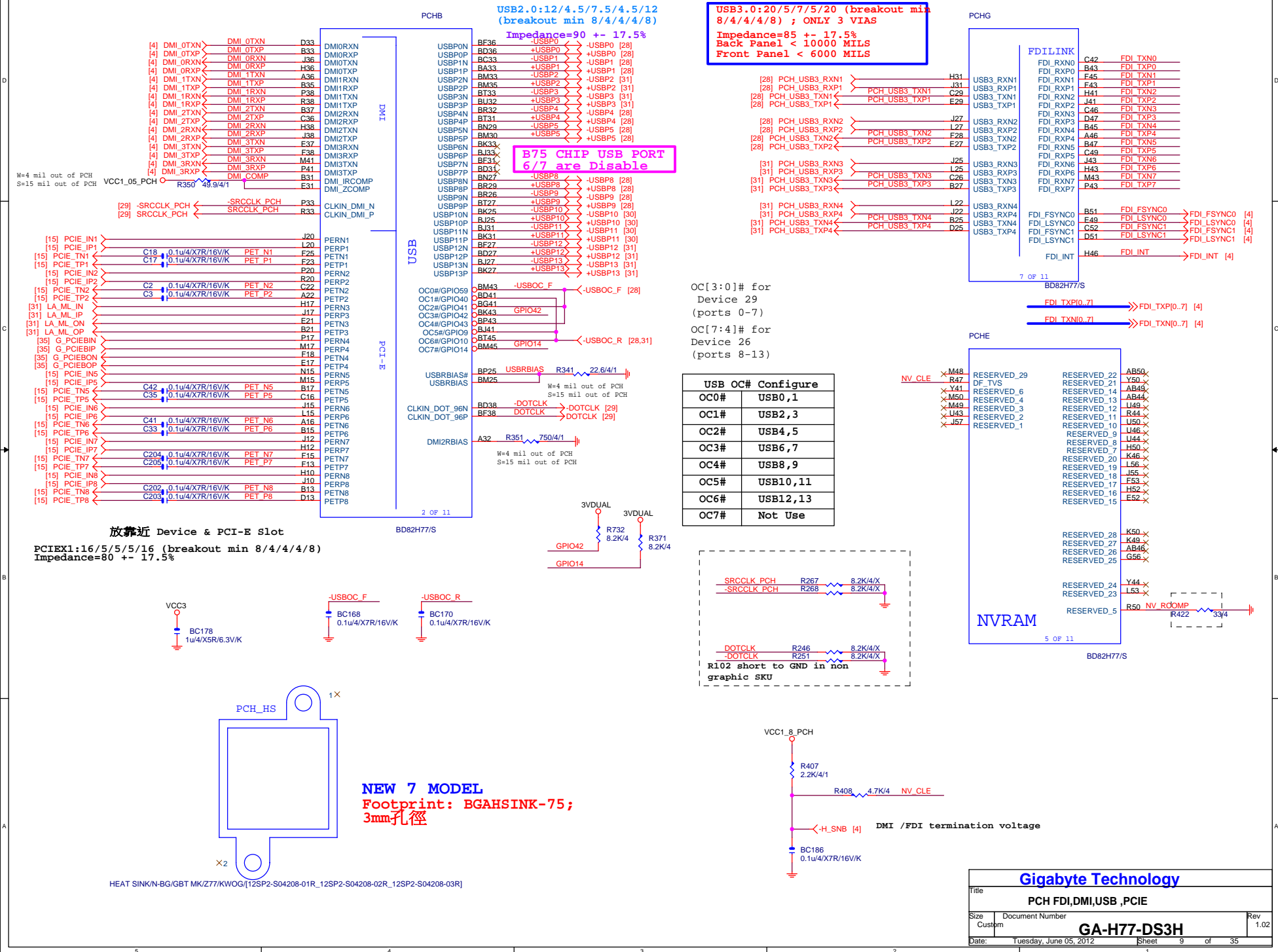
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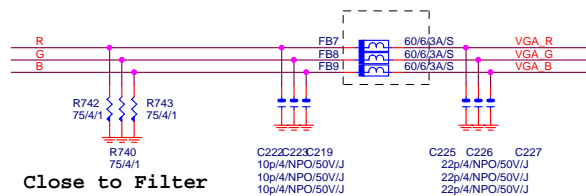
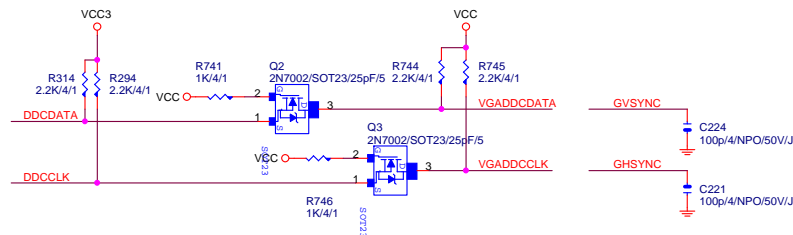
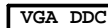
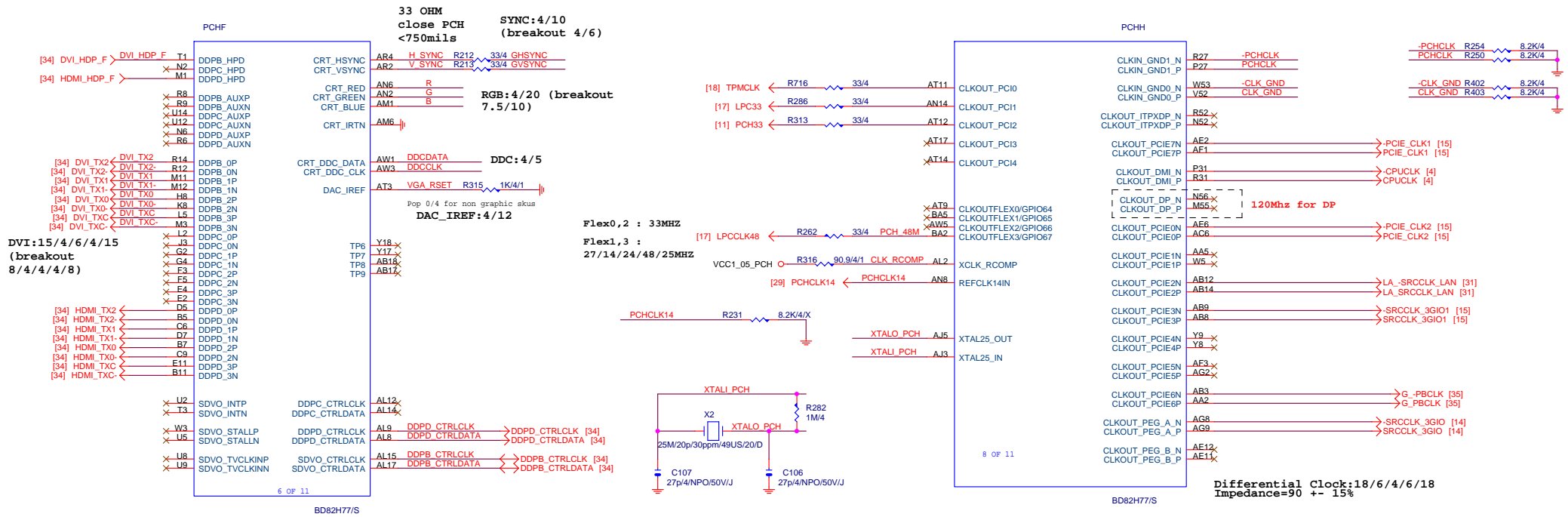
### DDRVT1 Decouple

<h1 style="text-align: center; color: blue;">Gigabyte Technology</h1>			
<b>Title</b> <div style="text-align: center; font-weight: bold;">DDRIII CHANNEL A</div>			
<b>Size</b> Custom	<b>Document Number</b> <div style="text-align: center; font-weight: bold;">GA-H77-DS3H</div>		<b>Rev</b> <div style="text-align: center; font-weight: bold;">1.02</div>
<b>Date:</b> _____		<b>Sheet</b> 7 <b>of</b> 38	

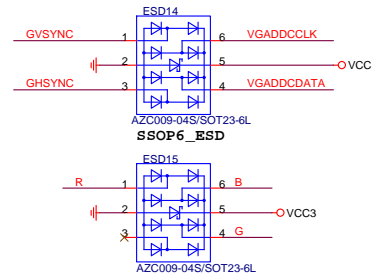
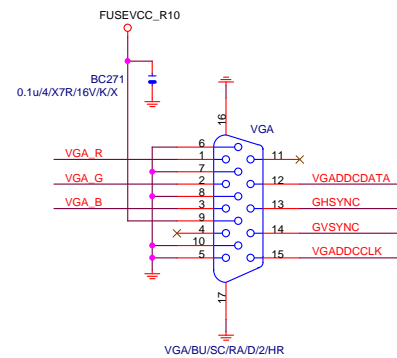








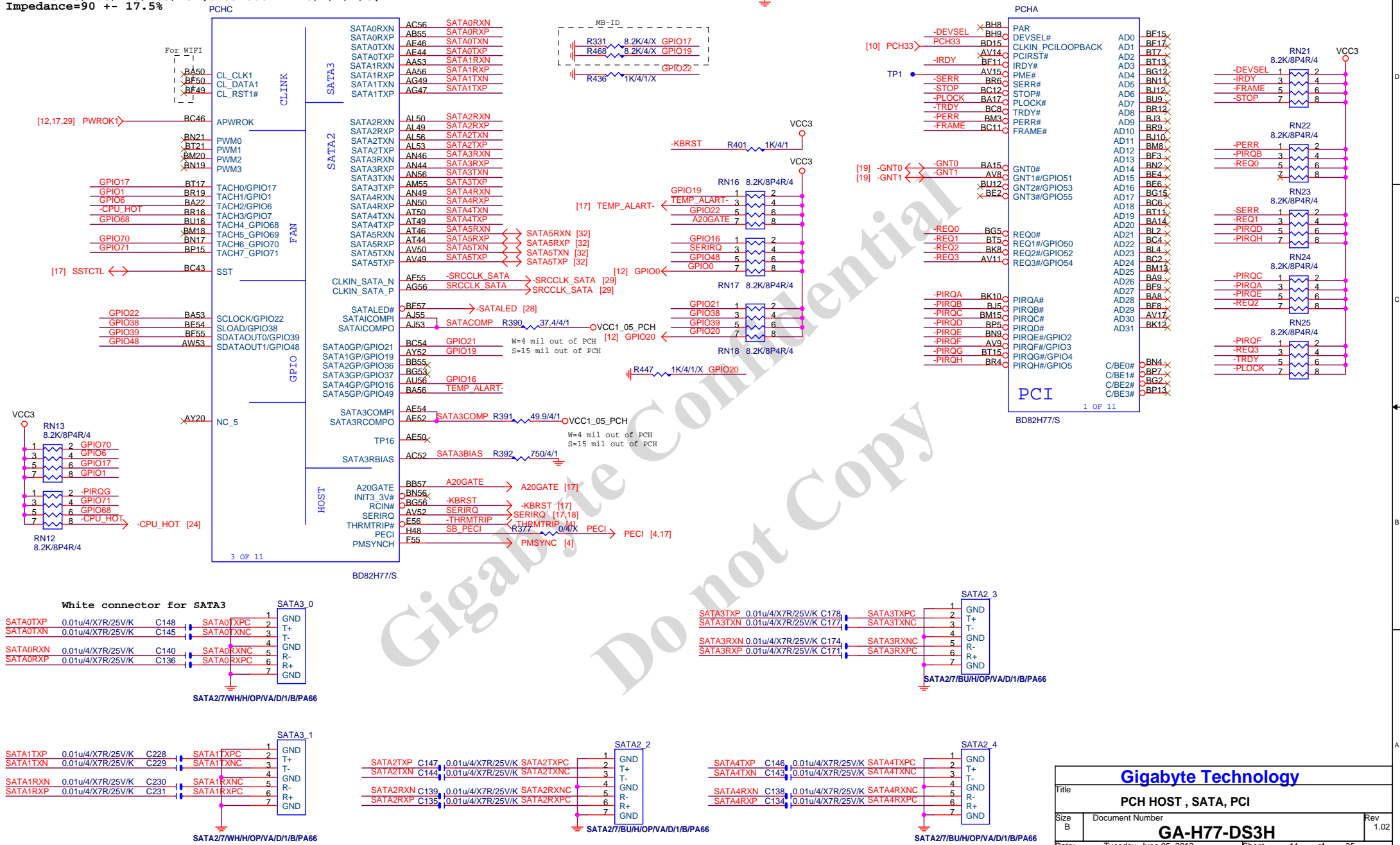
Close to Filter



SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%

SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%

www.xinxiwei.com 400-800-9990

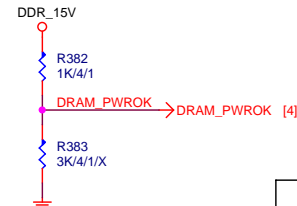


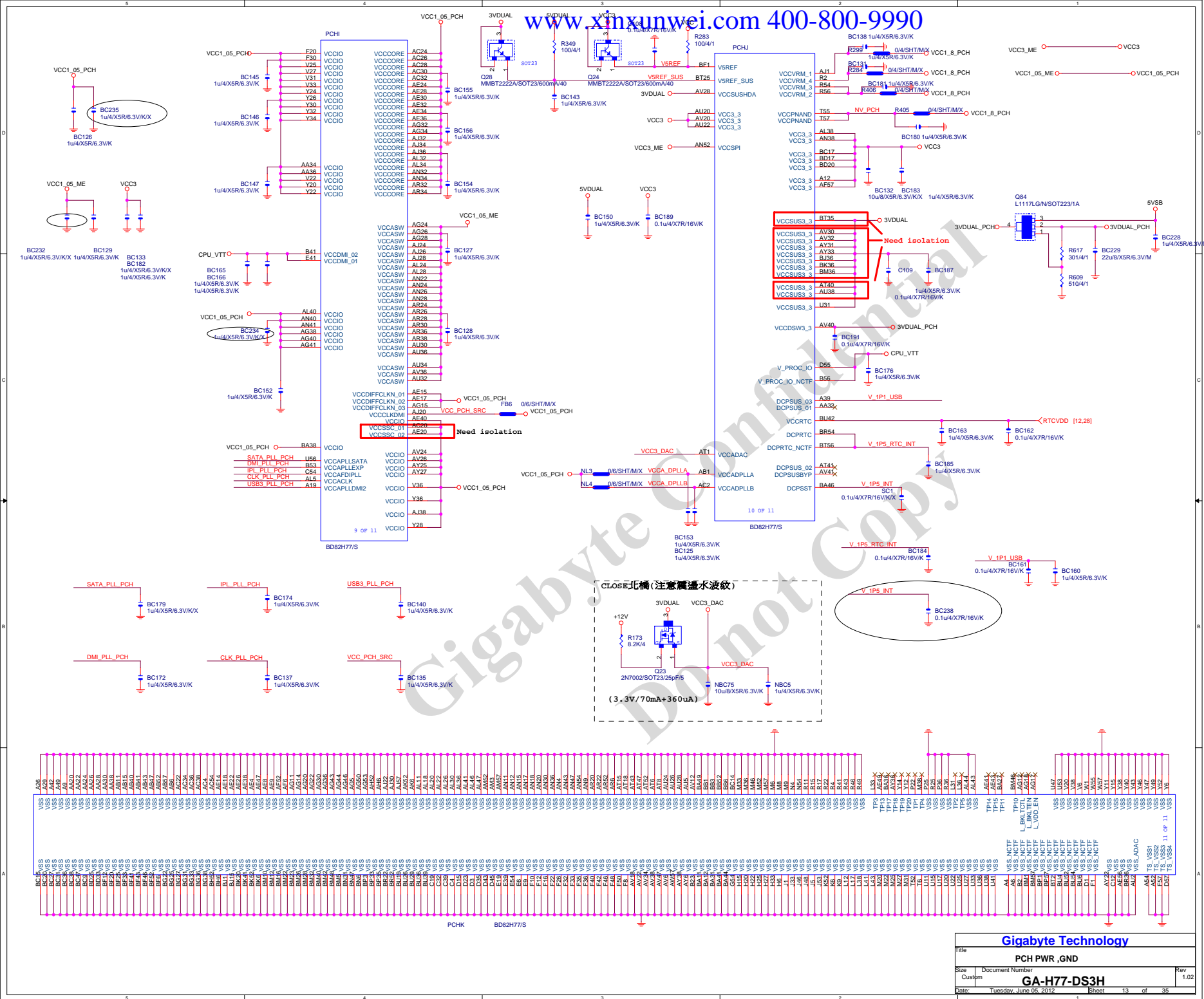
Gigabyte Technology

PCH HOST , SATA, PCI

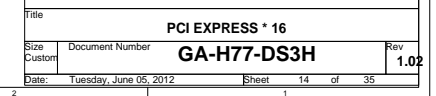
GA-H77-DS3H

Date: Tuesday, June 05, 2012 Sheet 11 of 35

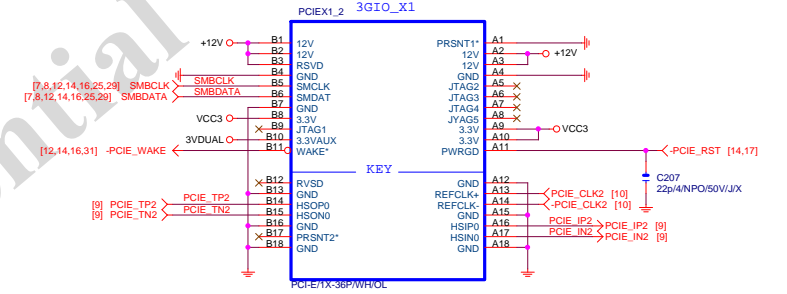


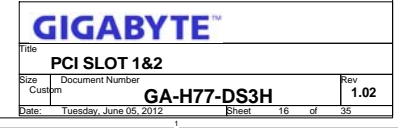


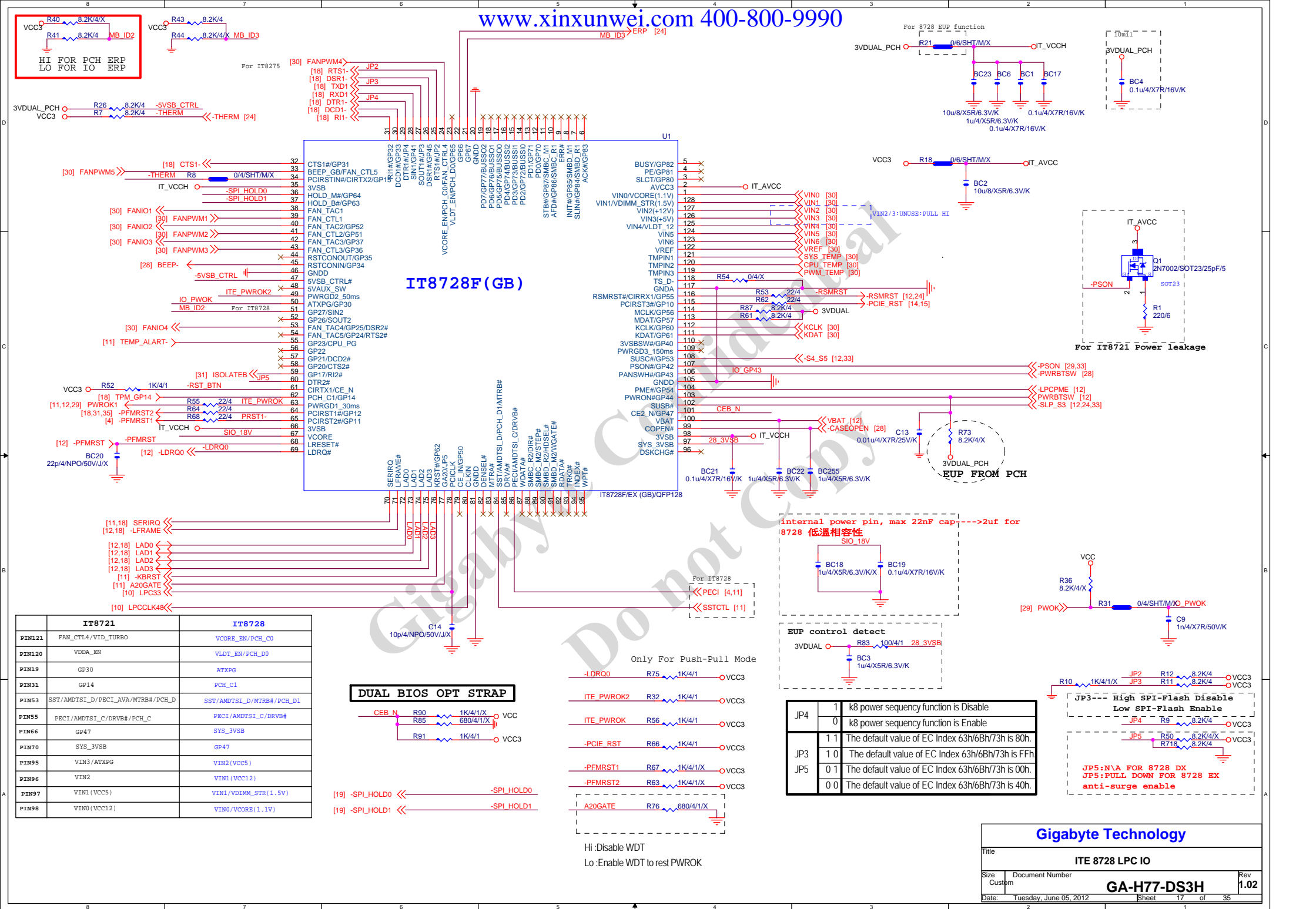




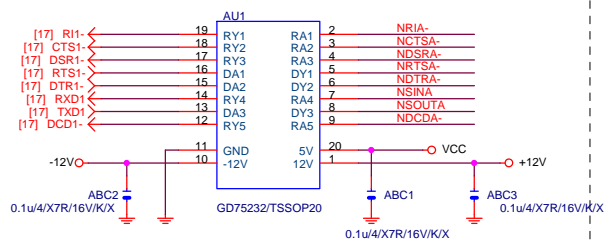




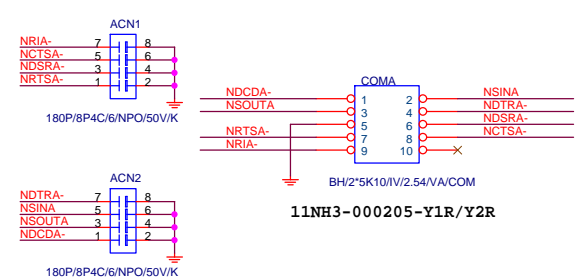
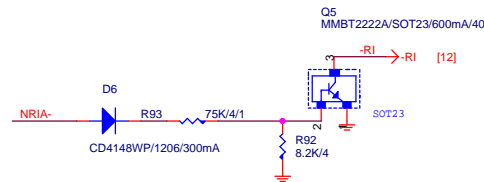




COMA

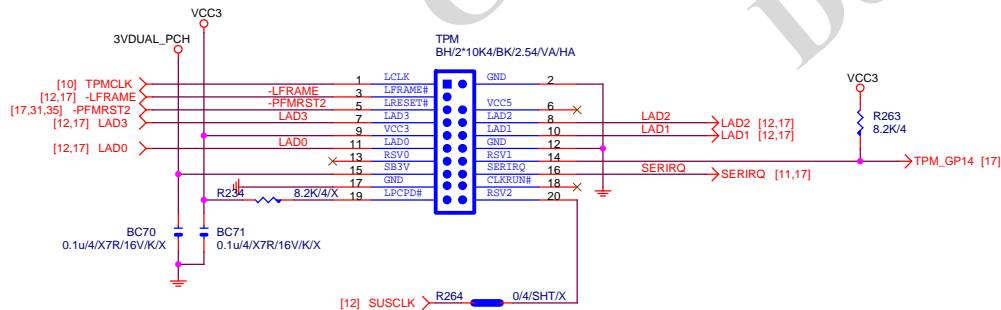


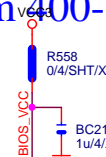
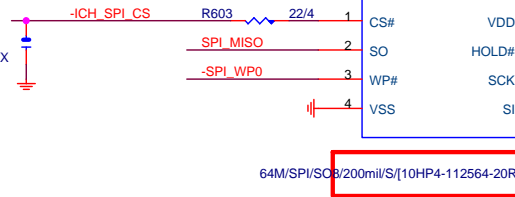
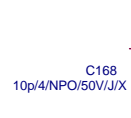
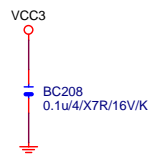
COM R1



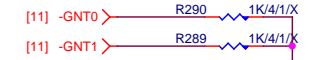
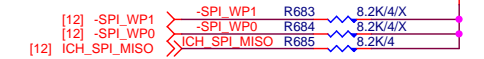
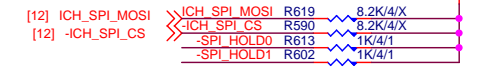
LPT PORT

TPM





## 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

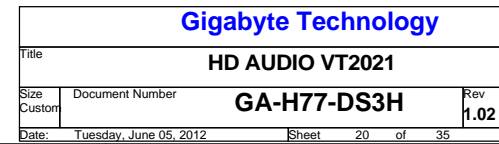
1 means floating  
0 means PD 1K

Gigabyte Technology

Title BIOS		
Size Custom	Document Number GA-H77-DS3H	Rev 1.02
Date: Tuesday, June 05, 2012	Sheet 19	of 35

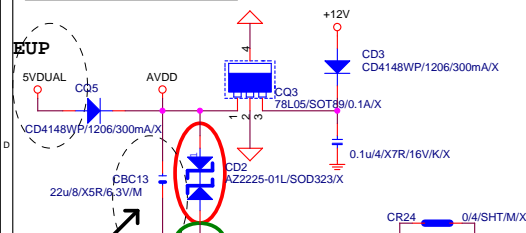
CR26: 20K/4/0.1% @ALC889A  
CR26: 20K/4/1% @others

CR34 20K/4/1 VT1708S :5.1K + 100PF  
CBC40 100p4/NFO/50V/J/X





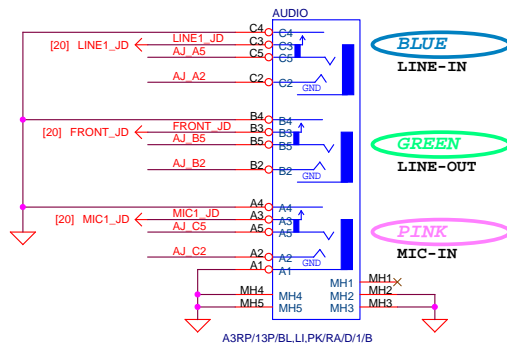
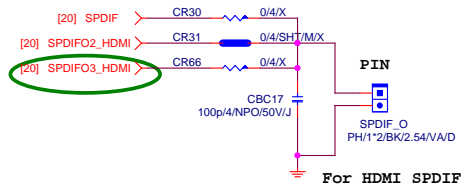
## CODEC POWER/EMI PAD



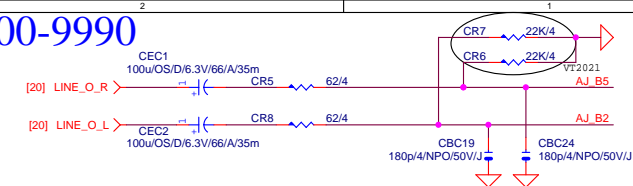
上ALC892時,此顆電容要保留

ADD CD2 For ESD PROTECT DIODE

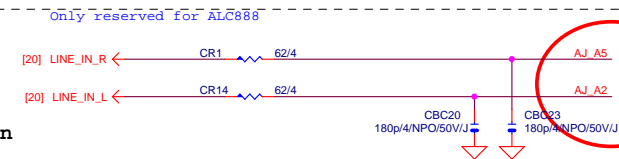
## SPDIF\_OUT



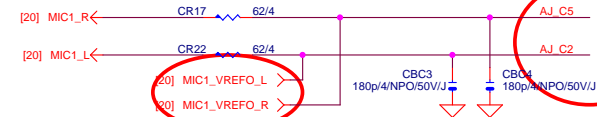
## LINE-OUT



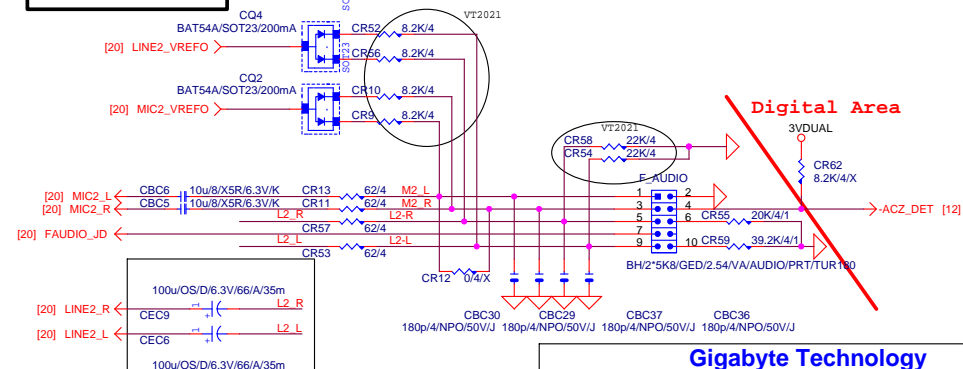
## LINE-IN

Verify MIC function  
in LINE-in

## MIC-IN

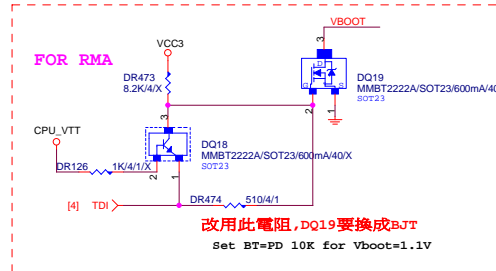


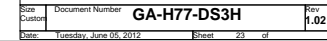
## AZALIA FRONT PANEL

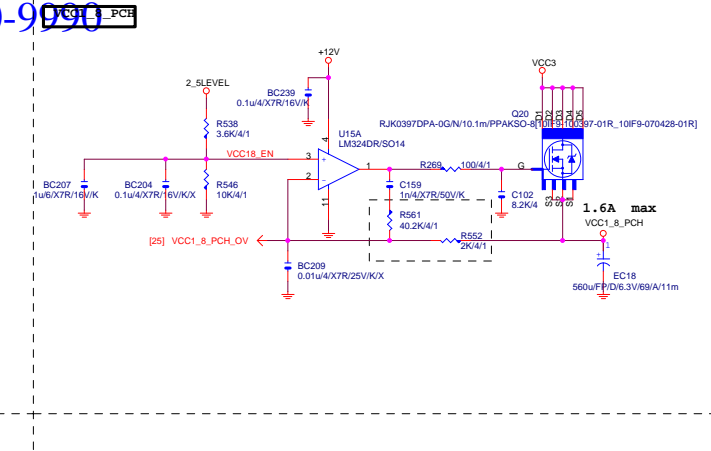


Gigabyte Technology

Title		
AUDIO JACK		
Size	Document Number	Rev
Custom	GA-H77-DS3H	1.02
Date:	Tuesday, June 05, 2012	Sheet 21 of 35







FOR PCH ERP

5VSB

5VDUAL

Q73 PMBT2907A/SOT23-600mA/50

Q74 PMBT2907A/SOT23-600mA/50

BC212 22u8/XSR/6.3V/MX

R578 22K/4

R579 2206

R580 2206

R577 8.2K/4

C163 0.1u4/X7R/16V/K

5VSB

5VDUAL

[12] <EPLS>

RS2 CLOSE CPU VR MOSFET

110-126 degree

PROCHOT → PROCHOT (1)

TSM 5

TSM 6

TSM 7

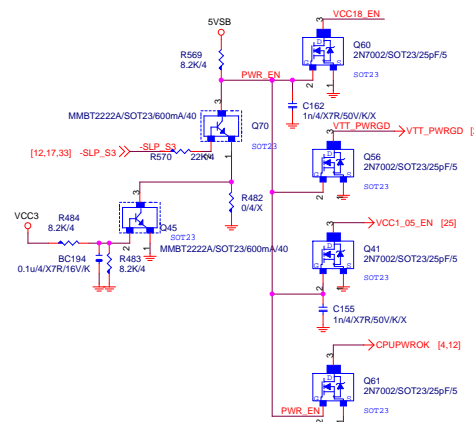
U15C LM324DR/SO14

Q34 2N7002/SOT23/25pF/5 SOT23

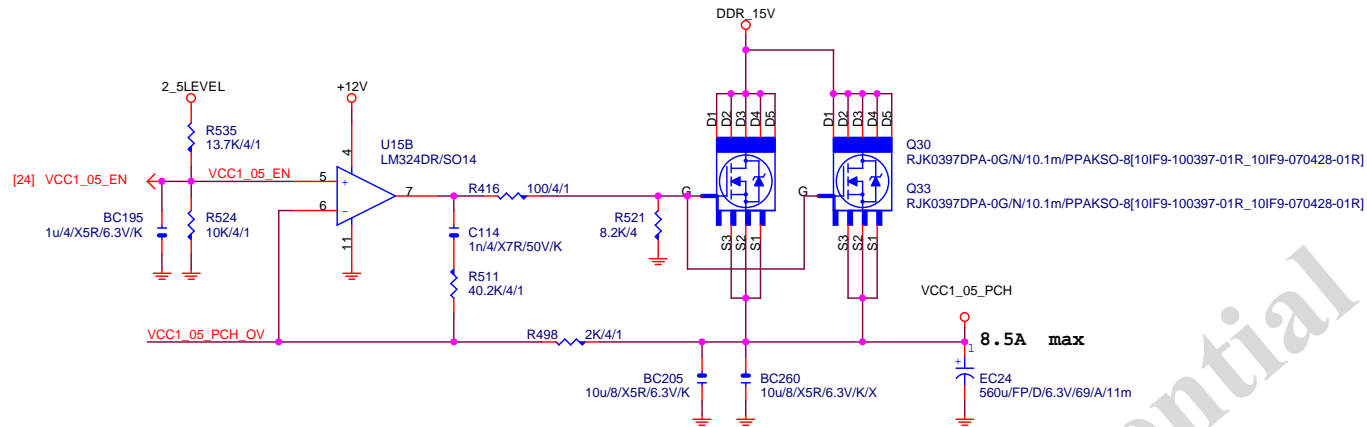
Q37 2N7002/SOT23/25pF/5X SOT23

→ THERM [17]

CLOSE PWM HOT MOSFET

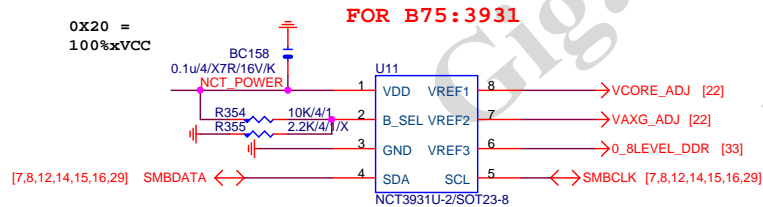
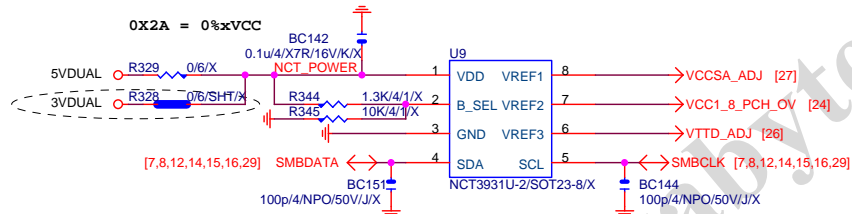


## VCC1\_05\_PCH



## Voltage console

ADDRESS	0X2A	0X20	0X22	0X26
R1 (K)	OPEN	10	1.3	3
R2 (K)	10	OPEN	3.9	2.2
%VCC	0	100	75	42

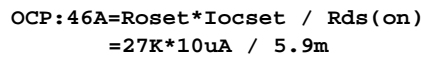


up6262	0X2A	0X20
VREF1	VCC1_05_PCH	VCORE
VREF2	VCC1_8_PCH	VCCSA
VREF3	CPU_VTT	DDR

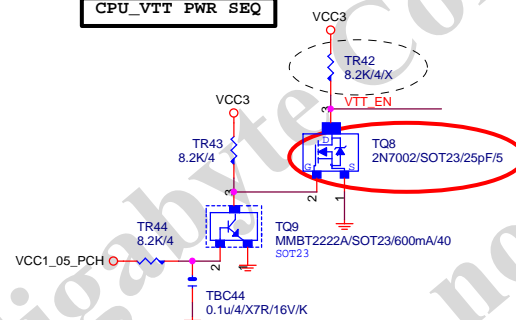
## Gigabyte Technology

Title	PCH CORE / VOLTAGE CONSOLE		
Size B	Document Number	GA-H77-DS3H	Rev 1.02

Date: Tuesday, June 05, 2012 Sheet 1 of 35



## CPU\_VTT PWR SEQ



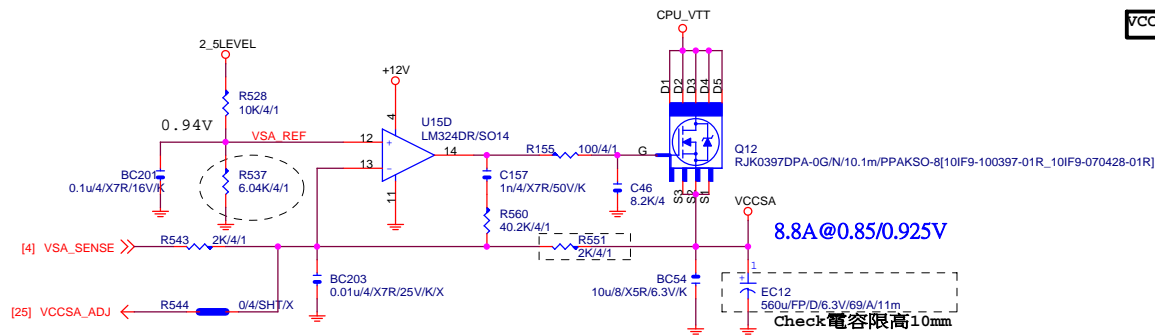
	VTT_SEL
HI	1.05V
LO	1.0V

According intel  
CDI/IBP#476733, 固定1.05V



Check電容限高10mm

VCC\_SA

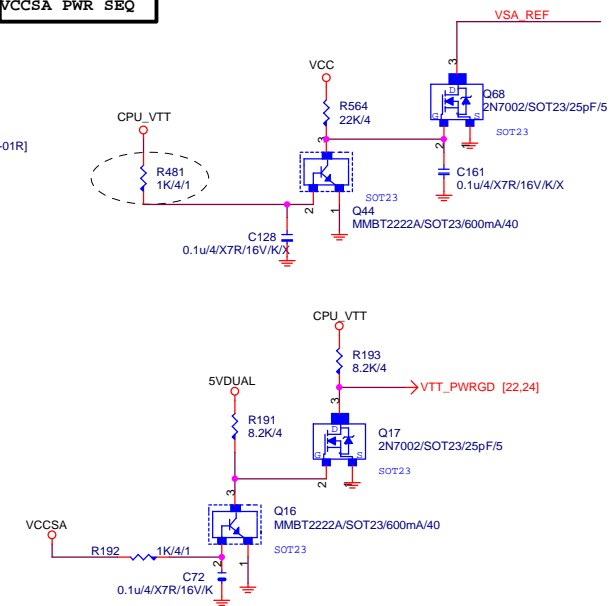


PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

According intel  
CDI/IBP#476733, 固定0.925V

VCCSA\_PWR\_SEQ

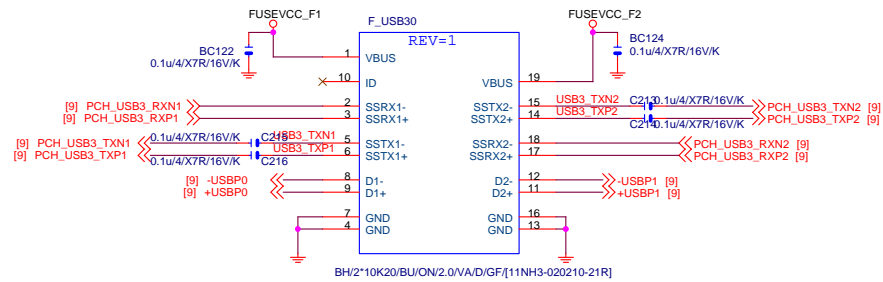


Gigabyte Technology

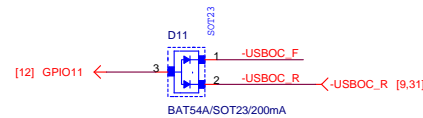
Title			
VCCSA POWER			
Size	Document Number	Rev	
Custom		GA-H77-DS3H	
Date:	Tuesday, June 05, 2012	Sheet	27 of 35

1.02

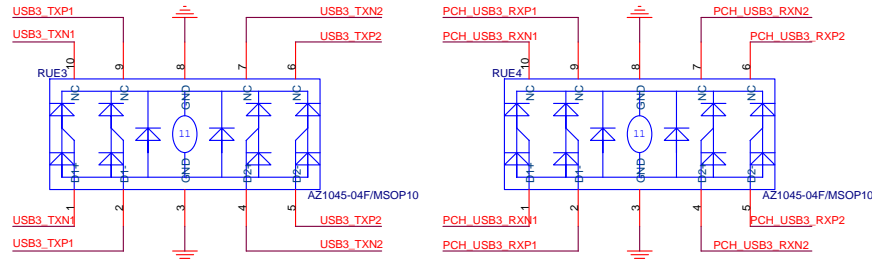
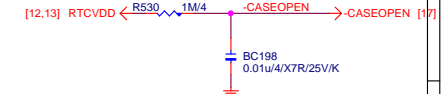
## FRONT USB1



## F\_USB POWER PROTECT

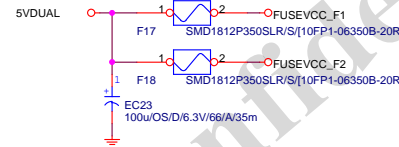
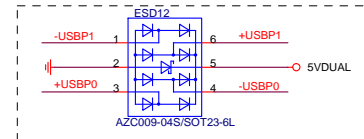


## CASE OPEN

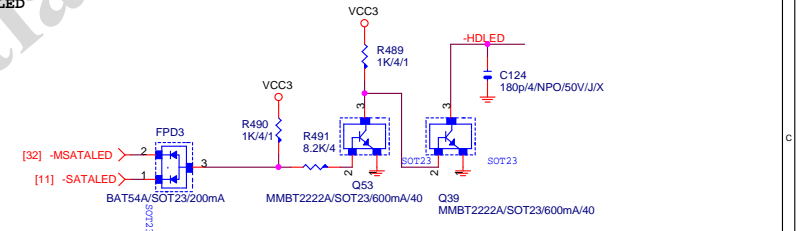


ESD Close to connector

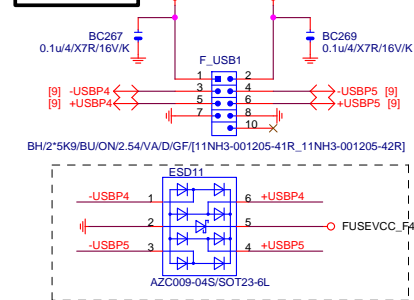
ESD Close to connector



## SATA LED

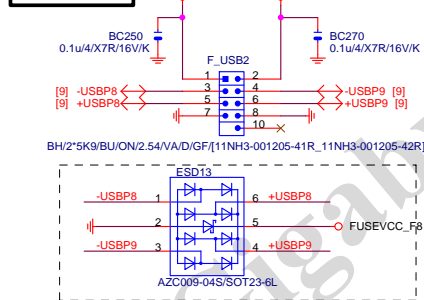


## FRONT USB1

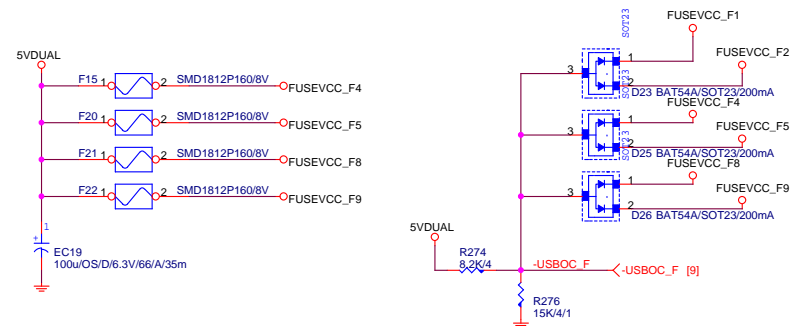


ESD Close to connector

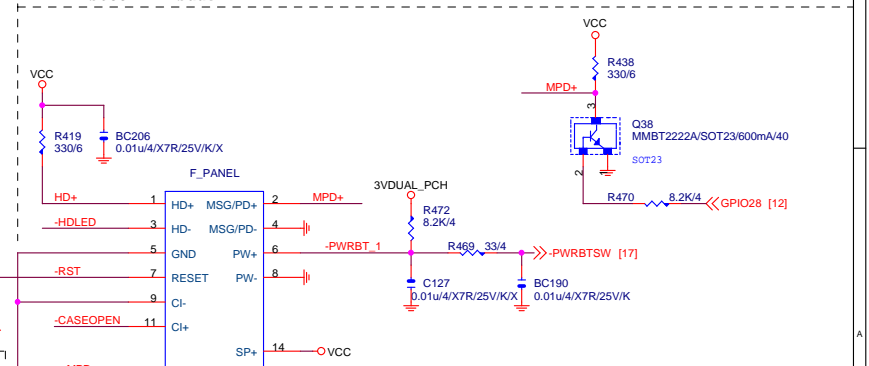
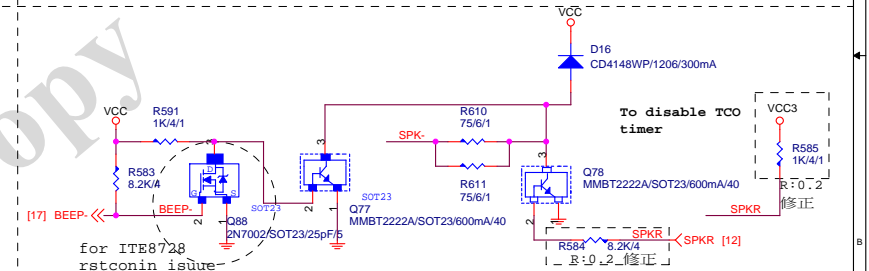
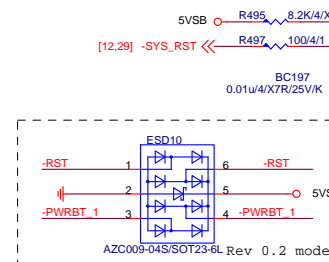
## FRONT USB2



ESD Close to connector

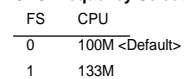


## INTEL FRONT PANEL

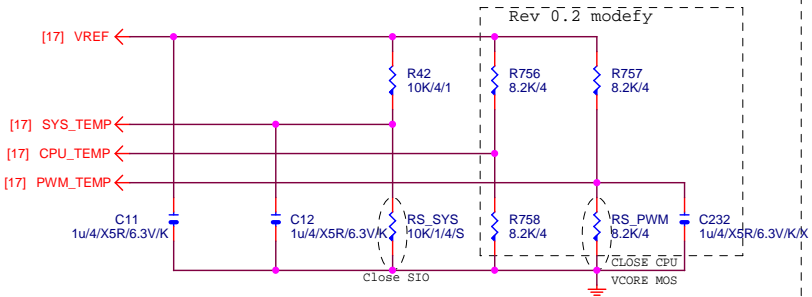


## Gigabyte Technology

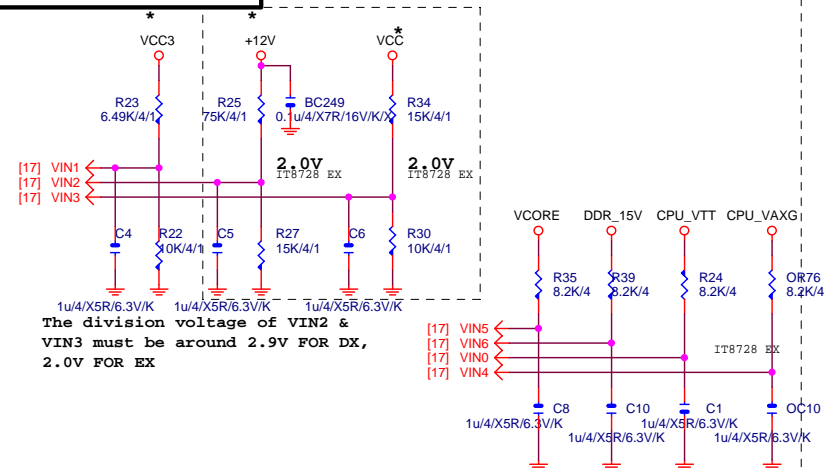
Title			FF, F_USB, USB PWR, FDD, BZ
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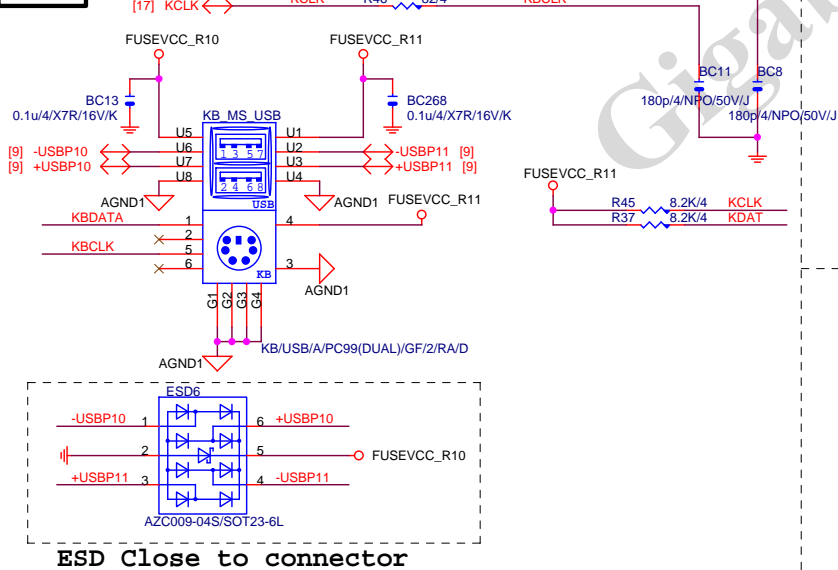
TEMP H/W MONITOR



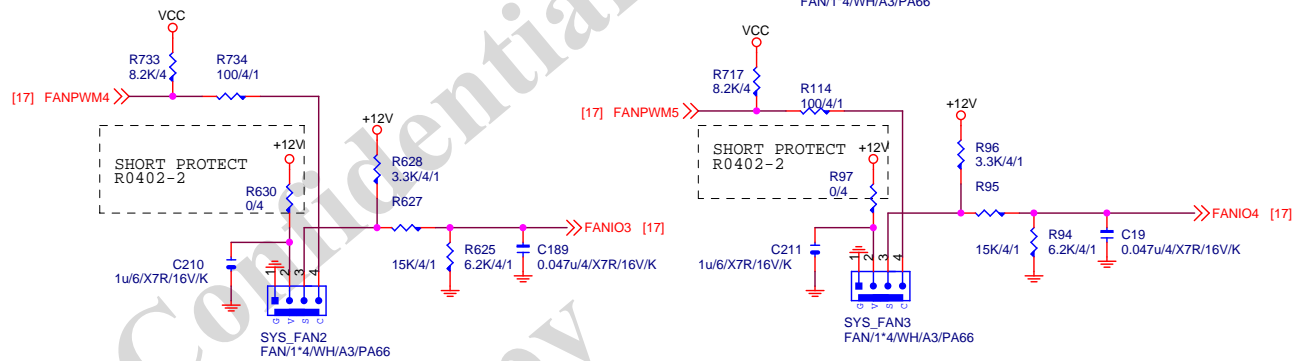
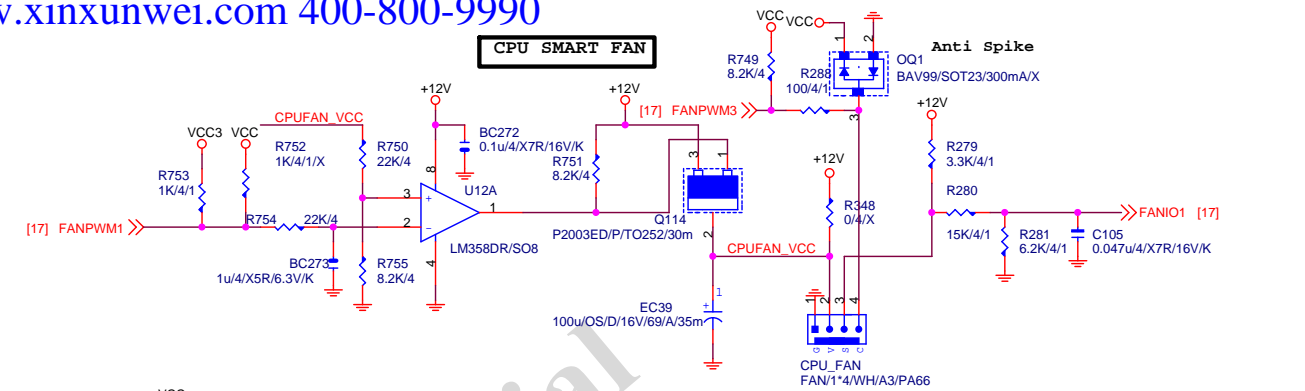
## VOLTAGE-- H/W MONITOR



## KB/USB

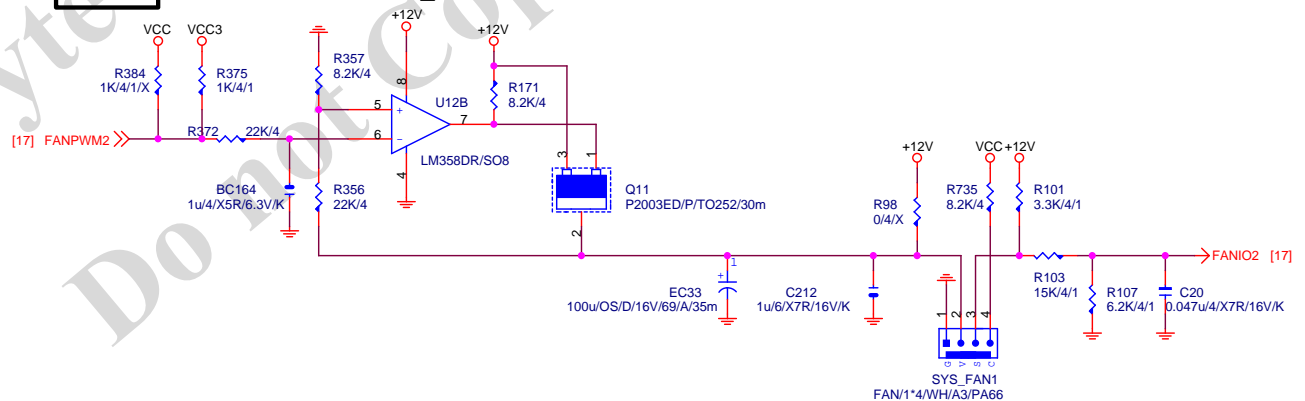


## CPU SMART FAN

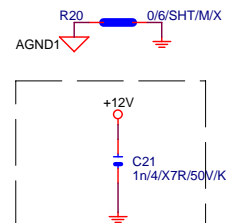


## SYS FAN

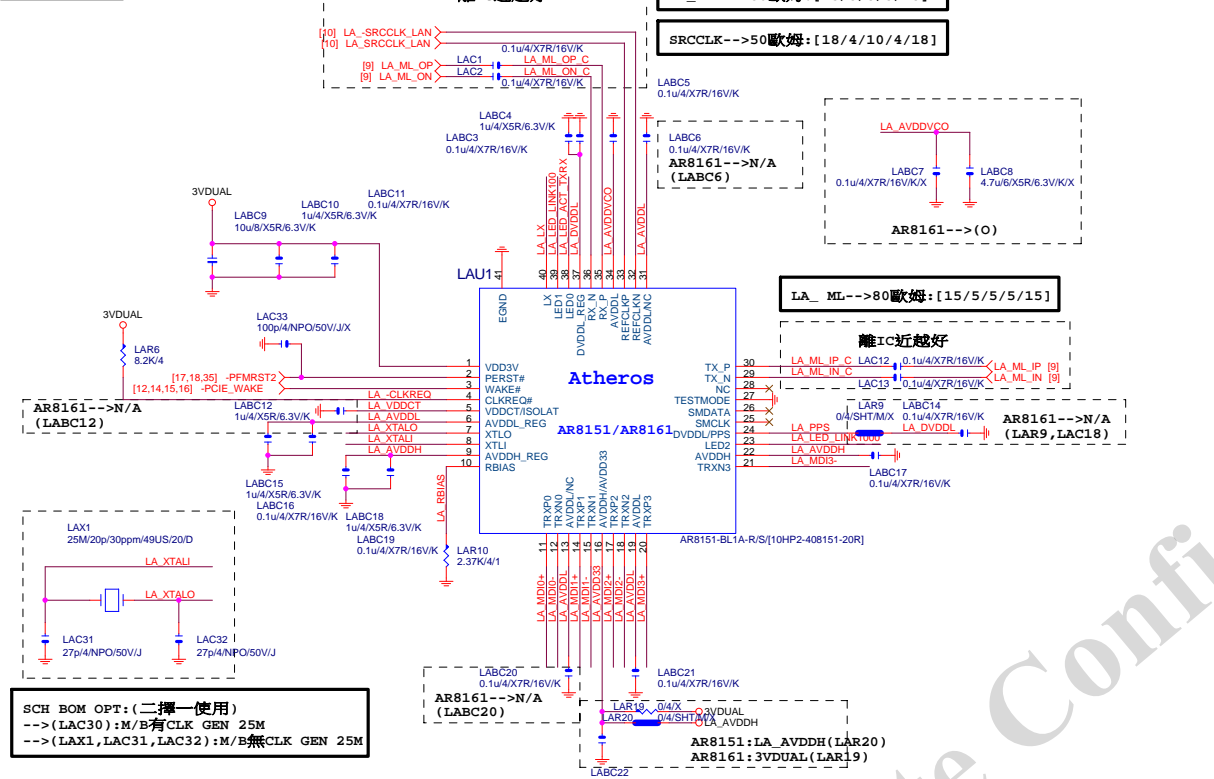
Linear SYS\_FAN



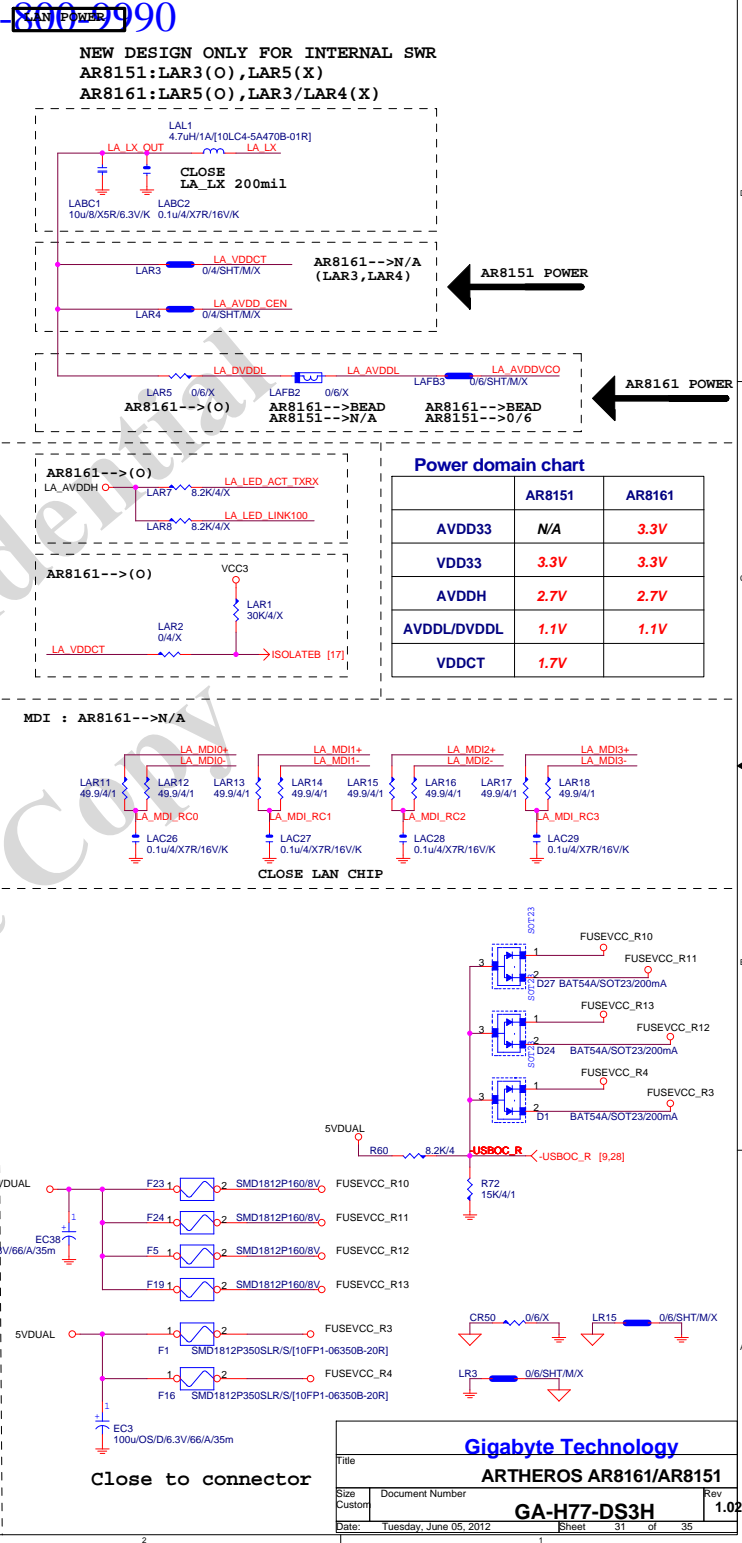
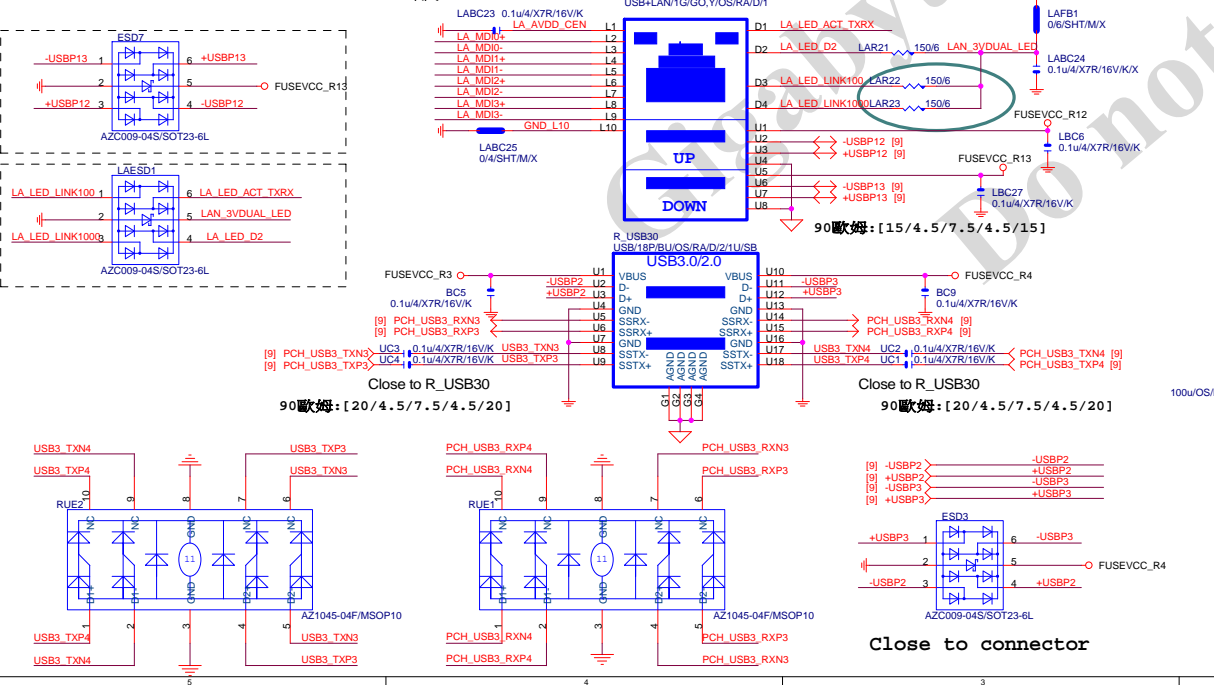
FOR EMI ONLY

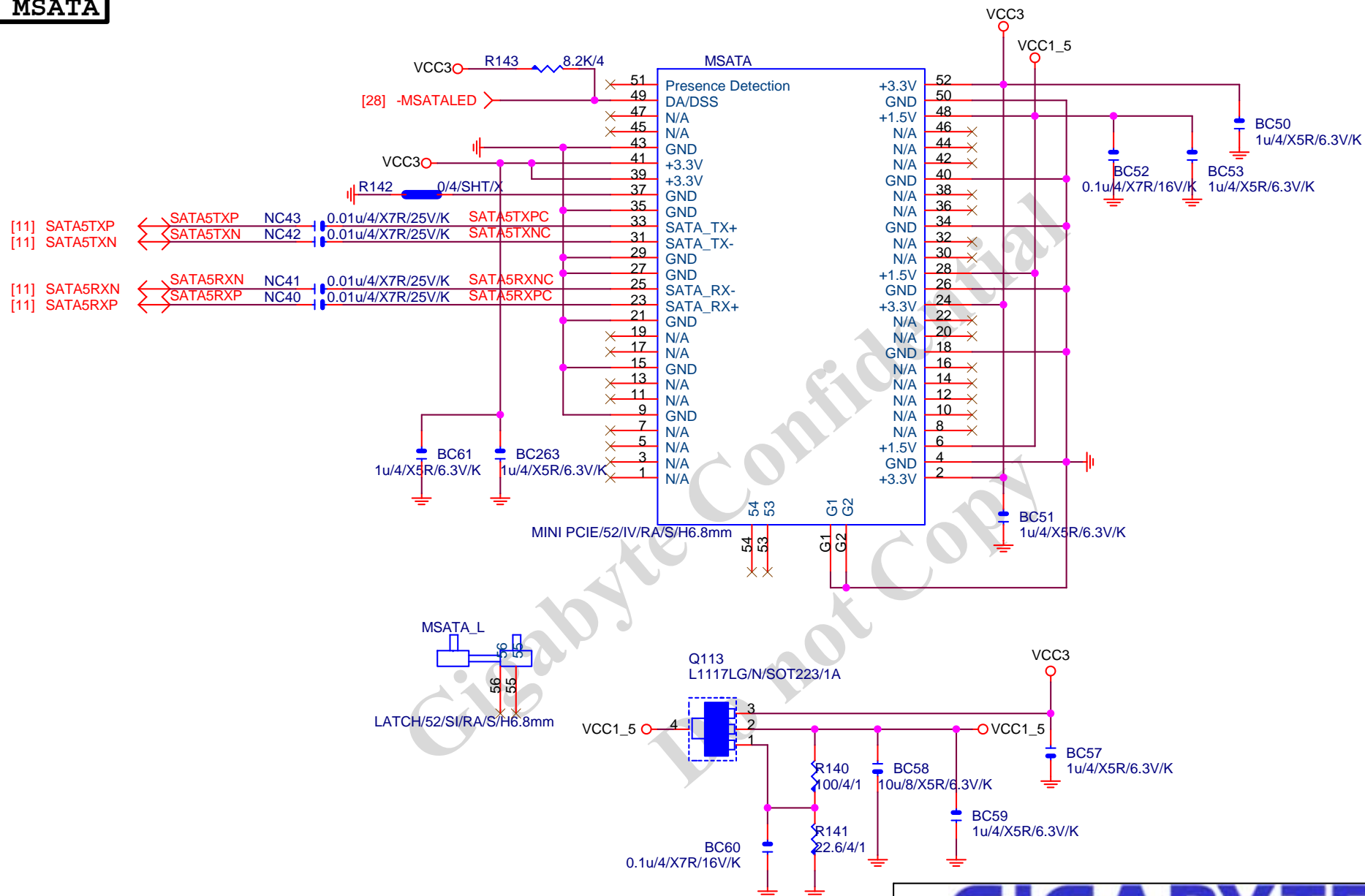


# PCIE-1G LAN



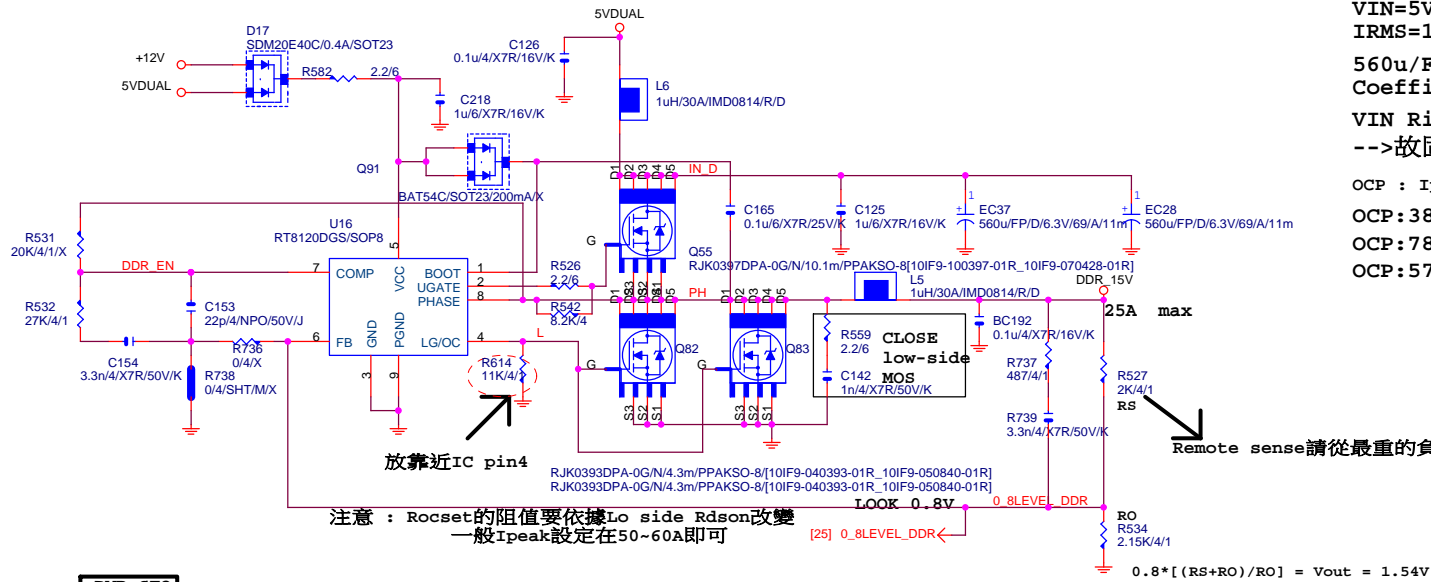
# USB30 LAN CONNECTOR



**MSATA****GIGABYTE™**

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<b>MSATA</b>		
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**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

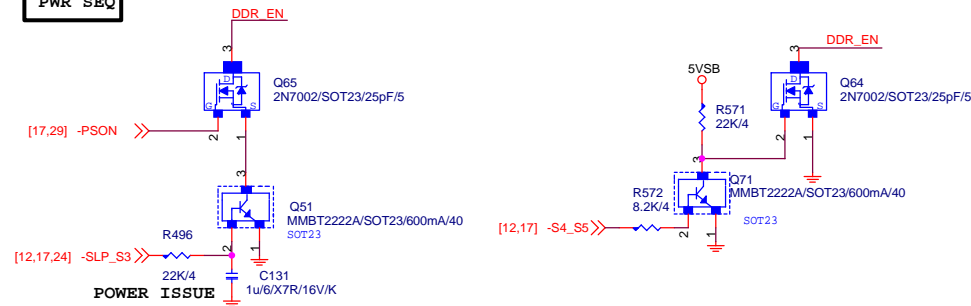
OCF :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$

OCF:38.31A for Rds=6.7m for vishay@4.5V

OCF:78.78A for Rds=3.3m for renesas@10V

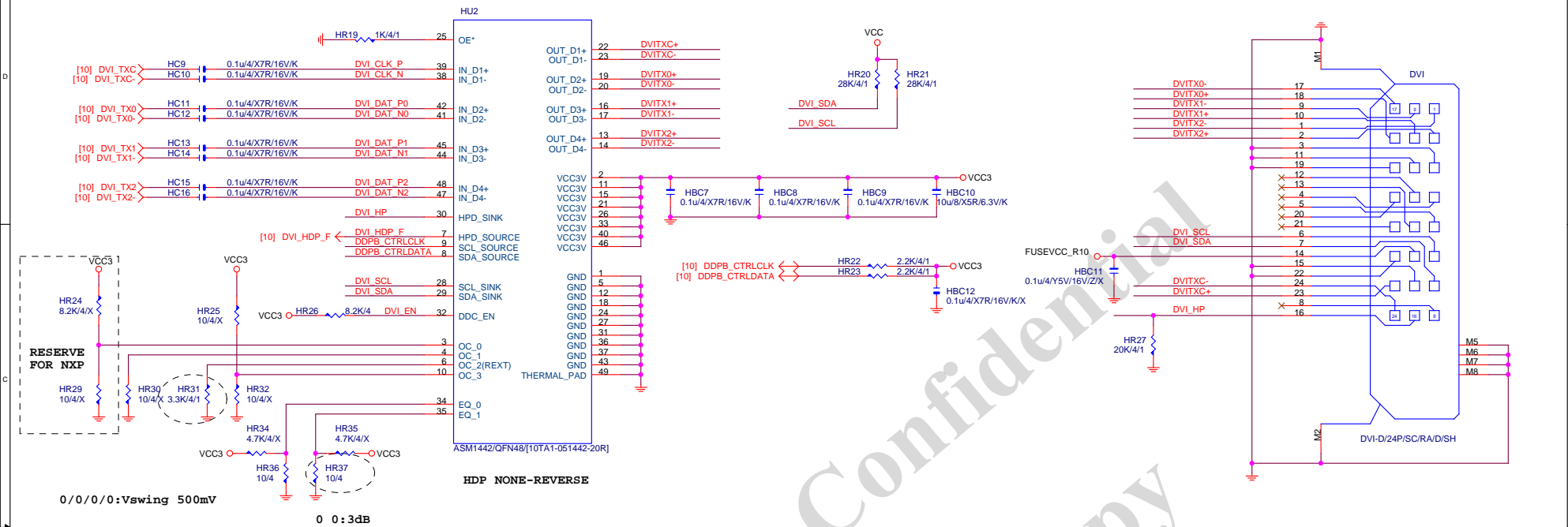
OCF:57A=Rocset\*Iocset / Rds(on)

=11K\*10uA / [5//5]

**PWR SEQ**

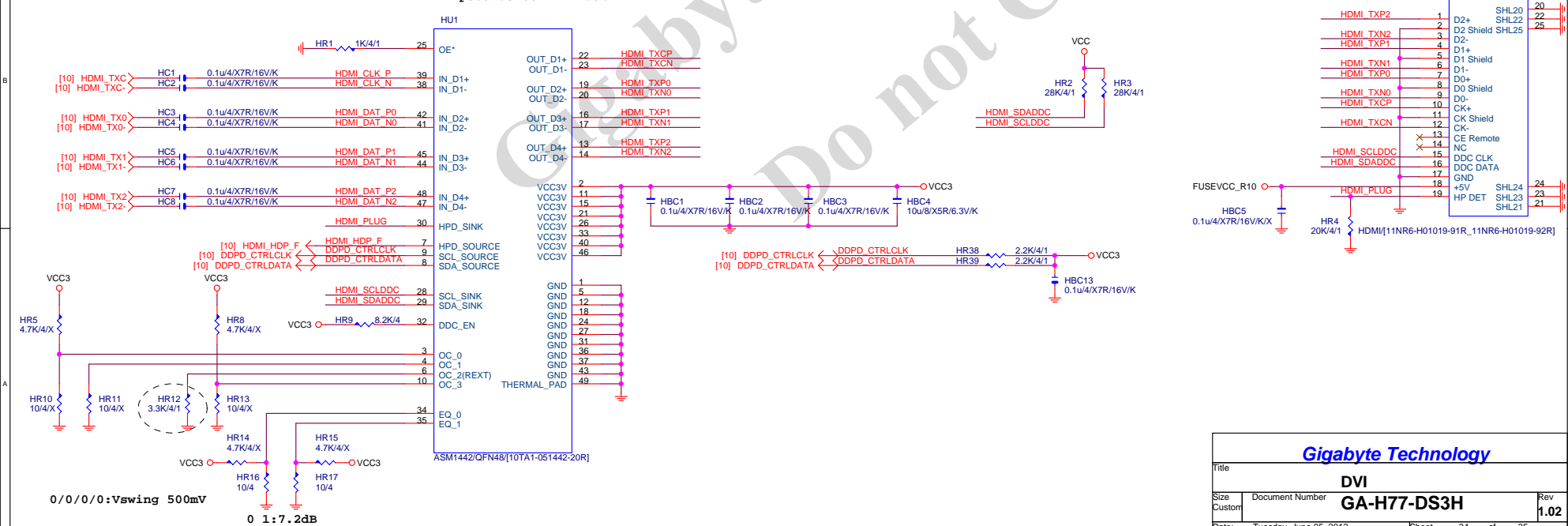
# GIGABYTE™

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RT8120			
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**DVI LEVEL SHIFT****HDMI LEVEL SHIFT**

HDMI:20/4/6/4/20

Impedance=85 +- 17.5%

**Gigabyte Technology**

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