

Model Name: GA-H77M-D3H

Revision 1.2

SHEET TITLE

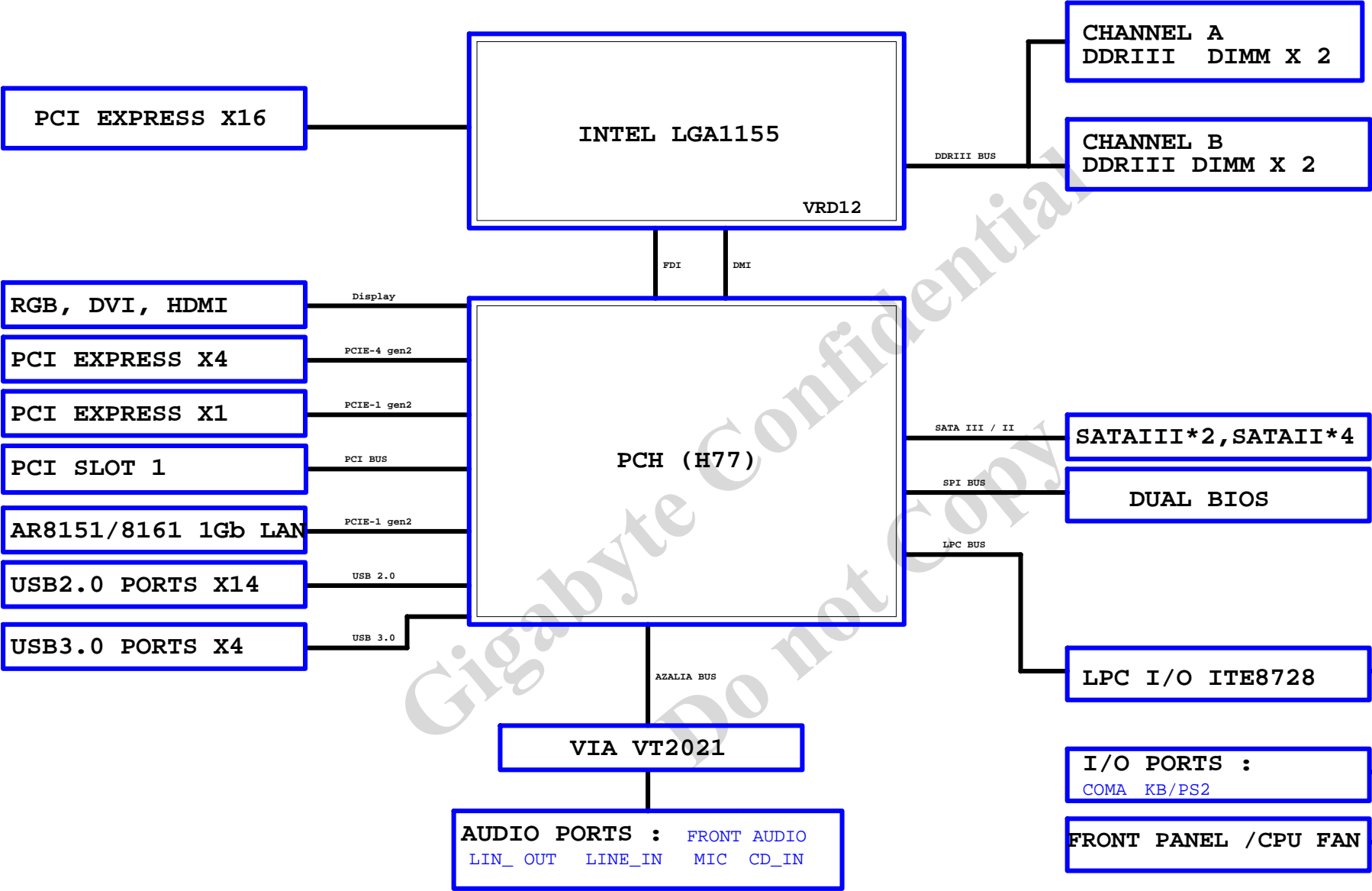
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*1 SLOT
16	PCI EXPRESS*4 SLOT
17	PCI SLOT1
18	ITE 8728 LPC IO
19	COM,KB_USB,R_USB30
20	HWM,FAN CTRL,OV,-PROCHOT
21	DUAL BIOS
22	FP,FUSB,SPK,SATALED
23	VIA VT2021
24	REAR AUDIO JACK
25	ARTHEROS AR8161/AR8151
26	DISCRETE POWER
27	ATX,CLK GEN

SHEET TITLE

28	RT8120_CPU_VTT
29	VCORE ISL95836_1
30	VCORE ISL95836_2
31	RT8120_DDR POWER
32	LPT,TPM
33	HDMI/DVI
34	IT8892E

<b><i>Gigabyte Technology</i></b>			
Title			
<b>BOM &amp; PCB MODIFY HISTORY</b>			
Size Custom	Document Number	<b>GA-H77M-D3H</b>	Rev <b>1.2</b>
Date:	Thursday, August 08, 2013	Sheet	2 of 34

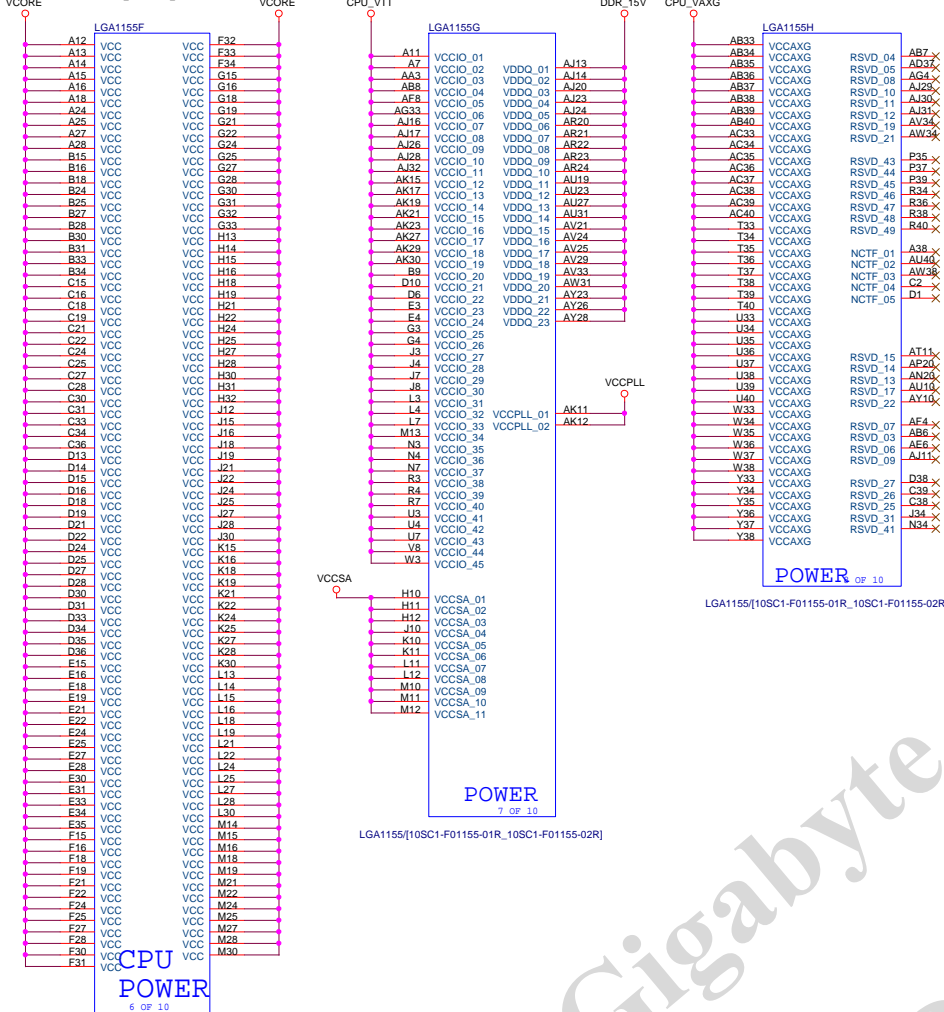
BLOCK DIAGRAM





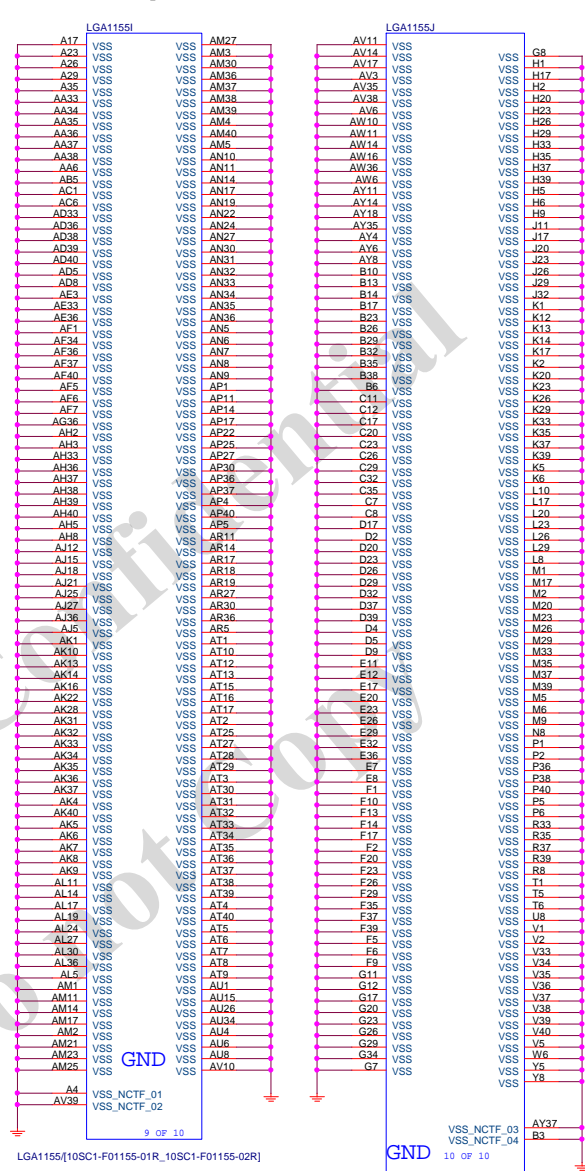


# LGA1155 (F,G,H)



LGA1155[10SC1-F01155-01R\_10SC1-F01155-02R]

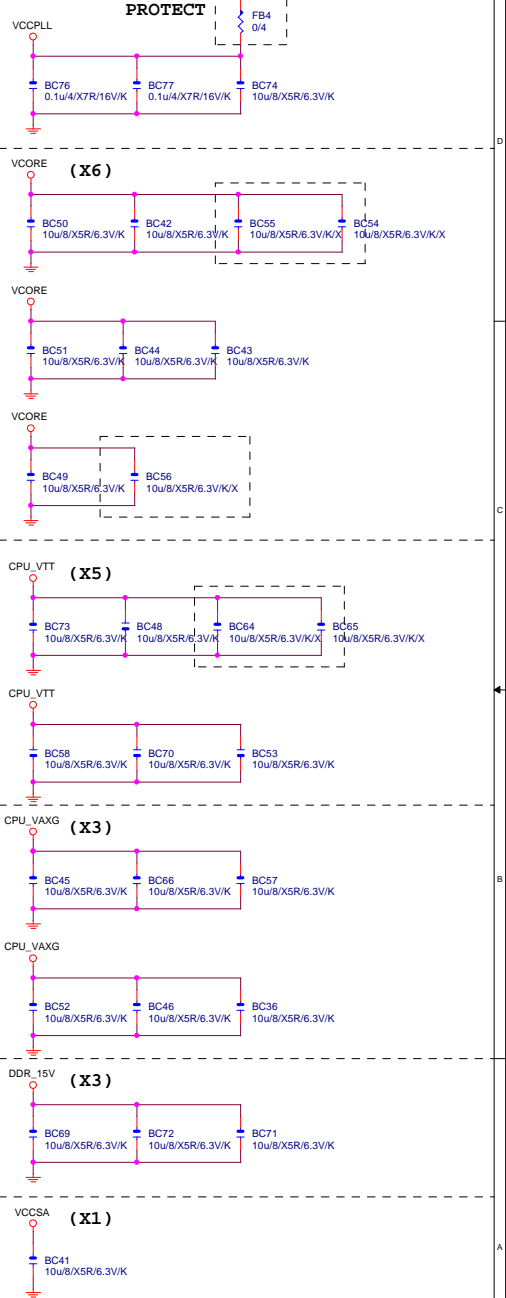
# LGA1155 (I,J)



LGA1155[10SC1-F01155-01R\_10SC1-F01155-02R]

LGA1155[10SC1-F01155-01R\_10SC1-F01155-02R]

# CAP

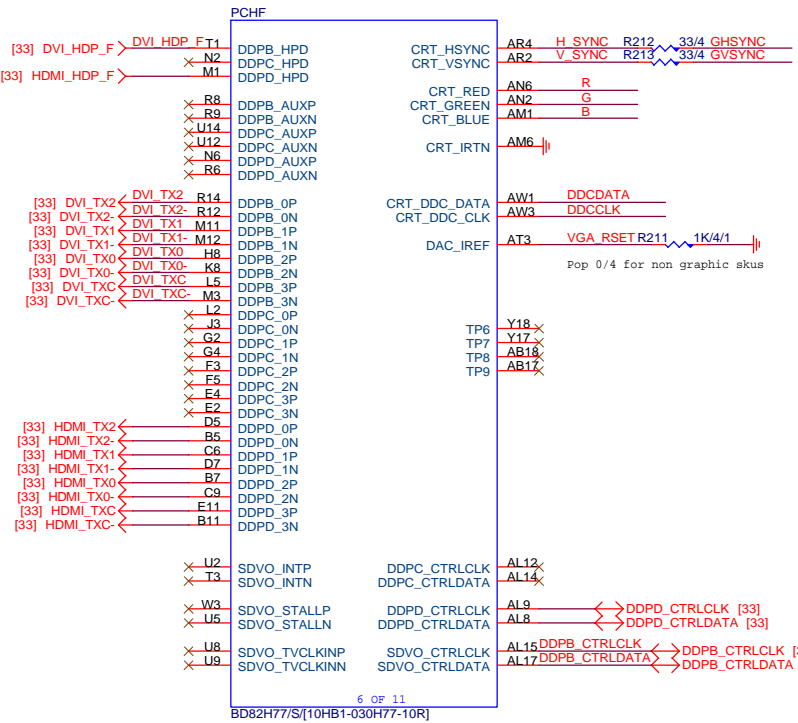




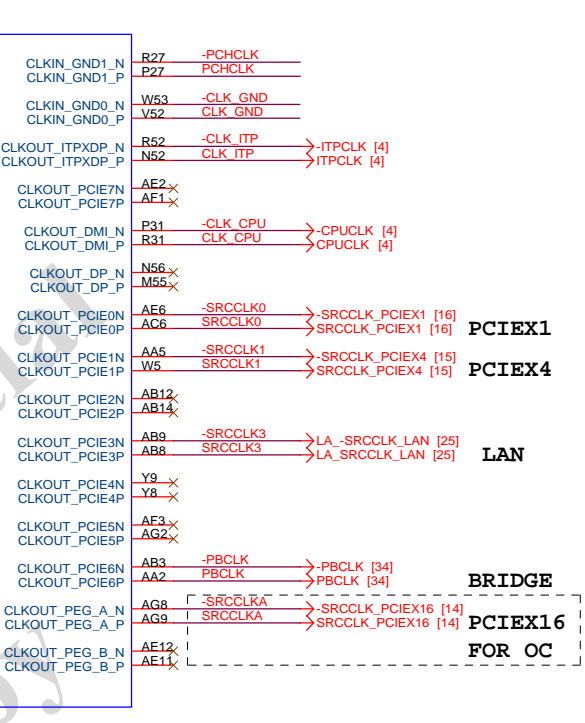
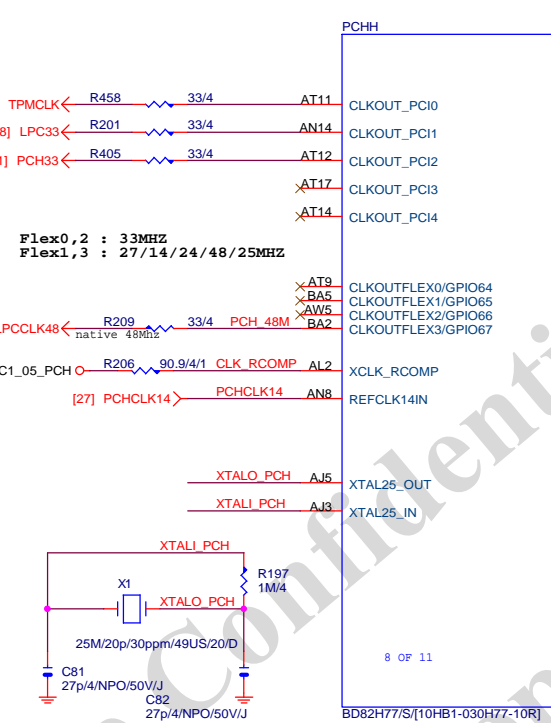




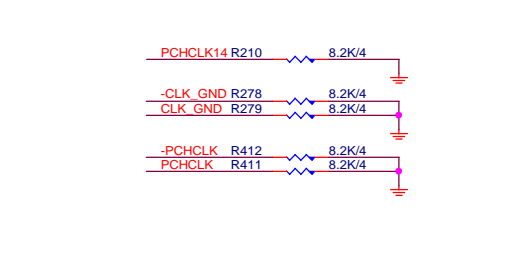
PCH (F)



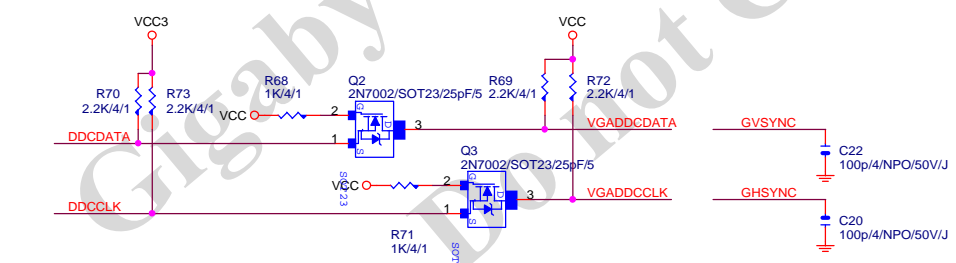
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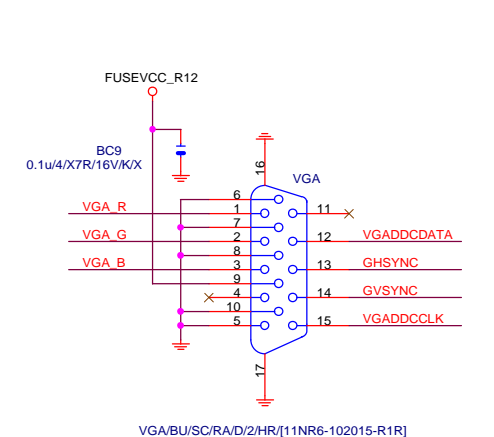
PCH CLK PD



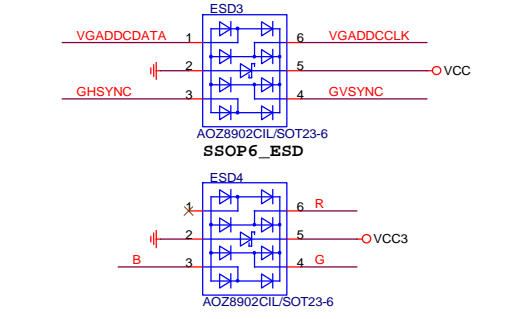
VGA DDC



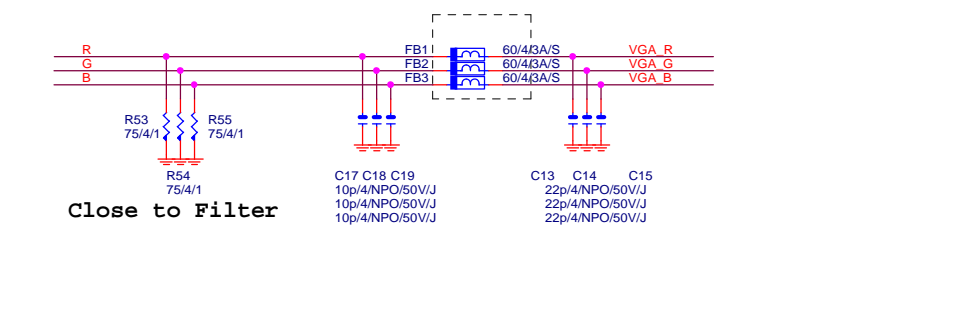
VGA CONNECTOR



VGA ESD



VGA DDC



**Gigabyte Technology**

Title: PCH DISPLAY ,CLK BUFFER

Size: Custom Document Number: GA-H77M-D3H Rev: 1.2

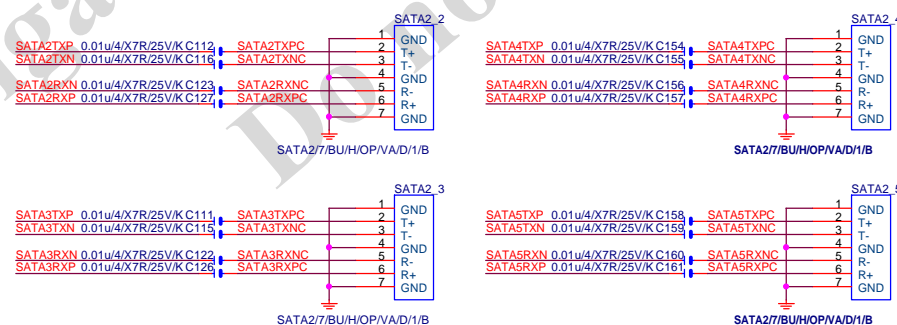
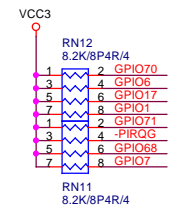
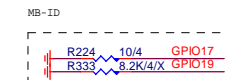
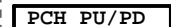
Date: Thursday, August 08, 2013 Sheet: 10 of 34

(C)

PCHC

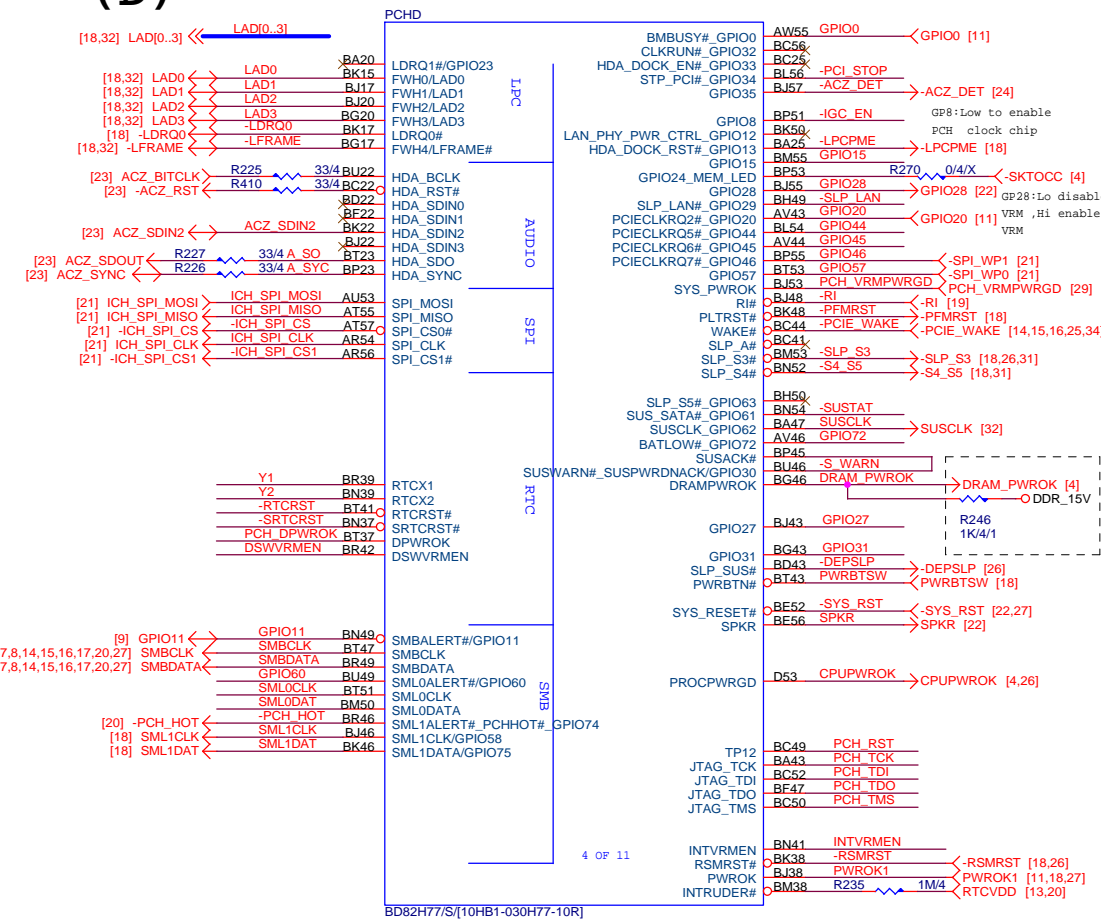


H1X7-SATA2-HS-MASK

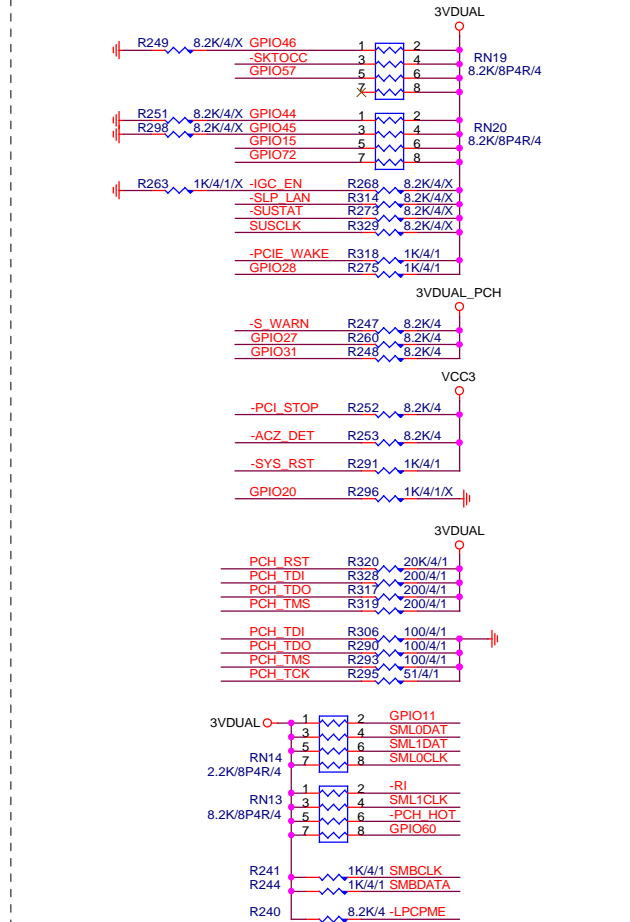


PCH

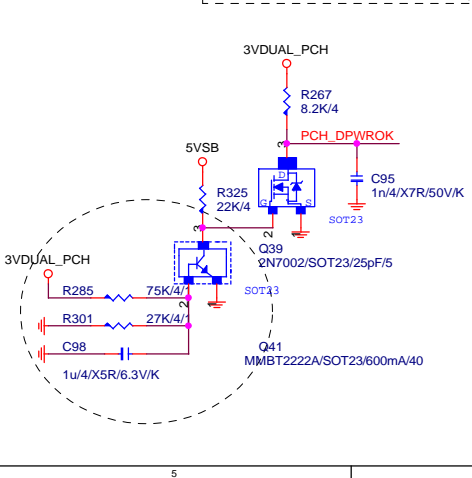
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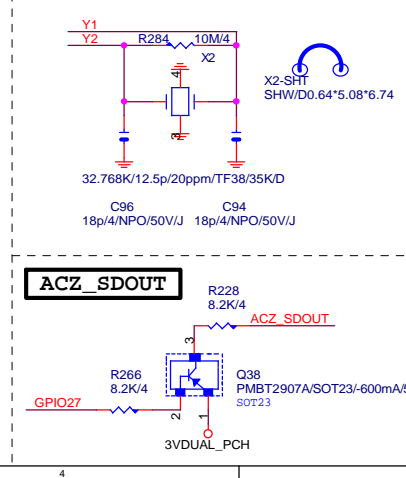
PCH PU/PD



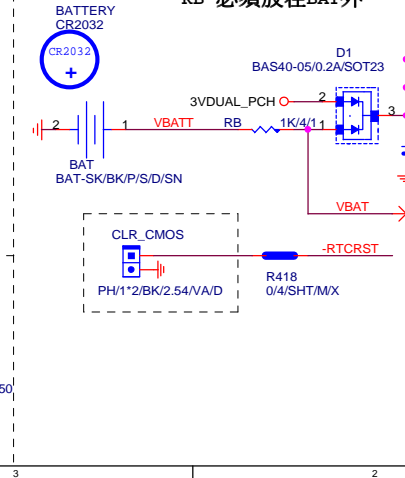
PCH\_DPWROK



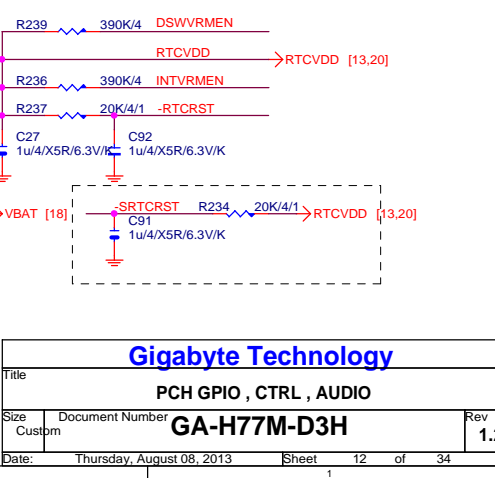
32.768KHZ



CLR\_CMOS



BATTERY-DUAL-4

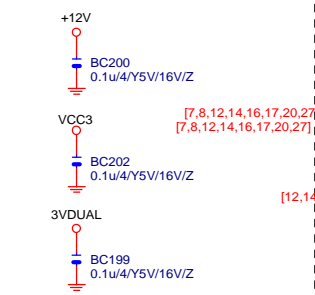


Gigabyte Technology		
Title		
PCH GPIO , CTRL , AUDIO		
Size	Document Number	Rev
Custom	GA-H77M-D3H	1.2
Date:	Thursday, August 08, 2013	Sheet 12 of 34



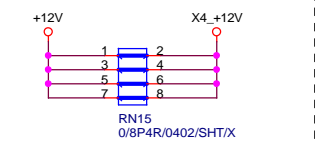


PCIEX4 CAP

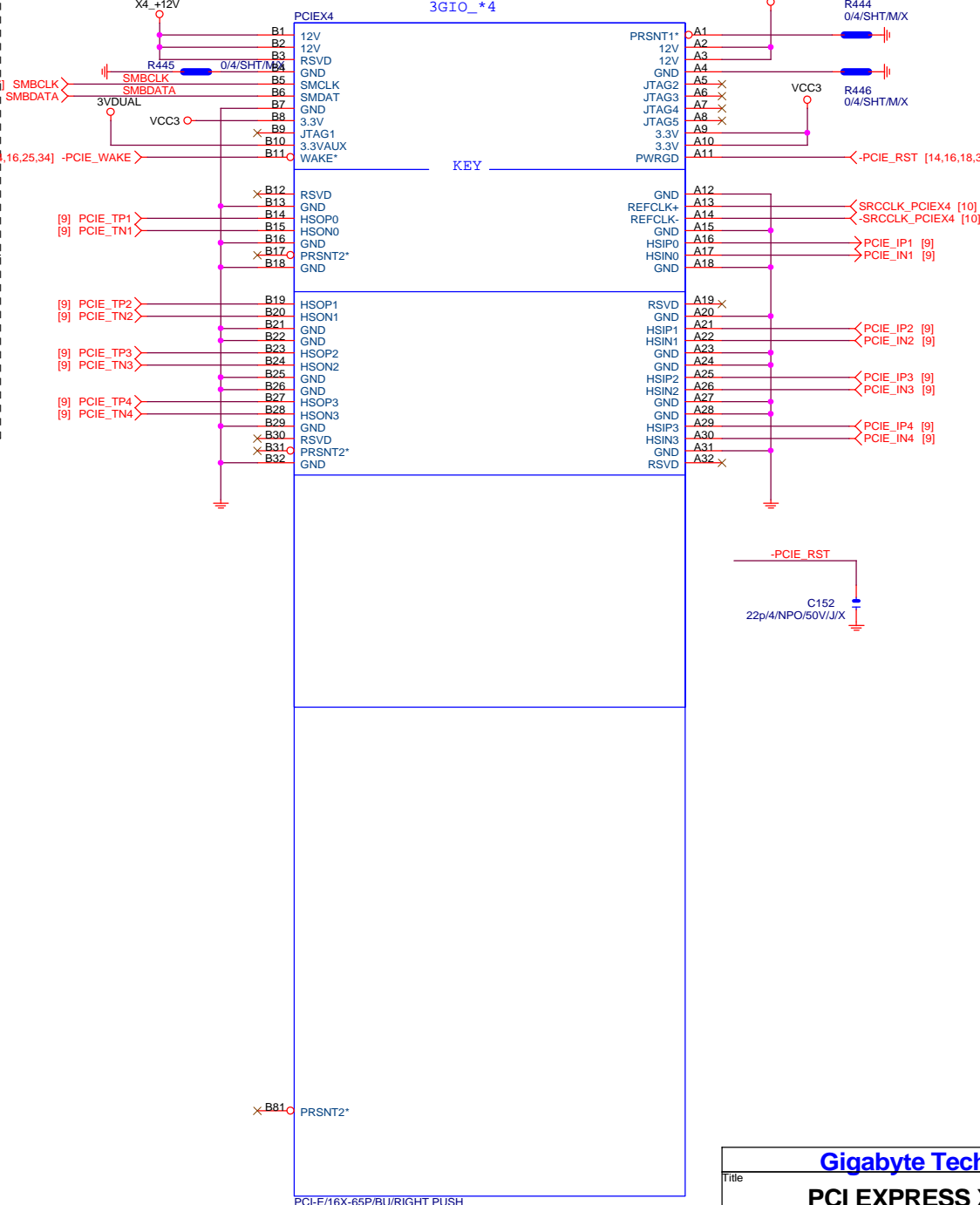


PCIEX4 SLOT

PCIEX16 PROTECT SHT

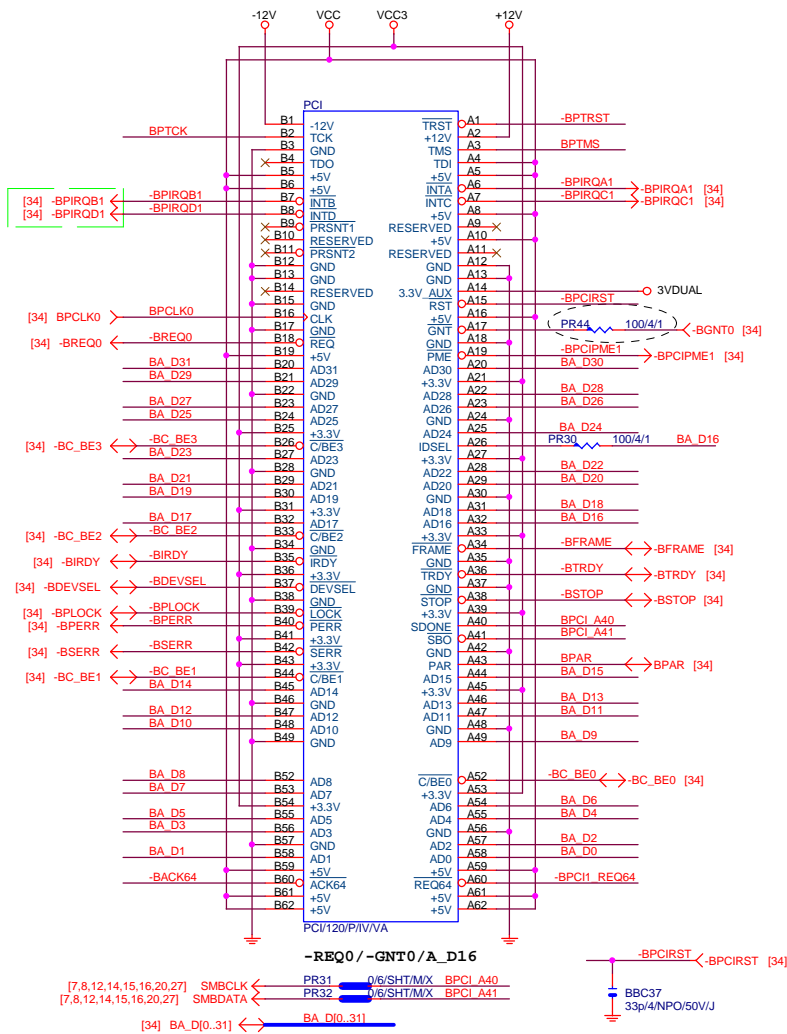


PCIESLOT-64D-98D-P

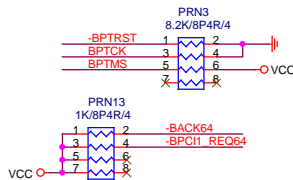




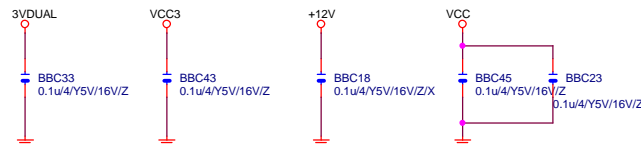
# PCI SLOT



# PCI PU



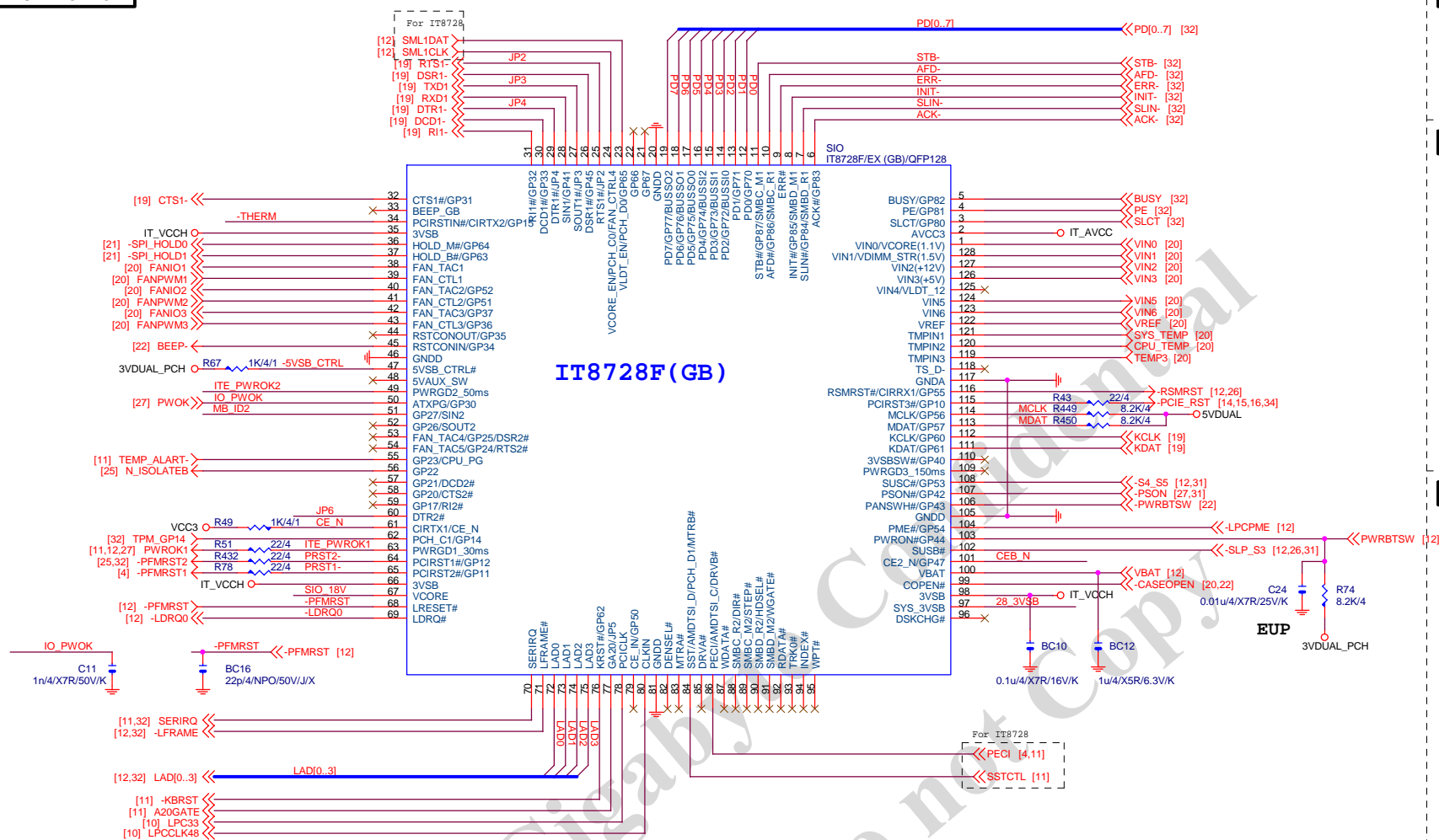
# PCI CAP



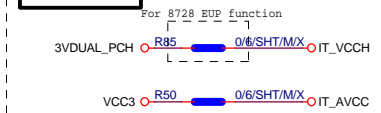
Gigabyte Technology

Title		
PCI SLOT 1&2		
Size	Document Number	Rev
Custom	GA-H77M-D3H	1.2
Date:	Thursday, August 08, 2013	Sheet 17 of 34

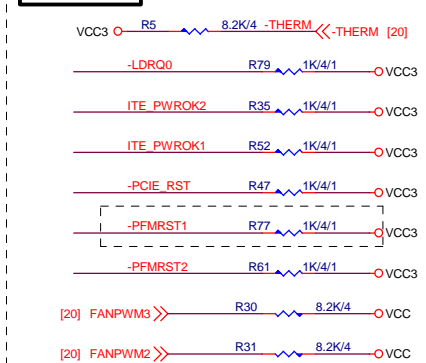
SIO IT8728F



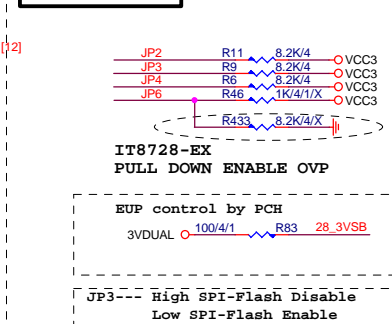
PWR	SHT
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SIO	PU
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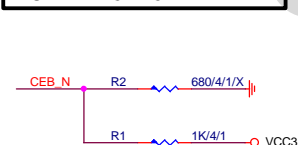
SIO STRAP



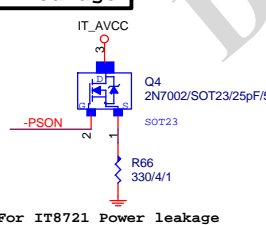
## IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRV#
PIN66	SYS_3V5B
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

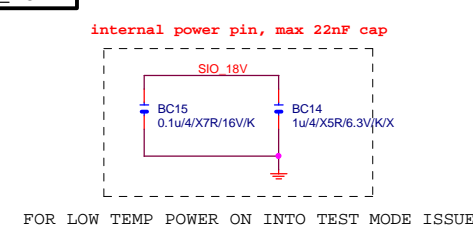
## DUAL BIOS OPT STRAP



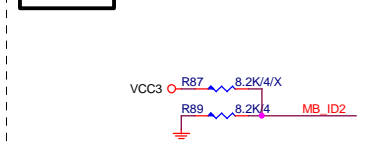
#### Power leakage



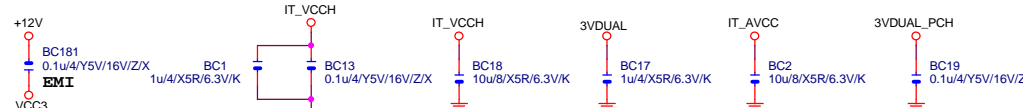
## SIO 18V



MB ID
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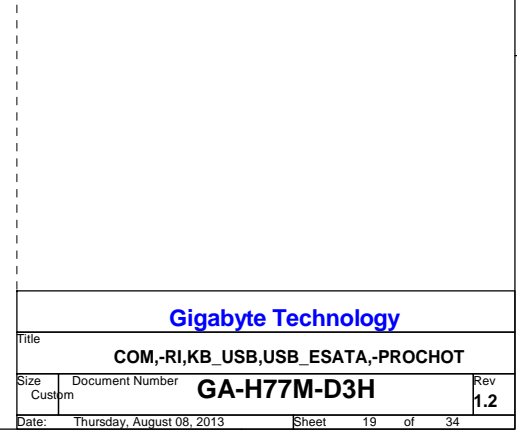
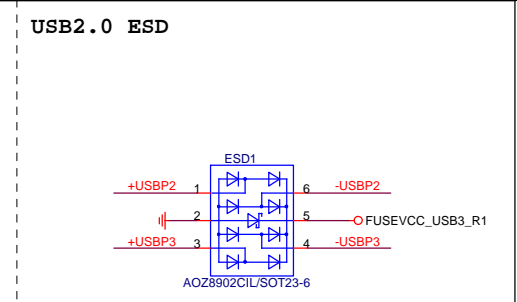
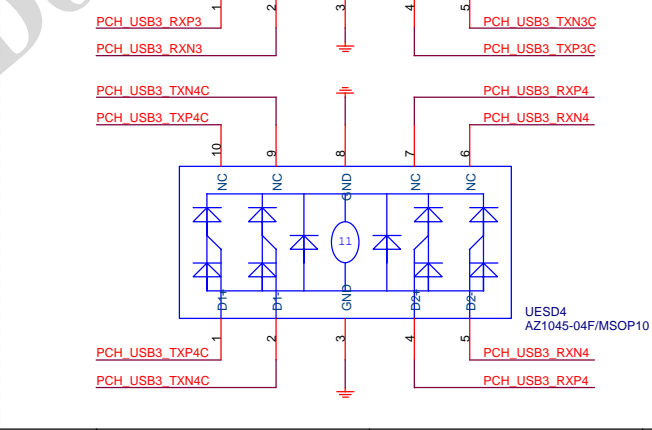
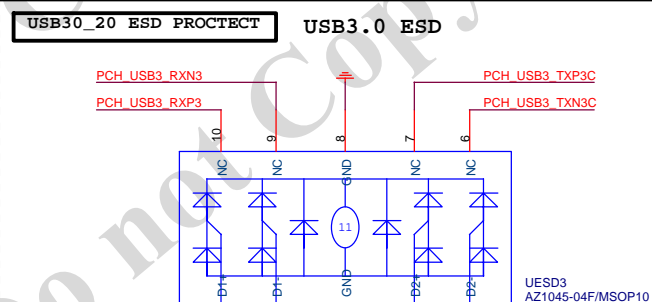
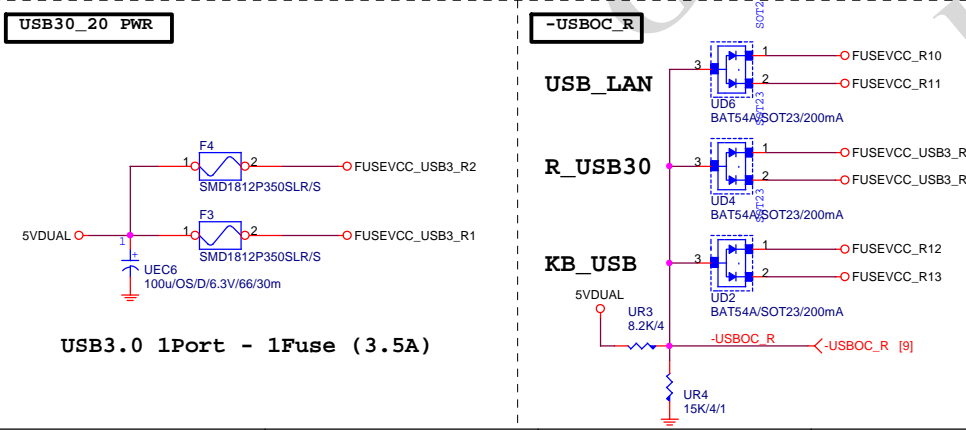
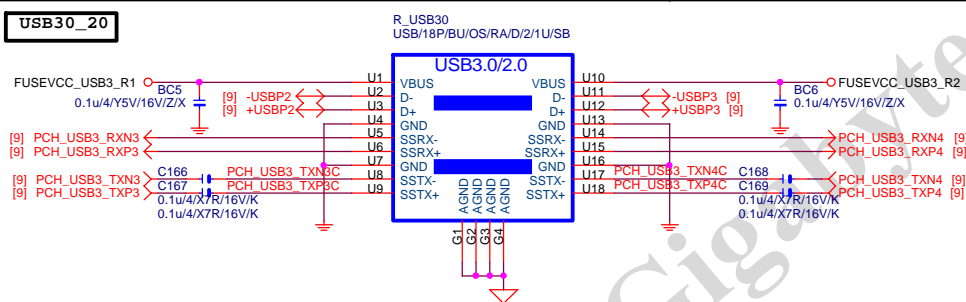
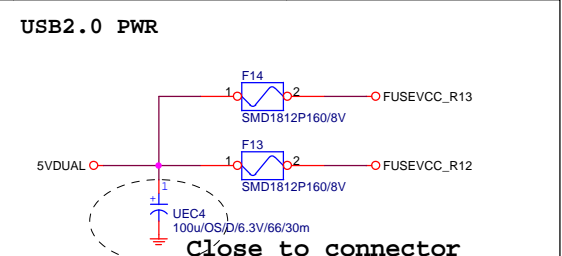
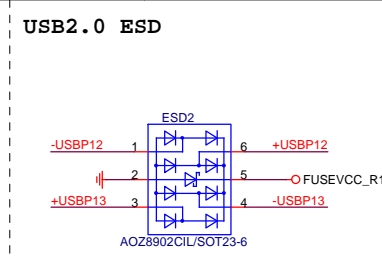
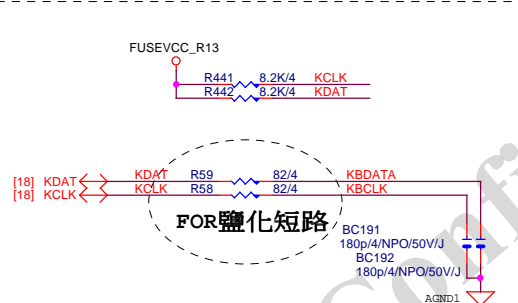
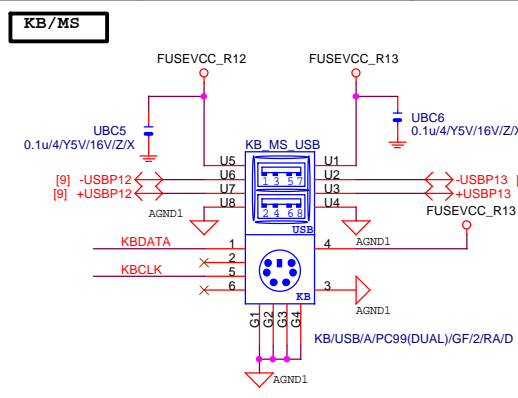
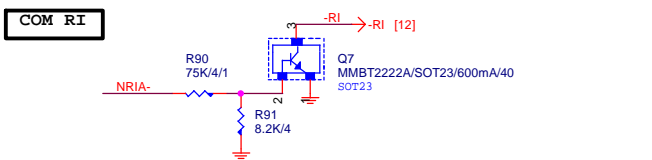
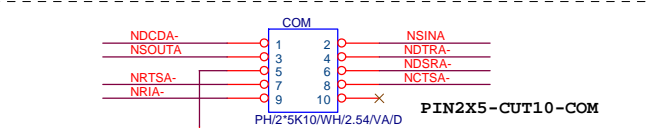
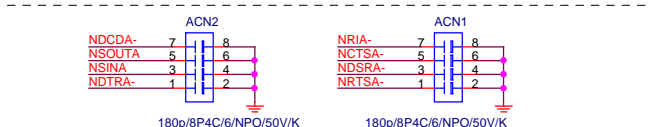
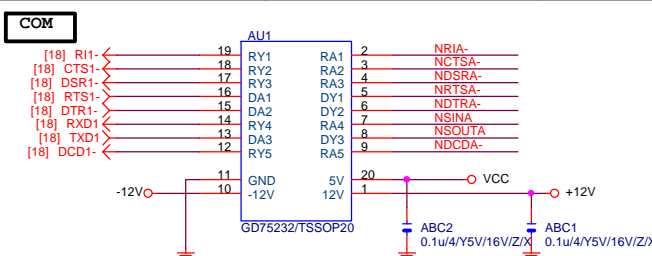


SIO CAP
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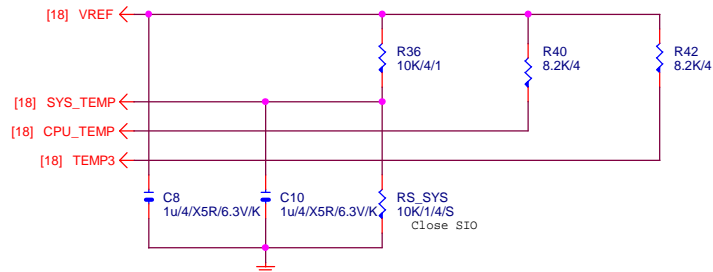


## Gigabyte Technology

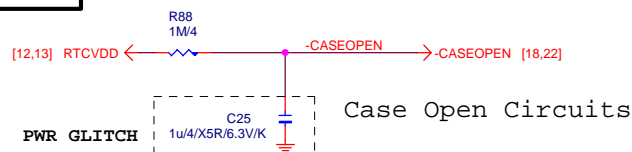
Title			
ITE 8728 LPC IO			
Size	Document Number		Rev
Custom	GA-H77M-D3H		1.2
Date:	Thursday, August 08, 2013	Sheet	18 of 34



# TEMP H/W MONITOR

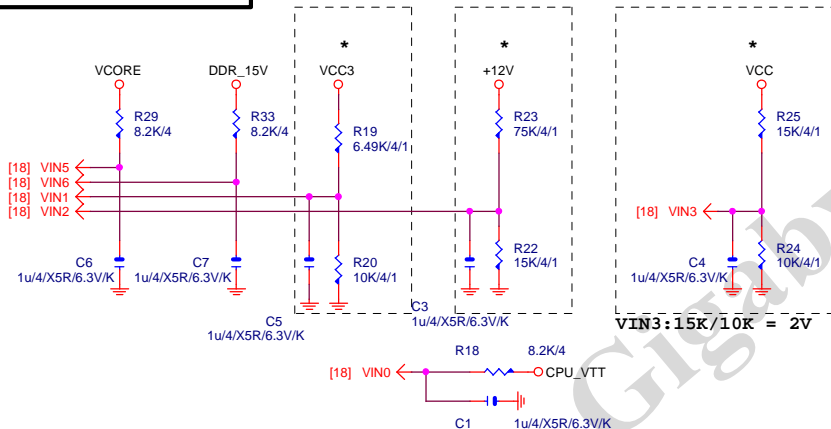


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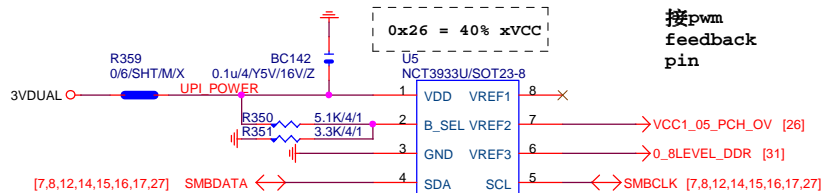


# VOLTAGE-- H/W MONITOR

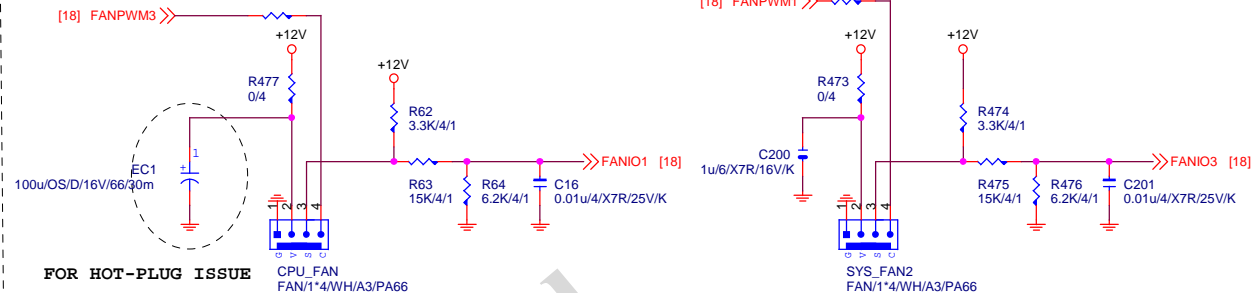
VIN2:75K/15K = 2V



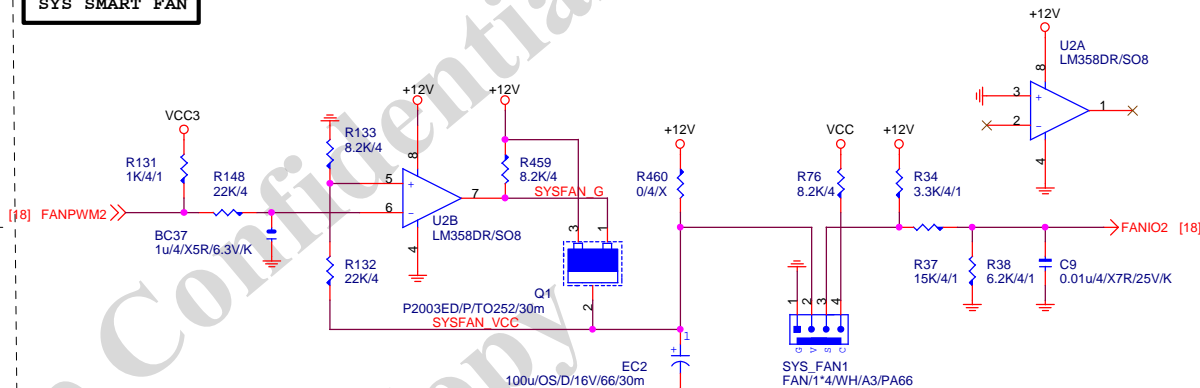
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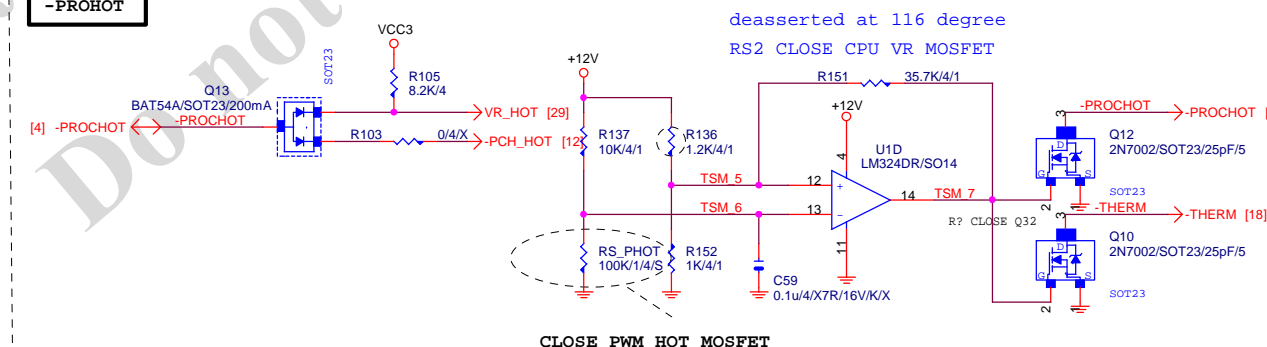
# CPU SMART FAN



# SYS SMART FAN



# -PROHOT

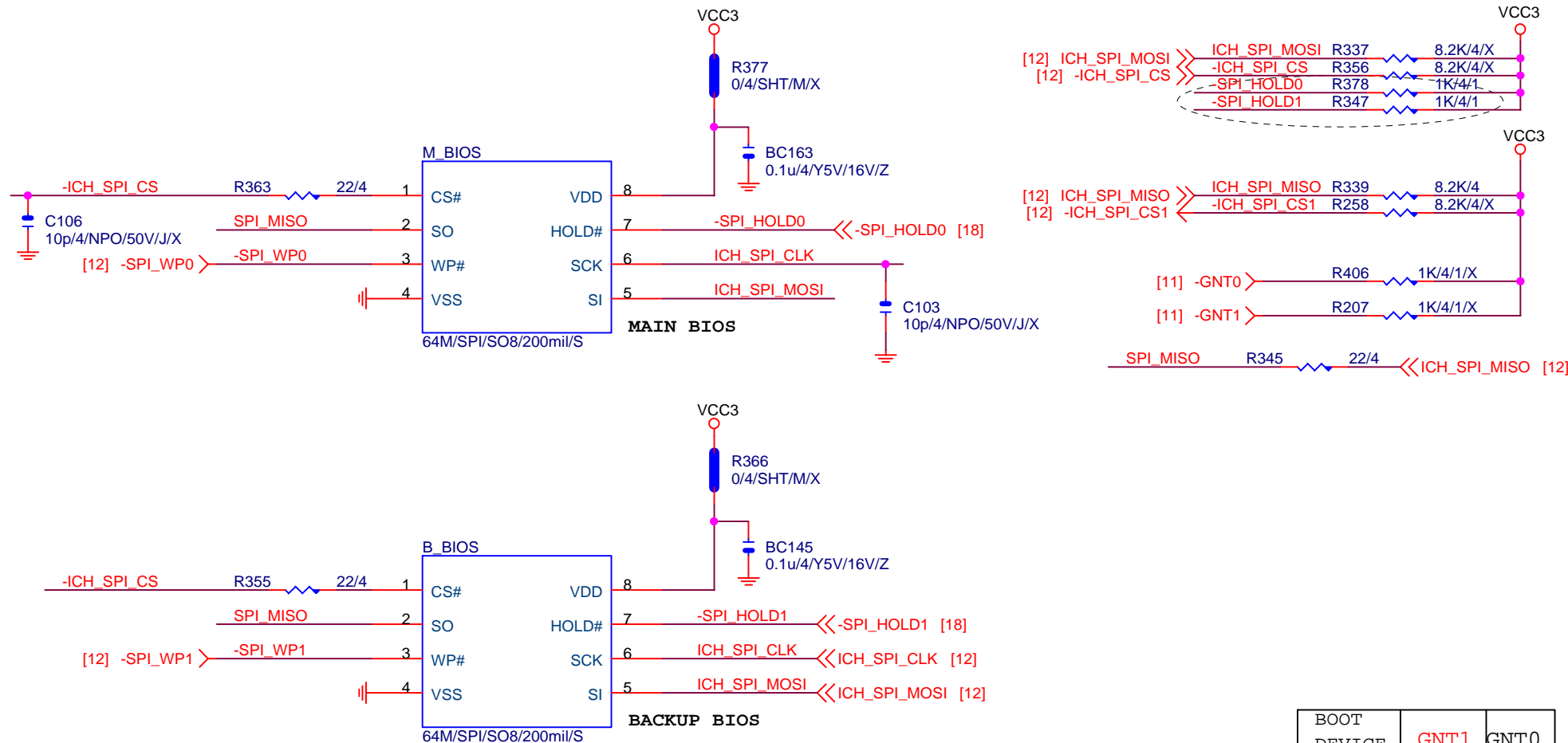


CLOSE PWM HOT MOSFET

Gigabyte Technology

Title			HWM,FAN CTRL,OV
Size	Document Number	GA-H77M-D3H	
Custom		Rev	1.2
Date:	Thursday, August 08, 2013	Sheet	20 of 34

# DUAL BIOS



B65使用64M BIOS  
使用H67暫用32M  
H61使用32M BIOS

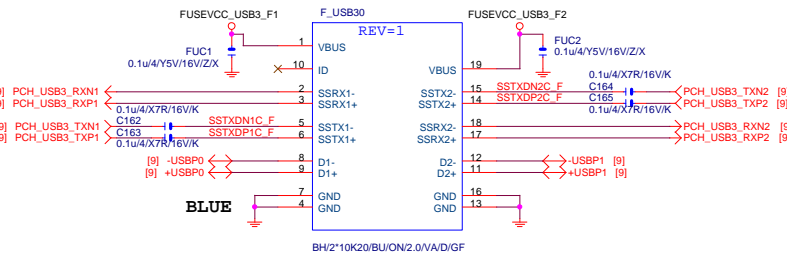
BOOT DEVICE	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1

1 means floating  
0 means PD 1K

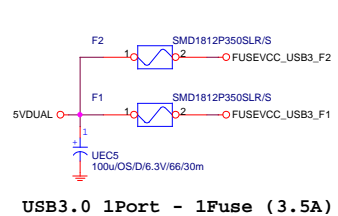
**Gigabyte Technology**

Title		
DUAL BIOS		
Size A	Document Number <b>GA-H77M-D3H</b>	Rev <b>1.2</b>
Date:	Thursday, August 08, 2013	Sheet 21 of 34

# F\_USB30



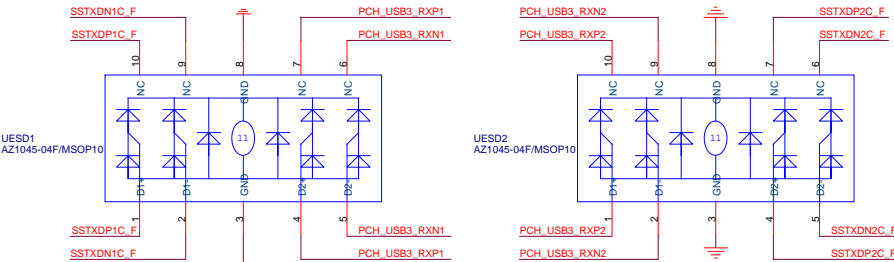
# F\_USB30 PWR



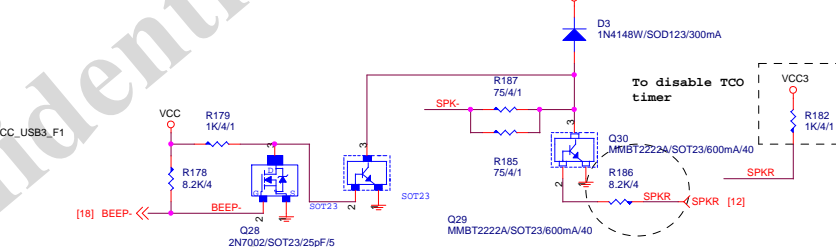
# SATA LED



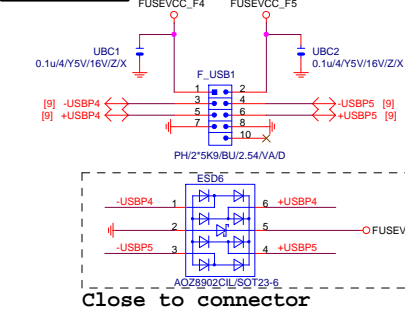
# F\_USB30 ESD PROTECT



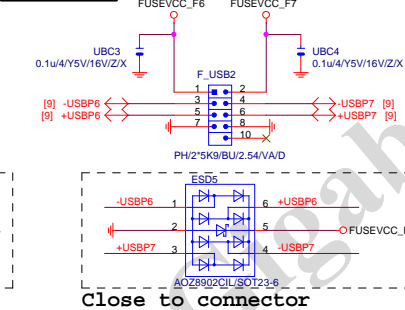
# SPKR



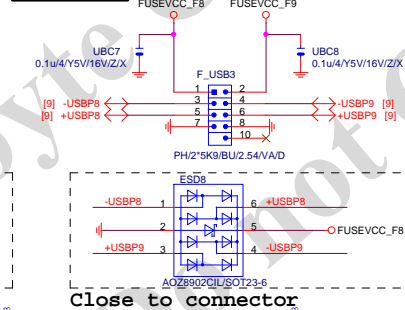
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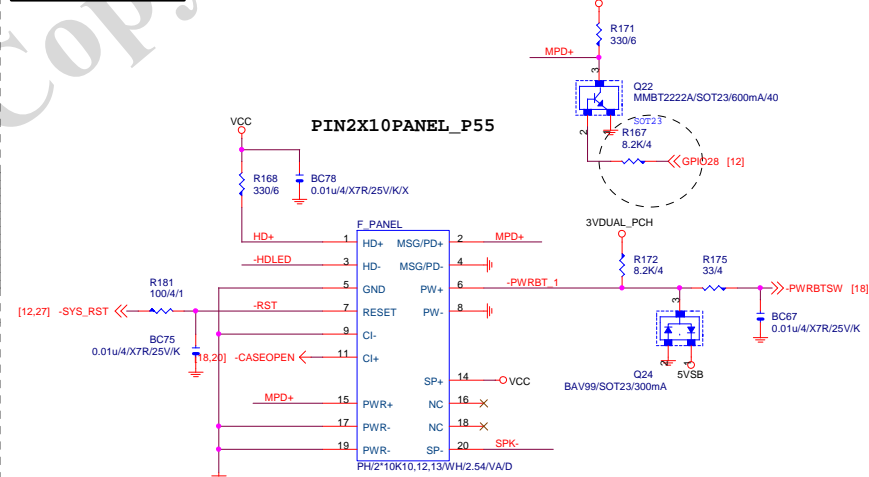
# FRONT USB2



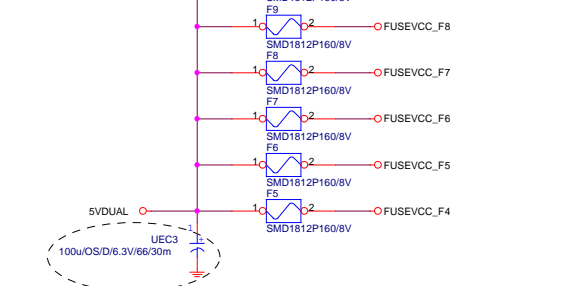
# FRONT USB3



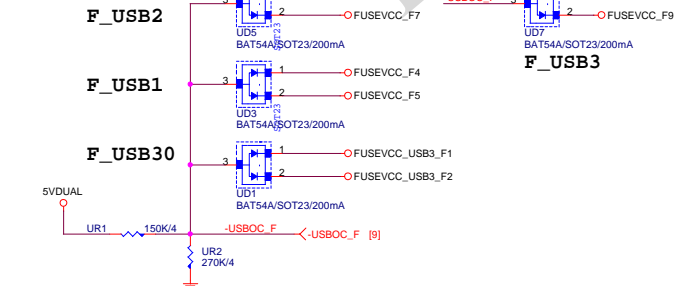
# INTEL FRONT PANEL



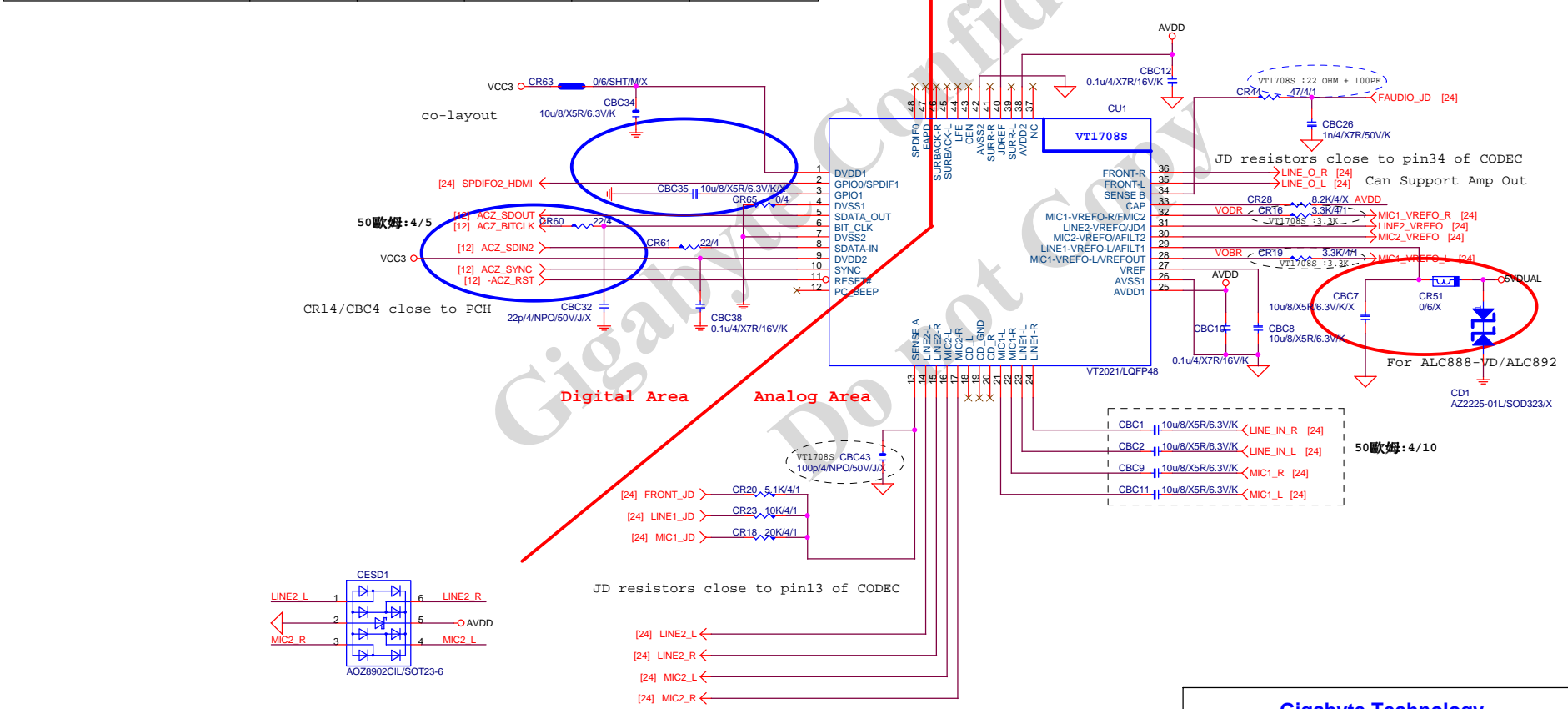
# FUSEVCC\_F

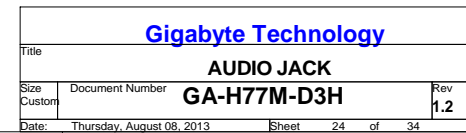
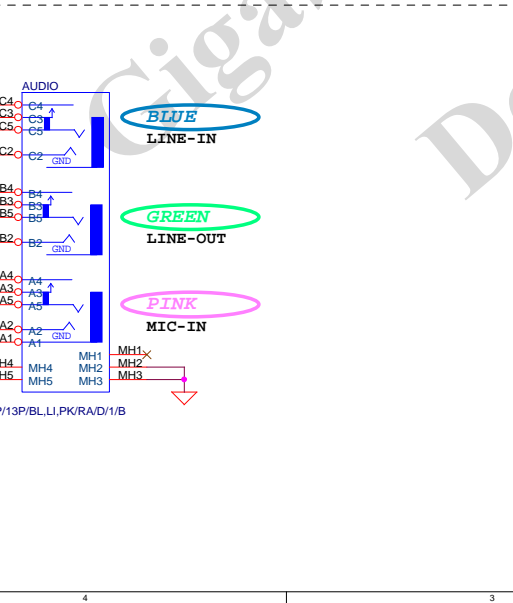


# -USBOC\_F

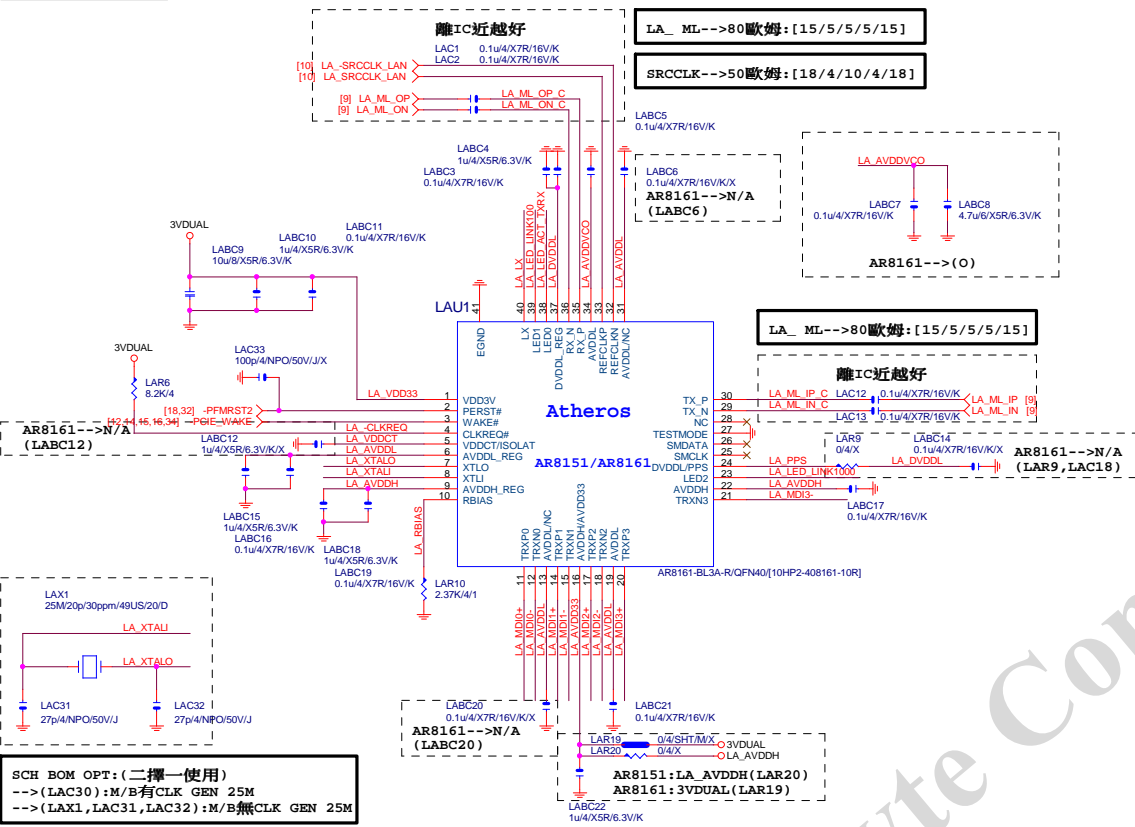


	ALC662	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR65	X	X	O	O	X
CR64	X	X	X	X	0.1u/4
CBC35	O	O	X	X	O
CR44/CBC6	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR31	X	O	O	O	O
CR30	O	X	X	X	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R
CR20	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR34	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC39/CBC40	N/A	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	22K/4	10K/4	10K/4
CR5/CR8/CR11/CR4/ CR17/CR22/CR45/CR33/ CR47/CR40/CR26/CR37/ CR13/CR11/CR57/CR53	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	O	X	X	O
CD2/CD3/CQ3/CQ5	X	X	O	O	X
CR1/CR14/CR17/CR22	62 ohm	62 ohm	62 ohm	75 ohm	1K ohm

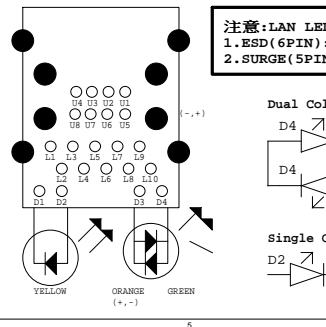
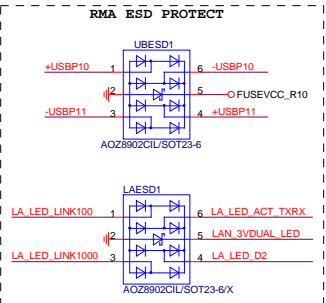




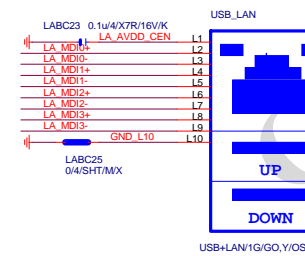
# LAN:AR8151/AR8161



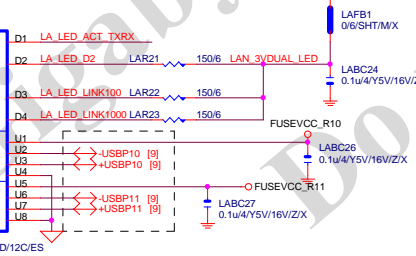
## USB LAN CONNECTOR



## LA\_MDI-->100歐姆:[20/4/8/4/20]



## USB X3 POWER



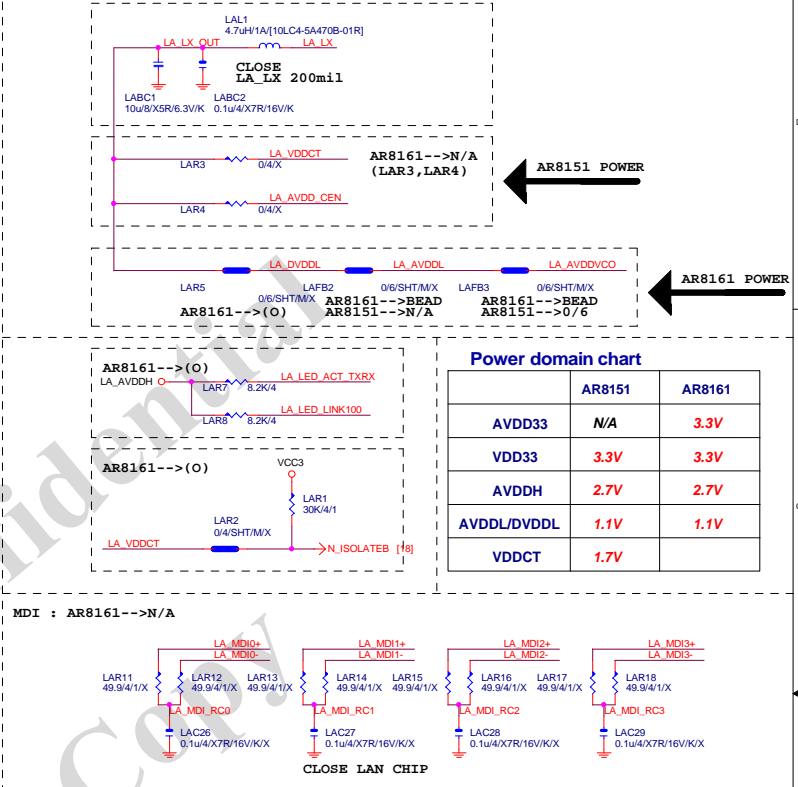
注意:USB PORT(目前:暫代6,7PORT)  
USB-->90歐姆:[15/4.5/7.5/4.5/15]

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

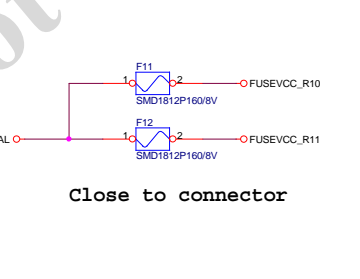
USB LAN BOM區分:  
1. (紅色/12CORE/三倍): USB+LAN/1G/GO, Y/OS/RA/D/1/RED  
2. (黑色/12CORE): USB+LAN/1G/GO, Y/OS/RA/D/1  
3. (黑色/8CORE): USB+LAN/1G/GO, Y/OS/RA/D/8C

# LAN POWER

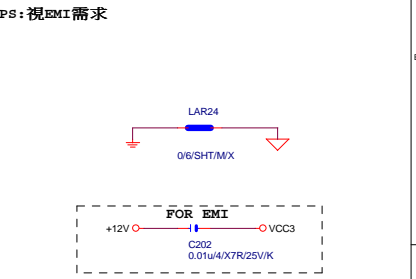
NEW DESIGN ONLY FOR INTERNAL SWR  
AR8151: LAR3(O), LAR5(X)  
AR8161: LAR5(O), LAR3/LAR4(X)



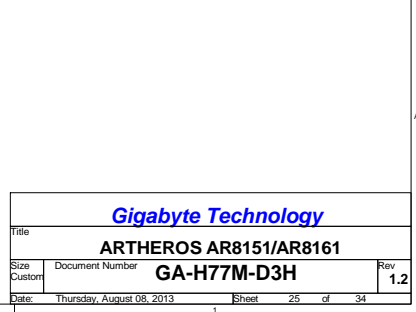
## EMI SHORT PAD



## Close to connector

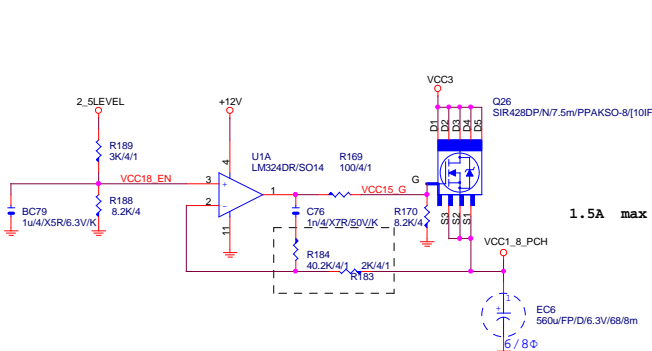


## FOR EMI

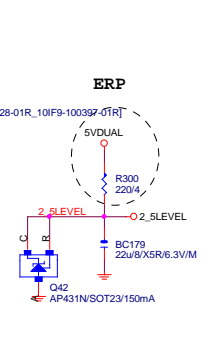


Gigabyte Technology			
ARTHEROS AR8151/AR8161			
Size	Document Number	Rev	
Custom	GA-H77M-D3H	1.2	
Date	Thursday, August 08, 2013	Sheet	25 of 34

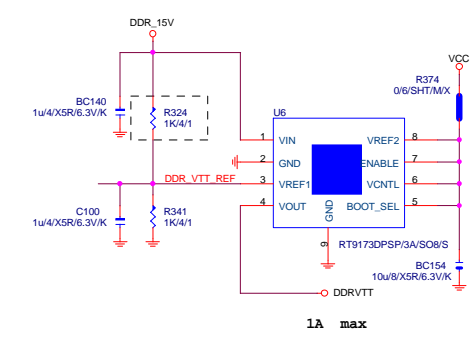
VCC1\_8\_PCH



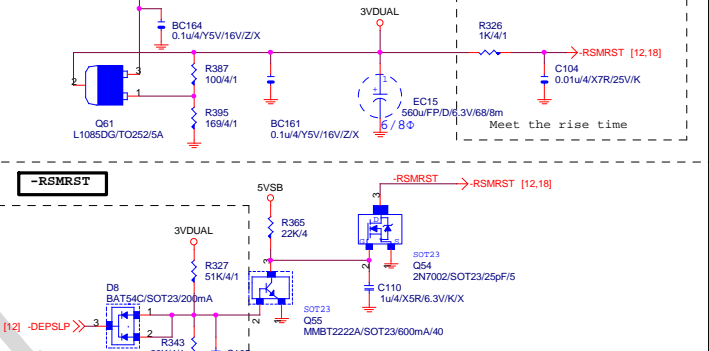
2\_5LEVEL



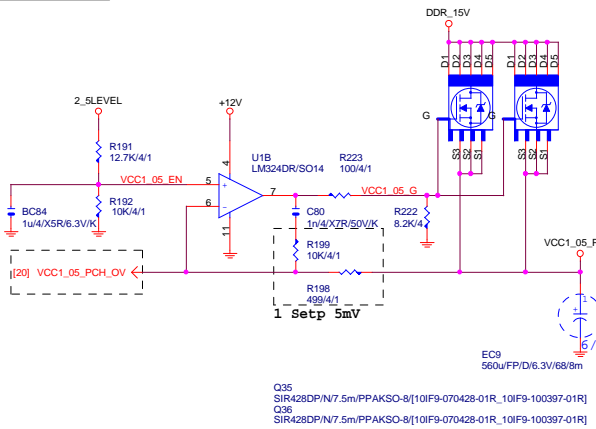
DDRVTT



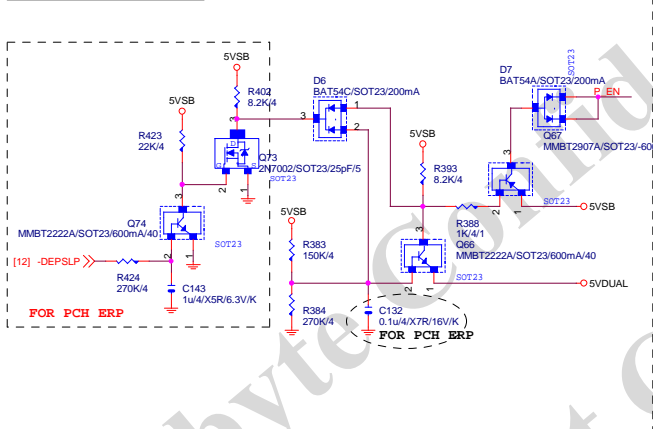
3VDUAL



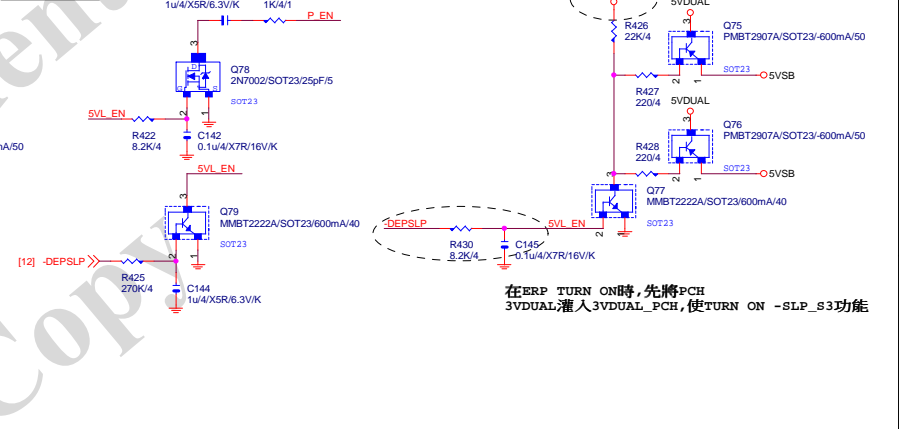
VCC1\_05\_PCH



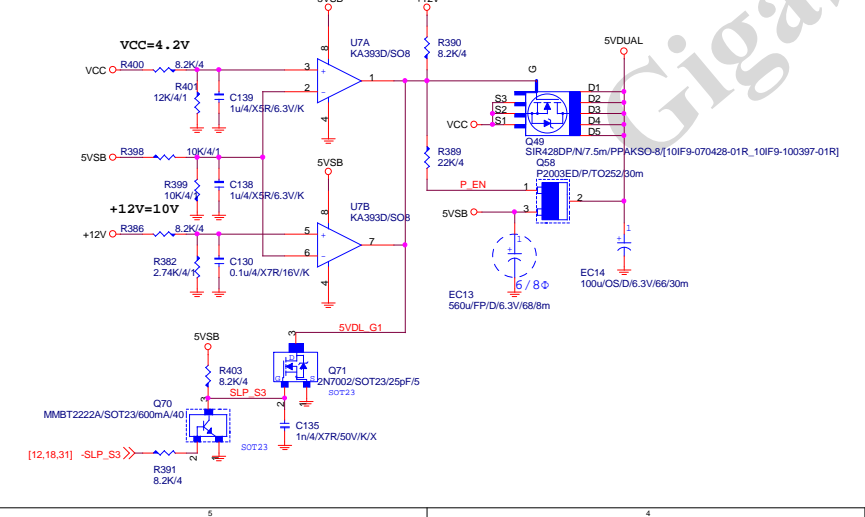
5VDUAL SHORT PROTECT



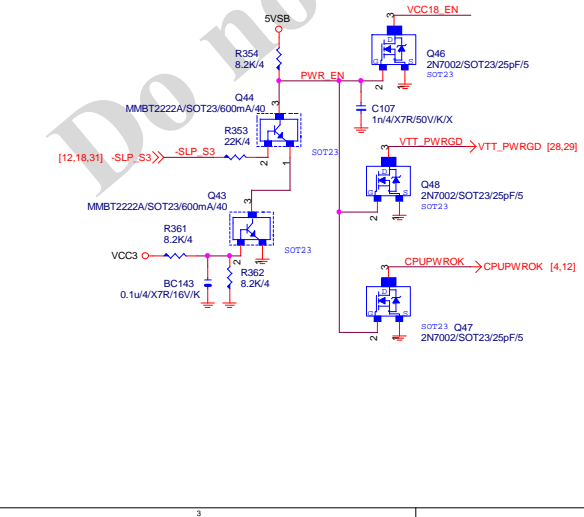
PCH ERP



5VDUAL

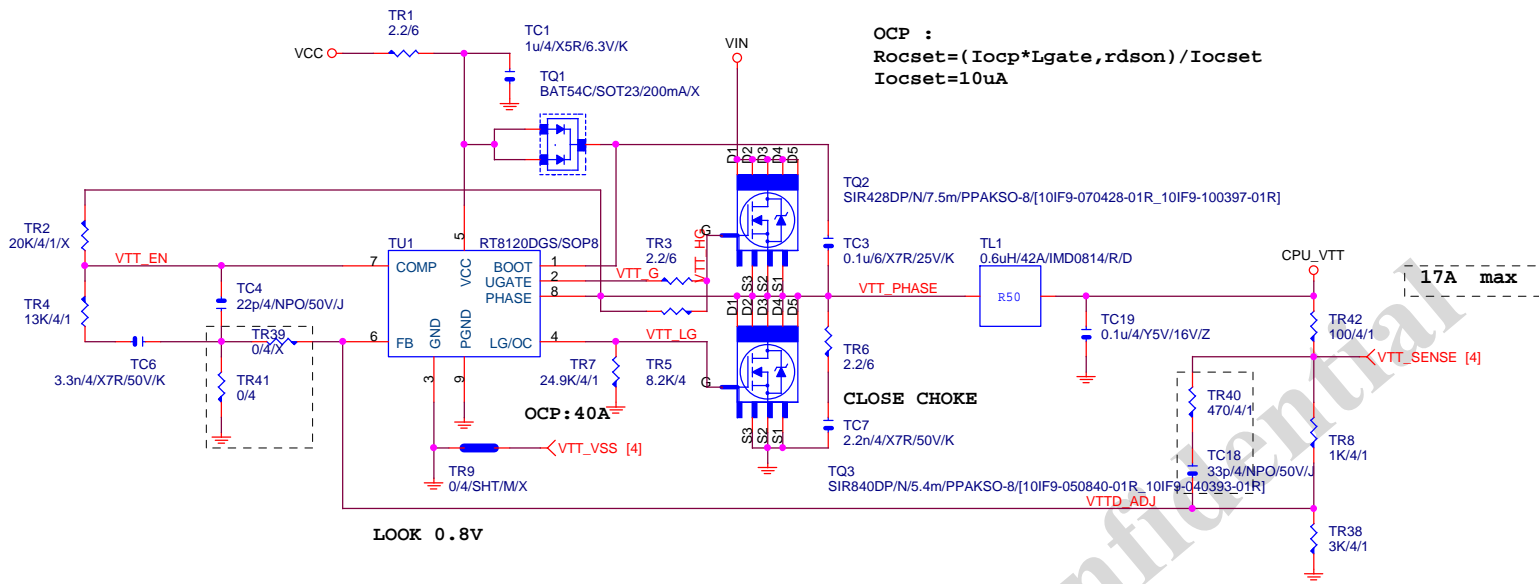


PWR SEQ





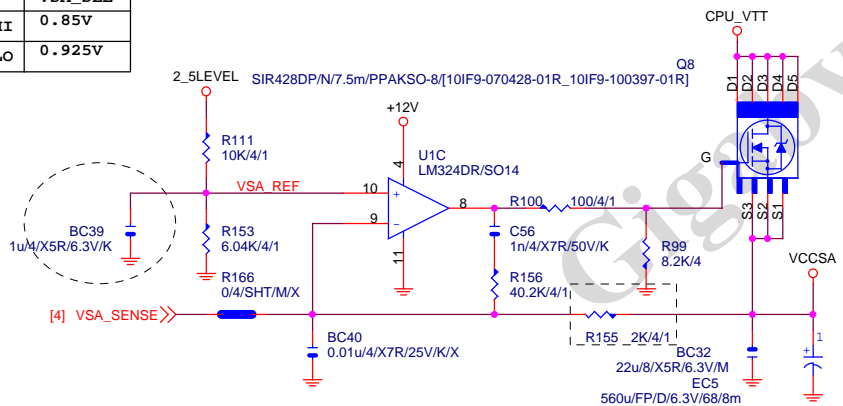
# CPU\_VTT



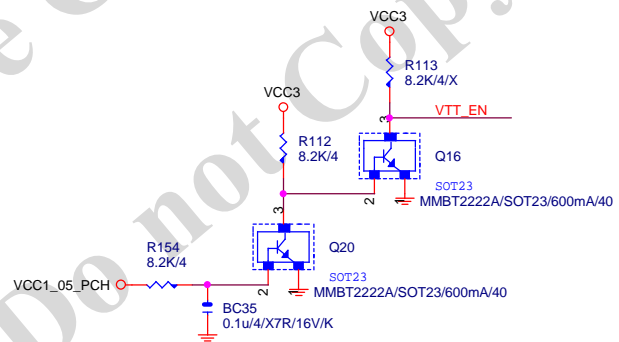
# VCCSA

PDG 0.8

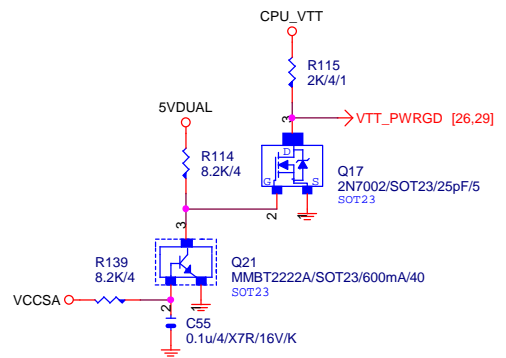
	VSA_SEL
HI	0.85V
LO	0.925V



# CPU\_VTT PWR SEQ



# VTT\_PWRGD



Title

CPU\_VTT PWM\_ISL95870CRZ

Size

Document Number

GA-H77M-D3H

Date:

Thursday, August 08, 2013

Sheet

28

of

34

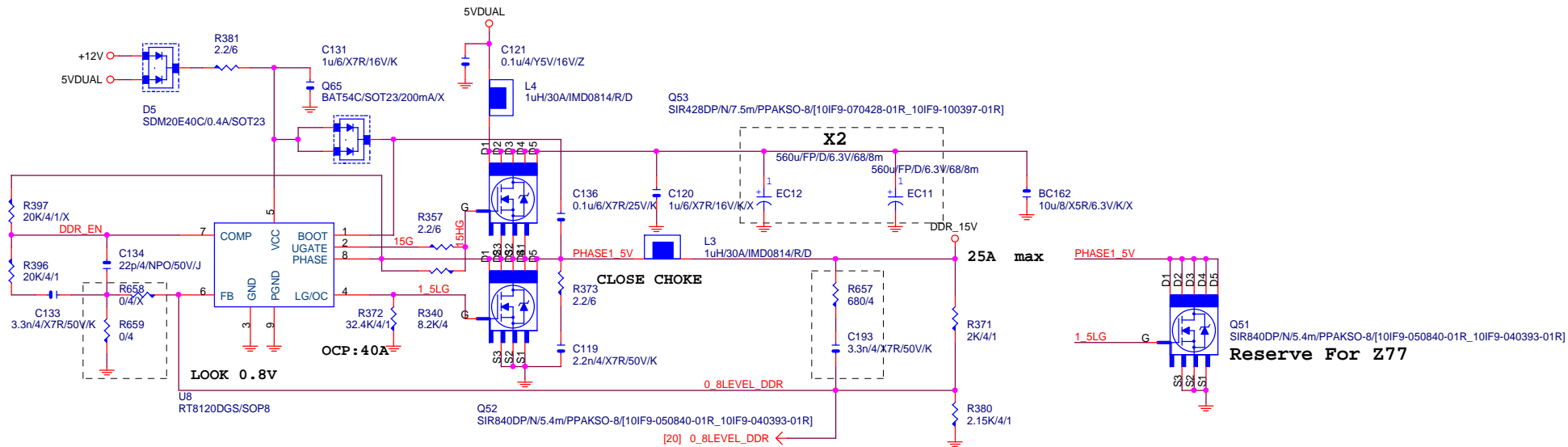
Rev

1.2

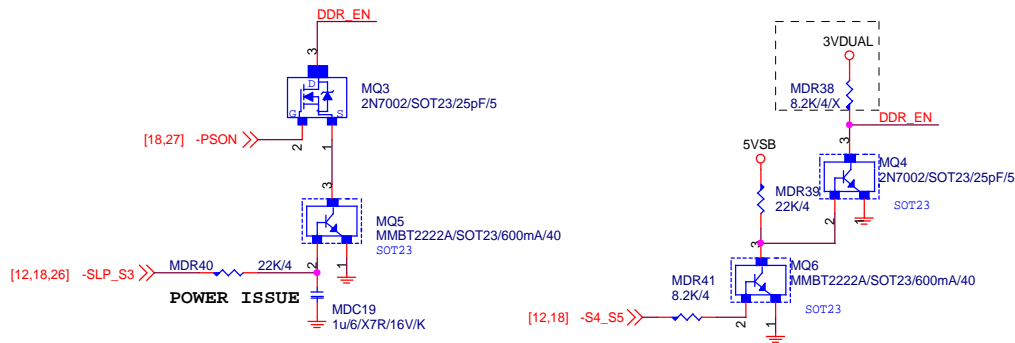




# DDR1.5V



# PWR\_SEQ

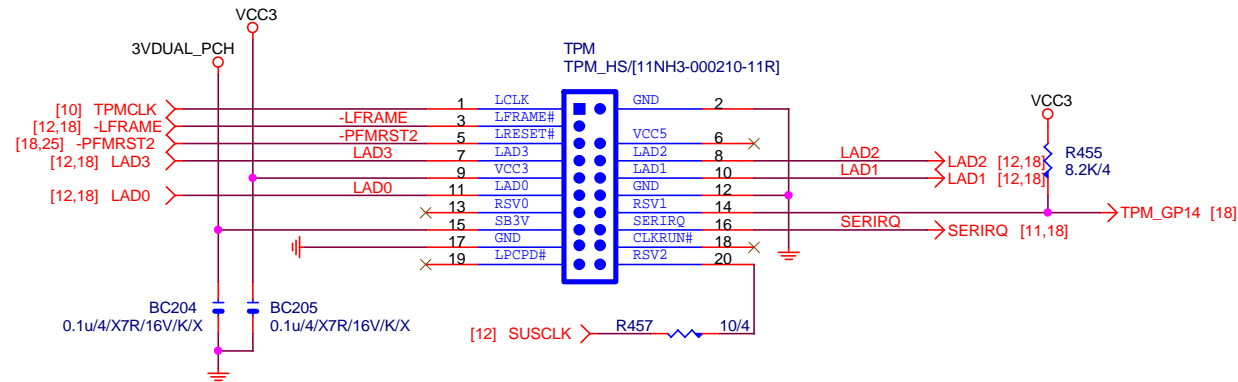


VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1  
 IRMS=11.45A  
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
 Coefficient=1.7(85°C), 1(105°C)  
 VIN Ripple current=4.7X1.7=7.99A(85°C)  
 -->故固態電容須2X7.99=15.98>11.45A  
 OCP :  $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$   
 typ  $I_{ocset} = 20\mu A$ ,  $R_{ocset} = 4.7k$   
 OCP :  $53.71A = (2 \times 20\mu A \times 4.7k) / (7m / 7m)$

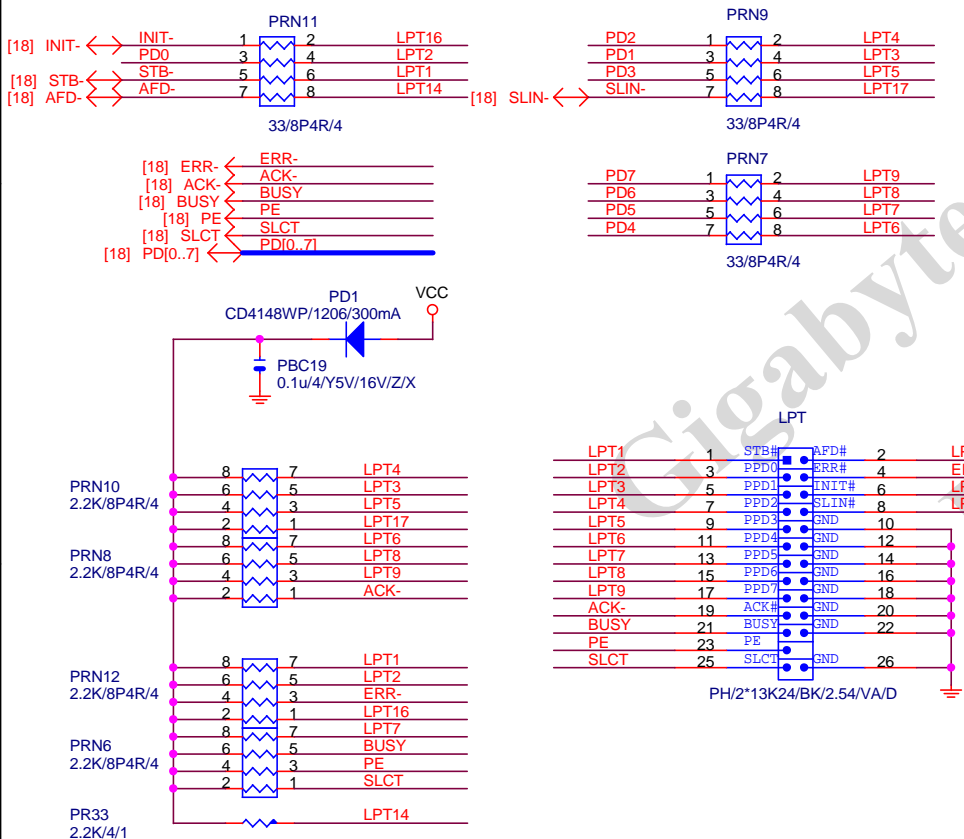
Gigabyte Technology

Title			
DDR POWER			
Size	Document Number	Rev	
Custom	GA-H77M-D3H	1.2	
Date:	Thursday, August 08, 2013	Sheet	31 of 34

## TPM



## LPT PORT



Gigabyte Technology

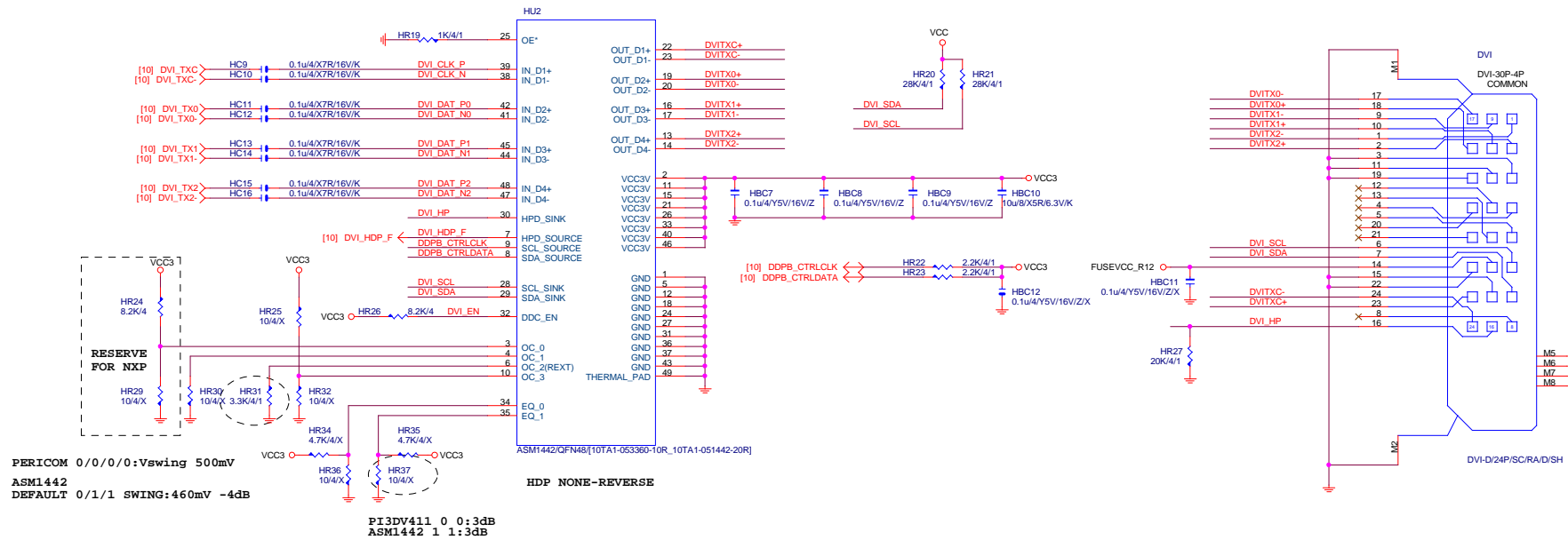
LPT

GA-H77M-D3H

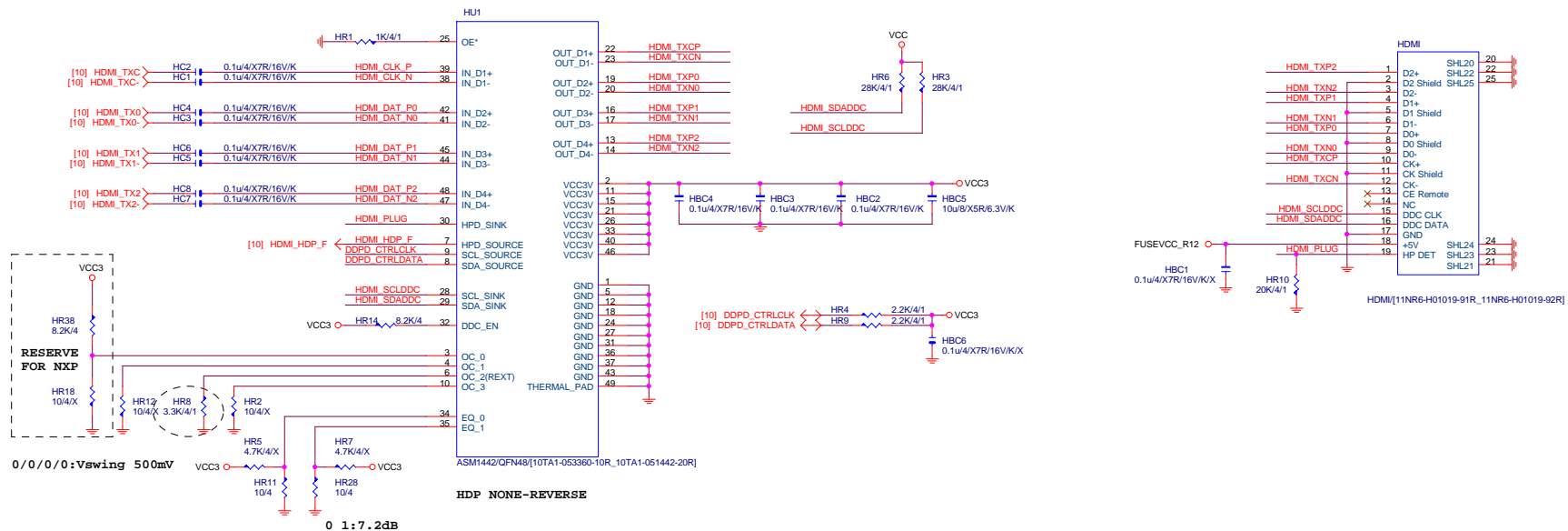
Rev  
1.2

Date: Thursday, August 08, 2013 Sheet 32 of 34

# DVI LEVEL SHIFT



# HDMI LEVEL SHIFT

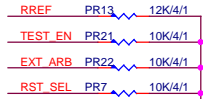
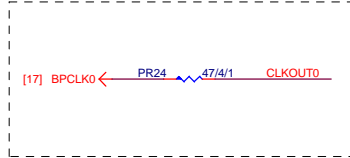
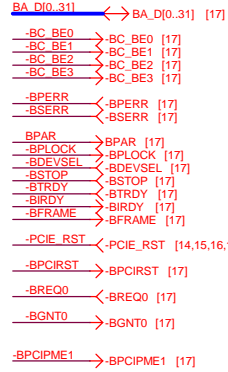


Gigabyte Technology

File		
DVI		
Size	Document Number	GA-H77M-D3H
Custom		Rev 1.2
Date	Thursday, August 08, 2013	Sheet 33 of 34

# PCIE TO PCI

PCI:5/4/5 Impedance=50 +- 15%

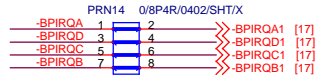


High: Enable PCI CLK 66MHz  
Low: Disable PCI CLK 66MHz



High: PCICLK INPUT form CLK Gen  
Low: PCICLK OUTPUT form IT8893 chip

IT8892



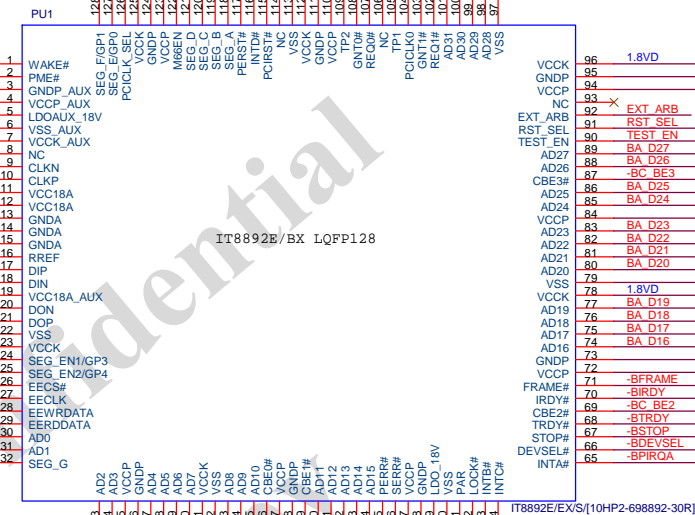
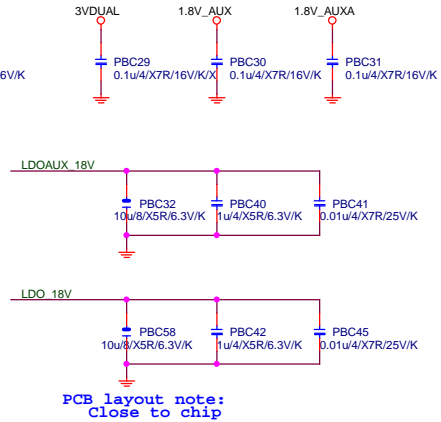
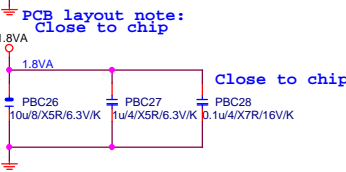
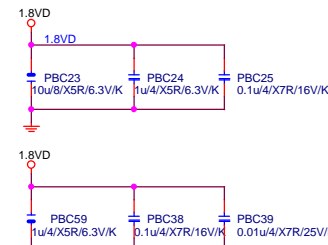
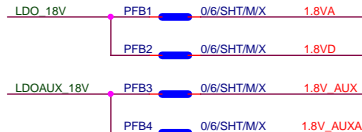
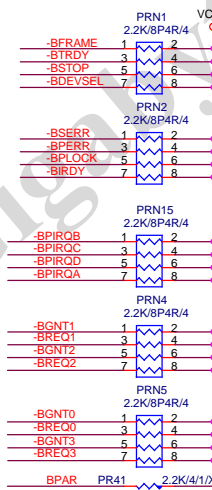
PCI slot



PCI slot



chipset side



Gigabyte Technology

ITE IT8892E  
GA-H77M-D3H

Title	Document Number	Rev
Size	Custom	1.2
Date:	Thursday, August 08, 2013	Sheet 34 of 34