

Model Name: GA-B85M-D3V

www.xinxunwei.com 400-800-9990  
Revision 2.11

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-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 X1 *2 SLOT
16	PCI SLOT
17	ITE 8620 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95812_1

SHEET TITLE

28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI
32	IT8892E

Gigabyte Technology		
Cover Sheet		
Size Custom	Document Number	Rev
	GA-B85M-D3V	2.11
Date:	Wednesday, June 18, 2014	Sheet 1 of 32

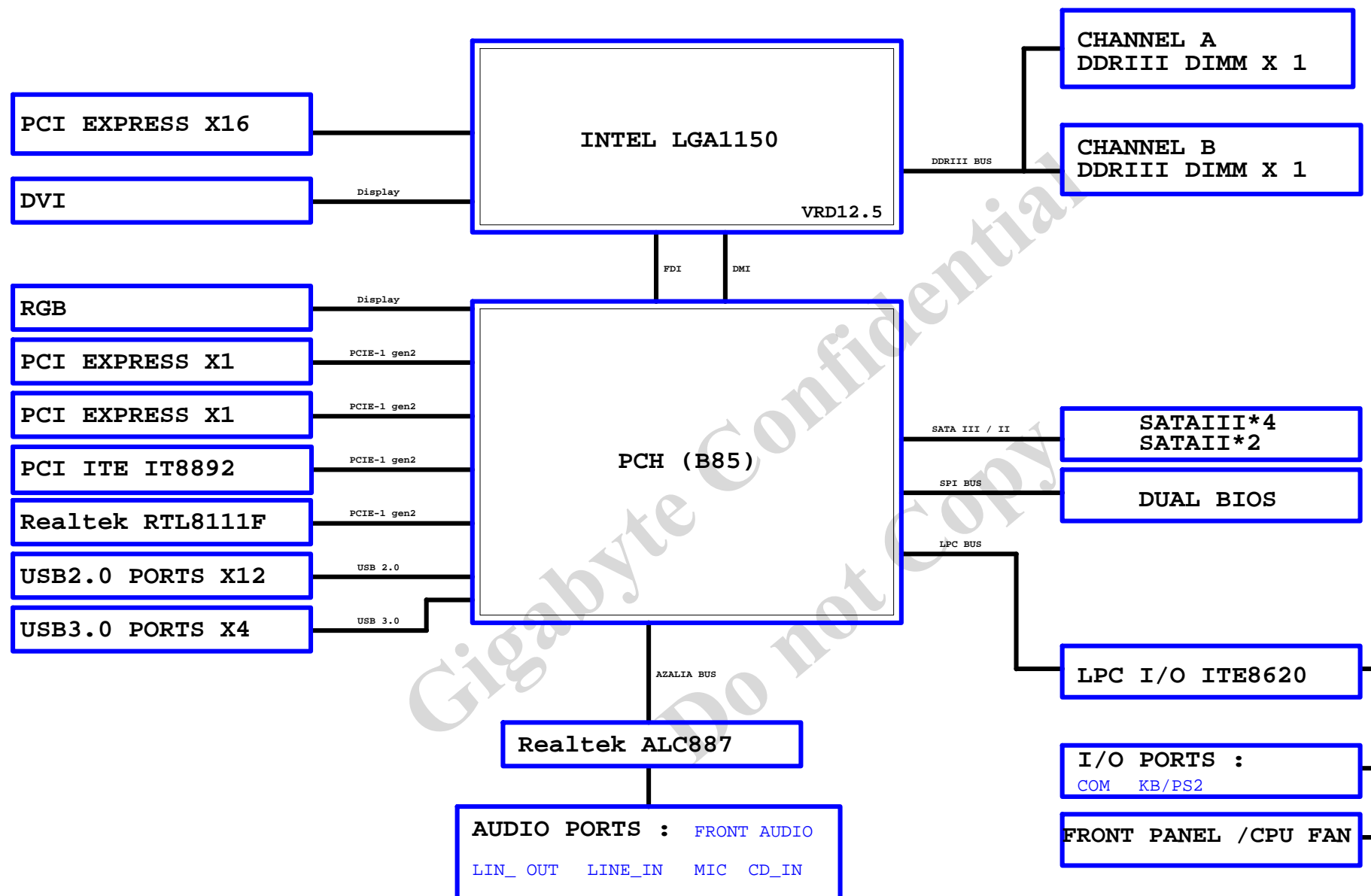
## Component value change history

2014/06/18

Data	Change Item	Reason
2013/06/26	SWAP NET	
2013/06/28	ADD RSMRST DELAY	
2013/08/06	Update to R1.1	
2013/08/19	REMOVE WR57 FIX IT8620 TEMP ISSUE	FPBOM:9MB85MD3V-00-11B
2013/09/13	Update to R1.11	
	Follow Crystal Trace Rule	
	SYS_FAN, DDR 0ohm 0402 -> 0603	
	Update Fuse 1206 Footprint "POLYSWITCH-1206-1"	
	Update PPAK Footprint "Q_TDS0N8-GDS-T"	
2013/10/22	NX1: 25M/20p -> 12p	FPBOM:9MB85MD3V-00-11C
	NC7, NX8: 27p -> 10p	
2013/11/04	NC7, NX8: 10p -> 15p	FPBOM:9MB85MD3V-00-11D
2013/11/04	Update to R2.0	
	DEL DVI Level SHIFT	
	SPI 64M -> 32M, Remove SBA Function	
	Remove M3 Power BOM (Reserve Location)	
	ADD F_USB1, F_USB2 Short Protect	
2013/11/06	ADD R173 Reserve for S3 Blinking	
2013/11/25	R2.01:SHT PAD-R364,DR153,R60;MR17-0805 FUSE	
2014/02/17	Sales Costdown Rev	
	CPU Power ISL95820 4P1U1D -> ISL95812 3P1U1D	
	DEL M3 Power	
2014/02/24	整合電阻成排阻	
2014/02/26	VR_RDY Add 100p Cap	
	Change USB_LAN USB Power FUSEVCC_R -> FUSEVCC_USB3_R3	
	FUSE F11 2.6A -> 3.5A FUSE F3 2.6A -> 2.0A	
	CPU Socket 22u Cap Follow Rule	
	VCore Palcement Follow Rule	

## Circuit or PCB layout change

## BLOCK DIAGRAM









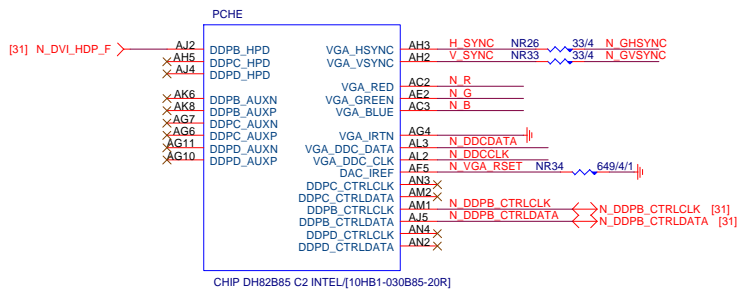






PCH

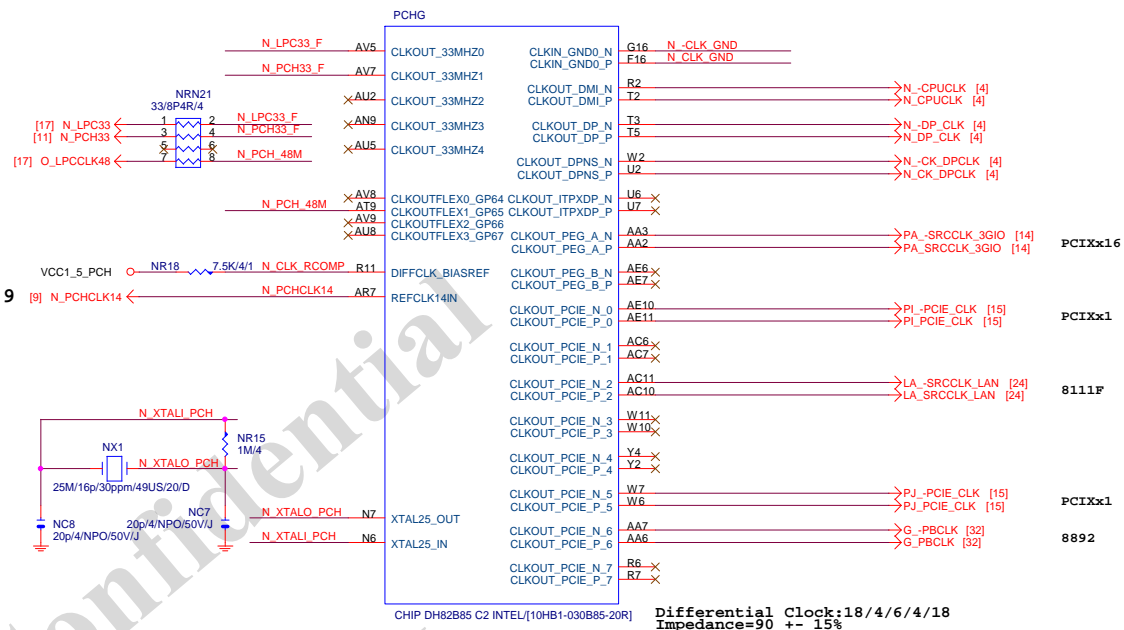
(E)



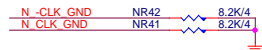
Flex1,2,3,4 :

14/24/33/48MHZ

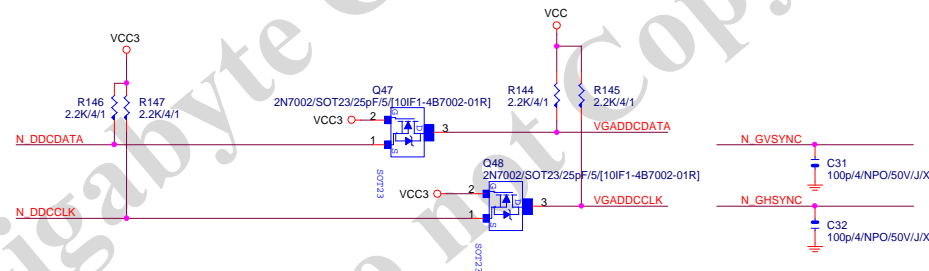
P.D排組PAGE 9



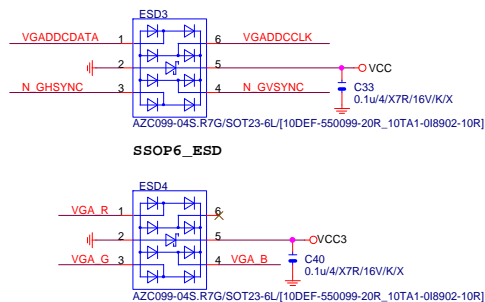
PCH CLK PD



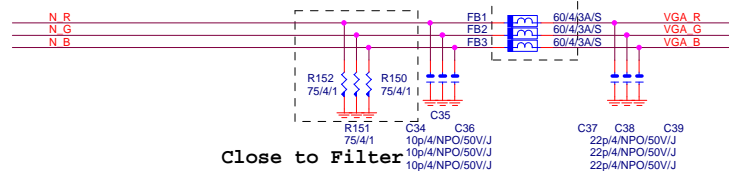
VGA DDC



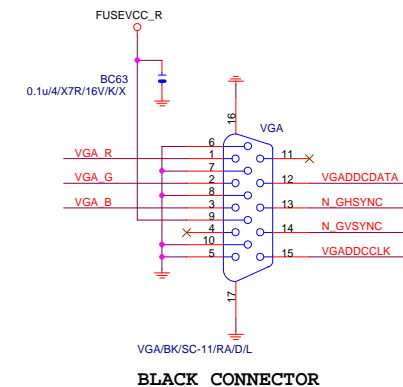
VGA ESD



VGA DDC



VGA CONNECTOR

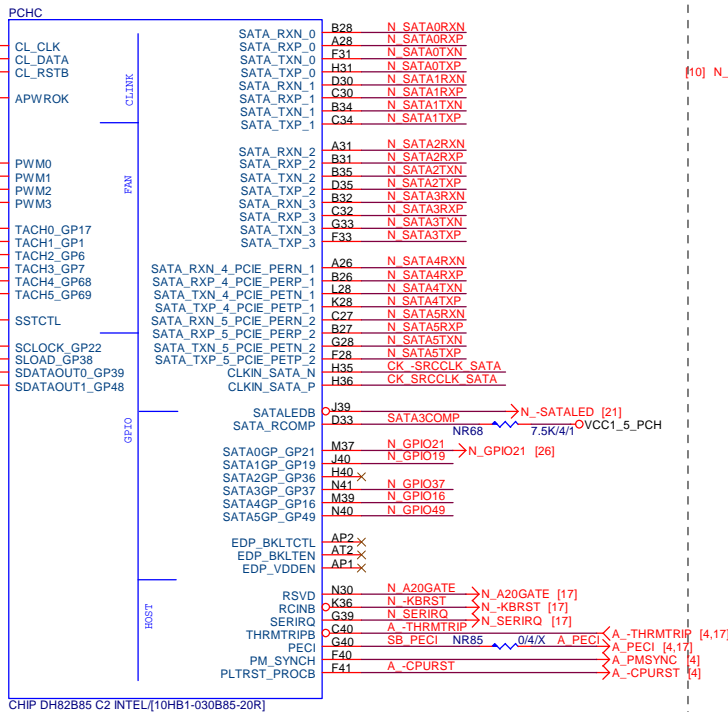


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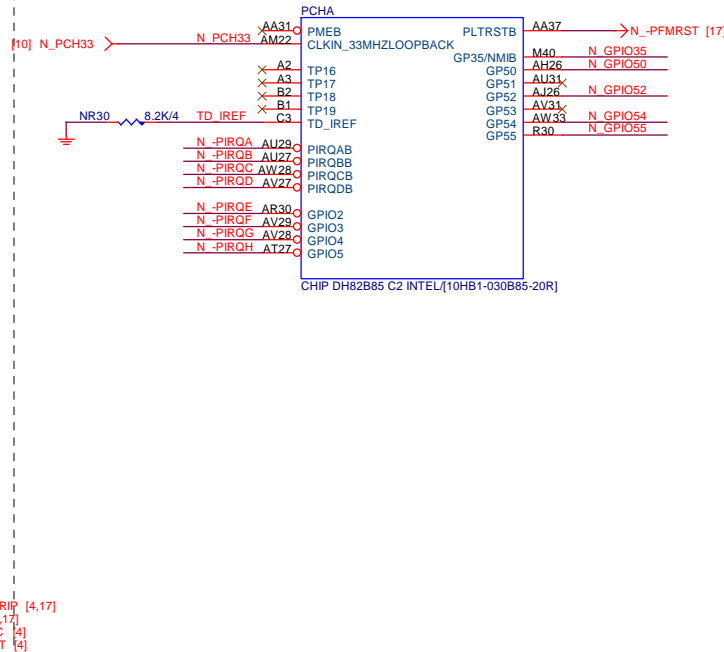
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Size			GA-B85M-D3V		
Date			Wednesday, June 18, 2014		
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PCH (C)

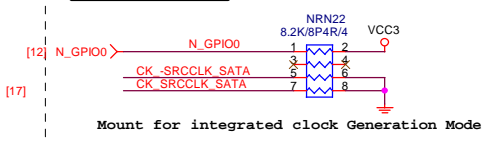
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%  
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%



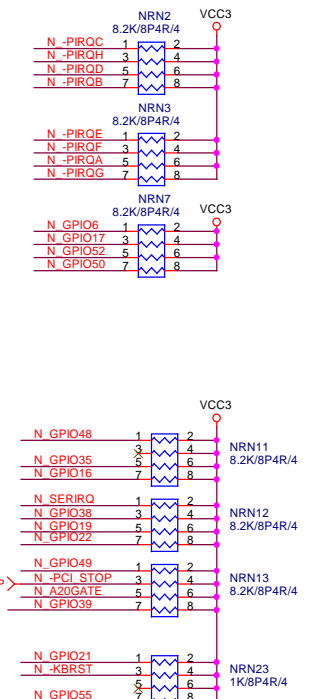
PCH (A)



PCH CLK PD

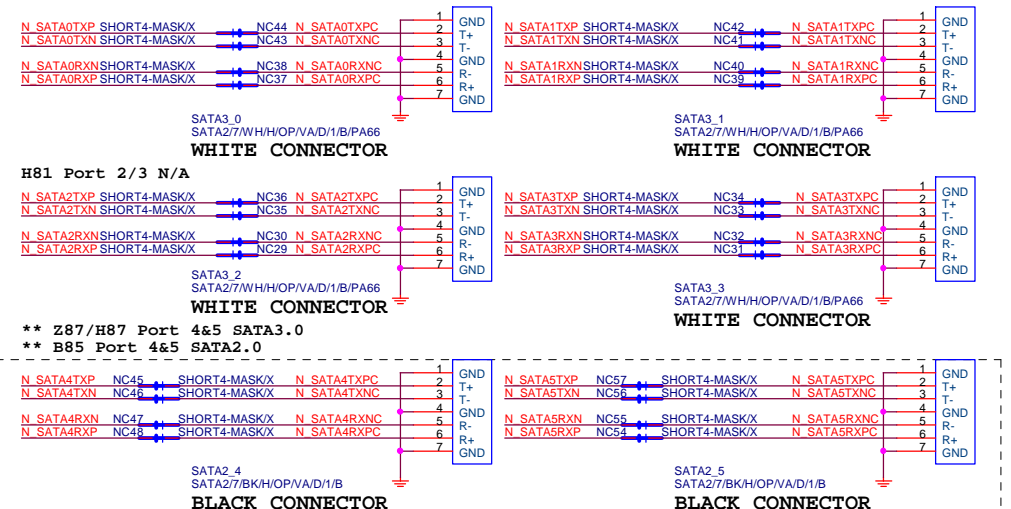


PCH PU/PD

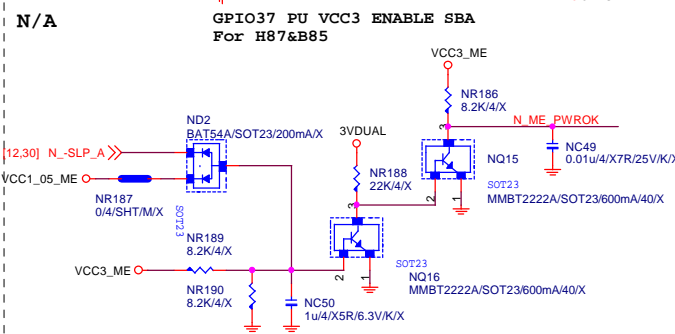


SATA CONNECTOR

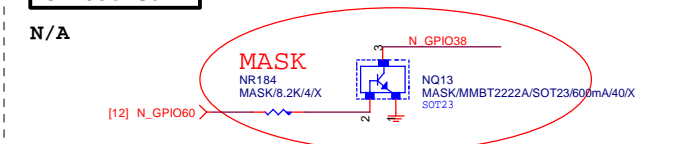
Remove SATA MLCC [Footprint: C0402-SHORT4-MASK]



ME PWROK



GPIO38 Ctrl

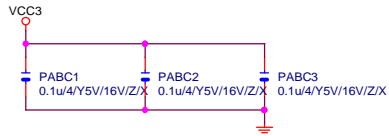




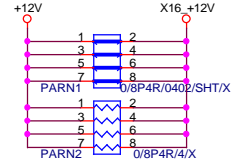


# PCIEX16 CAP

N/A



# PCIEX16 PROTECT SHT



# PCIEX16 AC CAP

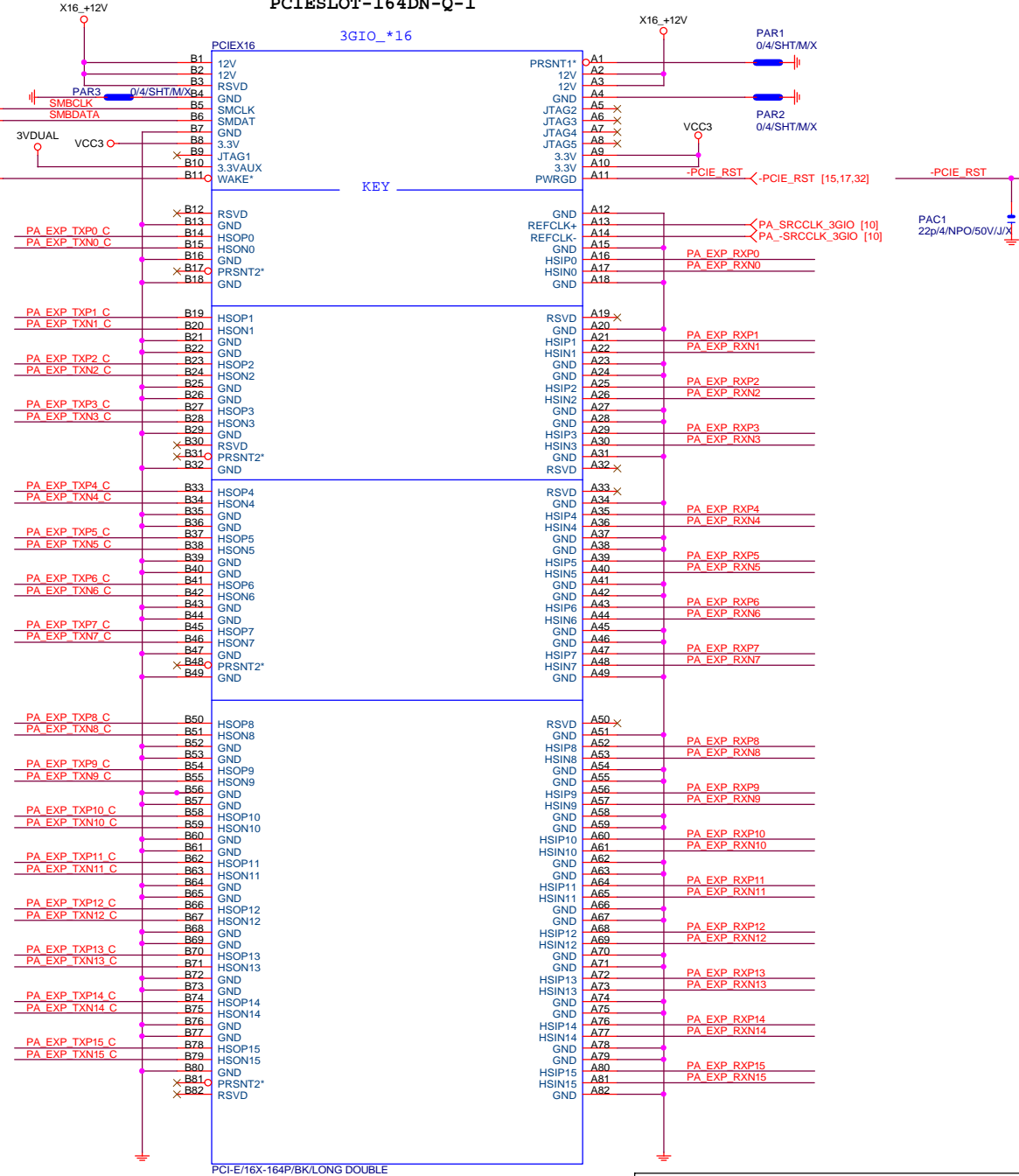
PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXN15 C

PA EXP RXP0.[15] >>> PA\_EXP\_RXP[0..15] [4]  
PA EXP RXN0.[15] >>> PA\_EXP\_RXN[0..15] [4]  
PA EXP TXP0.[15] >>> PA\_EXP\_TXP[0..15] [4]  
PA EXP TXN0.[15] >>> PA\_EXP\_TXN[0..15] [4]

# PCIEX16 SLOT

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PCIESLOT-164DN-Q-1



PCI-E/16X-164P/BK/LONG DOUBLE

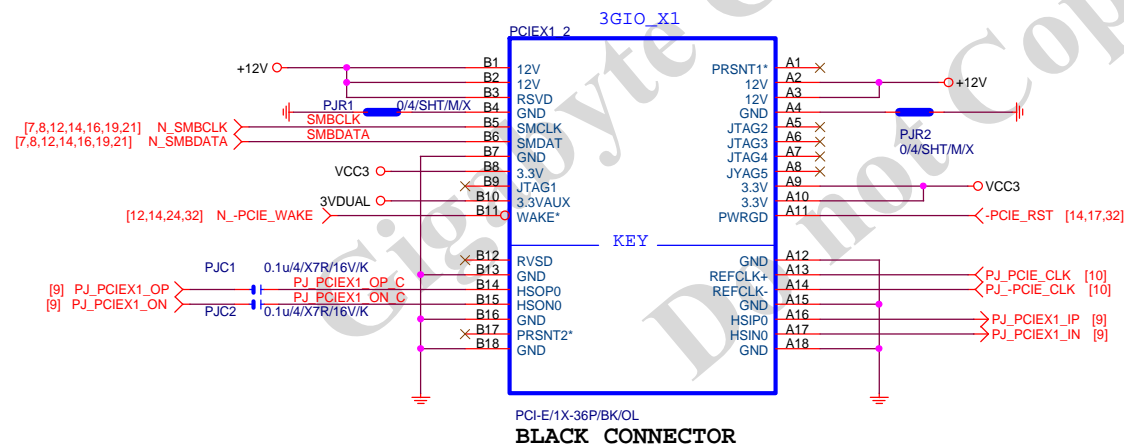
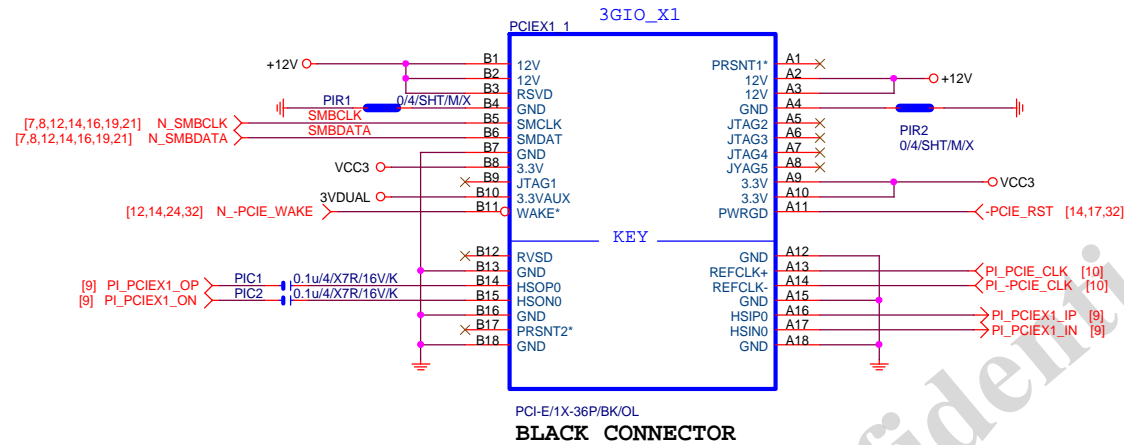
PCIESLOT-164DN-Q-1

BLACK CONNECTOR

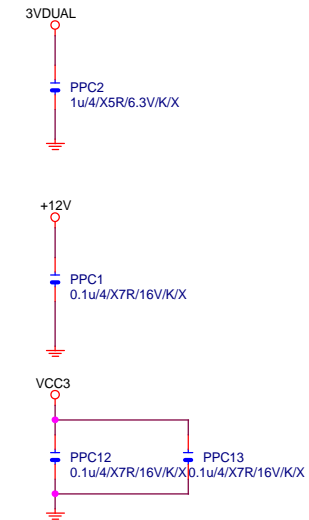
Gigabyte Technology

Title			PCI EXPRESS * 16		
Size			GA-B85M-D3V		
Custom			Rev 2.11		
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## PCIEX1 SLOT



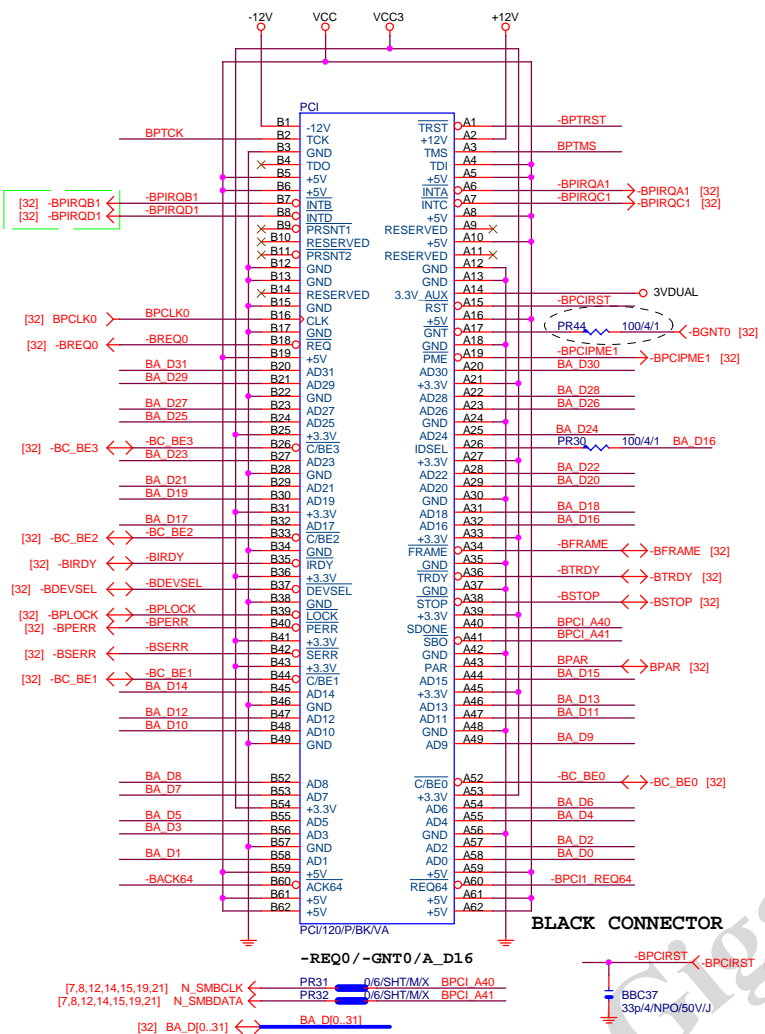
N/A



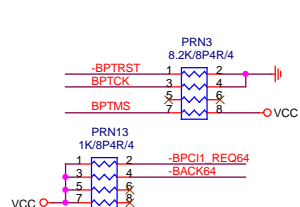
Gigabyte Technology

Title			PCI EXPRESS X 1 PORT	
Size	Document Number	GA-B85M-D3V		Rev
Custom				2.11
Date:	Wednesday, June 18, 2014	Sheet	15	of 32

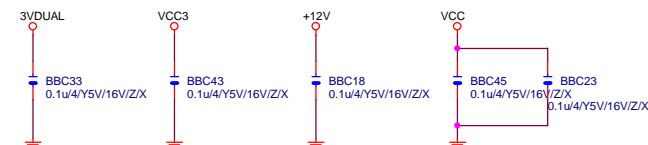
## PCI SLOT 1



## PCI PU

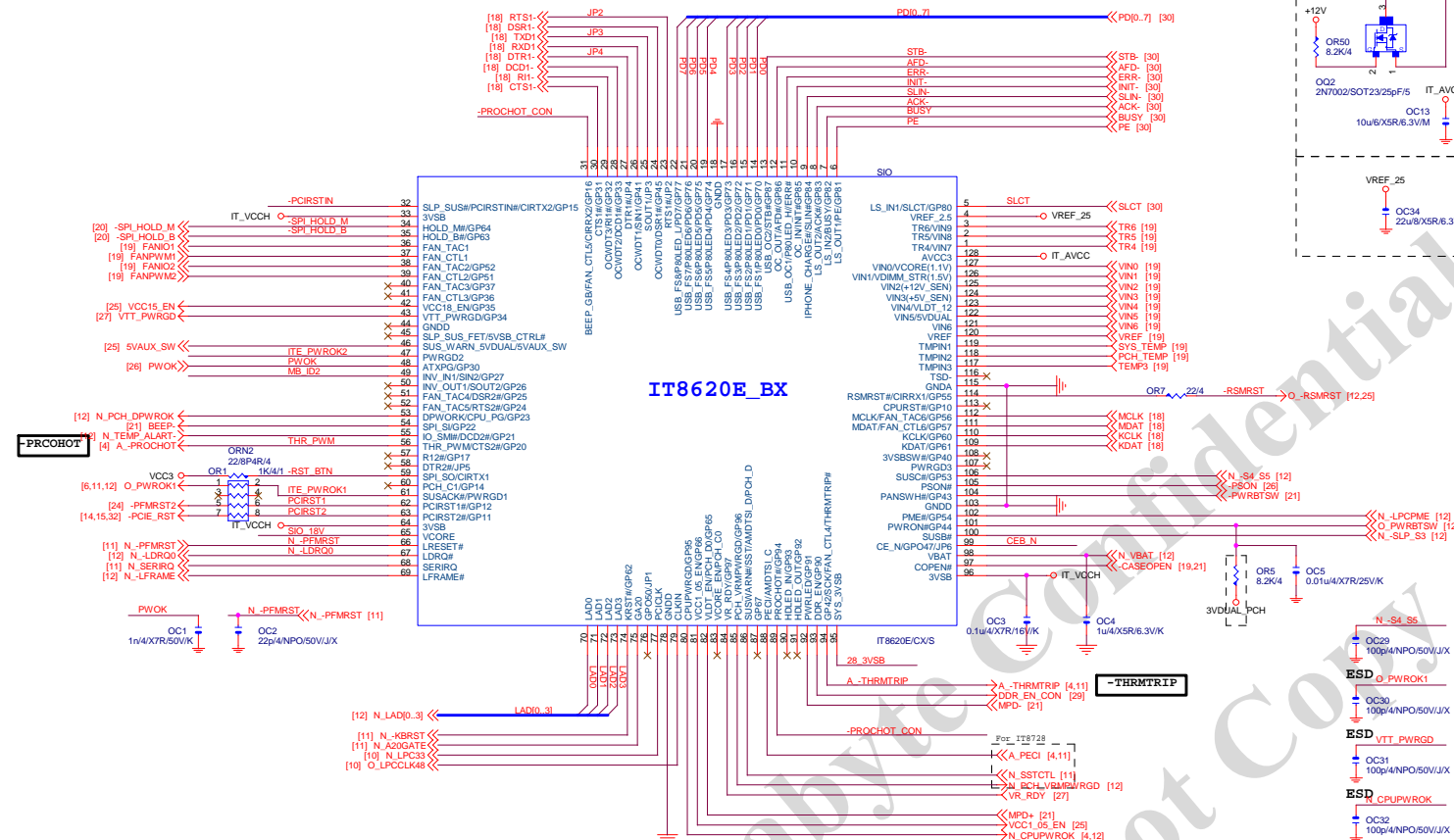


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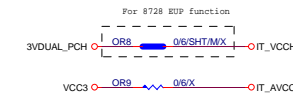


## Gigabyte Technology

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PCI SLOT 1&2		
Size	Document Number	Rev
Custom	GA-B85M-D3V	2.11
Date:	Wednesday, June 18, 2014	Sheet 16 of 32



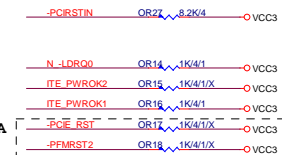
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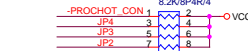
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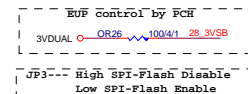
## DO8:N/A



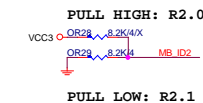
## SIO STRAP



## Power leakage



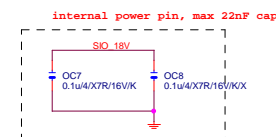
## MB ID



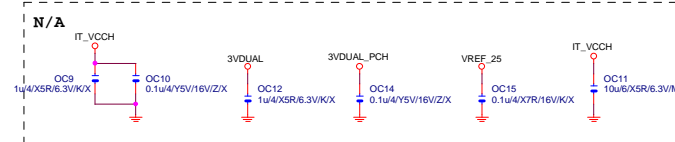
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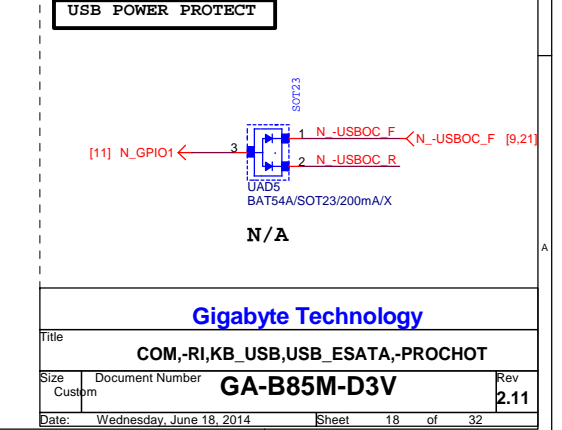
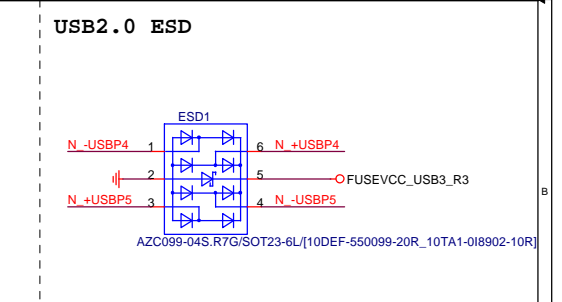
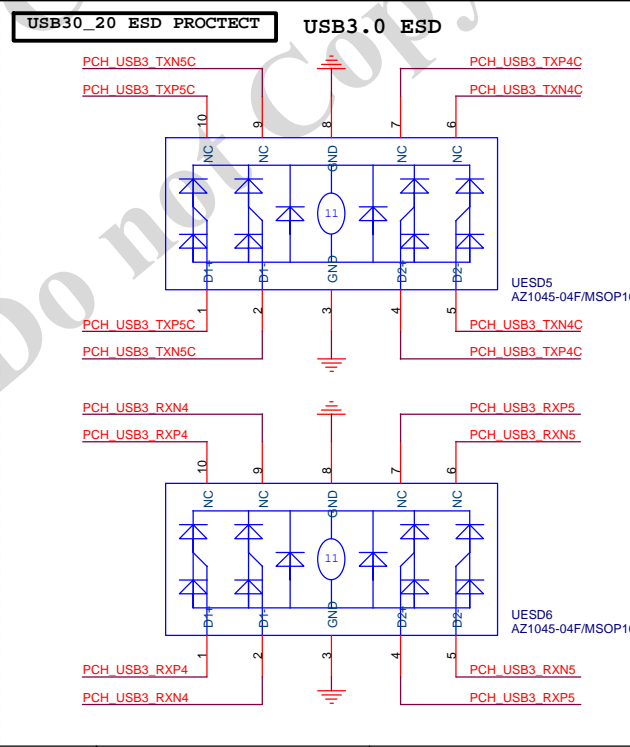
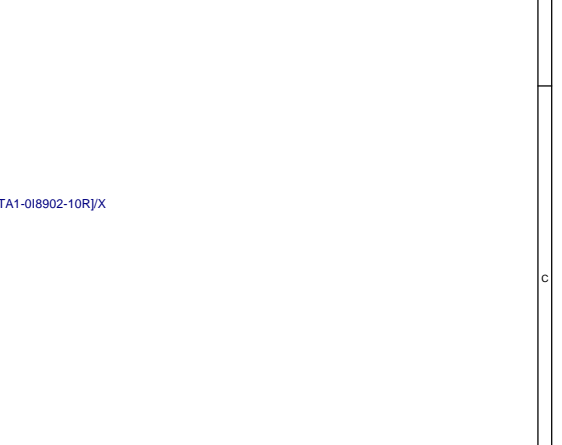
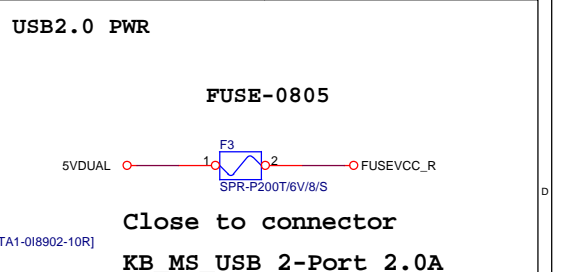
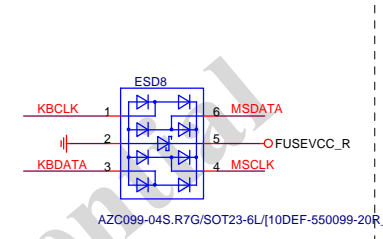
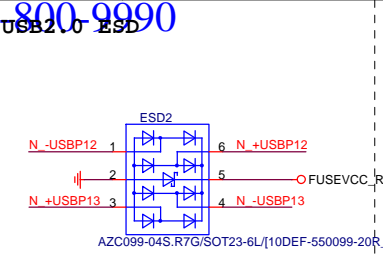
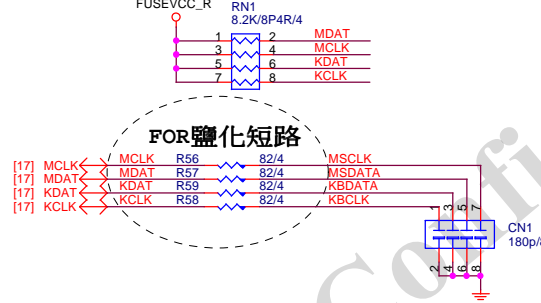
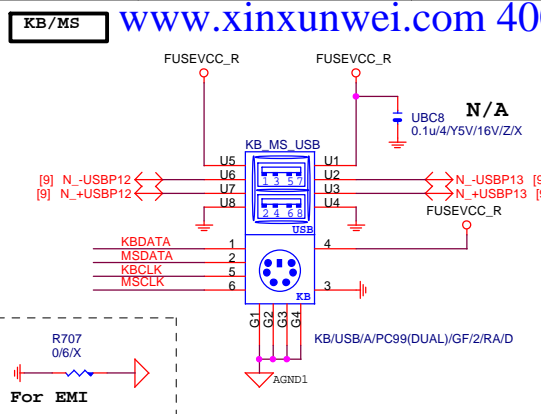
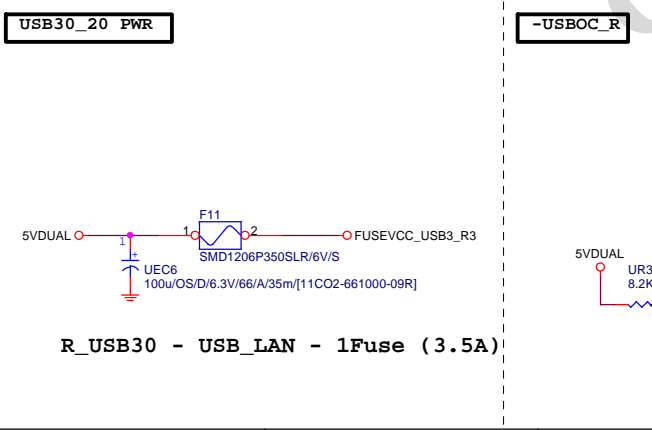
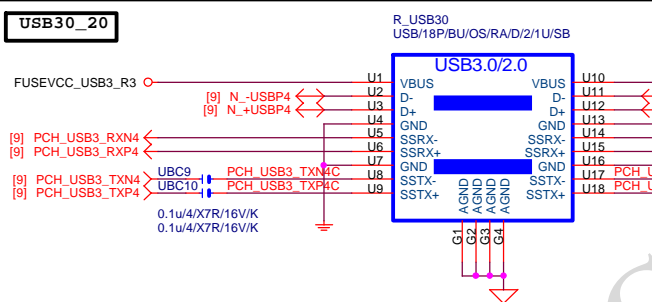
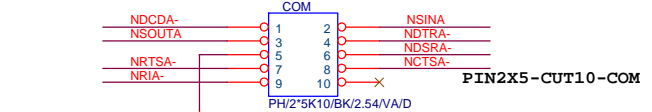
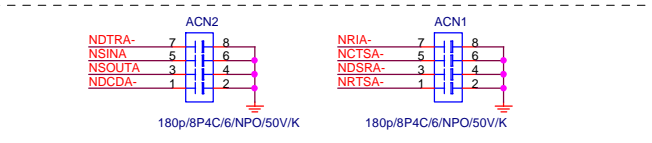
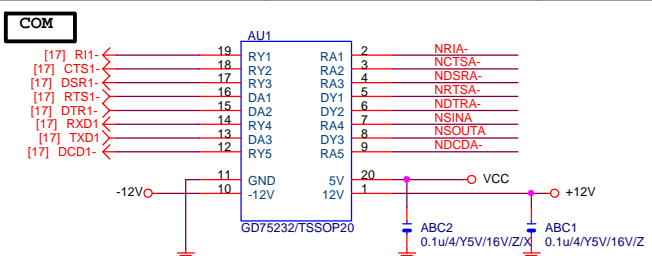


## SIO\_18V

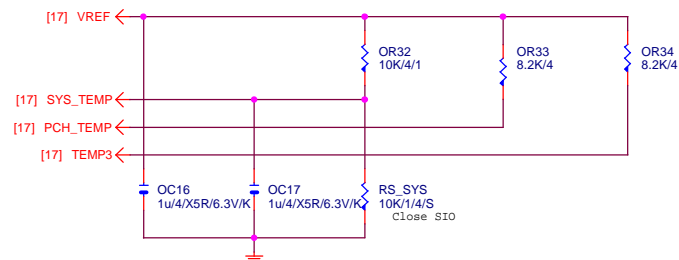


## SIO CAP

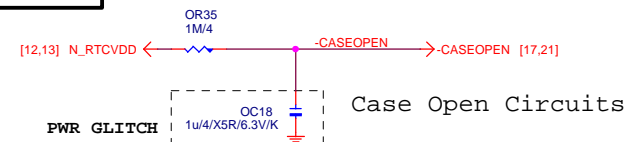




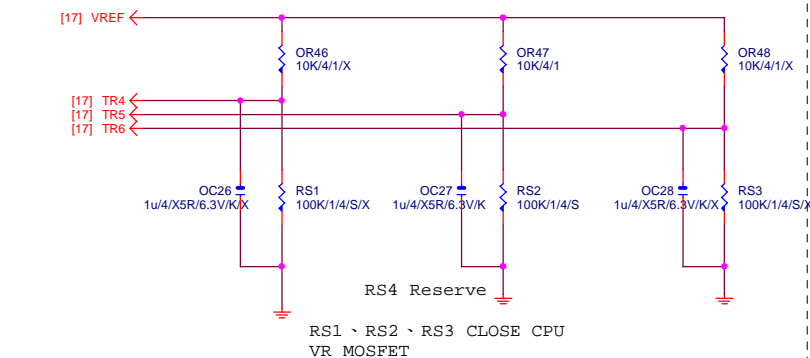
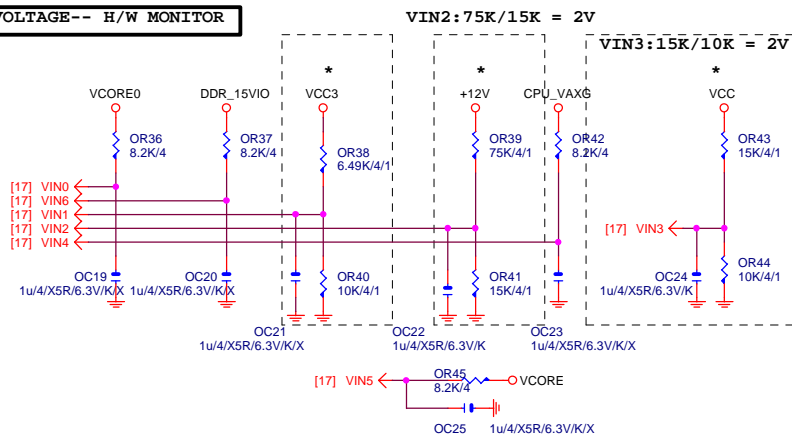
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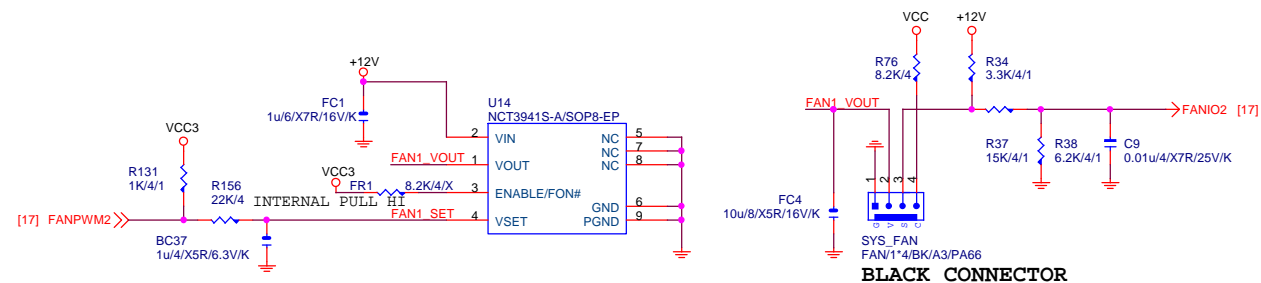
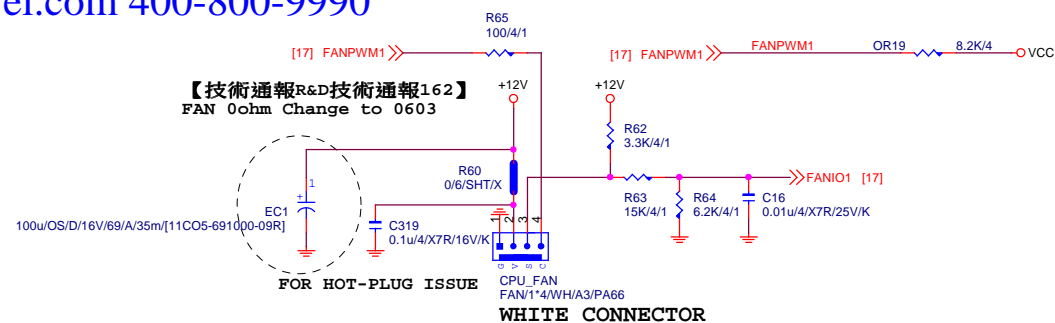
## CASE OPEN



## VOLTAGE-- H/W MONITOR



## SYS SMART FAN

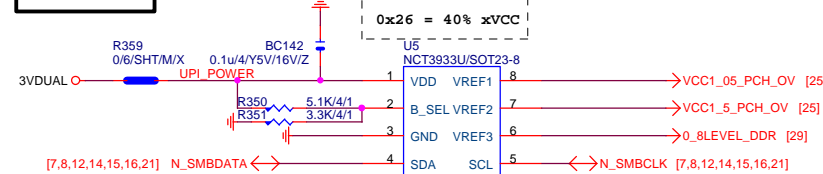
【技術通報R&D技術通報162】  
FAN 0ohm Change to 0603

WHITE CONNECTOR

BLACK CONNECTOR

## 接pwm feedback pin

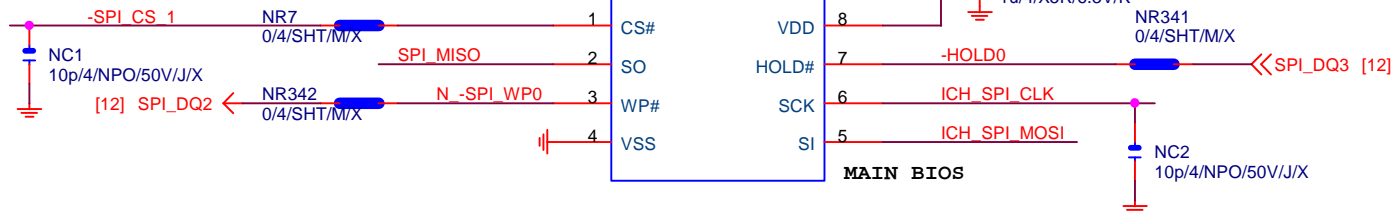
## OV NCT3933



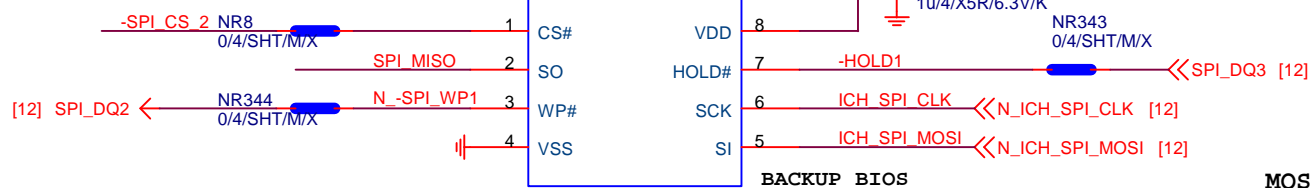
Gigabyte Technology

Title			HWM,FAN CTRL,OV		
Size			Document Number		
Custom			GA-B85M-D3V		
Date:			Wednesday, June 18, 2014		
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**M\_BIOS**  
32M/SPI/SO8/200mil/S/[10HP4-112532-20R]



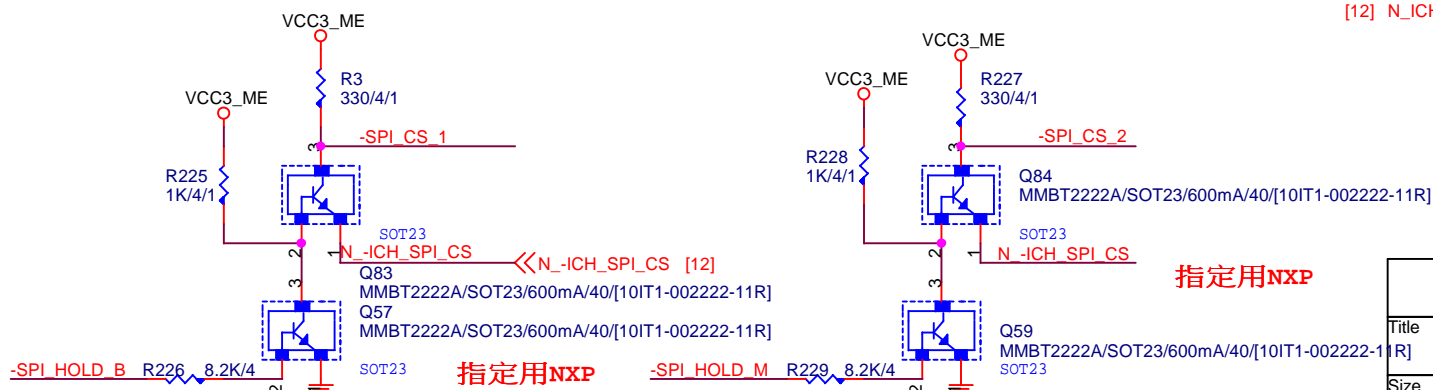
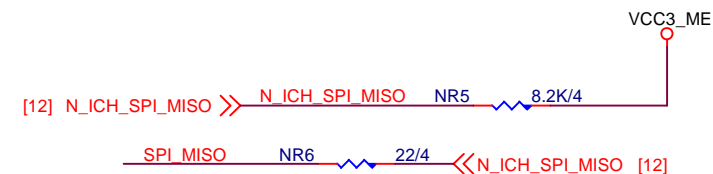
**B\_BIOS**  
32M/SPI/SO8/200mil/S/[10HP4-112532-20R]



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

1 means floating  
0 means PD 1K

**MOSI For DMI RX Termination Voltage**



指定用NXP

**Gigabyte Technology**

**DUAL BIOS**

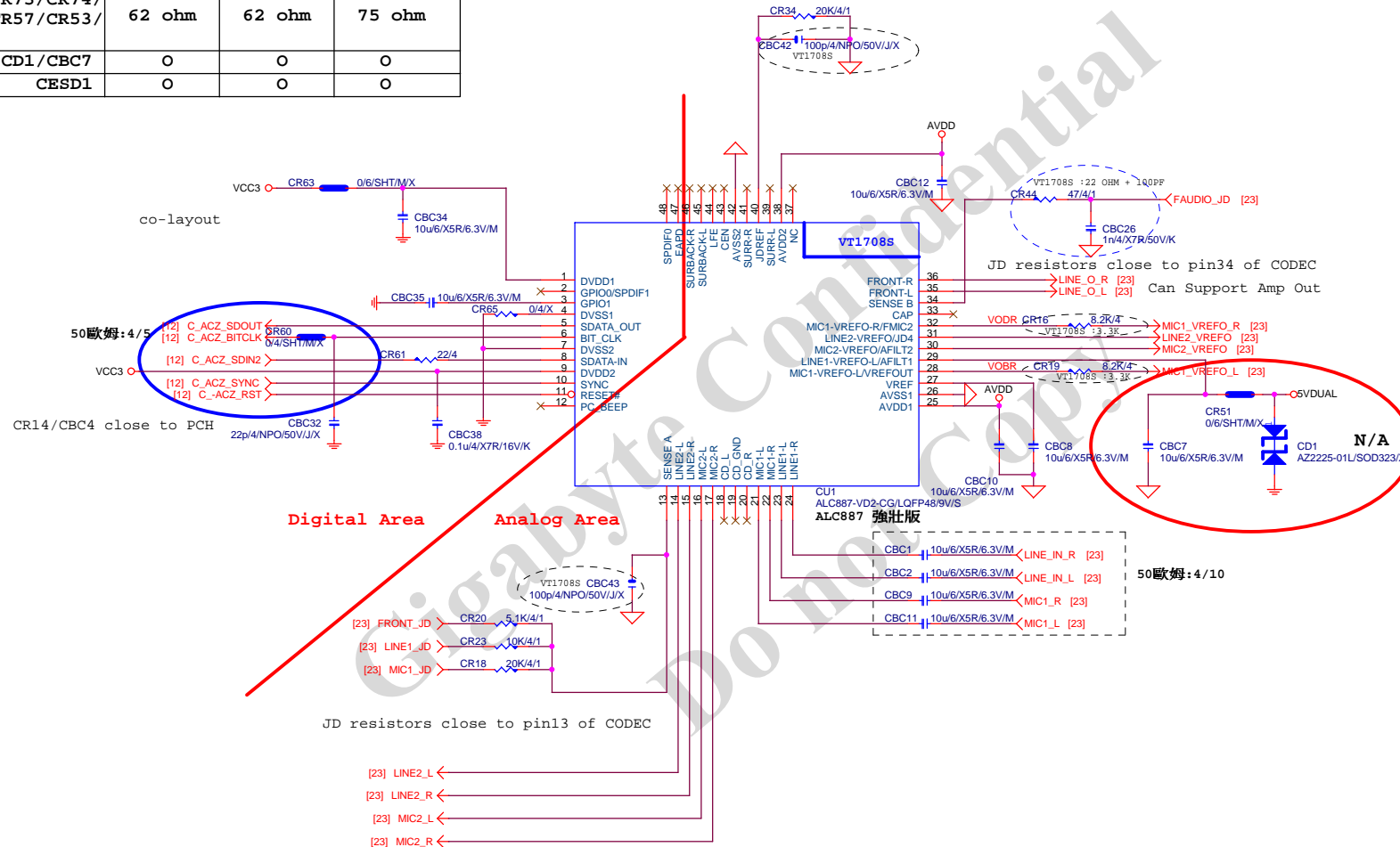
**GA-B85M-D3V**

Title	DUAL BIOS	
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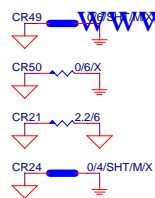
AZALIA CODEC ALC892/ALC887-VD2/VT1708-CE Colay

	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	O	O	O



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Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021		
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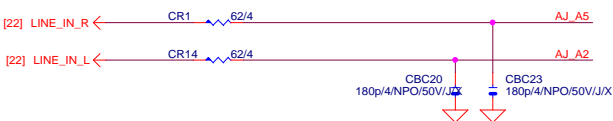


www.xinxunwei.com 400-800-9990

LINE-IN

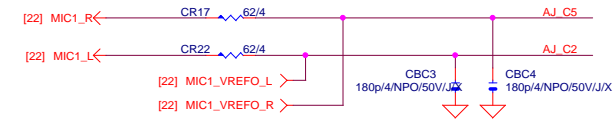
Verify MIC function  
in LINE-in

Only reserved for ALC888

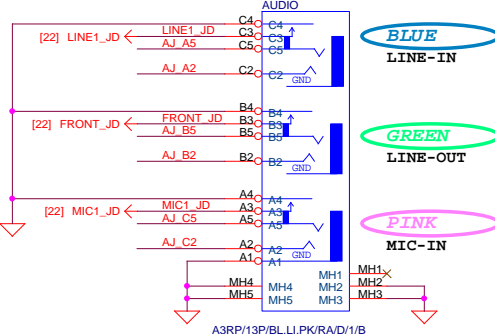


For 889A/888

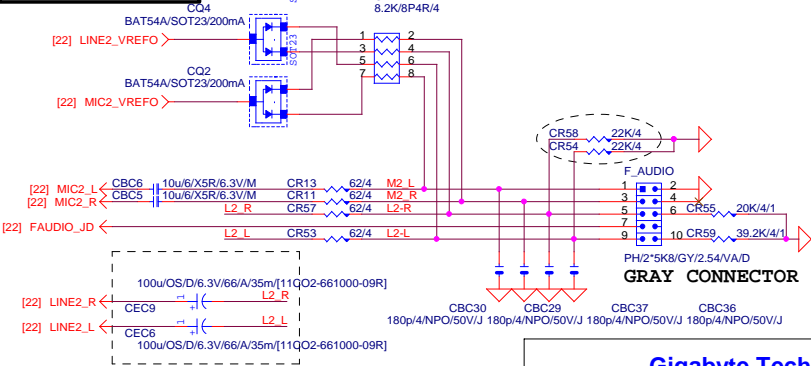
MIC-IN



SPDIF\_OUT



AZALIA FRONT PANEL

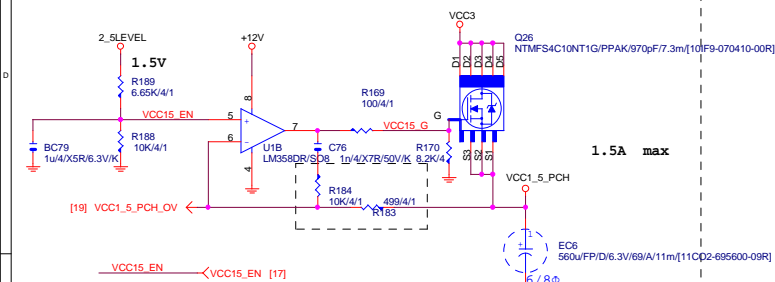


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Title			
AUDIO JACK			
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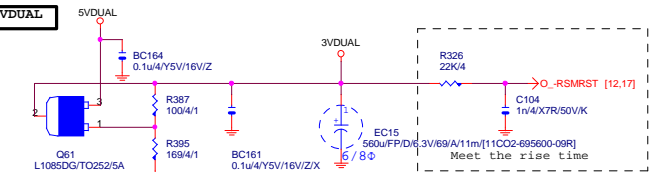
VCC1\_5\_PCH



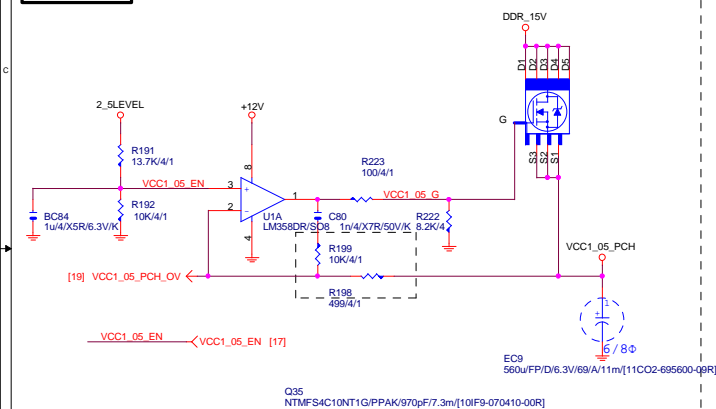
2\_5LEVEL



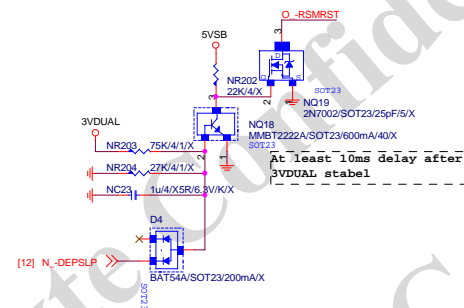
3VDUAL



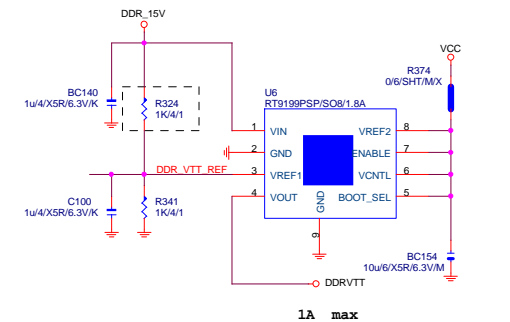
VCC1\_05\_PCH



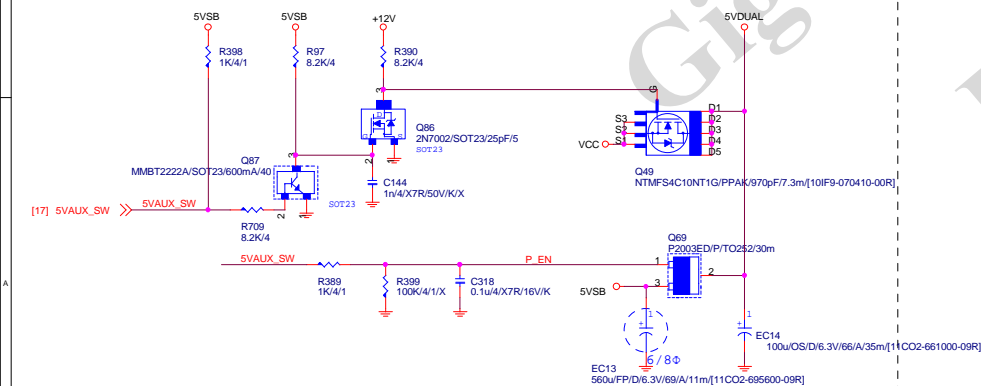
N/A



DDR\_VTT

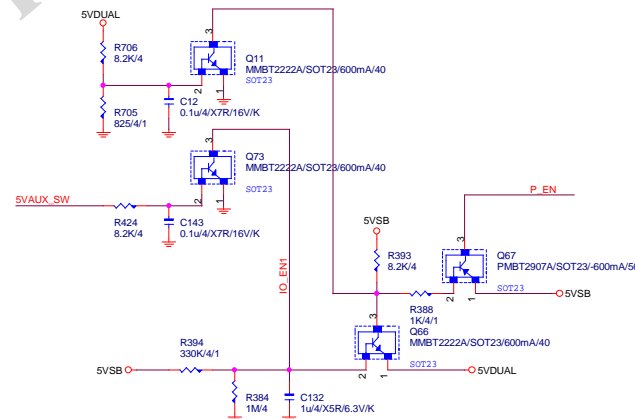


5VDUAL

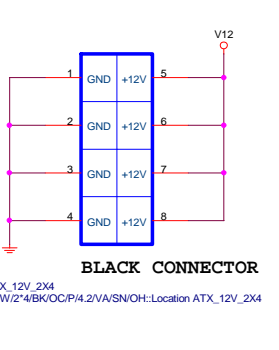
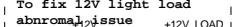


5VDUAL SHORT PROTECT

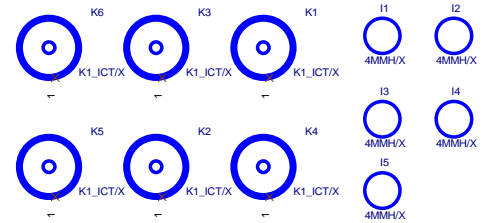
5VSB OVP:7.5V protection



To fix 12V light load  
abnormal issue +12V LOAD

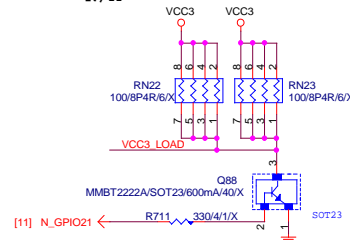


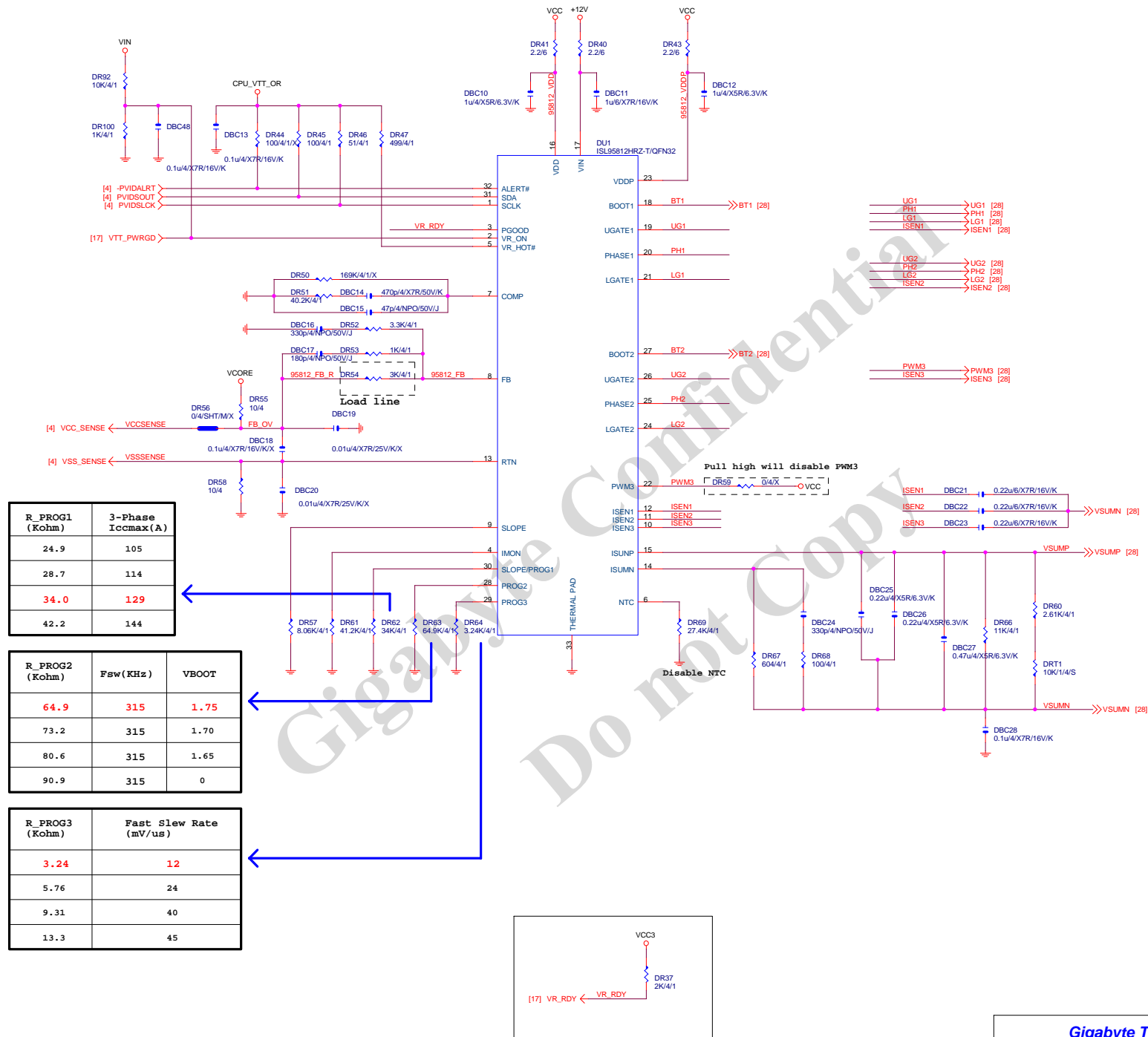
BLACK CONNECTOR



To prevent the 5VSB  
under loading when  
boot

N/A

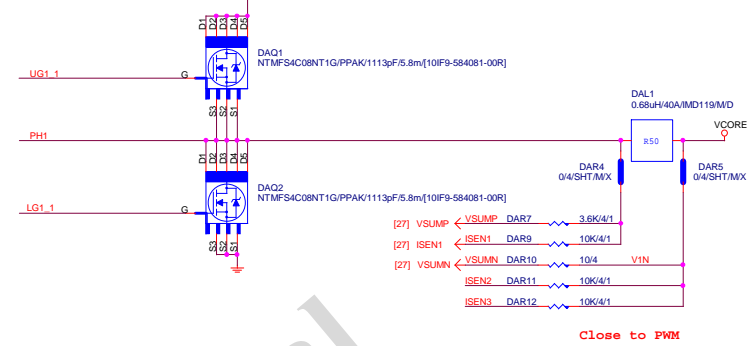
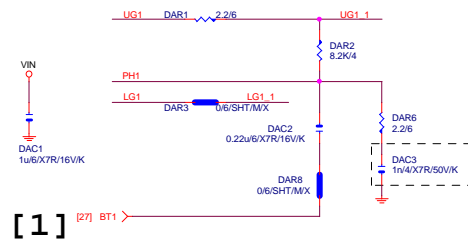




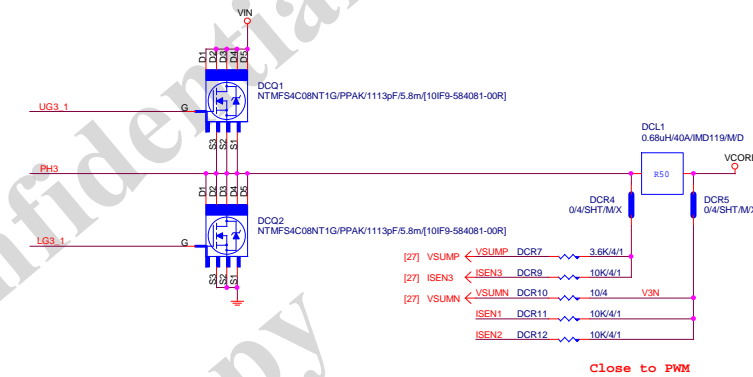
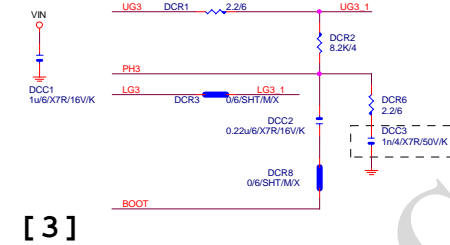
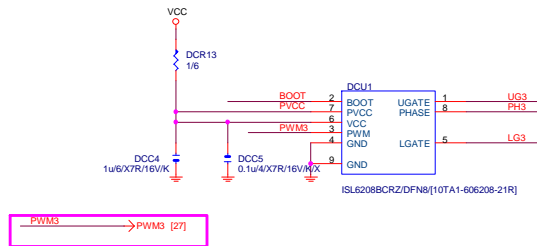
Gigabyte Technology

File			CPU CORE VR-1
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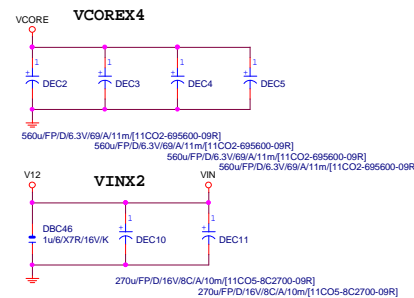
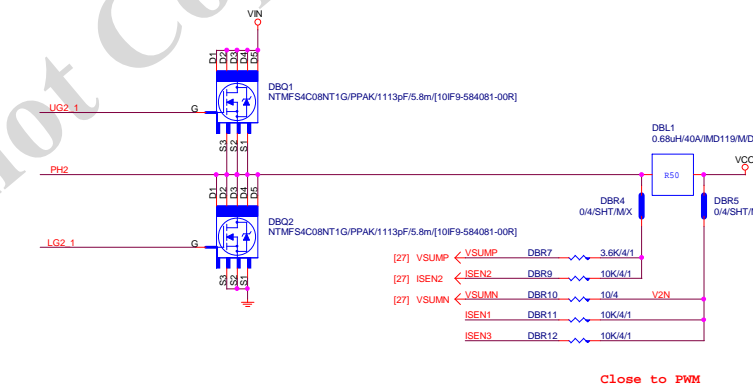
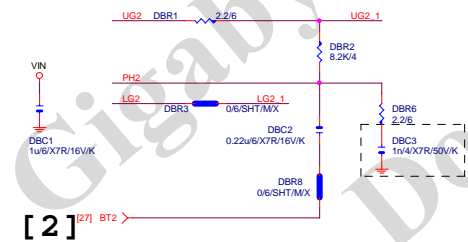
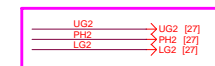
## PHASE 1



## PHASE 3



## PHASE 2



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## DDR POWER

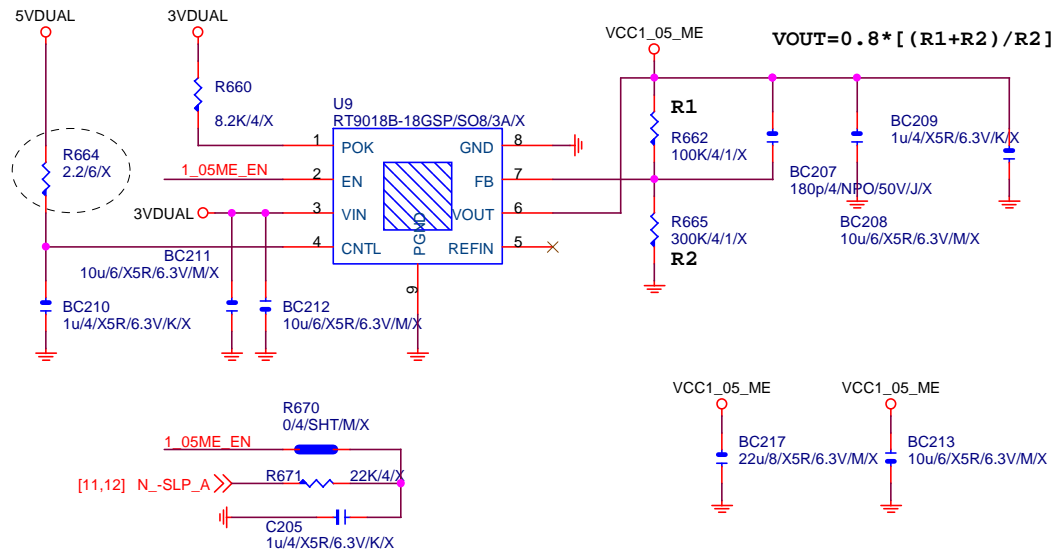
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VCC1\_05\_ME

## 【技術通報R&amp;D技術通報156】

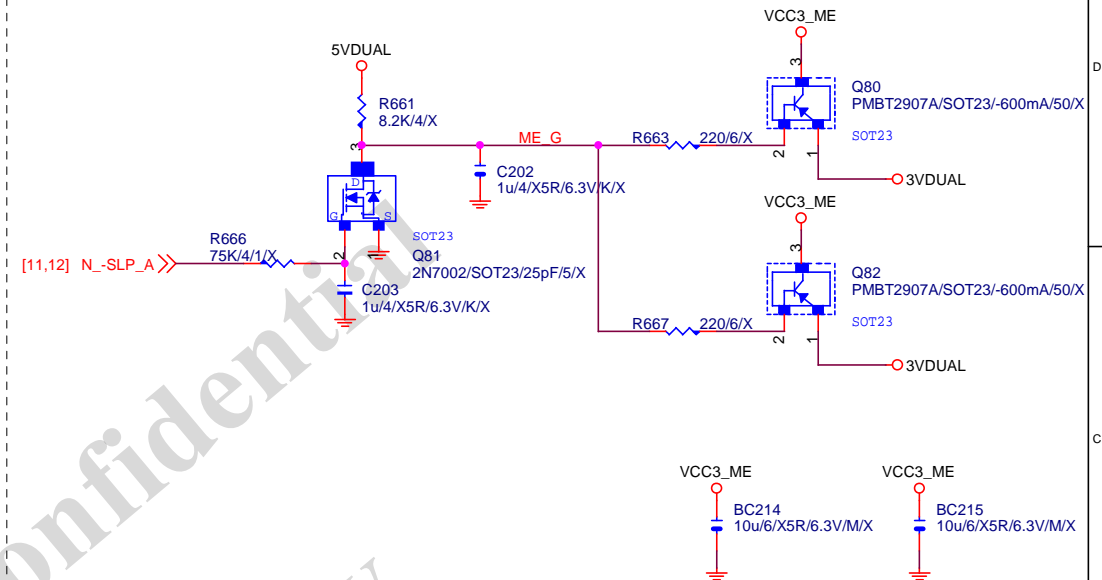
(RICHTER), (NUVOTON), (EMC)做共用  
PIN7分壓阻值須做修改為100K以上電阻值

N/A



VCC3\_ME

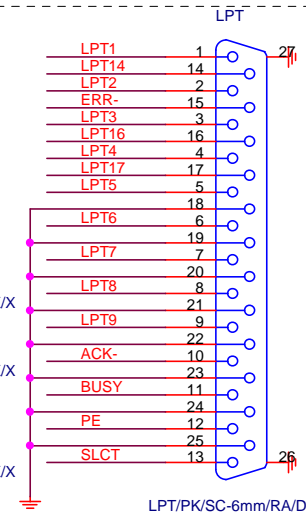
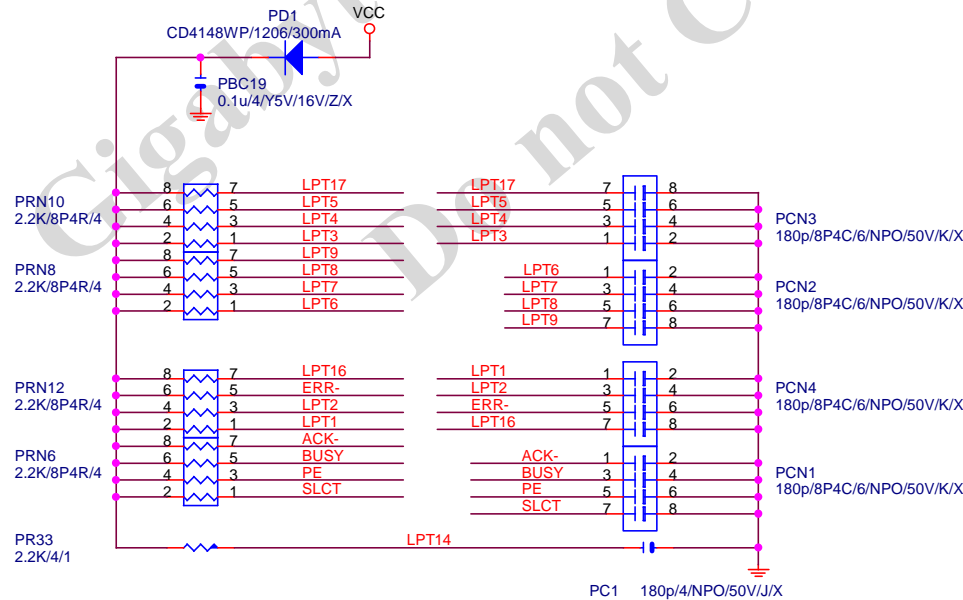
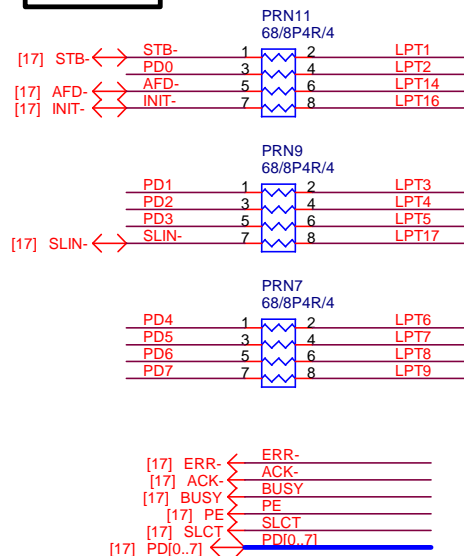
N/A



## 【技術通報R&amp;D技術通報151】

33ohm Change to 68ohm

LPT PORT



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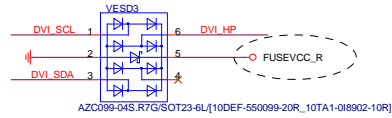
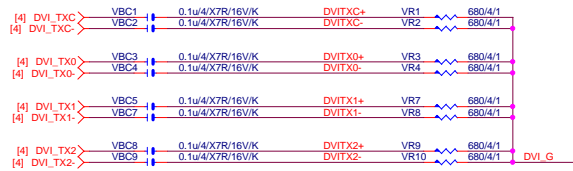
LPT

GA-B85M-D3V

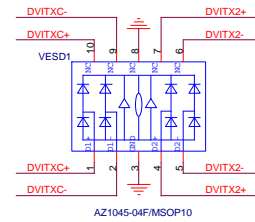
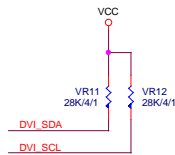
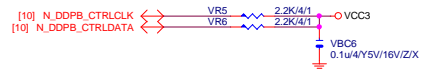
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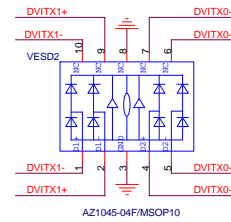
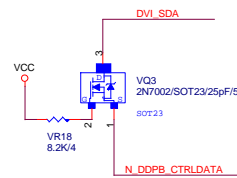
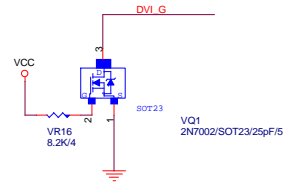
DVI



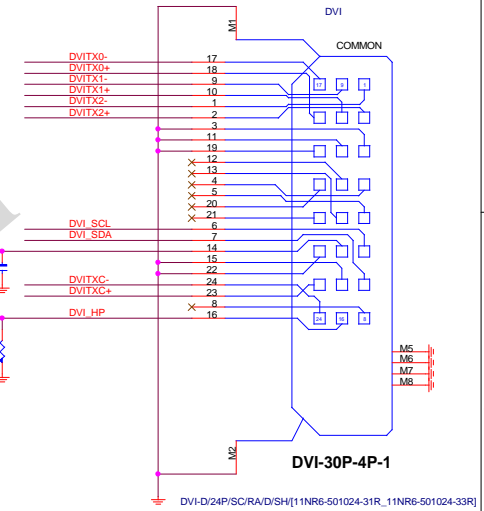
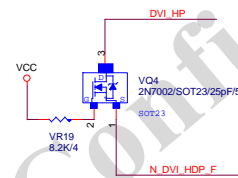
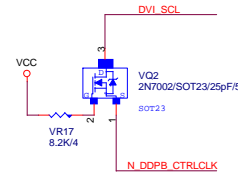
Close to connector



Close to connector



Close to connector



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

IT8892: PR24 -> 47ohm  
IT8893: PR24 -> 22ohm

BA DIO.31] -> BA\_DIO.31] [16]  
-BC BE0 -> BC BE0 [16]  
-BC BE1 -> BC BE1 [16]  
-BC BE2 -> BC BE2 [16]  
-BC BE3 -> BC BE3 [16]  
-BPERR -> BPERR [16]  
-BSERR -> BSERR [16]  
-BPAR -> BPAR [16]  
-BPLOCK -> BPLOCK [16]  
-BDEVSEL -> BDEVSEL [16]  
-BSTOP -> BSTOP [16]  
-BTRDY -> BTRDY [16]  
-BIRDY -> BIRDY [16]  
-BFRAME -> BFRAME [16]  
-PCIE\_RST -> PCIE\_RST [14,15,17]  
-BPCIRST -> BPCIRST [16]  
-BREQ0 -> BREQ0 [16]  
-BGNT0 -> BGNT0 [16]

-BPCIPME1 -&gt; BPCIPME1 [16]

VCC3  
PR14 1K/4/1X  
PR42 1K/4/1

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

VCC3  
PR35 8.2K/4/X  
PR37 10K/4/1

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

IT8892

PRN14 0/8P4R/0402/SHT/X  
-BPIROA 1 2 -> BPIROA1 [16]  
-BPIROB 3 4 -> BPIROB1 [16]  
-BPIROB 5 6 -> BPIROB1 [16]  
-BPIROC 7 8 -> BPIROC1 [16]

PCI slot

VCCP PR26 0/4/SHT/M/X -&gt; 3VDUAL

PCI slot

-BPCIPME1 PR27 0/4/SHT/M/X -&gt; N\_PCIE\_WAKE [12,14,15,24]

chipset side

3VDUAL  
PR2 0/4/SHT/M/X  
PCIEWAKE PR34 10K/4/1  
-BPCIPME PR43 10K/4/1

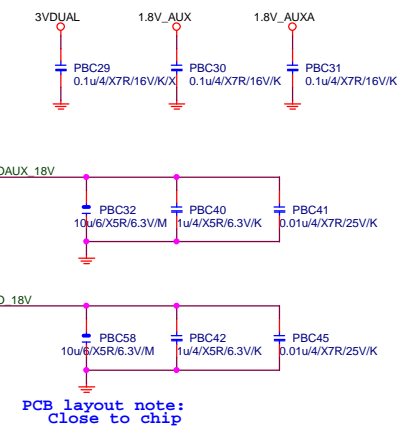
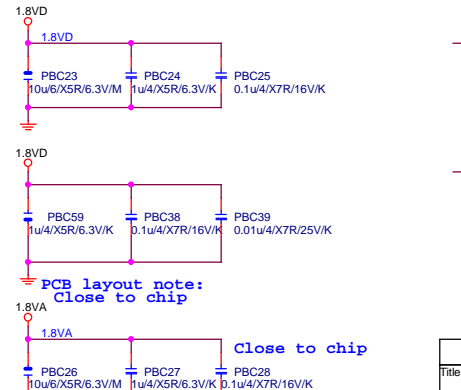
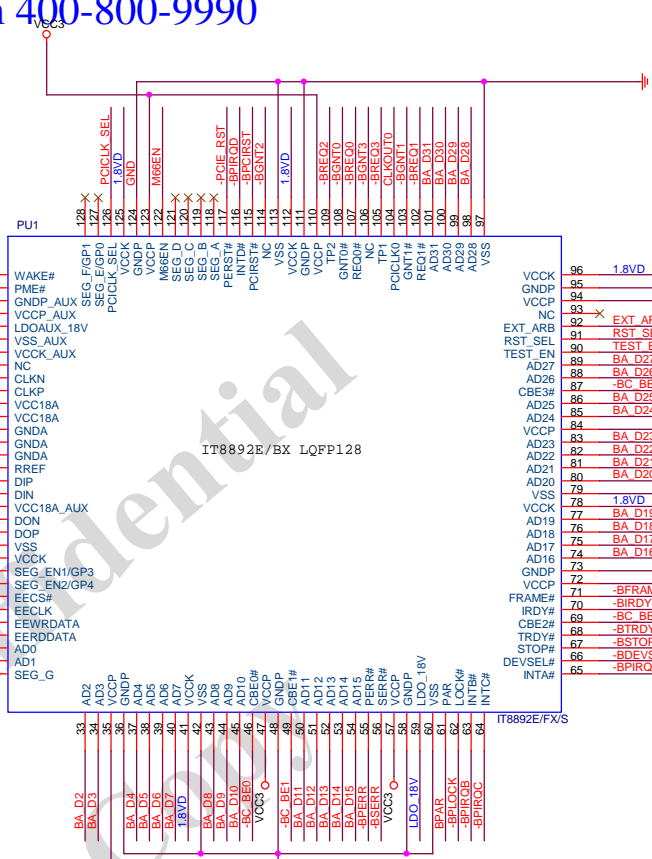
[16] BPCLK0 -> PR24 47/4/1 CLKOUT0  
RREF PR13 12K/4/1  
TEST\_EN PR21 10K/4/1  
EXT\_ARB PR22 10K/4/1  
RST\_SEL PR7 10K/4/1

[9] G\_PCIEBOP -> PBC61 0.1u/4/X7R/16V/K  
[9] G\_PCIEBON -> PBC62 0.1u/4/X7R/16V/K  
[9] G\_PCIEBIN -> PBC43 0.1u/4/X7R/16V/K  
[9] G\_PCIEBIP -> PBC44 0.1u/4/X7R/16V/K

PRN1 2.2K/8P4R/4  
-BFRAME 1 2  
-BTRDY 3 4  
-BSTOP 5 6  
-BDEVSEL 7 8  
PRN2 2.2K/8P4R/4  
-BIRDY 1 2  
-BPERR 3 4  
-BSERR 5 6  
-BPLOCK 7 8  
PRN15 2.2K/8P4R/4  
-BPIROC 1 2  
-BPIROB 3 4  
-BPIROD 5 6  
-BPIROA 7 8  
PRN4 2.2K/8P4R/4  
-BGNT3 1 2  
-BREQ3 3 4  
-BGNT1 5 6  
-BREQ1 7 8  
PRN5 2.2K/8P4R/4  
-BGNT2 1 2  
-BREQ2 3 4  
-BGNT0 5 6  
-BREQ0 7 8  
BPAR PR41 2.2K/4/1/X

LDO 18V PFB1 0/6/SHT/M/X 1.8VA  
LDO 18V PFB2 0/6/SHT/M/X 1.8VD  
LDOAUX 18V PFB3 0/6/SHT/M/X 1.8V AUX  
LDOAUX 18V PFB4 0/6/SHT/M/X 1.8V AUXA

PCIEWAKE 1  
-BPCIPME 2  
WAKE# 3  
PME# 4  
GNDP\_AUX 5  
VCCP\_AUX 6  
LDOAUX 18V 7  
VSS\_AUX 8  
VCCP\_AUX 9  
NC 10  
CLKN 11  
VCC18A 12  
VCC18A 13  
GNDA 14  
GNDA 15  
RREF 16  
DIP 17  
DIN 18  
VCC18A\_AUX 19  
DON 20  
DOP 21  
VSS 22  
VCCP 23  
SEG\_EN1/GP3 24  
SEG\_EN2/GP4 25  
ECC3# 26  
EECLK 27  
EEWRDATA 28  
EERDDATA 29  
AD0 30  
AD1 31  
SEG\_G 32

BA D0  
BA D1

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