

Model Name: GA-H81M-DS2

Revision
3.0

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	ITE 8620 LPC IO
17	COM,KB_MS_USB,USB30_20
18	HWM,FAN CTRL,OV,-PROCHOT
19	DUAL BIOS
20	FP,FUSB,SPK,SATALED
21	Realtek ALC887-VD2
22	REAR AUDIO JACK
23	REALTEK RTL8111G
24	DISCRETE POWER
25	ATX , CLOCK GEN
26	VCORE ISL95812_1
27	VCORE ISL95812_2

SHEET TITLE

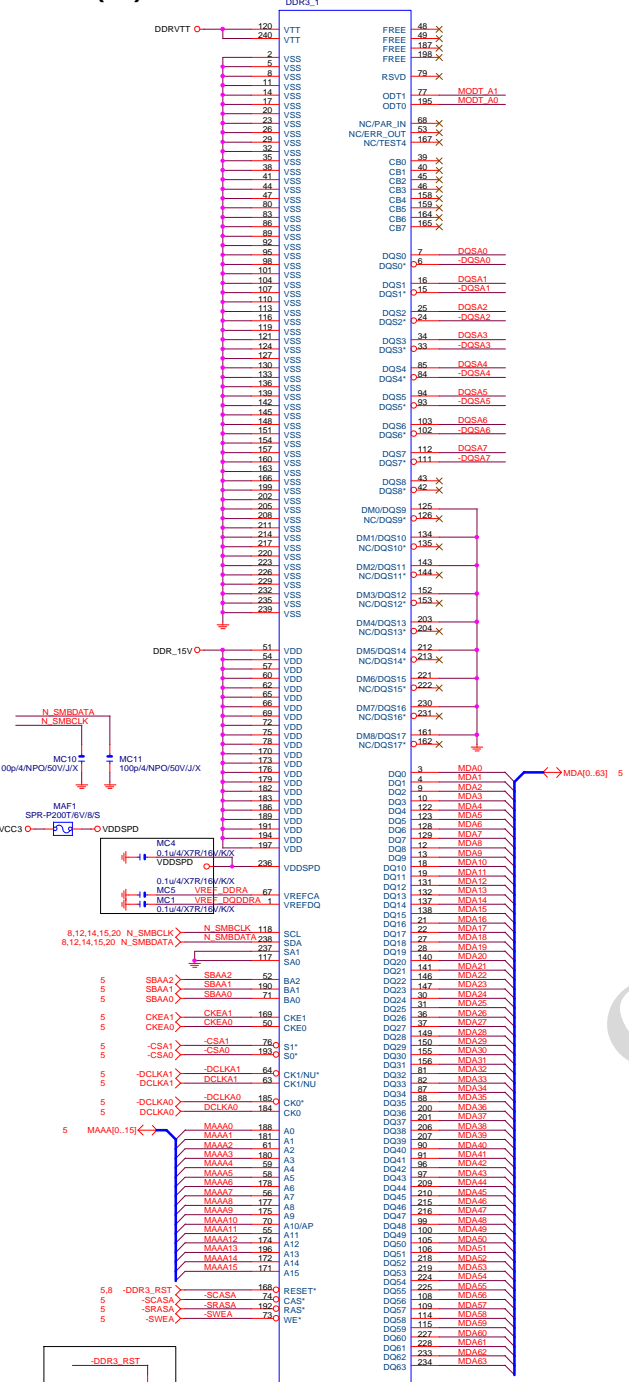
28	RT8120_DDR POWER
29	LPT

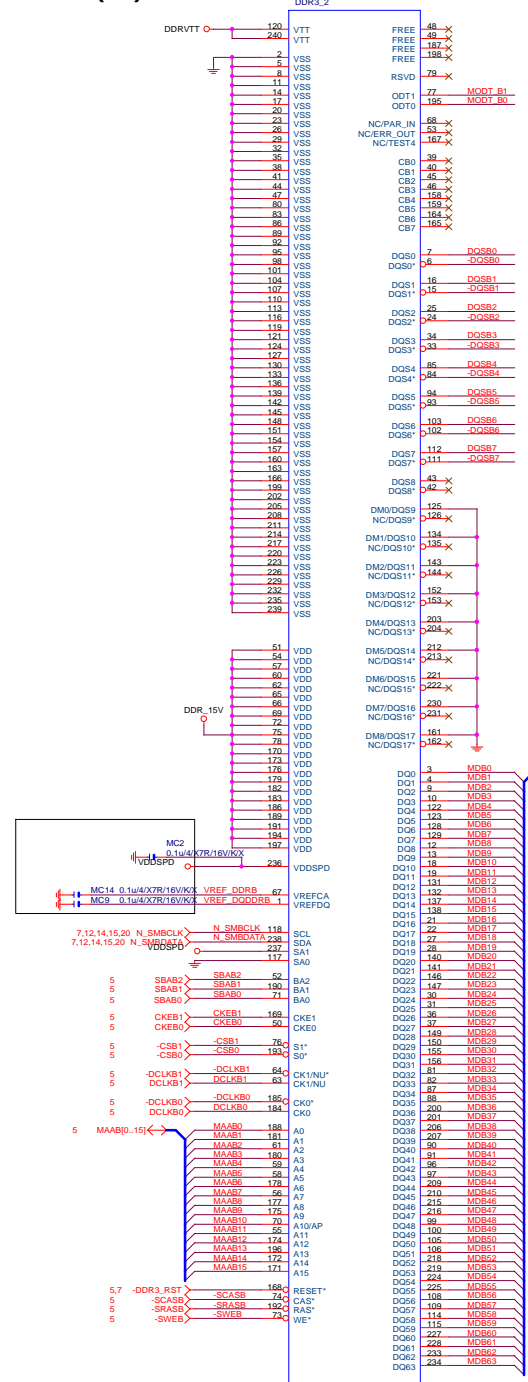
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Do not Copy

Gigabyte Technology		
Cover Sheet		
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DDR3

(A)

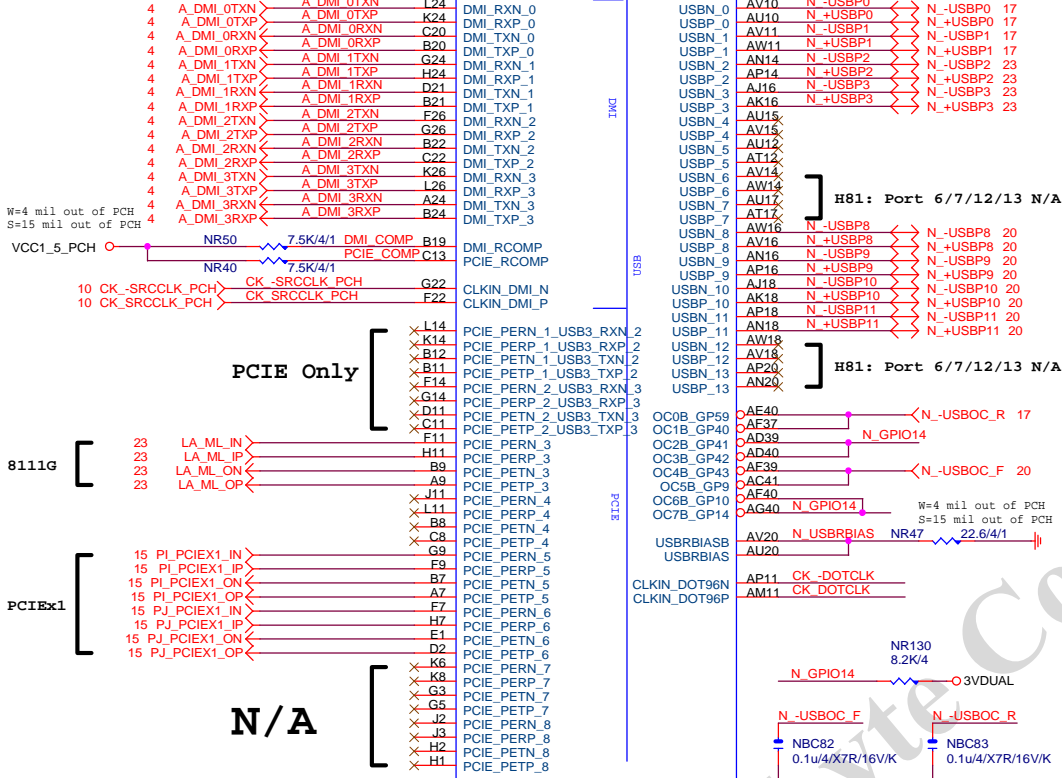




PCH (B)

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

USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



PCIE Only

8111G

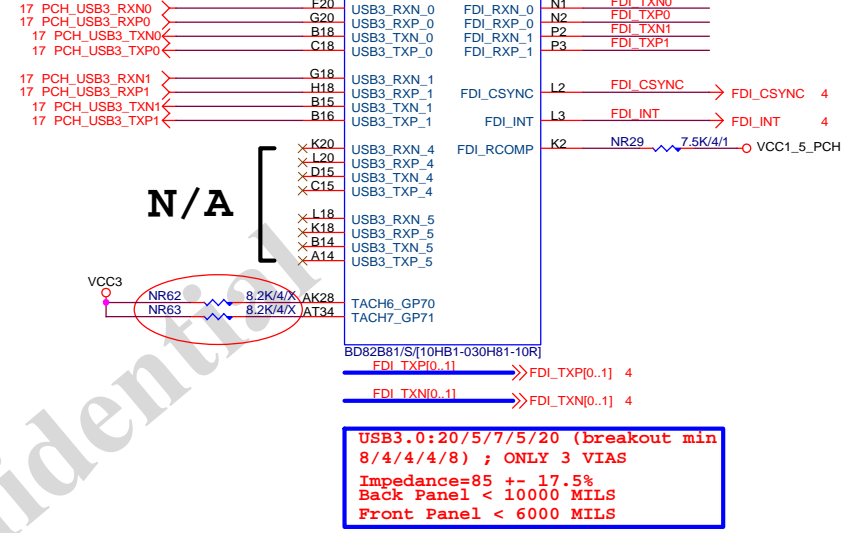
PCIEEx1

N/A

放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%

PCIE1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCH (F)

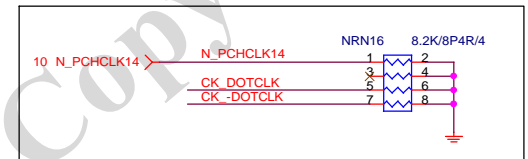


N/A

USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILLS
Front Panel < 6000 MILLS

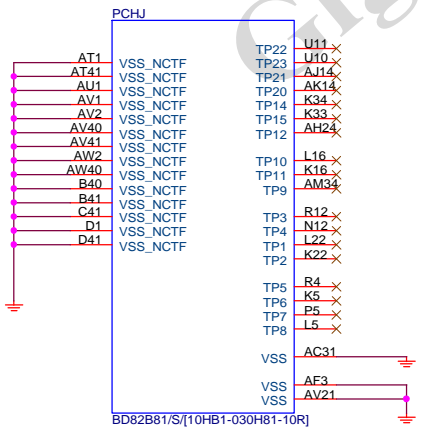
PCH CLK PD

Mount for integrated clock Generation Mode



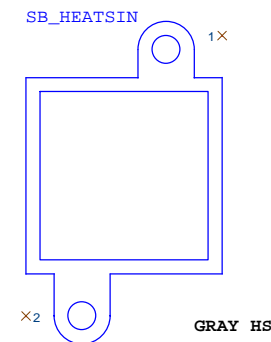
NR225 short to GND in non graphic SKU

PCH (J)



PCH H/S

LOW COST ICH7 HEATSINK



USB TABLE

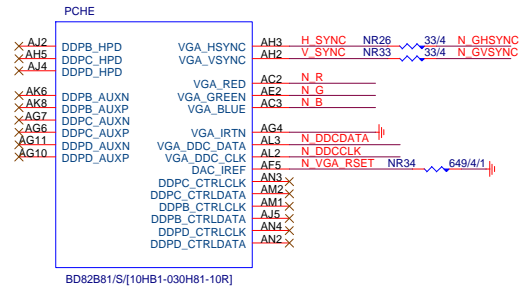
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC#	Configure
OC0#	R_USB30
OC1#	USB_LAN
OC2#	Not Use
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	Not Use
OC7#	N/A

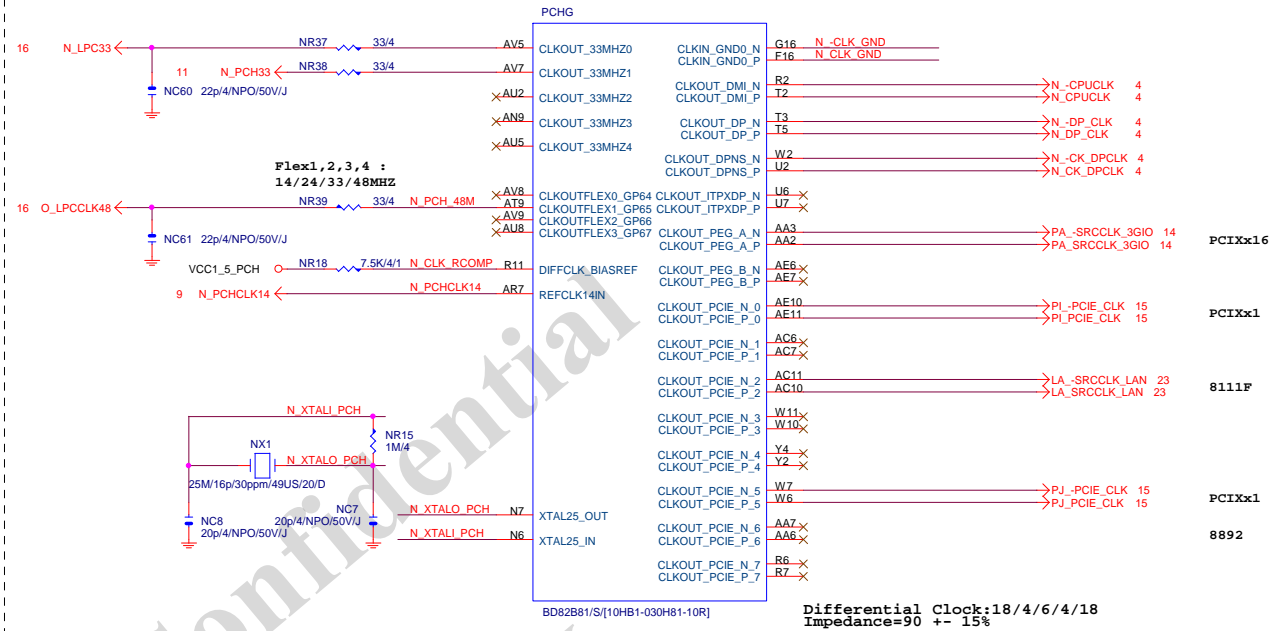
Gigabyte Technology

Title		
PCH FDI,DMI,USB ,PCIE,NVRAM		
Size Custom	Document Number	Rev 3.0
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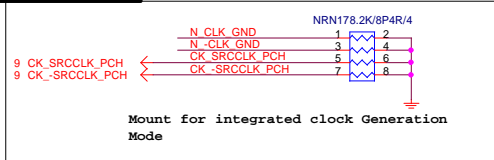
PCH (E)



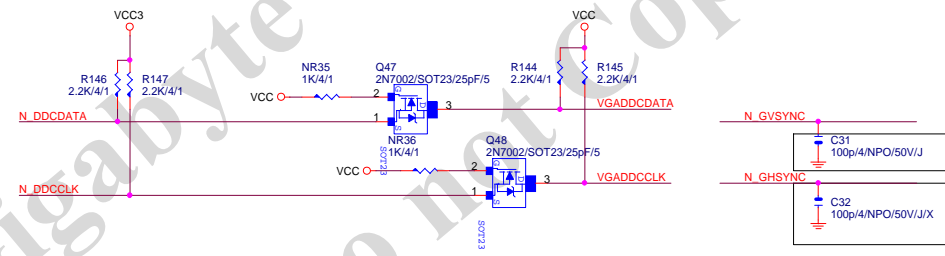
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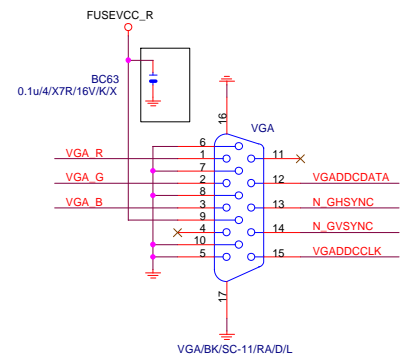
PCH CLK PD



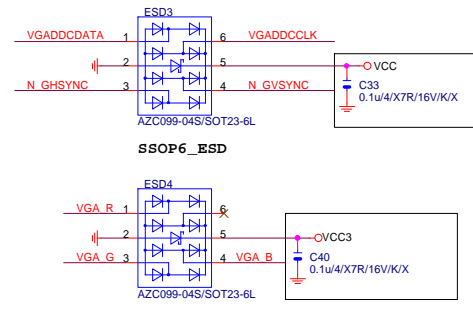
VGA DDC



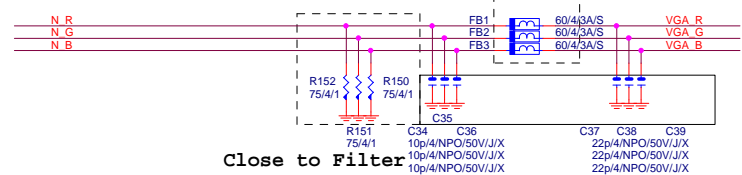
VGA CONNECTOR



VGA ESD



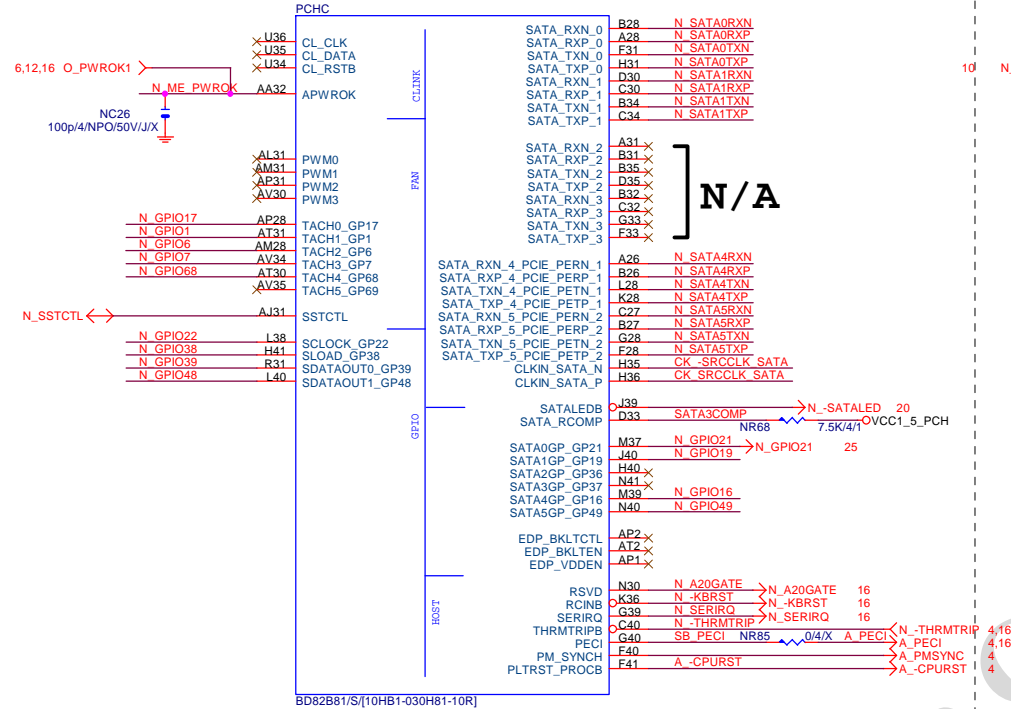
VGA DDC



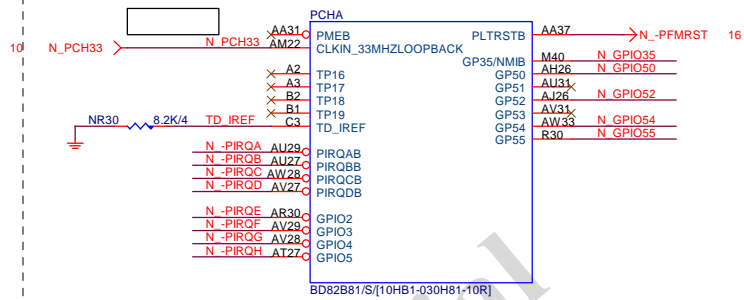
Gigabyte Technology		
Title PCH DISPLAY ,CLK BUFFER		
Size Custm	Document Number GA-H81M-DS2	Rev 3.0
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PCH (C)

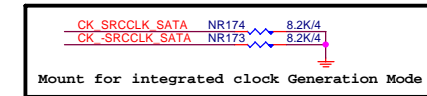
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
 Impedance=90 +- 17.5%
 SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
 Impedance=90 +- 17.5%



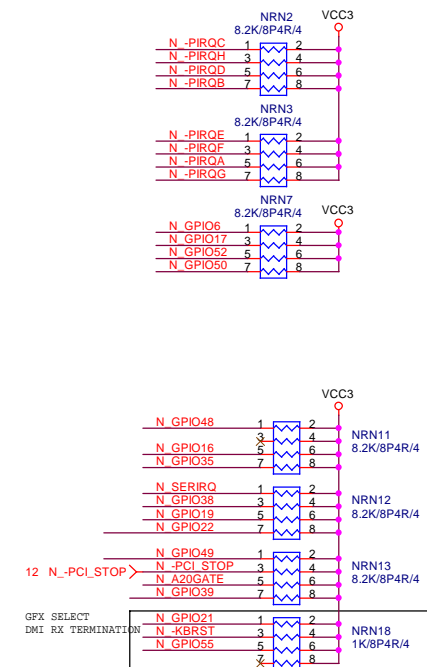
PCH (A)



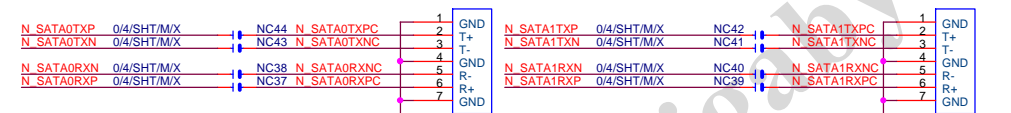
PCH CLK PD



PCH PU/PD



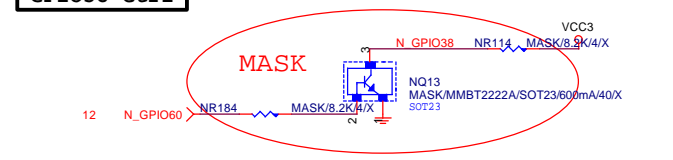
SATA CONNECTOR



ME PWROK



GPIO38 Ctrl



Gigabyte Technology

Title: **PCH HOST , SATA, PCI**

Size: **GA-H81M-DS2**

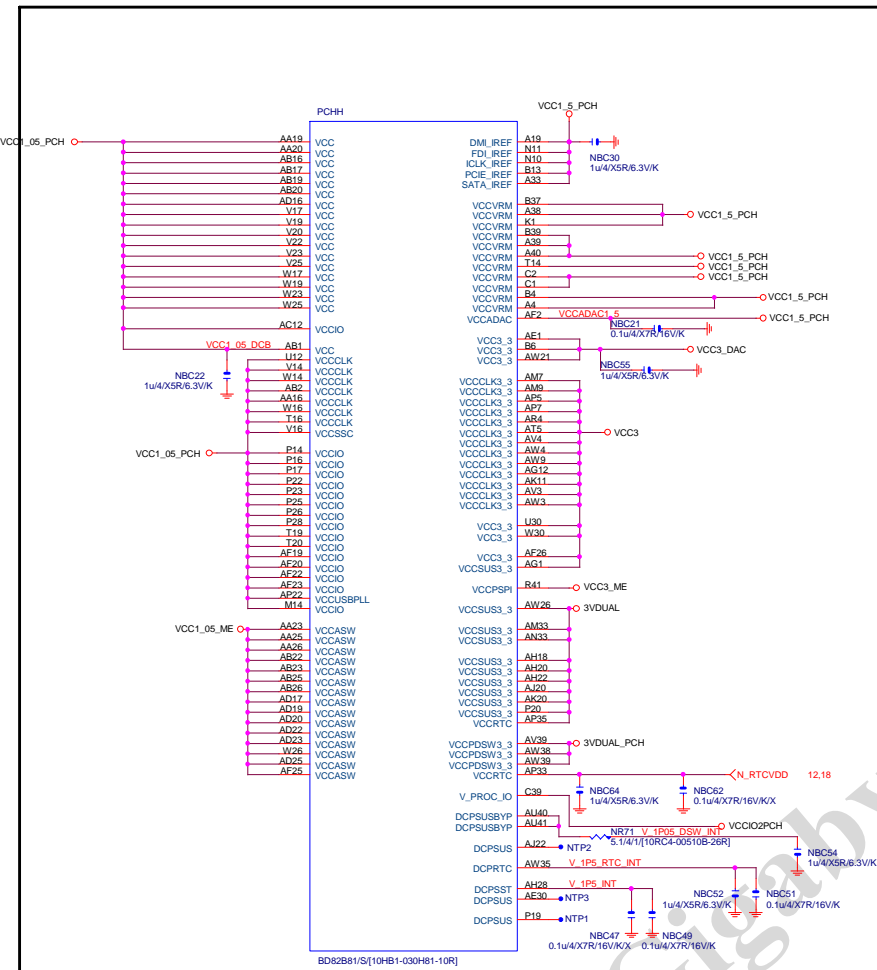
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Date: Tuesday, August 19, 2014

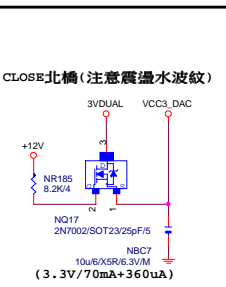
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Rev: **3.0**

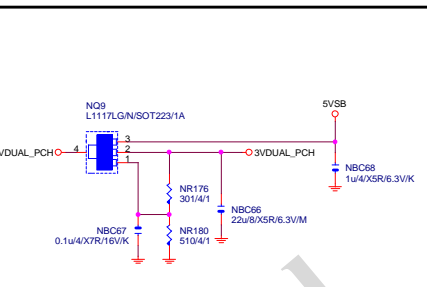
PCH (H)



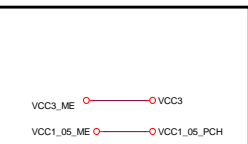
VCC3_DAC



3VDUAL_PCH

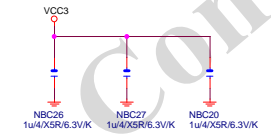


SHT_PWR



CAP

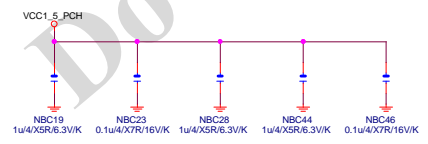
(3.3V) (X6)



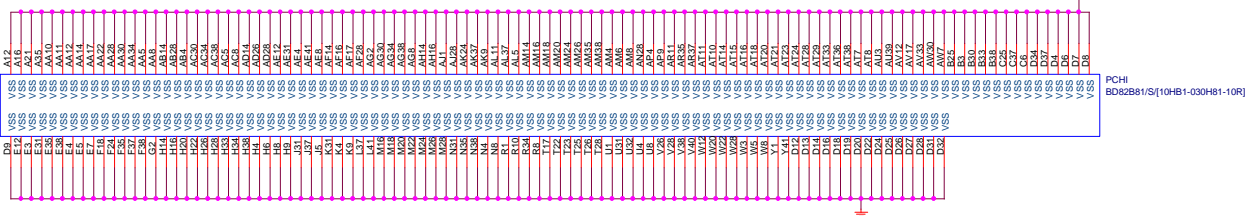
(1.05V)(X2) (3.3V)(X2)



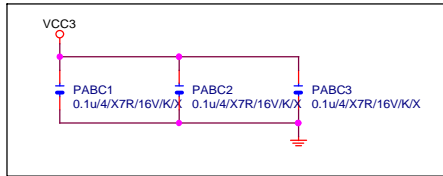
(1.05V) (X10)



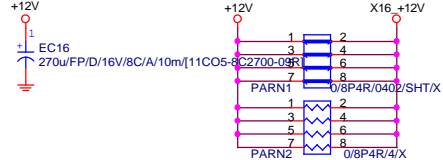
PCH (I)



PCIEX16 CAP



PCIEX16 PROTECT SHT



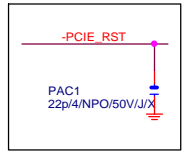
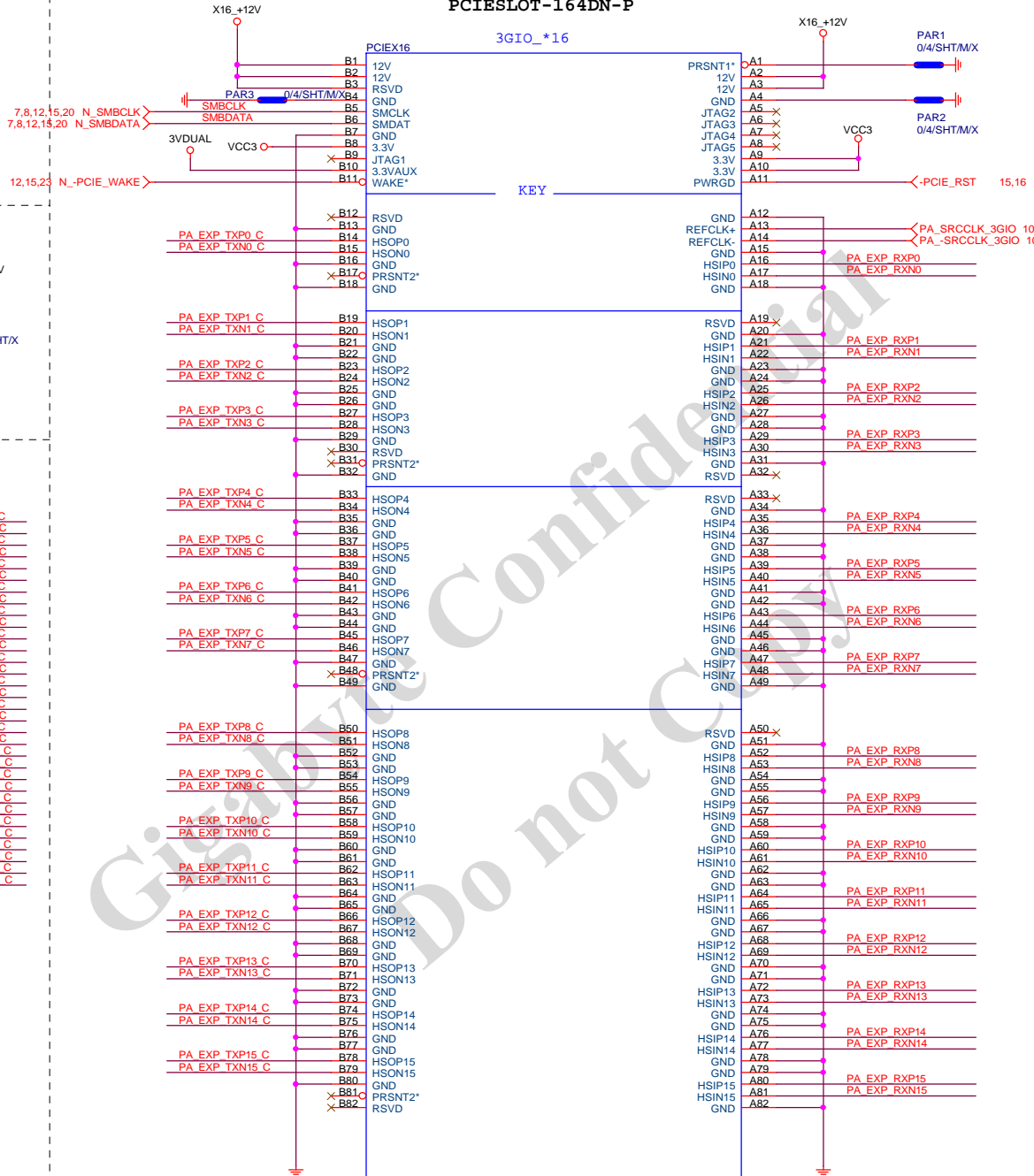
PCIEX16 AC CAP

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
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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

PCIESLOT-164DN-P



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

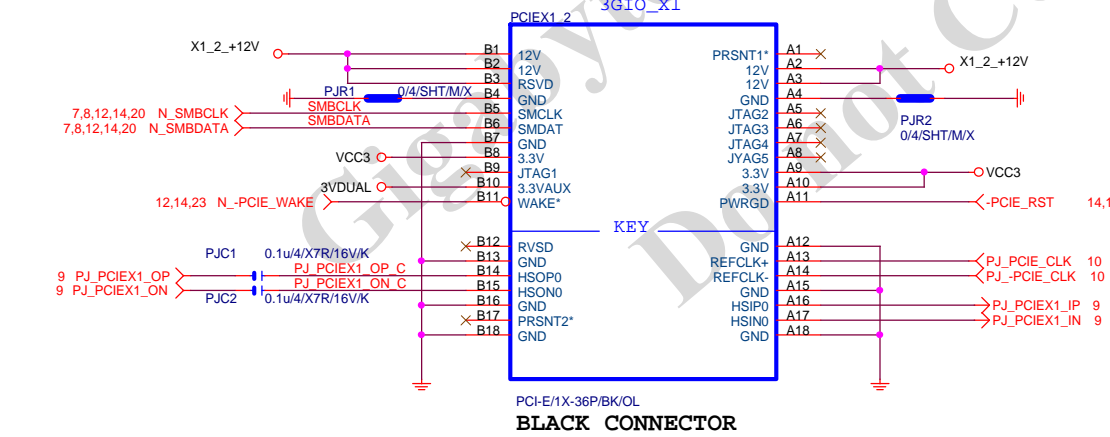
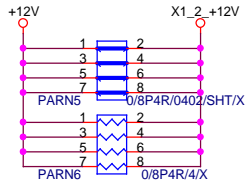
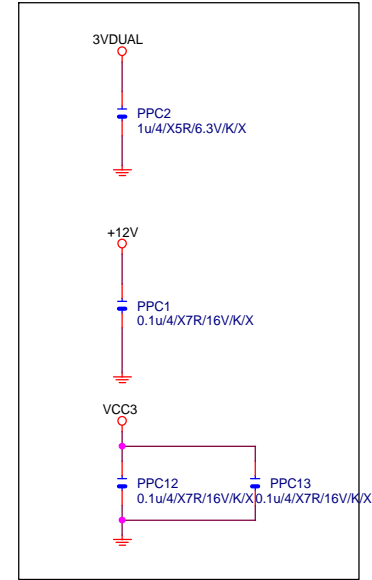
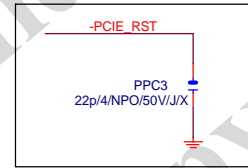
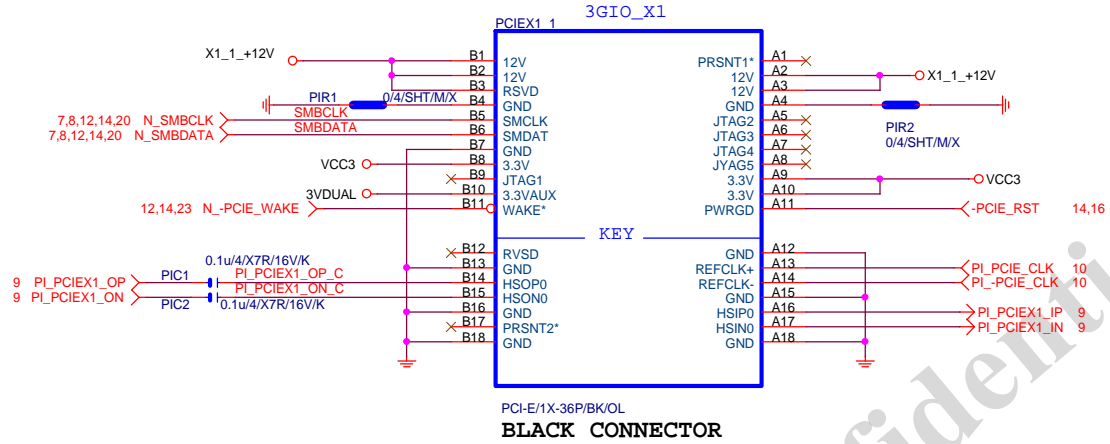
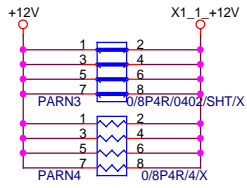
Gigabyte Technology

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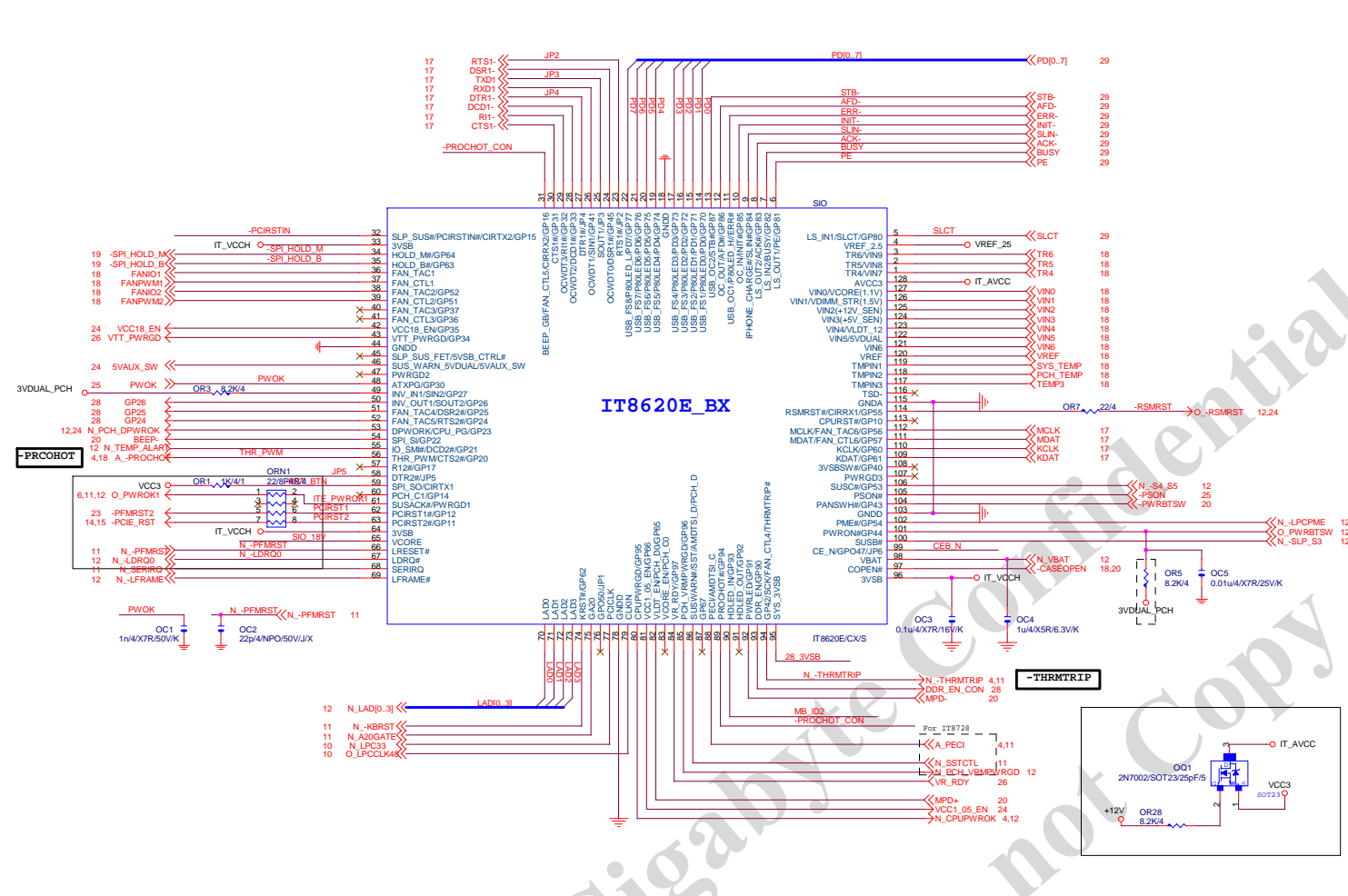
PCIEX1 SLOT

PCIEX1 PROTECT SHT

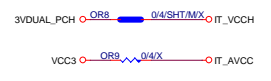


Gigabyte Technology			
PCI EXPRESS X 1 PORT			
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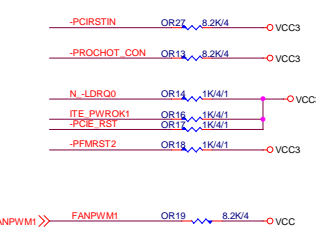
SIO IT8620



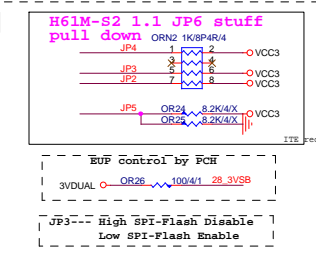
PWR SHT



SIO PU



SIO STRAP



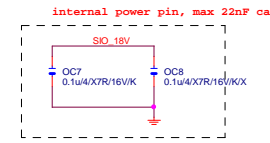
Power leakage



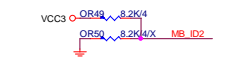
DUAL BIOS OPT STRAP



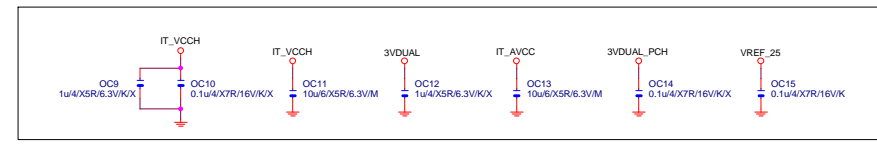
SIO 18V

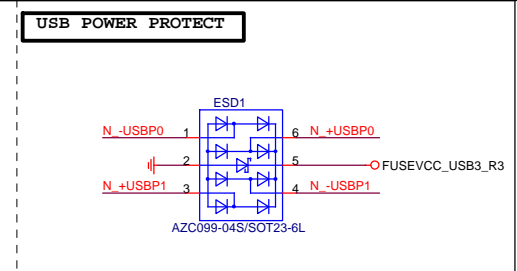
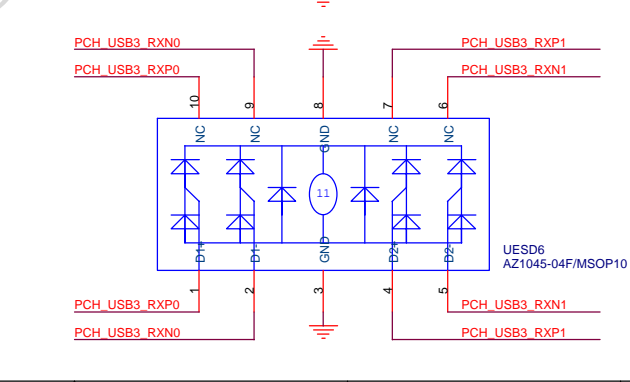
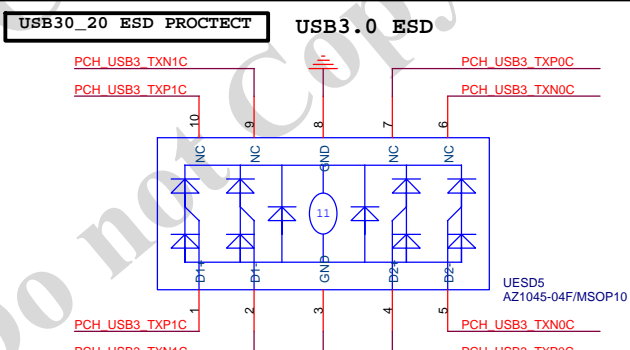
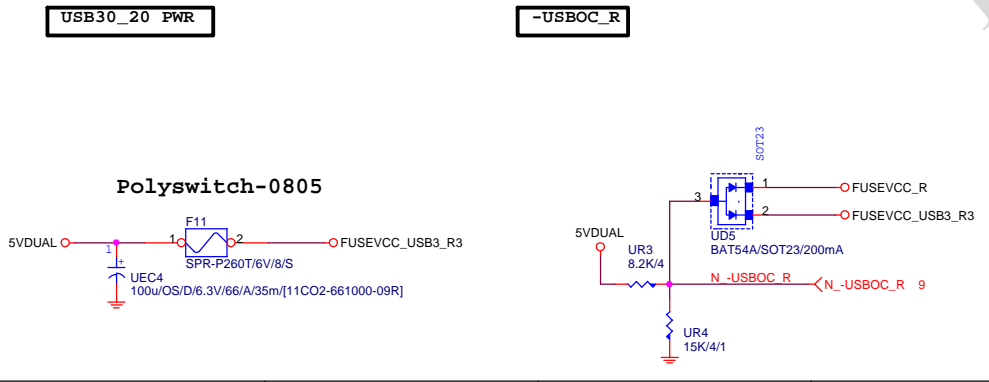
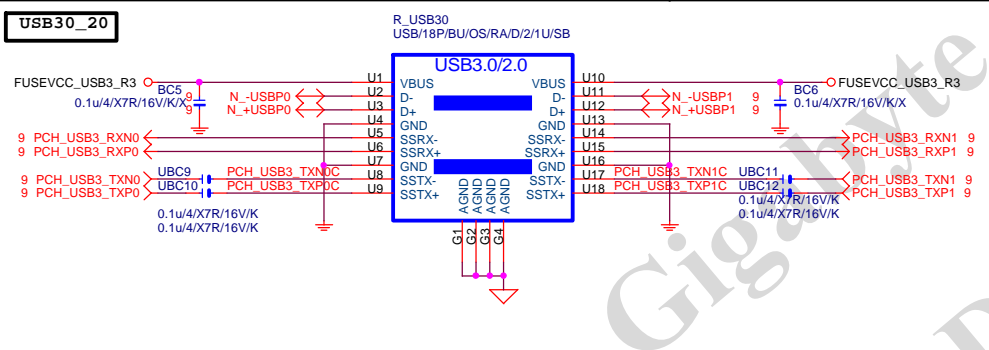
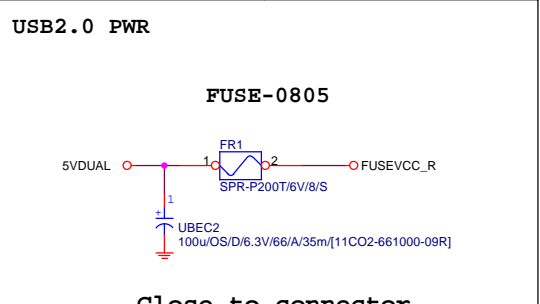
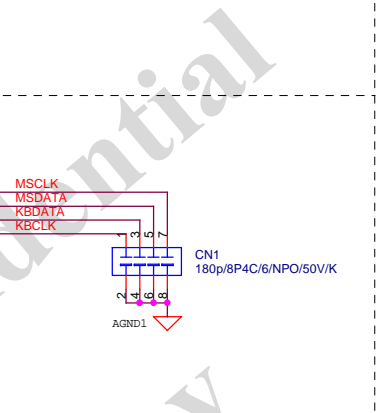
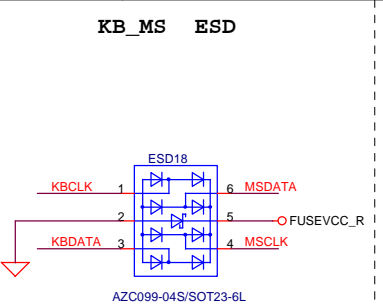
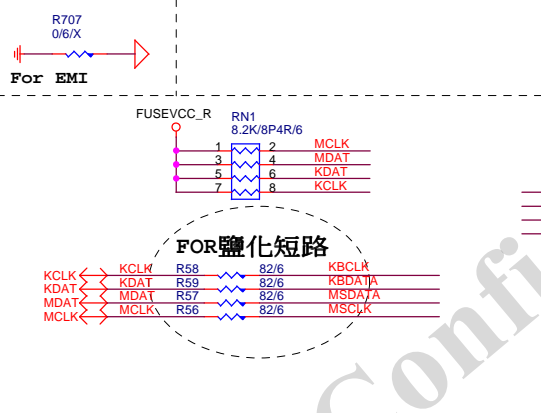
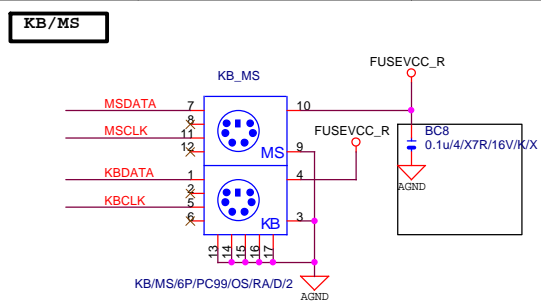
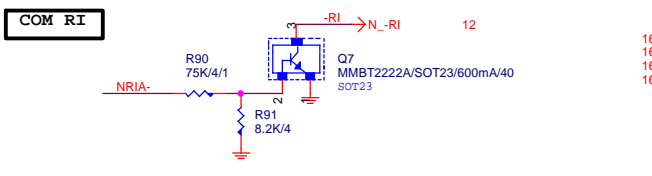
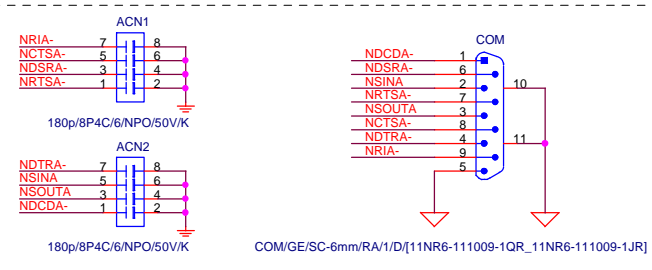
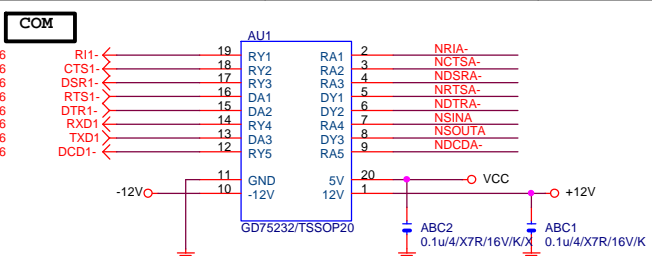


MB ID



SIO CAP





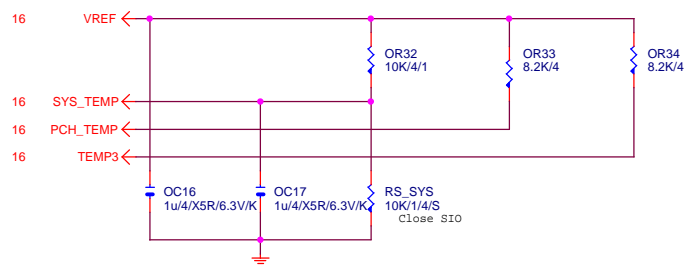
Gigabyte Technology

Title: **COM,-RI,KB_USB,USB_ESATA,-PROCHOT**

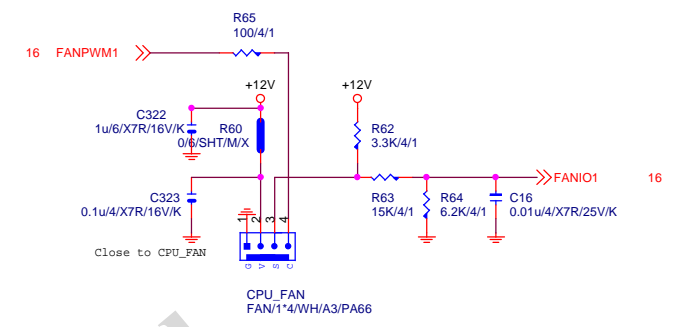
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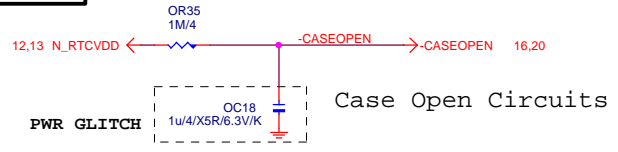
TEMP H/W MONITOR



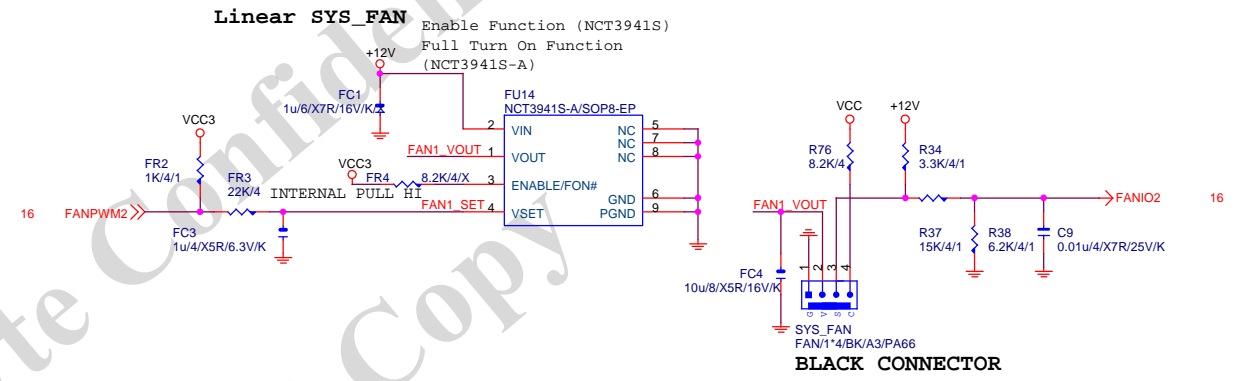
CPU SMART FAN



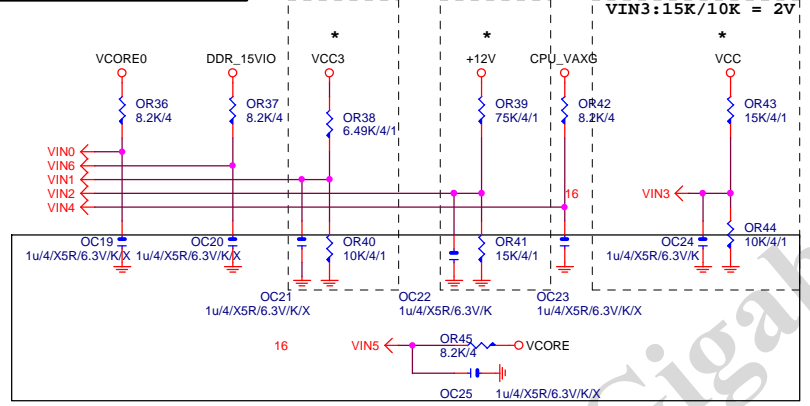
CASE OPEN



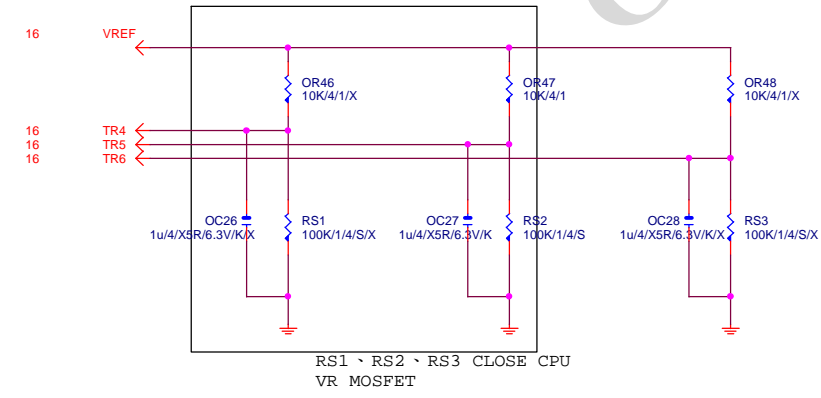
SYS SMART FAN



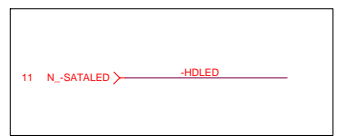
VOLTAGE-- H/W MONITOR



-PROHOT

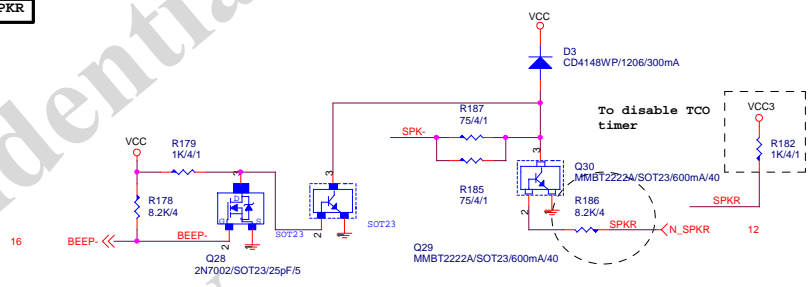


SATA_LED

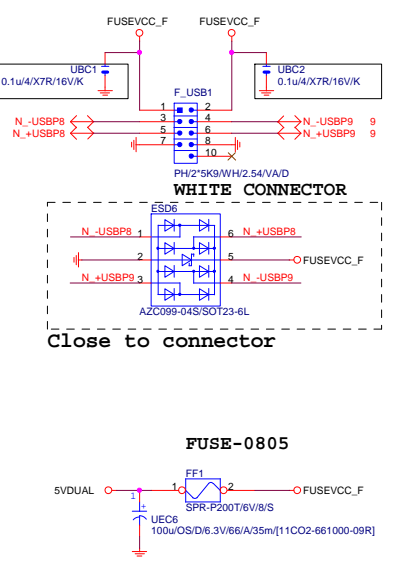


-USB0C_F

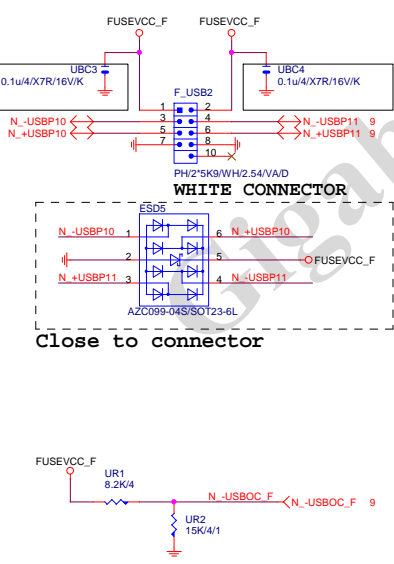
SPKR



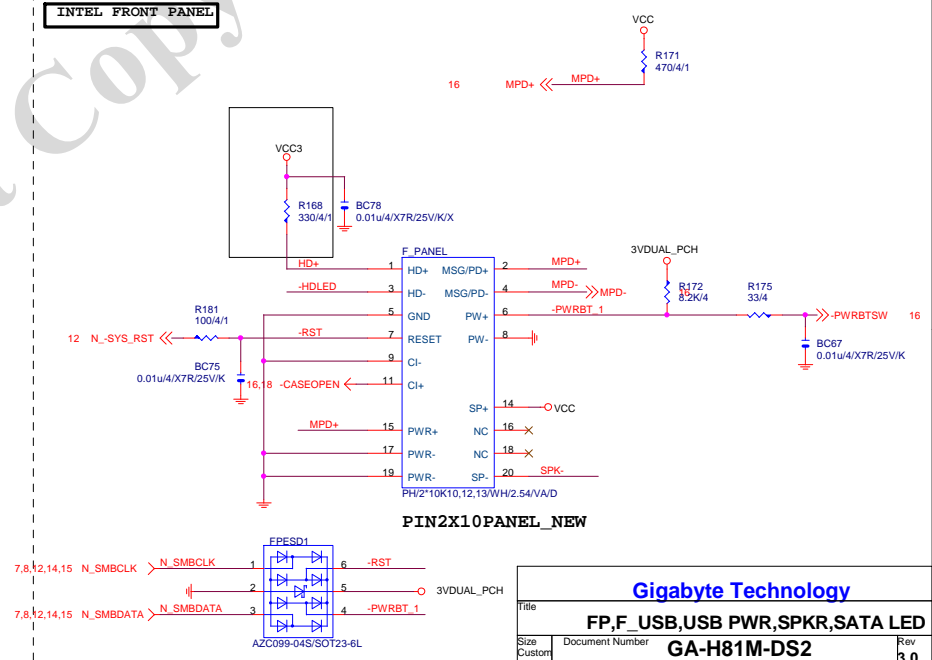
FRONT USB1



FRONT USB2



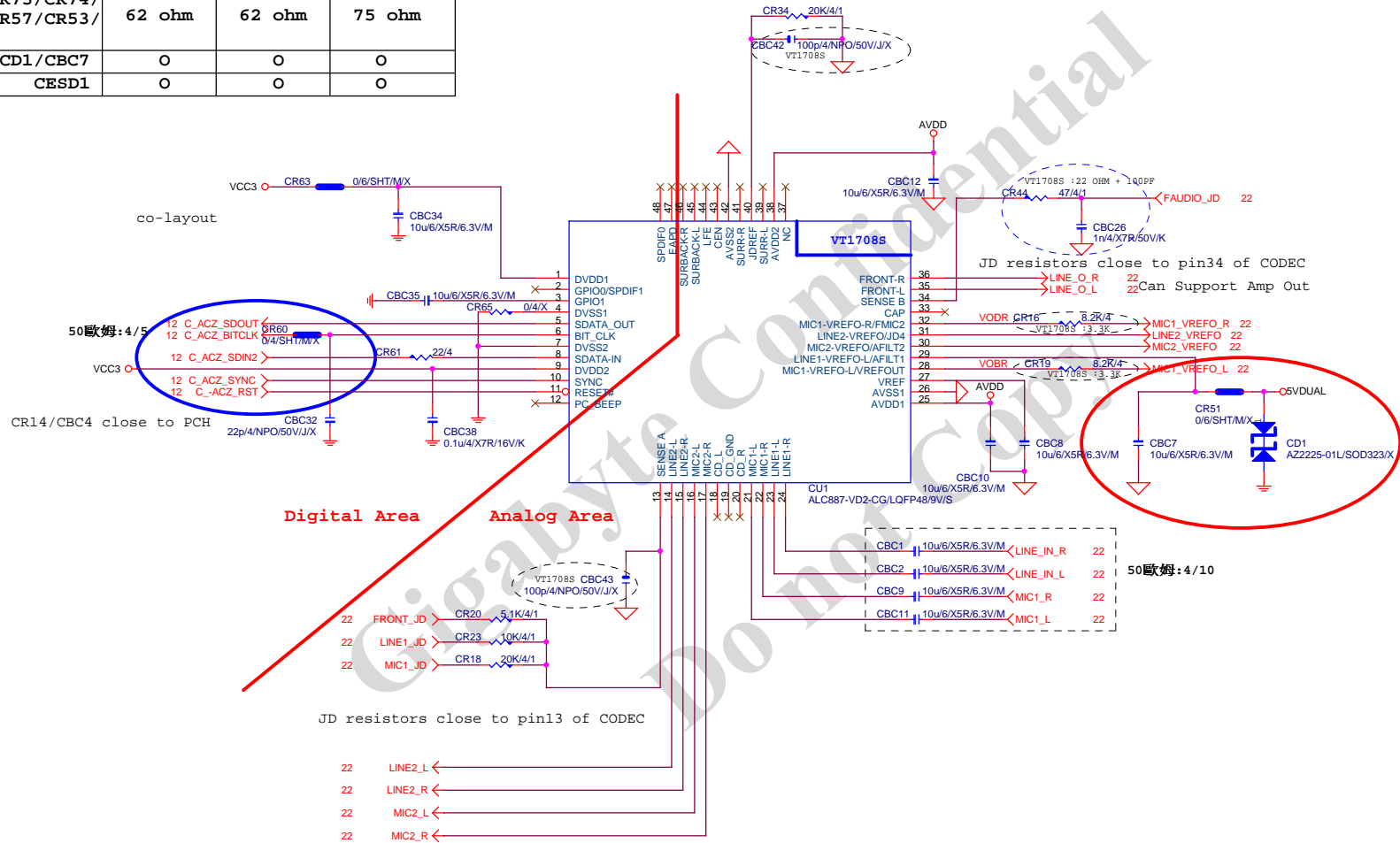
INTEL FRONT PANEL

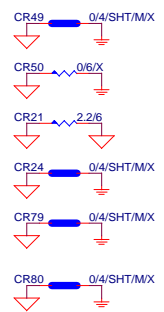


F_USB1, F_USB2 4-Port 2.6A

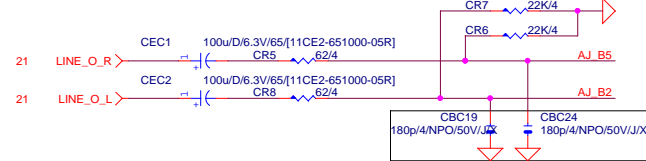
Gigabyte Technology			
FP_F_USB,USB PWR,SPKR,SATA_LED			
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	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/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





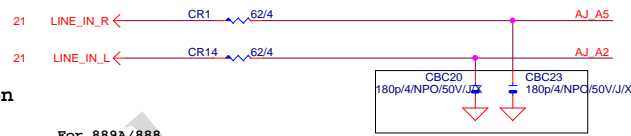
LINE-OUT



LINE-IN

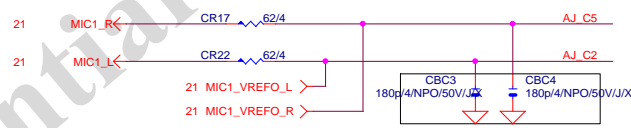
Verify MIC function in LINE-in

Only reserved for ALC888

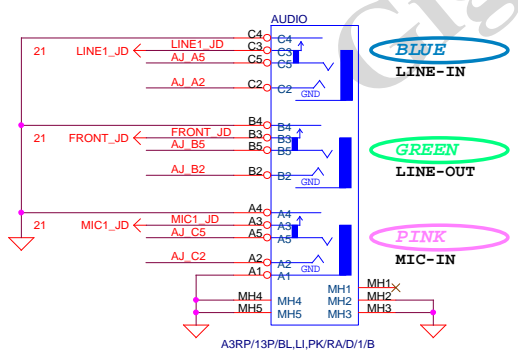


For 889A/888

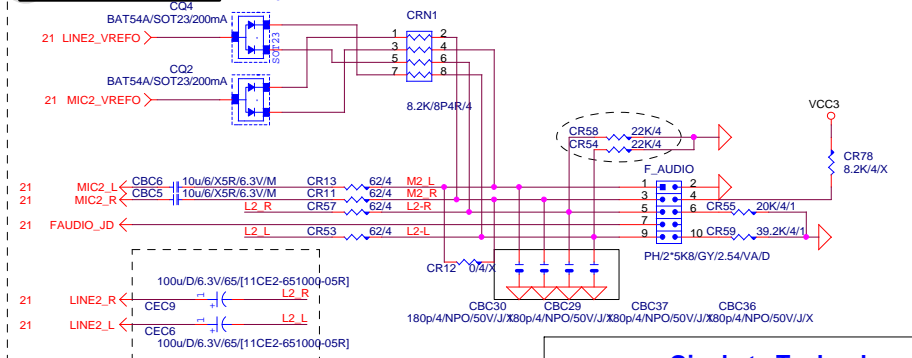
MIC-IN



SPDIF_OUT

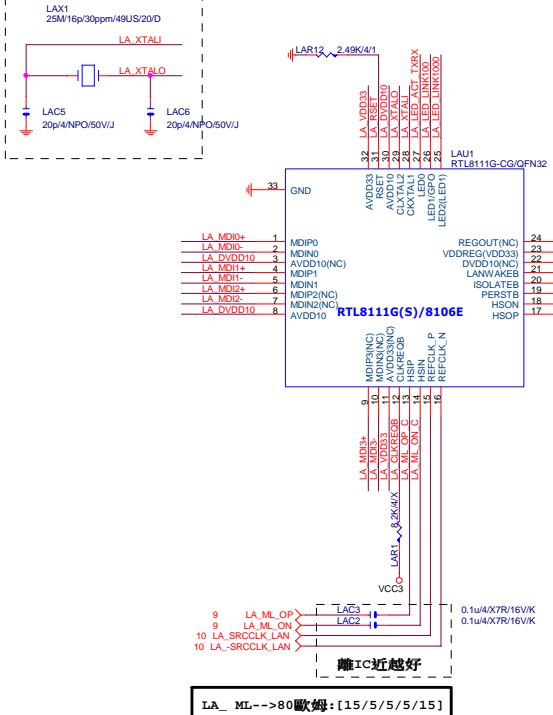


AZALIA FRONT PANEL

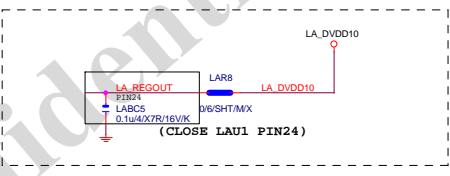
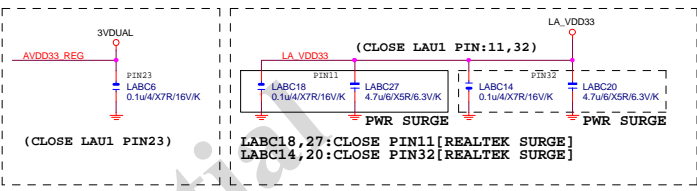
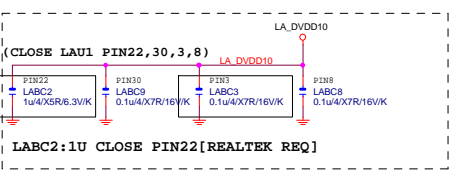


Gigabyte Technology			
AUDIO JACK			
GA-H81M-DS2			
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LAN:RTL8111G

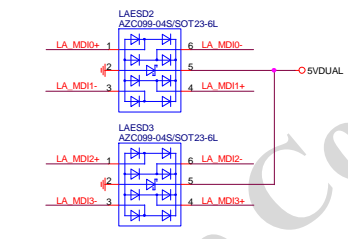


LAN POWER

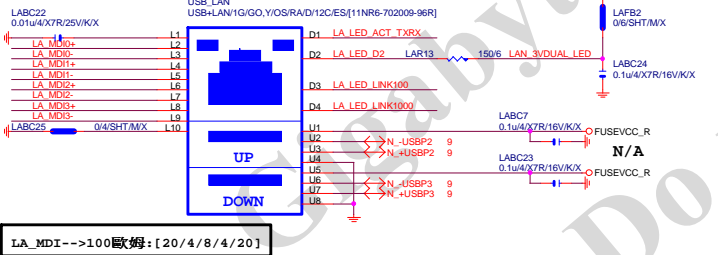
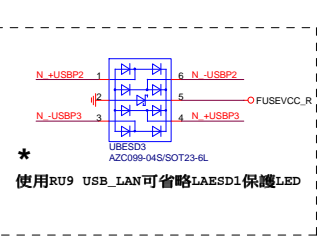


NOTE:
RT8106B: PIN3, 11, 22, 24-->NC
LABC2LABC3, LABC5, LABC18, LABC27-->N/A

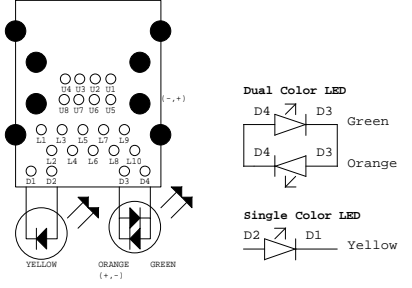
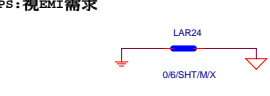
MDI ESD預留28KV *



USB_LAN CONNECTOR



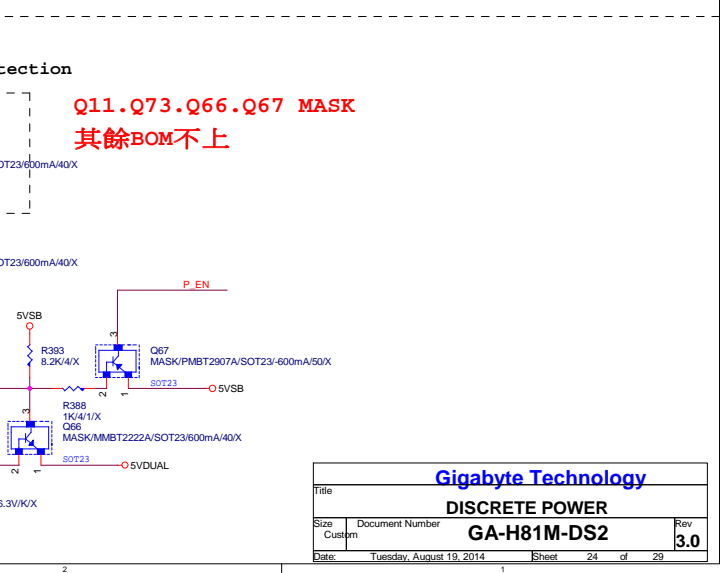
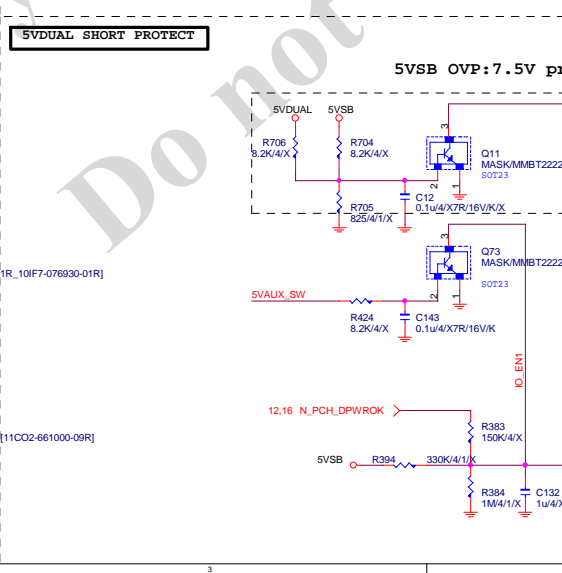
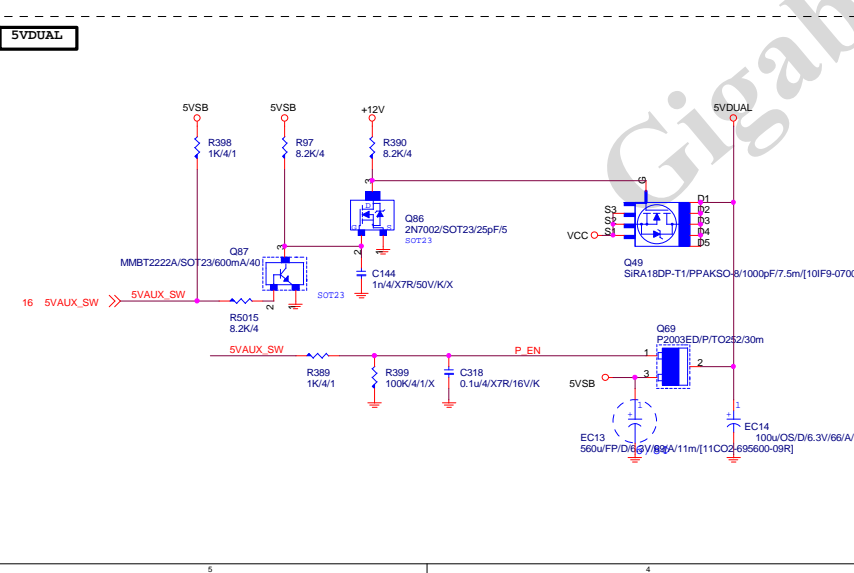
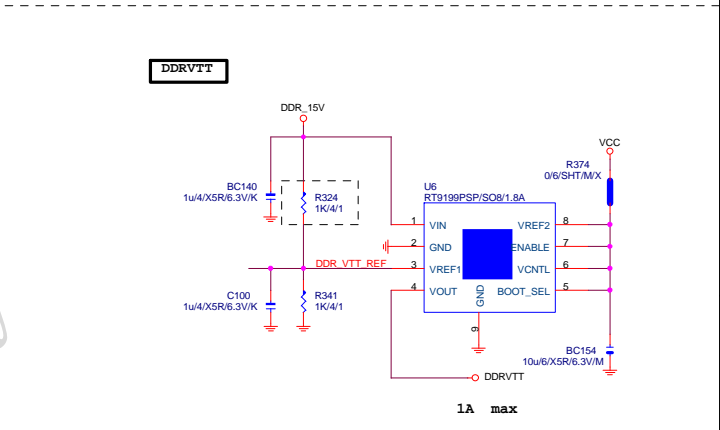
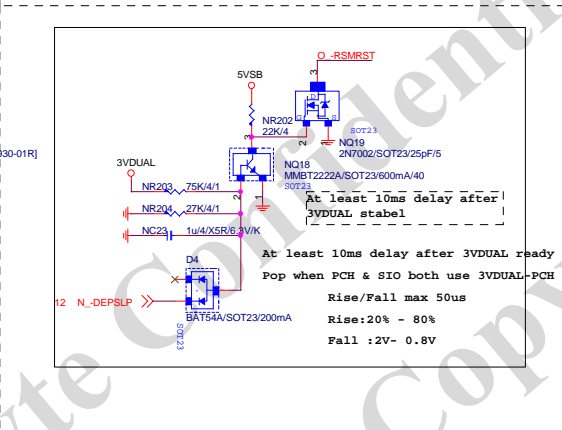
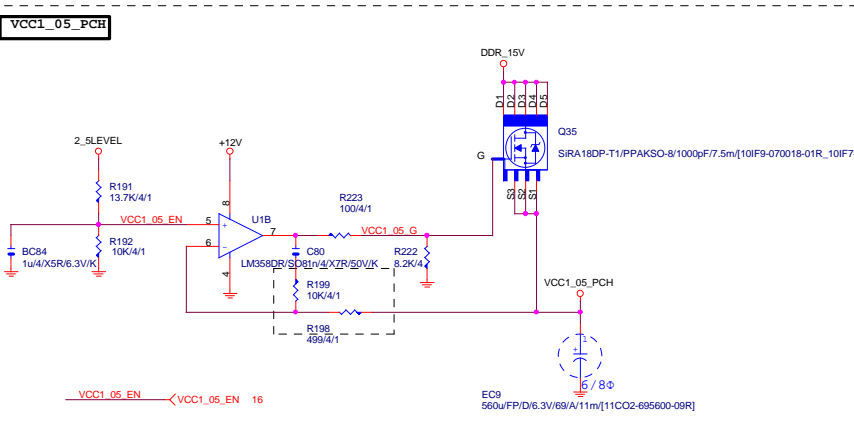
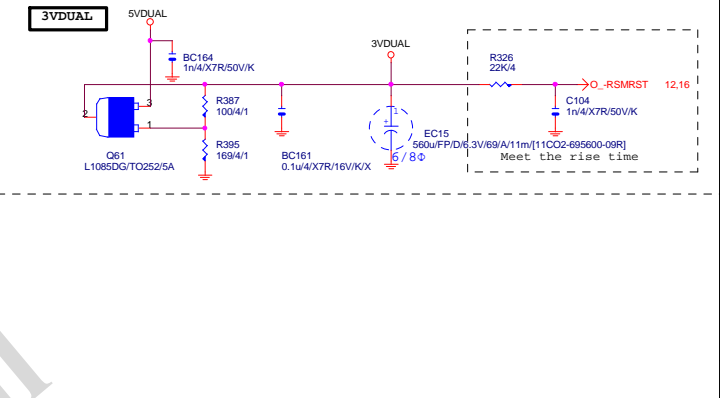
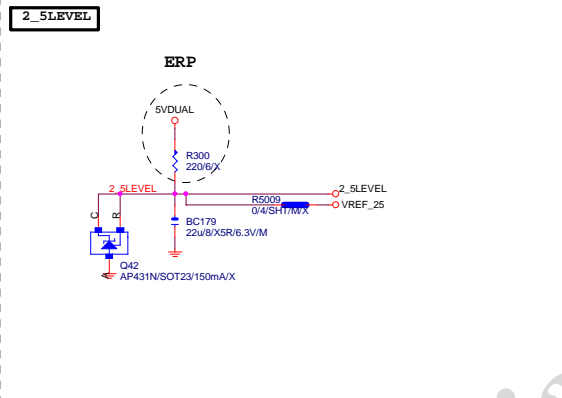
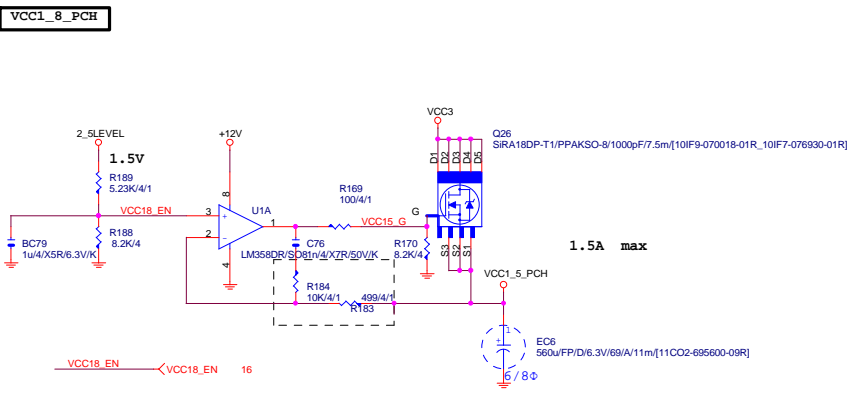
EMI SHORT PAD



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

BOM NOTICE *

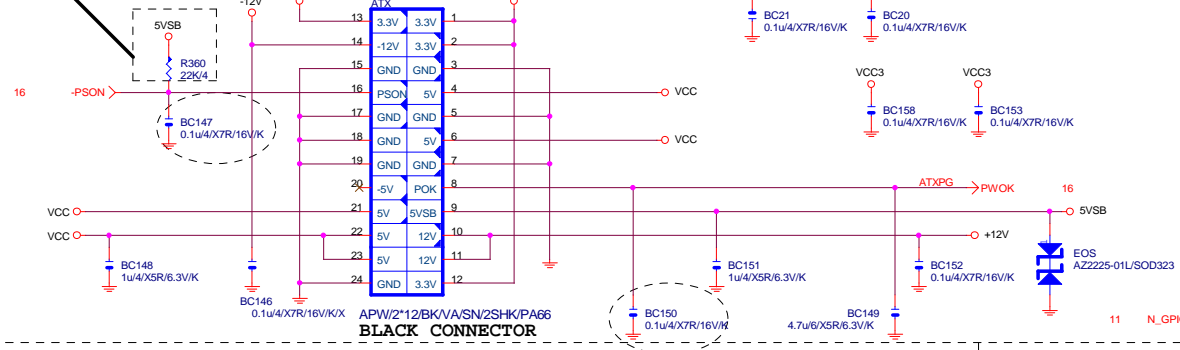
料號	規格	廠商
11NR6-702009-96R 1G LAN (12core)	UDE(RU9 ESD+)	
[LED獨立走線,可省略外加AZC099料件LAESD1]		
1. 9KV ESD BOM: USB_LAN (RU9):11NR6-702009-96R		
2. 28KV ESD BOM: USB_LAN (RU9):11NR6-702009-96R		
LAESD2, LAESD3: 上件AZC398-04S		



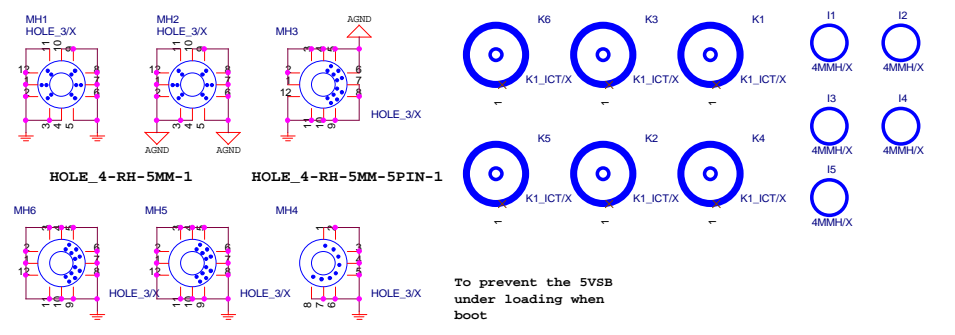
Gigabyte Technology		
DISCRETE POWER		
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ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】

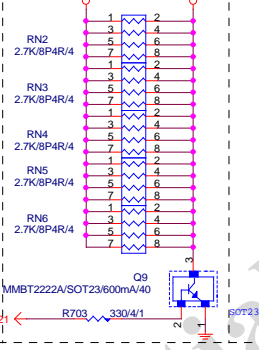


BLACK CONNECTOR



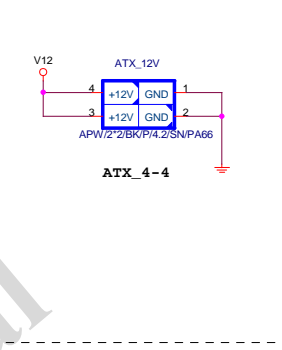
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



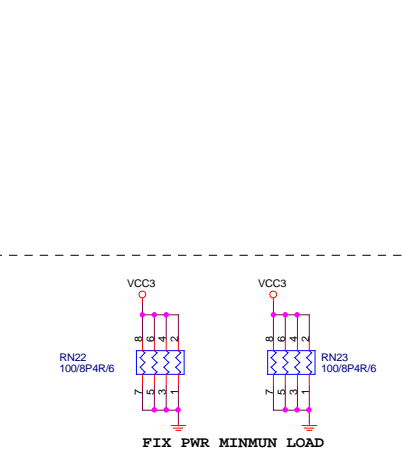
ATXX4 POWER CONNECTOR

To fix 12V light load abnormal issue



PWOK PATCH

【技術通報R&D技術通報154】

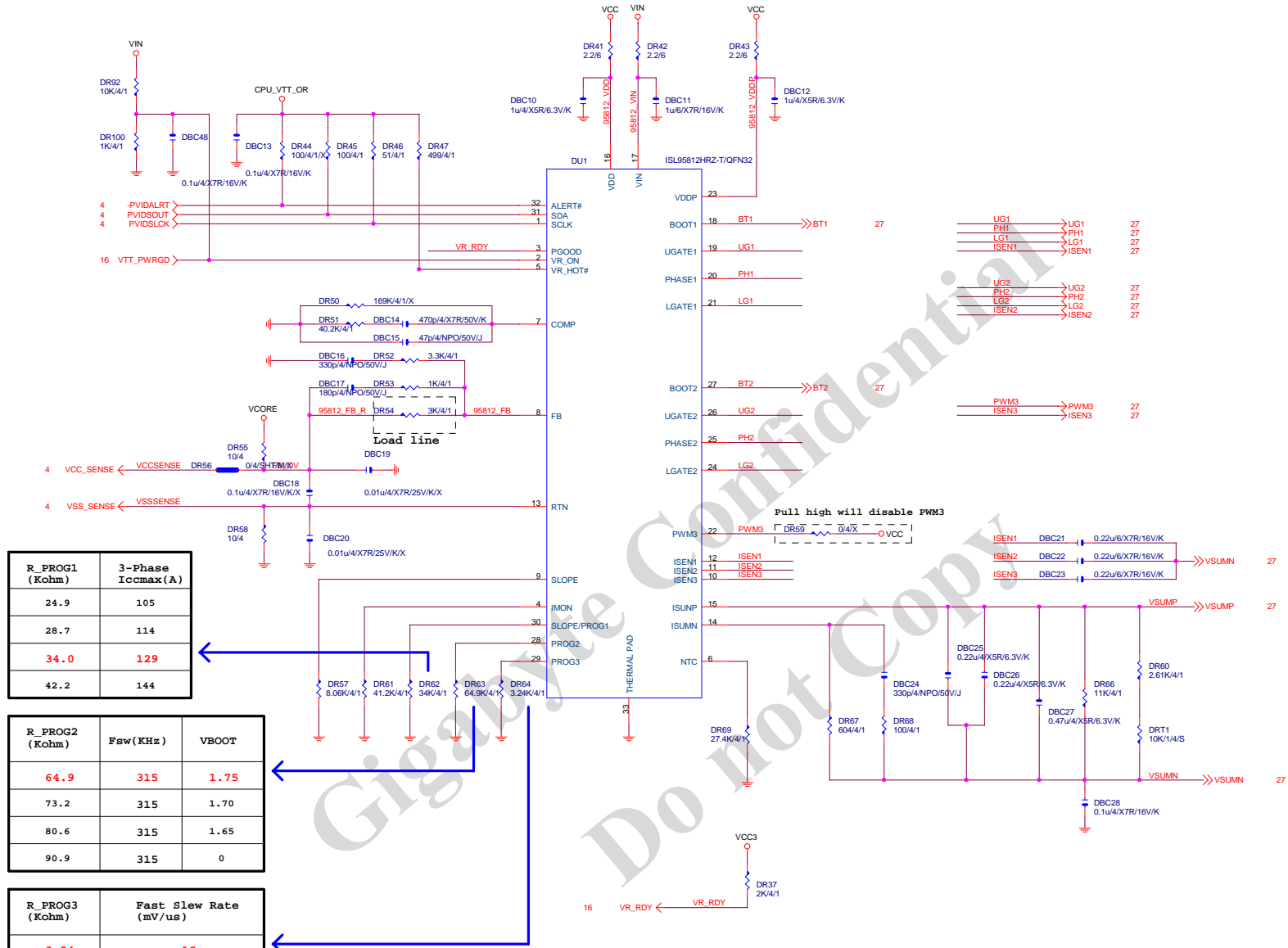


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ATX CONNECTOR

GA-H81M-DS2

Rev 3.0

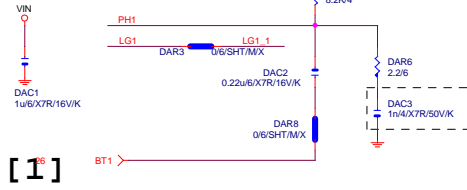
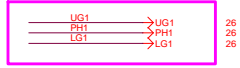


R_PROG1 (Kohm)	3-Phase Iccmax (A)
24.9	105
28.7	114
34.0	129
42.2	144

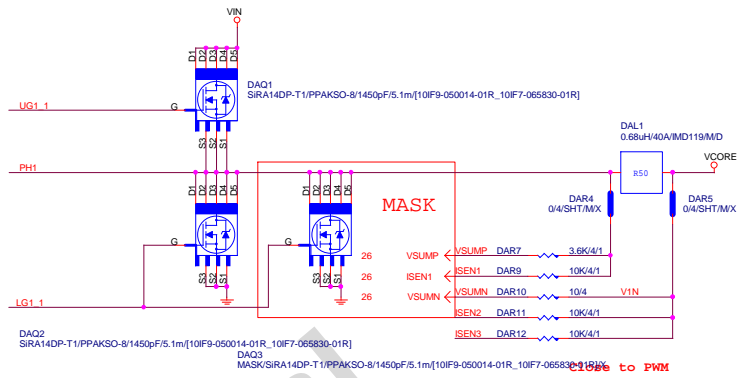
R_PROG2 (Kohm)	Fsw (KHz)	VBOOT
64.9	315	1.75
73.2	315	1.70
80.6	315	1.65
90.9	315	0

R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45

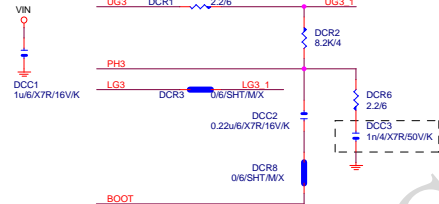
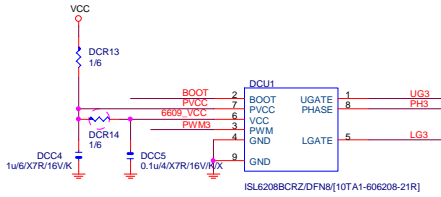
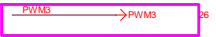
PHASE 1



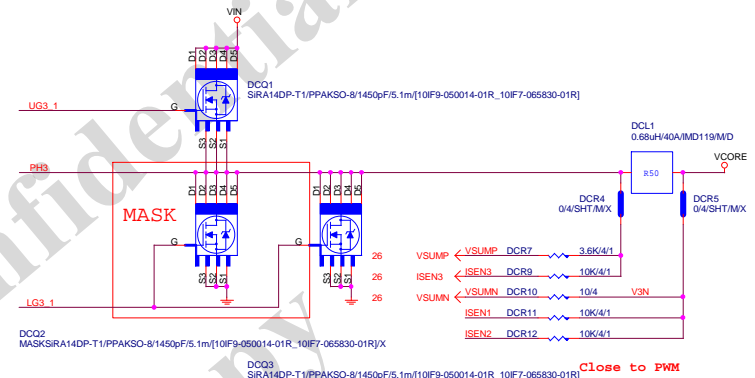
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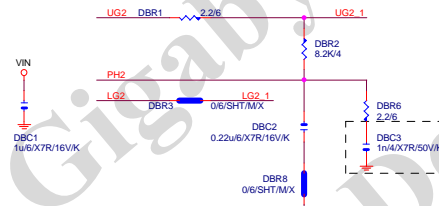
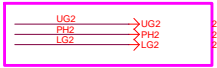
PHASE 3



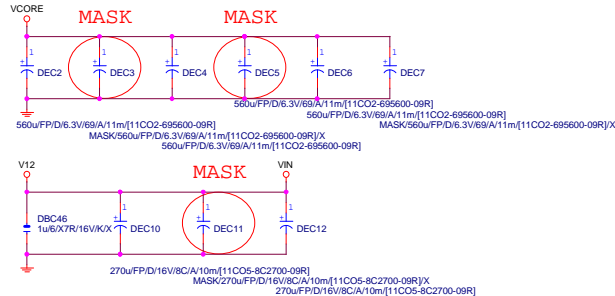
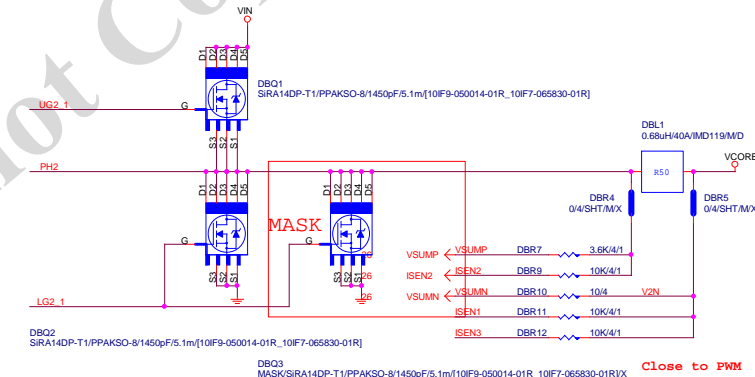
[3]



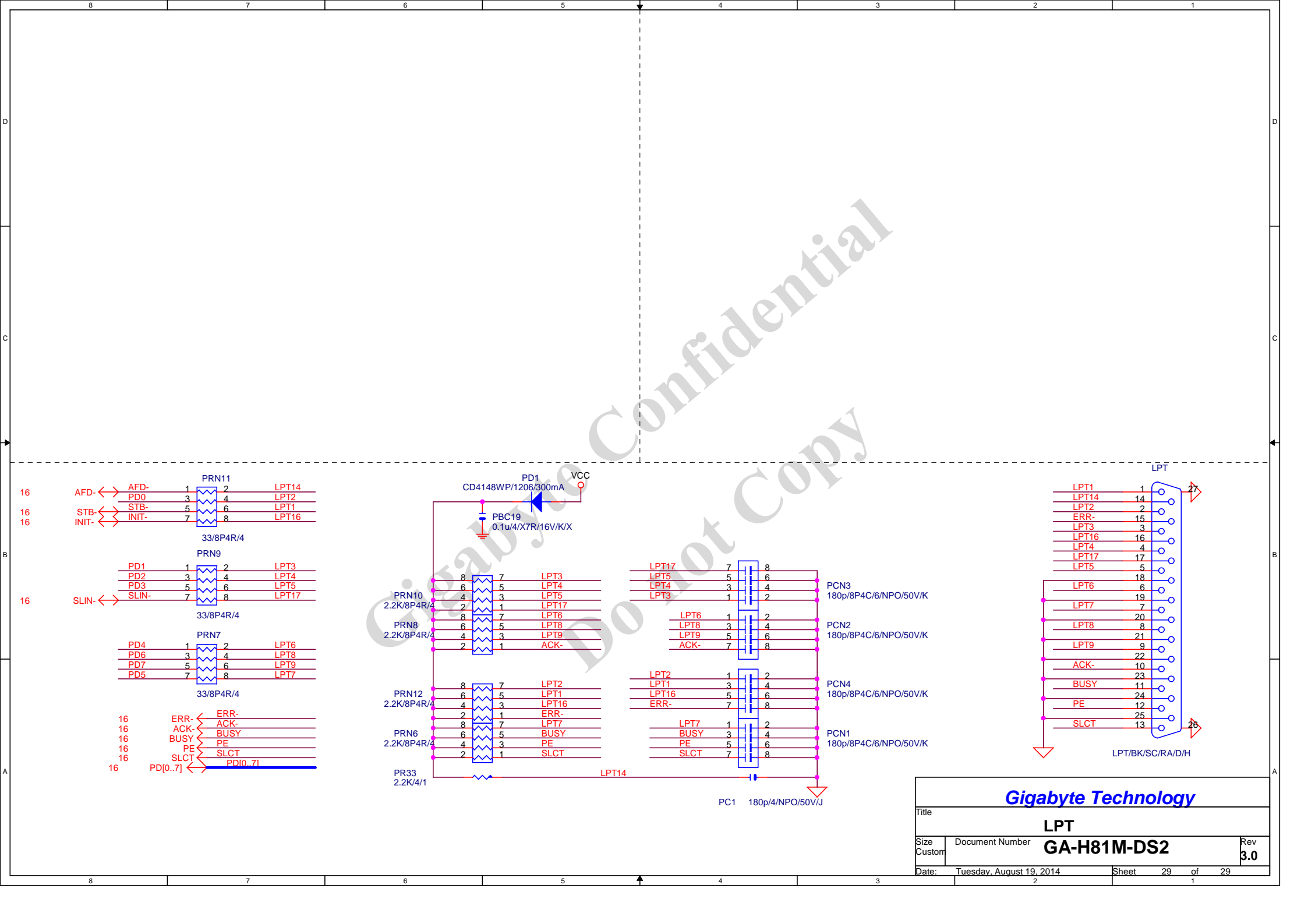
PHASE 2



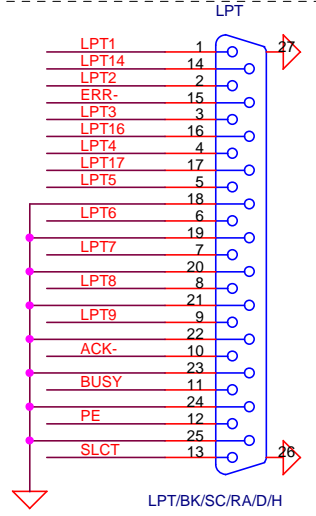
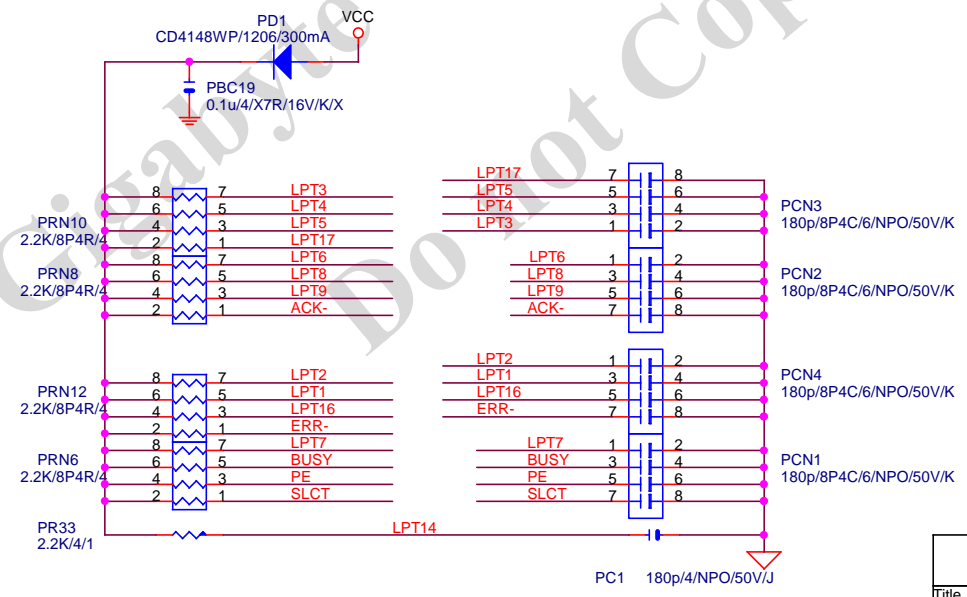
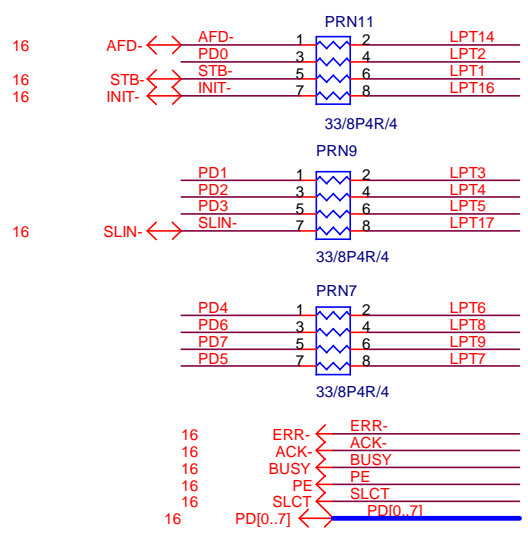
[2]



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LPT		
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