

# Model Name: IPMH81G1 DB

SHEET

TITLE

Revision 2.01 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
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

28	RT8120_DDR POWER
29	HDMI
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Cover Sheet		
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**Model Name: IPMH81G1 DB**


## Component value change history

2013/07/04

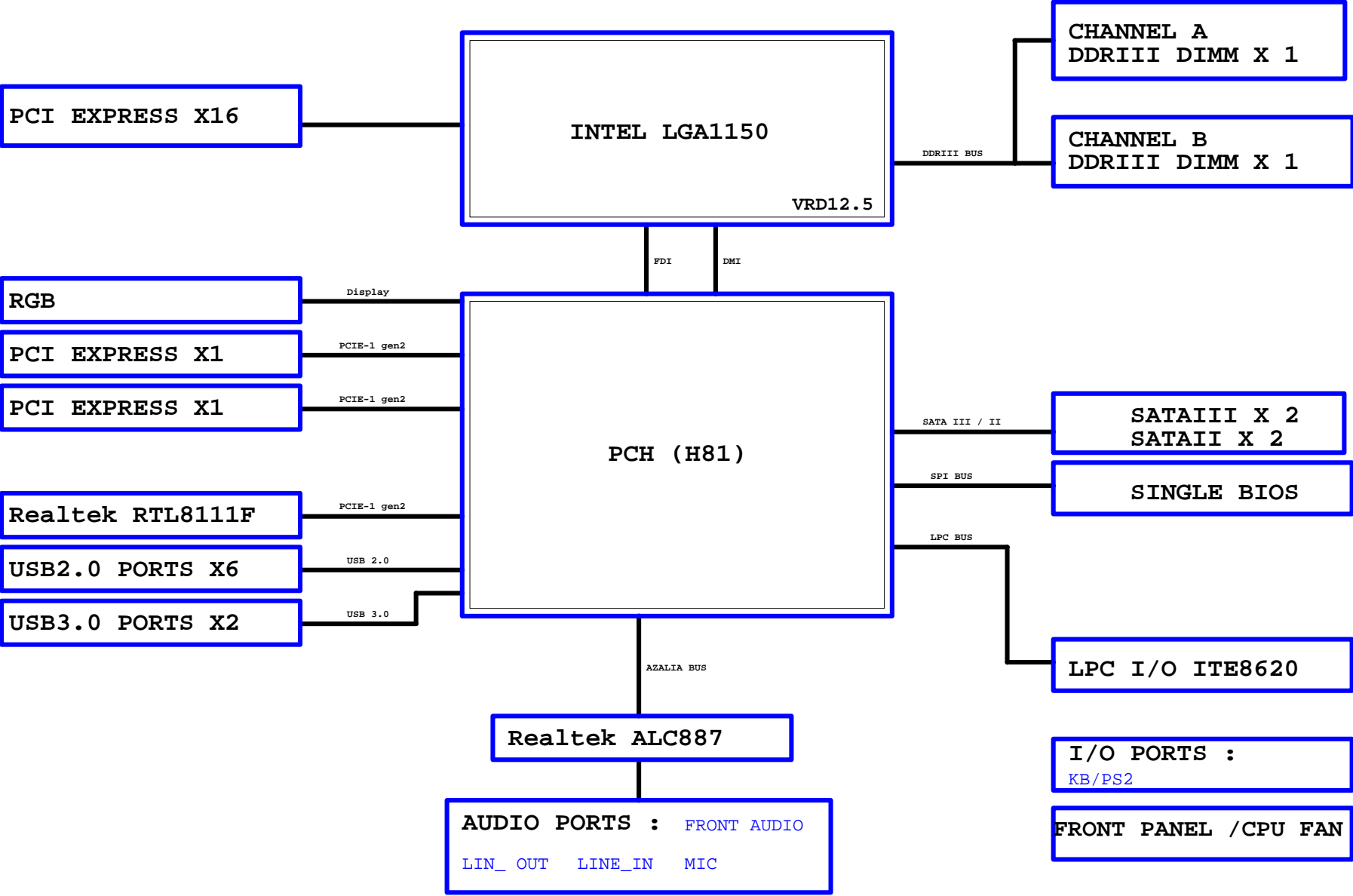
[illegible]

## Circuit or PCB layout change

[illegible]

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Size Custom	Document Number	<div style="text-align: center;"> <b>IPMH81G1 DB</b> </div>	
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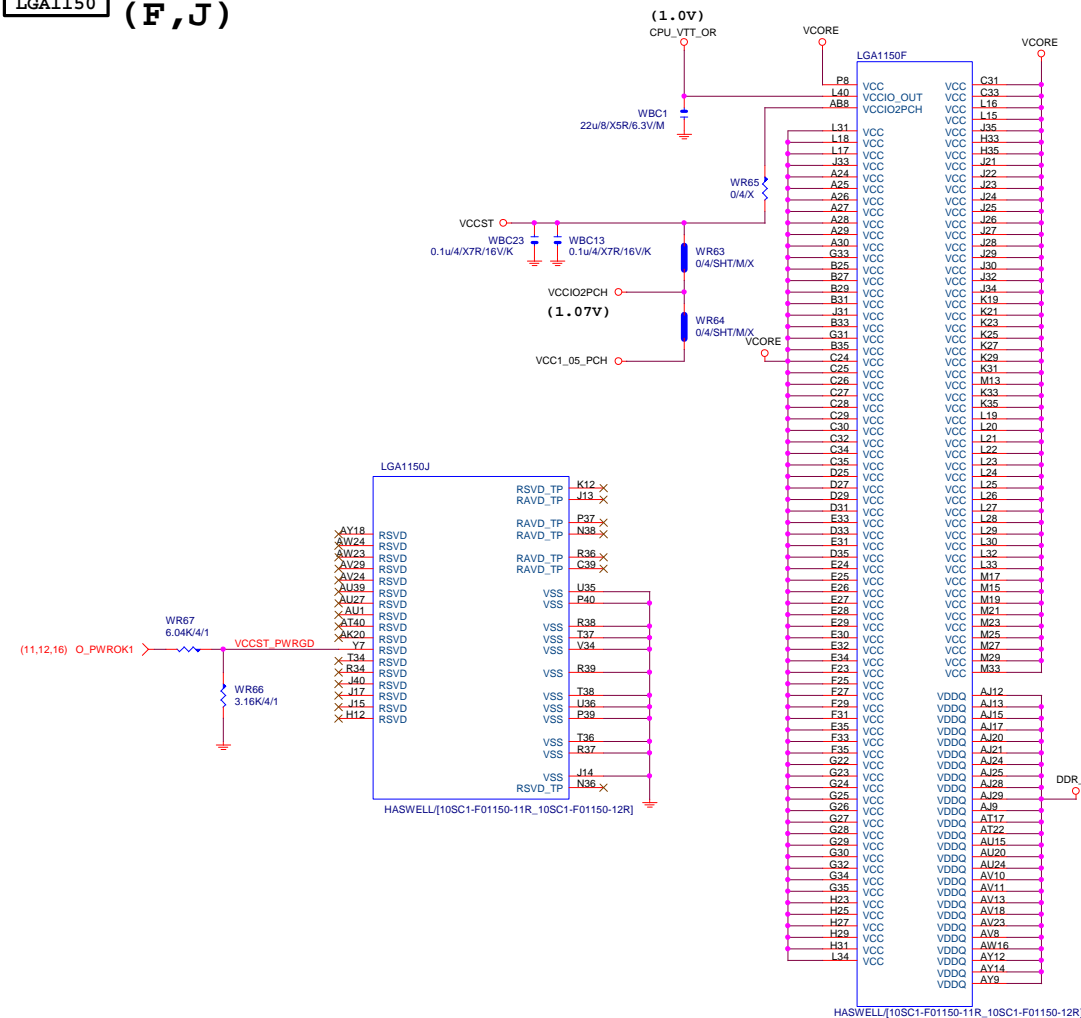
BLOCK DIAGRAM



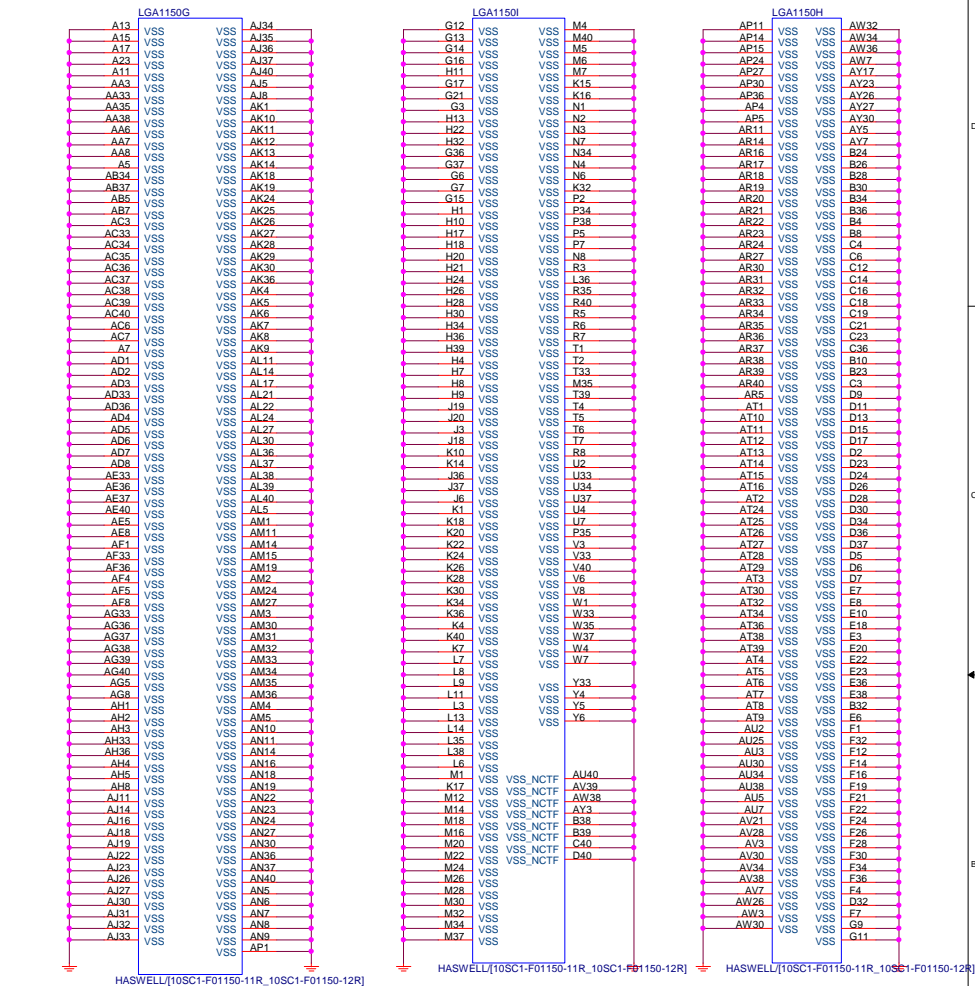




**LGA1150 (F,J)**

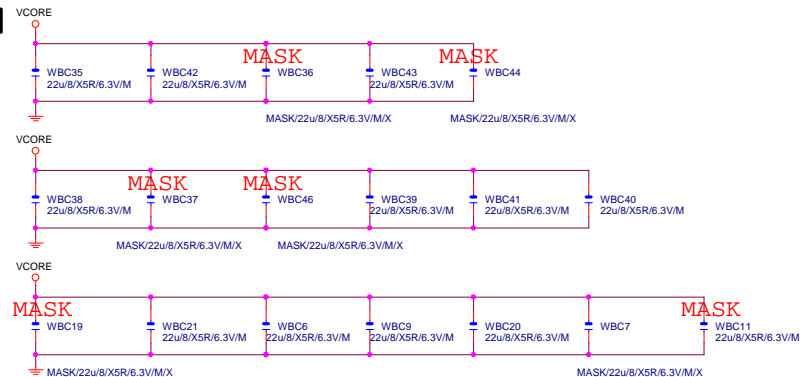


LGA1155 (G,H,I)



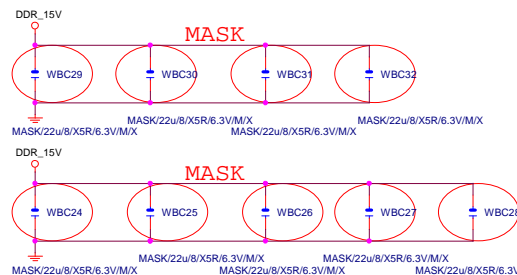
## VCore CAP

(X18)



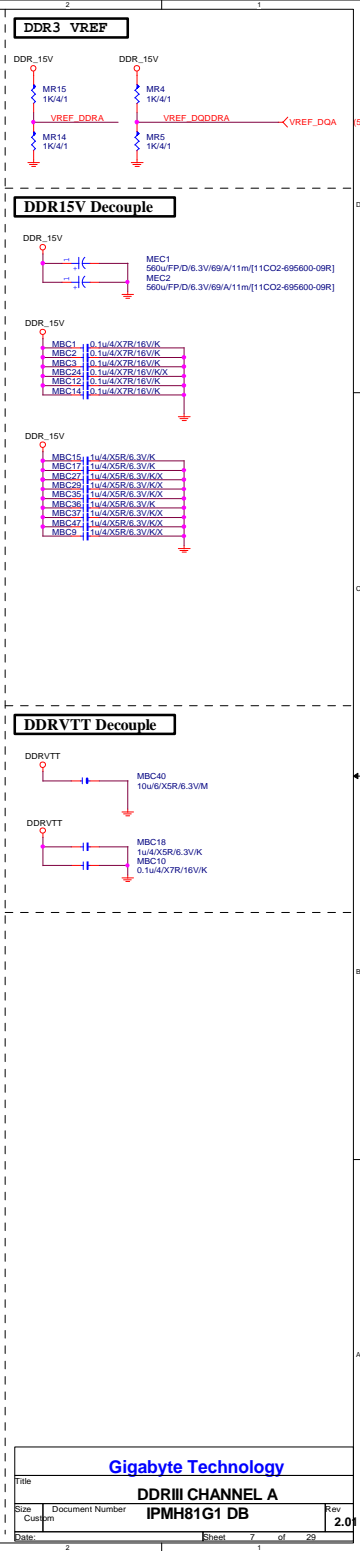
## DDR CAP

(x9)



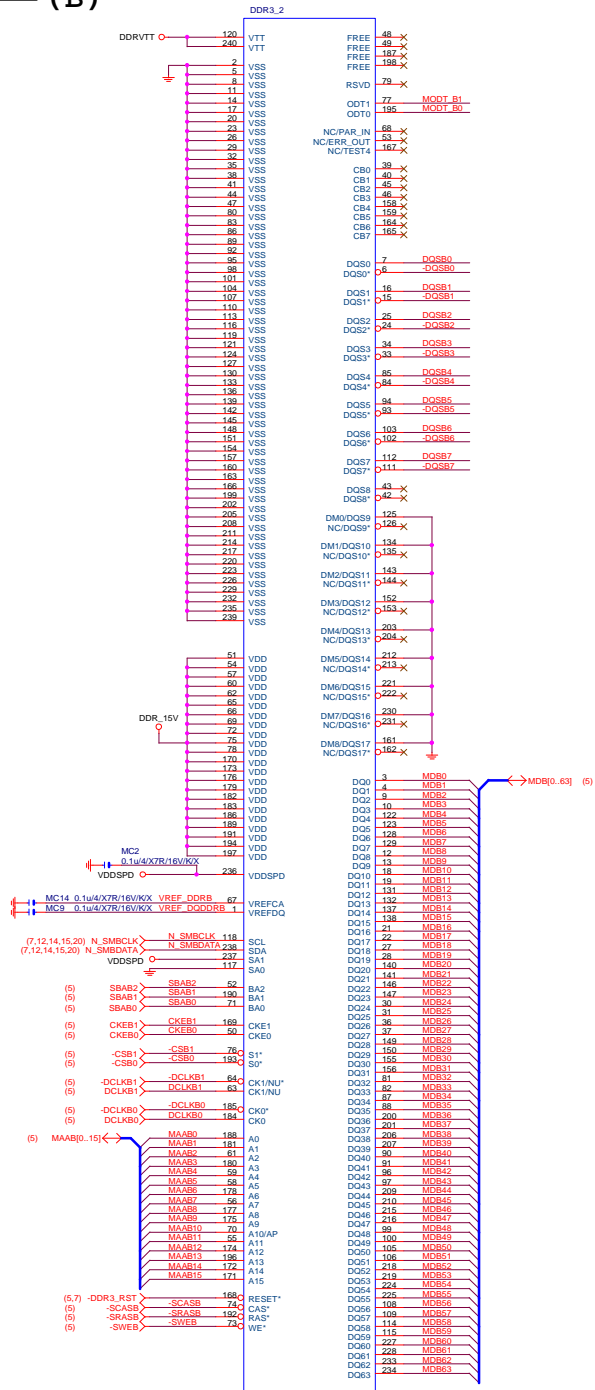
## Gigabyte Technology

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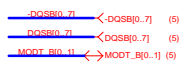


DDR3

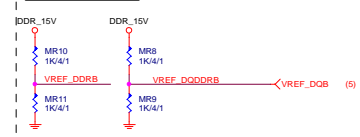
(B)



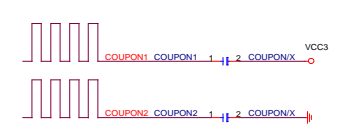
DDR3\_240/BK/VA/D  
BLACK CONNECTOR



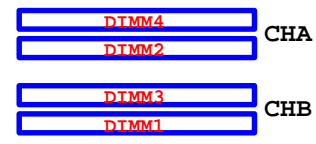
DDR3 VREF



COUPON

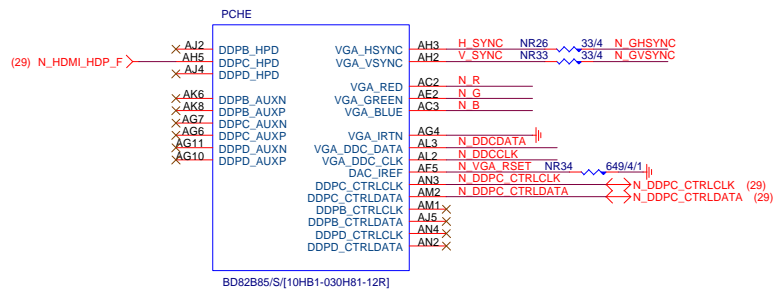


CPU

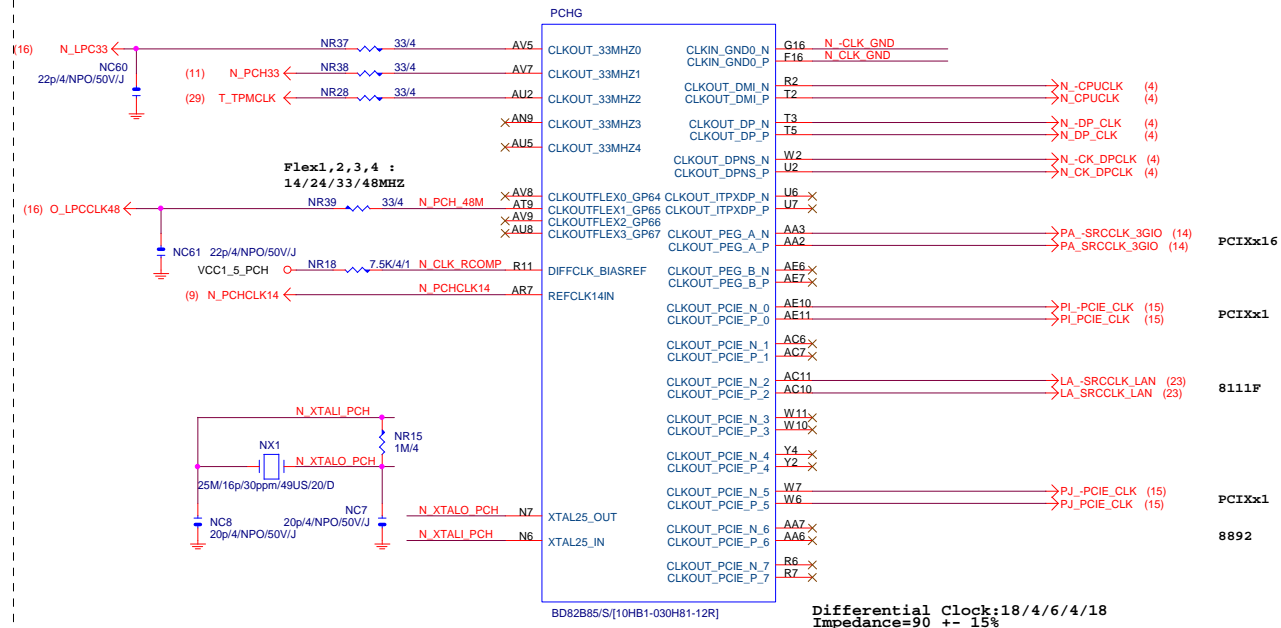




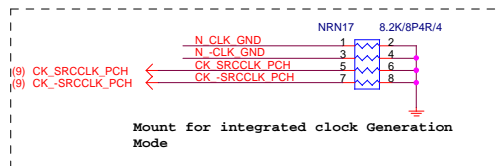
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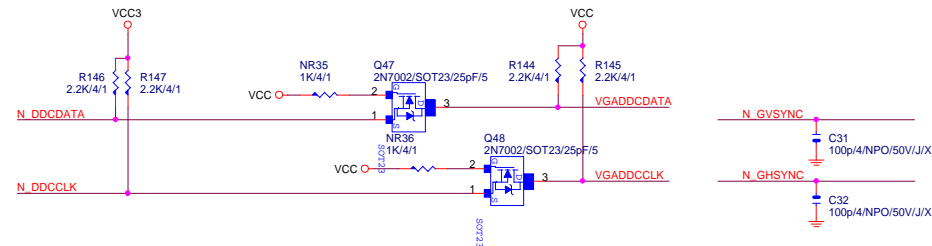
**PCH (G)**



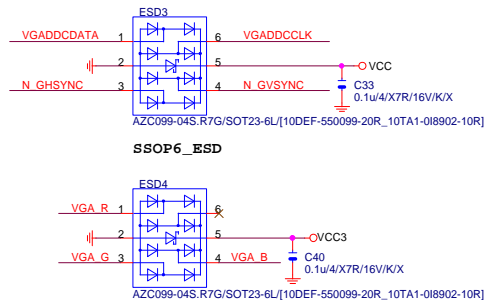
PCH CLK PD



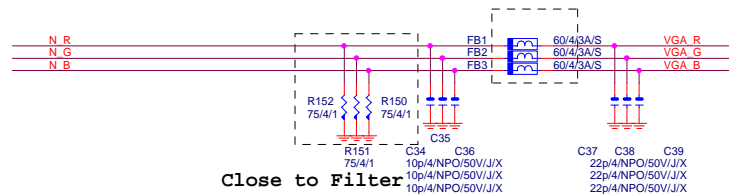
## VGA DDC



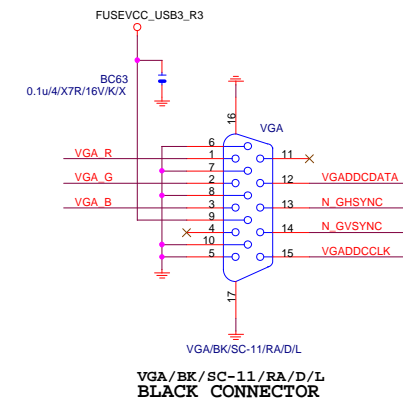
## VGA ESD



## VGA DDC



## VGA CONNECTOR



## Gigabyte Technology

### PCH DISPLAY\_CLK BUFFER

IPMH81G1 DB

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Date:

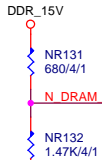
Tuesday, July 2

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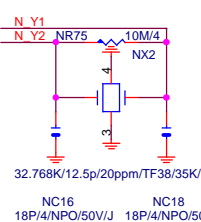
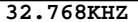
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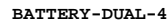
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## HSW\_STRAP13



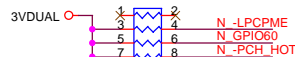
CLR\_CMOS



## ACZ SDOUT



## PCH PII/PT

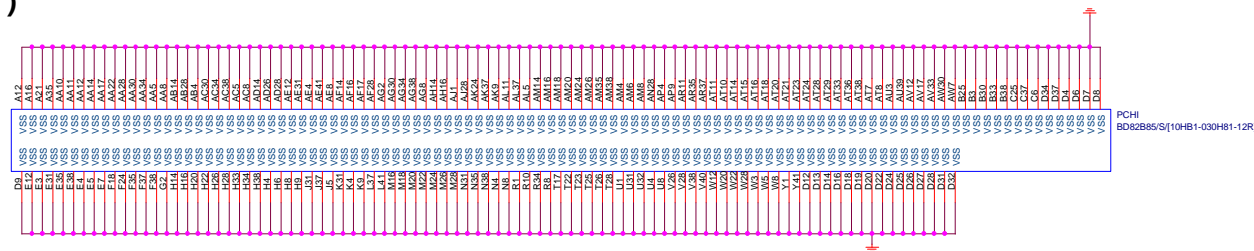


## Gigabyte Technology

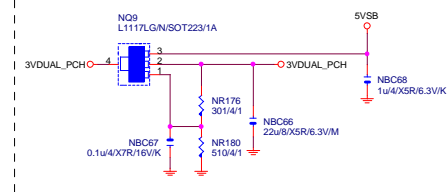
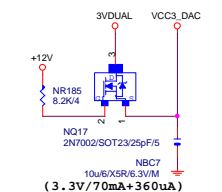
## PCH GPIO , CTRL , AUDIO

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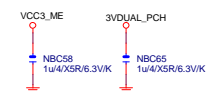
**PCH (I)**



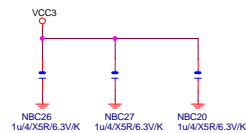
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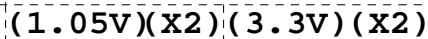
## Gigabyte Technology



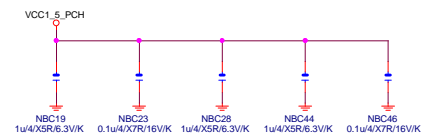
( 3.3V ) ( X6 )



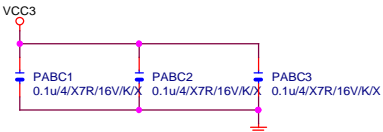
(1.05V) (x5)



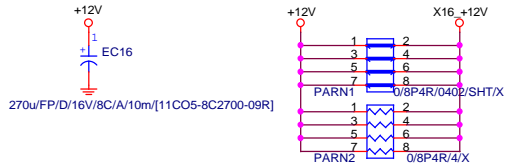
(1.05V) (x10)



# PCIEX16 CAP



# PCIEX16 PROTECT SHT

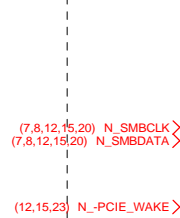


# PCIEX16 AC CAP

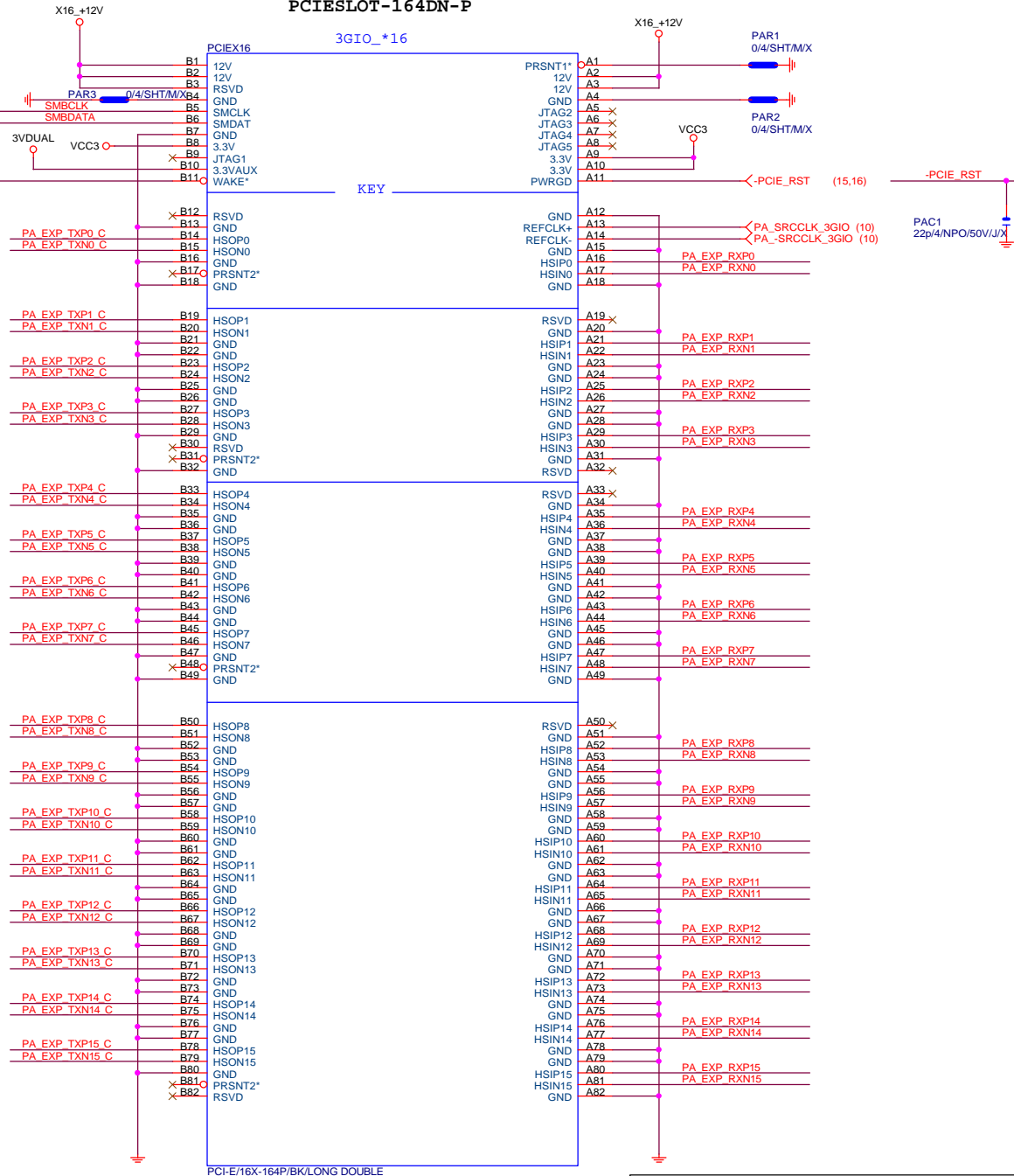
PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP 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
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 RXIP0.15] >>> PA\_EXP\_RXIP[0.15] (4)  
 PA EXP RXN0.15] >>> PA\_EXP\_RXN[0.15] (4)  
 PA EXP TXIP0.15] >>> PA\_EXP\_TXIP[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

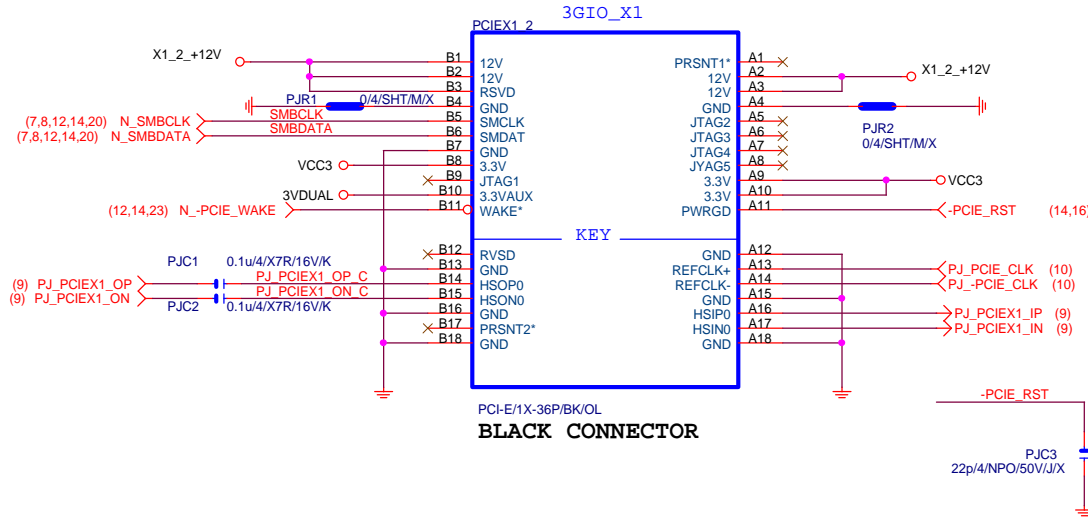
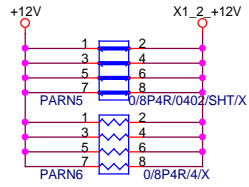
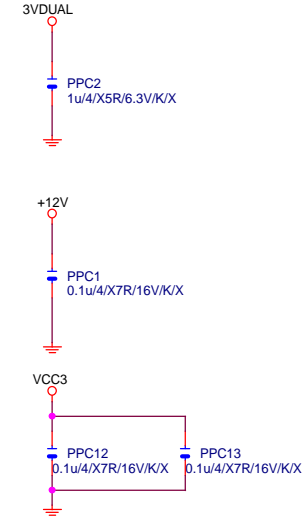
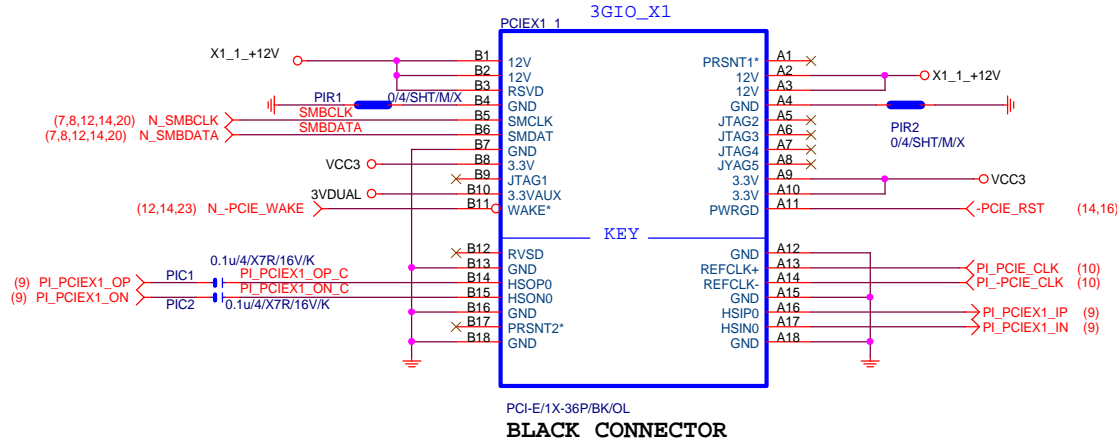
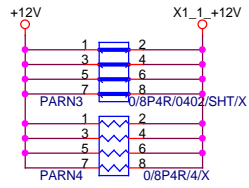
BLACK CONNECTOR

Gigabyte Technology

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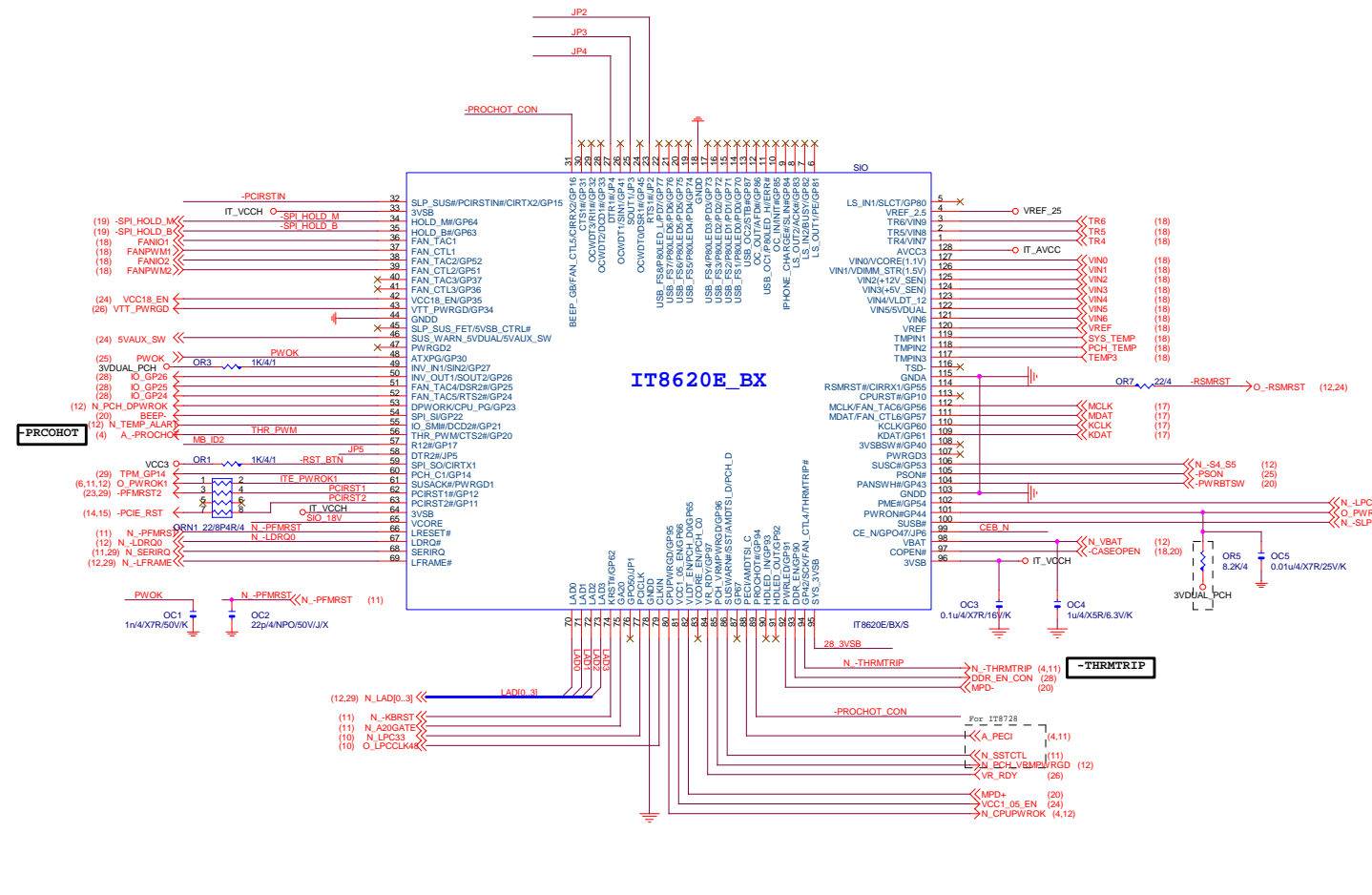
# PCIEX1 SLOT

# PCIEX1 PROTECT SHT

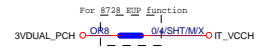


Gigabyte Technology			
PCI EXPRESS X 1 PORT			
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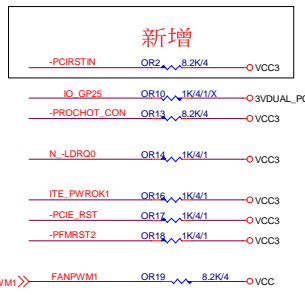
SIO IT8620



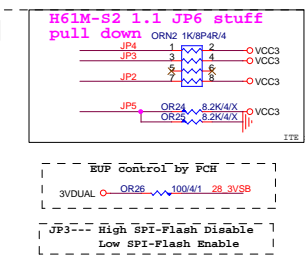
PWR SHT



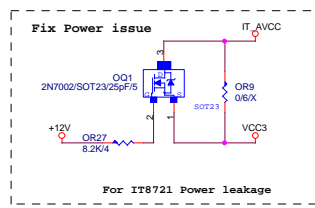
SIO PU



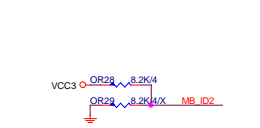
SIO STRAP



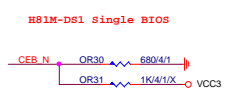
Power leakage



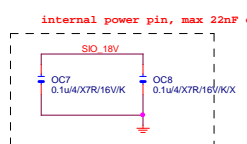
MB ID



DUAL BIOS OPT STRAP



SIO\_18V



SIO CAP

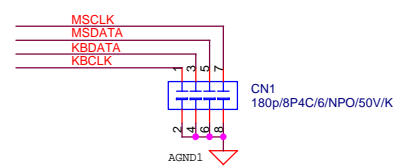
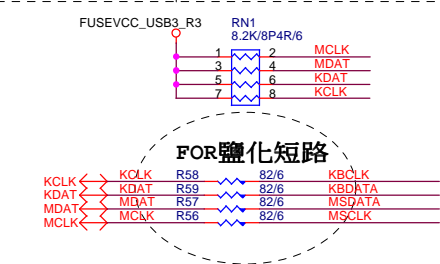
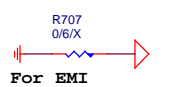
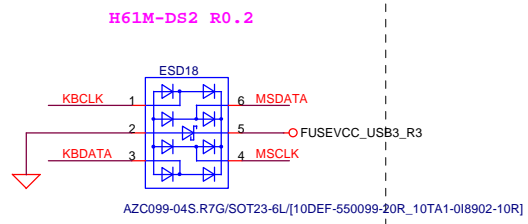
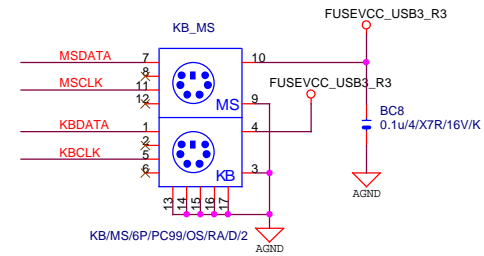


COM

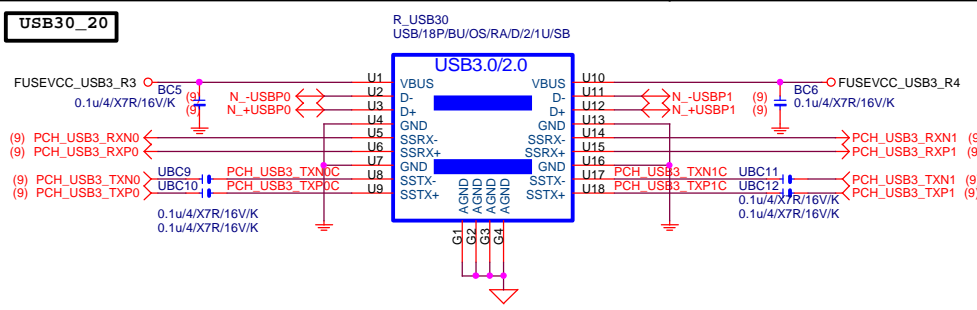
KB/MS

KB\_MS ESD

COM RI



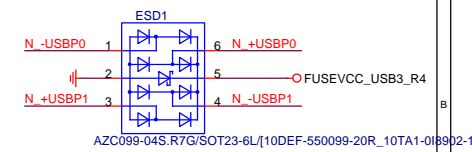
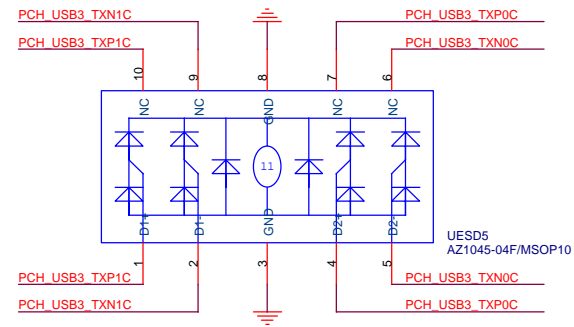
USB30\_20



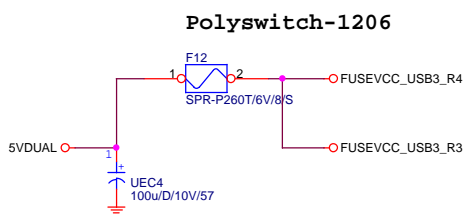
USB30\_20 ESD PROTECT

USB3.0 ESD

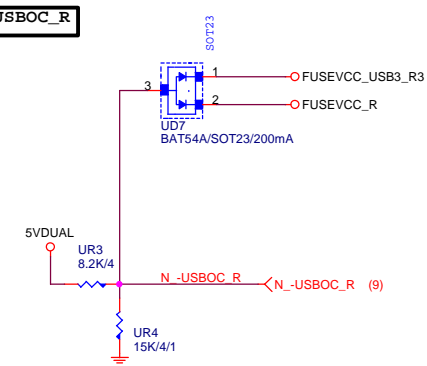
USB POWER PROTECT



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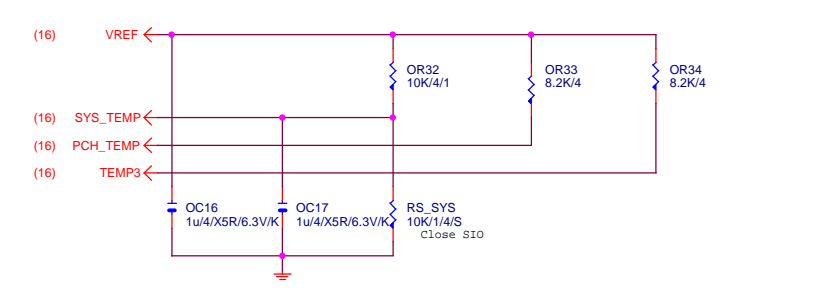


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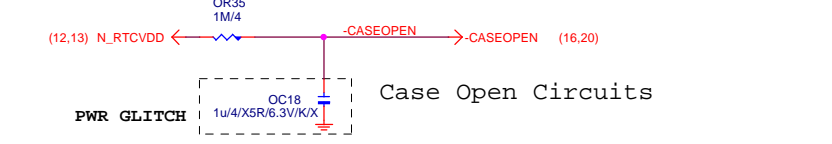


USB3.0 1Port - 1Fuse (3.5A)

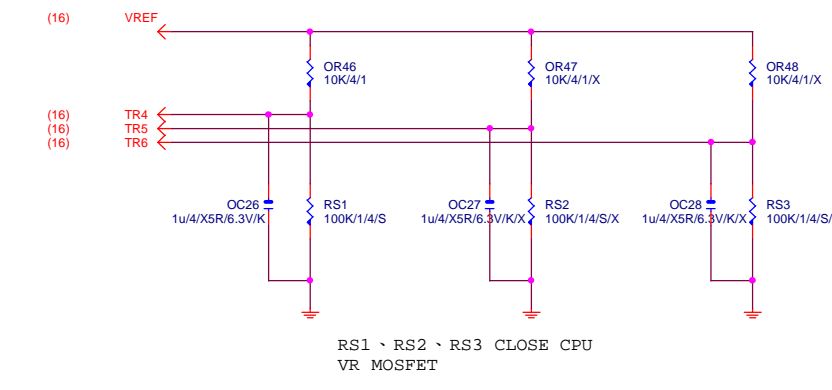
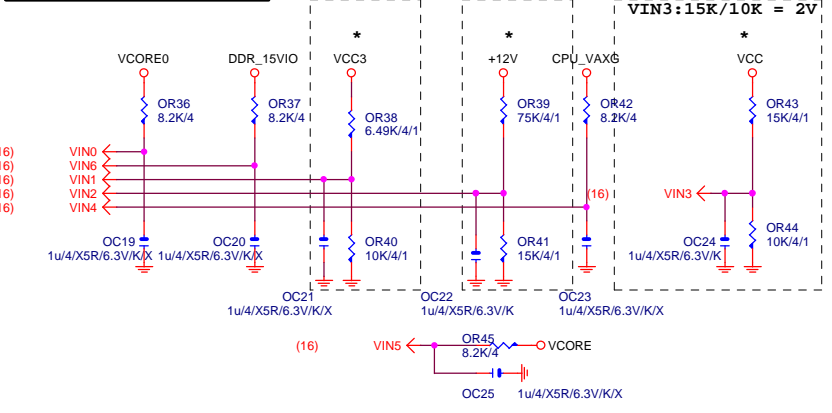
TEMP H/W MONITOR



CASE OPEN

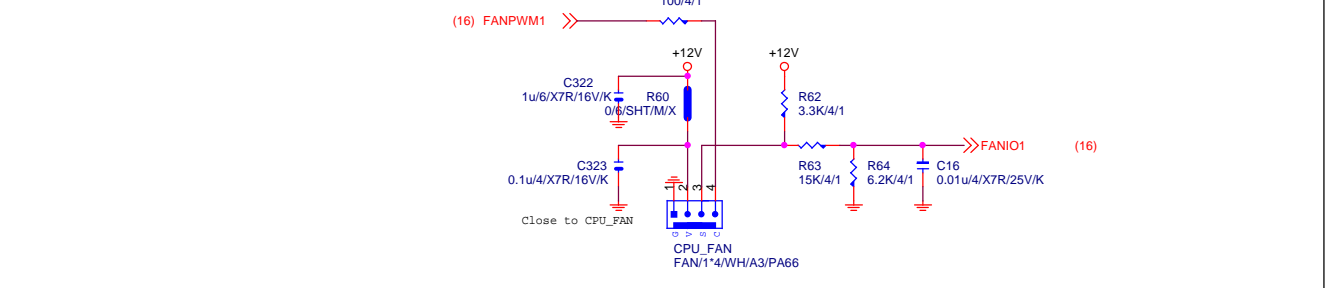


VOLTAGE-- H/W MONITOR

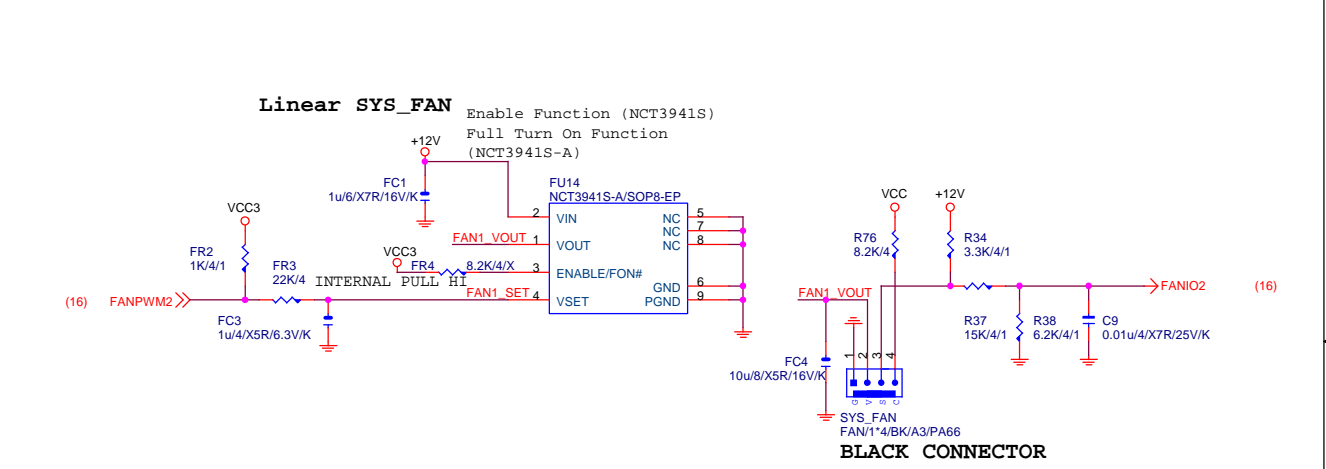


RS1、RS2、RS3 CLOSE CPU  
VR MOSFET

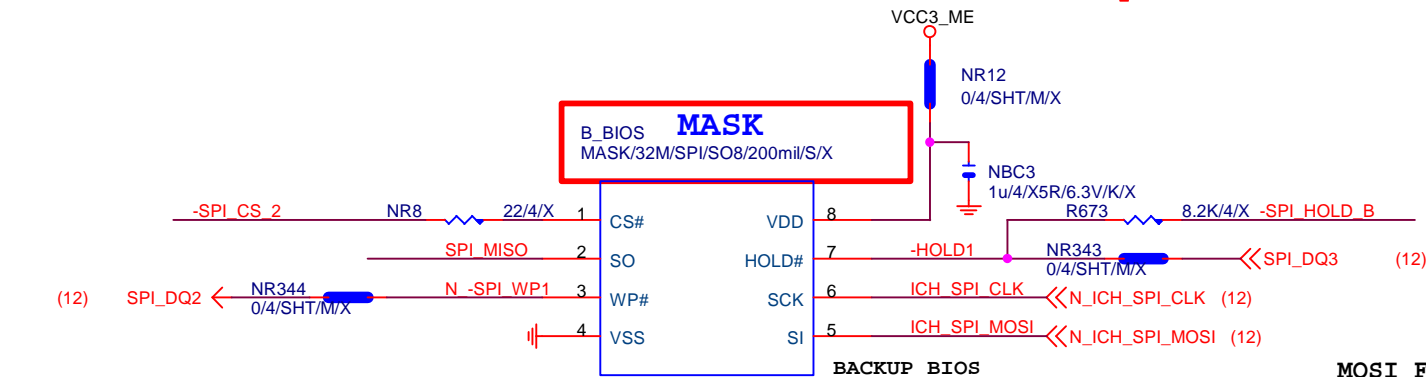
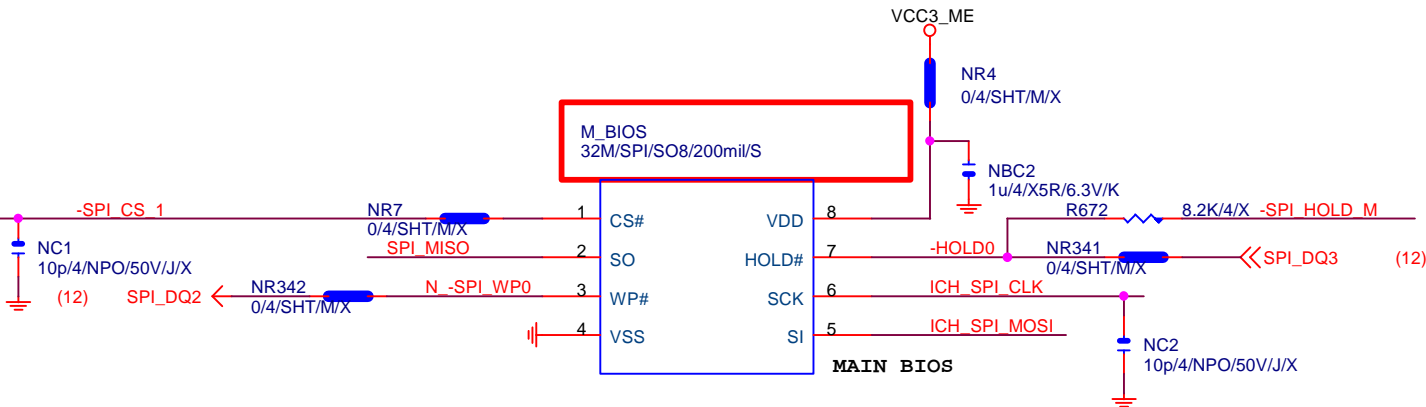
CPU SMART FAN



SYS SMART FAN



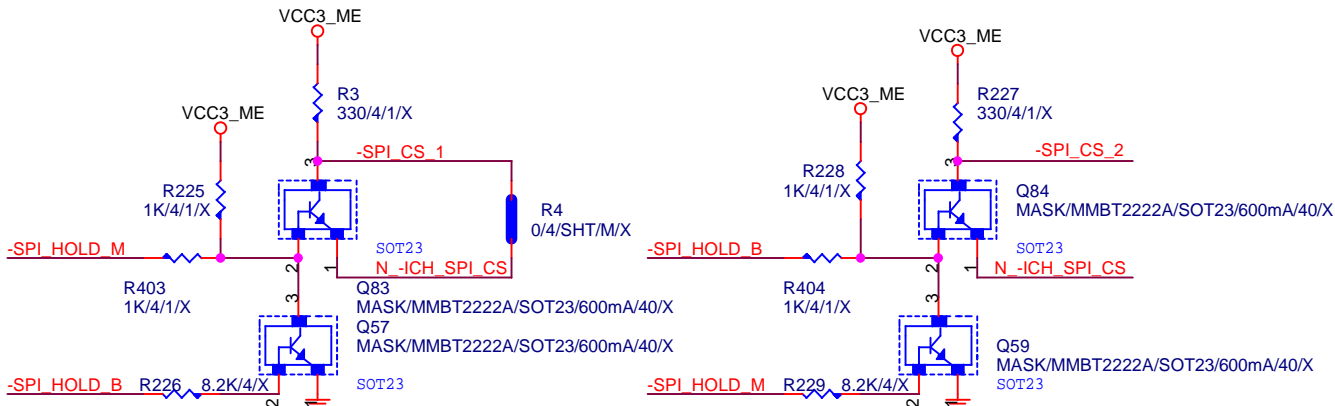
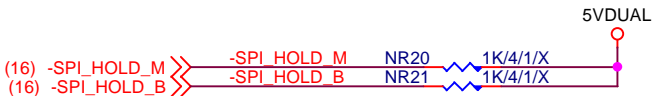
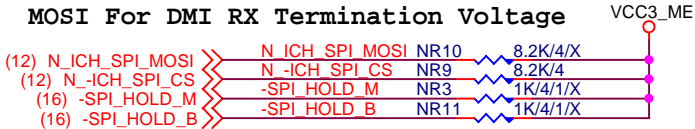
-PROHOT



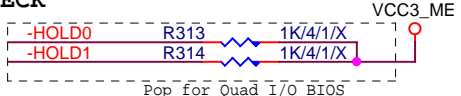
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating  
0 means PD 1K

MOSI For DMI RX Termination Voltage



CHECK



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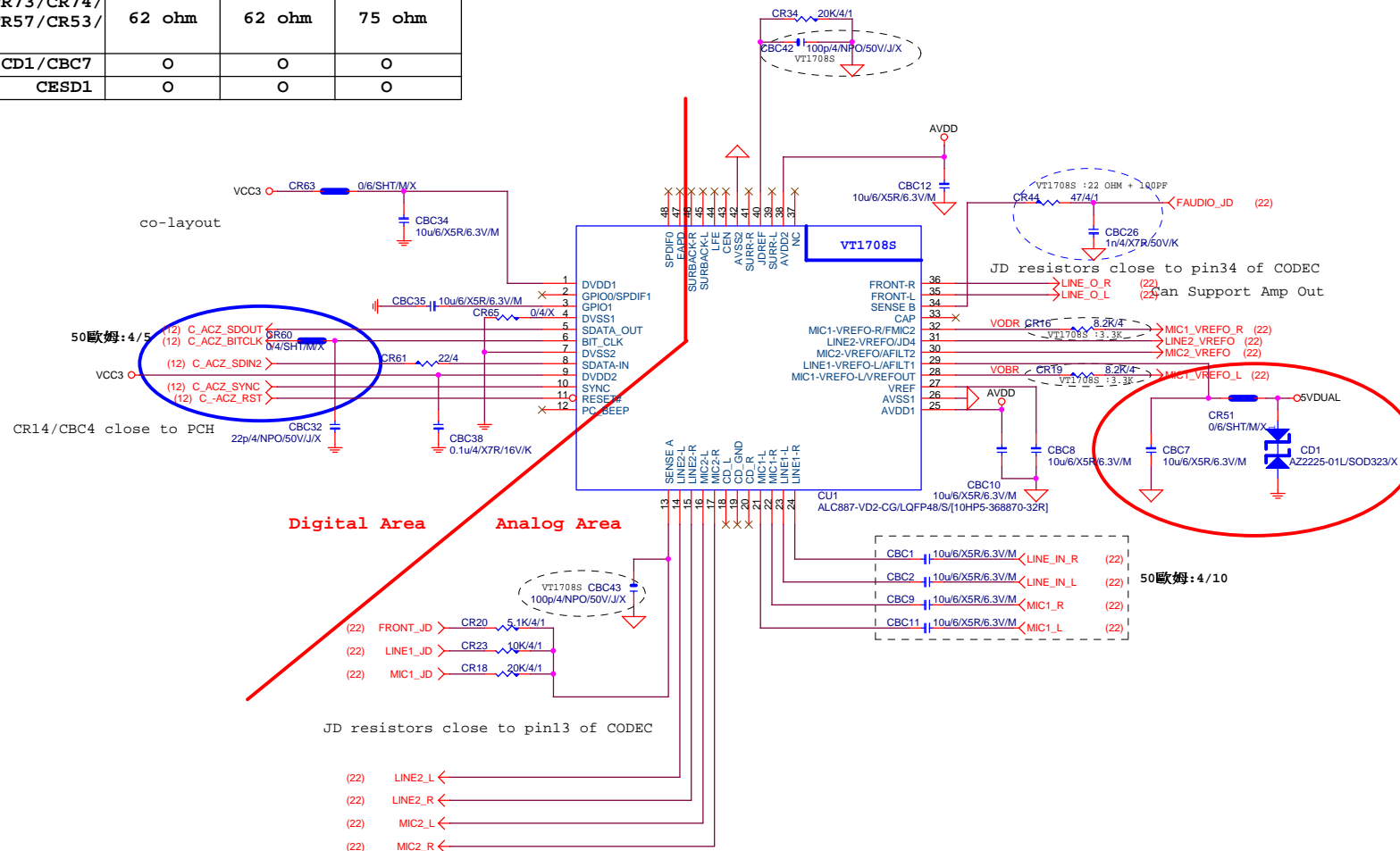
DUAL BIOS

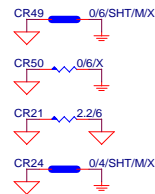
Title		DUAL BIOS	
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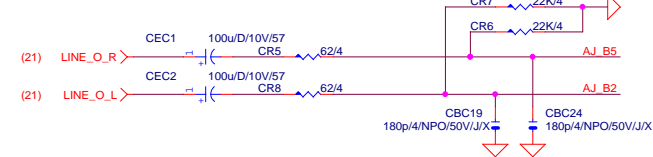
AZALIA CODEC ALC892/ALC887-VD2/VT1708-CE Colay

	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





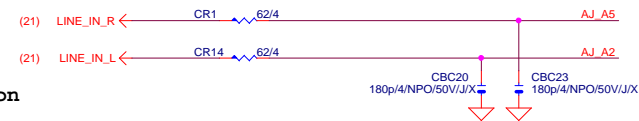
## LINE-OUT



## LINE-IN

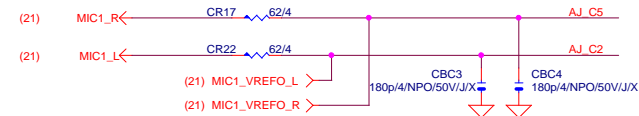
Verify MIC function  
in LINE-in

Only reserved for ALC888

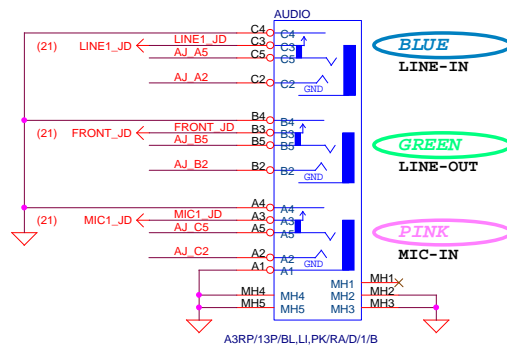


For 889A/888

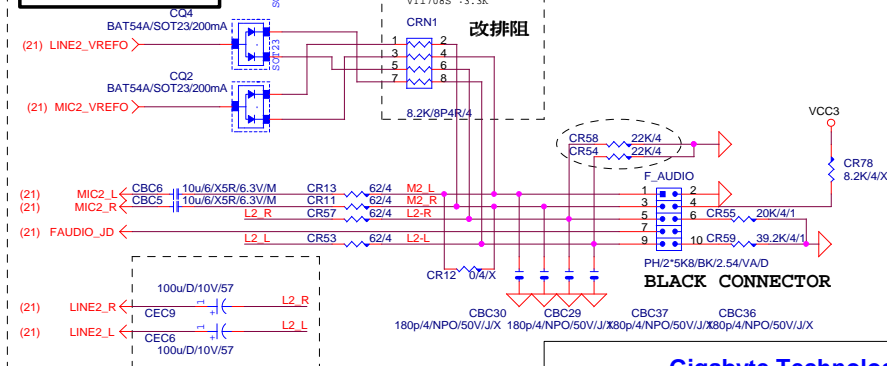
## MIC-IN



## SPDIF\_OUT



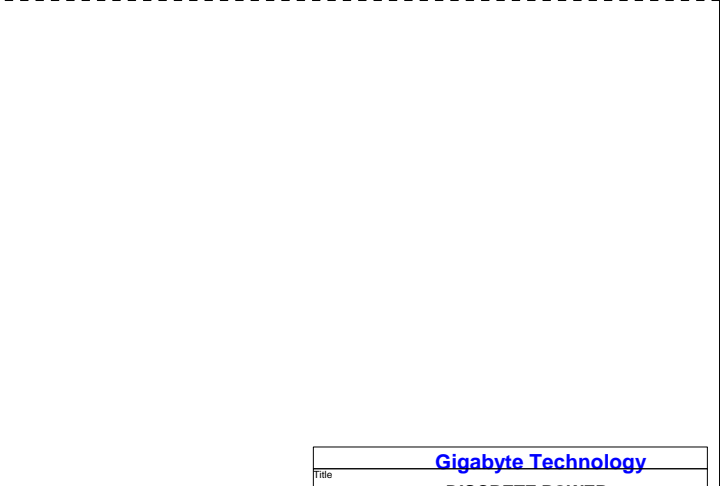
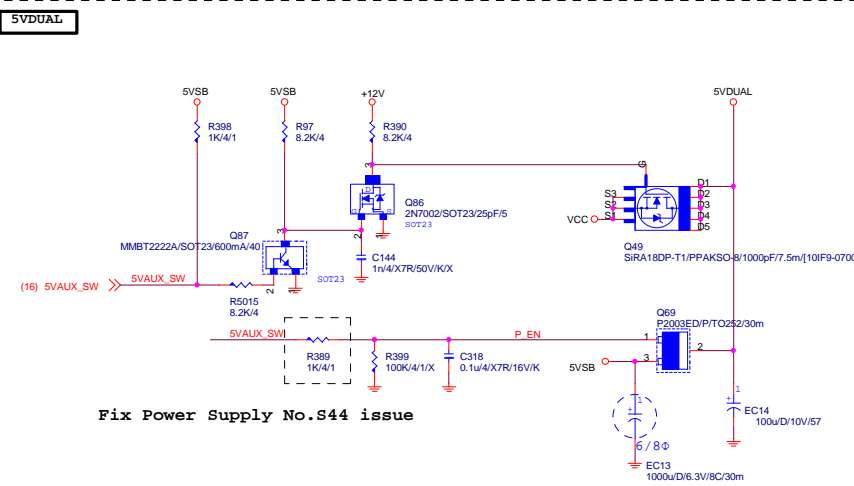
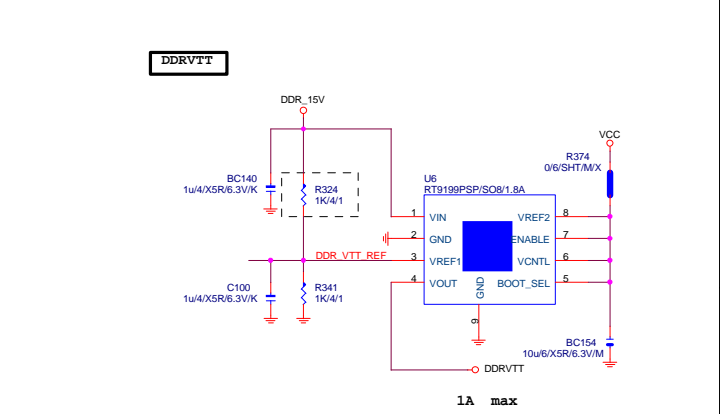
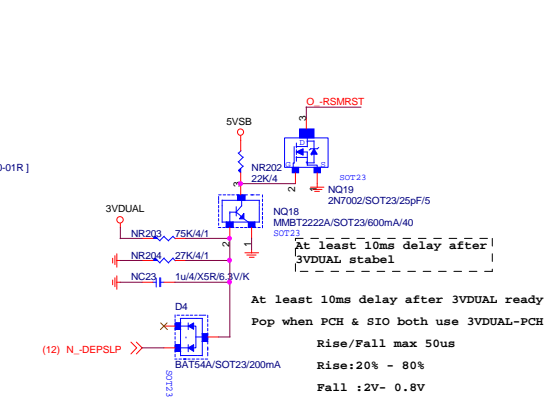
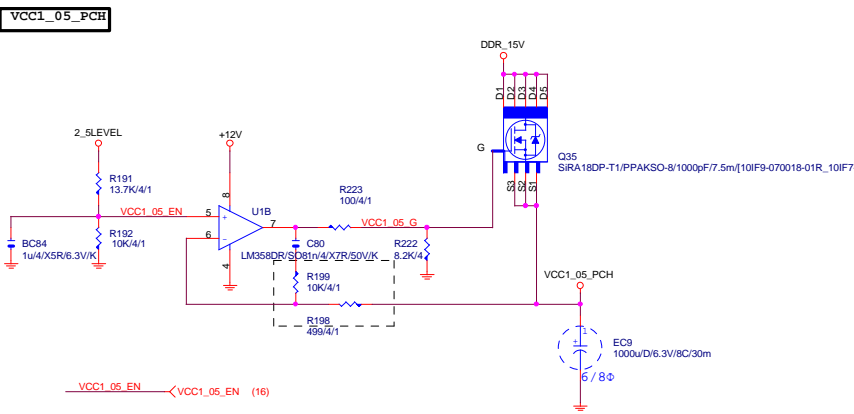
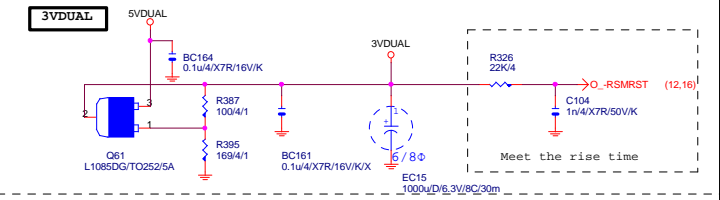
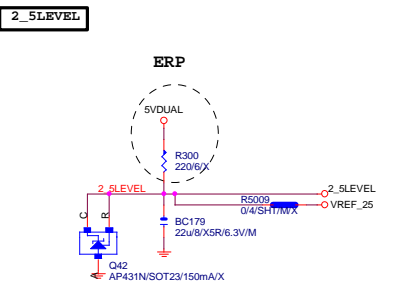
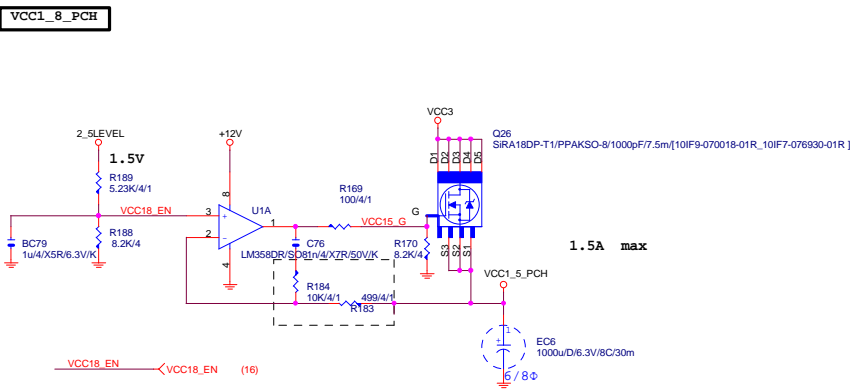
## AZALIA FRONT PANEL



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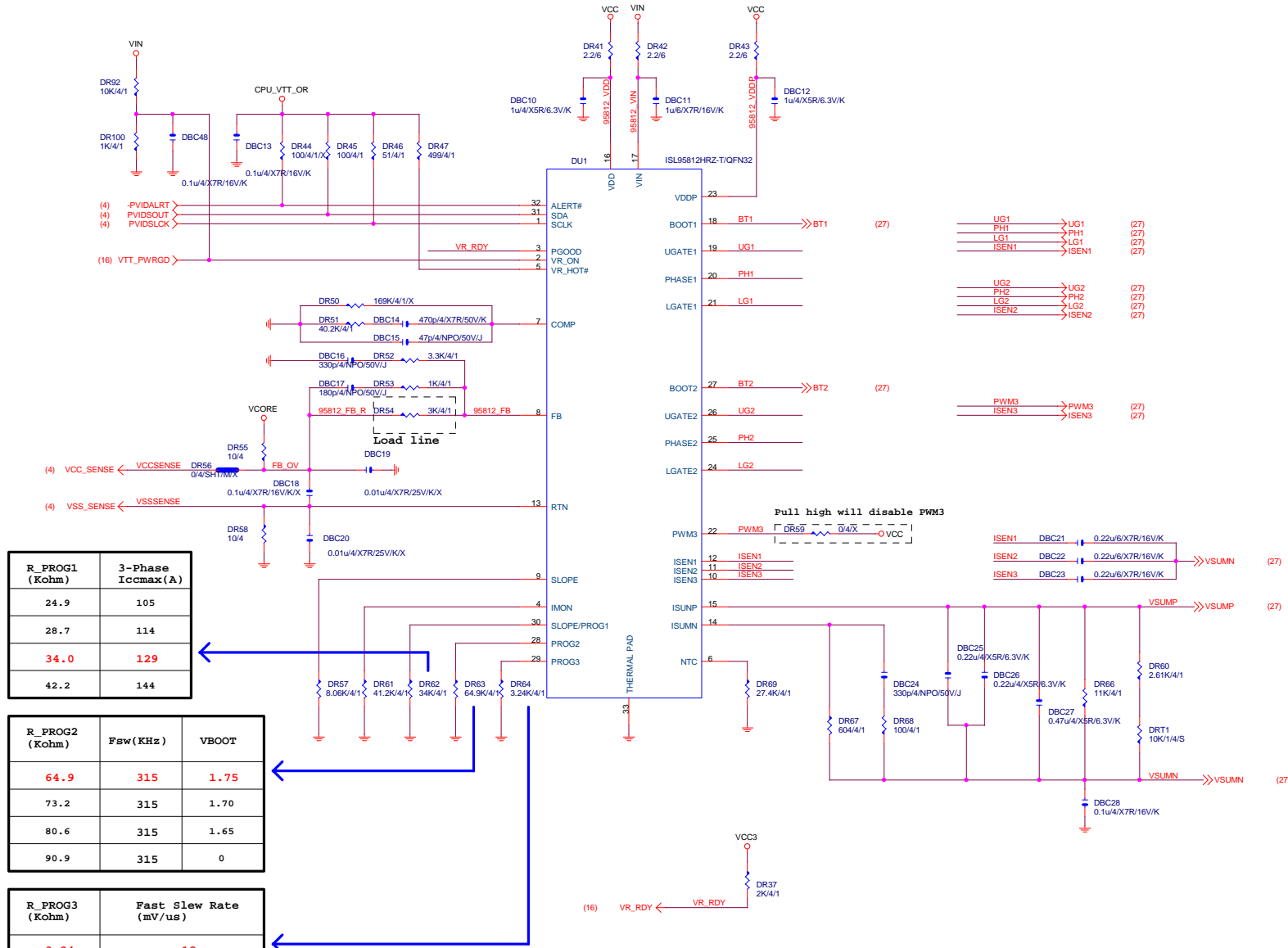
Title			
AUDIO JACK			
IPMH81G1 DB			
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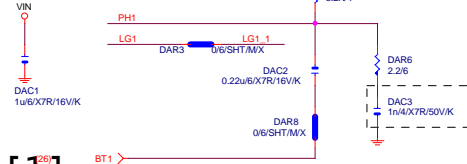
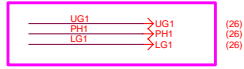


Fix Power Supply No.S44 issue

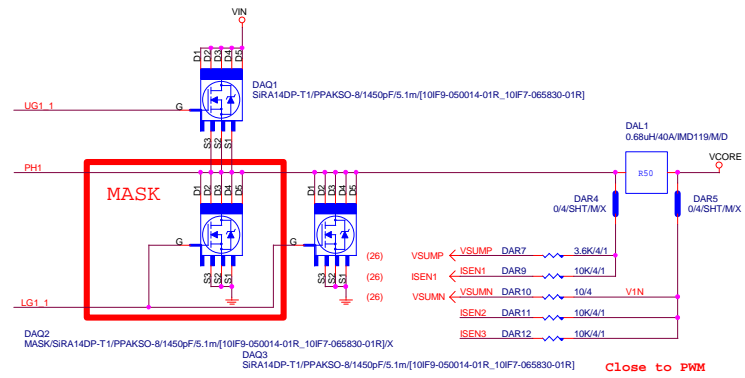




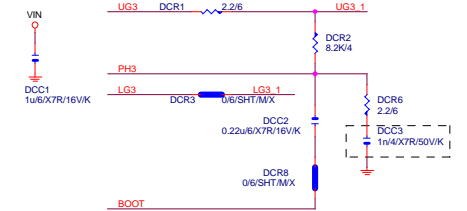
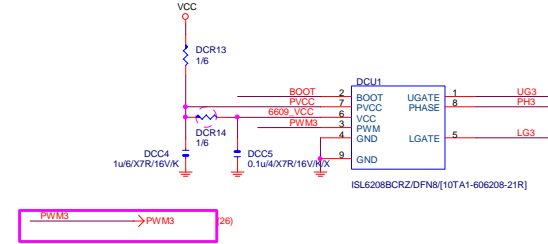
# PHASE 1



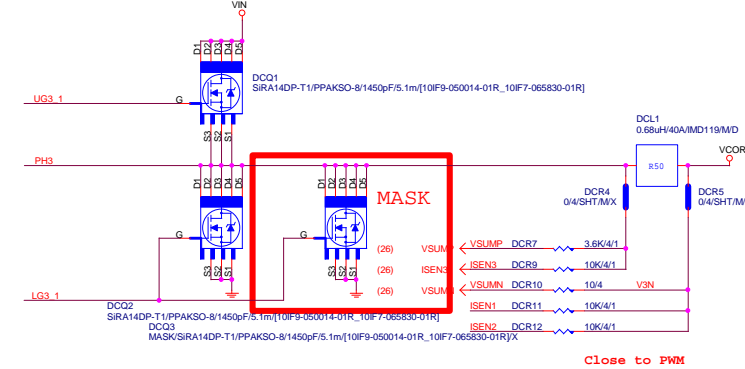
[1]



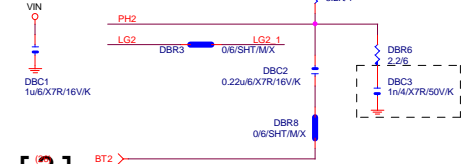
# PHASE 3



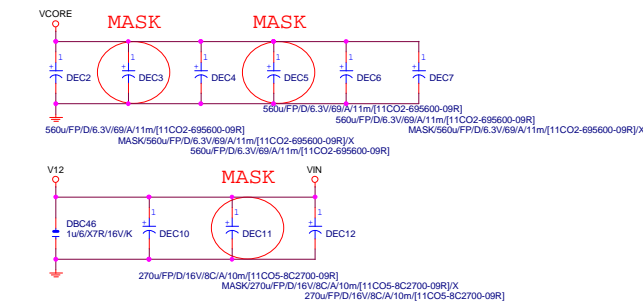
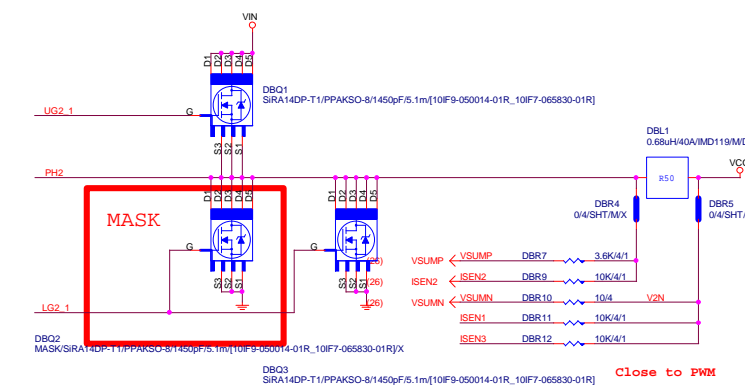
[3]



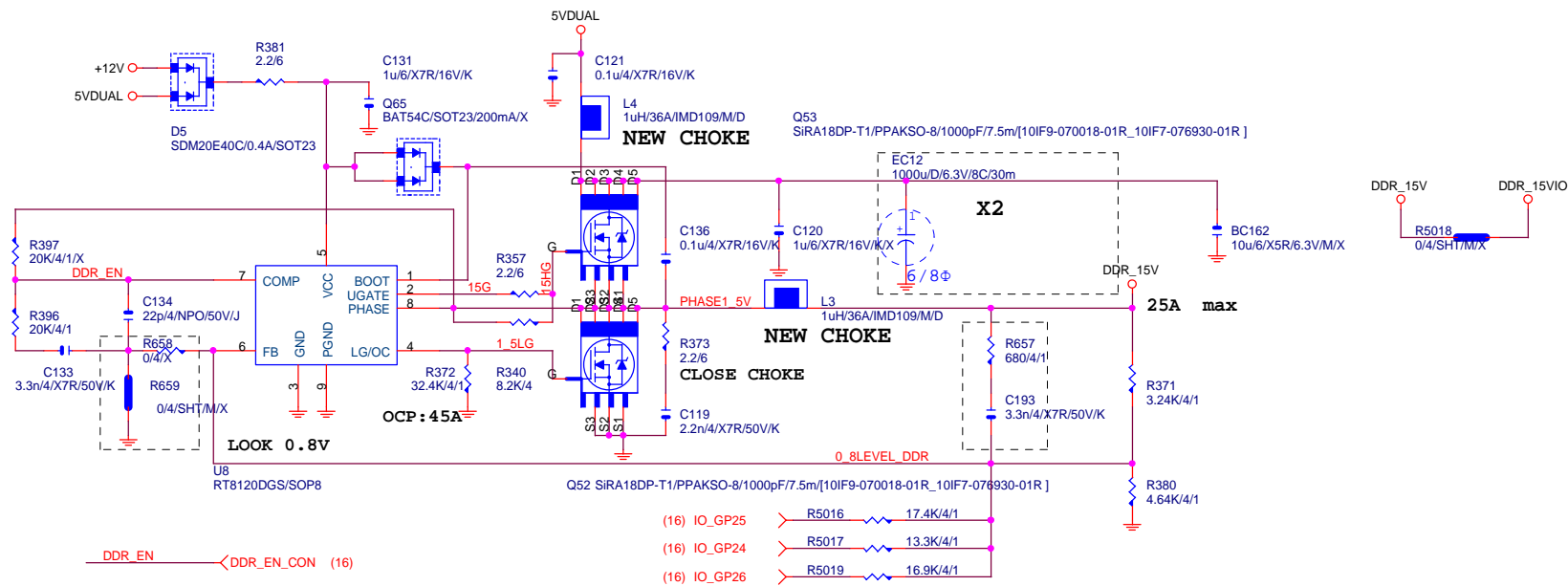
# PHASE 2



[2]



Gigabyte Technology			
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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

$Rocset = (I_{ocp} * L_{gate, rdson}) / I_{ocset}$

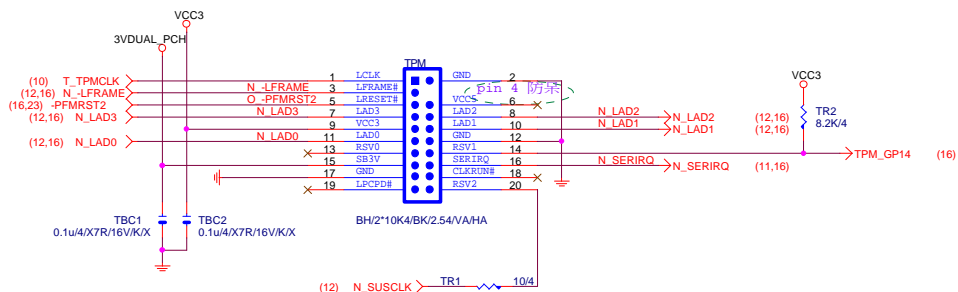
$Rocset = (45A * 6.7m\Omega) / 10uA = 30K$

$I_{ocset} = 10uA$

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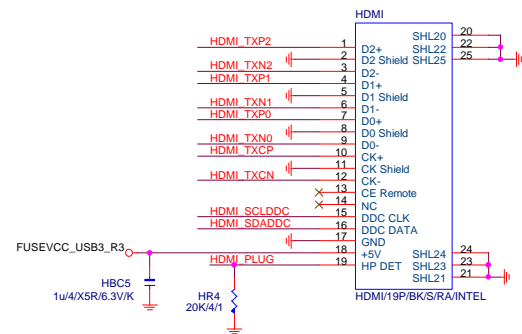
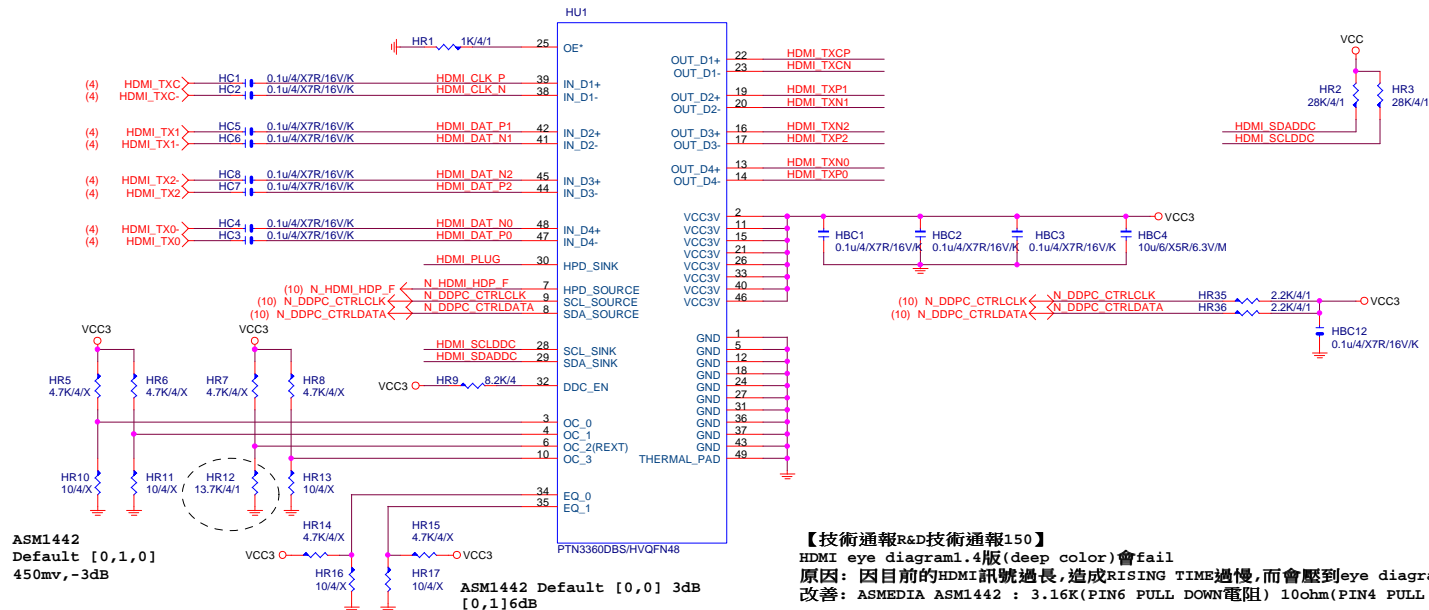
Title		
DDR POWER		
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## TPM CONNECT



## HDMI LEVEL SHIFT

HDMI:20/4/6/4/20  
Impedance=85 +- 17.5%



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## HDMI

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