

Revision : 1.11

PAGE	TITLE	9M-00
01	COVER SHEET	
02	BOM & PCB MODIFY HISTORY	
03	BLOCK DIAGRAM	
04	CPU HYPER TRANSPORT	
05	CPU DDRIII MEMORY	
06	CPU CONTROL	
07	CPU POWER & GND	
08	DDRIII CHANNEL A0, B0	
09	RS780 HT-LINK I/F	
10	RS780 SYSTEM I/F,STRAP,DVI	
11	RS780 POWER & GND	
12	IDT 9LPRS485C	
13	ATI SB710 PCIE/PCI/CPU/LPC/CLK	
14	ATI SB710 ACPI/USB/GPIO/AUDIO	
15	ATI SB710 SATA/IDE/HWM/SPI	
16	ATI SB710 POWER & GND	
17	PCI EXPRESS x16 ,x1	
18	PCI SLOT	
19	LAN AR8151/8152	
20	ALC887-VD2	
21	RGB, COM, F_USB ,USB	
22	IT8728DX,Dual-BIOS FAN/HWMO	
23	ATX, FRONT PANEL	
24	VCORE(RT8868+RT9612)	
25	POWER SEQUENCE,EUP	

[illegible]

5			4			3			2			1																
Model Name:GA-78LMT-S2																												
Component value change history										Circuit or PCB layout change for next version																		
Version: 1.11																												
P-Code: U99098-0																												

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

[illegible][illegible][illegible]

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

Model Name:GA-78LMT-S2

Component value change history

Version: 1.11

P-Code: U99098-0

Date	Change Item	Reason
2012.03.12	E_BOM Release. PCB: 0.1	Modify from 78LMT-S2P 5.02
2012.04.13	10A P_BOM Release. PCB: 1.0	change P-BOM to 10A
2012.05.11	10B P_BOM Release. PCB: 1.0	remove Q12 (MOS_OT BIOS OFF)
2012.07.02	11A P_BOM Release. PCB: 1.1	Add COM port pin-header
2012.07.12	11B P_BOM Release. PCB: 1.11	Add Erp for 0.5W Requirement

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

[illegible][illegible]

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

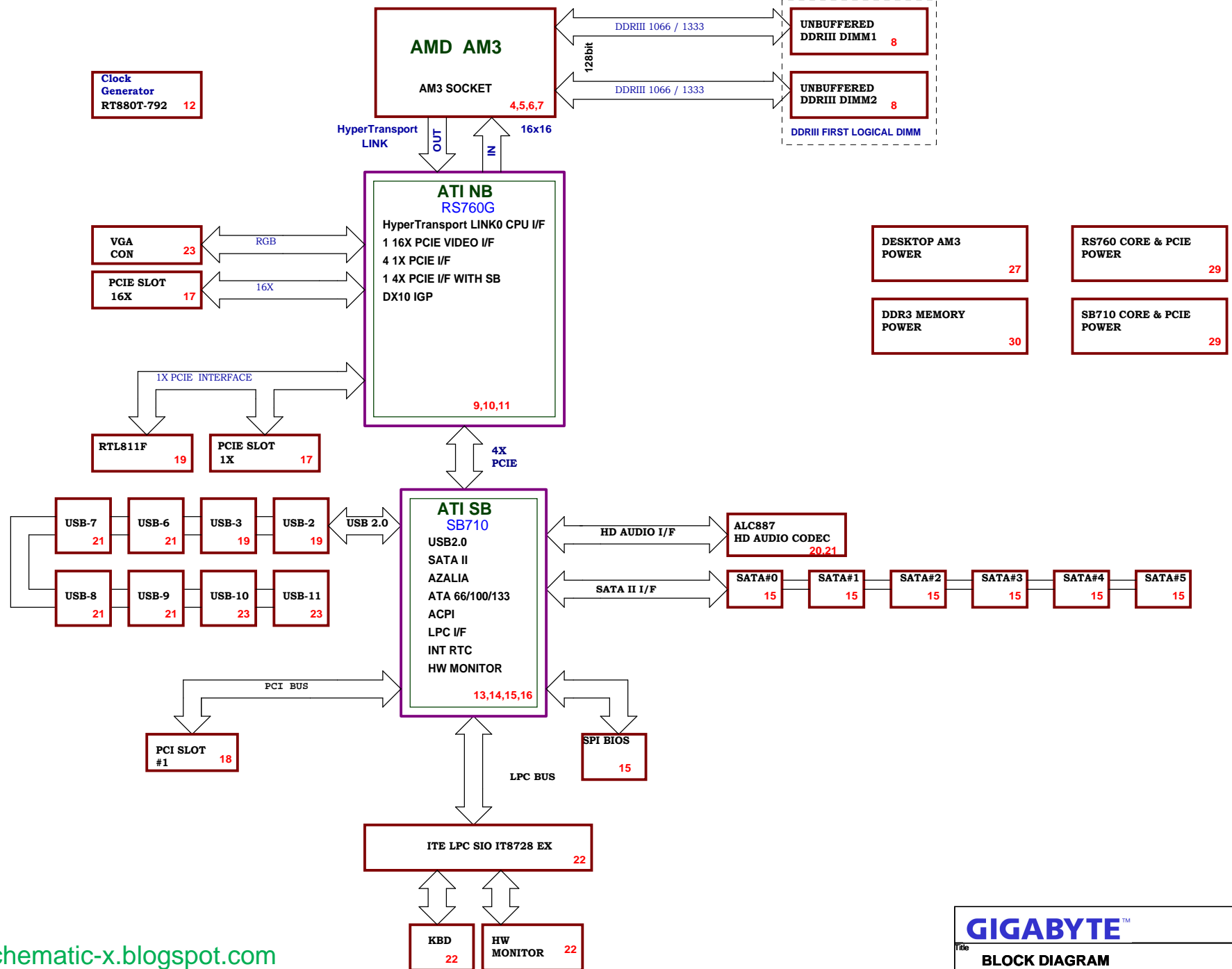
5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

5					4					3					2					1																			
Model Name:GA-78LMT-S2																																							
Component value change history										Version: 1.11 P-Code: U99098-0																													
Date					Change Item					Reason																													
2012.03.12					E_BOM Release. PCB: 0.1					Modify from 78LMT-S2P 5.02																													
2012.04.13					10A P_BOM Release. PCB: 1.0					change P-BOM to 10A																													
2012.05.11					10B P_BOM Release. PCB: 1.0					remove Q12 (MOS_OT BIOS OFF)																													
2012.07.02					11A P_BOM Release. PCB: 1.1					Add COM port pin-header																													
2012.07.12					11B P_BOM Release. PCB: 1.11					Add Erp for 0.5W Requirement																													

5			4			3			2			1																
Model Name:GA-78LMT-S2																												
Component value change history										Circuit or PCB layout change for next version																		
Version: 1.11																												
P-Code: U99098-0																												

[illegible]

RS780L CUSTOMER DESKTOP DESIGN



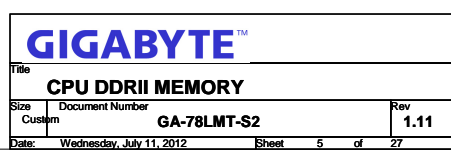
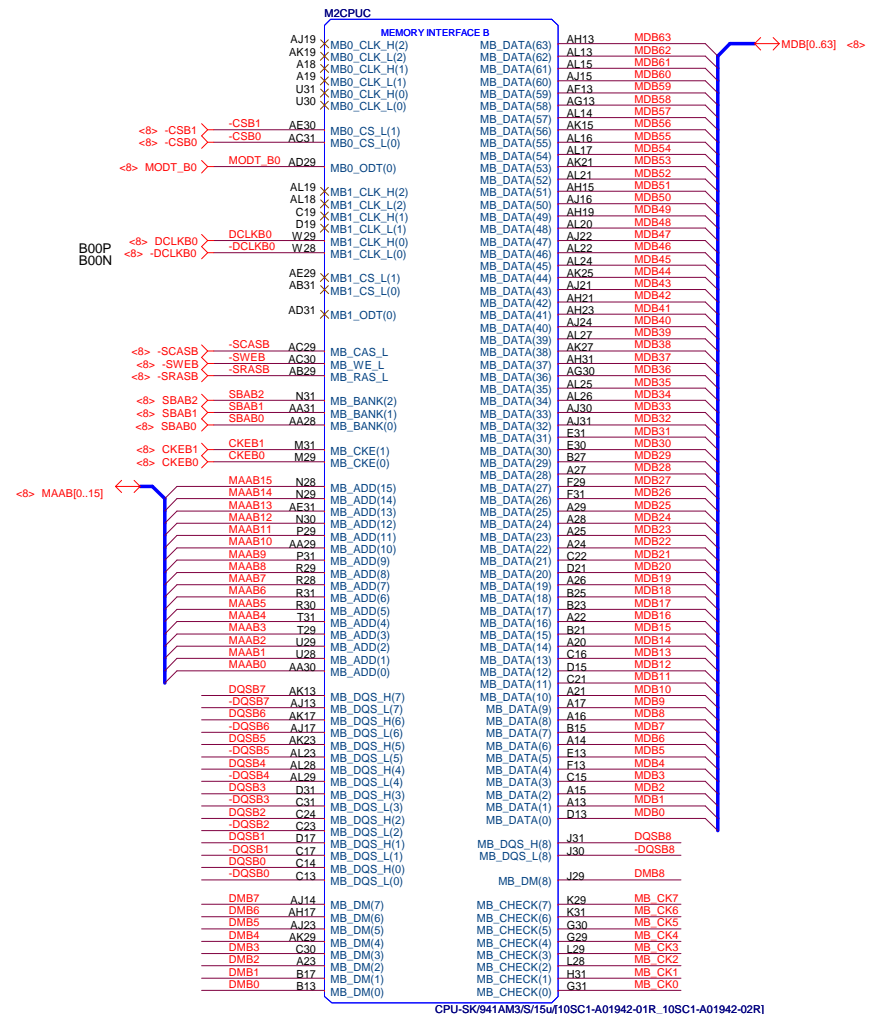
L0_CADIN_H[0..15] L0_CADIN_H[0..15] 9

L0_CADOUT_H[0..15] ✓ L0_CADOUT_H[0..15] = 0

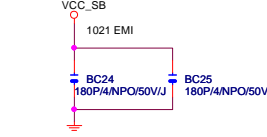
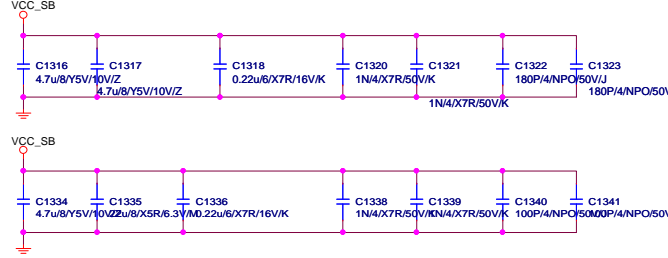
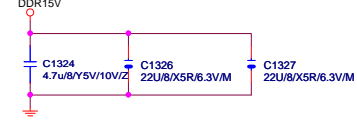
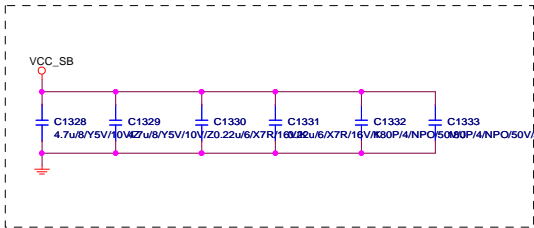
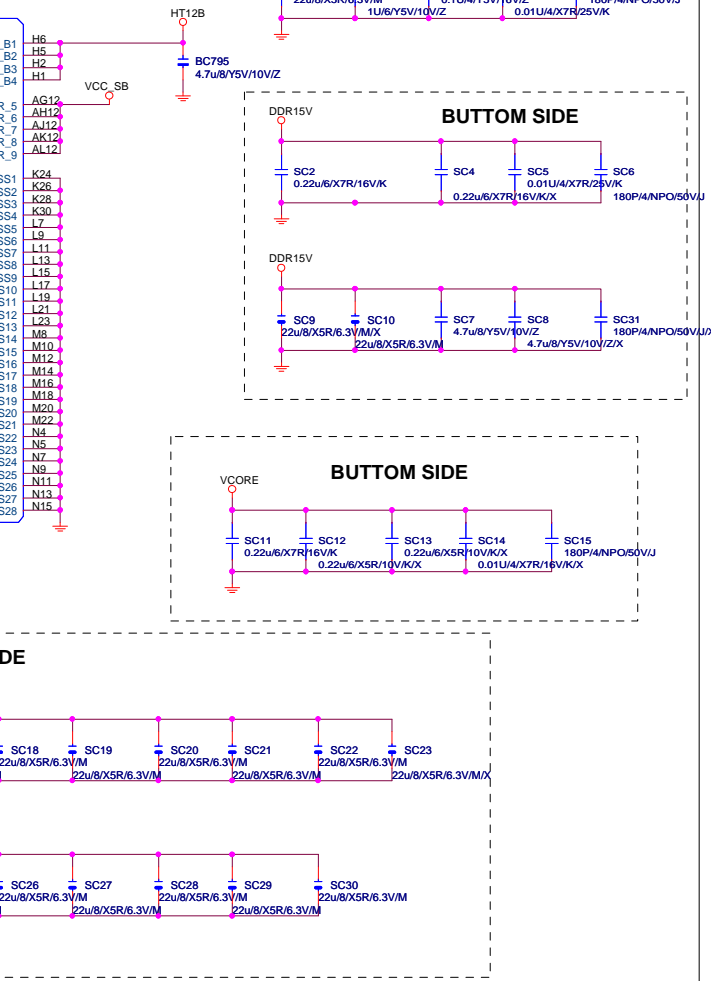
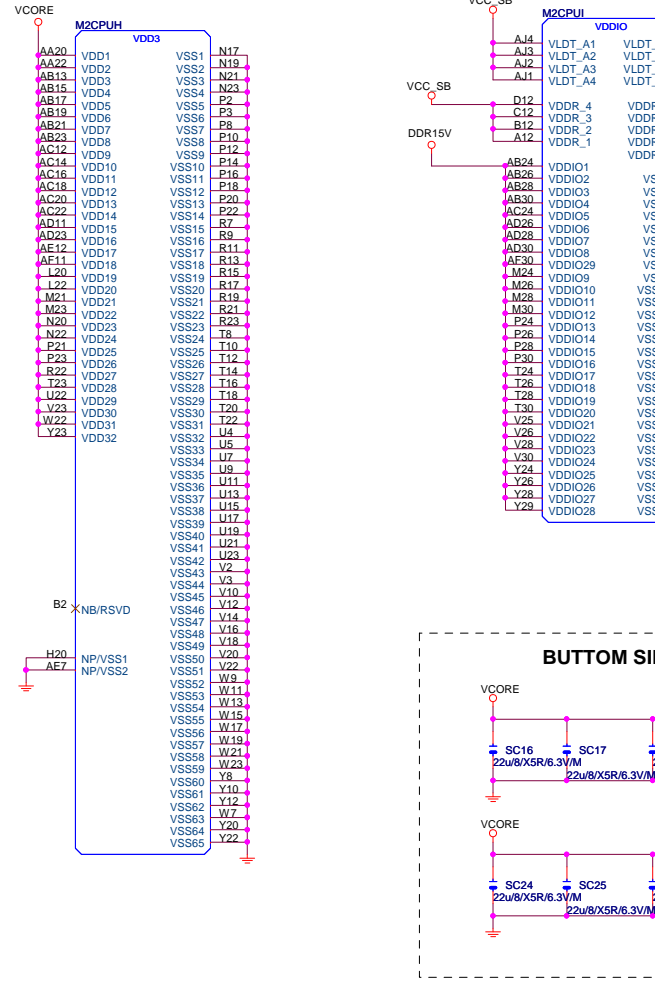
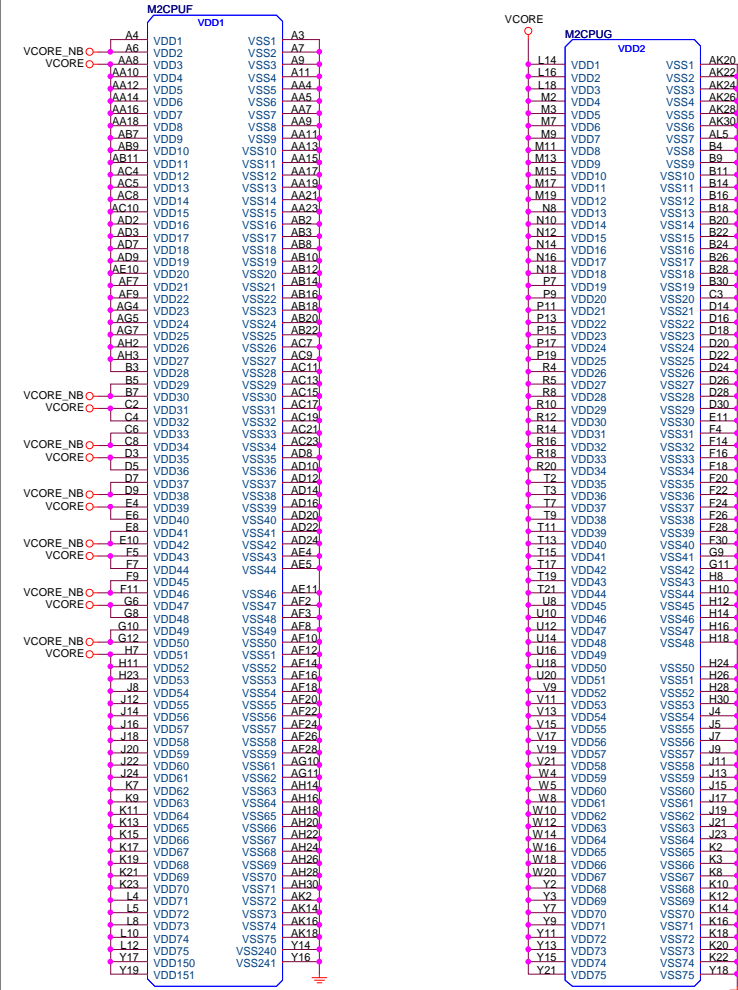


```
VLDT_A = VCC12_HT
VLDT_B = HT12B
```





VLDT_RUN_B is connected to the VLDT_RUN power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.



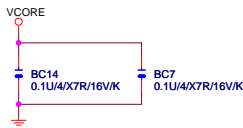
L0_CADIN_L[0..15] <L0_CADIN_L[0..15] <4>
L0_CADIN_H[0..15] <L0_CADIN_H[0..15] <4>
L0_CADOUT_L[0..15] <L0_CADOUT_L[0..15] <4>
L0_CADOUT_H[0..15] <L0_CADOUT_H[0..15] <4>

PART 1 OF 6

HYPER TRANSPORT CPU I/F



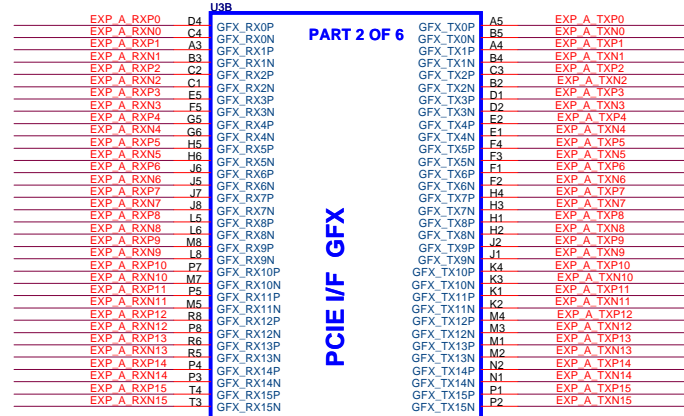
RS780L/FCBGA528/A13[10HB1-06760G-20R]



EXP_A_RXP[0..15] >>>EXP_A_RXP[0..15] <17>
EXP_A_RXN[0..15] >>>EXP_A_RXN[0..15] <17>
EXP_A_TXP[0..15] >>>EXP_A_TXP[0..15] <17>
EXP_A_TXN[0..15] >>>EXP_A_TXN[0..15] <17>

PART 2 OF 6

PCIE I/F GFX



PCIE I/F GPP



PCIE I/F SB

PCE_CALRP(PCE_BCALRP)
PCE_CALRN(PCE_BCALRN)

NB_HS[12SPS-SA0502-01R_12SPS-SA0502-02R]

PLACE CAP CLOSE
TO CONNECTOR

GIGABYTE™

RS740/RX780/RS780 STRAPS

Note: for RS780, change R232 to 150R as AUX_CAL, place close to pin C8

RS740_DFT_GPIO1 R272 150/4/1

Note: for RX780, R217 (RX780_DFT_GPIO1) to 3K accordingly

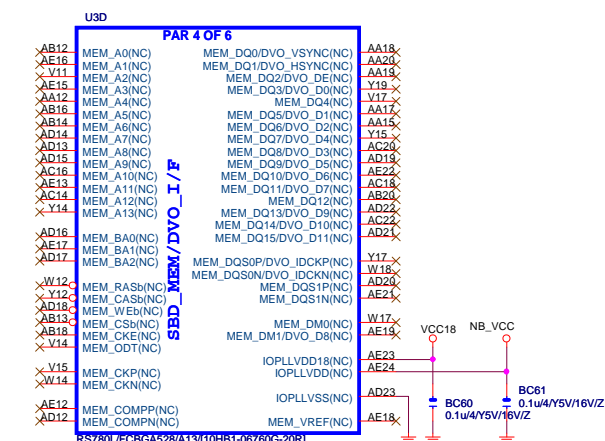
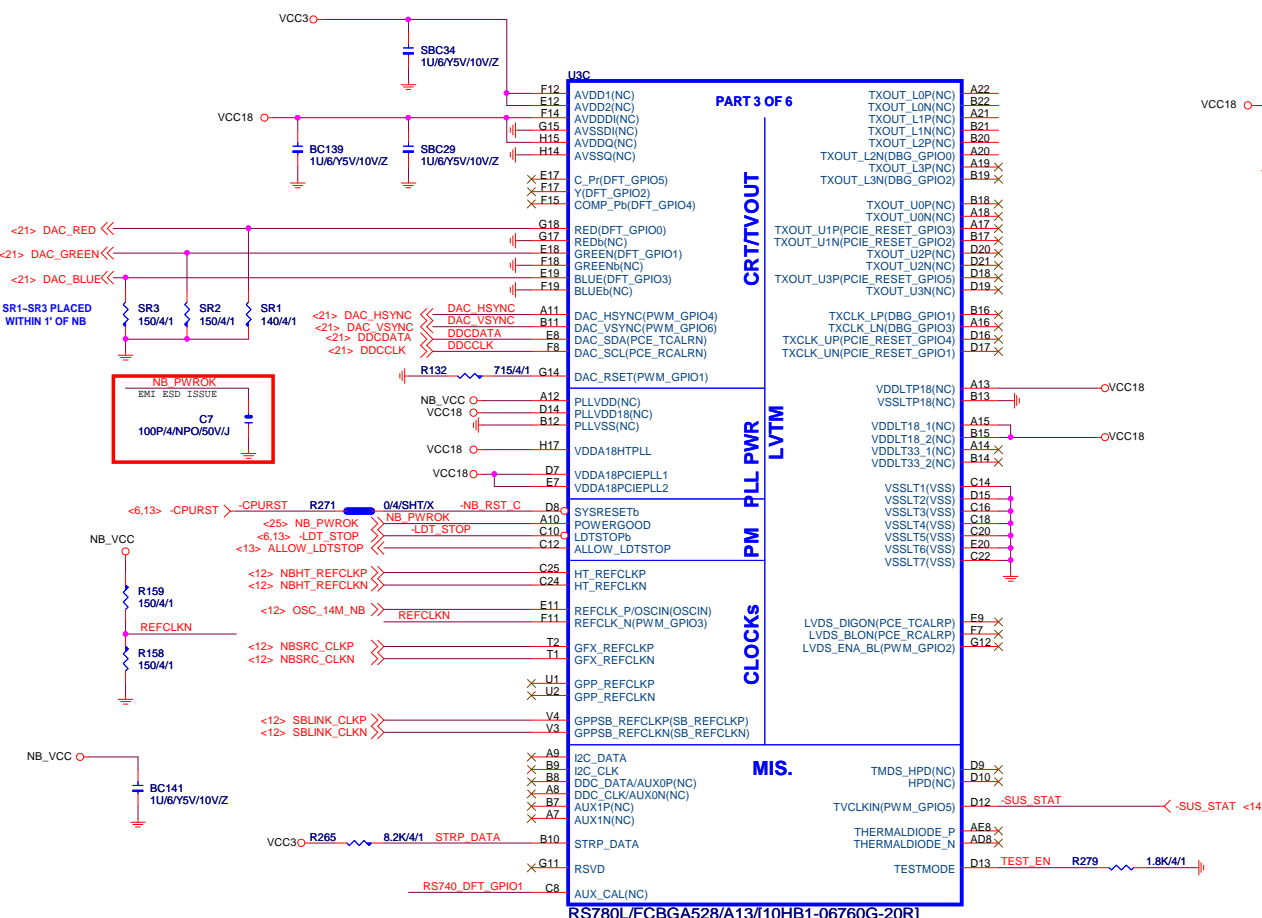
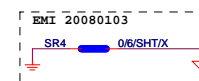
<21> DAC_VSYNC << R276 3K/4/1 >> VCC3

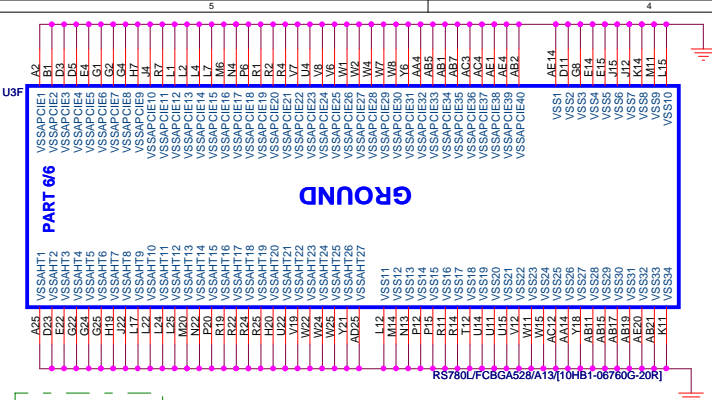
Note: for RX780, change following pull-down resistor to 3K accordingly
R912 (RX780_DFT_GPIO5)

Note: for RX780, change following pull-down resistor to 3K accordingly
R913 (RX780_DFT_GPIO4)
R218 (RX780_DFT_GPIO3)
R911 (RX780_DFT_GPIO2)

<21> DAC_HSYNC << R285 3K/4/1 >> VCC3

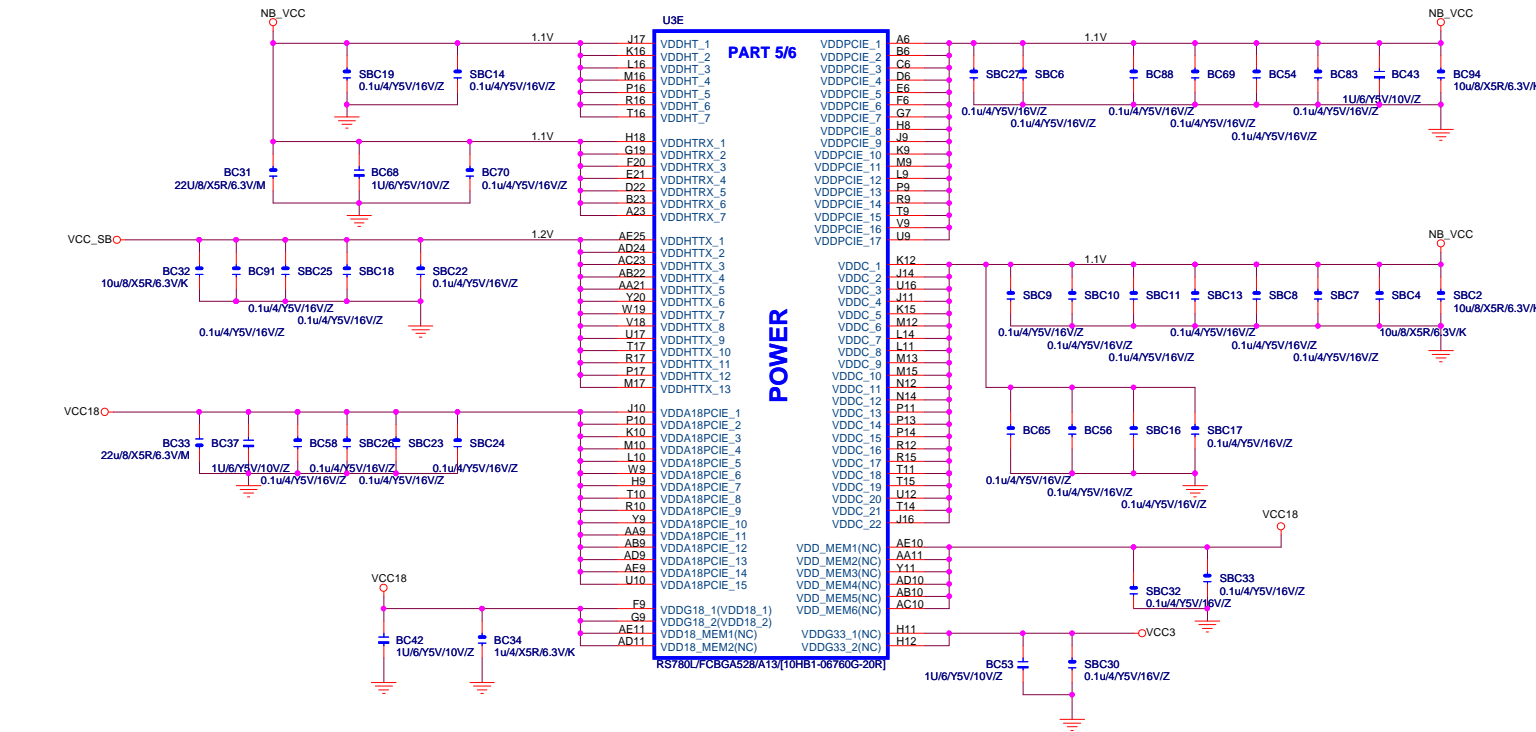
Note: for RX780, change following pull-down resistor to 3K accordingly
R219 (RX780_DFT_GPIO0)

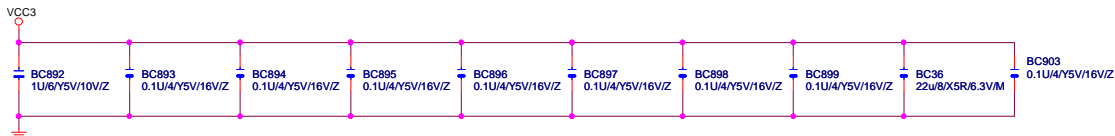




RS740/RX780/RS780 POWER DIFFERENCE TABLE

PIN NAME	RS740	RX780	RS780	PIN NAME	RS740	RX780	RS780
VDDHT	NC	+1.1V	+1.1V	IOPLLVD	+1.2V	NC	+1.1V
VDDHTRX	NC	+1.1V	+1.1V	AVDD	+3.3V	NC	+3.3V
VDDHTTX	+1.2V	+1.2V	+1.2V	AVDDDI	+1.8V	NC	+1.8V
VDDA18PCIE	NC	+1.8V	+1.8V	AVDDQ	+1.8V	NC	+1.8V
VDD18	+1.8V	+1.8V	+1.8V	PLLVD	+1.2V	NC	+1.1V
VDD18_MEM	NC	NC	+1.8V	PLLVD18	+1.8V	NC	+1.8V
VDDPCIE	+1.2V	+1.1V	+1.1V	VDDA18PCIEPLL	+1.2V	+1.8V	+1.8V
VDDC	+1.2V	+1.1V	+1.1V	VDDA18HTPLL	+1.8V	+1.8V	+1.8V
VDD_MEM	+1.8V	NC	+1.8V(DDR2) +1.5V(DDR3)	VDDLTP18	+1.8V	NC	+1.8V
VDD33	+3.3V	NC	+3.3V	VDDL18	+1.8V	NC	+1.8V
IOPLLVD18	+1.8V	NC	+1.8V	VDDL33	+3.3V	NC	NC



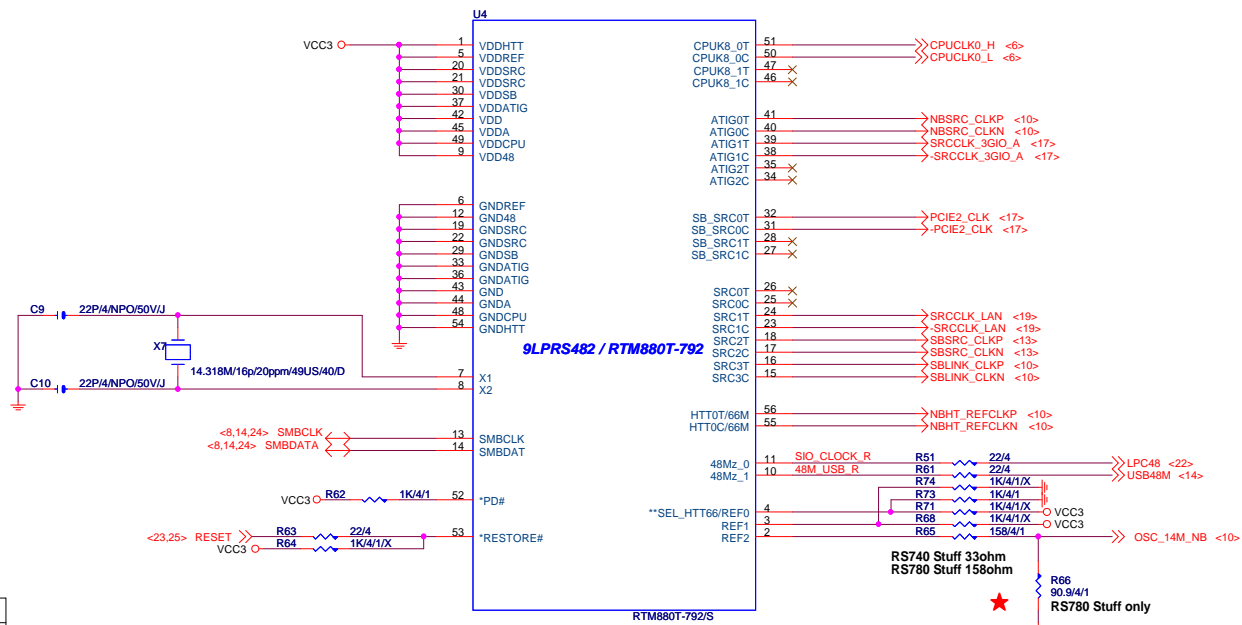


- 1- PLACE ALL THE SERIES TERMINATION RESISTORS AS CLOSE TO U800 AS POSSIBLE
- 2- ROUTE ALL SRCLKTx AND SRCCLKCx AS DIFFERENT PAIR RULE
- 3- PUT DECOUPLING CAPS CLOSE TO U800 POWER PIN

NB CLOCK INPUT TABLE

NB CLOCKS	RS740	RX780	RS780	
HT_REFCLKP	66M SE(SE)	100M DIFF	100M DIFF	
HT_REFCLKN	NC	100M DIFF	100M DIFF	
REFCLK_P	14M SE (3.3V)	14M SE (1.8V)	14M SE (1.1V)	100M DIFF
REFCLK_N	NC	NC	vref	100M DIFF
GFX_REFCLK*	100M DIFF	100M DIFF	100M DIFF	
GPP_REFCLK	NC	100M DIFF	100M DIFF(OUT)	
GPPSB_REFCLK	100M DIFF	100M DIFF	100M DIFF	

* the GFX_REFCLK input is required for all cases



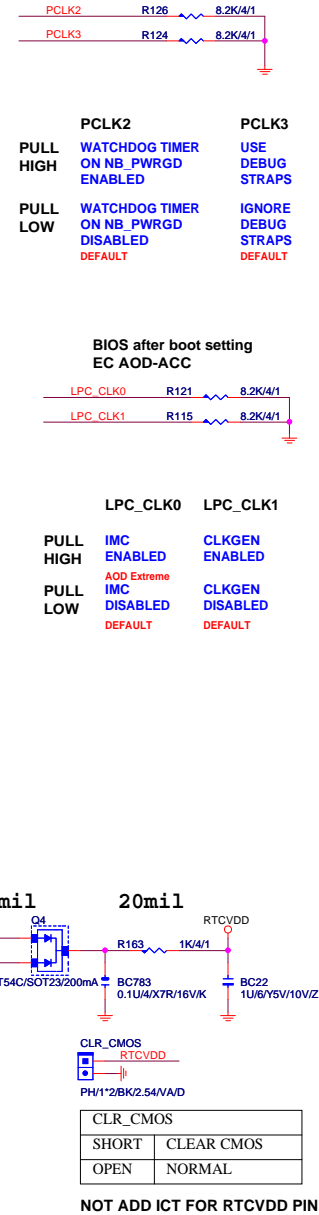
watch dog --
RESTORE# 接 RESET

	OSC_14M_NB
RS740	3.3V 33R serial
RX780	1.8V 82.5R/130R
RS780 (Single-ended)	1.1V 158R/90.9R

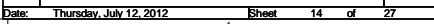
**SEL_HTT66/REF0		OUT 3.3V 14.318MHz REF output.
IN	Low	100MHz differential HT clock, (Internal 120KΩ pull-down)
	High	66MHz 3.3V single ended HT clock.



Diagram illustrating a square structure with vertices labeled 1 and 2. The top edge is labeled SB_HS.



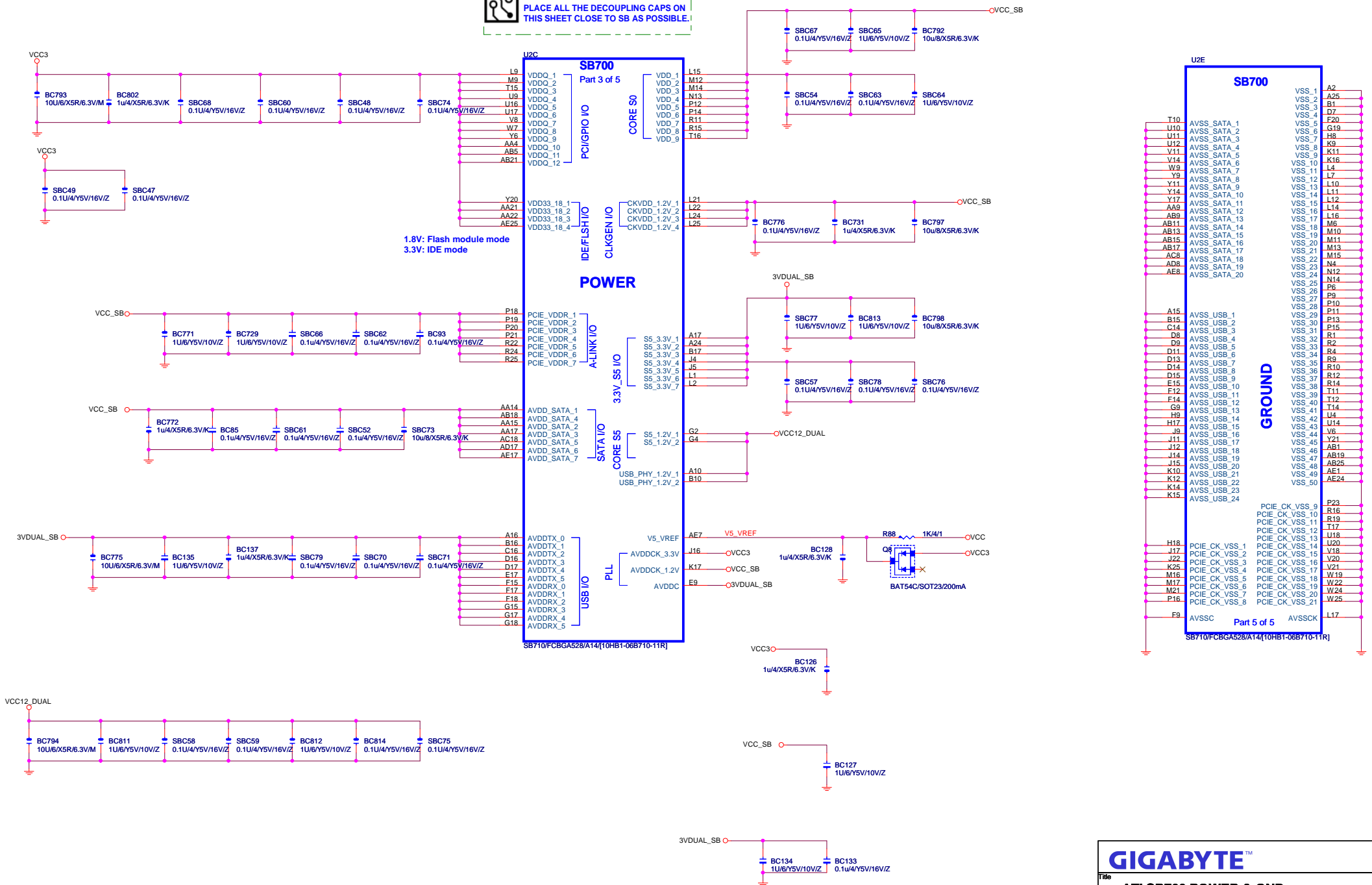
NOT ADD ICT FOR RTCVDD PIN

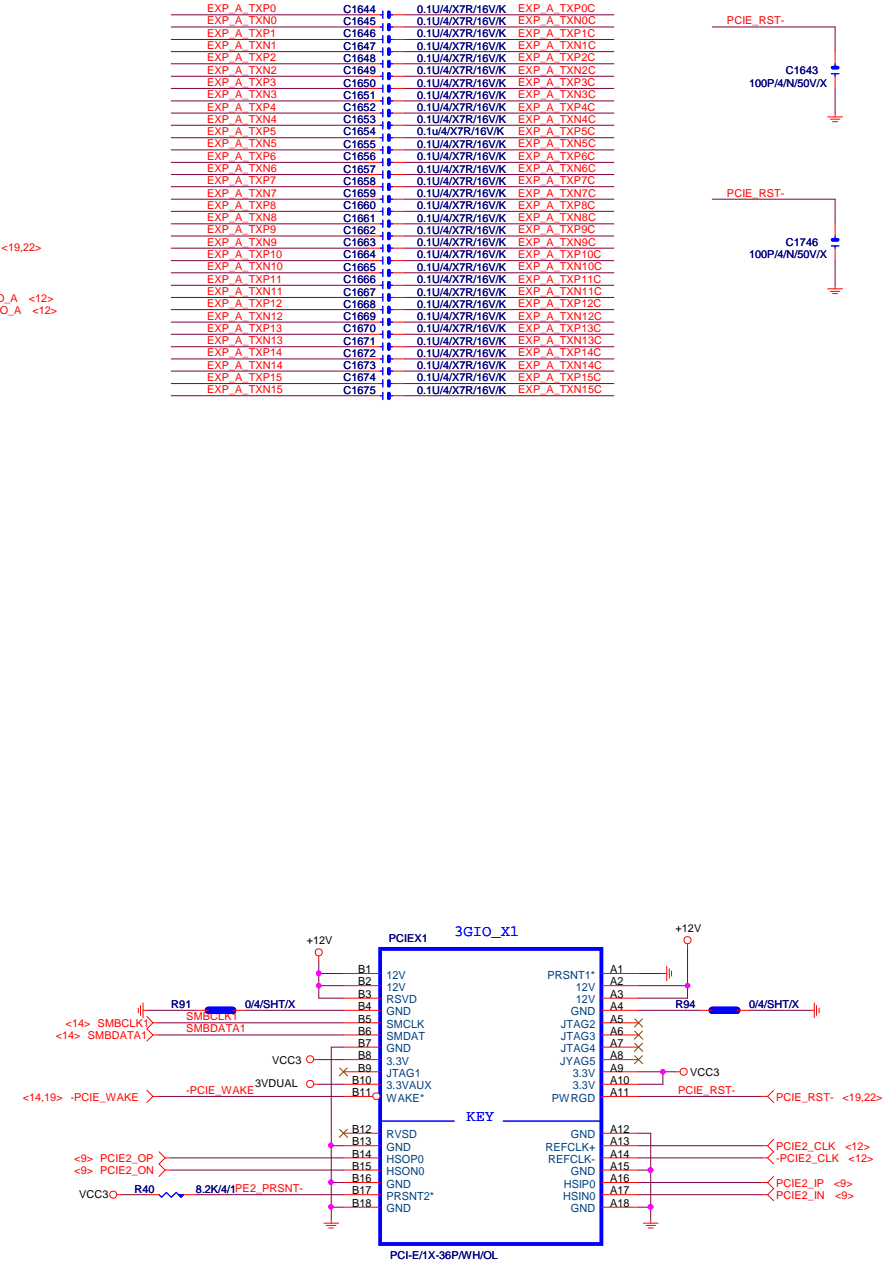
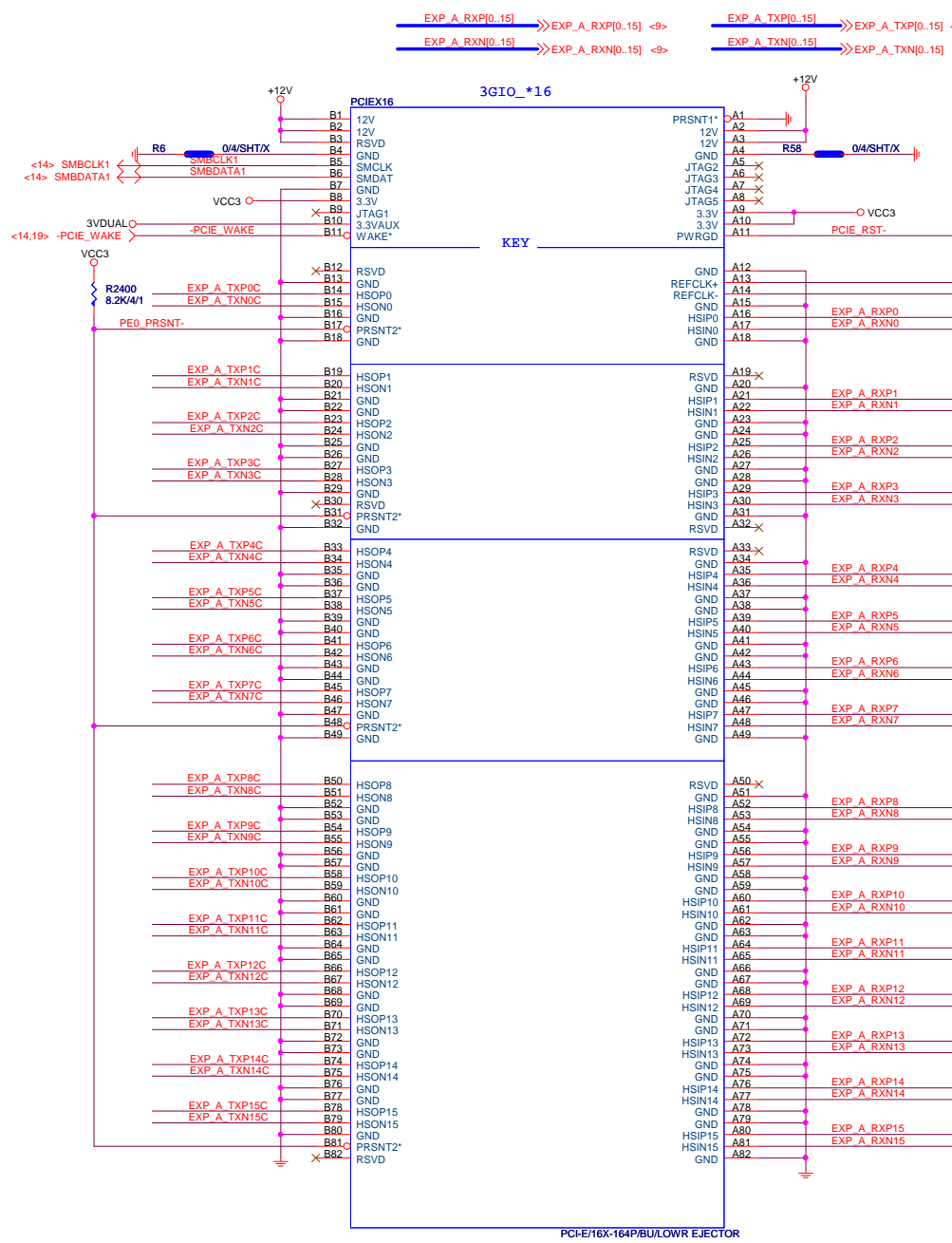




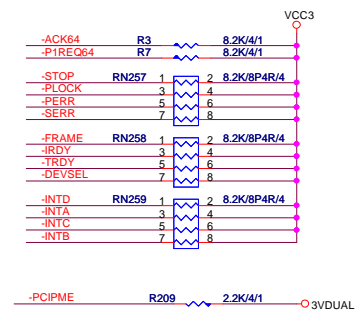
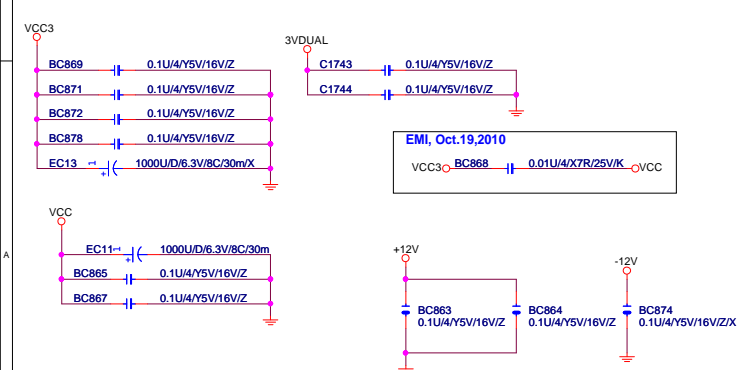
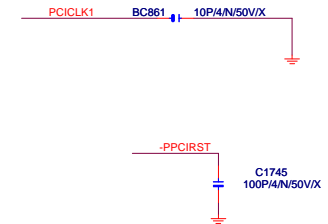
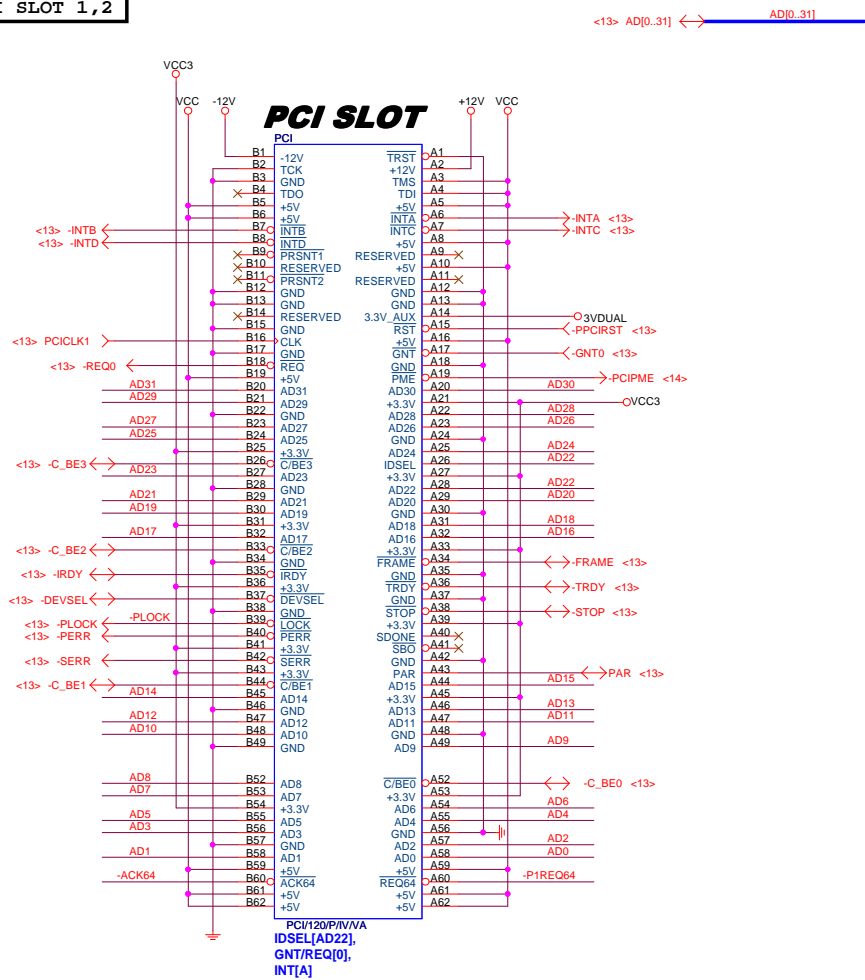


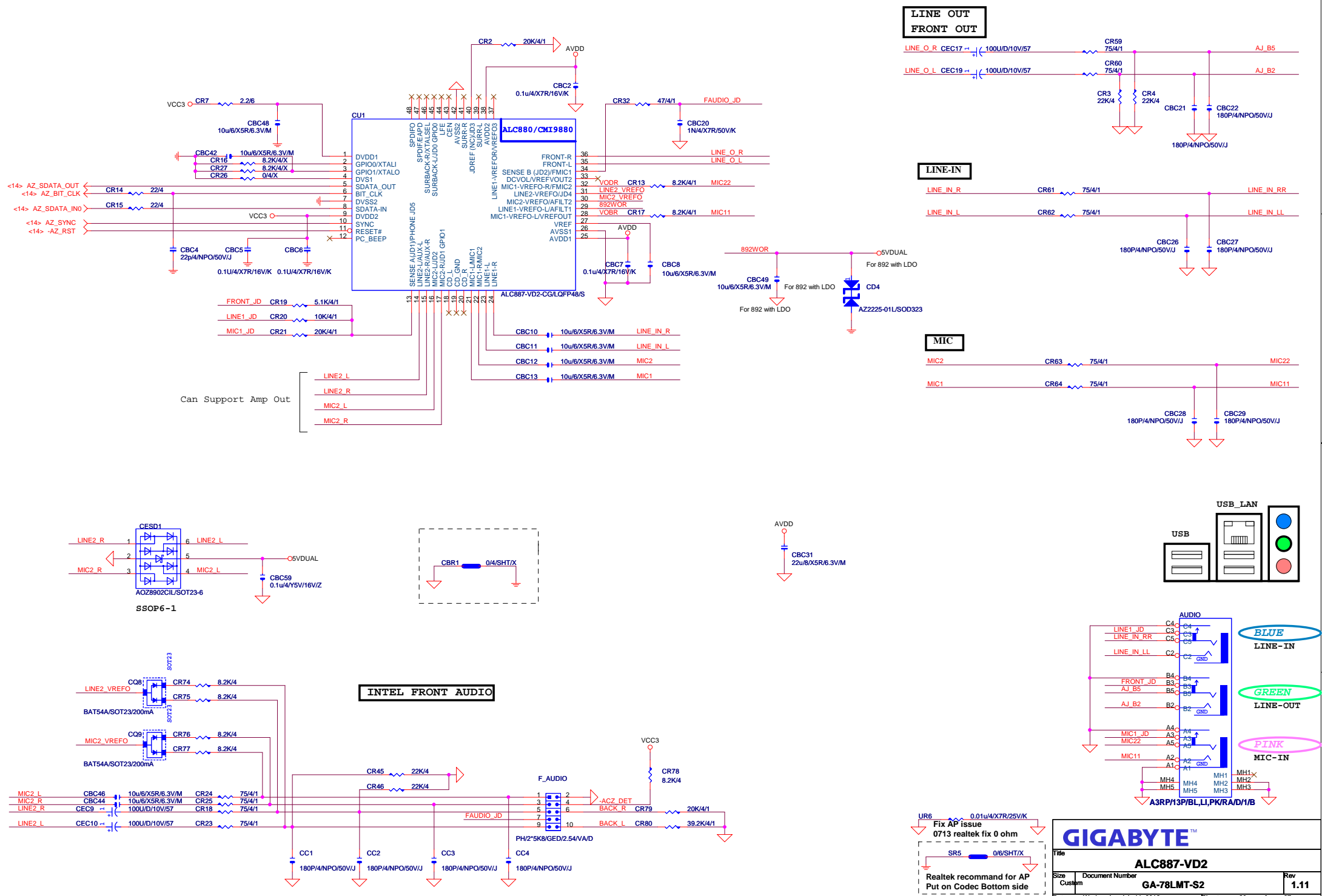
PLACE ALL THE DECOUPLING CAPS ON THIS SHEET CLOSE TO SB AS POSSIBLE.



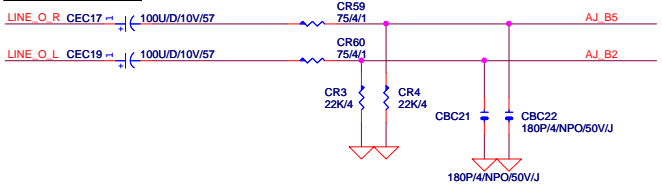


PCI SLOT 1,2

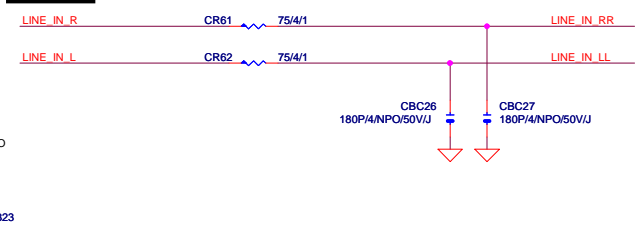




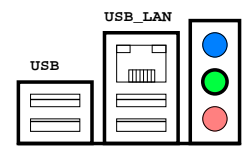
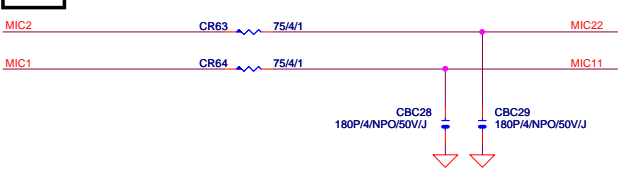
LINE OUT
FRONT OUT



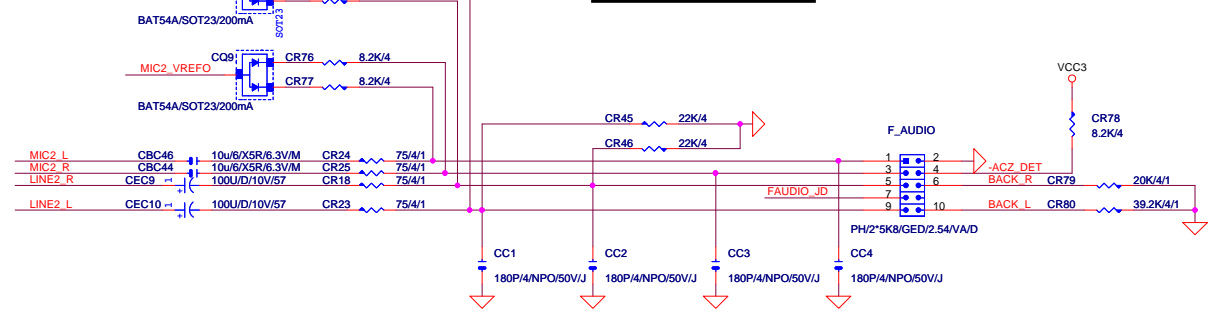
LINE-IN



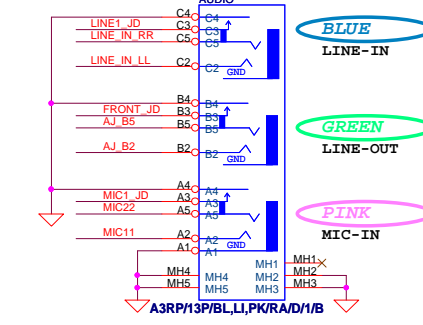
MIC



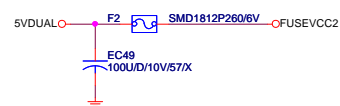
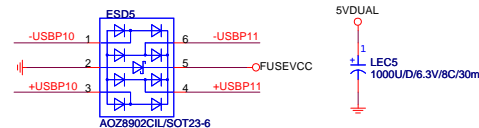
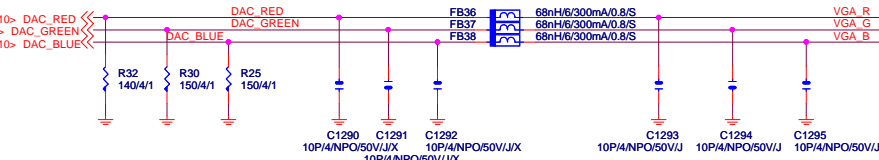
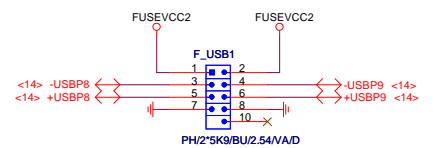
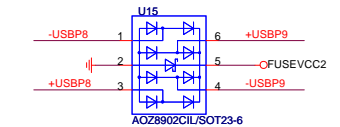
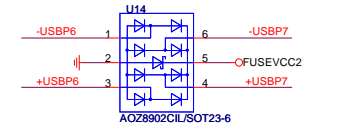
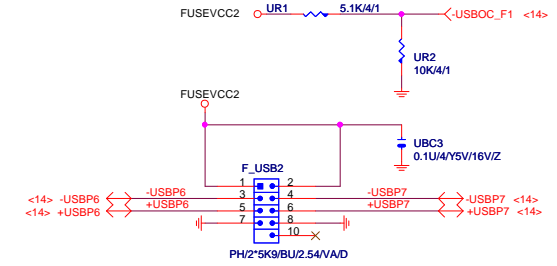
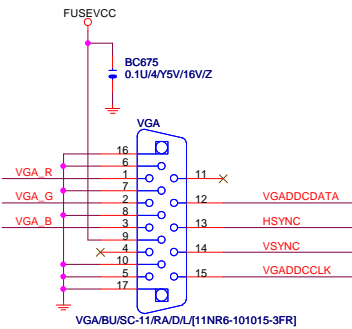
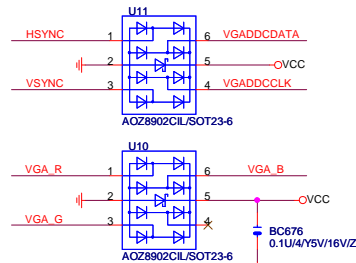
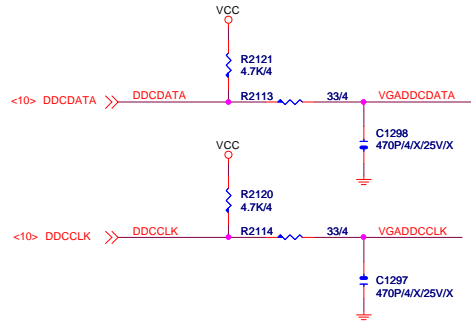
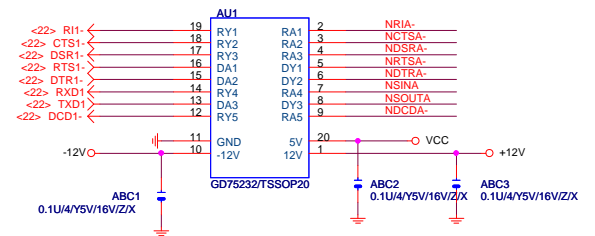
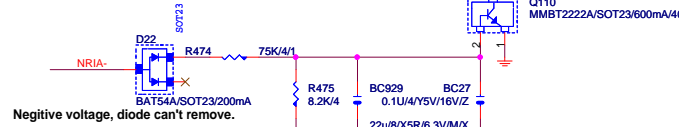
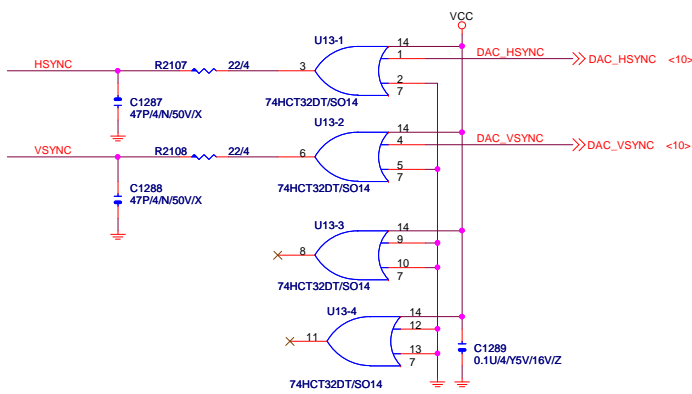
INTEL FRONT AUDIO



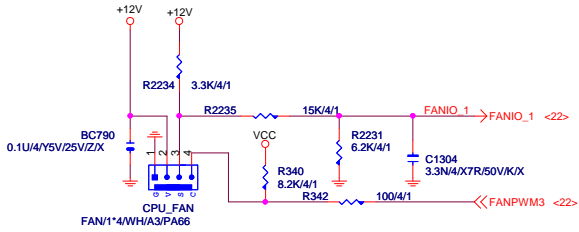
Fix AP issue
0713 realtek fix 0 ohm
Realtek recommend for AP
Put on Codec Bottom side



GIGABYTE™			
Title			
ALC887-VD2			
Size	Document Number	Rev	
Custom	GA-78LMT-S2	1.11	
Date:	Wednesday, July 11, 2012	Sheet	20 of 27



CPU_FAN



SYSTEM FAN

