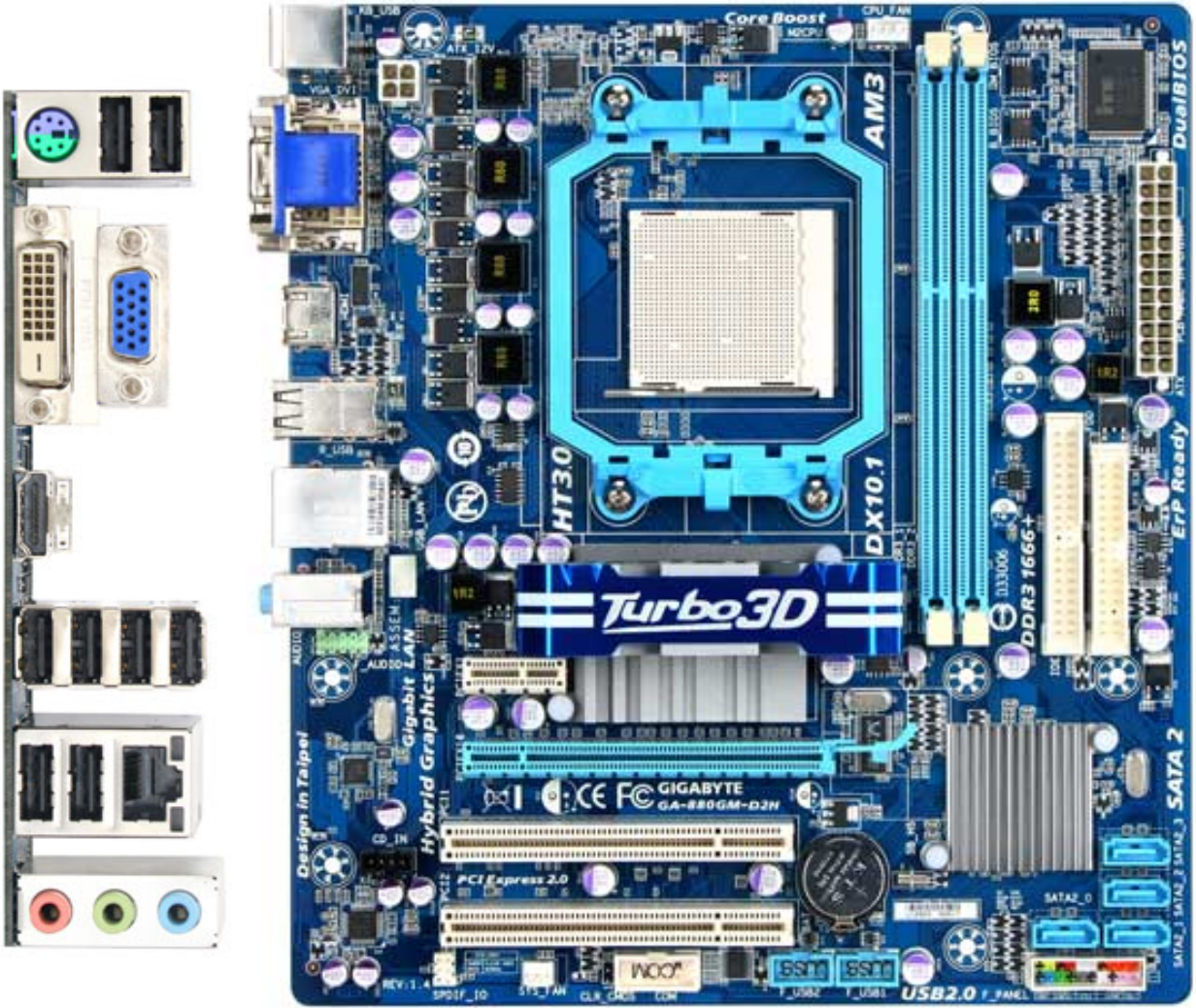


# GA-880GM-D2H

Revision : 1.32

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	DDRII CHANNEL A0,B0	
09	RS880 HT-LINK I/F PCIE I/F	
10	RS880 SYSTEM I/F STRAP	
11	RS880 POWER & GND	
12	RTM880-792	
13	ATI SB710 PCIE/PCI/CPU/LPC	
14	ATI SB710 ACPI/USB/GPIO/AUDIO	
15	ATI SB710 SATA/SPI/IDE/HWM	
16	ATI SB710 POWER & GND	
17	PCI EXPRESS x16 ,x1	
18	PCI SLOT 1, 2	
19	REALTK RTL8111D/8101E	
20	ALC888B	
21	AUDIO JACK	
22	IDE ,FDD ,HDMI ,DVI Connector	
23	RGB Connector COM/LPT/F_USB	
24	IT8718 LPC IO ,Dual-BIOS	
25	FAN/HWMO ,KB/USB	



PAGE	TITLE
26	ATX, FRONT PANEL
27	VCORE (PWMISL6324A+6612A)
28	POWER SEQUENCE
29	NB/SB POWER, VCC12HT, VDDA25 ,VCC12_Dual
30	DDRIII POWER, VCC18

<b>GIGABYTE™</b>		
Title <b>COVER SHEET</b>		
Size Custom	Document Number <b>GA-880GM-D2H</b>	Rev <b>1.32</b>
Date: Friday, July 23, 2010	Sheet 1	of 30

**Model Name : GA-880GM-D2H**

## Component value change history


**Version: 1.32**

P-Code: U99020-0

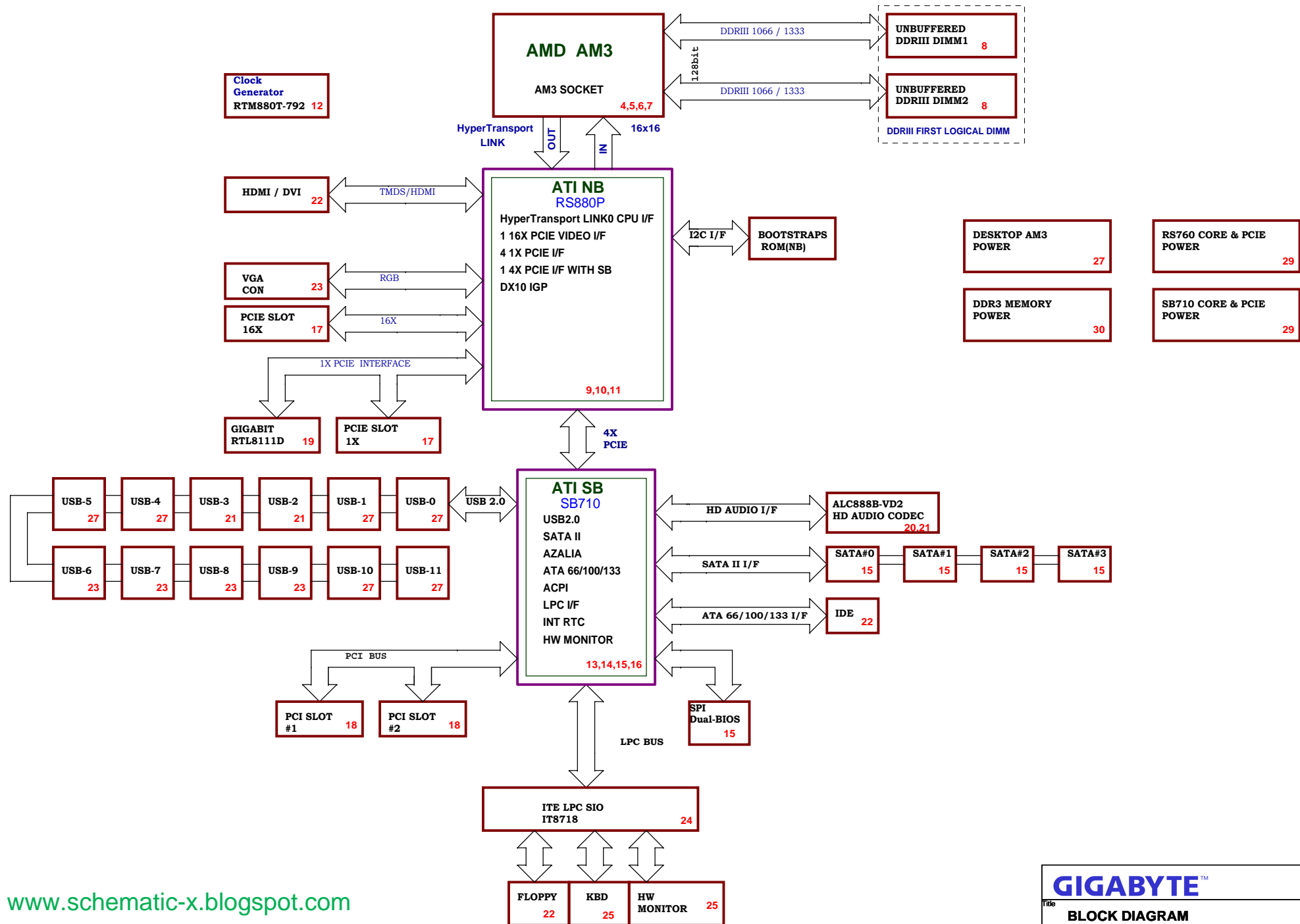
[illegible]

### Circuit or PCB layout change for next version

[illegible]

			
Title <b>BOM &amp; PCB HISTORY</b>			
Size	Document Number	Rev	
Custom	<b>GA-880GM-D2H</b>	<b>1.32</b>	
Date:	Thursday, August 05, 2010	Sheet	2 of 30

# RS880 CUSTOMER DESKTOP REFERENCE DESIGN

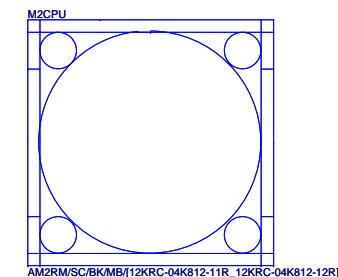
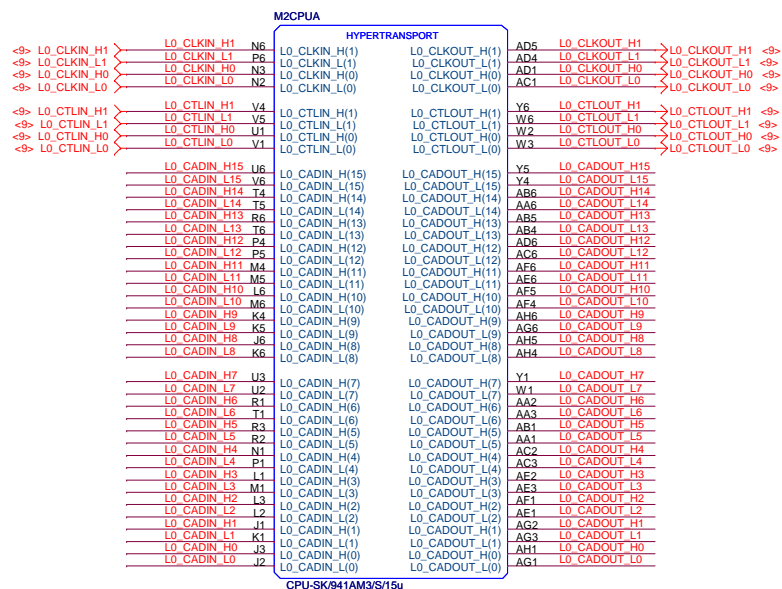


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L0\_CADIN\_H[0..15] <L0\_CADIN\_H[0..15] <9>

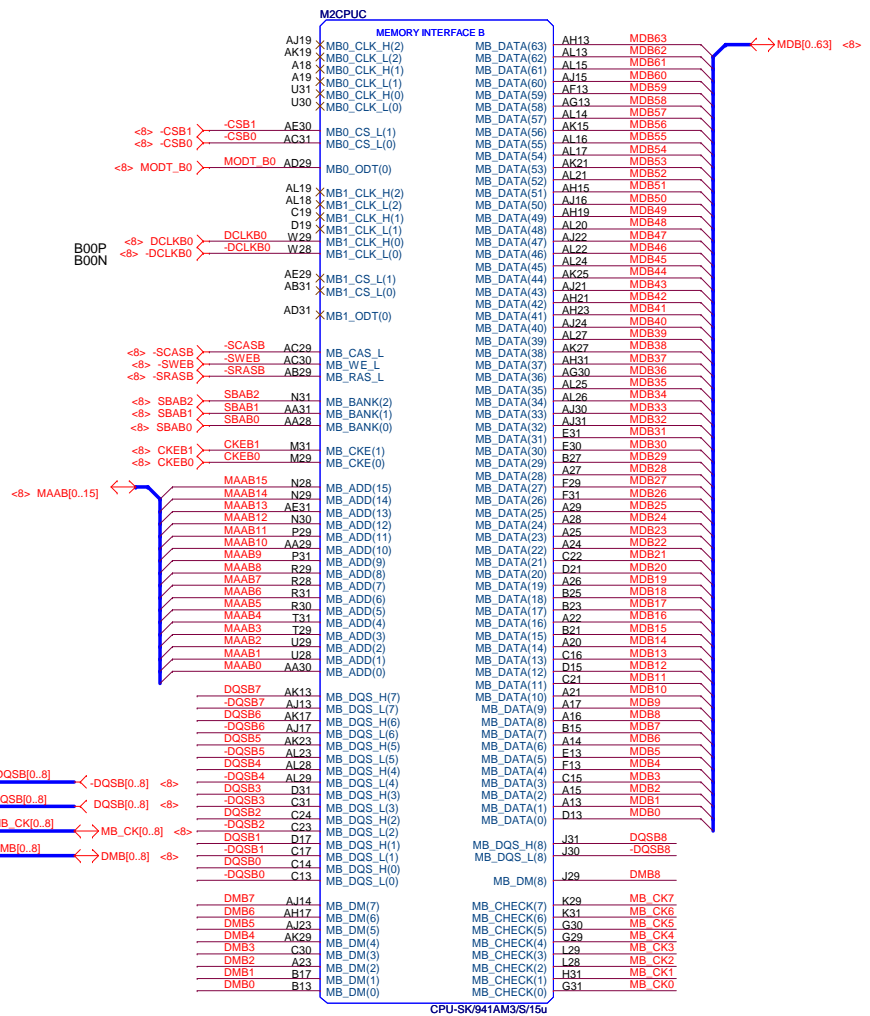
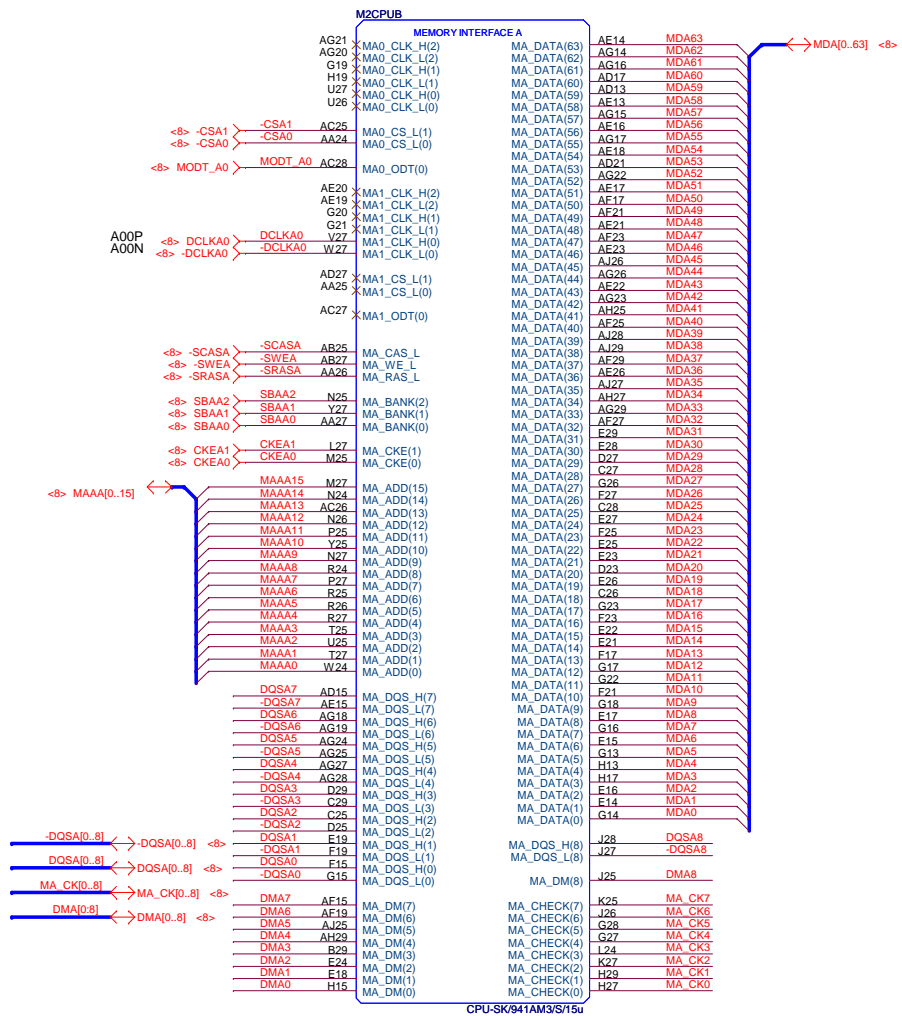
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L0\_CADOUT\_H[0..15] <L0\_CADOUT\_H[0..15] <9>

CPU\_VDD\_RUN = VCORE  
CPU\_VDDA\_RUN = VDDA25  
VLDT\_RUN = VCC12\_HT  
CPU\_VDDIO\_SUS = DDR18V  
CPU\_VTT\_SUS = DDRVTT

VLDT\_A = VCC12\_HT  
VLDT\_B = HT12B



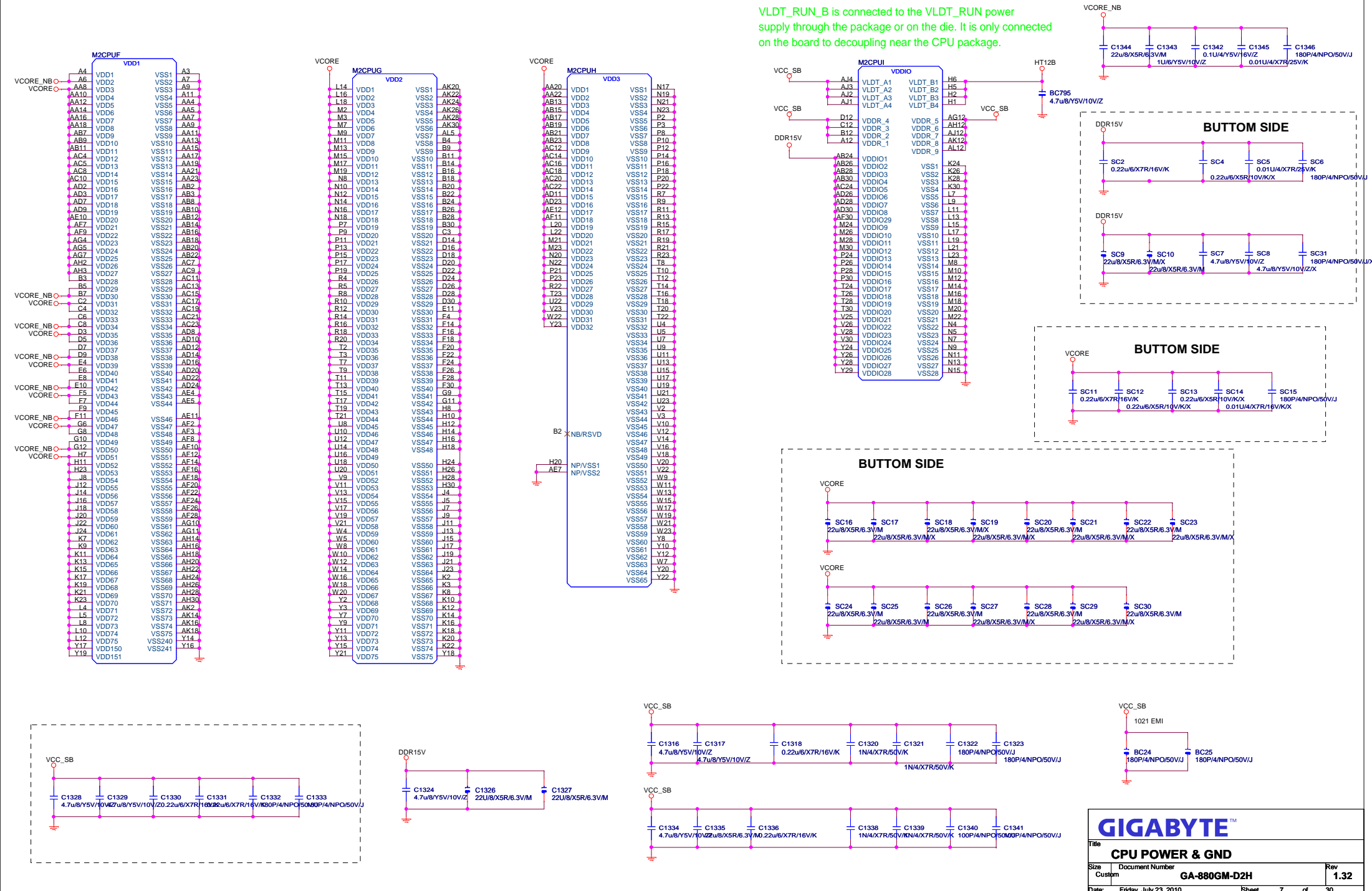
AM2RM/SC/BK/MB[12KRC-04K812-11R\_12KRC-04K812-12R]

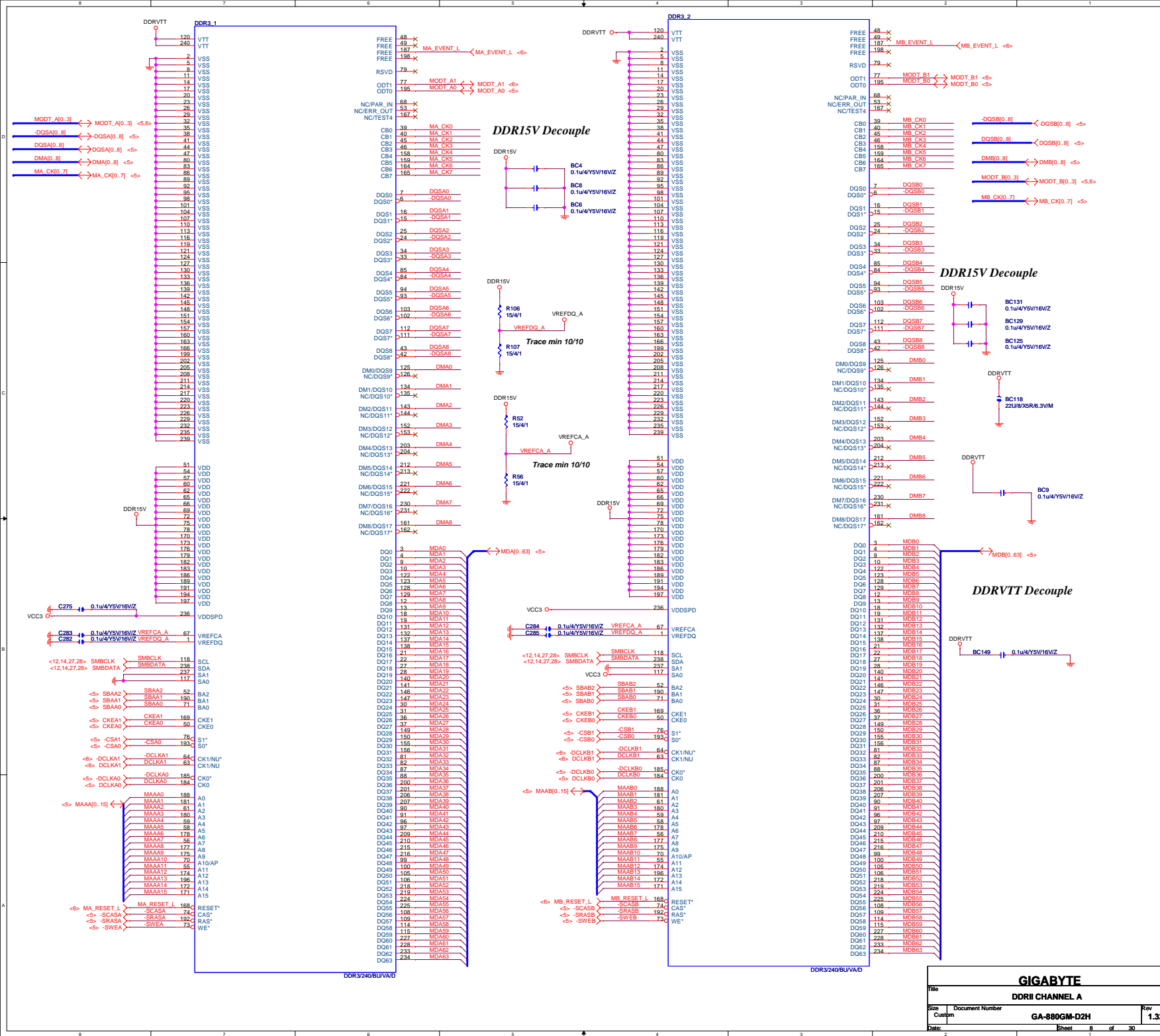






VLDT\_RUN\_B is connected to the VLDT\_RUN power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.





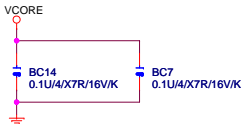


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PART 1 OF 6

HYPER TRANSPORT CPU I/F



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

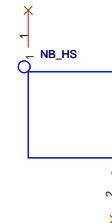
PCIE I/F GFX

PCIE I/F GPP

PCIE I/F SB

PCE\_CALRP(PCE\_BCALRP)  
PCE\_CALRN(PCE\_BCALRN)

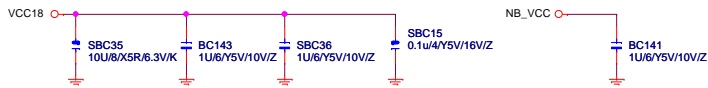
RS880P(880G)/S



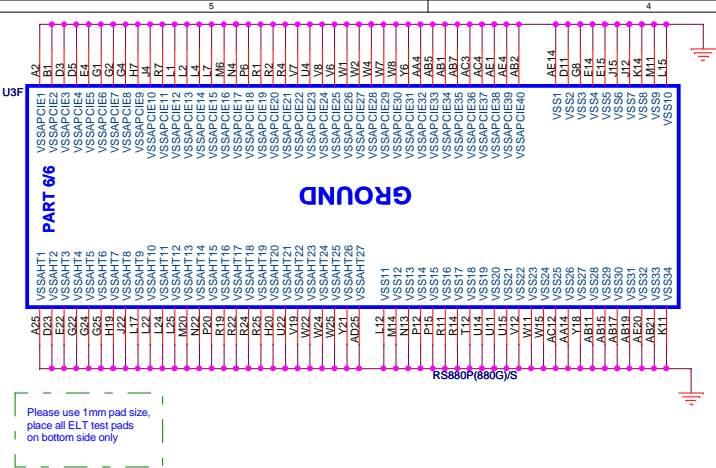
NB\_HS[12SP2-01A004-G2R\_12SP2-01A004-G1R]

GIGABYTE™

Title			RS780 HT-LINK I/F
Size	Document Number	Rev	1.32
Custom	GA-880GM-D2H		
Date:	Thursday, August 05, 2010	Sheet	9 of 30

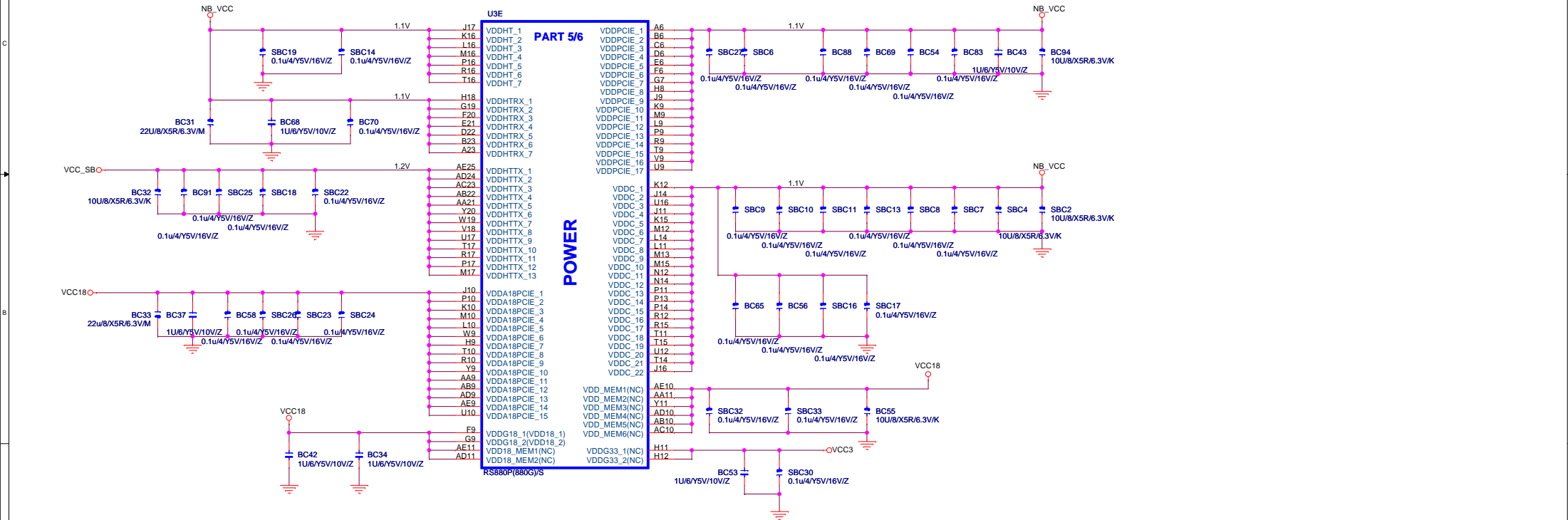


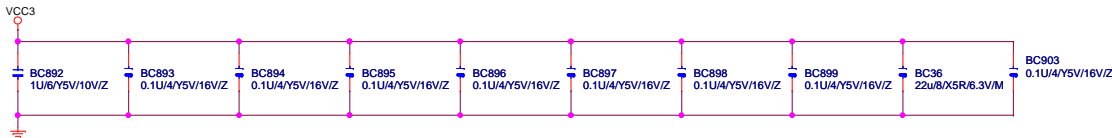
Title			
<b>RS780 SYSTEM I/F</b>			
Size	Document Number	Rev	
Custom	<b>GA-880GM-D2H</b>	<b>1.32</b>	
Date:	Friday, July 23, 2010	Sheet	10 of 30



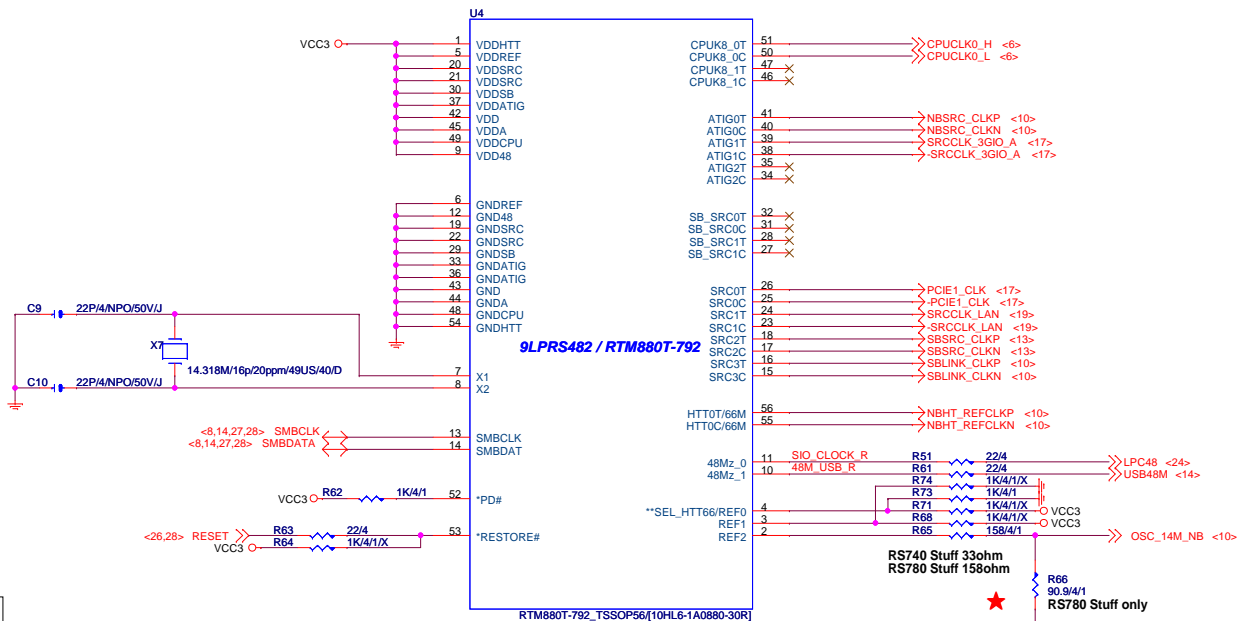
RS740/RX780/RS780 POWER DIFFERENCE TABLE

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	AVDDI	+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	VDDLTP18	+1.8V	NC	+1.8V
IOPLLVD18	+1.8V	NC	+1.8V	VDDLTP33	+3.3V	NC	NC





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



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.

## 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	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

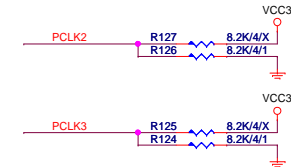
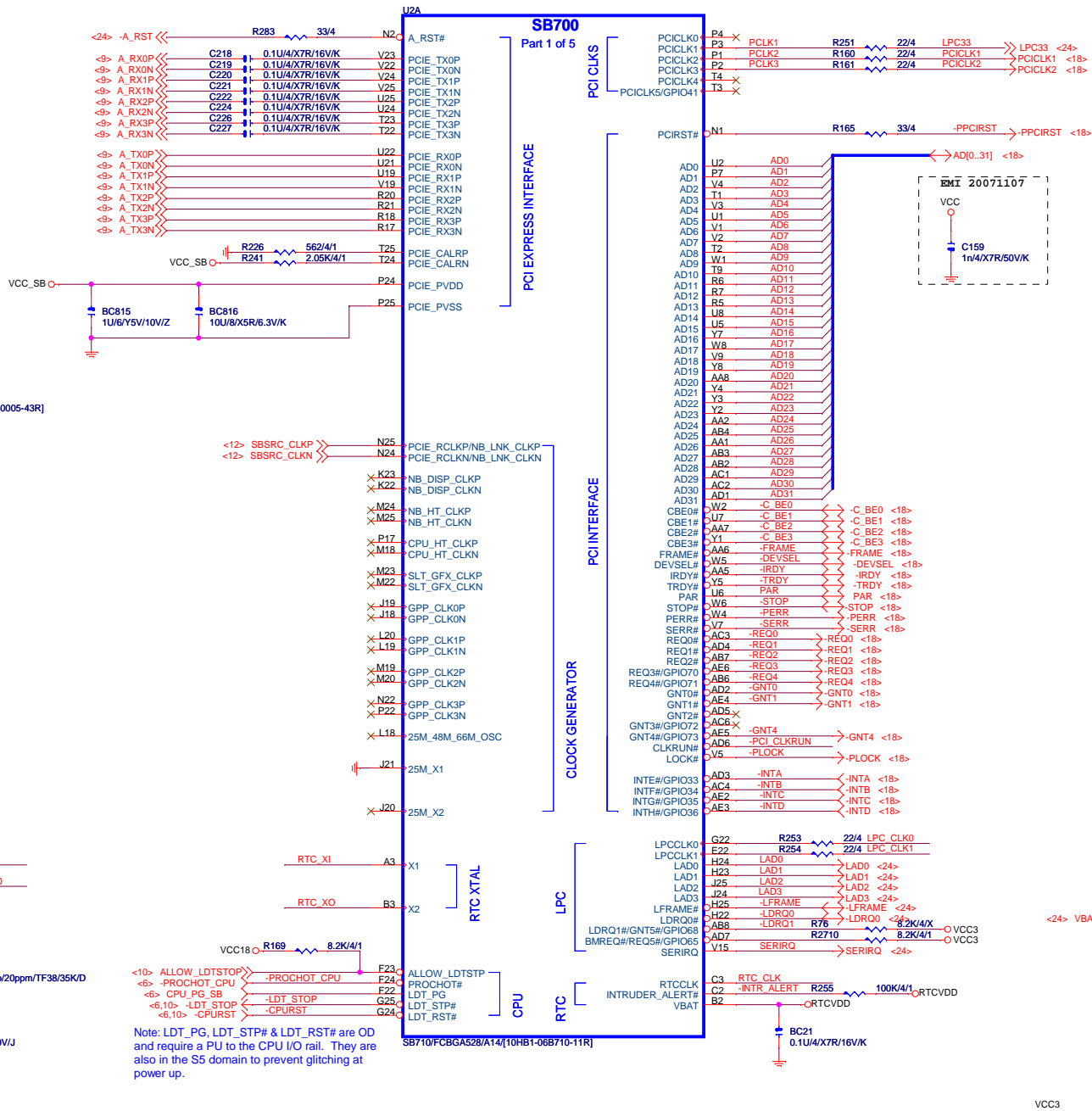
# GIGABYTE™

Title				
ICS9LPRS477				
Size	Document Number			Rev
Custom	GA-880GM-D2H			1.32
Date: Friday, July 23, 2010		Sheet 12 of 30		

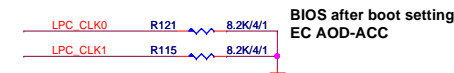


A diagram of a square with vertices labeled 1, 2, 3, 4. The label SB\_HS is placed near the top-left vertex.

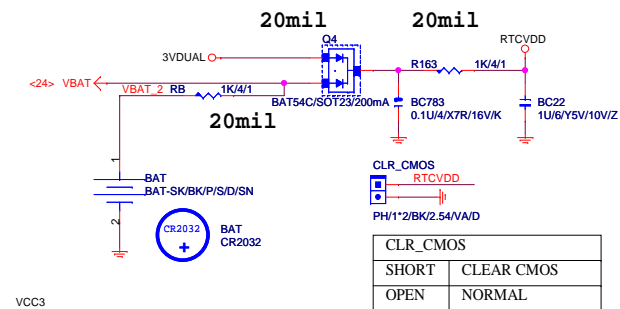
SB\_HS[12SP2-030005-42R\_12SP2-030005-41R\_12SP2-030005-43R]



	PCLK2	PCLK3
PULL HIGH	WATCHDOG TIMER ON NB_PWRGD ENABLED	USE DEBUG STRAPS
PULL LOW	WATCHDOG TIMER ON NB_PWRGD DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT



	LPC_CLK0	LPC_CLK1
<b>PULL HIGH</b>	IMC ENABLED	CLKGEN ENABLED
<b>PULL LOW</b>	IMC DISABLED AOD Extreme DEFAULT	CLKGEN DISABLED DEFAULT

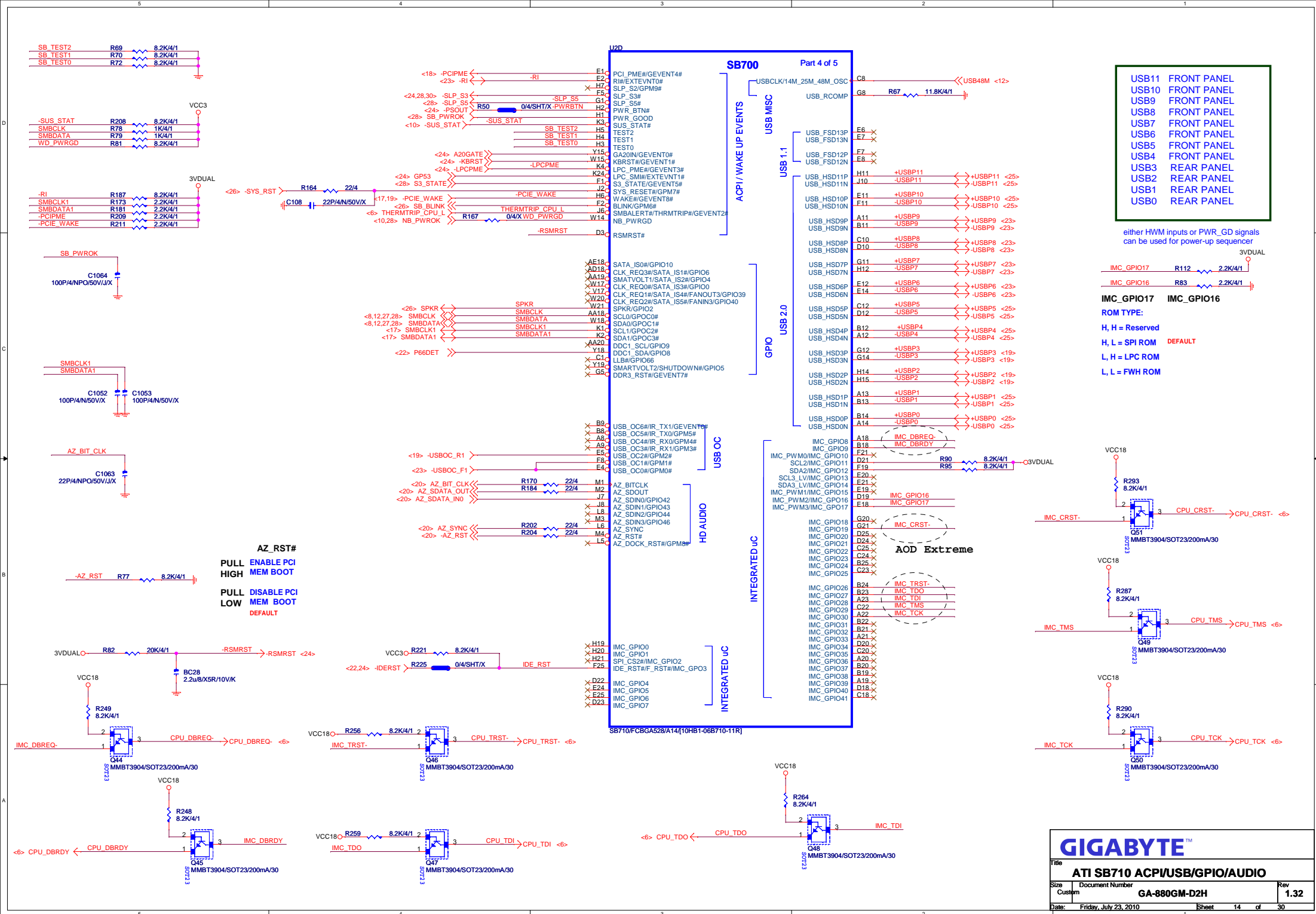


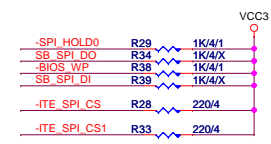
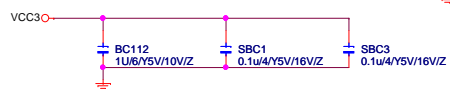
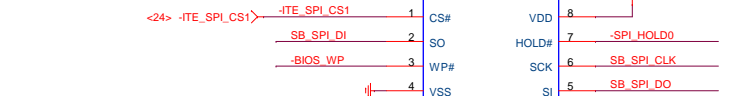
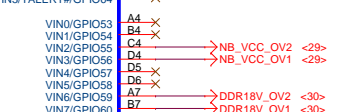
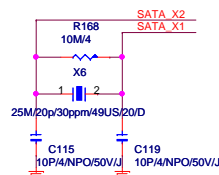
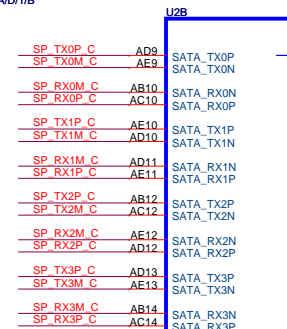
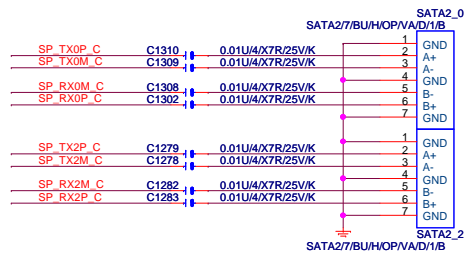
**NOT ADD ICT FOR RTCVDD PIN**

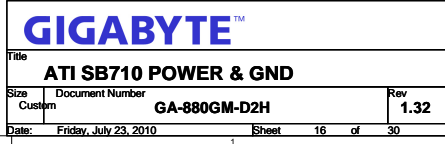
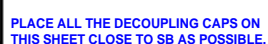
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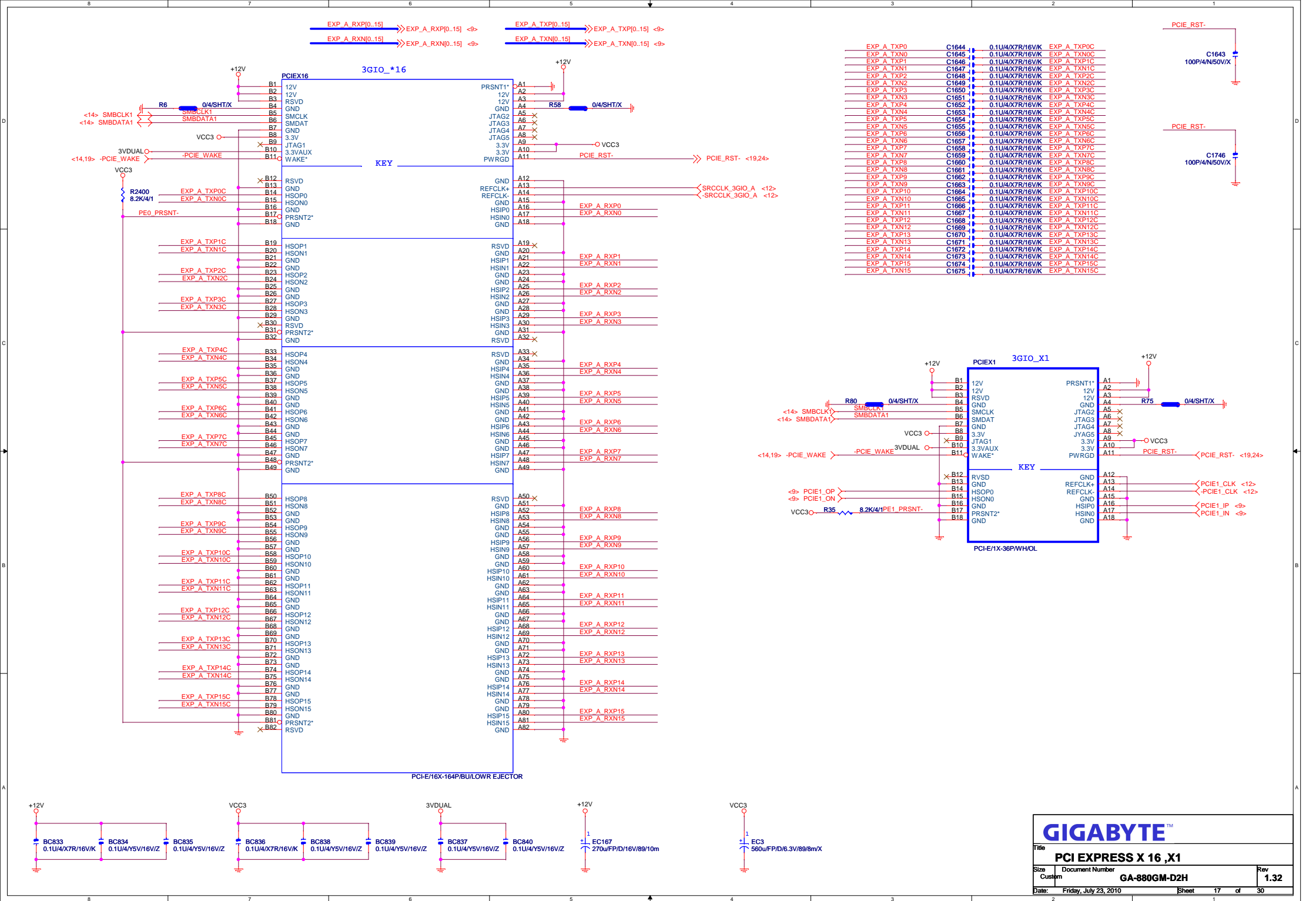
Size	Document Number	Rev
Custom	<b>GA-880GM-D2H</b>	<b>1.32</b>
Date:	Thursday, August 05, 2010	Sheet 13 of 30

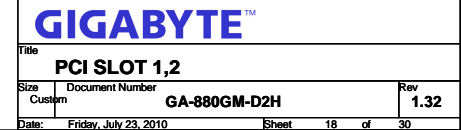
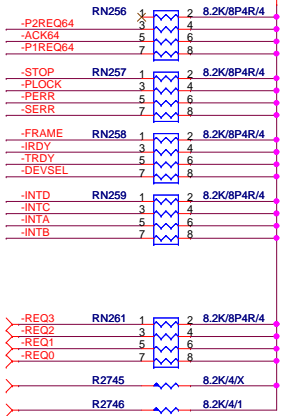
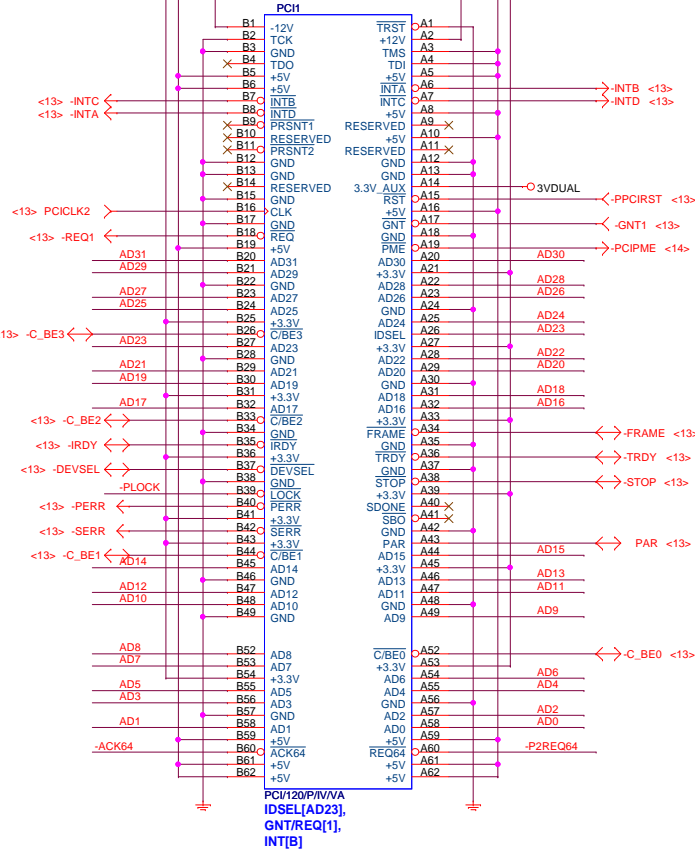






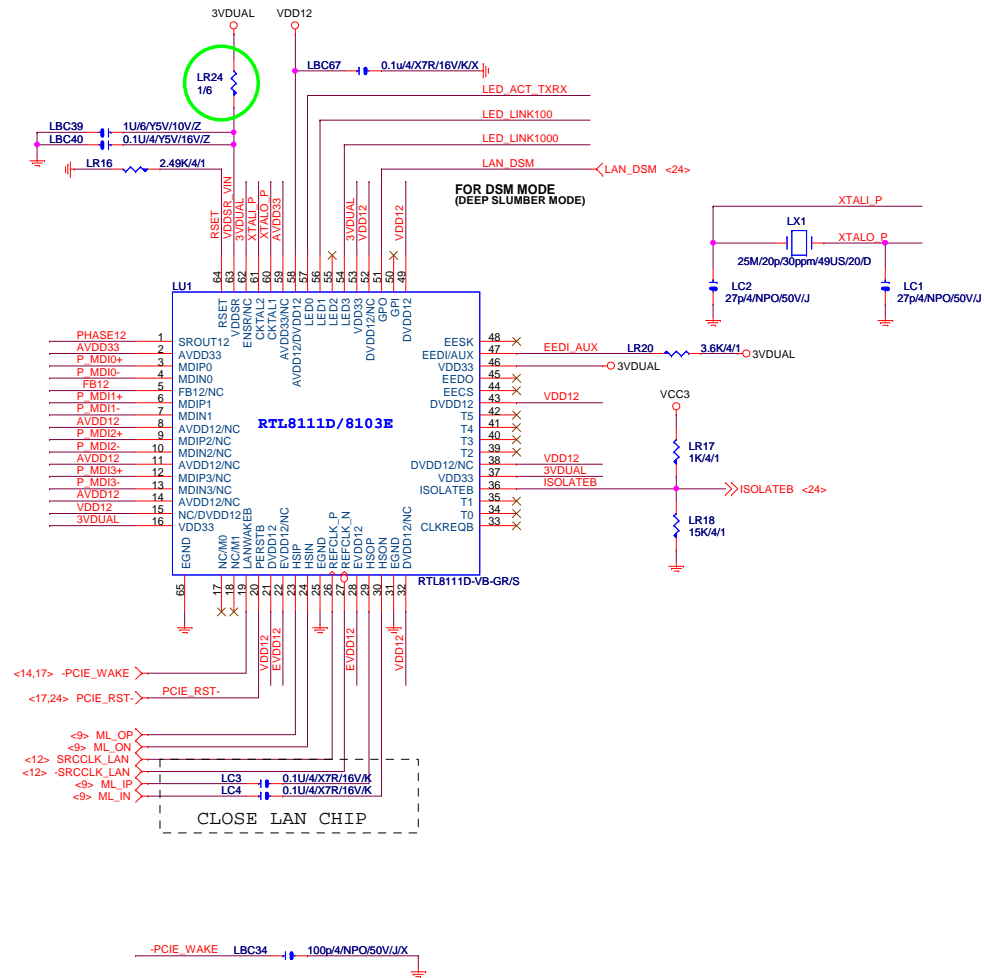




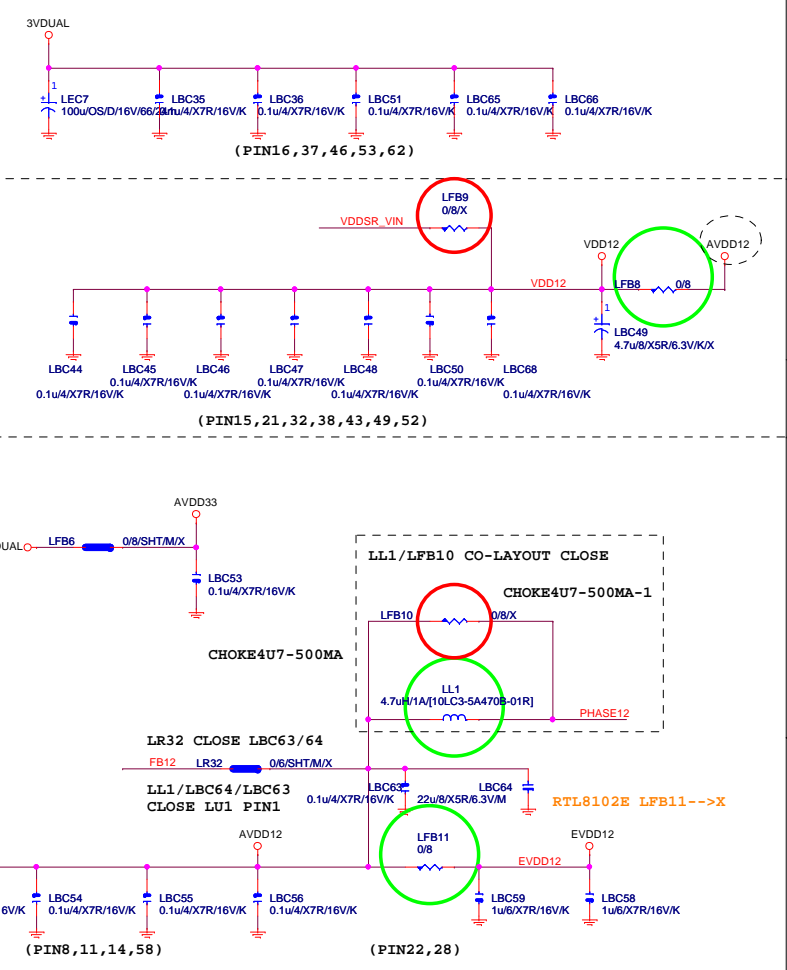
**PCI SLOT2**



PCIE-1G LAN

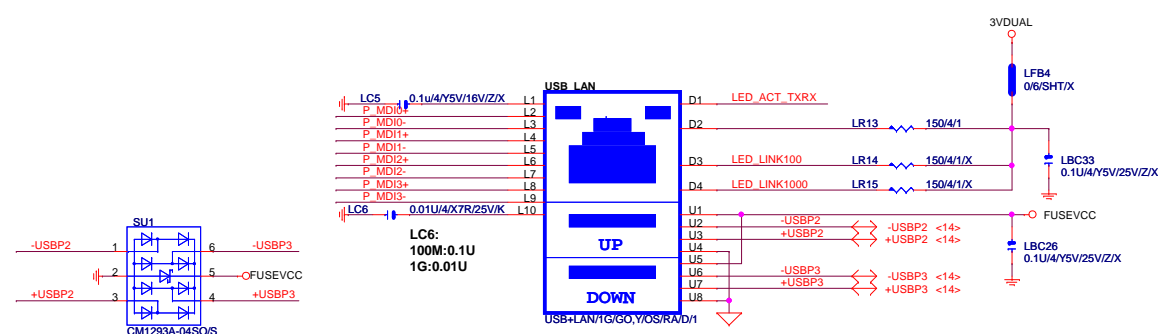


● =>RTL8111D.  
● =>RTL8103E

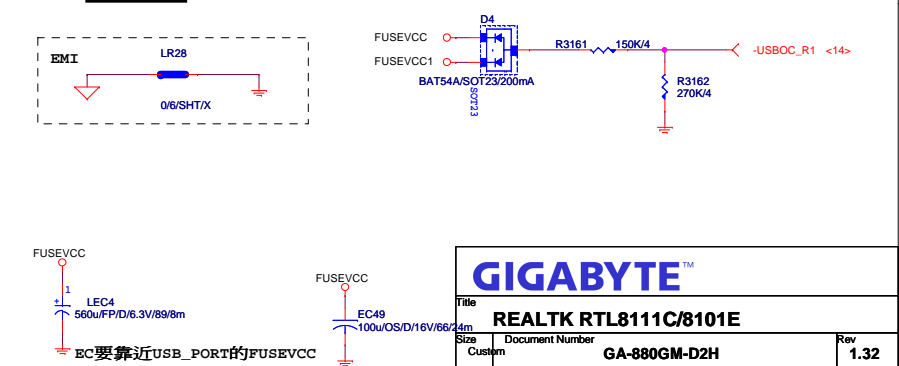


USB\_LAN CONNECTOR

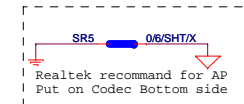
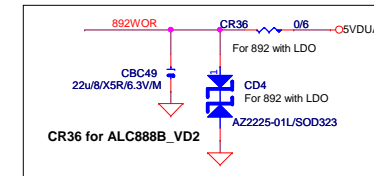
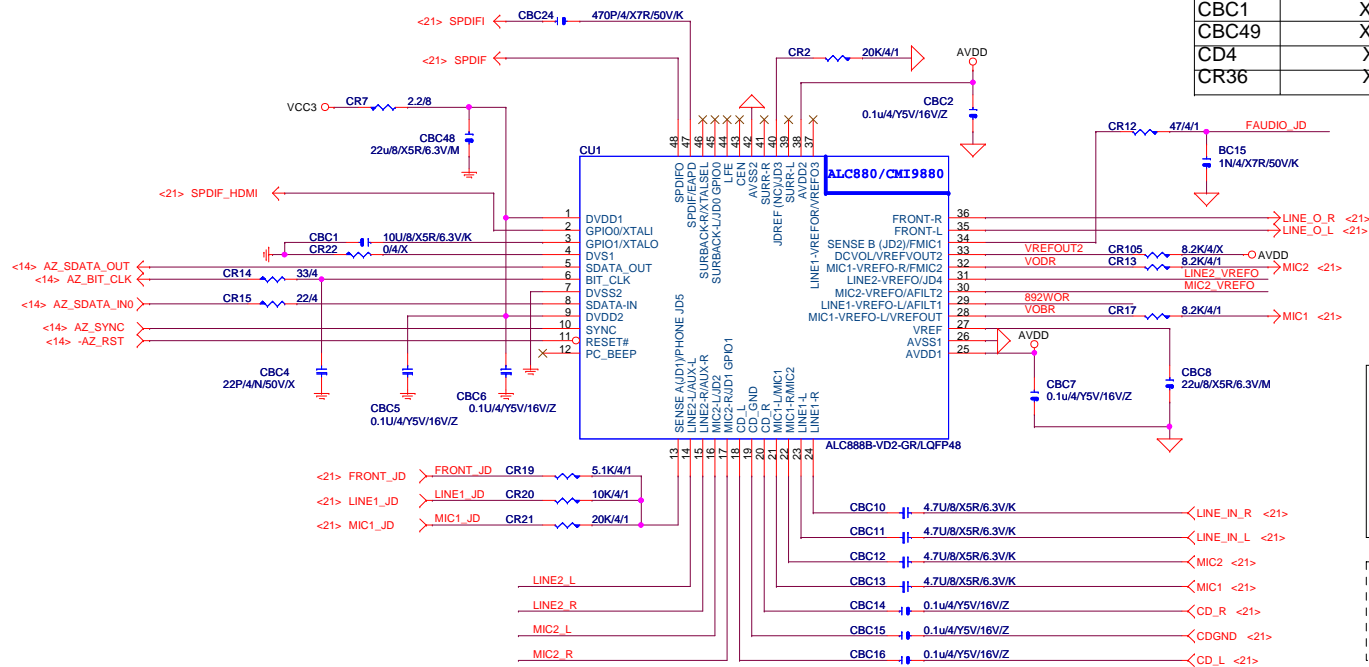
RTL8101E :L1+L10-->AVDD18+0.1U(BIOS DISABLE MDI-X FUNCTION)  
1G :USB+LAN/1G/GO,Y/OS/RA/D/1  
100M:USB+LAN/100/GO,Y/OS/RA/D/1



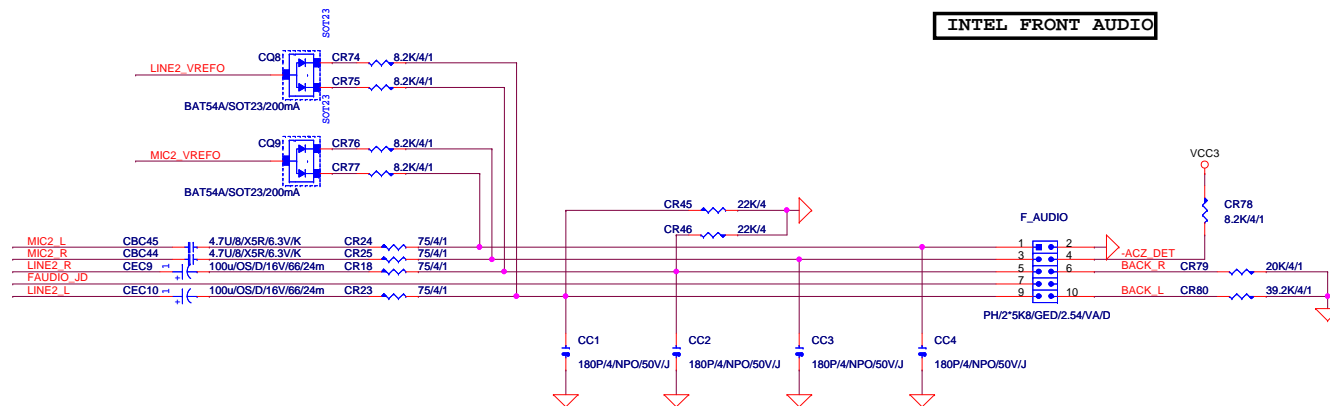
USB\_LAN

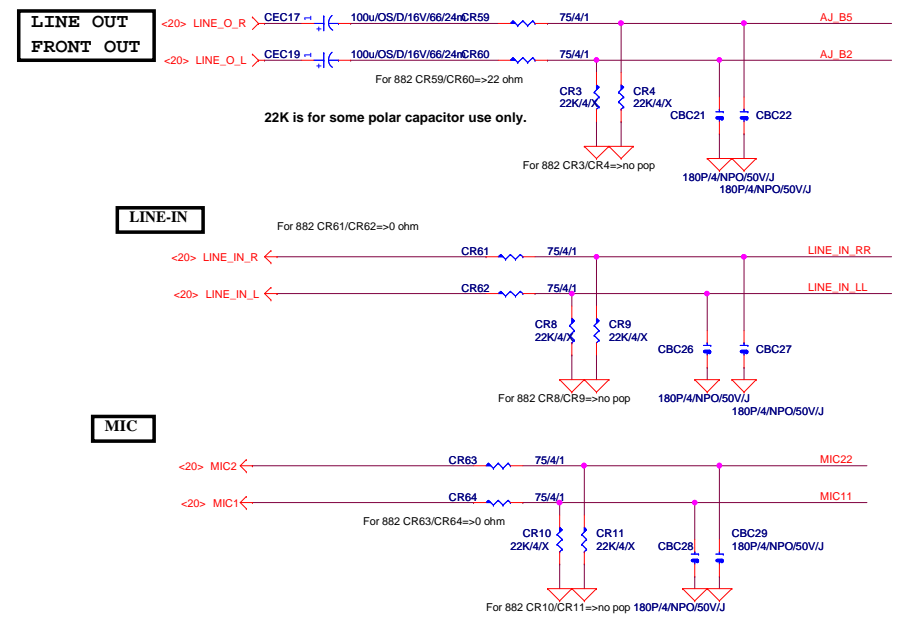
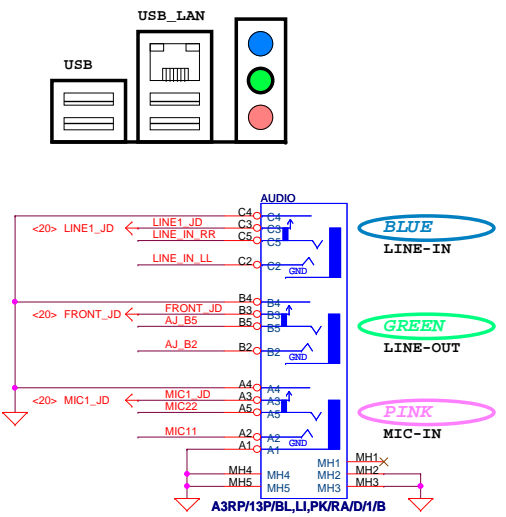
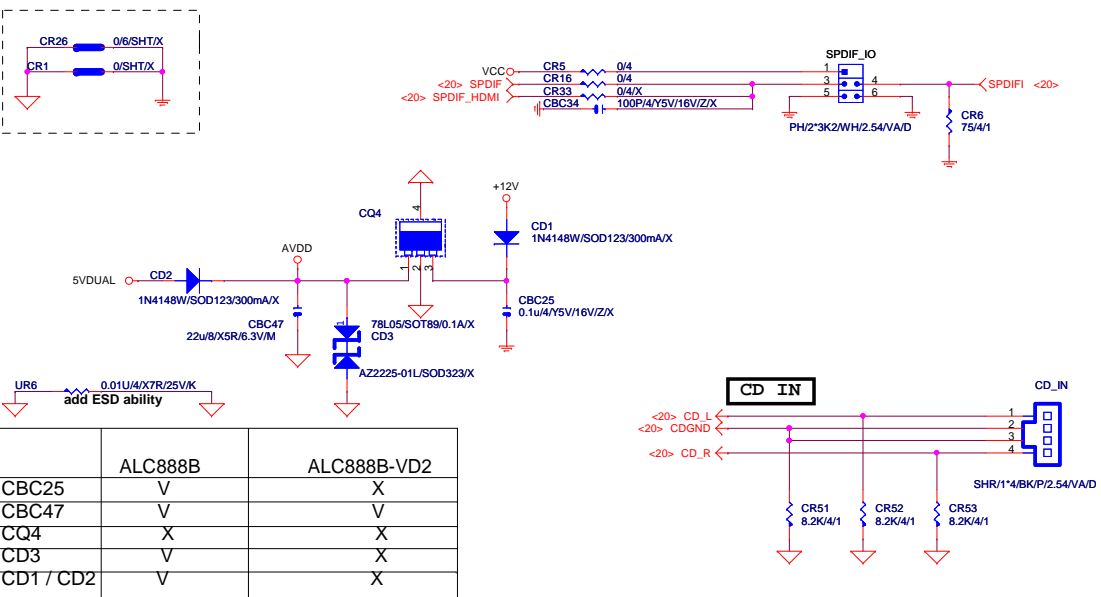


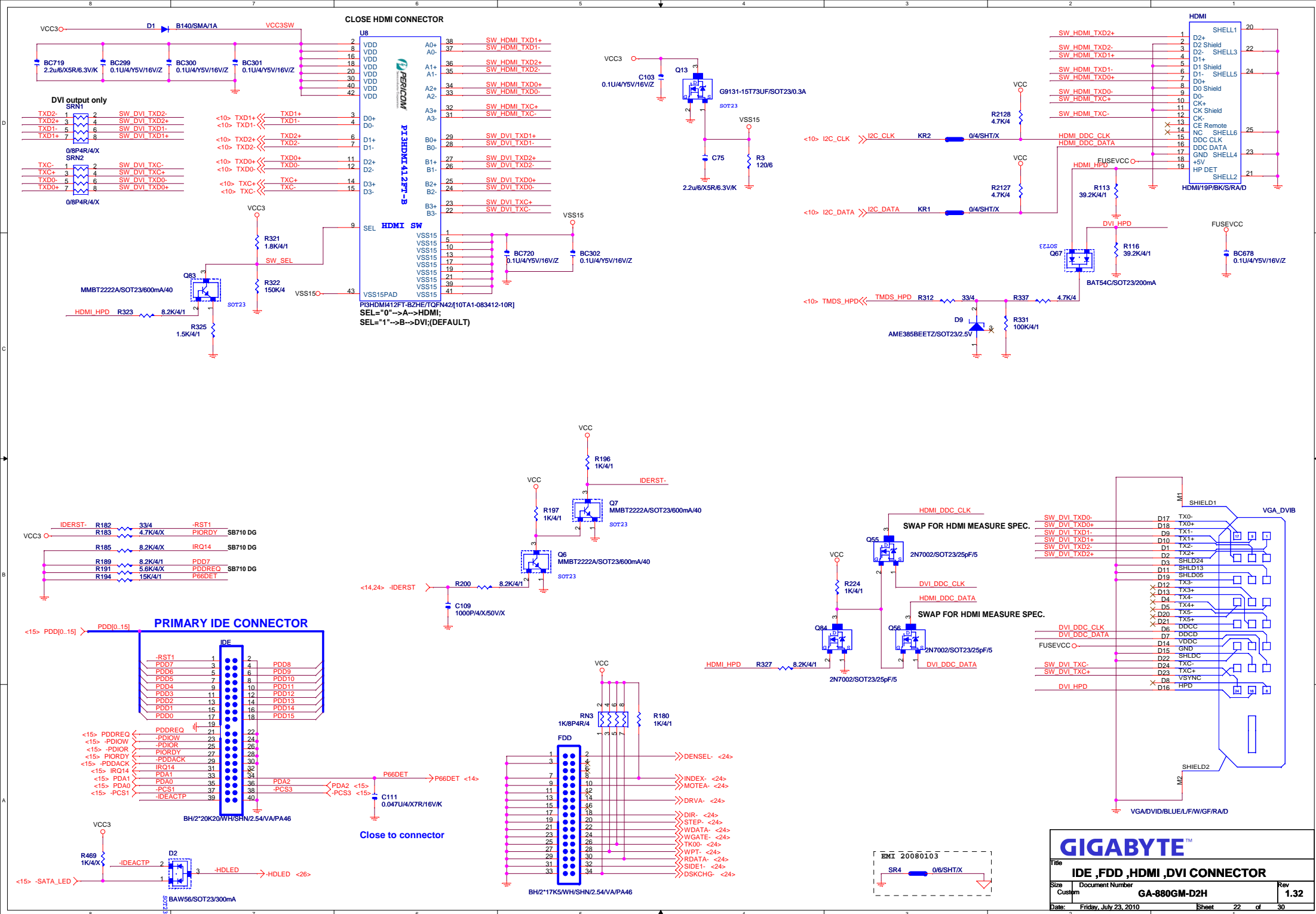
	ALC888B	ALC888B-VD2
CBC1	X	V
CBC49	X	V
CD4	X	V
CR36	X	V

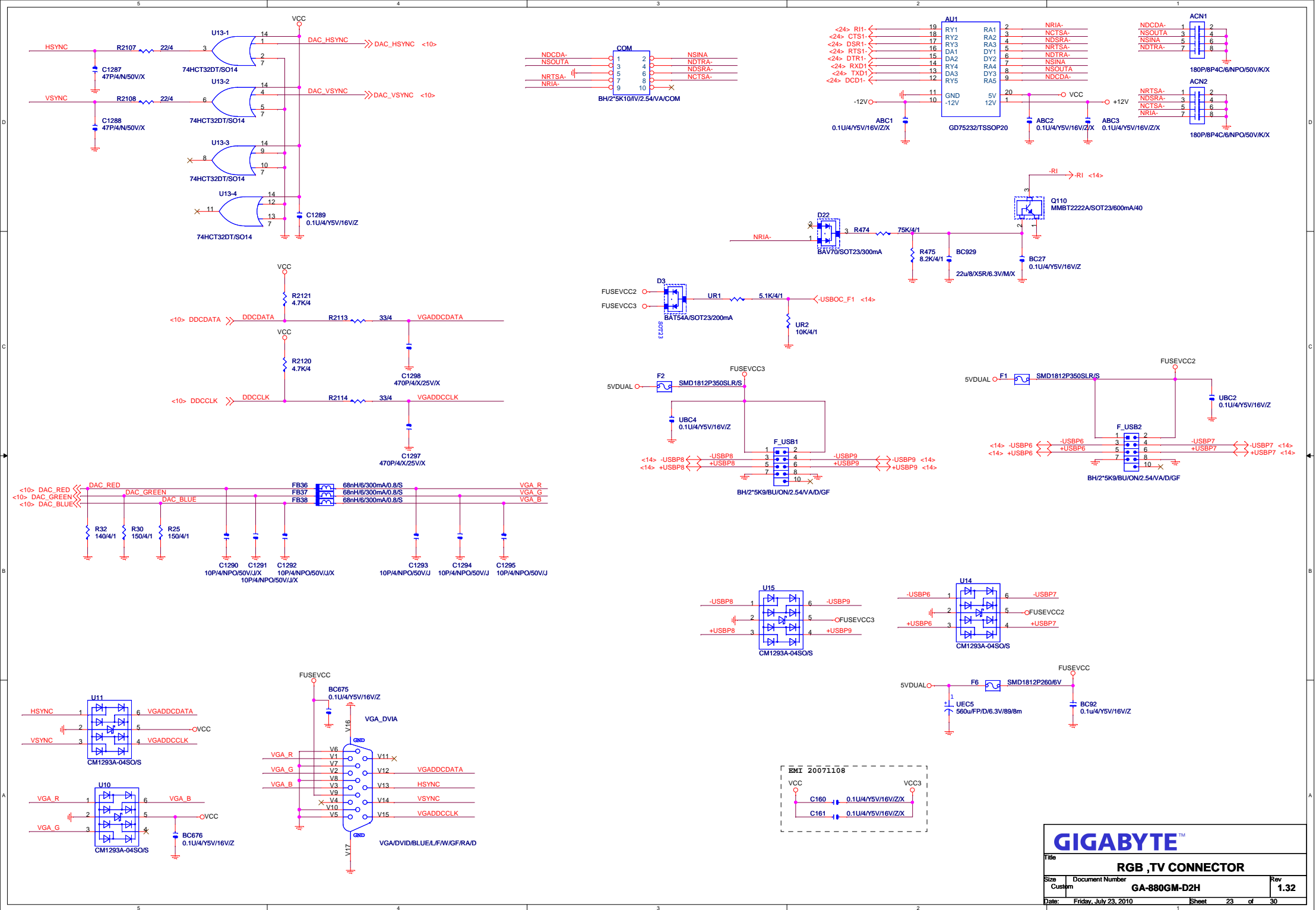


# INTEL FRONT AUDIO

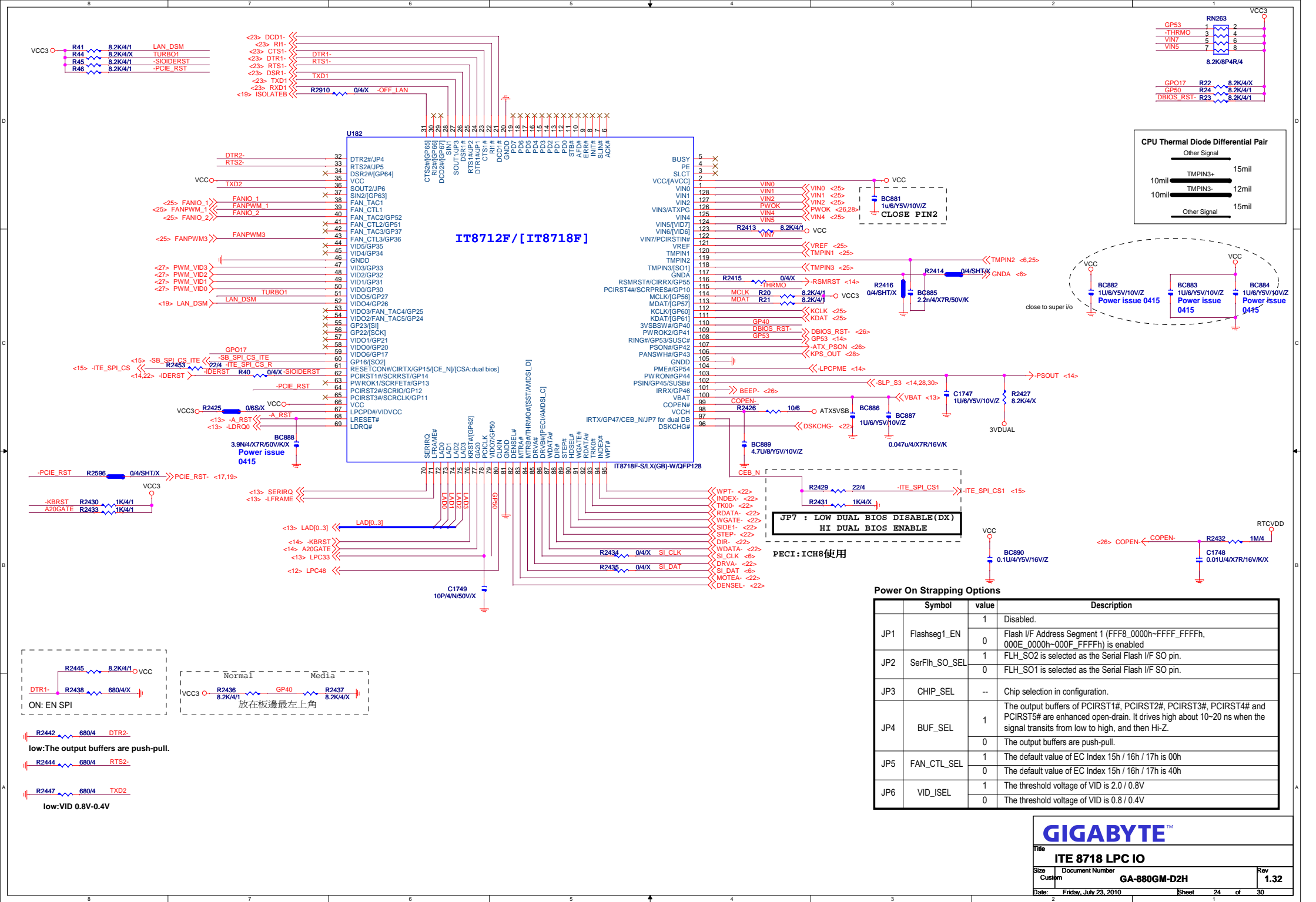




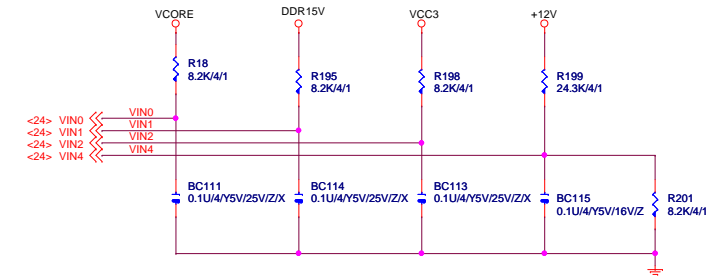
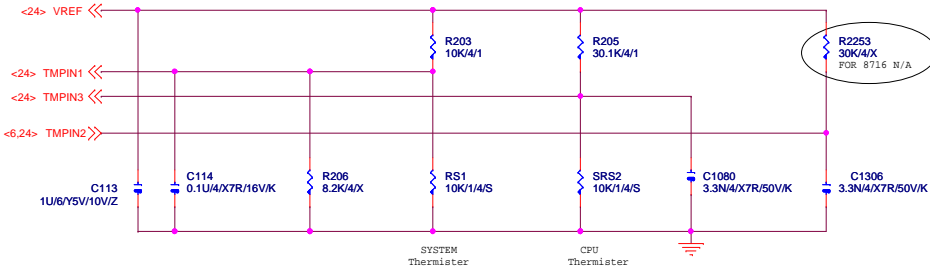




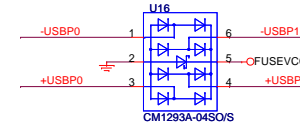
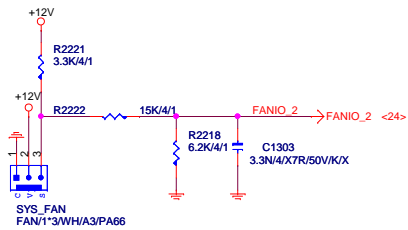




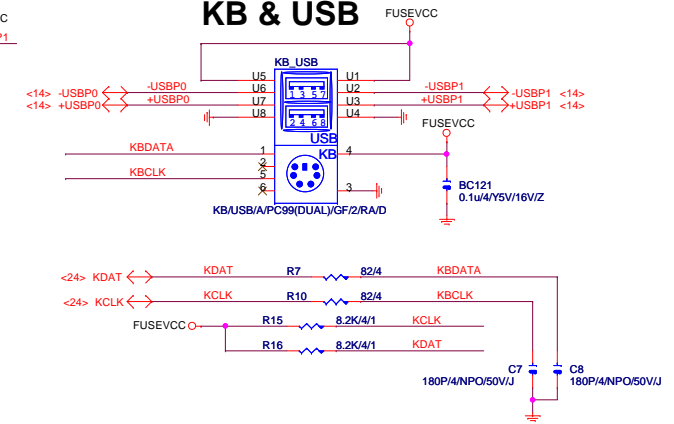
# Hardware Monitor circuits



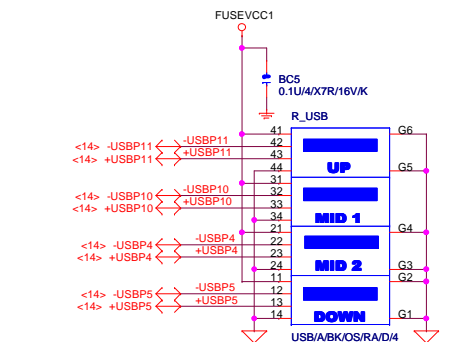
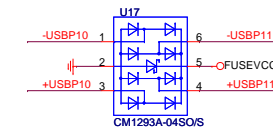
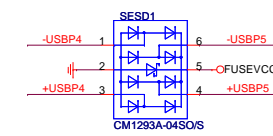
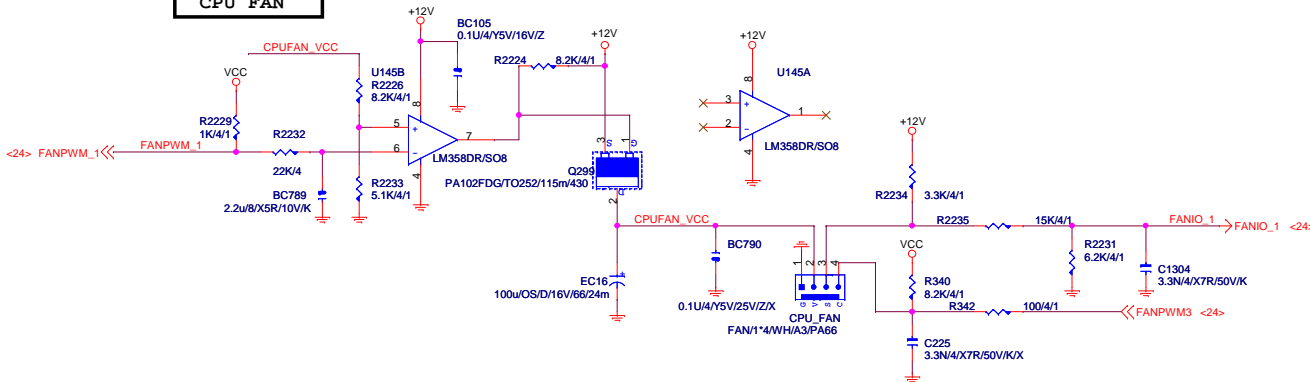
## SYSTEM FAN



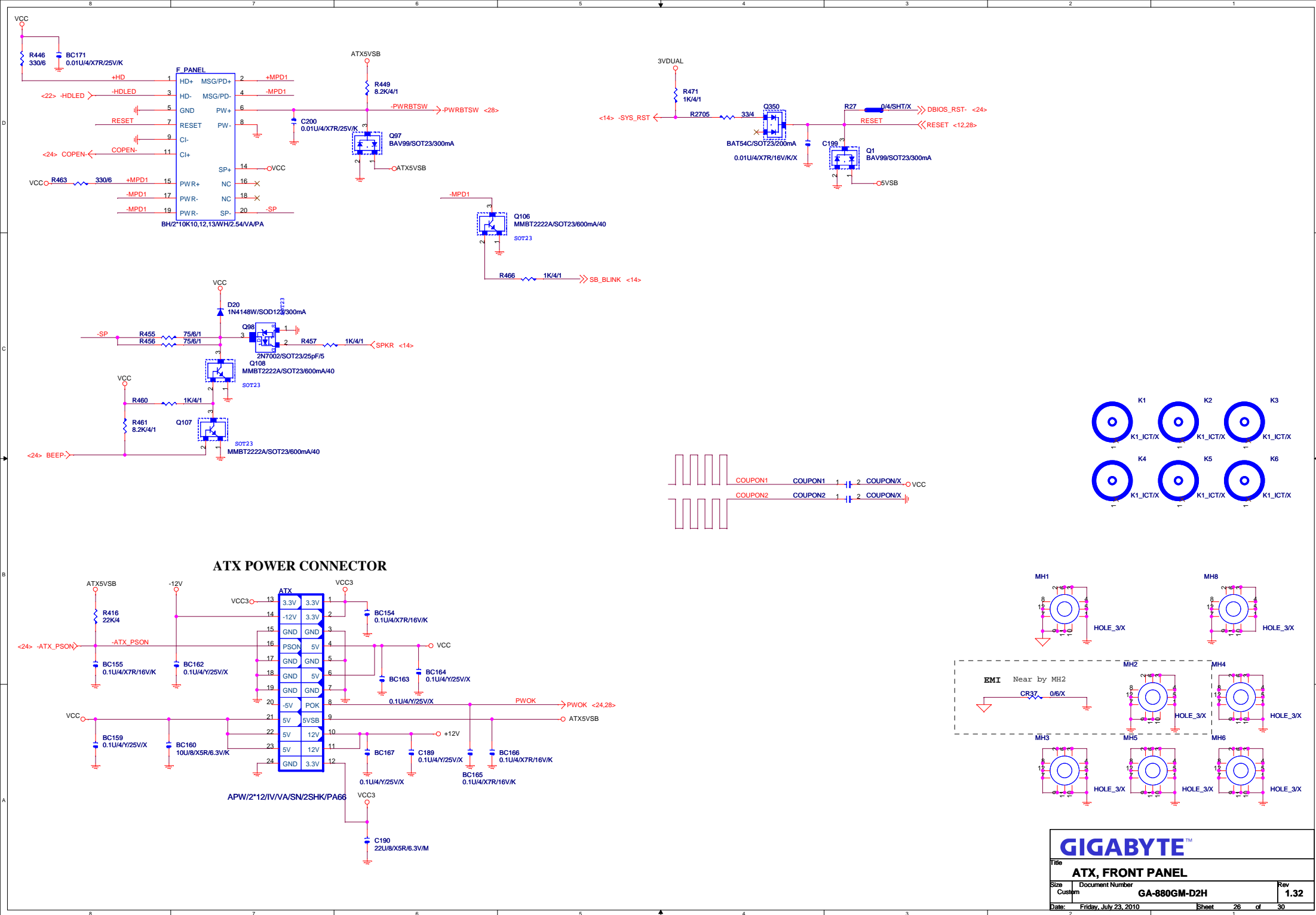
## KB & USB

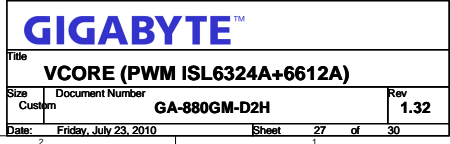


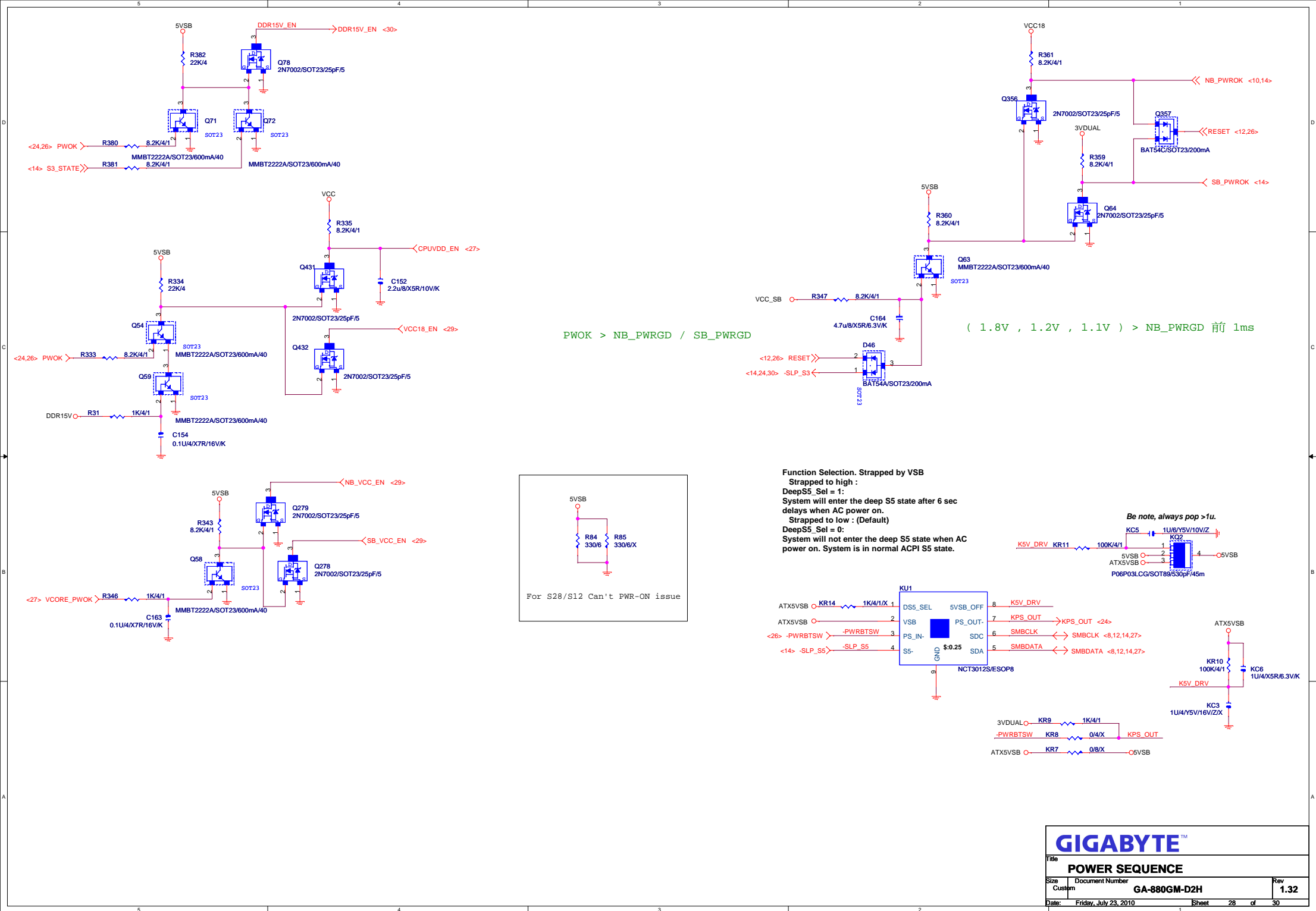
## CPU FAN



GIGABYTE™			
Title <b>FAN/HWMO ,KB/USB</b>			
Size	Document Number	Rev	
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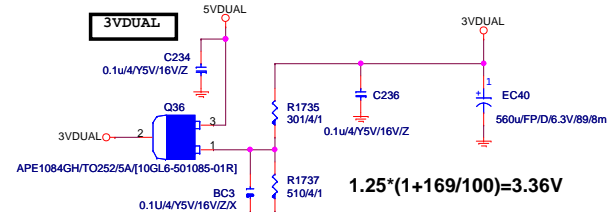
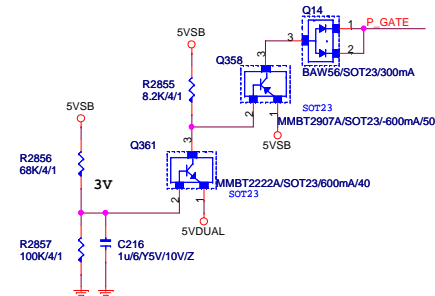
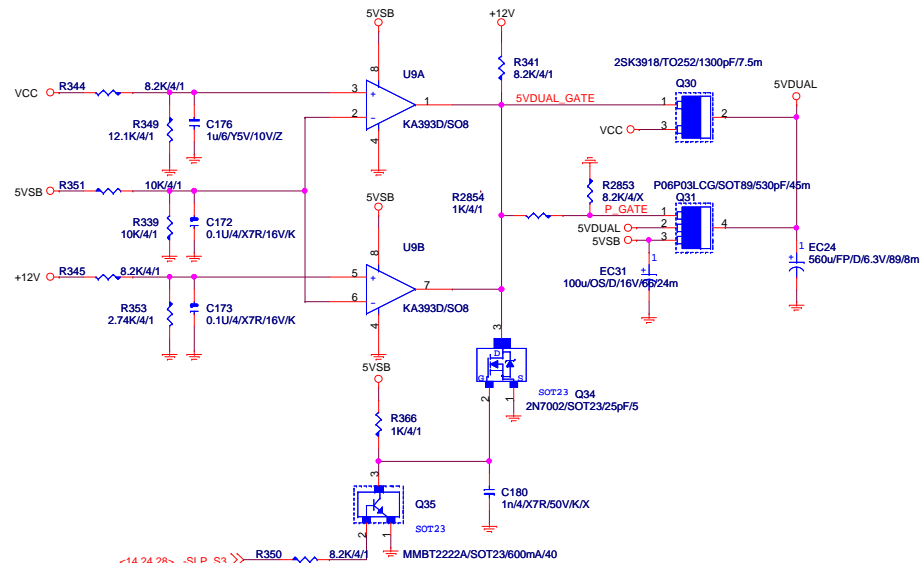




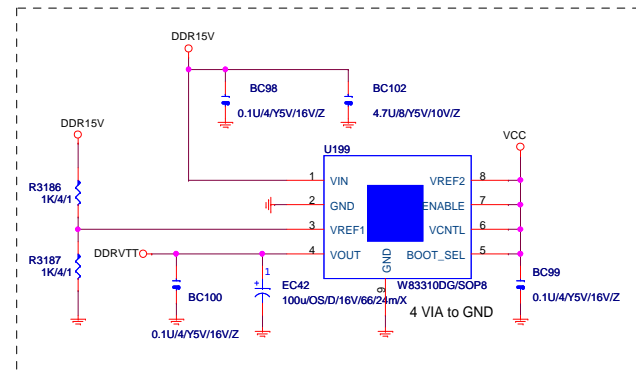
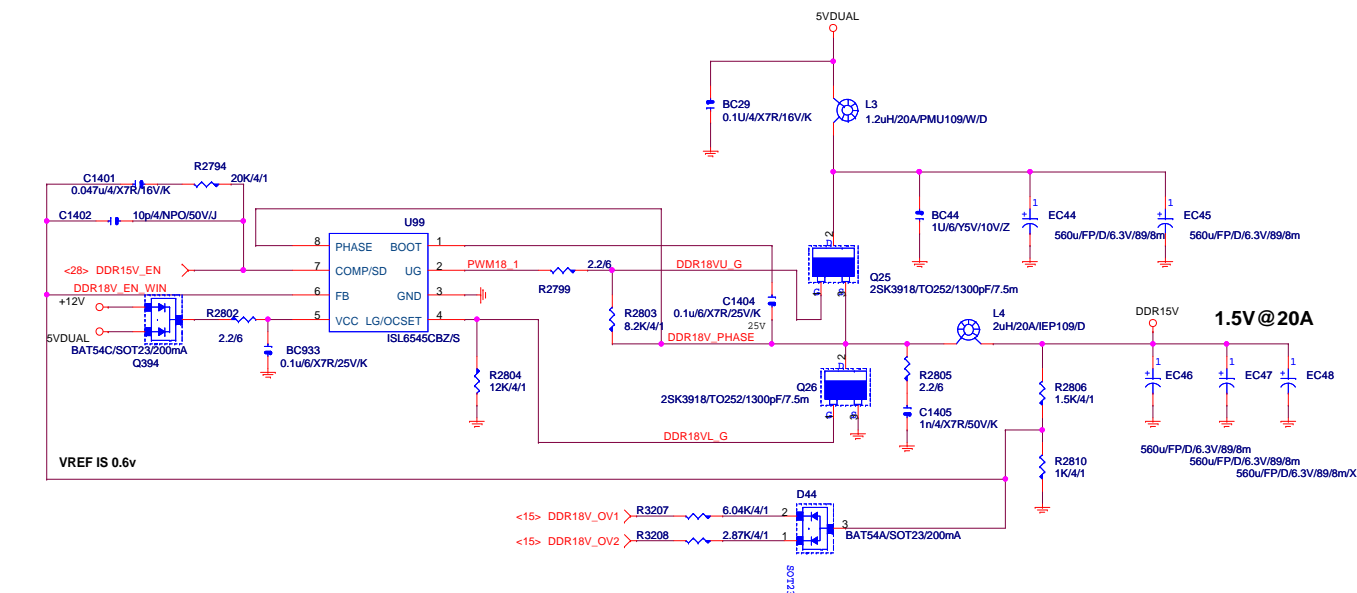




# 5VDUAL



$$1.25 \times (1 + 169/100) = 3.36V$$



$$0.6 \times (1 + 3K/1.43K) = 1.859V$$

DDR18V_OV1	DDR18V_OV2	DDR18V
L	X	1.90V
X	L	2.00V
L	L	2.10V

**GIGABYTE**

Title	Document Number	Rev
DDR18V POWER , VCC18	GA-880GM-D2H	1.32
Size	Custom	
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