

Model Name: MSH61PI-SI

SHEET

TITLE

01	COVER SHEET
02	BLOCK DIAGRAM
03	POWER SEQUENCE
04	Processor HOST
05	Processor DDRIII
06	Processor PWR
07	Processor GND
08	DDRIII CHANNEL A & B
09	MINI PCIE ,eDP
10	HDMI, VGA CON
11	PCH DMI, PCI, PCIE, USB
12	PCH HOST,LPC, SPI, PM, HDA
13	PCH HOST, SATA
14	PCH NVRAM, FDI, DISPLAY
15	PCH CLK BUFFER AND CLK GEN
16	PCH PWR,GND
17	SIO IT8773 &FRONT PANEL
18	FRONT & REAL USB
19	VCC CORE & AXG
20	SWITCH POWER
21	LINNER POWER
22	FAN CONTROL
23	HDA CODEC ALC887
24	AUDIO JACK
25	RTL8111E-VL/RTL8105E-H
26	USB30 ASM1042
27	REALTEK RTD2136

Revision 1.1

SHEET

TITLE

28	19V-IN DC to DC
29	BOM & PCB MODIFY HISTORY
30	
31	
32	
33	

BLOCK DIAGRAM

19V IN DC-DC
 5VSB VCC3_DSW
 VCC3 VCC
 +12V

PAGE-28

INTEL SANDY BRIGE
LGA1155 (FSB800/1066/1333)

Processor HOST
 PAGE-4
 Processor DDRIII
 PAGE-5
 Processor PWR
 PAGE-6
 POWER, GND
 PAGE-7

CPU VRM 12
ON NCP6121

PAGE-30

CHANNEL A (800/1066/1333]
DDR III SODIMM X 1

PAGE-12

CHANNEL B (800/1066/1333]
DDR III SODIMM X 1

PAGE-13

REALTEK 8111E-VL

PAGE-34

USB30 ASM1042

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minPCI EXPRESS*1

PAGE-16

FRONT USB PORTS 0-1
REAL USB PORTS 2-3

PAGE-8

ALC 8887

PAGE-31

AUDIO JACK

PAGE-23

SWITCH POWER
 CPU_VTT DDR15V

PAGE-20

LLINEAR POWER
 DDRVTT VCCSA VCC1_05 VCC1_8
 3VDUAL VCC1_5VCC12
 PAGE-21 1_2VDUAL

cougar point (H61)

PCH DMI, PCI, PCIE, USEPCH NVRAM, FDI, DISPLAY
 PAGE-11 PAGE-14
 PCH LPC, SPI, PM, HDA PCH CLK BUFFER AND CLK GEN
 PAGE-12 PAGE-15
 PCH HOST, SATA PCH PWR, GND
 PAGE-13 PAGE-16

SERIAL ATA X2

PAGE-13

SPI BIOS

PAGE-15

I/O ITE8773
FRONT PANEL FAN CONTROL
 CPU FAN SYS FAN

PAGE-17

USB30 ASM1042

PAGE-26

HDMI SN75DP139RGZR
 level shift

PAGE-10

5

4

3

2

1

D

D

C

C

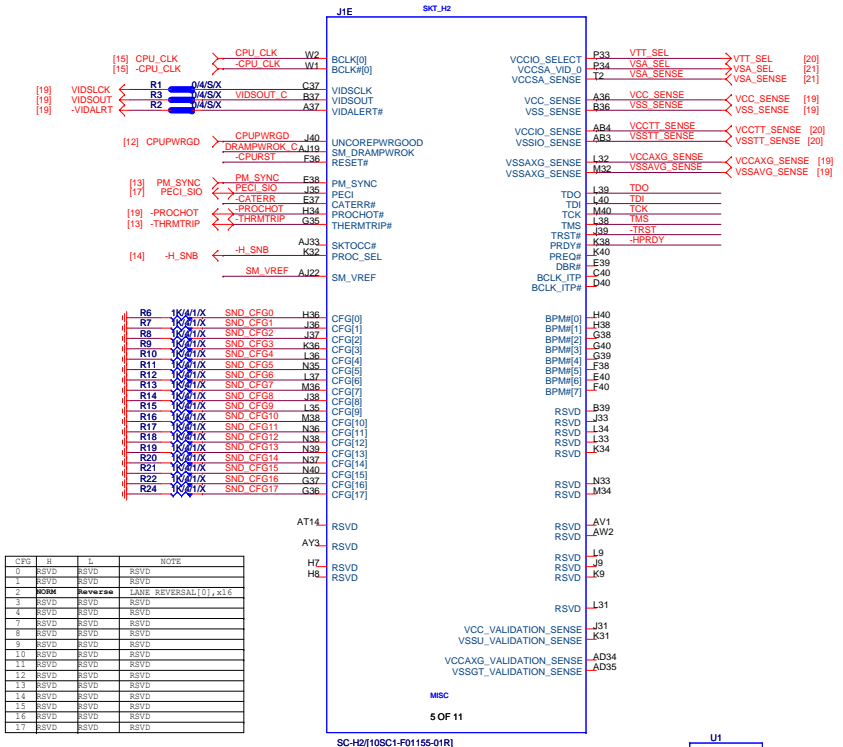
B

B

A

A

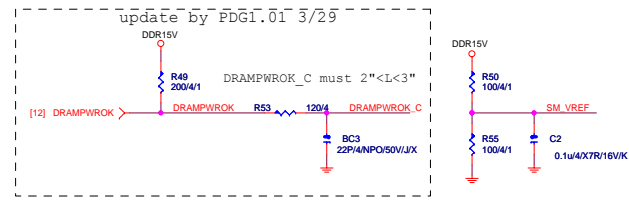
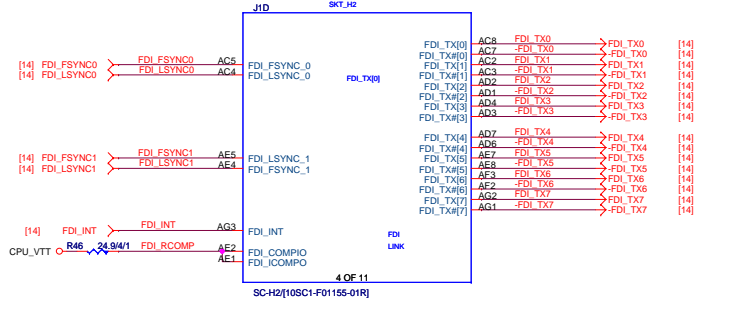
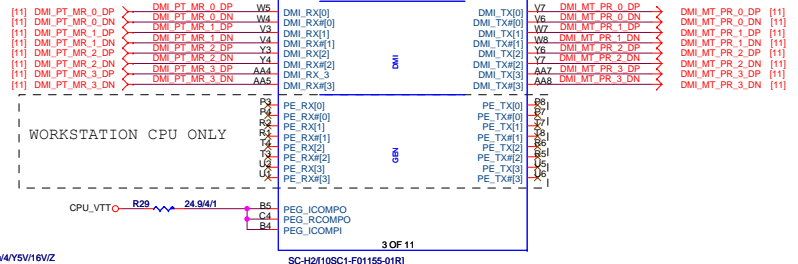
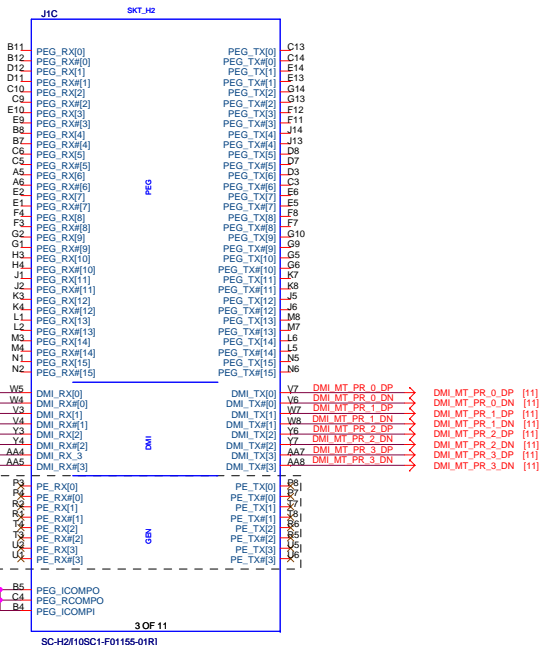
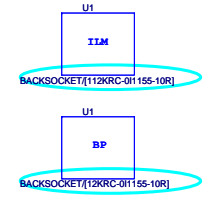
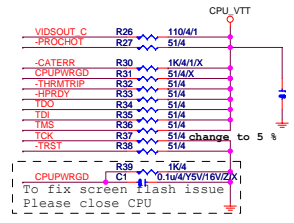
GIGABYTE TECHNOLOGIES, INC.			
Title			
POWER SEQUENCE			
Size	Document Number	Rev	
Custom	MSH61PI-SI	1.1	
Date:	Thursday, March 31, 2011	Sheet	3 of 29

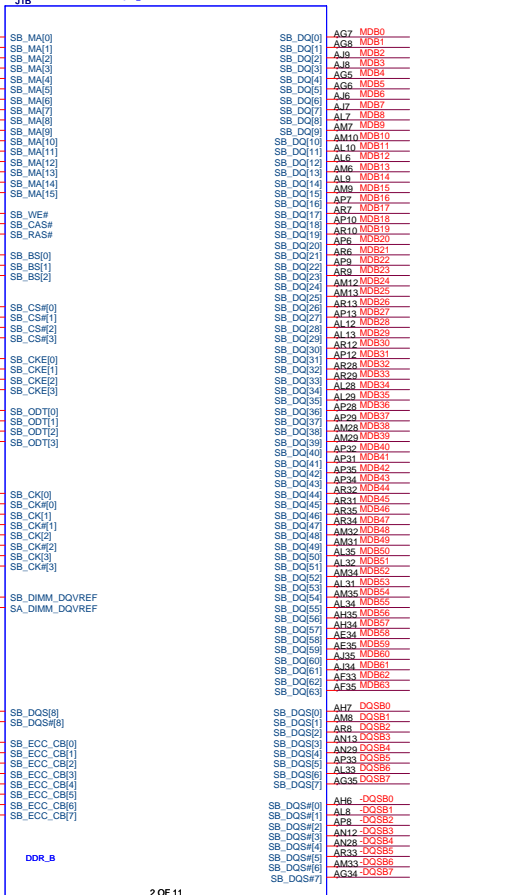
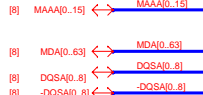
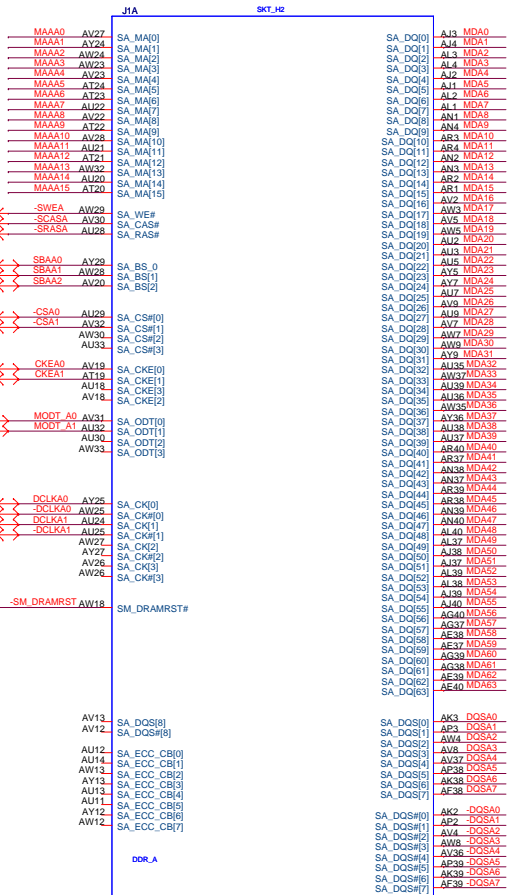


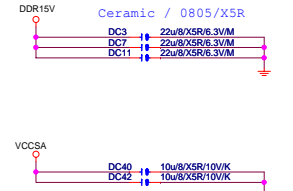
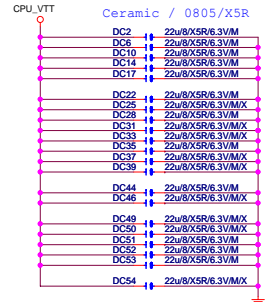
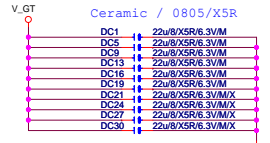
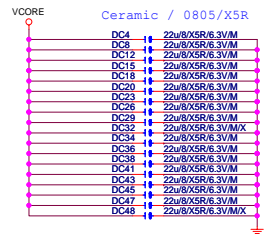
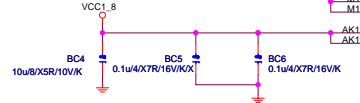
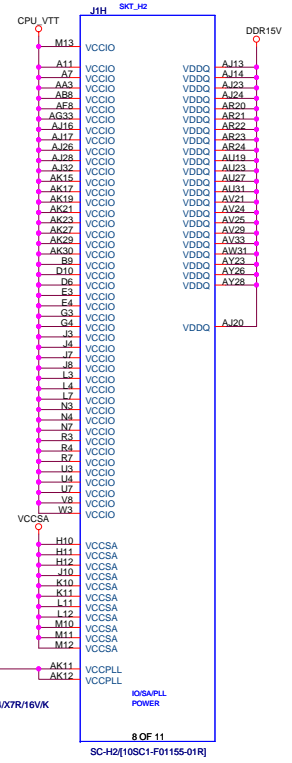
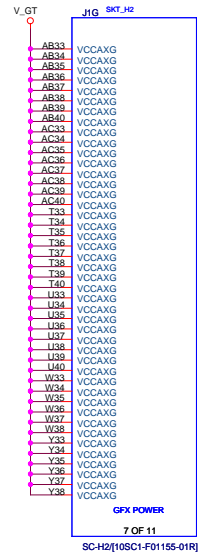
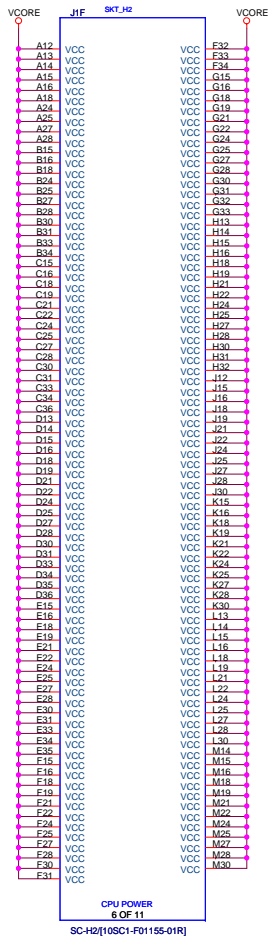
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0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	RSVD	RSVD	RSVD
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
5	RSVD	RSVD	RSVD
6	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

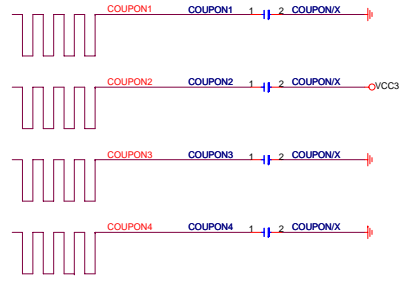
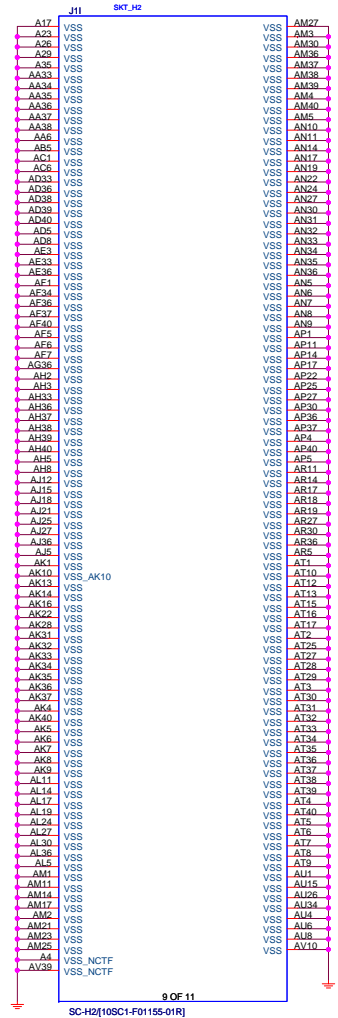
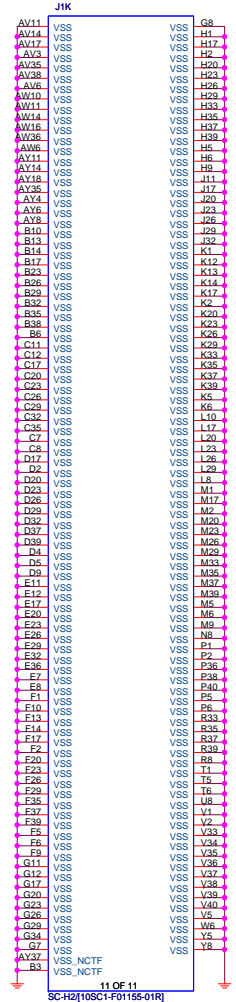
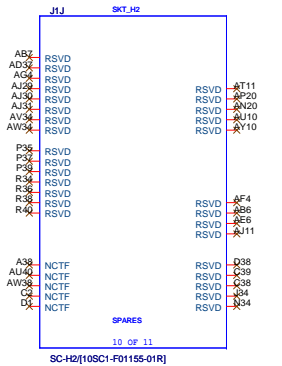
CFG#	CFG5	PCIE CONFIG
0	1	1x16 # DR481E
1	0	2x8
0	1	RSVD
0	0	8x2, 4x4

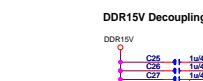
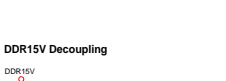
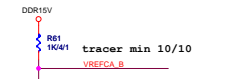
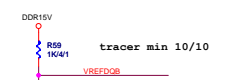
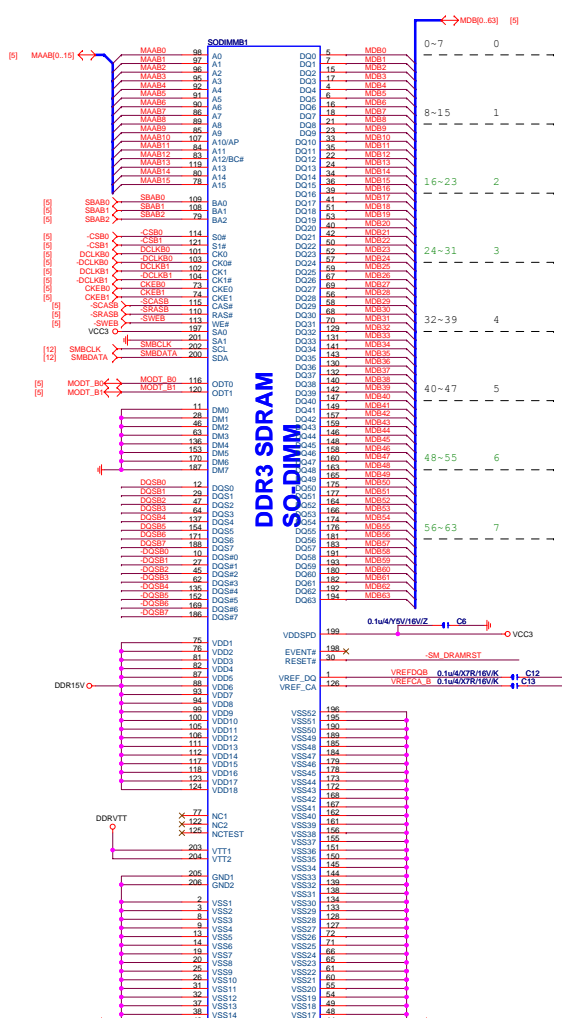
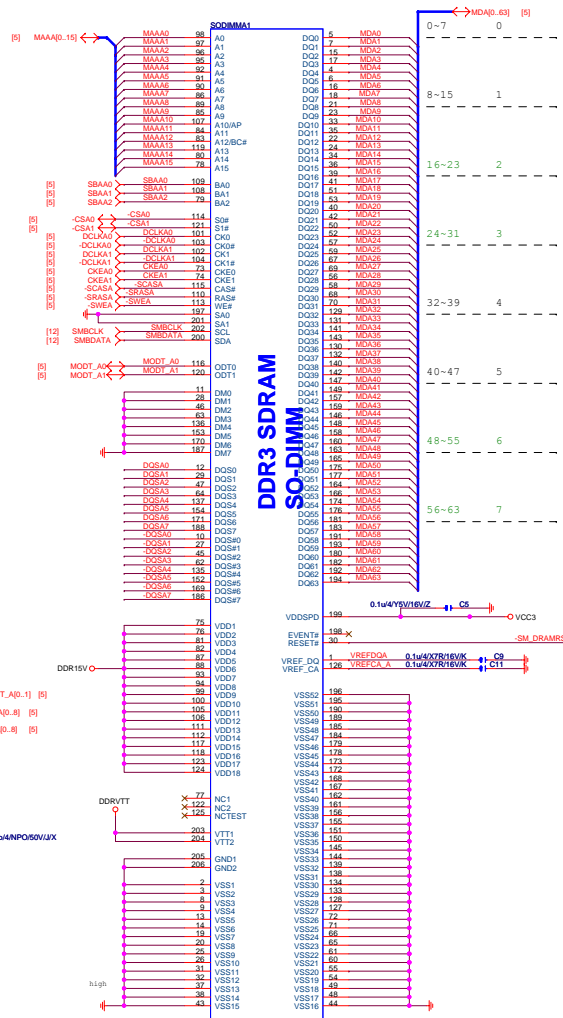
CFG 0-17 all internal PULL-UP



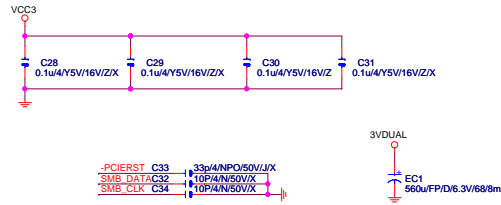




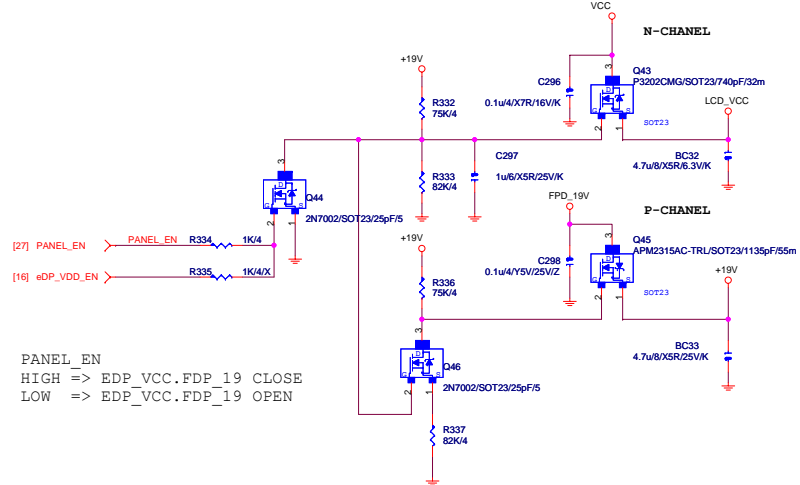
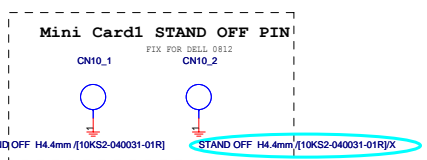
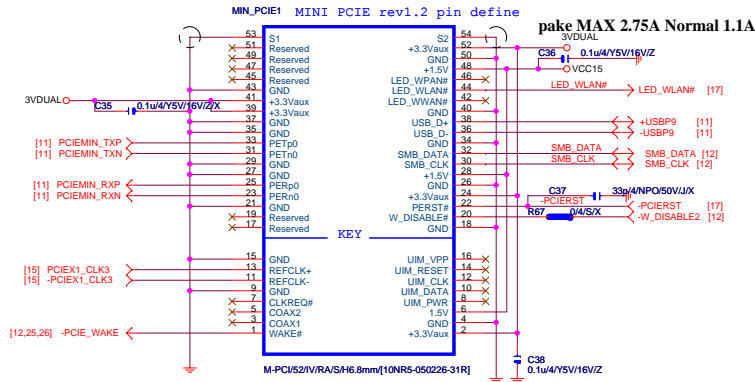




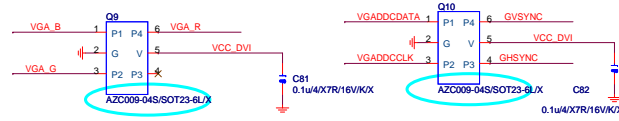
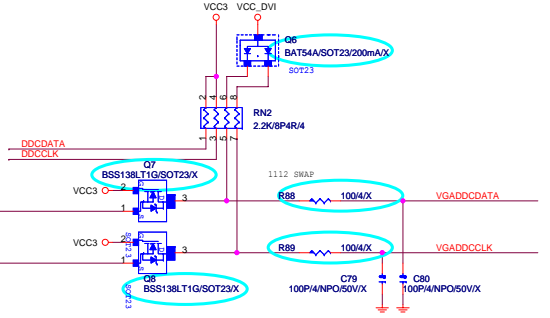
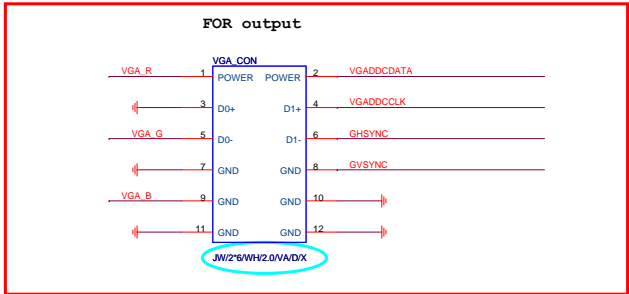
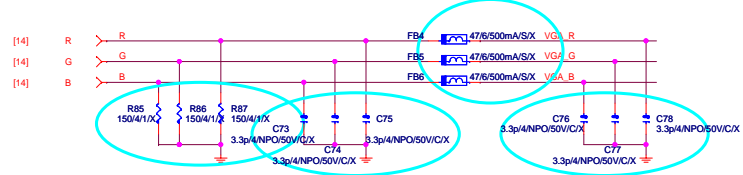
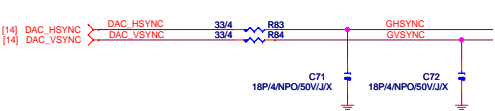
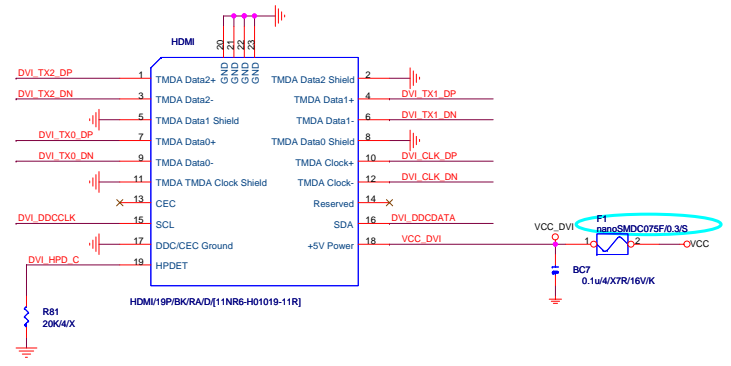
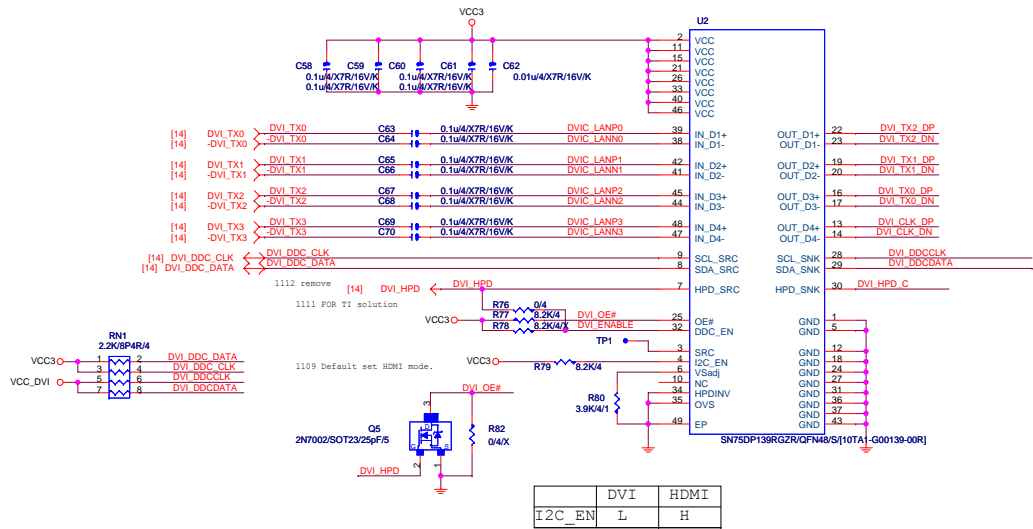
For Simulation result, place close to DEC4

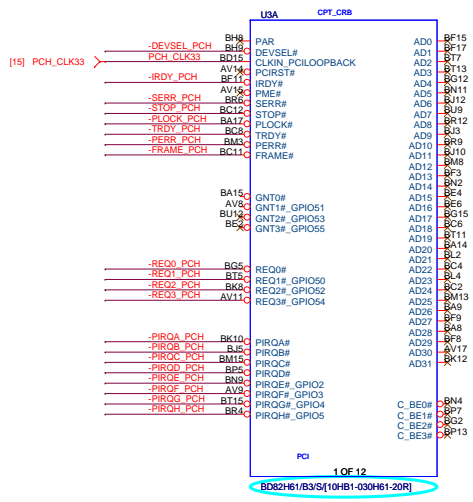
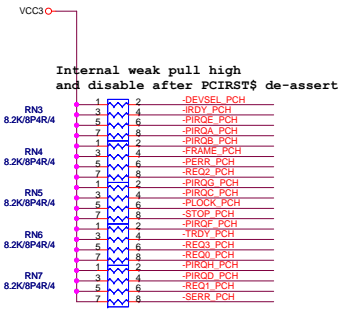


For WLAN slot



PANEL_EN
 HIGH => EDP_VCC.FDP_19 CLOSE
 LOW => EDP_VCC.FDP_19 OPEN

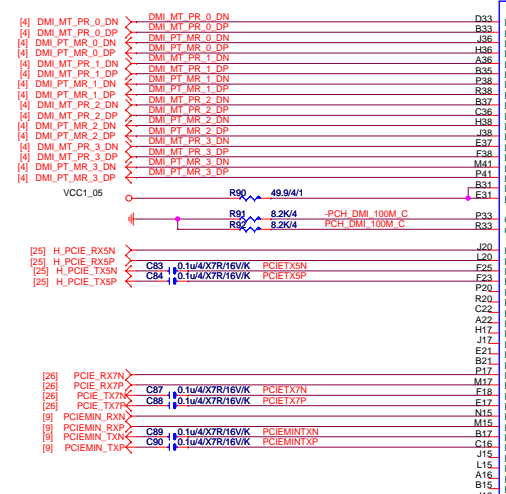




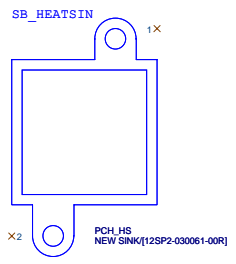
BD82H61/B3/S(10HB1-030H61-20R)

PIN#	MAPPING
OC0#	PORT0, PORT1
OC1#	PORT2, PORT3
OC2#	PORT4, PORT5
OC3#	PORT6, PORT7
OC4#	PORT8, PORT9
OC5#	PORT10, PORT11
OC6#	PORT12, PORT13
OC7#	NOT USE

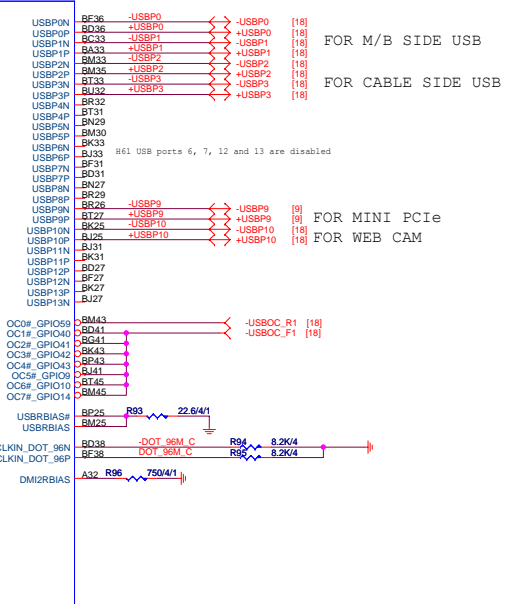
Boot	GNT1	GNT0
LPC	0	0
PCI	0	1
SPI	1	1



BD82H61/B3/S(10HB1-030H61-20R)



PCH_HS
NEW SINK(12SP2-030061-00R)



FOR M/B SIDE USB

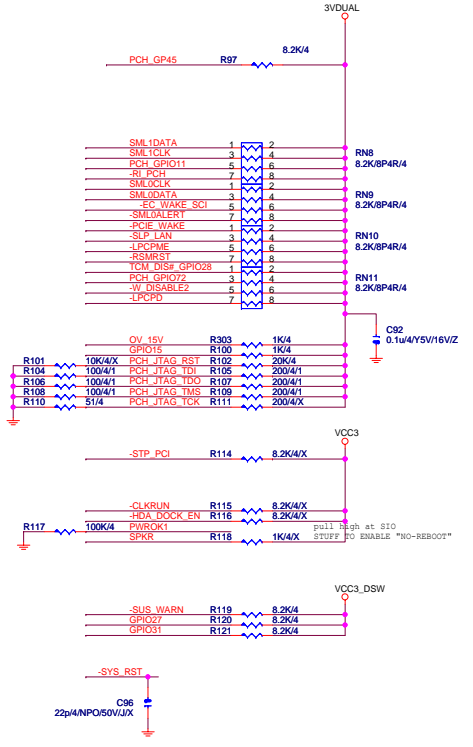
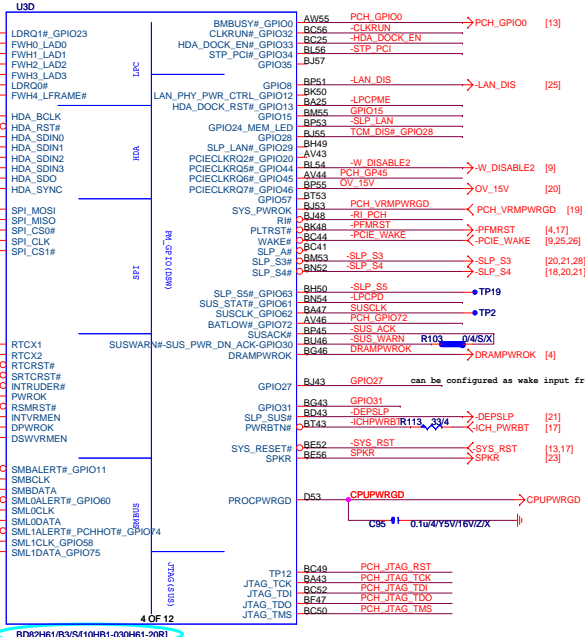
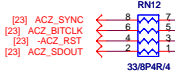
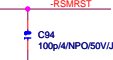
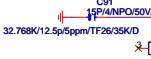
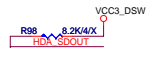
FOR CABLE SIDE USB

FOR MINI PCIE

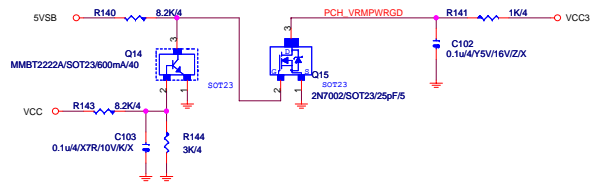
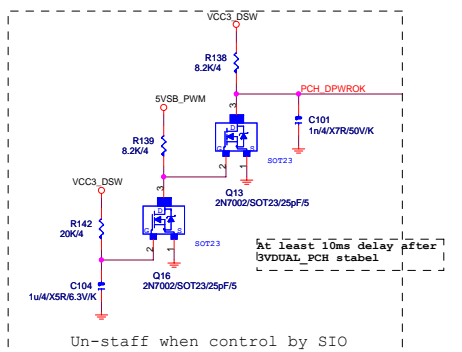
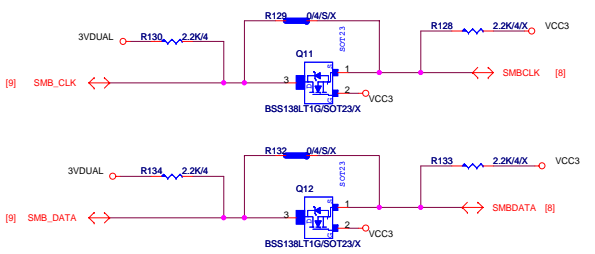
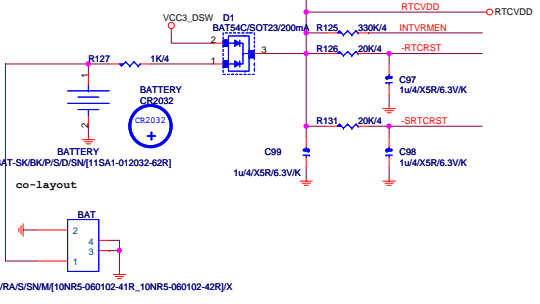
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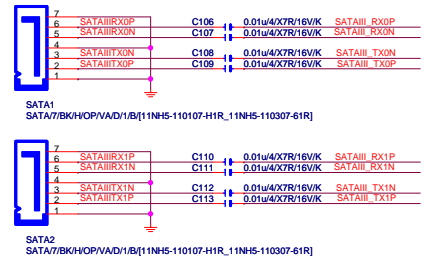
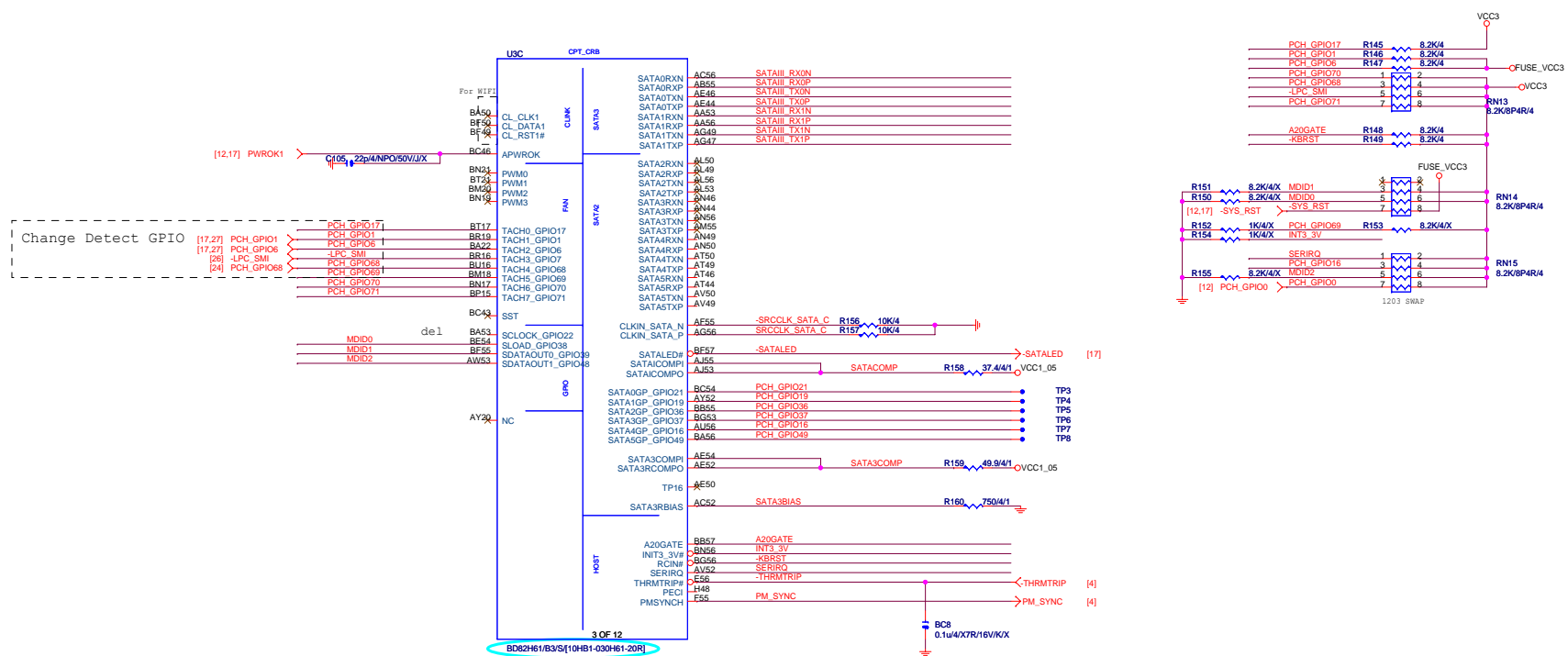
61 USB ports 6, 7, 12 and 13 are disabled

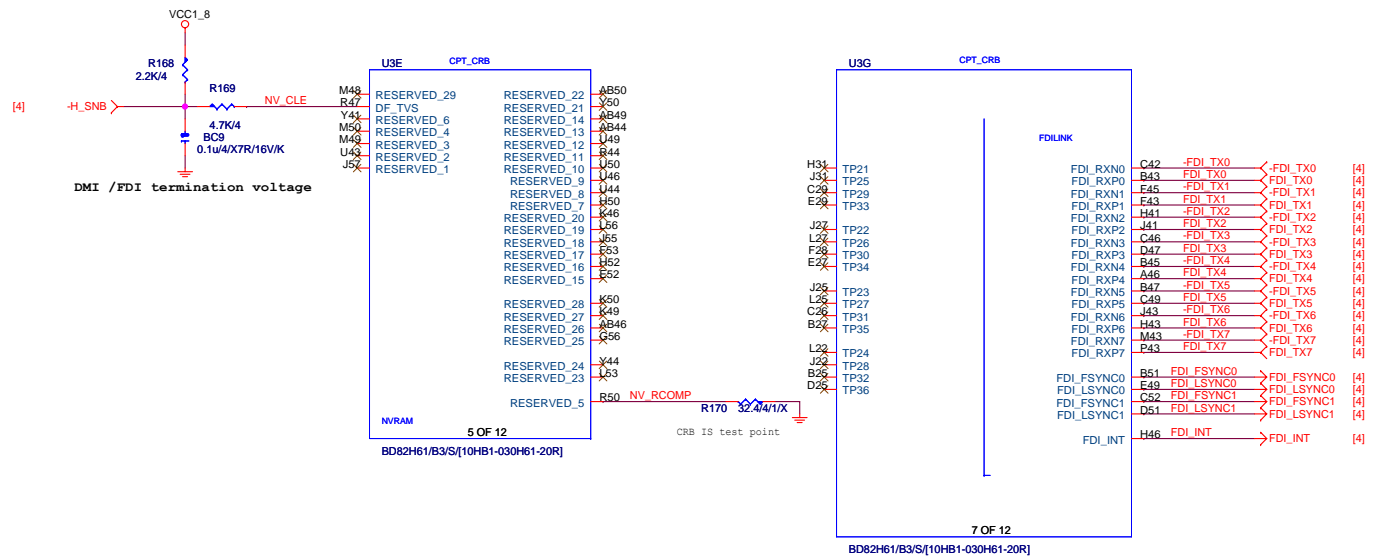
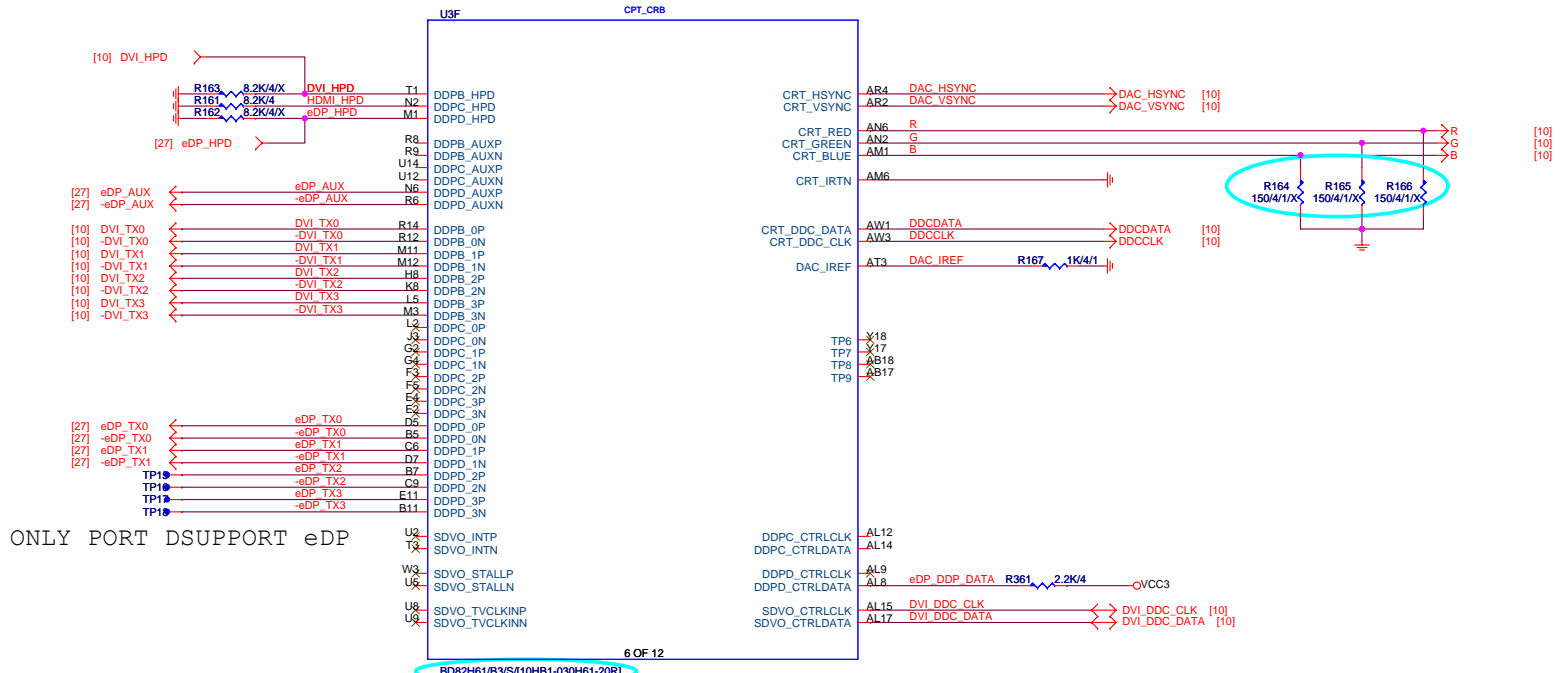
PIN	CLR_CMOSHW
1-2	DEFAULT
2-3	CLR_CMOS

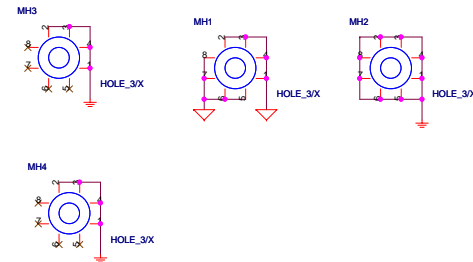
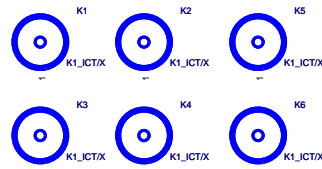
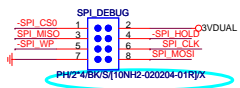
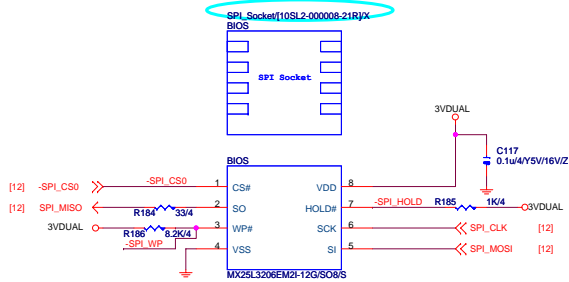
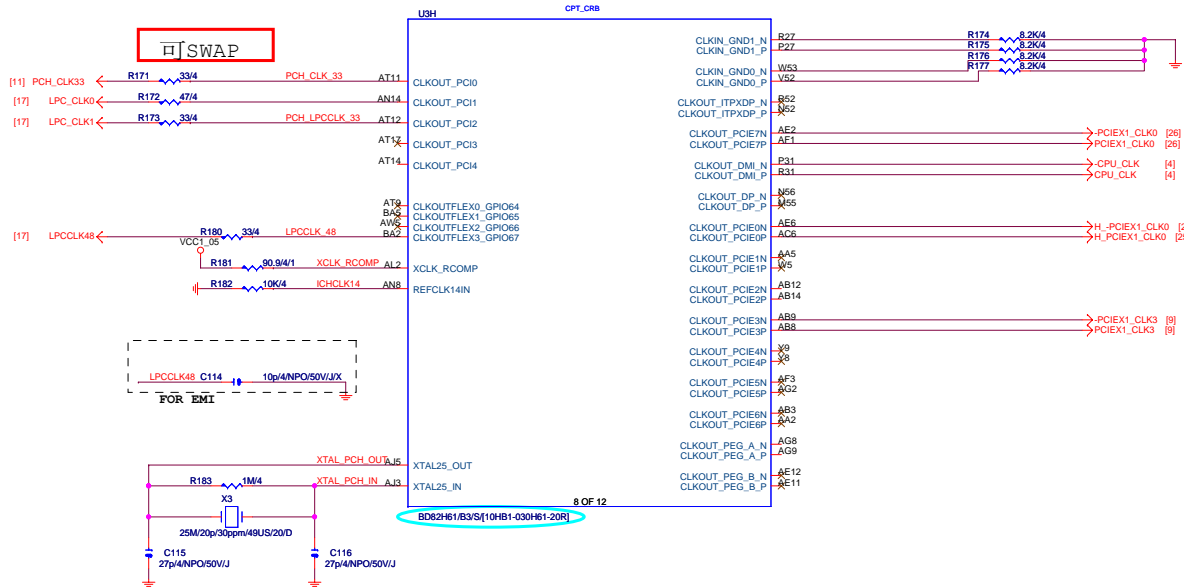


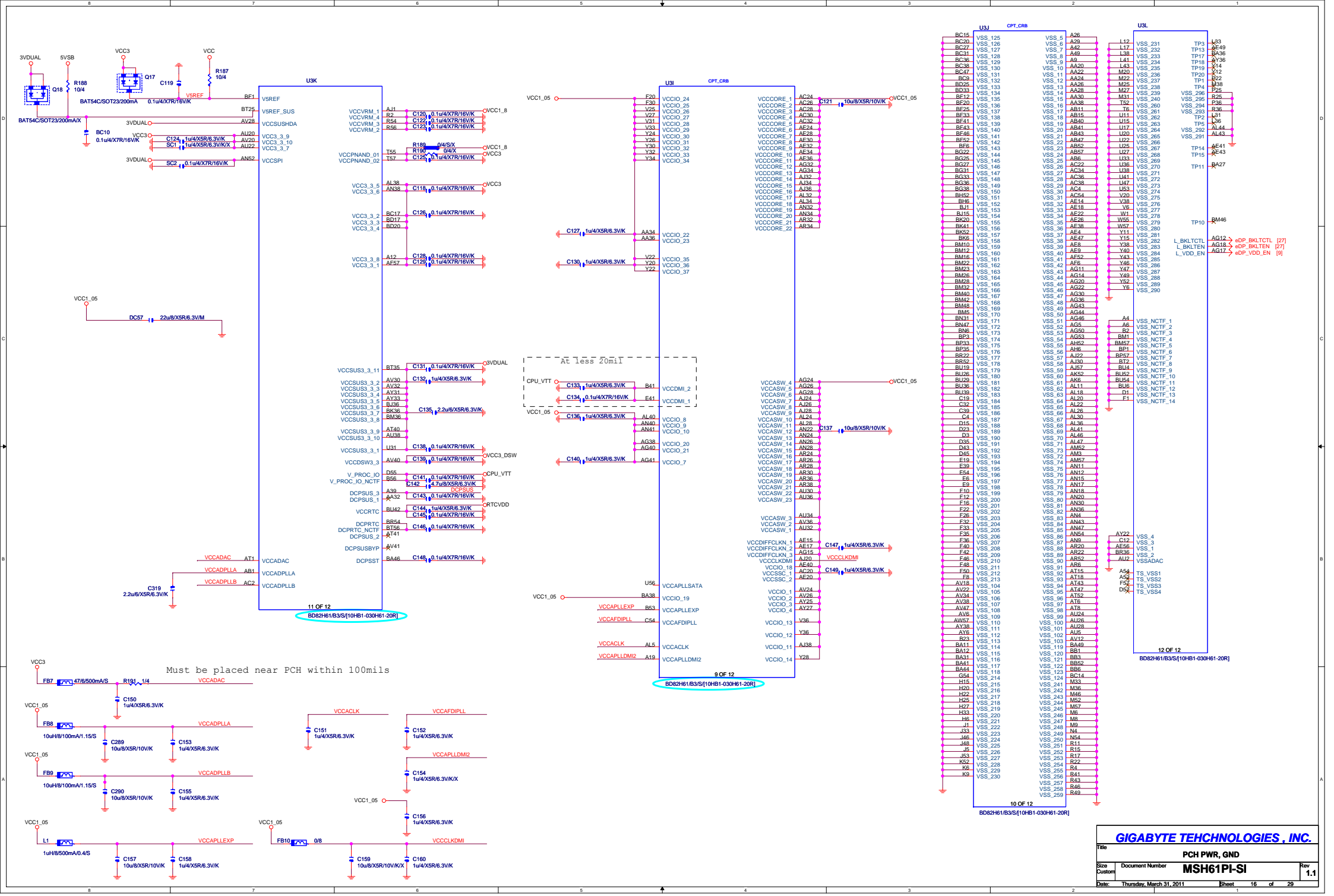
RB 不可放在 BATTERY SOCKET 下方











Must be placed near PCH within 100mils

GIGABYTE TECHNOLOGIES, INC.

PCH PWR, GND

Doc Number: **MSH61PI-SI**

Date: Thursday, March 31, 2011

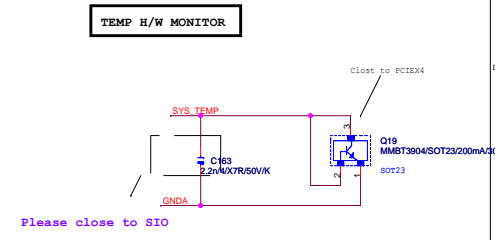
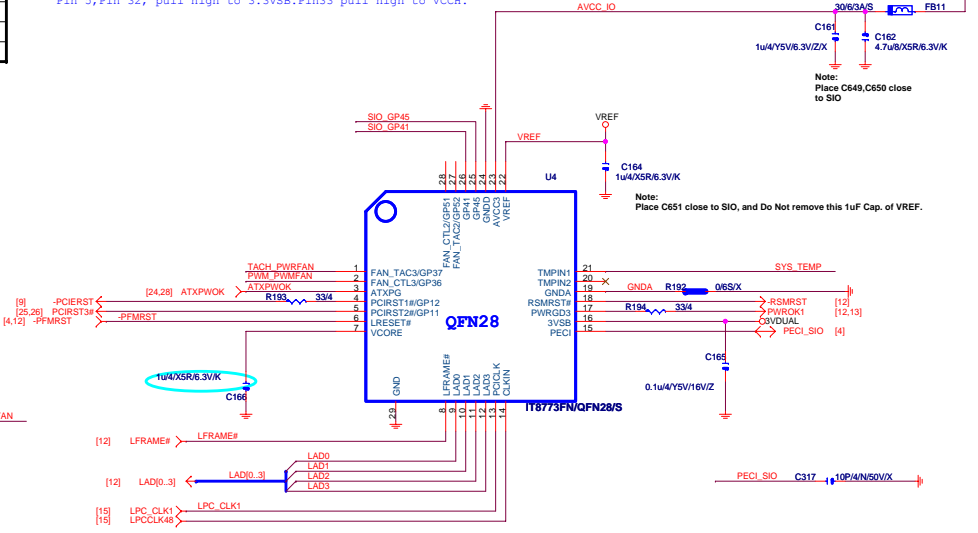
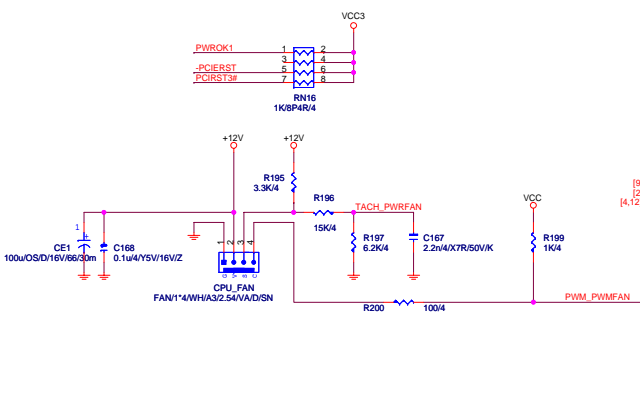
Sheet: 16 of 29

Rev: 1.1

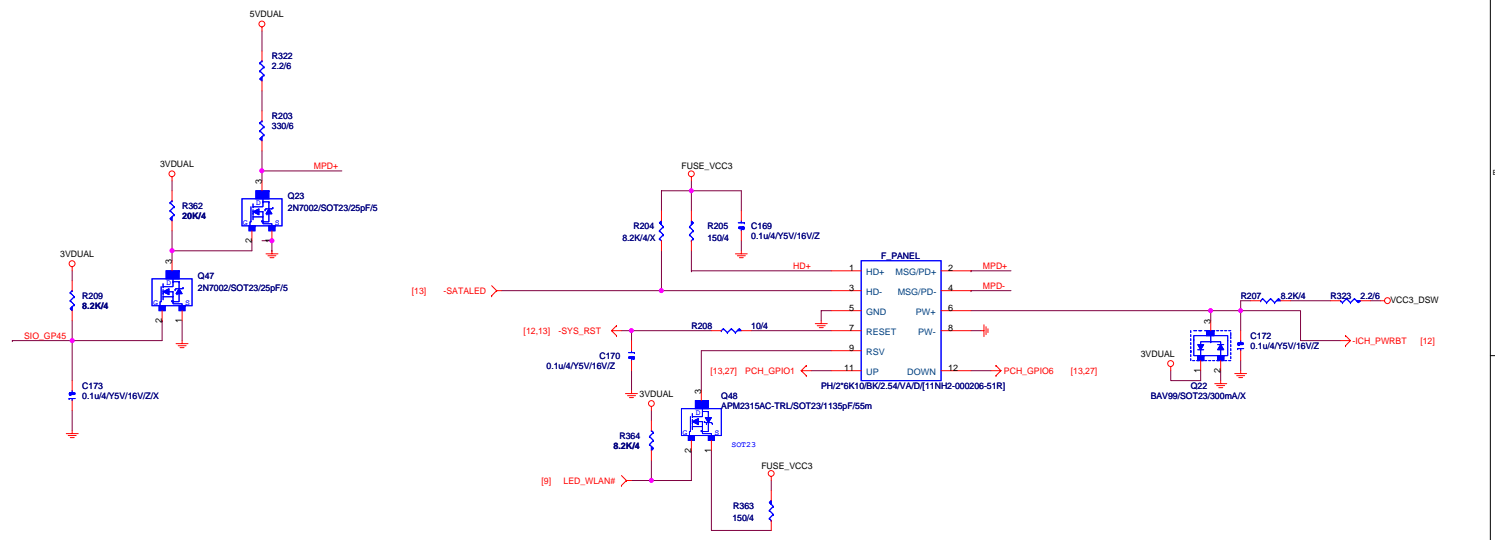
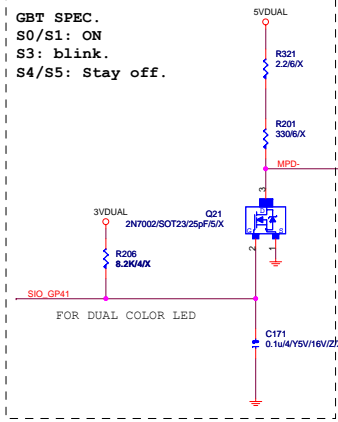
Power On Strapping Options

Symbol	value	Description
JP4 Pin 126	K8PWR_EN 1 0	K8 power sequence function is disabled K8 power sequence function is enabled
JP3 & JP5 Pin 124 & 46	FAN_CTL_SEL 11 01	The default value of EC Index 15h/16h/17h is 80h The default value of EC Index 15h/16h/17h is FFh(Fan off)
JP2 Pin122	WDT_EN 1 0	The default value of EC Index 15h/16h/17h is 40h Disable WDT to rest PWROK Enable WDT to rest PWROK

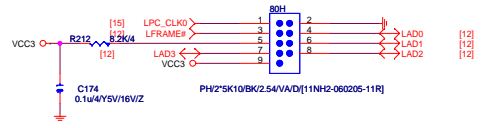
If without use these pins, Please pull-up. Don't let it floating.
 1.Pin 6:ATXPG
 2.Pin 29:SYSB#
 3.Pin 21/ Pin 57/ Pin 59/ Pin61
 4.Pin37-40 KCLK/KDAT/MCLK/MDAT
 5.Pin 63 pull high to 3VSB
 Note:use EUP function:Pin29/Pin30/Pin37/Pin34/Pin42 pull high to SYS_3VSB.
 Pin 5,Pin 32, pull high to 3.3VSB.Pin33 pull high to VCC3.

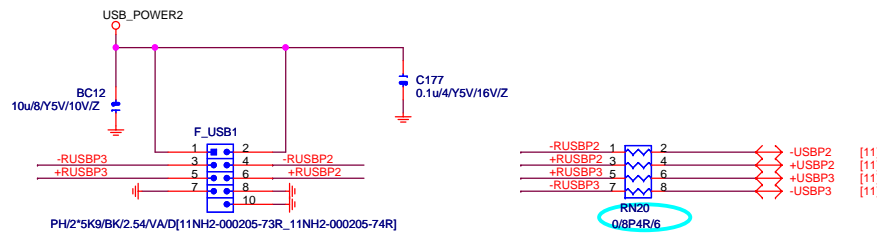
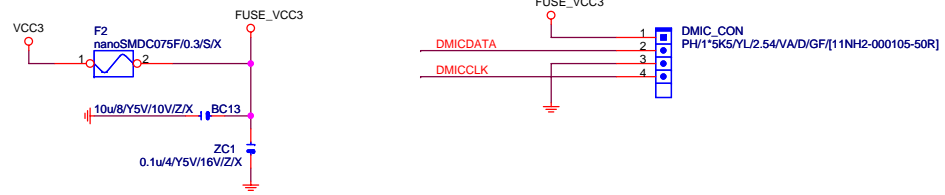
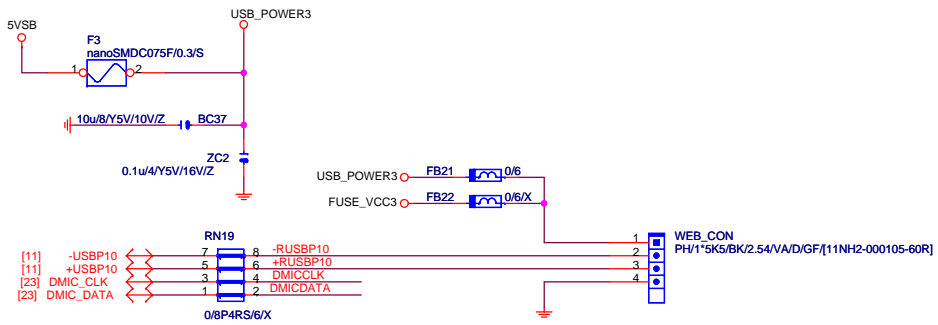
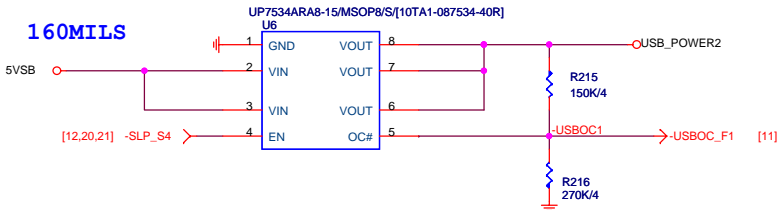
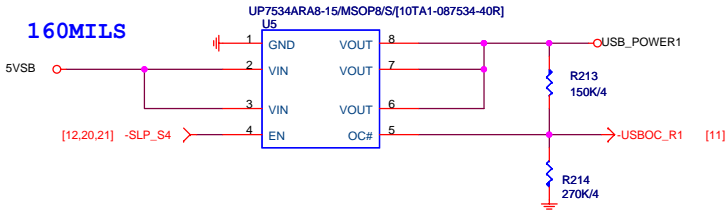
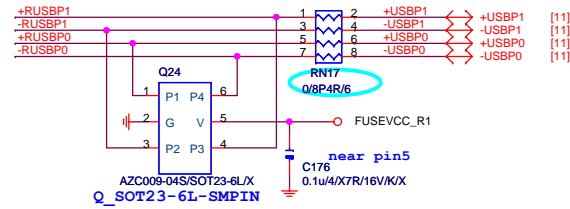
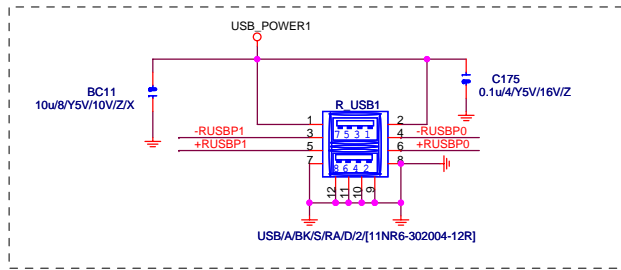


Power Status LED

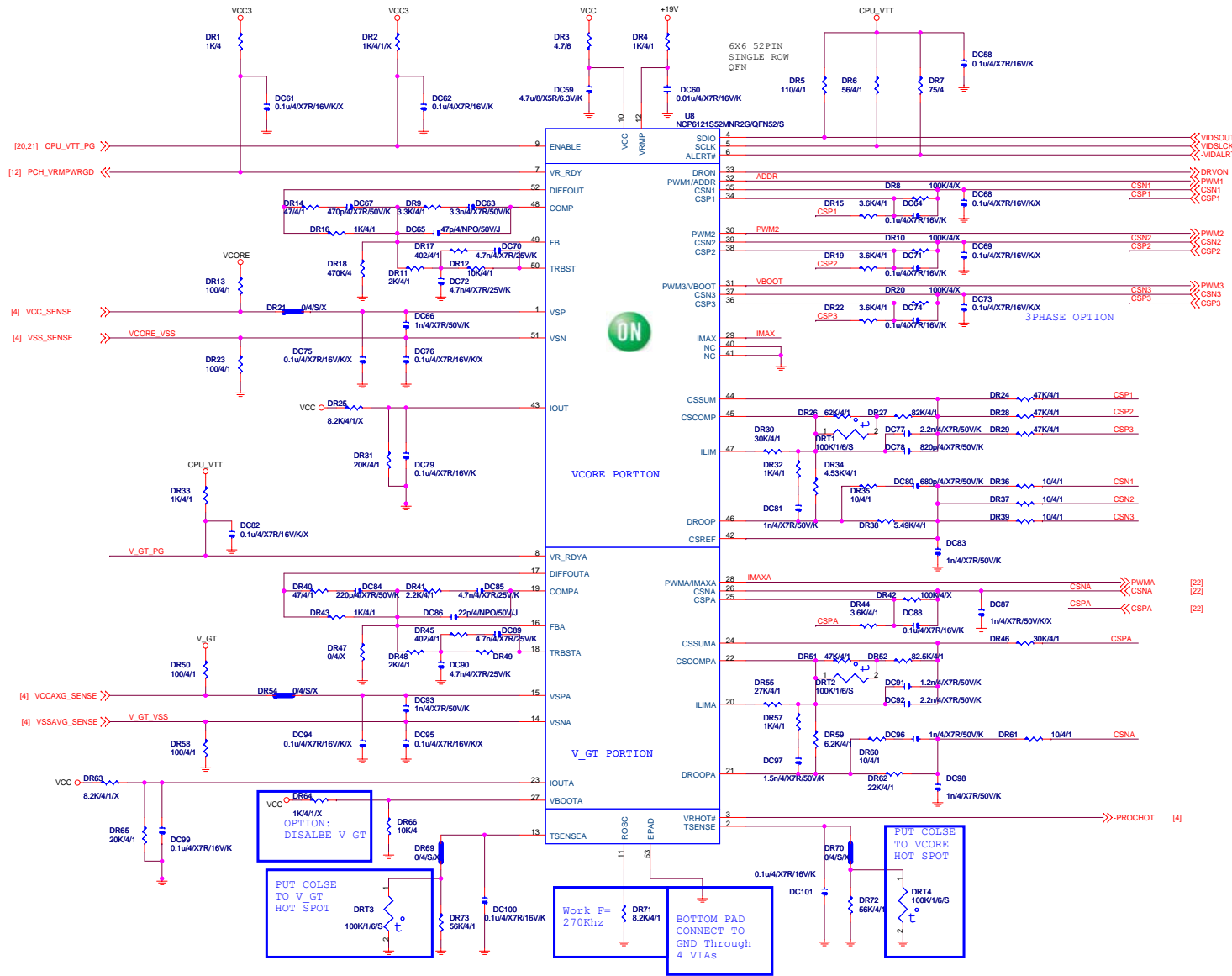


80H



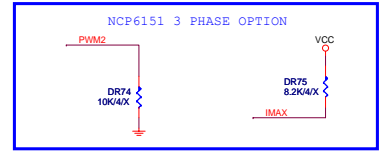
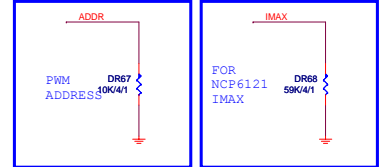
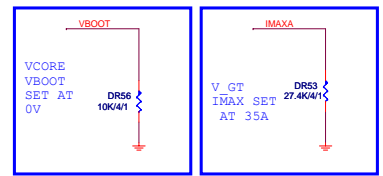


Intel SugarBay VR12 POWER CKT - 4+1 PHASE



PWM ADDRESS		
RESISTOR VALUE	SVID ADDRESS FOR VCORE RAIL	SVID ADDRESS FOR V_GT RAIL
10K	0000	0001
25K	0010	0011
45K	0100	0101
70K	0110	0111
95K	1000	1001
125K	1010	1011
165K	1100	1101

BOOT VOLTAGE	
RESISTOR VALUE	BOOT VOLTAGE
10K	0V
25K	0.9V
45K	1V
70K	1.1V
95K	1.2V
125K	1.35V
165K	1.5V



1K/4/1X
OPTION:
DISALBE V_GT

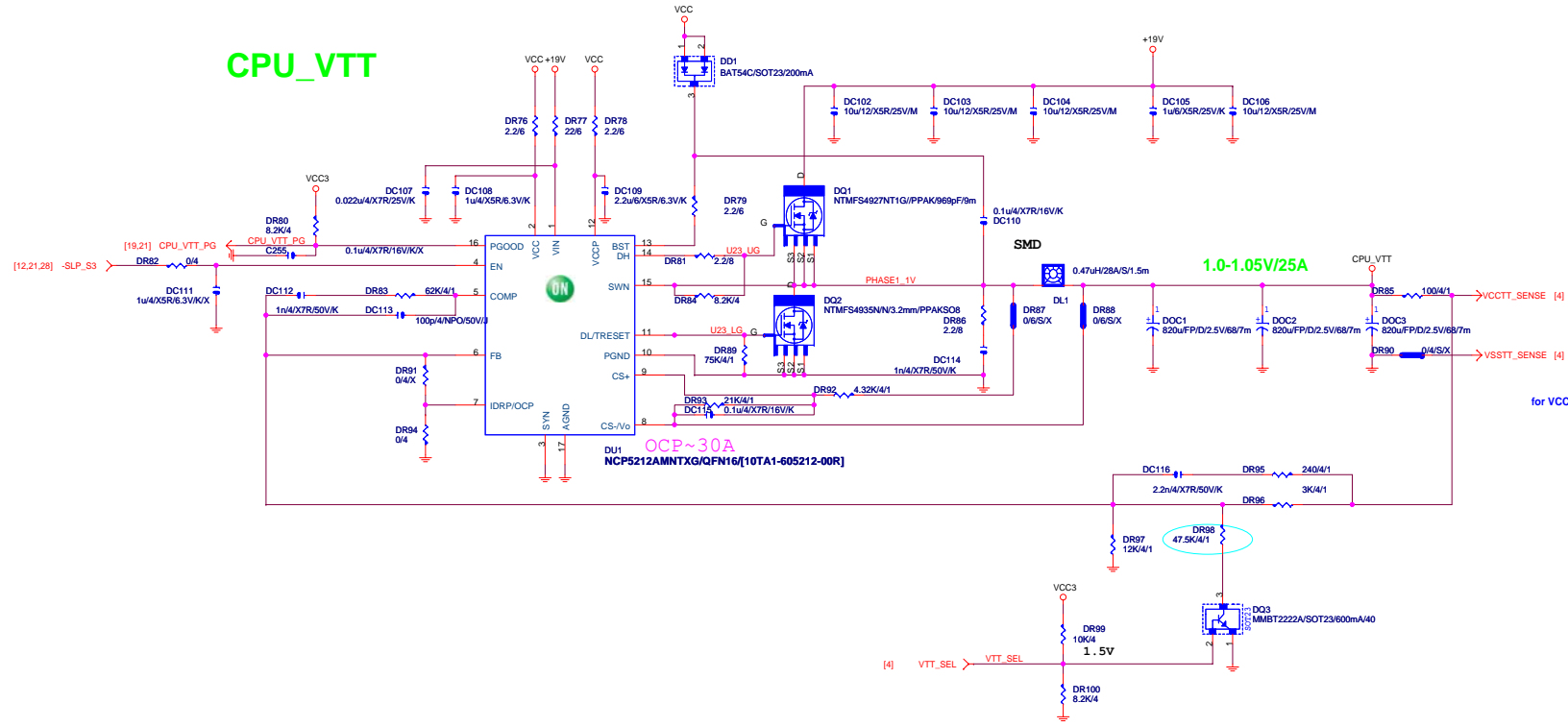
PUT COLSE
TO V_GT
HOT SPOT

Work F =
270Khz

BOTTOM PAD
CONNECT TO
GND Through
4 VIAs

PUT COLSE
TO VCORE
HOT SPOT

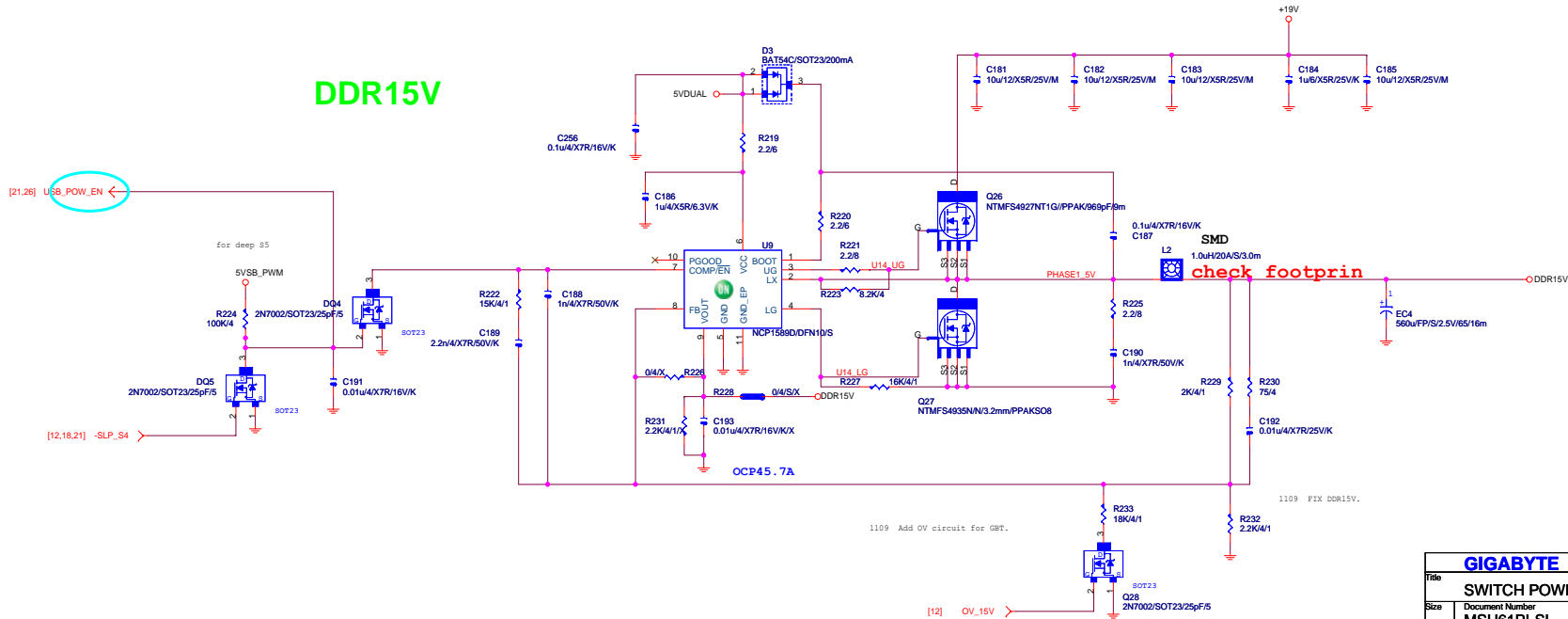
CPU_VTT



for VCC1_1 ripple spec fine tune

VTT_SEL	
HI	1.05V
LO	1.0V

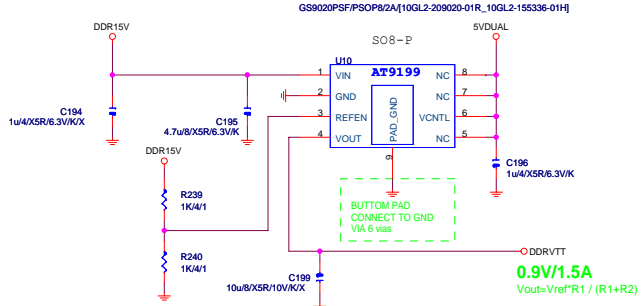
DDR15V



GIGABYTE		
SWITCH POWER		
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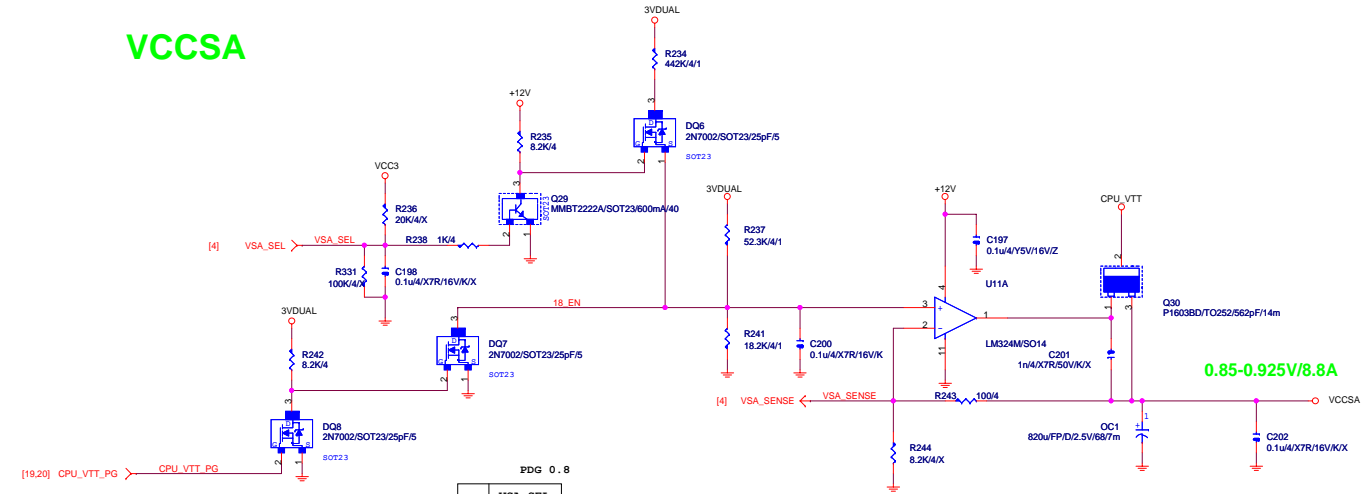
DDRVTT

DDR3 0.75V/0.83A

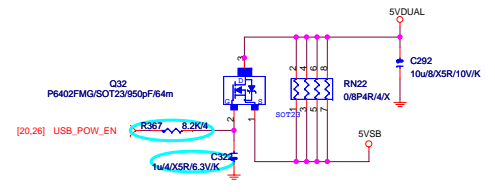


0.9V/1.5A
Vout = Vref * R1 / (R1 + R2)

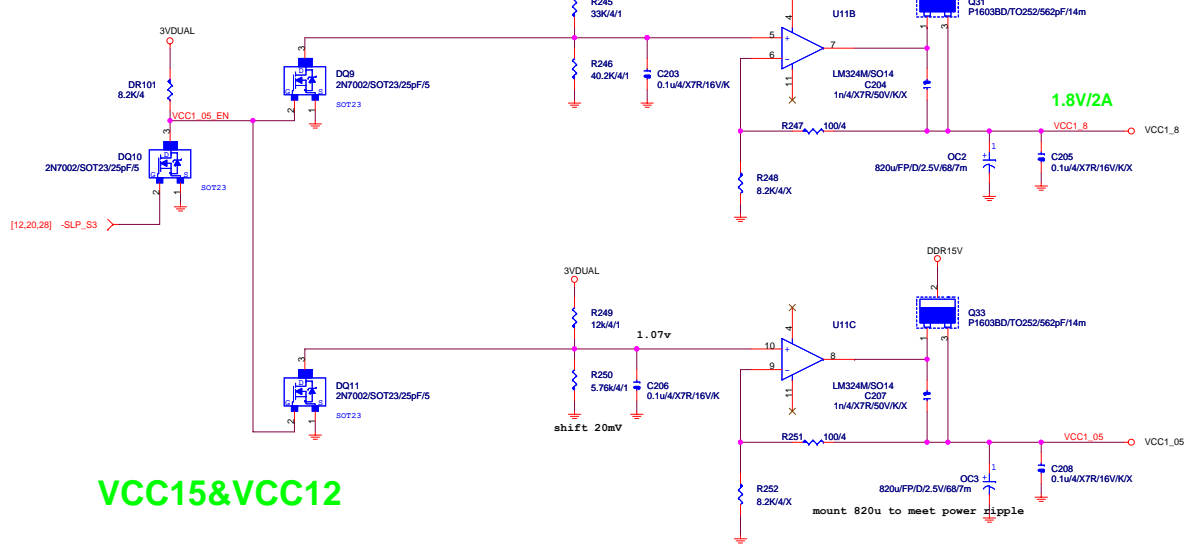
VCCSA



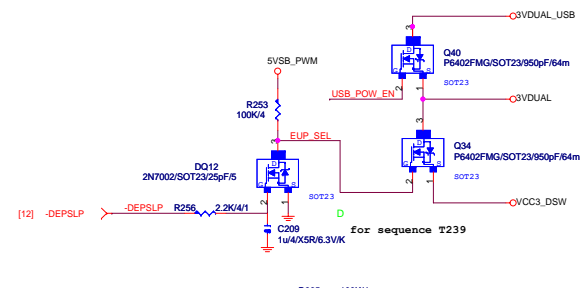
5VDUAL



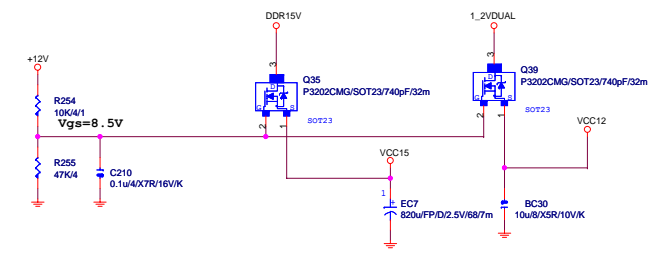
VCC18&VCC1_05



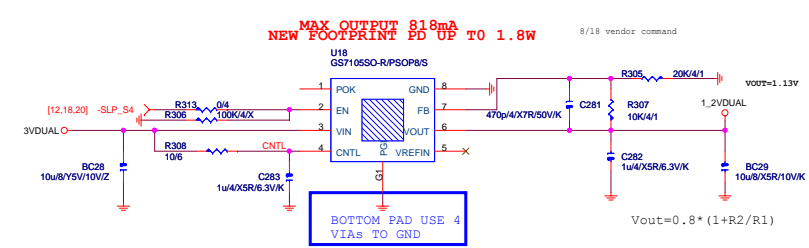
3VDUAL&3VDUAL_USB



VCC15&VCC12



1_2VDUAL

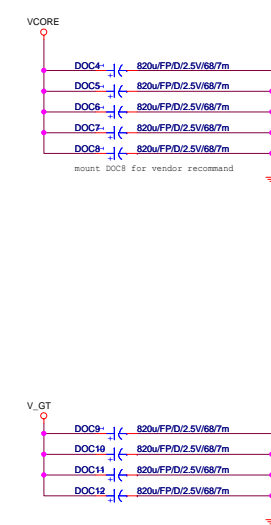
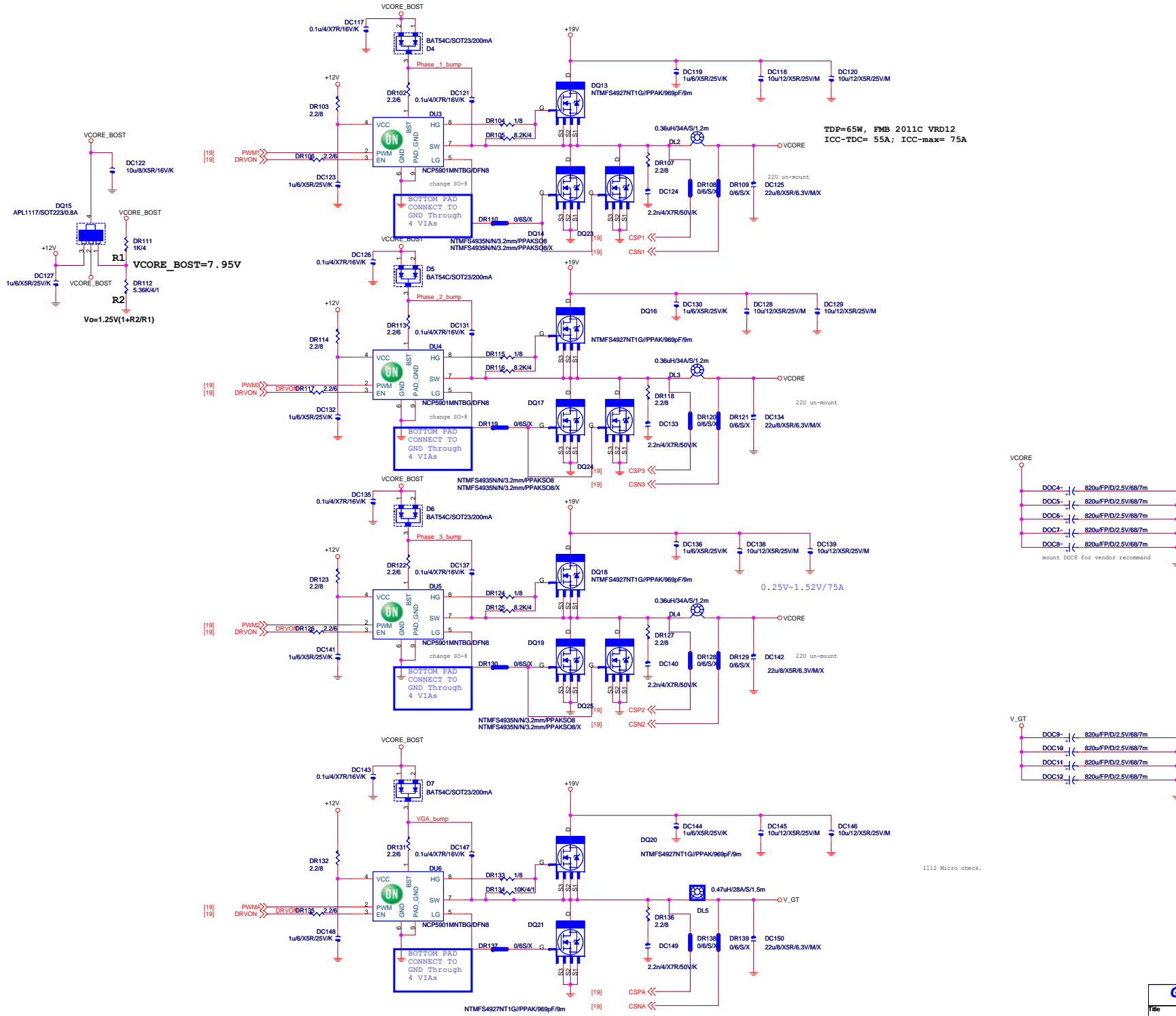


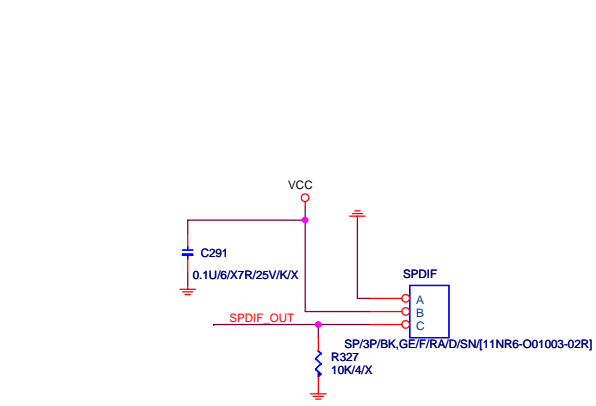
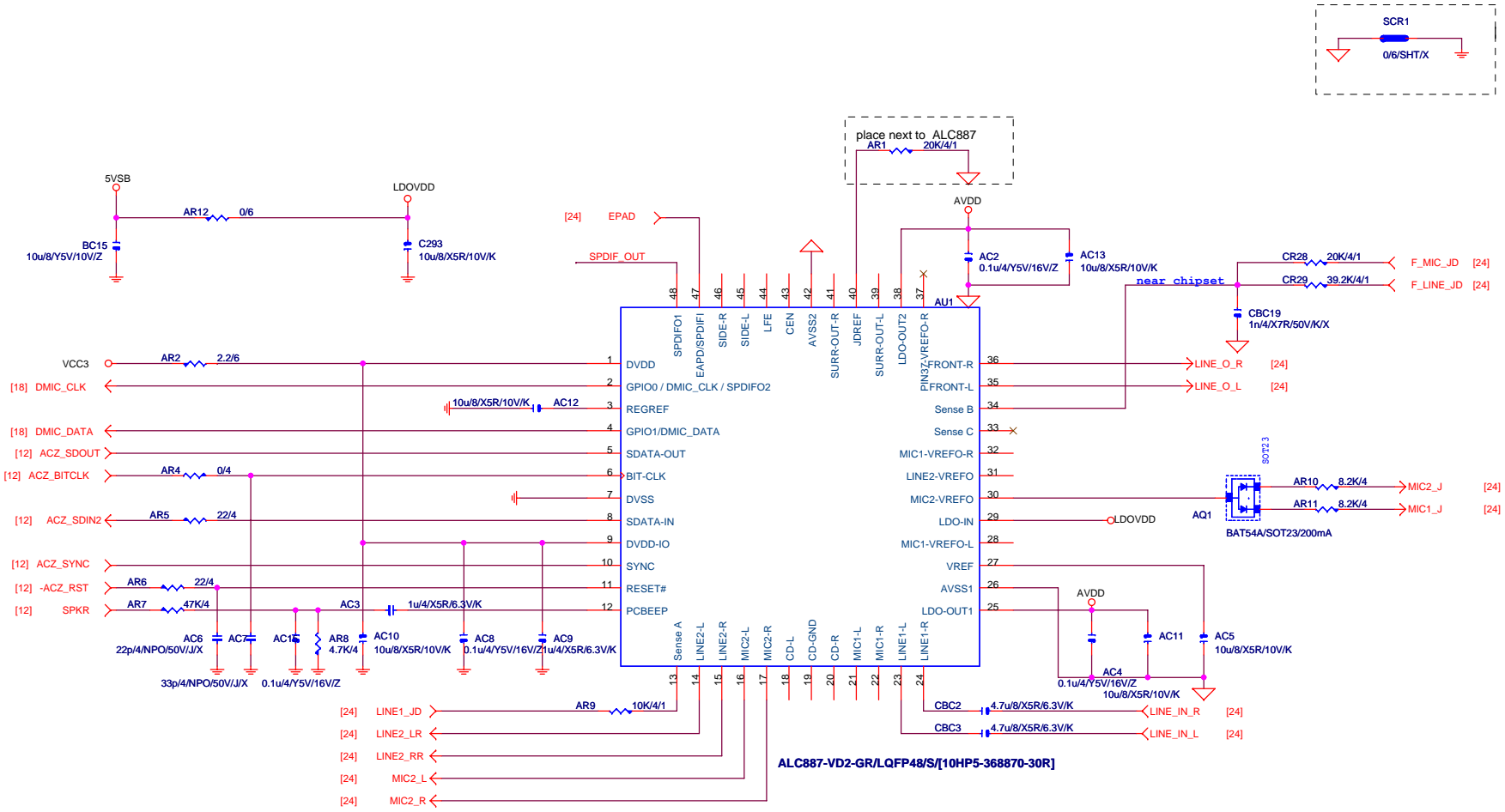
GIGABYTE

LINNER-POWER-1

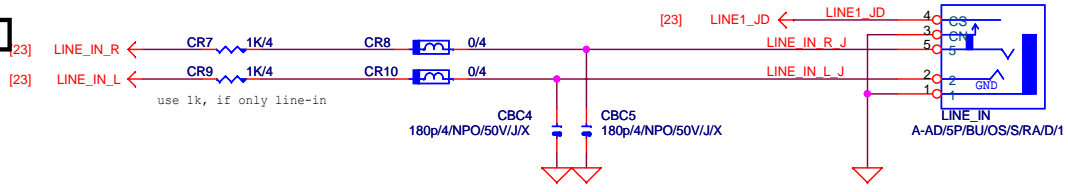
Size: Document Number: **MSH61PI-SI**

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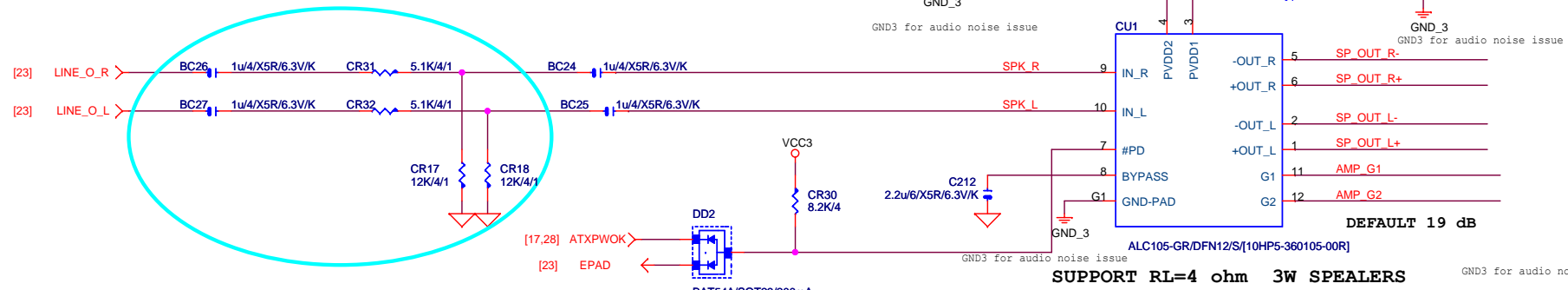




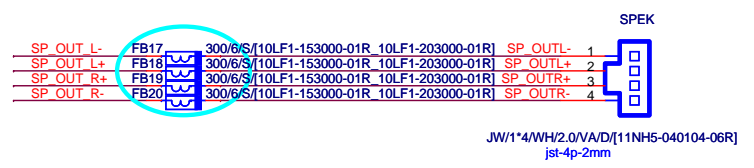
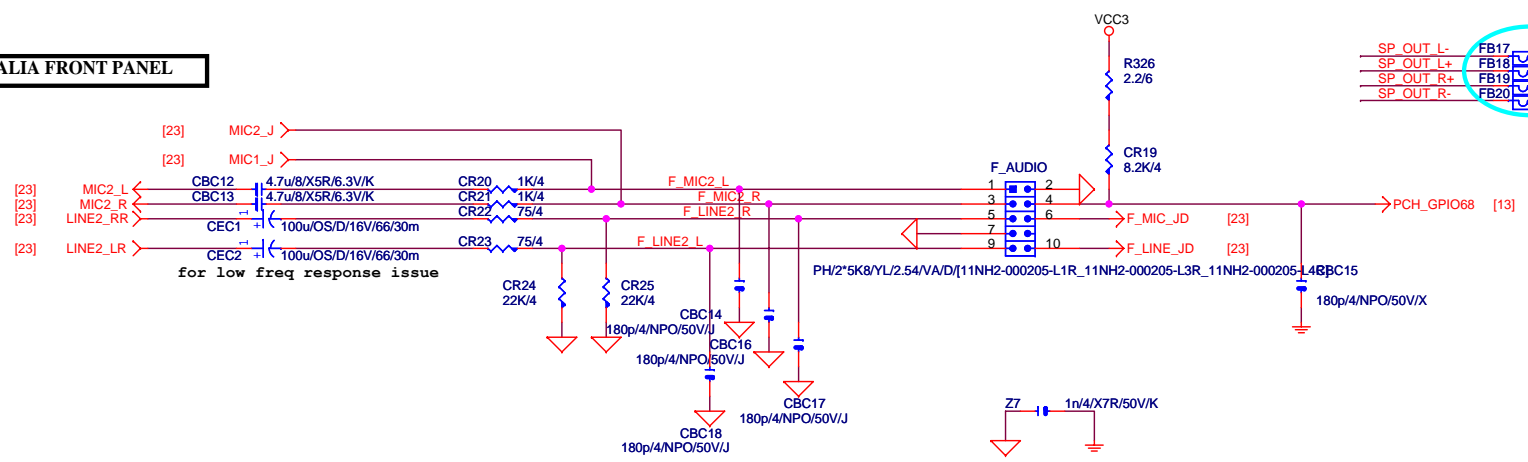
LINE-IN



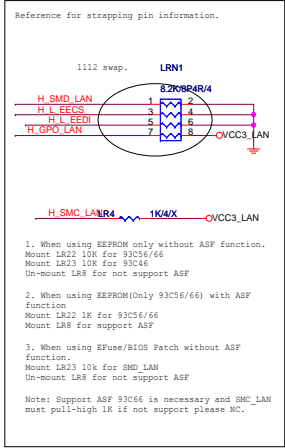
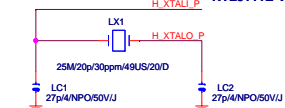
LINE-OUT



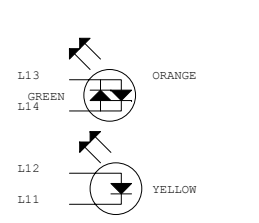
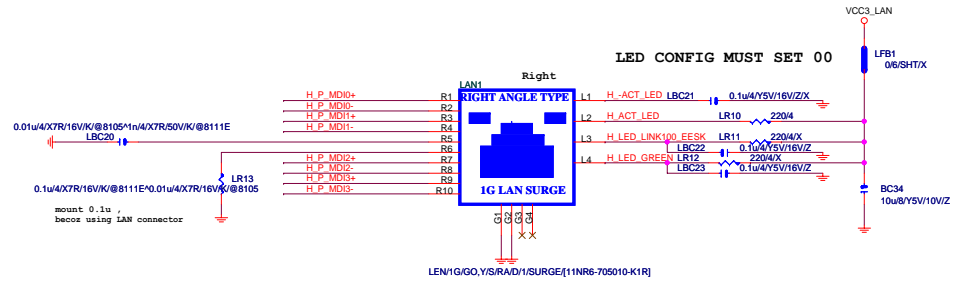
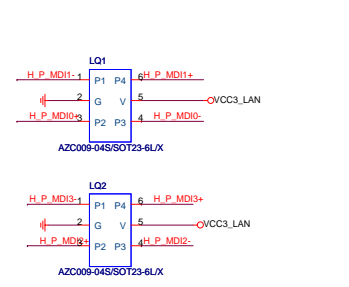
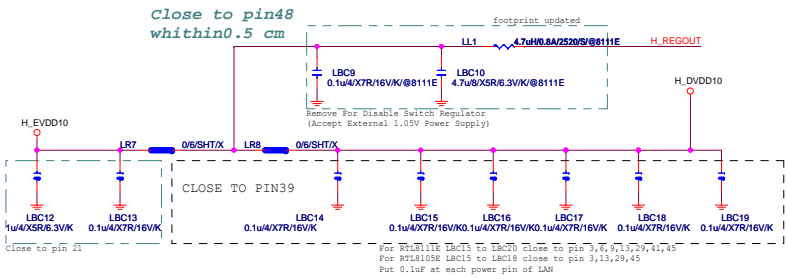
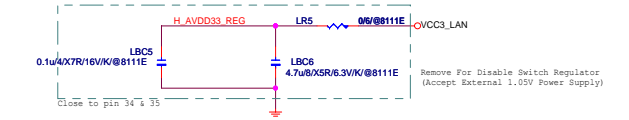
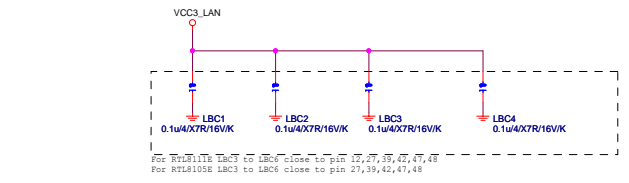
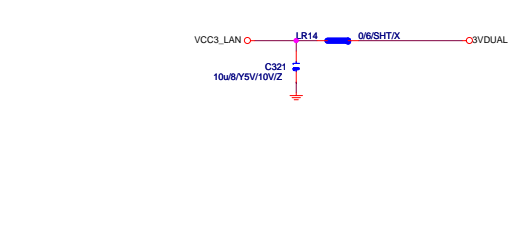
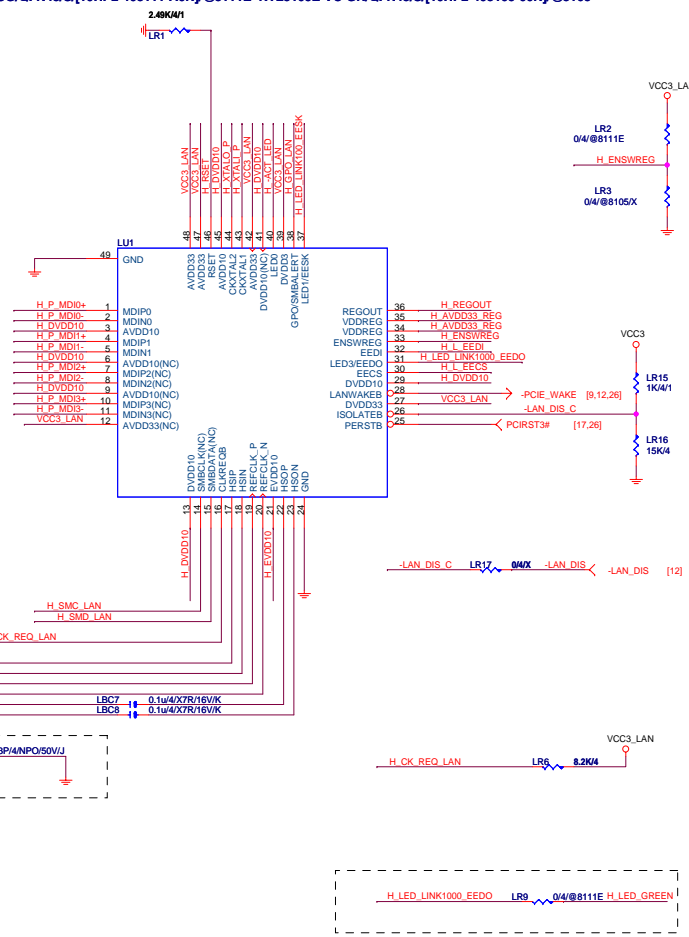
AZALIA FRONT PANEL



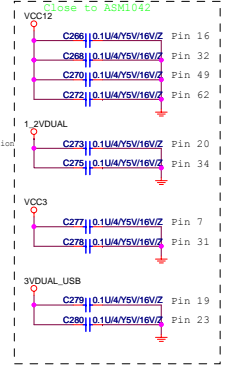
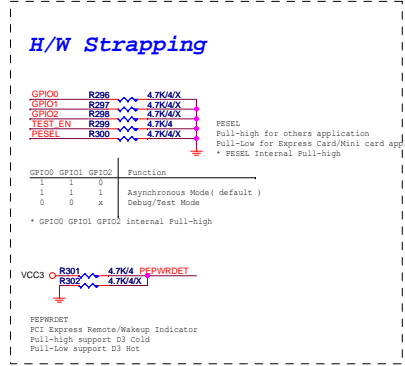
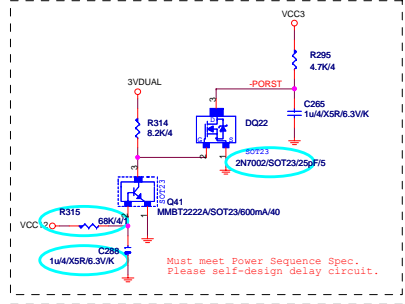
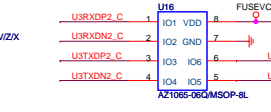
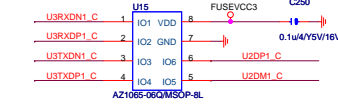
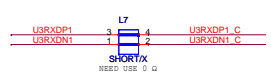
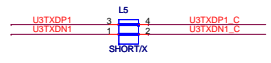
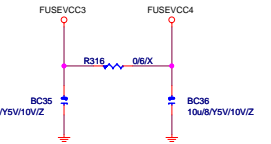
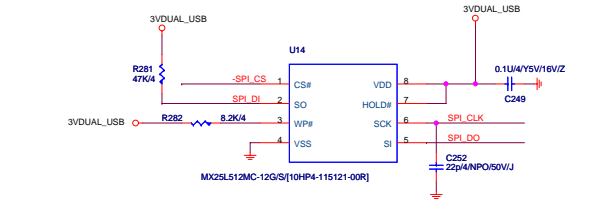
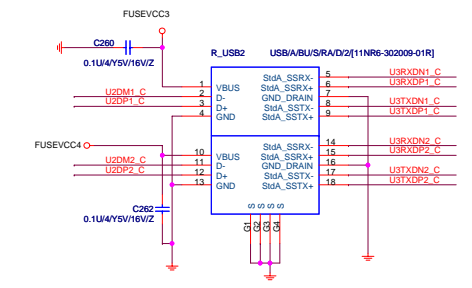
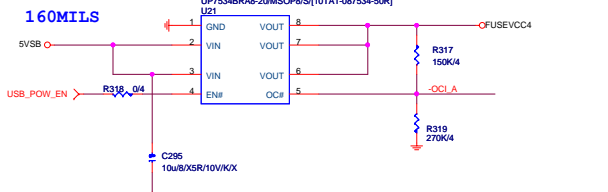
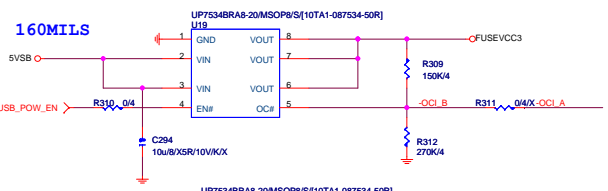
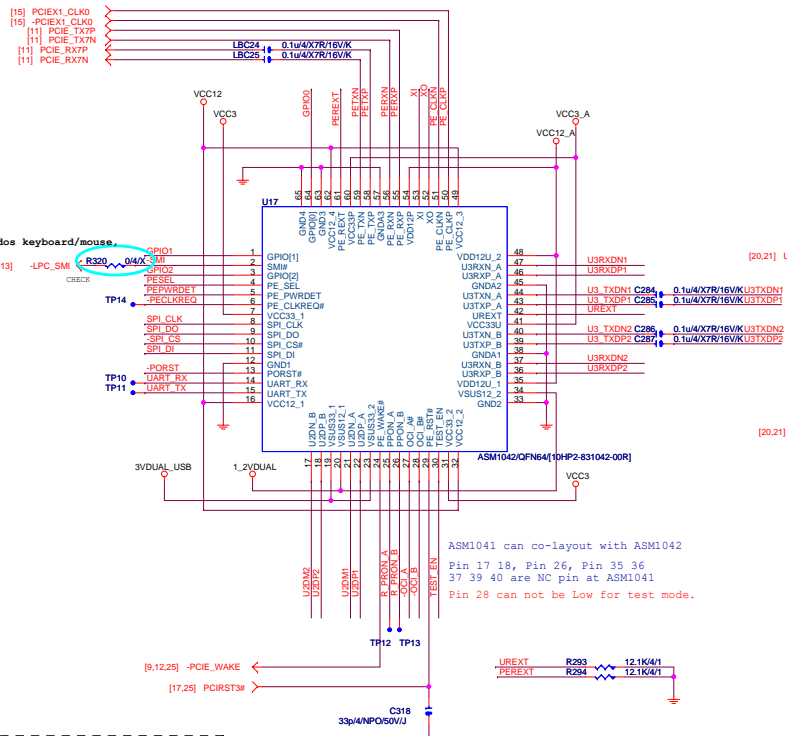
GIGABYTE THCHNOLOGIES, INC.			
AUDIO JACK			
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Custom			
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- When using EEPROM only without ASF function. Mount LR23 10k for 93C56/66. Mount LR23 10k for 93C46. Un-mount LR8 for not support ASF.
 - When using EEPROM(only 93C56/66) with ASF function. Mount LR22 1K for 93C56/66. Mount LR8 for support ASF.
 - When using EPfuse/BIOS Patch without ASF function. Mount LR23 10k for SMD_LAN. Un-mount LR8 for not support ASF.
- Note: Support ASF 93C66 is necessary and SMC_LAN must pull-high 1K if not support please NC.



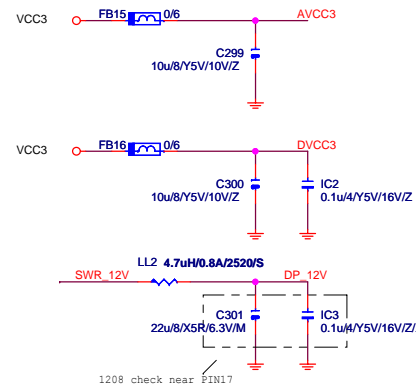
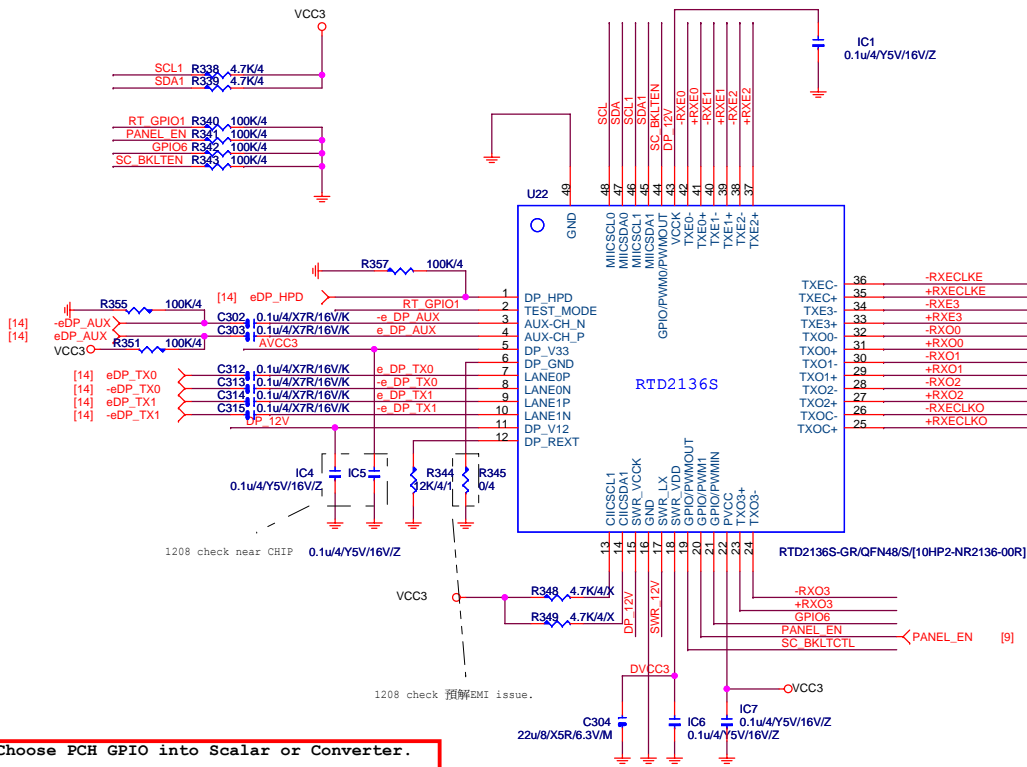
	Surge	Normal
1G	11NH6-701010-11R	
100M		



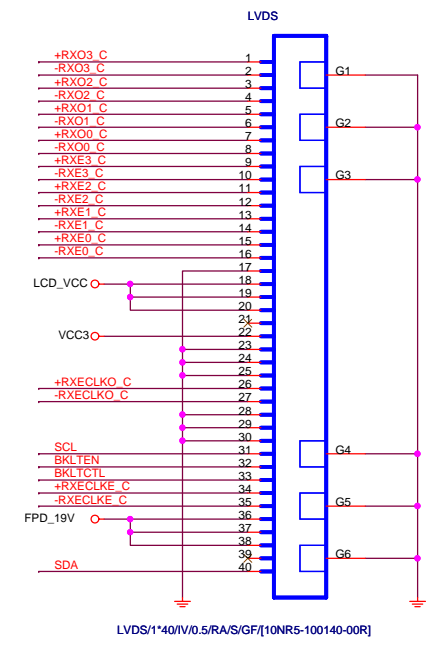
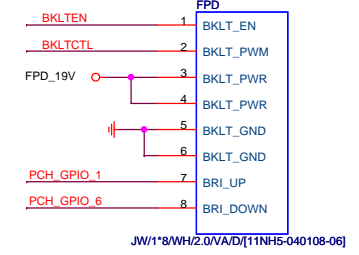
RTD2136

POWER

LVDS Connector



Converter Connector



Choose PCH GPIO into Scalar or Converter.

R12.R15> 0 ohm (PCH GPIO into Scalar)
R14.R16> 0 ohm (PCH GPIO into converter)

[13.17] PCH_GPIO1 → PCH_GPIO1 R350 0/4 RT_GPIO1
R352 0/4 PCH_GPIO_1

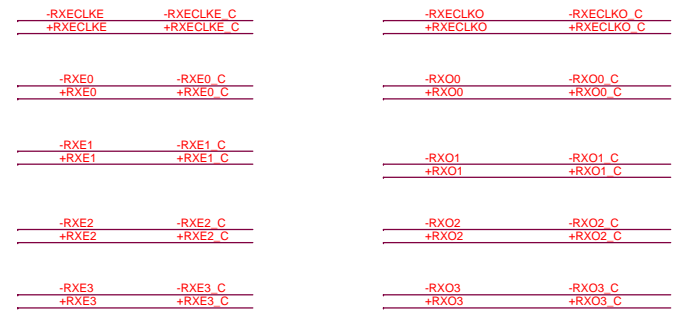
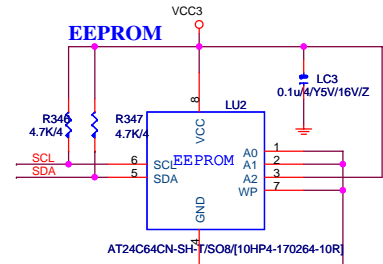
[13.17] PCH_GPIO6 → PCH_GPIO6 R353 0/4 GPIO6
R354 0/4 PCH_GPIO_6

Choose BKL Control.

R18.R20> 0 ohm (M/B eDP control)
R19.R21> 0 ohm (Scalar control)

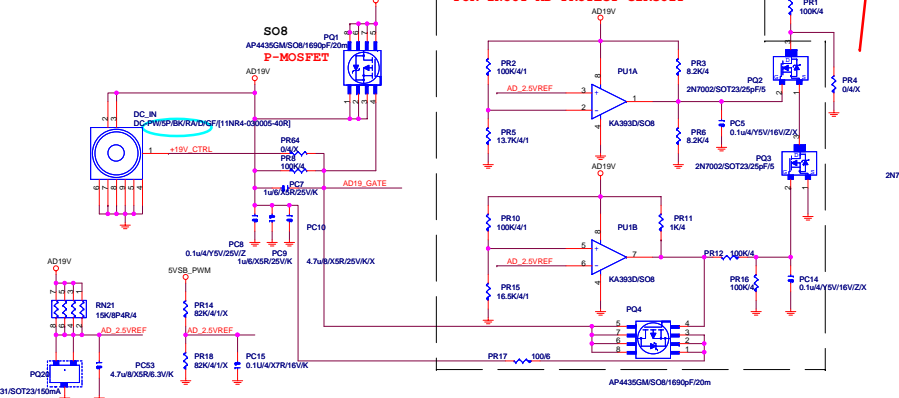
[16] eDP_BKL*EN → eDP_BKL*EN R356 0/4/B BKL*EN
SC_BKL*EN R358 0/4

[16] eDP_BKL*CTL → eDP_BKL*CTL R359 0/4/B BKL*CTL
SC_BKL*CTL R360 0/4

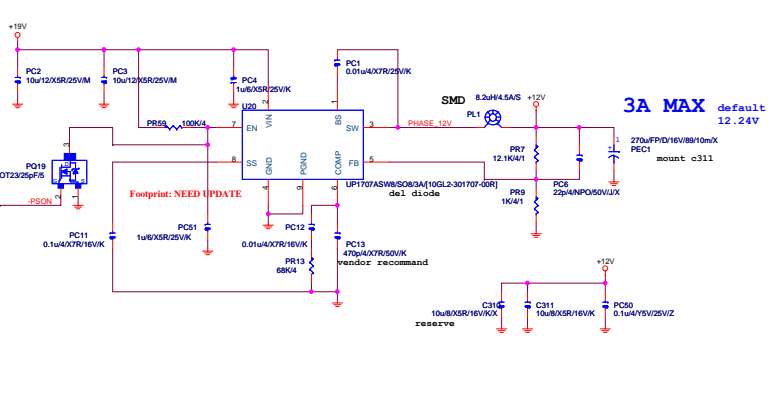


<OrgAddr1> GIGA-BYTE TECHNOLOGY CO., LTD.			
Title REALTEK RTD2136S			
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CICAPX-SI			
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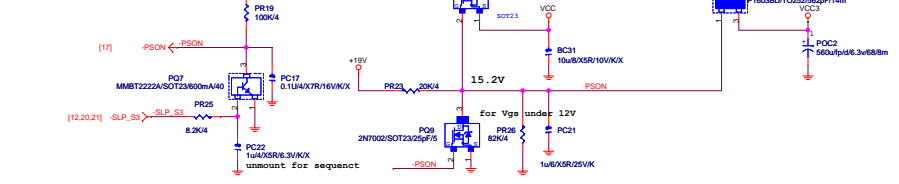
AD19V



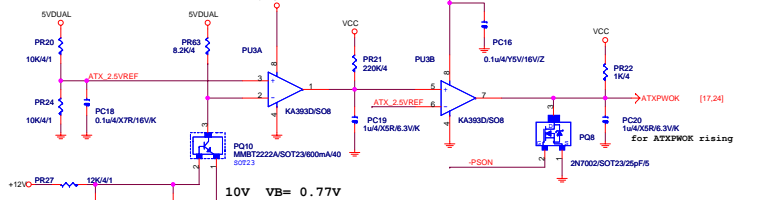
+12V
MAX=3A



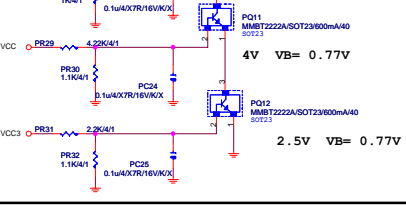
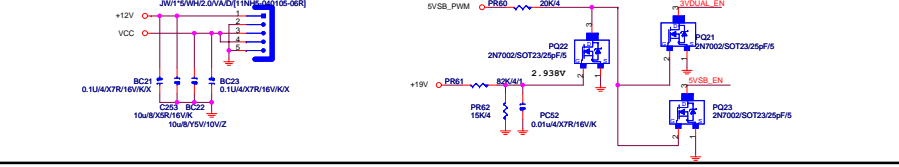
VCC&VCC3
VCC 14A 70W



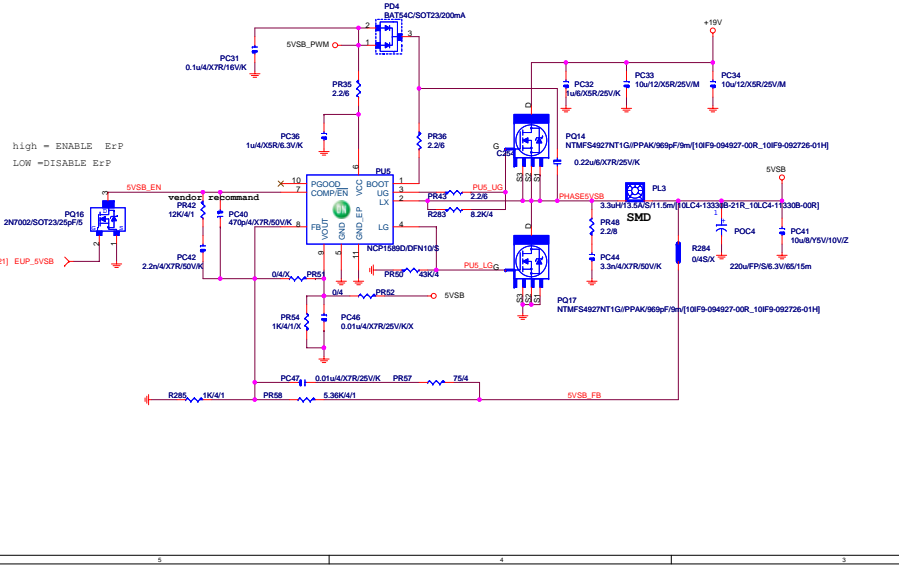
ATX PPOWER GOOD



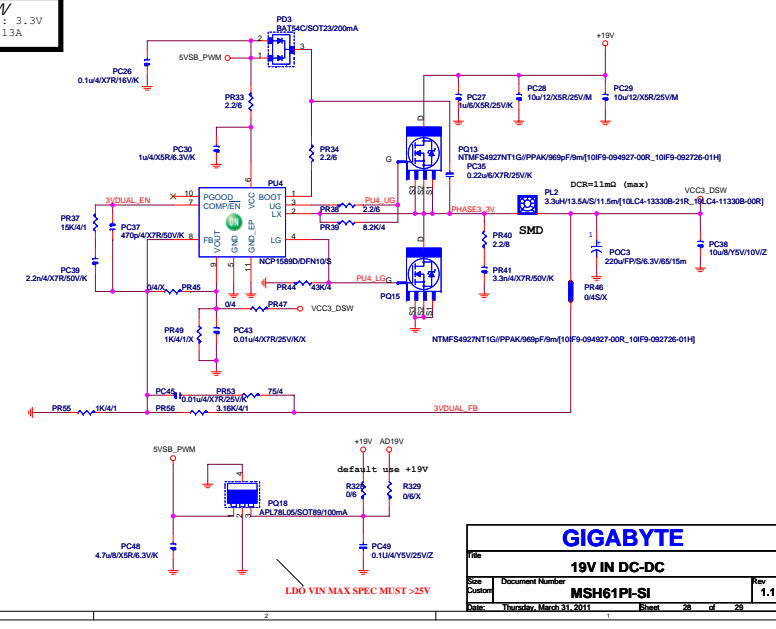
SATA POWER



5VSB
Voltage level : 5V
Max current : 13A



VCC3_DSW
Voltage level : 3.3V
Max current : 13A



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19V IN DC-DC

MSH61PI-SI

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