

Model Name: GA-H87TN

www.xinxunwei.com 400-800-9990

Revision 1.0

SHEET	TITLE
01	COVER SHEET
02	BLOCK DIAGRAM
03	POWER SEQUENCE
04	Processor HOST
05	Processor DDRIII
06	Processor PWR, GND
07	DDRIII CHANNEL A & B
08	HDMI, DP
09	PCIE4X,EXT_CON
10	PCH DMI, PCI, PCIE, USB
11	PCH HOST,LPC, SPI, PM, HDA
12	PCH HOST, SATA
13	PCH NVRAM, FDI, DISPLAY
14	PCH CLK BUFFER AND CLK GEN
15	PCH PWR,GND
16	LEWISVILLE_82579 LAN
17	SIO SIO NCT5526D , COM&LPT
18	FAN,FP,Power LED
19	FRONT & REAL USB
20	REAL USB 3.0
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22	G-SENDER,USB CHARGER
23	AUDIO CODEC ALC887
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25	REALTEK RTD2136S
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SHEET	TITLE
28	VCORE & AXG OUTPUT STAGE
29	LINNER POWER
30	+12V,3VDUAL
31	5VSB, ATX POWER
32	19V IN,DDR15V,VCC1_05ME
33	BOM & PCB MODIFY HISTORY

GIGABYTE TECHNOLOGIES, INC.

File

Cover Sheet

Size

Document Number

Rev

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GA-H87TN

1.0

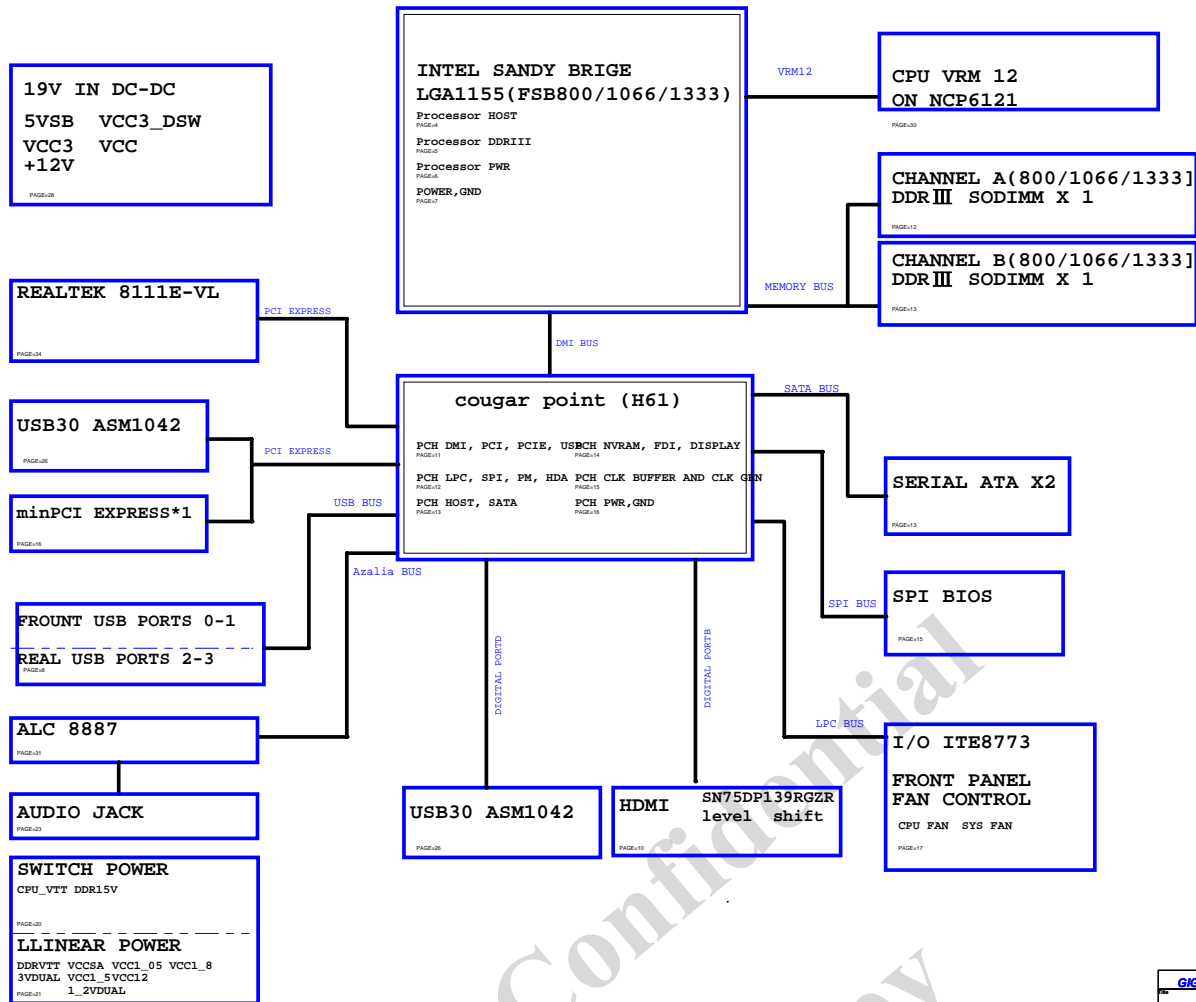
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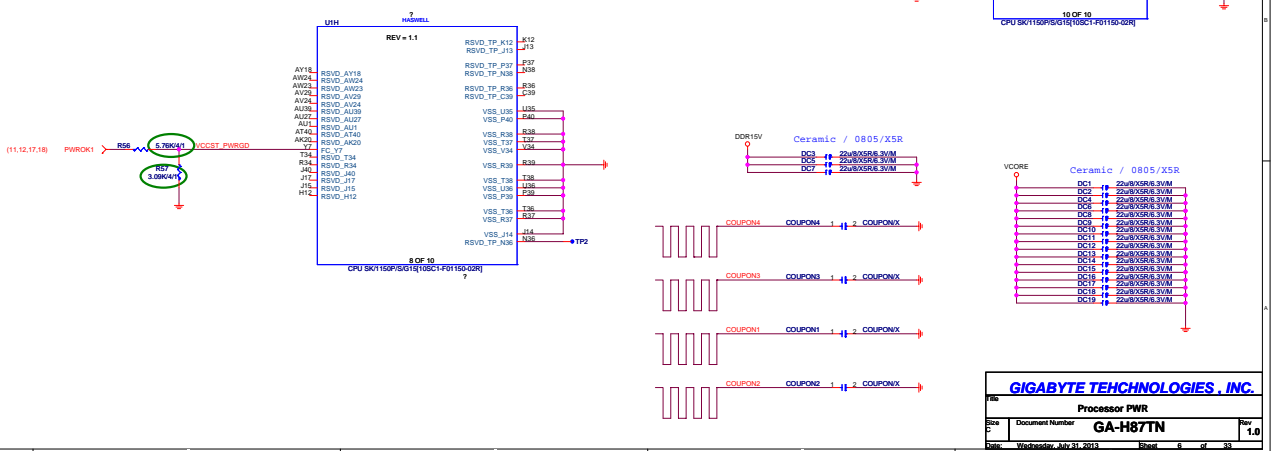
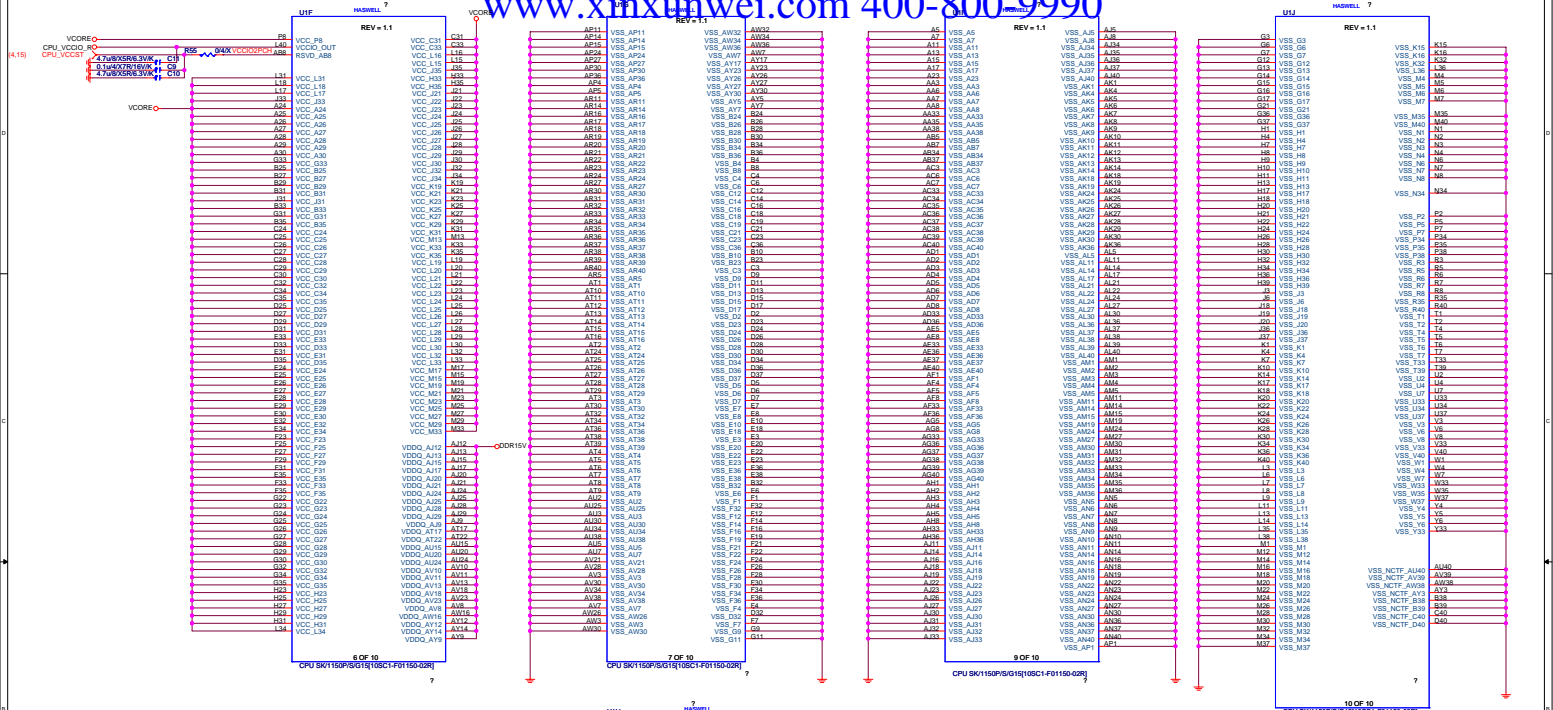
## BLOCK DIAGRAM

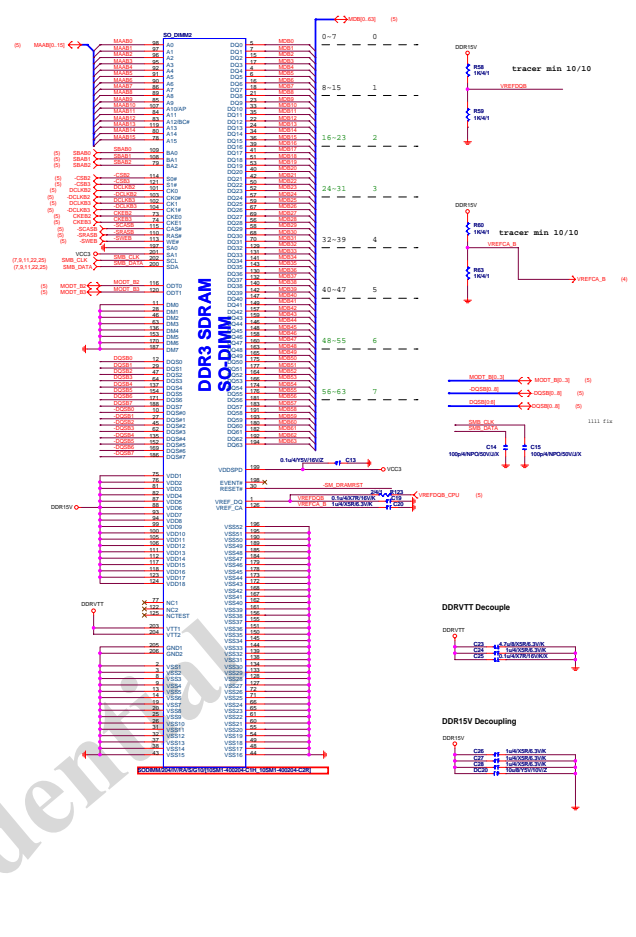


GIGABYTE TECHNOLOGIES, INC.			
POWER SEQUENCE			
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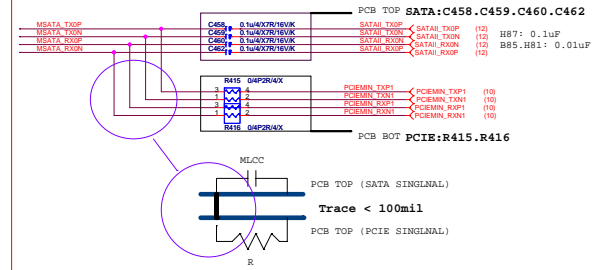
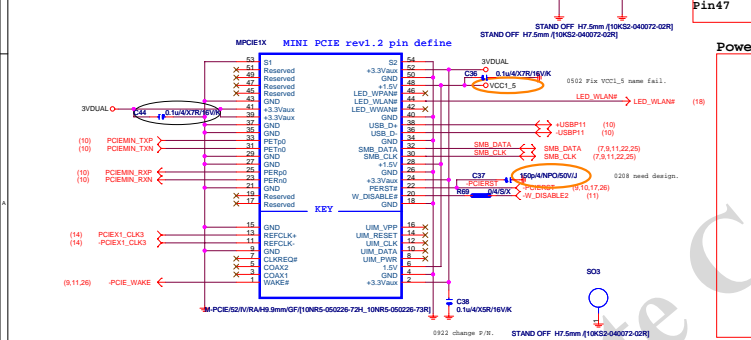
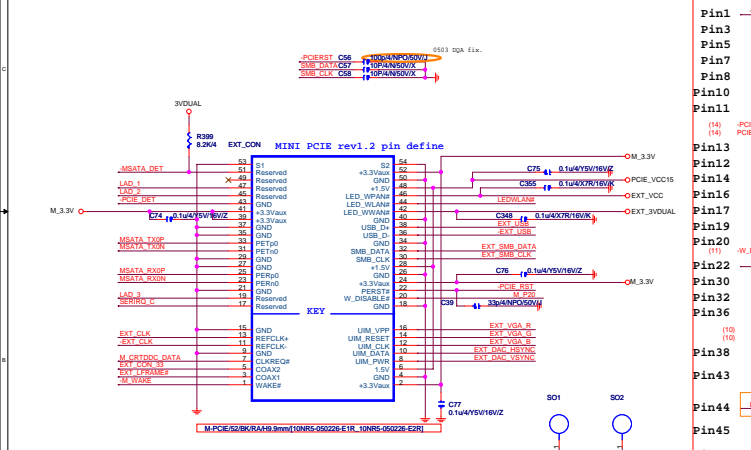
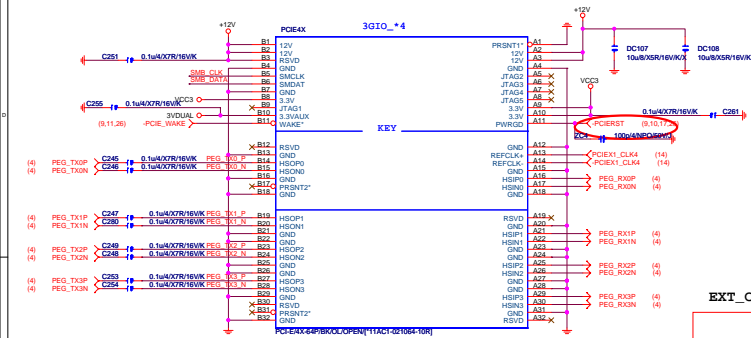




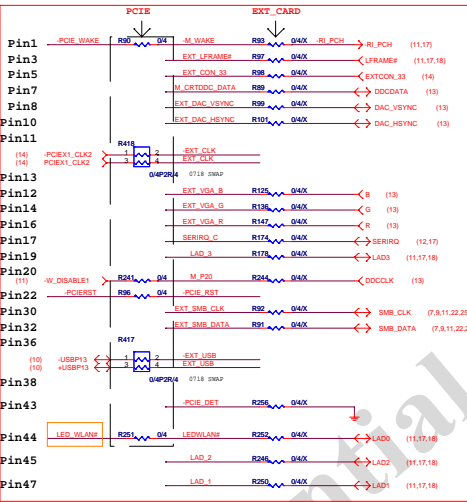




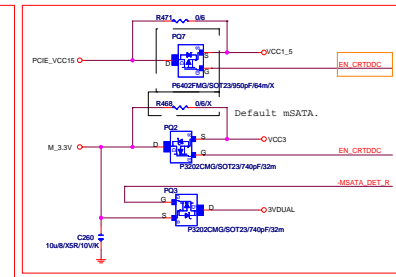




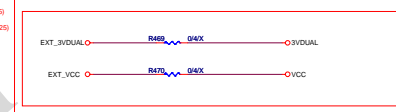
## EXT\_CARD &amp; MPCIE Switch(Default PCIE )



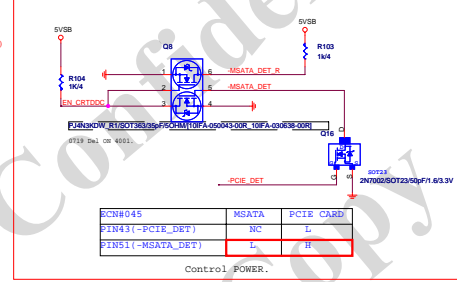
## mSATA&amp;MPCIE Power Switch



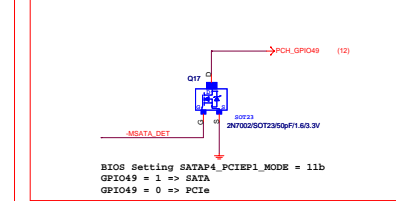
## EXT\_CARD Power Switch



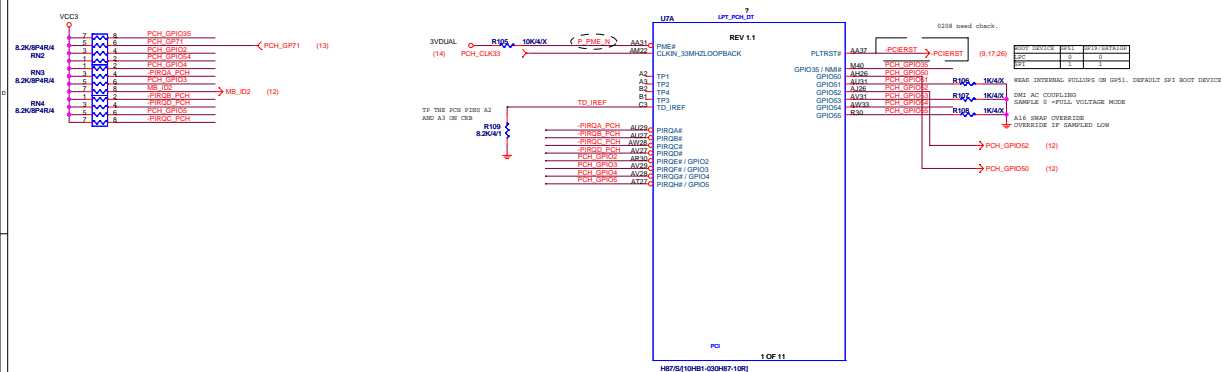
## Power Control Logic



## Flexible I/O HW control



GIGABYTE TECHNOLOGIES, INC.			
MINI PCIE, mSATA, eDP			
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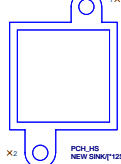
Only for H77 use, set USB3.0 port

FOR OnBoard LAN

FOR miniPCI-E

FOR EXT\_CON

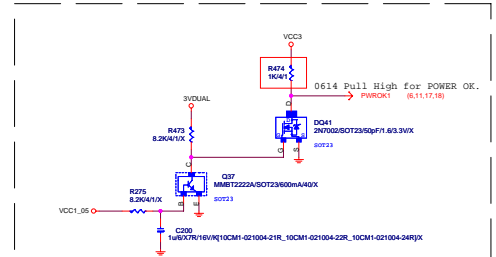
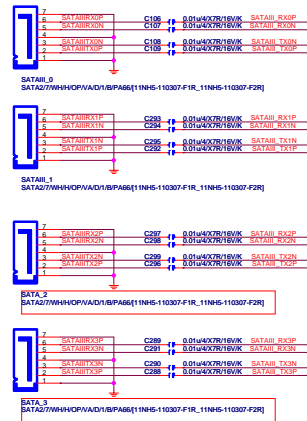
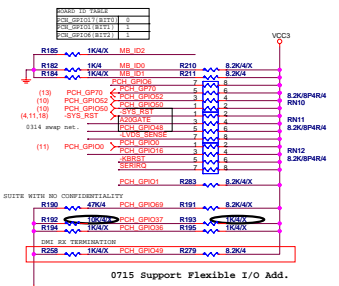
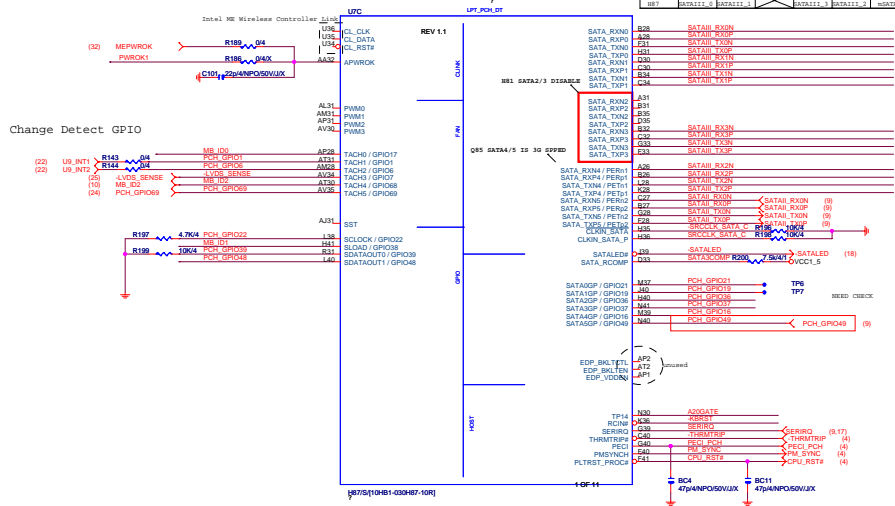
SB\_HEATSINK



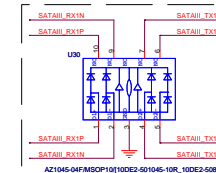


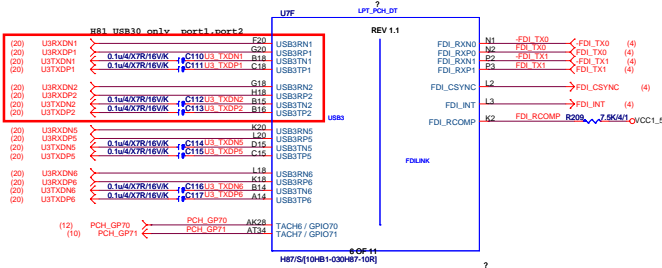
SATA SETTING TABLE

PORT	SATA0	SATA1	SATA2	SATA3	SATA4	SATA5
H61	SATAIII_0	SATAIII_1			SATAIII_2	mSATA
H65	SATAIII_0	SATAIII_1		SATAIII_3	SATAIII_2	mSATA
H67	SATAIII_0	SATAIII_1		SATAIII_3	SATAIII_2	mSATA

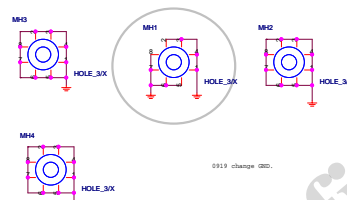
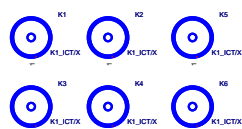
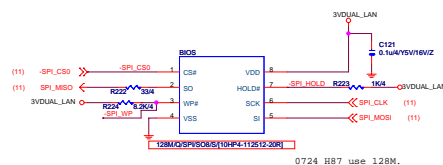


0219 Add PWROK1 control , must care T205 timing.

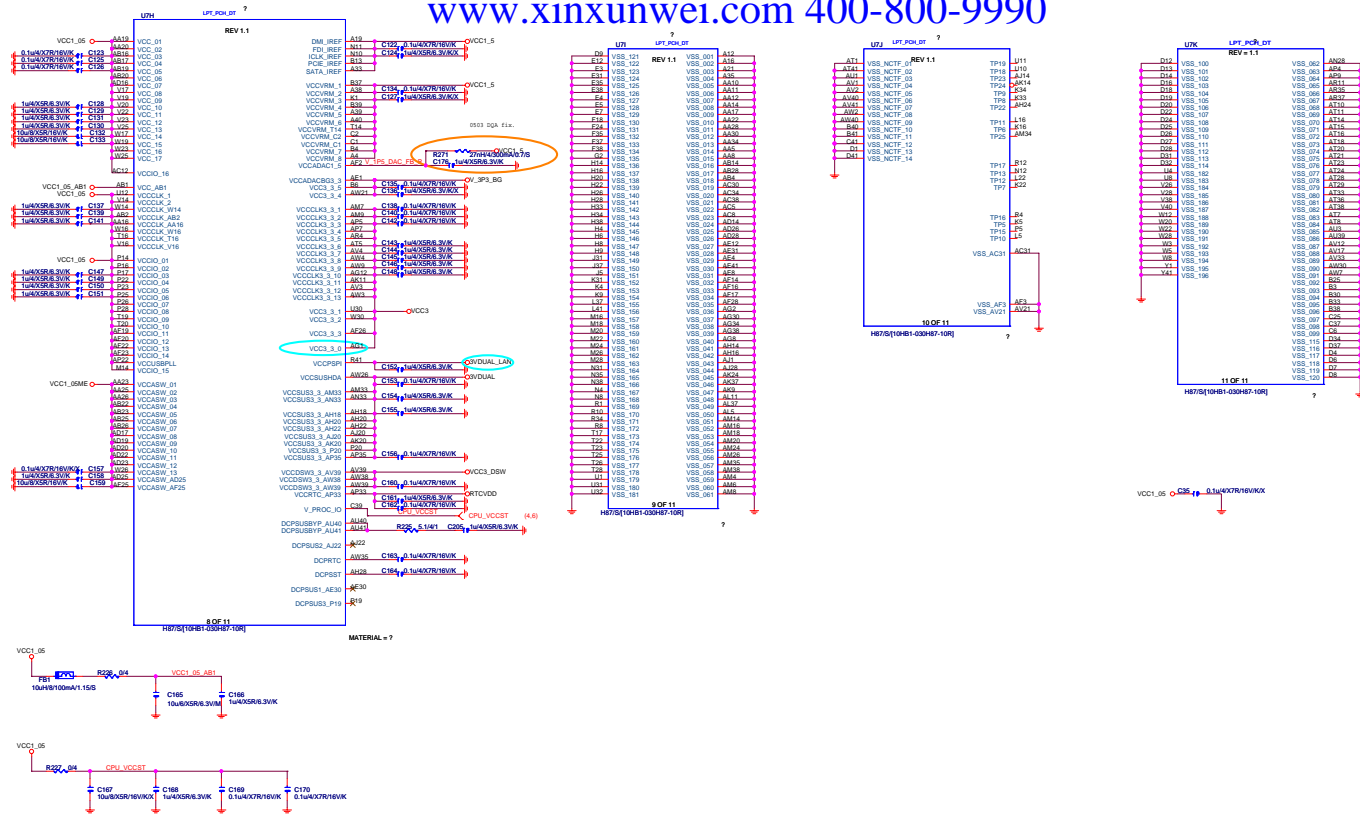




LVDS Cable	-LVDS_SENSE(GPI)		LVDS_GPIO15(GPO)		LVDS Monitor Function
Insert	Low		Low (Default)		Enable
	Low			Hi	Disable
Non-Insert		Hi	NA	NA	Disable

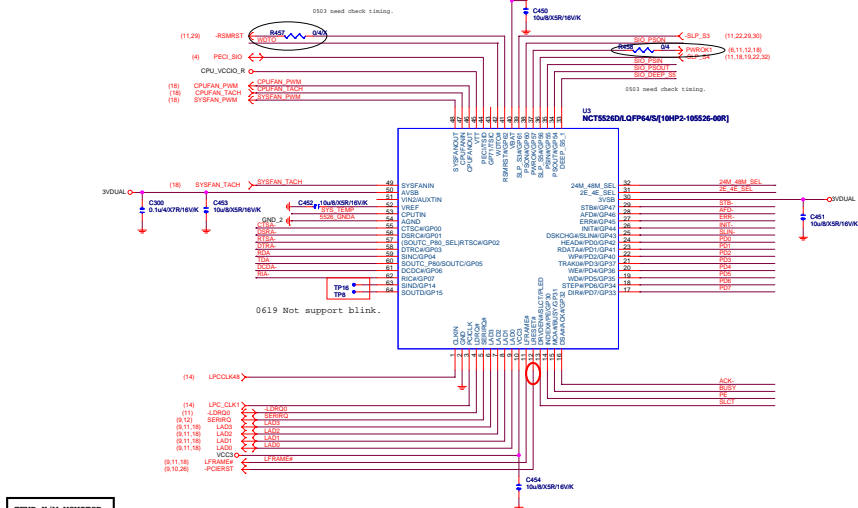


0019 change (20)

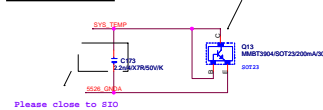


GIGABYTE TECHNOLOGIES, INC.		
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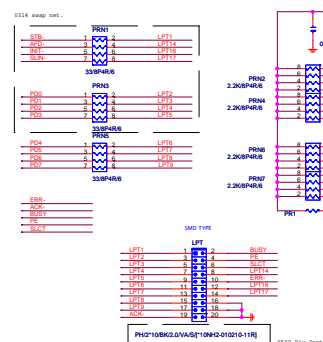




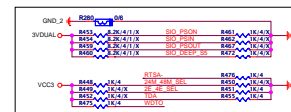
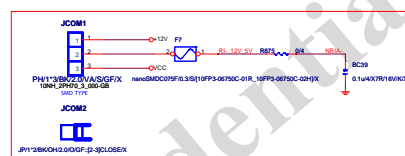
## TDEP H/W MONITOR



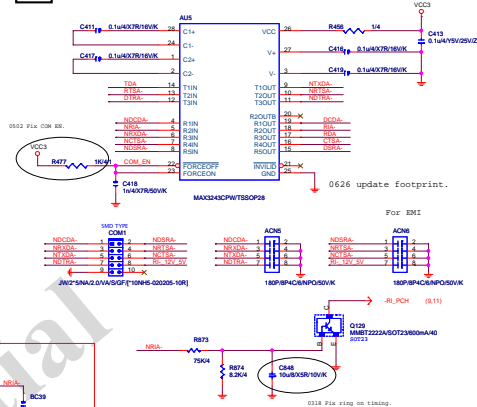
## LPT



0614 Pix Jump solution fix power on VCC over voltage.



## COM



GIGABYTE TECHNOLOGIES, INC.

ITE8773,FAN,FP

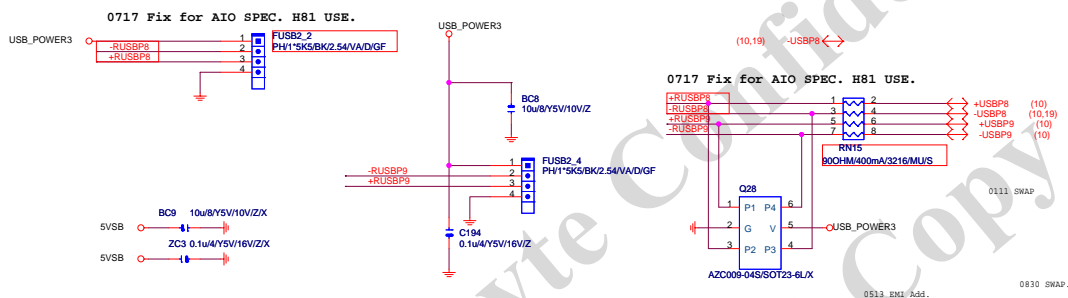
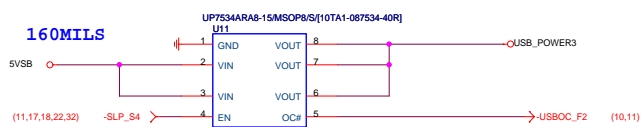
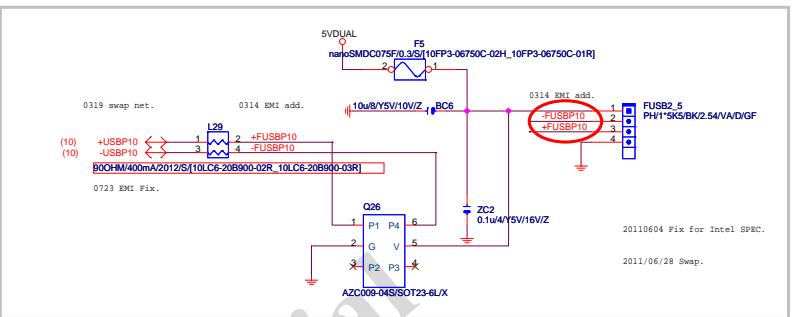
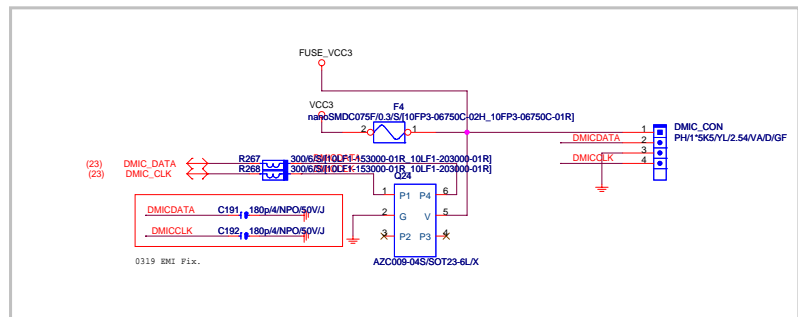
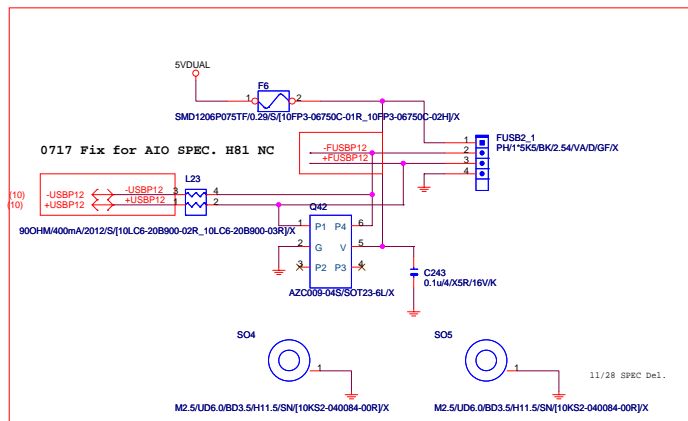
GA-H87TN

Rev. 1.0

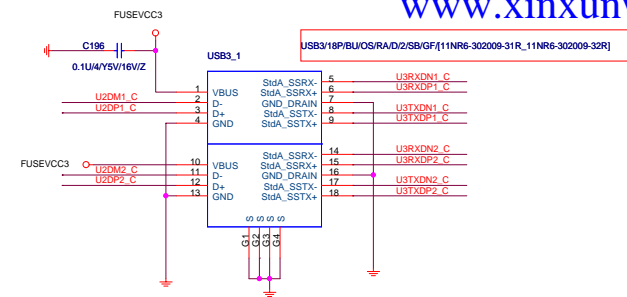
Date: Wednesday, July 11, 2018

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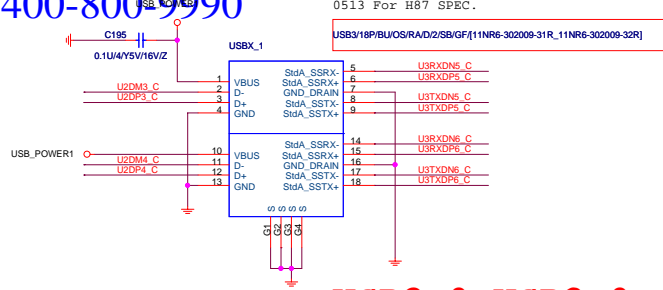
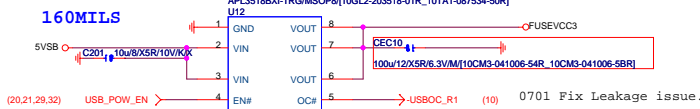
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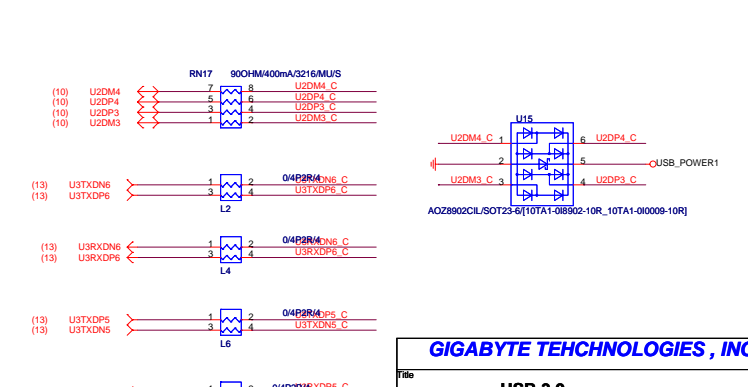
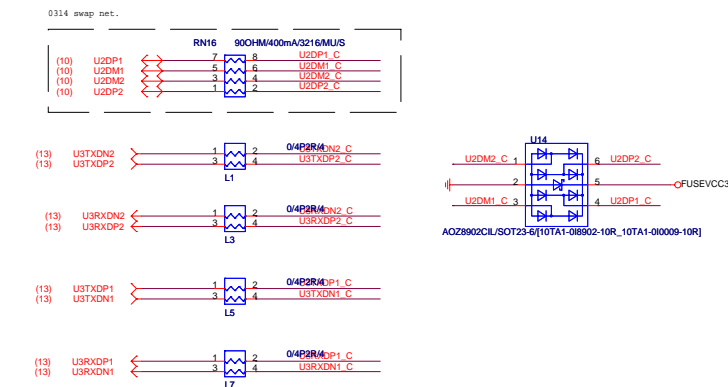
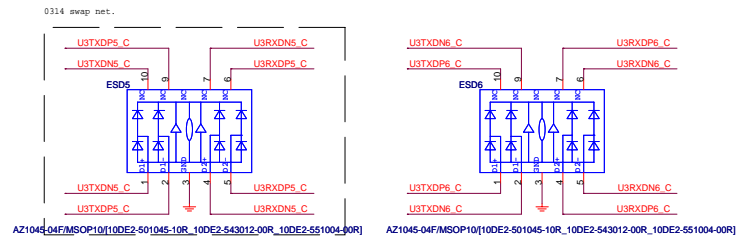
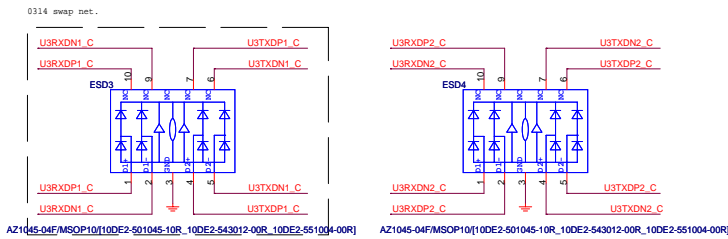
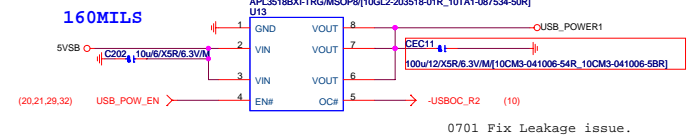
GIGABYTE TECHNOLOGIES, INC.			
File	FRONT & REAL USB		
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## USB3.0

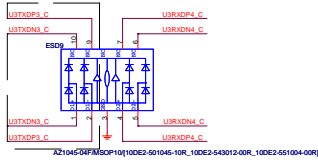
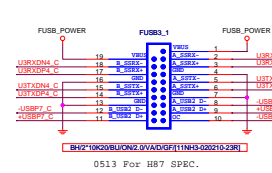


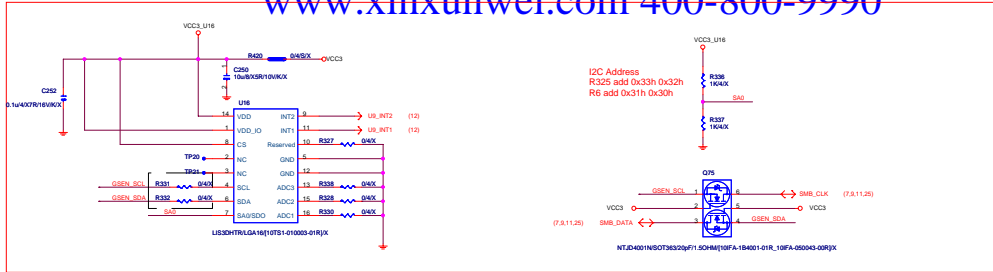
## USB2.0&amp;USB3.0



GIGABYTE TECHNOLOGIES, INC.

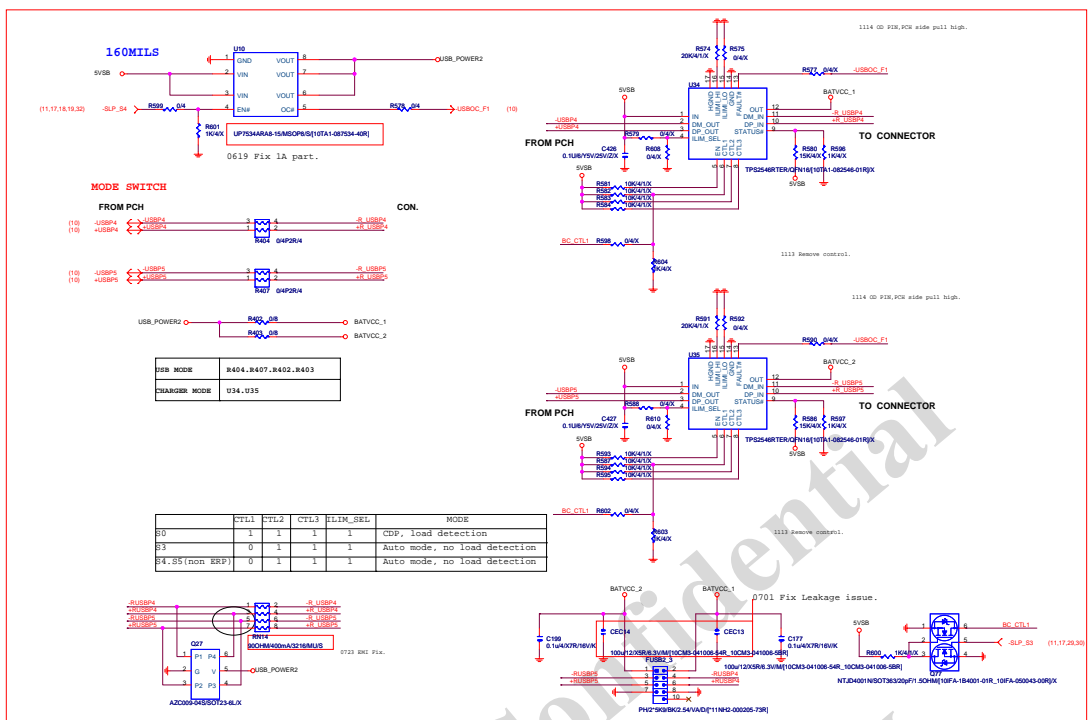
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File	Document Number	GA-H87TN
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0718 Follow SPEC' Unuse..

F\_USB CHARGER



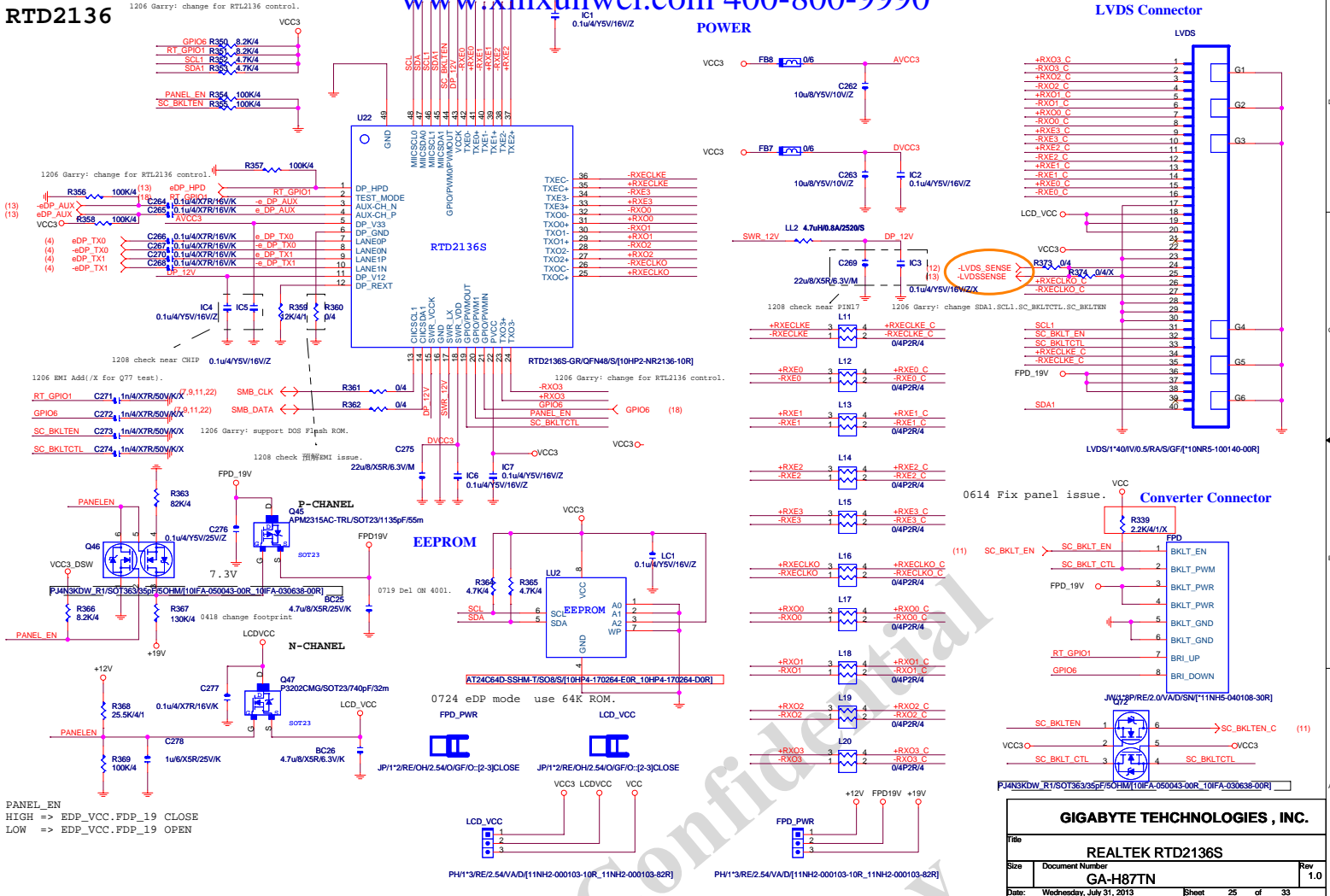
0718 Follow SPEC' Charger' Unuse..



Title				ALC887-VD			
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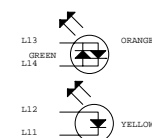
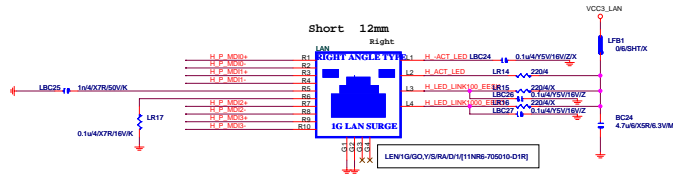
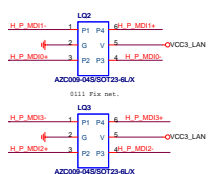
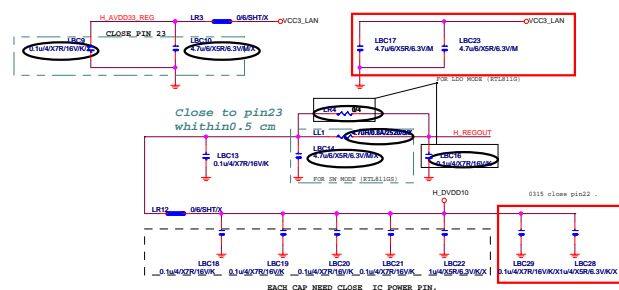
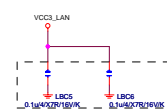
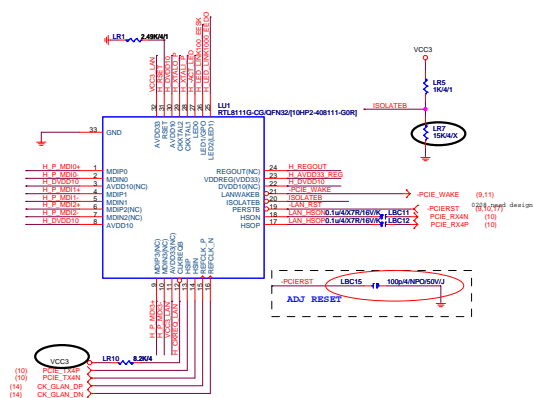
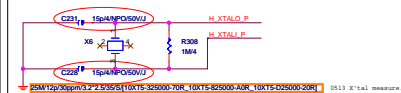
Gigabyte Corp  
Do not Copy





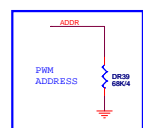
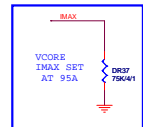
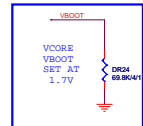
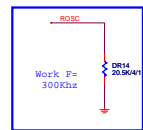
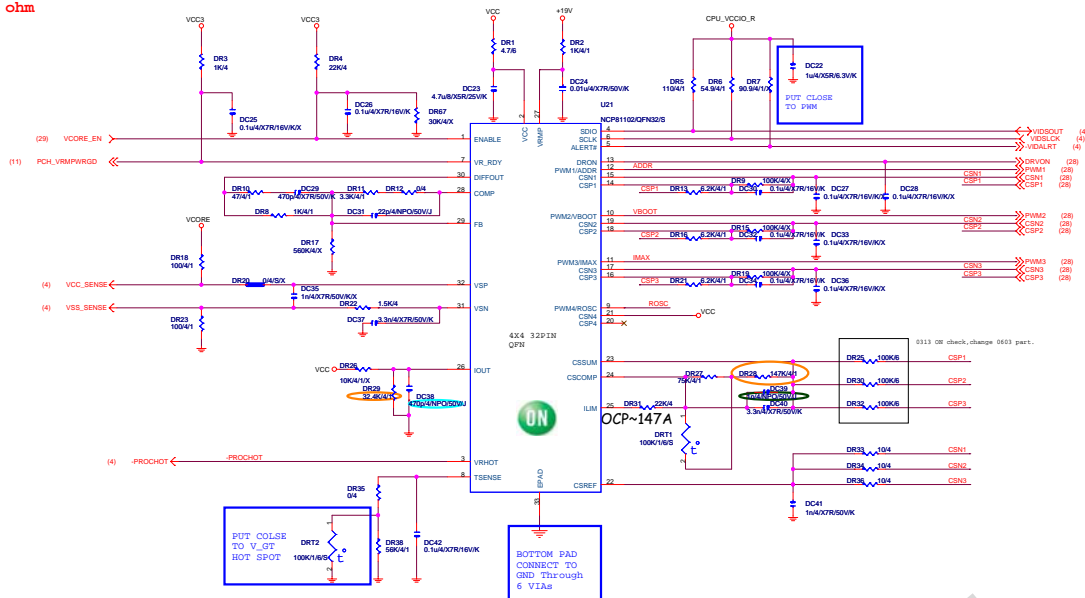
GIGABYTE TEHCHNOLOGIES, INC.

Title			
REALTEK RTD2136S			
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## SharkBay VR12.5 POWER CKT - 3 PHASE

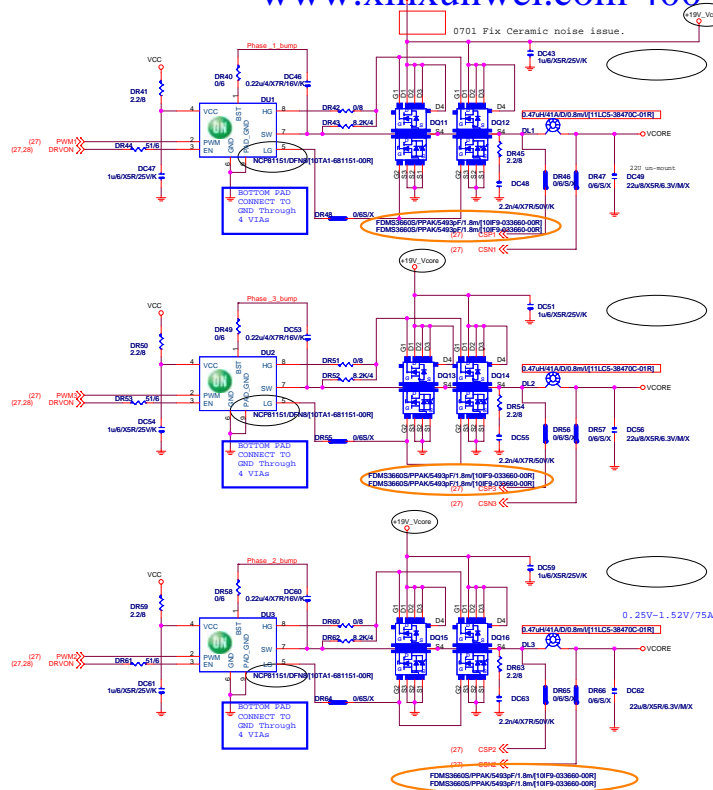
TDP=95W, FMB 2012C VRD12.5  
 ICC-TDC= 55A; ICC-max= 105A  
 Loadline= ??? ohm



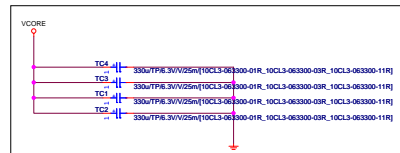
RESISTOR VALUE	SVID ADDRESS FOR VCC CORE & AXG
10K	0000
25K	0010
45K	0100
70K	0110
95K	1000
125K	1010
165K	1100

RESISTOR VALUE	BOOT VOLTAGE	Phase no. in PS1
30.1K	1.0V	1
49.9K	1.65V	1
69.8K	1.7V	1
90K	1.75V	1
130K	1.0V	2
150K	1.65V	2
169K	1.7V	2
open	1.75V	2

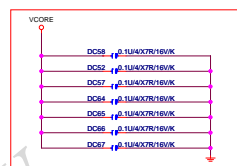
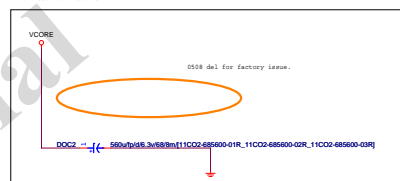
Rosc	Freq.	Rosc	Freq.	Rosc	Freq.	Rosc	Freq.	Rosc	Freq.
10K	250KHz	30.9K	340KHz	61.9K	430KHz	105K	520KHz	165K	610KHz
12K	260KHz	34K	350KHz	64.9K	440KHz	110K	530KHz	174K	620KHz
14K	270KHz	36.5K	360KHz	69.8K	450KHz	115K	540KHz	182K	630KHz
16.2K	280KHz	40.2K	370KHz	73.2K	460KHz	121K	550KHz	191K	640KHz
18.2K	290KHz	43.2K	380KHz	78.7K	470KHz	130K	560KHz	200K	650KHz
20.5K	300KHz	46.4K	390KHz	82.5K	480KHz	137K	570KHz		
23.2K	310KHz	49.9K	400KHz	88.7K	490KHz	143K	580KHz		
25.5K	320KHz	53.6K	410KHz	93.1K	500KHz	150K	590KHz		
28K	330KHz	57.6K	420KHz	100K	510KHz	158K	600KHz		



0701 Fix Ceramic noise issue.



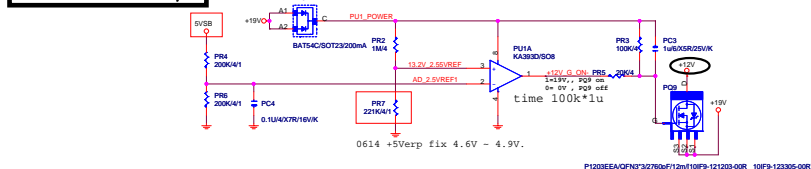
0226 DEC5,DEC2,DEC6,DEC



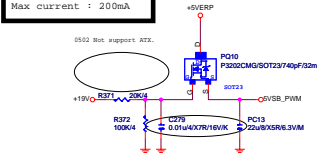
0509 Fix Footprint Fail issue



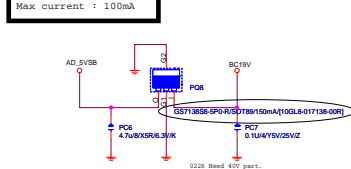
**SUPPORT 12V Adatper**



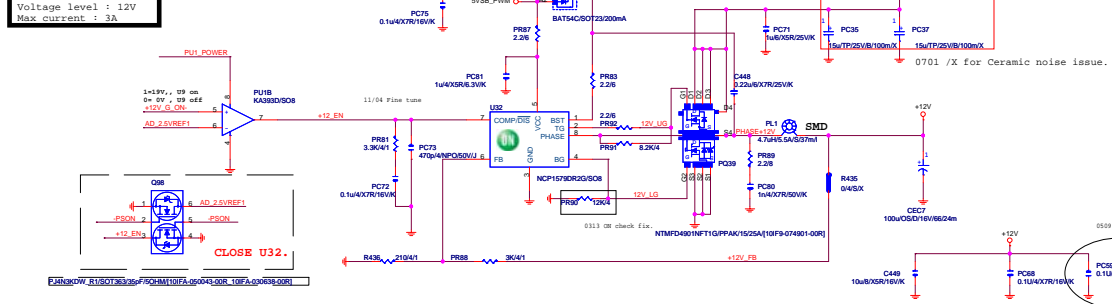
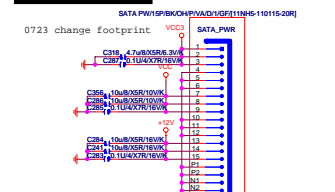
5VSB\_PWM  
Voltage Level : 5V



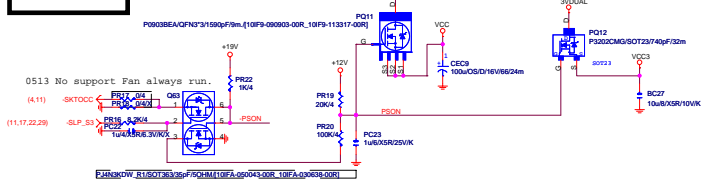
**AD\_5VSB**  
Voltage level



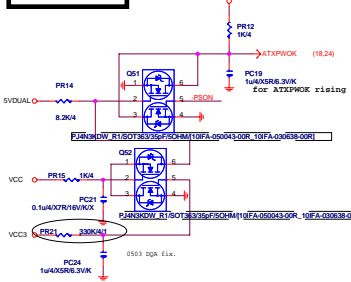
## +12V

**SATA PWRCON**

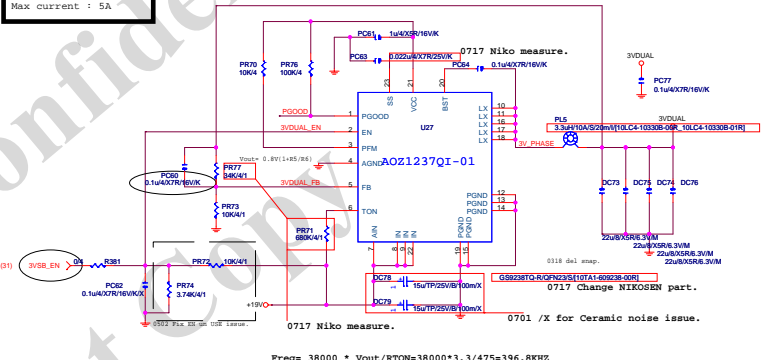
**VCC, VCC3**



**ATXPWROK**



**3VDUAL**  
Voltage level : 3.3V



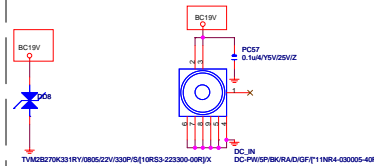
**GIGABYTE TECHNOLOGIES, INC.**

Title		3VDUAL	
Size	Document Number	Rev	
Custom	GA-H87TN	1.0	
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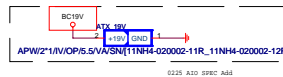


**AD19V**  
Voltage level : 19V  
Max current : 7A

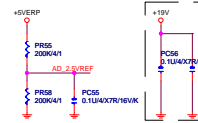
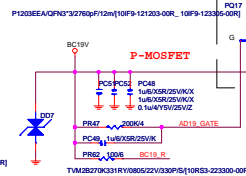
0715 Del BC Charger.



0715 AD19V change BC19V.

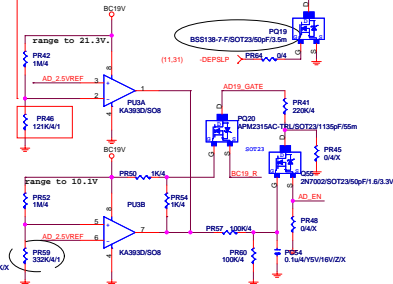


0308 Fix 1 part.



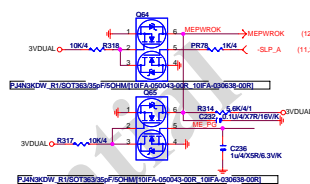
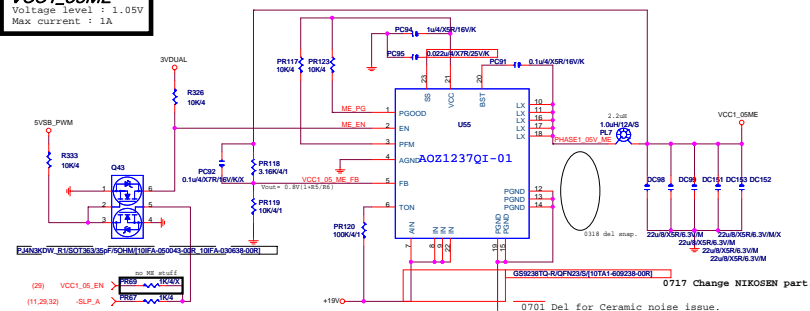
0614 +5Vexp fix 4.6V - 4.9V.

FOR INOUT AD PROTECT CIRCUIT



0701 Fix Ceramic noise issue.

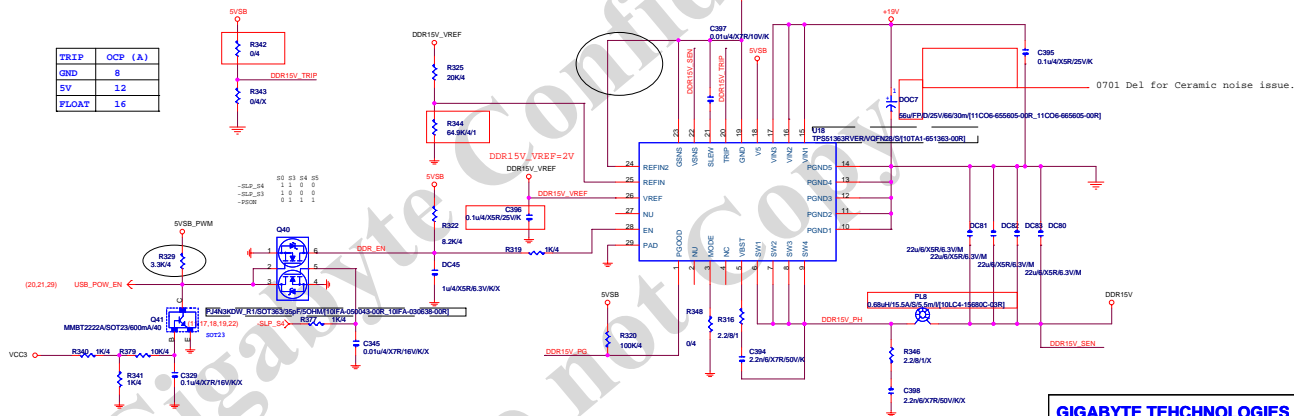
**VCC1\_05ME**  
Voltage level : 1.05V  
Max current : 1A



0717 Change NIKOS8N part.

0701 Del for Ceramic noise issue.

**DDR15V**  
Voltage level : 1.5V  
Max current : 10A



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