

Model Name: GA-H87TN

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
21	FRONT USB 3.0
22	G-SENDER,USB CHARGER
23	AUDIO CODEC ALC887
24	AUDIO JACK
25	REALTEK RTD2136S
26	RTL8111G
27	CPU_VCORE

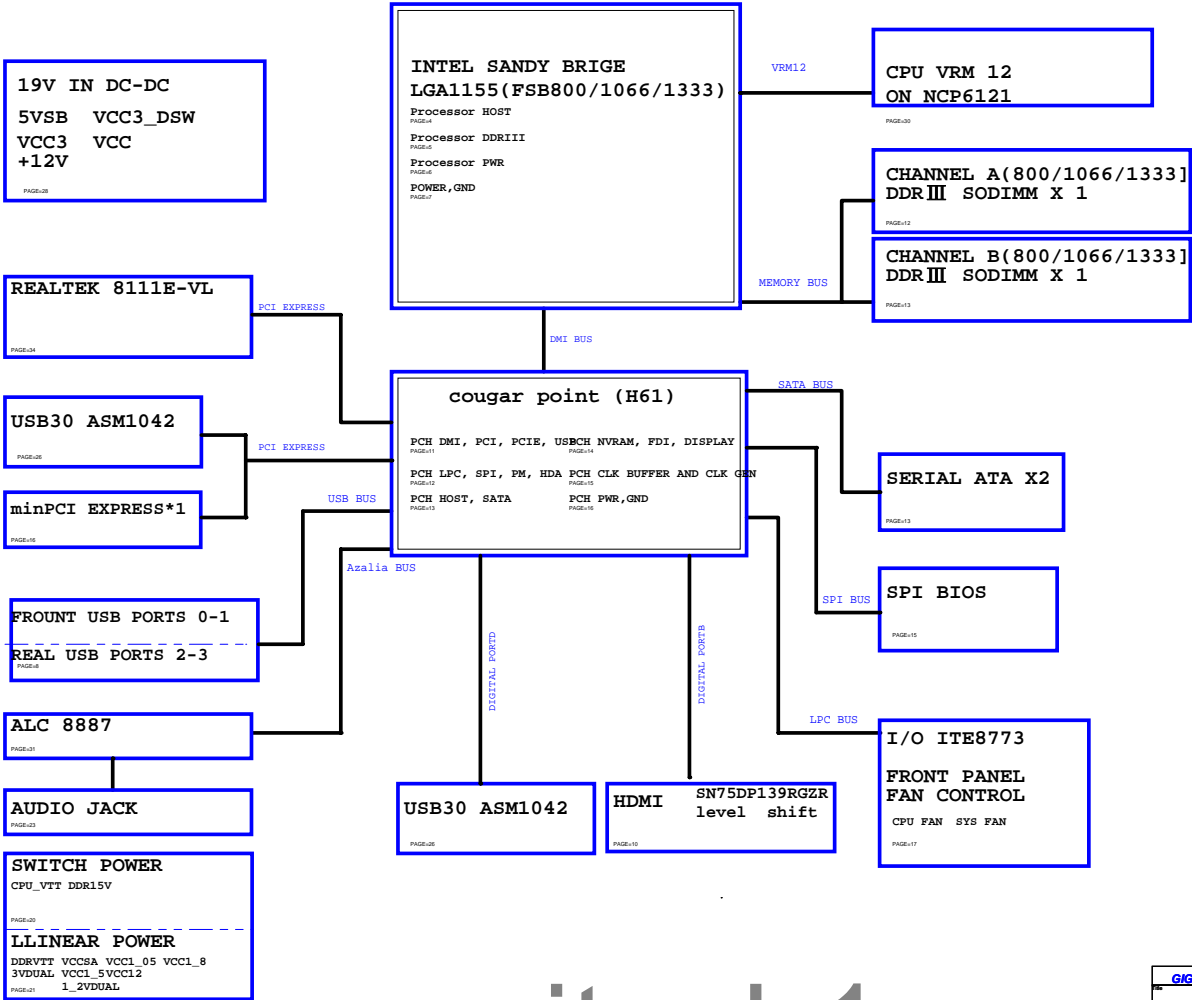
Revision 1.0

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

www.aitech1.ru

GIGABYTE TECHNOLOGIES, INC.			
Cover Sheet			
Rev C	Document Number GA-H87TN	Rev 1.0	
Date: Wednesday, April 27, 2011 Page: 1 of 33			

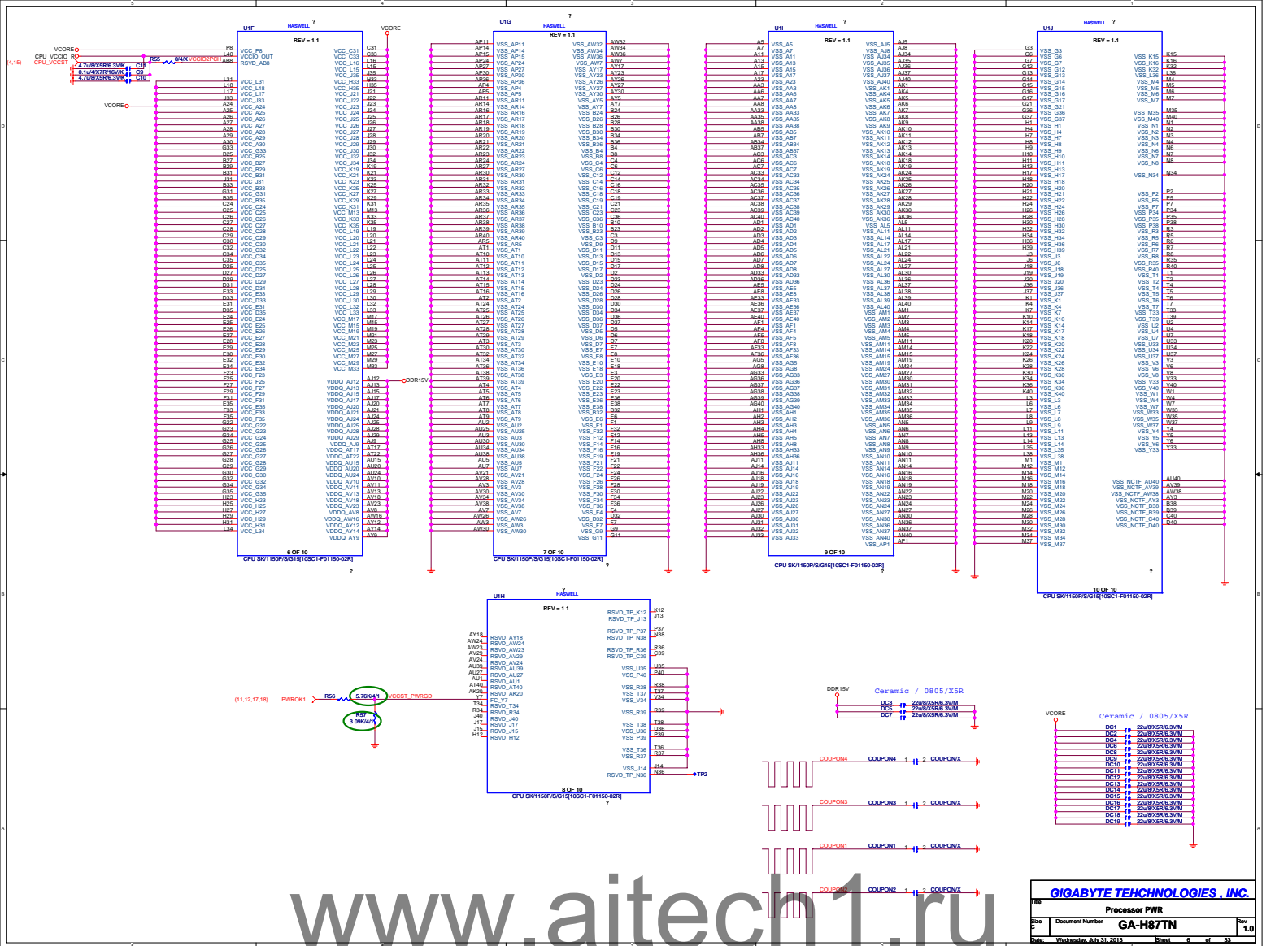
BLOCK DIAGRAM

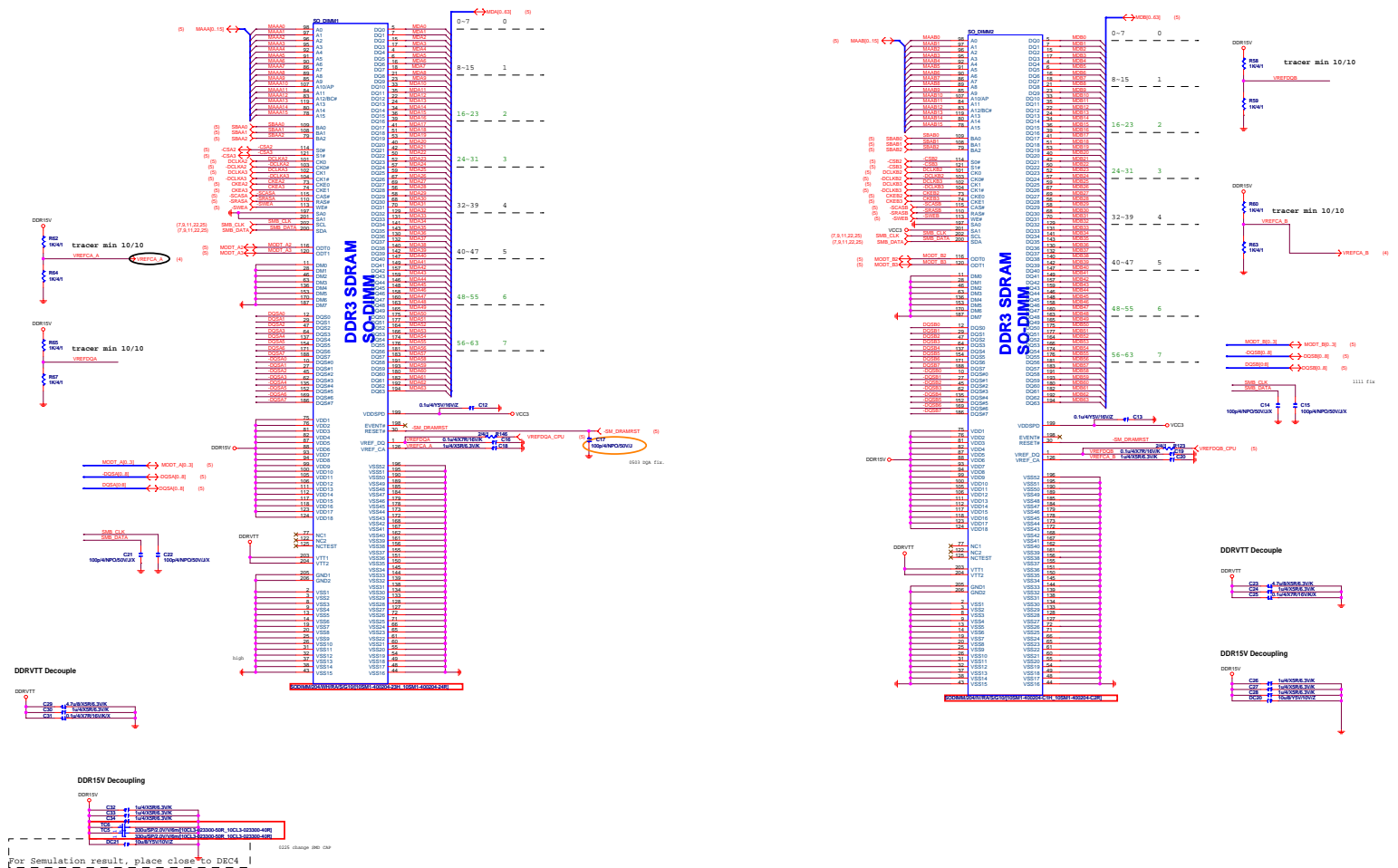


www.aitech1.ru

GIGABYTE TECHNOLOGIES, INC.			
POWER SEQUENCE			
Doc Number	GA-H87TN		Rev 1.0
Date	Wednesday, July 31, 2013	Page	3 of 35

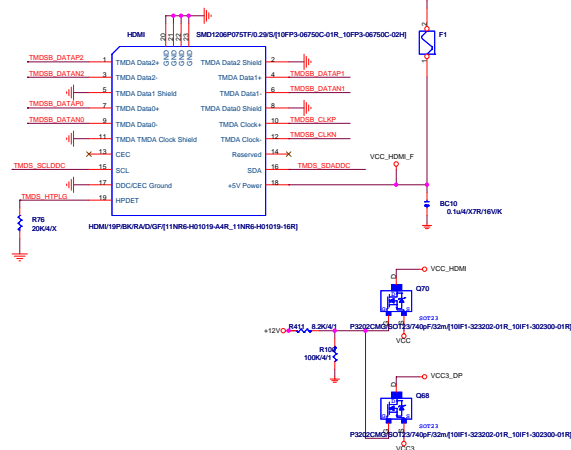
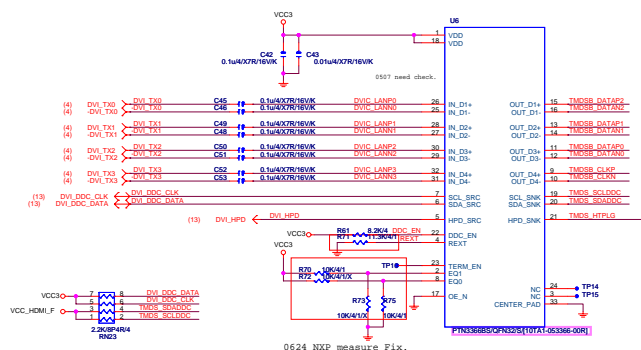






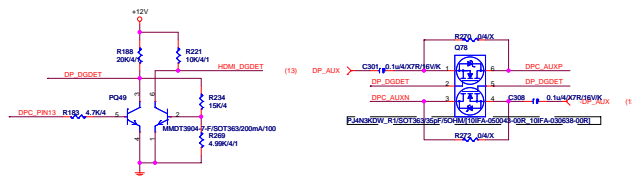
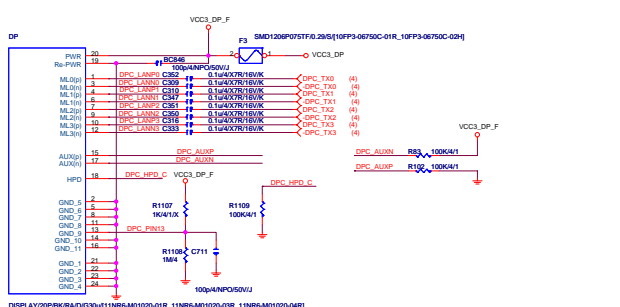
www.aitech1.ru

HDMI

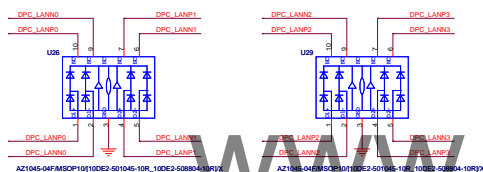
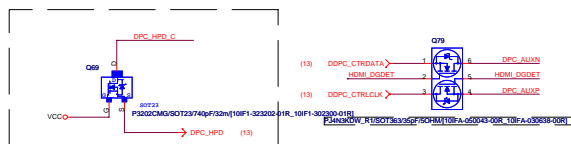


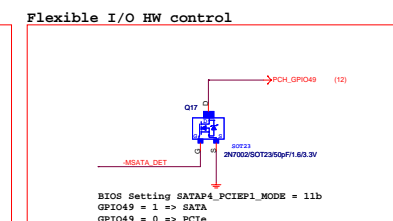
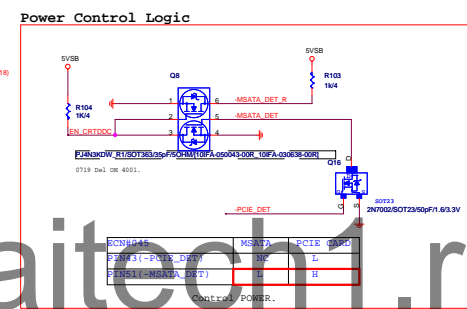
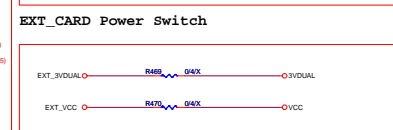
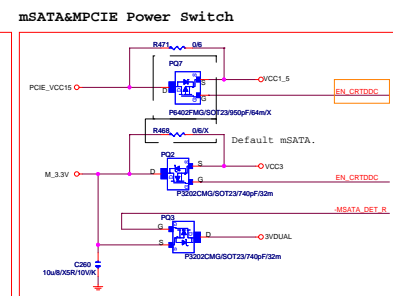
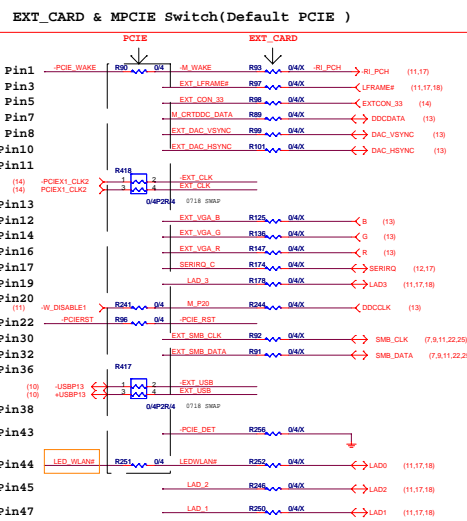
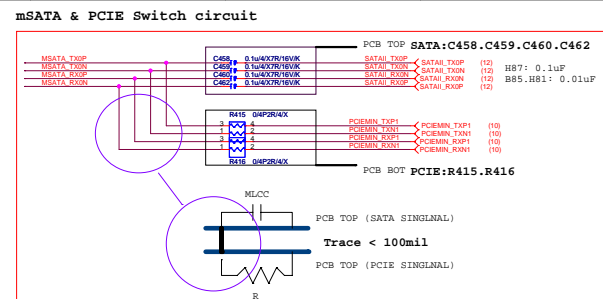
0503 Fix Active Level Shifter.

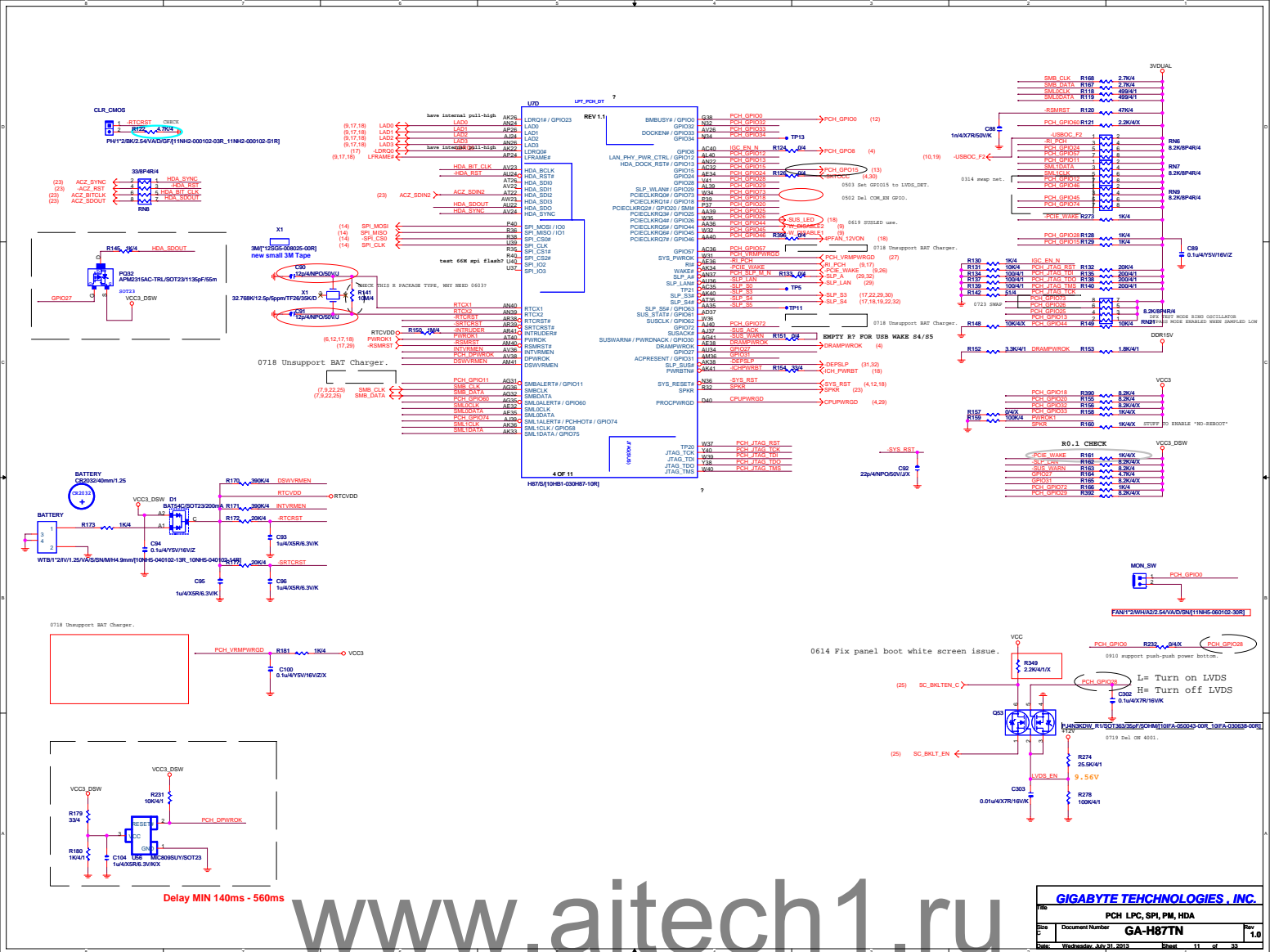
DP



0503 HDMI Fix Active Level Shifter.

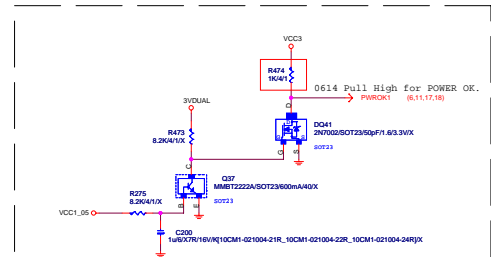
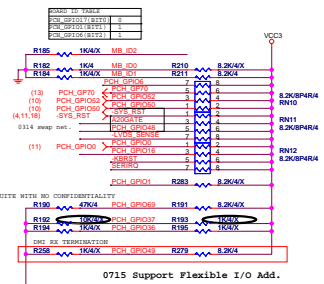


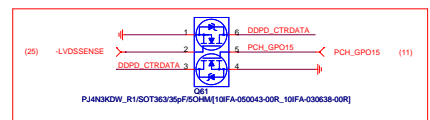
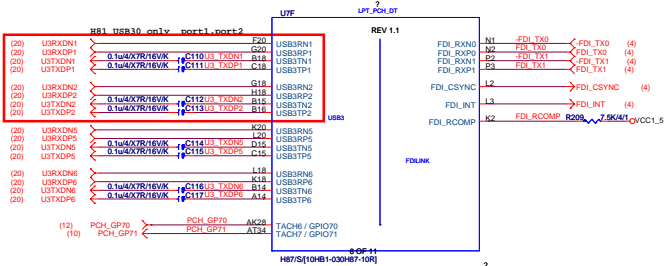
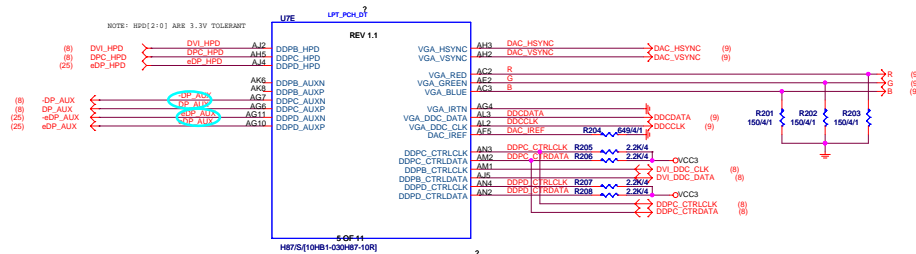




www.aitech1.ru

PORT	SATA0	SATA1	SATA2	SATA3	SATA4	SATA5
HP1	SATAIII_0	SATAIII_3			SATAIII_2	mSATA
HP5	SATAIII_0	SATAIII_1		SATAIII_3	SATAIII_2	mSATA
HP7	SATAIII_0	SATAIII_3		SATAIII_3	SATAIII_2	mSATA





LVDS Function Description

LVDS Cable	LVDS_SENSE(GPI)	LVDS_GPI015(GPO)	LVDS Monitor Function
Insert	Low	Low (Default)	Enable
	Low	HI	Disable
Non-Insert	HI	NA	NA

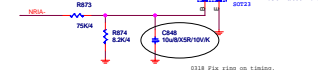
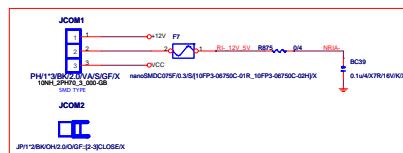
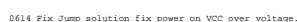
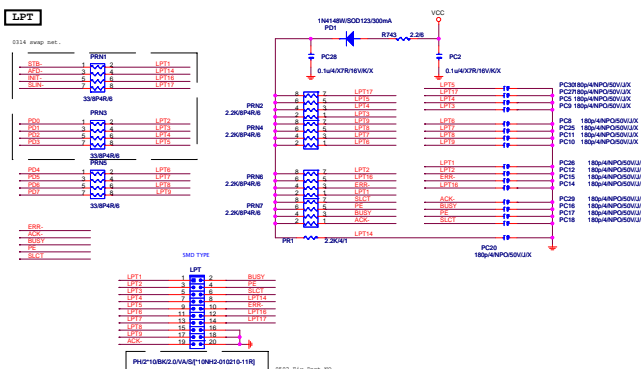
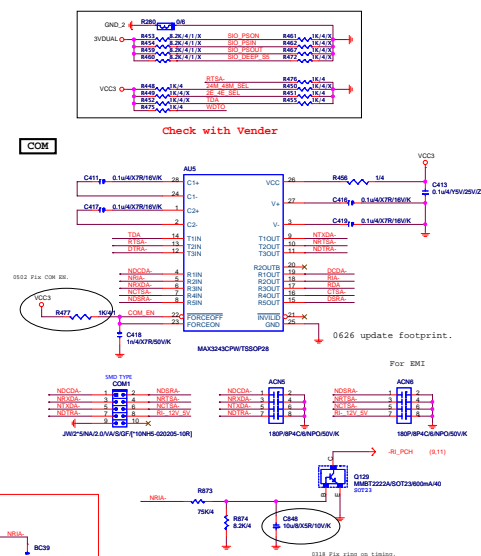
GIGABYTE TECHNOLOGIES, INC.

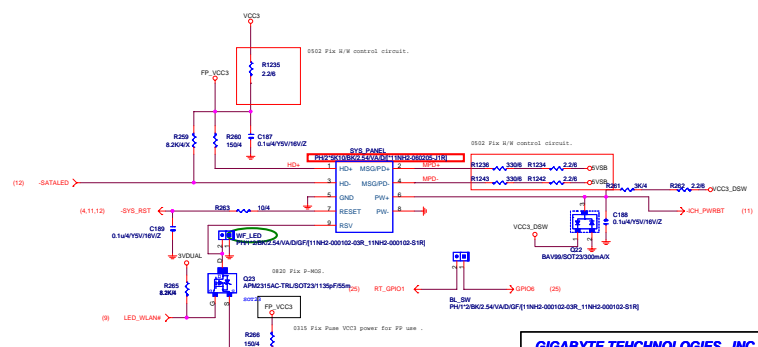
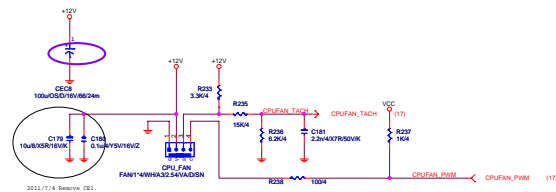
File	Document Number	Rev
PCH NVRAM, FDI, DISPLAY	GA-H87TN	1.0
Date	Wednesday, July 31, 2013	Sheet 13 of 33

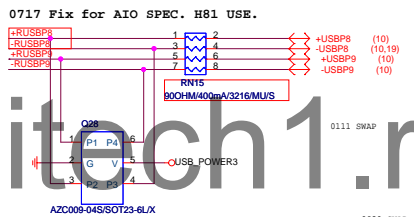
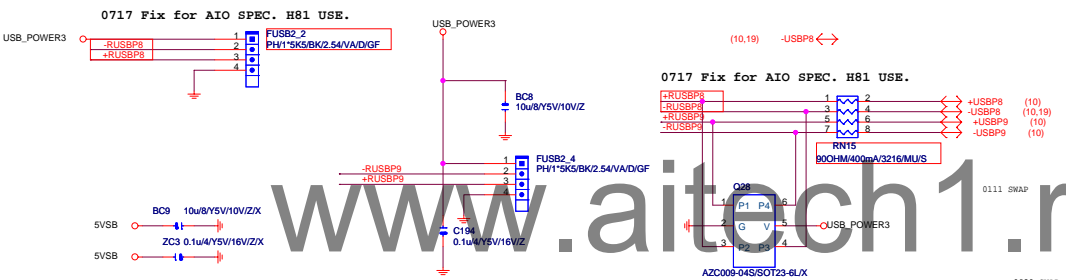
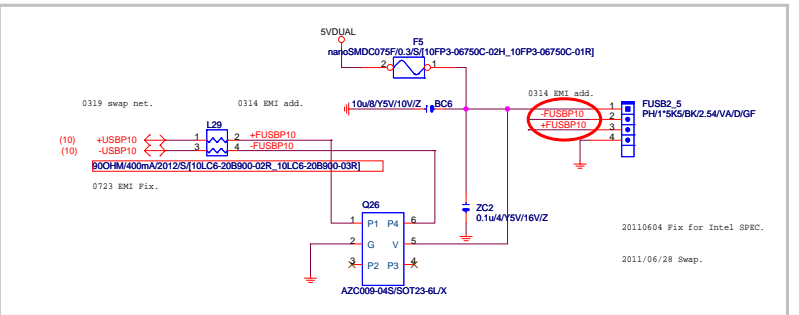
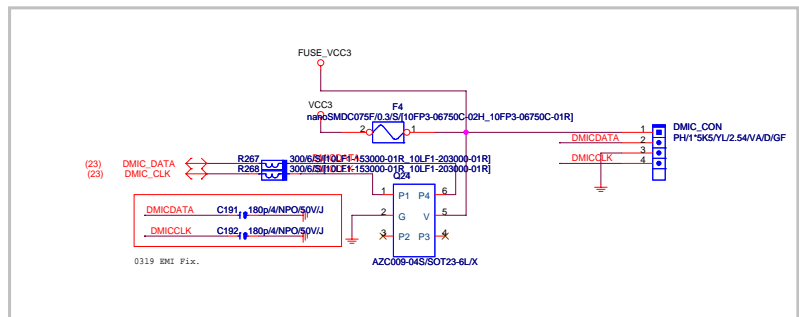
www.aitech1.ru

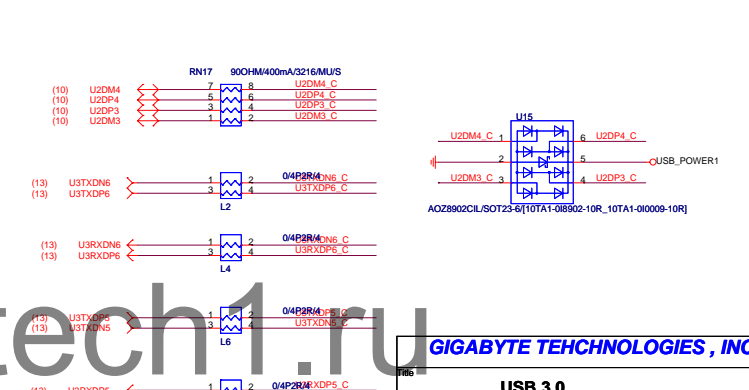
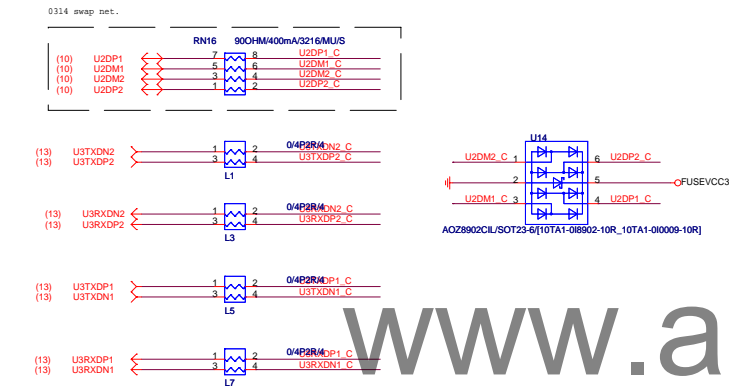
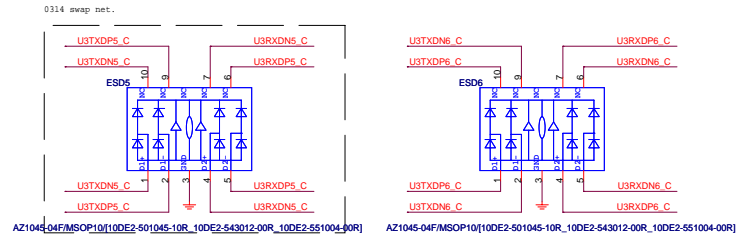
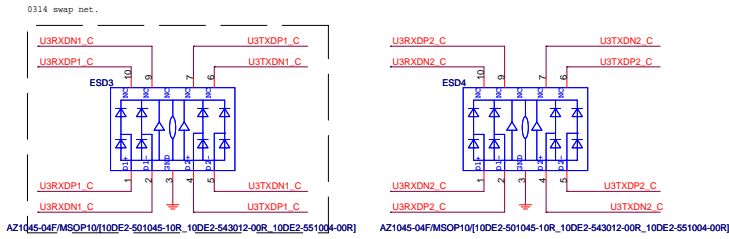
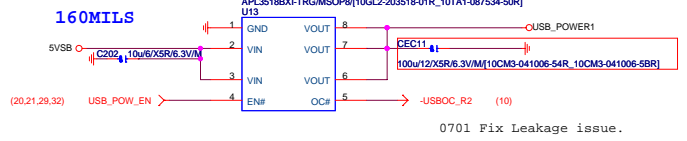
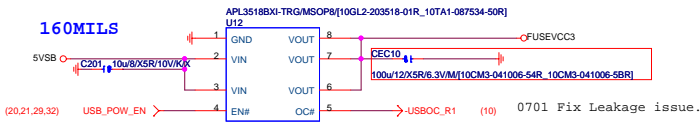
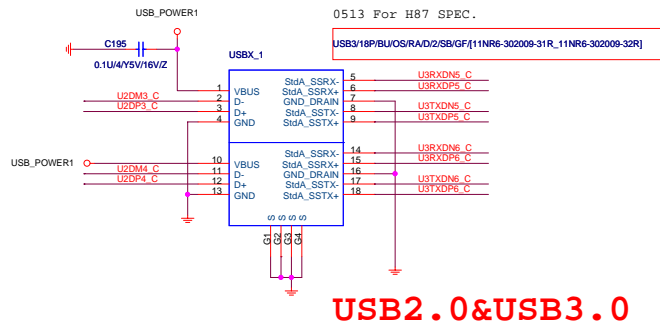
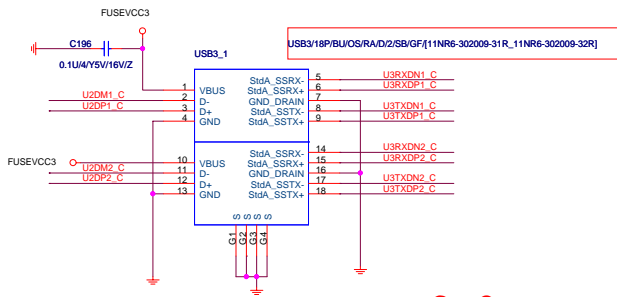
GIGABYTE TECHNOLOGIES, INC.		
LEWISVILLE_82579		
File		
Size	Document Number	Rev
B	GA-H87TN	1.0
Date:	Wednesday, July 31, 2013	Sheet 16 of 33

www.aitech1.ru





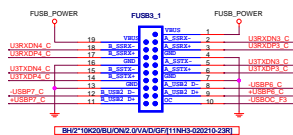
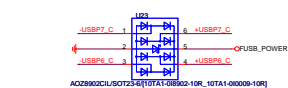
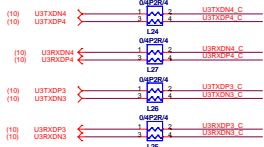
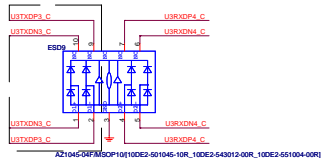
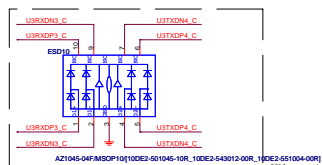
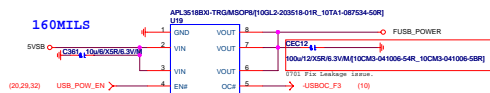




www.aitech1.ru

GIGABYTE TECHNOLOGIES, INC.		
USB 3.0		
Size	Document Number	Rev
Custom	GA-H87TN	1.0
Date:	Wednesday, July 31, 2013	Sheet 20 of 33

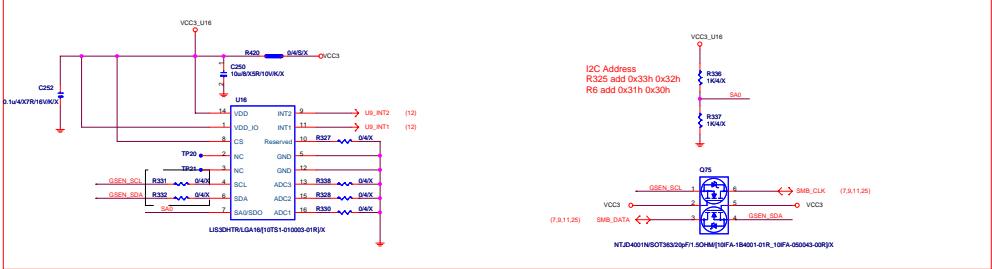
FRONT USB3.0



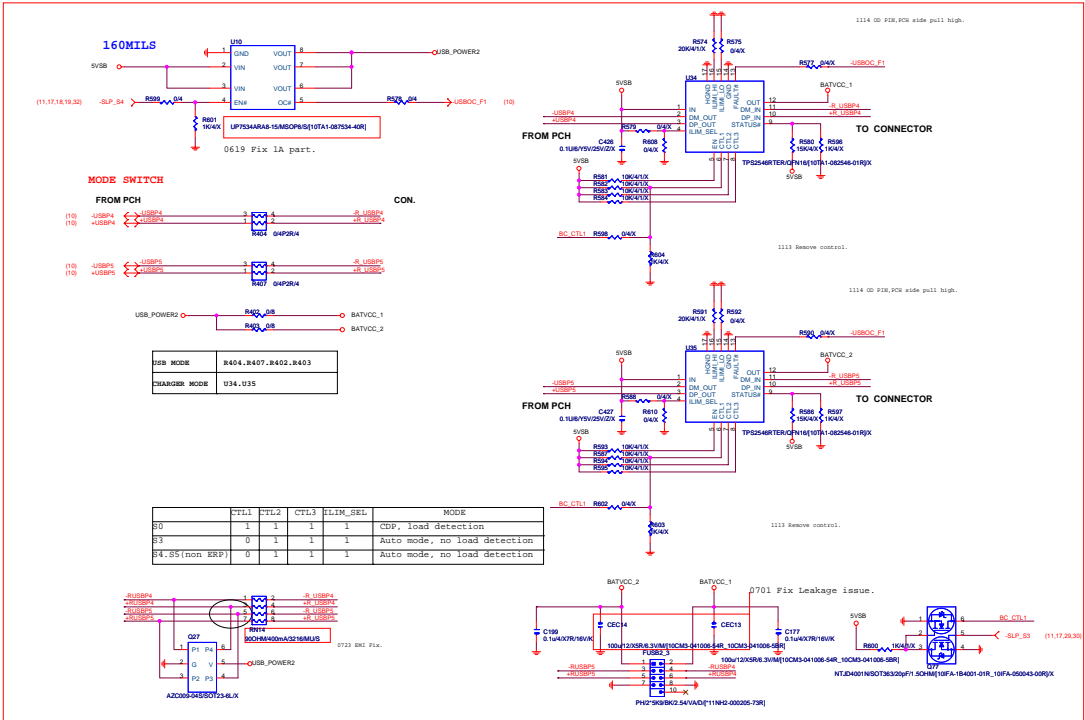
0513 For H87 SPEC.

www.aitech1.ru

G_SENSOR



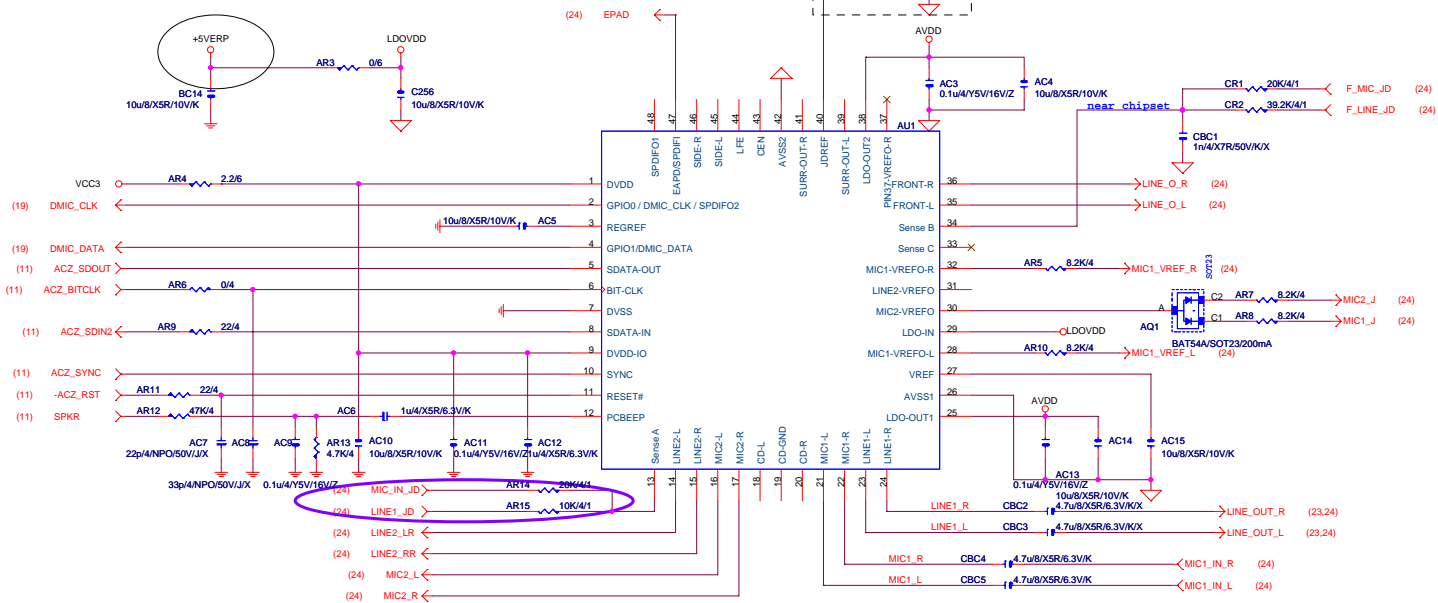
F_USB CHARGER



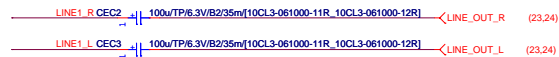
www.aitech1.ru



0824 Add .



ALC887-VD2-GR/LQFP48/S/(10HP5-368870-30R)

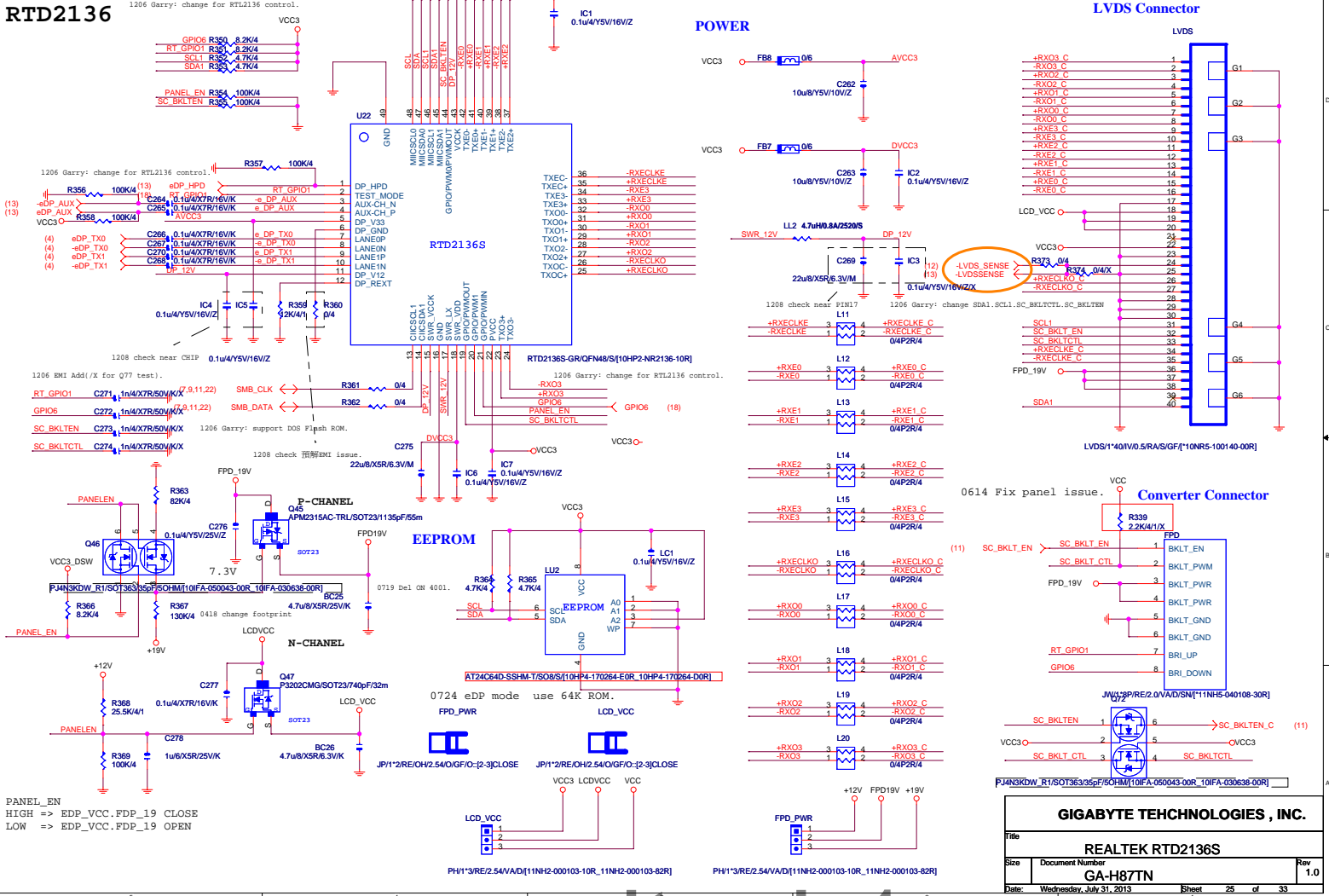


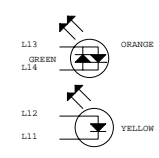
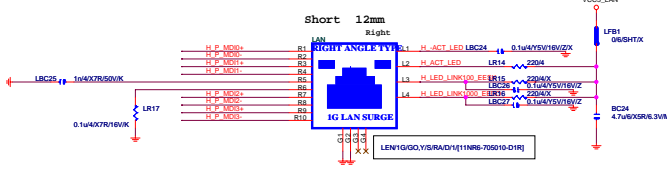
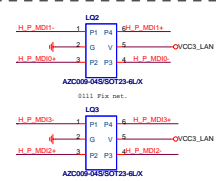
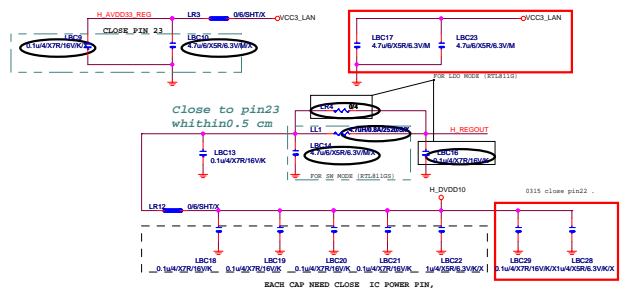
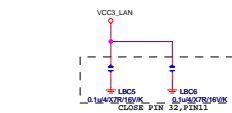
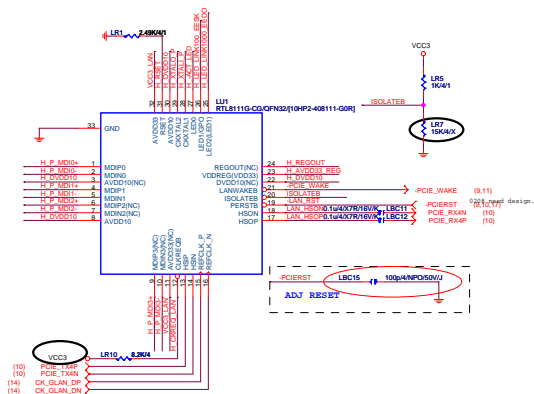
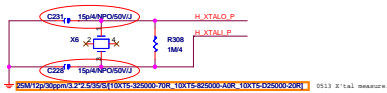
www.aitech1.ru

GIGABYTE TECHNOLOGIES, INC.

Title				ALC887-VD
Size	Document Number			GA-H87TN
	Custom			Rev 1.0
Date:		Wednesday, July 31, 2013	Sheet 23 of 33	

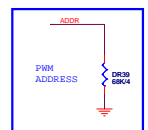




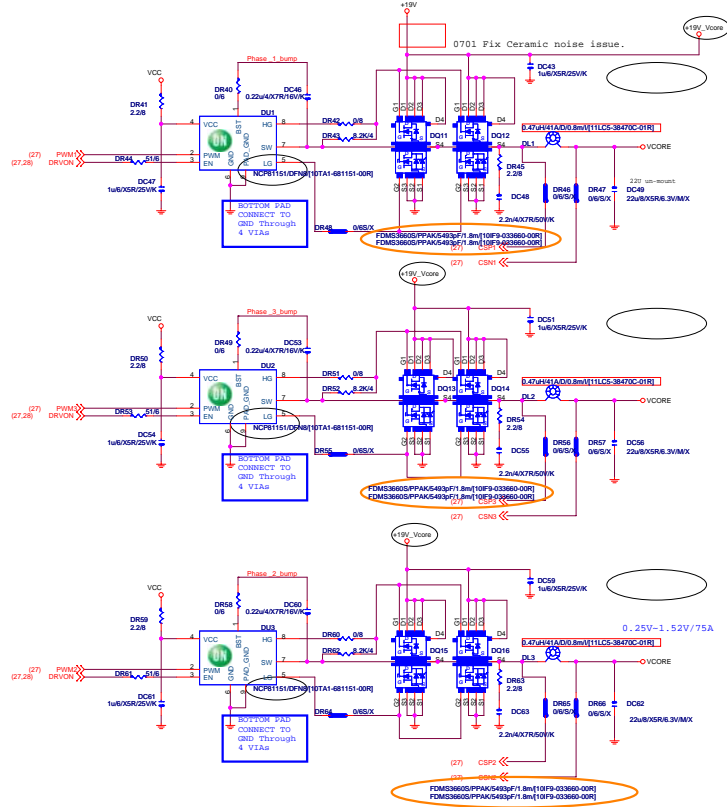


www.aitech1.ru

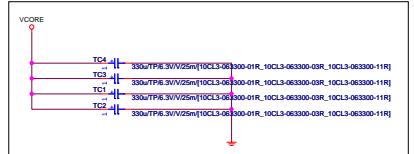
TDP=95W, FMB 2012C VRD12.5
ICC-TDC= 55A; ICC-max= 105A
Loadline= ??? ohm



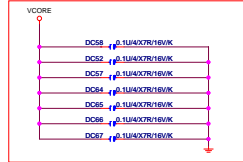
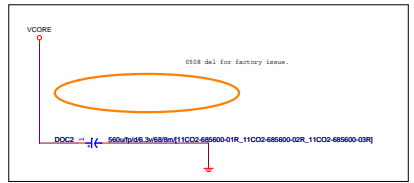
Rosc	Freq.	Rosc	Freq.	Rosc	Freq.	Rosc	Freq.
105K	250KHz	30.9K	340KHz	61.9K	430KHz	105K	520 KHz
12K	260KHz	34K	350KHz	64.9K	440KHz	110K	530KHz
14K	270KHz	36.5K	360KHz	68.8K	450KHz	115K	540KHz
16.2K	280KHz	40.2K	370KHz	73.2K	460KHz	121K	550KHz
18.2K	290KHz	43.2K	380KHz	78.7K	470KHz	130K	560KHz
20.5K	300KHz	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	150 K	590KHz
28K	330KHz	57.6K	420KHz	100K	510KHz	158 K	600KHz



0228 Add TC1, TC4

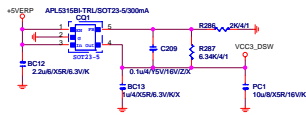


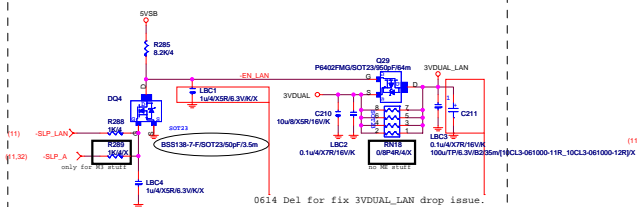
0228, DC25, DC27, DC28, DC24

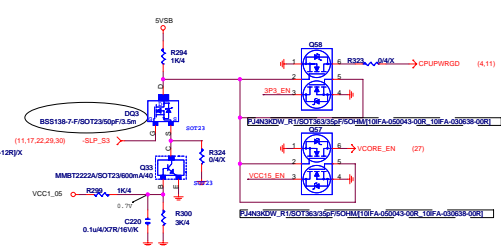
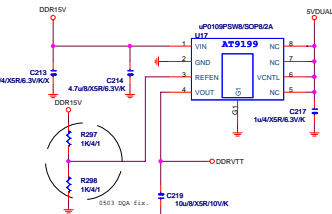


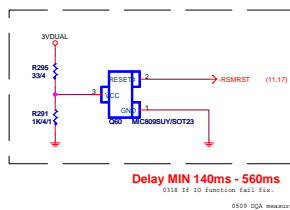
www.aitech1.ru

GIGABYTE TECHNOLOGIES, INC.			
VCORE & AXG OUTPUT STAGE			
File	Document Number	Rev	1.0
GA-H87TN		Date: Wednesday, July 31, 2013	
Page: 28		of 38	





[illegible]



100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

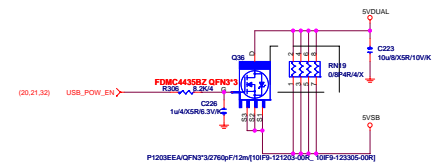
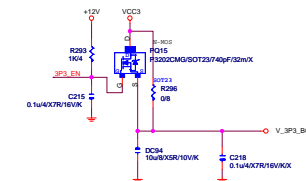
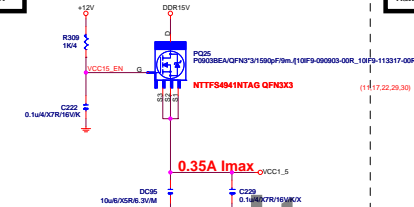
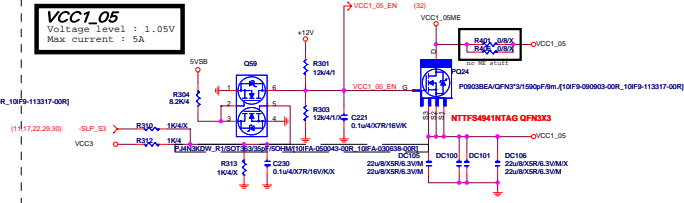


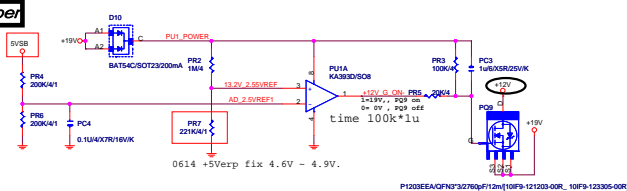
Table 1

[illegible]

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

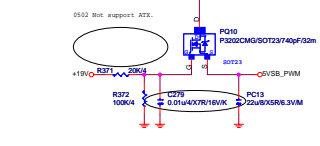


SUPPORT 12V Adatper



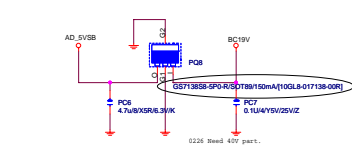
5VSB_PWM

Voltage level : 5V
Max current : 200mA



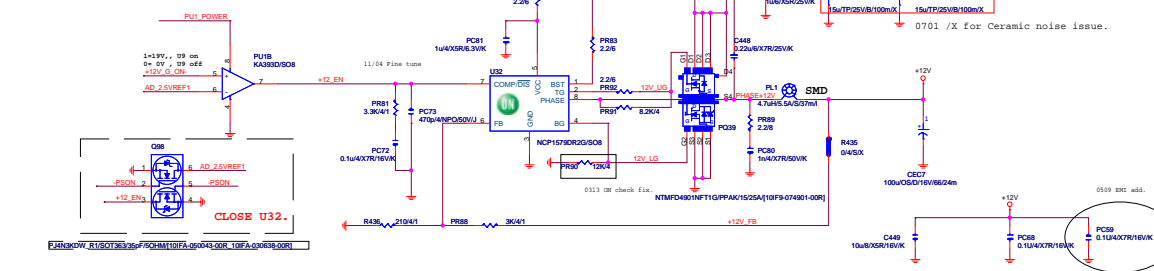
AD_5VSB

Voltage level : 5V
Max current : 100mA

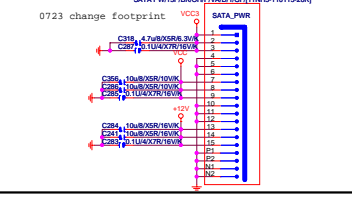


+12V

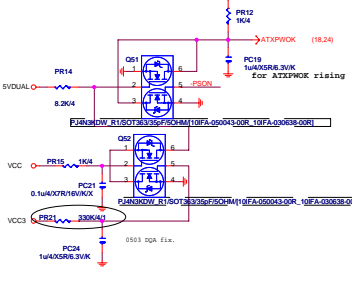
Voltage level : 12V
Max current : 3A



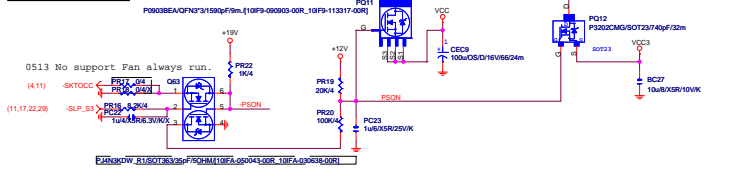
SATA PWRCON



ATXPWRCK

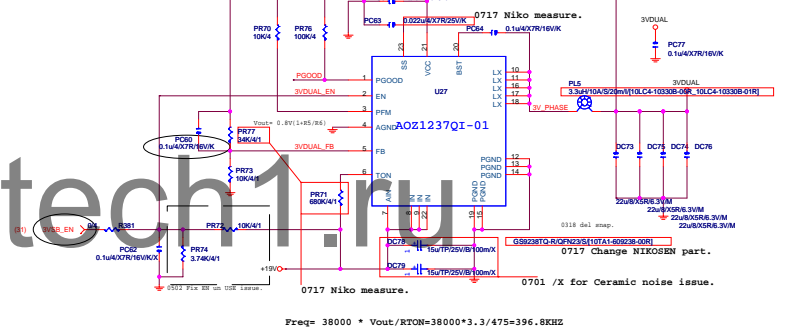


VCC, VCC3



3VDUAL

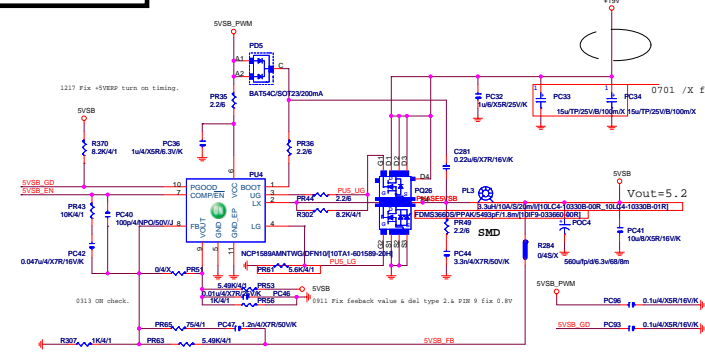
Voltage level : 3.3V
Max current : 5A



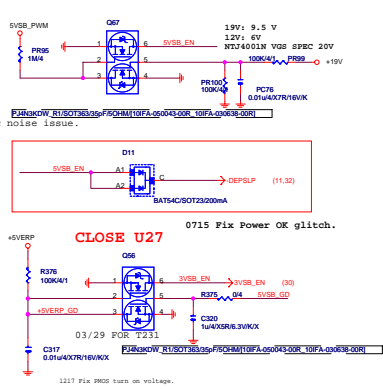
GIGABYTE TEHCHNOLOGIES, INC.

File	3VDUAL	Rev
Doc	Document Number	1.0
Part	GA-H87TN	
Date	Wednesday, July 31, 2013	Sheet 30 of 33

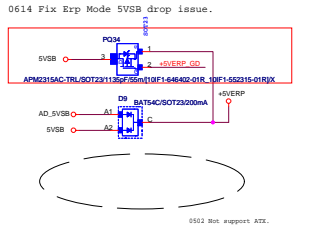
5VSB
Voltage level : 5V
Max current : 13A



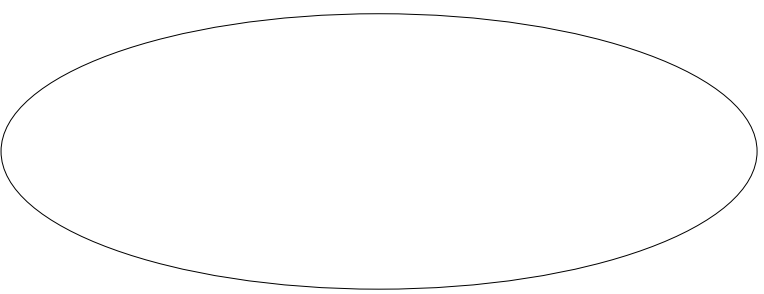
CLOSE PU4



+5VERP
Voltage level : 5V
Max current : 100mA



ATX 5VDUAL
Voltage level : 5V
Max current : 13A



ATX 3VDUAL
Voltage level : 3V
Max current : 13A



www.aitech1.ru

Version:1.0

[illegible][illegible]