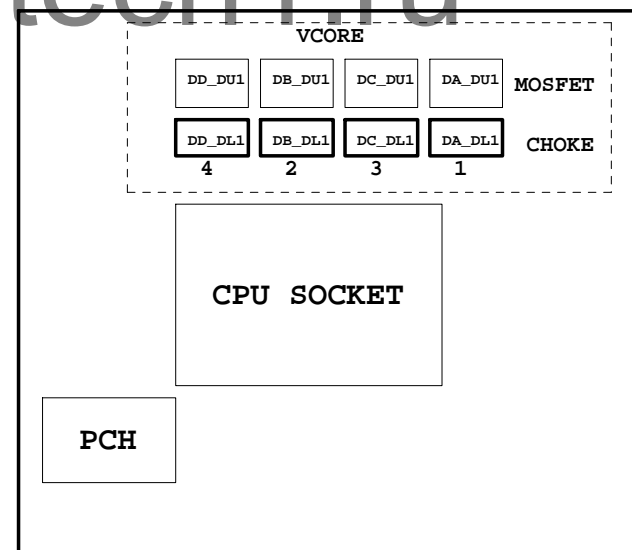


01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1_1/2/3 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT
20	Dual BIOS / R_USB30 / USB_DAC
21	ALC898 CODEC
22	REAR AUDIO JACK
23	AMPLIFIER
24	VCORE_ ISL95820_1
25	VCORE_ ISL95820_2
26	DDR15V / M3 POWER
27	DISCRETE POWER

28	F_PANEL , F_USB20/F_USB30
29	ATX POWER
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	VL805 USB30
33	HDMI
34	TABLE LIST
35	
36	
37	
38	
39	
40	



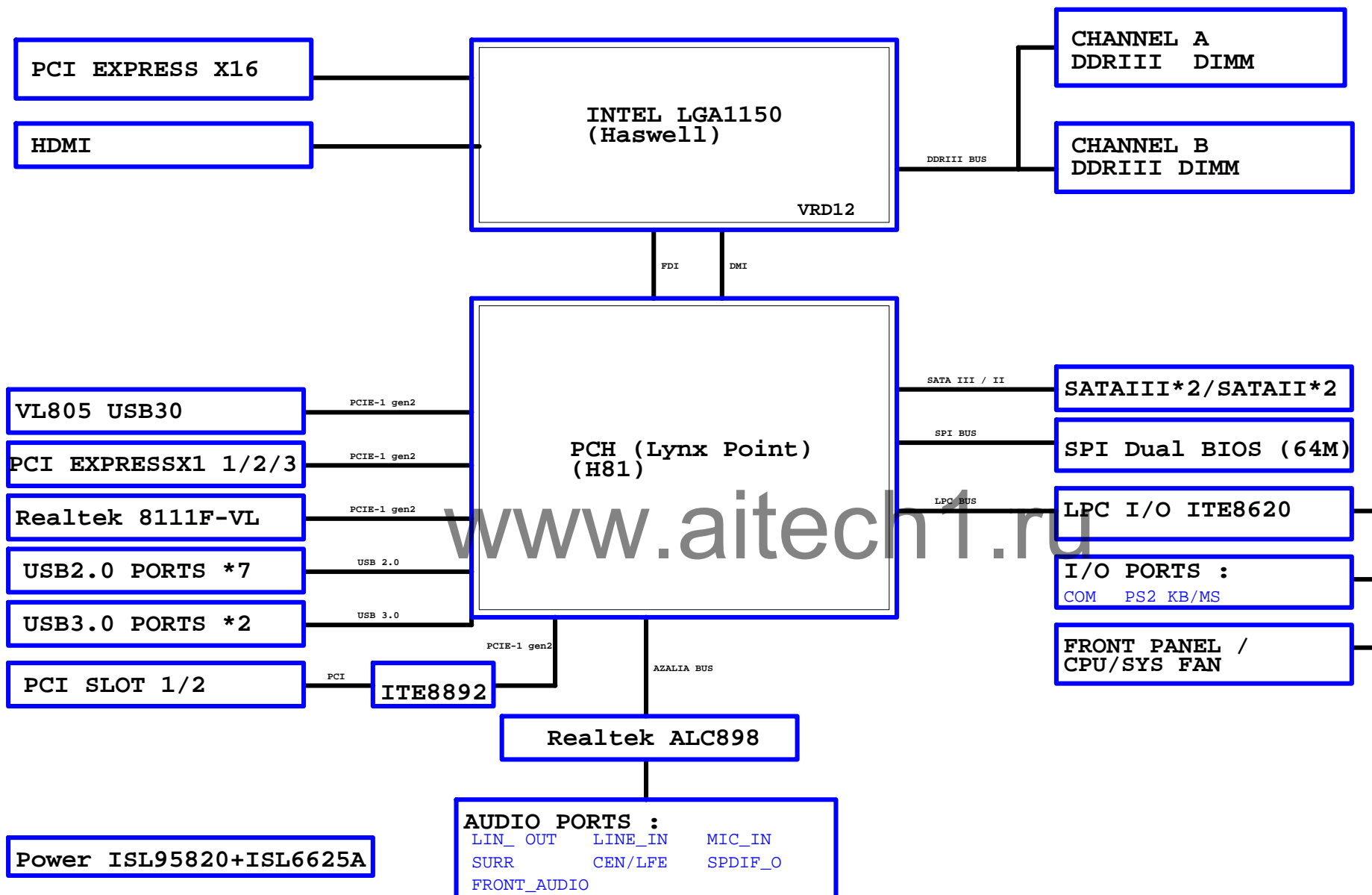
Gigabyte Technology

Version : 1.02

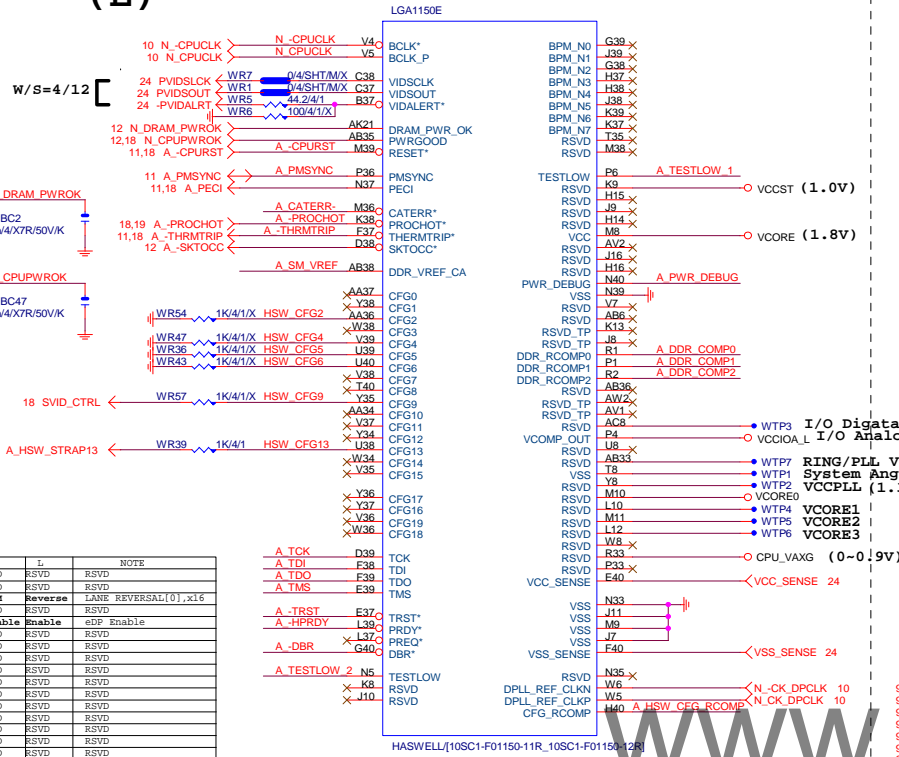
Circuit or PCB layout change

[illegible]

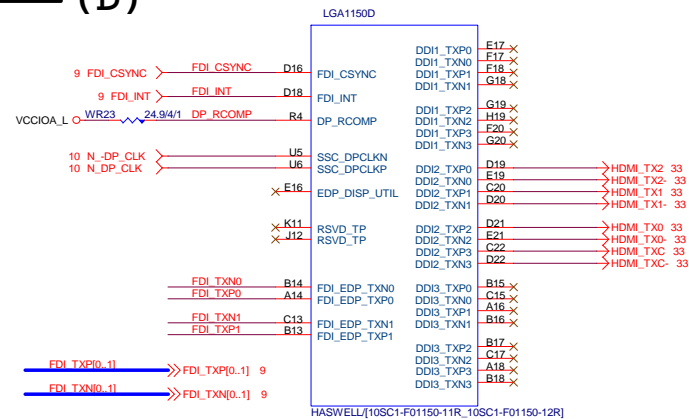
BLOCK DIAGRAM



LGA1150 (E)



LGA1150 (D)

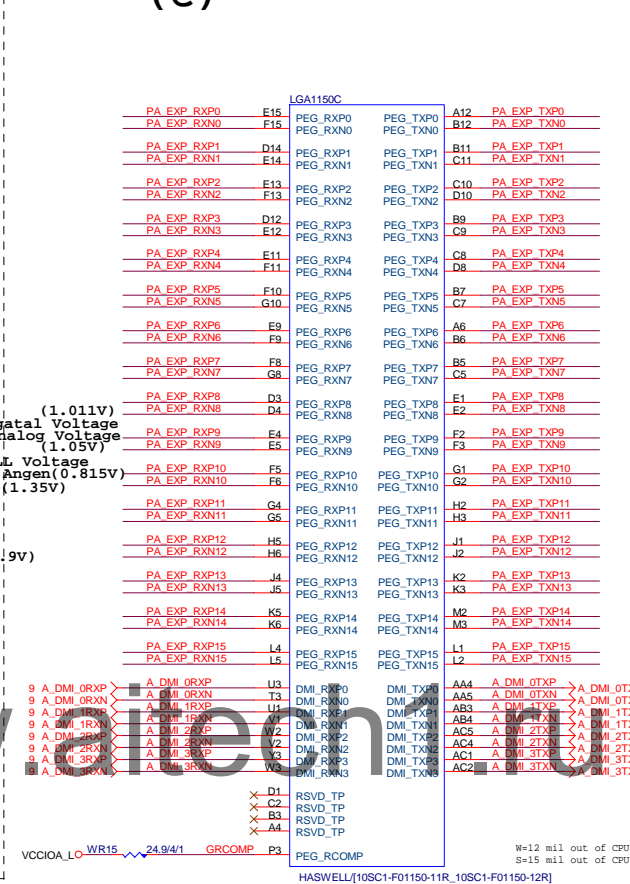


FDI:15/4/4/4/15(breakout min 4/4/4//8)
Impedance=85 +- 15%

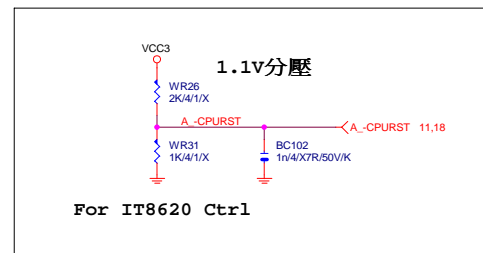
DP/HDMT 15/4/4/4//15 FDI 12/4/4/4/12

Impedance=85 +- 15%

LGA1155 (C)



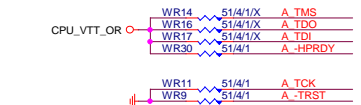
-CPURST



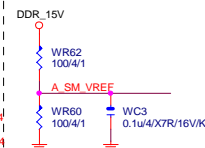
CPU SVID



CPU PU/PD



SM REF



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| THRMTRIP DISABLE FOR Z87 OVERCLOCK

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Gigabyte Technology

CPU LGA1150-A

GA-H81 AMP-UP

Rev	1.02
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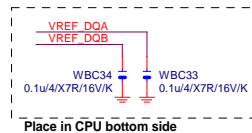
LGA1150 (A)

LGA1150A	
MAAA0 AU13	DDR0_MA0
MAAA1 AV16	DDR0_MA1
MAAA2 AU16	DDR0_MA2
MAAA3 AW17	DDR0_MA3
MAAA4 AU17	DDR0_MA4
MAAA5 AW18	DDR0_MA5
MAAA6 AV17	DDR0_MA6
MAAA7 AT18	DDR0_MA7
MAAA8 AU18	DDR0_MA8
MAAA9 AT19	DDR0_MA9
MAAA10 AW11	DDR0_MA10
MAAA11 AV19	DDR0_MA11
MAAA12 AU19	DDR0_MA12
MAAA13 AY10	DDR0_MA13
MAAA14 AT20	DDR0_MA14
MAAA15 AU21	DDR0_MA15
MODT_A0<-->MODT_A0 AW10	DDR0_ODT0
MODT_A1<-->MODT_A1 AW9	DDR0_ODT1
AW8	DDR0_ODT2
AW9	DDR0_ODT3
AW33	DDR0_ECC0
AW33	DDR0_ECC1
AU31	DDR0_ECC2
AU31	DDR0_ECC3
AU33	DDR0_ECC4
AU33	DDR0_ECC5
AT31	DDR0_ECC6
AW31	DDR0_ECC7
SBAA0<-->SBAA0 AY12	DDR0_BA0
SBAA1<-->SBAA1 AY11	DDR0_BA1
SBAA2<-->SBAA2 AT21	DDR0_BA2
CKEA0<-->CKEA0 AV22	DDR0_CKE0
CKEA1<-->CKEA1 AT23	DDR0_CKE1
AU22	DDR0_CKE2
AU23	DDR0_CKE3
CSA0<-->CSA0 AU14	DDR0_CS_N0
CSA1<-->CSA1 AV9	DDR0_CS_N1
AU10	DDR0_CS_N2
AW8	DDR0_CS_N3
DCLKA0<-->DCLKA0 AY15	DDR0_CLK_P0
DCLKA0<-->DCLKA0 AY16	DDR0_CLK_N0
DCLKA1<-->DCLKA1 AW15	DDR0_CLK_P1
DCLKA1<-->DCLKA1 AW15	DDR0_CLK_N1
AU14	DDR0_CLK_P2
AU14	DDR0_CLK_N2
AW13	DDR0_CLK_P3
AW13	DDR0_CLK_N3
AW12	RSVD
SRASA<-->SRASA AU12C	DDR0_RAS*
SWEA<-->SWEA AU11C	DDR0_WE*
AW20	RSVD
AW27C	RSVD
SCASA<-->SCASA AU9C	DDR0_CAS*
WR61	DDR_RESET
D4/SH/TMX	
WC4	
0.1u/4/X7R/16V/K/X	

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

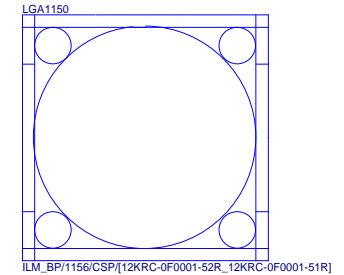
LGA1150 (B)

LGA1150B	
MAAB0 AL19	DDR1_MA0
MAAB1 AK23	DDR1_MA1
MAAB2 AM22	DDR1_MA2
MAAB3 AM23	DDR1_MA3
MAAB4 AP23	DDR1_MA4
MAAB5 AL23	DDR1_MA5
MAAB6 AY24	DDR1_MA6
MAAB7 AV25	DDR1_MA7
MAAB8 AU26	DDR1_MA8
MAAB9 AV25	DDR1_MA9
MAAB10 MDA13	DDR1_MA10
MAAB11 AY25	DDR1_MA11
MAAB12 AV26	DDR1_MA12
MAAB13 AR15	DDR1_MA13
MAAB14 AV27	DDR1_MA14
MAAB15 AY28	DDR1_MA15
MODT_B0<-->MODT_B0 AM17	DDR1_ODT0
MODT_B1<-->MODT_B1 AL16	DDR1_ODT1
AM16	DDR1_ODT2
AK15	DDR1_ODT3
AM26	DDR1_ECC0
AM25	DDR1_ECC1
AP25	DDR1_ECC2
AP26	DDR1_ECC3
AL26	DDR1_ECC4
AL25	DDR1_ECC5
AR26	DDR1_ECC6
AR25	DDR1_ECC7
SBAB0<-->SBAB0 AK17	DDR1_BA0
SBAB1<-->SBAB1 AL18	DDR1_BA1
SBAB2<-->SBAB2 AW28	DDR1_BA2
CKEB0<-->CKEB0 AW29	DDR1_CKE0
CKEB1<-->CKEB1 AU28	DDR1_CKE1
AU29	DDR1_CKE2
CSB0<-->CSB0 AP17	DDR1_CS_N0
CSB1<-->CSB1 AM15	DDR1_CS_N1
AM17	DDR1_CS_N2
AL15	DDR1_CS_N3
DCLKB0<-->DCLKB0 AM20	DDR1_CLK_P0
DCLKB0<-->DCLKB0 AM21	DDR1_CLK_N0
DCLKB1<-->DCLKB1 AP22	DDR1_CLK_P1
DCLKB1<-->DCLKB1 AP21	DDR1_CLK_N1
AN20	DDR1_CLK_P2
AN21	DDR1_CLK_N2
AP19	DDR1_CLK_P3
AP20	DDR1_CLK_N3
SCASB<-->SCASB AP16C	DDR1_CAS*
SRASB<-->SRASB AL20	RSVD
SWEB<-->SWEB AK16C	DDR1_RAS*
AWEB	DDR1_WE*
VREF_DOA<-->VREF_DOA AB39	DDR_VREF_DQ0
VREF_DQB<-->VREF_DQB AB40	DDR_VREF_DQ1
DQSA0<-->DQSA0 AP33	DDR1_DQS_P0
DQSA1<-->DQSA1 AN39	DDR1_DQS_P1
DQSA2<-->DQSA2 AN39	DDR1_DQS_P2
DQSA3<-->DQSA3 AV36	DDR1_DQS_P3
DQSA4<-->DQSA4 AV36	DDR1_DQS_P4
DQSA5<-->DQSA5 AP3	DDR1_DQS_P5
DQSA6<-->DQSA6 AK3	DDR1_DQS_P6
DQSA7<-->DQSA7 AF3	DDR1_DQS_P7
AV32	DDR1_DQS_P8
AE38	DDR1_DQS_N0
AJ38	DDR1_DQS_N1
AN38	DDR1_DQS_N2
AU36	DDR1_DQS_N3
AW5	DDR1_DQS_N4
AP2	DDR1_DQS_N5
AK2	DDR1_DQS_N6
AF2	DDR1_DQS_N7
AU32	DDR1_DQS_N8



HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150 (CR)



DDR BUS

7 MDA[0.63]	MDA0_63
8 MDB[0.63]	MDB0_63
7 DQSA[0..7]	DQSA0_7
7 -DQSA[0..7]	-DQSA0_7
7 MAA[0..15]	MAA0_15
8 MAAB[0..15]	MAAB0_15
8 DQSB[0..7]	DQSB0_7
8 -DQSB[0..7]	-DQSB0_7

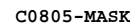
Gigabyte Technology

Title		CPU LGA1150-B	
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Document Number		1.02	
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Sheet		5 of 34	

(F, J)



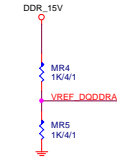
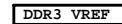
(X18)



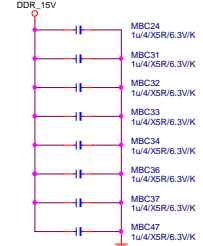
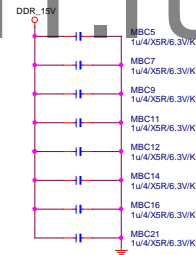
(x9)



Title				CPU LGA1150-C			
Size	Document Number					Rev	
Custom	GA-H81_AMP-UP						1.02
Date:	Tuesday, November 05, 2013			Sheet	6	of	34



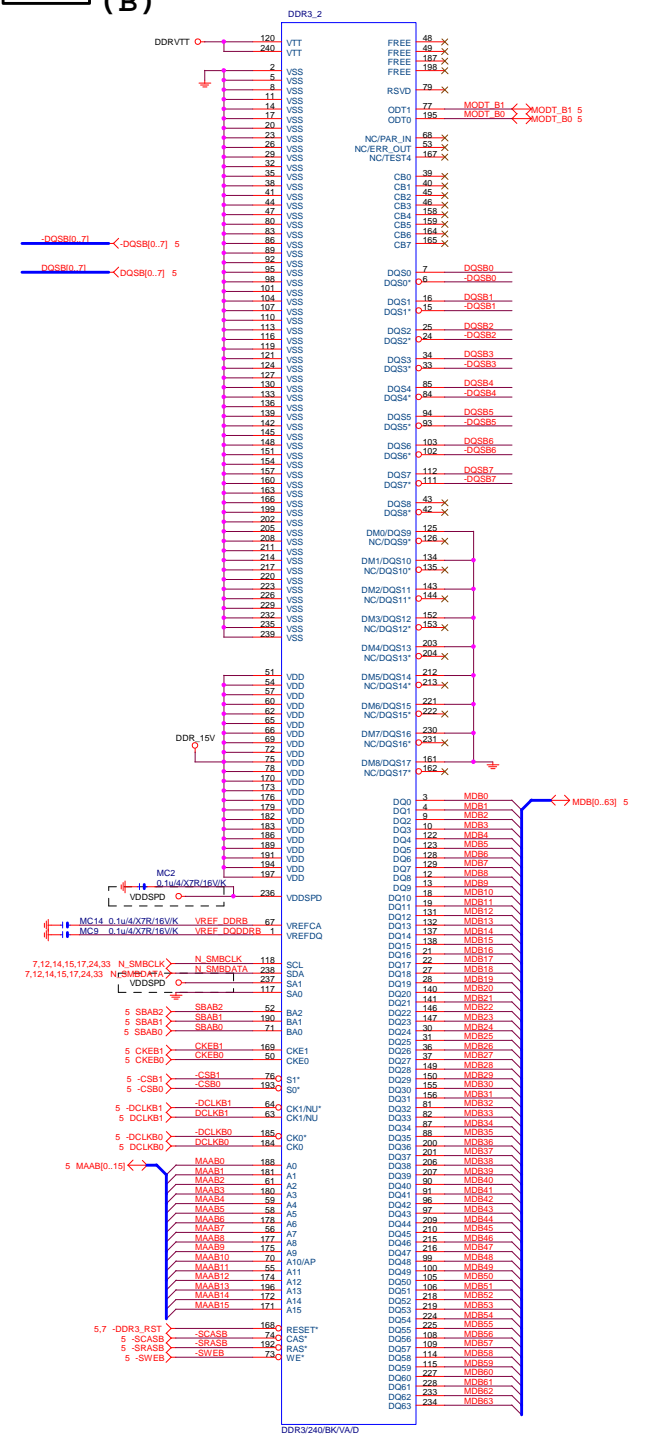
DDRVTT Decouple



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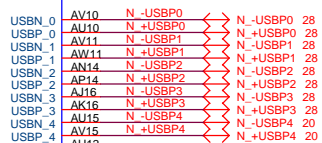
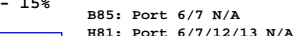
DDR3

(B)

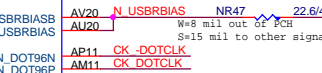
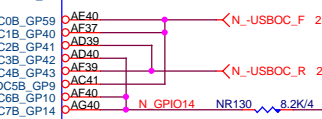
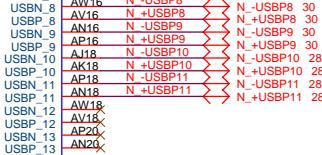
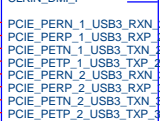


(B)

USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)
Impedance=85 +- 15%



385/H81 • 6/7 N/A



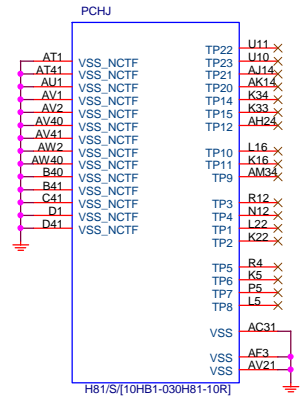
H81/S/I10HB1-030H81-10R]

PCH PCIE ,DMI 15/4/4/4//15 Impedance=85 +- 15%

usb2.0 12/5/7/5/12
usb3.0 20/5/7/5/20

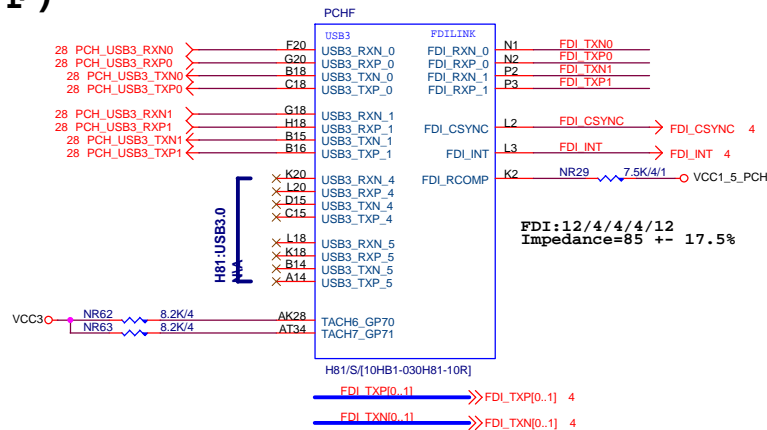
Impedance=85 +- 15%

(J)

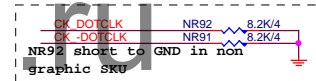
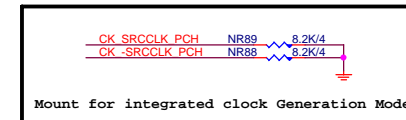


H81:PCIE 7/8

(F)

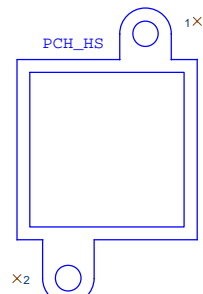


USB3.0:20/5/7/5/20 (breakout min
8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS



PCH H/S

LOW COST PCH HEATSINK



NEW H81 MODEL
Footprint: BGAHSINK-75;
3mm孔徑

HEAT SINK/N-BG/GBT MK/Z87/KWOG/[12SP2-S04208-61R_12SP2-S04208-62R_12SP2-S04208-63R]

USB TABLE

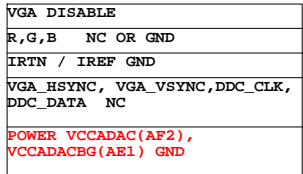
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

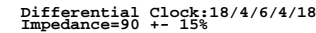
Gigabyte Technology

Title				PCH FDI,DMI,USB ,PCIE			
Size	Document Number					Rev	
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(E)



(G)



PCH	CLK	PD
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VGA DDC

VGA ESD

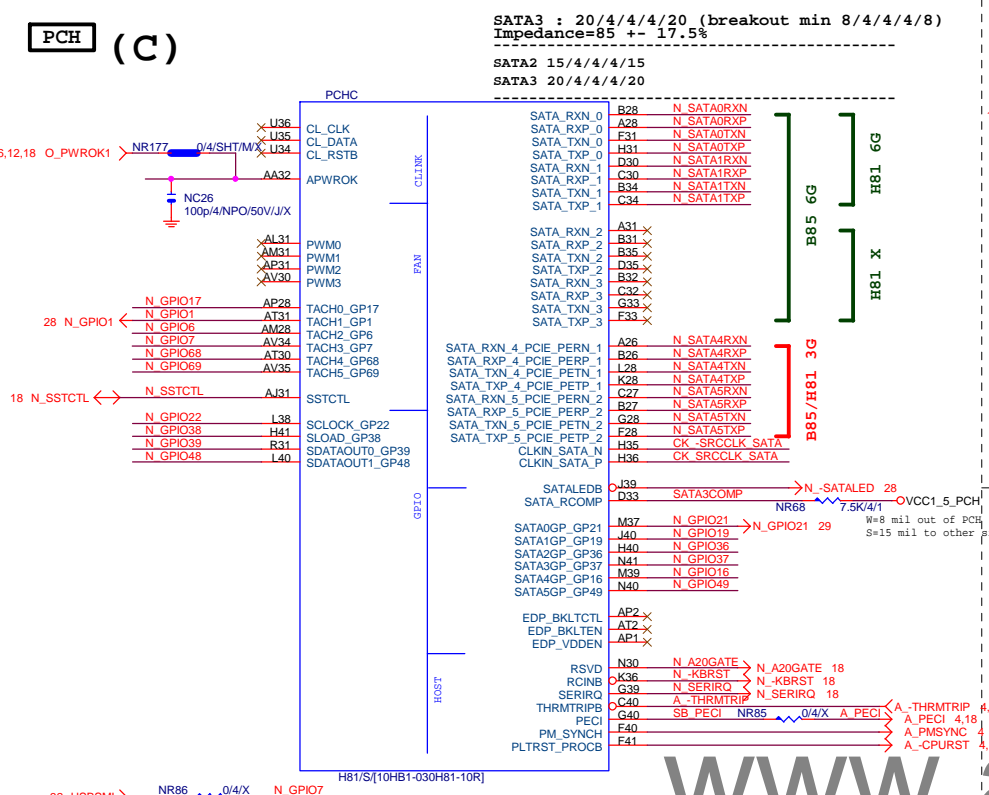
VGA DDC

VGA DDC

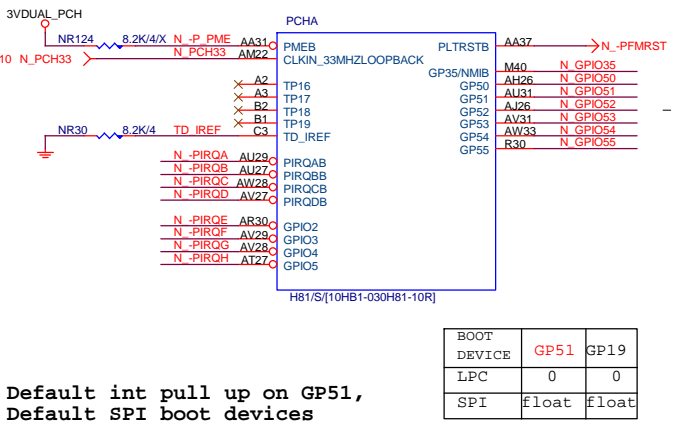
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VGA CONNECTOR

PCH (C)



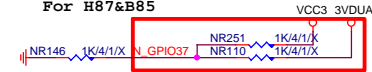
PCH (A)



Default int pull up on GP51,
 Default SPI boot devices

ME PWROK

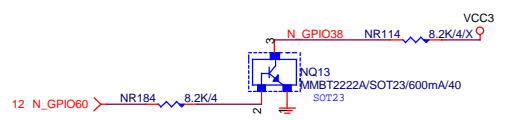
GPIO37 PU ENABLE SBA
 For H87&B85



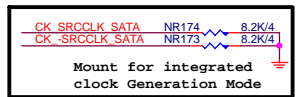
GPIO38 Ctrl

MFG Mode

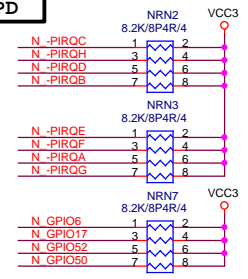
N_GPIO38 : Lo --> Enable
 Hi --> Disable



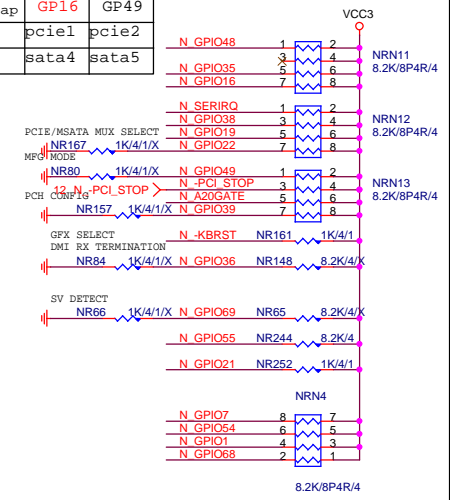
PCH CLK PD



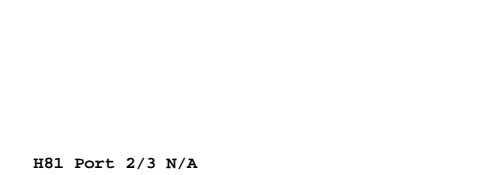
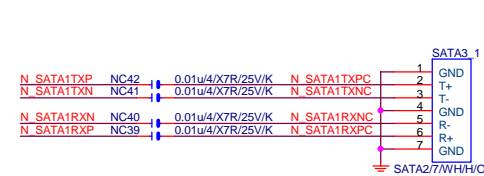
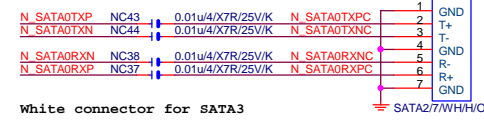
PCH PU/PD



soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5



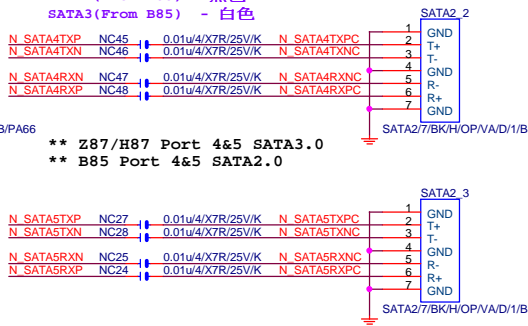
SATA CONNECTOR



H81 Port 2/3 N/A

[Z87/H87] all SATA3
 SATA3(From Z87) - 黑色
 SATA3(From Marvell) - 灰色
 [B85] SATA2+SATA3
 SATA2(From B85) - 黑色
 SATA3(From B85) - 白色

** Z87/H87 Port 4&5 SATA3.0
 ** B85 Port 4&5 SATA2.0



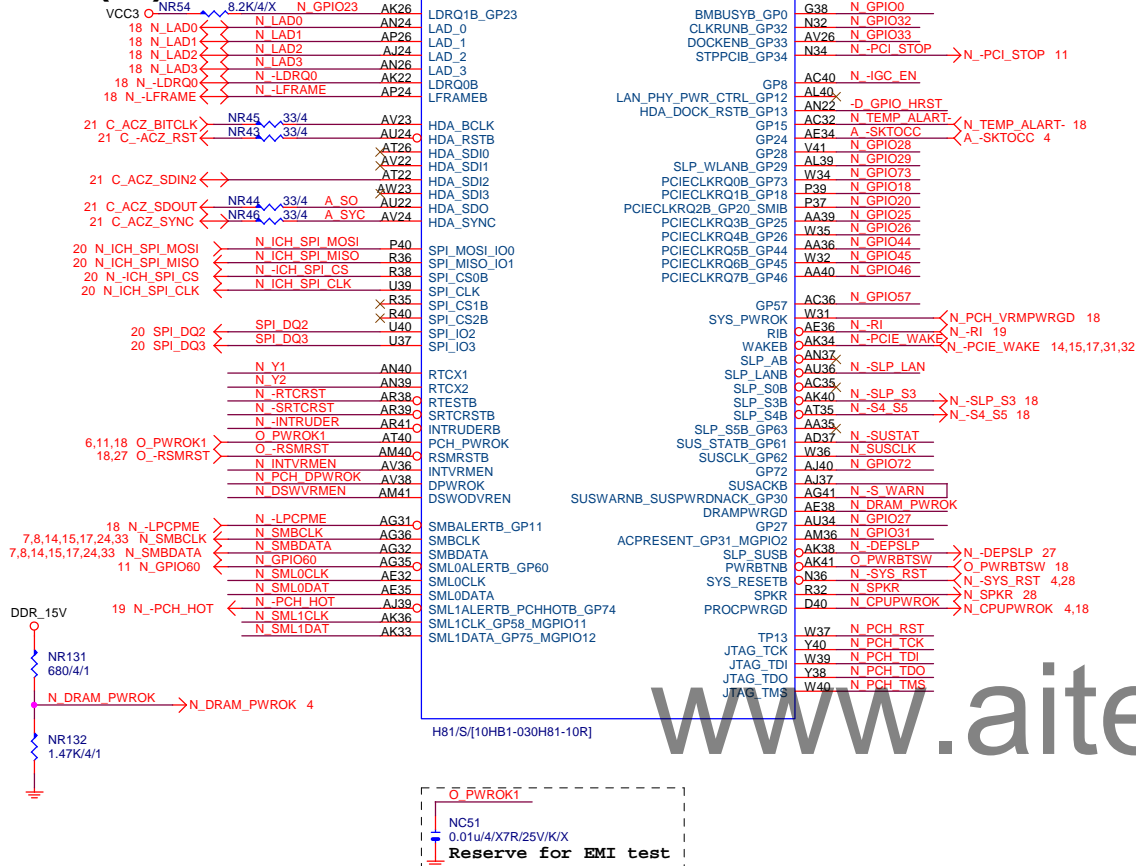
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Gigabyte Technology

PCH HOST , SATA, PCI		
Size	Document Number	Rev
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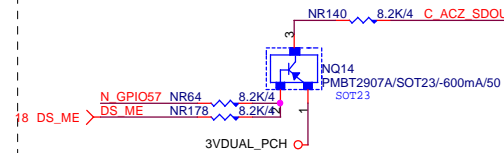
PCH

(D)

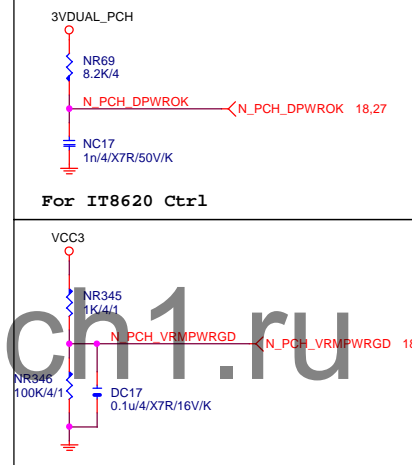


ACZ_SDOUT

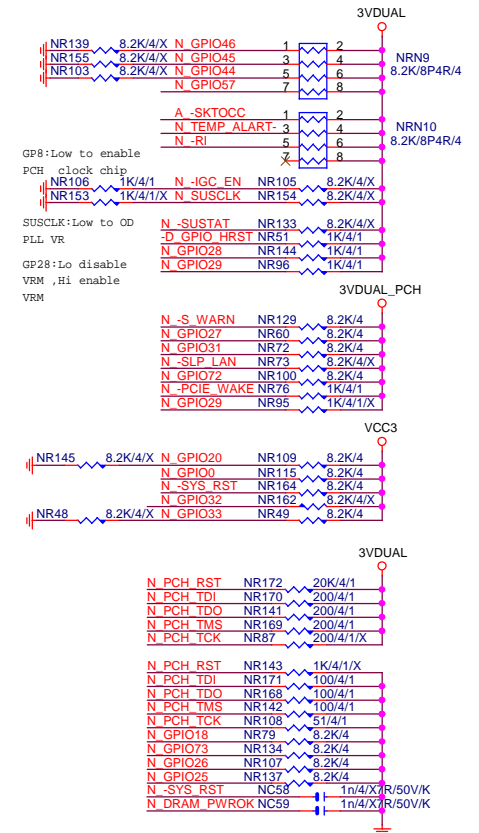
C_ACZ_SDOUT : HI --> ME Enable
 Lo --> ME Disable
 HI:disable ME and override SPI Flash Access Permissions



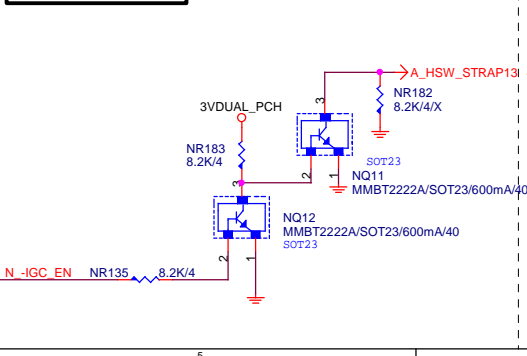
PCH_DPWROK



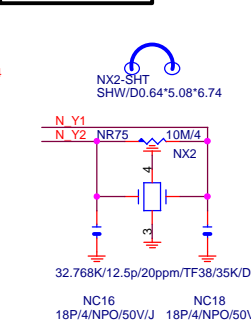
PCH PU/PD



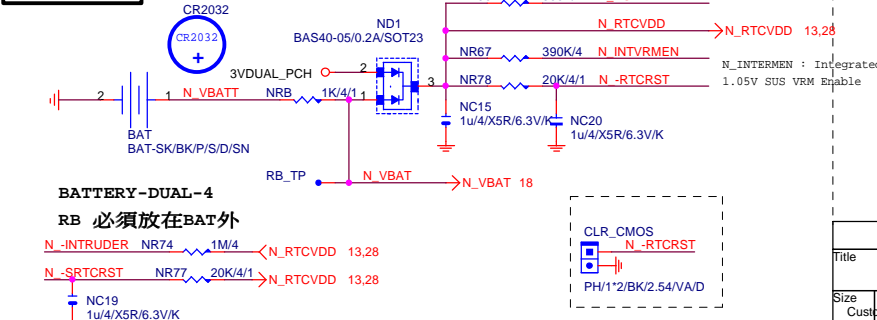
HSW_STRAP13



32.768KHZ



CLR_CMOS

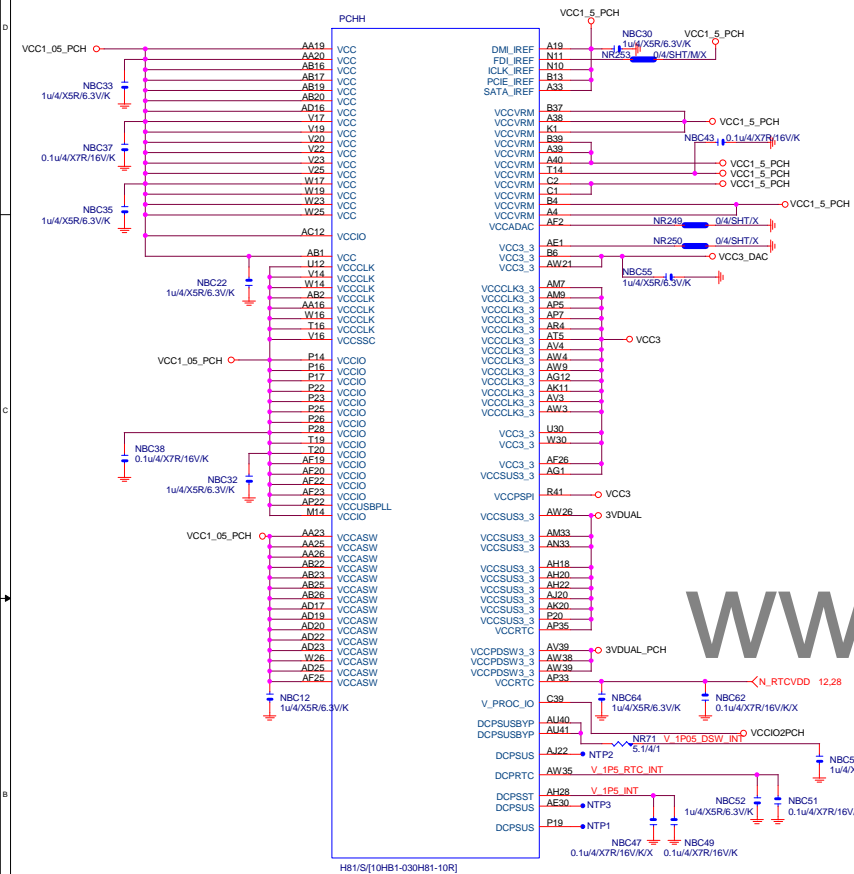


Gigabyte Technology

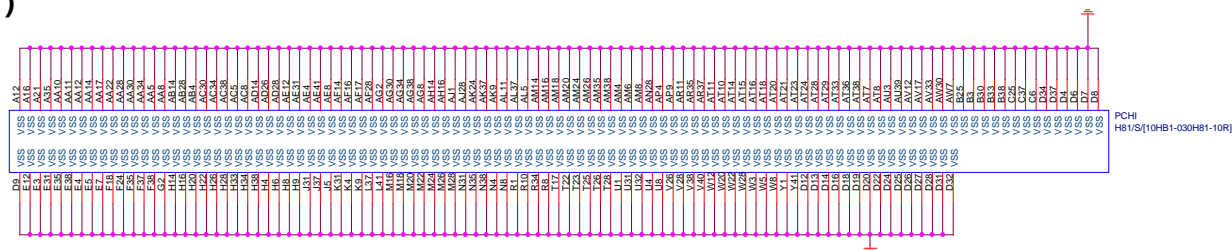
PCH GPIO , CTRL , AUDIO

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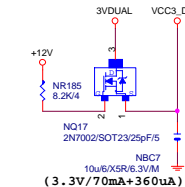
PCH (H)



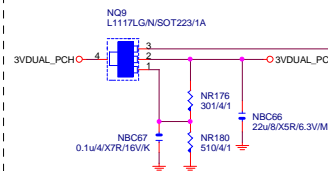
PCH (I)



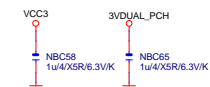
VCC3_DAC



3VDUAL_PCH

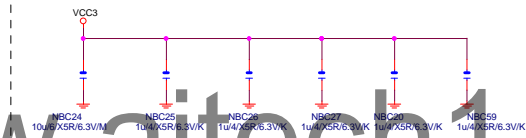


SHT PWR

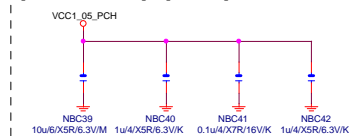


CAP

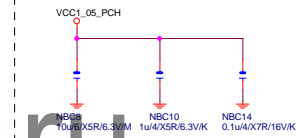
(3.3V) (X6)



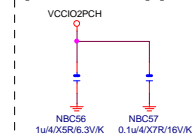
(1.05V) (x6)



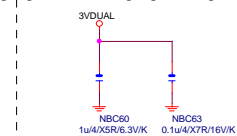
(1.05V) (x5)



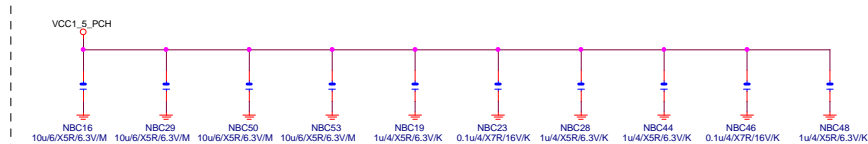
(1.05V)(x2) (3.3V) (x2)



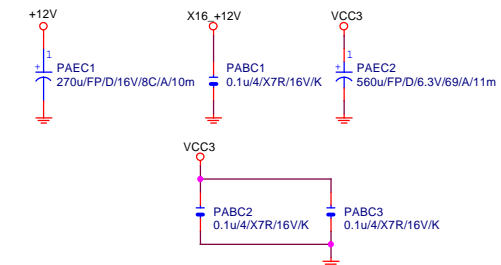
)(3.3V) (x2)



(1.5V) (x10)

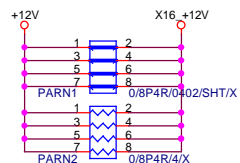


PCIEX16 CAP



PCIEX16 PROTECT SHT

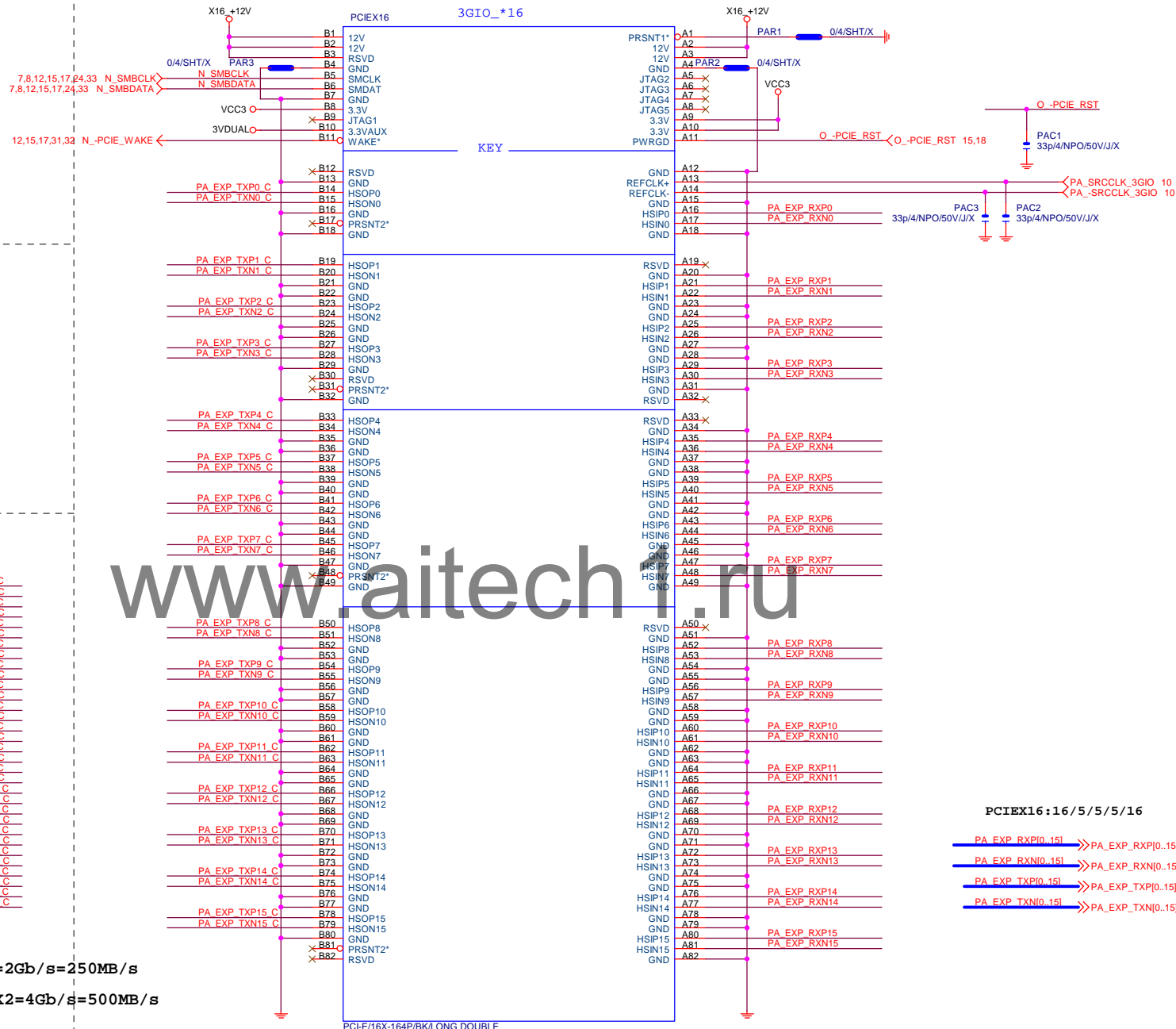
+12 protect short-wire test



PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u4/X5R6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u4/X5R6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R6.3V/K	PA EXP TXN15 C

PCIEX16 SLOT



PCI-E REV:1.1--> 2.5GHZ

PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

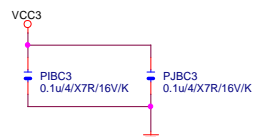
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

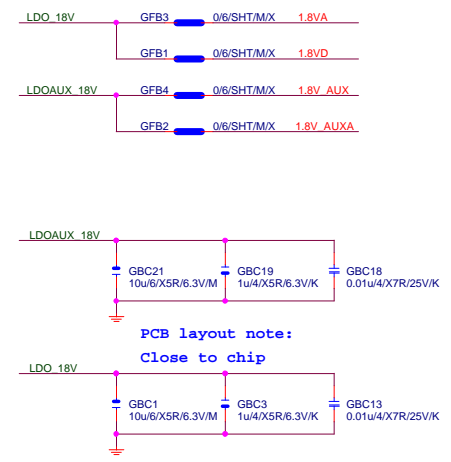
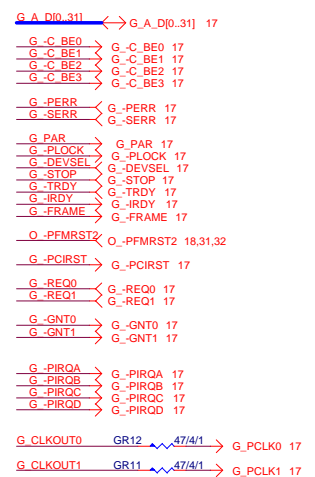
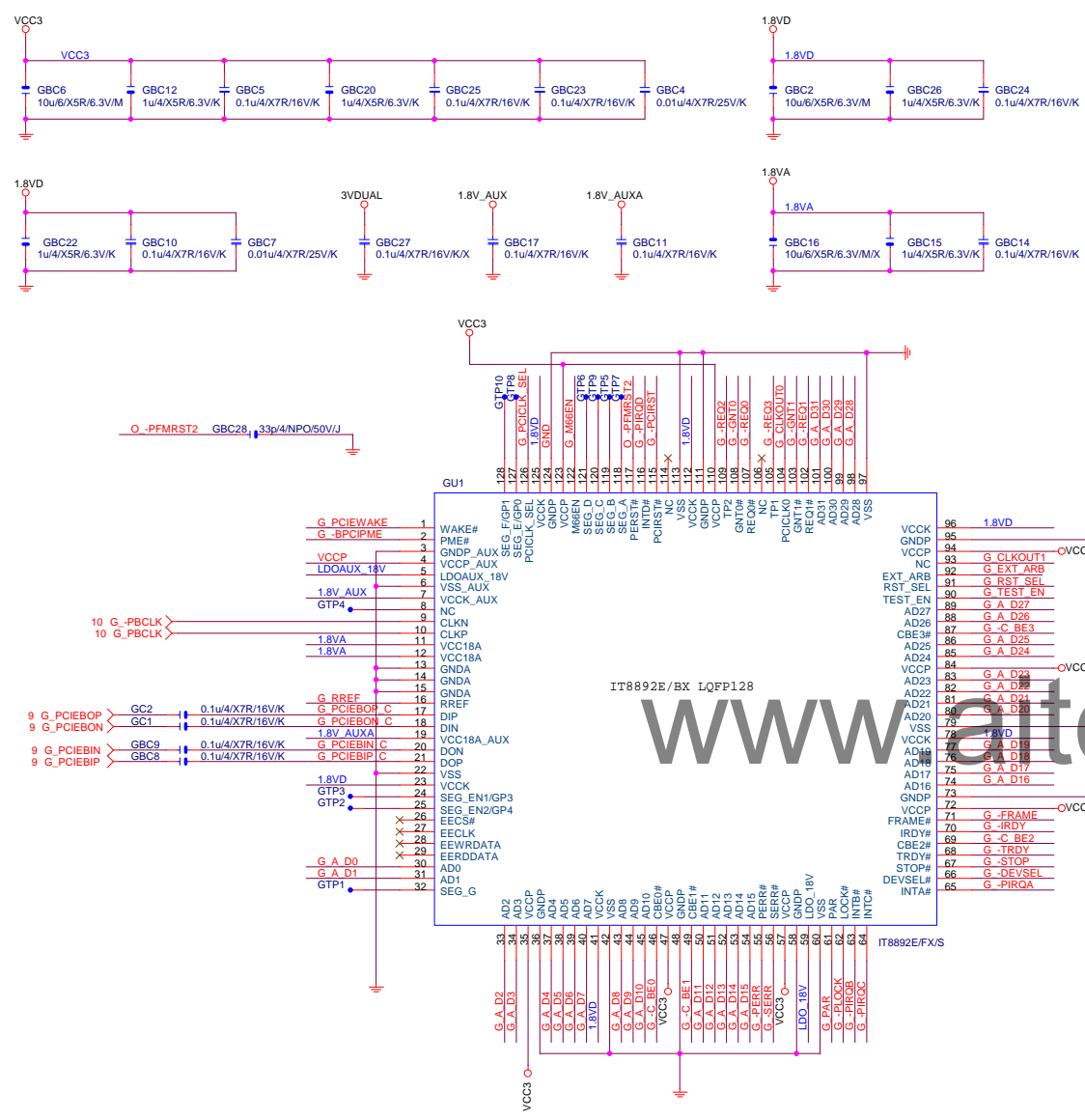
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

Gigabyte Technology

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PCI EXPRESS * 16			
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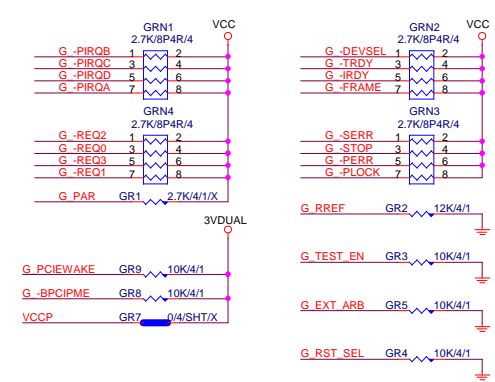




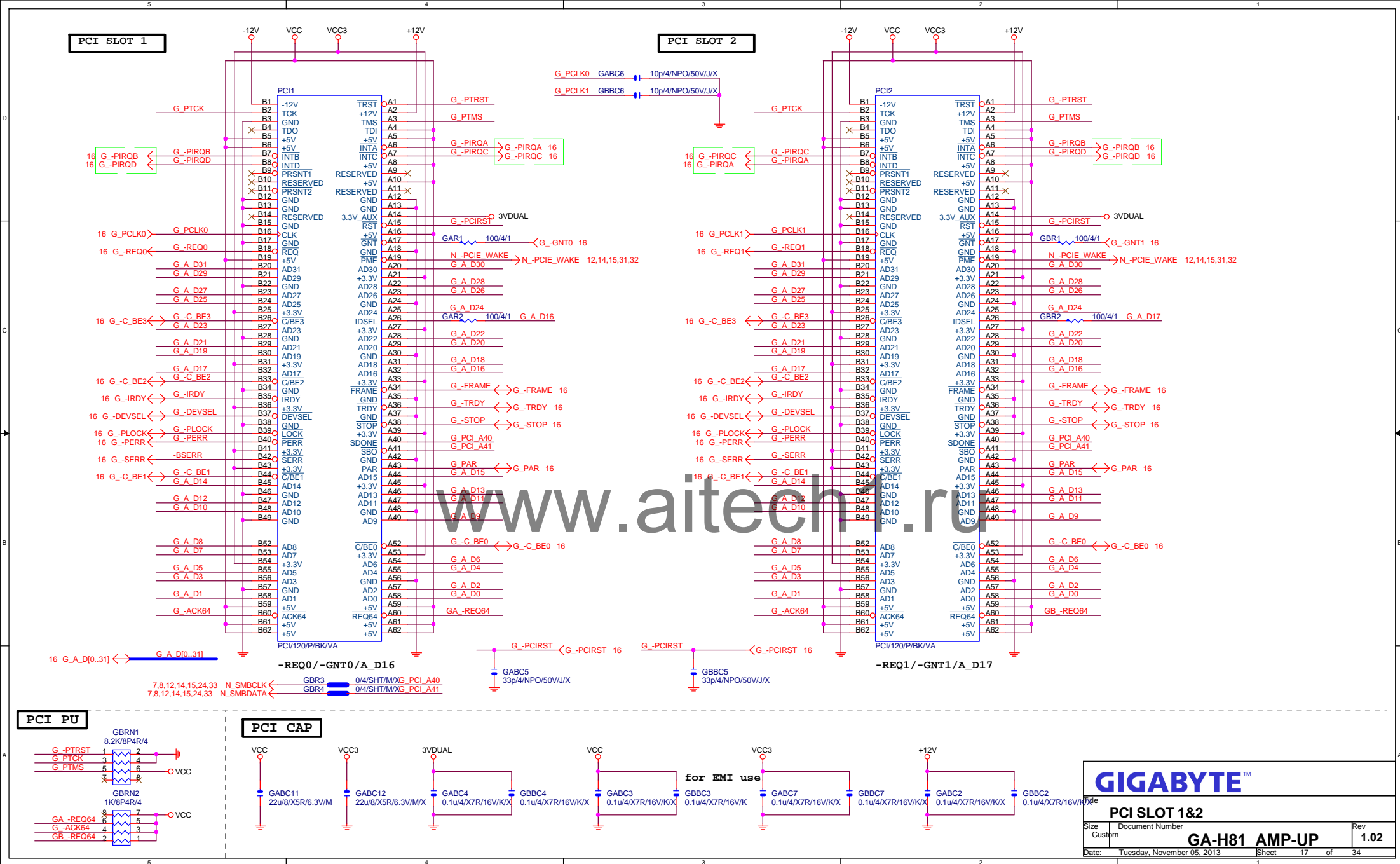
PCB layout note:
Close to chip

High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

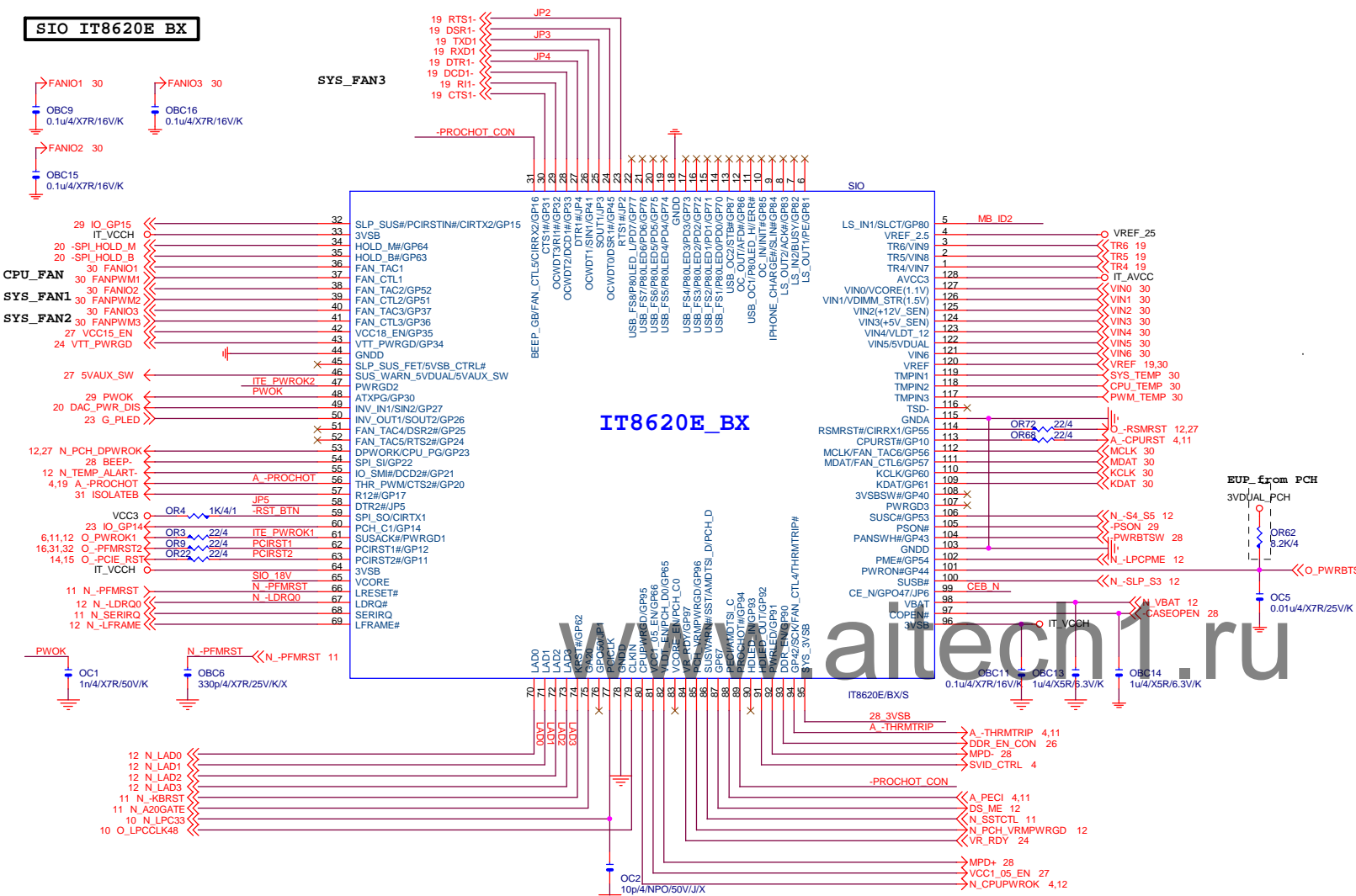
High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip



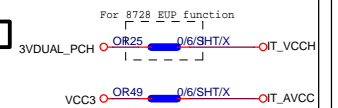
Gigabyte Technology			
IT8892E			
Size	Document Number	Rev	1.02
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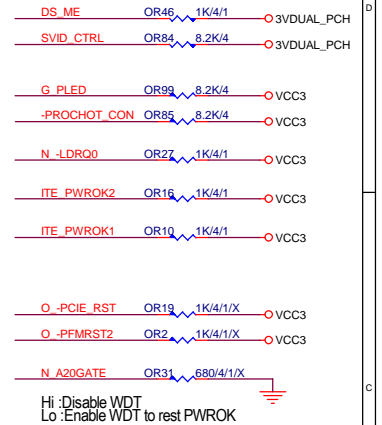
SIO IT8620E BX



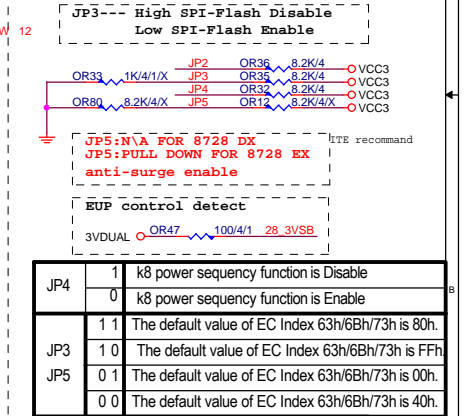
PWR SHT



SIO PU



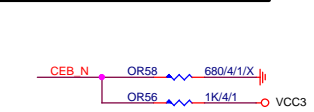
SIO STRAP



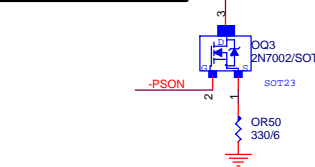
IT8728F NOTE

IT8728F	
PIN121	VCORE_EN/PCH_C0
PIN120	VLDI_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSTI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSTI_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

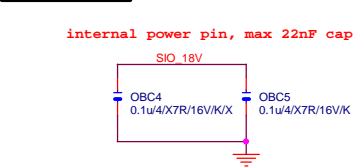
DUAL BIOS OPT STRAP



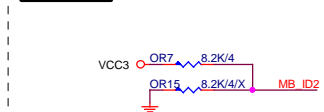
Power leakage



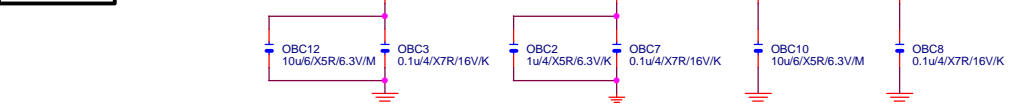
SIO_18V



MB ID



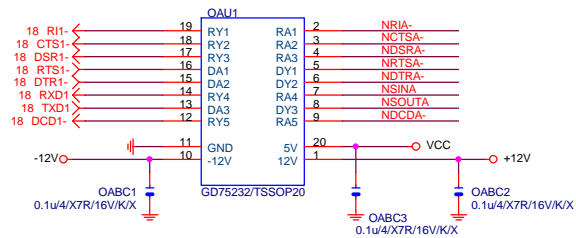
SIO CAP



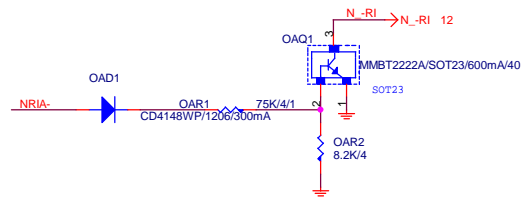
Gigabyte Technology

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ITE 8620 LPC IO		
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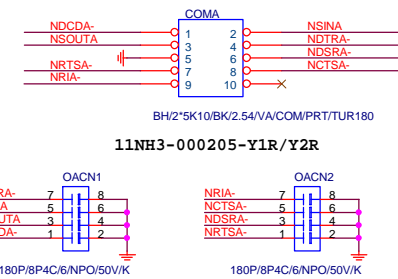
COMA



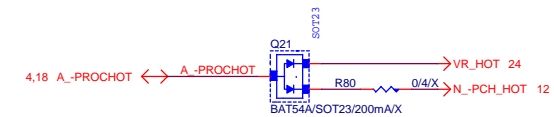
COM RI



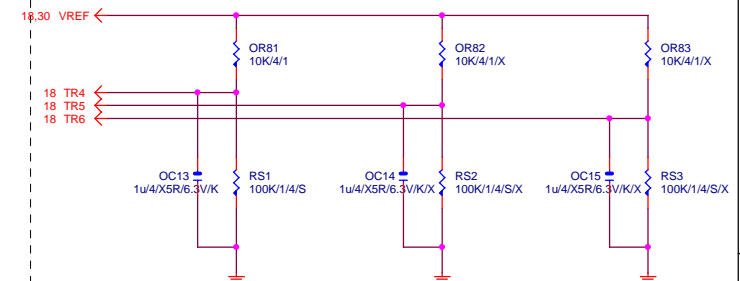
COM BUFFER



-PROHOT



PROHOT



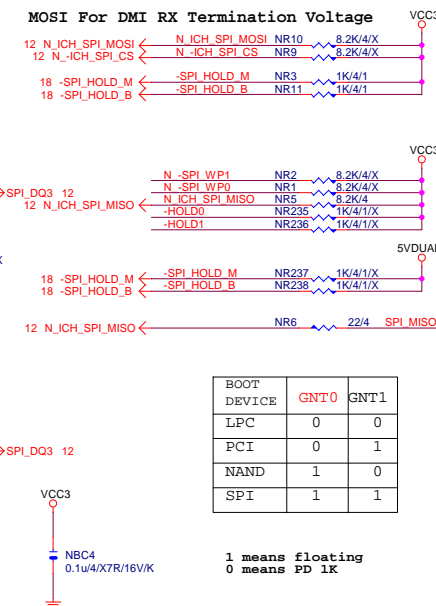
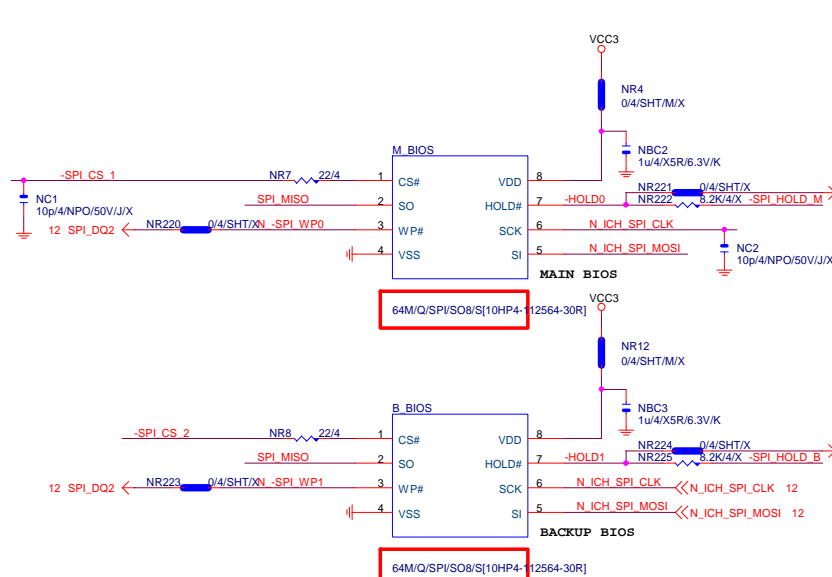
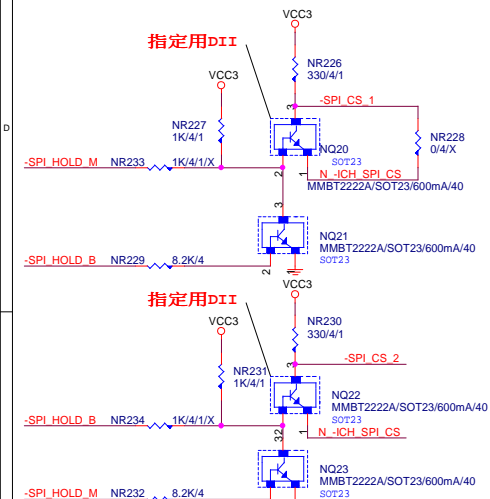
RS1 close DBQ1 \\
 RS2 close DDQ1 \\
 RS3 close DAQ1 \\
 Others close SIO

Gigabyte Technology

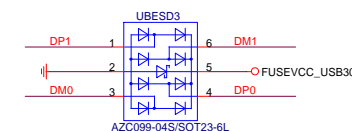
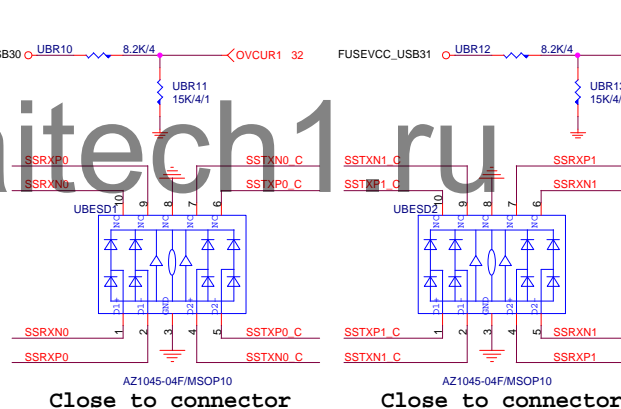
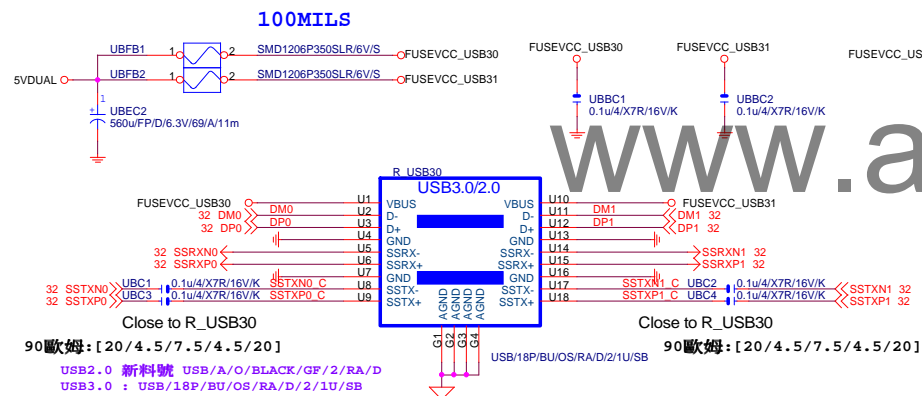
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DUAL BIOS

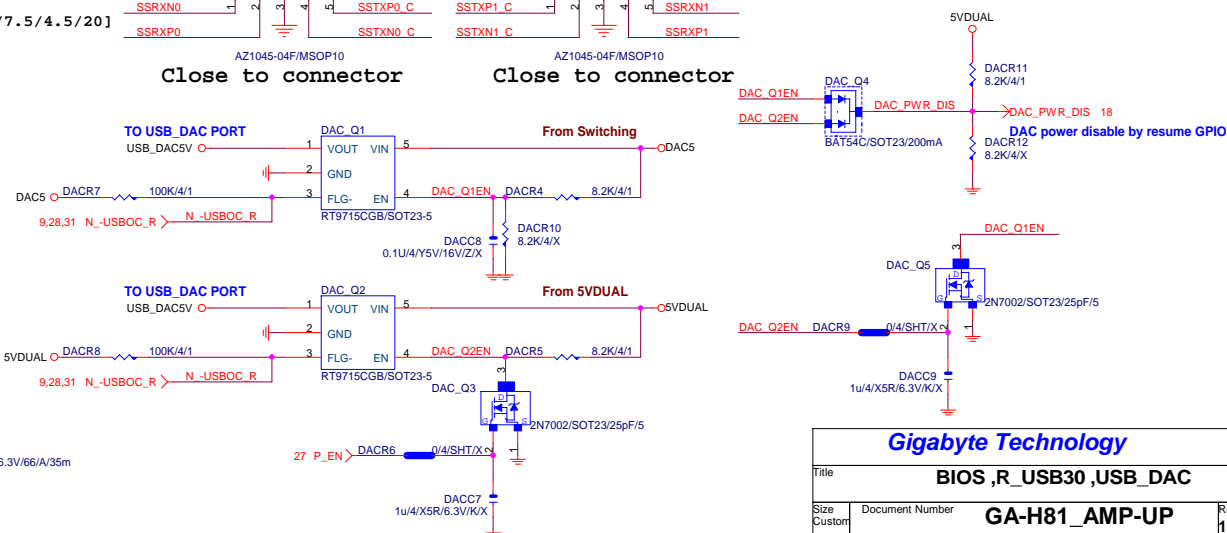
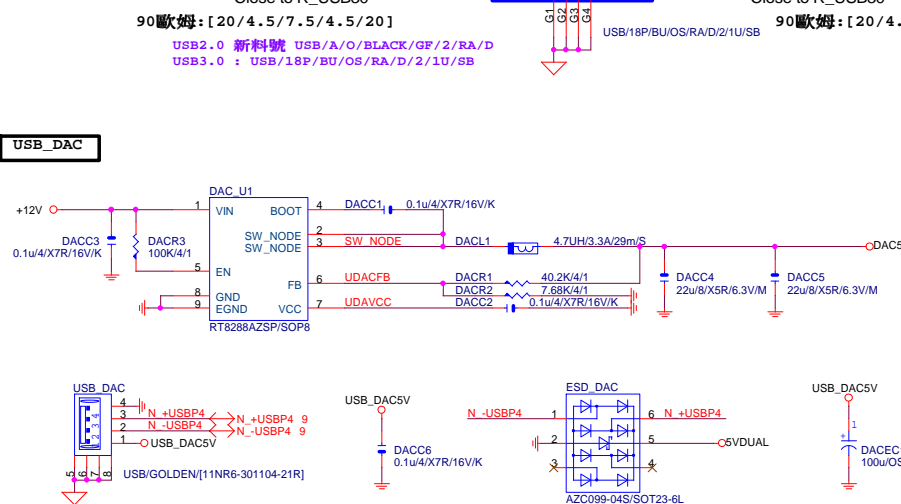


R_USB3.0



Close to connector

USB_DAC

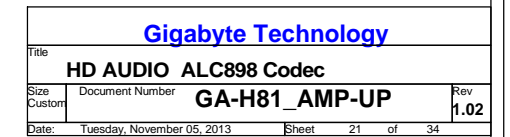


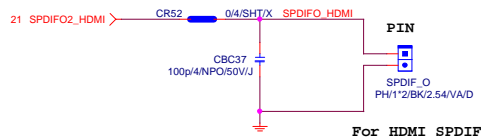
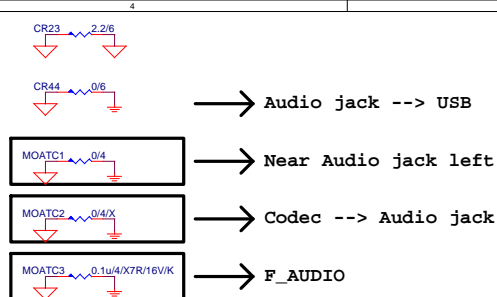
Gigabyte Technology

BIOS ,R USB30 ,USB DAC

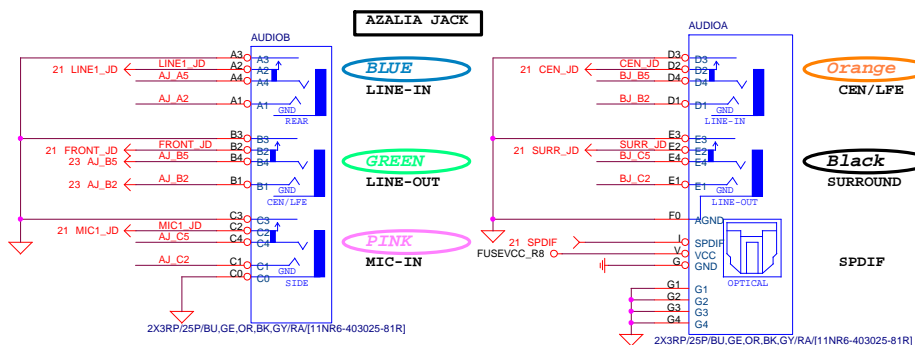
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CEC11 220uF/MW/[11CE1-852200101R]





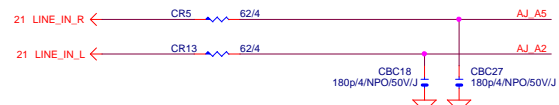
AZALIA JACK BTX AZALIA CONNECTOR



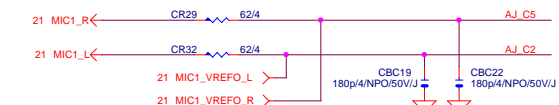
LINE-OUT



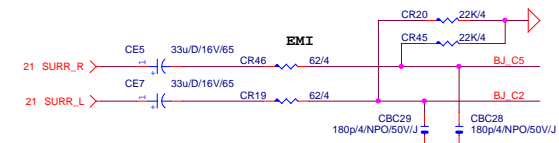
LINE-IN



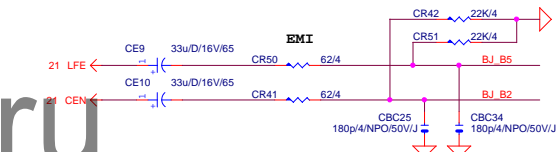
MIC-IN



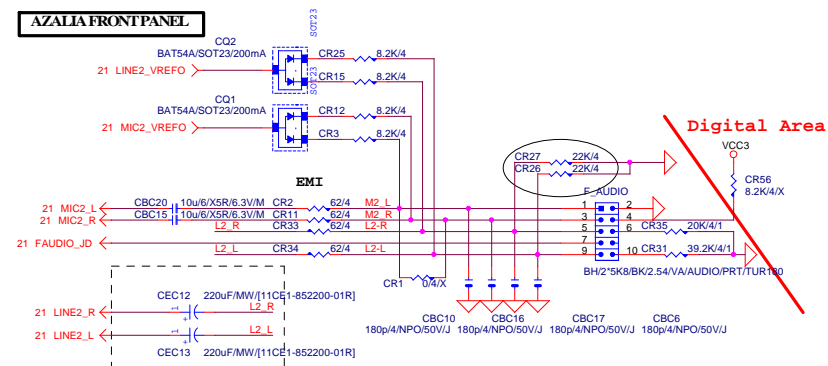
SURROUND



CEN/LFE



AZALIA FRONT PANEL



Gigabyte Technology

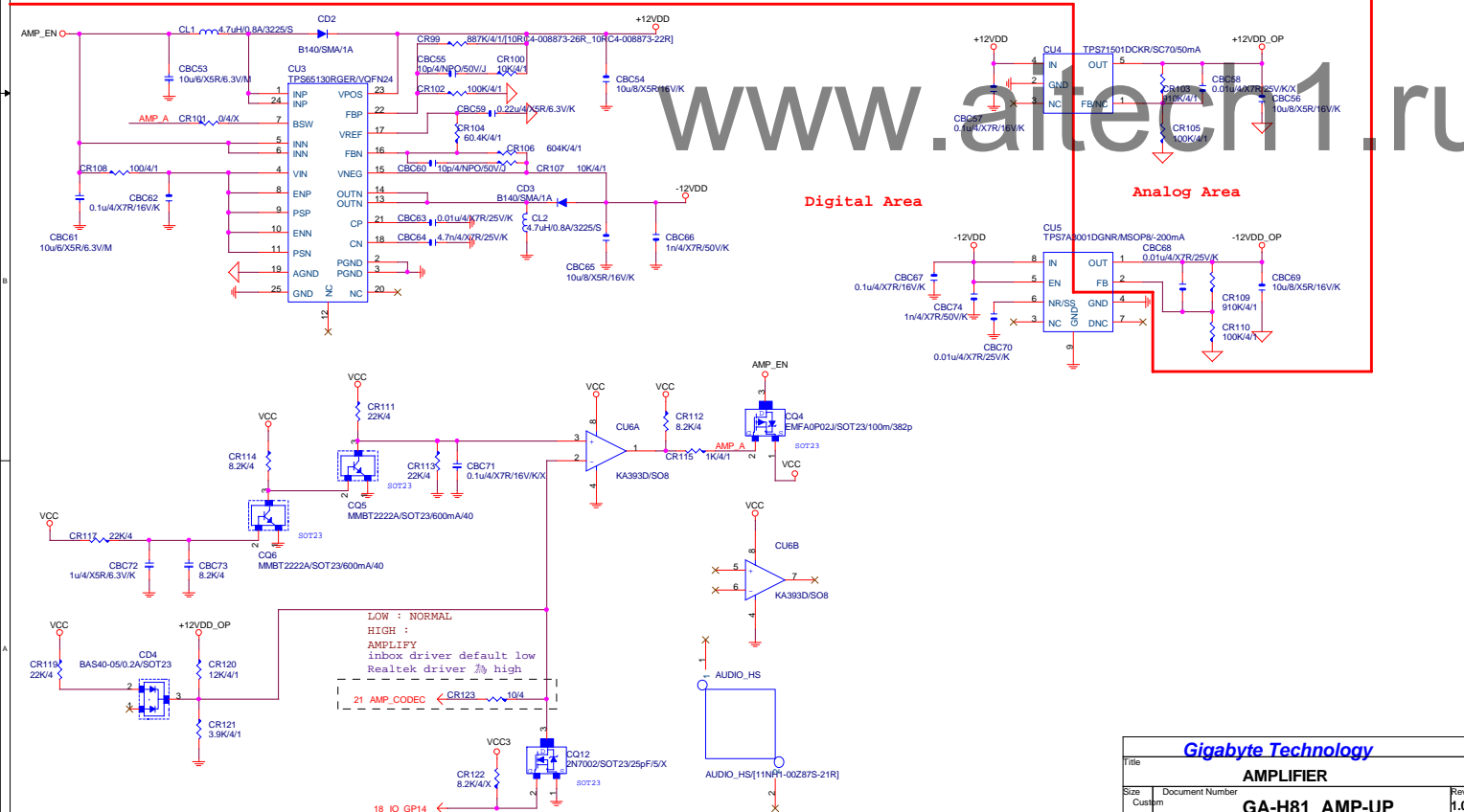
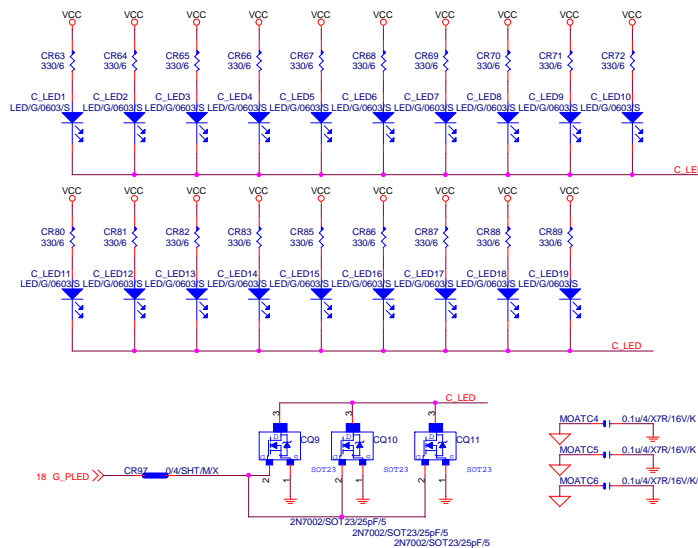
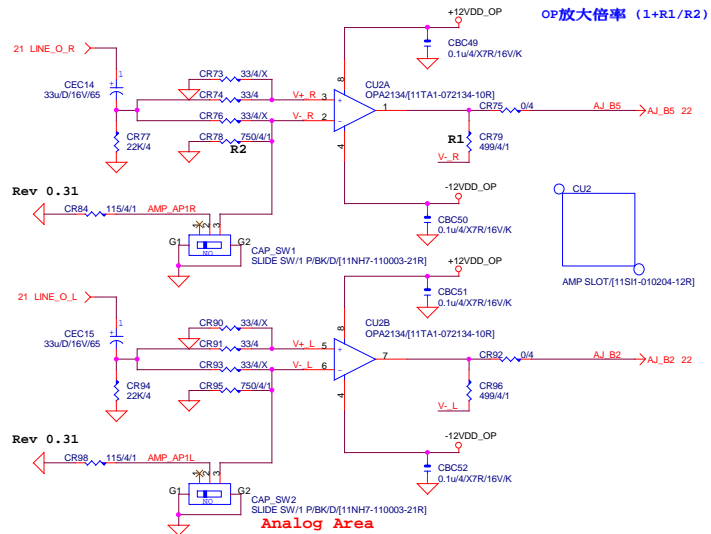
AUDIO JACK

GA-H81_AMP-UP

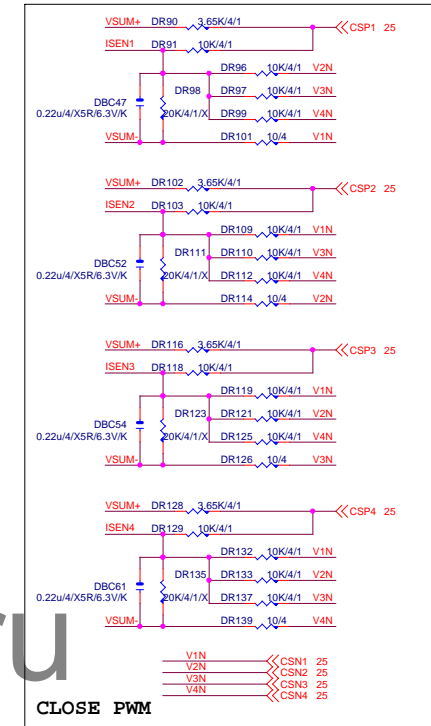
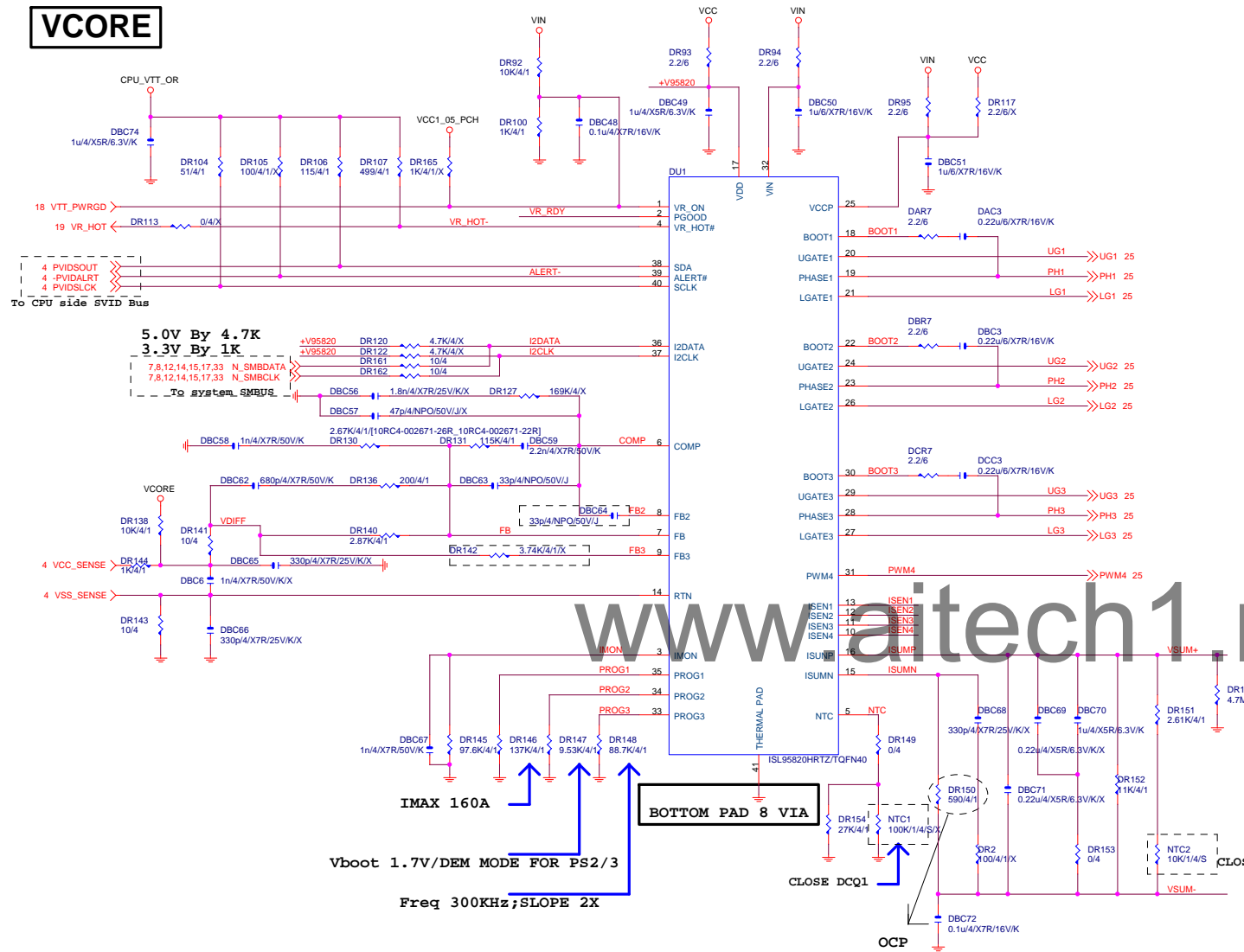
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AMPLIFIED

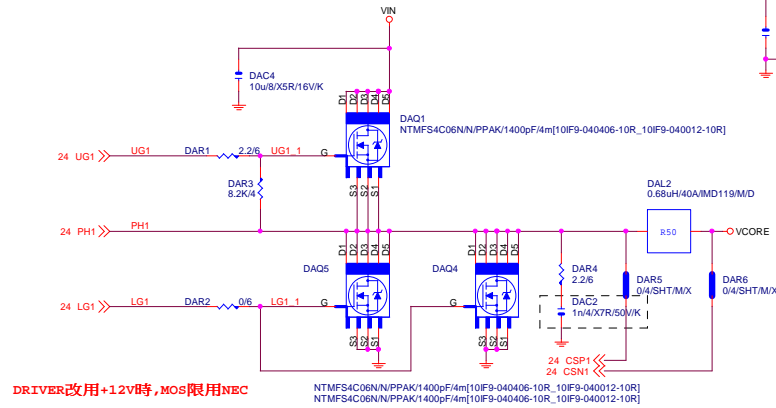


VCORE

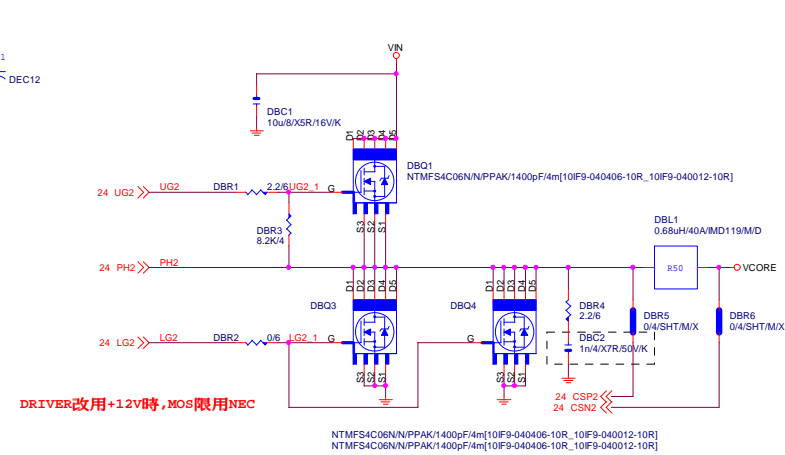


VCORE

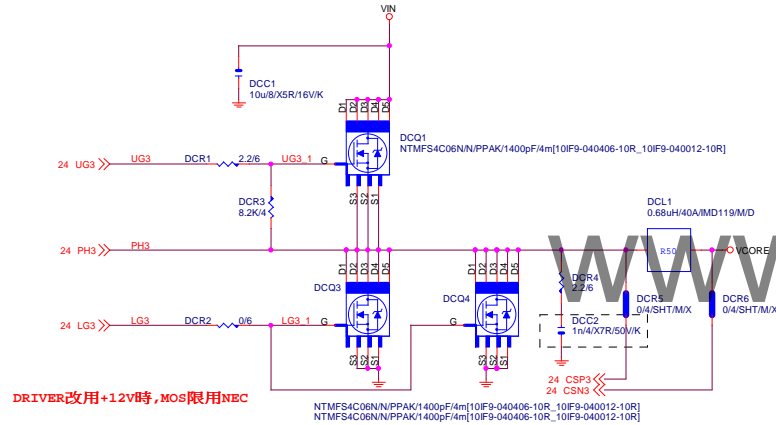
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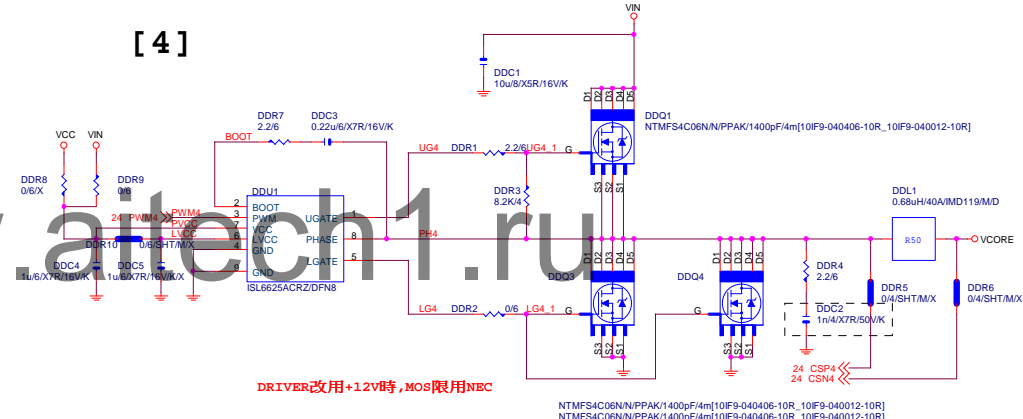
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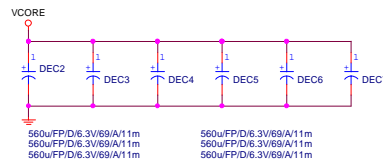
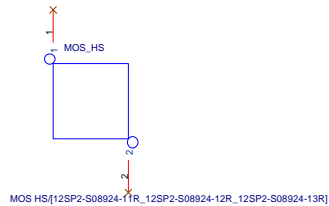
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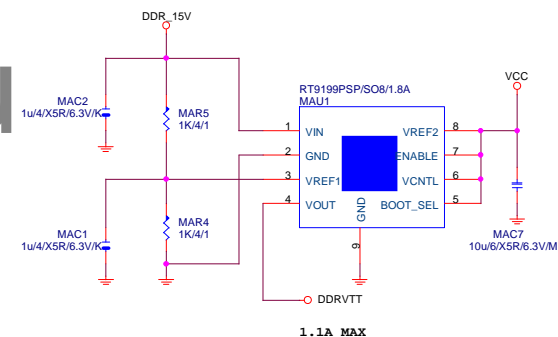


MOSFET HEATSINK



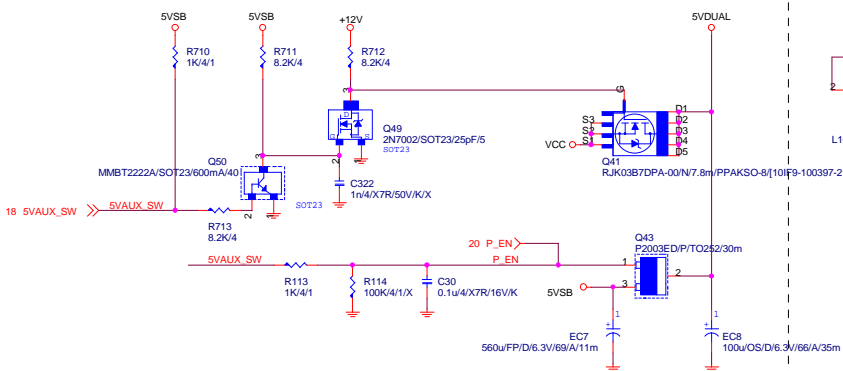
Gigabyte Technology			
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Custom			
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DDRVTT



Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
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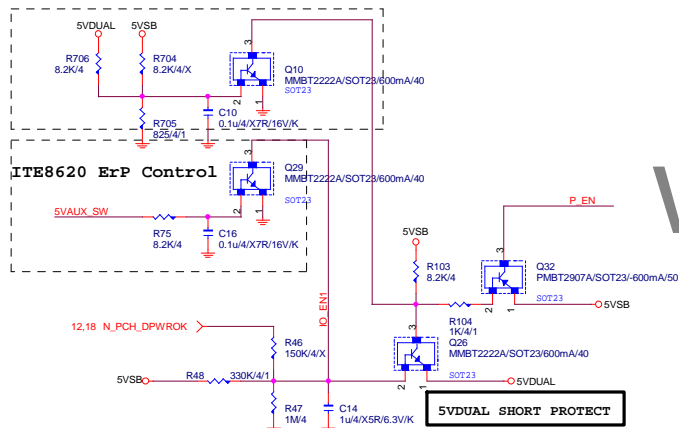
5VDUAL



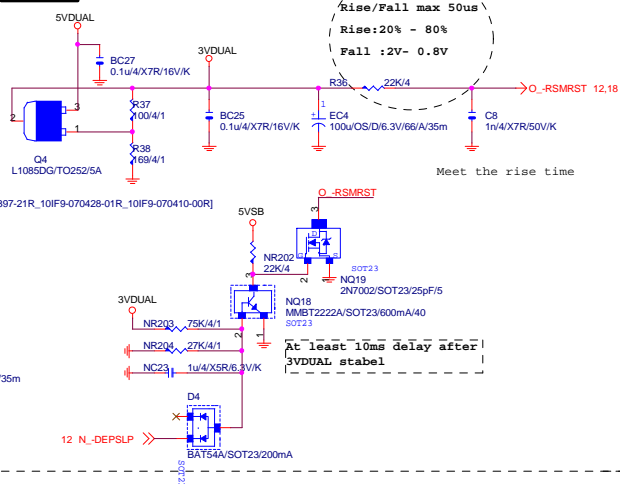
5VSB OVP發生時 : 5VDUAL=0.8V --> 解除時,須拔POWER CORE 才可開機

5VDUAL OVP發生時 : 5VDUAL=6V --> 解除時則恢復正常

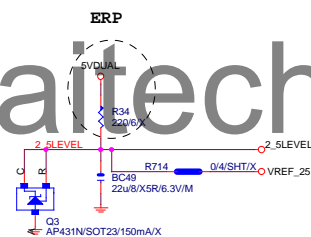
5VSB OVP:6V protection



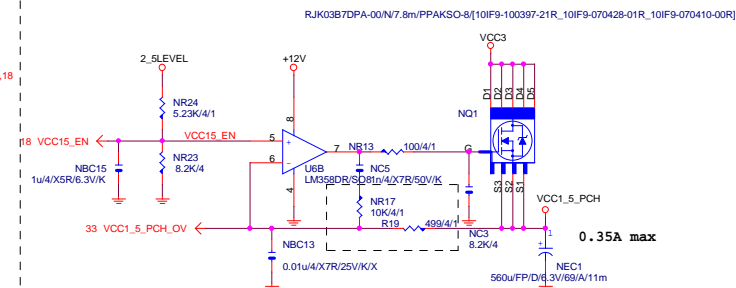
3VDUAL



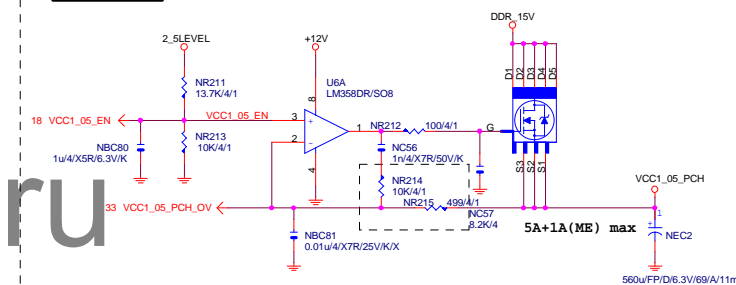
2_5LEVEL



VCC1_5_PCH

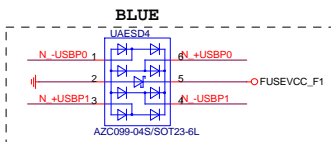
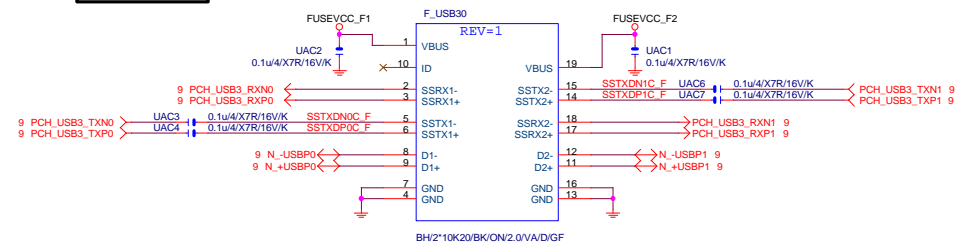


VCC1_05_PCH



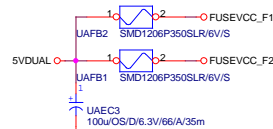
PWR SEQ

Front USB3.0

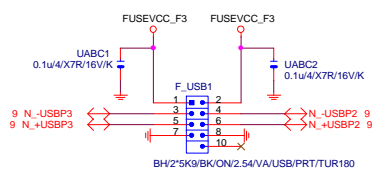


Close to connector

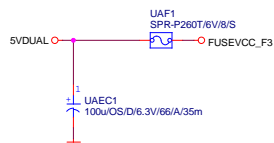
F_USB30	PWR
---------	-----



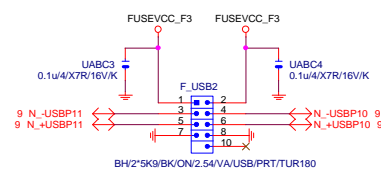
FRONT USB1



Close to connector

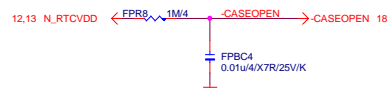


FRONT USB2

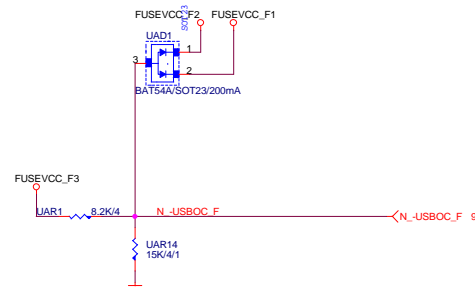


Close to connector

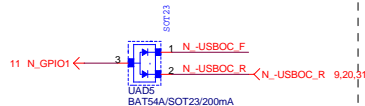
CASE OPEN



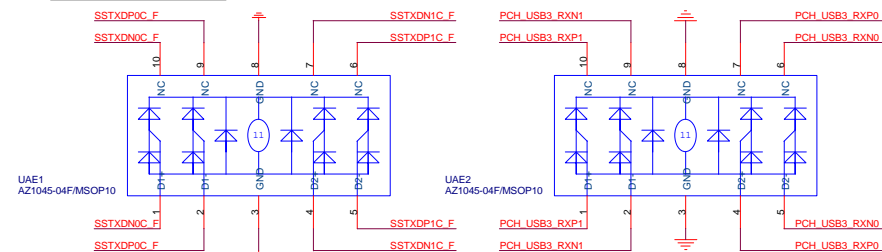
-USB0C_F



F_USB POWER PROTECT

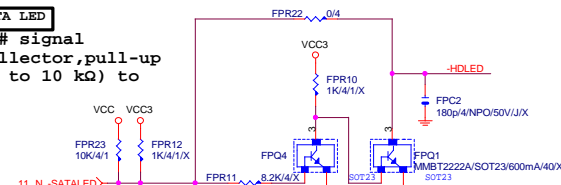


F_USB30 ESD PROTEC

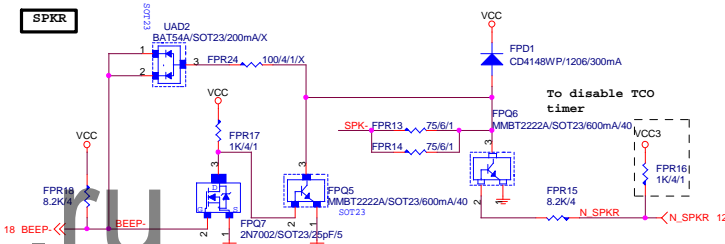


SATA LED

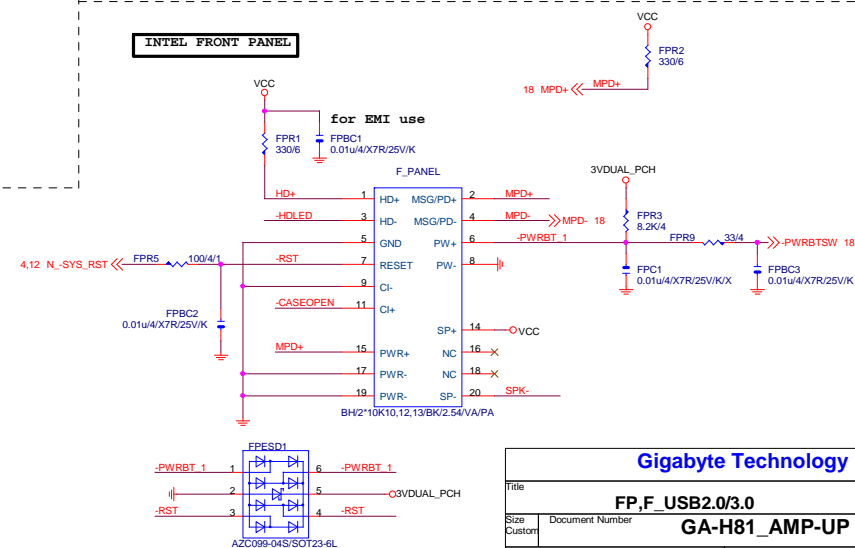
```
| SATALED# signal  
| open-collector,pull-up  
| (8.2 kΩ to 10 kΩ) to  
| Vcc3 3
```



SPKR



INTEL FRONT PANEL

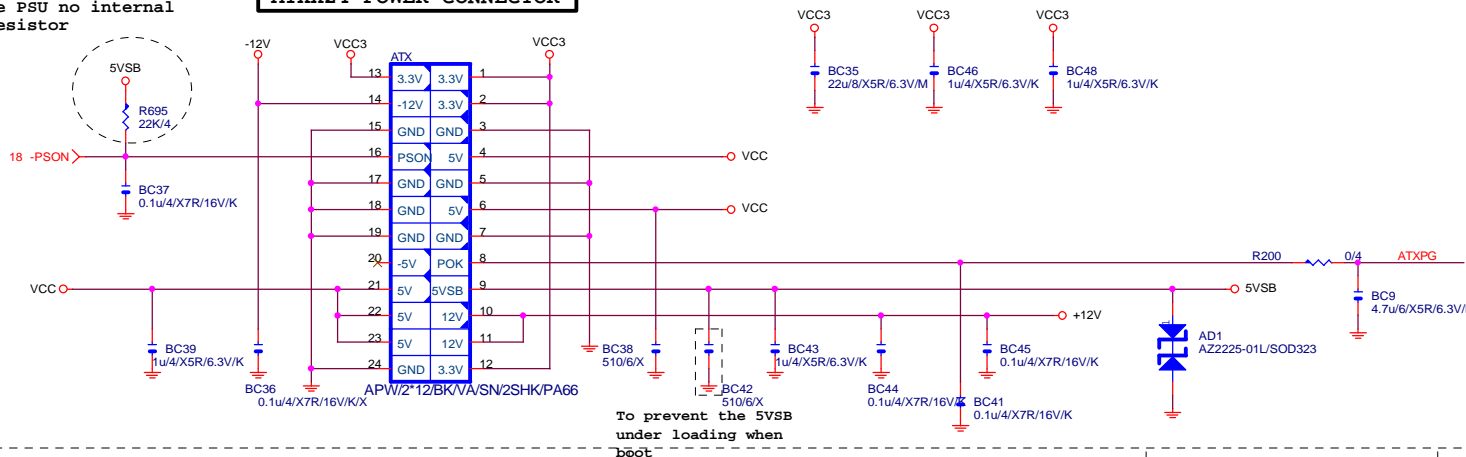


Gigabyte Technology

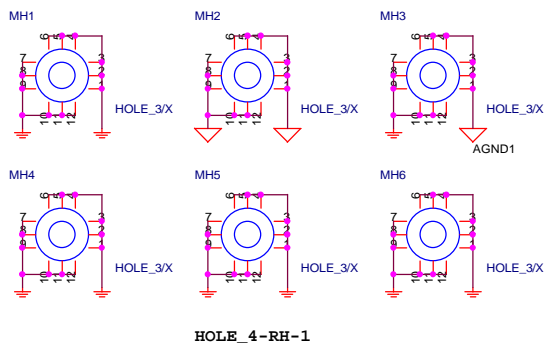
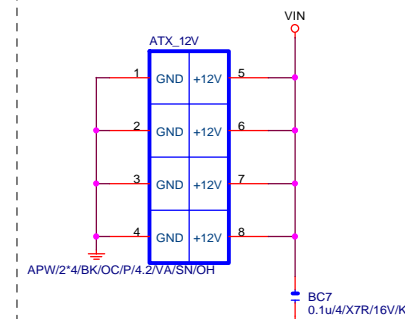
Title				FP,F_USB2.0/3.0			
Size	Document Number						Rev
Custom	GA-H81_AMP-UP						1.02
Date:	Tuesday, November 05, 2013			Sheet	28	of	34

Patch some PSU no internal pull up resistor

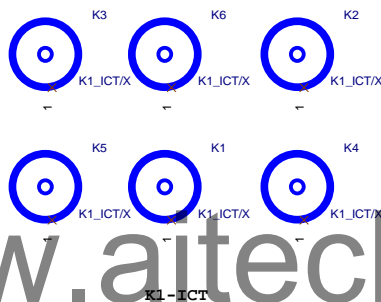
ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

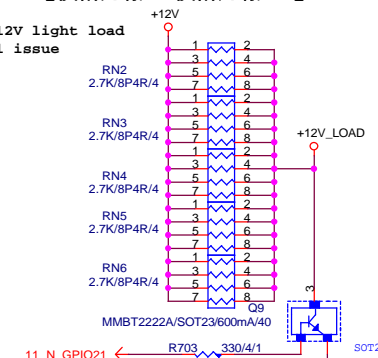


To prevent the 5VSB under loading when boot



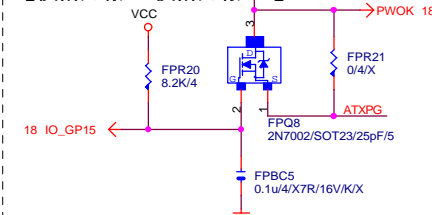
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



PWOK PATCH

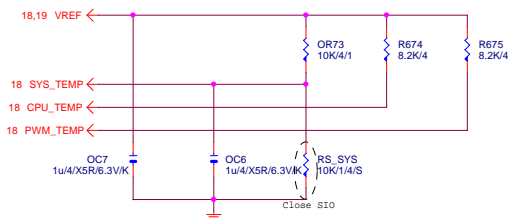
【技術通報R&D技術通報154】



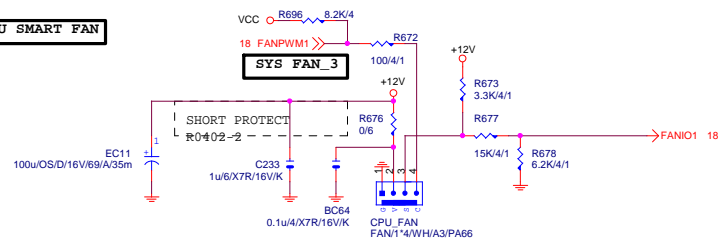
Gigabyte Technology

Title			ATX POWER CONNECTOR
Size	Document Number	GA-H81_AMP-UP	
Custom		Rev	1.02
Date:	Tuesday, November 05, 2013	Sheet	29 of 34

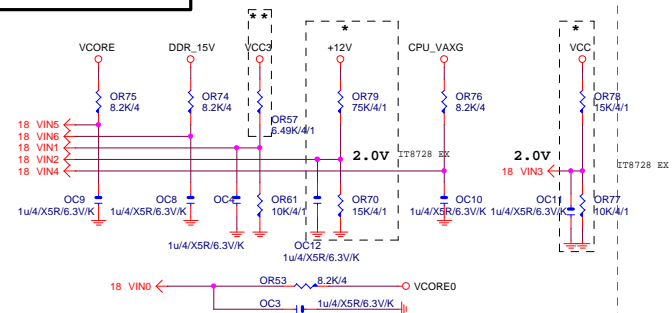
TEMP H/W MONITOR



CPU SMART FAN

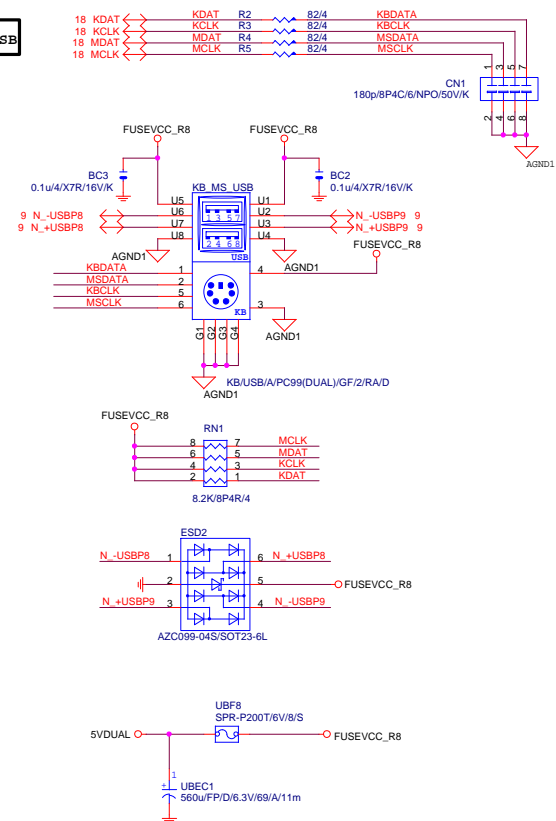


VOLTAGE-- H/W MONITOR



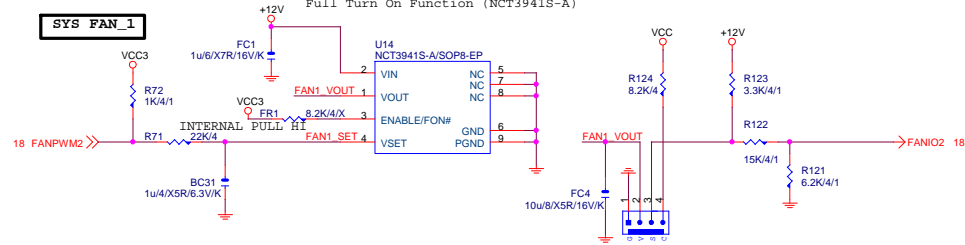
The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB

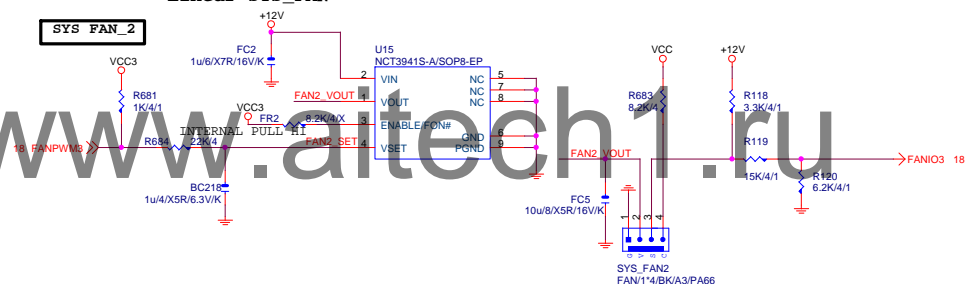


Linear SYS_FAN

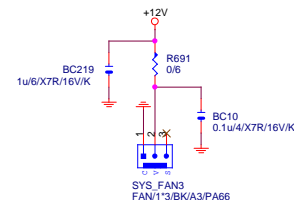
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)



Linear SYS_FAN



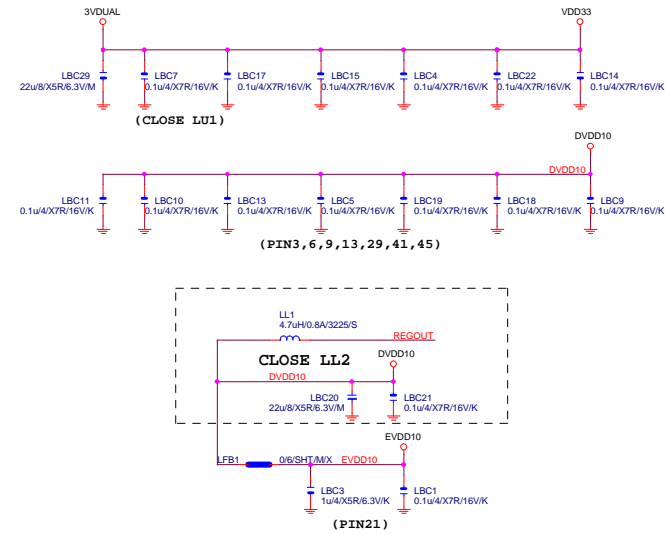
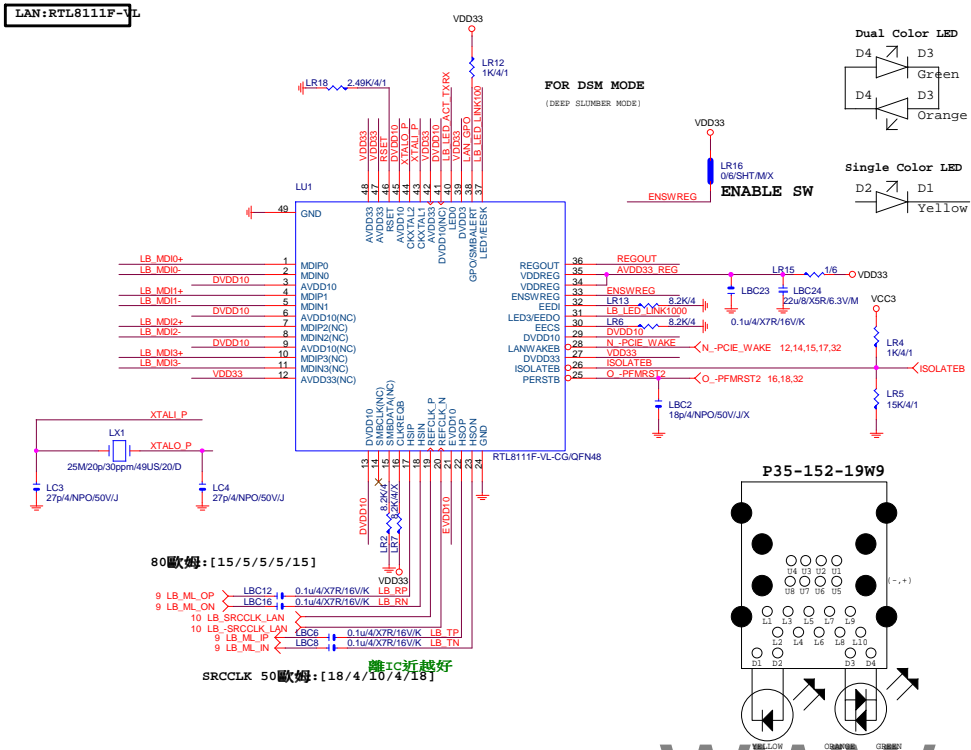
SYS FAN_3



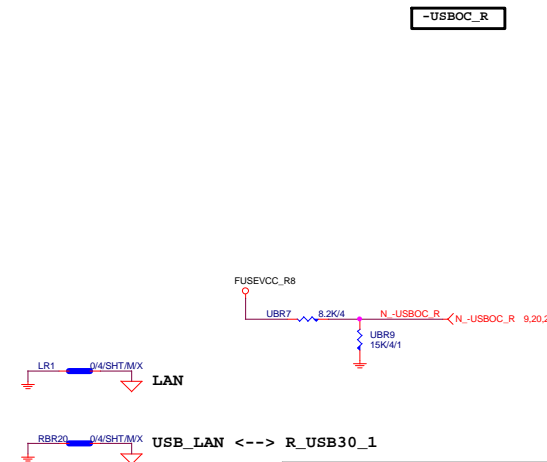
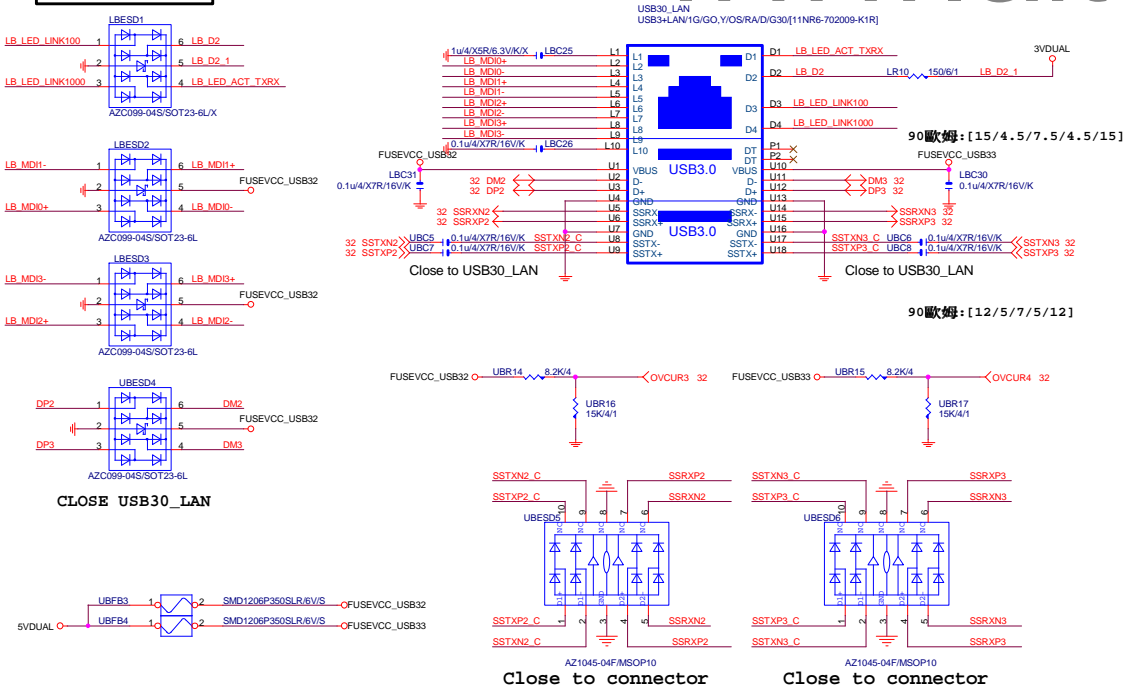
Gigabyte Technology

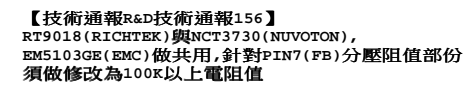
Title				HWM,KB/MS, FAN CTRL			
Size	Document Number					Rev	
Custom	GA-H81 AMP-UP					1.02	
Date:	Tuesday, November 05, 2013	Sheet	30	of	34		

LAN:RTL8111F-VL

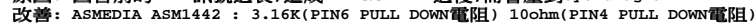


USB30_LAN CONNECTOR





Impedance=85 +- 17.5%

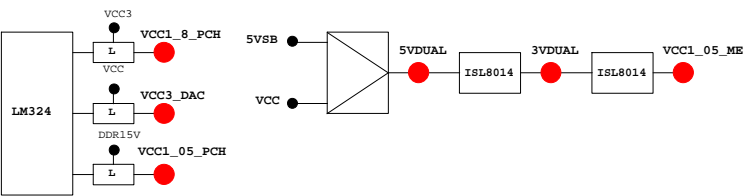


PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQ#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

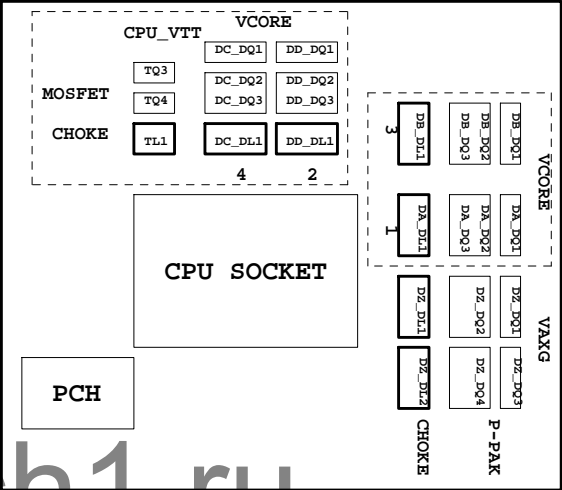
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCI_E_RST	
RSMRST#CIRRXL/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PWRST1	
PCIRST1#/GP12	-PWRST2	
3VBSBW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRXL2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH