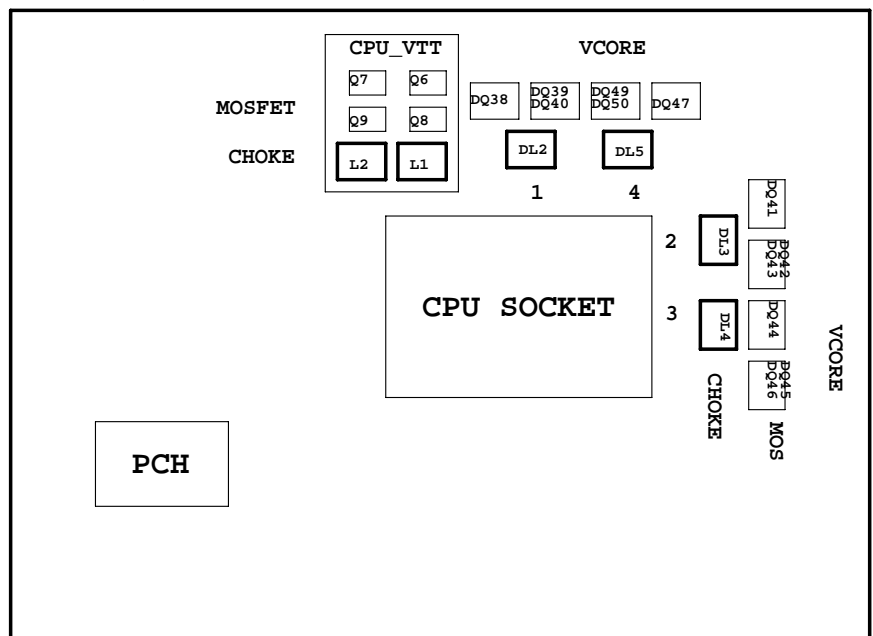


SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
16	PCI EXPRESS*1 SLOTS X2
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, -PROHOT, ESATA CONNECT
20	Dual BIOS
21	ALC892
22	REAR AUDIO JACK
23	VCORE PWM_ISL6364CRZ-1
24	VCORE PWM_ISL6364CRZ-2
25	DISCRETE POWER
26	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
27	CPU_VTT PWM_ISL6322G

SHEET TITLE

28	VCCSA POWER
29	F_PANEL , F_USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	NEC USB3.0
34	TABLE LIST
35	
36	
37	
38	
39	
40	



GA-P61-USB3-B3

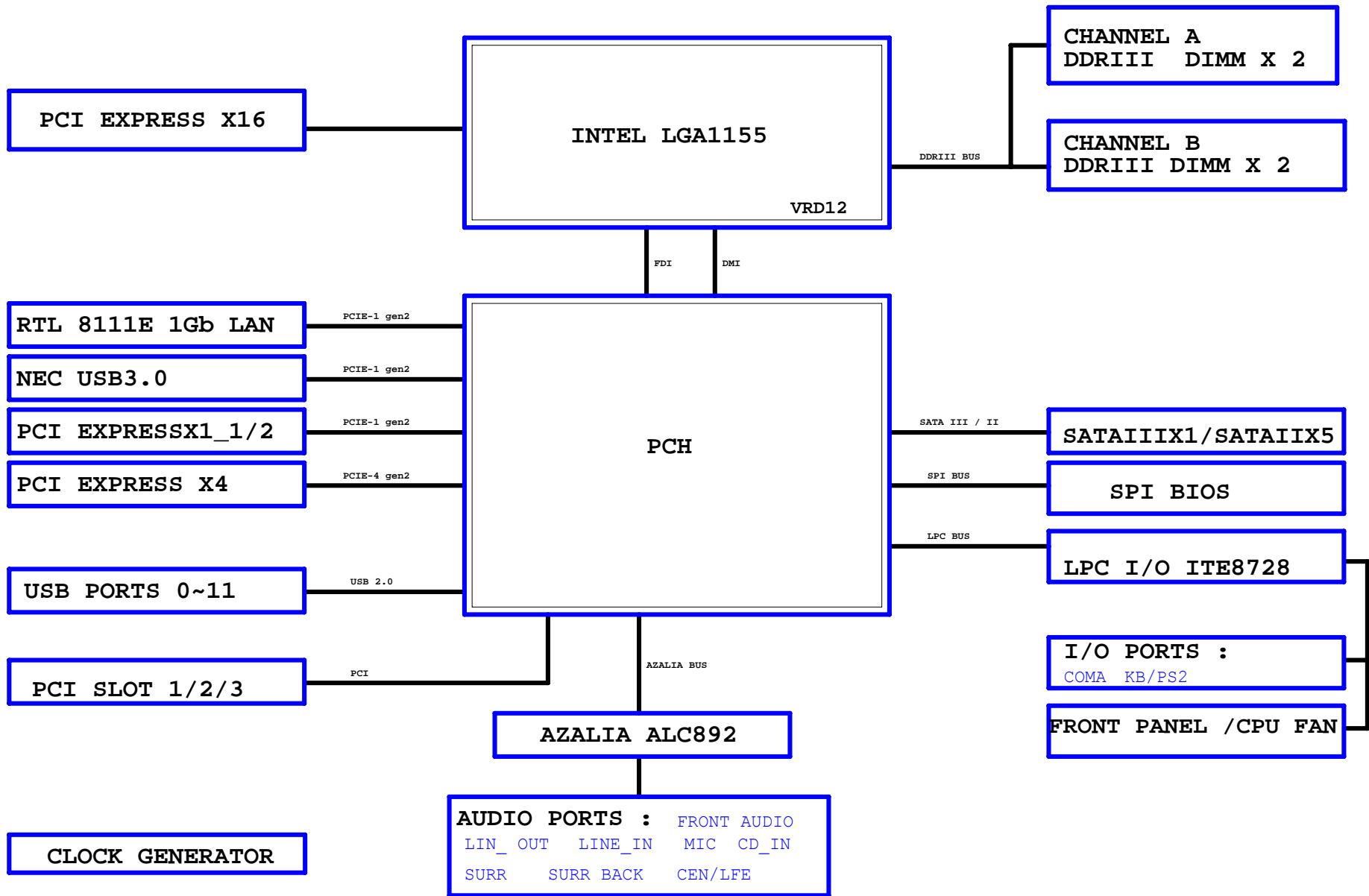
Component value change history

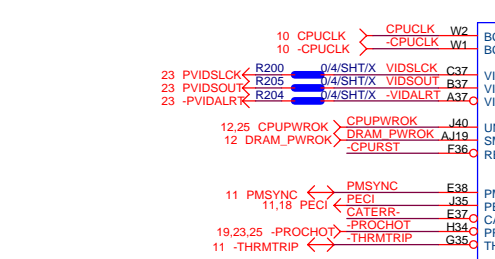
Data	Change Item	Reason
2010/11/11 EBOM:01	1. H61/P67 Mounting plan	
	2. ALC892 銅製程 & NEC Lo-power mounting plan	
	3. CHOKE mounting	
2010/11/11 EBOM:01	1. U8第一PIN標示與BC141重疊不易辨識	
	2. PCH_HS定位孔與RN9、RN10距離不足2mm	
PA65-D3-0.1	1. 注意改成電解電容時REC2應該是用100uF	
	2. Add RBC39 22u/8	
	3. MOSFET --> NEC+ON	
	4. Add 文字面 "108dB"	
	5. Add USB_LAN "11NR6-702009-93R"	
	6. VIN背板鋪銅移除	
	7. 文字面 "DES"移除	
	8. F_AUDIO Connect 改成綠色	
	9. REMOVE SE9172 SPI FLASH	
PA65-D3-1.0	1. L11 RTL8111E-VL	
	2. 文字面"Ultra Durable 2"	
	3. 背板電容移除	
P61-USB3 10A-0114	1. GSATA SE9172 Component mask	
	注意:MASK的位置,除了9172全頁外,還包含C119,C120	
10B-0120	1. Remove RFB1/2/4/5	
10C-0121	1. Patch ITE8728低溫相容性和增加SVIDCLK Margin	
10D-0125	1. PCB REV1.0 --> REV1.01 SE9172 DIP MASK	
P61-USB3-B3-10A 0209	1. H61 Rev.B2 --> Rev.B3	
	2. CHOKE 1uH --> 0.8uH	

Circuit or PCB layout change

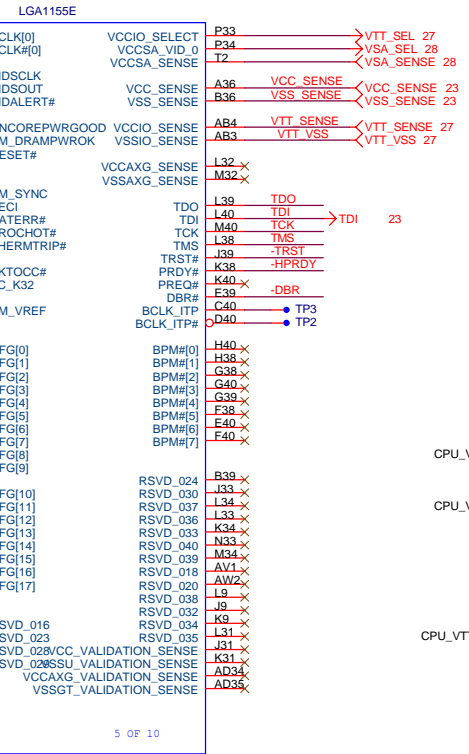
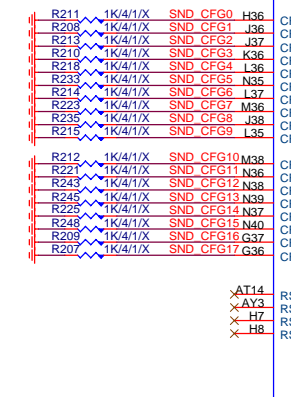
DATE	Change Item	Reason
2010/07/05 PCB:0.1	1.NEW MODEL: P67A-D3-0.1	
2010/08/18 PCB:0.2	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1.update MOS_HS footprint 2.2oz copper pcb	
2010/10/05 PCB:0.1	由GA-P67A-UD3-0.2 修改	
2010/10/18 PCB:0.2	1. 確認SATA 6GB PORT0 OR PORT1???	
	2.NO TURBO USB3.0 ,SUR1-SUR8 ----->SHORT WIRE	
1.0	1. GSATA SE9172 Component mask	

BLOCK DIAGRAM

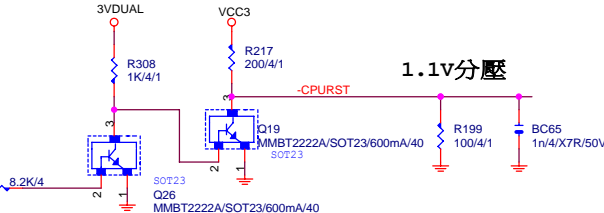
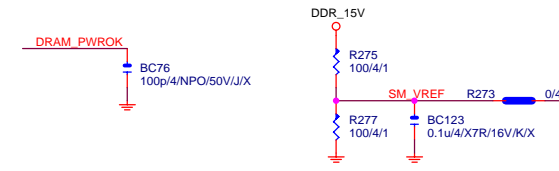




CFG5:1 1X16 PEG
CFG5:0 2X8 PEG



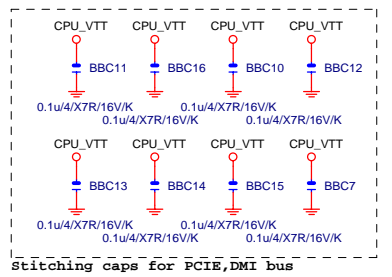
LGA1155[10SC1-F01155-01R]



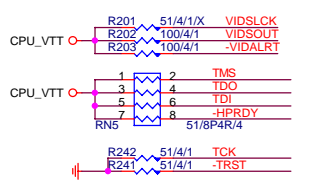
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NORM	Reverse	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
5	RSVD	RSVD	RSVD
6	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

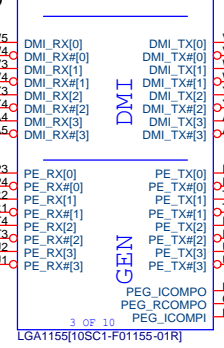
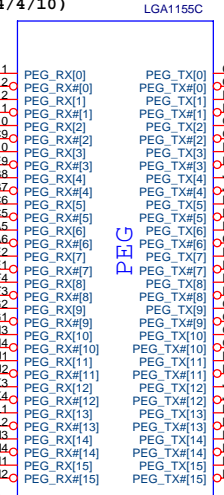
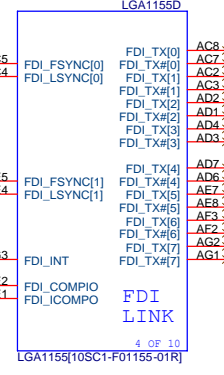
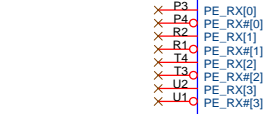
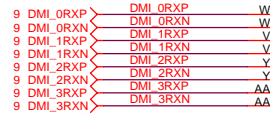
CFG 0-17 all internal PULL-UP



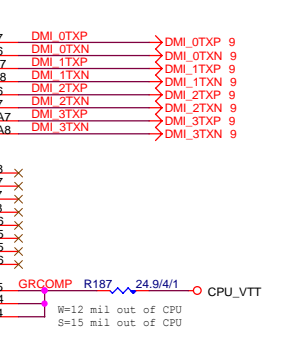
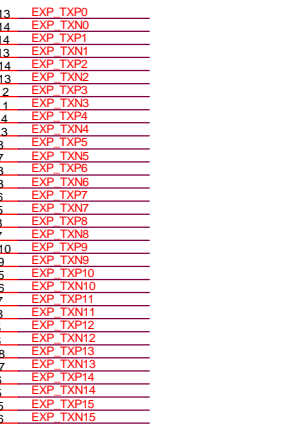
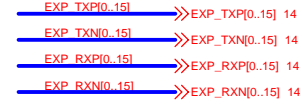
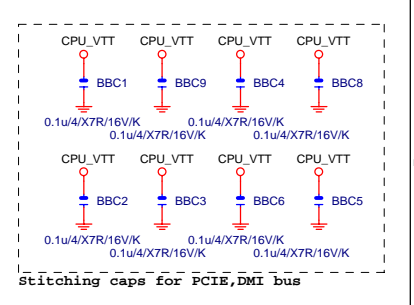
PCIE X16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



DMI:12/4/5/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%



LGA1155[10SC1-F01155-01R]



Gigabyte Technology
CPU LGA1155-A

Title		CPU LGA1155-A	
Size	Document Number	Rev	
Custom	GA-P61-USB3-B3	1.01	
Date:	Friday, February 11, 2011	Sheet	4 of 34

LGA1155A			
MAAA0	AV27	SA_MA[0]	
MAAA1	AY24	SA_MA[1]	
MAAA2	AW24	SA_MA[2]	
MAAA3	AW23	SA_MA[3]	
MAAA4	AV23	SA_MA[4]	
MAAA5	AT24	SA_MA[5]	
MAAA6	AT23	SA_MA[6]	
MAAA7	AU22	SA_MA[7]	
MAAA8	AV22	SA_MA[8]	
MAAA9	AT22	SA_MA[9]	
MAAA10	AV28	SA_MA[10]	
MAAA11	AU21	SA_MA[11]	
MAAA12	AT21	SA_MA[12]	
MAAA13	AW32	SA_MA[13]	
MAAA14	AU20	SA_MA[14]	
MAAA15	AT20	SA_MA[15]	
7 -SWEA	-SWEA	AW29	SA_WE#
7 -SCASA	-SCASA	AV30	SA_CAS#
7 -SRASA	-SRASA	AU28	SA_RAS#
7 SBAA0	SBAA0	AY29	SA_BS[0]
7 SBAA1	SBAA1	AW28	SA_BS[1]
7 SBAA2	SBAA2	AV20	SA_BS[2]
7 -CSA0	-CSA0	AU29	SA_CS#[0]
7 -CSA1	-CSA1	AV32	SA_CS#[1]
		AU30	SA_CS#[2]
		AU33	SA_CS#[3]
7 CKEA0	CKEA0	AV19	SA_CKE[0]
7 CKEA1	CKEA1	AT19	SA_CKE[1]
		AL18	SA_CKE[2]
		XV18	SA_CKE[3]
MODT_A0	AV31	SA_ODT[0]	
MODT_A1	AU32	SA_ODT[1]	
	AU30	SA_ODT[2]	
	AU33	SA_ODT[3]	
7 DCLKA0	DCLKA0	AY25	SA_CK[0]
7 DCLKA0	-DCLKA0	AW25	SA_CK#[0]
7 DCLKA1	DCLKA1	AU24	SA_CK[1]
7 -DCLKA1	-DCLKA1	AU25	SA_CK#[1]
		XV27	SA_CK[2]
		AV27	SA_CK#[2]
		AV26	SA_CK[3]
		AV28	SA_CK#[3]
7,8 -DDR3_RST	TR1	AW18	SM_DRAMRST#
		0.1u/4X7R/16V/KX	
		TBC9	
XV13	SA_DQS[8]		
XV12	SA_DQS#[8]		
XU12	SA_ECC_CB[0]		
XU14	SA_ECC_CB[1]		
XU13	SA_ECC_CB[2]		
XU13	SA_ECC_CB[3]		
XU13	SA_ECC_CB[4]		
XU11	SA_ECC_CB[5]		
XU12	SA_ECC_CB[6]		
XU12	SA_ECC_CB[7]		
SA_DO[32]	AL35	MDA32	
SA_DO[33]	AW37	MDA33	
SA_DO[34]	AU32	MDA34	
SA_DO[35]	AL36	MDA35	
SA_DO[36]	AW35	MDA36	
SA_DO[37]	AY36	MDA37	
SA_DO[38]	AU38	MDA38	
SA_DO[39]	AU37	MDA39	
SA_DQS[5]	AP38	DQS45	
SA_DQS#[5]	AP39	-DQS45	
SA_DO[40]	AR40	MDA40	
SA_DO[41]	AR37	MDA41	
SA_DO[42]	AN38	MDA42	
SA_DO[43]	AN37	MDA43	
SA_DO[44]	AR39	MDA44	
SA_DO[45]	AR38	MDA45	
SA_DO[46]	AN39	MDA46	
SA_DO[47]	AN40	MDA47	
SA_DQS[6]	AK38	DQS46	
SA_DQS#[6]	AK39	-DQS46	
SA_DO[48]	AL40	MDA48	
SA_DO[49]	AL37	MDA49	
SA_DO[50]	AJ38	MDA50	
SA_DO[51]	AJ37	MDA51	
SA_DO[52]	AL39	MDA52	
SA_DO[53]	AL38	MDA53	
SA_DO[54]	AJ39	MDA54	
SA_DO[55]	AJ40	MDA55	
SA_DQS[7]	AF38	DQS47	
SA_DQS#[7]	AF39	-DQS47	
SA_DO[56]	AG40	MDA56	
SA_DO[57]	AG37	MDA57	
SA_DO[58]	AE38	MDA58	
SA_DO[59]	AE37	MDA59	
SA_DO[60]	AG39	MDA60	
SA_DO[61]	AG38	MDA61	
SA_DO[62]	AE39	MDA62	
SA_DO[63]	AE40	MDA63	

DDR_0

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LGA1155[10SC1-F01155-01R]

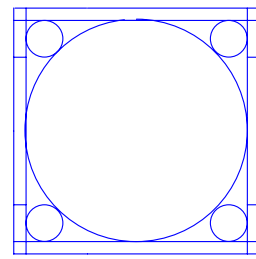
- 7 MODT_A[0..1] ↔ MODT_A[0..1]
- 8 MODT_B[0..1] ↔ MODT_B[0..1]
- 7 MDA[0..63] ↔ MDA[0..63]
- 8 MDB[0..63] ↔ MDB[0..63]
- 7 DQS[0..7] ↔ DQS[0..7]
- 7 -DQS[0..7] ↔ -DQS[0..7]
- 7 MAA[0..15] ↔ MAA[0..15]
- 8 MAB[0..15] ↔ MAB[0..15]
- 8 DQS[0..7] ↔ DQS[0..7]
- 8 -DQS[0..7] ↔ -DQS[0..7]

LGA1155B			
MAAB0	AK24	SB_MA[0]	
MAAB1	AM20	SB_MA[1]	
MAAB2	AM19	SB_MA[2]	
MAAB3	AK18	SB_MA[3]	
MAAB4	AP19	SB_MA[4]	
MAAB5	AP18	SB_MA[5]	
MAAB6	AM18	SB_MA[6]	
MAAB7	AL18	SB_MA[7]	
MAAB8	AN18	SB_MA[8]	
MAAB9	AY17	SB_MA[9]	
MAAB10	AN23	SB_MA[10]	
MAAB11	AU17	SB_MA[11]	
MAAB12	AR26	SB_MA[12]	
MAAB14	AY16	SB_MA[13]	
MAAB15	AV16	SB_MA[14]	
8 -SWEB	-SWEB	AR25	SB_WE#
8 -SCASB	-SCASB	AK25	SB_CAS#
8 -SRASB	-SRASB	AP24	SB_RAS#
8 SBAB0	SBAB0	AP23	SB_BS[0]
8 SBAB1	SBAB1	AM24	SB_BS[1]
8 SBAB2	SBAB2	AW17	SB_BS[2]
8 -CSB0	-CSB0	AN25	SB_CS#[0]
8 -CSB1	-CSB1	AN26	SB_CS#[1]
		AL25	SB_CS#[2]
		AT26	SB_CS#[3]
8 CKEB0	CKEB0	AU16	SB_CKE[0]
8 CKEB1	CKEB1	AY15	SB_CKE[1]
		AU15	SB_CKE[2]
		XV15	SB_CKE[3]
MODT_B0	AL26	SB_ODT[0]	
MODT_B1	AP26	SB_ODT[1]	
	AM26	SB_ODT[2]	
	AK26	SB_ODT[3]	
SB_DQS[3]	AN13	DQS83	
SB_DQS#[3]	AN12	-DQS83	
8 DCLKB0	DCLKB0	AL21	SB_CK[0]
8 -DCLKB0	-DCLKB0	AL22	SB_CK#[0]
8 DCLKB1	DCLKB1	AL20	SB_CK[1]
8 -DCLKB1	-DCLKB1	AK20	SB_CK#[1]
		AL23	SB_CK[2]
		AM22	SB_CK#[2]
		AP21	SB_CK[3]
		AN21	SB_CK#[3]
SB_DQS[4]	AN29	DQS84	
SB_DQS#[4]	AN28	-DQS84	
SB_DO[32]	AR28	MDB32	
SB_DO[33]	AR29	MDB33	
SB_DO[34]	AL28	MDB34	
SB_DO[35]	AL29	MDB35	
SB_DO[36]	AP28	MDB36	
SB_DO[37]	AP29	MDB37	
SB_DO[38]	AM28	MDB38	
SB_DO[39]	AM29	MDB39	
SB_DQS[5]	AP33	DQS85	
SB_DQS#[5]	AR33	-DQS85	
SB_DO[40]	AP32	MDB40	
SB_DO[41]	AP31	MDB41	
SB_DO[42]	AP35	MDB42	
SB_DO[43]	AP34	MDB43	
SB_DO[44]	AR32	MDB44	
SB_DO[45]	AR31	MDB45	
SB_DO[46]	AR35	MDB46	
SB_DO[47]	AR34	MDB47	
SB_DQS[6]	AL33	DQS86	
SB_DQS#[6]	AM33	-DQS86	
SB_DO[48]	AM32	MDB48	
SB_DO[49]	AM31	MDB49	
SB_DO[50]	AL35	MDB50	
SB_DO[51]	AL32	MDB51	
SB_DO[52]	AM34	MDB52	
SB_DO[53]	AL31	MDB53	
SB_DO[54]	AM35	MDB54	
SB_DO[55]	AL34	MDB55	
SB_DQS[7]	AG35	DQS87	
SB_DQS#[7]	AG34	-DQS87	
SB_DO[56]	AH35	MDB56	
SB_DO[57]	AH34	MDB57	
SB_DO[58]	AE34	MDB58	
SB_DO[59]	AE35	MDB59	
SB_DO[60]	AJ35	MDB60	
SB_DO[61]	AJ34	MDB61	
SB_DO[62]	AF33	MDB62	
SB_DO[63]	AF35	MDB63	

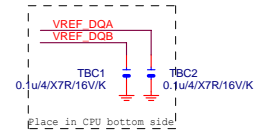
DDR_1

2 OF 10

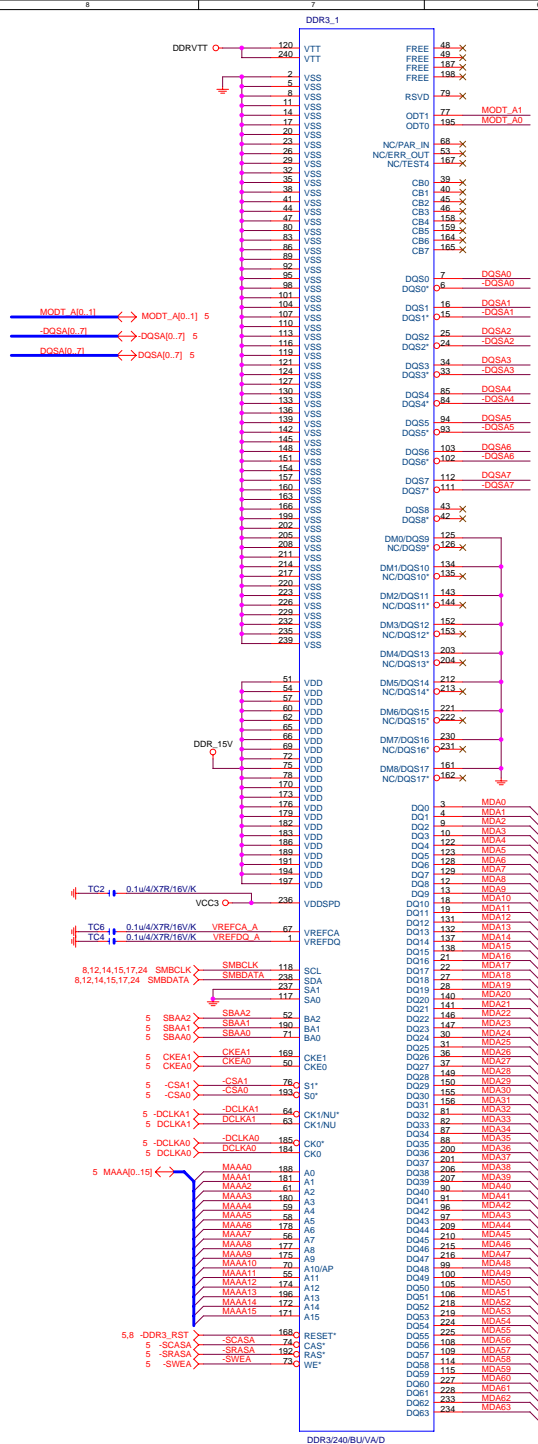
LGA1155[10SC1-F01155-01R]



Need check the new CPU ME

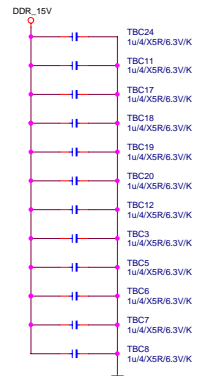
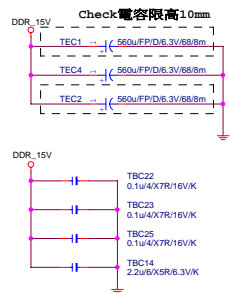


Gigabyte Technology		
CPU LGA1156-B		
Title	Document Number	Rev
	GA-P61-USB3-B3	1.01
Date:	Friday, February 11, 2011	Sheet 5 of 34

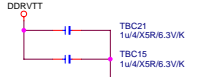
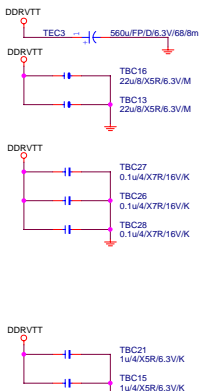


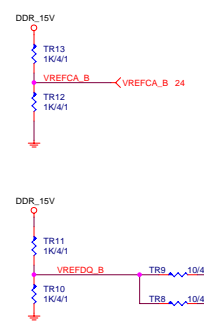
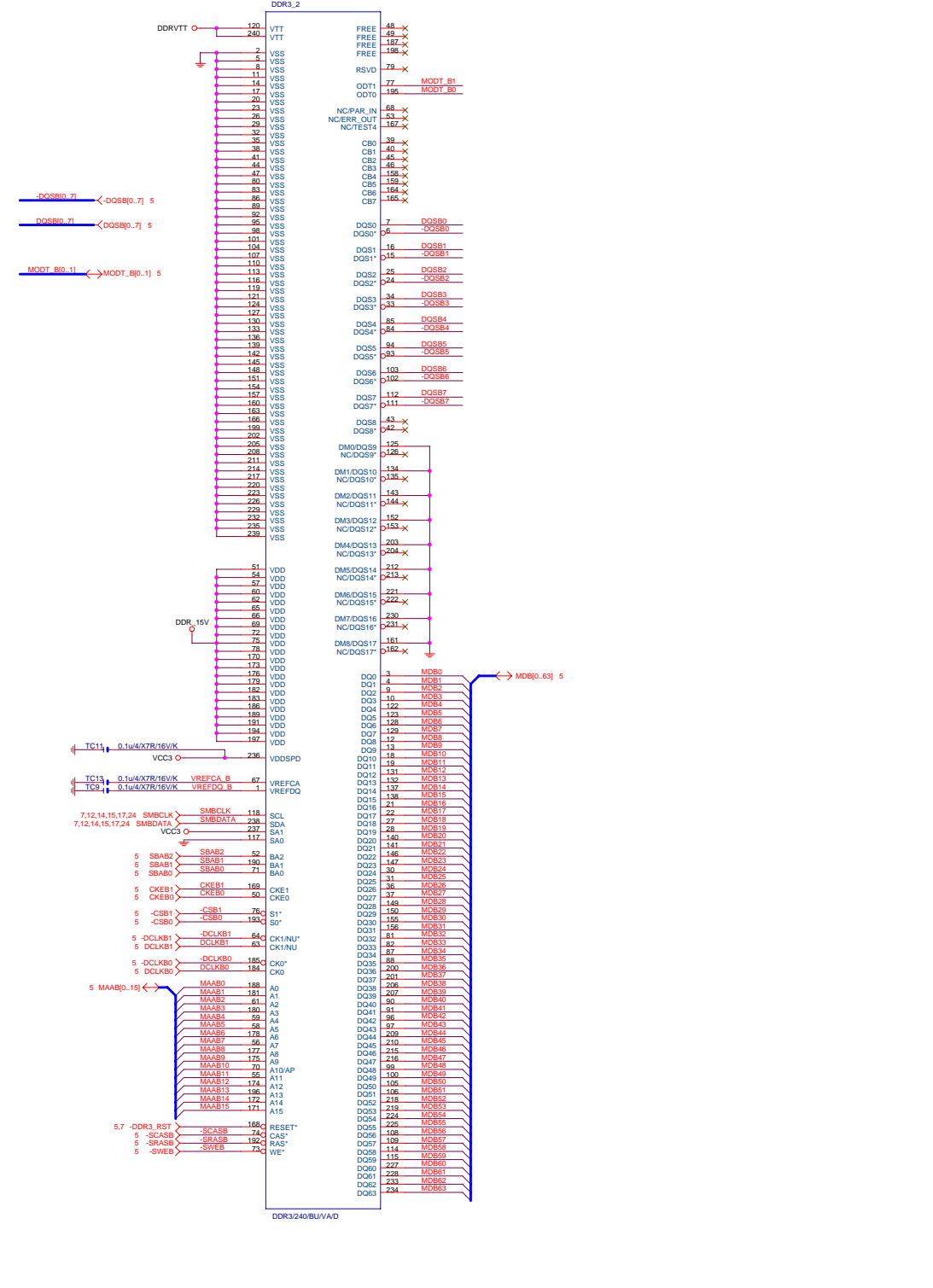
DDR TERMINATION CHANNEL A/B

DDR15V Decouple



DDRVRTT Decouple



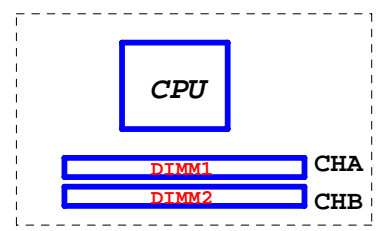


DDR3 1066,1333,1600MHZ BANDWIDTH

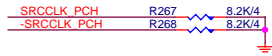
- DDR3 1066MHZ
- DDR3 clock=533MHZ
- DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
- DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

- DDR3 1333MHZ
- DDR3 clock=667MHZ
- DDR3 single channel bandwidth=10.6GB/s
- DDR3 dual channel bandwidth=21GB/s

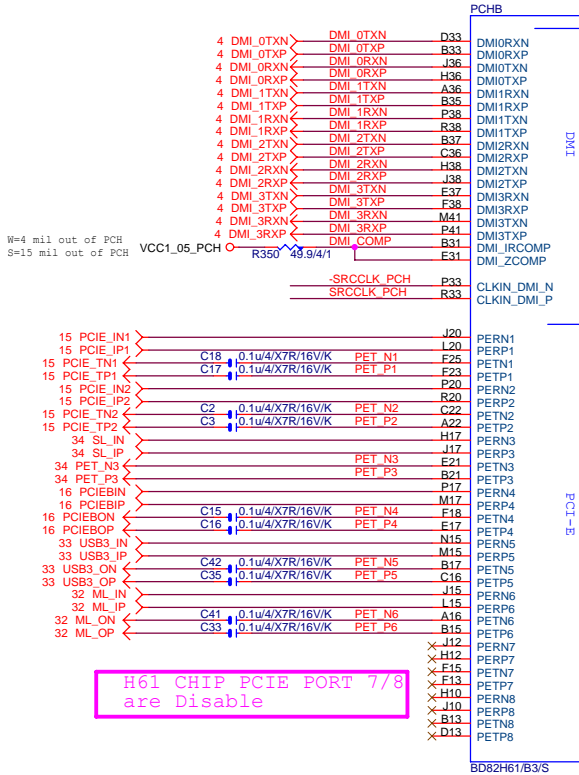
- DDR3 1600MHZ
- DDR3 clock=800MHZ
- DDR3 single channel bandwidth=12.8GB/s
- DDR3 dual channel bandwidth=25.6GB/s



Gigabyte Technology	
DDRIII CHANNEL B	
File	
Size	Document Number
Custom	GA-P61-USB3-B3
Date:	Sheet 8 of 34
	Rev 1.01



USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +/- 17.5%



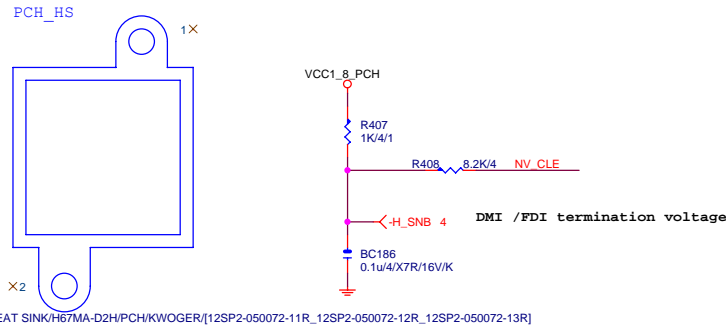
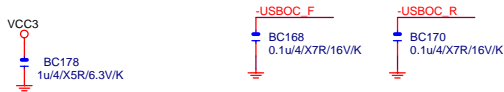
H61 CHIP USB PORT 6/7 are Disable

H61 CHIP USB PORT 12/13 are Disable

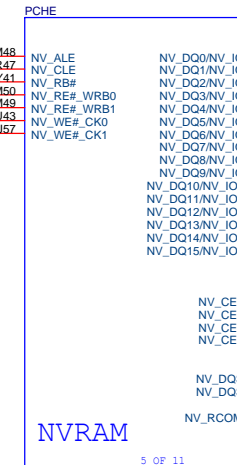
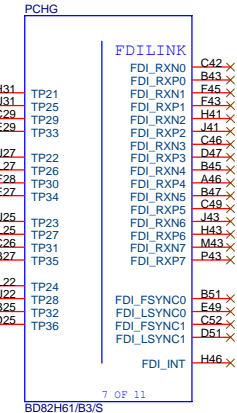
H61 CHIP PCIE PORT 7/8 are Disable

放靠近 Device & PCI-E Slot

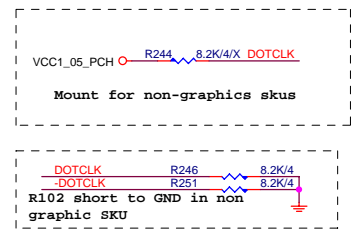
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)
Impedance=80 +/- 17.5%

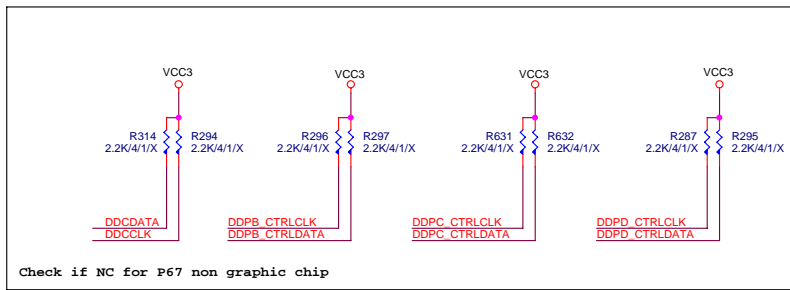
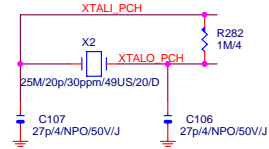
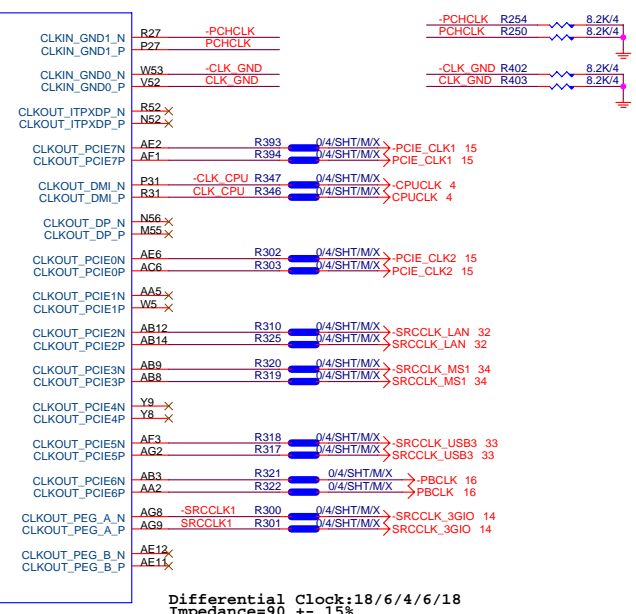
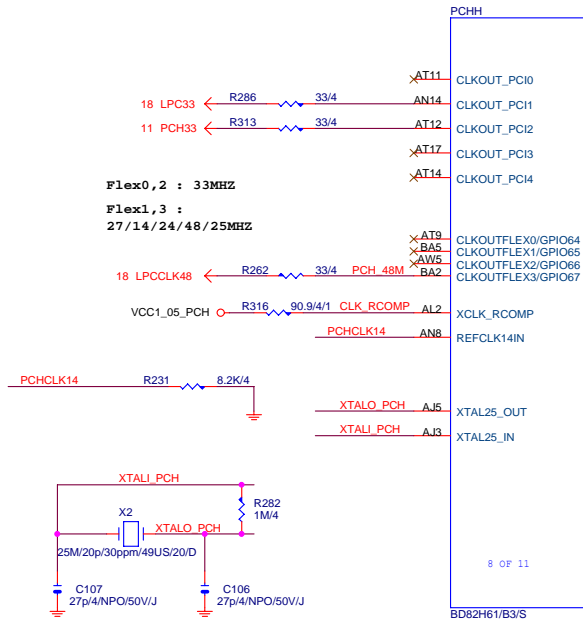
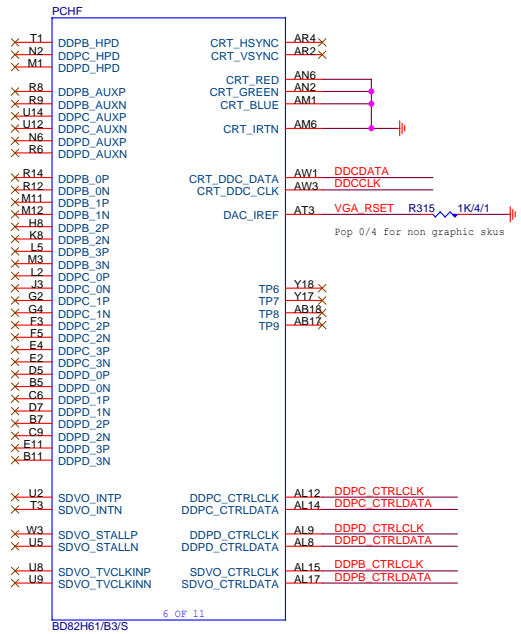


HEAT SINK/H67MA-D2H/PCH/KW/GER[12SP2-050072-11R_12SP2-050072-12R_12SP2-050072-13R]



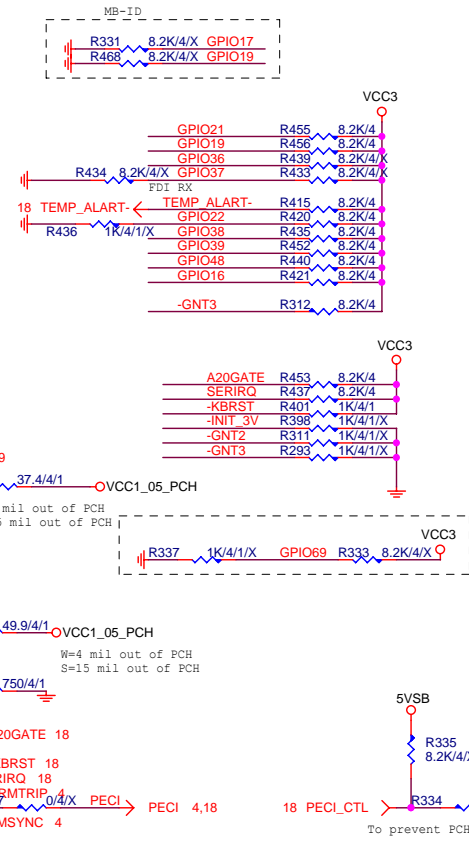
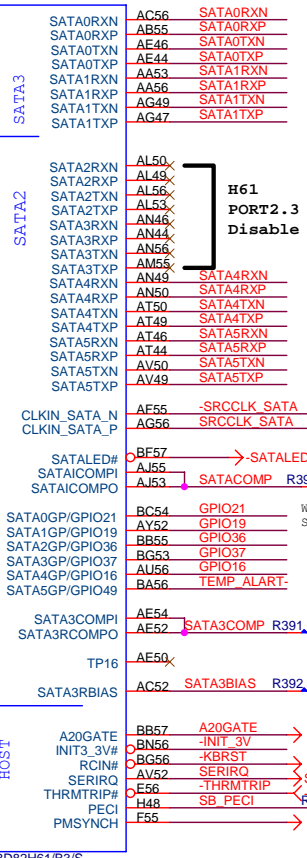
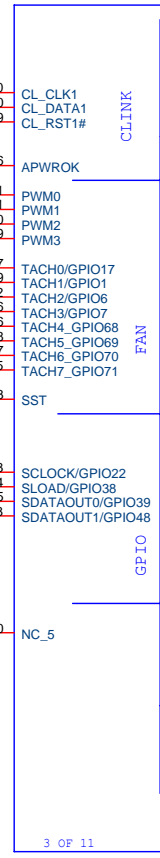
USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use



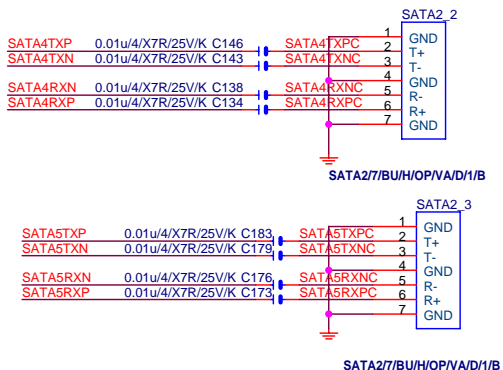
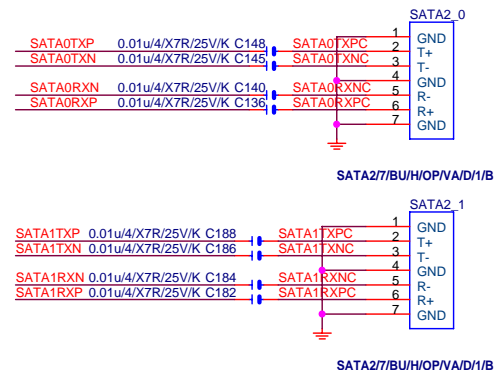
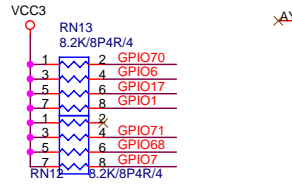
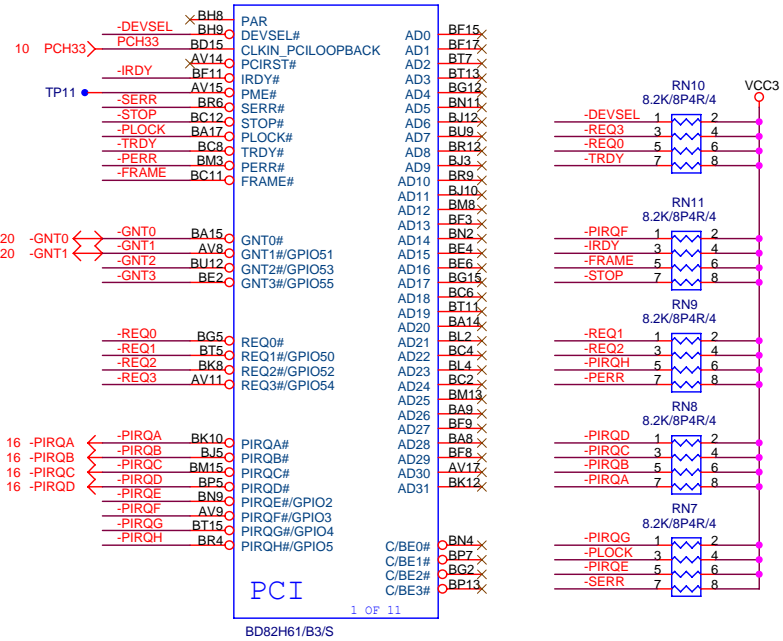


SATA:20/4.5/7.5/4.5/20 (breakout min 8/4/4/8)
 Impedance=90 +- 17.5%

PCHC



PCHA

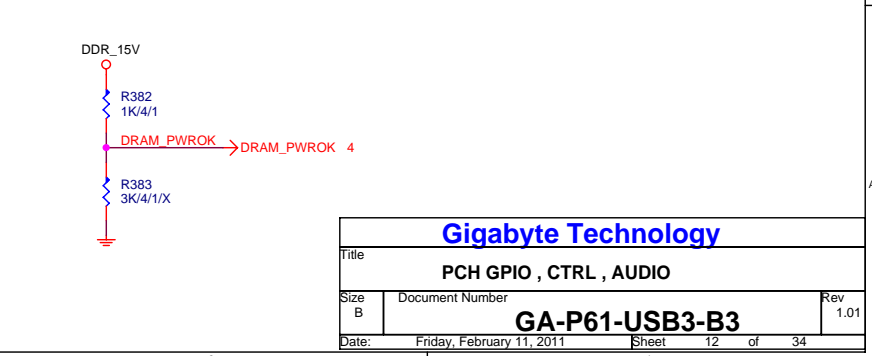
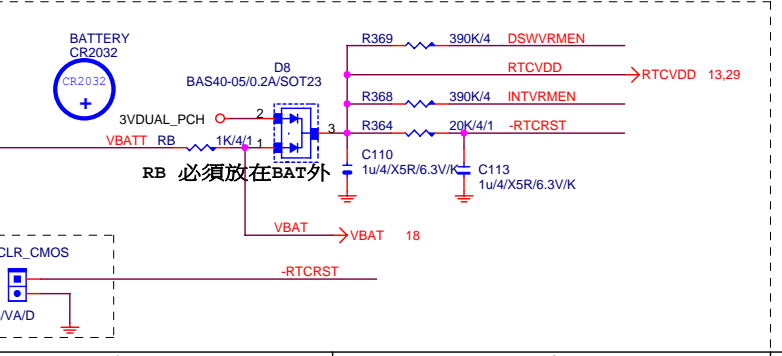
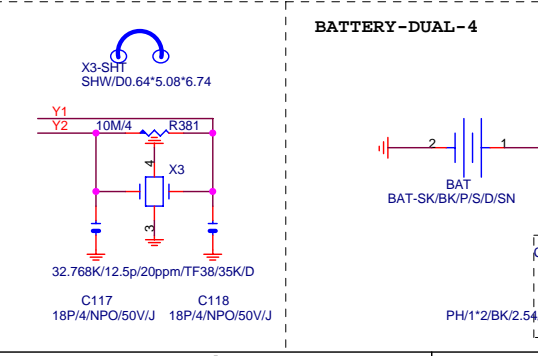
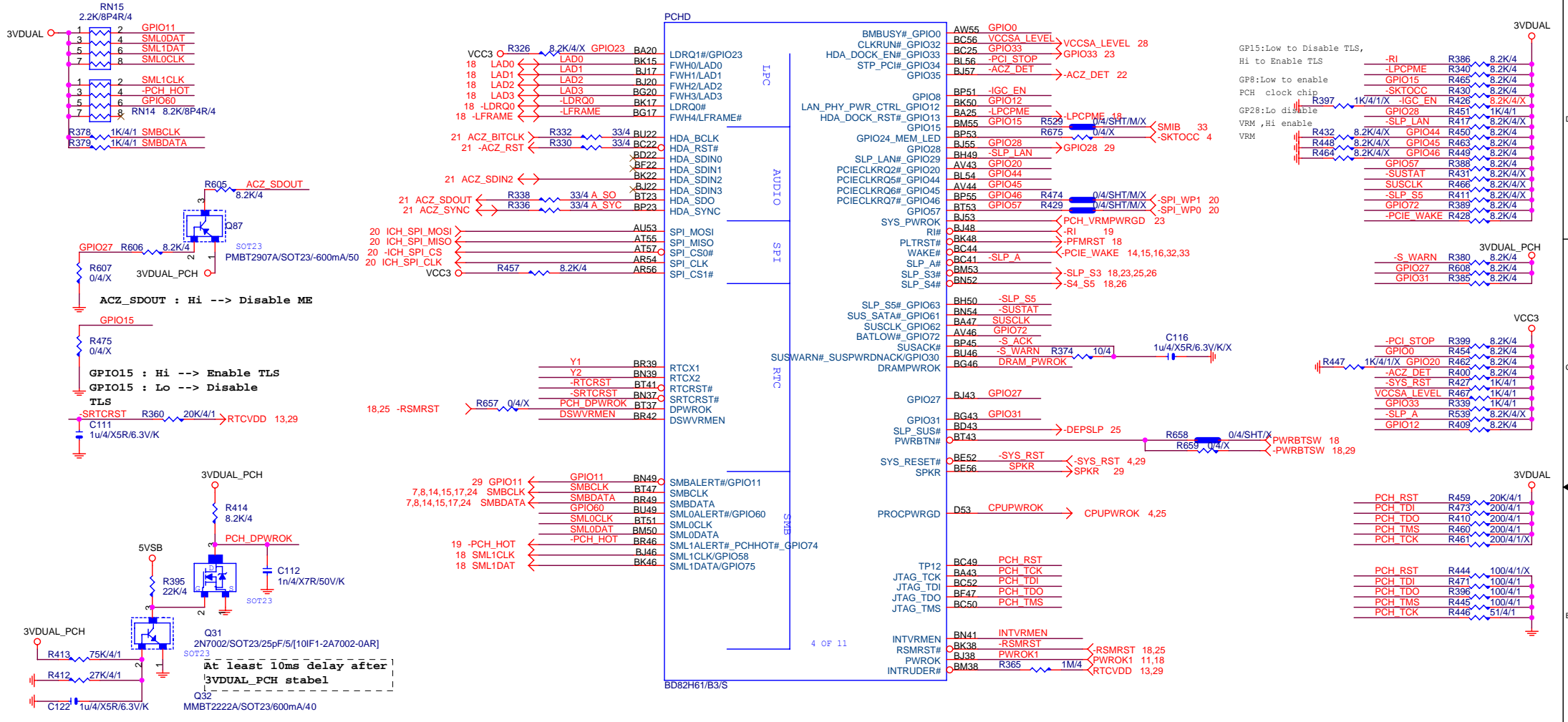


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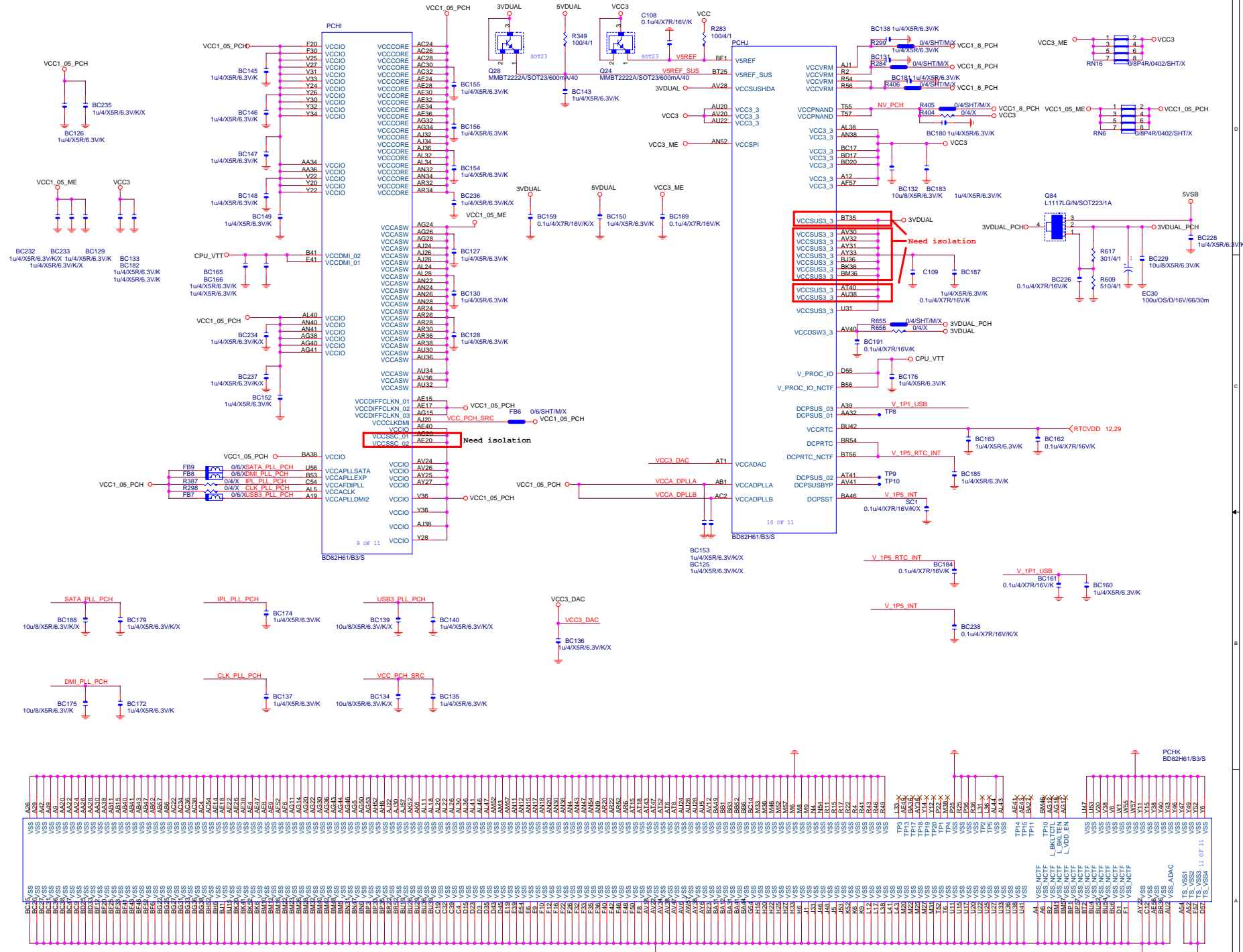
PCH HOST , SATA, PCI

GA-P61-USB3-B3

Title: GA-P61-USB3-B3
 Size B Document Number: GA-P61-USB3-B3 Rev 1.01
 Date: Friday, February 11, 2011 Sheet 11 of 34

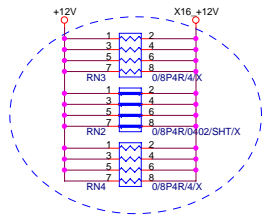


Gigabyte Technology		
PCH GPIO , CTRL , AUDIO		
Title	GA-P61-USB3-B3	
Size B	Document Number	Rev 1.01
Date: Friday, February 11, 2011	Sheet 12	of 34

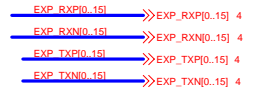




+12 protect short-wire test



PCIE X16:16/5/5/16



EXP_TXP0	C43	0.22u4XSR6.3V/K/EXP_TXP0C
EXP_TXN0	C36	0.22u4XSR6.3V/K/EXP_TXN0C
EXP_TXP1	C47	0.22u4XSR6.3V/K/EXP_TXP1C
EXP_TXN1	C49	0.22u4XSR6.3V/K/EXP_TXN1C
EXP_TXP2	C52	0.22u4XSR6.3V/K/EXP_TXP2C
EXP_TXN2	C54	0.22u4XSR6.3V/K/EXP_TXN2C
EXP_TXP3	C57	0.22u4XSR6.3V/K/EXP_TXP3C
EXP_TXN3	C59	0.22u4XSR6.3V/K/EXP_TXN3C
EXP_TXP4	C62	0.22u4XSR6.3V/K/EXP_TXP4C
EXP_TXN4	C64	0.22u4XSR6.3V/K/EXP_TXN4C
EXP_TXP5	C65	0.22u4XSR6.3V/K/EXP_TXP5C
EXP_TXN5	C67	0.22u4XSR6.3V/K/EXP_TXN5C
EXP_TXP6	C69	0.22u4XSR6.3V/K/EXP_TXP6C
EXP_TXN6	C71	0.22u4XSR6.3V/K/EXP_TXN6C
EXP_TXP7	C76	0.22u4XSR6.3V/K/EXP_TXP7C
EXP_TXN7	C75	0.22u4XSR6.3V/K/EXP_TXN7C
EXP_TXP8	C79	0.22u4XSR6.3V/K/EXP_TXP8C
EXP_TXN8	C80	0.22u4XSR6.3V/K/EXP_TXN8C
EXP_TXP9	C81	0.22u4XSR6.3V/K/EXP_TXP9C
EXP_TXN9	C82	0.22u4XSR6.3V/K/EXP_TXN9C
EXP_TXP10	C86	0.22u4XSR6.3V/K/EXP_TXP10C
EXP_TXN10	C87	0.22u4XSR6.3V/K/EXP_TXN10C
EXP_TXP11	C90	0.22u4XSR6.3V/K/EXP_TXP11C
EXP_TXN11	C91	0.22u4XSR6.3V/K/EXP_TXN11C
EXP_TXP12	C92	0.22u4XSR6.3V/K/EXP_TXP12C
EXP_TXN12	C93	0.22u4XSR6.3V/K/EXP_TXN12C
EXP_TXP13	C95	0.22u4XSR6.3V/K/EXP_TXP13C
EXP_TXN13	C96	0.22u4XSR6.3V/K/EXP_TXN13C
EXP_TXP14	C97	0.22u4XSR6.3V/K/EXP_TXP14C
EXP_TXN14	C98	0.22u4XSR6.3V/K/EXP_TXN14C
EXP_TXP15	C99	0.22u4XSR6.3V/K/EXP_TXP15C
EXP_TXN15	C100	0.22u4XSR6.3V/K/EXP_TXN15C

PCI-E REV:1.1--> 2.5GHZ

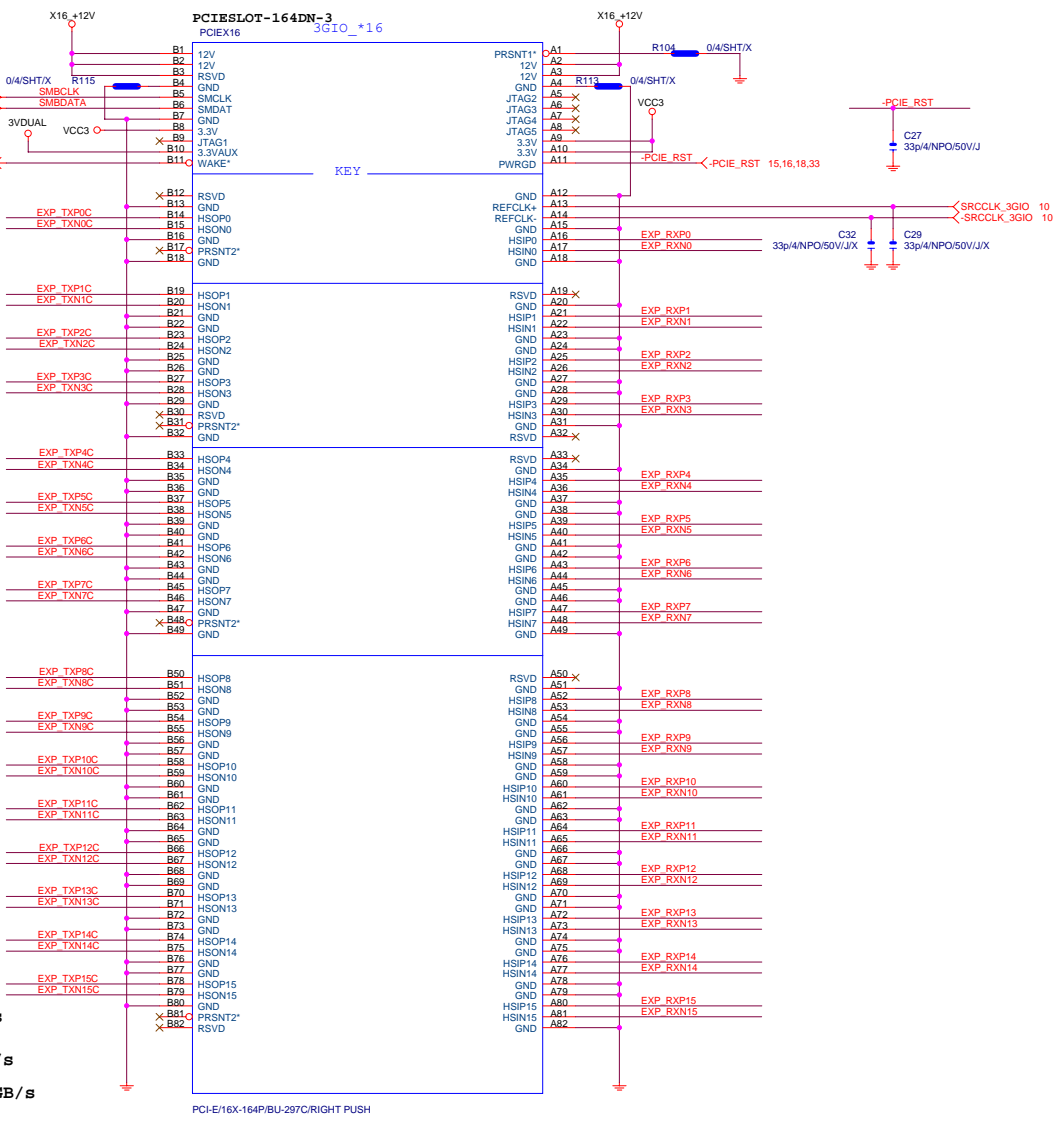
PCE-E X1(單向) BANDWIDTH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

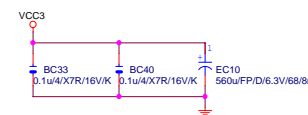
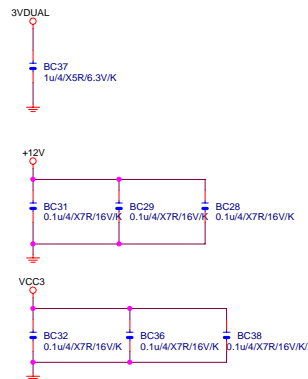
PCE-E X1(雙向) BANDWIDTH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

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

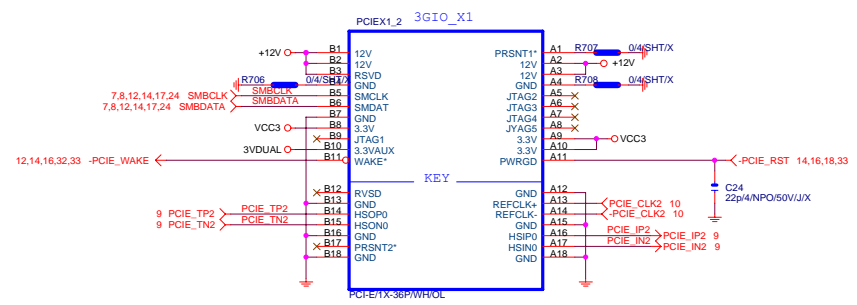
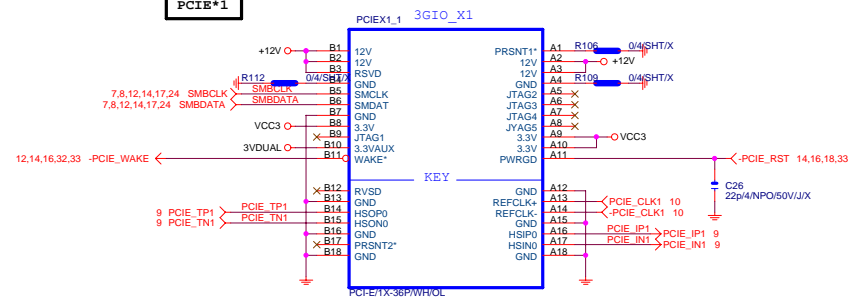
PCE-E X16(雙向) BANDWIDTH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

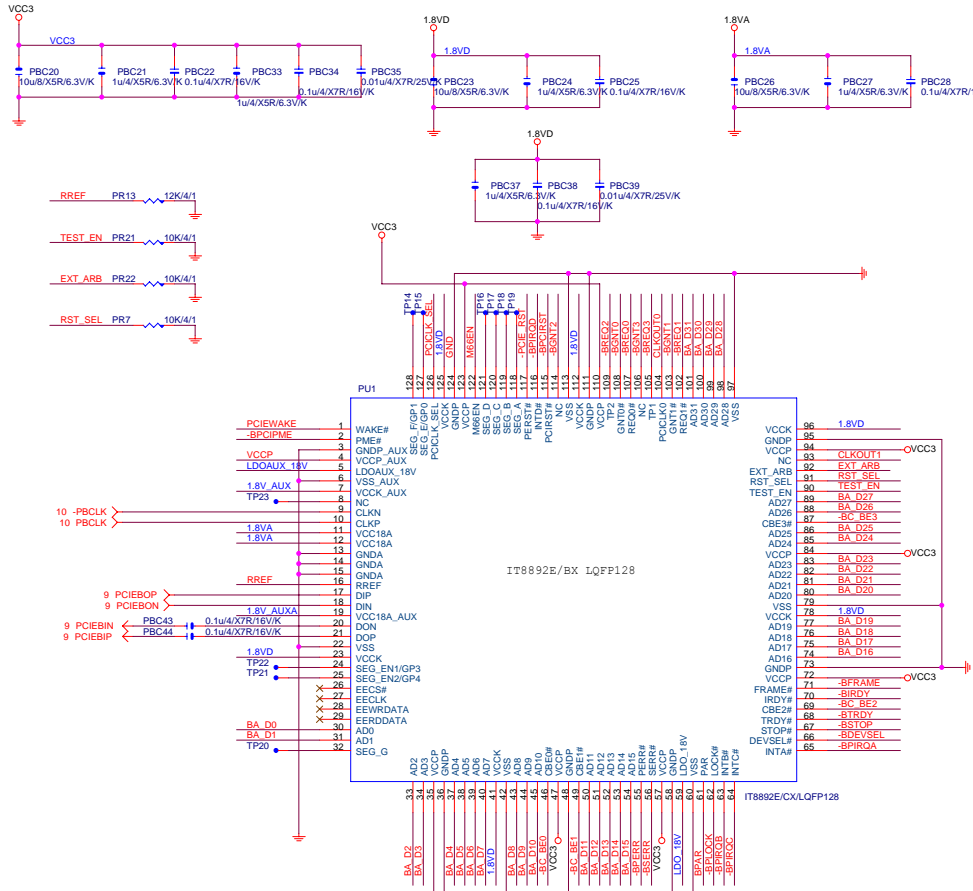
PCI-E REV:2.0--> 5GHZ



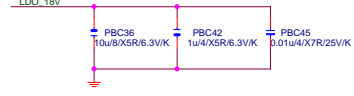
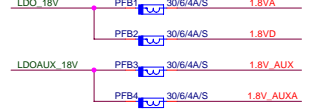


PCIE*1

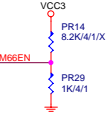
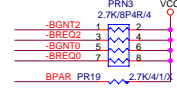
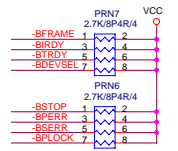
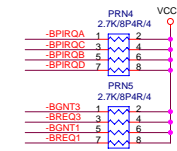
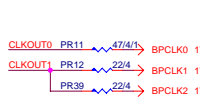




- BA_D0_311 <-> BA_D[0..31] 17
- BC_BE0 <-> -BC_BE0 17
- BC_BE1 <-> -BC_BE1 17
- BC_BE2 <-> -BC_BE2 17
- BC_BE3 <-> -BC_BE3 17
- BPERR <-> -BPERR 17
- BSERR <-> -BSERR 17
- BPARR <-> BPARR 17
- BPLOCK <-> -BPLOCK 17
- BDEVSEL <-> -BDEVSEL 17
- BSTOP <-> -BSTOP 17
- BTRDY <-> -BTRDY 17
- BIRDY <-> -BIRDY 17
- BFRAME <-> -BFRAME 17
- PCIE_RST <-> -PCIE_RST 14,15,16,33
- BPCIRST <-> -BPCIRST 17
- BREQ0 <-> -BREQ0 17
- BREQ1 <-> -BREQ1 17
- BGN10 <-> -BGN10 17
- BGN11 <-> -BGN11 17
- BREQ2 <-> -BREQ2 17
- BGN12 <-> -BGN12 17

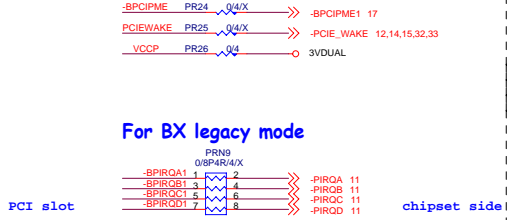
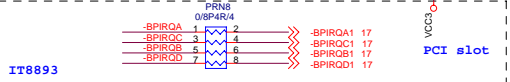


PCB layout note:
Close to chip

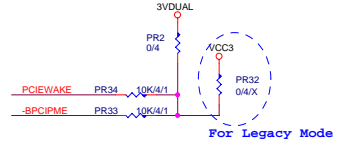


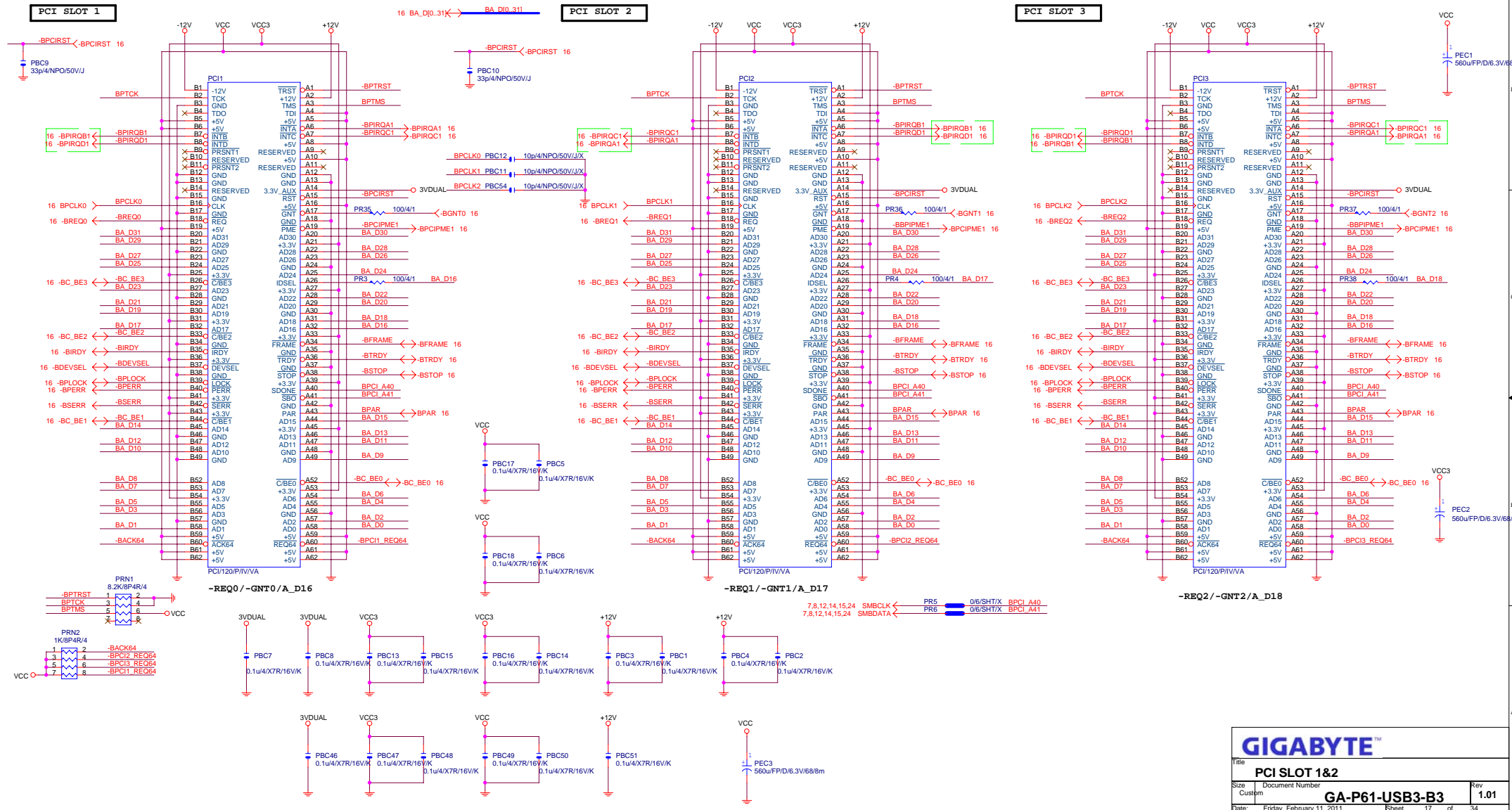
High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

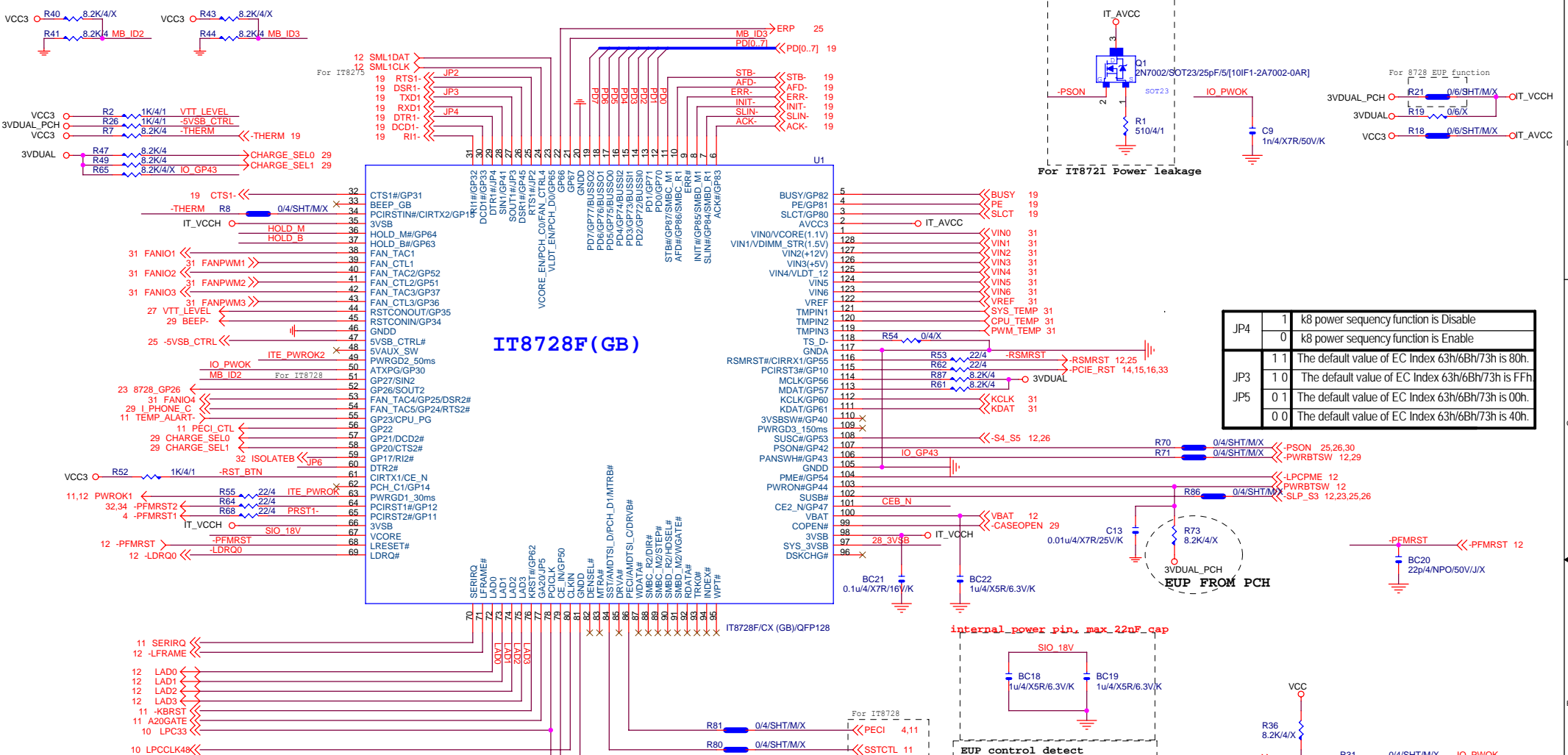
High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip



Legacy Mode : remove PRN12, PR42, PR43, PR40
add PRN11, PR38, PR39



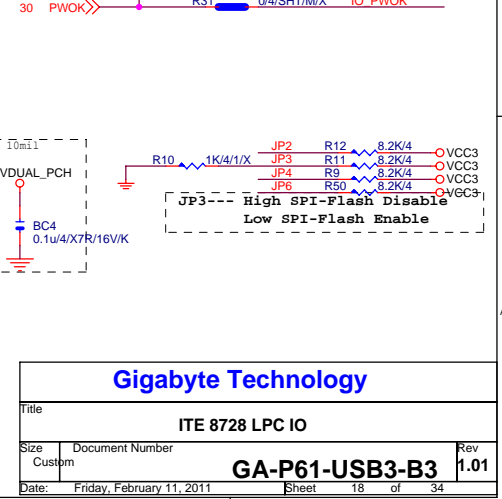
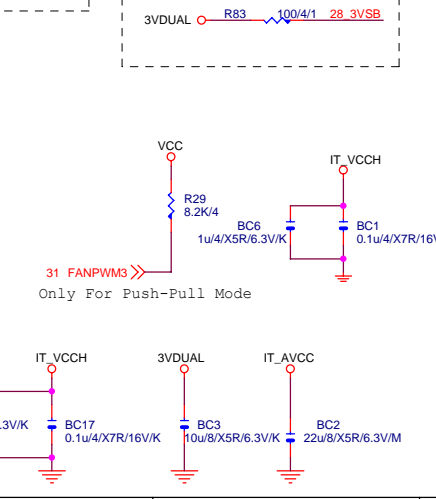
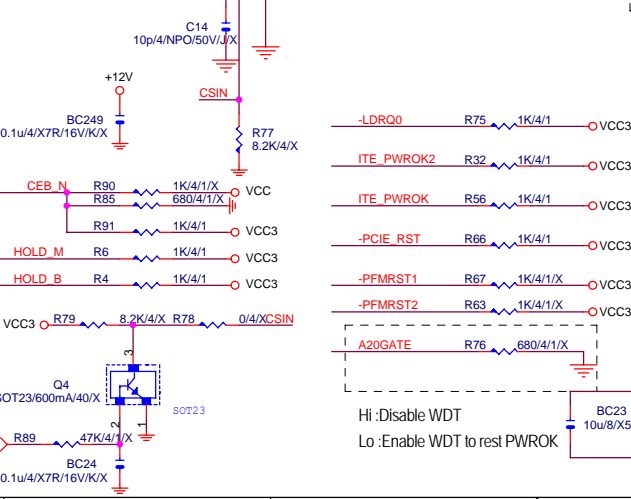
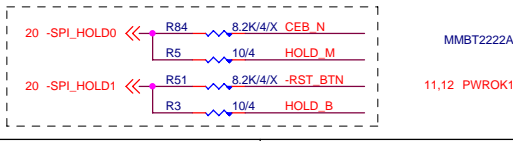




IT8728F(GB)

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	11	The default value of EC Index 63h/6Bh/73h is 80h.
	10	The default value of EC Index 63h/6Bh/73h is FFh
JP5	01	The default value of EC Index 63h/6Bh/73h is 00h.
	00	The default value of EC Index 63h/6Bh/73h is 40h.

	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PECI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRV#B#/PCH_C	PECI/AMDTSI_C/DRV#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2 (VCC5)
PIN96	VIN2	VIN1 (VCC12)
PIN97	VIN1 (VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0 (VCC12)	VIN0/VCORE(1.1V)

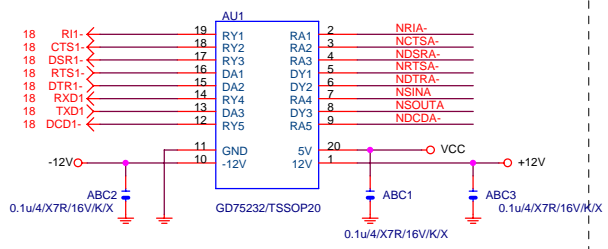


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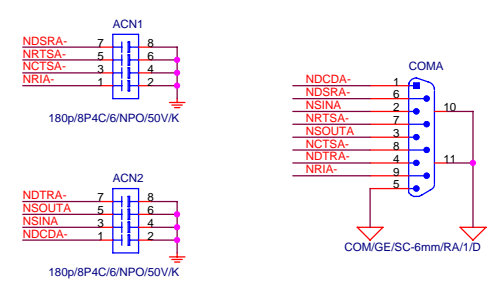
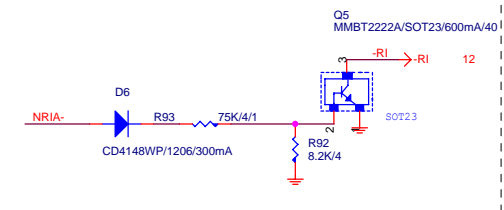
ITE 8728 LPC IO

Title	ITE 8728 LPC IO		Rev	1.01
Size	Custom	Document Number	GA-P61-USB3-B3	
Date:	Friday, February 11, 2011	Sheet	18	of 34

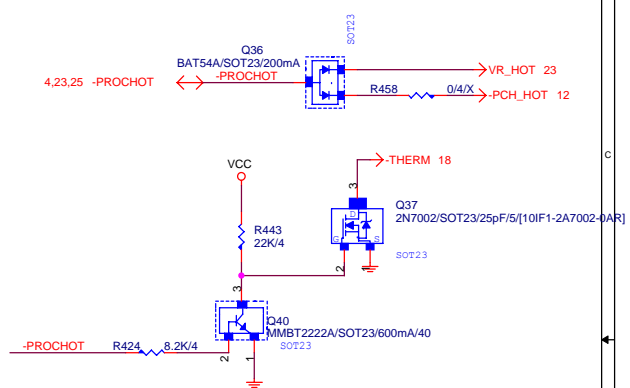
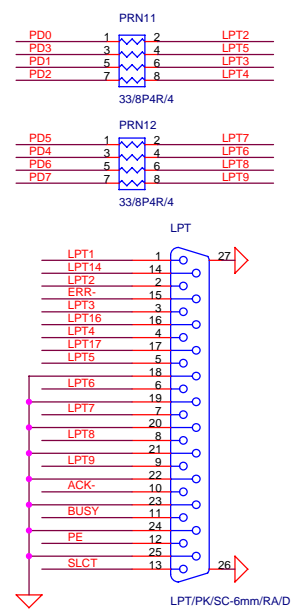
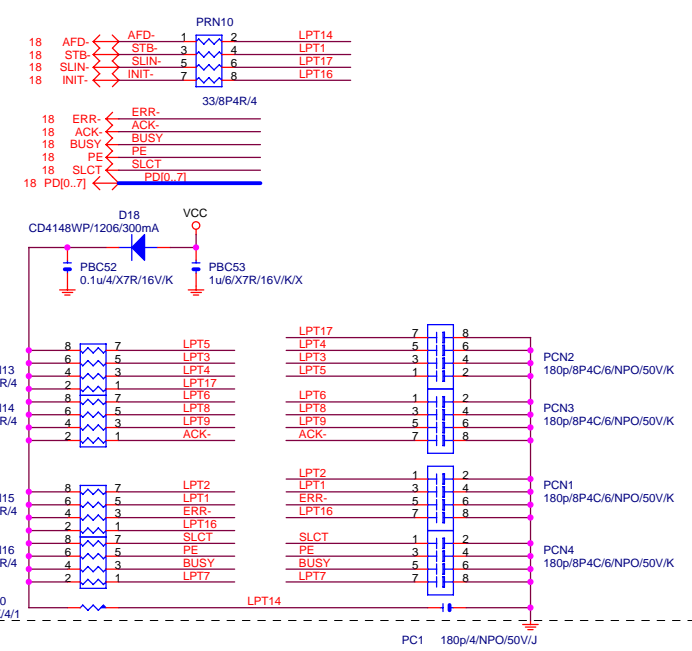
COMA

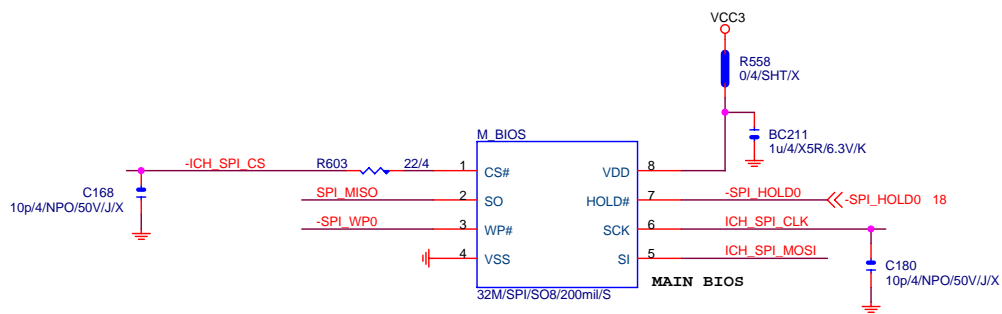
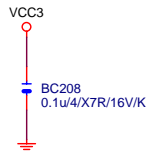


COM RI

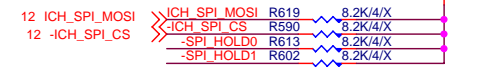


LPT PORT





MOSI For DMI RX Termination Voltage



Default int pull up



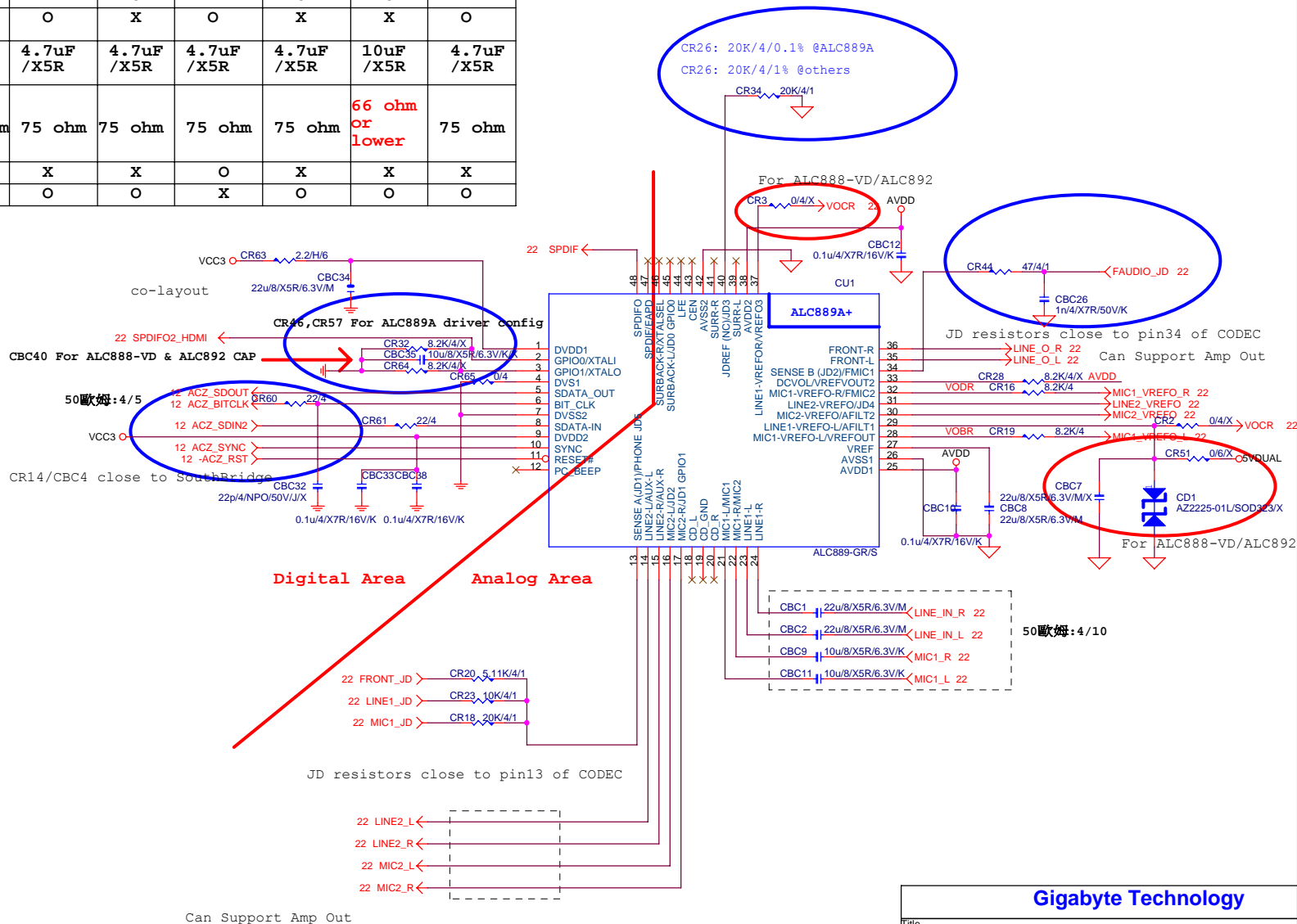
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

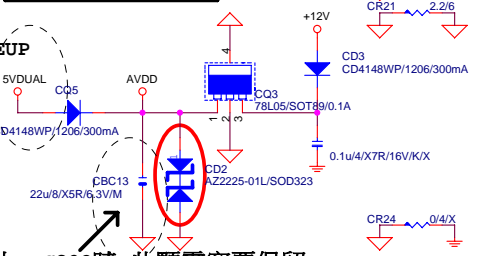
Gigabyte Technology

Title		BIOS	
Size Custom	Document Number	GA-P61-USB3-B3	
Date:	Friday, February 11, 2011	Sheet	20 of 34
			Rev 1.01

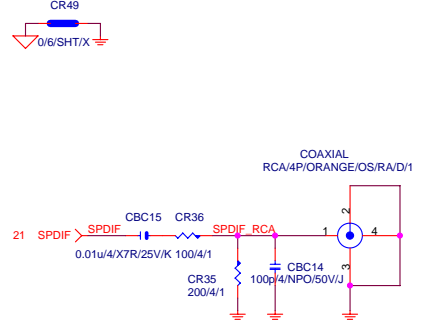
	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A
CR32	X	X	X	X	X	X	O
CR64	X	X	X	X	X	X	O
CR65	O	O	X	X	X	O	O
CBC35	X	X	X	10uF/X5R	10uF/X5R	X	X
CR28	O	X	X	X	X	X	X
CR34	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%
CR31	X	X	O	X	O	O	X
CR30	O	O	X	O	X	X	O
CBC1/CBC2/CBC5/ CBC6/CBC9/CBC11	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	10uF /X5R	4.7uF /X5R
CR5/CR8/CR11/CR4/ CR17/CR22/CR45/CR33/ CR47/CR40/CR26/CR37/ CR13/CR11/CR57/CR53	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	66 ohm or lower	75 ohm
CR51/CD1/CBC7	X	X	X	O	X	X	X
CD2/CD3/CQ3/CQ5	O	O	O	X	O	O	O



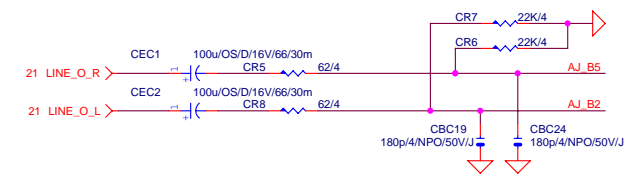
CODEC POWER/EMI PAD



上ALC892時,此顆電容要保留
ADD CD2 For ESD PROTECT DIODE

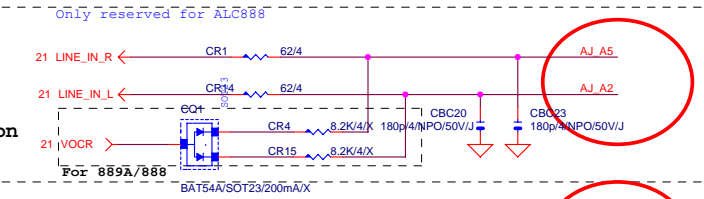


LINE-OUT

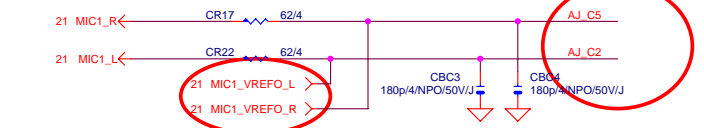


LINE-IN

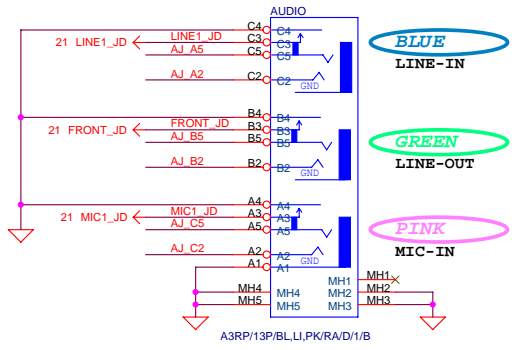
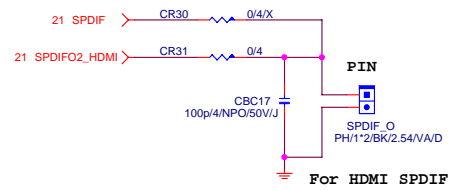
Verify MIC function in LINE-in



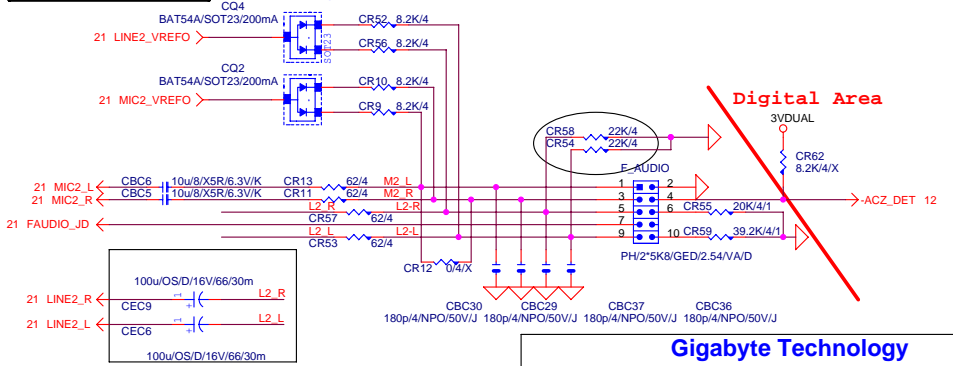
MIC-IN



SPDIF_OUT

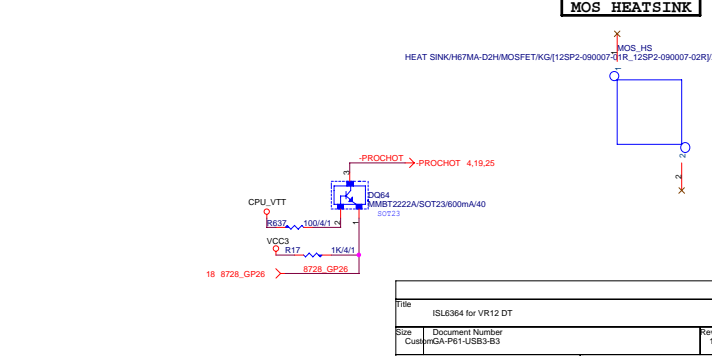
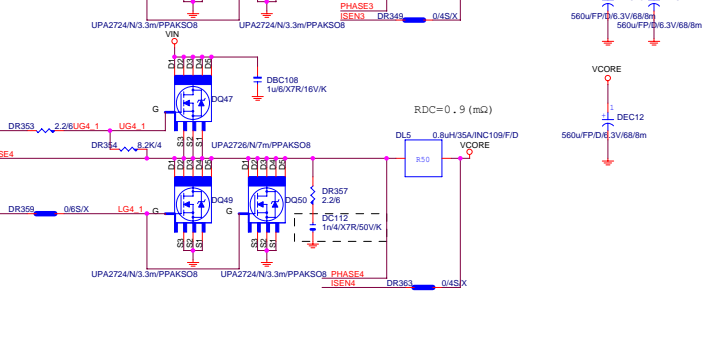
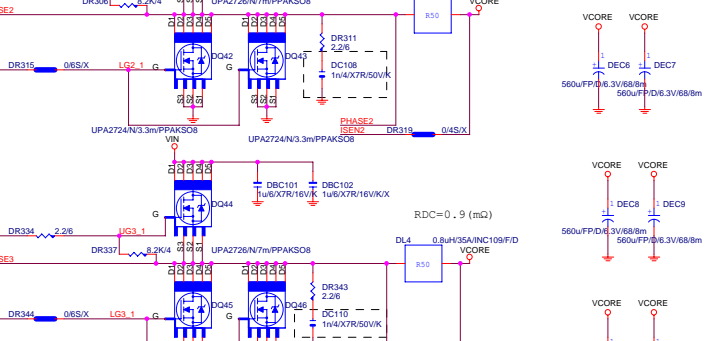
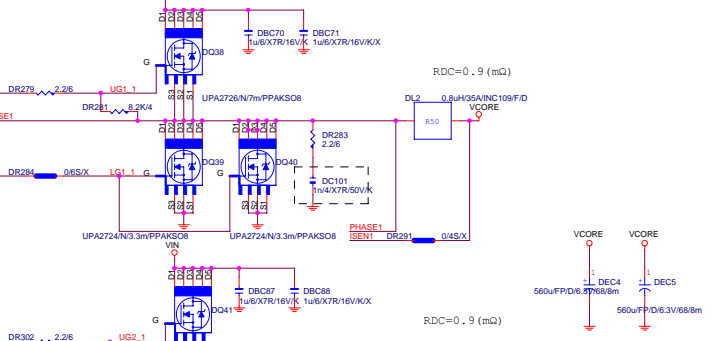
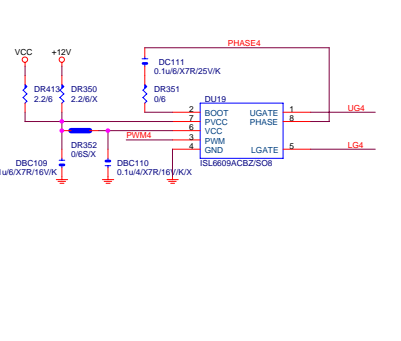
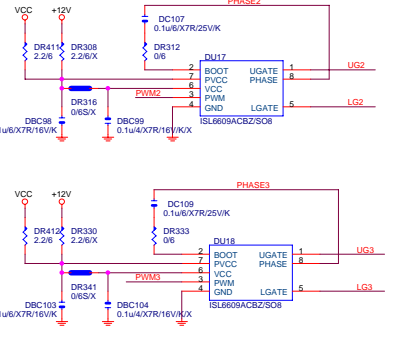
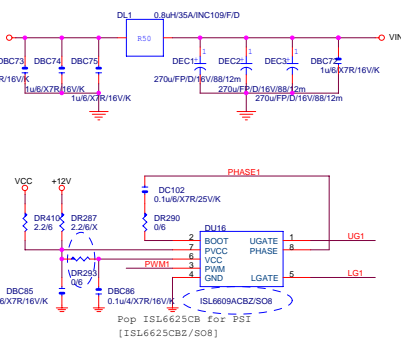
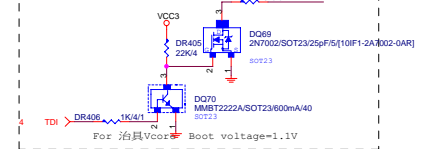
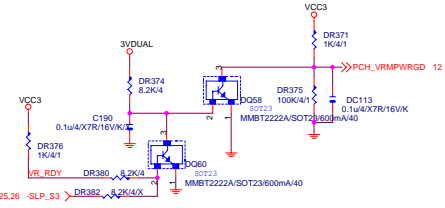
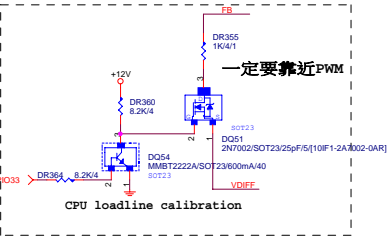
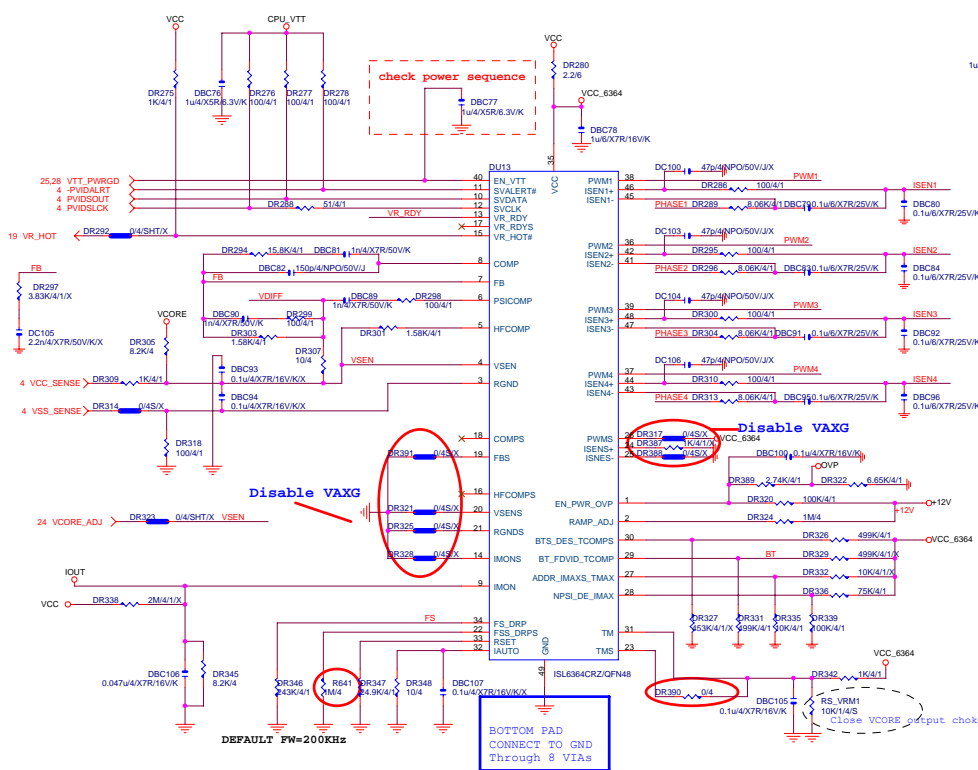


AZALIA FRONT PANEL

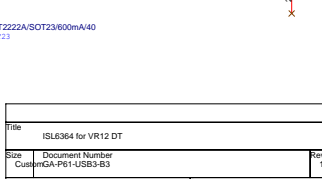
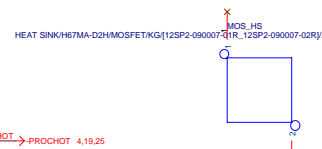


Digital Area

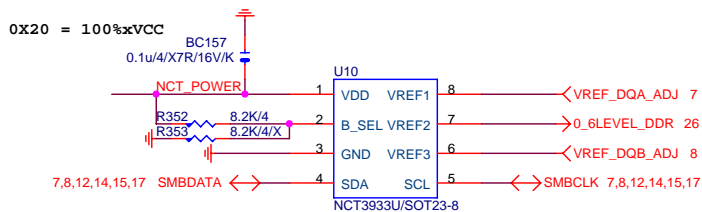
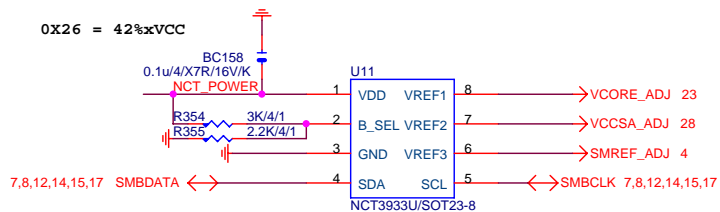
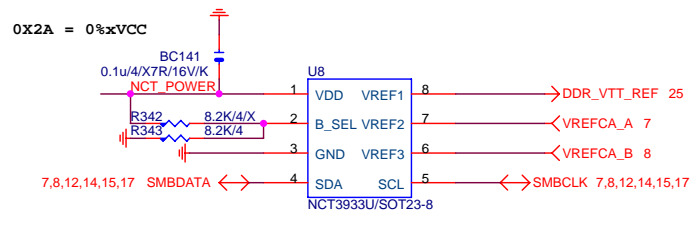
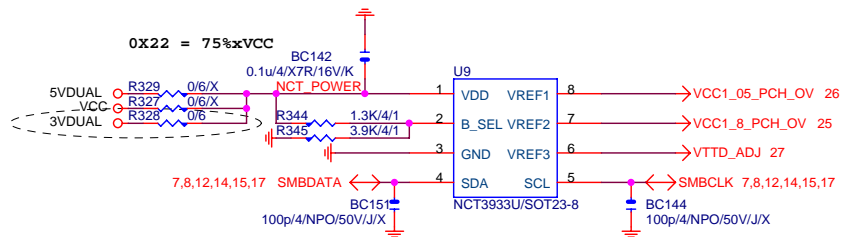
Gigabyte Technology		
AUDIO JACK		
GA-P61-USB3-B3		
Title	Document Number	Rev
Size	Custom	1.01
Date:	Friday, February 11, 2011	Sheet 22 of 34



MOS HEATSINK

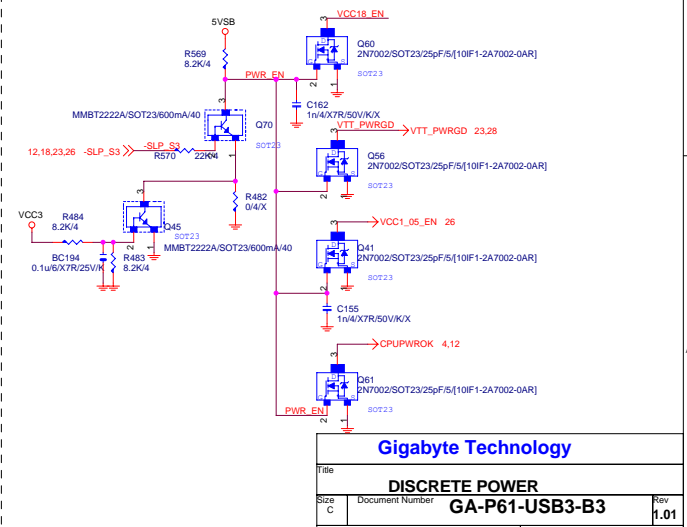
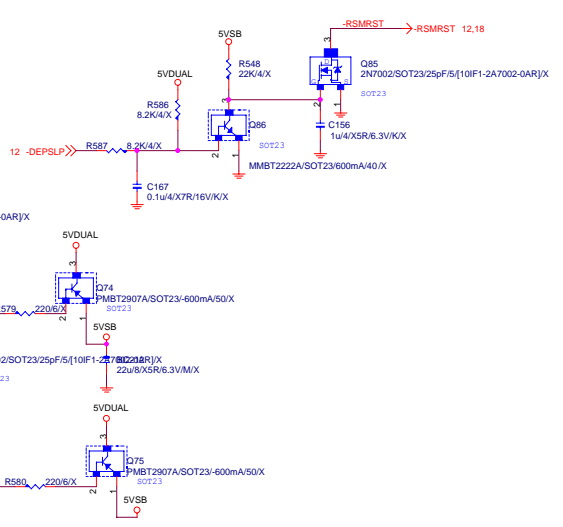
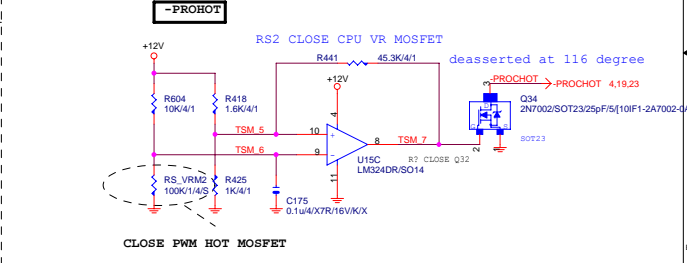
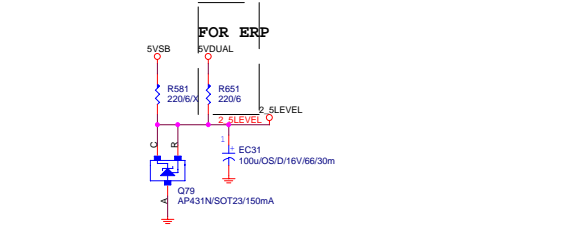
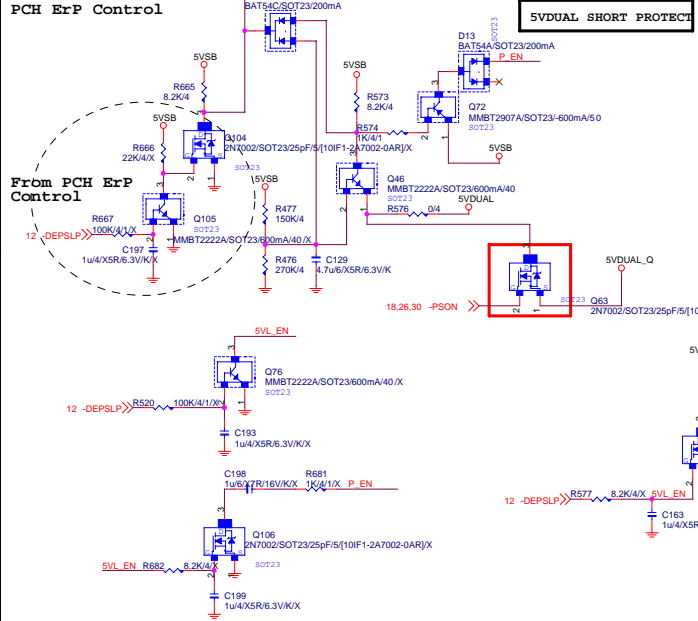
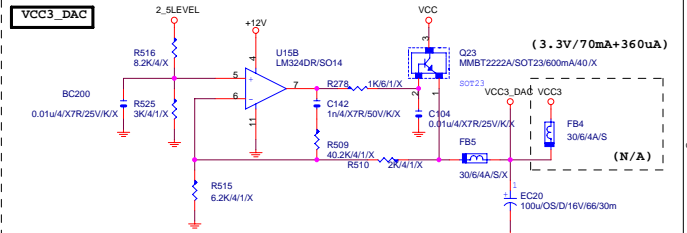
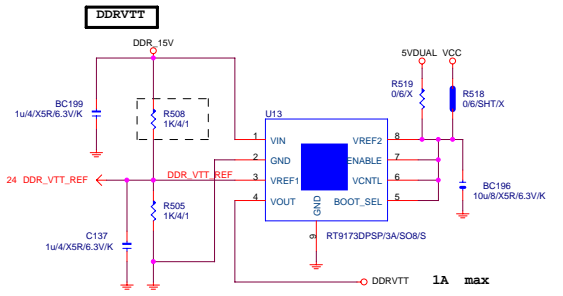
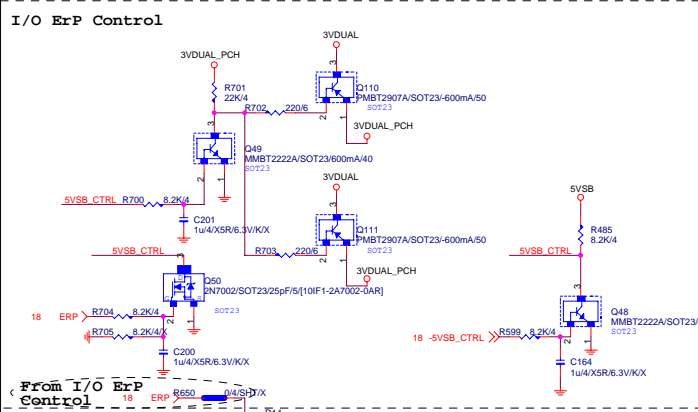
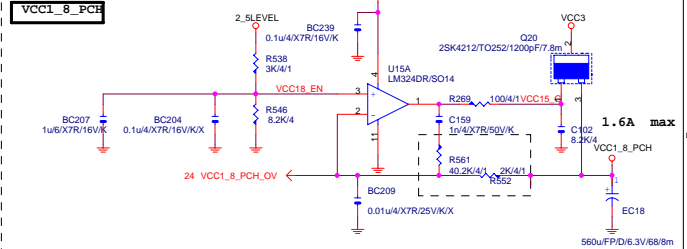
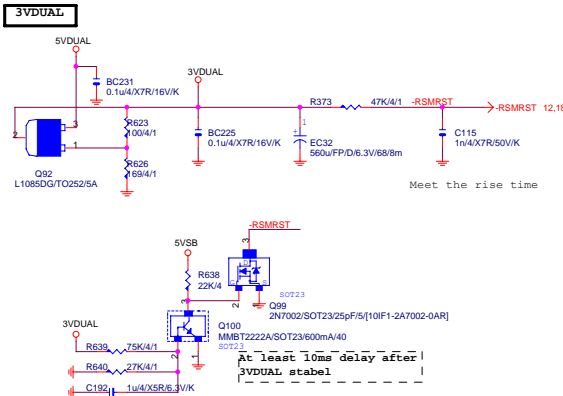
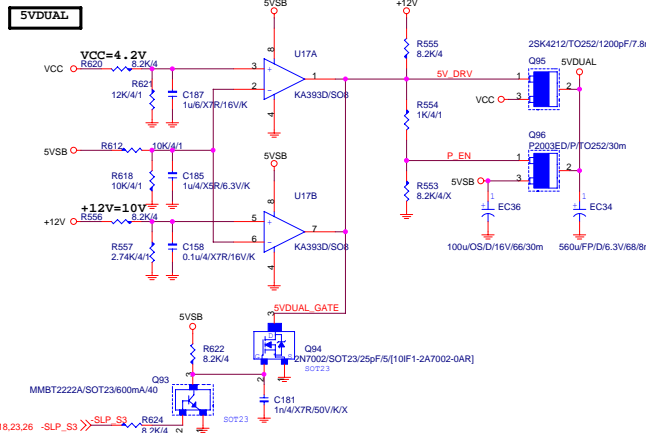


Title	ISL6364 for VR12 DT	Rev	01
Size	Document Number		
Customer	Customer: P11-45B3-B3		
Date	Friday, February 11, 2011	Sheet	23 of 34

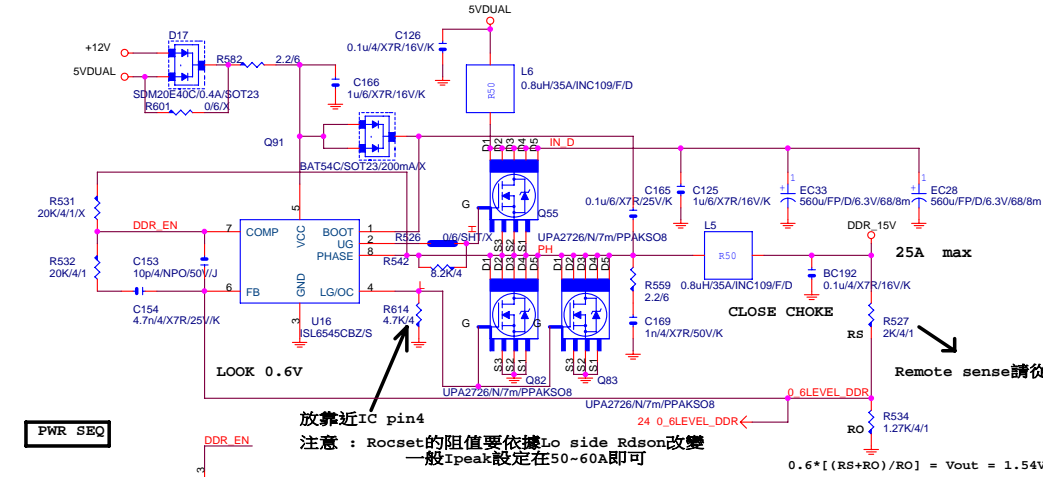


up6262	0X2A	0X20	0X22	0X26
VREF1	DDR_VTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAV	VREF_DDRB_DQ	CPU_VTT	SMREF

Gigabyte Technology		
Title CPU CORE VR-2		
Size Custom	Document Number GA-P61-USB3-B3	Rev 1.01
Date: Friday, February 11, 2011	Sheet 24	of 34



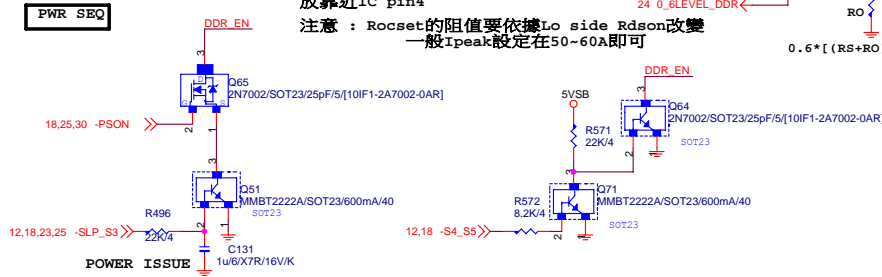
DDR1.8V



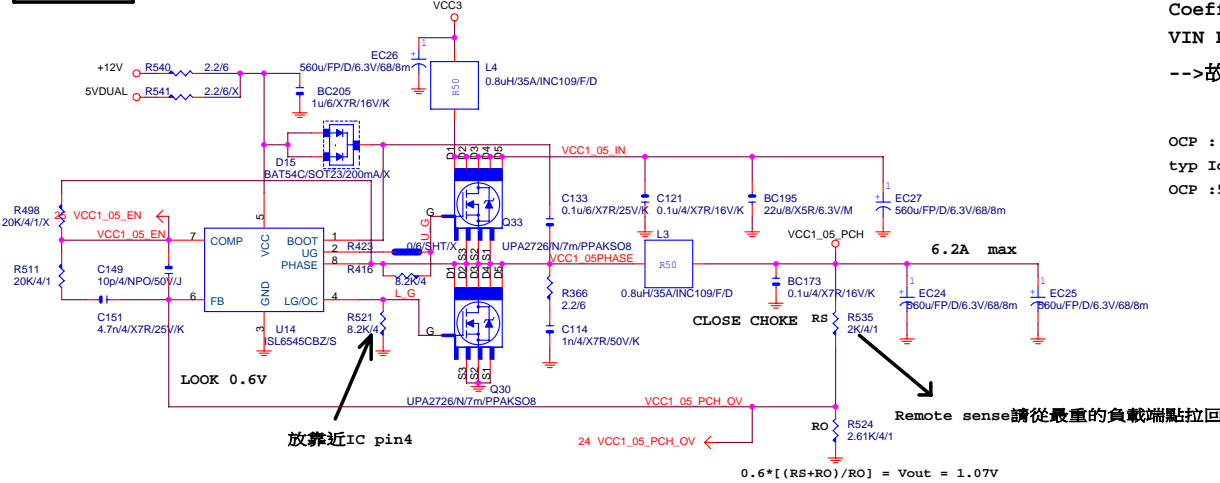
VIN=5V, VOUT=1.5V, IOU=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A

OCp : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 typ $I_{ocset} = 20\text{uA}$, $R_{ocset} = 4.7\text{k}$
 OCp
 : $67.14\text{A} = (2 \times 20\text{uax} 4.7\text{k}) / (5.6\text{m} / 5.6\text{m})$

PWR SEQ



VCC1_05_PCH



VIN=3.3V, VOUT=1.05V, IOU=7.5A, PHASE=1
 IRMS=3.4875A
 1000u/D/6.3V/8C/30m RIPPLE CURRENT=1.14A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=1.14X1.7=1.938A(85°C)
 -->故電解電容須2X1.938=3.876>3.4875A

OCp : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 typ $I_{ocset} = 20\text{uA}$, $R_{ocset} = 8.2\text{k}$
 OCp : $58.57\text{A} = (2 \times 20\text{uax} 8.2\text{k}) / 5.6\text{m}$

Gigabyte Technology

Title DDR_15V			Rev 1.01
Size Custom	Document Number GA-P61-USB3-B3		
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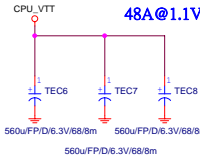
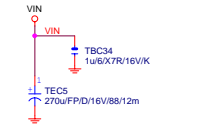
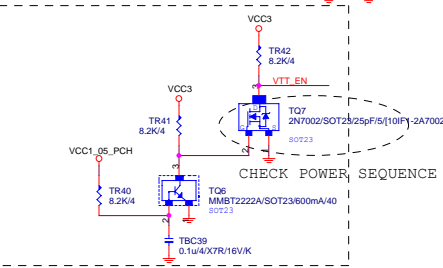
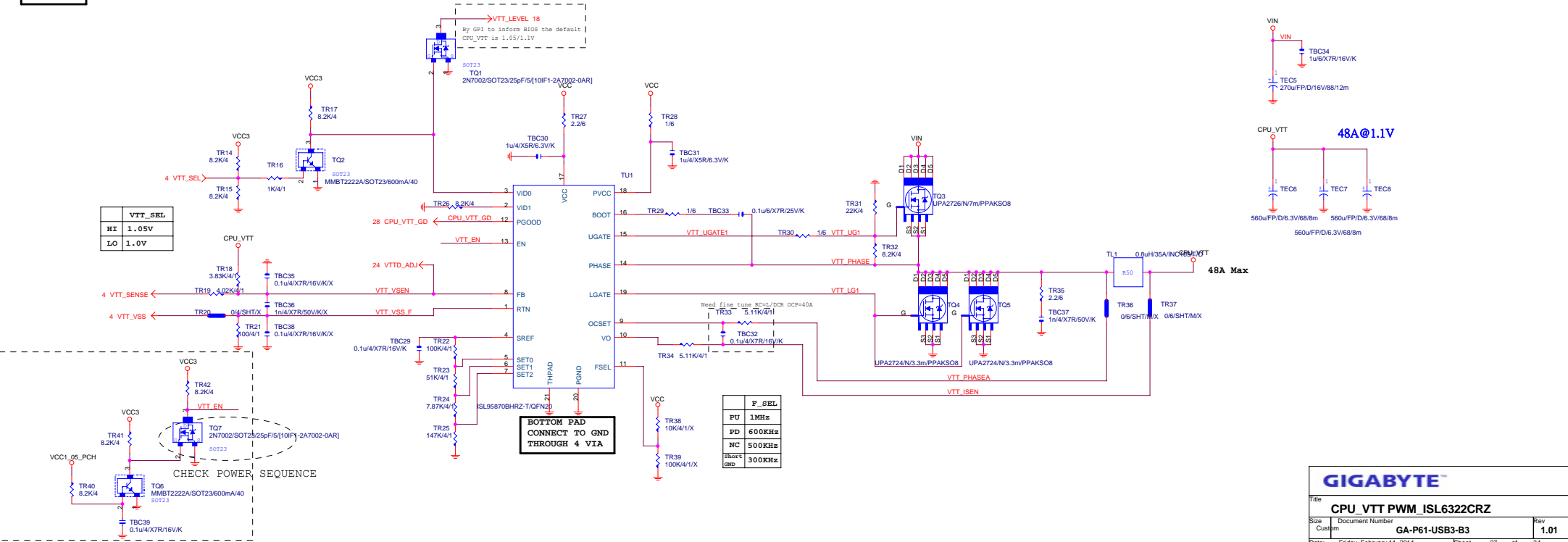
CPU_VTT

VTT_SEL	
HI	1.05V
LO	1.0V

VTT_LEVEL 18
By GP1 to inform BIOS the default CPU_VTT is 1.05/1.1V

BOTTOM PAD CONNECT TO GND THROUGH 4 VIA

F_SEL	
PU	1MHz
PD	600KHz
NC	500KHz
Short GND	300KHz



48A Max

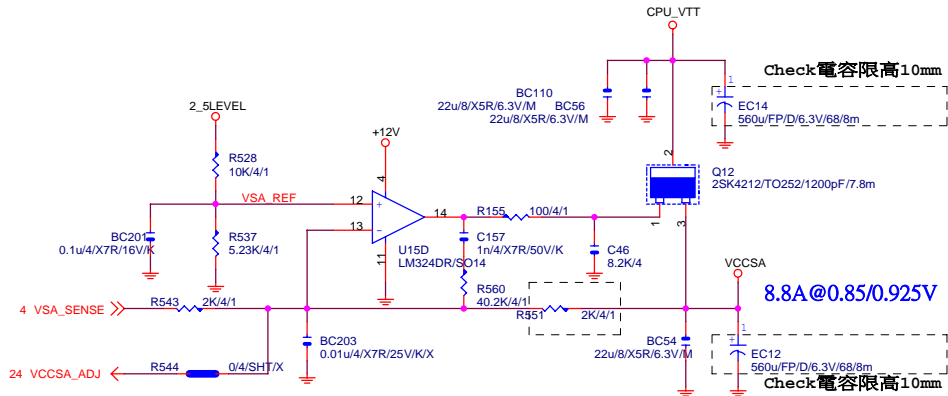
GIGABYTE™

Title: **CPU_VTT PWM_ISL6322CRZ**

Size: Document Number
 Custom: **GA-P61-USB3-B3** Rev: **1.01**

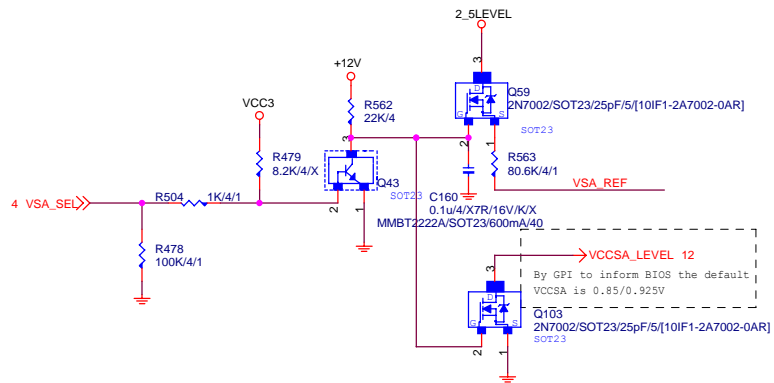
Date: Friday, February 11, 2011 Sheet 27 of 34

VCC_SA

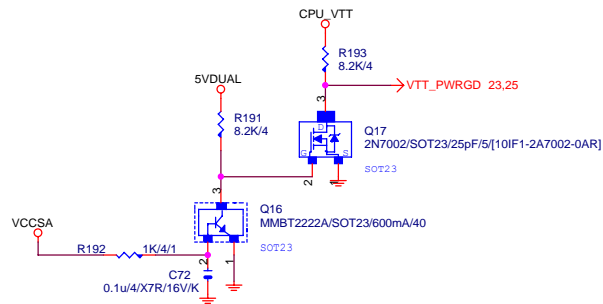
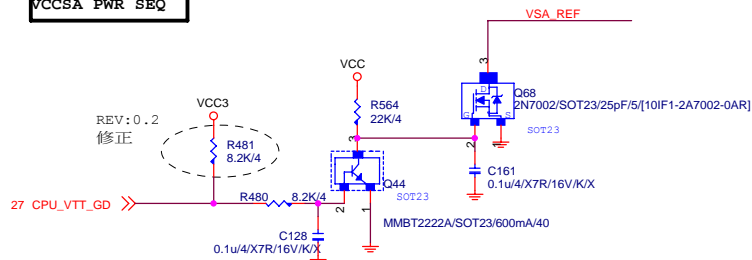


PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

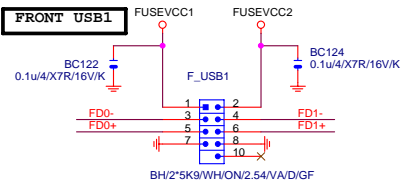


VCCSA PWR SEQ



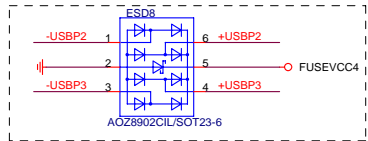
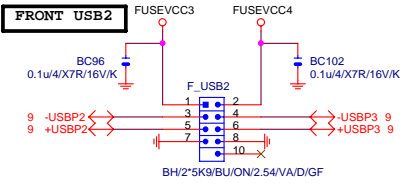
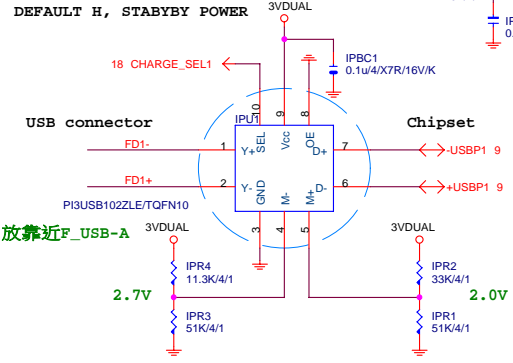
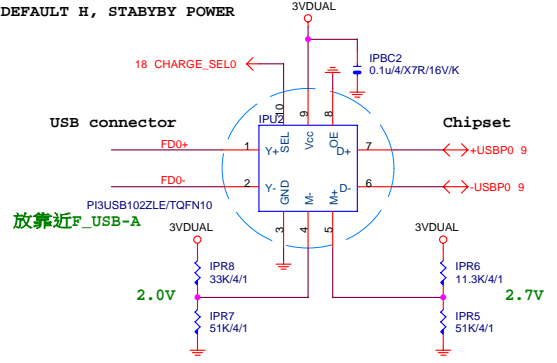
Gigabyte Technology

Title			Rev
CPU VTT PWM_ISL6312			
Size	Document Number	Rev	
Custom	GA-P61-USB3-B3	1.01	
Date:	Friday, February 11, 2011	Sheet	28 of 34

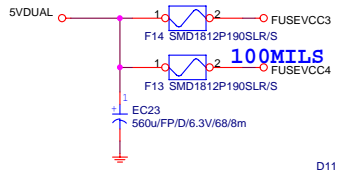


iPhone charger circuit

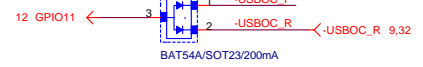
DEFAULT H, STABBY POWER



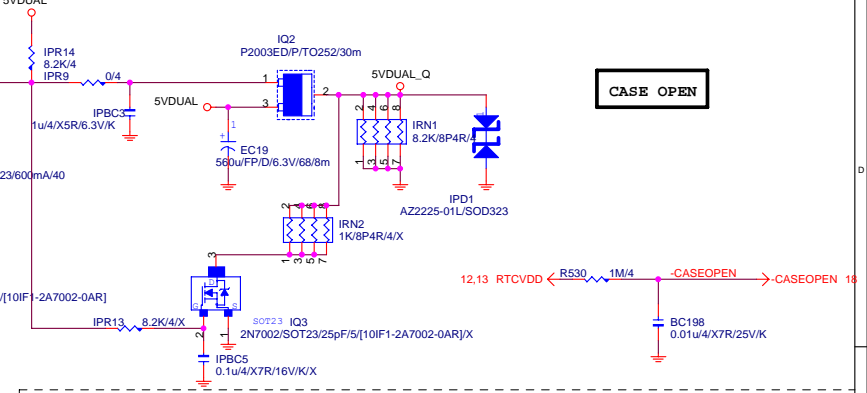
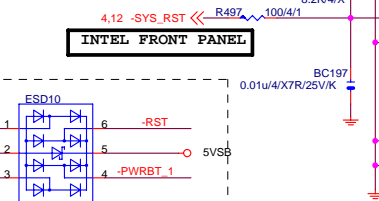
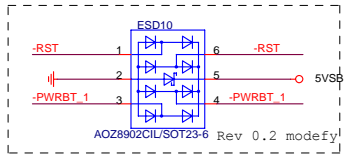
Close to connector



F_USB POWER PROTECT

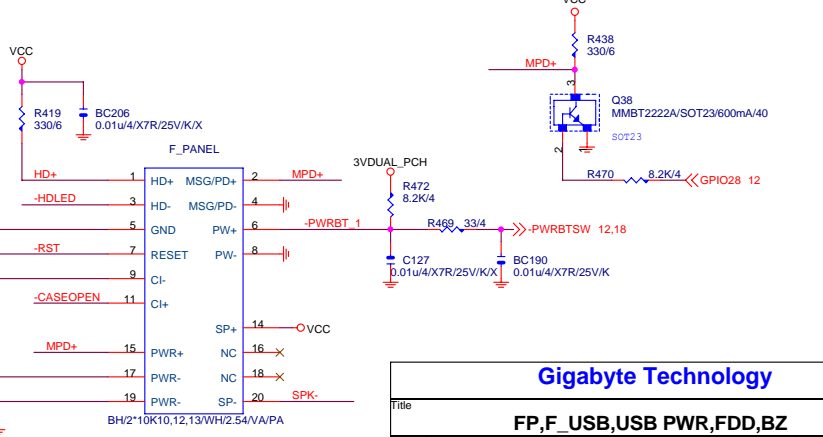
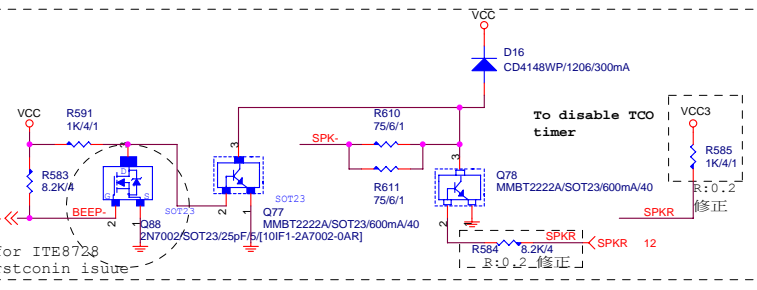
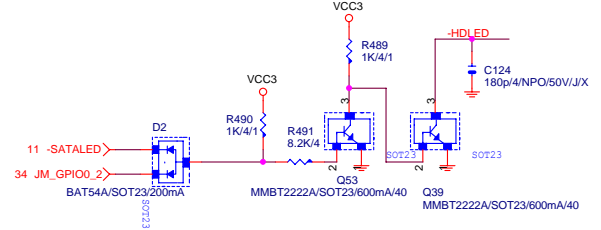


INTEL FRONT PANEL



CASE OPEN

SATA LED



Gigabyte Technology

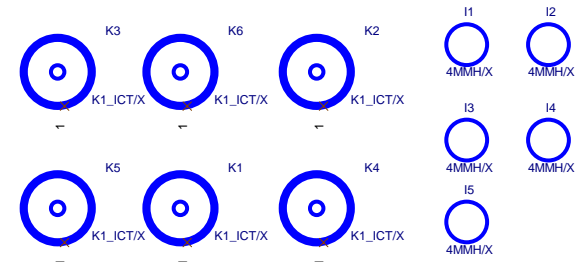
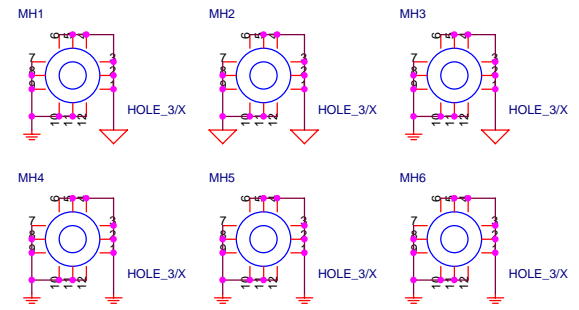
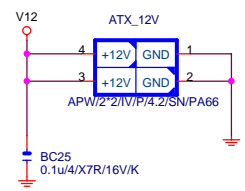
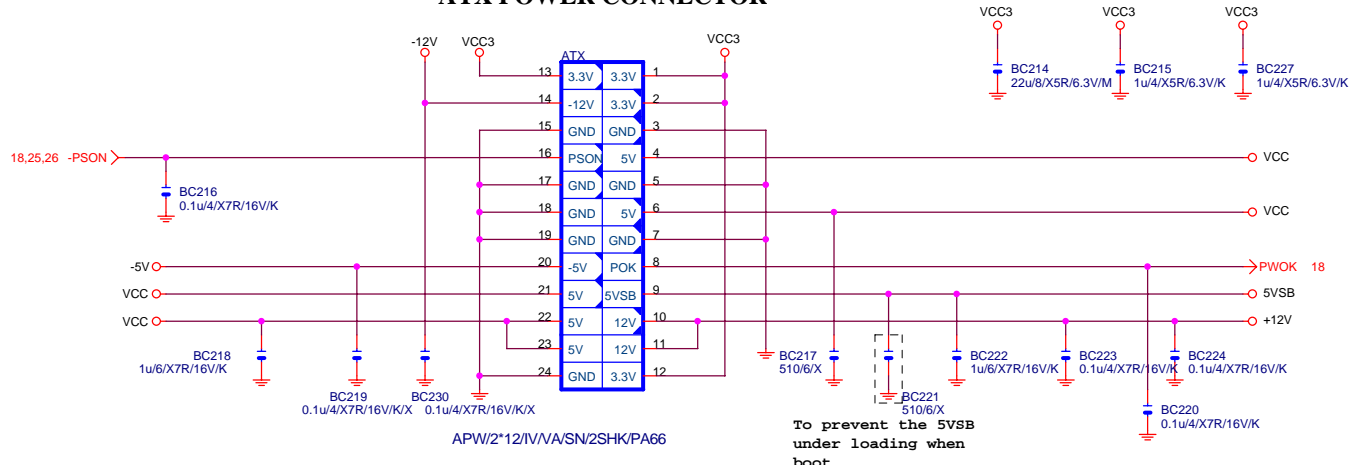
FP,F_USB,USB PWR,FDD,BZ

GA-P61-USB3-B3

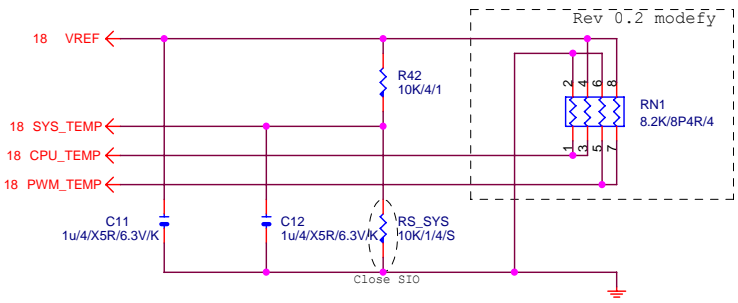
Rev 1.01

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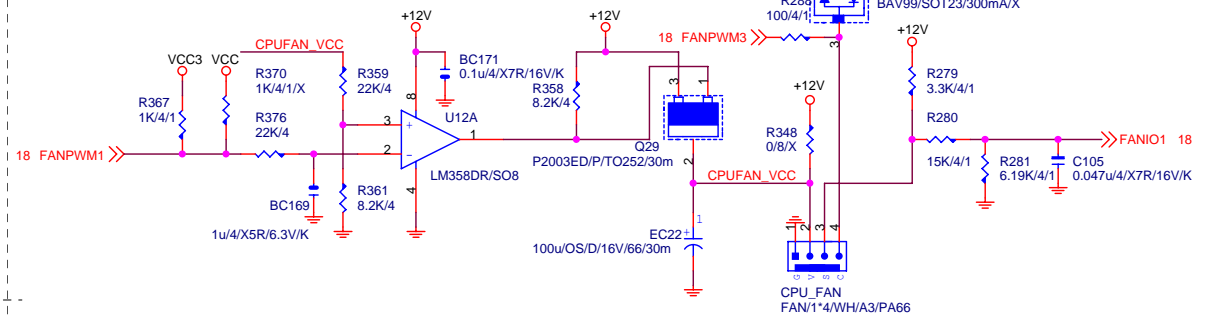
ATX POWER CONNECTOR



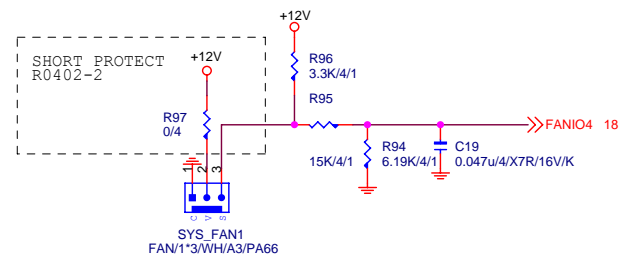
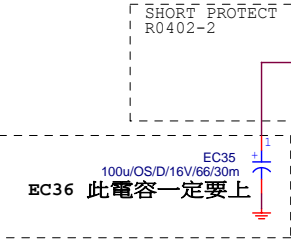
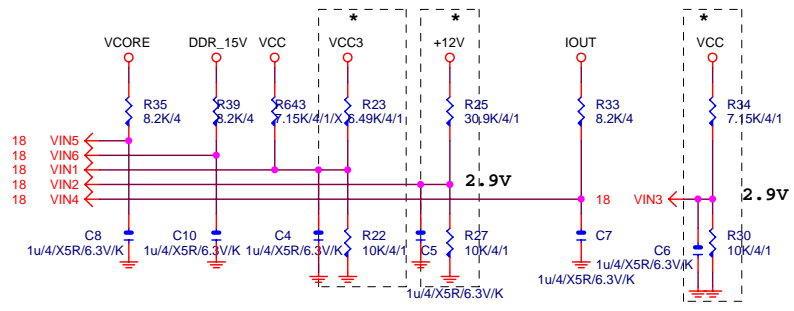
TEMP H/W MONITOR



CPU SMART FAN



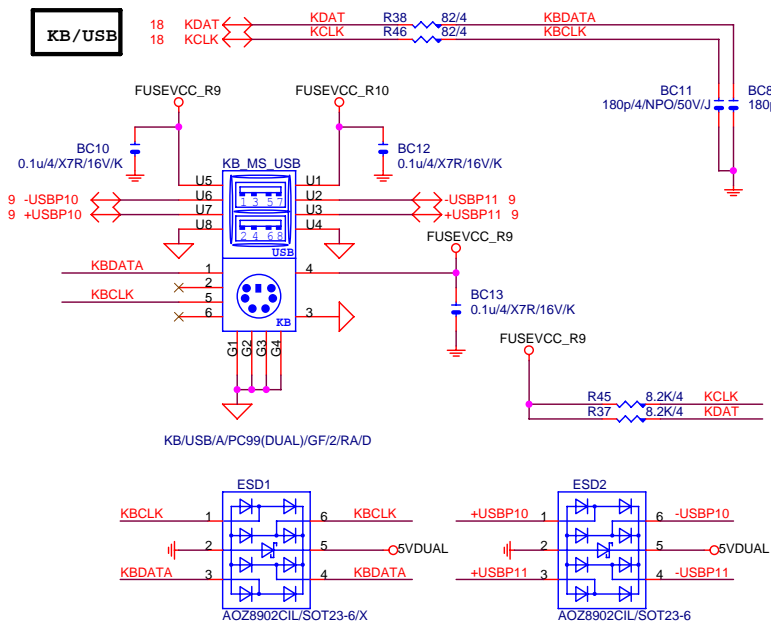
VOLTAGE-- H/W MONITOR



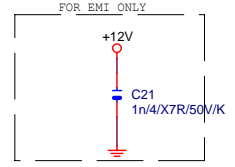
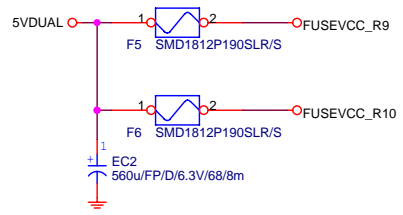
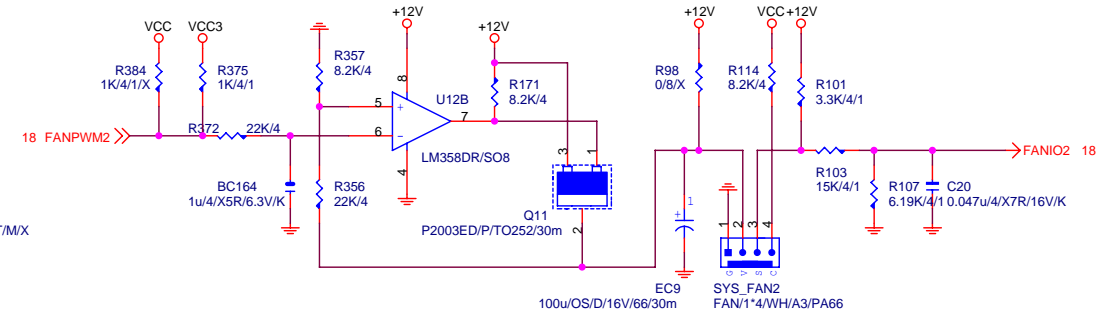
18 VIN0 ← CPU_VTT
 C1 1u4/X5R/6.3V/K

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

KB/USB



Linear SYS_FAN

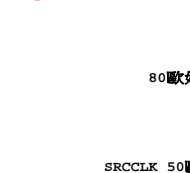
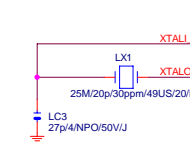


Gigabyte Technology			
Title HWM,KB/MS, FAN CTRL			
Size Custom	Document Number GA-P61-USB3-B3		Rev 1.01
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PCIe-1G LAN

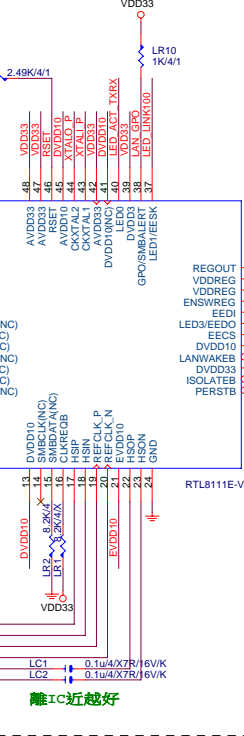
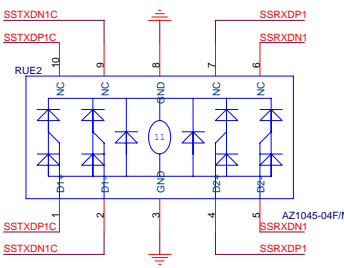
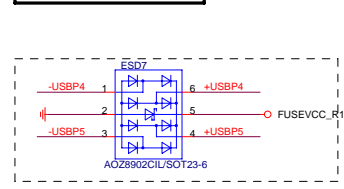
Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

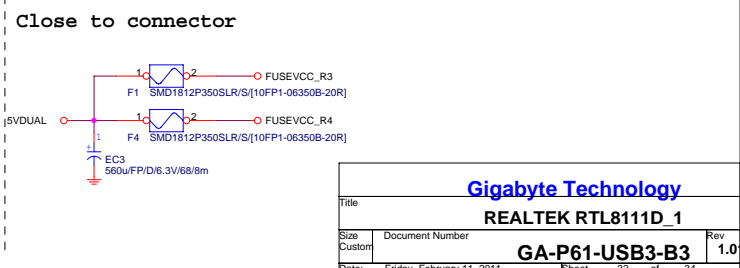
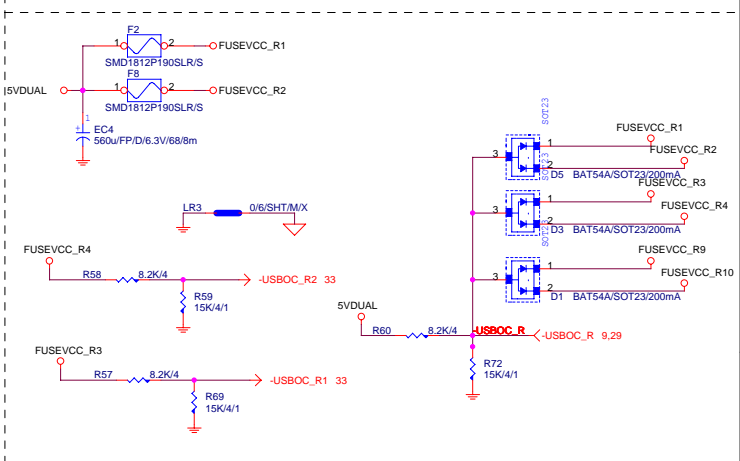
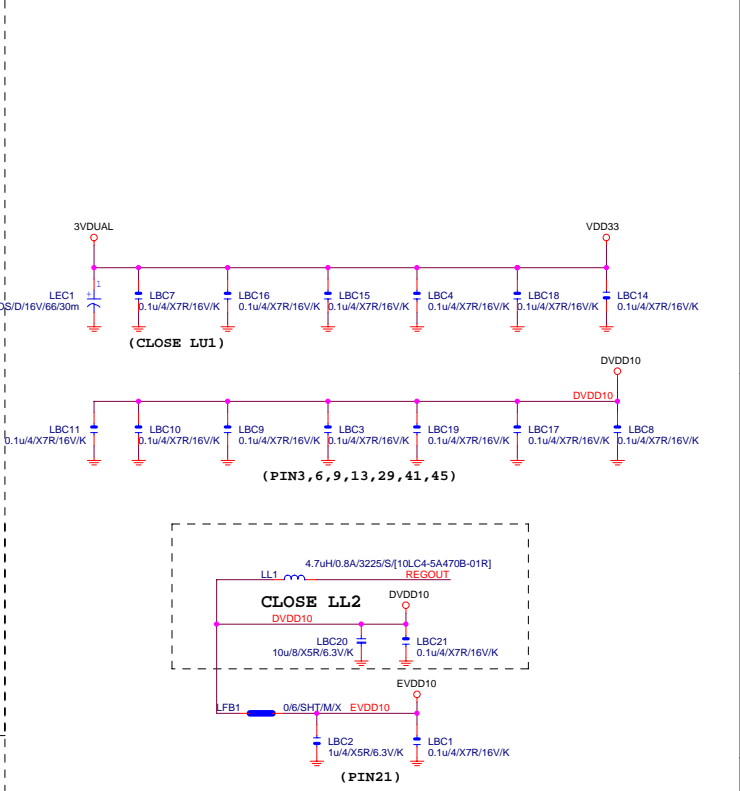
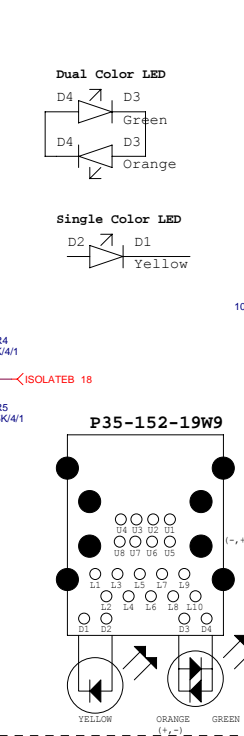
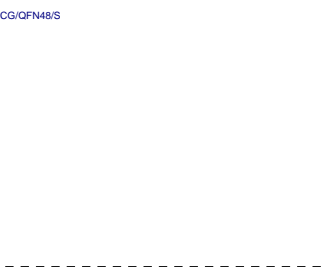
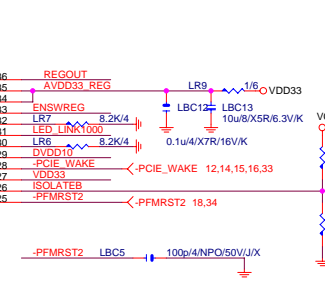


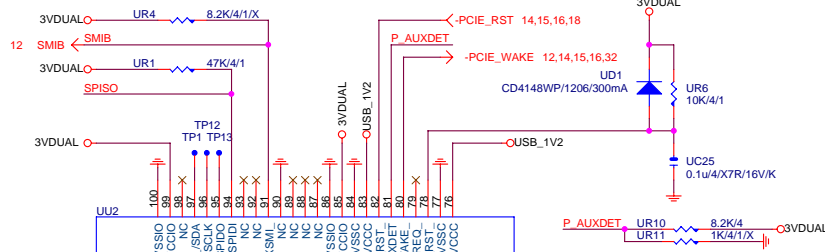
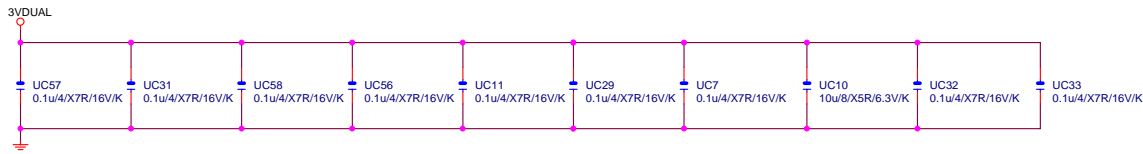
SRCLK 50 Ohm: [18/4/10/4/18] 離IC近越好

USB3_LAN CONNECTOR



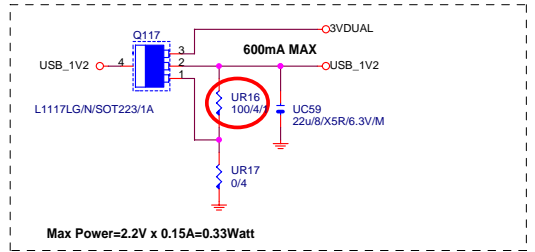
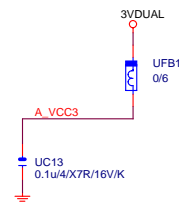
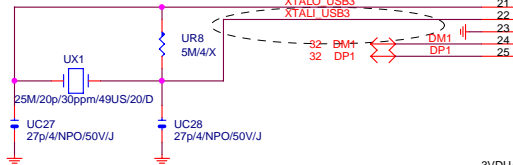
FOR DSM MODE (DEEP SLEEPER MODE)





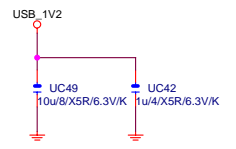
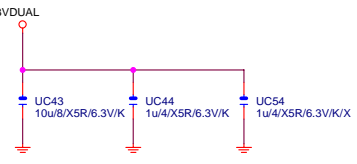
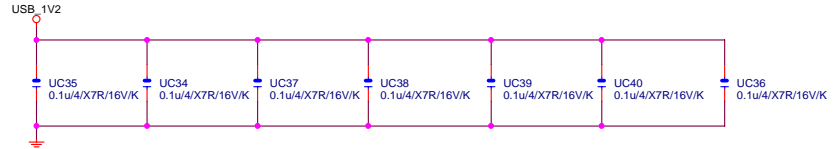
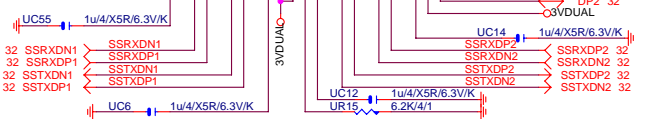
SPIM: Low=>SPI Rom.

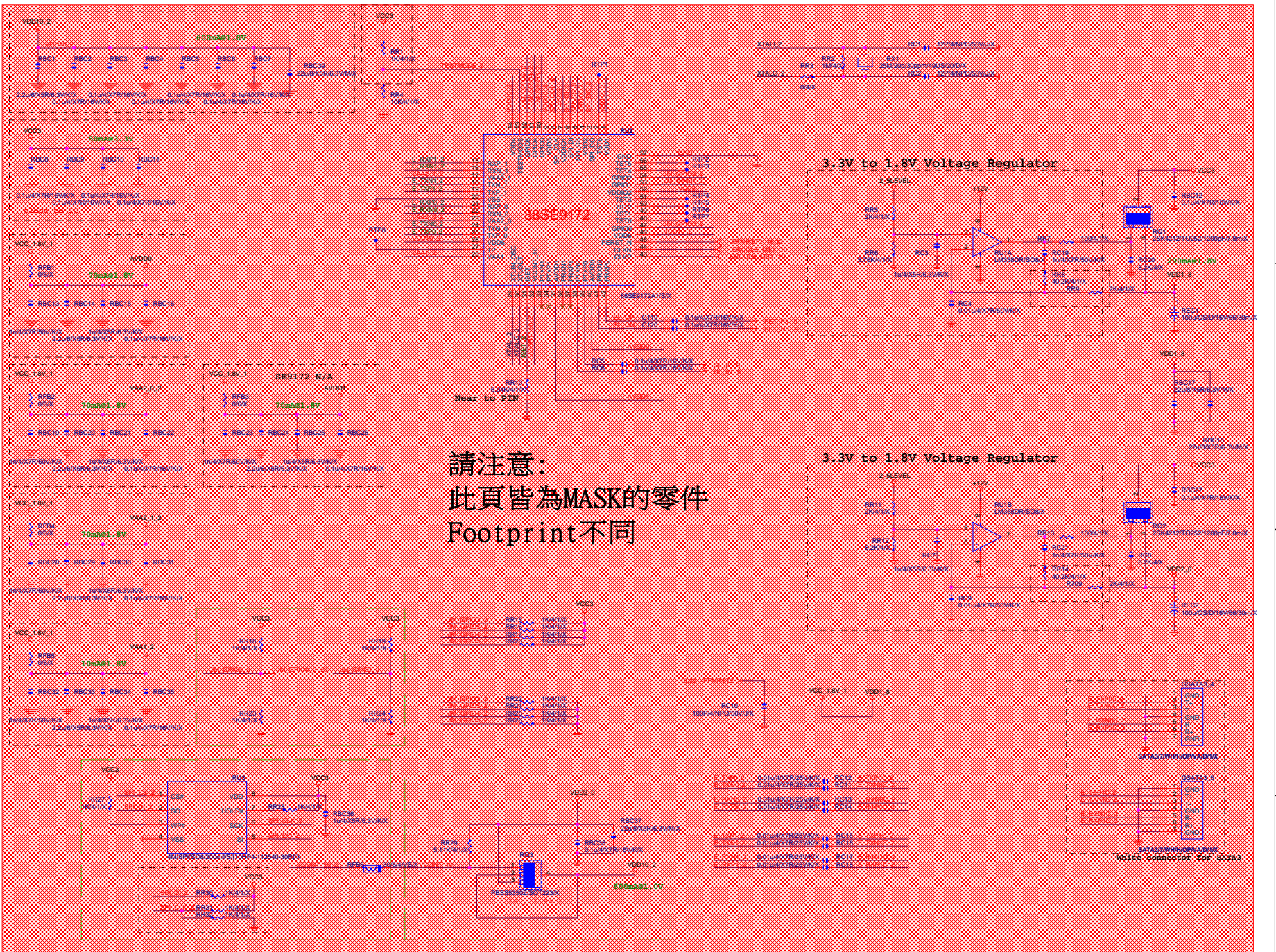
EJ168
3VDUAL=550mA max
USB1V2=150mA max



AZ1117H-1.2TR/SOT223/1A-->UR17:0/4,UR16:N/A [1.2V]

L1117LG/N/SOT223/1A-->UR17:0/4,UR16:100/4/1 [1.25V]





請注意：
此頁皆為MASK的零件
Footprint不同