Model Name: GA-Z170X-GAMING GT

Rev 1.01

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30	RT8120_DDR_CHOKE
31	RT8120_VPP_CHOKE
32	RT8120_PCH-CHOKE
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34	NCT3933

SHEET	TITLE
35	IR35201 PWM-VCCGT
36	IR3553_MOS_1-VCCGT
37	IR3570 PWM-VCCSA/IO
38	IR3553-VCCSA
39	IR3553-VCCIO
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41	Creative Sound3Di
42	Audio Amp
43	Audio Power
44	AUDIO Connect
45	DUAL LAN-A~KILLER E2400
46	DUAL LAN-B~I219
47	DUAL USB30_LAN-I219/E2400
48	IDT6V41510_CLK BUFFER
49	COM , LPT , TPM
50	F_PANEL
51	ASM1061
52	HDMI 20 MCDP2800-BA
53	IT8951
54	IT8792
55	D720210 4port Hub-FRONT
56	D720210 4port Hub (Power)
57	DP PORT
58	M.2(D) X4-3
59	M2_SW_3
60	ATX POWER , A_-PROCHOT
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63	F_USB30
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Title: Cover Sheet

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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Model Name: GA-Z170X-GAMING GT

Component value change history

Data	Change Item	Reason
2014/11/28 PCB:0.1	1.PCB first release	
	2. AUDIO_COVER 料號UPDATE	
2015/01/26 PCB:0.2	1. F_USB30_1 , F_USB30_2 & M2A_32G , M2B_32G改為紅色料號?	
	2. 注意三色LED上件方向	
	3. SATA_EXPRESS的顏色確認,SATA_EXPRESS1要做塞孔	
	4. CLK BUFFER IDT6V41510 (含蓋子) 不上件	
	5. M_BIOS , B_BIOS 改成128M	
	6. ASM1061 eeprom 改成不上件 (確認BIOS OK後移除)	
	7. PCB製程修改 : B2 --> B	
2015/05/19 PCB:0.3	1. AUDIO CAP 33UF ------->2.2UF	
2015/07/15 BOM:10A	1.ADD THR19,THR77,不上件 4. M_BIOS SOCKET/PWM&ARPIN HEADER移除	
	2.ADD DFR4,MAC10	
	3.NR107/MAR110/MAR111 0 ohm---->short pad	
2015/07/24 BOM:10B	1.修改文字面HDMI 2.0 ---->HDMI	

Circuit or PCB layout change

DATE	Change Item	Reason
2015/05/08 PCB:0.1	1.線路由GA-Z1704X-GAMING G7-01來修改	
2015/05/15 PCB:0.2	1.LAYOUT 內層轉檔錯誤,重出一版,並修改部份模組線路	
2015/05/15 PCB:0.3	1.ADD NR113 2.TYPEC_1 ---------->TYPEC 3.AUDIO 33UF ----->2.2UF	
2015/7/8 PCB:1.0	1.ADD THR19,THR77,不上件	
	2.ADD DFR4,MAC10	
	3.NR107/MAR110/MAR111 0 ohm---->short pad	
2015/07/23 PCB:1.01	1.修改文字面HDMI 2.0 ---->HDMI	

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Title: BOM & PCB MODIFY HISTORY		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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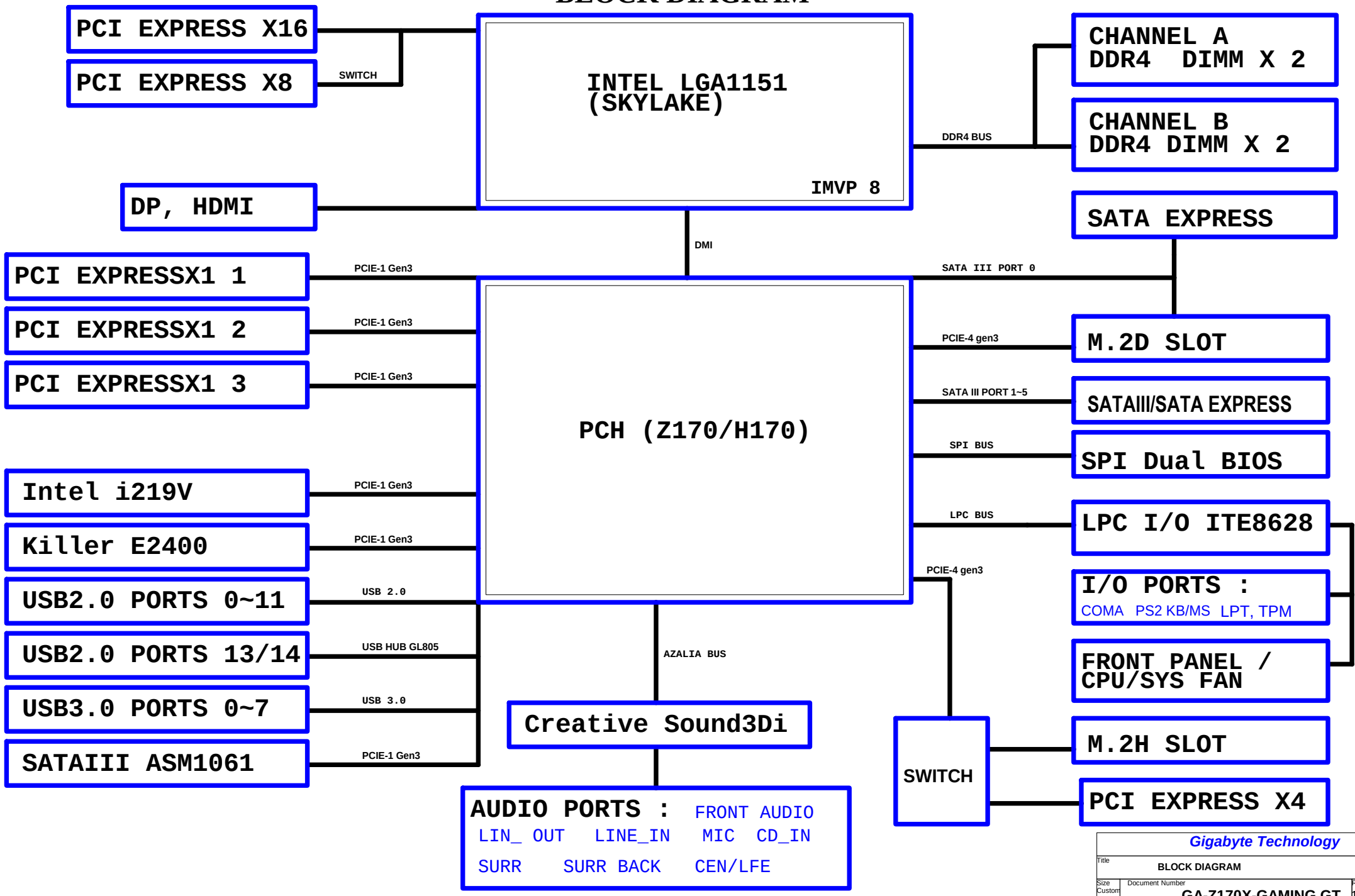
BLOCK DIAGRAM



Gigabyte Technology		
Title	BLOCK DIAGRAM	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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From SKL_0.2B

檢查組態調整線路
The CFG signals default value of '1'

* WR7 , WR1 , WR81 改 short pad

* 刪 net

* 刪 net

* 刪 net

* 刪 net

* 刪 WR17 , WR14 , WR10 , WR29 , WR25 , WR56 , WR55

* 刪 WR90

* 刪 WR91

* 刪 net N_CPU_VCCST_PWOK

-CPURST

THB

HDMI20

DP

G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R

CFG[2]:x16 Lane Numbering Reversal. 1= NORMAL;0=reversal
CFG[4]: eDP enable:1:disable/0=enable
CFG[6:5]:PCI Express* Bifurcation; 11= 1 x16 PCI Express;10=2x8 PCI Express
CFG[7]: PEG Training:1=(default) PEG Train immediately following RESET#;0=PEG Wait for BIOS

Bifurcation Config.	Signals Lanes CFG[6]	CFG[5]	CFG[2]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

W=12 mil out of CPU
S=15 mil out of CPU

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Title: CPU LGA1151-A

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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* 改DDR4 net

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18	M_DCLKA0
MDA1	AE37	DDR0_DQ[1]	DDR0_CKN[0]	AV18	M_-DCLKA0
MDA2	AG38	DDR0_DQ[2]	DDR0_CKP[1]	AW17	M_DCLKA1
MDA3	AG37	DDR0_DQ[3]	DDR0_CKN[1]	AY17	M_-DCLKA1
MDA4	AE39	DDR0_DQ[4]	DDR0_CKP[2]	AW16	M_DCLKA2
MDA5	AE40	DDR0_DQ[5]	DDR0_CKN[2]	AV16	M_-DCLKA2
MDA6	AG39	DDR0_DQ[6]	DDR0_CKP[3]	AT16	M_DCLKA3
MDA7	AG40	DDR0_DQ[7]	DDR0_CKN[3]	AU16	M_-DCLKA3
MDA8	AJ38	DDR0_DQ[8]			
MDA9	AJ37	DDR0_DQ[9]	DDR0_CKE[0]	AY24	CKEA0
MDA10	AL38	DDR0_DQ[10]	DDR0_CKE[1]	AW24	CKEA1
MDA11	AL37	DDR0_DQ[11]	DDR0_CKE[2]	AV24	CKEA2
MDA12	AJ40	DDR0_DQ[12]	DDR0_CKE[3]	AV25	CKEA3
MDA13	AJ39	DDR0_DQ[13]			
MDA14	AL39	DDR0_DQ[14]	DDR0_CS#[0]	AW12	M_-CSA0
MDA15	AL40	DDR0_DQ[15]	DDR0_CS#[1]	AU11	M_-CSA1
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]	DDR0_CS#[2]	AV13	M_-CSA2
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]	DDR0_CS#[3]	AV10	M_-CSA3
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]		AW11	MODT_A0
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]	DDR0_ODT[0]	AU14	MODT_A1
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]	DDR0_ODT[1]	AU12	MODT_A2
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]	DDR0_ODT[2]	AY10	MODT_A3
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]	DDR0_ODT[3]		
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]		AY13	SBAA0
MDA24	AW37	DDR0_DQ[24]/DDR0_DQ[40]	DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]	AY15	SBAA1
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AW23	BG_A0
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]		
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]		AW13	MAAA16
MDA28	AU37	DDR0_DQ[28]/DDR0_DQ[44]	DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]	AV14	MAAA14
MDA29	AV37	DDR0_DQ[29]/DDR0_DQ[45]	DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]	AY11	MAAA15
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]	DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]		
MDA31	AU35	DDR0_DQ[31]/DDR0_DQ[47]		AW15	MAAA0
MDA32	AY8	DDR0_DQ[32]/DDR1_DQ[0]	DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]	AU18	MAAA1
MDA33	AW8	DDR0_DQ[33]/DDR1_DQ[1]	DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]	AU17	MAAA2
MDA34	AV6	DDR0_DQ[34]/DDR1_DQ[2]	DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]	AV19	MAAA3
MDA35	AU6	DDR0_DQ[35]/DDR1_DQ[3]	DDR0_MA[3]	AT19	MAAA4
MDA36	AU8	DDR0_DQ[36]/DDR1_DQ[4]	DDR0_MA[4]	AU20	MAAA5
MDA37	AV8	DDR0_DQ[37]/DDR1_DQ[5]	DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]	AV20	MAAA6
MDA38	AW6	DDR0_DQ[38]/DDR1_DQ[6]	DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]	AU21	MAAA7
MDA39	AY6	DDR0_DQ[39]/DDR1_DQ[7]	DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]	AT20	MAAA8
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]	DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]	AT22	MAAA9
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]	DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]	AY14	MAAA10
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]	DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]	AU22	MAAA11
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]	DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]	AV22	MAAA12
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]	DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]	AV12	MAAA13
MDA45	AW4	DDR0_DQ[45]/DDR1_DQ[13]	DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]	AV23	BG_A1
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]	DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]	AU24	
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#		
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]		AY15	DDR0_PAR
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]		AT23	DDR0_ALERT#
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]			
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[35]		AF39	M_-DQSA0
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[36]	DDR0_DQSN[0]	AK39	M_-DQSA1
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[37]	DDR0_DQSN[1]	AP39	M_-DQSA2
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[38]	DDR0_DQSN[2]/DDR0_DQSN[4]	AU36	M_-DQSA3
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[39]	DDR0_DQSN[3]/DDR0_DQSN[5]	AW7	M_-DQSA4
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[40]	DDR0_DQSN[4]/DDR1_DQSN[0]	AU3	M_-DQSA5
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[41]	DDR0_DQSN[5]/DDR1_DQSN[1]	AN3	M_-DQSA6
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[42]	DDR0_DQSN[6]/DDR1_DQSN[4]	AJ3	M_-DQSA7
MDA59	AH2	DDR0_DQ[59]/DDR1_DQ[43]	DDR0_DQSN[7]/DDR1_DQSN[5]		
MDA60	AH4	DDR0_DQ[60]/DDR1_DQ[44]		AF38	M_DQSA0
MDA61	AK2	DDR0_DQ[61]/DDR1_DQ[45]	DDR0_DQSP[0]	AK38	M_DQSA1
MDA62	AH3	DDR0_DQ[62]/DDR1_DQ[46]	DDR0_DQSP[1]	AP38	M_DQSA2
MDA63	AK1	DDR0_DQ[63]/DDR1_DQ[47]	DDR0_DQSP[2]/DDR0_DQSP[4]	AV36	M_DQSA3
			DDR0_DQSP[3]/DDR0_DQSP[5]	AV7	M_DQSA4
MDA_ECC0	AU33		DDR0_DQSP[4]/DDR1_DQSP[0]	AU2	M_DQSA5
MDA_ECC1	AT33	DDR0_ECC[0]	DDR0_DQSP[5]/DDR1_DQSP[1]	AN2	M_DQSA6
MDA_ECC2	AW33	DDR0_ECC[1]	DDR0_DQSP[6]/DDR1_DQSP[4]	AJ2	M_DQSA7
MDA_ECC3	AV31	DDR0_ECC[2]	DDR0_DQSP[7]/DDR1_DQSP[5]		
MDA_ECC4	AU31	DDR0_ECC[3]		AV32	M_DQSA8
MDA_ECC5	AV33	DDR0_ECC[4]	DDR0_DQSP[8]	AU32	M_-DQSA8
MDA_ECC6	AW31	DDR0_ECC[5]	DDR0_DQSN[8]		
MDA_ECC7	AY31	DDR0_ECC[6]			
		DDR0_ECC[7]			

8 MDA_ECC[0..7] <-> MDA_ECC[0..7]

DDR CHANNEL A

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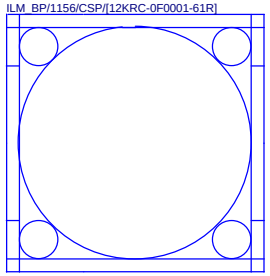
LGA1151

CPU-SK/1151/S/15

ILM_BP/1156/CSP/[12KRC-0F0001-61R]



Need check the new CPU ME

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]	DDR1_CKP[0]	AM20	M_DCLKB0
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]	DDR1_CKN[0]	AM21	M_-DCLKB0
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]	DDR1_CKP[1]	AP22	M_DCLKB1
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]	DDR1_CKN[1]	AP21	M_-DCLKB1
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]	DDR1_CKP[2]	AN20	M_DCLKB2
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]	DDR1_CKN[2]	AN21	M_-DCLKB2
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]	DDR1_CKP[3]	AP19	M_DCLKB3
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]	DDR1_CKN[3]	AP20	M_-DCLKB3
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]			
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]	DDR1_CKE[0]	AY29	CKEB0
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]	DDR1_CKE[1]	AY29	CKEB1
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]	DDR1_CKE[2]	AW29	CKEB2
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]	DDR1_CKE[3]	AU29	CKEB3
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]			
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]	DDR1_CS#[0]	AP17	M_-CSB0
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]	DDR1_CS#[1]	AN15	M_-CSB1
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]	DDR1_CS#[2]	AN17	M_-CSB2
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]	DDR1_CS#[3]	AM15	M_-CSB3
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]		AM16	MODT_B0
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]	DDR1_ODT[0]	AL16	MODT_B1
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]	DDR1_ODT[1]	AP15	MODT_B2
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]	DDR1_ODT[2]	AL15	MODT_B3
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]	DDR1_ODT[3]		
MDB23	AP31	DDR1_DQ[23]/DDR0_DQ[55]		AN18	MAAB16
MDB24	AL29	DDR1_DQ[24]/DDR0_DQ[56]	DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]	AL17	MAAB14
MDB25	AM29	DDR1_DQ[25]/DDR0_DQ[57]	DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]	AP16	MAAB15
MDB26	AP29	DDR1_DQ[26]/DDR0_DQ[58]	DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]		
MDB27	AR29	DDR1_DQ[27]/DDR0_DQ[59]		AL18	SBAB0
MDB28	AM28	DDR1_DQ[28]/DDR0_DQ[60]	DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]	AM18	SBAB1
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AW28	BG_B0
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]		
MDB31	AP28	DDR1_DQ[31]/DDR0_DQ[63]		AL19	MAAB0
MDB32	AR12	DDR1_DQ[32]/DDR1_DQ[16]	DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]	AL22	MAAB1
MDB33	AP12	DDR1_DQ[33]/DDR1_DQ[17]	DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]	AM22	MAAB2
MDB34	AM13	DDR1_DQ[34]/DDR1_DQ[18]	DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]	AM23	MAAB3
MDB35	AL13	DDR1_DQ[35]/DDR1_DQ[19]	DDR1_MA[3]	AP23	MAAB4
MDB36	AR13	DDR1_DQ[36]/DDR1_DQ[20]	DDR1_MA[4]	AL23	MAAB5
MDB37	AP13	DDR1_DQ[37]/DDR1_DQ[21]	DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]	AW26	MAAB6
MDB38	AM12	DDR1_DQ[38]/DDR1_DQ[22]	DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]	AY26	MAAB7
MDB39	AL12	DDR1_DQ[39]/DDR1_DQ[23]	DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]	AU26	MAAB8
MDB40	AP10	DDR1_DQ[40]/DDR1_DQ[24]	DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]	AW27	MAAB9
MDB41	AR10	DDR1_DQ[41]/DDR1_DQ[25]	DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]	AP18	MAAB10
MDB42	AR7	DDR1_DQ[42]/DDR1_DQ[26]	DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]	AU27	MAAB11
MDB43	AP7	DDR1_DQ[43]/DDR1_DQ[27]	DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]	AV27	MAAB12
MDB44	AR9	DDR1_DQ[44]/DDR1_DQ[28]	DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]	AR15	MAAB13
MDB45	AP9	DDR1_DQ[45]/DDR1_DQ[29]	DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]	AY28	BG_B1
MDB46	AR6	DDR1_DQ[46]/DDR1_DQ[30]	DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]	AU28	
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#		
MDB48	AM10	DDR1_DQ[48]		AL20	DDR1_PAR
MDB49	AL10	DDR1_DQ[49]		AY25	DDR1_ALERT#
MDB50	AM7	DDR1_DQ[50]			
MDB51	AL7	DDR1_DQ[51]		AF34	M_-DQSB0
MDB52	AM9	DDR1_DQ[52]	DDR1_DQSN[0]/DDR0_DQSN[2]	AK33	M_-DQSB1
MDB53	AL9	DDR1_DQ[53]	DDR1_DQSN[1]/DDR0_DQSN[3]	AN33	M_-DQSB2
MDB54	AM6	DDR1_DQ[54]	DDR1_DQSN[2]/DDR0_DQSN[6]	AN29	M_-DQSB3
MDB55	AL6	DDR1_DQ[55]	DDR1_DQSN[3]/DDR0_DQSN[7]	AN13	M_-DQSB4
MDB56	AJ6	DDR1_DQ[56]	DDR1_DQSN[4]/DDR1_DQSN[2]	AR8	M_-DQSB5
MDB57	AJ7	DDR1_DQ[57]	DDR1_DQSN[5]/DDR1_DQSN[3]	AM8	M_-DQSB6
MDB58	AE6	DDR1_DQ[58]	DDR1_DQSN[6]	AG6	M_-DQSB7
MDB59	AF7	DDR1_DQ[59]	DDR1_DQSN[7]		
MDB60	AH7	DDR1_DQ[60]		AF35	M_DQSB0
MDB61	AH6	DDR1_DQ[61]	DDR1_DQSP[0]/DDR0_DQSP[2]	AL33	M_DQSB1
MDB62	AE7	DDR1_DQ[62]	DDR1_DQSP[1]/DDR0_DQSP[3]	AP33	M_DQSB2
MDB63	AF6	DDR1_DQ[63]	DDR1_DQSP[2]/DDR0_DQSP[6]	AN28	M_DQSB3
			DDR1_DQSP[3]/DDR0_DQSP[7]	AN12	M_DQSB4
MDB_ECC0	AR25		DDR1_DQSP[4]/DDR1_DQSP[2]	AP8	M_DQSB5
MDB_ECC1	AR26	DDR1_ECC[0]	DDR1_DQSP[5]/DDR1_DQSP[3]	AL8	M_DQSB6
MDB_ECC2	AM26	DDR1_ECC[1]	DDR1_DQSP[6]	AG7	M_DQSB7
MDB_ECC3	AM25	DDR1_ECC[2]	DDR1_DQSP[7]		
MDB_ECC4	AP26	DDR1_ECC[3]		AN25	M_DQSB8
MDB_ECC5	AP25	DDR1_ECC[4]	DDR1_DQSP[8]	AN26	M_-DQSB8
MDB_ECC6	AL25	DDR1_ECC[5]	DDR1_DQSN[8]		
MDB_ECC7	AL26	DDR1_ECC[6]			
		DDR1_ECC[7]			

9 MDB_ECC[0..7] <-> MDB_ECC[0..7]

DDR CHANNEL B

2 OF 12

DDR_VREF_CA	AB40	VREF_CAB
DDR0_VREF_DQ	AC40	
DDR1_VREF_DQ	AC39	VREF_DQB

CPU-SK/1151/S/15

8 MODT_A[0..3] <-> MODT_A[0..3]

9 MODT_B[0..3] <-> MODT_B[0..3]

8 MDA[0..63] <-> MDA[0..63]

9 MDB[0..63] <-> MDB[0..63]

8 M_DQSA[0..7] <-> M_DQSA[0..7]

8 M_-DQSA[0..7] <-> M_-DQSA[0..7]

8 MAAA[0..16] <-> MAAA[0..16]

9 MAAB[0..16] <-> MAAB[0..16]

9 M_DQSB[0..7] <-> M_DQSB[0..7]

9 M_-DQSB[0..7] <-> M_-DQSB[0..7]

Gigabyte Technology

Title: CPU LGA1151-B

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

VCCSA

* WBC51 , WBC52
VDDQ 改 VCCSA

WBC56 22u/8/X5R/6.3V/M
WBC57 22u/8/X5R/6.3V/M
WBC51 22u/8/X5R/6.3V/M
WBC52 22u/8/X5R/6.3V/M
WBC53 22u/8/X5R/6.3V/M
WBC54 22u/8/X5R/6.3V/M

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

* WR94 , WR59 , WR86 , WR60 ,
WR61 , WR62 , WR63 改 short pad

VCCST_VCCPLL
VCCSFUSEPRG

VCCSA
VCCST_VCCPLL
WR94 0/X

VCCIO

WBC69 22u/8/X5R/6.3V/M
WBC70 22u/8/X5R/6.3V/M
WBC71 22u/8/X5R/6.3V/M
WBC72 22u/8/X5R/6.3V/M
WBC73 22u/8/X5R/6.3V/M
WBC74 22u/8/X5R/6.3V/M

* 刪 VCCGT 電容

VCCIO

WBC75 22u/8/X5R/6.3V/M
WBC76 22u/8/X5R/6.3V/M
WBC77 22u/8/X5R/6.3V/M

VCCGT

LGA1151J SKT_H4
LGA1151

AA34 AA35 AA36 AA37 AA38 AB33 AB34 G36 G37 G38 G39 G40 H36 H38 H40 J36 J37 J38 J39 J40 K36 K38 K40 L34 L35 L36 L37 L38 L39 L40 M33 M34 M36 M38 M40 N34 N35 N36 N37 N38 N39 N40 P33 P34 P36 P38 P40 R34 R35 R36 R37 R38 R39 R40 T33 T34 T36 T38 T40 U34 U35 U36 U37 U38 U39 U40 V33 V34 V36 V38 V40 W34 W35 W36 W37 W38 Y33 Y34 Y36 Y38 — VCCGT

VCCGTX_F35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32 — F35 G34 G35 H33 H34 J33 J35 K32 K34 L31 L33 M32

WR59 0/4/SHT/M/X

VCCGT_SENSE F39 — VCCGT_VCC_SEN 35
VSSGT_SENSE F38 — VCCGT_VSS_SEN 35
VCCGTX_SENSE F37
VSSGTX_SENSE F36

10 OF 12

CPU-SK/1151/S/15

VCCSA

LGA1151K SKT_H4
LGA1151

AA7 AB6 AB7 AB8 AC7 AC8 N7 P7 R7 T7 U7 Y6 Y7 Y8 W7 V7 AA6 — VCCSA

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VCCST_VCCPLL V5 — VCCST_V5
VCCSFUSEPRG V6 — VCCST_V6
VCCST_VCCPLL V4 — VCCPLL

VDDQ

VDDQ_AT18 AT18
VDDQ_AT21 AT21
VDDQ_AU13 AU13
VDDQ_AU15 AU15
VDDQ_AU19 AU19
VDDQ_AU23 AU23
VDDQ_AV11 AV11
VDDQ_AV17 AV17
VDDQ_AV21 AV21
VDDQ_AW10 AW10
VDDQ_AW14 AW14
VDDQ_AW25 AW25
VDDQ_AY12 AY12
VDDQ_AY16 AY16
VDDQ_AY18 AY18
VDDQ_AY23 AY23

VCCPLL_OC AJ9 VCCPLL_S — WR86 0/4/SHT/M/X — VDDQ

* 刪 VCCPLL_OC

VCCOPC_AJ30 AJ30
VCCOPC_AJ27 AJ27
VCCOPC_AJ28 AJ28
VCCOPC_AJ29 AJ29
VCCOPC_AK27 AK27 — WR60 0/4/SHT/M/X

VCCEOPIO AJ25
VCCEOPIO AJ26 — WR61 0/4/SHT/M/X

VCC_OPC_1P8_AB37 AB37 — WR62 0/4/SHT/M/X
VCC_OPC_1P8_AB38 AB38 — WR63 0/4/SHT/M/X

VCCSA_SENSE AD5 — VCCSA_SENSE 37
VCCIO_SENSE AF4 — VCCIO_SENSE 37
VSS_SAIO_SENSE AF4 — VSSSAIO_SENSE 37

VCCOPC_SENSE AK21
VCCEOPIO_SENSE AJ24
VSSOPC_EOPIO_SENSE AK22

10 OF 12

CPU-SK/1151/S/15

LGA1151L SKT_H4
LGA1151

J8 J7 L8 K8 — RSVD_TP_J8 RSVD_TP_J7 RSVD_TP_L8 RSVD_TP_K8
AV1 AW2 — RSVD_TP_AV1 RSVD_TP_AW2
H8 K10 L10 J17 B39 J19 C40 — RSVD_H8 RSVD_K10 RSVD_L10 RSVD_J17 RSVD_B39 RSVD_J19 RSVD_C40
G8 AY3 — RSVD_G8 RSVD_AY3
D1 B3 — PROC_TRIGIN PROC_TRIGOUT
L12 K12 — RSVD_L12 RSVD_K12

RSVD_TP_H11 H11
RSVD_TP_H12 H12
RSVD_TP_AW38 AW38
RSVD_TP_AV39 AV39
RSVD_AU39 AU39
RSVD_AU40 AU40
VSS_AT15 AT15
VSS_AR23 AR23
VSS_AR22 AR22
RSVD_J15 J15
RSVD_J14 J14
RSVD_AU9 AU9
RSVD_AU10 AU10
RSVD_J13 J13
RSVD_K13 K13
RSVD_J11 J11
RSVD_D15 D15
RSVD_K11 K11

13_N_PCH_CPU_TI 13_A_CPU_PCH_TO — WR88 33/4 A_CPU_PCH_TO_R — WR89 560/4/1

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CPU-SK/1151/S/15

Gigabyte Technology

Title: CPU LGA1151-C

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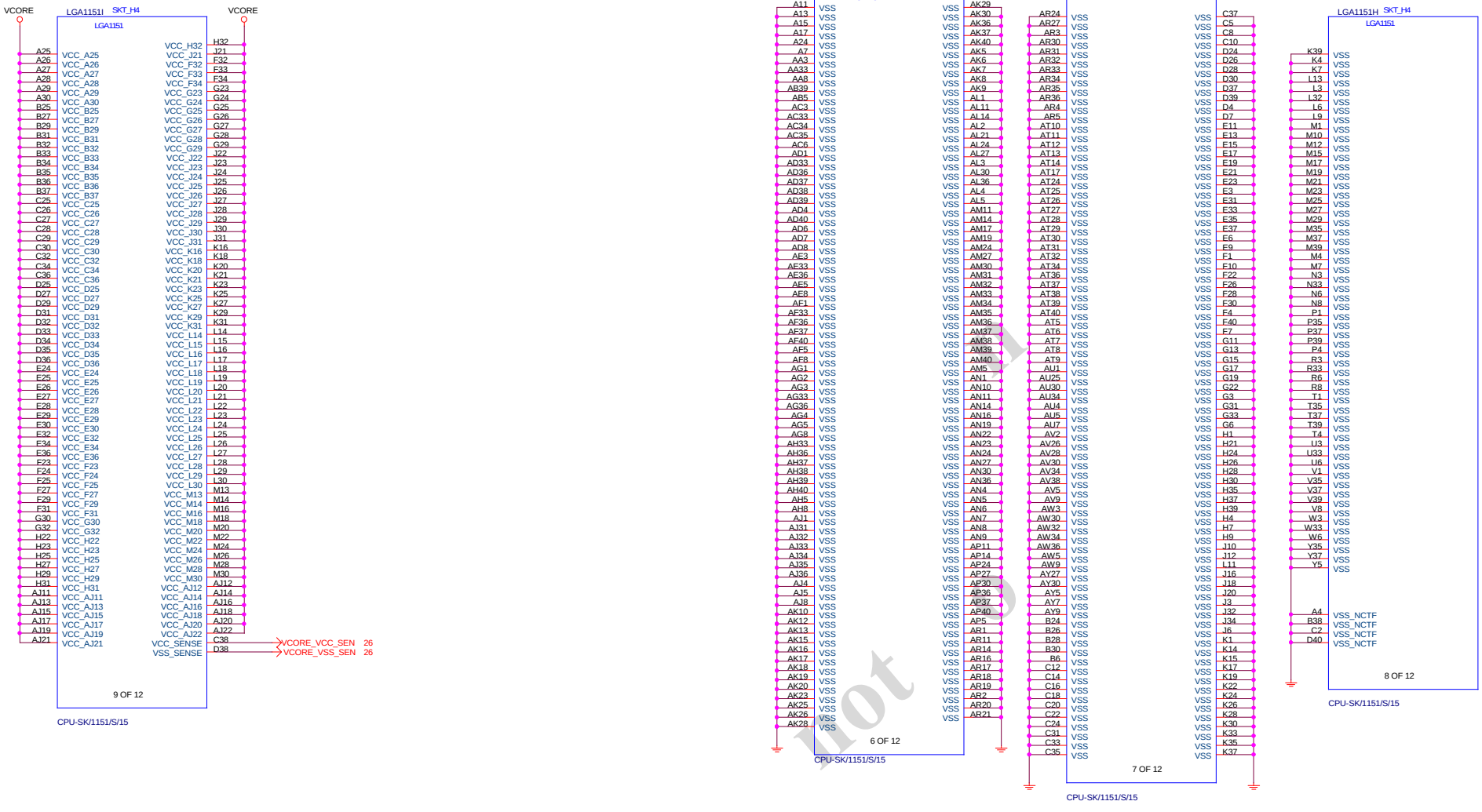
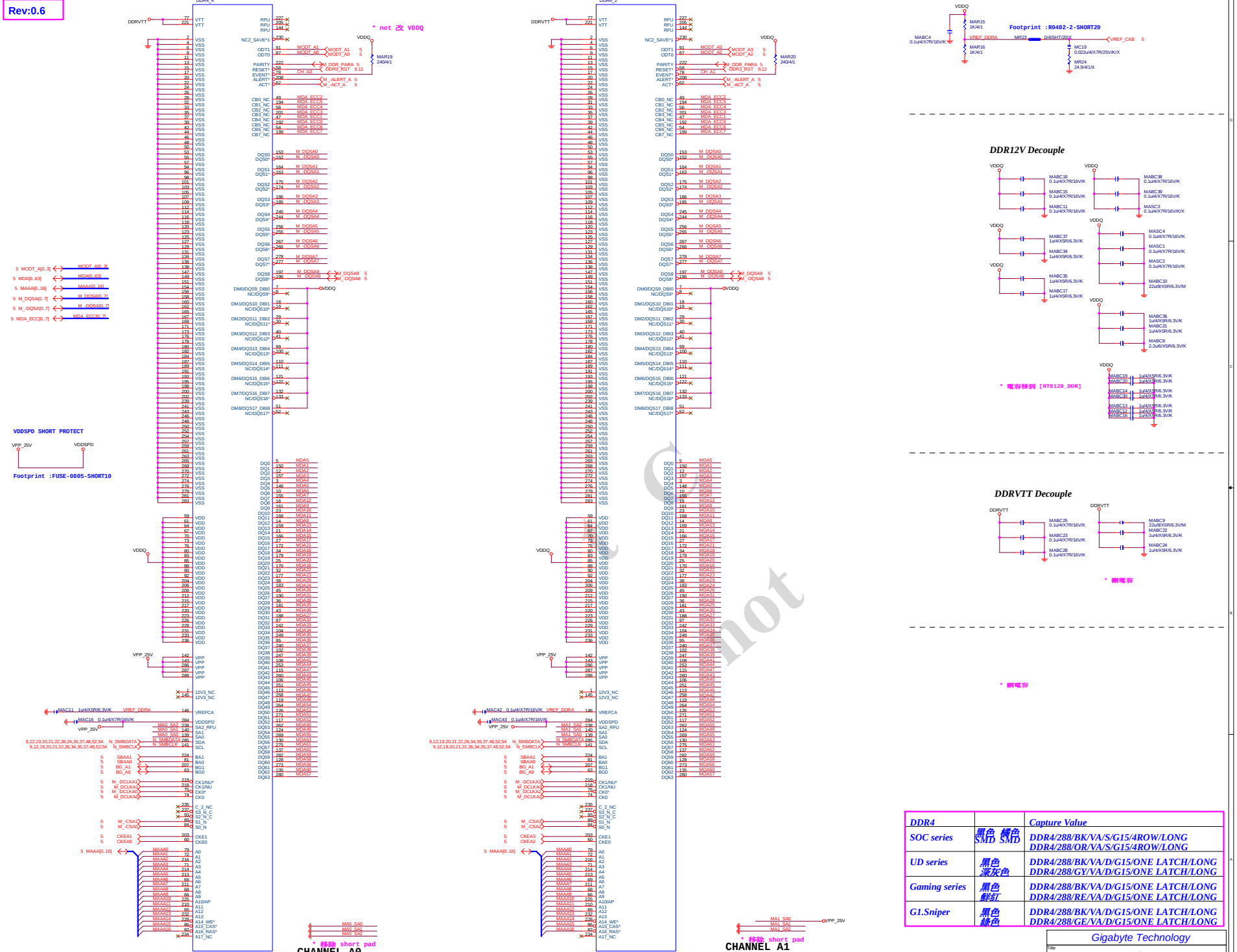


* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 7 of 75	

Rev:0.6



DDR12V Decouple

DDRVTT Decouple

* 刪電容

DDR4		Capture Value
SOC series	黑色 鐘色 SMD SMD	DDR4/288/BK/VA/S/G15/4ROW/LONG DDR4/288/OR/VA/S/G15/4ROW/LONG
UD series	黑色 深灰色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GY/VA/D/G15/ONE LATCH/LONG
Gaming series	黑色 鮮紅	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/RE/VA/D/G15/ONE LATCH/LONG
G1.Sniper	黑色 綠色	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG DDR4/288/GE/VA/D/G15/ONE LATCH/LONG

Gigabyte Technology

Title	DDR4 CHANNEL A	
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Rev:0.6

DDR4_3

DDR4_1

* net 改 VDDQ

* 移除 short pad

* 移除 short pad

CHANNEL B0
SA2:0=010

CHANNEL B1
SA2:0=011

BLACK

RED

DDR4/288/BK/VA/DG15/ONE LATCH/LONG/[11SM1-S20288-A1R]

DDR4/288/RE/VA/DG15/ONE LATCH/LONG/[11SM1-S20288-C1R]

Gigabyte Technology

Title: DDR4 CHANNEL B

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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Rev 0.7

PCHE
SPT-H_PCH
CHIP Skylake INTEL/[10HB1-03Z170-20R]
5 OF 12

PCHG
SPT-H_PCH
CHIP Skylake INTEL/[10HB1-03Z170-20R]
7 OF 12

32.768KHZ

CLK:4/15<1000;Guard GND

CLK:4/15<1000 mils±100 mils;Guard GND

PCIEX16
PCIEX1_1
PCIEX1_2
PCIEX4

TBT

TBT

ON-BOARD DEVICE USED

CLOCK 4/4/4//15

PCIEX16
PCIEX1_1
PCIEX1_2
PCIEX4
ASM1061
K2201
M2H_32G
PCIEX8
PCIEX1_3
I219
M2B_32G

*

Gigabyte Technology

Title: PCH CLOCK BUFFER

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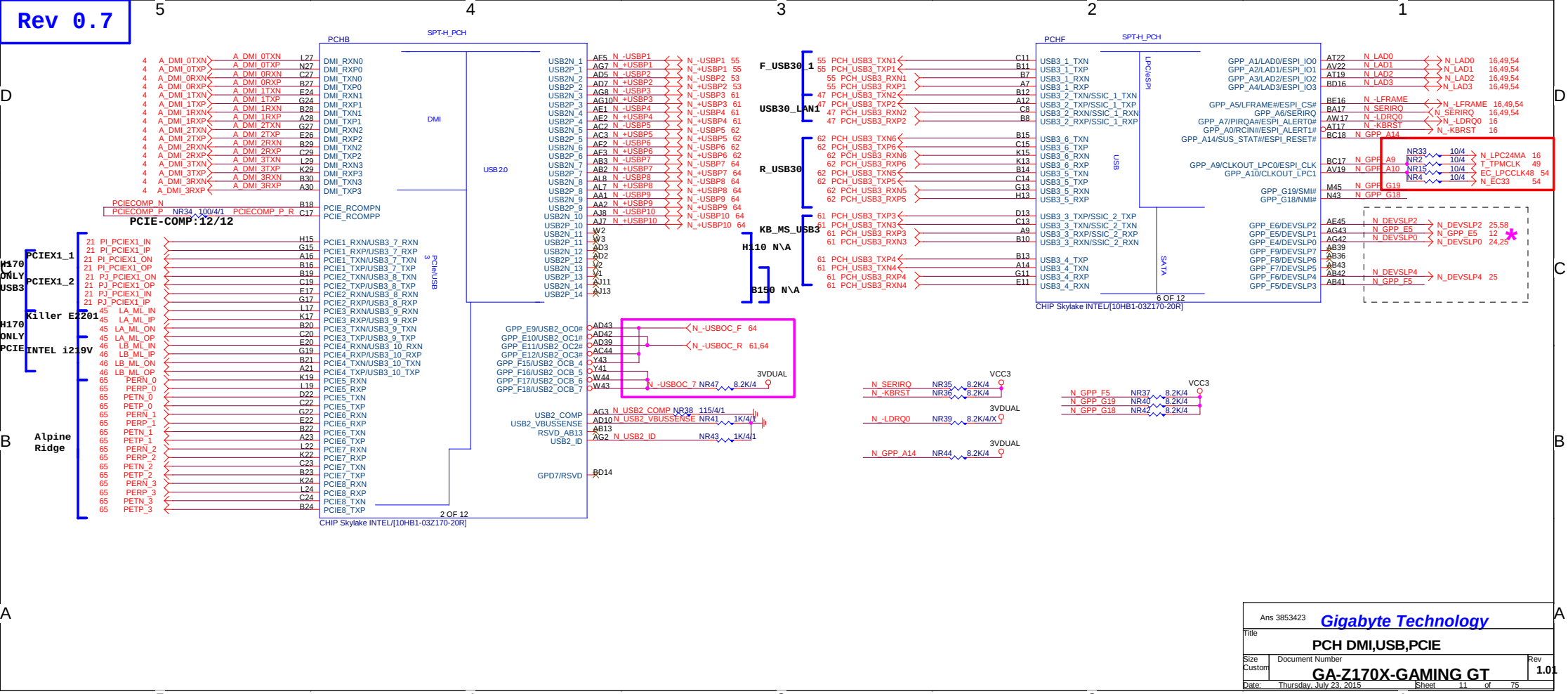
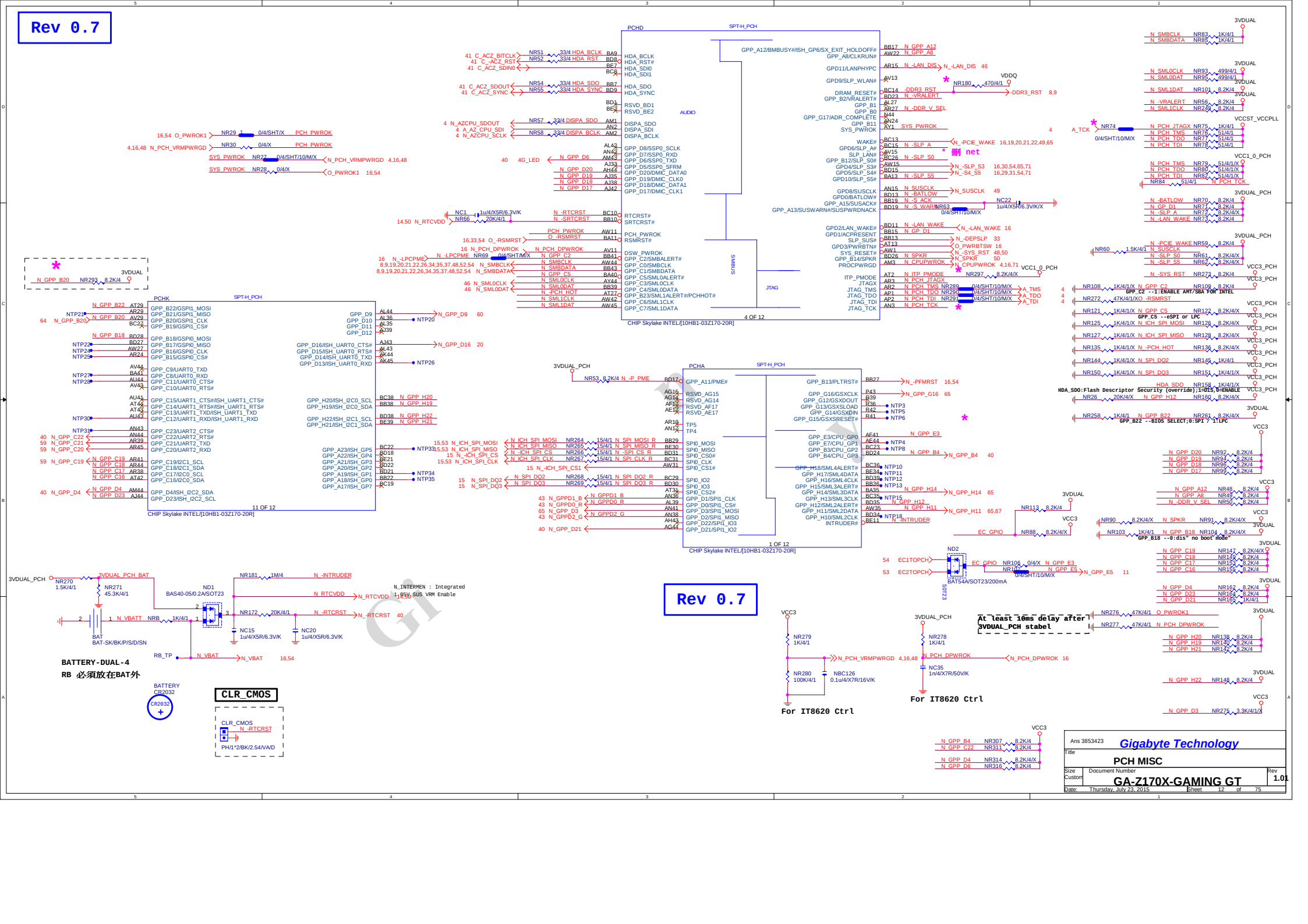
Rev 0.7



Ans 3853423	Gigabyte Technology
Title	PCH DMI,USB,PCIE
Size: Custom	Document Number: GA-Z170X-GAMING GT
Rev	1.01
Date: Thursday, July 23, 2015	Sheet 11 of 75

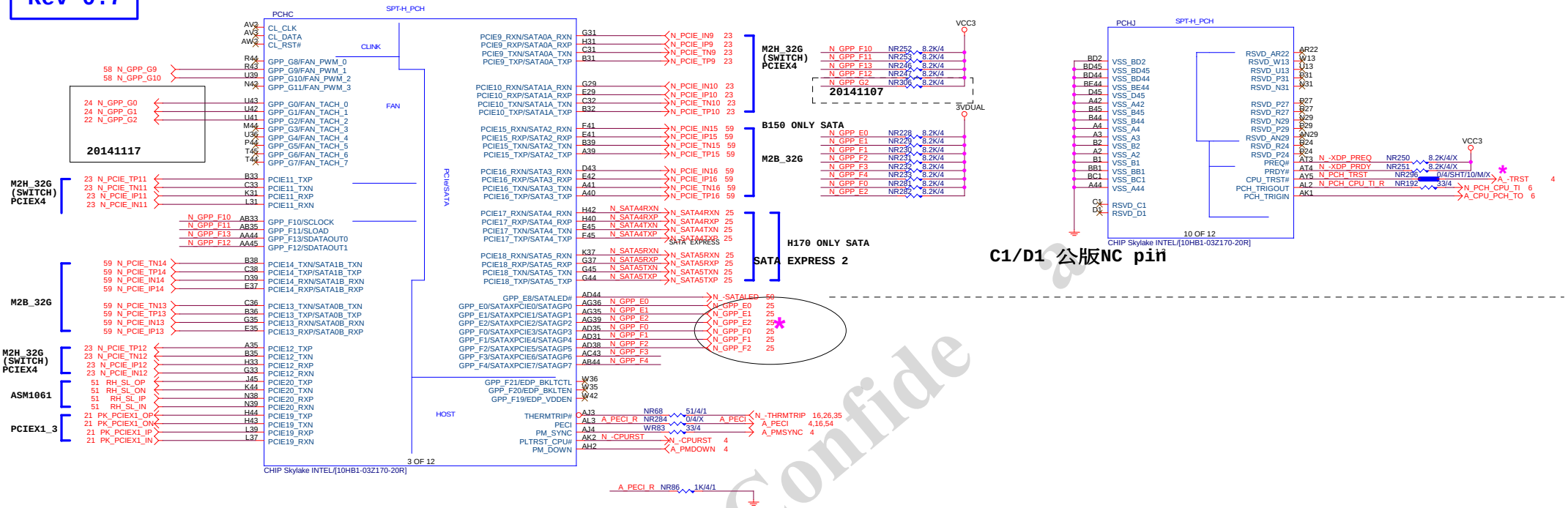
Rev 0.7



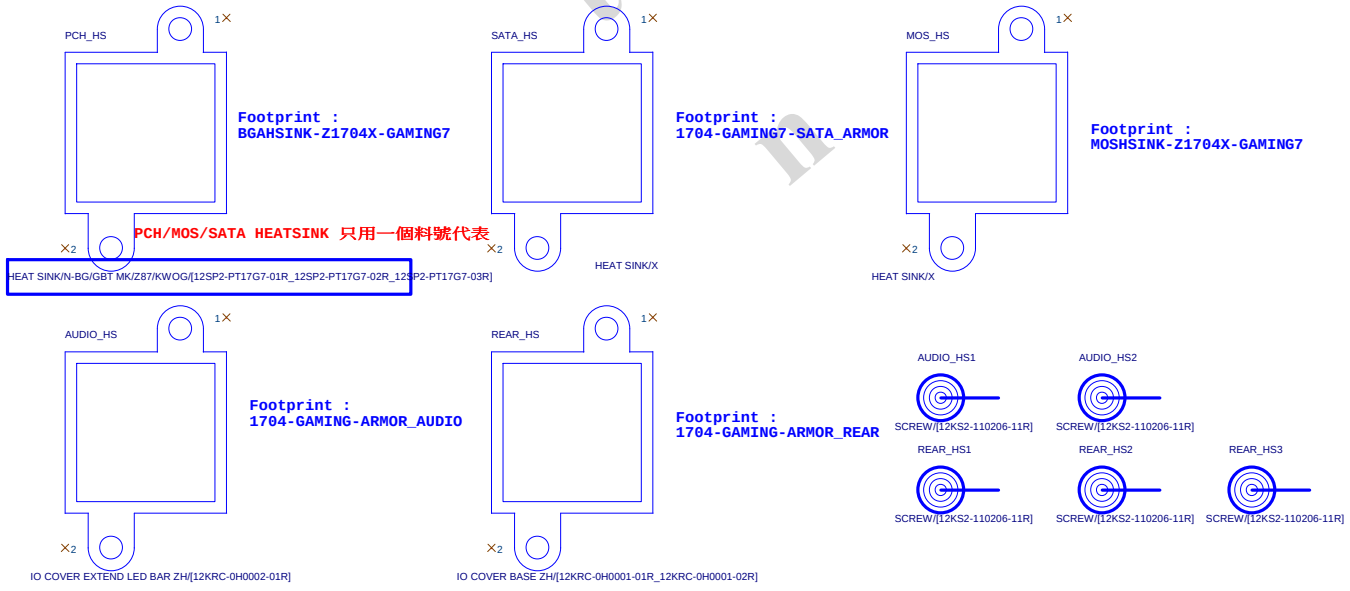
Rev 0.7

Ans 3853423	Gigabyte Technology
Title	PCH MISC
Size / Document Number	GA-Z170X-GAMING GT
Rev	1.01
Date: Thursday, July 23, 2015	Sheet 12 of 75

Rev 0.7

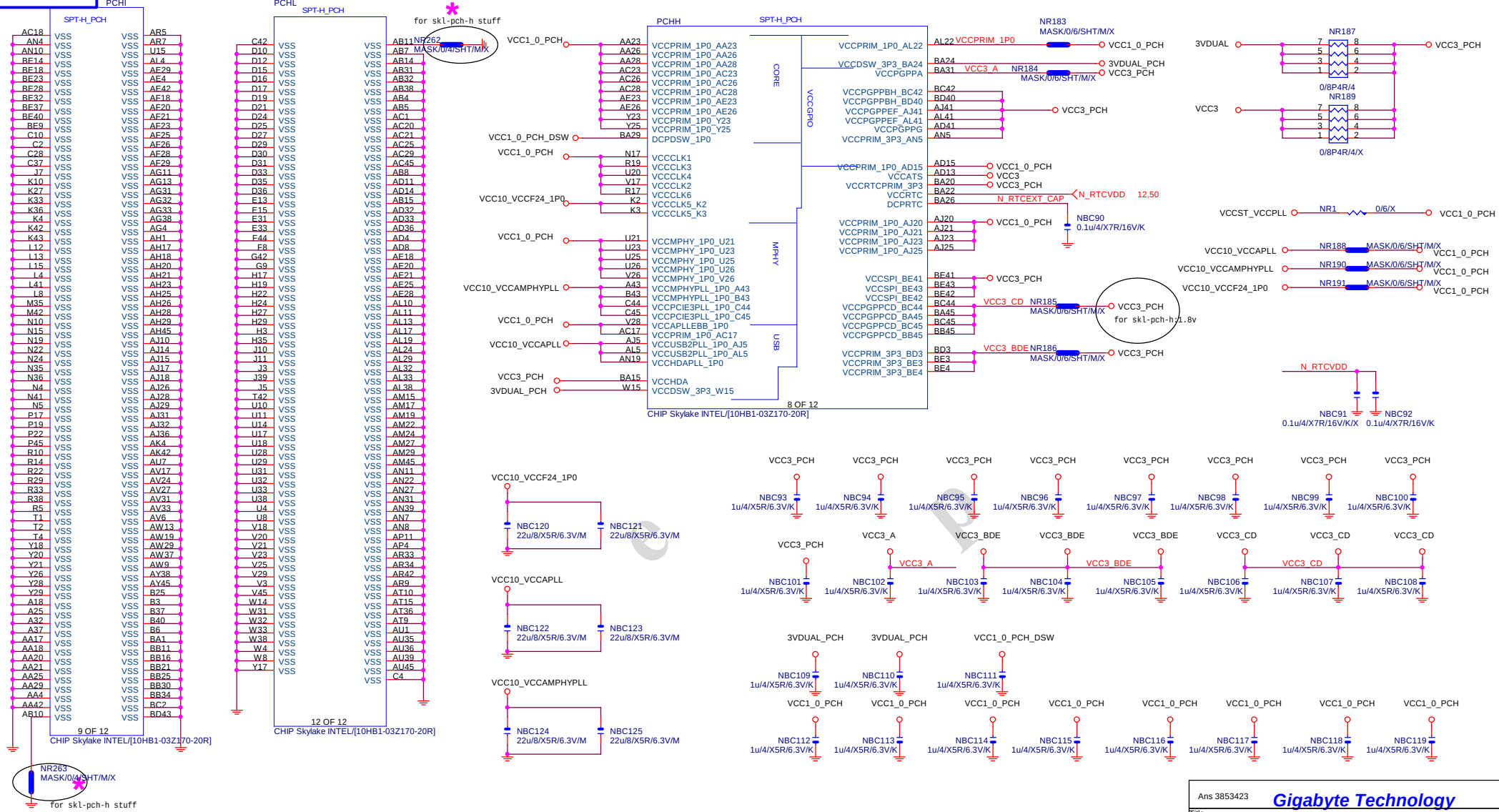


装甲HEATSINK 分成五大部份



Ans 3853423	Gigabyte Technology		
Title	PCH SATA,PCIE,SATA_EXPRESS		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01	
Date: Friday, July 24, 2015	Sheet 13 of 75		

Rev 0.7



Ans 3853423

Gigabyte Technology

Title

PCH PWR, GND

Size	Document Number	Rev
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Rev 0.42

DUAL BIOS

MOSI For DMI RX Termination Voltage

指定用DII

3VDUAL

NR238 330/4/1

-SPI_CS_1

NR239 1K/4/1

NQ20 MMBT2222A/SOT23/600mA/40 S0T23

DIS_DB1

N_-ICH_SPI_CS

N_-ICH_SPI_CS 12

NQ21 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_BSW NR235 8.2K/4

指定用DII

3VDUAL

NR237 330/4/1

-SPI_CS_2

NR240 1K/4/1

NQ22 MMBT2222A/SOT23/600mA/40 S0T23

DIS_DB2

N_-ICH_SPI_CS

NQ23 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_MSW NR234 8.2K/4

53 -SPI_CS_1

NC4 10p/4/NPO/50V/J/X

12 N_SPI_DQ2

NR222 0/4/SHT/X N_-SPI_WP0

NR105 22/4

SPI_MISO

M_BIOS

CS# SO WP# VSS VDD HOLD# SCK SI

3VDUAL

NR102 0/4/SHT/M/X

NBC2 1u/4/X5R/6.3V/K

-HOLD0 NR221 0/4/SHT/X N_SPI_DQ3 12

N_ICH_SPI_CLK

N_ICH_SPI_MOSI

NC6 10p/4/NPO/50V/J/X

MAIN BIOS

128M/Q/SPI/SO8/S

* (footprint 改 SOIC8-SPI-SOCKET)

-SPI_CS_2 NR87 22/4

SPI_MISO

12 N_SPI_DQ2 NR236 0/4/SHT/X N_-SPI_WP1

B_BIOS

CS# SO WP# VSS VDD HOLD# SCK SI

3VDUAL

NR67 0/4/SHT/M/X

NBC3 1u/4/X5R/6.3V/K

-HOLD1 NR224 0/4/SHT/X N_SPI_DQ3 12

N_ICH_SPI_CLK N_ICH_SPI_CLK 12,53

N_ICH_SPI_MOSI N_ICH_SPI_MOSI 12,53

BACKUP BIOS

128M/Q/SPI/SO8/S

* (footprint 改 IC8-BIOS)

3VDUAL

NBC4 0.1u/4/X7R/16V/K/X

16 -SPI_HOLD_M

16 -SPI_HOLD_B

-SPI_HOLD_M NR100 1K/4/1

-SPI_HOLD_B NR89 1K/4/1

-SPI_HOLD_MSW BSR1 1K/4/1

-SPI_HOLD_BSW BSR2 1K/4/1

3VDUAL

N_ICH_SPI_MOSI NR98 8.2K/4

12,53 N_ICH_SPI_MISO NR97 22/4 SPI_MISO

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

1 means floating
0 means PD 1K

VCC

BSR3 680/4/1

MBIOS_LED 橘

LED/O/6/S

BSQ2 2N7002/SOT23/25pF/5

BSR7

-SPI_HOLD_MSW 8.2K/4

VCC

BSR4 680/4/1

BBIOS_LED 橘

LED/O/6/S

BSQ1 2N7002/SOT23/25pF/5

BSR6

-SPI_HOLD_BSW 8.2K/4

BSR5 100/4/1 -DUAL_BIOSDIS 16,54

SB SLIDE SW/1 P/BK/D/LOGO 12

SB:Single BIOS
Disable
Enable

DIS_DB1

DIS_DB2

SD1 BAT54C/SOT23/200mA

ECB_GPIO1 53

M_BIOS

LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X

* 試產先上 , PVT 移除

5VDUAL

54 EC_B_SW

16,54 B_SW

BSR15 0/4/X

BSR8 1K/4/1

BSR10 8.2K/4

BSQ4 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_M 16

BSR9 8.2K/4

BSQ3 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_B 16

BIOS_SW SLIDE SW/1 P/BK/D/LOGO 12

5VDUAL

BSR11 1K/4/1

BSR13 8.2K/4

BSQ6 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_B 16

BSR12 8.2K/4

BSQ5 MMBT2222A/SOT23/600mA/40 S0T23

-SPI_HOLD_M 16

BSR14 1K/4/1

BSQ7 2N7002/SOT23/25pF/5

★Update 2015-01.29

BIOS_PH

BIOS_PH

N_-ICH_SPI_CS

N_ICH_SPI_MISO

N_SPI_DQ2

N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 12

3VDUAL

-HOLD0

N_ICH_SPI_CLK

N_ICH_SPI_MOSI

MASK/PH/2*5K10/BK/2.54/VA/D/X

Footprint the same, confirmed by Graceing.

Use COM port pin header part.

Gigabyte Technology		
Title: BIOS		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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SIO IT8628BX REV:1.07

IT8628E_BX

CPU_FAN
SYS_FAN1
SYS_FAN2
SYS_FAN3
SYS_FAN4 sensor
SYS_FAN3 sensor

新增

THRMTRIP 1

SYS_FAN4/OPT_FAN

THRMTRIP 2

FOR SYS_FAN3確認SYS_TEMP

Placement CPU

CPU 端 A_-THRMTRIP不可與PCH及SIO
N_-THRMTRIP直接連接。否則會出現無法拉LOW情況。

REV:1.03(上CX，可不上0 ohm電阻)

FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP1	YES PIN56

IT8620E GPIO問題匯整	
PIN 50	GP26-第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92 高溫時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾
PIN 22	PIN22，需高於3V，若低於 搭部分COM PORT及LPT設置 蜂鳴器會異常動作。

DUAL BIOS OPT STRAP

Power leakage

SIO_18V

internal power pin, max 22nF cap

SIO CAP

CLOSE SIO PIN4 VREF_25

PWR SHT

SIO PU

新增

SIO STRAP

EUP control detect

JP2	1	Disable WDT
	0	Enable WDT to rest PWROK
JP3	1	Dual BIOS CS PIN Disable
	0	Dual BIOS CS PIN Enable
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP5	1	anti-surge Disable
	0	anti-surge Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

Dual LAN （組態三）

MB ID

Gigabyte Technology

Title: ITE 8620 LPC IO

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.0

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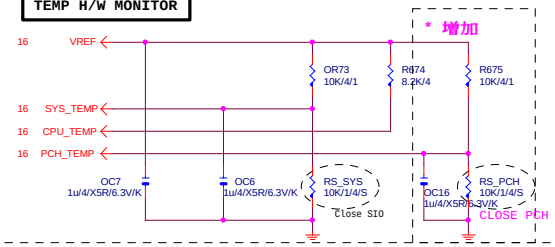
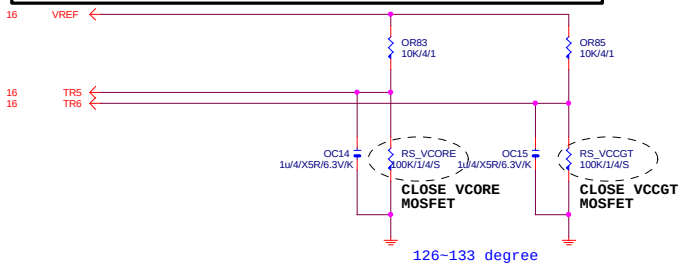
REV:1.07

TEMP H/W MONITOR

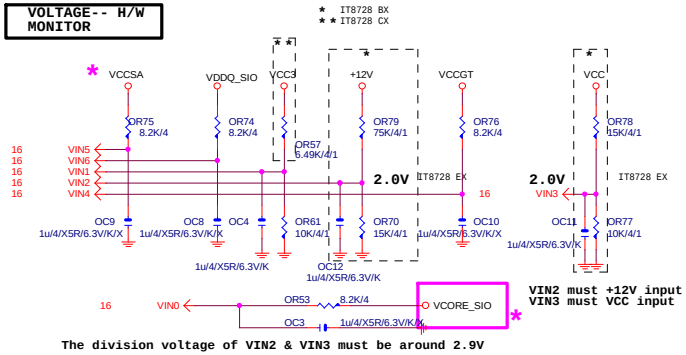


RS_VCORE、RS_VCCGT CLOSE CPU VCORE & VCCGT MOSFET

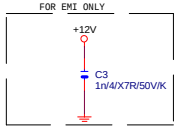
-PROCHOT:有mos heartsink不用prochot function



VOLTAGE-- H/W MONITOR



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



Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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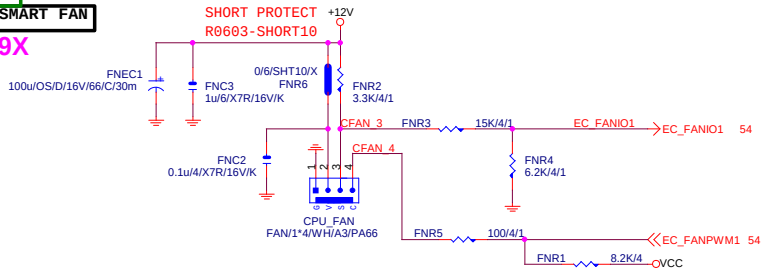
Rev: 0.4

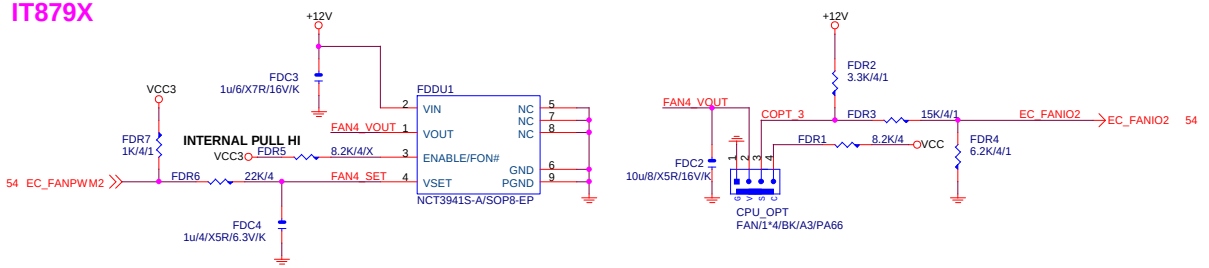
CPU SMART FAN

IT879X



CPU_OPT

IT879X

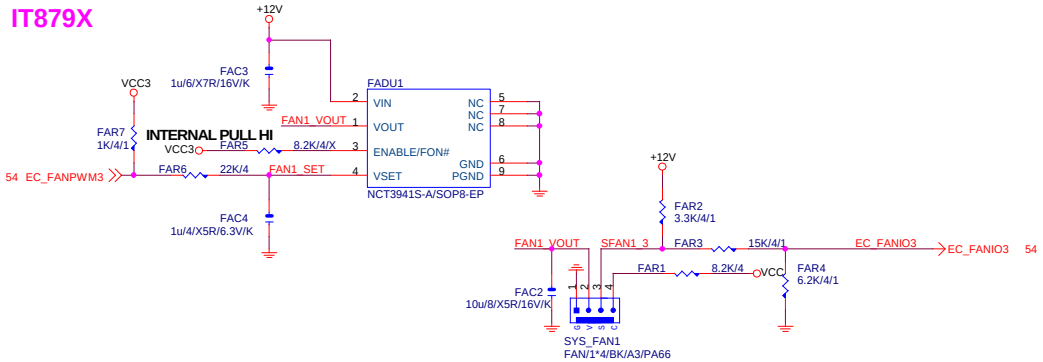


SYSTEM FAN1

Linear SYS_FAN

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

IT879X

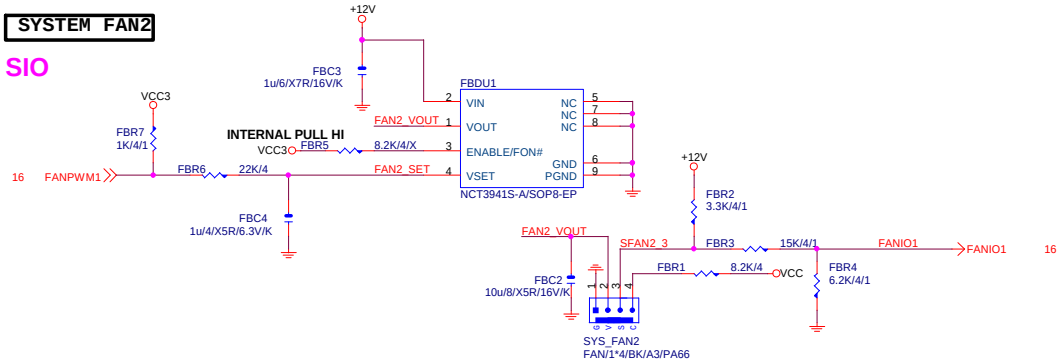


SYSTEM FAN4

SIO

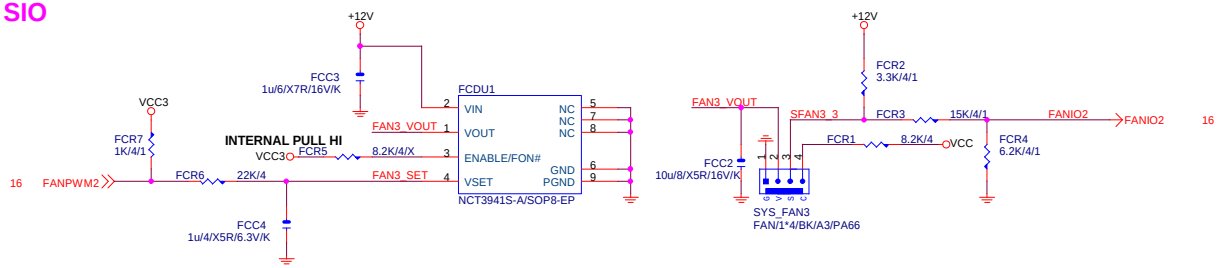
SYSTEM FAN2

SIO



SYSTEM FAN3

SIO



Gigabyte Technology	
Title	HWM,KB/MS, FAN CTRL
Size: Custom	Document Number: GA-Z170X-GAMING GT
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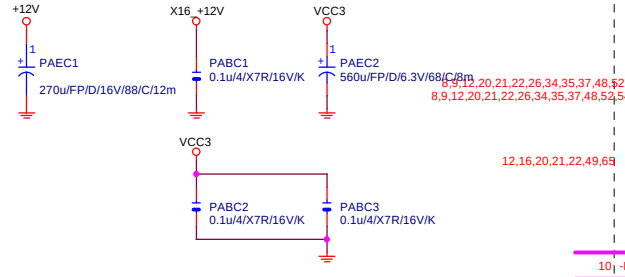
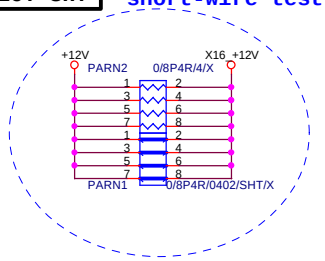
PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN15_C

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

PCIEX16 SLOT

PCIESLOT-164STH

紅色

PCIEX16:16/5/5/5/16

PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] 4,23

PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] 4,23

PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] 4,23

PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] 4,23

PA_EXP_SW_RXP[8..15] → PA_EXP_SW_RXP[8..15] 23

PA_EXP_SW_RXN[8..15] → PA_EXP_SW_RXN[8..15] 23

PA_EXP_SW_TXP[8..15] → PA_EXP_SW_TXP[8..15] 23

PA_EXP_SW_TXN[8..15] → PA_EXP_SW_TXN[8..15] 23

Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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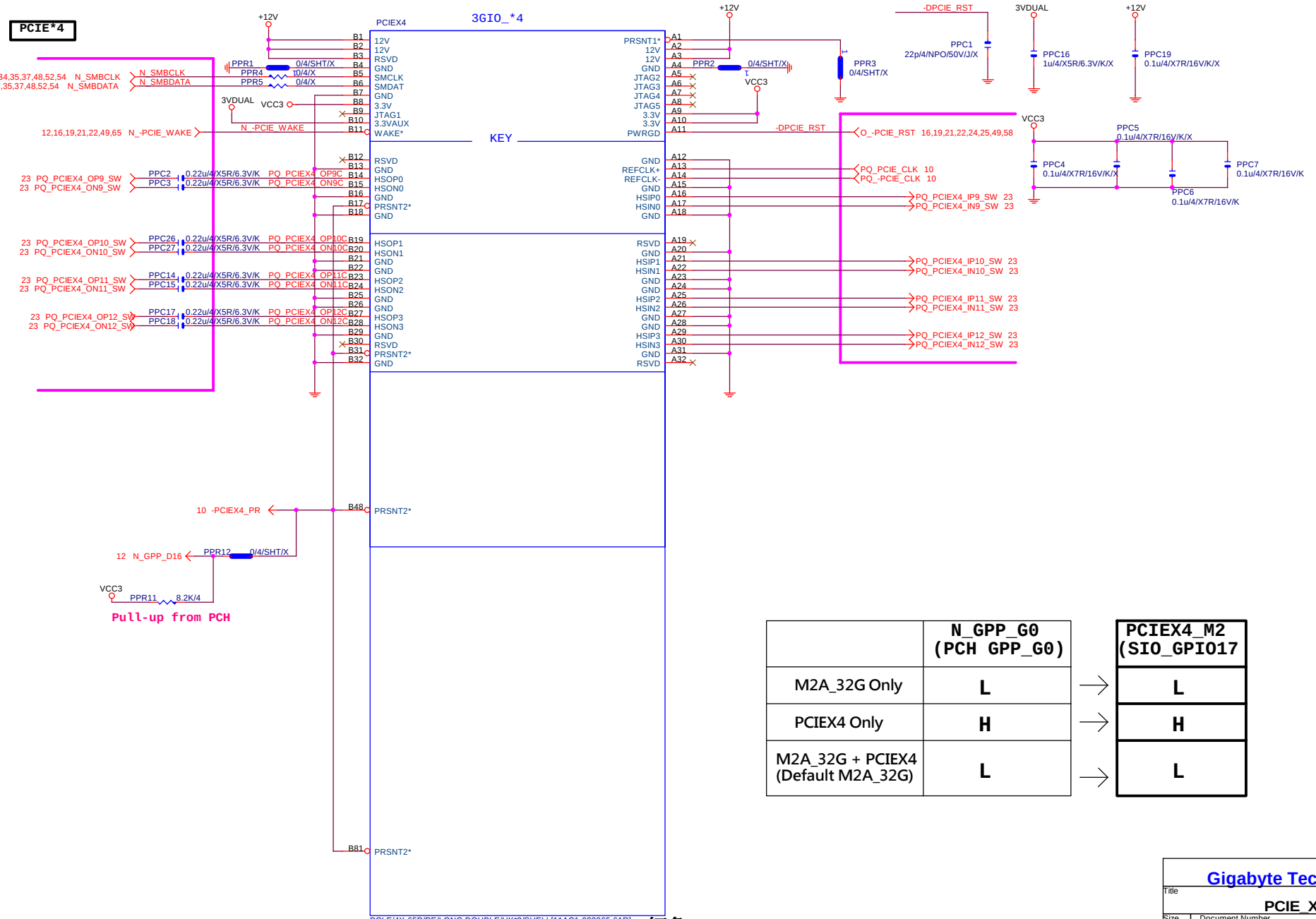

	N_GPP_G0 (PCH GPP_G0)	PCIEX4_M2 (SIO_GPIO17
M2A_32G Only	L	L
PCIEX4 Only	H	H
M2A_32G + PCIEX4 (Default M2A_32G)	L	L

Gigabyte Technology

Title: PCIE_X1 1,2

Size: Custom | Document Number: GA-Z170X-GAMING G1 | Rev: 1.01

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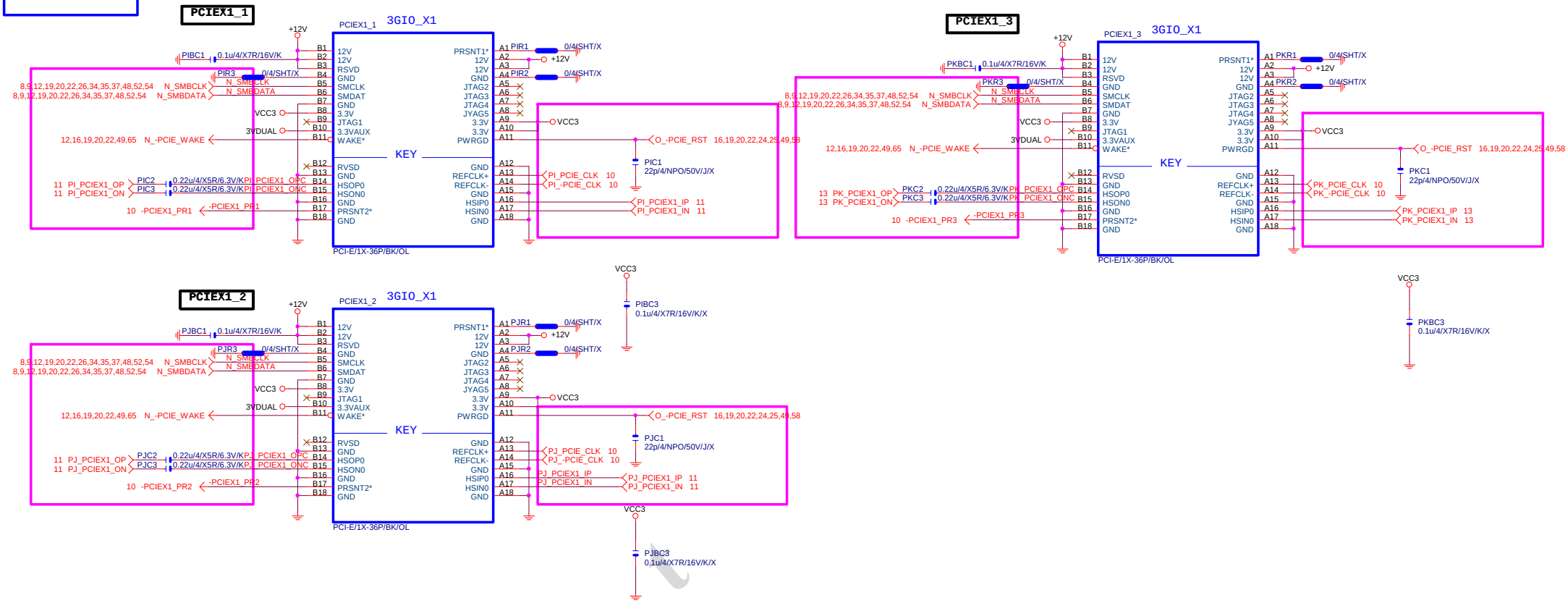
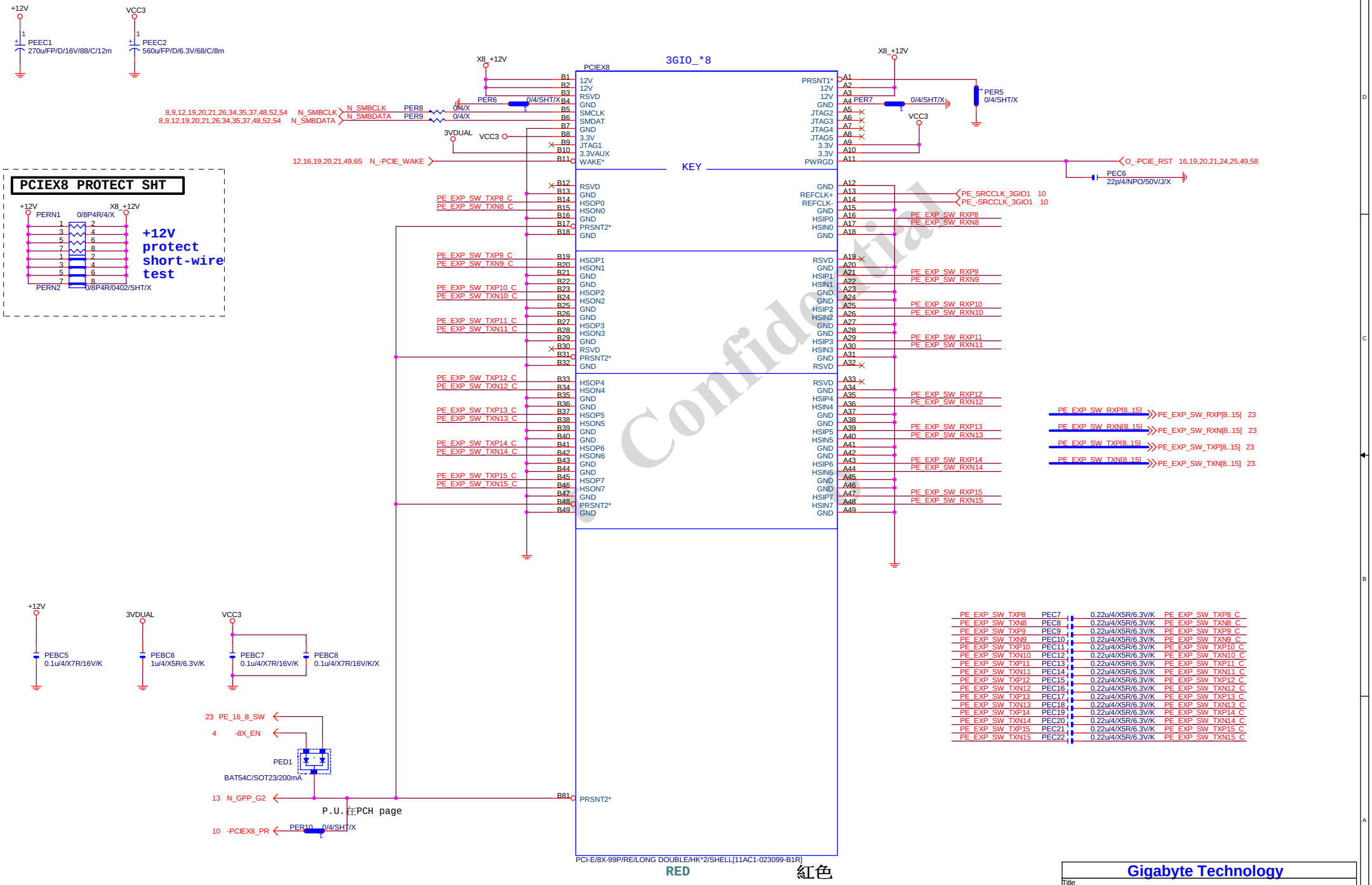
Rev 0.2



Gigabyte Technology			
Title: PCIE_X1 1,2			
Size: Custom	Document Number: GA-Z170X-GAMING GT		Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 21 of 75		


+12V
VCC3
PEEC1
270u/FP/D/16V/88/C/12m
PEEC2
560u/FP/D/6.3V/68/C/8m
PCIEX8 PROTECT SHT
+12V
X8_+12V
PERN1
0/8P4R/4/X
PERN2
0/8P4R/0402/SHT/X
+12V protect short-wire test
PCIEX8
3GIO_*8
KEY
X8_+12V
3VDUAL
VCC3
N_SMBCLK
N_SMBDATA
PER6
PER7
PER8
PER9
PER5
0/4/SHT/X
0/4/X
12,16,19,20,21,49,65 N_-PCIE_WAKE
O_-PCIE_RST 16,19,20,21,24,25,49,58
PEC6
22p/4/NPO/50V/J/X
PE_SRCCLK_3GIO1 10
PE_-SRCCLK_3GIO1 10
PE_EXP_SW_RXP[8..15]
PE_EXP_SW_RXN[8..15]
PE_EXP_SW_TXP[8..15]
PE_EXP_SW_TXN[8..15]
PEBC5
0.1u/4/X7R/16V/K
PEBC6
1u/4/X5R/6.3V/K
PEBC7
0.1u/4/X7R/16V/K
PEBC8
0.1u/4/X7R/16V/K/X
23 PE_16_8_SW
4 -8X_EN
PED1
BAT54C/SOT23/200mA
13 N_GPP_G2
10 -PCIEX8_PR
PER10
P.U.在PCH page
PRSNT2*
PCI-E/8X-99P/RE/LONG DOUBLE/HK*2/SHELL[11AC1-023099-B1R]
RED
紅色
Confidential
Gigabyte Technology
PCI EXPRESS X8
GA-Z170X-GAMING GT
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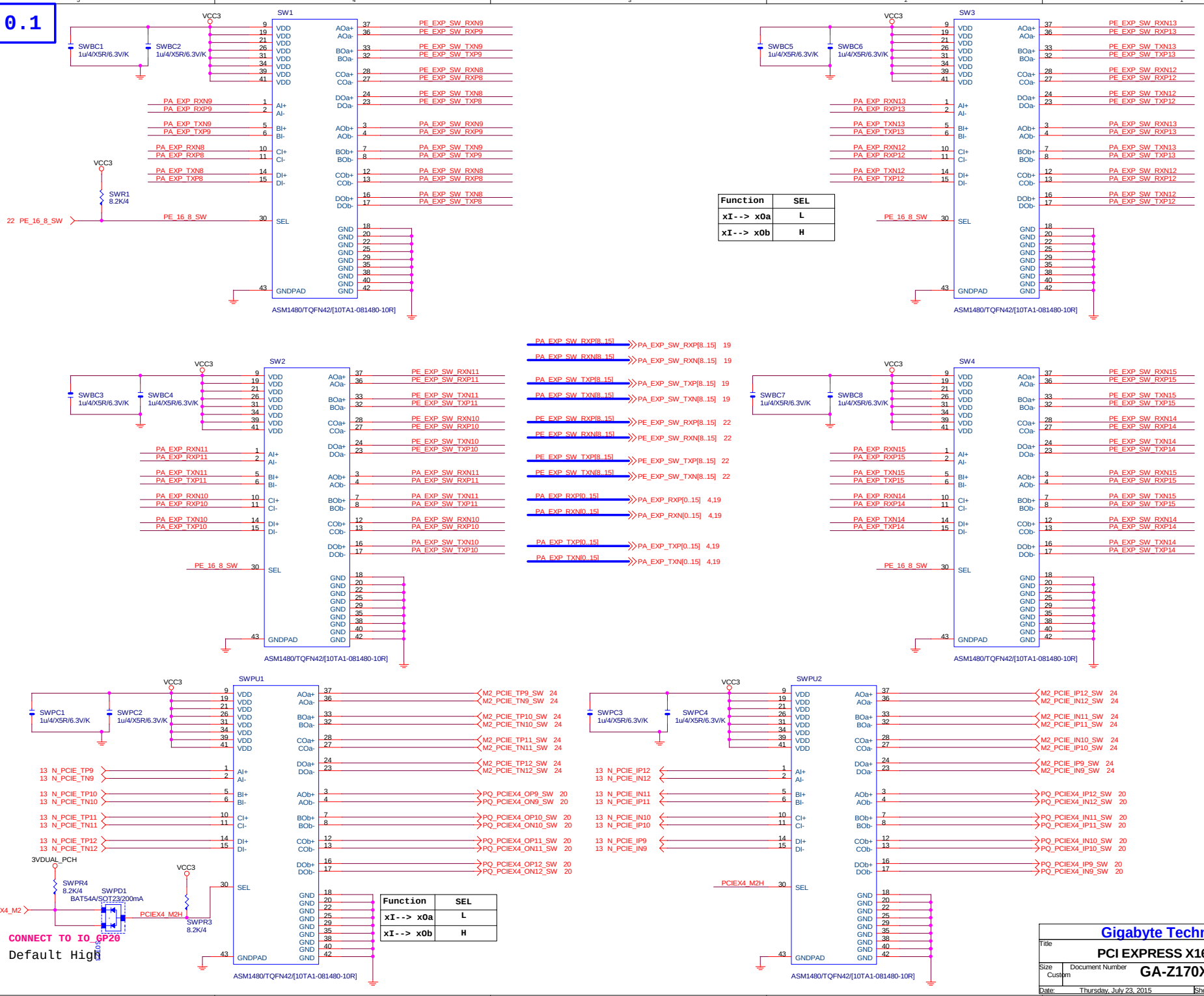
Rev 0.1



Gigabyte Technology

Title	PCI EXPRESS X16 SWITCH
Size	Custom
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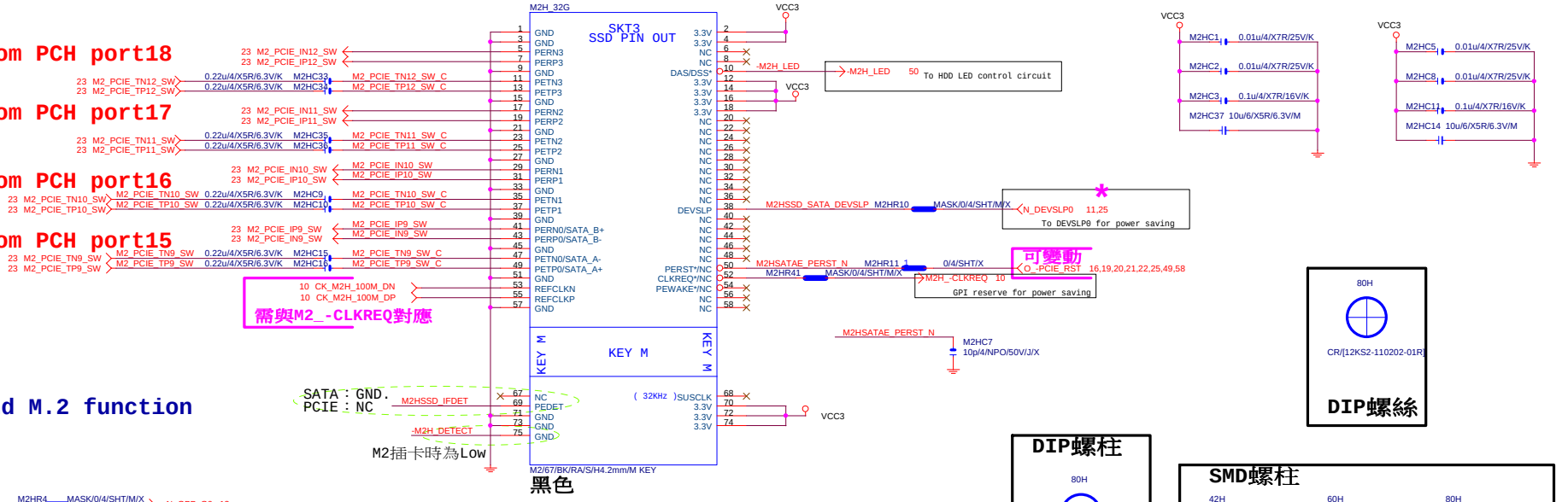
M.2 Lane4 from PCH port18

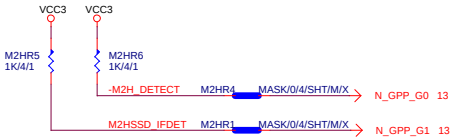
M.2 Lane3 from PCH port17

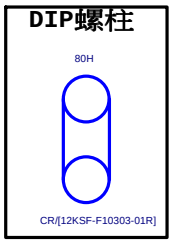
M.2 Lane2 from PCH port16

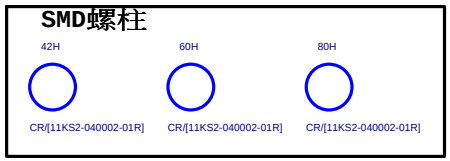
M.2 Lane2 from PCH port15



支援SATA and M.2 function







M.2 有插卡/沒插卡 GPP_G0	M.2插何種卡？ GPP_G1	SATA Express 插何種硬碟？ GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IP20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)	PCIE x4 (For M.2)				SATA	SATA
		SATA Express (Low)	PCIE x4 (For M.2)				SATA Express	
沒插卡 (Hi)	Don't Care (Hi)	SATA (Hi)	PCIE x4				SATA	SATA
		SATA Express (Low)	PCIE x4				SATA Express	

Gigabyte Technology			
Title: M.2 X4			
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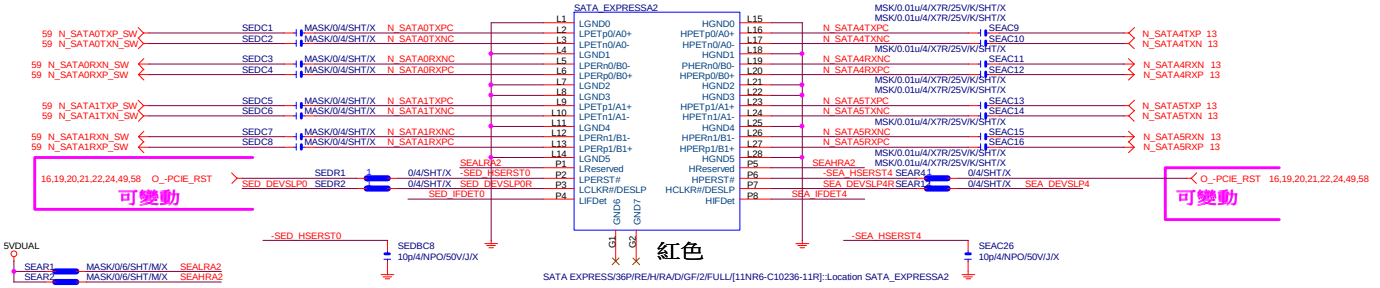
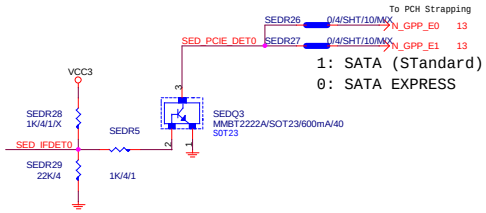
SATA EXPRESS 下層 To SATA3 port0/1

SATA EXPRESS 上層 To SATA3 port4/5



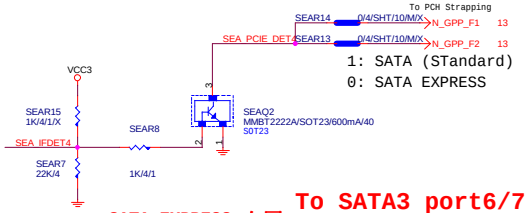
Rev 0.5

* check
文字面 01/23/45
NET
(45/23/01)



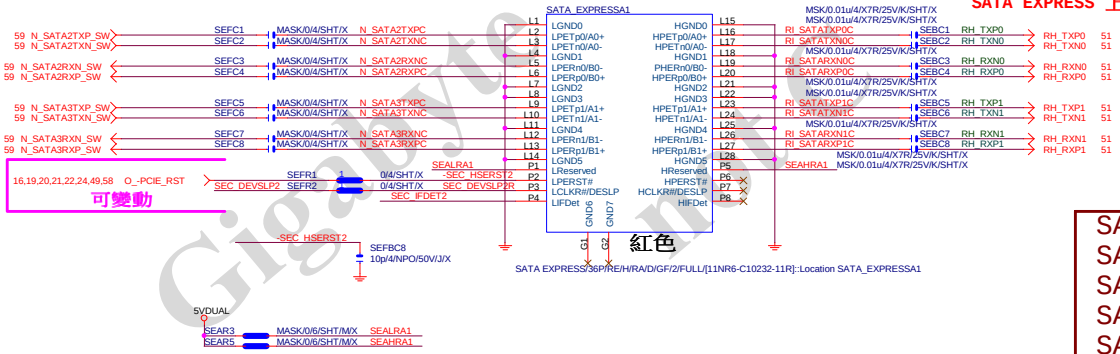
SATA EXPRESS料號
雙層:TBD

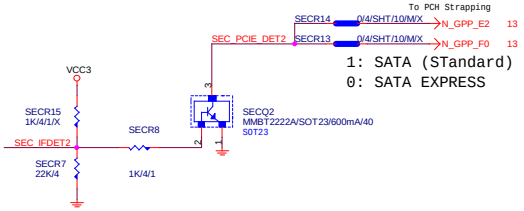
單層+2SATA:11NR6-C10236-03R
單層:11NR6-C10118-03R



SATA EXPRESS 下層 To SATA3 port2/3

SATA EXPRESS 上層 To SATA3 port6/7 ASM1061





SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)

Gigabyte Technology		
Title: SATA EXPRESS		
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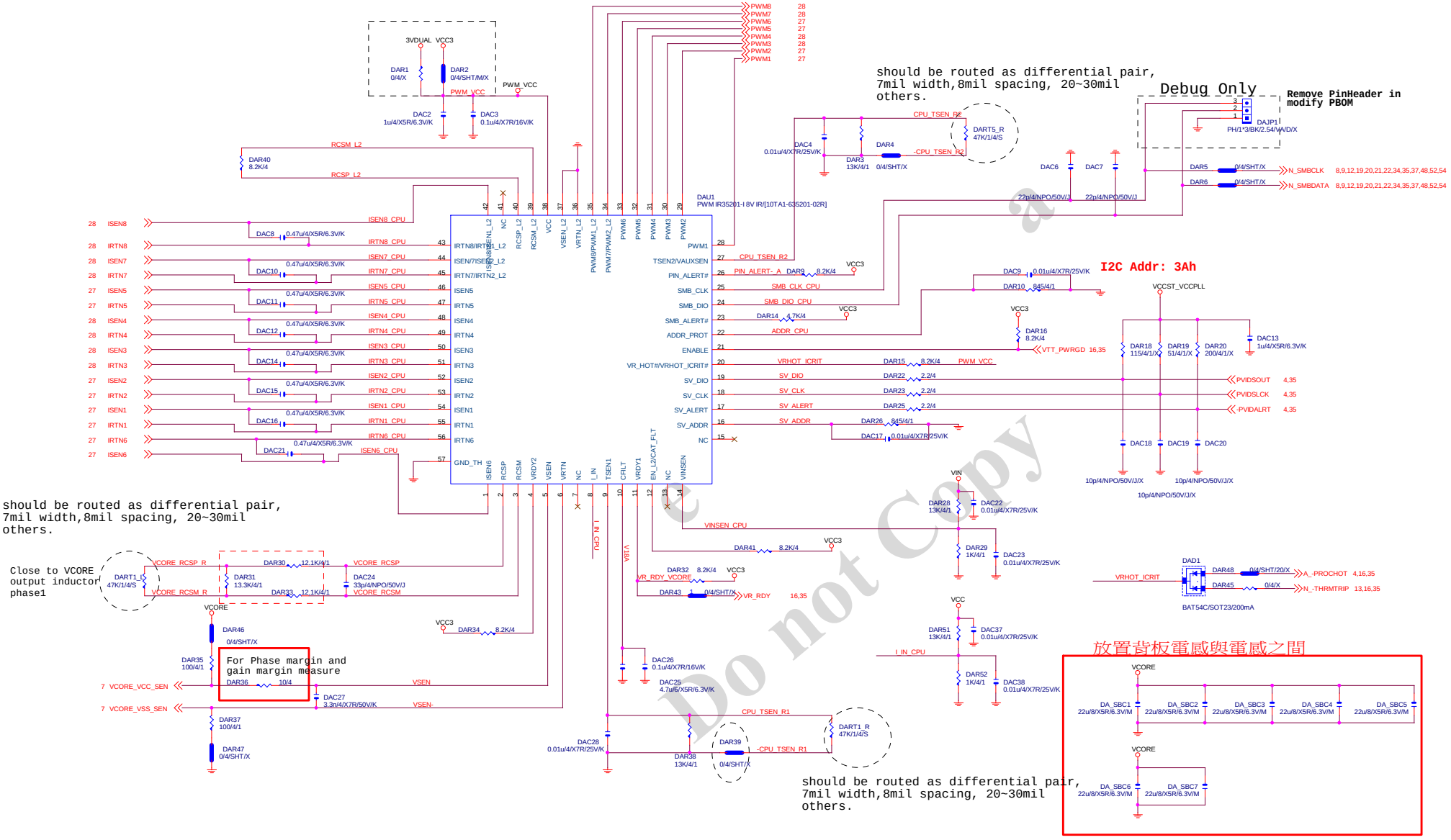
REV:0.1



Title	IR35201_PWM
Size	Custom
Document Number	GA-Z170X-GAMING GT
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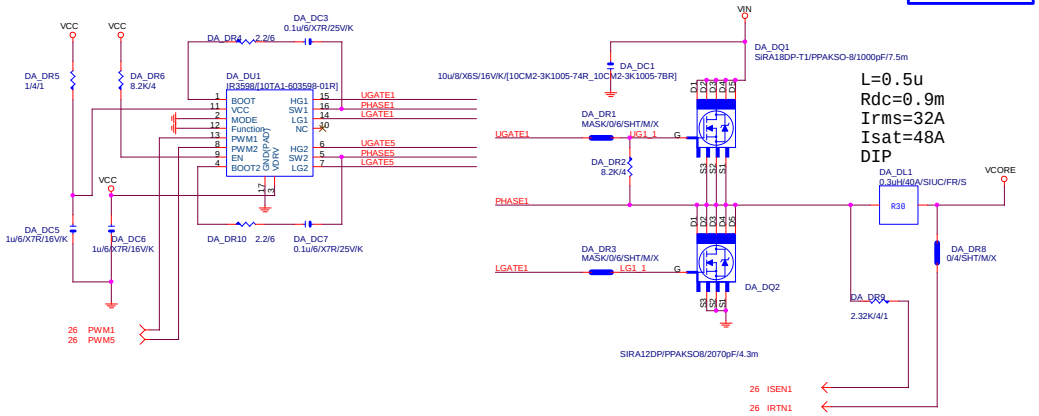
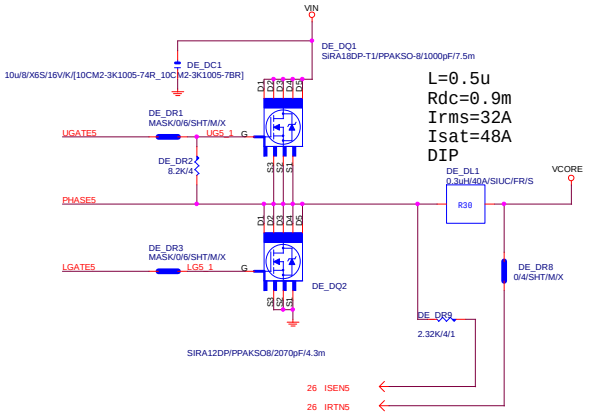
REV:0.1

VCORE-PHASE1



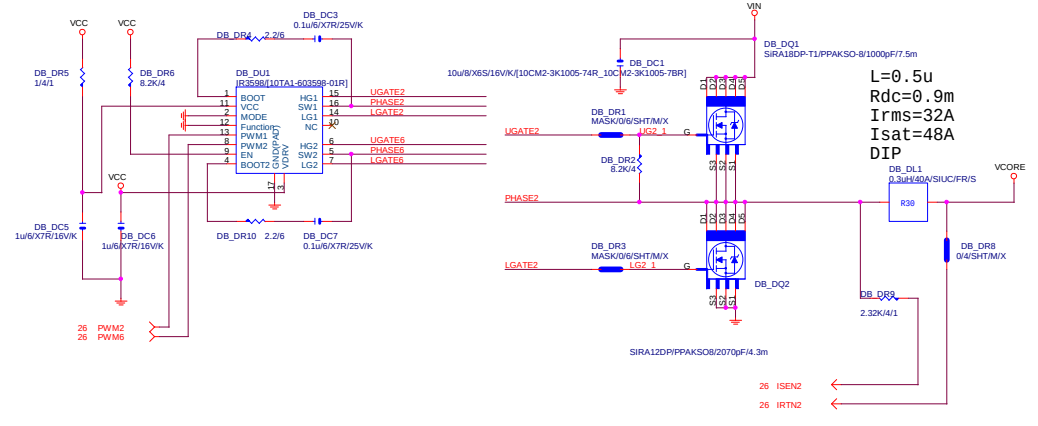
L=0.5u
Rdc=0.9m
Irms=32A
Isat=48A
DIP

VCORE-PHASE5



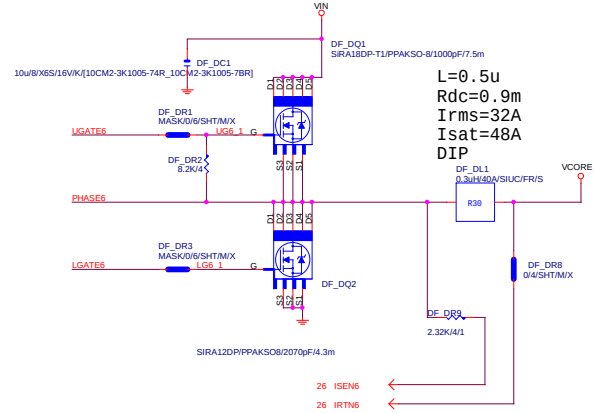
L=0.5u
Rdc=0.9m
Irms=32A
Isat=48A
DIP

VCORE-PHASE2



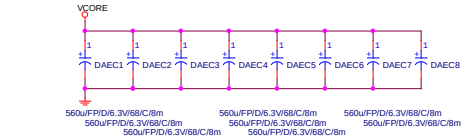
L=0.5u
Rdc=0.9m
Irms=32A
Isat=48A
DIP

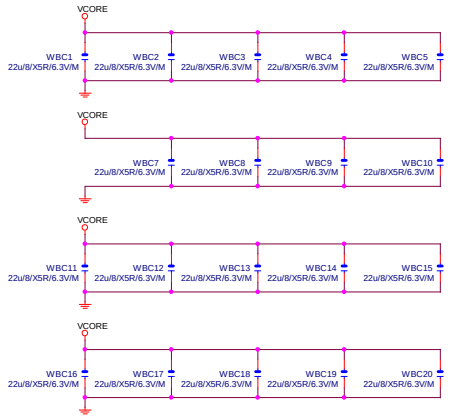
VCORE-PHASE6

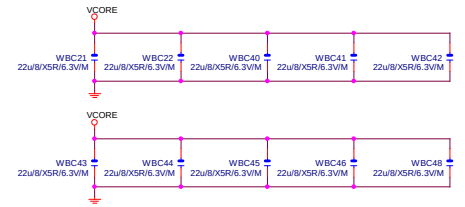


L=0.5u
Rdc=0.9m
Irms=32A
Isat=48A
DIP

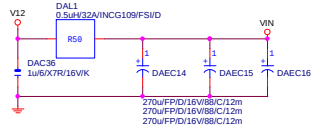
VCORE CAP 560u*8PCS 22u*30PCS







VIN CAP 270u*3PCS

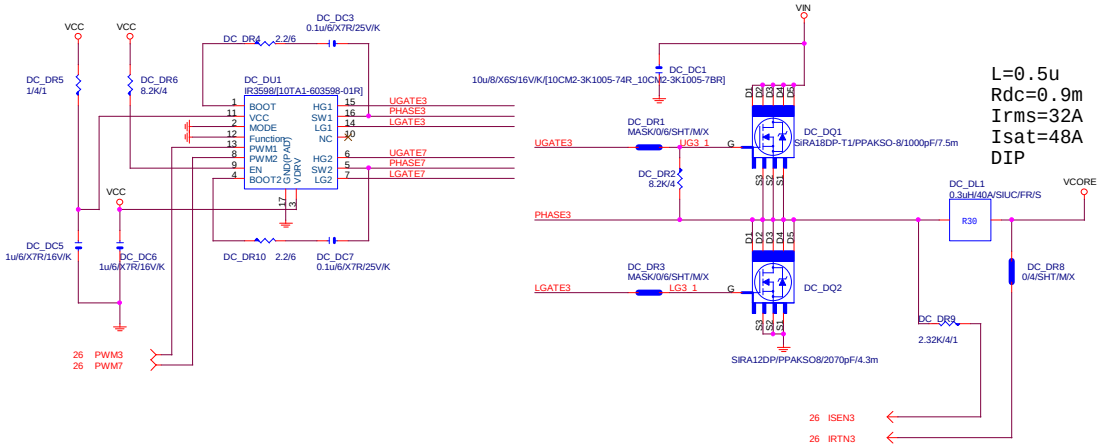


GIGABYTE™

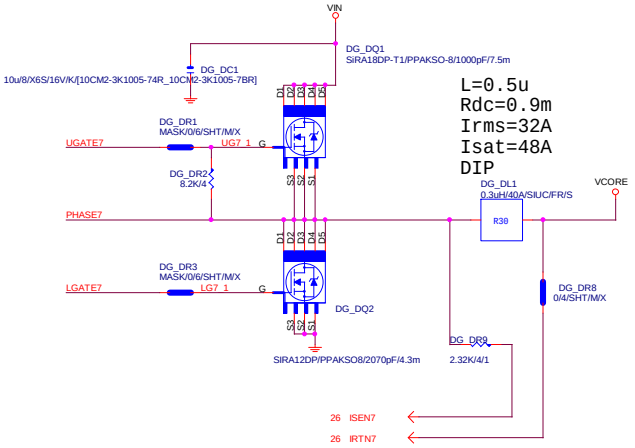
Title	IR3553_1	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 27 of 75	

REV:0.1

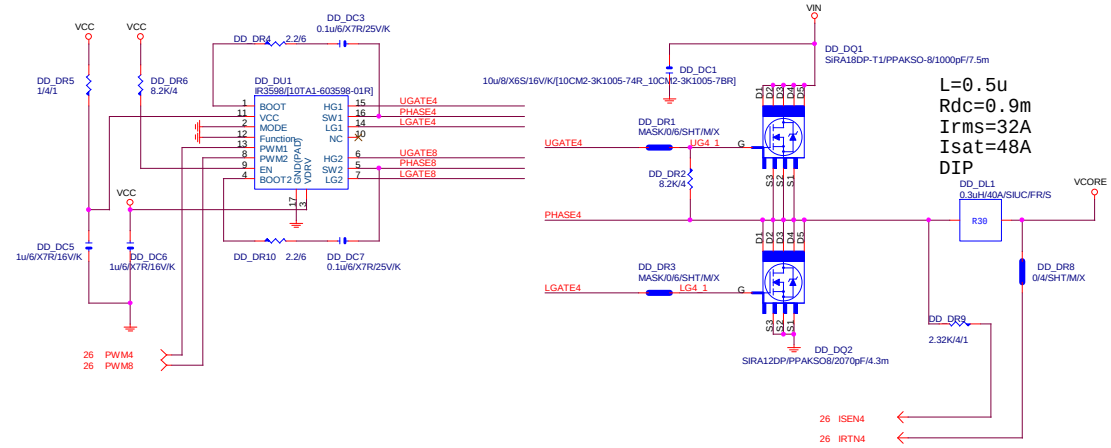
VCORE-PHASE3



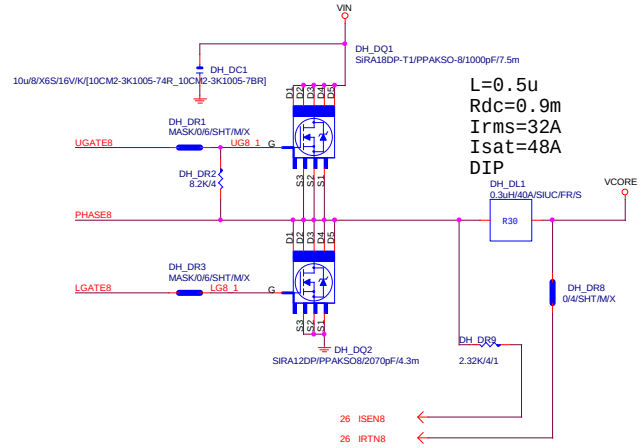
VCORE-PHASE7



VCORE-PHASE4



VCORE-PHASE8



GIGABYTE™

Title	IR3553_2	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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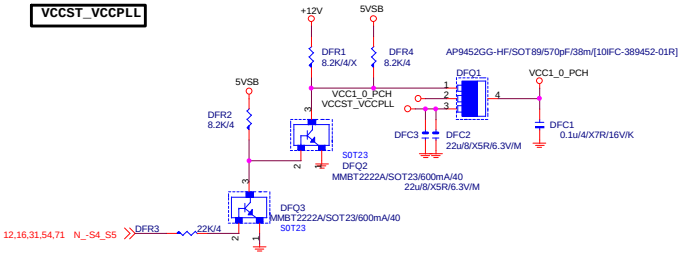
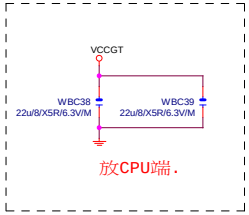
REV:0.2

VCCST_VCCPLL





GIGABYTE™

Title: VCCSA_VCCIO_no 44E		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 29 of 75	

REV:0.86

DDR4

L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A

DDR VIN CAP
560u*2PCS

CHOKE與CAP料號可變

5VDUAL
MA_DR10 0/6/X
+12V
MA_D1
MA_DR8 2.2/6
DRV_DDR
SDM20E40C/0.4A/SOT23
MA_DC10 1u/6/X7R/16V/K
MA_DC9 0.1u/6/X7R/25V/K

VDDQ_SIO
VDDQ
DDR_VS
MASK/0/4/SHT/X

RT8120DGS/SOP8
MAU2
COMP
VCC
BOOT
UGATE
PHASE
GND
PGND
FB
LG/OC
DDR_EN
MA_DC15 22p/4/NPO/50V/J
MA_DR15 27K/4/1
MA_DC16 3.3n/4/X7R/50V/K
MA_DR19
MASK/0/4/SHT/X
MA_UGATE
MA_PHASE
MA_LGATE
MA_DR18 11.8K/4/1

OCP=40A
放靠近IC pin4
OCP:54.83A=Roset*Iocset / Rds(on)
11.8K*10uA / 2.15

5VDUAL
MA_L2 0.5uH/25A/INC0809/F/D
8*8
MA_VIN
MA_DC6 0.1u/4/X7R/16V/K
Close Choke
MA_DC7 1u/6/X7R/16V/K
Close MOS
MAEC1 560u/FP/D/6.3V/68/C/8m
MAEC2 560u/FP/D/6.3V/68/C/8m
MA_DQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m
MA_UGATE
MA_DR1 2.2/6
MA_DR2 8.2K/4
MA_PHASE
MA_DQ2
MA_DQ3
MA_LGATE
MA_DR9 2.2/6
MA_LG
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K
SIRA12DP/PPAKSO8/2070pF/4.3m
SIRA12DP/PPAKSO8/2070pF/4.3m
MA_L1 0.8uH/28A/INCG109/FS/D
R50
10*10
VDDQ
MA_DR14 487/4/1
MA_DR13 2K/4/1
MA_DC14 3.3n/4/X7R/50V/K
RS
RO
MA_DR12 4.02K/4/1
DDR_ADJ
34 DDR_ADJ

SUPPORT DDR4 1.2V
25A MAX
L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A

Remote sense請從最重的負載端點拉回

MOSFET請依MOSFET使用規則.自行選擇
ON-->10IF9-040406-10R[NTMFS4C06N/N/PPAK/1400pF/4m]
VISHAY-->10IF9-040012-10R[SIRA12DP/PPAKSO8/2070pF/4.3m]

PWR SEQ

5VDUAL
DDR_EN
MAR108 22K/4
MAQ6 2N7002/SOT23/25pF/5
SOT23
VPP_25V
MAR9 10K/4/1
MAQ5
SOT23
MMBT2222A/SOT23/600mA/40
MAR107 5.11K/4/1/X
MAC3 0.1u/4/X7R/16V/K

For power sequence require

5VDUAL
DDR_EN
MAR1 8.2K/4
MAQ10 2N7002/SOT23/25pF/5
SOT23
5VDUAL
MAR2 8.2K/4
MAQ11 2N7002/SOT23/25pF/5
SOT23
16,31 MA_EN
MAR105 100K/4/1
MAC9 1u/6/X7R/16V/K

Connect to IT8620

MAU1上RT9045時上件

5VSB
MA_VTT_REF
MAR7 8.2K/4/X
MAQ2 2N7002/SOT23/25pF/5/X
SOT23
MAQ3 2N7002/SOT23/25pF/5/X
SOT23
12,16,54,65,71 N_-SLP_S3
MAR6 8.2K/4/X
MAQ1 2N7002/SOT23/25pF/5/X
SOT23
MAQ4 MMBT2222A/SOT23/600mA/40/X
SOT23
MAR8 8.2K/4/X
4 DDR_VTT_CTL

DDRVTT

VDDQ
MAC2 1u/4/X5R/6.3V/K
MA_VTT_REF
34 MA_VTT_REF
MAC1 0.01u/4/X7R/25V/K
MAR5 1K/4/1
MAR4 1K/4/1

MAU1
NCT3103S/SOP8/2A
VIN
GND
VREF1
VOUT
VREF2
ENABLE
VCNTL
BOOT_SEL
DDRVTT_EN
DDRVTT_BOOT
5VDUAL
MAC7 10u/6/X5R/6.3V/M
DDRVTT
1.1A MAX

DDR_VTT_CTL
N_-SLP_S3
MAR110 0/4/SHT/10/M/X
MAR111 0/4/SHT/10/M/X
MAU1上NCT3103S時上件

DDR CAP 560u*4PCS 22u*2PCS

VDDQ
MAEC3 560u/FP/D/6.3V/68/C/8m
MAEC4 560u/FP/D/6.3V/68/C/8m
MAEC6 560u/FP/D/6.3V/68/C/8m
MAEC7 560u/FP/D/6.3V/68/C/8m
* 大電容 x4

WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M

DDRVTT CAP

* 大電容 x0

DDRVTT
MAC4 22u/8/X5R/6.3V/M
MAC5 22u/8/X5R/6.3V/M

GIGABYTE™

Title	RT8120_DDR4 POWER	
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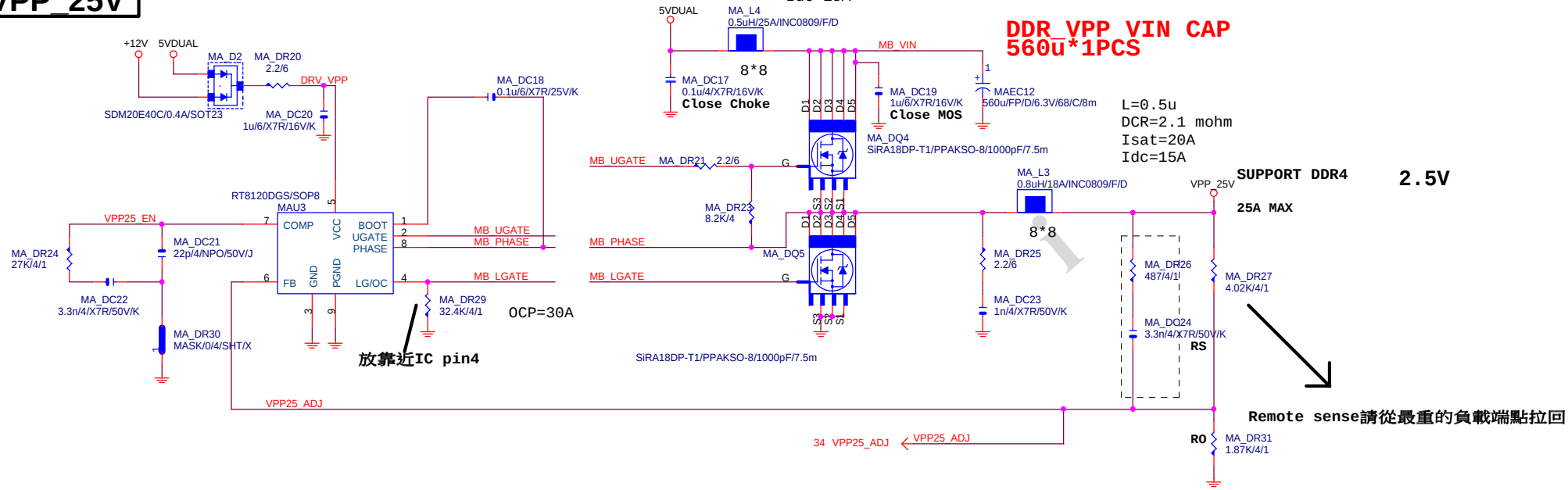
REV:0.88

VPP_25V

L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A

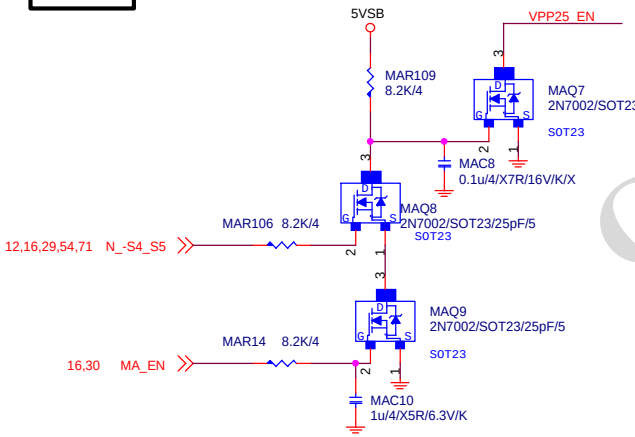
CHOKE與CAP料號可變

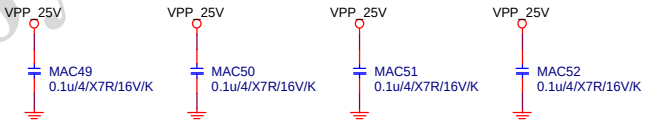
DDR_VPP VIN CAP
560u*1PCS



PWR SEQ

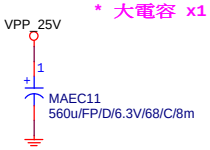
* 刪 MA_DR32





VPP CAP 560u*1PCS

* 大電容 x1



GIGABYTE™

Title: RT8120_VPP25 POWER		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 31 of 75	

REV:0.67

5VDUAL
+12V
NPR22 0/8/X
NPD1 B140/SMA/1A
NPD2 B320B/SMB/3A
L=0.5u
DCR=1.7 mohm
Isat=25A
Idc=18A
CHOKE與CAP料號可變
NPL1 0.5uH/25A/INC0809/F/D
P1V0_VIN_D
P1V0_VIN
NPC1 0.1u/4/X7R/16V/K
Close Choke
NPC3 1u/6/X7R/16V/K
Close MOS
NPEC1 100u/OS/D/16V/66/C/30m
NPQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A
NPL2 1uH/18A/IMD0809/M/D
VCC1_0_PCH
5VDUAL NPR1 2.2/6
DRV_PCH
NPC4 1u/6/X7R/16V/K
NPC2 0.1u/6/X7R/25V/K
UGATE_PCH NPR2 2.2/6
NPR4 8.2K/4
RT8120DGS/SOP8
NPU1
P1V0_PCH_EN
NPR5 8.2K/4/1
NPC5 22p/4/NPO/50V/J
NPC6 3.3n/4/X7R/50V/K
NPR12 MASK/0/4/SHT/X
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC
UGATE_PCH
PHASE_PCH
LGATE_PCH
NPR11 34K/4/1
OCP=30A
放靠近IC pin4
PHASE_PCH
LGATE_PCH
NPQ2
SiRA18DP-T1/PPAKSO-8/1000pF/7.5m
NPR6 2.2/6
NPC7 1n/4/X7R/50V/K
NPR7 487/4/1
NPC8 3.3n/4/X7R/50V/K
RS
NPR8 2K/4/1
NPEC2 560u/FP/D/6.3V/68/C/8m
Remote sense請從最重的負載端點拉回
P1V0_PCH_ADJ
34 P1V0_PCH_ADJ
RO NPR13 6.2K/4/1
0.8*(1+RS/RO) = Vout
0.8*[1+2K/6.2K)] =
1.05V

PWR SEQ

P1V0_PCH_EN NPR14 0/4/X VCC1_0_EN 16
5VSB
P1V0_PCH_EN
NPR15 8.2K/4
NPQ4 2N7002/SOT23/25pF/5
SOT23
3VDUAL
NPR16 8.2K/4
NPQ3 MMBT2222A/SOT23/600mA/40
S0T23
NPR17 8.2K/4
NPC9 0.1u/4/X7R/16V/K/X

VCC1_0_PCH
NPC10 22u/8/X5R/6.3V/M
請放置CHOKE一出來的地方

GIGABYTE™

Title	RT8120_PCH POWER	
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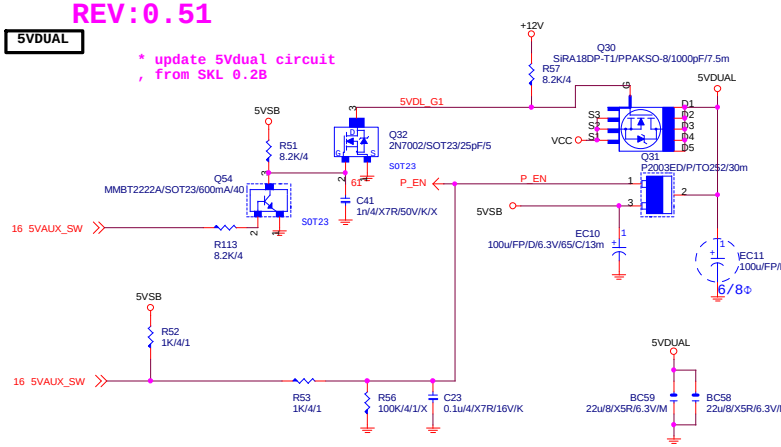
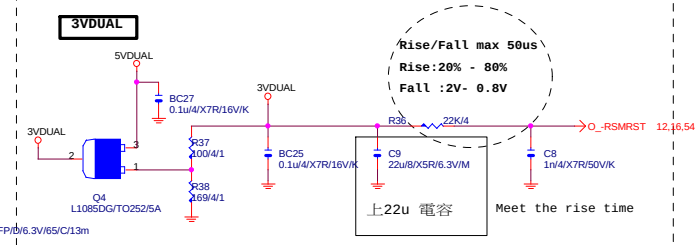
REV:0.51

5VDUAL

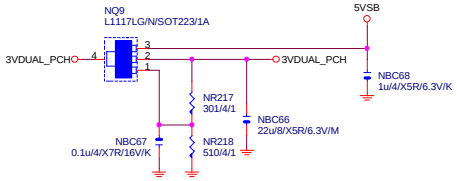
* update 5Vdual circuit
, from SKL 0.2B

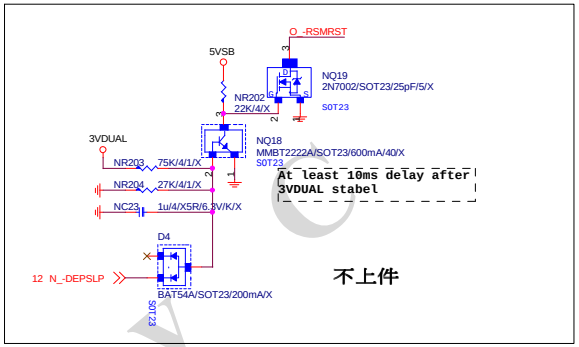


3VDUAL



3VDUAL_PCH





Gigabyte Technology			
Title: DISCRETE POWER			
Size: Custom	Document Number: GA-Z170X-GAMING GT		Rev: 1.01
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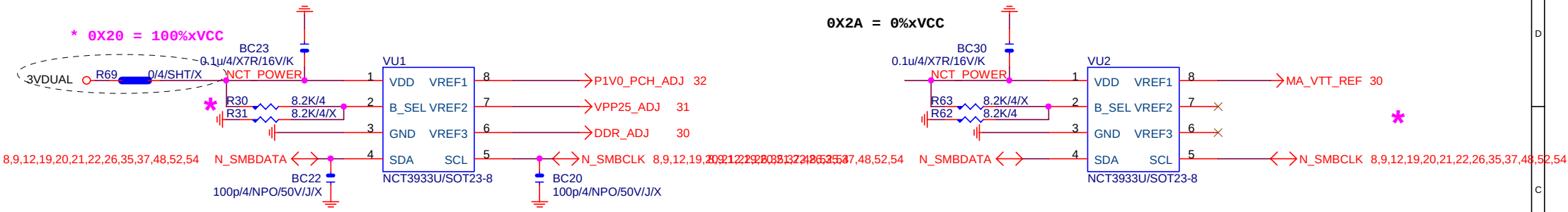
OVER VOLTAGE



0X22 = 75%xVCC

* 删除 OVU3

NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

Title: CPU CORE VR-2

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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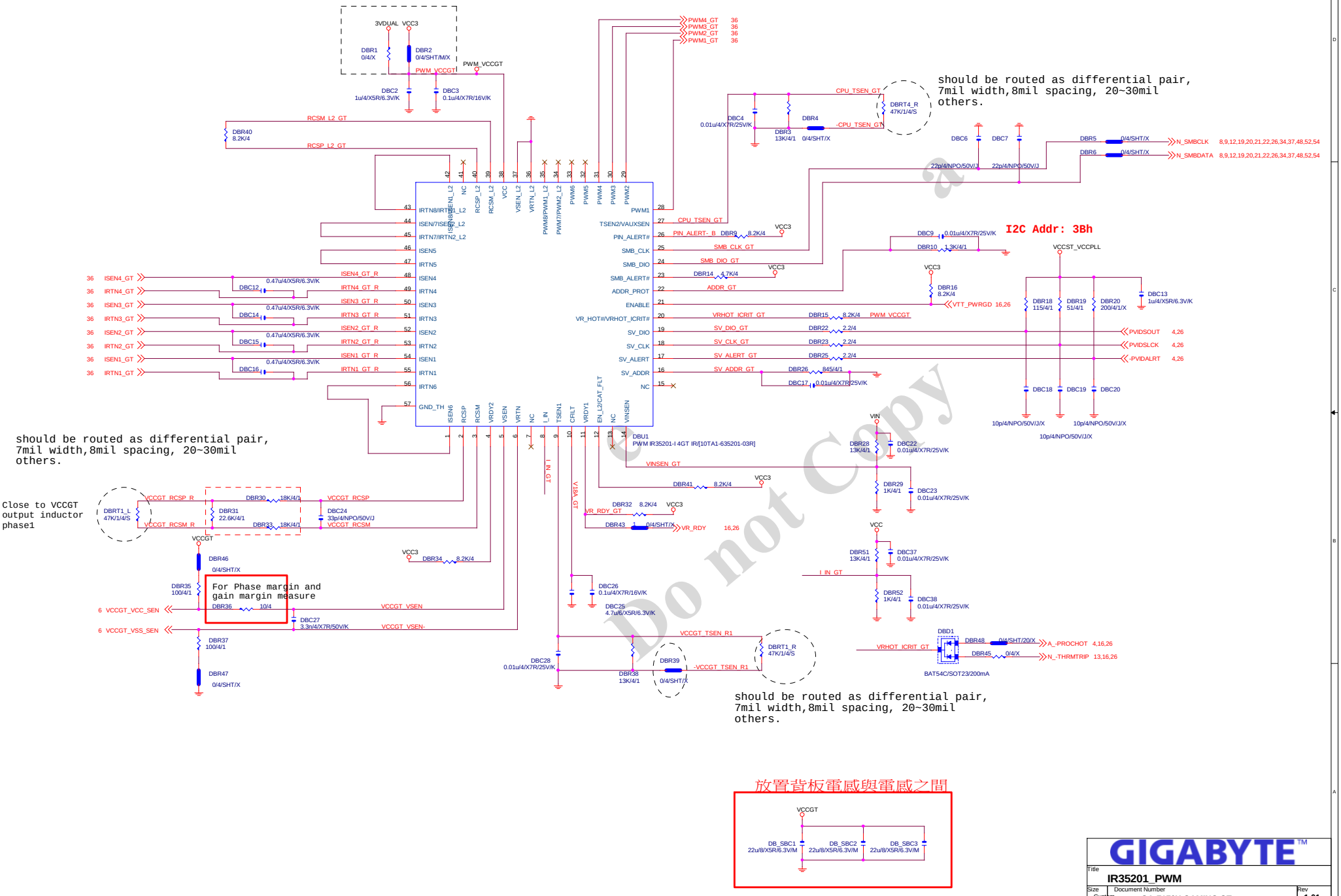
REV:0.1


should be routed as differential pair, 7mil width,8mil spacing, 20~30mil others.
I2C Addr: 3Bh
should be routed as differential pair, 7mil width,8mil spacing, 20~30mil others.
Close to VCCGT output inductor phase1
For Phase margin and gain margin measure
should be routed as differential pair, 7mil width,8mil spacing, 20~30mil others.
放置背板電感與電感之間
Do not Copy
GIGABYTE
Title
IR35201_PWM
Size
Custom
Document Number
GA-Z170X-GAMING GT
Rev
1.01
Date: Friday, July 24, 2015
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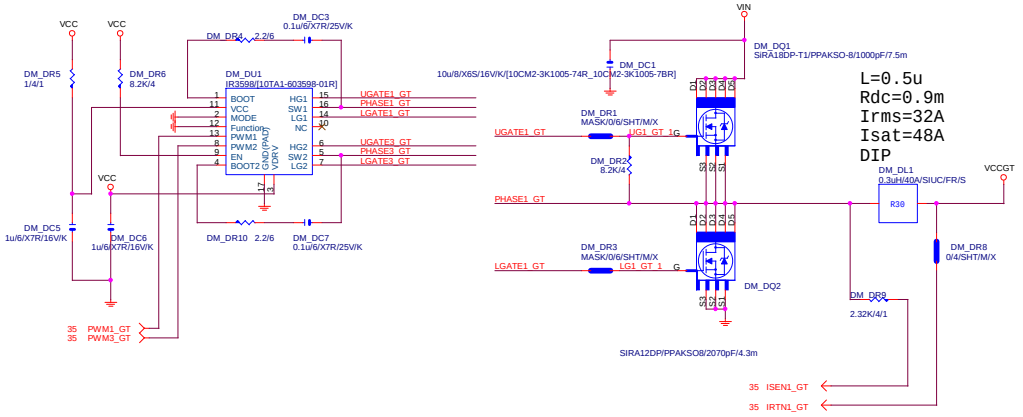
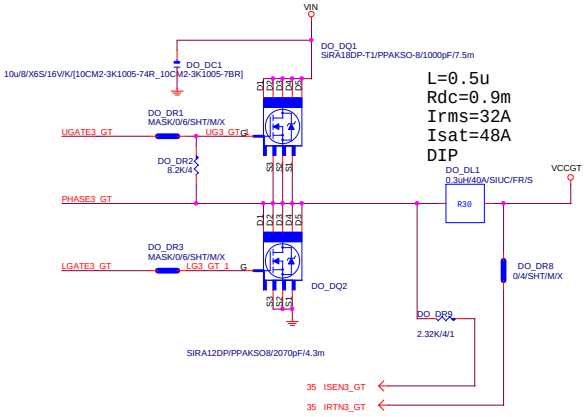
REV:0.1

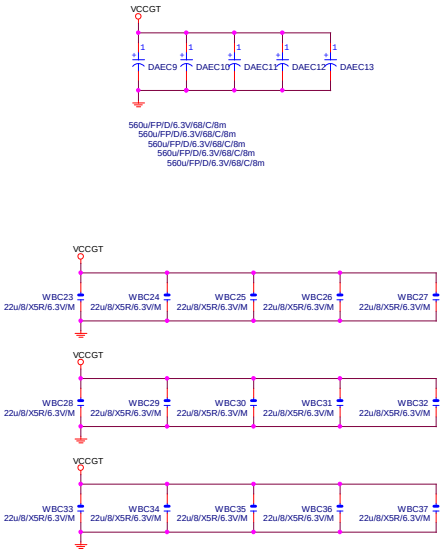
VCCGT-PHASE1



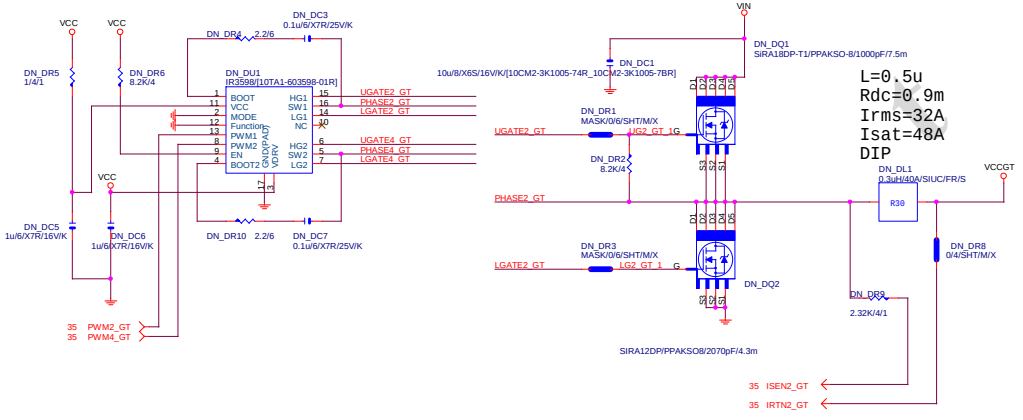
VCCGT-PHASE3



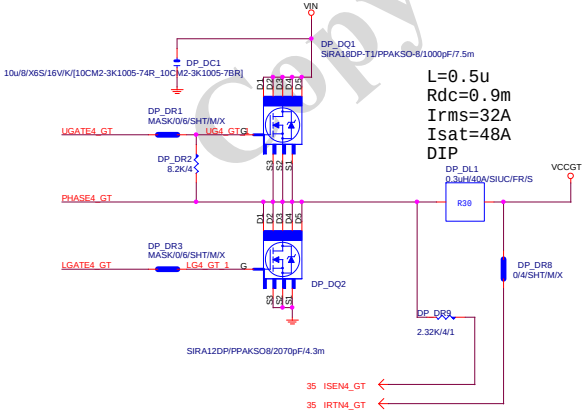
VCCGT CAP 560u*5PCS 22u*15PCS



VCCGT-PHASE2



VCCGT-PHASE4



GIGABYTE™

Title	CPU CORE VR	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 36 of 75	

REV:0.1

Close to VCCIO
output inductor phase1.

should be routed as differential pair,
7mil width,8mil spacing, 20~30mil
others.

Close to VCCSA
output inductor
phase1

should be routed as differential pair,
7mil width,8mil spacing, 20~30mil
others.

Differential pair, 7mil for VCCSA_sense, 8mil spacing between VCCSA_sense and VSSSAIO_sense, and 8mil spacing between VCCIO_sense and VSSSAIO_sense. 20~30mil to others.

To reduce noise

I2C Addr: 3Ch

DCU40
PWM IR3570A-I 1SA+1IO IR/[10TA1-603570-AQR]

DCRT3 放在VCCSA和VCCIO PHASE端中間

should be routed as differential pair,
7mil width,8mil spacing, 20~30mil
others.

Connect to IT8620

PWR SEQ

GIGABYTE™

Title: VSA& VIO POWER IR3570

Size: C | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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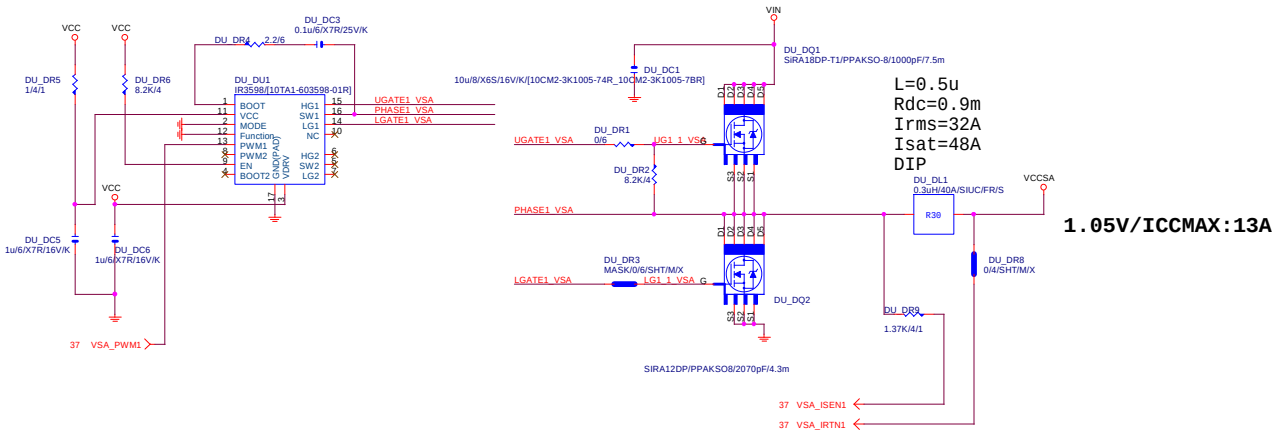
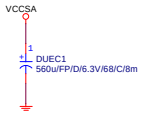
VCCSA

REV:0.1



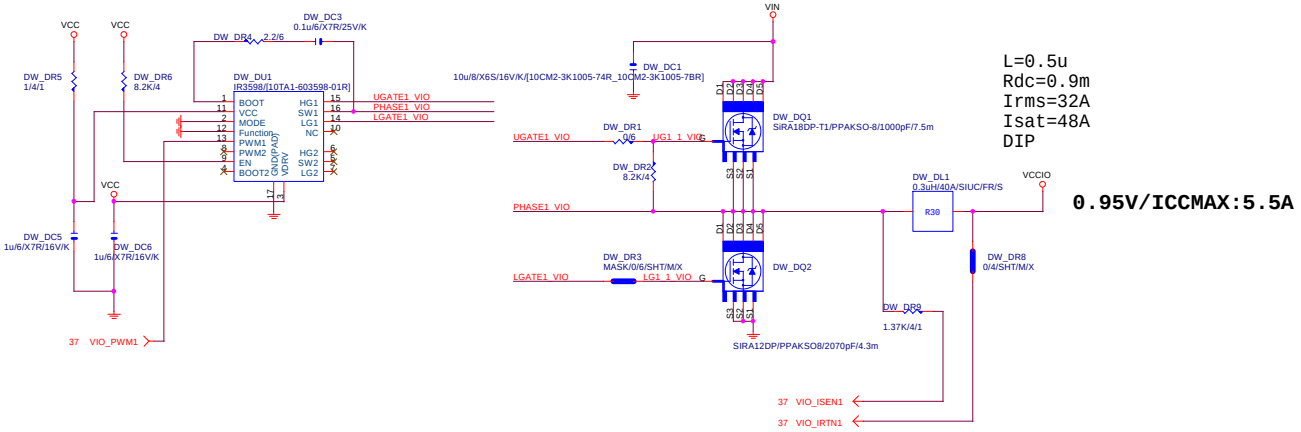
1.05V/ICCMAX:13A

VCCSA CAP **560u*1PCS**



Gigabyte Technology		
Title: VCCSA MOS_IR3553		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 38 of 75	

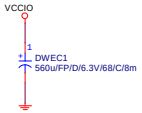
VCCIO REV:0.1



L=0.5u
Rdc=0.9m
Irms=32A
Isat=48A
DIP

0.95V/ICCMAX:5.5A

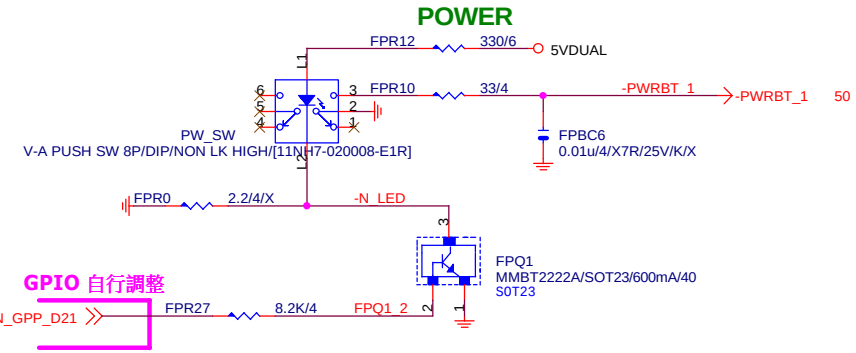
VCCIO CAP **560u*1PCS**

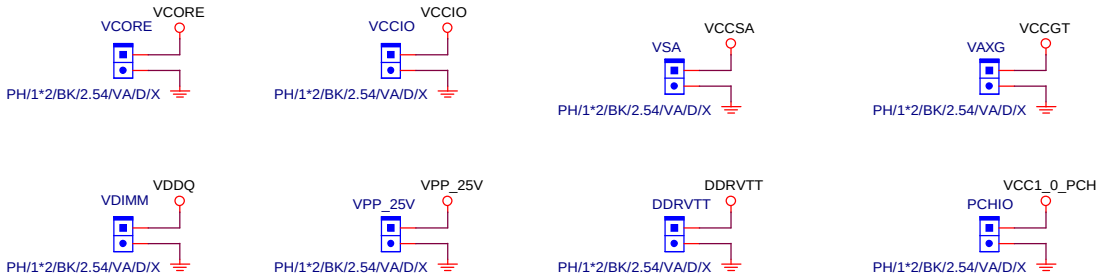


Gigabyte Technology		
Title: VCCIO_MOS IR3553		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 39 of 75	

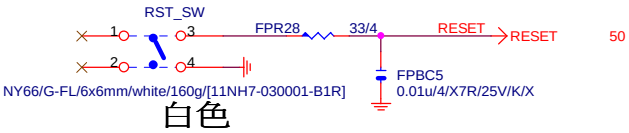
Rev: 0.52

POWER

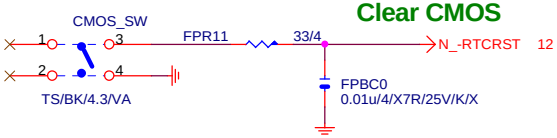


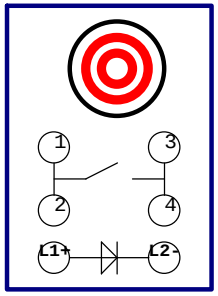


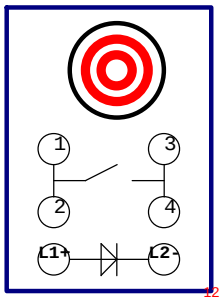
Reset

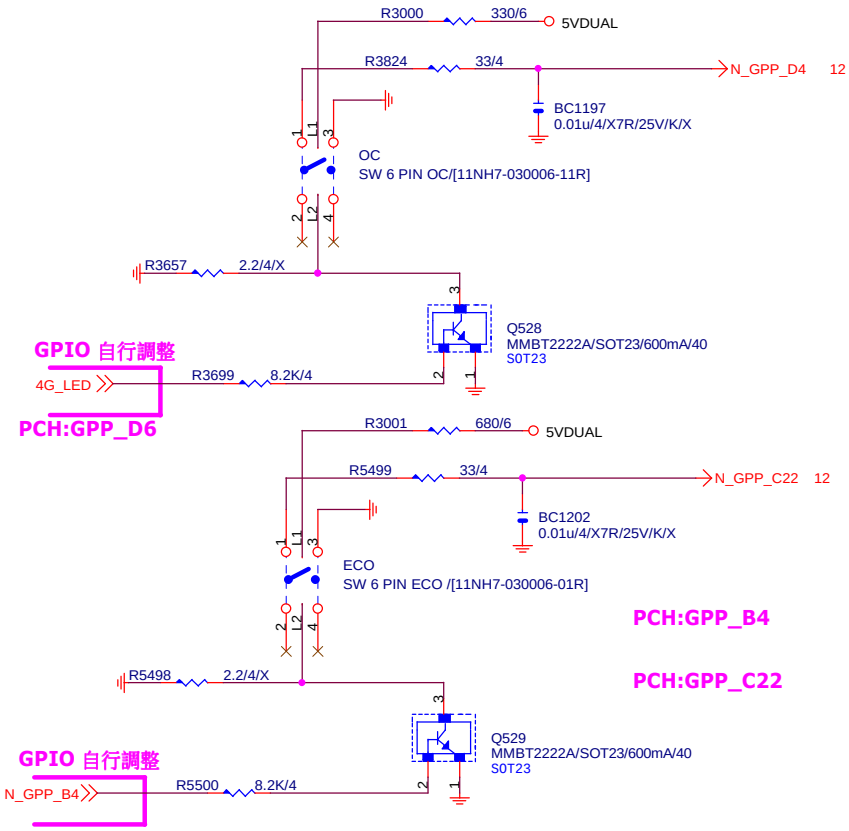


Clear CMOS



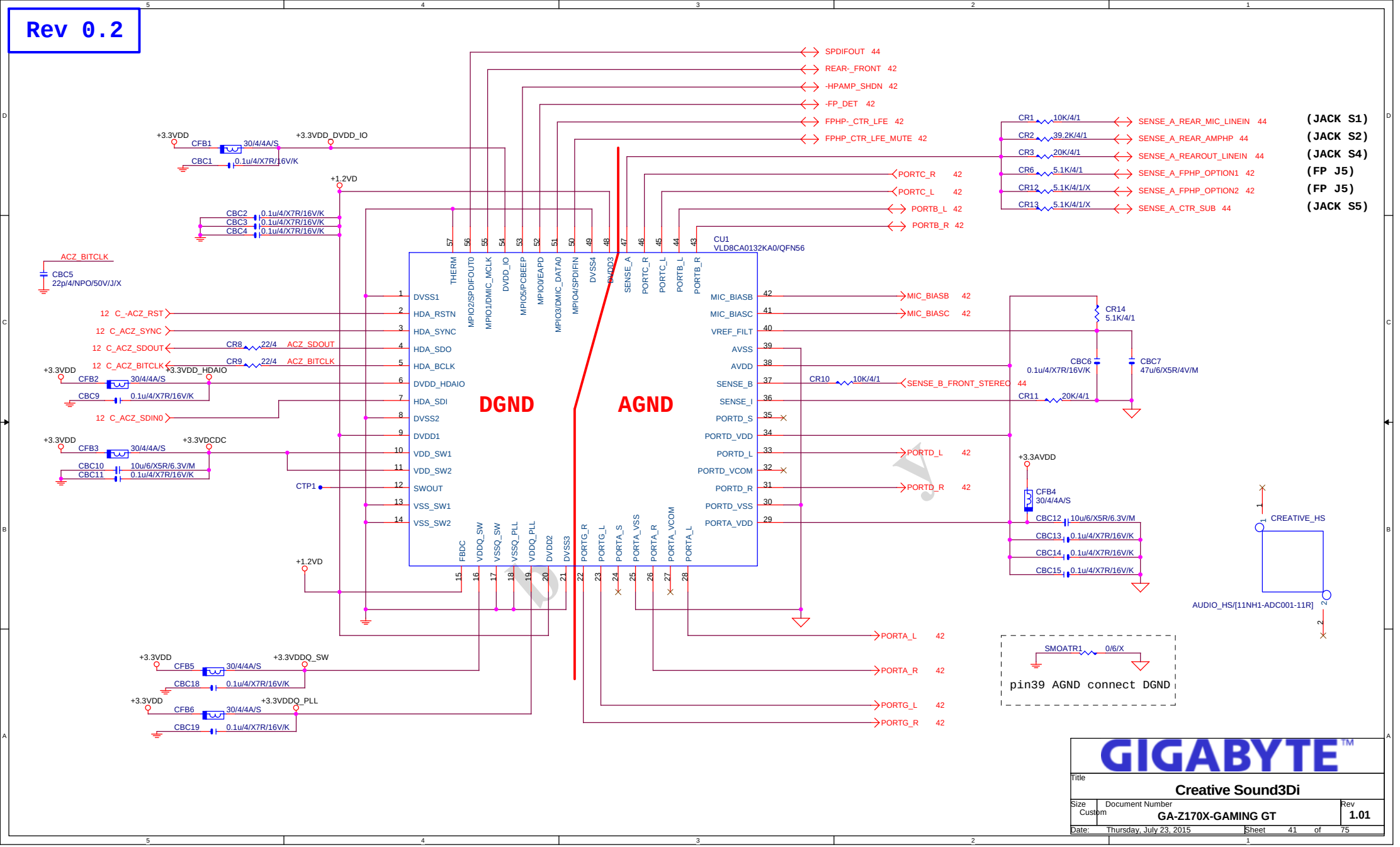






Gigabyte Technology		
Title: OC BUTTOM		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 40 of 75	

Rev 0.2



GIGABYTE™

Title: Creative Sound3Di		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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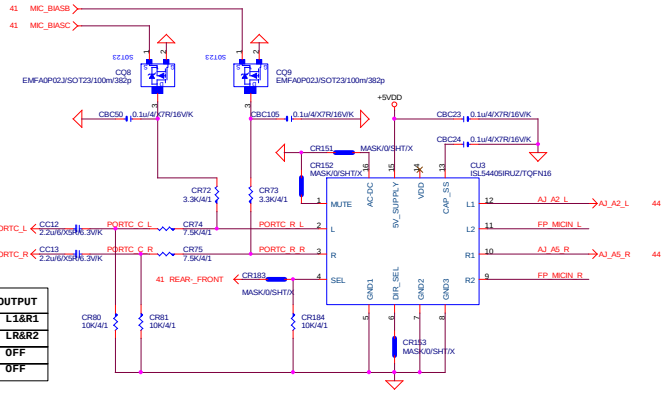
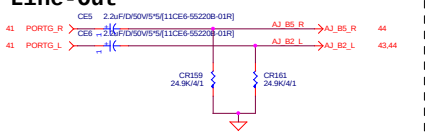
Rear MIC & FP MIC

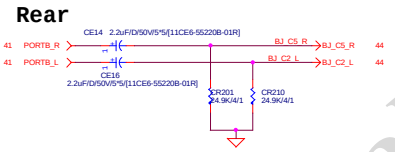


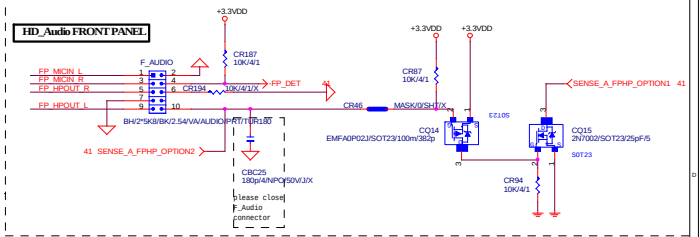
MUTE	SEL	OUTPUT
0	0	L1&R1
0	1	LR&R2
1	0	OFF
1	1	OFF

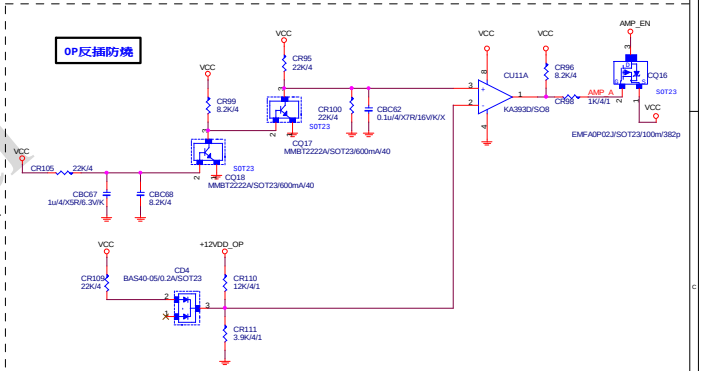
Line-Out



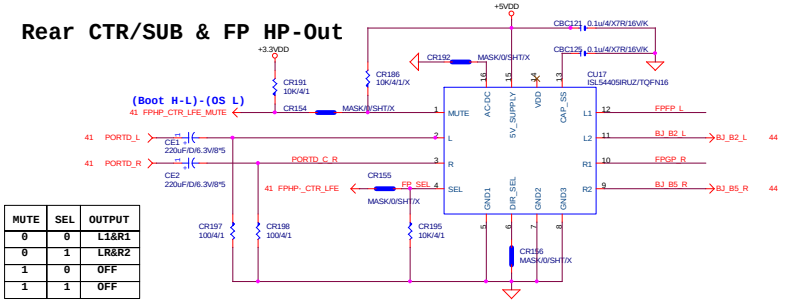
Rear





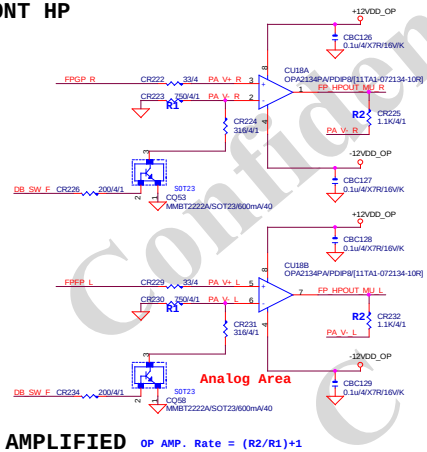


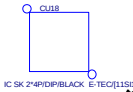
Rear CTR/SUB & FP HP-Out



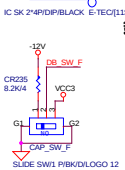
MUTE	SEL	OUTPUT
0	0	L1&R1
0	1	LR&R2
1	0	OFF
1	1	OFF

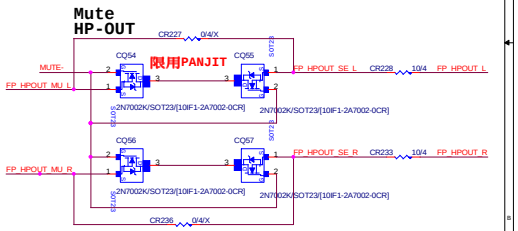
FRONT HP





鍍金



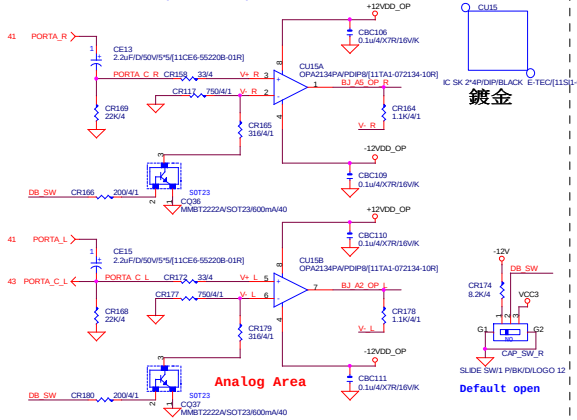


AMPLIFIED

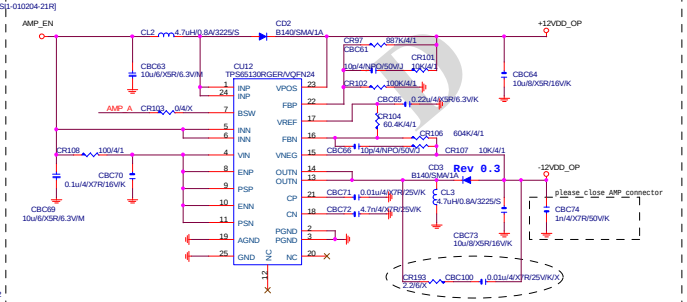
OP AMP. Rate = (R2/R1)+1

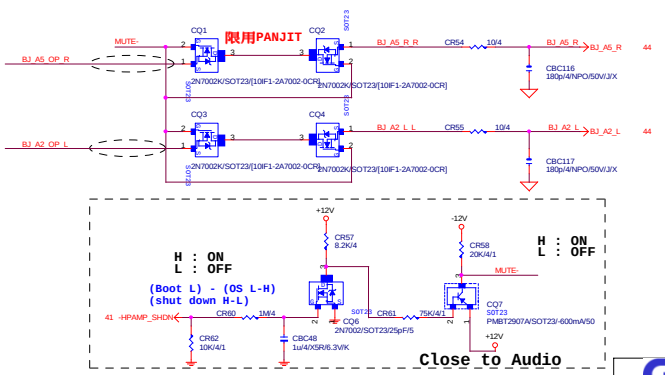
AMPLIFIED

OP AMP. Rate = (CR118/CR117)+1



鍍金





GIGABYTE™

Title	Creative Sound3Di	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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Rev 0.2

Rear Panel LED ON/OFF

	IO_GP80
REAR LED ON	H
REAR LED OFF	L

ITE8620 GP80

DEMO LED ON

BATTERY CHARGE LOAD

AUDIO LED Control

	IO_GP82	IO_GP83	IO_GP91
Still Mode	L	H	L
OFF Mode	L	L	L
Pluse Mode	L	H	BREATH
Beat Mode	OD	H	L

三色 LED Control

	PCH_GPP_D0(R)	PCH_GPP_D2(G)	PCH_GPP_D1(B)
藍	L	L	H
綠	L	H	L
淺綠	L	H	H
紅	H	L	L
粉紅	H	L	H
黃	H	H	L
白光	H	H	H
循環	順序:藍-綠-淺綠-紅-粉紅-黃-白光切換間隔時間為 1 秒		

RGB LED CONTROL

RGB LED CONTROL

SATA 蓋子LED

HPOUT L

LINE-OUT L

上限截止頻率 fH=1/[2pi*(R*C)]=194Hz

電壓增益 Av=1+(Rf/Rn)=100倍

上限截止頻率 fH=1/[2pi*(R*C)]=194Hz

電壓增益 Av=1+(Rf/Rn)=400倍

3.5V

L OFF ITE8620 GP82

H ITE8620 GP83 (可以和MPD-不同步)

L ITE8620 GP91

DGND Isolate

GIGABYTE

Title	Creative Sound3Di ZxR		
Size: Custom	Document Number: GA-Z170X-GAMING GT		Rev: 1.01
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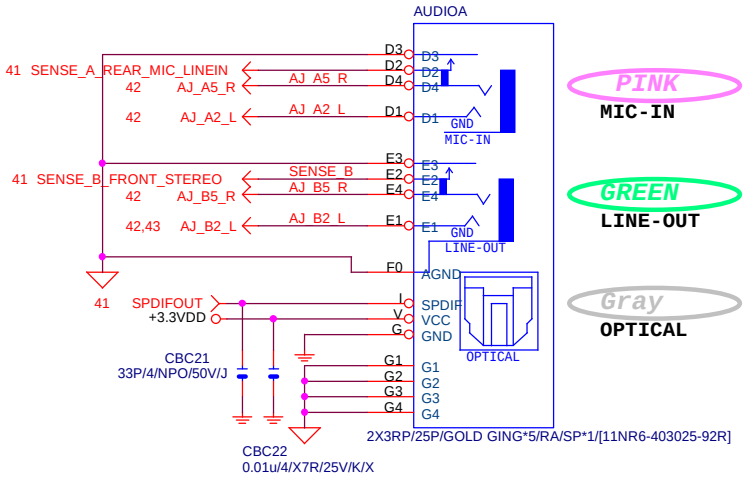
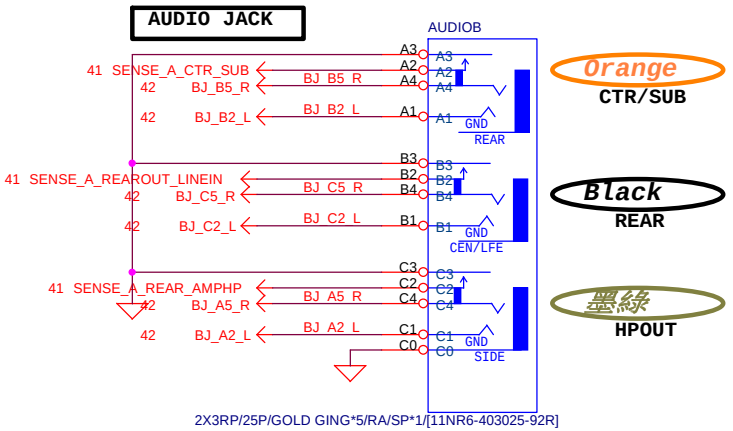
Rev 0.2





Gigabyte Technology		
Title: Creative Sound3Di ZxR		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 44 of 75	

LAN:E2201(E2400) R1.08

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

10 LA_-SRCCLK_LAN
10 LA_SRCCLK_LAN
11 LA_ML_OP
11 LA_ML_ON
LAC1 0.1u/4/X7R/16V/K LA_ML_OP_C
LAC2 0.1u/4/X7R/16V/K LA_ML_ON_C

LABC5 0.1u/4/X7R/16V/K
LABC4 1u/4/X5R/6.3V/K
LABC3 0.1u/4/X7R/16V/K
LABC6 0.1u/4/X7R/16V/K/X

47 LA_LED_ACT_TXRX
47 LA_LED_LINK100

LA_AVDDVCO
LABC7 0.1u/4/X7R/16V/K
LABC8 4.7u/6/X5R/6.3V/K
AR8161-->(0)

3VDUAL_LAN2
1u/4/X5R/6.3V/K
LABC9 10u/6/X5R/6.3V/M
LABC10
LABC11 0.1u/4/X7R/16V/K

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

LAU1

Qualcomm (Atheros) Killer E2201

41	EGND		
40	LX		
39	LED1		
38	LED0		
37	DVDDL_REG		
36	RX_N		
35	RX_P		
34	AVDDL		
33	REFCLKP		
32	REFCLKN		
31	AVDDL		
1	VDD3V	TX_P	30
2	PERST#	TX_N	29
3	WAKE#	NC	28
4	CLKREQ#	TESTMODE2	27
5	DEBUGMODE0	TESTMODE1	26
6	AVDDL_REG	TESTMODE0	25
7	XTLO	PPS	24
8	XTLI	LED2	23
9	AVDDH_REG	AVDDH	22
10	RBIAS	TRXN3	21
11	TRXP0		
12	TRXN0		
13	AVDDL		
14	TRXP1		
15	TRXN1		
16	AVDD33		
17	TRXP2		
18	TRXN2		
19	AVDDL		
20	TRXP3		

E2400-RIV1-RL/QFN40

E2400料號:E2400-RIV1-RL/QFN40/[10HP2-402400-10R]

LA_ML_IP_C LAC12 0.1u/4/X7R/16V/K LA_ML_IP 11
LA_ML_IN_C LAC13 0.1u/4/X7R/16V/K LA_ML_IN 11

LAR9 0/4/X
LABC14 0.1u/4/X7R/16V/K/X
LA_PPS
LA_LED_LINK1000 LA_DVDDL
LA_AVDDH
LA_MDI3- LA_MDI3- 47
LABC17 0.1u/4/X7R/16V/K

3VDUAL_LAN2
LAR6 8.2K/4
16,46,51,65 O_-PERST2
16 N_-PCIE1_WAKE
10 LA_-CLKREQ
LAREQ1 0/4/SHT/X
LA_-CLKREQ_F

L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#

LAC33 100p/4/NPO/50V/J/X
LABC12 1u/4/X5R/6.3V/K/X
LA_VDDCT
LA_AVDDL
LA_XTALO
LA_XTALI
LA_AVDDH
LABC15 1u/4/X5R/6.3V/K
LABC16 0.1u/4/X7R/16V/K
LABC18 1u/4/X5R/6.3V/K
LABC19 0.1u/4/X7R/16V/K
LA_RBIAS
LAR10 2.37K/4/1

LAX1 25M/16p/30ppm/49US/20/D
LA_XTALI
LA_XTALO
LAC31 20p/4/NPO/50V/J
LAC32 20p/4/NPO/50V/J

47 LA_MDI0+
47 LA_MDI0-
47 LA_MDI1+
47 LA_MDI1-
47 LA_MDI2+
47 LA_MDI2-
47 LA_MDI3+

LABC20 0.1u/4/X7R/16V/K/X
LABC21 0.1u/4/X7R/16V/K
LAR19 MASK/0/4/SHT/X
3VDUAL_LAN2
LABC22 1u/4/X5R/6.3V/K

LAN POWER

LAL1 4.7uH/0.8A/3225/S
LA_LX_OUT
LA_LX
CLOSE LA_LX 200mil
LABC1 10u/6/X5R/6.3V/M
LABC2 0.1u/4/X7R/16V/K

LA_DVDDL
LA_AVDDL
LA_AVDDVCO
LAR5 MASK/0/6/SHT/X AR8161-->(0)
LAFB1 30/4/4A/S AR8161-->BEAD
LAFB3 30/4/4A/S AR8161-->BEAD

LA_AVDDH
LAR7 8.2K/4 LA_LED_ACT_TXRX
LAR8 8.2K/4 LA_LED_LINK100

VCC3
LAR11 8.2K/4 LA_VDDCT

Gigabyte Technology

Title: DUAL LAN~ E2201+I219

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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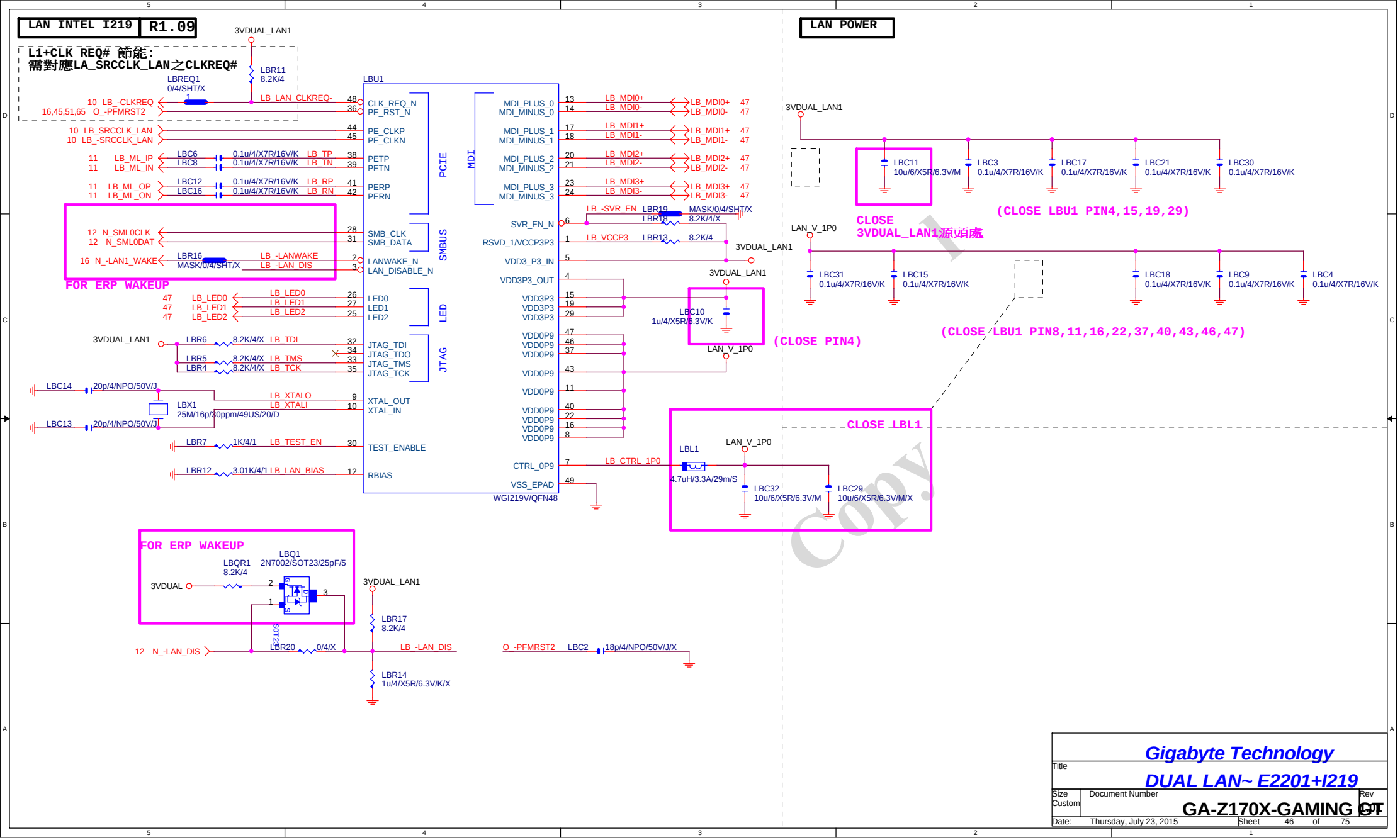
LAN INTEL I219 R1.09
L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#
3VDUAL_LAN1
LBR11 8.2K/4
LBREQ1 0/4/SHT/X
10 LB_-CLKREQ
16,45,51,65 O_-PFMRST2
LB_LAN_CLKREQ-
LBU1
CLK_REQ_N
PE_RST_N
PE_CLKP
PE_CLKN
PETP
PETN
PERP
PERN
PCIE
10 LB_SRCCLK_LAN
10 LB_-SRCCLK_LAN
11 LB_ML_IP
11 LB_ML_IN
11 LB_ML_OP
11 LB_ML_ON
LBC6 0.1u/4/X7R/16V/K
LBC8 0.1u/4/X7R/16V/K
LBC12 0.1u/4/X7R/16V/K
LBC16 0.1u/4/X7R/16V/K
LB_TP
LB_TN
LB_RP
LB_RN
MDI
MDI_PLUS_0
MDI_MINUS_0
MDI_PLUS_1
MDI_MINUS_1
MDI_PLUS_2
MDI_MINUS_2
MDI_PLUS_3
MDI_MINUS_3
LB_MDI0+
LB_MDI0-
LB_MDI1+
LB_MDI1-
LB_MDI2+
LB_MDI2-
LB_MDI3+
LB_MDI3-
47
SMBUS
SMB_CLK
SMB_DATA
12 N_SML0CLK
12 N_SML0DAT
LANWAKE_N
LAN_DISABLE_N
16 N_-LAN1_WAKE
LBR16 MASK/0/4/SHT/X
LB_-LANWAKE
LB_-LAN_DIS
FOR ERP WAKEUP
LED
LED0
LED1
LED2
LB_LED0
LB_LED1
LB_LED2
JTAG
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
LB_TDI
LB_TMS
LB_TCK
LBR6 8.2K/4/X
LBR5 8.2K/4/X
LBR4 8.2K/4/X
LBC14 20p/4/NPO/50V/J
LBC13 20p/4/NPO/50V/J
LBX1 25M/16p/30ppm/49US/20/D
LB_XTALO
LB_XTALI
XTAL_OUT
XTAL_IN
LBR7 1K/4/1
LB_TEST_EN
TEST_ENABLE
LBR12 3.01K/4/1
LB_LAN_BIAS
RBIAS
SVR_EN_N
RSVD_1/VCCP3P3
VDD3_P3_IN
VDD3P3_OUT
VDD3P3
VDD0P9
CTRL_0P9
VSS_EPAD
WGI219V/QFN48
LB_-SVR_EN
LBR19 8.2K/4/X
LBR18 8.2K/4/X
LB_VCCP3
LBR13 8.2K/4
LBC10 1u/4/X5R/6.3V/K
(CLOSE PIN4)
LAN_V_1P0
LB_CTRL_1P0
LBL1 4.7uH/3.3A/29m/S
LBC32 10u/6/X5R/6.3V/M
LBC29 10u/6/X5R/6.3V/M/X
CLOSE LBL1
FOR ERP WAKEUP
LBQ1 2N7002/SOT23/25pF/5
LBQR1 8.2K/4
3VDUAL
SOT23
LBR17 8.2K/4
LBR20 0/4/X
12 N_-LAN_DIS
LB_-LAN_DIS
LBR14 1u/4/X5R/6.3V/K/X
O_-PFMRST2
LBC2 18p/4/NPO/50V/J/X
LAN POWER
LBC11 10u/6/X5R/6.3V/M
LBC3 0.1u/4/X7R/16V/K
LBC17 0.1u/4/X7R/16V/K
LBC21 0.1u/4/X7R/16V/K
LBC30 0.1u/4/X7R/16V/K
(CLOSE LBU1 PIN4,15,19,29)
CLOSE
3VDUAL_LAN1源頭處
LBC31 0.1u/4/X7R/16V/K
LBC15 0.1u/4/X7R/16V/K
LBC18 0.1u/4/X7R/16V/K
LBC9 0.1u/4/X7R/16V/K
LBC4 0.1u/4/X7R/16V/K
(CLOSE LBU1 PIN8,11,16,22,37,40,43,46,47)
Copy
Gigabyte Technology
Title
DUAL LAN~ E2201+I219
Size Custom
Document Number
GA-Z170X-GAMING GT
Rev 1.0
Date: Thursday, July 23, 2015
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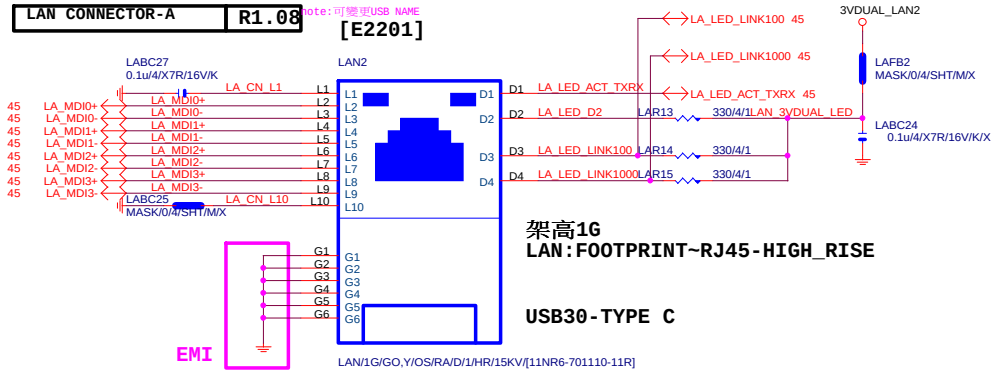
LAN CONNECTOR-A R1.08

note:可變更USB NAME

[E2201]



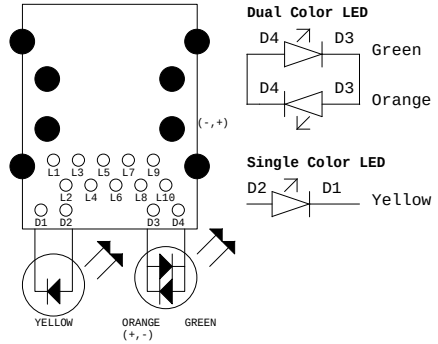
LA_MDI-->100歐姆:[20/4/8/4/20]

EMI SHORT PAD

PS:視EMI需求

RMA ESD PROTECT

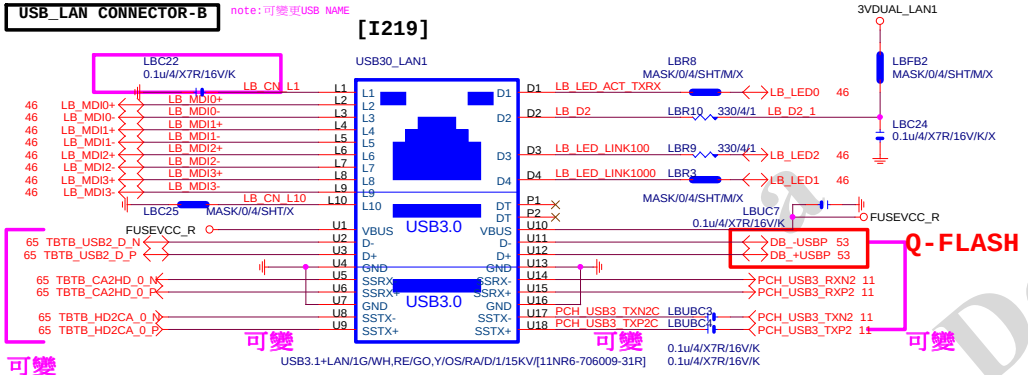
架高LAN LAYOUT示意圖



USB_LAN CONNECTOR-B

note:可變更USB NAME

[I219]



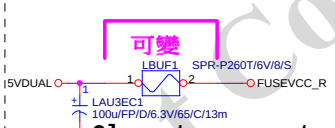
LA_MDI-->100歐姆:[20/4/8/4/20]

SUPPORT Q-FLASH CAPTURE要變更

SUPPORT USB3.1

USB POWER

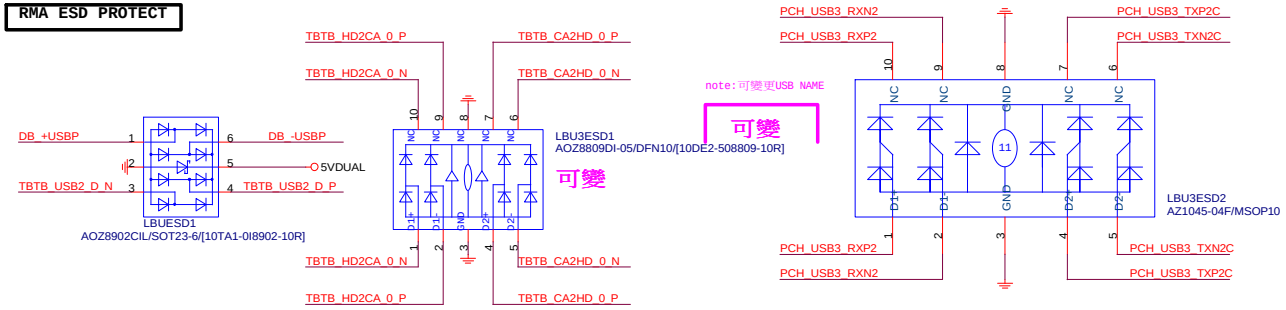
note:可變更FUSE



EMI SHORT PAD

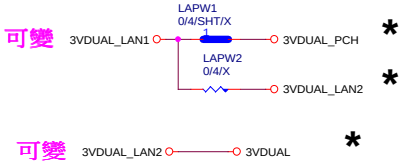
PS:視EMI需求

RMA ESD PROTECT



LAN POWER

note: lan power連接及電流



~USB30_LAN1設定在ERP可LAN WAKEUP

~USB30_LAN2由獨立LAN POWER L1117供給

NOTE:

1. 3VDUAL_LAN1,3VDUAL_LAN2
   對接POWER供應電流
   [目前暫接3VDUAL]
2. USB2.0/3.0對應USB PORT
   [目前暫接USB 0,1,2,3 PORT]
3. USB DROOP/DROP E-CAP
4. USB OC線路

Gigabyte Technology		
Title: LAN CONNECTOR-E2201+I219		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 47 of 75	

REV:1.10A

IDT6V41530

CK_HS

CK_HS/[11NH1-CBC001-01R]

*可變，依需求上件不上件。

CKU1

CKVDD

-VTTPWRG

CK_XTALO

CK_XTALI

VTTPWRG/PD#_3.3
VDDX_3.3
VDDREF
NC
GNDREF
GNDX
XOUT
XIN

ADFC
VDDCPUD
VDDCPUA
VDDIO_CPU
CPUCLKC
CPUCLKT
VDDCPUA_IO
GNDCPUD

-CK_DIF0
CK_DIF0

GNDIN
CLKIN
CLKIN#
VDDIN_3.3
L_RESET_OUT#
SCLK_3.3
SDATA_3.3
S_RESET_OUT#

6V41530NLG8/VFQFPN32

CKX1
25M/16p/30ppm/49US/20/D/X

CKBC8
20p/4/NPO/50V/J/X

CKBC9
20p/4/NPO/50V/J/X

電容共用GND,降低JITTER

PCH_CPUCLK
PCH_-CPUCLK

REV:1.09A

N_-SYS_RST

N_-SYS_RST 12,50

IDT6V41530

CK_SDATA

CK_SCLK

REV:1.08A

16 CK_VCO_SEL

CKR3
8.2K/4/X

CKR4
8.2K/4

INP_SEL

CKR6
8.2K/4

CKR7
8.2K/4/X

0=25MHz crystal input
1=100MHz differential input

CKR13
8.2K/4

CKR15
8.2K/4/X

ADFC

VCC3

3VDUAL

CKFB1
30/4/4/S/X

CKFB2
30/4/4/S

REV:1.10A

CKBC1
0.1u/4/X7R/16V/K

CKBC2
0.1u/4/X7R/16V/K

CKBC3
1u/4/X5R/6.3V/K

CKBC4
1u/4/X5R/6.3V/K

CKBC5
1u/4/X5R/6.3V/K

CKBC6
1u/4/X5R/6.3V/K

CKBC7
22u/8/X5R/6.3V/M

(cpu)

CK_DIF0 CKR8 33/4 N_CPUCLK → N_CPUCLK 4
-CK_DIF0 CKR9 33/4 N_-CPUCLK → N_-CPUCLK 4

10 PCH_CPUCLK → PCH_CPUCLK
10 PCH_-CPUCLK → PCH_-CPUCLK

(PCH)

REV:1.09A

CK_SCLK CKR1 10/4 → N_SMBCLK 8,9,12,19,20,21,22,26,34,35,37,52,54
CK_SDATA CKR2 10/4 → N_SMBDATA 8,9,12,19,20,21,22,26,34,35,37,52,54

CKBC11
100p/4/NPO/50V/J/X

CKBC10
100p/4/NPO/50V/J/X

VCC3

CKR12
47K/4/1

CKD1

4,12,16 N_PCH_VRMPWRGD

-VTTPWRG

BAT54A/SOT23/200mA

SOT23

INP_SEL	Intput
0	Crystal
1	CLK_INP/N

CK_VCO_SEL	VCO
0	400M
1	1200M

GIGABYTE™

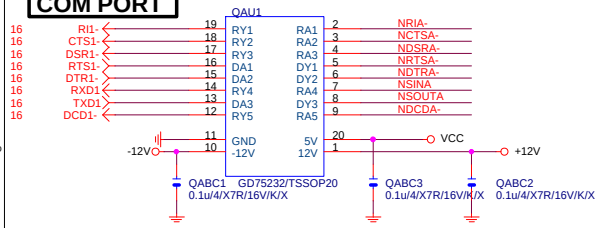
Title: IDT6V41510_CLK BUFFER

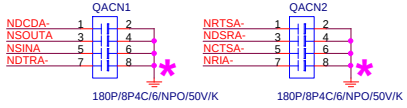
Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

Date: Thursday, July 23, 2015 | Sheet 48 of 75

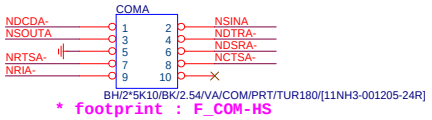
Rev: 0.52

COM PORT



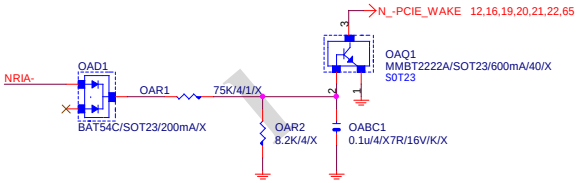


COMA

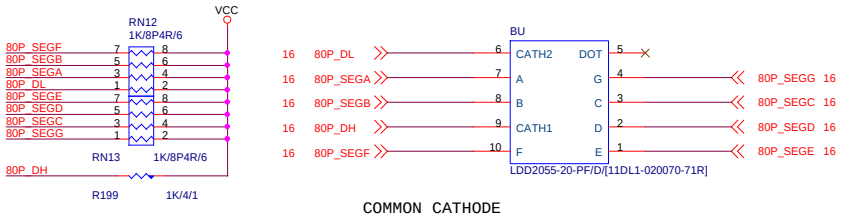


* footprint : F_COM-HS

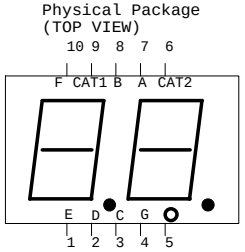
* 接 N_-PCIE_WAKE



80 PORT

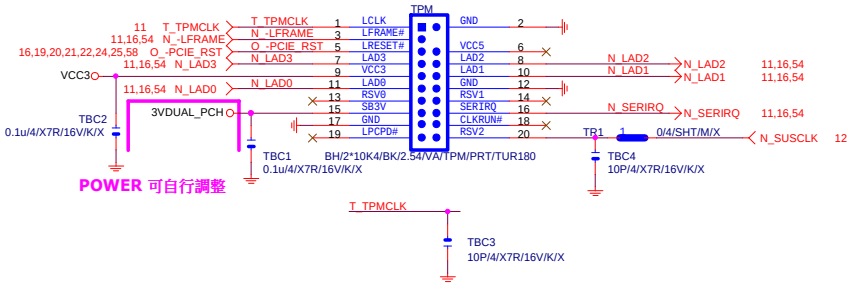


COMMON CATHODE



Thunderbolt

TPM CONNECT

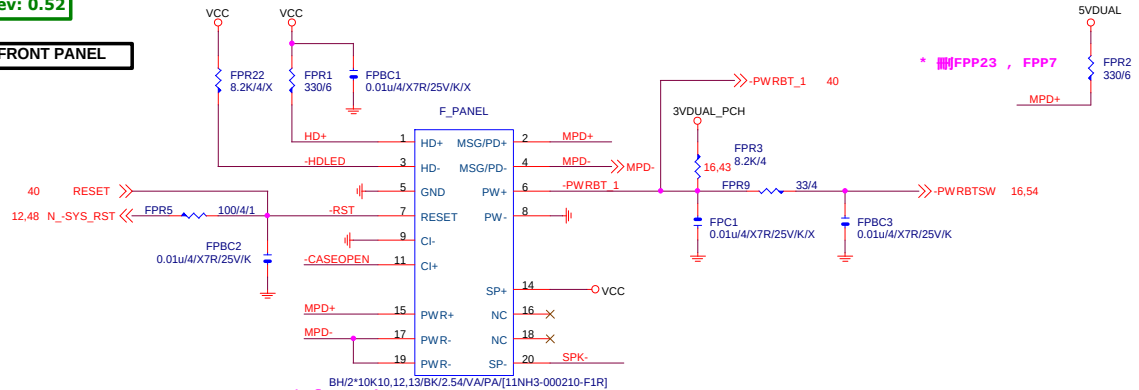


POWER 可自行調整

Gigabyte Technology	
Title	FP,F_USB,USB PWR,BZ
Size: Custom	Document Number: GA-Z170X-GAMING GT
Rev: 1.01	
Date: Thursday, July 23, 2015	Sheet 49 of 75

Rev: 0.52

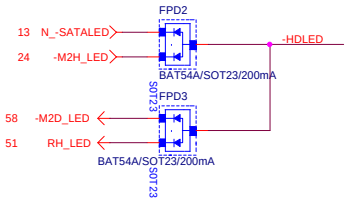
FRONT PANEL



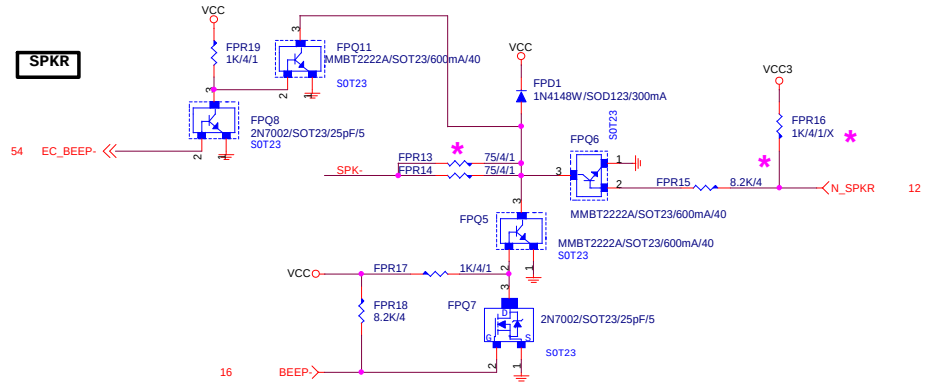
CASE OPEN

SATA LED

SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3_3



SPKR



For SPKR voltage issue. FPQ6=>2222, FPQ7=>7002

Gigabyte Technology		
Title: FRONT PANEL		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 50 of 75	

Rev: 0.2

Near to PIN

RH_VDD1_2

RH_VDD10

RHBC1 RHBC2 RHBC3 RHBC4 RHBC5 RHBC6 RHBC7

0.1u/4/X7R/16V/K

Near to PIN

VCC3

RHBC11 RHBC12 RHBC13 RHBC14

0.1u/4/X7R/16V/K/X

>40mil

RHFB1

4.7uH/3.3A/29m/S

RH_EXTL

RHBC15

RHBC16

10u/6/X5R/6.3V/M

Cout is mandatory.

close to pin

RHR3

RH_VCC3IN

MASK/0/6/SHT/X

RHBC17

10u/6/X5R/6.3V/M/X

可變

13 RH_SL_OP

13 RH_SL_ON

13 RH_SL_IP

13 RH_SL_IN

RHC1 RHC2 RHC3 RHC4

0.1u/4/X7R/16V/K

RH_SRCCLK 10

RH_-SRCCLK 10

可變

RH_XTALI

RH_XTALO

RHBC9

15P/4/NPO/50V/J

RIX2

20M/20p/20ppm/49US/40/D

RH_SREXT RHR1 12.1K/4/1

RH_PREXT RHR2 12.1K/4/1

★Update 2015-03-27

RHU1

ASM1061/QFN48/S/[10HP2-6B1061-00R]

RH_PREXT

RH_SPI_CLK

RH_SPI_DO

RH_SPI_CS

RH_SPI_DI

RH_-PERST

RH_LED

RH_TP1

SRXP_A SRXN_A GNDA2 STXN_A STXP_A VCC33S SREXT STXP_B STXN_B GNDA1 SRXN_B SRXP_B

RH_RXP0 RH_RXN0 RH_TXN0 RH_TXP0 RH_SREXT RH_TXP1 RH_TXN1 RH_RXN1 RH_RXP1

SATA PORT 0

SATA PORT 1

SWITCH POWER

RH_EXTL

RH_VCC3IN

RH_TP2 RH_TP3 RH_TP4

Power up sequence

+3.3V & +1.2V

90%

PERST

T>0ms

(驗証完畢可移除)

RHR4 0/4/X

RHR5 100K/4/1

RHR6 1K/4/1

RHQ1

SOT23

2N7002/SOT23/25pF/5

RHBC22 0.1u/4/X7R/16V/K

RHBC23 0.1u/4/X7R/16V/K/X

RHQ2

2N7002/SOT23/25pF/5

SOT23

可變動

16,45,46,65 O_-PFMRST2

RHU2

RH_SPI_CS

RH_SPI_DI

CS# SO WP# VSS VDD HOLD# SCK SI

RHR7 1K/4/1

RHR8 1K/4/1

RHC13 1u/4/X5R/6.3V/K

RH_SPI_CLK

RH_SPI_DO

4M/SPI/SO8/200mil/S/[10HP4-112540-30R]

RHR9 1K/4/1/X

RHR10 1K/4/1/X

HOLD#-
0:Operation Lock
1:Normal Operation

RHR15 1K/4/1/X

SPI_DO
0: Spin up by H/W
1: Spin up by S/W

H/W Strapping

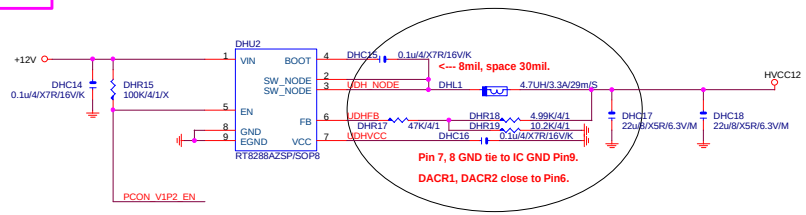
refer to datasheet:

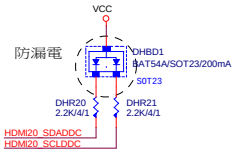
★Update 2015-03-27
移除RH_VDD1_2 external power

GIGABYTE™

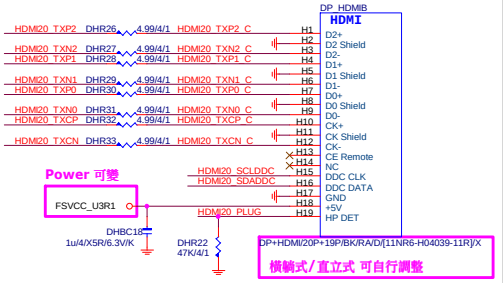
Title	ASM1061	
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 51 of 75	

Rev:1.09

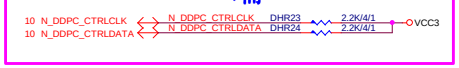


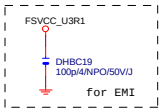


Display Port with HDMI, or HDMI only.

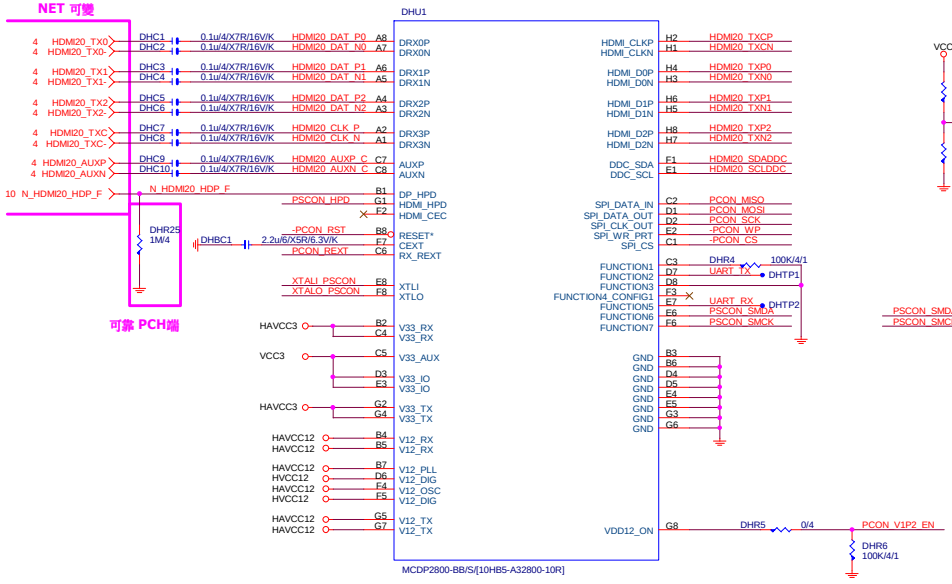


PCH端

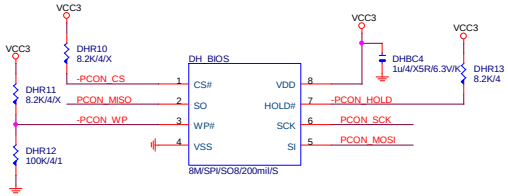




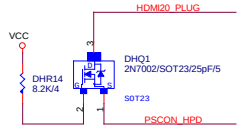
需設定為DP Port
NET 可變

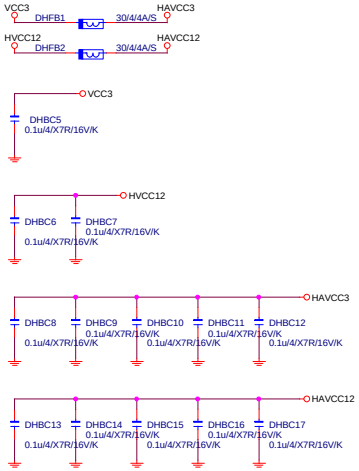


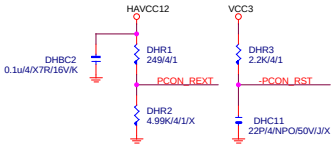
可靠 PCH端

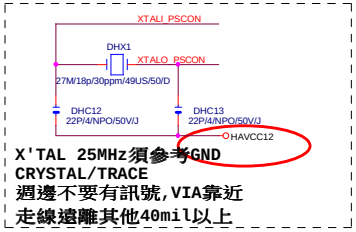


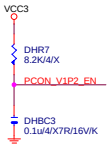
F/W 請用 for -BB 版本



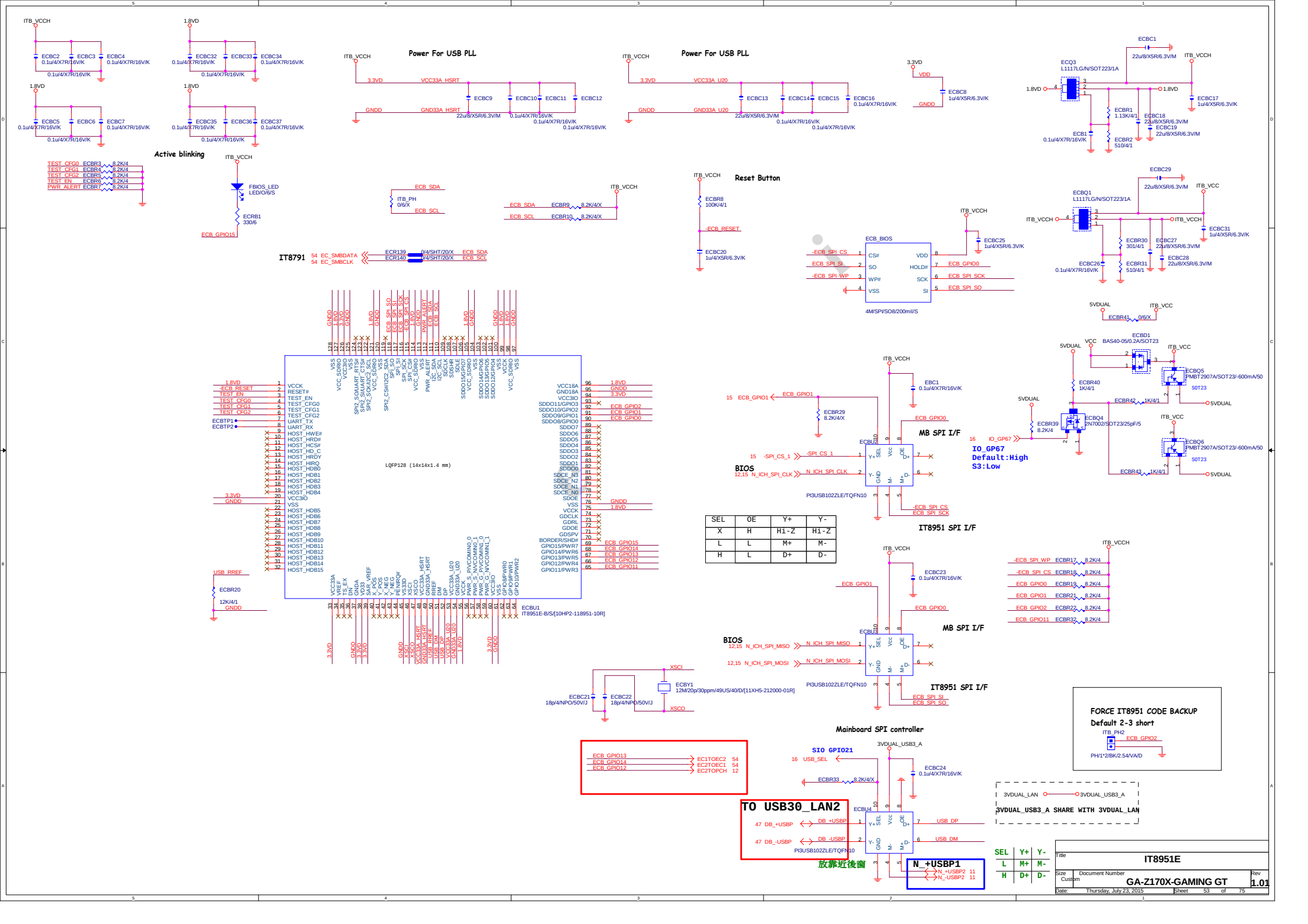




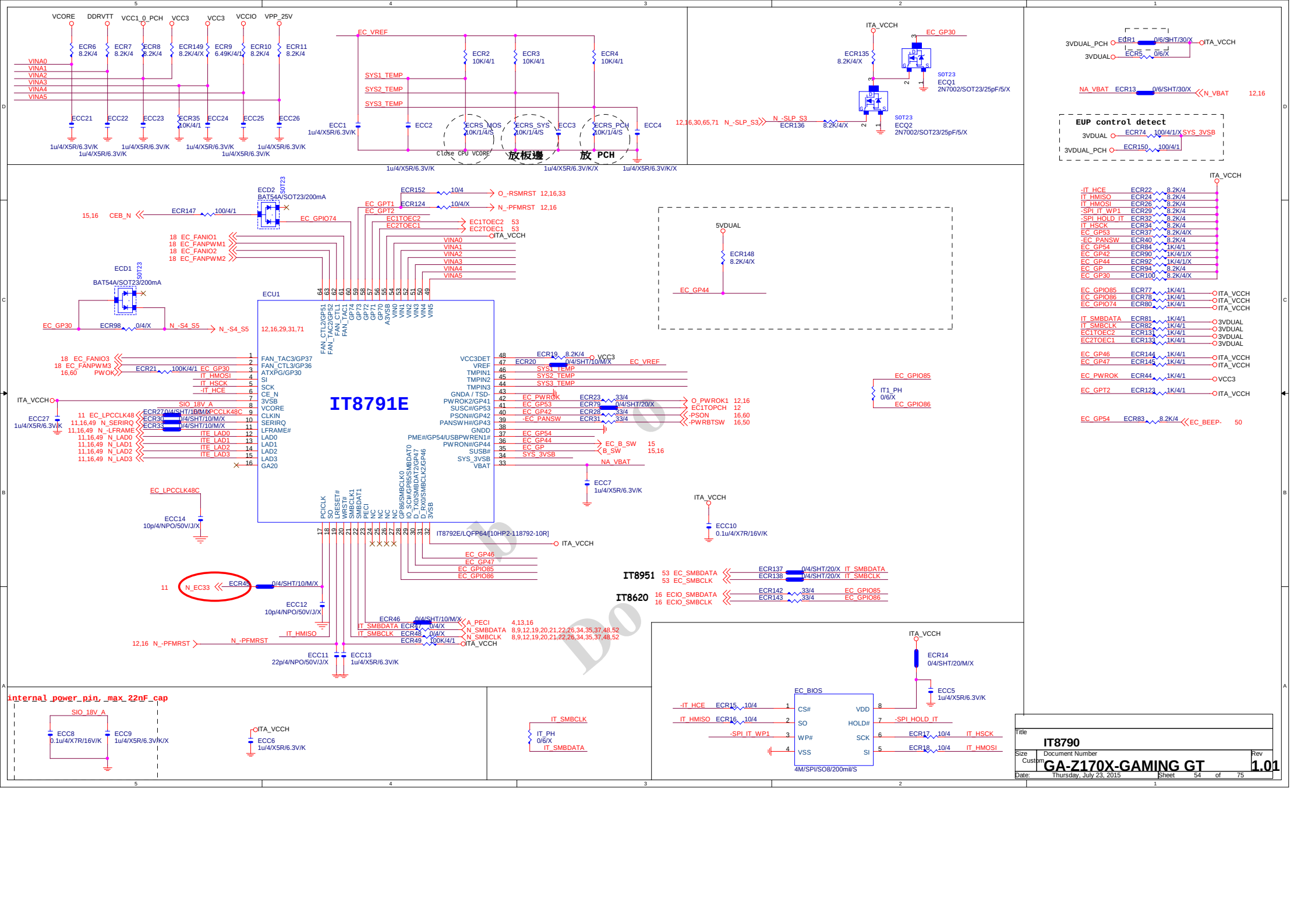




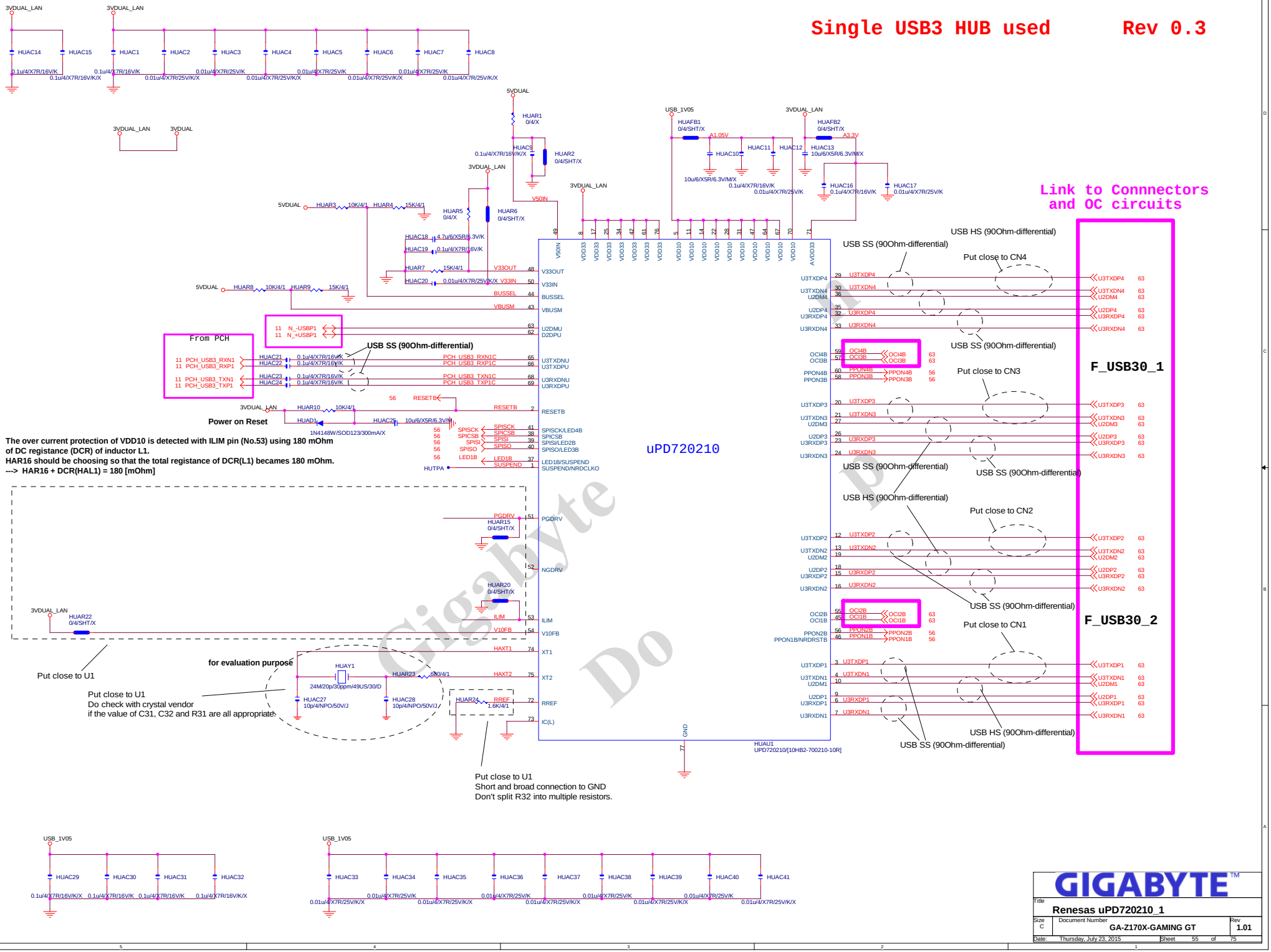
Gigabyte Technology		
Title: HDMI20 MCDP2800-BA		
Size: C	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 52 of 75	



SEL	OE	Y+	Y-
X	H	Hi-Z	Hi-Z
L	L	M+	M-
H	L	D+	D-


IT8791E
ECU1
IT8792E/LQFP64[10HP2-118792-10R]
internal power pin, max 22nF cap
EC_BIOS
4M/SPI/SO8/200mil/S
IT8951
IT8620
EUP control detect
放板邊
放 PCH
Close CPU VCORE
Title
IT8790
Size
Custom
Document Number
GA-Z170X-GAMING GT
Rev
1.01
Date: Thursday, July 23, 2015
Sheet 54 of 75

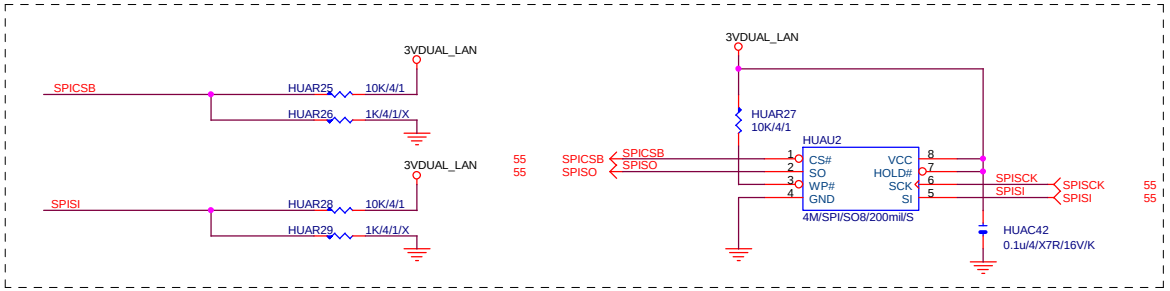
Single USB3 HUB used Rev 0.3



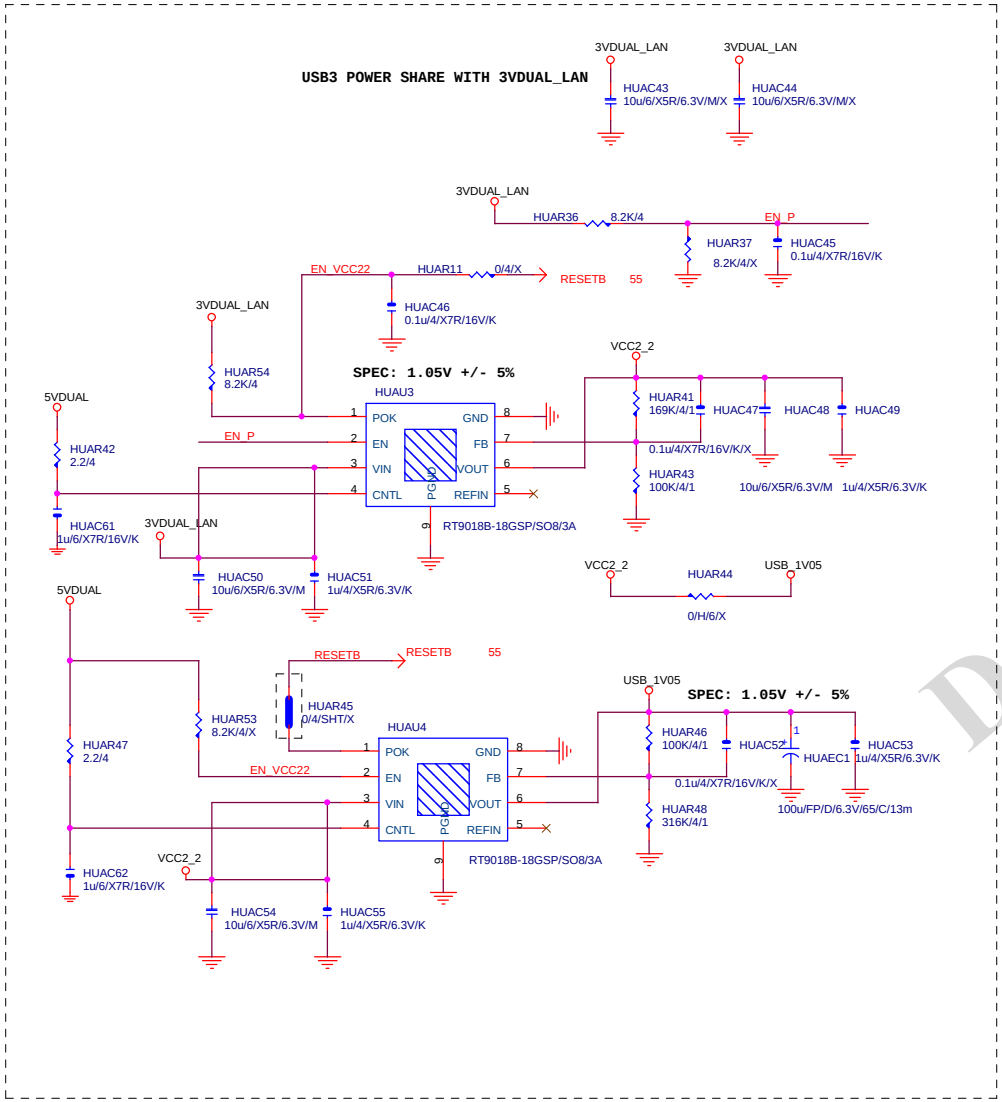
Title	Renesas uPD720210_1		
Size C	Document Number GA-Z170X-GAMING GT		Rev 1.01
Date: Thursday, July 23, 2015	Sheet 55 of 75		

Single USB3 HUB used

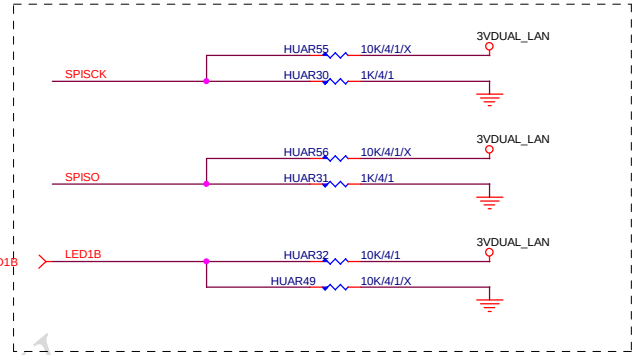
 # External SPI ROM ; SPI ROM attached mode



USB3 POWER SHARE WITH 3VDUAL_LAN

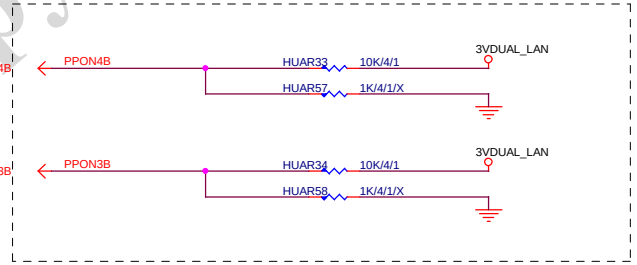


 # Battery Charging

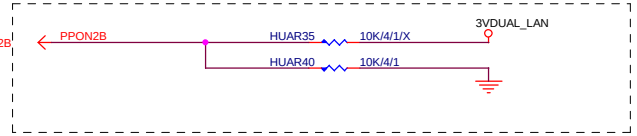


 # Number of Ports ; 4Ports mode

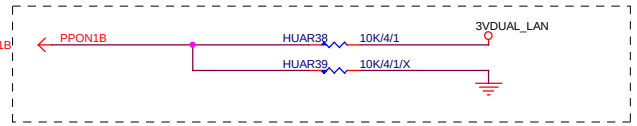
PPON3B / PPON4B : H / H (4 port)
PPON3B / PPON4B : L / L (2 port)



#5 VBUS Power Control ; Individual mode



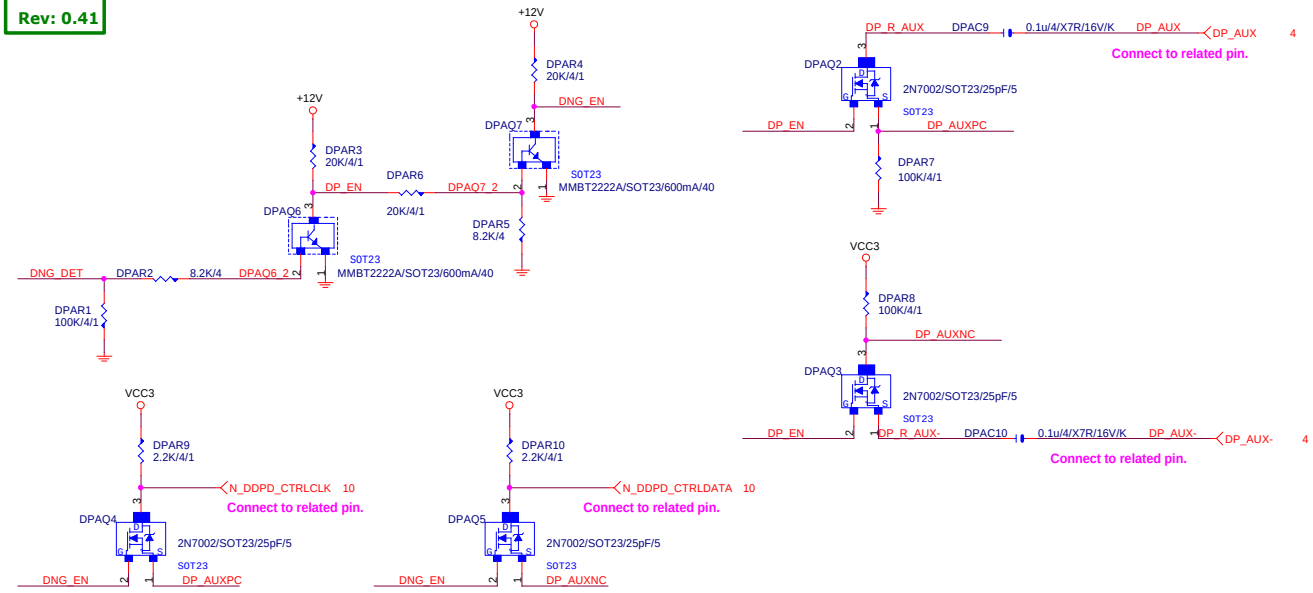
 # PPON1B Pin Function ; Port1 PPONB mode

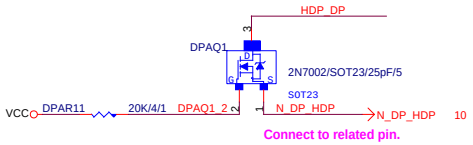


GIGABYTE™

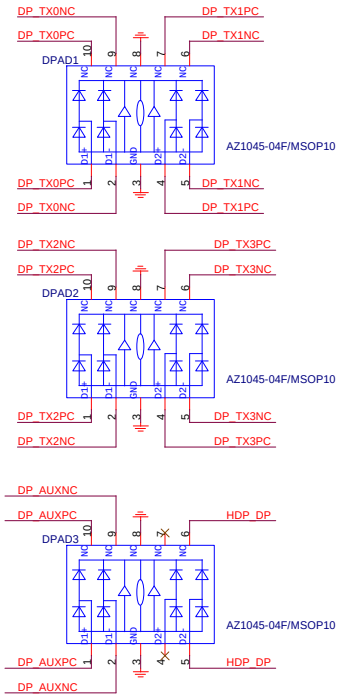
Title: Renesas uPD720210_1		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 56 of 75	

Rev: 0.41



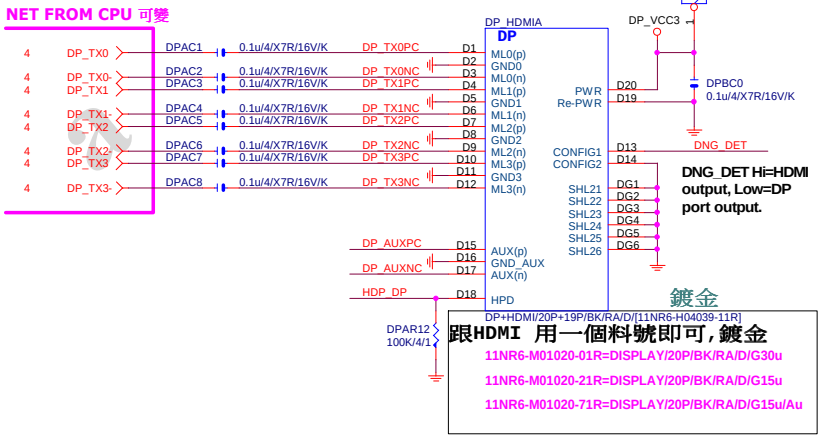


Close to connector



SINGLE Display Port

Display Port with HDMI, or HDMI only.



DNG_DET Hi=HDMI output, Low=DP port output.

鍍金

DP+HDMI/20P+19P/BK/RA/D/[11NR6-H04039-11R]

跟HDMI 用一個料號即可，鍍金

11NR6-M01020-01R=DISPLAY/20P/BK/RA/D/G30u

11NR6-M01020-21R=DISPLAY/20P/BK/RA/D/G15u

11NR6-M01020-71R=DISPLAY/20P/BK/RA/D/G15u/Au

DP

GIGABYTE Technology		
Title: DP PORT		
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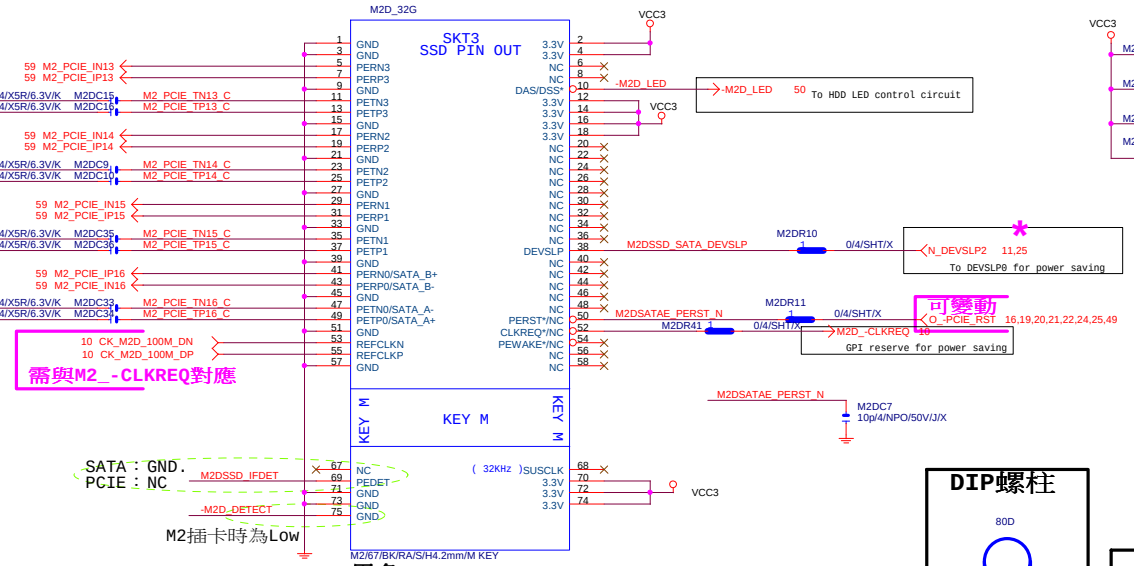
Rev 0.9

M.2 Lane2 from PCH port19

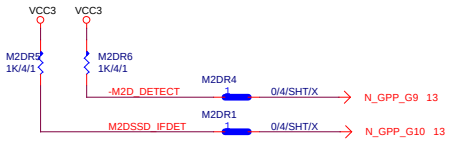
M.2 Lane2 from PCH port20

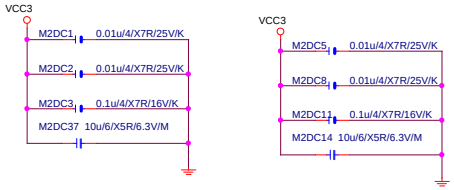
M.2 Lane3 from PCH port21

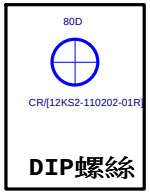
M.2 Lane4 from PCH port22

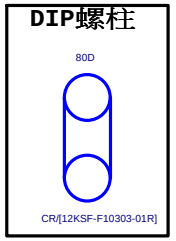


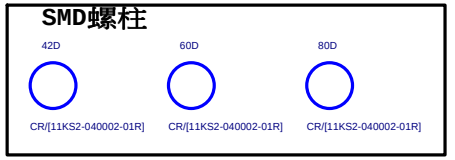
支援SATA and M.2 function











M.2 有插卡 / 沒插卡 GPP_G9	M.2插何種卡? GPP_G10	SATA Express 插何種裝置? GPP_E0/E1/E2/F0	IO19 (S0)	IO20 (S1)	IO21 (S?)	IO22 (S3)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA	SATA	SATA	SATA (For M2)
		SATA Express (Low)	SATA Express (For S.E.0)		SATA	SATA (For M2)
	PCIE Mode (Hi)	SATA (Hi)	PCIEx4 (For M.2)			
		SATA Express (Low)	PCIEx4 (For M.2)			
沒插卡 (Hi)	Don't Care (Hi)	SATA (Hi)	SATA (S0)	SATA (S1)	SATA (S2)	SATA (S3)
		SATA Express (Low)	SATA Express (For S.E.0)		SATA Express (For S.E.1)	

M.2-SATA(S3)+SATA S0&S1&S2

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	L	GPP_C20	L
GPP_G10	L	GPP_C19	L
GPP_E0/E1/E2/F0	H (SATA)	GPP_C21	H

M.2X4

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	L	GPP_C20	H
GPP_G10	H	GPP_C19	H
GPP_E0/E1/E2/F0	N/A	GPP_C21	H

M.2沒插卡+SATA S0~S3

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	H	GPP_C20	L
GPP_G10	H	GPP_C19	L
GPP_E0/E1/E2/F0	H	GPP_C21	L

M.2-SATA(S3)+S.E.D(S0+S1)

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	L	GPP_C20	L
GPP_G10	L	GPP_C19	L
GPP_E0/E1/E2/F0	L (S.E.)	GPP_C21	H

M.2X2+S.E.D(S0+S1)

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	L	GPP_C20	L
GPP_G10	H	GPP_C19	L
GPP_E0/E1/E2/F0	L	GPP_C21	H

M.2沒插卡+S.E.C&S.E.D

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	H	GPP_C20	L
GPP_G10	H	GPP_C19	L
GPP_E0/E1/E2/F0	L	GPP_C21	L

M.2X2+SATA S0&S1

WHEN	PCH GPIO	SETUP	SWITCH
GPP_G9	L	GPP_C20	L
GPP_G10	H	GPP_C19	H
GPP_E0/E1/E2/F0	H	GPP_C21	H

GIGABYTE Technology

Title: M.2 X4

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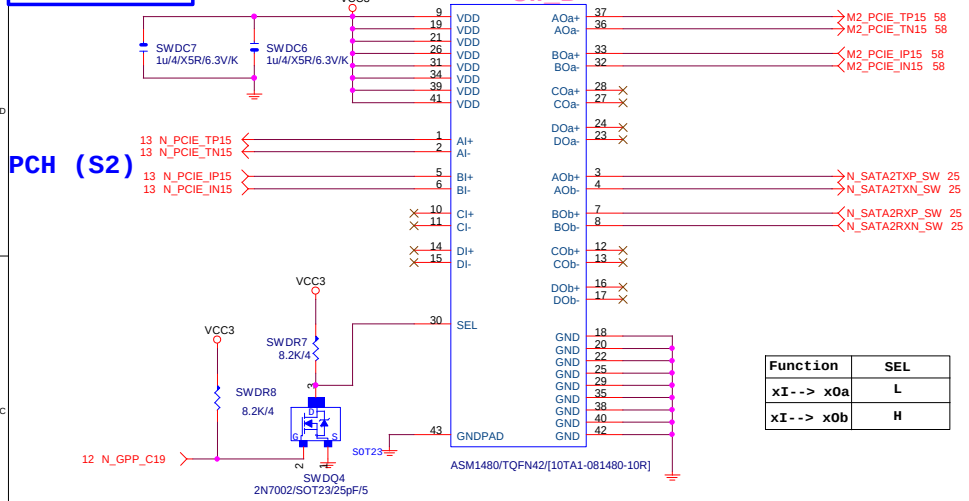
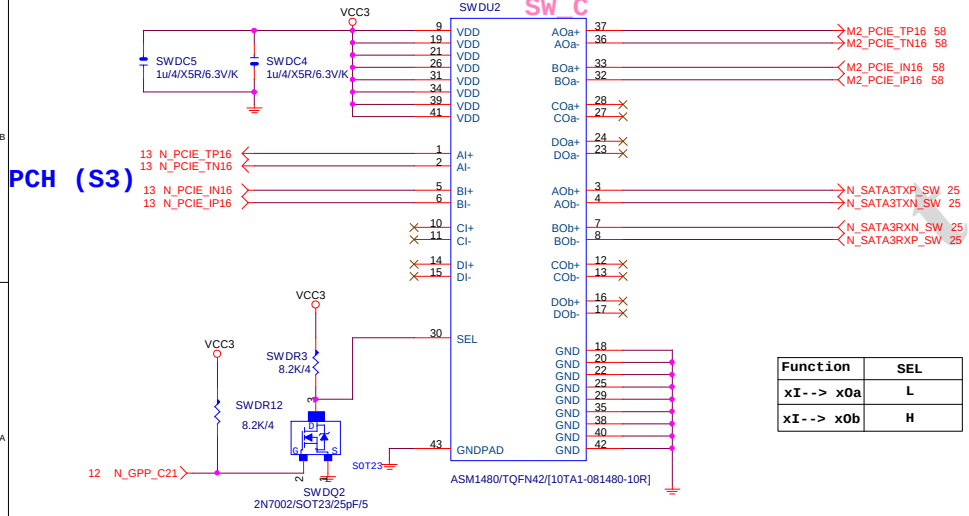


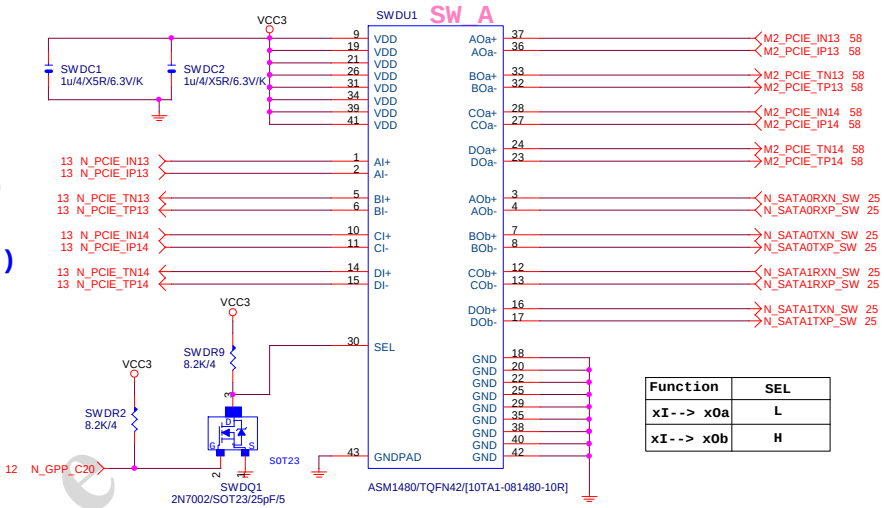
PCH (S2)

Function	SEL
xI--> xOa	L
xI--> xOb	H



PCH (S3)

Function	SEL
xI--> xOa	L
xI--> xOb	H



PCH (S0)

PCH (S1)

Function	SEL
xI--> xOa	L
xI--> xOb	H

Title	Gigabyte Technology NXP-PTN3356		
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Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

5VSB R695 22K/4 -PSON BC37 0.1u/4/X7R/16V/K

-12V VCC3 VCC3 ATX

13	3.3V	3.3V	1
14	-12V	3.3V	2
15	GND	GND	3
16	PSON	5V	4
17	GND	GND	5
18	GND	5V	6
19	GND	GND	7
20	-5V	POK	8
21	5V	5VSB	9
22	5V	12V	10
23	5V	12V	11
24	GND	3.3V	12

* 刪除 -5V

BC36 0.1u/4/X7R/16V/K/X 黑色

APW/2*12/BK/VA/SN/2SHK/PA66/[11NH4-020024-11R]

VCC3 BC35 22u/8/X5R/6.3V/M VCC3 BC46 1u/4/X5R/6.3V/K VCC3 BC48 1u/4/X5R/6.3V/K

5VSB RN7 1K/8P4R/6/X VCC RN8 1K/8P4R/6/X VCC3 RN9 1K/8P4R/6/X

VCC VCC VCC VCC

BC38 510/6/X BC42 510/6/X BC43 1u/4/X5R/6.3V/K BC44 0.1u/4/X7R/16V/K BC45 0.1u/4/X7R/16V/K BC41 0.1u/4/X7R/16V/K

+12V 5VSB AD1 AZ2225-01L/SOD323/X

PWOK PWOK BC9 4.7u/6/X5R/6.3V/K

BC39 1u/4/X5R/6.3V/K

To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

V12 ATX_12V_2X4

1	GND	+12V	5
2	GND	+12V	6
3	GND	+12V	7
4	GND	+12V	8

16,54

APW/2*4/BK/QC/P/4.2/VA/SN/OH/[11NH4-020008-B1R]::Location ATX_12V_2X4

黑色 BC7 0.1u/4/X7R/16V/K

FOR AUDIO 切割

MH1 MH2 HOLE_4-RH-1

MH3 HOLE_4-RH-5MM-1 MH7 HOLE_4-RH-5MM-1 MH8 HOLE_4-RH-5MM-1

MH4 HOLE_4-RH-1 MH5 HOLE_4-RH-1 MH6 HOLE_4-RH-5MM-1 MH9 HOLE_4-RH-5MM-5PIN-1

K3 K6 K2 K5 K1 K4 K1_ICT/X

K1-ICT

I1 I2 I3 I4 I5 4MMH/X

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

+12V RN2 2.7K/8P4R/4 RN3 2.7K/8P4R/4 RN4 2.7K/8P4R/4 RN5 2.7K/8P4R/4 RN6 2.7K/8P4R/4

VCC3 R1 1K/4/1 Q9 S0T23

12 N_GPP_D9 R703 330/4/1

MMBT2222A/SOT23/600mA/40

-PROHOT

OTP:132度 / PCB THERMAL TRIP:122 度

-PROHOT * 保留 ?

COUPON1 COUPON1 1 2 COUPON/X 5VDUAL

COUPON2 COUPON2 1 2 COUPON/X

COUPON3 COUPON3 1 2 COUPON/X

COUPON4 COUPON4 1 2 COUPON/X 5VDUAL

CLOSE VCCGT PWM UPPER MOSFET

Gigabyte Technology

Title: ATX POWER CONNECTOR

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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KB/MS

Rev: 0.52

FOR鹽化短路

Close to R_USB30

KB_MS_USB3
KB/USB3/A/PC99(DUAL)/YL/GF/2/RA/D

R_USB 2.0 OC SIGNAL

ESD 可自行SWAP PIN

ESD 可自行SWAP PIN

USB_DAC

TO USB_DAC PORT

From Switching

TO USB_DAC PORT

From 5VDUAL

DAC power disable by resume GPIO

Pin 7, 8 GND tie to IC GND Pin9.

DACR1, DACR2 close to Pin6.

<--- 8mil, space 30mil.

Gigabyte Technology		
Title	AUDIO JACK	
Size: Custom	Document Number: GA-Z170X-GAMING G1	Rev: 1.01
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Rev: 0.52

R_USB30

R_USB30

USB3.0/2.0

USB 電容前後NET 可自行調整

FSVCC_U3R1

11 N_-USBP5
11 N_+USBP5
11 PCH_USB3_RXN5
11 PCH_USB3_RXP5
11 PCH_USB3_TXN5
11 PCH_USB3_TXP5

RBU3C1 0.1u/4/X7R/16V/K R_U3TXN5
RBU3C2 0.1u/4/X7R/16V/K R_U3TXP5

VBUS D- D+ GND SSRX- SSRX+ GND SSTX- SSTX+

AGND AGND AGND AGND

G1 G2 G3 G4

USB/18P/BU/OS/RA/D/2/1U/SB

配合HDMI20,改成DGND

2 port USB 3.0

USB 電容前後NET 可自行調整

FSVCC_U3R1

R_U3TXN6
R_U3TXP6

RBU3C3 0.1u/4/X7R/16V/K
RBU3C4 0.1u/4/X7R/16V/K

N_-USBP6 11
N_+USBP6 11
PCH_USB3_RXN6 11
PCH_USB3_RXP6 11
PCH_USB3_TXN6 11
PCH_USB3_TXP6 11

FUSE 2 Port 1 Fuse 2.6A

5VDUAL RBU3F1 SPR-P260T/6V/8/S FSVCC_U3R1

RBU3EC1 100u/FP/D/6.3V/65/C/13m

RBU3C5 0.1u/4/X7R/16V/K

NET 可自行調整

R_U3TXP5
R_U3TXN5
* swap
R_U3TXN5
R_U3TXP5

RBU3D2 AZ1045-04F/MSOP10

R_U3TXN6
R_U3TXP6
* swap
R_U3TXP6
R_U3TXN6

NET 可自行調整

PCH_USB3_RXN5
PCH_USB3_RXP5
* swap
PCH_USB3_RXP5
PCH_USB3_RXN5

RBU3D1 AZ1045-04F/MSOP10

PCH_USB3_RXP6
PCH_USB3_RXN6
* swap
PCH_USB3_RXN6
PCH_USB3_RXP6

ESD 可自行SWAP PIN

RBU3D3

N_-USBP5 1 6 N_+USBP5
2 5 FSVCC_U3R1
N_+USBP6 3 4 N_-USBP6

AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CONNECTOR 自行調整

2 port USB 3.0 Capture:

USB/18P/BU/OS/RA/D/2/1U/SB

2 port USB 3.0 with TYPE C Capture:

USB/18P/BU/OS/RA/D/2/HR

Gigabyte Technology

Title: KB_MS_USB3, R_USB30

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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Rev: 0.52

Front USB3.0

NET 自行調整

F_USB30_1
REV=1
VBUS
ID
SSRX1-
SSRX1+
SSTX1-
SSTX1+
D1-
D1+
GND
GND
SSTX2-
SSTX2+
SSRX2-
SSRX2+
D2-
D2+
GND
GND

FSVCC_U3F1
55 U3RXDN3
55 U3RXDP3
55 U3TXDN3
55 U3TXDP3
55 U2DM3
55 U2DP3
FAU3C1 0.1u/4/X7R/16V/K U3TXDN3_C
FAU3C2 0.1u/4/X7R/16V/K U3TXDP3_C
U3TXDN4_C FAU3C3 0.1u/4/X7R/16V/K U3TXDN4 55
U3TXDP4_C FAU3C4 0.1u/4/X7R/16V/K U3TXDP4 55
U3RXDN4 55
U3RXDP4 55
U2DM4 55
U2DP4 55

BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT

黑色

F_USB30 PWR

5VDUAL FAU3F1 SPR-P260T/6V/8/S FSVCC_U3F1
FAU3EC1 100u/FP/D/6.3V/65/C/13m
FAU3C5 0.1u/4/X7R/16V/K

NET 可自行調整

U3RXDP3
U3RXDN3
U3RXDN4
U3RXDP4
FAU3D1 AZ1045-04F/MSOP10
U3RXDN3
U3RXDP3
U3RXDP4
U3RXDN4

FAU3D3
U2DM3
U2DP3
3VDUAL
U2DP4
U2DM4
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

U3TXDP3_C
U3TXDN3_C
U3TXDN4_C
U3TXDP4_C
FAU3D2 AZ1045-04F/MSOP10
U3TXDN3_C
U3TXDP3_C
U3TXDP4_C
U3TXDN4_C

CLOSE F_USB30

Front USB3.0

NET 可自行調整

F_USB30_2
REV=1
VBUS
ID
SSRX1-
SSRX1+
SSTX1-
SSTX1+
D1-
D1+
GND
GND
SSTX2-
SSTX2+
SSRX2-
SSRX2+
D2-
D2+
GND
GND

FSVCC_U3F2
55 U3RXDN1
55 U3RXDP1
55 U3TXDN1
55 U3TXDP1
55 U2DM1
55 U2DP1
FBU3C1 0.1u/4/X7R/16V/K U3TXDN1_C
FBU3C2 0.1u/4/X7R/16V/K U3TXDP1_C
U3TXDN2_C FBU3C3 0.1u/4/X7R/16V/K U3TXDN2 55
U3TXDP2_C FBU3C4 0.1u/4/X7R/16V/K U3TXDP2 55
U3RXDN2 55
U3RXDP2 55
U2DM2 55
U2DP2 55

BH/2*10K20/BK/ON/2.0/VA/USB3.0/PRT

黑色

F_USB30 PWR

5VDUAL FBU3F1 SPR-P260T/6V/8/S FSVCC_U3F2
FBU3C5 0.1u/4/X7R/16V/K

NET 可自行調整

U3RXDP1
U3RXDN1
U3RXDN2
U3RXDP2
FBU3D1 AZ1045-04F/MSOP10
U3RXDN1
U3RXDP1
U3RXDP2
U3RXDN2

FBU3D3
U2DP2
U2DM2
3VDUAL
U2DM1
U2DP1
AOZ8902CIL/SOT23-6/[10TA1-0I8902-10R]

CLOSE F_USB30

F_USB POWER PROTECT

U3TXDP1_C
U3TXDN1_C
U3TXDN2_C
U3TXDP2_C
FBU3D2 AZ1045-04F/MSOP10
U3TXDN1_C
U3TXDP1_C
U3TXDP2_C
U3TXDN2_C

CLOSE F_USB30

-USBOC_F

POWER 可自行調整

FSVCC_U3F1 UBR9 8.2K/4 OCI3B OCI3B 55
UBR10 15K/4/1
FSVCC_U3F1 UBR11 8.2K/4 OCI4B OCI4B 55
UBR12 15K/4/1

-USBOC_R

POWER 可自行調整

FSVCC_U3F2 UBR1 8.2K/4 OCI1B OCI1B 55
UBR2 15K/4/1
FSVCC_U3F2 UBR3 8.2K/4 OCI2B OCI2B 55
UBR4 15K/4/1

Gigabyte Technology

Title: R_USB30,F_USB30, USB_OC

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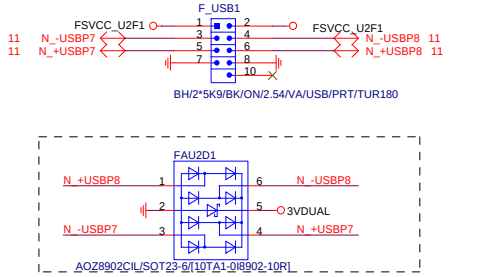
Rev: 0.52

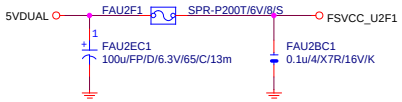
FRONT USB1

NET 可變



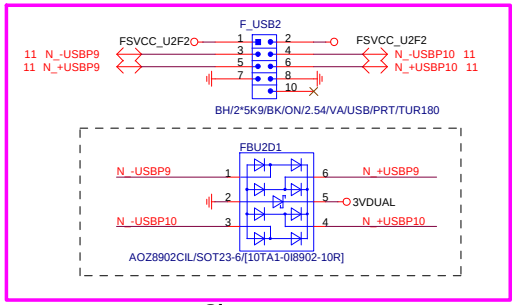
Close to connector

FUSE 2 Port 1 Fuse 2A



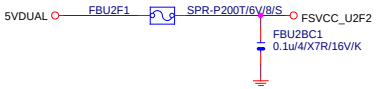
FRONT USB2

NET 可變

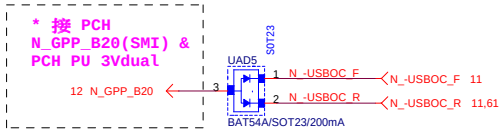


Close to connector

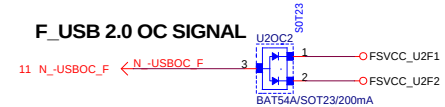
FUSE 2 Port 1 Fuse 2A

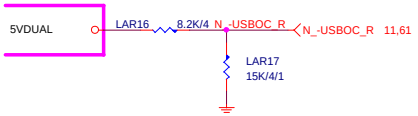


* 接 PCH N_GPP_B20(SMI) & PCH PU 3Vdual



F_USB 2.0 OC SIGNAL





Gigabyte Technology		
Title: USB2.0		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
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INTEL AR module (TBT + U31A) SCH 0.5 (2015/07/02)

Base on INTEL AR reference SCH 1.0 (2015/05/11)

PCIE X4

DP Input (DP + AUX + DDC)

CLKREQ should be checked again

PCIE_RBIAS THR20 should be placed as close as Alpine Ridge and keep traces as short as possible.

DP differential 100 ohm

PCIE X4

INTEL review feedback 2015/01/07

TBT_CIO_PLUG_EVENT_N uses PCH GPIO with SMI#

GPIO Link for
- Plug Event
- Force Power

Board Link for
- PCIE Wake
- S3

* 0708

PCIe GEN3

SINK PORT 0

SINK PORT 1

SOURCE PORT 0

LC GPIO

POC GPIO

MISC

TBT PORTS

PORT A

PORT B

POC

DEBUG

THU1A
DSL6540/S

For INTEL IDC Certification uesd, MP remove!!

JTAG

PH/1*5/BK/2.54/VA/D[11NH2-000105-03R]/X

THU3

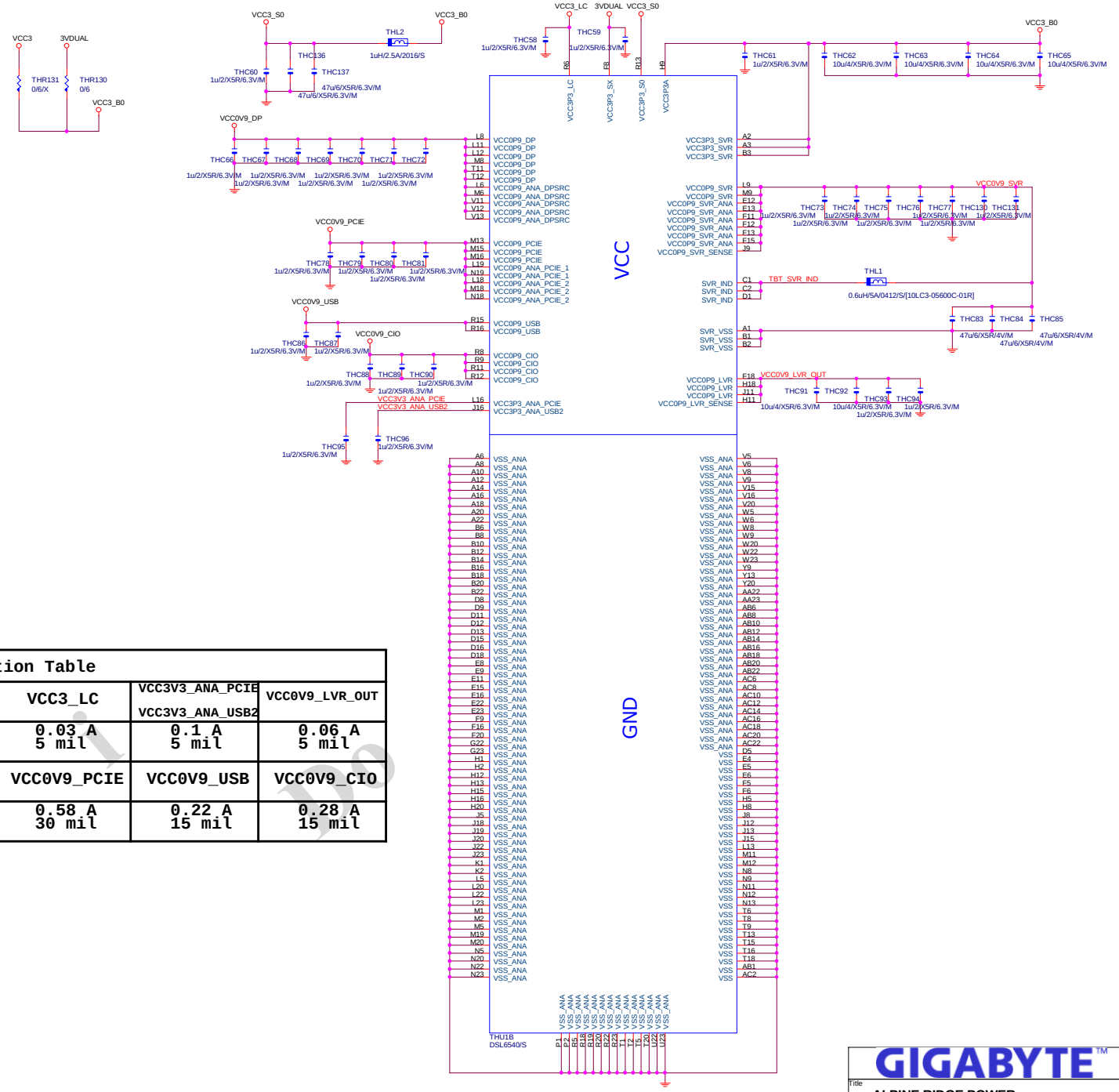
8M/SPI/SO8/208mil/S/[10HP4-152580-50R]

GIGABYTE

Title	ALPINE RIDGE CIO & DP	
Size C	Document Number GA-Z170X-GAMING GT	Rev 1.01
Date: Thursday, July 23, 2015	Sheet 65 of 75	

INTEL AR module (TBT + U31A) SCH 0.5 (2015/07/02)

Base on INTEL AR reference SCH 1.0 (2015/05/11)



Power Consumption Table

	VCC3	3VDUAL	VCC3_LC	VCC3V3_ANA_PCIE VCC3V3_ANA_USB2	VCC0V9_LVR_OUT
Max Current(A)	1.05 A 40 mil	0.19 A 10 mil	0.03 A 5 mil	0.1 A 5 mil	0.06 A 5 mil
	VCC0V9_SVR	VCC0V9_DP	VCC0V9_PCIE	VCC0V9_USB	VCC0V9_CIO
Max Current(A)	1.83 A 80 mil	0.7 A 30 mil	0.58 A 30 mil	0.22 A 15 mil	0.28 A 15 mil

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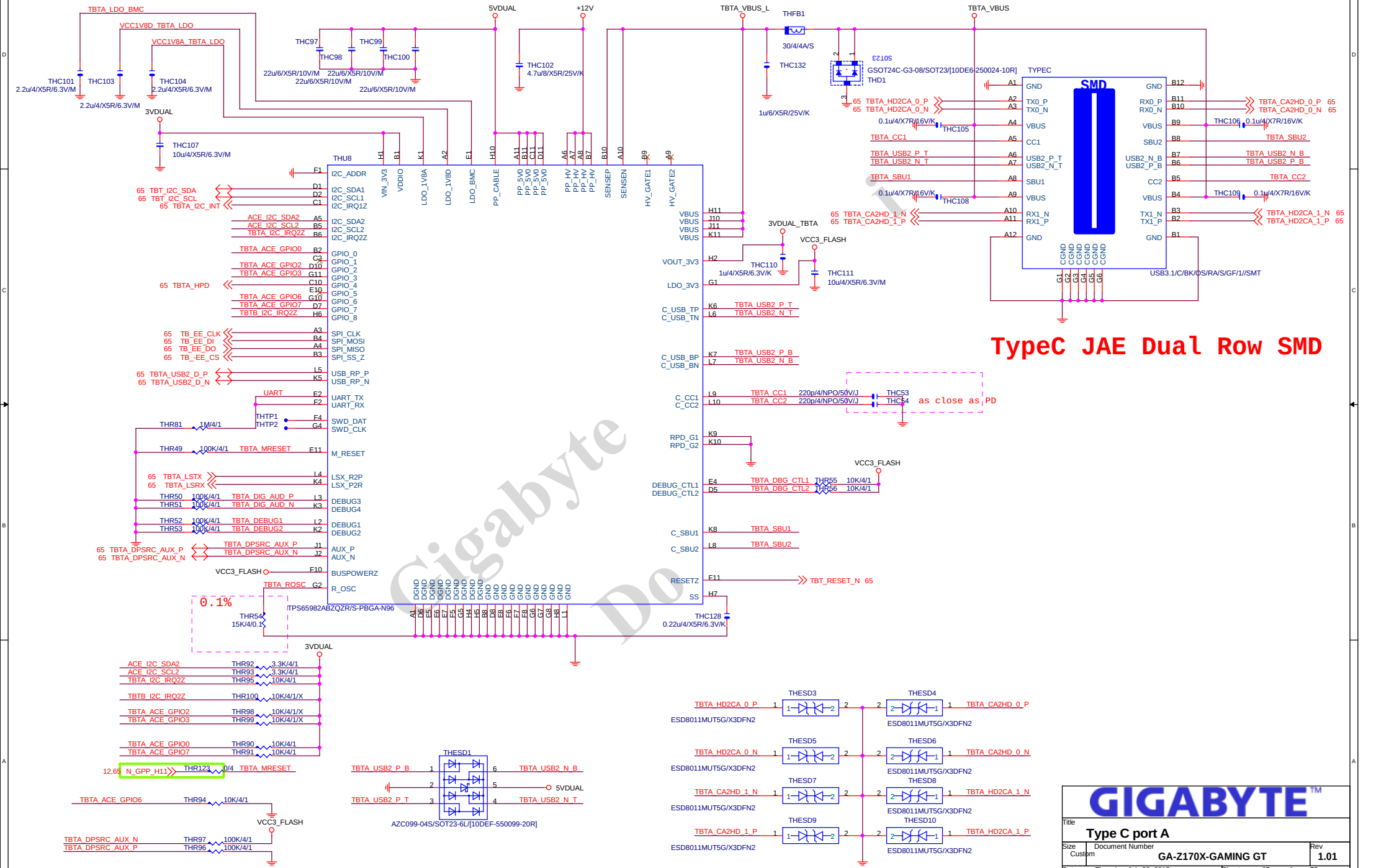
Title: ALPINE RIDGE POWER

Size: C | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

Date: Thursday, July 23, 2015 | Sheet 66 of 75

INTEL AR module (TBT + U31A) SCH 0.5 (2015/07/02)

Base on INTEL AR reference SCH 1.01 (2015/05/13)



INTEL AR module (TBT + U31A) SCH 0.31 (2015/05/14)

GIGABYTE™

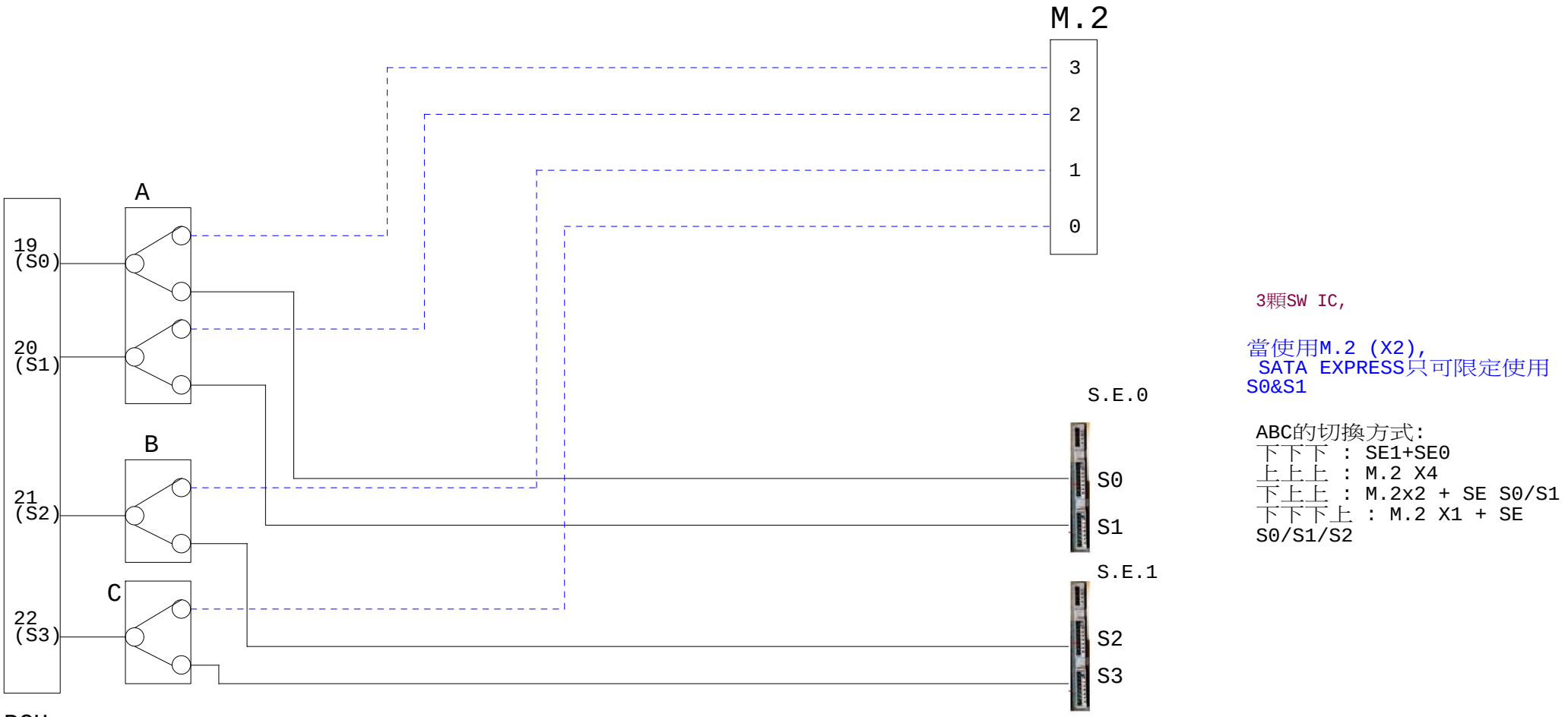
Title: Type C port A		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 68 of 75	

INTEL AR module (TBT + U31A) SCH 0.31 (2015/05/14)

Base on INTEL AR reference SCH 1.01 (2015/05/13)

GIGABYTE™

Title: TBT _ HDMI 2.0		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 69 of 75	



3顆SW IC,

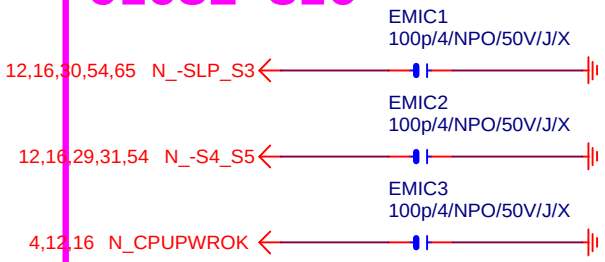
當使用M.2 (X2),
SATA EXPRESS只可限定使用
S0&S1

ABC的切換方式:
下下下 : SE1+SE0
上上上 : M.2 X4
下上上 : M.2x2 + SE S0/S1
下下下上 : M.2 X1 + SE
S0/S1/S2

Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 70 of 75	

EMI/ESD R0.1

CLOSE SIO



CLOSE PCH

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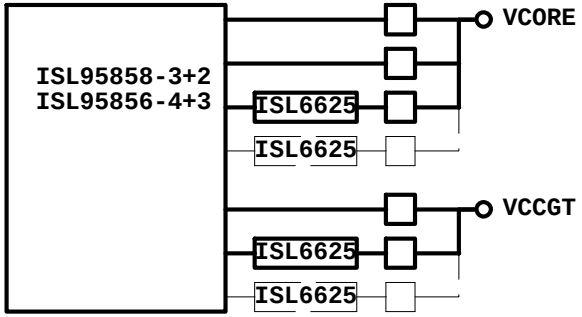
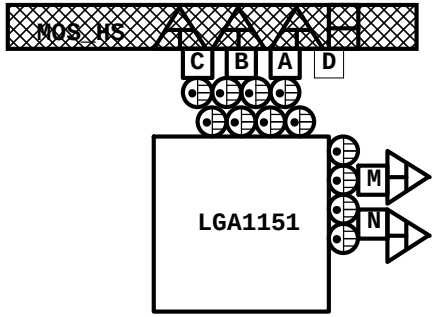
Title: EMI/ESD		
Size: A	Document Number: GA-Z170X-GAMING GT	Rev: 1.01
Date: Thursday, July 23, 2015	Sheet 71 of 75	

POWER BLOCK MAP

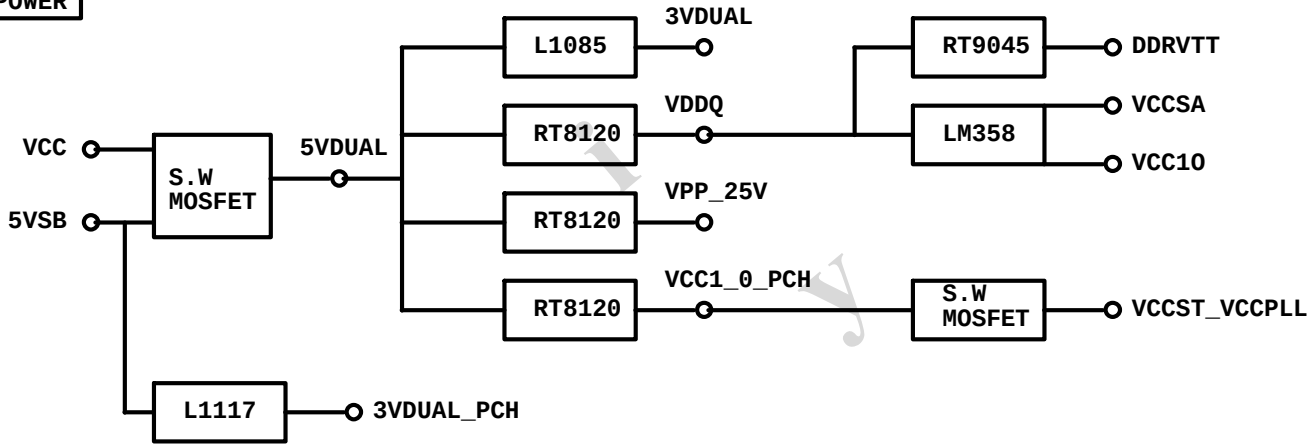
- CPU: VCORE, VCCGT, VCCSA, VCCIO, VDDQ, VCCST_VCCPLL, VCCSFUSEPRG
- DDR4: VDDQ, DDRVTT, VPP_25V, VDDSPD(VCC3)
- PCH: VCC1_0_PCH, VCC1_0_PCH_DSW, VCC10_VCCF24_1P0, VCC10_VCCAMPHYPLL, VCC10_VCCAPLL, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- IT8628: IT_VCCH, IT_AVCC, 2_5LEVEL
- HM: +12V, VCC, VCC3, VCORE, VCCGT(IMON_VCCGT), VDDQ, VCCSA(IMON_VCORE)

VCORE/VCCGT

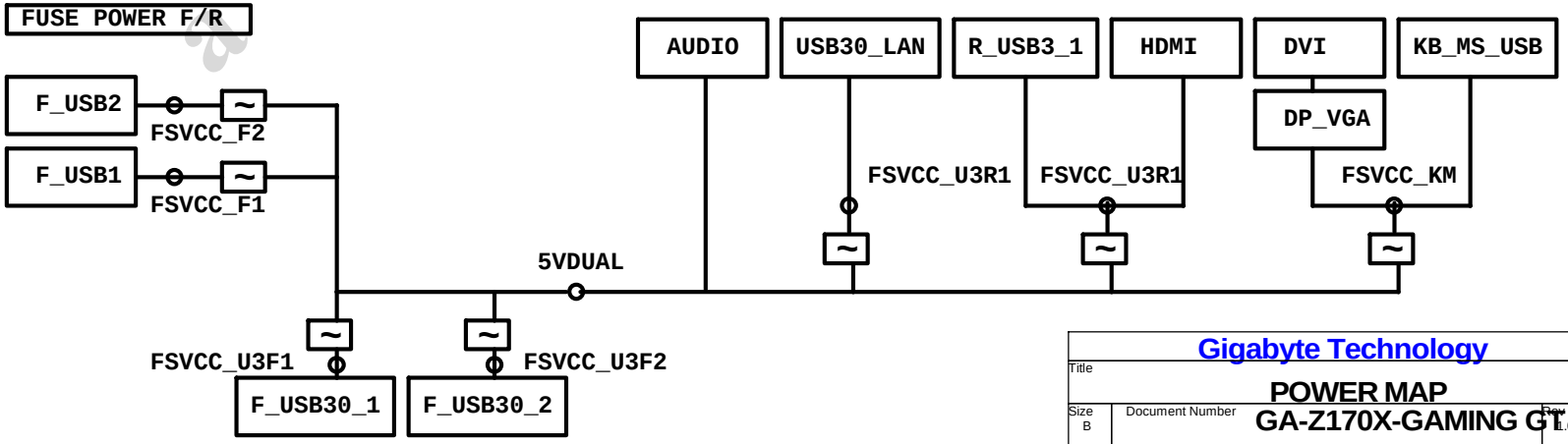




POWER



FUSE POWER F/R



Gigabyte Technology

Title	POWER MAP	
Size B	Document Number GA-Z170X-GAMING GT	Rev 1.01
Date: Thursday, July 23, 2015	Sheet 72 of 75	

固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11CO5-C82700-01R	270u/FP/D/16V/88/C/12m
11CO5-C61000-01R	100u/OS/D/16V/66/C/30m
11CO2-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11CO2-685600-01R	560u/FP/D/6.3V/68/8m
11CO5-882700-01R	270u/FP/D/16V/88/12m
11CO5-661000-03R	100u/OS/D/16V/66/30m
11CO2-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11CO2-661000-09R	100u/OS/D/6.3V/66/A/35m
11CO5-691000-09R	100u/OS/D/16V/69/A/35m
11CO5-8C2700-09R	270u/FP/D/16V/8C/A/10m
11CO2-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-01R	0.5uH/40A/IMD109/M/D	10*10	CHOKE05U-40A-1PQ-3	閃電P
DIP	11LC5-M4500C-11R	0.5uH/40A/IMD109/M/NP/D	10*10	CHOKE05U-40A-1PQ-3	無閃電P
DIP	11LC5-M2500C-01R	0.5uH/20A/IMD0809/M/D	8*8	CHOKE1U-R50M-IF	

Skylake Iron Choke閃電P導入機種如下:
[1] Z170/H170 機種全部導入
[2] B150/H110Gaming機種導入, 其餘不導入

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CHOKE11X8MM-SMD

BEAD

	料號	Capture Value	SIZE	Footprint
DIP	10LFB-15470A-01R	47/4030/15A/S	4*3	BEADC8B-BPH_SMD

PWM料號

		料號	Capture Value	Footprint
PWM	ISL95856	10TA1-695856-01R		IC52QFN-6x6-G
PWM	ISL95858	10TA1-695858-01R		IC52QFN-6x6-G
PWM	IR35201	10TA1-635201-00R		IC56QFN-9VRS4339
PWM	IR3570	10TA1-603570-00R		IC40MLFP-ISL95835
PWM	RT8237C/D	10TA1-608237-01R		IC10DFN-NIS5132

REGULATOR

		料號	Capture Value	Footprint
	NCT3103S	10GL2-203103-01R	NCT3103S/SOP8/2A	IC8-EPSOIC

GIGABYTE™

Title: RT8120_DDR4 POWER

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

Date: Thursday, July 23, 2015 | Sheet 73 of 75

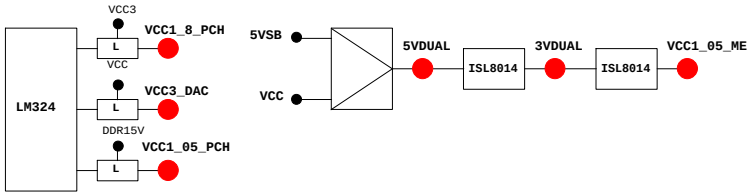
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	N/A
GP2/PIRQE#	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

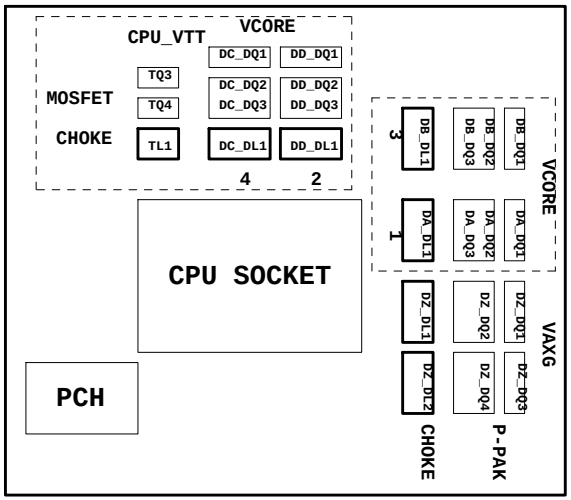
Super I/O ITE8720 GPIO Table

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	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	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	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/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/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSSO0	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

Gigabyte Technology

Title: TABLE LIST

Size: C | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

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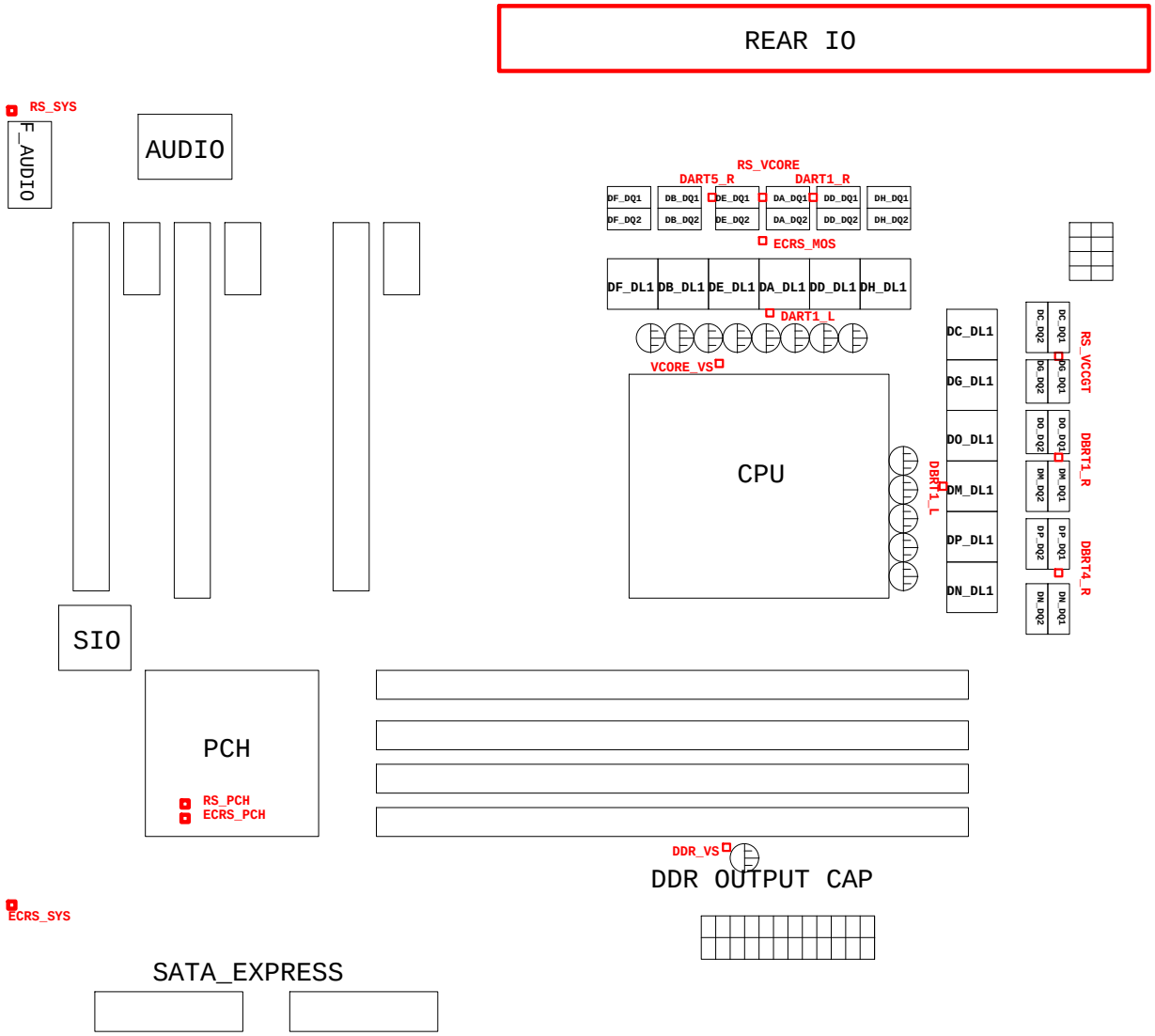

熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

Gigabyte Technology

Title: NTC MAP

Size: Custom | Document Number: GA-Z170X-GAMING GT | Rev: 1.01

Date: Thursday, July 23, 2015 | Sheet 75 of 75

Thunderbolt™ 3 | Intel® USB 3.1