Model Name: GA-B150N-GSM

rev 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B-DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A (Rev. 0.6)
09	DDR4 CHANNEL B
10	PCH_CLK BUFFER
11	PCH_DMI,USB,PCIE
12	PCH_MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	Single BIOS
16	ITE 8628 LPC IO (Rev. 1.08)
17	HWM
18	FAN CTRL--SIO
19	PCI EXPRESS*16 SLOT (Rev. 0.2)
20	M.2X4 (Rev. 0.6)
21	IT8768E 4 ports COM (Rev. 0.1)
22	DVI-I CONN (Rev. 0.72)
23	HDMI DUAL (Rev. 0.72)
24	ISL95858 PWM_VCORE
25	ISL95858 MOS_VCORE
26	ISL95858 MOS_VCCGT
27	VCCSA_VCCIO_VCCPLL (Rev. 0.4)

SHEET	TITLE
28	RT8120_DDR_VDDQ (Rev. 0.9)
29	RT8068_VPP_25V (Rev. 0.9)
30	RT8120_PCH_VCC1_0_PCH (Rev. 0.67)
31	DISCRETE POWER (Rev. 0.51)
32	NCT3933
33	ATX POWER , A_-PROCHOT
34	KB_MS_USB3 (Rev. 0.72)
35	RTD2168 DP-VGA (Rev. 1.03)
36	RTD2168 DP-VGA Conn
37	INTEL I219 (Rev. 1.1)
38	INTEL I211 (Rev. 1.1)
39	DUAL_USB30_LAN -I219_I211
40	Realtek ALC887 (Rev. 0.7)
41	REAR AUDIO JACK
42	mini PCIE_WIFI (Rev. 0.1)
43	F_USB30 (Rev. 0.72)
44	F_USB (Rev. 0.72)
45	F_PANEL (Rev. 0.72)
46	4 Ports COM (Rev. 0.1)
47	EMI-ESD
48	TABLE LIST
49	POWER MAP

Gigabyte Technology		
Title: Cover Sheet		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 1 of 49	

Model Name: GA-B150N-GSM

rev 1.0

Component value change history

2015/07/17

Data	Change Item	Reason
2015/09/04 BOM:1.0	DFR4 Changed to 150K	
	HAR5/HBR5, HAR13/HBR13 unmount	
	HAR10/HBR10 mount 10 ohm	
	HAR12/HBR12 chnage from 3K to 3.16K	

Circuit or PCB layout change

DATE	Change Item	Reason
2015/09/04 BOM:1.0	Add HAR8 / HBR8 4.7K	
	Modify CR24 / LAPW1 / MAR110/111 / NPR5 to SHT	

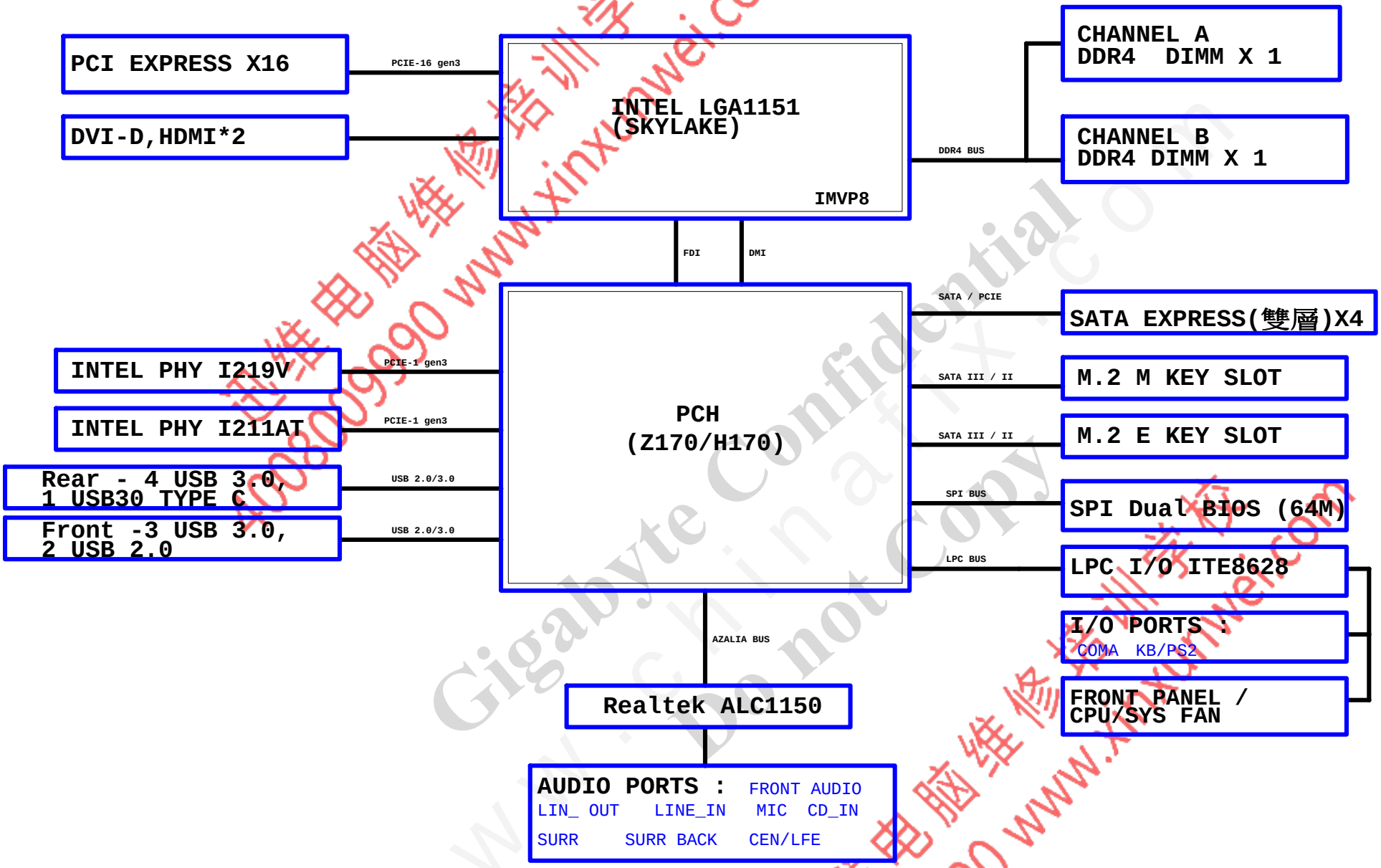
GIGABYTE™

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-B150N-GSM | Rev: 1.0

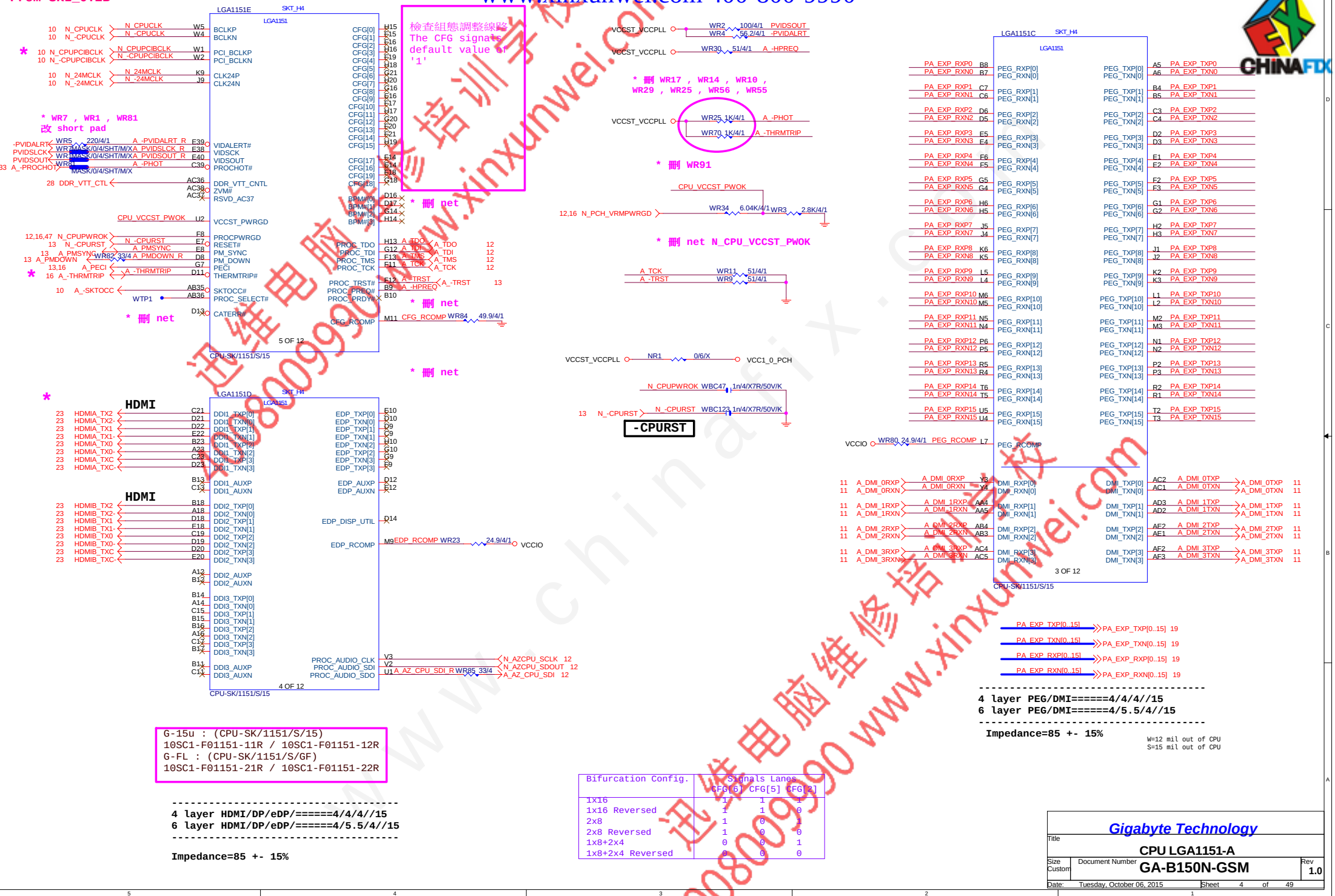
Date: Tuesday, October 06, 2015 | Sheet 2 of 49

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 3 of 49	

From SKL_0.2B



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

Title	CPU LGA1151-A
Size / Custom	Document Number GA-B150N-GSM
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Gigabyte Technology

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]					
MDA1	AE37	DDR0_DQ[1]					
MDA2	AG38	DDR0_DQ[2]					
MDA3	AG37	DDR0_DQ[3]					
MDA4	AE39	DDR0_DQ[4]					
MDA5	AE40	DDR0_DQ[5]					
MDA6	AG39	DDR0_DQ[6]					
MDA7	AG40	DDR0_DQ[7]					
MDA8	AJ38	DDR0_DQ[8]					
MDA9	AJ37	DDR0_DQ[9]					
MDA10	AL38	DDR0_DQ[10]					
MDA11	AL37	DDR0_DQ[11]					
MDA12	AJ40	DDR0_DQ[12]					
MDA13	AJ39	DDR0_DQ[13]					
MDA14	AL39	DDR0_DQ[14]					
MDA15	AL40	DDR0_DQ[15]					
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]					
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]					
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]					
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]					
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]					
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]					
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]					
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]					
MDA24	AW37	DDR0_DQ[24]/DDR0_DQ[40]					
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]					
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]					
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]					
MDA28	AU37	DDR0_DQ[28]/DDR0_DQ[44]					
MDA29	AV37	DDR0_DQ[29]/DDR0_DQ[45]					
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]					
MDA31	AU35	DDR0_DQ[31]/DDR0_DQ[47]					
MDA32	AY8	DDR0_DQ[32]/DDR1_DQ[0]					
MDA33	AW8	DDR0_DQ[33]/DDR1_DQ[1]					
MDA34	AV6	DDR0_DQ[34]/DDR1_DQ[2]					
MDA35	AU6	DDR0_DQ[35]/DDR1_DQ[3]					
MDA36	AU8	DDR0_DQ[36]/DDR1_DQ[4]					
MDA37	AV8	DDR0_DQ[37]/DDR1_DQ[5]					
MDA38	AW6	DDR0_DQ[38]/DDR1_DQ[6]					
MDA39	AY6	DDR0_DQ[39]/DDR1_DQ[7]					
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]					
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]					
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]					
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]					
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]					
MDA45	AW4	DDR0_DQ[45]/DDR1_DQ[13]					
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]					
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]					
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]					
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]					
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]					
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[35]					
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[36]					
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[37]					
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[38]					
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[39]					
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[40]					
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[41]					
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[42]					
MDA59	AH2	DDR0_DQ[59]/DDR1_DQ[43]					
MDA60	AH4	DDR0_DQ[60]/DDR1_DQ[44]					
MDA61	AK2	DDR0_DQ[61]/DDR1_DQ[45]					
MDA62	AH3	DDR0_DQ[62]/DDR1_DQ[46]					
MDA63	AK1	DDR0_DQ[63]/DDR1_DQ[47]					

	AU33	DDR0_ECC[0]					
	AT33	DDR0_ECC[1]					
	AW33	DDR0_ECC[2]					
	AV33	DDR0_ECC[3]					
	AU33	DDR0_ECC[4]					
	AV33	DDR0_ECC[5]					
	AW33	DDR0_ECC[6]					
	AY33	DDR0_ECC[7]					

		DDR0_CKP[0]	AW18	M_DCLKA0	M_DCLKA0	8	
		DDR0_CKN[0]	AV18	M_-DCLKA0	M_-DCLKA0	8	
		DDR0_CKP[1]	AW17	M_DCLKA1	M_DCLKA1	8	
		DDR0_CKN[1]	AV17	M_-DCLKA1	M_-DCLKA1	8	
		DDR0_CKP[2]	AW16				
		DDR0_CKN[2]	AV16				
		DDR0_CKP[3]	AT16				
		DDR0_CKN[3]	AU16				
		DDR0_CKE[0]	AY24	CKEA0	CKEA0	8	
		DDR0_CKE[1]	AW24	CKEA1	CKEA1	8	
		DDR0_CKE[2]	AV24				
		DDR0_CKE[3]	AV25				
		DDR0_CS#[0]	AW12	M_-CSA0	M_-CSA0	8	
		DDR0_CS#[1]	AU11	M_-CSA1	M_-CSA1	8	
		DDR0_CS#[2]	AV13				
		DDR0_CS#[3]	AV10				
		DDR0_ODT[0]	AW11	MODT_A0			
		DDR0_ODT[1]	AU14	MODT_A1			
		DDR0_ODT[2]	AU12				
		DDR0_ODT[3]	AY10				
		DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]	AY13	SBAA0	SBAA0	8	
		DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AV15	SBAA1	SBAA1	8	
		DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]	AW23	BG_A0	BG_A0	8	
		DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]	AW13	MAAA16			
		DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]	AV14	MAAA14			
		DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]	AY11	MAAA15			
		DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]	AW15	MAAA0			
		DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]	AU18	MAAA1			
		DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]	AU17	MAAA2			
		DDR0_MA[3]	AV19	MAAA3			
		DDR0_MA[4]	AT19	MAAA4			
		DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]	AU20	MAAA5			
		DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]	AV20	MAAA6			
		DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]	AU21	MAAA7			
		DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]	AT20	MAAA8			
		DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]	AT22	MAAA9			
		DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]	AY14	MAAA10			
		DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]	AU22	MAAA11			
		DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]	AV22	MAAA12			
		DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]	AV12	MAAA13			
		DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]	AV23	BG_A1	BG_A1	8	
		DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	AU24		M_-ACT_A	8	
		DDR0_PAR	AY15		M_DDR_PARA	8	
		DDR0_ALERT#	AT23		M_-ALERT_A	8	
		DDR0_DQSN[0]	AF39	M_-DQSA0			
		DDR0_DQSN[1]	AK39	M_-DQSA1			
		DDR0_DQSN[2]/DDR0_DQSN[4]	AP39	M_-DQSA2			
		DDR0_DQSN[3]/DDR0_DQSN[5]	AU36	M_-DQSA3			
		DDR0_DQSN[4]/DDR1_DQSN[0]	AW7	M_-DQSA4			
		DDR0_DQSN[5]/DDR1_DQSN[1]	AU3	M_-DQSA5			
		DDR0_DQSN[6]/DDR1_DQSN[4]	AN3	M_-DQSA6			
		DDR0_DQSN[7]/DDR1_DQSN[5]	AJ3	M_-DQSA7			
		DDR0_DQSP[0]	AF38	M_DQSA0			
		DDR0_DQSP[1]	AK38	M_DQSA1			
		DDR0_DQSP[2]/DDR0_DQSP[4]	AP38	M_DQSA2			
		DDR0_DQSP[3]/DDR0_DQSP[5]	AV36	M_DQSA3			
		DDR0_DQSP[4]/DDR1_DQSP[0]	AV7	M_DQSA4			
		DDR0_DQSP[5]/DDR1_DQSP[1]	AU2	M_DQSA5			
		DDR0_DQSP[6]/DDR1_DQSP[4]	AN2	M_DQSA6			
		DDR0_DQSP[7]/DDR1_DQSP[5]	AJ2	M_DQSA7			
		DDR0_DQSP[8]	AV32				
		DDR0_DQSN[8]	AU32				

DDR CHANNEL A

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CPU-SK/1151/S/15

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]					
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]					
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]					
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]					
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]					
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]					
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]					
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]					
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]					
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]					
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]					
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]					
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]					
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]					
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]					
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]					
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]					
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]					
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]					
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]					
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]					
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]					
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]					
MDB23	AP31	DDR1_DQ[23]/DDR0_DQ[55]					
MDB24	AL29	DDR1_DQ[24]/DDR0_DQ[56]					
MDB25	AM29	DDR1_DQ[25]/DDR0_DQ[57]					
MDB26	AP29	DDR1_DQ[26]/DDR0_DQ[58]					
MDB27	AR29	DDR1_DQ[27]/DDR0_DQ[59]					
MDB28	AM28	DDR1_DQ[28]/DDR0_DQ[60]					
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]					
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]					
MDB31	AP28	DDR1_DQ[31]/DDR0_DQ[63]					
MDB32	AR12	DDR1_DQ[32]/DDR1_DQ[16]					
MDB33	AP12	DDR1_DQ[33]/DDR1_DQ[17]					
MDB34	AM13	DDR1_DQ[34]/DDR1_DQ[18]					
MDB35	AL13	DDR1_DQ[35]/DDR1_DQ[19]					
MDB36	AR13	DDR1_DQ[36]/DDR1_DQ[20]					
MDB37	AP13	DDR1_DQ[37]/DDR1_DQ[21]					
MDB38	AM12	DDR1_DQ[38]/DDR1_DQ[22]					
MDB39	AL12	DDR1_DQ[39]/DDR1_DQ[23]					
MDB40	AP10	DDR1_DQ[40]/DDR1_DQ[24]					
MDB41	AR10	DDR1_DQ[41]/DDR1_DQ[25]					
MDB42	AR7	DDR1_DQ[42]/DDR1_DQ[26]					
MDB43	AP7	DDR1_DQ[43]/DDR1_DQ[27]					
MDB44	AR9	DDR1_DQ[44]/DDR1_DQ[28]					
MDB45	AP9	DDR1_DQ[45]/DDR1_DQ[29]					
MDB46	AR6	DDR1_DQ[46]/DDR1_DQ[30]					
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]					
MDB48	AM10	DDR1_DQ[48]					
MDB49	AL10	DDR1_DQ[49]					
MDB50	AM7	DDR1_DQ[50]					
MDB51	AL7	DDR1_DQ[51]					
MDB52	AM9	DDR1_DQ[52]					
MDB53	AL9	DDR1_DQ[53]					
MDB54	AM6	DDR1_DQ[54]					
MDB55	AL6	DDR1_DQ[55]					
MDB56	AJ6	DDR1_DQ[56]					
MDB57	AJ7	DDR1_DQ[57]					
MDB58	AE6	DDR1_DQ[58]					
MDB59	AE7	DDR1_DQ[59]					
MDB60	AH7	DDR1_DQ[60]					
MDB61	AH6	DDR1_DQ[61]					
MDB62	AE7	DDR1_DQ[62]					
MDB63	AF6	DDR1_DQ[63]					

	AR25	DDR1_ECC[0]					
	AR26	DDR1_ECC[1]					
	AM26	DDR1_ECC[2]					
	AM25	DDR1_ECC[3]					
	AP26	DDR1_ECC[4]					
	AP25	DDR1_ECC[5]					
	AL25	DDR1_ECC[6]					
	AL26	DDR1_ECC[7]					

		DDR1_CKP[0]	AM20	M_DCLKB0	M_DCLKB0	9	
		DDR1_CKN[0]	AM21	M_-DCLKB0	M_-DCLKB0	9	
		DDR1_CKP[1]	AP22	M_DCLKB1	M_DCLKB1	9	
		DDR1_CKN[1]	AP21	M_-DCLKB1	M_-DCLKB1	9	
		DDR1_CKP[2]	AN20				
		DDR1_CKN[2]	AN21				
		DDR1_CKP[3]	AP19				
		DDR1_CKN[3]	AP20				
		DDR1_CKE[0]	AY29	CKEB0	CKEB0	9	
		DDR1_CKE[1]	AV29	CKEB1	CKEB1	9	
		DDR1_CKE[2]	AW29				
		DDR1_CKE[3]	AU29				
		DDR1_CS#[0]	AP17	M_-CSB0	M_-CSB0	9	
		DDR1_CS#[1]	AN15	M_-CSB1	M_-CSB1	9	
		DDR1_CS#[2]	AN17				
		DDR1_CS#[3]	AM15				
		DDR1_ODT[0]	AM16	MODT_B0			
		DDR1_ODT[1]	AL16	MODT_B1			
		DDR1_ODT[2]	AP15				
		DDR1_ODT[3]	AL15				
		DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]	AN18	MAAB16			
		DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]	AL17	MAAB14			
		DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]	AP16	MAAB15			
		DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]	AL18	SBAB0	SBAB0	9	
		DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AM18	SBAB1	SBAB1	9	
		DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]	AW28	BG_B0	BG_B0	9	
		DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]	AL19	MAAB0			
		DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]	AL22	MAAB1			
		DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]	AM22	MAAB2			
		DDR1_MA[3]	AM23	MAAB3			
		DDR1_MA[4]	AP23	MAAB4			
		DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]	AL23	MAAB5			
		DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]	AW26	MAAB6			
		DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]	AY26	MAAB7			
		DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]	AU26	MAAB8			
		DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]	AW27	MAAB9			
		DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]	AP18	MAAB10			
		DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]	AU27	MAAB11			
		DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]	AV27	MAAB12			
		DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]	AR15	MAAB13			
		DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]	AY28	BG_B1	BG_B1	9	
		DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28		M_-ACT_B	9	
		DDR1_PAR	AL20		M_DDR_PARB	9	
		DDR1_ALERT#	AY25		M_-ALERT_B	9	
		DDR1_DQSN[0]/DDR0_DQSN[2]	AF34	M_-DQSB0			
		DDR1_DQSN[1]/DDR0_DQSN[3]	AK33	M_-DQSB1			
		DDR1_DQSN[3]/DDR0_DQSN[6]	AN33	M_-DQSB2			
		DDR1_DQSN[3]/DDR0_DQSN[7]	AN29	M_-DQSB3			
		DDR1_DQSN[4]/DDR1_DQSN[2]	AN13	M_-DQSB4			
		DDR1_DQSN[5]/DDR1_DQSN[3]	AR8	M_-DQSB5			
		DDR1_DQSN[6]	AM8	M_-DQSB6			
		DDR1_DQSN[7]	AG6	M_-DQSB7			
		DDR1_DQSP[0]/DDR0_DQSP[2]	AF35	M_DQSB0			
		DDR1_DQSP[1]/DDR0_DQSP[3]	AL33	M_DQSB1			
		DDR1_DQSP[2]/DDR0_DQSP[6]	AP33	M_DQSB2			
		DDR1_DQSP[3]/DDR0_DQSP[7]	AN28	M_DQSB3			
		DDR1_DQSP[4]/DDR1_DQSP[2]	AN12	M_DQSB4			
		DDR1_DQSP[5]/DDR1_DQSP[3]	AP8	M_DQSB5			
		DDR1_DQSP[6]	AL8	M_DQSB6			
		DDR1_DQSP[7]	AG7	M_DQSB7			
		DDR1_DQSP[8]	AN25				
		DDR1_DQSN[8]	AN26				

DDR CHANNEL B

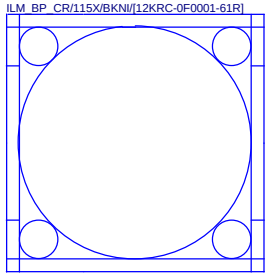
2 OF 12

CPU-SK/1151/S/15

		DDR_VREF_CA	AB40	VREF_CAB	VREF_CAB	8	
		DDR0_VREF_DQ	AC40				
		DDR1_VREF_DQ	AC39	VREF_DQB	VREF_DQB	9	

8	MODT_A[0..1]	MODT_A[0..1]	
9	MODT_B[0..1]	MODT_B[0..1]	
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]	

LGA1151
ILM_BP_CR/115X/BKNI/[12KRC-0F0001-61R]



Need check the new CPU ME

BLACK NI

Gigabyte Technology			
Title	CPU LGA1151-B		
Size Custom	Document Number GA-B150N-GSM		Rev 1.0
Date: Tuesday, October 06, 2015	Sheet 5	of 49	

* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

* WBC51 , WBC52
VDDQ 改 VCCSA

VCCSA

WBC56
22u/8/X5R/6.3V/M

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

VCCST_VCCPLL
VCCSFUSEPRG

VCCSA
VCCST_VCCPLL
WR94 0/4/X

VCCIO

WBC69
22u/8/X5R/6.3V/M

* 刪 VCCGT 電容

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 VCCGTX_G34 VCCGTX_G35 VCCGTX_H33 VCCGTX_H34 VCCGTX_J33 VCCGTX_J35 VCCGTX_K32 VCCGTX_K34 VCCGTX_L31 VCCGTX_L33 VCCGTX_M32

VCCGT_SENSE F39 → VCCGT_SENSE_24
VSSGT_SENSE F38 → VSSGT_SENSE_24

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

VDDQ_AT18 AT21 AU13 AU15 AU19 AU23 AV11 AV17 AV21 AW10 AW14 AW25 AY12 AY16 AY18 AY23 — VDDQ

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

* 刪 VCCPLL_OC

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VCCOPC_AJ30 AJ27 AJ28 AJ29 AK27 — AJ30

VCCEOPIO AJ25 AJ26

VCCST_VCCPLL V5 V6 — VCCST_V5 VCCST_V6
VCCSFUSEPRG
VCCST_VCCPLL V4 — VCCPLL

VCC_OPC_1P8_AB37 AB38 — AB37

VCCSA_SENSE AD5
VCCIO_SENSE AF4
VSS_SAIO_SENSE AE4

* 刪 net

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 AV1 AW2 H8 K10 L10 J17 B39 J19 C40 G8 AY3 D1 B3 L12 K12 — RSVD_TP_J8 RSVD_TP_J7 RSVD_TP_L8 RSVD_TP_K8 RSVD_TP_AV1 RSVD_TP_AW2 RSVD_H8 RSVD_K10 RSVD_L10 RSVD_J17 RSVD_B39 RSVD_J19 RSVD_C40 RSVD_G8 RSVD_AY3 PROC_TRIGIN PROC_TRIGOUT 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_R 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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Gigabyte Technology		
Title: CPU LGA1151-C		
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Rev:0.6

DDR4_1

* net 改 VDDQ

DDR4/BK[11SM1-520288-A1R]

BLACK

CHANNEL A0
SA2:0=000

* 移除 short pad

DDR12V Decouple

2 DIMM REMOVE 8PCS

* 电容移到 [RT8129_DDR]

DDRVTT Decouple

2 DIMM REMOVE 3PCS

* 新电容

Footprint :R0402-2-SHORT20

Title	DDR4 CHANNEL A
Size	Custom
Document Number	GA-B150N-GSM
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Date:	Sheet 8 of 49

Gigabyte Technology

Rev 0.7

PCHE

SPT-H_PCH

23 N_HDMI_HDPA
23 N_HDMI_HDPB
N_GPP_I2
N_GPP_I3
AW4
AY2
AV4
BA4
GPP_I0/DDPB_HPD0
GPP_I1/DDPC_HPD1
GPP_I2/DDPD_HPD2
GPP_I3/DDPE_HPD3

NR9 100K/4/1 N_GPP_I4
BD7 GPP_I4/EDP_HPD

GPP_I7/DDPC_CTRLCLK
GPP_I8/DDPC_CTRLDATA
GPP_I5/DDPB_CTRLCLK
GPP_I6/DDPB_CTRLDATA
GPP_I9/DDPD_CTRLCLK
GPP_I10/DDPD_CTRLDATA

BB3 N_DDPC_CTRLCLK
BD6 N_DDPC_CTRLDATA
BA5 N_DDPB_CTRLCLK
BC4 N_DDPB_CTRLDATA
BE5
BE6

N_DDPC_CTRLCLK 23
N_DDPC_CTRLDATA 23
N_DDPB_CTRLCLK 23
N_DDPB_CTRLDATA 23

GPP_F14 Y44
GPP_F23 V44 N_GPP_F23
GPP_F22 W39 N_GPP_F22
GPP_G23 L43
GPP_G22 L44 N_GPP_G22
GPP_G21 U35 N_GPP_G21
GPP_G20 R35 N_GPP_G20
GPP_H23 BD36

A_-SKTOCC 4

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CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

VCC3

N_GPP_I2 NR8 8.2K/4
N_GPP_I3 NR7 8.2K/4
N_GPP_F23 NR12 8.2K/4
N_GPP_F22 NR248 8.2K/4

NRN5 8.2K/8P4R/4
N_GPP_B5
N_GPP_B6
N_GPP_B7
N_GPP_B8
N_GPP_B9
NR15 8.2K/4

N_GPP_B10 NR17 8.2K/4/X
N_GPP_H0 NR19 8.2K/4

A_-SKTOCC
N_GPP_G21
N_GPP_G20
N_GPP_G22

NRN6 8.2K/8P4R/4

32.768KHZ

NX2-SHT
SHW/D0.64*5.08*6.74

N_Y1
N_Y2 NR11 10M/4

NC16 18p/4/NPO/50V/J
NC18 18p/4/NPO/50V/J

NX2
32.768K/12.5p/20ppm/TF38/35K/D

NR3 68/4/1
XTALI_PCH_R XTALI_PCH

NR32 1M/4

NX1
XTALO_PCH

24M/16p/30ppm/49US/50/D
NC8 22P/4/NPO/50V/J
NC7 27P/4/NPO/50V/J

CLK:4/15<1000 mils;100 mils;Guard GND

PCHG

SPT-H_PCH

4 N_24MCLK
4 N_-24MCLK
N_24MCLK
N_-24MCLK
G1
F1
CLKOUT_CPUNSSC_P
CLKOUT_CPUNSSC

4 N_CPUCLK
4 N_-CPUCLK
N_CPUCLK
N_-CPUCLK
G2
H2
CLKOUT_CPUBCLK_P
CLKOUT_CPUBCLK

XTALO_PCH A5
XTALI_PCH A6
XTAL24_OUT
XTAL24_IN

VCC1_0_PCH NR5 2.7K/4/1 XCLK_BIASREF E1
XCLK_BIASREF

CLK:4/15<1000;Guard GND

N_Y1 BC9
N_Y2 BD10
RTCX1
RTCX2

19 -PCIEX16_PR
N_GPP_B5 BC24
N_GPP_B6 AW24
N_GPP_B7 AT24
N_GPP_B8 BD25
N_GPP_B9 BB24
N_GPP_B10 BE25
N_GPP_H0 AT33
N_GPP_H1 AR31

* 37 LB_-CLKREQ
20 M2A_-CLKREQ

GPP_B5/SRCCLKREQ0#
GPP_B6/SRCCLKREQ1#
GPP_B7/SRCCLKREQ2#
GPP_B8/SRCCLKREQ3#
GPP_B9/SRCCLKREQ4#
GPP_B10/SRCCLKREQ5#
GPP_H0/SRCCLKREQ6#
GPP_H1/SRCCLKREQ7#
GPP_H2/SRCCLKREQ8#
GPP_H3/SRCCLKREQ9#
GPP_H4/SRCCLKREQ10#
GPP_H5/SRCCLKREQ11#
GPP_H6/SRCCLKREQ12#
GPP_H7/SRCCLKREQ13#
GPP_H8/SRCCLKREQ14#
GPP_H9/SRCCLKREQ15#

BD32
BC32
BB31
BC33
BA33
AW33
BB33
BD33

CLKOUT_PCIE_N15
CLKOUT_PCIE_P15
CLKOUT_PCIE_N14
CLKOUT_PCIE_P14
CLKOUT_PCIE_N13
CLKOUT_PCIE_P13
CLKOUT_PCIE_N12
CLKOUT_PCIE_P12

CLKOUT_ITPXDP
CLKOUT_ITPXDP_P
CLKOUT_CPUPCIBCLK
CLKOUT_CPUPCIBCLK_P

CLKOUT_PCIE_N0
CLKOUT_PCIE_P0
CLKOUT_PCIE_N1
CLKOUT_PCIE_P1
CLKOUT_PCIE_N2
CLKOUT_PCIE_P2
CLKOUT_PCIE_N3
CLKOUT_PCIE_P3
CLKOUT_PCIE_N4
CLKOUT_PCIE_P4
CLKOUT_PCIE_N5
CLKOUT_PCIE_P5
CLKOUT_PCIE_N6
CLKOUT_PCIE_P6
CLKOUT_PCIE_N7
CLKOUT_PCIE_P7
CLKOUT_PCIE_N8
CLKOUT_PCIE_P8
CLKOUT_PCIE_N9
CLKOUT_PCIE_P9
CLKOUT_PCIE_N10
CLKOUT_PCIE_P10
CLKOUT_PCIE_N11
CLKOUT_PCIE_P11

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CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

N_-CPUPCIBCLK 4
N_CPUPCIBCLK 4

PA_-SRCCLK_3GIO 19
PA_SRCCLK_3GIO 19

PCIEX16

CK_WIFI_100M_DN 42
CK_WIFI_100M_DP 42
M.2 WIFI

LB_-SRCCLK_LAN 37
LB_SRCCLK_LAN 37
I219V

CK_M2A_100M_DN 20
CK_M2A_100M_DP 20
M.2

LC_-SRCCLK_LAN 38
LC_SRCCLK_LAN 38
I211AT

NR286 0/4/SHT/M/X
N_GPP_B10
N_GPP_H1
NR287 0/4/SHT/M/X

ON-BOARD DEVICE USED

CLOCK 4/4/4//15

SB_HEATSIN

PCH_HS
PCH_HS/(12SP2-S03507-11R)

ANS 4074094 Gigabyte Technology

Title: PCH CLOCK BUFFER

Size: Custom | Document Number: GA-B150N-GSM | Rev: 1.0

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Rev 0.7

PCHB

SPT-H_PCH

DMI_RXN0
DMI_RXP0
DMI_TXN0
DMI_TXP0
DMI_RXN1
DMI_RXP1
DMI_TXN1
DMI_TXP1
DMI_RXN2
DMI_RXP2
DMI_TXN2
DMI_TXP2
DMI_RXN3
DMI_RXP3
DMI_TXN3
DMI_TXP3

DMI

USB2.0

PCIE_RCOMPN
PCIE_RCOMPP

PCIECOMP_N
PCIECOMP_P NR34 100/4/1 PCIECOMP_P_R

PCIE-COMP:12/12

PCIE1_RXN/USB3_7_RXN
PCIE1_RXP/USB3_7_RXP
PCIE1_TXN/USB3_7_TXN
PCIE1_TXP/USB3_7_TXP
PCIE2_TXN/USB3_8_TXN
PCIE2_TXP/USB3_8_TXP
PCIE2_RXN/USB3_8_RXN
PCIE2_RXP/USB3_8_RXP
PCIE3_RXN/USB3_9_RXN
PCIE3_RXP/USB3_9_RXP
PCIE3_TXN/USB3_9_TXN
PCIE3_TXP/USB3_9_TXP
PCIE4_RXN/USB3_10_RXN
PCIE4_RXP/USB3_10_RXP
PCIE4_TXN/USB3_10_TXN
PCIE4_TXP/USB3_10_TXP
PCIE5_RXN
PCIE5_RXP
PCIE5_TXN
PCIE5_TXP
PCIE6_RXN
PCIE6_RXP
PCIE6_TXN
PCIE6_TXP
PCIE7_RXN
PCIE7_RXP
PCIE7_TXN
PCIE7_TXP
PCIE8_RXN
PCIE8_RXP
PCIE8_TXN
PCIE8_TXP

PCIe/USB3

B150:N/A

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CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

USB2N_1 N_+USBP1 43
USB2P_1 N_-USBP1 43
USB2N_2 N_+USBP2 43
USB2P_2 N_-USBP2 43
USB2N_3 N_+USBP3 39
USB2P_3 N_-USBP3 39
USB2N_4 N_+USBP4 39
USB2P_4 N_-USBP4 39
USB2N_5 N_+USBP5 39
USB2P_5 N_-USBP5 39
USB2N_6 N_+USBP6 39
USB2P_6 N_-USBP6 39
USB2N_7 N_+USBP7 34
USB2P_7 N_-USBP7 34
USB2N_8 N_+USBP8 34
USB2P_8 N_-USBP8 34
USB2N_9
USB2P_9
USB2N_10 N_+USBP10 42
USB2P_10 N_-USBP10 42
USB2N_11 N_+USBP11 44
USB2P_11 N_-USBP11 44
USB2N_12 N_+USBP12 44
USB2P_12 N_-USBP12 44
USB2N_13
USB2P_13
USB2N_14
USB2P_14

F_USB30_1
R_USB30_1
USB30_LAN
KB_MS_USB
F_USB1

B150:N/A

GPP_E9/USB2_OC0#
GPP_E10/USB2_OC1#
GPP_E11/USB2_OC2#
GPP_E12/USB2_OC3#
GPP_F15/USB2_OCB_4
GPP_F16/USB2_OCB_5
GPP_F17/USB2_OCB_6
GPP_F18/USB2_OCB_7

N_-USBOC_F 43
N_-USBOC_R 43
3VDUAL
N_-USBOC_7 NR47 8.2K/4

USB2_COMP NR38 115/4/1
USB2_VBUSSENSE NR41 1K/4/1
RSVD_AB13
USB2_ID NR43 1K/4/1

GPD7/RSVD

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4 layer USB3/USB2/SATA/PCH PCIe======4/4/4//15
6 layer USB3/USB2/SATA/PCH PCIe======4/5.5/4//15

I219V
I211AT
mPCIE WIFI

LB_ML_IN
LB_ML_IP
LB_ML_ON
LB_ML_OP
LC_ML_IN
LC_ML_IP
LC_ML_ON
LC_ML_OP
MPCIE_IN0
MPCIE_IP0
MPCIE_TN0
MPCIE_TP0

PCHF

SPT-H_PCH

USB3_1_TXN
USB3_1_TXP
USB3_1_RXN
USB3_1_RXP
USB3_2_TXN/SSIC_1_TXN
USB3_2_TXP/SSIC_1_TXP
USB3_2_RXN/SSIC_1_RXN
USB3_2_RXP/SSIC_1_RXP
USB3_6_TXN
USB3_6_TXP
USB3_6_RXN
USB3_6_RXP
USB3_5_TXN
USB3_5_TXP
USB3_5_RXN
USB3_5_RXP
USB3_3_TXP/SSIC_2_TXP
USB3_3_TXN/SSIC_2_TXN
USB3_3_RXP/SSIC_2_RXP
USB3_3_RXN/SSIC_2_RXN
USB3_4_TXP
USB3_4_TXN
USB3_4_RXP
USB3_4_RXN

LPC/eSPI
USB
SATA

GPP_A1/LAD0/ESPI_IO0
GPP_A2/LAD1/ESPI_IO1
GPP_A3/LAD2/ESPI_IO2
GPP_A4/LAD3/ESPI_IO3
GPP_A5/LFRAME#/ESPI_CS#
GPP_A6/SERIRQ
GPP_A7/PIRQA#/ESPI_ALERT0#
GPP_A0/RCIN#/ESPI_ALERT1#
GPP_A14/SUS_STAT#/ESPI_RESET#
GPP_A9/CLKOUT_LPC0/ESPI_CLK
GPP_A10/CLKOUT_LPC1
GPP_G19/SMI#
GPP_G18/NMI#
GPP_E6/DEVSLP2
GPP_E5/DEVSLP1
GPP_E4/DEVSLP0
GPP_F9/DEVSLP7
GPP_F8/DEVSLP6
GPP_F7/DEVSLP5
GPP_F6/DEVSLP4
GPP_F5/DEVSLP3

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CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

N_LAD0 16,17
N_LAD1 16,17
N_LAD2 16,17,21
N_LAD3 16,17,21,42
N_-LFRAME 16,17,21,42
N_SERIRQ 16,21
N_-LDRQ0 16
N_-KBRST 16
N_GPP_A14
N_DBCLK 17
N_LPC24MA 16
N_COMCLK 21
N_MINIPCIE 42
N_GPP_G19
N_GPP_G18
N_DEVSLP0 20
N_GPP_F5

NR4 10/4
NR33 10/4
NR288 10/4
NR292 10/4

PCH tri-state this pin to signal to enter a lower power state
PCH drive pin low to signal an exit from DEVSLP state

N_SERIRQ NR35 8.2K/4
N_-KBRST NR36 8.2K/4
REMOVE
N_GPP_A14 NR44 8.2K/4
3VDUAL
VCC3

N_GPP_F5 NR37 8.2K/4
N_GPP_G19 NR40 8.2K/4
N_GPP_G18 NR42 8.2K/4
VCC3

ANS 4074094

Gigabyte Technology

Title: **PCH DMI,USB,PCIE**

Size: Custom | Document Number: **GA-B150N-GSM** | Rev: **1.0**

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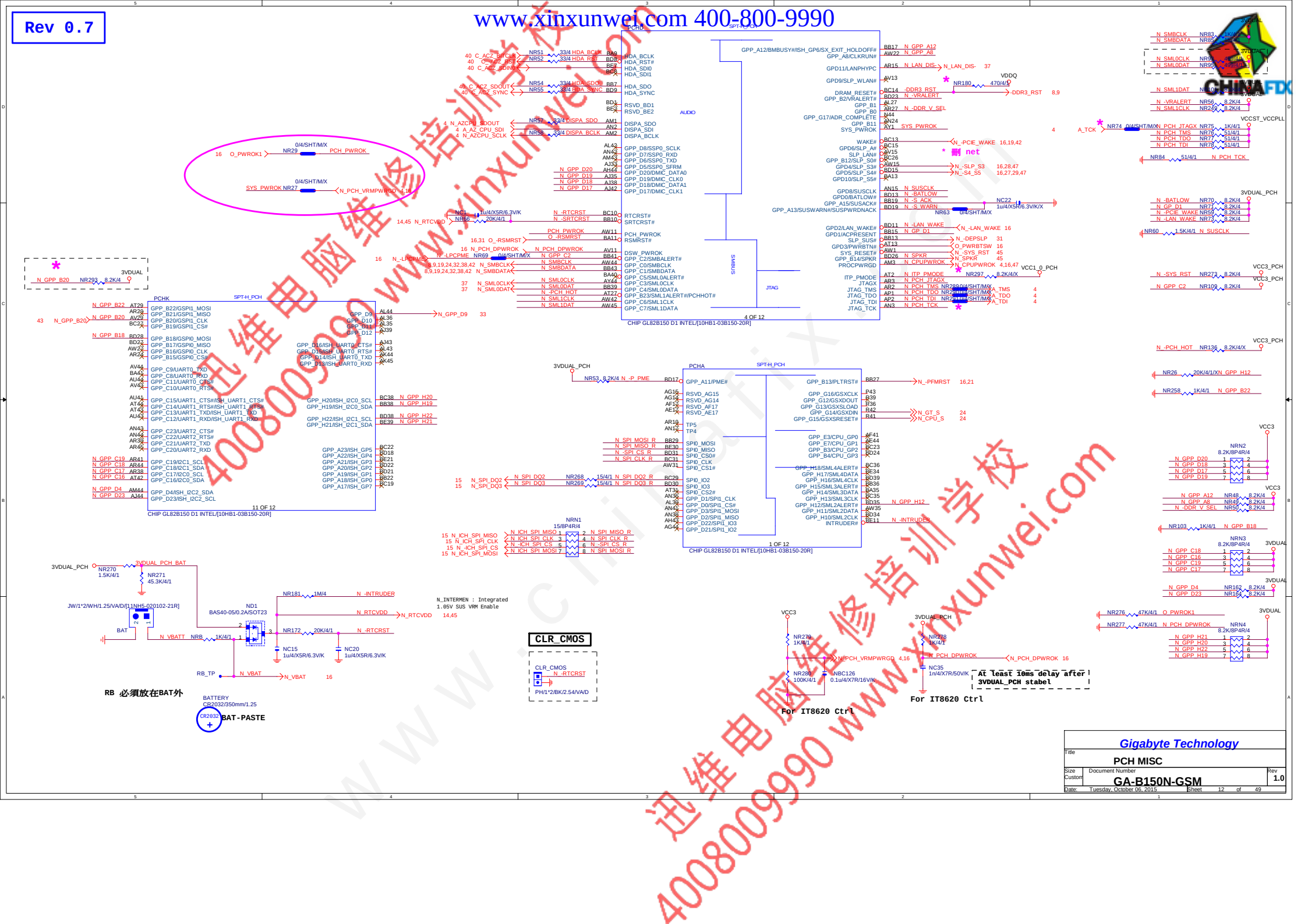

Title	PCH MISC
Size	Custom
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Gigabyte Technology

Rev 0.7

SPT-H_PCH

PCHC

CLINK

FAN

PCIe/SATA

SATA

HOST

3 OF 12

CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

原生SATA3

B150:N/A

SATA3 0/1

SATA3 2/3

SATA3 4/5

原生SATA3

C1/D1 公版NC pin

1: SATA (STandard)
0: SATA EXPRESS

PCHJ

SPT-H_PCH

10 OF 12

CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

BLACK CONNECTOR

BLACK CONNECTOR

BLACK CONNECTOR

SATA3_0
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_1
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_2
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_3
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_4
SATA2/7/BK/H/OP/VA/D/1/B

SATA3_5
SATA2/7/BK/H/OP/VA/D/1/B

ANS 4074094

Gigabyte Technology

Title: PCH SATA,PCIE,SATA_EXPRESS

Size: Custom | Document Number: GA-B150N-GSM | Rev: 1.0

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PCHI
SPT-H_PCH
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CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

PCHL
SPT-H_PCH
12 OF 12
CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

PCHH
SPT-H_PCH
CORE
VCCGPIO
MPHY
USB
8 OF 12
CHIP GL82B150 D1 INTEL/[10HB1-03B150-20R]

NR263 0/4/SHT/M/X *
for skl-pch-h stuff

NR262 0/4/SHT/M/X *
for skl-pch-h stuff

VCC1_0_PCH
VCC1_0_PCH_DSW
VCC10_VCCF24_1P0
VCC10_VCCAPLL
VCC10_VCCAMPHYPLL
VCC3_PCH
3VDUAL_PCH

NBC120 22u/8/X5R/6.3V/M
NBC122 22u/8/X5R/6.3V/M
NBC125 22u/8/X5R/6.3V/M

VCCPRIM_1P0_AA23
VCCPRIM_1P0_AA26
VCCPRIM_1P0_AA28
VCCPRIM_1P0_AC23
VCCPRIM_1P0_AC26
VCCPRIM_1P0_AC28
VCCPRIM_1P0_AE23
VCCPRIM_1P0_AE26
VCCPRIM_1P0_Y23
VCCPRIM_1P0_Y25
DCPDSW_1P0
VCCCLK1
VCCCLK3
VCCCLK4
VCCCLK2
VCCCLK6
VCCCLK5_K2
VCCCLK5_K3
VCCMPHY_1P0_U21
VCCMPHY_1P0_U23
VCCMPHY_1P0_U25
VCCMPHY_1P0_U26
VCCMPHY_1P0_V26
VCCMPHYPLL_1P0_A43
VCCMPHYPLL_1P0_B43
VCCPCIE3PLL_1P0_C44
VCCPCIE3PLL_1P0_C45
VCCAPLLEBB_1P0
VCCPRIM_1P0_AC17
VCCUSB2PLL_1P0_AJ5
VCCUSB2PLL_1P0_AL5
VCCHDAPLL_1P0
VCCHDA
VCCDSW_3P3_W15

VCCPRIM_1P0_AL22
VCCDSW_3P3_BA24
VCCPGPPA
VCCPGPPBH_BC42
VCCPGPPBH_BD40
VCCPGPPEF_AJ41
VCCPGPPEF_AL41
VCCPGPPG
VCCPRIM_3P3_AN5
VCCPRIM_1P0_AD15
VCCATS
VCCRTCPRIM_3P3
VCCRTC
DCPRTC
VCCPRIM_1P0_AJ20
VCCPRIM_1P0_AJ21
VCCPRIM_1P0_AJ23
VCCPRIM_1P0_AJ25
VCCSPI_BE41
VCCSPI_BE43
VCCSPI_BE42
VCCPGPPCD_BC44
VCCPGPPCD_BA45
VCCPGPPCD_BC45
VCCPGPPCD_BB45
VCCPRIM_3P3_BD3
VCCPRIM_3P3_BE3
VCCPRIM_3P3_BE4

VCCPRIM_1P0 NR183 0/6/SHT/M/X
VCC3_A NR184 0/6/SHT/M/X
N_RTCEXT_CAP
N_RTCVDD 12,45
NBC90 0.1u/4/X7R/16V/K
VCC3_CD NR185 0/6/SHT/M/X
VCC3_BDE NR186 0/6/SHT/M/X
for skl-pch-h:1.8v

3VDUAL
VCC3
NR187 MASK/0/8P4R/0402/SHT/X
NR189
0/8P4R/4/X

VCC10_VCCAPLL NR188 0/6/SHT/M/X
VCC10_VCCAMPHYPLL NR190 0/6/SHT/M/X
VCC10_VCCF24_1P0 NR191 0/6/SHT/M/X

NBC91 0.1u/4/X7R/16V/K/X
NBC92 0.1u/4/X7R/16V/K

NBC93 1u/4/X5R/6.3V/K
NBC94 1u/4/X5R/6.3V/K
NBC95 1u/4/X5R/6.3V/K
NBC96 1u/4/X5R/6.3V/K
NBC97 1u/4/X5R/6.3V/K
NBC98 1u/4/X5R/6.3V/K
NBC99 1u/4/X5R/6.3V/K
NBC100 1u/4/X5R/6.3V/K
NBC101 1u/4/X5R/6.3V/K
NBC102 1u/4/X5R/6.3V/K
NBC104 1u/4/X5R/6.3V/K
NBC105 1u/4/X5R/6.3V/K
NBC106 1u/4/X5R/6.3V/K
NBC108 1u/4/X5R/6.3V/K
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NBC110 1u/4/X5R/6.3V/K
NBC111 1u/4/X5R/6.3V/K
NBC112 1u/4/X5R/6.3V/K
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NBC115 1u/4/X5R/6.3V/K
NBC116 1u/4/X5R/6.3V/K
NBC117 1u/4/X5R/6.3V/K
NBC118 1u/4/X5R/6.3V/K
NBC119 1u/4/X5R/6.3V/K

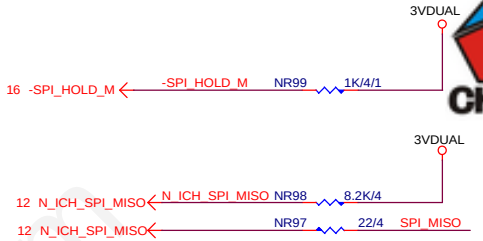
ANS 4074094
Gigabyte Technology
Title: PCH PWR, GND
Size: Custom
Document Number: GA-B150N-GSM
Rev: 1.0
Date: Tuesday, October 06, 2015
Sheet 14 of 49

Rev 0.1

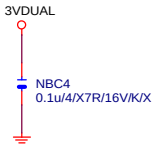
* (footprint 改 SOIC8-SPI-SOCKET)

* (MP footprint 改 IC8-BIOS)

MOSI For DMI RX Termination Voltage



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



1 means floating
0 means PD 1K

* 試產先上 , PVT 移除

BIOS_PH

Gigabyte Technology		
Title: BIOS		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 15 of 49	

SIO IT8628cX REV:1.08

IT8628E_BX

CPU_FAN
SYS_FAN1

新增 ERP_LANWAKE

* 刪 net

THRMTRIP 1

THRMTRIP 2 *

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)

PWR SHT

For 8728 EUP function

SIO PU

新增

SIO STRAP

EUP control detect

JP2	1	Disable WDT
	0	Enable WDT to rest PWROK
JP3	1	SPI-Flash Disable
	0	SPI-Flash 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

ERP WAKE on LAN （依LAN組態選擇）

（組態一） Realtek/ATHEROS LAN

（組態二） Intel LAN

（組態三） Dual LAN

ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN	Atheros+Atheros	組態一
	Intel 219+Atheros	組態三
	Intel 219+Intel 210	
No Support ERP	BOM不上	N/A

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	N/A
THRMTRIP1	YES PIN56
THRMTRIP2	YES PIN31

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，若低於將部分COM PORT及LPT裝置蜂鳴器會異常動作。

DUAL BIOS OPT STRAP

Power leakage

SIO_18V

internal power pin, max 22nF cap

MB ID

SIO CAP

CLOSE SIO PIN4 2_5LEVEL

Gigabyte Technology

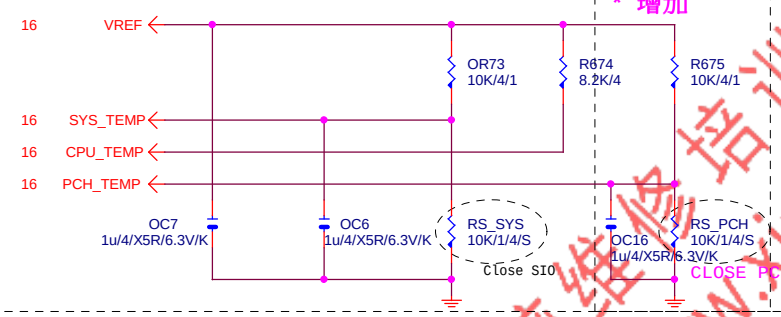
Title: ITE 8628 LPC IO

Size: Custom | Document Number: GA-B150N-GSM | Rev: 1.0

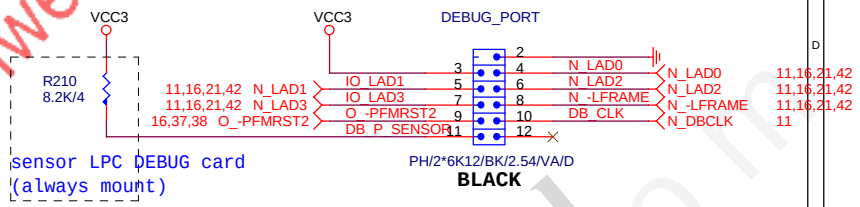
Date: Tuesday, October 06, 2015 | Sheet 16 of 49

REV:1.07

TEMP H/W MONITOR

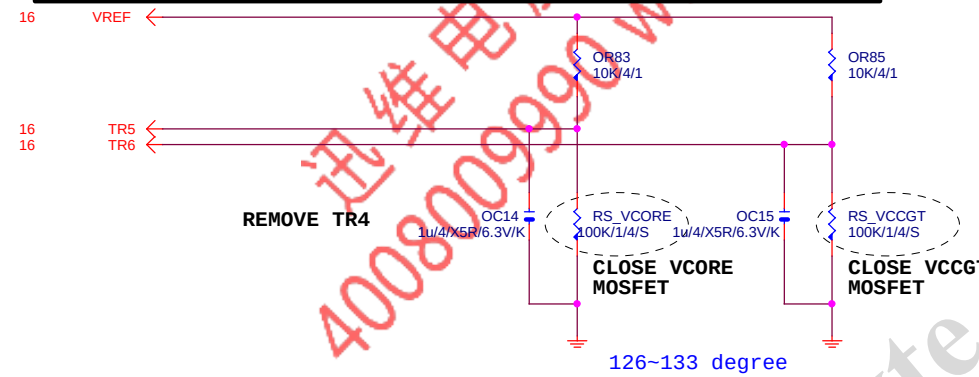


DEBUG PORT

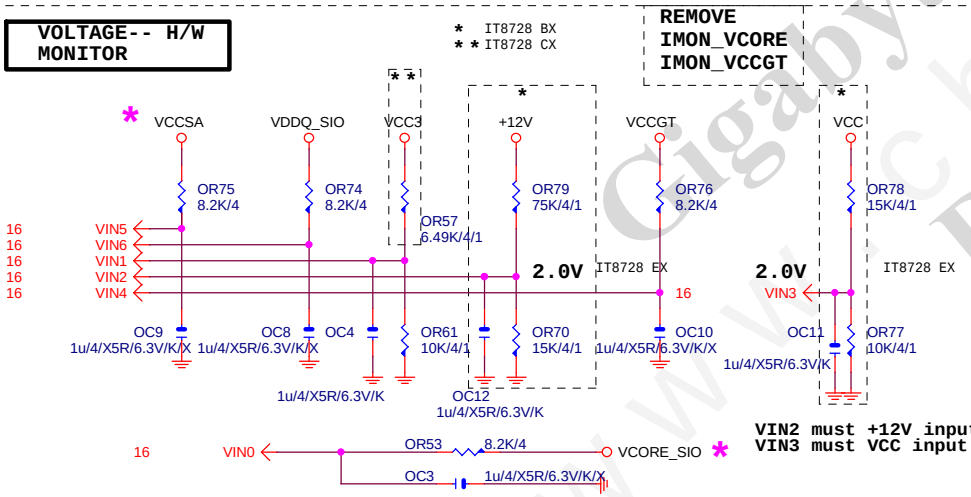


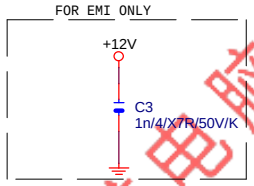
RS_VCORE、RS_VCCGT CLOSE CPU VCORE & VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function



VOLTAGE-- H/W MONITOR





Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
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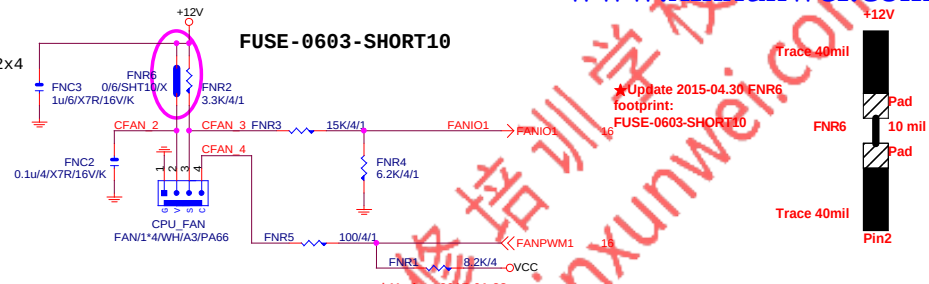
CPU SMART FAN

Rev: 0.61

REMOVE for ATX 2x4 space



★Update 2015-04.30 FNR6 footprint: FUSE-0603-SHORT10

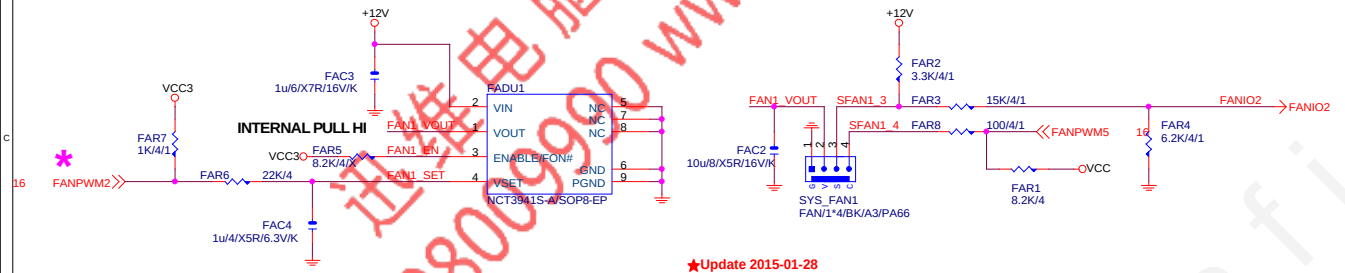
SYSTEM FAN1

A.

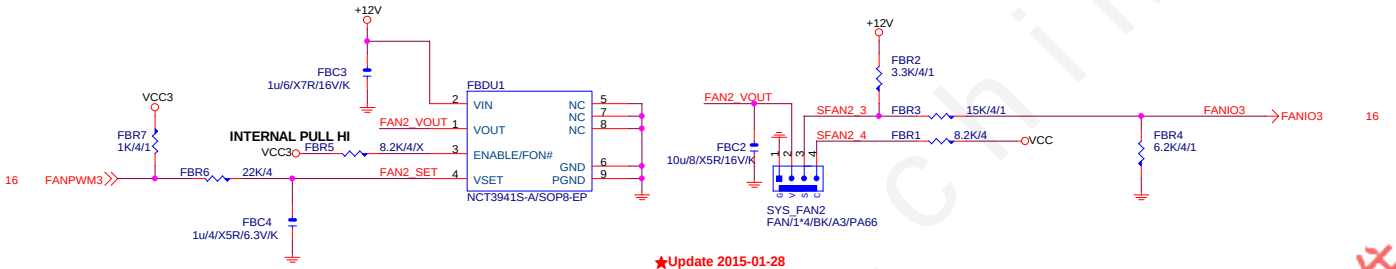
Linear SYS_FAN

Enable Function (NCT3941S)

Full Turn On Function (NCT3941S-A)



SYSTEM FAN2



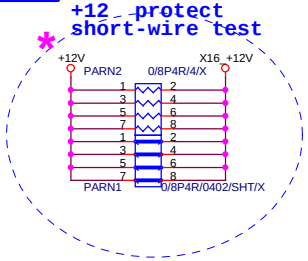
SYSTEM FAN3

N/A

Gigabyte Technology		
Title: FAN CTRL		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 18 of 49	

Rev 0.2

+12 protect
short-wire test



PCIESLOT-164P

PCIEX16

3GIO_*16

KEY

PCI-E/16X-164P/GY/LONG DOUBLE/HK*2

NPA雙魚叉

PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] 4
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] 4
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] 4
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] 4

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_TXP8 PAC21 0.22u/4/X5R/6.3V/K PA_EXP_TXP8_C
PA_EXP_TXN8 PAC20 0.22u/4/X5R/6.3V/K PA_EXP_TXN8_C
PA_EXP_TXP9 PAC22 0.22u/4/X5R/6.3V/K PA_EXP_TXP9_C
PA_EXP_TXN9 PAC23 0.22u/4/X5R/6.3V/K PA_EXP_TXN9_C
PA_EXP_TXP10 PAC24 0.22u/4/X5R/6.3V/K PA_EXP_TXP10_C
PA_EXP_TXN10 PAC25 0.22u/4/X5R/6.3V/K PA_EXP_TXN10_C
PA_EXP_TXP11 PAC26 0.22u/4/X5R/6.3V/K PA_EXP_TXP11_C
PA_EXP_TXN11 PAC27 0.22u/4/X5R/6.3V/K PA_EXP_TXN11_C
PA_EXP_TXP12 PAC28 0.22u/4/X5R/6.3V/K PA_EXP_TXP12_C
PA_EXP_TXN12 PAC29 0.22u/4/X5R/6.3V/K PA_EXP_TXN12_C
PA_EXP_TXP13 PAC30 0.22u/4/X5R/6.3V/K PA_EXP_TXP13_C
PA_EXP_TXN13 PAC31 0.22u/4/X5R/6.3V/K PA_EXP_TXN13_C
PA_EXP_TXP14 PAC32 0.22u/4/X5R/6.3V/K PA_EXP_TXP14_C
PA_EXP_TXN14 PAC33 0.22u/4/X5R/6.3V/K PA_EXP_TXN14_C
PA_EXP_TXP15 PAC34 0.22u/4/X5R/6.3V/K PA_EXP_TXP15_C
PA_EXP_TXN15 PAC35 0.22u/4/X5R/6.3V/K PA_EXP_TXN15_C

8,9,12,24,32,38,42 N_SMBCLK
8,9,12,24,32,38,42 N_SMBDATA
12,16,42 N_-PCIE_WAKE
10 -PCIEX16_PR
O_-PCIE_RST 16,20,42
PAR1 MASK/0/4/SHT/M/X
PAR2 MASK/0/4/SHT/M/X
PAR3 0/4/X
PAR4 0/4/X
PAR5 0/4/X
PAC1 33p/4/NPO/50V/J
VCC3
3VDUAL
PA_SRCCLK_3GIO 10
PA_-SRCCLK_3GIO 10

PABC2 0.1u/4/X7R/16V/K
PABC1 0.1u/4/X7R/16V/K
PAEC1 100u/OS/D/16V/69/A/35m
REMOVE PAEC2
270U-->100U

PCIEX16:16/5/5/5/16
PCI-E REV:1.1--> 2.5GHZ
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s
PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s
PCI-E REV:2.0--> 5GHZ

Gigabyte Technology
Title: PCI EXPRESS * 16
Size: Custom
Document Number: GA-B150N-GSM
Rev: 1.0
Date: Tuesday, October 06, 2015
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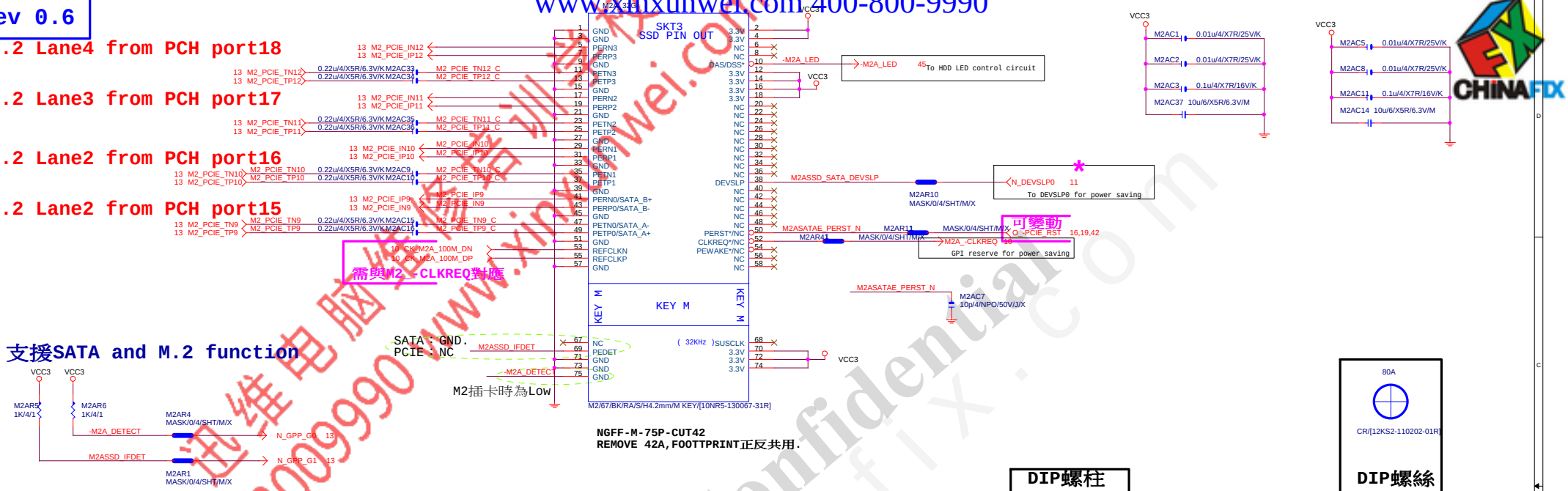
Rev 0.6

M.2 Lane4 from PCH port18

M.2 Lane3 from PCH port17

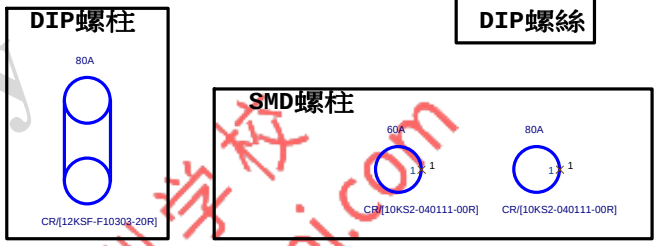
M.2 Lane2 from PCH port16

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	



FOOTPRINT:276c236B165P

M.2上在背板須修改:
1. DIP螺絲背板上件
2. DIP螺柱背板上件,須修改料號
3. SMD螺柱正面上件,須修改料號及FOOTTPRINT正反共用.

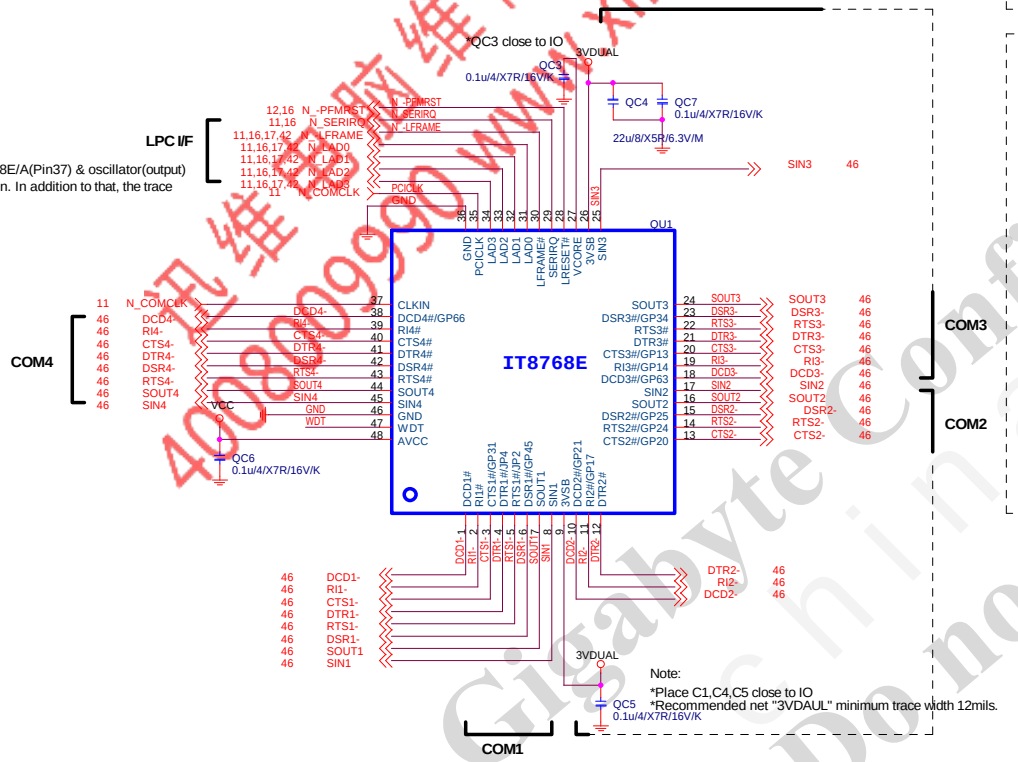
Gigabyte Technology			
Title	M.2 X4		
Size: Custom	Document Number: GA-B150N-GSM		Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 20 of 49		

Rev: 0.1

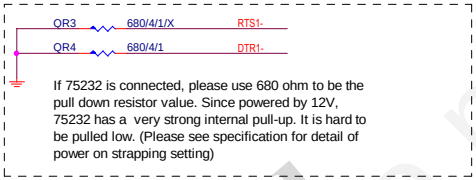
Power On Strapping Options (If without use these pins,Please pull-up to VCC.Don't let it floating.)

	Symbol	value	Description
JP4 (DTR#1)	2E/4E SEL	1	2E/2F
		0	4E/4F
JP2 (RTS#1)	WDT_EN	1	Disable WDT
		0	Enable WDT

Layout Note:
The trace between IT8768E/A(Pin37) & oscillator(output) must Thicken and Shorten. In addition to that, the trace spacing must broaden.



Note:
*Place C1,C4,C5 close to IO
*Recommended net "3VDAUL" minimum trace width 12mils.



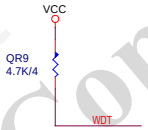
If 75232 is connected, please use 680 ohm to be the pull down resistor value. Since powered by 12V, 75232 has a very strong internal pull-up. It is hard to be pulled low. (Please see specification for detail of power on strapping setting)

If without use these pins,
Please pull-up to VCC.
Don't let it floating

(1) IT8768E RI1-4

(2) PIN 4/5 need to pull high.

(3) WDT Pull-up:



Title	IT8768E_4COM
Size	Custom
Document Number	GA-B150N-GSM
Rev	1.0
Date:	Tuesday, October 06, 2015
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Gigabyte Technology

Title: DVI

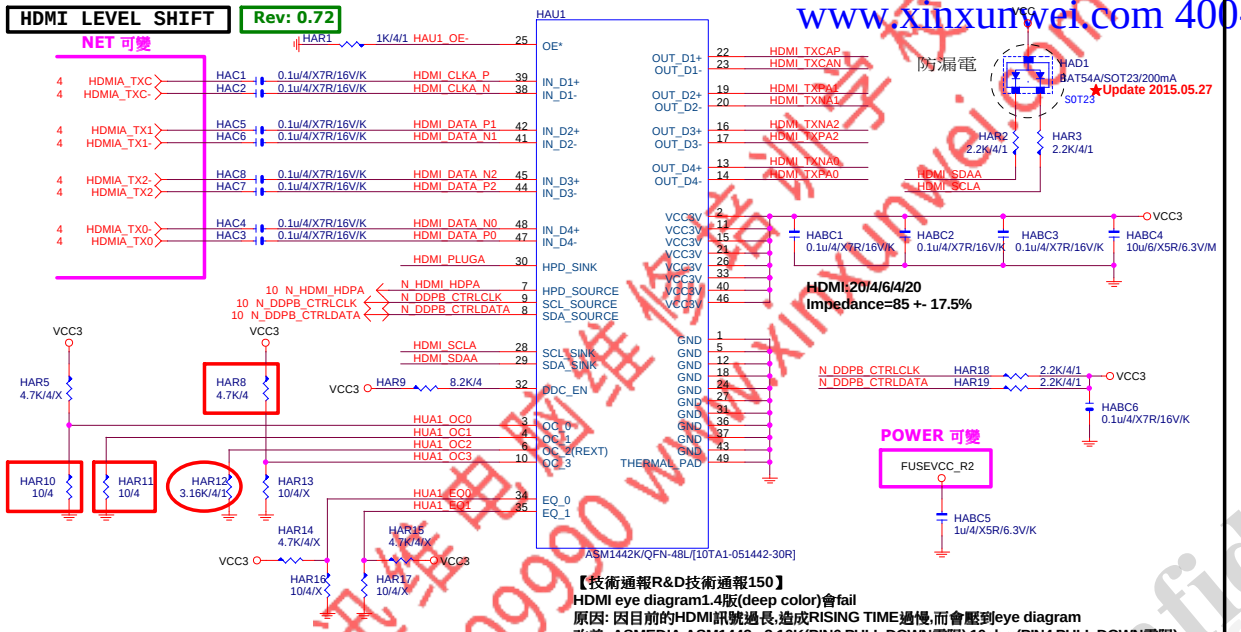
Size: Custom | Document Number: GA-B150N-GSM | Rev: 1.0

Date: Tuesday, October 06, 2015 | Sheet 22 of 49

HDMI LEVEL SHIFT

Rev: 0.72

NET 可變



HDMI:20/4/6/4/20
Impedance=85 +- 17.5%

POWER 可變

【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

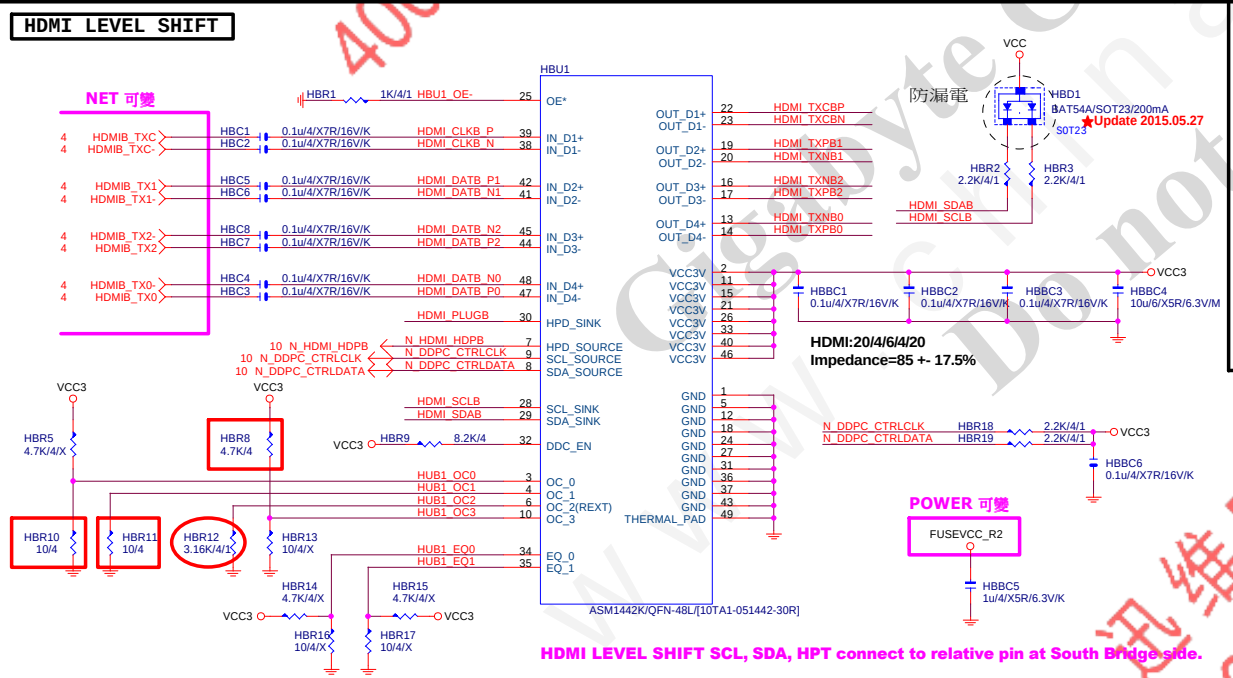
PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HAR12:10K

ASM1442:紅色框要上,HAR12:3.16K

HDMI LEVEL SHIFT SCL, SDA, HPT connect to relative pin at South Bridge side.

HDMI LEVEL SHIFT

NET 可變



HDMI:20/4/6/4/20
Impedance=85 +- 17.5%

POWER 可變

【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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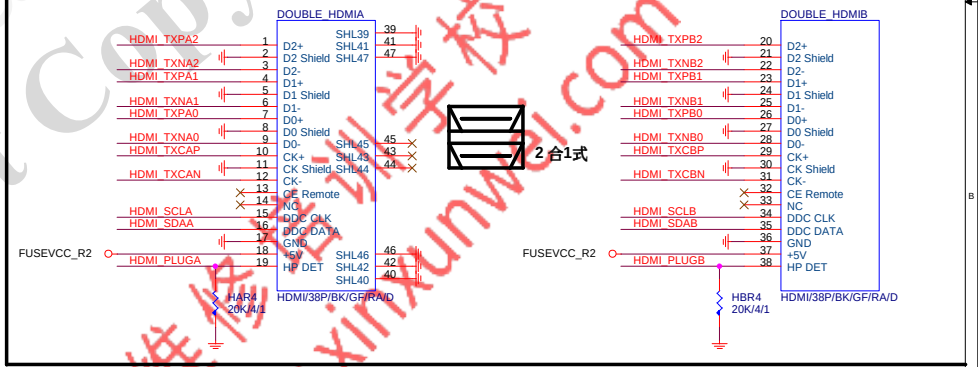
ASM1442:紅色框要上,HBR12:3.16K

HDMI LEVEL SHIFT SCL, SDA, HPT connect to relative pin at South Bridge side.



Title	FP,F_USB,USB PWR,BZ
Size / Custom	Document Number: GA-B150N-GSM
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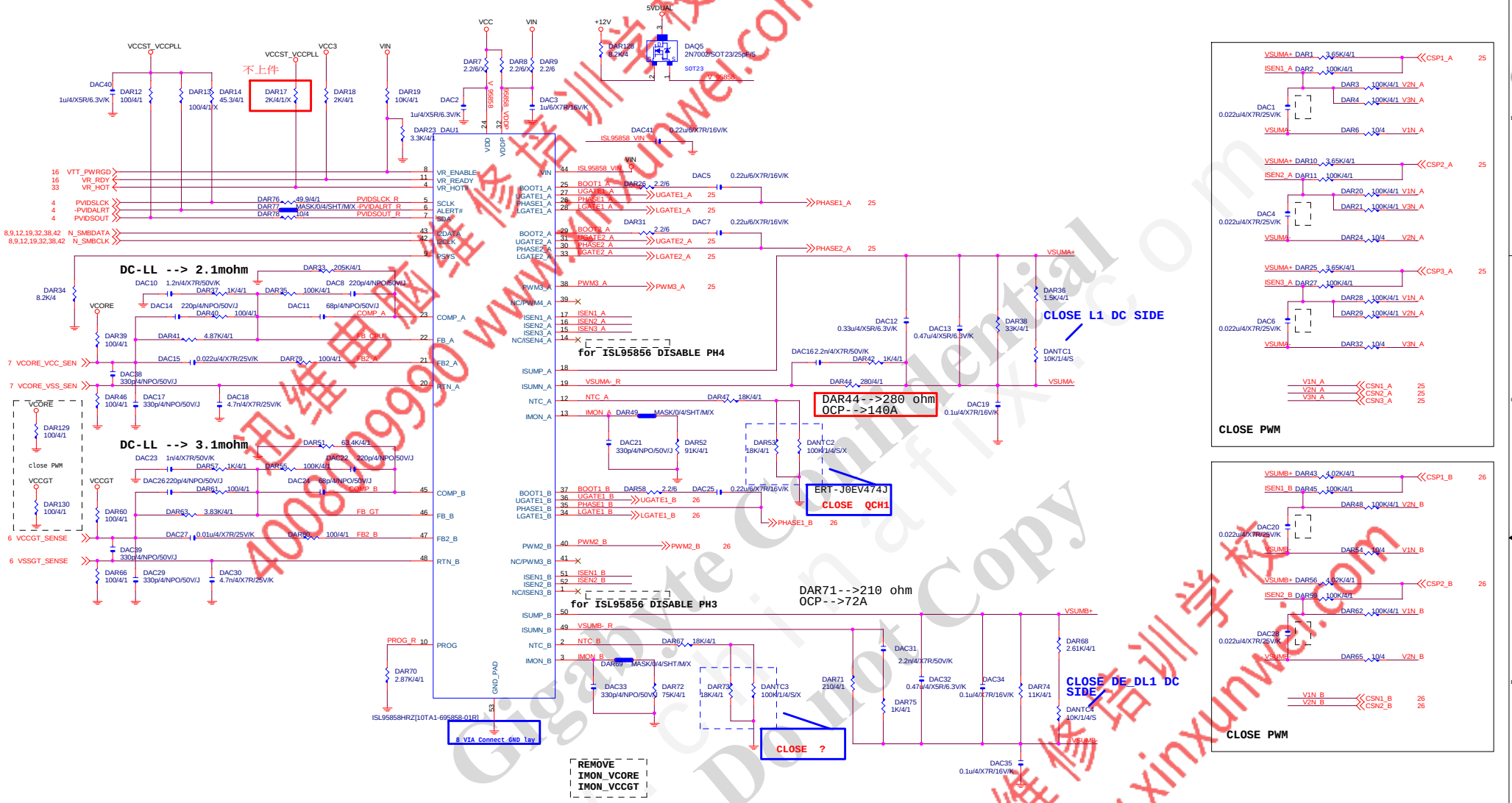
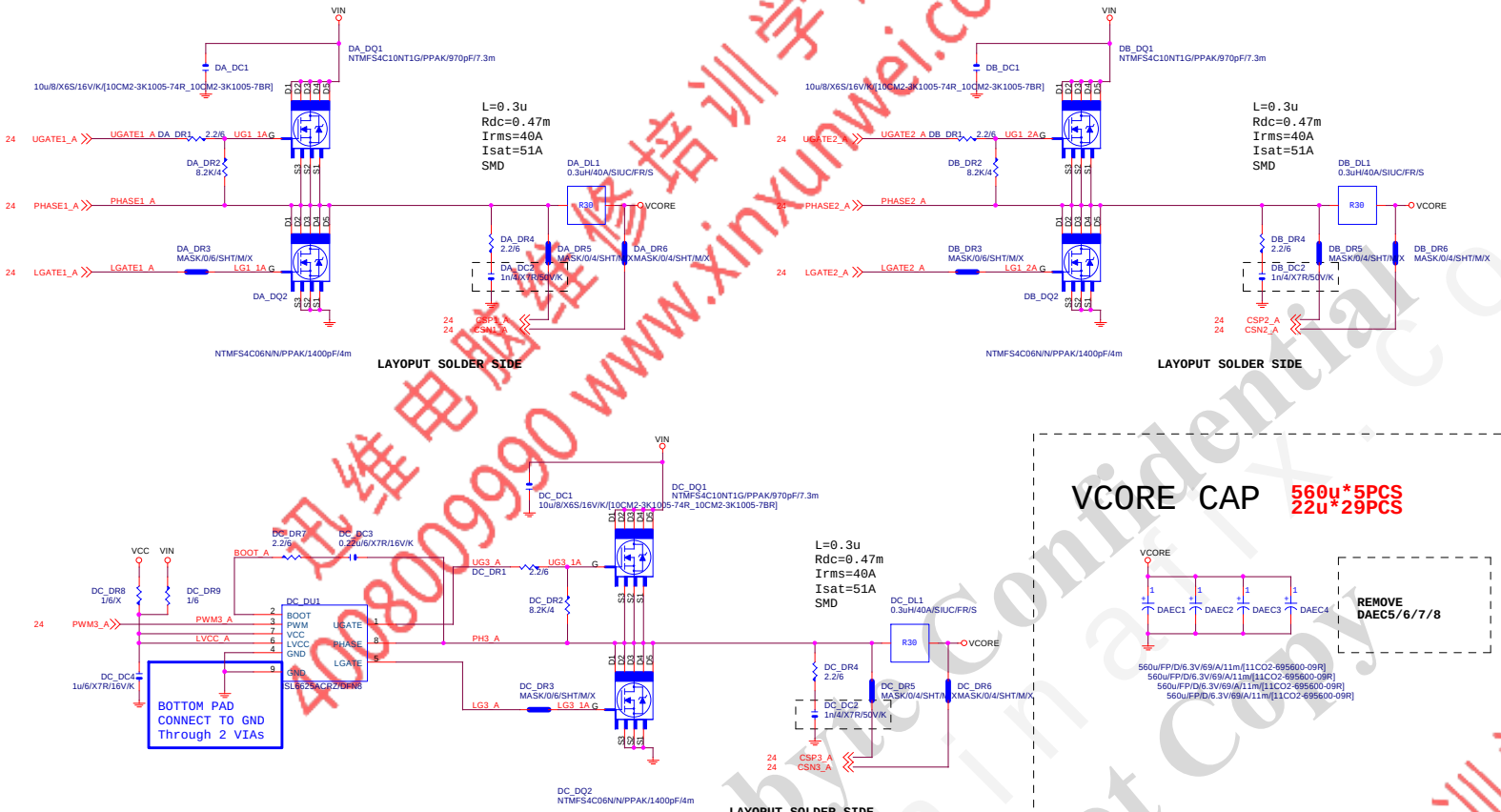
Gigabyte Technology



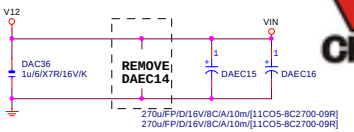
Title	ISL95858_PWM		
Size: Custom	Document Number: GA-B150N-GSM		Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 24 of 49		

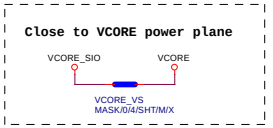
REV:0.9

VCORE

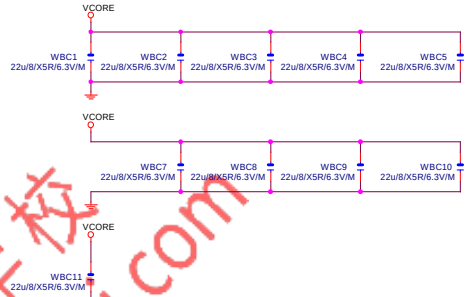


VIN CAP 270u*2PCS





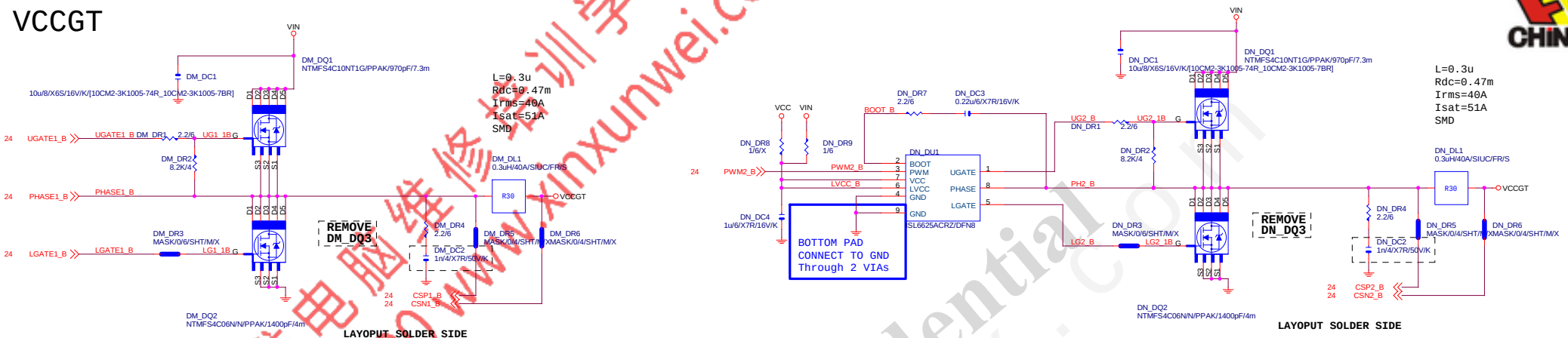
VCORE CAP 560u*5PCS 22u*29PCS



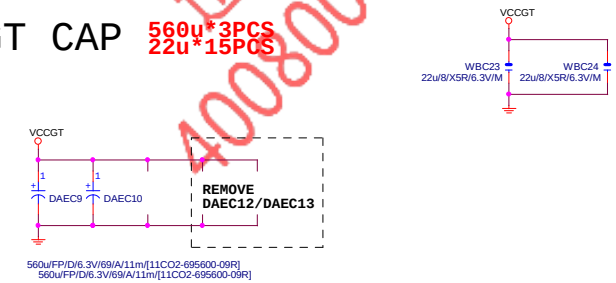
GIGABYTE™

Title: ISL95858_MOS		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 25 of 49	

VCCGT



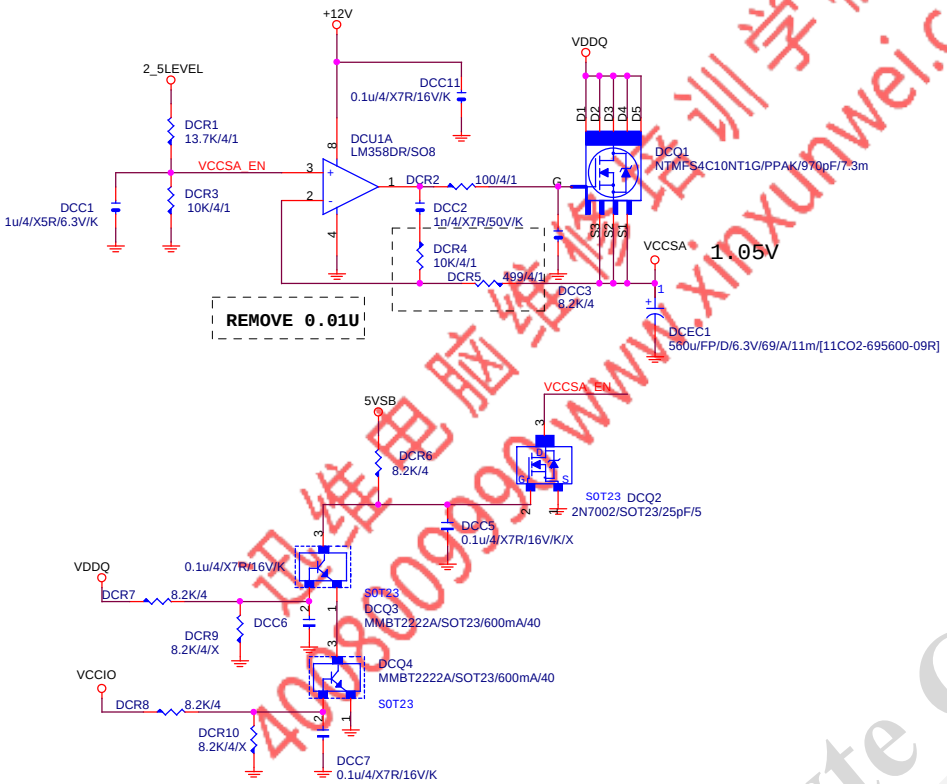
VCCGT CAP 560u*3PCS 22u*15PCS



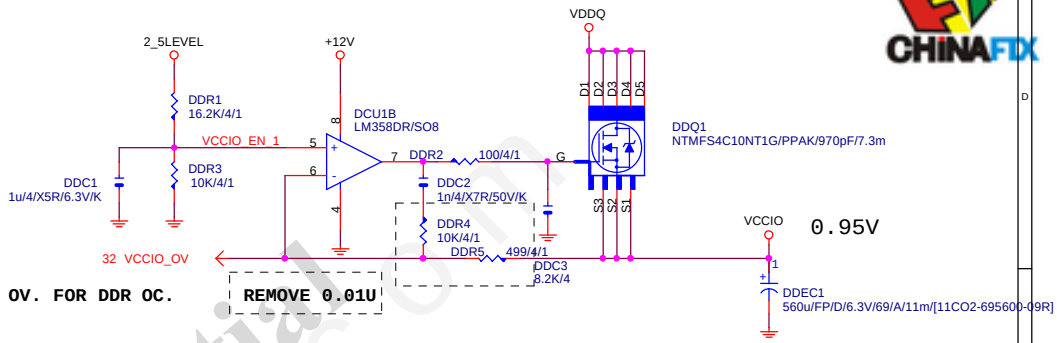
GIGABYTE			
Title	ISL95858_MOS		
Size: Custom	Document Number: GA-B150N-GSM		Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 26 of 49		

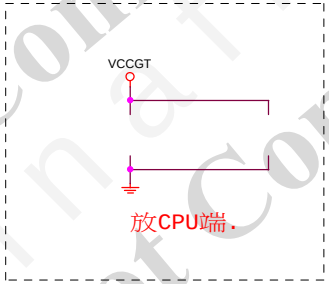
VCCSA

REV:0.4



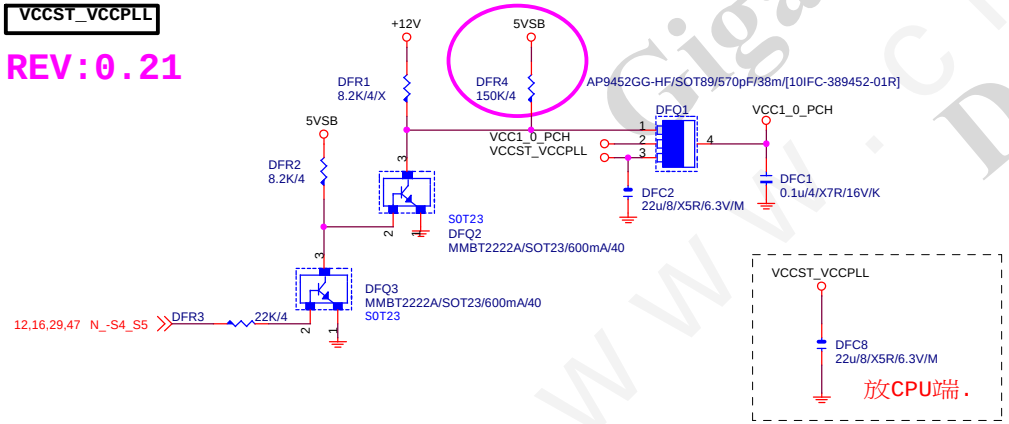
VCCIO





VCCST_VCCPLL

REV:0.21



Title	VCCSA_VCCIO		
Size: Custom	Document Number: GA-B150N-GSM		Rev: 1.0
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REV:0.4

DDR4

5VDUAL
MAR2 8.2K/4
MA_EN
上件

MA_DR38.MA_DC15

VPP_25V使用8120.8068A.RT8237時上件

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

FS=290K
OCP=40A

DDR_VIN_CAP
560u*2PCS

CHOKE與CAP料號可變

MA_L2 47/4030/15A/S
BEAD
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/69/A/11m
MA_VIN
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
MA_DQ2 NTMFS4C06N/N/PPAK/1400pF/4m
REMOVE MA_DQ3
MA_L1 1uH/35A/IMD109/M/D
R50
10*10
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K
MA_DC14 22p/4/NPO/50V/J/X RS
MA_DR13 2K/4/1
MA_DR12 2.8K/4/1
RO
VDDQ

SUPPORT DDR4 1.2V
25A MAX

L=1u
DCR=2.5 mohm
Isat=35A
Idc=28A

MAC60 22u/8/X5R/6.3V/M/X

請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

MA_UGATE MA_DR1 2.2/6
MA_PHASE
MA_LGATE MA_DR9 2.2/6 MA_LG
MA_DR2 8.2K/4

MA_DR8 2.2/6
DRV_DDR
MA_DC10 1u/6/X7R/16V/K
MA_DR37 100K/4/1
VDDQ_GD
MA_DC9 0.1u/6/X7R/25V/K
VPP_25V
MA_DR40 8.2K/4/X
MA_DR41 8.2K/4
MA_DR38 MASK/0/4/SHT/M/10/X
MA_DR39 0/4/X
MA_DC15 0.1u/4/X7R/16V/K
MAU2 RT8237/[10TA1-608237-01R]
MA_DR15 182K/4/1
MA_DR19 470K/4/1/X
MA_RF
MA_DR45
VDDQ_GD 470K/4/1
DDR_EN
MA_UGATE
MA_PHASE
MA_LGATE
DDR_ADJ
32 DDR_ADJ

PIN7-->20mil
PIN1-->6mil
PIN2-->6mil
PIN5-->6mil
PIN3-->6mil

1H1L規格移除

PWR SEQ

CLOSE TO DDR POWER PLANE

MAQ6 2N7002/SOT23/25pF/5/X
MAR108 22K/4/X
MAQ5 MMBT2222A/SOT23/600mA/40/X
MAR9 10K/4/1/X
MAR107 5.11K/4/1/X
MAC3 0.1u/4/X7R/16V/K/X
MAQ10 2N7002/SOT23/25pF/5/X
MAR1 8.2K/4/X
MAQ11 2N7002/SOT23/25pF/5/X
MAR105 100K/4/1/X
MAC9 1u/6/X7R/16V/K/X
16,29 MA_EN
Connect to IT8620
For power sequence require

VPP_25V使用8120時上件

MAU1上RT9045時上件

MAQ2 2N7002/SOT23/25pF/5/X
MAR7 8.2K/4/X
MAQ3 2N7002/SOT23/25pF/5/X
MAQ1 2N7002/SOT23/25pF/5/X
MAR6 8.2K/4/X
MAQ4 MMBT2222A/SOT23/600mA/40/X
MAR8 8.2K/4/X
12,16,47 N_-SLP_S3
4 DDR_VTT_CTL
MA_VTT_REF

DDRVTT

MAU1 NCT3103S/SOP8/2A
VIN GND VREF1 VOUT VREF2 ENABLE VCNTL BOOT_SEL
DDRVTT_EN
DDRVTT_BOOT
MAC2 1u/4/X5R/6.3V/K
MAR5 1K/4/1
MAR4 1K/4/1
MAC1 0.01u/4/X7R/25V/K
MAC7 10u/6/X5R/6.3V/M
1.1A MAX
DDRVTT

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

REMOVE VDDQ MAEC3
* 大電容 x4
MAEC4 560u/FP/D/6.3V/69/A/11m
MAEC6 560u/FP/D/6.3V/69/A/11m
WBC49 10u/8/X5R/16V/K

DDRVTT CAP

* 大電容 x0
Remove MAC4
MAC5 10u/8/X5R/16V/K

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

GIGABYTE

Title: RT8120_DDR POWER
Size: Custom
Document Number: GA-B150N-GSM
Rev: 1.0
Date: Tuesday, October 06, 2015
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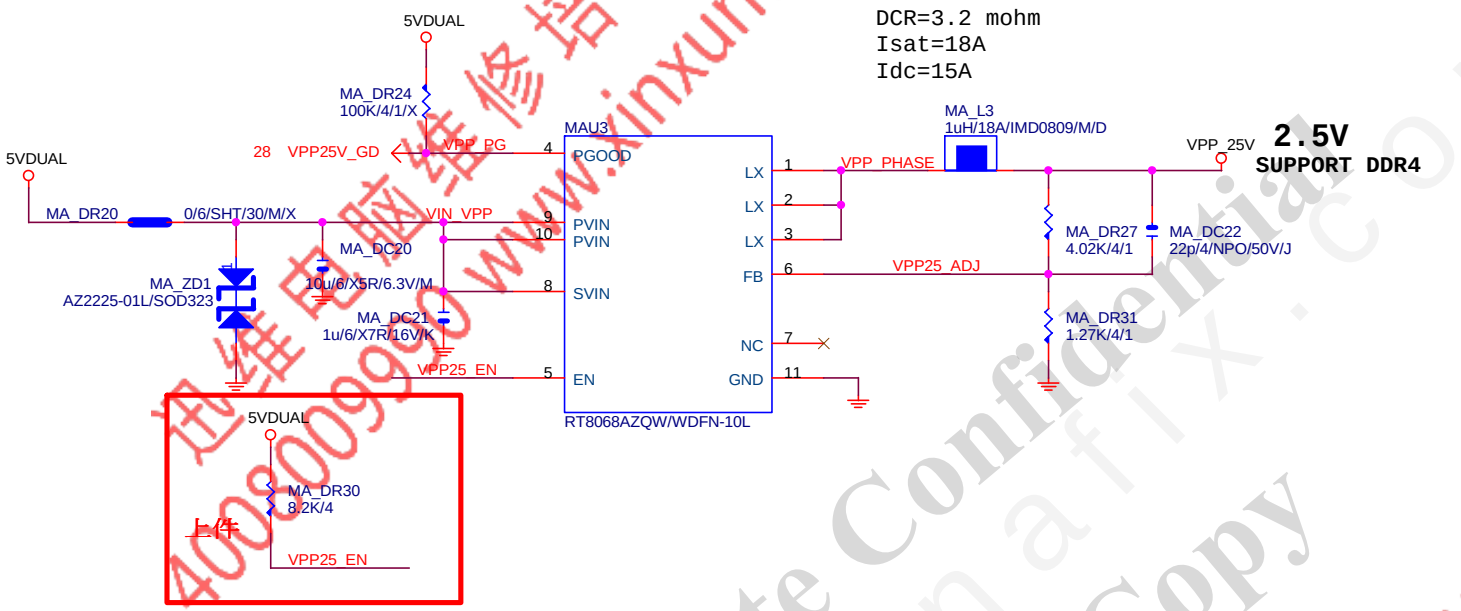
REV:0.4

VPP_25V

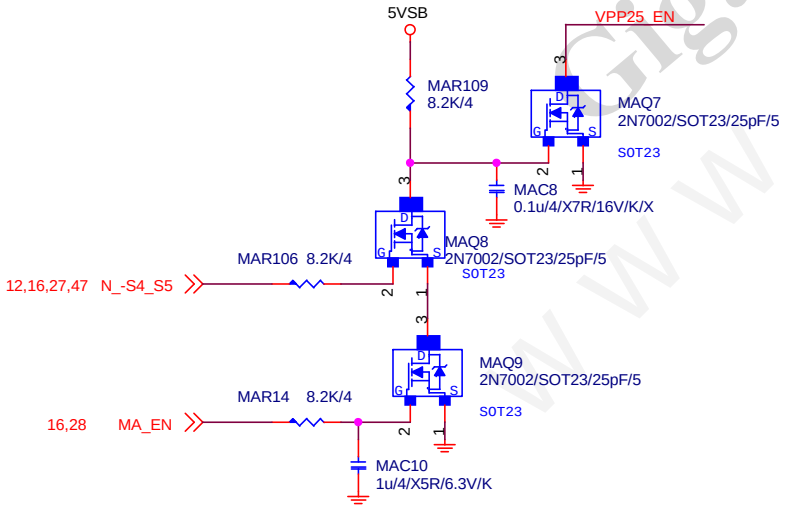
CHOKE與CAP料號可變

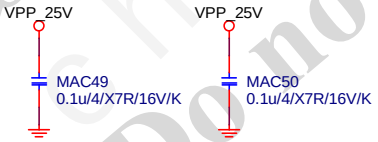
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A



PWR SEQ

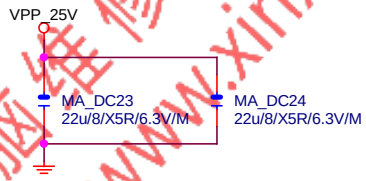
* 刪 MA_DR32





VPP CAP 22u*1PCS

* 大電容 x0

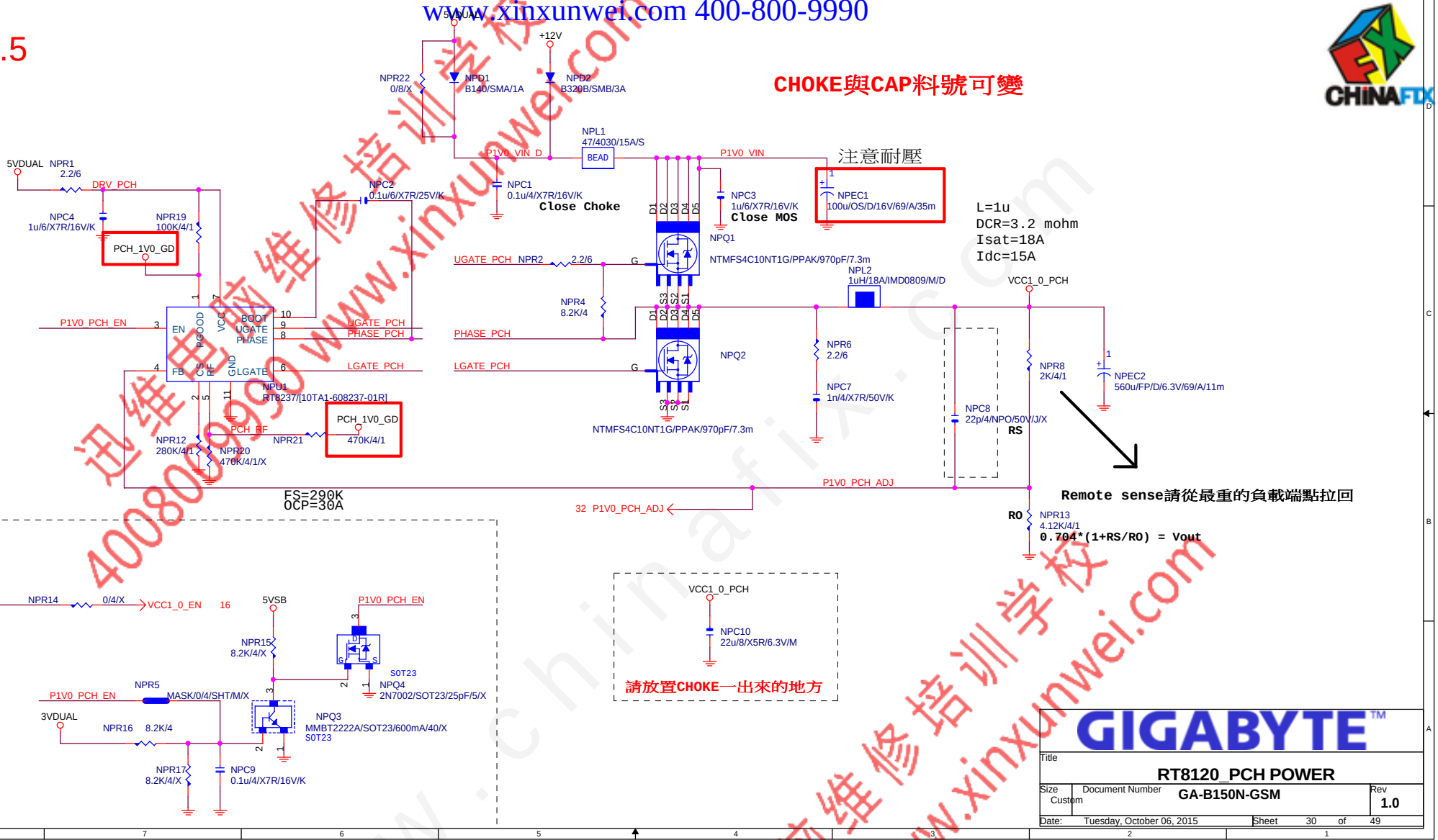


GIGABYTE™

Title	RT8068A_VPP25 POWER	
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 29 of 49	

REV:0.5

CHOKE與CAP料號可變



GIGABYTE™

Title	RT8120_PCH POWER	
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
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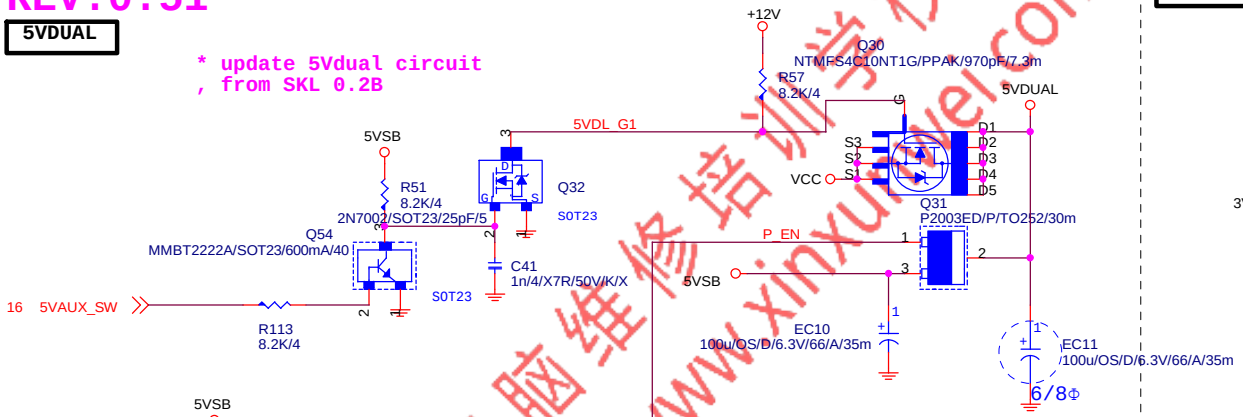
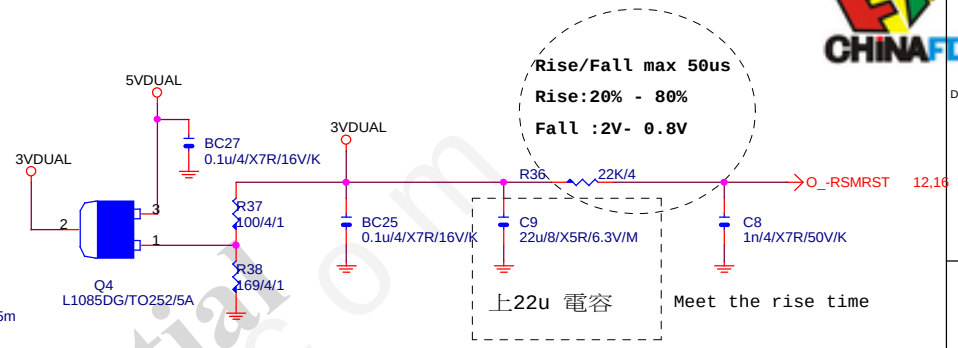
REV:0.51

5VDUAL

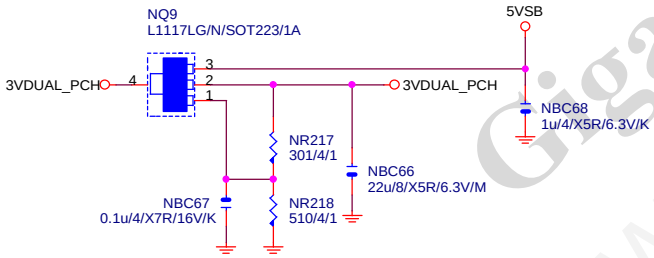
* update 5Vdual circuit
, from SKL 0.2B



3VDUAL

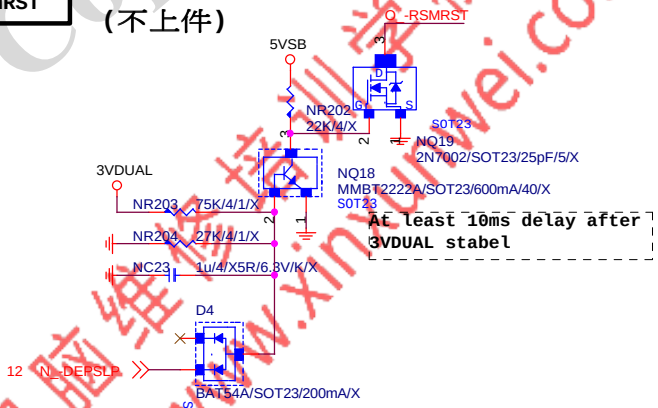


3VDUAL_PCH



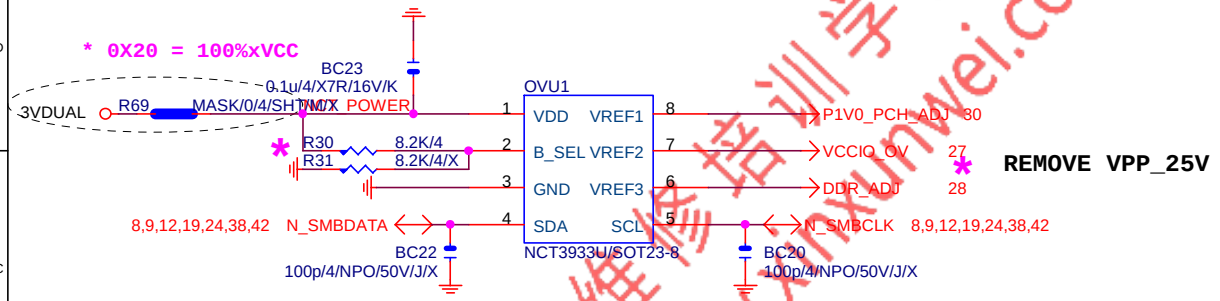
O_-RSMRST

(不上件)



Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 31 of 49	

OVER VOLTAGE



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-B150N-GSM | Rev: 1.0

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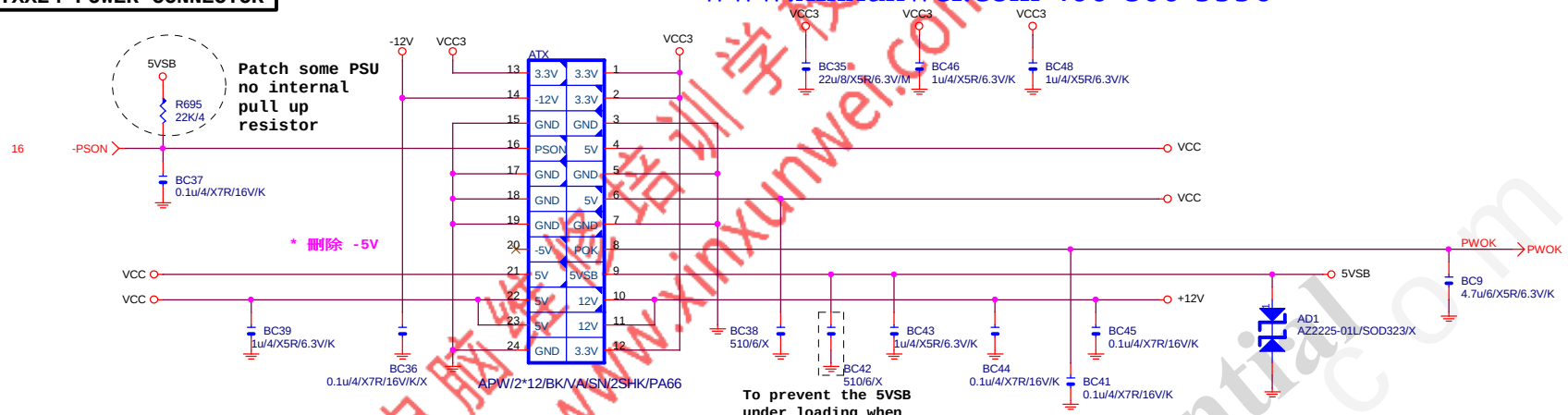
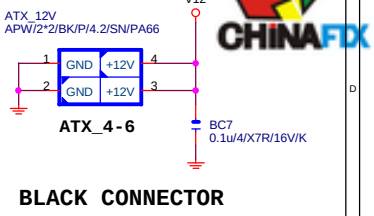
ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR



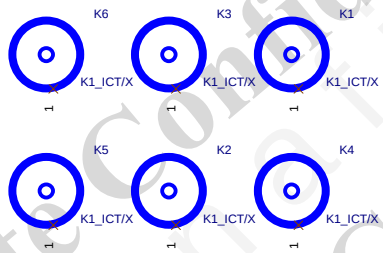
螺絲孔

MH1:GND-T FOR EMI TEST驗證

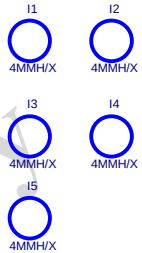
MB LOCATION

Modify for EMI

固定孔/光學點

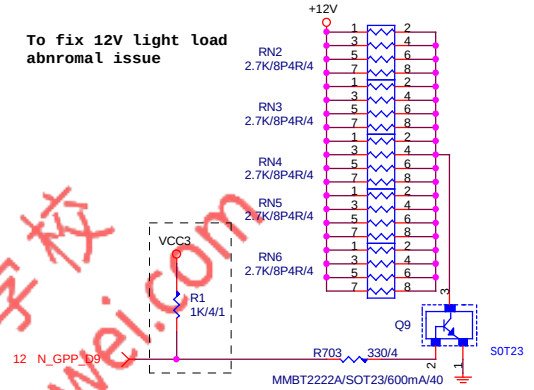


To prevent the 5VSB under loading when boot



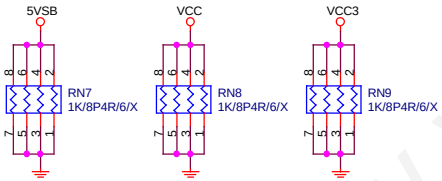
+12V DUMMY LOAD

To fix 12V light load abnromal issue

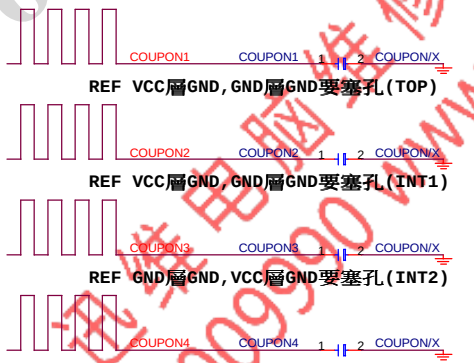


【技術通報R&D技術通報153】

DUMMY LOAD



COUPON



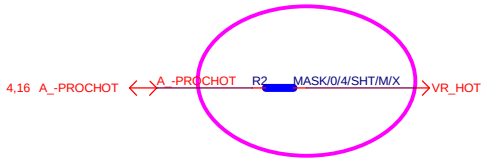
REF VCC層GND,GND層GND要塞孔(TOP)

REF VCC層GND,GND層GND要塞孔(INT1)

REF GND層GND,VCC層GND要塞孔(INT2)

REF GND層GND,VCC層GND要塞孔(BOTTOM)

-PROHOT



Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
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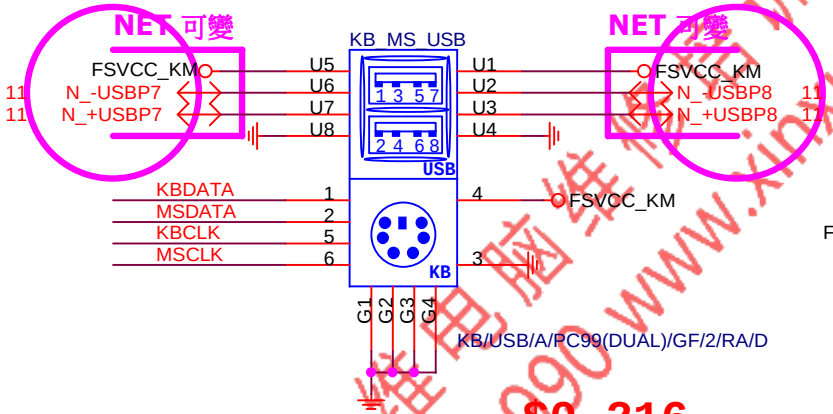
KB_MS_USB

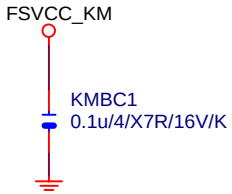
Rev: 0.7

NET 可變

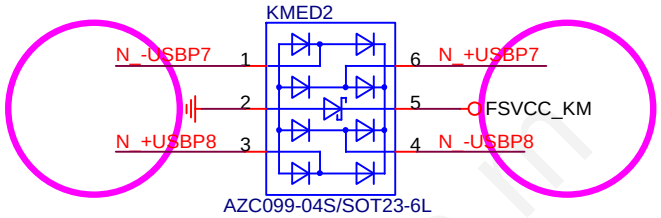
NET 可變

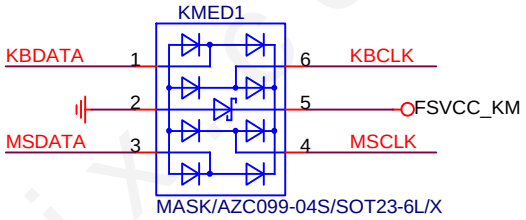


$0.216

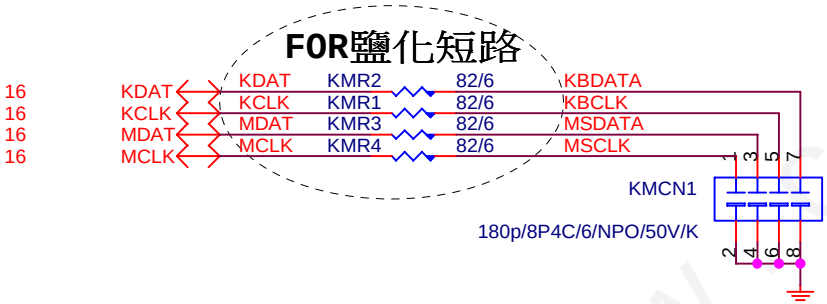


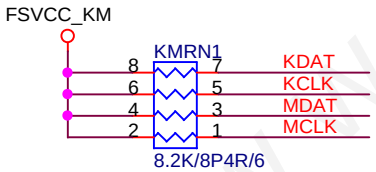
ESD





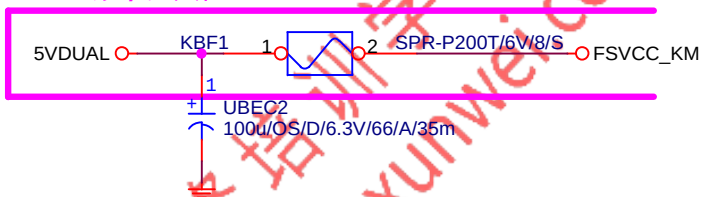
KB_MS_USB DAMPING/PU





KB_MS_USB PWR

NET 可變, 與其他USB SHARE



USB OC PROTECT

Gigabyte Technology		
Title: KB_MS_USB		
Size: A	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 34 of 49	

RTD2168 | R1.03

POWER

Gigabyte Technology		
Title: DP-VGA RTD2168		
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
Date: Tuesday, October 06, 2015	Sheet 35 of 49	

VGA SIGNAL | R1.03

VGA CONN. 架高型VGA(BLACK)

Gigabyte Technology

Title: DP-VGA RTD2168

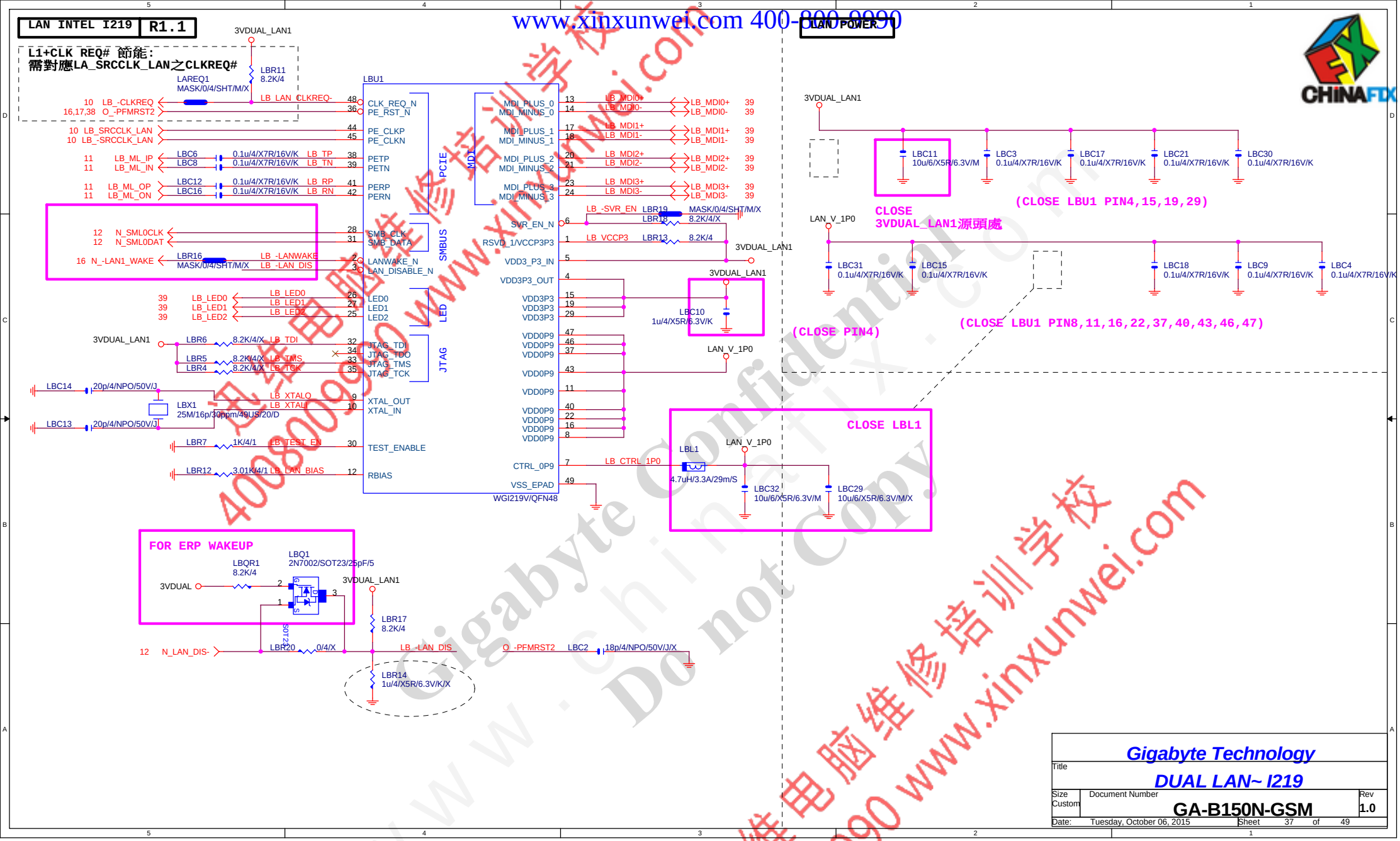
Size	Document Number	Rev
Custom	GA-B150N-GSM	1.0

Date: Tuesday, October 06, 2015 Sheet 36 of 49

LAN INTEL I219 R1.1

LAN POWER

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



Title	Gigabyte Technology DUAL LAN~ I219	
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
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LAN INTEL I211 | R1.1

I211AT不支援:NC-SI,SMBus

N/A

When pulled up, iNVM security features are enabled.

N/A

LAN FLASH

LAN POWER

SUPPORT CIRCUITS

POWER SUPPLY & I210 REGULATOR

PCIE_NC-SI_SMB

I211-AT_MDI_LED_SDP

WGI211AT/QFN64

FOR ERP WAKEUP

CLOSE 3VDUAL_LAN2源頭處

(CLOSE LCU1 PIN10,27,41,51,64)

(CLOSE PIN38

(CLOSE LCU1 PIN39,47,56)

(CLOSE PIN39)

(CLOSE LCU1 PIN11,32,38,42,59)

LCX1 25M/16p/30ppm/49US/20/D

LCC28 20p/4/NPO/50V/J

LCC29 20p/4/NPO/50V/J

LCRN1 8.2K/8P4R/4

LCRN2 8.2K/8P4R/4

LCRN3 8.2K/8P4R/4

Gigabyte Technology			
Title: DUAL LAN~ I211			
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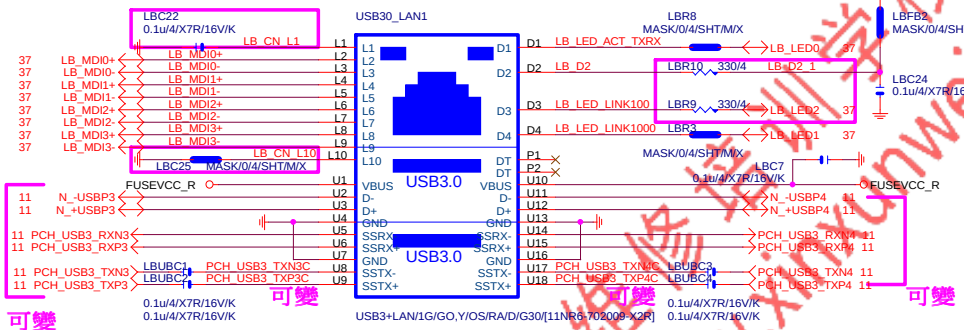
USB_LAN CONNECTOR-B R1.08

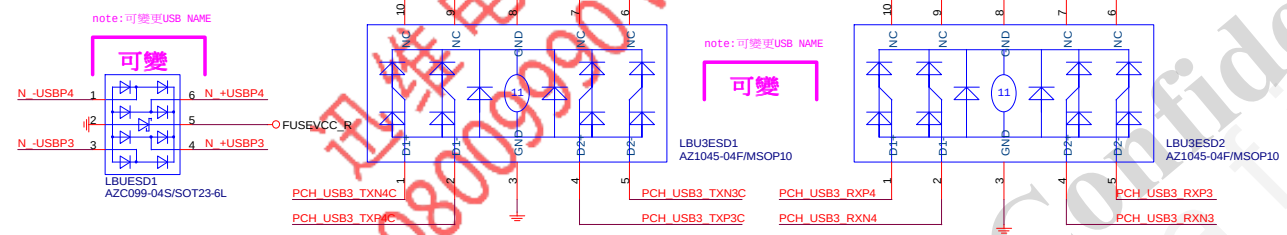
note:可變更USB NAME

[I219]

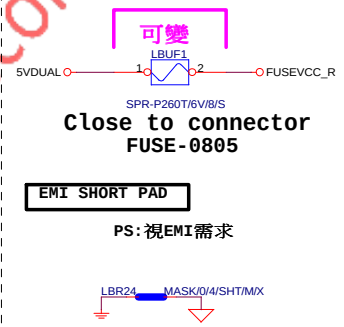


LA_MDI-->100歐姆:[20/4/8/4/20]

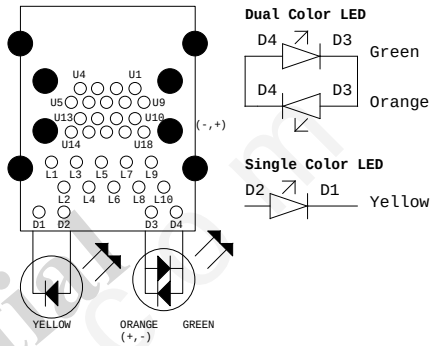
RMA ESD PROTECT



USB POWER



USB30_LAN LAYOUT示意圖



LAN_COVER

N/A

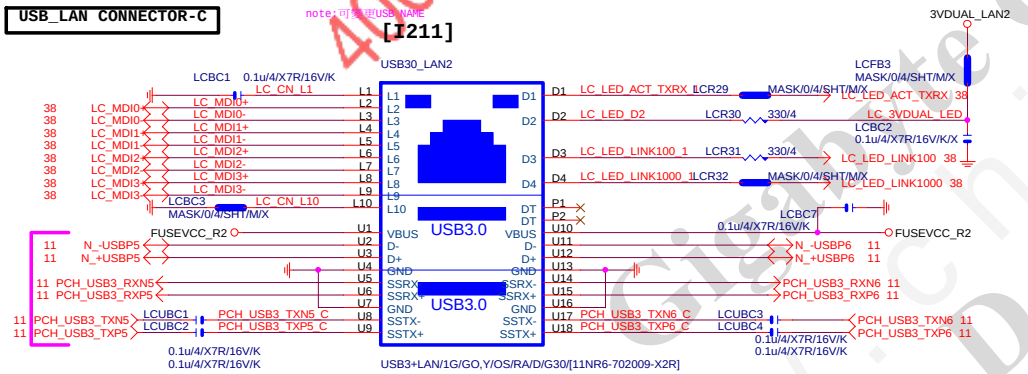
可變
[視SPEC需求]

FOOT PRINT:LAN_COVER

USB_LAN CONNECTOR-C

note:可變更USB NAME

[I211]

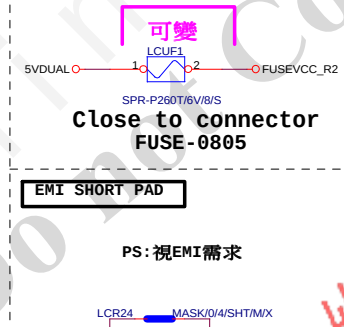


LA_MDI-->100歐姆:[20/4/8/4/20]

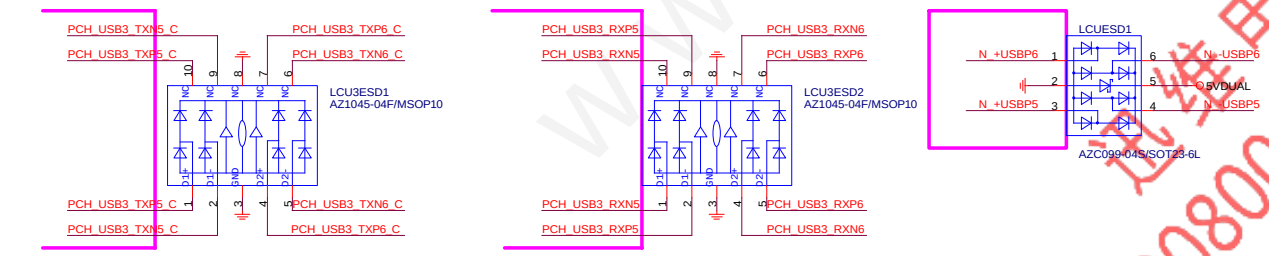
架高1G

LAN:FOOTPRINT~RJ45-HIGH_RISE

USB POWER



RMA ESD PROTECT

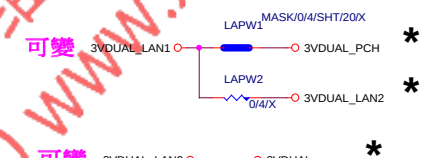


NOTE:

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

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

Gigabyte Technology		
Title: LAN CONNECTOR-I219+I211		
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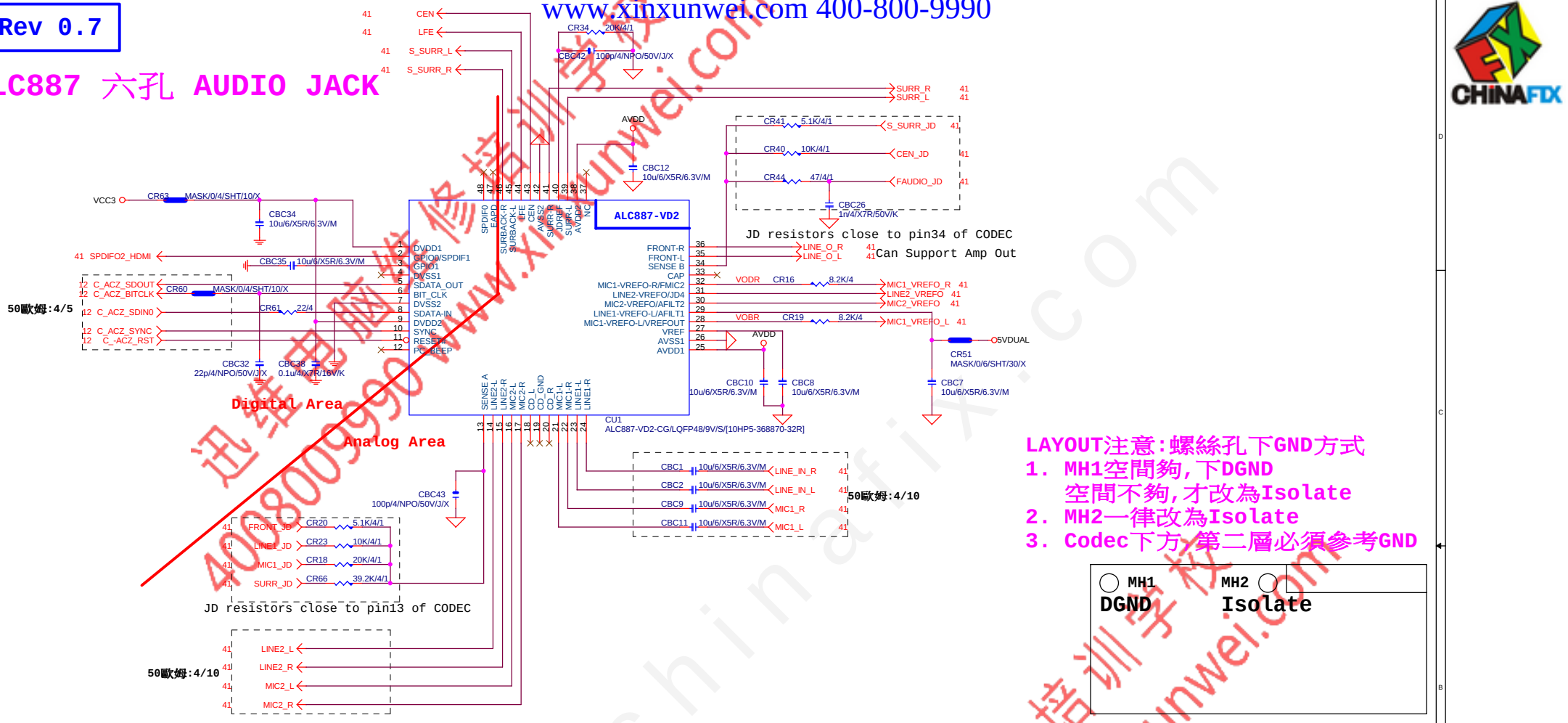
Rev 0.7

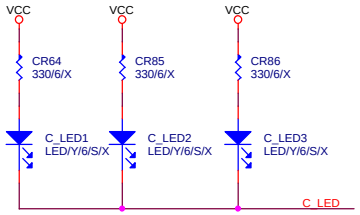
ALC887 六孔 AUDIO JACK

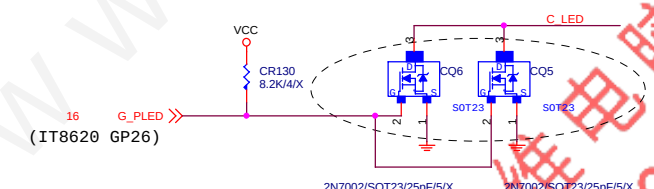


LAYOUT注意:螺絲孔下GND方式
1. MH1空間夠,下DGND
   空間不夠,才改為Isolate
2. MH2一律改為Isolate
3. Codec下方,第二層必須參考GND

MH1	MH2
DGND	Isolate

VALUE可變,LED顏色請自行修改
(預設:低亮度黃色LED:LED/Y/6/S)





*料號後補

LAYOUT注意:
CQ5,CQ6必須擺放在一起

LAYOUT注意:要加
GND切割線

音效區域印刷

BOM OPTION : 1. Chemicon音效電容
2. 金屬外罩 Reserve (LAYOUT上件與否,依照各Model spec)
3. LED Reserve (上件與否和LED顏色,依照各Model spec)

Gigabyte Technology			
Title: HD AUDIO ALC887			
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Rev 0.7

CR49 MASK/0/6/SHT/30/X → Close F_AUDIO

CR50 MASK/0/6/SHT/30/X, MOATC1 0.1u/4/X7R/16V/K/X → Close Codec

CR21 2.2/6 → Audio jack <--> USB_LAN

CR24 MASK/0/6/SHT/30/X → Under Audio jack

*量產前,0ohm改short pad

SPDIF_OUT

40 SPDIFO2_HDMI — CR26 MASK/0/4/SHT/10/X — SPDIF_O

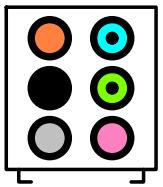
CBC14 100p/4/NPO/50V/J

PH/1*2/BK/2.54/VA/D

For HDMI SPDIF

SPDIF_IN

AZALIA JACK



AUDIOB

40 LINE1_JD — LINE1_JD — AJ_A5 — A3 A2 A4 — GND — LINE-IN — AJ_A2 — A1

40 FRONT_JD — FRONT_JD — AJ_B5 — B3 B2 B4 — GND — LINE-OUT — AJ_B2 — B1

40 MIC1_JD — MIC1_JD — AJ_C5 — C3 C2 C4 — GND — MIC-IN — AJ_C2 — C1 C0

2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

AZALIA JACK

BLUE LINE-IN

GREEN LINE-OUT

PINK MIC-IN

AUDIOA

40 CEN_JD — CEN_JD — BJ_B5 — D3 D2 D4 — GND — REAR — BJ_B2 — D1

40 SURR_JD — SURR_JD — BJ_C5 — E3 E2 E4 — GND — CEN — BJ_C2 — E1

40 S_SURR_JD — S_SURR_JD — BJ_A5 — F3 F2 F4 — GND — SIDE — BJ_A2 — F1 F0

G4 — G1 G2 G3

2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

Orange CEN/LFE

Black SURROUND

Gray SURROUND SIDE

LINE-OUT

40 LINE_O_R — CEC1 100uF/D/10V/6*5/[11CE2-651000-05R] — CR5 62/4 — CR7 22K/4 — AJ_B5

40 LINE_O_L — CEC2 100uF/D/10V/6*5/[11CE2-651000-05R] — CR8 62/4 — CR6 22K/4 — AJ_B2

CBC19 180p/4/NPO/50V/J — CBC24 180p/4/NPO/50V/J

LINE-IN

40 LINE_IN_R — CR1 62/4 — AJ_A5

40 LINE_IN_L — CR14 62/4 — AJ_A2

CBC20 180p/4/NPO/50V/J — CBC23 180p/4/NPO/50V/J

MIC-IN

40 MIC1_R — CR17 62/4 — AJ_C5

40 MIC1_L — CR22 62/4 — AJ_C2

40 MIC1_VREFO_L

40 MIC1_VREFO_R

CBC3 180p/4/NPO/50V/J — CBC4 180p/4/NPO/50V/J

SURROUND

40 SURR_R — CEC10 100uF/D/10V/6*5/[11CE2-651000-05R] — CR73 62/4 — CR67 22K/4 — CR68 22K/4 — BJ_C5

40 SURR_L — CEC11 100uF/D/10V/6*5/[11CE2-651000-05R] — CR74 62/4 — BJ_C2

CBC44 180p/4/NPO/50V/J — CBC45 180p/4/NPO/50V/J

CEN/LFE

40 LFE — CBC13 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR75 62/4 — CR69 22K/4 — CR70 22K/4 — BJ_B5

40 CEN — CBC15 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR76 62/4 — BJ_B2

★Update 2015-04-10

CBC13/15/16/17 10u/6 --> 10u/8

For THD+N Low frequency

CBC46 180p/4/NPO/50V/J — CBC47 180p/4/NPO/50V/J

SURR BACK

40 S_SURR_R — CBC16 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR25 62/4 — CR43 22K/4 — CR27 22K/4 — BJ_A5

40 S_SURR_L — CBC17 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR47 62/4 — BJ_A2

EMI

CBC33 180p/4/NPO/50V/J — CBC31 180p/4/NPO/50V/J

AZALIA FRONT PANEL

CQ4 BAT54A/SOT23/200mA — 40 LINE2_VREFO

CQ2 BAT54A/SOT23/200mA — 40 MIC2_VREFO

CRN1 2.2K/8P4R/4

40 MIC2_L — CBC6 10u/6/X5R/6.3V/M — CR13 62/4 — M2_L

40 MIC2_R — CBC5 10u/6/X5R/6.3V/M — CR11 62/4 — M2_R

L2_R — CR57 62/4 — L2-R

40 FAUDIO_JD

L2_L — CR53 62/4 — L2-L

F_AUDIO — PH/2*5K8/GY/2.54/VA/D

CR58 22K/4 — CR54 22K/4 — CR55 20K/4/1 — CR59 39.2K/4/1

VCC3 — CR78 8.2K/4/X

40 LINE2_R — CEC9 100uF/D/10V/6*5/[11CE2-651000-05R] — L2_R

40 LINE2_L — CEC6 100uF/D/10V/6*5/[11CE2-651000-05R] — L2_L

CBC30 180p/4/NPO/50V/J/X — CBC29 180p/4/NPO/50V/J/X — CBC37 180p/4/NPO/50V/J/X — CBC36 180p/4/NPO/50V/J/X

Gigabyte Technology			
Title: AUDIO JACK			
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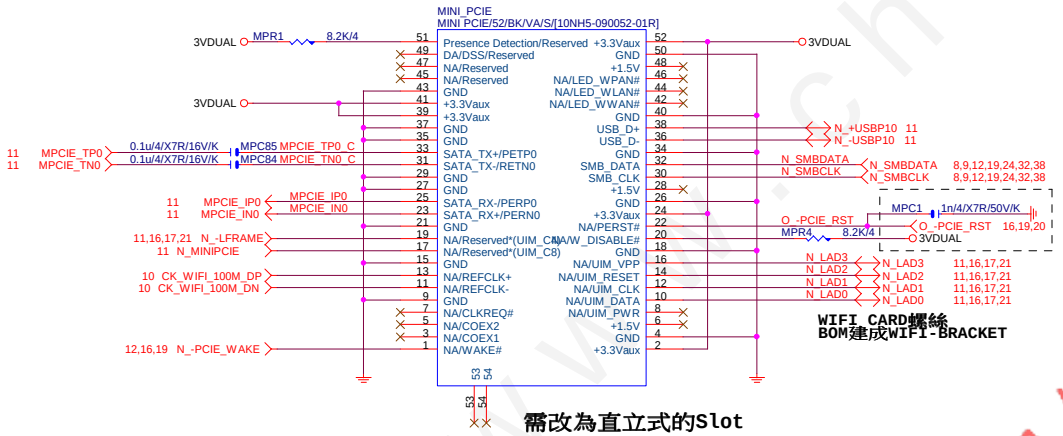
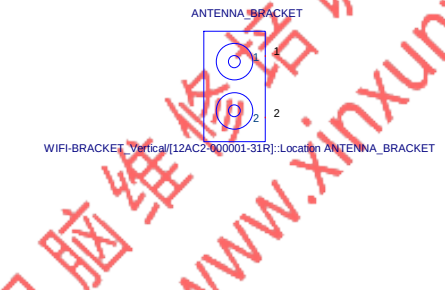
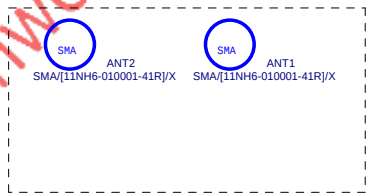
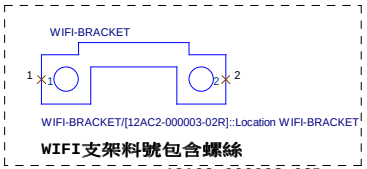
Mini PCIE

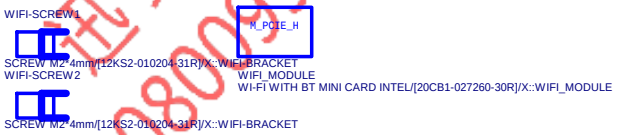


WIFI_CKREQL connect to relative pin.









GIGABYTE™

Title	MPCIE_WIFI_E_KEY	
Size: Custom	Document Number: GA-B150N-GSM	Rev: 1.0
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Rev: 0.61

Front USB3.0

NET 自行調整

F_USB30 REV=1

FSVCC_U3F1 — VBUS (1) / ID (10) / GND (4,7)

11 PCH_USB3_RXN1 / 11 PCH_USB3_RXP1 → SSRX1-, SSRX1+

11 PCH_USB3_TXN1 / 11 PCH_USB3_TXP1 → FAU3C1, FAU3C2 0.1u/4/X7R/16V/K → FU30_TXN1, FU30_TXP1 → SSTX1-, SSTX1+

11 N_-USBP1 / 11 N_+USBP1 → D1-, D1+

BH/2*10K20/BK/ON/2.0/VA/D/GF

NET 可自行調整

FAU3C3, FAU3C4 0.1u/4/X7R/16V/K → FU30_TXN2, FU30_TXP2 → SSTX2-, SSTX2+

SSRX2-, SSRX2+ → PCH_USB3_RXN2 11, PCH_USB3_RXP2 11

D2-, D2+ → N_-USBP2 11, N_+USBP2 11

FSVCC_U3F1

NET 可自行調整

PCH_USB3_RXP1, PCH_USB3_RXN1, PCH_USB3_RXN2, PCH_USB3_RXP2

FAU3D1 AZ1045-04F/MSOP10

FAU3D3 AZC099-04S/SOT23-6L

N_+USBP2, N_-USBP1, N_-USBP2, N_+USBP1, 3VDUAL

CLOSE F_USB30

F_USB30 PWR

5VDUAL — FAU3F1 — SPR-P260T/6V/8/S — FSVCC_U3F1

FAU3EC1 100u/OS/D/6.3V/66/A/35m

FAU3C5 0.1u/4/X7R/16V/K

FU30_TXP1, FU30_TXN1, FU30_TXN2, FU30_TXP2

FAU3D2 AZ1045-04F/MSOP10

CLOSE F_USB30

-USBOC_F

F_USB 2.0 OC SIGNAL

11 N_-USBOC_F → N_-USBOC_F → U2OC2 SOT23 → FSVCC_F1, FSVCC_U3F1

BAT54A/SOT23/200mA

POWER 可自行調整

5VDUAL — UAR1 — 8.2K/4 — N_-USBOC_F — N_-USBOC_F 11

UAR2 15K/4/1

-USBOC_R

11 N_-USBOC_R → N_-USBOC_R → U3OC4 SOT23 → FSVCC_KM, FUSEVCC_R

BAT54A/SOT23/200mA

11 N_-USBOC_R → N_-USBOC_R → U3OC1 SOT23 → FUSEVCC_R2

BAT54A/SOT23/200mA

* 接 PCH N_GPP_B21

PCH PU 3Vdual

12 N_GPP_B20 → UAD5 SOT23 → N_-USBOC_F 11, N_-USBOC_R 11

BAT54A/SOT23/200mA

POWER 可自行調整

5VDUAL — UBR1 — 8.2K/4 — N_-USBOC_R — N_-USBOC_R 11

UBR2 15K/4/1

Gigabyte Technology		
Title	R_USB30,F_USB30, USB_OC	
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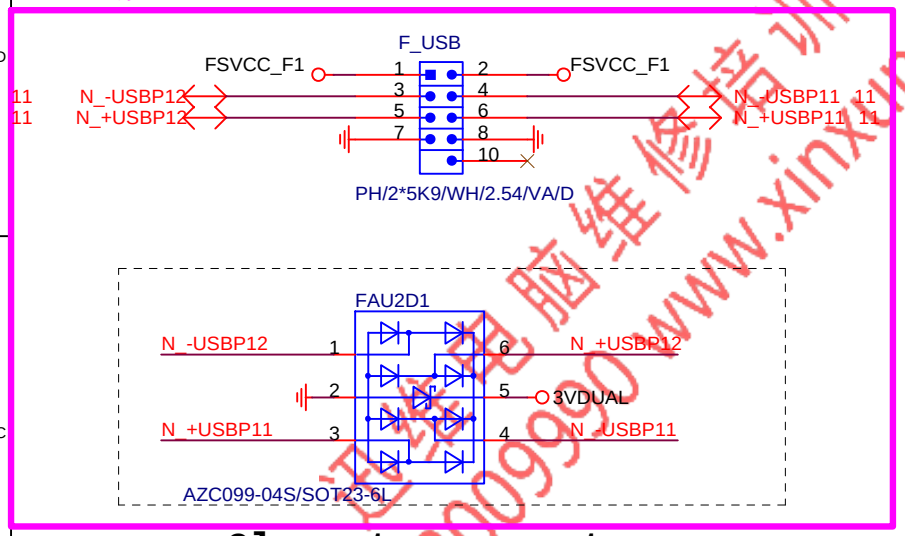
Rev: 0.61

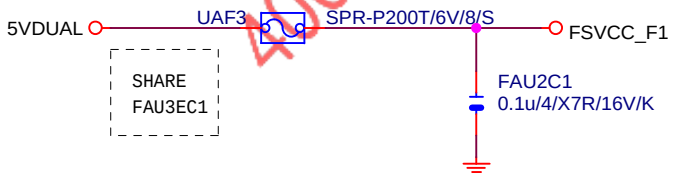
FRONT USB1

NET 可變



Close to connector

FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL-->SCH IN F_USB30 PAGE

Gigabyte Technology			
Title: USB2.0			
Size: A	Document Number: GA-B150N-GSM		Rev: 1.0
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FRONT PANEL

Rev: 0.61

VCC VCC

FPR22 8.2K/4/X

FPR1 330/6

FPBC1 0.01u/4/X7R/25V/K/X

5VDUAL

FPR2 330/6

MPD+

3VDUAL_PCH

FPR3 8.2K/4

★Update 2015-02-11

HD+ -HDLED

F_PANEL

HD+ 1 2 MPD+

HD- 3 4 MPD-

GND 5 6 -PWRBT 1

RST 7 8

RSV 9

PH/2*5K10/COLOR/2.54/VA/D/[11NH2-060205-J1R]

MPD-

16

FPR9 33/4

-PWRBTSW 16

12 N_-SYS_RST

FPR5 100/4/1 -RST

FPBC2 0.01u/4/X7R/25V/K

FPC1 0.01u/4/X7R/25V/K/X

FPBC3 0.01u/4/X7R/25V/K

ESD

FPESD1

-PWRBT 1 1 6 -PWRBT 1

2 5 3VDUAL_PCH

-RST 3 4 -HDLED

AZC099-04S/SOT23-6L

★Update 2015-02-11

SPEAKER

SPEAKER 1 VCC

SPK-

PH/1*4/BK/2.54/VA/D

CASE OPEN

12,14 N_RTCVDD

FPR8 1M/4

-CASEOPEN -CASEOPEN 16

FPBC4 0.01u/4/X7R/25V/K

16 -CASEOPEN

CI 1 2

PH/1*2/BK/2.54/VA/D

SATA LED

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

★Update 2015-02-12

FPD2

13 N_-SATALED

20 -M2A_LED

-HDLED

BAT54A/SOT23/200mA

SOT23

SPKR

VCC

FPD1 1N4148W/SOD123/300mA

SOD123

VCC3

FPR16 1K/4/1/X *

FPQ6

SPK-

FPR13 75/4/1 *

FPR14 75/4/1

FPR15 8.2K/4 *

N_SPKR 12

MMBT2222A/SOT23/600mA/40

FPQ5

MMBT2222A/SOT23/600mA/40

SOT23

VCC

FPR17 1K/4/1

FPR18 8.2K/4

FPQ7

2N7002/SOT23/25pF/5

SOT23

16 BEEP-

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

Gigabyte Technology			
Title: FRONT PANEL			
Size: Custom	Document Number: GA-B150N-GSM		Rev: 1.0
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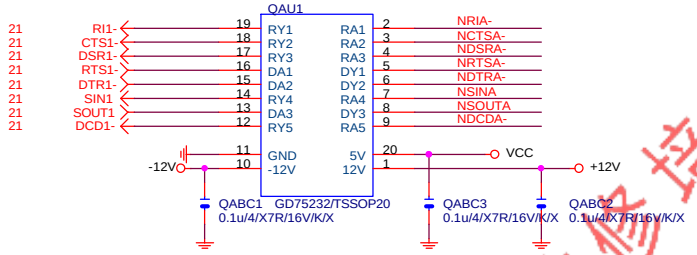
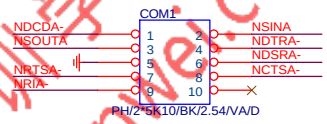
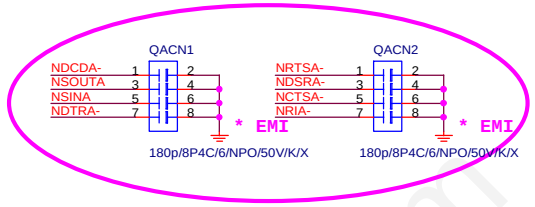
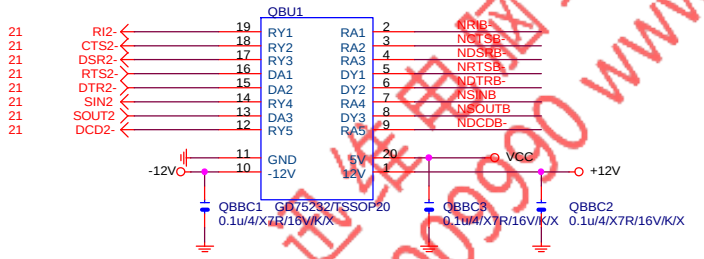
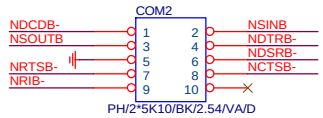
COM PORT Rev: 0.7

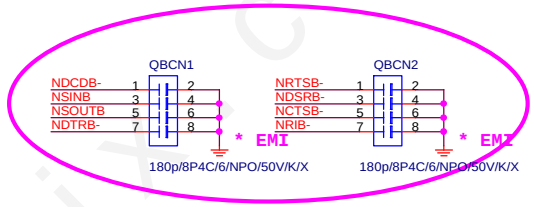


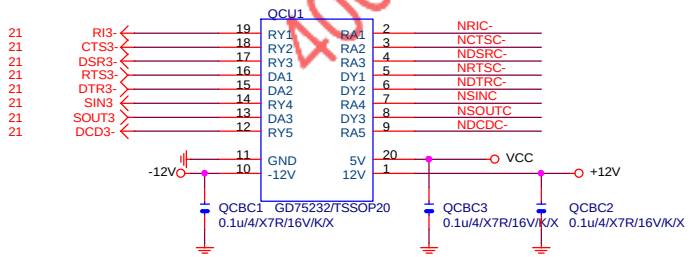


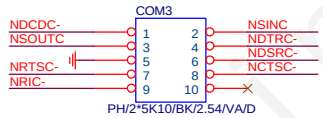


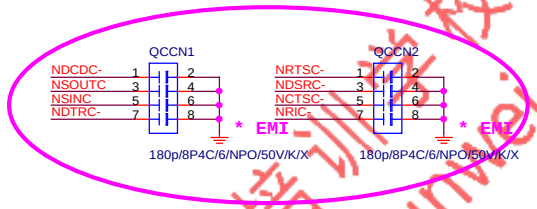


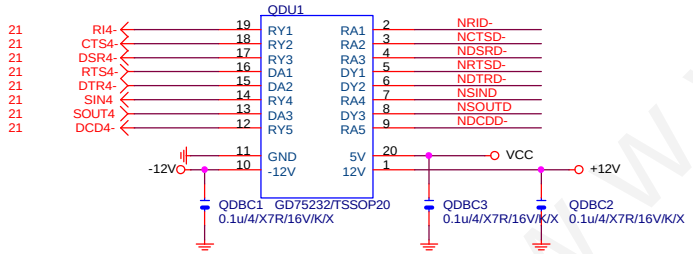


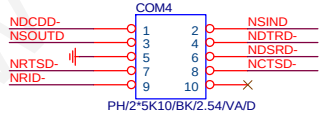


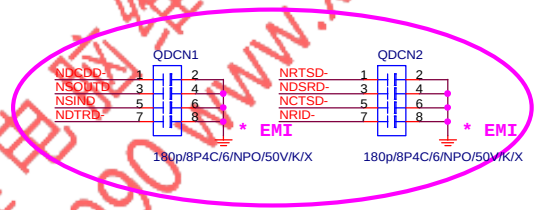












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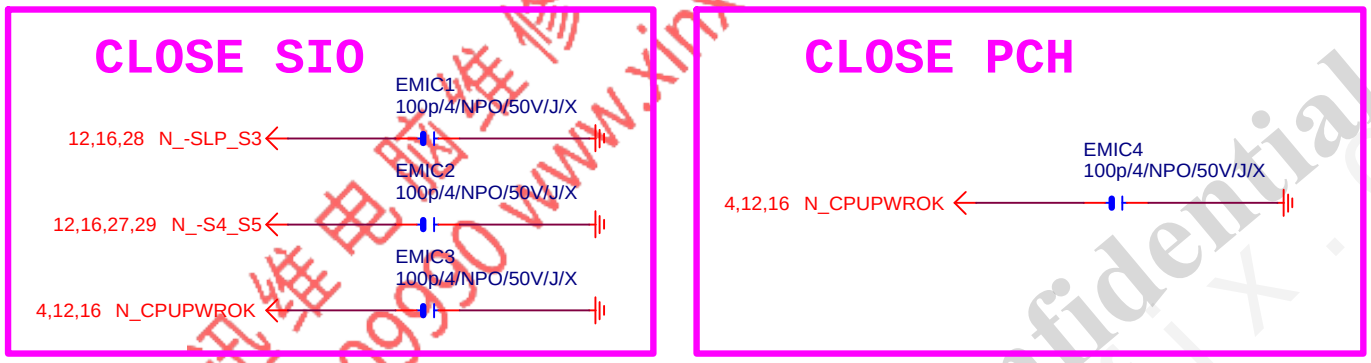

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Title	EMI/ESD		
Size A	Document Number GA-B150N-GSM		Rev 1.0
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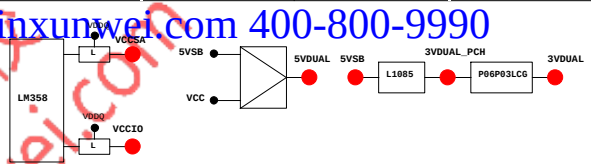
PCH GPIO LIST TABLE

PIN NAME	PWR	RSTSRC/PLTRST	Default	USAGE	NOTE
GPP_A0	MAIN		NATIVE	N_-KBRST	P/U 8.2K VCC3
GPP_A1	MAIN		NATIVE	N_LAD0	N/A
GPP_A2	MAIN		NATIVE	N_LAD1	N/A
GPP_A3	MAIN		NATIVE	N_LAD2	N/A
GPP_A4	MAIN		NATIVE	N_LAD3	N/A
GPP_A5	MAIN		NATIVE	N_-LFRAME	N/A
GPP_A6	MAIN		NATIVE	N_SERIRQ	P/U 8.2K VCC3
GPP_A7	MAIN		NATIVE	N_-LDRQ0	P/U 8.2K 3VDUAL
GPP_A8	MAIN		NATIVE	N_GPP_A8	P/U 8.2K VCC3
GPP_A9	MAIN		NATIVE	N_LPC24MB	N/A
GPP_A10	MAIN		NATIVE	N_LPC24MA	N/A
GPP_A11	MAIN		NATIVE	N_-P_PME	P/U 8.2K 3VDUAL_PCH
GPP_A12	MAIN		GPI	N_GPP_A12	P/U 8.2K VCC3
GPP_A13	MAIN		NATIVE	N_-S_WARN	N/A
GPP_A14	MAIN		NATIVE	N_GPP_A14	P/U 8.2K 3VDUAL
GPP_A15	MAIN		NATIVE	N_-S_ACK	N/A
GPP_B0	MAIN		CORE_VID0	N_-DDR_V_SEL	P/U 8.2K VCC3
GPP_B1	MAIN		CORE_VID1	N/A	N/A
GPP_B2	MAIN		GPI	N_-VRALERT	P/U 8.2K 3VDUAL
GPP_B5	MAIN		GPI	-PCIEX16_PR	P/U 8.2K VCC3
GPP_B6	MAIN		GPI	-PCIEX1_PR1	P/U 8.2K VCC3
GPP_B7	MAIN		GPI	-PCIEX1_PR2	P/U 8.2K VCC3
GPP_B8	MAIN		GPI	-PCIEX4_PR	P/U 8.2K VCC3
GPP_B9	MAIN		GPI	N/A	N/A
GPP_B10	MAIN		GPI	N/A	N/A
GPP_B11	MAIN		GPO	N/A	N/A
GPP_B12	MAIN		SLP_S0	N_SLP_S0	N/A
GPP_B13	MAIN		PLTRST	N_-PFMRST	N/A
GPP_B14	MAIN	H-Z	GPO	N_SPKR	N/A
GPP_B18	MAIN	H-Z	GPO	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN		GPI	N_GPP_B20	P/U 8.2K 3VDUAL
GPP_B22	MAIN		GPI	N_GPP_B22	P/D 1K GND
GPP_C0	MAIN		SMBCLK	N/A	N/A
GPP_C1	MAIN		SMBDATA	N/A	N/A
GPP_C2	MAIN	H-Z	GPO	N_-LPCPME	N/A
GPP_C3	MAIN		SML0CLK	N_SML0CLK	P/U 499 3VDUAL
GPP_C4	MAIN		SML0DAT	N_SML0DAT	P/U 499 3VDUAL
GPP_C5	MAIN	H-Z	GPO	N_GPP_C5	N/A
GPP_C6	MAIN		GPI	N_SML1CLK	P/U 8.2K 3VDUAL
GPP_C7	MAIN		GPI	N_SML1DAT	P/U 8.2K 3VDUAL
GPP_D4	MAIN		GPI	N_GPP_D4	P/U 8.2K 3VDUAL
GPP_D7	MAIN		GPI	N_GPP_D7	N/A
GPP_D9	MAIN		GPI	N_GPP_D9	N/A
GPP_D17	MAIN		GPI	N_GPP_D17	P/U 8.2K VCC3
GPP_D18	MAIN		GPI	N_GPP_D18	P/U 8.2K VCC3
GPP_D19	MAIN		GPI	N_GPP_D19	P/U 8.2K VCC3
GPP_D20	MAIN		GPI	N_GPP_D20	P/U 8.2K VCC3
GPP_D23	MAIN		GPI	N_GPP_D23	P/U 8.2K 3VDUAL
GPP_E0	MAIN		NATIVE	N_GPP_E0	P/U 8.2K VCC3
GPP_E1	MAIN		NATIVE	N_GPP_E1	P/U 8.2K VCC3
GPP_E2	MAIN		NATIVE	N_GPP_E2	P/U 8.2K VCC3
GPP_E3	MAIN		GPI	N_CPU_S	P/U 8.2K VCC3
GPP_E4	MAIN		GPI	N_DEVSLP0	P/U 8.2K VCC3
GPP_E6	MAIN		GPI	N_DEVSLP2	P/U 8.2K VCC3
GPP_E7	MAIN		GPI	N_GT_S	P/U 8.2K VCC3
GPP_E8	MAIN		GPI	N_-SATALED	N/A
GPP_E9	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_E12	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_F0	MAIN		NATIVE	N_GPP_F0	P/U 8.2K VCC3
GPP_F1	MAIN		NATIVE	N_GPP_F1	P/U 8.2K VCC3
GPP_F2	MAIN		NATIVE	N_GPP_F2	P/U 8.2K VCC3
GPP_F3	MAIN		GPI	N_GPP_F3	P/U 8.2K VCC3
GPP_F4	MAIN		GPI	N_GPP_F4	P/U 8.2K VCC3
GPP_F5	MAIN		GPI	N_GPP_F5	P/U 8.2K VCC3
GPP_F6	MAIN		GPI	N_DEVSLP4	P/U 8.2K VCC3
GPP_F10	MAIN		GPI	N_GPP_F10	P/U 8.2K VCC3
GPP_F11	MAIN		GPI	N_GPP_F11	P/U 8.2K VCC3
GPP_F12	MAIN		GPI	N_GPP_F12	P/U 8.2K VCC3
GPP_F13	MAIN		GPI	N_GPP_F13	P/U 8.2K VCC3
GPP_F14	MAIN		GPI	A_-SKTOCC	P/U 8.2K VCC3
GPP_F15	MAIN		GPI	N_-USBOC_F	N/A
GPP_F16	MAIN		GPI	N_-USBOC_F	N/A
GPP_F17	MAIN		GPI	N_-USBOC_R	N/A
GPP_F18	MAIN		GPI	N_-USBOC_7	P/U 8.2K 3VDUAL
GPP_F22	MAIN		GPI	N_GPP_F22	P/U 8.2K VCC3
GPP_F23	MAIN		GPI	N_GPP_F23	P/U 8.2K VCC3
GPP_G0	MAIN		GPI	N_GPP_G0	P/U 1K VCC3
GPP_G1	MAIN		GPI	N_GPP_G1	P/U 1K VCC3
GPP_G12	MAIN		GPI	N_GPP_G12	P/U 3.3K VCC3
GPP_G16	MAIN		GPI	N_GPP_G16	N/A
GPP_G18	MAIN		GPI	N_GPP_G18	P/U 8.2K VCC3
GPP_G19	MAIN		GPI	N_GPP_G19	P/U 8.2K VCC3
GPP_G20	MAIN		GPI	N_GPP_G20	P/U 8.2K VCC3
GPP_G21	MAIN		GPI	N_GPP_G21	P/U 8.2K VCC3
GPP_G22	MAIN		GPI	N_GPP_G22	P/U 8.2K VCC3
GPP_H0	MAIN		GPI	M2_-CLKREQ	P/U 8.2K VCC3
GPP_H12	MAIN		GPO	N_GPP_H12	P/U 8.2K VCC3
GPP_H19	MAIN		GPI	N_GPP_H19	P/U 8.2K 3VDUAL
GPP_H20	MAIN		GPI	N_GPP_H20	P/U 8.2K 3VDUAL
GPP_H21	MAIN		GPI	N_GPP_H21	P/U 8.2K 3VDUAL
GPP_H22	MAIN		GPI	N_GPP_H22	P/U 8.2K 3VDUAL
GPP_I0	MAIN		GPI	N_HDMI_HDP_F	N/A
GPP_I1	MAIN		GPI	N_DVI_HDP_F	P/U 1M VCC3
GPP_I2	MAIN		GPI	N_VGA_HDP_F	N/A

PIN NAME	PWR	RSTSRC/PLTRST	Default	USAGE	NOTE
GPP_I3	MAIN		GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN		GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN		GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN		GPO	N_DDPB_CTRLDATA	P/U 2.2K VCC3
GPP_I7	MAIN		GPI	N_DDPC_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN		GPI	N_DDPC_CTRLDATA	P/U 2.2K VCC3
GPP_I9	MAIN		GPI	N_DDPD_CTRLCLK	P/U 2.2K VCC3
GPP_I10	MAIN		GPI	N_DDPD_CTRLDATA	P/U 2.2K VCC3
GPD0	STBY		BATLOW	N_-BATLOW	P/U 8.2K 3VDUAL_PCH
GPD1	STBY		ACPRESENT	N_GP_D1	P/U 8.2K 3VDUAL_PCH
GPD2	STBY		LAN_WAKE	N_-LAN_WAKE	N/A
GPD3	STBY		PWRBTN	O_PWRBTSW	P/U 8.2K 3VDUAL_PCH
GPD4	STBY		SLP_S3	N_-SLP_S3	N/A
GPD5	STBY		SLP_S4	N_-SLP_S4	N/A
GPD6	STBY		SLP_A	N_-SLP_A	P/U 8.2K 3VDUAL
GPD7	STBY		NATIVE	N_-S_ACK	N/A
GPD8	STBY		SUSCLK	N_SUSCLK	N/A
GPD10	STBY		SLP_S5	N_-SLP_S5	N/A

Super I/O IT8720 GPIO Table

PIN NAME	USAGE	NOTE
PCIRST3#/GP10/VDIMM_STR_EN	N/A	
PCIRST2#/GP11	O_-PCIE_RST	
PCIRST1#/GP12	O_-PFMRST2	
SVC/PECI_RQT/GP14	TPM_GP14	
SLP_SUS#/PCIRSTIN#/CIRTX2/GP15	-PCIRSTIN	
PSI_L/FAN_CTL5/CIRRX2/GP16	N_-THERMTRIP	
RI2#/GP17	MB_ID2	
THR_PWM_CTS2#/GP20	N_-THERMTRIP	
IO_SMI#DCD2#/GP21	空 PIN	
SPI_SI/GP22	BEEP-	
DPWROK/CPU_P6/GP23	N_PCH_DPWROK	
FAN_TAC5/RTS2#/GP24	空 PIN	
FAN_TAC4/DSR2#/GP25	FANIO4	
INV_OUT3_SOUT2/GP26	G_PLED	
INV_IN3/SIN2/GP27	INV_IN1	
ATXPG/GP30	PWOK	
CTS1/GP31	CTS1-	
OCWDT3/RI1#/GP32	RI1-	
OCWDT2/DCD1#/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSBSW#/GP40	空 PIN	
OCWDT1/SIN1/GP41	RXD1	
GP42/SCK/FAN_CTL4	空 PIN	
PANSWH#/GP43	-PWRBTSW	
PWRON#/GP44	O_PWRBTSW	
OCWDT0/DSR1#/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/JP1	空 PIN	
FAN_CTL2/GP51	FANPWM2	
FAN_TAC2/GP52	FANIO2	
SUSC#/GP53	N_-S4_S5	
PME#/GP54	N_-LPCPME	
RSMRST#/CIRRX1/GP55	O_-RSMRST	
MCLK/FAN_TAC6/GP56	MCLK	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST#/GP62	N_-KBRST	
HOLD_B#/GP63	-SPI_HOLD_B	
HOLD_B#/GP64	-SPI_HOLD_M	
VLDT_EN/PCH_D0/GP65	空 PIN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	空 PIN	
USB_FS1/PD0/GP70	PD0	
USB_FS2/PD1/GP71	PD1	
USB_FS3/PD2/GP72	PD2	
USB_FS3/PD3/GP73	PD3	
USB_FS5/PD4/GP74	PD4	
USB_FS6/PD5/GP75	PD5	
USB_FS7/PD7/GP76	PD6	
USB_FS8/PD8/GP77	PD7	
LS-IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#/GP83	ACK-	
IPHONE_CHARGE#/SLIN#/GP84	SLIN-	
OC_IN/INIT#/GP85	INIT-	
OC_OUT/AFD#/GP86	AFD-	
USB_OC2/STB#/GP87	STB-	
DDR_EN/GP90	MA_EN	
PWRLED/GP91	MPD-	
HOLD_OUT/GP92	空 PIN	
HDLED_IN/GP93	空 PIN	
PROCHOT#/GP94	-PROCHOT_CON	
CPUPWRGD/GP95	預留N_CPUPWROK	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	



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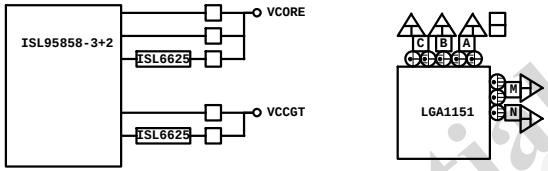

BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCSA	CPU System Agent Voltage
VCCIO	CPU I/O Voltage
VCC1_0_PCH	PCH core
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Terminatio
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號:

12SP2-S03507-11R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	+12V	FANPWM1	FANIO1	IT8628
SYS FAN	FANPWM2	VCC	FANIO2	IT8628
	FAN1_VOUT	N/A	N/A	NCT3941

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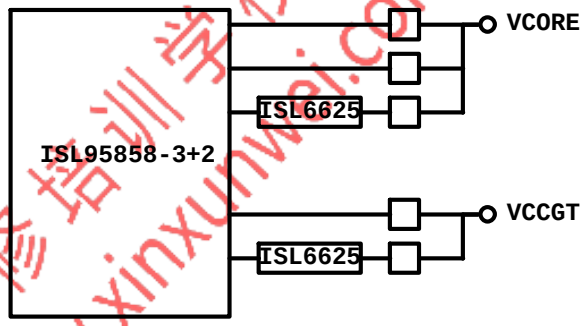
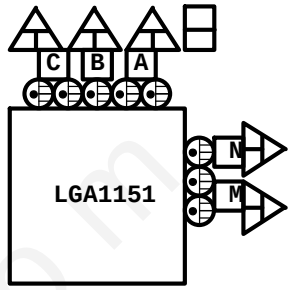
POWER BLOCK MAP

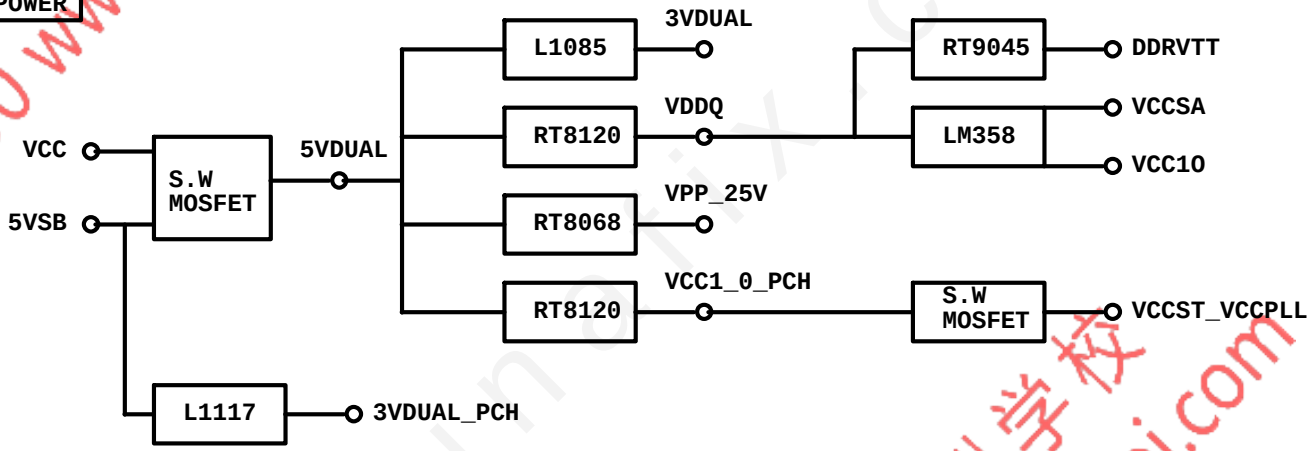
- CPU
  - VCORE
  - VCCGT
  - VCCSA
  - VCCIO
  - VDDQ
  - VCCST_VCCPLL
  - VCCSFUSEPRG
- DDR4
  - VDDQ
  - DDRVTT
  - VPP_25V
  - VDDSPD(VCC3)
- PCH
  - VCC1_0_PCH
  - VCC1_0_PCH_DSW
  - VCC10_VCCF24_1P0
  - VCC10_VCCAMPHYPLL
  - VCC10_VCCAPLL
  - VCC3_PCH
  - 3VDUAL_PCH
  - VCC3
  - N_RTCVDD
- IT8628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

VCORE/VCCGT

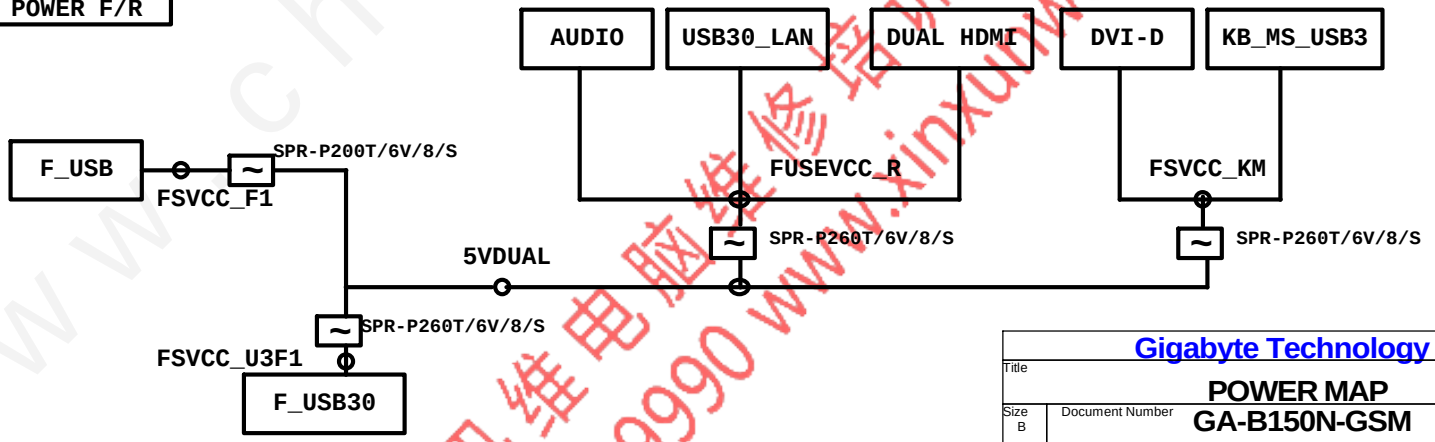




POWER



FUSE POWER F/R



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Title: POWER MAP

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