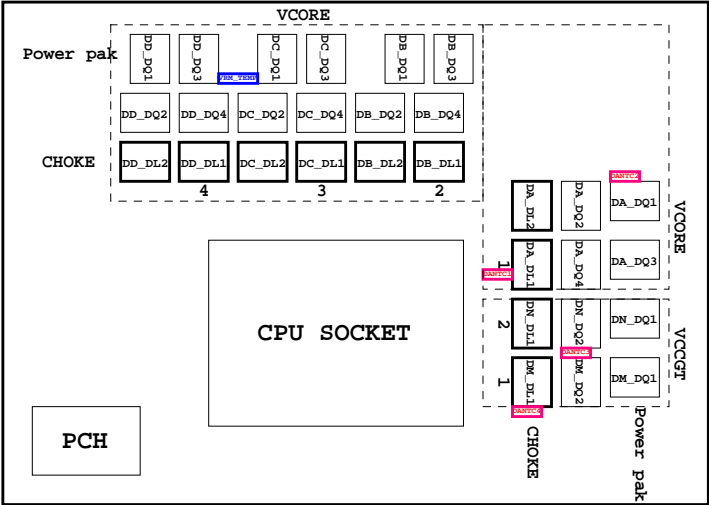


Model Name: Z390 UD

SHEET	TITLE	Revision :1.0
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	DDR 4 CHANNEL A	
09	DDR 4 CHANNEL B	
10	PCH CLOCK/DDC/BIOS	
11	PCH DMI,USB,PCIE	
12	PCH MISC	
13	PCH SATA,PCIE,CNVI	
14	PCH PWR	
15	PCH GND,Heatsink	
16	ITE 8688 LPC IO_RGB_LED	
17	HWM	
18	FAN CTRL-CFL-SIO	
19	Dual BIOS for CS mode	
20	CEC Logic	
21	PCIEX16 SLOT	
22	PCIEX4 SLOT1	
23	PCIEX4 SLOT2	
24	PCIEX1*3 SLOT	
25	SATA	
26	M.2 x4 (A)	
27	COM, TPM, THB	
28	VCORE_ISL69138(PWM)	
29	VCORE_ISL69138(Vcore_PPAK-1)	
30	VCORE_ISL69138(Vcore_PPAK-2)	
31	VCORE_ISL69138(Vcore_PPAK-3)	
32	VCORE_ISL69138(VccGT_PPAK)	
33	VCCSA VCCIO_VCCPLL	
34	RT8120_DDR_CHOKE-IRON-2L	
35	RT8120_VPP_CHOKE-IRON-合金	
36	RT8120_PCH-CHOKE-IRON	
37	DISCRETE POWER	

SHEET	TITLE
38	ATX POWER , -PROCHOT
39	NCP3933 OVER VOLTAGE
40	HDMI NO LS/R_USB30
41	R_USB30 ,KB_MS
42	CNVi_M2_WIFI
43	REALTEK RTL8118
44	USB30_LAN CONNECTOR-8118
45	Realtek ALC887
46	REAR AUDIO JACK
47	F_USB30
48	F_USB
49	F_PANEL ,OC_PIN
50	Audio / DEBUG / XMP LED
51	EMI-ESD
52	POWER MAP
53	NTC MAP

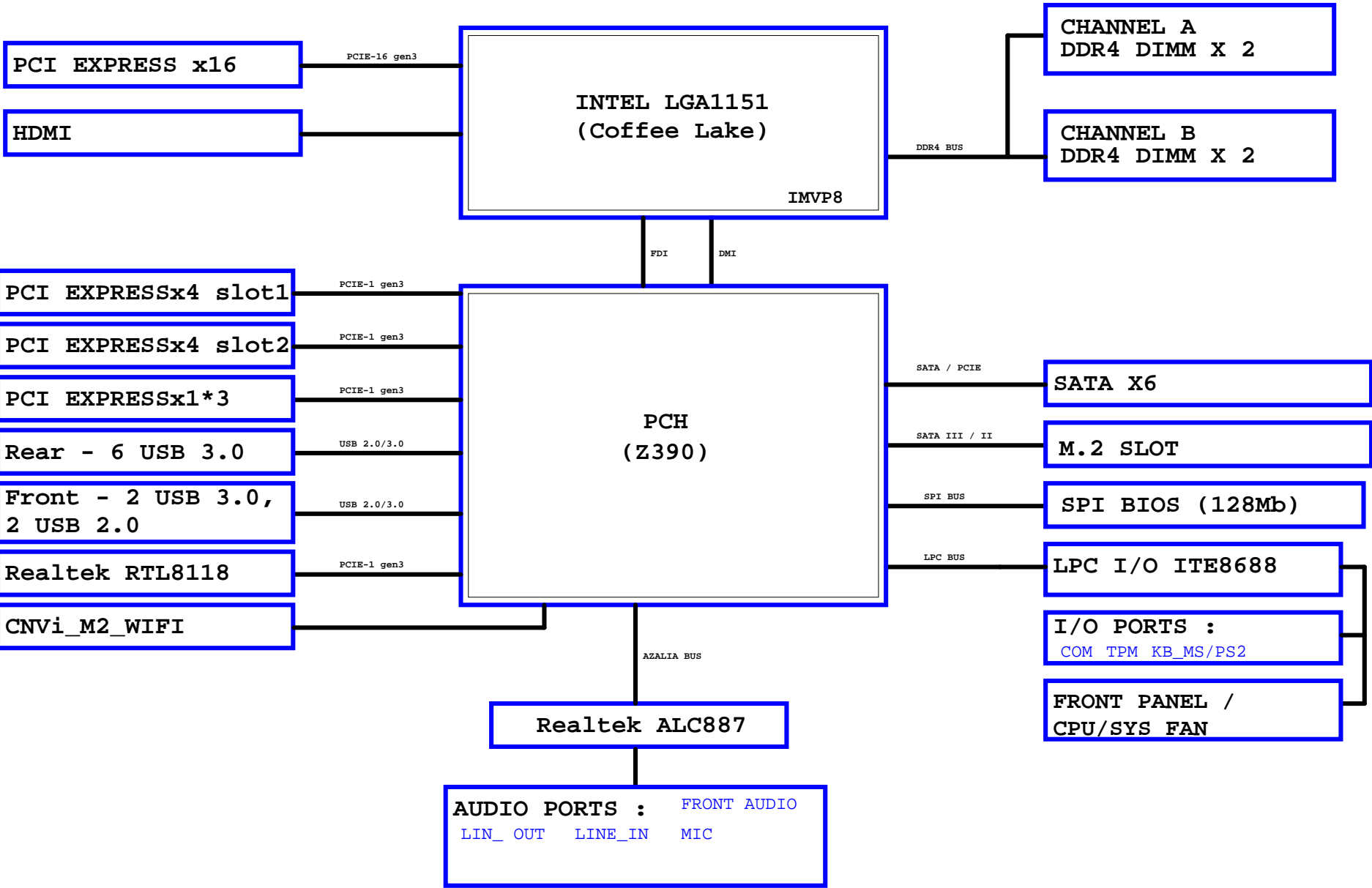


Circuit or PCB layout change

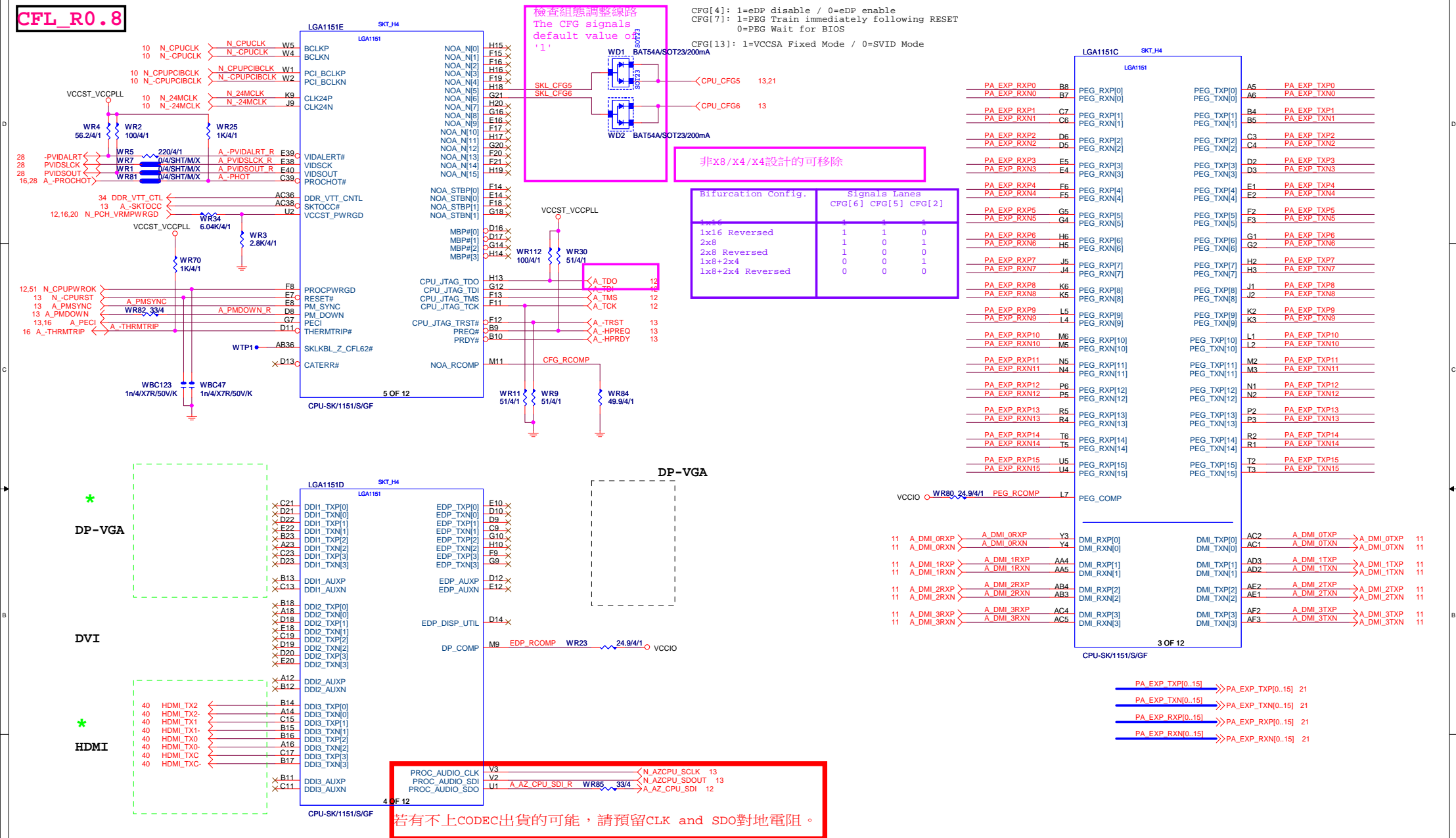
**P-Code: U18024-0**  
**Tip-Top: 9MZ39UD-00-01**

[illegible]

BLOCK DIAGRAM



## CFL\_R0.8

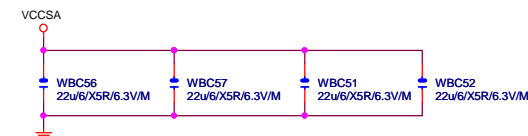


```
G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R
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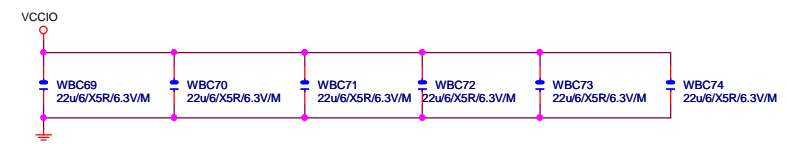
若有不上CODEC出貨的可能，請預留CLK and SDO對地電阻。

LGA1151A										LGA1151B									
SKT_H4										SKT_H4									
MDA0	AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18	M_DCLKA0	↔	M_DCLKA0	8		MD80	AD34	DDR1_DQ[0]/DDR0_DQ[16]	DDR1_CKP[0]	AM20	M_DCLKB0	↔	M_DCLKB0	9	
MDA1	AE37	DDR0_DQ[1]	DDR0_CKN[0]	AV18	M_DCLKA0	↔	M_DCLKA0	8		MD81	AD35	DDR1_DQ[1]/DDR0_DQ[17]	DDR1_CKN[0]	AM21	M_DCLKB0	↔	M_DCLKB0	9	
MDA2	AG38	DDR0_DQ[2]	DDR0_CKP[1]	AW17	M_DCLKA1	↔	M_DCLKA1	8		MD82	AG35	DDR1_DQ[2]/DDR0_DQ[18]	DDR1_CKP[1]	AP22	M_DCLKB1	↔	M_DCLKB1	9	
MDA3	AG37	DDR0_DQ[3]	DDR0_CKN[1]	AY17	M_DCLKA1	↔	M_DCLKA1	8		MD83	AH35	DDR1_DQ[3]/DDR0_DQ[19]	DDR1_CKN[1]	AP21	M_DCLKB1	↔	M_DCLKB1	9	
MDA4	AE39	DDR0_DQ[4]	DDR0_CKP[2]	AW16	M_DCLKA2	↔	M_DCLKA2	8		MD84	AE35	DDR1_DQ[4]/DDR0_DQ[20]	DDR1_CKP[2]	AN20	M_DCLKB2	↔	M_DCLKB2	9	
MDA5	AE40	DDR0_DQ[5]	DDR0_CKN[2]	AV16	M_DCLKA2	↔	M_DCLKA2	8		MD85	AE34	DDR1_DQ[5]/DDR0_DQ[21]	DDR1_CKN[2]	AN21	M_DCLKB2	↔	M_DCLKB2	9	
MDA6	AG39	DDR0_DQ[6]	DDR0_CKP[3]	AT16	M_DCLKA3	↔	M_DCLKA3	8		MD86	AG34	DDR1_DQ[6]/DDR0_DQ[22]	DDR1_CKP[3]	AP19	M_DCLKB3	↔	M_DCLKB3	9	
MDA7	AG40	DDR0_DQ[7]	DDR0_CKN[3]	AU16	M_DCLKA3	↔	M_DCLKA3	8		MD87	AH34	DDR1_DQ[7]/DDR0_DQ[23]	DDR1_CKN[3]	AP20	M_DCLKB3	↔	M_DCLKB3	9	
MDA8	AJ38	DDR0_DQ[8]		AY24	CKEA0	↔	CKEA0	8		MD88	AK35	DDR1_DQ[8]/DDR0_DQ[24]		AY29	CKEB0	↔	CKEB0	9	
MDA9	AJ37	DDR0_DQ[9]	DDR0_CKE[0]	AW24	CKEA1	↔	CKEA1	8		MD89	AL35	DDR1_DQ[9]/DDR0_DQ[25]	DDR1_CKE[0]	AV29	CKEB1	↔	CKEB1	9	
MDA10	AL38	DDR0_DQ[10]	DDR0_CKE[1]	AW24	CKEA2	↔	CKEA2	8		MD810	AK32	DDR1_DQ[10]/DDR0_DQ[26]	DDR1_CKE[1]	AW29	CKEB2	↔	CKEB2	9	
MDA11	AL37	DDR0_DQ[11]	DDR0_CKE[2]	AV25	CKEA3	↔	CKEA3	8		MD812	AL32	DDR1_DQ[11]/DDR0_DQ[27]	DDR1_CKE[2]	AU29	CKEB3	↔	CKEB3	9	
MDA12	AJ40	DDR0_DQ[12]	DDR0_CKE[3]							MD813	AL34	DDR1_DQ[12]/DDR0_DQ[28]	DDR1_CKE[3]						
MDA13	AJ39	DDR0_DQ[13]		AW12	M_-CSA0	↔	M_-CSA0	8		MD814	AK31	DDR1_DQ[13]/DDR0_DQ[29]		AP17	M_-CSB0	↔	M_-CSB0	9	
MDA14	AL39	DDR0_DQ[14]	DDR0_CS[0]	AU11	M_-CSA1	↔	M_-CSA1	8		MD815	AL31	DDR1_DQ[14]/DDR0_DQ[30]	DDR1_CS[0]	AN15	M_-CSB1	↔	M_-CSB1	9	
MDA15	AL40	DDR0_DQ[15]	DDR0_CS[1]	AV13	M_-CSA2	↔	M_-CSA2	8		MD816	AP36	DDR1_DQ[15]/DDR0_DQ[31]	DDR1_CS[1]	AN17	M_-CSB2	↔	M_-CSB2	9	
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]	DDR0_CS[2]	AV10	M_-CSA3	↔	M_-CSA3	8		MD817	AN35	DDR1_DQ[16]/DDR0_DQ[48]	DDR1_CS[2]	AM15	M_-CSB3	↔	M_-CSB3	9	
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]	DDR0_CS[3]							MD818	AN32	DDR1_DQ[17]/DDR0_DQ[49]	DDR1_CS[3]						
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]		AW11	MODT_A0					MD819	AP32	DDR1_DQ[18]/DDR0_DQ[50]		AM16	MODT_B0				
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]	DDR0_ODT[0]	AU14	MODT_A1					MD820	AN34	DDR1_DQ[19]/DDR0_DQ[51]	DDR1_ODT[0]	AL16	MODT_B1				
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]	DDR0_ODT[1]	AU12	MODT_A2					MD821	AP34	DDR1_DQ[20]/DDR0_DQ[52]	DDR1_ODT[1]	AP15	MODT_B2				
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]	DDR0_ODT[2]	AY10	MODT_A3					MD822	AN31	DDR1_DQ[21]/DDR0_DQ[53]	DDR1_ODT[2]	AL15	MODT_B3				
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]	DDR0_ODT[3]							MD823	AP31	DDR1_DQ[22]/DDR0_DQ[54]	DDR1_ODT[3]						
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]		AY13	SBA00	↔	SBA00	8		MD824	AL29	DDR1_DQ[23]/DDR0_DQ[55]		AN18	MAAB16				
MDA24	AJ37	DDR0_DQ[24]/DDR0_DQ[40]	DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]	AV15	SBA01	↔	SBA01	8		MD825	AM29	DDR1_DQ[24]/DDR0_DQ[56]	DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]	AL17	MAAB14				
MDA25	AJ38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[5]/DDR0_BA[1]	AW23	BG_A0	↔	BG_A0	8		MD826	AP29	DDR1_DQ[25]/DDR0_DQ[57]	DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]	AP16	MAAB15				
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]							MD827	AR29	DDR1_DQ[26]/DDR0_DQ[58]	DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]						
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]		AW15	MAAA16					MD828	AM28	DDR1_DQ[27]/DDR0_DQ[59]		AL18	SBAB0	↔	SBAB0	9	
MDA28	AJ37	DDR0_DQ[28]/DDR0_DQ[44]	DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]	AV14	MAAA14					MD829	AL28	DDR1_DQ[28]/DDR0_DQ[60]	DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]	AM18	SBAB1	↔	SBAB1	9	
MDA29	AJ38	DDR0_DQ[29]/DDR0_DQ[45]	DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]	AY11	MAAA15					MD830	AR28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[5]/DDR1_BA[1]	AW28	BG_B0	↔	BG_B0	9	
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]	DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]							MD831	AP28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]						
MDA31	AJ35	DDR0_DQ[31]/DDR0_DQ[47]		AW15	MAAA0					MD832	AR12	DDR1_DQ[31]/DDR0_DQ[63]		AL19	MAAB0				
MDA32	AY38	DDR0_DQ[32]/DDR1_DQ[0]	DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]	AU18	MAAA1					MD833	AP12	DDR1_DQ[32]/DDR1_DQ[16]	DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]	AL22	MAAB1				
MDA33	AW38	DDR0_DQ[33]/DDR1_DQ[1]	DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]	AU17	MAAA2					MD834	AL13	DDR1_DQ[33]/DDR1_DQ[17]	DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]	AM22	MAAB2				
MDA34	AJ36	DDR0_DQ[34]/DDR1_DQ[2]	DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]	MD835	AM13					MD835	AM13	DDR1_DQ[34]/DDR1_DQ[18]	DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]	AM23	MAAB3				
MDA35	AJ35	DDR0_DQ[35]/DDR1_DQ[3]	DDR0_MA[3]	MD836	AR13					MD836	AR13	DDR1_DQ[35]/DDR1_DQ[19]	DDR1_MA[3]	AP23	MAAB4				
MDA36	AJ35	DDR0_DQ[36]/DDR1_DQ[4]	DDR0_MA[4]	MD837	AP13					MD837	AP13	DDR1_DQ[36]/DDR1_DQ[20]	DDR1_MA[4]	AL23	MAAB5				
MDA37	AV38	DDR0_DQ[37]/DDR1_DQ[5]	DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]	MD838	AM12					MD838	AM12	DDR1_DQ[37]/DDR1_DQ[21]	DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]	AW26	MAAB6				
MDA38	AW36	DDR0_DQ[38]/DDR1_DQ[6]	DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]	MD839	AL12					MD839	AL12	DDR1_DQ[38]/DDR1_DQ[22]	DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]	AU26	MAAB7				
MDA39	AY4	DDR0_DQ[39]/DDR1_DQ[7]	DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]	MD840	AP10					MD840	AP10	DDR1_DQ[39]/DDR1_DQ[23]	DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]	AW26	MAAB8				
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]	DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]	MD841	AR10					MD841	AR10	DDR1_DQ[40]/DDR1_DQ[24]	DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]	AW27	MAAB9				
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]	DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]	MD842	AR7					MD842	AR7	DDR1_DQ[41]/DDR1_DQ[25]	DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]	AP18	MAAB10				
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]	DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]	MD843	AP7					MD843	AP7	DDR1_DQ[42]/DDR1_DQ[26]	DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]	AV27	MAAB11				
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]	DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]	MD844	AR9					MD844	AR9	DDR1_DQ[43]/DDR1_DQ[27]	DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]	AU27	MAAB12				
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]	DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]	MD845	AP9					MD845	AP9	DDR1_DQ[44]/DDR1_DQ[28]	DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]	AL27	MAAB13				
MDA45	AH1	DDR0_DQ[45]/DDR1_DQ[13]	DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]	MD846	AR6					MD846	AR6	DDR1_DQ[45]/DDR1_DQ[29]	DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]	AR15	MAAB13				
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]	DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]	MD847	AP6					MD847	AP6	DDR1_DQ[46]/DDR1_DQ[30]	DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]	AY28	BG_B1	↔	BG_B1	9	
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	MD848	AM10					MD848	AM10	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28		↔	M_-ACT_B	9	
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[16]		MD849	AL10					MD849	AL10	DDR1_DQ[48]		AL20		↔	M_DDR_PARB	9	
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[17]	DDR0_PAR	MD850	AM7					MD850	AM7	DDR1_DQ[49]	DDR1_PAR	AY25		↔	M_-ALERT_B	9	
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[18]	DDR0_ALERT#	MD851	AL7					MD851	AL7	DDR1_DQ[50]	DDR1_ALERT#						
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[19]		MD852	AM9					MD852	AM9	DDR1_DQ[51]							
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[20]		MD853	AL9					MD853	AL9	DDR1_DQ[52]							
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[21]	DDR0_DQSN[0]	MD854	AM6					MD854	AM6	DDR1_DQ[53]	DDR1_DQSN[0]/DDR0_DQSN[2]	AF34	M_-DQSB0				
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[22]	DDR0_DQSN[1]	MD855	AL6					MD855	AL6	DDR1_DQ[54]	DDR1_DQSN[1]/DDR0_DQSN[3]	AK33	M_-DQSB1				
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[23]	DDR0_DQSN[2]/DDR0_DQSN[4]	MD856	AJ8					MD856	AJ8	DDR1_DQ[55]	DDR1_DQSN[2]/DDR0_DQSN[6]	AN33	M_-DQSB2				
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[24]	DDR0_DQSN[3]/DDR0_DQSN[5]	MD857	AL7					MD857	AL7	DDR1_DQ[56]	DDR1_DQSN[3]/DDR0_DQSN[7]	AN13	M_DQSB4				
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[25]	DDR0_DQSN[4]/DDR1_DQSN[0]	MD858	AE6					MD858	AE6	DDR1_DQ[57]	DDR1_DQSN[4]/DDR1_DQSN[2]	AR8	M_DQSB5				
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[26]	DDR0_DQSN[5]/DDR1_DQSN[1]	MD859	AF7					MD859	AF7	DDR1_DQ[58]	DDR1_DQSN[5]/DDR1_DQSN[3]	AM8	M_DQSB6				
MDA																			

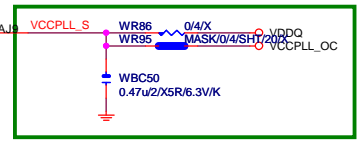
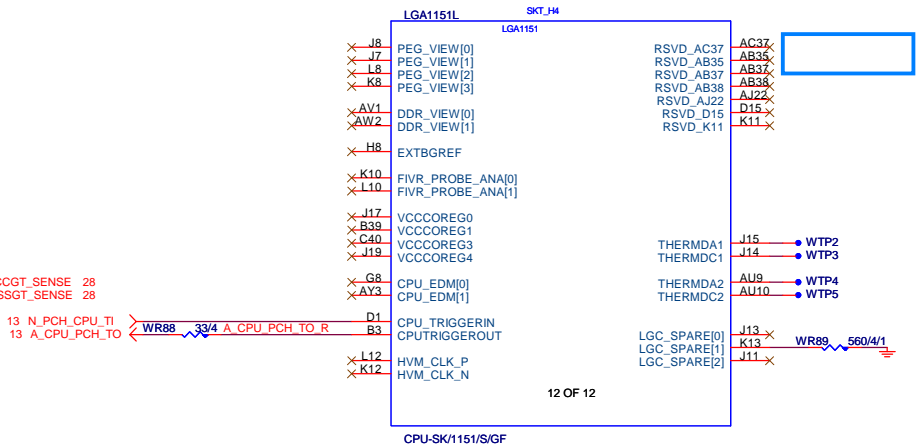
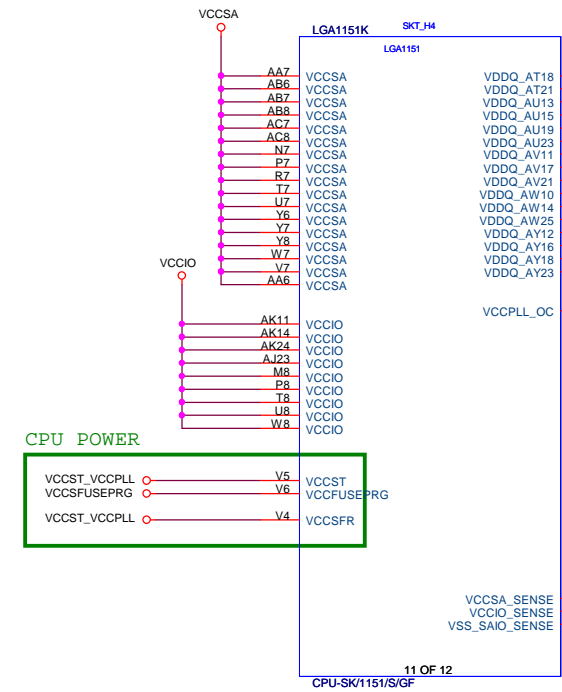
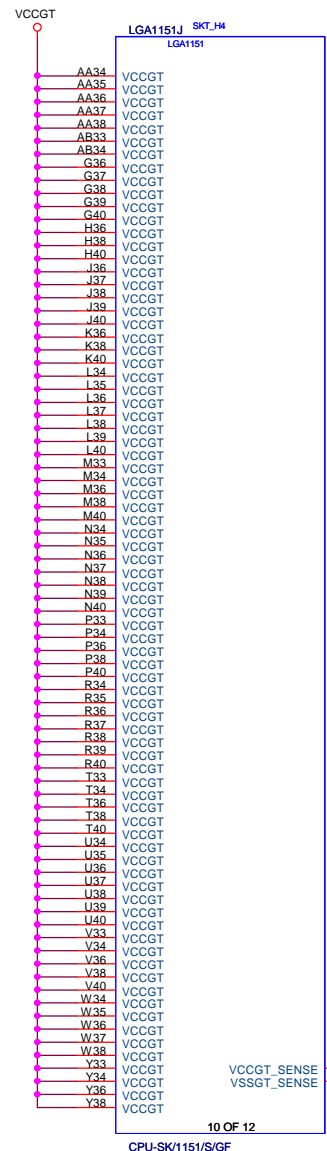
CFL\_R0.8 check 模組

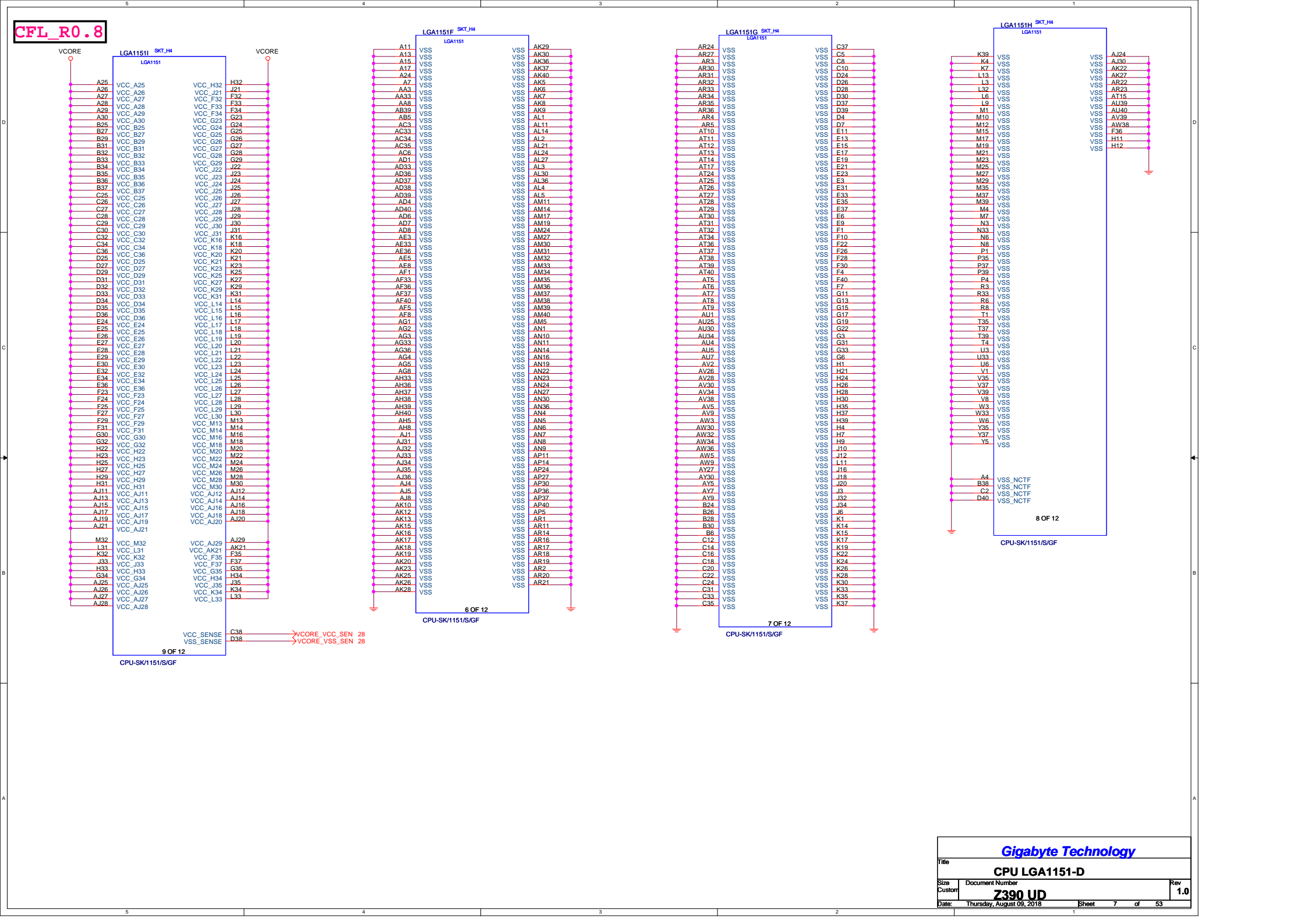


CPU POWER

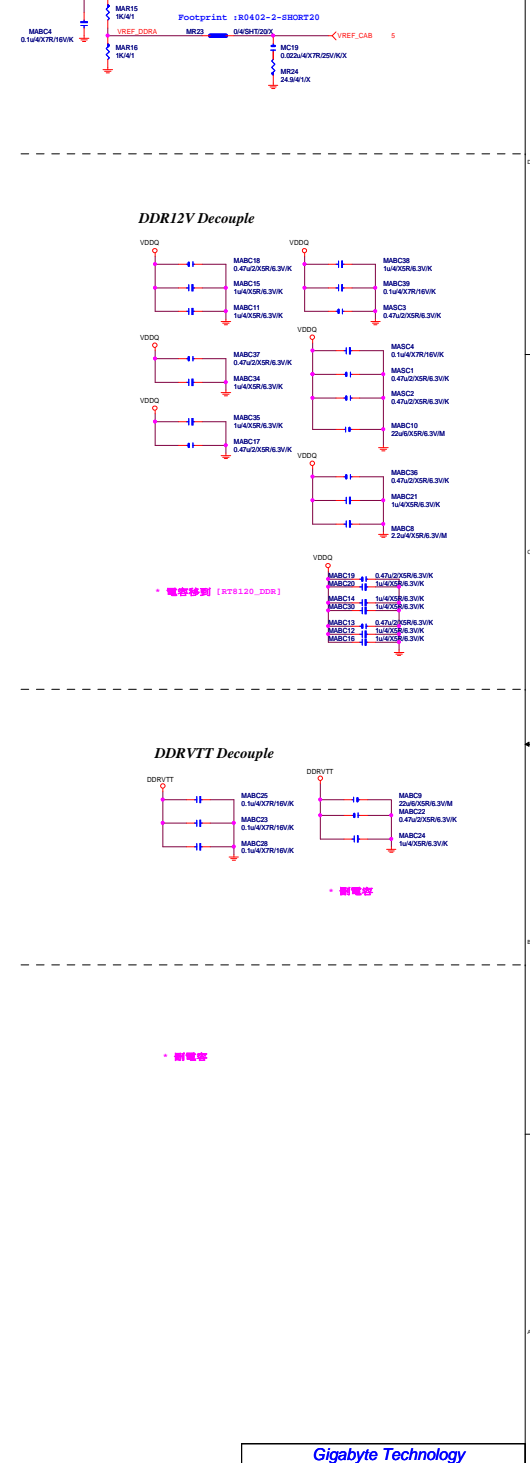
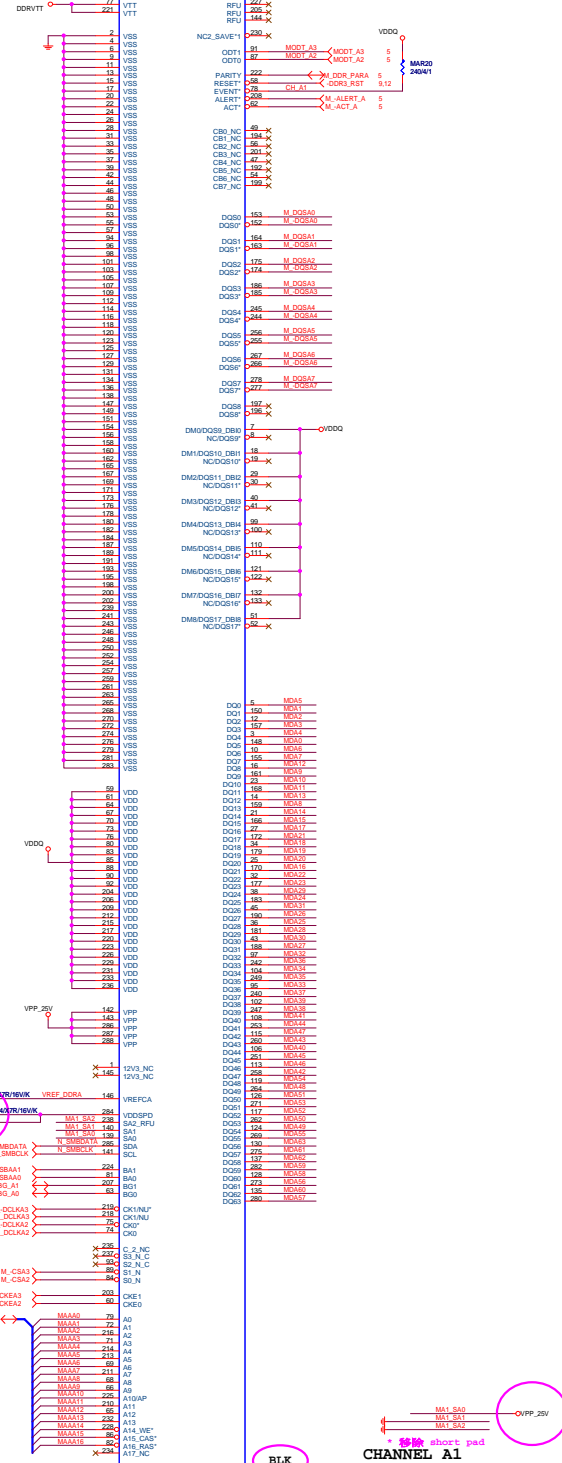
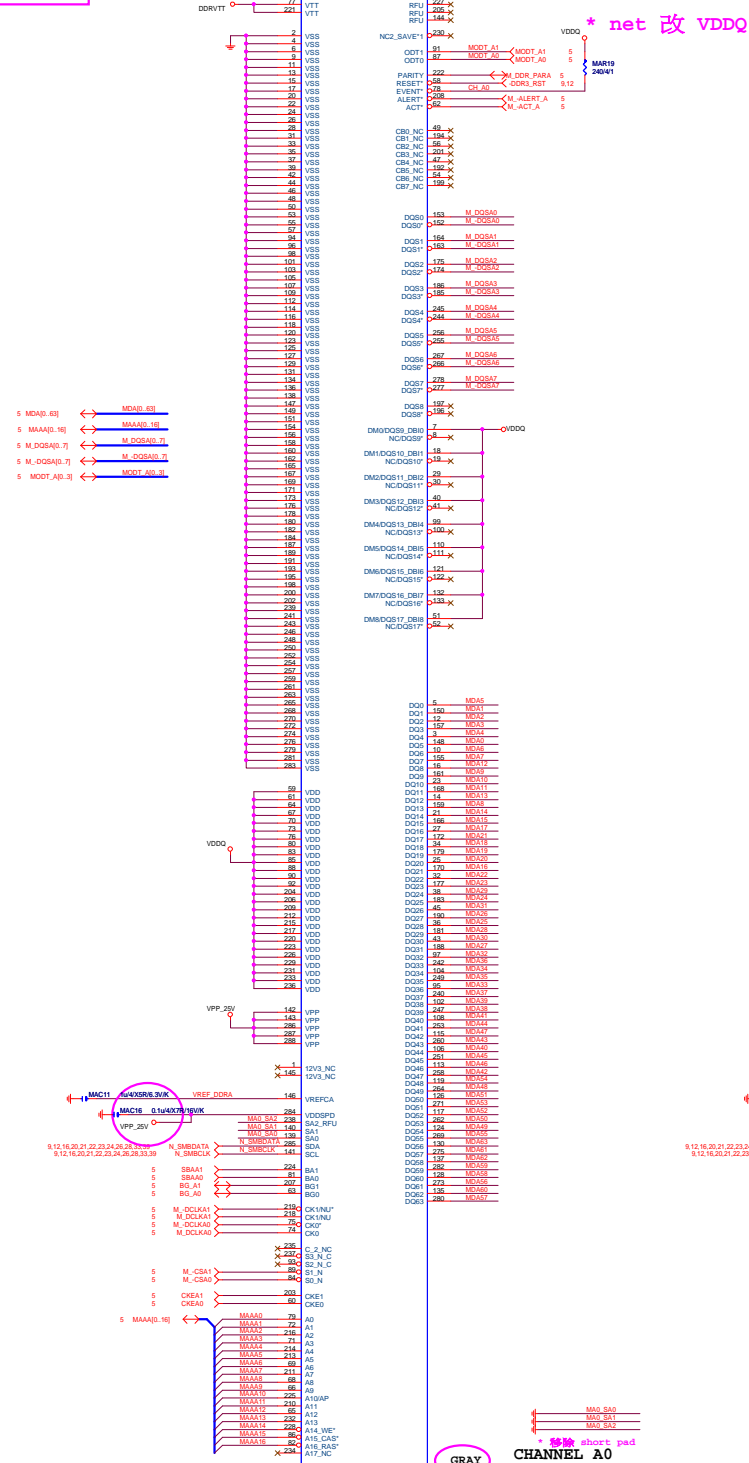


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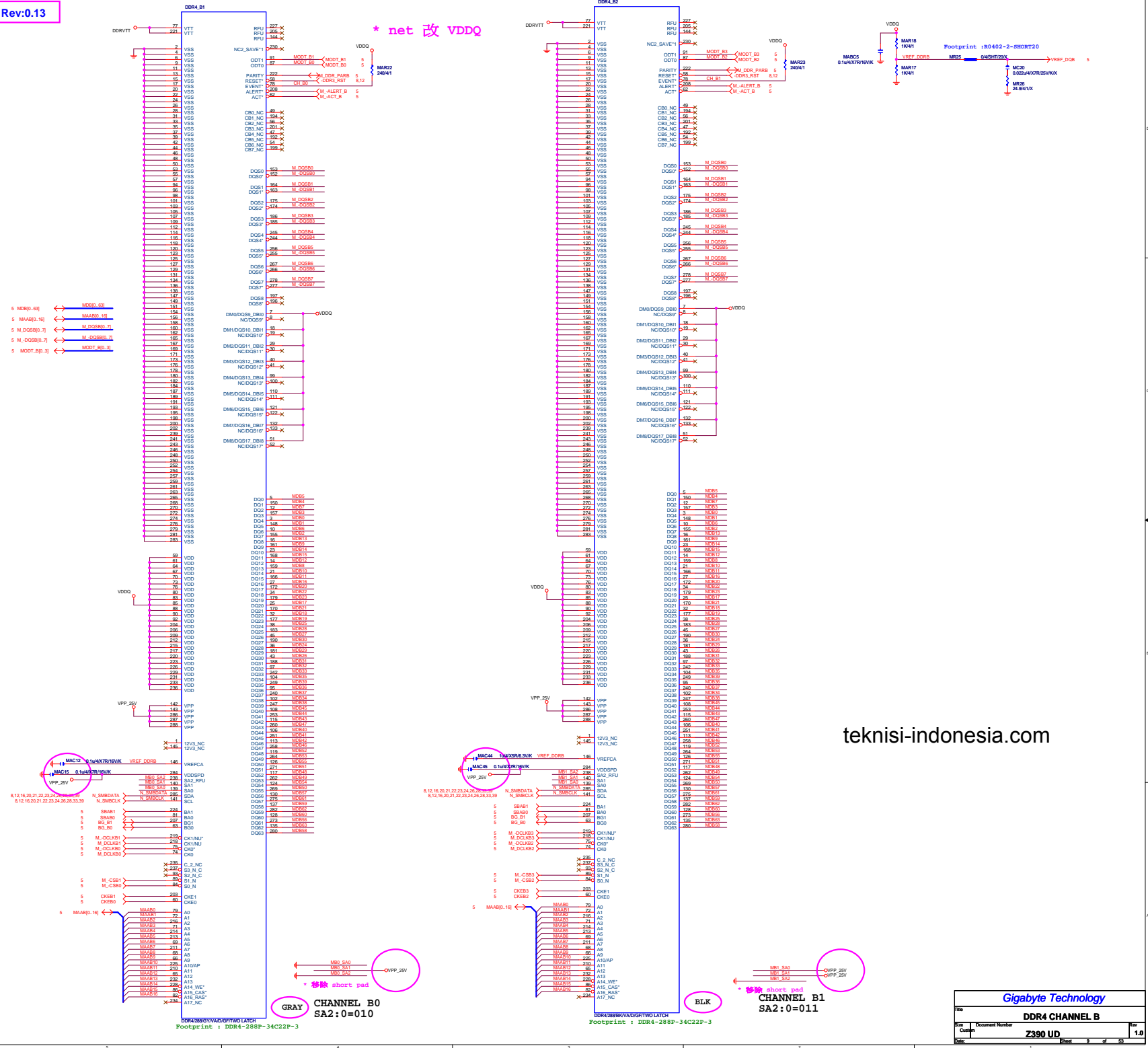








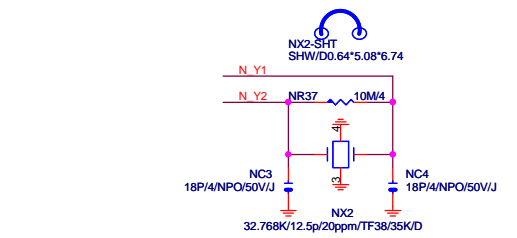
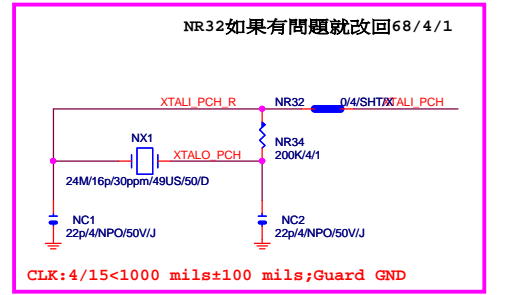
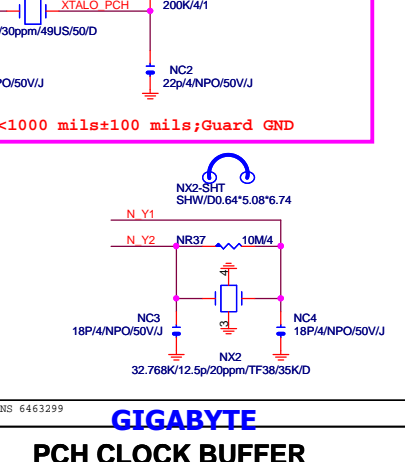
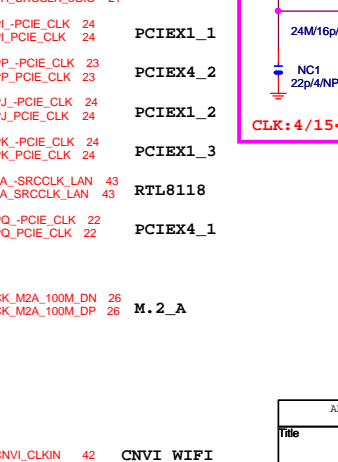
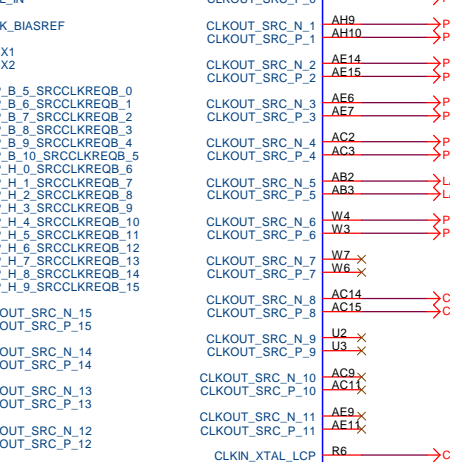
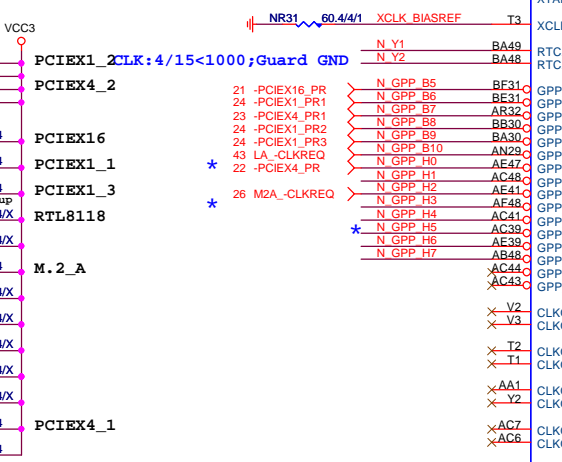
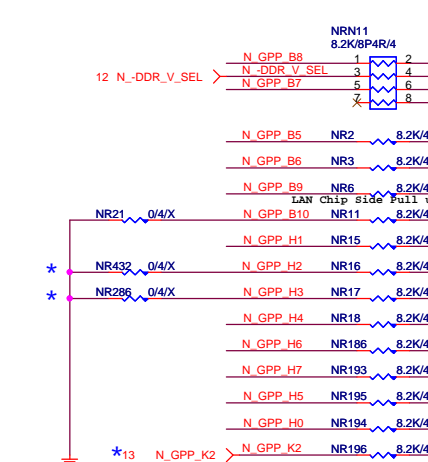
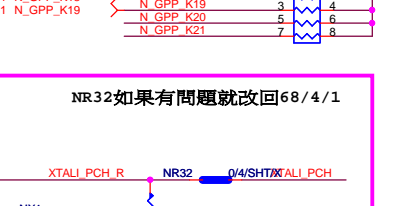
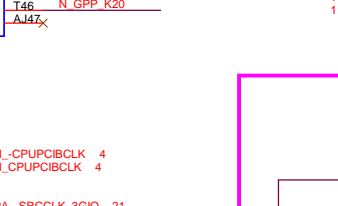
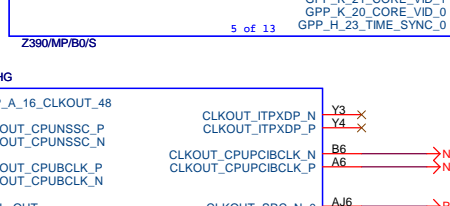
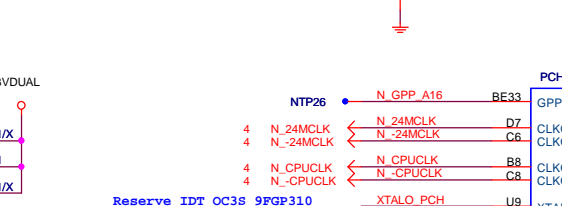
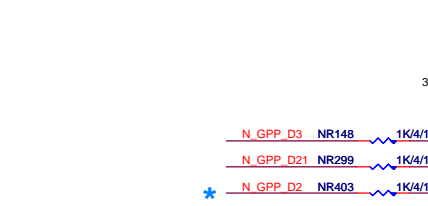
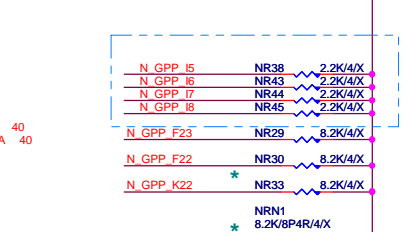
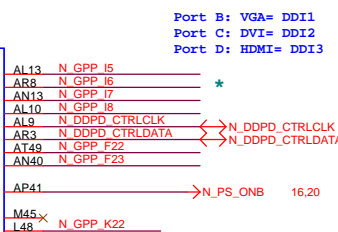
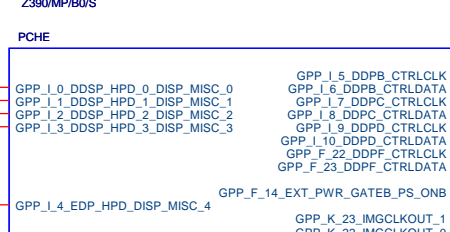
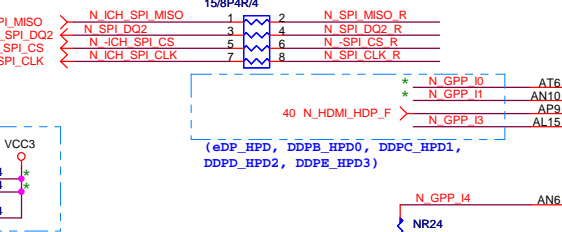
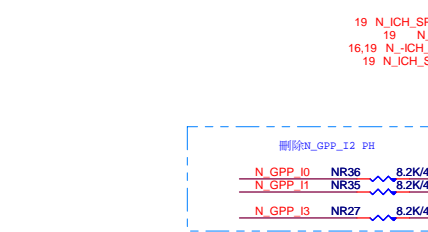
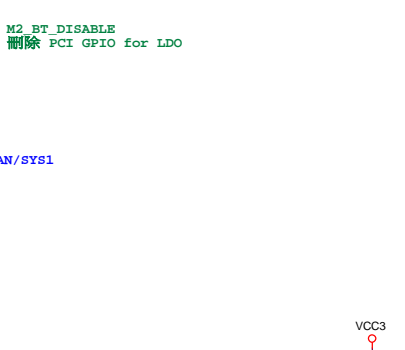
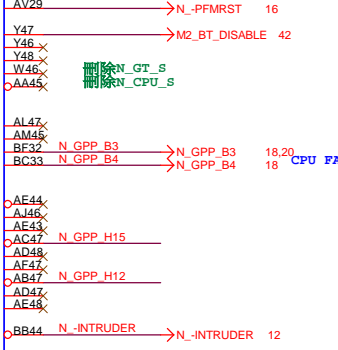
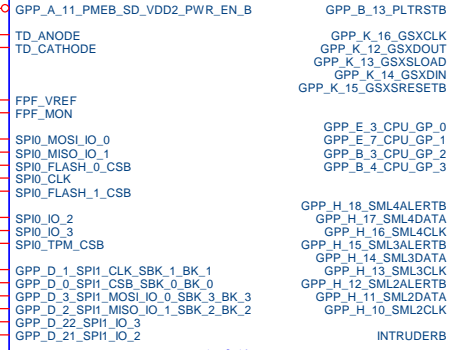
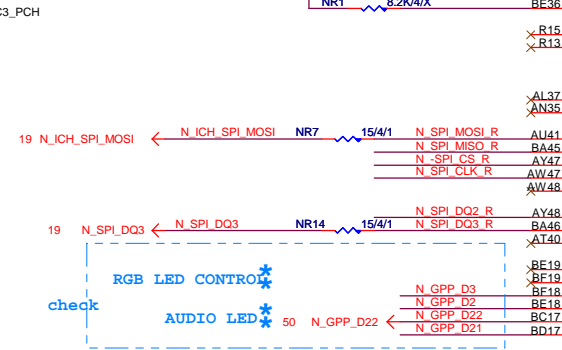
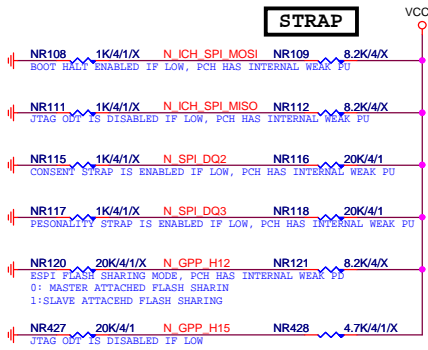




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GRAY CHANNEL B0  
SA2:0=010

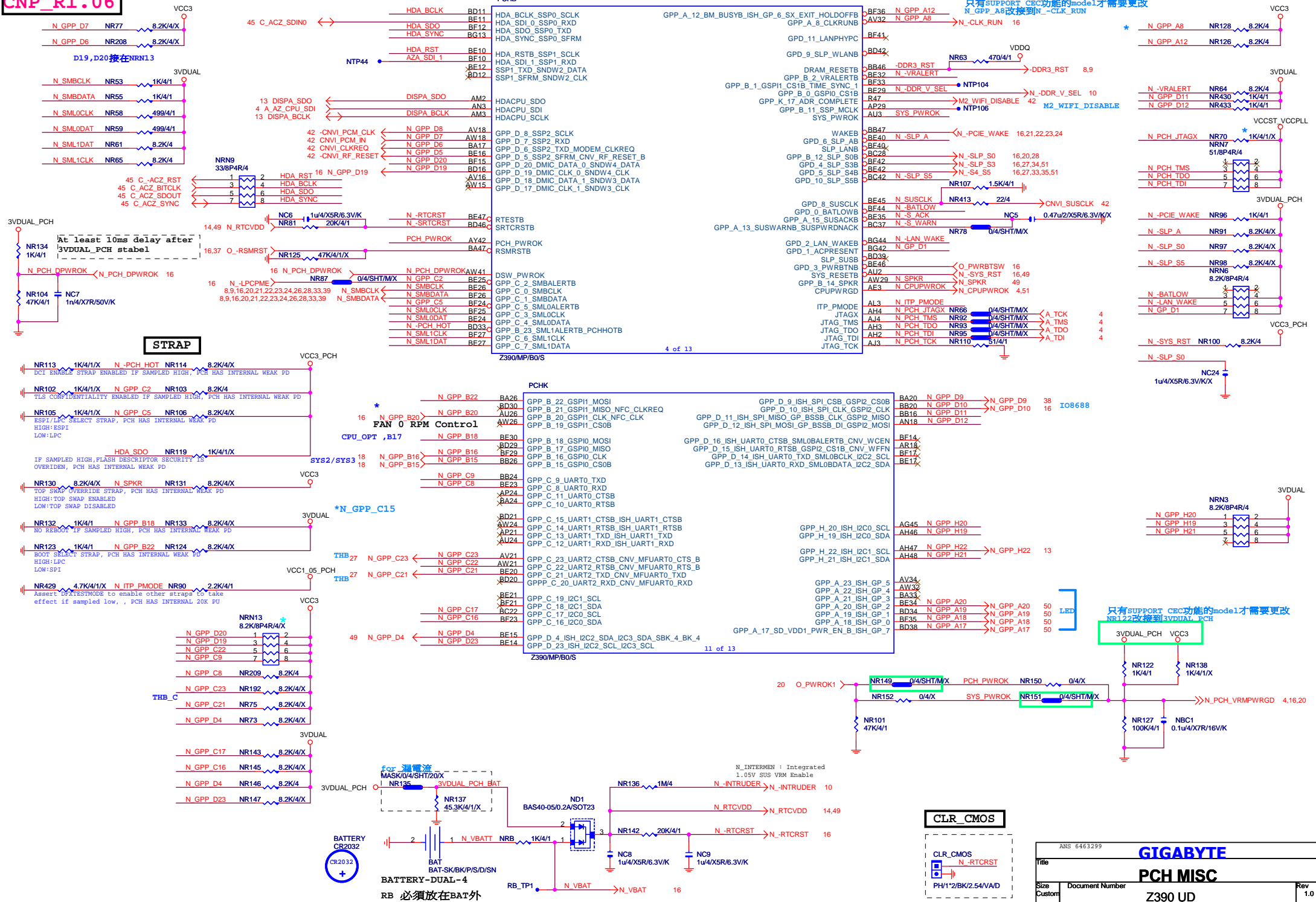
BLK CHANNEL B1  
SA2:0=011



ANS 6463299		<b>GIGABYTE</b>	
Title		<b>PCH CLOCK BUFFER</b>	
Size Custom	Document Number	Z390 UD	Rev 1.0
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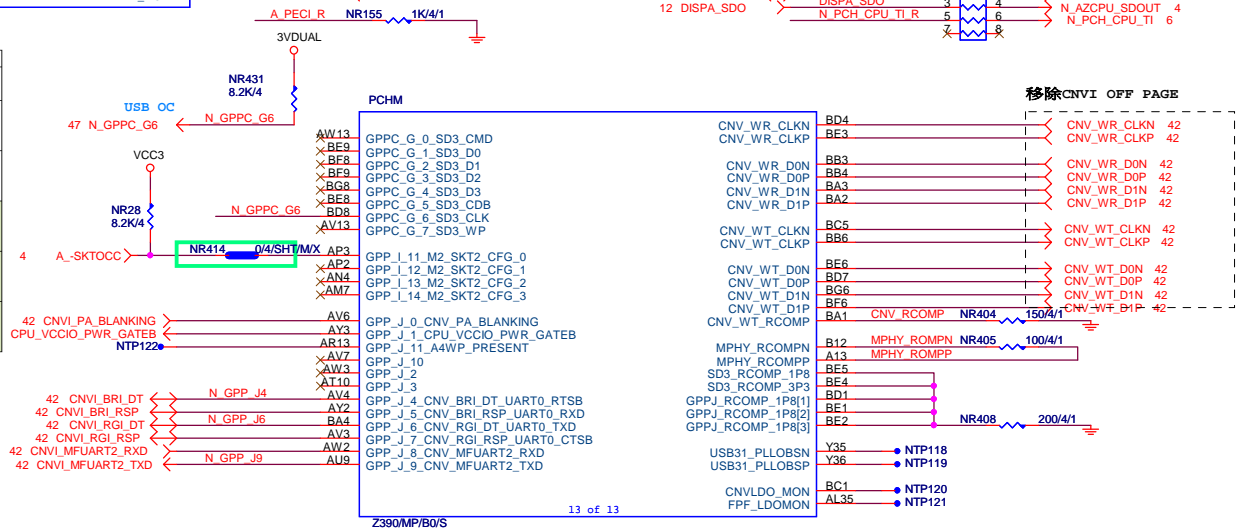
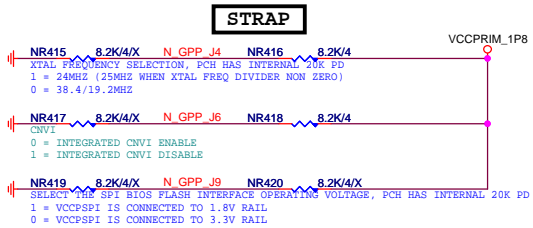
## CNP\_R1.06

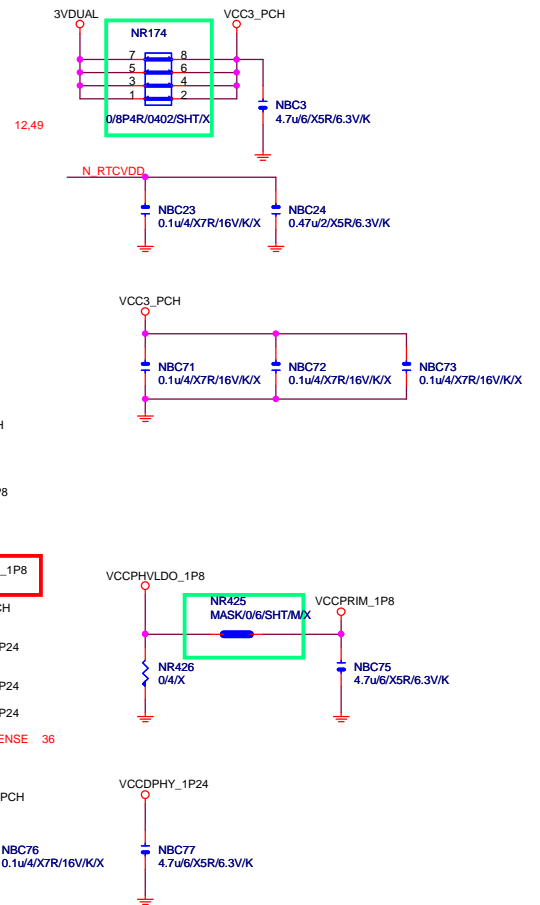
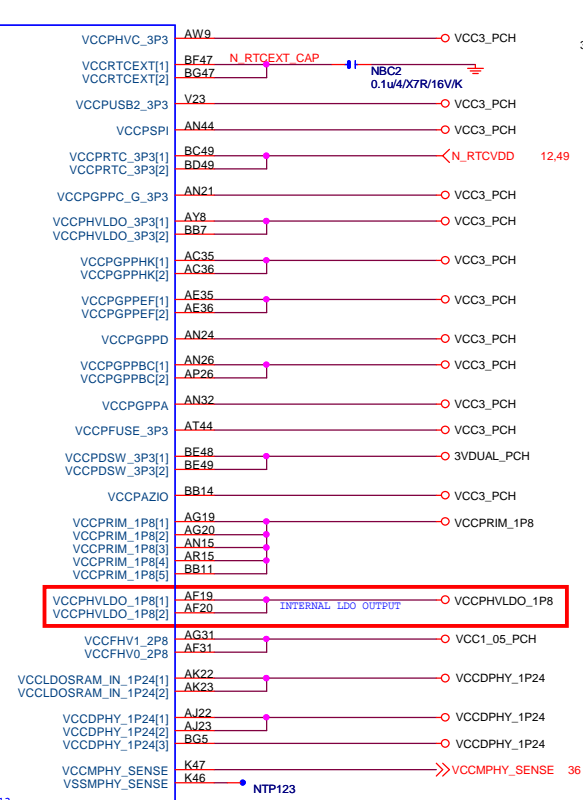
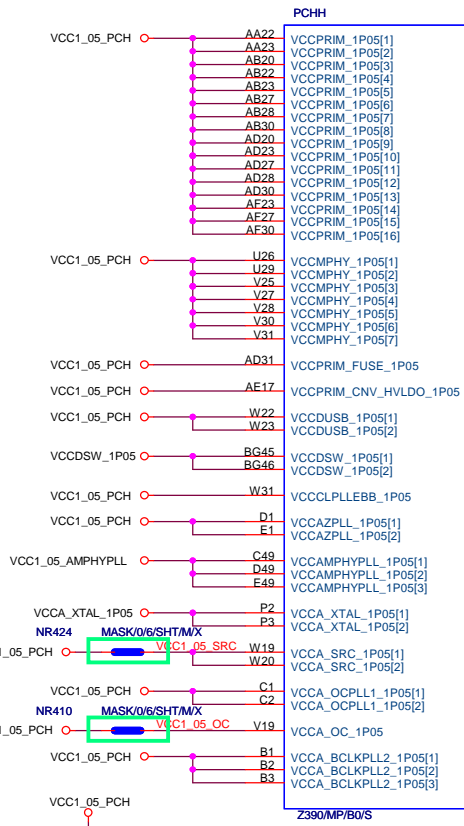
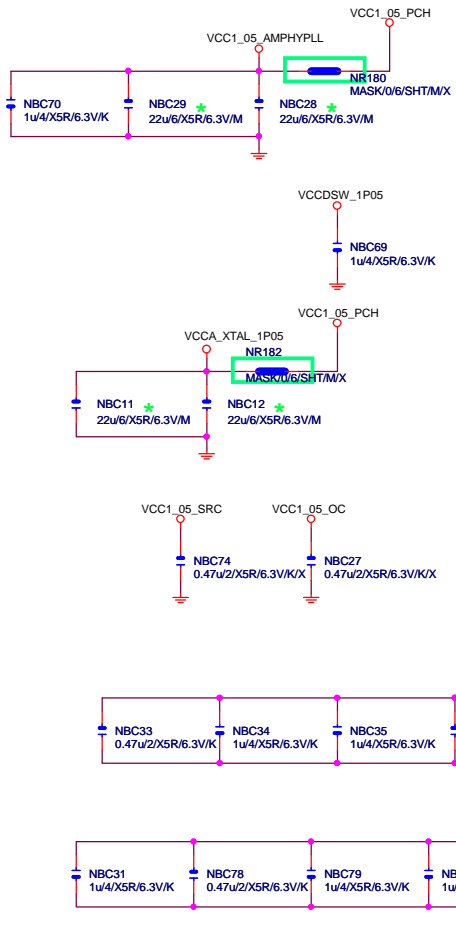






ITEM	PCIE P9	PCIE P10	PCIE P11	PCIE P12	PCIE P13	PCIE P14	PCIE P15	PCIE P16	PCIE P17	PCIE P18	PCIE P19	PCIE P20
H310	GbE	N/A	PCIE	PCIE GbE	GbE SATA 0	SATA 1	SATA2	SATA 3	N/A	N/A	N/A	N/A
B360	PCIE GbE	PCIE	PCIE SATA 0A	PCIE GbE SATA 1A	GbE SATA 0B	SATA 1B	SATA2	SATA 3	SATA4	SATA5	N/A	N/A
Q360	PCIE GbE	PCIE	PCIE SATA 0A	PCIE GbE SATA 1A	PCIE GbE SATA 0B	PCIE SATA 1B	SATA2	SATA 3	SATA4	SATA5	N/A	N/A
H370	PCIE GbE	PCIE	PCIE SATA 0A	PCIE GbE SATA 1A	PCIE GbE SATA 0B	PCIE SATA 1B	PCIE SATA 2	PCIE SATA 3	SATA4	SATA5	PCIE	PCIE
Z390	PCIE GbE	PCIE	PCIE SATA 0A	PCIE GbE SATA 1A	PCIE GbE SATA 0B	PCIE SATA 1B	PCIE SATA 2	PCIE SATA 3	PCIE SATA 4	PCIE SATA 5	PCIE	PCIE
Q370	PCIE GbE	PCIE	PCIE SATA 0A	PCIE GbE SATA 1A	PCIE GbE SATA 0B	PCIE SATA 1B	PCIE SATA 2	PCIE SATA 3	PCIE SATA 4	PCIE SATA 5	PCIE	PCIE





PCHI		
A2	VSS	VSS
A28	VSS	VSS
A3	VSS	VSS
A33	VSS	VSS
A37	VSS	VSS
A4	VSS	VSS
A45	VSS	VSS
A46	VSS	VSS
A47	VSS	VSS
A48	VSS	VSS
A5	VSS	VSS
A8	VSS	VSS
AA19	VSS	VSS
AA20	VSS	VSS
AA25	VSS	VSS
AA27	VSS	VSS
AA28	VSS	VSS
AA30	VSS	VSS
AA31	VSS	VSS
AA49	VSS	VSS
AA5	VSS	VSS
AB19	VSS	VSS
AB25	VSS	VSS
AB31	VSS	VSS
AC12	VSS	VSS
AC17	VSS	VSS
AC33	VSS	VSS
AC38	VSS	VSS
AC4	VSS	VSS
AC46	VSS	VSS
AD1	VSS	VSS
AD19	VSS	VSS
AD2	VSS	VSS
AD22	VSS	VSS
AD25	VSS	VSS
AD49	VSS	VSS
AE12	VSS	VSS
AE33	VSS	VSS
AE38	VSS	VSS
AE4	VSS	VSS
AE46	VSS	VSS
AF22	VSS	VSS
AF25	VSS	VSS
AF28	VSS	VSS
AG1	VSS	VSS
AG22	VSS	VSS
AG23	VSS	VSS
AG25	VSS	VSS
AG27	VSS	VSS
AG28	VSS	VSS
AG30	VSS	VSS
AG49	VSS	VSS
AH12	VSS	VSS
AH17	VSS	VSS
AH33	VSS	VSS
AH38	VSS	VSS
AJ19	VSS	VSS
AJ20	VSS	VSS
AJ25	VSS	VSS
AJ27	VSS	VSS
AJ28	VSS	VSS
AJ30	VSS	VSS
AJ31	VSS	VSS
AK19	VSS	VSS
AK20	VSS	VSS
AK25	VSS	VSS
AK27	VSS	VSS
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AK30	VSS	VSS
AK31	VSS	VSS
AK4	VSS	VSS
AK46	VSS	VSS

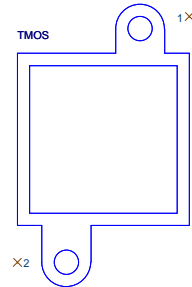
Z390MP/BO/S

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PCHL		
BG3	VSS	M24
BG33	VSS	M32
BG37	VSS	M34
BG4	VSS	M49
BG48	VSS	M5
C12	VSS	N12
C25	VSS	N16
C30	VSS	N34
C4	VSS	N35
C48	VSS	N37
AM1	VSS	N38
AM18	VSS	P26
AM32	VSS	P29
AM49	VSS	P4
D12	VSS	P46
D16	VSS	R12
D17	VSS	R16
D30	VSS	R26
D33	VSS	R28
D8	VSS	R3
E10	VSS	R34
E13	VSS	R38
E15	VSS	R4
E17	VSS	T17
AR34	VSS	T18
AR38	VSS	T32
AT1	VSS	T4
AT16	VSS	T49
AT18	VSS	T5
AT21	VSS	T7
AT24	VSS	U12
E33	VSS	U15
E35	VSS	U17
AT29	VSS	U21
E40	VSS	U24
E42	VSS	U38
AT32	VSS	V20
AT34	VSS	V22
E8	VSS	V4
AT45	VSS	V46
F41	VSS	W25
F43	VSS	W27
F47	VSS	W28
G44	VSS	W30
AW4	VSS	Y10
AW40	VSS	Y12
H8	VSS	Y17
J10	VSS	Y33
J26	VSS	Y38
B48	VSS	Y9
B49	VSS	
J4	VSS	
BA12	VSS	
J46	VSS	
J47	VSS	
BA44	VSS	
BA5	VSS	
BA6	VSS	
BB41	VSS	
BB43	VSS	
BB9	VSS	
M16	VSS	
M18	VSS	
BC10	VSS	
BC13	VSS	
BC15	VSS	
BC19	VSS	
BC24	VSS	
BC26	VSS	
BC31	VSS	
BC35	VSS	
BC40	VSS	
BC45	VSS	
BC8	VSS	
BD43	VSS	
BE44	VSS	
BE1	VSS	
BF2	VSS	
BF3	VSS	
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BF49	VSS	
BG17	VSS	
BG2	VSS	
BG22	VSS	
BG25	VSS	
BG28	VSS	

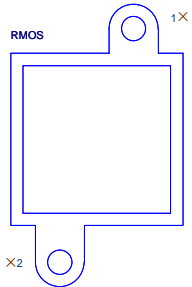
Z390MP/BO/S

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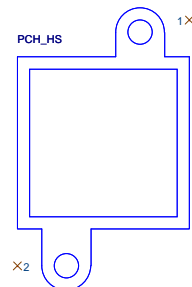
HEAT SINK[12SP2-S09426-G1R\_12SP2-S09426-G2R\_12SP2-S09426-G3R]

Footprint : same Z370 HD3  
MOSHSINK-Z370\_HD3P-T  
PN: 12SP2-S09426-G1R/G2R/G3R  
1.5mm thermal pad



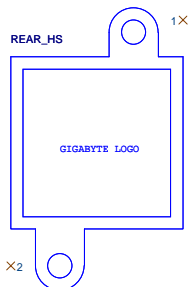
HEAT SINK[12SP2-S08026-G1R\_12SP2-S08026-G2R\_12SP2-S08026-G3R]

Footprint : same Z370 HD3  
MOSHSINK-Z370\_HD3P-R  
PN: 12SP2-S08026-G1R/G2R/G3R  
1.5mm thermal pad



HEAT SINK[12SP2-S08604-03R\_12SP2-S08604-01R]

Footprint : same H370 HD3  
BGAHSINK-Z370\_HD3P  
PN:12SP2-S08604-03R/01R

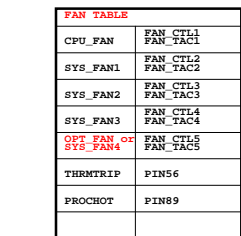


IO CR/LINE 032U CS[12KRC-0H0022-01R]X

Footprint :  
Z390\_AORUS\_G7\_IO\_COVER  
PN: 12KRC-0H0022-01R



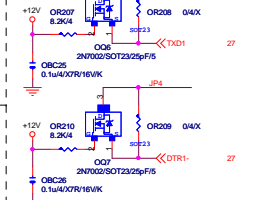
## IT8688 COMA+LED



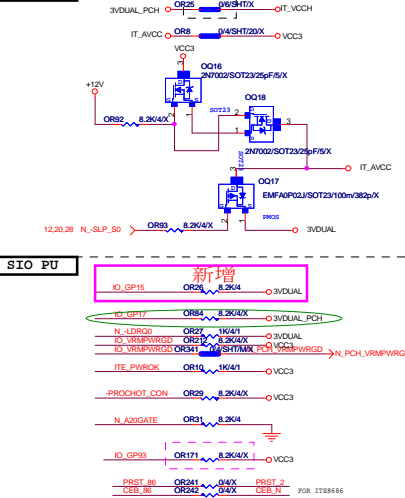
1

SIO CAP	IT VGGH
---------	---------

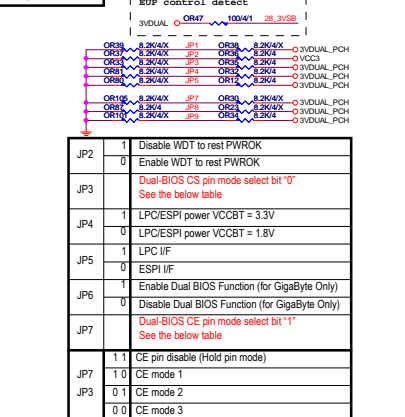
internal power pin, max 22nF cap



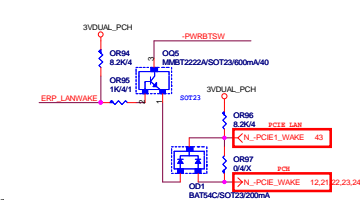
**SIO PU**



## SIO STRAP



(組態一) PCIE LAN( Single & Dual LAN)



有EC 機種，不支援ERP Wake。只需上件OR97。  
OR94,OR95,OQ5,OD1,OR96不上件。

(組態二) INTEL219 LAN( Single LAN)

(組態三) INTEL LAN+PCIE LAN(Dual LAN)

JP2	1	Disable WDT to rest PWROK
	0	Enable WDT to rest PWROK
JP3	1	Dual-BIOS CS pin mode select bit "0" See the below table
	0	
JP4	1	LPIC/ESPI power VCCBT = 3.3V
	0	LPIC/ESPI power VCCBT = 1.8V
JP5	1	LPC IF
	0	ESPI IF
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
	0	Disable Dual BIOS Function (for GigaByte Only)
JP7	1	Dual-BIOS CE pin mode select bit "1" See the below table
	0	
JP7	1 1	CE pin disable (Hold pin mode)
	1 0	CE mode 1
JP3	0 1	CE mode 2
	0 0	CE mode 3

ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN (只留一個 LANwake ERP下) wake up	Atheros+Atheros	組態一
	Intel 219+Atheros	
	Intel 219+Intel 219	組態三
No Support ERP	Single LAN BOM只OR97。 Dual LAN BOM只上OR97、OR99。	

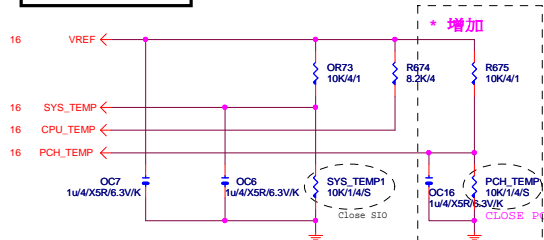
## Gigabyte Technology

Title: ITE 8688 LPC IO\_RGB\_LED

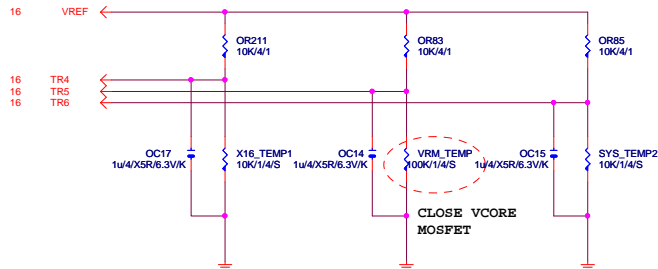
Size	Document Number
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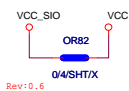
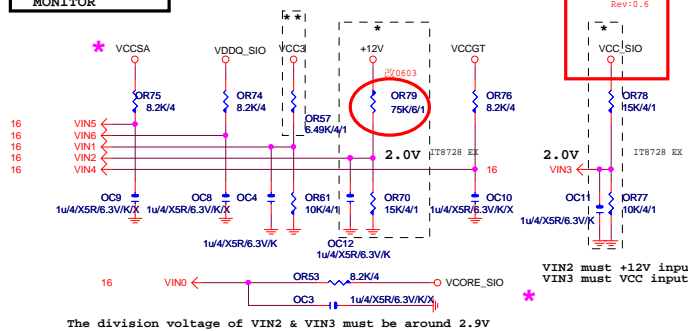
# TEMP H/W MONITOR



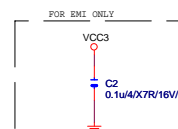
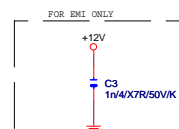
## 5個FAN時使用



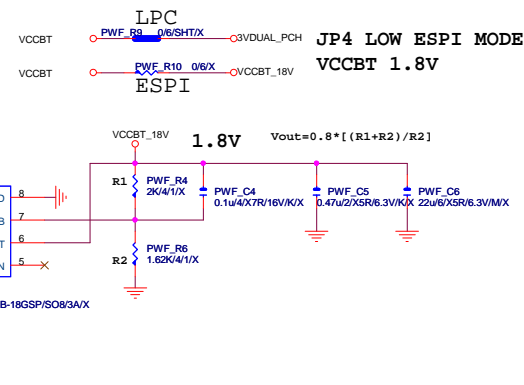
# VOLTAGE-- H/W MONITOR



(靠近ATX CONNECTOR )



★Update 2015-04.24

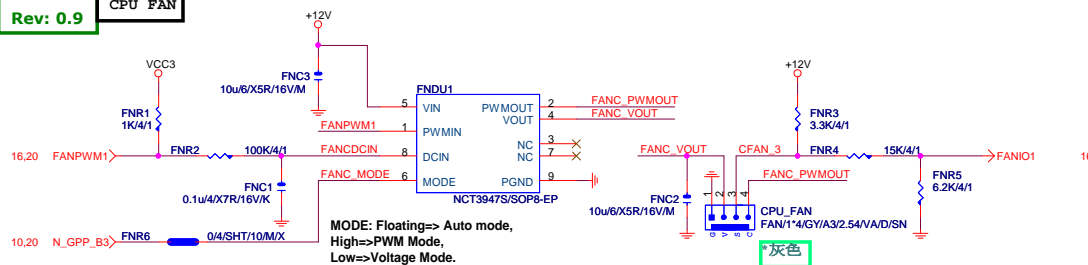


# Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL
Size	Document Number	Rev	
Custom	Z390 UD	1.0	
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Rev: 0.9

## CPU FAN



IO 4 FAN

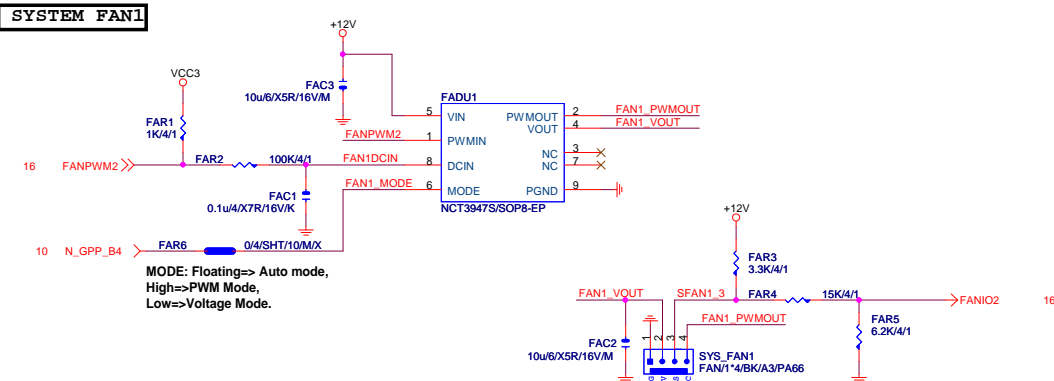
CPU\_FAN

SYS\_FAN1

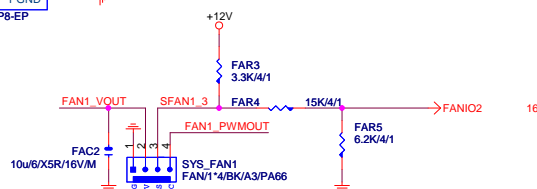
SYS\_FAN2

SYS\_FAN3

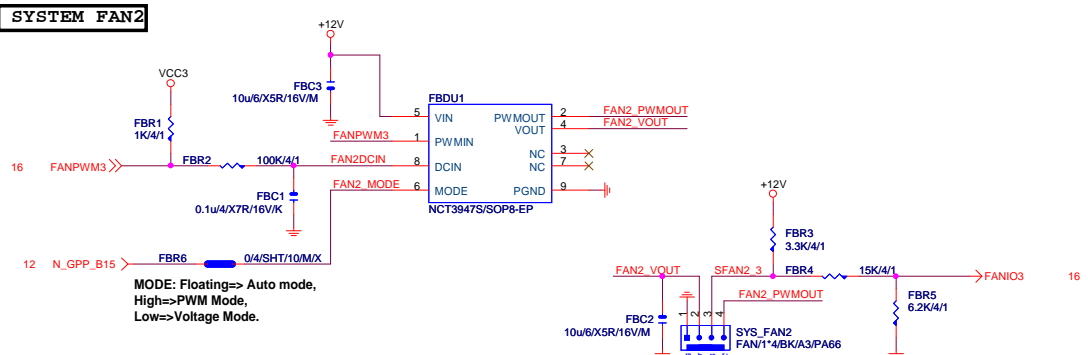
## SYSTEM FAN1



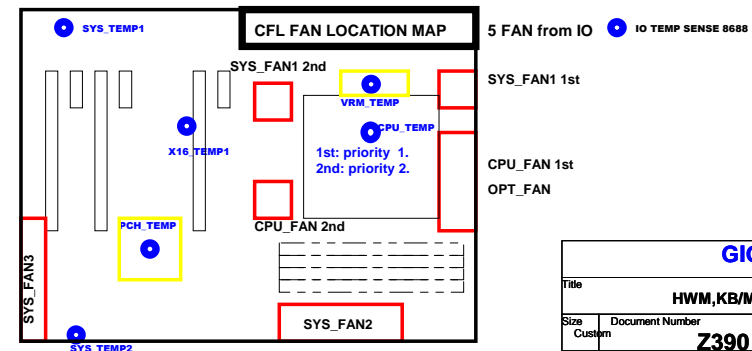
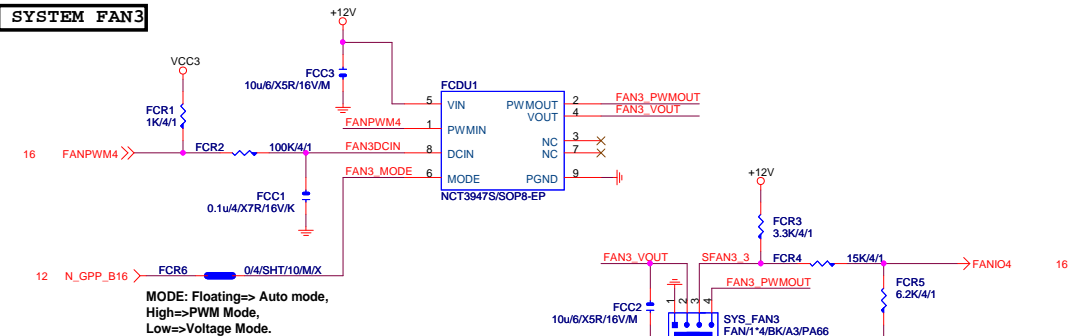
## CPU\_OPT



## SYSTEM FAN2



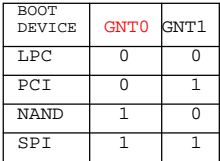
## SYSTEM FAN3



## GIGABYTE

Title				<b>HWM,KB/MS, FAN CTRL</b>			
Size	Document Number						Rev
Custom	<b>Z390 UD</b>						<b>1.0</b>
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**DUAL BIOS**

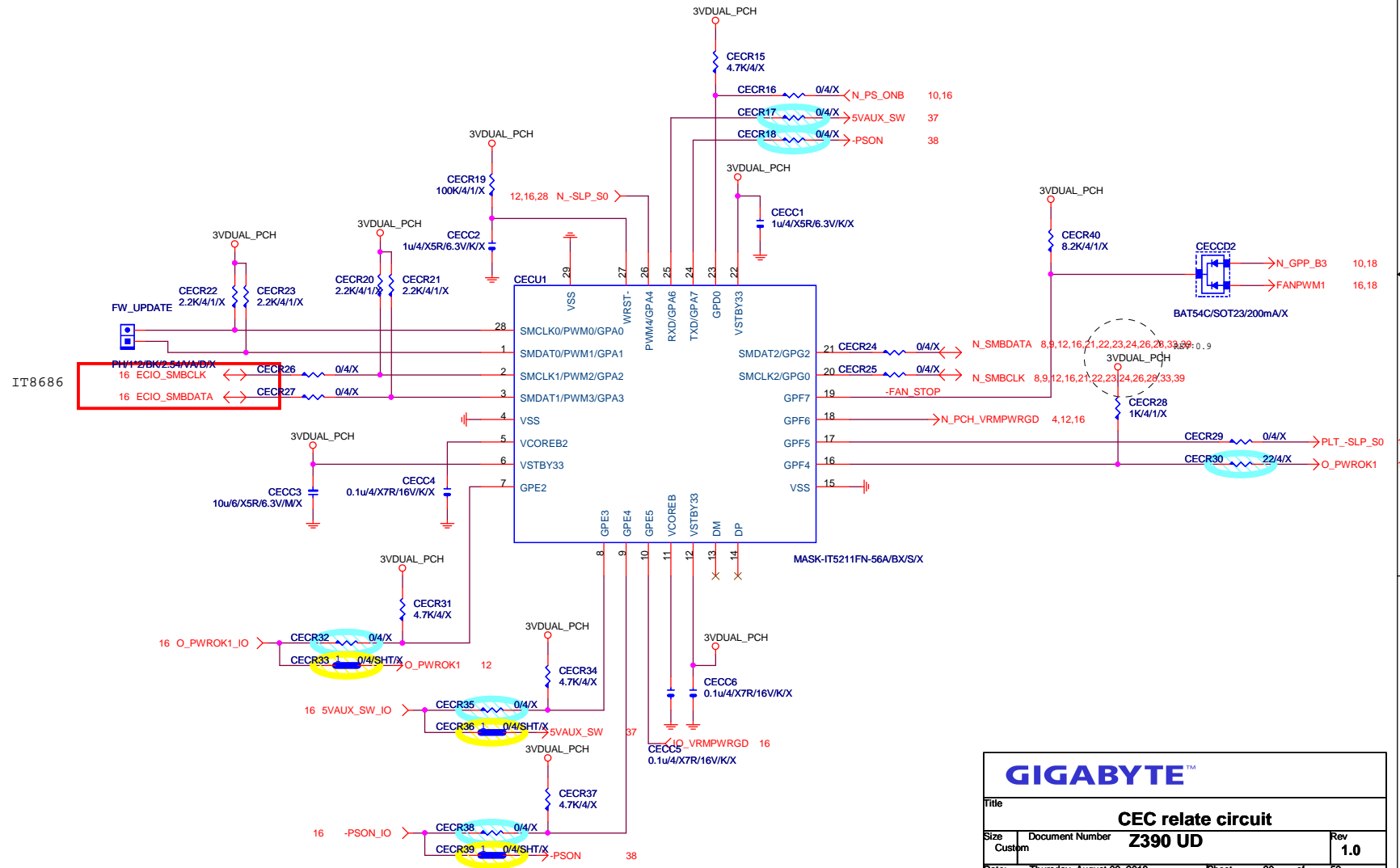


```
1 means floating
0 means PD 1K
```

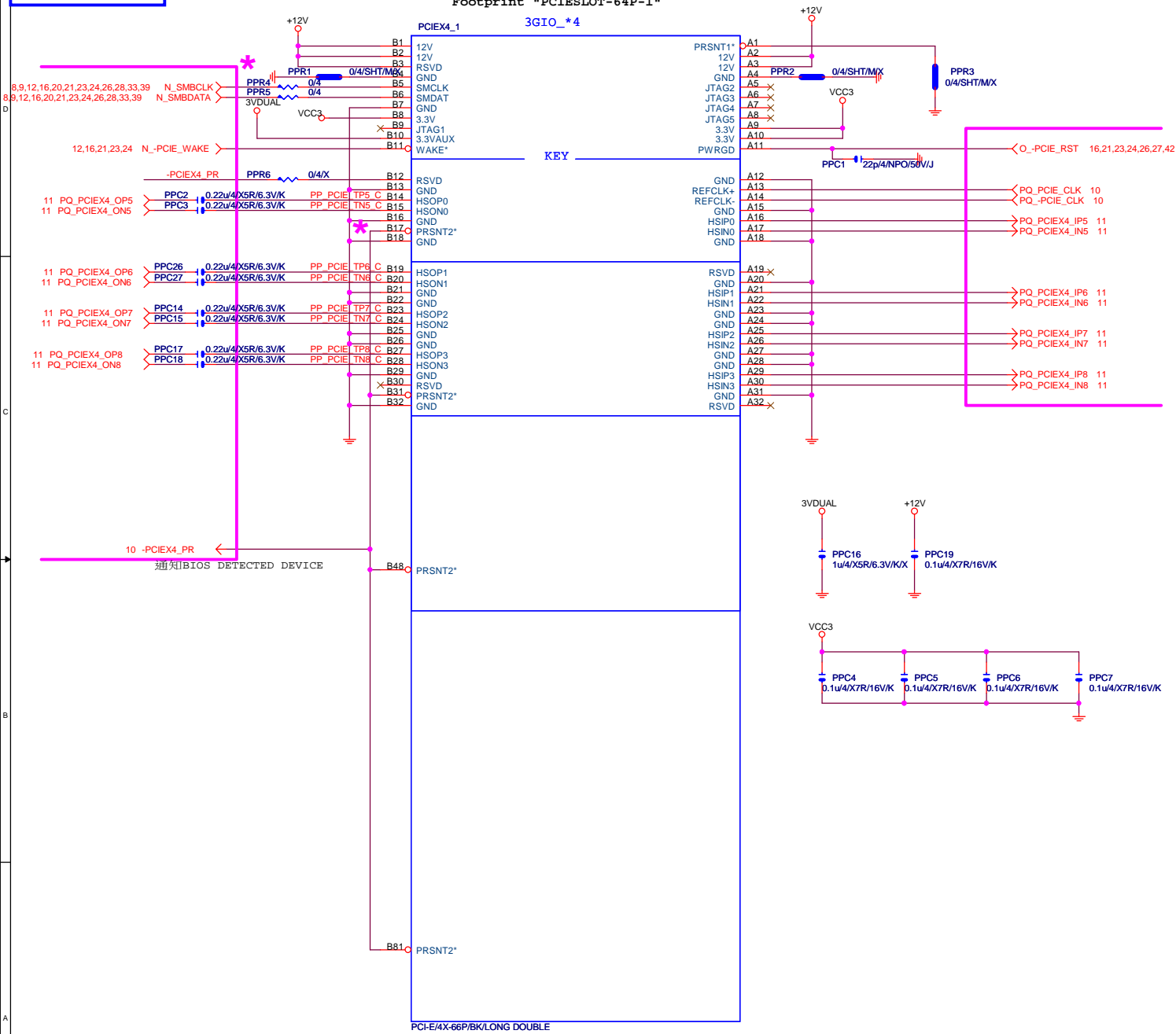


\* 試產先上，PVT 移除

## ATX Power Discharge







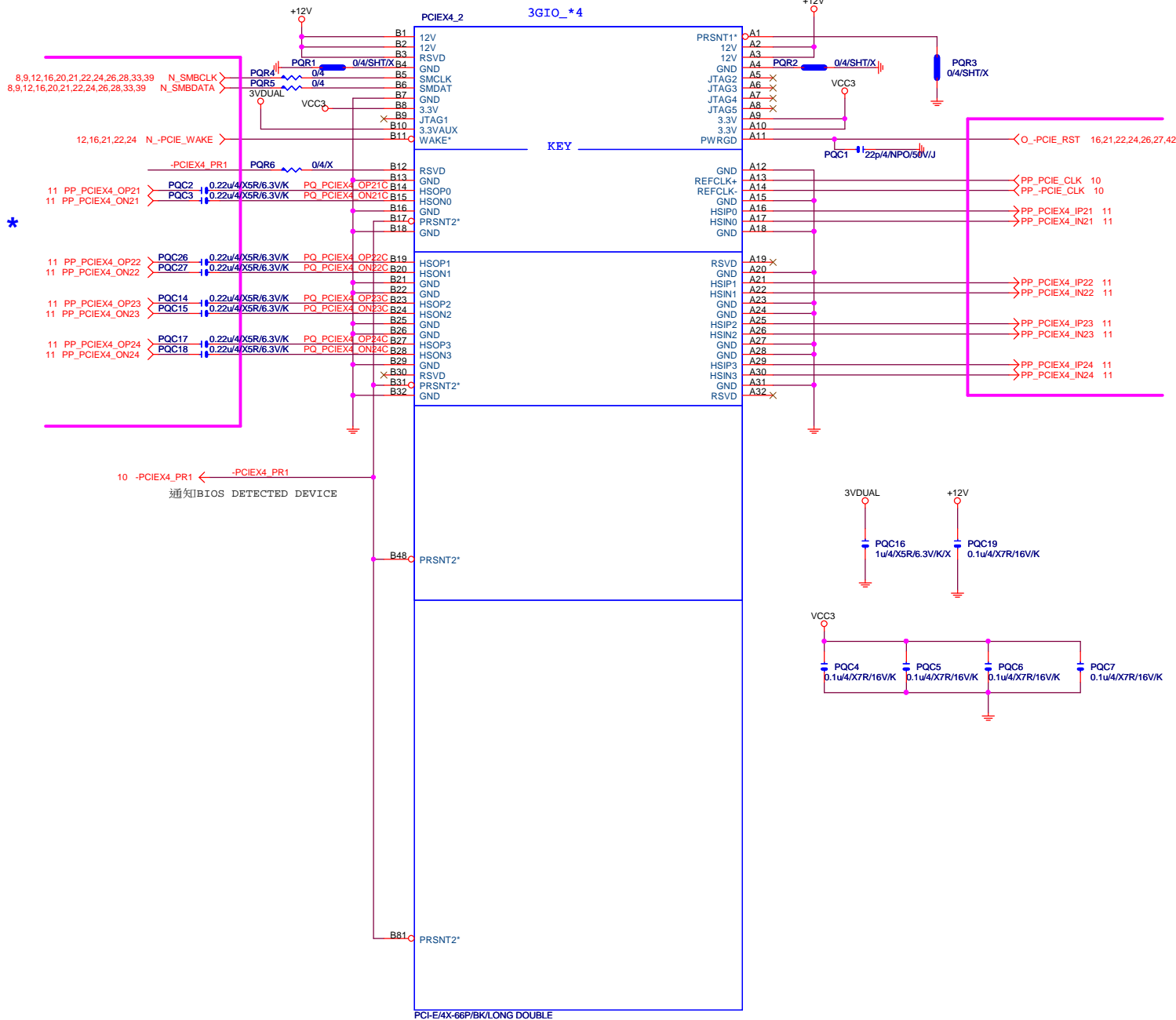


Rev 0.51

PCIE\*4



Footprint "PCIESLOT-64P-1"

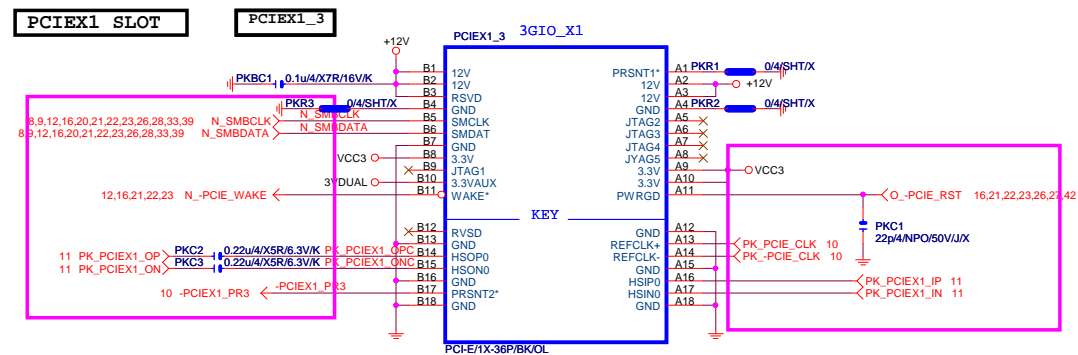
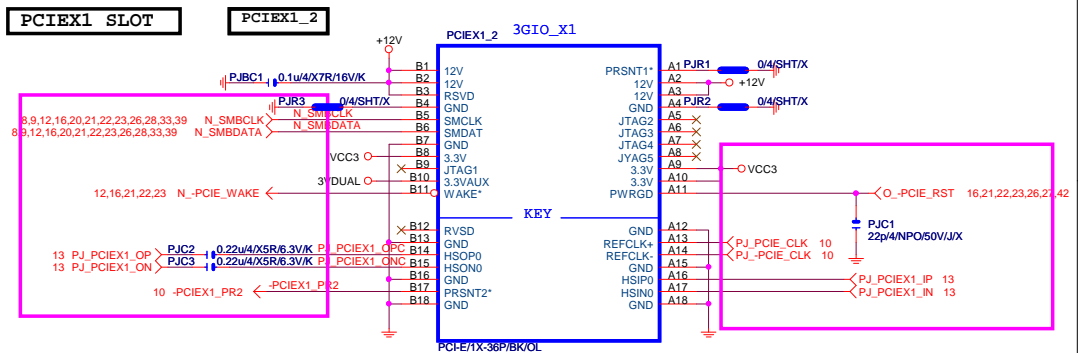
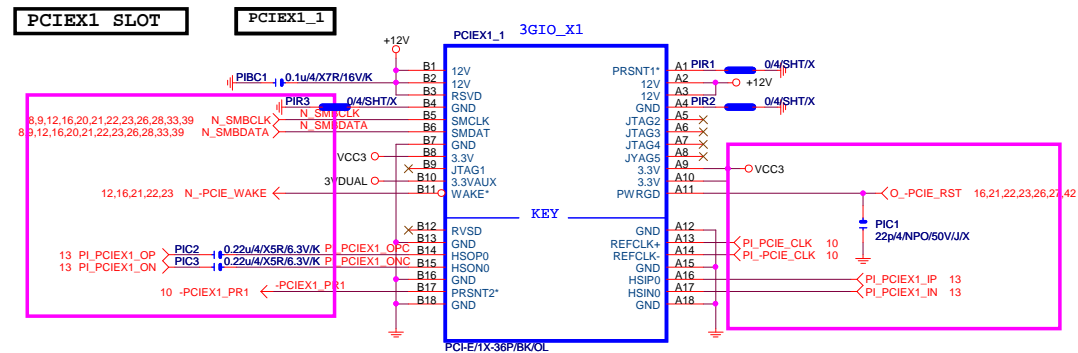


11AC1-023065-17R:黑色

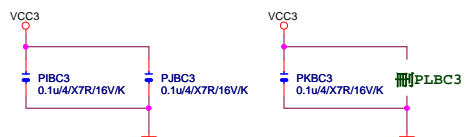
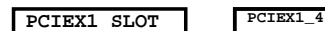
Gigabyte Technology

Title			PCIE_X4
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Rev 0.51



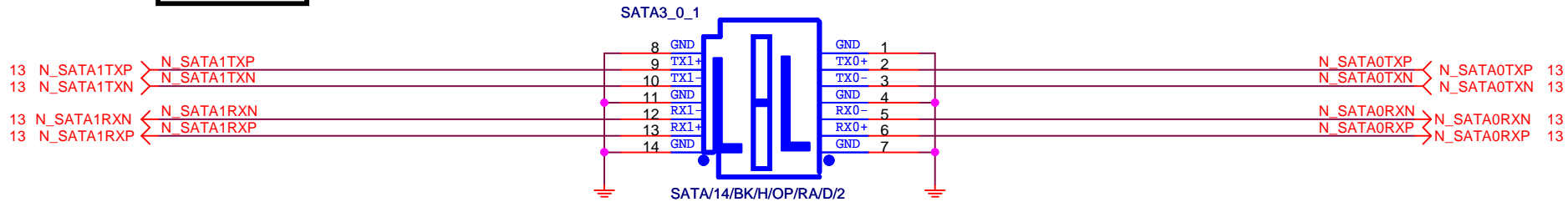
删除PCIEX1\_4



# IO18/IO19 To SATA3 port0/1 (90度R-A, 180度V-A)

上 Port (8~14) 下 Port (1~7) 6 SATA3 from Z390 (90度R-A)

SATA3 0/1



SATA/14/BK/H/OP/RA/D/2

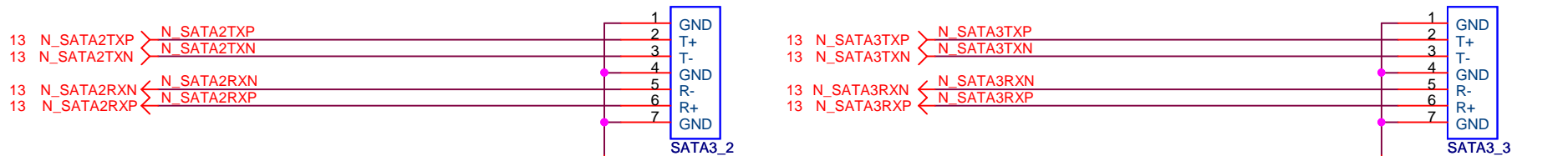
BLACK

Footprint : H2X7-SATA2-D90

# IO20/IO21 To SATA3 port2/3

上 Port (8~14) 下 Port (1~7)

SATA3 2/3



SATA2/7/BK/H/OP/NA/D/1/B

BLACK

Footprint : H1X7-SATA2-HS-MASK

SATA2/7/BK/H/OP/NA/D/1/B

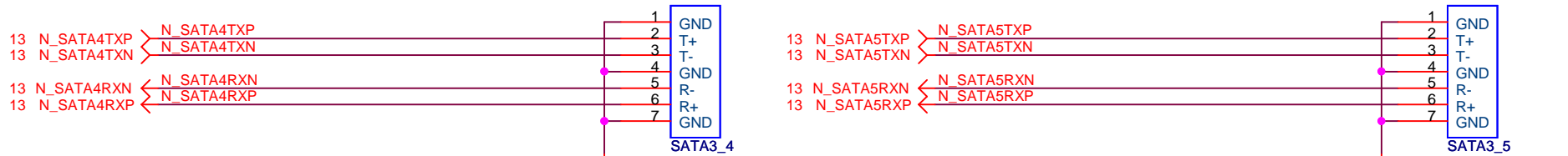
BLACK

Footprint : H1X7-SATA2-HS-MASK

# IO22/IO23 To SATA3 port4/5

上 Port (8~14) 下 Port (1~7)

SATA3 4/5



SATA2/7/BK/H/OP/NA/D/1/B

BLACK

Footprint : H1X7-SATA2-HS-MASK

SATA2/7/BK/H/OP/NA/D/1/B

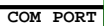
BLACK

Footprint : H1X7-SATA2-HS-MASK

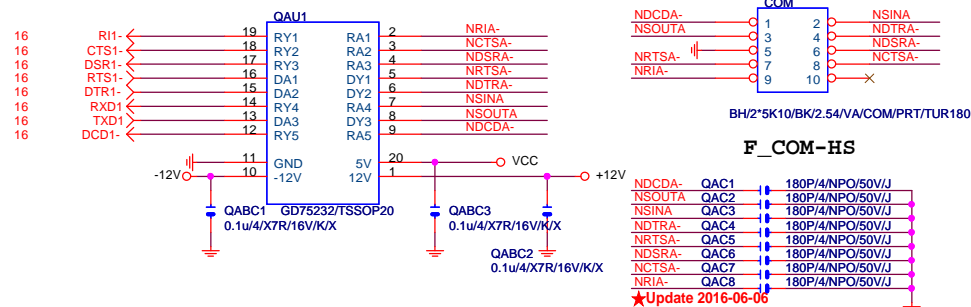
Gigabyte Technology

Title		
SATA		
Size	Document Number	Rev
Custom	Z390 UD	1.0
Date:	Thursday, August 09, 2018	Sheet 25 of 53



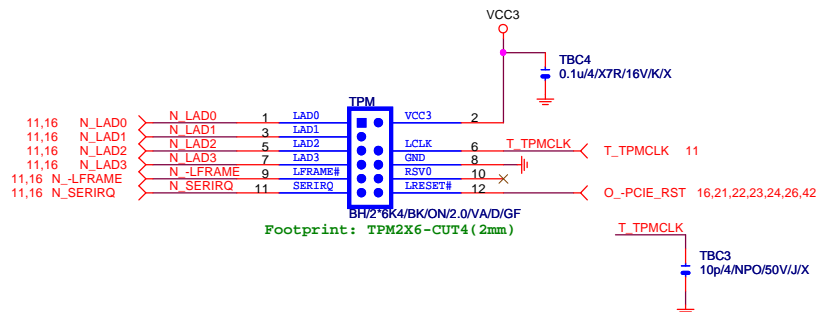


Rev: 0.91



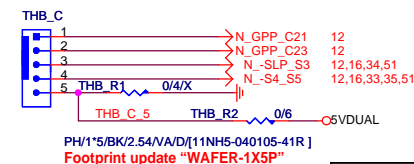
LPT PORT

模組為: IT8686 LPT+COMA, 單獨刪除LPT...CHECK.

**TPM CONNECT**

## Thunderbolt

★Update 2015-12-29



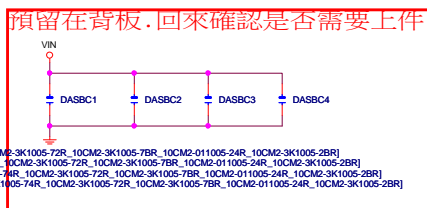
PH/1\*5/BK/2.54/VA/D/[11NH5-040105-41R ]

### Footprint update “WAFER-1X5P”

## Gigabyte Technology

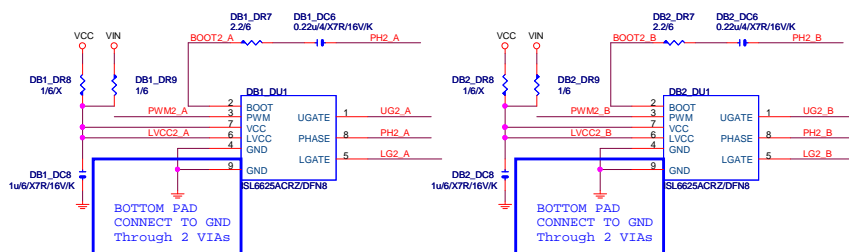
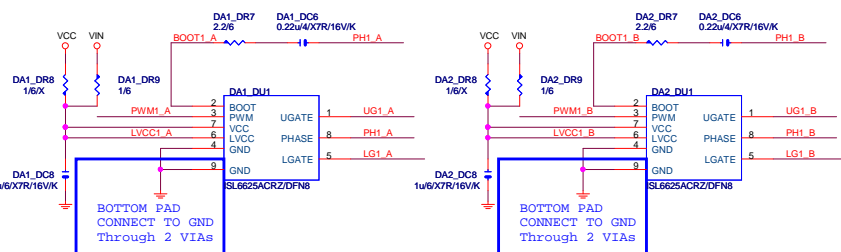
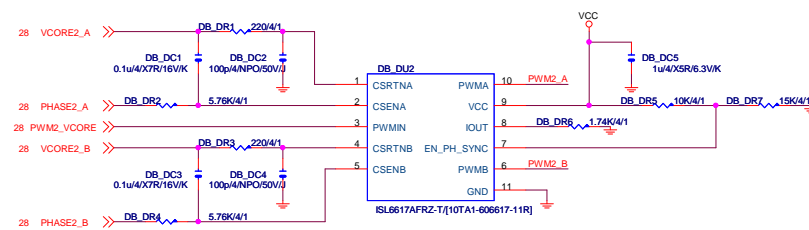
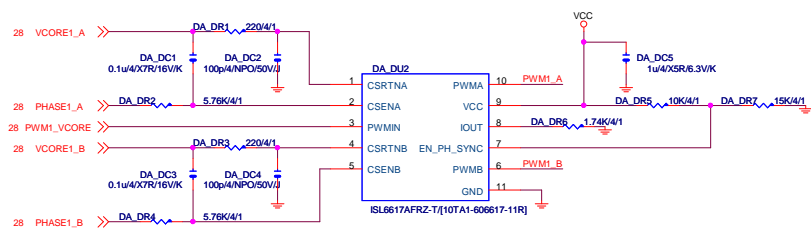
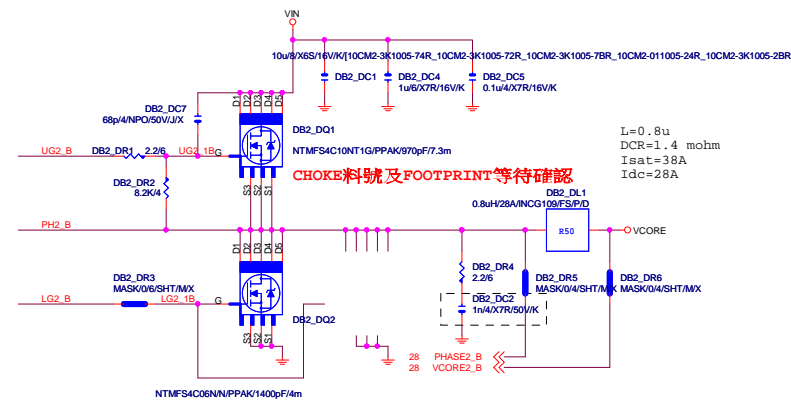
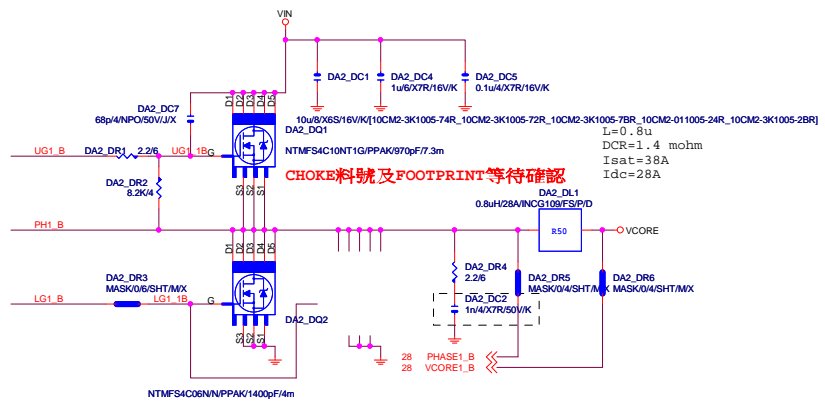
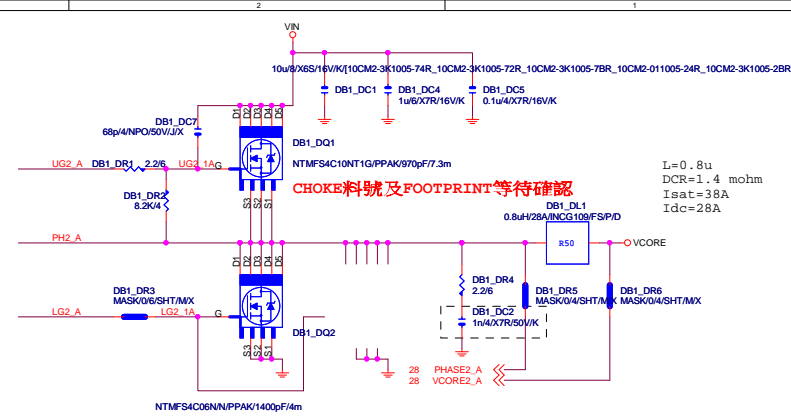
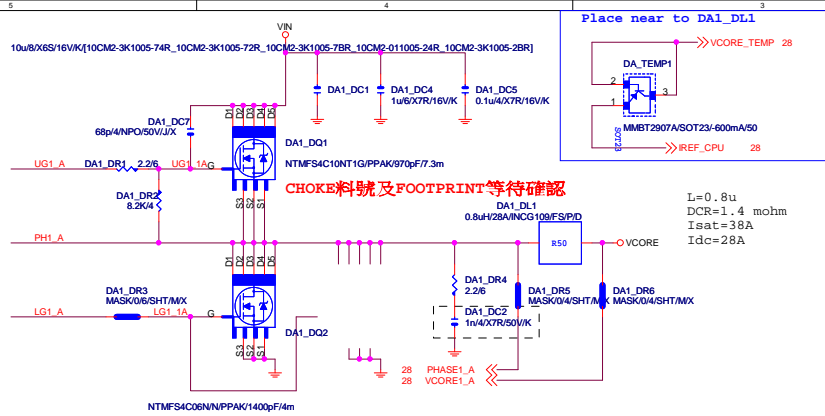
Title			
COM, TPM ,THB			
Size Custom	Document Number		Rev
	Z390 UD		1.0
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**\*PVT時,DAJP1不上件**

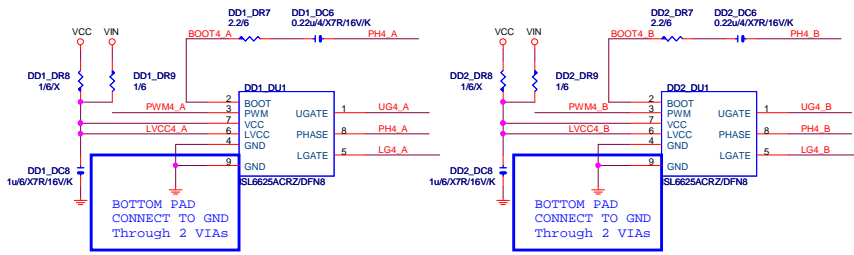
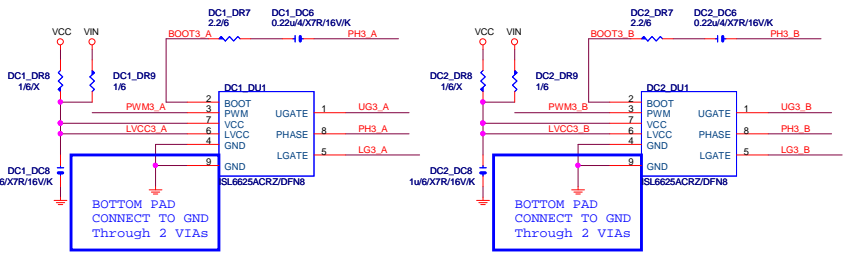
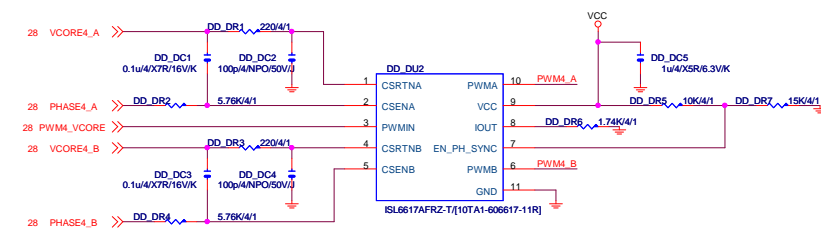
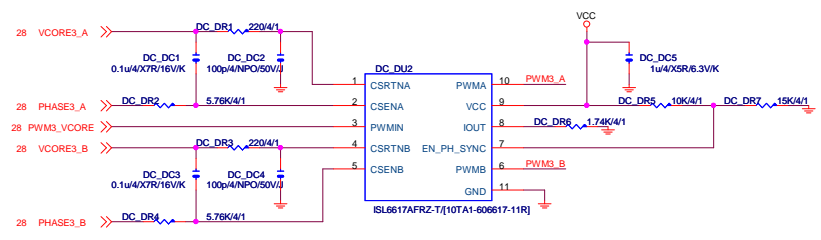
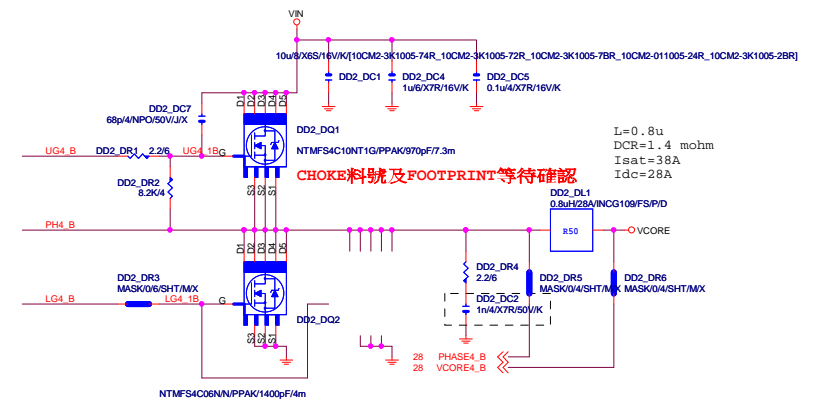
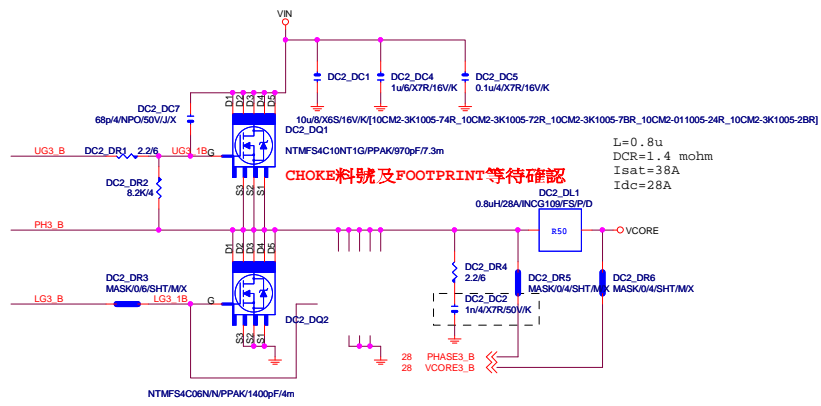
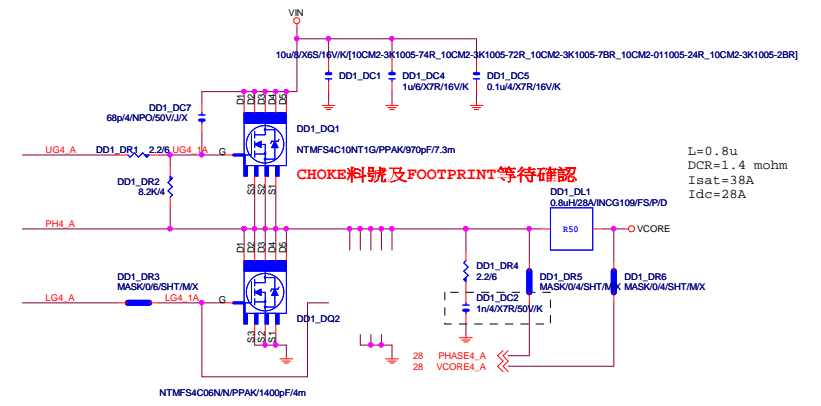
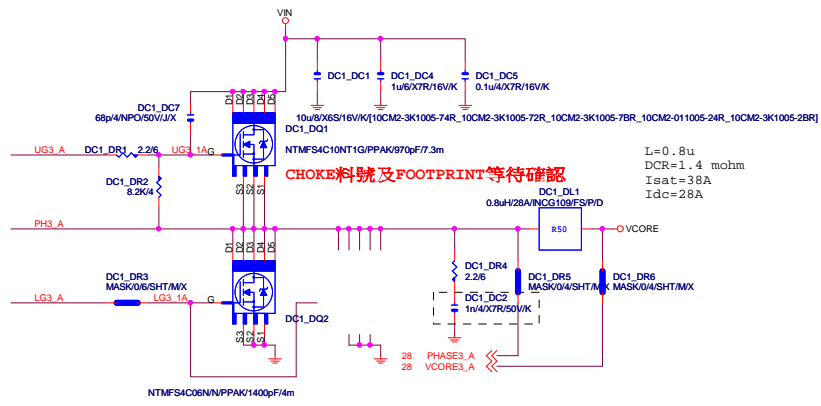


<b>GIGABYTE™</b>			
Title <b>ISL69138_PWM</b>			
Size	Customer	Document Number	Rev
		<b>2390 UD</b>	<b>1.0</b>
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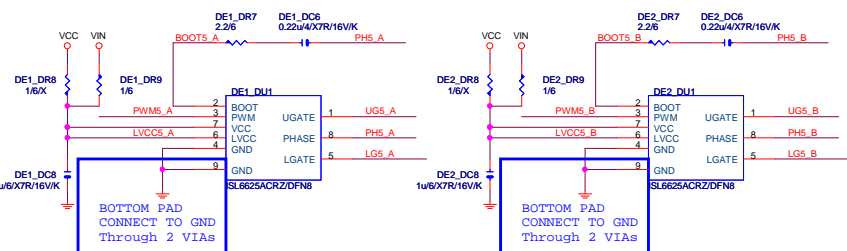
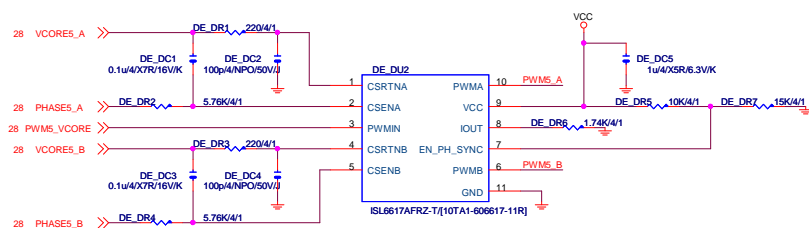
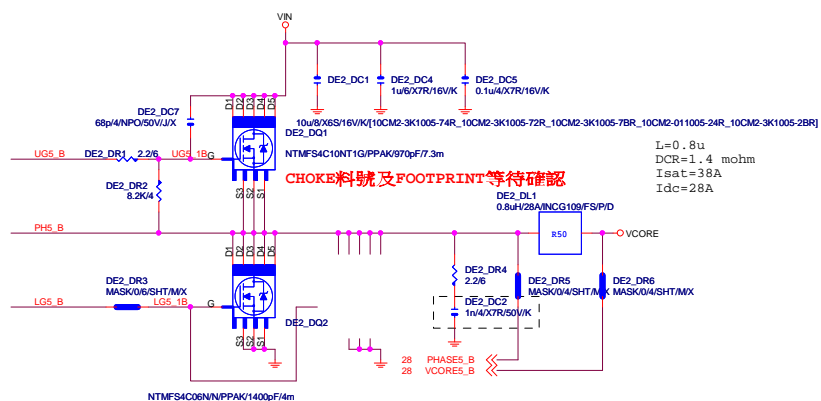
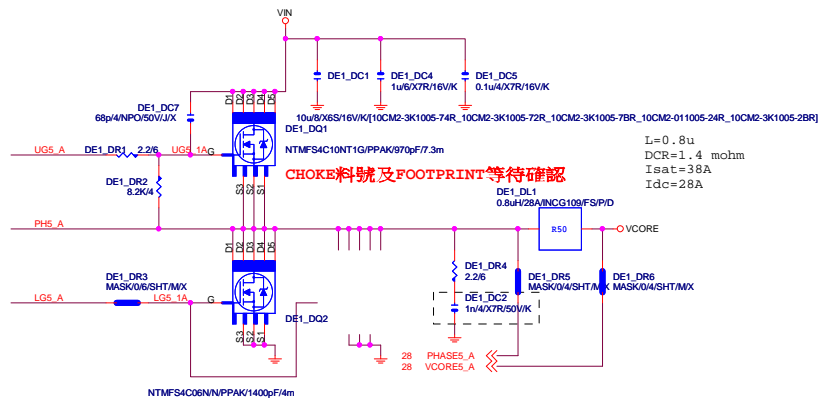
REV:0.13





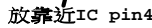


REV:0.13



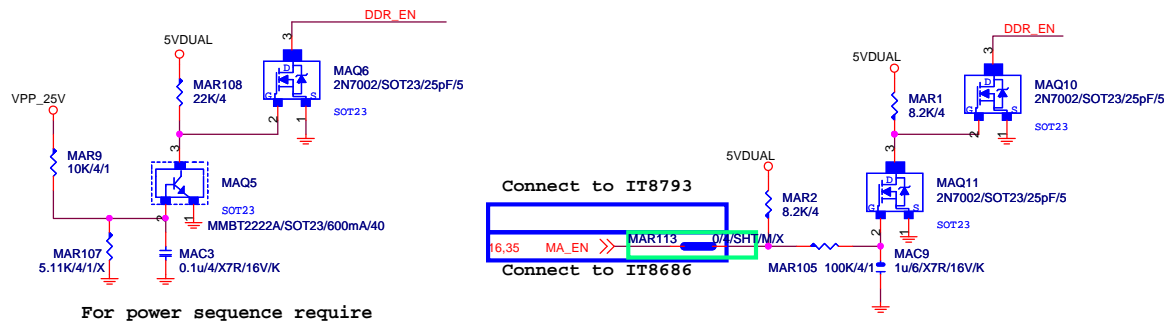






請放置CHOKE一出來位置.先預留.  
請自行確認ripple後再決定是否上件

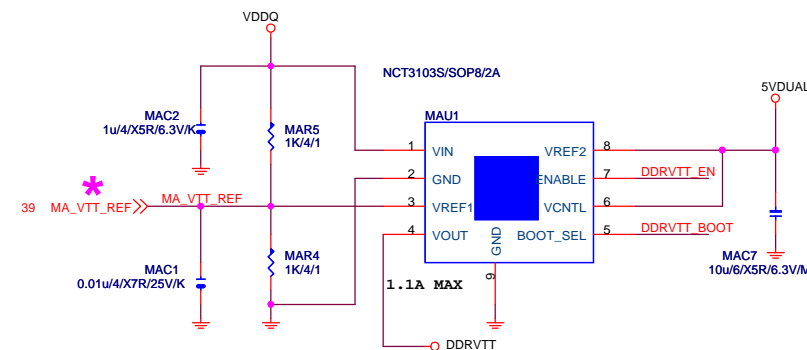
## PWR SEQ



## Connect to IT8793

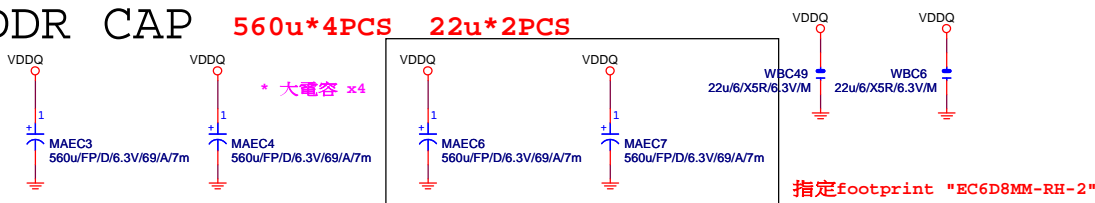
Connect to IT8686

DDRVTT



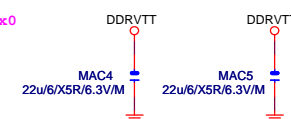
4 DDR\_VTT\_CTL MAR110 DDRVT EN  
12,16 27,51 N\_SLP\_S3 MAR111 DDRVT BOOT

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



指定footprint "EC6D8MM-RH-2"

## DDRVTT CAP



\* 大電容 x0

**GIGABYTE™**

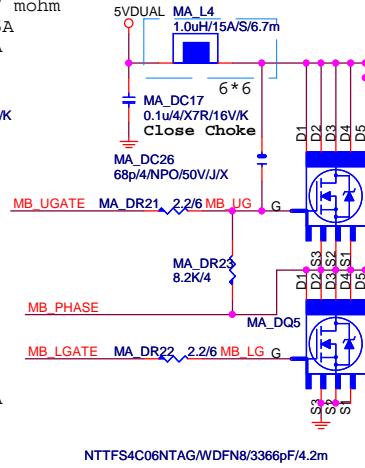
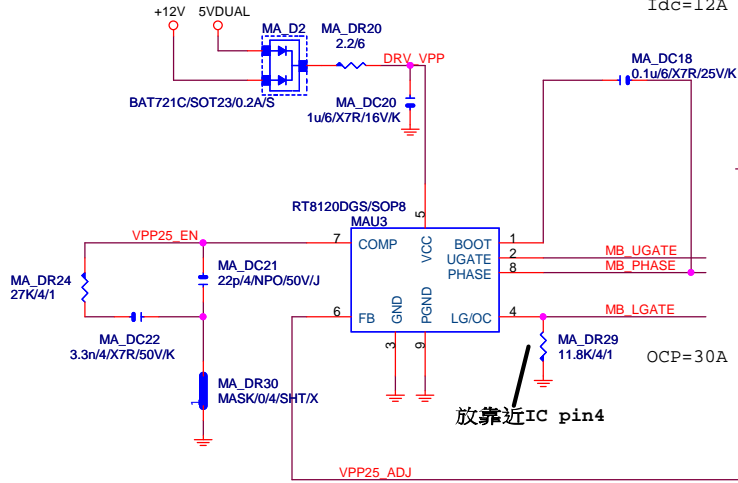
Title			
<b>RT8120_DDR4 POWER</b>			
Size	Document Number	Rev	
Custom	<b>Z390 UD</b>	<b>1.0</b>	
Date:	Thursday, August 09, 2018	Sheet	34 of 53

REV:0.11

VPP\_25V

SMD Molding(合金)  
10LC4-15100B-01R CORE 1.0uH 15A  
TAI-TECH SMD TMPA0603S-1R0MN-D  
DCR=6.7m

L=1u  
DCR=6.7 mohm  
Isat=15A  
Idc=12A



CHOKE-合金

4. VPP\_25V CHOKE footprint 改CHOKE6X6mm\_SMD-1

CHOKE與CAP料號可變

DDR\_VPP VIN CAP  
560u\*1PCS

L=1u  
DCR=6.7 mohm  
Isat=15A  
Idc=12A

$V_{(BR)DSS}$	$R_{DS(on) MAX}$	$I_D MAX$
30 V	4.2 mΩ @ 10 V	67 A
	6.1 mΩ @ 4.5 V	

SUPPORT DDR4 2.5V

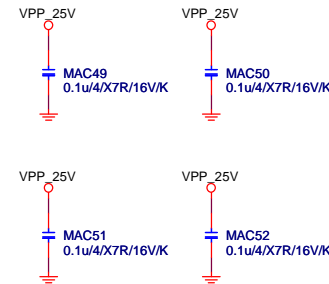
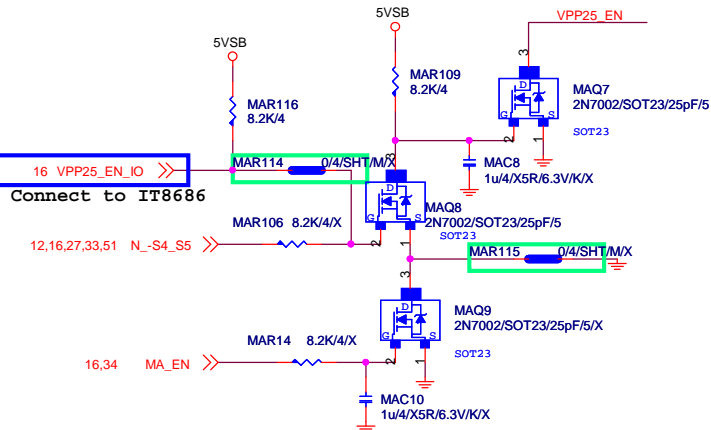
25A MAX

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

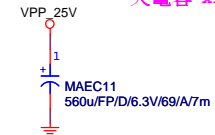
PWR SEQ

\* 刪 MA\_DR32



VPP CAP 560u\*1PCS

\* 大電容 x1



GIGABYTE™

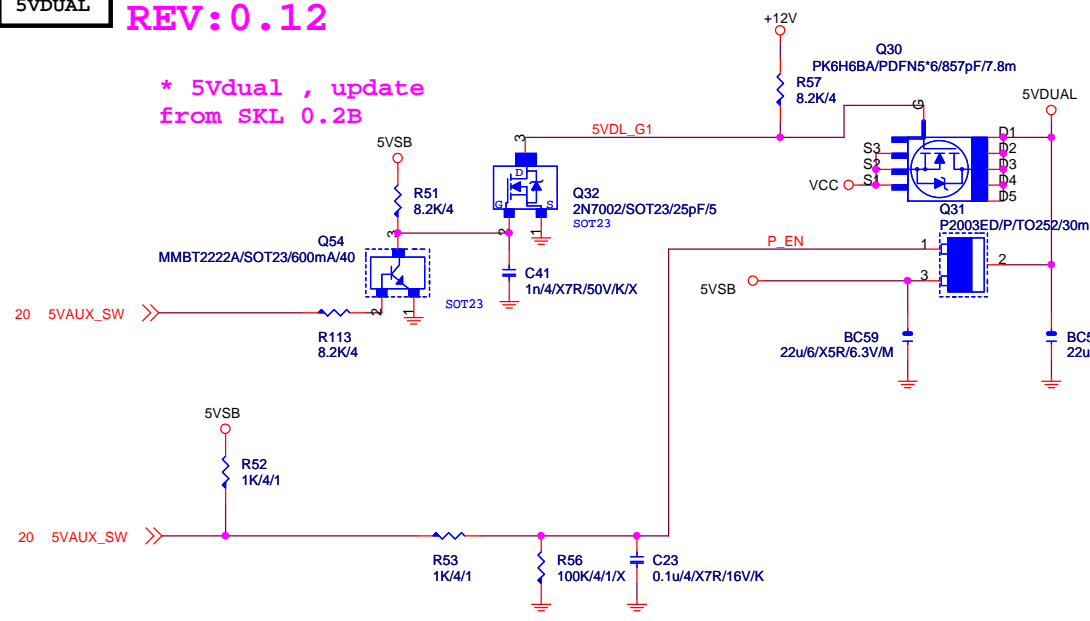
Title <b>RT8120_VPP25 POWER</b>		
Size Custom	Document Number <b>Z390 UD</b>	Rev <b>1.0</b>
Date: Thursday, August 09, 2018	Sheet 35	of 53



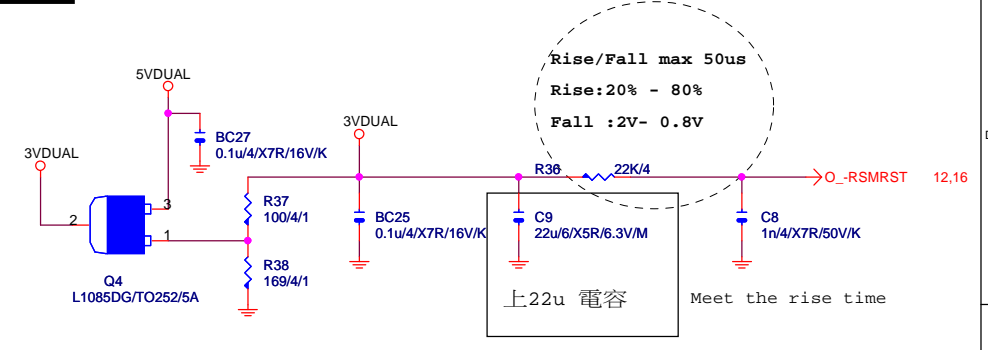
5VDUAL

REV:0.12

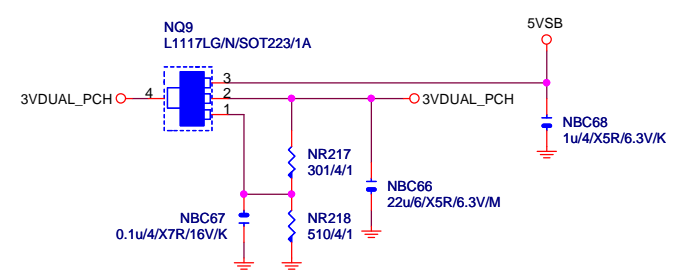
\* 5Vdual , update  
from SKL 0.2B



3VDUAL



3VDUAL\_PCH



O\_-RSMRST

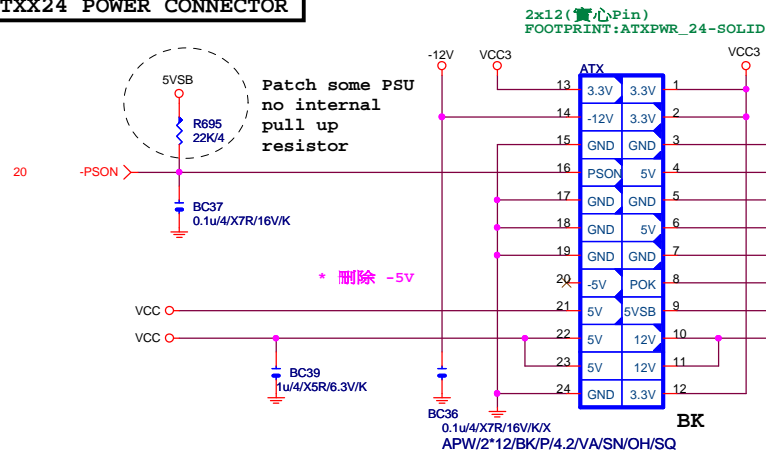
(不上件)

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Gigabyte Technology			
Title			
DISCRETE POWER			
Size	Document Number		Rev
Custom	Z390 UD		1.0
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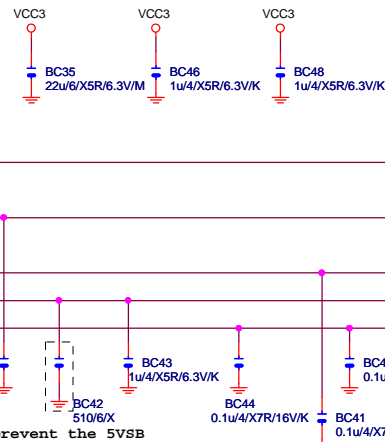
## ATXX24 POWER CONNECTOR



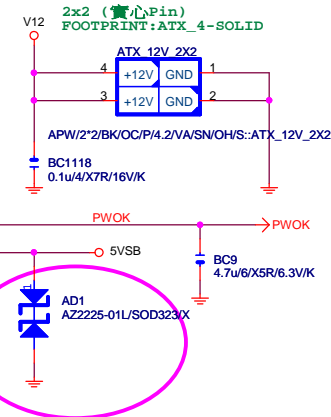
```

To prevent the 5VSB
under loading when
- boot - - - - -

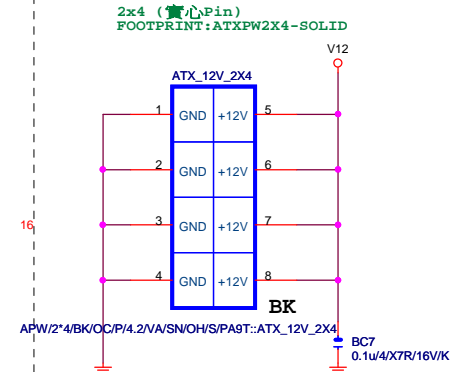
```



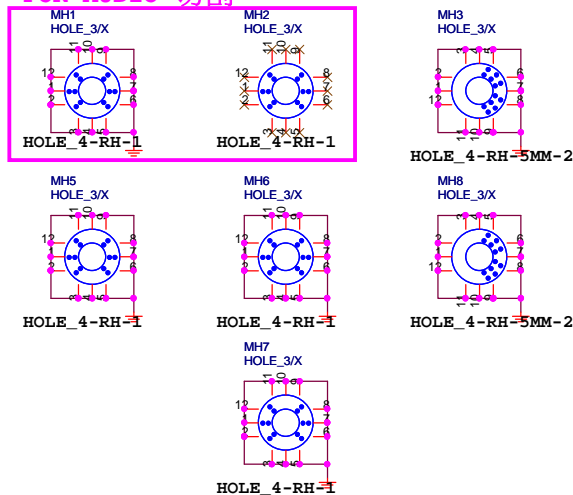
11NH4-020004-P1R/P2R	'實心,4P耐高溫、鍍錫料號
11NH4-020108-21R/22R	'實心,8P耐高溫、鍍錫料號
11NH4-020024-Z1R/Z2R	'實心,24P耐高溫、鍍錫料號



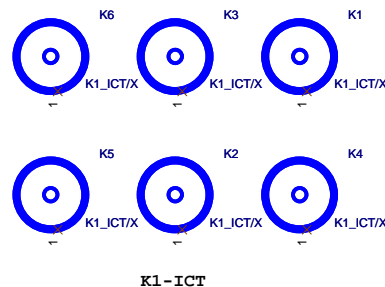
## ATXX4 POWER CONNECTOR



**螺絲孔** FOR AUDIO 切割

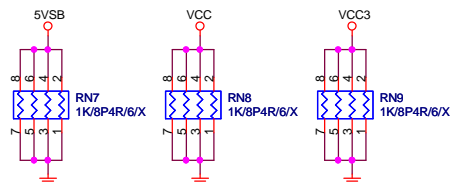


## 固定孔/光學點



To prevent the 5VSB  
under loading when  
boot

## DUMMY LOAD



**-PROHOT**

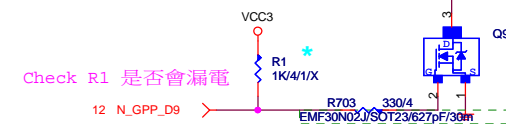
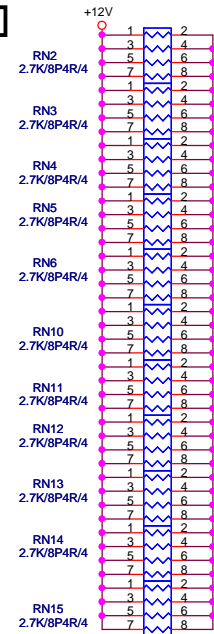
## COUPON



BY LAYOUT位置

+12V DUMMY LOAD
-----------------

To fix 12V light load  
abnromal issue



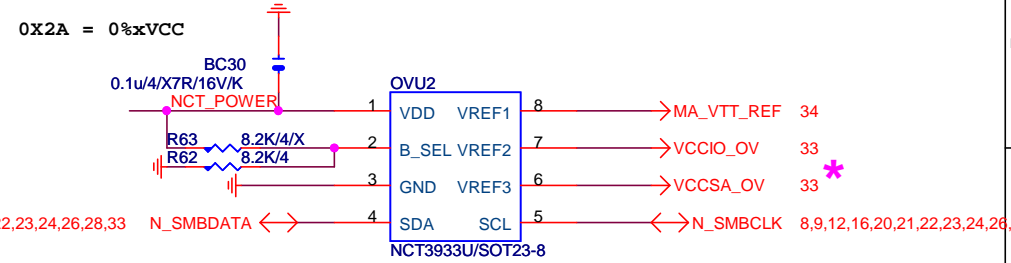
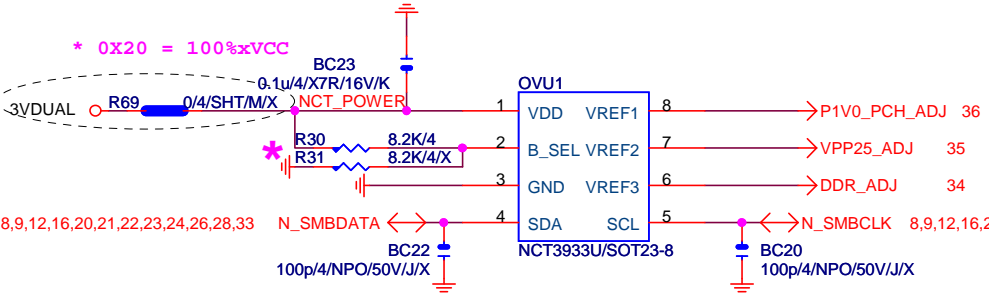
Check R1 是否會漏電

## Gigabyte Technology

Title  
**ATX POWER CONNECTOR**

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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**

TitleCPU CORE VR-2 NCT3933

Size Custom

Document Number

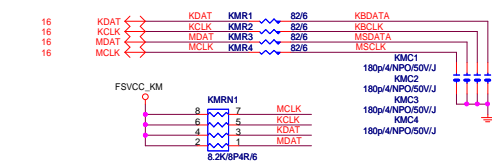
Rev1.0

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KB/MS



KB PWR FUSE-0805



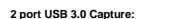
R USB30 1



★Update 2015-03.05



★Update 2015-04.14



**2 port USB 3.0 with TYPE C Capture:**

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

**Box 1**

[illegible][illegible]

--

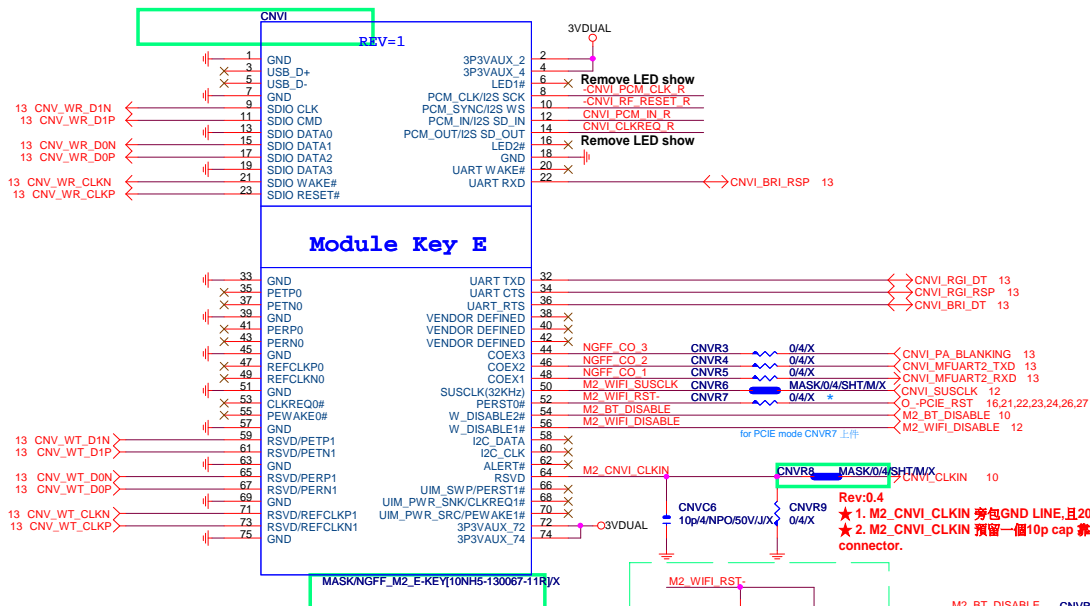
[illegible]


## References

Footprint:USB30\_H-1

Title			
R_USB30, KB_MS			
Size C	Document Number	Z390 UD	Rev 1.0
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## CNVi\_M2\_WIFI



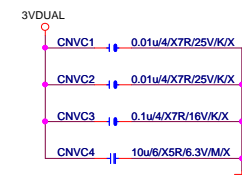
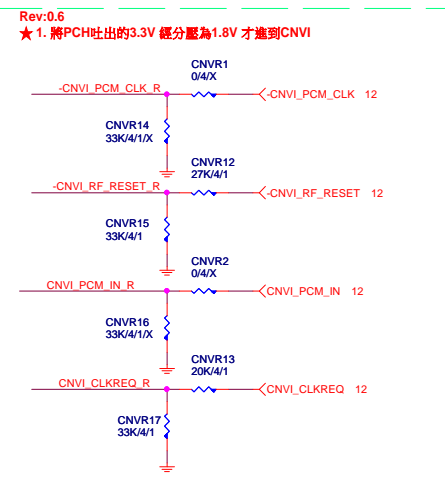
### 直立 Footprint Notice.

★Update 2015-07-22

★Footprint for 直立式 SMD:  
WIFI-EKEY★SMD P/N: 直立式  
10NH5-130067-11R.

### 橫躺 Footprint Notice.

★Update 2015-07-22

★Footprint for 橫躺式高:  
NGFF-E-75P-3★Footprint for 橫躺式矮:  
CNVi★橫躺式高SMD  
P/N:10NR5-130067-61R  
★橫躺式矮SMD  
P/N:10NR5-130067-22R

先貼B360N WIFI ~CHECK 模組

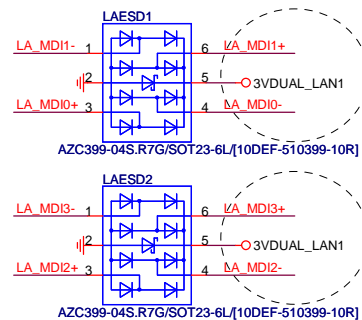
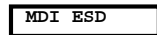
### 一套WIFI MODULE包含外框+WIFI CARD+天線



Footprint WIFI-EKEY+ WIFI-EKEY-MODULE-1 should be a package.

GIGABYTE™

Title			CNVi_M2_WIFI	
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Custom	Z390 UD			
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LA\_REGOUT  
PIN24  
LABC5  
0.1u4/X7R/16V/K  
LAR8  
LA\_DVDD10  
MASK/0/6/SHT/MX  
(CLOSE LAU1 PIN24)

<p align="center"><b>Gigabyte Technology</b></p> <p align="center"><b>Realtek RTL8118</b></p>			
Title			
Size Custom	Document Number		Rev
	<b>Z390 UD</b>		<b>1.0</b>
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## R2.04

note:可變更USB NAME



USB3+LAN/1G/GO,Y/OS/RA/D/G30

### USB30\_LAN LAYOUT示意圖



Green

Orange

Single Color LED

Yellow

note:可變更USB NAME

USB30\_LAN



## 可變

## 可變

## 可變

LA MDI-->100歐姆:[20/4/8/4/20]

note:可變更USB NAME



note:可變更FUSE



note: lan power連接及電流



**\*ERP WOL**

## Gigabyte Technology

## LAN CONNECTOR-RTL8118

Size	Document Number
------	-----------------

## Z390 UD

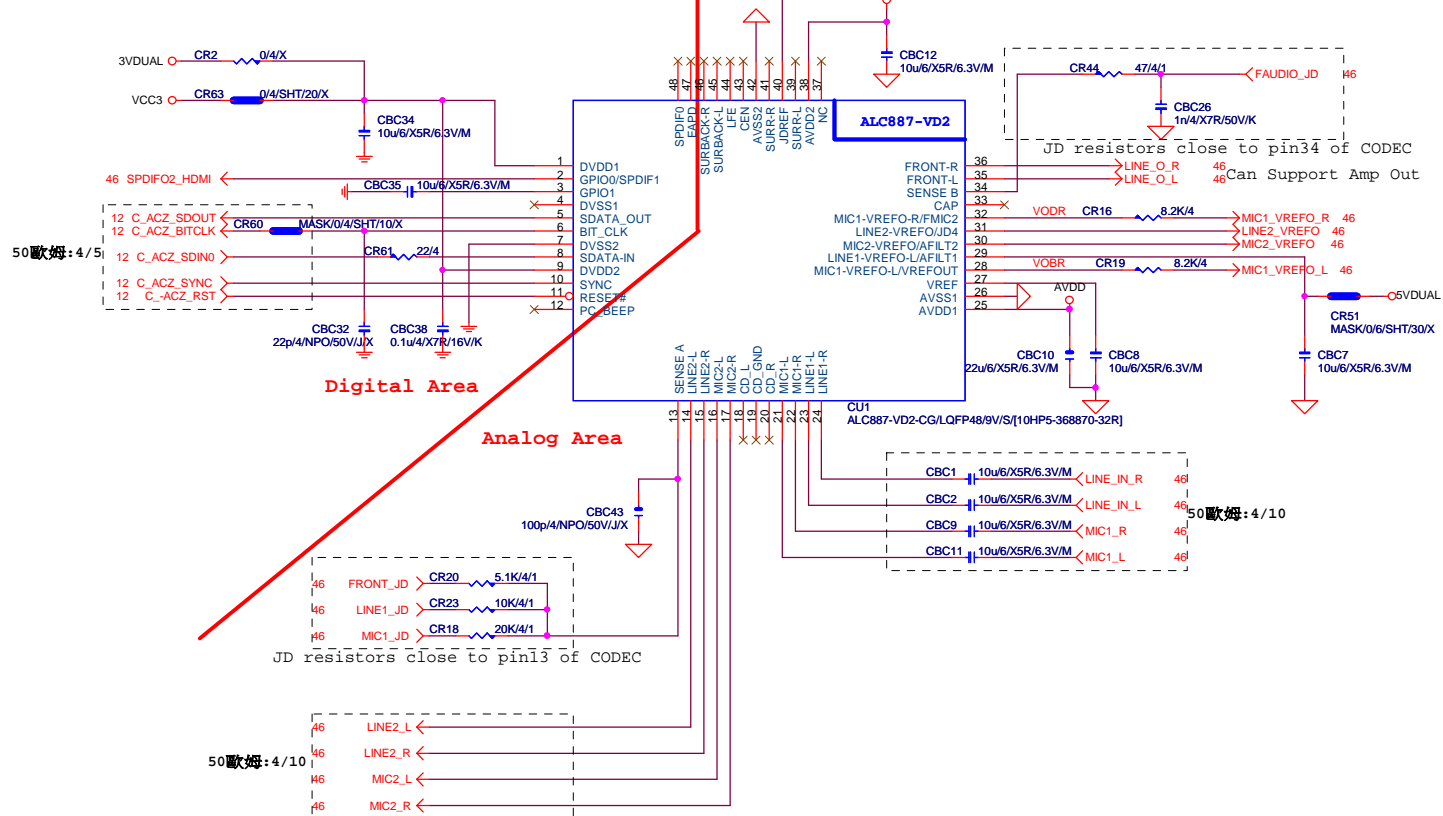
Rev	1.0
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## ALC887 三孔 AUDIO JACK



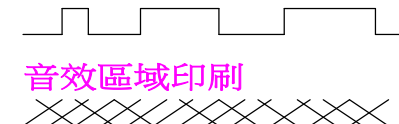
**LAYOUT注意: 螺絲孔下GND方式**

1. MH1空間夠, 下DGND
2. MH2一律改為Isolate

<input type="radio"/> MH1	<input type="radio"/> MH2
DGND	Isolate

**LAYOUT注意: 要加**

**GND切割線**



**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)

<b>Gigabyte Technology</b>			
<b>HD AUDIO ALC887</b>			
Size	Document Number	<b>Z390 UD</b>	Rev
Custom			<b>1.0</b>
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Rev 3.1

Rev 2.06

MOATR1 MASK0/4/SHT/10/X  
MOATC1 0.1u/4/X7R/16V/K/X → Near F\_AUDIO

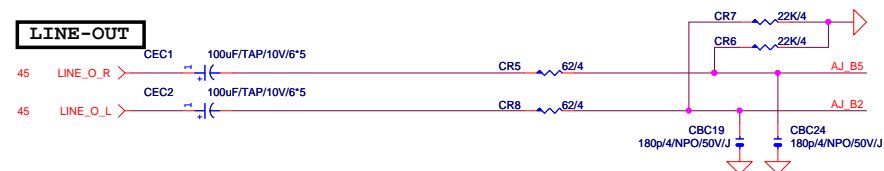
MOATR2 MASK0/4/SHT/10/X  
MOATC2 0.1u/4/X7R/16V/K/X → Near Codec

MOATR3 0/4/X  
MOATC3 0.1u/4/X7R/16V/K/X → Under Audio jack

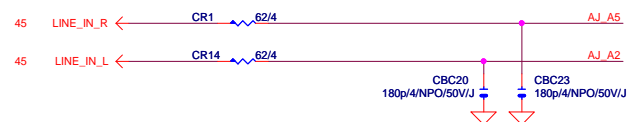
MOATR4 0/6/SHT/30/M/X  
→ Audio jack - LAN

\*量産前, 0ohm改short pad

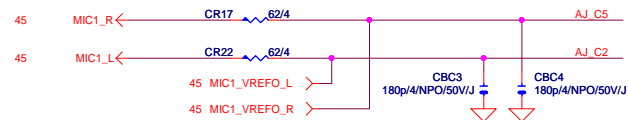
## LINE-OUT



## LINE-IN



## MIC-IN

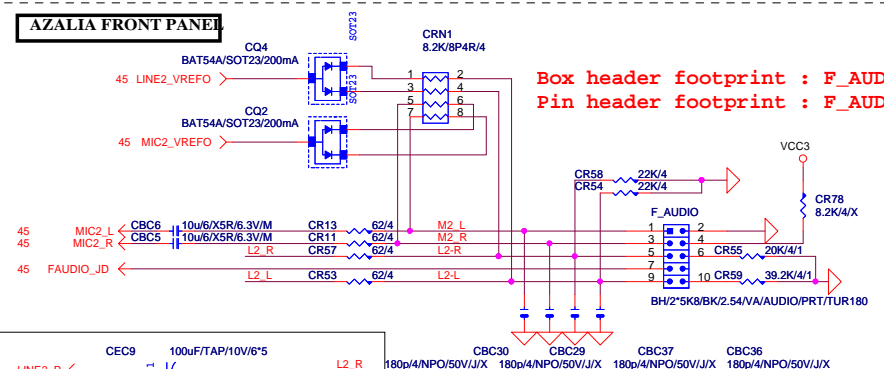


## SURROUND

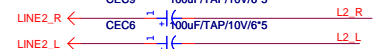
## CEN/LFE

## SURR BACK

## AZALIA FRONT PANEL



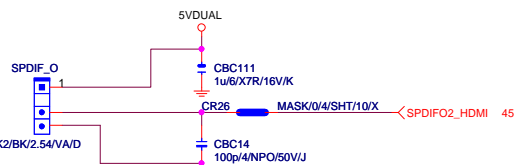
Box header footprint : F\_AUDIO  
Pin header footprint : F\_AUDIO\_S



Gigabyte Technology

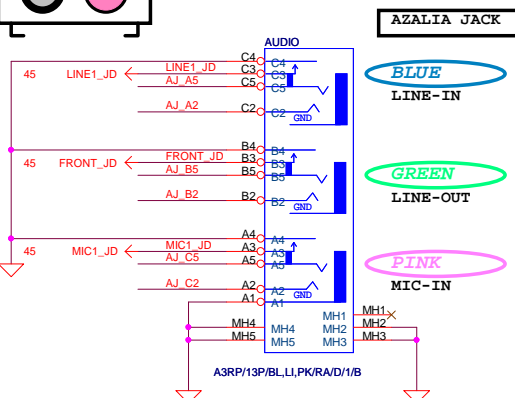
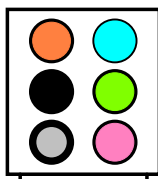
AUDIO JACK

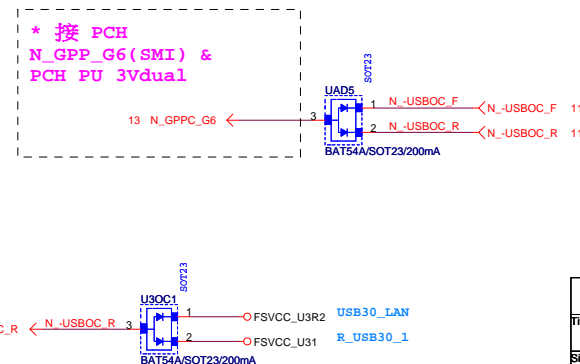
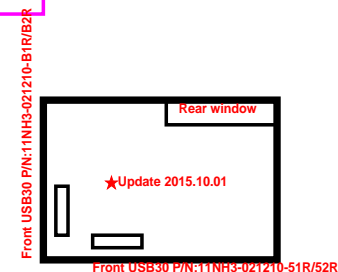
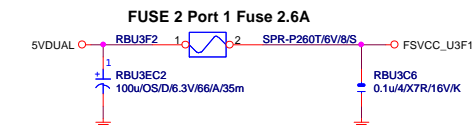
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For HDMI SPDIF (依SPEC保留或移除)

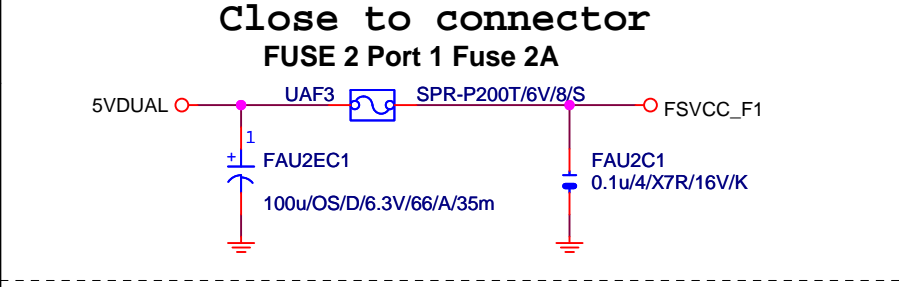
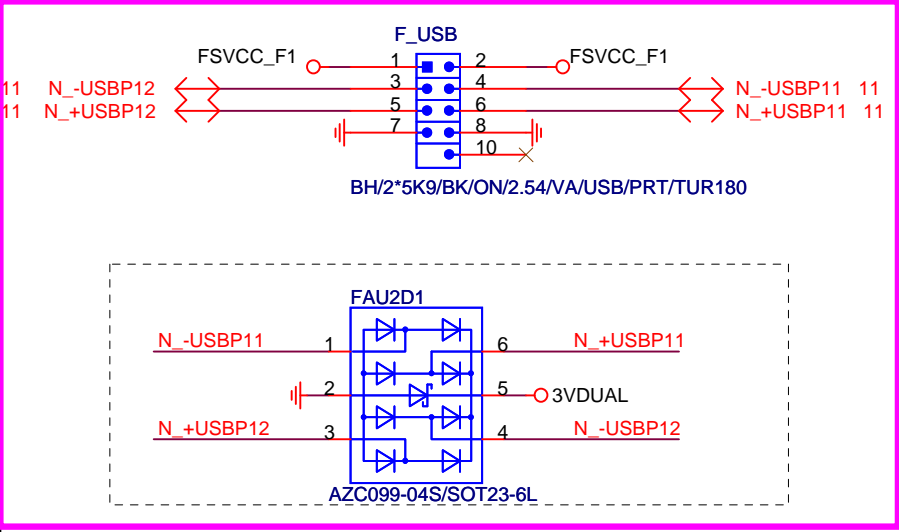
## AZALIA JACK





NET 可變

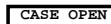
FUSB2X5-HS



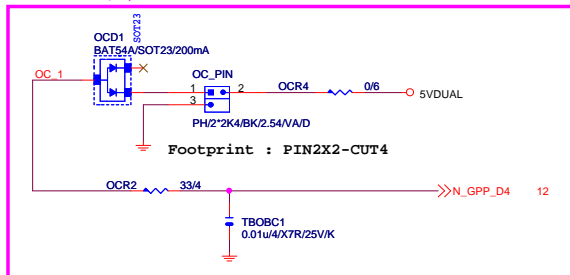
F\_USB 2.0 OC SIGNAL

刪除U2OC1 ,移至與U3OC3接

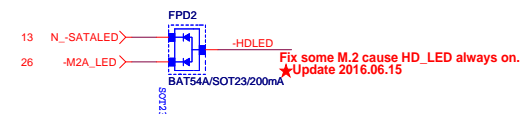
刪除U2OC1 , FRONT USB2



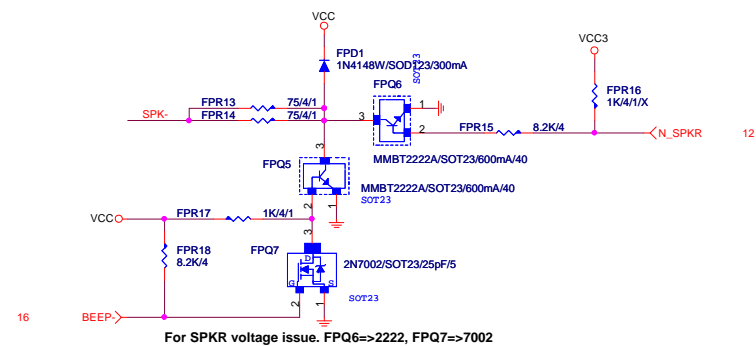
## FRONT PANEL SHORT



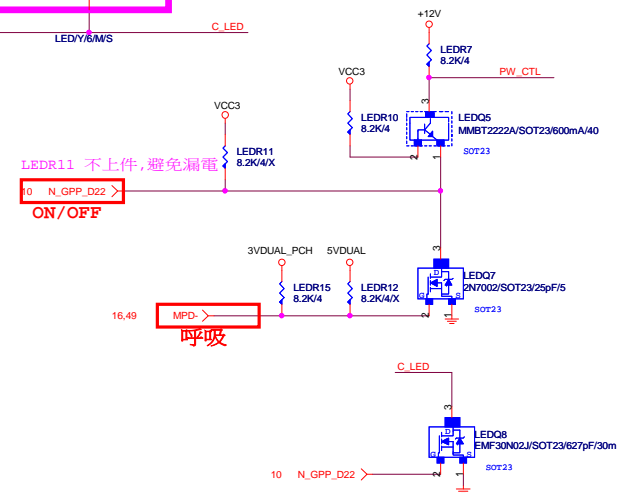
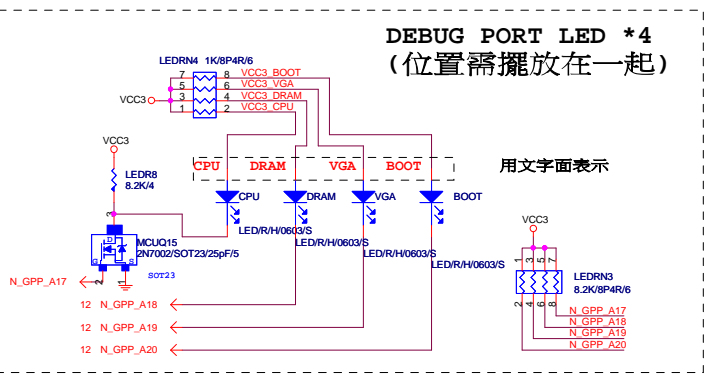
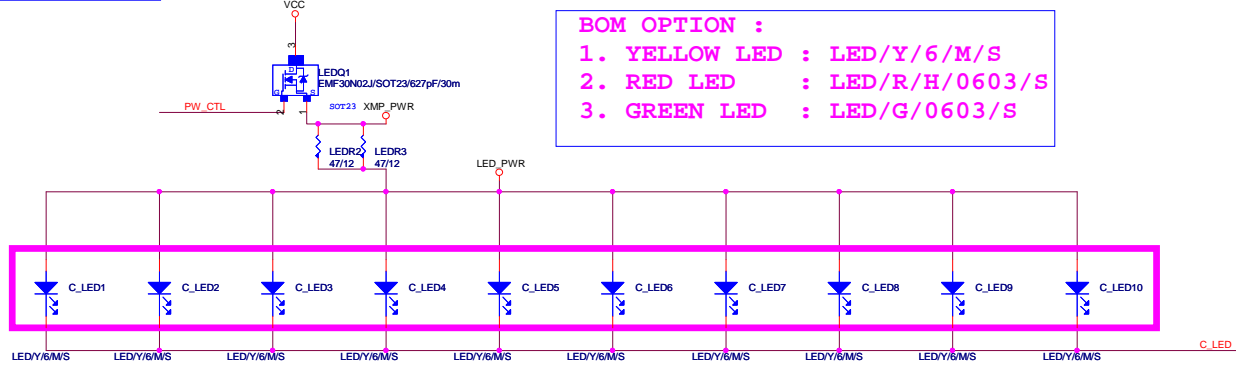
## SATA/M.2 LED



## SPKR



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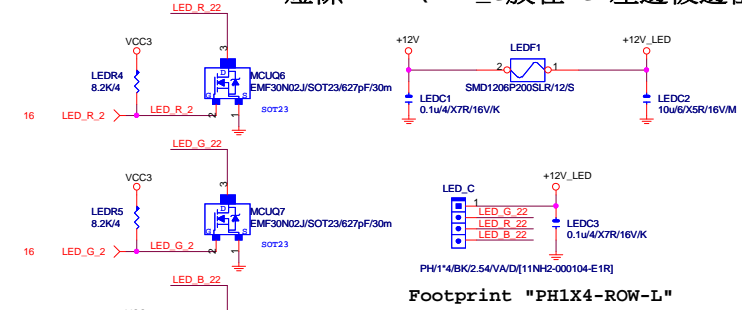
Ambient LED Control

	N_GPP_D22	IO GP91
Still Mode	H	L
OFF Mode	L	L
Pluse Mode	H	BREATH

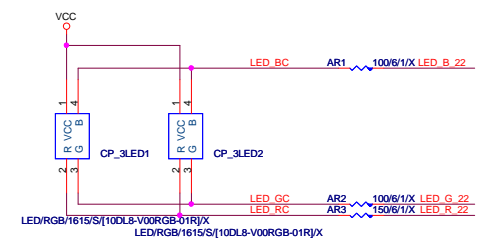
RGB LED CONTROL

第二區 LED CONTROL

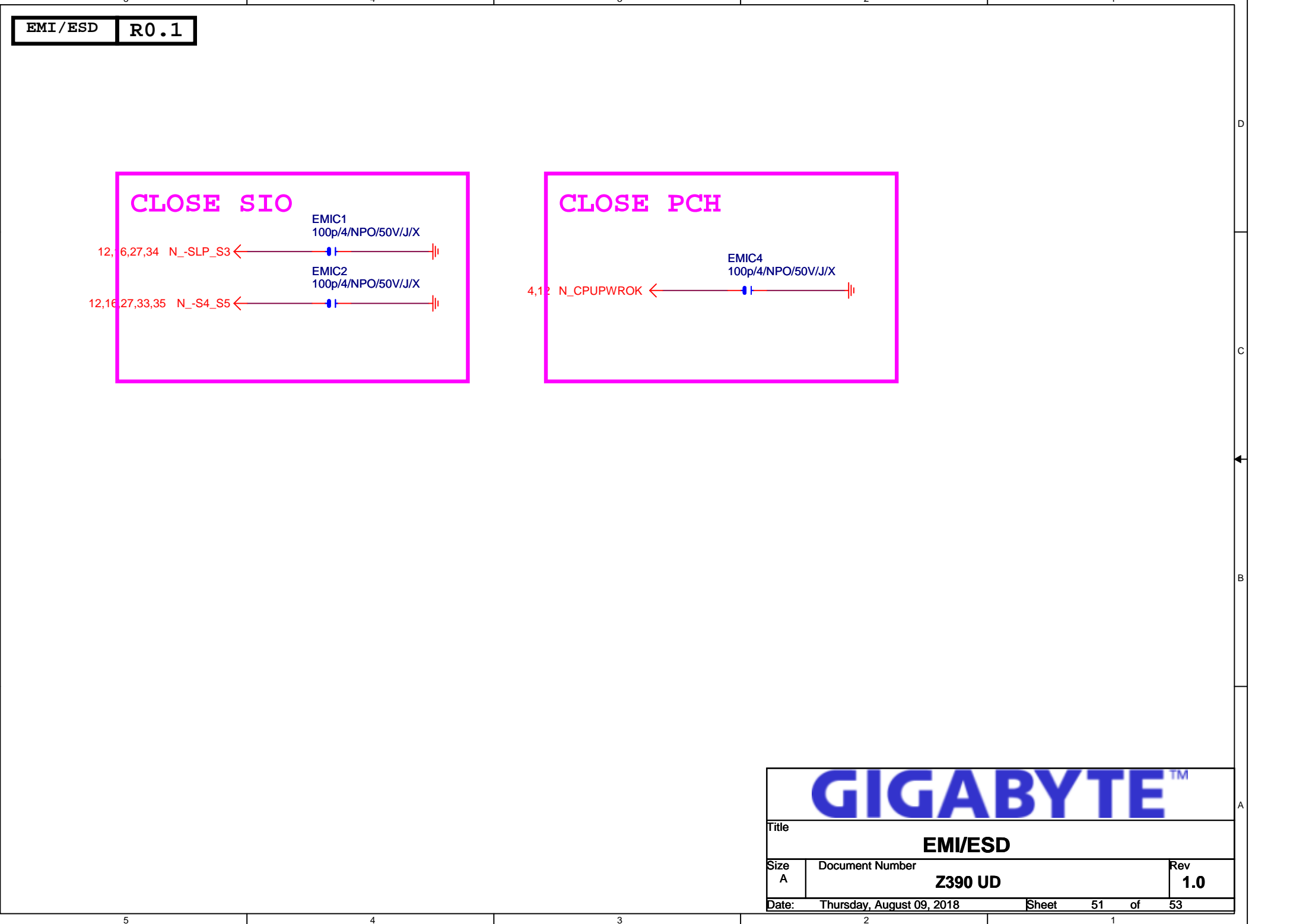
燈條 LED (LED\_C放在PCB左邊板邊位置)



FOR 裝甲高亮度 正發光 LED\*2  
(位置在正板, 依據裝甲設計擺放)



FOOTPRINT: LED\_4P\_RGB 高亮度

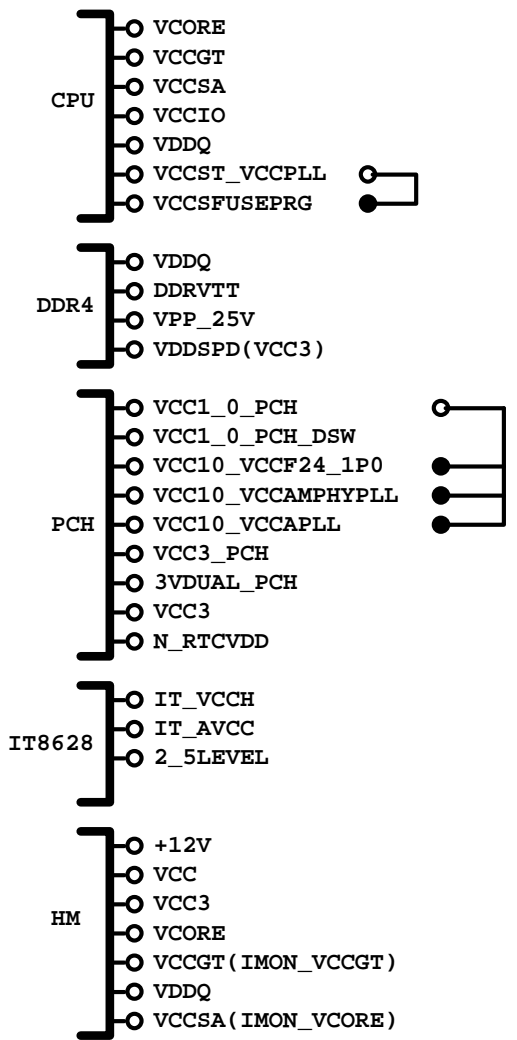




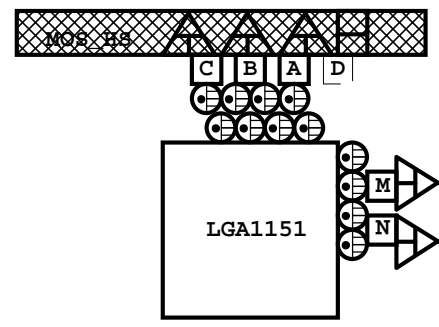
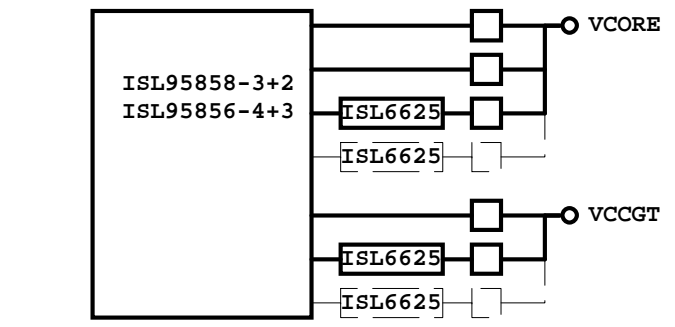
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EMI/ESD			
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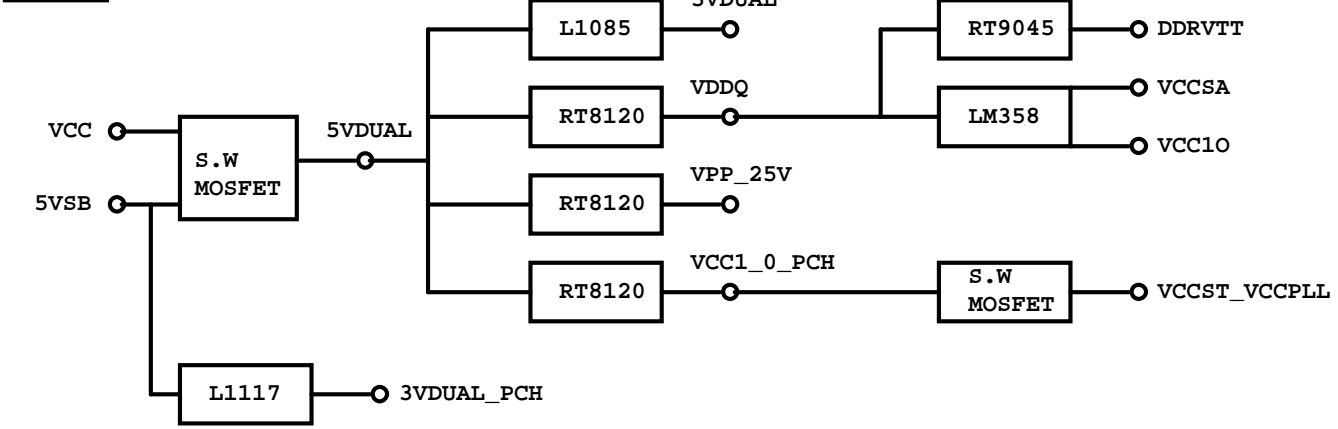
POWER BLOCK MAP



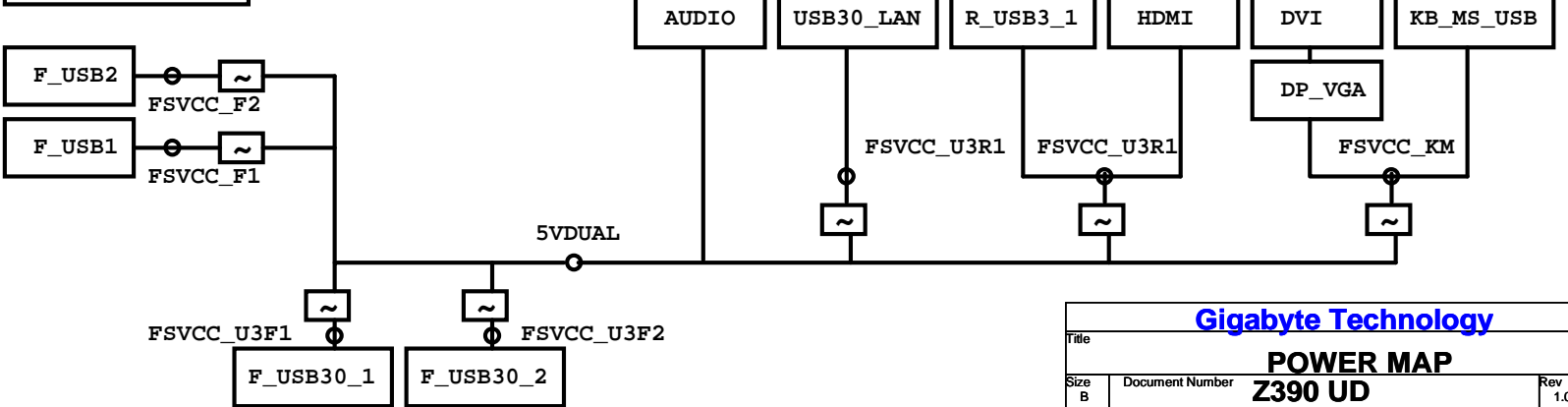
VCORE/VCCGT

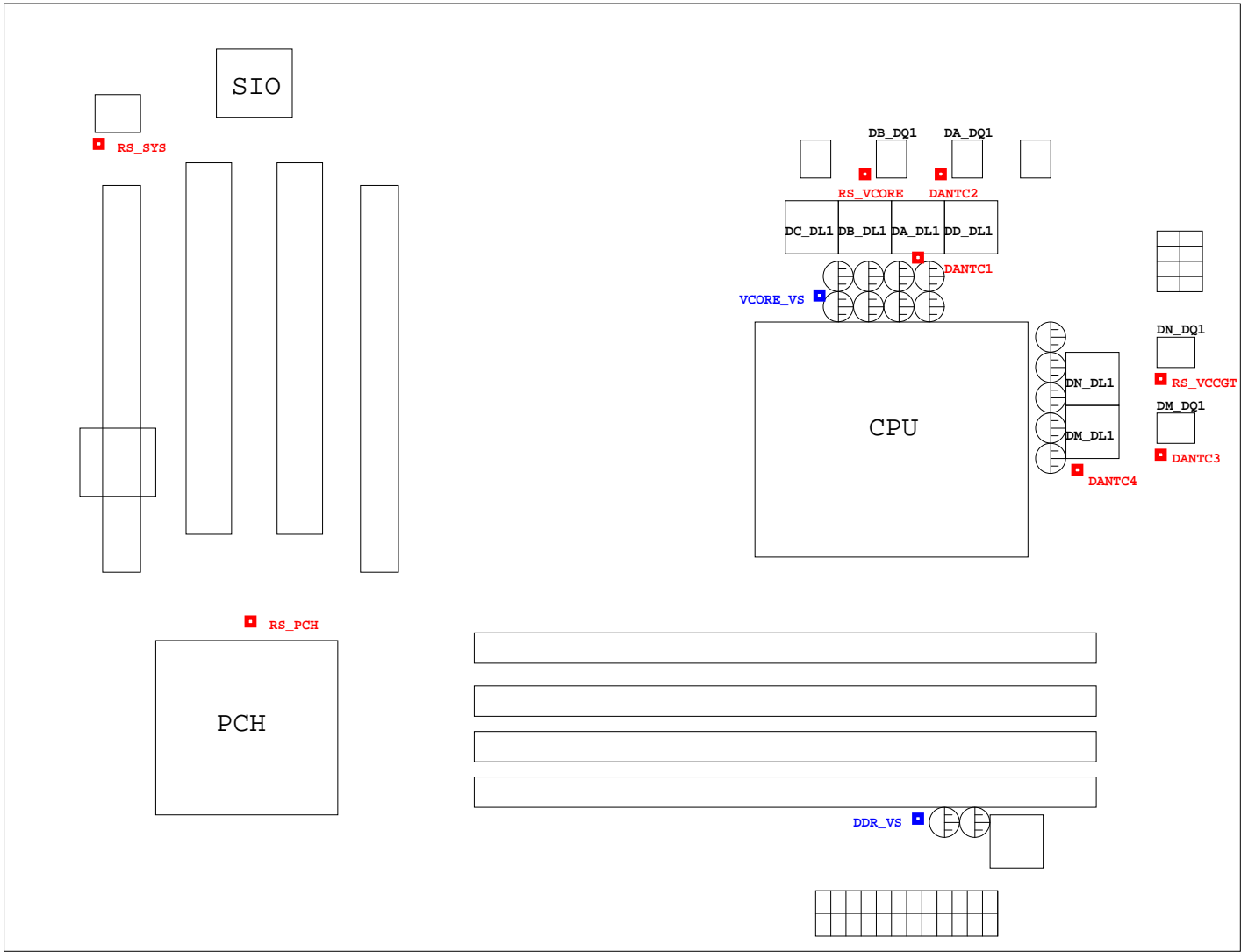


POWER



FUSE POWER F/R





熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL1	N/A
DANTC2	DA_DQ1	Differential
DANTC3	DM_DQ1	N/A
DANTC4	DM_DL1	Differential
RS_VCORE	DB_DQ1	N/A
RS_VCCGT	DN_DQ1	N/A
RS_PCH	PCH	N/A
RS_SYS	CU1	N/A