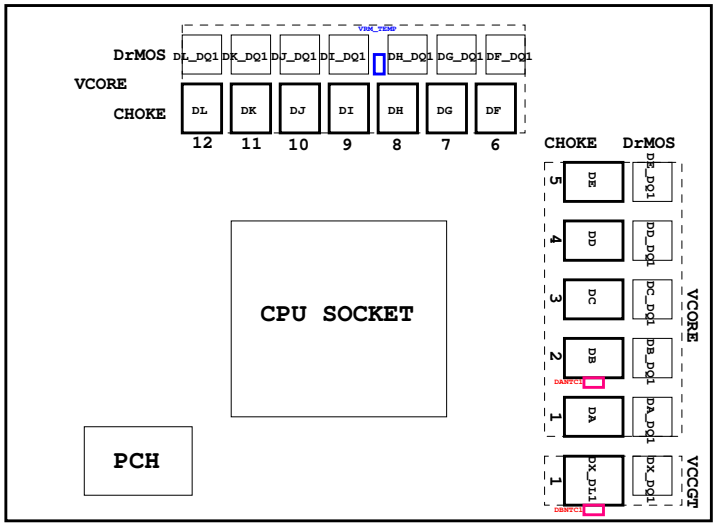
Model Name: Z590 UD AC

rev 1.1

SHEET	TITLE	
01	COVER SHEET	
02	BOM & PCB MODIFY HISTORY	
03	BLOCK DIAGRAM	
04	CPU_LGA1200-A	(RKL_R0.12)
05	CPU_LGA1200-B-DDR4	(RKL_R0.12)
06	CPU_LGA1200-C	(RKL_R0.12)
07	CPU_LGA1200-D	(RKL_R0.12)
08	DDR 4 CHANNEL A	(CML_R0.1)
09	DDR 4 CHANNEL B	(CML_R0.1)
10	PCH CLK,DMI,CNVI	(RKL_R0.15)
11	PCH SPI,USB	(RKL_R0.15)
12	PCH PCIE,SATA	(RKL_R0.15)
13	PCH ESPI,MISC	(RKL_R0.15)
14	PCH GPP,HDA	(RKL_R0.15)
15	PCH PWR, GND	(RKL_R0.15)
16	Heatsink	
17	ITE ITE8689	(RKL_R0.1)
18	HWM	(RKL_R0.1)
19	FAN CTRL-CFL-SIO_5 FAN	(RKL_R0.1)
20	Single BIOS for CS mode	(RKL_R0.1)
21	PCI EXPRESS X16 SLOT	(REV0.3)
22	PCI EXPRESS X4 SLOT(PCH)	(REV0.51)
23	PCI EXPRESS X1 *3	(REV0.51)
24	SATA	
25	M.2 x4 (A)	(RKL_R0.1)
26	M.2 x2 (M)	(RKL_R0.1)
27	M.2 x4 (P)	(RKL_R0.1)
28	COM,LPT,TPM, THB	(CML_R0.94)
29	ISL69269_L=0.15u	(RKL_R0.1)
30	RAA229001_L=0.15u	(RKL_R0.1)
31	VCORE_PSTAGE-1_L=0.15u	(RKL_R0.1)
32	VCORE_PSTAGE-2_L=0.15u	(RKL_R0.1)
33	VCORE_PSTAGE-3_L=0.15u	(RKL_R0.1)
34	VCCGT_PSTAGE_L=0.15u	(RKL_R0.1)
35	VCCSA_MOS	(RKL_R0.1)
36	VCCIO-Ferrite-Z系列	(RKL_R0.2)
37	VCCIO2-Ferrite-Z系列	(RKL_R0.2)
38	RT8120_DDR_CHOKE-Ferrite-2L	(RKL_R0.1)
39	RT8120_VPP_CHOKE-合金	
40	NCP81269_VCC18_PCH	
41	RT8068_VCC1V8_PRIM	
42	DISCRETE POWER	(REV0.1)
43	ATX POWER , A_-PROCHOT	
44	DP PORT	(RKL_R0.96)
45	CNVi_M2_WIFI	(CML_R0.94)
46	Redriver_A_Type-A	(RKL_R0.1)
47	R_USB30	(CML_R0.94)
48	GENESYS GL850S_1	(RKL_R0.1)
49	GENESYS GL850S_2	(RKL_R0.1)

SHEET	TITLE	
50	F_USB20	(CML_R0.94)
51	F_U32	(CML_R0.94)
52	KB_MS_USB	(CML_R0.94)
53	FRONT Type-C USB3.1 GEN2	
54	REALTEK RTL8125BS	(CML_R0.3)
55	U32_LAN CONNECTOR-8125	(CML_R0.3)
56	Realtek ALC897	(RKL_R6.0)
57	REAR AUDIO JACK	(RKL_R6.0)
58	CPU POWER-1	(RKL_R0.11)
59	CPU POWER-1	(RKL_R0.11)
60	NCT3933	(RKL_R0.11)
61	F_PANEL	
62	IT5702	(RKL_R1.0)
63	PCH/AUDIO/DEBUG/C_LED1/2	(RKL_R1.0)
64	D_LED1/D_LED2	(RKL_R1.0)
65	SMBUS SWITCH	(RKL_R0.1)
66	CKG	(RKL_R0.1)
67	EMI-ESD	
68	POWER MAP	
69	NTC MAP	



Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 1 of 69

Model Name: Z590 UD AC

rev1.1

Component value change history

2017/07/19

Data	Change Item	Reason
2020/07/27	Modify from Z590 GAMINGX Rev0.1	
2020/08/28	Z590 UD AC Rev0.1 First release	
	9MZ59UDAC-00-01 BOM	
	9MZ59UDAC-00-02	
2020/11/02	1.修改M.2螺絲料號 3. SIO->IT8689E/AX/S 4.DDR 0.47uF->1uF	
	5.HUAX1,HUBX1->10XT5-812000-40R/10XT5-V12000-00R	
	6.NX1->10XT5-824000-30R/10XT5-V24000-00R 7.ANTENNA,ANTENNA1	
	->11NH6-010001-D1R/D2R/F1R/F2R 8.WIFI_FRAME->12AC2-000004-31R/41R	
	9.NR157,NR158,NR159,NR160->X 10.SMBUS SW不上件 11.DAJP1->X 12.DFR35->X,DFQ5	
	,DFQ6,DGQ5,DGQ6->NTTFS4C10NTAG 13.IO_SH->11AIO-010061-02R	
	14.SIO->10HP2-118689-20R 15.WBC97->10CL3-S63300-01R/11R	
	16.CNVI-CAP->11KWP-000001-31R,WIFI_FRAME刪除12AC2-000004-31R	
	9MZ59UDAC-00-02A	
2020/11/25	1.BOM改上RTL8125 ,U32_LAN->USB3+LAN/2.5G/BU/GO,Y/OS/RA/D/1/15KV	
	2.OD2,OR98->X, OD1,OR96上件 3.CKG全部不上件走internal	
	4.80A,80M,80P->CR/[12KS2-110202-31R]/X	
	9MZ59UDAC-00-10A	
2020/12/09	1.ECD_U1->10HP2-NW5702-20R/A1R 2.80A,80M,80P->12KS2-110202-31R/X	
	3.NR110->X 4.U4,WR107,WR106->X 5.PCH->10HB1-03Z590-20R	
	6.LGA1200->12KRC-SF0001-83R 7.DFQ2,DFQ3上件 8.DFR43->42.2K/4/1	
	,DFR44->21K/4/1 9.DAU1->10TA1-669269-14R 10.DBU1->10TA1-622901-06R	
	11.LKL2->10LC3-04100B-01R/10LC4-05100B-61R 12.M_BIOS->10SL2-000008-71R/X	
	9MZ59UDAC-00-11A	
2020/12/09	1.WIFI_MODULE->20CB1-029560-00R	

Circuit or PCB layout change

DATE	Change Item	Reason
2020/07/27	Modify from Z590 GAMINGX Rev0.1	
PCB:0.1	1.Z590 UD AC Rev0.1 PCB first release	
2020/08/24	2.Layout由XZ590 GAMINGX Rev0.1修改	
PCB:0.2		
2020/10/29	1.統一Flex IO,M.2 GPIO 2.PEGX4_RXP0, PEGX4_RXN0 SWAP	
	3.Del NTP123,NTP124 ,N_GPP_I8改為N_GPP_I7 ,N_GPP_I9改為N_GPP_I8	
	4.OC PIN改GPIO 5.修改VCCIO_PWGD 6.QFLASH+改接Redriver typeA	
	7.HDMI換成DP 8.VCCST_PGD接Level shift	
PCB:1.0		
2020/12/15	1.DGR36.DGR37,ECDR4,ECDR5改short pad 2.Add NPB_C10	
	2.PCH 0ohm改為SHORT PAD 3.Del NR54, LAYOUT 不變 , NET移除VCC1V8_PRIM_R	
	4.EFR9,WR89,WR126,WR105,WR95->SHORT PAD 5.Add NR45, CNVR24	
	6.CKA_U1 Footprint->IC56QFN-2_5GB_LAN-MASK 7.Add DPAQ8,DPAQ9	
	8.ECDR2 Footprint-> R0402-2-SHORT20-MASK	
PCB:1.1		
2020/12/23	1.Page45改名稱CNVI->M2_WIFI ,WIFI_FRAME->WIFI	
	,CNVI-WIFI-SK->WIFI-SK ,CNVI-CAP->WIFI-CAP	
	2.Add DPD1,DPAR13	

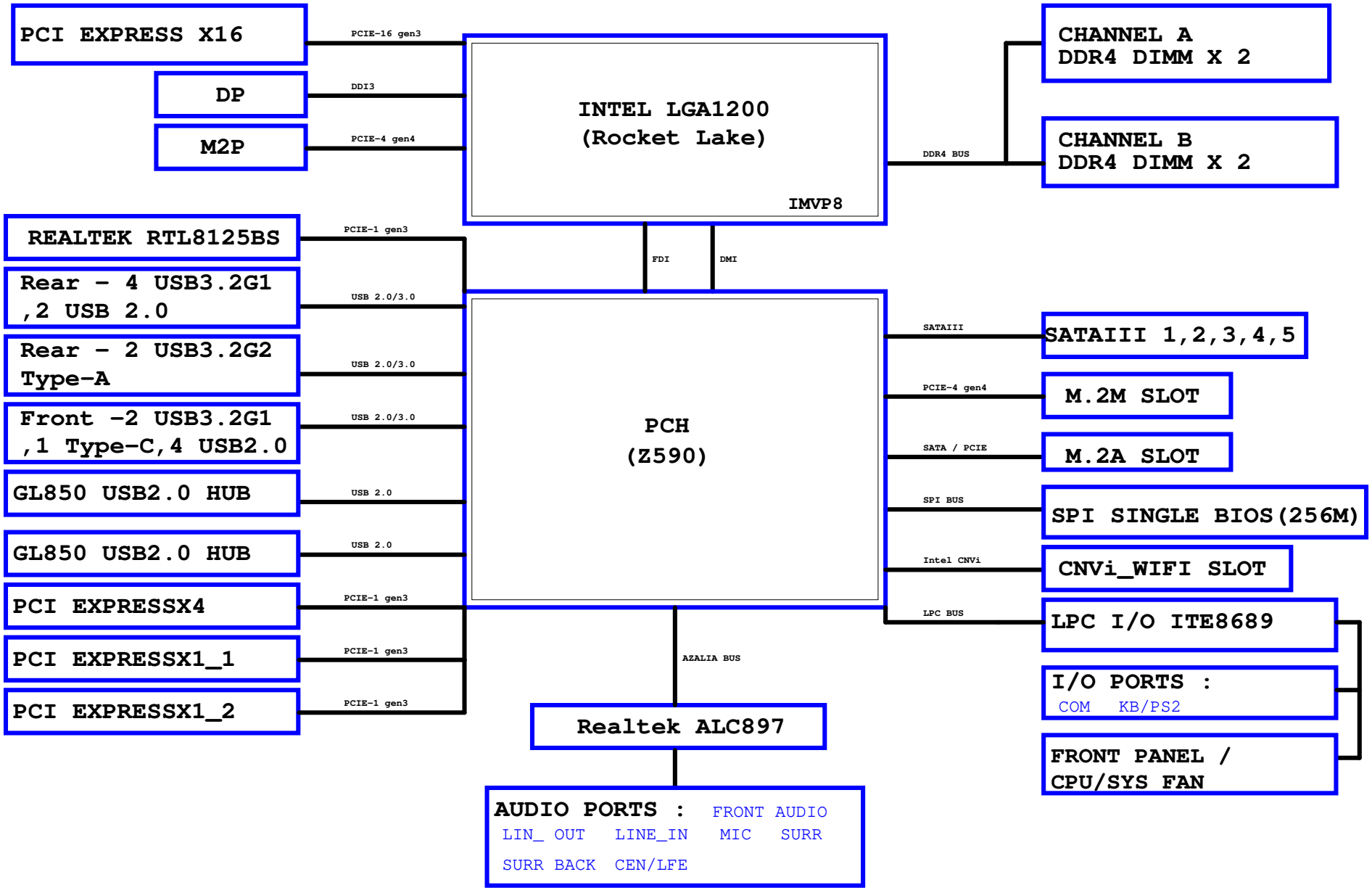
GIGABYTE™

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Tuesday, December 22, 2020 | Sheet 2 of 69

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 3 of 69	

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

CFG[4]: 1=eDP enable / 0=eDP disable
CFG[7]: 1=PEG Train immediately following RESET
0=PEG Wait for BIOS

CFG[13]: 1=VCCSA Fixed Mode / 0=SVID Mode

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

LEVEL SHIFT
Z590機種修改

WQ2盡量靠近CPU.其他可以放遠一點

若有不上CODEC出貨的可能，請預留CLK and SDO對地電阻。

Title	CPU LGA1200-A
Size	Custom
Document Number	Z590 UD AC
Rev	1.1
Date:	Monday, December 21, 2020
Sheet	4 of 69

Gigabyte Technology

LGA1200A

CML_S_IP

BMAP_REV=1.0

MDA5	AE39	DDR0_DQ[0]					
MDA4	AE38	DDR0_DQ[1]					
MDA7	AH39	DDR0_DQ[2]					
MDA3	AH38	DDR0_DQ[3]					
MDA1	AF40	DDR0_DQ[4]					
MDA0	AE40	DDR0_DQ[5]					
MDA2	AH40	DDR0_DQ[6]					
MDA6	AG40	DDR0_DQ[7]					
MDA8	AK39	DDR0_DQ[8]					
MDA13	AK40	DDR0_DQ[9]					
MDA10	AN39	DDR0_DQ[10]					
MDA14	AM40	DDR0_DQ[11]					
MDA9	AL40	DDR0_DQ[12]					
MDA12	AK38	DDR0_DQ[13]					
MDA15	AN40	DDR0_DQ[14]					
MDA11	AN38	DDR0_DQ[15]					
MDA21	AR39	DDR0_DQ[16]/DDR0_DQ[32]					
MDA20	AR40	DDR0_DQ[18]/DDR0_DQ[33]					
MDA22	AV39	DDR0_DQ[18]/DDR0_DQ[34]					
MDA17	AU40	DDR0_DQ[19]/DDR0_DQ[35]					
MDA19	AR38	DDR0_DQ[20]/DDR0_DQ[36]					
MDA16	AT40	DDR0_DQ[21]/DDR0_DQ[37]					
MDA18	AW38	DDR0_DQ[22]/DDR0_DQ[38]					
MDA23	AV38	DDR0_DQ[23]/DDR0_DQ[39]					
MDA28	AV36	DDR0_DQ[24]/DDR0_DQ[40]					
MDA24	AY36	DDR0_DQ[25]/DDR0_DQ[41]					
MDA31	AV33	DDR0_DQ[26]/DDR0_DQ[42]					
MDA30	AY34	DDR0_DQ[27]/DDR0_DQ[43]					
MDA25	AY35	DDR0_DQ[28]/DDR0_DQ[44]					
MDA29	AW36	DDR0_DQ[29]/DDR0_DQ[45]					
MDA26	AY33	DDR0_DQ[30]/DDR0_DQ[46]					
MDA27	AW33	DDR0_DQ[31]/DDR0_DQ[47]					
MDA36	AW11	DDR0_DQ[32]/DDR1_DQ[0]					
MDA37	AV11	DDR0_DQ[33]/DDR1_DQ[1]					
MDA34	AY7	DDR0_DQ[34]/DDR1_DQ[2]					
MDA38	AY8	DDR0_DQ[35]/DDR1_DQ[3]					
MDA33	AW9	DDR0_DQ[36]/DDR1_DQ[4]					
MDA32	AW10	DDR0_DQ[37]/DDR1_DQ[5]					
MDA35	AV7	DDR0_DQ[38]/DDR1_DQ[6]					
MDA39	AW7	DDR0_DQ[39]/DDR1_DQ[7]					
MDA40	AW5	DDR0_DQ[40]/DDR1_DQ[8]					
MDA45	AY5	DDR0_DQ[41]/DDR1_DQ[9]					
MDA47	AW2	DDR0_DQ[42]/DDR1_DQ[10]					
MDA46	AW3	DDR0_DQ[43]/DDR1_DQ[11]					
MDA41	AY4	DDR0_DQ[44]/DDR1_DQ[12]					
MDA44	AV5	DDR0_DQ[45]/DDR1_DQ[13]					
MDA43	AV1	DDR0_DQ[46]/DDR1_DQ[14]					
MDA42	AV2	DDR0_DQ[47]/DDR1_DQ[15]					
MDA48	AT1	DDR0_DQ[48]/DDR1_DQ[32]					
MDA50	AN1	DDR0_DQ[49]/DDR1_DQ[33]					
MDA52	AT3	DDR0_DQ[50]/DDR1_DQ[34]					
MDA54	AP1	DDR0_DQ[51]/DDR1_DQ[35]					
MDA53	AT2	DDR0_DQ[52]/DDR1_DQ[36]					
MDA51	AN3	DDR0_DQ[53]/DDR1_DQ[37]					
MDA49	AR1	DDR0_DQ[54]/DDR1_DQ[38]					
MDA55	AN2	DDR0_DQ[55]/DDR1_DQ[39]					
MDA56	AL2	DDR0_DQ[56]/DDR1_DQ[40]					
MDA58	AH1	DDR0_DQ[57]/DDR1_DQ[41]					
MDA60	AL3	DDR0_DQ[58]/DDR1_DQ[42]					
MDA62	AJ1	DDR0_DQ[59]/DDR1_DQ[43]					
MDA59	AH3	DDR0_DQ[60]/DDR1_DQ[44]					
MDA61	AL1	DDR0_DQ[61]/DDR1_DQ[45]					
MDA63	AH2	DDR0_DQ[62]/DDR1_DQ[46]					
MDA57	AK1	DDR0_DQ[63]/DDR1_DQ[47]					

	AK30	DDR0_ECC[7]					
	AM32	DDR0_ECC[6]					
	AJ32	DDR0_ECC[5]					
	AK32	DDR0_ECC[4]					
	AL32	DDR0_ECC[3]					
	AM31	DDR0_ECC[2]					
	AM30	DDR0_ECC[1]					
	AL30	DDR0_ECC[0]					
[8] VREF_CA1	VREF_CA	AC38	DDR_VREF_CA_1				
[8] VREF_CA0	VREF_CA	AC40	DDR_VREF_CA_0				

DDR CHANNEL A

	AU24	M_DCLKA0	M_DCLKA0 [8]				
	AV24	M_-DCLKA0	M_-DCLKA0 [8]				
	AY23	M_DCLKA1	M_DCLKA1 [8]				
	AW23	M_-DCLKA1	M_-DCLKA1 [8]				
	AT19	M_DCLKA2	M_DCLKA2 [8]				
	AU19	M_-DCLKA2	M_-DCLKA2 [8]				
	AY18	M_DCLKA3	M_DCLKA3 [8]				
	AW18	M_-DCLKA3	M_-DCLKA3 [8]				
	AY31	CKEA0	CKEA0 [8]				
	AW31	CKEA1	CKEA1 [8]				
	AV30	CKEA2	CKEA2 [8]				
	AV31	CKEA3	CKEA3 [8]				
	AY15	M_-CSA0	M_-CSA0 [8]				
	AY13	M_-CSA1	M_-CSA1 [8]				
	AV15	M_-CSA2	M_-CSA2 [8]				
	AV13	M_-CSA3	M_-CSA3 [8]				
	AY14	MODT_A0					
	AV14	MODT_A1					
	AU14	MODT_A2					
	AT14	MODT_A3					
	AY16	SBAA0	SBAA0 [8]				
	AW17	SBAA1	SBAA1 [8]				
	AV29	BG_A0	BG_A0 [8]				
	AW29	BG_A1	BG_A1 [8]				
	AV16	MAAA16					
	AW16	MAAA14					
	AU16	MAAA15					
	AU18	MAAA0					
	AY25	MAAA1					
	AY24	MAAA2					
	AW25	MAAA3					
	AV25	MAAA4					
	AY26	MAAA5					
	AV26	MAAA6					
	AY27	MAAA7					
	AW27	MAAA8					
	AY28	MAAA9					
	AU17	MAAA10					
	AV27	MAAA11					
	AV28	MAAA12					
	AW14	MAAA13					
	AY30	M_-ACT_A	M_-ACT_A [8]				
	AV18	M_DDR_PARA	M_DDR_PARA [8]				
	AY29	M_-ALERT_A	M_-ALERT_A [8]				
	AJ3	M_DQSA7					
	AK3	M_-DQSA7					
	AP3	M_DQSA6					
	AR3	M_-DQSA6					
	AV3	M_DQSA5					
	AV4	M_-DQSA5					
	AV8	M_DQSA4					
	AV9	M_-DQSA4					
	AV34	M_DQSA3					
	AV35	M_-DQSA3					
	AU38	M_DQSA2					
	AT38	M_-DQSA2					
	AM38	M_DQSA1					
	AL38	M_-DQSA1					
	AG38	M_DQSA0					
	AF38	M_-DQSA0					

			DDR0_DQSP[7]/DDR1_DQSP[5]				
			DDR0_DQSN[7]/DDR1_DQSN[5]				
			DDR0_DQSP[6]/DDR1_DQSP[4]				
			DDR0_DQSN[6]/DDR1_DQSN[4]				
			DDR0_DQSP[5]/DDR1_DQSP[1]				
			DDR0_DQSN[5]/DDR1_DQSN[1]				
			DDR0_DQSP[4]/DDR1_DQSP[0]				
			DDR0_DQSN[4]/DDR1_DQSN[0]				
			DDR0_DQSP[3]/DDR0_DQSP[5]				
			DDR0_DQSN[3]/DDR0_DQSN[5]				
			DDR0_DQSP[2]/DDR0_DQSP[4]				
			DDR0_DQSN[2]/DDR0_DQSN[4]				
			DDR0_DQSP[1]				
			DDR0_DQSN[1]				
			DDR0_DQSP[0]				
			DDR0_DQSN[0]				
	AJ30		DDR0_DQSP[8]				
	AJ31		DDR0_DQSN[8]				

1 OF12

CPU-SK/1200/S/GF

LGA1200B

SKT_H4

LGA1200

MDB4	AD34	DDR1_DQ[0]/DDR0_DQ[16]					
MDB5	AD35	DDR1_DQ[1]/DDR0_DQ[17]					
MDB1	AE36	DDR1_DQ[2]/DDR0_DQ[18]					
MDB6	AF36	DDR1_DQ[3]/DDR0_DQ[19]					
MDB3	AG35	DDR1_DQ[4]/DDR0_DQ[20]					
MDB7	AG34	DDR1_DQ[5]/DDR0_DQ[21]					
MDB0	AD36	DDR1_DQ[6]/DDR0_DQ[22]					
MDB2	AG36	DDR1_DQ[7]/DDR0_DQ[23]					
MDB13	AJ36	DDR1_DQ[8]/DDR0_DQ[24]					
MDB8	AJ35	DDR1_DQ[9]/DDR0_DQ[25]					
MDB14	AL36	DDR1_DQ[10]/DDR0_DQ[26]					
MDB10	AM35	DDR1_DQ[11]/DDR0_DQ[27]					
MDB9	AK36	DDR1_DQ[12]/DDR0_DQ[28]					
MDB12	AJ34	DDR1_DQ[13]/DDR0_DQ[29]					
MDB15	AM36	DDR1_DQ[14]/DDR0_DQ[30]					
MDB11	AM34	DDR1_DQ[15]/DDR0_DQ[31]					
MDB17	AT36	DDR1_DQ[16]/DDR0_DQ[48]					
MDB20	AP36	DDR1_DQ[17]/DDR0_DQ[49]					
MDB22	AT34	DDR1_DQ[18]/DDR0_DQ[50]					
MDB19	AP33	DDR1_DQ[19]/DDR0_DQ[51]					
MDB16	AR36	DDR1_DQ[20]/DDR0_DQ[52]					
MDB21	AT35	DDR1_DQ[21]/DDR0_DQ[53]					
MDB23	AR33	DDR1_DQ[22]/DDR0_DQ[54]					
MDB18	AT33	DDR1_DQ[23]/DDR0_DQ[55]					
MDB28	AP31	DDR1_DQ[24]/DDR0_DQ[56]					
MDB29	AT31	DDR1_DQ[25]/DDR0_DQ[57]					
MDB30	AT29	DDR1_DQ[26]/DDR0_DQ[58]					
MDB27	AP28	DDR1_DQ[27]/DDR0_DQ[59]					
MDB24	AR31	DDR1_DQ[28]/DDR0_DQ[60]					
MDB25	AT30	DDR1_DQ[29]/DDR0_DQ[61]					
MDB31	AR28	DDR1_DQ[30]/DDR0_DQ[62]					
MDB26	AT28	DDR1_DQ[31]/DDR0_DQ[63]					
MDB37	AT12	DDR1_DQ[32]/DDR1_DQ[16]					
MDB33	AR12	DDR1_DQ[33]/DDR1_DQ[17]					
MDB34	AT10	DDR1_DQ[34]/DDR1_DQ[18]					
MDB39	AR10	DDR1_DQ[35]/DDR1_DQ[19]					
MDB36	AP12	DDR1_DQ[36]/DDR1_DQ[20]					
MDB32	AT11	DDR1_DQ[37]/DDR1_DQ[21]					
MDB38	AP10	DDR1_DQ[38]/DDR1_DQ[22]					
MDB35	AN10	DDR1_DQ[39]/DDR1_DQ[23]					
MDB40	AR8	DDR1_DQ[40]/DDR1_DQ[24]					
MDB45	AT8	DDR1_DQ[41]/DDR1_DQ[25]					
MDB42	AT5	DDR1_DQ[42]/DDR1_DQ[26]					
MDB46	AT6	DDR1_DQ[43]/DDR1_DQ[27]					
MDB44	AP8	DDR1_DQ[44]/DDR1_DQ[28]					
MDB41	AT7	DDR1_DQ[45]/DDR1_DQ[29]					
MDB47	AP5	DDR1_DQ[46]/DDR1_DQ[30]					
MDB43	AR5	DDR1_DQ[47]/DDR1_DQ[31]					
MDB52	AM8	DDR1_DQ[48]					
MDB53	AM7	DDR1_DQ[49]					
MDB54	AK6	DDR1_DQ[50]					
MDB48	AM5	DDR1_DQ[51]					
MDB49	AM6	DDR1_DQ[52]					
MDB51	AK7	DDR1_DQ[53]					
MDB55	AK5	DDR1_DQ[54]					
MDB50	AL5	DDR1_DQ[55]					
MDB58	AF7	DDR1_DQ[56]					
MDB60	AH8	DDR1_DQ[57]					
MDB62	AG5	DDR1_DQ[58]					
MDB59	AF6	DDR1_DQ[59]					
MDB56	AH7	DDR1_DQ[60]					
MDB63	AF5	DDR1_DQ[61]					
MDB61	AH5	DDR1_DQ[62]					
		DDR1_DQ[63]					

	AM26	DDR1_ECC[7]					
	AM27	DDR1_ECC[6]					
	AL28	DDR1_ECC[5]					
	AK28	DDR1_ECC[4]					
	AM28	DDR1_ECC[3]					
	AL26	DDR1_ECC[2]					
	AK26	DDR1_ECC[1]					
	AJ28	DDR1_ECC[0]					
[9] VREF_CA3	VREF_CA	AB40	DDR_VREF_CA_3				
[9] VREF_CA2	VREF_CA	AC39	DDR_VREF_CA_2				

DDR CHANNEL B

	AT23	M_DCLKB0	M_DCLKB0 [9]				
	AU23	M_-DCLKB0	M_-DCLKB0 [9]				
	AV22	M_DCLKB1	M_DCLKB1 [9]				
	AU22	M_-DCLKB1	M_-DCLKB1 [9]				
	AT21	M_DCLKB2	M_DCLKB2 [9]				
	AU21	M_-DCLKB2	M_-DCLKB2 [9]				
	AU20	M_DCLKB3	M_DCLKB3 [9]				
	AV20	M_-DCLKB3	M_-DCLKB3 [9]				
	AT25	CKEB0	CKEB0 [9]				
	AR26	CKEB1	CKEB1 [9]				
	AT26	CKEB2	CKEB2 [9]				
	AP26	CKEB3	CKEB3 [9]				
	AN17	M_CSB0	M_-CSB0 [9]				
	AN15	M_-CSB1	M_-CSB1 [9]				
	AR16	M_-CSB2	M_-CSB2 [9]				
	AM15	M_-CSB3	M_-CSB3 [9]				
	AM17	MODT_B0					
	AP14	MODT_B1					
	AM16	MODT_B2					
	AM14	MODT_B3					
	AP18	SBAB0	SBAB0 [9]				
	AN19	SBAB1	SBAB1 [9]				
	AM23	BG_B0	BG_B0 [9]				
	AM22	BG_B1	BG_B1 [9]				
	AM18	MAAB16					
	AP17	MAAB14					
	AP16	MAAB15					
	AP19	MAAB0					
	AP20	MAAB1					
	AR20	MAAB2					
	AM20	MAAB3					
	AP21	MAAB4					
	AN21	MAAB5					
	AR22	MAAB6					
	AM21	MAAB7					
	AP22	MAAB8					
	AN23	MAAB9					
	AR18	MAAB10					
	AP23	MAAB11					
	AR24	MAAB12					
	AP15	MAAB13					
	AP25	M_-ACT_B	M_-ACT_B [9]				
	AM19	M_DDR_PARB	M_DDR_PARB [9]				
	AP24	M_-ALERT_B	M_-ALERT_B [9]				
	AF8	M_DQSB7					
	AG8	M_-DQSB7					
	AK8	M_DQSB6					
	AL8	M_-DQSB6					
	AP6	M_DQSB5					
	AP7	M_-DQSB5					
	AN11	M_DQSB4					
	AN12	M_-DQSB4					
	AP29	M_DQSB3					
	AP30	M_-DQSB3					
	AP34	M_DQSB2					
	AP35	M_-DQSB2					
	AL34	M_DQSB1					
	AK34	M_-DQSB1					
	AF34	M_DQSB0					
	AE34	M_-DQSB0					

			DDR1_DQSP[7]				
			DDR1_DQSN[7]				
			DDR1_DQSP[6]				
			DDR1_DQSN[6]				
			DDR1_DQSP[5]/DDR1_DQSP[3]				
			DDR1_DQSN[5]/DDR1_DQSN[3]				
			DDR1_DQSP[4]/DDR1_DQSP[2]				
			DDR1_DQSN[4]/DDR1_DQSN[2]				
			DDR1_DQSP[3]/DDR0_DQSP[7]				
			DDR1_DQSN[3]/DDR0_DQSN[7]				
			DDR1_DQSP[2]/DDR0_DQSP[6]				
			DDR1_DQSN[2]/DDR0_DQSN[6]				
			DDR1_DQSP[1]/DDR0_DQSP[3]				
			DDR1_DQSN[1]/DDR0_DQSN[3]				
			DDR1_DQSP[0]/DDR0_DQSP[2]				
			DDR1_DQSN[0]/DDR0_DQSN[2]				
	AJ27		DDR1_DQSP[8]				
	AJ26		DDR1_DQSN[8]				

2 OF 12

CPU-SK/1200/S/GF

[8] MODT_A[0..3] ↔ MODT_A[0..3]

[9] MODT_B[0..3] ↔ MODT_B[0..3]

[8] MDA[0..63] ↔ MDA[0..63]

[9] MDB[0..63] ↔ MDB[0..63]

[8] M_DQSA[0..7] ↔ M_DQSA[0..7]

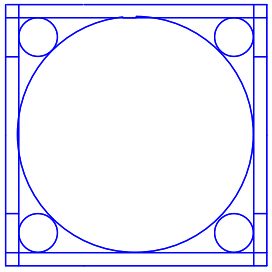
[8] M_-DQSA[0..7] ↔ M_-DQSA[0..7]

[8] MAAA[0..16] ↔ MAAA[0..16]

[9] MAAB[0..16] ↔ MAAB[0..16]

[9] M_DQSB[0..7] ↔ M_DQSB[0..7]

[9] M_-DQSB[0..7] ↔ M_-DQSB[0..7]



黑色cover

LGA1200

ILM_BP_CR/1200/BKNI/[12KRC-SF0001-83R_12KRC-SF0001-84R]

Gigabyte Technology			
Title: CPU LGA1200-B			
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 5 of 69		

VCCSA
WBC56 22u/6/X5R/6.3V/M
WBC57 22u/6/X5R/6.3V/M
DCC56 22u/6/X5R/6.3V/M
放CPU SOCKET (TOP LAYER)

VCCSA
WBC52 47u/8/X5R/6.3V/M
放CPU SOCKET (Bottom LAYER)
change footprint to C0805-L-1

VCCIO2 VCCIO2
WBC77 22u/6/X5R/6.3V/M
WBC78 22u/6/X5R/6.3V/M
放CPU SOCKET (TOP LAYER)

VCCIO2
WBC70 22u/6/X5R/6.3V/M
WBC71 22u/6/X5R/6.3V/M
WBC72 22u/6/X5R/6.3V/M
放CPU SOCKET (Bottom LAYER)

VCCIO
WBC53 22u/6/X5R/6.3V/M
WBC54 22u/6/X5R/6.3V/M
WBC59 22u/6/X5R/6.3V/M
放CPU SOCKET (TOP LAYER)

+VCCDDQ_EDGECAP2 +VCCDDQ_EDGECAP1
WBC75 22u/6/X5R/6.3V/M
WBC76 22u/6/X5R/6.3V/M
放CPU SOCKET (Bottom LAYER)

3VDUAL_PCH
VCCST_VCCPLL
WR107 0/4/X
WR106 0/4/X
U4
[10] A_SUSCLK
A_SUSCLK
VCCB B GND
VCCA A DIR
WR114 0/4/X A_RTCCLK
74AVC1T45GW/SC70/S/[10TA1-150145-00R]/X
*CML增加,RKL才會用到

VCCGT
LGA1200J SKT_H4 LGA1200
AA32 AA34 AA35 AA36 AA37 AA38 AB32 AB33 AB34 AB35 AB36 AC32 AD32 AE32 AF32 AG32 R40 T37 T38 T39 T40 U33 U34 U35 U36 U37 U38 U39 U40 V32 V33 V34 V36 V38 V40 W32 W34 W35 W36 W37 W38 Y32 Y33 Y34 Y36 Y38 VCCGT
VCCGT_SENSE AB37
VSSGT_SENSE AB38
VCCGT_SENSE [30]
VSSGT_SENSE [30]
CPU-SK/1200/S/GF
10 OF 12

VCCIO_1_2
VOUT = 0.95V
IOUT = 9.5A

VCCIO_0
VOUT = 0.95V FOR CML
VOUT = 1.05V FOR RKL
IOUT = 8A

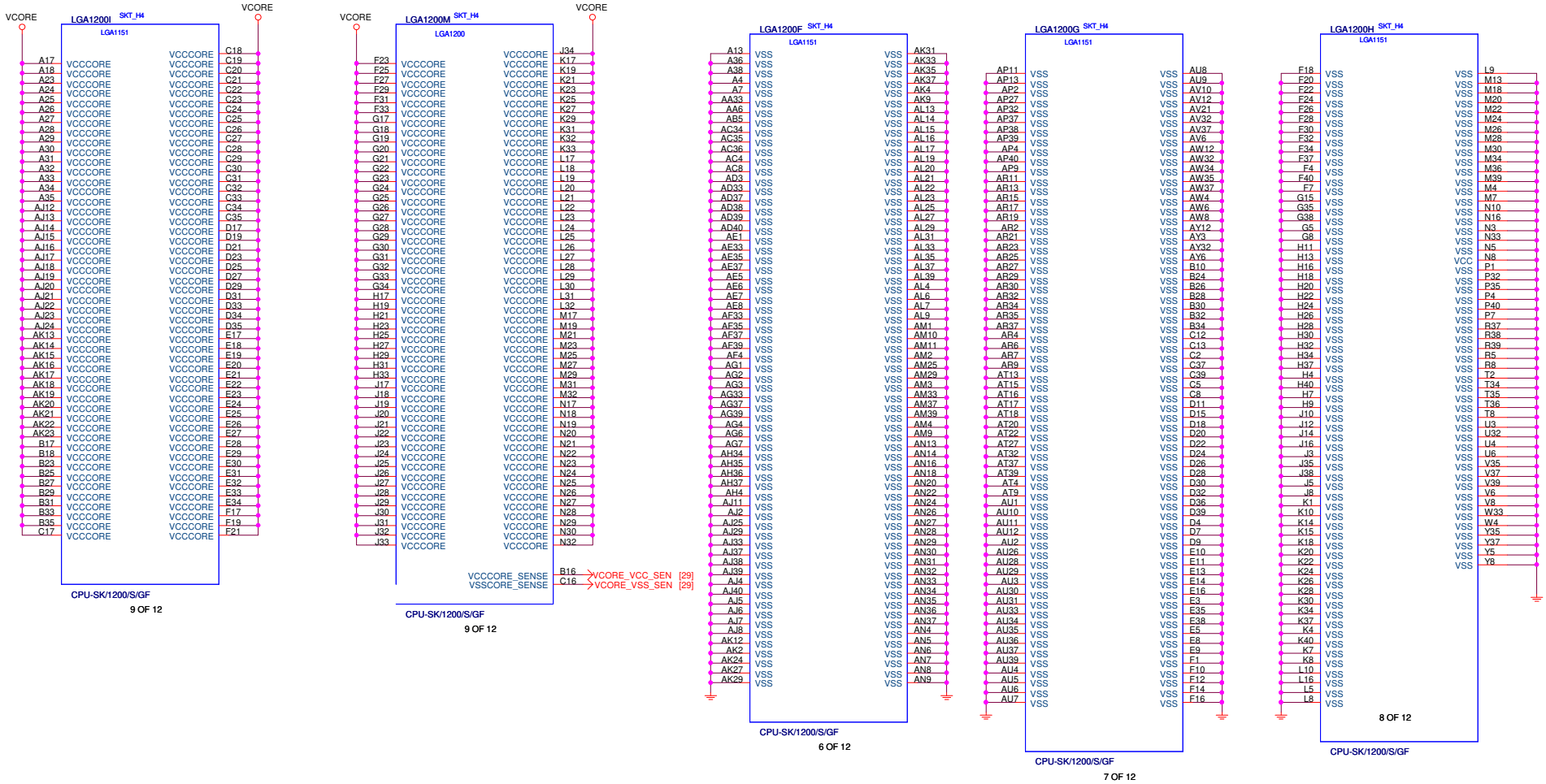
VCCSA
LGA1200K SKT_H4 LGA1200
B3 B6 D1 G3 H1 L11 L12 L3 M1 M11 M12 N11 N12 N13 VCCSA
VCCIO2
AJ9 AK10 AK11 AL10 AL11 VCCIO_2
AK25 AL12 AL24 AM12 VCCIO_1
VCCIO
AA3 AB8 AC1 AC7 AD6 U5 V3 V7 W1 W7 W8 VCCIO_0
[30] VCCSA_SENSE C6
[37] VCCIO2_SENSE AE4
[36] VCCIO_SENSE D5
VCCSA_SENSE
VCCIO_1_2_SENSE
VCCIO_0_SENSE
[30,36] VSSSA_VIO_SENSE D6
VSS_SA_VCCIO_0_SENSE
VDDQ
AR14 AT24 AU15 AU25 AV17 AV19 AV23 AW13 AW15 AW24 AW26 AW28 AW30 AY17 VCCDDQ
VCCDDQ_EDGECAP2 AM13
VCCDDQ_EDGECAP1 AM24
+VCCDDQ_EDGECAP2
+VCCDDQ_EDGECAP1
VCCST U2 V1 V2
VCCST
WR87 0/4/X VCCST_VCCPLL
WR89 0/4/SHT/M/X VCCST_V5
VCCSFR R1
WR125 0/4/X VCCST_VCCPLL
WR126 0/4/SHT/M/X VCCPLL
VCCSFR_OC AU13 AU27
VCCSTG R2 R3
VCCFPGM R4 T5 T6
WR104 0/4/X VCCST_VCCPLL
WR105 0/4/SHT/M/X VCCSTG
WBC124 1u/4/X5R/6.3V/K
WR86 0/4/X VDDQ
WR95 0/4/SHT/M/X VCCPLL_OC
WBC96 47u/8/X5R/6.3V/M
CPU-SK/1200/S/GF
10 OF 12

www.teknisi-indonesia.com

[10] N_CPURTCCLK
WR113 0/4 A_RTCCLK

LGA1200L SKT_H4 LGA1200
K16 G16 H8 AU32 AN25 P33 R33 J4 L4 P8 M8 G4 E4 J11 J13 B15
FIVR_PROBE_ANA_1
FIVR_PROBE_ANA_0
EXTBGREF
DDR_VIEW_1
DDR_VIEW_0
PEG_VIEW_3
PEG_VIEW_2
PE16_AMON2_PEG_VIEW_1
PE16_AMON1_PEG_VIEW_0
PE4_AMON2
PE4_AMON1
DMI_AMON2
DMI_AMON1
CPU_EDM_1
CPU_EDM_0
H_RTCCLK
A_RTCCLK
THERMDA2 AH33
THERMDC2 AH32
THERMDA1 D8
THERMDC1 F8
WTP3
CPU_TRIGGEROUT D12
CPU_TRIGGERIN E12
A_CPU_PCH_TO_R WR88 33/4
A_CPU_PCH_TO [11]
N_PCH_CPU_TI [11]
VCCCOREG5 AL18
VCCCOREG4 L33
RSVD_M16 M16
RSVD_M33 M33
RSVD_N4 N4
RSVD_T33 T33
12 OF 12
CPU-SK/1200/S/GF

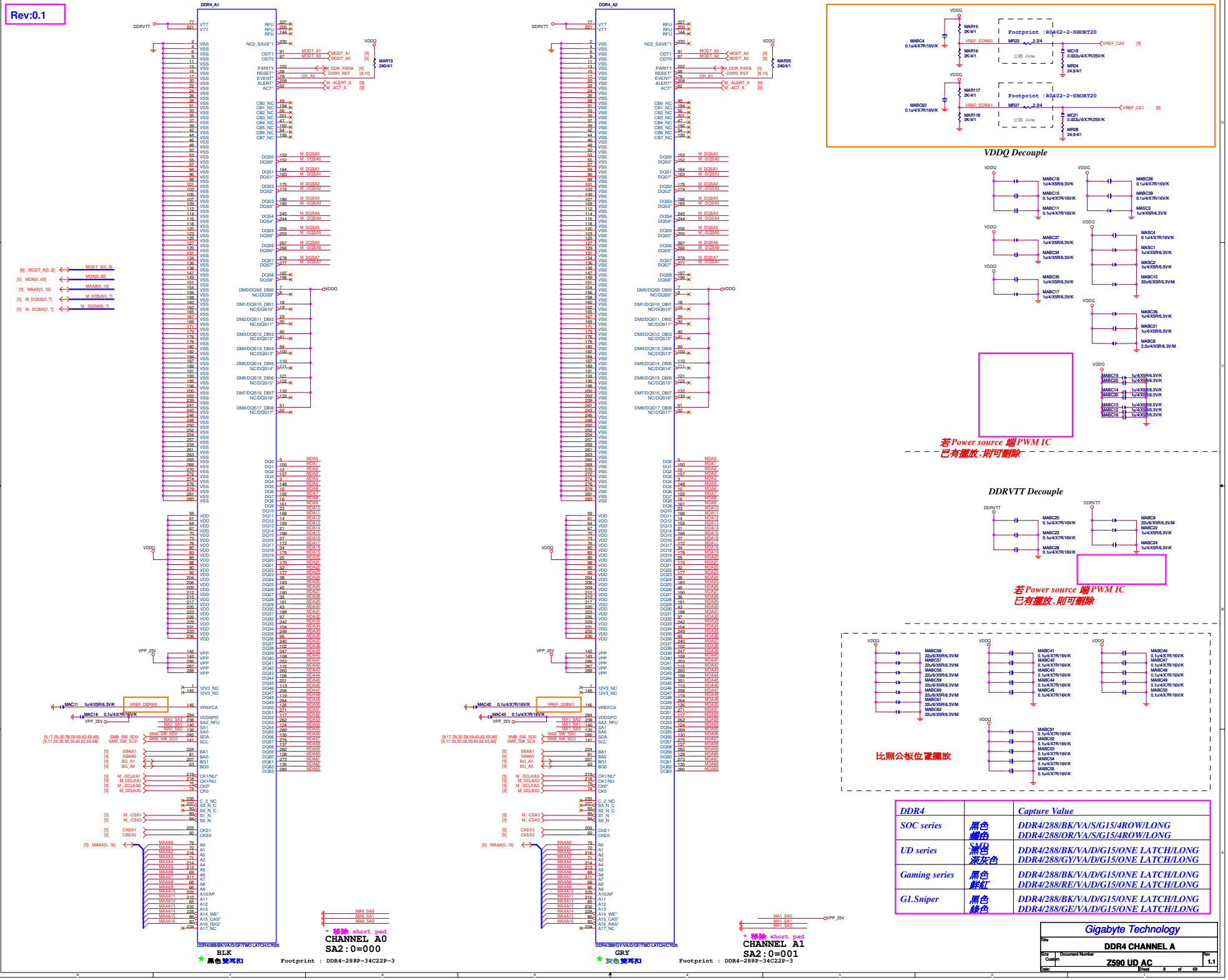
Gigabyte Technology
Title: CPU LGA1200-C
Size: Custom
Document Number: Z590 UD AC
Rev: 1.1
Date: Monday, December 21, 2020
Sheet 6 of 69



* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1200-D		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 7 of 69	

Rev:0.1



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

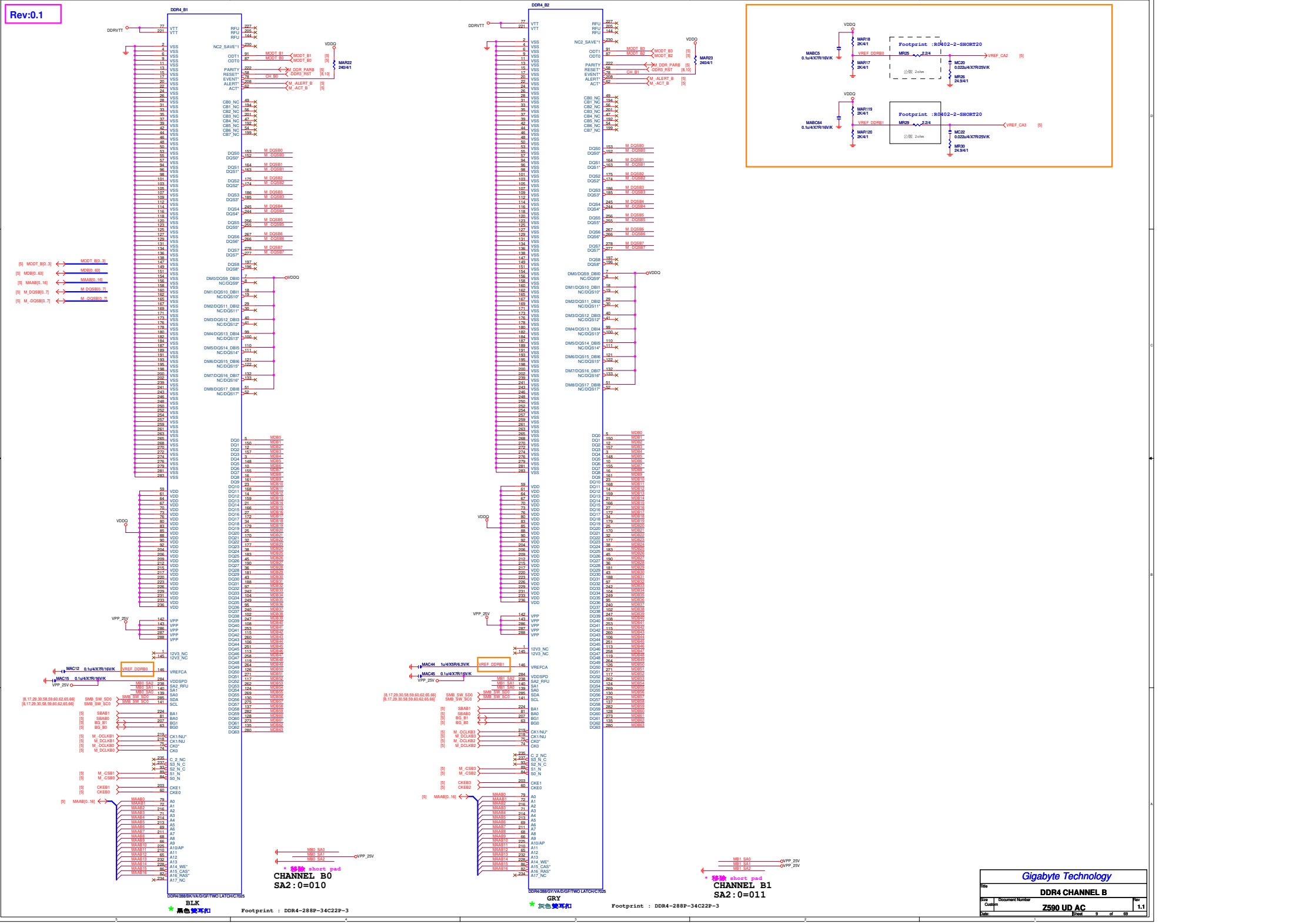
Gigabyte Technology

Title: DDR4 CHANNEL A

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: | Sheet 8 of 69

Rev:0.1



Gigabyte Technology	
Title	DDR4 CHANNEL B
Size: Custom	Document Number: Z590 UD AC
Rev: 1.1	
Date:	Sheet 9 of 69

RKL_TGP_PCH-H R0.15

C10_WAKE RESERVED/BIOS NEED TO PROGRAM
INTERNAL PD ON THIS PIN.

max 6vias <10000mils

CHECK RKL A_RTCCLK FROM
CPU OR PCH?

PCHA

NR406 20K/4/X N_C10WAKE AJ4 C10_WAKE
PCH_CPUCLK B8 CLKOUT_CPUBCLK_DP
PCH_-CPUCLK A9 CLKOUT_CPUBCLK_DN
N_24MCLK C8 CLKOUT_CPUNSSC_DP
N_-24MCLK D8 CLKOUT_CPUNSSC_DN
N_CPUPCIBCLK A6 CLKOUT_CPUPCIBCLK_DP
N_C-PUPCIBCLK A5 CLKOUT_CPUPCIBCLK_DN
N_CPURTCCLK AD1 CLKOUT_CPURTC
AC11 CLKOUT_CPUBCLK2_DP
AC12 CLKOUT_CPUBCLK2_DN

CNV_WT_D1P AU16
CNV_WT_D1N AW15
CNV_WT_D0P AY15
CNV_WT_D0N BA14
CNV_WT_CLKP AU14
CNV_WT_CLKN AW13
CNV_WR_D1P BE11
CNV_WR_D1N BD11
CNV_WR_D0P BD13
CNV_WR_D0N BC13
CNV_WR_CLKP BD12
CNV_WR_CLKN BC12
NR404 150/4/1 CNV_RCOMP BE12 CNV_WT_RCOMP
NTP120 BE14 CNVLDO_MON
NR169 0/4/SHT/M/X N_PCH_TRST AE4 CPU_TRSTB
N_CPUPWROK AC3 CPUPWRGD

CLKOUT_SRC_P_15 T2
CLKOUT_SRC_N_15 T3
CLKOUT_SRC_P_14 AA1
CLKOUT_SRC_N_14 Y2
CLKOUT_SRC_P_13 R4
CLKOUT_SRC_N_13 R5
CLKOUT_SRC_P_12 AB4
CLKOUT_SRC_N_12 AB3
CLKOUT_SRC_P_11 W4
CLKOUT_SRC_N_11 W5
CLKOUT_SRC_P_10 T4
CLKOUT_SRC_N_10 T5
CLKOUT_SRC_P_9_G4 W8
CLKOUT_SRC_N_9_G4 W6
CLKOUT_SRC_P_8 W3 → LK_SRCCLK_LAN [54]
CLKOUT_SRC_N_8 V4 → LK_-SRCCLK_LAN [54] LAN_I219V
CLKOUT_SRC_P_7_G4 T8 → M2P_100M_DP_N [66]
CLKOUT_SRC_N_7_G4 T7 → M2P_100M_DN_N [66] M2P_CPU
CLKOUT_SRC_P_6 U4 → M2M_100M_DP_N [26]
CLKOUT_SRC_N_6 U3 → M2M_100M_DN_N [26] M2M_SB
CLKOUT_SRC_P_5 Y4
CLKOUT_SRC_N_5 Y3
CLKOUT_SRC_P_4_G4 V13 → M2A_100M_DP_N [25]
CLKOUT_SRC_N_4_G4 V15 → M2A_100M_DN_N [25] M2A_SB
CLKOUT_SRC_P_3_G4 U9 → PP_PCIE_CLK [22]
CLKOUT_SRC_N_3_G4 V11 → PP_-PCIE_CLK [22] PCIEX4
CLKOUT_SRC_P_2 AG15 → PJ_PCIE_CLK [23]
CLKOUT_SRC_N_2 AG13 → PJ_-PCIE_CLK [23] PCIEX1_2
CLKOUT_SRC_P_1 AE11 → PI_PCIE_CLK [23]
CLKOUT_SRC_N_1 AE9 → PI_-PCIE_CLK [23] PCIEX1_1
CLKOUT_SRC_P_0_G4 Y9 → PA_SRCCLK_N [66]
CLKOUT_SRC_N_0_G4 Y11 → PA_-SRCCLK_N [66] PCIEX16

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

**注意:紅框CLOCK OUT定義GEN4,不可變動

CPU GEN4

CLKOUT_PCIE_P/N [9, 7, 4, 3, 0] = Must be used for PCIe* Gen4 support

PCHB

[54] N_-LAN_DIS AL47 GPD_12
N_-SLP_S5 AK46 GPD_11_LANPHYPC
AJ47 GPD_10_SLP_S5B
N_SUSCLK AJ46 GPD_9_SLP_WLANB
AJ45 GPD_8_SUSCLK
GPD_7 AL46 GPD_7/STRAP
N_-SLP_A AF46 GPD_6_SLP_AB
N_-S4_S5 AE46 GPD_5_SLP_S4B
[17,28,39,58,59,62,67] N_-S4_S5
[17,28,38,53,58,62,67] N_-SLP_S3 AF47 GPD_4_SLP_S3B
[17] O_PWRBTSW AH47 GPD_3_PWRBTNB
[17] N_-LAN_WAKE AH48 GPD_2_LAN_WAKEB
N_GP_D1 AH46 GPD_1_ACPRESENT
N_-BATLOW AG45 GPD_0_BATLOWB

Y33 FPF_VREF
Y35 FPF_MON
V32 FPF_LDOMON
AJ42 FIVR_VTGT_VNN
AB20 FIVR_VLOAD_VNN
AJ44 FIVR_VTGT_VCC1P05
AJ22 FIVR_VLOAD_VCC1P05
[45] CNVI_CLKIN AK39 FIVR_REFCLK
AL41 FIVR_EXTBGREF
AH37 FIVR_ANAPB_1
AK37 FIVR_ANAPB_0
AH17 EDM2
AH18 EDM1
[17,62] N_PCH_DPWROK AB46 DSW_PWROK
[8,9] -DDR3_RST AC46 -DDR3_RST
DRAM_RESETB

DMI_7_TXP C25 A_DMI_7RXP [4]
DMI_7_TXN A25 A_DMI_7RXN [4]
DMI_7_RXP J24 A_DMI_7TXP [4]
DMI_7_RXN L24 A_DMI_7TXN [4]
DMI_6_TXP D26 A_DMI_6RXP [4]
DMI_6_TXN C26 A_DMI_6RXN [4]
DMI_6_RXP R22 A_DMI_6TXP [4]
DMI_6_RXN P22 A_DMI_6TXN [4]
DMI_5_TXP D27 A_DMI_5RXP [4]
DMI_5_TXN C27 A_DMI_5RXN [4]
DMI_5_RXP P26 A_DMI_5TXP [4]
DMI_5_RXN R26 A_DMI_5TXN [4]
DMI_4_TXP E28 A_DMI_4RXP [4]
DMI_4_TXN D29 A_DMI_4RXN [4]
DMI_4_RXP F26 A_DMI_4TXP [4]
DMI_4_RXN H26 A_DMI_4TXN [4]
DMI_3_TXP C29 A_DMI_3RXP [4]
DMI_3_TXN B29 A_DMI_3RXN [4]
DMI_3_RXP L26 A_DMI_3TXP [4]
DMI_3_RXN J26 A_DMI_3TXN [4]
DMI_2_TXP E30 A_DMI_2RXP [4]
DMI_2_TXN D30 A_DMI_2RXN [4]
DMI_2_RXP J29 A_DMI_2TXP [4]
DMI_2_RXN L29 A_DMI_2TXN [4]
DMI_1_TXP D31 A_DMI_1RXP [4]
DMI_1_TXN C30 A_DMI_1RXN [4]
DMI_1_RXP F30 A_DMI_1TXP [4]
DMI_1_RXN H30 A_DMI_1TXN [4]
DMI_0_TXP D32 A_DMI_0RXP [4]
DMI_0_TXN C32 A_DMI_0RXN [4]
DMI_0_RXP J32 A_DMI_0TXP [4]
DMI_0_RXN L31 A_DMI_0TXN [4]

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

CPU GEN4

GPD: 3.3 V only, powered by the PCH DSW_3P3 power rail.

teknisi-indonesia.com

STRAP

3VDUAL_PCH
NR210 8.2K/4/X GPD_7 NR237 100K/4/X
Reserved.this strap should sample LOW.INTERNAL PD.

3VDUAL_PCH
N_GP_D1 NR89 8.2K/4
N_-LAN_WAKE NR94 8.2K/4
N_-SLP_S5 NR98 8.2K/4/X
N_-SLP_A NR91 8.2K/4/X
N_-BATLOW NR88 8.2K/4

VDDQ
-DDR3_RST NR67 470/4/1

N_SUSCLK MAX 2 LOADS SUPPORTED

N_SUSCLK NR235 33/4/1 A_SUSCLK [6]
NR234 33/4/1 CNVI_SUSCLK [45]
NR119 1K/4/1/X

3VDUAL_PCH 3VDUAL
NR134 1K/4/1/X
NR444 1K/4/1
N_PCH_DPWROK
NR111 47K/4/1
NC7 1n/4/X7R/50V/K
CLOSE TO PCH
At least 10ms delay after 3VDUAL_PCH stabel

PCH Signal Glitch Free
N_-SLP_S3 NR120 100K/4/1/X
N_-S4_S5 NR121 100K/4/1/X
N_-SLP_S5 NR127 100K/4/1/X

ANS 8561247

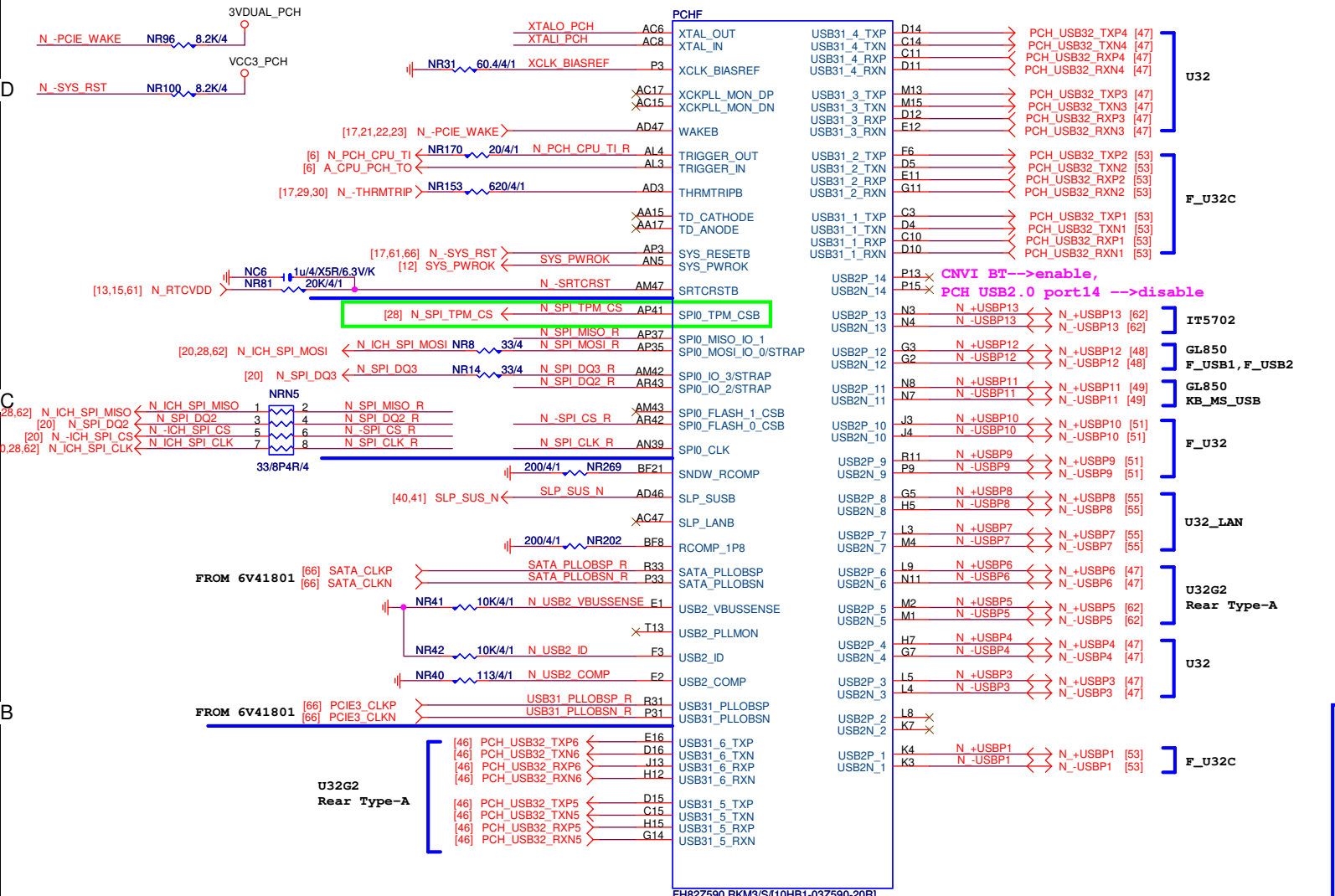
Gigabyte Technology

Title: PCH CLK,DMI,CNVI

Size: B | Document Number: Z590 UD AC | Rev: 1.1

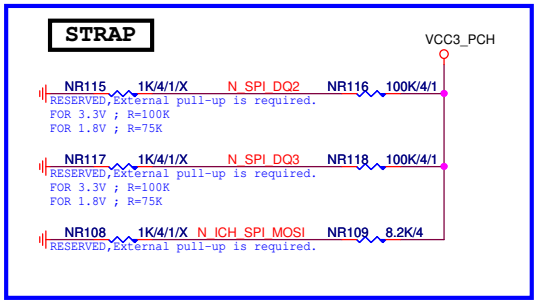
Date: Monday, January 11, 2021 | Sheet 10 of 69

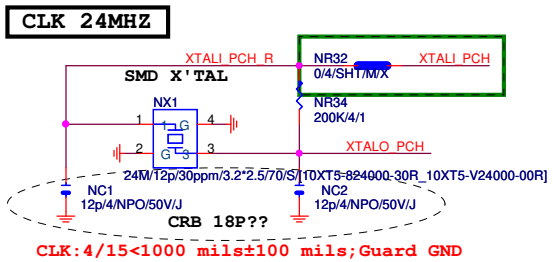
RKL_TGP_PCH-H R0.15

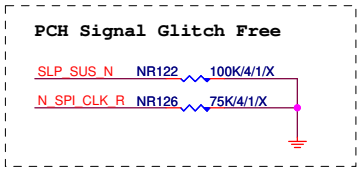


Intel 500 series PCH USB configration P1~P6						
ITEM	USB P1	USB P2	USB P3	USB P4	USB P5	USB P6
H510	U3.2 Gen1x1	U3.2 Gen1x1	U3.2 Gen1x1	U3.2 Gen1x1	NA	NA
B560	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen1x1	U3.2 Gen1x1
H570	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen1x1	U3.2 Gen1x1
Z590	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1
Q570	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1
W580	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1
	Gen2x2		Gen2x2		Gen2x2	

Intel 500 series PCH USB20 configration						
ITEM	USB P1~9	USB P10	USB P11	USB P12	USB P13	USB P14
H510	USB2	NA	NA	NA	NA	For Intel® Wireless-AC
B560	USB2	USB2	USB2	NA	NA	
H570	USB2	USB2	USB2	USB2	USB2	
Z590	USB2	USB2	USB2	USB2	USB2	
Q570	USB2	USB2	USB2	USB2	USB2	
W580	USB2	USB2	USB2	USB2	USB2	







ANS 8561247

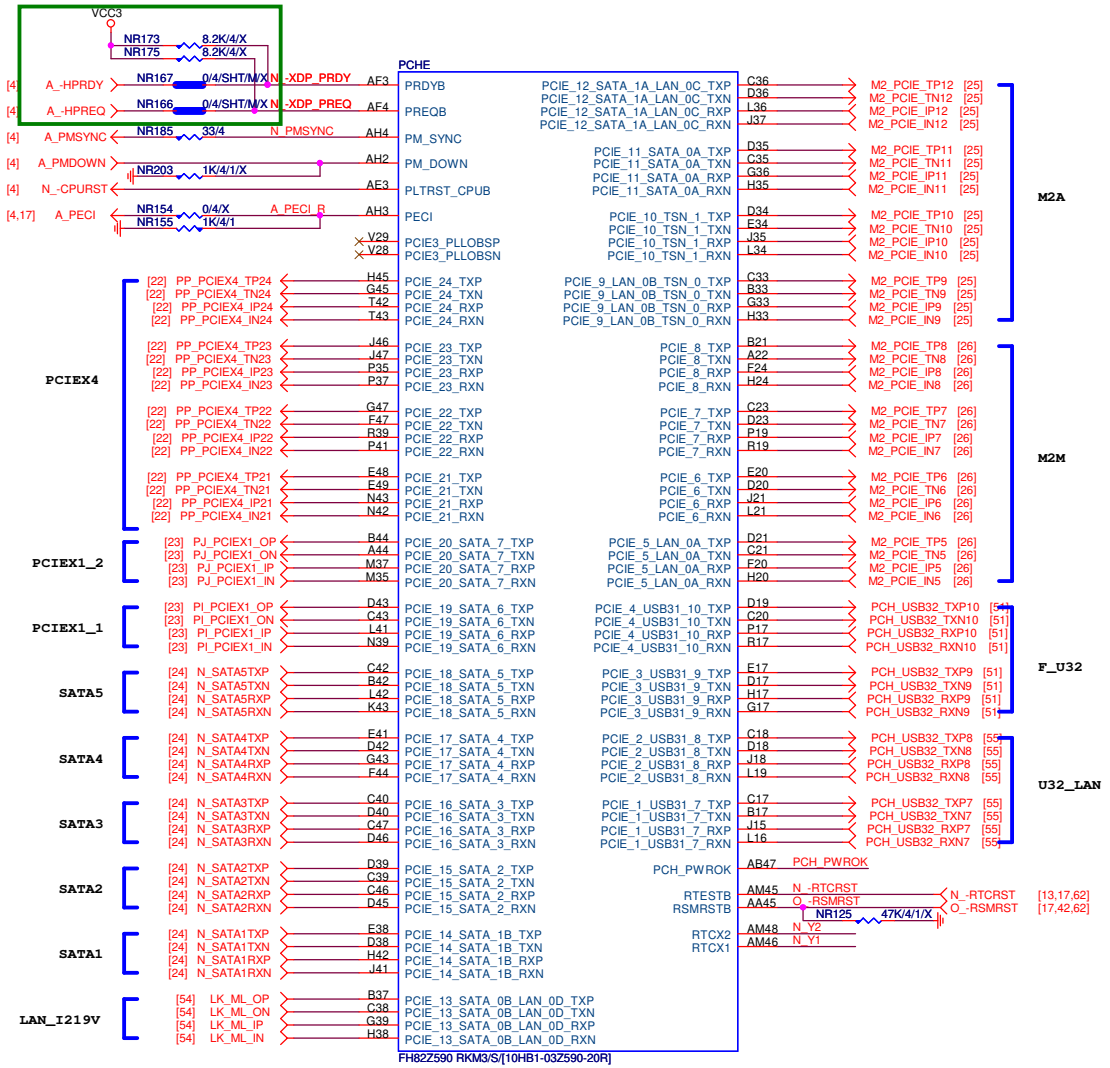
Gigabyte Technology

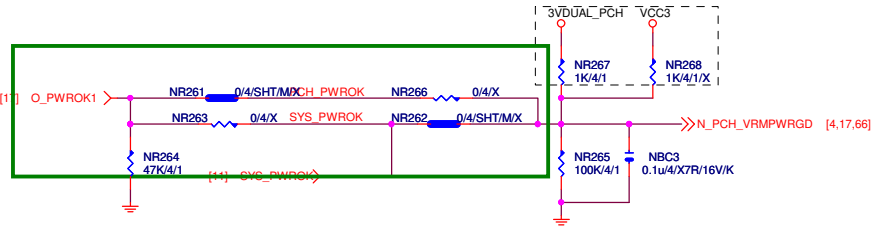
Title: PCH SPI,USB

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, January 11, 2021 | Sheet 11 of 69

RKL_TGP_PCH-H R0.15





Intel 500 series PCH PCIE P5~P12								
ITEM	PCIE P5	PCIE P6	PCIE P7	PCIE P8	PCIE P9	PCIE P10	PCIE P11	PCIE P12
H510	PCIE /GbE	PCIE	PCIE	PCIE	GbE ONLY	N/A	PCIE	PCIE /GbE
B560	PCIE /GbE	PCIE	PCIE	PCIE	PCIE /GbE	PCIE	PCIE SATA_0'	PCIE SATA_1' GbE
H570	PCIE /GbE	PCIE	PCIE	PCIE	PCIE /GbE	PCIE	PCIE SATA_0'	PCIE SATA_1' GbE
Z590	PCIE /GbE	PCIE	PCIE	PCIE	PCIE /GbE	PCIE	PCIE SATA_0'	PCIE SATA_1' GbE
Q570	PCIE /GbE	PCIE	PCIE	PCIE	PCIE /GbE	PCIE	PCIE SATA_0'	PCIE SATA_1' GbE
W580	PCIE /GbE	PCIE	PCIE	PCIE	PCIE /GbE	PCIE	PCIE SATA_0'	PCIE SATA_1' GbE
					Intel® RST for x2/x4 M.2			

Intel 500 series PCH PCIE P13~P24												
ITEM	PCIE P13	PCIE P14	PCIE P15	PCIE P16	PCIE P17	PCIE P18	PCIE P19	PCIE P20	PCIE P21	PCIE P22	PCIE P23	PCIE P24
H510	SATA_0 /GbE	SATA_1	SATA_2	SATA_3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B560	SATA_0 /GbE	SATA_1	SATA_2	SATA_3	SATA_4	SATA_5	N/A	N/A	PCIE	PCIE	PCIE	PCIE
H570	PCIE SATA_0 GbE	PCIE SATA_1	PCIE SATA_2	PCIE SATA_3	PCIE SATA_4	PCIE SATA_5	PCIE	PCIE	PCIE	PCIE	PCIE	PCIE
Z590	PCIE SATA_0 GbE	PCIE SATA_1	PCIE SATA_2	PCIE SATA_3	PCIE SATA_4	PCIE SATA_5	PCIE	PCIE	PCIE	PCIE	PCIE	PCIE
Q570	PCIE SATA_0 GbE	PCIE SATA_1	PCIE SATA_2	PCIE SATA_3	PCIE SATA_4	PCIE SATA_5	PCIE	PCIE	PCIE	PCIE	PCIE	PCIE
W580	PCIE SATA_0 GbE	PCIE SATA_1	PCIE SATA_2	PCIE SATA_3	PCIE SATA_4	PCIE SATA_5	PCIE SATA_6	PCIE SATA_7	PCIE	PCIE	PCIE	PCIE
					Intel® RST for x2/x4 M.2				Intel® RST for x2/x4 M.2			

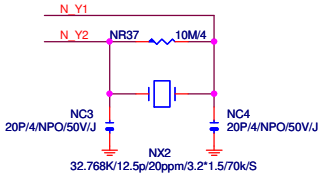
RTC 32.768KHZ

DIP X'TAL

Del DIP NX1

OPTION

SMD X'TAL



Intel 500 series PCH USB P7~P10				
ITEM	USB P7	USB P8	USB P9	USB P10
H510	NA	NA	NA	NA
B560	NA	NA	NA	NA
H570	U3.2 Gen1x1	U3.2 Gen1x1	PCIE	PCIE
Z590	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1
	PCIE	PCIE	PCIE	PCIE
Q570	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen1x1	U3.2 Gen1x1
	PCIE	PCIE	PCIE	PCIE
W580	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1	U3.2 Gen2x1
	PCIE	PCIE	PCIE	PCIE

ANS 8561247

Gigabyte Technology

Title: PCH PCIE,SATA

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, January 11, 2021 | Sheet 12 of 69

RKL_TGP_PCH-H R0.15

GPP_D PU/PD

GPP_B PU/PD

3VDUAL
NR296 8.2K/4 N_-VRALERT
N_-SLP_S0 NR438 100K/4/1

3VDUAL
CLKREQ
NR2 8.2K/4 N_GPP_B5 PCIEX16
NR3 8.2K/4 N_GPP_B6 PCIEX1_1
NR4 8.2K/4 N_GPP_B7 PCIEX1_2
NR5 8.2K/4 N_GPP_B8 PCIEX4
NR6 8.2K/4 N_GPP_B9 M2A

ON-BOARD DEVICE PULL DOWN
N_GPP_B9 NR13 8.2K/4/X

PCHD

MINI LOAD
For 4 PIN OC BOTTOM
THB_C PCIEX16 BIFURCATION
THB_C PCIEX16 BIFURCATION
PCIEX16 BIFURCATION
PCIEX16 BIFURCATION
SMBUS SW
SYS_FAN4 MODE
SYS_FAN3 MODE
SYS_FAN2 MODE
SYS_FAN1 MODE
CPU_FAN MODE
REMOVE N_-DDR_V_SEL

[14] N_GPP_D23	N_GPP_D23	AU29	GPP_D_23_UART3_CTSB_THC1_SPI2_INTB
		AY30	GPP_D_22_UART3_RTSB_THC1_SPI2_RSTB
		AW29	GPP_D_21_UART3_TXD_THC1_SPI2_IO_3
[17] N_GPP_D19	N_GPP_D19	BD30	GPP_D_20_UART3_RXD_THC1_SPI2_IO_2
		BD35	GPP_D_19_GSPI3_MOSI_THC1_SPI2_IO_1
		BD34	GPP_D_18_GSPI3_MISO_THC1_SPI2_IO_0
		BC34	GPP_D_17_GSPI3_CLK_THC1_SPI2_CLK
		BE35	GPP_D_16_GSPI3_CS0B_THC1_SPI2_CSB
	N_SML1DAT	BB30	GPP_D_15_SML1DATA
		BC30	GPP_D_14_SPI1_IO_3_THC0_SPI1_IO_3
		BE30	GPP_D_13_SPI1_IO_2_THC0_SPI1_IO_2
		BD31	GPP_D_12_ISH_UART0_CTSB_SML0BALERTB
[43] N_GPP_D11	N_SML0DAT	BD32	GPP_D_11
[54] N_SML0DAT	N_SML0CLK	BC33	GPP_D_10_SML0DATA
[54] N_SML0CLK	N_GPP_D8	BE32	GPP_D_9_SML0CLK
[45] -CNVI_PCM_CLK	N_GPP_D7	BD36	GPP_D_8_I2S2_SCLK_THC0_SPI1_INTB
[45] CNVI_PCM_IN	N_GPP_D6	BE36	GPP_D_7_I2S2_RXD_THC0_SPI1_RSTB
[45] CNVI_CLKREQ	N_GPP_D5	AY33	GPP_D_6_I2S2_TXD_MODEM_CLKREQ_CRF_XTAL_CLKREQ
[45] -CNVI_RF_RESET	N_SML1CLK	BA33	GPP_D_5_I2S2_SFRM_CNV_RF_RESET_B
	N_GPP_D3	BF33	GPP_D_4_SML1CLK
[61] N_GPP_D3	NTP123	BD33	GPP_D_3_SPI1_MOSI_IO_0_THC0_SPI1_IO_0_SBK_3_BK_3
		BE33	GPP_D_2_SPI1_MISO_IO_1_THC0_SPI1_IO_1_SBK_2_BK_2
	NTP124	AW32	GPP_D_1_SPI1_CLK_THC0_SPI1_CLK_SBK_1_BK_1
		AU31	GPP_D_0_SPI1_CSB_THC0_SPI1_CSB_SBK_0_BK_0
[28] N_GPP_C23		BB26	GPP_C_23_UART2_CTSB_CNV_MFUART0_CTS_B
[21] N_GPP_C22		AU26	GPP_C_22_UART2_RTSB_CNV_MFUART0_RTS_B
[28] N_GPP_C21		AW26	GPP_C_21_UART2_TXD_CNV_MFUART0_TXD
[21] N_GPP_C20		AY26	GPP_C_20_UART2_RXD_CNV_MFUART0_RXD
		BD20	GPP_C_19_I2C1_SCL
		BE21	GPP_C_18_I2C1_SDA
		BD21	GPP_C_17_I2C0_SCL
		BC22	GPP_C_16_I2C0_SDA
		BE23	GPP_C_15_UART1_CTSB_ISH_UART1_CTSB
		BD24	GPP_C_14_UART1_RTSB_ISH_UART1_RTSB
		BD23	GPP_C_13_UART1_TXD_ISH_UART1_TXD
[21] N_GPP_C12		BC28	GPP_C_12_UART1_RXD_ISH_UART1_RXD
[21] N_GPP_C11		BD29	GPP_C_11_UART0_CTSB
[65] N_GPP_C10		BF29	GPP_C_10_UART0_RTSB
		BE29	GPP_C_9_UART0_TXD
		BE27	GPP_C_8_UART0_RXD
		BB24	GPP_C_7_ISH_I2C2_SCL_I2C3_SCL
		AY24	GPP_C_6_ISH_I2C2_SDA_I2C3_SDA_SBK_4_BK_4
	N_GPP_C5	BD27	GPP_C_5_SML0ALERTB/STRAP
		BE25	GPP_C_4_ISH_UART0_TXD_SML0BCLK_I2C2_SCL
[17] N_-LPCPME	NR9 0/4/SHT/M/X	BD26	GPP_C_3_ISH_UART0_RXD_SML0BDATA_I2C2_SDA
	N_GPP_C2	BD25	GPP_C_2_SMBALERTB/STRAP
[65] N_SMBDATA	N_SMBDATA	BE26	GPP_C_1_SMBDATA
[65] N_SMBCLK	N_SMBCLK		GPP_C_0_SMBCLK
	N_-PCH_HOT	BD42	
	N_GPP_B22	AW41	GPP_B_23_SML1ALERTB_PCHHOTB/STRAP
		BE46	GPP_B_22_GSPI1_MOSI/STRAP
	N_GPP_B20	BB42	GPP_B_21_GSPI1_MISO_NFC_CLKREQ
[17] N_GPP_B20		BD45	GPP_B_20_GSPI1_CLK_NFC_CLK
	N_GPP_B18	AU36	GPP_B_19_GSPI1_CS0B
[19] N_GPP_B17		BA36	GPP_B_18_GSPI0_MOSI/STRAP
[19] N_GPP_B16		AY38	GPP_B_17_GSPI0_MISO
[19] N_GPP_B15		BA39	GPP_B_16_GSPI0_CLK
[61] N_SPKR	N_SPKR	BD40	GPP_B_15_GSPI0_CS0B
[17,62] N_-PFMRST	N_-PFMRST	BD39	GPP_B_14_SPKR/STRAP
[17,29] N_-SLP_S0	N_-SLP_S0	BE40	GPP_B_13_PLTRSTB
		BE39	GPP_B_12_SLP_S0B
		BD38	GPP_B_11_I2S_MCLK
[25] M2A_-CLKREQ	N_GPP_B9	BE38	GPP_B_10_SRCCLKREQB_5
[22] -PCIEX4_PR	N_GPP_B8	BF37	GPP_B_9_SRCCLKREQB_4
[23] -PCIEX1_PR2	N_GPP_B7	BD37	GPP_B_8_SRCCLKREQB_3
[23] -PCIEX1_PR1	N_GPP_B6	BC38	GPP_B_7_SRCCLKREQB_2
[21] -PCIEX16_PR	N_GPP_B5	BC37	GPP_B_6_SRCCLKREQB_1
[19] N_GPP_B4		AU34	GPP_B_5_SRCCLKREQB_0
[19] N_GPP_B3		AW35	GPP_B_4_CPU_GP_3
	N_-VRALERT	AY35	GPP_B_3_CPU_GP_2
		AY42	GPP_B_2_VRALERTB
		AW37	GPP_B_1_GSPI1_CS1B_TIME_SYNC_1
			GPP_B_0_GSPI0_CS1B

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

		AW46	GPPC_A_14
		AV46	GPPC_A_13_ESPI_ALERT3B
		AV47	GPPC_A_12_ESPI_ALERT2B
		AU45	GPPC_A_11_ESPI_ALERT1B
	ESPI_ALERT	AU46	GPPC_A_10_ESPI_ALERT0B
		AU47	GPPC_A_9_ESPI_CS3B
		AT48	GPPC_A_8_ESPI_CS2B
		AT46	GPPC_A_7_ESPI_CS1B
	ESPI_RESET-	AT45	GPPC_A_6_ESPI_RESETB
	N_GPP_A5 NR46 10/4	AR47	GPPC_A_5_ESPI_CLK
	ESPI_CS-	AR46	GPPC_A_4_ESPI_CS0B
	N_ESPI_IO3 NR50 10/4	AP46	GPPC_A_3_ESPI_IO_3_SUSACKB
	N_ESPI_IO2 NR69 10/4	AP47	GPPC_A_2_ESPI_IO_2_SUSWARNB_SUSPWRDNACK
	N_ESPI_IO1 NR70 10/4	AN45	GPPC_A_1_ESPI_IO_1
	N_ESPI_IO0 NR72 10/4	AN46	GPPC_A_0_ESPI_IO_0
		AL21	STRAP/GPPC_G_15_DDP2_CTRLDATA_TBT_LSX1_B
	N_GPP_G14	AN21	GPPC_G_14_DDP2_CTRLCLK_TBT_LSX1_A
	N_GPP_G13	AU19	STRAP/GPPC_G_13_DDP1_CTRLDATA_TBT_LSX0_B
	N_GPP_G12	AW18	GPPC_G_12_DDP1_CTRLCLK_TBT_LSX0_A
	N_GPP_G11	AY17	STRAP/GPPC_G_11_ISH_SPI_MOSI_DDP4_CTRLDATA_GSPI2_MOSI_TBT_LSX3_B
		BA17	GPPC_G_10_ISH_SPI_MISO_DDP4_CTRLCLK_GSPI2_MISO_TBT_LSX3_A
	N_GPP_G9	BC17	STRAP/GPPC_G_9_ISH_SPI_CLK_DDP3_CTRLDATA_GSPI2_CLK_TBT_LSX2_B
		BE18	GPPC_G_8_ISH_SPI_CSB_DDP3_CTRLCLK_GSPI2_CS0B_TBT_LSX2_A
	N_GPPC_G7	BF17	GPPC_G_7
	N_GPPC_G6	BD17	GPPC_G_6
		BE17	GPPC_G_5_SLP_DRAMB
		BD16	GPPC_G_4_GMII_MDIO_0
		BC16	GPPC_G_3_GMII_MDC_0
	N_DDPA_CTRLDATA	BE15	GPPC_G_2_DNX_FORCE_RELOAD
	N_DDPA_CTRLCLK	BD15	GPPC_G_1_DDPA_CTRLDATA
		BD14	GPPC_G_0_DDPA_CTRLCLK
GPPC_RCOMP	GPPC_RCOMP 200/4/1 NR47	BG13	GPPC_RCOMP
MPHY_RCOMPP	PCIECOMP_P_R 100/4/1 NR38 PCIECOMP_P	B13	MPHY_RCOMPP
MPHY_RCOMPN	PCIECOMP_N	A13	MPHY_RCOMPN
MLK_RSTB		AR3	MLK_RSTB
MLK_DATA		AR4	MLK_DATA
MLK_CLK		AP4	MLK_CLK
JTAGX	N_PCH_JTAGX NR66 0/4/SHT/M/X	AM2	JTAGX
JTAG_TMS	N_PCH_TMS NR92 0/4/SHT/M/X	AM4	JTAG_TMS
JTAG_TDO	N_PCH_TDO NR93 0/4/SHT/M/X	AM3	JTAG_TDO
JTAG_TDI	N_PCH_TDI NR95 0/4/SHT/M/X	AN4	JTAG_TDI
JTAG_TCK	N_PCH_TCK NR110 51/4/1/X	AM5	JTAG_TCK
STRAP/DBG_PMODE	N_ITP_PMODE	AG5	STRAP/DBG_PMODE
INTRUDERB	N_-INTRUDER	AE47	INTRUDERB
HDACPU_SDO	DISPA_SDO NR298 33/4	AJ5	HDACPU_SDO
HDACPU_SDI		AK4	HDACPU_SDI
HDACPU_BCLK	DISPA_BCLK NR68 33/4	AJ3	HDACPU_BCLK

VCC3
N_DDPA_CTRLDATA NR35 2.2K/4/1
N_DDPA_CTRLCLK NR48 2.2K/4/1

ESPI_ALERT [17]
ESPI_RESET- [17]
ESPI_CLK [17]
ESPI_CS- [17]
ESPI_IO3 [17]
ESPI_IO2 [17]
ESPI_IO1 [17]
ESPI_IO0 [17]

NR46/NR50/NR69/NR70/NR72 CLOSE TO PCH<500mil

TCP* pins can be routed to USB-C* connector or DP/HDMI native connector

N_GPPC_G7 [51] USB_OC
N_GPPC_G6 [28] SPI TPM

DDPB/C -->CHIPSET U3C

VCCSTG
N_PCH_TMS NR79 51/4/1
N_PCH_TDO NR82 100/4/1
N_PCH_TDI NR84 51/4/1
N_PCH_JTAGX

JTAG_TCK [4]
JTAG_TMS [4]
JTAG_TDO [4]
JTAG_TDI [4]

PLACE 51OHM PD WITHIN 1.1INCH OF PCH

N_AZCPU_SDOUT [4]
A_AZ_CPU_SDI [4]
N_AZCPU_SCLK [4]

GPPC_A/GPPC_G (VCCPRIM_3P3 or VCCPRIM_1P8): each pin voltage is selected by setting the corresponding voltage select soft strap of the pin.

BATTERY

3VDUAL_PCH
ND1 BAS40-05/0.2A/SOT23
NR136 1M/4 N_-INTRUDER
N_RTCVDD N_RTCVDD [11,15,61]
NR142 20K/4/1 N_-RTCRST N_-RTCRST [12,17,62]
NC8 1u/4/X5R/6.3V/K
NC9 1u/4/X5R/6.3V/K
N_VBATT NRB1 1K/4/1
BAT
BAT-SK/BK/P/S/D/SN
RB_TP1
N_VBAT N_VBAT [17]

NRB1 必須放在BAT外
DIP款式矮的電池座
BATTERY-DN-1

BATTERY
CR2032

STRAP

VCC3
NR130 8.2K/4/X N_SPKR NR131 8.2K/4/X
TOP SWAP OVERRIDE STRAP, PCH HAS INTERNAL WEAK PD
HIGH:TOP SWAP ENABLED
LOW:TOP SWAP DISABLED

3VDUAL
NR132 1K/4/1/X N_GPP_B18 NR133 8.2K/4/X
NO REBOOT IF SAMPLED HIGH, PCH HAS INTERNAL WEAK PD
NR123 1K/4/1/X N_GPP_B22 NR124 8.2K/4/X
Boot BIOS Strap (BBS),PCH HAS INTERNAL WEAK PD.
1 : ESPI PERIPHERAL CHANNEL
0 : SPI(MAF) OR ESPI FLASH CHANNEL(SAF)

VCC3_PCH
NR102 1K/4/1/X N_GPP_C2 NR103 8.2K/4
TLS Confidentiality IF SAMPLED HIGH, CH HAS INTERNAL WEAK PD
NR105 1K/4/1/X N_GPP_C5 NR106 8.2K/4/X
ESPI DISABLE STRAP PCH HAS INTERNAL WEAK PD
HIGH:DISABLE
LOW:ENABLE(DEFAULT)

For eSPI

VCC3_PCH
NR113 1K/4/1/X N_-PCH_HOT NR114 8.2K/4/X
CPUNSSC Clock Frequency, PCH HAS INTERNAL 20K PD
0 = 38.4 MHz clock (direct from crystal) (default)
1 = 19.2 MHz clock (derived from 38.4 MHz crystal)

V1P05A
NR249 1K/4/1/X N_ITP_PMODE
Reserved.INTERNAL WEAK PH.

3VDUAL_PCH
* RKL
NR243 20K/4/X N_GPP_G15 NR247 2.2K/4/X
NR244 20K/4/X N_GPP_G13 NR248 2.2K/4/X
NR245 20K/4/X N_GPP_G11 NR241 2.2K/4/X
NR246 20K/4/X N_GPP_G9 NR242 2.2K/4/X
TBT VCCIO CONFIGURATION,PCH HAS INTERNAL WEAK PD
HIGH:3.3V
LOW:1.8V

For eSPI
VCCBT
ESPI_ALERT NR49 8.2K/4/X
NR137 75K/4/1 ESPI_RESET- NR51 8.2K/4/X
NR138 75K/4/1 ESPI_CS- NR57 8.2K/4/X

VCC3
N_GPP_G12 NR275 3.3K/4/1

3VDUAL
N_SMBCLK NR53 1K/4/1
N_SMBDATA NR55 1K/4/1
N_SML0CLK NR58 499/4/1
N_SML0DAT NR59 499/4/1
N_SML1DAT NR61 8.2K/4
N_SML1CLK NR292 8.2K/4
N_GPP_D3 NR52 8.2K/4
N_GPPC_G7 NR71 8.2K/4

3VDUAL_PCH
NR277 20K/4/X N_GPP_G14 NR278 2.2K/4/X

PCH Signal Glitch Free

N_-PFMRST NR129 100K/4/1/X

CLR_CMOS

CLR_CMOS
N_-RTCRST
PH/1*2/BK/2.54/VA/D

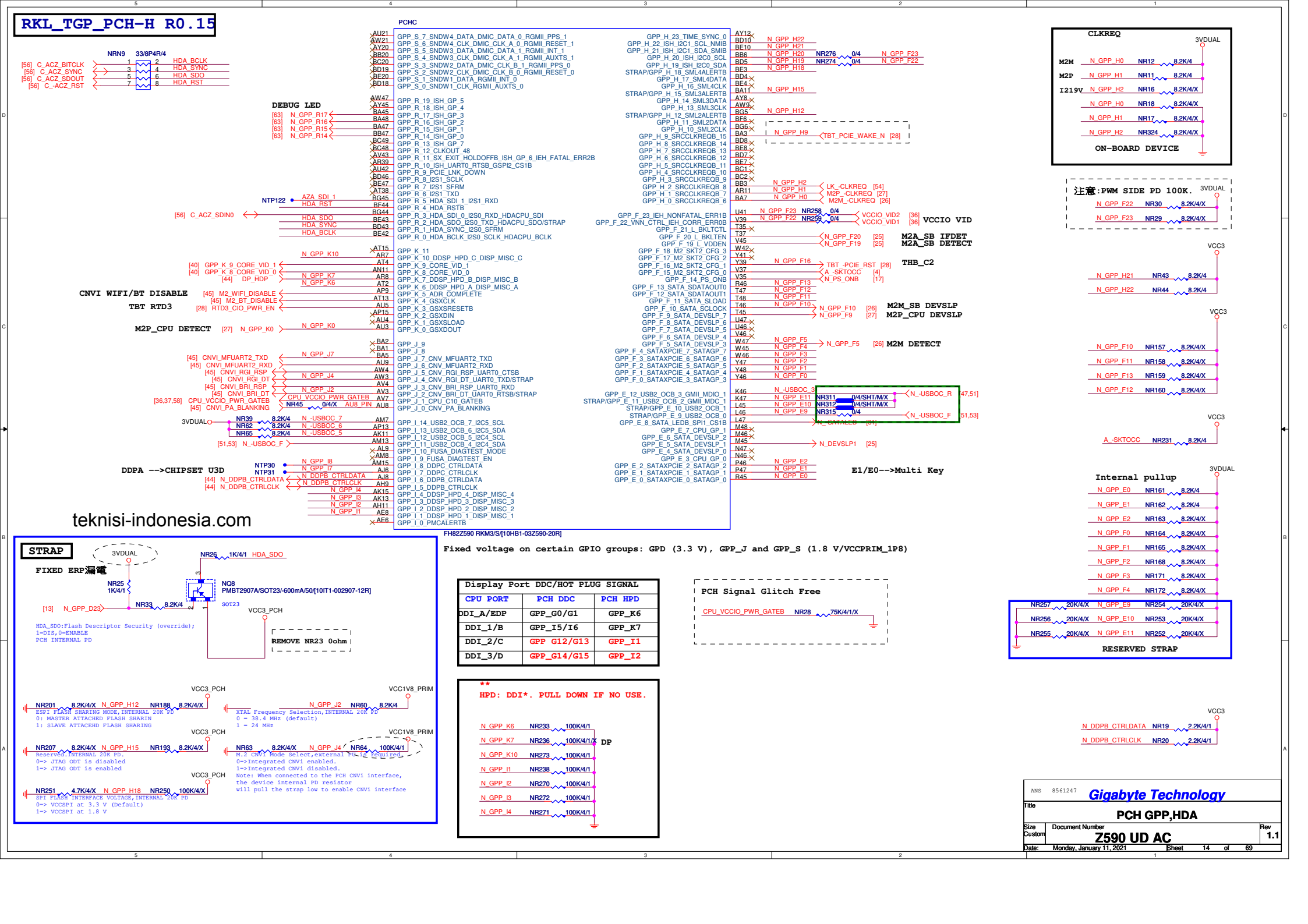
ANS 8561247 **Gigabyte Technology**

Title: **PCH ESPI,MISC**

Size: Custom | Document Number: **Z590 UD AC** | Rev: 1.1

Date: Monday, January 11, 2021 | Sheet 13 of 69

RKL_TGP_PCH-H R0.15



STRAP

Fixed voltage on certain GPIO groups: GPD (3.3 V), GPP_J and GPP_S (1.8 V/VCCPRIM_1P8)

Display Port DDC/HOT PLUG SIGNAL		
CPU PORT	PCH DDC	PCH HPD
DDI_A/EDP	GPP_G0/G1	GPP_K6
DDI_1/B	GPP_I5/I6	GPP_K7
DDI_2/C	GPP_G12/G13	GPP_I1
DDI_3/D	GPP_G14/G15	GPP_I2

**
HPD: DDI*. PULL DOWN IF NO USE.

PCH Signal Glitch Free

ANS 8561247	Gigabyte Technology			
Title	PCH GPP,HDA			
Size Custom	Document Number Z590 UD AC			Rev 1.1
Date: Monday, January 11, 2021		Sheet 14 of 69		

RKL_TGP_PCH-H R0.15

NR174 MASK/0/8P4R/0402/SHT/X
3VDUAL 1 2 3 4 5 6 7 8 VCC3_PCH

REMOVE NR176

REMOVE NR54
VCC1V8_PRIM — VCC1V8_PRIM
1.8V@3A

+V1P8A=+VCCPRIM_1P8

close to pin BG46
N_RTCVDD
NBC23 1u/4/X5R/6.3V/K
NBC24 0.1u/4/X7R/16V/K

VCC1P05_OUT_FET
NBC43 0.1u/4/X7R/16V/K
NBC44 0.1u/4/X7R/16V/K
NBC45 0.1u/4/X7R/16V/K
NBC46 0.1u/4/X7R/16V/K

VCC0P85_PCH close to PCH NBC83 2.2u/4/X5R/6.3V/M
VCCDPHY_1P24 close to PCH NBC1 4.7u/6/X5R/6.3V/K
VCCPRIM_1P05 NBC28 0.1u/4/X7R/16V/K

VCC3_PCH
NBC13 1u/4/X5R/6.3V/K
NBC15 1u/4/X5R/6.3V/K
NBC16 1u/4/X5R/6.3V/K
NBC17 1u/4/X5R/6.3V/K
NBC18 1u/4/X5R/6.3V/K
NBC19 1u/4/X5R/6.3V/K
NBC20 1u/4/X5R/6.3V/K

3VDUAL_PCH
NBC25 1u/4/X5R/6.3V/K
NBC26 1u/4/X5R/6.3V/K

VCC1V8_PRIM
NBC39 1u/4/X5R/6.3V/K
NBC73 1u/4/X5R/6.3V/K
NBC74 1u/4/X5R/6.3V/K
NBC75 1u/4/X5R/6.3V/K

VCC3
NBC79 1u/4/X5R/6.3V/K
NBC80 1u/4/X5R/6.3V/K

VCC1V8_PRIM
NBC38 1u/4/X5R/6.3V/K
NBC76 1u/4/X5R/6.3V/K

PCHG

AD4	VCCST_OVERRIDE	VCCLDOSTD_OUT_0P85	BF4
		VCCLDOSTD_OUT_0P85	BG3
		VCCLDOSTD_OUT_0P85	BG4
VCC3_PCH — V18	VCCPUSB2_3P3		
[11,13,61] N_RTCVDD — BF46	VCCPRTC_3P3	VCCIN_AUX_PCH	AA38
BG46	VCCPRTC_3P3	VCCIN_AUX_PCH	AC38
BG47	VCCPRTC_3P3	VCCIN_AUX_PCH	AC39
		VCCIN_AUX_PCH	AC41
VCCPRIM_1P05 — AK22	VCCPRIM_FUSE_1P05	VCCIN_AUX_PCH	AC42
		VCCIN_AUX_PCH	AC44
AJ20	VCCPRIM_CNVLDOPLL_1P05	VCCIN_AUX_PCH	AD38
		VCCIN_AUX_PCH	AD39
AA27	VCCPRIM_1P8	VCCIN_AUX_PCH	AD41
AB22	VCCPRIM_1P8	VCCIN_AUX_PCH	AD42
AB23	VCCPRIM_1P8	VCCIN_AUX_PCH	AD44
AB25	VCCPRIM_1P8	VCCIN_AUX_PCH	AE38
AB27	VCCPRIM_1P8	VCCIN_AUX_PCH	AE39
AD20	VCCPRIM_1P8	VCCIN_AUX_PCH	AE41
AD22	VCCPRIM_1P8	VCCIN_AUX_PCH	AE42
AD23	VCCPRIM_1P8	VCCIN_AUX_PCH	AE44
AD25	VCCPRIM_1P8	VCCIN_AUX_PCH	AG38
AD27	VCCPRIM_1P8		
AF20	VCCPRIM_1P8	VCCIN_AUX_VCCSENSE	AH39
AF22	VCCPRIM_1P8	VCCIN_AUX_VSSSENSE	AH41
AF23	VCCPRIM_1P8		
AF25	VCCPRIM_1P8	VCCDPHY_1P24	BD1
AF27	VCCPRIM_1P8	VCCDPHY_1P24	BD2
		VCCDPHY_1P24	BE1
VCC3_PCH — AA18	VCCPGPPI		
		VCCA_CLKLDO_1P8	P29
VCC3_PCH — AP22	VCCPGPPR	VCCA_CLKLDO_1P8	R29
VCC3_PCH — AG18	VCCPGPPHK		
AM37	VCCPGPPEF	VCCPRIM_1P05	AK21
AU24	VCCPGPPD		
VCC3_PCH — AP19	VCCPGPPG_3P3	VCC1P05	W20
AP24	VCCPGPPBC	VCC1P05	W22
VCC3_A — AP29	VCCPGPPA_3P3	VCC1P05	W23
		VCC1P05	W25
VCC3_PCH — AT35	VCCPFUSE_3P3		
		VCC_VNNEXT_1P05	AN29
VCC1V8_PRIM — Y37	VCCPFUSE_1P8		
		VCC_V1P05EXT_1P05	AN28
BD48	VCCPDSW_3P3		
3VDUAL_PCH — BD49	VCCPDSW_3P3		
BE49	VCCPDSW_3P3		

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

VCC0P85_PCH
VCC18_PCH
1.8V@10.9A

VCC18_PCH_VCCSENSE [40]
VCC18_PCH_VSSSENSE [40]

VCCDPHY_1P24 — VCCDPHY_1P24
internally with a LDO 1.24 V for CNVi logic

VCCA_CLKLDO_1P8

VCCPRIM_1P05 — VCCPRIM_1P05

FIVR output rail:1.05V,used for CPU rails VCCST/STG.

VCC1P05_OUT_FET — NR239 0/6/X — V1P05A
RESERVED

NTP121 — NR240 1K/4/1/X

VCCPGPPR:Audio Power 3.3 V or 1.8 V.
VCCPGPPBC/D/EF/HK/I:Power rail for GPIOs
REMOVE VCC10_VCCF24_1P0/VCC10_VCCAPLL/VCC10_VCCAMPHYPLL

VCC1V8_PRIM — NR232 MASK/0/6/SHT/M/X — VCCA_CLKLDO_1P8
close to pin R29/P29
NR260 0/4
NBC40 0.1u/4/X7R/16V/K
NBC41 0.1u/4/X7R/16V/K
NBC42 0.1u/4/X7R/16V/K
NBC47 47u/8/X5R/6.3V/M

CHECK ESPI POWER LEVEL?
GROUP A INTEL USE 3.3V
VCCBT VCC3_PCH
NR56 0/6/X
NR224 MASK/0/6/SHT/M/X
VCC3_A
NBC14 1u/4/X5R/6.3V/K

VCC18_PCH
PLACE NEAR PCH BGA
NBC48 47u/8/X5R/6.3V/M
NBC49 47u/8/X5R/6.3V/M
NBC50 47u/8/X5R/6.3V/M
NBC51 47u/8/X5R/6.3V/M
NBC52 47u/8/X5R/6.3V/M
NBC86 10u/6/X5R/6.3V/M
NBC87 10u/6/X5R/6.3V/M
NBC88 10u/6/X5R/6.3V/M
NBC89 10u/6/X5R/6.3V/M

VCC18_PCH
PLACE UNDERNEATH PCH BGA
NBC81 22u/8/X5R/6.3V/M
NBC82 22u/8/X5R/6.3V/M
NBC84 22u/8/X5R/6.3V/M
NBC85 22u/8/X5R/6.3V/M

PCHH

AW25	VSS	VSS	F42
AW39	VSS	VSS	F8
AY25	VSS	VSS	G1
AY43	VSS	VSS	G41
AY5	VSS	VSS	G48
AY7	VSS	VSS	G49
B1	VSS	VSS	G9
B2	VSS	VSS	H25
B4	VSS	VSS	H43
B46	VSS	VSS	H8
B48	VSS	VSS	J11
B49	VSS	VSS	J25
B6	VSS	VSS	J39
BA41	VSS	VSS	J9
BA43	VSS	VSS	K11
BA49	VSS	VSS	K39
BA9	VSS	VSS	K45
BB25	VSS	VSS	K5
BB44	VSS	VSS	L14
BB8	VSS	VSS	L25
BC11	VSS	VSS	M12
BC15	VSS	VSS	M17
BC19	VSS	VSS	M19
BC24	VSS	VSS	M21
BC25	VSS	VSS	M22
BC26	VSS	VSS	M24
BC31	VSS	VSS	M25
BC35	VSS	VSS	M26
BC39	VSS	VSS	M28
BC41	VSS	VSS	M29
BC9	VSS	VSS	M31
BF1	VSS	VSS	M33
BF13	VSS	VSS	M38
BF2	VSS	VSS	M49
BF42	VSS	VSS	M5
BF48	VSS	VSS	P12
BF49	VSS	VSS	P21
BG17	VSS	VSS	P24
BG2	VSS	VSS	P25
BG22	VSS	VSS	P28
BG25	VSS	VSS	P38
BG28	VSS	VSS	P4
BG33	VSS	VSS	P45
BG37	VSS	VSS	P5
BG41	VSS	VSS	R21
BG48	VSS	VSS	R24
BG9	VSS	VSS	R25
C1	VSS	VSS	R28
C12	VSS	VSS	T1
C24	VSS	VSS	T12
C4	VSS	VSS	T15
C49	VSS	VSS	T17
C7	VSS	VSS	T33
D1	VSS	VSS	T38
D13	VSS	VSS	T49
D2	VSS	VSS	U19
D24	VSS	VSS	U21
D25	VSS	VSS	U22
D33	VSS	VSS	U24
D37	VSS	VSS	U25
D48	VSS	VSS	U26
D49	VSS	VSS	U28
D7	VSS	VSS	U29
E13	VSS	VSS	U31
E15	VSS	VSS	V12
E19	VSS	VSS	V17
E22	VSS	VSS	V21
E24	VSS	VSS	V22
E25	VSS	VSS	V24
E26	VSS	VSS	V25
E31	VSS	VSS	V26
E33	VSS	VSS	V33
E35	VSS	VSS	V38
E37	VSS	VSS	V5
E39	VSS	VSS	W27
E9	VSS	VSS	W28
F25	VSS	VSS	W30
	VSS	VSS	W44
	VSS	VSS	Y12
	VSS	VSS	Y13
	VSS	VSS	Y15
	VSS	VSS	Y17
	VSS	VSS	Y18
	VSS	VSS	Y32
	VSS	VSS	Y38

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

PCHI

A17	VSS	VSS	AJ23
A2	VSS	VSS	AJ25
A28	VSS	VSS	AJ27
A3	VSS	VSS	AJ28
A33	VSS	VSS	AK12
A37	VSS	VSS	AK17
A4	VSS	VSS	AK18
A41	VSS	VSS	AK24
A45	VSS	VSS	AK25
A46	VSS	VSS	AK26
A47	VSS	VSS	AK28
A48	VSS	VSS	AK29
AA12	VSS	VSS	AK30
AA13	VSS	VSS	AK32
AA20	VSS	VSS	AK33
AA22	VSS	VSS	AK35
AA23	VSS	VSS	AK38
AA25	VSS	VSS	AK45
AA29	VSS	VSS	AK5
AA30	VSS	VSS	AL19
AA32	VSS	VSS	AL22
AA33	VSS	VSS	AL24
AA35	VSS	VSS	AL25
AA37	VSS	VSS	AL26
AA49	VSS	VSS	AL28
AA5	VSS	VSS	AL29
AB28	VSS	VSS	AL31
AC13	VSS	VSS	AM1
AC18	VSS	VSS	AM12
AC35	VSS	VSS	AM17
AC37	VSS	VSS	AM33
AC4	VSS	VSS	AM35
AC45	VSS	VSS	AM38
AC5	VSS	VSS	AM49
AC9	VSS	VSS	AN17
AD11	VSS	VSS	AN19
AD12	VSS	VSS	AN22
AD13	VSS	VSS	AN24
AD15	VSS	VSS	AN25
AD17	VSS	VSS	AN26
AD18	VSS	VSS	AN31
AD28	VSS	VSS	AN33
AD35	VSS	VSS	AP12
AD37	VSS	VSS	AP17
AD45	VSS	VSS	AP21
AD49	VSS	VSS	AP25
AD5	VSS	VSS	AP26
AD6	VSS	VSS	AP28
AD8	VSS	VSS	AP31
AD9	VSS	VSS	AP33
AE12	VSS	VSS	AP38
AE13	VSS	VSS	AP45
AE15	VSS	VSS	AP5
AE17	VSS	VSS	AT1
AE18	VSS	VSS	AT12
AE35	VSS	VSS	AT17
AE37	VSS	VSS	AT19
AE45	VSS	VSS	AT21
AE5	VSS	VSS	AT22
AF28	VSS	VSS	AT24
AG1	VSS	VSS	AT25
AG12	VSS	VSS	AT26
AG17	VSS	VSS	AT28
AG20	VSS	VSS	AT29
AG22	VSS	VSS	AT31
AG23	VSS	VSS	AT33
AG25	VSS	VSS	AT37
AG27	VSS	VSS	AT49
AG28	VSS	VSS	AT5
AG35	VSS	VSS	AU25
AG37	VSS	VSS	AU41
AG49	VSS	VSS	AV11
AH12	VSS	VSS	AV39
AH13	VSS	VSS	AV45
AH15	VSS	VSS	AV5
AH35	VSS	VSS	AW11
AH38	VSS	VSS	AW24

FH82Z590 RKM3/S/[10HB1-03Z590-20R]

ANS 8561247

Gigabyte Technology

Title: PCH PWR, GND

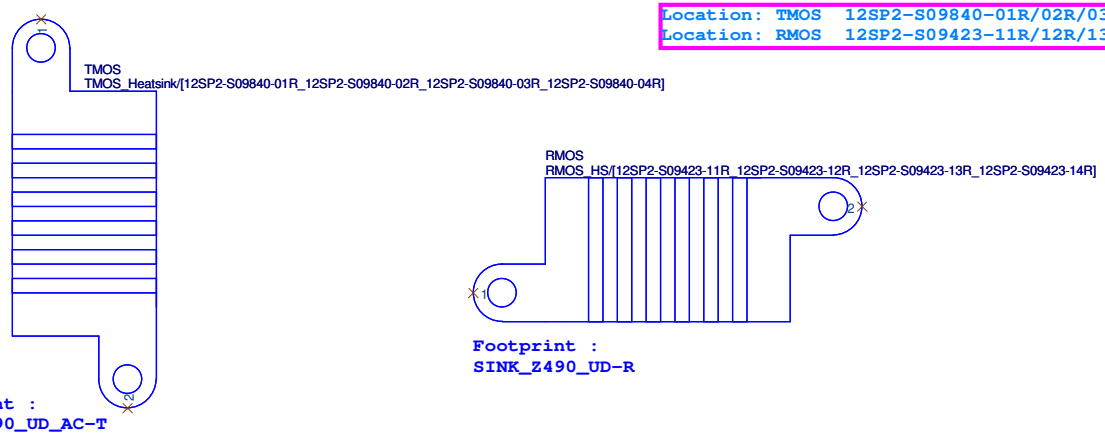
Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, January 11, 2021 | Sheet 15 of 69

裝甲HEATSINK 分成四大部份

MOS_HS

Location: TMOS 12SP2-S09840-01R/02R/03R/04R
Location: RMOS 12SP2-S09423-11R/12R/13R/14R

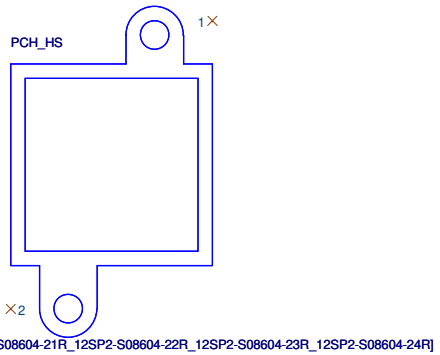


Footprint :
SINK_Z590_UD_AC-T

Footprint :
SINK_Z490_UD-R

PCH_HS

Location: PCH_HS 12SP2-S08604-21R/22R/23R/24R

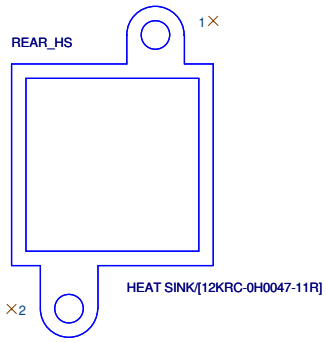


PCH_FS/[12SP2-S08604-21R_12SP2-S08604-22R_12SP2-S08604-23R_12SP2-S08604-24R]

Footprint :
BGAHSINK-Z370_HD3P

裝甲

Location: REAR_HS 12KRC-0H0047-11R

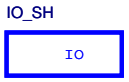


HEAT SINK/[12KRC-0H0047-11R]

Footprint :
Z490_UD_IO_COVER

後窗鐵片

Location: IO_SH
UD 11AIO-010061-12R
UD AC 11AIO-010061-02R



IO/[11AIO-010061-02R]

*UD與UD AC鐵片不同

* PCB顏色 : 咖啡黑
* 文字面 : 灰色
* 疊構 : 2E7 (2OZ)
* 圖騰:ID設計Z590版GIGABYTE UD

Gigabyte Technology

Title: Heatsink		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 16 of 69	

REV:0.1

PCIE slot 需支援 PCIE M2 Card
PCIEX16.A19 接 IO_GP81
PCIEX16.B30 接 IO_GP83
PCIEX8.A19 接 IO_GP85
PCIEX8.B30 接 IO_GP86

www.teknisi-indonesia.com

請依開案規格，選擇Support Erp下 LAN Wake up組態。

(組態一) PCIE LAN(Single & Dual LAN)

(組態二) INTEL219 LAN(Single LAN)

(組態三) INTEL LAN+PCIE LAN(Dual LAN)

INTEL219 LAN組態上件

IT8689E

SYS_FAN4/OPT_FAN

SYS_FAN3

PROCHOT

CPU_FAN
SYS_FAN1
SYS_FAN2

SYS_FAN3 sensor
SYS_FAN4 sensor

keep 0 ohm
AUDIO BEAT LED

THRMTRIP

PWR SHT

SIO PU

新增

OR31不上件.改上PCH端

SIO STRAP

for eSPI

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

JP7	JP3	
1	1	CE pin disable (Hold pin mode)
1	0	CE mode 1
0	1	CE mode 2
0	0	CE mode 3

CEC ONLY

ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN (只留一個 LAN支援 ERP下 WAKE UP)	Atheros+Atheros	組態一
	Intel 219+Atheros	組態三
	Intel 219+Intel 210	
No Support ERP	Single LAN BOM只上OR97。 Dual LAN BOM只上OR97、OR99。	

FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89

DUAL BIOS OPT STRAP

OR58 上件/OR56 不上件 SINGLE BIOS
OR58 不上件/OR56 上件 DUAL BIOS

MB ID

SIO_18V

internal power pin, max 22nF cap

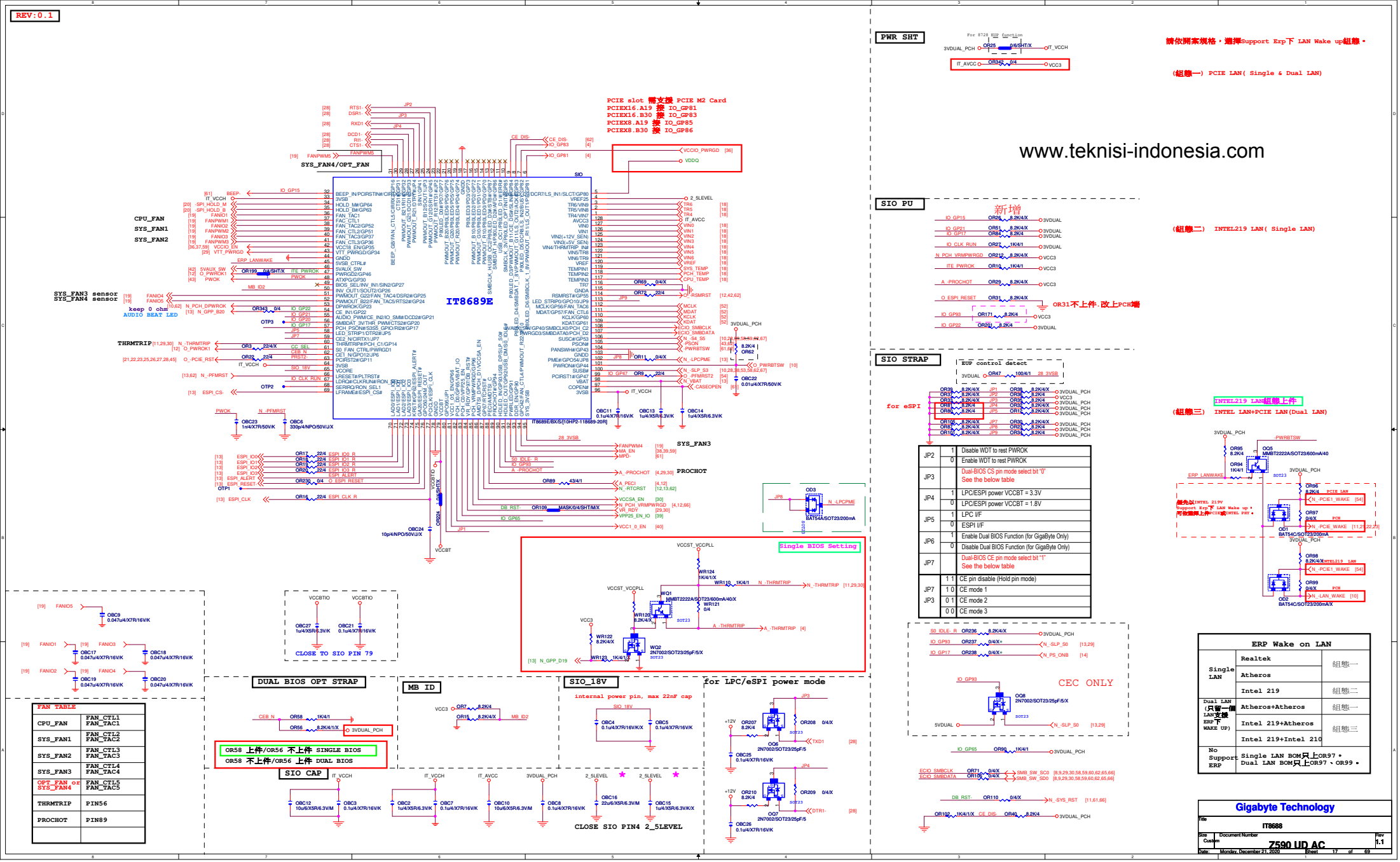
for LPC/eSPI power mode

SIO CAP

CLOSE TO SIO PIN 79

CLOSE SIO PIN4 2_5LEVEL

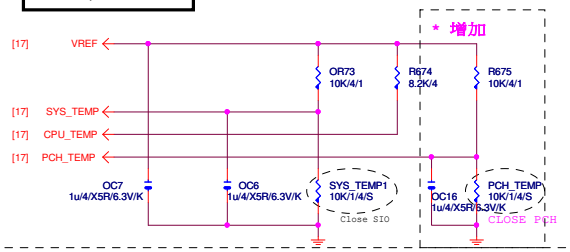
Single BIOS Setting



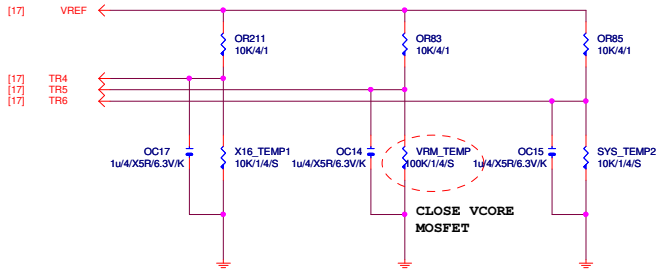
Title	IT8688
Size / Document Number / Rev	Custom / Z590 UD AC / 1.1
Date: Monday, December 21, 2020	Sheet 17 of 69

Gigabyte Technology

TEMP H/W MONITOR

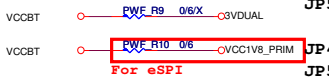


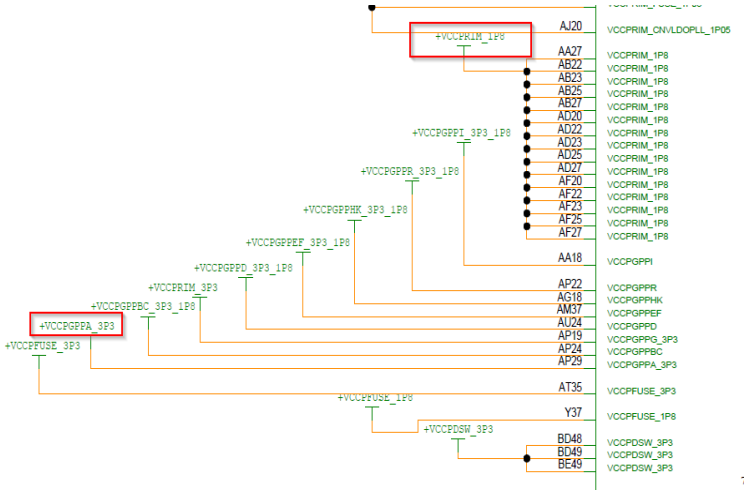
5個FAN時使用



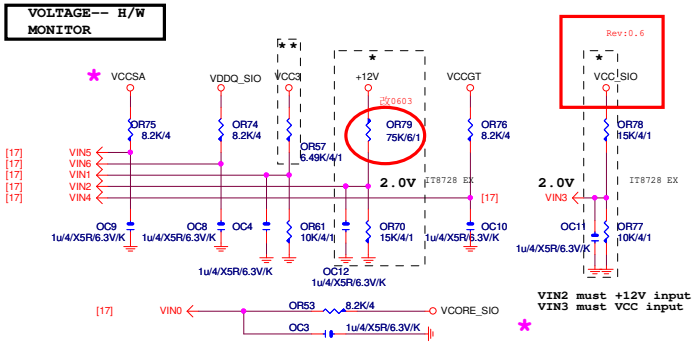
JP4 HI ESPI MODE VCCBT 3.3V
JP5 HI ESPI MODE LPC I/F

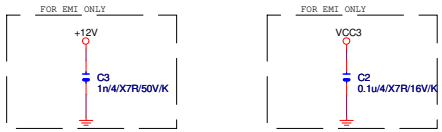
JP4 LO ESPI MODE VCCBT 1.8V
JP5 LO ESPI MODE ESPI I/F





VOLTAGE-- H/W MONITOR



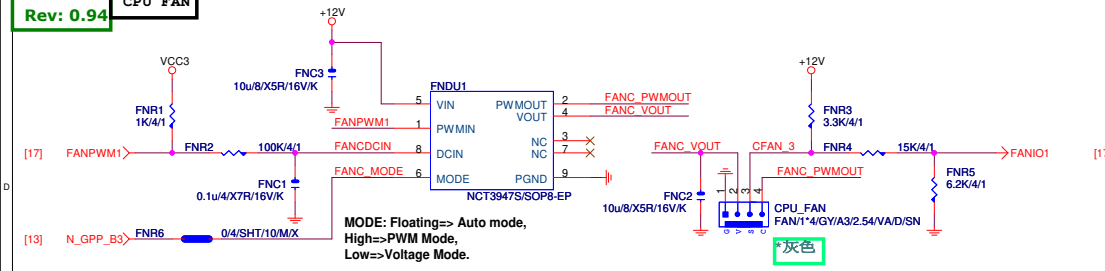


★Update 2015-04.24

Gigabyte Technology			
Title: HWM,KB/MS, FAN CTRL			
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020		Sheet 18 of 69	

Rev: 0.94

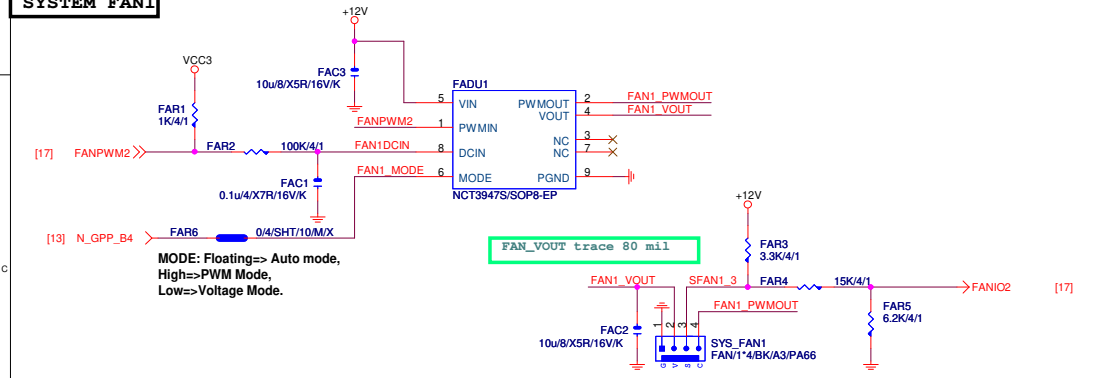
CPU FAN



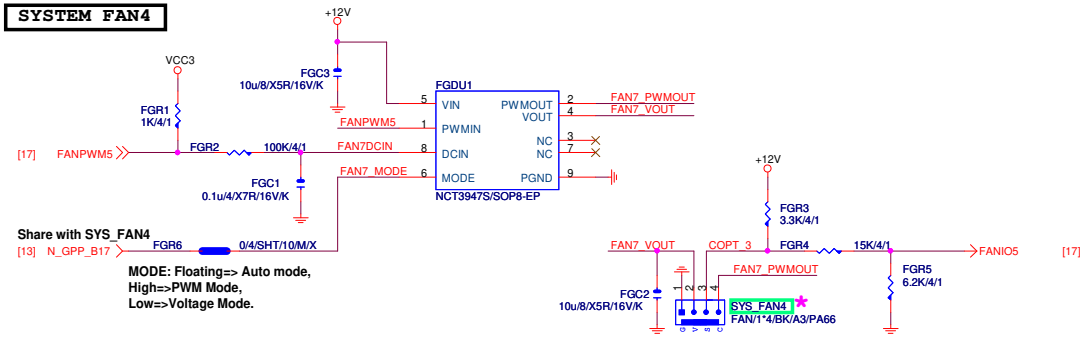
IO 4 FAN

CPU_FAN
SYS_FAN1
SYS_FAN2
SYS_FAN3
SYS_FAN4

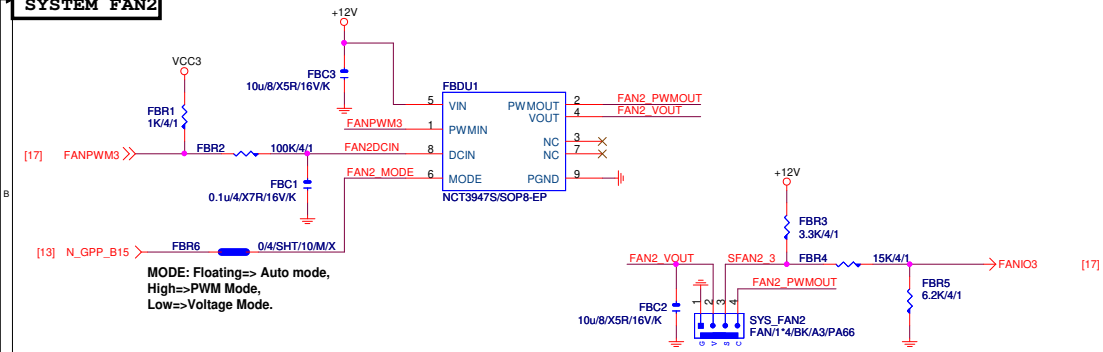
SYSTEM FAN1

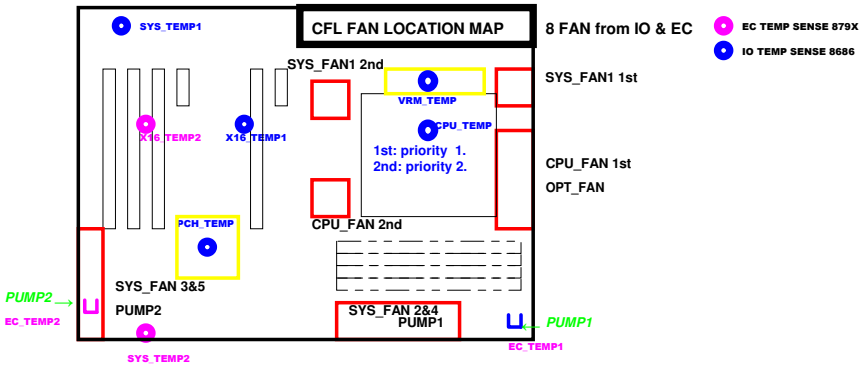


SYSTEM FAN4

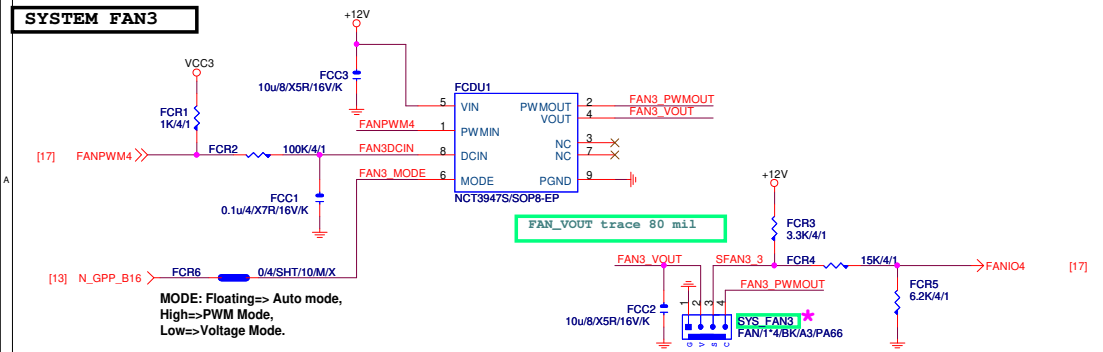


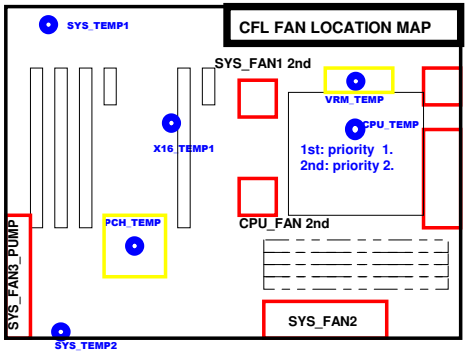
SYSTEM FAN2





SYSTEM FAN3





Gigabyte Technology

Title: HWM,KB/MS, FAN CTRL

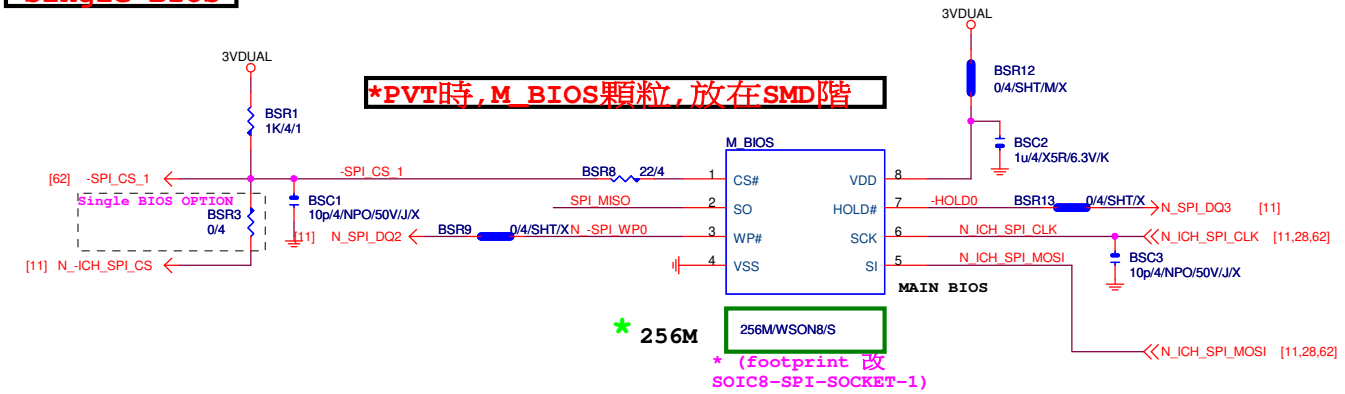
Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 19 of 69

DUAL BIOS

*Single BIOS

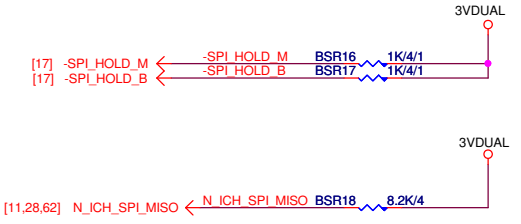
*PVT時,M_BIOS顆粒,放在SMD階



* 256M

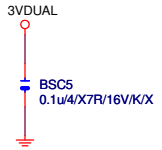
* (footprint 改 SOIC8-SPI-SOCKET-1)

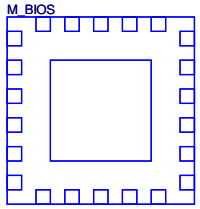
MOSI For DMI RX Termination Voltage



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

1 means floating
0 means PD 1K





LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-71R]/X

* 試產先上 , PVT 移除

Gigabyte Technology		
Title: BIOS		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 20 of 69	

Rev 0.3

PCIEX16 CAP

X16_+12V
VCC3
PABC1 0.1u/4/X7R/16V/K
PAEC2 560u/FP/D/6.3V/69/A/7m
+12V
VCC3
PAEC1 270u/FP/D/16V/8C/A/10m
PABC2 0.1u/4/X7R/16V/K
PABC3 0.1u/4/X7R/16V/K

PCIEX16 PROTECT SHT

+12 protect
short-wire test

+12V
X16_+12V
PARN2 0/8P4R/4/X
PARN1 0/8P4R/0402/SHT/X

VCC3
PAR18 8.2K/4
PAR17 0/4
[13] N_GPP_C20
PAD1
[4] SKL_CFG5
[4] SKL_CFG6
BAT54C/SOT23/200mA

PCIEX16 AC CAP

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_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

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
PCE-E X1(單向) BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s

PCI-E REV:3.0--> 8GHZ
PCE-E X1(單向) BANDWITH=8GHz*(128b/130b)=8Gb/s=1GB/s

PCIEX16 SLOT

PCIESLOT-164STH
PCIEX16
3GIO_*16

FOR SMBUS
PCIEX16不能short pad

PAR3 0/4/SHT/X
PAR4 0/4
PAR5 0/4
[22,23,65] SMB_SW_SC1
[22,23,65] SMB_SW_SD
3VDUAL
VCC3
[11,17,22,23] N_-PCIE_WAKE
PAR6 0/4/X
-PCIEX16_PR
PA_EXP_TXP0_C
PA_EXP_TXN0_C
[13] -PCIEX16_PR

X16_+12V
PAR1 0/4/SHT/X
PAR2 0/4/SHT/X
-DPCIE_RST
PAC1 22p/4/NPO/50V/J/X
VCC3
-DPCIE_RST
O_-PCIE_RST [17,22,23,25,26,27,28,45]

PA_SRCCLK_3GIO [66]
PA_-SRCCLK_3GIO [66]
PA_EXP_RXP0
PA_EXP_RXN0

VCC3
PAR10 8.2K/4
PAR9 0/4
N_GPP_C11 [13]

PA_EXP_TXP1_C
PA_EXP_TXN1_C
PA_EXP_TXP2_C
PA_EXP_TXN2_C
PA_EXP_TXP3_C
PA_EXP_TXN3_C
-PCIEX16_PR
PA_EXP_RXP1
PA_EXP_RXN1
PA_EXP_RXP2
PA_EXP_RXN2
PA_EXP_RXP3
PA_EXP_RXN3
X16_A32

VCC3
PAR24 8.2K/4
X16_A33
PAR25 0/4
N_GPP_C22 [13]

PA_EXP_TXP4_C
PA_EXP_TXN4_C
PA_EXP_TXP5_C
PA_EXP_TXN5_C
PA_EXP_TXP6_C
PA_EXP_TXN6_C
PA_EXP_TXP7_C
PA_EXP_TXN7_C
-PCIEX16_PR
X16_A33
PA_EXP_RXP4
PA_EXP_RXN4
PA_EXP_RXP5
PA_EXP_RXN5
PA_EXP_RXP6
PA_EXP_RXN6
PA_EXP_RXP7
PA_EXP_RXN7

VCC3
PAR26 8.2K/4
X16_A32
PAR27 0/4
N_GPP_C12 [13]

PA_EXP_TXP8_C
PA_EXP_TXN8_C
PA_EXP_TXP9_C
PA_EXP_TXN9_C
PA_EXP_TXP10_C
PA_EXP_TXN10_C
PA_EXP_TXP11_C
PA_EXP_TXN11_C
PA_EXP_TXP12_C
PA_EXP_TXN12_C
PA_EXP_TXP13_C
PA_EXP_TXN13_C
PA_EXP_TXP14_C
PA_EXP_TXN14_C
PA_EXP_TXP15_C
PA_EXP_TXN15_C
-PCIEX16_PR
PA_EXP_RXP8
PA_EXP_RXN8
PA_EXP_RXP9
PA_EXP_RXN9
PA_EXP_RXP10
PA_EXP_RXN10
PA_EXP_RXP11
PA_EXP_RXN11
PA_EXP_RXP12
PA_EXP_RXN12
PA_EXP_RXP13
PA_EXP_RXN13
PA_EXP_RXP14
PA_EXP_RXN14
PA_EXP_RXP15
PA_EXP_RXN15

PCIEX16:16/5/5/5/16
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]

PCI-E/16X-164P/BK/LONG DOUBLE/HK*2/SHELL/GEN4.0

黑色 金屬 加強

Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 21 of 69	

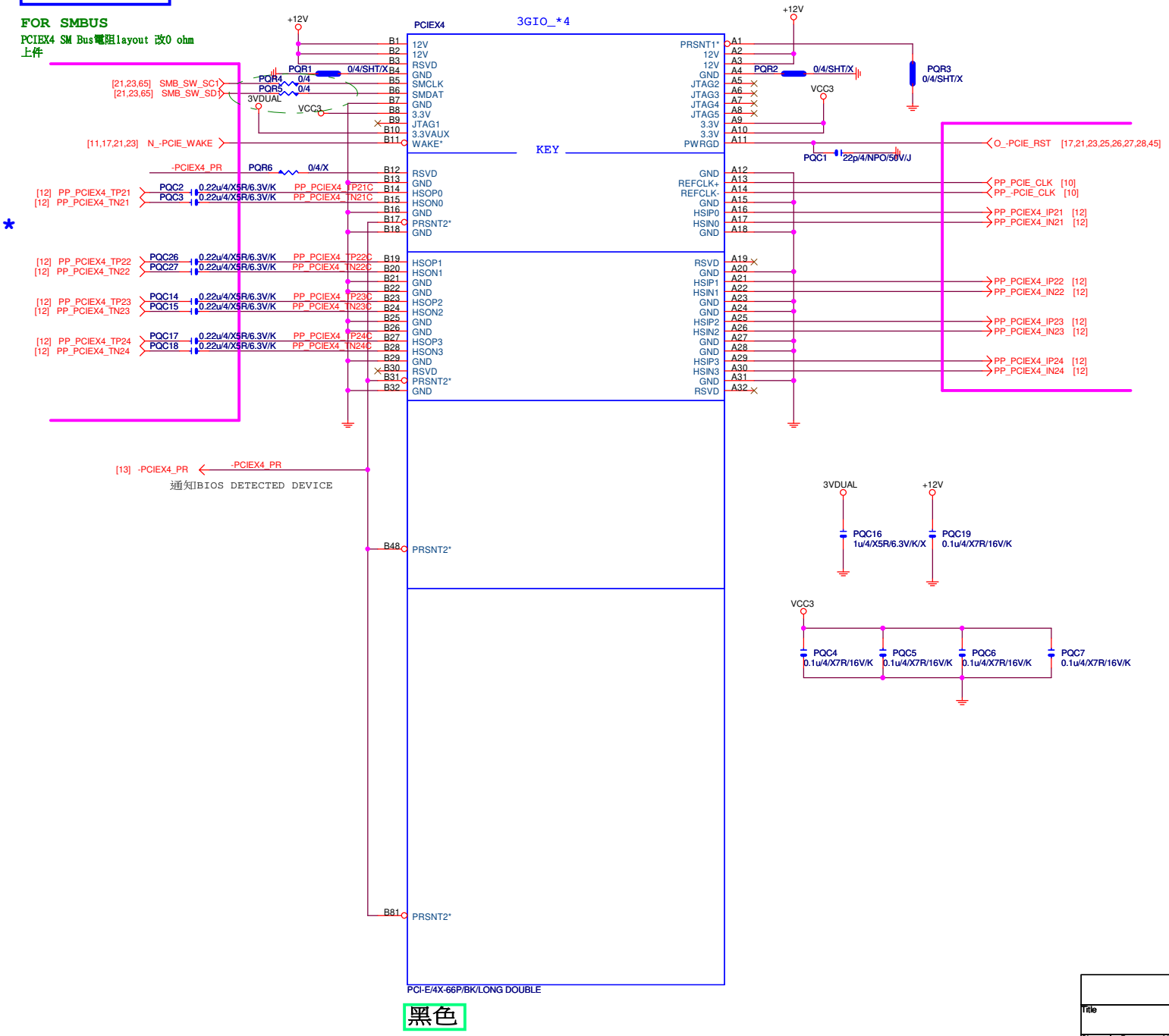
Rev 0.51

PCIE*4

* Footprint "PCIESLOT-64P-1"

FOR SMBUS

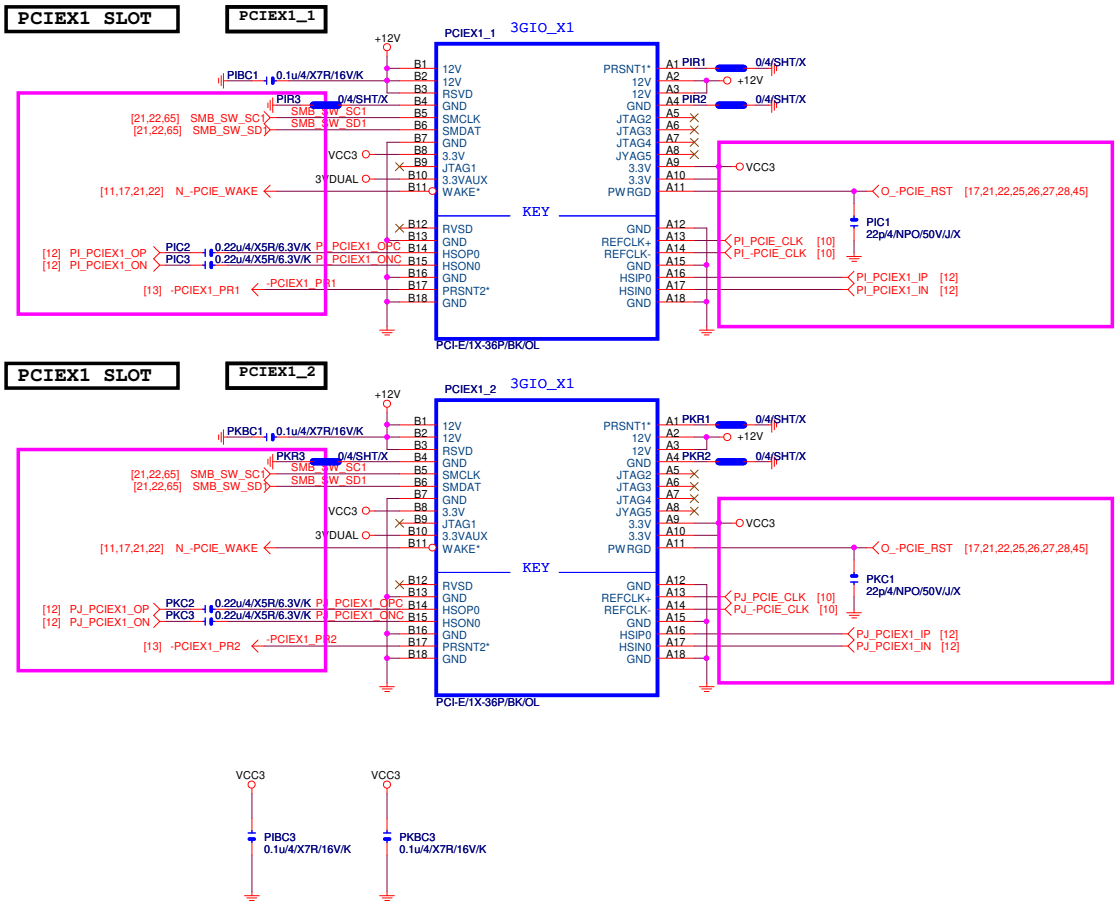
PCIEX4 SM Bus電阻layout 改0 ohm 上件



黑色

Gigabyte Technology		
Title: PCIE_X4		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 22 of 69	

Rev 0.51



Gigabyte Technology		
Title: PCIE X1 *3		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 23 of 69	

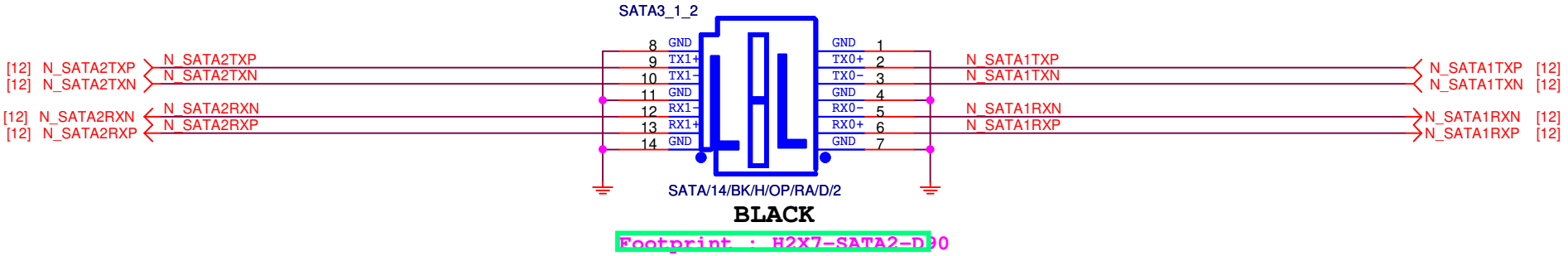
IO19/IO20 To SATA3 port1/2

SATA3 1/2

4 SATA3 from Z590 (180度R-A)

1 SATA3 from Z590 (90度V-A)

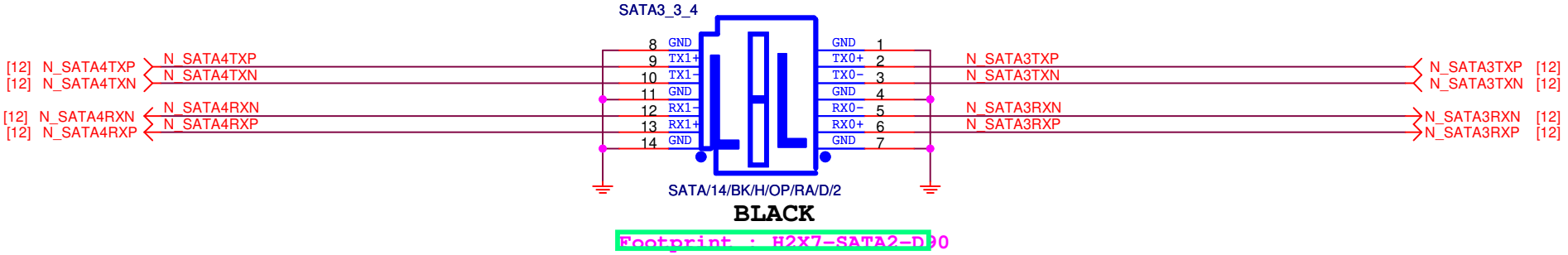
上 Port (8~14)　　下 Port (1~7)



IO21/IO22 To SATA3 port3/4

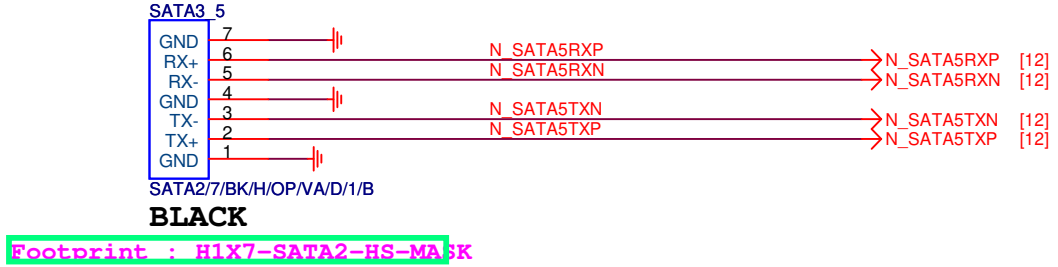
SATA3 2/3

上 Port (8~14)　　下 Port (1~7)

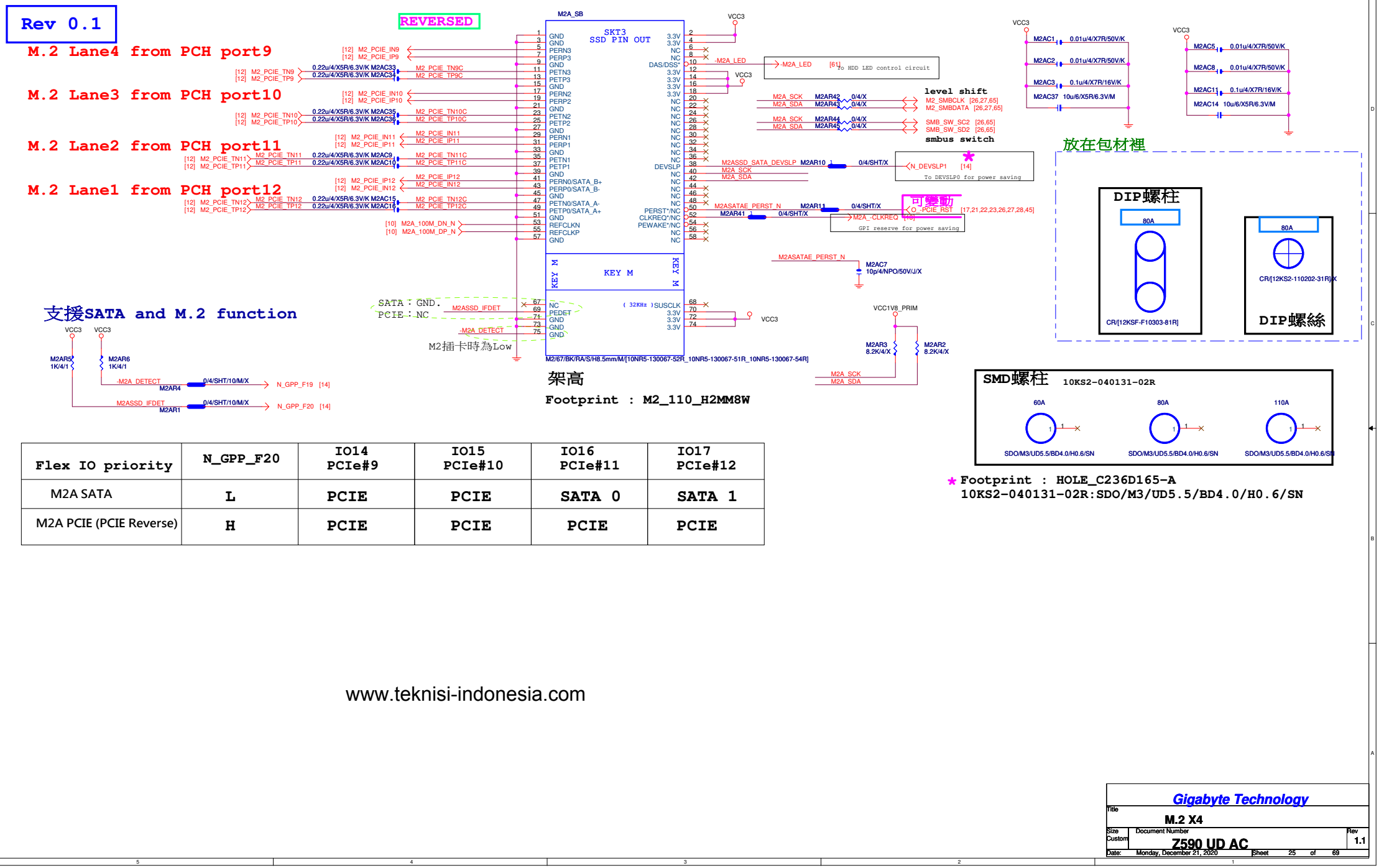


IO23 To SATA3 port5

SATA3 4/5



Gigabyte Technology		
Title: SATA		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 24 of 69	



Flex IO priority	N_GPP_F20	IO14 PCIe#9	IO15 PCIe#10	IO16 PCIe#11	IO17 PCIe#12
M2A SATA	L	PCIE	PCIE	SATA 0	SATA 1
M2A PCIE (PCIE Reverse)	H	PCIE	PCIE	PCIE	PCIE

Gigabyte Technology

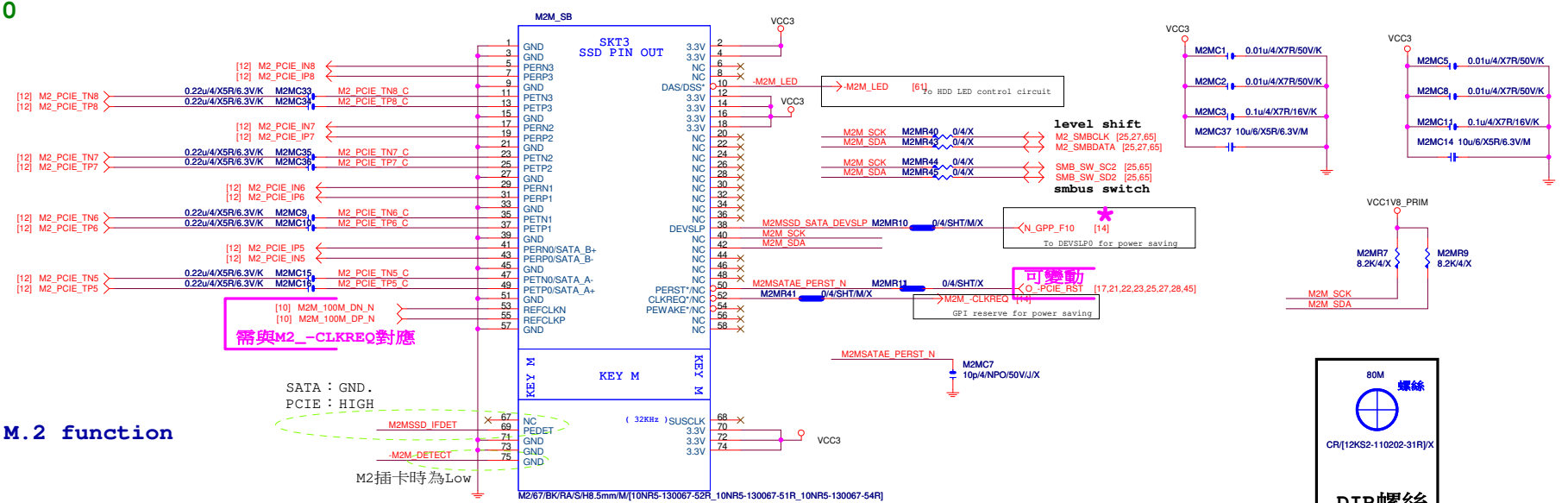
Title: M.2 X4

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

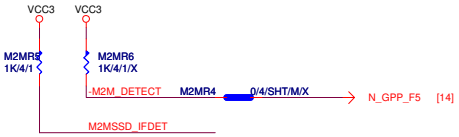
Date: Monday, December 21, 2020 | Sheet 25 of 69

Rev 0.1

Z390

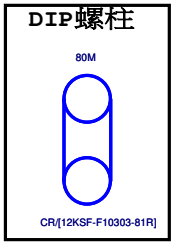


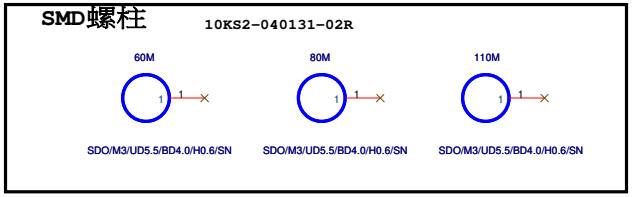
支援SATA and M.2 function



架高

Footprint : M2_110_H2MM8W





Flex IO priority	N_GPP_F5	IO22 PCIe#17	IO23 PCIe#18	IO24 PCIe#19	IO25 PCIe#20
M2M SATA	L	SATA 4	SATA 5	PCIE	PCIE
M2M PCIE	H	PCIE	PCIE	PCIE	PCIE

Gigabyte Technology

Title: M.2 X4

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 26 of 69

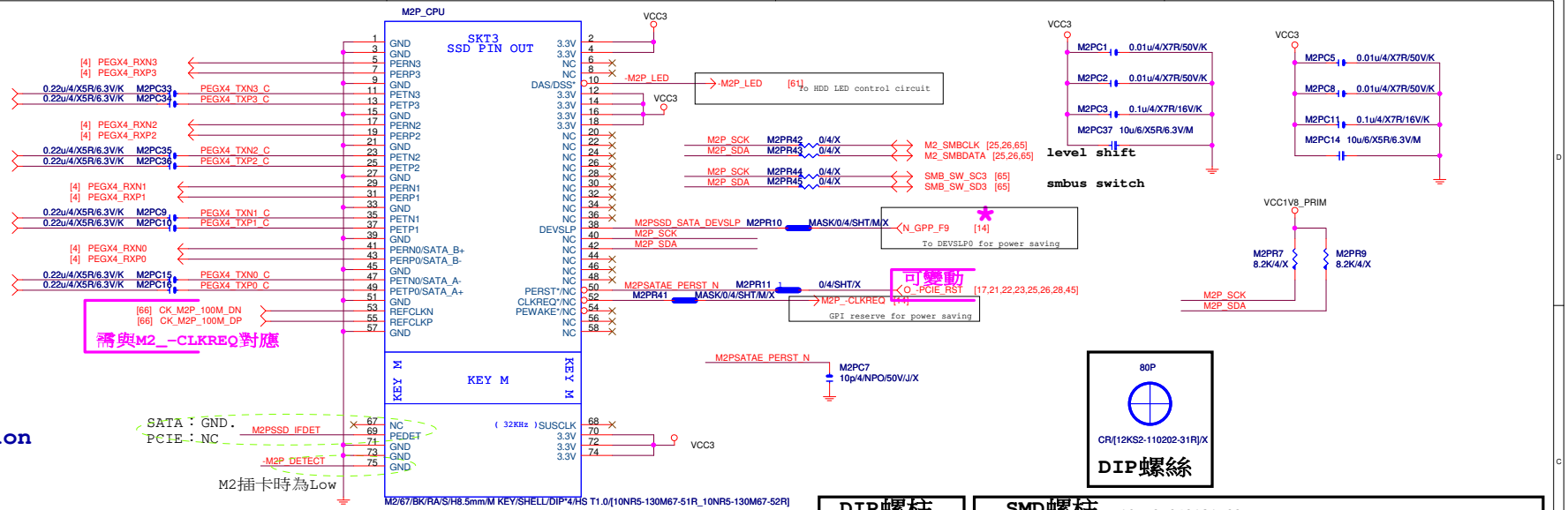
Rev 0.1

M.2 Lane4 from CPU port4

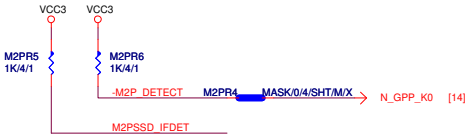
M.2 Lane3 from CPU port3

M.2 Lane2 from CPU port2

M.2 Lane1 from CPU port1

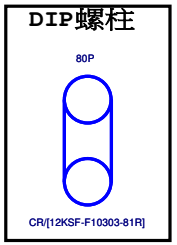


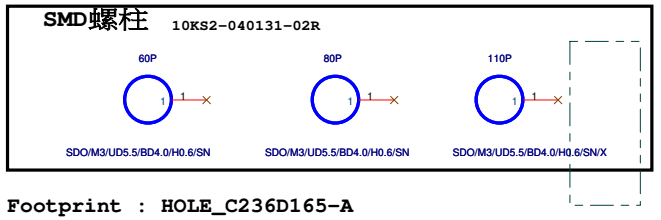
支援SATA and M.2 function



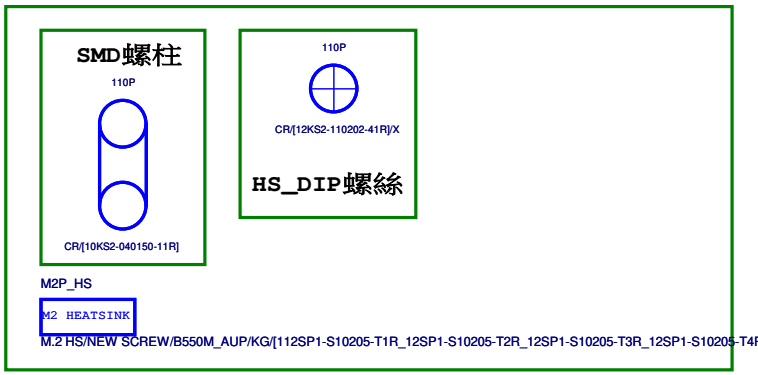
架高 金屬 加強

Footprint : M2_110_H2MM8W





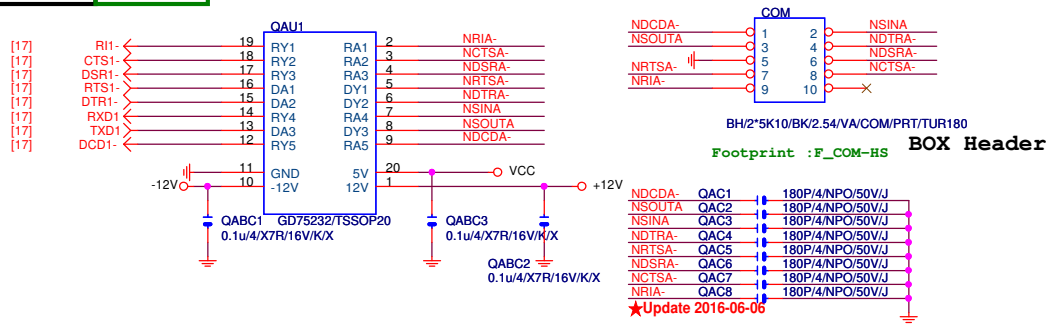
Footprint : HOLE_C236D165-A



Gigabyte Technology		
Title: M.2 X4 (P)		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 27 of 69	

COM PORT

Rev: 0.94

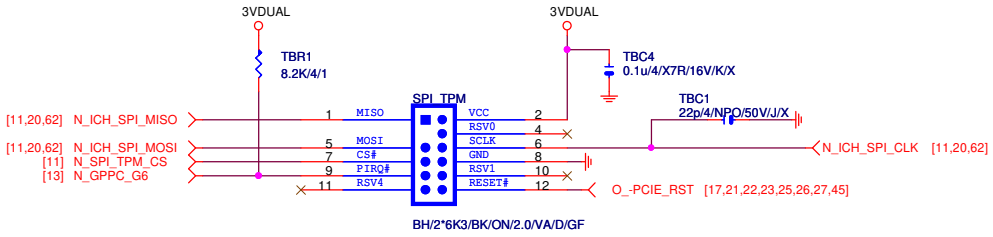


LPT PORT

RTD3 GPIO refer by Intel RVP

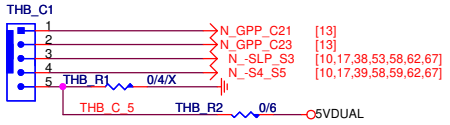
GPIO	CFL-S	CML-U	CML-H	CML-S
TBT_PERST_N	GPP_F_2	GPPC_C15_SLOT1_RST_N	GPP_F4_SATAPCIE7	GPP_F2
TBT_Wake_N	GPP_H_15	GPPC_D11_SLOT1_WAKE_N	GPPK_18	GPP_H15
RTD3_PWN_EN	GPP_I_5	GPPC_D15	GPP_H_16_SML4_CLK	GPP_K23

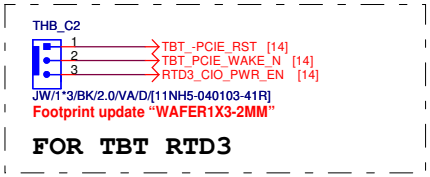
TPM CONNECT



Thunderbolt

★Update 2015-12-29





Z490系列使用

TBT_-PCIE_RST : CFL connector to GPP_F_2
TBT_PCIE_WAKE_N : CFL connector to GPP_H_15
RTD3_CIO_PWR_EN : CFL connector to GPP_K_3

Gigabyte Technology		
Title: FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 28 of 69	

REV:0.1

VCORE_SIO — VCORE_VS — VCORE
MASK/0/4/SHT/M/X
請注意擺放位置

VCC

VMON_CPU — DAR117 40.2K/4/1 — DAR118 10K/4/1 — DAC50 0.01u/4/X7R/50V/K

DAU1 ISL69269IRAZ-T-C47/QFN-68[10TA1-669269-14R]

[33] VCORE11	DAR68	10/4/1	DAC44 0.1u/4/X7R/16V/K	CPU_CSRTN11	CSRTN5
[33] PHASE11	DAR67	5.49K/4/1		CPU_CS11	CS5
[33] VCORE10	DAR66	10/4/1	DAC43 0.1u/4/X7R/16V/K	CPU_CSRTN10	CSRTN4
[33] PHASE10	DAR65	5.49K/4/1		CPU_CS10	CS4
[33] VCORE9	DAR64	10/4/1	DAC42 0.1u/4/X7R/16V/K	CPU_CSRTN9	CSRTN3
[33] PHASE9	DAR63	5.49K/4/1		CPU_CS9	CS3
[33] VCORE8	DAR62	10/4/1	DAC41 0.1u/4/X7R/16V/K	CPU_CSRTN8	CSRTN2
[33] PHASE8	DAR61	5.49K/4/1		CPU_CS8	CS2
[32] VCORE7	DAR54	10/4/1	DAC40 0.1u/4/X7R/16V/K	CPU_CSRTN7	CSRTN1
[32] PHASE7	DAR53	5.49K/4/1		CPU_CS7	CS1
[32] VCORE6	DAR52	10/4/1	DAC39 0.1u/4/X7R/16V/K	CPU_CSRTN6	CSRTN0
[32] PHASE6	DAR51	5.49K/4/1		CPU_CS6	CS0
[32] VCORE5	DAR50	10/4/1	DAC38 0.1u/4/X7R/16V/K	CPU_CSRTN5	CSRTN5
[32] PHASE5	DAR49	5.49K/4/1		CPU_CS5	CS5
[32] VCORE4	DAR31	10/4/1	DAC37 0.1u/4/X7R/16V/K	CPU_CSRTN4	CSRTN4
[32] PHASE4	DAR30	5.49K/4/1		CPU_CS4	CS4
[31] VCORE3	DAR27	10/4/1	DAC36 0.1u/4/X7R/16V/K	CPU_CSRTN3	CSRTN3
[31] PHASE3	DAR26	5.49K/4/1		CPU_CS3	CS3
[31] VCORE2	DAR25	10/4/1	DAC35 0.1u/4/X7R/16V/K	CPU_CSRTN2	CSRTN2
[31] PHASE2	DAR24	5.49K/4/1		CPU_CS2	CS2
[31] VCORE1	DAR23	10/4/1	DAC34 0.1u/4/X7R/16V/K	CPU_CSRTN1	CSRTN1
[31] PHASE1	DAR22	5.49K/4/1		CPU_CS1	CS1
[31] VCORE0	DAR21	10/4/1	DAC33 0.1u/4/X7R/16V/K	CPU_CSRTN0	CSRTN0
[31] PHASE0	DAR20	5.49K/4/1		CPU_CS0	CS0

DAR119 0/4
VINSEN_CPU
DAR120 8.2K/4 — VCC3
DAC23 0.01u/4/X7R/50V/K
DAR29 10K/4/1/X
DAR28 100/4/1
DAC22 0.01u/4/X7R/50V/K
5VDUAL — VIN — DAD2 BAT54C/SOT23/200mA

VRHOT_ICRIT — DAD1 BAT54C/SOT23/200mA — DAR9 0/4/SHT/20/X — DAR45 0/4/X — A_-PROCHOT [4,17,30] — N_-THRMTRIP [11,17,30]

DAR47 0/4/SHT/X
DAR37 100/4/1
DAR35 100/4/1
DAR46 0/4/SHT/X
[7] VCORE_VSS_SEN — VSEN-
[7] VCORE_VCC_SEN — DAC27 3.3n/4/X7R/50V/K — DAR36 0/4/SHT/20/M/X — VSEN
[31,32,33] CPU_TMON — DAR55 0/4/X — CPU_TEMP0
Place near to DA1_DL1
DANTC1 10K/1/4/S — DAR32 22K/4/1 — DAC31 47p/4/NPO/50V/J

VCCST_VCCPLL
DAR121 8.2K/4 — VCC3
DAR124 8.2K/4 — VCC3
PWRGD_VCORE
DAR122 0/4 — DAR123 0/4 — DAR10 0/4/SHT/20/M/X — VR_RDY [17,30]
ENABLE_CPU — DAR12 0/4/SHT/20/M/X — VTT_PWRGD_PWM
SV_CLK — DAR43 49.9/4/1 — PVIDSLCK [4,30]
SV_ALERT — DAR42 0/4 — -PVIDALRT [4,30]
SV_DIO — DAR41 10/4 — PVIDSOUT [4,30]
DAR39 0/4/X — VRHOT_ICRIT
VRHOT_ICRIT
CFP_CPU
PWM11_VCORE [33]
PWM10_VCORE [33]
PWM9_VCORE [33]
PWM8_VCORE [33]
PWM7_VCORE [32]
PWM6_VCORE [32]
DAR18 100/4/1/X — DAR19 100/4/1/X — DAR8 45.3/4/1/X — DAC13 1u/4/X5R/6.3V/K
DAC18 — DAC19 — DAC20
10p/4/NPO/50V/J/X
VCC3 — DAR3 8.2K/4/X — ENABLE_CPU

[17] VTT_PWRGD — DAR115 0/4/X — VTT_PWRGD_PWM
3VDUAL — DAR112 8.2K/4 — VTT_PWRGD_PWM — VTT_PWRGD_PWM [30]
DAC48 0.01u/4/X7R/50V/K/X
DAQ1 2N7002/SOT23/25pF/5
3VDUAL — DAR113 8.2K/4
VCC3 — DAR116 8.2K/4
DAQ3 2N7002/SOT23/25pF/5
DAD3 BAT54C/SOT23/200mA
[17] VTT_PWRGD — DAC49 4.7u/6/X5R/16V/K — [13,17] N_-SLP_S0

3VDUAL — DAR38 1K/4/1/X — DAQ2 2N7002/SOT23/25pF/5 — N_-THRMTRIP [11,17,30]
CFP_CPU

PWM5_VCORE [32]
PWM4_VCORE [32]
PWM3_VCORE [31]
PWM2_VCORE [31]
PWM1_VCORE [31]
PWM0_VCORE [31]

DAR56 8.2K/4 — DAR57 8.2K/4
CPU_CONFIG — CPU_ADD
DAR34 0/4
DAR16 0/4
Address:60

DAR6,DAR7量產換回Short Pad
CPU_PMSDA — DAR7 0/4 — SMB_SW_SD0 [8,9,17,30,58,59,60,62,65,66]
CPU_PMSCL — DAR6 0/4 — SMB_SW_SC0 [8,9,17,30,58,59,60,62,65,66]
DAC30 10u/6/X5R/6.3V/M
DAC6 22p/4/NPO/50V/J/X
DAC7 22p/4/NPO/50V/J/X
DAJP1 PH/1*3/BK/2.54/VA/D/X
Debug Only
Remove PinHeader in modify PBOM

3VDUAL PWM_VCC3
DAR1 0/4/X — DAR2 0/4
PWM_VCC
DAC2 1u/4/X5R/6.3V/K — DAC3 0.1u/4/X7R/16V/K

放CPU SOCKET (TOP LAYER)

VCORE
WBC1 47u/8/X5R/6.3V/M — WBC2 47u/8/X5R/6.3V/M — WBC3 47u/8/X5R/6.3V/M — WBC4 47u/8/X5R/6.3V/M — WBC5 47u/8/X5R/6.3V/M
WBC6 47u/8/X5R/6.3V/M — WBC7 47u/8/X5R/6.3V/M — WBC8 47u/8/X5R/6.3V/M — WBC9 47u/8/X5R/6.3V/M — WBC10 47u/8/X5R/6.3V/M
WBC11 47u/8/X5R/6.3V/M — WBC12 47u/8/X5R/6.3V/M — WBC13 47u/8/X5R/6.3V/M — WBC14 47u/8/X5R/6.3V/M — WBC15 47u/8/X5R/6.3V/M
WBC16 47u/8/X5R/6.3V/M — WBC17 47u/8/X5R/6.3V/M — WBC18 47u/8/X5R/6.3V/M — WBC19 47u/8/X5R/6.3V/M — WBC20 47u/8/X5R/6.3V/M
WBC21 47u/8/X5R/6.3V/M — WBC22 47u/8/X5R/6.3V/M — WBC40 47u/8/X5R/6.3V/M — WBC41 47u/8/X5R/6.3V/M — WBC42 47u/8/X5R/6.3V/M

VIN CAP 270u*6PCS *改台系固態電容
V12 — DAL1 0.15uH/55A/70A/S/0.29m — R30 — VIN
DAC28 1u/6/X7R/16V/K
DAEC14 — DAEC15 — DAEC16 — DAEC19 — DAEC20 — DAEC21
270u/FP/D/16V/8C/A/10m

VCORE CAP 560u*12PCS 47u*25PCS *改台系固態電容
VCORE
DAEC1 — DAEC2 — DAEC3 — DAEC4 — DAEC5 — DAEC6 — DAEC7 — DAEC8 — DAEC9 — DAEC10 — DAEC22 — DAEC23
560u/FP/D/6.3V/69/A/7m

VCORE
DA_SBC1 22u/6/X5R/6.3V/M — DA_SBC2 22u/6/X5R/6.3V/M — DA_SBC3 22u/6/X5R/6.3V/M — DA_SBC4 22u/6/X5R/6.3V/M — DA_SBC5 22u/6/X5R/6.3V/M
DA_SBC6 22u/6/X5R/6.3V/M — DA_SBC7 22u/6/X5R/6.3V/M — DA_SBC8 22u/6/X5R/6.3V/M — DA_SBC9 22u/6/X5R/6.3V/M — DA_SBC10 22u/6/X5R/6.3V/M
DA_SBC11 22u/6/X5R/6.3V/M
放置背板電感與電感之間

GIGABYTE™

Title	ISL69269_PWM	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 29 of 69	

REV:0.1

Connect to IT8688

Place near to DX_DL1

Address:63

VCCGT CAP

560u*3PCS

47u*7PCS

*改台系固態電容

放CPU SOCKET (Bottom LAYER)

* A_CPU_ID
1: RKL -->ADDRESS=63_ID=0
0: CML -->ADDRESS=63_ID=7

20MIL

Vout=0.8*(R1+R2)/R2

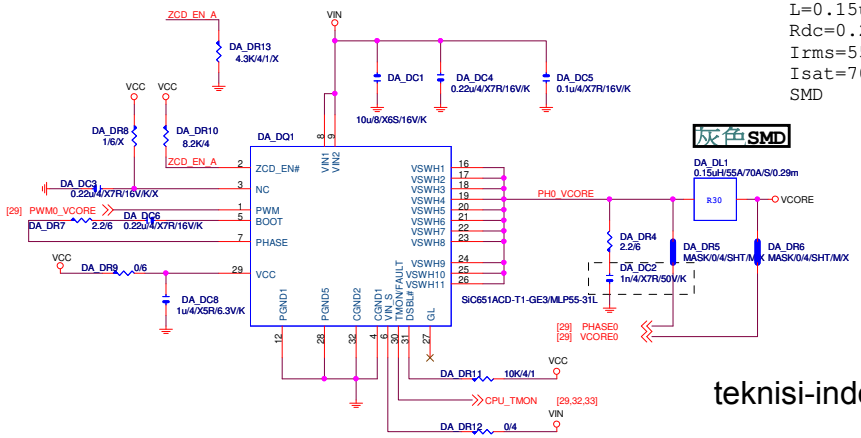
AP7365-WG-7/SOT23-5/600mA

Title	RAA229001_PWM		
Size	Document Number		Rev
Custom	Z590 UD AC		1.1
Date:	Monday, December 21, 2020	Sheet 30 of 69	

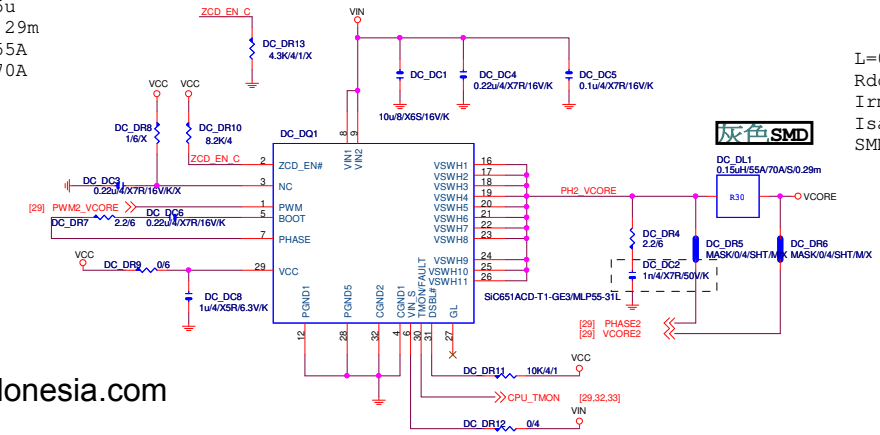
GIGABYTE

REV:0.1

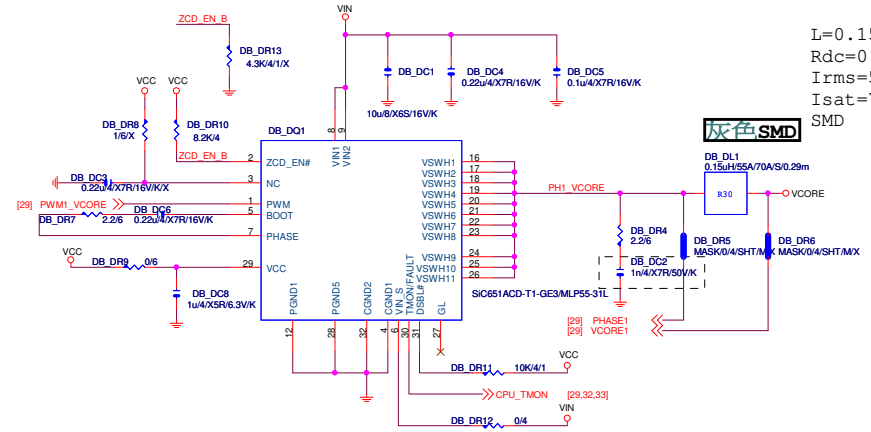
DRMOS使用NCP302155時PIN2 and PIN3要上件(Ex:DA_DR13.DA_DR8.DA_DC3)



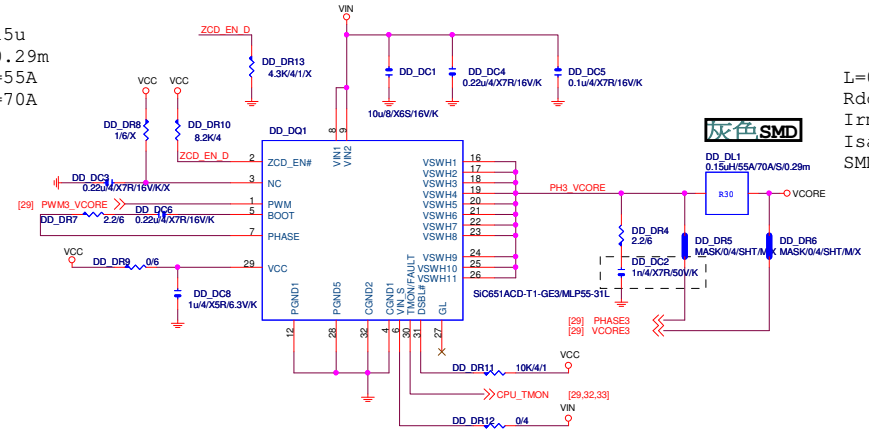
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



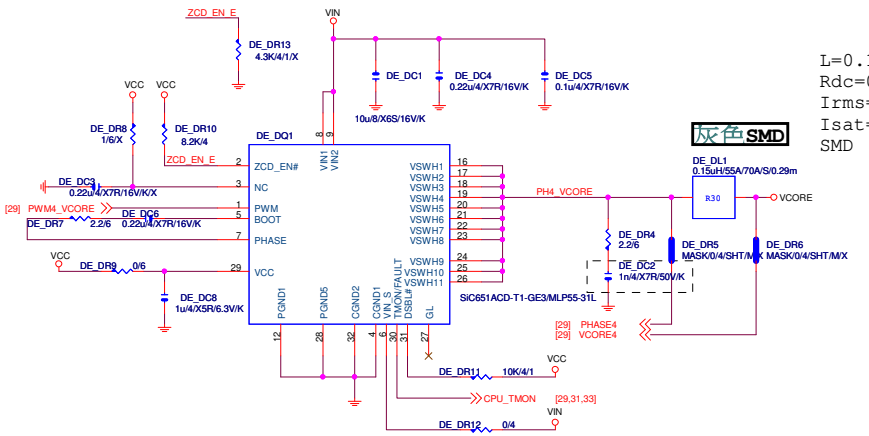
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD

GIGABYTE™

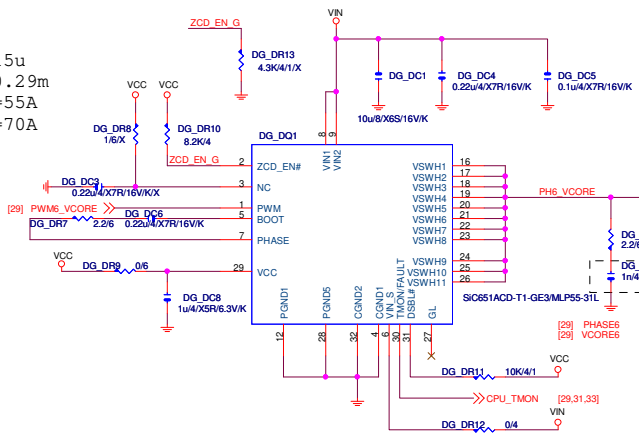
Title	VCORE_DRMOS-1	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 31 of 69	

REV:0.1

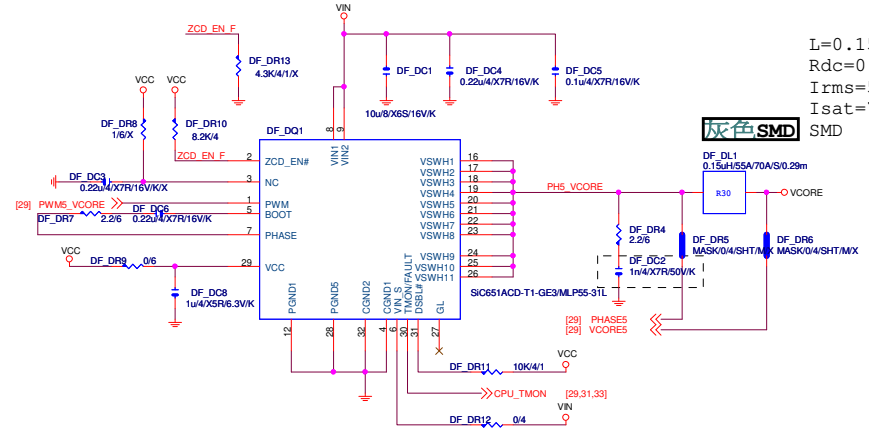
DRMOS使用NCP302155時PIN2 and PIN3要上件(Ex:DA_DR13.DA_DR8.DA_DC3)



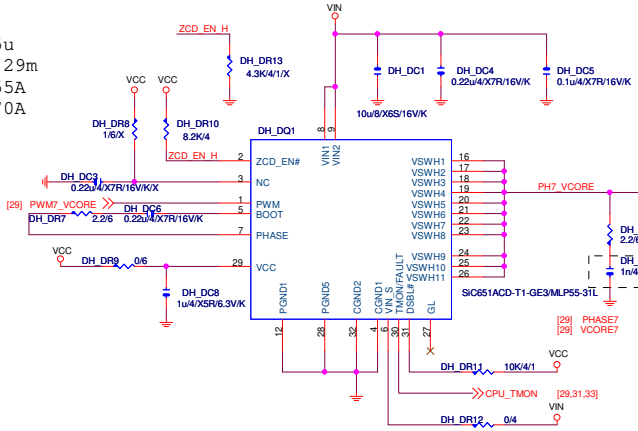
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD

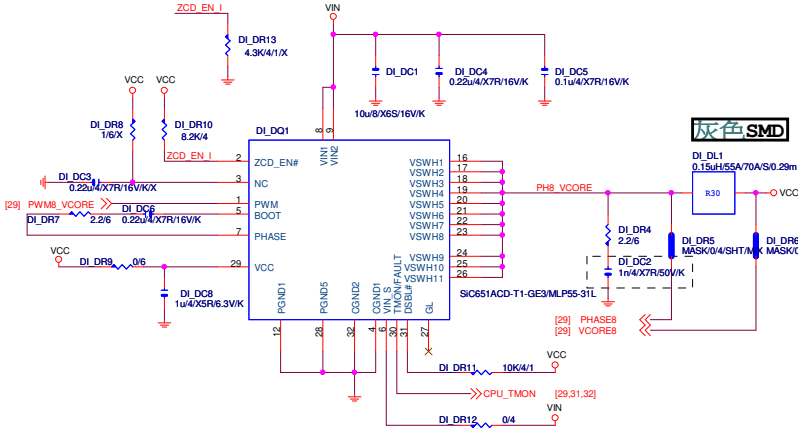


GIGABYTE

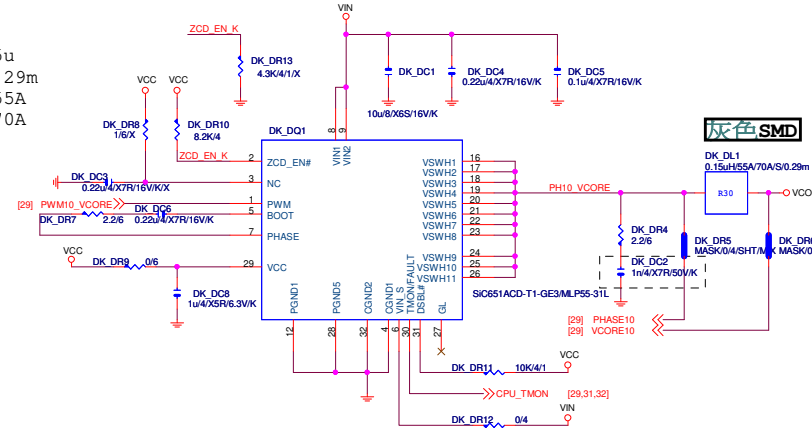
Title	VCORE_DRMOS-2	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 32 of 69	

REV:0.1

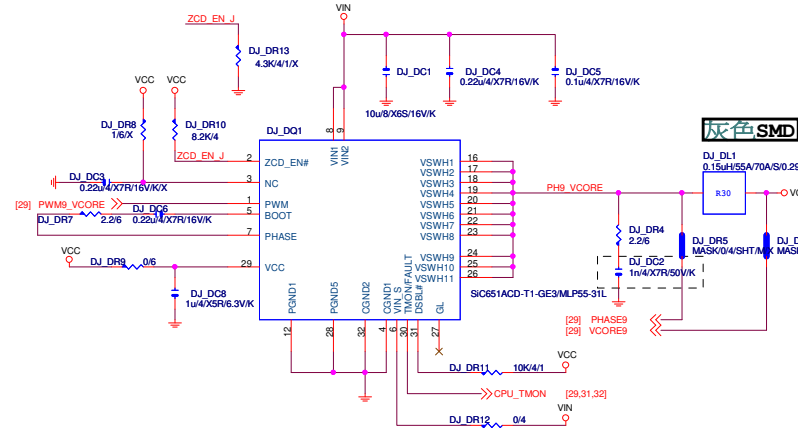
DRMOS使用NCP302155時PIN2 and PIN3要上件(Ex:DA_DR13.DA_DR8.DA_DC3)



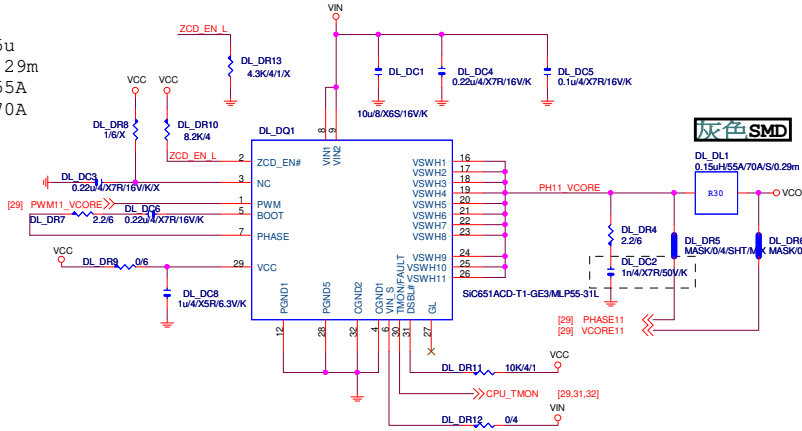
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



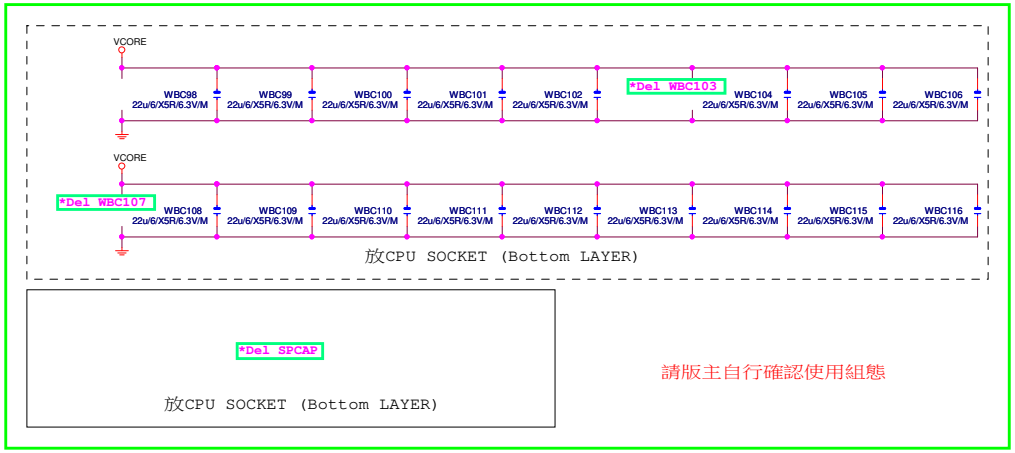
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD



L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD

*Del SPCAP

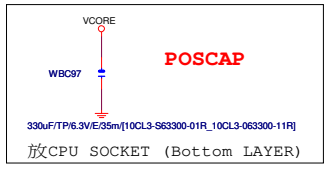
請版主自行確認是否使用
請版主自行確認使用330u or 470u



*Del SPCAP

放CPU SOCKET (Bottom LAYER)

請版主自行確認使用組態

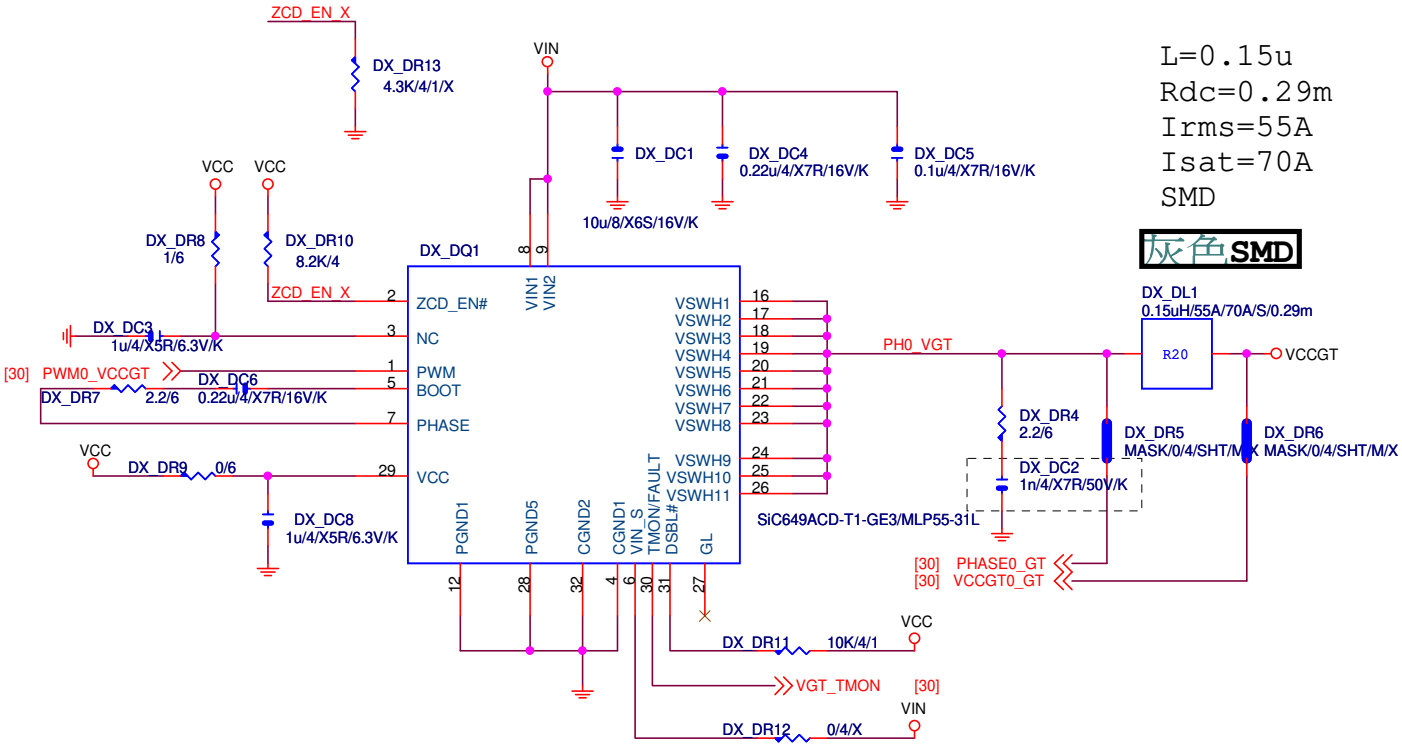


GIGABYTE™

Title	VCORE_DRMOS-3	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 33 of 69	

REV:0.1

DRMOS使用NCP302155時PIN2 and PIN3要上件(Ex:DA_DR13.DA_DR8.DA_DC3)



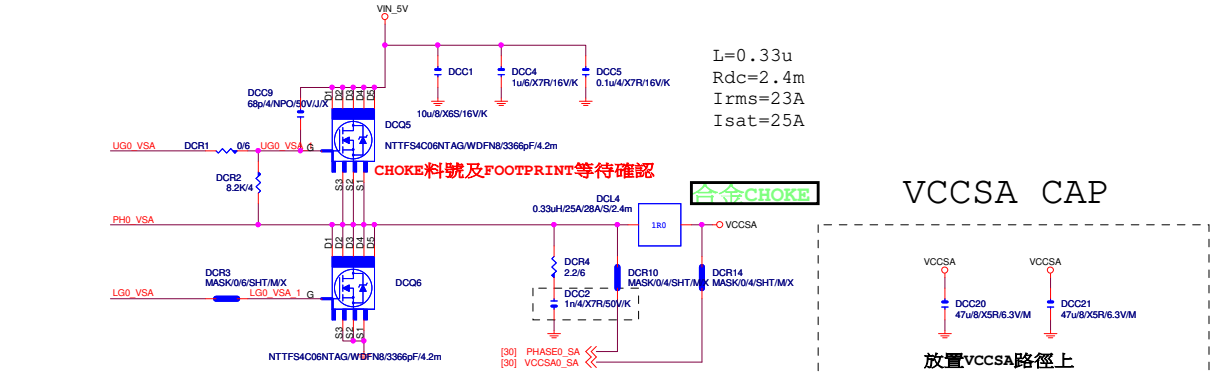
L=0.15u
Rdc=0.29m
Irms=55A
Isat=70A
SMD

灰色SMD

GIGABYTE™

Title	VCCGT_DRMOS	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 34 of 69	

REV:0.1



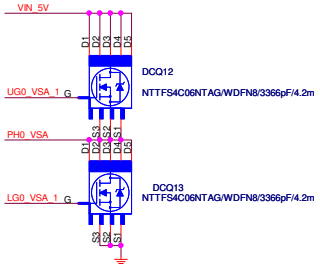
CHOKE料號及FOOTPRINT等待確認

合令CHOKE

L=0.33u
Rdc=2.4m
Irms=23A
Isat=25A

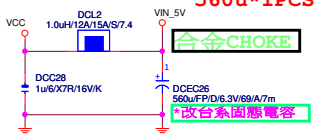
VCCSA CAP

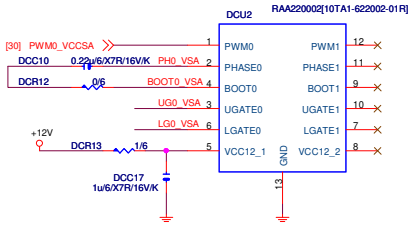
放置VCCSA路徑上

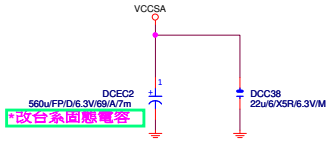


VIN CAP

560u*1PCS







CPU SOCKET 已經有22u/6 *4pcs

GIGABYTE™

Title: VCCSA MOSFET

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 35 of 69

VCCIO

RKL MODIFY

REV:0.2

5VDUAL

DFR11 2.2/6

DRV_VIO

DFC11 1u/6/X7R/16V/K

VCC

DFR10 100K/4/1

VCCIO_PG

VCC3

DFR25 8.2K/4

VCCIO_EN_1

DFU2

RT6541AGQW/WDFN-14L

VCC UGATE BOOT PHASE LGATE LPM RGND FB G0 G1

PGOOD EN CS GND MODE

VCCIO_EN_1

DFR18 169K/4/1 VCCIO_CS

VCCIO0_MODE

UGATE_VIO

VCCIO_BOOT DFR19 0/6 DFC10 0.1u/6/X7R/25V/K

PHASE_VIO

LGATE_VIO

VIO_LPM DFR20 0/4

VIO_RGND

VCCIO0_G0

VCCIO0_G1

CPU_VCCIO_PWR_GATEB [14,37,58]

DFR34 0/4/X VIO_VSA_RGND

放置靠近output cap端

使用GPIO超壓

1. DFR26須改為100/4/1
2. DFR34需上件

DFR26 0/4

VIO_VSA_RGND DFR35 0/4/X VSSSA_VIO_SENSE [6,30]

請盡量靠近分支點

RKL MODIFY

VCC1V8_PRIM

DFR24 8.2K/4/X

VIO_LPM

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

CHOKE與CAP料號可變

合令CHOKE

注意耐壓

VCC

DCL1 1.0uH/12A/15A/S/7.4 6*6

Close Choke

DFC36 DFC37 DFC39 0.1u/4/X7R/16V/K DFC27 68p/4/NPO/50V/J/X 0.1u/4/X7R/16V/K

DFC9 1u/6/X7R/16V/K Close MOS

DFQ5 NTTFS4C10NTAG/WDFN8/993pF/7.4m

VCCIO_VIN

DFC24 10u/8/X5R/16V/K DFC25 10u/8/X5R/16V/K DFC26 10u/8/X5R/16V/K

UGATE_VIO DFR12 2.2/6

DFR13 8.2K/4

PHASE_VIO

LGATE_VIO

DFQ6 NTTFS4C10NTAG/WDFN8/993pF/7.4m

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

合令CHOKE

DFL2 1.0uH/12A/15A/S/7.4 6*6

VCCIO

使用GPIO超壓須移除

DFR15 2.2/6

DFC14 1n/4/X7R/50V/K

DFR16 487/4/1/X

DFR17 1K/4/1

DFEC2 560u/FP/D/6.3V/69/A/7m

DFC38 22u/6/X5R/6.3V/M

DFC15 3.3n/4/X7R/50V/K/X RS

*改台系固態電容

VCCIO_OV

ADDRESS=2A
VREF=02

[4] VCCIO_OV

DFR28 100/4/1/X

DFR27 10K/4/1/X

DFR9 0/4/X

VCCIO_SENSE [6]

使用GPIO超壓須上件

DFC50 47u/8/X5R/6.3V/M DFC51 47u/8/X5R/6.3V/M DFC52 47u/8/X5R/6.3V/M

DFC53 47u/8/X5R/6.3V/M DFC54 47u/8/X5R/6.3V/M DFC55 47u/8/X5R/6.3V/M

放CPU SOCKET (Bottom LAYER)

VCCIO_EN DFR36 0/4/X VCCIO_EN_1

Connect to IT8795

[17,37,59] VCCIO_EN DCR35 MASK/0/4/SHT/X

Connect to IT8686

DCR22 8.2K/4/X

DCR23 100K/4/1

DCC16 1u/6/X7R/16V/K

DCQ7 2N7002/SOT23/25pF/5

DCQ8 2N7002/SOT23/25pF/5

SOT23

* A_CPU_ID
1: RKL -->VCCIO=1.05V
0: CML -->VCCIO=0.95V

DFR37 8.2K/4/1

A_CPU_ID_N

DFQ11 2N7002/SOT23/25pF/5

[4,30,37,59] A_CPU_ID

DFQ1 2N7002/SOT23/25pF/5

VCCIO0_G1 DFR38 100K/4/1 DFR39 0/4/X

VCCIO0_G0 DFR40 100K/4/1 DFR41 0/4/X

VCCIO0_MODE DFR14 100K/4/1 DFR42 0/4/X

VCCIO_OV

DFR33 422K/4/1/X VIO_RGND

DFR43 42.2K/4/1

DFR44 21K/4/1

DFR29 100K/4/1/X

DFR31 100K/4/1/X

DFQ2 2N7002/SOT23/25pF/5

DFQ3 2N7002/SOT23/25pF/5

[14] VCCIO_VID1

[14] VCCIO_VID2

VIO_RGND

DFR30 100K/4/1

DFR32 100K/4/1

DFC28 0.1u/4/X7R/16V/K

DFC29 0.1u/4/X7R/16V/K

VCCIO_VID1-->GPP_F_22

VCCIO_VID2-->GPP_F_23

使用GPIO超壓須上件

VCC3

DGR3 100K/4/1/X

VCCIO_PG DGR36 MASK/0/4/SHT/X VCCIO_PWRGD

Connector to SIO PIN7

VCCIO_PWRGD [17]

3VDUAL

DGR2 100K/4/1/X

DGR4 100K/4/1

DGQ2 2N7002/SOT23/25pF/5/X

DGQ10 2N7002/SOT23/25pF/5

* A_CPU_ID_N
0: RKL
1: CML

DGQ1 2N7002/SOT23/25pF/5/X

DGQ3 2N7002/SOT23/25pF/5

DGQ4 2N7002/SOT23/25pF/5

VCCIO_PG

A_CPU_ID_N

[37] VCCIO2_PG

VCCIO_VID1	VCCIO_VID2	VCCIO_0_G1	VOUT
LOW	LOW	LOW	0.950V
LOW	LOW	HIGH	1.050V
HIGH	LOW	HIGH	1.075V
LOW	HIGH	HIGH	1.100V
HIGH	HIGH	HIGH	1.125V

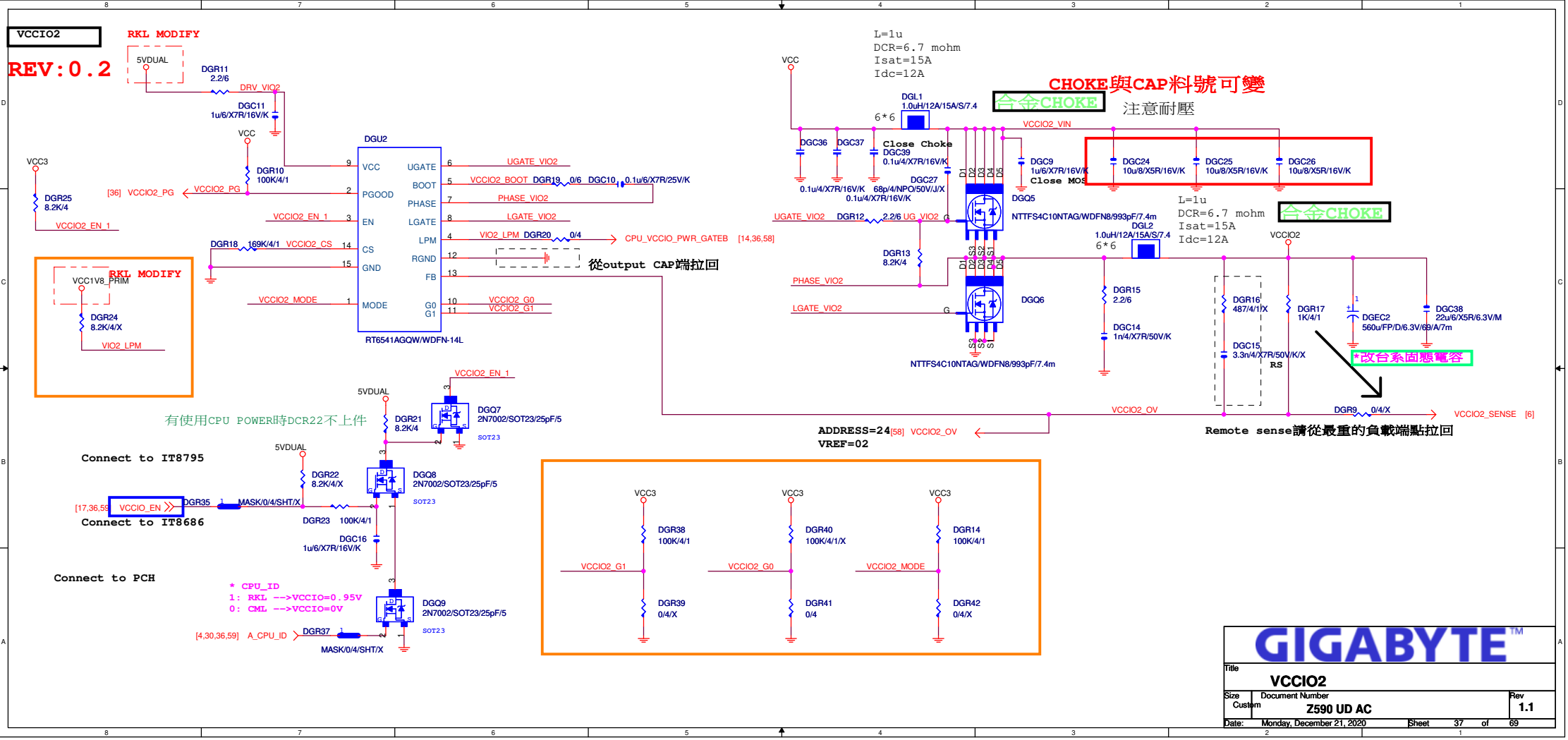
Mode	VR	Mode logic	LPM	VID Setting G1 logic	VID Setting G0 logic	VOUT (V)
Mode1	VCCIO	0	0	x	x	0(LPM)
			1	0	0	0.85
			1	0	1	0.875
			1	1	0	0.95
			1	1	1	0.975
Mode2	VPRIMCORE	Floating	0	x	x	0.7V(LPM)
			1	0	0	0.85
			1	0	1	0.9
			1	1	0	0.95
			1	1	1	1
Mode3	VccEDRAM/ VccEOPIO	1	0	x	x	0(LPM)
			1	0	0	0.8
			1	0	1	0.95
			1	1	0	1
			1	1	1	1.05

GIGABYTE

Title: VCCIO

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 36 of 69


VCCIO2
RKL MODIFY
REV:0.2
5VDUAL
DGR11 2.2/6
DRV_VIO2
DGC11 1u/6/X7R/16V/K
VCC
VCC3
DGR10 100K/4/1
DGR25 8.2K/4
[36] VCCIO2_PG
VCCIO2_PG
VCCIO2_EN_1
DGU2
VCC
PGOOD
EN
CS
GND
MODE
UGATE
BOOT
PHASE
LGATE
LPM
RGND
FB
G0
G1
UGATE_VIO2
VCCIO2_BOOT
DGR19 0/6
DGC10 0.1u/6/X7R/25V/K
PHASE_VIO2
LGATE_VIO2
VIO2_LPM
DGR20 0/4
CPU_VCCIO_PWR_GATEB [14,36,58]
DGR18 169K/4/1
VCCIO2_CS
VCCIO2_MODE
VCCIO2_G0
VCCIO2_G1
RT6541AGQW/WDFN-14L
從output CAP端拉回
RKL MODIFY
VCC1V8_PRIM
DGR24 8.2K/4/X
VIO2_LPM
有使用CPU POWER時DCR22不上件
Connect to IT8795
Connect to IT8686
Connect to PCH
DGR22 8.2K/4/X
DGR35
[17,36,59] VCCIO_EN
MASK/0/4/SHT/X
DGR23 100K/4/1
DGC16 1u/6/X7R/16V/K
DGR21 8.2K/4
DGQ7 2N7002/SOT23/25pF/5
DGQ8 2N7002/SOT23/25pF/5
DGQ9 2N7002/SOT23/25pF/5
SOT23
* CPU_ID
1: RKL -->VCCIO=0.95V
0: CML -->VCCIO=0V
[4,30,36,59] A_CPU_ID
DGR37
L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A
DGL1 1.0uH/12A/15A/S/7.4
6*6
合金CHOKE
CHOKE與CAP料號可變
注意耐壓
VCCIO2_VIN
DGC36 0.1u/4/X7R/16V/K
DGC37 0.1u/4/X7R/16V/K
Close Choke
DGC39 0.1u/4/X7R/16V/K
DGC27 68p/4/NPO/50V/J/X
DGC9 1u/6/X7R/16V/K
Close MOS
DGC24 10u/8/X5R/16V/K
DGC25 10u/8/X5R/16V/K
DGC26 10u/8/X5R/16V/K
DGQ5
NTTFS4C10NTAG/WDFN8/993pF/7.4m
UGATE_VIO2
DGR12 2.2/6
UG_VIO2
DGR13 8.2K/4
PHASE_VIO2
LGATE_VIO2
DGQ6
NTTFS4C10NTAG/WDFN8/993pF/7.4m
DGL2 1.0uH/12A/15A/S/7.4
6*6
DGR15 2.2/6
DGC14 1n/4/X7R/50V/K
VCCIO2
DGR16 487/4/1/X
DGR17 1K/4/1
DGEC2 560u/FP/D/6.3V/69/A/7m
DGC38 22u/6/X5R/6.3V/M
DGC15 3.3n/4/X7R/50V/K/X
RS
*改台系固態電容
VCCIO2_OV
DGR9 0/4/X
VCCIO2_SENSE [6]
ADDRESS=24 [58] VCCIO2_OV
VREF=02
Remote sense請從最重的負載端點拉回
DGR38 100K/4/1
DGR39 0/4/X
DGR40 100K/4/1/X
DGR41 0/4
DGR14 100K/4/1
DGR42 0/4/X
GIGABYTE
Title
VCCIO2
Size Custom
Document Number
Z590 UD AC
Rev 1.1
Date: Monday, December 21, 2020
Sheet 37 of 69

REV:0.1

DDR4

L=0.5u
DCR=2.35 mohm
Isat=25A
Idc=15A

合金CHOKE

CHOKE與CAP料號可變

DDR VIN CAP
560u*2PCS

MA_VIN Rev 9.0

灰色DIP

SUPPORT DDR4 1.2V
25A MAX

L=0.8u
DCR=1.4 mohm
Isat=?A
Idc=28A

OCP=40A

放靠近IC pin4

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

CLOSE TO DDR POWER PLANE

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

PWR SEQ

For power sequence require

DDRVTT

NCT3103S/SOP8/2A

1.1A MAX

0/4/SHT/M/X

MAU1上NCT3103S時上件

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

* 大電容 x4

指定footprint "EC6D8MM-RH-2"

DDRVTT CAP

* 大電容 x0

GIGABYTE

Title	RT8120_DDR4 POWER		
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 38 of 69		

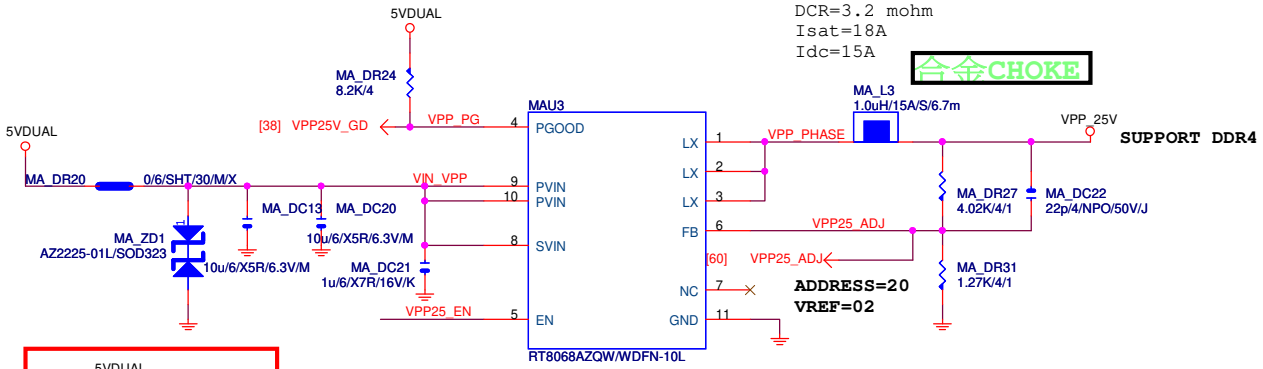
REV:0.1

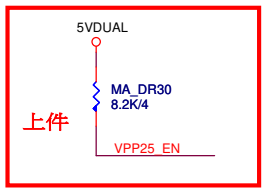
VPP_25V

CHOKE與CAP料號可變

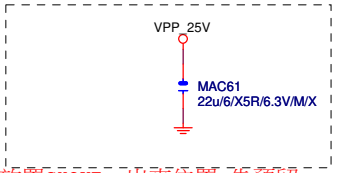
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A

合金CHOKE





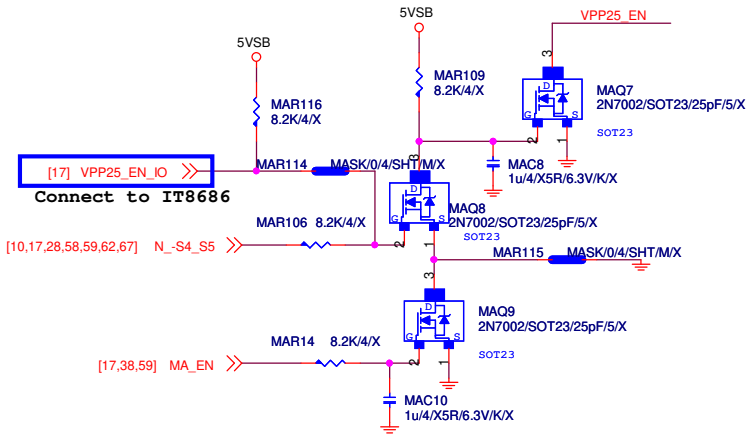
2.5V

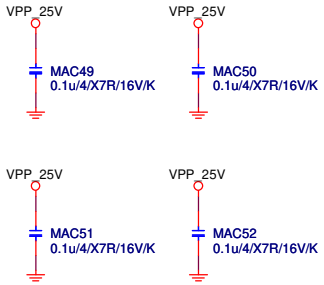


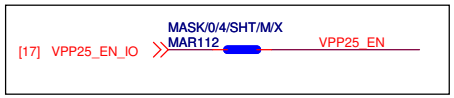
請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

PWR SEQ

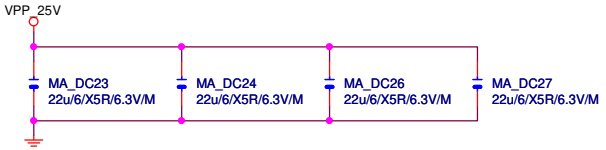
* 刪 MA_DR32





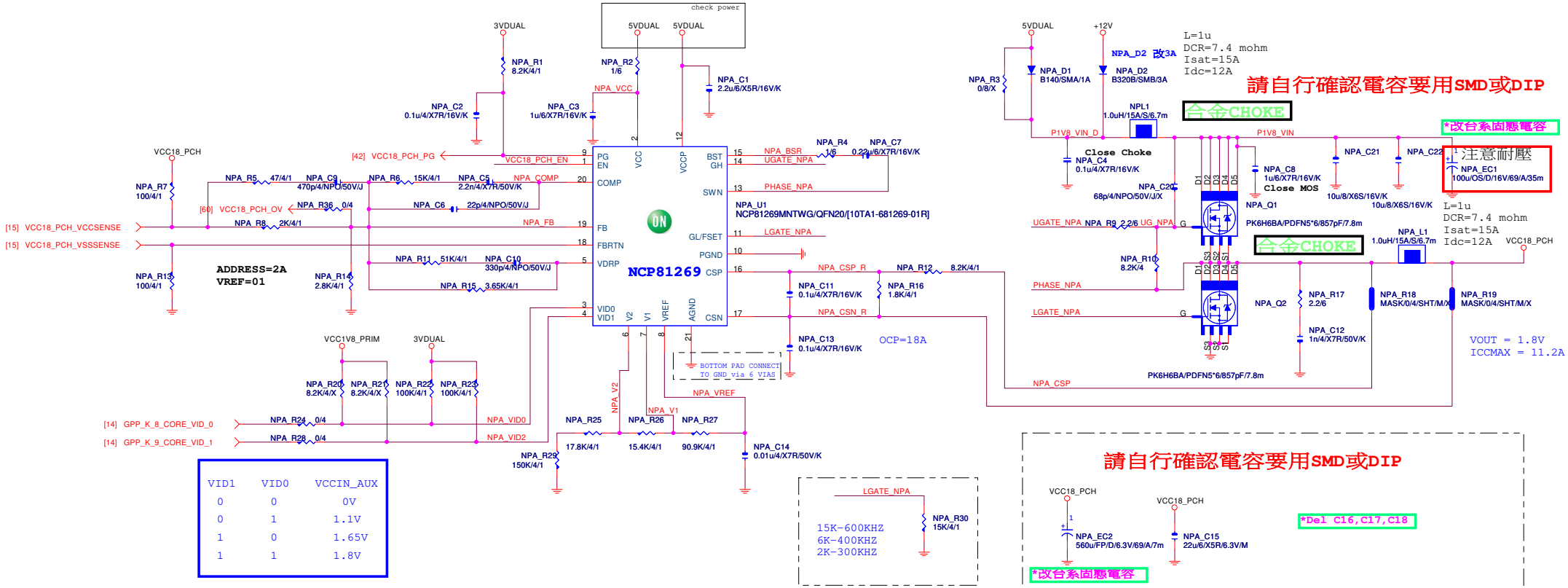


VPP CAP 22u*4PCS



GIGABYTE™

Title	RT8068_VPP25 POWER	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 39 of 69	



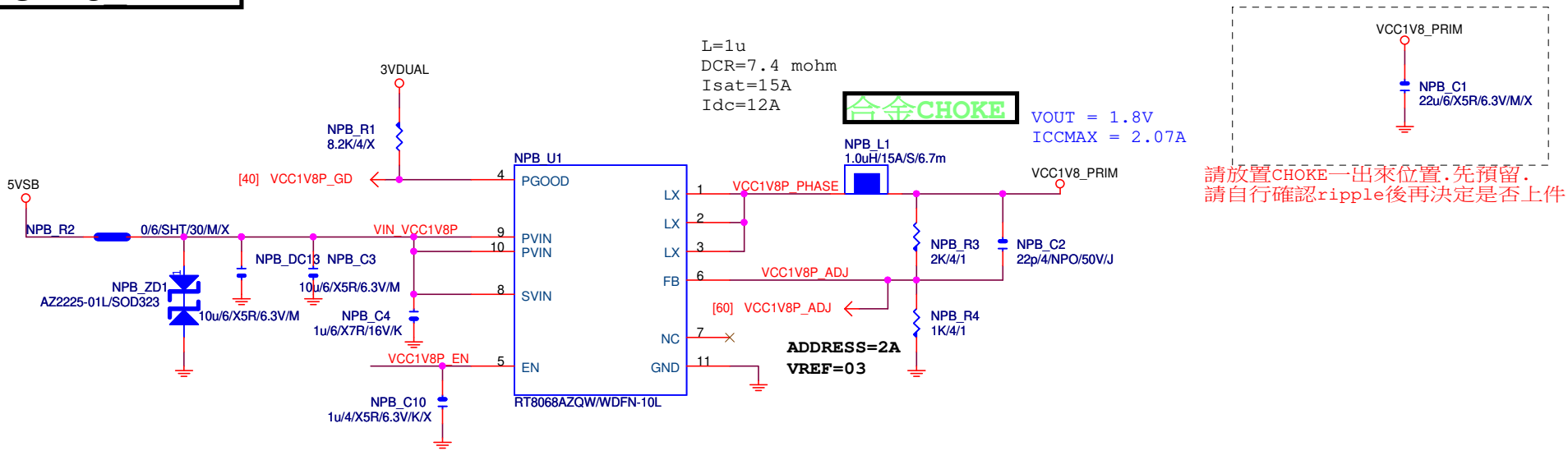
VID1	VID0	VCCIN_AUX
0	0	0V
0	1	1.1V
1	0	1.65V
1	1	1.8V

Title	NCP81269_PCH POWER
Size / Custom	Document Number: Z590 UD AC
Rev	1.1
Date:	Monday, December 21, 2020
Sheet	40 of 69

REV:0.1

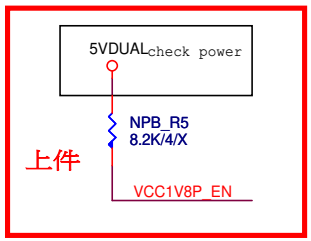
VCC1V8_PRIM

CHOKE與CAP料號可變



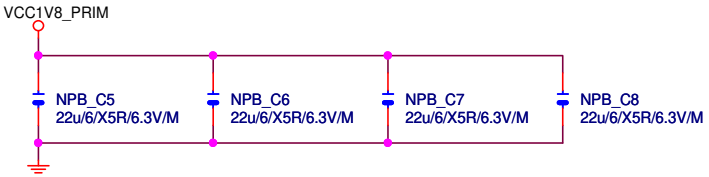
請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

PWR SEQ



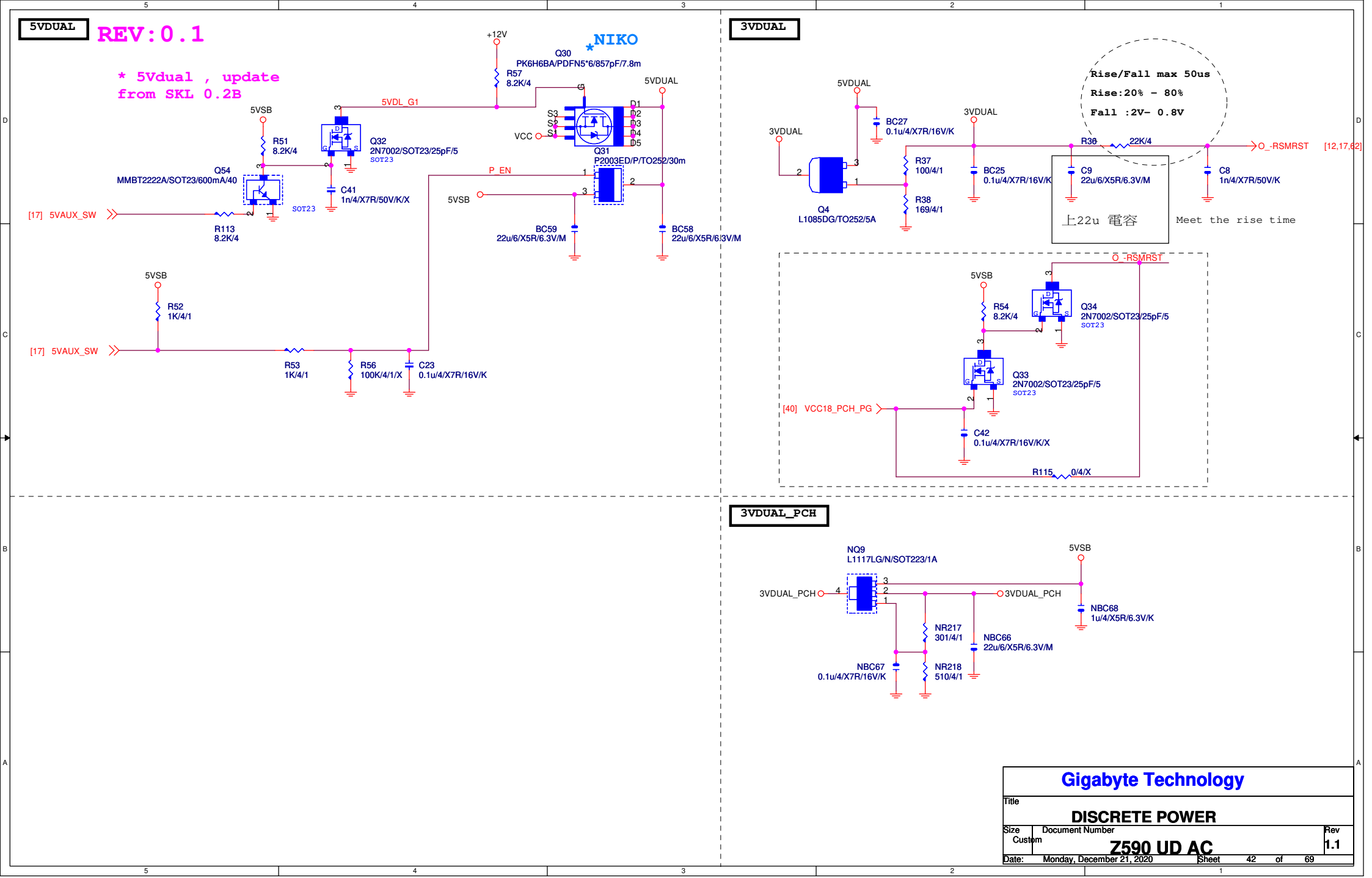
connect to PCH pin AD46

VCC1V8_PRIM CAP 22u*4PCS



GIGABYTE™

Title: RT8068_VCC1V8_PRIM		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 41 of 69	


5VDUAL
REV:0.1
* 5Vdual , update from SKL 0.2B
+12V
*NIKO
Q30
PK6H6BA/PDFN5*6/857pF/7.8m
R57
8.2K/4
5VDUAL
5VDL_G1
5VSB
R51
8.2K/4
Q32
2N7002/SOT23/25pF/5
SOT23
VCC
Q31
P2003ED/P/TO252/30m
Q54
MMBT2222A/SOT23/600mA/40
SOT23
C41
1n/4/X7R/50V/K/X
P_EN
5VSB
[17] 5VAUX_SW
R113
8.2K/4
BC59
22u/6/X5R/6.3V/M
BC58
22u/6/X5R/6.3V/M
5VSB
R52
1K/4/1
[17] 5VAUX_SW
R53
1K/4/1
R56
100K/4/1/X
C23
0.1u/4/X7R/16V/K
3VDUAL
5VDUAL
BC27
0.1u/4/X7R/16V/K
3VDUAL
R37
100/4/1
R38
169/4/1
Q4
L1085DG/TO252/5A
R36
22K/4
BC25
0.1u/4/X7R/16V/K
C9
22u/6/X5R/6.3V/M
C8
1n/4/X7R/50V/K
O_-RSMRST
[12,17,62]
Rise/Fall max 50us
Rise:20% - 80%
Fall :2V- 0.8V
上22u 電容
Meet the rise time
O_-RSMRST
5VSB
R54
8.2K/4
Q34
2N7002/SOT23/25pF/5
SOT23
Q33
2N7002/SOT23/25pF/5
SOT23
[40] VCC18_PCH_PG
C42
0.1u/4/X7R/16V/K/X
R115
0/4/X
3VDUAL_PCH
NQ9
L1117LG/N/SOT223/1A
3VDUAL_PCH
5VSB
3VDUAL_PCH
NBC68
1u/4/X5R/6.3V/K
NR217
301/4/1
NBC66
22u/6/X5R/6.3V/M
NBC67
0.1u/4/X7R/16V/K
NR218
510/4/1
Gigabyte Technology
Title
DISCRETE POWER
Size
Custom
Document Number
Z590 UD AC
Rev
1.1
Date: Monday, December 21, 2020
Sheet 42 of 69

ATXX24 POWER CONNECTOR

2x12(空心Pin)
FOOTPRINT:ATXPWR_24-6

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

5VSB
R695 22K/4
Patch some PSU no internal pull up resistor
[17,62] -PSON
BC37 0.1u/4/X7R/16V/K

-12V VCC3 VCC3
ATX
13 3.3V 3.3V 1
14 -12V 3.3V 2
15 GND GND 3
16 PSON 5V 4
17 GND GND 5
18 GND 5V 6
19 GND GND 7
20 -5V POK 8
21 5V 5VSB 9
22 5V 12V 10
23 5V 12V 11
24 GND 3.3V 12
BK

VCC3 VCC3 VCC3
BC35 22u/6/X5R/6.3V/M
BC46 1u/4/X5R/6.3V/K
BC48 1u/4/X5R/6.3V/K

VCC
VCC
PWOK
PWOK
5VSB
+12V
BC9 4.7u/6/X5R/6.3V/K
AD1 AZ2225-01L/SOD323/X

VCC
VCC
BC39 1u/4/X5R/6.3V/K
BC36 0.1u/4/X7R/16V/K/X
APW/2*12/BK/VA/SN/2SHK/PA66

* 刪除 -5V

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

To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

2x4 (實心Pin)
FOOTPRINT:ATXPW2X4-SOLID

V12
ATX_12V_2X4
1 GND +12V 5
2 GND +12V 6
3 GND +12V 7
4 GND +12V 8
BK
[17]
APW/2*4/BK/OC/P/4.2/VA/SN/OH/S/PA9T::ATX_12V_2X4
BC7 0.1u/4/X7R/16V/K

螺絲孔

MH1 MH2
HOLE_3/X HOLE_3/X
HOLE_4-RH-1
FOR AUDIO 切割

MH3
HOLE_3/X
HOLE_4-RH-5MM-2
半圈

MH7 MH5
HOLE_3/X HOLE_3/X
HOLE_4-RH-1 HOLE_4-RH-1

MH6
HOLE_3/X
HOLE_4-RH-5MM-2
半圈

MH9 MH8
HOLE_3/X HOLE_3/X
HOLE_4-RH-5MM-2 HOLE_4-RH-5MM-2
半圈 半圈

MH4
HOLE_3/X
HOLE_4-RH-5MM-5PIN-2

固定孔/光學點

K6 K3 K1
K5 K2 K4
K1_ICT/X
K1-ICT

To prevent the 5VSB under loading when boot

I1 I2 I3 I4 I5
4MMH/X
4MMH

V12
ATX_12V_2X2
4 +12V GND 1
3 +12V GND 2
APW/2*2/BK/OC/P/4.2/VA/SN/OH/S
BC1118 0.1u/4/X7R/16V/K

+12V DUMMY LOAD

To fix 12V light load abnromal issue

+12V
RN2 2.7K/8P4R/4
RN3 2.7K/8P4R/4
RN4 2.7K/8P4R/4
RN5 2.7K/8P4R/4
RN6 2.7K/8P4R/4
RN10 2.7K/8P4R/4
RN11 2.7K/8P4R/4
RN12 2.7K/8P4R/4
RN13 2.7K/8P4R/4
RN14 2.7K/8P4R/4
RN15 2.7K/8P4R/4

VCC3
R1 1K/4/1/X
Q9
[13] N_GPP_D11
R703 330/4
EMF30N02J/SOT23/627pF/30m

DUMMY LOAD

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

COUPON

BY LAYOUT位置

COUPON1 COUPON1 1 2 COUPON/X 5VDUAL
COUPON2 COUPON2 1 2 COUPON/X 5VDUAL
COUPON3 COUPON3 1 2 COUPON/X
COUPON4 COUPON4 1 2 COUPON/X

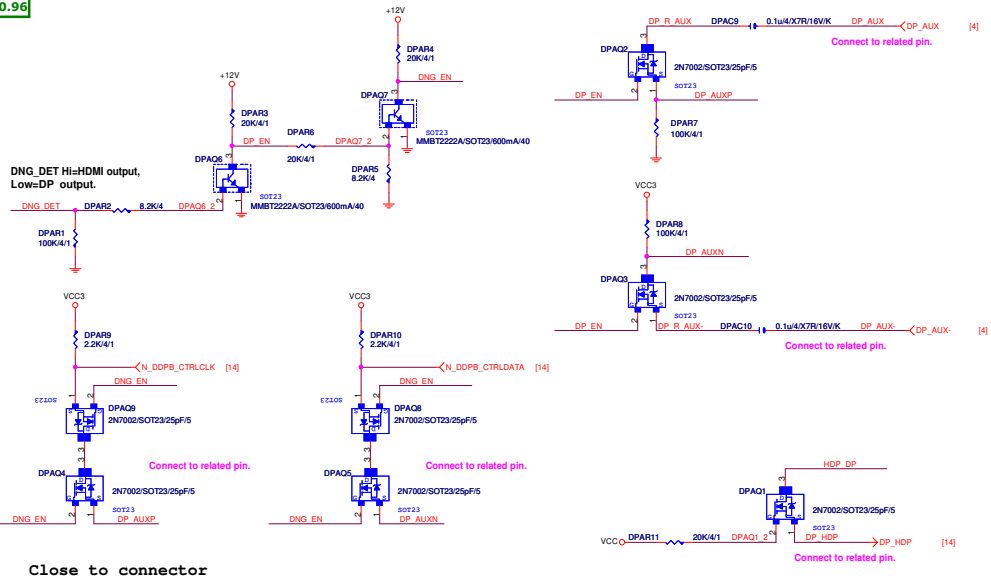
Gigabyte Technology

Title: ATX POWER CONNECTOR

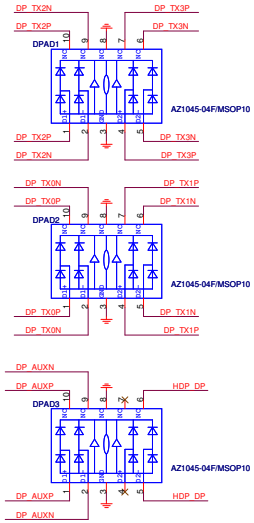
Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 43 of 69

Rev: 0.96

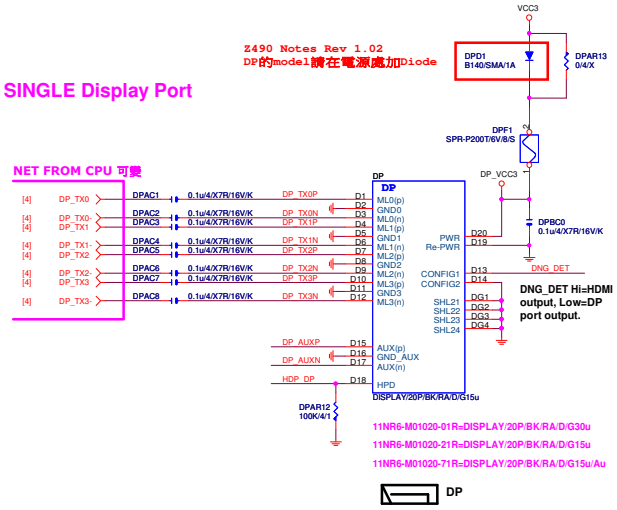


Close to connector



SINGLE Display Port

Z490 Notes Rev 1.02
DP的model請在電源處加Diode



11NR6-M01020-01R=DISPLAY/20P/BK/RA/D/G30u
11NR6-M01020-21R=DISPLAY/20P/BK/RA/D/G15u
11NR6-M01020-71R=DISPLAY/20P/BK/RA/D/G15u/Au

DP

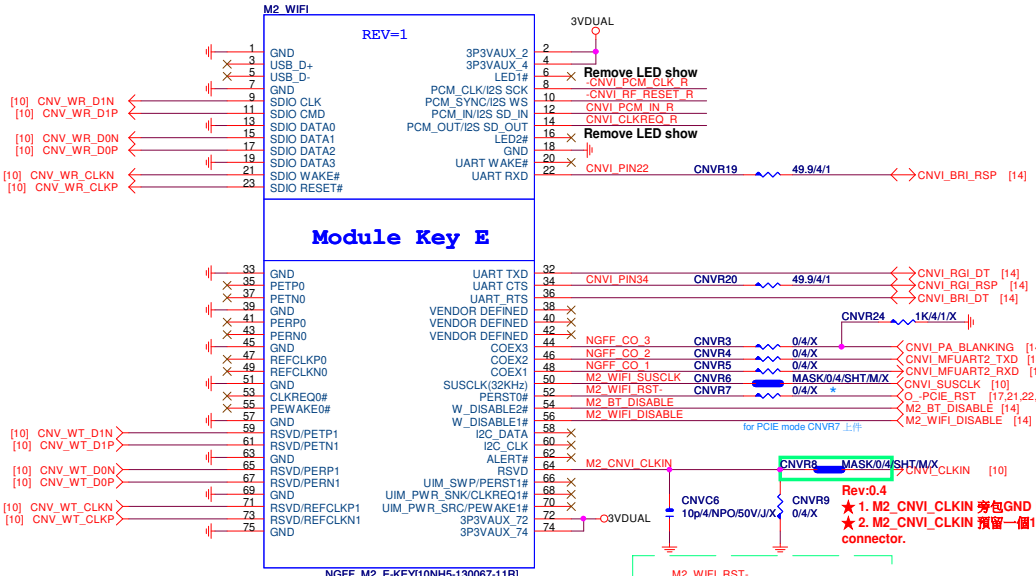
Gigabyte Technology			
Title: DP PORT			
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 44 of 69		

Rev: 0.94

CNVi_M2_WIFI

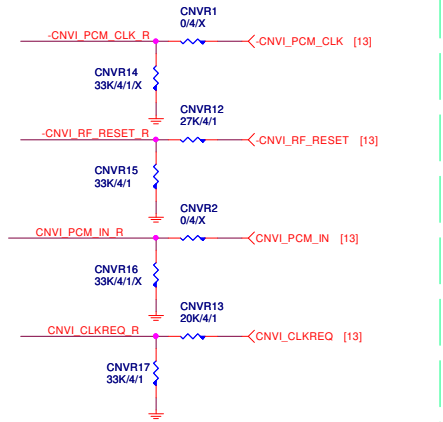
*全部上件

不支援PCIE介面WIFI及USB介面BT



Rev:0.6

★ 1. 將PCH吐出的3.3V 經分壓為1.8V 才進到CNVI



Rev:0.4

★ 1. M2_CNVI_CLKIN 旁包GND LINE,且200mil打一個GND via.

★ 2. M2_CNVI_CLKIN 預留一個10p cap 靠近CNVI card connector.

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.

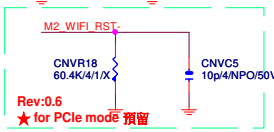
★Update 2015-07-22

★Footprint for 橫躺式高: NGFF-E-75P-3

★Footprint for 橫躺式矮: CNVI

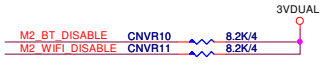
★ 橫躺式高SMD P/N:10NR5-130067-61R

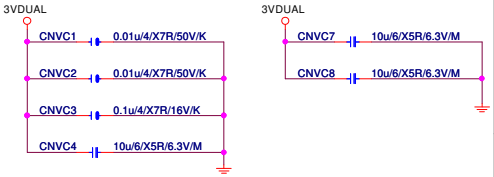
★ 橫躺式矮SMD P/N:10NR5-130067-22R



Rev:0.6

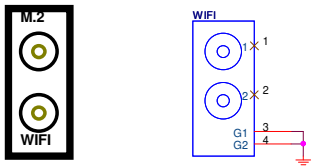
★ for PCIe mode 預留





量產不附

一套WIFI MODULE包含外框+WIFI CARD+天線



新款WIFI鐵殼

Layout Library : wifi-ekey-module-1

Tiptop P/N : 12AC2-000004-31R

WIFI_MODULE

Intel WIFI AC-9560/[20CB1-029560-00R]::Location WIFI_MODULE

ANTENNA

ANTENNA/[11NH6-010001-D1R_11NH6-010001-D2R_11NH6-010001-F1R_11NH6-010001-F2R]

ANTENNA1

ANTENNA/[11NH6-010001-D1R_11NH6-010001-D2R_11NH6-010001-F1R_11NH6-010001-F2R]

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

白色透明塑膠蓋

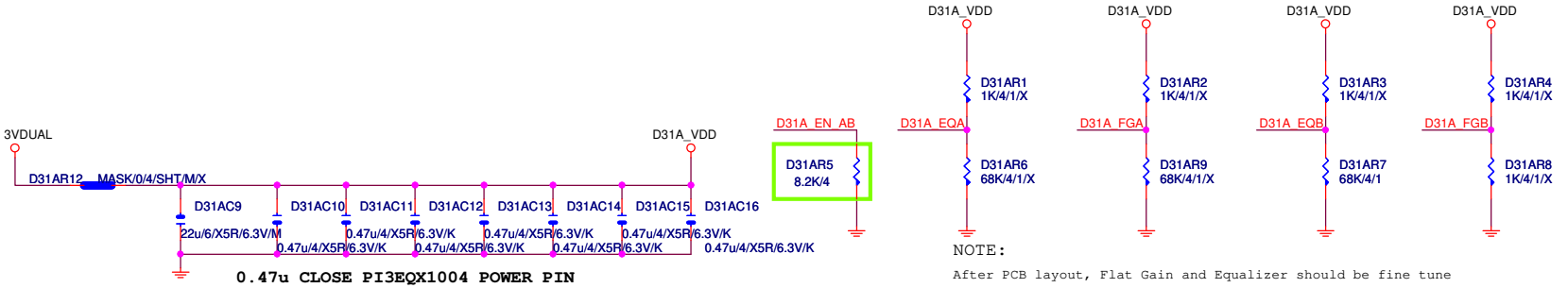
GIGABYTE™

Title	CNVi_M2_WIFI	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 45 of 69	

USB3.2 GEN2 PI3EQX1004E Rev0.1

Type-A

GROUP A



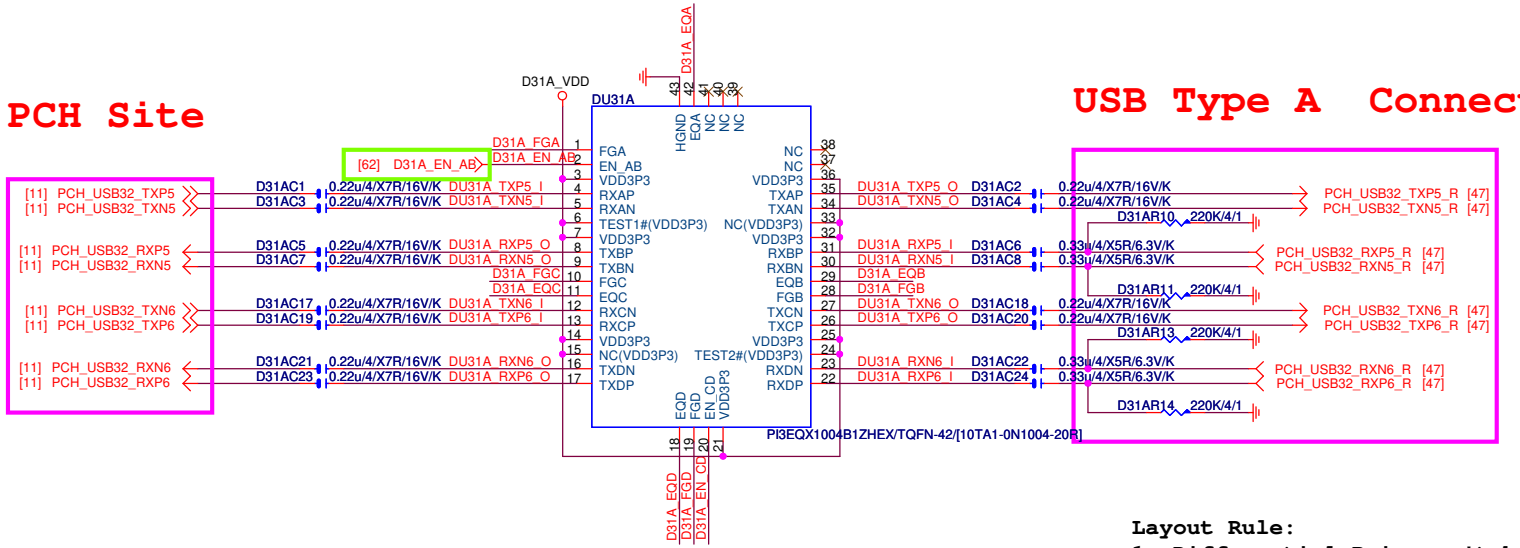
NOTE:

After PCB layout, Flat Gain and Equalizer should be fine tune

PCH Site

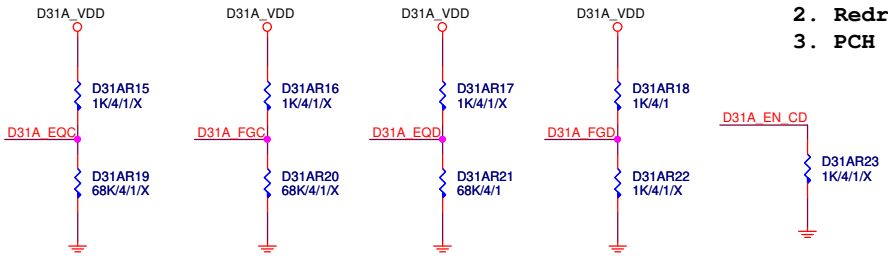
可變

USB Type A Connector Site



Layout Rule:

1. Differential Pair can't be swaped
2. Redriver to Connector Length min. 1 inch
3. PCH to Redriver Length min. 6 inch



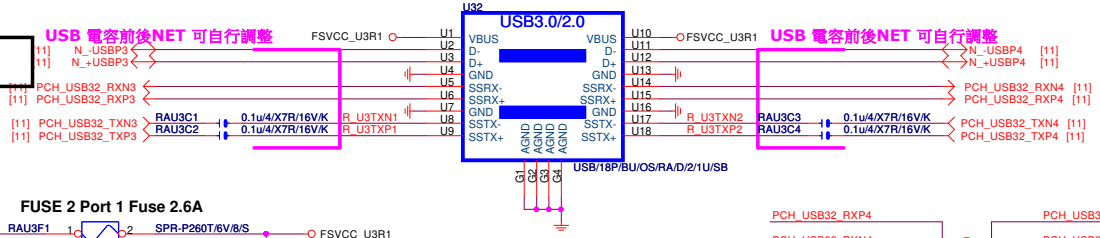
GIGABYTE™

Title	Redriver_A_TYPE-A	
Size B	Document Number Z590 UD AC	Rev 1.1
Date: Monday, December 21, 2020	Sheet 46 of 69	

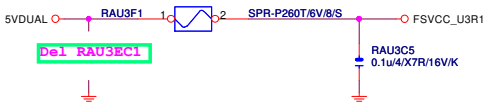
Rev: 0.94

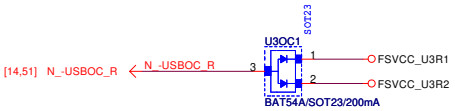
U32

USB 電容前後NET 可自行調整

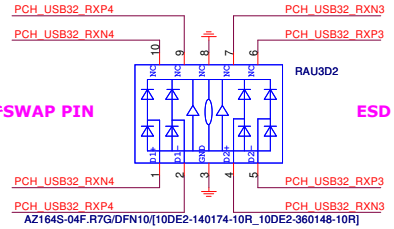


FUSE 2 Port 1 Fuse 2.6A

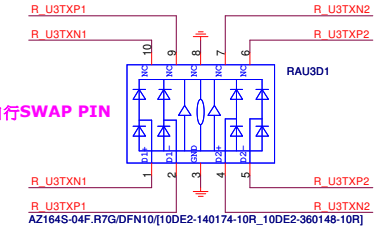




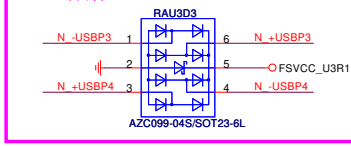
ESD 可自行SWAP PIN



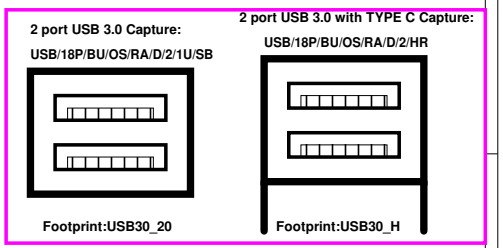
ESD 可自行SWAP PIN



ESD 可自行SWAP PIN

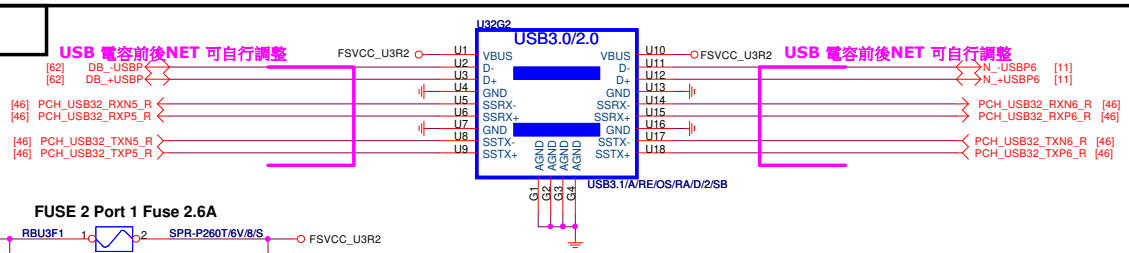


CONNECTOR 自行調整

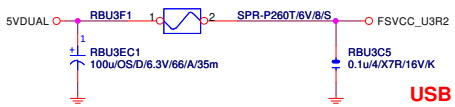


U32G2

USB 電容前後NET 可自行調整

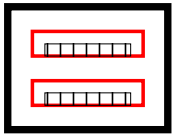


FUSE 2 Port 1 Fuse 2.6A

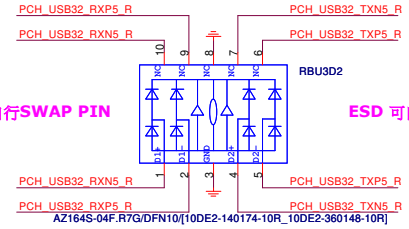


USB 3.1 Red

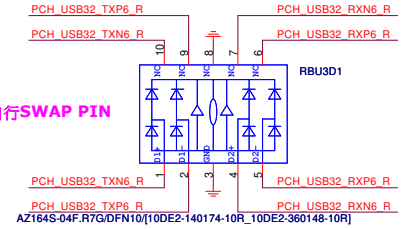
USB 3.1 Red



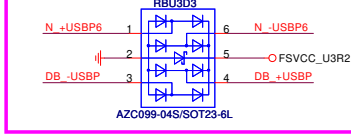
ESD 可自行SWAP PIN



ESD 可自行SWAP PIN



ESD 可自行SWAP PIN

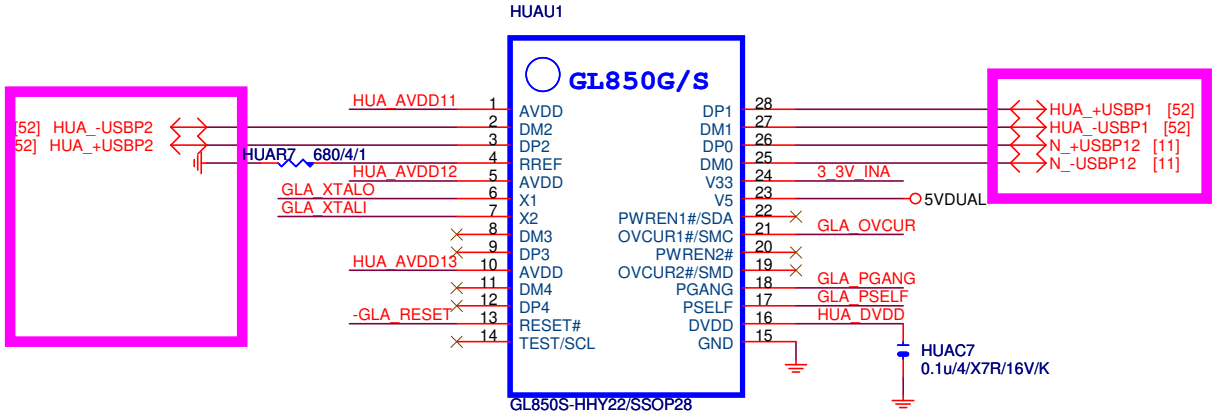


KB_MS_U32

GIGABYTE		
Title: R_USB30		
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 47 of 69	

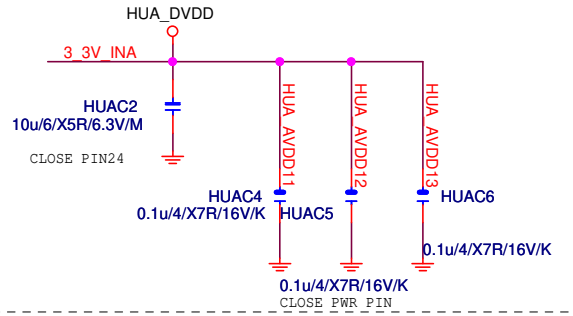
USB20 HUB_1

Single USB2 HUB used Rev 0.1

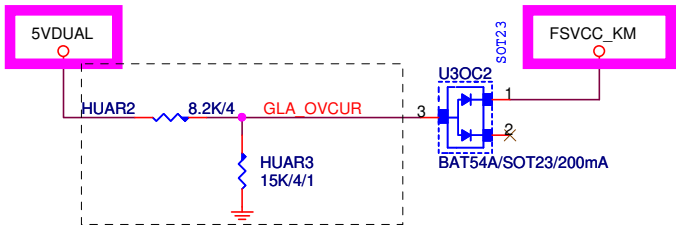


SSOP28-IT8209R

HUB PWR



HUB OVER CURRENT SENSE

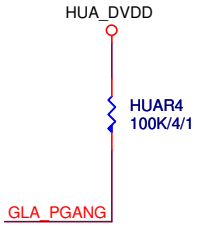


GL850S的over current pin請接到GL850S不要接到PCH,
PCH端改為pull-high 3VDUAL.

HUB MODE

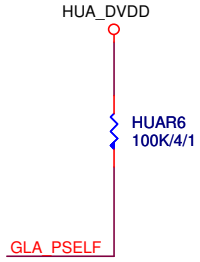
teknisi-indonesia.com

Ganged mode



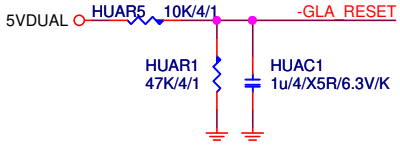
P.H. USE GL_OVCUR1
DETECT ALL PORT

PSELF



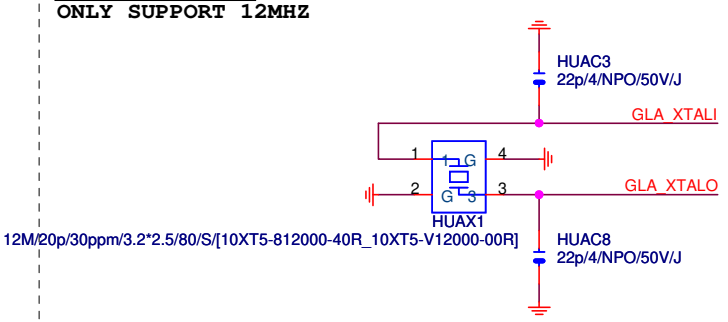
HUB self-power mode:
P.H.=EVERY PORT 500mA.
P.D.=EVERY PORT 100mA.

HUB RESET



HUB CRYSTAL

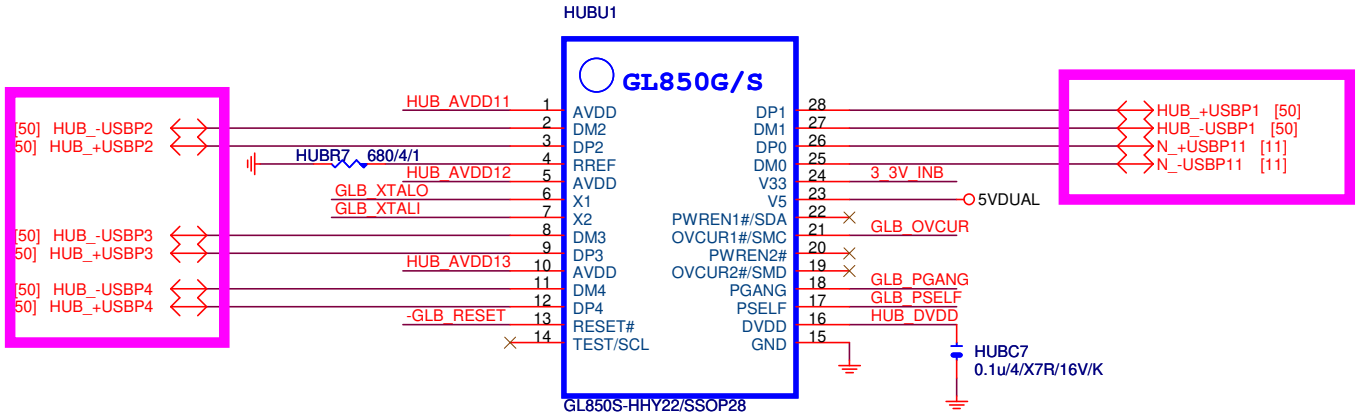
ONLY SUPPORT 12MHZ



Gigabyte Technology			
Title: HUB GL850GS_1			
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 48 of 69		

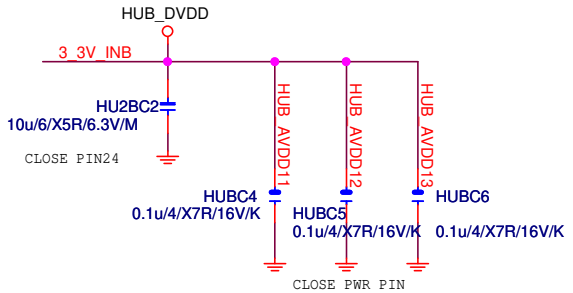
USB20 HUB_2

Dual USB2 HUB used Rev 0.1

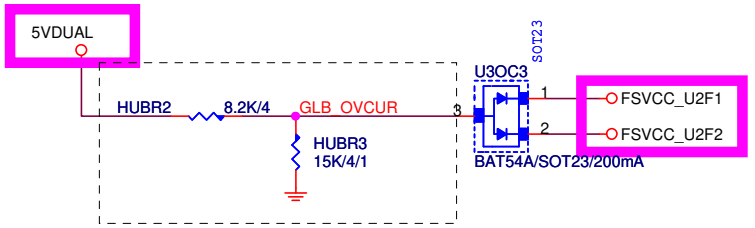


SSOP28-IT8209R

HUB PWR



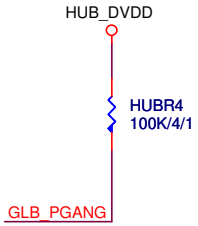
HUB OVER CURRENT SENSE



GL850S的over current pin請接到GL850S不要接到PCH, PCH端改為pull-high 3VDUAL.

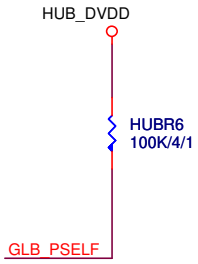
HUB MODE

Ganged mode



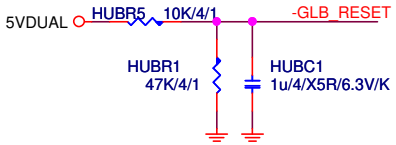
P.H. USE GL_OVCUR1
DETECT ALL PORT

PSELF



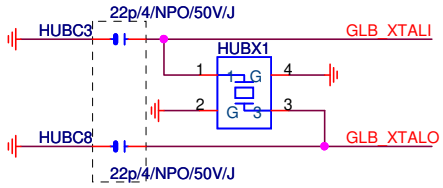
HUB self-power mode:
P.H.=EVERY PORT 500mA.
P.D.=EVERY PORT 100mA.

HUB RESET



HUB CRYSTAL

ONLY SUPPORT 12MHZ



12M/20p/30ppm/3.2*2.5/80/S/[10XT5-812000-40R_10XT5-V12000-00R]

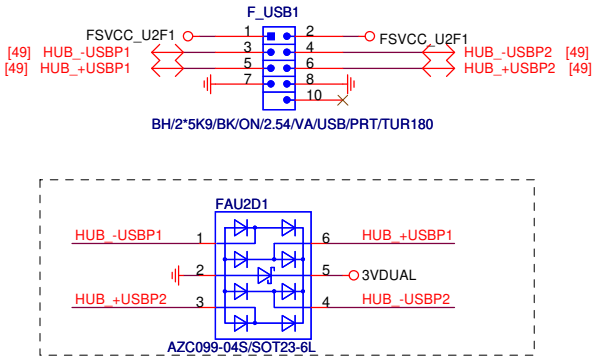
Gigabyte Technology

Title	HUB GL850GS_2		
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 49 of 69		

Rev: 0.94

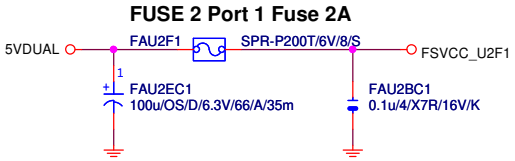
FRONT USB1

NET 可變



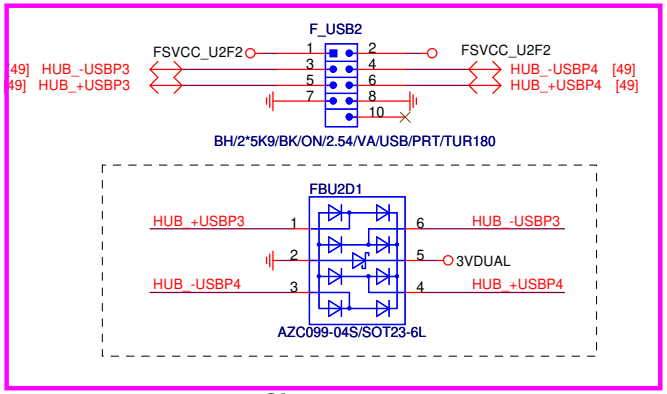
Close to connector

FUSE 2 Port 1 Fuse 2A



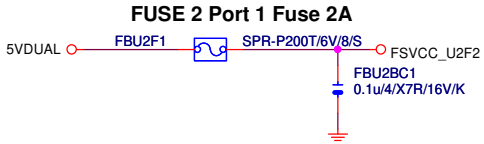
FRONT USB2

NET 可變



Close to connector

FUSE 2 Port 1 Fuse 2A



Gigabyte Technology

Title: USB2.0

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 50 of 69

Rev: 0.94

Front USB3.0

右 Port

左 Port

F_U32
REV=1

FSVCC_U3F1 — 1 VBUS — 19 VBUS — FSVCC_U3F1

NET 可自行調整

[12] PCH_USB32_RXN9 — 2 SSRX1- — 15 SSTX2- — FU30_TXN8 — FBU3C3 0.1u/4/X7R/16V/K — 0.1u/4/X7R/16V/K FBU3C4 — FU30_TXP8 — 14 SSTX2+ — PCH_USB32_TXP10 [12]
[12] PCH_USB32_RXP9 — 3 SSRX1+ — PCH_USB32_TXN10 [12]

[12] PCH_USB32_TXN9 — FBU3C1 0.1u/4/X7R/16V/K — FU30_TXN7 — 5 SSTX1- — 18 SSRX2- — PCH_USB32_RXN10 [12]
[12] PCH_USB32_TXP9 — FBU3C2 0.1u/4/X7R/16V/K — FU30_TXP7 — 6 SSTX1+ — 17 SSRX2+ — PCH_USB32_RXP10 [12]

[11] N_-USBP9 — 8 D1- — 12 D2- — N_-USBP10 [11]
[11] N_+USBP9 — 9 D1+ — 11 D2+ — N_+USBP10 [11]

7 GND — 16 GND
4 GND — 13 GND

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

黑色

NET 可自行調整

PCH_USB32_RXP9 — PCH_USB32_RXN10
PCH_USB32_RXN9 — PCH_USB32_RXP10

FBU3D1
AZ174S-04F/DFN10/[10DE2-140174-10R_10DE2-360148-10R]

FBU3D3
N_-USBP9 — N_+USBP9
3VDUAL
N_+USBP10 — N_-USBP10
AZC099-04S/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

CLOSE F_USB30

FUSE 2 Port 1 Fuse 2.6A

5VDUAL — RBU3F2 — SPR-P260T/6V/8/S — FSVCC_U3F1
RBU3EC2 100u/OS/D/6.3V/66/A/35m
RBU3C6 0.1u/4/X7R/16V/K

F_USB POWER PROTECT

FU30_TXP7 — FU30_TXN8
FU30_TXN7 — FU30_TXP8

FBU3D2
AZ174S-04F/DFN10/[10DE2-140174-10R_10DE2-360148-10R]

CLOSE F_USB30

-USBOC_F

POWER 可自行調整

5VDUAL — UAR1 8.2K/4 — N_-USBOC_F — N_-USBOC_F [14,53]
UAR2 15K/4/1

U3OC4 SOT23
[14,53] N_-USBOC_F — N_-USBOC_F — FSVCC_U3F1 F_32
BAT54A/SOT23/200mA

NET 可自行調整

-USBOC_R

POWER 可自行調整

5VDUAL — UBR1 8.2K/4 — N_-USBOC_R — N_-USBOC_R [14,47]
UBR2 15K/4/1

U3OC5 SOT23
[14,47] N_-USBOC_R — N_-USBOC_R — FSVCC_U3R3 U32_LAN
BAT54A/SOT23/200mA

NET 可自行調整

* 接 PCH
N_GPP_G6(SMI) &
PCH PU 3Vdual

[13] N_GPPC_G7

UAD5 SOT23
N_-USBOC_F — N_-USBOC_F [14,53]
N_-USBOC_R — N_-USBOC_R [14,47]
BAT54A/SOT23/200mA

Gigabyte Technology

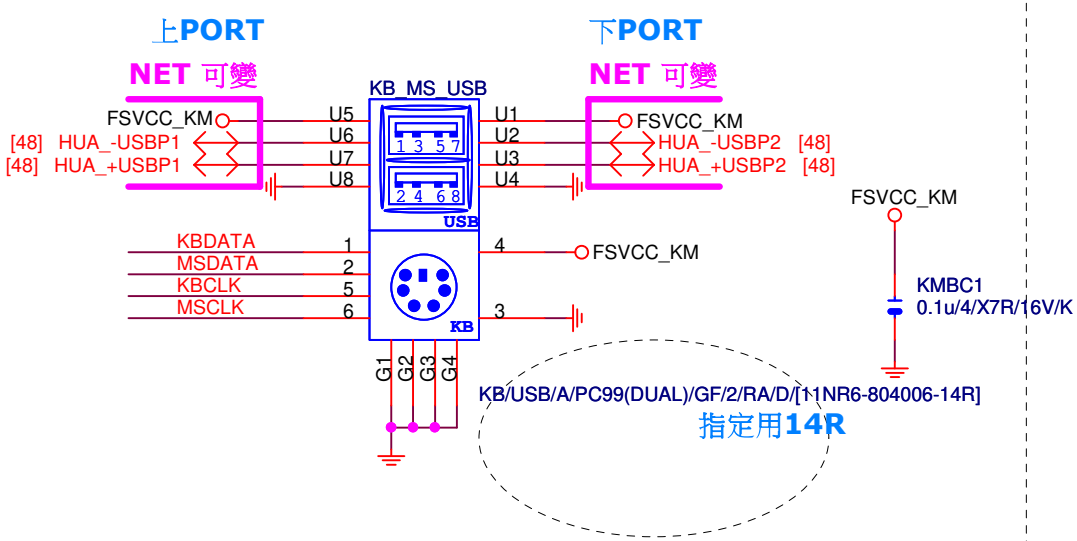
Title: F_U32

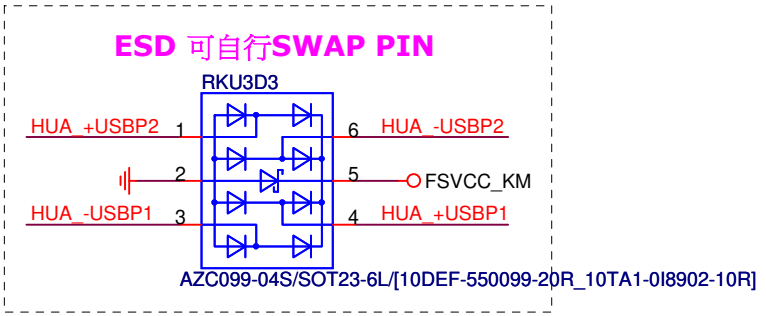
Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

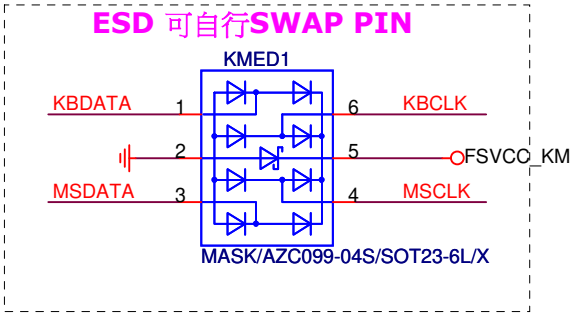
Date: Monday, December 21, 2020 | Sheet 51 of 69

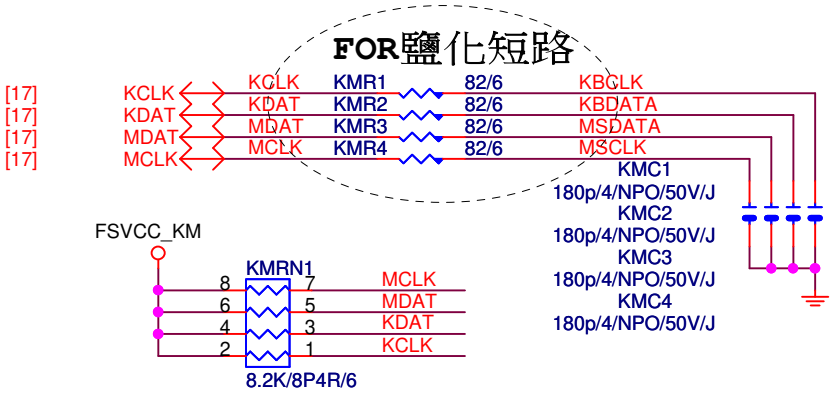
KB_MS_USB

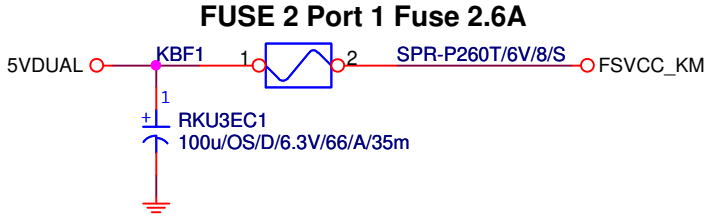
Rev: 0.94





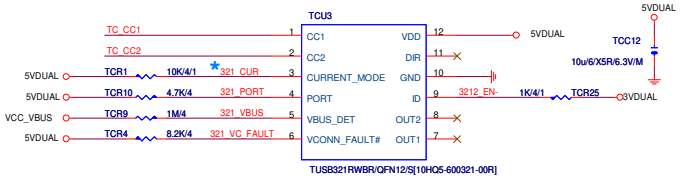






USB OC PROTECT

Gigabyte Technology		
Title: KB_MS_USB		
Size: A	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 52 of 69	

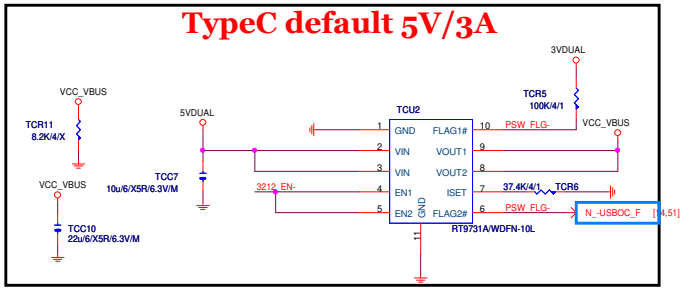


CURRENT MODE
L – Default current / Pull down to GND or NC
M – Medium (1.5A) current / Pull up to VDD 500K
H – High (3.0A) current / Pull up to VDD 10K

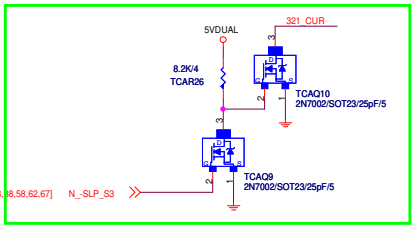
PORT
H – HOST
L – Device
NC – Dual Role

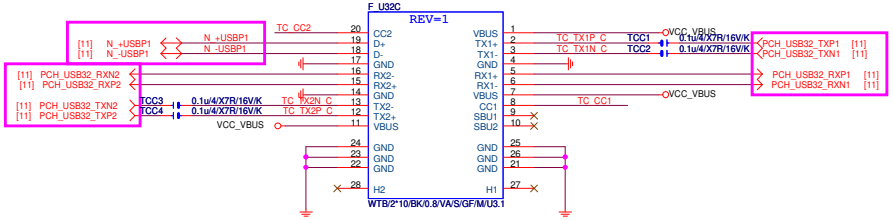
USB POWER

note:可變更PUSB



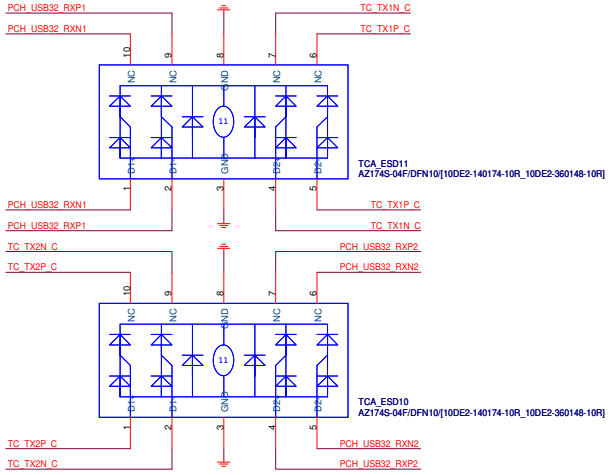
For VBUS current limit at 900mA on S3



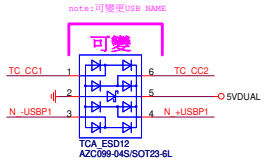


USB2.0 can be used the same source

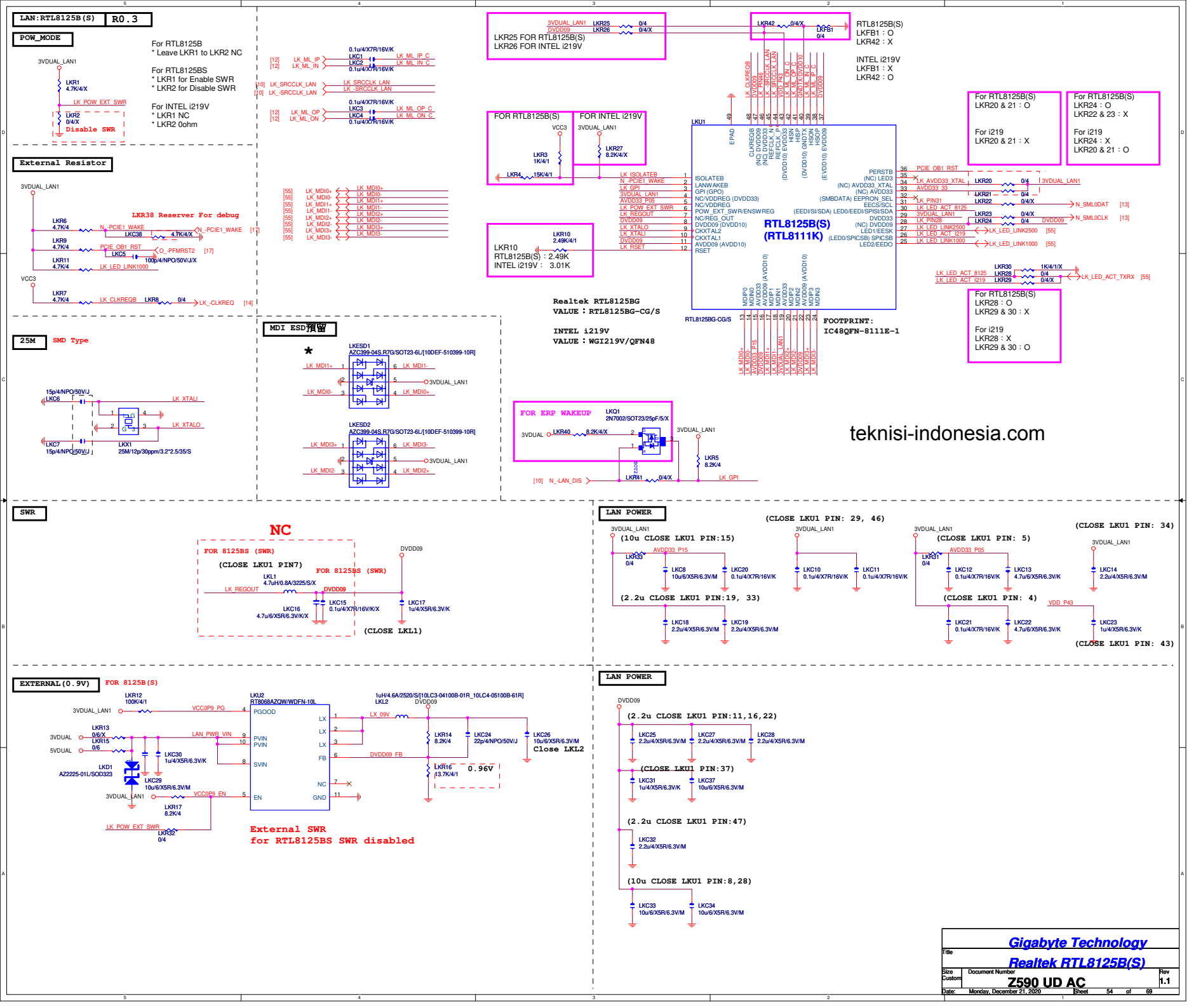
Color markers can be changed by model



note:可變更USB NAME



Gigabyte Technology		
Title: R_USB30,USB_OC		
Size: C	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 53 of 69	


LAN:RTL8125B(S)
R0.3
POW_MODE
For RTL8125B
* Leave LKR1 to LKR2 NC
For RTL8125BS
* LKR1 for Enable SWR
* LKR2 for Disable SWR
For INTEL i219V
* LKR1 NC
* LKR2 0ohm
Disable SWR
External Resistor
LKR38 Reserver For debug
25M
SMD Type
MDI ESD預留
LKR25 FOR RTL8125B(S)
LKR26 FOR INTEL i219V
RTL8125B(S)
LKFB1 : O
LKR42 : X
INTEL i219V
LKFB1 : X
LKR42 : O
FOR RTL8125B(S)
FOR INTEL i219V
LKR10
RTL8125B(S) : 2.49K
INTEL i219V : 3.01K
RTL8125B(S)
(RTL8111K)
RTL8125BG-CG/S
Realtek RTL8125BG
VALUE : RTL8125BG-CG/S
INTEL i219V
VALUE : WGI219V/QFN48
FOOTPRINT:
IC48QFN-8111E-1
For RTL8125B(S)
LKR20 & 21 : O
For i219
LKR20 & 21 : X
For RTL8125B(S)
LKR24 : O
LKR22 & 23 : X
For i219
LKR24 : X
LKR20 & 21 : O
For RTL8125B(S)
LKR28 : O
LKR29 & 30 : X
For i219
LKR28 : X
LKR29 & 30 : O
FOR ERP WAKEUP
teknisi-indonesia.com
SWR
NC
FOR 8125BS (SWR)
(CLOSE LKU1 PIN7)
(CLOSE LKL1)
LAN POWER
(10u CLOSE LKU1 PIN:15)
(2.2u CLOSE LKU1 PIN:19, 33)
(CLOSE LKU1 PIN: 29, 46)
(CLOSE LKU1 PIN: 5)
(CLOSE LKU1 PIN: 4)
(CLOSE LKU1 PIN: 34)
(CLOSE LKU1 PIN: 43)
EXTERNAL(0.9V)
FOR 8125B(S)
External SWR
for RTL8125BS SWR disabled
LAN POWER
(2.2u CLOSE LKU1 PIN:11,16,22)
(CLOSE LKU1 PIN:37)
(2.2u CLOSE LKU1 PIN:47)
(10u CLOSE LKU1 PIN:8,28)
Gigabyte Technology
Realtek RTL8125B(S)
Z590 UD AC
Monday, December 21, 2020
54 of 69

USB_LAN CONNECTOR R0.3

RMA ESD PROTECT

note:可變更USB NAME

可變

N_+USBP7 1 — 6 N_-USBP7
2 — 5 FSVCC_U3R3
N_-USBP8 3 — 4 N_+USBP8

LAUESD1
AZC099-04S/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB_LAN CONNECTOR

note:可變更USB NAME

LA_MDI-->100歐姆:[20/4/8/4/20]

[i219V]

下 Port

上 Port

U32_LAN
USB3+LAN/2.5G/BU/GO.Y/OS/RA/D/1/15KV

For RTL8125B(S)
LKC35：X

For i219
LKC35：O

LKC35 0.1u/4/X7R/16V/K

LK_CN_L1

[54] LK_MDI0+ / LK_MDI0-
[54] LK_MDI1+ / LK_MDI1-
[54] LK_MDI2+ / LK_MDI2-
[54] LK_MDI3+ / LK_MDI3-

LKC39 0/4 LK_CN_L10

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10

USB3.0

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

D1 D2 D3 D4 DT DT

P1 P2

U1 U2 U3 U4 U5 U6 U7 U8 U9 U10 U11 U12 U13 U14 U15 U16 U17 U18

G1 G2 G3 G4 G5 G6 G7 G8

R2.0

3VDUAL_LAN1

LKFB2
MASK/0/4/SHT/M/X

LK_LED_ACT_TXRX [54]

LK_LED_D2 LKR18 330/4 LAN_3VDUAL_LED

LK_LED_D3 LKR19 330/4 LK_LED_LINK1000 [54]

LK_LED_LINK2500 [54]

LKC36
0.1u/4/X7R/16V/K/X

LABC7 0.1u/4/X7R/16V/K

FSVCC_U3R3

[11] N_-USBP7 / [11] N_+USBP7

[12] PCH_USB32_RXN7 / [12] PCH_USB32_RXP7

[12] PCH_USB32_TXN7 LAUAC1 PCH_USB32_TXN7C
[12] PCH_USB32_TXP7 LAUAC2 PCH_USB32_TXP7C

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

可變 可變

N_-USBP8 [11] / N_+USBP8 [11]

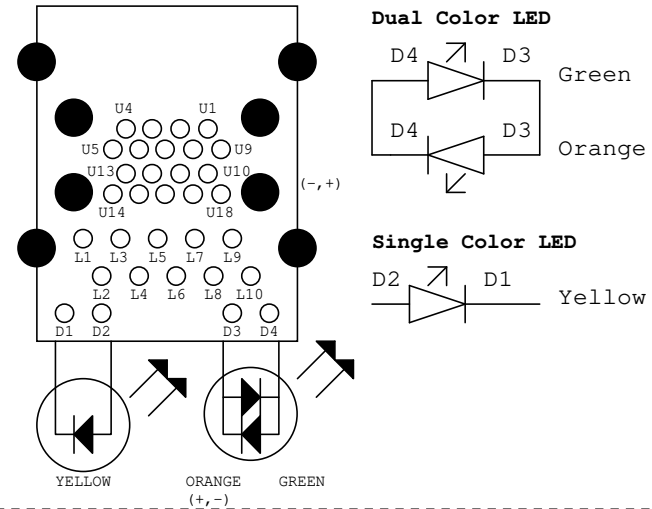
PCH_USB32_RXN8 [12] / PCH_USB32_RXP8 [12]

PCH_USB32_TXN8C LAUAC3 PCH_USB32_TXN8 [12]
PCH_USB32_TXP8C LAUAC4 PCH_USB32_TXP8 [12]

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

可變 可變

USB30_LAN LAYOUT示意圖



Dual Color LED

D4 D3 Green
D4 D3 Orange

Single Color LED

D2 D1 Yellow

RMA ESD PROTECT

note:可變更USB NAME

PCH_USB32_TXP8C
PCH_USB32_TXN8C
PCH_USB32_TXN8C
PCH_USB32_TXP8C

PCH_USB32_TXN7C
PCH_USB32_TXP7C
PCH_USB32_TXP7C
PCH_USB32_TXN7C

LAU3ESD1
AZ174S-04F/DFN10/[10DE2-140174-10R_10DE2-360148-10R]

可變

PCH_USB32_RXP7
PCH_USB32_RXN7
PCH_USB32_RXN7
PCH_USB32_RXP7

PCH_USB32_RXN8
PCH_USB32_RXP8
PCH_USB32_RXP8
PCH_USB32_RXN8

LAU3ESD2
AZ174S-04F/DFN10/[10DE2-140174-10R_10DE2-360148-10R]

USB POWER

note:可變更FUSE

可變

5VDUAL — 1 LAU3F1 2 — FSVCC_U3R3

SPR-P260T/6V/8/S

REC2 1 REC2
100u/OS/D/6.3V/66/A/35m

FUSE-0805

Close to connector

EMI SHORT PAD

PS:視EMI需求

LAN POWER

note: lan power連接及電流

可變

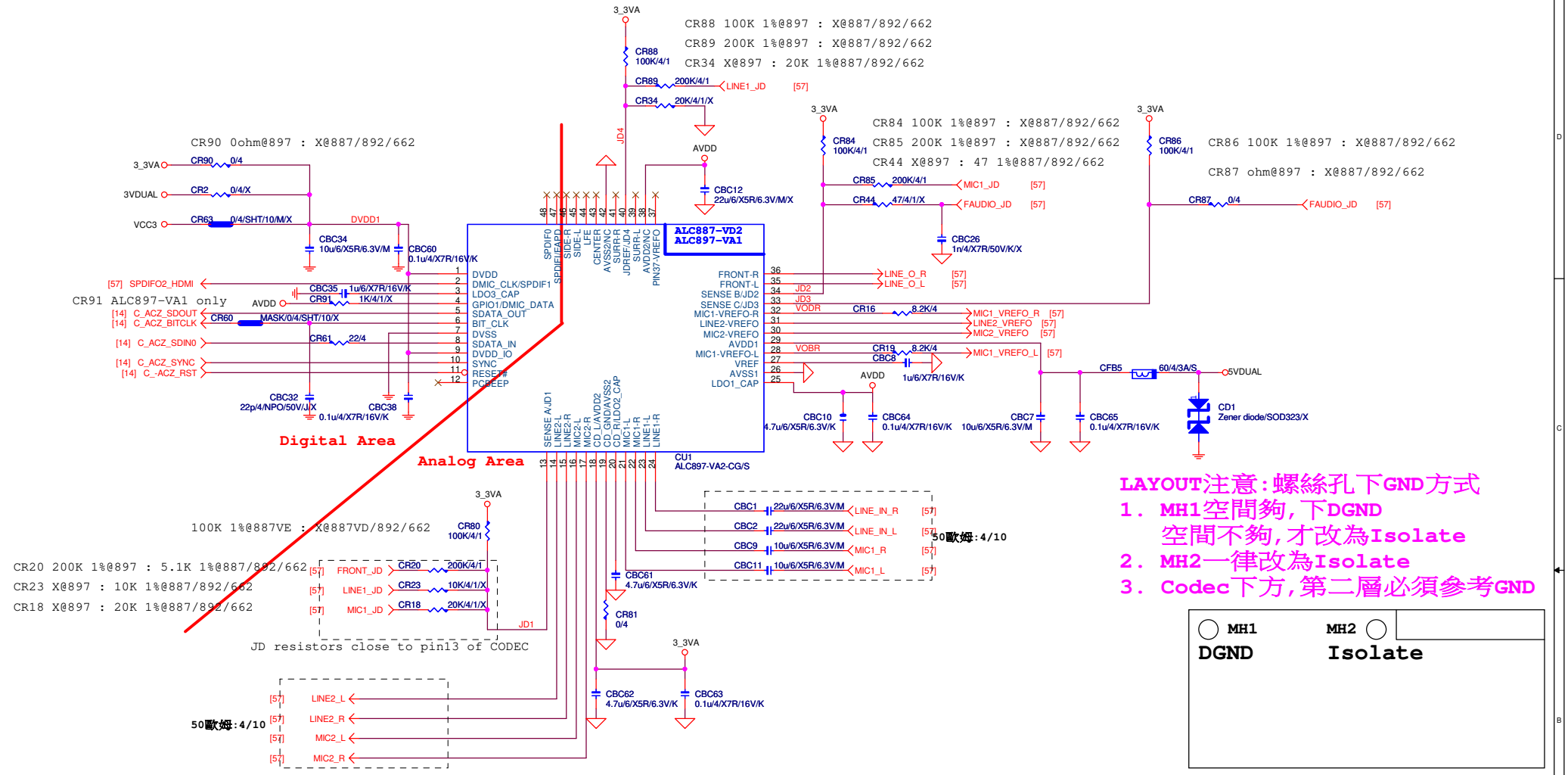
3VDUAL_LAN1 — LAPW1 0/4 — 3VDUAL_PCH *
LAPW2 0/4/X — 3VDUAL *

Gigabyte Technology

Title: LAN CONNECTOR-RTL8125B(S)

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 55 of 69



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

		897	887/892/662
Pin03	LDO3	1uF	10uF
Pin09	DVDD-IO	0.1uF	1uF
Pin18	AVDD2	4.7uF/0.1uF	NC
CR81	AVDD2	0ohm	NC
Pin20	LDO2	4.7uF	NC
Pin25	LDO1	4.7uF	22uF
CR83	LDO1	NC	0ohm
Pin27	VREF	1uF	10uF
Pin38	AVDD2	NC	22uF

LAYOUT注意:要加

GND切割線

音效區域印刷

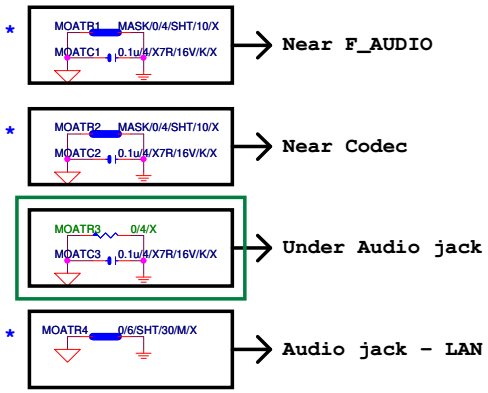
Pin20 LDO2

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)

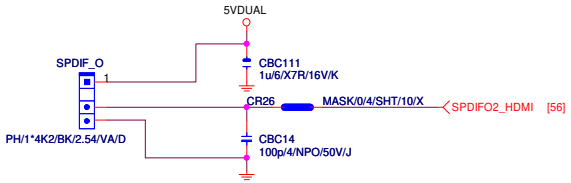
GIGABYTE

Title	HD AUDIO ALC887VE/887VD		
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020	Sheet 56 of 69		

Rev 6.0

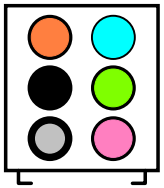


*量產前,MOATR1/MOATR2/MOATR4 ....0ohm改short pad

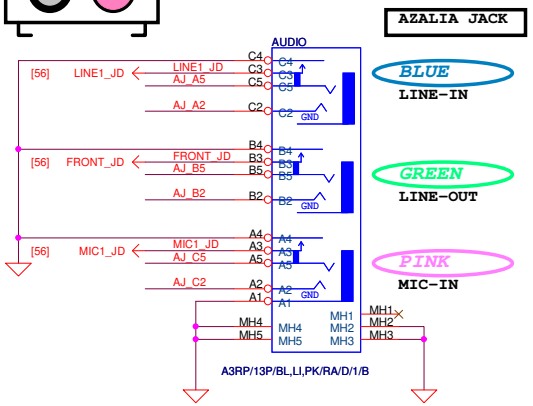


For HDMI SPDIF （依SPEC保留或移除）

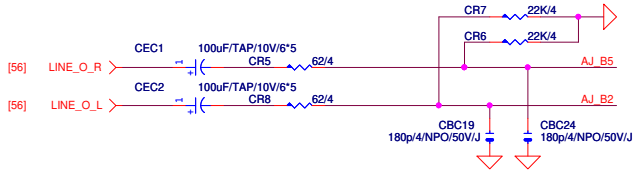
AZALIA JACK



www.teknisi-indonesia.com

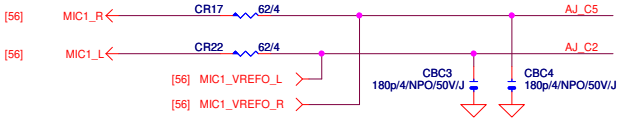


LINE-OUT



LINE-IN

MIC-IN

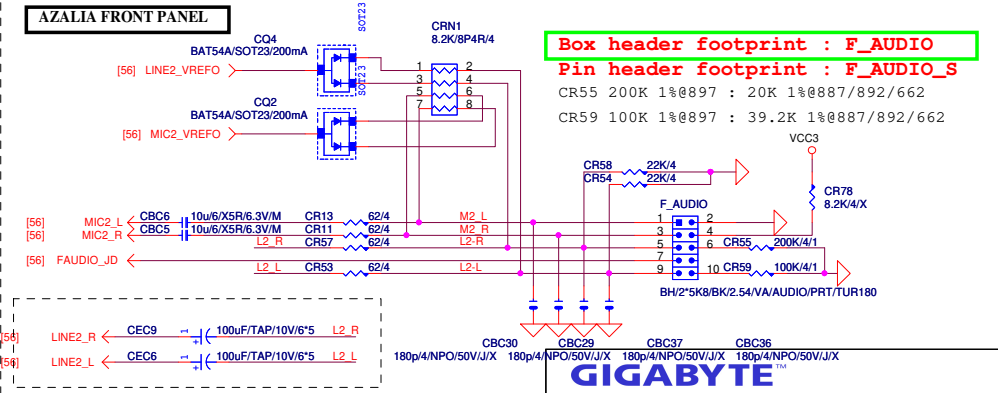


SURROUND

CEN/LFE

SURR BACK

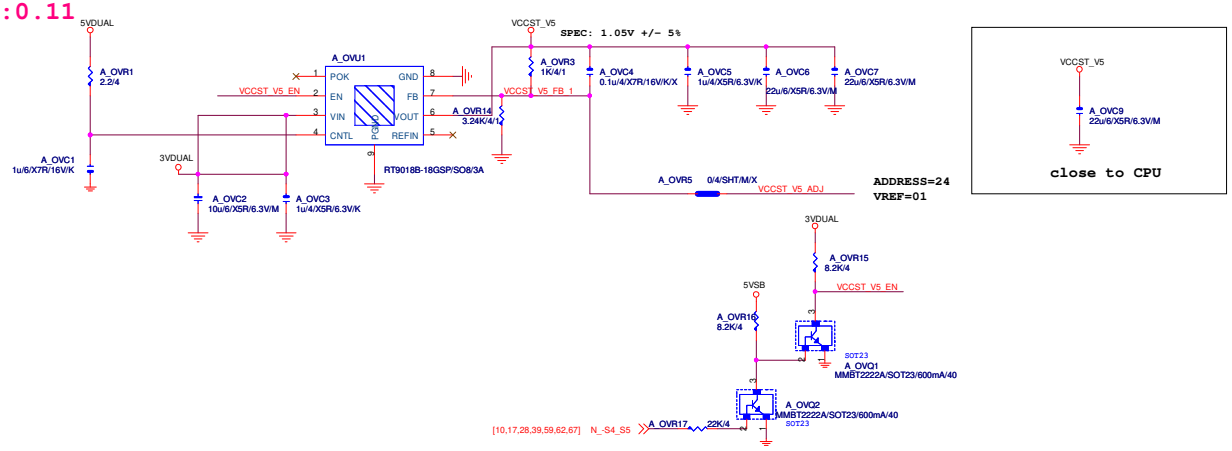
AZALIA FRONT PANEL

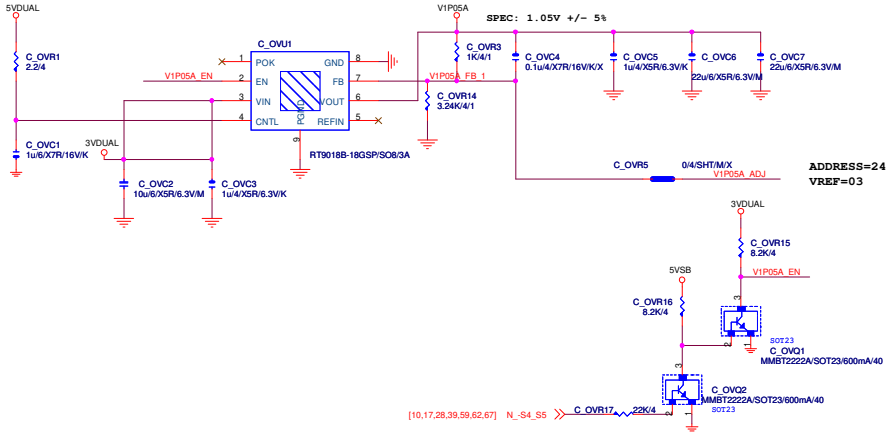


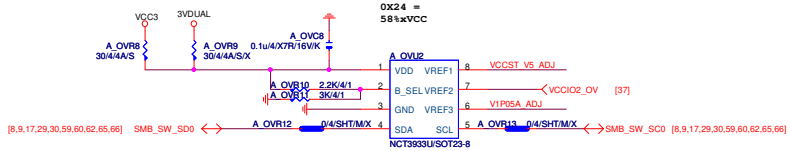
GIGABYTE™

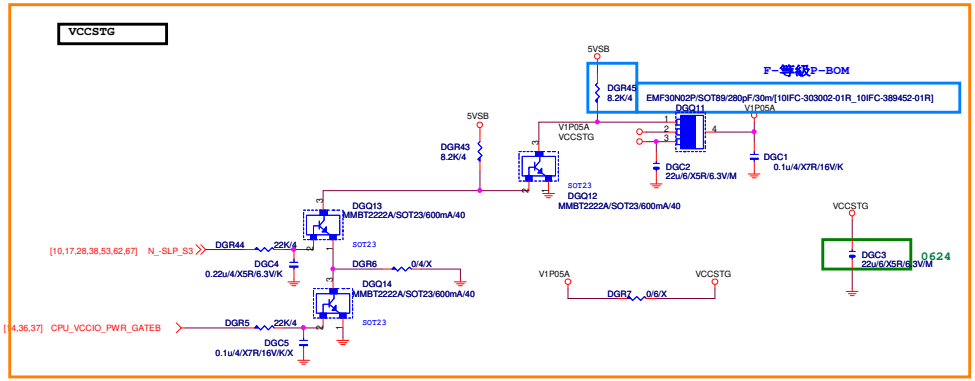
Title	AUDIO JACK	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 57 of 69	

REV:0.11







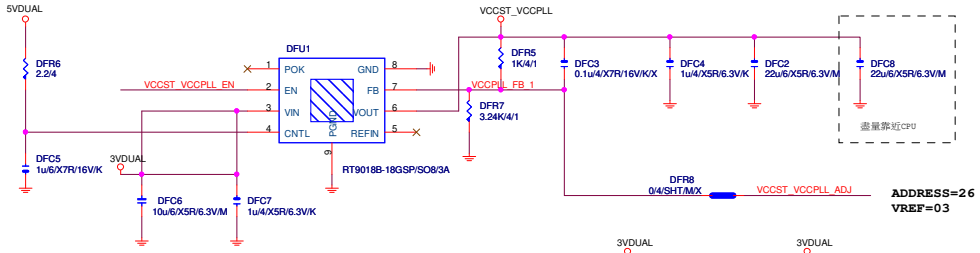


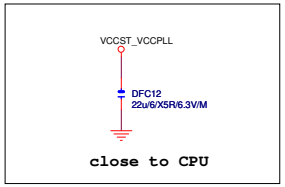
GIGABYTE™

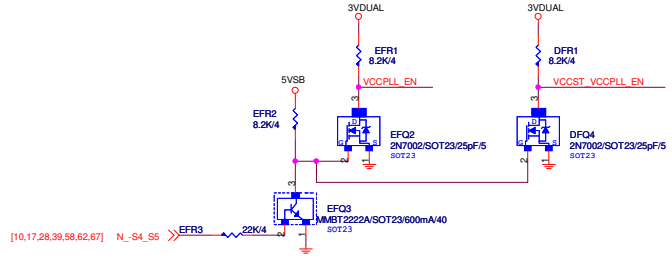
Title	CPU POWER-1	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 58 of 69	

REV:0.11

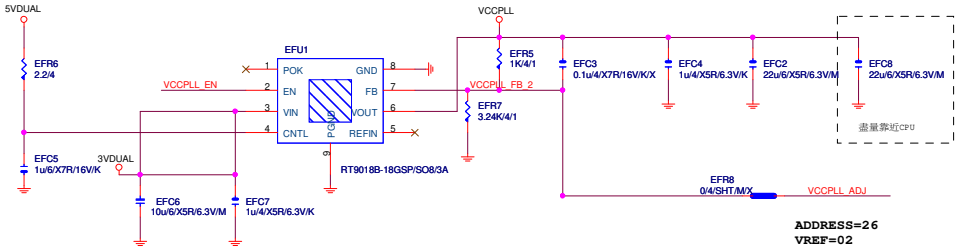
VCCST_VCCPLL 替換原先MOS開關線路

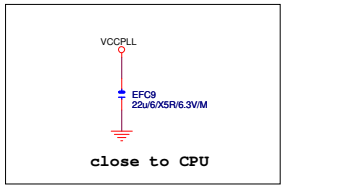


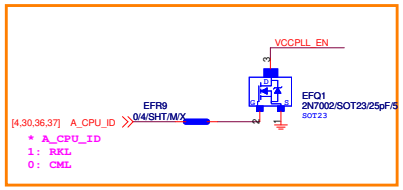




VCCPLL

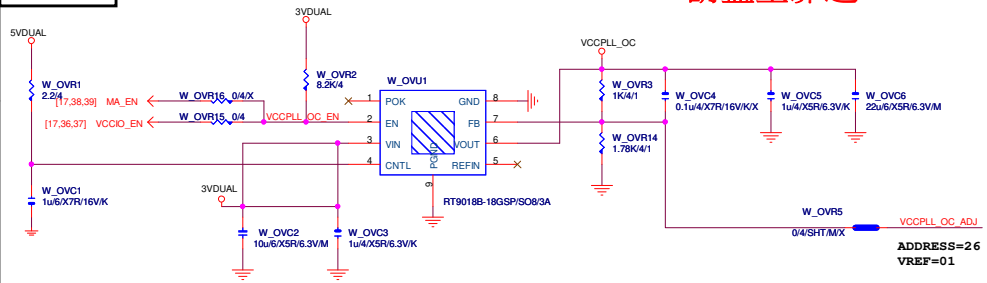


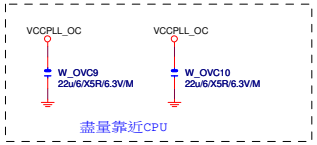


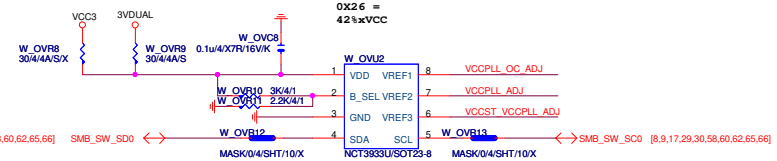


VCCPLL_OC

請盡量靠近CPU



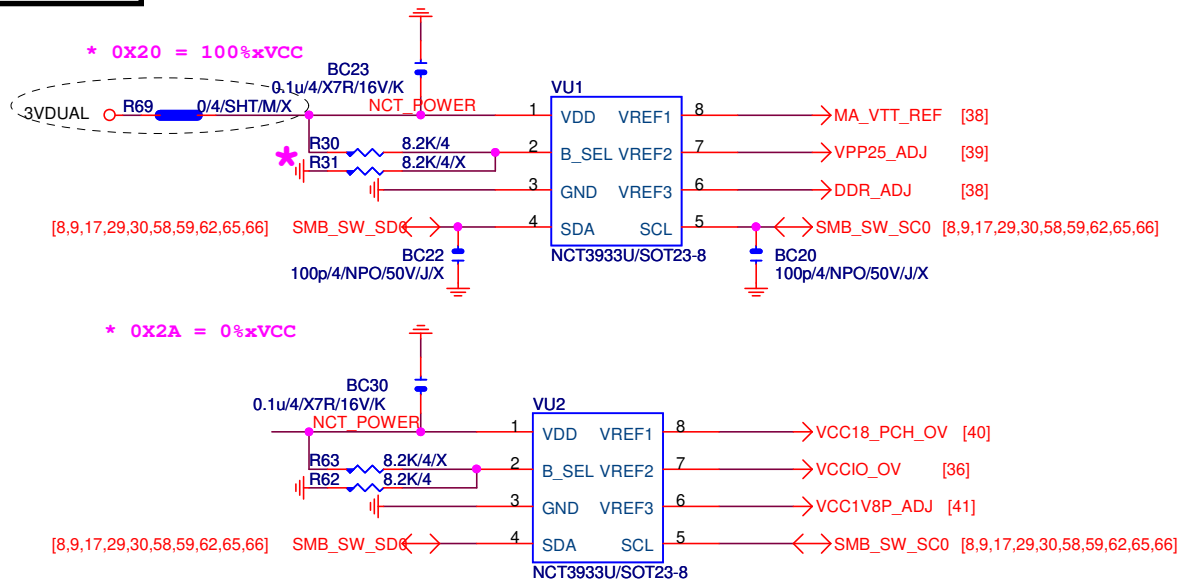




GIGABYTE™

Title	CPU POWER-2	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 59 of 69	

OVER VOLTAGE **REV:0.11**



NCT3933	0X2A	0X20
VREF1	VCC18_PCH	DDRVTT
VREF2	VCCIO	VPP25V
VREF3	VCC1V8_PRIM	VDDQ

Gigabyte Technology

Title: **CPU CORE VR-2**

Size: Custom | Document Number: **Z590 UD AC** | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 60 of 69

Rev: 0.94

FRONT PANEL

★Update 2016.06.15

VCC, VCC3, VCC

FPR22 8.2K/4/X

FPR6 150/6

FPR1 330/6/X

FPBC1 0.01u/4/X7R/50V/K/X

HD+

-HDLED

-CASEOPEN

MPD+

MPD-

-RST

[11,17,66] N_-SYS_RST

FPR5 100/4/1

FPBC2 0.01u/4/X7R/50V/K

F_PANEL

1	HD+	MSG/PD+	2
3	HD-	MSG/PD-	4
5	GND	PW+	6
7	RESET	PW-	8
9	CI-		
11	CI+		
		SP+	14
15	PWR+	NC	16
17	PWR-	NC	18
19	PWR-	SP-	20

VCC

SPK-

BH/2*10K10,12,13/BK/2.54/VA/PA/FAT

Update 2015.01.08
Footprint=F_PANEL-100

3VDUAL_PCH

FPR3 8.2K/4

[17]

FPR9 33/4

-PWRBT_1

-PWRBTSW [17,62]

FPC1 0.01u/4/X7R/50V/K/X

FPBC3 0.01u/4/X7R/50V/K

5VDUAL

3VDUAL_PCH

FPR2 330/6/X

FPR4 150/6

★Update 2018.05.23

CASE OPEN

[11,13,15] N_RTCVDD

FPR8 1M/4

-CASEOPEN [17]

FPBC4 0.01u/4/X7R/50V/K

FPESD1

-HDLED, -PWRBT_1, 3VDUAL_PCH, MPD-, -RST

AZC099-04S/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

★Update 2015-02-11

SATA/M.2 LED

FPD2

[14] N_-SATALED

[26] -M2M_LED

-HDLED

BAT54A/SOT23/200mA

Fix some M.2 cause HD_LED always on.
★Update 2016.06.15

FPD3

[25] -M2A_LED

[27] -M2P_LED

-HDLED

BAT54A/SOT23/200mA

SPKR W/O EC

VCC

FPD1 1N4148W/SOD123/300mA

FPQ6

SPK-

FPR13 75/4/1

FPR14 75/4/1

FPR15 8.2K/4

FPR16 1K/4/1/X

VCC3

N_SPKR [13]

MMBT2222A/SOT23/600mA/40

FPQ5

MMBT2222A/SOT23/600mA/40

FPR17 1K/4/1

FPR18 8.2K/4

FPQ7

2N7002/SOT23/25pF/5

[17] BEEP-

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

FRONT PANEL SHORT

* FOR 客戶Button

OCD1 BAT54A/SOT23/200mA

OC_1

OC_PIN

OCR4 0/6

5VDUAL

PH/2*2K4/BK/2.54/VA/D

Footprint : PIN2X2-CUT4

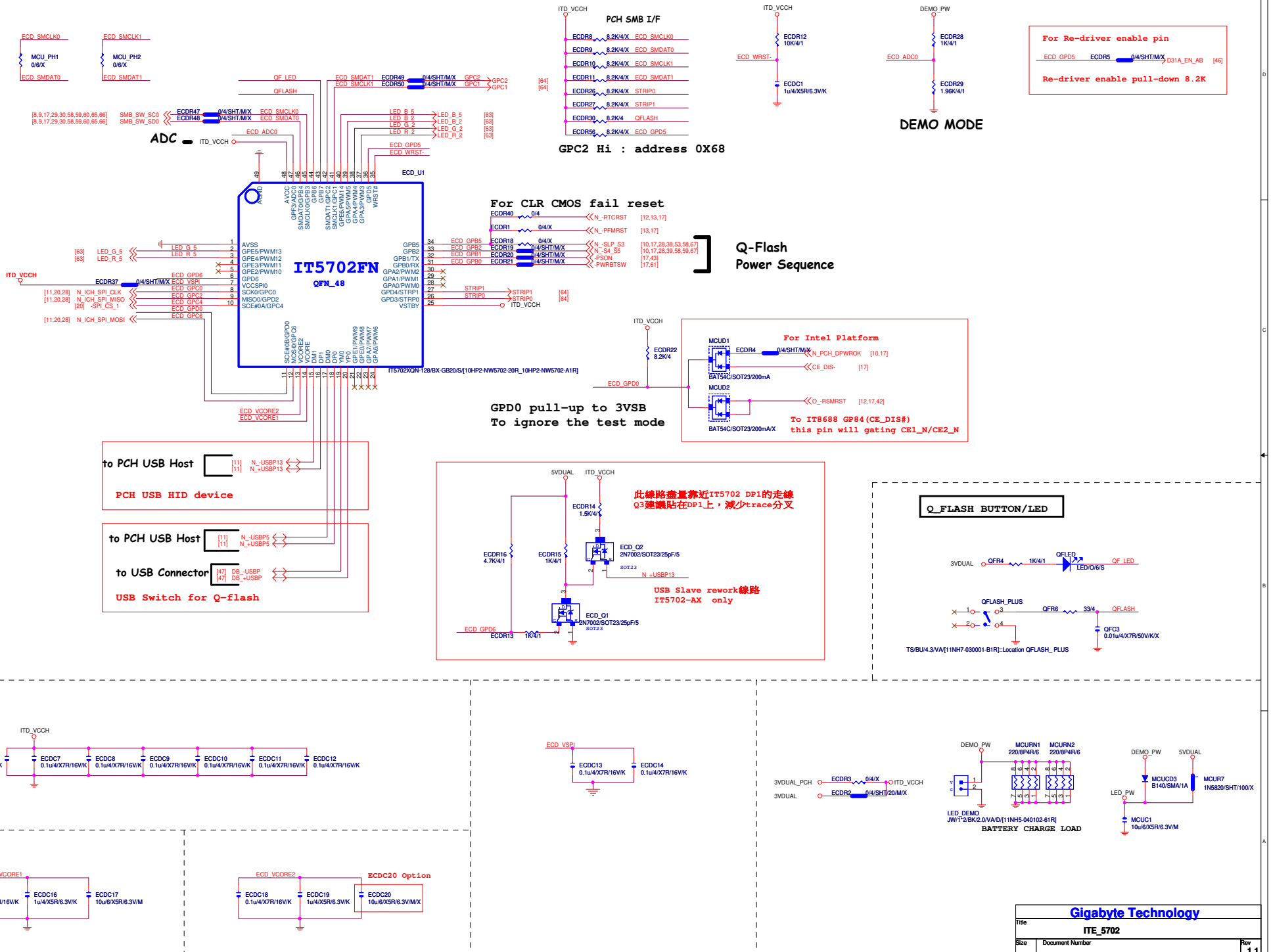
OCR2 33/4

N_GPP_D3 [13]

TBOBC1 0.01u/4/X7R/50V/K

Gigabyte Technology			
Title: FRONT PANEL			
Size: Custom	Document Number: Z590 UD AC		Rev: 1.1
Date: Monday, December 21, 2020		Sheet 61 of 69	

ECD_U1 請放在PCH到BIOS路徑上.避免線過長

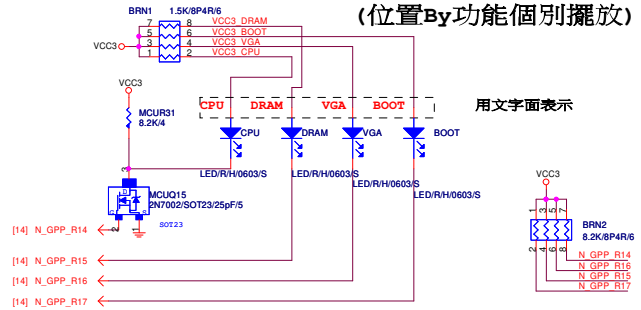


Gigabyte Technology	
Title	ITE_5702
Size	Document Number / Rev 1.1
Date: Monday, December 21, 2020	Sheet 62 of 69

Rev 1.0

第一區 LED

DEBUG PORT LED *4
(位置By功能個別擺放)

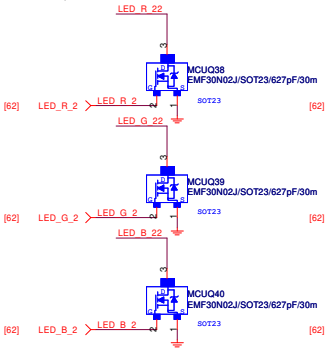


N_GPP_R14	CPU DEBUG
N_GPP_R15	DDR DEBUG
N_GPP_R16	VGA DEBUG
N_GPP_R17	BOOT DEVICE DEBUG

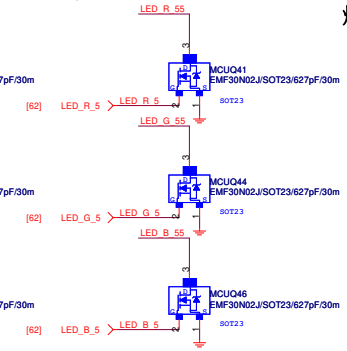
第三區 LED

第五區 LED

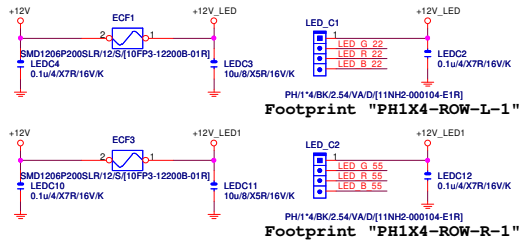
第二區 LED CONTROL



第五區 LED CONTROL



燈條 LED (LED_C1放在PCB左邊板邊位置)
燈條 LED (LED_C2放在PCB右邊板邊位置)



第四區 LED

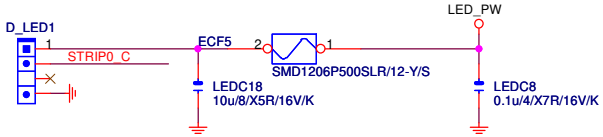
GIGABYTE™

Title	PCH/AUDIO/DEBUG/C_LED1/2	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 63 of 69	

Rev 1.0

第六區 LED (靠近左上板邊位置)

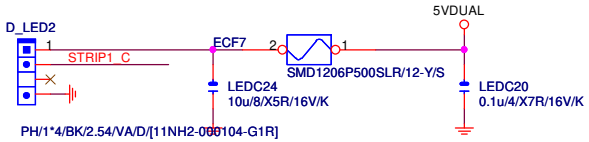
Digital LED Strip1



Footprint PH1X4-CUT3-LED-L

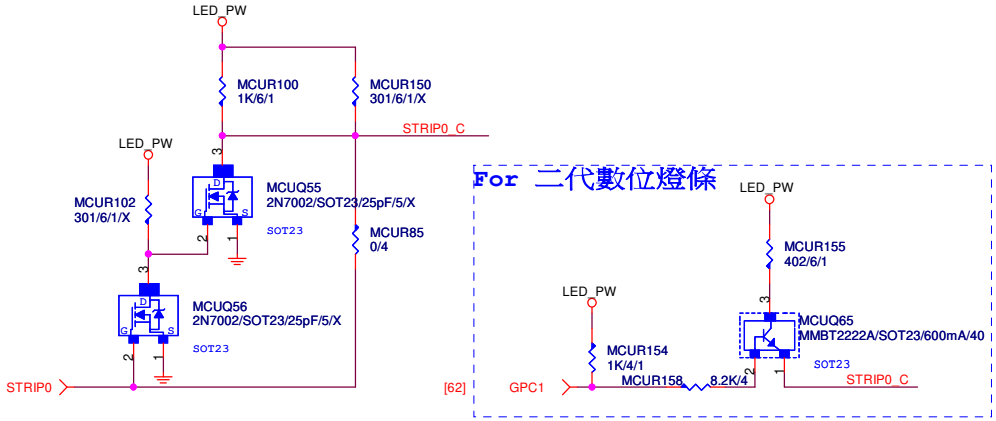
第七區(靠近右下CPU板邊位置)

Digital LED Strip2

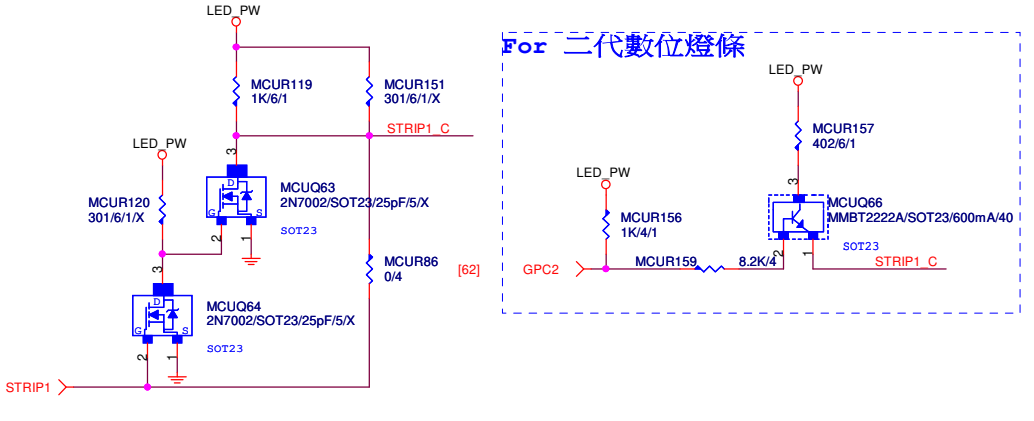


Footprint "PH1X4-CUT3-LED-R"
(for pin-name 與 model-name 同方向)

燈條 Level shift



燈條 Level shift



GIGABYTE™

Title	D_LED1/D_LED2	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 64 of 69	

REV:0.1

*全部不上件

ADDRESS = 74

SMB_SW_U2
5VDUAL
VIN VOUT
GND
EN FB
SMB_SW_2V5
R1 SMB_SW_R17 3K/4/1/X
SMB_SW_FB
SMB_SW_C1 22P/4/NPO/50V/J/X
SMB_SW_C2 10U/6/X5R/6.3V/M/X
SMB_SW_C3 2.2u/4/X5R/6.3V/M/X
Vout=0.8*(R1+R2)/R2
AP7365-WG-7/SOT23-5/600mA/X
R2 SMB_SW_R20 1.4K/4/1/X
使用IT5706時不需上件

SMB_SW_VDD
SMB_SW_R2 8.2K/4/X
SMB_SW_A0
SMB_SW_R5 8.2K/4/X
SMB_SW_R3 8.2K/4/X
SMB_SW_A1
SMB_SW_R6 8.2K/4/X
SMB_SW_R18 8.2K/4/X
SMB_SW_A2
SMB_SW_R7 0/4/X

3VDUAL
SMB_SW_R1 0/6/X
3VDUAL_PCH
SMB_SW_R4 0/6/X
SMB_SW_2V5
SMB_SW_R8 0/6/X
使用IT5706時改上SMB_SW_R1

other

SMB_SW_U1
SMB_SW_R9 8.2K/4/X
SMB_SW_R10 0/4/X
SMB_SW_RST
[13] N_GPP_C10
GND A1 A0 VDD SDA
RESET_N SCL SD0 A2 SC0 SC3 SD1 SD3 SC1 VSS SD2 SC2
N_SMBDATA [13]
N_SMBCLK [13]
SMB_SW_SD0
SMB_SW_SC0
[8,9,17,29,30,58,59,60,62,66] SMB_SW_SD0
[8,9,17,29,30,58,59,60,62,66] SMB_SW_SC0
SMB_SW_A2
SMB_SW_SC3
SMB_SW_SD3
SMB_SW_SC3 [27]
SMB_SW_SD3 [27]
M2_P使用
PCIE SLOT
[21,22,23] SMB_SW_SD1
[21,22,23] SMB_SW_SC1
SMB_SW_SC2
SMB_SW_SD2
SMB_SW_SC2 [25,26]
SMB_SW_SD2 [25,26]
M2_M and M2_A
NCT5946Y/QFN16/X

PCH
3VDUAL
SMB_SW_R11 1.4K/4/1/X
SMB_SW_R12 1.4K/4/1/X
SMB_SW_SC0
SMB_SW_SD0
SMB_SW_R13 1.4K/4/1/X
SMB_SW_R14 1.4K/4/1/X
SMB_SW_SC1
SMB_SW_SD1

N_SMBCLK SMB_SW_R21 0/4 SMB_SW_SC0
N_SMBDATA SMB_SW_R22 0/4 SMB_SW_SD0
N_SMBCLK SMB_SW_R23 0/4 SMB_SW_SC1
N_SMBDATA SMB_SW_R24 0/4 SMB_SW_SD1

SMB_SW_U1 不上件時.電阻要上

VCC1V8_PRIM
M2AC4 1u/4/X5R/6.3V/K/X
M2U1
VCCA VCCB
A1 A2 B1 B2
GND EN
3VDUAL
M2AC13 1u/4/X5R/6.3V/K/X
[25,26,27] M2_SMBCLK
[25,26,27] M2_SMBDATA
N_SMBCLK
N_SMBDATA
M2AR12 8.2K/4/X
PCA9617ADPJ/TSSOP8/S/[10TA1-0A9617-10R]/X

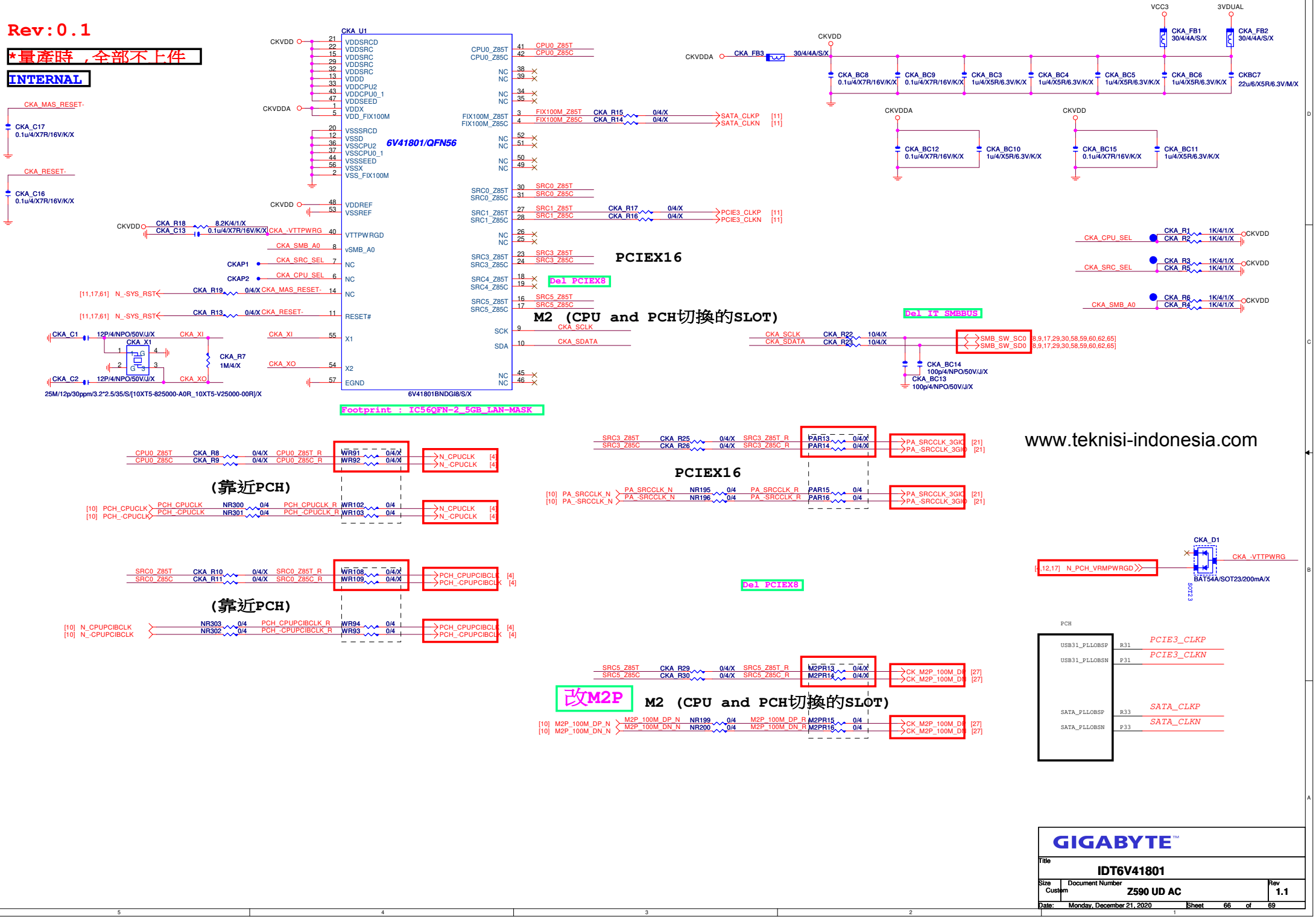
GIGABYTE™

Title	SMBUS SWITCH	
Size: Custom	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 65 of 69	

Rev:0.1

*量產時，全部不上件

INTERNAL



Title	IDT6V41801
Size	Custom
Document Number	Z590 UD AC
Rev	1.1
Date:	Monday, December 21, 2020
Sheet	66 of 69

EMI/ESD R0.1

CLOSE SIO

EMIC1
100p/4/NPO/50V/J/X

[10,17,28,38,53,58,62] N_-SLP_S3

EMIC2
100p/4/NPO/50V/J/X

[10,17,28,39,58,59,62] N_-S4_S5

CLOSE PCH

EMIC4
100p/4/NPO/50V/J/X

[4,10] N_CPUPWROK

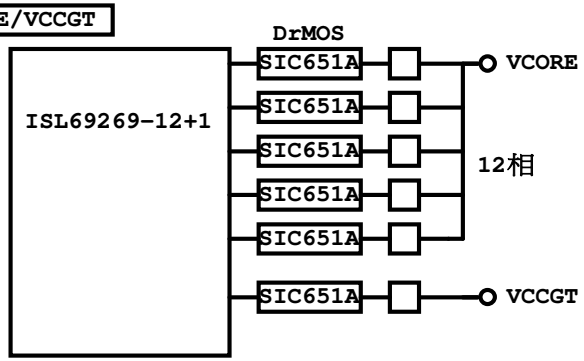
GIGABYTE™

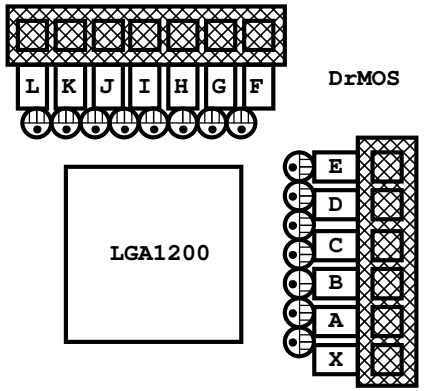
Title	EMI/ESD	
Size: A	Document Number: Z590 UD AC	Rev: 1.1
Date: Monday, December 21, 2020	Sheet 67 of 69	

POWER BLOCK MAP

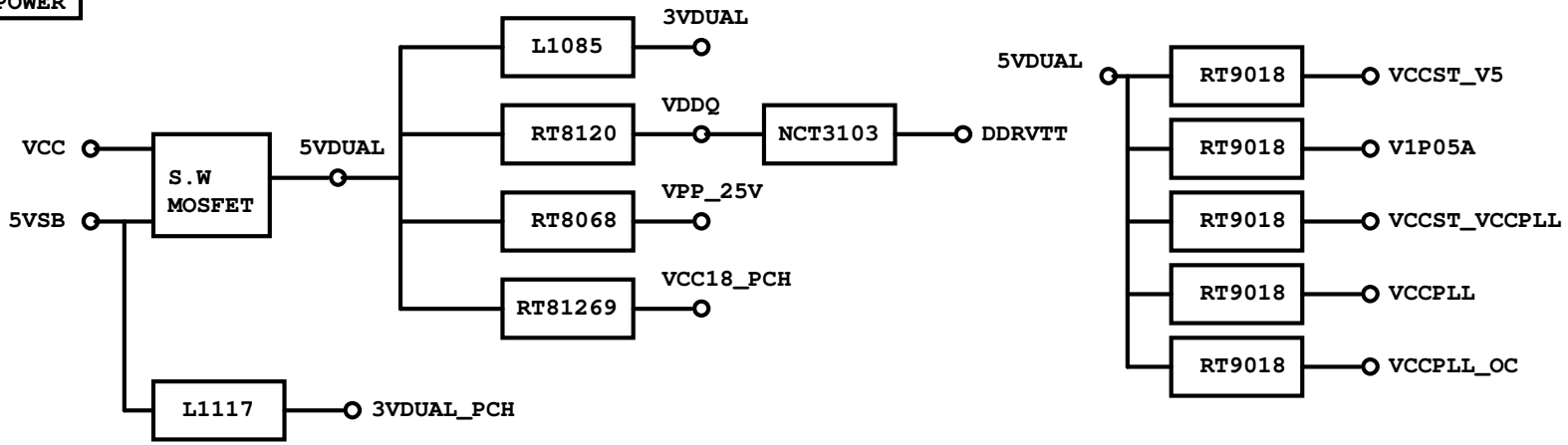
- CPU: VCORE, VCCGT, VCCSA, VCCIO, VCCIO2, VCCST_VCCPLL, VCCPLL, VCCPLL_OC, VCCST_V5, V1P05A, VCCSTG, VDDQ
- DDR4: VDDQ, DDRVTT, VPP_25V
- PCH: VCC18_PCH, VCC1V8_PRIM, VCCPRM_1P05, VCCDPHY_1P24, VCC0P85_PCH, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- IT8689: IT_VCCH, IT_AVCC, 2_5LEVEL
- HM: +12V, VCC, VCC3, VCORE, VCCGT(IMON_VCCGT), VDDQ, VCCSA(IMON_VCORE)

VCORE/VCCGT

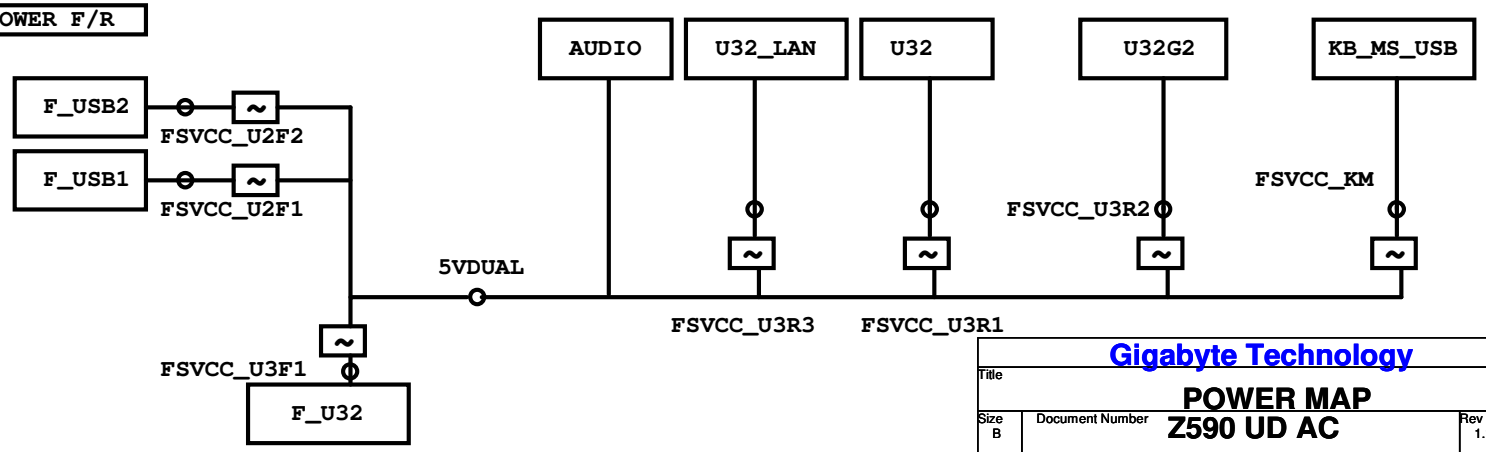




POWER

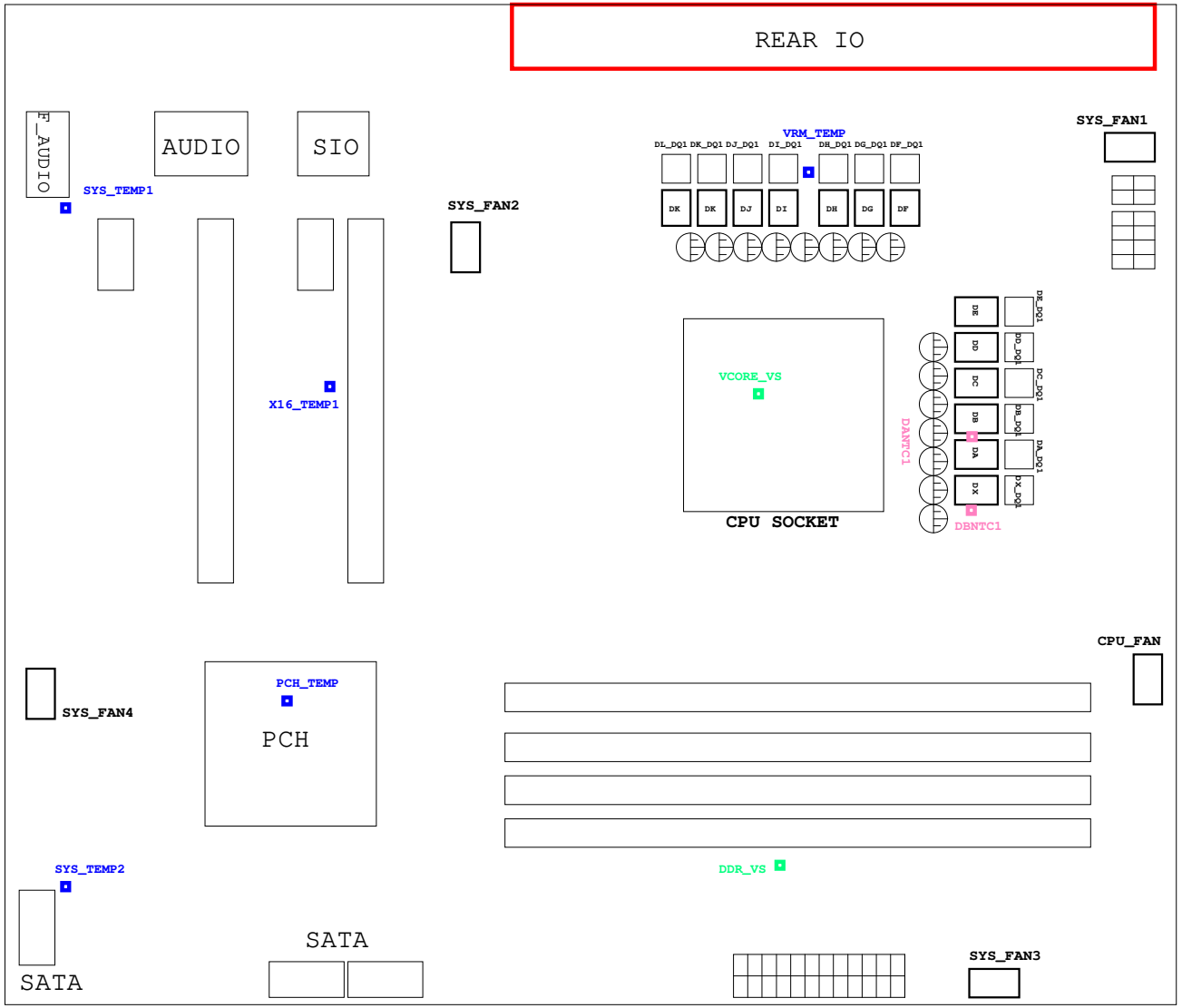


FUSE POWER F/R



Gigabyte Technology

Title	POWER MAP	
Size B	Document Number Z590 UD AC	Rev 1.1
Date: Monday, December 21, 2020	Sheet 68 of 69	



熱敏電阻	擺放靠近位置	走線方式
DANTC1	DB_DL1	Differential
DBNTC1	DX_DL1	Differential
VRM_TEMP	DC_DQ1	N/A
X16_TEMP1	PCIEX16	N/A
PCH_TEMP	PCH	N/A
SYS_TEMP1	F_AUDIO	N/A
SYS_TEMP2	F_PANEL	N/A

SIO RS
PWM RS
SIO VIN

FAN

Gigabyte Technology

Title: NTC MAP

Size: Custom | Document Number: Z590 UD AC | Rev: 1.1

Date: Monday, December 21, 2020 | Sheet 69 of 69