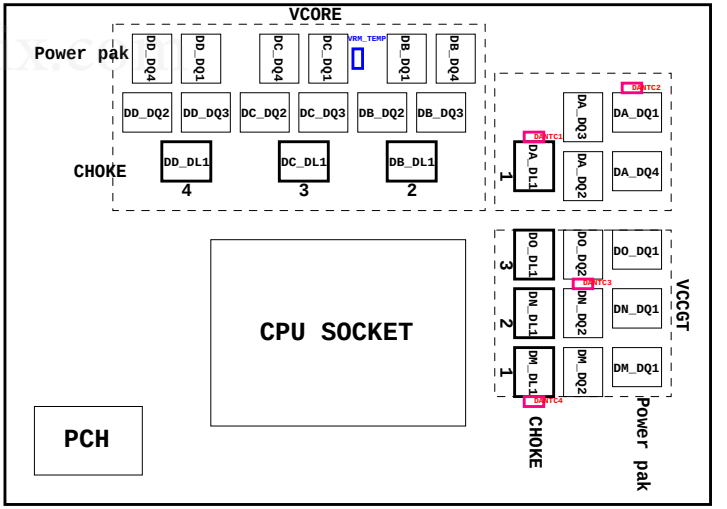
Model Name: Z370 HD3

rev1.0

SHEET	TITLE	
01	COVER SHEET	
02	BOM & PCB MODIFY HISTORY	
03	BLOCK DIAGRAM	
04	CPU_LGA1151-A	(CFL_R0.4)
05	CPU_LGA1151-B-DDR4	(CFL_R0.4)
06	CPU_LGA1151-C-Z系列	(CFL_R0.4)
07	CPU_LGA1151-D	(CFL_R0.4)
08	DDR 4 CHANNEL A	(CFL_R0.1)
09	DDR 4 CHANNEL B	(CFL_R0.1)
10	PCH CLOCK BUFFER	(REV0.6)
11	PCH DMI,USB,PCIE	
12	PCH MISC	
13	PCH SATA,PCIE,SATA_EXPRESS	
14	PCH PWR	
15	PCH GND	
16	Dual BIOS	(CFL_R0.4)
17	I/O ITE8628	(CFL_R0.4)
18	HWM	(CFL_R0.4)
19	FAN CTRL-CFL-SIO_4 FAN	(CFL_R0.2)
20	PCIEX16 SLOT	(REV0.2)
21	PCIEX4 SLOT1	(REV0.51)
22	PCIEX4 SLOT2	(REV0.51)
23	PCIEX1*2 SLOT	(REV0.51)
24	M.2 x4	(REV0.6)
25	SATA	
26	VCORE_ ISL95866(PWM)	(CFL_R0.32)
27	VCORE_ ISL95866(Vcore)	(CFL_R0.32)
28	VCORE_ ISL95866(VccGT)	(CFL_R0.32)
29	VCCSA_VCCIO-合金-Z系列	(CFL_R0.41)
30	RT8120_DDR_CHOKE-IRON-2L	(CFL_R0.4)
31	RT8120_VPP_CHOKE-合金	(CFL_R0.4)
32	RT8120_PCH	(CFL_R0.4)
33	DISCRETE POWER	(REV0.51)
34	CPU POWER-Z系列	(CFL_R0.42)
35	NCP3933 OVER VOLTAGE	
36	ATX POWER , -PROCHOT	

SHEET	TITLE	
37	KB_MS_USB	(CFL_R0.2)
38	DVI	(CFL_R0.2)
39	R_USB30	(CFL_R0.2)
40	INETL I219V	(CFL_R2.01)
41	USB30_LAN CONNECTOR-I219V	(CFL_R2.01)
42	ALC892-GR CODEC	(CFL_R2.04)
43	REAR AUDIO JACK	(CFL_R2.04)
44	F_USB30	(CFL_R0.2)
45	F_USB20	(CFL_R0.2)
46	COM , LPT , TPM	(CFL_R0.2)
47	F_PANEL	(CFL_R0.2)
48	HDMI	(CFL_R0.2)
49	IDT6V41630_CLK BUFFER	(REV0.1)
50	Audio / DEBUG / XMP LED	(CFL_R2.01)
51	EMI-ESD	(CFL_R0.1)
52	POWER MAP	
53	TABLE LIST	



Gigabyte Technology	
Title	Cover Sheet
Size: Custom	Document Number: Z370 HD3
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Date: Tuesday, August 08, 2017	Sheet 1 of 53

Z370 HD3 *rev 1.0*

Component value change history

Data	Change Item	Reason
2017/06/08	first release	
	9MZ370HD3-00-01 BOM	
2017/07/28	9MZ370HD3-00-02 BOM	
	1.Add OR20,OR21,OR19,OQ15,OQ14 , OR205->0Ohm	
	2.OR33->X , OR35上件 3.BSR1,BSR5->330/4 4.DA_DC7,DA_DC8,DB_DC7,	
	DB_DC8,DC_DC7,DC_DC8,DD_DC7,DD_DC8->33p 5.PCIEX16->11AC1-023164-G1R	
	6.PCIEX4_1,PCIEX4_2->11AC1-023065-51R 7. BSR1,BSR5->330/4	
	8.DA_DC7,DA_DC8,DB_DC7,DB_DC8,DC_DC7,DC_DC8,DD_DC7,DD_DC8,DM_DC1,DN_DC1,DO_DC1->X	
	9.PCIEX16->11AC1-023164-G1R,PCIEX4_1,PCIEX4_2->PCI-E/4X-66P/GY/LONG DOUBLE/HK*2	
	10.DAR37->2K,DAR35->6.2K,DAC14->100P,DAC23->1.5n,DAR63->3.65K,	
	,DAR52->100K,DAR44->576,DAC12->X,DAC43->0.22u,DAR72->46.4K,	
	,DAC34->X,DAR41->6.98K,DAR71->267,DAC44->0.22u 11.DA_DL1,DB_DL1,DC_DL1,	
	,DD_DL1,DM_DL1,DN_DL1,DO_DL1,DAL1-> 11LC5-M5300C-01R Footprint:CHOKE0U3-R30M-JJ3W	
	12.DAC22->8.2n 13.CR67,CR68,CR69,CR70,CR43,CR27->X 14.OR17,OR5,OQ10->X	
	15.M_BIOS->10HP4-112564-50R, B_BIOS->10HP4-112564-51R	
	16.DAC43->0.1u,DAC34->0.047u,DAC44->0.1u,DAC23->1.2n	
	17.DAR47->15.4K , DAR67->13.3K ,18.PCH->10HB1-03Z370-20R	
	19.PCH_HS->12SP2-S08607-01R/02R/03R,TMOS->12SP2-S09426-11R/12R/13R,	
	RMOS->12SP2-S08026-11R/12R/13R 20.PCIEX16->PCI-E/16X-164P/GY/LONG DOUBLE/HK*2	
	21.DDR4_4,DDR4_3->DDR4/288/BK/VA/D/GF/TWO LATCH/C7025	
	DDR4_1,DDR4_2->DDR4/288/GY/VA/D/GF/TWO LATCH/C7025	
2017/08/14	9MZ370HD3-00-10A BOM	
	1.M_BIOS , B_BIOS->64M/Q/SPI/SO8/S,BSR21,BSR22->X 2.OR1,OR18,OR4,OR16	
	,OR2,OQ9,OQ13,OR6,OR13,OQ11,OQ12->X,WR8->X 3.10SL2-000008-31R/X	
	4.Q9->EMF30N02J/SOT23/627pF/30m 5.CEC7,CEC9,CEC10,CEC11->X	
	6.DAR47->14.3K,TMOS->12SP2-S09426-21R/22R/23R,RMOS->12SP2-S08026-21R/22R/23R	
2017/08/15	9MZ370HD3-00-10B BOM	
	1. M_BIOS,B_BIOIS-> 128M/Q/SPI/SO8/S	
2017/08/17	9MZ370HD3-00-10C BOM	
	1. DAR47->13.3K	

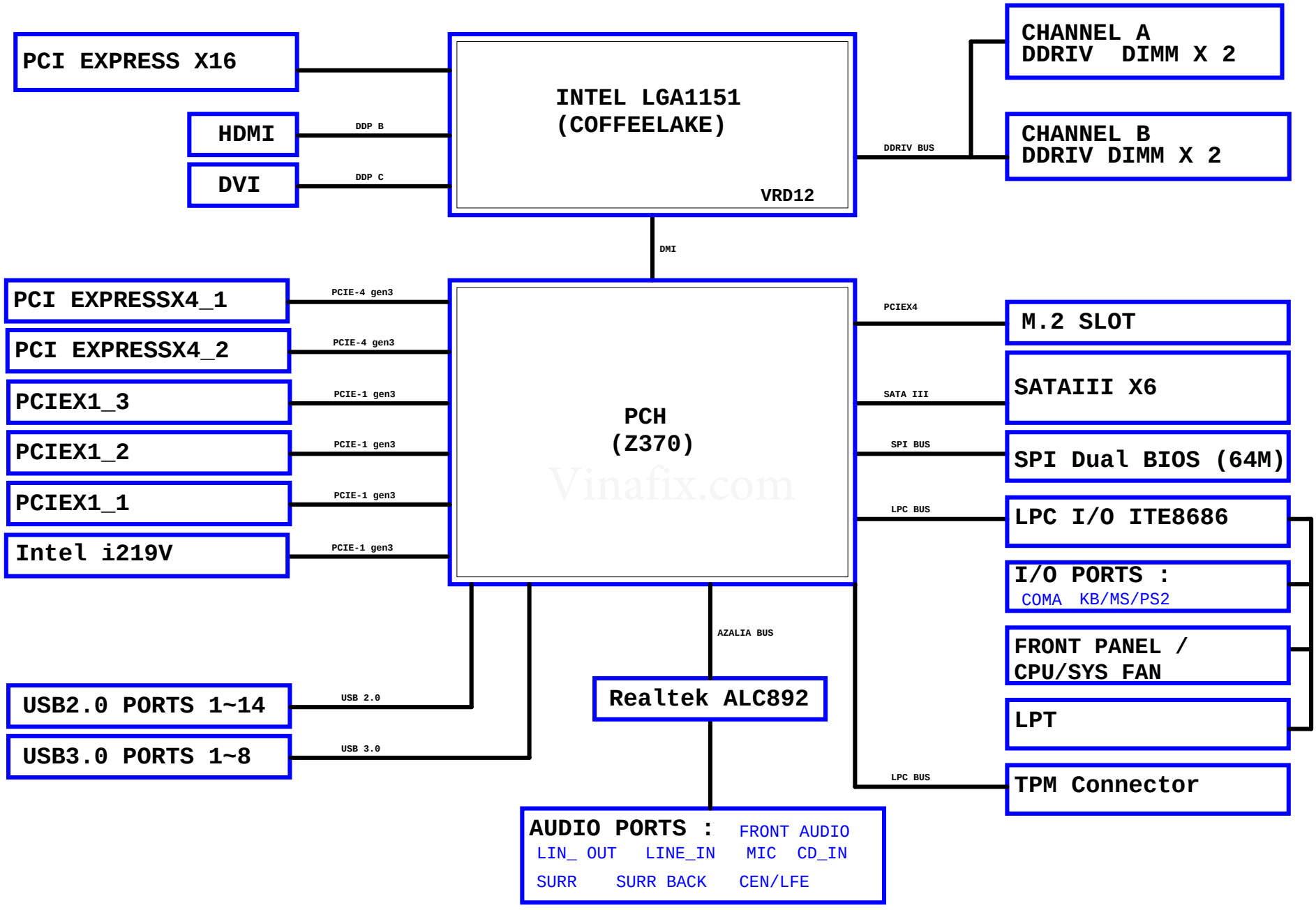
Circuit or PCB layout change

DATE	Change Item	Reason
2017/06/01 PCB:0.1	1.PCB first release	
	2.線路由Z270-HD3 Rev1.01修改	
2017/07/27 PCB:0.2	1.footprint ->SPDIF_O-1X4-CUT2 2.Add OR14,OR11 Rename to OR17	
	ORQ2 Rename to OQ10,ORQ3 Rename to OQ11,ORQ4 Rename to OQ12,	
	BSR20 Rename to BSR21,BSR21 Rename to BSR22 3.Add OR20,OR21	
	,OR19,OQ15,OQ14 , OR205->0Ohm 4.Add LEDRN4 Net Name	
	5.NX1 Footprint->XTALD-PCH 6.Add IO_GP15, Del IO_GP95,OR233,OR177,OR178 ,	
	,OR26 Change to 3VDUAL 7.PCH_HS Fottprint->BGAHSINK-Z370_HD3P,	
	,TMOS Footprint->MOSHSINK-Z370_HD3P-T , RMOS Footprint->MOSHSINK-Z370_HD3P-R	
	8.Del OC BUTTON,Net N_GPP_D4,N_GPP_D6 9.Add WR122,WR123	
	,WR123,WQ2,WQ1,WR121,Net N_GPP_D19 10.CE7,CE9,CE10,CE11 Footprint->C2700PF-DIP	
	11.Add DAR144,DAR143,DAQ9,DAQ8,DAR145,DAR146 , Net IMON_A_1,Add Net IMON_GPIO(GPP_G22)	
2017/08/10 PCB:1.0	1.W_OVR2改接3VDUAL, W_OVC2改接3VDUAL , W_OVR1改接5VDUAL	
	2.Add DAC45 3.DAR71->316,DAR72->56K,DAR63->4.42K,DAR55->3.9K	
	4.OR205,TR2,DAR136,MOATR4->Short Pad 5.Add RN14,RN15,RN16,RN17,RN18,RN19	
	6.CEC7,CEC9,CEC10,CEC11 Footprint-> C2700PF-DIP-MASK	

GIGABYTE™

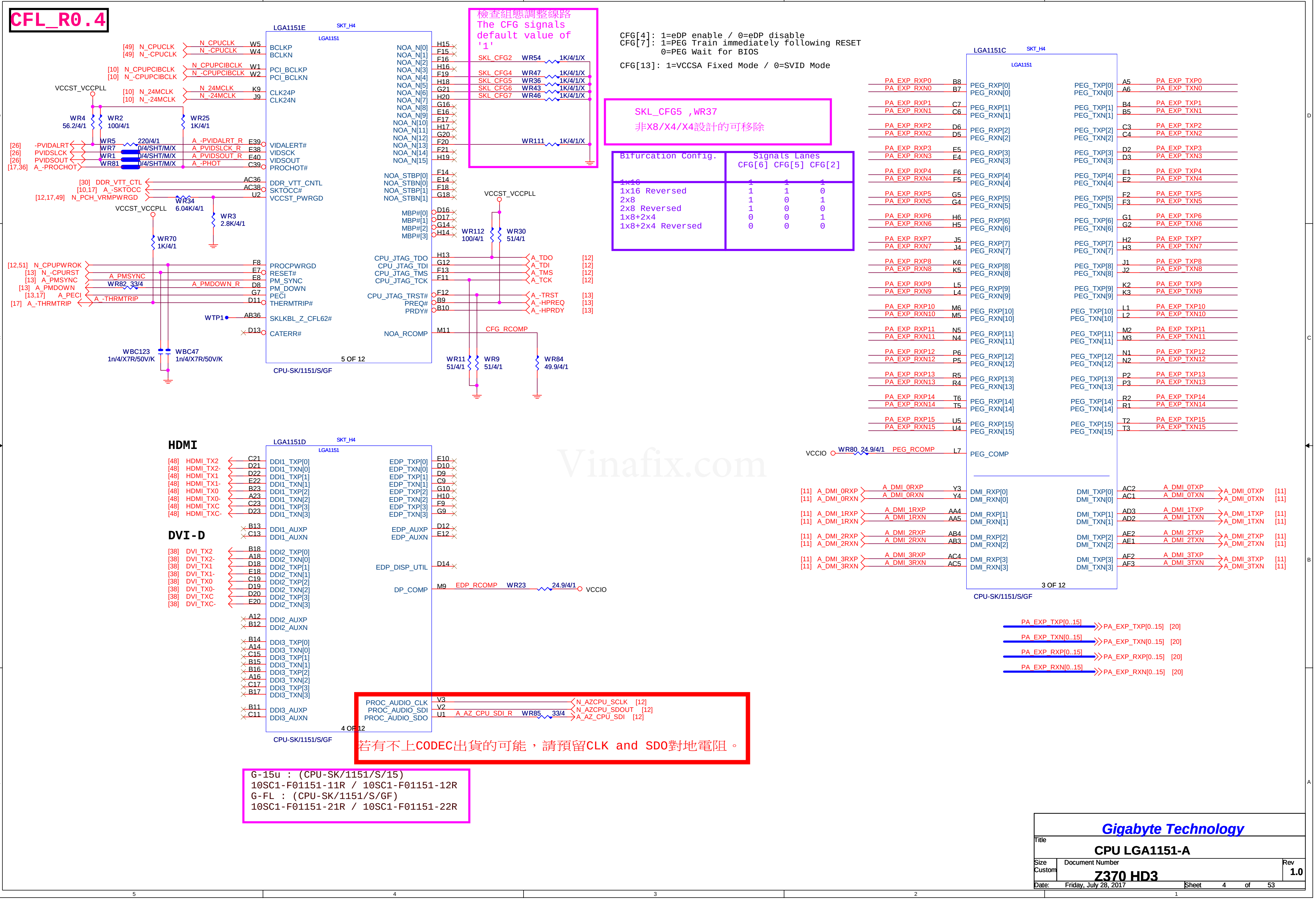
Title	BOM & PCB MODIFY HISTORY	
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Thursday, August 17, 2017	Sheet 2 of 53	

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: Z370 HD3	Rev: 1.0
Date: Thursday, July 13, 2017	Sheet 3 of 53	

CFL_R0.4



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

SKL_CFG5 ,WR37
非X8/X4/X4設計的可移除

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

若有不上CODEC出貨的可能，請預留CLK and SDO對地電阻。

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

Gigabyte Technology
Title: CPU LGA1151-A
Size: Custom | Document Number: Z370 HD3 | Rev: 1.0
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CFL_R0.4

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18	M_DCLKA0
MDA1	AE37	DDR0_DQ[1]	DDR0_CKN[0]	AW18	M_-DCLKA0
MDA2	AG38	DDR0_DQ[2]	DDR0_CKP[1]	AW17	M_DCLKA1
MDA3	AG37	DDR0_DQ[3]	DDR0_CKN[1]	AY17	M_-DCLKA1
MDA4	AE39	DDR0_DQ[4]	DDR0_CKP[2]	AW16	M_DCLKA2
MDA5	AE40	DDR0_DQ[5]	DDR0_CKN[2]	AV16	M_-DCLKA2
MDA6	AG39	DDR0_DQ[6]	DDR0_CKP[3]	AT16	M_DCLKA3
MDA7	AG40	DDR0_DQ[7]	DDR0_CKN[3]	AU16	M_-DCLKA3
MDA8	AJ38	DDR0_DQ[8]			
MDA9	AJ37	DDR0_DQ[9]	DDR0_CKE[0]	AY24	CKEA0
MDA10	AL38	DDR0_DQ[10]	DDR0_CKE[1]	AW24	CKEA1
MDA11	AL37	DDR0_DQ[11]	DDR0_CKE[2]	AV24	CKEA2
MDA12	AJ40	DDR0_DQ[12]	DDR0_CKE[3]	AV25	CKEA3
MDA13	AJ39	DDR0_DQ[13]			
MDA14	AL39	DDR0_DQ[14]	DDR0_CS#[0]	AW12	M_-CSA0
MDA15	AL40	DDR0_DQ[15]	DDR0_CS#[1]	AU11	M_-CSA1
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]	DDR0_CS#[2]	AV13	M_-CSA2
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]	DDR0_CS#[3]	AV10	M_-CSA3
MDA18	AR38	DDR0_DQ[18]/DDR0_DQ[34]			
MDA19	AR37	DDR0_DQ[19]/DDR0_DQ[35]	DDR0_ODT[0]	AW11	MODT_A0
MDA20	AN39	DDR0_DQ[20]/DDR0_DQ[36]	DDR0_ODT[1]	AU14	MODT_A1
MDA21	AN37	DDR0_DQ[21]/DDR0_DQ[37]	DDR0_ODT[2]	AU12	MODT_A2
MDA22	AR39	DDR0_DQ[22]/DDR0_DQ[38]	DDR0_ODT[3]	AY10	MODT_A3
MDA23	AR40	DDR0_DQ[23]/DDR0_DQ[39]			
MDA24	AW37	DDR0_DQ[24]/DDR0_DQ[40]	DDR0_BA[0]/DDR0_CAB[4]/DDR0_BA[0]	AY13	SBAA0
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AV15	SBAA1
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]	AW23	BG_A0
MDA27	AW35	DDR0_DQ[27]/DDR0_DQ[43]			
MDA28	AU37	DDR0_DQ[28]/DDR0_DQ[44]	DDR0_RAS#/DDR0_CAB[3]/DDR0_MA[16]	AW13	MAAA16
MDA29	AV37	DDR0_DQ[29]/DDR0_DQ[45]	DDR0_WE#/DDR0_CAB[2]/DDR0_MA[14]	AV14	MAAA14
MDA30	AT35	DDR0_DQ[30]/DDR0_DQ[46]	DDR0_CAS#/DDR0_CAB[1]/DDR0_MA[15]	AY11	MAAA15
MDA31	AU35	DDR0_DQ[31]/DDR0_DQ[47]			
MDA32	AY8	DDR0_DQ[32]/DDR1_DQ[0]	DDR0_MA[0]/DDR0_CAB[9]/DDR0_MA[0]	AW15	MAAA0
MDA33	AW8	DDR0_DQ[33]/DDR1_DQ[1]	DDR0_MA[1]/DDR0_CAB[8]/DDR0_MA[1]	AU18	MAAA1
MDA34	AV6	DDR0_DQ[34]/DDR1_DQ[2]	DDR0_MA[2]/DDR0_CAB[5]/DDR0_MA[2]	AU17	MAAA2
MDA35	AU6	DDR0_DQ[35]/DDR1_DQ[3]	DDR0_MA[3]	AV19	MAAA3
MDA36	AU8	DDR0_DQ[36]/DDR1_DQ[4]	DDR0_MA[4]	AT19	MAAA4
MDA37	AV8	DDR0_DQ[37]/DDR1_DQ[5]	DDR0_MA[5]/DDR0_CAA[0]/DDR0_MA[5]	AU20	MAAA5
MDA38	AW6	DDR0_DQ[38]/DDR1_DQ[6]	DDR0_MA[6]/DDR0_CAA[2]/DDR0_MA[6]	AV20	MAAA6
MDA39	AY6	DDR0_DQ[39]/DDR1_DQ[7]	DDR0_MA[7]/DDR0_CAA[4]/DDR0_MA[7]	AU21	MAAA7
MDA40	AY4	DDR0_DQ[40]/DDR1_DQ[8]	DDR0_MA[8]/DDR0_CAA[3]/DDR0_MA[8]	AT20	MAAA8
MDA41	AV4	DDR0_DQ[41]/DDR1_DQ[9]	DDR0_MA[9]/DDR0_CAA[1]/DDR0_MA[9]	AT22	MAAA9
MDA42	AT1	DDR0_DQ[42]/DDR1_DQ[10]	DDR0_MA[10]/DDR0_CAB[7]/DDR0_MA[10]	AY14	MAAA10
MDA43	AT2	DDR0_DQ[43]/DDR1_DQ[11]	DDR0_MA[11]/DDR0_CAA[7]/DDR0_MA[11]	AU22	MAAA11
MDA44	AV3	DDR0_DQ[44]/DDR1_DQ[12]	DDR0_MA[12]/DDR0_CAA[6]/DDR0_MA[12]	AV22	MAAA12
MDA45	AW4	DDR0_DQ[45]/DDR1_DQ[13]	DDR0_MA[13]/DDR0_CAB[0]/DDR0_MA[13]	AV12	MAAA13
MDA46	AT4	DDR0_DQ[46]/DDR1_DQ[14]	DDR0_MA[14]/DDR0_CAA[9]/DDR0_BG[1]	AV23	BG_A1
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	AU24	M_-ACT_A
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]			
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]	DDR0_PAR	AY15	M_DDR_PARA
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]	DDR0_ALERT#	AT23	M_-ALERT_A
MDA51	AM3	DDR0_DQ[51]/DDR1_DQ[35]			
MDA52	AP4	DDR0_DQ[52]/DDR1_DQ[36]			
MDA53	AM2	DDR0_DQ[53]/DDR1_DQ[37]	DDR0_DQSN[0]	AF39	M_-DQSA0
MDA54	AP1	DDR0_DQ[54]/DDR1_DQ[38]	DDR0_DQSN[1]	AK39	M_-DQSA1
MDA55	AM1	DDR0_DQ[55]/DDR1_DQ[39]	DDR0_DQSN[2]/DDR0_DQSN[4]	AP39	M_-DQSA2
MDA56	AK3	DDR0_DQ[56]/DDR1_DQ[40]	DDR0_DQSN[3]/DDR0_DQSN[5]	AU36	M_-DQSA3
MDA57	AH1	DDR0_DQ[57]/DDR1_DQ[41]	DDR0_DQSN[4]/DDR1_DQSN[0]	AW7	M_-DQSA4
MDA58	AK4	DDR0_DQ[58]/DDR1_DQ[42]	DDR0_DQSN[5]/DDR1_DQSN[1]	AU3	M_-DQSA5
MDA59	AH2	DDR0_DQ[59]/DDR1_DQ[43]	DDR0_DQSN[6]/DDR1_DQSN[4]	AN3	M_-DQSA6
MDA60	AH4	DDR0_DQ[60]/DDR1_DQ[44]	DDR0_DQSN[7]/DDR1_DQSN[5]	AJ3	M_-DQSA7
MDA61	AK2	DDR0_DQ[61]/DDR1_DQ[45]			
MDA62	AH3	DDR0_DQ[62]/DDR1_DQ[46]	DDR0_DQSP[0]	AF38	M_DQSA0
MDA63	AK1	DDR0_DQ[63]/DDR1_DQ[47]	DDR0_DQSP[1]	AK38	M_DQSA1
			DDR0_DQSP[2]/DDR0_DQSP[4]	AP38	M_DQSA2
AU33		DDR0_ECC[0]	DDR0_DQSP[3]/DDR0_DQSP[5]	AV36	M_DQSA3
AT33		DDR0_ECC[1]	DDR0_DQSP[4]/DDR1_DQSP[0]	AV7	M_DQSA4
AW33		DDR0_ECC[2]	DDR0_DQSP[5]/DDR1_DQSP[1]	AU2	M_DQSA5
AV31		DDR0_ECC[3]	DDR0_DQSP[6]/DDR1_DQSP[4]	AN2	M_DQSA6
AU31		DDR0_ECC[4]	DDR0_DQSP[7]/DDR1_DQSP[5]	AJ2	M_DQSA7
AV33		DDR0_ECC[5]			
AW31		DDR0_ECC[6]	DDR0_DQSP[8]	AV32	
AY31		DDR0_ECC[7]	DDR0_DQSN[8]	AU32	

DDR CHANNEL A

1 OF12

LGA1151

CPU-SK/1151/S/GF

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]	DDR1_CKP[0]	AM20	M_DCLKB0
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]	DDR1_CKN[0]	AM21	M_-DCLKB0
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]	DDR1_CKP[1]	AP22	M_DCLKB1
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]	DDR1_CKN[1]	AP21	M_-DCLKB1
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]	DDR1_CKP[2]	AN20	M_DCLKB2
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]	DDR1_CKN[2]	AN21	M_-DCLKB2
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]	DDR1_CKP[3]	AP19	M_DCLKB3
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]	DDR1_CKN[3]	AP20	M_-DCLKB3
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]			
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]	DDR1_CKE[0]	AY29	CKEB0
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]	DDR1_CKE[1]	AV29	CKEB1
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]	DDR1_CKE[2]	AW29	CKEB2
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]	DDR1_CKE[3]	AU29	CKEB3
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]			
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]	DDR1_CS#[0]	AP17	M_-CSB0
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]	DDR1_CS#[1]	AN15	M_-CSB1
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]	DDR1_CS#[2]	AN17	M_-CSB2
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]	DDR1_CS#[3]	AM15	M_-CSB3
MDB18	AN32	DDR1_DQ[18]/DDR0_DQ[50]			
MDB19	AP32	DDR1_DQ[19]/DDR0_DQ[51]	DDR1_ODT[0]	AM16	MODT_B0
MDB20	AN34	DDR1_DQ[20]/DDR0_DQ[52]	DDR1_ODT[1]	AL16	MODT_B1
MDB21	AP34	DDR1_DQ[21]/DDR0_DQ[53]	DDR1_ODT[2]	AP15	MODT_B2
MDB22	AN31	DDR1_DQ[22]/DDR0_DQ[54]	DDR1_ODT[3]	AL15	MODT_B3
MDB23	AP31	DDR1_DQ[23]/DDR0_DQ[55]			
MDB24	AL29	DDR1_DQ[24]/DDR0_DQ[56]	DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]	AN18	MAAB16
MDB25	AM29	DDR1_DQ[25]/DDR0_DQ[57]	DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]	AL17	MAAB14
MDB26	AP29	DDR1_DQ[26]/DDR0_DQ[58]	DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]	AP16	MAAB15
MDB27	AR29	DDR1_DQ[27]/DDR0_DQ[59]			
MDB28	AM28	DDR1_DQ[28]/DDR0_DQ[60]	DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]	AL18	SBAB0
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AM18	SBAB1
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]	AW28	BG_B0
MDB31	AP28	DDR1_DQ[31]/DDR0_DQ[63]			
MDB32	AR12	DDR1_DQ[32]/DDR1_DQ[16]	DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]	AL19	MAAB0
MDB33	AP12	DDR1_DQ[33]/DDR1_DQ[17]	DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]	AL22	MAAB1
MDB34	AM13	DDR1_DQ[34]/DDR1_DQ[18]	DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]	AM22	MAAB2
MDB35	AL13	DDR1_DQ[35]/DDR1_DQ[19]	DDR1_MA[3]	AM23	MAAB3
MDB36	AR13	DDR1_DQ[36]/DDR1_DQ[20]	DDR1_MA[4]	AP23	MAAB4
MDB37	AP13	DDR1_DQ[37]/DDR1_DQ[21]	DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]	AL23	MAAB5
MDB38	AM12	DDR1_DQ[38]/DDR1_DQ[22]	DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]	AW26	MAAB6
MDB39	AL12	DDR1_DQ[39]/DDR1_DQ[23]	DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]	AY26	MAAB7
MDB40	AP10	DDR1_DQ[40]/DDR1_DQ[24]	DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]	AU26	MAAB8
MDB41	AR10	DDR1_DQ[41]/DDR1_DQ[25]	DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]	AW27	MAAB9
MDB42	AR7	DDR1_DQ[42]/DDR1_DQ[26]	DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]	AP18	MAAB10
MDB43	AP7	DDR1_DQ[43]/DDR1_DQ[27]	DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]	AU27	MAAB11
MDB44	AR9	DDR1_DQ[44]/DDR1_DQ[28]	DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]	AV27	MAAB12
MDB45	AP9	DDR1_DQ[45]/DDR1_DQ[29]	DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]	AR15	MAAB13
MDB46	AR6	DDR1_DQ[46]/DDR1_DQ[30]	DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]	AY28	BG_B1
MDB47	AP6	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28	M_-ACT_B
MDB48	AM10	DDR1_DQ[48]			
MDB49	AL10	DDR1_DQ[49]	DDR1_PAR	AL20	M_DDR_PARB
MDB50	AM7	DDR1_DQ[50]	DDR1_ALERT#	AY25	M_-ALERT_B
MDB51	AL7	DDR1_DQ[51]			
MDB52	AM9	DDR1_DQ[52]			
MDB53	AL9	DDR1_DQ[53]	DDR1_DQSN[0]/DDR0_DQSN[2]	AF34	M_-DQSB0
MDB54	AM6	DDR1_DQ[54]	DDR1_DQSN[1]/DDR0_DQSN[3]	AK33	M_-DQSB1
MDB55	AL6	DDR1_DQ[55]	DDR1_DQSN[2]/DDR0_DQSN[6]	AN33	M_-DQSB2
MDB56	AJ6	DDR1_DQ[56]	DDR1_DQSN[3]/DDR0_DQSN[7]	AN29	M_-DQSB3
MDB57	AJ7	DDR1_DQ[57]	DDR1_DQSN[4]/DDR1_DQSN[2]	AN13	M_-DQSB4
MDB58	AE6	DDR1_DQ[58]	DDR1_DQSN[5]/DDR1_DQSN[3]	AR8	M_-DQSB5
MDB59	AE7	DDR1_DQ[59]	DDR1_DQSN[6]	AM8	M_-DQSB6
MDB60	AH7	DDR1_DQ[60]	DDR1_DQSN[7]	AG6	M_-DQSB7
MDB61	AH6	DDR1_DQ[61]			
MDB62	AE7	DDR1_DQ[62]	DDR1_DQSP[0]/DDR0_DQSP[2]	AF35	M_DQSB0
MDB63	AF6	DDR1_DQ[63]	DDR1_DQSP[1]/DDR0_DQSP[3]	AL33	M_DQSB1
			DDR1_DQSP[2]/DDR0_DQSP[6]	AP33	M_DQSB2
AR25		DDR1_ECC[0]	DDR1_DQSP[3]/DDR0_DQSP[7]	AN28	M_DQSB3
AR26		DDR1_ECC[1]	DDR1_DQSP[4]/DDR1_DQSP[2]	AN12	M_DQSB4
AM26		DDR1_ECC[2]	DDR1_DQSP[5]/DDR1_DQSP[3]	AP8	M_DQSB5
AM25		DDR1_ECC[3]	DDR1_DQSP[6]	AL8	M_DQSB6
AP26		DDR1_ECC[4]	DDR1_DQSP[7]	AG7	M_DQSB7
AP25		DDR1_ECC[5]			
AL25		DDR1_ECC[6]	DDR1_DQSP[8]	AN25	
AL26		DDR1_ECC[7]	DDR1_DQSN[8]	AN26	

DDR CHANNEL B

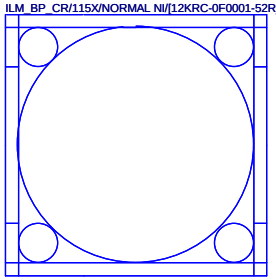
2 OF 12

CPU-SK/1151/S/GF

DDR_VREF_CA	AB40	VREF_CAB
DDR0_VREF_DQ	AC40	
DDR1_VREF_DQ	AC39	VREF_DQB

ILM_BP_CR/115X/NORMAL NI/[12KRC-0F0001-52R_12KRC-0F0001-51R]

CPU-SK/1151/S/GF



Need check the new CPU ME

[8] MODT_A[0..3] ↔ MODT_A[0..3]

[9] MODT_B[0..3] ↔ MODT_B[0..3]

[8] MDA[0..63] ↔ MDA[0..63]

[9] MDB[0..63] ↔ MDB[0..63]

[8] M_DQSA[0..7] ↔ M_DQSA[0..7]

[8] M_-DQSA[0..7] ↔ M_-DQSA[0..7]

[8] MAAA[0..16] ↔ MAAA[0..16]

[9] MAAB[0..16] ↔ MAAB[0..16]

[9] M_DQSB[0..7] ↔ M_DQSB[0..7]

[9] M_-DQSB[0..7] ↔ M_-DQSB[0..7]

Gigabyte Technology

Title: CPU LGA1151-B

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CFL_R0.4

VCCSA

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

VCCIO

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

CPU POWER

VCCST_VCCPLL
VCCSFUSEPRG

VCCGT

LGA1151J SKT_H4
LGA1151

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

VCCGT_SENSE
VSSGT_SENSE

F39 VCCGT_SENSE [26]
F38 VSSGT_SENSE [26]

10 OF 12

CPU-SK/1151/S/GF

VCCSA

LGA1151K SKT_H4
LGA1151

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

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VDDQ

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

VCCPLL_OC — AJ9 VCCPLL_S

WR86 0/4/X
WR95 0/4/SHT/M/X
VDDQ
VCCPLL_OC
WBC50 1u/6/X7R/16V/K

CPU POWER

VCCST_VCCPLL — V5 VCCST
VCCSFUSEPRG — V6 VCCFUSEPRG
VCCPLL — V4 VCCSFR

VCCSA_SENSE — AD5
VCCIO_SENSE — AF4
VSS_SAIO_SENSE — AE4

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CPU-SK/1151/S/GF

CPU_AB35 WR8 0/4/X CPU_AB36_R — CPU_AB36_R [17]

LGA1151L SKT_H4
LGA1151

PEG_VIEW[0] J8
PEG_VIEW[1] J7
PEG_VIEW[2] L8
PEG_VIEW[3] K8
DDR_VIEW[0] AV1
DDR_VIEW[1] AW2
EXTBGREF H8
FIVR_PROBE_ANA[0] K10
FIVR_PROBE_ANA[1] L10
VCCCOREG0 J17
VCCCOREG1 B39
VCCCOREG3 C40
VCCCOREG4 J19
CPU_EDM[0] G8
CPU_EDM[1] AY3
CPU_TRIGGERIN D1
CPUTRIGGEROUT B3
HVM_CLK_P L12
HVM_CLK_N K12

RSVD_AC37 AC37
RSVD_AB35 AB35
RSVD_AB37 AB37
RSVD_AB38 AB38
RSVD_AJ22 AJ22
RSVD_D15 D15
RSVD_K11 K11
THERMDA1 J15 WTP2
THERMDC1 J14 WTP3
THERMDA2 AU9 WTP4
THERMDC2 AU10 WTP5
LGC_SPARE[0] J13
LGC_SPARE[1] K13 WR89 560/4/1
LGC_SPARE[2] J11

CPU_AB35

[13] N_PCH_CPU_TI
[13] A_CPU_PCH_TO
WR88 33/4 A_CPU_PCH_TO_R

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CPU-SK/1151/S/GF

Gigabyte Technology

Title: CPU LGA1151-C

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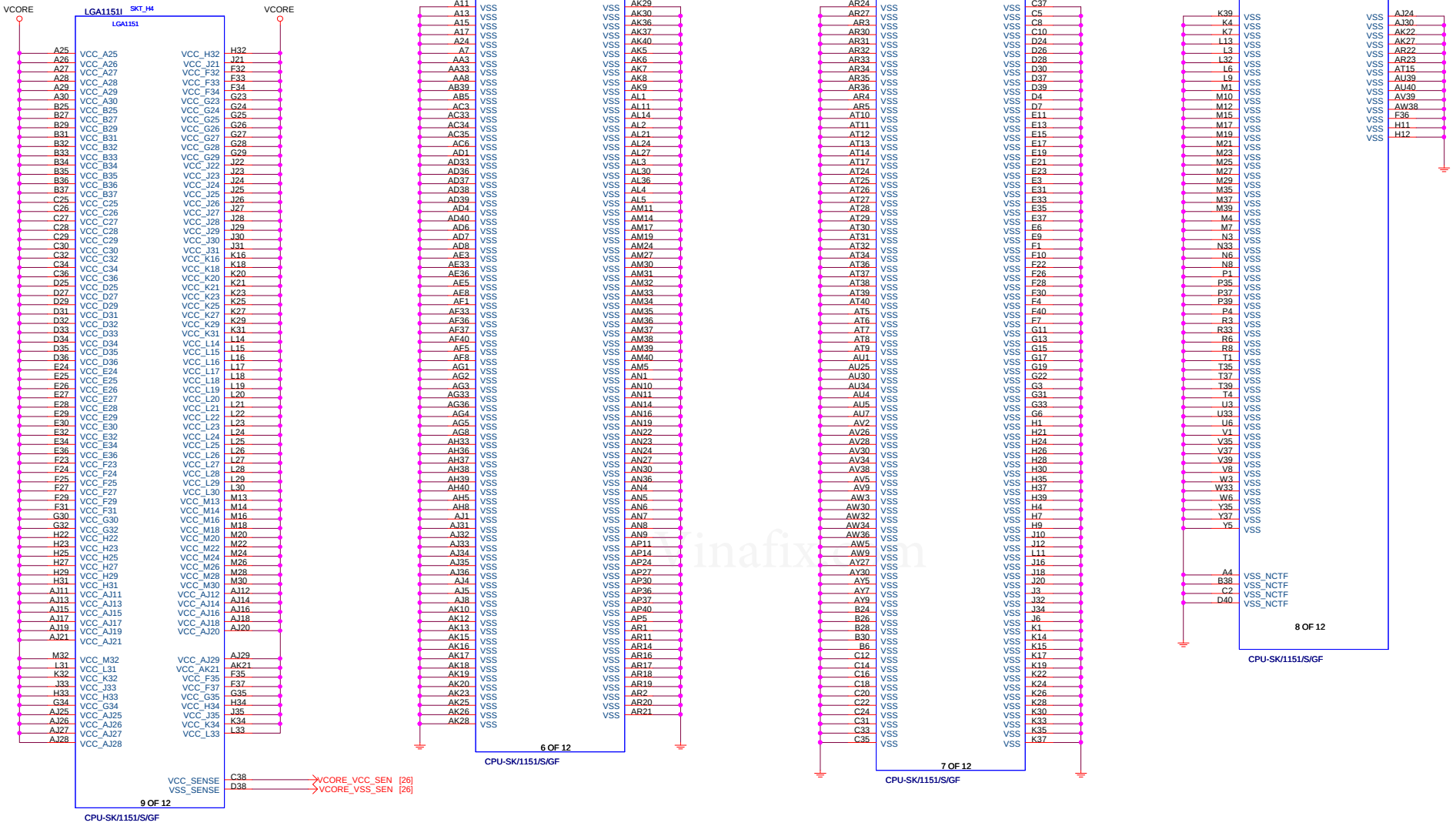
CFL_R0.4



Gigabyte Technology		
Title: CPU LGA1151-D		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 7 of 53	

Rev:0.1

* net 改 VDDQ

DDR4_4

DDR4_2

DDRVTT

VDDQ

VPP_2SV

[5] MDA[0..63]
[5] MAAA[0..16]
[5] M_DQSA[0..7]
[5] M_-DQSA[0..7]

刪除MR22 &VDDSPD SHORT PROTECT

MAR19 240/4/1

MAR20 240/4/1

MABC4 0.1u/4/X7R/16V/K

MAR15 1K/4/1

MAR16 1K/4/1

Footprint :R0402-2-SHORT20

MR23 0/4/SHT/20/X

MC19 0.022u/4/X7R/25V/K/X

MR24 24.9/4/1/X

VREF_DDRA

VREF_CAB [5]

DDR12V Decouple

MABC18 0.1u/4/X7R/16V/K

MABC15 0.1u/4/X7R/16V/K

MABC11 0.1u/4/X7R/16V/K

MABC38 0.1u/4/X7R/16V/K

MABC39 0.1u/4/X7R/16V/K

MASC3 0.1u/4/X7R/16V/K/X

MABC37 1u/4/X5R/6.3V/K

MABC34 1u/4/X5R/6.3V/K

MABC35 1u/4/X5R/6.3V/K

MABC17 1u/4/X5R/6.3V/K

MASC4 0.1u/4/X7R/16V/K

MASC1 0.1u/4/X7R/16V/K

MASC2 0.1u/4/X7R/16V/K

MABC10 22u/8/X5R/6.3V/M

MABC36 1u/4/X5R/6.3V/K

MABC21 1u/4/X5R/6.3V/K

MABC8 2.2u/4/X5R/6.3V/M

MABC19 1u/4/X5R/6.3V/K

MABC20 1u/4/X5R/6.3V/K

MABC14 1u/4/X5R/6.3V/K

MABC30 1u/4/X5R/6.3V/K

MABC13 1u/4/X5R/6.3V/K

MABC12 1u/4/X5R/6.3V/K

MABC16 1u/4/X5R/6.3V/K

* 電容移到 [RT8120_DDR]

DDRVTT Decouple

MABC25 0.1u/4/X7R/16V/K

MABC23 0.1u/4/X7R/16V/K

MABC28 0.1u/4/X7R/16V/K

MABC9 22u/8/X5R/6.3V/M

MABC22 1u/4/X5R/6.3V/K

MABC24 1u/4/X5R/6.3V/K

* 刪電容

若 Power source 端 PWM IC 已有擺放 ,則可刪除

* 刪電容

若 Power source 端 PWM IC 已有擺放 ,則可刪除

MAC11 1u/4/X5R/6.3V/K

MAC16 0.1u/4/X7R/16V/K

MAC42 0.1u/4/X7R/16V/K

MAC43 0.1u/4/X7R/16V/K

* 移除 short pad

CHANNEL A0
SA2:0=000

* 移除 short pad

CHANNEL A1
SA2:0=001

Footprint : DDR4-288P-STH-34C22P-3

DDR4_4,DDR4_3, :11SM1-52128B-41R

DDR4_1,DDR4_2, :11SM1-52128B-51R

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Gigabyte Technology	
Title	DDR4 CHANNEL A
Size: Custom	Document Number: Z370 HD3
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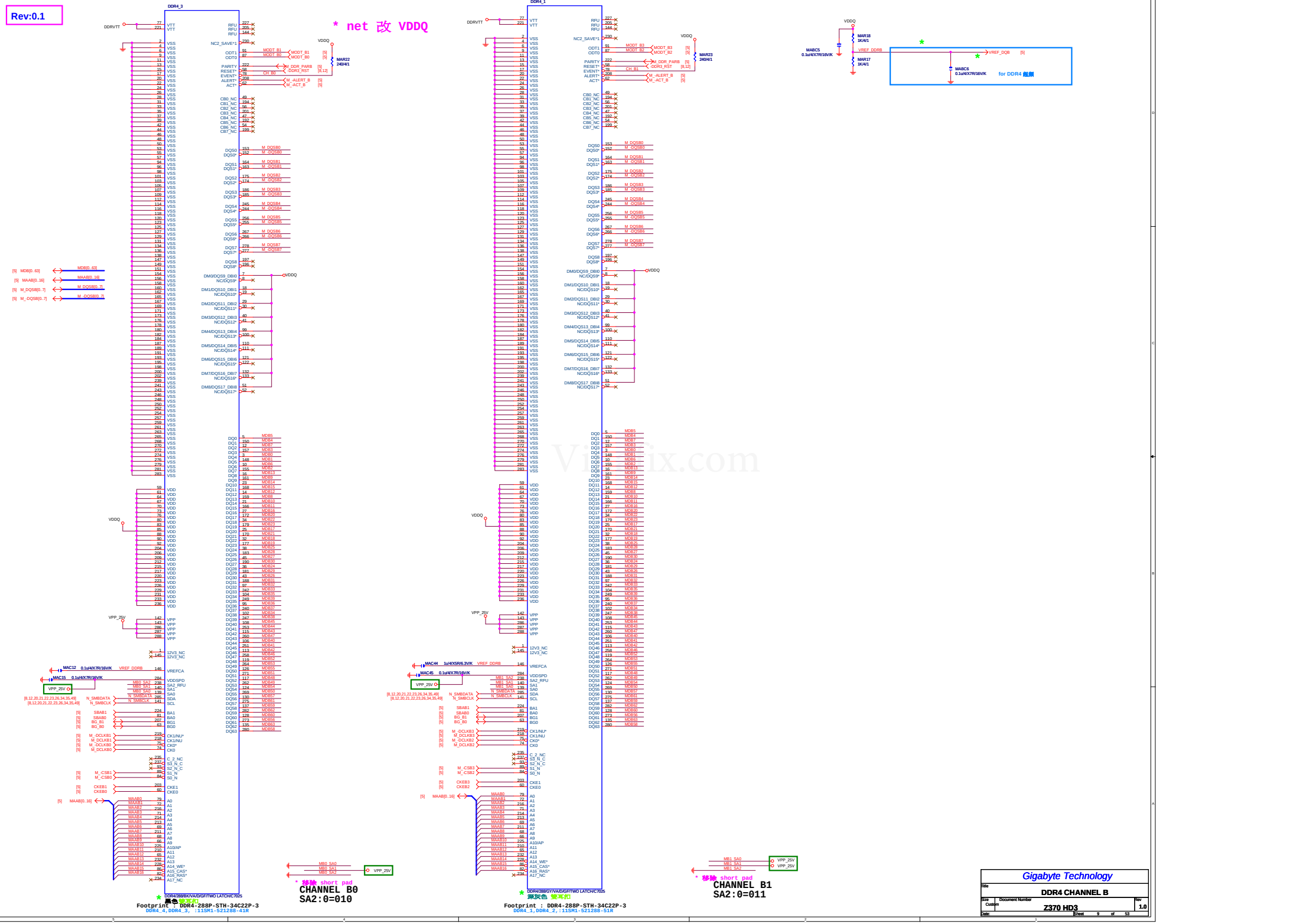
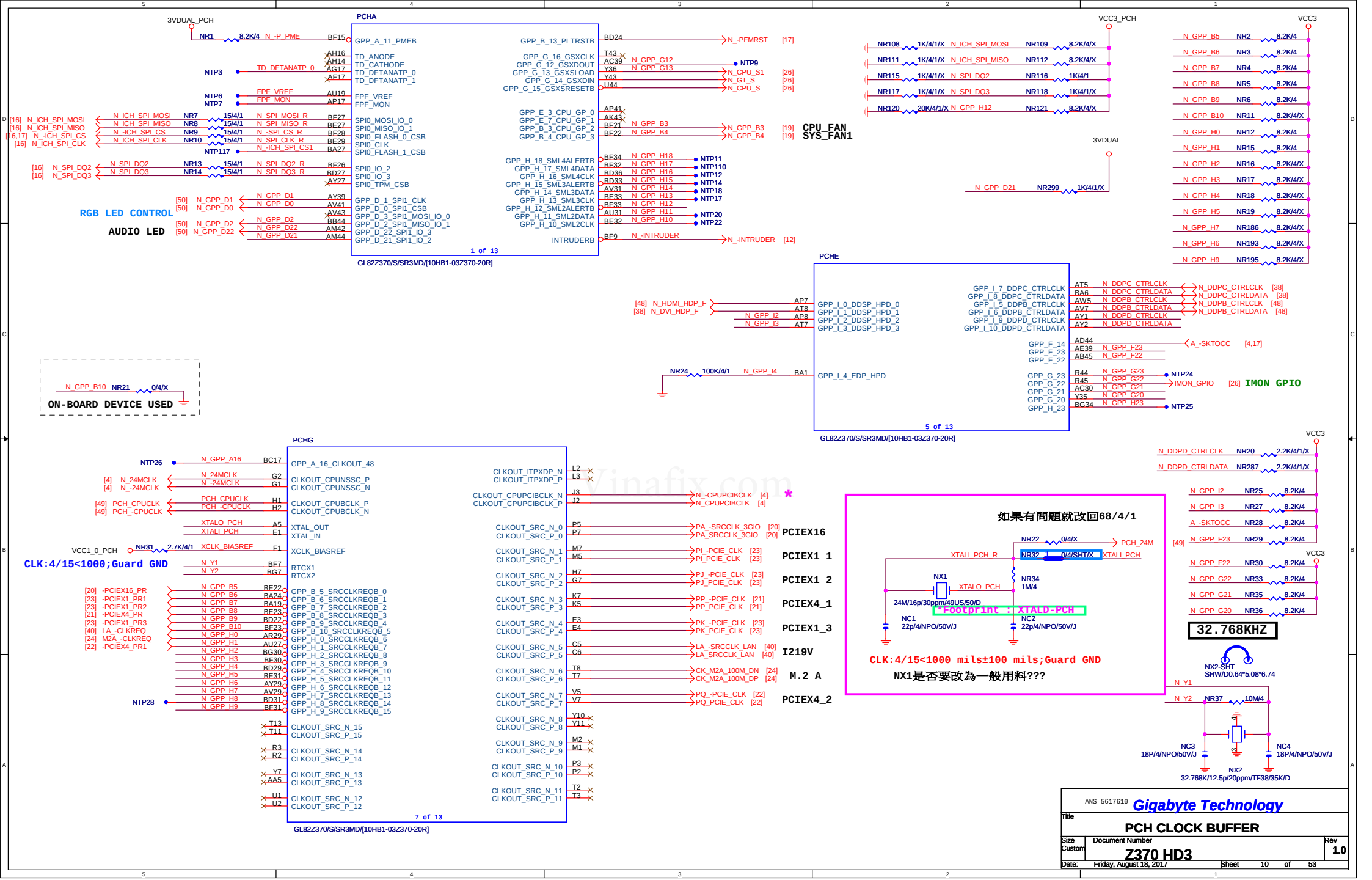
Date:	Sheet 8 of 53

Rev:0.1



Gigabyte Technology			
Title: DDR4 CHANNEL B			
Size: Custom	Document Number: Z370 HD3		Rev: 1.0
Date:	Sheet 9 of 53		


PCHA
3VDUAL_PCH
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
1 of 13
RGB LED CONTROL
AUDIO LED
CPU_FAN
SYS_FAN1
PCHE
5 of 13
ON-BOARD DEVICE USED
PCHG
7 of 13
CLK:4/15<1000;Guard GND
PCIEX16
PCIEX1_1
PCIEX1_2
PCIEX4_1
PCIEX1_3
I219V
M.2_A
PCIEX4_2
如果有問題就改回68/4/1
CLK:4/15<1000 mils±100 mils;Guard GND
NX1是否要改為一般用料???
*Footprint : XTALD-PCH
32.768KHZ
ANS 5617610
Gigabyte Technology
PCH CLOCK BUFFER
Z370 HD3
Rev 1.0
Friday, August 18, 2017
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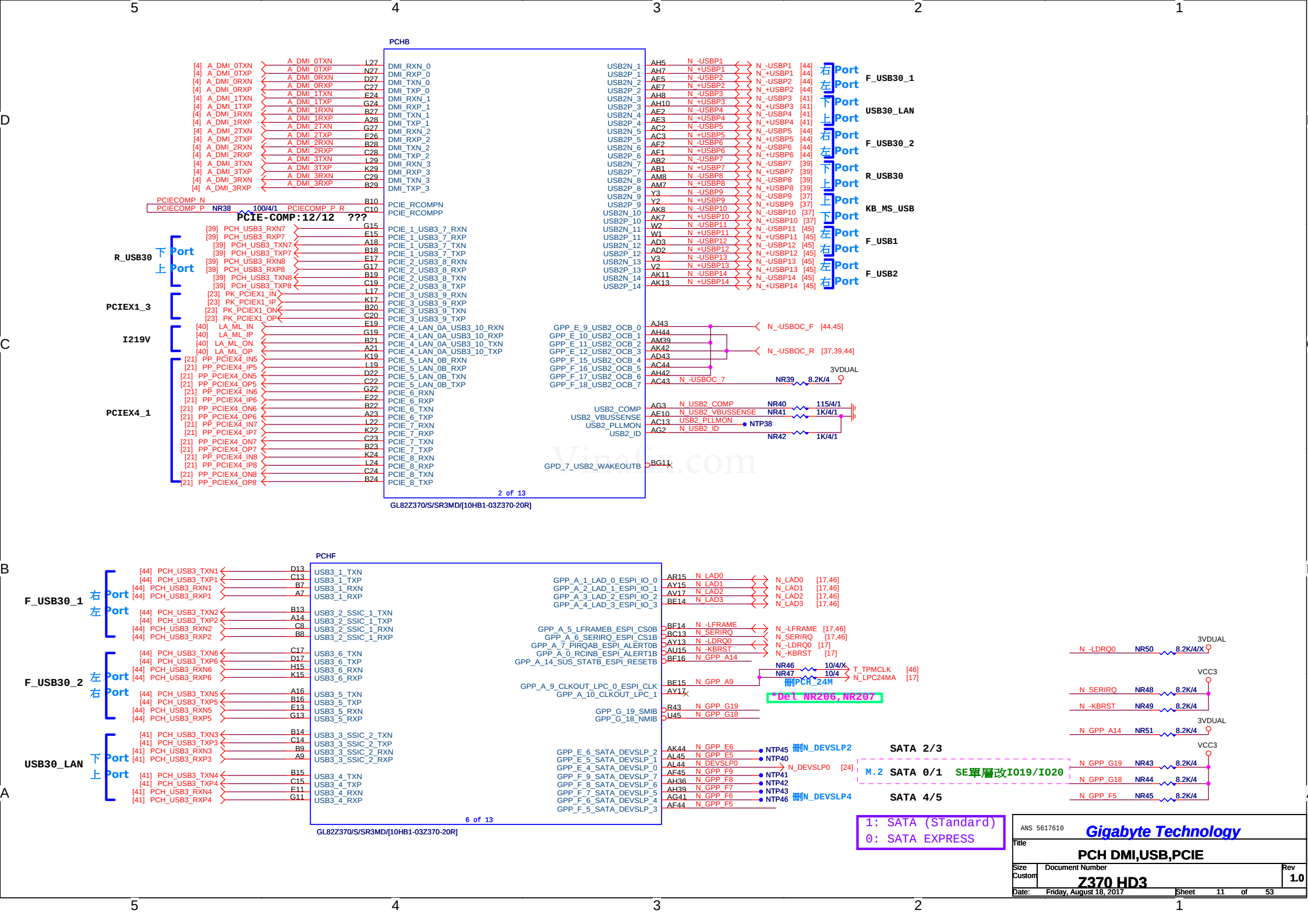
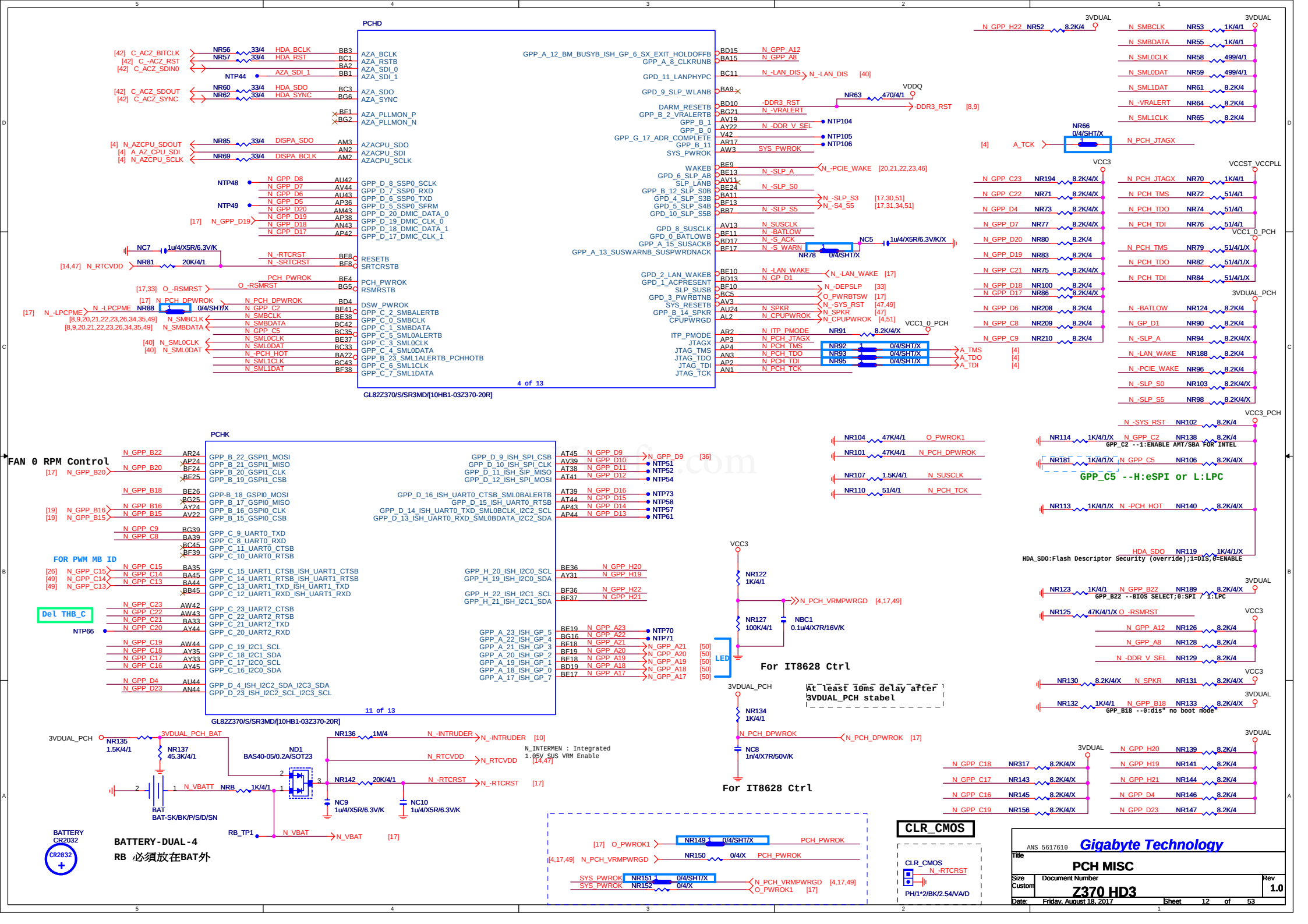

PCHB
PCIE-COMP:12/12 ???
PCIECOMP_N
PCIECOMP_P NR38 100/4/1 PCIECOMP_P_R
R_USB30
PCIEX1_3
I219V
PCIEX4_1
2 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
F_USB30_1
F_USB30_2
USB30_LAN
R_USB30
F_USB1
KB_MS_USB
F_USB2
3VDUAL
VCC3
PCHF
6 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
SATA 2/3
M.2 SATA 0/1
SE單層改IO19/IO20
SATA 4/5
1: SATA (STandard)
0: SATA EXPRESS
Gigabyte Technology
PCH DMI,USB,PCIE
Z370 HD3
Friday, August 18, 2017


PCHD
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
4 of 13
PCHK
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
11 of 13
FAN 0 RPM Control
FOR PWM MB ID
Del THB_C
NTP66
For IT8628 Ctrl
At least 10ms delay after 3VDUAL_PCH stabel
For IT8628 Ctrl
BATTERY-DUAL-4
RB 必须放在BAT外
BATTERY CR2032
CLR_CMOS
GPP_C5 --H:eSPI or L:LPC
HDA_SDO:Flash Descriptor Security (override);1=DIS,0=ENABLE
GPP_C2 --1:ENABLE AMT/SBA FOR INTEL
GPP_B22 --BIOS SELECT;0:SPI / 1:LPC
GPP_B18 --0:dis" no boot mode"
N_INTERMEN : Integrated 1.05V SUS VRM Enable
Gigabyte Technology
ANS 5617610
Title
PCH MISC
Size Custom
Document Number
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Rev 1.0
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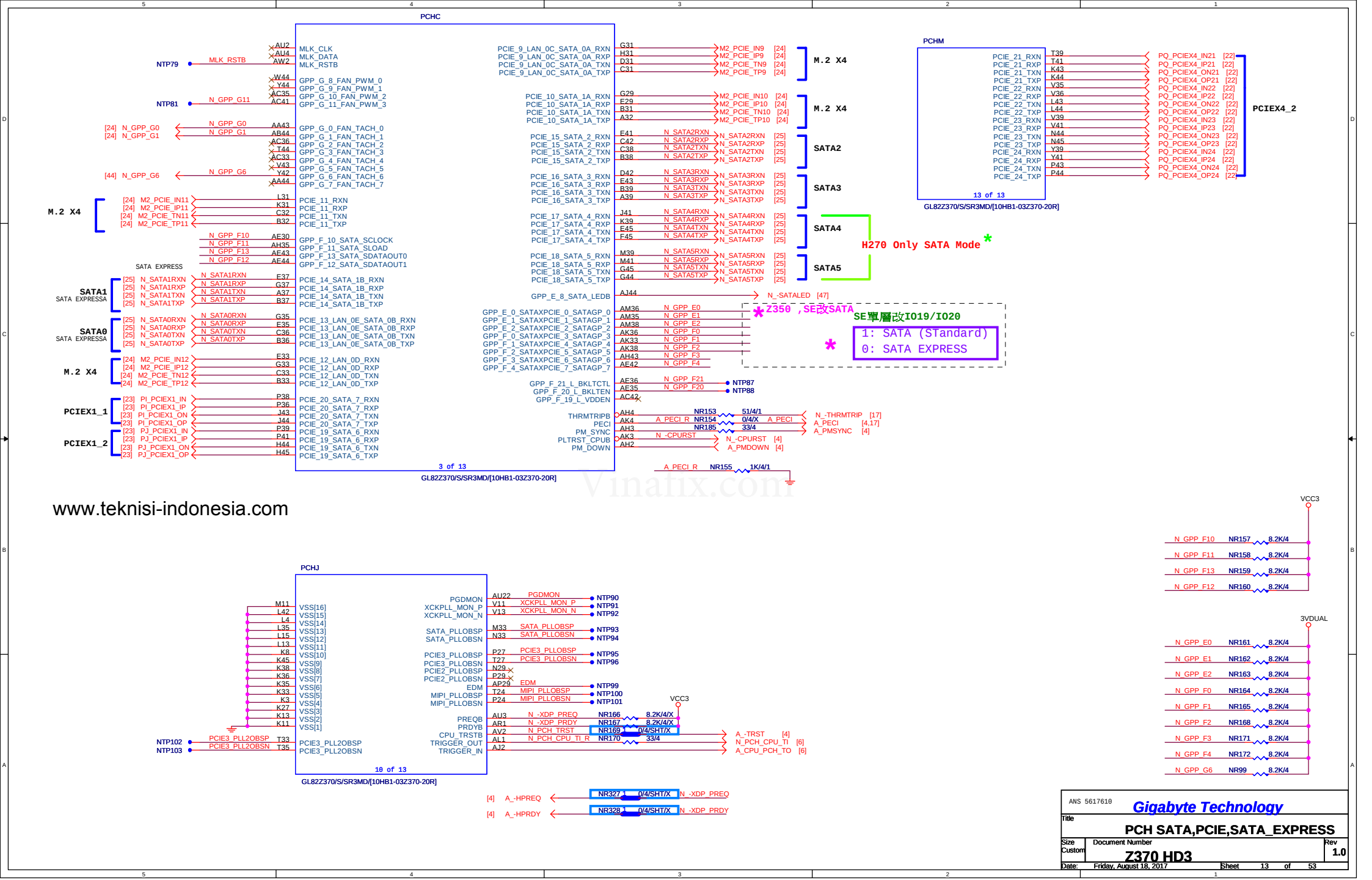
PCHC
MLK_CLK
MLK_DATA
MLK_RSTB
NTP79
NTP81
N_GPP_G11
GPP_G_8_FAN_PWM_0
GPP_G_9_FAN_PWM_1
GPP_G_10_FAN_PWM_2
GPP_G_11_FAN_PWM_3
N_GPP_G0
N_GPP_G1
N_GPP_G6
GPP_G_0_FAN_TACH_0
GPP_G_1_FAN_TACH_1
GPP_G_2_FAN_TACH_2
GPP_G_3_FAN_TACH_3
GPP_G_4_FAN_TACH_4
GPP_G_5_FAN_TACH_5
GPP_G_6_FAN_TACH_6
GPP_G_7_FAN_TACH_7
M.2 X4
PCIE_11_RXN
PCIE_11_RXP
PCIE_11_TXN
PCIE_11_TXP
N_GPP_F10
N_GPP_F11
N_GPP_F13
N_GPP_F12
GPP_F_10_SATA_SCLOCK
GPP_F_11_SATA_SLOAD
GPP_F_13_SATA_SDATAOUT0
GPP_F_12_SATA_SDATAOUT1
SATA EXPRESS
SATA1
SATA EXPRESSA
PCIE_14_SATA_1B_RXN
PCIE_14_SATA_1B_RXP
PCIE_14_SATA_1B_TXN
PCIE_14_SATA_1B_TXP
SATA0
SATA EXPRESSA
PCIE_13_LAN_0E_SATA_0B_RXN
PCIE_13_LAN_0E_SATA_0B_RXP
PCIE_13_LAN_0E_SATA_0B_TXN
PCIE_13_LAN_0E_SATA_0B_TXP
M.2 X4
PCIE_12_LAN_0D_RXN
PCIE_12_LAN_0D_RXP
PCIE_12_LAN_0D_TXN
PCIE_12_LAN_0D_TXP
PCIEX1_1
PCIEX1_2
PCIE_20_SATA_7_RXN
PCIE_20_SATA_7_RXP
PCIE_20_SATA_7_TXN
PCIE_20_SATA_7_TXP
PCIE_19_SATA_6_RXN
PCIE_19_SATA_6_RXP
PCIE_19_SATA_6_TXN
PCIE_19_SATA_6_TXP
3 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
PCIE_9_LAN_0C_SATA_0A_RXN
PCIE_9_LAN_0C_SATA_0A_RXP
PCIE_9_LAN_0C_SATA_0A_TXN
PCIE_9_LAN_0C_SATA_0A_TXP
M.2 X4
PCIE_10_SATA_1A_RXN
PCIE_10_SATA_1A_RXP
PCIE_10_SATA_1A_TXN
PCIE_10_SATA_1A_TXP
M.2 X4
PCIE_15_SATA_2_RXN
PCIE_15_SATA_2_RXP
PCIE_15_SATA_2_TXN
PCIE_15_SATA_2_TXP
SATA2
PCIE_16_SATA_3_RXN
PCIE_16_SATA_3_RXP
PCIE_16_SATA_3_TXN
PCIE_16_SATA_3_TXP
SATA3
PCIE_17_SATA_4_RXN
PCIE_17_SATA_4_RXP
PCIE_17_SATA_4_TXN
PCIE_17_SATA_4_TXP
SATA4
PCIE_18_SATA_5_RXN
PCIE_18_SATA_5_RXP
PCIE_18_SATA_5_TXN
PCIE_18_SATA_5_TXP
SATA5
GPP_E_8_SATA_LEDB
GPP_E_0_SATAXPCIE_0_SATAGP_0
GPP_E_1_SATAXPCIE_1_SATAGP_1
GPP_E_2_SATAXPCIE_2_SATAGP_2
GPP_F_0_SATAXPCIE_3_SATAGP_3
GPP_F_1_SATAXPCIE_4_SATAGP_4
GPP_F_2_SATAXPCIE_5_SATAGP_5
GPP_F_3_SATAXPCIE_6_SATAGP_6
GPP_F_4_SATAXPCIE_7_SATAGP_7
GPP_F_21_L_BKLTCTL
GPP_F_20_L_BKLTEN
GPP_F_19_L_VDDEN
THRMTRIPB
PECI
PM_SYNC
PLTRST_CPUB
PM_DOWN
N_SATA2RXN
N_SATA2RXP
N_SATA2TXN
N_SATA2TXP
N_SATA3RXN
N_SATA3RXP
N_SATA3TXN
N_SATA3TXP
N_SATA4RXN
N_SATA4RXP
N_SATA4TXN
N_SATA4TXP
N_SATA5RXN
N_SATA5RXP
N_SATA5TXN
N_SATA5TXP
N_SATALED
Z350 ,SE改SATA
SE單層改IO19/IO20
1: SATA (STandard)
0: SATA EXPRESS
H270 Only SATA Mode
NTP87
NTP88
A_PECI_R
NR155
1K/4/1
NR153
NR154
NR185
51/4/1
0/4/X
33/4
N_-THRMTRIP
A_PECI
A_PMSYNC
N_-CPURST
A_PMDOWN
PCHM
PCIE_21_RXN
PCIE_21_RXP
PCIE_21_TXN
PCIE_21_TXP
PCIE_22_RXN
PCIE_22_RXP
PCIE_22_TXN
PCIE_22_TXP
PCIE_23_RXN
PCIE_23_TXP
PCIE_24_RXN
PCIE_24_RXP
PCIE_24_TXN
PCIE_24_TXP
13 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
PCIEX4_2
PQ_PCIEX4_IN21
PQ_PCIEX4_IP21
PQ_PCIEX4_ON21
PQ_PCIEX4_OP21
PQ_PCIEX4_IN22
PQ_PCIEX4_IP22
PQ_PCIEX4_ON22
PQ_PCIEX4_OP22
PQ_PCIEX4_IN23
PQ_PCIEX4_IP23
PQ_PCIEX4_ON23
PQ_PCIEX4_OP23
PQ_PCIEX4_IN24
PQ_PCIEX4_IP24
PQ_PCIEX4_ON24
PQ_PCIEX4_OP24
www.teknisi-indonesia.com
PCHJ
VSS[16]
VSS[15]
VSS[14]
VSS[13]
VSS[12]
VSS[11]
VSS[10]
VSS[9]
VSS[8]
VSS[7]
VSS[6]
VSS[5]
VSS[4]
VSS[3]
VSS[2]
VSS[1]
PCIE3_PLL2OBSP
PCIE3_PLL2OBSN
PCIE3_PLL2OBSN
PCIE3_PLL2OBSP
10 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
PGDMON
XCKPLL_MON_P
XCKPLL_MON_N
SATA_PLLOBSP
SATA_PLLOBSN
PCIE3_PLLOBSP
PCIE3_PLLOBSN
PCIE2_PLLOBSP
PCIE2_PLLOBSN
EDM
MIPI_PLLOBSP
MIPI_PLLOBSN
PREQB
PRDYB
CPU_TRSTB
TRIGGER_OUT
TRIGGER_IN
N_-XDP_PREQ
N_-XDP_PRDY
N_PCH_TRST
N_PCH_CPU_TI_R
A_-TRST
N_PCH_CPU_TI
A_CPU_PCH_TO
A_-HPREQ
A_-HPRDY
VCC3
3VDUAL
N_GPP_F10
N_GPP_F11
N_GPP_F13
N_GPP_F12
N_GPP_E0
N_GPP_E1
N_GPP_E2
N_GPP_F0
N_GPP_F1
N_GPP_F2
N_GPP_F3
N_GPP_F4
N_GPP_G6
8.2K/4
8.2K/4X
0/4/SHT/X
ANS 5617610
Gigabyte Technology
Title
PCH SATA,PCIE,SATA_EXPRESS
Size
Custom
Document Number
Z370 HD3
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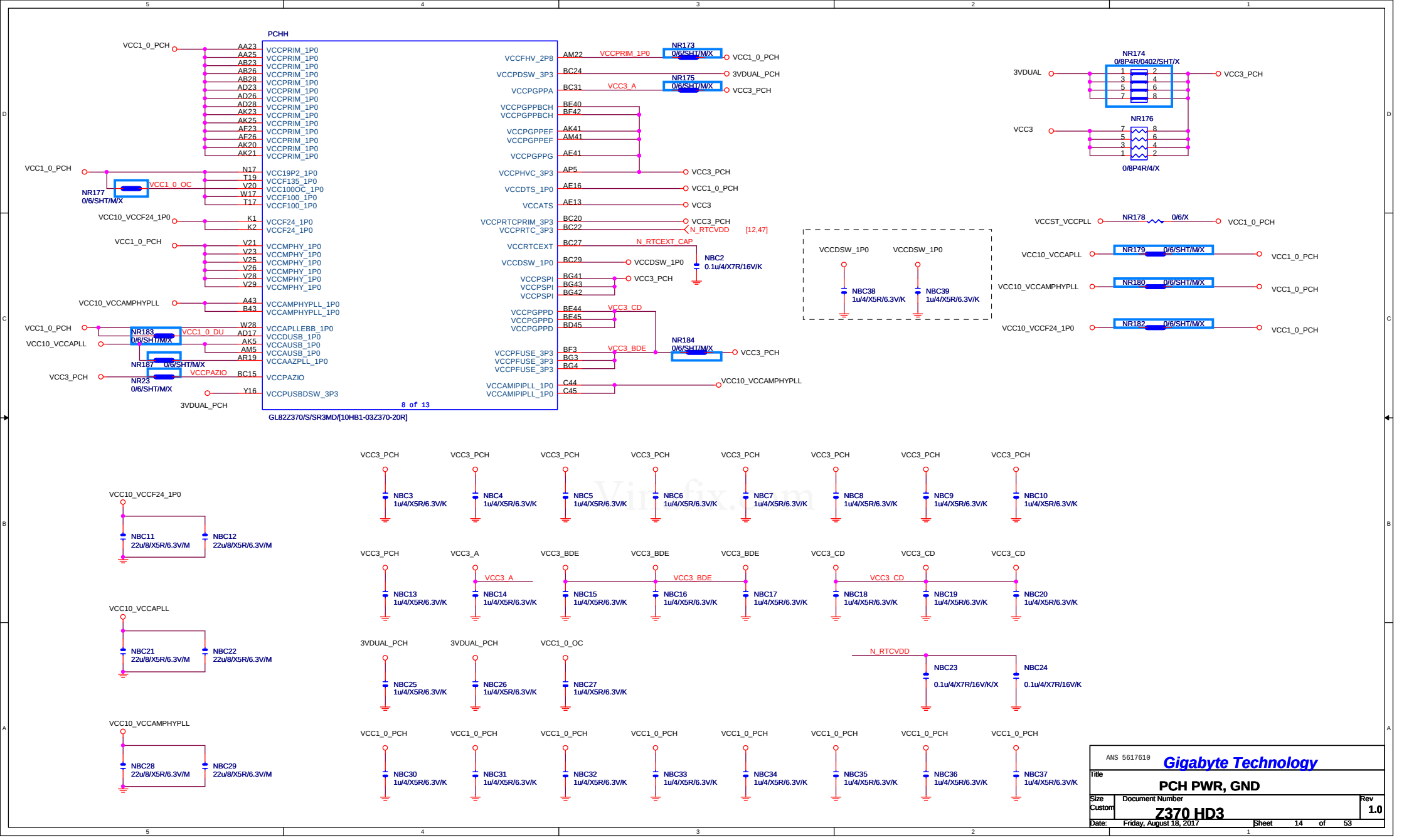
13
of
53


PCHH
VCC1_0_PCH
AA23 AA25 AB23 AB26 AB28 AD23 AD26 AD28 AK23 AK25 AF23 AF26 AK20 AK21
VCCPRIM_1P0
N17 T19 V20 W17 T17
VCC19P2_1P0 VCCF135_1P0 VCC100OC_1P0 VCCF100_1P0 VCCF100_1P0
NR177 0/6/SHT/M/X
VCC1_0_OC
VCC10_VCCF24_1P0
K1 K2
VCCF24_1P0 VCCF24_1P0
V21 V23 V25 V26 V28 V29
VCCMPHY_1P0
A43 B43
VCCAMPHYPLL_1P0 VCCAMPHYPLL_1P0
W28 AD17 AK5 AM5 AR19
VCCAPLLEBB_1P0 VCCDUSB_1P0 VCCAUSB_1P0 VCCAUSB_1P0 VCCAAZPLL_1P0
NR183 0/6/SHT/M/X
VCC1_0_DU
NR187 0/6/SHT/M/X
VCCPAZIO
BC15
VCCPAZIO
NR23 0/6/SHT/M/X
Y16
VCCPUSBDSW_3P3
3VDUAL_PCH
8 of 13
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]
VCCFHV_2P8 AM22 VCCPRIM_1P0 NR173 0/6/SHT/M/X VCC1_0_PCH
VCCPDSW_3P3 BC24 NR175 0/6/SHT/M/X 3VDUAL_PCH
VCCPGPPA BC31 VCC3_A VCC3_PCH
VCCPGPPBCH BE40 BF42
VCCPGPPEF AK41 AM41
VCCPGPPG AE41
VCCPHVC_3P3 AP5 VCC3_PCH
VCCDTS_1P0 AE16 VCC1_0_PCH
VCCATS AE13 VCC3
VCCPRTCPRIM_3P3 BC20 VCC3_PCH
VCCPRTC_3P3 BC22 N_RTCVDD [12,47]
VCCRTCEXT BC27 N_RTCEXT_CAP NBC2 0.1u/4/X7R/16V/K
VCCDSW_1P0 BC29 VCCDSW_1P0
VCCPSPI BG41 BG43 BG42 VCC3_PCH
VCCPGPPD BE44 BE45 BD45 VCC3_CD
VCCPFUSE_3P3 BF3 BG3 BG4 VCC3_BDE NR184 0/6/SHT/M/X VCC3_PCH
VCCAMIPIPLL_1P0 C44 C45 VCC10_VCCAMPHYPLL
3VDUAL NR174 0/8P4R/0402/SHT/X VCC3_PCH
VCC3 NR176 0/8P4R/4/X
VCCDSW_1P0 VCCDSW_1P0
NBC38 1u/4/X5R/6.3V/K
NBC39 1u/4/X5R/6.3V/K
VCCST_VCCPLL NR178 0/6/X VCC1_0_PCH
VCC10_VCCAPLL NR179 0/6/SHT/M/X VCC1_0_PCH
VCC10_VCCAMPHYPLL NR180 0/6/SHT/M/X VCC1_0_PCH
VCC10_VCCF24_1P0 NR182 0/6/SHT/M/X VCC1_0_PCH
VCC10_VCCF24_1P0
NBC11 22u/8/X5R/6.3V/M
NBC12 22u/8/X5R/6.3V/M
VCC10_VCCAPLL
NBC21 22u/8/X5R/6.3V/M
NBC22 22u/8/X5R/6.3V/M
VCC10_VCCAMPHYPLL
NBC28 22u/8/X5R/6.3V/M
NBC29 22u/8/X5R/6.3V/M
VCC3_PCH
NBC3 1u/4/X5R/6.3V/K
NBC4 1u/4/X5R/6.3V/K
NBC5 1u/4/X5R/6.3V/K
NBC6 1u/4/X5R/6.3V/K
NBC7 1u/4/X5R/6.3V/K
NBC8 1u/4/X5R/6.3V/K
NBC9 1u/4/X5R/6.3V/K
NBC10 1u/4/X5R/6.3V/K
VCC3_A
NBC13 1u/4/X5R/6.3V/K
NBC14 1u/4/X5R/6.3V/K
VCC3_BDE
NBC15 1u/4/X5R/6.3V/K
NBC16 1u/4/X5R/6.3V/K
NBC17 1u/4/X5R/6.3V/K
VCC3_CD
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
VCC1_0_OC
NBC27 1u/4/X5R/6.3V/K
N_RTCVDD
NBC23 0.1u/4/X7R/16V/K/X
NBC24 0.1u/4/X7R/16V/K
VCC1_0_PCH
NBC30 1u/4/X5R/6.3V/K
NBC31 1u/4/X5R/6.3V/K
NBC32 1u/4/X5R/6.3V/K
NBC33 1u/4/X5R/6.3V/K
NBC34 1u/4/X5R/6.3V/K
NBC35 1u/4/X5R/6.3V/K
NBC36 1u/4/X5R/6.3V/K
NBC37 1u/4/X5R/6.3V/K
ANS 5617610
Gigabyte Technology
Title
PCH PWR, GND
Size Custom
Document Number
Z370 HD3
Rev 1.0
Date: Friday, August 18, 2017
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裝甲HEATSINK 分成四大部份

PCHI

A25	VSS	VSS	A42
A30	VSS	VSS	D45
P22	VSS	VSS	BG44
AV38	VSS	VSS	BF44
AV45	VSS	VSS	BF45
AV8	VSS	VSS	BF2
AY11	VSS	VSS	W29
AY19	VSS	VSS	A35
AY37	VSS	VSS	A40
AY4	VSS	VSS	A41
AY42	VSS	VSS	AA17
AY8	VSS	VSS	AA18
B25	VSS	VSS	AA20
B3	VSS	VSS	AA21
B30	VSS	VSS	AA26
B35	VSS	VSS	AA28
B4	VSS	VSS	AA29
B41	VSS	VSS	AB17
BA13	VSS	VSS	AC32
BA17	VSS	VSS	AE4
BA29	VSS	VSS	AE8
BA31	VSS	VSS	AF18
BA37	VSS	VSS	AF20
BA4	VSS	VSS	AF21
BA42	VSS	VSS	AF25
BB40	VSS	VSS	AF28
BC38	VSS	VSS	AF29
BC40	VSS	VSS	AF4
BC9	VSS	VSS	AF42
BD11	VSS	VSS	AG18
BD16	VSS	VSS	AG20
BD2	VSS	VSS	AG21
BD21	VSS	VSS	AG23
BD25	VSS	VSS	AG25
F2	VSS	VSS	AG26
E31	VSS	VSS	AG28
E6	VSS	VSS	AG29
E8	VSS	VSS	AH11
F39	VSS	VSS	AH13
F43	VSS	VSS	AH30
G4	VSS	VSS	AH32
G40	VSS	VSS	AH33
G42	VSS	VSS	AH38
F6	VSS	VSS	AJ1
G9	VSS	VSS	AJ17
H11	VSS	VSS	AJ18
H13	VSS	VSS	AJ20
H17	VSS	VSS	AJ21
H19	VSS	VSS	AJ23
H22	VSS	VSS	AJ25
H24	VSS	VSS	AJ26
H27	VSS	VSS	AJ28
H29	VSS	VSS	AJ29
H33	VSS	VSS	AJ45
H35	VSS	VSS	AK10
H38	VSS	VSS	AK14
H4	VSS	VSS	AK16
H42	VSS	VSS	AK17
H9	VSS	VSS	AK18
J4	VSS	VSS	AK26
M36	VSS	VSS	AK28
M38	VSS	VSS	AM14
M4	VSS	VSS	AN14
M8	VSS	VSS	AP19
M9	VSS	VSS	AR22
N13	VSS	VSS	AR27
N15	VSS	VSS	AU29
N19	VSS	VSS	AU33
N22	VSS	VSS	AV1
N24	VSS	VSS	AV10
N31	VSS	VSS	AV15
N42	VSS	VSS	AV24
P10	VSS	VSS	AV27
P12	VSS	VSS	AV33
AV35	VSS	VSS	

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GL82Z370/S/SR3MD/[10HB1-03Z370-20R]

PCHL

BD34	VSS[70]	VSS[1]	AB18
BD39	VSS[71]	VSS[2]	AB20
BD7	VSS[72]	VSS[3]	AB21
BE2	VSS[73]	VSS[4]	AB25
BF43	VSS[74]	VSS[5]	AB29
BF5	VSS[75]	VSS[6]	AB4
BG18	VSS[76]	VSS[7]	AB42
BG23	VSS[77]	VSS[8]	AC10
BG28	VSS[78]	VSS[9]	AC11
BG32	VSS[79]	VSS[10]	AC14
BG37	VSS[80]	VSS[11]	AC16
BG40	VSS[81]	VSS[12]	AC38
BG9	VSS[83]	VSS[13]	AC4
C1	VSS[84]	VSS[14]	AC5
A12	VSS[85]	VSS[15]	AC7
C2	VSS[86]	VSS[16]	AC8
C37	VSS[87]	VSS[17]	AD1
A6	VSS[88]	VSS[18]	AD18
C9	VSS[89]	VSS[19]	AD20
D1	VSS[90]	VSS[20]	AD21
D10	VSS[91]	VSS[21]	AD25
D12	VSS[92]	VSS[22]	AD29
D15	VSS[93]	VSS[23]	AD45
D16	VSS[94]	VSS[24]	AE11
B12	VSS[95]	VSS[25]	AE14
D19	VSS[96]	VSS[26]	AE32
D21	VSS[97]	VSS[27]	AE33
D24	VSS[98]	VSS[28]	AE38
D25	VSS[99]	VSS[29]	AK29
D29	VSS[100]	VSS[30]	AK30
D30	VSS[101]	VSS[31]	AK32
D33	VSS[102]	VSS[32]	AK35
D35	VSS[103]	VSS[33]	AK39
D36	VSS[104]	VSS[34]	AL4
D39	VSS[105]	VSS[35]	AL42
D44	VSS[106]	VSS[36]	AM10
D7	VSS[107]	VSS[37]	AM11
P13	VSS[108]	VSS[38]	AM13
P15	VSS[109]	VSS[39]	AM17
P17	VSS[110]	VSS[40]	AM19
P19	VSS[111]	VSS[41]	AM24
P31	VSS[112]	VSS[42]	AM27
P33	VSS[113]	VSS[43]	AM29
P35	VSS[114]	VSS[44]	AM32
P4	VSS[115]	VSS[45]	AM33
P42	VSS[116]	VSS[46]	AM4
P8	VSS[117]	VSS[47]	AN45
R1	VSS[118]	VSS[48]	AP10
R32	VSS[119]	VSS[49]	AP11
T10	VSS[120]	VSS[50]	AP13
T14	VSS[121]	VSS[51]	AP15
T22	VSS[122]	VSS[52]	AP22
T29	VSS[123]	VSS[53]	AP27
T32	VSS[124]	VSS[54]	AP31
T36	VSS[125]	VSS[55]	AP33
T38	VSS[126]	VSS[56]	AP34
Y38	VSS[151]	VSS[57]	AP39
Y4	VSS[152]	VSS[127]	T4
Y8	VSS[153]	VSS[143]	W26
T42	VSS[154]	VSS[128]	V16
T5	VSS[155]	VSS[129]	V17
U4	VSS[156]	VSS[130]	V18
U42	VSS[157]	VSS[131]	V30
V10	VSS[158]	VSS[132]	V32
V14	VSS[159]	VSS[133]	V33
W3	VSS[144]	VSS[134]	V38
AR13	VSS[58]	VSS[135]	V4
AR31	VSS[59]	VSS[136]	V8
AR33	VSS[60]		
AR4	VSS[61]	VSS[138]	W18
AT10	VSS[62]	VSS[139]	W20
AT13	VSS[63]	VSS[140]	W21
AT35	VSS[64]	VSS[141]	W23
AT37	VSS[65]	VSS[142]	W25
AT42	VSS[66]		
AU11	VSS[67]	VSS_1	A44
AU17	VSS[68]	VSS_10	BE1
BD30	VSS[69]	VSS_11	BD1
W45	VSS[145]	VSS_14	B1
Y13	VSS[146]	VSS_15	A2
Y14	VSS[147]	VSS_16	B2
Y30	VSS[148]	VSS_17	A3
Y32	VSS[149]	VSS_18	A4
Y33	VSS[150]	VSS_2	B44
BG14	VSS_BG14	VSS_3	B45

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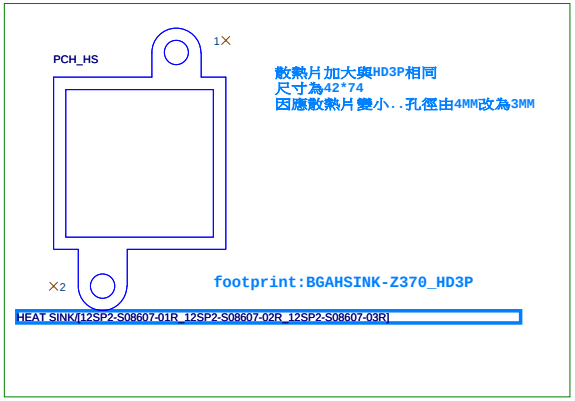
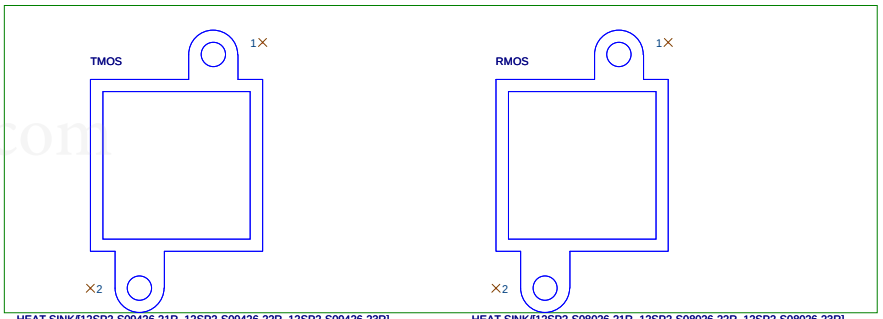
GL82Z370/S/SR3MD/[10HB1-03Z370-20R]

Location: PCH_HS 12SP2-S08607-01R/02R/03R
Location: TMOS 12SP2-S09426-21R/22R/23R
Location: RMOS 12SP2-S08026-21R/22R/23R





HEAT SINK/[12SP2-S09426-21R_12SP2-S09426-22R_12SP2-S09426-23R]
T footprint:MOSHSINK-Z370_HD3P-T

HEAT SINK/[12SP2-S08026-21R_12SP2-S08026-22R_12SP2-S08026-23R]
R footprint:MOSHSINK-Z370_HD3P-R

刪AUDIO_HS

Footprint :
X99-ARMOR-AUDIO

刪REAR_ARMOR

Footprint :
REAR_ARMOR-Z270X-GAMING7

鐵件裝甲

刪REAR_HS

Footprint :
Z270X-GAMING7_ARMOR

塑膠裝甲

* PCB顏色 : 咖啡黑(咖啡)
* 文字面 : 灰色
* 圖騰 : 灰色斜線
圖騰A

ANS 5617610 Gigabyte Technology

Title: PCH PWR, GND

Size: Custom | Document Number: Z370 HD3 | Rev: 1.0

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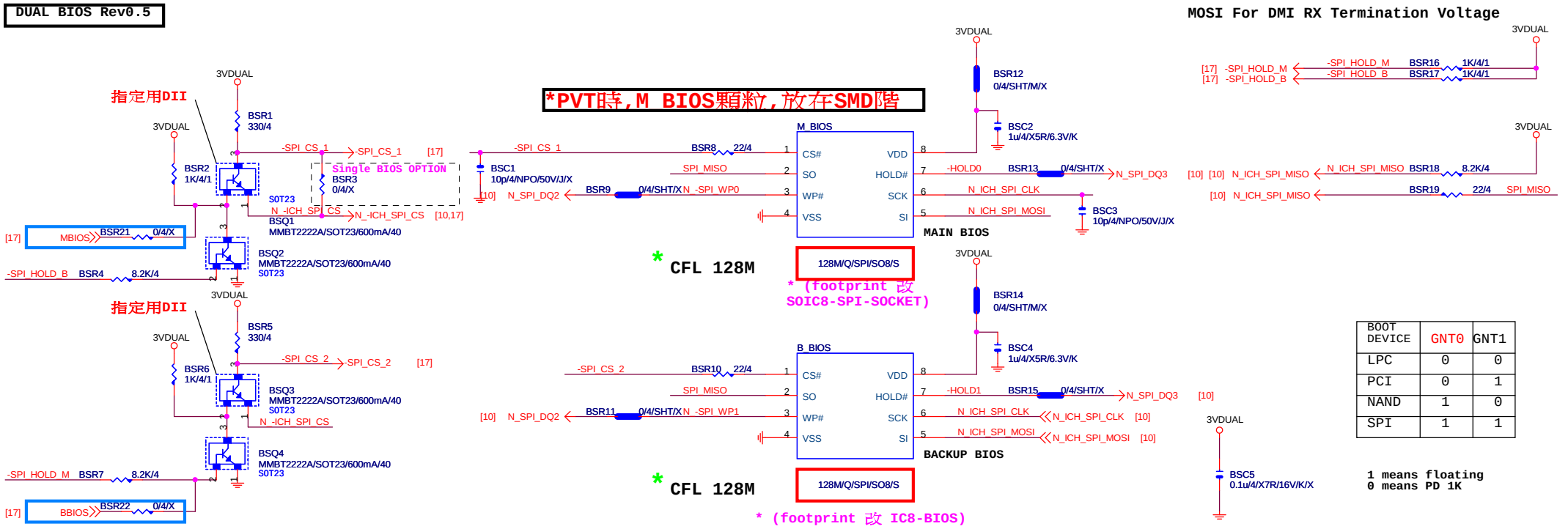

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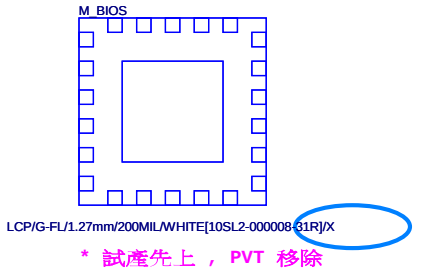

Gigabyte Technology	
Title	BIOS
Size: Custom	Document Number: Z370 HD3
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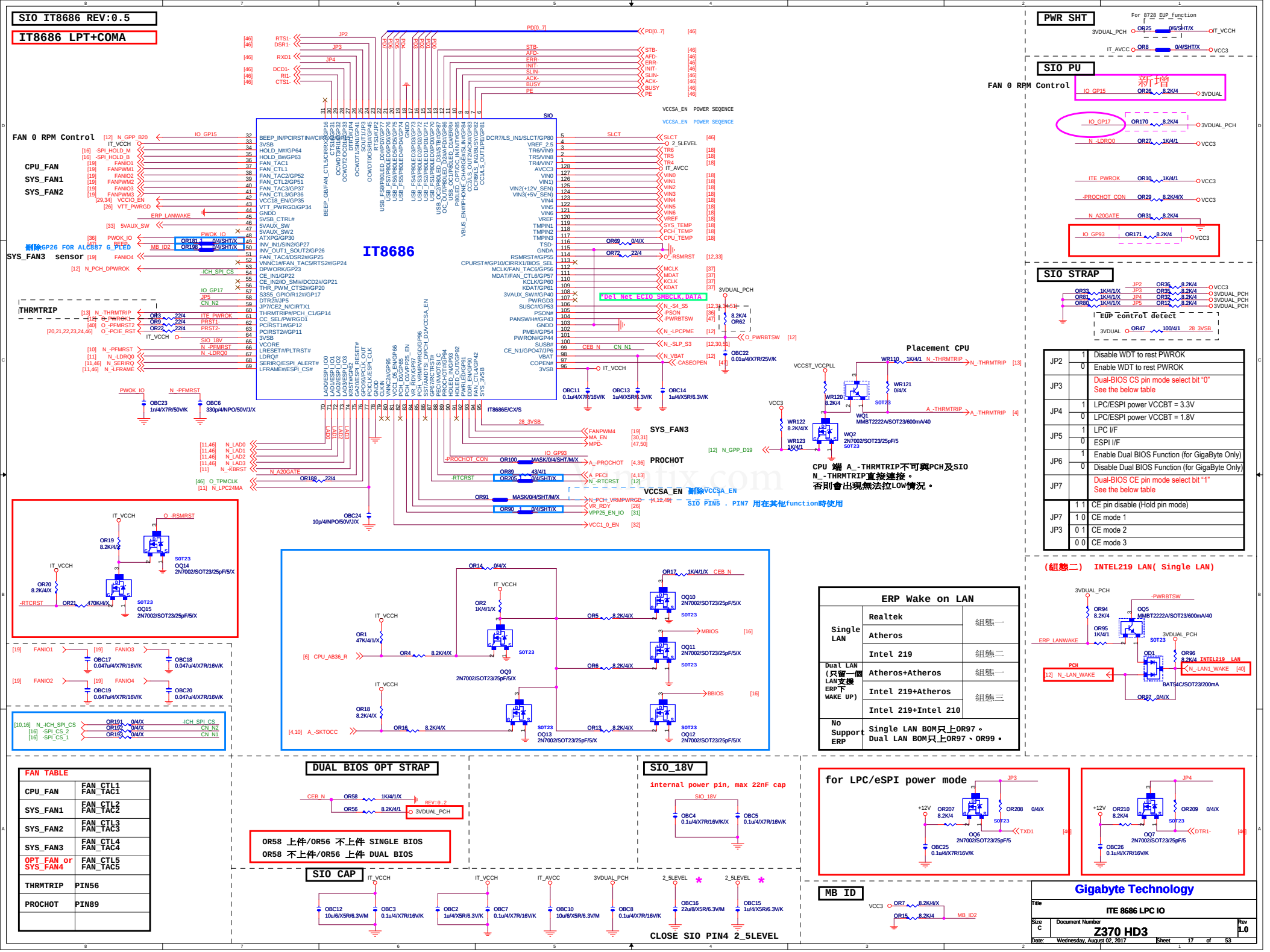
SIO IT8686 REV:0.5

IT8686 LPT+COMA



PWR SHT

SIO PU

SIO STRAP

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

(組態二) INTEL219 LAN(Single LAN)

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

SIO_18V

internal power pin, max 22nF cap

for LPC/eSPI power mode

SIO CAP

CLOSE SIO PIN4 2_5LEVEL

MB ID

Gigabyte Technology

Title	ITE 8686 LPC IO
Size C	Document Number Z370 HD3
Rev	1.0
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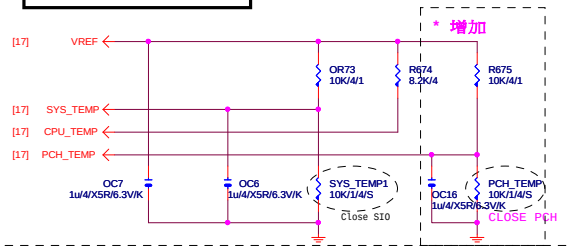
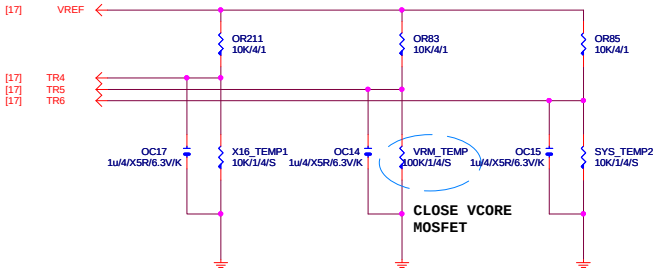
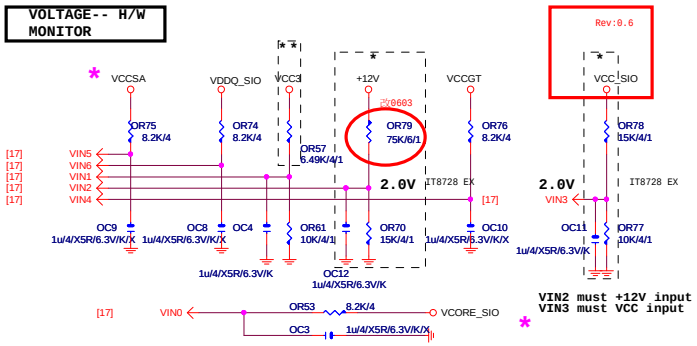
TEMP H/W MONITOR Rev0.5



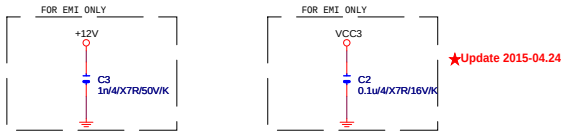
5個FAN時使用



VOLTAGE-- H/W MONITOR



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



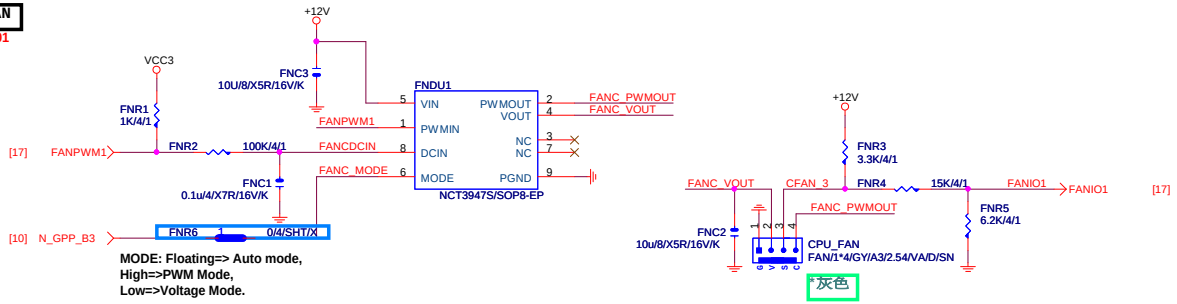
★Update 2015-04.24

Gigabyte Technology			
Title: HWM,KB/MS, FAN CTRL			
Size: Custom	Document Number: Z370 HD3		Rev: 1.0
Date: Friday, July 28, 2017		Sheet 18 of 53	

Rev: 0.2

CPU SMART FAN

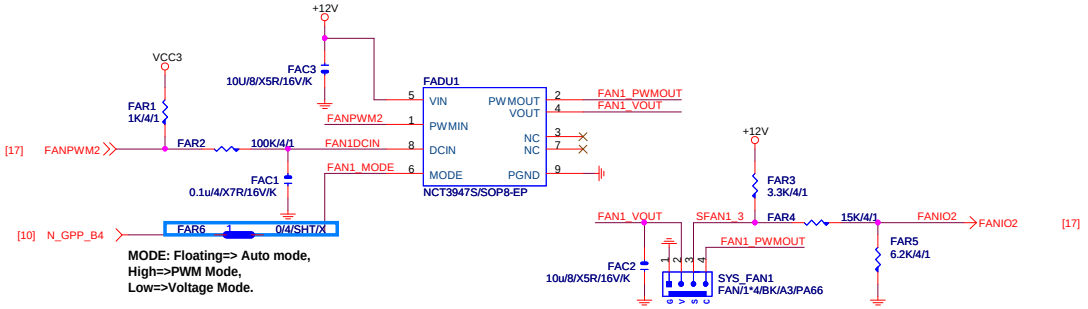
★Update 2016.06.01



MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM FAN1

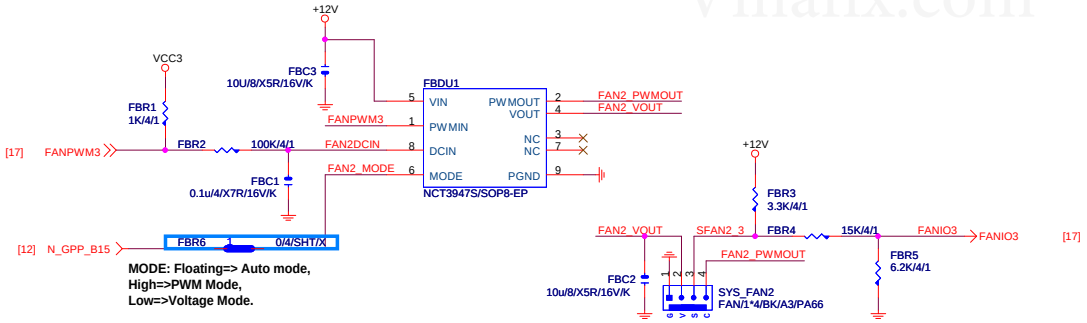
A.



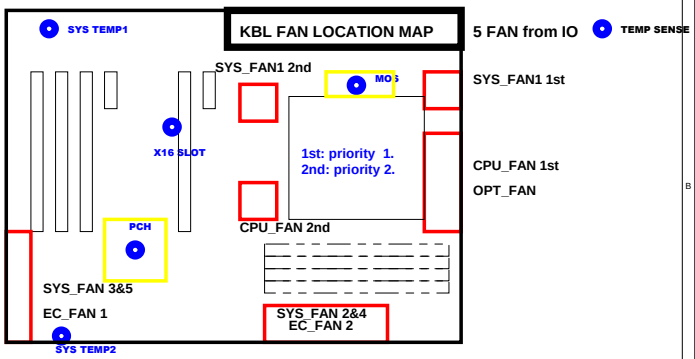
MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

SYSTEM FAN2

B.

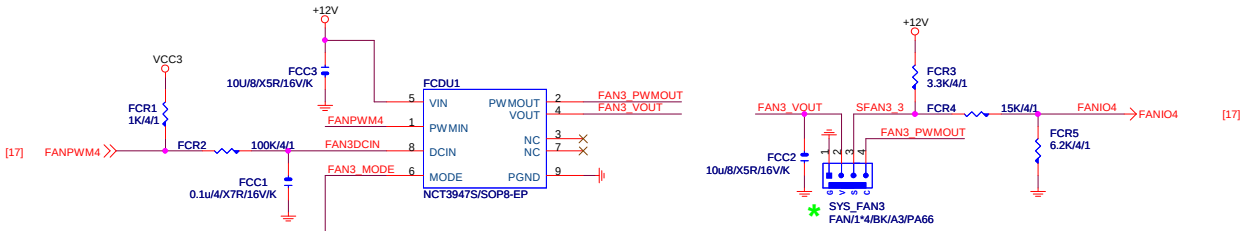


MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.



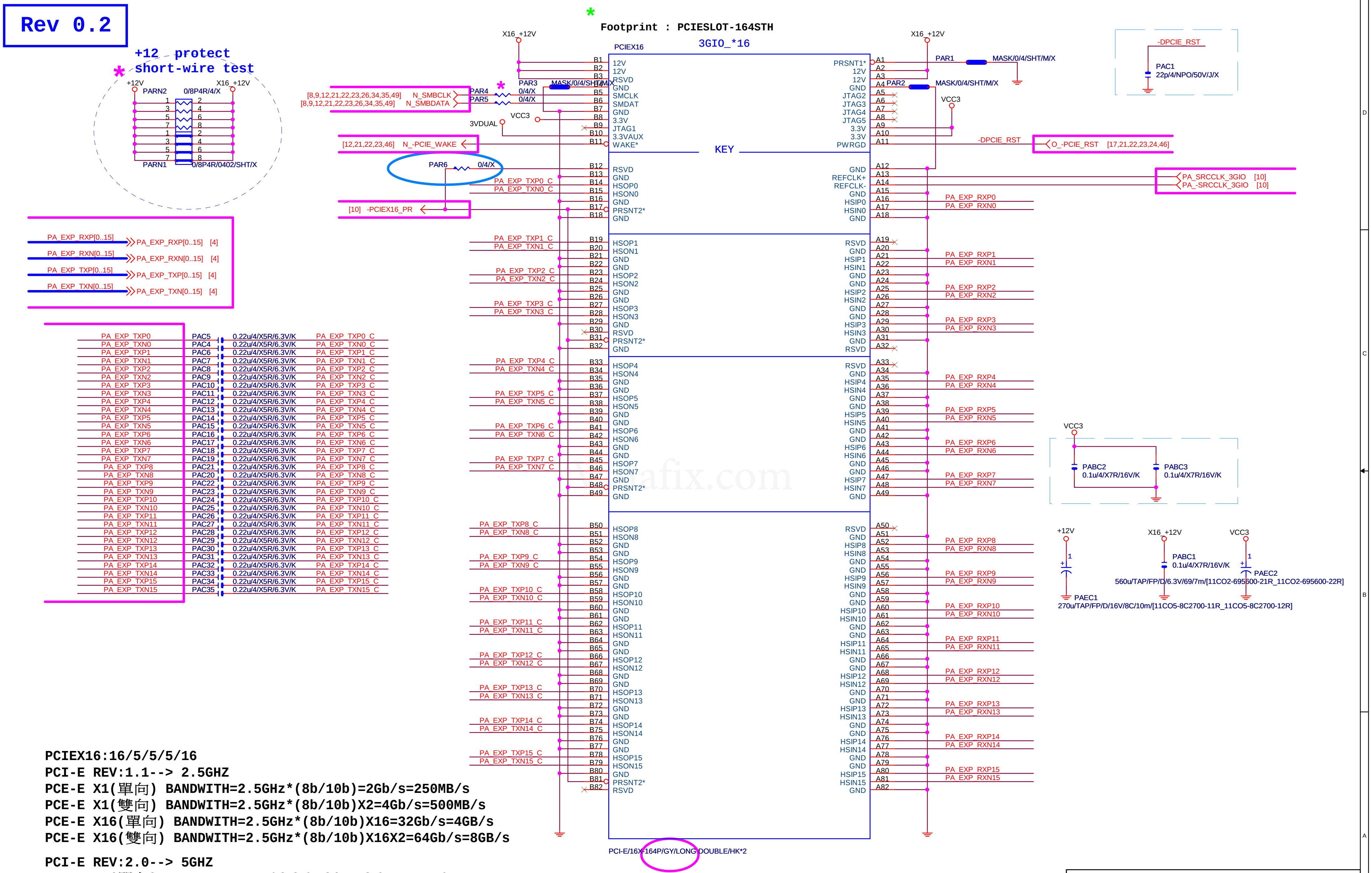
SYSTEM FAN3

C.



MODE: Floating=> Auto mode,
High=>PWM Mode,
Low=>Voltage Mode.

Gigabyte Technology	
Title	FAN CTRL-CFL-SIO_4 FAN
Size: Custom	Document Number: Z370 HD3
Rev	1.0
Date: Friday, July 28, 2017	Sheet 19 of 53



PCIEX16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

PCI-E REV:2.0--> 5GHZ

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

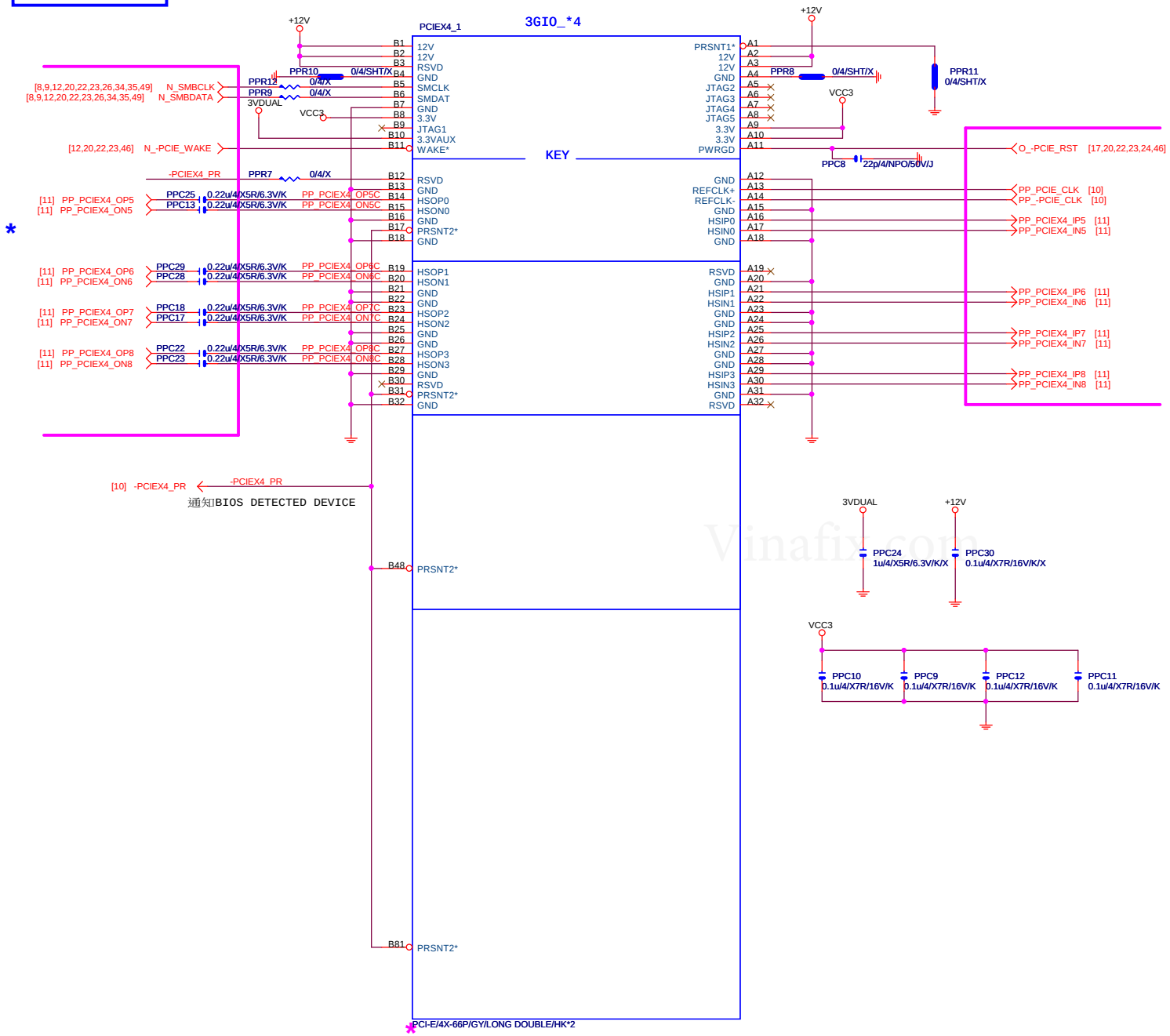
深灰色 (預留金屬加強,不上)

Gigabyte Technology	
Title	PCI EXPRESS * 16
Size: Custom	Document Number: Z370 HD3 — Rev 1.0
Date: Friday, July 28, 2017	Sheet 20 of 53

Rev 0.51

PCIE*4 *

Footprint "PCIESLOT-64STH-1"



深灰色 （預留金屬加強,不上）

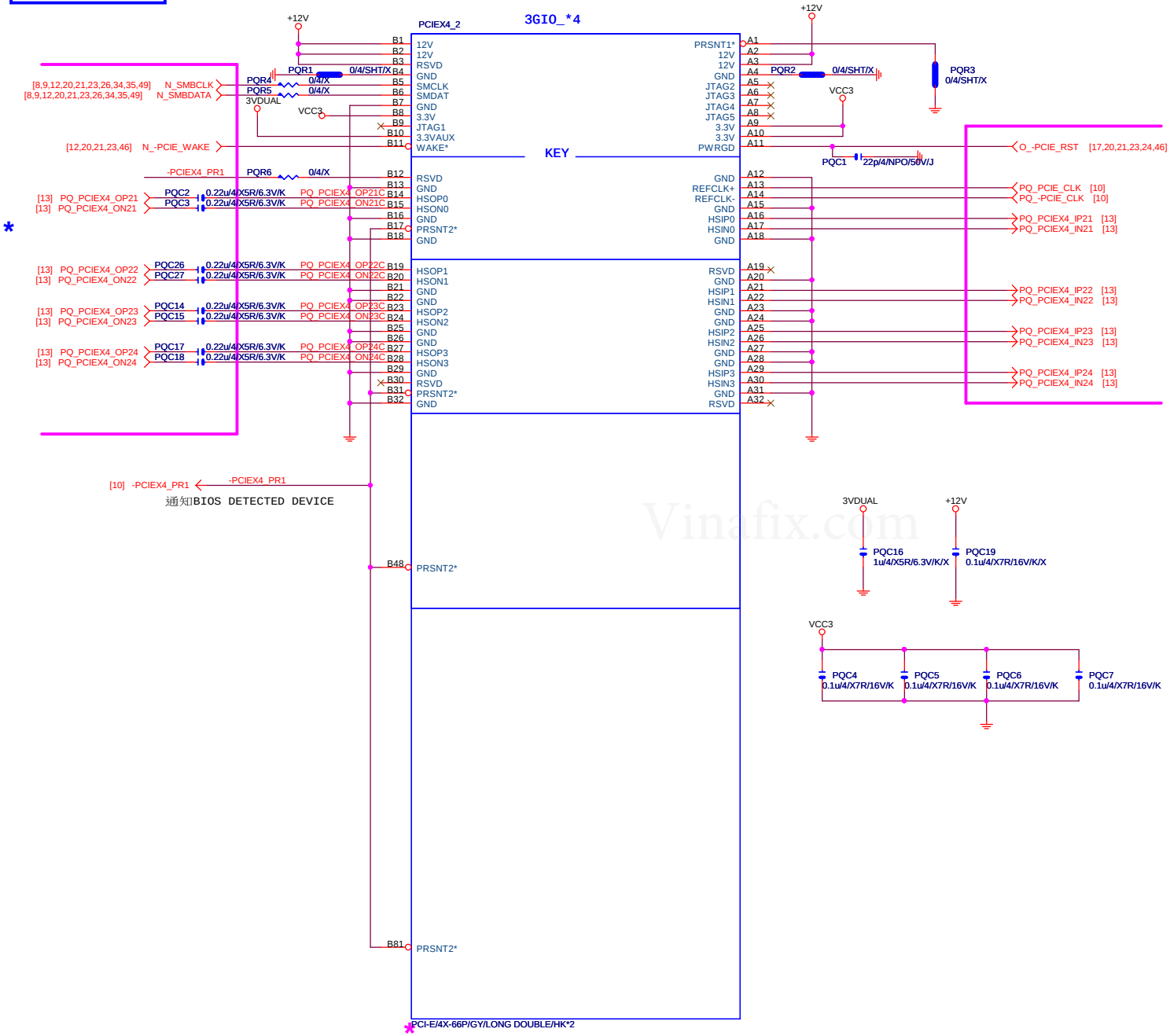
GIGABYTE™

Title	ASM1142 & ASM2142 co-lay	
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 21 of 53	

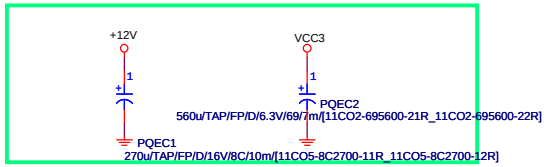
Rev 0.51

PCIE*4 *

Footprint "PCIESLOT-64P-1"



Add PQEC1,PQEC2

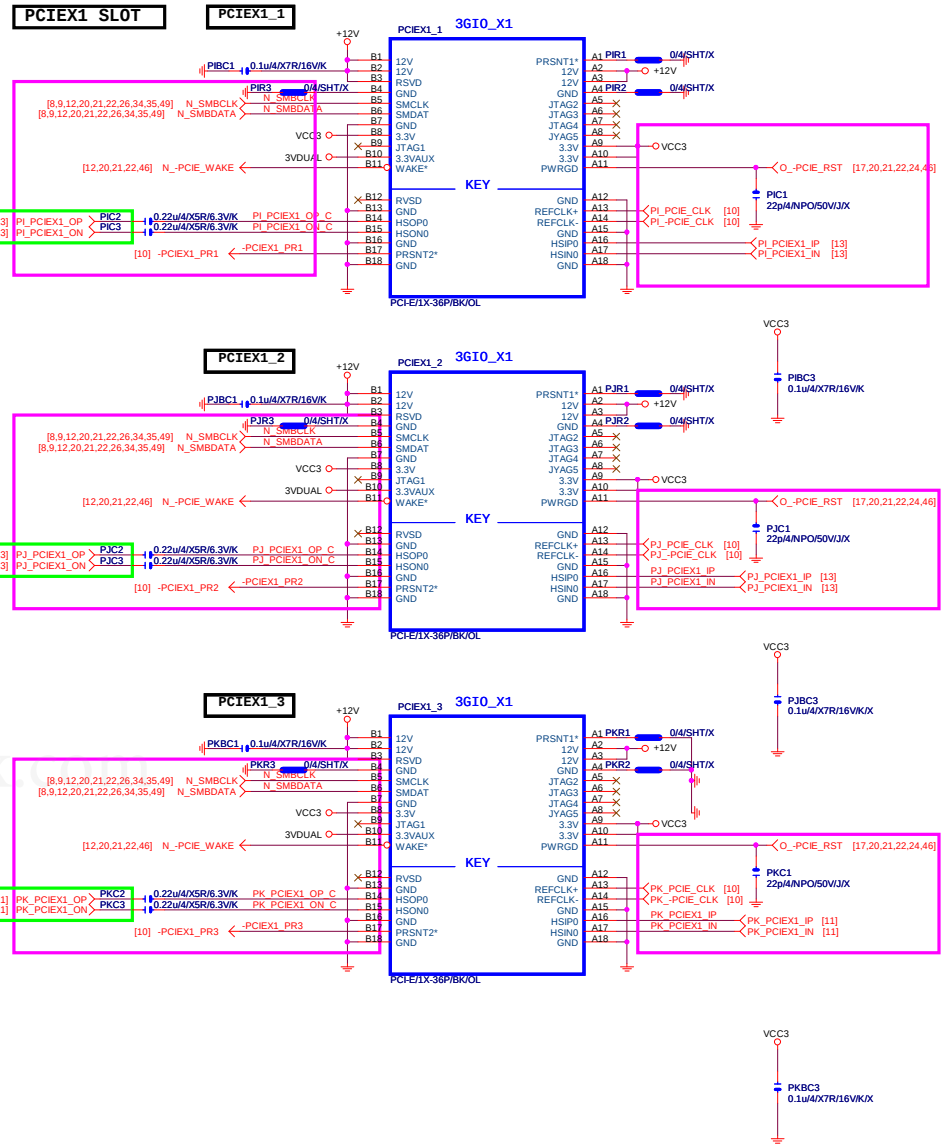


深灰色 (不留金屬加強,也不上)

Gigabyte Technology		
Title: PCIE_X4		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 22 of 53	

Rev 0.51

3個X1 ,不用SWITCH



Gigabyte Technology		
Title: PCIEX1		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
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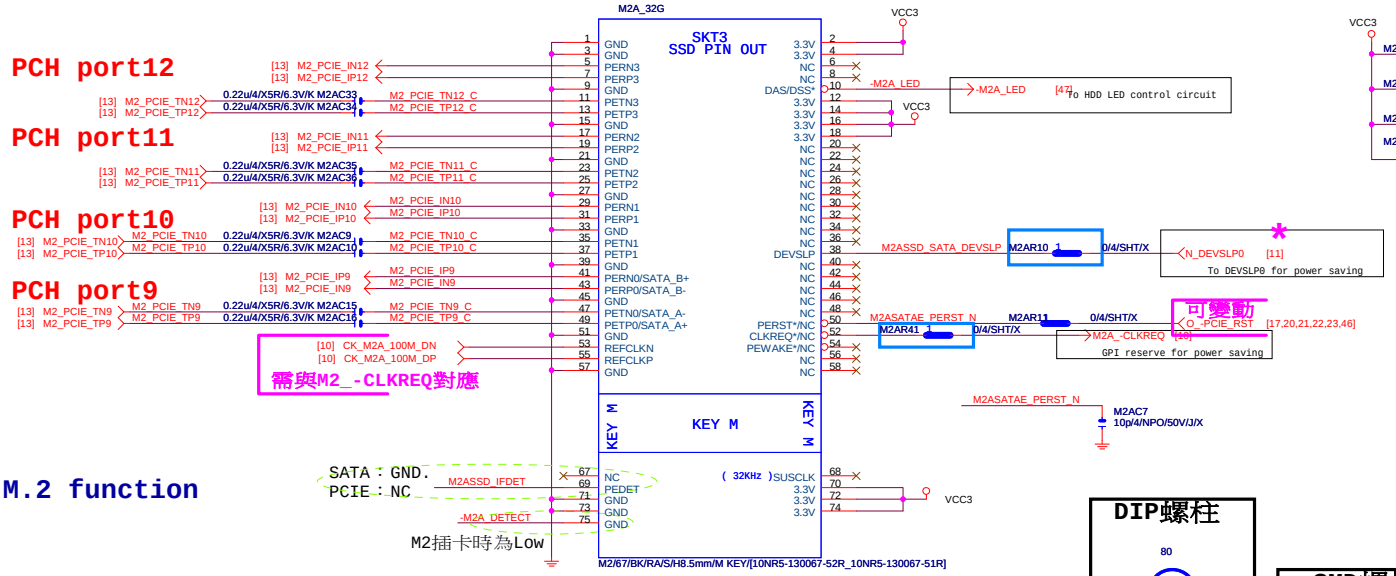
Rev 0.6

M.2 Lane3 from PCH port12

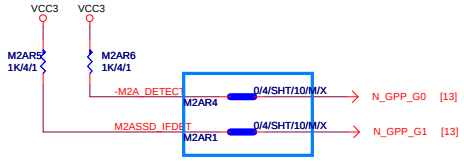
M.2 Lane2 from PCH port11

M.2 Lane1 from PCH port10

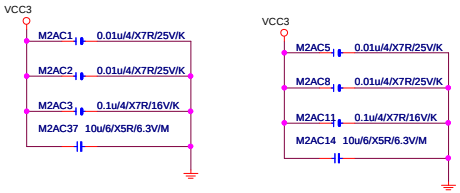
M.2 Lane0 from PCH port9

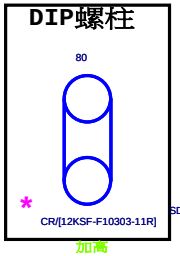


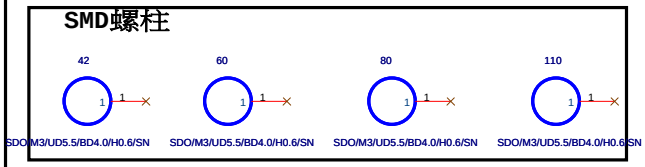
支援SATA and M.2 function



Footprint : NGFF-M-75P-11CM-3-SMD







Footprint : HOLE_C236D165-A

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

Gigabyte Technology

Title: M.2 X4

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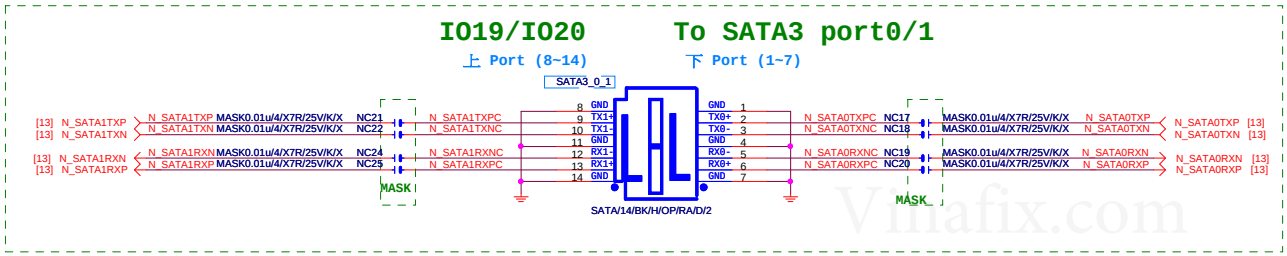

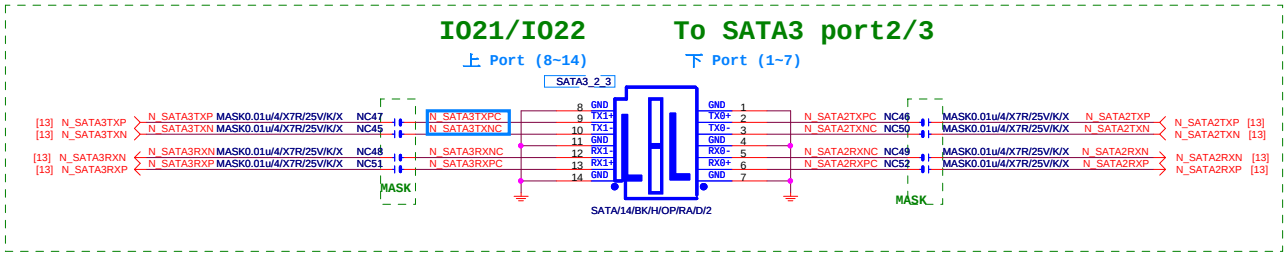

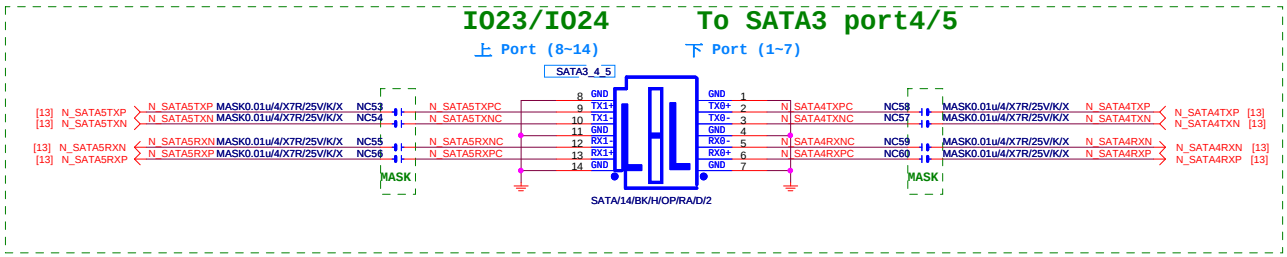

SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)

Gigabyte Technology			
Title: SATA			
Size: Custom	Document Number: Z370 HD3		Rev: 1.0
Date: Friday, July 28, 2017	Sheet 25 of 53		

REV:0.32

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

5VDUAL
+12V
DAR128 8.2K/4
DAQ5 2N7002/SOT23/25pF/5
S0T23
V_95856

3VDUAL
H:ISL95856 or ISL95858
L:ISL95866 or ISL95868
NR400 8.2K/4
NR401 8.2K/4/X
N_GPP_C15 [12]
close to PCH

0726 rev0.3
VCC3
DAR146 100K/4/1 IMON_A_1
DAR145 8.2K/4
DAQ8 2N7002/SOT23/25pF/5
S0T23
PCH side PH
DAR143 8.2K/4/X
DAR144 8.2K/4
DAQ9 2N7002/SOT23/25pF/5
[10] IMON_GPIO
DAC45 0.022u/4/X7R/25V/K
連接至PCH GPP_G22

VCCST_VCCPLL
VCCST_VCCPLL
VCC3
VIN
不上件
DAC40 1u/4/X5R/6.3V/K
DAR12 100/4/1
DAR13 100/4/1/X
DAR14 45.3/4/1
DAR17 2K/4/1/X
DAR18 2K/4/1
DAR19 10K/4/1
DAR23 3.3K/4/1
DAU1
DAC2 1u/4/X5R/6.3V/K
DAR7 2.2/6/X
DAR8 2.2/6/X
DAR9 2.2/6
DAC3 1u/6/X7R/16V/K
VCC
VIN
95856_VDD
95856_VDDP
24
32
VDD
VDDP
*Del DAR135
DAR136 1 0/4/SHT/X
[17] VTT_PWRGD
[17] VR_RDY
[36] VR_HOT
[4] PVIDSLCK
[4] -PVIDALRT
[4] PVIDSOUT
DAR76 49.9/4/1
DAR77 MASK/0/4/SHT/M/10/X
DAR78 10/4
PVIDSLCK_R
-PVIDALRT_R
PVIDSOUT_R
[6,9,12,20,21,22,23,34,35,49] N_SMBDATA
[6,9,12,20,21,22,23,34,35,49] N_SMBCLK
VR_ENABLE
VR_READY
VR_HOT#
SCLK
ALERT#
SDA
I2DATA
I2CLK
PSYS
DC-LL --> 2.1mohm
DAR137 0/4
DAR33 205K/4/1/X
DAC10 1n/4/X7R/50V/K
DAR34 8.2K/4
DAR37 2K/4/1
DAR35 6.2K/4/1
DAC8 4.7n/4/X7R/50V/K
VCORE
DAC14 100p/4/NPO/50V/J
DAR40 1K/4/1
DAR138 0/4/X
DAC11 47p/4/NPO/50V/J
COMP_A
DAR39 100/4/1
DAR41 6.98K/4/1
FB_CPU
[7] VCORE_VCC_SEN
DAR15 0.022u/4/X7R/25V/K/X
DAR79 100/4/1/X
FB2_A
[7] VCORE_VSS_SEN
DAC38 330p/4/NPO/50V/J
DAR46 100/4/1
DAC17 330p/4/NPO/50V/J
DAC18 4.7n/4/X7R/50V/K
DAR139 205K/4/1
COMP_A
FB_A
FB2_A
RTN_A
VCORE
DAR129 100/4/1
close PWM
VCCGT
DAR130 100/4/1
DC-LL --> 3.1mohm
DAR140 0/4
DAR51 63.4K/4/1/X
DAC23 1.2n/4/X7R/50V/K
DAR57 1.74K/4/1
DAR55 3.9K/4/1
DAC22 8.2n/4/X7R/16V/K
VCCGT
DAC26 220p/4/NPO/50V/J
DAR61 1K/4/1
DAR141 0/4/X
DAC24 47p/4/NPO/50V/J
COMP_B
DAR60 100/4/1
DAR63 4.42K/4/1
FB_GT
DAC27 0.022u/4/X7R/25V/K/X
[6] VCCGT_SENSE
DAR80 100/4/1/X
FB2_B
[6] VSSGT_SENSE
DAC39 330p/4/NPO/50V/J
DAR66 100/4/1
DAC29 330p/4/NPO/50V/J
DAC30 4.7n/4/X7R/50V/K
DAR142 63.4K/4/1
COMP_B
FB_B
FB2_B
RTN_B
PROG_R
DAR70 2.87K/4/1
PROG
GND_PAD
53
8 VIA Connect GND lay
ISL95866HRZ-T/QFN52

ISL95856_VIN
DAC41 0.22u/6/X7R/16V/K
VIN
BOOT1_A
UGATE1_A
PHASE1_A
LGATE1_A
DAR26 2.2/6
DAC5 0.22u/6/X7R/16V/K
UGATE1_A [27]
PHASE1_A [27]
LGATE1_A [27]
BOOT2_A
UGATE2_A
PHASE2_A
LGATE2_A
DAR31 2.2/6
DAC7 0.22u/6/X7R/16V/K
UGATE2_A [27]
PHASE2_A [27]
LGATE2_A [27]
PWM3_A
PWM4_A
PWM3_A [27]
PWM4_A [27]
ISEN1_A
ISEN2_A
ISEN3_A
ISEN4_A
NC/ISEN4_A
ISUMP_A
ISUMN_A
NTC_A
IMON_A
VSUMA+
VSUMA-_R
DAR36 1K/4/1
DAR38 33K/4/1
DANTC1 10K/1/4/S
DAC12 0.33u/4/X5R/6.3V/K
DAC13 0.47u/4/X5R/6.3V/K
DAC43 0.1u/4/X7R/16V/K
DAC16 2.2n/4/X7R/50V/K
DAR42 1K/4/1
DAR44 576/4/1
VSUMA-
DAR47 13.3K/4/1
DAC19 0.1u/4/X7R/16V/K
DAR49 IMON_A_1
MASK/0/4/SHT/M/10/X
DAC21 330p/4/NPO/50V/J
DAR52 100K/4/1
DAR53 18K/4/1
DANTC2 470K/1/4/S
CLOSE ?
CLOSE DA_ DL1 DC SIDE
DAR44-->576 ohm
OCP-->200A
BOOT1_B
UGATE1_B
PHASE1_B
LGATE1_B
DAR58 2.2/6
DAC25 0.22u/6/X7R/16V/K
UGATE1_B [28]
PHASE1_B [28]
LGATE1_B [28]
PWM2_B
PWM3_B
PWM2_B [28]
PWM3_B [28]
ISEN1_B
ISEN2_B
ISEN3_B
NC/ISEN3_B
ISUMP_B
ISUMN_B
NTC_B
IMON_B
VSUMB+
VSUMB-_R
DAR67 13.3K/4/1
DAR69
MASK/0/4/SHT/M/10/X
DAC33 330p/4/NPO/50V/J
DAR72 56K/4/1
DAR73 18K/4/1
DANTC3 470K/1/4/S
CLOSE ?
DAR71 316/4/1
DAC31 2.2n/4/X7R/50V/K
DAC32 0.33u/4/X5R/6.3V/K
DAC34 0.047u/4/X7R/16V/K
DAR74 11K/4/1
DAR75 1K/4/1
DAC44 0.1u/4/X7R/16V/K
DAC35 0.1u/4/X7R/16V/K
DAR68 2.61K/4/1
DANTC4 10K/1/4/S
CLOSE DE_ DL1 DC SIDE
DAR71-->316 ohm
OCP-->90A

VSUMA+ DAR1 3.65K/4/1
ISEN1_A DAR2 100K/4/1
DAR3 100K/4/1 V2N_A
DAR4 100K/4/1 V3N_A
DAR5 200K/4/1/X
DAR81 100K/4/1 V4N_A
DAR6 10/4 V1N_A
DAC1 0.022u/4/X7R/25V/K
VSUMA-
CSP1_A [27]
VSUMA+ DAR10 3.65K/4/1
ISEN2_A DAR11 100K/4/1
DAR20 100K/4/1 V1N_A
DAR22 200K/4/1/X
DAR21 100K/4/1 V3N_A
DAR82 100K/4/1 V4N_A
DAR24 10/4 V2N_A
DAC4 0.022u/4/X7R/25V/K
CSP2_A [27]
VSUMA+ DAR25 3.65K/4/1
ISEN3_A DAR27 100K/4/1
DAR28 100K/4/1 V1N_A
DAR30 200K/4/1/X
DAR29 100K/4/1 V2N_A
DAR83 100K/4/1 V4N_A
DAR32 10/4 V3N_A
DAC6 0.022u/4/X7R/25V/K
CSP3_A [27]
VSUMA+ DAR84 3.65K/4/1
ISEN4_A DAR85 100K/4/1
DAR86 100K/4/1 V1N_A
DAR89 200K/4/1/X
DAR87 100K/4/1 V2N_A
DAR90 100K/4/1 V3N_A
DAR91 10/4 V4N_A
DAC42 0.022u/4/X7R/25V/K
CSP4_A [27]
V1N_A
V2N_A
V3N_A
V4N_A
CSN1_A [27]
CSN2_A [27]
CSN3_A [27]
CSN4_A [27]
CLOSE PWM

VSUMB+ DAR43 3.65K/4/1
ISEN1_B DAR45 100K/4/1
DAR48 100K/4/1 V2N_B
DAR50 200K/4/1/X
DAR92 100K/4/1 V3N_B
DAR54 10/4 V1N_B
DAC20 0.022u/4/X7R/25V/K
CSP1_B [28]
VSUMB+ DAR56 3.65K/4/1
ISEN2_B DAR59 100K/4/1
DAR62 100K/4/1 V1N_B
DAR64 200K/4/1/X
DAR93 100K/4/1 V3N_B
DAR65 10/4 V2N_B
DAC28 0.022u/4/X7R/25V/K
CSP2_B [28]
VSUMB+ DAR94 3.65K/4/1
ISEN3_B DAR95 100K/4/1
DAR96 100K/4/1 V1N_B
DAR98 200K/4/1/X
DAR97 100K/4/1 V2N_B
DAR99 10/4 V3N_B
DAC37 0.022u/4/X7R/25V/K
CSP3_B [28]
V1N_B
V2N_B
V3N_B
CSN1_B [28]
CSN2_B [28]
CSN3_B [28]
CLOSE PWM

VCORE	ISL95856	ISL95866
DAR137	X	V
DAR138	V	X
DAR139	X	V
DAC15	V	X
DAR79	V	X
DAR33	V	X

VCCGT	ISL95856	ISL95866
DAR140	X	V
DAR141	V	X
DAR142	X	V
DAC27	V	X
DAR80	V	X
DAR51	V	X

+12V
VCC3
不上件
DAR123 1K/4/1/X
DAR124 8.2K/4
DAR125 8.2K/4/1
DAR127 2K/4/1
FB_GT
DAQ4 2N7002/SOT23/25pF/5
S0T23
VCCGT_SENSE
DAQ3 MMBT2222A/SOT23/600mA/40
S0T23
[10] N_GT_S
連接至PCH GPP_GP14

+12V
VCC3
不上件
DAR120 1K/4/1/X
DAR121 8.2K/4
DAR122 8.2K/4/1
DAR126 3.48K/4/1
FB_CPU
DAQ2 2N7002/SOT23/25pF/5
S0T23
VCORE_VCC_SEN
DAQ1 MMBT2222A/SOT23/600mA/40
S0T23
[10] N_CPU_S
連接至PCH GPP_GP15

DAR131 for DC-LL
change to 0.4m ohm
+12V
VCC3
不上件
DAR133 1K/4/1/X
DAR134 8.2K/4
DAR132 8.2K/4
DAR131 1.74K/4/1
FB_CPU
DAQ6 2N7002/SOT23/25pF/5
S0T23
VCORE_VCC_SEN
DAQ7 MMBT2222A/SOT23/600mA/40
S0T23
[10] N_CPU_S1
Z系列才需要留
連接至PCH GPP_G13

GIGABYTE™
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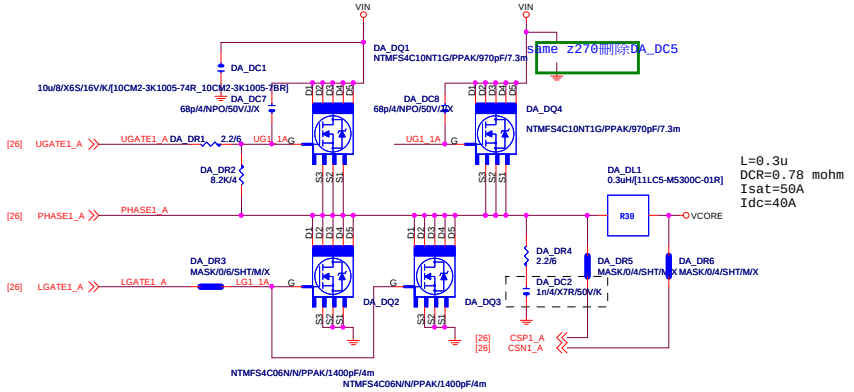
*ON MOS

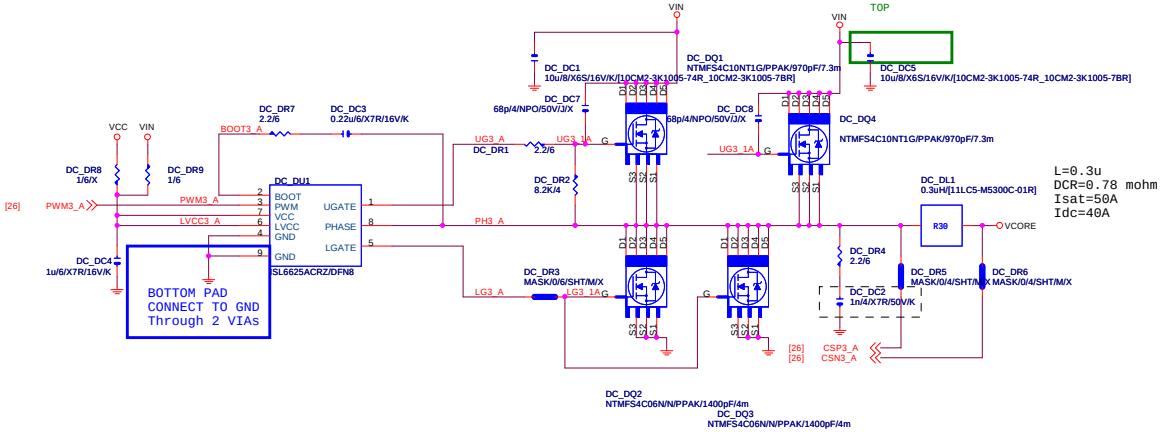
H:NTMFS4C10NT1G/PPAK/970pF/7.3m

L:NTMFS4C06N/N/PPAK/1400pF/4m

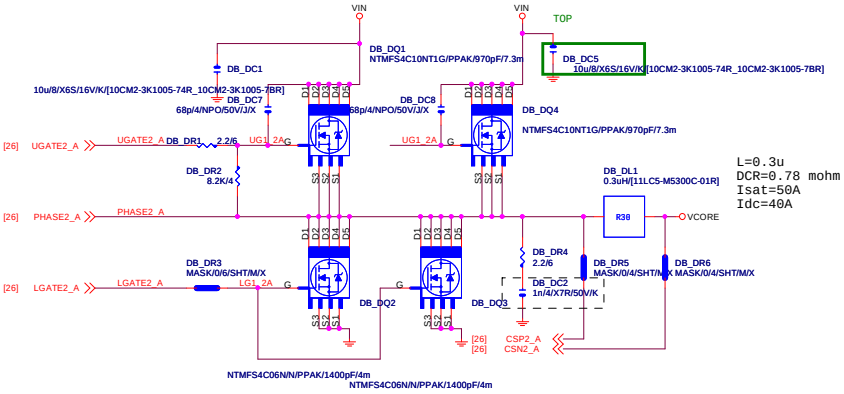
VCORE



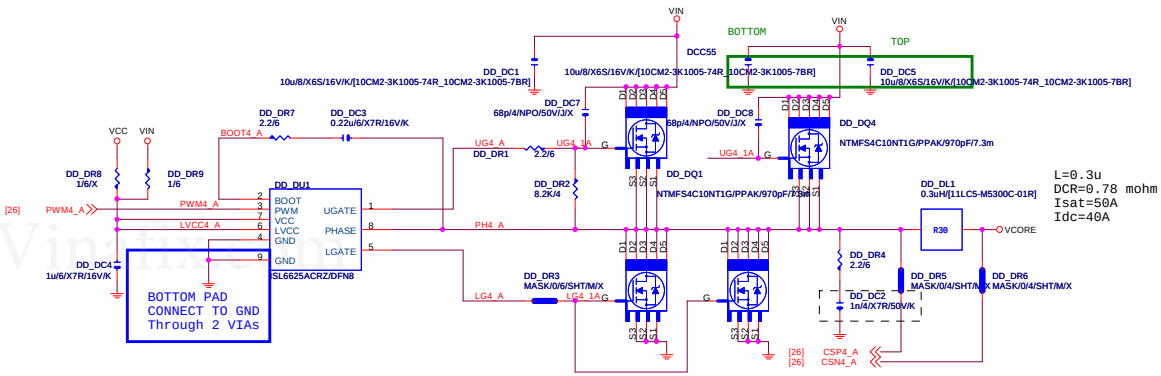
L=0.3u
DCR=0.78 mohm
Isat=50A
Idc=40A



L=0.3u
DCR=0.78 mohm
Isat=50A
Idc=40A



L=0.3u
DCR=0.78 mohm
Isat=50A
Idc=40A

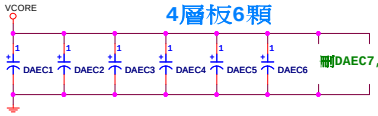


L=0.3u
DCR=0.78 mohm
Isat=50A
Idc=40A

VCORE CAP

560u*6PCS

22u*29PCS



4層板6顆

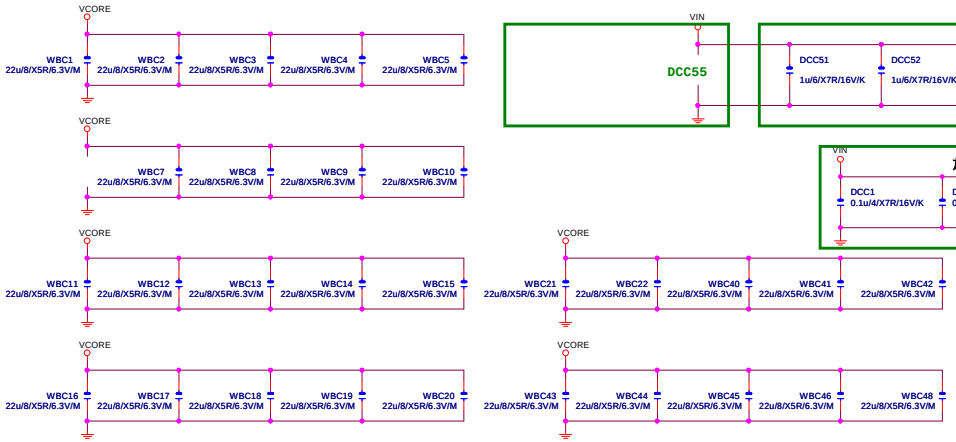
560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]

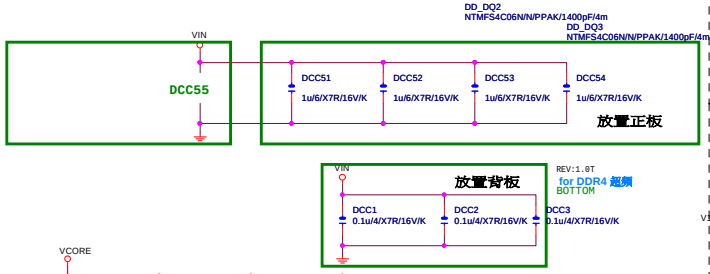
560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]

560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]

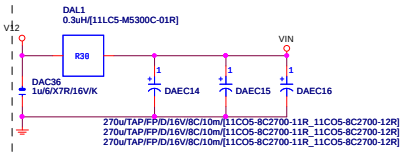
560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]

560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]





VIN CAP 270u*3PCS



GIGABYTE

Title	ISL95866_MOS	
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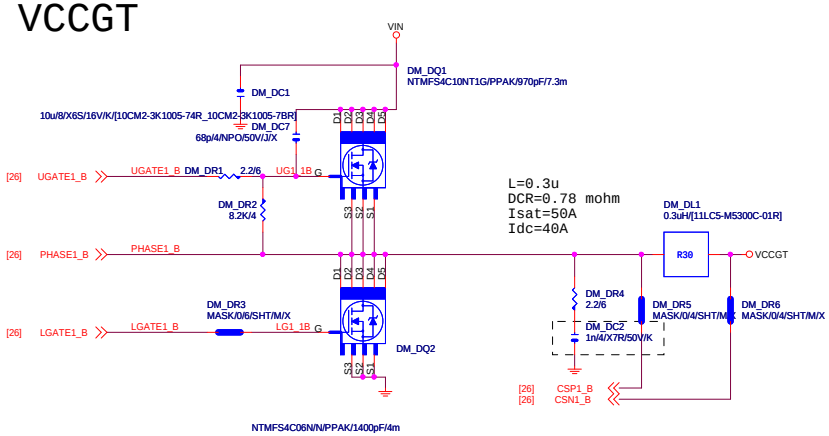
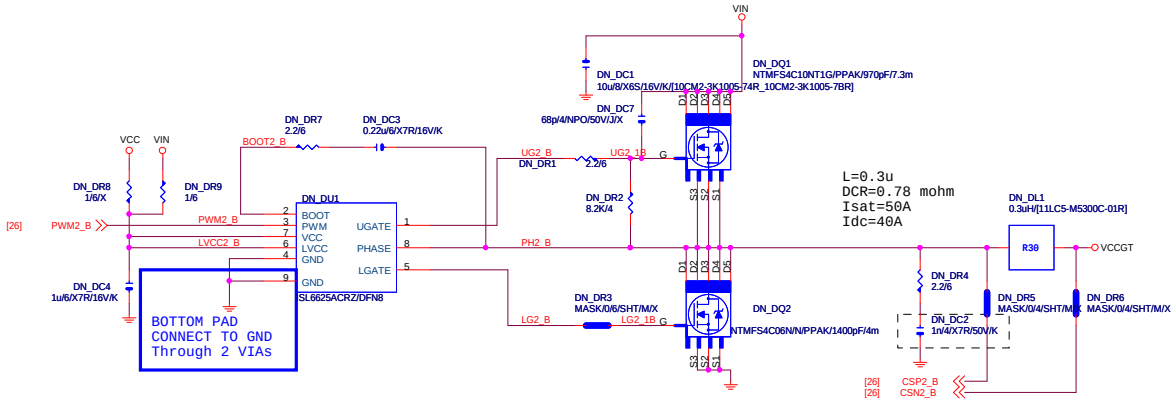
*ON MOS

H:NTMFS4C10NT1G/PPAK/970pF/7.3m
L:NTMFS4C06N/N/PPAK/1400pF/4m

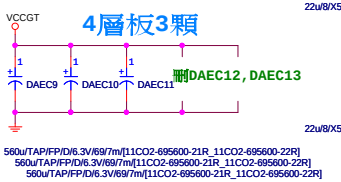
VCCGT

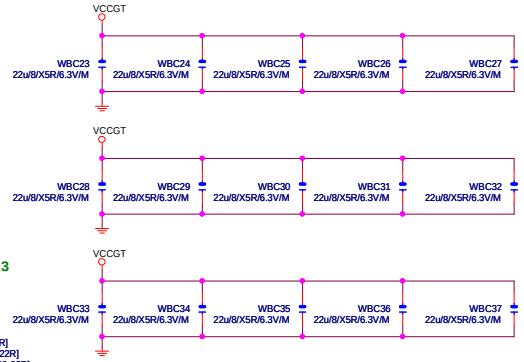


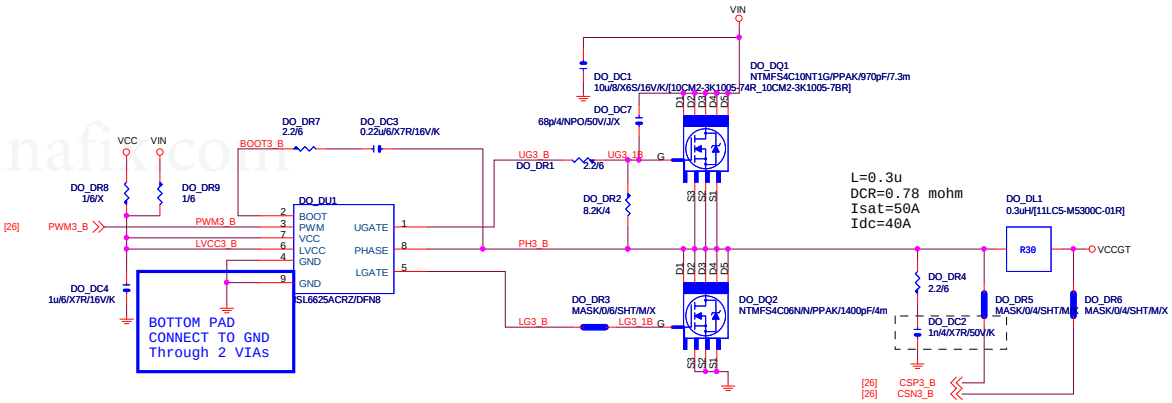


VCCGT CAP

560u*3PCS
22u*15PCS







GIGABYTE™

Title	ISL95866_MOS	
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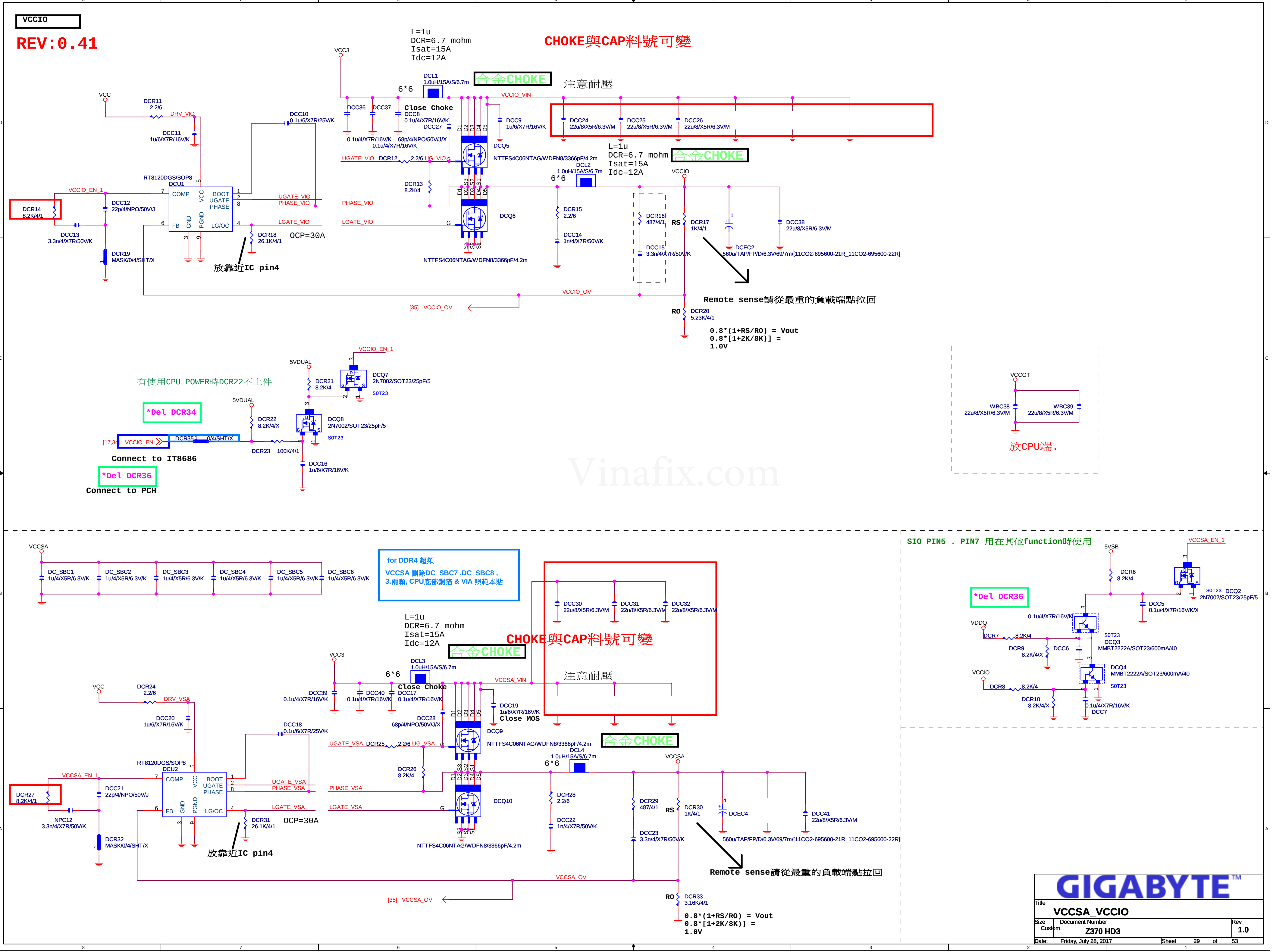
VCCIO
REV:0.41
L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A
CHOKE與CAP料號可變
合金CHOKE
注意耐壓
6*6
Close Choke
DCL1 1.0uH/15A/S/6.7m
VCCIO_VIN
DCC24 22u/8/X5R/6.3V/M
DCC25 22u/8/X5R/6.3V/M
DCC26 22u/8/X5R/6.3V/M
DCC36
DCC37
DCC8 0.1u/4/X7R/16V/K
DCC27
DCC9 1u/6/X7R/16V/K
0.1u/4/X7R/16V/K
68p/4/NPO/50V/J/X
DCQ5
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
DCL2 1.0uH/15A/S/6.7m
VCCIO
DCR11 2.2/6
DRV_VIO
DCC11 1u/6/X7R/16V/K
DCC10 0.1u/6/X7R/25V/K
RT8120DGS/SOP8
DCU1
VCCIO_EN_1
COMP
BOOT
UGATE
PHASE
FB
GND
PGND
LG/OC
UGATE_VIO
PHASE_VIO
LGATE_VIO
DCR12 2.2/6
DCR13 8.2K/4
DCR14 8.2K/4/1
DCC12 22p/4/NPO/50V/J
DCC13 3.3n/4/X7R/50V/K
DCR19 MASK/0/4/SHT/X
DCR18 26.1K/4/1
OCP=30A
放靠近IC pin4
DCQ6
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
DCR15 2.2/6
DCC14 1n/4/X7R/50V/K
DCR16 487/4/1
DCC15 3.3n/4/X7R/50V/K
RS
DCR17 1K/4/1
DCEC2 560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]
DCC38 22u/8/X5R/6.3V/M
VCCIO_OV
[35] VCCIO_OV
Remote sense請從最重的負載端點拉回
RO
DCR20 5.23K/4/1
0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V
VCCIO_EN_1
5VDUAL
DCR21 8.2K/4
DCQ7 2N7002/SOT23/25pF/5
SOT23
有使用CPU POWER時DCR22不上件
*Del DCR34
DCR22 8.2K/4/X
DCQ8 2N7002/SOT23/25pF/5
[17,34] VCCIO_EN
DCR35 0/4/SHT/X
DCR23 100K/4/1
DCC16 1u/6/X7R/16V/K
Connect to IT8686
*Del DCR36
Connect to PCH
VCCGT
WBC38 22u/8/X5R/6.3V/M
WBC39 22u/8/X5R/6.3V/M
放CPU端.
VCCSA
DC_SBC1 1u/4/X5R/6.3V/K
DC_SBC2 1u/4/X5R/6.3V/K
DC_SBC3 1u/4/X5R/6.3V/K
DC_SBC4 1u/4/X5R/6.3V/K
DC_SBC5 1u/4/X5R/6.3V/K
DC_SBC6 1u/4/X5R/6.3V/K
for DDR4 超頻
VCCSA 刪除DC_SBC7 ,DC_SBC8 ,
3.兩顆, CPU底部銅箔 & VIA 照範本貼
DCC30 22u/8/X5R/6.3V/M
DCC31 22u/8/X5R/6.3V/M
DCC32 22u/8/X5R/6.3V/M
L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A
CHOKE與CAP料號可變
合金CHOKE
注意耐壓
VCC3
DCL3 1.0uH/15A/S/6.7m
VCCSA_VIN
DCC39 0.1u/4/X7R/16V/K
DCC40 0.1u/4/X7R/16V/K
DCC17 0.1u/4/X7R/16V/K
DCC19 1u/6/X7R/16V/K
Close MOS
DCC28 68p/4/NPO/50V/J/X
DCQ9
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
DCL4 1.0uH/15A/S/6.7m
DCR24 2.2/6
DRV_VSA
DCC20 1u/6/X7R/16V/K
DCC18 0.1u/6/X7R/25V/K
RT8120DGS/SOP8
DCU2
VCCSA_EN_1
UGATE_VSA
PHASE_VSA
LGATE_VSA
DCR25 2.2/6
DCR26 8.2K/4
DCR27 8.2K/4/1
DCC21 22p/4/NPO/50V/J
NPC12 3.3n/4/X7R/50V/K
DCR32 MASK/0/4/SHT/X
DCR31 26.1K/4/1
OCP=30A
放靠近IC pin4
DCQ10
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
DCR28 2.2/6
DCC22 1n/4/X7R/50V/K
DCR29 487/4/1
DCC23 3.3n/4/X7R/50V/K
DCR30 1K/4/1
DCEC4
560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]
DCC41 22u/8/X5R/6.3V/M
VCCSA_OV
[35] VCCSA_OV
Remote sense請從最重的負載端點拉回
RO
DCR33 3.16K/4/1
0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V
SIO PIN5 . PIN7 用在其他function時使用
5VSB
VCCSA_EN_1
DCR6 8.2K/4
DCQ2 2N7002/SOT23/25pF/5
*Del DCR36
DCC5 0.1u/4/X7R/16V/K/X
VDDQ
DCR7 8.2K/4
DCR9 8.2K/4/X
DCC6
DCQ3 MMBT2222A/SOT23/600mA/40
DCQ4 MMBT2222A/SOT23/600mA/40
VCCIO
DCR8 8.2K/4
DCR10 8.2K/4/X
DCC7 0.1u/4/X7R/16V/K
GIGABYTE
Title
VCCSA_VCCIO
Size Custom
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DDR4

黑色閃電P

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

DDR VIN CAP
560u*2PCS

CHOKE與CAP料號可變

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

RT8120DGS/SOP8
MAU2
COMP VCC BOOT UGATE PHASE FB GND PGND LG/OC
DDR_EN
MA_DR15 27K/4/1
MA_DC15 22p/4/NPO/50V/J
MA_DC16 3.3n/4/X7R/50V/K
MA_DR19
MASK/0/4/SHT/X
MA_UGATE
MA_PHASE
MA_LGATE
MA_DR18 11.8K/4/1
OCP=40A
放靠近IC pin4

MA_L2 0.5uH/20A/IMD0809/BP/D 8*8
MA_VIN
MA_DC6 0.1u/4/X7R/16V/K Close Choke
MA_DC25 68p/4/NPO/50V/J/X
MA_DC7 1u/6/X7R/16V/K Close MOS
MAEC1
MAEC2 560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
*ON MOS
MA_UGATE MA_DR1 2.2/6 MA_UG
MA_DR2 8.2K/4
MA_DQ2 MA_DQ3
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K
MA_LGATE MA_DR9 2.2/6 MA_LG
NTMFS4C06N/N/PPAK/1400pF/4m
NTMFS4C06N/N/PPAK/1400pF/4m

MA_L1 1uH/35A/IMD109/BP/D R50 10*10
VDDQ
SUPPORT DDR4 1.2V
25A MAX
L=1u
DCR=2.5 mohm
Isat=35A
Idc=28A
MA_DR14 487/4/1
MA_DR13 1K/4/1
MA_DC14 3.3n/4/X7R/50V/K
RS
MAC60 22u/8/X5R/6.3V/M/X
請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件
Remote sense請從最重的負載端點拉回
RO MA_DR12 2K/4/1

VDDQ_SIO VDDQ
DDR_VS
MASK/0/4/SHT/M/X
CLOSE TO DDR POWER PLANE

DDR_ADJ
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]
[35] DDR_ADJ

PWR SEQ

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

*Del MAR112
[17,31] MA_EN
Connect to IT8686
MAR113 0/4/SHT/X
MAR2 8.2K/4
MAR105 100K/4/1
MAR1 8.2K/4
MAQ10 2N7002/SOT23/25pF/5
MAQ11 2N7002/SOT23/25pF/5
MAC9 1u/6/X7R/16V/K

DDRVTT

VDDQ
NCT3103S/SOP8/2A
MAU1
VIN VREF2 GND ENABLE VREF1 VCNTL VOUT BOOT_SEL
MAC2 1u/4/X5R/6.3V/K
MAR5 1K/4/1
[35] MA_VTT_REF
MAR4 1K/4/1
MAC1 0.01u/4/X7R/25V/K
1.1A MAX
DDRVTT_EN
DDRVTT_BOOT
5VDUAL
MAC7 10u/6/X5R/6.3V/M
DDRVTT

[4] DDR_VTT_CTL
[12,17,51] N_SLP_S3
MAR110 0/4/SHT/M/X
MAR111 0/4/SHT/M/X
MAU1上NCT3103S時上件

DDR CAP 560u*4PCS

*Footprint : EC6D8MM-RH-2

VDDQ
MAEC3
MAEC4
* 大電容 x4
MAEC6
MAEC7
560u/TAP/FP/D/6.3V/69/7m/[11CO2-695600-21R_11CO2-695600-22R]

22u*2PCS
WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M

DDRVTT CAP

* 大電容 x0
DDRVTT
MAC4 22u/8/X5R/6.3V/M
MAC5 22u/8/X5R/6.3V/M

GIGABYTE

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VPP_25V

4. VPP_25V CHOKE footprint 改CHOKE6X6mm_SMD-1

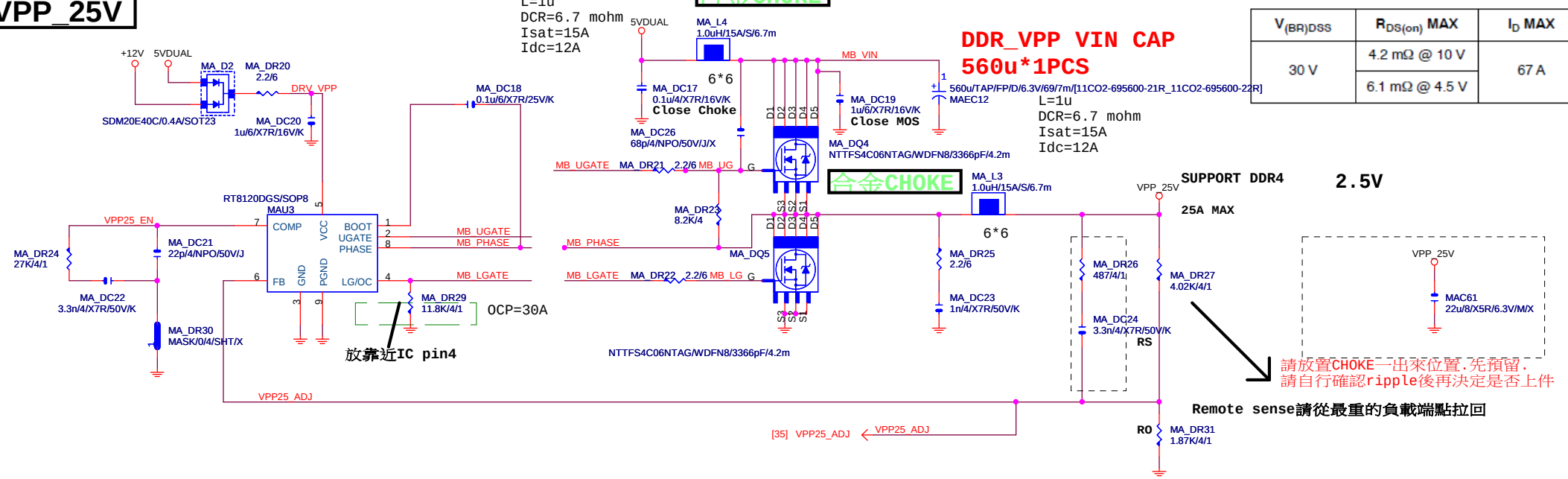
CHOKE與CAP料號可變

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

合金CHOKE

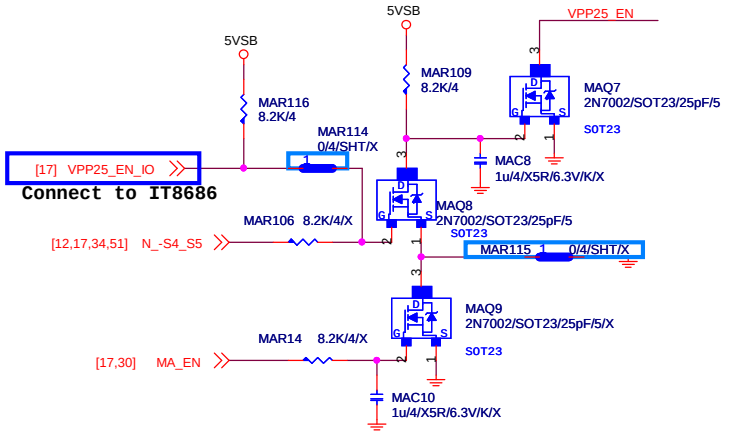
DDR_VPP VIN CAP
560u*1PCS

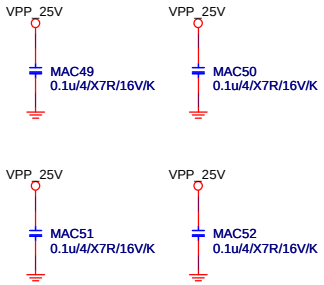
$V_{(BR)DSS}$	$R_{DS(on)}$ MAX	I_D MAX
30 V	4.2 mΩ @ 10 V	67 A
	6.1 mΩ @ 4.5 V	



PWR SEQ

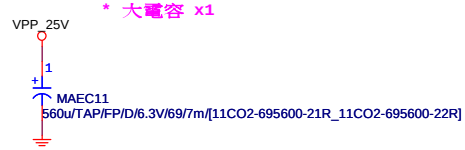
* 刪 MA_DR32





VPP CAP 560u*1PCS

* 大電容 x1



GIGABYTE™

Title	RT8120_VPP25 POWER	
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
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REV:0.4

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

黑色閃電P

CHOKE與CAP料號可變

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

A ：全台系固態
注意耐壓

黑色閃電P

*ON MOS

OCP=30A

放靠近IC pin4

Remote sense請從最重的負載端點拉回

0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V

請放置CHOKE一出來的地方

PWR SEQ

Title	RT8120_PCH POWER
Size	Custom
Document Number	Z370 HD3
Rev	1.0
Date:	Friday, July 28, 2017
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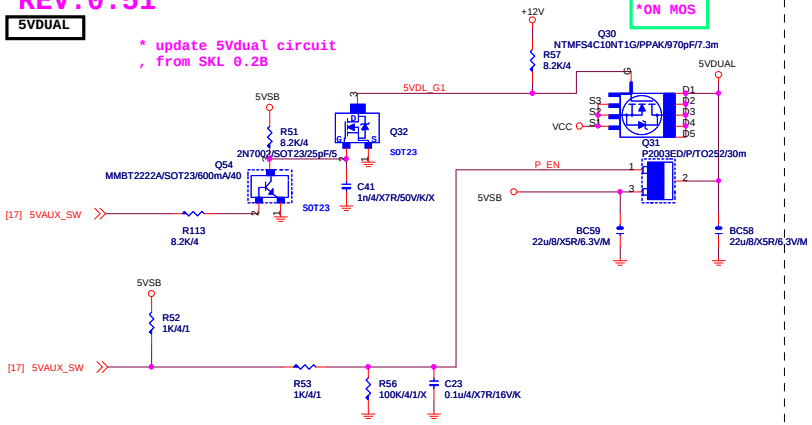
REV:0.51

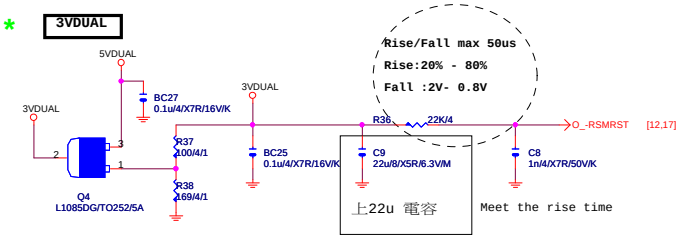
5VDUAL

* update 5Vdual circuit
, from SKL 0.2B

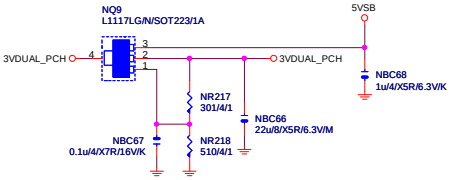
*ON MOS

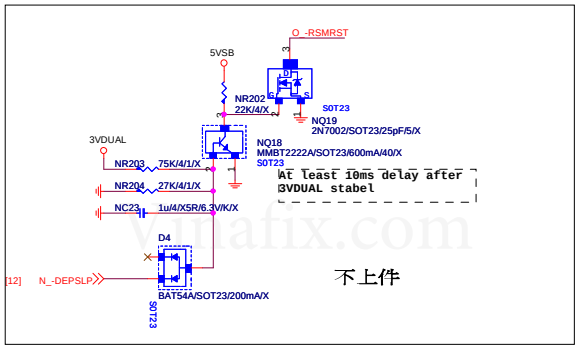


3VDUAL



3VDUAL_PCH





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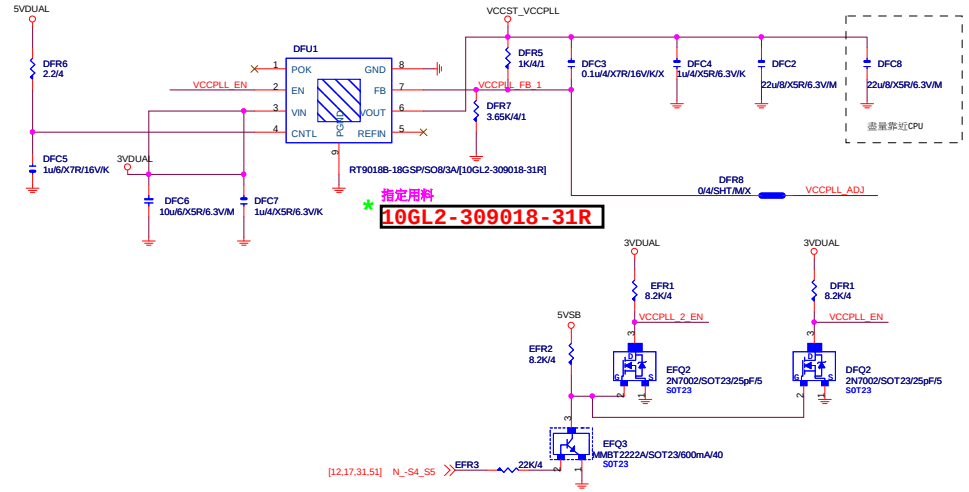
Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 33 of 53	

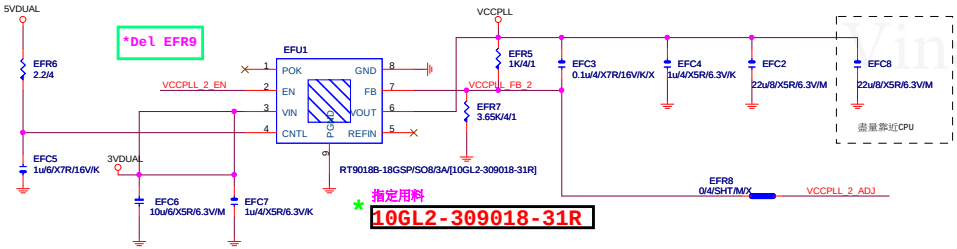
REV:0.42

VCCST_VCCPLL

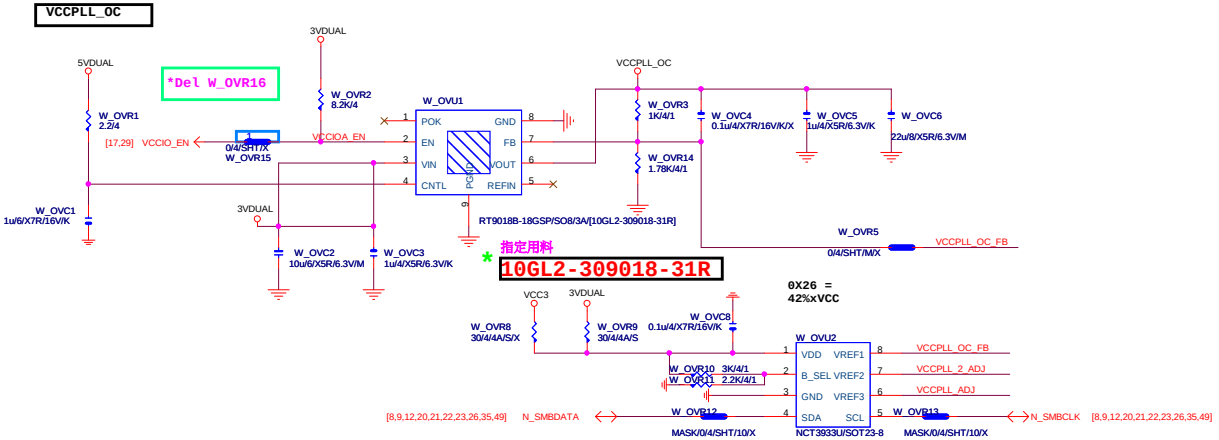
替換原先MOS開關線路



VCCPLL



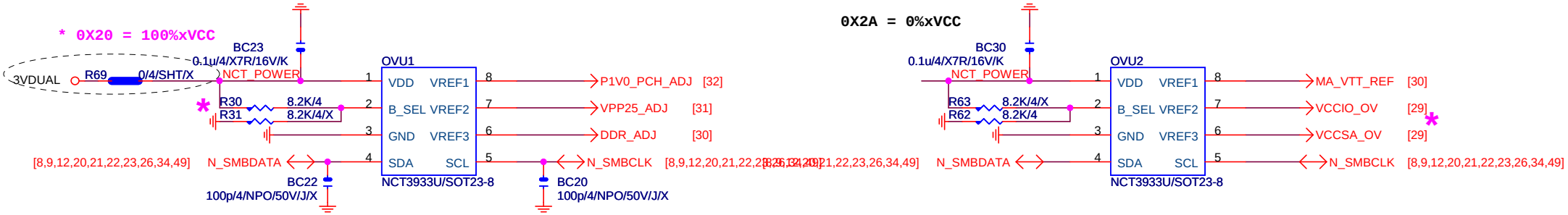
VCCPLL_OC



GIGABYTE™

Title	CPU POWER-RT9018	
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 34 of 53	

OVER VOLTAGE



NCT3933	0X20	0X2A
VREF1	VCC1_0_PCH	DDRVTT
VREF2	VPP_25V	VCCIO
VREF3	VDDQ	VCCSA

Gigabyte Technology

Title: CPU CORE VR-2

Size: Custom | Document Number: Z370 HD3 | Rev: 1.0

Date: Friday, July 28, 2017 | Sheet 35 of 53

ATXX24 POWER CONNECTOR

Patch some PSU no internal pull up resistor

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

* 刪除 -5V

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

BC36 0.1u/4/X7R/16V/K/X

* APW/2*12/BK/VA/SN/2SHK/PA66 黑色

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

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

VCC
VCC
+12V
5VSB
PWOK_IO PWOK_IO
BC9 4.7u/6/X5R/6.3V/K

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

AD1 AZ2225-01L/SOD323/X
ATX 5VSB ESD Protect
BOM移除

To prevent the 5VSB under loading when boot

ATXX4 POWER CONNECTOR

ATX_12V_2X4

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

[17]
* APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4 黑色

V12
BC7 0.1u/4/X7R/16V/K

MH1 MH2 MH3 for EMI MH7
HOLE_3/X
HOLE_4-RH-1

增加螺絲洞for ATX 3.5x22.5

MH4 MH5 MH6
HOLE_4-RH-1

有TYPE-C螺絲洞改半圈,footprint :HOLE_4-RH-5MM-2

K3 K6 K2
K5 K1 K4
K1_ICT/X

K1-ICT

I1 I2 I3 I4 I5
4MMH/X

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

+12V
RN2 2.7K/8P4R/4
RN3 2.7K/8P4R/4
RN4 2.7K/8P4R/4
RN5 2.7K/8P4R/4
RN6 2.7K/8P4R/4
RN14 2.7K/8P4R/4
RN15 2.7K/8P4R/4
RN16 2.7K/8P4R/4
RN17 2.7K/8P4R/4
RN18 2.7K/8P4R/4
RN19 2.7K/8P4R/4

* For China POWER

VCC3
R1 1K/4/1
Q9
[12] N_GPP_D9
R703 330/4
SOT23
EMF30N02J/SOT23/627pF/30m

-PROHOT

[4,17] A_-PROCHOT A_-PROCHOT R2 0/4/SHT/M/X VR_HOT [26]

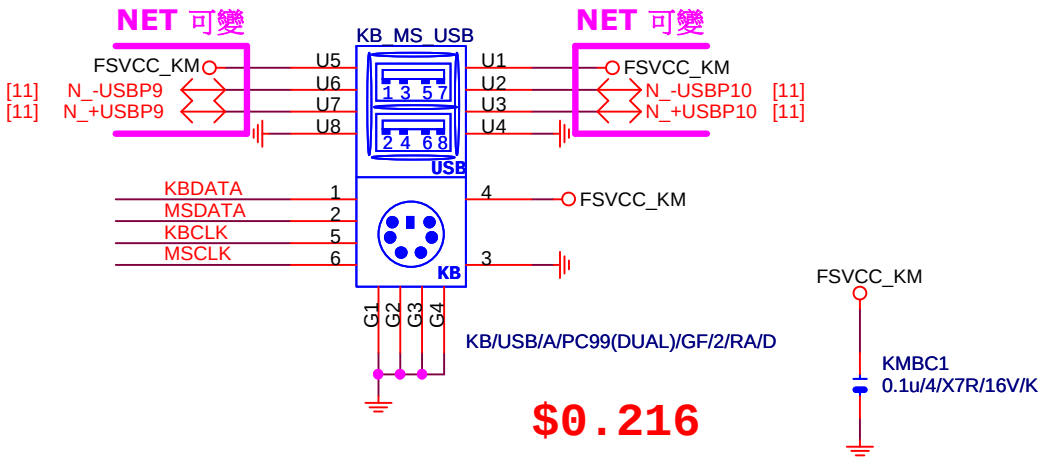
COUPON

COUPON1 COUPON1 1 2 COUPON/X
COUPON2 COUPON2 1 2 COUPON/X

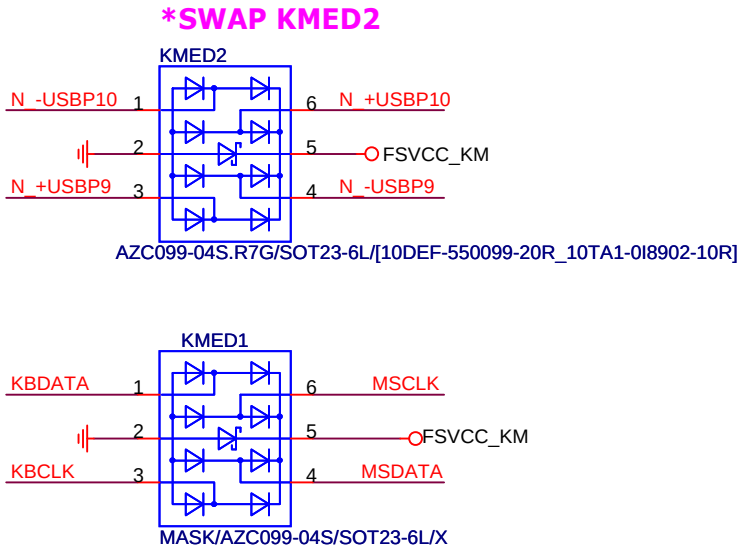
Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, August 04, 2017	Sheet 36 of 53	

KB_MS_USB

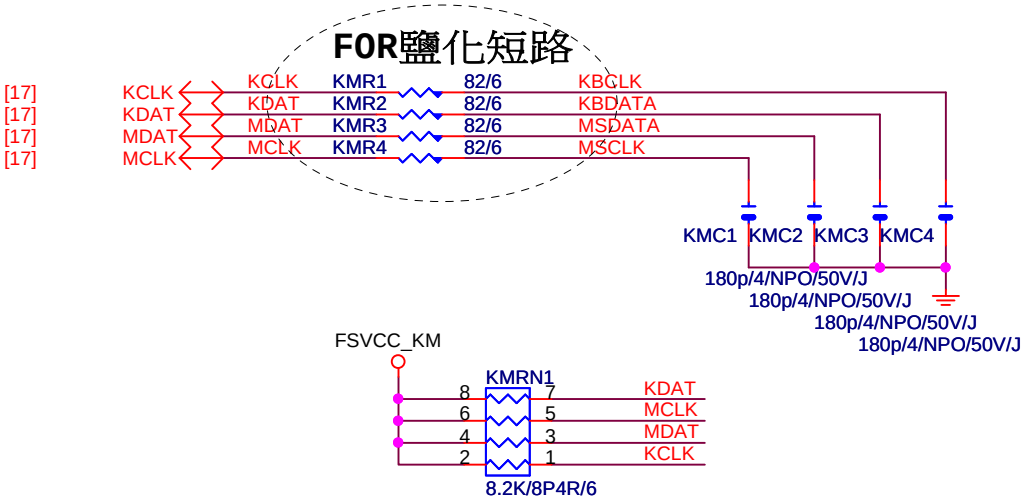
Rev: 0.2



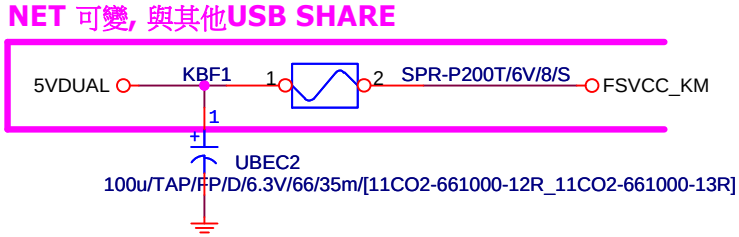
ESD



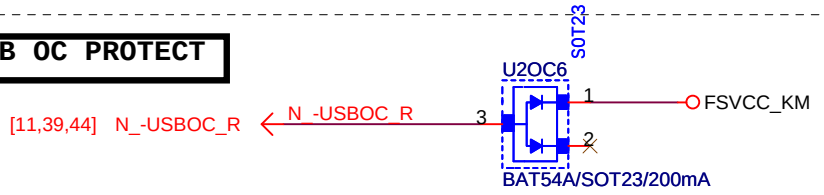
KB_MS_USB DAMPING/PU



KB_MS_USB PWR



USB OC PROTECT



Gigabyte Technology		
Title: AUDIO JACK		
Size: A	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 37 of 53	

Rev: 0.2

DVI CONN

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

NET 可變

[4] DVI_TXC+ VBC1 0.1u/4/X7R/16V/K DVITXC+ VR1 680/4/1
[4] DVI_TXC- VBC2 0.1u/4/X7R/16V/K DVITXC- VR2 680/4/1
[4] DVI_TX0+ VBC3 0.1u/4/X7R/16V/K DVITX0+ VR3 680/4/1
[4] DVI_TX0- VBC4 0.1u/4/X7R/16V/K DVITX0- VR4 680/4/1
[4] DVI_TX1+ VBC5 0.1u/4/X7R/16V/K DVITX1+ VR7 680/4/1
[4] DVI_TX1- VBC7 0.1u/4/X7R/16V/K DVITX1- VR8 680/4/1
[4] DVI_TX2+ VBC8 0.1u/4/X7R/16V/K DVITX2+ VR9 680/4/1
[4] DVI_TX2- VBC9 0.1u/4/X7R/16V/K DVITX2- VR10 680/4/1

DVI_G

VCC
防漏電
VD1 BAT54A/SOT23/200mA SOT23
★Update 2015.05.27

VR14 2.2K/4/1
VR13 2.2K/4/1
DVI_SDA
DVI_SCL

VQ1 2N7002/SOT23/25pF/5 SOT23

[10] N_DDPC_CTRLCLK VR5 2.2K/4/1
[10] N_DDPC_CTRLDATA VR6 2.2K/4/1
VCC3
VBC6 0.1u/4/X7R/16V/K/X

VCC VR16 8.2K/4 VQ1_2

DVI_SCL
VQ2 2N7002/SOT23/25pF/5 SOT23 N_DDPC_CTRLCLK
VCC VR17 1K/4/1 VQ2_2
★Update 2016.06.20

DVI_SDA
VQ3 2N7002/SOT23/25pF/5 SOT23 N_DDPC_CTRLDATA
VCC VR18 1K/4/1 VQ3_2
★Update 2016.06.20

DVI_HP
VQ4 2N7002/SOT23/25pF/5 SOT23 N_DVI_HDP_F
VCC3
VR20 1M/4
VCC VR19 8.2K/4 VQ4_2
N_DVI_HDP_F [10]

Close to connector

VESD2
DVITX2- DVITX2+ DVITX2+ DVITX2- DVITX1+ DVITX1- DVITX1+ DVITX1-
AZ1045-04F/MSOP10

VESD1
DVITX0+ DVITX0- DVITX0+ DVITX0- DVITXC+ DVITXC- DVITXC+ DVITXC-
* swap
AZ1045-04F/MSOP10

NET 可變
FSVCC_KM
VBC10 0.1u/4/X7R/16V/K

Close to connector

VESD3
DVI_HP DVI_SCL DVI_SDA
NET 可變
FSVCC_KM
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

NET 可變
FSVCC_KM

DVI
SHIELD1 M1
DVITX0- 17 TX0-
DVITX0+ 18 TX0+
DVITX1- 9 TX1-
DVITX1+ 10 TX1+
DVITX2- 1 TX2-
DVITX2+ 2 TX2+
3 SHLD24
11 SHLD13
19 SHLD05
12 TX3-
13 TX3+
4 TX4-
5 TX4+
20 TX5-
21 TX5+
DVI_SCL 6 DDCC
DVI_SDA 7 DDCD
14 VDDC
15 GND
22 SHLDC
DVITXC- 24 TXC-
DVITXC+ 23 TXC+
8 VSYNC
DVI_HP 16 HPD
VR15 20K/4/1
SHIELD2 M5
SHIELD2 M6
SHIELD2 M7
SHIELD2 M8
SHIELD2 M2
COMMON

DVI-D/24P/SC/RA/D/SH/[11NR6-501024-31R_11NR6-501024-34R]

Footprint : DVI-30P-4P-1
平躺式 DVI-D
11NR6-501024-31

Gigabyte Technology		
Title: DVI		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
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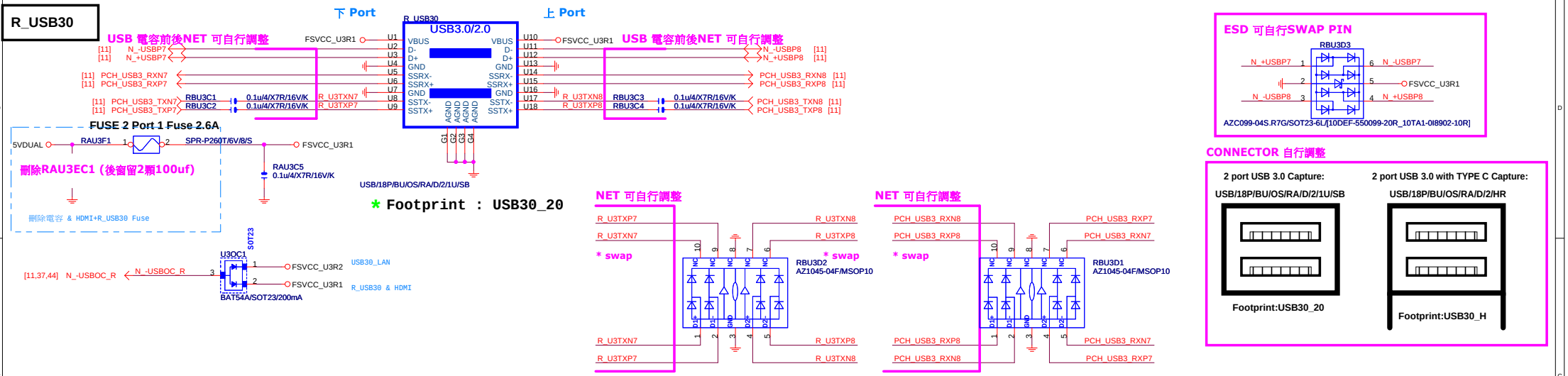
Rev: 0.2

R_USB30



R_USB30_2

KB_MS_USB3

Gigabyte Technology			
Title: KB_MS_USB3, R_USB30			
Size: Custom	Document Number: Z370 HD3		Rev: 1.0
Date: Friday, July 28, 2017		Sheet 39 of 53	

LAN INTEL I219 R2.01

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

3VDUAL_LAN1

LAR11 8.2K/4
LAREQ1 MASK/0/4/SHT/X

[10] LA_-CLKREQ
[17] O_-PFMRST2
LA_LAN_CLKREQ-

LAU1

[10] LA_SRCCLK_LAN
[10] LA_-SRCCLK_LAN

[11] LA_ML_IP
[11] LA_ML_IN
LABC6 0.1u/4/X7R/16V/K
LABC8 0.1u/4/X7R/16V/K
LA_TP
LA_TN

[11] LA_ML_OP
[11] LA_ML_ON
LABC12 0.1u/4/X7R/16V/K
LABC16 0.1u/4/X7R/16V/K
LA_RP
LA_RN

PCIE

[12] N_SML0CLK
[12] N_SML0DAT
SMB_CLK
SMB_DATA
SMBUS

[17] N_-LAN1_WAKE
LAR16 MASK/0/4/SHT/X
LA_-LANWAKE
LA_-LAN_DIS
LANWAKE_N
LAN_DISABLE_N

FOR ERP WAKEUP

[41] LA_LED0
[41] LA_LED1
[41] LA_LED2
LED0
LED1
LED2
LED

R2.0
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
JTAG

LABC14 20p/4/NPO/50V/J
LABC13 20p/4/NPO/50V/J
LAX1 25M/16p/30ppm/49US/20/D
LA_XTALO
LA_XTALI
XTAL_OUT
XTAL_IN

LAR7 1K/4/1 LA_TEST_EN
TEST_ENABLE

LAR12 3.01K/4/1 LA_LAN_BIAS
RBIAS

MDI_PLUS_0
MDI_MINUS_0
MDI_PLUS_1
MDI_MINUS_1
MDI_PLUS_2
MDI_MINUS_2
MDI_PLUS_3
MDI_MINUS_3
MDI

LA_MDI0+ LA_MDI0+ [41] LA_MDI0+ [41]
LA_MDI0- LA_MDI0- [41] LA_MDI0- [41]
LA_MDI1+ LA_MDI1+ [41] LA_MDI1+ [41]
LA_MDI1- LA_MDI1- [41] LA_MDI1- [41]
LA_MDI2+ LA_MDI2+ [41] LA_MDI2+ [41]
LA_MDI2- LA_MDI2- [41] LA_MDI2- [41]
LA_MDI3+ LA_MDI3+ [41] LA_MDI3+ [41]
LA_MDI3- LA_MDI3- [41] LA_MDI3- [41]

SVR_EN_N
LA_-SVR_EN LAR19 MASK/0/4/SHT/X
RSVD_1/VCCP3P3
LA_VCCP3 LAR13 8.2K/4 R2.0
VDD3_P3_IN
3VDUAL_LAN1
VDD3P3_OUT
VDD3P3
VDD3P3
VDD3P3
LBC10 1u/4/X5R/6.3V/K
VDD0P9
VDD0P9
VDD0P9
VDD0P9
VDD0P9
VDD0P9
VDD0P9
VDD0P9
VDD0P9
LAN_V_1P0
CTRL_0P9
LA_CTRL_1P0
LAL1 4.7uH/0.8A/3225/S
VSS_EPAD
LABC32 10u/6/X5R/6.3V/M
LABC29 10u/6/X5R/6.3V/M/X
WGI219V/QFN48

(CLOSE PIN4)

CLOSE LAL1

FOR ERP WAKEUP

LAQ1 2N7002/SOT23/25pF/5
LAQR1 8.2K/4
3VDUAL
3VDUAL_LAN1
LAR17 8.2K/4
SOT23
[12] N_-LAN_DIS
LAR20 0/4/X
LA_-LAN_DIS
LAR14 1u/4/X5R/6.3V/K/X

For當ErP enable後，挑PSU會無法LAN Wake-up

O_-PFMRST2 LABC2 18p/4/NPO/50V/J/X

LAN POWER

3VDUAL_LAN1
LABC11 10u/6/X5R/6.3V/M
LABC3 0.1u/4/X7R/16V/K
LABC17 0.1u/4/X7R/16V/K
LABC21 0.1u/4/X7R/16V/K
LABC30 0.1u/4/X7R/16V/K

(CLOSE LAU1 PIN4,15,19,29)

CLOSE
3VDUAL_LAN1源頭處

LAN_V_1P0
LABC31 0.1u/4/X7R/16V/K
LABC15 0.1u/4/X7R/16V/K
LABC18 0.1u/4/X7R/16V/K
LABC9 0.1u/4/X7R/16V/K
LABC4 0.1u/4/X7R/16V/K

(CLOSE LAU1 PIN8,11,16,22,37,40,43,46,47)

*Add 25KV ESD

LAESD1
LA_MDI1- 1
LA_MDI0+ 3
2
6 LA_MDI1+
5 5VDUAL
4 LA_MDI0-
AZC399-04S.R7G/SOT23-6L/[10DEF-510399-10R]

LAESD2
LA_MDI3- 1
LA_MDI2+ 3
2
6 LA_MDI3+
5 5VDUAL
4 LA_MDI2-
AZC399-04S.R7G/SOT23-6L/[10DEF-510399-10R]

Gigabyte Technology		
Title: INTEL I219		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
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USB30_LAN CONNECTOR R2.01

RMA ESD PROTECT

note:可變更USB NAME

可變

N -USBP4 1 — 6 N +USBP4

2 — 5 FSVCC_U3R2

N -USBP3 3 — 4 N +USBP3

LAUESD1

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB_LAN CONNECTOR

note:可變更USB NAME

[I219]

USB30_LAN

LABC22 0.1u/4/X7R/16V/K

LA_CN_L1

[40] LA_MDI0+ [40] LA_MDI0-

[40] LA_MDI1+ [40] LA_MDI1-

[40] LA_MDI2+ [40] LA_MDI2-

[40] LA_MDI3+ [40] LA_MDI3-

LA_CN_L10

LABC25 MASK/0/4/SHT/X

FSVCC_U3R2

USB3.0

[11] N_-USBP3 [11] N_+USBP3

[11] PCH_USB3_RXN3 [11] PCH_USB3_RXP3

[11] PCH_USB3_TXN3 [11] PCH_USB3_TXP3

LAUC1 LAUC2

PCH_USB3_TXN3C PCH_USB3_TXP3C

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

下 Port

可變

可變

可變

R2.0

3VDUAL_LAN1

LAFB2 MASK/0/4/SHT/M/X

LAUBC24 0.1u/4/X7R/16V/K/X

LAR8 MASK/0/4/SHT/M/X

D1 LA_LED_ACT_TXRX — LA_LED0 [40]

D2 LA_D2 — LAR10 330/4 LA_D2_1

D3 LA_LED_LINK100 — LAR9 330/4 LA_LED2 [40]

D4 LA_LED_LINK1000 — LAR3 MASK/0/4/SHT/M/X LA_LED1 [40]

LAUBC7 0.1u/4/X7R/16V/K

FSVCC_U3R2

N_-USBP4 [11] N_+USBP4 [11]

PCH_USB3_RXN4 [11] PCH_USB3_RXP4 [11]

PCH_USB3_TXN4 [11] PCH_USB3_TXP4 [11]

LAUC3 LAUC4

PCH_USB3_TXN4C PCH_USB3_TXP4C

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

上 Port

可變

可變

可變

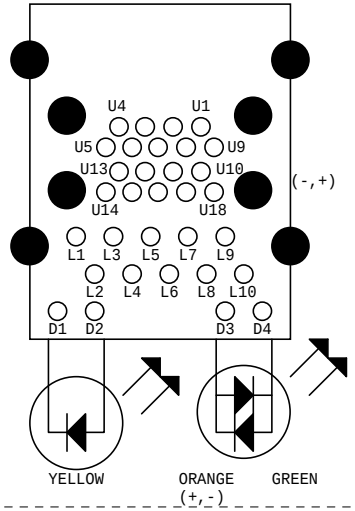
USB上藍下藍:USB3+LAN/1G/GO,Y/OS/RA/D/G30

USB上白下藍:USB3+LAN/1G/GO,Y/OS/RA/D/G30/15KV/Q FLASH

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

LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN LAYOUT示意圖



Dual Color LED

D4 D3 Green

D4 D3 Orange

Single Color LED

D2 D1 Yellow

PCH_USB3_TXP4C PCH_USB3_TXN4C

PCH_USB3_TXP3C PCH_USB3_TXN3C *swap

PCH_USB3_RXP3 PCH_USB3_RXN3

PCH_USB3_RXN4 PCH_USB3_RXP4

NC NC GND NC NC

D1 D1 GND D2 D2

LAU3ESD1 AZ1045-04F/MSOP10

LAU3ESD2 AZ1045-04F/MSOP10

PCH_USB3_TXN4C PCH_USB3_TXP4C

PCH_USB3_TXN3C PCH_USB3_TXP3C

PCH_USB3_RXN3 PCH_USB3_RXP3

PCH_USB3_RXP4 PCH_USB3_RXN4

note:可變更USB NAME

可變

LAN_COVER

FOOT PRINT:LAN_COVER

USB_LAN_HS

LAN_HS/[11NH1-LNC001-11R]/X

LAN COVER

可變

[視SPEC需求]

USB POWER

note:可變更FUSE

可變

5VDUAL — LAUF1 — FSVCC_U3R2

SPR-P260T/6V/8/S

FUSE-0805

REC2

REC2 100u/TAP/FP/D/6.3V/66/35m/[11CO2-661000-12R_11CO2-661000-13R]

Close to connector

後電容 & USB30_LAN Fuse

EMI SHORT PAD

LAN POWER

note: lan power連接及電流

For PVT :LAPW1 改 R0402-2-SHORT20

可變

3VDUAL_LAN1 — LAPW1 MASK/0/4/SHT/20/X — 3VDUAL_PCH

R2.0

Gigabyte Technology

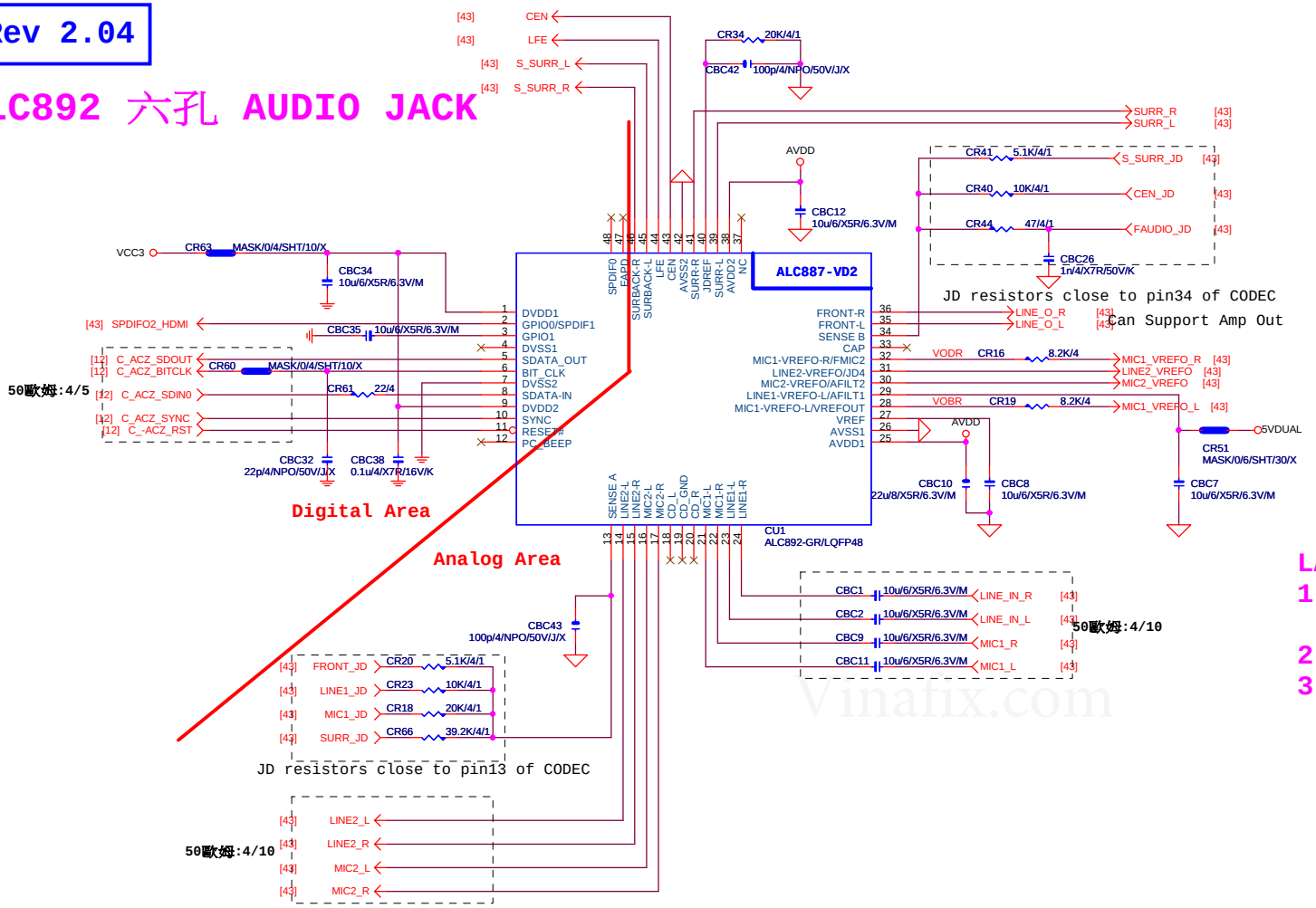
Title: LAN CONNECTOR-INTEL I219

Size: Custom | Document Number: Z370 HD3 | Rev: 1.0

Date: Friday, July 28, 2017 | Sheet 41 of 53

Rev 2.04

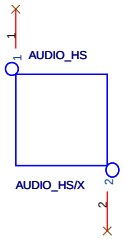
ALC892 六孔 AUDIO JACK



LAYOUT注意:螺絲孔下GND方式

1. MH1空間夠,下DGND
   空間不夠,才改為Isolate
2. MH2一律改為Isolate
3. Codec下方,第二層必須參考GND

MH1	MH2
DGND	Isolate



*料號後補

LAYOUT注意:要加

GND切割線

音效區域印刷

www.teknisi-indonesia.com

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

Gigabyte Technology		
Title: HD AUDIO ALC892		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 42 of 53	

Rev 2.04

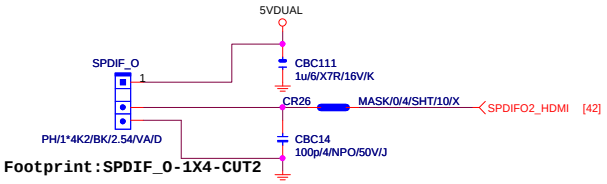
MOATR1 MASK/0/4/SHT/10/X
MOATC1 0.1u/4/X7R/16V/K/X → Near F_AUDIO

MOATR2 MASK/0/4/SHT/10/X
MOATC2 0.1u/4/X7R/16V/K/X → Near Codec

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

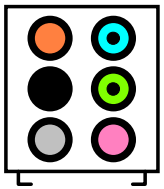
MOATR4 MASK/0/6/SHT/30/X → Audio jack - LAN

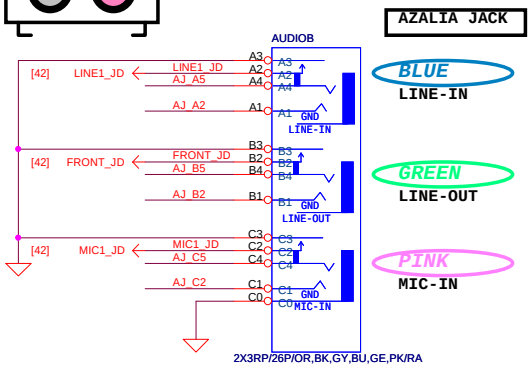
*量產前,0ohm改short pad

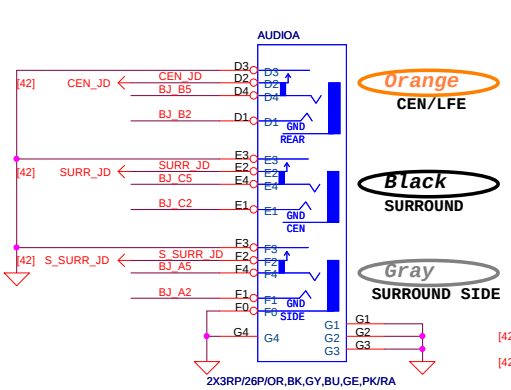


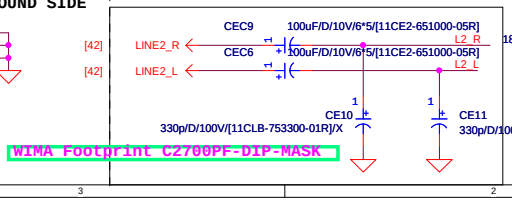
For HDMI SPDIF （依SPEC保留或移除）

AZALIA JACK

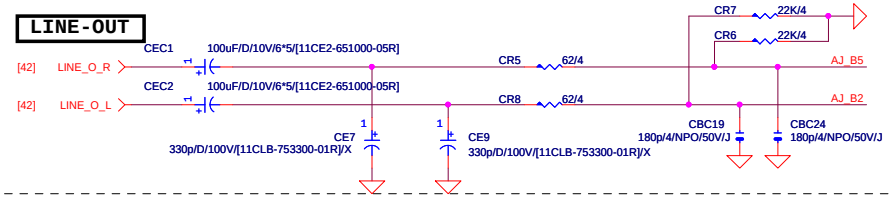






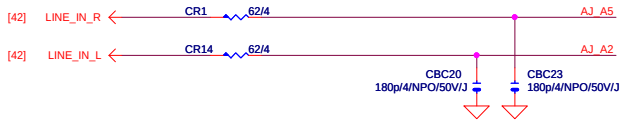


LINE-OUT

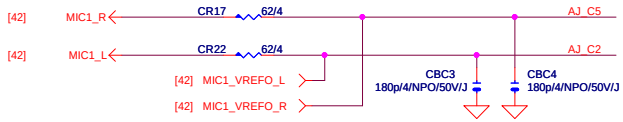


LINE-IN

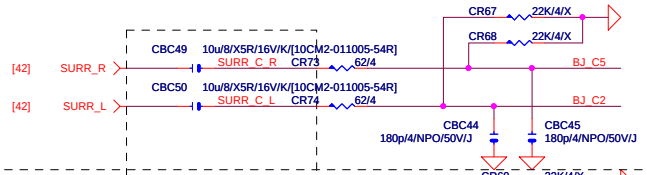
WIMA Footprint C2700PF-DIP-MASK



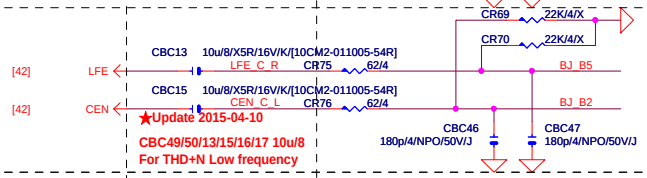
MIC-IN



SURROUND

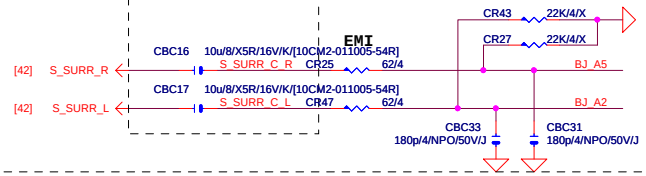


CEN/LFE

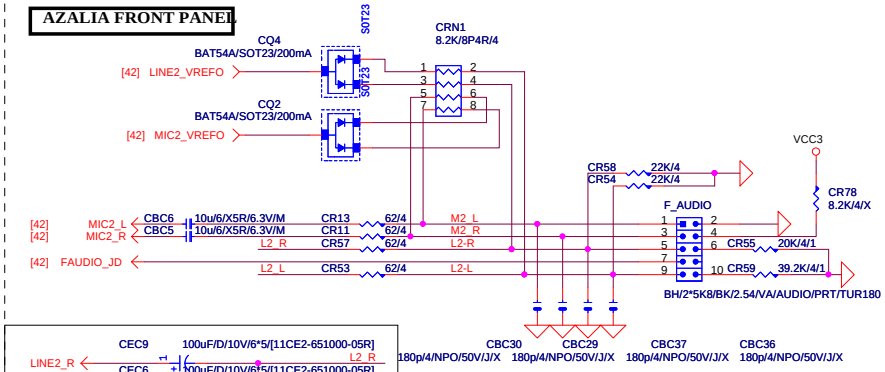


★Update 2015-04-10
CBC49/50/13/15/16/17 10u/8
For THD+N Low frequency

SURR BACK



AZALIA FRONT PANEL



Gigabyte Technology			
Title: AUDIO JACK			
Size: Custom	Document Number: Z370 HD3		Rev: 1.0
Date: Thursday, August 10, 2017	Sheet 43 of 53		

Rev: 0.2

Front USB3.0

F_USB30_1 REV=1

NET 自行調整

FSVCC_U3F1

[11] PCH_USB3_RXN1
[11] PCH_USB3_RXP1
[11] PCH_USB3_TXN1
[11] PCH_USB3_TXP1
[11] N_-USBP1
[11] N_+USBP1

FAU3C1 0.1u/4/X7R/16V/K FU30_TXN1
FAU3C2 0.1u/4/X7R/16V/K FU30_TXP1

VBUS ID SSRX1- SSRX1+ SSTX1- SSTX1+ D1- D1+ GND GND

SSTX2- SSTX2+ SSRX2- SSRX2+ D2- D2+ GND GND

FU30_TXN2 FU30_TXP2

FAU3C3 0.1u/4/X7R/16V/K
FAU3C4 0.1u/4/X7R/16V/K

NET 可自行調整

FSVCC_U3F1

PCH_USB3_TXN2 [11]
PCH_USB3_TXP2 [11]
PCH_USB3_RXN2 [11]
PCH_USB3_RXP2 [11]
N_-USBP2 [11]
N_+USBP2 [11]

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

黑色

F_USB30 PWR

5VDUAL — FU3F1 — SPR-P260T/6V/8/S — FSVCC_U3F1

FAU3EC1 100u/TAP/FP/D/6.3V/66/35m/[11CO2-661000-12R_11CO2-661000-13R]

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

U3OC3 SOT23

[11,45] N_-USBOC_F

NET 可自行調整

FSVCC_U3F1
FSVCC_U3F2

BAT54A/SOT23/200mA

NET 可自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1 AZ1045-04F/MSOP10

FAU3D3

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

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

CLOSE F_USB30

FU30_TXP1
FU30_TXN1
FU30_TXN2
FU30_TXP2

FAU3D2 AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB30 P/N:11NH3-021210-B1R/B2R

Rear window

★Update 2015.10.01

Front USB30 P/N:11NH3-021210-51R/52R

Front USB3.0

F_USB30_2 REV=1

NET 可自行調整

FSVCC_U3F2

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

FBU3C1 0.1u/4/X7R/16V/K FU30_TXN5
FBU3C2 0.1u/4/X7R/16V/K FU30_TXP5

VBUS ID SSRX1- SSRX1+ SSTX1- SSTX1+ D1- D1+ GND GND

SSTX2- SSTX2+ SSRX2- SSRX2+ D2- D2+ GND GND

FU30_TXN6 FU30_TXP6

FBU3C3 0.1u/4/X7R/16V/K
FBU3C4 0.1u/4/X7R/16V/K

NET 可自行調整

FSVCC_U3F2

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

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

黑色

F_USB30 PWR

5VDUAL — FU3F2 — SPR-P260T/6V/8/S — FSVCC_U3F2

刪除FBU3EC1

FBU3C5 0.1u/4/X7R/16V/K

F_USB POWER PROTECT

NET 可自行調整

PCH_USB3_RXP5
PCH_USB3_RXN5
PCH_USB3_RXN6
PCH_USB3_RXP6

FBU3D1 AZ1045-04F/MSOP10

FBU3D3

N_-USBP5
N_+USBP6
3VDUAL
N_+USBP5
N_-USBP6

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

CLOSE F_USB30

FU30_TXP5
FU30_TXN5
FU30_TXN6
FU30_TXP6

FBU3D2 AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB30 P/N:11NH3-021210-B1R/B2R

Rear window

★Update 2015.10.01

Front USB30 P/N:11NH3-021210-51R/52R

-USBOC_F

POWER 可自行調整

5VDUAL — UAR1 8.2K/4 — N_-USBOC_F — N_-USBOC_F [11,45]

UAR2 15K/4/1

-USBOC_R

POWER 可自行調整

5VDUAL — UBR1 8.2K/4 — N_-USBOC_R — N_-USBOC_R [11,37,39]

UBR2 15K/4/1

* 接 PCH N_GPP_G6(SMI) & PCH PU 3Vdual

[13] N_GPP_G6

UAD5 SOT23

N_-USBOC_F — N_-USBOC_F [11,45]
N_-USBOC_R — N_-USBOC_R [11,37,39]

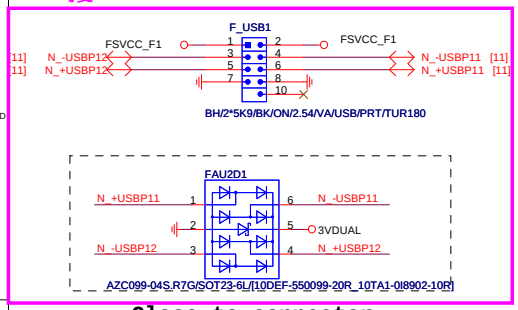
BAT54A/SOT23/200mA

Gigabyte Technology		
Title: R_USB30,F_USB30, USB_OC		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 44 of 53	

Rev: 0.2

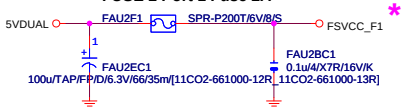
FRONT USB1

NET 可變



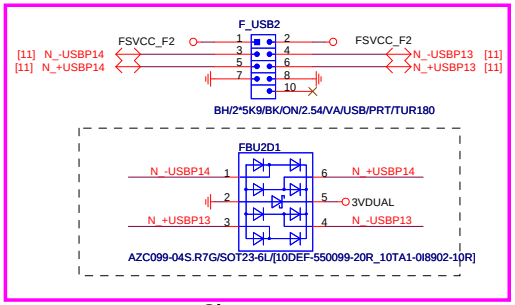
Close to connector

FUSE 2 Port 1 Fuse 2A



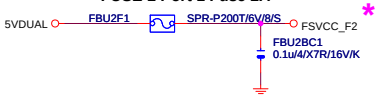
FRONT USB2

NET 可變



Close to connector

FUSE 2 Port 1 Fuse 2A



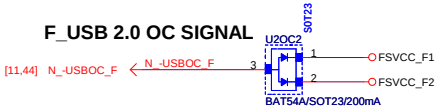
FRONT USB3

FRONT USB4

REAR USB1

REAR USB2

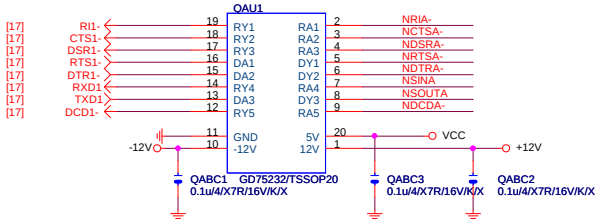
F_USB 2.0 OC SIGNAL



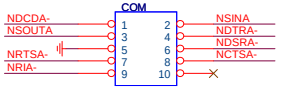
Gigabyte Technology		
Title: F_USB20		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Friday, July 28, 2017	Sheet 45 of 53	

COM PORT

Rev: 0.2

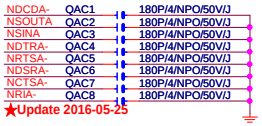


COMA



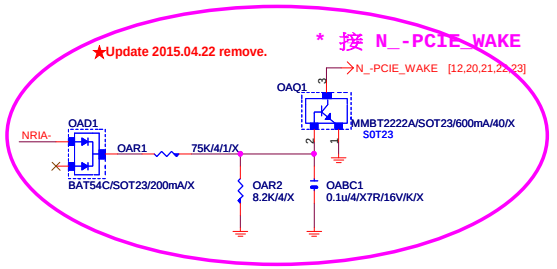
BH/2*5K10/BK/2.54/VA/COM/PRT/TUR180

F_COM-HS

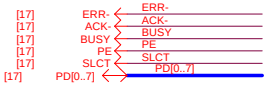


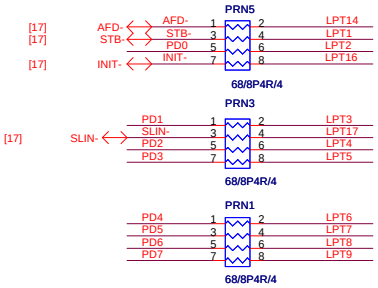
★Update 2016-05-25

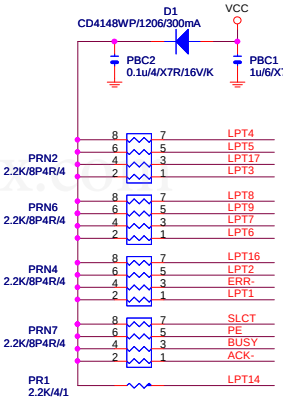
COM RI N/A



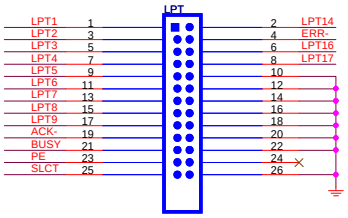
LPT PORT





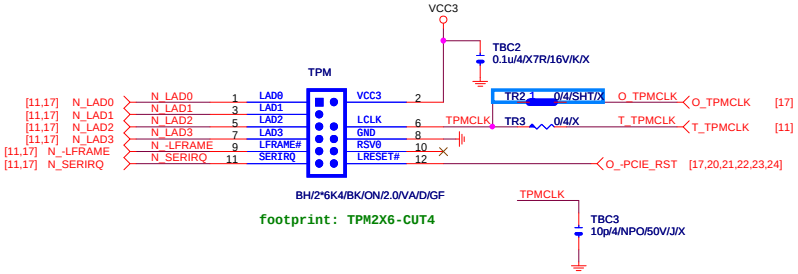


R&D技術通報151　有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R ◦(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件◦ 串電阻33 ohm改為68 ohm◦



BH/2*13K24/BK/2.54/VA /[11NH3-001213-01R_11NH3-001213-02R]

TPM CONNECT



Thunderbolt

★Update 2015-12-29

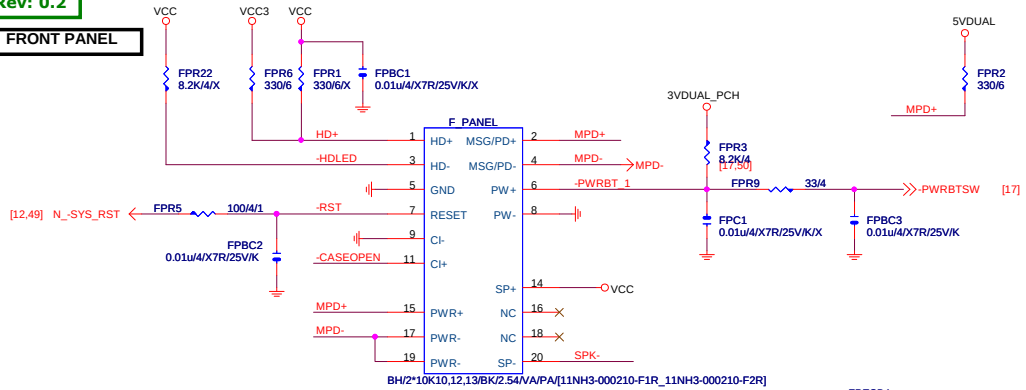
* Del THB_C

Gigabyte Technology		
Title: FP,F_USB,USB PWR,BZ		
Size: Custom	Document Number: Z370 HD3	Rev: 1.0
Date: Wednesday, August 02, 2017	Sheet 46 of 53	

Rev: 0.2

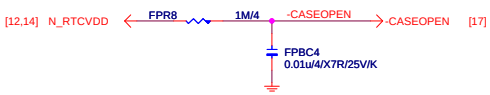
FRONT PANEL

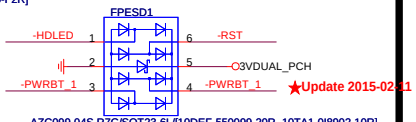
★Update 2016.06.15



Update 2015.01.08
Footprint=F_PANEL-100

CASE OPEN

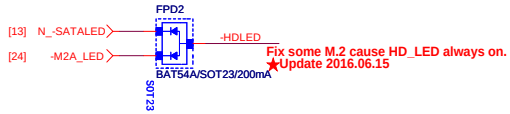




★Update 2015-02-11

FRONT PANEL SHORT

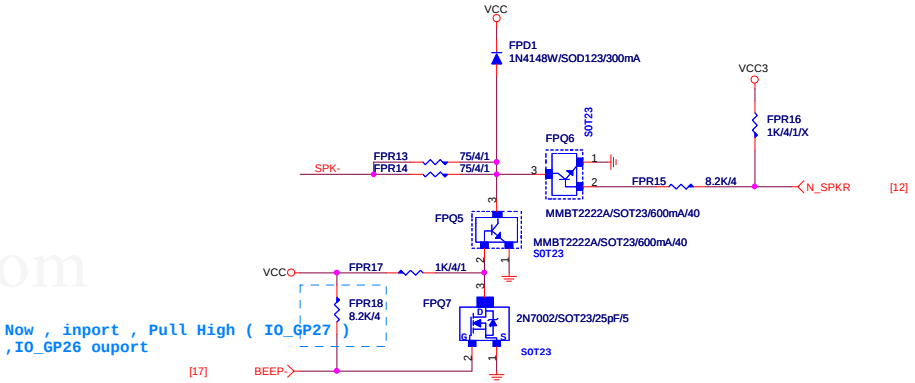
SATA LED



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

SPEAKER

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



Now , inport , Pull High (IO_GP27)
,IO_GP26 ouport

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

Gigabyte Technology		
Title: FRONT PANEL		
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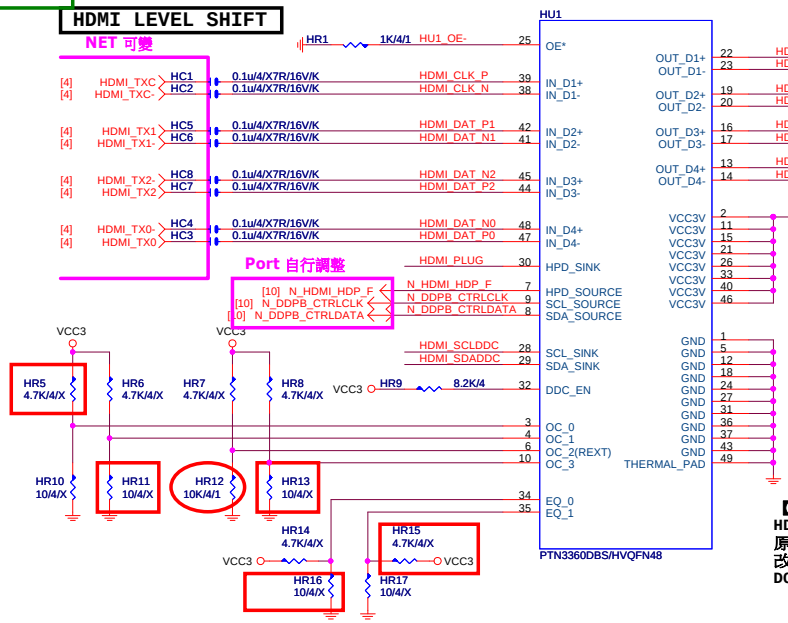
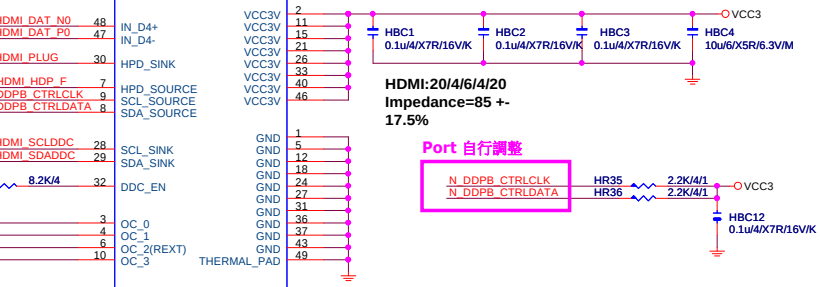
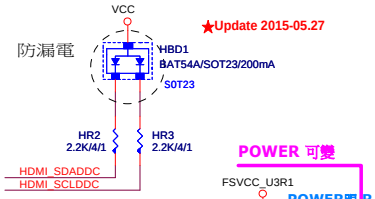
Rev: 0.2

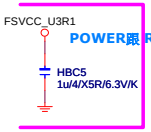


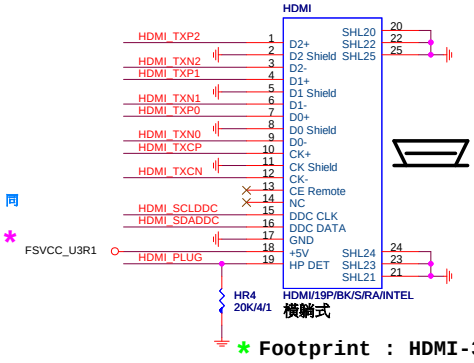


HDMI:20/4/6/4/20
Impedance=85 +-17.5%



★Update 2015-05.27





* Footprint : HDMI-3

跟R_USB30 不同顆料，所以HDMI要上件

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

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

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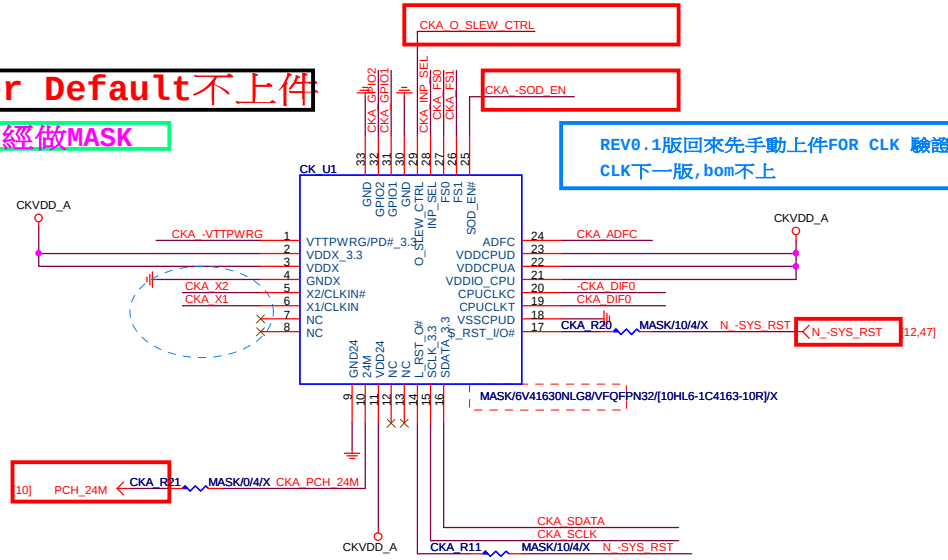
REV:0.3

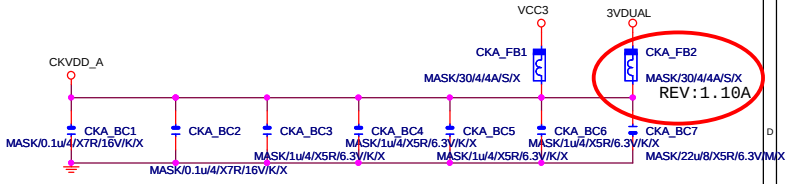
IDT6V41630

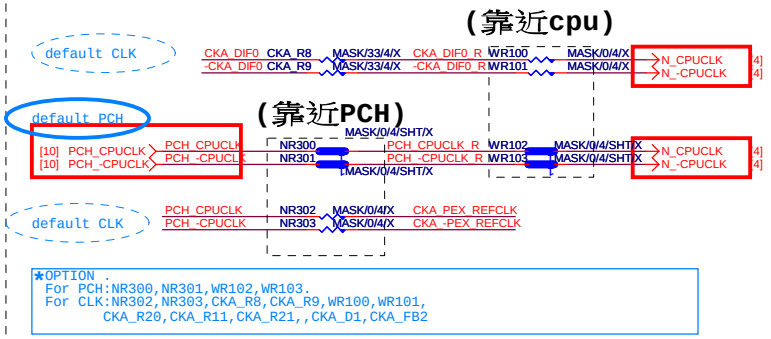
*CLK Buffer Default不上件

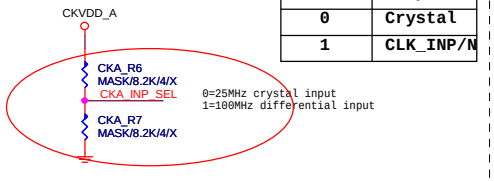
不上件部分已經做MASK

REV0.1版回來先手動上件FOR CLK 驗證動作是否正常.
CLK下一版,bom不上

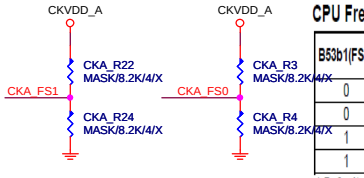






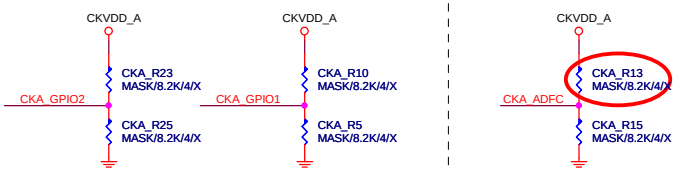


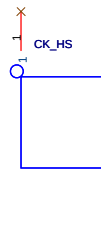
INP_SEL	Intput
0	Crystal
1	CLK_INP/N



CPU Frequency Selection and output Divider Table

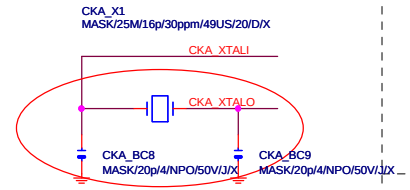
B53b1(FS1)	B53b0(FS0)	VCO (MHz)	CPU Divider	CPU (MHz)	Typ SS%	Typ SS ON/OFF
0	0	200.00	2.00	100.00	-	OFF
0	1	400.00	4.00	100.00	-	OFF
1	0	1000.00	10.00	100.00	-0.50%	ON
1	1	100.00	1.00	100.00	-	OFF



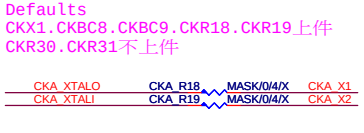


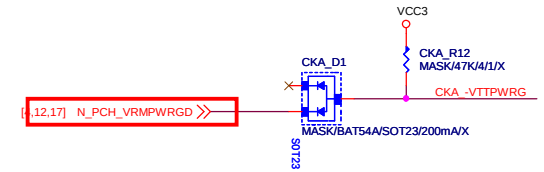
* Footprint : CLOCK_BUFFER_COVER

*可變，依需求上件不上件。



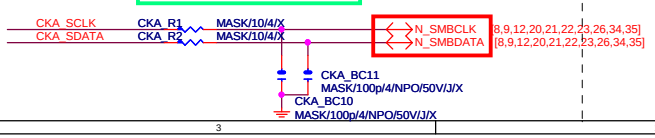
Defaults
CKX1.CKBC8.CKBC9.CKR18.CKR19上件
CKR30.CKR31不上件



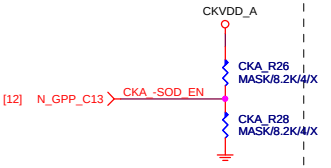


SMBUS

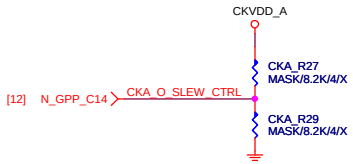
*Del CKA_R16,CKA_R17



Real time selection fucntion



Frequency change slew rate control



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Title: IDT6V41530_CLK BUFFER		
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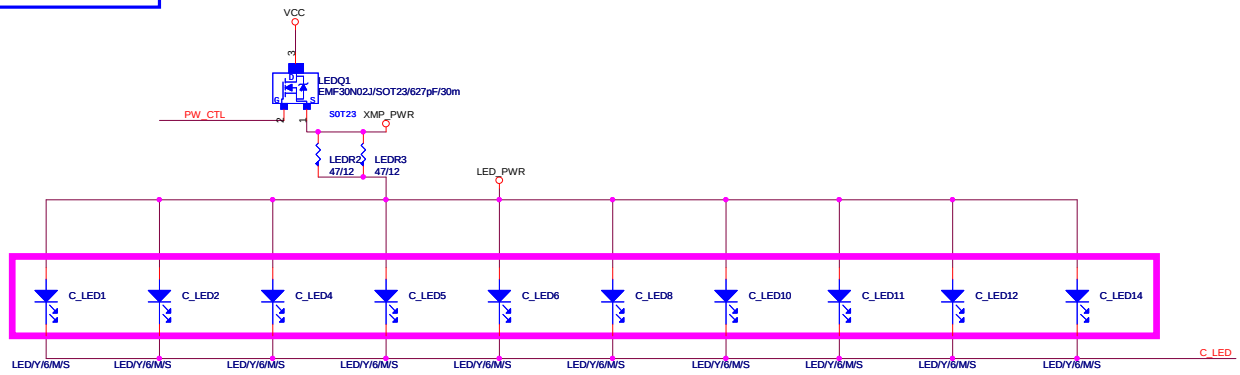
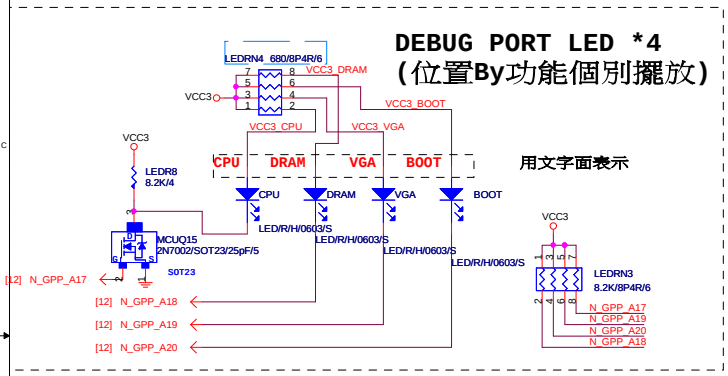
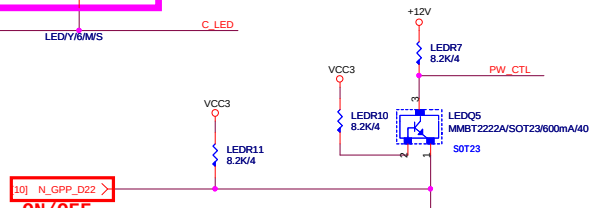
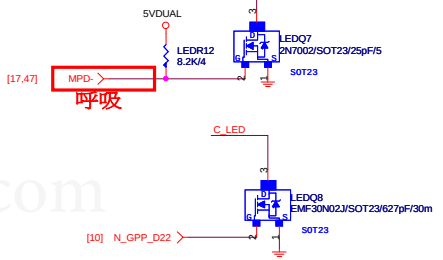
Rev 2.01



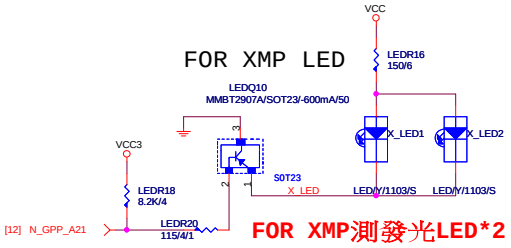




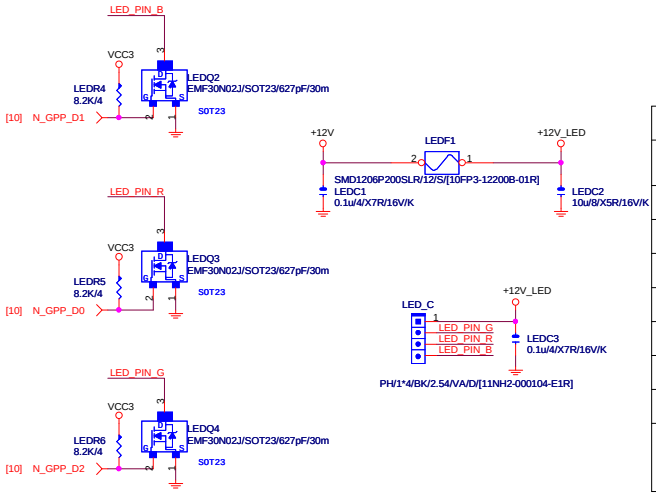


Ambient LED Control

	N_GPP_D22	IO_GP91
Still Mode	H	L
OFF Mode	L	L
Pluse Mode	H	BREATH



RGB LED CONTROL



三色 LED Control

	N_GPP_D0(R)	N_GPP_D2(G)	N_GPP_D1(B)
藍	L	L	H
綠	L	H	L
淺綠	L	H	H
紅	H	L	L
粉紅	H	L	H
黃	H	H	L
白光	H	H	H
循環	順序:藍-綠-淺綠- 紅-粉紅-黃-白光 切換間隔時間為 1 秒		

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Title	Amient Single LED	
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EMI/ESD R0.1

CLOSE SIO

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

[12,17,30] N_-SLP_S3

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

[12,17,31,34] N_-S4_S5

*Del EMIC3

CLOSE PCH

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

[4,12] N_CPUPWROK

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Title: EMI/ESD		
Size: A	Document Number: Z370 HD3	Rev: 1.0
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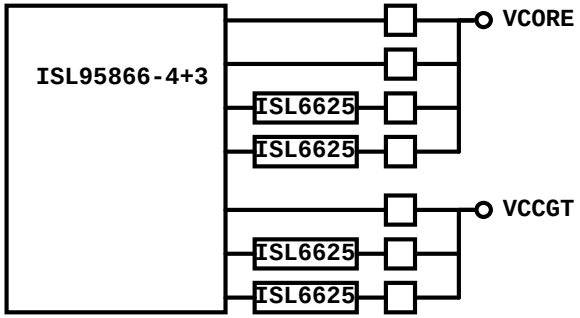
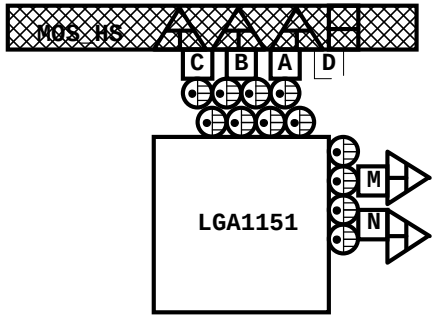
POWER BLOCK MAP

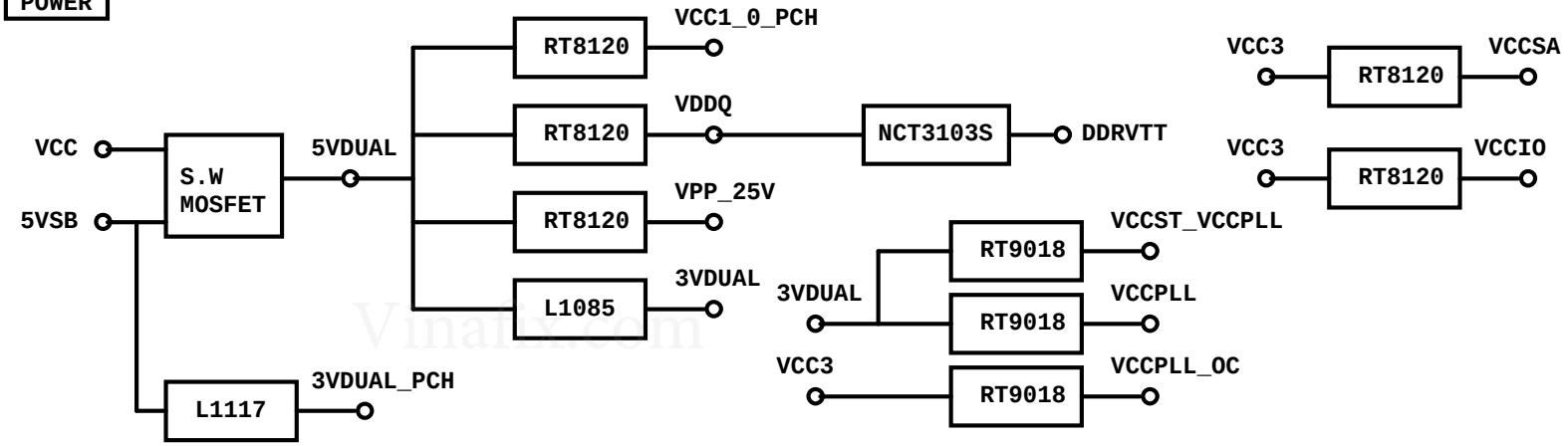
- CPU
  - VCORE
  - VCCGT
  - VCCSA
  - VCCIO
  - VDDQ
  - VCCST_VCCPLL
  - VCCSFUSEPRG
- DDR4
  - VDDQ
  - DDRVTT
  - VPP_25V
- PCH
  - VCC1_0_PCH
  - VCCDSW_1P0
  - VCC10_VCCF24_1P0
  - VCC10_VCCAMPHYPLL
  - VCC10_VCCAPLL
  - VCC3_PCH
  - 3VDUAL_PCH
  - VCC3
  - N_RTCVDD
- IT8628
  - IT_VCCH
  - IT_AVCC
  - 2_5LEVEL
- HM
  - +12V
  - VCC
  - VCC3
  - VCORE
  - VCCGT(IMON_VCCGT)
  - VDDQ
  - VCCSA(IMON_VCORE)

VCORE/VCCGT

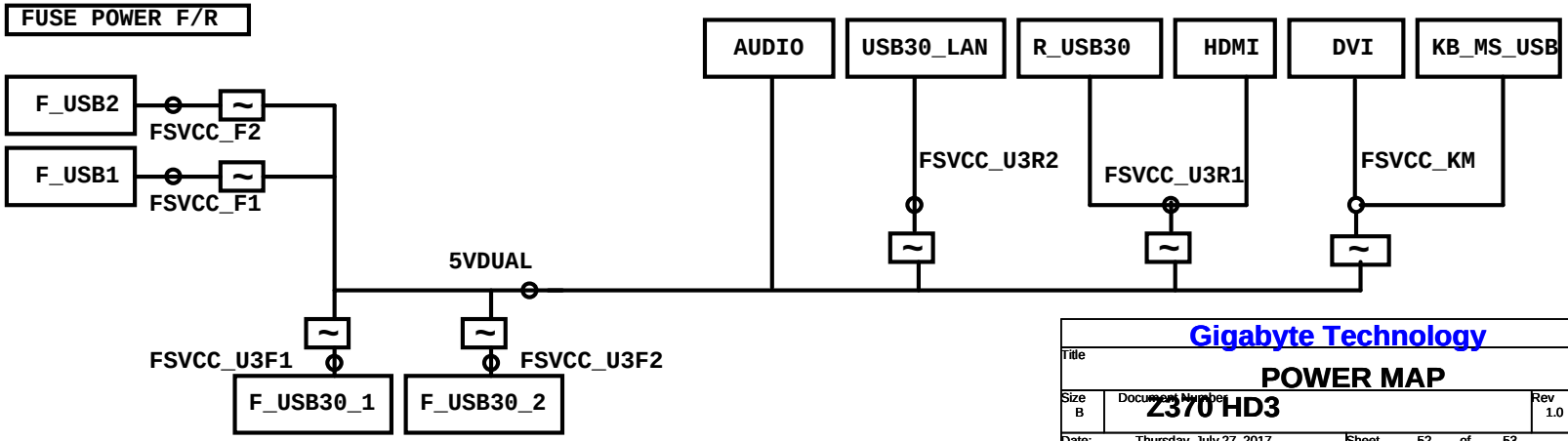




POWER



FUSE POWER F/R



Gigabyte Technology			
Title: POWER MAP			
Size: B	Document Number: Z370 HD3		Rev: 1.0
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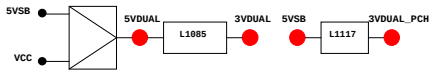
PCH GPIO LIST TABLE

PIN NAME	PWR	RTD3/PLTRST	Default	USAGE	NOTE
GPP_A0	MAIN	H-Z	RCIN#	N_-KBRST	P/U 8.2K VCC3
GPP_A1	MAIN	H-Z	LAD0	N_LAD0	N/A
GPP_A2	MAIN	H-Z	LAD1	N_LAD1	N/A
GPP_A3	MAIN	H-Z	LAD2	N_LAD2	N/A
GPP_A4	MAIN	H-Z	LAD3	N_LAD3	N/A
GPP_A5	MAIN	H-Z	LFRAME#	N_-LFRAME	N/A
GPP_A6	MAIN	H-Z	SERIRQ	N_SERIRQ	P/U 8.2K VCC3
GPP_A7	MAIN	H-Z	PIRQA#	N_-LDRQ0	P/U 8.2K VCC3
GPP_A8	MAIN	H-Z	CLKRUN#	N_GPP_A8	P/U 8.2K VCC3
GPP_A9	MAIN	H-Z	CLKOUT	T_TPMCLK/N_LPC24MA	N/A
GPP_A11	MAIN	H-Z	PME#	N_-P_PME	P/U 8.2K 3VDUAL_PCH
GPP_A12	MAIN	H-Z	GPI	N_GPP_A12	P/U 8.2K VCC3
GPP_A13	MAIN	H-Z	WANRN#	N_-S_WARN	N/A
GPP_A14	MAIN	H-Z	STAT#	N_GPP_A14	P/U 8.2K 3VDUAL
GPP_A15	MAIN	H-Z	ACK#	N_-S_ACK	N/A
GPP_B0	MAIN	H-Z	GPO	N_-DDR_V_SEL	P/U 8.2K VCC3
GPP_B2	MAIN	H-Z	GPI	N_-VRALERT	P/U 8.2K 3VDUAL
GPP_B3	MAIN	H-Z	GPI	N_GPP_B3	N/A
GPP_B4	MAIN	H-Z	GPI	N_GPP_B4	N/A
GPP_B5	MAIN	H-Z	GPI	-PCIEX16_PR	P/U 8.2K VCC3
GPP_B6	MAIN	H-Z	GPI	-PCIEX1_PR1	P/U 8.2K VCC3
GPP_B7	MAIN	H-Z	GPI	-PCIEX1_PR2	P/U 8.2K VCC3
GPP_B8	MAIN	H-Z	GPI	-PCIEX4_PR	P/U 8.2K VCC3
GPP_B9	MAIN	H-Z	GPI	-PCIEX1_PR3	P/U 8.2K VCC3
GPP_B10	MAIN	H-Z	GPI	LA_-CLKREQ	P/U 8.2K 3VDUAL_LAN1
GPP_B12	MAIN	H-Z	SLP_S0	N_-SLP_S0	N/A
GPP_B13	MAIN	H-Z	PLTRST	N_-PFMRST	N/A
GPP_B14	MAIN		GPO	N_SPKR	N/A
GPP_B15	MAIN	H-Z	GPI	N_GPP_B15	N/A
GPP_B16	MAIN	H-Z	GPI	N_GPP_B16	N/A
GPP_B22	MAIN		GPO	N_GPP_B22	P/D 1K GND
GPP_B23	MAIN	H-Z	GPO	N_-PCH_HOT	N/A
GPP_C0	MAIN	H-Z	SMBCLK	N_SMBCLK	P/U 1K 3VDUAL
GPP_C1	MAIN	H-Z	SMBDATA	N_SMBDATA	P/U 1K 3VDUAL
GPP_C2	MAIN		GPO	N_-LPCPME	N/A
GPP_C3	MAIN	H-Z	SML0CLK	N_SML0CLK	P/U 499 3VDUAL
GPP_C4	MAIN	H-Z	SML0DAT	N_SML0DAT	P/U 499 3VDUAL
GPP_C6	MAIN	H-Z	GPI	N_SML1CLK	P/U 8.2K 3VDUAL
GPP_C7	MAIN	H-Z	GPI	N_SML1DAT	P/U 8.2K 3VDUAL
GPP_C21	MAIN	H-Z	GPI	N_GPP_C21	N/A
GPP_C23	MAIN	H-Z	GPI	N_GPP_C23	N/A
GPP_D4	MAIN	H-Z	GPI	N_GPP_D4	P/U 8.2K 3VDUAL
GPP_D7	MAIN	H-Z	GPI	N/A	N/A
GPP_D8	MAIN	H-Z	GPI	N/A	N/A
GPP_D9	MAIN	H-Z	GPI	N_GPP_D9	P/U 1K VCC3
GPP_D10	MAIN	H-Z	GPI	N/A	N/A
GPP_D13	MAIN	H-Z	GPI	N/A	N/A
GPP_D23	MAIN	H-Z	GPI	N_GPP_D23	P/U 8.2K 3VDUAL
GPP_E0	MAIN	H-Z	GPI	N_GPP_E0	P/U 8.2K 3VDUAL
GPP_E1	MAIN	H-Z	GPI	N_GPP_E1	P/U 8.2K 3VDUAL
GPP_E2	MAIN	H-Z	GPI	N_GPP_E2	P/U 8.2K 3VDUAL
GPP_E3	MAIN	H-Z	GPI	N/A	N/A
GPP_E4	MAIN	H-Z	GPI	N_DEVSLP0	N/A
GPP_E6	MAIN	H-Z	GPI	N_GPP_E6	N/A
GPP_E8	MAIN	H-Z	GPI	N_-SATALED	N/A
GPP_E9	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_E12	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_F0	MAIN	H-Z	GPI	N_GPP_F0	P/U 8.2K 3VDUAL
GPP_F1	MAIN	H-Z	GPI	N_GPP_F1	P/U 8.2K 3VDUAL
GPP_F2	MAIN	H-Z	GPI	N_GPP_F2	P/U 8.2K 3VDUAL
GPP_F3	MAIN	H-Z	GPI	N_GPP_F3	P/U 8.2K 3VDUAL
GPP_F4	MAIN	H-Z	GPI	N_GPP_F4	P/U 8.2K 3VDUAL
GPP_F5	MAIN	H-Z	GPI	N_GPP_F5	P/U 8.2K VCC3
GPP_F6	MAIN	H-Z	GPI	N/A	N/A
GPP_F10	MAIN	H-Z	GPI	N_GPP_F10	P/U 8.2K VCC3
GPP_F11	MAIN	H-Z	GPI	N_GPP_F11	P/U 8.2K VCC3
GPP_F12	MAIN	H-Z	GPI	N_GPP_F12	P/U 8.2K VCC3
GPP_F13	MAIN	H-Z	GPI	N_GPP_F13	P/U 8.2K VCC3
GPP_F14	MAIN	H-Z	GPI	A_-SKTOCC	P/U 8.2K VCC3
GPP_F15	MAIN	H-Z	GPI	N_-USBOC_R	N/A
GPP_F16	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_F17	MAIN	H-Z	GPI	N_-USBOC_F	N/A
GPP_F18	MAIN	H-Z	GPI	N_-USBOC_7	P/U 8.2K 3VDUAL
GPP_F22	MAIN	H-Z	GPI	N_GPP_F22	P/U 8.2K VCC3
GPP_F23	MAIN	H-Z	GPI	N_GPP_F23	P/U 8.2K VCC3
GPP_G11	MAIN	H-Z	FANPWM2	N/A	N/A
GPP_G12	MAIN	H-Z	GPI	N/A	N/A
GPP_G13	MAIN	H-Z	GPI	N_CPU_S1	N/A
GPP_G14	MAIN	H-Z	GPI	N_GT_S	N/A
GPP_G15	MAIN	H-Z	GPI	N_CPU_S	N/A
GPP_G18	MAIN	H-Z	GPI	N_GPP_G18	P/U 8.2K VCC3
GPP_G19	MAIN	H-Z	GPI	N_GPP_G19	P/U 8.2K VCC3
GPP_G20	MAIN	H-Z	GPI	N_GPP_G20	P/U 8.2K VCC3
GPP_G21	MAIN	H-Z	GPI	N_GPP_G21	P/U 8.2K VCC3
GPP_G22	MAIN	H-Z	GPI	IMON_GPIO	P/U 8.2K VCC3
GPP_H0	MAIN	H-Z	GPI	M2A_-CLKREQ	P/U 8.2K VCC3
GPP_H12	MAIN		GPO	N/A	N/A
GPP_H19	MAIN	H-Z	GPI	N_GPP_H19	P/U 8.2K 3VDUAL
GPP_H20	MAIN	H-Z	GPI	N_GPP_H20	P/U 8.2K 3VDUAL
GPP_H21	MAIN	H-Z	GPI	N_GPP_H21	P/U 8.2K 3VDUAL
GPP_H22	MAIN	H-Z	GPI	N_GPP_H22	P/U 8.2K 3VDUAL
GPP_I0	MAIN	H-Z	GPI	N_HDMI_HDP_F	N/A
GPP_I1	MAIN	H-Z	GPI	N_DVI_HDP	P/U 1M VCC3
GPP_I2	MAIN	H-Z	GPI	N_VGA_HDP_F	N/A

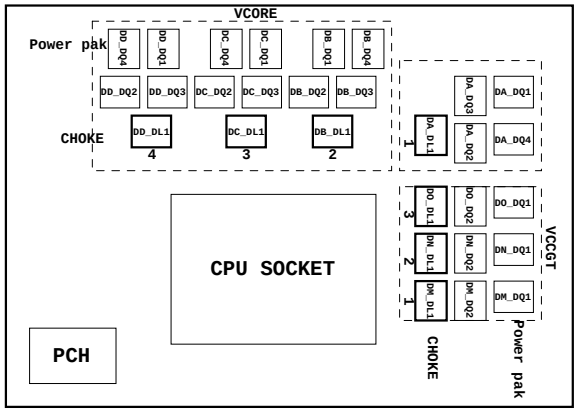
PIN NAME	PWR	RTD3/PLTRST	Default	USAGE	NOTE
GPP_I3	MAIN	H-Z	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	H-Z	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	H-Z	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN		GPO	N_DDPB_CTRLDATA	P/U 2.2K VCC3
GPP_I7	MAIN	H-Z	GPI	N_DDPC_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN		GPO	N_DDPC_CTRLDATA	P/U 2.2K VCC3
GPP_I9	MAIN	H-Z	GPI	N_DDPD_CTRLCLK	P/U 2.2K VCC3
GPP_I10	MAIN		GPO	N_DDPD_CTRLDATA	P/U 2.2K VCC3
GPD0	STBY		BATLOW	N_-BATLOW	P/U 8.2K 3VDUAL_PCH
GPD1	STBY		ACPRESENT	N_GP_D1	P/U 8.2K 3VDUAL_PCH
GPD2	STBY		LAN_WAKE	N_-LAN_WAKE	P/U 8.2K 3VDUAL_PCH
GPD3	STBY		PWRBTN	O_PWRBTSW	P/U 8.2K 3VDUAL_PCH
GPD4	STBY		SLP_S3	N_-SLP_S3	N/A
GPD5	STBY		SLP_S4	N_-S4_S5	N/A
GPD6	STBY		SLP_A	N_-SLP_A	N/A
GPD8	STBY		SUSCLK	N_SUSCLK	P/D 1.5K GND
GPD10	STBY		SLP_S5	N_-SLP_S5	N/A
GPD11	STBY		LANPHYPC	N_-LAN_DIS	N/A

Super I/O ITE8686 GPIO Table

PIN NAME	USAGE	NOTE
PCIRST3#/GP10/VDIMM_STR_EN	N/A	
PCIRST2#/GP11	O_-PCIE_RST	
PCIRST1#/GP12	O_-PFMRST2	
SVC/PECI_RQT/GP14	N_-THRMTRIP	
SLP_SUS#/PCIRSTIN#/CIRTX2/GP15	N_GPP_B20	
PSI_L/FAN_CLT5/CIRRX2/GP16	空 PIN	
RI2#/GP17	IO_GP17	
THR_PWM_CTS2#/GP20	空 PIN	
IO_SMI#DCD2#/GP21	空 PIN	
SPI_SI/GP22	-ICH_SPI_CS	
DPWROK/CPU_PG/GP23	N_PCH_DPWROK	
FAN_TAC5/RTS2#/GP24	空 PIN	
FAN_TAC4/DSR2#/GP25	FANIO4	
INV_OUT1_SOUT2/GP26	MB_ID2	
INV_IN1/SIN2/GP27	BEEP-	
ATXPG/GP30	PWOK_IO	
CTS1/GP31	CTS1-	
OCWDT3/RI1#/GP32	RI1-	
OCWDT2/DCD1#/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSBSW#/GP40	空 PIN	
OCWDT1/SIN1/GP41	RXD1	
GP42/SCK/FAN_CTL4	FANPWM4	
PANSWH#/GP43	-PWRBTSW	
PWRON#/GP44	O_PWRBTSW	
OCWDT0/DSR1#/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/JP1	O_TPMCLK	
FAN_CTL2/GP51	FANPWM2	
FAN_TAC2/GP52	FANIO2	
SUSC#/GP53	N_-S4_S5	
PME#/GP54	N_-LPCPME	
RSMRST#/CIRRX1/GP55	O_-RSMRST	
MCLK/FAN_TAC6/GP56	MCLK	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST#/GP62	N_-KBRST	
HOLD_B#/GP63	-SPI_HOLD_B	
HOLD_B#/GP64	-SPI_HOLD_M	
VLDT_EN/PCH_D0/GP65	空 PIN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	N_-RTCRST	
USB_FS1/PD0/GP70	PD0	
USB_FS2/PD1/GP71	PD1	
USB_FS3/PD2/GP72	PD2	
USB_FS3/PD3/GP73	PD3	
USB_FS5/PD4/GP74	PD4	
USB_FS6/PD5/GP75	PD5	
USB_FS7/PD7/GP76	PD6	
USB_FS8/PD8/GP77	PD7	
LS-IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#/GP83	ACK-	
IPHONE_CHARGE#/SLIN#/GP84	SLIN-	
OC_IN/INIT#/GP85	INIT-	
OC_OUT/AFD#/GP86	AFD-	
USB_OC2/STB#/GP87	STB-	
DDR_EN/GP90	MA_EN	
PWRLED/GP91	MPD-	
HOLD_OUT/GP92	空 PIN	
HDLED_IN/GP93	IO_GP93	
PROCHOT#/GP94	-PROCHOT_CON	
CPUPWRGD/GP95	空 PIN	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	



PWM各相位的擺法如下:



BIOS超電壓對應表:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCIO	CPU VCCIO
VCCSA	CPU System Agent Voltage
VCCST_VCCPLL	VCC Substained
VCCPLL	VCCPLL
VCCPLL_OC	VCCPLL_OC
VCC1_0_PCH	PCH core
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Termination

散熱模組料號:

Z370-HD3 :
TMOS
12SP2-S09426-21R/22R/23R
RMOS
12SP2-S08026-21R/22R/23R
PCH_HS
12SP2-S08607-01R/02R/03R

12SP2-PT*表示組合料號(2合一或3合一料件)

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	VCC	FANIO1	IT8686
	FANC_VOUT	N/A	N/A	NCT3947
SYS FAN1	FANPWM2	VCC	FANIO2	IT8686
	FAN1_VOUT	N/A	N/A	NCT3947
SYS FAN2	FANPWM3	VCC	FANIO3	IT8686
	FAN2_VOUT	N/A	N/A	NCT3947
SYS_FAN3	FANPWM4	VCC	FANIO4	IT8686
	FAN3_VOUT	N/A	N/A	NCT3947

Gigabyte Technology

Title: TABLE LIST

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