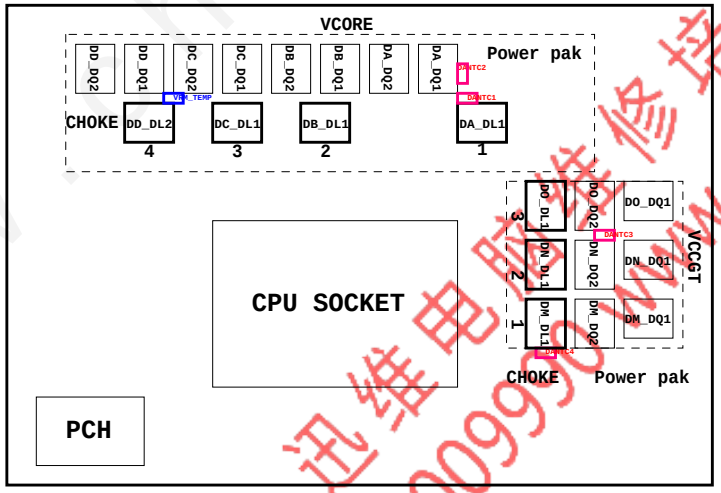
Model Name: GA-H270-HD3

rev1.0

SHEET	TITLE	
01	COVER SHEET	
02	BOM & PCB MODIFY HISTORY	
03	BLOCK DIAGRAM	
04	CPU_LGA1151-A	
05	CPU_LGA1151-B-DDR4	
06	CPU_LGA1151-C-B.H系列	(REV0.23)
07	CPU_LGA1151-D	
08	DDR 4 CHANNEL A	(REV0.6)
09	DDR 4 CHANNEL B	
10	PCH CLOCK BUFFER	
11	PCH DMI,USB,PCIE	
12	PCH MISC	
13	PCH SATA,PCIE,SATA_EXPRESS	
14	PCH PWR	
15	PCH GND	
16	Dual BIOS	(REV0.7)
17	I/O ITE8628	(REV0.7)
18	HWM	
19	FAN CTRL-SIO	(REV0.82)
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 (A)	(REV0.6)
25	SATA EXPRESS	
26	VCORE_ISL95866(PWM)	(REV0.3)
27	VCORE_ISL95866(Vcore)	(REV0.3)
28	VCORE_ISL95866(VccGT)	(REV0.3)
29	VCCSA_VCCIO_VCCPLL-B.H系列	(REV0.23)
30	RT8120_DDR_CHOKE-IRON-2L	(REV0.2)
31	RT8120_VPP_CHOKE-合金	(REV0.1)
32	RT8120_PCH	(REV0.1)
33	DISCRETE POWER	(REV0.51)
34	NCP3933 OVER VOLTAGE	
35	ATX POWER , -PROCHOT	
36	KB_MS_USB	(REV0.82)

SHEET	TITLE	
37	DVI	(REV0.82)
38	NXP-PTN3356-DP to VGA-IC	(REV1.03)
39	NXP-PTN3356-DP to VGA-Conn	(REV1.03)
40	R_USB30	(REV0.82)
41	INETL I219V	(REV1.11)
42	USB30_LAN CONNECTOR-I219V	(REV1.11)
43	ALC887-VD2 CODEC	(REV0.1)
44	REAR AUDIO JACK	(REV0.1)
45	F_USB30	(REV0.82)
46	F_USB20	(REV0.82)
47	COM , LPT , TPM	(REV0.82)
48	F_PANEL	(REV0.82)
49	IT8892E_JX	(REV0.1)
50	PCI SLOT 1	(REV0.1)
51	LDO POWER	(REV0.1)
52	HDMI	(REV0.82)
53	IDT9FGP310_CLK BUFFER	(REV0.5)
54	OC BUTTON	(REV0.82)
55	Audio / DEBUG / XMP LED	(REV0.31)
56	EMI-ESD	(REV0.1)
57	POWER MAP	
58	TABLE LIST	



Gigabyte Technology		
Title: Cover Sheet		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Thursday, November 03, 2016	Sheet 1 of 58	

GA-H270-HD3 rev 1.0

Component value change history

Data	Change Item	Reason
2016/08/31	first release	
	9MH270HD3-00-01 BOM	
2016/11/15	9MH270HD3-00-10A BOM	
	DANTC3->470K/1/4/S,WR59,WR60,WR61->0/4/X,Add DANTC2 470K	
	OR189->22,0 Ohm->Short Pad,PCH->10HB1-03H270-20R	
	M.2 DIP螺絲改上件,MOS->ON,DAR47->16.5K , DAR67->14.3K	
2016/11/28	9MH270HD3-00-10B BOM	
	TMOS->12SP2-S09425-K1R_12SP2-S09425-K2R_12SP2-S09425-K3R	
2016/12/20	9MH270HD3-00-10C BOM	
	GR44->12K	

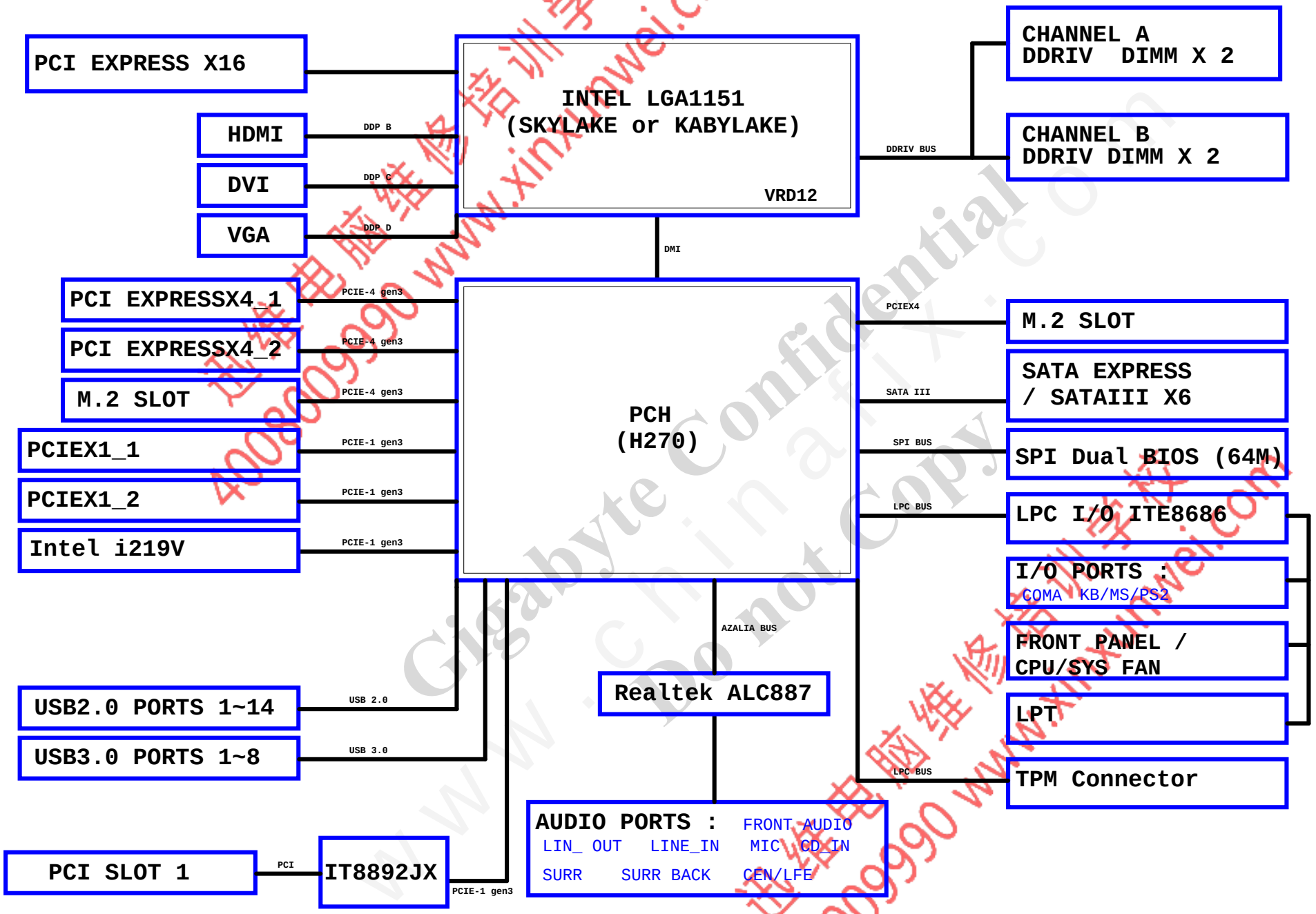
Circuit or PCB layout change

DATE	Change Item	Reason
2016/08/29 PCB:0.1	1.PCB first release	
	2.線路由Z270-HD3 Rev0.1修改	
2016/11/11 PCB:1.0	TBC3 Net->TPMCLK,SYS_FAN3_PUMP Rename SYS_FAN3	
	Add N_SUSCLK ,MH3,MH4 Footprint-> HOLE_4-RH-1	
	MOS_HS Footprint->MOSHSINK-Z270M-D3H-T,MOS_HS Rename TMOS	
	PCH_HS Footprint->BGAHSINK_SB-42X42,Add DCC54, DCC51,DCC52,DCC43,DCC54	
	Add DCC1,DCC2,DCC3, M.2 SMD螺柱Footprint->HOLE_C236D165-A,MAR115,WR86->Short Pad	
	MAR115,WR86->Short Pad,Rename DCC1,DCC2,DCC3->DCC8,DCC9,DCC10	
	Add DCC54	

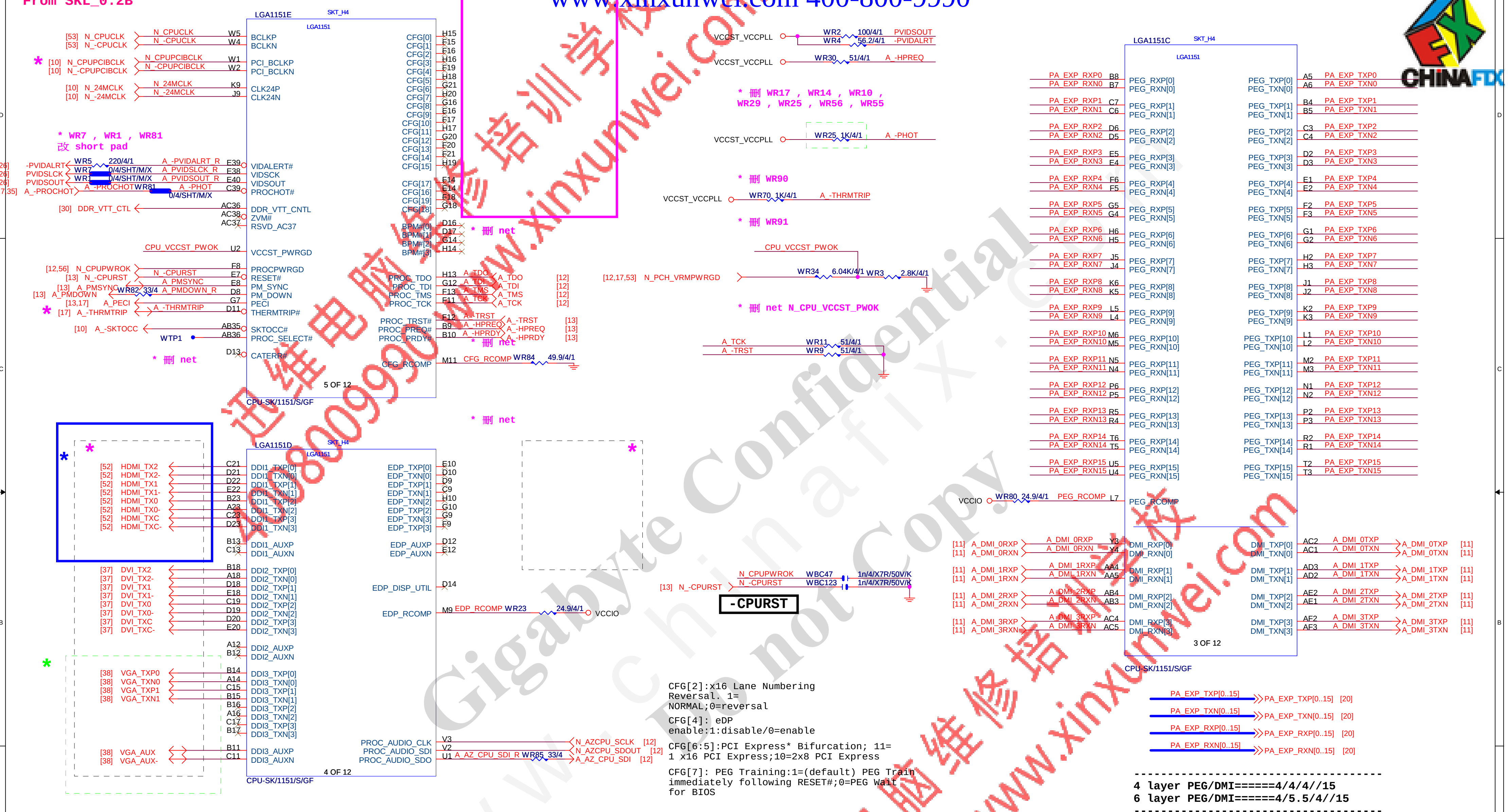
GIGABYTE™

Title	BOM & PCB MODIFY HISTORY	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Monday, December 19, 2016	Sheet 2 of 58	

BLOCK DIAGRAM



Gigabyte Technology			
Title: BLOCK DIAGRAM			
Size: C	Document Number: GA-H270-HD3		Rev: 1.0
Date: Tuesday, November 08, 2016	Sheet 3 of 58		



CFG[2]:x16 Lane Numbering Reversal. 1= NORMAL;0=reversal

CFG[4]: eDP enable:1:disable/0=enable

CFG[6:5]:PCI Express* Bifurcation; 11= 1 x16 PCI Express;10=2x8 PCI Express

CFG[7]: PEG Training:1=(default) PEG Train immediately following RESET#;0=PEG Wait for BIOS

4 layer PEG/DMI======4/4/4//15
6 layer PEG/DMI======4/5.5/4//15

Impedance=85 +- 15%

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

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

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

Gigabyte Technology

Title: CPU LGA1151-A

Size: Custom | Document Number: GA-H270-HD3 | Rev: 1.0

* 改DDR4 net

LGA1151A

SKT_H4

LGA1151

MDA0	AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18	M_DCLKA0	M_DCLKA0	[8]
MDA1	AE37	DDR0_DQ[1]	DDR0_CKN[0]	AW17	M_-DCLKA0	M_-DCLKA0	[8]
MDA2	AG38	DDR0_DQ[2]	DDR0_CKP[1]	AY17	M_DCLKA1	M_DCLKA1	[8]
MDA3	AG37	DDR0_DQ[3]	DDR0_CKN[1]	AY16	M_-DCLKA1	M_-DCLKA1	[8]
MDA4	AE39	DDR0_DQ[4]	DDR0_CKP[2]	AW16	M_DCLKA2	M_DCLKA2	[8]
MDA5	AE40	DDR0_DQ[5]	DDR0_CKN[2]	AV16	M_-DCLKA2	M_-DCLKA2	[8]
MDA6	AG39	DDR0_DQ[6]	DDR0_CKP[3]	AT16	M_DCLKA3	M_DCLKA3	[8]
MDA7	AG40	DDR0_DQ[7]	DDR0_CKN[3]	AU16	M_-DCLKA3	M_-DCLKA3	[8]
MDA8	AJ38	DDR0_DQ[8]					
MDA9	AJ37	DDR0_DQ[9]	DDR0_CKE[0]	AY24	CKEA0	CKEA0	[8]
MDA10	AL38	DDR0_DQ[10]	DDR0_CKE[1]	AW24	CKEA1	CKEA1	[8]
MDA11	AL37	DDR0_DQ[11]	DDR0_CKE[2]	AV24	CKEA2	CKEA2	[8]
MDA12	AJ40	DDR0_DQ[12]	DDR0_CKE[3]	AV25	CKEA3	CKEA3	[8]
MDA13	AJ39	DDR0_DQ[13]					
MDA14	AL39	DDR0_DQ[14]	DDR0_CS#[0]	AW12	M_-CSA0	M_-CSA0	[8]
MDA15	AL40	DDR0_DQ[15]	DDR0_CS#[1]	AU11	M_-CSA1	M_-CSA1	[8]
MDA16	AN38	DDR0_DQ[16]/DDR0_DQ[32]	DDR0_CS#[2]	AV13	M_-CSA2	M_-CSA2	[8]
MDA17	AN40	DDR0_DQ[17]/DDR0_DQ[33]	DDR0_CS#[3]	AV10	M_-CSA3	M_-CSA3	[8]
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	SBAA0	[8]
MDA25	AU38	DDR0_DQ[25]/DDR0_DQ[41]	DDR0_BA[1]/DDR0_CAB[6]/DDR0_BA[1]	AV15	SBAA1	SBAA1	[8]
MDA26	AV35	DDR0_DQ[26]/DDR0_DQ[42]	DDR0_BA[2]/DDR0_CAA[5]/DDR0_BG[0]	AW23	BG_A0	BG_A0	[8]
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	BG_A1	[8]
MDA47	AT3	DDR0_DQ[47]/DDR1_DQ[15]	DDR0_MA[15]/DDR0_CAA[8]/DDR0_ACT#	AU24		M_-ACT_A	[8]
MDA48	AP2	DDR0_DQ[48]/DDR1_DQ[32]					
MDA49	AM4	DDR0_DQ[49]/DDR1_DQ[33]	DDR0_PAR	AY15		M_DDR_PARA	[8]
MDA50	AP3	DDR0_DQ[50]/DDR1_DQ[34]	DDR0_ALERT#	AT23		M_-ALERT_A	[8]
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

CPU-SK/1151/S/GF

LGA1151B

SKT_H4

LGA1151

MDB0	AD34	DDR1_DQ[0]/DDR0_DQ[16]	DDR1_CKP[0]	AM20	M_DCLKB0	M_DCLKB0	[9]
MDB1	AD35	DDR1_DQ[1]/DDR0_DQ[17]	DDR1_CKN[0]	AM21	M_-DCLKB0	M_-DCLKB0	[9]
MDB2	AG35	DDR1_DQ[2]/DDR0_DQ[18]	DDR1_CKP[1]	AP22	M_DCLKB1	M_DCLKB1	[9]
MDB3	AH35	DDR1_DQ[3]/DDR0_DQ[19]	DDR1_CKN[1]	AP21	M_-DCLKB1	M_-DCLKB1	[9]
MDB4	AE35	DDR1_DQ[4]/DDR0_DQ[20]	DDR1_CKP[2]	AN20	M_DCLKB2	M_DCLKB2	[9]
MDB5	AE34	DDR1_DQ[5]/DDR0_DQ[21]	DDR1_CKN[2]	AN21	M_-DCLKB2	M_-DCLKB2	[9]
MDB6	AG34	DDR1_DQ[6]/DDR0_DQ[22]	DDR1_CKP[3]	AP19	M_DCLKB3	M_DCLKB3	[9]
MDB7	AH34	DDR1_DQ[7]/DDR0_DQ[23]	DDR1_CKN[3]	AP20	M_-DCLKB3	M_-DCLKB3	[9]
MDB8	AK35	DDR1_DQ[8]/DDR0_DQ[24]					
MDB9	AL35	DDR1_DQ[9]/DDR0_DQ[25]	DDR1_CKE[0]	AY29	CKEB0	CKEB0	[9]
MDB10	AK32	DDR1_DQ[10]/DDR0_DQ[26]	DDR1_CKE[1]	AV29	CKEB1	CKEB1	[9]
MDB11	AL32	DDR1_DQ[11]/DDR0_DQ[27]	DDR1_CKE[2]	AW29	CKEB2	CKEB2	[9]
MDB12	AK34	DDR1_DQ[12]/DDR0_DQ[28]	DDR1_CKE[3]	AU29	CKEB3	CKEB3	[9]
MDB13	AL34	DDR1_DQ[13]/DDR0_DQ[29]					
MDB14	AK31	DDR1_DQ[14]/DDR0_DQ[30]	DDR1_CS#[0]	AP17	M_-CSB0	M_-CSB0	[9]
MDB15	AL31	DDR1_DQ[15]/DDR0_DQ[31]	DDR1_CS#[1]	AN15	M_-CSB1	M_-CSB1	[9]
MDB16	AP35	DDR1_DQ[16]/DDR0_DQ[48]	DDR1_CS#[2]	AN17	M_-CSB2	M_-CSB2	[9]
MDB17	AN35	DDR1_DQ[17]/DDR0_DQ[49]	DDR1_CS#[3]	AM15	M_-CSB3	M_-CSB3	[9]
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	SBAB0	[9]
MDB29	AL28	DDR1_DQ[29]/DDR0_DQ[61]	DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]	AM18	SBAB1	SBAB1	[9]
MDB30	AR28	DDR1_DQ[30]/DDR0_DQ[62]	DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]	AW28	BG_B0	BG_B0	[9]
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	BG_B1	[9]
MDB47	AP5	DDR1_DQ[47]/DDR1_DQ[31]	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#	AU28		M_-ACT_B	[9]
MDB48	AM10	DDR1_DQ[48]					
MDB49	AL10	DDR1_DQ[49]	DDR1_PAR	AL20		M_DDR_PARB	[9]
MDB50	AM7	DDR1_DQ[50]	DDR1_ALERT#	AY25		M_-ALERT_B	[9]
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	AF6	DDR1_DQ[58]	DDR1_DQSN[5]/DDR1_DQSN[3]	AR8	M_-DQSB5		
MDB59	AF7	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	AF7	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		
AM25		DDR1_ECC[2]	DDR1_DQSP[5]/DDR1_DQSP[3]	AP8	M_DQSB5		
AM26		DDR1_ECC[3]	DDR1_DQSP[6]	AL8	M_DQSB6		
AP25		DDR1_ECC[4]	DDR1_DQSP[7]	AG7	M_DQSB7		
AP26		DDR1_ECC[5]					
AL25		DDR1_ECC[6]	DDR1_DQSP[8]	AN25			
AL26		DDR1_ECC[7]	DDR1_DQSN[8]	AN26			

DDR CHANNEL B

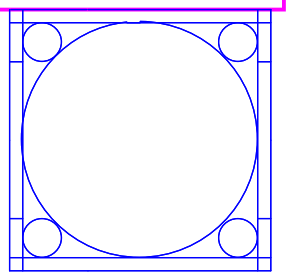
2 OF 12

CPU-SK/1151/S/GF

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

LGA1151

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



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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Date: Tuesday, October 25, 2016	Sheet 5 of 58		

REV:0.23

* WBC49 移到 RT8120_DDR

* 刪 WBC50 電容

VCCSA

* WBC51 , WBC52
VDDQ 改 VCCSA

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

* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

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

VCCSFUSEPRG
VCCSA
WR94 0/4/X
VCCST_VCCPLL
VCCST_VCCPLL

0624

VCCIO

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

* 刪 VCCGT 電容

VCCGT

LGA1151J SKT_H4 LGA1151

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

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

WR59 0/4/X

VCCGT_SENSE F39
VSSGT_SENSE F38
VCCGTX_SENSE F37
VSSGTX_SENSE F36

[13] N_PCH_CPU_N
[13] A_CPU_PCH_TO

WR88 33/4 A_CPU_PCH_TO_R

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

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

VCCPLL_OC AJ9 VCCPLL_S WR86 1 0/4/SHT/X VDDQ

CPU POWER

* 刪 VCCPLL_OC

VCCIO

AK11 AK14 AK24 AJ23 M8 P8 T8 U8 W8 — VCCIO

VCCOPC_AJ30 VCCOPC_AJ27 VCCOPC_AJ28 VCCOPC_AJ29 VCCOPC_AK27

WR60 0/4/X

VCCEOPIO VCCEOPIO

WR61 0/4/X

CPU POWER

VCCST_VCCPLL
VCCSFUSEPRG
VCCST_VCCPLL

V5 V6 V4 — VCCST_V5 VCCST_V6 VCCPLL

VCC_OPC_1P8_AB37 VCC_OPC_1P8_AB38

WR62 0/4/SHT/M/X
WR63 0/4/SHT/M/X

VCCSA_SENSE AD5
VCCIO_SENSE AF4
VSS_SAIO_SENSE AE4

* 刪 net

VCCOPC_SENSE AK21
VCCEOPIO_SENSE AJ24
VSSOPC_EOPIO_SENSE AK22

10 OF 12

CPU-SK/1151/S/GF

LGA1151L SKT_H4 LGA1151

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

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

WR89 560/4/1

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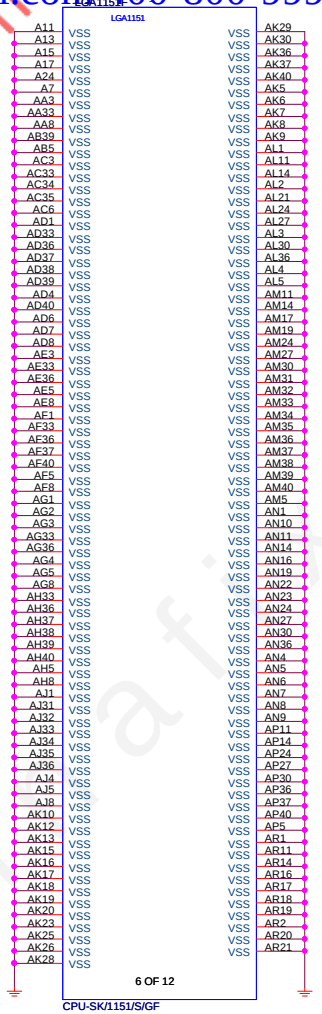
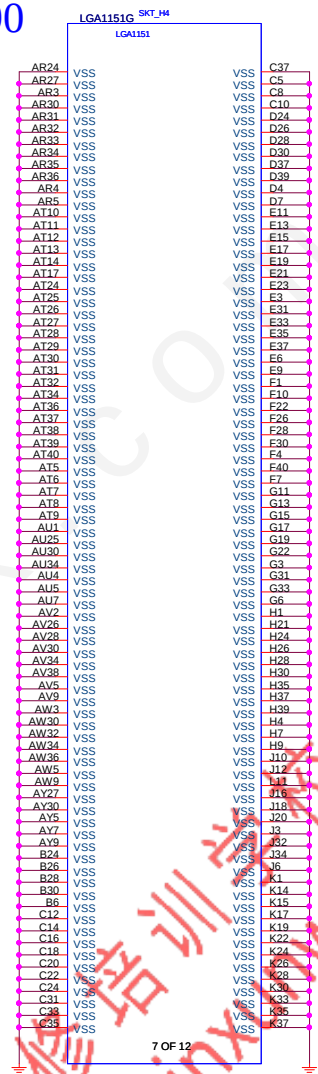
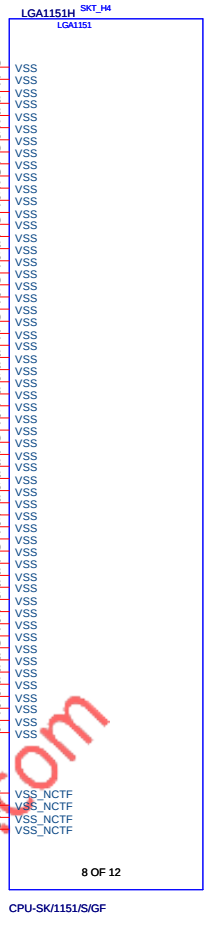
CPU-SK/1151/S/GF

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 6 of 58	







* 刪 Vcore 電容

Gigabyte Technology		
Title: CPU LGA1151-C		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 7 of 58	

Gigabyte Technology

Title: DDR4 CHANNEL A

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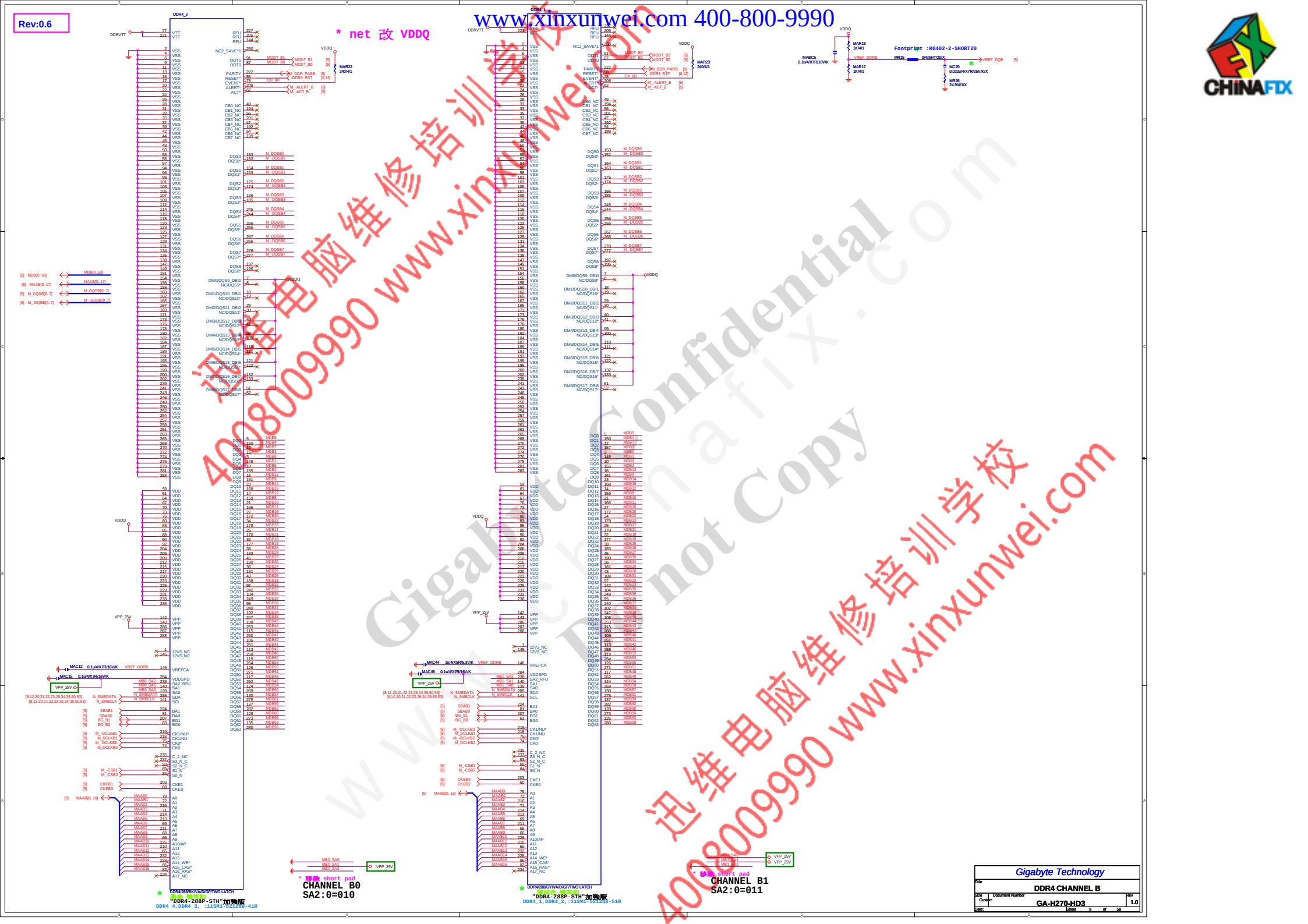
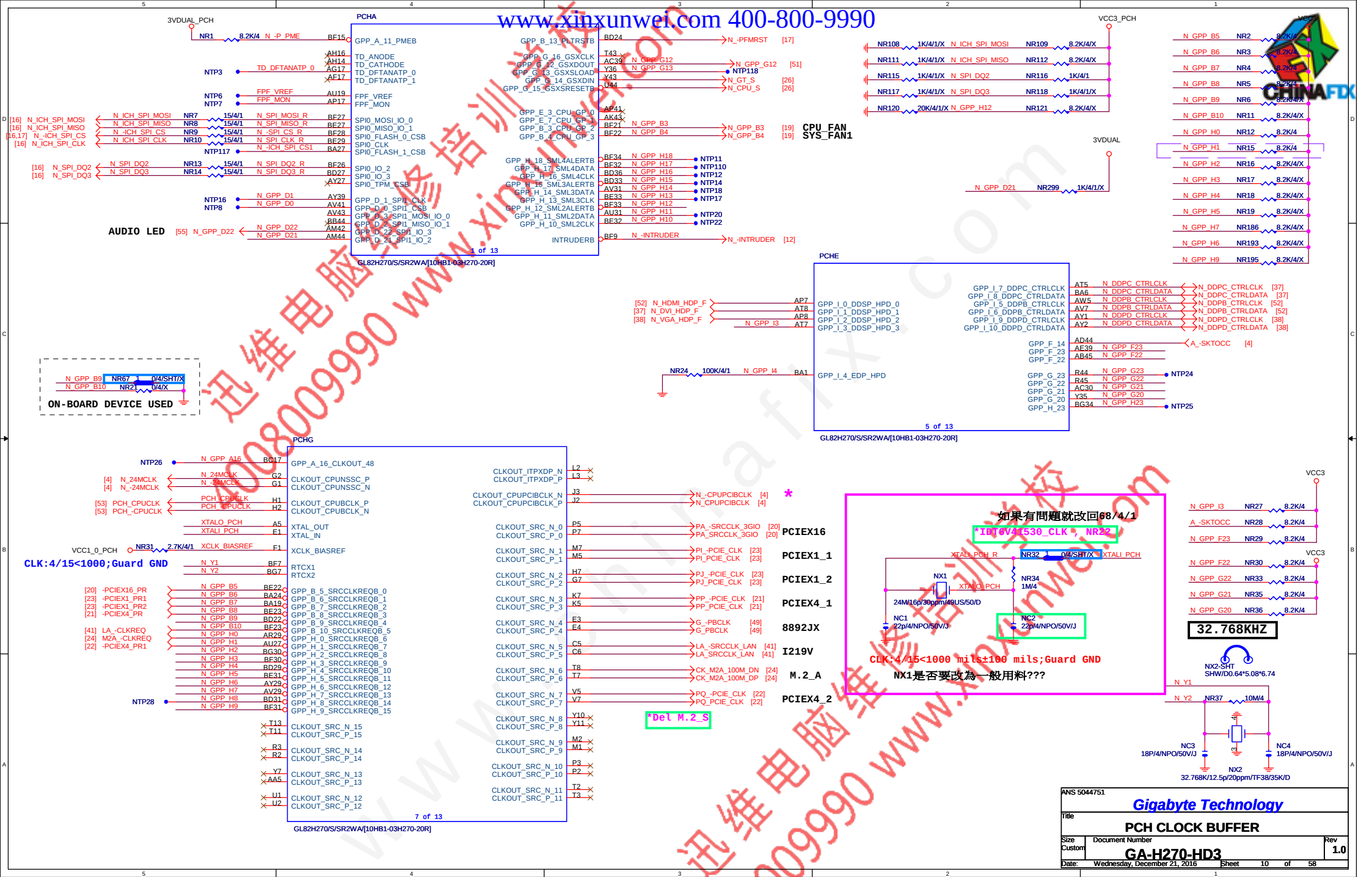

Rev:0.6
www.xinxunwei.com 400-800-9990
* net 改 VDDQ
DDR4_3
DDR4_1
CHANNEL B0
SA2:0=010
CHANNEL B1
SA2:0=011
"DDR4-288P-STH"加强版
DDR4_4,DDR4_3, :11SM1-521288-41R
DDR4_1,DDR4_2, :11SM1-521288-51R
Gigabyte Technology
DDR4 CHANNEL B
GA-H270-HD3
Rev 1.0
Footprint :R0402-2-SHORT20
CHINAFDX



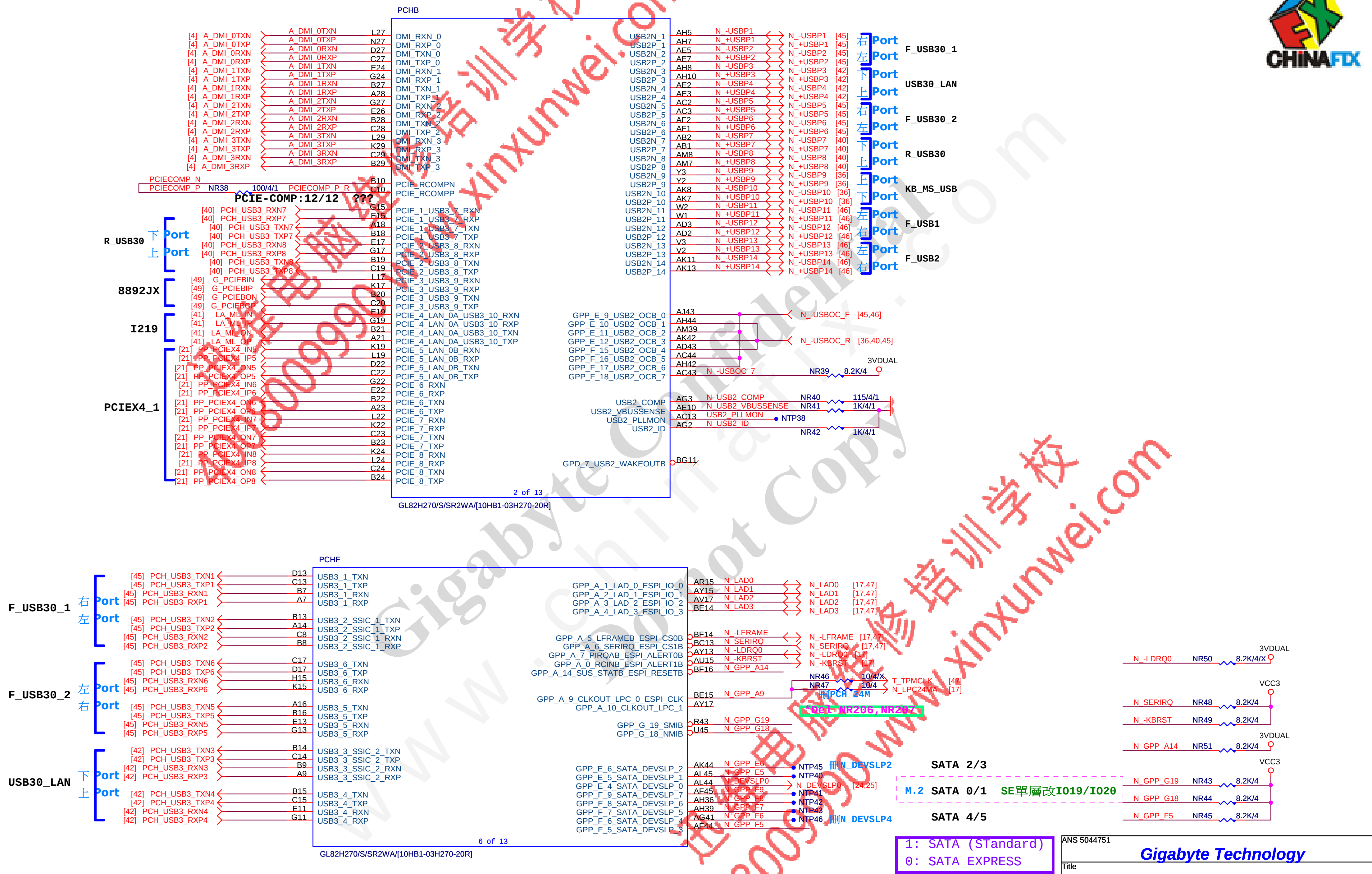
ANS 5044751

Gigabyte Technology

Title: PCH CLOCK BUFFER

Size: Custom | Document Number: GA-H270-HD3 | Rev: 1.0

Date: Wednesday, December 21, 2016 | Sheet 10 of 58



ANS 5044751

Gigabyte Technology

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

Size	Document Number	Rev
Custom	GA-H270-HD3	1.0

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PCHD

GL82H270/S/SR2WA/[10HB1-03H270-20R]

4 of 13

PCHK

GL82H270/S/SR2WA/[10HB1-03H270-20R]

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FOR PWM MB ID

*IDT6V41530_CLK , C13,C14

Del THB_C

Del PCIEX4_2 PRSNT2

For IT8628 Ctrl

For IT8628 Ctrl

At least 10ms delay after 3VDUAL_PCH stabel

GPP_C5 --H:eSPI or L:LPC

GPP_C2 --1:ENABLE AMT/SBA FOR INTEL

GPP_B22 --BIOS SELECT;0:SPI / 1:LPC

HDA_SDO:Flash Descriptor Security (override);1=DIS,0=ENABLE

GPP_B18 --0:dis" no boot mode"

BATTERY-DUAL-4

RB 必须放在BAT外

CLR_CMOS

N_INTERMEN : Integrated 1.05V SUS VRM Enable

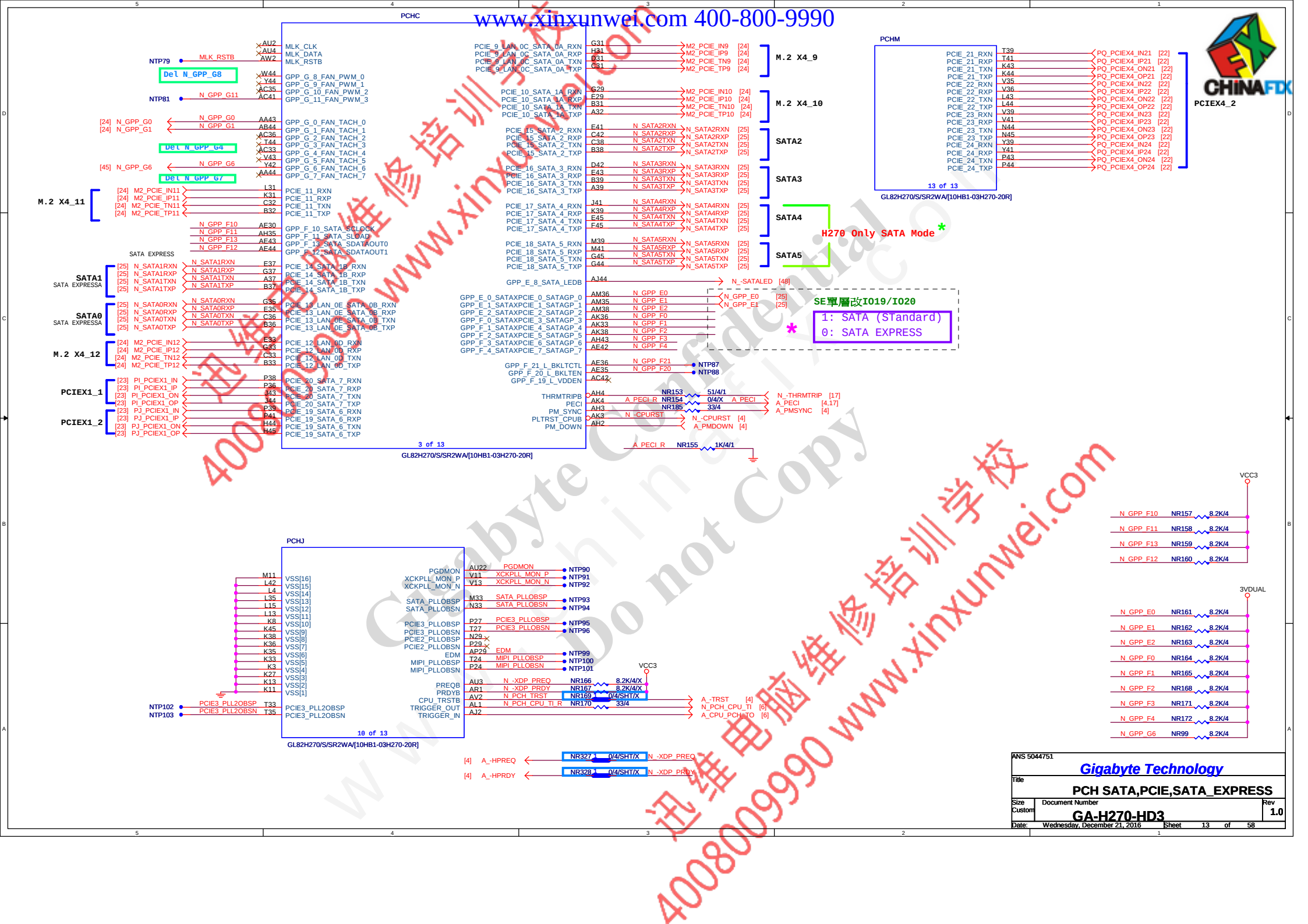
ANS 5044751

Gigabyte Technology

Title: PCH MISC

Size: Custom | Document Number: GA-H270-HD3 | Rev: 1.0

Date: Wednesday, December 21, 2016 | Sheet 12 of 58



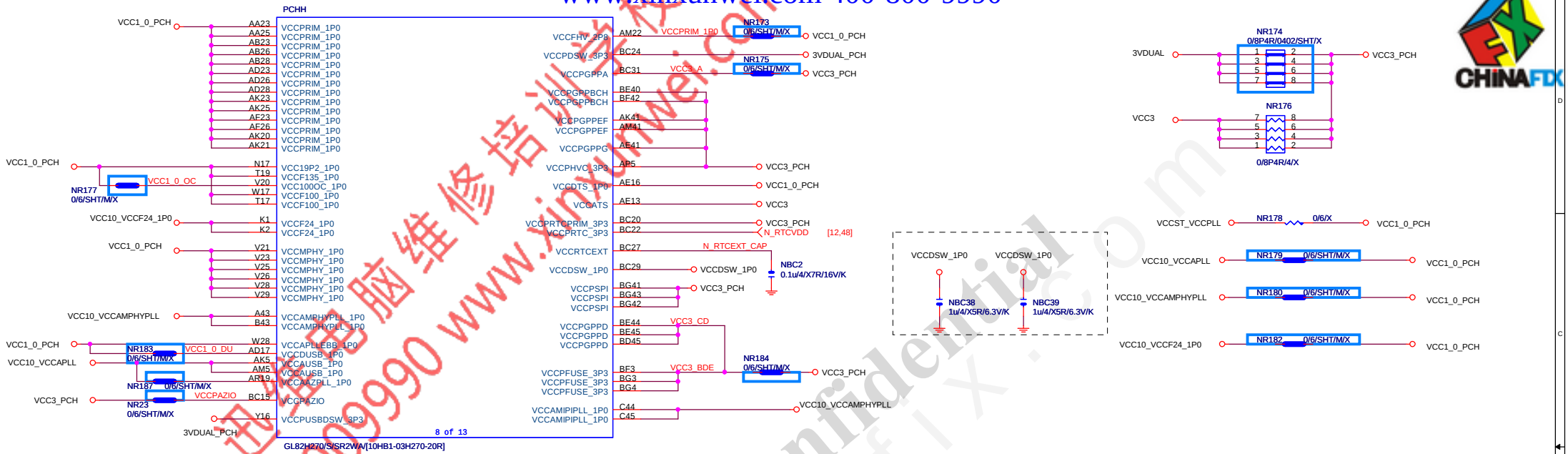
ANS 5044751

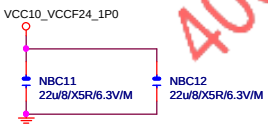
Gigabyte Technology

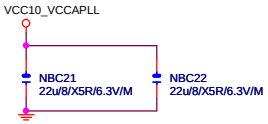
Title: **PCH SATA,PCIE,SATA_EXPRESS**

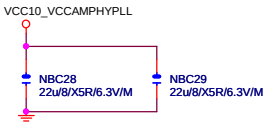
Size	Document Number	Rev
Custom	GA-H270-HD3	1.0

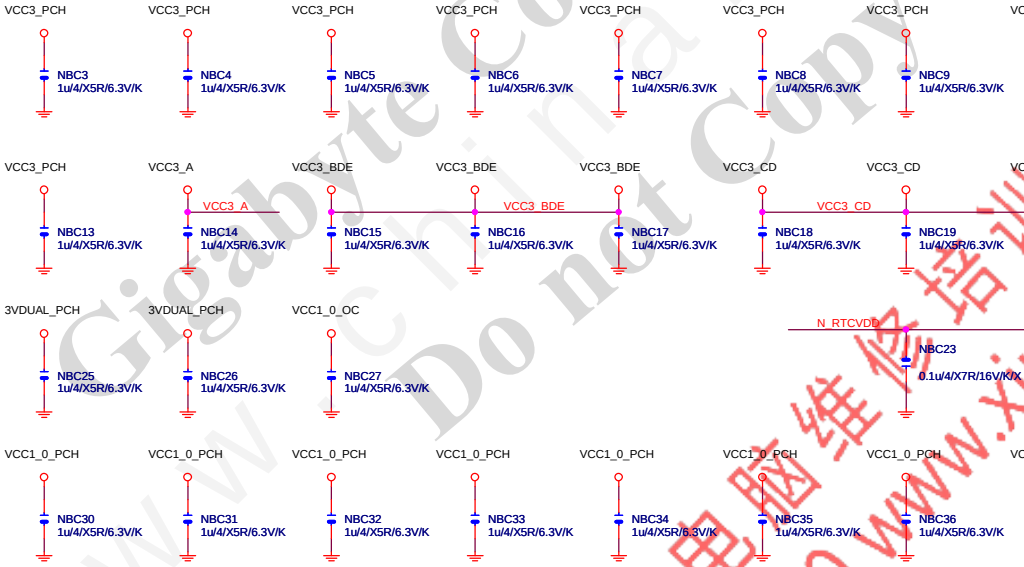
Date: Wednesday, December 21, 2016 Sheet 13 of 58







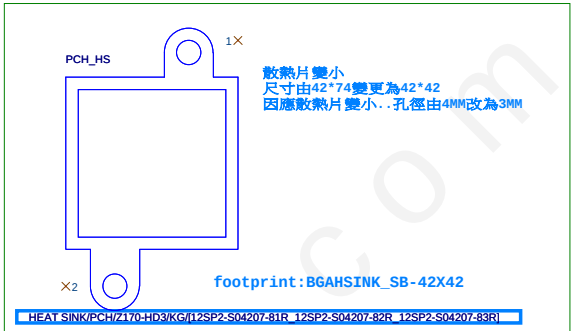




ANS 5044751	Gigabyte Technology	
Title	PCH PWR, GND	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Wednesday, December 21, 2016	Sheet 14 of 58	

装甲HEATSINK 分成四大部份

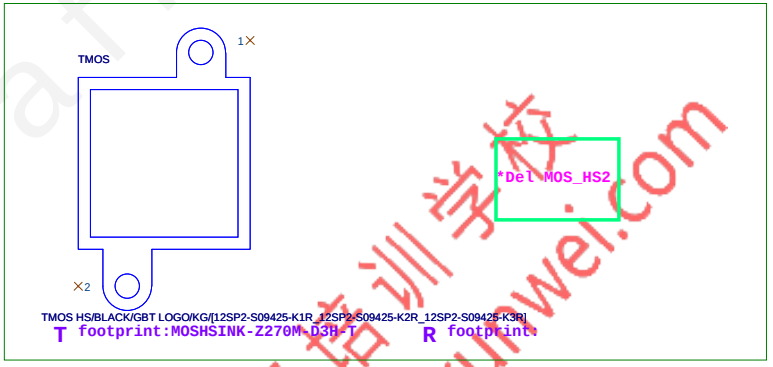
Location: PCH_HS 12SP2-S04207-81R/82R/83R
Location: TMOS 12SP2-S09425-K1R/K2R/K3R



B85M-D3H Series PCH
Heatsink

重新確認
* 料號
* 圖騰 ： 灰色斜線圖騰

TMOS 改為MOSHSINK-Z270M-D3H-T



刪AUDIO_HS

Footprint :
X99-ARMOR-AUDIO

刪REAR_ARMOR

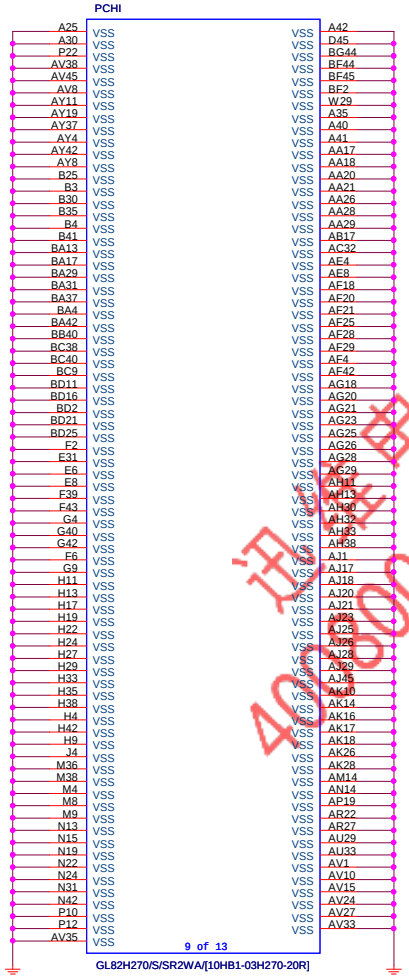
Footprint :
REAR_ARMOR-Z270X-GAMING7

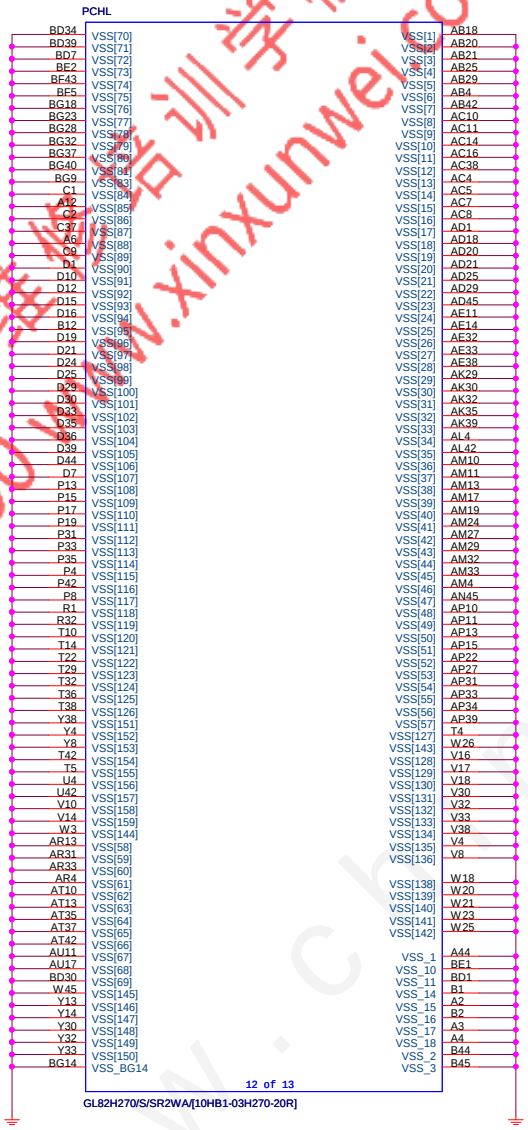
鐵件裝甲

刪REAR_HS

Footprint :
Z270X-GAMING7_ARMOR

塑膠裝甲





ANS 5044751	Gigabyte Technology	
Title	PCH PWR, GND	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Wednesday, December 21, 2016	Sheet 15 of 58	

DUAL BIOS

MOSI For DMI RX Termination Voltage

*PVT時,M_BIOS顆粒,放在SMD階

指定用DII

3VDUAL

BSR1 1K/4/1/X

BSR2 1K/4/1/X

BSR3 0/4/X

Single BIOS OPTION

S0T23

BSQ1 MMBT2222A/SOT23/600mA/40/X

BSQ2 MMBT2222A/SOT23/600mA/40/X

-SPI_CS_1 -SPI_CS_1 [17]

N_-ICH_SPI_CS N_-ICH_SPI_CS [10,17]

-SPI_HOLD_B BSR4 8.2K/4/X

BSR5 1K/4/1/X

BSR6 1K/4/1/X

BSQ3 MMBT2222A/SOT23/600mA/40/X

BSQ4 MMBT2222A/SOT23/600mA/40/X

-SPI_CS_2 -SPI_CS_2 [17]

-SPI_HOLD_M BSR7 8.2K/4/X

M_BIOS

BSR12 0/4/SHT/M/X

BSC2 1u/4/X5R/6.3V/K

BSC1 10p/4/NPO/50V/J/X

BSR8 22/4

BSR9 0/4/SHT/X

SPI_CS_1 SPI_MISO N_-SPI_WP0 N_SPI_DQ2 [10]

CS# SO WP# VSS VDD HOLD# SCK SI

-HOLD0 BSR13 0/4/SHT/X N_SPI_DQ3

N_ICH_SPI_CLK N_ICH_SPI_MOSI

BSC3 10p/4/NPO/50V/J/X

MAIN BIOS

* 64M 64M/Q/SPI/SO8/S

* (footprint 改 SOIC8-SPI-SOCKET)

B_BIOS

BSR14 0/4/SHT/M/X

BSC4 1u/4/X5R/6.3V/K

-SPI_CS_2 BSR10 22/4

SPI_MISO N_-SPI_WP1 N_SPI_DQ2 [10]

BSR11 0/4/SHT/X

-HOLD1 BSR15 0/4/SHT/X N_SPI_DQ3 [10]

N_ICH_SPI_CLK [10]

N_ICH_SPI_MOSI [10]

BACKUP BIOS

* 64M 64M/Q/SPI/SO8/S

* (footprint 改 IC8-BIOS)

BSC5 0.1u/4/X7R/16V/K/X

[17] -SPI_HOLD_M -SPI_HOLD_M BSR16 1K/4/1

[17] -SPI_HOLD_B -SPI_HOLD_B BSR17 1K/4/1

N_ICH_SPI_MISO BSR18 8.2K/4

BSR19 22/4 SPI_MISO [10]

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

1 means floating
0 means PD 1K

删除BIOS_SW

M_BIOS

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

* 試產先上 , PVT 移除

Gigabyte Technology

Title: BIOS

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Date: Tuesday, October 25, 2016 | Sheet 16 of 58

SIO IT8686 REV:0.7

IT8686 LPT+COMA

IT8686

CPU_FAN
SYS_FAN1
SYS_FAN2
SYS_FAN3 sensor

THRMTRIP

CHECK

SYS_FAN3

PROCHOST

VCCSA_EN SIO PINS . PIN7 用在其他function時使用
刪除VCCSA_EN

Placement CPU

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

PWR SHT

SIO PU

新增

SIO STRAP

EUP control detect

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 CS pin mode select bit "1" See the below table
JP7	1 1	CE pin disable (Hold pin mode)
JP7	1 0	CE mode 1
JP3	0 1	CE mode 2
	0 0	CE mode 3

ERP Wake on LAN

Single LAN	Realtek	組態一
	Atheros	
	Intel 219	組態二
Dual LAN (只留一顆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。	

(組態一) INTEL219 LAN(Single LAN)

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

SIO CAP

CLOSE SIO PIN4 2_5LEVEL

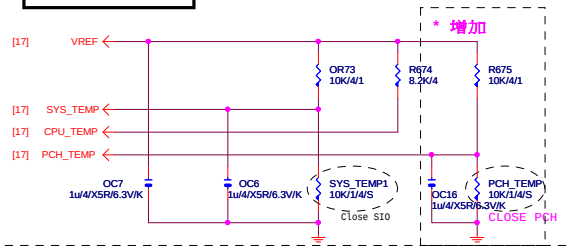
for LPC/eSPI power mode

MB ID

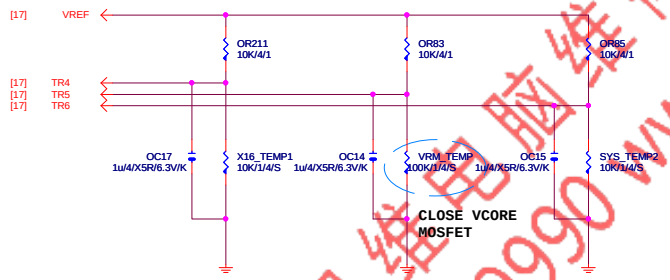
Title	ITE 8686 LPC IO
Size C	Document Number GA-H270-HD3 Rev 1.0
Date: Thursday, November 03, 2016	Sheet 17 of 58

Gigabyte Technology

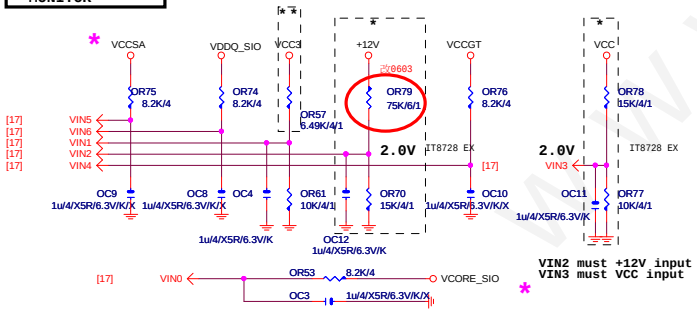
TEMP H/W MONITOR



5個FAN時使用



VOLTAGE-- H/W MONITOR

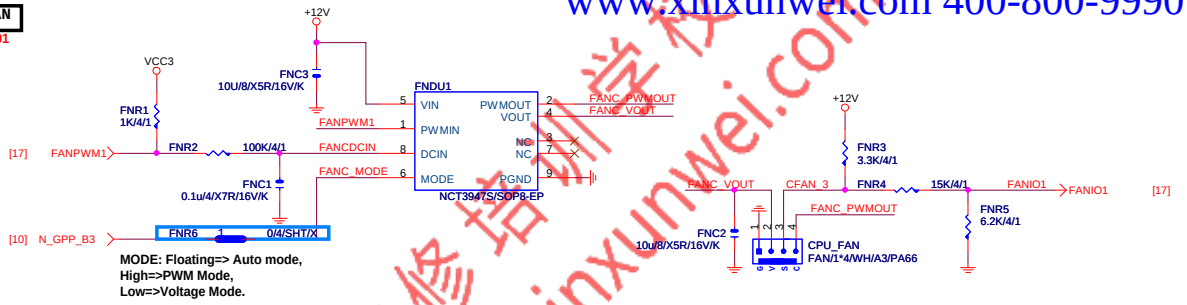


★Update 2015-04.24

Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 18 of 58	

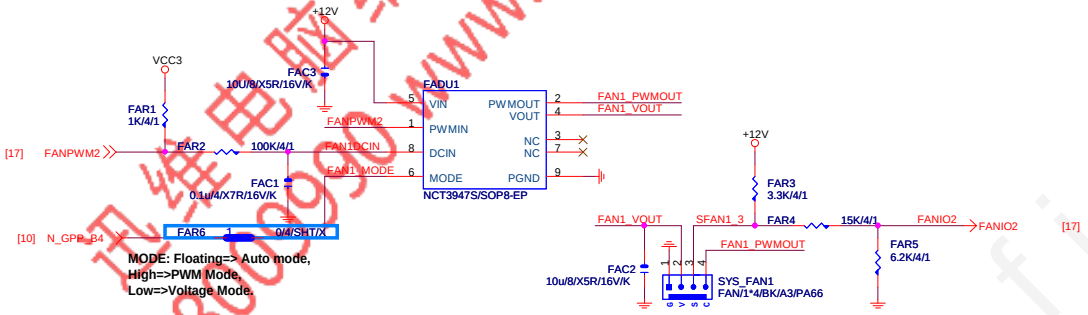
Rev: 0.82 **CPU SMART FAN**

★Update 2016.06.01



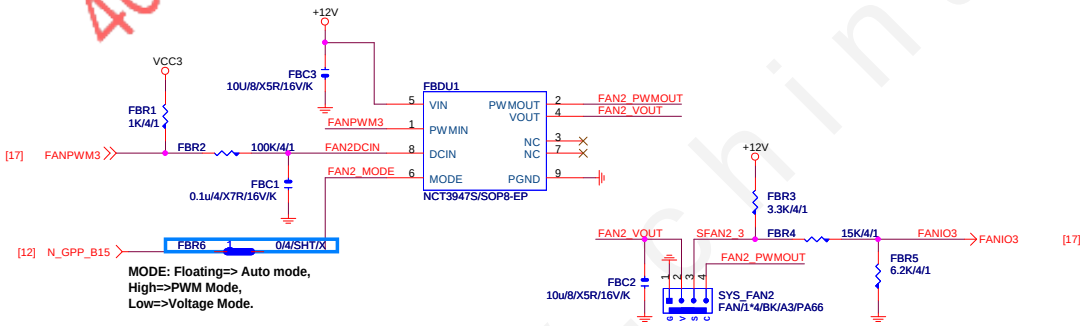
SYSTEM FAN1

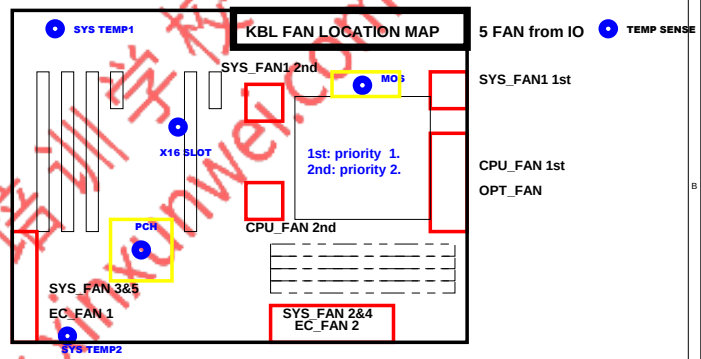
A.



SYSTEM FAN2

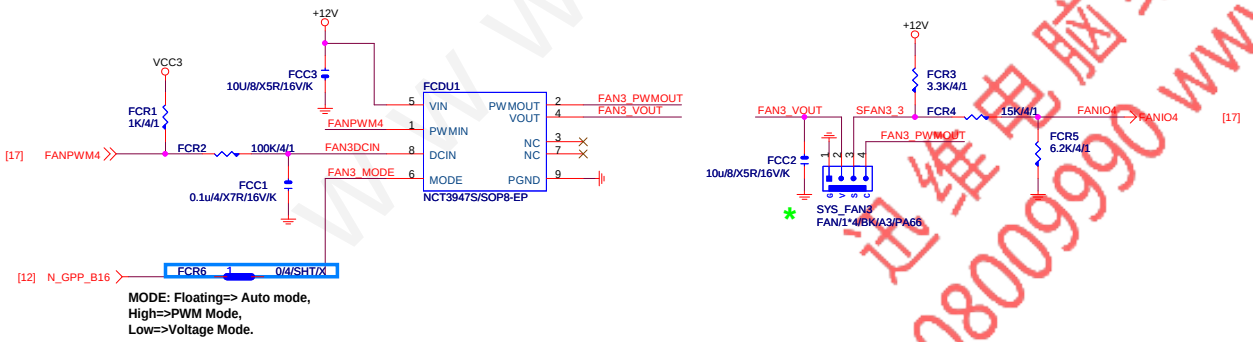
B.



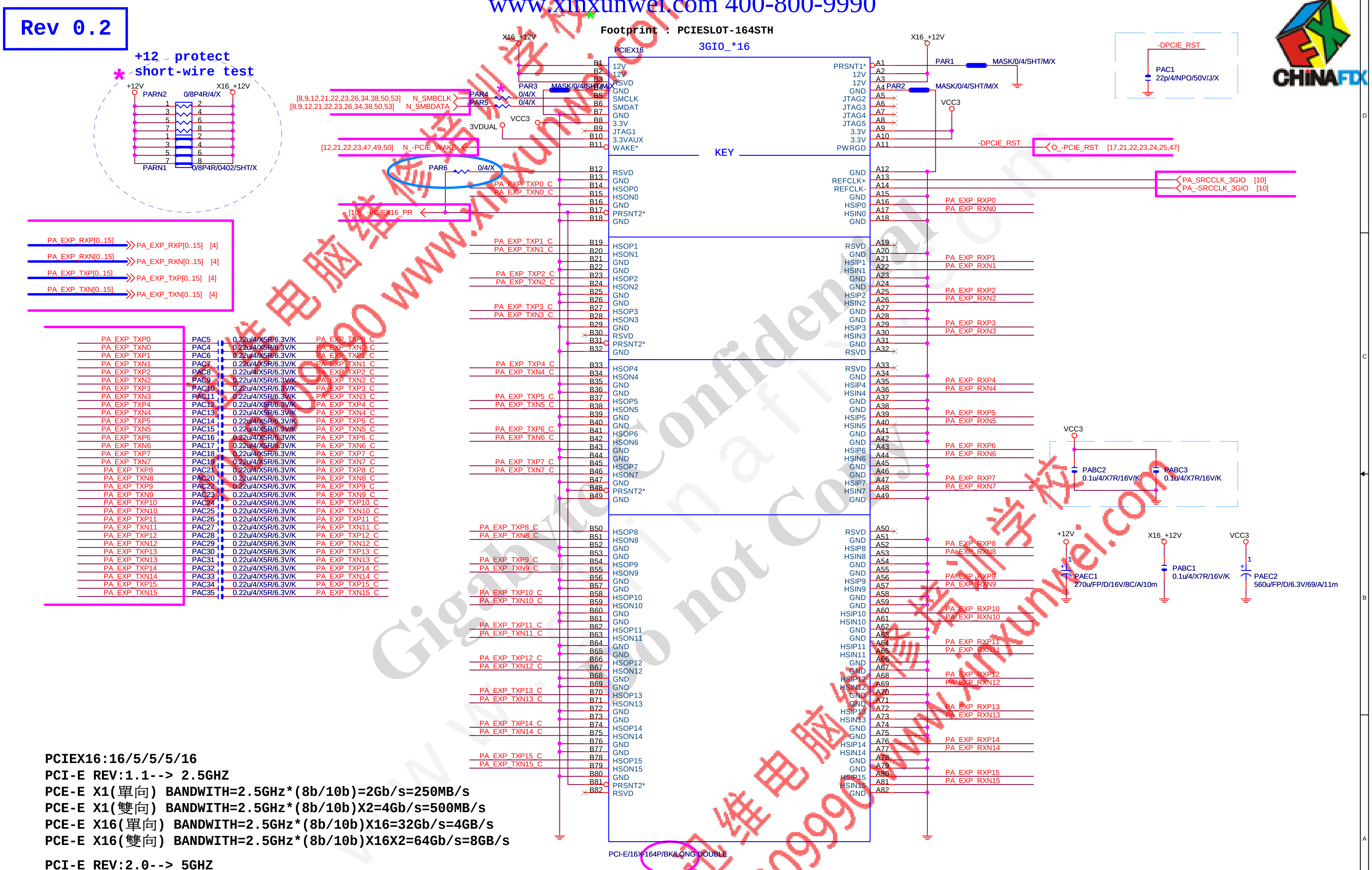


SYSTEM FAN3

C.



Gigabyte Technology		
Title: FAN CTRL		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 19 of 58	



黑色(預留金屬加強,不上)

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

	Gigabyte Technology
Title	PCI EXPRESS * 16
Size: Custom; Document Number	GA-H270-HD3
Rev	1.0
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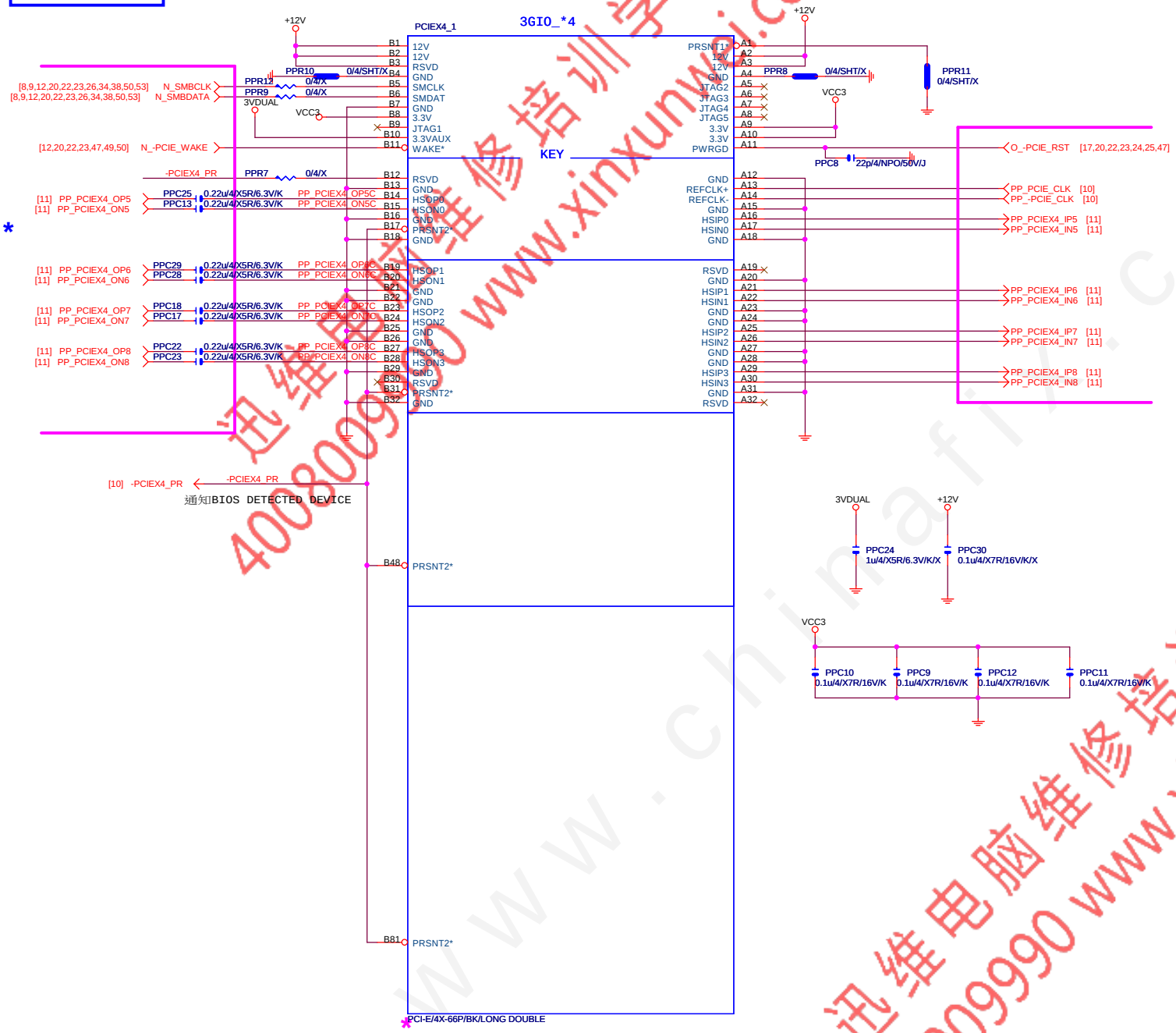
Rev 0.51

PCIE*4

* Footprint "PCIESLOT-64STH-1"



黑色(預留金屬加強,不上)

GIGABYTE

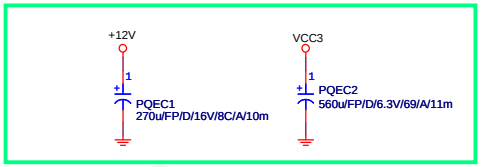
Title	ASM1142 & ASM2142 co-lay	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 21 of 58	

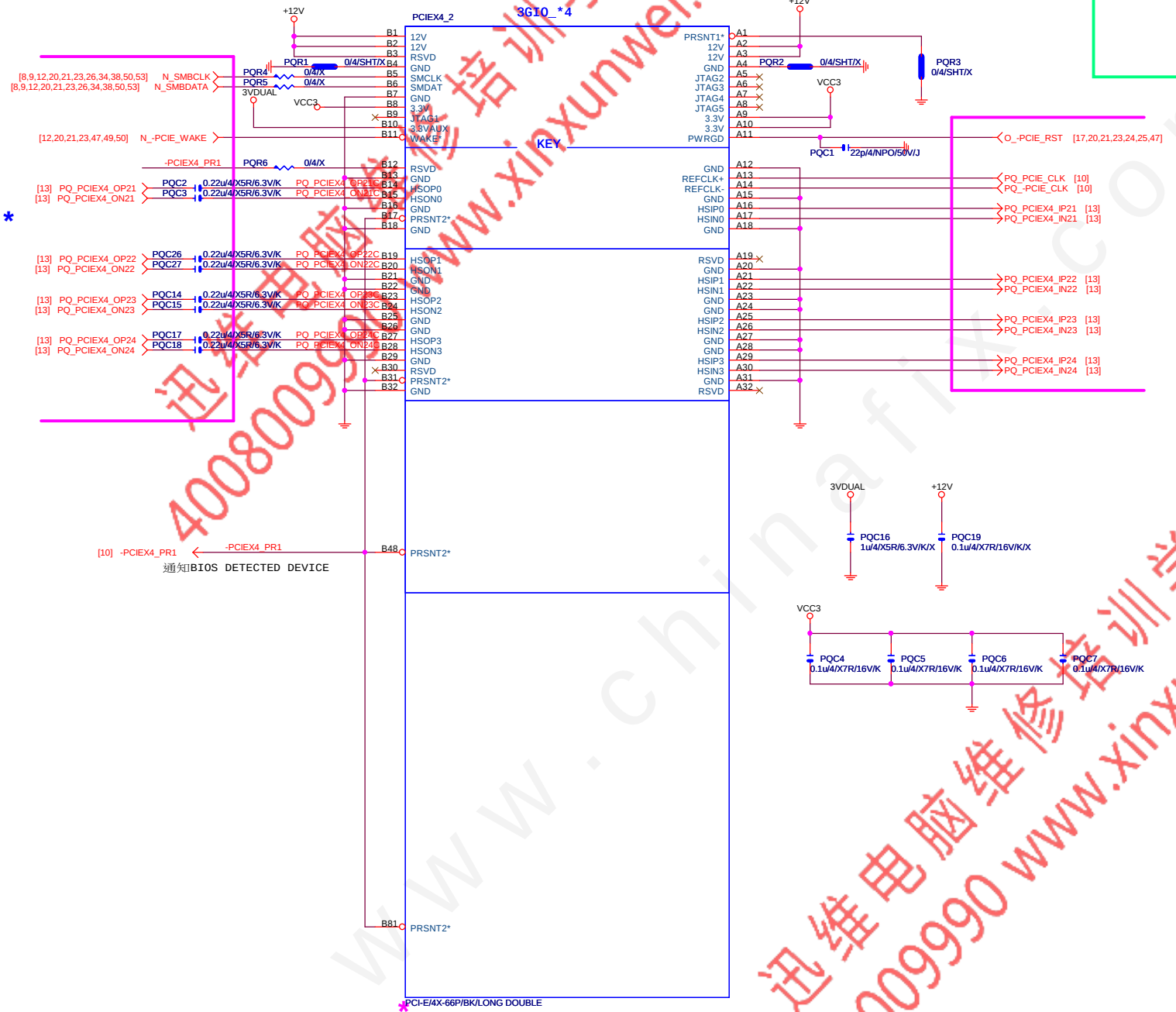
Rev 0.51

PCIE*4 *

Footprint "PCIESLOT-64P-1"

Add PQEC1,PQEC2





黑色 (不留金屬加強,也不上)

Gigabyte Technology

Title: PCIE_X4

Size: Custom | Document Number: GA-H270-HD3 | Rev: 1.0

Date: Tuesday, October 25, 2016 | Sheet 22 of 58

Rev 0.51

PCIEX1 SLOT

PCIEX1_1

3GIO_X1

PCIEX1_2

3GIO_X1

KEY

PCI-E/1X-36P/BK/OL

2個X1，不用SWITCH

Title	PCIEX1
Size / Custom	Document Number: GA-H270-HD3
Rev	1.0
Date:	Tuesday, October 25, 2016
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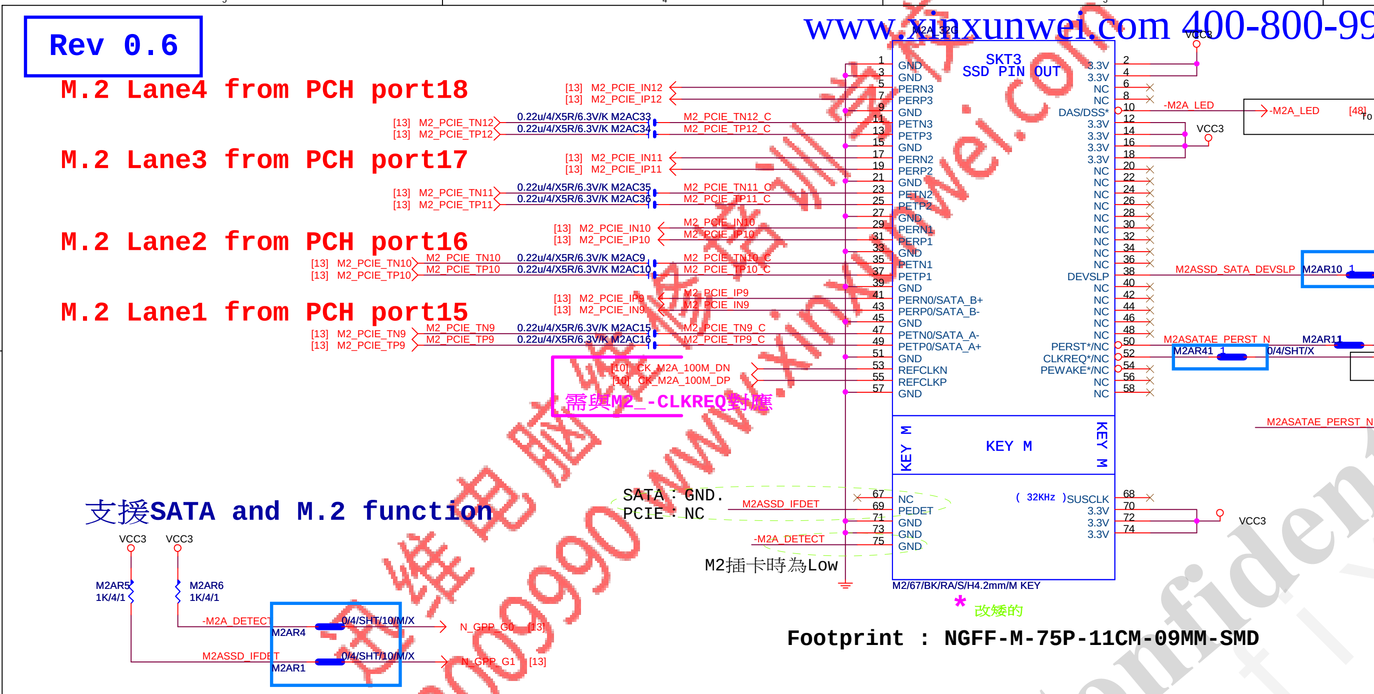
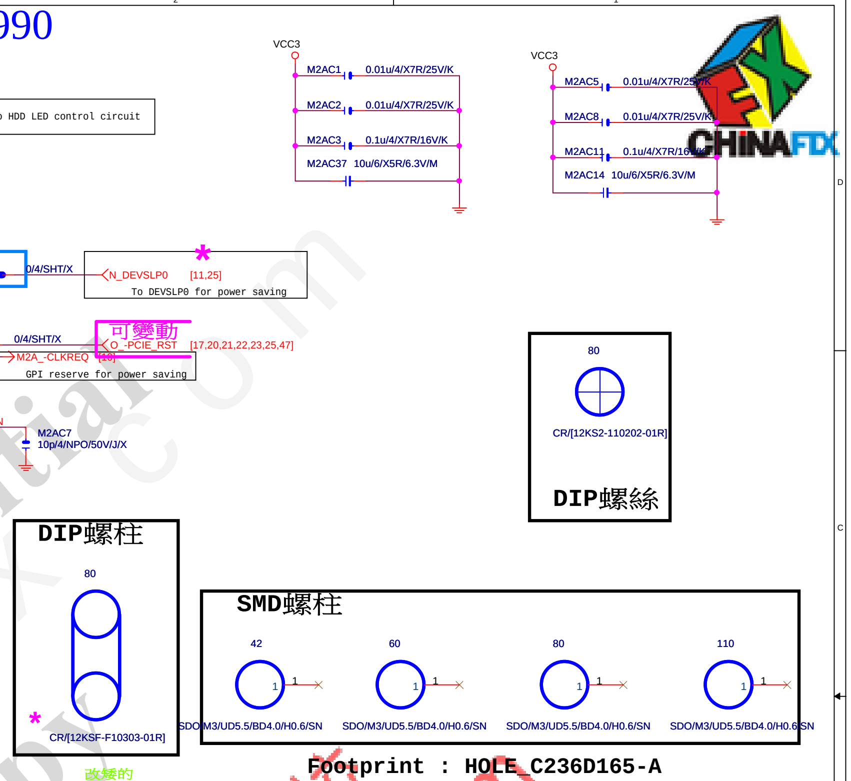
Gigabyte Technology



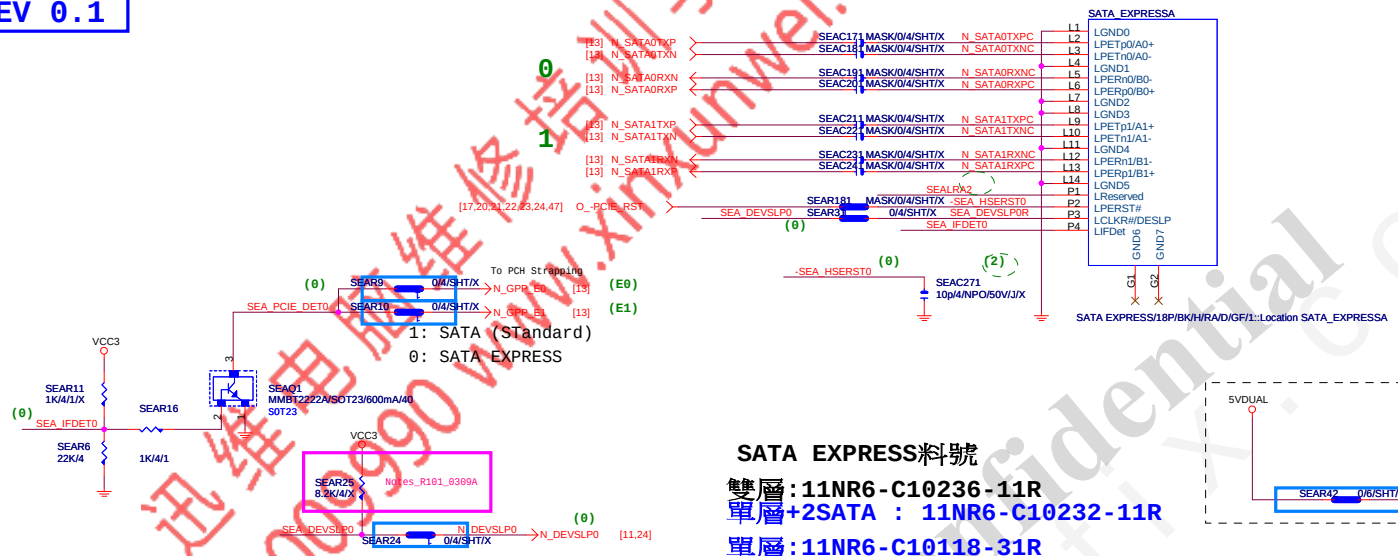


M.2 有插卡 /沒插卡 GPP_G0	M.2插何種卡？ GPP_G1	SATA Express 插何種硬碟？ GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IP20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)	PCIE 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	

(A)TYPE
由H170-Designare 的(O)TYPE 直接貼過來
&刪除for x4 & sata & x1 sw 的N_GPP_B15

REV 0.1

改成單層 IO19/IO20 To SATA3 port0/1



SATA EXPRESS料號

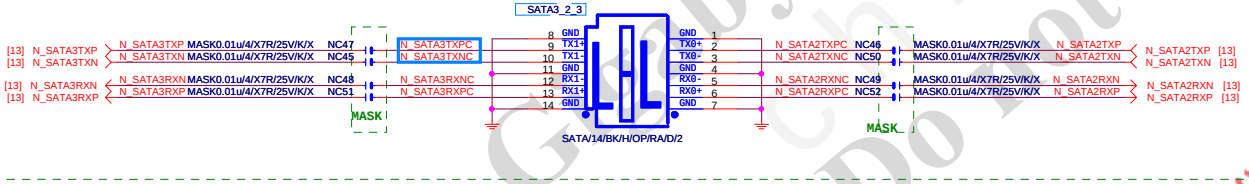
雙層:11NR6-C10236-11R

單層+2SATA : 11NR6-C10232-11R

單層:11NR6-C10118-31R

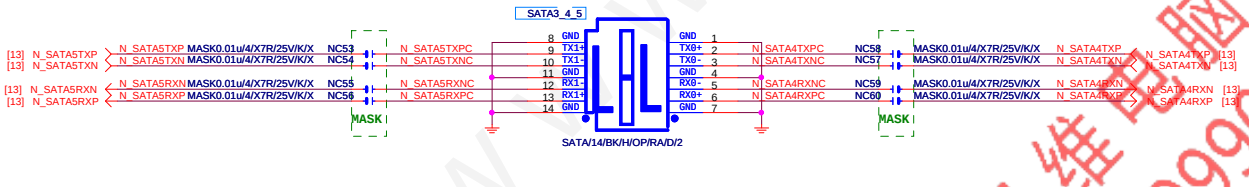
IO21/IO22 To SATA3 port2/3

上 Port (8~14) 下 Port (1~7)



IO23/IO24 To SATA3 port4/5

上 Port (8~14) 下 Port (1~7)



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

Gigabyte Technology		
Title: SATA EXPRESS		
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REV:0.3

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

FOR PWM MB ID

H:ISL95856 or ISL95858 — NR400 8.2K/4 — N_GPP_C15 [12]

L:ISL95866 or ISL95868 — NR401 8.2K/4/X

close to PCH

*Del DAR135

DC-LL --> 2.1mohm

DC-LL --> 3.1mohm

close PWM

ISL95866HRZ-T/QFN52

8 VIA Connect GND lay

DAR44-->604 ohm
OCP-->160A

DAR71-->442 ohm
OCP-->90A

CLOSE DA_ DL1 DC SIDE

CLOSE DE_ DL1 DC SIDE

CLOSE ?

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

*Del DAR100

Connect to EC H/W Monitor

不上件 DAQ4 2N7002/SOT23/25pF/5 SOT23 VCCGT_SENSE DAQ3 MMBT2222A/SOT23/600mA/40 SOT23 連接至PCH GPP_GP14

不上件 DAQ2 2N7002/SOT23/25pF/5 SOT23 VCORE_VCC_SEN DAQ1 MMBT2222A/SOT23/600mA/40 SOT23 連接至PCH GPP_GP15

DAR131 for DC-LL
change to 0.4m ohm

Z系列才需要留
連接至PCH GPP_G13

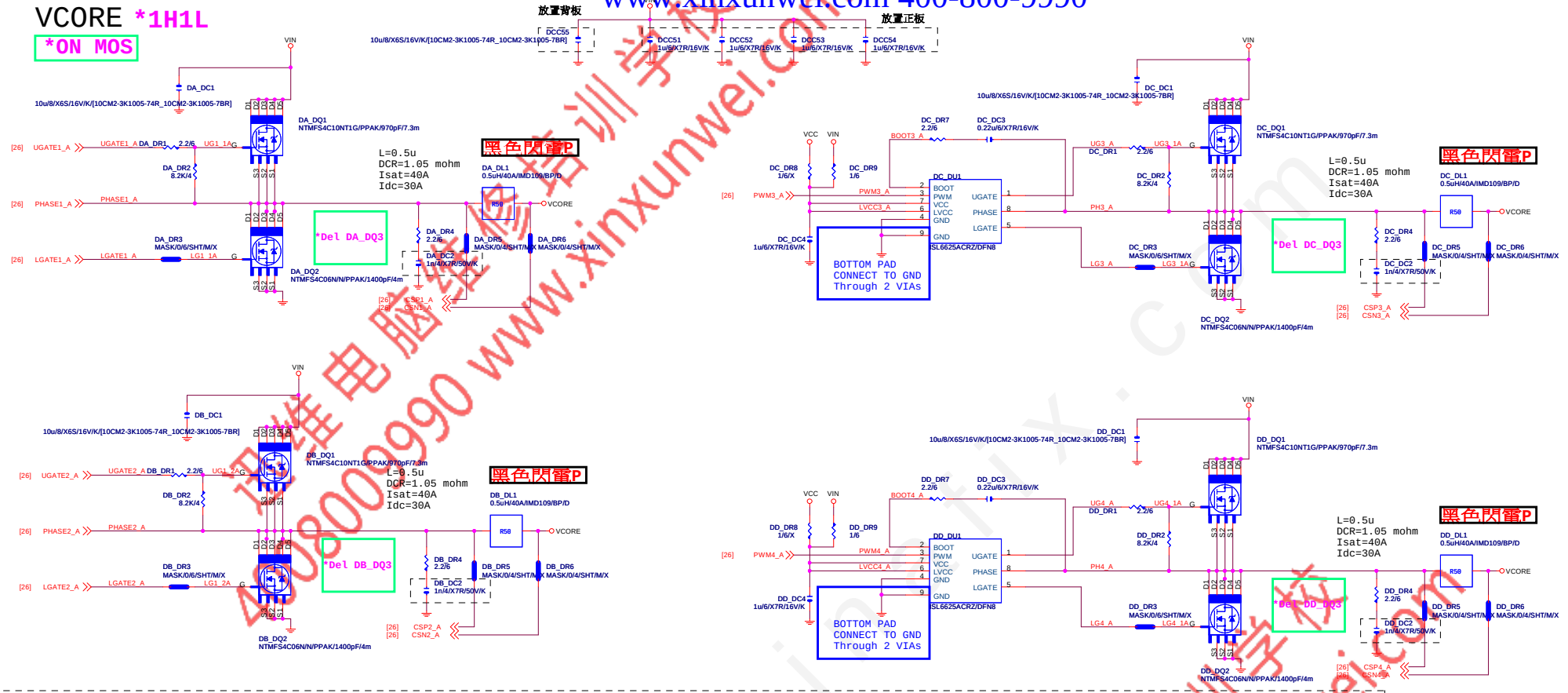
GIGABYTE

Title	ISL95866_PWM	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Monday, October 31, 2016	Sheet 26 of 58	

REV:0.3

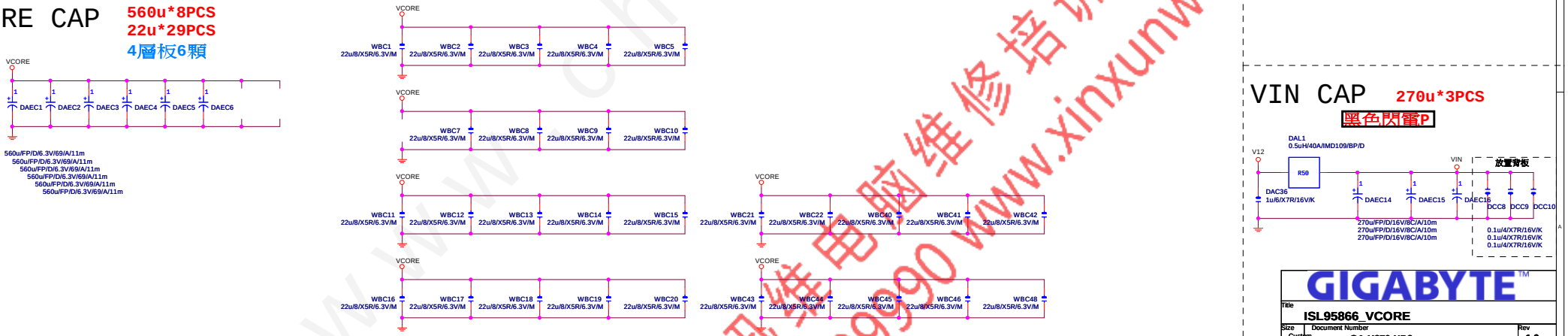
VCORE *1H1L

*ON MOS



VCORE CAP

560u*8PCS
22u*29PCS
4層板6顆



VIN CAP 270u*3PCS

黑色閃電P

GIGABYTE

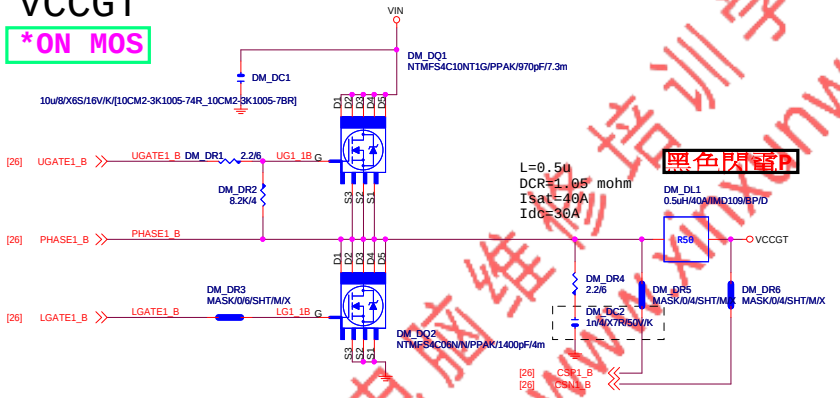
Title: ISL95866_VCORE

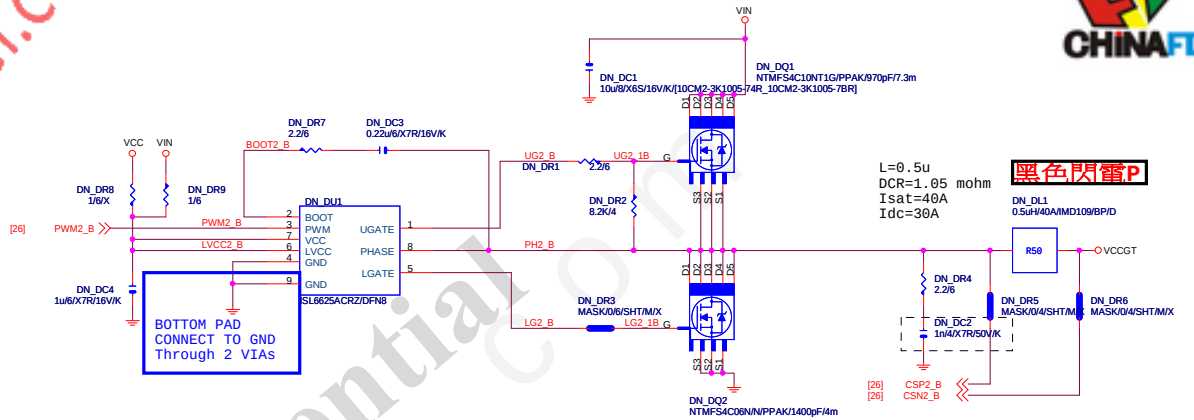
Size: Custom | Document Number: GA-H270-HD3 | Rev: 1.0

Date: Wednesday, November 09, 2016 | Sheet 27 of 58

VCCGT

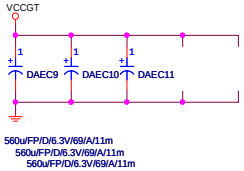
*ON MOS

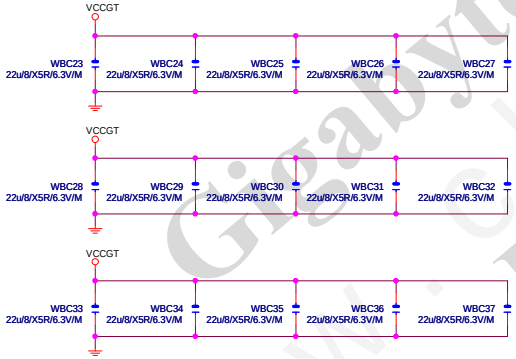


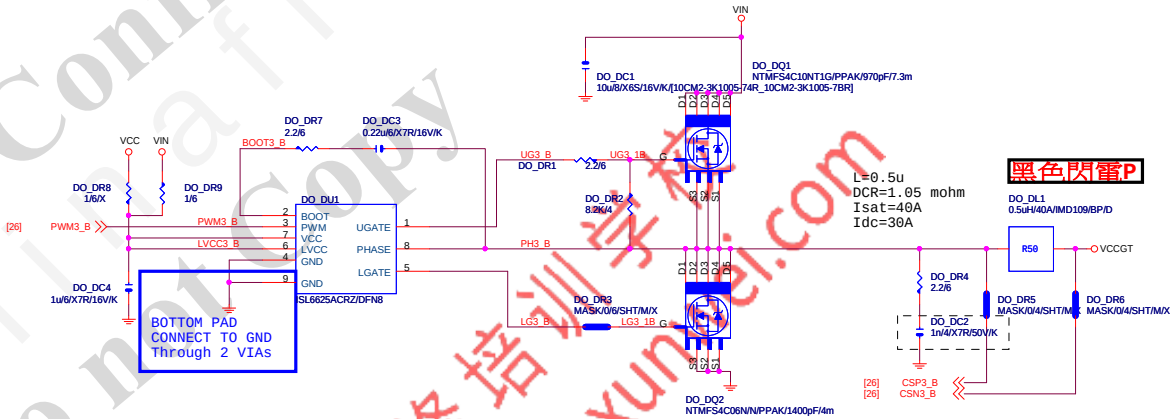


VCCGT CAP

560u*5PCS
22u*15PCS





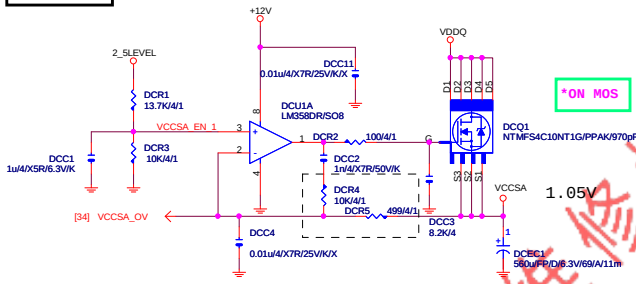


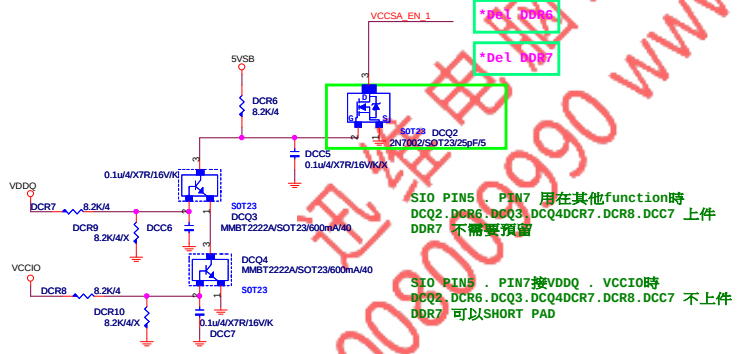
GIGABYTE

Title	ISL95866_VCCGT	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Friday, October 28, 2016	Sheet 28 of 58	

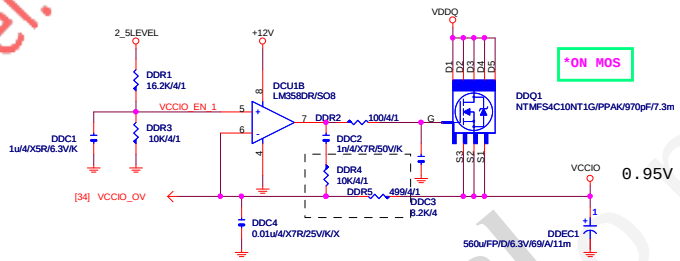
REV:0.23

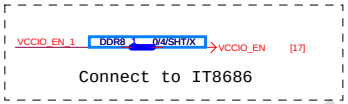
VCCSA

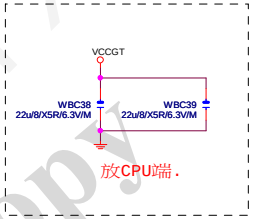




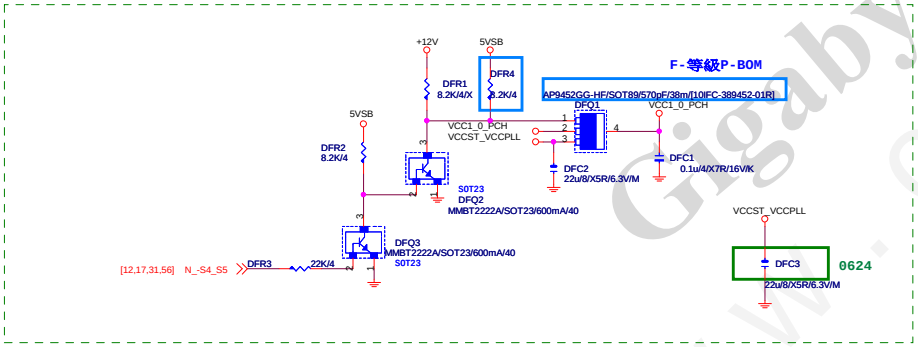
VCCIO







VCCST_VCCPLL



GIGABYTE		
Title: VCCSA_VCCIO		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Friday, October 28, 2016	Sheet 29 of 58	

REV:0.2

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
MA_L2 0.5uH/20A/IMD0809/BP/D
8*8
MA_DC6 0.1u/4/X7R/16V/K Close Choke
MA_VIN
MA_DC7 1u/6/X7R/16V/K Close MOS
MAEC1 560u/FP/D/6.3V/69/A/11m
MAEC2 560u/FP/D/6.3V/69/A/11m
MA_DQ1 NTMFS4C06N/N/PPAK/1400pF/4m
*ON MOS
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
MAC60 22u/8/X5R/6.3V/M/X
MA_UGATE
MA_DR1 2.2/6
MA_PHASE
MA_DR2 8.2K/4
MA_DQ2
MA_DQ3
MA_DR5 2.2/6
MA_DC5 1n/4/X7R/50V/K
MA_DR14 487/4/1
MA_DR13 1K/4/1
MA_DC14 3.3n/4/X7R/50V/K RS
RT8120DGS/SOP8
MAU2
COMP
BOOT
UGATE
PHASE
VCC
GND
PGND
FB
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_DR18 11.8K/4/1
MA_LGATE
MA_DR9 2.2/6
MA_LG
OCP=40A
放靠近IC pin4
NTMFS4C06N/N/PPAK/1400pF/4m
NTMFS4C06N/N/PPAK/1400pF/4m
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
DDR_ADJ
RO
MA_DR12 2K/4/1
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]
[34] DDR_ADJ
VDDQ_SIO
VDDQ
DDR_VS MASK/0/4/SHT/M/X
CLOSE TO DDR POWER PLANE

PWR SEQ

VPP_25V
MAR9 10K/4/1
MAR107 5.11K/4/1/X
MAR108 22K/4
MAQ5
S0T23
MMBT2222A/SOT23/600mA/40
MAC3 0.1u/4/X7R/16V/K
MAQ6 2N7002/SOT23/25pF/5
SOT23
For power sequence require

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

DDRVTT

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

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

MAEC3 560u/FP/D/6.3V/69/A/11m
MAEC4 560u/FP/D/6.3V/69/A/11m
MAEC6 560u/FP/D/6.3V/69/A/11m
MAEC7 560u/FP/D/6.3V/69/A/11m
* 大電容 x4
WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M

DDRVTT CAP

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

[4] DDR_VTT_CTL
[12,17,56] N_-SLP_S3
DDR_VTT_CTL MAR110 DDRVTT_EN
N_-SLP_S3 MAR111 DDRVTT_BOOT
0/4/SHT/M/X
MAU1上NCT3103S時上件

GIGABYTE

Title	RT8120_DDR4 POWER	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
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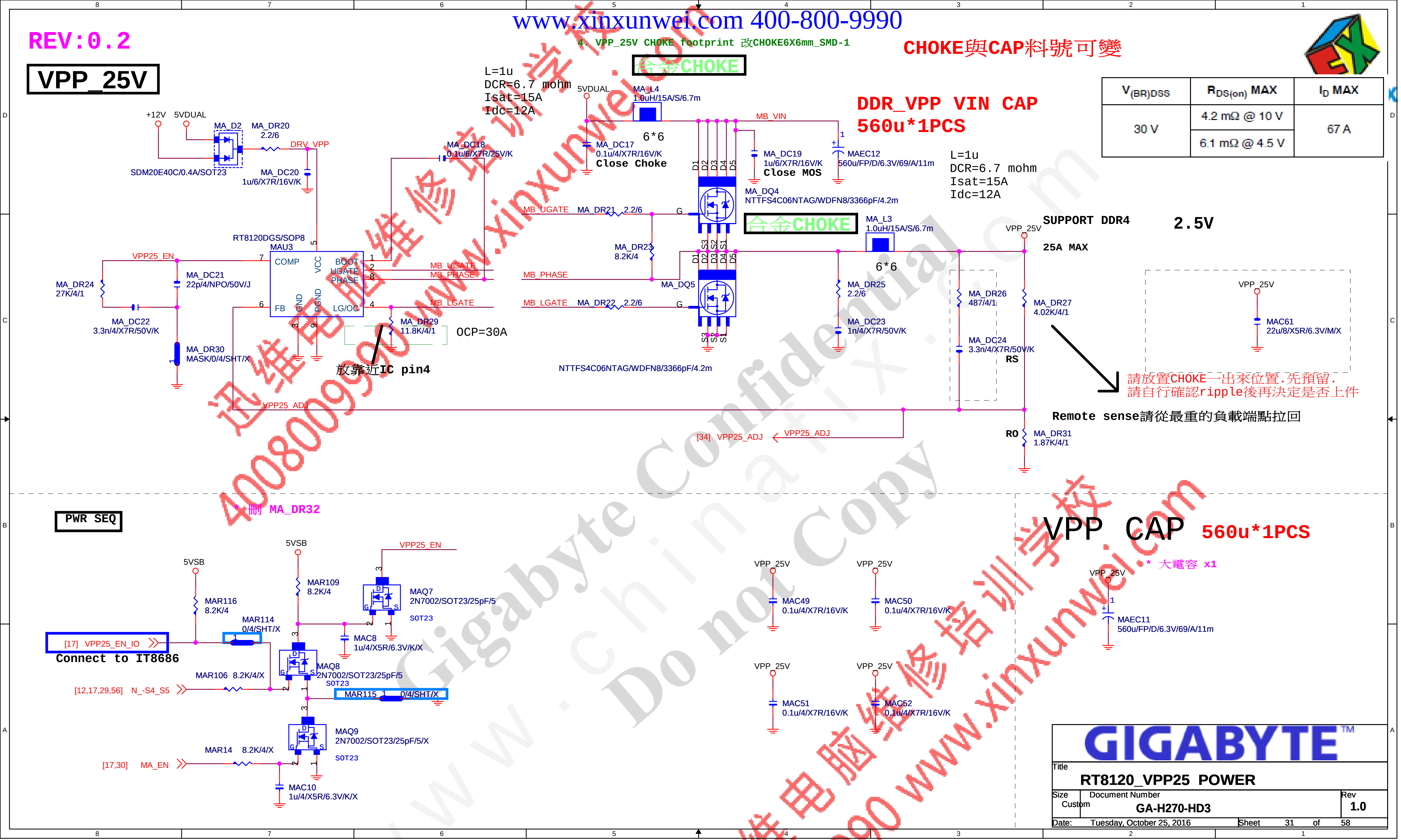
REV:0.2
VPP_25V
4. VPP_25V CHOKE footprint 改CHOKE6X6mm_SMD-1
合金CHOKE
CHOKE與CAP料號可變
L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A
5VDUAL
MA_L4
1.0uH/15A/S/6.7m
6*6
MA_DC17
0.1u/4/X7R/16V/K
Close Choke
MB_VIN
MA_DC19
1u/6/X7R/16V/K
Close MOS
MAEC12
560u/FP/D/6.3V/69/A/11m
DDR_VPP VIN CAP
560u*1PCS
+12V
5VDUAL
MA_D2
MA_DR20
2.2/6
DRV_VPP
SDM20E40C/0.4A/SOT23
MA_DC20
1u/6/X7R/16V/K
MA_DC18
0.1u/6/X7R/25V/K
MA_DQ4
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
MB_UGATE
MA_DR21
2.2/6
MA_DR23
8.2K/4
合金CHOKE
MA_L3
1.0uH/15A/S/6.7m
6*6
L=1u
DCR=6.7 mohm
Isat=15A
Idc=12A
VPP_25V
SUPPORT DDR4
2.5V
25A MAX
RT8120DGS/SOP8
MAU3
VPP25_EN
COMP
VCC
BOOT
UGATE
PHASE
FB
GND
PGND
LG/OC
MB_UGATE
MB_PHASE
MB_LGATE
MA_DC21
22p/4/NPO/50V/J
MA_DR24
27K/4/1
MA_DC22
3.3n/4/X7R/50V/K
MA_DR30
MASK/0/4/SHT/X
MA_DR29
11.8K/4/1
OCP=30A
放靠近IC pin4
MB_PHASE
MA_DQ5
MB_LGATE
MA_DR22
2.2/6
NTTFS4C06NTAG/WDFN8/3366pF/4.2m
MA_DR25
2.2/6
MA_DC23
1n/4/X7R/50V/K
MA_DR26
487/4/1
MA_DC24
3.3n/4/X7R/50V/K
MA_DR27
4.02K/4/1
RS
VPP_25V
MAC61
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
VPP25_ADJ
Remote sense請從最重的負載端點拉回
[34] VPP25_ADJ
VPP25_ADJ
RO
MA_DR31
1.87K/4/1
* 刪 MA_DR32
PWR SEQ
5VSB
5VSB
VPP25_EN
MAR109
8.2K/4
MAQ7
2N7002/SOT23/25pF/5
SOT23
MAR116
8.2K/4
MAR114
0/4/SHT/X
MAC8
1u/4/X5R/6.3V/K/X
[17] VPP25_EN_IO
Connect to IT8686
MAQ8
2N7002/SOT23/25pF/5
SOT23
MAR106 8.2K/4/X
[12,17,29,56] N_-S4_S5
MAR115 0/4/SHT/X
MAQ9
2N7002/SOT23/25pF/5/X
SOT23
MAR14 8.2K/4/X
[17,30] MA_EN
MAC10
1u/4/X5R/6.3V/K/X
VPP_25V
MAC49
0.1u/4/X7R/16V/K
VPP_25V
MAC50
0.1u/4/X7R/16V/K
VPP_25V
MAC51
0.1u/4/X7R/16V/K
VPP_25V
MAC52
0.1u/4/X7R/16V/K
VPP CAP
560u*1PCS
* 大電容 x1
VPP_25V
MAEC11
560u/FP/D/6.3V/69/A/11m

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

GIGABYTE™

Title: RT8120_VPP25 POWER

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REV:0.2

5VDUAL
+12V
NPD2 footprint:DIODE_1N5817
NPR22 0/8/X
NPD1 B140/SMA/1A
NPD2 B140/SMA/1A
NPL1 0.5uH/20A/IMD0809/BP/D
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
A ：全台系固態
注意耐壓
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A
P1V0_VIN_D
P1V0_VIN
NPC1 0.1u/4/X7R/16V/K
Close Choke
NPC3 1u/6/X7R/16V/K
Close MOS
NPEC1 100u/OS/D/16V/69/A/35m
NPQ1
NTMFS4C10NT1G/PPAK/970pF/7.3m
黑色閃電P
NPL2 1uH/18A/IMD0809/BP/D
VCC1_0_PCH
5VDUAL
NPR1 2.2/6
DRV_PCH
NPC4 1u/6/X7R/16V/K
NPC2 0.1u/6/X7R/25V/K
RT8120DGS/SOP8
NPU1
COMP
VCC
BOOT
UGATE
PHASE
FB
GND
PGND
LG/OC
UGATE_PCH
PHASE_PCH
LGATE_PCH
P1V0_PCH_EN
NPR5 8.2K/4/1
NPC5 22p/4/NPO/50V/J
NPC6 3.3n/4/X7R/50V/K
NPR12 MASK/0/4/SHT/X
NPR11 34K/4/1
OCP=30A
放靠近IC pin4
UGATE_PCH NPR2 2.2/6
NPR4 8.2K/4
PHASE_PCH
LGATE_PCH
*ON MOS
NPQ2
NTMFS4C10NT1G/PPAK/970pF/7.3m
NPR6 2.2/6
NPC7 1n/4/X7R/50V/K
NPR7 487/4/1
NPC8 3.3n/4/X7R/50V/K
RS
NPR8 2K/4/1
NPEC2 560u/FP/D/6.3V/69/A/11m
A ：全台系固態
P1V0_PCH_ADJ
[34] P1V0_PCH_ADJ
Remote sense請從最重的負載端點拉回
RO
NPR13 6.2K/4/1 (*實際量測電壓1.0513V)
0.8*(1+RS/RO) = Vout
0.8*[1+2K/8K)] =
1.0V

PWR SEQ

P1V0_PCH_EN
NPR14 0/4/X
VCC1_0_EN
[17]
5VSB
NPR15 8.2K/4
NPQ4 2N7002/SOT23/25pF/5
SOT23
3VDUAL
NPR16 8.2K/4
NPQ3 MMBT2222A/SOT23/600mA/40
S0T23
NPR17 8.2K/4
NPC9 0.1u/4/X7R/16V/K/X

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

GIGABYTE™

Title	RT8120_PCH POWER	
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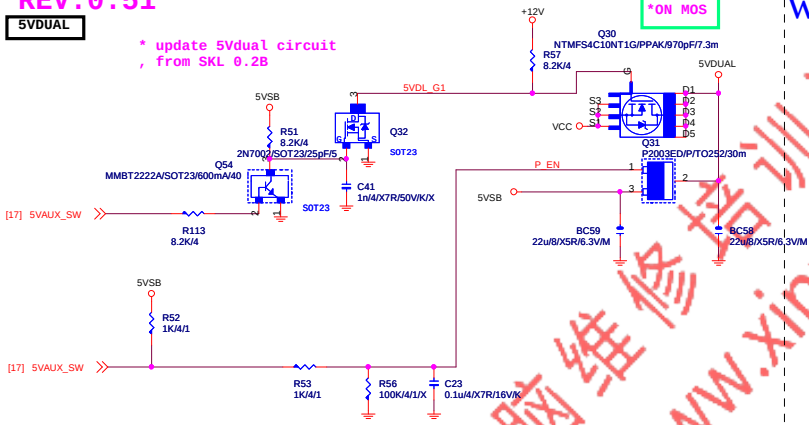
REV:0.51

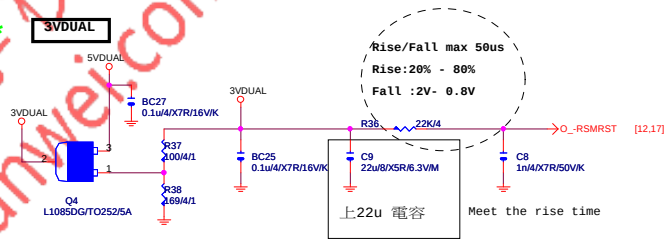
5VDUAL

* update 5Vdual circuit
, from SKL 0.2B

*ON MOS

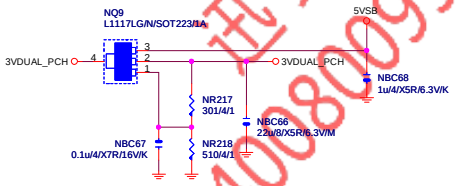


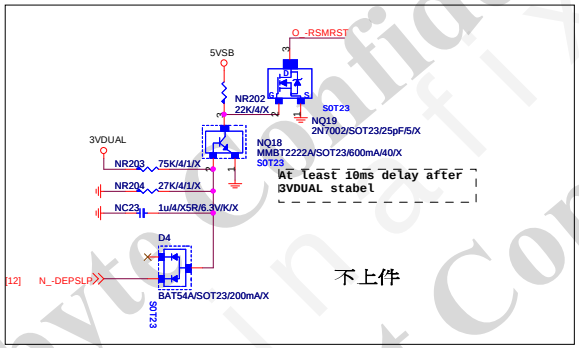
3VDUAL



3VDUAL_PCH

*





Gigabyte Technology		
Title: DISCRETE POWER		
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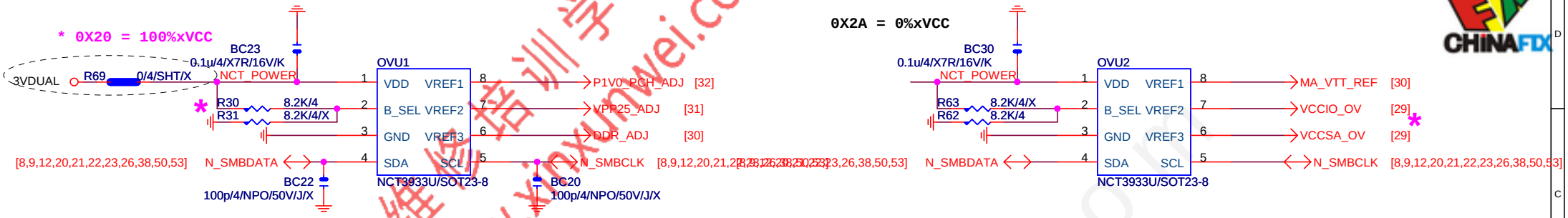
OVER VOLTAGE



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

Gigabyte Technology		
Title: CPU CORE VR-2		
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Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR

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

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

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

VCC3

* APW/2*12/BK/VA/SN/2SHK/PA66 黑色

BC38 510/6/X

BC42 510/6/X

BC43 1u/4/X5R/6.3V/K

BC44 0.1u/4/X7R/16V/K

BC45 0.1u/4/X7R/16V/K

BC41 0.1u/4/X7R/16V/K

To prevent the 5VSB under loading when boot

VCC3 BC35 22u/8/X5R/6.3V/M

VCC3 BC46 1u/4/X5R/6.3V/K

VCC3 BC48 1u/4/X5R/6.3V/K

5VSB RN7 1K/8P4R/6/X

VCC RN8 1K/8P4R/6/X

VCC3 RN9 1K/8P4R/6/X

VCC

VCC

+12V

5VSB

PWOK PWOK

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

AD1 AZ2225-01L/SOD323/X

* ATX 5VSB ESD Protect BOM移除

ATXX4 POWER CONNECTOR

V12

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

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

MH1 HOLE_3/X

MH2 HOLE_3/X

MH3 HOLE_3/X GND HOLE_4-RH-1

for EMI

MH7 * HOLE_3/X HOLE_4-RH-1

增加螺絲洞for ATX 305x235

MH4 HOLE_3/X HOLE_4-RH-1

MH5 HOLE_3/X

MH6 HOLE_3/X

K3 K1_ICT/X

K6 K1_ICT/X

K2 K1_ICT/X

K5 K1_ICT/X

K1 K1_ICT/X

K4 K1_ICT/X

K1-ICT

I1 4MMH/X

I2 4MMH/X

I3 4MMH/X

I4 4MMH/X

I5

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

+12V

RN2 2.7K/8P4R/4

RN3 2.7K/8P4R/4

RN4 2.7K/8P4R/4

RN5 2.7K/8P4R/4

RN6 2.7K/8P4R/4

VCC3 R1 1K/4/1

[12] N_GPP_D9

Q9 MMBT2222A/SOT23/600mA/40 SOT23

R703 330/4/1

有TYPE-C , MH3,MH4螺絲洞改半圈,footprint :HOLE_4-RH-5MM-1

螺絲洞 check ~~~~

-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		
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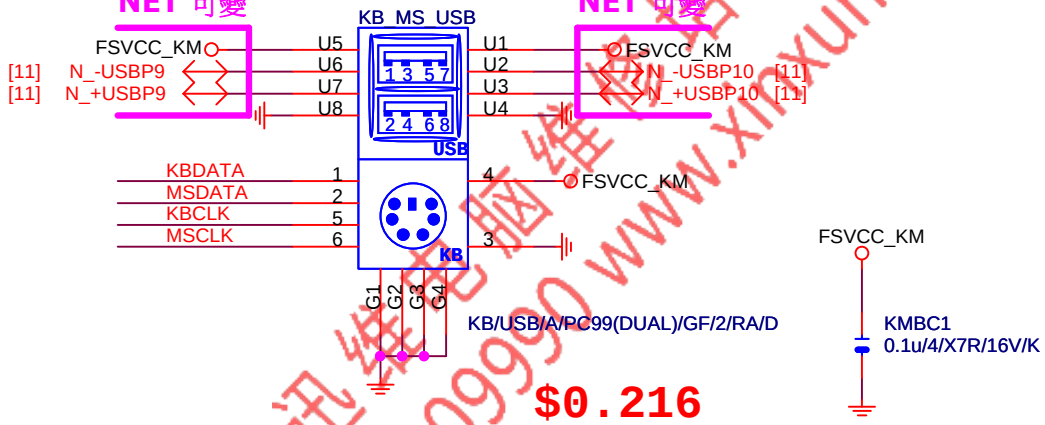
KB_MS_USB

Rev: 0.82

改回原來的上USB, 下PS2

NET 可變

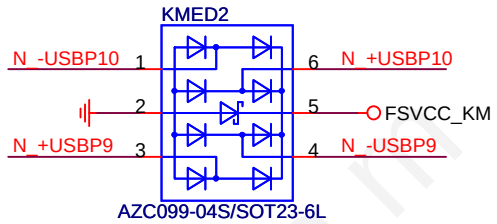
NET 可變

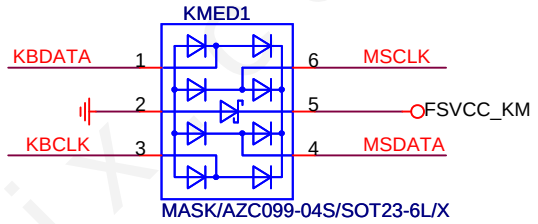


$0.216

ESD

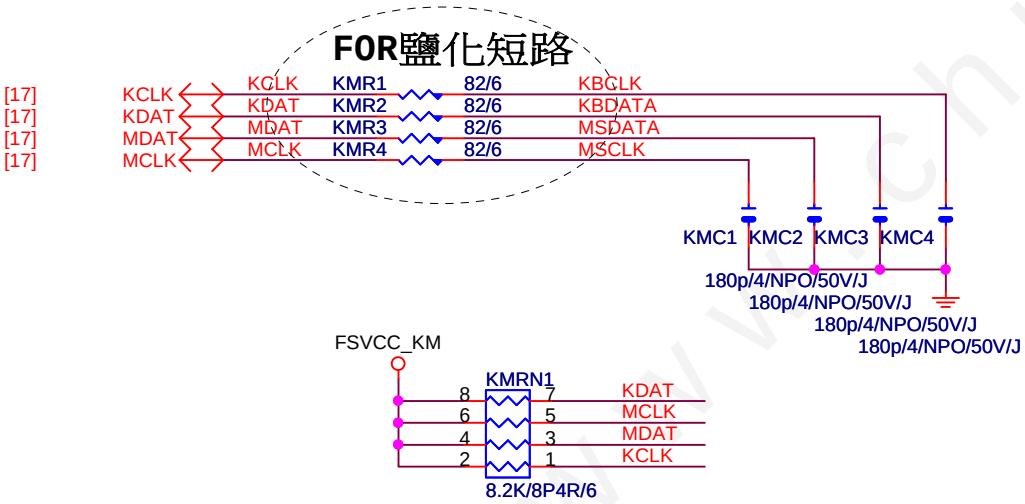
*SWAP KMED2





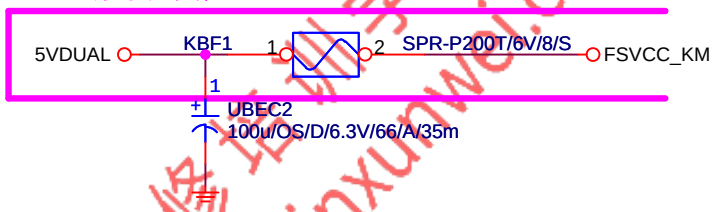
KB_MS_USB DAMPING/PU

FOR鹽化短路

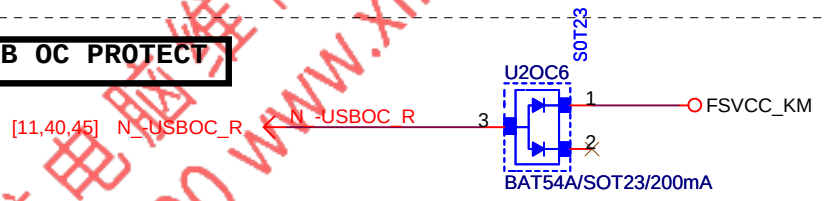


KB_MS_USB PWR

NET 可變, 與其他USB SHARE



USB OC PROTECT



Gigabyte Technology

Title	AUDIO JACK		
Size A	Document Number	GA-H270-HD3	Rev 1.0
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Rev: 0.82

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

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

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

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

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

Close to connector

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

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

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

Close to connector

VESD3: DVI_SCL DVI_HP DVI_SDA
AZC099-04S/SOT23-6L
NET 可變 FSVCC_KM

NET 可變
FSVCC_KM

DVITX0- DVITX0+ DVITX1- DVITX1+ DVITX2- DVITX2+ DVITXC- DVITXC+ DDCC DDCD DVI_SCL DVI_SDA VDDC GND SHLDC VSYNC HPD DVI_HP
VR15 20K/4/1
SHIELD1 SHIELD2 COMMON M1 M2 M5 M6 M7 M8

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		
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RTD2168 | R1.03

RTD2168

RTD2168/[10HQ5-A32168-10R]

X'TAL EMBEDDED

DVU1

VCC3

DVC14 0.1u/4/X7R/16V/K

DVC15 10u/6/X5R/6.3V/M/X

DVC16 0.1u/4/X7R/16V/K

DVC12 0.1u/4/X7R/16V/K

DVC13 1u/4/X5R/6.3V/K

DVC17 0.1u/4/X7R/16V/K VGA_VCCK_V12

DVC18 0.1u/4/X7R/16V/K VGA_AUX_CH_P [4] VGA_AUX

DVC19 0.1u/4/X7R/16V/K VGA_AUX_CH_N [4] VGA_AUX-

DVR12 12K/4/1 VGA_RRX

DVC20 0.1u/4/X7R/16V/K VGA_LANE0_P [4] VGA_TXP0

DVC21 0.1u/4/X7R/16V/K VGA_LANE0_N [4] VGA_TXN0

DVC22 0.1u/4/X7R/16V/K VGA_LANE1_P [4] VGA_TXP1

DVC23 0.1u/4/X7R/16V/K VGA_LANE1_N [4] VGA_TXN1

Reserve Pull High

VCC3

DVR14 4.7K/4/X VGA_SMB_SCL

DVR15 4.7K/4/X VGA_SMB_SDA

[8,9,12,20,21,22,23,26,34,50,53] N_SMBCLK

[8,9,12,20,21,22,23,26,34,50,53] N_SMBDATA

DVR16 MASK/0/4/SHT/M/X

DVR17 MASK/0/4/SHT/M/X

DVC24 4.7u/6/X5R/6.3V/K

DVC25 0.1u/4/X7R/16V/K

DVC26 0.1u/4/X7R/16V/K

[39] VGA_SCL

[39] VGA_SDA

[39] VGA_VSYNC

[39] VGA_HSYNC

放置PCH端

[10] N_DDPD_CTRLCLK

[10] N_DDPD_CTRLDATA

DVR19 2.2K/4/1

DVR20 2.2K/4/1

VCC3

POWER

VCC3

DVC10 0/6/SHT/M/X VGA_AVCC33

DVC11 0/6/SHT/M/X VGA_VDD_DAC_33

Power on latch

VCC3

VGA_POL1_SDA

DVR8 8.2K/4/X DVR9 8.2K/4

VGA_POL2_SCL

DVR10 8.2K/4 DVR11 8.2K/4/X

		POL1_SDA(PIN22)	
		0	1
POL2_SCL (PIN23)	0	X	EP MODE
	1	ROM ONLY MODE	EEPROM MODE

Embedded LDO

VCC3 DVR13 8.2K/4/X VGA_LDO_EN

LDO_EN(PIN21)	
0	1
VCCK_V12 from External 1.2V	VCCK_V12 from Embedded LDO

DP HPD

VGA_HPD N_VGA_HDP_F [10]

DVR18 100K/4/1

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VGA SIGNAL R1.03

VCC
DVD1
BAT54A/SOT23/200mA
S0T23
VGA_SDA_F
VGA_SCL_F
DVR2
2.2K/4/1
DVR3
2.2K/4/1
[38] VGA_SDA
[38] VGA_SCL
VGA_SDA
VGA_SCL

[38] VGA_VSYNC
VGA_VSYNC
DVR1
33/4
G_VSYNC
DVC2
10p/4/NPO/50V/J/X

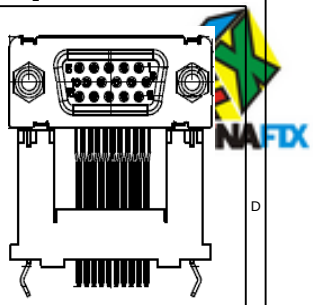
[38] VGA_HSYNC
VGA_HSYNC
DVR4
33/4
G_HSYNC
DVC3
10p/4/NPO/50V/J/X

[38] VGA_RED_P
[38] VGA_GREEN_P
[38] VGA_BLUE_P
VGA_RED_P
VGA_GREEN_P
VGA_BLUE_P
DVFB1
DVFB2
DVFB3
30/4/4A/S
30/4/4A/S
30/4/4A/S
G_VGA_R
G_VGA_G
G_VGA_B
DVR5
75/4/1
DVR7
75/4/1
DVR6
75/4/1
DVC4 DVC5 DVC6
10p/4/NPO/50V/J
10p/4/NPO/50V/J
10p/4/NPO/50V/J
DVC7 DVC9
DVC8
10p/4/NPO/50V/J
10p/4/NPO/50V/J
10p/4/NPO/50V/J

Close to Filter

FOR EMI

VGA CONN. 架高型VGA(BLACK)



FSVCC_KM
DVC1
0.1u/4/X7R/16V/K/X
D_SUB
G_VGA_R
G_VGA_G
G_VGA_B
VGA_SDA
G_HSYNC
G_VSYNC
VGA_SCL
VGA/BK/SC/RA/D/2/HR

VGA ESD

DVESD1
VGA_SCL
VGA_SDA
G_VSYNC
VCC
G_HSYNC
AZC099-04S/SOT23-6L

DVESD2
G_VGA_R
G_VGA_B
G_VGA_G
VCC3
AZC099-04S/SOT23-6L

Gigabyte Technology		
Title: DP-VGA RTD2168		
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Rev: 0.82

R_USB30

下 Port

R_USB30

USB3.0/2.0

上 Port

USB 電容前後NET 可自行調整

FSVCC_U3R1 U1 VBUS

[11] N_-USBP7 U2 D-

[11] N_+USBP7 U3 D+

U4 GND

[11] PCH_USB3_RXN7 U5 SSRX-

[11] PCH_USB3_RXP7 U6 SSRX+

U7 GND

[11] PCH_USB3_TXN7 RBU3C1 0.1u/4/X7R/16V/K R_U3TXN7 U8 SSTX-

[11] PCH_USB3_TXP7 RBU3C2 0.1u/4/X7R/16V/K R_U3TXP7 U9 SSTX+

AGND AGND AGND AGND

G1 G2 G3 G4

FUSE 2 Port 1 Fuse 2.6A

5VDUAL RAU3F1 1 2 SPR-P260T/6V/8/S FSVCC_U3R1

RAU3C5 0.1u/4/X7R/16V/K

刪除RAU3EC1 (後窗留2顆100uf)

刪除電容 & HDMI+R_USB30 Fuse

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

* Footprint : USB30_20

U10 FSVCC_U3R1

U11

U12 N_-USBP8 [11]

U13 N_+USBP8 [11]

U14

U15 PCH_USB3_RXN8 [11]

U16 PCH_USB3_RXP8 [11]

U17 R_U3TXN8 RBU3C3 0.1u/4/X7R/16V/K PCH_USB3_TXN8 [11]

U18 R_U3TXP8 RBU3C4 0.1u/4/X7R/16V/K PCH_USB3_TXP8 [11]

USB 電容前後NET 可自行調整

不鎖螺後窗 Rear panel

R_USB30 : ??????????

U3OC1 SOT23

[11,36,45] N_-USBOC_R N_-USBOC_R 3

1 FSVCC_U3R2 USB30_LAN

2 FSVCC_U3R1 R_USB30 & HDMI

BAT54A/SOT23/200mA

NET 可自行調整

R_U3TXP7 R_U3TXN8

R_U3TXN7 R_U3TXP8

* swap

RBU3D2

AZ1045-04F/MSOP10

R_U3TXN7 R_U3TXP8

R_U3TXP7 R_U3TXN8

NET 可自行調整

PCH_USB3_RXN8 PCH_USB3_RXP7

PCH_USB3_RXP8 PCH_USB3_RXN7

* swap

RBU3D1

AZ1045-04F/MSOP10

PCH_USB3_RXP8 PCH_USB3_RXN7

PCH_USB3_RXN8 PCH_USB3_RXP7

ESD 可自行SWAP PIN

RBU3D3

N_+USBP7 1 6 N_-USBP7

2 5 FSVCC_U3R1

N_-USBP8 3 4 N_+USBP8

AZC099-04S/SOT23-6L

CONNECTOR 自行調整

2 port USB 3.0 Capture:

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

2 port USB 3.0 with TYPE C Capture:

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

R_USB30_2

KB_MS_USB3

Gigabyte Technology			
Title: KB_MS_USB3, R_USB30			
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LAN INTEL I219 R1.11

LAN POWER

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
LA_LAN_CLKREQ-
[10] LA_-CLKREQ
[17,49] O_-PFMRST2

LAU1

CLK_REQ_N
PE_RST_N
PE_CLKP
PE_CLKN
PETP
PETN
PERP
PERN
SMB_CLK
SMB_DATA
LANWAKE_N
LAN_DISABLE_N
LED0
LED1
LED2
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
XTAL_OUT
XTAL_IN
TEST_ENABLE
RBIAS

PCIE
SMBUS
LED
JTAG

MDI_PLUS_0
MDI_MINUS_0
MDI_PLUS_1
MDI_MINUS_1
MDI_PLUS_2
MDI_MINUS_2
MDI_PLUS_3
MDI_MINUS_3
SVR_EN_N
RSVD_1/VCCP3P3
VDD3_P3_IN
VDD3P3_OUT
VDD3P3
VDD0P9
CTRL_0P9
VSS_EPAD
WGI219V/QFN48

MDI

[10] LA_SRCCLK_LAN
[10] LA_-SRCCLK_LAN
[11] LA_ML_IP
[11] LA_ML_IN
[11] LA_ML_OP
[11] LA_ML_ON
LABC6 0.1u/4/X7R/16V/K
LABC8 0.1u/4/X7R/16V/K
LABC12 0.1u/4/X7R/16V/K
LABC16 0.1u/4/X7R/16V/K
LA_TP
LA_TN
LA_RP
LA_RN

PCH端:
電阻上

[12] N_SML0CLK
[12] N_SML0DAT

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

[42] LA_LED0
[42] LA_LED1
[42] LA_LED2

3VDUAL_LAN1
LAR6 8.2K/4/X LA_TDI
LAR5 8.2K/4/X LA_TMS
LAR4 8.2K/4/X LA_TCK

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

LAR7 1K/4/1 LA_TEST_EN
LAR12 3.01K/4/1 LA_LAN_BIAS

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

LA_-SVR_EN
LAR19 MASK/0/4/SHT/X
LAR18 8.2K/4/X
LA_VCCP3
LAR13 8.2K/4

3VDUAL_LAN1
LBC10 1u/4/X5R/6.3V/K
LAN_V_1P0

(CLOSE PIN4)

LA_CTRL_1P0
LAL1 4.7uH/3.3A/29m/S
LAN_V_1P0
LABC32 10u/6/X5R/6.3V/M
LABC29 10u/6/X5R/6.3V/M/X

CLOSE LAL1

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)

FOR ERP WAKEUP

LAQ1 2N7002/SOT23/25pF/5
LAQR1 8.2K/4
3VDUAL
3VDUAL_LAN1
LAR17 8.2K/4
LAR20 0/4/X
[12] N_-LAN_DIS
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

Gigabyte Technology

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USB30_LAN CONNECTOR R1.11

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
LABC25 MASK/0/4/SHT/X
LA_CN_L10
FSVCC_U3R2

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

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10
VBUS D- D+ GND SSRX- SSRX+ GND SSTX- SSTX+
USB3.0
USB3.0
D1 D2 D3 D4
DT DT
VBUS D- D+ GND SSRX- SSRX+ GND SSTX- SSTX+
U1 U2 U3 U4 U5 U6 U7 U8 U9
P1 P2 U10 U11 U12 U13 U14 U15 U16 U17 U18

下 Port

[11] N_-USBP3
[11] N_+USBP3
[11] PCH_USB3_RXN3
[11] PCH_USB3_RXP3
[11] PCH_USB3_TXN3
[11] PCH_USB3_TXP3

LAUC1 PCH_USB3_TXN3C
LAUC2 PCH_USB3_TXP3C
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

可變 可變

LA_LED_ACT_TXRX
LA_D2
LA_LED_LINK100
LA_LED_LINK1000

LAR8 MASK/0/4/SHT/M/X
LAR10 330/4
LAR9 330/4
LAR3 MASK/0/4/SHT/M/X

LA_LED0 [41]
LA_D2_1
LA_LED2 [41]
LA_LED1 [41]

3VDUAL_LAN1
LAFB2 MASK/0/4/SHT/M/X
LAUBC24 0.1u/4/X7R/16V/K/X
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 PCH_USB3_TXN4C
LAUC4 PCH_USB3_TXP4C
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

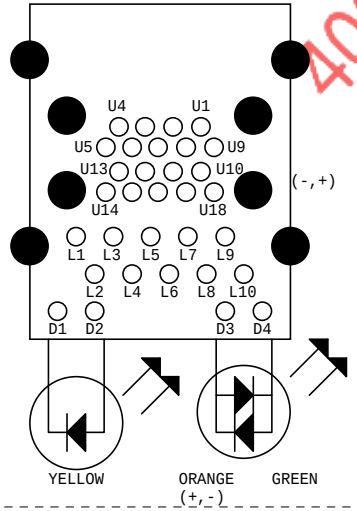
上 Port

可變 可變

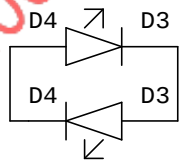
USB3+LAN/1G/GO.Y/OS/RA/D/G30/[11NR6-702009-X1R_11NR6-702009-X2R]

LA_MDI-->100歐姆:[20/4/8/4/20]

USB30_LAN LAYOUT示意圖

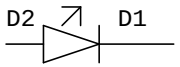


Dual Color LED



Green
Orange

Single Color LED



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

10 9 8 7 6
NC NC GND NC NC
11
D1 D1 GND D2 D2
1 2 3 4 5

note:可變更USB NAME
可變

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

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

* REC2
SPR-P260T/6V/8/S
FUSE-0805
REC2
100u/OS/D/6.3V/66/A/35m

Close to connector
後電容 & USB30_LAN Fuse

EMI SHORT PAD

PS:視EMI需求

LAR24 MASK/0/4/SHT/M/X

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
LAPW2 0/4/X
3VDUAL

*
*

Gigabyte Technology		
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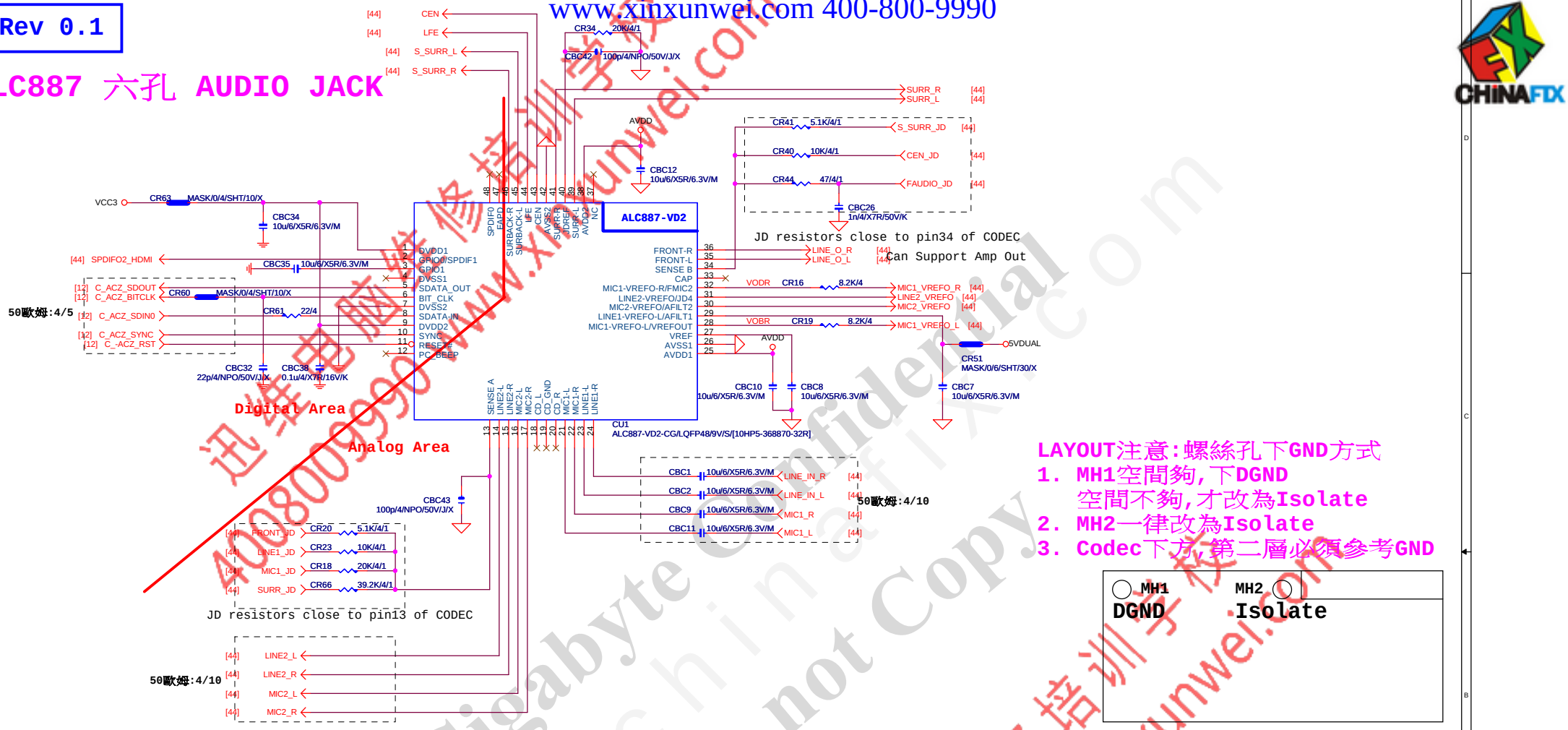
Rev 0.1

ALC887 六孔 AUDIO JACK



LAYOUT注意:螺絲孔下GND方式

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

MH1 DGND　　MH2 Isolate

CHECK 要上31R or 32R

AUDIO 料號:AUDIO SHIELD/SUS430/T=0.2/AJOH:11NH1*ADC001-31R

LAYOUT注意:要加

GND切割線

音效區域印刷

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

Gigabyte Technology			
Title: HD AUDIO ALC887			
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Rev 0.1

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

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

CR21 2.2/6 → Audio jack <-> USB_LAN

CR24 0/6/X → Under Audio jack

*量產前,0ohm改short pad

LINE-OUT

CR7 22K/4, CR6 22K/4

[43] LINE_O_R — CEC1 100uF/D/10V/6*5/[11CE2-651000-05R_11CE2-651000-12R] — CR5 62/4 — AJ_B5

[43] LINE_O_L — CEC2 100uF/D/10V/6*5/[11CE2-651000-05R_11CE2-651000-12R] — CR8 62/4 — AJ_B2

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

LINE-IN

[43] LINE_IN_R — CR1 62/4 — AJ_A5

[43] LINE_IN_L — CR14 62/4 — AJ_A2

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

MIC-IN

[43] MIC1_R — CR17 62/4 — AJ_C5

[43] MIC1_L — CR22 62/4 — AJ_C2

[43] MIC1_VREFO_L, [43] MIC1_VREFO_R

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

SURROUND

CR67 22K/4, CR68 22K/4

[43] SURR_R — CEC10 100uF/D/10V/6*5/[11CE2-651000-05R_11CE2-651000-12R] — CR73 62/4 — BJ_C5

[43] SURR_L — CEC11 100uF/D/10V/6*5/[11CE2-651000-05R_11CE2-651000-12R] — CR74 62/4 — BJ_C2

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

CEN/LFE

CR69 22K/4, CR70 22K/4

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

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

★Update 2015-04-10

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

For THD+N Low frequency

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

SPDIF_OUT

[43] SPDIFO2_HDMI — CR26 MASK/0/4/SHT/10/X — SPDIF_O

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

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

For HDMI SPDIF

SPDIF_IN

SURR BACK

CR43 22K/4, CR27 22K/4

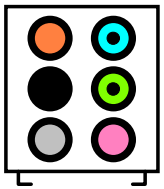
[43] S_SURR_R — CBC16 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR25 62/4 — BJ_A5

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

EMI

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

AZALIA JACK



AUDIOB

[43] LINE1_JD — LINE1_JD, AJ_A5, AJ_A2 — A3 A2 A4 A1 — GND — LINE-IN

[43] FRONT_JD — FRONT_JD, AJ_B5, AJ_B2 — B3 B2 B4 B1 — GND — LINE-OUT

[43] MIC1_JD — MIC1_JD, AJ_C5, AJ_C2 — C3 C2 C4 C1 C0 — GND — MIC-IN

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

AZALIA JACK

BLUE LINE-IN

GREEN LINE-OUT

PINK MIC-IN

AUDIOA

[43] CEN_JD — CEN_JD, BJ_B5, BJ_B2 — D3 D2 D4 D1 — GND — REAR

[43] SURR_JD — SURR_JD, BJ_C5, BJ_C2 — E3 E2 E4 E1 — GND — CEN

[43] S_SURR_JD — S_SURR_JD, BJ_A5, BJ_A2 — F3 F2 F4 F1 F0 — GND — SIDE

G4 G1 G2 G3

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

Orange CEN/LFE

Black SURROUND

Gray SURROUND SIDE

AZALIA FRONT PANEL

CQ4 BAT54A/SOT23/200mA, CQ2 BAT54A/SOT23/200mA

[43] LINE2_VREFO, [43] MIC2_VREFO

CRN1 8.2K/8P4R/4

[43] MIC2_L — CBC6 10u/6/X5R/6.3V/M — CR13 62/4 — M2_L

[43] MIC2_R — CBC5 10u/6/X5R/6.3V/M — CR11 62/4 — M2_R

L2_R — CR57 62/4 — L2-R

[43] FAUDIO_JD — L2_L — CR53 62/4 — L2-L

VCC3

CR58 22K/4, CR54 22K/4, CR78 8.2K/4/X

F_AUDIO

CR55 20K/4/1, CR59 39.2K/4/1

BH/2*5K8/BK/2.54/VA/AUDIO/PRT/TUR180

[43] LINE2_R — CEC9 — L2_R

[43] LINE2_L — CEC6 — L2_L

100uF/D/10V/6*5/[11CE2-651000-05R_11CE2-651000-12R]

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

Gigabyte Technology			
Title: AUDIO JACK			
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Rev: 0.82

Front USB3.0

F_USB30_1 REV=1

FSVCC_U3F1

NET 自行調整

[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

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/OS/D/6.3V/66/A/35m

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

U3OC3 SOT23

[11,46] N_-USBOC_F

BAT54A/SOT23/200mA

NET 可自行調整

FSVCC_U3F1
FSVCC_U3F2

NET 可自行調整

PCH_USB3_RXP1
PCH_USB3_RXN1
PCH_USB3_RXN2
PCH_USB3_RXP2

FAU3D1 AZ1045-04F/MSOP10

AZC099-04S/SOT23-6L

FAU3D3

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

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

FSVCC_U3F2

NET 可自行調整

[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

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

AZC099-04S/SOT23-6L

FBU3D3

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

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

UAR2 15K/4/1

N_-USBOC_F [11,46]

-USBOC_R

POWER 可自行調整

5VDUAL UBR1 8.2K/4 N_-USBOC_R

UBR2 15K/4/1

N_-USBOC_R [11,36,40]

* 接 PCH N_GPP_G6(SMI) & PCH_PU_3Vdual

[13] N_GPP_G6

UAD5 SOT23

N_-USBOC_F [11,46]

N_-USBOC_R [11,36,40]

BAT54A/SOT23/200mA

Gigabyte Technology	
Title	R_USB30,F_USB30, USB_OC
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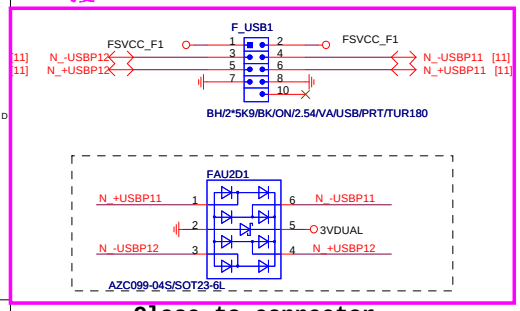
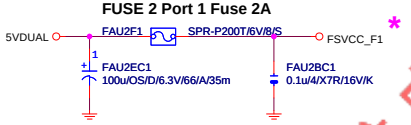
FRONT USB1

NET 可變



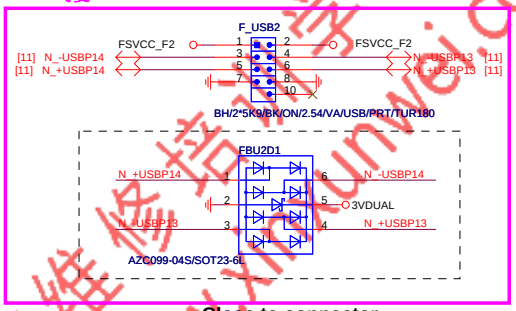
Close to connector

FUSE 2 Port 1 Fuse 2A



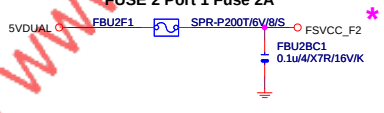
FRONT USB2

NET 可變



Close to connector

FUSE 2 Port 1 Fuse 2A



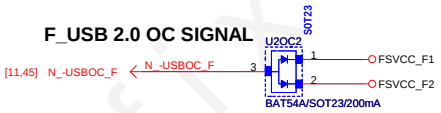
FRONT USB3

FRONT USB4

REAR USB1

REAR USB2

F_USB 2.0 OC SIGNAL



Gigabyte Technology

Title: F_USB20

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COM PORT

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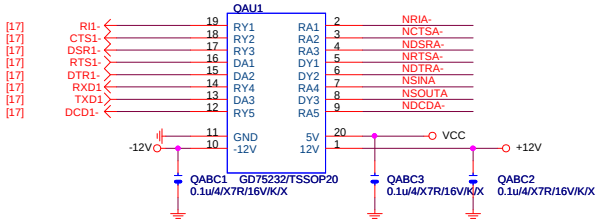
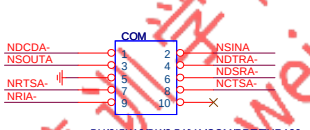
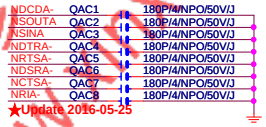




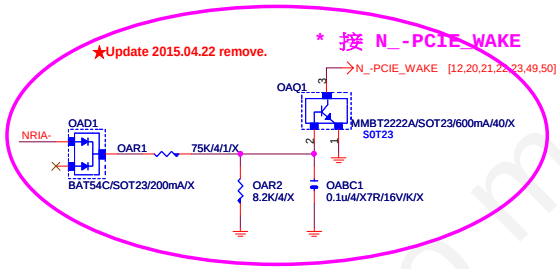
F_COM-HS



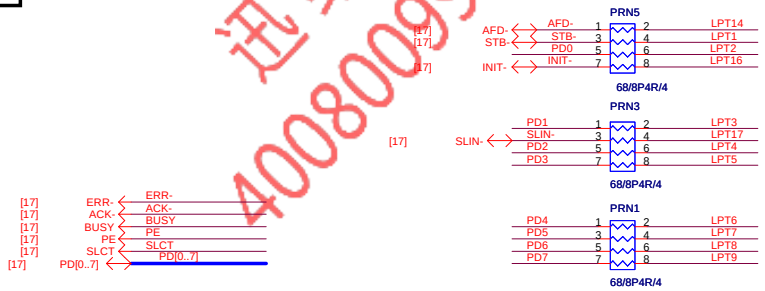
★Update 2016-05-25

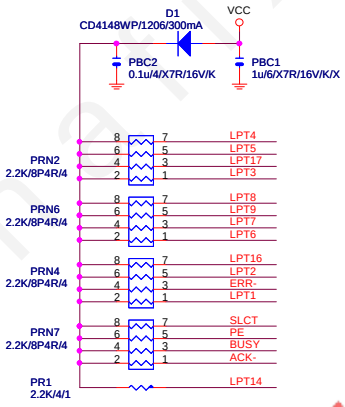
COM RI

N/A

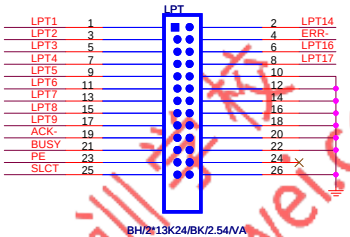


LPT PORT

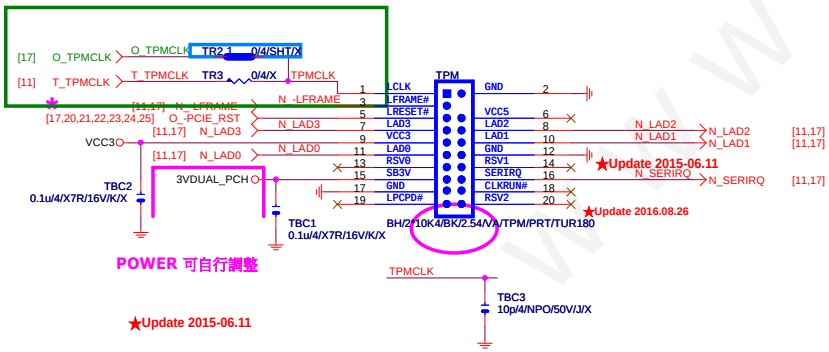




R&D技術通報151　有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R 。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。 串電阻33 ohm改為68 ohm。



TPM CONNECT



POWER 可自行調整

★Update 2015-06.11

★Update 2015-06.11

★Update 2016.08.26

Thunderbolt

★Update 2015-12-29

* Del THB_C

Gigabyte Technology	
Title	FP,F_USB,USB PWR,BZ
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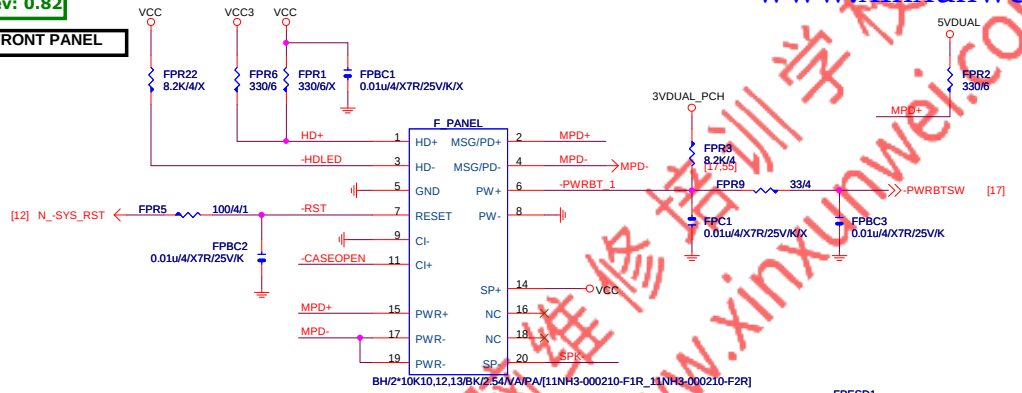
FRONT PANEL

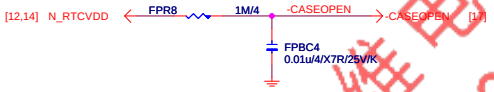
★Update 2016.06.15

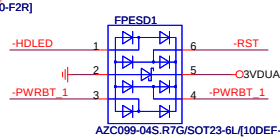


BH/2*10K10,12,13/BK/2.54/VA/PA/[11NH3-000210-F1R_11NH3-000210-F2R]

Update 2015.01.08
Footprint=F_PANEL_100

CASE OPEN



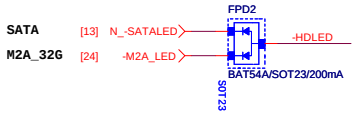


AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8002-10R]

★Update 2015-02-11

FRONT PANEL SHORT

SATA LED

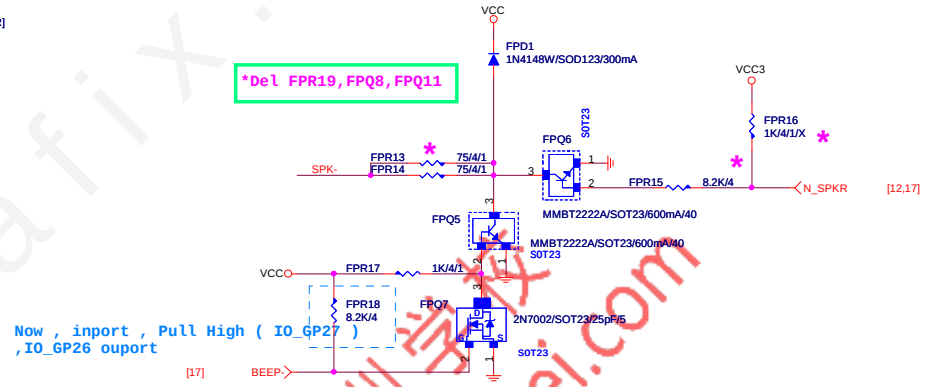


Fix some M.2 cause HD_LED always on.
★Update 2016.06.15

Del M2S_LED

SPEAKER

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



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

Gigabyte Technology

Title	FRONT PANEL	
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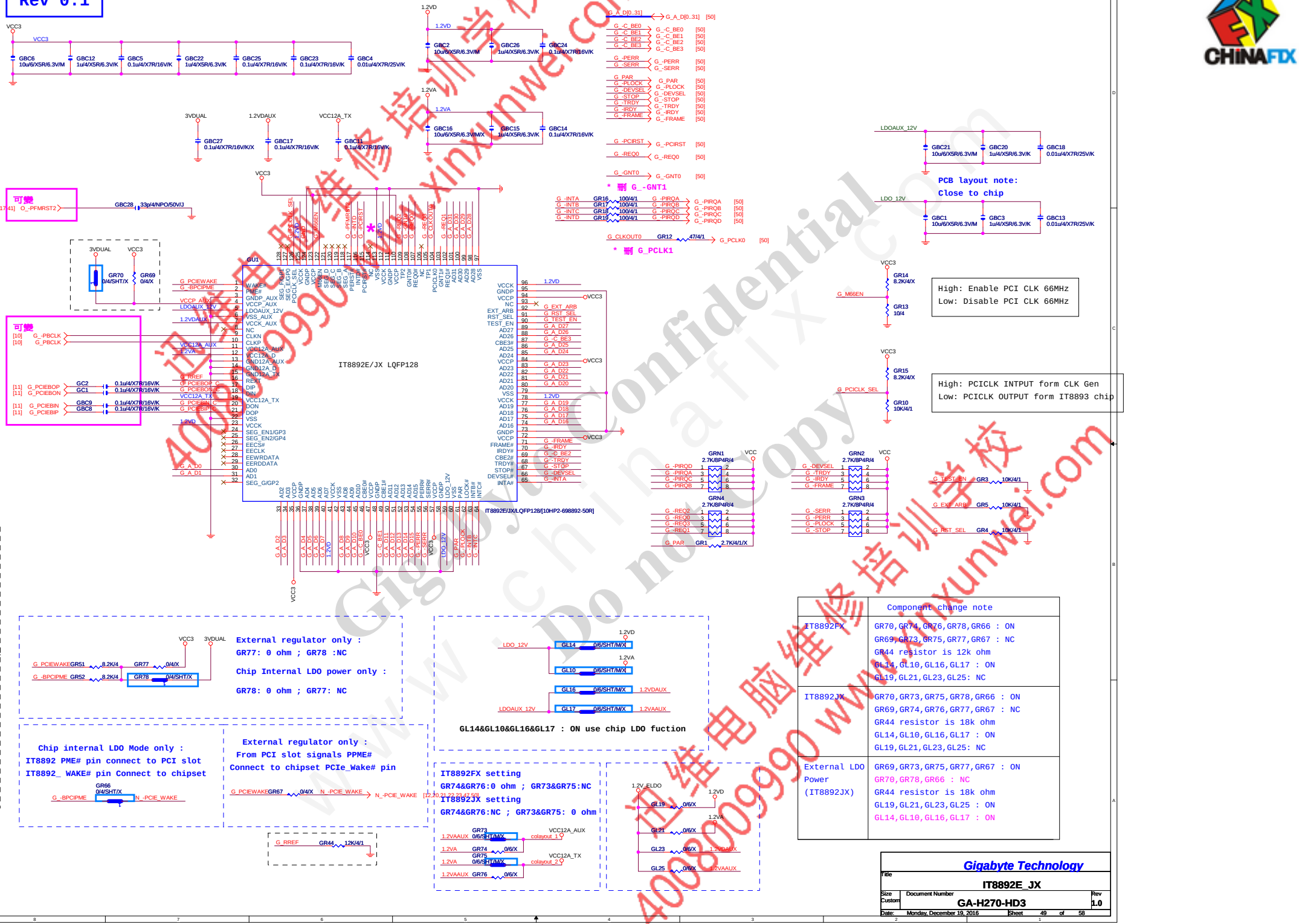
Rev 0.1



Component change note	
IT8892FX	GR70,GR74,GR76,GR78,GR66 : ON GR69,GR73,GR75,GR77,GR67 : NC GR44 resistor is 12k ohm GL14,GL10,GL16,GL17 : ON GL19,GL21,GL23,GL25: NC
IT8892JX	GR70,GR73,GR75,GR78,GR66 : ON GR69,GR74,GR76,GR77,GR67 : NC GR44 resistor is 18k ohm GL14,GL10,GL16,GL17 : ON GL19,GL21,GL23,GL25: NC
External LDO Power (IT8892JX)	GR69,GR73,GR75,GR77,GR67 : ON GR70,GR78,GR66 : NC GR44 resistor is 18k ohm GL19,GL21,GL23,GL25 : ON GL14,GL10,GL16,GL17 : ON

Gigabyte Technology

Title: IT8892E_JX

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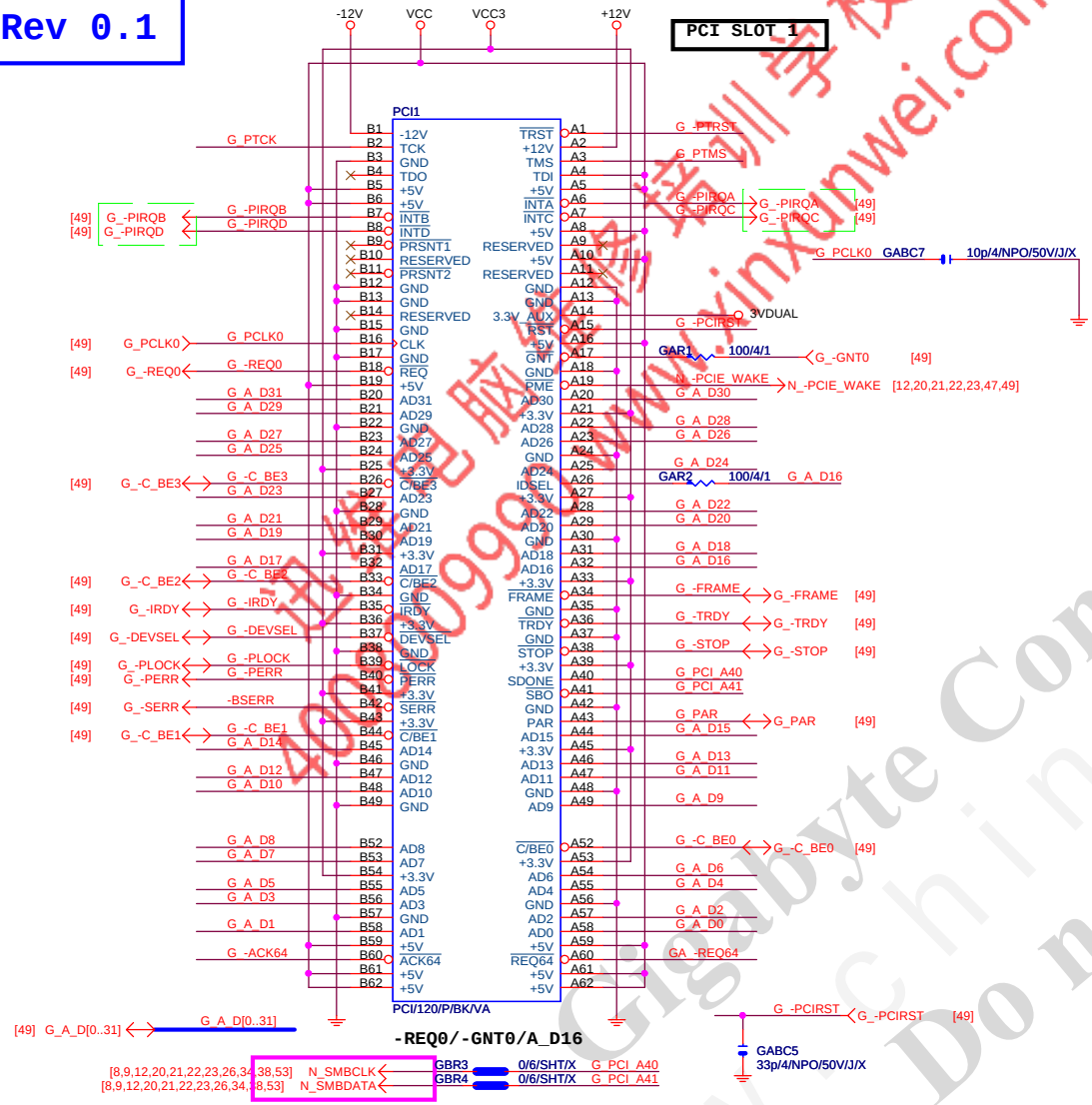
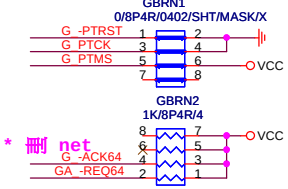
Rev 0.1

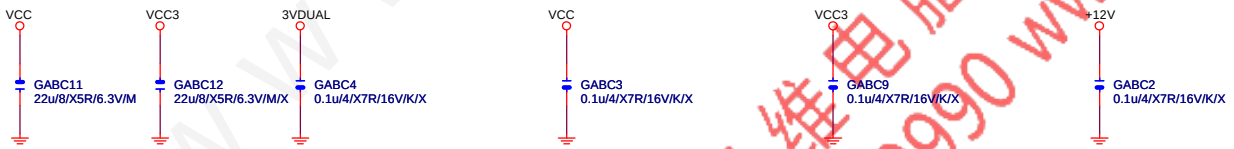
PCI SLOT 1



PCI PU



PCI CAP



GIGABYTE™

Title	PCI SLOT 1	
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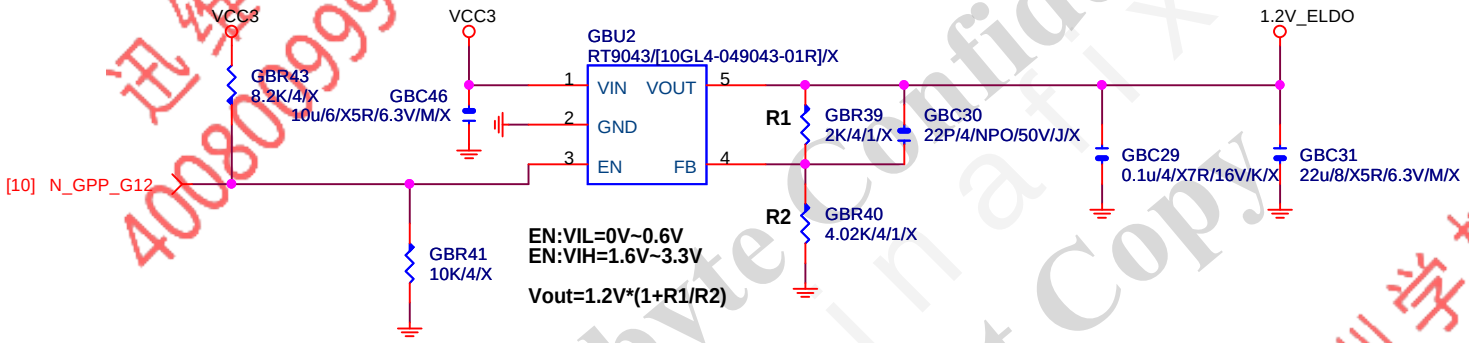
Rev 0.1

* 全部不上件



Gigabyte Technology		
Title: ASM1085 POWER		
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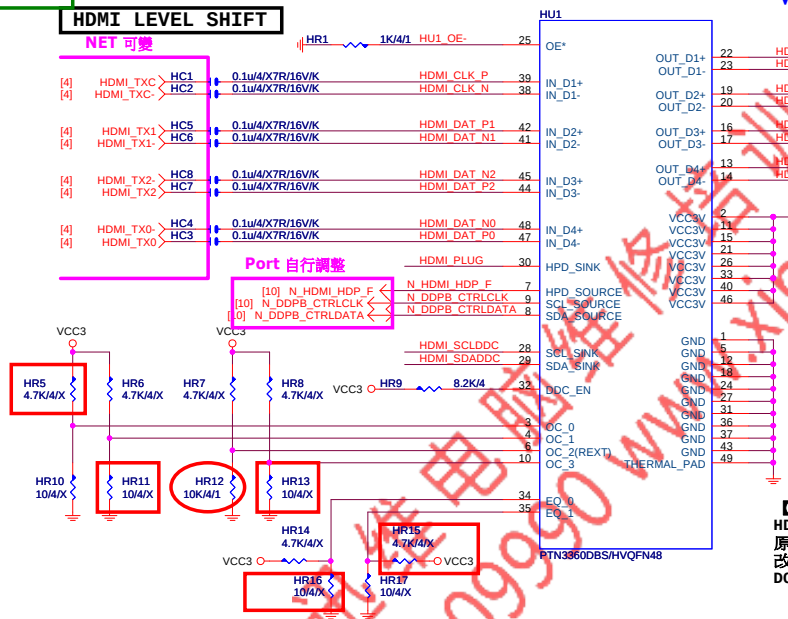
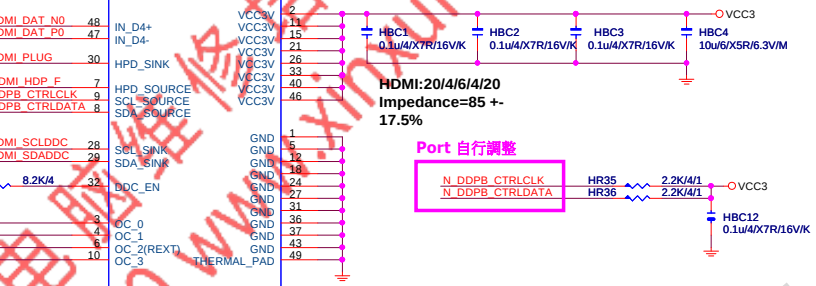
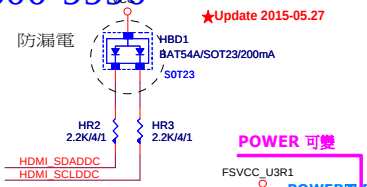
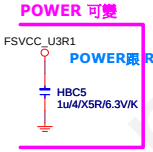
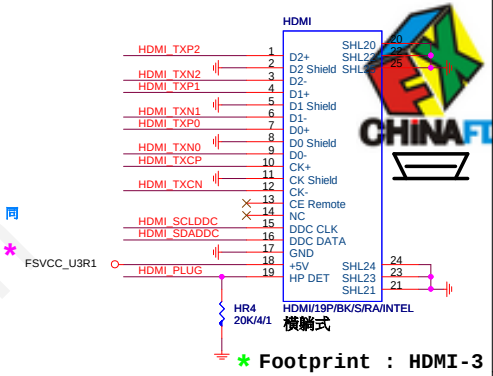
HDMI LEVEL SHIFT











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

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

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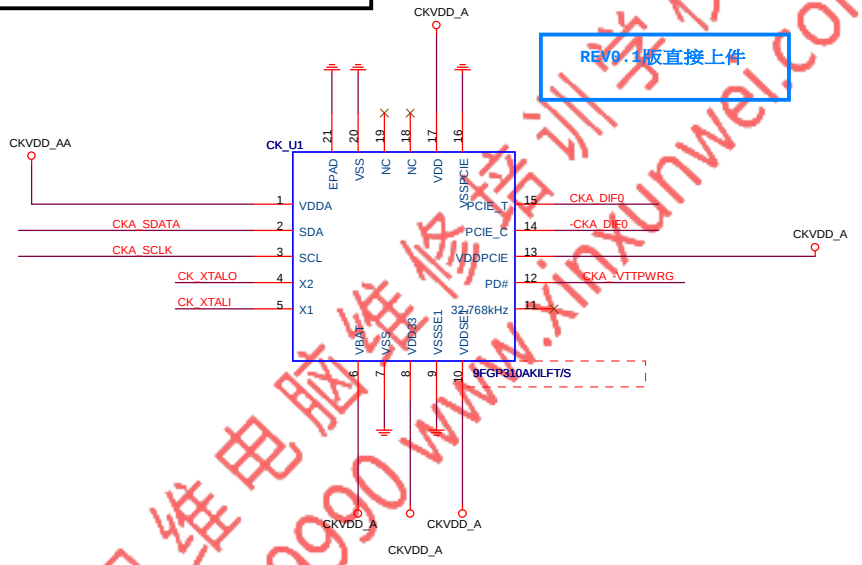
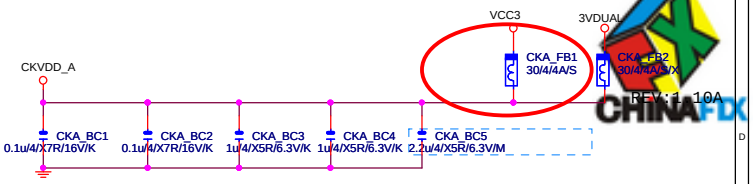
REV:0.5

* Default CLK Buffer

IDT9FGP310

REV0.1版直接上件





REV:1.10A

REV:0.5A

(靠近cpu)

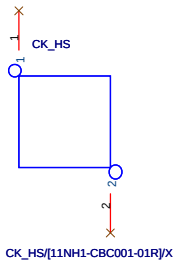
default CLK

CKA_DIF0 CKA_R8 33/4 CKA_DIF0_R WR100 MASK/0/4/SHT/MIX N_CPUCLK [4]
-CKA_DIF0 CKA_R9 33/4 -CKA_DIF0_R WR101 MASK/0/4/SHT/MIX N_-CPUCLK [4]

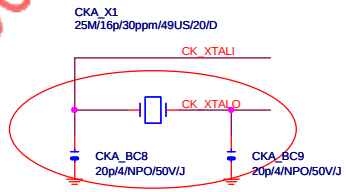
(靠近PCH)

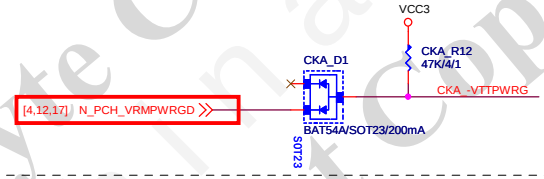
[10] PCH_CPUCLK PCH_CPUCLK NR300 0/4/X PCH_CPUCLK_R WR102 0/4/X N_CPUCLK [4]
[10] PCH_-CPUCLK PCH_-CPUCLK NR301 0/4/X PCH_-CPUCLK_R WR103 0/4/X N_-CPUCLK [4]

REV0.2
1.Add CKA_FB3、CKA_FB4、CKA_BC6、CKA_BC7
2.Change CK_U1 PIN1 to CKVDD_AA
3.Change CKA_BC5 to 2.2u/4/X5R/6.3V/M
4.Change CK_U1 Capture Value to 9FGP320AKILFT/VFQFPN20



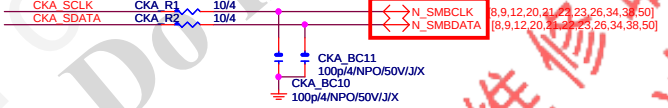
*可變，依需求上件不上件。

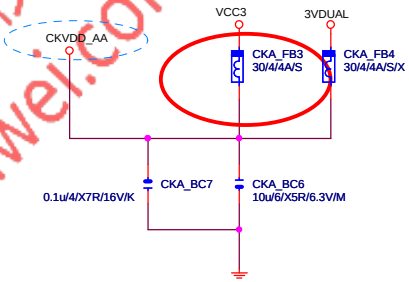




SMBUS

刪IT_SMBCLK//IT_SMBDATA //CKA_R16//CKA_R17





GIGABYTE™

Title	IDT9FGP310_CLK BUFFER	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
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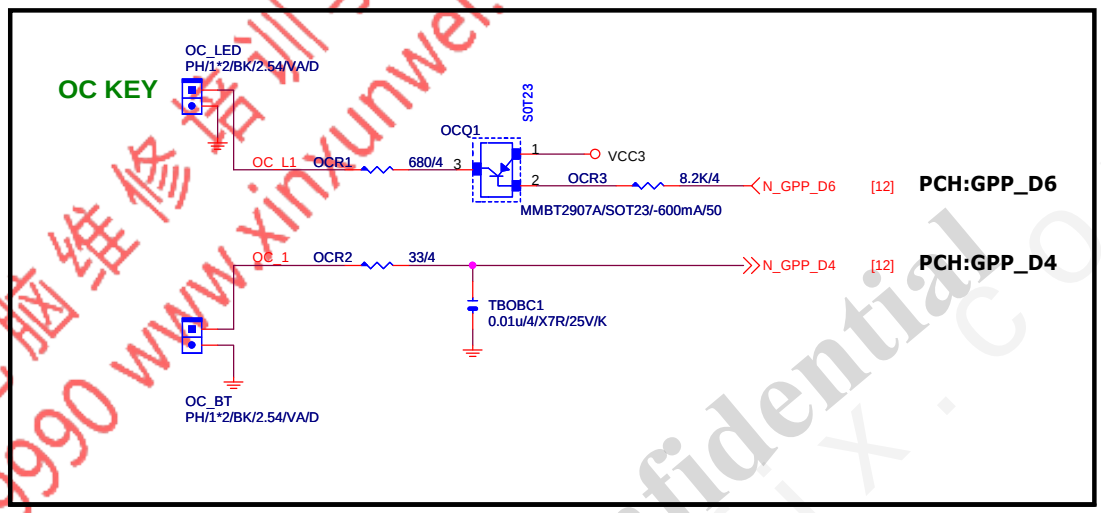
Rev: 0.81

OC Pin Header

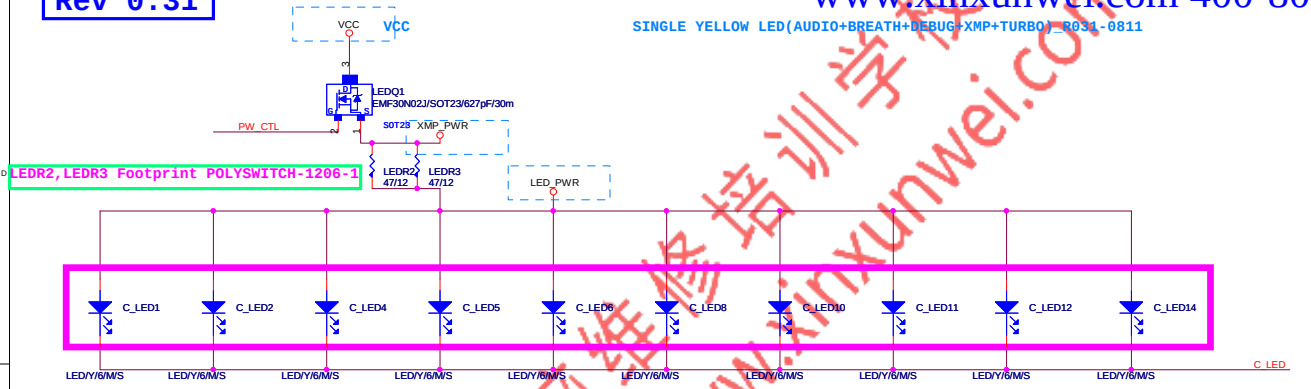


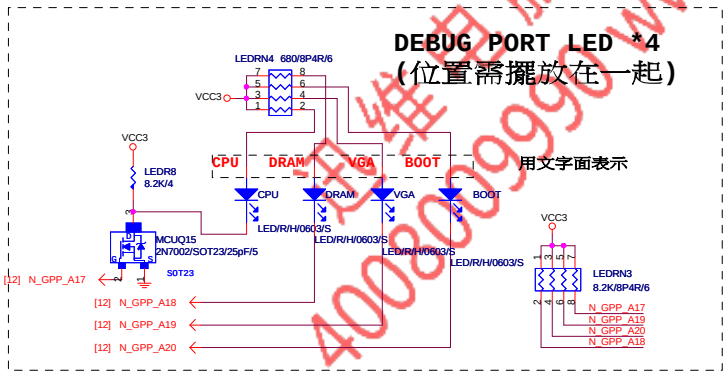
GIGABYTE™

Title: OC BUTTOM		
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 54 of 58	

Rev 0.31

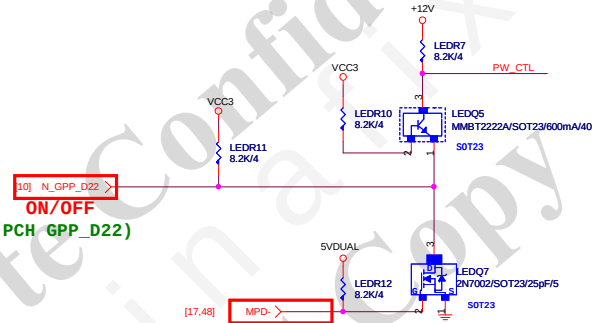
SINGLE YELLOW LED(AUDIO+BREATH+DEBUG+XMP+TURBO)_R031-0811

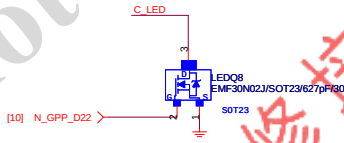


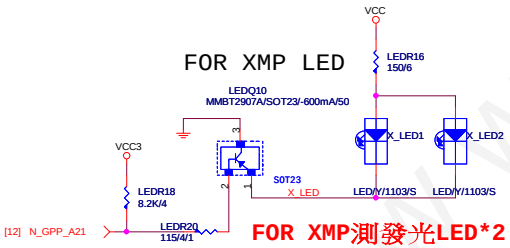


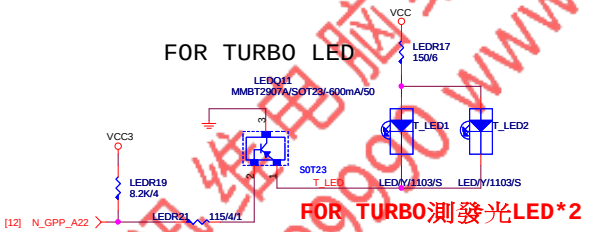
Ambient LED Control

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









GIGABYTE

Title	Audio / DEBUG LED	
Size: Custom	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 55 of 58	

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

[12,17,29,31] N_-S4_S5

*Del EMIC3

CLOSE PCH

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

[4,12] N_CPUPWROK

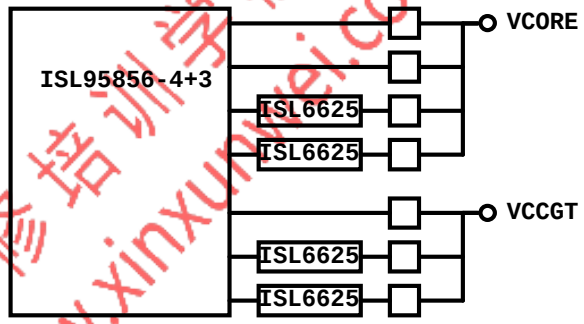
GIGABYTE™

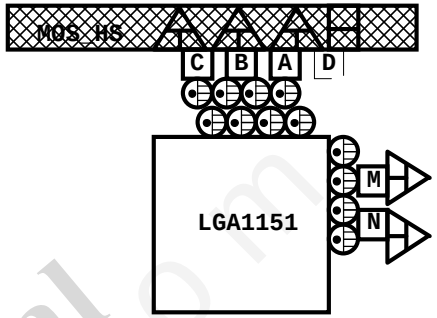
Title: EMI/ESD		
Size: A	Document Number: GA-H270-HD3	Rev: 1.0
Date: Tuesday, October 25, 2016	Sheet 56 of 58	

POWER BLOCK MAP

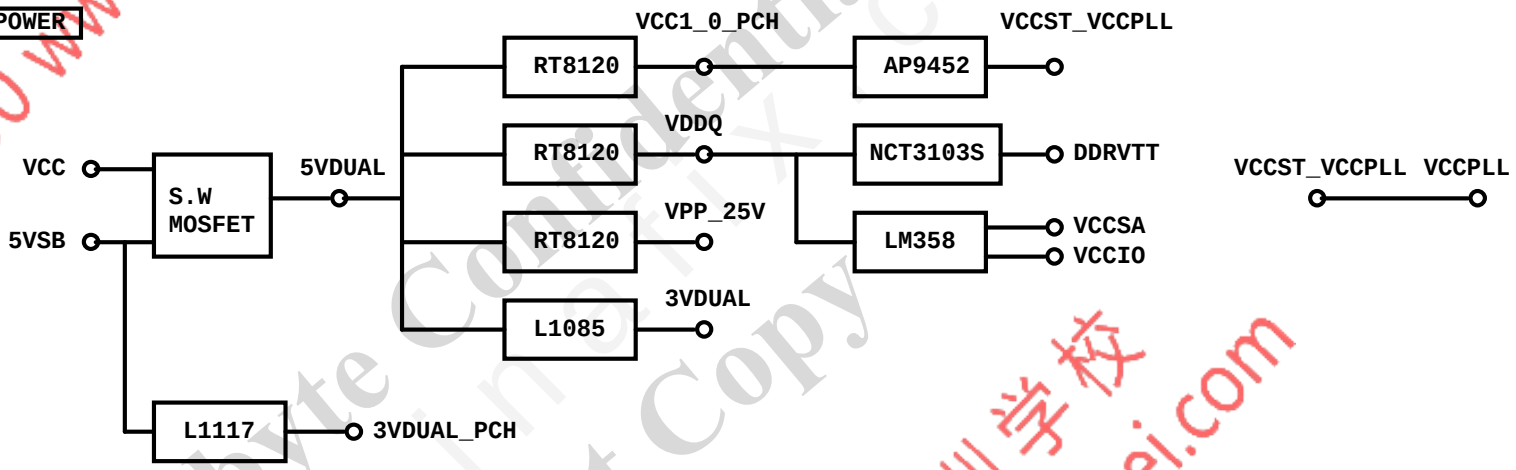
- CPU: VCORE, VCCGT, VCCSA, VCCIO, VDDQ, VCCST_VCCPLL, VCCSFUSEPRG, VCCPLL
- DDR4: VDDQ, DDRVTT, VPP_25V
- PCH: VCC1_0_PCH, VCC1_0_PCH_DSW, VCC10_VCCF24_1P0, VCC10_VCCAMPHYPLL, VCC10_VCCAPLL, VCC3_PCH, 3VDUAL_PCH, VCC3, N_RTCVDD
- IT8628: IT_VCCH, IT_AVCC, 2_5LEVEL
- HM: +12V, VCC, VCC3, VCORE, VCCGT,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

VCORE/VCCGT

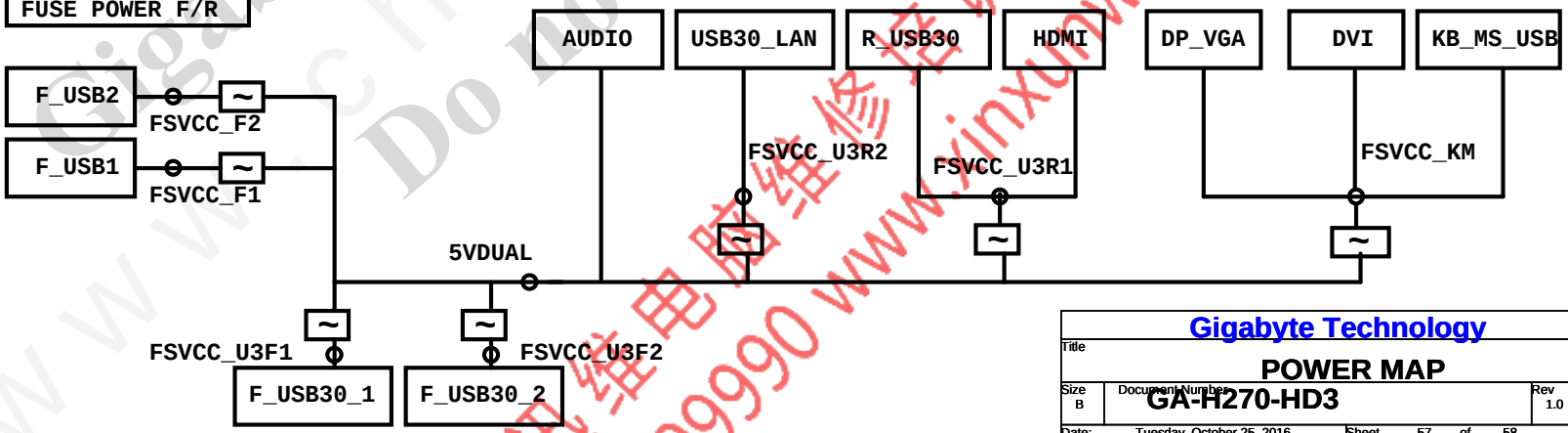




POWER



FUSE POWER F/R



Gigabyte Technology

Title: POWER MAP

Size: B | Document Number: GA-H270-HD3 | Rev: 1.0

Date: Tuesday, October 25, 2016 | Sheet 57 of 58

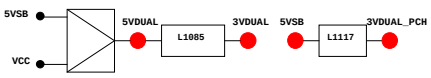
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER 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	N_GPP_B9	P/D GND
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_GPP_D7	N/A
GPP_D8	MAIN	H-Z	GPI	N_GPP_D8	N/A
GPP_D9	MAIN	H-Z	GPI	N_GPP_D9	P/U 1K VCC3
GPP_D10	MAIN	H-Z	GPI	N_GPP_D10	N/A
GPP_D13	MAIN	H-Z	GPI	N_GPP_D13	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_GPP_F6	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_GPP_G11	N/A
GPP_G12	MAIN	H-Z	GPI	N_GPP_G12	N/A
GPP_G13	MAIN	H-Z	GPI	N_GPP_G13	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	N_GPP_G22	P/U 8.2K VCC3
GPP_H0	MAIN	H-Z	GPI	M2A_-CLKREQ	P/U 8.2K VCC3
GPP_H12	MAIN		GPO	N_GPP_H12	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

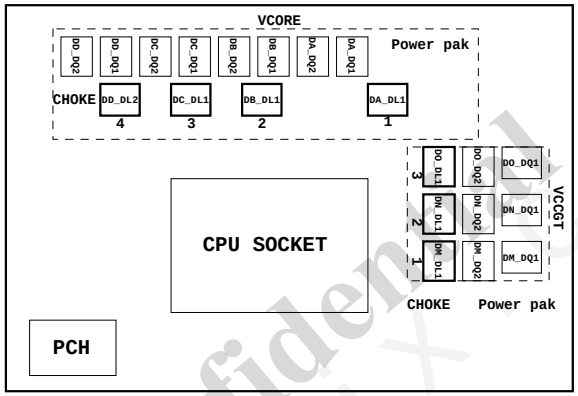
PIN NAME	PWR	AFTER PLTRST	Default	USAGE	NOTE
GPP_I3	MAIN	H-Z	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	H-Z	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	H-Z	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN		GPO	N_DDPB_CTRLDATA	P/U 2.2K VCC3
GPP_I7	MAIN	H-Z	GPI	N_DDPC_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN		GPO	N_DDPC_CTRLDATA	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#/GPI0/VDIMM_SIR_EN	N/A	
PCIRST2#/GPI1	O_-PCIE_RST	
PCIRST1#/GPI2	O_-PFMRST2	
SVC/PECI_RQT/GP14	N_-THRMTRIP	
SLP_SUS#/PCIRST1N#/CIRTX2/GP15	-PCIRSTIN	
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	
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
VCC1_0_PCH	PCH core
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Termination

散熱模組料號:

H270-HD3 :
TMOS
12SP2-S09425-B1R / B2R / B3R
PCH_HS
12SP2-S04207-81R / 82R / 83R

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

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Title: TABLE LIST

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