

Model Name: GA-Z270X-UD5
SHEET TITLE

Rev 1.01

SHEET

TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B_DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A 1,2
09	DDR4 CHANNEL B 1,2
10	PCH_RGB,CLK BUFFER
11	PCH DMI,USB,PCIE
12	PCH MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	PCH_GND
16	ITE 8686 LPC IO
17	HMW
18	FAN CTRL--SIO
19	PCI EXPRESS X16 SLOT
20	PCI EXPRESS X8 SLOT
21	PCI EXPRESS X16 SWITCH
22	PCI EXPRESS X4 SLOT
23	M2P_32G & PCIEX4 SWITCH
24	PCI EXPRESS X1 SLOTS (SATA1 SWITCH)
25	SATA
26	ISL95856 PWM
27	ISL95856 MOS_VCORE
28	ISL95856 MOS_VCCGT
29	VCCSA_VCCIO_VCCPLL
30	RT8120_DDR
31	RT8120_VPP
32	RT8120_PCH
33	DISCRETE POWER1
34	NCT3933
35	ATX POWER , A_-PROCHOT

36	KB_MS_USB
37	OC , ECO , POWER BUTTON
38	F_USB30
39	F_USB20
40	R_USB30, KB_MS_USB3
41-42	Realtek ALC1220
43	DUAL LAN-B~I219
44	DUAL LAN-C~I211
45	DUAL USB30_LAN-I219_I211
46	IDT6V41630_CLK BUFFER
47	SATA DOM,SGPIO
48	COM,TPM,THB
49	F_PANEL
50~55	DP_IN SWITCH ALPINE RIDGE
56	HDMI_CONN
57	N/A
58	M2M_32G
59	RT5411 4 PORT HUB
60	DVI_CONN
61	EMI-ESD
62	NTC MAP
63	POWER MAP
64	POWER 零件使用表
65	TABLE LIST
66	Dual BIOS
67	N/A
68	U.2
69	U2_S4~S5 SWITCH
70	FAN MAP
71	EC ITE8793
72	AUDIO/DEBUG/XMP LED
73	LAYOUT RULE
75	CPU POWER

Gigabyte Technology

Title		Cover Sheet		Rev
Size	Document Number	GA-Z270X-UD5		1.01
Date:	Thursday, November 24, 2016	Sheet 1 of 75		

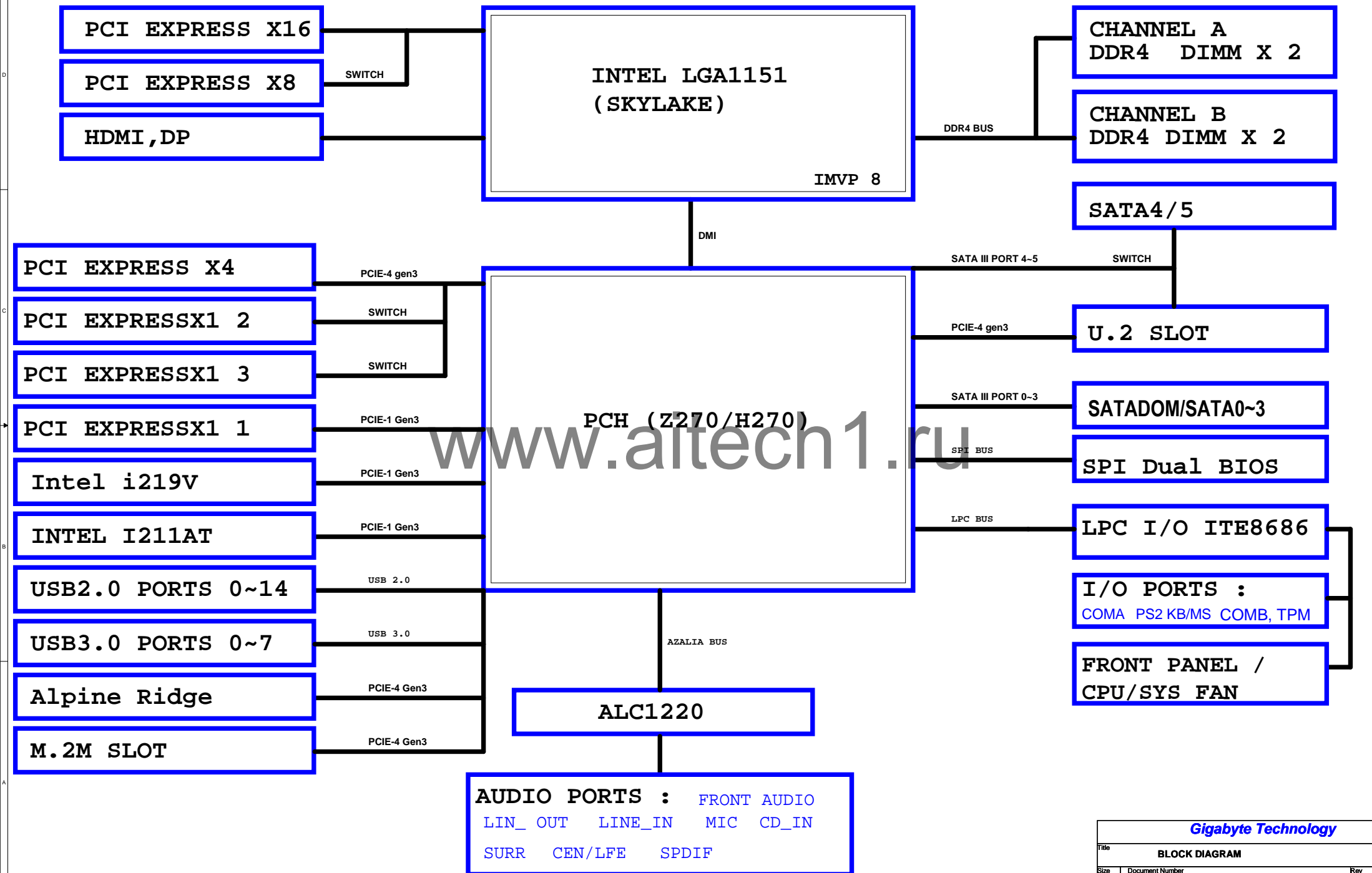
Component value change history

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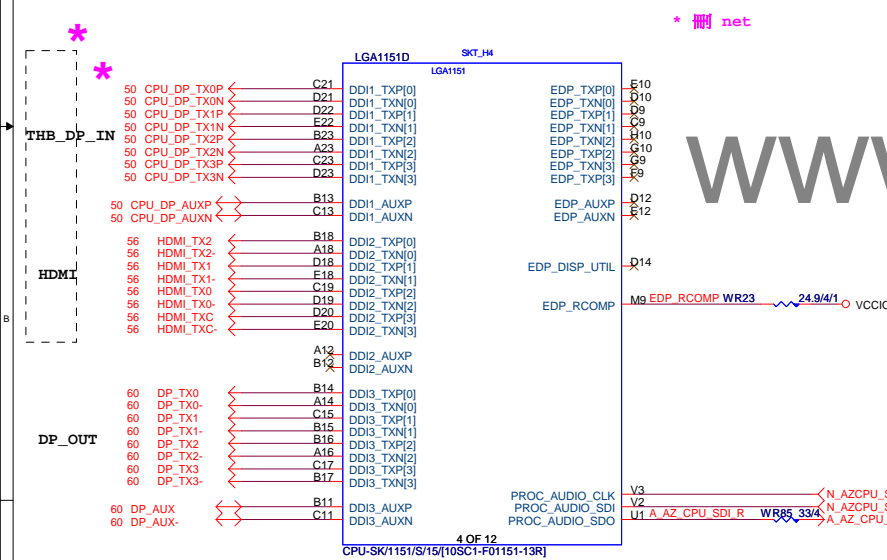
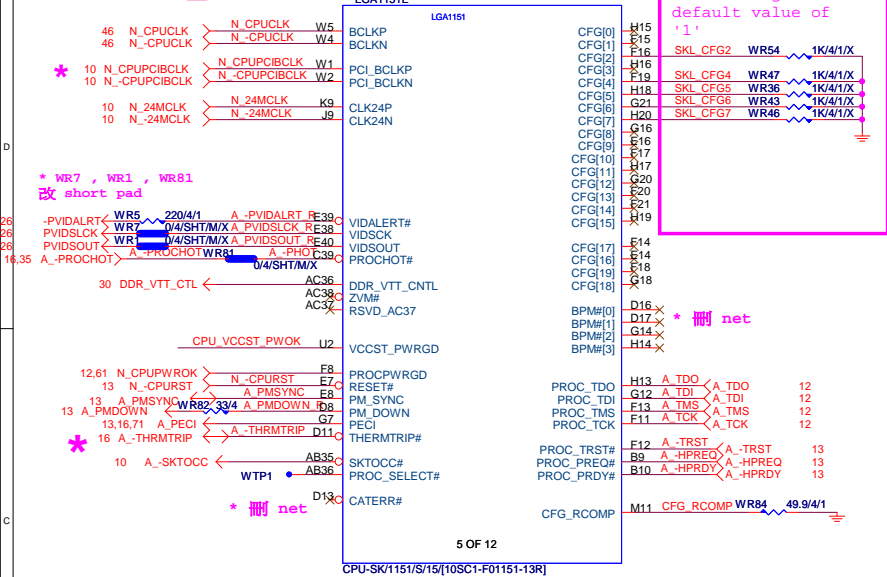
Circuit or PCB layout change

[illegible]

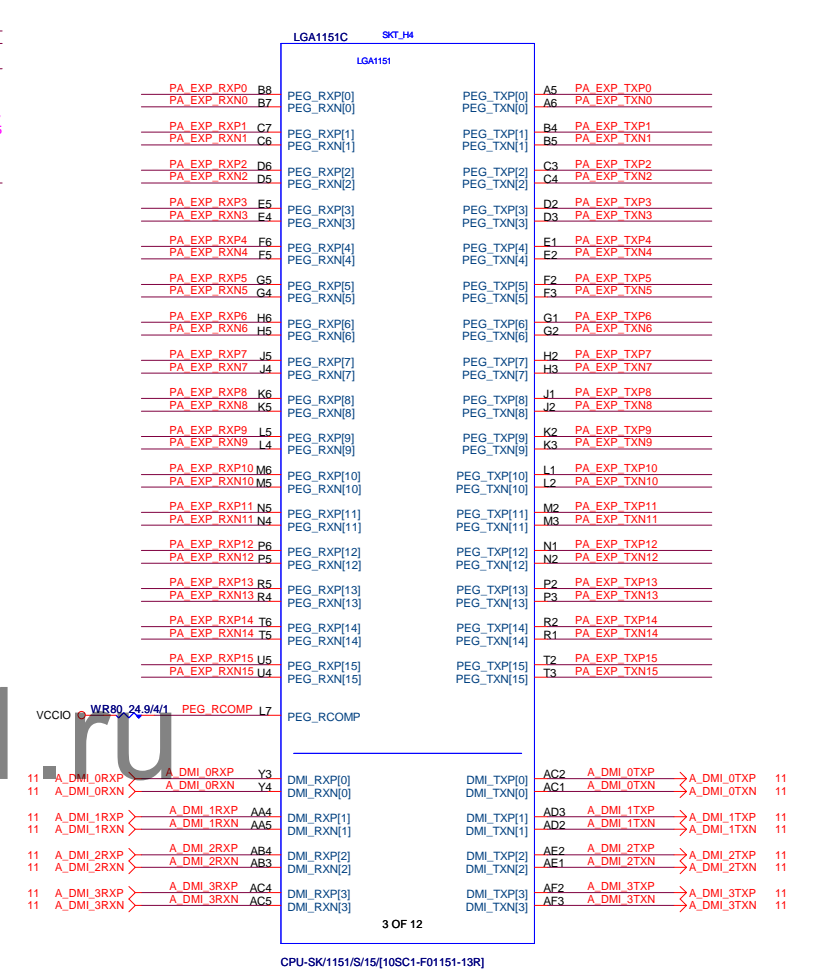
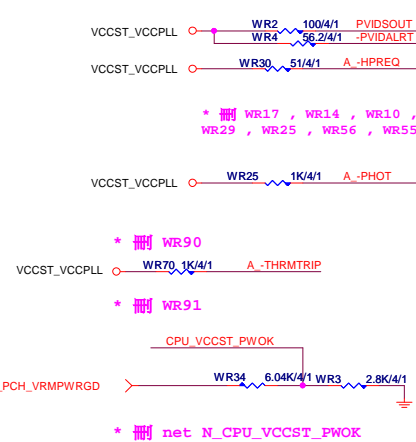
BLOCK DIAGRAM



From SKL_0.2B



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



```
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
```

20 -8X_EN ← WR37 MASK/0/4/SHT/X SKL_CFG5

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

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

LGA1151A

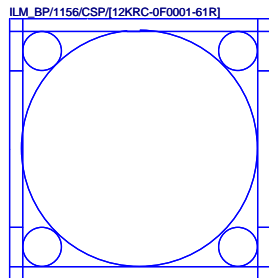
SKT_H4

LGA1151

MDA0 AE38	DDR0_DQ[0]	DDR0_CKP[0]	AW18 M_DCLKA0	M_DCLKA0	8
MDA1 AE37	DDR0_DQ[1]	DDR0_CKN[0]	AW18 M_DCLKA0	M_DCLKA0	8
MDA2 AG38	DDR0_DQ[2]	DDR0_CKP[1]	AW17 M_DCLKA1	M_DCLKA1	8
MDA3 AG37	DDR0_DQ[3]	DDR0_CKN[1]	AW17 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]	AW16 M_DCLKA2	M_DCLKA2	8
MDA6 AG39	DDR0_DQ[6]	DDR0_CKP[3]	AW16 M_DCLKA3	M_DCLKA3	8
MDA7 AG38	DDR0_DQ[7]	DDR0_CKN[3]	AW16 M_DCLKA3	M_DCLKA3	8
MDA8 AJ38	DDR0_DQ[8]				
MDA9 AJ37	DDR0_DQ[9]				
MDA10 AL38	DDR0_DQ[10]	DDR0_CKE[0]	AY24 CKEA0	CKEA0	8
MDA11 AL37	DDR0_DQ[11]	DDR0_CKE[1]	AY24 CKEA1	CKEA1	8
MDA12 AJ40	DDR0_DQ[12]	DDR0_CKE[2]	AY24 CKEA2	CKEA2	8
MDA13 AJ39	DDR0_DQ[13]	DDR0_CKE[3]	AY25 CKEA3	CKEA3	8
MDA14 AL39	DDR0_DQ[14]				
MDA15 AL40	DDR0_DQ[15]	DDR0_CS#0	AW12 M_CSA0	M_CSA0	8
MDA16 AN38	DDR0_DQ[16]	DDR0_CS#1	AW11 M_CSA1	M_CSA1	8
MDA17 AN40	DDR0_DQ[17]	DDR0_CS#2	AW13 M_CSA2	M_CSA2	8
MDA18 AR38	DDR0_DQ[18]	DDR0_CS#3	AW10 M_CSA3	M_CSA3	8
MDA19 AR37	DDR0_DQ[19]				
MDA20 AN39	DDR0_DQ[20]	DDR0_ODT[0]	AW11 MODT_A0	MODT_A0	8
MDA21 AN37	DDR0_DQ[21]	DDR0_ODT[1]	AW14 MODT_A1	MODT_A1	8
MDA22 AR40	DDR0_DQ[22]	DDR0_ODT[2]	AW12 MODT_A2	MODT_A2	8
MDA23 AR40	DDR0_DQ[23]	DDR0_ODT[3]	AW10 MODT_A3	MODT_A3	8
MDA24 AW37	DDR0_DQ[24]				
MDA25 AW38	DDR0_DQ[25]	DDR0_BA[0]	AY13 SBA00	SBA00	8
MDA26 AV35	DDR0_DQ[26]	DDR0_BA[1]	AY15 SBA01	SBA01	8
MDA27 AW35	DDR0_DQ[27]	DDR0_BA[2]	AW23 BG_A0	BG_A0	8
MDA28 AJ37	DDR0_DQ[28]	DDR0_BA[3]			
MDA29 AT35	DDR0_DQ[29]	DDR0_CAS#0	AW13 MAA00	MAA00	8
MDA30 AT35	DDR0_DQ[30]	DDR0_CAS#1	AW14 MAA01	MAA01	8
MDA31 AU35	DDR0_DQ[31]	DDR0_CAS#2	AW11 MAA05	MAA05	8
MDA32 AY8	DDR0_DQ[32]	DDR0_CAS#3			
MDA33 AW8	DDR0_DQ[33]	DDR0_MA[0]	AW15 MAAA0	MAAA0	8
MDA34 AV6	DDR0_DQ[34]	DDR0_MA[1]	AW18 MAAA1	MAAA1	8
MDA35 AU6	DDR0_DQ[35]	DDR0_MA[2]	AW17 MAAA2	MAAA2	8
MDA36 AU8	DDR0_DQ[36]	DDR0_MA[3]	AW19 MAAA3	MAAA3	8
MDA37 AV8	DDR0_DQ[37]	DDR0_MA[4]	AT19 MAAA4	MAAA4	8
MDA38 AW6	DDR0_DQ[38]	DDR0_MA[5]	AW20 MAAA5	MAAA5	8
MDA39 AV6	DDR0_DQ[39]	DDR0_MA[6]	AW21 MAAA6	MAAA6	8
MDA40 AY4	DDR0_DQ[40]	DDR0_MA[7]	AT20 MAAA7	MAAA7	8
MDA41 AV4	DDR0_DQ[41]	DDR0_MA[8]	AT22 MAAA9	MAAA9	8
MDA42 AT1	DDR0_DQ[42]	DDR0_MA[9]	AW14 MAAA10	MAAA10	8
MDA43 AT2	DDR0_DQ[43]	DDR0_MA[10]	AW22 MAAA11	MAAA11	8
MDA44 AV3	DDR0_DQ[44]	DDR0_MA[11]	AW22 MAAA12	MAAA12	8
MDA45 AW4	DDR0_DQ[45]	DDR0_MA[12]	AW12 MAAA13	MAAA13	8
MDA46 AT3	DDR0_DQ[46]	DDR0_MA[13]	AT23 BG_A1	BG_A1	8
MDA47 AT3	DDR0_DQ[47]	DDR0_MA[14]	AW24 M-AACT_A	M-AACT_A	8
MDA48 AP2	DDR0_DQ[48]	DDR0_MA[15]			
MDA49 AM4	DDR0_DQ[49]	DDR0_PAR	AY15 M_DDR_PARA	M_DDR_PARA	8
MDA50 AP3	DDR0_DQ[50]	DDR0_ALERT#	AT23 M_ALERT_A	M_ALERT_A	8
MDA51 AM3	DDR0_DQ[51]				
MDA52 AP4	DDR0_DQ[52]	DDR0_DQSN[0]	AF38 M_DQSA0	M_DQSA0	8
MDA53 AM2	DDR0_DQ[53]	DDR0_DQSN[1]	AK38 M_DQSA1	M_DQSA1	8
MDA54 AP1	DDR0_DQ[54]	DDR0_DQSN[2]	AP39 M_DQSA2	M_DQSA2	8
MDA55 AM1	DDR0_DQ[55]	DDR0_DQSN[3]	AP39 M_DQSA3	M_DQSA3	8
MDA56 AK3	DDR0_DQ[56]	DDR0_DQSN[4]	AW36 M_DQSA4	M_DQSA4	8
MDA57 AK4	DDR0_DQ[57]	DDR0_DQSN[5]	AW7 M_DQSA5	M_DQSA5	8
MDA58 AH2	DDR0_DQ[58]	DDR0_DQSN[6]	AJ3 M_DQSA6	M_DQSA6	8
MDA59 AH2	DDR0_DQ[59]	DDR0_DQSN[7]	AJ3 M_DQSA7	M_DQSA7	8
MDA60 AH4	DDR0_DQ[60]				
MDA61 AK2	DDR0_DQ[61]	DDR0_DQSP[0]	AF38 M_DQSA0	M_DQSA0	8
MDA62 AH3	DDR0_DQ[62]	DDR0_DQSP[1]	AK38 M_DQSA1	M_DQSA1	8
MDA63 AK1	DDR0_DQ[63]	DDR0_DQSP[2]	AP38 M_DQSA2	M_DQSA2	8
		DDR0_DQSP[3]	AP36 M_DQSA3	M_DQSA3	8
		DDR0_DQSP[4]	AW7 M_DQSA4	M_DQSA4	8
		DDR0_DQSP[5]	AJ2 M_DQSA5	M_DQSA5	8
		DDR0_DQSP[6]			
		DDR0_DQSP[7]			
MDA ECC0 AU33	DDR0_ECC[0]	DDR0_DQSP[8]	AV32 M_DQSA8	M_DQSA8	8
MDA ECC1 AT33	DDR0_ECC[1]	DDR0_DQSP[9]	AJ32 M_DQSA8	M_DQSA8	8
MDA ECC2 AW33	DDR0_ECC[2]				
MDA ECC3 AV31	DDR0_ECC[3]				
MDA ECC4 AU31	DDR0_ECC[4]				
MDA ECC5 AV33	DDR0_ECC[5]				
MDA ECC6 AW31	DDR0_ECC[6]				
MDA ECC7 AY31	DDR0_ECC[7]				

1 OF 12

CPU-SK/1151/S/15[10SC1-F01151-13R]



Need check the new CPU ME

LGA1151B

SKT_H4

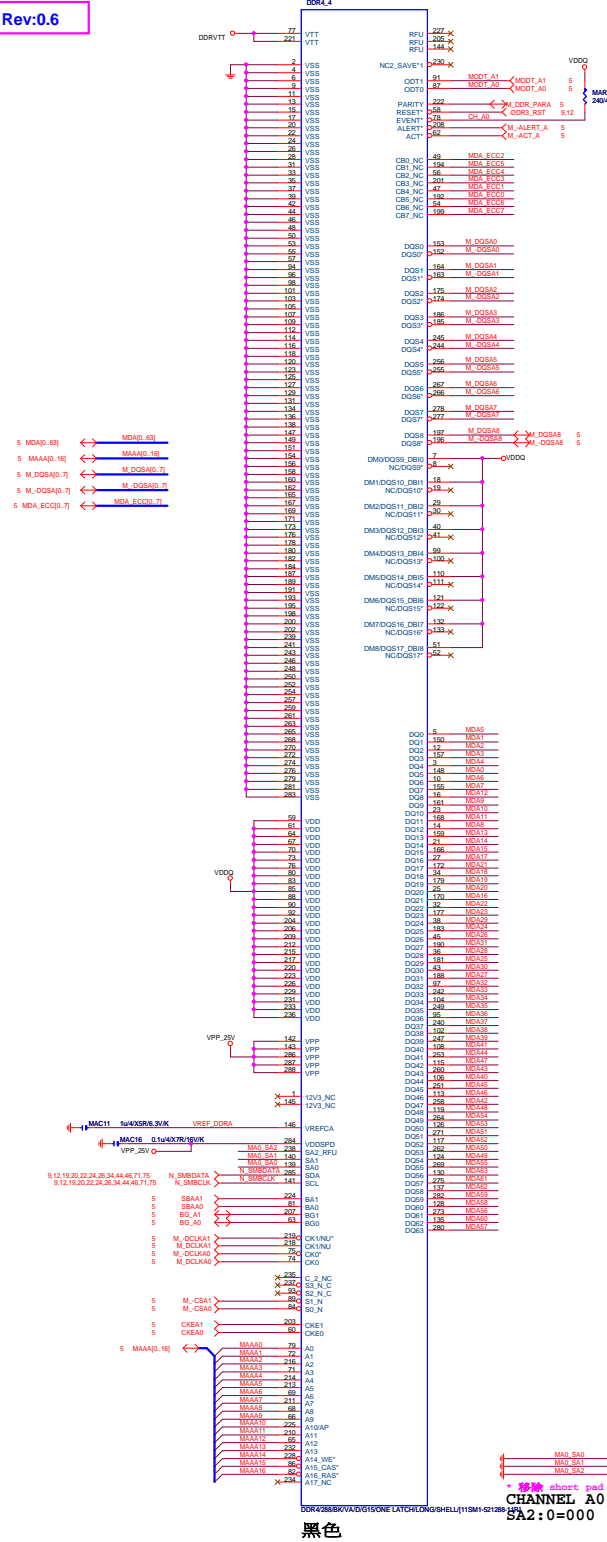
LGA1151

MDB0 AD34	DDR1_DQ[0]	DDR1_CKP[0]	AM20 M_DCLKB0	M_DCLKB0	9
MDB1 AD35	DDR1_DQ[1]	DDR1_CKN[0]	AM21 M_DCLKB0	M_DCLKB0	9
MDB2 AG35	DDR1_DQ[2]	DDR1_CKP[1]	AP22 M_DCLKB1	M_DCLKB1	9
MDB3 AH35	DDR1_DQ[3]	DDR1_CKN[1]	AP21 M_DCLKB1	M_DCLKB1	9
MDB4 AE35	DDR1_DQ[4]	DDR1_CKP[2]	AN20 M_DCLKB2	M_DCLKB2	9
MDB5 AE34	DDR1_DQ[5]	DDR1_CKN[2]	AN21 M_DCLKB3	M_DCLKB3	9
MDB6 AH34	DDR1_DQ[6]	DDR1_CKP[3]	AP20 M_DCLKB3	M_DCLKB3	9
MDB7 AH34	DDR1_DQ[7]	DDR1_CKN[3]			
MDB8 AK35	DDR1_DQ[8]				
MDB9 AL35	DDR1_DQ[9]	DDR1_CKE[0]	AY29 CKEB0	CKEB0	9
MDB10 AK32	DDR1_DQ[10]	DDR1_CKE[1]	AY29 CKEB1	CKEB1	9
MDB11 AL32	DDR1_DQ[11]	DDR1_CKE[2]	AY29 CKEB2	CKEB2	9
MDB12 AK34	DDR1_DQ[12]	DDR1_CKE[3]	AY29 CKEB3	CKEB3	9
MDB13 AL34	DDR1_DQ[13]				
MDB14 AK31	DDR1_DQ[14]	DDR1_CS#0	AP17 M_CSB0	M_CSB0	9
MDB15 AL31	DDR1_DQ[15]	DDR1_CS#1	AN15 M_CSB1	M_CSB1	9
MDB16 AP35	DDR1_DQ[16]	DDR1_CS#2	AN17 M_CSB2	M_CSB2	9
MDB17 AN35	DDR1_DQ[17]	DDR1_CS#3	AN15 M_CSB3	M_CSB3	9
MDB18 AN32	DDR1_DQ[18]				
MDB19 AP32	DDR1_DQ[19]	DDR1_ODT[0]	AM16 MODT_B0	MODT_B0	8
MDB20 AN34	DDR1_DQ[20]	DDR1_ODT[1]	AL16 MODT_B1	MODT_B1	8
MDB21 AP34	DDR1_DQ[21]	DDR1_ODT[2]	AP15 MODT_B2	MODT_B2	8
MDB22 AN31	DDR1_DQ[22]	DDR1_ODT[3]	AL15 MODT_B3	MODT_B3	8
MDB23 AP31	DDR1_DQ[23]				
MDB24 AL29	DDR1_DQ[24]	DDR1_RAS#/DDR1_CAB[3]	AN18 MAAB16	MAAB16	8
MDB25 AM29	DDR1_DQ[25]	DDR1_WE#/DDR1_CAB[2]	AL17 MAAB17	MAAB17	8
MDB26 AP29	DDR1_DQ[26]	DDR1_CAS#/DDR1_CAB[1]	AP16 MAAB15	MAAB15	8
MDB27 AR29	DDR1_DQ[27]				
MDB28 AM28	DDR1_DQ[28]	DDR1_BA[0]	AL18 SBA00	SBA00	9
MDB29 AL28	DDR1_DQ[29]	DDR1_BA[1]	AM18 SBA01	SBA01	9
MDB30 AR28	DDR1_DQ[30]	DDR1_BA[2]	BG_B0	BG_B0	9
MDB31 AP28	DDR1_DQ[31]	DDR1_BA[3]			
MDB32 AR12	DDR1_DQ[32]	DDR1_MA[0]	AW19 MAAB0	MAAB0	8
MDB33 AP12	DDR1_DQ[33]	DDR1_MA[1]	AL22 MAAB1	MAAB1	8
MDB34 AM13	DDR1_DQ[34]	DDR1_MA[2]	AM22 MAAB2	MAAB2	8
MDB35 AR13	DDR1_DQ[35]	DDR1_MA[3]	AM23 MAAB3	MAAB3	8
MDB37 AP13	DDR1_DQ[36]	DDR1_MA[4]	AP23 MAAB4	MAAB4	8
MDB38 AM12	DDR1_DQ[37]	DDR1_MA[5]	AL23 MAAB5	MAAB5	8
MDB39 AP10	DDR1_DQ[38]	DDR1_MA[6]	AW26 MAAB6	MAAB6	8
MDB40 AR10	DDR1_DQ[39]	DDR1_MA[7]	AY26 MAAB7	MAAB7	8
MDB41 AR10	DDR1_DQ[40]	DDR1_MA[8]	AY26 MAAB8	MAAB8	8
MDB42 AR7	DDR1_DQ[41]	DDR1_MA[9]	AW27 MAAB9	MAAB9	8
MDB43 AP7	DDR1_DQ[42]	DDR1_MA[10]	AP18 MAAB10	MAAB10	8
MDB44 AR9	DDR1_DQ[43]	DDR1_MA[11]	AL27 MAAB11	MAAB11	8
MDB45 AP9	DDR1_DQ[44]	DDR1_MA[12]	AY27 MAAB12	MAAB12	8
MDB46 AR6	DDR1_DQ[45]	DDR1_MA[13]	AL25 MAAB13	MAAB13	8
MDB47 AP6	DDR1_DQ[46]	DDR1_MA[14]	AY28 BG_B1	BG_B1	9
MDB48 AM10	DDR1_DQ[47]	DDR1_MA[15]	AL28 M-AACT_B	M-AACT_B	9
MDB49 AL10	DDR1_DQ[48]				
MDB50 AM7	DDR1_DQ[49]	DDR1_PAR	AL20 M_DDR_PARB	M_DDR_PARB	9
MDB51 AL7	DDR1_DQ[50]	DDR1_ALERT#	AY25 M_ALERT_B	M_ALERT_B	9
MDB52 AM9	DDR1_DQ[51]				
MDB53 AL9	DDR1_DQ[52]	DDR1_DQSN[0]	AF34 M_DQSB0	M_DQSB0	8
MDB54 AM6	DDR1_DQ[53]	DDR1_DQSN[1]	AK33 M_DQSB1	M_DQSB1	8
MDB55 AL6	DDR1_DQ[54]	DDR1_DQSN[2]	AN33 M_DQSB2	M_DQSB2	8
MDB56 AJ6	DDR1_DQ[55]	DDR1_DQSN[3]	AN29 M_DQSB3	M_DQSB3	8
MDB57 AJ7	DDR1_DQ[56]	DDR1_DQSN[4]	AL13 M_DQSB4	M_DQSB4	8
MDB58 AE6	DDR1_DQ[57]	DDR1_DQSN[5]	AR8 M_DQSB5	M_DQSB5	8
MDB59 AF7	DDR1_DQ[58]	DDR1_DQSN[6]	AM8 M_DQSB6	M_DQSB6	8
MDB60 AH7	DDR1_DQ[59]	DDR1_DQSN[7]	AG6 M_DQSB7	M_DQSB7	8
MDB61 AH6	DDR1_DQ[60]				
MDB62 AE7	DDR1_DQ[61]	DDR1_DQSP[0]	AF35 M_DQSB0	M_DQSB0	8
MDB63 AF6	DDR1_DQ[62]	DDR1_DQSP[1]	AL33 M_DQSB1	M_DQSB1	8
	DDR1_DQ[63]	DDR1_DQSP[2]	AP33 M_DQSB2	M_DQSB2	8
MDB ECC0 AR25	DDR1_ECC[0]	DDR1_DQSP[3]	AN28 M_DQSB3	M_DQSB3	8
MDB ECC1 AR26	DDR1_ECC[1]	DDR1_DQSP[4]	AN12 M_DQSB4	M_DQSB4	8
MDB ECC2 AM26	DDR1_ECC[2]	DDR1_DQSP[5]	AP8 M_DQSB5	M_DQSB5	8
MDB ECC3 AM25	DDR1_ECC[3]	DDR1_DQSP[6]	AL8 M_DQSB6	M_DQSB6	8
MDB ECC4 AP28	DDR1_ECC[4]	DDR1_DQSP[7]	AG7 M_DQSB7	M_DQSB7	8
MDB ECC5 AP25	DDR1_ECC[5]				
MDB ECC6 AL25	DDR1_ECC[6]	DDR1_DQSP[8]	AN25 M_DQSB8	M_DQSB8	9
MDB ECC7 AL26	DDR1_ECC[7]	DDR1_DQSN[8]	AN26 M_DQSB8	M_DQSB8	9

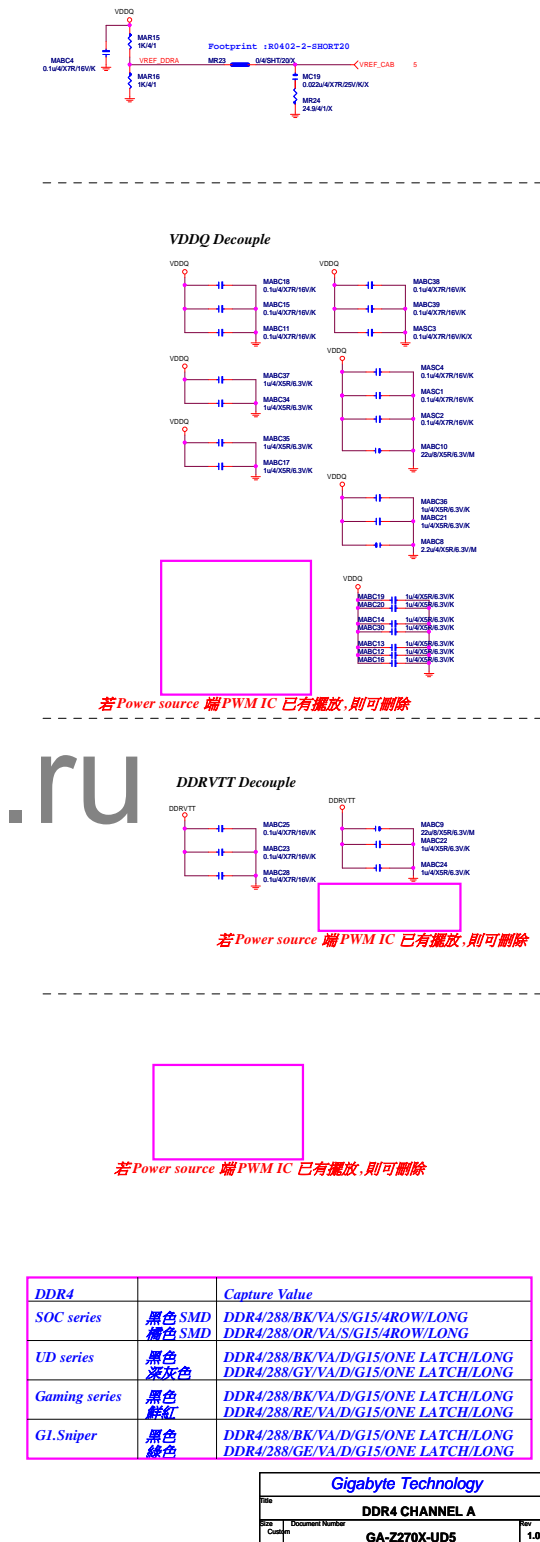
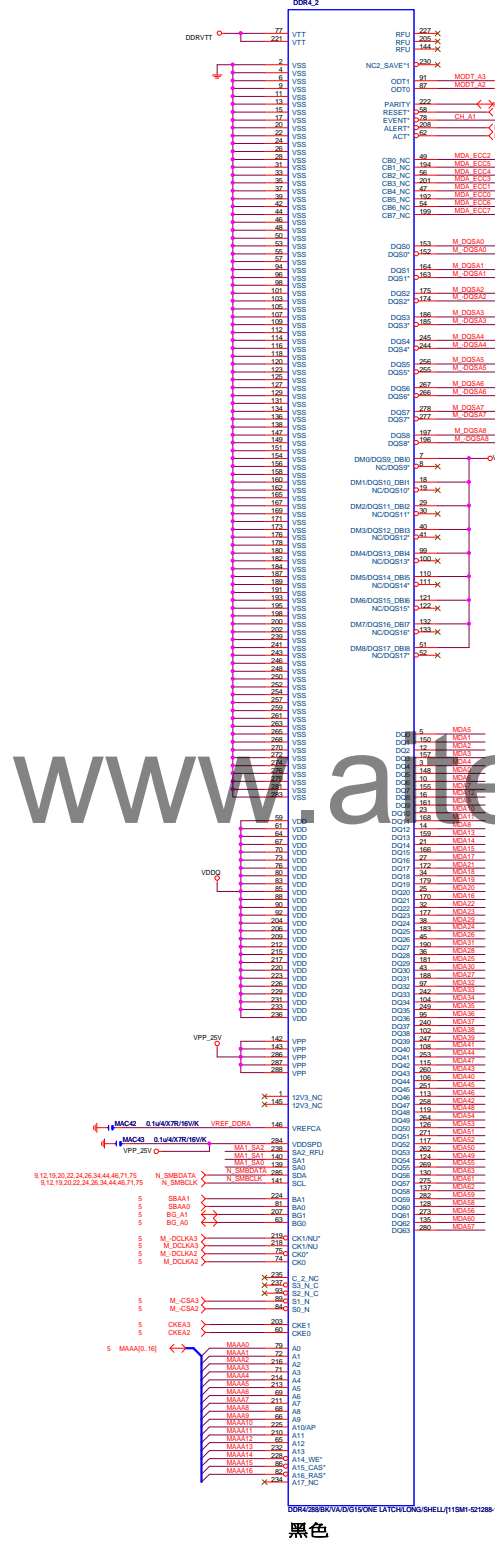
2 OF 12

CPU-SK/1151/S/15[10SC1-F01151-13R]

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]

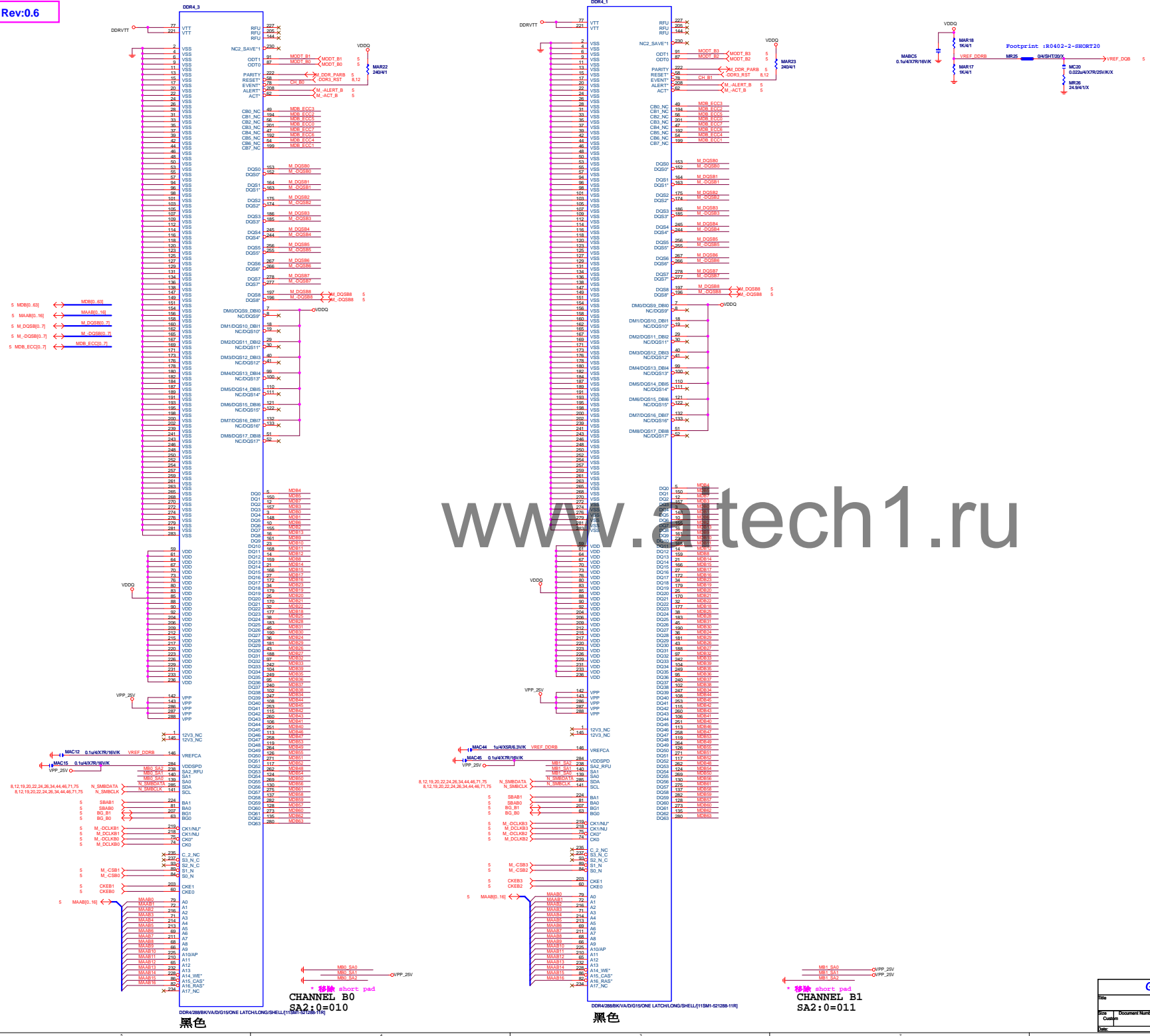


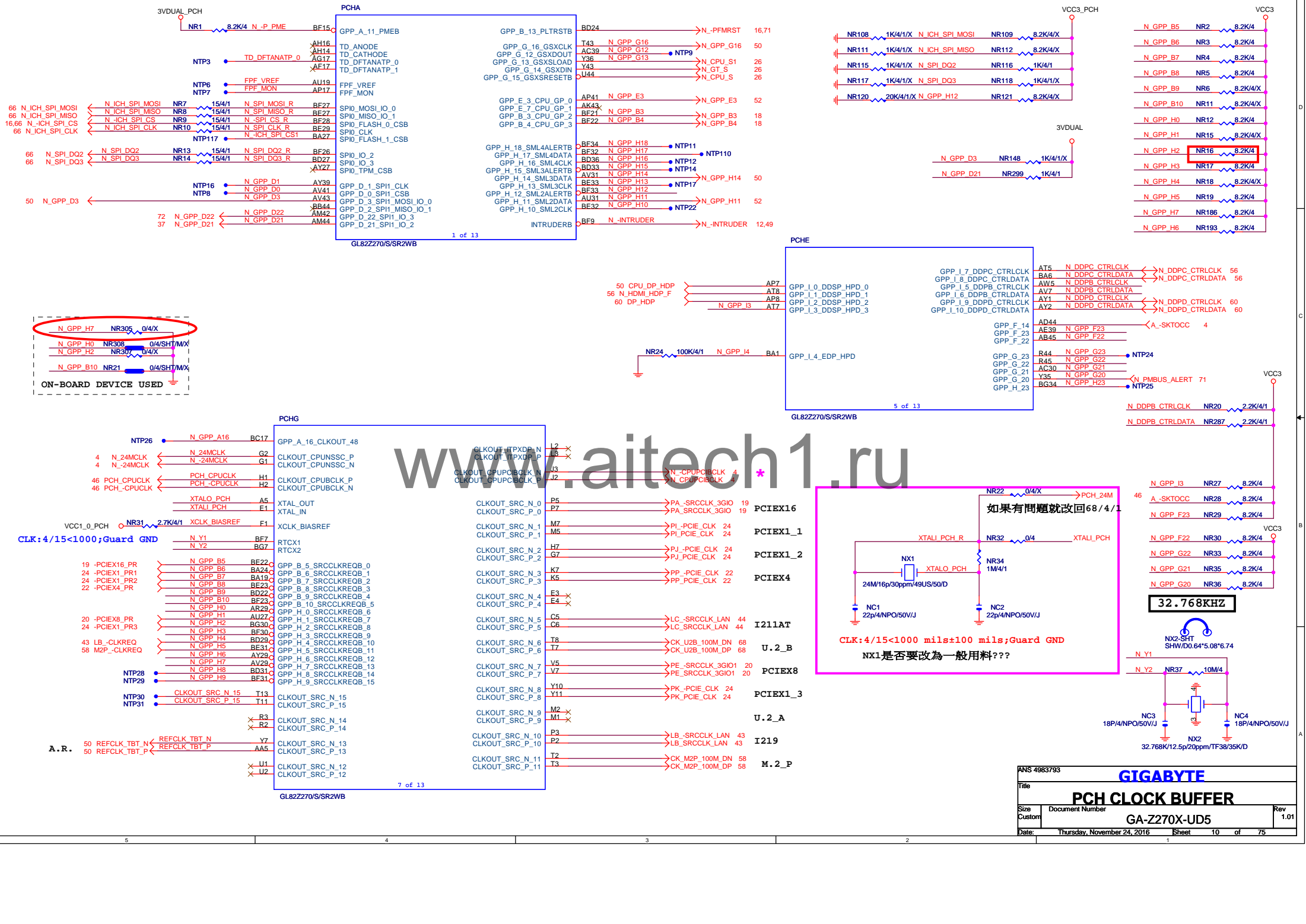
www.aitech1.ru



DDR4	Capture Value
SOC series	DDR4/288/BK/VA/S/G15/4ROW/LONG
UD series	DDR4/288/OR/VA/S/G15/4ROW/LONG
Gaming series	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG
Gl.Sniper	DDR4/288/RE/VA/D/G15/ONE LATCH/LONG

DDR4	Channel A0
UD series	DDR4/288/BK/VA/D/G15/ONE LATCH/LONG
Gaming series	DDR4/288/OR/VA/S/G15/4ROW/LONG
Gl.Sniper	DDR4/288/RE/VA/D/G15/ONE LATCH/LONG





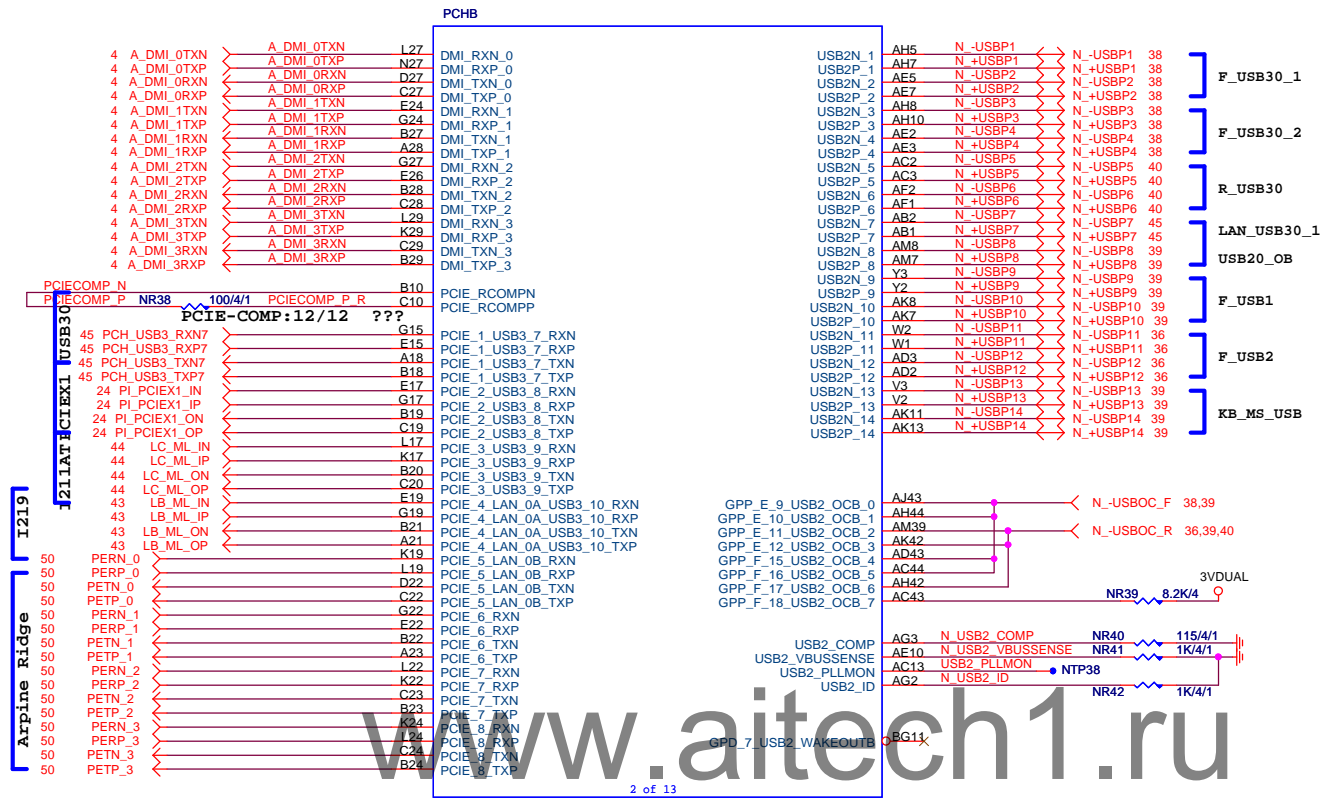
www.aitech1.ru

如果有問題就改回68/4/1

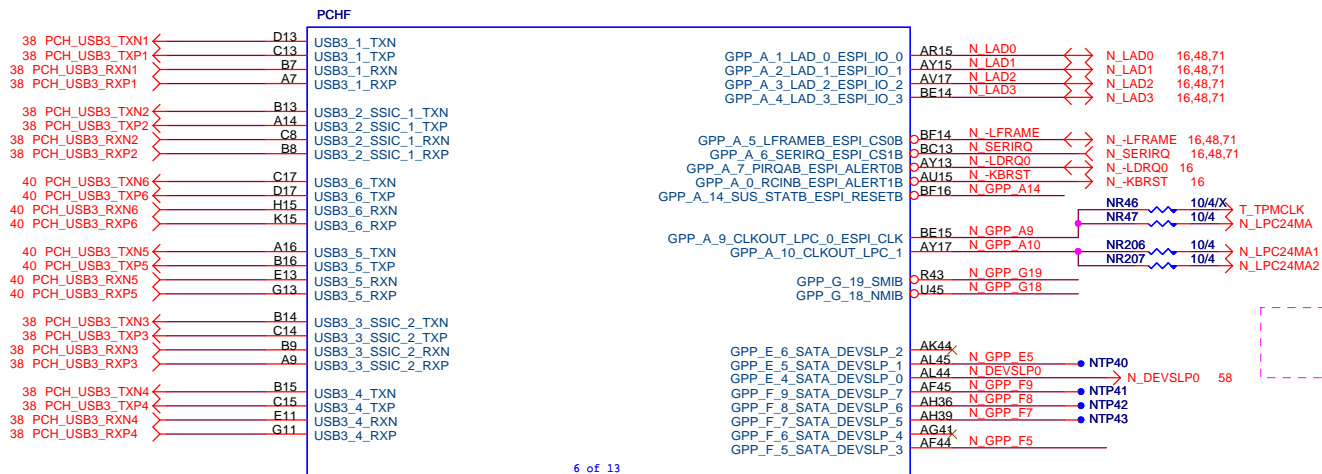
CLK:4/15<1000 mils±100 mils;Guard GND

NX1是否要改為一般用料???

ANS 4983793			GIGABYTE	
Title			PCH CLOCK BUFFER	
Size			Document Number	
Custom			GA-Z270X-UD5	
Date:			Thursday, November 24, 2016	Sheet 10 of 75



GL82Z270/S/SR2WB



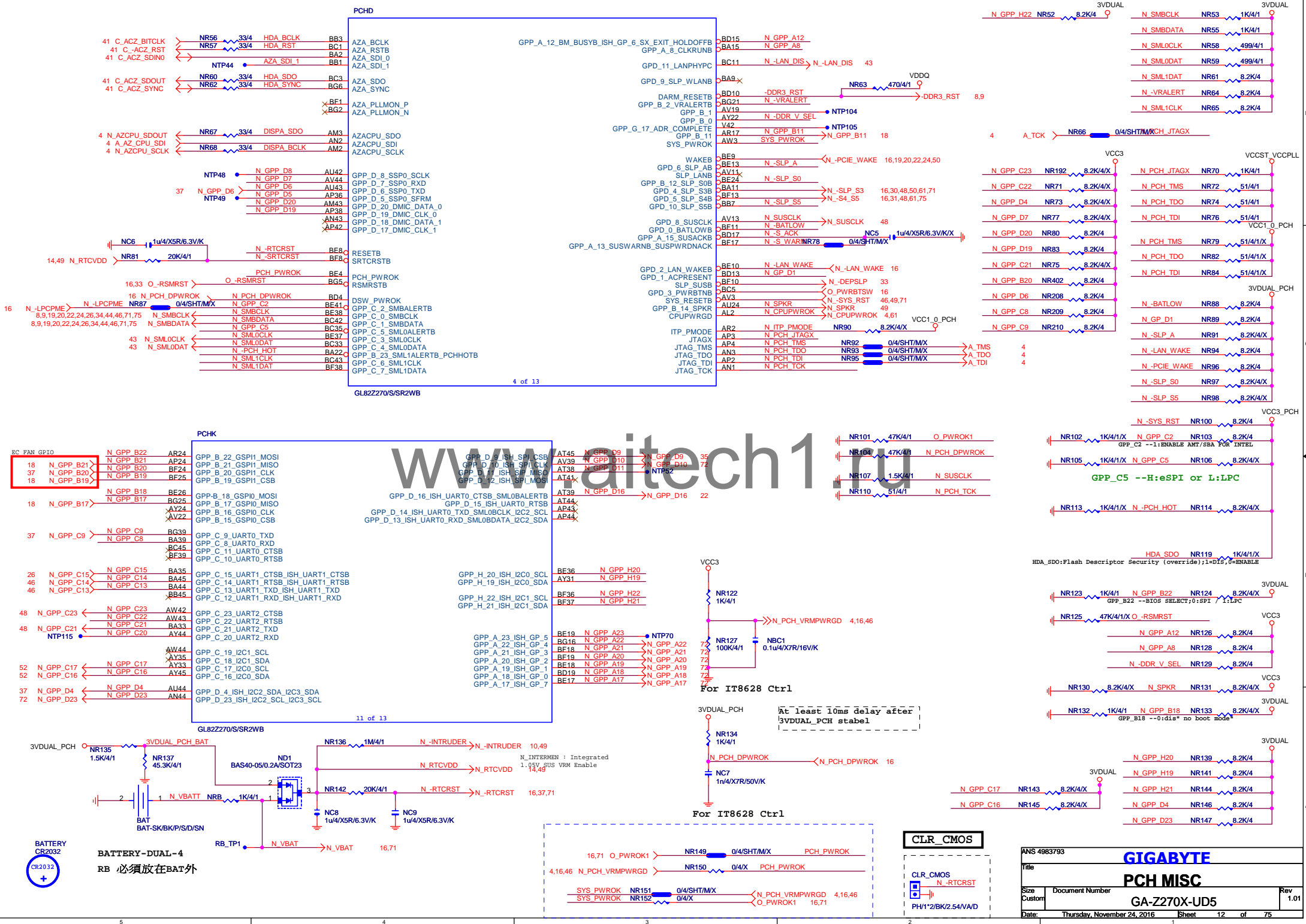
6 of 13

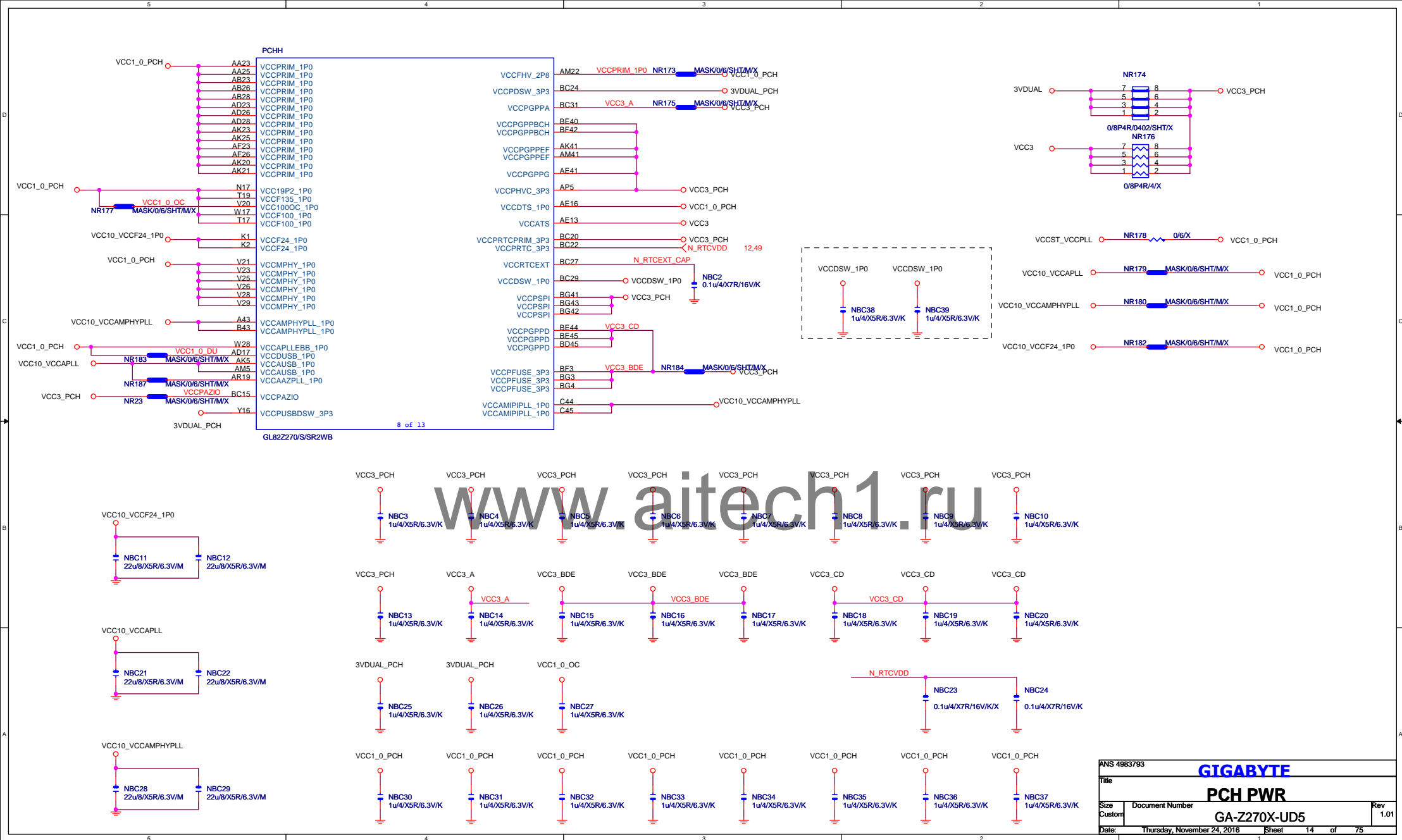
GL82Z270/S/SR2WB

ANS 4983793

GIGABYTE

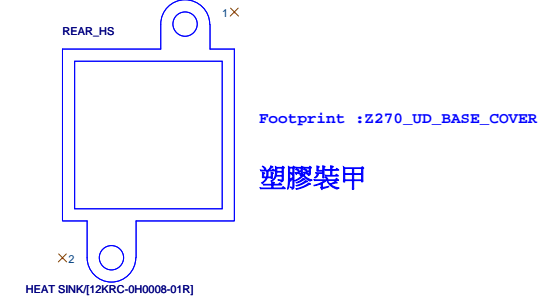
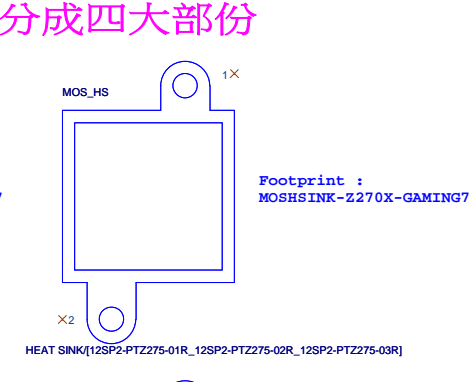
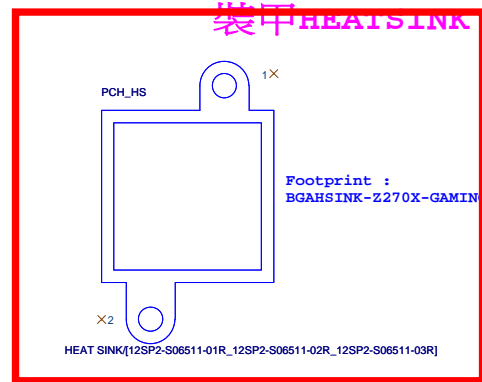
Title		PCH DMI,USB,PCIE	
Size	Custom	Document Number	GA-Z270X-UD5
Date:	Thursday, November 24, 2016	Sheet	11 of 75



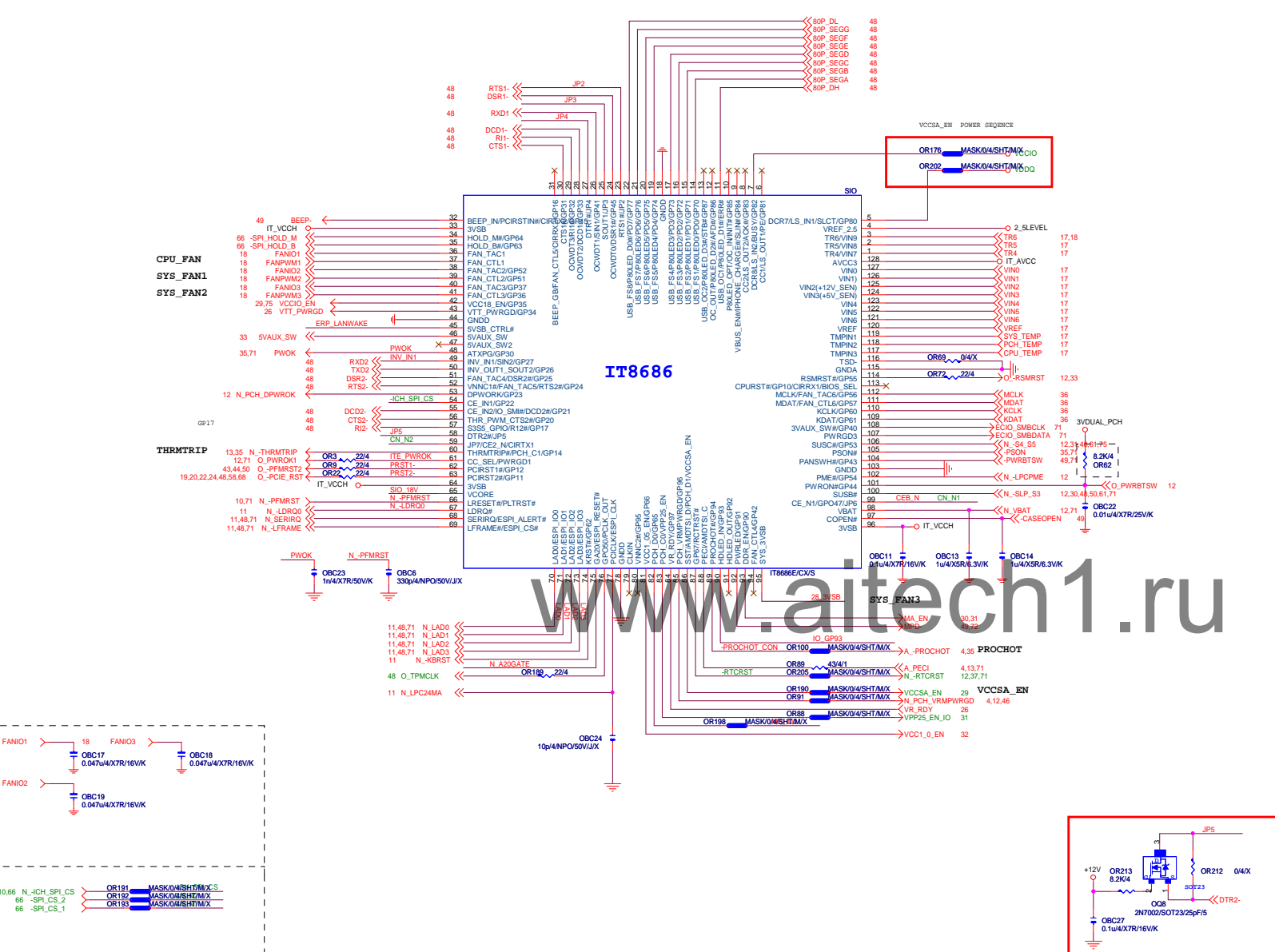


PCHL		
A25	VSS	A42
A30	VSS	D45
P22	VSS	BG44
AV38	VSS	BE2
AV45	VSS	BF43
AV8	VSS	BF2
AY11	VSS	W29
AY19	VSS	A35
AY37	VSS	AG23
AY4	VSS	AG28
AY42	VSS	AG32
AY8	VSS	AG37
B25	VSS	AG40
B3	VSS	AG9
B30	VSS	AG1
B35	VSS	AA21
B4	VSS	AA26
B41	VSS	AA28
BA13	VSS	AA29
BA17	VSS	AA17
BA29	VSS	AA20
BA31	VSS	AA1
BA37	VSS	AA17
BA4	VSS	AA20
BA42	VSS	AA1
BA40	VSS	AA26
BC38	VSS	AA28
BC40	VSS	AA29
BC9	VSS	AA17
BD11	VSS	AA20
BD16	VSS	AA1
BD2	VSS	AA17
BD21	VSS	AA20
BD25	VSS	AA1
F2	VSS	AA26
F31	VSS	AA28
F3	VSS	AA29
F6	VSS	AA17
F8	VSS	AA20
F39	VSS	AA1
F43	VSS	AA17
G4	VSS	AA20
G40	VSS	AA1
G42	VSS	AA26
F6	VSS	AA28
G9	VSS	AA29
H11	VSS	AA17
H13	VSS	AA20
H17	VSS	AA1
H19	VSS	AA17
H22	VSS	AA20
H24	VSS	AA1
H27	VSS	AA26
H29	VSS	AA28
H33	VSS	AA29
H35	VSS	AA17
H38	VSS	AA20
H4	VSS	AA1
H42	VSS	AA17
H9	VSS	AA20
J4	VSS	AA1
M36	VSS	AA26
M4	VSS	AA28
M8	VSS	AA29
M9	VSS	AA17
N13	VSS	AA20
N15	VSS	AA1
N19	VSS	AA17
N22	VSS	AA20
N24	VSS	AA1
N31	VSS	AA26
N42	VSS	AA28
P10	VSS	AA29
P12	VSS	AA17
AV35	VSS	AA20

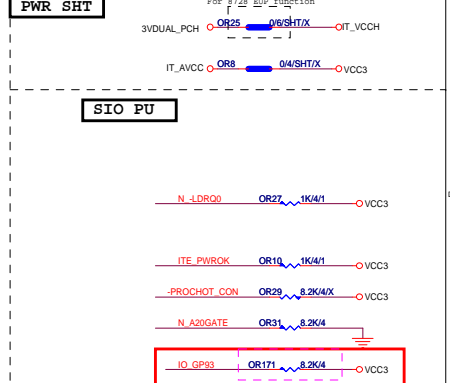
PCHL		
BD34	VSS[70]	AB18
BD39	VSS[71]	AB20
BD7	VSS[72]	AB21
BE2	VSS[73]	AB25
BF43	VSS[74]	AB29
BF2	VSS[75]	AB4
BG18	VSS[76]	AB42
BG23	VSS[77]	AC10
BG28	VSS[78]	AC14
BG32	VSS[79]	AC16
BG37	VSS[80]	AC38
BG40	VSS[81]	AC4
BG9	VSS[82]	AC5
C1	VSS[83]	AC7
A12	VSS[84]	AC8
C2	VSS[85]	AD1
C37	VSS[86]	AD18
A6	VSS[87]	AD20
AC32	VSS[88]	AD21
D1	VSS[89]	AD25
AE8	VSS[90]	AD29
D10	VSS[91]	AD45
D12	VSS[92]	AE11
D15	VSS[93]	AE14
AF20	VSS[94]	AE32
AF21	VSS[95]	AE33
B12	VSS[96]	AK29
AF28	VSS[97]	AK30
AF29	VSS[98]	AK32
AF4	VSS[99]	AK35
AF42	VSS[100]	AK39
AG18	VSS[101]	AL4
AG20	VSS[102]	AL42
AG21	VSS[103]	AM10
AG23	VSS[104]	AM11
AG25	VSS[105]	AM13
AG26	VSS[106]	AM17
AG28	VSS[107]	AM19
AG29	VSS[108]	AM24
AH11	VSS[109]	AM27
AH13	VSS[110]	AM29
AH30	VSS[111]	AM32
AH32	VSS[112]	AM33
AH33	VSS[113]	AM4
AH38	VSS[114]	AN45
AJ1	VSS[115]	AP10
AJ17	VSS[116]	AP11
P4	VSS[117]	AP15
P42	VSS[118]	AP22
P8	VSS[119]	AP27
R1	VSS[120]	AP31
R32	VSS[121]	AP33
T10	VSS[122]	AP34
T14	VSS[123]	AP39
T22	VSS[124]	Y4
T29	VSS[125]	Y8
AJ45	VSS[126]	Y16
AK10	VSS[127]	Y17
T36	VSS[128]	Y18
T38	VSS[129]	Y30
Y38	VSS[130]	Y32
Y4	VSS[131]	Y33
Y8	VSS[132]	Y38
T42	VSS[133]	Y4
T5	VSS[134]	Y8
U4	VSS[135]	W18
AN14	VSS[136]	W20
AP19	VSS[137]	W21
AR22	VSS[138]	W23
AR27	VSS[139]	W25
AU29	VSS[140]	A44
AR13	VSS[141]	BE1
AU33	VSS[142]	BD1
AV1	VSS[143]	B1
AV10	VSS[144]	B2
AV15	VSS[145]	B3
AV24	VSS[146]	B4
AV27	VSS[147]	B45
AV33	VSS[148]	
	VSS[149]	
	VSS[150]	
BG14	VSS[151]	
	VSS[152]	
	VSS[153]	
	VSS[154]	
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	VSS[156]	
	VSS[157]	
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	VSS[198]	
	VSS[199]	
	VSS[200]	



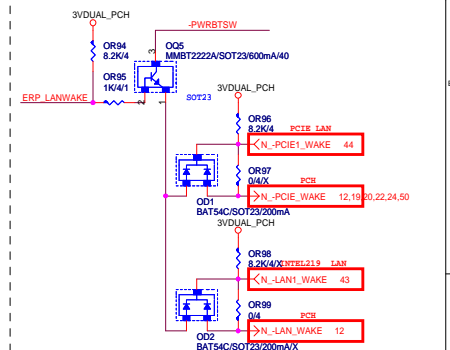
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GIGABYTE		
Title		
PCH GND		
Size		
Custom		
Document Number		
GA-Z270X-UD5		
Date:		
Thursday, November 24, 2016		
Sheet		
15 of 75		
Rev		
1.01		



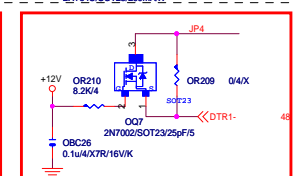
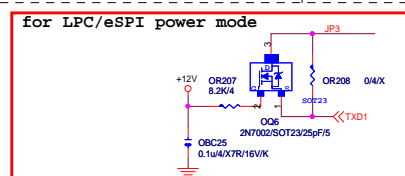
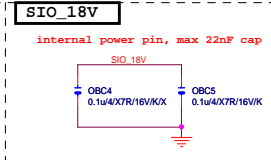
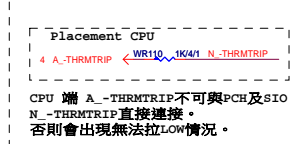
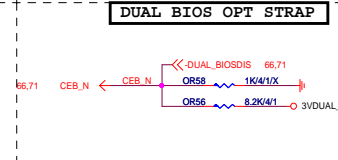
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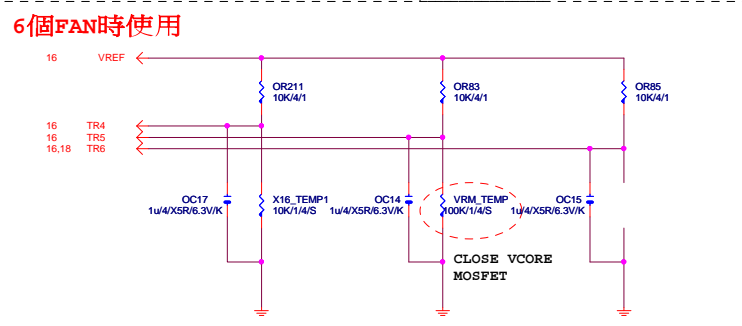
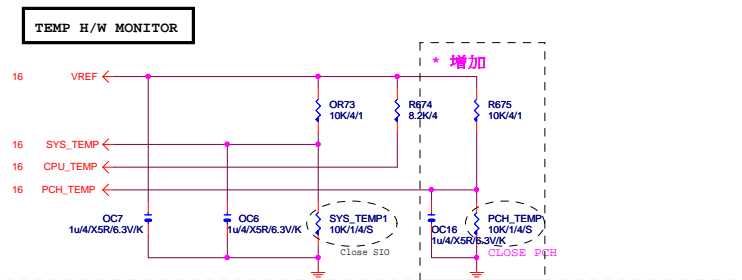


JP2	1	Disable WDT to rest PWROK
JP2	0	Enable WDT to rest PWROK
JP3	1	Dual-BIOS CS pin mode select bit "0" See the below table
JP4	1	LPC/ESPI power VCCBT = 3.3V
JP4	0	LPC/ESPI power VCCBT = 1.8V
JP5	1	ESPI I/F
JP6	1	Enable Dual BIOS Function (for GigaByte Only)
JP6	0	Disable Dual BIOS Function (for GigaByte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

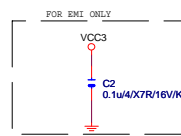
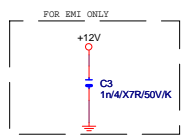
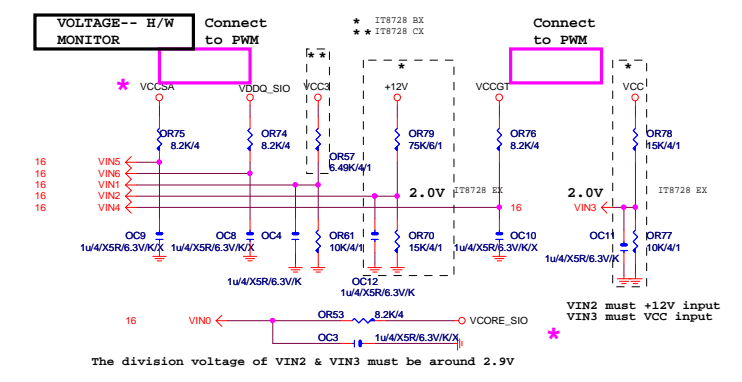


FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	FAN_CTL5 FAN_TAC5
THRMTRIP	PIN56
PROCHOT	PIN89



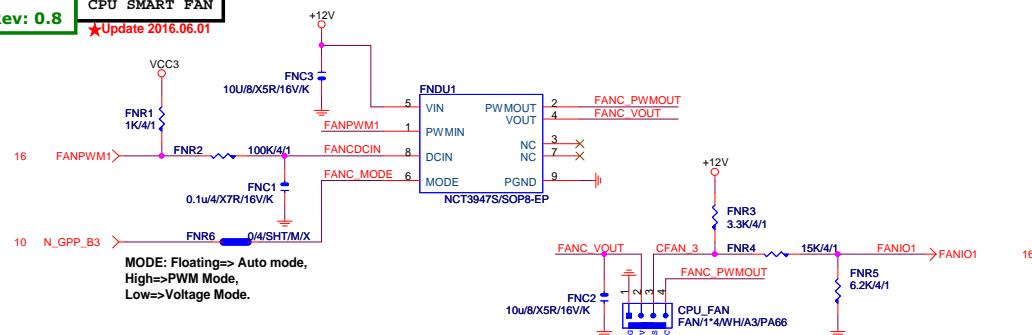


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★Update 2015-04.24

Gigabyte Technology			
Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number		Rev
Custom	GA-Z270X-UD5		1.01
Date:	Tuesday, November 15, 2016		Sheet 17 of 75



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

CPU_OPT1

16 FANPWM3 → FGR1 1K4/1 → FGR2 100K/4/1 → FGC1 0.1u/4/X7R/16V/K → FGC3 10u/8/X5R/16V/K → FAN7DCIN

12 N_GPP_B17 → FGR6 0/4/SHT/M/X → FAN7_MODE

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

FGDU1 (NCT3947S/SOP8-EP):
VIN → FAN7DCIN
PWMOUT VOUT → FAN7_PWMOUT
PWMIN → FAN7_MODE
DCIN → FAN7DCIN
MODE → FAN7_MODE
PGND → GND

16 FAN7_VOUT → FGC2 10u/8/X5R/16V/K → CPU_OPT/FAN14/BK/A3/PA66 → COPT_3 → FGR3 3.3K/4/1 → FGR4 15K/4/1 → FANIO3 → FGR5 6.2K/4/1 → 16

[illegible][illegible]

71 EC_FANPWM3 >>

12 N_GPP_B21 >>

VCC3

FJR1 1K/4/1

FJR2 100K/4/1

FJR3 3.3K/4/1

FJR4 15K/4/1

FJR5 6.2K/4/1

FJR6 0/4/SHT/M/X

FJC1 0.1u4/X7R/16V/K

FJC2 10u8/X5R/16V/K

FJC3 10U8/X5R/16V/K

+12V

EC_FANPWM3 1

FANJDCIN 8

FANJ_MODE 6

FANJ_PWMOUT 2

FANJ_VOUT 4

FANJ_PWMOUT 3

FANJ_VOUT 5

FANJ_PWMOUT 6

FANJ_VOUT 7

FANJ_PWMOUT 8

FANJ_VOUT 9

FANJ_PWMOUT 10

FANJ_VOUT 11

FANJ_PWMOUT 12

FANJ_VOUT 13

FANJ_PWMOUT 14

FANJ_VOUT 15

FANJ_PWMOUT 16

FANJ_VOUT 17

FANJ_PWMOUT 18

FANJ_VOUT 19

FANJ_PWMOUT 20

FANJ_VOUT 21

FANJ_PWMOUT 22

FANJ_VOUT 23

FANJ_PWMOUT 24

FANJ_VOUT 25

FANJ_PWMOUT 26

FANJ_VOUT 27

FANJ_PWMOUT 28

FANJ_VOUT 29

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FANJ_PWMOUT 260

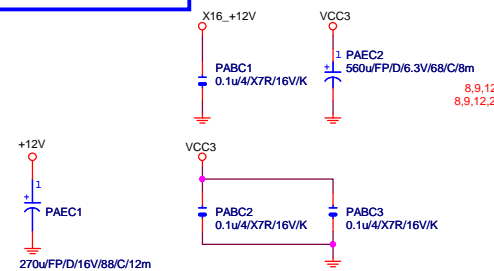
FANJ_VOUT 261

FANJ_PWM

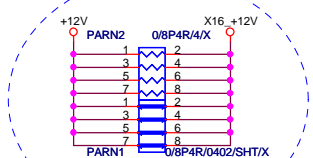
Gigabyte Technology			
Title HWM,KB/MS, FAN CTRL			
Size	Document Number		Rev
Custom	GA-Z270X-UD5		1.01
Date:	Tuesday, November 15, 2016	Sheet 18 of 75	

Rev 0.3

PCIEX16 CAP



PCIEX16 PROTECT SHT

**+12 protect
short-wire test**

PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u/4X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u/4X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u/4X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u/4X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u/4X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u/4X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u/4X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u/4X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u/4X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u/4X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u/4X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u/4X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u/4X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u/4X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22u/4X5R/6.3V/K	PA EXP TXN7 C
PA EXP SW TXP8	PAC21	0.22u/4X5R/6.3V/K	PA EXP SW TXP8 C
PA EXP SW TXN8	PAC20	0.22u/4X5R/6.3V/K	PA EXP SW TXN8 C
PA EXP SW TXP9	PAC22	0.22u/4X5R/6.3V/K	PA EXP SW TXP9 C
PA EXP SW TXN9	PAC23	0.22u/4X5R/6.3V/K	PA EXP SW TXN9 C
PA EXP SW TXP10	PAC24	0.22u/4X5R/6.3V/K	PA EXP SW TXP10 C
PA EXP SW TXN10	PAC25	0.22u/4X5R/6.3V/K	PA EXP SW TXN10 C
PA EXP SW TXP11	PAC26	0.22u/4X5R/6.3V/K	PA EXP SW TXP11 C
PA EXP SW TXN11	PAC27	0.22u/4X5R/6.3V/K	PA EXP SW TXN11 C
PA EXP SW TXP12	PAC28	0.22u/4X5R/6.3V/K	PA EXP SW TXP12 C
PA EXP SW TXN12	PAC29	0.22u/4X5R/6.3V/K	PA EXP SW TXN12 C
PA EXP SW TXP13	PAC30	0.22u/4X5R/6.3V/K	PA EXP SW TXP13 C
PA EXP SW TXN13	PAC31	0.22u/4X5R/6.3V/K	PA EXP SW TXN13 C
PA EXP SW TXP14	PAC32	0.22u/4X5R/6.3V/K	PA EXP SW TXP14 C
PA EXP SW TXN14	PAC33	0.22u/4X5R/6.3V/K	PA EXP SW TXN14 C
PA EXP SW TXP15	PAC34	0.22u/4X5R/6.3V/K	PA EXP SW TXP15 C
PA EXP SW TXN15	PAC35	0.22u/4X5R/6.3V/K	PA EXP SW TXN15 C

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

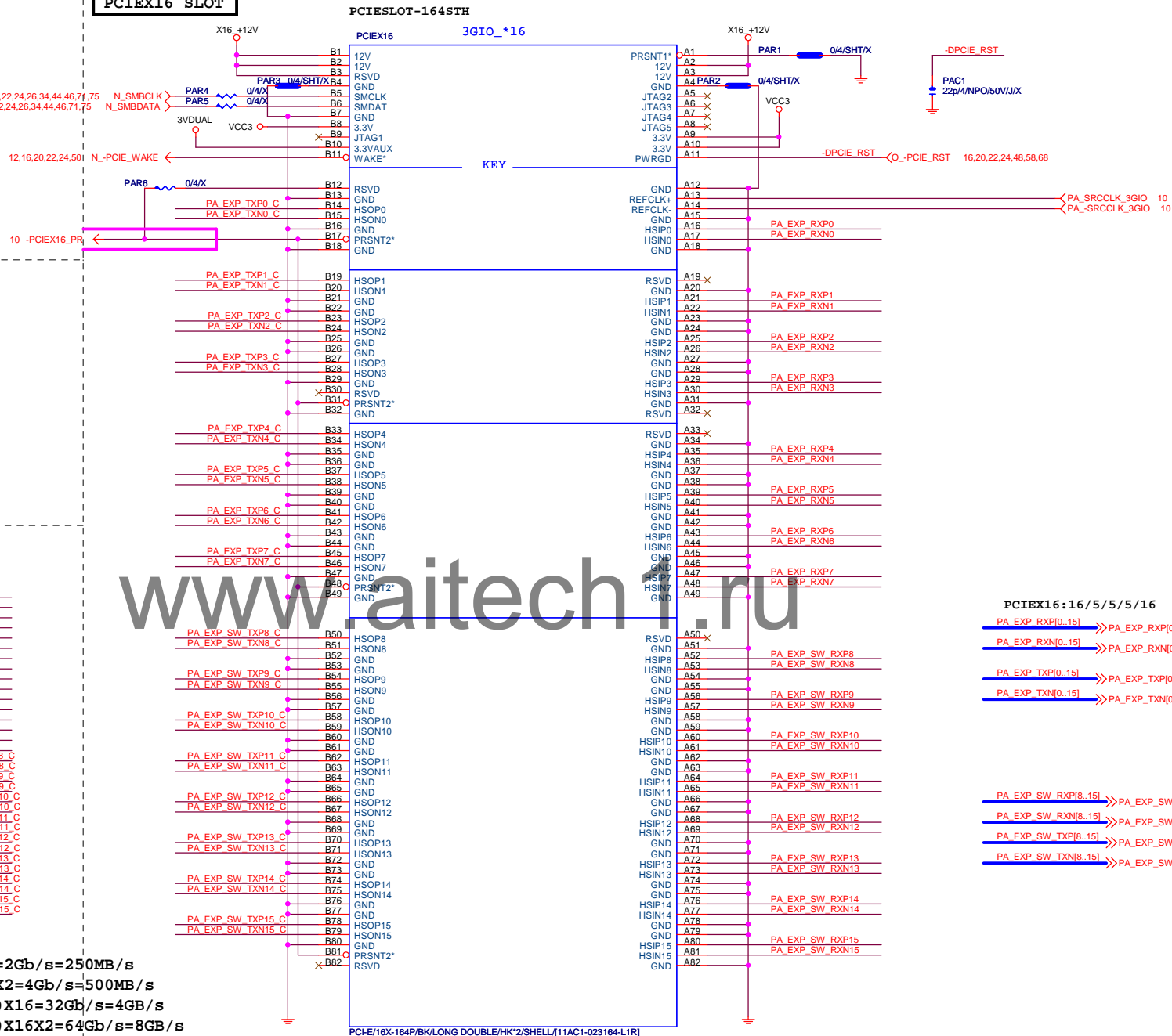
PCI-E REV:2.0--> 5GHZ

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

PCI-E REV:3.0--> 8GHZ

PCE-E X1(單向) BANDWIDTH=8GHz*(128b/130b)=8Gb/s=1GB/s

PCIEX16 SLOT

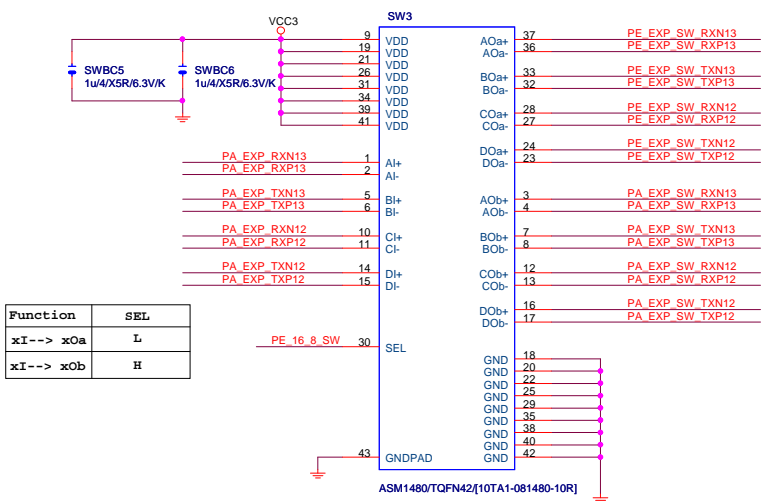
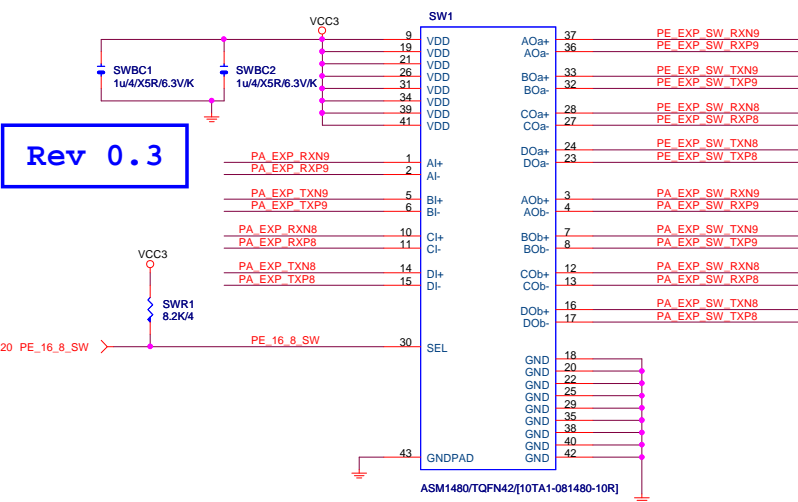


黑色金屬加強

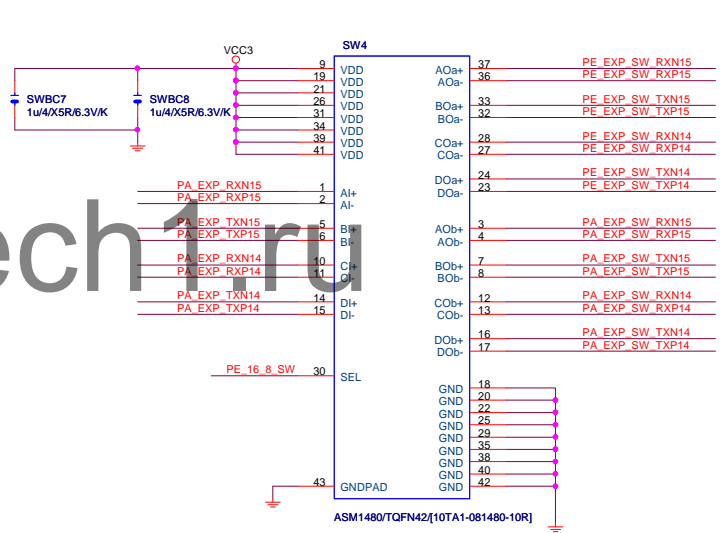
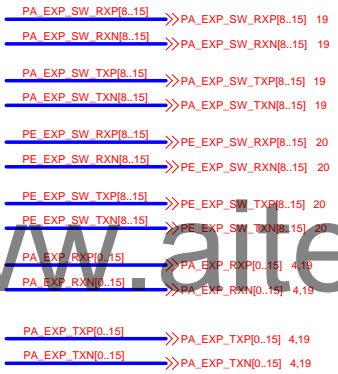
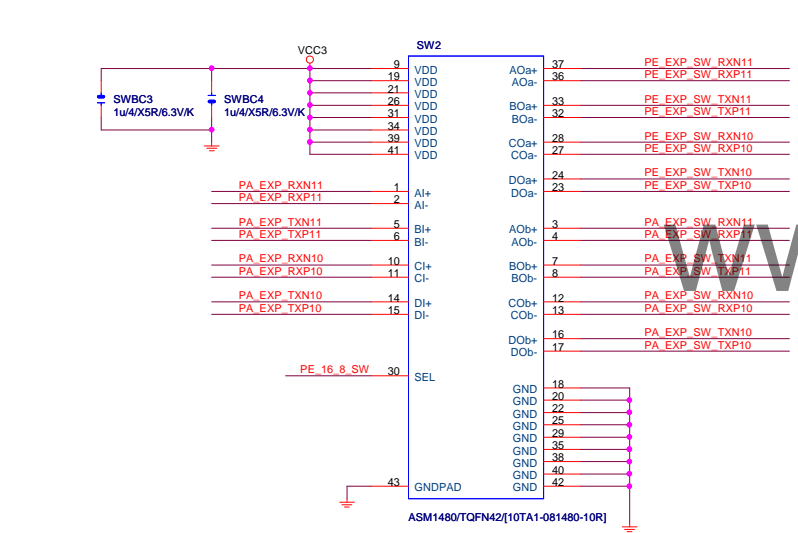
Gigabyte Technology

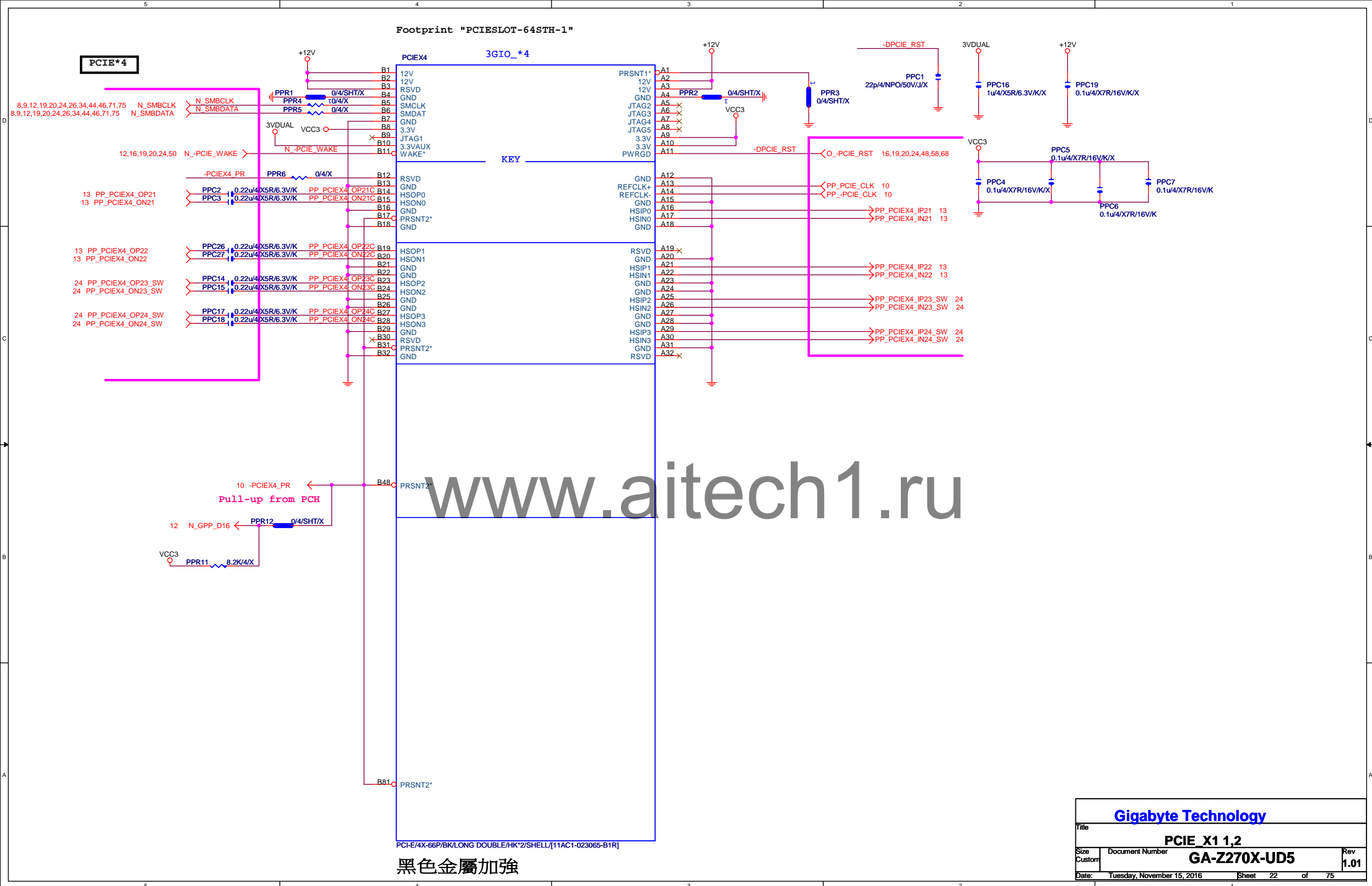
PCI EXPRESS * 16		
Size	Document Number	Rev
Custom	GA-Z270X-UD5	1.0*
Date:	Tuesday, November 15, 2016	Sheet 19 of 75

Rev 0.3



Function	SEL
xI--> xOa	L
xI--> xOb	H

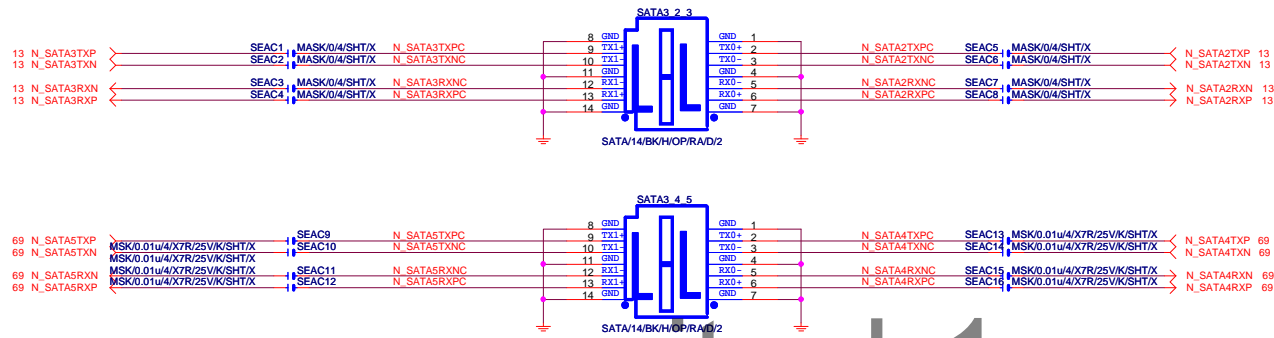




Gigabyte Technology			
Title			
PCIE_X1 1,2			
Size Custom	Document Number	GA-Z270X-UD5	Rev 1.01
Date:	Tuesday, November 15, 2016	Sheet 22 of 75	

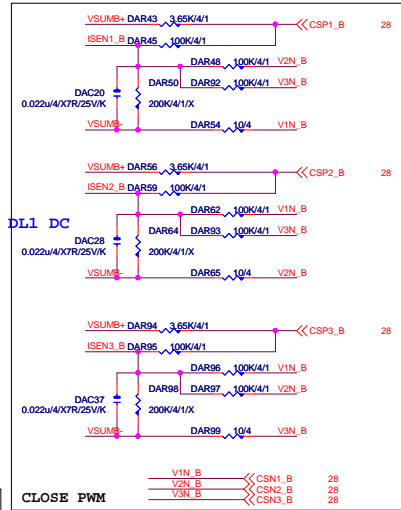
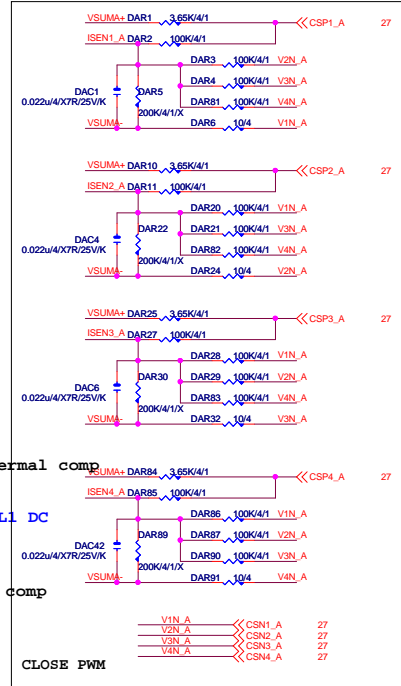
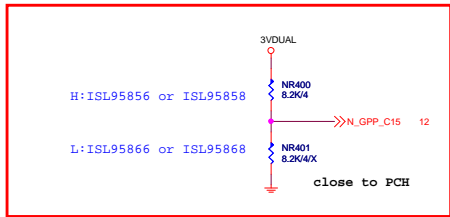
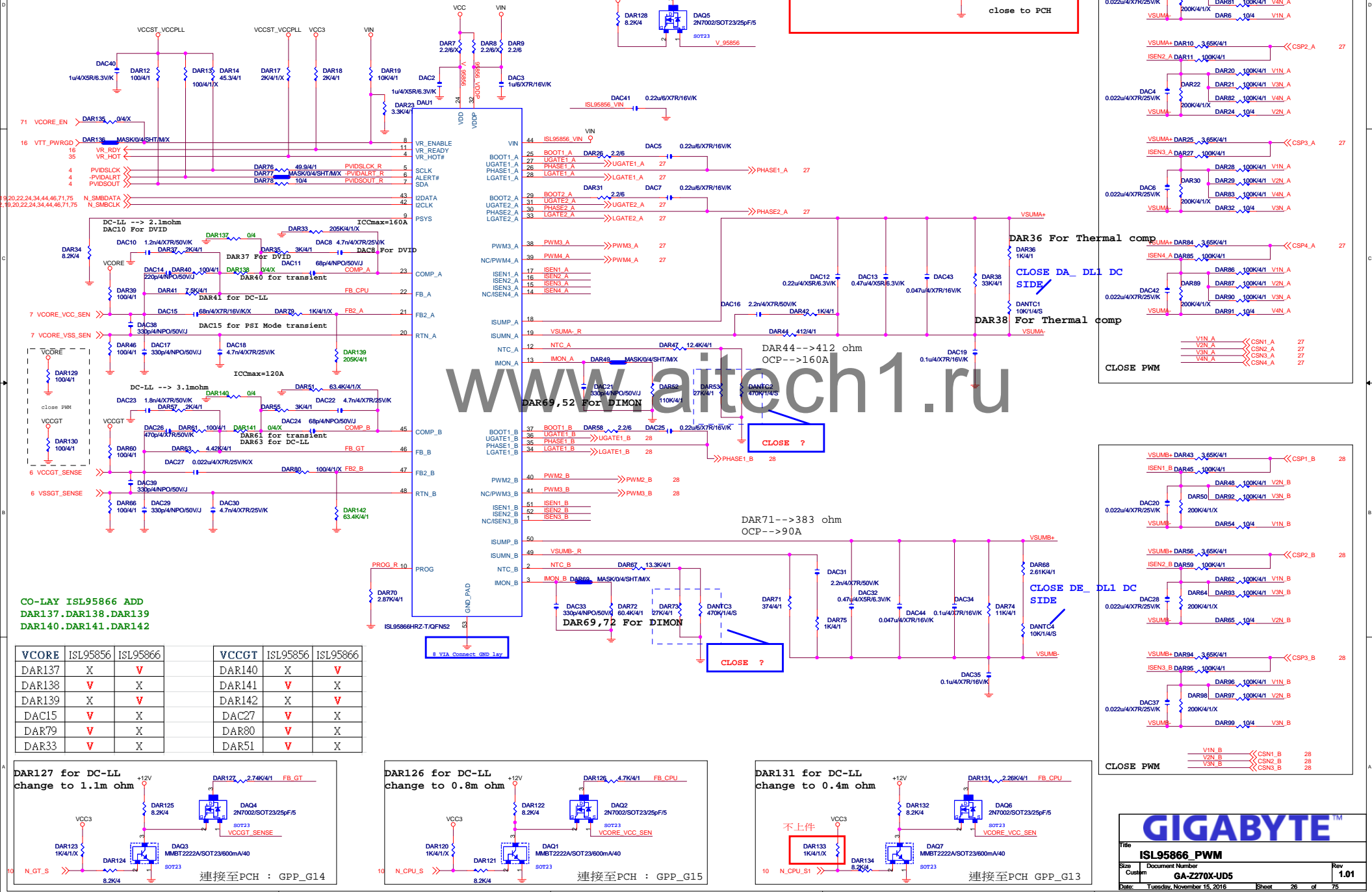
www.aitech1.ru

Gigabyte Technology		
SWITCH		
Title		
Size	Document Number	Rev
Custom	GA-Z270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 23 of 75



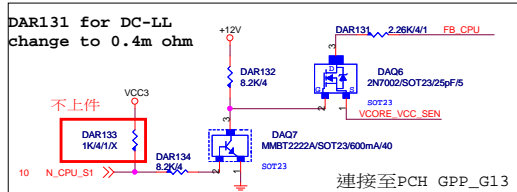
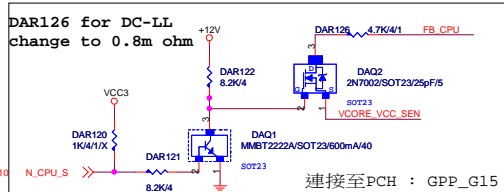
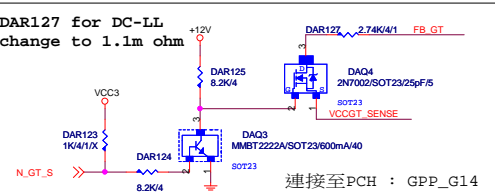
www.aitech1.ru

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)

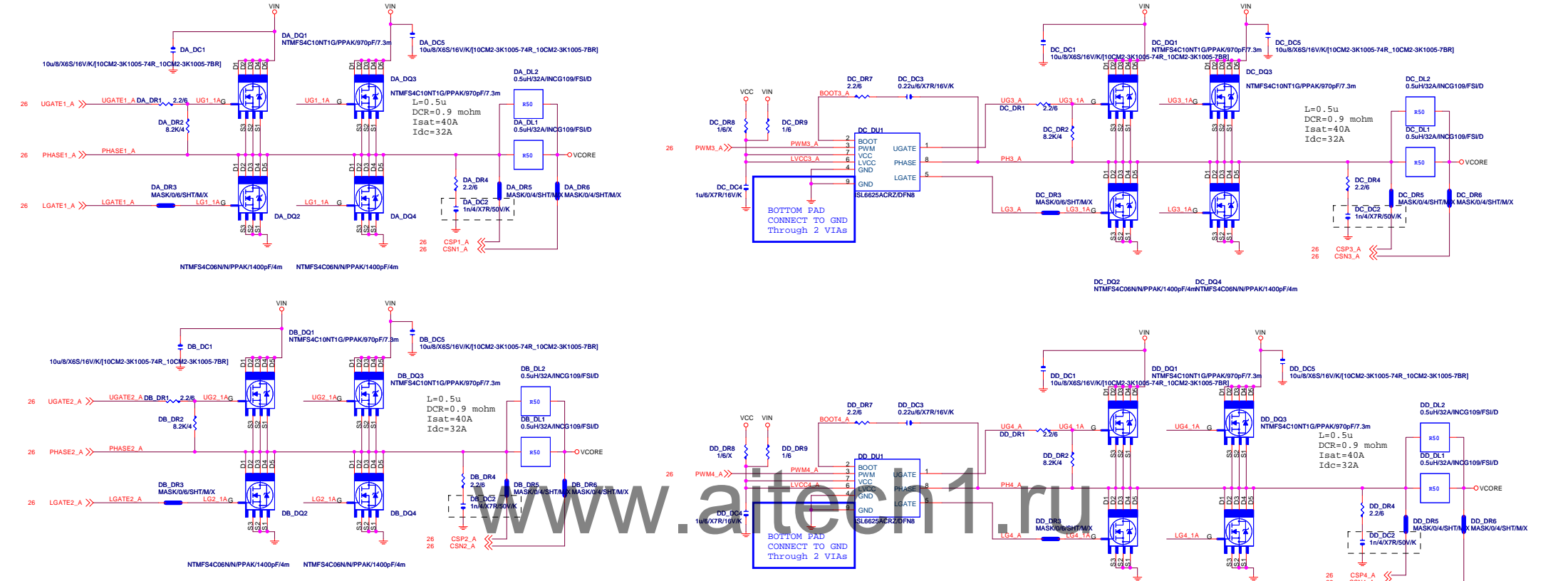


CO-LAY ISL95866 ADD
DAR137.DAR138.DAR139
DAR140.DAR141.DAR142

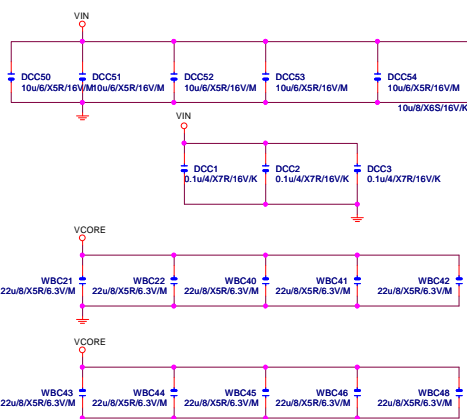
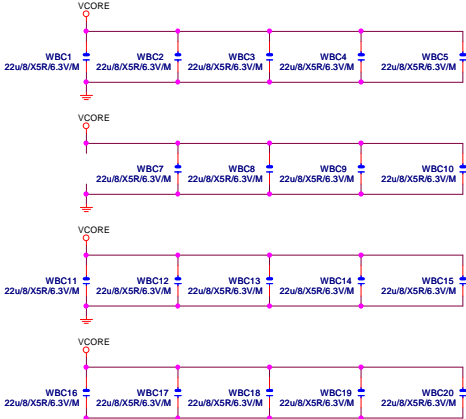
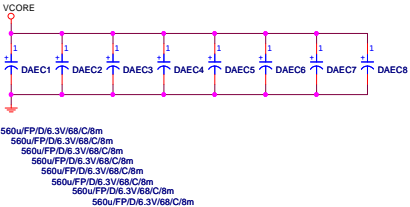
VCORE	ISL95856	ISL95866	VCCGT	ISL95856	ISL95866
DAR137	X	V	DAR140	X	V
DAR138	V	X	DAR141	V	X
DAR139	X	V	DAR142	X	V
DAC15	V	X	DAC27	V	X
DAR79	V	X	DAR80	V	X
DAR33	V	X	DAR51	V	X



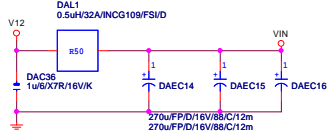
VCORE



VCORE CAP 560u*8PCS
22u*29PCS

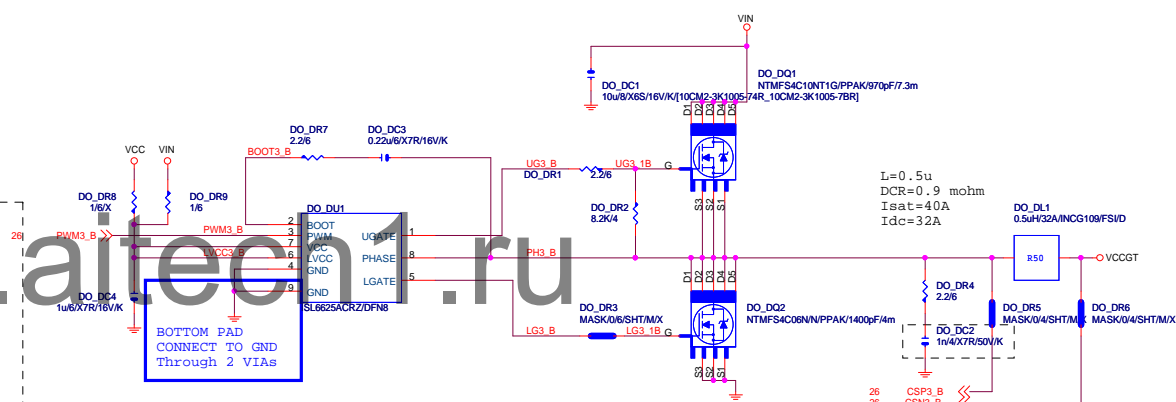
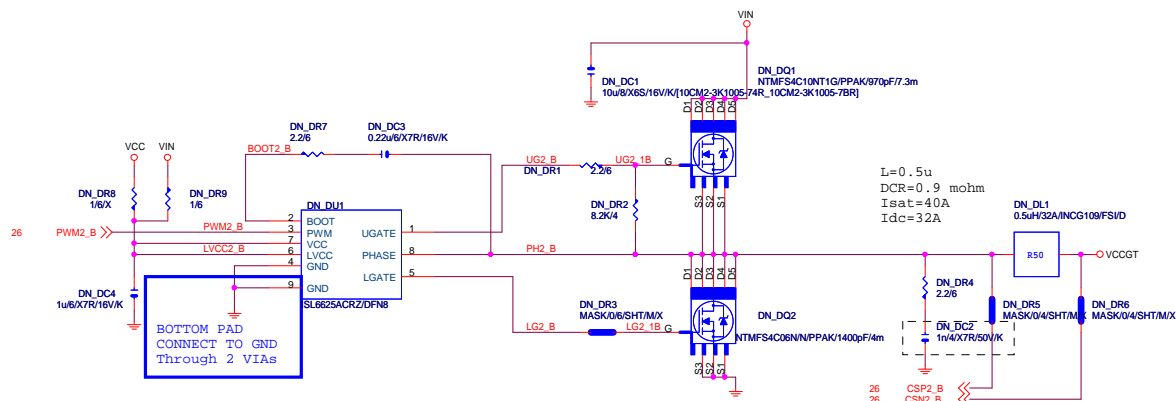



VIN CAP 270u*3PCS



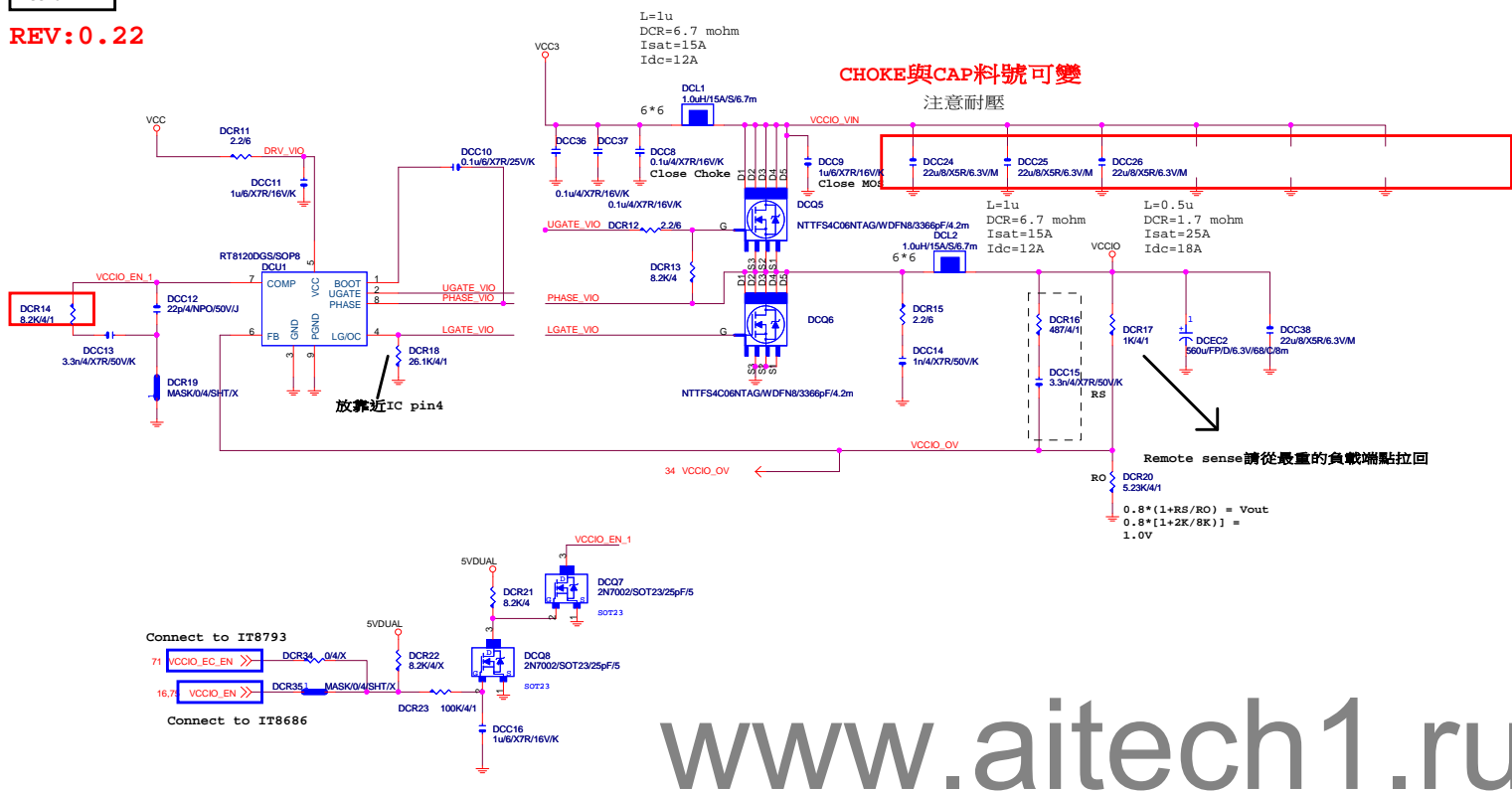
GIGABYTE

File: ISL95866 MOS
Size: Custom
Document Number: GA-Z270X-UD5
Date: Tuesday, November 15, 2016
Sheet: 27 of 75

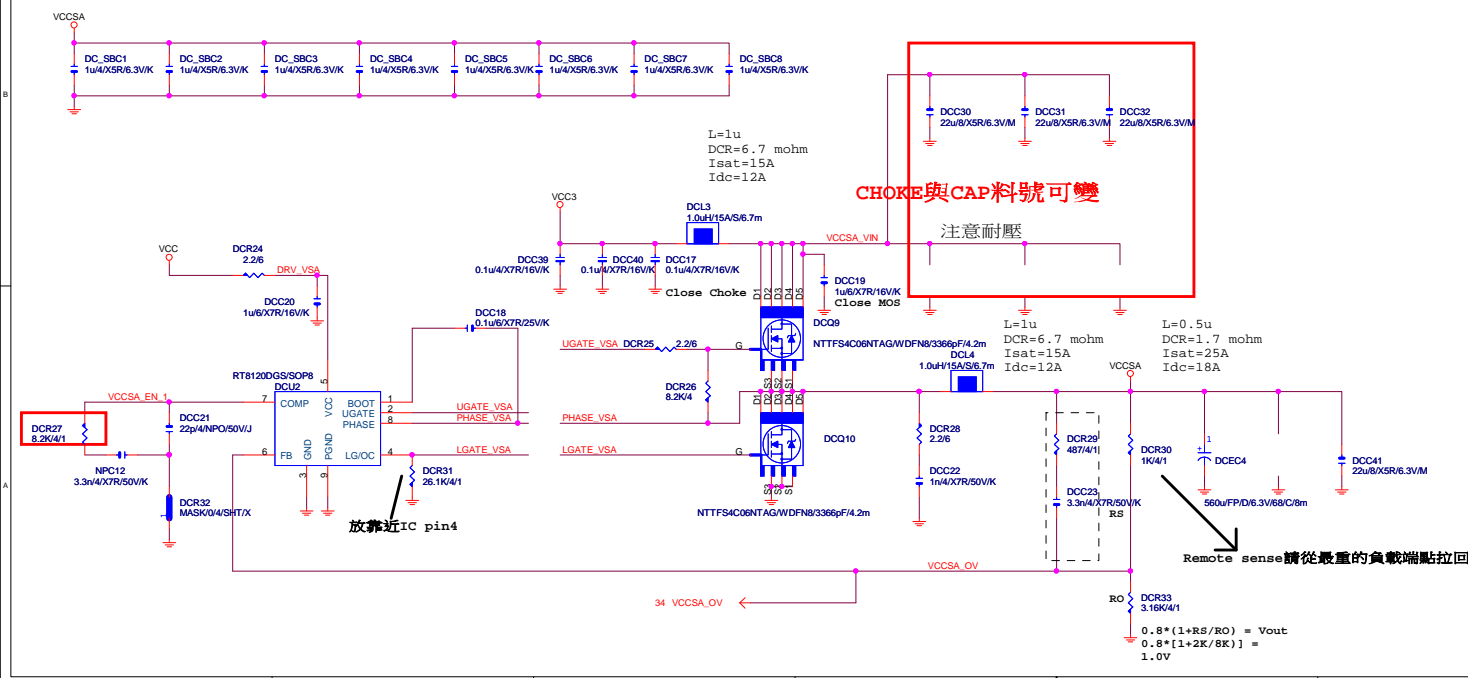


			
Title			
ISL95866_MOS			
Size	Document Number		Rev
Custom	GA-Z270X-UD5		1.01
Date:	Tuesday, November 15, 2016	Sheet	28 of 75

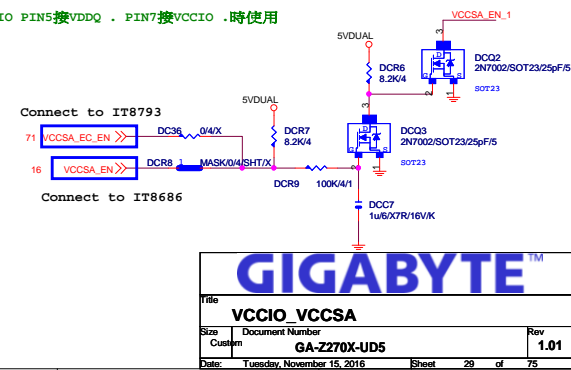
REV: 0.22



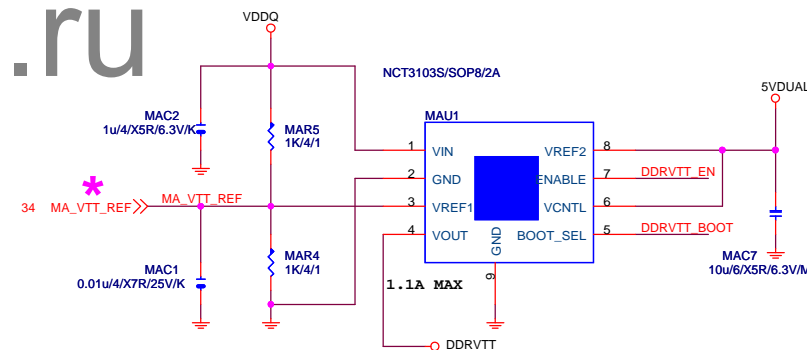
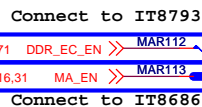
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SIO PIN5接VDDQ . PIN7接VCCIO .時使用



DDR4



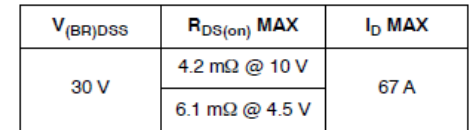
4 DDR_VTT_CTL MAR110 DDRVTT_EN
12,16,48,50 81,71 N_SLP_S3 MAR111 DDRVTT_BOOT
0/4/SHT/M/X
0/4/SHT/M/X
MAU1上NCT3103S時上件

GIGABYTE

Title			
RT8120_DDR4 POWER			
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	30 of 75

VPP_25V

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



2.5V

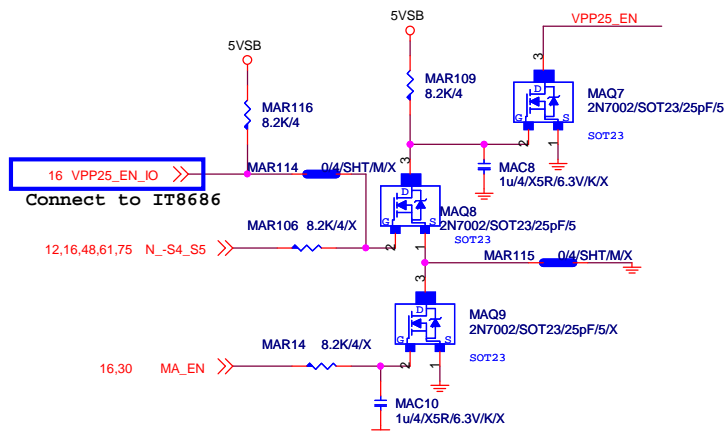
請放置CHOKE一出來位置.先預留.
請自行確認ripple後再決定是否上件

Remote sense請從最重的負載端點拉回

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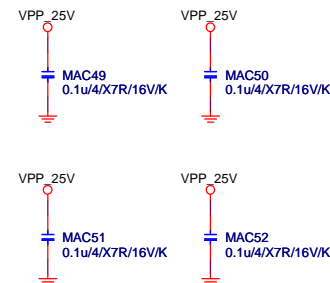
PWR SEQ

* 冊 MA_DR32



VPP CAP 560u*1PCS

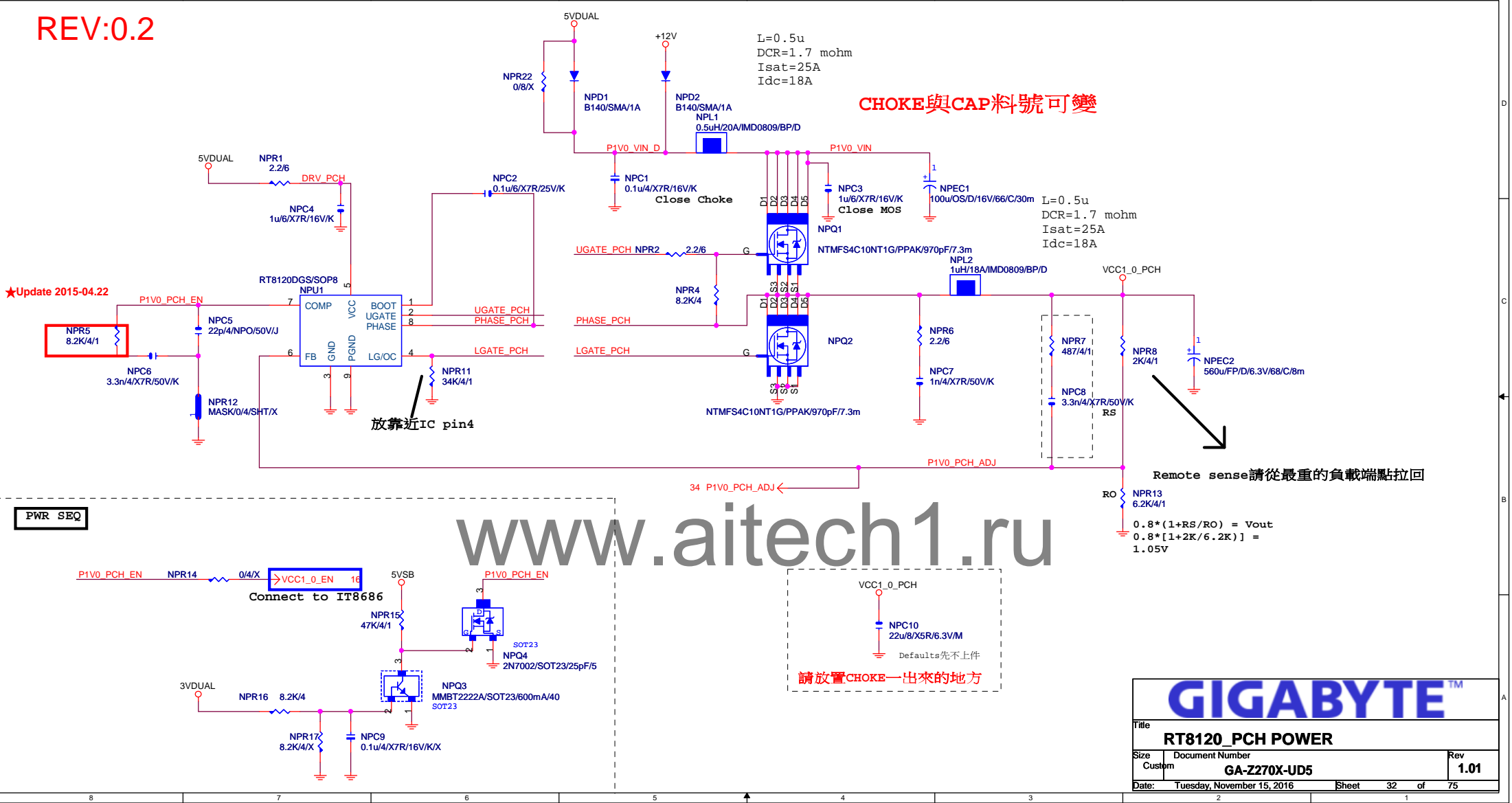
* 大電容 x1



GIGABYTE™

Title			
RT8120_VPP25 POWER			
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	31 of 75

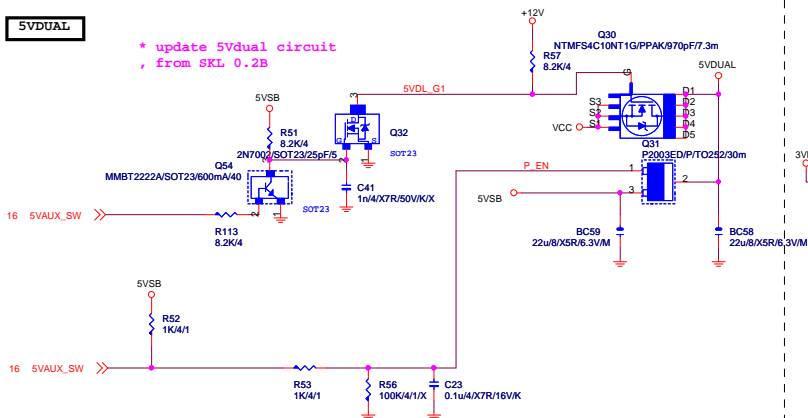
REV:0.2



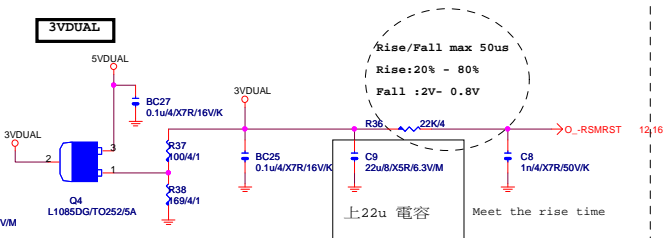
www.aitech1.ru

5VDUAL

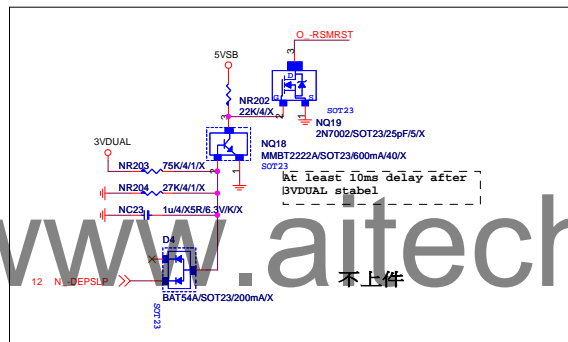
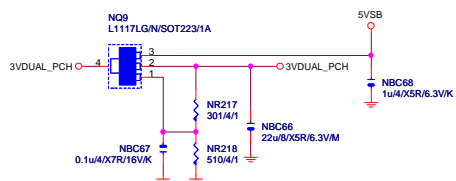
* update 5Vdual circuit
from SKL 0.2B



3VDUAL



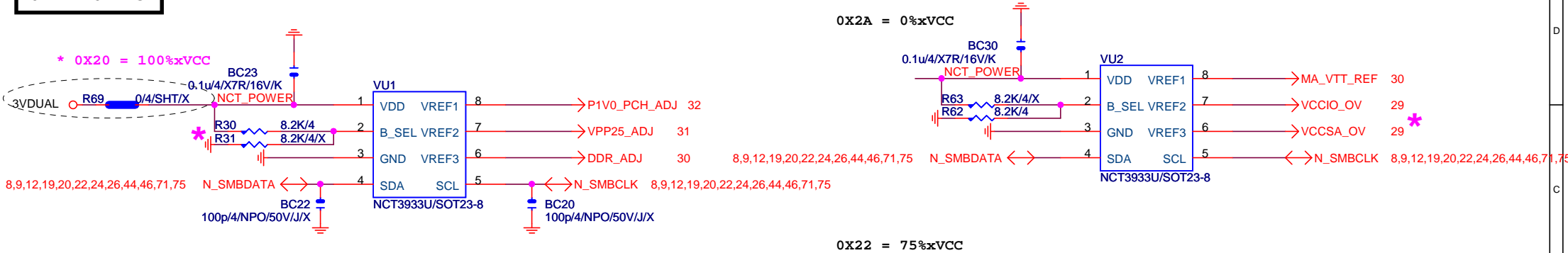
3VDUAL_PCH



Gigabyte Technology

Title		
DISCRETE POWER		
Size	Document Number	Rev
Custom	GA-Z270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 33 of 75

OVER VOLTAGE

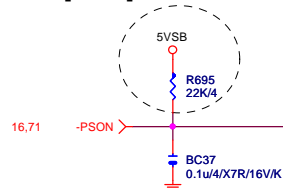


NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

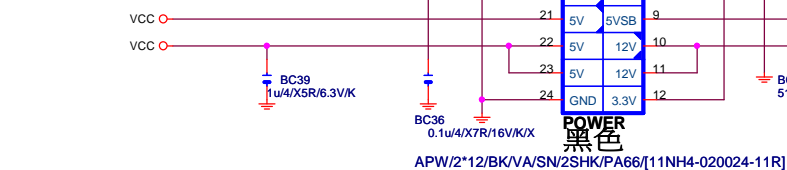
Gigabyte Technology		
CPU CORE VR-2		
Title	Document Number	Rev
	GA-Z270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 34 of 75

ATXX24 POWER CONNECTOR

Patch some PSU no internal pull up resistor

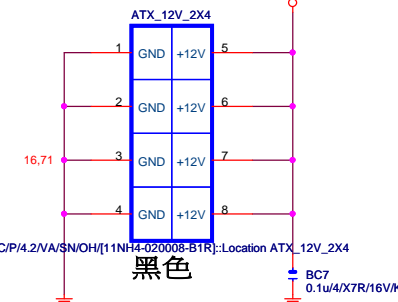


* 删除 -5V



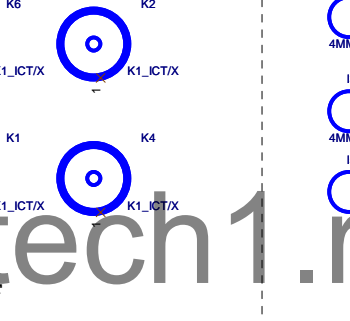
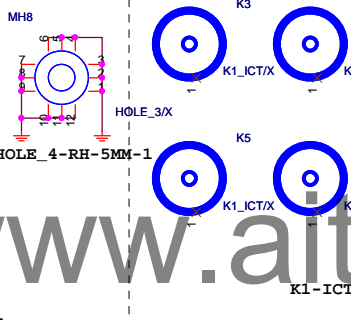
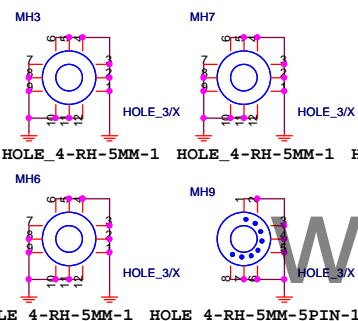
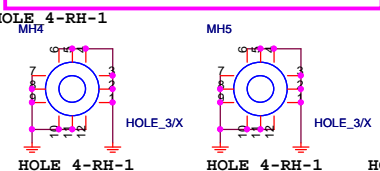
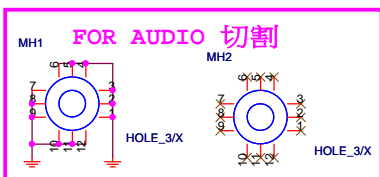
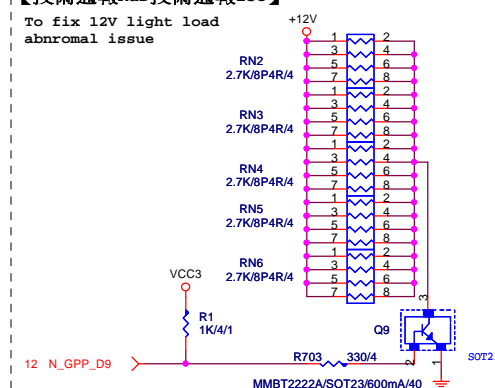
APW/2*12/BK/VA/SN/2SHK/PA66/[11NH4-020024-11R]

ATXX4 POWER CONNECTOR



【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



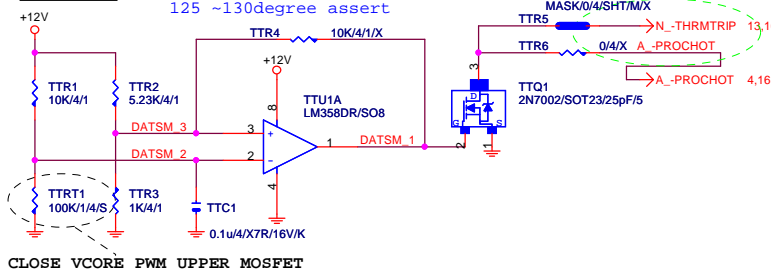
-PROHOT * 保留 ?

4.16 A_PROCHOT <-> A_PROCHOT R2 0/4/SHT/X >-> VR_HOT 26

-PROHOT

OTP:130度 / PCB THERMAL TRIP:128 度

125 ~130degree assert

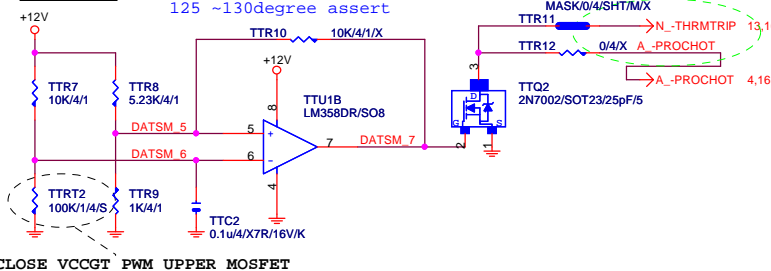


CLOSE VCORE PWM UPPER MOSFET

-PROHOT

OTP:130度 / PCB THERMAL TRIP:129 度

125 ~130degree assert

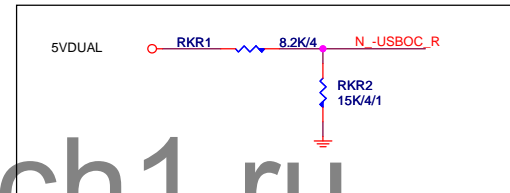
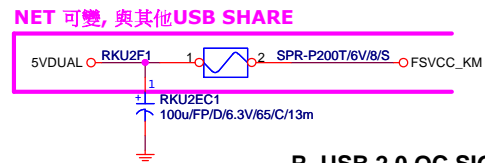


CLOSE VCCGT PWM UPPER MOSFET



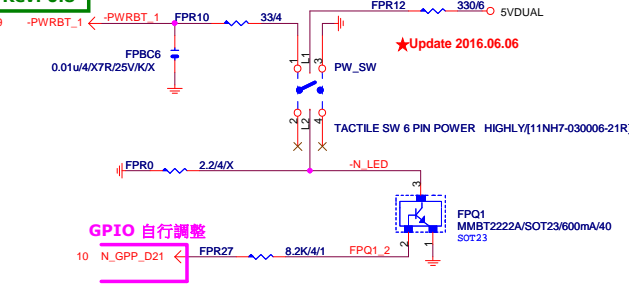
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-Z270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 35 of 75

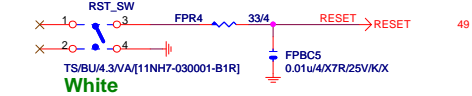


Rev: 0.8

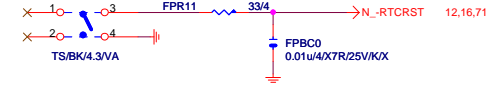
POWER



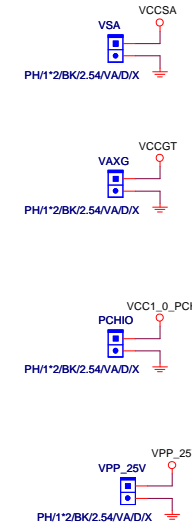
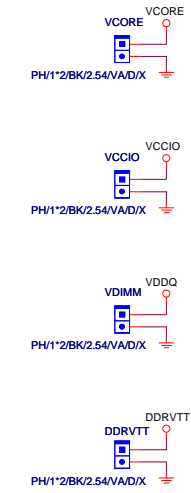
Reset



Clear CMOS



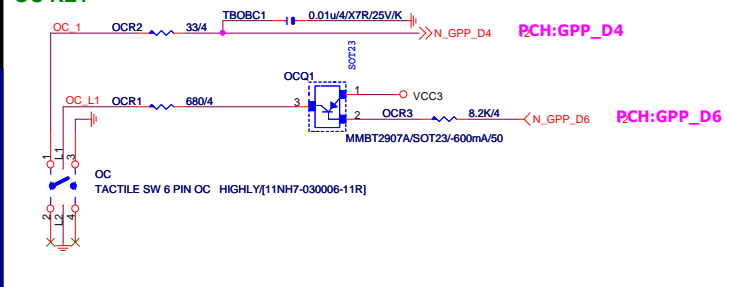
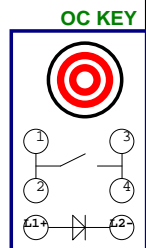
★Update 2014.12.19



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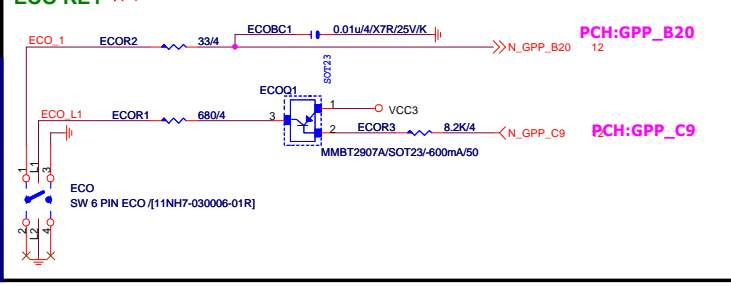
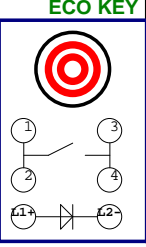
OC KEY

★Update 2016.06.06

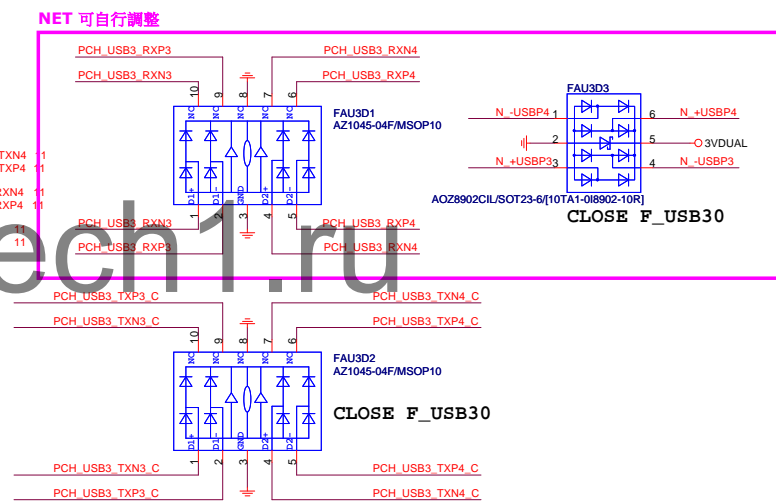
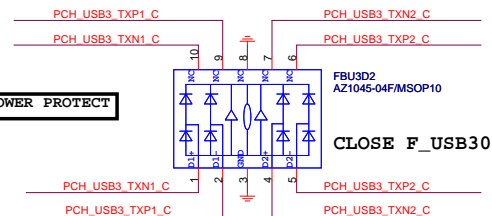


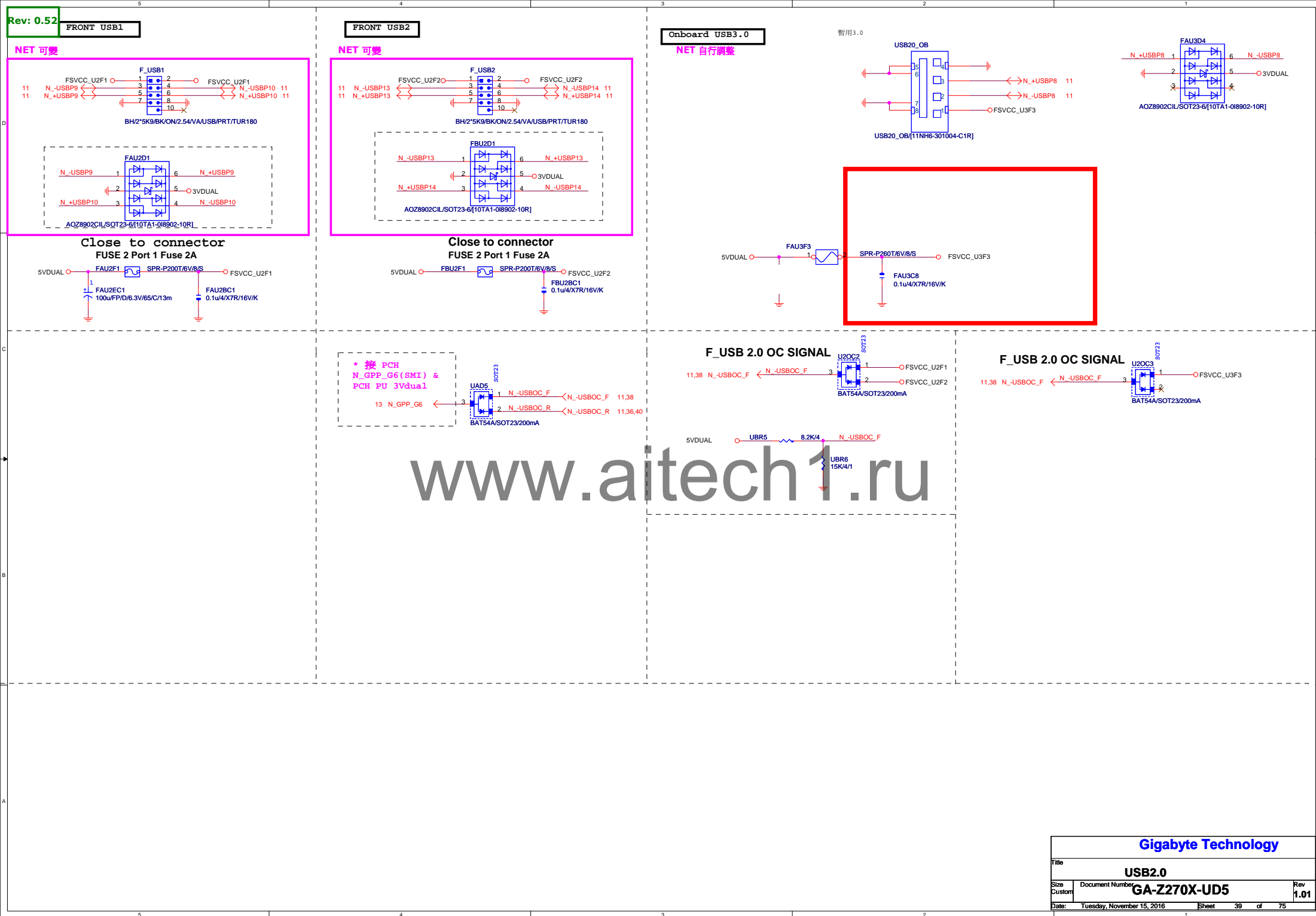
ECO KEY

★Update 2016.06.06



Gigabyte Technology			
Title			
OC BOTTOM			
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	37 of 75

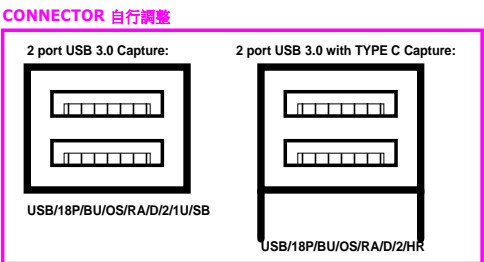
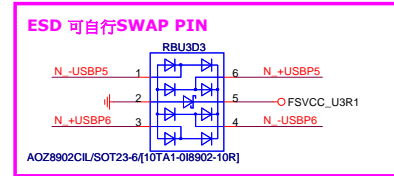
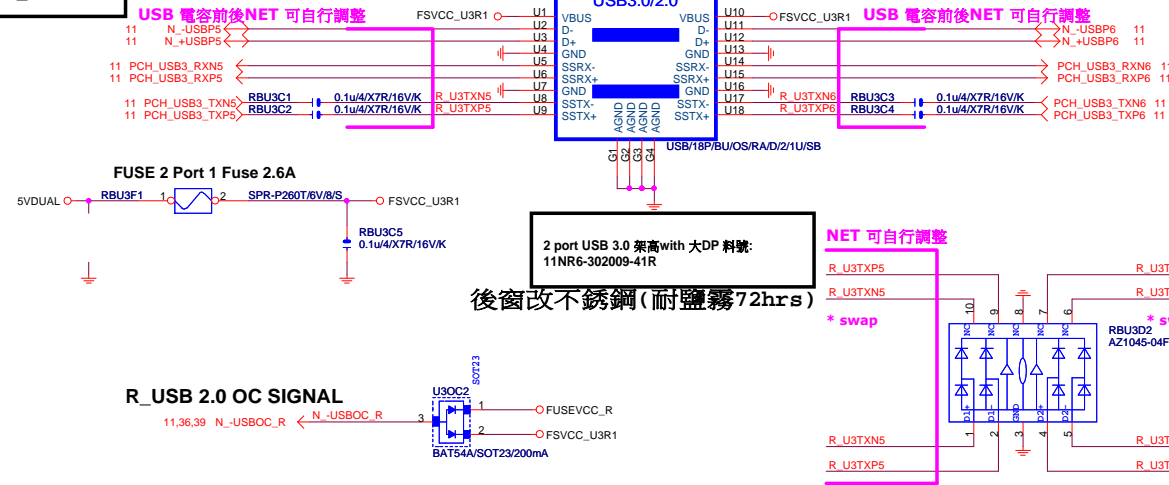




Gigabyte Technology

Title			USB2.0
Size	Document Number	GA-Z270X-UD5	
Custom		Date	Tuesday, November 15, 2016
		Sheet	39 of 75
		Rev	1.01

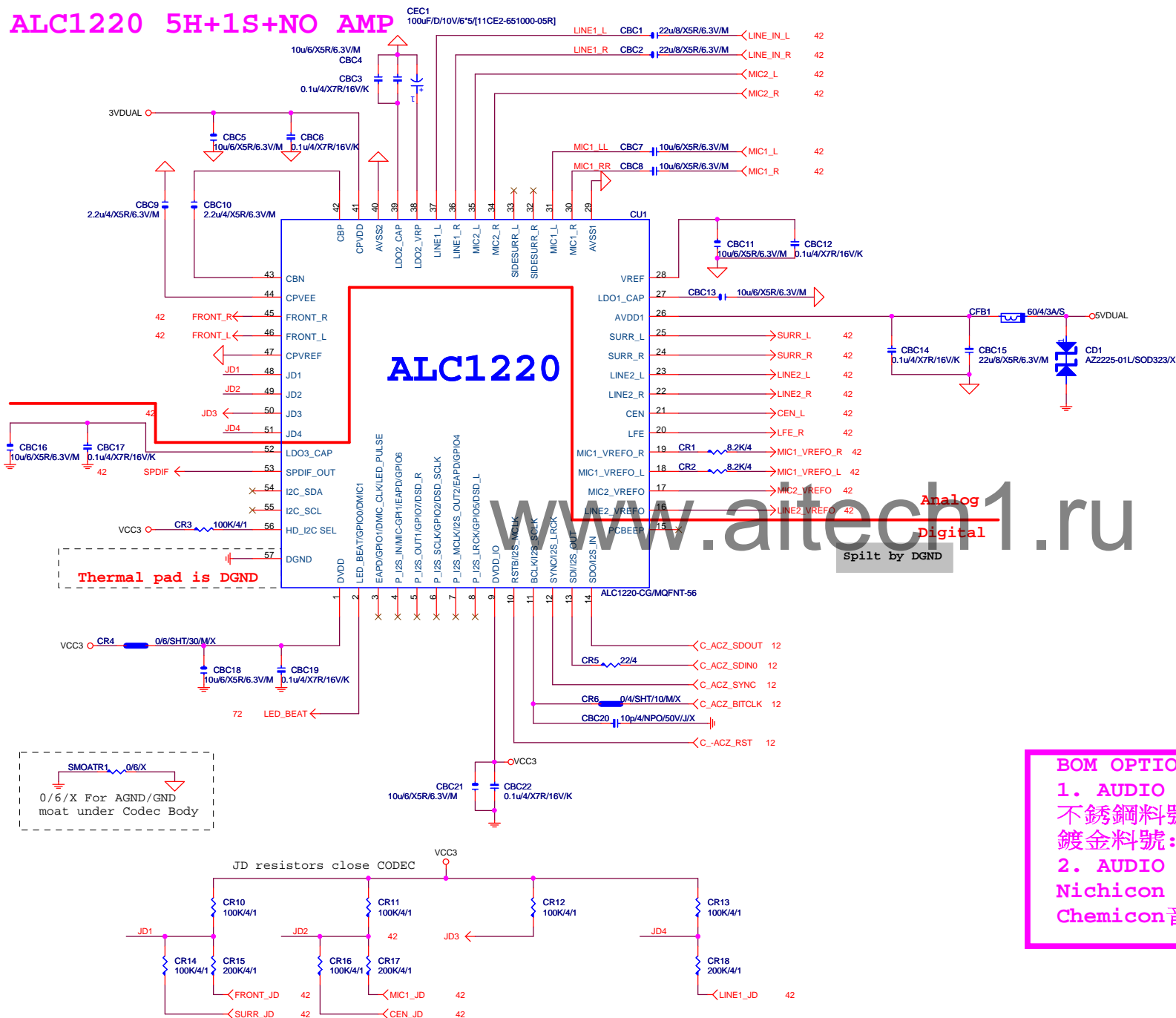
R_USB30



Gigabyte Technology			
Title	KB_MS_USB3, R_USB30		
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	40 of 75

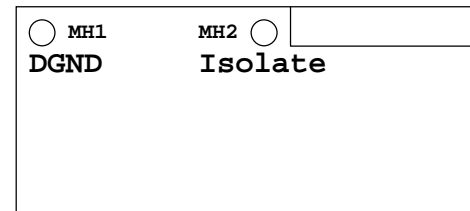
Rev 0.53

ALC1220 5H+1S+NO AMP

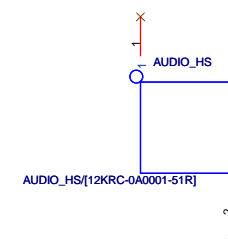
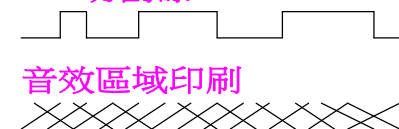


LAYOUT注意: 螺絲孔下GND方式

1. MH1下DGND
2. MH2一律改為Isolate



LAYOUT注意: 是否要加?
AGND切割線



BOM OPTION :

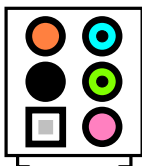
1. AUDIO CONNECT
不銹鋼料號: 11NR6-403025-A2R
鍍金料號: 11NR6-403025-92R
2. AUDIO CAP
Nichicon MW音效電容 : 11CE1-651000-12R
Chemicon音效電容 : 11CE2-651000-05R

Gigabyte Technology

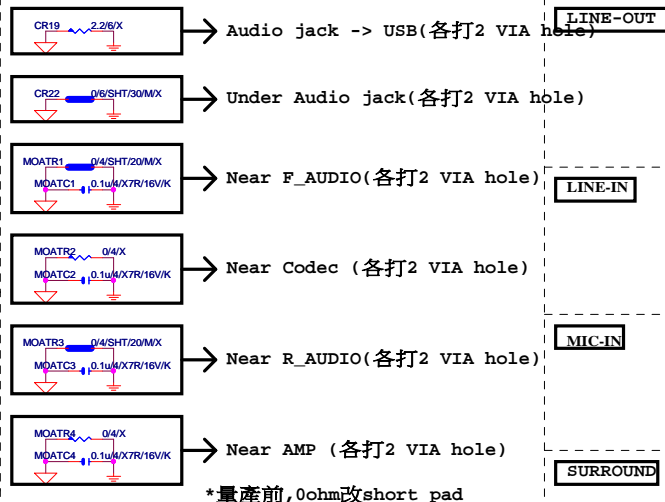
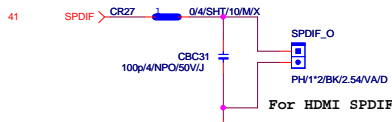
Title	ALC1220		
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	41 of 75

Rev 0.52

AZALIA JACK



SPDIF_OUT



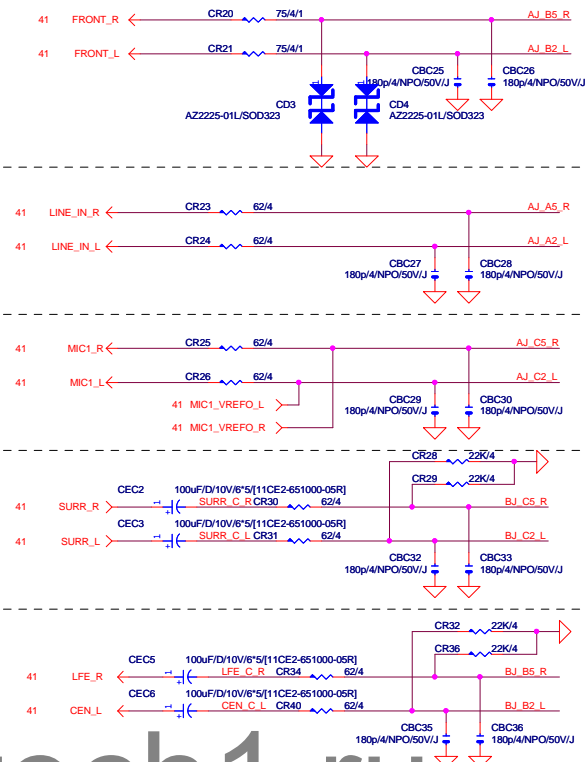
LINE-OUT

LINE-IN

MIC-IN

SURROUND

CEN/LFE



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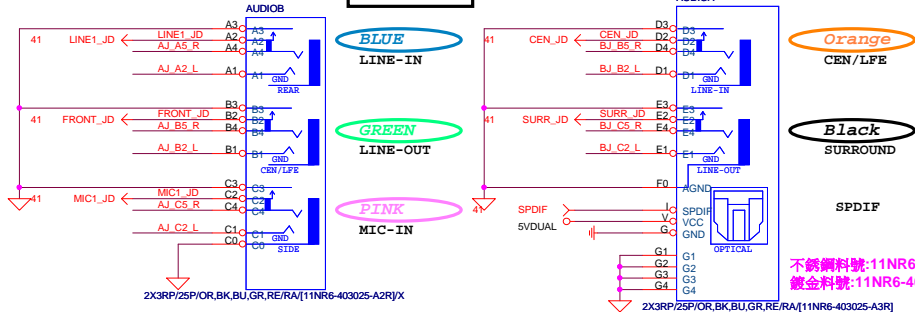
AZALIA JACK

BLUE

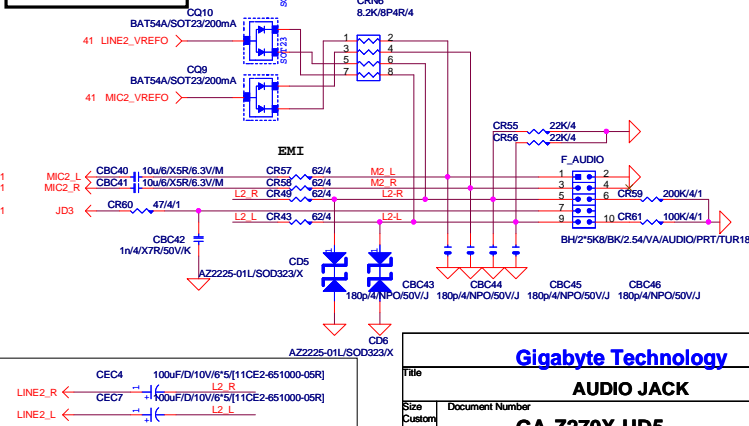
GREEN

PINK

MIC-IN



AZALIA FRONT PANE



Gigabyte Technology

File		
AUDIO JACK		
Size	Document Number	Rev
Custom	GA-2270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 42 of 75

[illegible][illegible][illegible][illegible][illegible][illegible]

LAN

LAN~CLKREQ#
MASK/0/4/SHT/20/X
LBREQ1

EQ 2
AN 2
IP 2
OP 2
ON 2

LBC6 0.1u/4/X7R/16V/K
LBC8 0.1u/4/X7R/16V/K
LBC12 0.1u/4/X7R/16V/K
LBC16 0.1u/4/X7R/16V/K

LB TP 38
LB TN 39
LB RP 41
LB RN 42

LB_R16 8.2K/4/X
LB -LANWAKE
LB -LAN_DIS

LB_LED0
LB_LED1
LB_LED2

LBR6 8.2K/4/X
LBR5 8.2K/4/X
LBR4 8.2K/4/X

LB TDI 32
LB TMS 33
LB TCK 35

LB_XTALO
LB_XTALI

LBX1 25M/16p/30ppm/49US/20/D

LBR7 1K/4/1
LBR12 3.01K/4/1

LB TEST_EN 30
LB LAN_BIAS 12

FOR ERP WAKEUP

LBQ1 2N7002/SOT23/25pF/5
LBQR1 8.2K/4
LBRT20 0/4/X
LB -LAN_DIS

LBR17 8.2K/4
LBR14 1u/4/X5R/6.3V/K/X

LAN POWER

LAN V_1P0

LBC11 10u/6/X5R/6.3V/M
LBC3 0.1u/4/X7R/16V/K
LBC17 0.1u/4/X7R/16V/K
LBC21 0.1u/4/X7R/16V/K
LBC30 0.1u/4/X7R/16V/K

(CLOSE LBU1 PIN4,15,19,29)

3VDUAL_LAN1源頭處

LBC31 0.1u/4/X7R/16V/K
LBC15 0.1u/4/X7R/16V/K
LBC18 0.1u/4/X7R/16V/K
LBC9 0.1u/4/X7R/16V/K
LBC4 0.1u/4/X7R/16V/K

(CLOSE PIN4)

(CLOSE LBU1 PIN8,11,16,22,37,40,43,46,47)

CLOSE LBL1

LAN V_1P0

LBL1 4.7uH/3.3A/29m/S
LBC32 10u/6/X5R/6.3V/M
LBC29 10u/6/X5R/6.3V/M/X

CTRL_0P9 LB CTRL_1P0

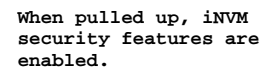
VSS_ERAD WG1219/QFN48

O -PFMRST2 LBC2 18p/4/NPO/50V/J/X

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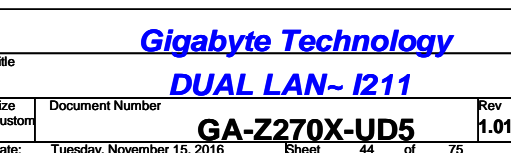
Gigabyte Technology
DUAL LAN~ I219
GA-Z270X-UD5
Date: Tuesday, November 15, 2016 Sheet 43 of 75
Rev 1.01

[illegible][illegible][illegible][illegible]

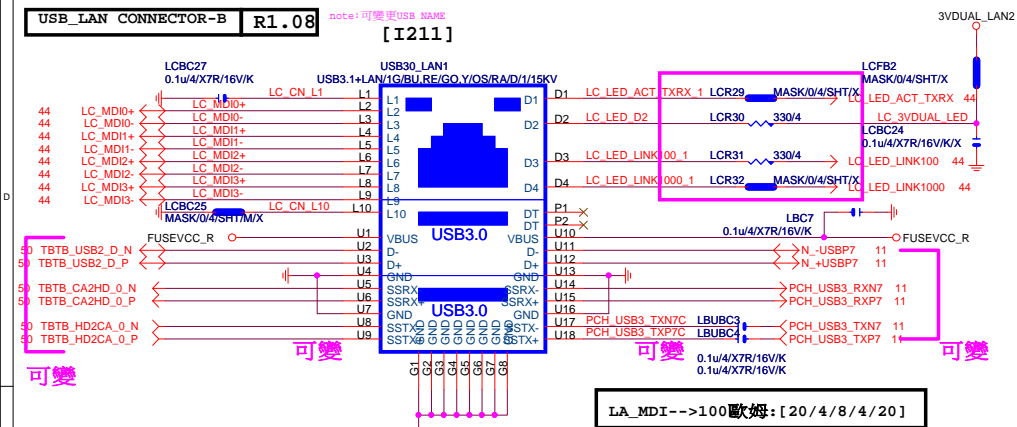


LAN FLASH

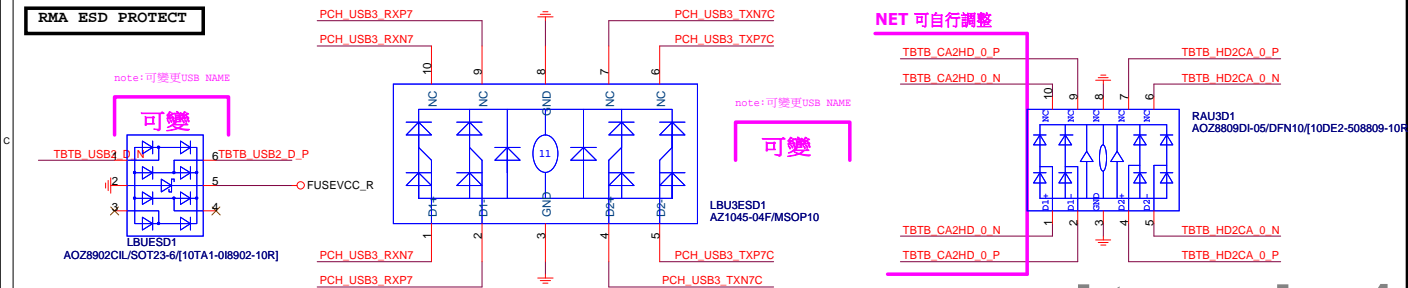
LAN POWER



變更USB NAME
[I211]

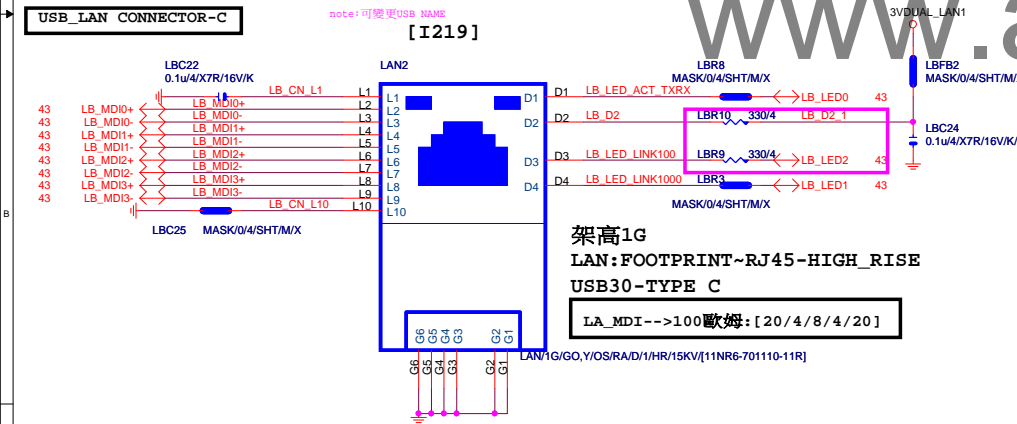


RMA ESD PROTECT



USB_LAN CONNECTOR-C

note:可變更USB NAME
[I219]

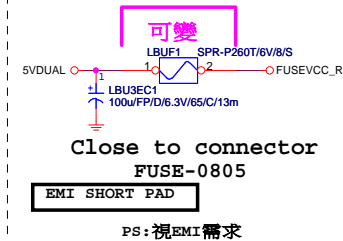


RMA ESD PROTECT

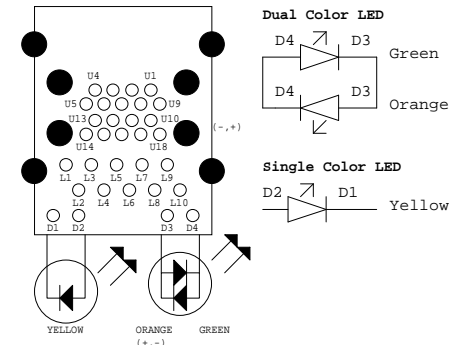


USB POWER

note:可變更FUSB



USB30_LAN LAYOUT示意圖



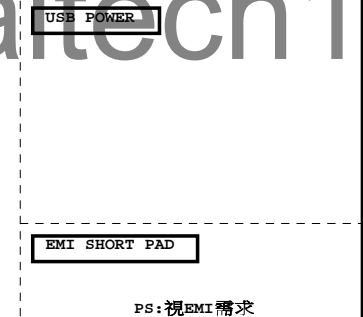
LAN_COVER

可變
[視SPEC需求]

FOOT PRINT:LAN_COVER

USB POWER

cr

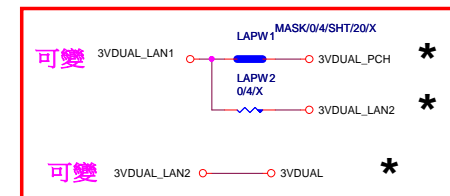


NOTE:

1. 3VDUAL_LAN1, 3VDUAL_LAN2
對接POWER供應電流
[目前暫接3VDUAL]
2. USB2.0/3.0對應USB PORT
[目前暫接USB 0,1,2,3 PORT]
3. USB DROOP/DROP E-CAP
4. USB OC線路

LAN POWER

note: lan power連接及電流

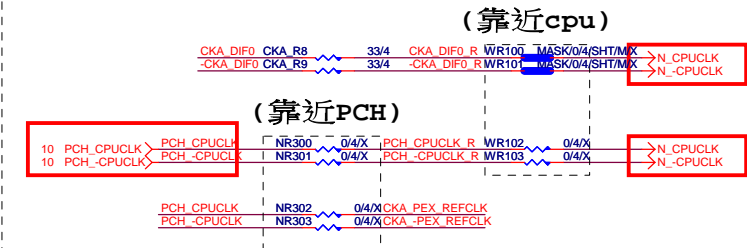
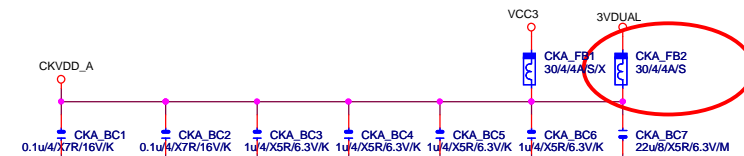
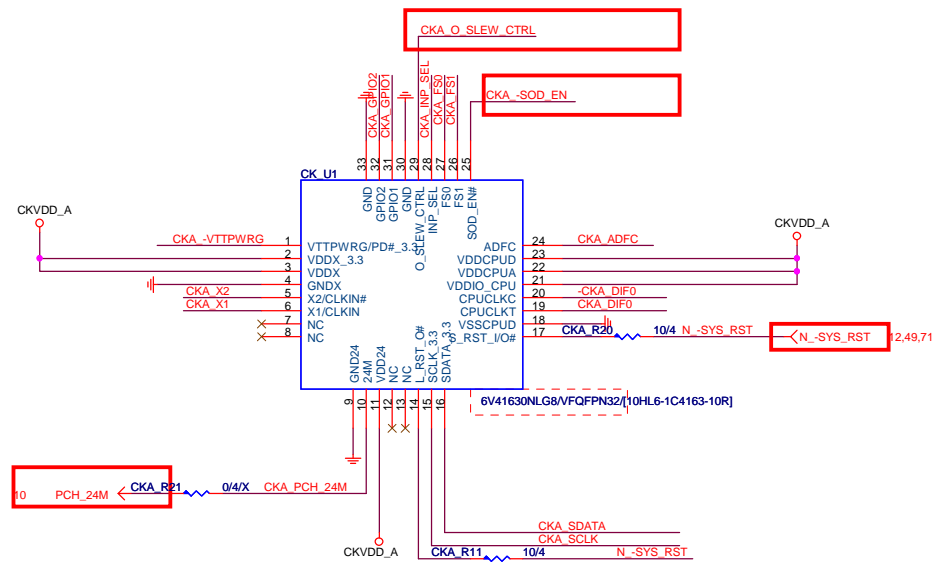


~USB30_LAN1設定在ERP可LAN WAKEUP

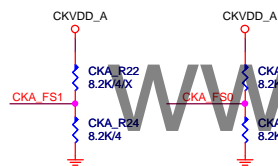
~USB30_LAN2由獨立LAN POWER L1117供給

REV:0.2

IDT6V41630

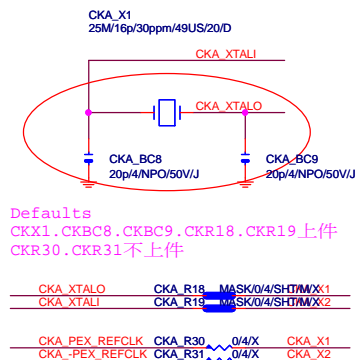
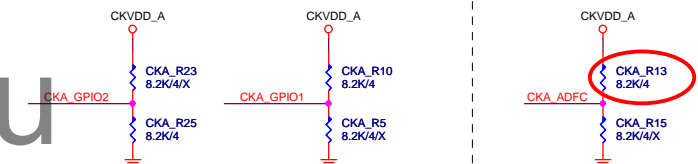


INP_SEL	Input
0	Crystal
1	CLK_INP/N

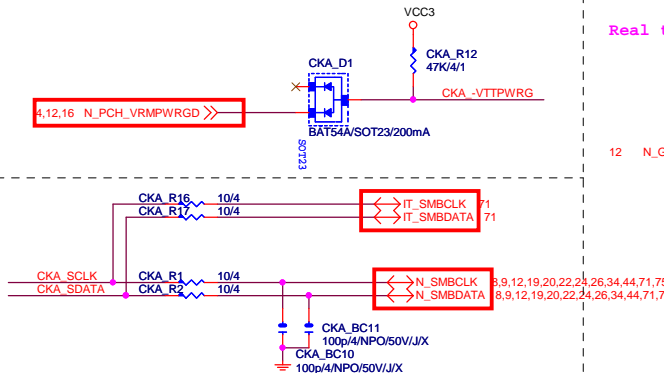


CPU Frequency Selection and output Divider Table

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

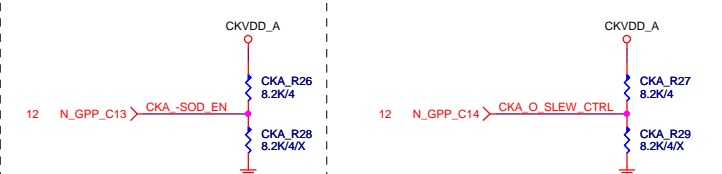


SMBUS

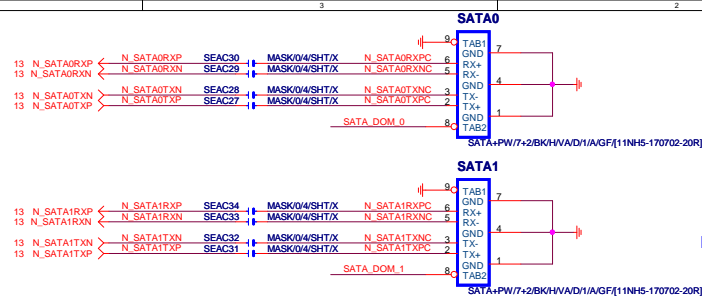


Real time selection function

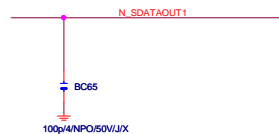
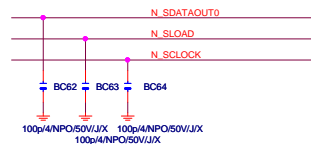
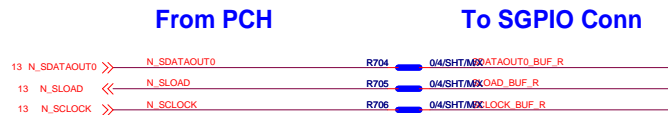
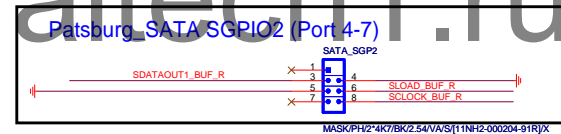
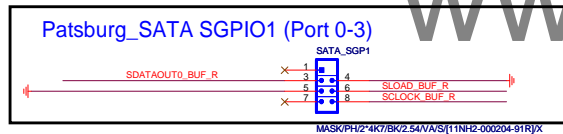
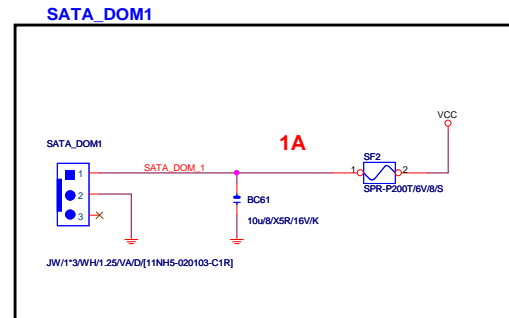
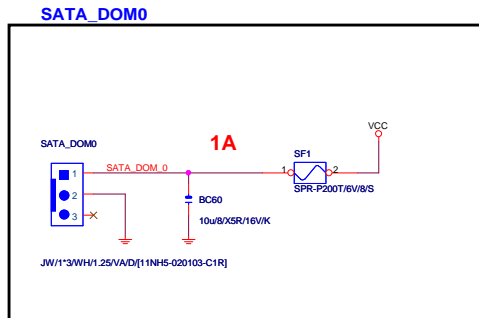
Frequency change slew rate control



GIGABYTE™			
Title			
IDT6V41530_CLK BUFFER			
Size	Document Number	Rev	
Custom	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	46 of 75

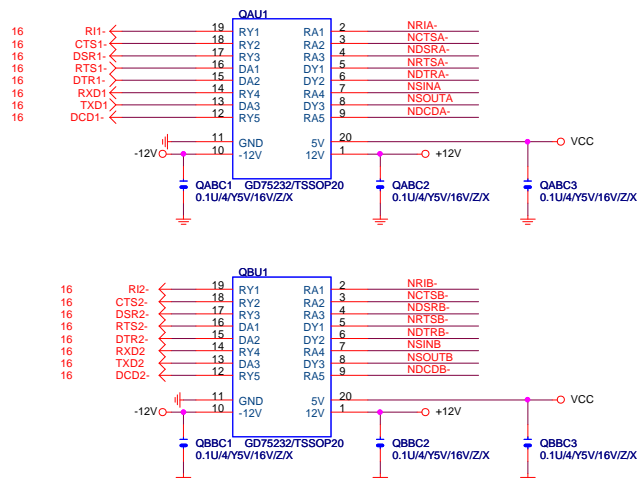


PLACE ALL CAPS < 500 MIL OF CONNECTOR
 If there is a transition via to the AC capacitor it has to be <100 mils from the capacitor pads.
SATA 6Gbps

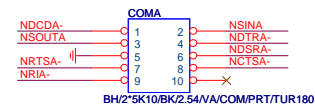


Rev: 0.8

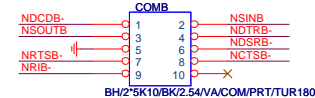
COM PORT



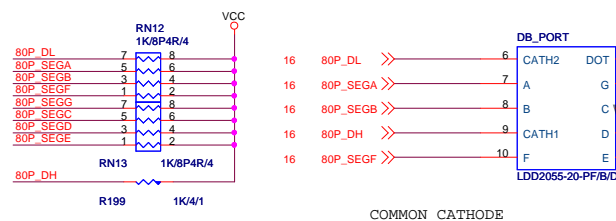
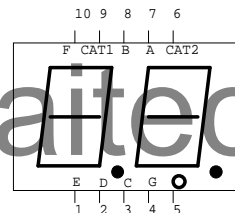
COMA



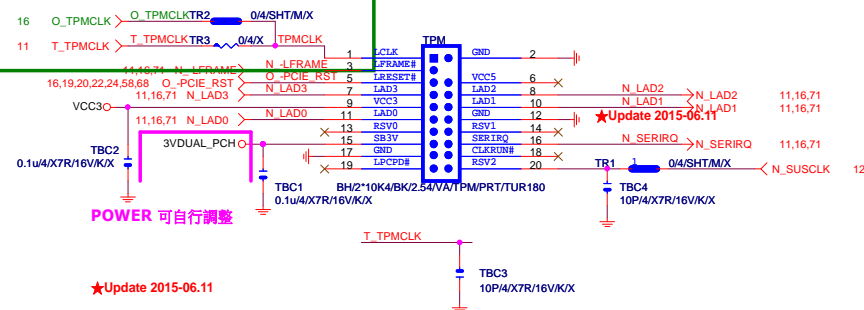
COMB



80 PORT

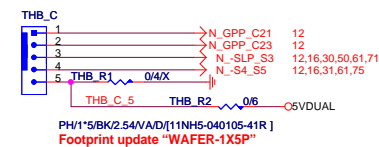
Physical Package
(TOP VIEW)

TPM CONNECT



Thunderbolt

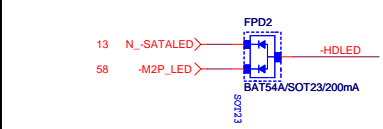
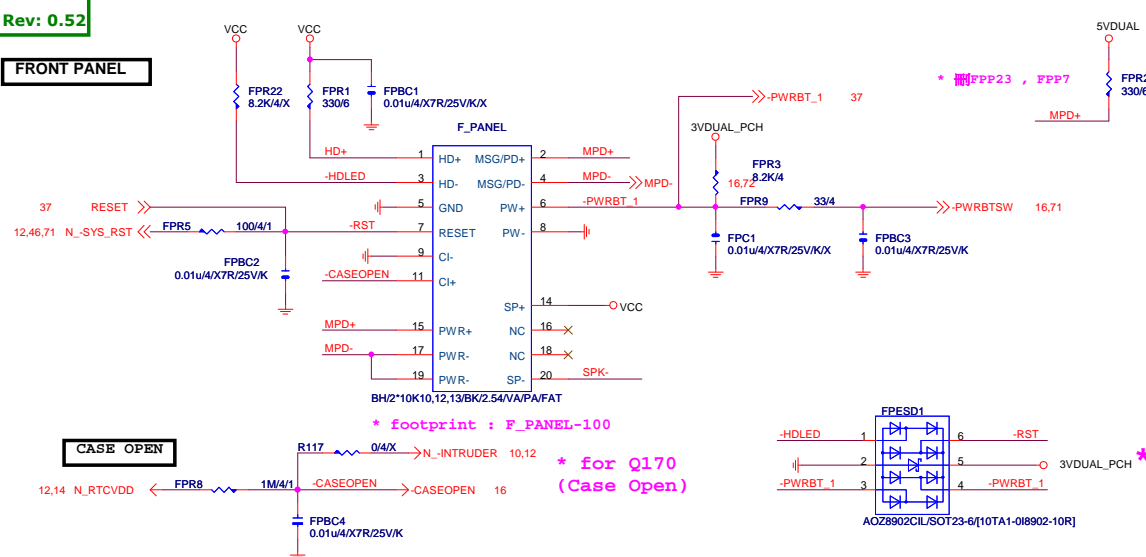
★Update 2015-12-29



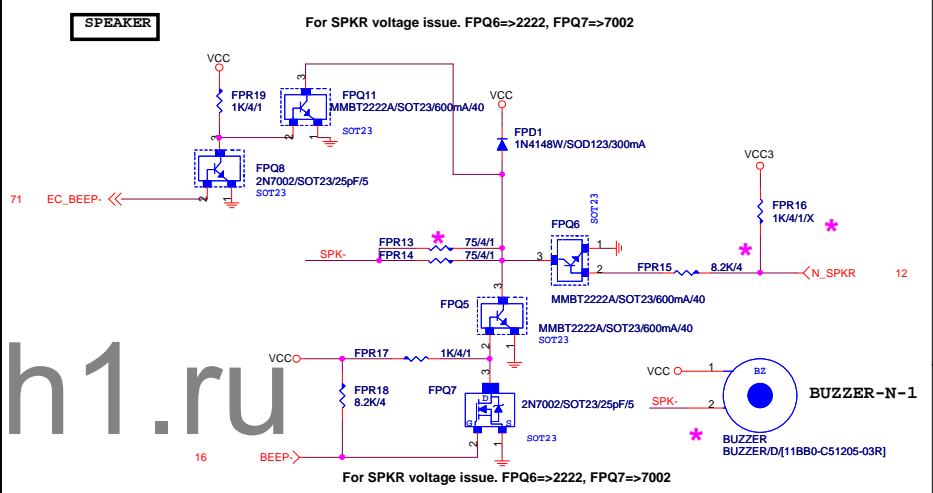
Gigabyte Technology

Title			FP,F_USB,USB PWR,BZ
Document Number			GA-Z270X-UD5
Size	Custom	Rev	1.01
Date:	Tuesday, November 15, 2016	Sheet	48 of 75

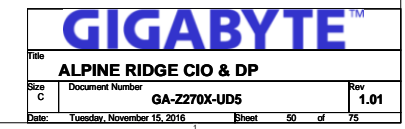
FRONT PANEL

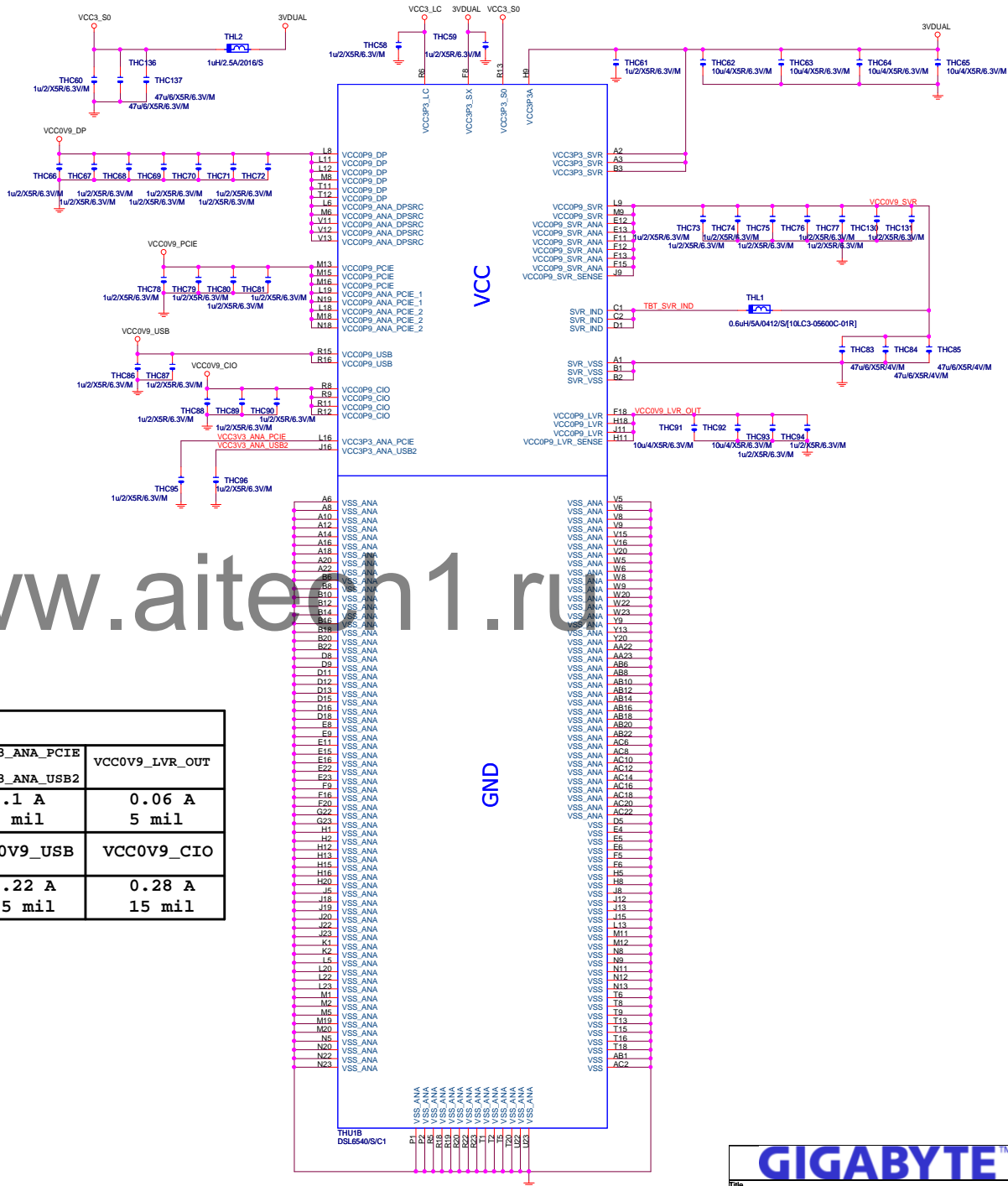


SPEAKER



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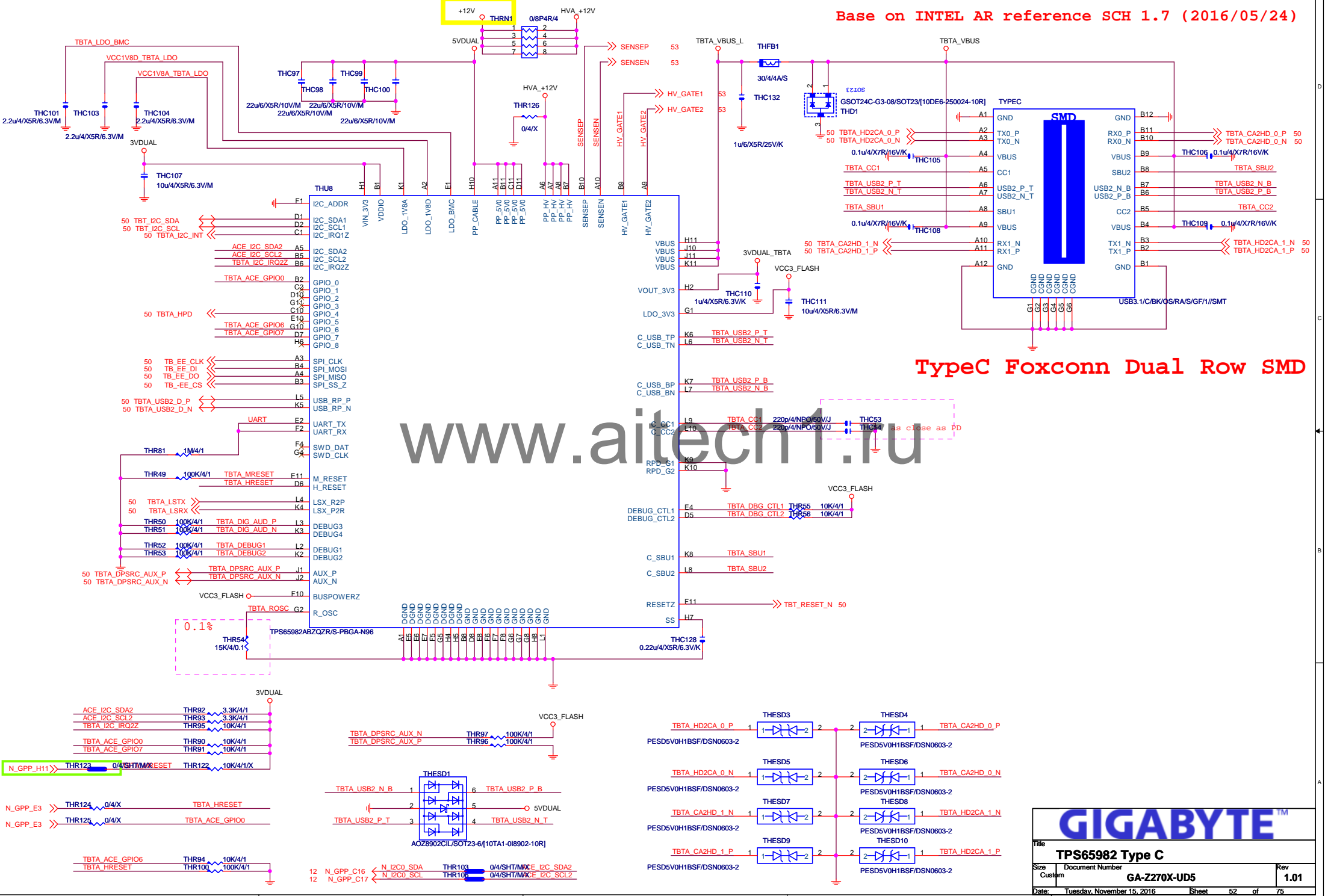




Power Consumption Table					
	VCC3	3VDUAL	VCC3_LC	VCC3V3_ANA_PCIE VCC3V3_ANA_USB2	VCC0V9_LVR_OUT
Max Current(A)	1.05 A 40 mil	0.19 A 10 mil	0.03 A 5 mil	0.1 A 5 mil	0.06 A 5 mil
	VCC0V9_SVR	VCC0V9_DP	VCC0V9_PCIE	VCC0V9_USB	VCC0V9_CIO
Max Current(A)	1.83 A 80 mil	0.7 A 30 mil	0.58 A 30 mil	0.22 A 15 mil	0.28 A 15 mil

INTEL AR C version module (TBT + U31A) SCH 0.3 (2016/07/17) 4 Layers

Base on INTEL AR reference SCH 1.7 (2016/05/24)

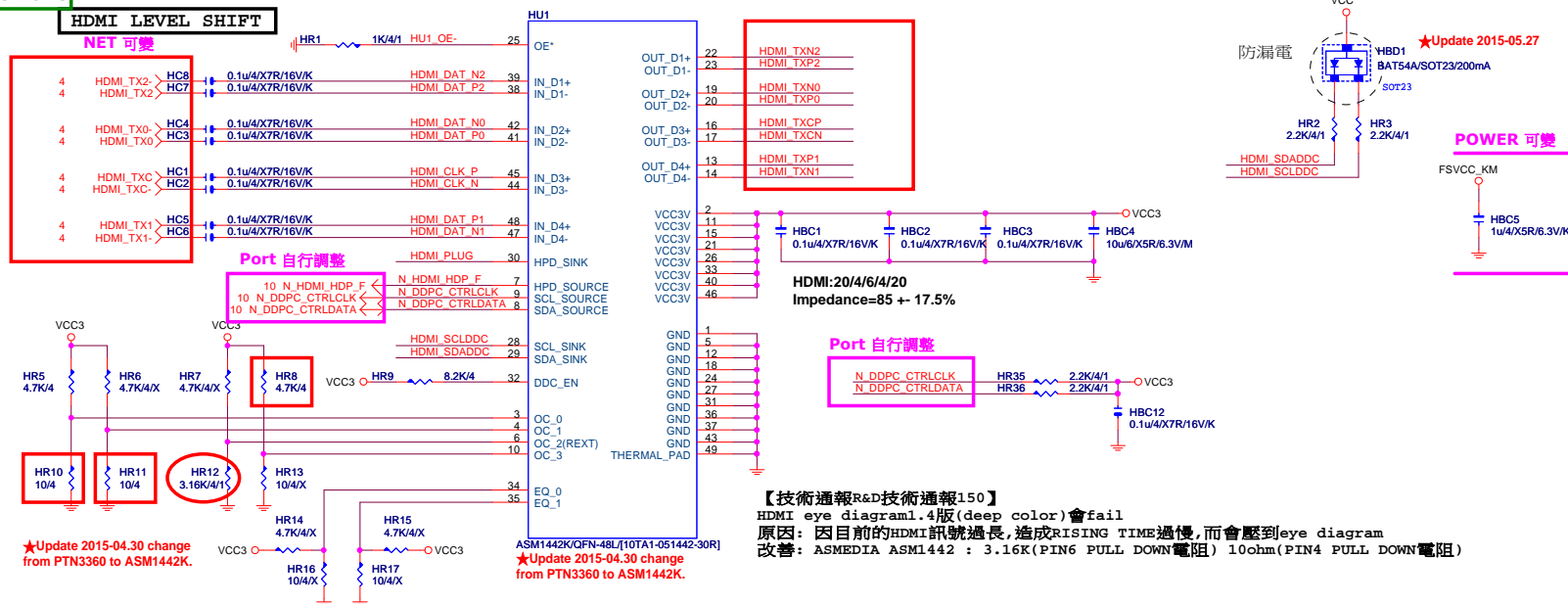


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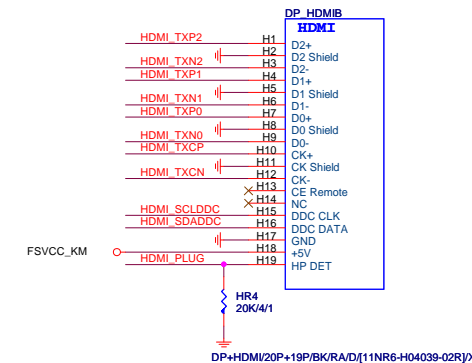
GIGABYTE™		
Title DISPLAY PORT IN		
Size Custom	Document Number GA-Z270X-UD5	Rev 1.01
Date:	Tuesday, November 15, 2016	Sheet 54 of 75

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GIGABYTE™		
Title PD 9V		
Size C	Document Number GA-Z270X-UD5	Rev 1.01
Date: Tuesday, November 15, 2016	Sheet 55 of 75	



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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Gigabyte Technology			
Title			
DP PORT			
Size	Document Number		Rev
Custom	GA-Z270X-UD5		1.01
Date:	Tuesday, November 15, 2016	Sheet	57 of 75

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GIGABYTE™		
Title REALTEK RTS5411		
Size Custom	Document Number GA-Z270X-UD5	Rev 1.01
Date: Tuesday, November 15, 2016	Sheet 59	of 75

CLOSE SIO

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

12,16,30,48,50,71 N_SLP_S3 ←

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

12,16,31,48,75 N_S4_S5 ←

EMIC3
100p/4/NPO/50V/J/X

4,12 N_CPUPWROK ←

CLOSE PCH

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

4,12 N_CPUPWROK ←

www.aitech1.ru**GIGABYTE™**

Title

EMI/ESDSize
A

Document Number

GA-Z270X-UD5

Rev

1.01

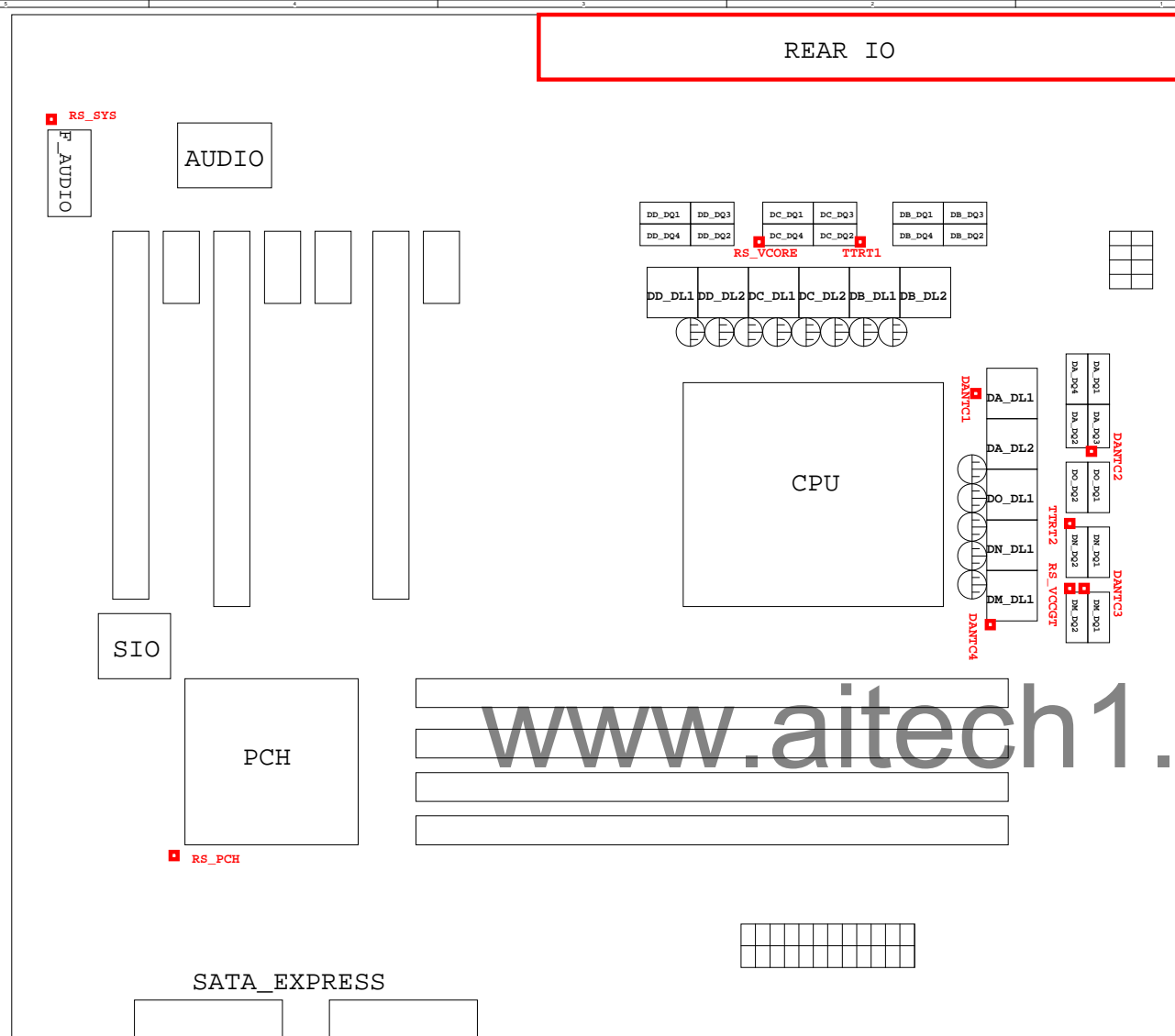
Date: Tuesday, November 15, 2016

Sheet

61

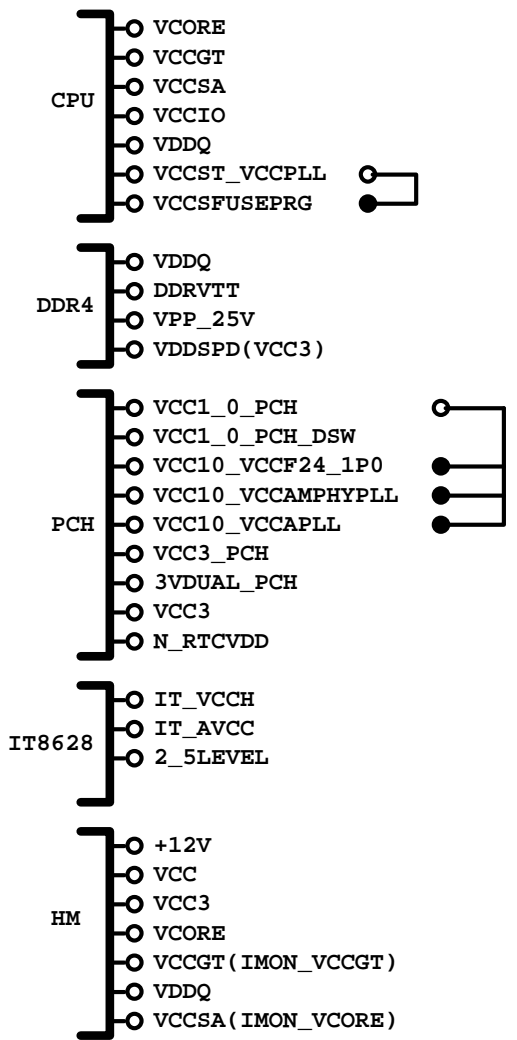
of

75

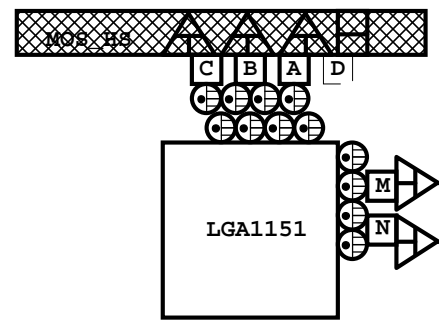
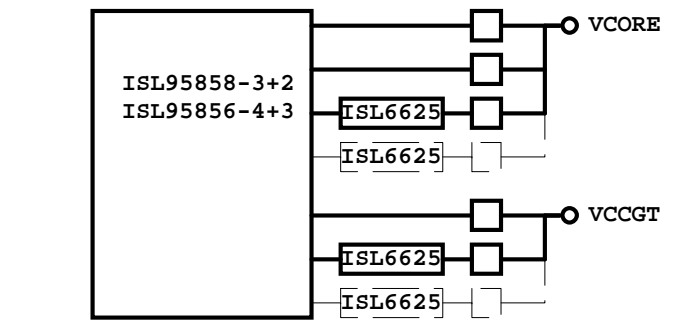


熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL2	Differential
DANTC2	DA_DQ3	Differential
DANTC3	DM_DQ2	Differential
DANTC4	DM_DL1	Differential
RS_VCORE	DC_DQ4	N/A
RS_VCCGT	DM_DQ2	N/A
TTRT1	DC_DQ2	N/A
TTRT2	DN_DQ2	N/A
RS_PCH	PCH	N/A
RS_SYS	F_AUDIO	N/A

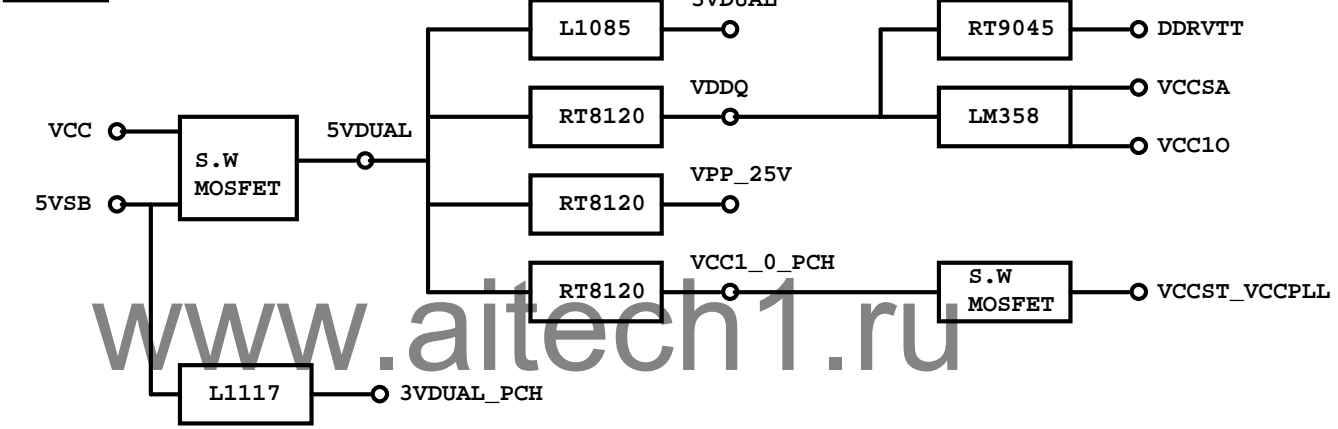
POWER BLOCK MAP



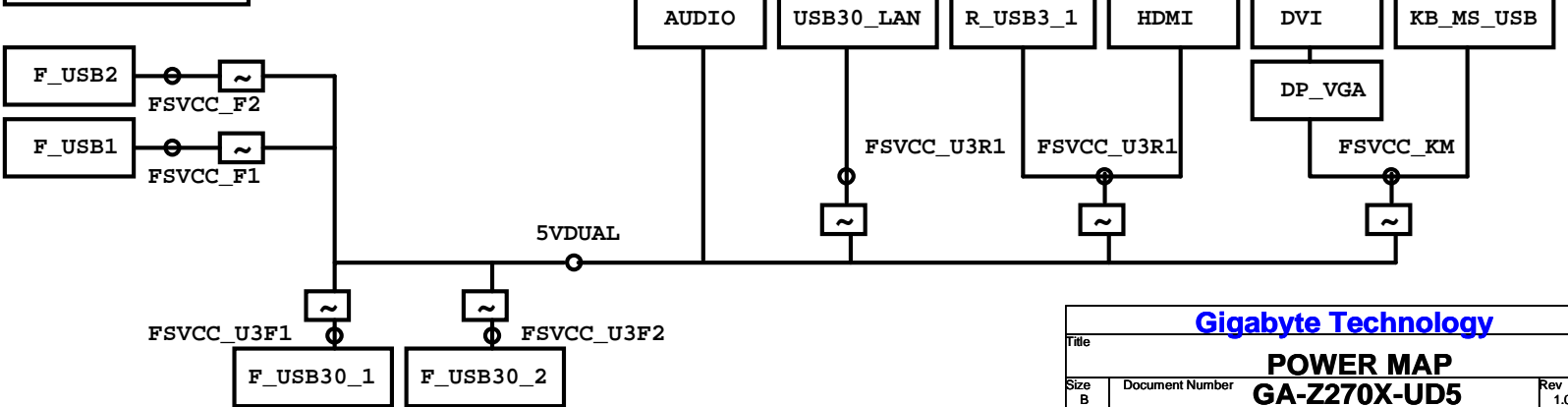
VCORE/VCCGT



POWER



FUSE POWER F/R



Gigabyte Technology			
Title			
POWER MAP			
Size B	Document Number	GA-Z270X-UD5	
Date:	Tuesday, November 15, 2016	Sheet	63 of 75
Rev 1.01			

固態電容料號.請自行修改

日系黑色固態	Capture Value
11C02-C85600-01R	560u/FP/D/6.3V/68/C/8m
11C05-C82700-01R	270u/FP/D/16V/88/C/12m
11C05-C61000-01R	100u/OS/D/16V/66/C/30m
11C02-C51000-01R	100u/FP/D/6.3V/65/C/13m

日系一般固態	Capture Value
11C02-685600-01R	560u/FP/D/6.3V/68/8m
11C05-882700-01R	270u/FP/D/16V/88/12m
11C05-661000-03R	100u/OS/D/16V/66/30m
11C02-651000-02R	100u/OS/D/6.3V/66/30m

台系固態	Capture Value
11C02-661000-09R	100u/OS/D/6.3V/66/A/35m
11C05-691000-09R	100u/OS/D/16V/69/A/35m
11C05-8C2700-09R	270u/FP/D/16V/8C/A/10m
11C02-695600-09R	560u/FP/D/6.3V/69/A/11m

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-01R	0.5uH/40A/IMD109/M/D	10*10	CHOKE05U-40A-1PQ-3	閃電P
DIP	11LC5-M4500C-11R	0.5uH/40A/IMD109/M/NP/D	10*10	CHOKE05U-40A-1PQ-3	無閃電P
DIP	11LC5-M2500C-01R	0.5uH/20A/IMD0809/M/D	8*8	CHOKE1U-R50M-IF	

Skylake Iron Choke閃電P導入機種如下:
[1] Z170/H170 機種全部導入
[2] B150/H110Gaming機種導入, 其餘不導入

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CHOKE11X8MM-SMD

BEAD

	料號	Capture Value	SIZE	Footprint
DIP	10LFB-15470A-01R	47/4030/15A/S	4*3	BEADC8B-BPH_SMD

PWM料號

		料號	Capture Value	Footprint
PWM	ISL95856	10TA1-695856-01R		IC52QFN-6x6-G
PWM	ISL95858	10TA1-695858-01R		IC52QFN-6x6-G
PWM	IR35201	10TA1-635201-00R		IC56QFN-9VRS4339
PWM	IR3570	10TA1-603570-00R		IC40MLFP-ISL95835
PWM	RT8237C/D	10TA1-608237-01R		IC10DFN-NIS5132

REGULATOR

		料號	Capture Value	Footprint
	NCT3103S	10GL2-203103-01R	NCT3103S/SOP8/2A	IC8-EPSOIC

GIGABYTE™			
Title RT8120_DDR4 POWER			
Size Custom	Document Number GA-Z270X-UD5		Rev 1.01
Date: Tuesday, November 15, 2016	Sheet 64	of 75	

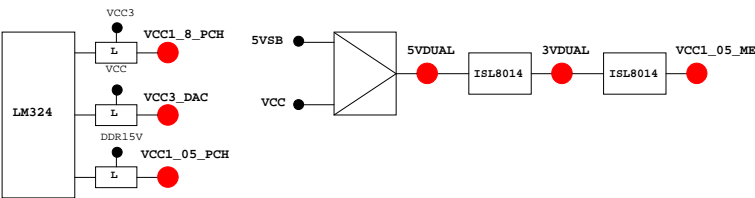
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPIO0	N/A
GP1/TACH1	MAIN	GPI	GPIO1	N/A
GP2/PIRQE#	MAIN	GPI	~PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	GPI	~PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	GPI	~PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	GPI	~PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	GPI	PCIE1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN	MAIN	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPIO8	N/A
GP9/OC5#	STBY	NATIVE	USB OC5#	N/A
GP10/OC6#	STBY	NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY	NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12
GP13	STBY	L	GPI	LPCPME#
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)
GP16	MAIN	MAIN	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN	MAIN	GPIO17	P/U 8.2K VCC3
GP18	MAIN	MAIN	GPIO18	Mobile Only
GP19	MAIN	MAIN	GPIO19	P/U 8.2K VCC3
GP20	MAIN	MAIN	GPIO20	P/U 8.2K VCC3
GP21	MAIN	MAIN	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPIO22	P/U 8.2K VCC3
GP23	MAIN	MAIN	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	PWR LED
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	~PCI_STOP
GP35	MAIN	L	GPO	~ACZ_DET
GP36	MAIN	MAIN	GPI	N/A
GP37	MAIN	MAIN	GPI	N/A
GP38	MAIN	H-Z	GPI	PCIE4 Detect
GP39	MAIN	H-Z	GPI	GPIO39
GP40	STBY	NATIVE	USB OC1#	N/A
GP41	STBY	NATIVE	USB OC2#	N/A
GP42	STBY	NATIVE	USB OC3#	N/A
GP43	STBY	NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44
GP45	STBY	NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48
GP49	MAIN	H-Z	IN	GPIO49
GP50	MAIN	NATIVE	~REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	~GNT1
GP52	MAIN	NATIVE	~REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	~GNT2
GP54	MAIN	NATIVE	~REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	~GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	~SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

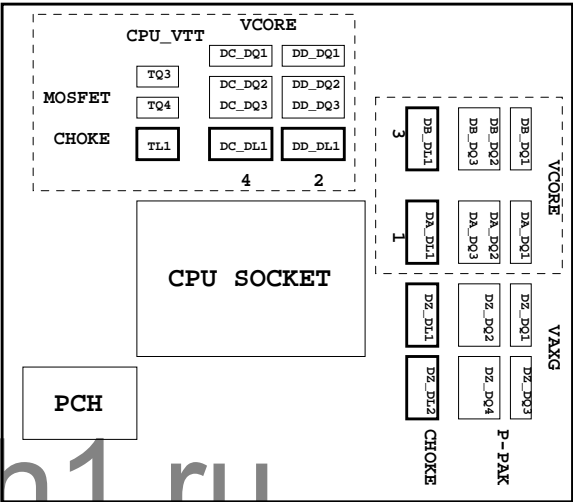
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
VID05/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	SE PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

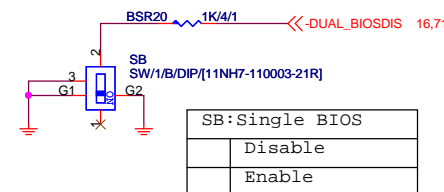
線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

散熱模組料號：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology			
TABLE LIST			
Size C	Document Number	Rev	
	GA-Z270X-UD5	1.01	
Date:	Tuesday, November 15, 2016	Sheet	65 of 75

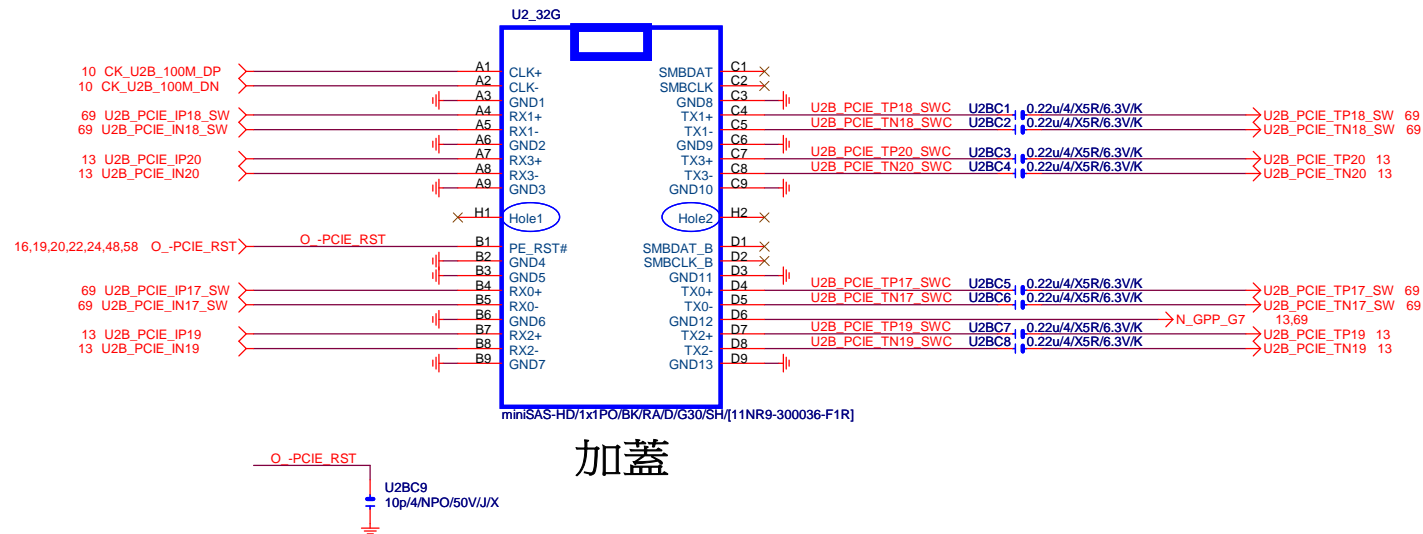


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Title		
M.2 to MINISAS		
Size	Document Number	Rev
B	GA-Z270X-UD5	1.01
Date:	Thursday, November 24, 2016	Sheet 67 of 75

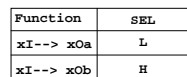
Rev 0.3



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Title		
M.2 to MINISAS		
Size	Document Number	Rev
B	GA-Z270X-UD5	1.01
Date:	Tuesday, November 15, 2016	Sheet 68 of 75

(M)TYPE



M.2 Detect N_GPP_G7	M.2 MODE N_GPP_G8	PCIe17	PCIe18	PCIe19	PCIe20
HIGH	X	切回 SATA4	切回 SATA5	N/A	N/A
LOW	HIGH(PCIe)	PCIEX4 FOR U.2(最優先)			

3溫度偵測

- [1] 2nd PCIe16 slot
- [2] System temp 2
- [3] 2nd Sensor socket / cable

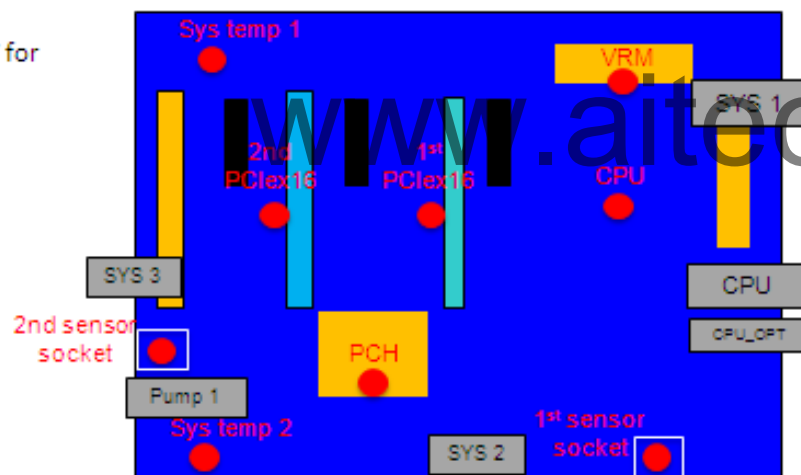
3風扇 headers

- [1] Pump (default看CPU溫度)
- [2] SYS 2 (default看sys temp 2溫度)
- [3] SYS 3 (default看sys temp 2溫度)

每個fan可在UI自由選擇看IO8686 + EC8793的9個溫度的任何一個來follow

Pump 1 header

support 2A = 24W for water pump



6溫度偵測

- [1] CPU
- [2] V core MOS (VRM)
- [3] PCH
- [4] 1st PCIe16 slot
- [5] System temp 1
- [6] 1st sensor socket / cable

3風扇 headers

- [1] CPU (default看CPU溫度)
- [2] CPU_OPT (default看CPU溫度)
- [3] SYS 1 (default看sys temp 1溫度)
- [4] SYS 2 (default看sys temp 1溫度)
- [5] SYS 3 (default看sys temp 1溫度)

每個fan可在UI自由選擇看IO8686的6個溫度的任何一個來follow

Z270X-UD5

6 Fans rule
例外

GIGABYTE

Title

FAN MAP

Size
A

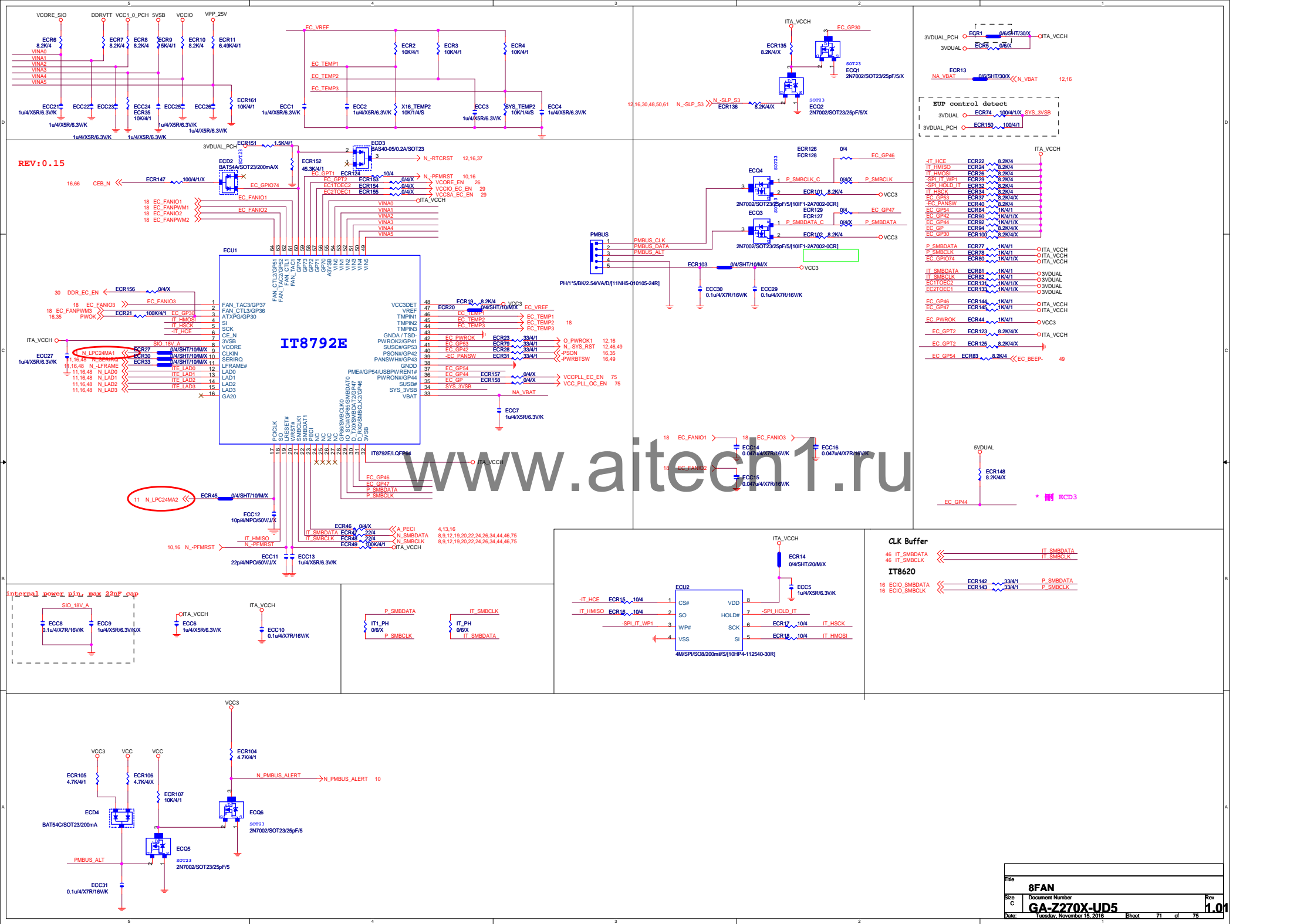
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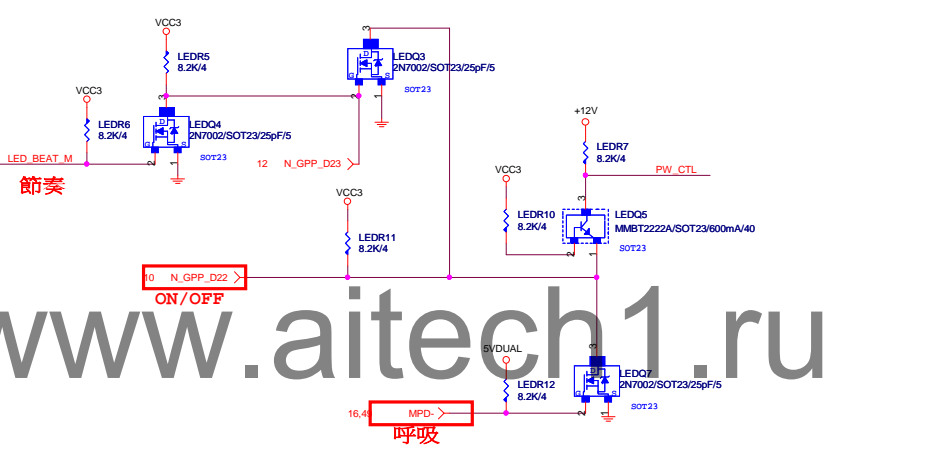
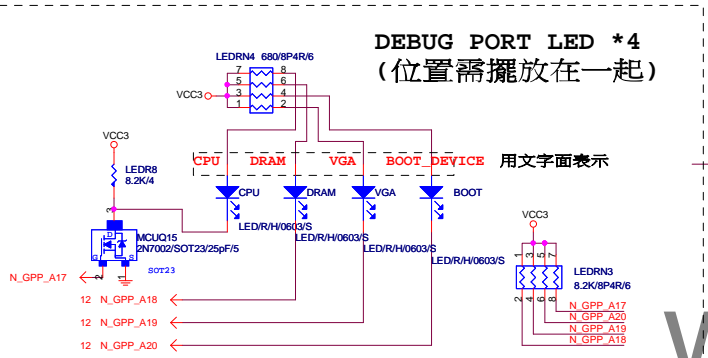
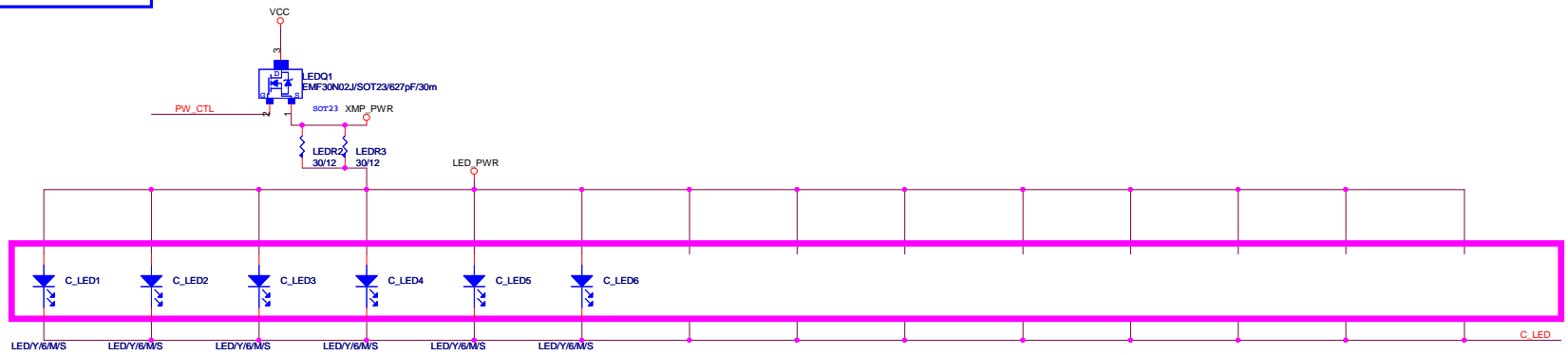
GA-Z270X-UD5

Rev
1.01

Date: Tuesday, November 15, 2016

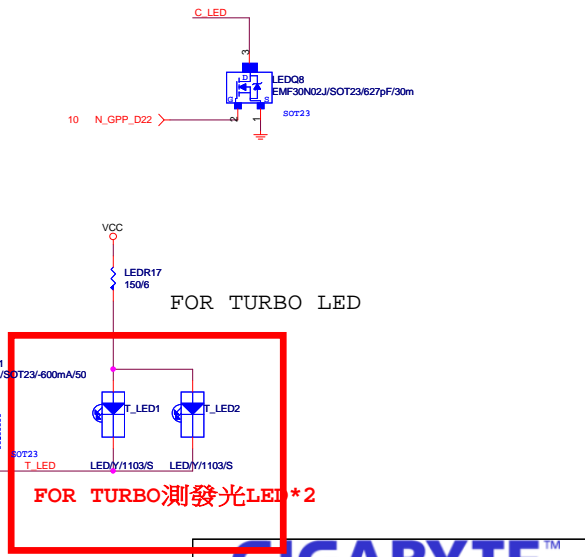
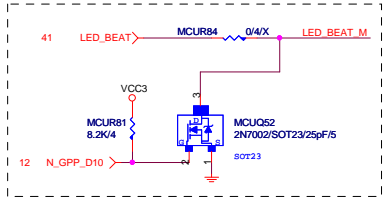
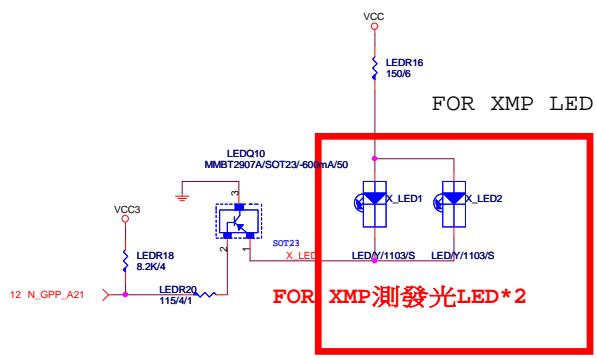
Sheet 70 of 75





Ambient LED Control

	N_GPP_D22	N_GPP_D23	IO_GP91
Still Mode	H	L	L
OFF Mode	L	L	L
Pluse Mode	H	L	BREATH
Beat Mode	H	OD	L



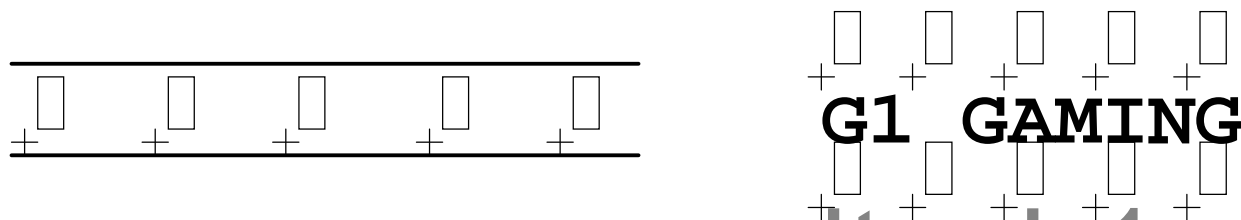
RGB LED LAYOUT 注意事項：

1. Debug LED 文字面表示如右所示
2. 背板 RGB LED 方向整板請統一如下
(整板正極可統一朝下或朝上)
3. 正板 RGB LED 統一方向即可

Debug LED 文字面 (單色LED)



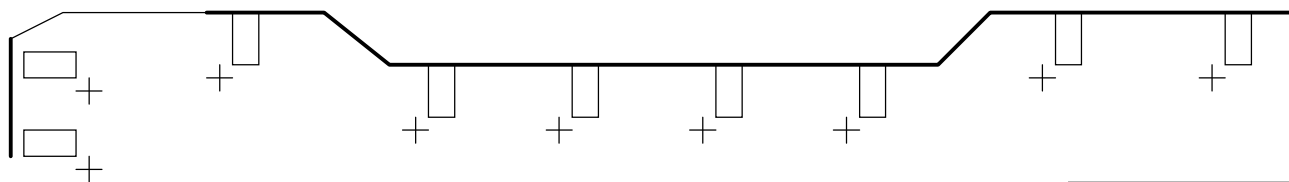
PCB板邊透光model name鏤空+背面 RGB LED



"Turbo", "XMP"字樣(分開控制) 鏤空+背面 RGB LED



Audio Ground切割線+背面 RGB LED

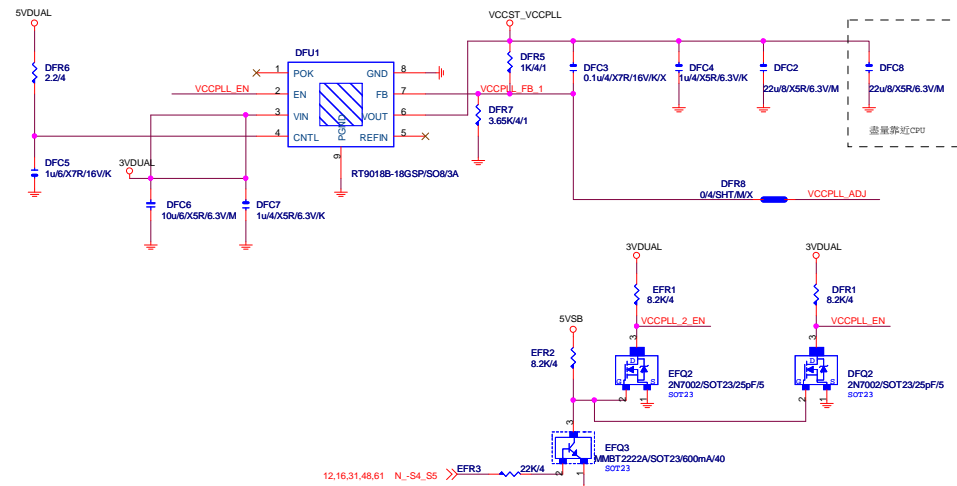


GIGABYTE™			
Title			
MODEL/PCB LED			
Size	Document Number		Rev
Custom	GA-Z270X-UD5		1.01
Date:	Tuesday, November 15, 2016	Sheet	73 of 75

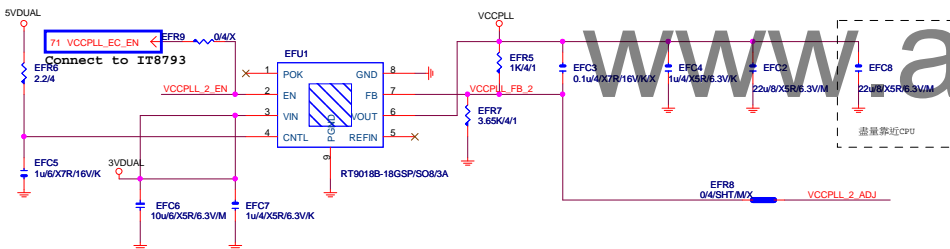
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GIGABYTE™		
Title DAC POWER		
Size Custom	Document Number GA-Z270X-UD5	Rev 1.01
Date: Tuesday, November 15, 2016 Sheet 74 of 75		

VCCST_VCCPLL



VCCPLL



VCCPLL_OC

