

# Model Name: GA-Z170N-Gaming 5

SHEET TITLE Rev 1.01

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
09	DDR4 CHANNEL B
10	PCH_CLK BUFFER
11	PCH_DMI,USB,PCIE
12	PCH_MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	Dual BIOS
16	ITE 8628 LPC IO
17	HWM
18	FAN CTRL--SIO
19	PCI EXPRESS*16 SLOT
20	M.2X4
21	M.2 WIFI
22	SATA EXPRESS
23	ISL95858 PWM_VCORE
24	ISL95858 MOS_VCORE
25	ISL95858 MOS_VCCGT
26	VCCSA_VCCIO_VCCPLL
27	RT8120_DDR_VDDQ

SHEET TITLE

28	RT8120_VPP_25V
29	RT8120_PCH_VCC1_0_PCH
30	DISCRETE POWER
31	NCT3933
32	ATX POWER , A_-PROCHOT
33	R_USB30,KB_MS_USB3
34	DVI CONN
35	ALPINE RIDGE CIO & DP
36	ALPINE RIDGE POWER
37	HD3SS3212&TUSB321_A
38	DP, HDMI, SPDIF
39	KILLER E2201
40	USB30 LAN CONNECTOR-E2201
41	Realtek ALC1150
42	REAR AUDIO JACK
43	AUDIO POWER
44	F_USB30
45	F_USB
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48	HDMI CONN_170
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## Component value change history

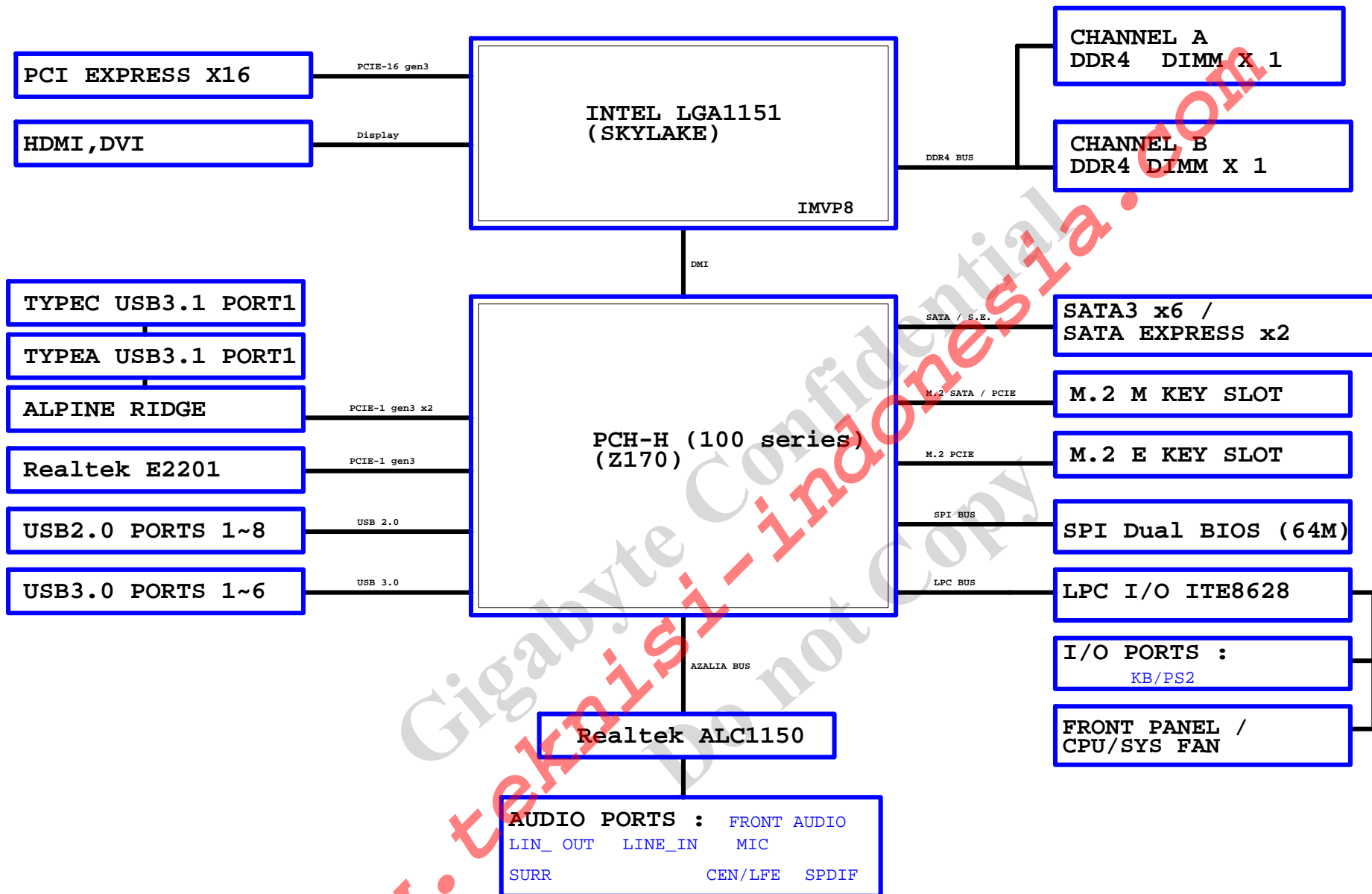
P-Code: U15045-0

[illegible]

## Circuit or PCB layout change

[illegible]

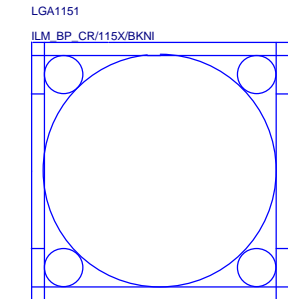
# BLOCK DIAGRAM





# \* 改DDR4 net

LGA1151A		SKT_H4		LGA1151B	
MDA0	AE38	DDR0_DQ[0]	DDR0_CK[0]	MDA0	AE38
MDA1	AE37	DDR0_DQ[1]	DDR0_CK[1]	MDA1	AE37
MDA2	AG38	DDR0_DQ[2]	DDR0_CK[2]	MDA2	AG38
MDA3	AG37	DDR0_DQ[3]	DDR0_CK[3]	MDA3	AG37
MDA4	AE39	DDR0_DQ[4]	DDR0_CK[4]	MDA4	AE39
MDA5	AE40	DDR0_DQ[5]	DDR0_CK[5]	MDA5	AE40
MDA6	AG39	DDR0_DQ[6]	DDR0_CK[6]	MDA6	AG39
MDA7	AG40	DDR0_DQ[7]	DDR0_CK[7]	MDA7	AG40
MDA8	AJ38	DDR0_DQ[8]	DDR0_CK[8]	MDA8	AJ38
MDA9	AJ37	DDR0_DQ[9]	DDR0_CK[9]	MDA9	AJ37
MDA10	AL38	DDR0_DQ[10]	DDR0_CK[10]	MDA10	AL38
MDA11	AL37	DDR0_DQ[11]	DDR0_CK[11]	MDA11	AL37
MDA12	AL40	DDR0_DQ[12]	DDR0_CK[12]	MDA12	AL40
MDA13	AL39	DDR0_DQ[13]	DDR0_CK[13]	MDA13	AL39
MDA14	AL39	DDR0_DQ[14]	DDR0_CK[14]	MDA14	AL39
MDA15	AL40	DDR0_DQ[15]	DDR0_CK[15]	MDA15	AL40
MDA16	AN38	DDR0_DQ[16]	DDR0_CK[16]	MDA16	AN38
MDA17	AN40	DDR0_DQ[17]	DDR0_CK[17]	MDA17	AN40
MDA18	AR38	DDR0_DQ[18]	DDR0_CK[18]	MDA18	AR38
MDA19	AR37	DDR0_DQ[19]	DDR0_CK[19]	MDA19	AR37
MDA20	AN39	DDR0_DQ[20]	DDR0_CK[20]	MDA20	AN39
MDA21	AN37	DDR0_DQ[21]	DDR0_CK[21]	MDA21	AN37
MDA22	AR39	DDR0_DQ[22]	DDR0_CK[22]	MDA22	AR39
MDA23	AR40	DDR0_DQ[23]	DDR0_CK[23]	MDA23	AR40
MDA24	AW37	DDR0_DQ[24]	DDR0_CK[24]	MDA24	AW37
MDA25	AJ38	DDR0_DQ[25]	DDR0_CK[25]	MDA25	AJ38
MDA26	AV38	DDR0_DQ[26]	DDR0_CK[26]	MDA26	AV38
MDA27	AV36	DDR0_DQ[27]	DDR0_CK[27]	MDA27	AV36
MDA28	AJ37	DDR0_DQ[28]	DDR0_CK[28]	MDA28	AJ37
MDA29	AV37	DDR0_DQ[29]	DDR0_CK[29]	MDA29	AV37
MDA30	AT36	DDR0_DQ[30]	DDR0_CK[30]	MDA30	AT36
MDA31	AJ38	DDR0_DQ[31]	DDR0_CK[31]	MDA31	AJ38
MDA32	AY38	DDR0_DQ[32]	DDR0_CK[32]	MDA32	AY38
MDA33	AW38	DDR0_DQ[33]	DDR0_CK[33]	MDA33	AW38
MDA34	AV6	DDR0_DQ[34]	DDR0_CK[34]	MDA34	AV6
MDA35	AU6	DDR0_DQ[35]	DDR0_CK[35]	MDA35	AU6
MDA36	AU8	DDR0_DQ[36]	DDR0_CK[36]	MDA36	AU8
MDA37	AV8	DDR0_DQ[37]	DDR0_CK[37]	MDA37	AV8
MDA38	AW6	DDR0_DQ[38]	DDR0_CK[38]	MDA38	AW6
MDA39	AV6	DDR0_DQ[39]	DDR0_CK[39]	MDA39	AV6
MDA40	AY4	DDR0_DQ[40]	DDR0_CK[40]	MDA40	AY4
MDA41	AV4	DDR0_DQ[41]	DDR0_CK[41]	MDA41	AV4
MDA42	AT4	DDR0_DQ[42]	DDR0_CK[42]	MDA42	AT4
MDA43	AT2	DDR0_DQ[43]	DDR0_CK[43]	MDA43	AT2
MDA44	AV3	DDR0_DQ[44]	DDR0_CK[44]	MDA44	AV3
MDA45	AW4	DDR0_DQ[45]	DDR0_CK[45]	MDA45	AW4
MDA46	AT4	DDR0_DQ[46]	DDR0_CK[46]	MDA46	AT4
MDA47	AT3	DDR0_DQ[47]	DDR0_CK[47]	MDA47	AT3
MDA48	AP2	DDR0_DQ[48]	DDR0_CK[48]	MDA48	AP2
MDA49	AM4	DDR0_DQ[49]	DDR0_CK[49]	MDA49	AM4
MDA50	AP3	DDR0_DQ[50]	DDR0_CK[50]	MDA50	AP3
MDA51	AM3	DDR0_DQ[51]	DDR0_CK[51]	MDA51	AM3
MDA52	AP4	DDR0_DQ[52]	DDR0_CK[52]	MDA52	AP4
MDA53	AM2	DDR0_DQ[53]	DDR0_CK[53]	MDA53	AM2
MDA54	AP1	DDR0_DQ[54]	DDR0_CK[54]	MDA54	AP1
MDA55	AM1	DDR0_DQ[55]	DDR0_CK[55]	MDA55	AM1
MDA56	AK3	DDR0_DQ[56]	DDR0_CK[56]	MDA56	AK3
MDA57	AH1	DDR0_DQ[57]	DDR0_CK[57]	MDA57	AH1
MDA58	AK4	DDR0_DQ[58]	DDR0_CK[58]	MDA58	AK4
MDA59	AH2	DDR0_DQ[59]	DDR0_CK[59]	MDA59	AH2
MDA60	AH4	DDR0_DQ[60]	DDR0_CK[60]	MDA60	AH4
MDA61	AK2	DDR0_DQ[61]	DDR0_CK[61]	MDA61	AK2
MDA62	AH3	DDR0_DQ[62]	DDR0_CK[62]	MDA62	AH3
MDA63	AK1	DDR0_DQ[63]	DDR0_CK[63]	MDA63	AK1



Need check the new CPU MB

LGA1151B		SKT_H4		LGA1151B	
MDB0	AD34	DDR1_DQ[0]	DDR1_CK[0]	MDB0	AD34
MDB1	AD35	DDR1_DQ[1]	DDR1_CK[1]	MDB1	AD35
MDB2	AG35	DDR1_DQ[2]	DDR1_CK[2]	MDB2	AG35
MDB3	AH35	DDR1_DQ[3]	DDR1_CK[3]	MDB3	AH35
MDB4	AE35	DDR1_DQ[4]	DDR1_CK[4]	MDB4	AE35
MDB5	AE34	DDR1_DQ[5]	DDR1_CK[5]	MDB5	AE34
MDB6	AG34	DDR1_DQ[6]	DDR1_CK[6]	MDB6	AG34
MDB7	AH34	DDR1_DQ[7]	DDR1_CK[7]	MDB7	AH34
MDB8	AK35	DDR1_DQ[8]	DDR1_CK[8]	MDB8	AK35
MDB9	AL35	DDR1_DQ[9]	DDR1_CK[9]	MDB9	AL35
MDB10	AL32	DDR1_DQ[10]	DDR1_CK[10]	MDB10	AL32
MDB11	AL32	DDR1_DQ[11]	DDR1_CK[11]	MDB11	AL32
MDB12	AK34	DDR1_DQ[12]	DDR1_CK[12]	MDB12	AK34
MDB13	AL34	DDR1_DQ[13]	DDR1_CK[13]	MDB13	AL34
MDB14	AK31	DDR1_DQ[14]	DDR1_CK[14]	MDB14	AK31
MDB15	AL31	DDR1_DQ[15]	DDR1_CK[15]	MDB15	AL31
MDB16	AP35	DDR1_DQ[16]	DDR1_CK[16]	MDB16	AP35
MDB17	AN35	DDR1_DQ[17]	DDR1_CK[17]	MDB17	AN35
MDB18	AN32	DDR1_DQ[18]	DDR1_CK[18]	MDB18	AN32
MDB19	AP32	DDR1_DQ[19]	DDR1_CK[19]	MDB19	AP32
MDB20	AN34	DDR1_DQ[20]	DDR1_CK[20]	MDB20	AN34
MDB21	AP34	DDR1_DQ[21]	DDR1_CK[21]	MDB21	AP34
MDB22	AN31	DDR1_DQ[22]	DDR1_CK[22]	MDB22	AN31
MDB23	AP31	DDR1_DQ[23]	DDR1_CK[23]	MDB23	AP31
MDB24	AL29	DDR1_DQ[24]	DDR1_CK[24]	MDB24	AL29
MDB25	AM29	DDR1_DQ[25]	DDR1_CK[25]	MDB25	AM29
MDB26	AP29	DDR1_DQ[26]	DDR1_CK[26]	MDB26	AP29
MDB27	AR29	DDR1_DQ[27]	DDR1_CK[27]	MDB27	AR29
MDB28	AM28	DDR1_DQ[28]	DDR1_CK[28]	MDB28	AM28
MDB29	AL28	DDR1_DQ[29]	DDR1_CK[29]	MDB29	AL28
MDB30	AR28	DDR1_DQ[30]	DDR1_CK[30]	MDB30	AR28
MDB31	AP28	DDR1_DQ[31]	DDR1_CK[31]	MDB31	AP28
MDB32	AR12	DDR1_DQ[32]	DDR1_CK[32]	MDB32	AR12
MDB33	AP12	DDR1_DQ[33]	DDR1_CK[33]	MDB33	AP12
MDB34	AM13	DDR1_DQ[34]	DDR1_CK[34]	MDB34	AM13
MDB35	AL13	DDR1_DQ[35]	DDR1_CK[35]	MDB35	AL13
MDB36	AR13	DDR1_DQ[36]	DDR1_CK[36]	MDB36	AR13
MDB37	AP13	DDR1_DQ[37]	DDR1_CK[37]	MDB37	AP13
MDB38	AM12	DDR1_DQ[38]	DDR1_CK[38]	MDB38	AM12
MDB39	AL12	DDR1_DQ[39]	DDR1_CK[39]	MDB39	AL12
MDB40	AP10	DDR1_DQ[40]	DDR1_CK[40]	MDB40	AP10
MDB41	AR10	DDR1_DQ[41]	DDR1_CK[41]	MDB41	AR10
MDB42	AR7	DDR1_DQ[42]	DDR1_CK[42]	MDB42	AR7
MDB43	AP7	DDR1_DQ[43]	DDR1_CK[43]	MDB43	AP7
MDB44	AR9	DDR1_DQ[44]	DDR1_CK[44]	MDB44	AR9
MDB45	AP9	DDR1_DQ[45]	DDR1_CK[45]	MDB45	AP9
MDB46	AR6	DDR1_DQ[46]	DDR1_CK[46]	MDB46	AR6
MDB47	AP6	DDR1_DQ[47]	DDR1_CK[47]	MDB47	AP6
MDB48	AM10	DDR1_DQ[48]	DDR1_CK[48]	MDB48	AM10
MDB49	AL10	DDR1_DQ[49]	DDR1_CK[49]	MDB49	AL10
MDB50	AM7	DDR1_DQ[50]	DDR1_CK[50]	MDB50	AM7
MDB51	AL7	DDR1_DQ[51]	DDR1_CK[51]	MDB51	AL7
MDB52	AM8	DDR1_DQ[52]	DDR1_CK[52]	MDB52	AM8
MDB53	AL9	DDR1_DQ[53]	DDR1_CK[53]	MDB53	AL9
MDB54	AM6	DDR1_DQ[54]	DDR1_CK[54]	MDB54	AM6
MDB55	AL6	DDR1_DQ[55]	DDR1_CK[55]	MDB55	AL6
MDB56	AJ6	DDR1_DQ[56]	DDR1_CK[56]	MDB56	AJ6
MDB57	AJ7	DDR1_DQ[57]	DDR1_CK[57]	MDB57	AJ7
MDB58	AE6	DDR1_DQ[58]	DDR1_CK[58]	MDB58	AE6
MDB59	AE7	DDR1_DQ[59]	DDR1_CK[59]	MDB59	AE7
MDB60	AH7	DDR1_DQ[60]	DDR1_CK[60]	MDB60	AH7
MDB61	AH6	DDR1_DQ[61]	DDR1_CK[61]	MDB61	AH6
MDB62	AE7	DDR1_DQ[62]	DDR1_CK[62]	MDB62	AE7
MDB63	AE6	DDR1_DQ[63]	DDR1_CK[63]	MDB63	AE6

DDR CHANNEL B

CPU-SK1151/S15

8	MODT_A[0..1]	MODT_A10..11
9	MODT_B[0..1]	MODT_B10..11
8	MDA[0..63]	MDA10..63
9	MDB[0..63]	MDB10..63
8	M_DQSA[0..7]	M_DQSA10..71
8	M_-DQSA[0..7]	M_-DQSA10..71
8	MAAA[0..16]	MAAA10..161
9	MAAB[0..16]	MAAB10..161
9	M_DQSB[0..7]	M_DQSB10..71
9	M_-DQSB[0..7]	M_-DQSB10..71

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VCORE	LGA1151I SKT_H4	VCORE
LGA1151		
A25	VCC_A25	VCC_H32
A26	VCC_A26	VCC_J21
A27	VCC_A27	VCC_F32
A28	VCC_A28	VCC_F33
A29	VCC_A29	VCC_F34
A30	VCC_A30	VCC_G23
B25	VCC_B25	VCC_G24
B27	VCC_B27	VCC_G25
B29	VCC_B29	VCC_G26
B31	VCC_B31	VCC_G27
B32	VCC_B32	VCC_G28
B33	VCC_B33	VCC_G29
B34	VCC_B34	VCC_J22
B35	VCC_B35	VCC_J23
B36	VCC_B36	VCC_J24
B37	VCC_B37	VCC_J25
C25	VCC_C25	VCC_J26
C26	VCC_C26	VCC_J27
C27	VCC_C27	VCC_J28
C28	VCC_C28	VCC_J29
C29	VCC_C29	VCC_J30
C30	VCC_C30	VCC_J31
C32	VCC_C32	VCC_K18
C34	VCC_C34	VCC_K20
C36	VCC_C36	VCC_K21
D25	VCC_D25	VCC_K23
D27	VCC_D27	VCC_K25
D29	VCC_D29	VCC_K27
D31	VCC_D31	VCC_K29
D32	VCC_D32	VCC_K31
D33	VCC_D33	VCC_K31
D34	VCC_D34	VCC_L14
D35	VCC_D35	VCC_L15
D36	VCC_D36	VCC_L16
E24	VCC_E24	VCC_L17
E25	VCC_E25	VCC_L18
E26	VCC_E26	VCC_L19
E27	VCC_E27	VCC_L20
E28	VCC_E28	VCC_L21
E29	VCC_E29	VCC_L22
E30	VCC_E30	VCC_L23
E32	VCC_E32	VCC_L24
E34	VCC_E34	VCC_L25
F36	VCC_F36	VCC_L26
F23	VCC_F23	VCC_L27
F24	VCC_F24	VCC_L28
F25	VCC_F25	VCC_L29
F27	VCC_F27	VCC_L30
F29	VCC_F29	VCC_M13
F31	VCC_F31	VCC_M14
G30	VCC_G30	VCC_M16
G32	VCC_G32	VCC_M18
H22	VCC_H22	VCC_M20
H23	VCC_H23	VCC_M22
H25	VCC_H25	VCC_M24
H27	VCC_H27	VCC_M26
H29	VCC_H29	VCC_M28
H31	VCC_H31	VCC_M30
AJ11	VCC_AJ11	VCC_AJ12
AJ13	VCC_AJ13	VCC_AJ14
AJ15	VCC_AJ15	VCC_AJ16
AJ17	VCC_AJ17	VCC_AJ18
AJ19	VCC_AJ19	VCC_AJ20
AJ21	VCC_AJ21	VCC_AJ22
	VCC_SENSE	VCC_SENSE
		VCC_SENSE

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CPU-SK/1151/S/15

\* 刪 Vcore 電容

LGA1151F SKT_H4	LGA1151
A11	VSS
A13	VSS
A15	VSS
A17	VSS
A24	VSS
A7	VSS
AA3	VSS
AA33	VSS
AA8	VSS
AB39	VSS
AB5	VSS
AC3	VSS
AC33	VSS
AC34	VSS
AC35	VSS
AC6	VSS
AD1	VSS
AD33	VSS
AD36	VSS
AD37	VSS
AD38	VSS
AD39	VSS
AD4	VSS
AD40	VSS
AD6	VSS
AD7	VSS
AD8	VSS
AE3	VSS
AE33	VSS
AE36	VSS
AE5	VSS
AF8	VSS
AF1	VSS
AF33	VSS
AF36	VSS
AF37	VSS
AF40	VSS
AF5	VSS
AF8	VSS
AG1	VSS
AG2	VSS
AG3	VSS
AG33	VSS
AG36	VSS
AG4	VSS
AG5	VSS
AG8	VSS
AH33	VSS
AH36	VSS
AH37	VSS
AH38	VSS
AH39	VSS
AH40	VSS
AH5	VSS
AH8	VSS
AJ1	VSS
AJ31	VSS
AJ32	VSS
AJ33	VSS
AJ34	VSS
AJ35	VSS
AJ36	VSS
AJ4	VSS
AJ5	VSS
AJ8	VSS
AK10	VSS
AK12	VSS
AK13	VSS
AK15	VSS
AK16	VSS
AK17	VSS
AK18	VSS
AK19	VSS
AK20	VSS
AK23	VSS
AK25	VSS
AK26	VSS
AK28	VSS

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AK29	VSS
AK30	VSS
AK36	VSS
AK37	VSS
AK40	VSS
AK5	VSS
AK6	VSS
AK7	VSS
AK8	VSS
AK9	VSS
AL1	VSS
AL11	VSS
AL14	VSS
AL2	VSS
AL21	VSS
AL24	VSS
AL27	VSS
AL3	VSS
AL30	VSS
AL36	VSS
AL4	VSS
AL5	VSS
AM11	VSS
AM14	VSS
AM17	VSS
AM19	VSS
AM24	VSS
AM27	VSS
AM30	VSS
AM31	VSS
AM32	VSS
AM33	VSS
AM34	VSS
AM35	VSS
AM36	VSS
AM37	VSS
AM38	VSS
AM39	VSS
AM40	VSS
AM5	VSS
AN1	VSS
AN10	VSS
AN11	VSS
AN14	VSS
AN16	VSS
AN19	VSS
AN22	VSS
AN23	VSS
AN24	VSS
AN27	VSS
AN30	VSS
AN36	VSS
AN4	VSS
AN5	VSS
AN6	VSS
AN7	VSS
AN8	VSS
AN9	VSS
AP11	VSS
AP14	VSS
AP24	VSS
AP27	VSS
AP30	VSS
AP36	VSS
AP37	VSS
AP40	VSS
AP5	VSS
AR1	VSS
AR11	VSS
AR14	VSS
AR16	VSS
AR17	VSS
AR18	VSS
AR19	VSS
AR2	VSS
AR20	VSS
AR25	VSS
AR26	VSS
AR28	VSS

LGA1151G SKT_H4	LGA1151
AR24	VSS
AR27	VSS
AR3	VSS
AR30	VSS
AR31	VSS
AR32	VSS
AR33	VSS
AR34	VSS
AR35	VSS
AR36	VSS
AR4	VSS
AR5	VSS
AT10	VSS
AT11	VSS
AT12	VSS
AT13	VSS
AT14	VSS
AT17	VSS
AT24	VSS
AT25	VSS
AT26	VSS
AT27	VSS
AT28	VSS
AT29	VSS
AT30	VSS
AT31	VSS
AT32	VSS
AT34	VSS
AT36	VSS
AT37	VSS
AT38	VSS
AT39	VSS
AT40	VSS
AT5	VSS
AT6	VSS
AT7	VSS
AT8	VSS
AT9	VSS
AU1	VSS
AU25	VSS
AU30	VSS
AU34	VSS
AU4	VSS
AU5	VSS
AU7	VSS
AV2	VSS
AV26	VSS
AV28	VSS
AV30	VSS
AV34	VSS
AV38	VSS
AV5	VSS
AV9	VSS
AW3	VSS
AW30	VSS
AW32	VSS
AW34	VSS
AW36	VSS
AW5	VSS
AW9	VSS
AY27	VSS
AY30	VSS
AY5	VSS
AY7	VSS
AY9	VSS
B24	VSS
B26	VSS
B28	VSS
B30	VSS
B6	VSS
C12	VSS
C14	VSS
C16	VSS
C18	VSS
C20	VSS
C22	VSS
C24	VSS
C31	VSS
C33	VSS
C35	VSS

7 OF 12

CPU-SK/1151/S/15

LGA1151H SKT_H4	LGA1151
C37	VSS
C5	VSS
C8	VSS
C10	VSS
D24	VSS
D26	VSS
D28	VSS
D30	VSS
D37	VSS
D39	VSS
D4	VSS
D7	VSS
E11	VSS
E13	VSS
E15	VSS
E17	VSS
E19	VSS
E21	VSS
E23	VSS
E3	VSS
E31	VSS
E32	VSS
E35	VSS
E37	VSS
E6	VSS
E9	VSS
E1	VSS
F10	VSS
F22	VSS
F26	VSS
F28	VSS
F30	VSS
F4	VSS
F40	VSS
F7	VSS
G11	VSS
G13	VSS
G15	VSS
G17	VSS
G19	VSS
G22	VSS
G3	VSS
G31	VSS
G33	VSS
G6	VSS
H1	VSS
H21	VSS
H24	VSS
H26	VSS
H28	VSS
H30	VSS
H35	VSS
H37	VSS
H39	VSS
H4	VSS
H7	VSS
H9	VSS
J10	VSS
J12	VSS
L11	VSS
J16	VSS
J18	VSS
J20	VSS
J3	VSS
J32	VSS
J34	VSS
J6	VSS
K1	VSS
K14	VSS
K15	VSS
K17	VSS
K19	VSS
K22	VSS
K24	VSS
K26	VSS
K28	VSS
K30	VSS
K33	VSS
K35	VSS
K37	VSS

8 OF 12

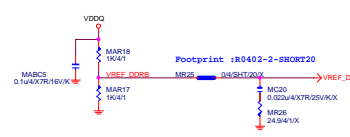
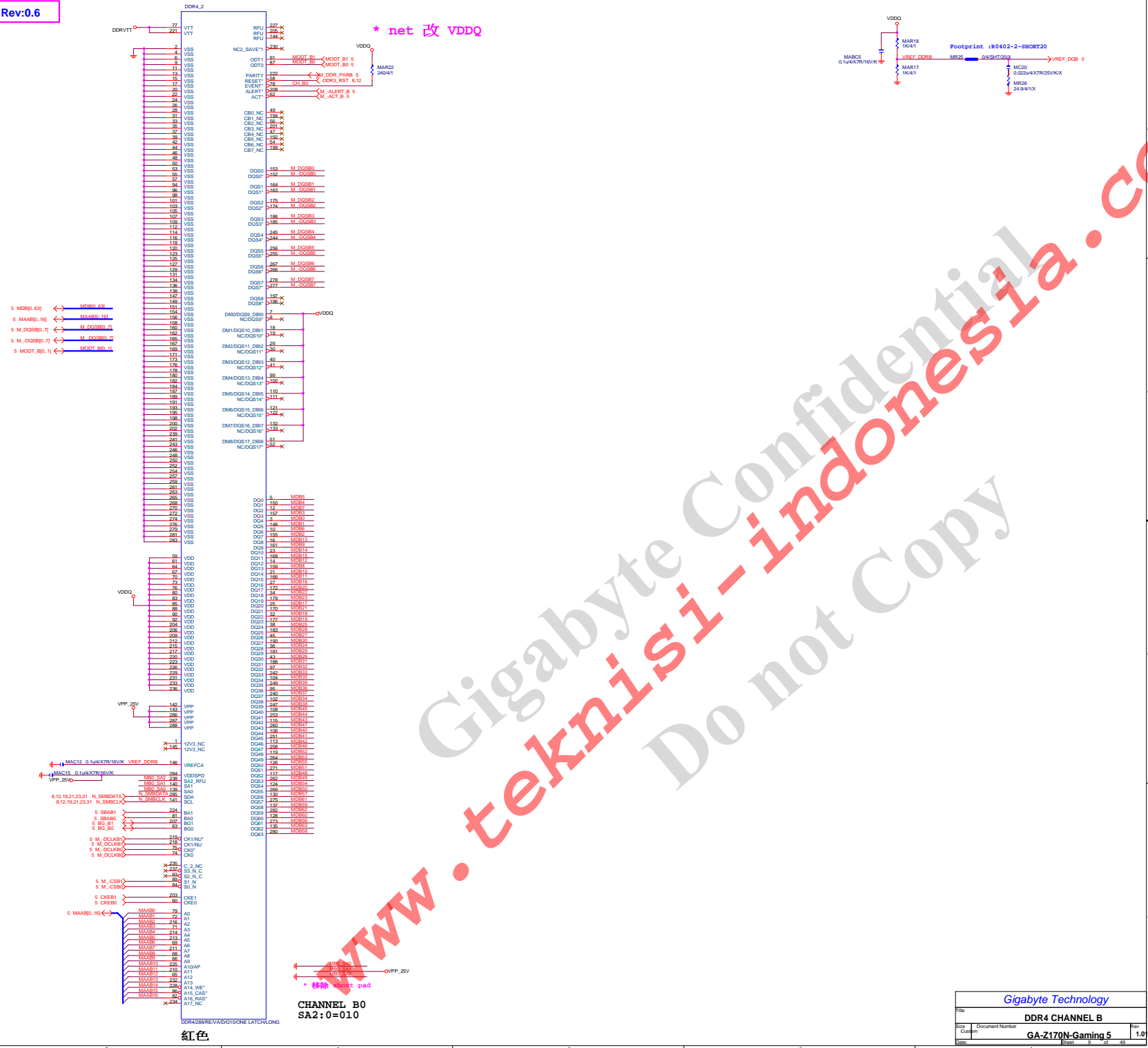
CPU-SK/1151/S/15

A4	VSS_NCTF
B38	VSS_NCTF
C2	VSS_NCTF
D40	VSS_NCTF

Gigabyte Technology		
Title		
CPU LGA1151-D		
Size Custom	Document Number	Rev
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DDR4288RE/VA/D015C0NE LATCHLONG

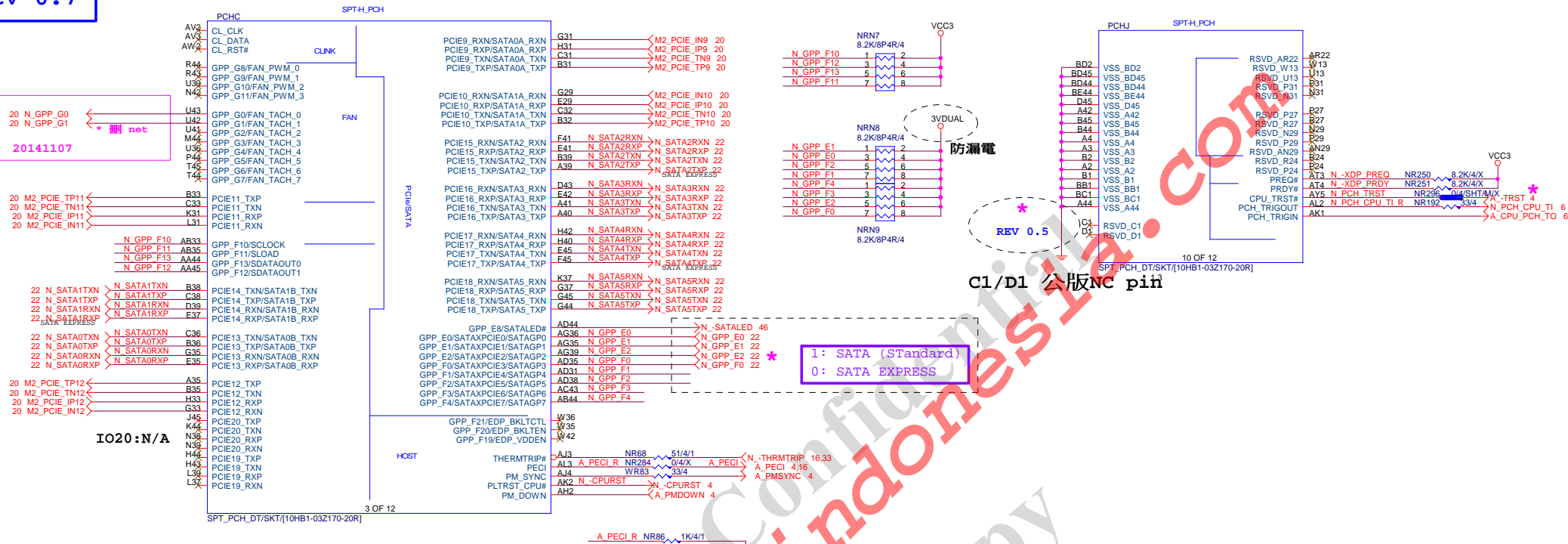
CHANNEL B0  
SA2:0=010

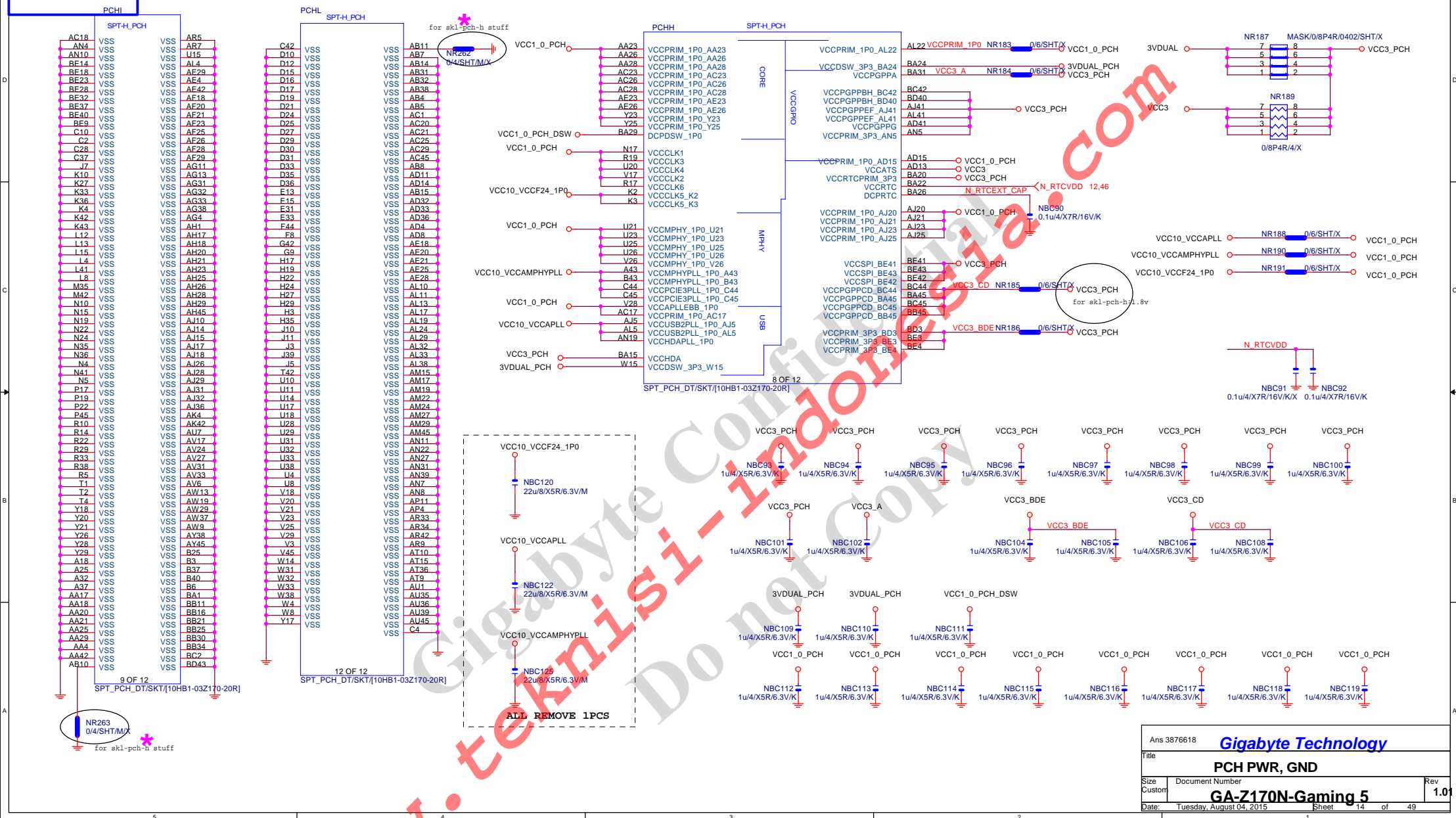
Gigabyte Technology		
File	DDR4 CHANNEL B	
Size	Document Number	Rev
Count	GA-Z170N-Gaming 5	1.0
Scale	1:1	





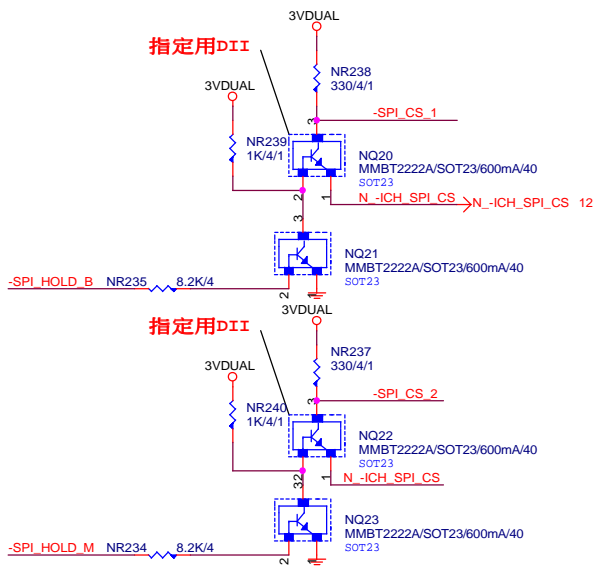




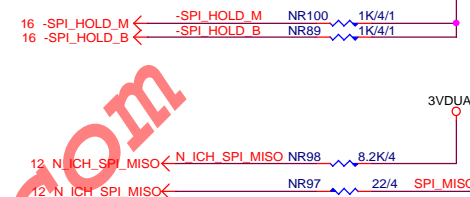
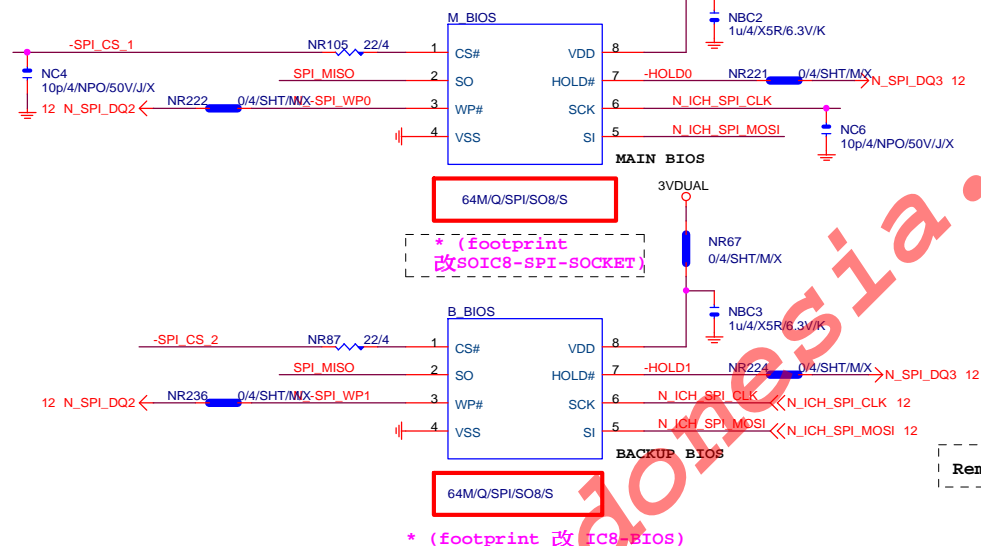




指定用DII



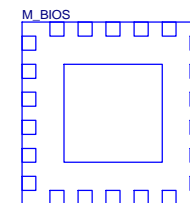
指定用DII



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

1 means floating  
0 means PD 1K

Remove NBC4



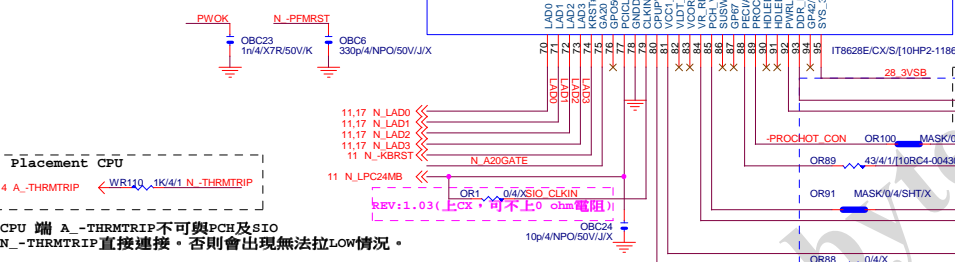
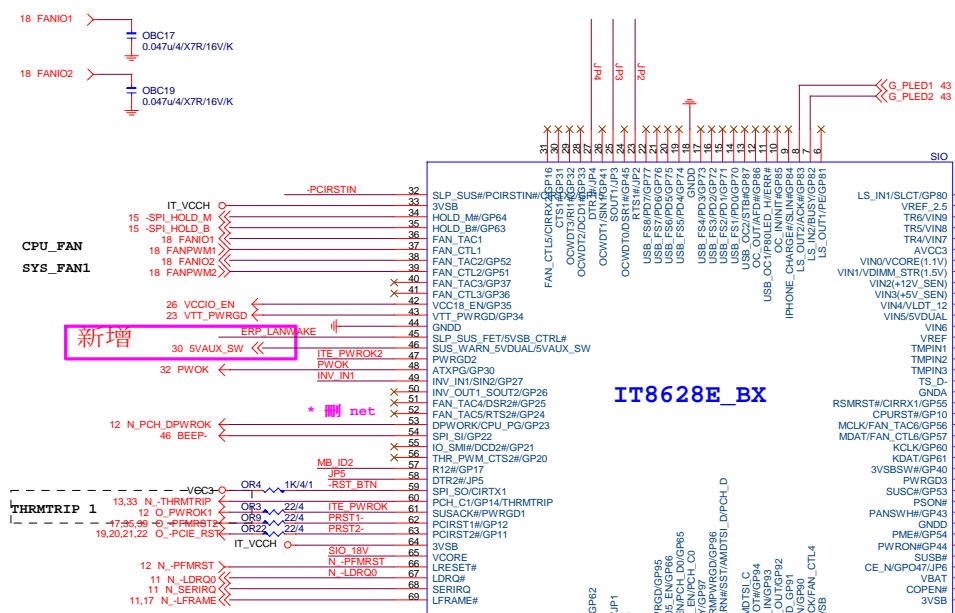
LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]X

\* 試産先上, PVT 移除

Gigabyte Technology

Title		
BIOS		
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SIO IT8628CX REV:1.07



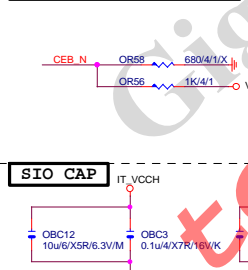
**FAN TABLE**

CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	N/A
SYS_FAN3	N/A
OPT_FAN	N/A
THRMTRIP1	YES PIN60

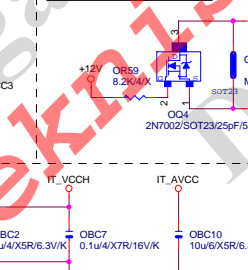
**IT8628E GPIO問題匯整**

PIN 50	GP26-第一次接上POWER時會拉 Lo
PIN 90/91	DEFAULT為HDLDE FUNCTION, GP93 BYPASS TO GP92 高運時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 Lo
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用, 不然會互相干擾
PIN 22	PIN22, 需高於3V, 若低於此部分COM PORT及LPT裝置 蜂鳴器會異常動作。

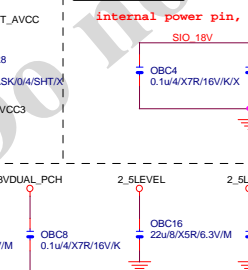
DUAL BIOS OPT STRAP



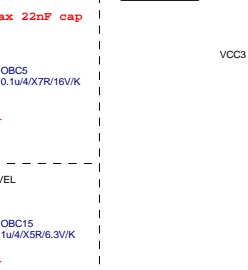
Power leakage



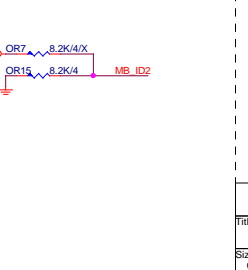
SIO 18V



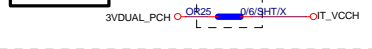
SIO CAP



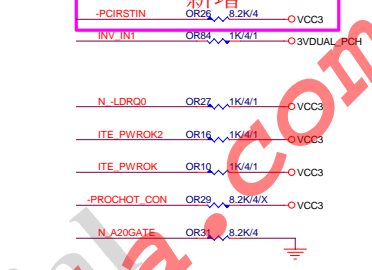
CLOSE SIO PIN4 2\_5LEVEL



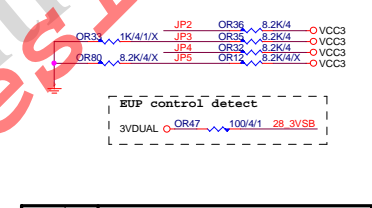
PWR SHT



SIO PU

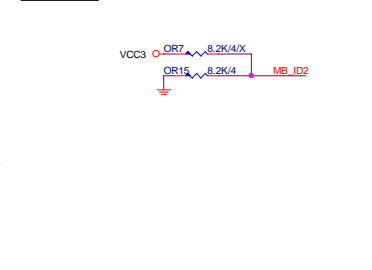


SIO STRAP

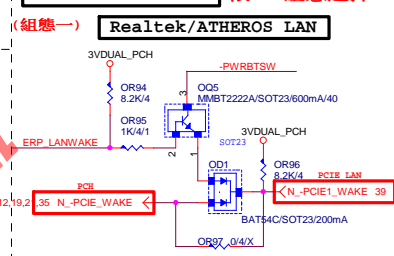


JP2	1	Disable WDT
JP2	0	Enable WDT to rest PWROK
JP3	1	Dual BIOS CS PIN Disable
JP3	0	Dual BIOS CS PIN Enable
JP4	1	k8 power sequency function is Disable
JP4	0	k8 power sequency function is Enable
JP5	1	anti-surge Disable
JP5	0	anti-surge Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
JP3	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
JP5	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

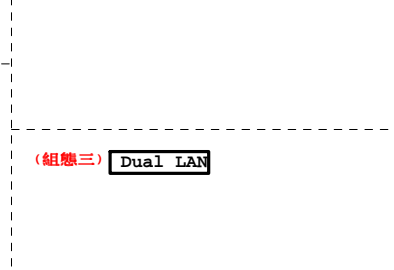
MB ID



ERP WAKE on LAN (依LAN組態選擇)



Intel LAN

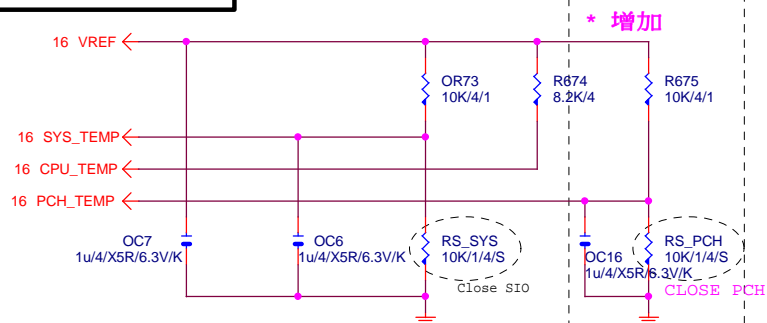


Dual LAN

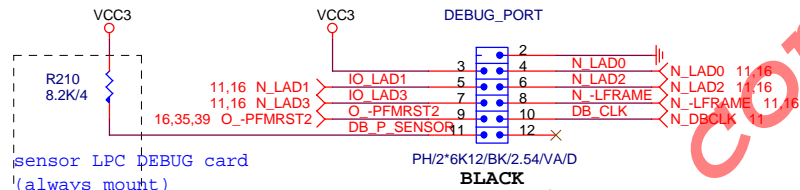
ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	組態二
Dual LAN	Intel 219	組態一
	Atheros+Atheros	組態二
No Support ERP	Intel 219+Intel 210	組態三
	BOM不上	N/A

Gigabyte Technology		
ITE 8628 LPC IO		
GA-Z170N-Gaming 5		
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## TEMP H/W MONITOR

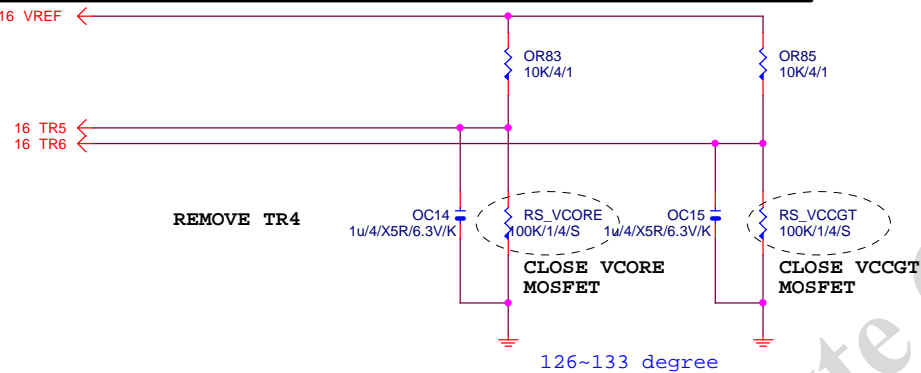


## DEBUG PORT

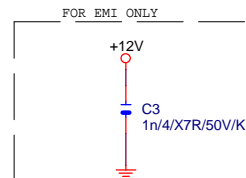
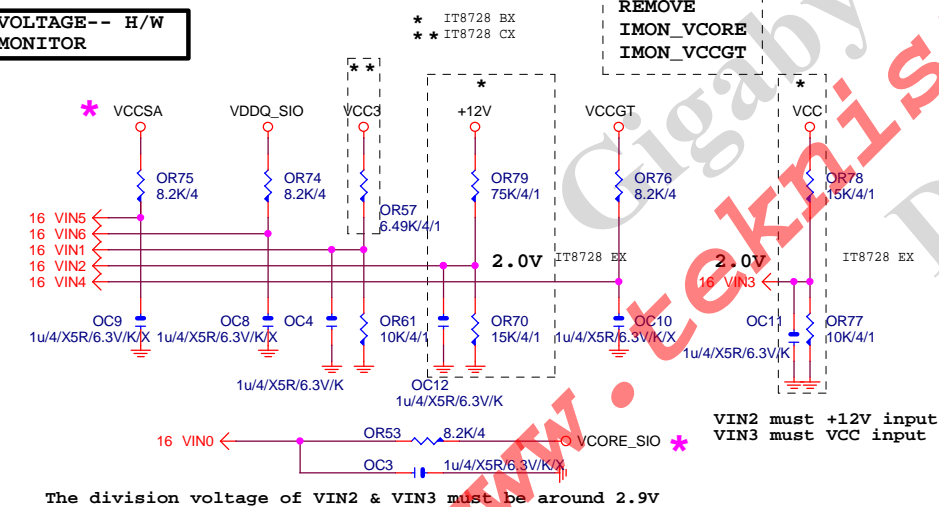


## RS\_VCORE, RS\_VCCGT, CLOSE CPU\_VCORE &amp; VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function



## VOLTAGE-- H/W MONITOR



Gigabyte Technology

HWM,KB/MS, FAN CTRL

Size Document Number

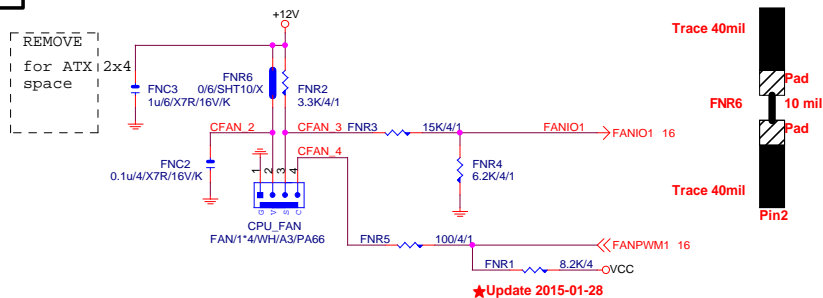
Custom GA-Z170N-Gaming 5

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# CPU SMART FAN

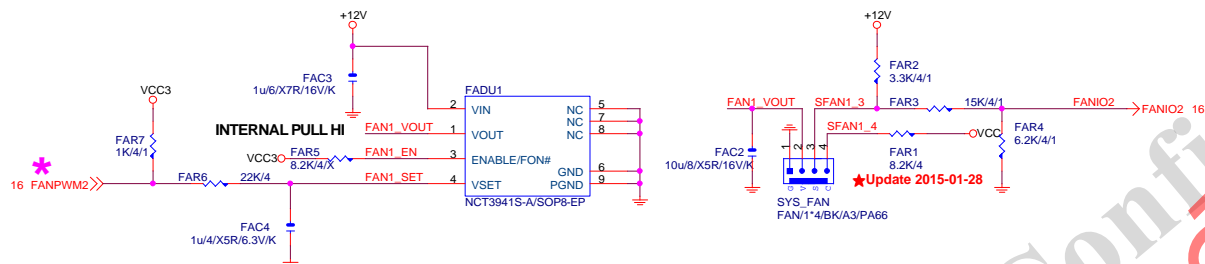
Rev: 0.6



# SYSTEM FAN1

**Linear SYS\_FAN**  
Enable Function (NCT3941S)  
Full Turn On Function (NCT3941S-A)

A.



# SYSTEM FAN2

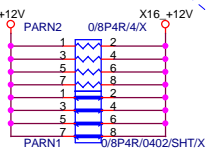
N/A

# SYSTEM FAN3

N/A

Gigabyte Technology			
Title FAN CTRL			
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Rev 0.2

+12V protect  
short-wire test

PA\_EXP\_RXP0[..15] >> PA\_EXP\_RXP[0..15] 4  
 PA\_EXP\_RXN0[..15] >> PA\_EXP\_RXN[0..15] 4  
 PA\_EXP\_TXP0[..15] >> PA\_EXP\_TXP[0..15] 4  
 PA\_EXP\_TXN0[..15] >> PA\_EXP\_TXN[0..15] 4

PA_EXP_TXP0	PAC5	0.22u4/X5R/6.3V/K	PA_EXP_TXP0 C
PA_EXP_TXN0	PAC4	0.22u4/X5R/6.3V/K	PA_EXP_TXN0 C
PA_EXP_TXP1	PAC6	0.22u4/X5R/6.3V/K	PA_EXP_TXP1 C
PA_EXP_TXN1	PAC7	0.22u4/X5R/6.3V/K	PA_EXP_TXN1 C
PA_EXP_TXP2	PAC8	0.22u4/X5R/6.3V/K	PA_EXP_TXP2 C
PA_EXP_TXN2	PAC9	0.22u4/X5R/6.3V/K	PA_EXP_TXN2 C
PA_EXP_TXP3	PAC10	0.22u4/X5R/6.3V/K	PA_EXP_TXP3 C
PA_EXP_TXN3	PAC11	0.22u4/X5R/6.3V/K	PA_EXP_TXN3 C
PA_EXP_TXP4	PAC12	0.22u4/X5R/6.3V/K	PA_EXP_TXP4 C
PA_EXP_TXN4	PAC13	0.22u4/X5R/6.3V/K	PA_EXP_TXN4 C
PA_EXP_TXP5	PAC14	0.22u4/X5R/6.3V/K	PA_EXP_TXP5 C
PA_EXP_TXN5	PAC15	0.22u4/X5R/6.3V/K	PA_EXP_TXN5 C
PA_EXP_TXP6	PAC16	0.22u4/X5R/6.3V/K	PA_EXP_TXP6 C
PA_EXP_TXN6	PAC17	0.22u4/X5R/6.3V/K	PA_EXP_TXN6 C
PA_EXP_TXP7	PAC18	0.22u4/X5R/6.3V/K	PA_EXP_TXP7 C
PA_EXP_TXN7	PAC19	0.22u4/X5R/6.3V/K	PA_EXP_TXN7 C
PA_EXP_TXP8	PAC21	0.22u4/X5R/6.3V/K	PA_EXP_TXP8 C
PA_EXP_TXN8	PAC20	0.22u4/X5R/6.3V/K	PA_EXP_TXN8 C
PA_EXP_TXP9	PAC22	0.22u4/X5R/6.3V/K	PA_EXP_TXP9 C
PA_EXP_TXN9	PAC23	0.22u4/X5R/6.3V/K	PA_EXP_TXN9 C
PA_EXP_TXP10	PAC24	0.22u4/X5R/6.3V/K	PA_EXP_TXP10 C
PA_EXP_TXN10	PAC25	0.22u4/X5R/6.3V/K	PA_EXP_TXN10 C
PA_EXP_TXP11	PAC26	0.22u4/X5R/6.3V/K	PA_EXP_TXP11 C
PA_EXP_TXN11	PAC27	0.22u4/X5R/6.3V/K	PA_EXP_TXN11 C
PA_EXP_TXP12	PAC28	0.22u4/X5R/6.3V/K	PA_EXP_TXP12 C
PA_EXP_TXN12	PAC29	0.22u4/X5R/6.3V/K	PA_EXP_TXN12 C
PA_EXP_TXP13	PAC30	0.22u4/X5R/6.3V/K	PA_EXP_TXP13 C
PA_EXP_TXN13	PAC31	0.22u4/X5R/6.3V/K	PA_EXP_TXN13 C
PA_EXP_TXP14	PAC32	0.22u4/X5R/6.3V/K	PA_EXP_TXP14 C
PA_EXP_TXN14	PAC33	0.22u4/X5R/6.3V/K	PA_EXP_TXN14 C
PA_EXP_TXP15	PAC34	0.22u4/X5R/6.3V/K	PA_EXP_TXP15 C
PA_EXP_TXN15	PAC35	0.22u4/X5R/6.3V/K	PA_EXP_TXN15 C

PCIE16:16/5/5/5/16

PCI-E REV:1.1--&gt; 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--&gt; 5GHZ

PCIESLOT-1645TH

3GIO\_\*16

8,9,12,21,23,31 N\_SMBCLK  
8,9,12,21,23,31 N\_SMBDATA

12,16,21,35 N\_-PCIE\_WAKE

10 -PCIE16\_PR

PCI-E/16X-164P/RE/LONG DOUBLE/HK\*2/SHELL

NPA雙魚叉

紅色

Gigabyte Technology		
Title		
PCI EXPRESS * 16		
GA-Z170N-Gaming 5		
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M.2 Lane4 from PCH port18

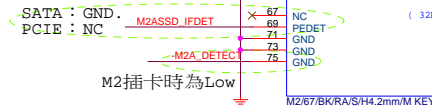
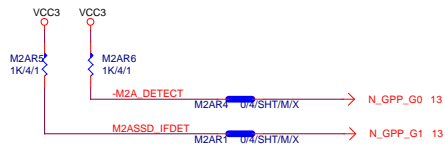
M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

M.2 Lane2 from PCH port15

需與M2\_-CLKREQ對應

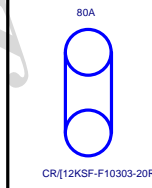
支援SATA and M.2 function



NGFF-M-75P-CUT42  
REMOVE 42A, FOOTPRINT 正反共用.

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	

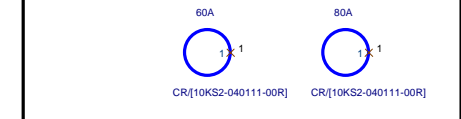
DIP螺柱



DIP螺絲



SMD螺柱



FOOTPRINT: 276c236B165P

M.2上在背板須修改:

1. DIP螺絲背板上件
2. DIP螺絲背板上件, 須修改料號
3. SMD螺柱正面上件, 須修改料號及FOOTPRINT正反共用.

Gigabyte Technology

M.2 X4

GA-Z170N-Gaming 5

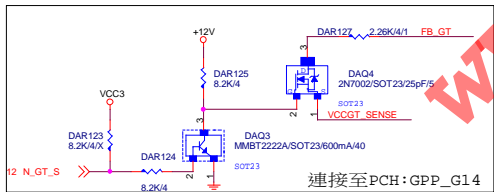
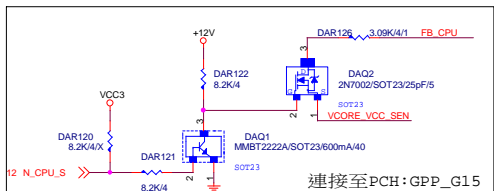
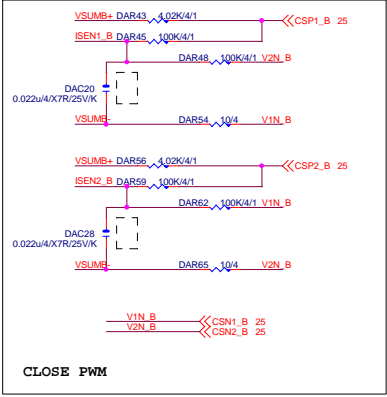
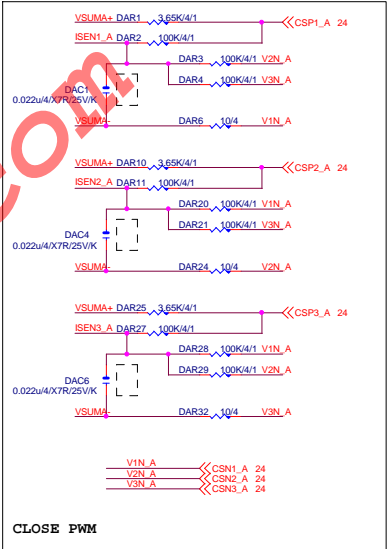
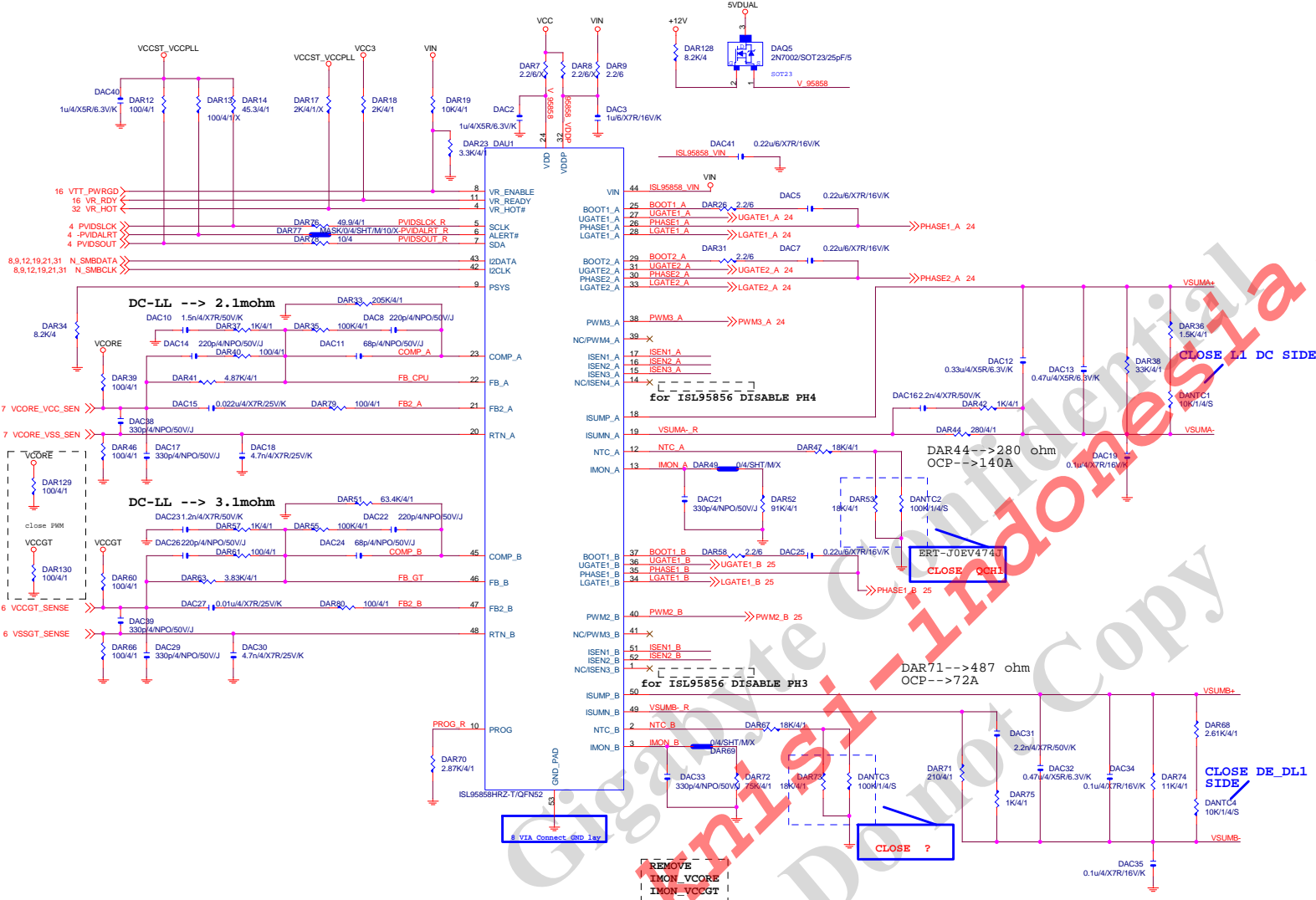
Rev 1.01

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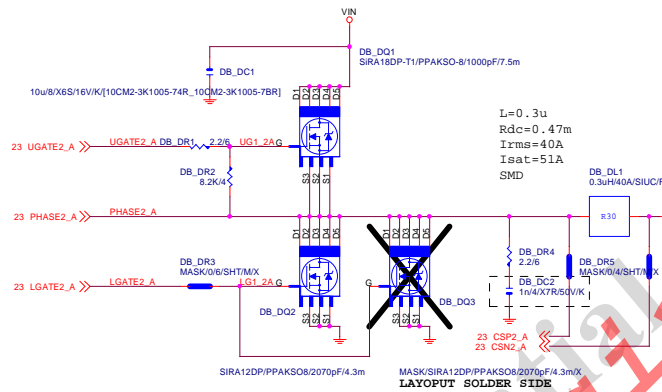
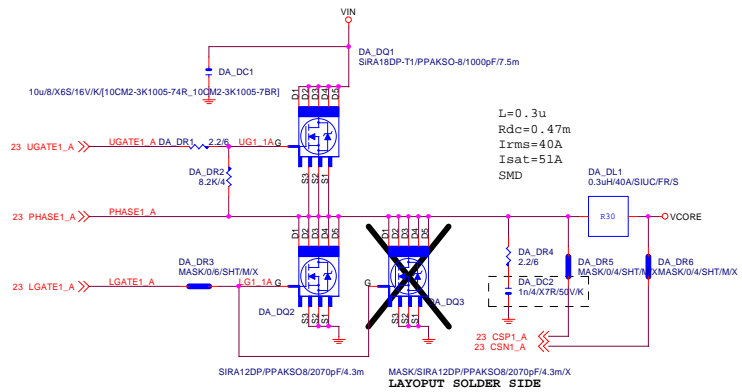




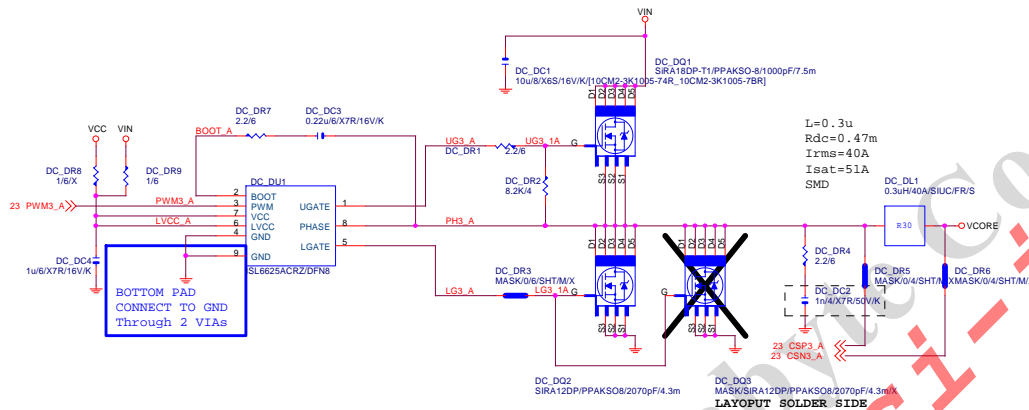
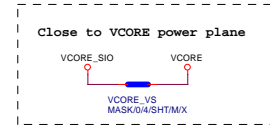
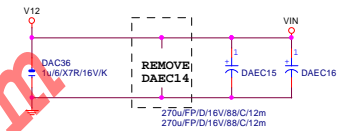




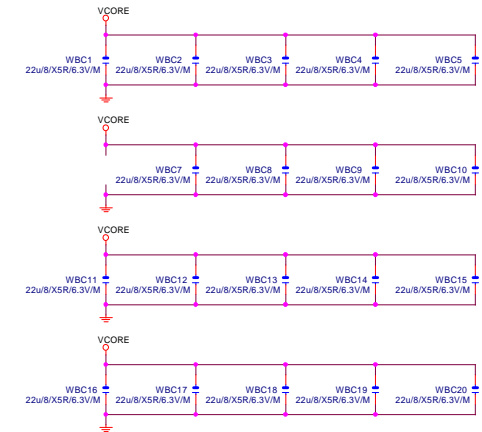
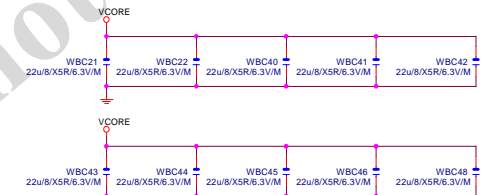
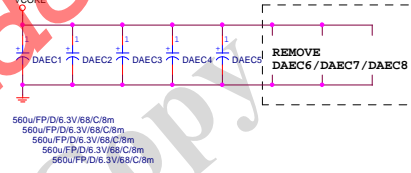
VCORE



VIN CAP 270u\*2PCS



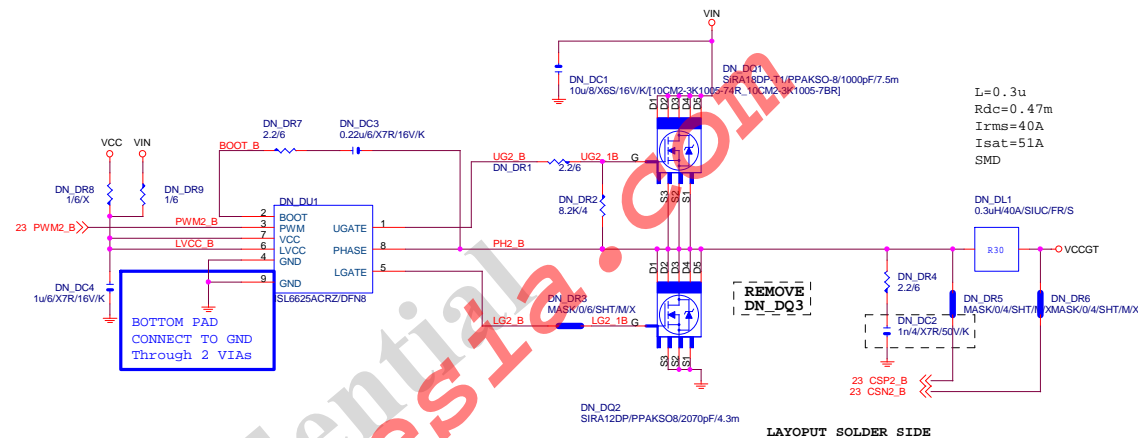
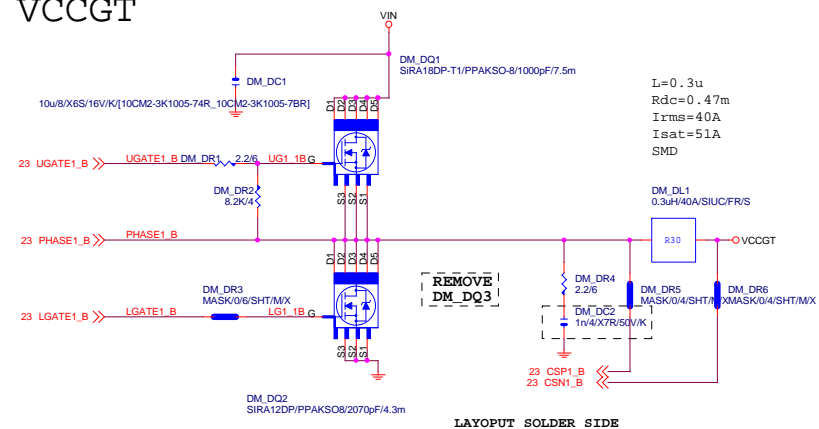
VCORE CAP 560u\*5PCS  
22u\*29PCS



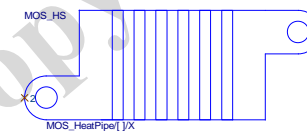
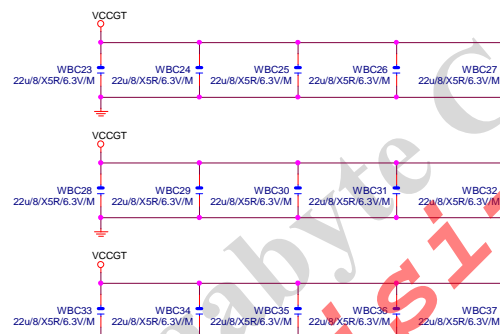
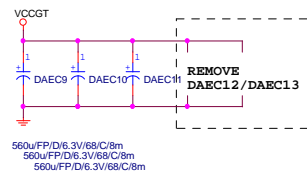
GIGABYTE™

Title			ISL95858 MOS
Size	Document Number	GA-Z170N-Gaming 5	Rev 1.01
Date	Tuesday, August 04, 2015	Sheet 24 of 49	

## VCCGT

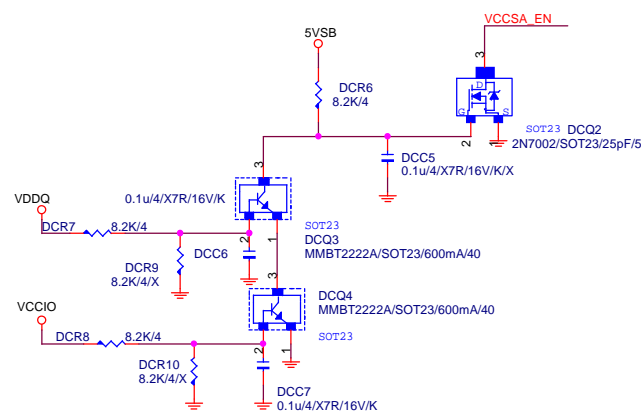
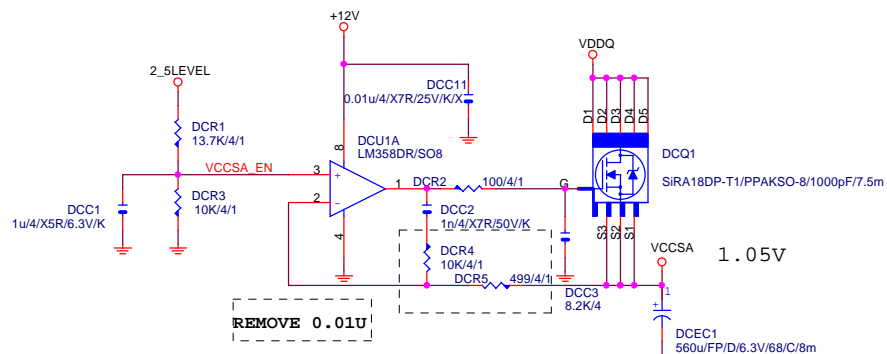


VCCGT CAP 560u\*3PCS  
22u\*15PCS

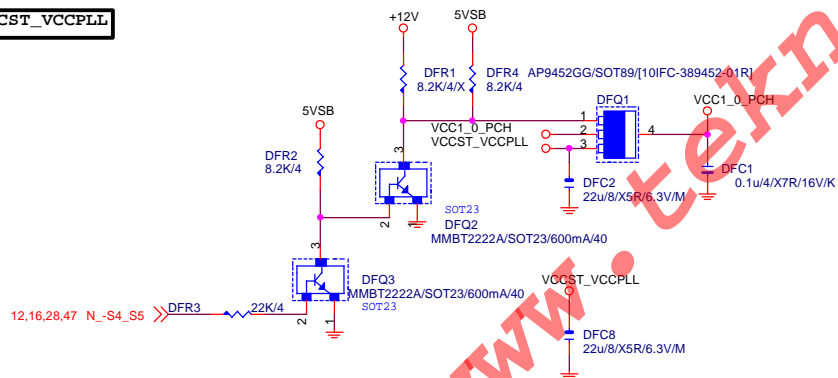


VCCSA

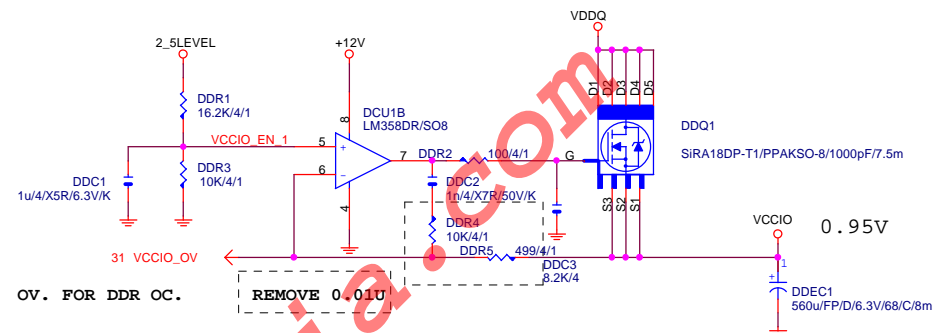
REV:0.4



VCCST\_VCCPLL



VCCIO



OV. FOR DDR OC.

Connect to IT8620

VCCIO

WBC38 22u/8/X5R/6.3V/M

WBC39 22u/8/X5R/6.3V/M

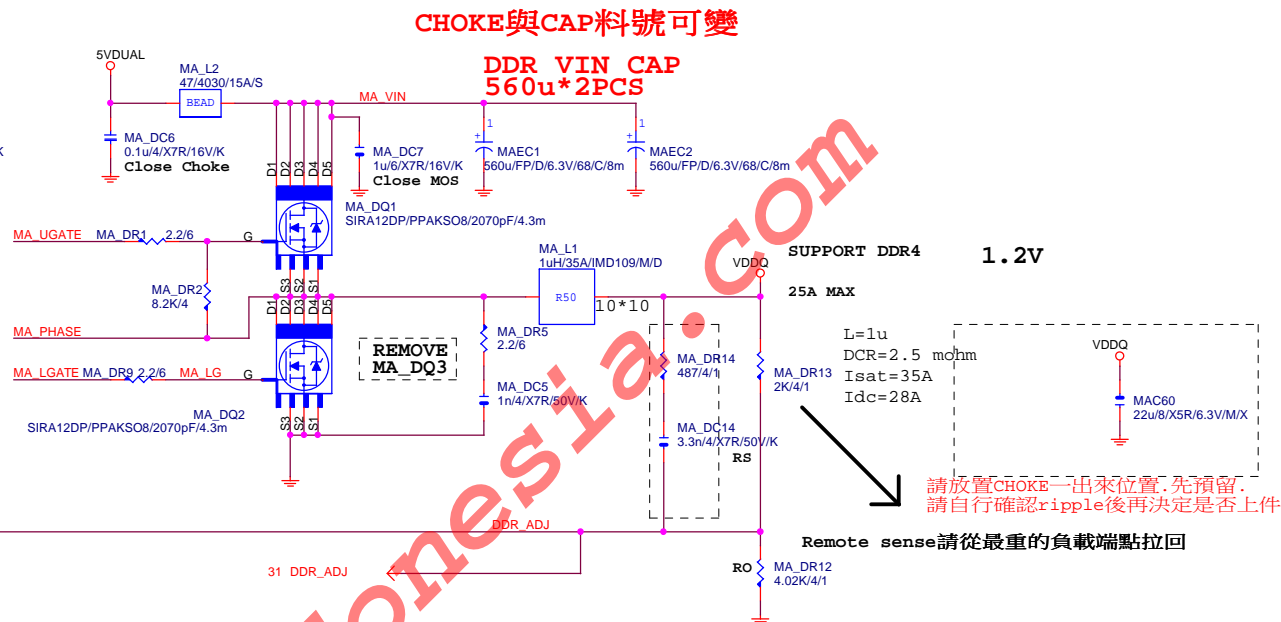
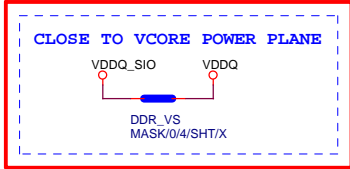
放CPU端.

# GIGABYTE™

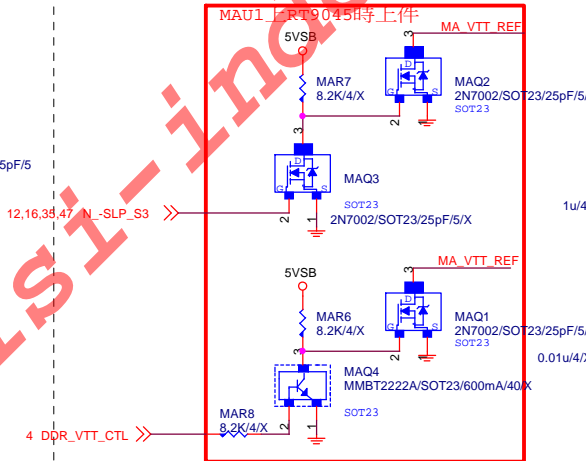
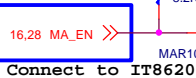
Title			VCCSA_VCCIO
Size	Document Number	GA-Z170N-Gaming 5	
Custom		Rev	1.01
Date:	Tuesday, August 04, 2015	Sheet	26 of 49



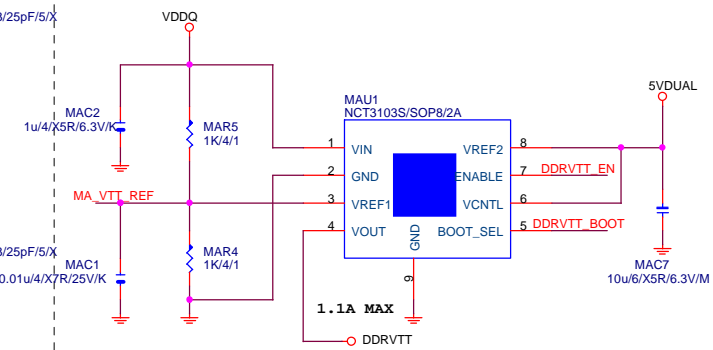
## REV: 0.89



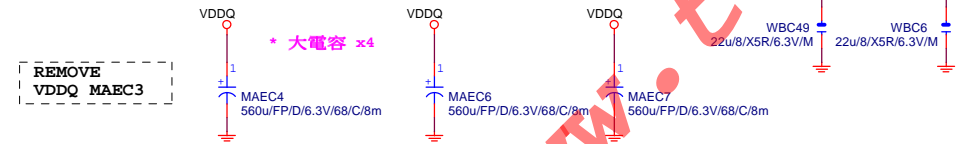
## PWR SEQ



**DDRVTT**



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



## DDRVTT CAP



DDR VTT CTL MAR110 0/4 DDRVTT EN  
N -SLP S3 MAR111 0/4 DDRVTT BOOT

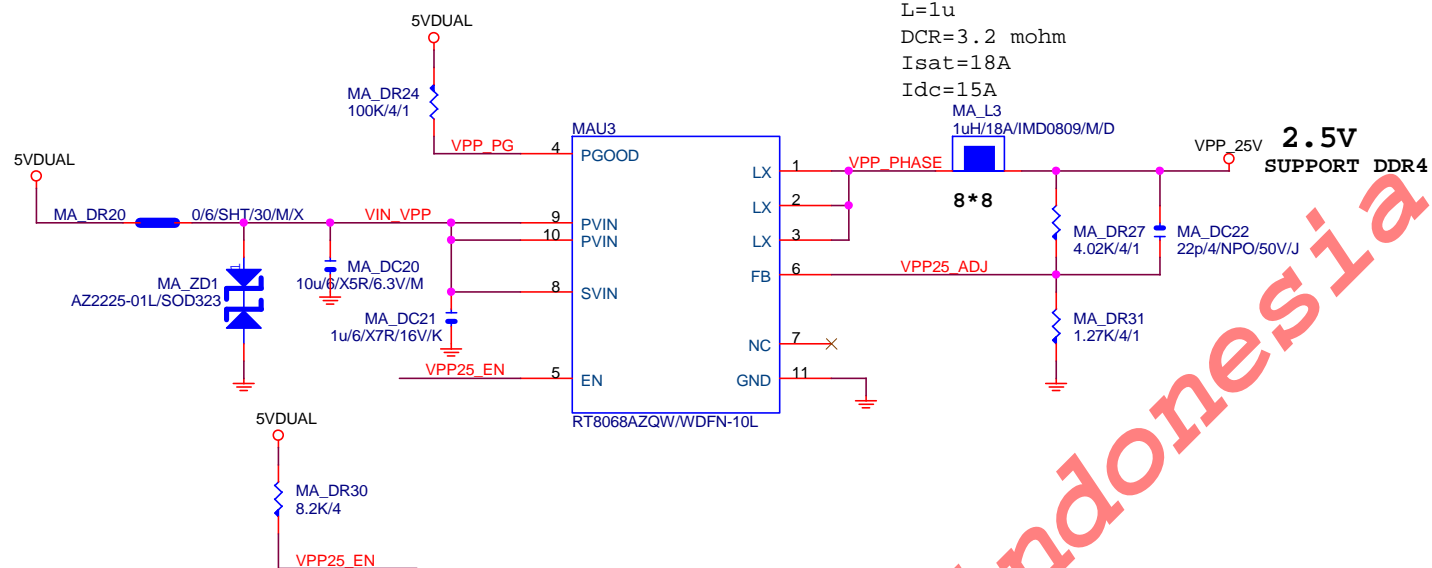
MAU1上NCT3103S時上件

# GIGABYTE

Title			
RT8120_DDR POWER			
Size	Document Number	Rev	
Custom	GA-Z170N-Gaming 5	1.01	
Date:	Tuesday, August 04, 2015	Sheet	27 of 49

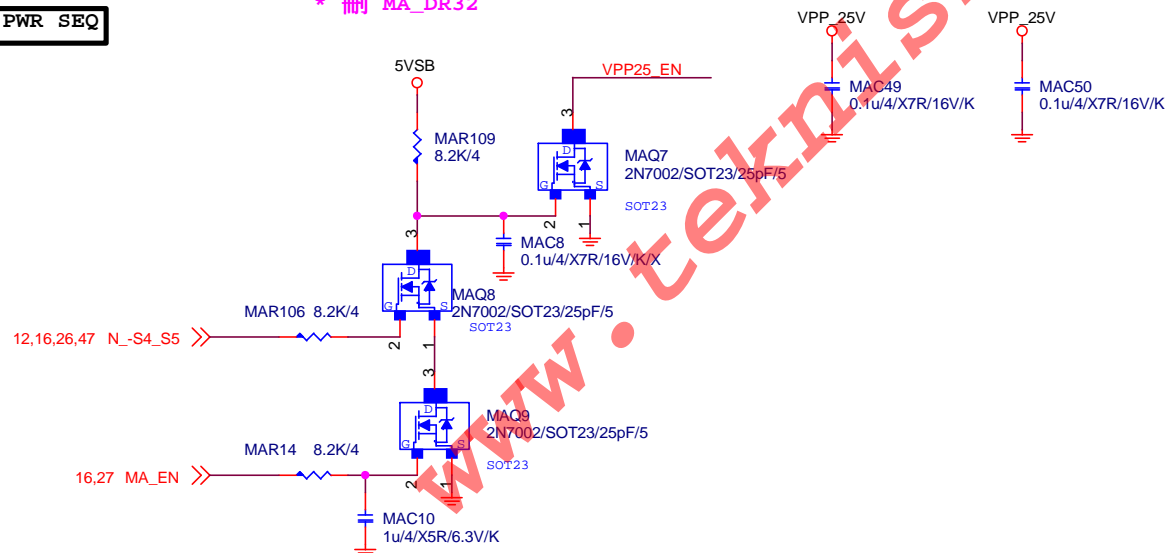
**VPP 25V**

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



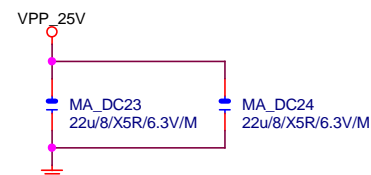
PWR SEQ

\* 冊 MA\_DR32



VPP CAP 22u\*1PCS

\* 大電容 x0

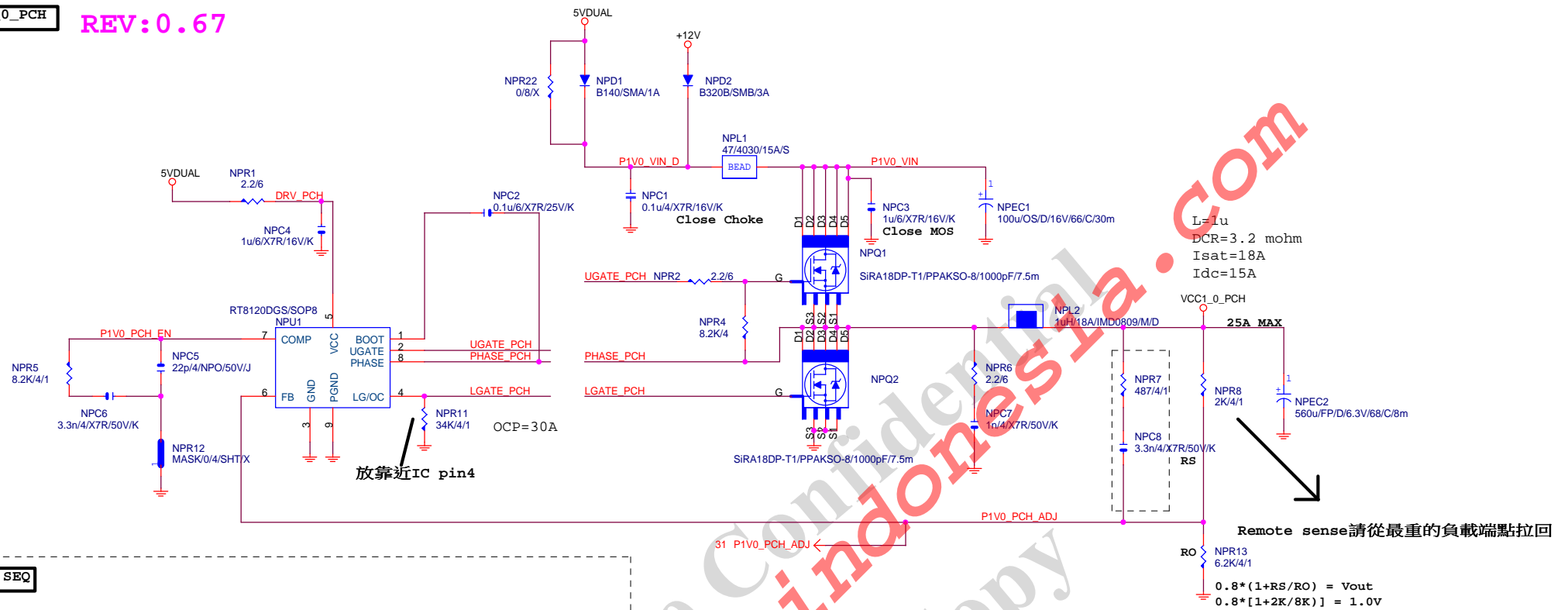
**GIGABYTE™**

Title  
**RT8068A\_VPP25\_POWER**

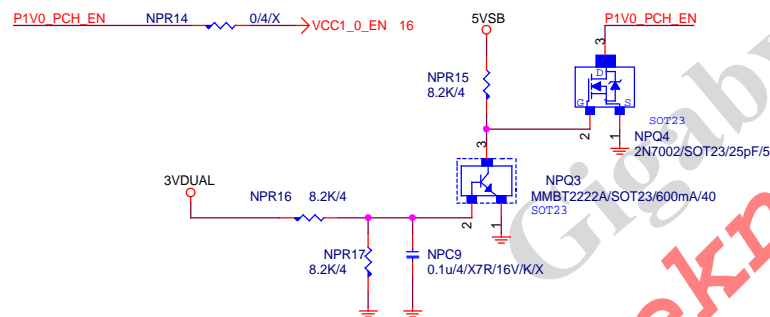
Size	Document Number
Custom	<b>GA-Z170N-Gaming 5</b>

Rev	1.01
-----	------

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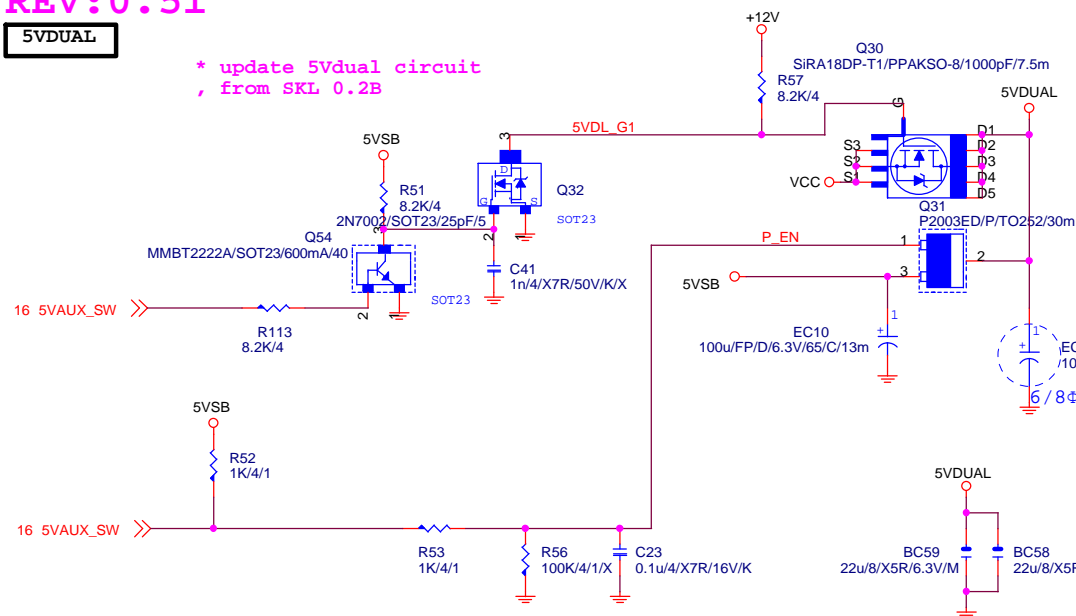
## PWR\_SEQ

**GIGABYTE™**

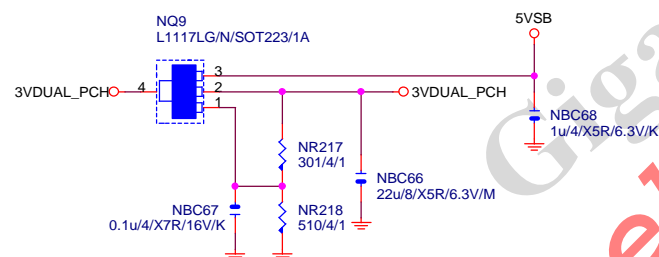
Title			
RT8120_PCH POWER			
Size	Document Number	Rev	
Custom	GA-Z170N-Gaming 5	1.01	
Date:	Tuesday, August 04, 2015	Sheet	29 of 49

5VDUAL

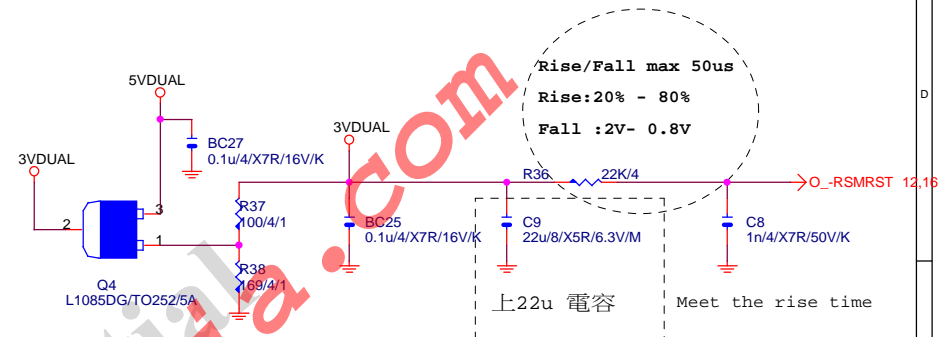
16 5VAUX\_SW



## 3VDUAL\_PCH

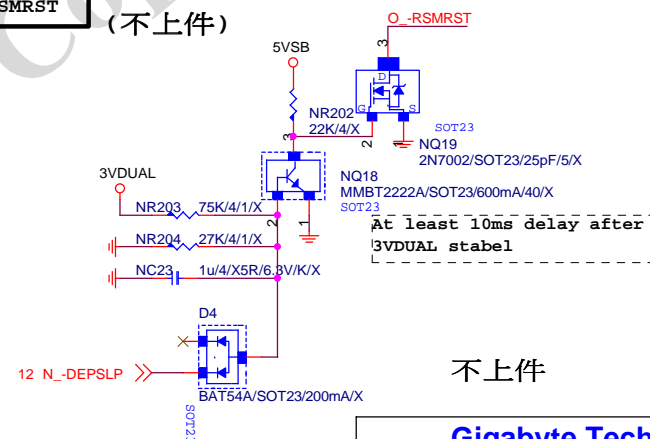


## 3VDUAL



## O\_-RSMRST

(不上件)



不上件

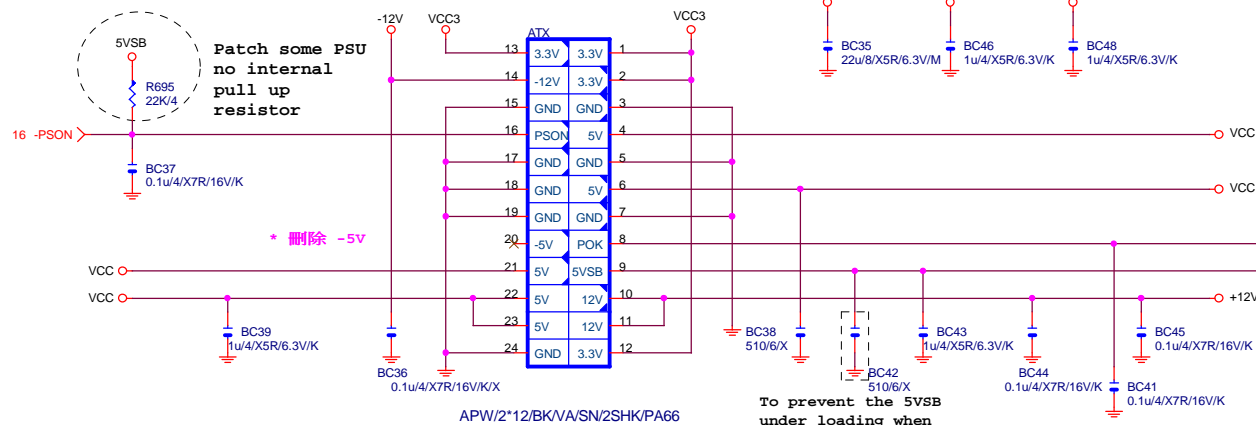
## Gigabyte Technology

Title			
DISCRETE POWER			
Size	Document Number		Rev
Custom	GA-Z170N-Gaming 5		1.01
Date:	Tuesday, August 04, 2015	Sheet	30 of 49

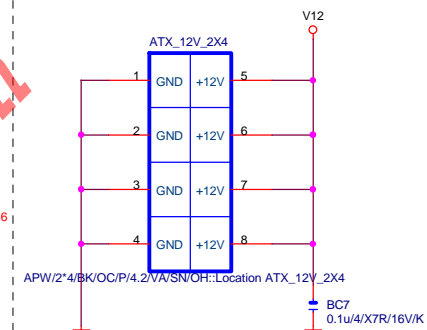
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Title			
CPU CORE VR-2			
Size	Document Number	Rev	
Custom	GA-Z170N-Gaming 5	1.01	
Date:	Tuesday, August 04, 2015	Sheet	31 of 49

## ATXX24 POWER CONNECTOR



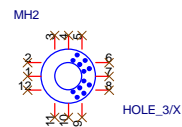
### ATXX4 POWER CONNECTOR



**螺絲孔**

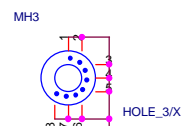
MH1:GND-T  
FOR EMI  
TEST驗證

MB LOCATION

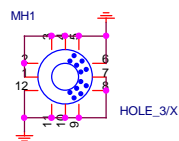


2015/04/22 Realtek Jason recommend NC  
for Mini-ITX ALC1150 AP SNR test

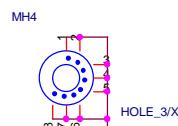
HOLE\_4-RH-5MM-1



HOLE\_4-RH-5MM-5PIN-1

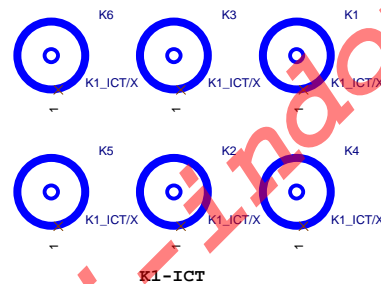


HOLE\_4-RH-5MM-1



HOLE\_4-RH-5MM-5PIN-1

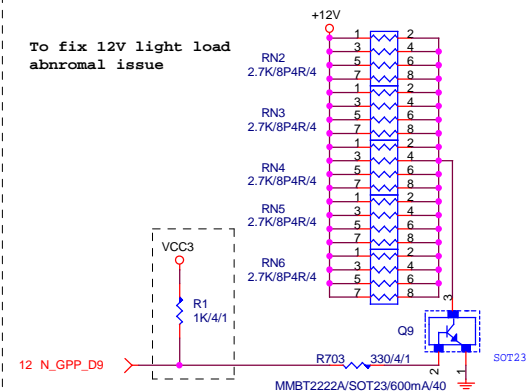
**固定孔/光學點**



To prevent the 5VSE under loading when boot

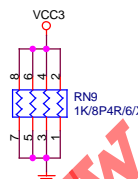
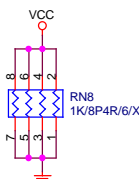
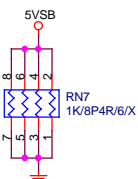
+12V DUMMY LOAD
-----------------

To fix 12V light load  
abnromal issue



【技術通報R&amp;D技術通報153】

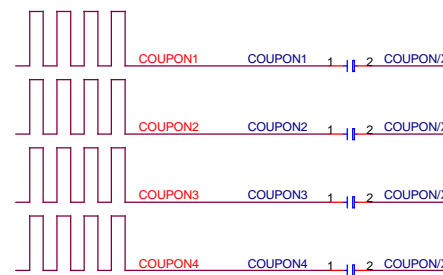
DUMMY LOAD
------------



~~-PROHOT~~



## COUPON



## Gigabyte Technology

## ATX POWER CONNECTOR

GA-Z170N-Gaming 5

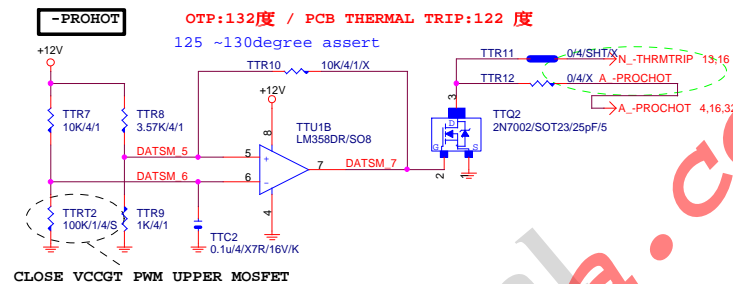
Size	Document Number
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Date: Tuesday, August 04, 2015

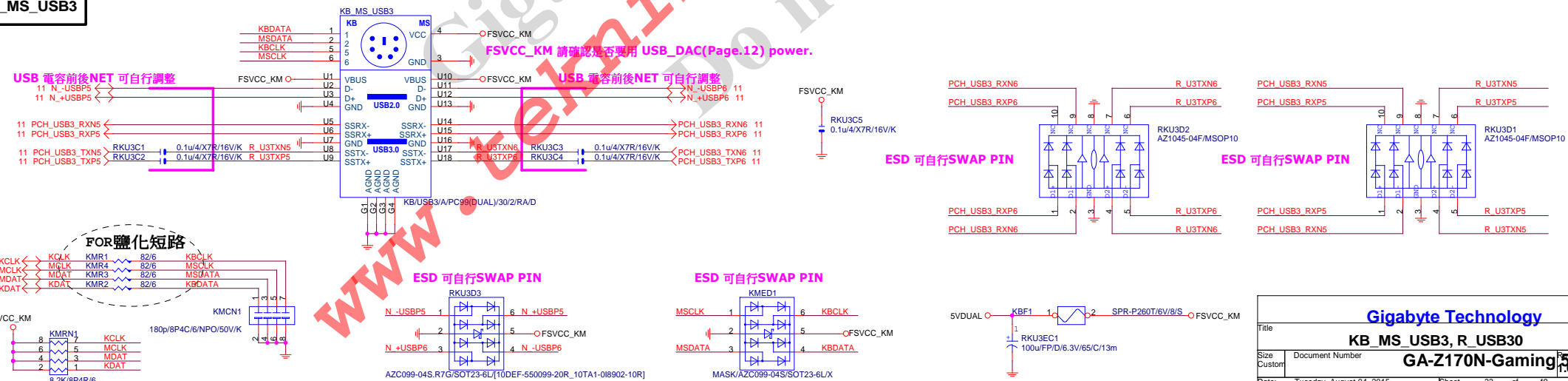
Sheet 32 of 49

Rev  
1.01



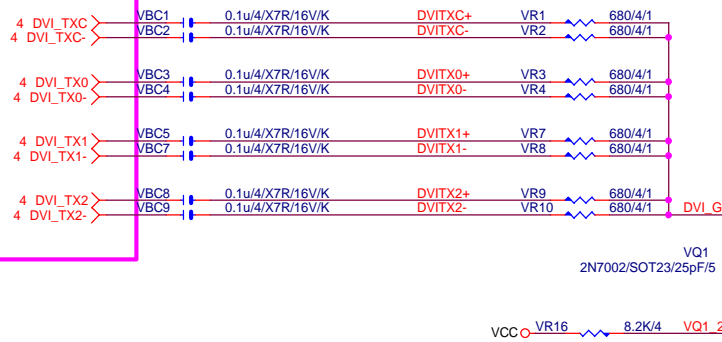


## USB\_DAC



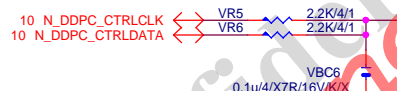
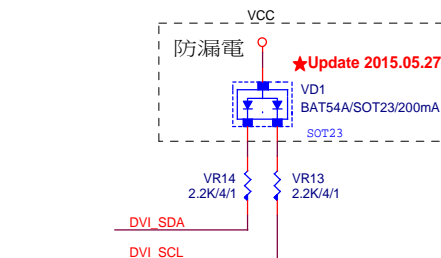
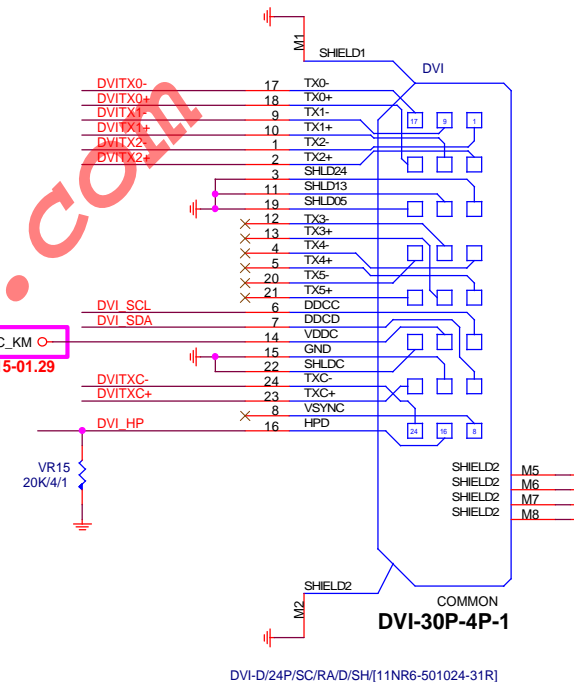
DVI: 20/4/6/4/20  
Impedance=85 +- 17.5%

NET 可變

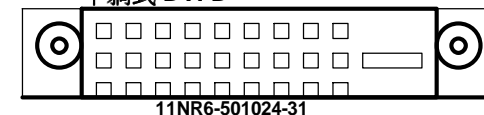


防漏電

★Update 2015.05.27

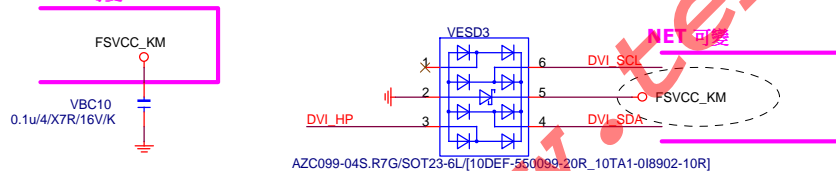
FSVCC\_KM  
★Update 2015-01-29

平躺式 DVI-D



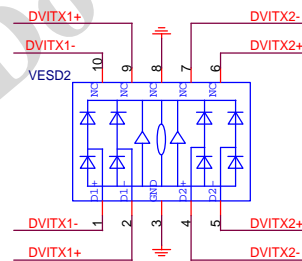
NET 可變

NET 可變



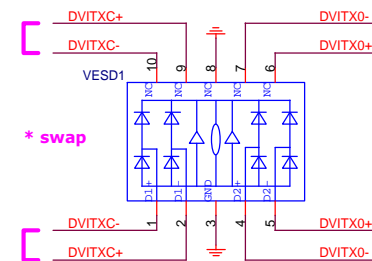
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R\_10TA1-018902-10R]

Close to connector



AZ1045-04F/MSOP10

Close to connector



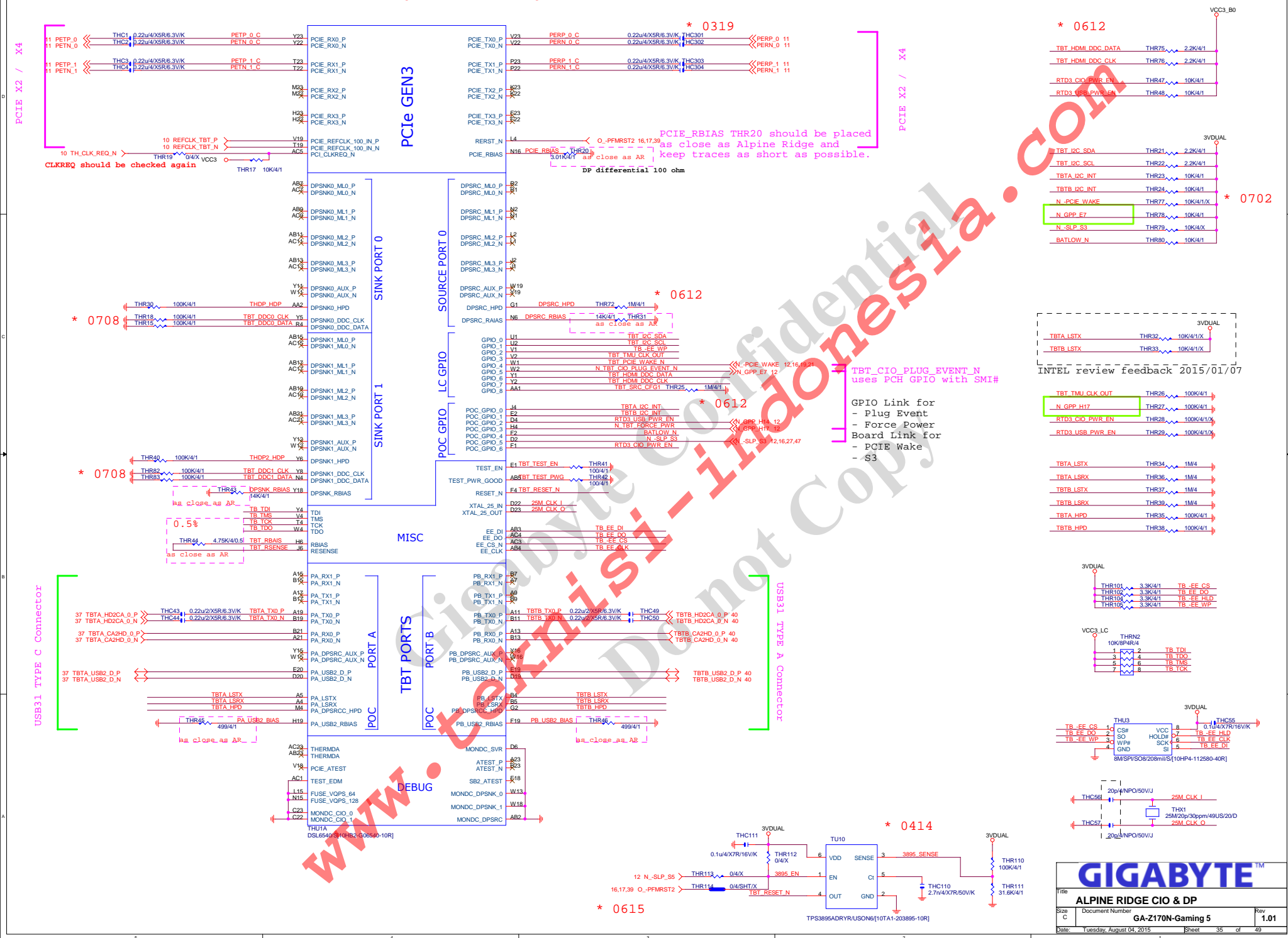
AZ1045-04F/MSOP10

Close to connector

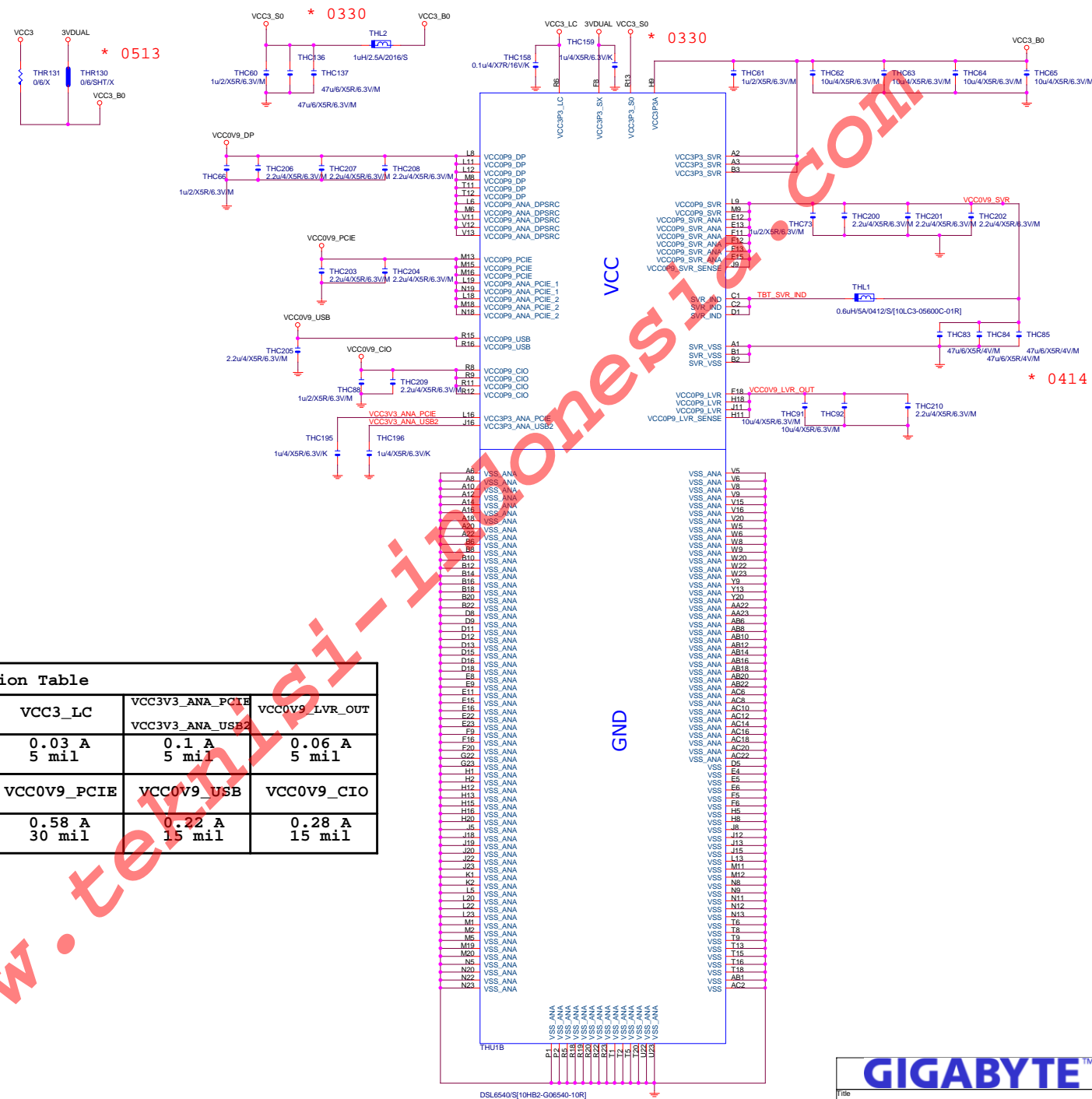
Gigabyte Technology

Title		DVI CONN	
Size Custom		GA-Z170N-Gaming 5	
Date:		Tuesday, August 04, 2015	Sheet 34 of 49

Rev 1.01

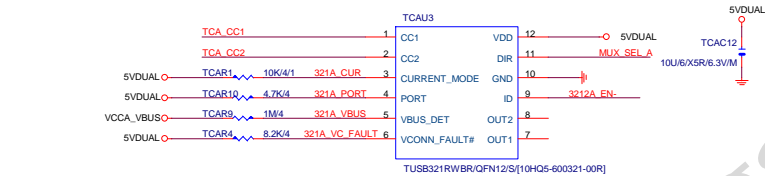
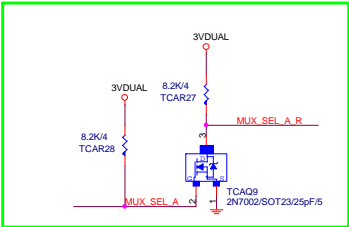
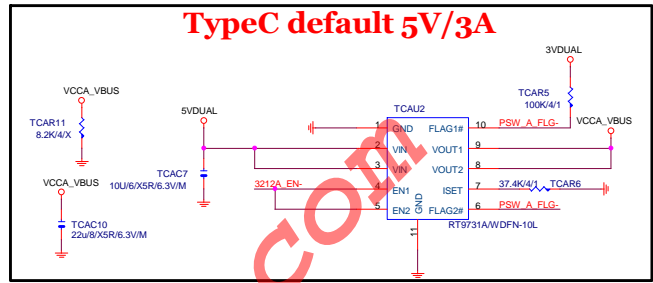
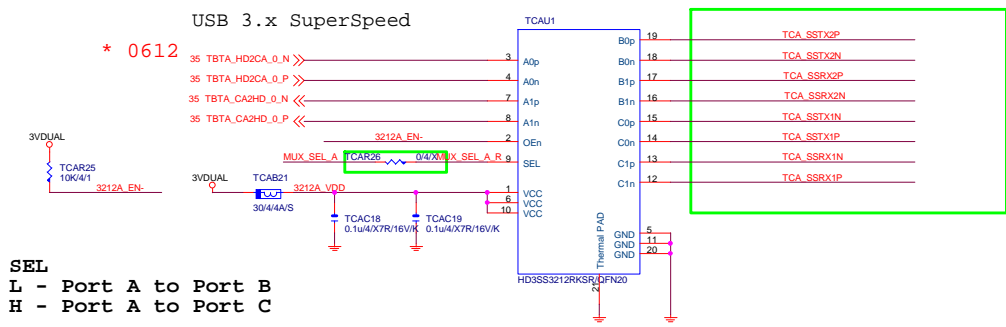


INTEL AR USB31 module SCH 0.63 (2015/07/08)



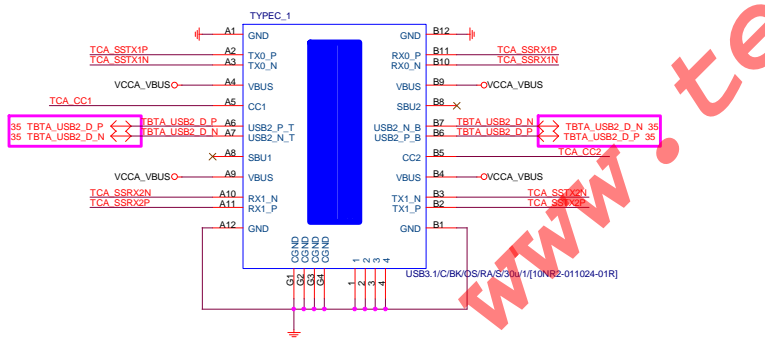
Power Consumption Table					
	VCC3	3VDUAL	VCC3_LC	VCC3V3_ANA_PCIE VCC3V3_ANA_USB2	VCC0V9_LVR_OUT
Max Current(A)	1.05 A 40 mil	0.19 A 10 mil	0.03 A 5 mil	0.1 A 5 mil	0.06 A 5 mil
	VCC0V9_SVR	VCC0V9_DP	VCC0V9_PCIE	VCC0V9_USB	VCC0V9_CIO
Max Current(A)	1.83 A 80 mil	0.7 A 30 mil	0.58 A 30 mil	0.22 A 15 mil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

INTEL AR USB31 module SCH o.63 (2015/07/08)

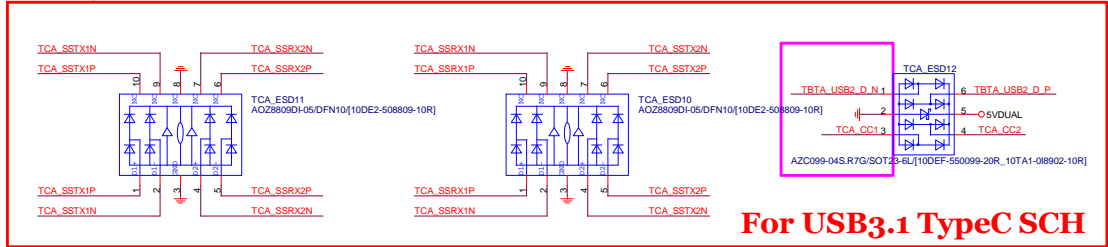


CURRENT MODE  
L - Default current / Pull down to GND or NC  
M - Medium (1.5A) current / Pull up to VDD 500K  
H - High (3.0A) current / Pull up to VDD 10K

PORT  
H - HOST  
L - Device  
NC - Dual Role



Color markers can be changed by model

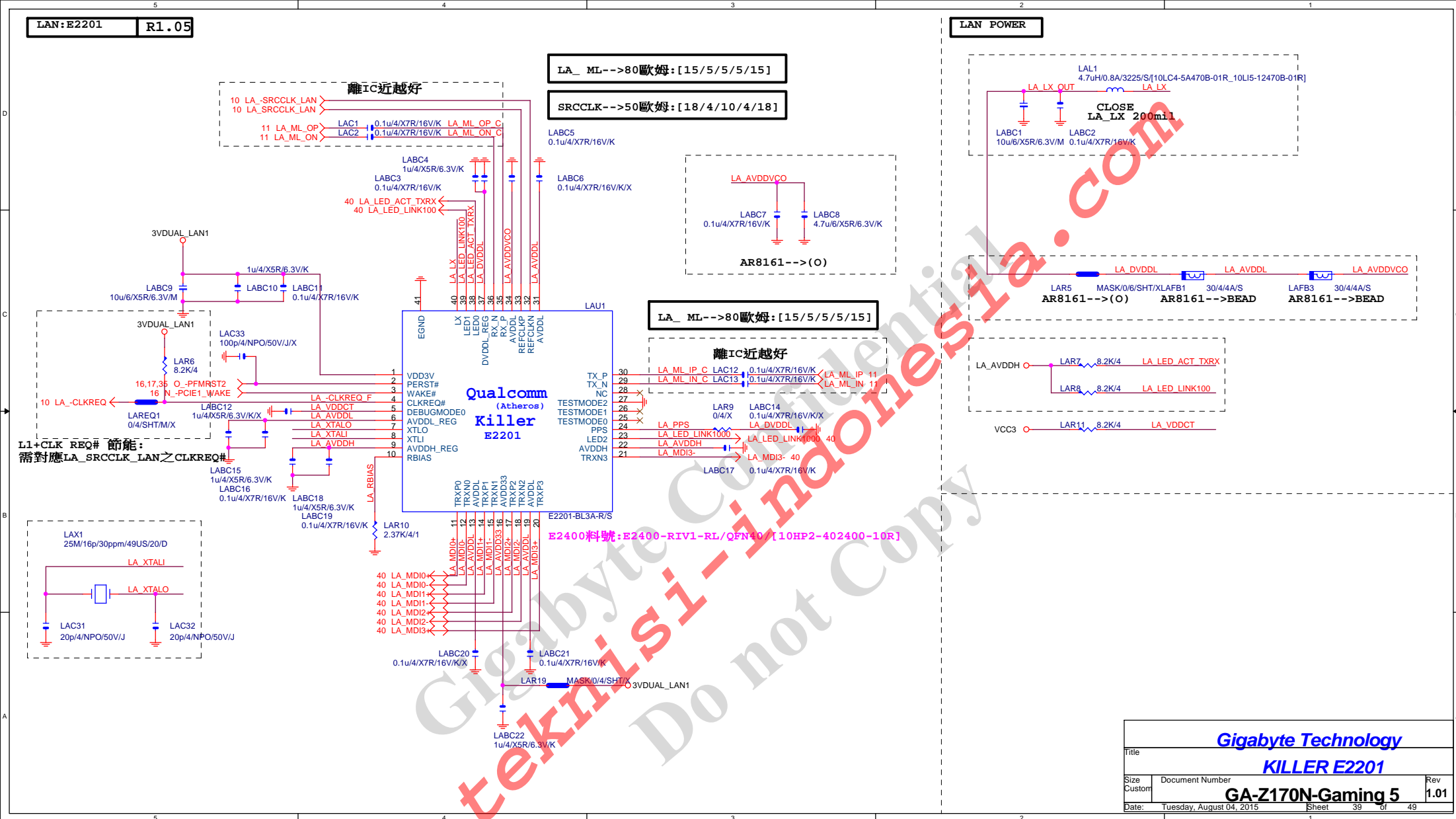


For USB3.1 TypeC SCH

GIGABYTE™		
TI TUSB321		
Size C	Document Number	Rev
	GA-Z170N-Gaming 5	1.01
Date:	Tuesday, August 04, 2015	Sheet 37 of 49

Gigabyte Confidential  
www.teknisi-indonesia.com  
Do not Copy

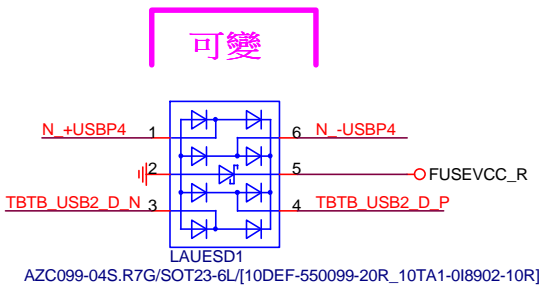
GIGABYTE			
Title			
DP, HDMI, SPDIF			
Size	Document Number		Rev
Custom	GA-Z170N-Gaming 5		1.01
Date:	Tuesday, August 04, 2015		Sheet 38 of 49



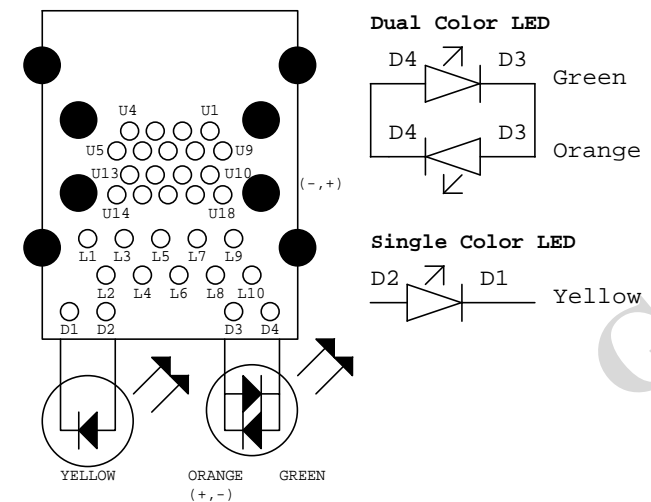


# USB\_LAN CONNECTOR R1.05

## RMA ESD PROTECT note:可變更USB NAME



## USB30 LAN LAYOUT示意圖



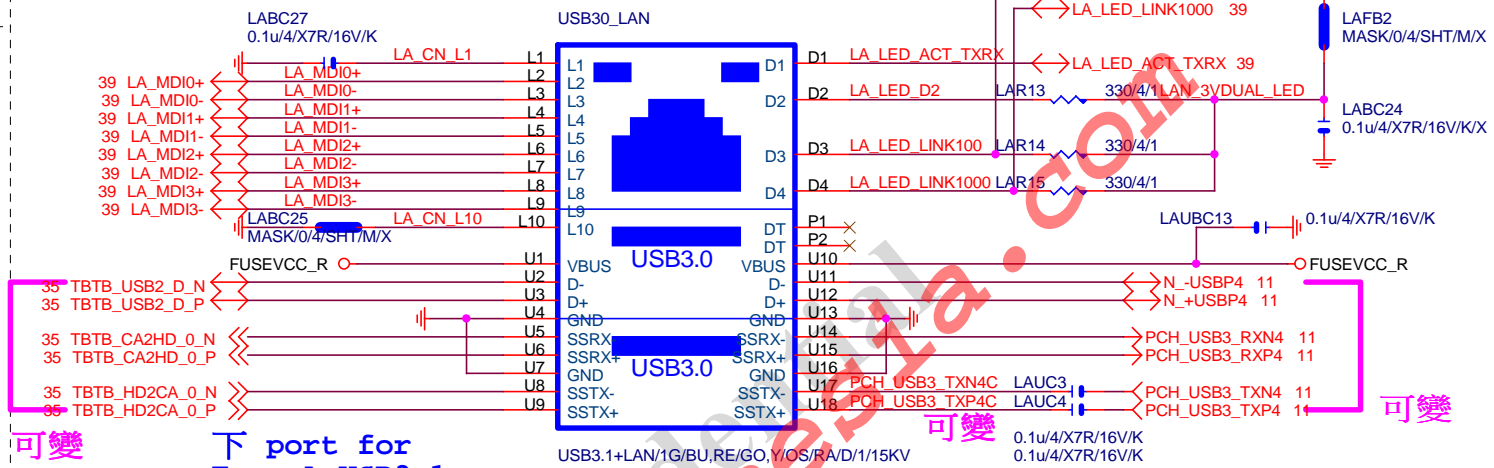
## LAN\_COVER FOOT PRINT:LAN\_COVER

可變  
[視SPEC需求]

# USB\_LAN CONNECTOR

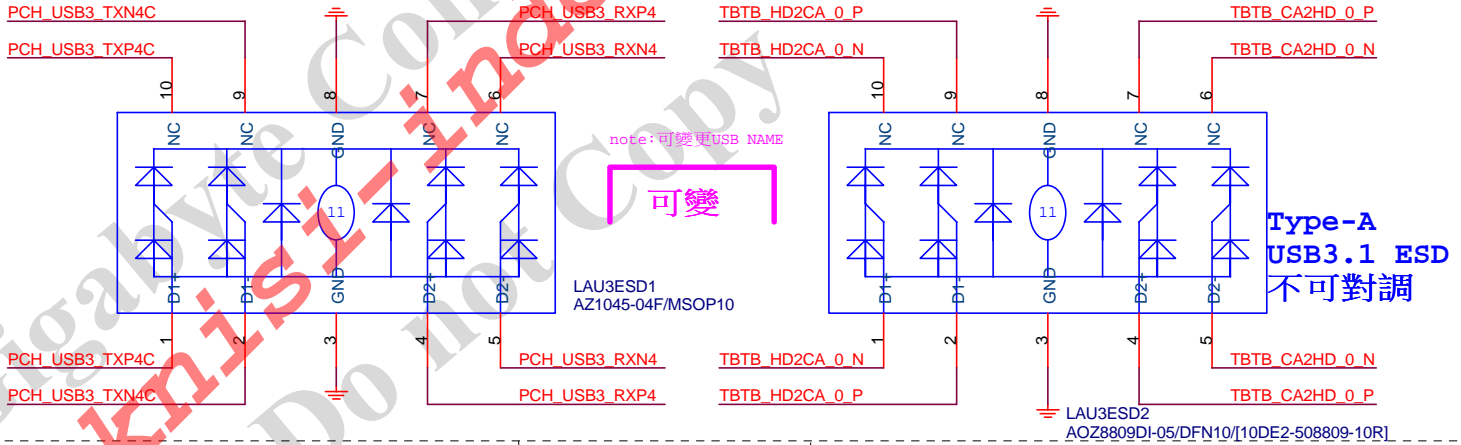
note:可變更USB NAME

## [E2201]

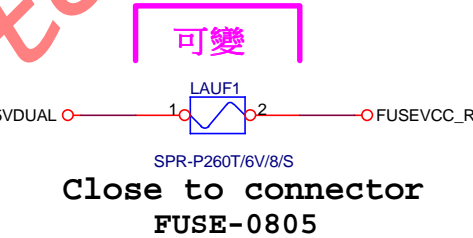


下 port for  
Type-A USB3.1

LA MDI--->100歐姆:[20/4/8/4/20]



## USB POWER note:可變更FUSE



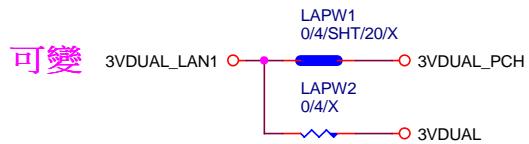
Close to connector  
FUSE-0805

## EMI SHORT PAD

PS:視EMI需求

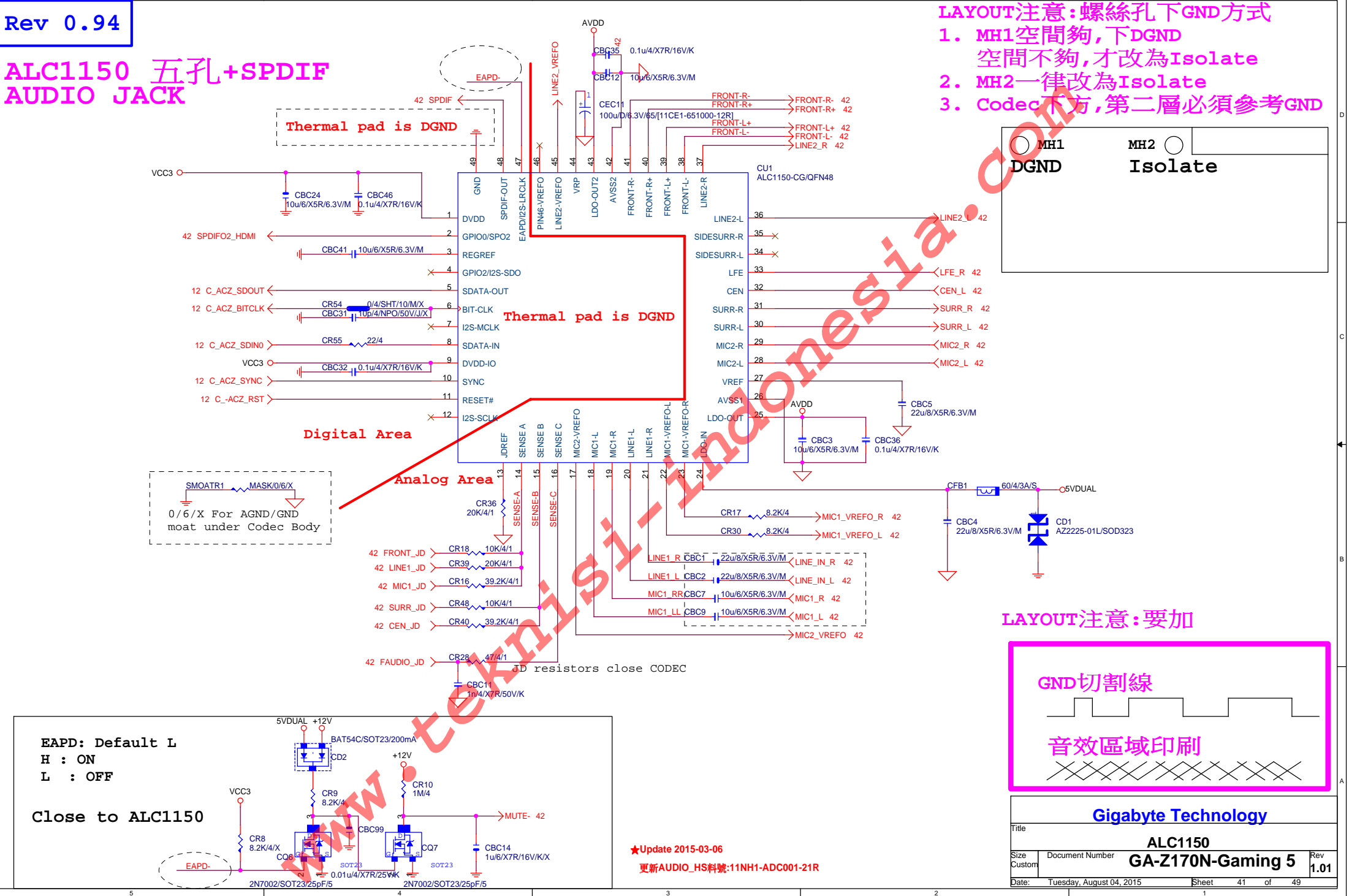


## LAN POWER



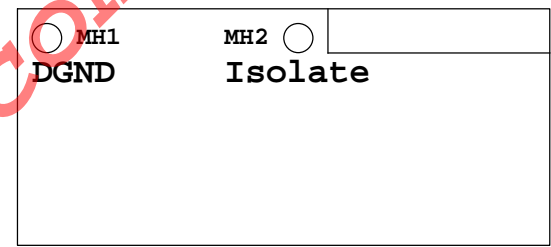
Gigabyte Technology		
LAN CONNECTOR-E2201		
Title	Document Number	Rev
	GA-Z170N-Gaming 5	1.01
Date: Tuesday, August 04, 2015	Sheet 40 of 49	

ALC1150 五孔+SPDIF  
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



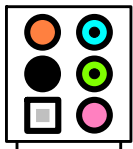
LAYOUT注意:要加

GND切割線

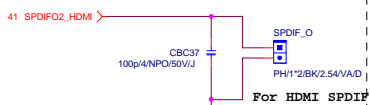
音效區域印刷

Gigabyte Technology			
Title		ALC1150	
Size Custom		Document Number	
		GA-Z170N-Gaming 5	
Date:		Tuesday, August 04, 2015	
		Sheet 41 of 49	
		Rev 1.01	

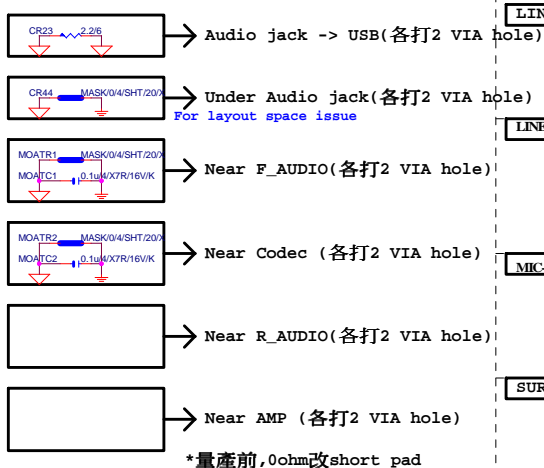
**AZALIA JACK**



## SPDIF\_OUT



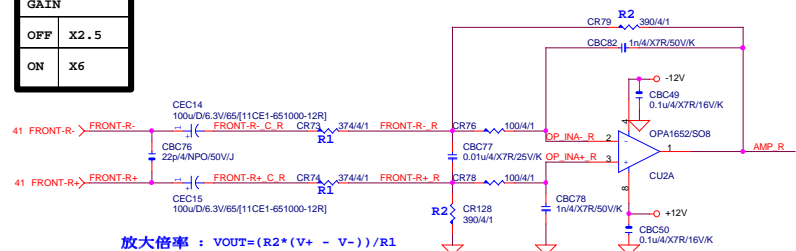
For HDMI SPDIF



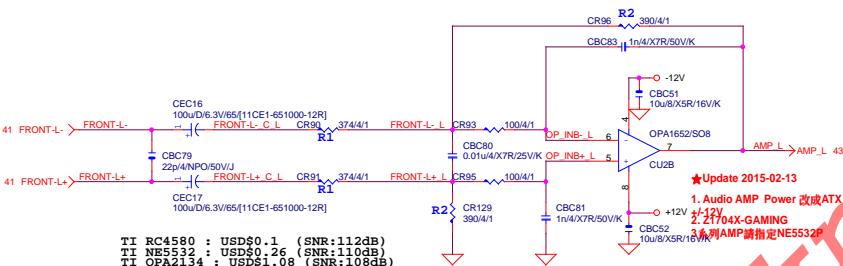
**GAIN**

OFF	X2.5
ON	X6

## Differential to Single-End AMPLIFIED



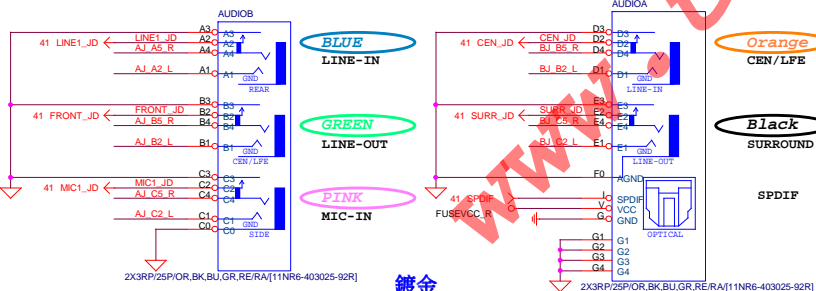
**放大倍率** :  $V_{OUT} = (R_2 * (V_+ - V_-)) / R_1$



★Update 2015-02-13

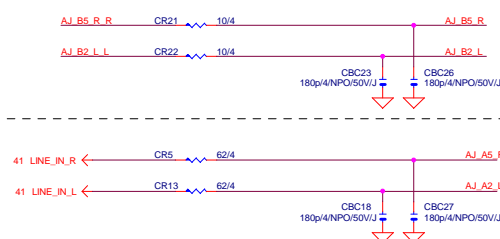
1. Audio AMP Power 改成ATX
2. Z1704X-GAMING
3. 系列AMP請指定NE5532P

**AZALIA JACK**

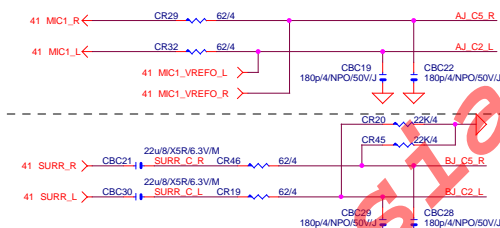


鍍金

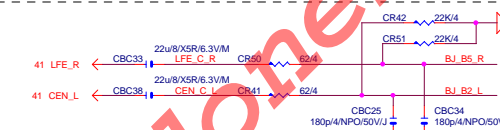
## LINE-OUT



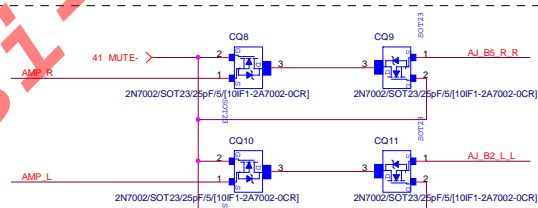
LINE-IN



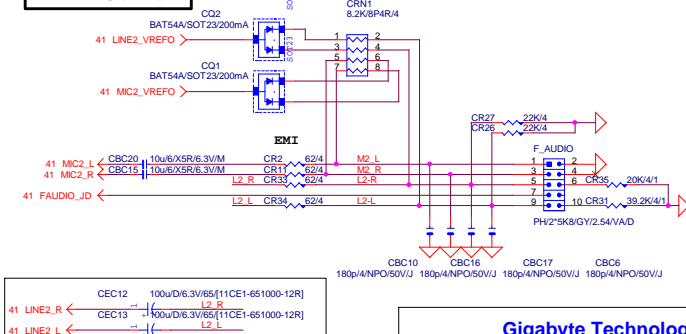
**SURROUND**



CEN/LFE

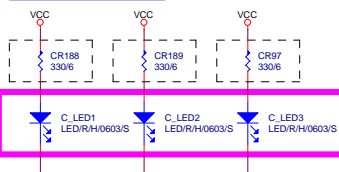


**AZALIA FRONT PANEL**



## Gigabyte Technology

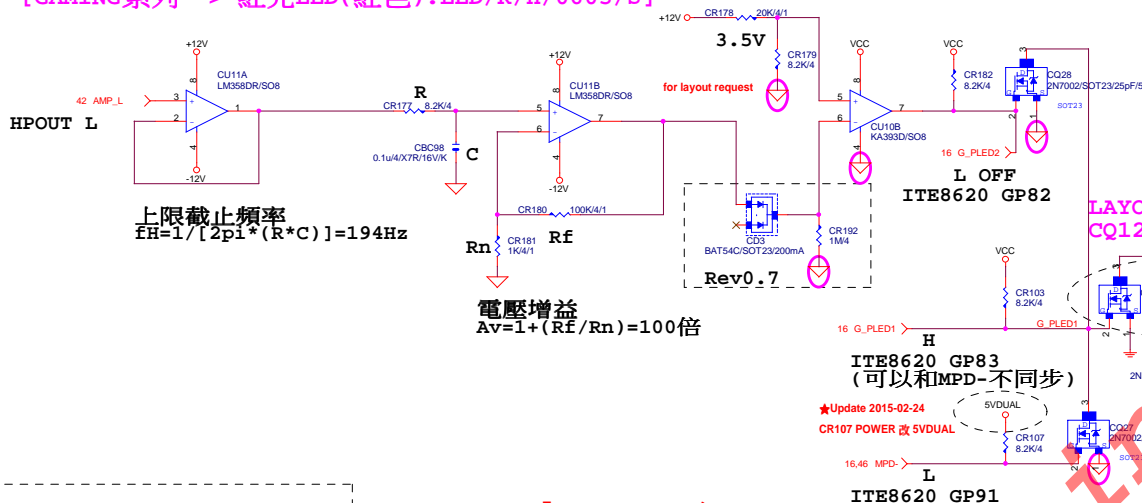
Title				AUDIO JACK				Rev	
Size Custom		Document Number		GA-Z170N-Gaming 5				1.0	
Date: Tuesday, August 04, 2015				Sheet 42		of 49			



VALUE可變,LED顏色請自行修改

[UD/SOC系列--> 白光LED(黃色):LED/W/6/S]

[GAMING系列--> 紅光LED(紅色):LED/R/H/0603/S]



### Rear Panel LED ON/OFF

	IO_GP80
REAR LED ON	H
REAR LED OFF	L

### AUDIO LED Control (沒有LPT model)

	IO_GP82	IO_GP83	IO_GP91
Still Mode	L	H	L
OFF Mode	L	L	L
Pluse Mode	L	H	BREATH
Beat Mode	OD	H	L

### AUDIO LED Control (有LPT model)

	IO_GP92	IO_GP17	IO_GP91
Still Mode	L	H	L
OFF Mode	L	L	L
Pluse Mode	L	H	BREATH
Beat Mode	OD	H	L

LAYOUT OPTION: 除了GAMING3系列和Z1704N-GAMING5不要LAYOUT, 其餘GAMING系列機種都要留LAYOUT

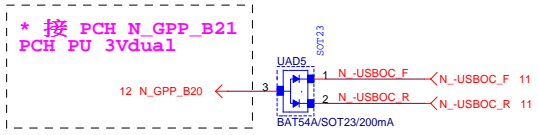
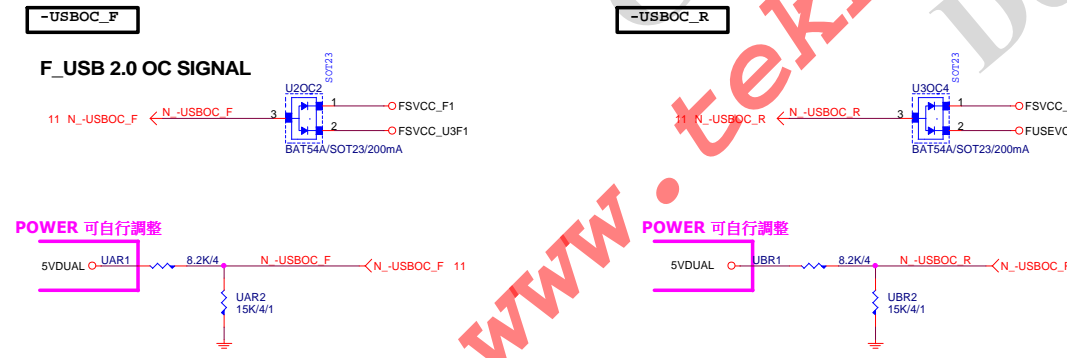
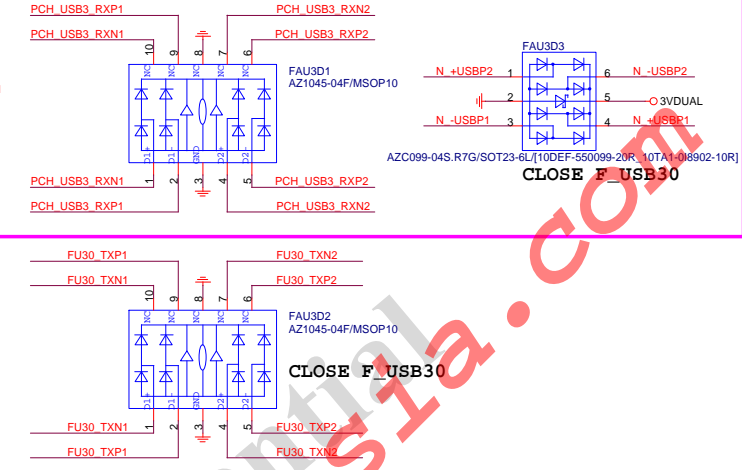
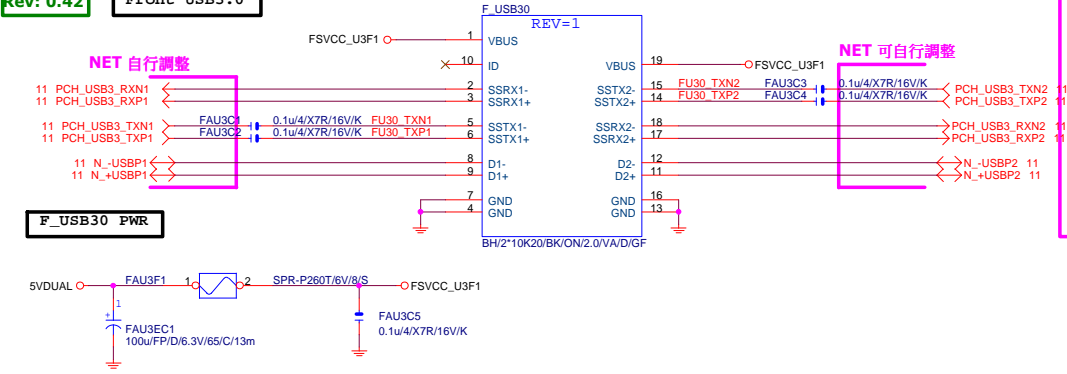


**GIGABYTE**

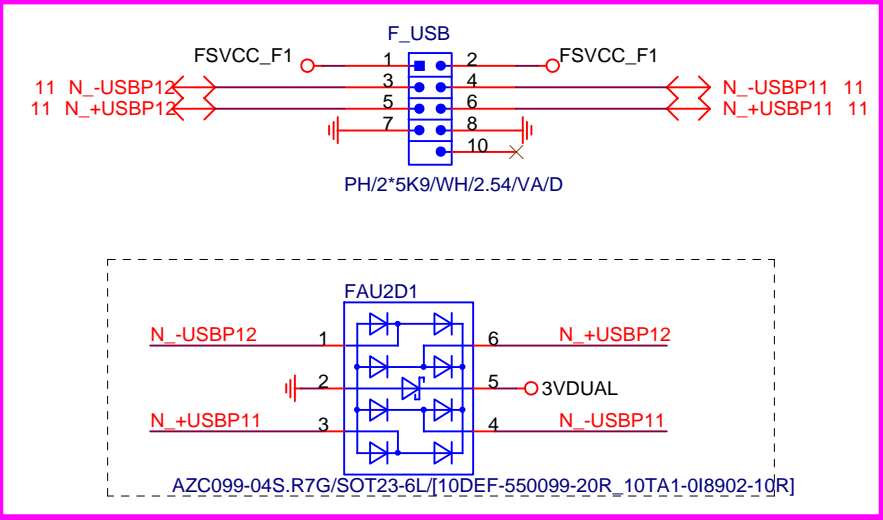
Title	AUDIO LED	
Size	Document Number	Rev
Custom	GA-Z170N-Gaming 5	1.01
Date:	Tuesday, August 04, 2015	Sheet 43 of 49

Rev: 0.42

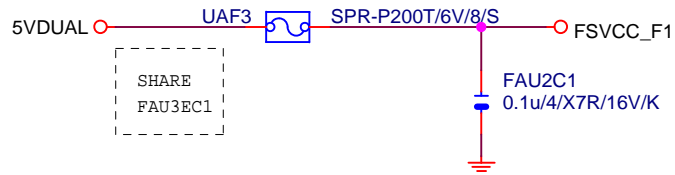
Front USB3.0



NET 可變



Close to connector  
FUSE 2 Port 1 Fuse 2A

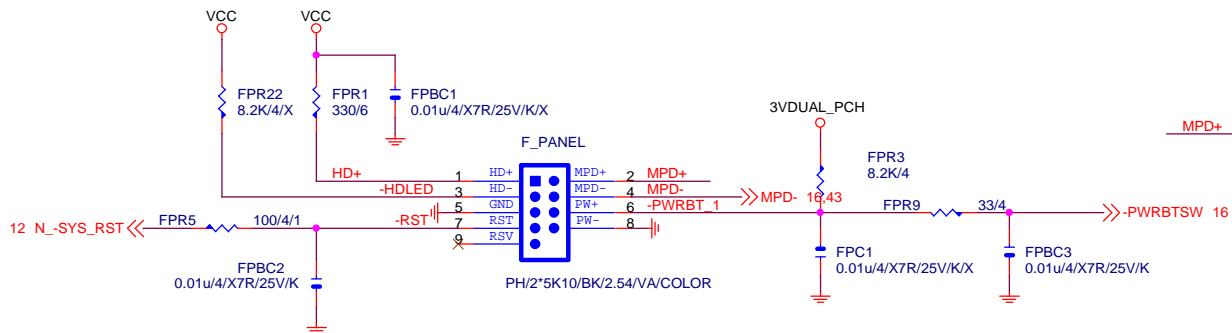


F\_USB 2.0 OC SIGNAL-->SCH IN F\_USB30  
PAGE

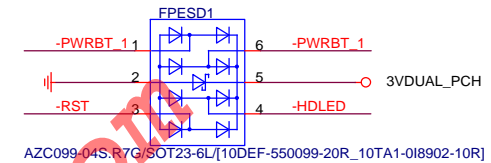
Gigabyte Technology			
Title			
USB2.0			
Size A	Document Number		Rev
	GA-Z170N-Gaming 5		1.01
Date:	Tuesday, August 04, 2015	Sheet	45 of 49

## FRONT PANEL

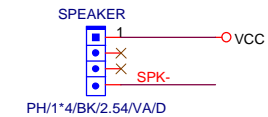
Rev: 0.51



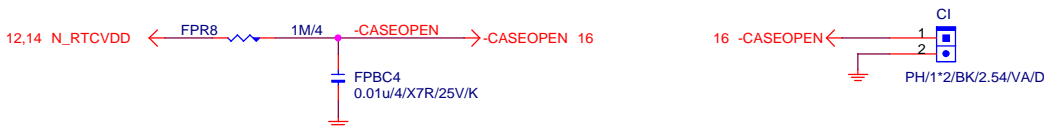
## ESD



## SPEAKER

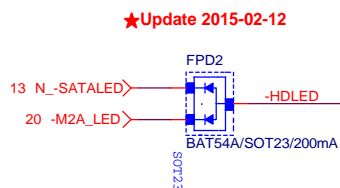


## CASE OPEN



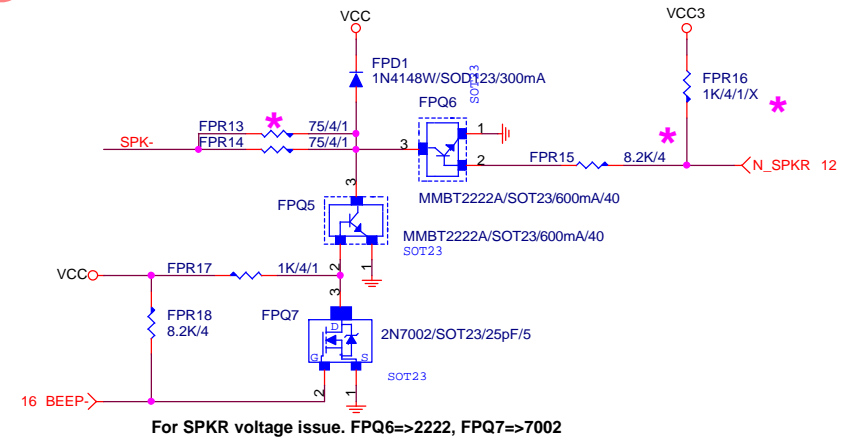
## SATA LED

SATALED# signal open-collector, pull-up (8.2 kΩ to 10 kΩ) to Vcc3\_3



★Update 2015-02-12

## SPKR

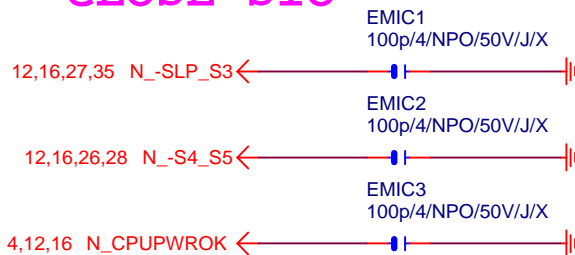


Gigabyte Technology

Title			
FRONT PANEL			
Size	Document Number	GA-Z170N-Gaming 5	
Custom		Rev	1.01
Date:	Tuesday, August 04, 2015	Sheet	46 of 49



### CLOSE SIO

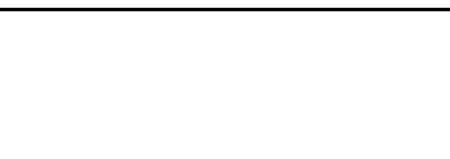
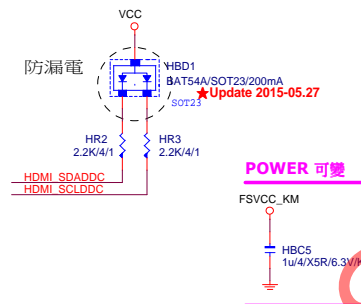


### CLOSE PCH



**GIGABYTE™**

Title		
EM/ESD		
Size A	Document Number GA-Z170N-Gaming 5	Rev 1.01
Date:	Tuesday, August 04, 2015	Sheet 47 of 49



【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: ASMDIE ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm (PIN4 PULL DOWN電阻)

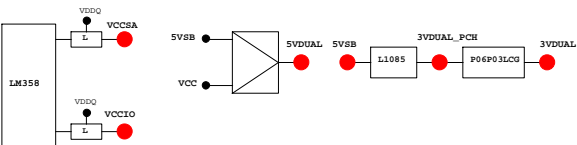
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE	
GPP_A0	MAIN	NATIVE	N_-KBRST	P/U 8.2K VCC3	
GPP_A1	MAIN	NATIVE	N_LAD0	N/A	
GPP_A2	MAIN	NATIVE	N_LAD1	N/A	
GPP_A3	MAIN	NATIVE	N_LAD2	N/A	
GPP_A4	MAIN	NATIVE	N_LAD3	N/A	
GPP_A5	MAIN	NATIVE	N_-LFRAME	N/A	
GPP_A6	MAIN	NATIVE	N_SBR1RQ	P/U 8.2K VCC3	
GPP_A7	MAIN	NATIVE	N_-LDRQ0	P/U 8.2K 3VDUAL	
GPP_A8	MAIN	NATIVE	N_GPP_A8	P/U 8.2K VCC3	
GPP_A9	MAIN	NATIVE	N_LPC24MB	N/A	
GPP_A10	MAIN	NATIVE	N_LPC24MA	N/A	
GPP_A11	MAIN	NATIVE	N_-P_FMR	P/U 8.2K 3VDUAL_PCH	
GPP_A12	MAIN	GPI	N_GPP_A12	P/U 8.2K VCC3	
GPP_A13	MAIN	NATIVE	N_-S_WARN	N/A	
GPP_A14	MAIN	NATIVE	N_GPP_A14	P/U 8.2K 3VDUAL	
GPP_A15	MAIN	NATIVE	N_-S_ACK	N/A	
GPP_B0	MAIN	CORE_VIO0	N_-DDR_V_SEL	P/U 8.2K VCC3	
GPP_B1	MAIN	CORE_VIO1	N/A	N/A	
GPP_B2	MAIN	GPI	N_-VREALRT	P/U 8.2K 3VDUAL	
GPP_B5	MAIN	GPI	-PCIEX16_PR	P/U 8.2K VCC3	
GPP_B6	MAIN	GPI	-PCIEX1_PR1	P/U 8.2K VCC3	
GPP_B7	MAIN	GPI	-PCIEX1_PR2	P/U 8.2K VCC3	
GPP_B8	MAIN	GPI	-PCIEX4_PR	P/U 8.2K VCC3	
GPP_B9	MAIN	GPI	N/A	N/A	
GPP_B10	MAIN	GPI	N/A	N/A	
GPP_B11	MAIN	GPO	N/A	N/A	
GPP_B12	MAIN	SLP_S0	N_SLP_S0	N/A	
GPP_B13	MAIN	PLTRST	N_-PPMRST	N/A	
GPP_B14	MAIN	H-Z	GPO	N_SFRR	N/A
GPP_B18	MAIN	H-Z	GPO	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN	GPI	N_GPP_B20	P/U 8.2K 3VDUAL	
GPP_B22	MAIN	GPI	N_GPP_B22	P/D 1K GND	
GPP_C0	MAIN	SMCLK	N/A	N/A	
GPP_C1	MAIN	SMMDATA	N/A	N/A	
GPP_C2	MAIN	H-Z	GPO	N_-LPCPME	N/A
GPP_C3	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C4	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C5	MAIN	H-Z	GPO	N_GPP_C5	N/A
GPP_C6	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_C7	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_D4	MAIN	GPI	N_GPP_D4	P/U 8.2K 3VDUAL	
GPP_D7	MAIN	GPI	N_GPP_D7	N/A	
GPP_D9	MAIN	GPI	N_GPP_D9	N/A	
GPP_D17	MAIN	GPI	N_GPP_D17	P/U 8.2K VCC3	
GPP_D18	MAIN	GPI	N_GPP_D18	P/U 8.2K VCC3	
GPP_D19	MAIN	GPI	N_GPP_D19	P/U 8.2K VCC3	
GPP_D20	MAIN	GPI	N_GPP_D20	P/U 8.2K VCC3	
GPP_D23	MAIN	GPI	N_GPP_D23	P/U 8.2K 3VDUAL	
GPP_E0	MAIN	NATIVE	N_GPP_E0	P/U 8.2K VCC3	
GPP_E1	MAIN	NATIVE	N_GPP_E1	P/U 8.2K VCC3	
GPP_E2	MAIN	NATIVE	N_GPP_E2	P/U 8.2K VCC3	
GPP_E3	MAIN	GPI	N_CPU_S	P/U 8.2K VCC3	
GPP_E4	MAIN	GPI	N_DEVSLP0	P/U 8.2K VCC3	
GPP_E6	MAIN	GPI	N_DEVSLP2	P/U 8.2K VCC3	
GPP_E7	MAIN	GPI	N_GT_S	P/U 8.2K VCC3	
GPP_E8	MAIN	GPI	N_-SATALED	N/A	
GPP_E9	MAIN	H-Z	GPI	N_-USB0C_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_-USB0C_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_-USB0C_R	N/A
GPP_E12	MAIN	H-Z	GPI	N_-USB0C_F	N/A
GPP_F0	MAIN	NATIVE	N_GPP_F0	P/U 8.2K VCC3	
GPP_F1	MAIN	NATIVE	N_GPP_F1	P/U 8.2K VCC3	
GPP_F2	MAIN	NATIVE	N_GPP_F2	P/U 8.2K VCC3	
GPP_F3	MAIN	GPI	N_GPP_F3	P/U 8.2K VCC3	
GPP_F4	MAIN	GPI	N_GPP_F4	P/U 8.2K VCC3	
GPP_F5	MAIN	GPI	N_GPP_F5	P/U 8.2K VCC3	
GPP_F6	MAIN	GPI	N_DEVSLP4	P/U 8.2K VCC3	
GPP_F10	MAIN	GPI	N_GPP_F10	P/U 8.2K VCC3	
GPP_F11	MAIN	GPI	N_GPP_F11	P/U 8.2K VCC3	
GPP_F12	MAIN	GPI	N_GPP_F12	P/U 8.2K VCC3	
GPP_F13	MAIN	GPI	N_GPP_F13	P/U 8.2K VCC3	
GPP_F14	MAIN	GPI	A_-SKT0CC	P/U 8.2K VCC3	
GPP_F15	MAIN	GPI	N_-USB0C_F	N/A	
GPP_F16	MAIN	GPI	N_-USB0C_F	N/A	
GPP_F17	MAIN	GPI	N_-USB0C_R	N/A	
GPP_F18	MAIN	GPI	N_-USB0C_F	P/U 8.2K 3VDUAL	
GPP_F22	MAIN	GPI	N_GPP_F22	P/U 8.2K VCC3	
GPP_F23	MAIN	GPI	N_GPP_F23	P/U 8.2K VCC3	
GPP_G0	MAIN	GPI	N_GPP_G0	P/U 1K VCC3	
GPP_G1	MAIN	GPI	N_GPP_G1	P/U 1K VCC3	
GPP_G12	MAIN	GPI	N_GPP_G12	P/U 3.3K VCC3	
GPP_G16	MAIN	GPI	N_GPP_G16	N/A	
GPP_G18	MAIN	GPI	N_GPP_G18	P/U 8.2K VCC3	
GPP_G19	MAIN	GPI	N_GPP_G19	P/U 8.2K VCC3	
GPP_G20	MAIN	GPI	N_GPP_G20	P/U 8.2K VCC3	
GPP_G21	MAIN	GPI	N_GPP_G21	P/U 8.2K VCC3	
GPP_G22	MAIN	GPI	N_GPP_G22	P/U 8.2K VCC3	
GPP_H0	MAIN	GPI	M2_-CLKREQ	P/U 8.2K VCC3	
GPP_H12	MAIN	GPO	N_GPP_H12	P/U 8.2K VCC3	
GPP_H19	MAIN	GPI	N_GPP_H19	P/U 8.2K 3VDUAL	
GPP_H20	MAIN	GPI	N_GPP_H20	P/U 8.2K 3VDUAL	
GPP_H21	MAIN	GPI	N_GPP_H21	P/U 8.2K 3VDUAL	
GPP_H22	MAIN	GPI	N_GPP_H22	P/U 8.2K 3VDUAL	
GPP_I0	MAIN	GPI	N_HDMI_HDP_F	N/A	
GPP_I1	MAIN	GPI	N_DVI_HDP_F	P/U 1M VCC3	
GPP_I2	MAIN	GPI	N_VGA_HDP_F	N/A	

PIN NAME	PWR	Default	USAGE	NOTE
GPP_I3	MAIN	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN	GPO	N_DDPB_CTRLCLKDATA	P/U 2.2K VCC3
GPP_I7	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN	GPI	N_DDPB_CTRLCLKDATA	P/U 2.2K VCC3
GPP_I9	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I10	MAIN	GPI	N_DDPB_CTRLCLKDATA	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	LAM_WAKE	N_-LAM_WAKE	N/A
GPD3	STBY	PWRBTN	O_PWRBTN	P/U 8.2K 3VDUAL_PCH
GPD4	STBY	SLP_S3	N_-SLP_S3	N/A
GPD5	STBY	SLP_S4	N_-SLP_S4	N/A
GPD6	STBY	SLP_A	N_-SLP_A	P/U 8.2K 3VDUAL
GPD7	STBY	NATIVE	N_-S_ACK	N/A
GPD8	STBY	SUSCLK	N_SUSCLK	N/A
GPD10	STBY	SLP_S5	N_-SLP_S5	N/A

Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
PCIRSTF38/GP10/VDIHM_STR_EN	N/A	
PCIRSTF28/GP11	O_-PCIE_RST	
PCIRSTF18/GP12	O_-PPMRST2	
SVC/FRC1_RQ7/GP14	TPM_GP14	
SLP_SUS#/PCIRSTIN#/CIRT2/GP15	-PCIRSTIN	
PSI_L/FAN_CLT5/CIRX2/GP16	N_-THERMTRIP	
R128/GP17	MB_ID2	
THR_PWM_CTS28/GP20	N_-THERMTRIP	
IO_SMI#DCD28/GP21	紫 PIN	
SPI_S1/GP22	BEEP-	
DPWRKOC/CPU_RQ/GP23	N_PCH_DPWRKOC	
FAN_TACS/RTS28/GP24	紫 PIN	
FAN_TAC4/DSR28/GP25	FANIO4	
INV_OUT1_SOUT2/GP26	Q_PLED	
INV_IN1/SIN2/GP27	INV_IN1	
ATXPG/GP30	FWOK	
CTS1/GP31	CTS1-	
OCWD13/R118/GP32	R11-	
OCWD12/DCD18/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSB#W/GP40	紫 PIN	
OCWD11/SIN1/GP41	RXD1	
GP42/SCK/FAN_CTL4	紫 PIN	
PANSW#W/GP43	-PWRBTSW	
PWRON#W/GP44	O_PWRBTSW	
OCWD10/DSR18/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/GP1	紫 PIN	
FAN_CTL2/GP51	FANPWM2	
FAN_TAC2/GP52	FANIO2	
SUSOC/GP53	N_-G4_S5	
PME#W/GP54	N_-LPCPME	
RSMBSTW/CIRX1/GP55	O_-RSMBST	
NCLK/FAN_TAC5/GP56	NCLK	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRSTW/GP62	N_-KRST	
HOLD_B#W/GP63	-SPI_HOLD_B	
HOLD_B#W/GP64	-SPI_HOLD_M	
VLD1T_EN/PCH_D0/GP65	紫 PIN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	紫 PIN	
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#W/GP83	ACK-	
IPHONE_CHARGE#W/SLIN#W/GP84	SLIN-	
OC_IN/INIT#W/GP85	INIT-	
OC_OUT/AFD#W/GP86	AFD-	
USB_OC4/STB#W/GP87	STB-	
DOX_EN/GP90	NA_EN	
PWRLED/GP91	HPD-	
HOLD_OUT/GP92	紫 PIN	
HDLIN_IN/GP93	紫 PIN	
PROCROT#W/GP94	-PROCROT_CON	
CHUNKRGD/GP95	紫 PIN	
PCH_VRM#W/GP96	N_PCH_VRM#W	
VR_RDY/GP97	VR_RDY	



PWM各相位的擺法如下:

