Model Name: GA-Z170M-D3H

rev 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B-DDR4
06	CPU_LGA1151-C
07	CPU_LGA1150-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	PCI EXPRESS*4 SLOT
21	M.2X4
22	SATA EXPRESS
23	ASM1083 PCI BRIDGE
24	ASM1083 POWER
25	PCI SLOT 1&2
26	ISL95858_856 PWM
27	ISL95858_856 MOS_VCORE

SHEET	TITLE
28	ISL95858_856 MOS_VCCGT
29	VCCSA_VCCIO_VCCPLL
30	RT8120_DDR_VDDQ
31	RT8068A_VPP_25V
32	RT8120_PCH_VCC1_0_PCH
33	DISCRETE POWER
34	NCT3933
35	ATX POWER , A_-PROCHOT
36	KB_MS_USB
37	DVI CONN
38	PTN3356 - DP to VGA - IC
39	PTN3356 - DP to VGA - Conn
40	HDMI CONN
41	R_USB30
42	INTEL I219
43	USB30_LAN CONNECTOR-I219
44	Realtek ALC892
45	REAR AUDIO JACK
46	F_USB30
47	F_USB
48	COM , LPT , TPM , THB
49	F_PANEL
50	TABLE LIST
51	POWER MAP

Gigabyte Technology

Title	Cover Sheet	
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Model Name: GA-Z170M-D3H

rev 1.0

Component value change history

2015/07/09

Data	Change Item	Reason
2015/04/23	1. SKYLAKE DP-VGA模組線路:NXP PTN3356 R1.06 2. SKY LAKE 模組化線路	
	DDR4_RT8120_RT8068_RT9018模組線路REV:0.82 3. Connector module release version:0.55	
2015/05/04	1.PCH_RT8237_04B and PCH_RT8120_06B模組線路	
2015/05/28	R0.2 1. MODIFY 24MHZ X'TAL	
	2. PROCHOT#:DAR47:20K/4/1	
2015/05/29	For BOM	
	1. Update Z170 CHIP料號[10HB1-03Z170-20R] 2. NPR5改為5%	
2015/06/17	R1.0: 1. IT8628 R1.08	
	2. TPM R0.7	
2015/06/22	1. VCC_PLL_01B模組線路 2. 模組化線路 DDR4 4L /6L /6L-ECC schematic Rev0.6	
2015/06/23	1. PCH_RT8120_064B and PCH_RT8237_047b模組線路	
2015/06/24	1. SKYLAKE Notes---Rev 1.21	
2015/06/26	1. SKY LAKE 模組化線路 Power DDR R0.85	
2015/07/07	1. SKY LAKE 模組化線路PCH_RT8120_067B_150702A	

Circuit or PCB layout change

DATE	Change Item	Reason

GIGABYTE™

Title: BOM & PCB MODIFY HISTORY		
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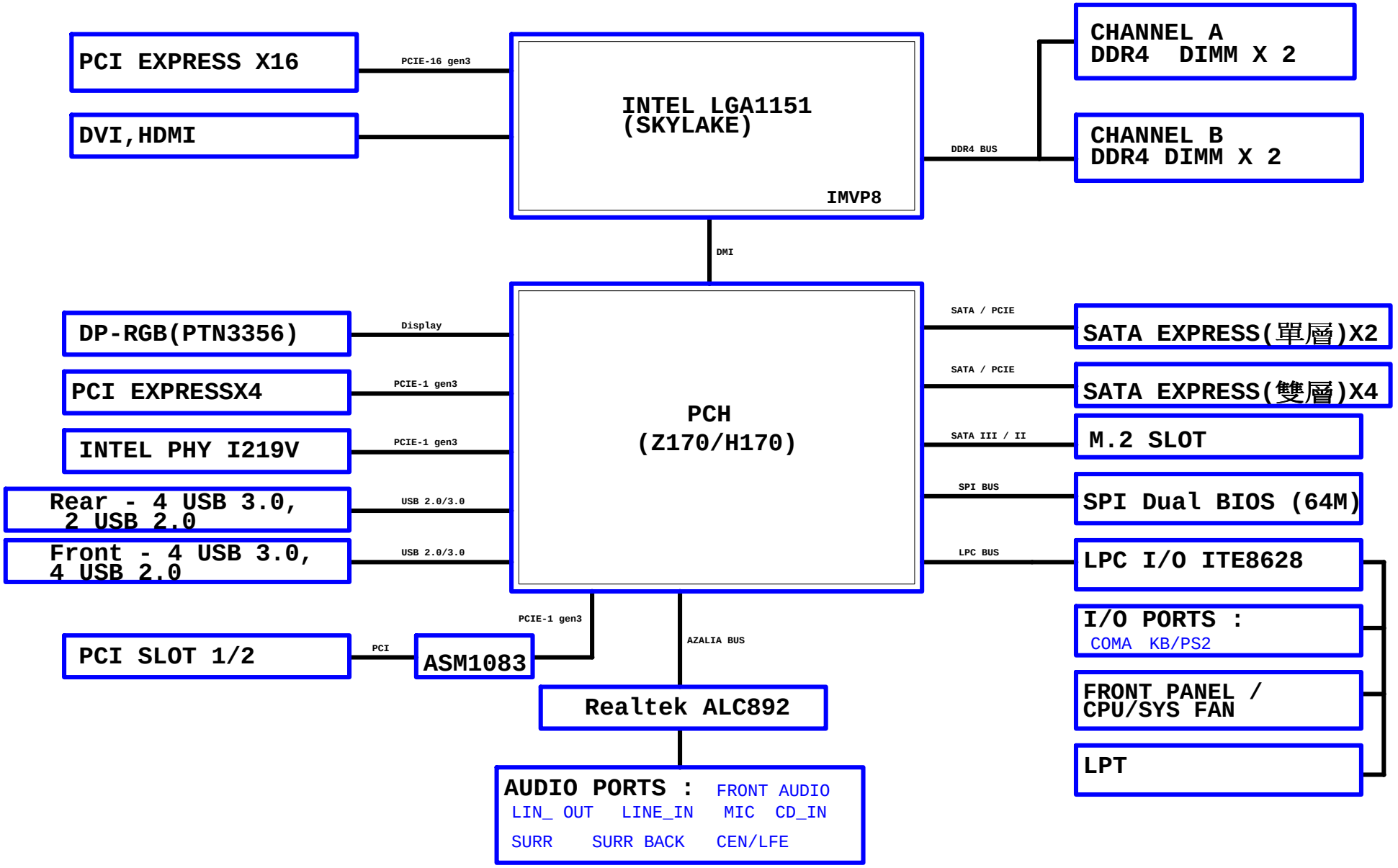
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z170M-D3H	Rev: 1.0
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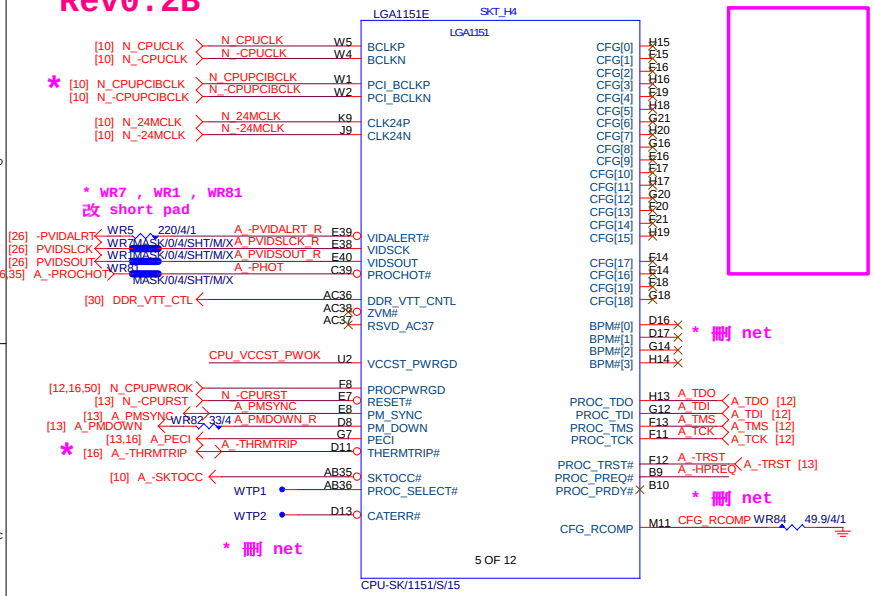
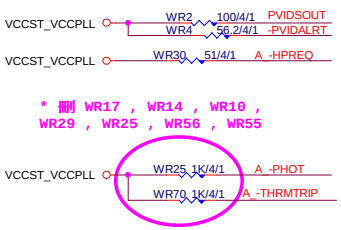
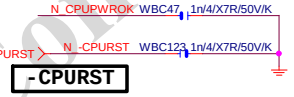
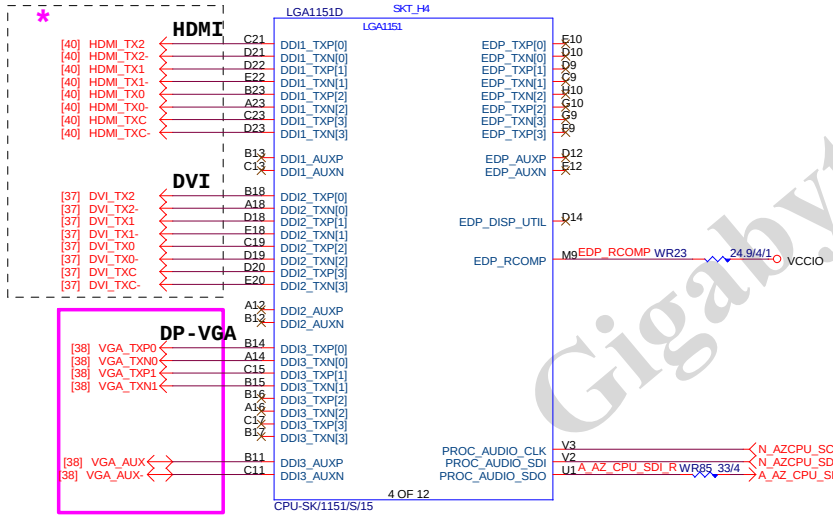
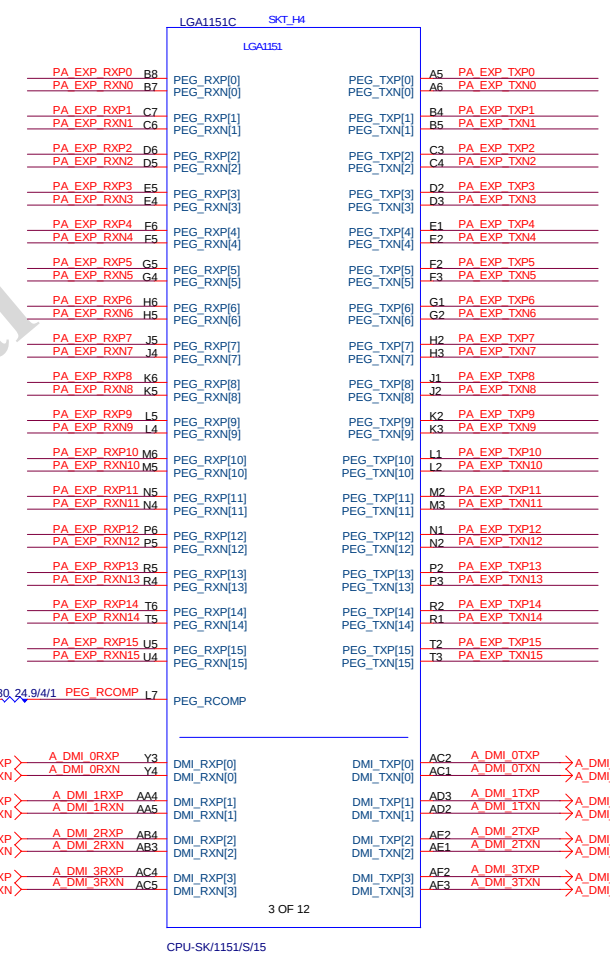
* Rev0.2B











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

---
4 layer HDMI/DP/eDP/======4/4/4//15
6 layer HDMI/DP/eDP/======4/5.5/4//15

Impedance=85 +- 15%

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

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

PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] [19]
PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] [19]
PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] [19]
PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] [19]

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

Impedance=85 +- 15%

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

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Title	CPU LGA1151-A	
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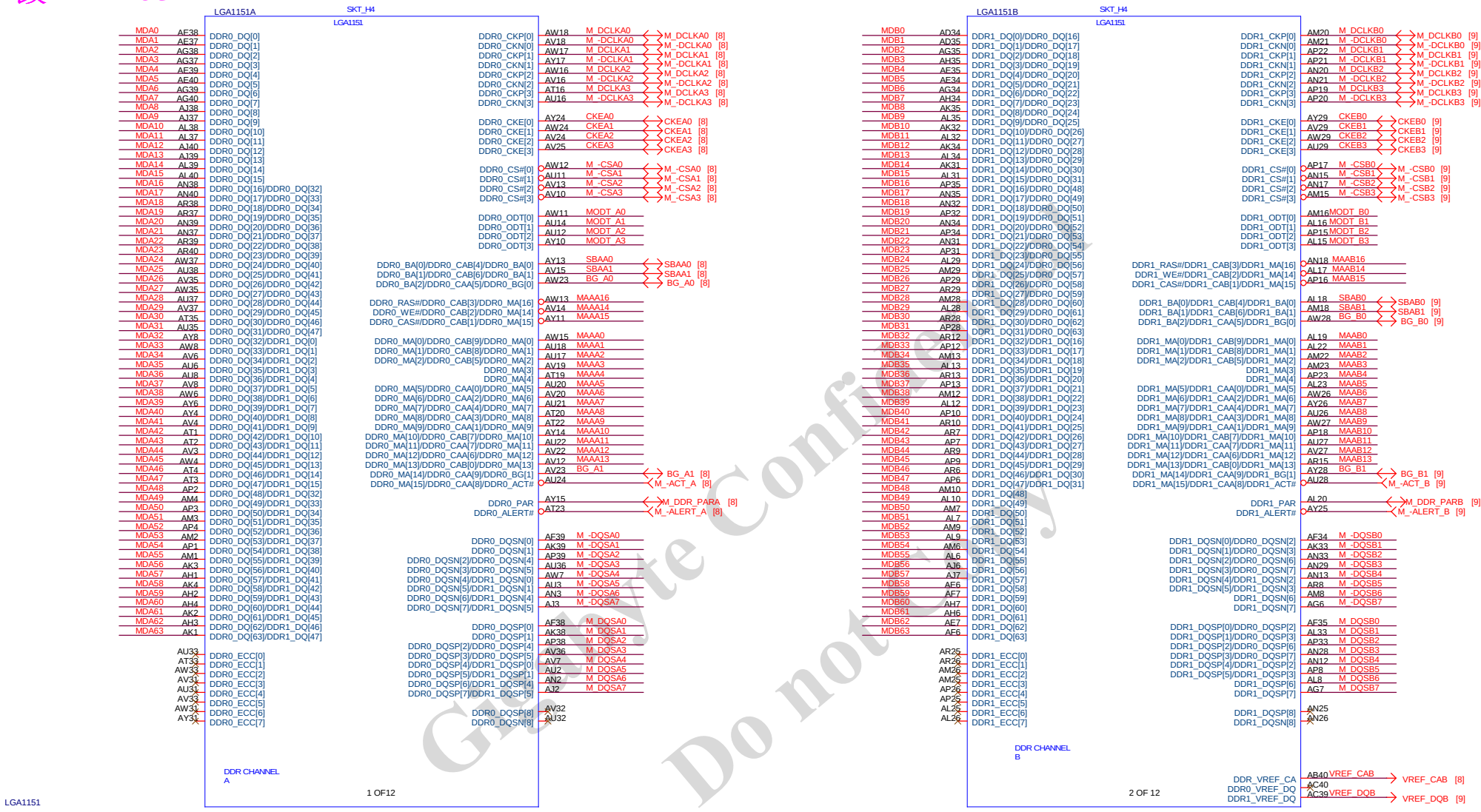
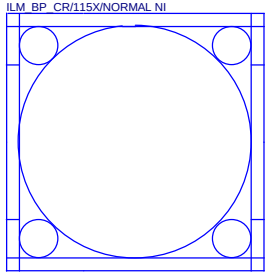
* 改DDR4 net



LGA1151

ILM_BP_CR/115X/NORMAL NI



Need check the new CPU ME

[8] MODT_A[0..3] ↔ MODT_A[0..3]
[9] MODT_B[0..3] ↔ MODT_B[0..3]
[8] MDA[0..63] ↔ MDA[0..63]
[9] MDB[0..63] ↔ MDB[0..63]
[8] M_DQSA[0..7] ↔ M_DQSA[0..7]
[8] M_-DQSA[0..7] ↔ M_-DQSA[0..7]
[8] MAAA[0..16] ↔ MAAA[0..16]
[9] MAAB[0..16] ↔ MAAB[0..16]
[9] M_DQSB[0..7] ↔ M_DQSB[0..7]
[9] M_-DQSB[0..7] ↔ M_-DQSB[0..7]

Gigabyte Technology		
Title: CPU LGA1151-B		
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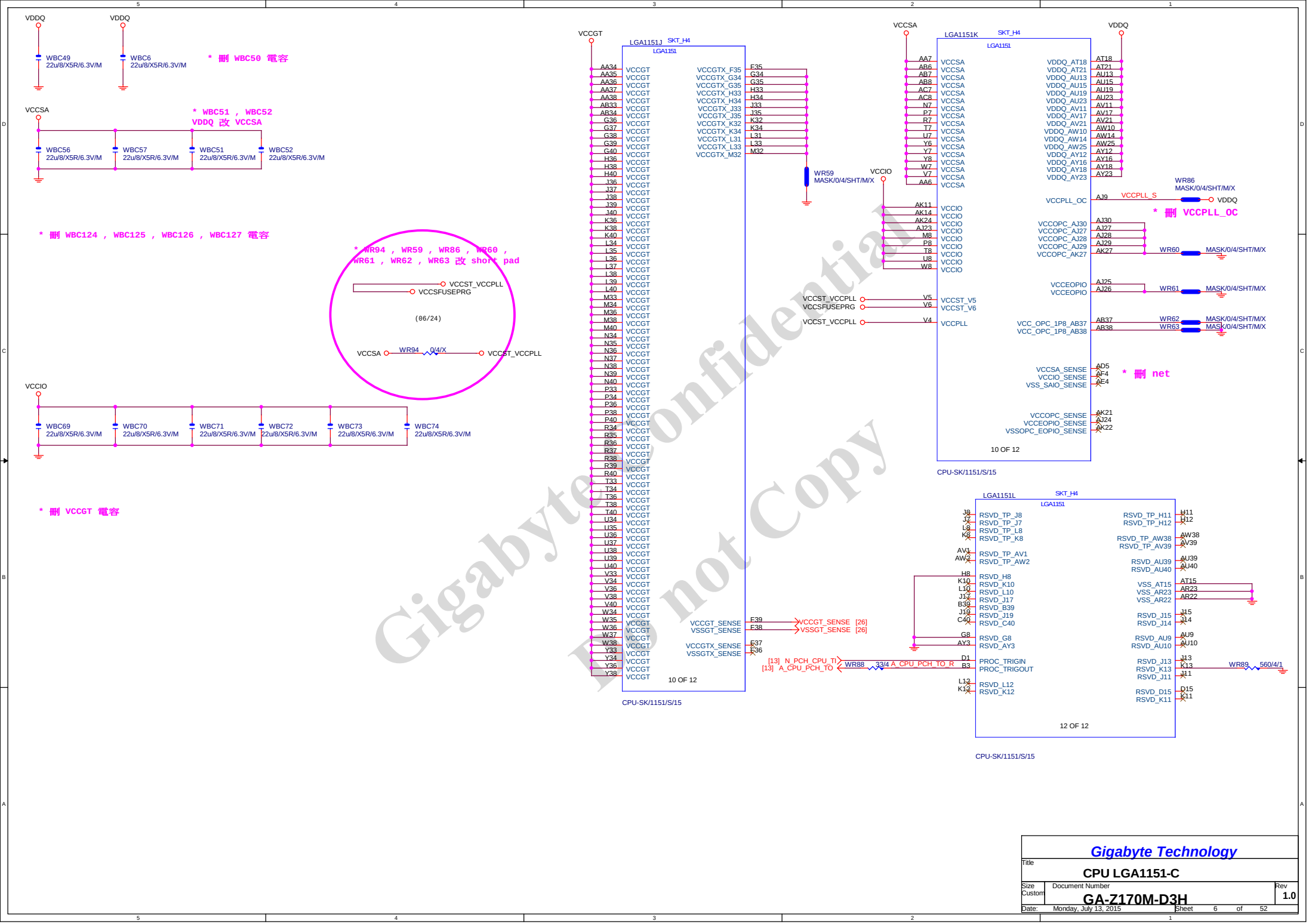
VDDQ
WBC49 22u/8/X5R/6.3V/M
WBC6 22u/8/X5R/6.3V/M
* 刪 WBC50 電容
VCCSA
* WBC51 , WBC52 VDDQ 改 VCCSA
WBC56 22u/8/X5R/6.3V/M
WBC57 22u/8/X5R/6.3V/M
WBC51 22u/8/X5R/6.3V/M
WBC52 22u/8/X5R/6.3V/M
* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容
* WR94 , WR59 , WR86 , WR60 , WR61 , WR62 , WR63 改 short pad
VCCST_VCCPLL
VCCSFUSEPRG
(06/24)
VCCSA
WR94 0/4/X
VCCST_VCCPLL
VCCIO
WBC69 22u/8/X5R/6.3V/M
WBC70 22u/8/X5R/6.3V/M
WBC71 22u/8/X5R/6.3V/M
WBC72 22u/8/X5R/6.3V/M
WBC73 22u/8/X5R/6.3V/M
WBC74 22u/8/X5R/6.3V/M
* 刪 VCCGT 電容
VCCGT
LGA1151J SKT_H4
LGA1151
10 OF 12
CPU-SK/1151/S/15
WR59 MASK/0/4/SHT/M/X
VCCIO
VCCST_VCCPLL
VCCSFUSEPRG
VCCST_VCCPLL
VCCSA
LGA1151K SKT_H4
LGA1151
VDDQ
VCCPLL_OC
VCCPLL_S
WR86 MASK/0/4/SHT/M/X
* 刪 VCCPLL_OC
WR60 MASK/0/4/SHT/M/X
WR61 MASK/0/4/SHT/M/X
WR62 MASK/0/4/SHT/M/X
WR63 MASK/0/4/SHT/M/X
VCCST_V5
VCCST_V6
VCCPLL
VCCSA_SENSE
VCCIO_SENSE
VSS_SAIO_SENSE
* 刪 net
VCCOPC_SENSE
VCCEOPIO_SENSE
VSSOPC_EOPIO_SENSE
10 OF 12
CPU-SK/1151/S/15
LGA1151L SKT_H4
LGA1151
VCCGT_SENSE [26]
VSSGT_SENSE [26]
[13] N_PCH_CPU_TI
[13] A_CPU_PCH_TO
WR88 33/4 A_CPU_PCH_TO_R
WR89 560/4/1
12 OF 12
CPU-SK/1151/S/15
Gigabyte Confidential
Do not Copy
Gigabyte Technology
Title
CPU LGA1151-C
Size Custom
Document Number
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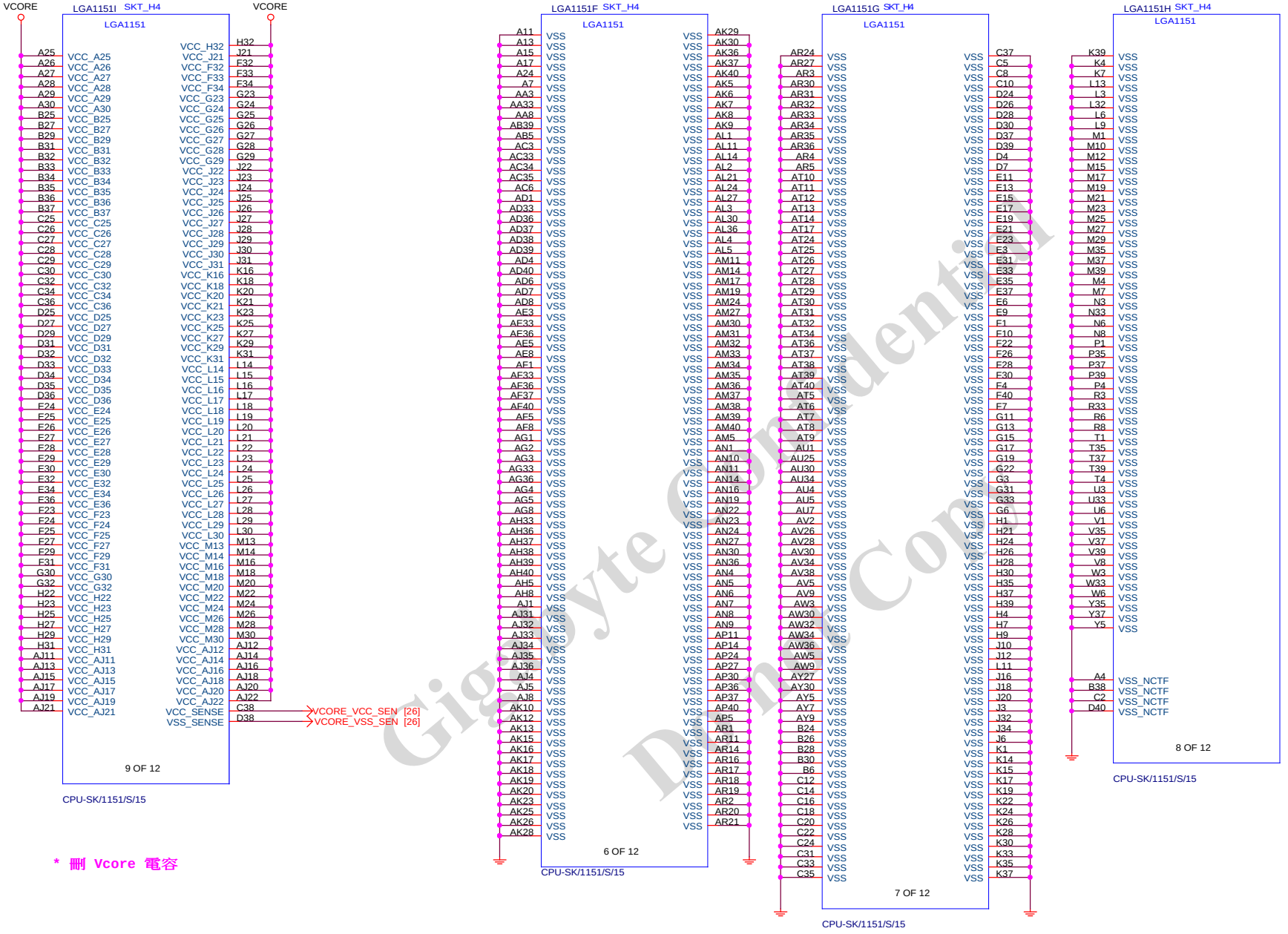

Gigabyte Technology		
Title: CPU LGA1151-C		
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Rev:0.6

DDR4_4

DDR4_2

* net 改 VDDQ

DDRVTT

VDDQ

MAR19 240/4/1

MAR20 240/4/1

MAR15 1K/4/1

MAR16 1K/4/1

MABC4 0.1u/4X7R/16V/K

Footprint :R0402-2-SHORT20

VREF_DDRA

MR23 0/4/SHT/20/X

VREF_CAB [5]

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

MR24 24.9/4/1/X

DDR12V Decouple

MABC18 1u/4X5R/6.3V/K

MABC15 1u/4X5R/6.3V/K

MABC11 1u/4X5R/6.3V/K

MABC38 1u/4X5R/6.3V/K

MABC39 0.1u/4X7R/16V/K

MASC3 1u/4X5R/6.3V/K

MABC37 1u/4X5R/6.3V/K

MABC34 1u/4X5R/6.3V/K

MABC35 1u/4X5R/6.3V/K

MABC17 1u/4X5R/6.3V/K

MASC4 0.1u/4X7R/16V/K

MASC1 1u/4X5R/6.3V/K

MASC2 1u/4X5R/6.3V/K

MABC10 22u/6X5R/6.3V/M

MABC36 1u/4X5R/6.3V/K

MABC21 1u/4X5R/6.3V/K

MABC8 2.2u/6X5R/6.3V/K

* 電容移到 [RT8129_DDR]

DDRVTT Decouple

MABC25 0.1u/4X7R/16V/K

MABC23 0.1u/4X7R/16V/K

MABC28 0.1u/4X7R/16V/K

MABC9 22u/6X5R/6.3V/M

MABC22 1u/4X5R/6.3V/K

MABC24 1u/4X5R/6.3V/K

* 刪電容

MABC19 1u/4X5R/6.3V/K

MABC20 1u/4X5R/6.3V/K

MABC14 1u/4X5R/6.3V/K

MABC30 1u/4X5R/6.3V/K

MABC13 1u/4X5R/6.3V/K

MABC12 1u/4X5R/6.3V/K

MABC16 1u/4X5R/6.3V/K

MAC11 1u/4X5R/6.3V/K

MAC16 0.1u/4X7R/16V/K

MAC42 0.1u/4X7R/16V/K

MAC43 0.1u/4X7R/16V/K

VPP_25V

VREF_DDRA

MA0_SA2

MA0_SA1

MA0_SA0

MA1_SA2

MA1_SA1

MA1_SA0

* 移除 short pad

CHANNEL A0
SA2:0=000

CHANNEL A1
SA2:0=001

DDR4/288/BK/VA/D/G15/ONE LATCH/LONG

DDR4/288/GY/VA/D/G15/ONE LATCH/LONG

BLK

GRAY

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Title: DDR4 CHANNEL A

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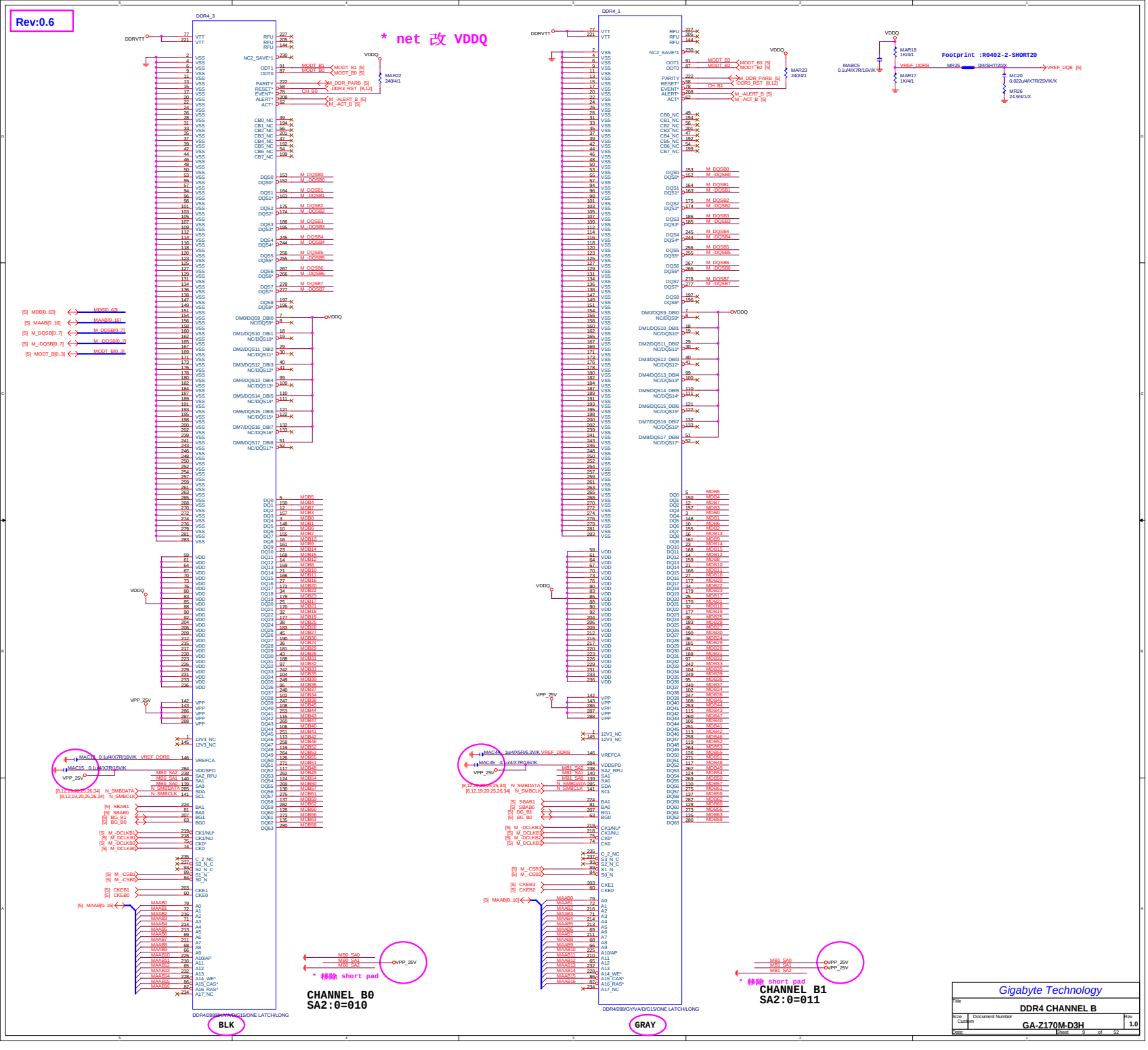
Rev:0.6



Gigabyte Technology			
Title	DDR4 CHANNEL B		
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Rev 0.7

PCHE

SPT-H_PCH

[40] N_HDMI_HDP_F
[37] N_DVI_HDP_F
[38] N_VGA_HDP_F
N_GPP_I3

GPP_I0/DDPB_HPD0 AW4
GPP_I1/DDPC_HPD1 AY2
GPP_I2/DDPD_HPD2 AV4
GPP_I3/DDPE_HPD3 BA4

NR9 100K/4/1 N_GPP_I4
GPP_I4/EDP_HPD BD7

GPP_I7/DDPC_CTRLCLK BB3 N_DDPC_CTRLCLK → N_DDPC_CTRLCLK [37]
GPP_I8/DDPC_CTRLDATA BD6 N_DDPC_CTRLDATA → N_DDPC_CTRLDATA [37]
GPP_I5/DDPB_CTRLCLK BA5 N_DDPB_CTRLCLK → N_DDPB_CTRLCLK [40]
GPP_I6/DDPB_CTRLDATA BC4 N_DDPB_CTRLDATA → N_DDPB_CTRLDATA [40]
GPP_I9/DDPD_CTRLCLK BE5 N_DDPD_CTRLCLK → N_DDPD_CTRLCLK [38]
GPP_I10/DDPD_CTRLDATA BE6 N_DDPD_CTRLDATA → N_DDPD_CTRLDATA [38]

GPP_F14 Y44
GPP_F23 V44 N_GPP_F23 → A_-SKTOCC [4]
GPP_F22 W39 N_GPP_F22
GPP_G23 L43
GPP_G22 L44 N_GPP_G22
GPP_G21 U35 N_GPP_G21
GPP_G20 R35 N_GPP_G20
GPP_H23 BD36

5 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

CLK:4/15<1000;Guard GND

VCC1_0_PCH NR5 2.7K/4/1 XCLK_BIASREF

PCHG

SPT-H_PCH

[4] N_24MCLK → N_24MCLK G1
[4] N_-24MCLK → N_-24MCLK F1
CLKOUT_CPUNSSC_P
CLKOUT_CPUNSSC

[4] N_CPUCLK → N_CPUCLK G2
[4] N_-CPUCLK → N_-CPUCLK H2
CLKOUT_CPUBCLK_P
CLKOUT_CPUBCLK

XTALO_PCH A5
XTALI_PCH A6
XTAL24_OUT
XTAL24_IN

XCLK_BIASREF F1

RTCX1 BC9 N_Y1
RTCX2 BD10 N_Y2

AR17 GPP_A16/CLKOUT_48

CLKOUT_ITPXDP J1
CLKOUT_ITPXDP_P J2
CLKOUT_CPUPCIBCLK J1 → N_-CPUPCIBCLK [4]
CLKOUT_CPUPCIBCLK_P J2 → N_CPUPCIBCLK [4]

CLKOUT_PCIE_N0 N7 → PA_-SRCCLK_3GIO [19]
CLKOUT_PCIE_P0 N8 → PA_SRCCLK_3GIO [19]
CLKOUT_PCIE_N1 L7
CLKOUT_PCIE_P1 L5
CLKOUT_PCIE_N2 D3
CLKOUT_PCIE_P2 E2
CLKOUT_PCIE_N3 E5 → PQ_-PCIE_CLK [20]
CLKOUT_PCIE_P3 G4 → PQ_PCIE_CLK [20]
CLKOUT_PCIE_N4 D5 → G_-PBCLK [23]
CLKOUT_PCIE_P4 E6 → G_PBCLK [23]
CLKOUT_PCIE_N5 D8 → LA_-SRCCLK_LAN [42]
CLKOUT_PCIE_P5 D7 → LA_SRCCLK_LAN [42]
CLKOUT_PCIE_N6 R8 → CK_M2A_100M_DN [21]
CLKOUT_PCIE_P6 R7 → CK_M2A_100M_DP [21]
CLKOUT_PCIE_N7 U5
CLKOUT_PCIE_P7 U7
CLKOUT_PCIE_N8 W10
CLKOUT_PCIE_P8 W11
CLKOUT_PCIE_N9 N3
CLKOUT_PCIE_P9 N2
CLKOUT_PCIE_N10 P3
CLKOUT_PCIE_P10 P2
CLKOUT_PCIE_N11 R3
CLKOUT_PCIE_P11 R4

CLKOUT_PCIE_N15 R13
CLKOUT_PCIE_P15 R11
CLKOUT_PCIE_N14 P1
CLKOUT_PCIE_P14 R2
CLKOUT_PCIE_N13 W7
CLKOUT_PCIE_P13 Y6
CLKOUT_PCIE_N12 U2
CLKOUT_PCIE_P12 U3

7 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

[19] -PCIEX16_PR → N_GPP_B5 BC24
N_GPP_B6 AW24
N_GPP_B7 AT24
[20] -PCIEX4_PR → N_GPP_B8 BD25
N_GPP_B9 BB24
* [42] LA_-CLKREQ → N_GPP_B10 BE25
[21] M2A_-CLKREQ → N_GPP_H0 AT33

GPP_B5/SRCCLKREQ0# AR31
GPP_B6/SRCCLKREQ1# BD32
GPP_B7/SRCCLKREQ2# BC32
GPP_B8/SRCCLKREQ3# BB31
GPP_B9/SRCCLKREQ4# BC33
GPP_B10/SRCCLKREQ5# BA33
GPP_H0/SRCCLKREQ6# AW33
GPP_H1/SRCCLKREQ7# BB33
GPP_H2/SRCCLKREQ8# BD33
GPP_H3/SRCCLKREQ9# BB32
GPP_H4/SRCCLKREQ10# BC34
GPP_H5/SRCCLKREQ11# BA34
GPP_H6/SRCCLKREQ12# AW34
GPP_H7/SRCCLKREQ13# BB34
GPP_H8/SRCCLKREQ14# BD34
GPP_H9/SRCCLKREQ15# BB35

NR286 MASK/0/4/SHT/M/X
N_GPP_B9
N_GPP_B10 NR287 0/4/X

ON-BOARD DEVICE USED

PCIEX16
PCIEX4
ASM1083
I219V
M.2

CLOCK 4/4/4//15

32.768KHZ

NX2-SHT
SHW/D0.64*5.08*6.74

N_Y1
N_Y2 NR11 10M/4
NC16 18p/4/NPO/50V/J
NC18 18p/4/NPO/50V/J
NX2
32.768K/12.5p/20ppm/TF38/35K/D

VCC3
N_GPP_I3 NR7 8.2K/4
N_GPP_F23 NR12 8.2K/4
N_GPP_F22 NR248 8.2K/4
A_-SKTOCC NR16 8.2K/4
N_GPP_G22 NR18 8.2K/4
N_GPP_G21 NR20 8.2K/4
N_GPP_G20 NR22 8.2K/4

N_GPP_B5 NR6 8.2K/4
N_GPP_B6 NR8 8.2K/4
N_GPP_B7 NR10 8.2K/4
N_GPP_B8 NR13 8.2K/4
N_GPP_B9 NR15 8.2K/4/X
N_GPP_B10 NR17 8.2K/4/X
N_GPP_H0 NR19 8.2K/4

NR3 68/4/1
XTALI_PCH_R → XTALI_PCH
NR32 1M/4
NX1
XTALO_PCH
24M/16p/30ppm/49US/50/D
NC8 22p/4/NPO/50V/J
NC7 27P/4/NPO/50V/J

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

PCH HS

BGAHSINK-Z170M-D3H
PCH_HS
Z170M-D3H SERIES PCH_HS/[12SP2-S04907-01R_12SP2-S04907-02R_12SP2-S04907-03R]

Gigabyte Technology

Title	PCH CLOCK BUFFER	
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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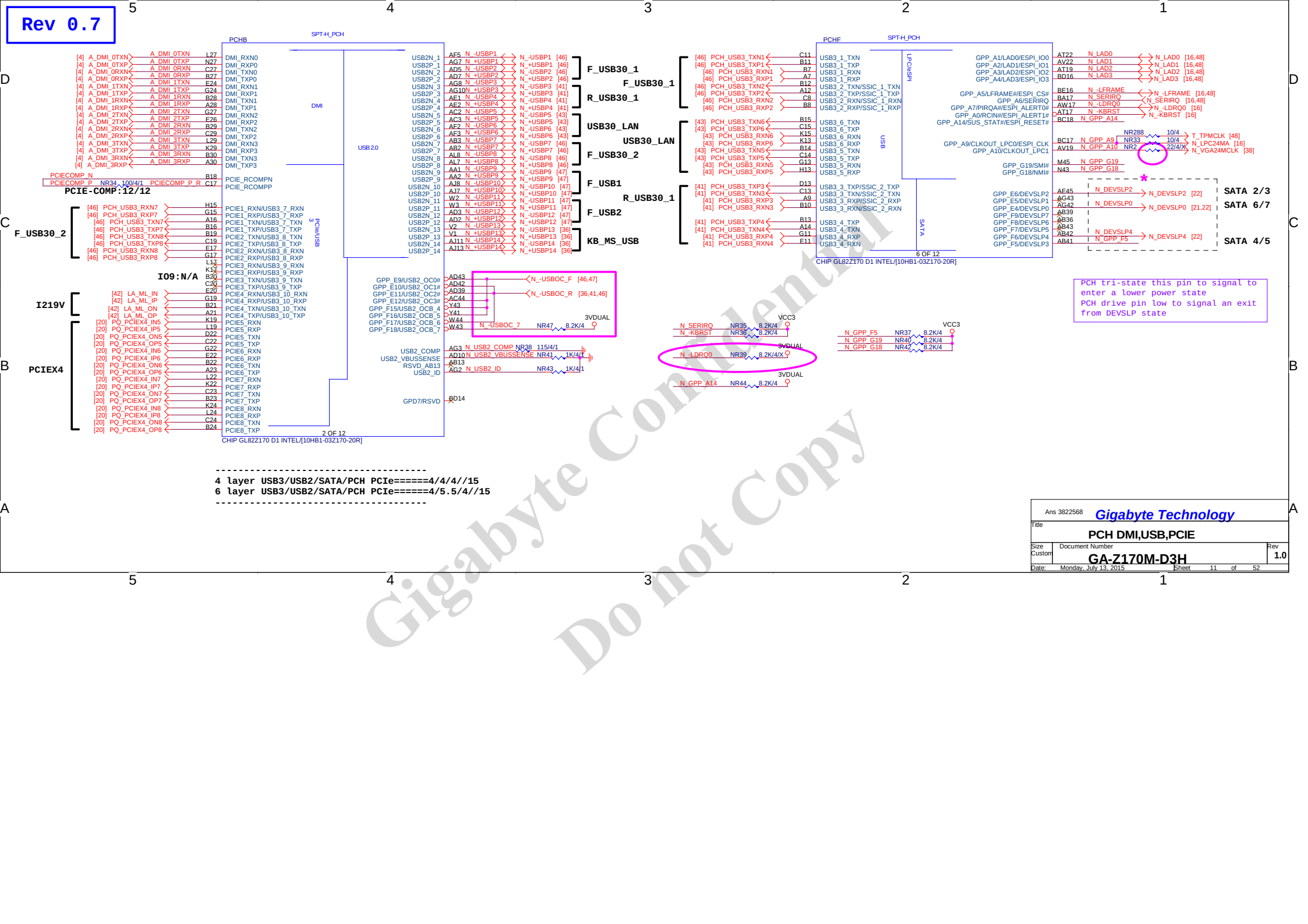
Rev 0.7
PCHB
SPT-H_PCH
DMI
USB 2.0
PCIe/USB
2 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]
PCIECOMP_N
PCIECOMP_P
PCIE-COMP:12/12
F_USB30_2
I219V
PCIEX4
IO9:N/A
F_USB30_1
R_USB30_1
USB30_LAN
F_USB30_2
F_USB1
R_USB30_1
F_USB2
KB_MS_USB
PCHF
LPC/eSPI
USB
SATA
6 OF 12
SATA 2/3
SATA 6/7
SATA 4/5
PCH tri-state this pin to signal to enter a lower power state
PCH drive pin low to signal an exit from DEVSLP state
3VDUAL
VCC3
4 layer USB3/USB2/SATA/PCH PCIe======4/4/4//15
6 layer USB3/USB2/SATA/PCH PCIe======4/5.5/4//15
Gigabyte Technology
PCH DMI,USB,PCIE
GA-Z170M-D3H
Ans 3822568
Monday, July 13, 2015
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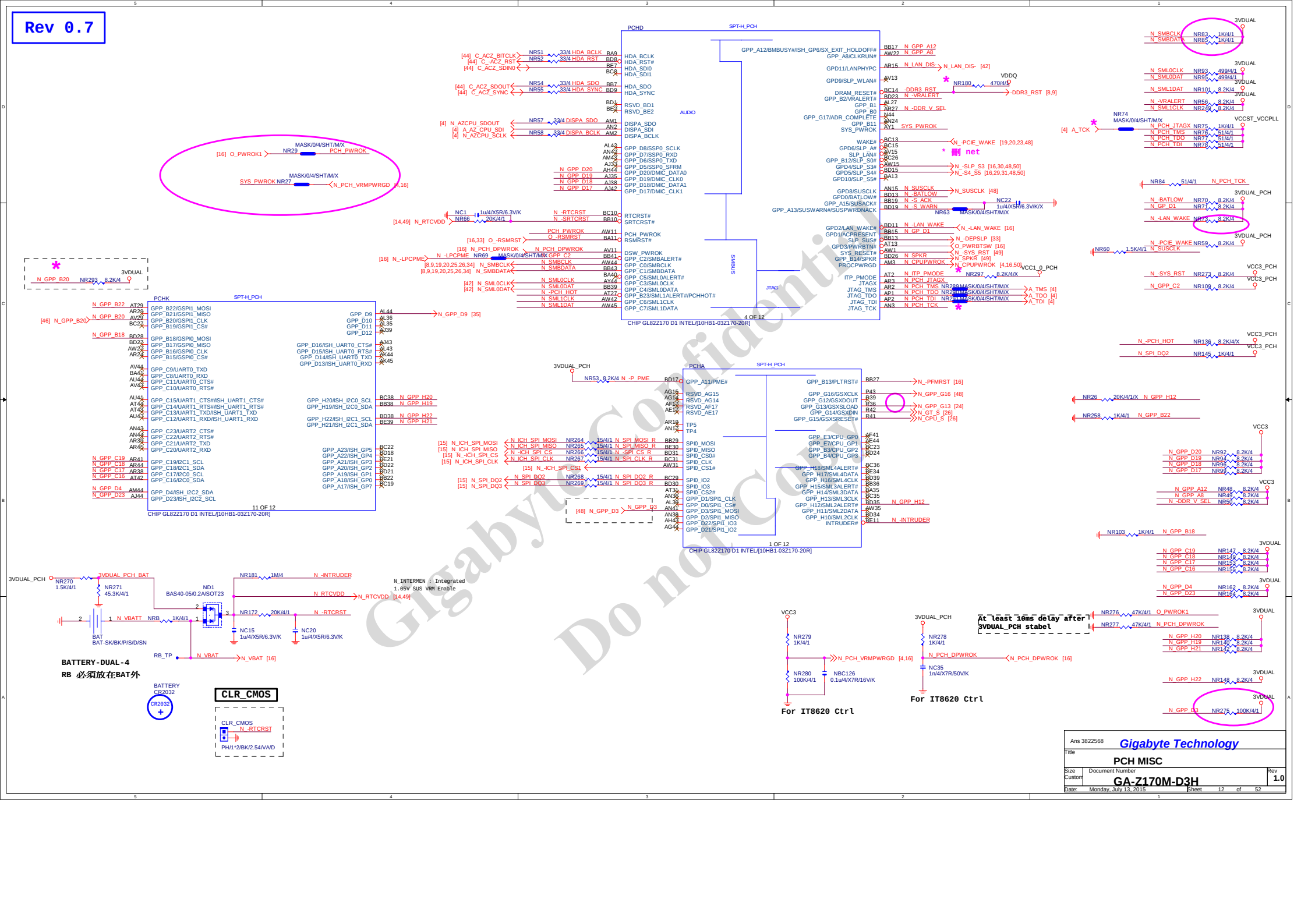
Rev 1.0
Gigabyte Confidential
Do not Copy

Rev 0.7



Ans	3822568
Title	PCH MISC
Size	Custom
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Date:	Monday, July 13, 2015
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Gigabyte Technology

Rev 0.7

PCHC

SPT-H_PCH

CLINK

FAN

PCIE/SATA

HOST

SATA EXPRESS

3 OF 12

CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

* 刪 net

20141107

IO20:N/A

PCHJ

SPT-H_PCH

10 OF 12

CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

C1/D1 公版NC pin

1: SATA (STandard)
0: SATA EXPRESS

Ans 3822568	Gigabyte Technology
Title	PCH SATA,PCIE,SATA_EXPRESS
Size: Custom	Document Number: GA-Z170M-D3H
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Rev 0.7

PCHI
SPT-H_PCH
9 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

PCHL
SPT-H_PCH
12 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

PCHH
SPT-H_PCH
CORE
VCCGPIO
MPHY
USB
8 OF 12
CHIP GL82Z170 D1 INTEL/[10HB1-03Z170-20R]

for skl-pch-h stuff
NR262
MASK/0/4/SHT/M/X
NR263
MASK/0/4/SHT/M/X
for skl-pch-h stuff

VCCST_VCCPLL — NR1 0/6/X — VCC1_0_PCH

3VDUAL — NR187 MASK/0/8P4R/0402/SHT/X — VCC3_PCH
VCC3 — NR189 — 0/8P4R/4/X

VCCPRIM_1P0 — NR183 MASK/0/6/SHT/M/X — VCC1_0_PCH
3VDUAL_PCH — NR184 MASK/0/6/SHT/M/X — VCC3_PCH
VCC3_A — NR184 MASK/0/6/SHT/M/X — VCC3_PCH
VCC3_PCH
N_RTCVDD [12,49]
N_RTCEXT_CAP
NBC90 0.1u/4/X7R/16V/K
VCC1_0_PCH
VCC3_CD — NR185 MASK/0/6/SHT/M/X — VCC3_PCH
for skl-pch-h/1.8v
VCC3_BDE — NR186 MASK/0/6/SHT/M/X — VCC3_PCH

VCC10_VCCAPLL — NR188 MASK/0/6/SHT/M/X — VCC1_0_PCH
VCC10_VCCAMPHYPLL — NR190 MASK/0/6/SHT/M/X — VCC1_0_PCH
VCC10_VCCF24_1P0 — NR191 MASK/0/6/SHT/M/X — VCC1_0_PCH

N_RTCVDD
NBC91 0.1u/4/X7R/16V/K/X
NBC92 0.1u/4/X7R/16V/K

VCC1_0_PCH_DSW
VCC10_VCCF24_1P0
VCC10_VCCAPLL
VCC10_VCCAMPHYPLL

NBC120 22u/8/X5R/6.3V/M
NBC121 22u/8/X5R/6.3V/M
NBC122 22u/8/X5R/6.3V/M
NBC123 22u/8/X5R/6.3V/M
NBC124 22u/8/X5R/6.3V/M
NBC125 22u/8/X5R/6.3V/M

VCC3_PCH: NBC93 1u/4/X5R/6.3V/K, NBC94 1u/4/X5R/6.3V/K, NBC95 1u/4/X5R/6.3V/K, NBC96 1u/4/X5R/6.3V/K, NBC97 1u/4/X5R/6.3V/K, NBC98 1u/4/X5R/6.3V/K, NBC99 1u/4/X5R/6.3V/K, NBC100 1u/4/X5R/6.3V/K
VCC3_PCH: NBC101 1u/4/X5R/6.3V/K
VCC3_A: NBC102 1u/4/X5R/6.3V/K
VCC3_BDE: NBC103 1u/4/X5R/6.3V/K, NBC104 1u/4/X5R/6.3V/K, NBC105 1u/4/X5R/6.3V/K
VCC3_CD: NBC106 1u/4/X5R/6.3V/K, NBC107 1u/4/X5R/6.3V/K, NBC108 1u/4/X5R/6.3V/K
3VDUAL_PCH: NBC109 1u/4/X5R/6.3V/K, NBC110 1u/4/X5R/6.3V/K
VCC1_0_PCH_DSW: NBC111 1u/4/X5R/6.3V/K
VCC1_0_PCH: NBC112 1u/4/X5R/6.3V/K, NBC113 1u/4/X5R/6.3V/K, NBC114 1u/4/X5R/6.3V/K, NBC115 1u/4/X5R/6.3V/K, NBC116 1u/4/X5R/6.3V/K, NBC117 1u/4/X5R/6.3V/K, NBC118 1u/4/X5R/6.3V/K, NBC119 1u/4/X5R/6.3V/K

Ans 3822568
Gigabyte Technology
Title: PCH PWR, GND
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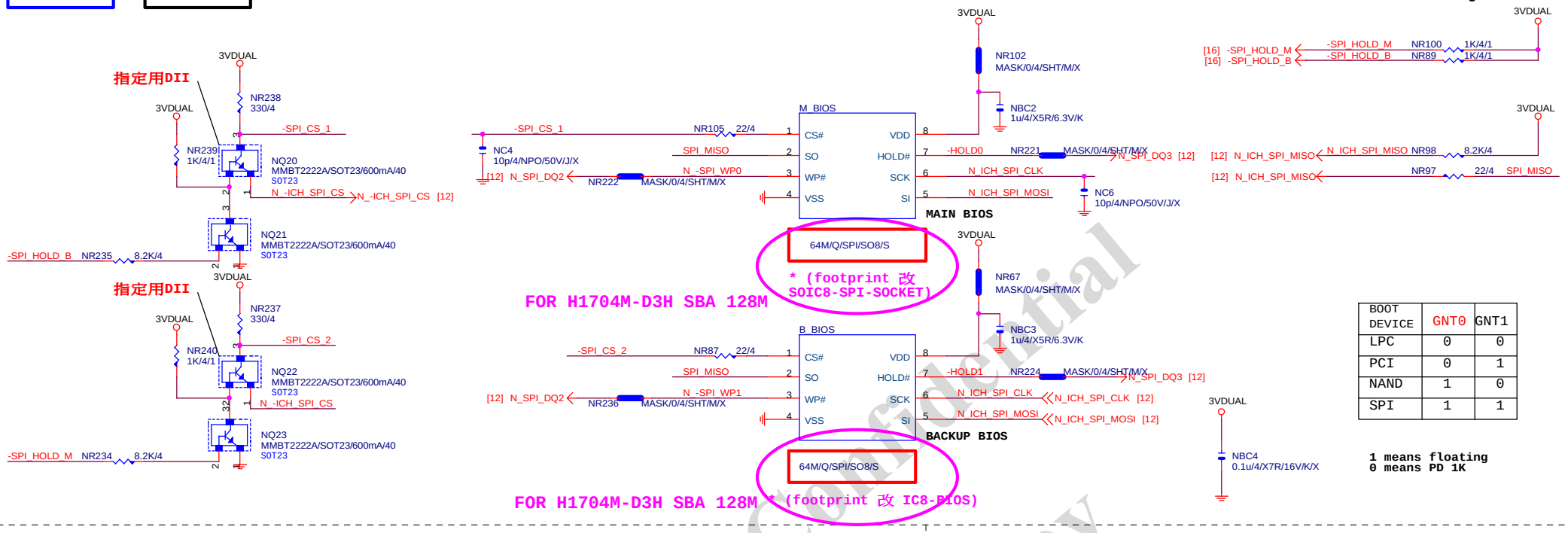
Rev 0.1

DUAL BIOS

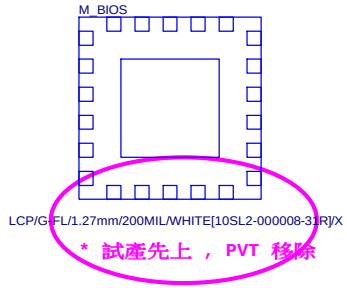
MOSI For DMI RX Termination Voltage



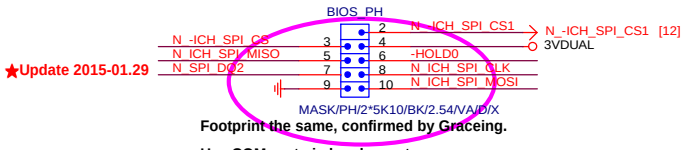
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

N/A



BIOS_PH MASK

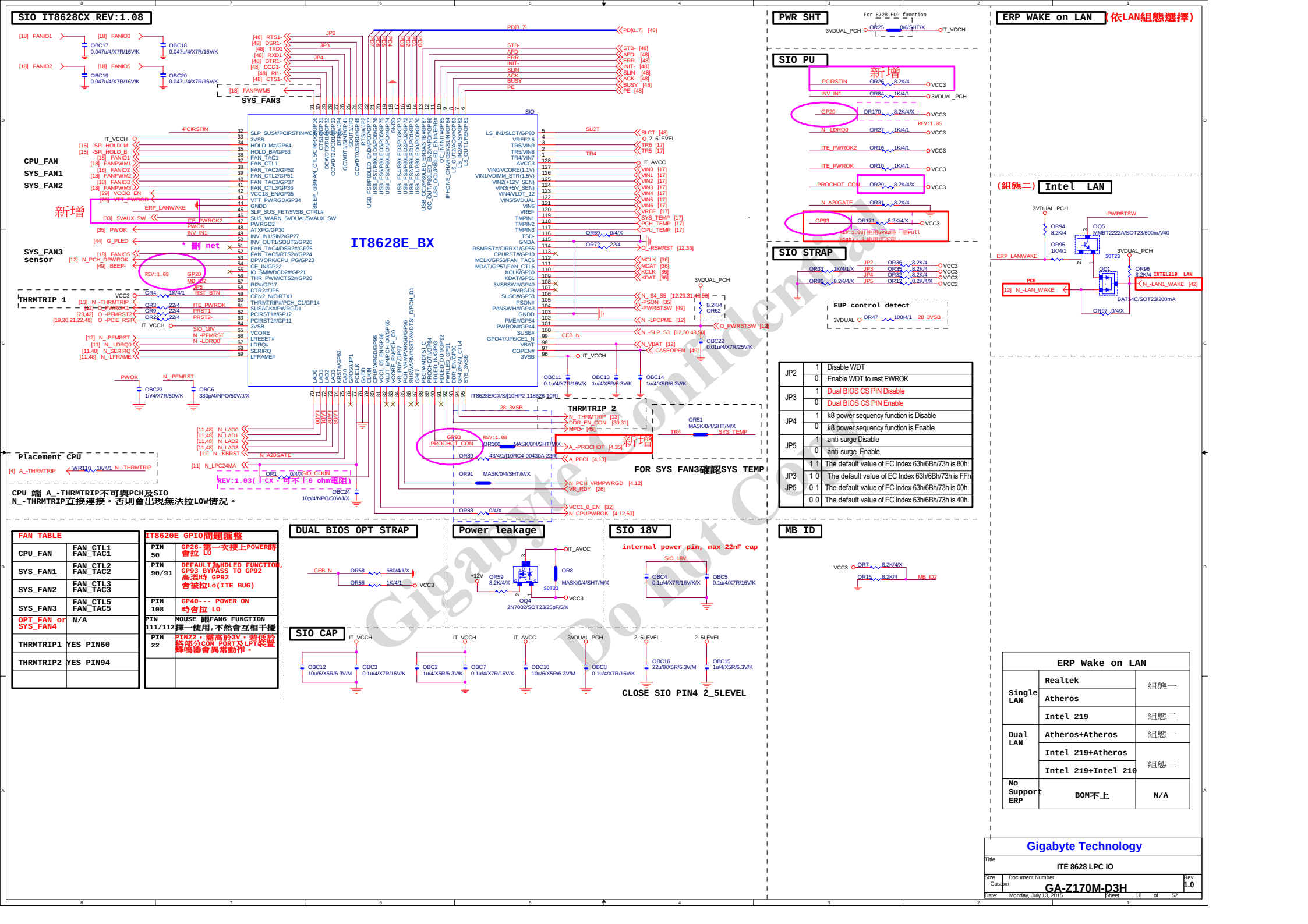


★Update 2015-01.29

Footprint the same, confirmed by Graceing.

Use COM port pin header part.

Gigabyte Technology		
Title: BIOS		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
Date: Monday, July 13, 2015	Sheet 15 of 52	



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

FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL5 FAN_TAC5
OPT_FAN or SYS_FAN4	N/A
THRMTRIP1	YES PIN60
THRMTRIP2	YES PIN94

IT8620E GPIO問題施整	
PIN 50	GP26-第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION，GP93 BYPASS TO GP92 高溫時 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，該部分COM PORT及LPT裝置驅動器會異常動作。

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

Gigabyte Technology

Title: ITE 8628 LPC IO

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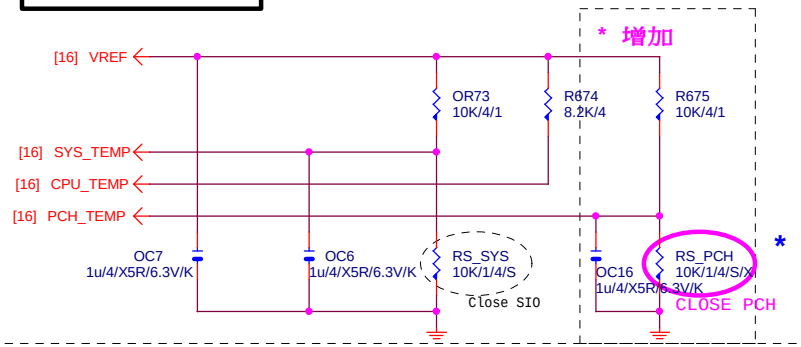
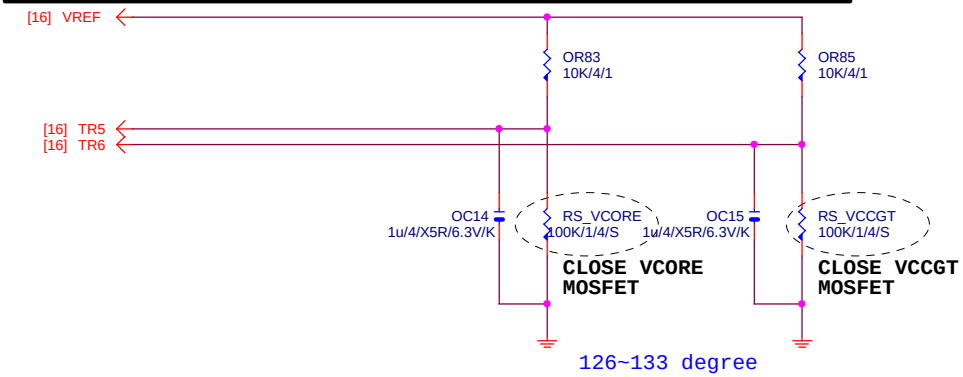
TEMP H/W MONITOR REV 1.08



RS_VCORE、RS_VCCGT CLOSE CPU VCORE & VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function

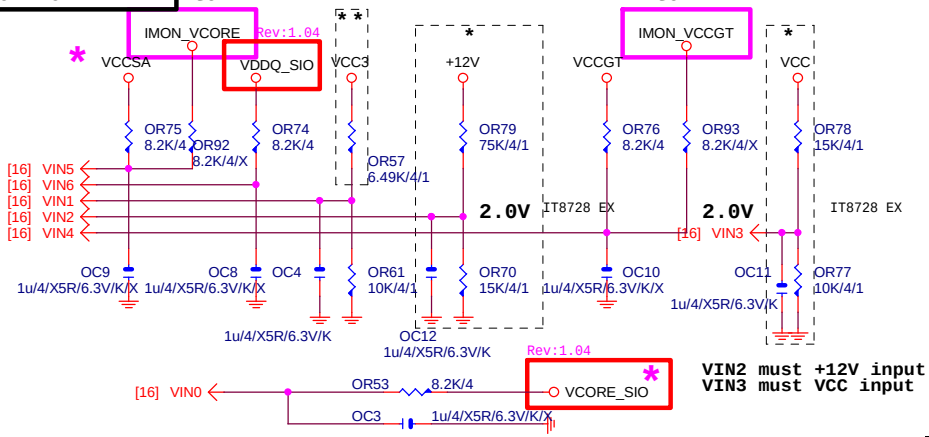


VOLTAGE-- H/W MONITOR

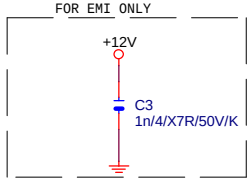
Connect to PWM

* IT8728 BX
** IT8728 CX

Connect to PWM



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



Gigabyte Technology

Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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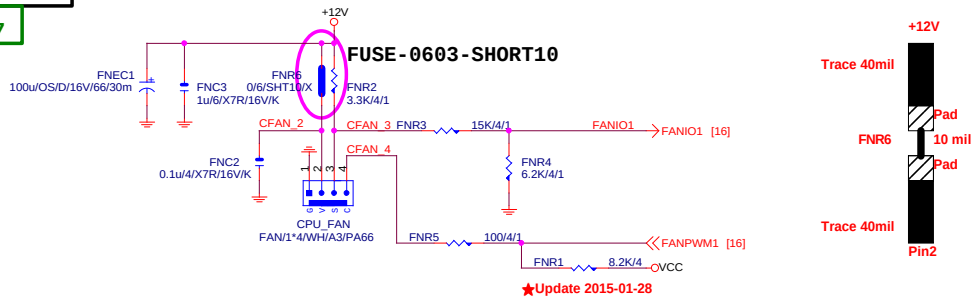
CPU SMART FAN

Rev: 0.7



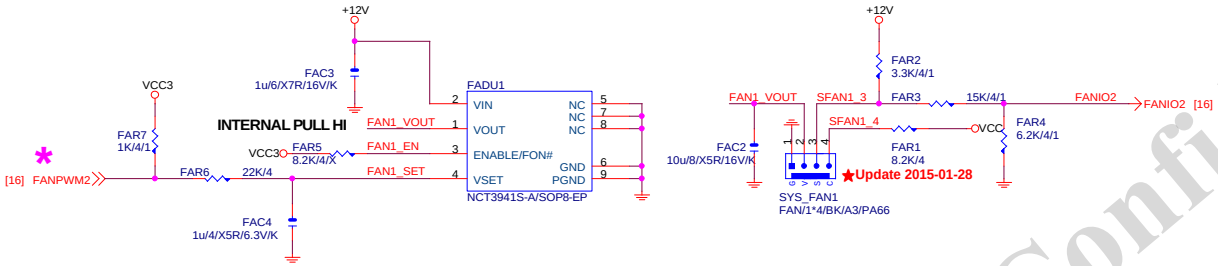
SYSTEM FAN1

A.

Linear SYS_FAN

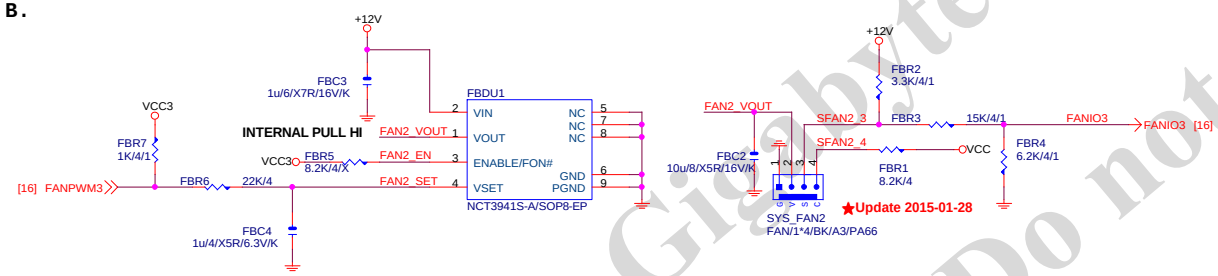
Enable Function (NCT3941S)

Full Turn On Function (NCT3941S-A)



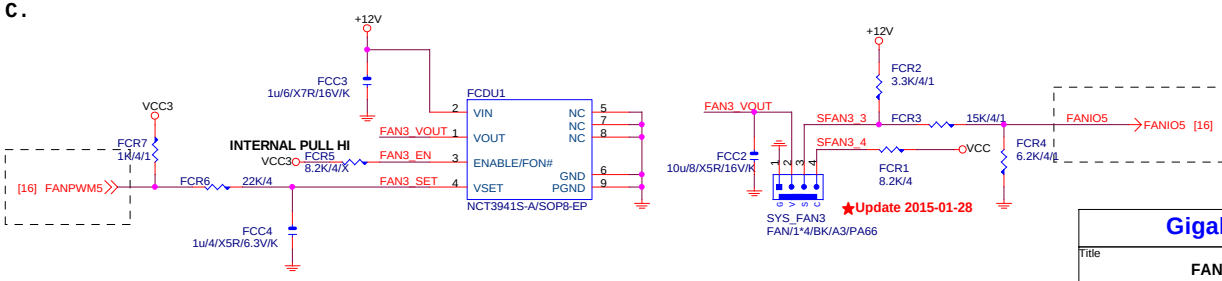
SYSTEM FAN2

B.



SYSTEM FAN3

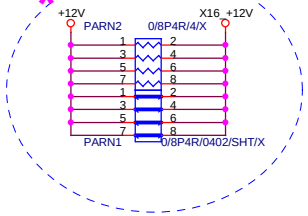
C.



Gigabyte Technology		
Title: FAN CTRL		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
Date: Monday, July 13, 2015	Sheet 18 of 52	

Rev 0.2

+12_protect short-wire test



PCIESLOT-164P

PCIEX16 3GIO_*16

KEY

PCI-E/16X-164P/GY/LONG/DOUBLE/HK*2

PA_EXP_RXP[0..15] PA_EXP_RXP[0..15] [4]
PA_EXP_RXN[0..15] PA_EXP_RXN[0..15] [4]
PA_EXP_TXP[0..15] PA_EXP_TXP[0..15] [4]
PA_EXP_TXN[0..15] PA_EXP_TXN[0..15] [4]

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_TXN15_C

PABC2 0.1u/4/X7R/16V/K
PABC3 0.1u/4/X7R/16V/K
PABC4 0.1u/4/X7R/16V/K/X
PAEC1 270u/FP/D/16V/88/12m
PABC1 0.1u/4/X7R/16V/K
PAEC2 560u/FP/D/6.3V/68/8m

PCIEX16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

PCI-E REV:2.0--> 5GHZ

Gigabyte Technology

Title: PCI EXPRESS * 16

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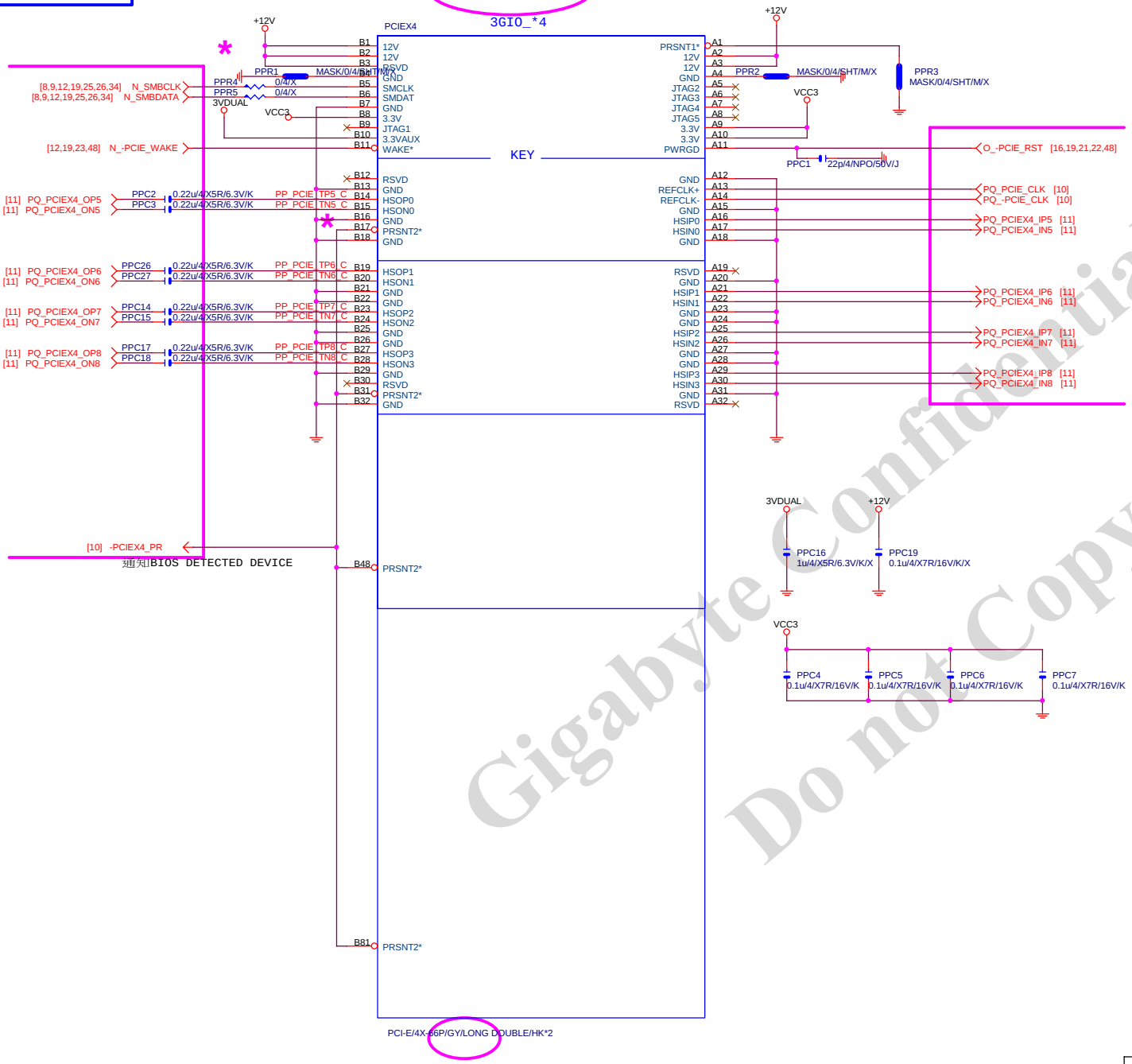
Rev 0.51

PCIE*4

PCIESLOT-64P-1

3GIO_*4



Gigabyte Technology

Title: PCIE_X4

Size: Custom | Document Number: GA-Z170M-D3H | Rev: 1.0

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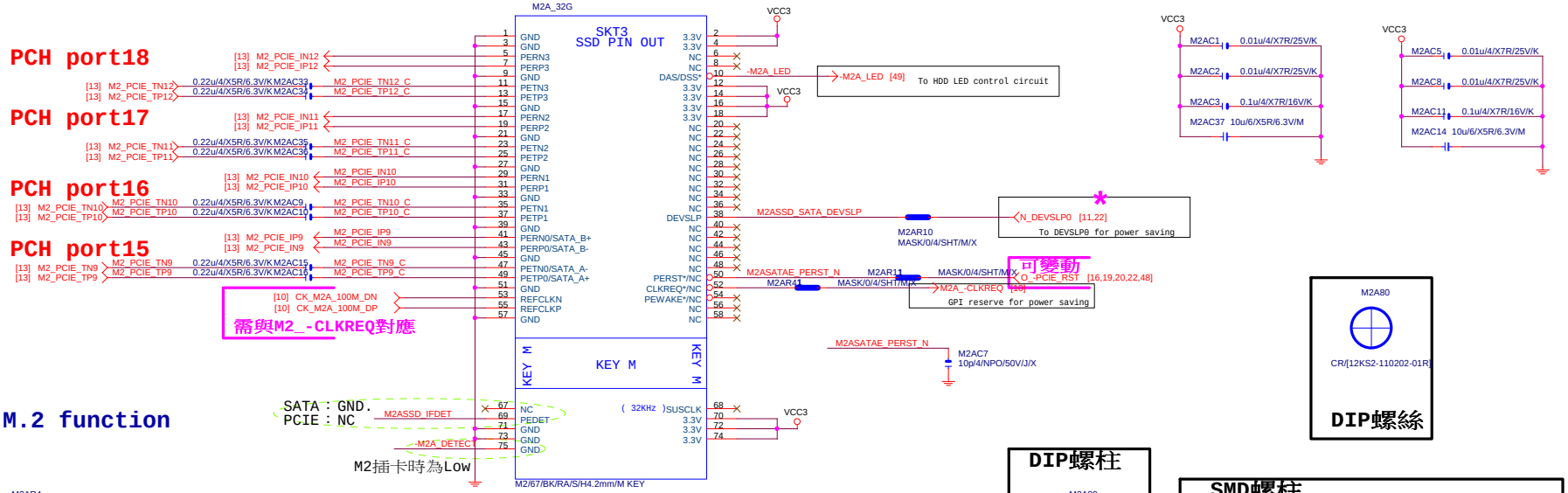
Rev 0.6

M.2 Lane4 from PCH port18

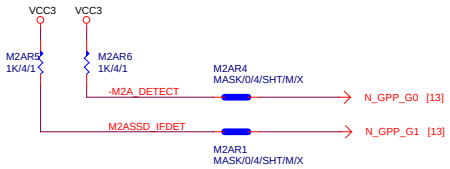
M.2 Lane3 from PCH port17

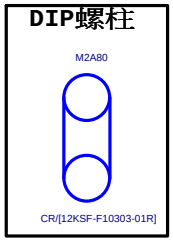
M.2 Lane2 from PCH port16

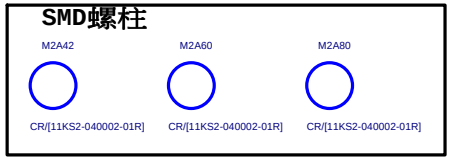
M.2 Lane2 from PCH port15



支援SATA and M.2 function







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

Gigabyte Technology			
Title: M.2 X4			
Size: Custom	Document Number: GA-Z170M-D3H		Rev: 1.0
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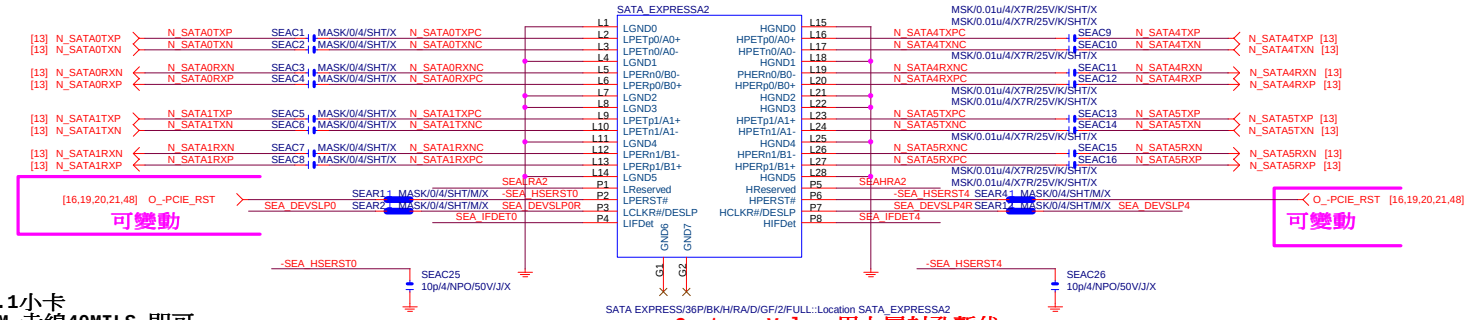
Rev 0.6

DUAL LAYOUT(Z170/H170~ONLY SATA4,5)

SATA EXPRESS 下層 To SATA3 port0/1

SATA EXPRESS 上層 To SATA3 port4/5

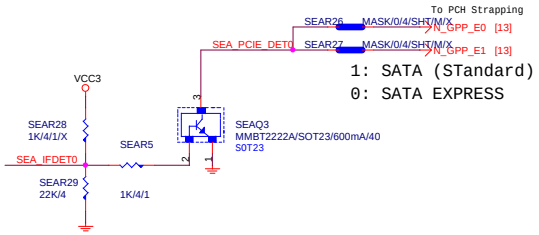


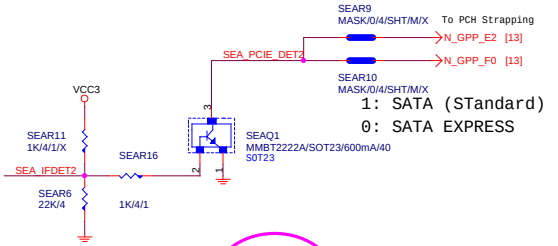
SATA EXPRESS新增power for USB3.1小卡
每個CONNECT都要留一顆0603 0 OHM,走線40MILS 即可

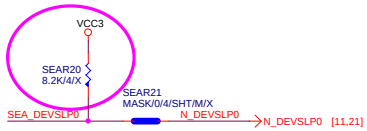
Capture Value 用上層封孔暫代

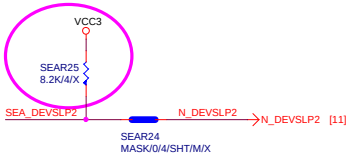
* check
文字面 01/23/45
NET (45/23/01)

SATA EXPRESS料號
Z170M-D3H雙層~36PIN
SATA EXPRESS/36P/BK/H/RA/D/GF/2/FULL
H170M-D3H雙層,上層無PCIE訊號(封口)~32PIN
H170單層+2SATA:
SATA EXPRESS/32P/BK/H/RA/D/GF/2

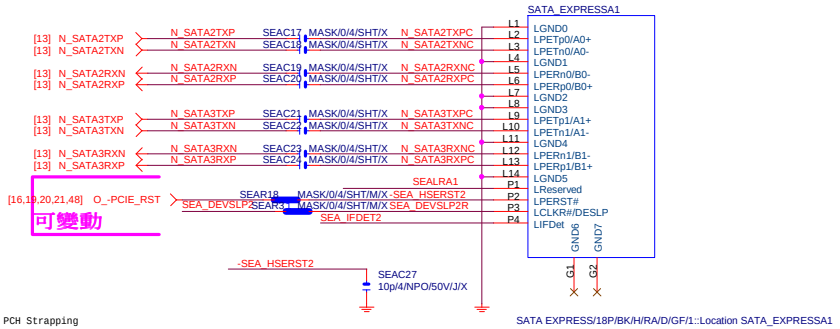


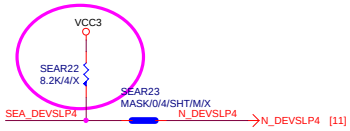


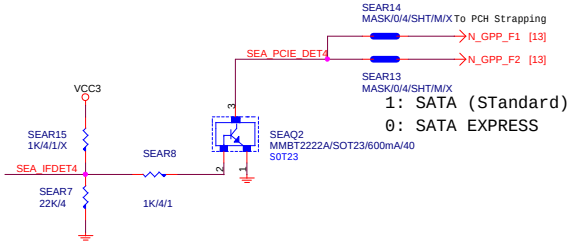




To SATA3 port2/3







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)

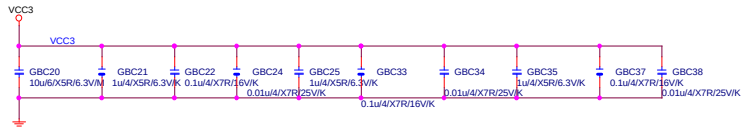
DUAL LAYOUT(Z170/H170~ONLY SATA4,5)

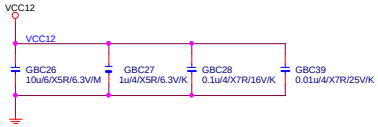
SATA EXPRESS 訊號 SATA EXPRESS 文字面

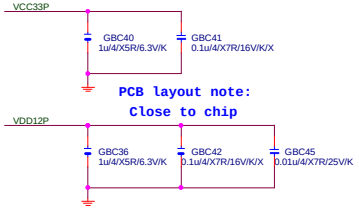
	SATA 5	SATA 4			
	SATA 1	SATA 0		SATA 3	SATA 2

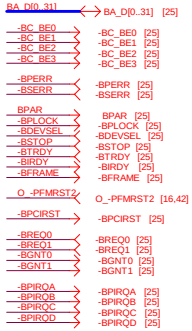
Gigabyte Technology		
Title: SATA EXPRESS		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
Date: Monday, July 13, 2015	Sheet 22 of 52	

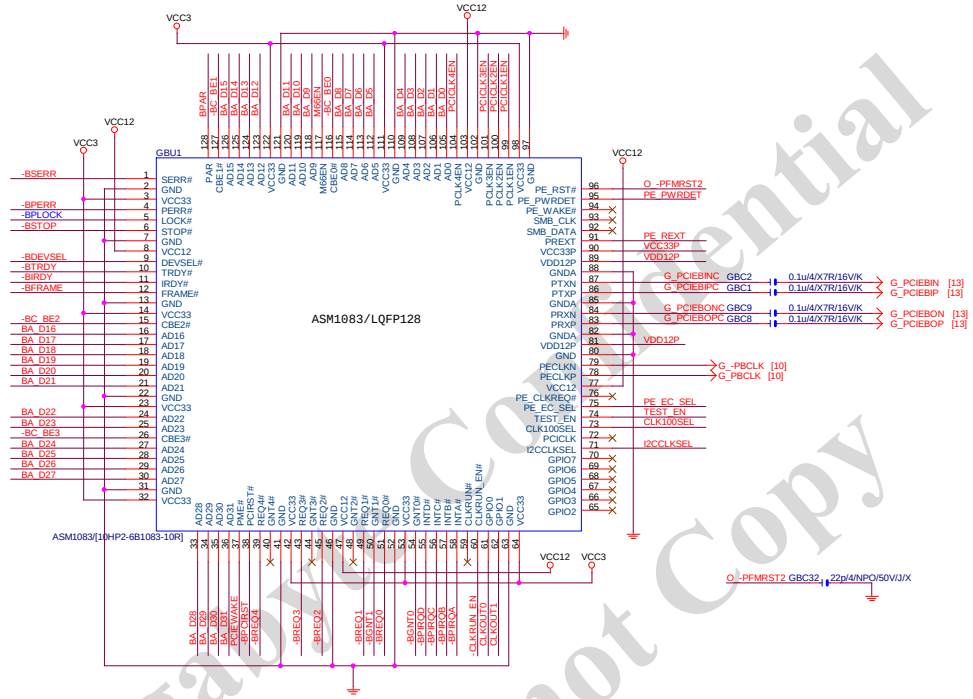
Rev 0.9

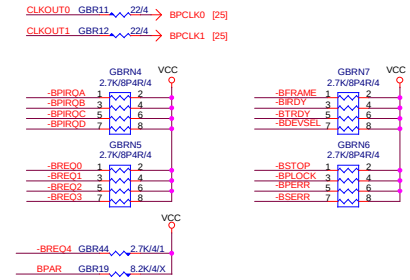












CLK100SEL Strapping Set

CLK100SEL	H	L
PCIe CLK	100M +/-N%	100M +/-N%
PCICLK_IN	X	33M
PCICLKO	33M +/-N%	33M

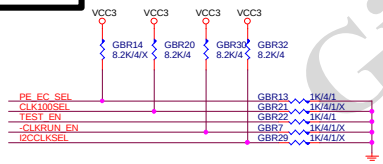
PE_EC_SEL-
"H" for Express Card mode
"L" for PCIe Riser Card mode

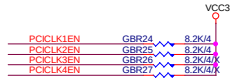
CLK100SEL-
"H" for PECLK input only
"L" for PECLK & PCICLK input

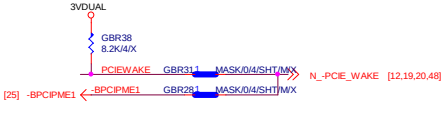
TEST_EN-
"H" for Test Mode Enable
"L" for Test Mode Disable

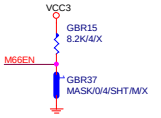
-CLKRUN_EN-
"H" for CLKRUN Mode Disable
"L" for CLKRUN Mode Enable

I2CCLKSEL-
"H" is 135KHz I2CCLK
"L" is 67.5KHz I2CCLK



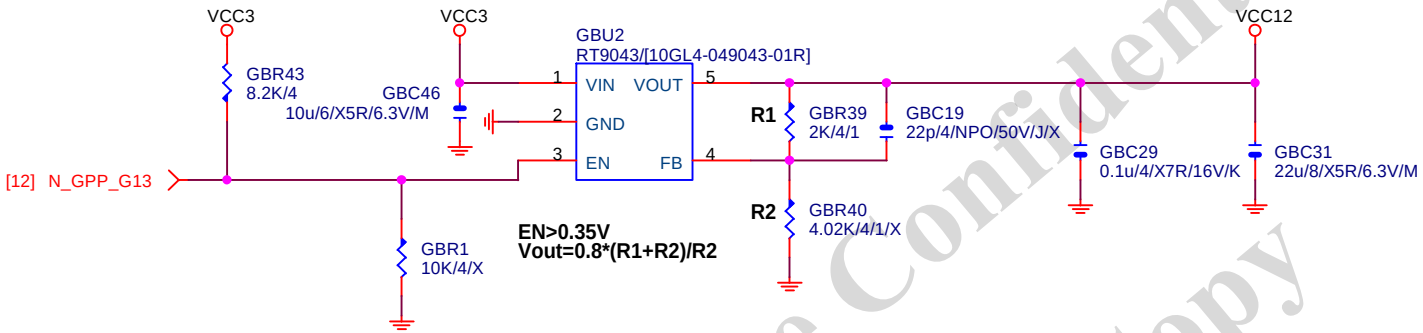






Gigabyte Technology		
Title: ASM1085		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
Date: Monday, July 13, 2015	Sheet 23 of 52	

Rev 0.9

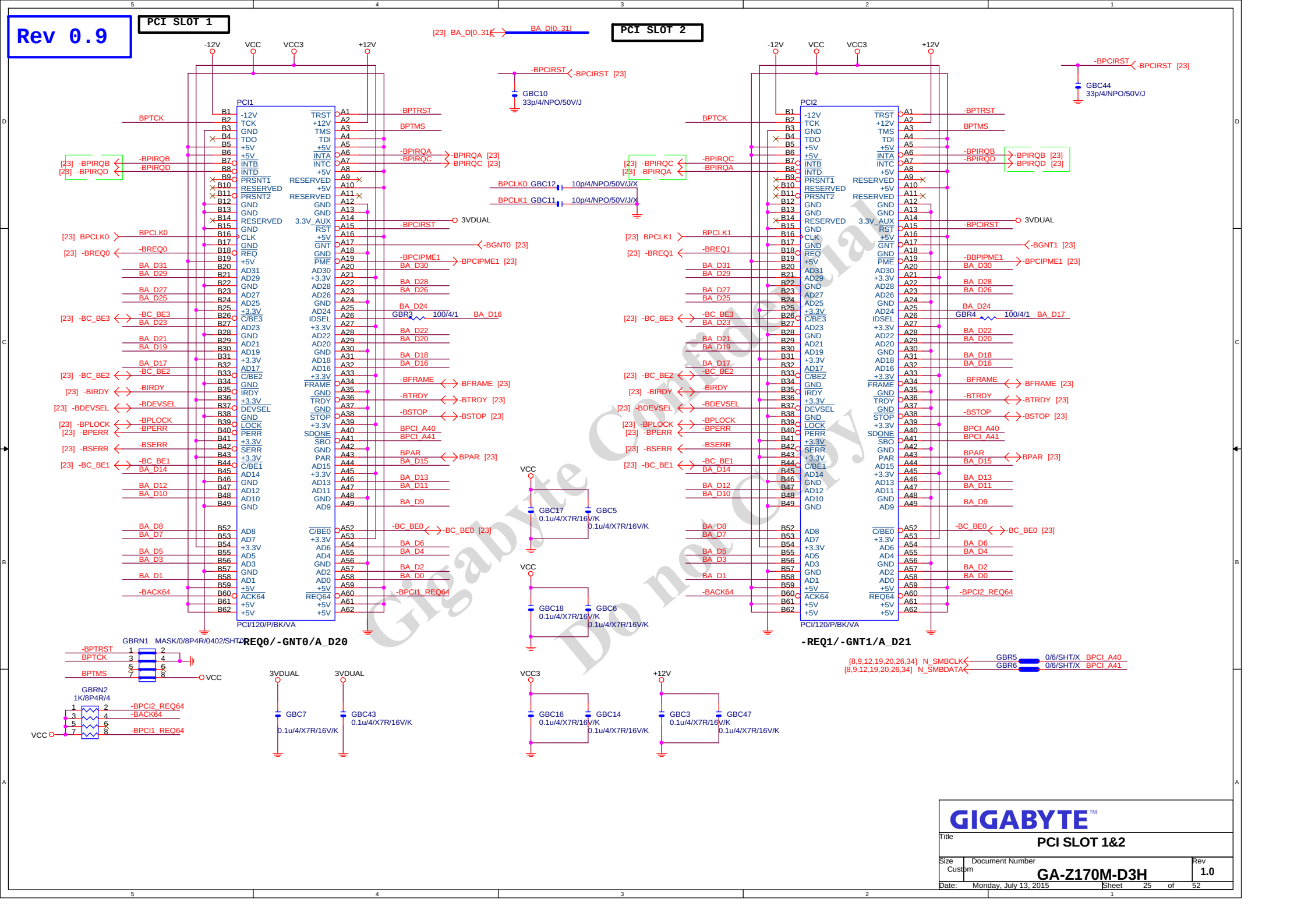


Gigabyte Technology		
Title: ASM1085 POWER		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
Date: Monday, July 13, 2015	Sheet 24 of 52	

Rev 0.9

PCI SLOT 1

PCI SLOT 2



GIGABYTE™

Title	PCI SLOT 1&2	
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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REV:1.0(IRON CHOKE)

2014/12/25
1.新增DAR125.DAQ5(12V負壓線路)
2.DAR7改不上件

R01A BOM:先上DAR7
FIX挑PSU

DC-LL --> 2.1mohm

DC-LL --> 3.1mohm

for ISL95856 DISABLE PH4

for ISL95856 DISABLE PH2,3

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

DAR71-->499 ohm
OCP-->74A

CLOSE DA_ DL1 DC SIDE

CLOSE DE_ DL1 DC SIDE

CLOSE ?

CLOSE ?

CLOSE PWM

CLOSE PWM

OPT4

OPT4

OPT4

OPT4

OPT2

8 VIA Connect GND lay

先上ISL95856,預留ISL95858 3PHASE

連接至PCH:GPP_G15

連接至PCH:GPP_G14

2014/12/19 REV:0.7
1. N_CPU_S連接至PCH:GPP_G15
2. N_GT_S連接至PCH:GPP_G14

GIGABYTE™

Title	ISL95858/95856_PWM	
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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VCORE

REV:1.0(IRON CHOKE)

CLOSE TO VCORE POWER PLANE

VCORE_SIO VCORE

VCORE_VS MASK/0/4/SHT/M/X

VIN

DA_DQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m

DA_DC1 10u/8/X6S/16V/K/[10CM2-3K1005-74R_10CM2-3K1005-7BR]

[26] UGATE1_A UGATE1_A DA_DR1 2.2/6 UG1_1A

DA_DR2 8.2K/4

[26] PHASE1_A PHASE1_A

DA_DR3 MASK/0/6/SHT/M/X

[26] LGATE1_A LGATE1_A LG1_1A

DA_DQ2

L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A

DA_DL1 0.5uH/40A/IMD109/M/D

R50

VCORE

DA_DR4 2.2/6

DA_DC2 1n/4/X7R/50V/K

DA_DR5 MASK/0/4/SHT/M/X

DA_DR6 MASK/0/4/SHT/M/X

[26] CSP1_A
[26] CSN1_A

SIRA12DP/PPAKSO8/2070pF/4.3m

VIN

DC_DQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m

DC_DC1 10u/8/X6S/16V/K/[10CM2-3K1005-74R_10CM2-3K1005-7BR]

VCC VIN

DC_DR7 2.2/6

DC_DC3 0.22u/6/X7R/16V/K

BOOT_A

DC_DR8 1/6/X

DC_DR9 1/6

[26] PWM3_A

PWM3_A

LVCC_A

DC_DU1

BOOT
PWM
VCC
LVCC
GND
UGATE
PHASE
LGATE
GND

SL6625ACRZ/DFN8

DC_DC4 1u/6/X7R/16V/K

BOTTOM PAD
CONNECT TO GND
Through 2 VIAs

UG3_A

DC_DR1

UG3_1A 2.2/6

PH3_A

DC_DR2 8.2K/4

LG3_A

DC_DR3 MASK/0/6/SHT/M/X

LG3_1A

L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A

DC_DL1 0.5uH/40A/IMD109/M/D

R50

VCORE

DC_DR4 2.2/6

DC_DC2 1n/4/X7R/50V/K

DC_DR5 MASK/0/4/SHT/M/X

DC_DR6 MASK/0/4/SHT/M/X

[26] CSP3_A
[26] CSN3_A

DC_DQ2
SIRA12DP/PPAKSO8/2070pF/4.3m

VIN

DB_DQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m

DB_DC1 10u/8/X6S/16V/K/[10CM2-3K1005-74R_10CM2-3K1005-7BR]

[26] UGATE2_A UGATE2_A DB_DR1 2.2/6 UG1_2A

DB_DR2 8.2K/4

[26] PHASE2_A PHASE2_A

DB_DR3 MASK/0/6/SHT/M/X

[26] LGATE2_A LGATE2_A LG1_2A

DB_DQ2

L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A

DB_DL1 0.5uH/40A/IMD109/M/D

R50

VCORE

DB_DR4 2.2/6

DB_DC2 1n/4/X7R/50V/K

DB_DR5 MASK/0/4/SHT/M/X

DB_DR6 MASK/0/4/SHT/M/X

[26] CSP2_A
[26] CSN2_A

SIRA12DP/PPAKSO8/2070pF/4.3m

VIN

DD_DQ1 SiRA18DP-T1/PPAKSO-8/1000pF/7.5m

DD_DC1 10u/8/X6S/16V/K/[10CM2-3K1005-74R_10CM2-3K1005-7BR]

VCC VIN

DD_DR7 2.2/6

DD_DC3 0.22u/6/X7R/16V/K

BOOT4_A

DD_DR8 1/6/X

DD_DR9 1/6

[26] PWM4_A

PWM4_A

LVCC4_A

DD_DU1

BOOT
PWM
VCC
LVCC
GND
UGATE
PHASE
LGATE
GND

SL6625ACRZ/DFN8

DD_DC4 1u/6/X7R/16V/K

BOTTOM PAD
CONNECT TO GND
Through 2 VIAs

UG4_A

DD_DR1

UG4_1A 2.2/6

PH4_A

DD_DR2 8.2K/4

LG4_A

DD_DR3 MASK/0/6/SHT/M/X

LG4_1A

L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A

DD_DL1 0.5uH/40A/IMD109/M/D

R50

VCORE

DD_DR4 2.2/6

DD_DC2 1n/4/X7R/50V/K

DD_DR5 MASK/0/4/SHT/M/X

DD_DR6 MASK/0/4/SHT/M/X

[26] CSP4_A
[26] CSN4_A

VCORE CAP

560u*8PCS
22u*29PCS

VCORE

DAEC1 DAEC2 DAEC3 DAEC4 DAEC5 DAEC6 DAEC7 DAEC8

560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m
560u/FP/D/6.3V/68/8m

WBC1 WBC2 WBC3 WBC4 WBC5
22u/8/X5R/6.3V/M

WBC7 WBC8 WBC9 WBC10
22u/8/X5R/6.3V/M

WBC11 WBC12 WBC13 WBC14 WBC15
22u/8/X5R/6.3V/M

WBC16 WBC17 WBC18 WBC19 WBC20
22u/8/X5R/6.3V/M

WBC21 WBC22 WBC40 WBC41 WBC42
22u/8/X5R/6.3V/M

WBC43 WBC44 WBC45 WBC46 WBC48
22u/8/X5R/6.3V/M

MOSHSINK

MOSHSINK-Z1704-HD3

MOS_HS1
HEAT SINK/[12SP2-S09325-31R_12SP2-S09325-33R_12SP2-S09325-33R]

X2

DD_DQ2
SIRA12DP/PPAKSO8/2070pF/4.3m

VIN CAP

270u*3PCS

V12

DAL1 0.5uH/40A/IMD109/M/D

R50

VIN

DAC36 1u/6/X7R/16V/K

DAEC14 DAEC15 DAEC16

270u/FP/D/16V/88/12m
270u/FP/D/16V/88/12m
270u/FP/D/16V/88/12m

GIGABYTE

Title	ISL95858_856_MOS	
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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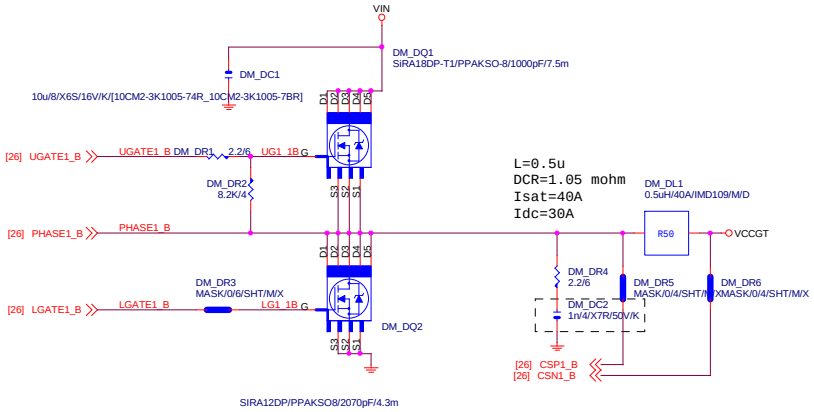
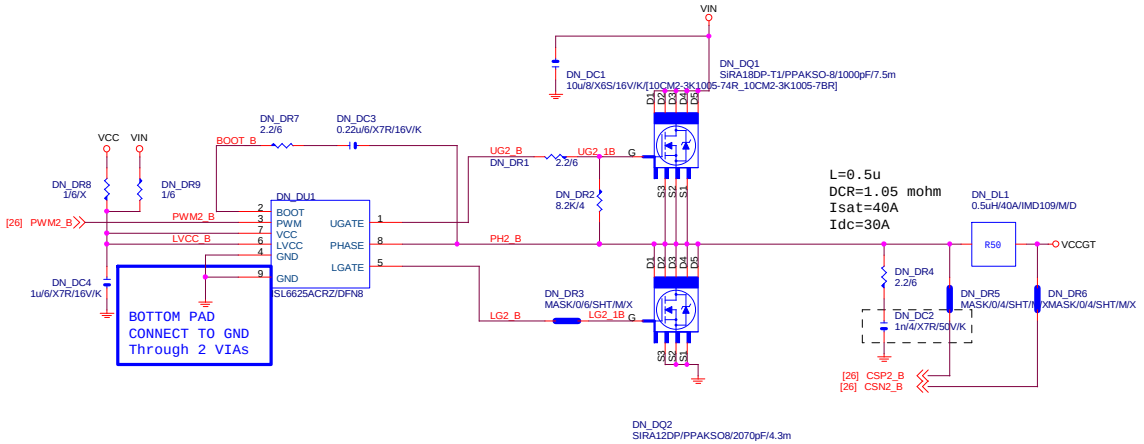
VCCGT

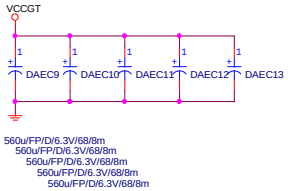
REV:1.0(IRON CHOKE)

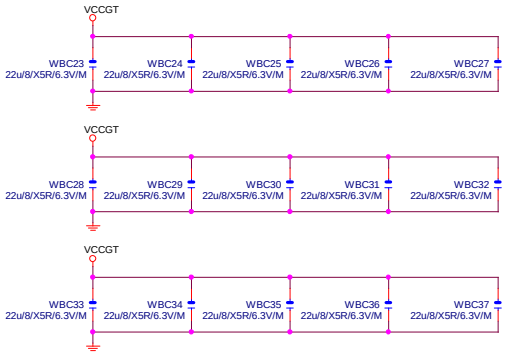




VCCGT CAP

560u*5PCS
22u*15PCS





GIGABYTE™

Title: ISL95858_MOS		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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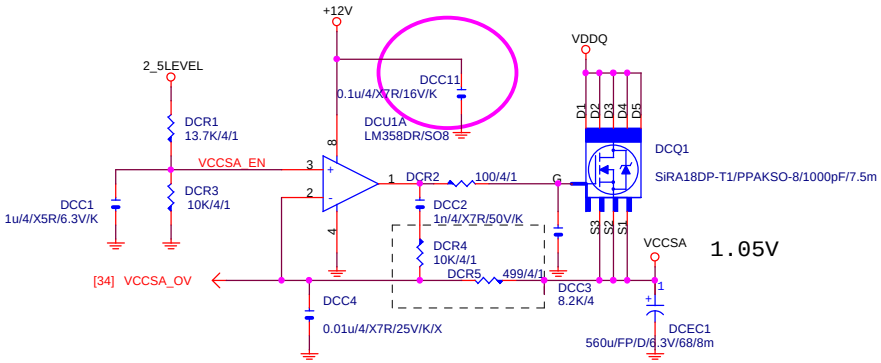
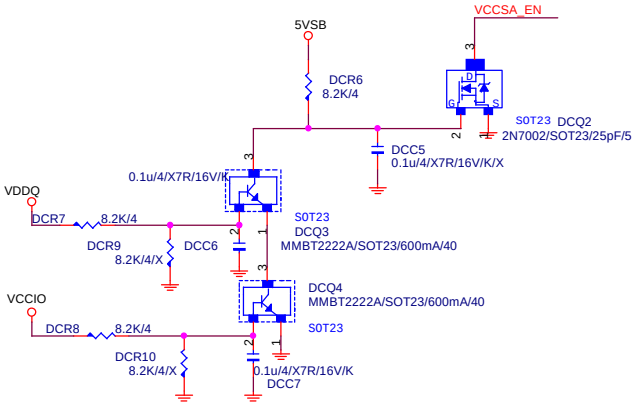
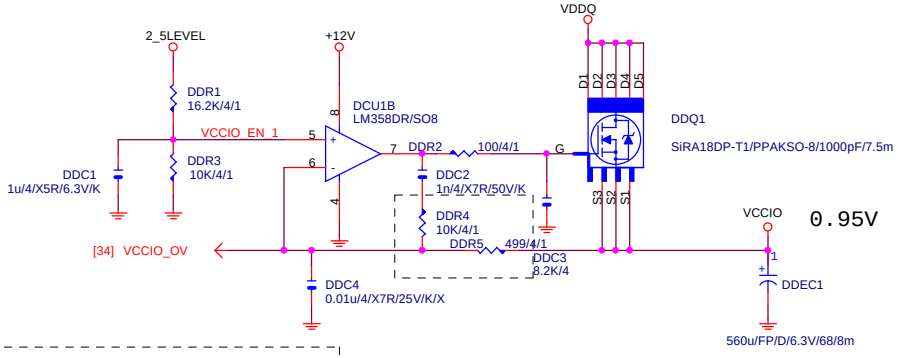
VCCSA

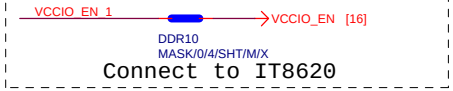
REV:0.4

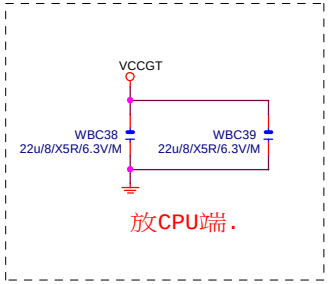




VCCIO

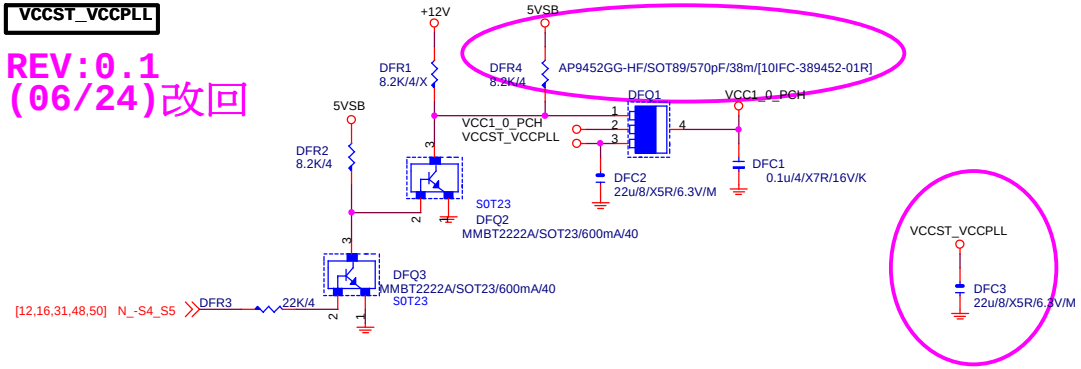






VCCST_VCCPLL

REV:0.1
(06/24)改回



GIGABYTE™

Title: VCCSA_VCCIO		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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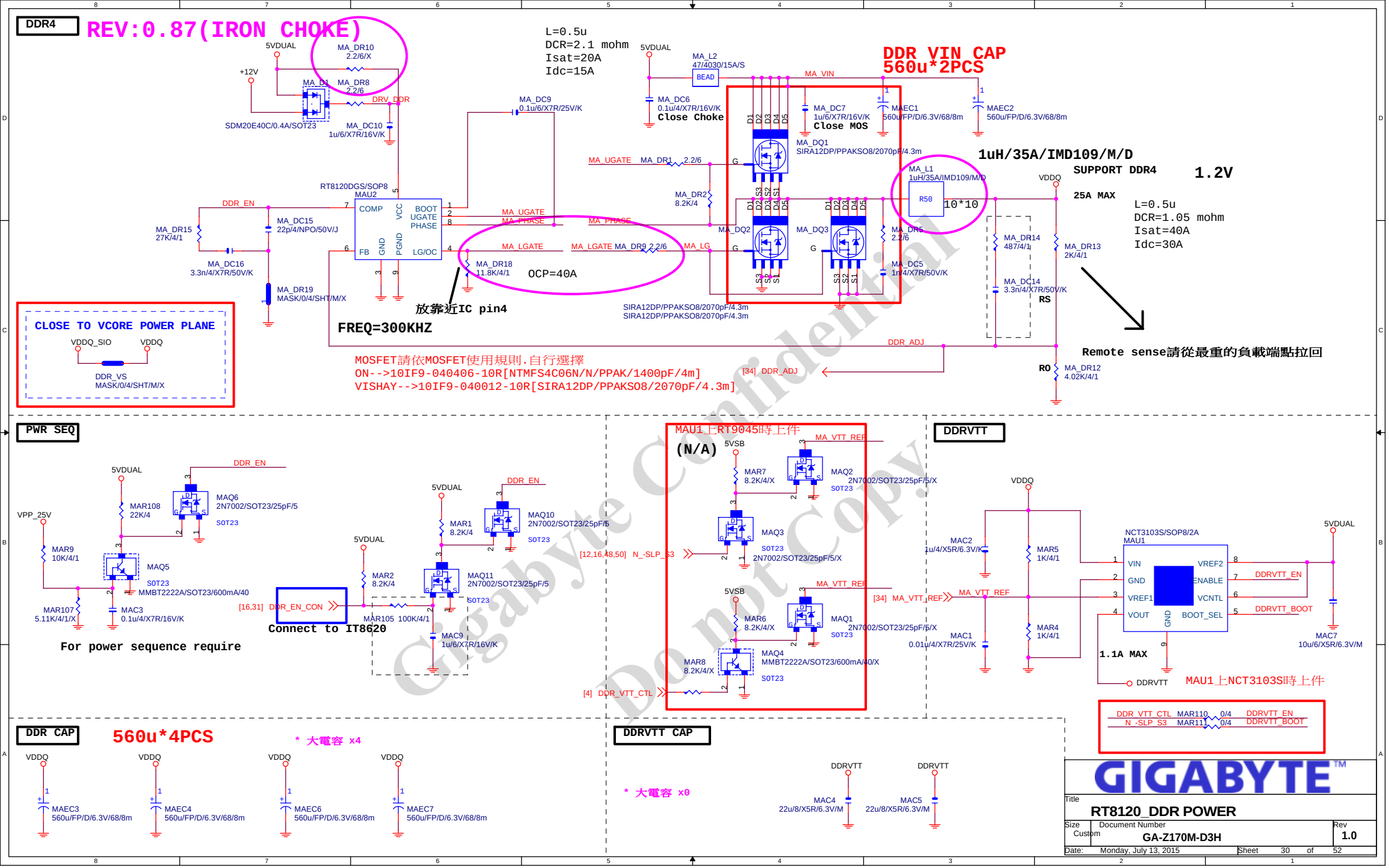
DDR4
REV:0.87(IRON CHOKE)
L=0.5u
DCR=2.1 mohm
Isat=20A
Idc=15A
DDR VIN CAP
560u*2PCS
1uH/35A/IMD109/M/D
SUPPORT DDR4
1.2V
25A MAX
L=0.5u
DCR=1.05 mohm
Isat=40A
Idc=30A
OCP=40A
FREQ=300KHZ
放靠近IC pin4
CLOSE TO VCORE POWER PLANE
VDDQ_SIO
VDDQ
DDR_VS
MASK/0/4/SHT/M/X
MOSFET請依MOSFET使用規則.自行選擇
ON-->10IF9-040406-10R[NTMFS4C06N/N/PPAK/1400pF/4m]
VISHAY-->10IF9-040012-10R[SIRA12DP/PPAKSO8/2070pF/4.3m]
Remote sense請從最重的負載端點拉回
PWR SEQ
For power sequence require
Connect to IT8620
MAU1上RT9045時上件
(N/A)
DDRVTT
MAU1上NCT3103S時上件
1.1A MAX
DDR CAP
560u*4PCS
* 大電容 x4
DDRVTT CAP
* 大電容 x0
Gigabyte Confidential
Do not Copy
GIGABYTE
RT8120_DDR POWER
GA-Z170M-D3H
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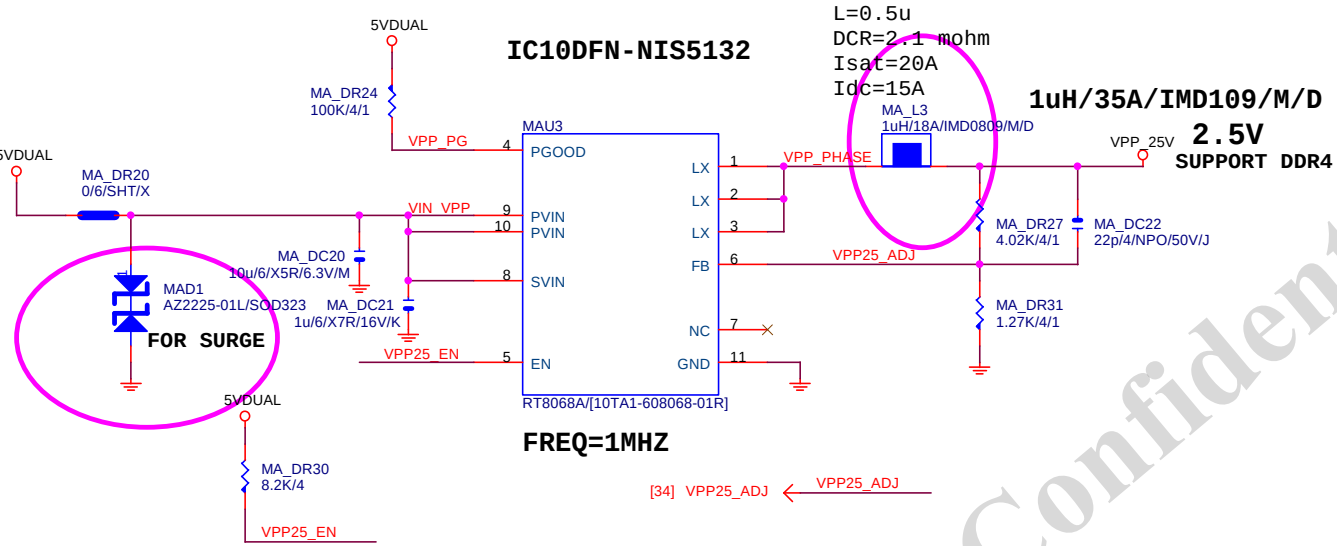
VPP_25V

REV:0.85(IRON CHOKE)

2014/12/17 REV:0.6

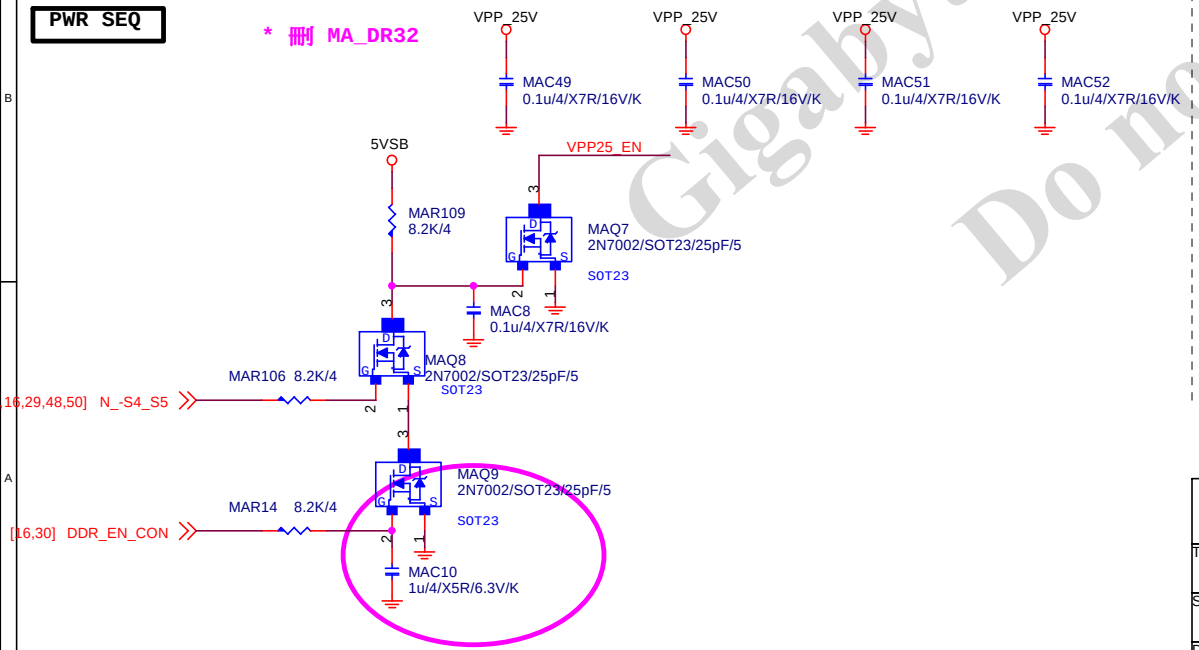
1. RT8068A Footprint modify
IC10DFN-NIS5132

CHOKE與CAP料號可變



PWR SEQ

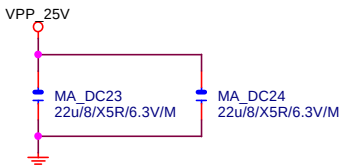
* 刪 MA_DR32



VPP CAP

22u*1PCS

* 大電容 x0



GIGABYTE™

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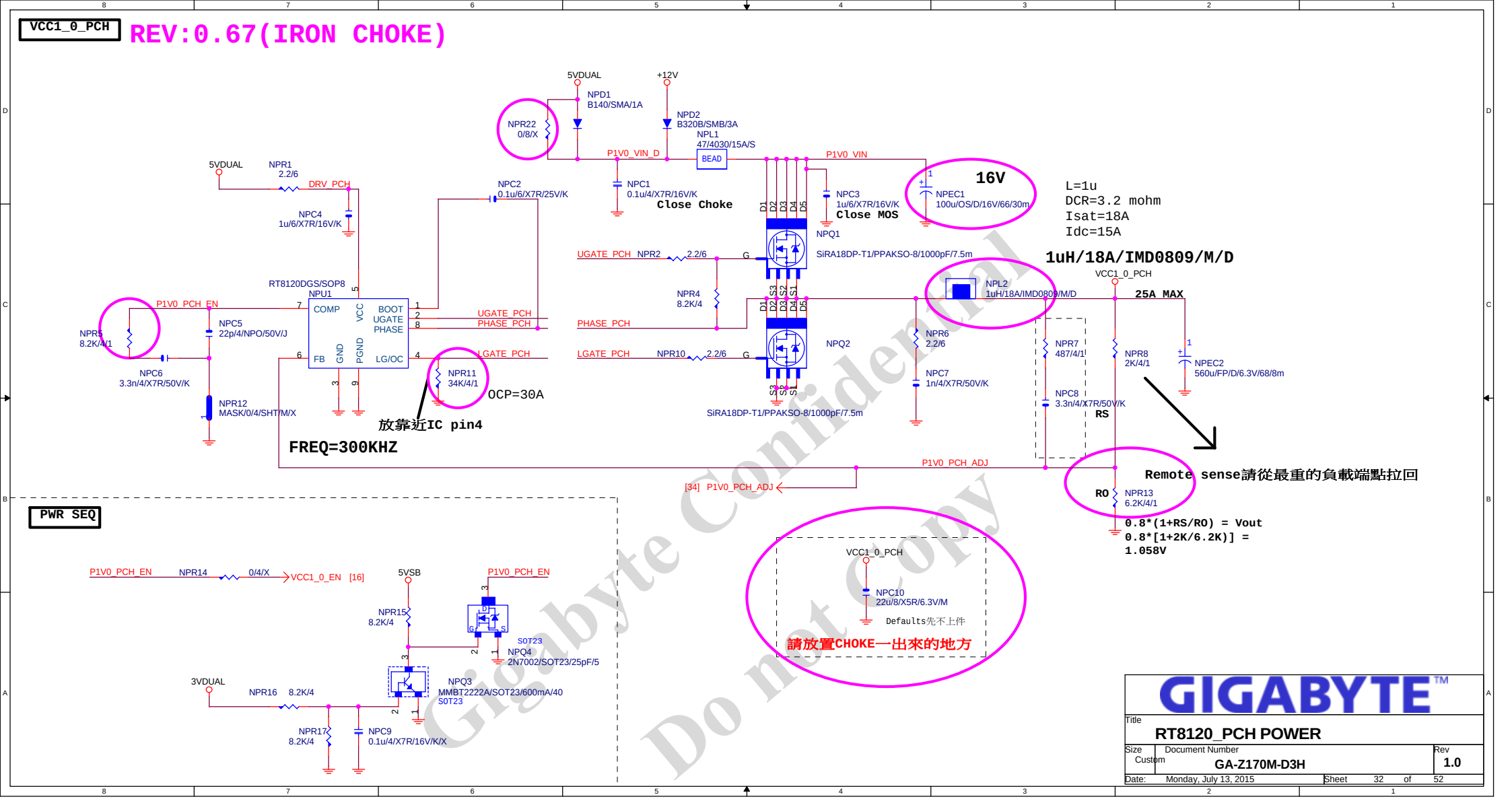
VCC1_0_PCH

REV:0.67(IRON CHOKE)



PWR SEQ

GIGABYTE™

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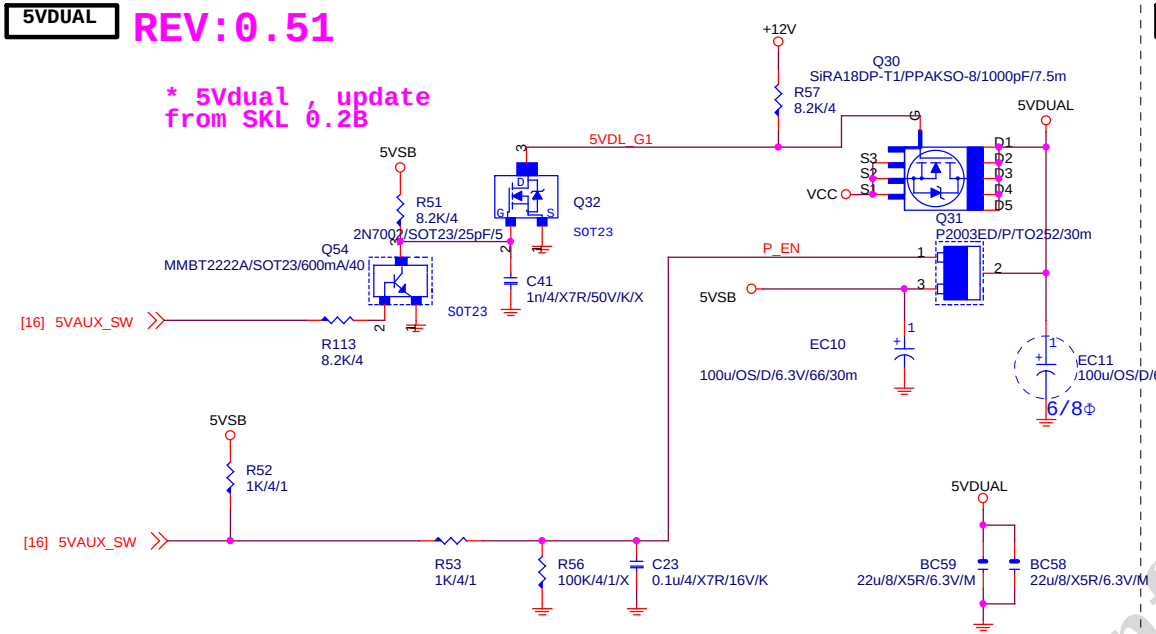
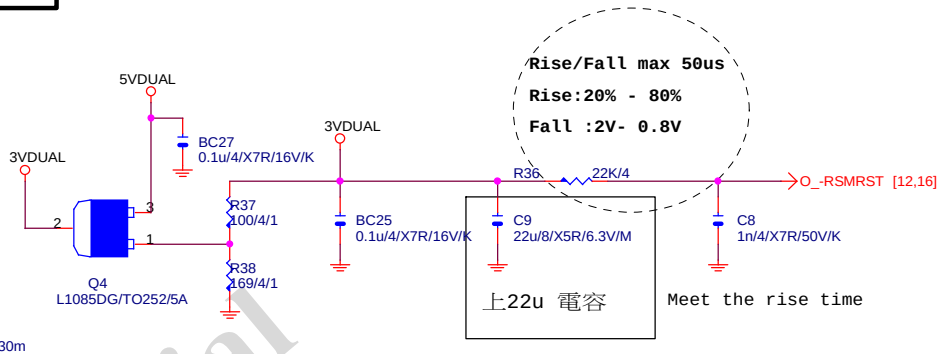
5VDUAL

REV:0.51

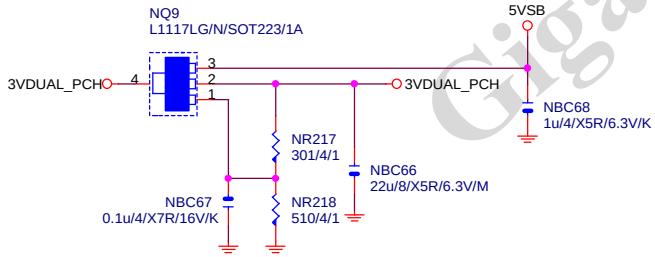
* 5Vdual , update from SKL 0.2B



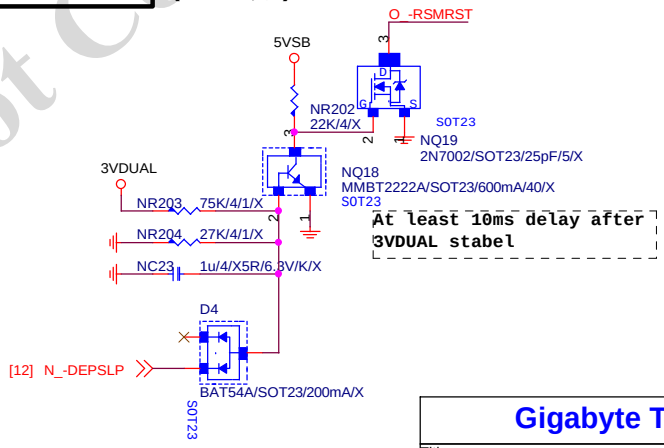
3VDUAL



3VDUAL_PCH



O_-RSMRST (不上件)



Gigabyte Technology

Title	DISCRETE POWER	
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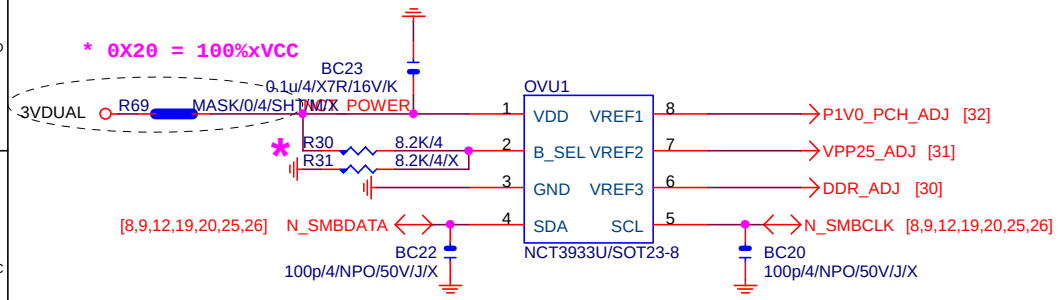
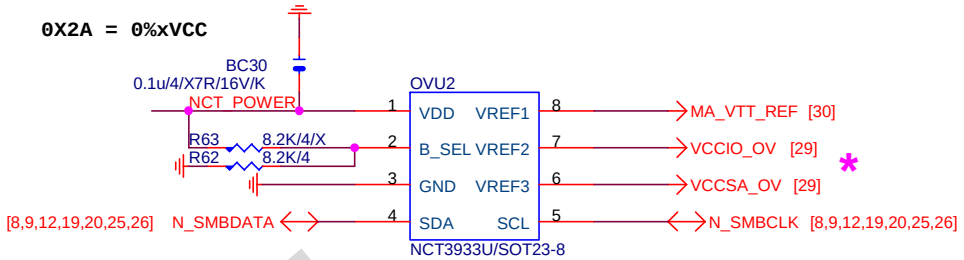
OVER VOLTAGE





0X22 = 75%xVCC

* 刪除 OVU3

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

Title: CPU CORE VR-2

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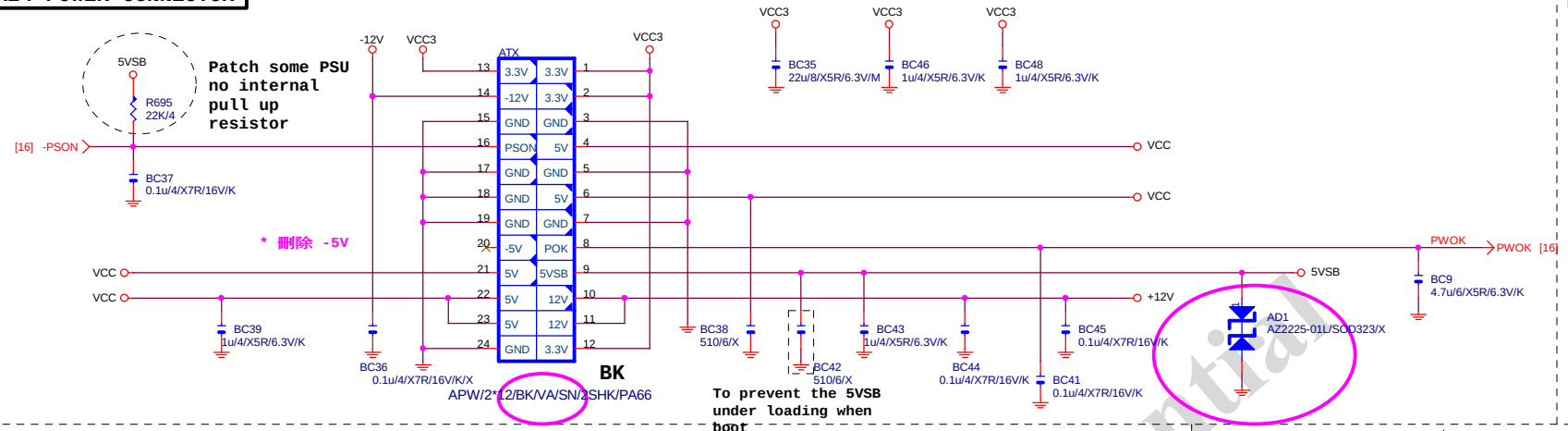
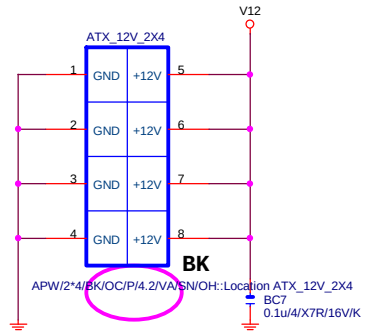
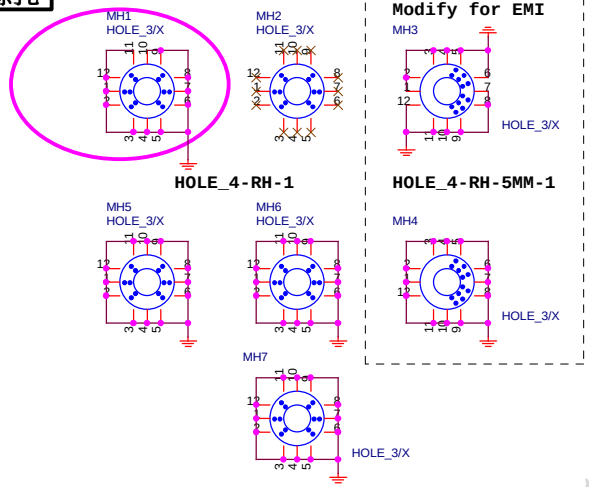
ATXX24 POWER CONNECTOR



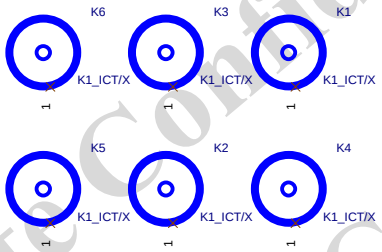
ATXX4 POWER CONNECTOR

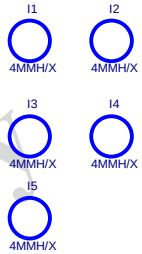


螺絲孔

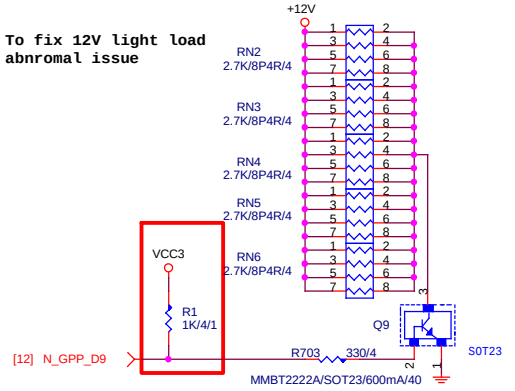


固定孔/光學點





+12V DUMMY LOAD



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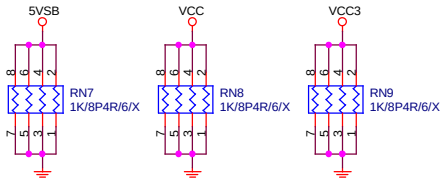
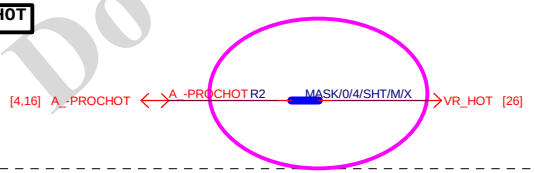
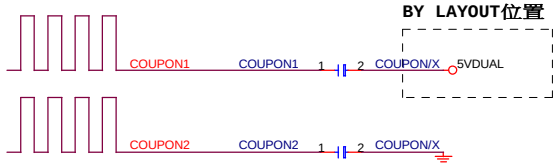
DUMMY LOAD



-PROHOT



COUPON



Gigabyte Technology		
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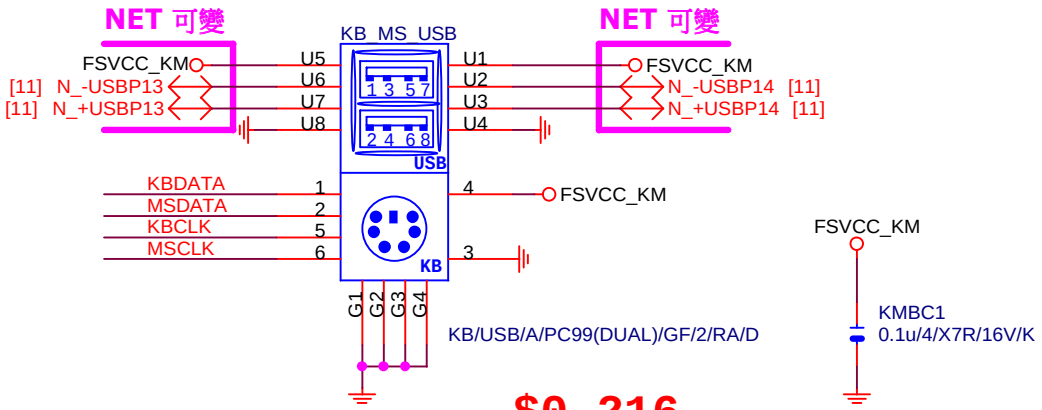
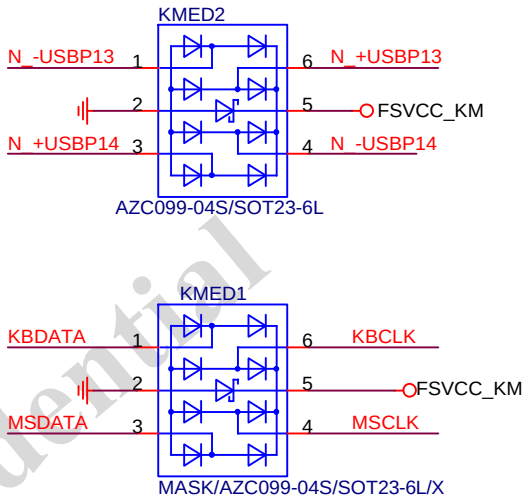
KB_MS_USB

Rev: 0.7

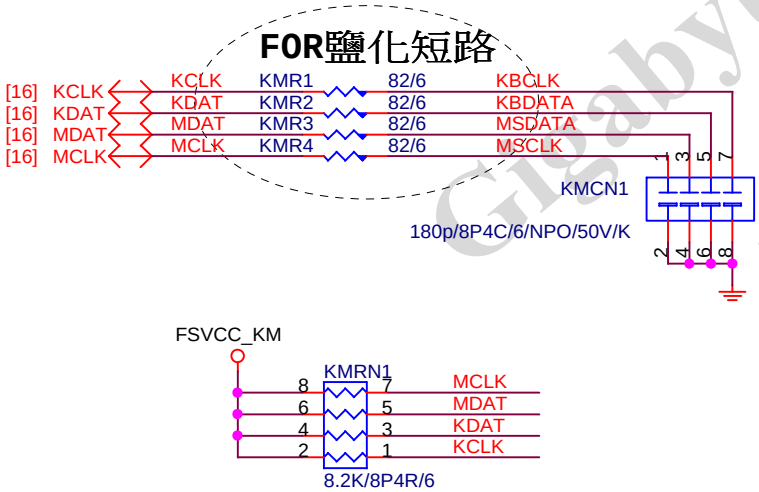


$0.216

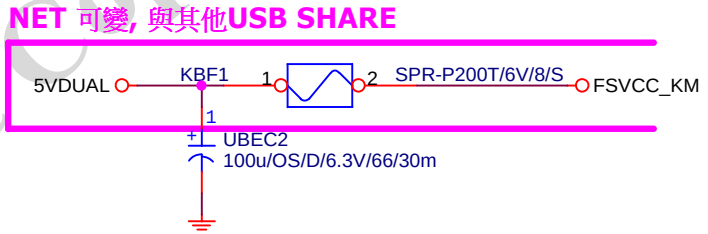
ESD



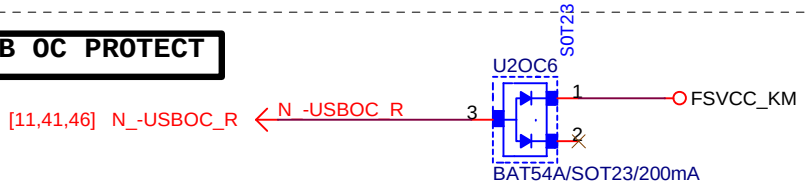
KB_MS_USB DAMPING/PU



KB_MS_USB PWR



USB OC PROTECT



Gigabyte Technology			
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DVI

Rev: 0.7

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

NET 可變

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

DVI_G → VQ1 2N7002/SOT23/25pF/5 (SOT23)
VCC → VR16 8.2K/4 → VQ1_2

DVI_SCL → VQ2 2N7002/SOT23/25pF/5 (SOT23)
VCC → VR17 8.2K/4 → VQ2_2 → N_DDPC_CTRLCLK

DVI_SDA → VQ3 2N7002/SOT23/25pF/5 (SOT23)
VCC → VR18 8.2K/4 → VQ3_2 → N_DDPC_CTRLDATA

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

DVI PU

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VCC
防漏電
VD1 BAT54A/SOT23/200mA SOT23
VR14 2.2K/4/1
VR13 2.2K/4/1
DVI_SDA
DVI_SCL

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

DVI CONN

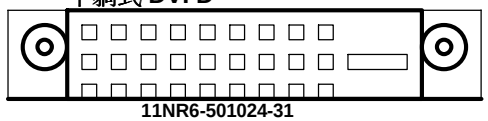
NET 可變
FSVCC_KM

DVITX0-, DVITX0+, DVITX1-, DVITX1+, DVITX2-, DVITX2+
DVI_SCL, DVI_SDA
DVITXC-, DVITXC+
DVI_HP
VR15 20K/4/1

M1, M2, M5, M6, M7, M8
COMMON

DVI-30P-4P-1
DVI-D/24P/SC/RA/D/SH

平躺式 DVI-D



11NR6-501024-31

ESD

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

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

Close to connector

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

Close to connector

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

Close to connector

Gigabyte Technology		
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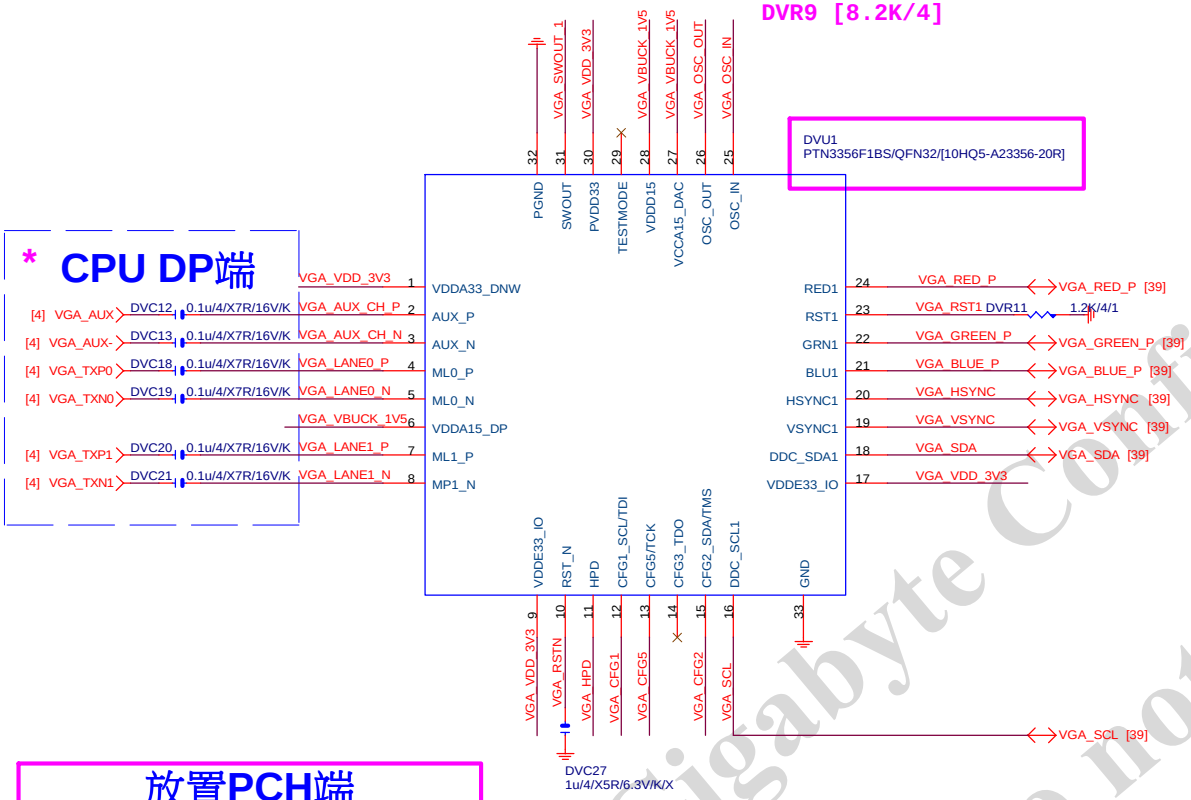
PTN3356 R1.08

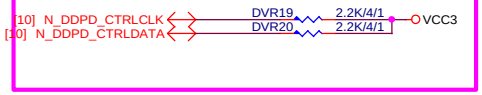
ROM PART: PTN3356R1BS/[10HQ5-A23356-10R]
FLASH PART: PTN3356F1BS/[10HQ5-A23356-20R]

省X'TAL COST DOWN:
1. 上件:
DVC28 [10p/4/NPO/50V/J]
DVC11 [10p/4/NPO/50V/J]~修改值
DVR10 [8.2K/4]
2. 删除:
DVX1 [25M/16p/30ppm/49US/20/D]
DVC10 [20p/4/NPO/50V/J]
DVR9 [8.2K/4]

* CPU DP端

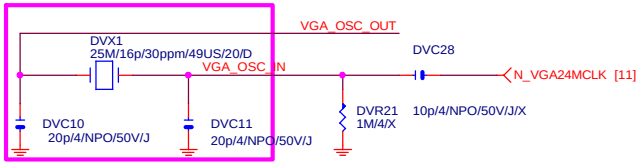


放置PCH端



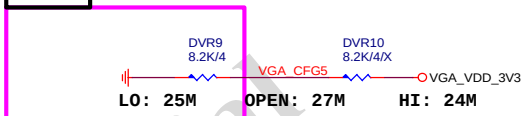
25M Crystal

FROM PCH 24MHZ ISSUE

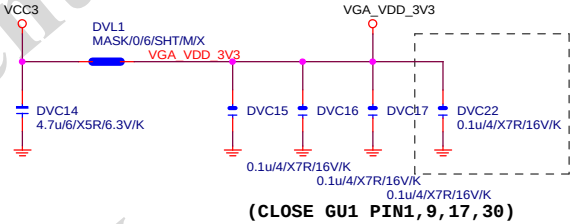


CFG5

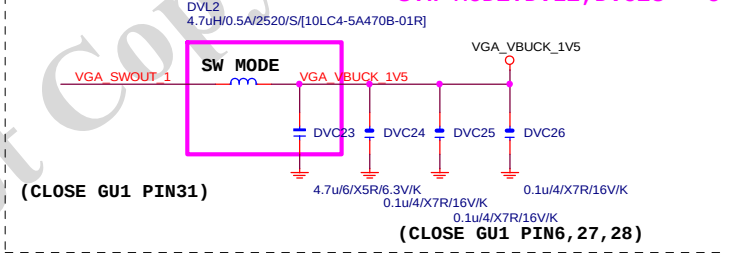
For Crystal Less



ADAPTER POWER

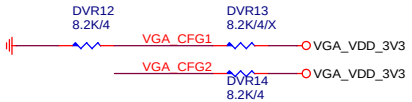


LDO MODE:DVL2,DVC23-->X
S.W MODE:DVL2,DVC23-->O



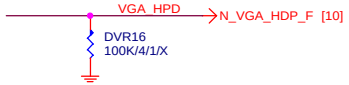
CFG1&2

Non-Compliant



HPD

PCH端 *



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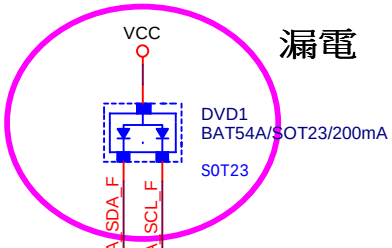
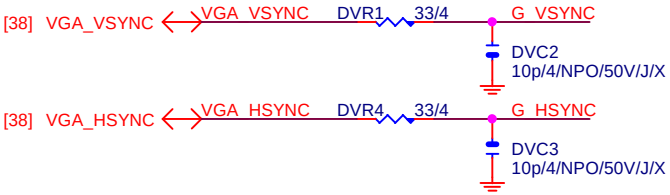
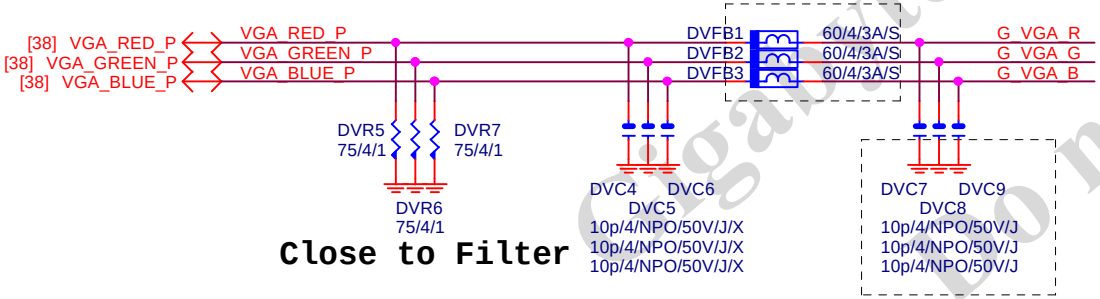
VGA SIGNAL R1.08



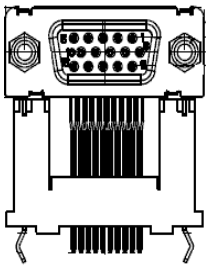


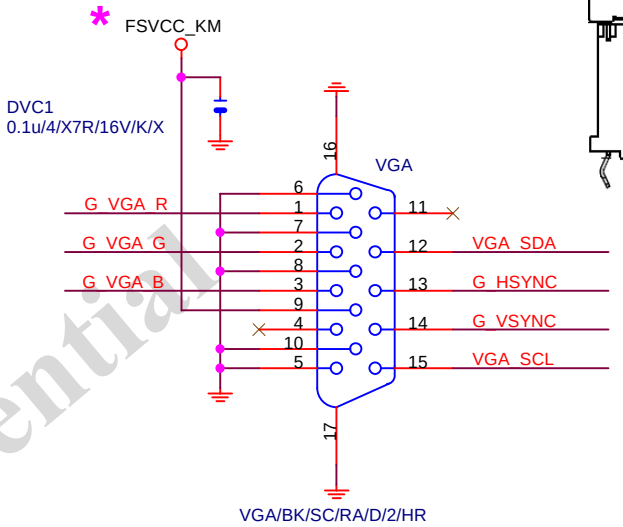


Close to Filter

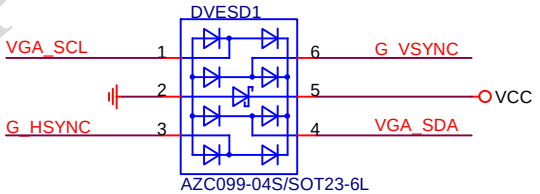
FOR EMI

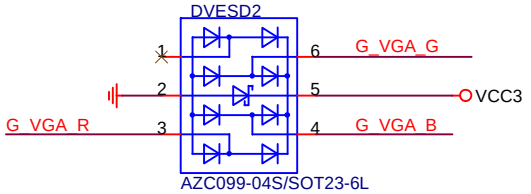
VGA CONN. 架高型VGA(BLACK)





VGA ESD





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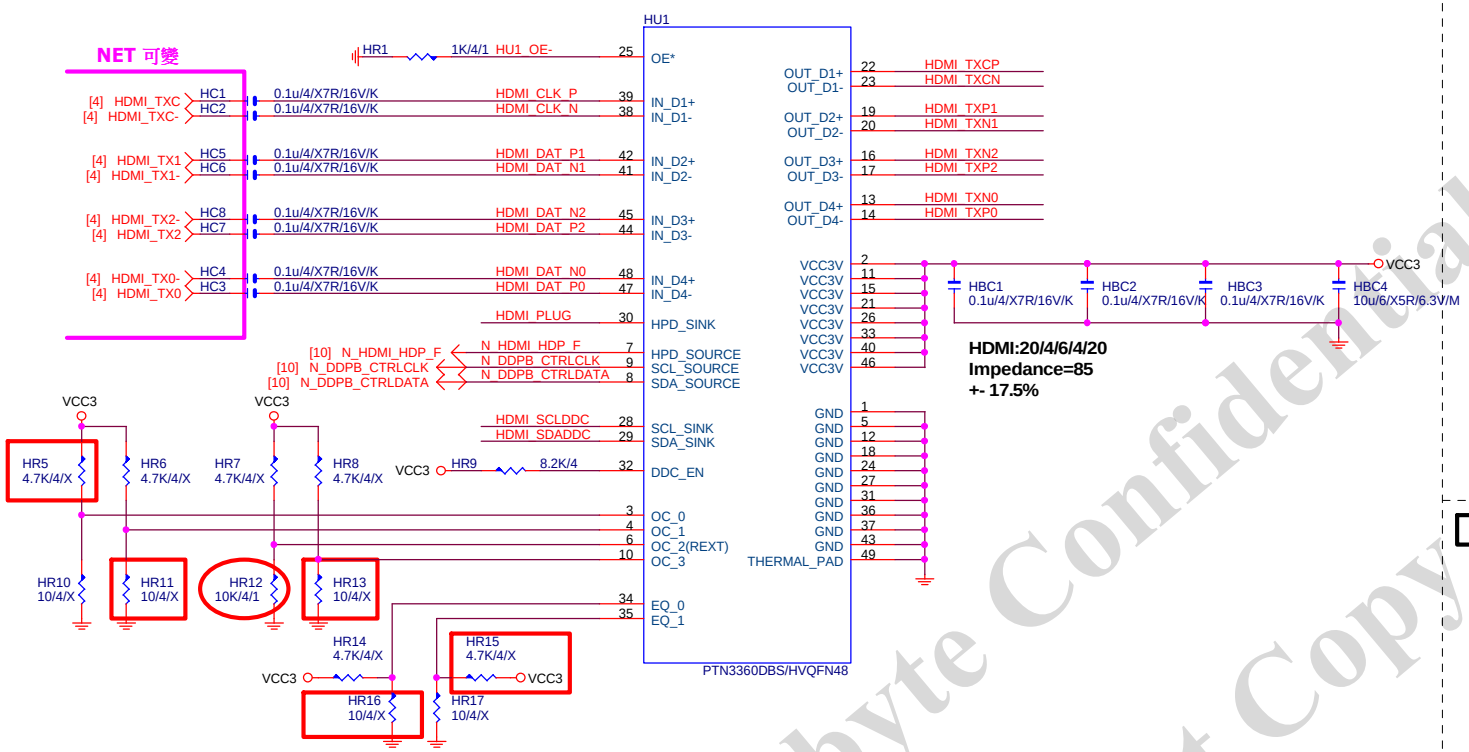
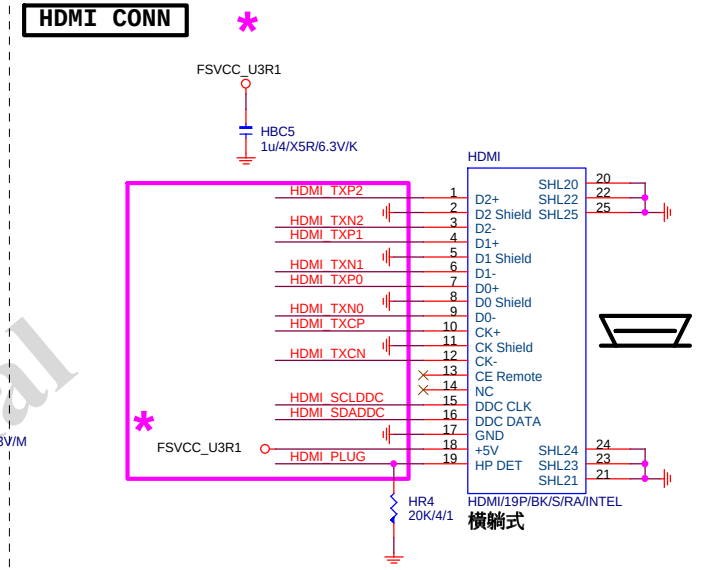
HDMI LEVEL SHIFT

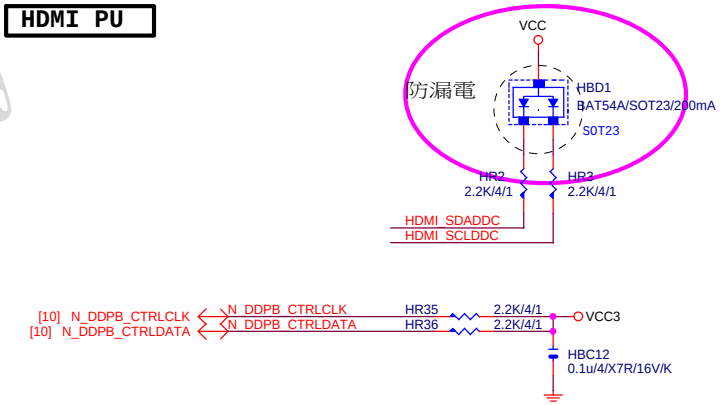
Rev: 0.7



HDMI CONN



HDMI PU



PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K

ASM1442:紅色框要上,HR12:3.16K

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

Gigabyte Technology		
Title: HDMI		
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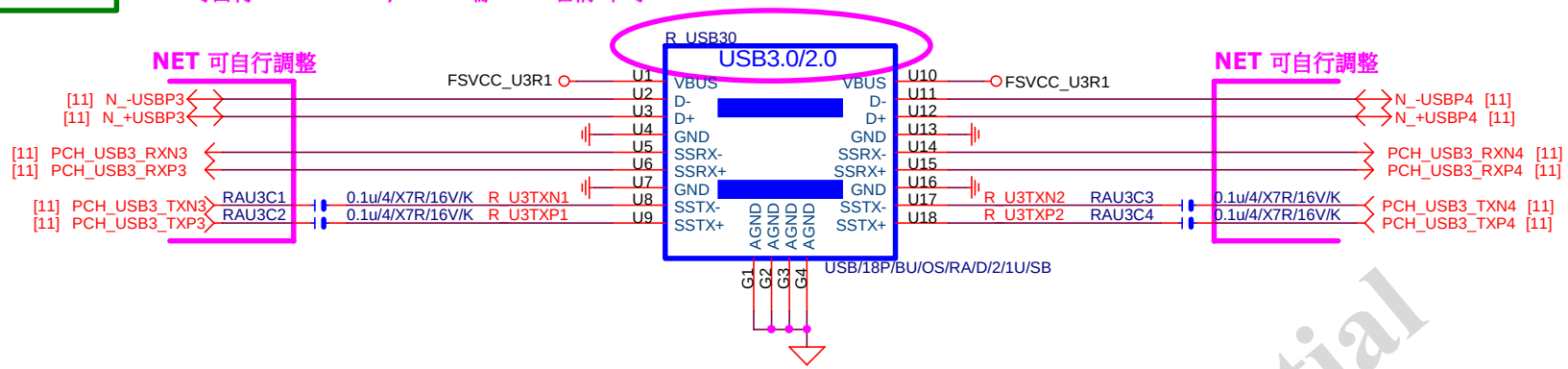
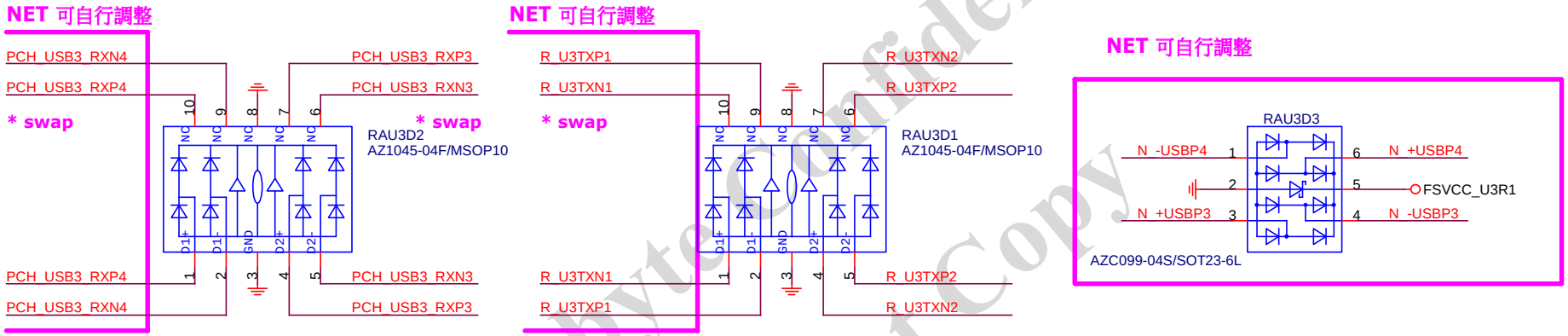
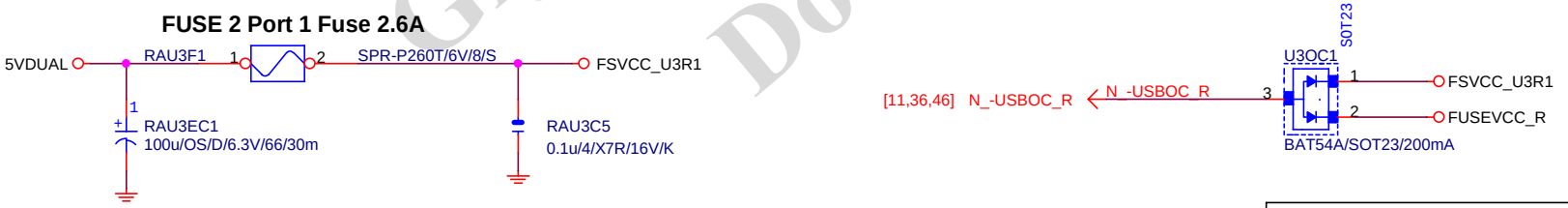
ESD 可自行SWAP PIN ,CONN端 NET 名稱 不可



ESD



FUSE



Gigabyte Technology		
Title: R_USB30,USB_OC		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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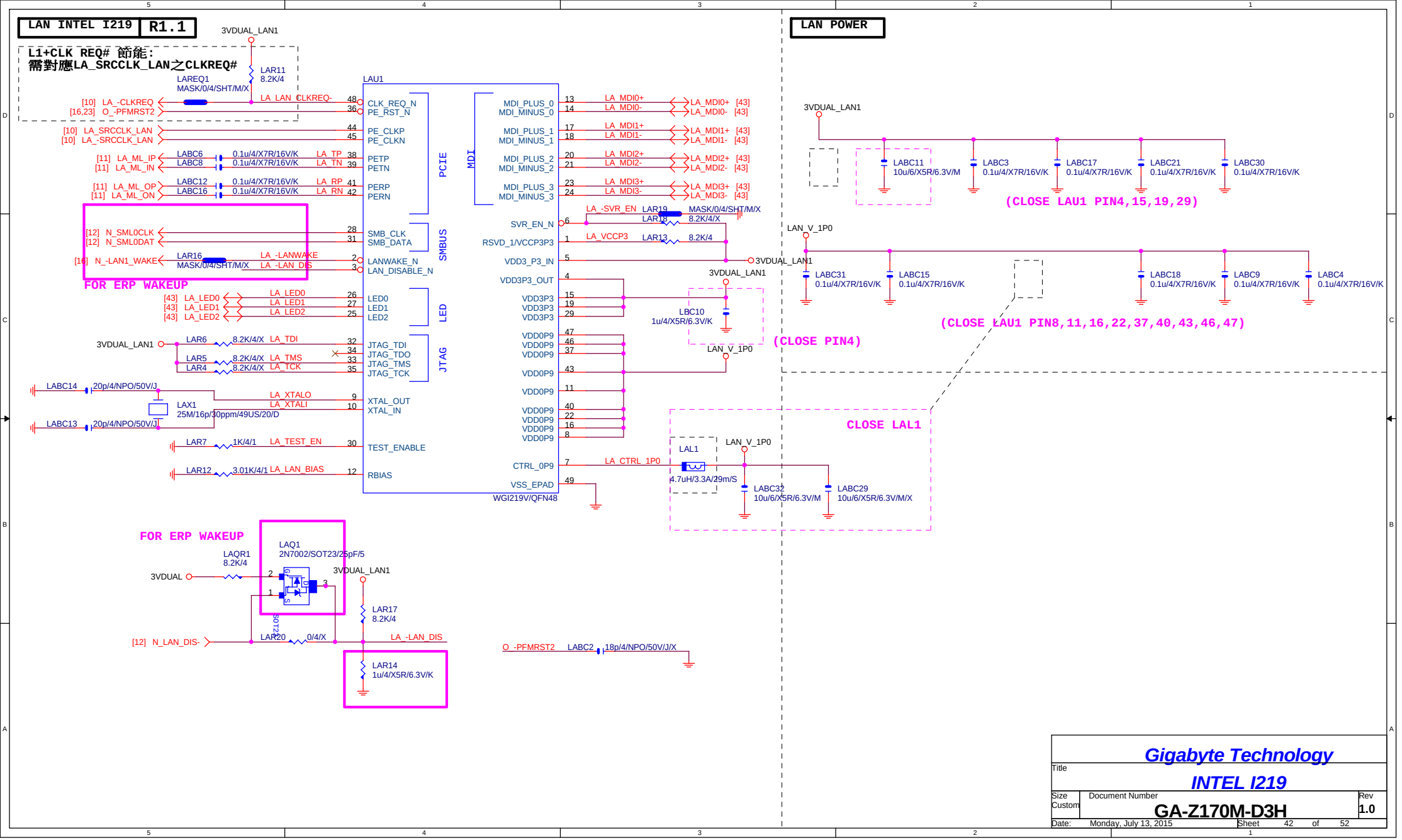
LAN INTEL I219 R1.1
L1+CLK REQ# 節能:
需對應LA_SRCCLK_LAN之CLKREQ#
3VDUAL_LAN1
LAR11 8.2K/4
LAREQ1 MASK/0/4/SHT/M/X
[10] LA_-CLKREQ
[16,23] O_-PFMRST2
LA_LAN_CLKREQ-
LAU1
CLK_REQ_N
PE_RST_N
PE_CLKP
PE_CLKN
[10] LA_SRCCLK_LAN
[10] LA_-SRCCLK_LAN
PCIE
MDI
[11] LA_ML_IP
[11] LA_ML_IN
LABC6 0.1u/4/X7R/16V/K
LABC8 0.1u/4/X7R/16V/K
LA_TP
LA_TN
PETP
PETN
[11] LA_ML_OP
[11] LA_ML_ON
LABC12 0.1u/4/X7R/16V/K
LABC16 0.1u/4/X7R/16V/K
LA_RP
LA_RN
PERP
PERN
MDI_PLUS_0
MDI_MINUS_0
MDI_PLUS_1
MDI_MINUS_1
MDI_PLUS_2
MDI_MINUS_2
MDI_PLUS_3
MDI_MINUS_3
LA_MDI0+
LA_MDI0-
LA_MDI1+
LA_MDI1-
LA_MDI2+
LA_MDI2-
LA_MDI3+
LA_MDI3-
[43]
FOR ERP WAKEUP
[12] N_SML0CLK
[12] N_SML0DAT
SMB_CLK
SMB_DATA
SMBUS
[16] N_-LAN1_WAKE
LAR16 MASK/0/4/SHT/M/X
LA_-LANWAKE
LA_-LAN_DIS
LANWAKE_N
LAN_DISABLE_N
SVR_EN_N
LA_-SVR_EN
LAR19 MASK/0/4/SHT/M/X
LAR18 8.2K/4/X
RSVD_1/VCCP3P3
LA_VCCP3
LAR13 8.2K/4
VDD3_P3_IN
3VDUAL_LAN1
VDD3P3_OUT
[43] LA_LED0
[43] LA_LED1
[43] LA_LED2
LED0
LED1
LED2
LED
LBC10 1u/4/X5R/6.3V/K
VDD3P3
VDD0P9
LAN_V_1P0
(CLOSE PIN4)
3VDUAL_LAN1
LAR6 8.2K/4/X LA_TDI
LAR5 8.2K/4/X LA_TMS
LAR4 8.2K/4/X LA_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
JTAG
LABC14 20p/4/NPO/50V/J
LABC13 20p/4/NPO/50V/J
LAX1 25M/16p/30ppm/49US/20/D
LA_XTALO
LA_XTALI
XTAL_OUT
XTAL_IN
LAR7 1K/4/1 LA_TEST_EN
TEST_ENABLE
LAR12 3.01K/4/1 LA_LAN_BIAS
RBIAS
CTRL_0P9
LA_CTRL_1P0
LAL1
4.7uH/3.3A/29m/S
LABC32 10u/6/X5R/6.3V/M
LABC29 10u/6/X5R/6.3V/M/X
CLOSE LAL1
VSS_EPAD
WGI219V/QFN48
FOR ERP WAKEUP
LAQ1 2N7002/SOT23/25pF/5
LAQR1 8.2K/4
3VDUAL
3VDUAL_LAN1
LAR17 8.2K/4
[12] N_LAN_DIS-
LAR20 0/4/X
LA_-LAN_DIS
LAR14 1u/4/X5R/6.3V/K
O_-PFMRST2
LABC2 18p/4/NPO/50V/J/X
LAN POWER
3VDUAL_LAN1
LABC11 10u/6/X5R/6.3V/M
LABC3 0.1u/4/X7R/16V/K
LABC17 0.1u/4/X7R/16V/K
LABC21 0.1u/4/X7R/16V/K
LABC30 0.1u/4/X7R/16V/K
(CLOSE LAU1 PIN4,15,19,29)
LAN_V_1P0
LABC31 0.1u/4/X7R/16V/K
LABC15 0.1u/4/X7R/16V/K
LABC18 0.1u/4/X7R/16V/K
LABC9 0.1u/4/X7R/16V/K
LABC4 0.1u/4/X7R/16V/K
(CLOSE LAU1 PIN8,11,16,22,37,40,43,46,47)
Gigabyte Technology
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INTEL I219
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USB_LAN CONNECTOR R1.1

RMA ESD PROTECT

note:可變更USB NAME

可變

N_+USBP6 1 6 N_-USBP6
2 5 FUSEVCC_R
N_-USBP5 3 4 N_+USBP5

LAUESD1
AZC099-04S/SOT23-6L

USB_LAN CONNECTOR

note:可變更USB NAME

[I219]

LABC22 0.1u/4/X7R/16V/K
LA_CN_L1
LA_CN_L10
LABC25 MASK/0/4/SHT/M/X

USB30_LAN

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

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10

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

U1 U2 U3 U4 U5 U6 U7 U8 U9

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

USB3.0

LAUAC1 PCH_USB3_TXN5C
LAUAC2 PCH_USB3_TXP5C

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

可變

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

D1 D2 D3 D4 DT DT P1 P2

LA_LED_ACT_TXRX
LA_D2
LA_LED_LINK100
LA_LED_LINK1000

LAR8 MASK/0/4/SHT/M/X
LA_LED0 [42]
LAR10 330/4 LA_D2_1
LAR9 330/4
LA_LED2 [42]
LAR3
LA_LED1 [42]

3VDUAL_LAN1
LAFB2 MASK/0/4/SHT/M/X
LABC24 0.1u/4/X7R/16V/K/X

MASK/0/4/SHT/M/X LAUBC7 0.1u/4/X7R/16V/K
FUSEVCC_R

U10 U11 U12 U13 U14 U15 U16 U17 U18

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

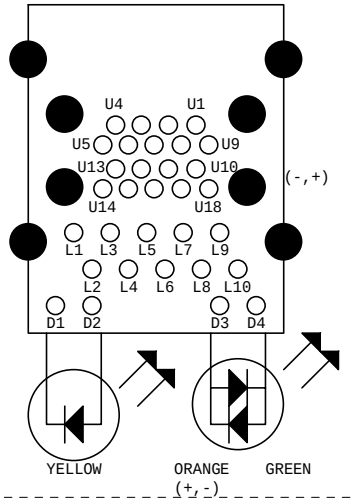
PCH_USB3_TXN6C
PCH_USB3_TXP6C
LAUAC3
LAUAC4

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

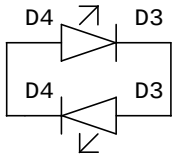
可變 可變 可變

LA_MDI-->100歐姆:[20/4/8/4/20]

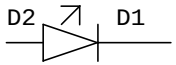
USB30_LAN LAYOUT示意圖



Dual Color LED



Single Color LED



PCH_USB3_TXP6C
PCH_USB3_TXN6C
PCH_USB3_TXP5C
PCH_USB3_TXN5C
PCH_USB3_RXP6
PCH_USB3_RXN6
PCH_USB3_RXP5
PCH_USB3_RXN5

10 9 8 7 6

NC NC GND NC NC

11

D1+ D1- GND D2+ D2-

1 2 3 4 5

note:可變更USB NAME

可變

LAU3ESD1
AZ1045-04F/MSOP10

LAU3ESD2
AZ1045-04F/MSOP10

LAN_COVER

FOOT PRINT:LAN_COVER

可變
[視SPEC需求]

[-D3H不加蓋]

USB POWER

note:可變更FUSE

可變

5VDUAL 1 LAUF1 2 FUSEVCC_R

SPR-P260T/6V/8/S

Close to connector
FUSE-0805

EMI SHORT PAD

PS:視EMI需求

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

LAN POWER

note: lan power連接及電流

可變

3VDUAL_LAN1 LAPW1 MASK/0/4/SHT/M/X 3VDUAL_PCH

LAPW2 0/4/X 3VDUAL

*
*

Gigabyte Technology		
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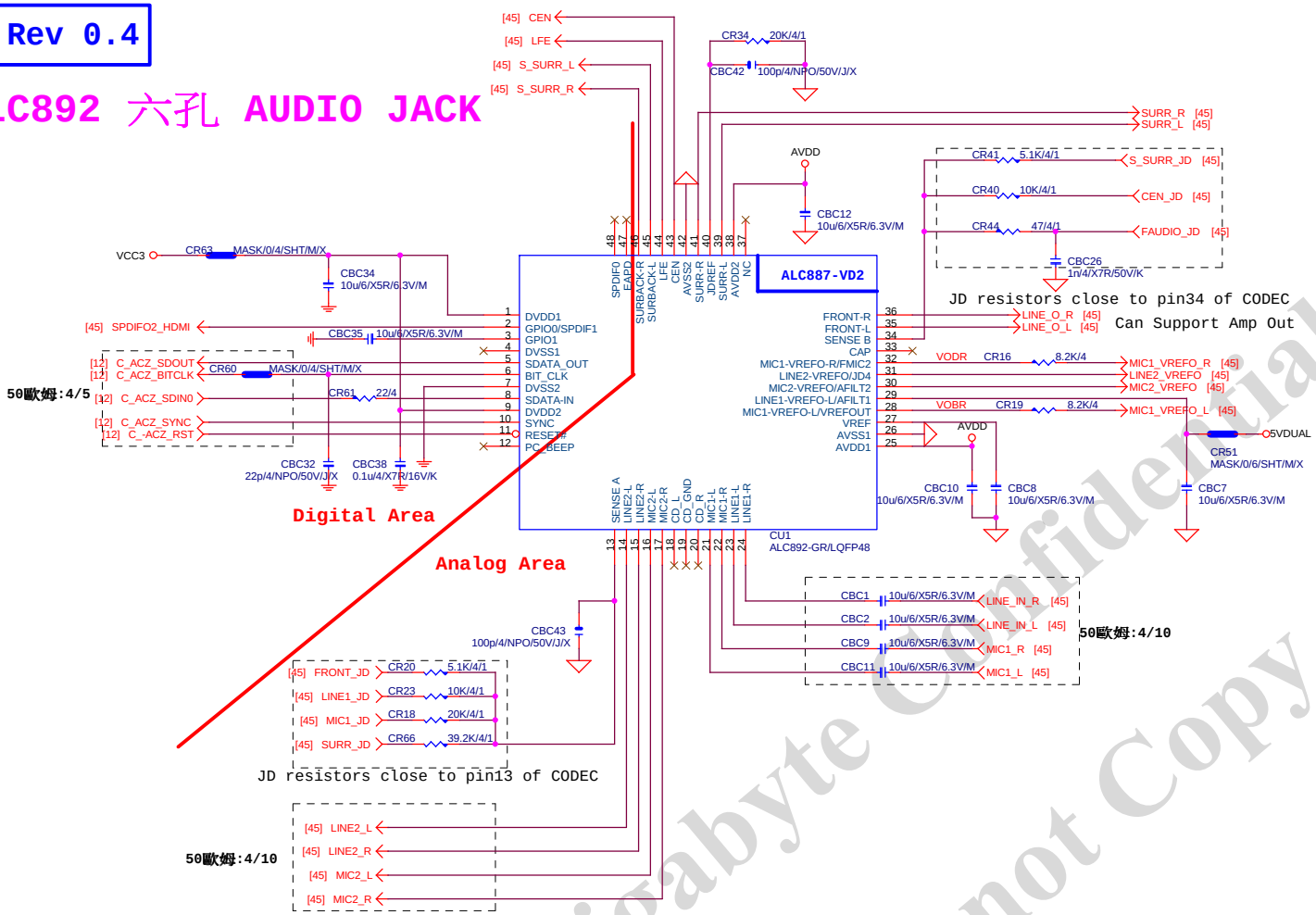
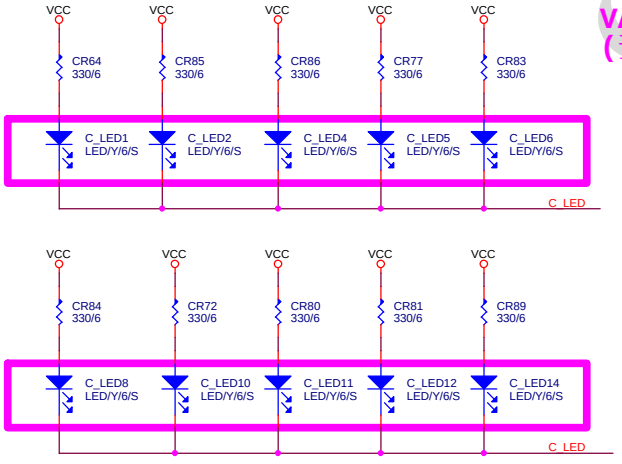
ALC892 六孔 AUDIO JACK

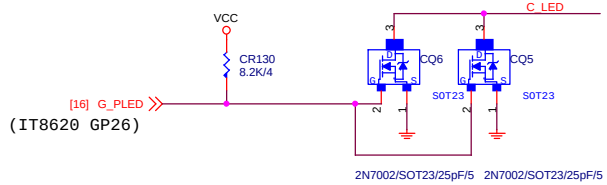


LAYOUT注意:螺絲孔下GND方式
1. MH1空間夠,下DGND
   空間不夠,改為Isolate
2. MH2一律改為Isolate

MH1	MH2
DGND	Isolate



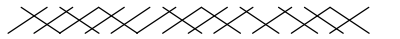
VALUE可變,LED顏色請自行修改
(預設:低亮度黃色LED:LED/Y/6/S)



*料號後補

LAYOUT注意:要加
GND切割線

音效區域印刷



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

Gigabyte Technology		
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Rev 0.4

CR49 MASK/0/6/SHT/M/X → Close F_AUDIO

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

CR21 2.2/6 → Audio jack <--> USB_LAN

CR24 0/6/X → Under Audio jack

*量產前,0ohm改short pad

LINE-OUT

[44] LINE_O_R — CEC1 100uF/D/10V/6*5/[11CE2-651000-05R] — CR5 62/4 — CR7 22K/4, CR6 22K/4 — AJ_B5

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

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

LINE-IN

[44] LINE_IN_R — CR1 62/4 — AJ_A5

[44] LINE_IN_L — CR14 62/4 — AJ_A2

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

MIC-IN

[44] MIC1_R — CR17 62/4 — AJ_C5

[44] MIC1_L — CR22 62/4 — AJ_C2

[44] MIC1_VREFO_L

[44] MIC1_VREFO_R

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

SURROUND

[44] SURR_R — CEC10 100uF/D/10V/6*5/[11CE2-651000-05R] — CR73 62/4 — CR67 22K/4, CR68 22K/4 — BJ_C5

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

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

CEN/LFE

[44] LFE — CBC13 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR75 62/4 — CR69 22K/4, CR70 22K/4 — BJ_B5

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

★Update 2015-04-10

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

For THD+N Low frequency

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

SPDIF_OUT

[44] SPDIFO2_HDMI — CR26 MASK/0/4/SHT/M/X — SPDIF_O — PH/1*2/BK/2.54/VA/D

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

For HDMI SPDIF

SPDIF_IN

SURR BACK

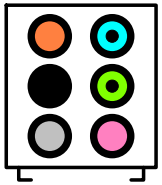
[44] S_SURR_R — CBC16 10u/8/X5R/16V/K/[10CM2-011005-54R] — CR25 62/4 — CR43 22K/4, CR27 22K/4 — BJ_A5

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

EMI

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

AZALIA JACK



AUDIOB

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

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

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

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

AZALIA JACK

BLUE LINE-IN

GREEN LINE-OUT

PINK MIC-IN

AUDIOA

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

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

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

G4 G1 G2 G3

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

Orange CEN/LFE

Black SURROUND

Gray SURROUND SIDE

AZALIA FRONT PANEL

CQ4 BAT54A/SOT23/200mA — [44] LINE2_VREFO

CQ2 BAT54A/SOT23/200mA — [44] MIC2_VREFO

SOT23

CRN1 8.2K/8P4R/4

F_AUDIO_H

VCC3

CR58 22K/4, CR54 22K/4

F_AUDIO

CR78 8.2K/4/X

CR55 20K/4/1

CR59 39.2K/4/1

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

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

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

L2_R — CR57 62/4 — L2-R

[44] FAUDIO_JD

L2_L — CR53 62/4 — L2-L

[44] LINE2_R — CEC9 100uF/D/10V/6*5/[11CE2-651000-05R] — L2_R

[44] LINE2_L — CEC6 100uF/D/10V/6*5/[11CE2-651000-05R] — L2_L

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

Gigabyte Technology			
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Front USB3.0

F_USB30_1 REV=1

FSVCC_U3F1

NET 自行調整

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

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

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

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

FU30_TXN2 FU30_TXP2 FAU3C3 FAU3C4 0.1u/4/X7R/16V/K

NET 可自行調整

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

BH/2*10K20/GY/ON/2.0VA/USB3.0/PRT/[11NH3-021210-52R]

F_USB30 PWR

5VDUAL FAU3F1 SPR-P260T/6V/8/S FSVCC_U3F1

FAU3EC1 100u/OS/D/6.3V/66/30m

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

U3OC3 SOT23

[11,47] N_-USBOC_F N_-USBOC_F

FSVCC_U3F1 FSVCC_U3F2

BAT54A/SOT23/200mA

NET 可自行調整

NET 可自行調整

PCH_USB3_RXP1 PCH_USB3_RXN1 PCH_USB3_RXN2 PCH_USB3_RXP2

FAU3D1 AZ1045-04F/MSOP10

AZC099-04S/SOT23-6L

FAU3D3

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

CLOSE F_USB30

FU30_TXP1 FU30_TXN1 FU30_TXN2 FU30_TXP2

FAU3D2 AZ1045-04F/MSOP10

CLOSE F_USB30

Front USB3.0

F_USB30_2 REV=1

FSVCC_U3F2

NET 可自行調整

[11] PCH_USB3_RXN7
[11] PCH_USB3_RXP7
[11] PCH_USB3_TXN7
[11] PCH_USB3_TXP7
[11] N_-USBP7
[11] N_+USBP7

FBU3C1 FBU3C2 0.1u/4/X7R/16V/K FU30_TXN3 FU30_TXP3

FU30_TXN4 FU30_TXP4 FBU3C3 FBU3C4 0.1u/4/X7R/16V/K

NET 可自行調整

PCH_USB3_TXN8 [11]
PCH_USB3_TXP8 [11]
PCH_USB3_RXN8 [11]
PCH_USB3_RXP8 [11]
N_-USBP8 [11]
N_+USBP8 [11]

BH/2*10K20/GY/ON/2.0VA/USB3.0/PRT/[11NH3-021210-52R]

F_USB30 PWR

5VDUAL FBU3F1 SPR-P260T/6V/8/S FSVCC_U3F2

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

F_USB POWER PROTECT

NET 可自行調整

PCH_USB3_RXP7 PCH_USB3_RXN7 PCH_USB3_RXN8 PCH_USB3_RXP8

FBU3D1 AZ1045-04F/MSOP10

AZC099-04S/SOT23-6L

FBU3D3

N_-USBP7 N_+USBP8 N_+USBP7 3VDUAL N_-USBP8

CLOSE F_USB30

FU30_TXP3 FU30_TXN3 FU30_TXN4 FU30_TXP4

FBU3D2 AZ1045-04F/MSOP10

CLOSE F_USB30

-USBOC_F

POWER 可自行調整

FSVCC_U3F1 UAR1 8.2K/4 N_-USBOC_F N_-USBOC_F [11,47]

UAR2 15K/4/1

-USBOC_R

POWER 可自行調整

5VDUAL UBR1 8.2K/4 N_-USBOC_R N_-USBOC_R [11,36,41]

UBR2 15K/4/1

* 接 PCH N_GPP_B21

PCH PU 3Vdual

[12] N_GPP_B20

UAD5 SOT23

N_-USBOC_F N_-USBOC_F [11,47]

N_-USBOC_R N_-USBOC_R [11,36,41]

BAT54A/SOT23/200mA

Gigabyte Technology

Title: R_USB30,F_USB30, USB_OC

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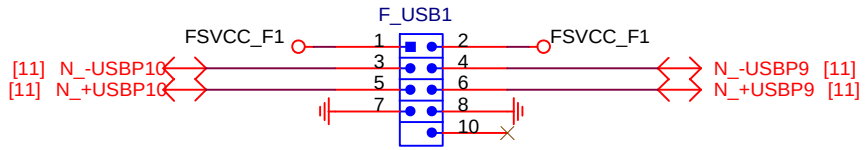
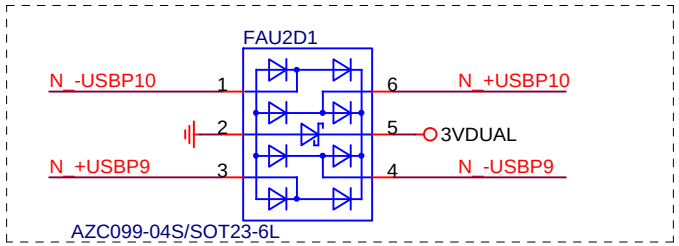
FRONT USB1

NET 可變

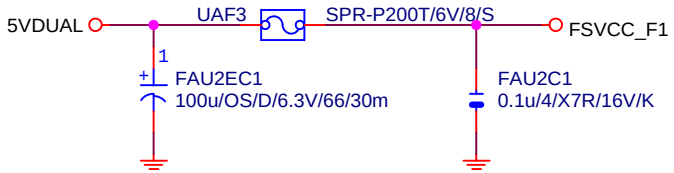
FUSB2X5-HS





Close to connector

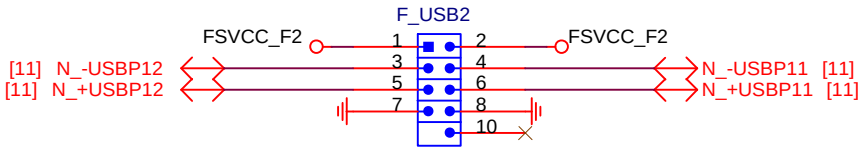
FUSE 2 Port 1 Fuse 2A

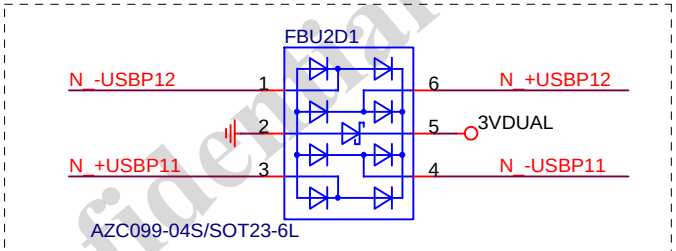


FRONT USB2

NET 可變

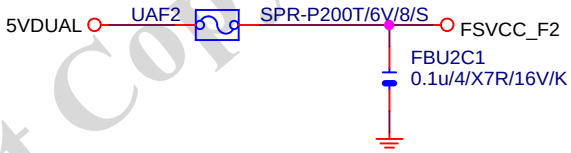
FUSB2X5-HS



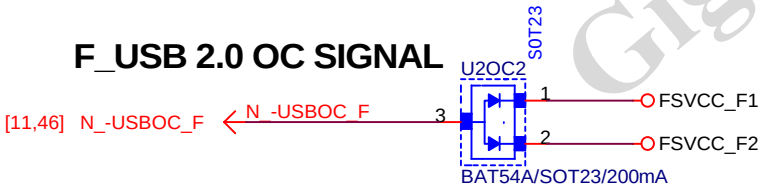


Close to connector

FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL



Gigabyte Technology		
Title: USB2.0		
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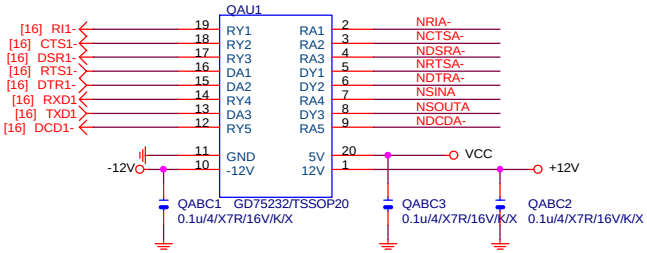
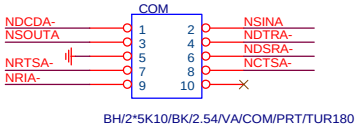
COM PORT

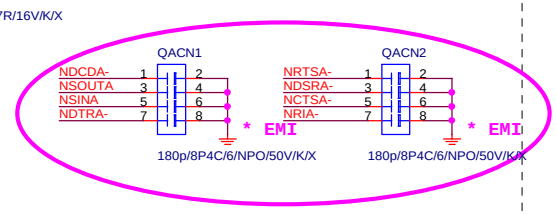
Rev: 0.7





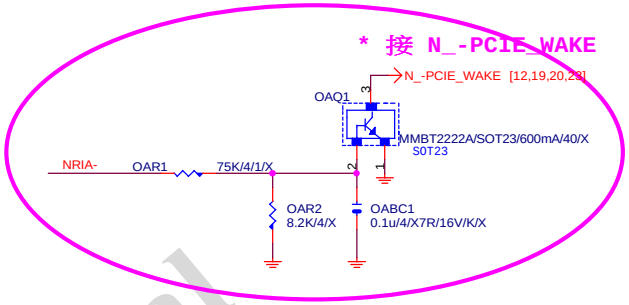
BH/2*5K10/BK/2.54/VA/COM/PRT/TUR180

F_COM-HS

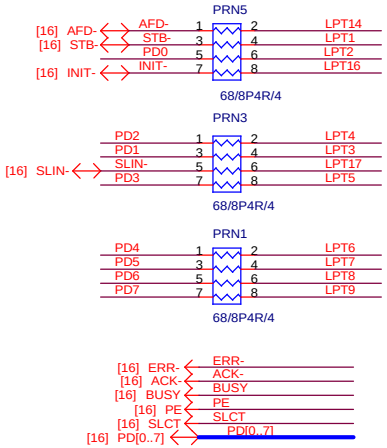


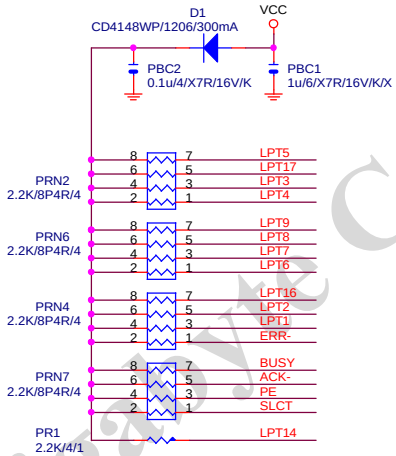
COM RI

N/A

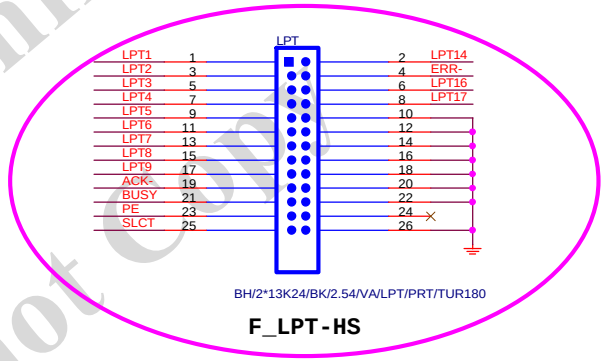


LPT PORT





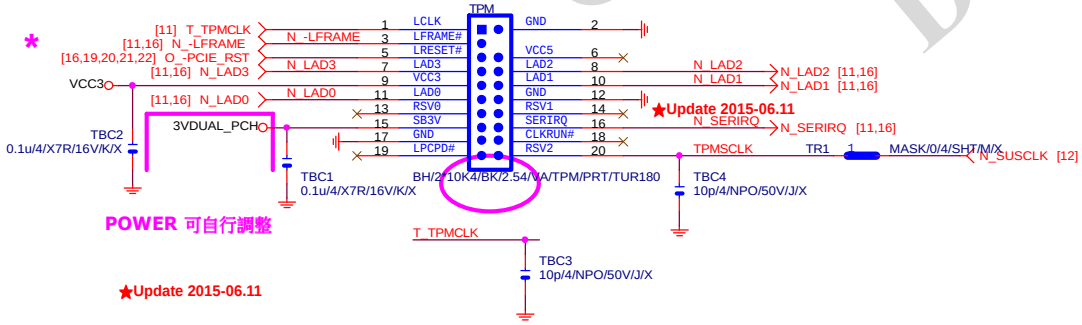
R&D技術通報151　有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R 。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。 串電阻33 ohm改為68 ohm。



BH/2*13K24/BK/2.54/VA/LPT/PRT/TUR180

F_LPT-HS

TPM CONNECT



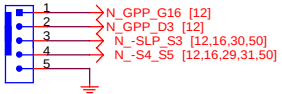
★Update 2015-06.11

POWER 可自行調整

★Update 2015-06.11

Thunderbolt

★Update 12-19



PH/1*5/BK/2.54/VA/D/[11NH5-010105-24R]

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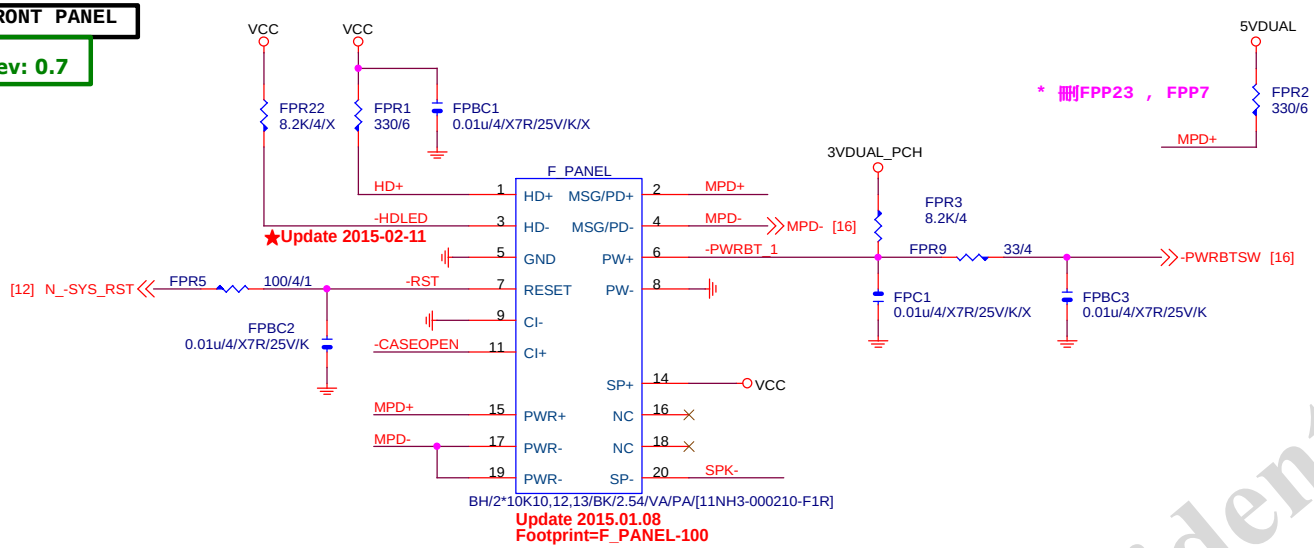
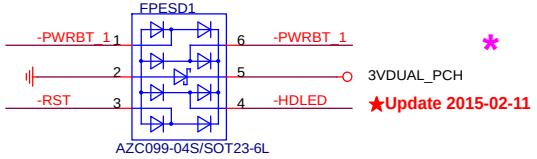
FRONT PANEL

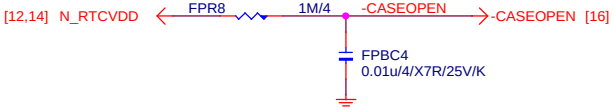
Rev: 0.7



ESD

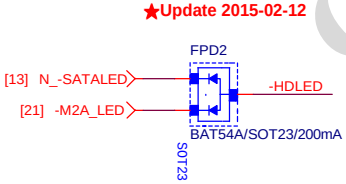


CASE OPEN

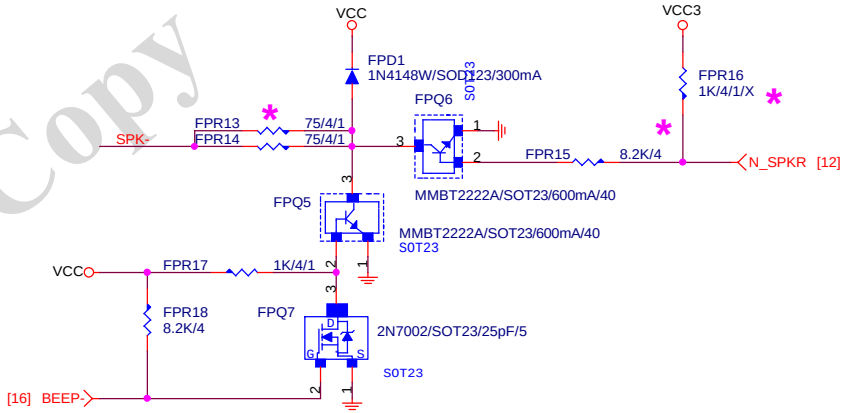


SATA LED

SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3_3



SPKR



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

Gigabyte Technology		
Title: FRONT PANEL		
Size: Custom	Document Number: GA-Z170M-D3H	Rev: 1.0
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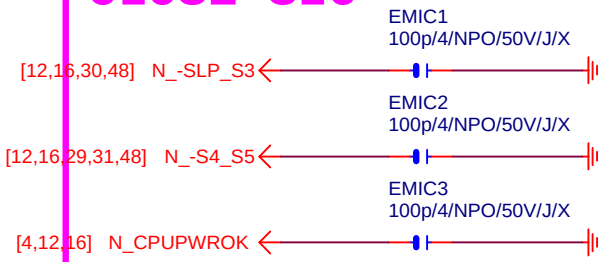
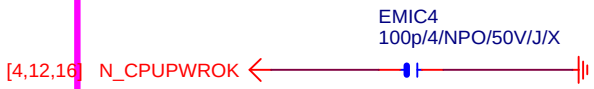
EMI/ESD R0.1

CLOSE SIO



CLOSE PCH



GIGABYTE™

Title: EMI/ESD		
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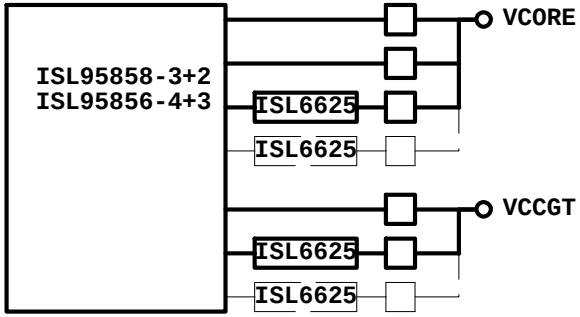
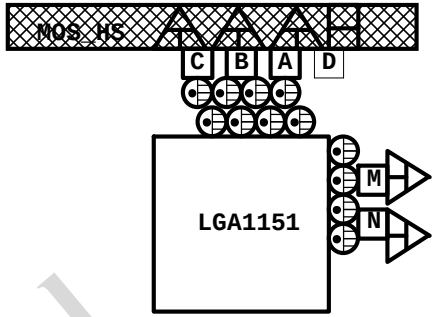
POWER BLOCK MAP

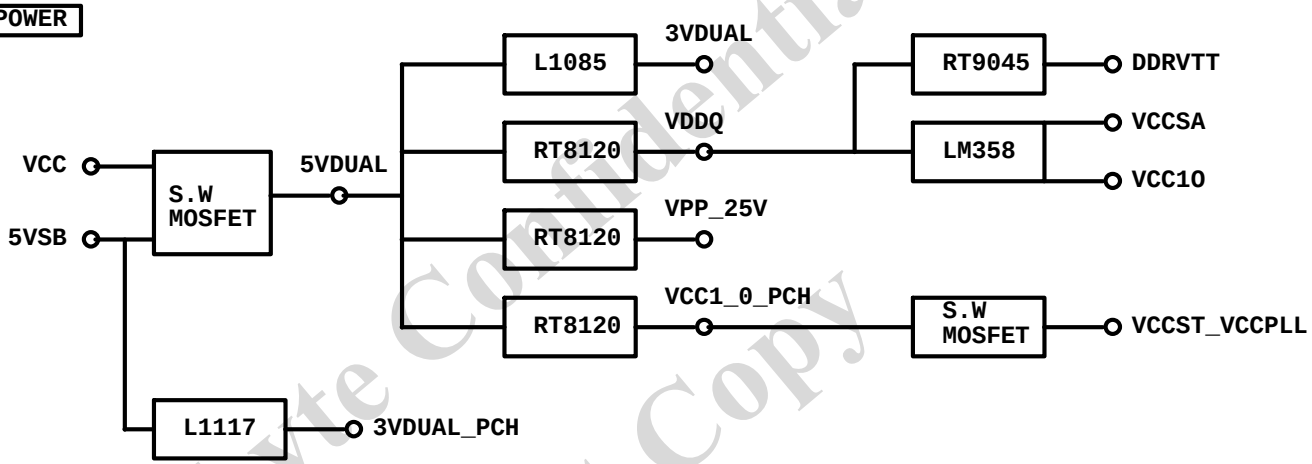
- CPU
  - VCORE
  - VCCGT
  - VCCSA
  - VCCIO
  - VDDQ
  - VCCST_VCCPLL
  - VCCSFUSEPRG
- DDR4
  - VDDQ
  - DDRVTT
  - VPP_25V
  - VDDSPD(VCC3)
- PCH
  - VCC1_0_PCH
  - VCC1_0_PCH_DSW
  - VCC10_VCCF24_1P0
  - VCC10_VCCAMPHYPLL
  - VCC10_VCCAPLL
  - VCC3_PCH
  - 3VDUAL_PCH
  - VCC3
  - N_RTCVDD
- IT8628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

VCORE/VCCGT

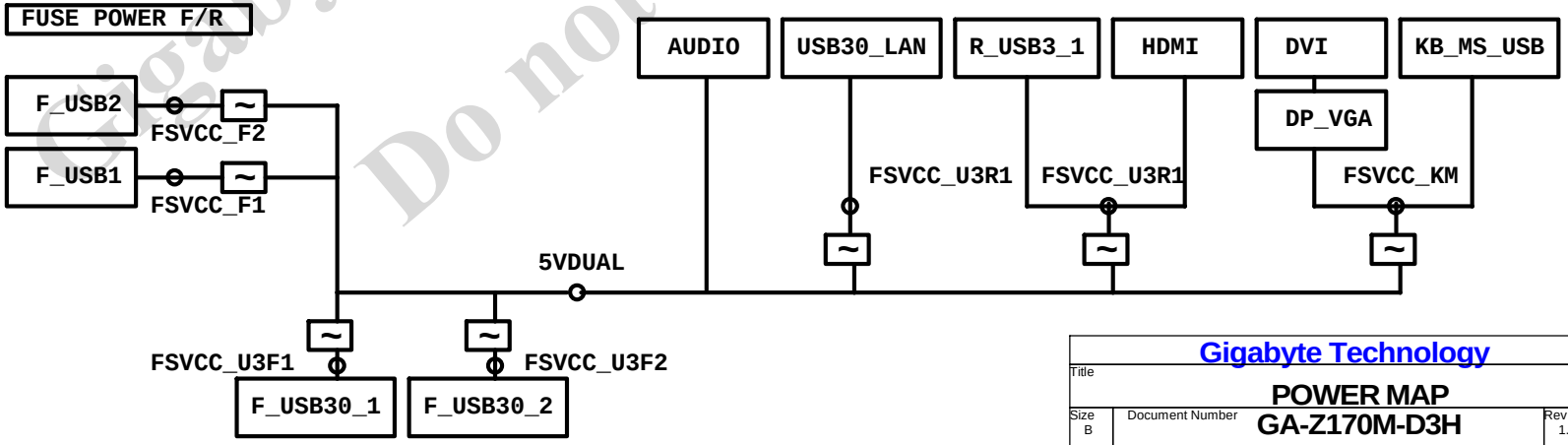




POWER



FUSE POWER F/R



Gigabyte Technology		
Title: POWER MAP		
Size: B	Document Number: GA-Z170M-D3H	Rev: 1.0
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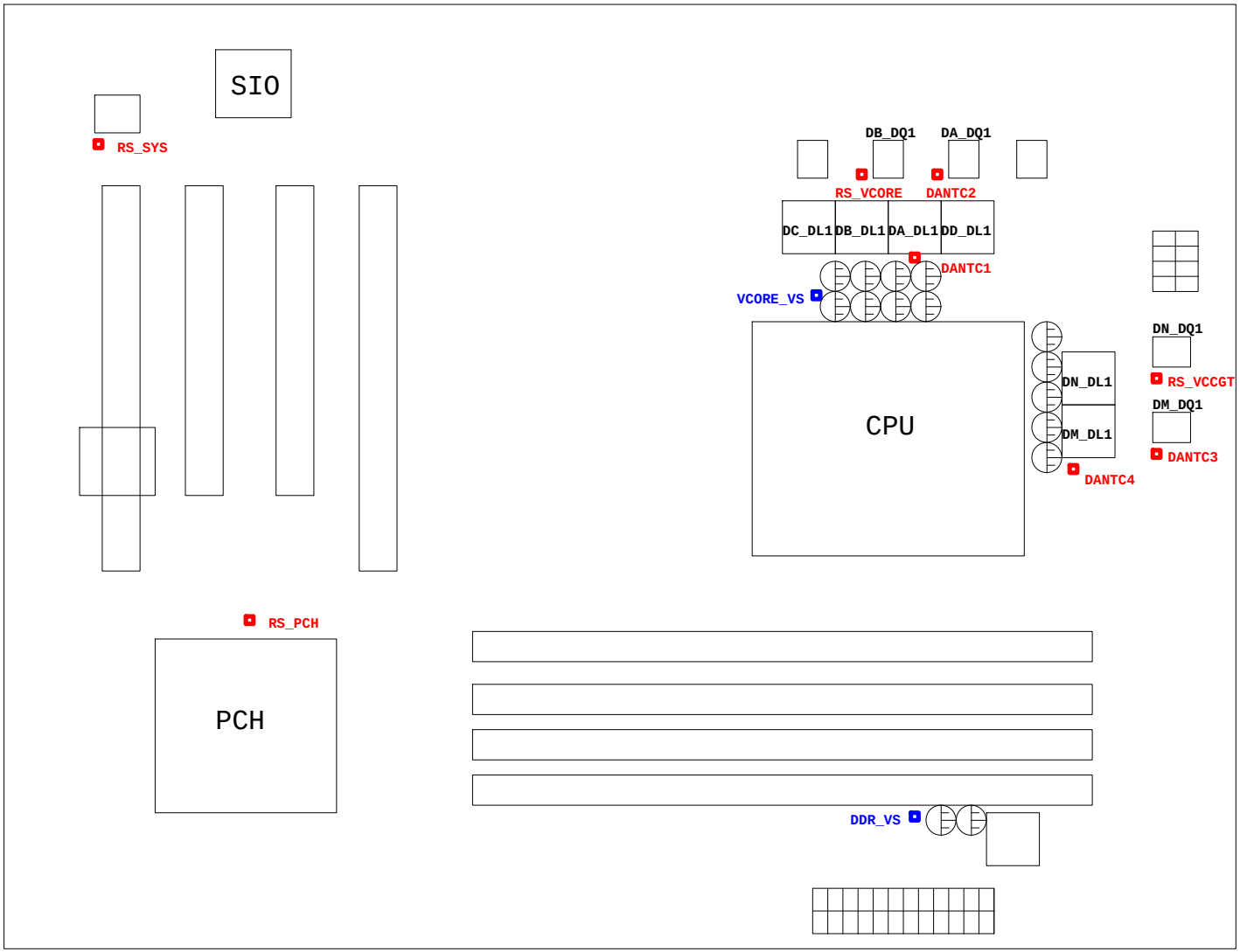

熱敏電阻	擺放靠近位置	走線方式
DANTC1	DA_DL1	N/A
DANTC2	DA_DQ1	Differential
DANTC3	DM_DQ1	N/A
DANTC4	DM_DL1	Differential
RS_VCORE	DB_DQ1	N/A
RS_VCCGT	DN_DQ1	N/A
RS_PCH	PCH	N/A
RS_SYS	CU1	N/A

Gigabyte Technology

Title: NTC MAP

Size: Custom | Document Number: GA-Z170M-D3H | Rev: 1.0

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