

Model Name: GA-Q170M-D3H-GSM 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	BIOS
16	ITE 8628 LPC IO
17	HWM
18	FAN CTRL--SIO
19	PCI EXPRESS*16 SLOT
20	PCI EXPRESS*4 SLOT(PCH)
21	PCI EXPRESS*1 SLOT
22	M.2X4
23	SATA EXPRESS
24	ASM1083 PCI BRIDGE
25	ASM1083 POWER
26	PCI SLOT 1
27	ISL95858 PWM-IRON
28	ISL95858 MOS_VCORE-IRON
29	ISL95858 MOS_VCCGT-IRON

SHEET

TITLE

30	VCCSA_VCCIO_VCCPLL
31	RT8120_DDR_VDDQ
32	RT8120_VPP25 POWER
33	RT8120_PCH-CHOKE
34	DISCRETE POWER
35	NCT3933
36	ATX POWER , A_-PROCHOT
37	KB_MS
38	DVI CONN
39	PTN3356 - DP to VGA - IC
40	PTN3356 - DP to VGA - Conn
41	HDMI CONN
42	Display Port
43	R_USB30x4
44	INTEL I219
45	USB LAN CONNECTOR-I219
46	Realtek ALC887
47	MONO SPKR
48	REAR AUDIO JACK
49	F_USB30
50	F_USB
51	COM , LPT , TPM , DEBUG
52	FP,SPK,BZ
53	EMI-ESD
54	POWER MAP
55	POWER零件使用表
56	TABLE LIST
57	NTC MAP

Gigabyte Technology

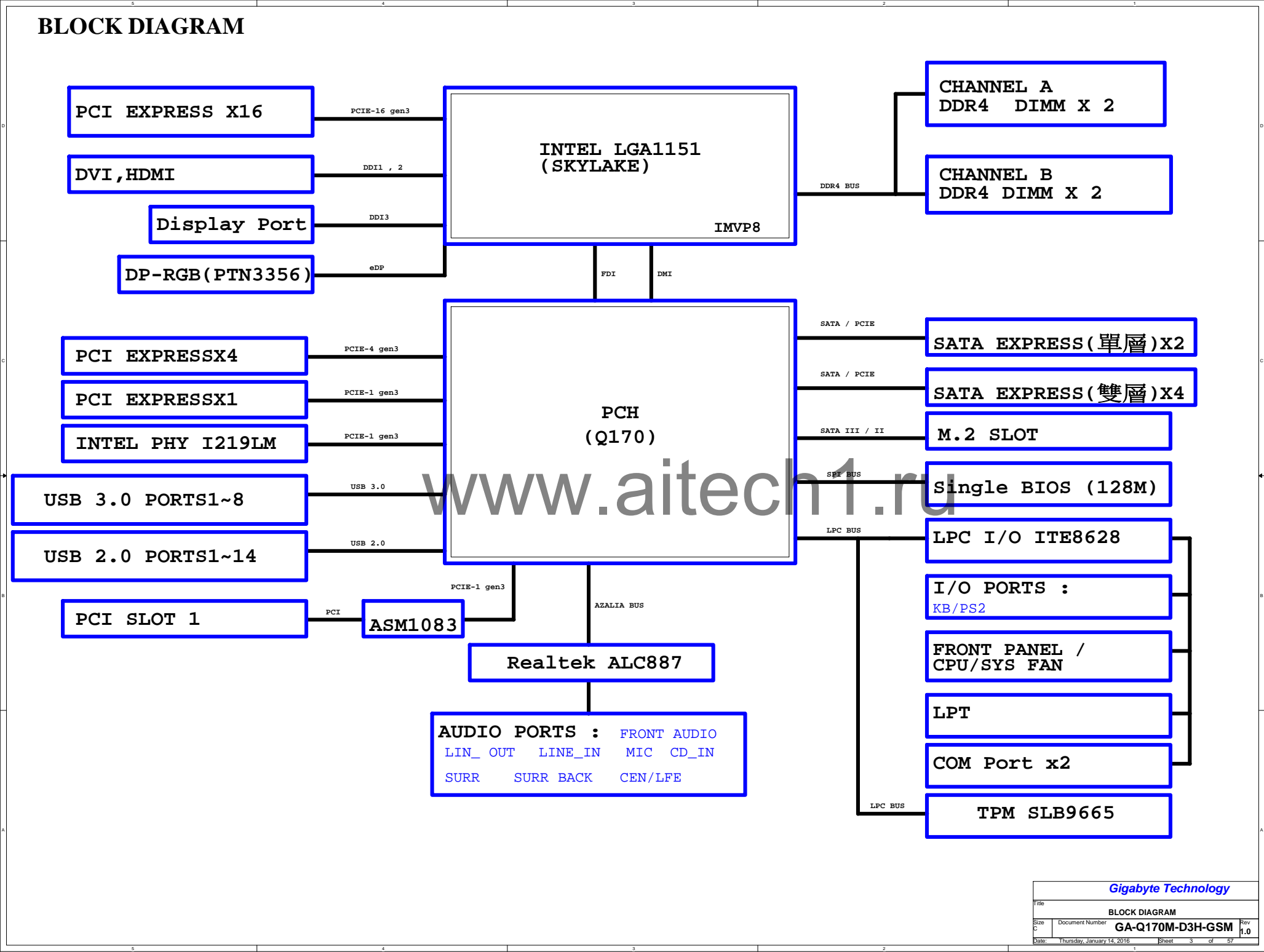
Title		
Cover Sheet		
Size	Document Number	Rev
Custom	GA-Q170M-D3H-GSM	1.0
Date:	Thursday, January 14, 2016	Sheet 1 of 57

Component value change history

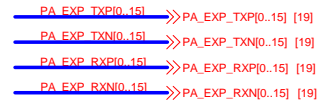
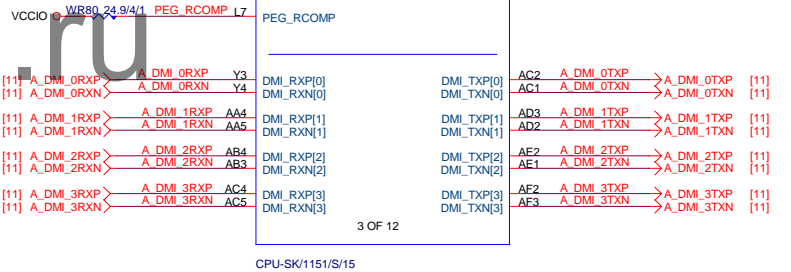
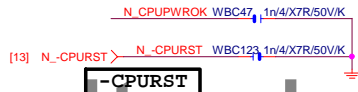
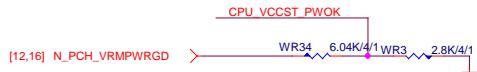
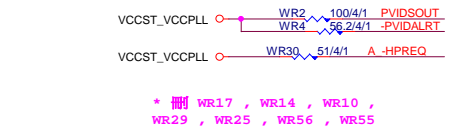
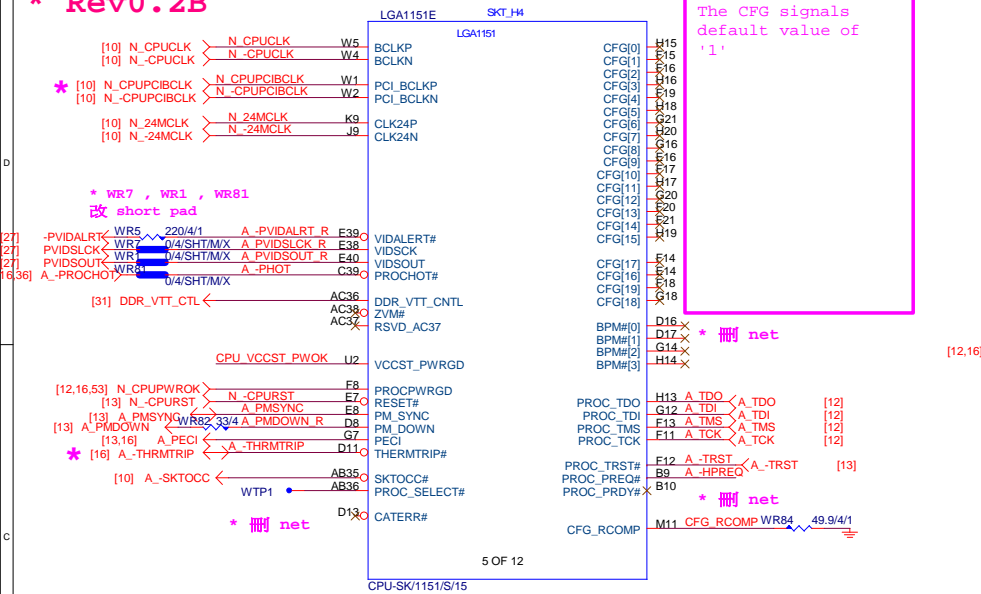
Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM



* Rev0.2B



```
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

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

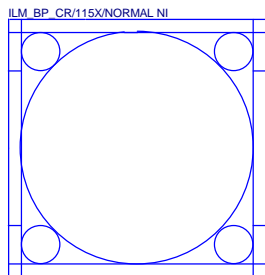
<i>Gigabyte Technology</i>			
Title			
CPU LGA1151-A			
Size Custom	Document Number		Rev
	GA-Q170M-D3H-GSM		1.0
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```
G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R
```

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

Impedance=85 +- 15%

* 改DDR4 net



Need check the new CPU ME

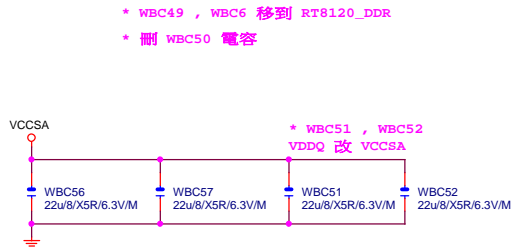
Diagram illustrating the mapping of 8-bit registers to 16-bit registers:

- MODT_A[0..3] maps to MDA[0..63]
- MODT_B[0..3] maps to MDB[0..63]
- M_DQSA[0..7] maps to M_DQSA[0..71]
- M_-DQSA[0..7] maps to M_-DQSA[0..71]

[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]

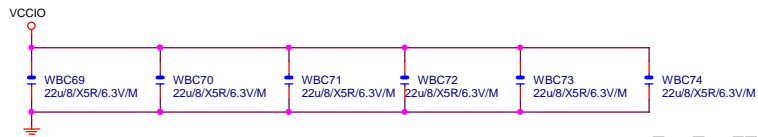
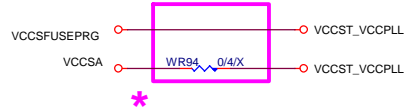
Gigabyte Technology

Title			
CPU LGA1151-B			
Size Custom	Document Number		Rev
	GA-Q170M-D3H-GSM		1.0
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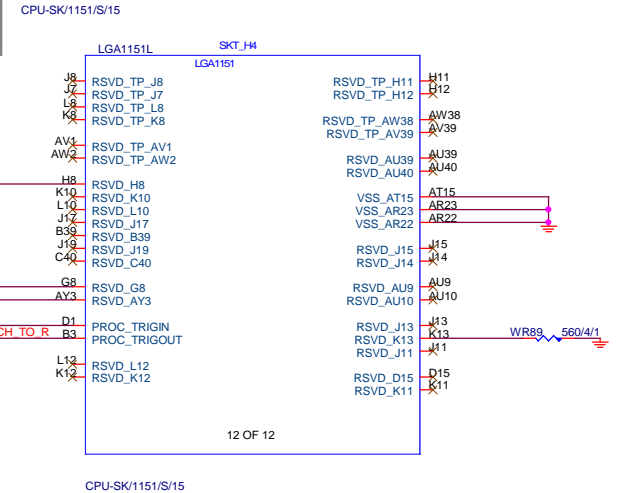
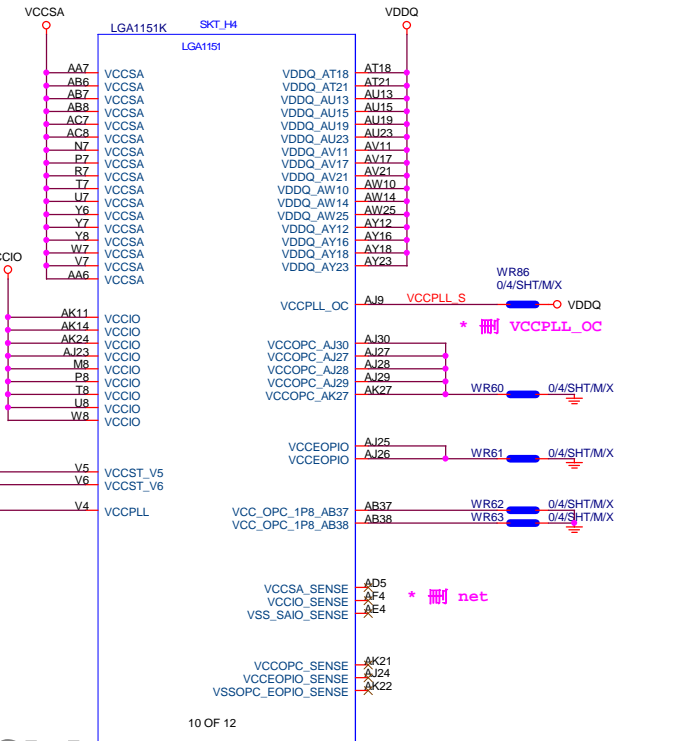
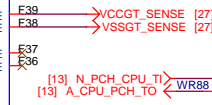
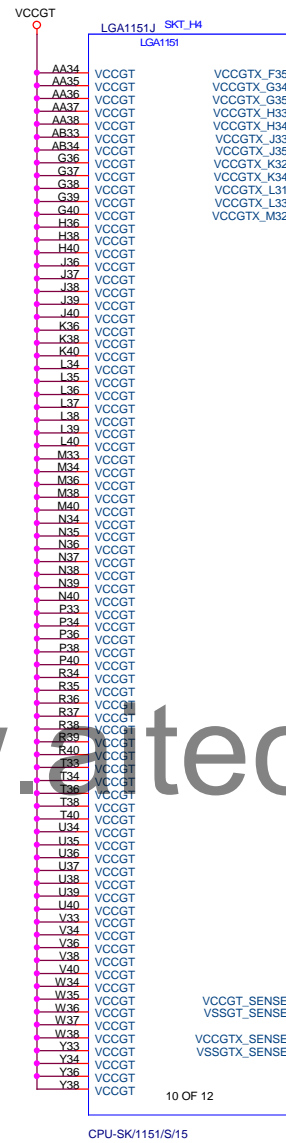


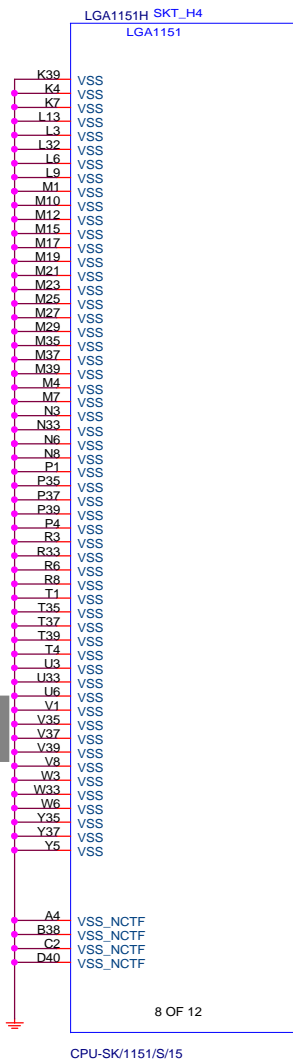
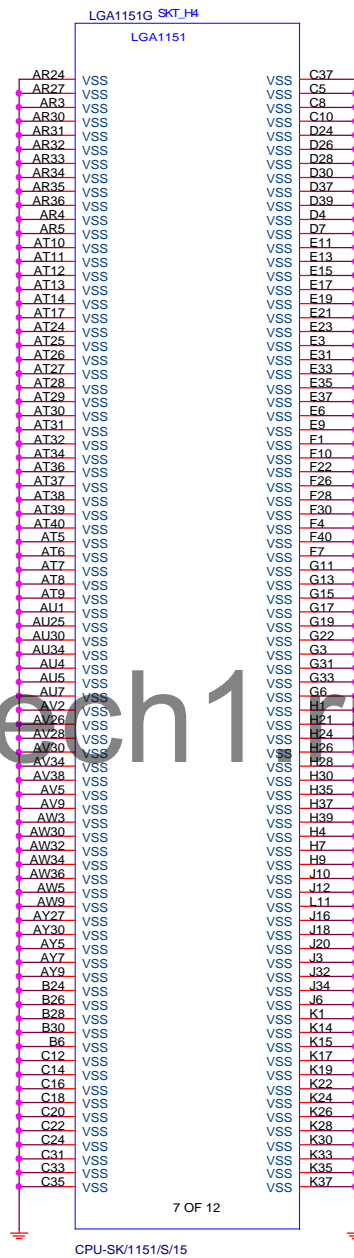
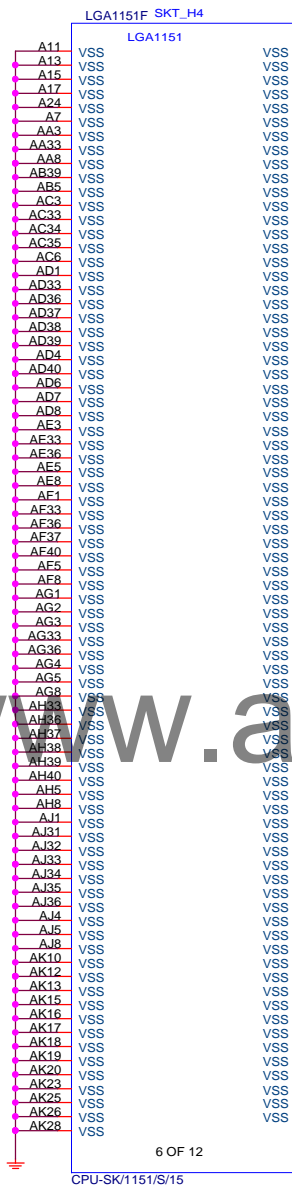
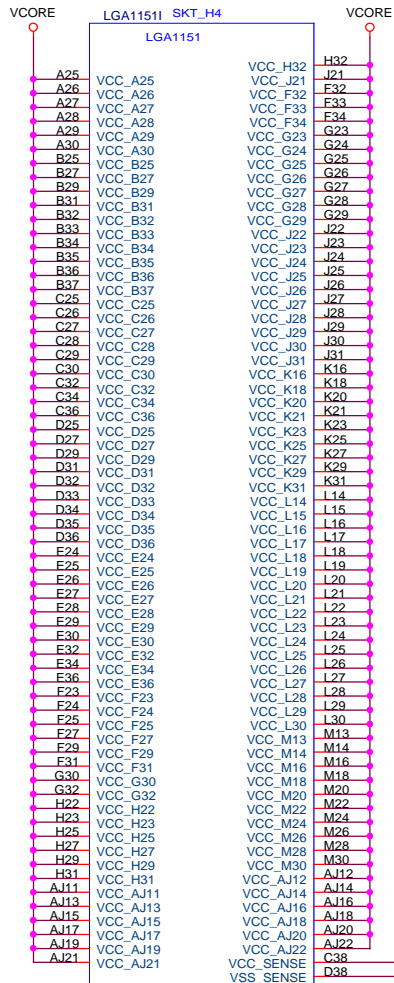
* 刪 WBC124 , WBC125 , WBC126 , WBC127 電容

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

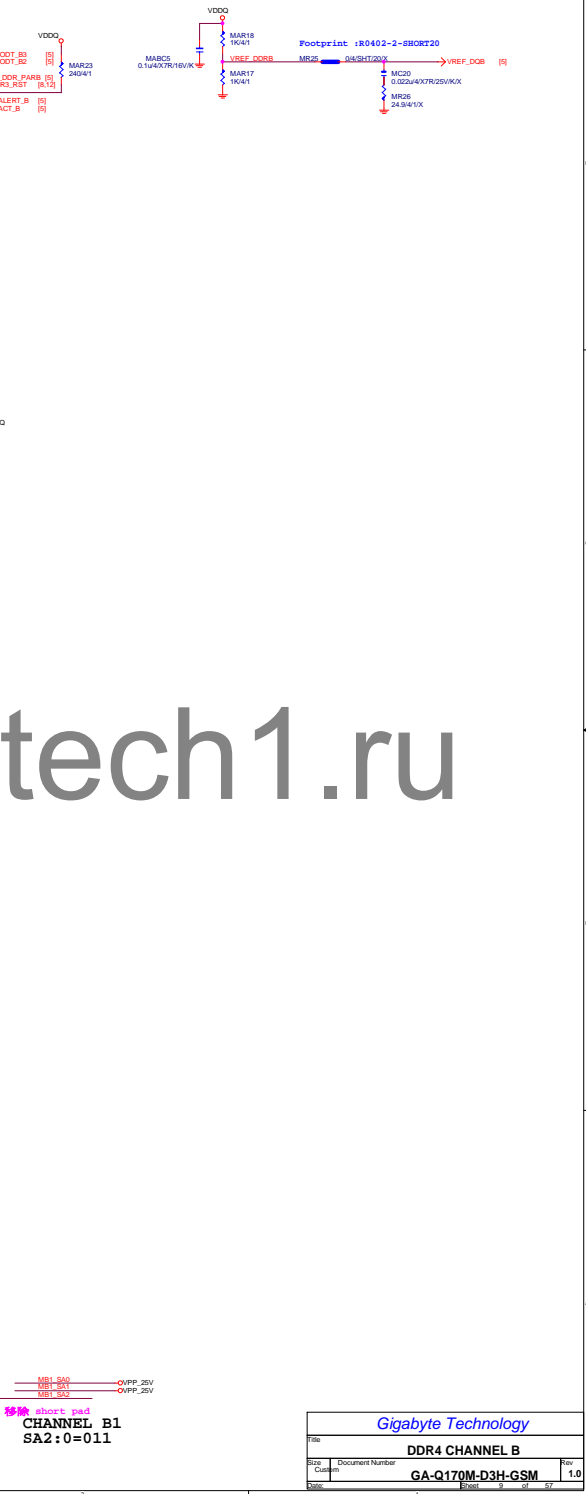
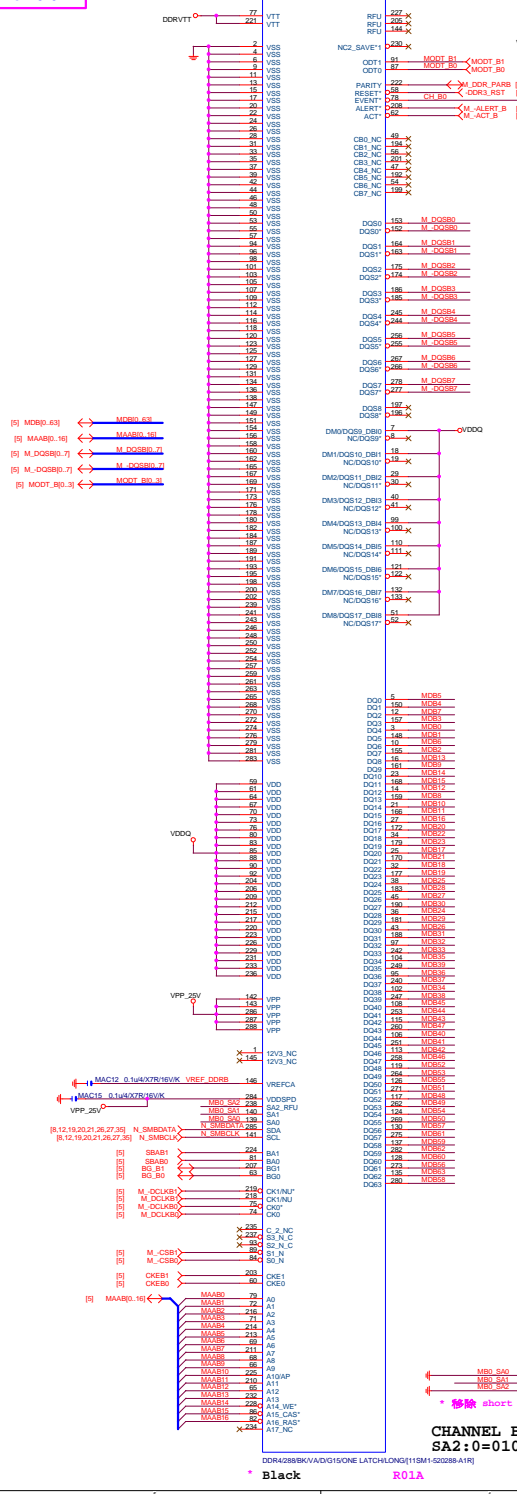


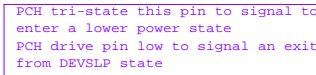
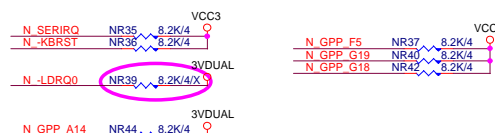
* 刪 VCCGT 電容



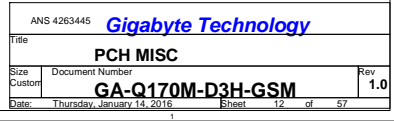


* 刪 Vcore 電容

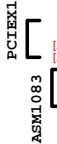




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Rev 0.7

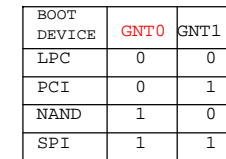


C1/D1 公版NC pin¹³

```
1: SATA (STandard)
0: SATA EXPRESS
```

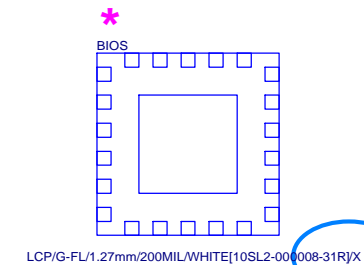
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```
1 means floating
0 means PD 1K
```

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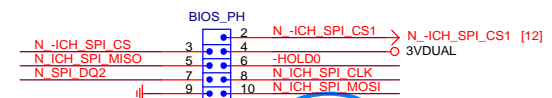


* 試產先上，PVT 移除

BIOS_PH

PVT
改FOOTPRINT 為"BIOS2X5-RH-1-MASK"

★Update
2015-01.29



Footprint the same, confirmed by Graceing.

Use COM port pin header part.

* 試產先上 , PVT mask

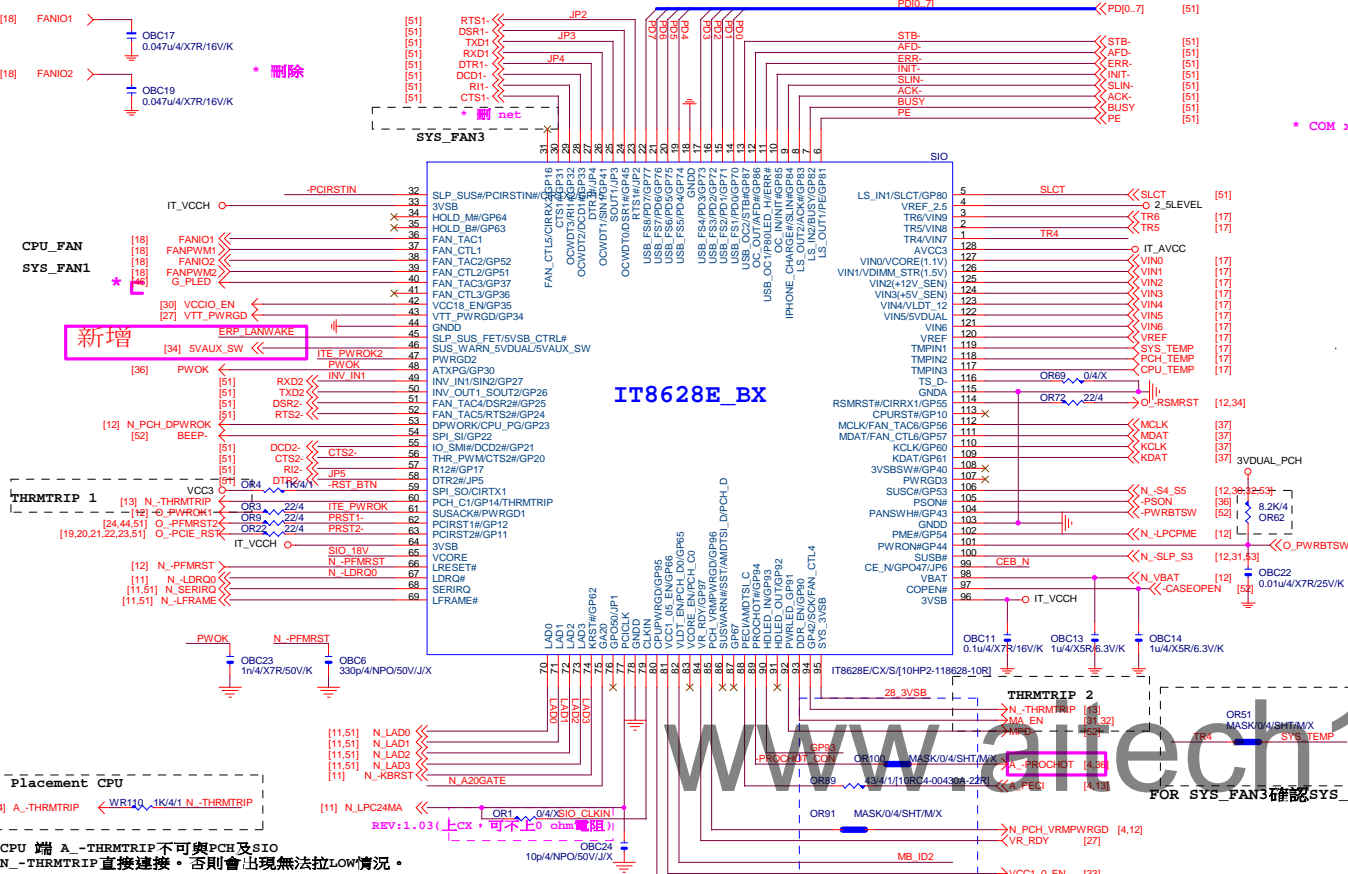
Gigabyte Technology

Title	BIOS
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Size	Document Number	GA-Q170M-D3H-GSM	Rev
Custom			

Date: Thursday, January 14, 2016 Sheet 15 of 57

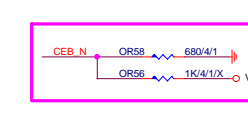
SIO IT8628BX REV:1.08



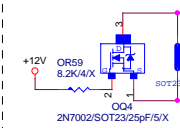
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL5 FAN_TAC5
OPT FAN or SYS_FAN4	N/A
THRMTrip1	YES PIN60
THRMTrip2	YES PIN94

IT8628BX GPIO問題匯整	
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	PIN23, 需高於3V, 若低於 該部分COM PORT及LPT將會 跳碼或會異常動作。

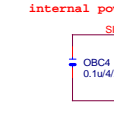
DUAL BIOS OPT STRAP



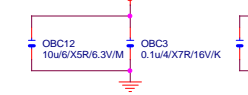
Power leakage



SIO_18V



SIO CAP



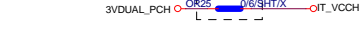
Power leakage



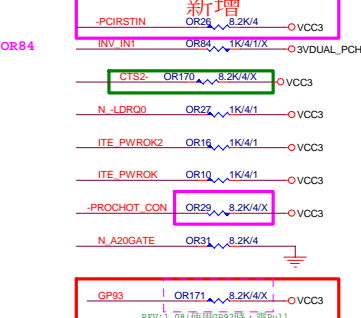
SIO_18V



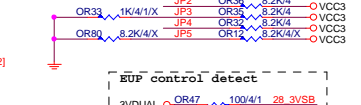
PWR SHT



SIO PU

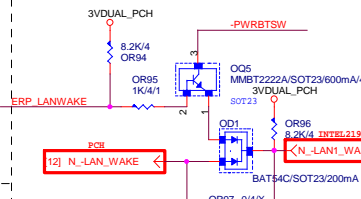


SIO STRAP



JP2	1	Disable WDT
JP2	0	Enable WDT to rest PWR0K
JP3	1	SPI-Flash Disable
JP3	0	SPI-Flash 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.
JP5	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.

Intel LAN



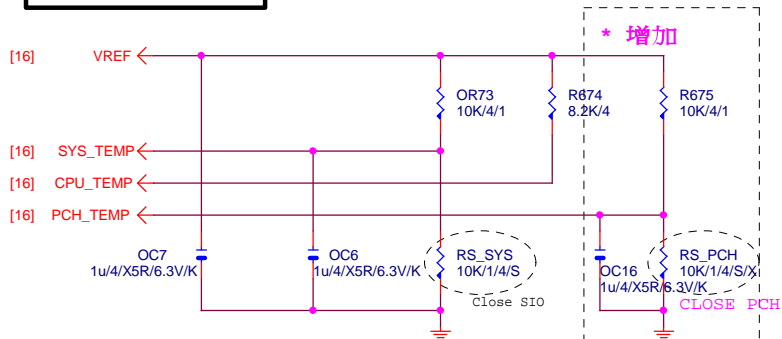
ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	組態二
	Intel 219	組態三
Dual LAN	Atheros+Atheros	組態一
	Intel 219+Atheros	組態二
	Intel 219+Intel 210	組態三
No Support ERP	BOM不上	N/A

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Title		ITE 8628 LPC IO
Size	Document Number	GA-Q170M-D3H-GSM
Custom		
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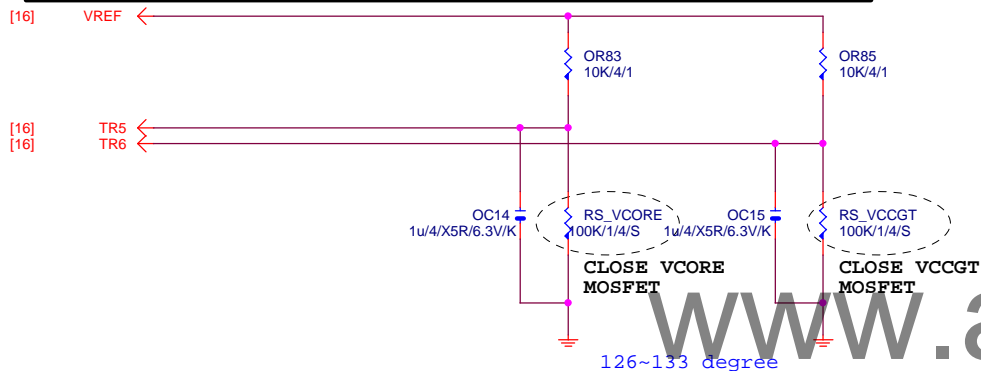
TEMP H/W MONITOR

REV:1.08



RS_VCORE, RS_VCCGT, CLOSE CPU_VCORE & VCCGT MOSFET

~~PROCHOT: 有mos heartsink 不用prochot function~~

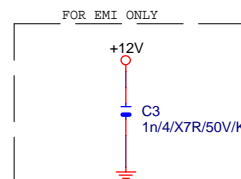
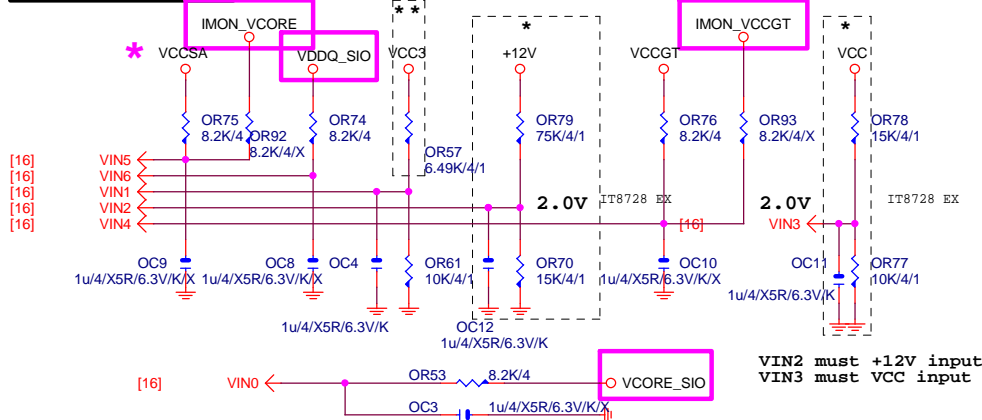


VOLTAGE-- H/W MONITOR

Connect to PWM

* IT8728 BX
** IT8728 CX

Connect to PWM

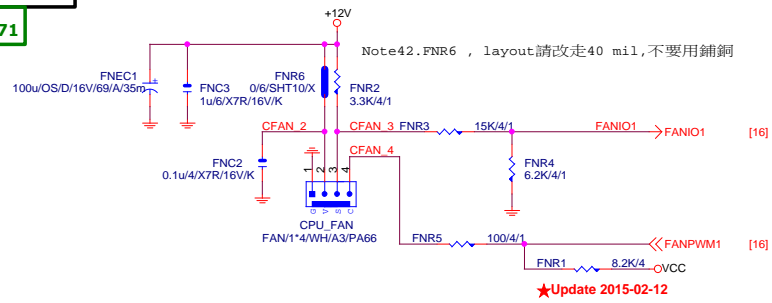


Gigabyte Technology

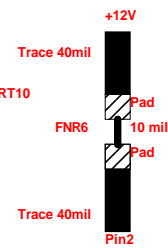
Title			HWM,KB/MS, FAN CTRL		
Size	Document Number				Rev
Custom	GA-Q170M-D3H-GSM				1.0
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CPU SMART FAN

Rev: 0.71

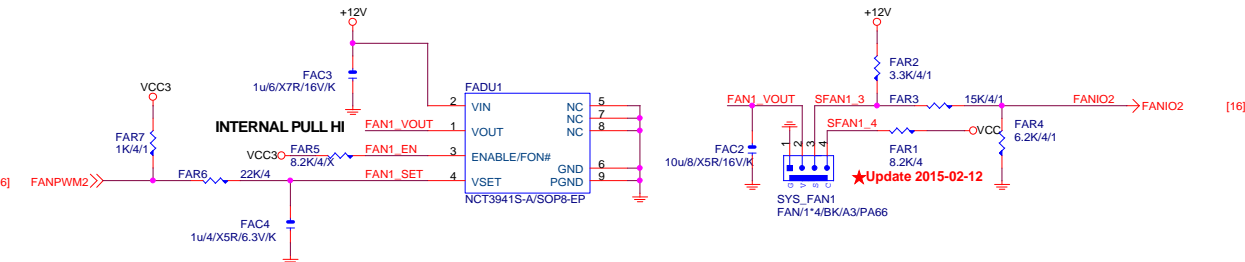


★Update 2015-04.30 FNR6
footprint: FUSE-0603-SHORT10



SYSTEM FAN1

A.
Linear SYS_FAN
Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)



SYSTEM FAN2

B.

SYSTEM FAN3

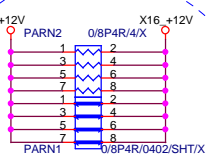
C.

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Title			FAN CTRL
Size	Document Number	Rev	
Custom	GA-Q170M-D3H-GSM	1.0	
Date:	Thursday, January 14, 2016	Sheet	18 of 57

Rev 0.2

+12V_protect
short-wire test

PA_EXP_RXP0_15] >> PA_EXP_RXP0[0..15] [4]
 PA_EXP_RXN0_15] >> PA_EXP_RXN0[0..15] [4]
 PA_EXP_TXP0_15] >> PA_EXP_TXP0[0..15] [4]
 PA_EXP_TXN0_15] >> PA_EXP_TXN0[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

PCIEX16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

PCI-E REV:2.0--> 5GHZ

Footprint : PCIESLOT-164P

3GIO_*16

[8,9,12,20,21,26,27,35] N_SMBCLK
[8,9,12,20,21,26,27,35] N_SMBDATA

[12,20,21,24,51] N_-PCIE_WAKE

[10] -PCIEX16_PR

PA_EXP_TXP1 C

PA_EXP_TXN1 C

PA_EXP_TXP2 C

PA_EXP_TXN2 C

PA_EXP_TXP3 C

PA_EXP_TXN3 C

PA_EXP_TXP4 C

PA_EXP_TXN4 C

PA_EXP_TXP5 C

PA_EXP_TXN5 C

PA_EXP_TXP6 C

PA_EXP_TXN6 C

PA_EXP_TXP7 C

PA_EXP_TXN7 C

PA_EXP_TXP8 C

PA_EXP_TXN8 C

PA_EXP_TXP9 C

PA_EXP_TXN9 C

PA_EXP_TXP10 C

PA_EXP_TXN10 C

PA_EXP_TXP11 C

PA_EXP_TXN11 C

PA_EXP_TXP12 C

PA_EXP_TXN12 C

PA_EXP_TXP13 C

PA_EXP_TXN13 C

PA_EXP_TXP14 C

PA_EXP_TXN14 C

PA_EXP_TXP15 C

PA_EXP_TXN15 C

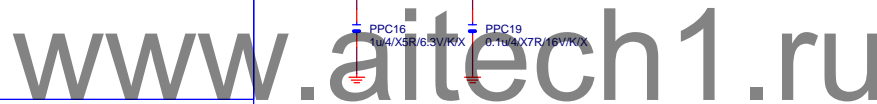
PCI-E/16X-164P/GY/LONG DOUBLE/HK*2

R01A

Gigabyte Technology		
Title		
PCI EXPRESS * 16		
Size	Document Number	Rev
Custom	GA-Q170M-D3H-GSM	1.0
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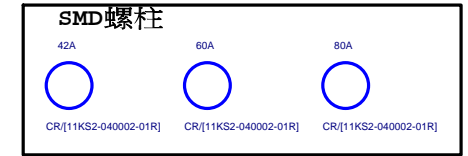
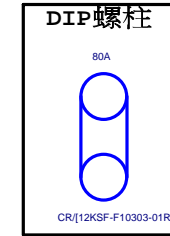
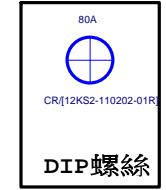
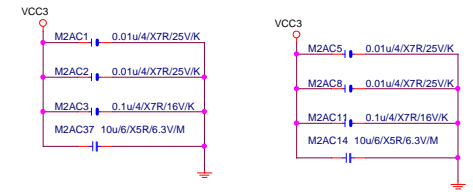
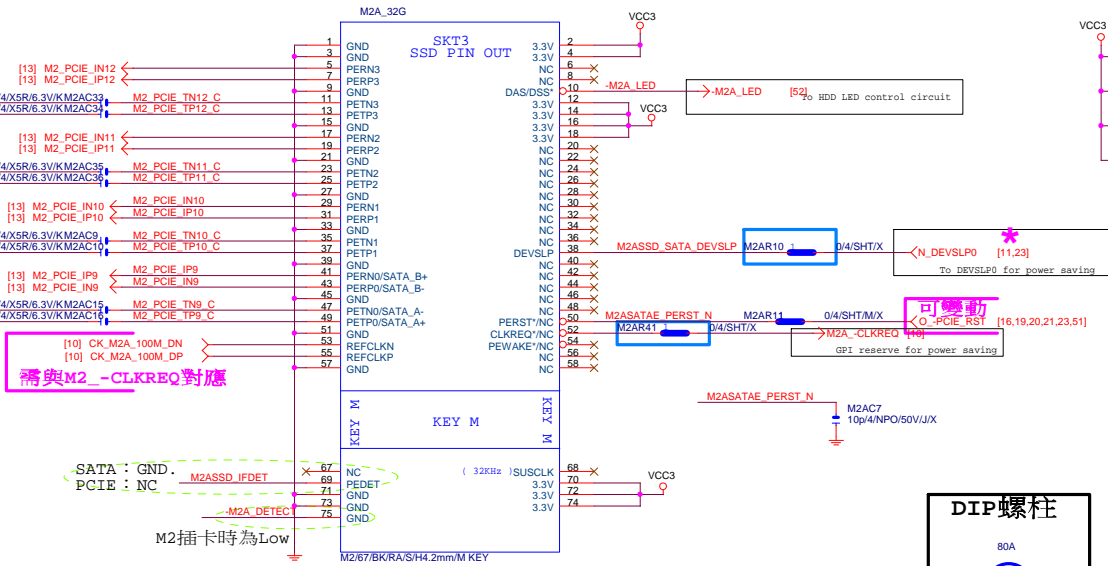
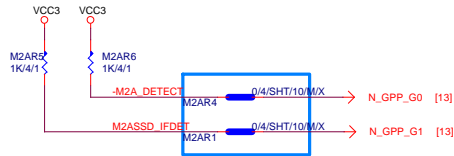
PCIE*4

3GIO_*4



Title			
PCIE X4			
Size	Document Number	Rev	
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支援SATA and M.2 function



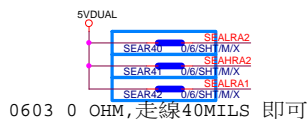
M.2 有插卡 /沒插卡 GPP_G0	M.2插何種卡？ GPP_G1	SATA Express 插何種硬碟？ GPP_E0/E2/F1	I015 (S0)	I016 (S1)	I017	I018	I019 (S0)	I020 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)	PCIE 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	

Rev 0.6

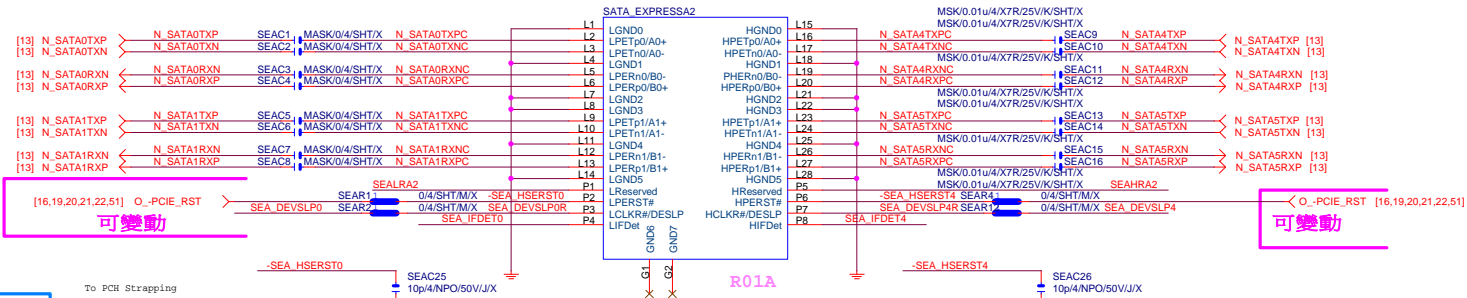
DUAL LAYOUT(Z170/H170~ONLY SATA4,5)

SATA EXPRESS 下層 To SATA3
port0/1

SATA EXPRESS 上層 To SATA3
port4/5



0603 0 OHM,走線40MILS 即可



R01A

Capture Value 用上層封孔暫代

```
* check
文字面 01/23/45
NET (45/23/01)
```

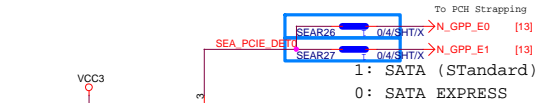
SATA EXPRESS料號

Z170雙層:TBD

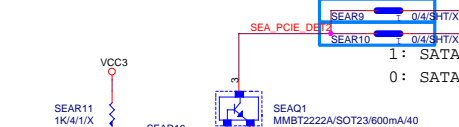
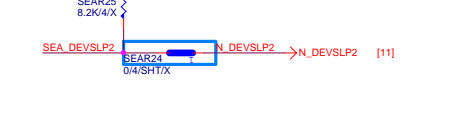
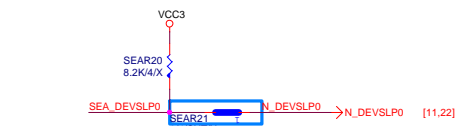
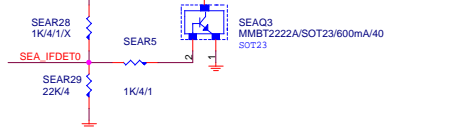
H170單層+2SATA:11NR6-C10236-03R

單層:11NR6-C10118-03R

To SATA3
port2/3



```
1: SATA (STandard)
0: SATA EXPRESS
```



[13]	N_SATA2TXP	>	N_SATA2TXP	SEA01	MASK004/SHTX	-	N_SATA2TXP	L2	IGND0
[13]	N_SATA2RXN	>	N_SATA2RXN	SEA18	MASK004/SHTX	-	N_SATA2TXP	L3	IGND0
[13]	N_SATA2RXN	>	N_SATA2RXN	SEA01	MASK004/SHTX	-	N_SATA2RXNG	L4	IGND0
[13]	N_SATA2RXN	>	N_SATA2RXN	SEA01	MASK004/SHTX	-	N_SATA2RXNG	L5	IGND0
[13]	N_SATA2RXN	>	N_SATA2RXN	SEA01	MASK004/SHTX	-	N_SATA2RXNG	L6	IGND0
[13]	N_SATA3TXP	>	N_SATA3TXP	SEA01	MASK004/SHTX	-	N_SATA3TXP	L7	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L8	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L9	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L10	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L11	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L12	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L13	IGND0
[13]	N_SATA3TXN	>	N_SATA3TXN	SEA01	MASK004/SHTX	-	N_SATA3TXP	L14	IGND0
[16,19,20,21,22,51]	O_...PCIe_IST	>	SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P1	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P2	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P3	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P4	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P5	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P6	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P7	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P8	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P9	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P10	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P11	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P12	Reserved
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			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P25	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P26	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P27	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P28	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P29	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P30	Reserved
			SEA_DEVSLP2SEA01	SEA18	MASK004/SHTX	-	SEA_HSERST2	P31	

可變動

-SEA_HSERST2

SEAC27
10p/4/NPO/50V/J/X

SATA EXPRESS/18P/BK/H/RA/D/GF/1/[11NR6-C10118-31R]::SATA_EXPRESSA1

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

SATA EXPRESS 訊號

SATA EXPRESS 文字面

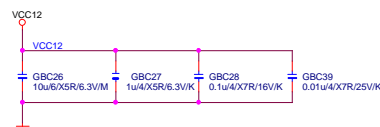
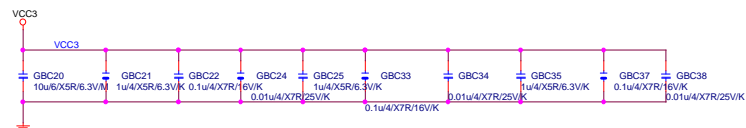
	SATA 5	SATA 4			
	SATA 1	SATA 0		SATA 3	SATA 2

	SATA 3	SATA 2			
	SATA 5	SATA 4		SATA 1	SATA

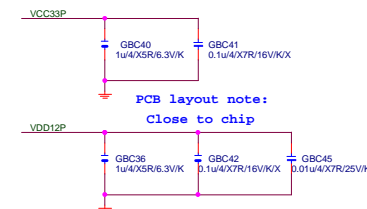
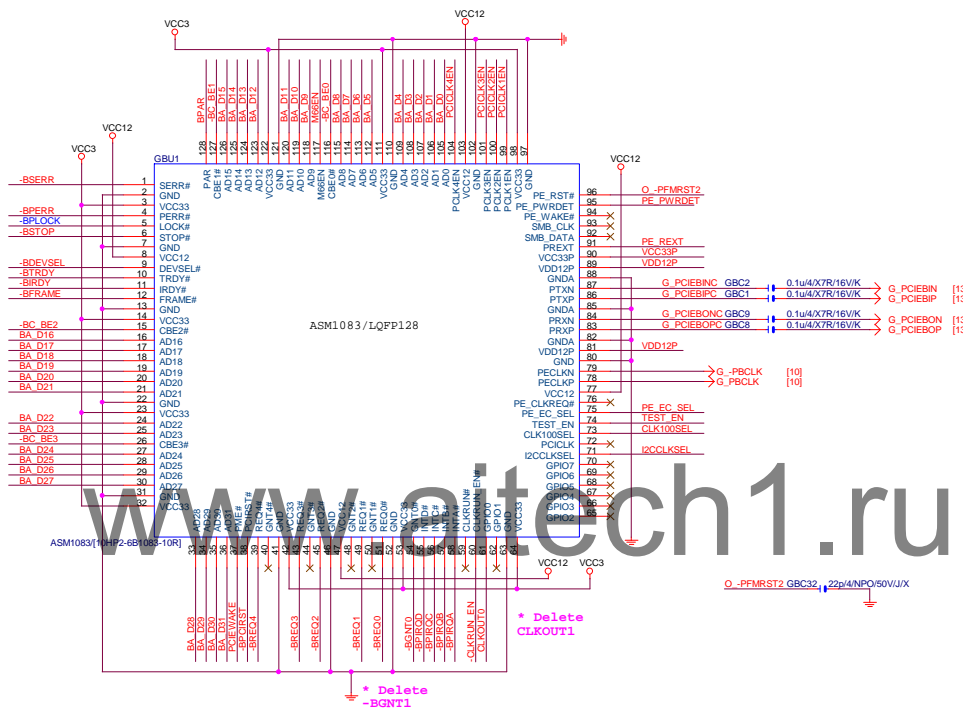
文字面要寫建議 user使用順序
SATA : 2->5->1->4->3->0

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)

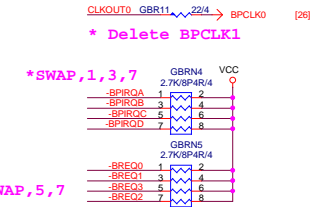
<i>Gigabyte Technology</i>			
SATA EXPRESS			
Size Custom	Document Number GA-Q170M-D3H-GSM		Rev 1.0
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BA D10_311 → BA_D[0..31] [26]
 -BC BE0 [26]
 -BC BE1 [26]
 -BC BE2 [26]
 -BC BE3 [26]
 -BPERR -BSERR [26]
 -BPAR [26]
 -BPLOCK -BPLOCK [26]
 -BDEVSEL -BDEVSEL [26]
 -BSTOP -BSTOP [26]
 -BTRDY -BTRDY [26]
 -BIRDY -BIRDY [26]
 -BFRAME -BFRAME [26]
 O_PFMIRST2 [16,44,51]
 -BPCIRST -BPCIRST [26]
 -BREQ0 -BREQ0 [26]
 * Delete -BREQ1
 -BGNT0 -BGNT0 [26]
 * Delete -BGNT1
 -BPIRQA -BPIRQA [26]
 -BPIRQB -BPIRQB [26]
 -BPIRQC -BPIRQC [26]
 -BPIRQD -BPIRQD [26]



PCB layout note:
Close to chip



* Delete BPCLK1

* SWAP, 1, 3, 7

* SWAP, 1, 3, 5, 7

* SWAP, 5, 7

* SWAP, 5, 7

CLK100SEL Strapping Set

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

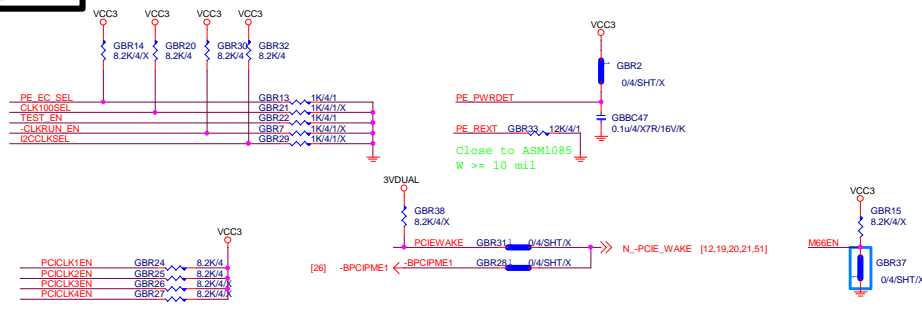
PE_EC_SEL-
 "H" for Express Card mode
 "L" for PCIe Riser Card mode

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

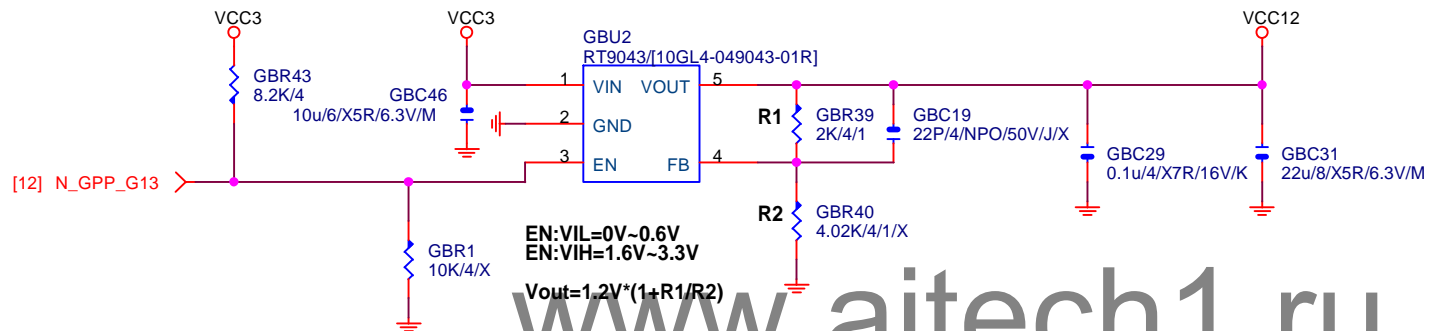
TEST_EN-
 "H" for Test Mode Enable
 "L" for Test Mode Disable

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

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



Rev 0.9



Gigabyte Technology

Title

ASM1083 POWER

Size
Custom

Document Number

GA-Q170M-D3H-GSM

Rev
1.0

Date: Thursday, January 14, 2016

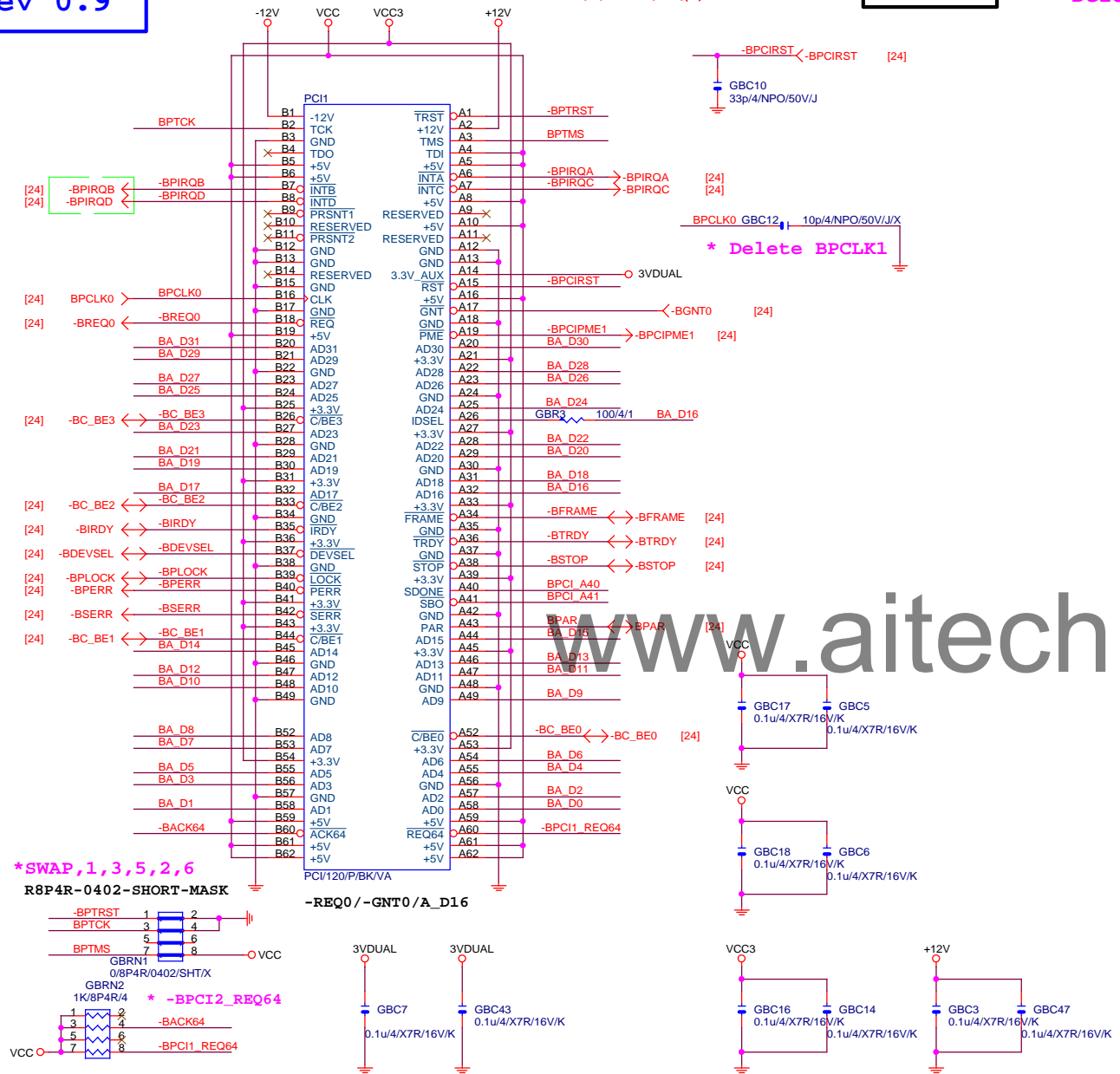
Sheet 25 of 57

Rev 0.9

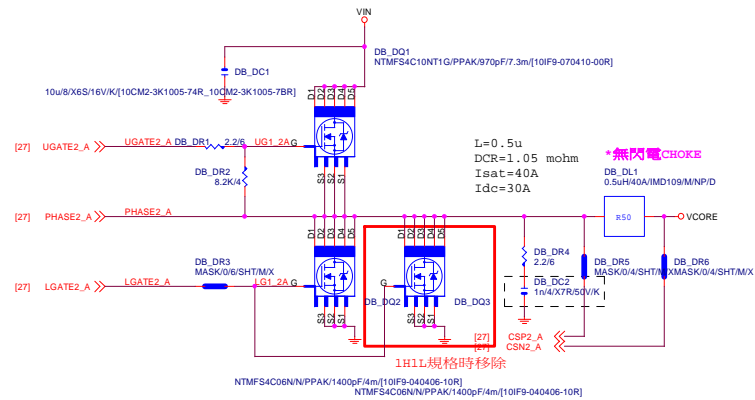
PCI SLOT 1

PCI SLOT 2

* Delete PCI2



VCORE *限用ON MOS



● **無閃電CHOKE**

DAL1
0.5uH/40A/MD109/MNP/D

V12

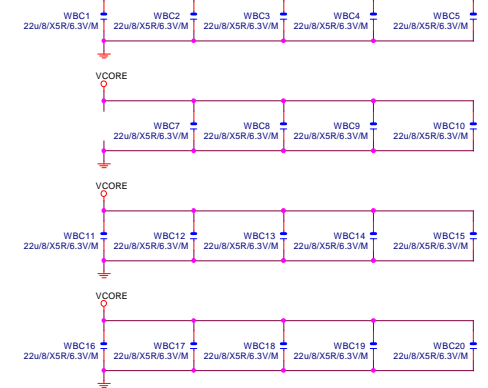
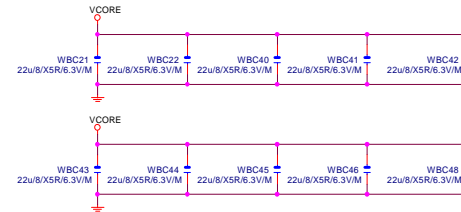
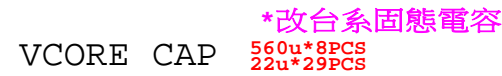
R50

DAC36
1u8/R7R16V/K

VIN

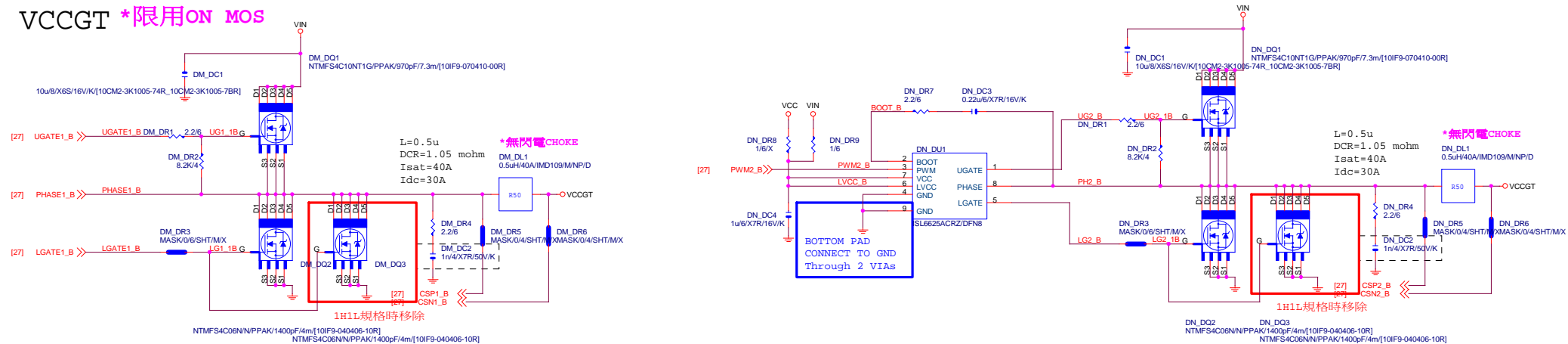
1 1 1 1
DAEC14 DAEC15 DAEC16

270uF/PP/D/16V/8C/A/10m
270uF/PP/D/16V/8C/A/10m
270uF/PP/D/16V/8C/A/10m

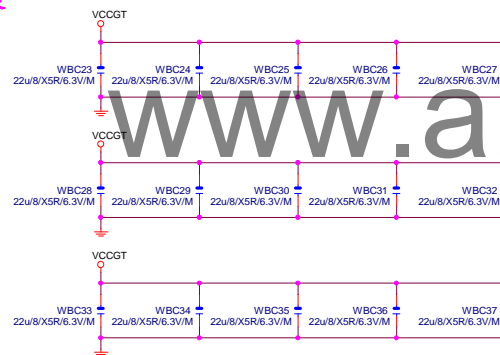
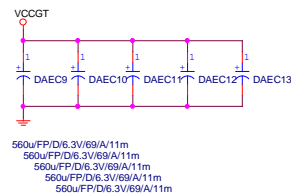
**GIGABYTE™**

Title			
ISL95858_MOS			
Size	Document Number	Rev	
Custom	GA-Q170M-D3H-GSM	1.0	
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VCCGT *限用ON MOS



VCCGT CAP *改台系固態電容



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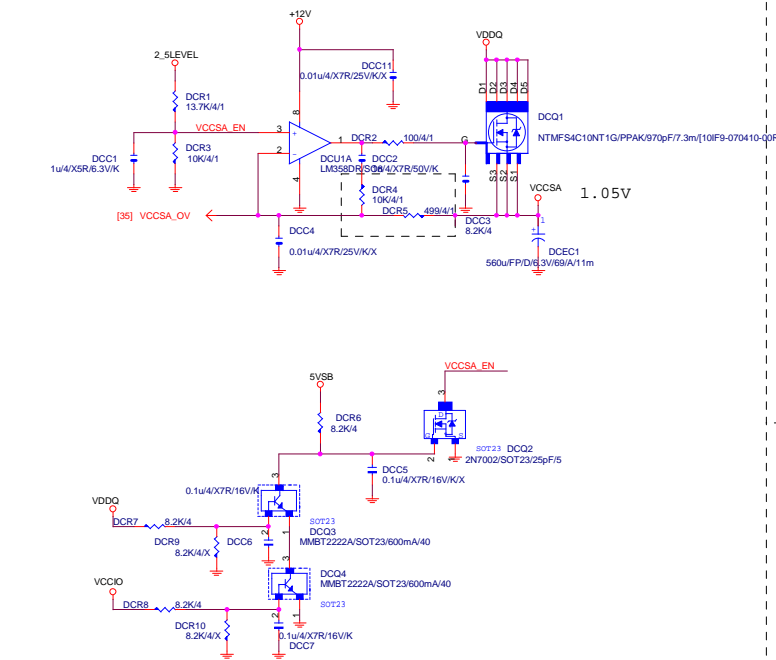
GIGABYTE™

Title		
ISL95858 MOS		
Size	Document Number	Rev
Custom	GA-Q170M-D3H-GSM	1.0
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VCCSA

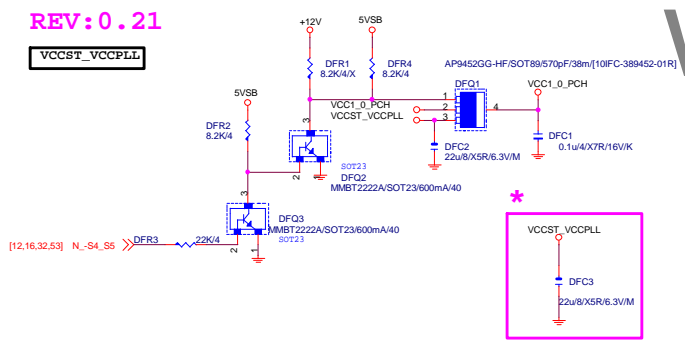
REV:0.4

VCCIO



REV:0.21

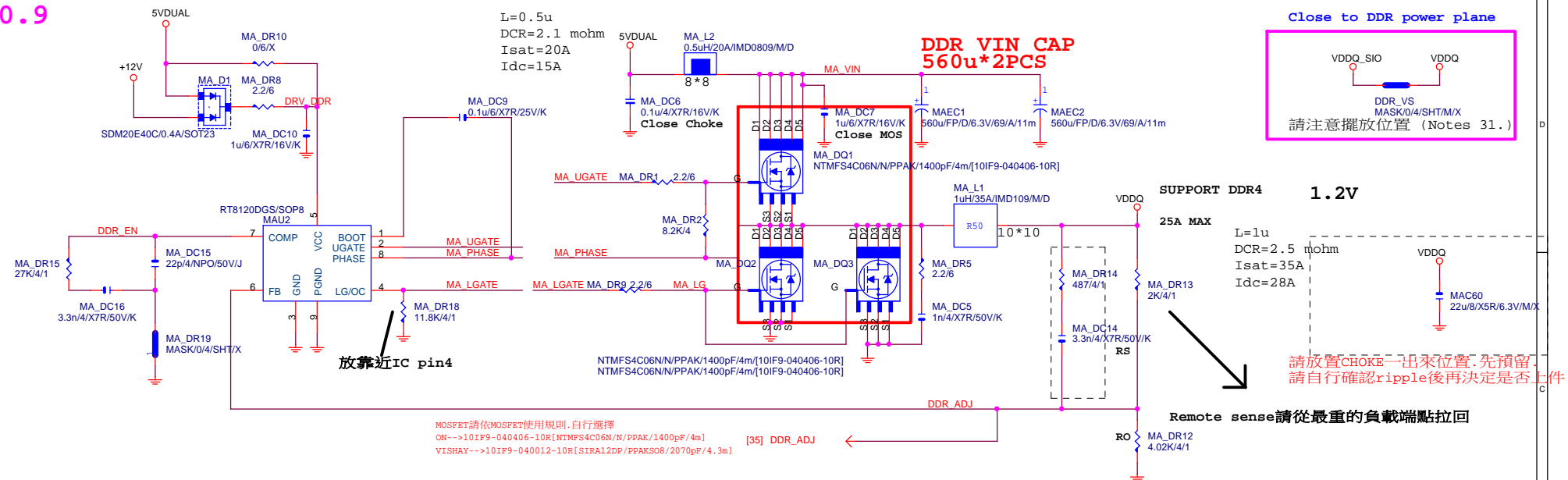
VCCST_VCCPLL



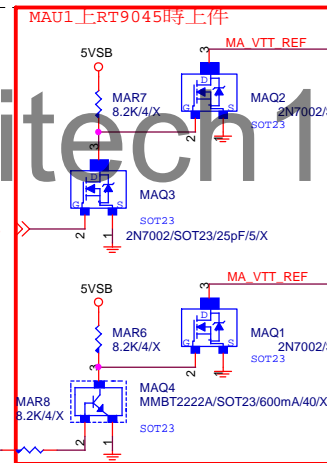
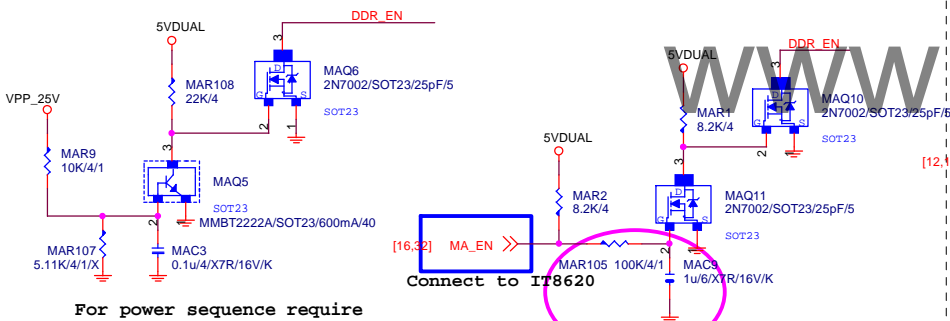
www.aitech1.ru

DDR4

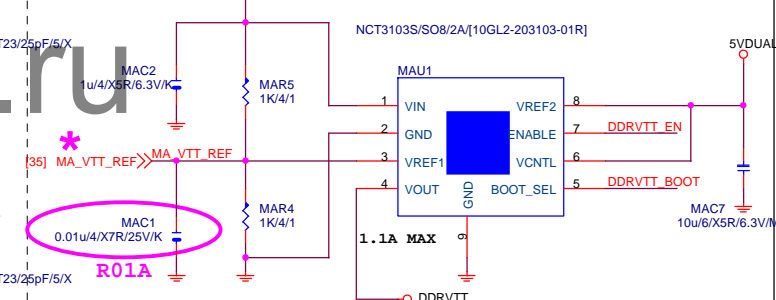
REV: 0.9



PWR SEQ



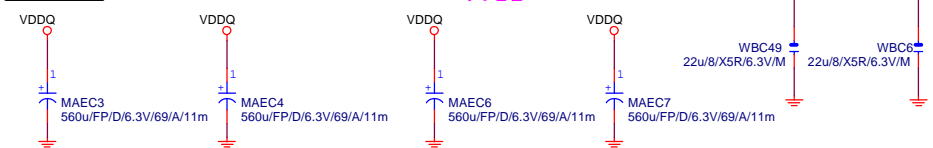
DDRVTT



DDR CAP

560u*4PCS

* 大電容 x4



DDRVTT CAP

22u*2PCS

* 大電容 x0



DDR_VTT_CTL MAR110 0/4 DDRVTT_EN

N_SLP_S3 MAR111 0/4 DDRVTT_BOOT

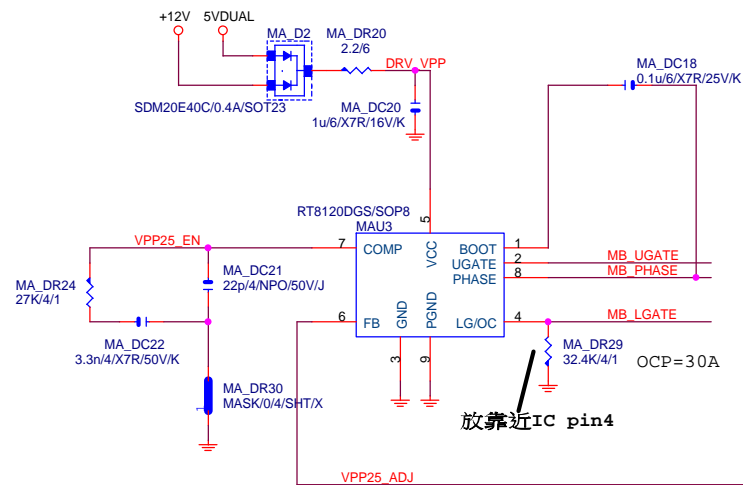
MAU1上NCT3103S時上件

GIGABYTE™

Title		
RT8120_DDR POWER		
Size	Document Number	Rev
Custom	GA-Q170M-D3H-GSM	1.0
Date:	Thursday, January 14, 2016	Sheet 31 of 57

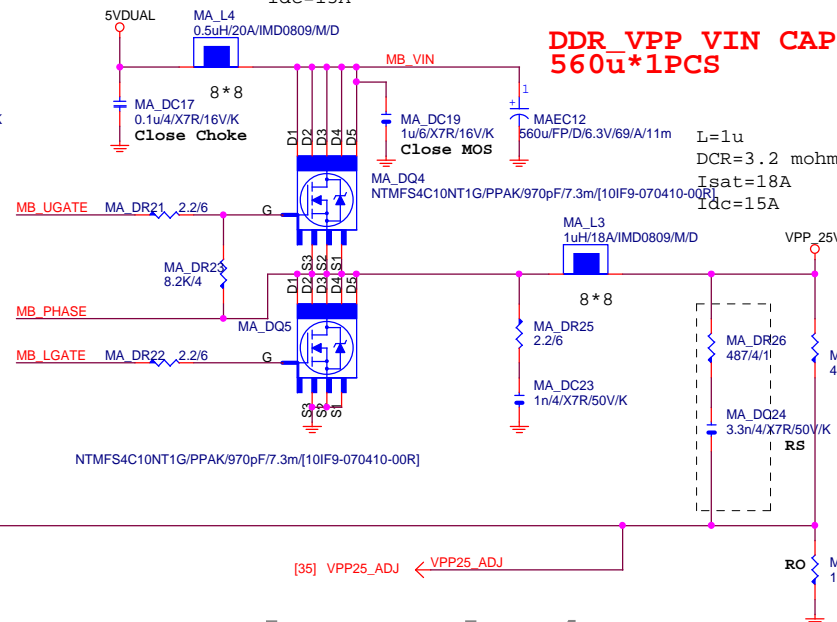
REV:0.9

VPP_25V



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

CHOKE與CAP料號可變



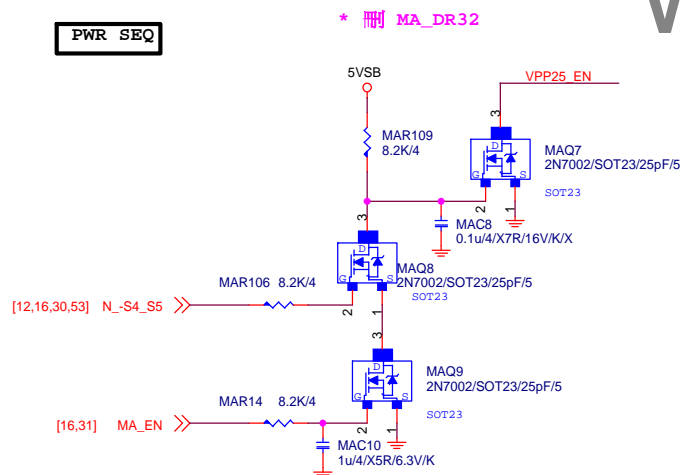
SUPPORT DDR4 2.5V

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

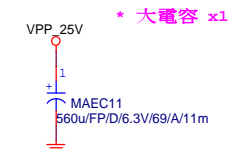
Remote sense請從最重的負載端點拉回

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PWR_SEQ



VPP CAP 560u*1PCS



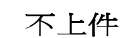
GIGABYTE™

Title RT8120_VPP25 POWER		
Size Custom	Document Number GA-Q170M-D3H-GSM	Rev 1.0
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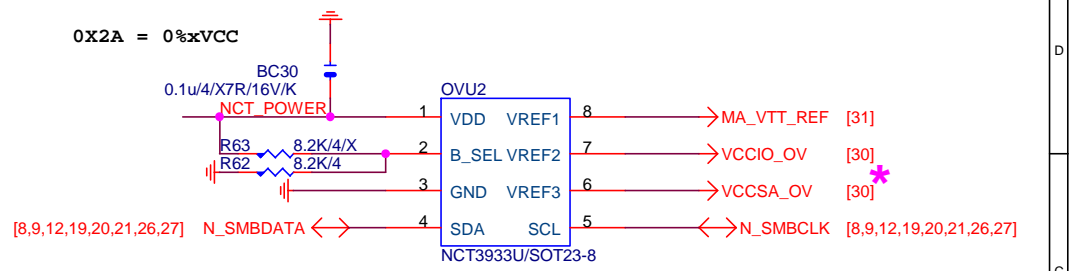
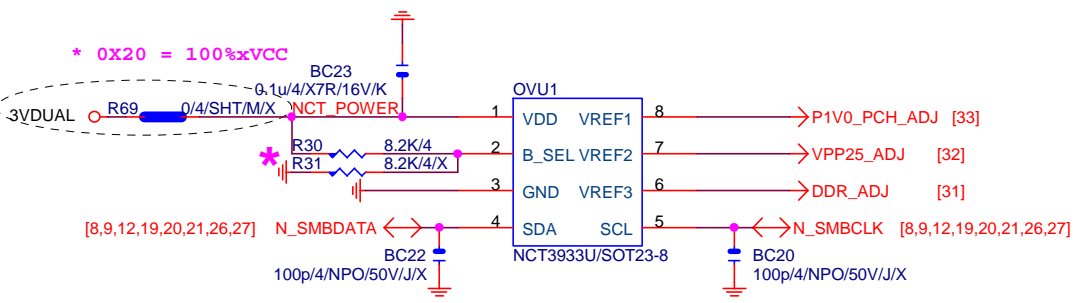


Title			
RT8120_PCH-CHOKE			
Size	Document Number	Rev	
Custom	GA-Q170M-D3H-GSM	1.0	
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[16] 5VAUX SW >>



OVER VOLTAGE



0X22 = 75%xVCC

* 删除 OVU3

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

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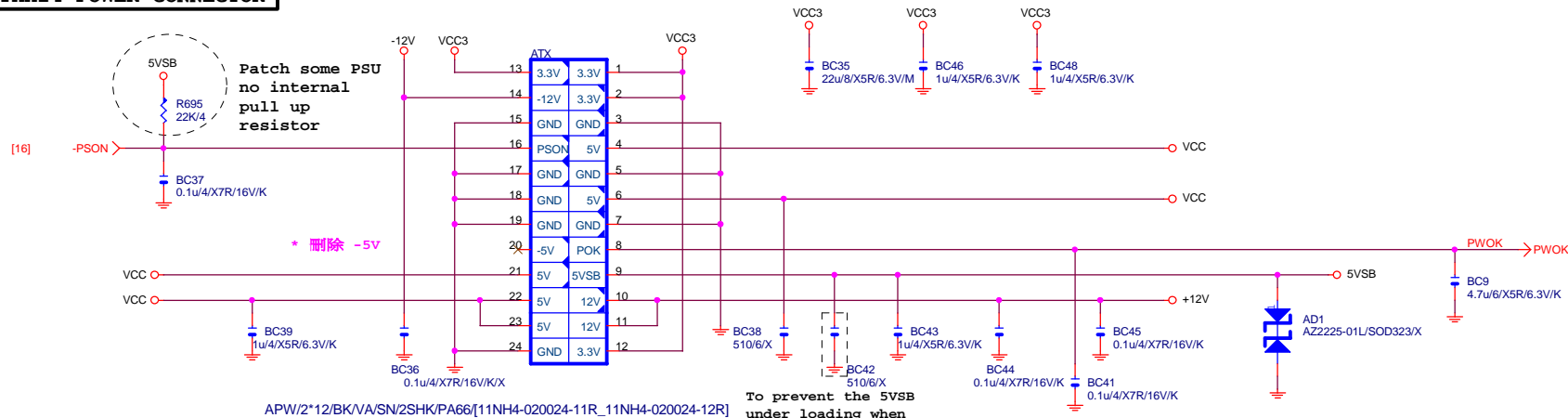
Gigabyte Technology

Title CPU CORE VR-2

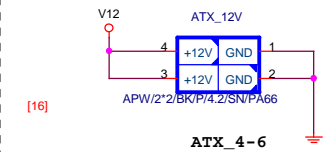
Size Custom Document Number GA-Q170M-D3H-GSM

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ATXX24 POWER CONNECTOR

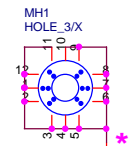


ATX POWER CONNECTOR

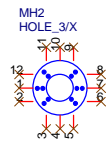


螺絲孔

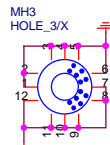
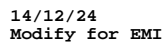
MH1:GND-T
FOR EMI
TEST驗證



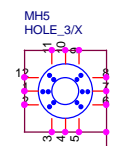
HOLE_4-RH-1



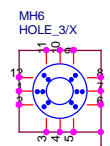
HOLE_4-RH-1



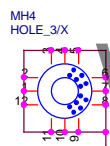
HOLE_4-RH-5MM-1



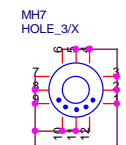
HOLE_4-RH-1



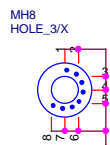
HOLE_4-RH-1



HOLE_4-RH-5MM-1



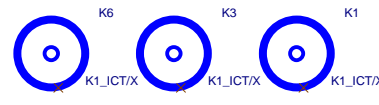
HOLE_4-RH-5MM-1



HOLE_4-RH-5MM-5PIN-1

* Add MH8

固定孔/光學點

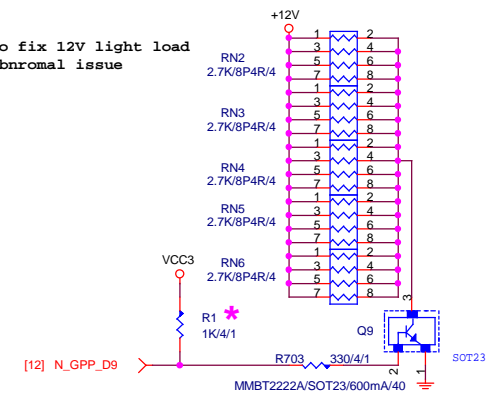


K1-ICT

To prevent the 5VSE
under loading when
boot

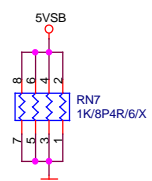
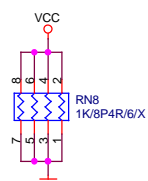
+12V DUMMY LOAD

To fix 12V light load
abnromal issue

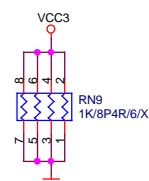


【技術通報R&D技術通報153】

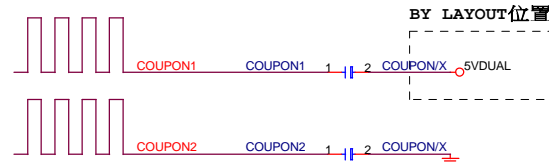
DUMMY LOAD

 RN8
1K/8P4R/6/X

	RN9
	1K/8P4R/6/X



COUPON

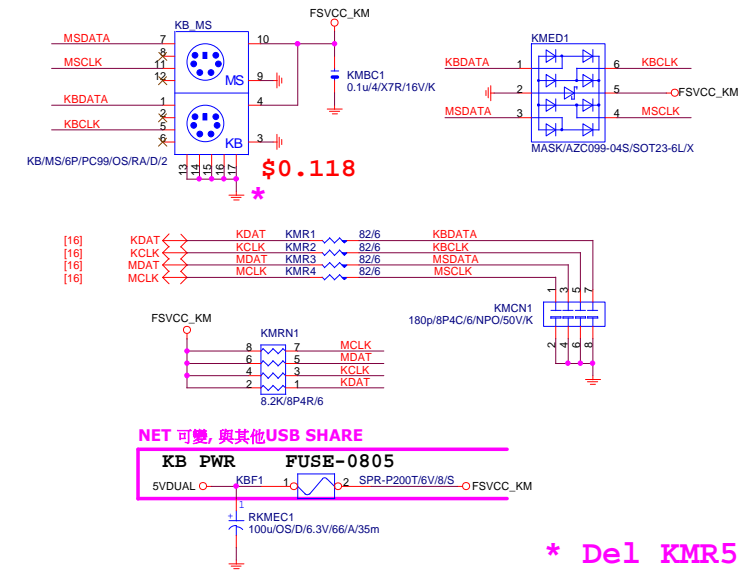


BY LAYOUT位置

Gigabyte Technology

Title			
ATX POWER CONNECTOR			
Size Custom	Document Number	GA-Q170M-D3H-GSM	Rev 1.0
Date:	Thursday, January 14, 2016	Sheet 36 of 57	

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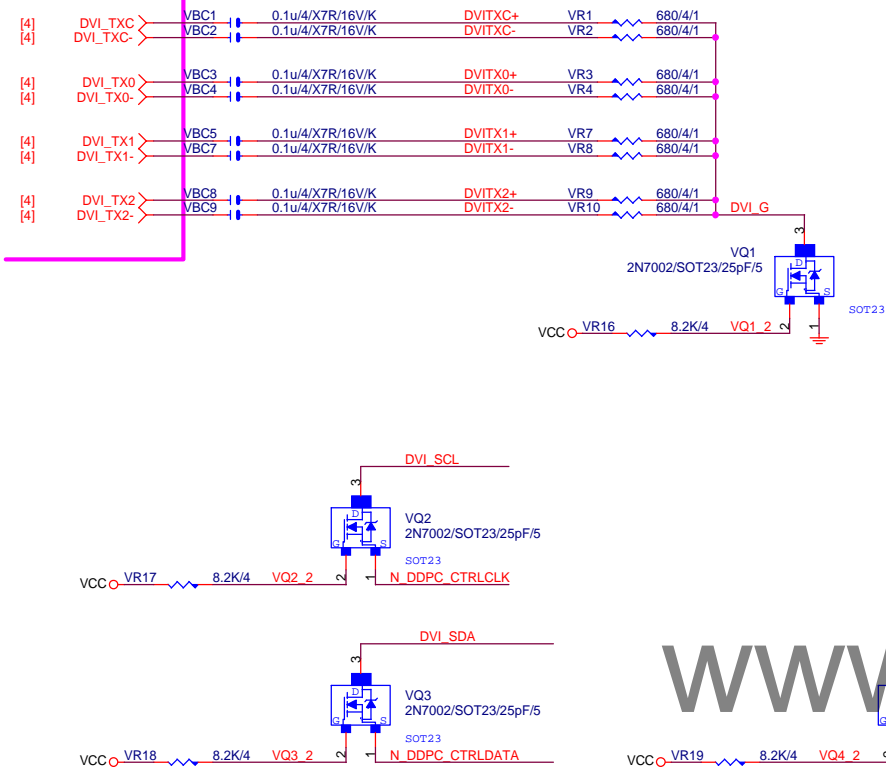


DVI

Rev: 0.71

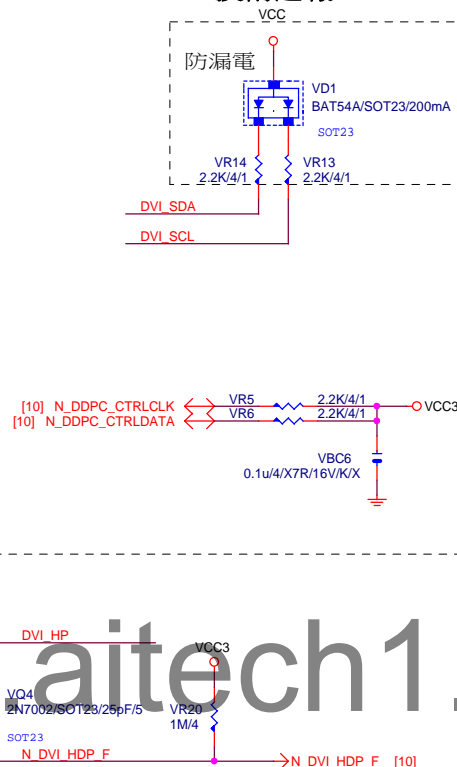
DVI:20/4/6/4/20
Impedance=85 +- 17.5%

NET 可變

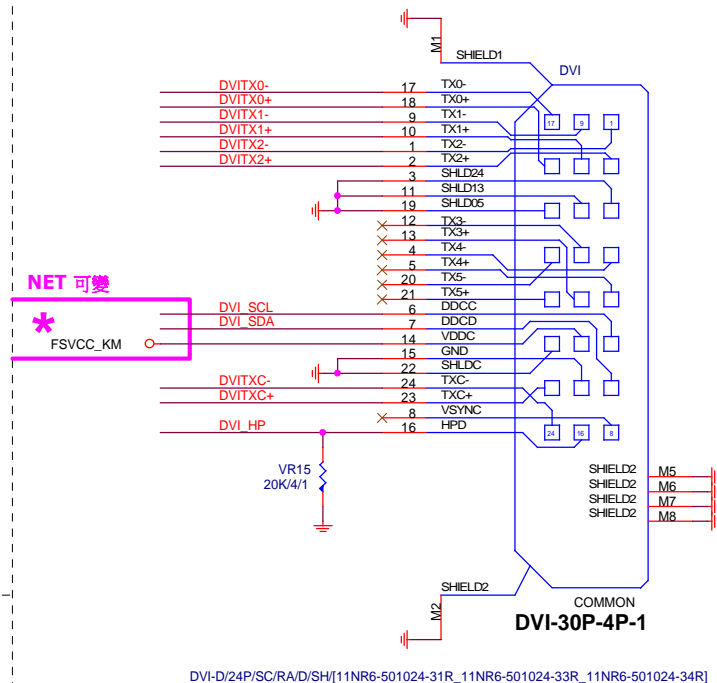


DVI PU


R&D技術通報 162



DVI CONN



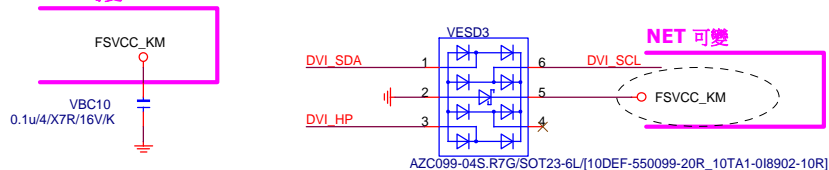
平躺式 DVI-D



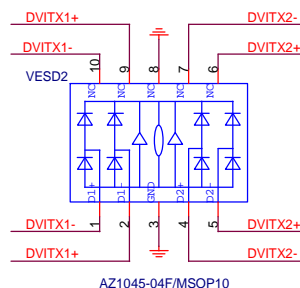
11NR6-501024-31

ESD

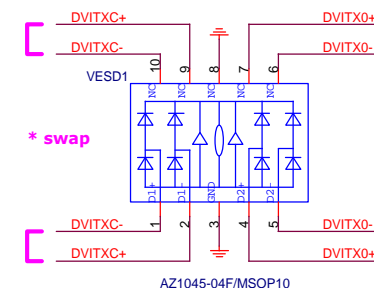
NET 可變



Close to connector



Close to connector



Close to connector

Gigabyte Technology

Title

DVI

Size	Custom
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Document Number

GA-Q170M-D3H-GSM

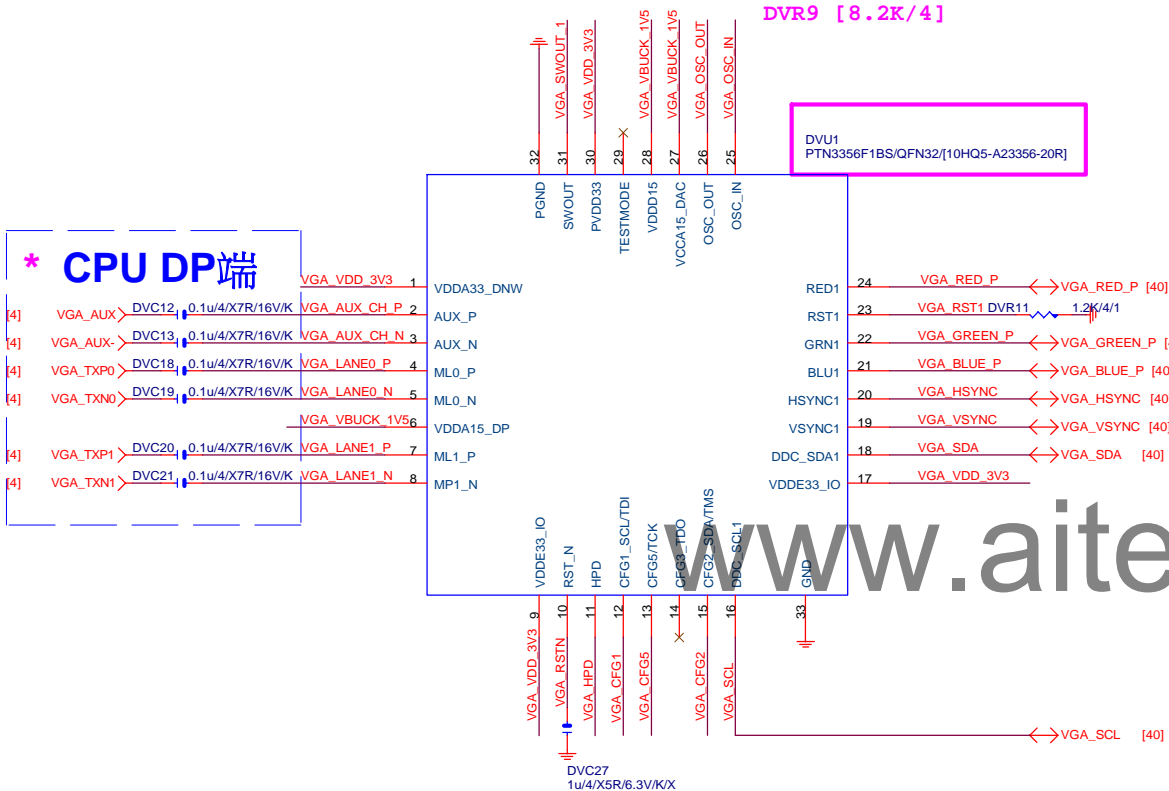
Date: Thursday, January 14, 2016

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\$1.6

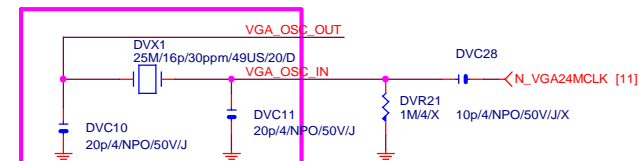
1. 上件:
DVC28 [10p/4/NPO/50V/J]
DVC11 [10p/4/NPO/50V/J]~修改值
DVR10 [8.2K/4]

2. 删除:
DVX1 [25M/16p/30ppm/49US/20/D]
DVC10 [20p/4/NPO/50V/J]
DVR9 [8.2K/4]

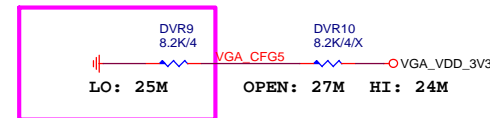


放置PCH端

FROM PCH 24MHZ ISSUE



For Crystal Less



VCC3

DVL1
0.6SHT/MX

VGA_VDD_3V3

VDD_3V3

DVC14
4.7uF/BX5R/6.3V/K

DVC15
0.1uF/4X7R/16V/K

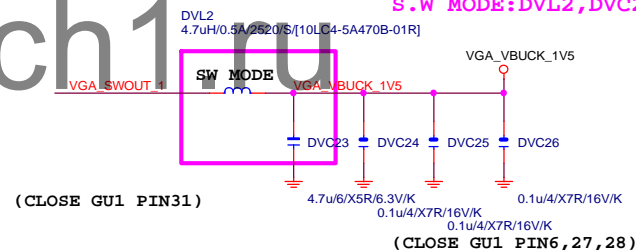
DVC16
0.1uF/4X7R/16V/K

DVC17
0.1uF/4X7R/16V/K

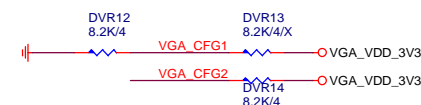
DVC22
0.1uF/4X7R/16V/K

(CLOSE GU1 PIN1,9,17,30)

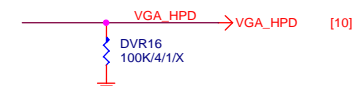
```
LDO  MODE:DVL2,DVC23-->X
S.W  MODE:DVL2,DVC23-->O
```



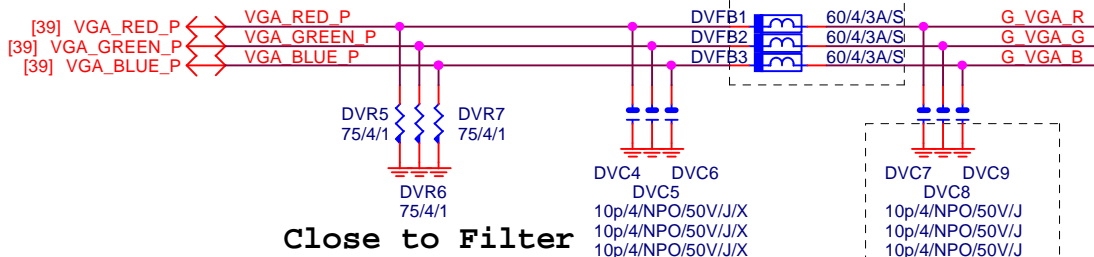
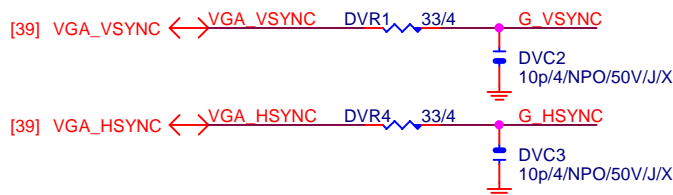
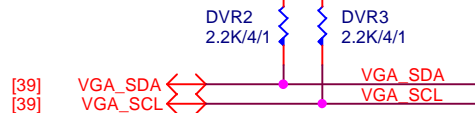
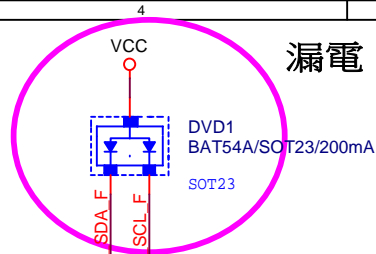
Non-Compliant



PCH端



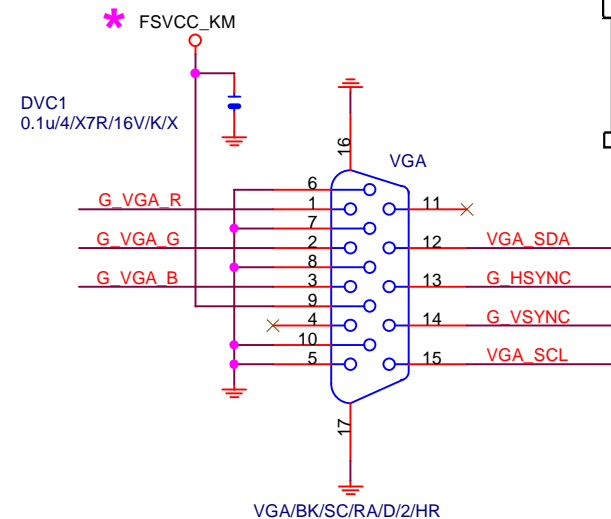
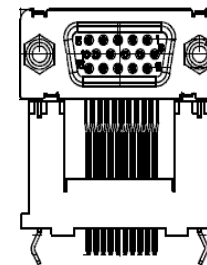
VGA SIGNAL R1.08



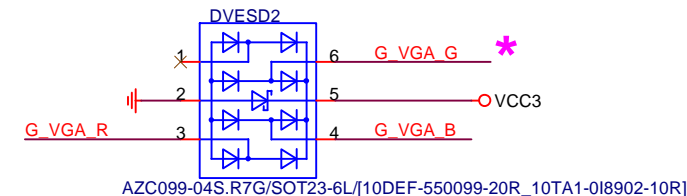
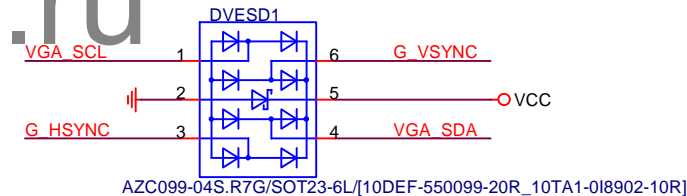
Close to Filter

FOR EMI

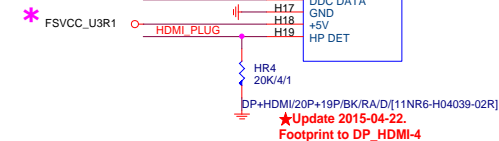
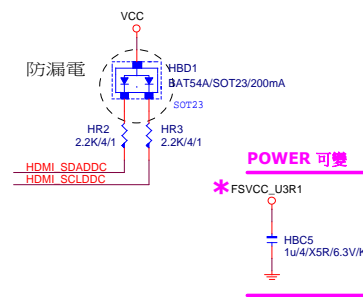
VGA CONN. 架高型VGA (BLACK)



VGA ESD



Gigabyte Technology			
NXP-PTN3356			
Title			
Size	Document Number	GA-Q170M-D3H-GSM	Rev 1.0
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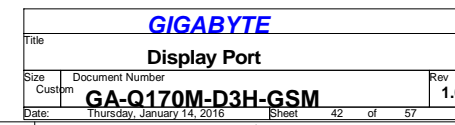


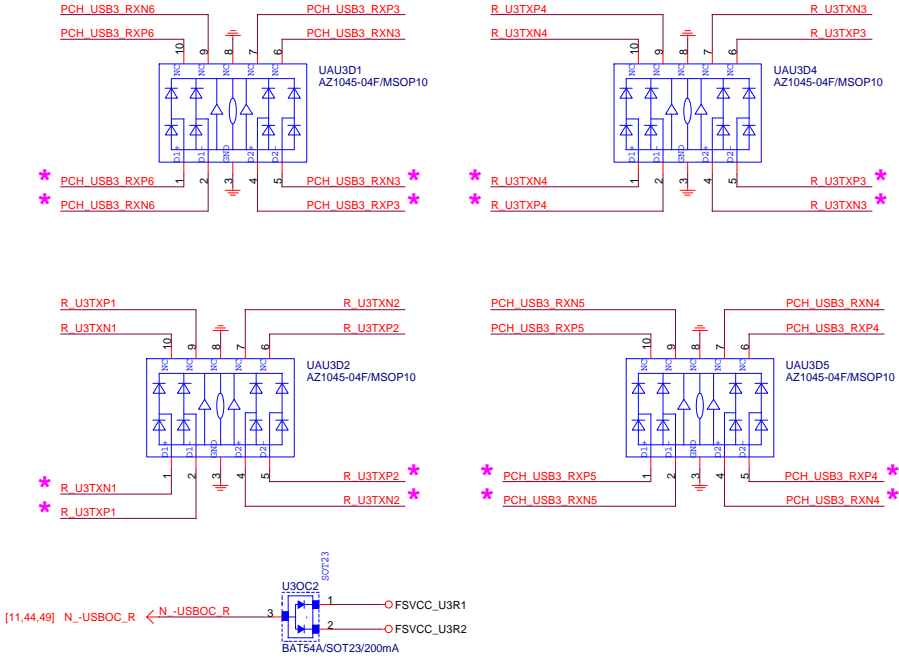
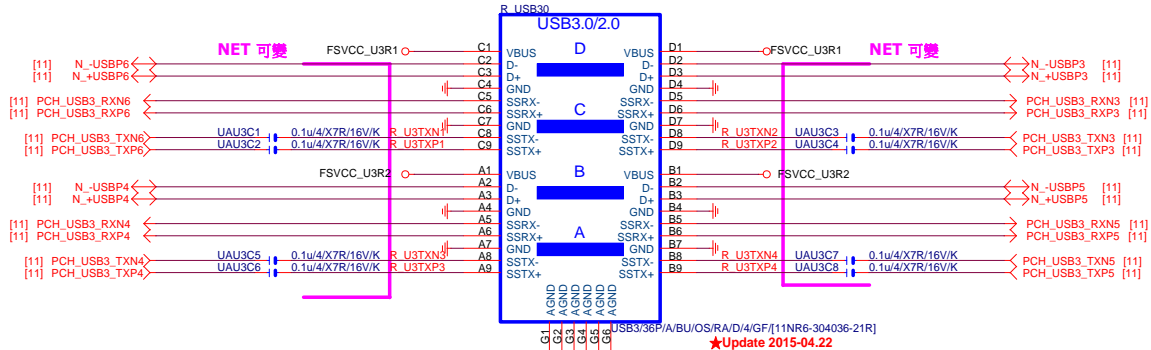
【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PING PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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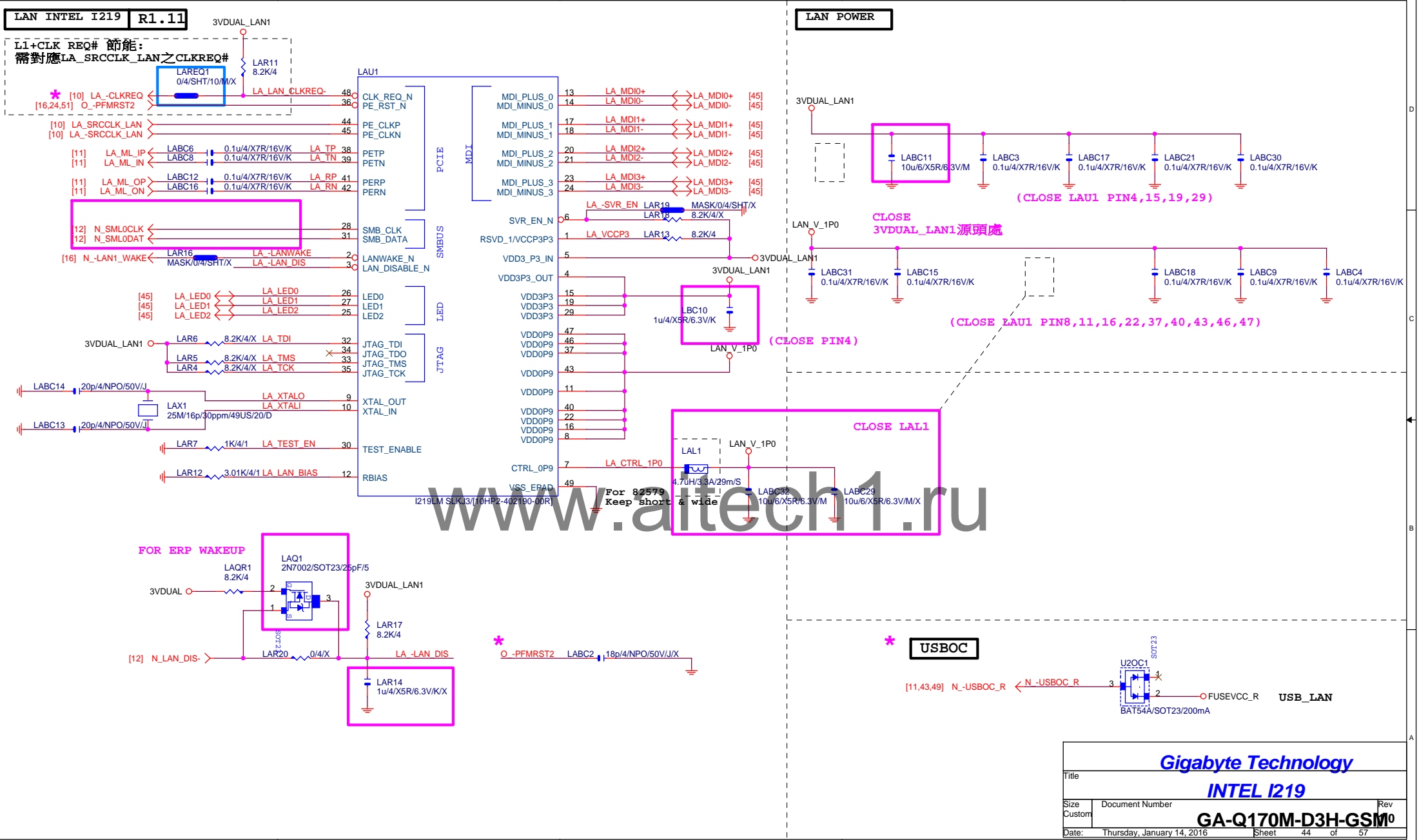


* 删除DP_HDMI_SPDIF, + Switch



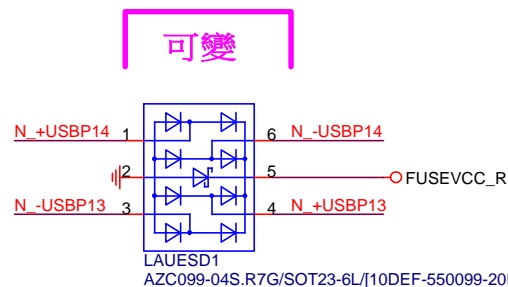


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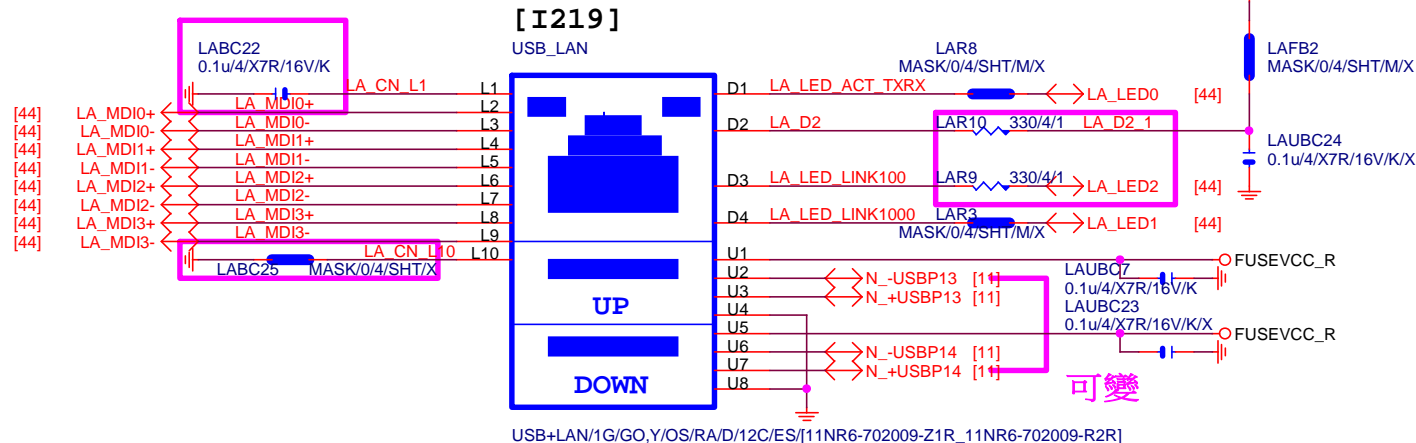


R1.11

note:可變更USB NAME

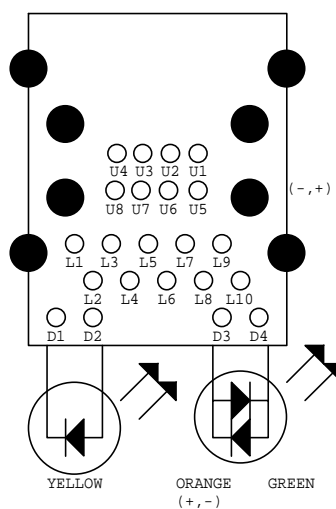



note:可變更USB NAME



LA_MDI-->100歐姆:[20/4/8/4/20]

示意圖



D2  D1 Yellow

note:可變更FUSE



Close to connector

USB_LAN 2-Port 2.0A

FUSE-0805

FOOT PRINT:LAN_COVER

可變 * delete
[視SPEC需求]

EMI SHORT PAD

PS:視EMI需求



LAN POWER

note: lan power連接及電流

For PVT :LAPW1 改 R0402-2-SHORT20

LAPW1

0/4/SHT/20/X

0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040

LAPW2

0/4/X

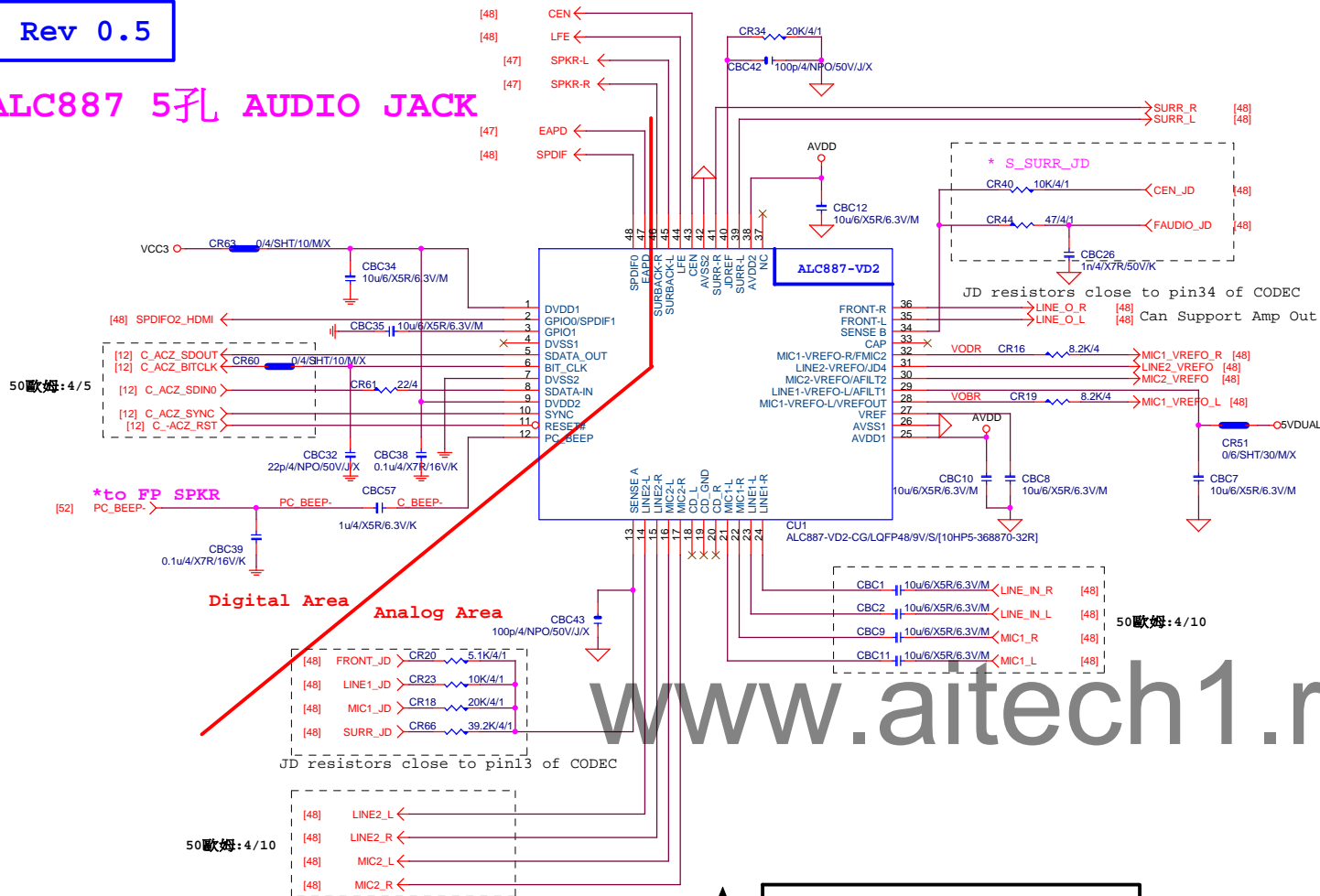
Gigabyte Technology

LAN CONNECTOR-I219

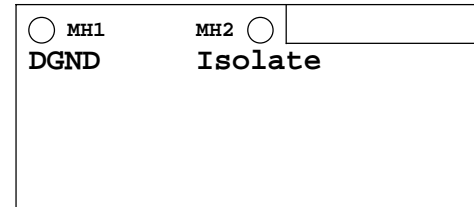
Size Custom	Document Number GA-Q170M-D3H-GSM	Rev 1.0
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Rev 0.5

ALC887 5孔 AUDIO JACK

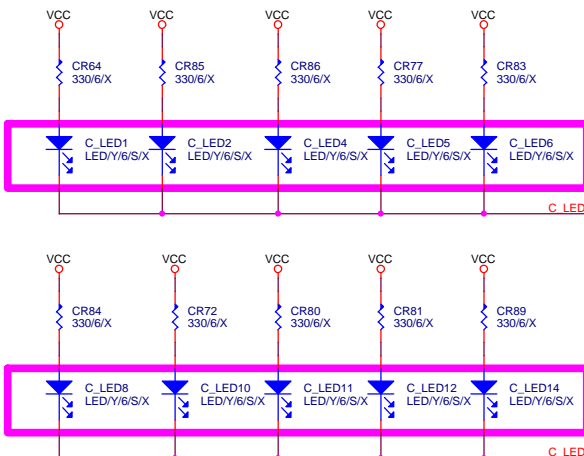


LAYOUT注意:螺絲孔下GND方式
1. MH1空間夠,下DGND
空間不夠,改為Isolate
2. MH2一律改為Isolate

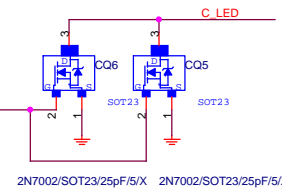


★ PVT 時 LED circuit 背板mask

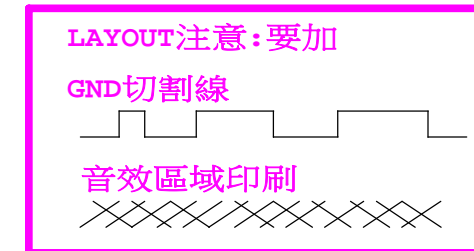
VALUE可變,LED顏色請自行修改
(預設:低亮度黃色LED:LED/Y/6/S)



★ (IT8620 GP37)



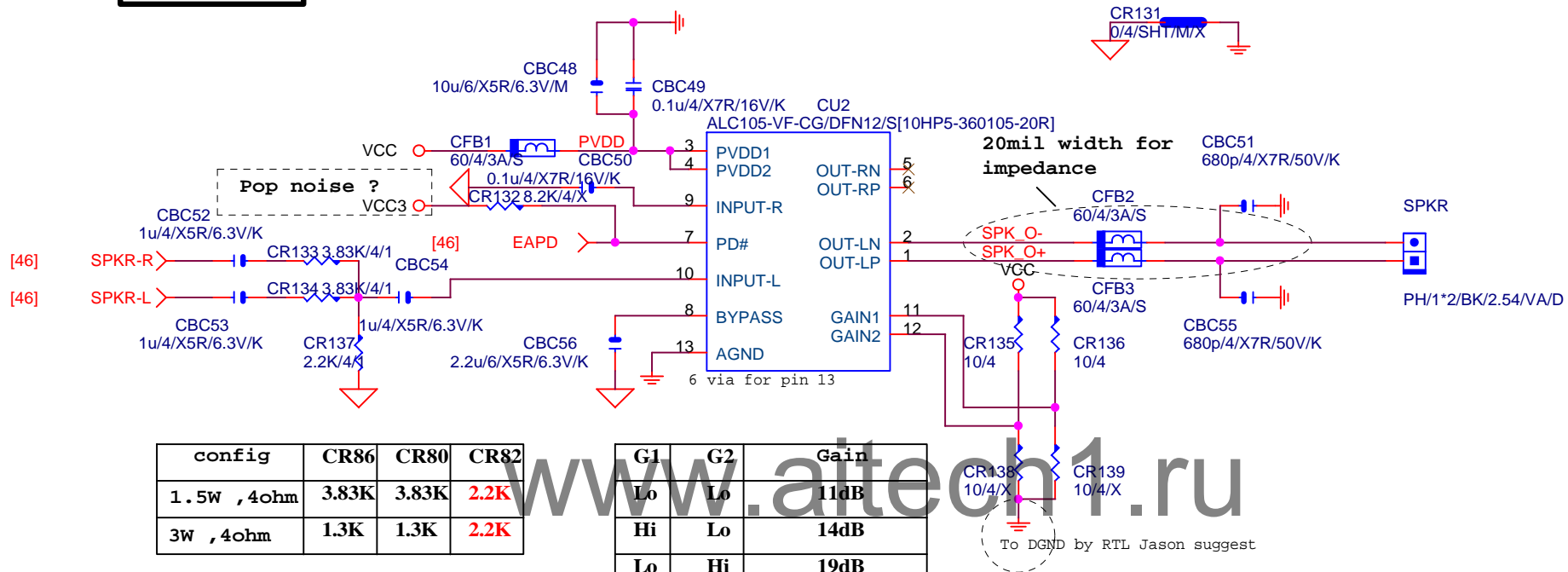
*料號後補



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			
Title HD AUDIO ALC887			
Size Custom	Document Number	GA-Q170M-D3H-GSM	Rev 1.0
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MONO SPKR



config	CR86	CR80	CR82
1.5W ,4ohm	3.83K	3.83K	2.2K
3W ,4ohm	1.3K	1.3K	2.2K

* all 1% parts

*NOW

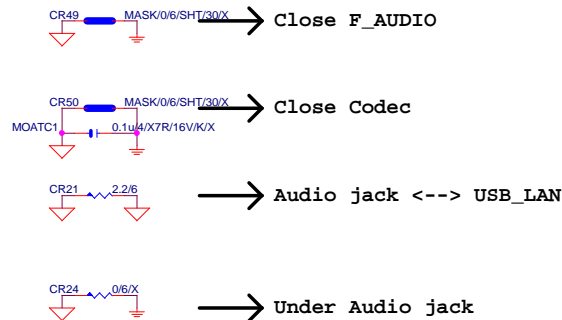
G1	G2	Gain
Lo	Lo	11dB
Hi	Lo	14dB
Lo	Hi	19dB
Hi	Hi	25dB

Pin1,2,3,4,5,6,7,13 ref GND
pin8,9,10,11,12 ref AGND

Gigabyte Technology

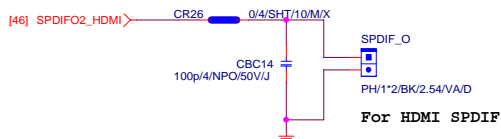
Title		MONO SPKR	
Size A	Document Number	GA-Q170M-D3H-GSM	Rev 1.0
Date:	Thursday, January 14, 2016	Sheet 47 of 57	

Rev 0.5



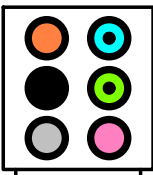
★ 量産前, 0ohm改short pad

SPDIF_OUT



SPDIF_IN

AZALIA JACK



AZALIA JACK

BLUE

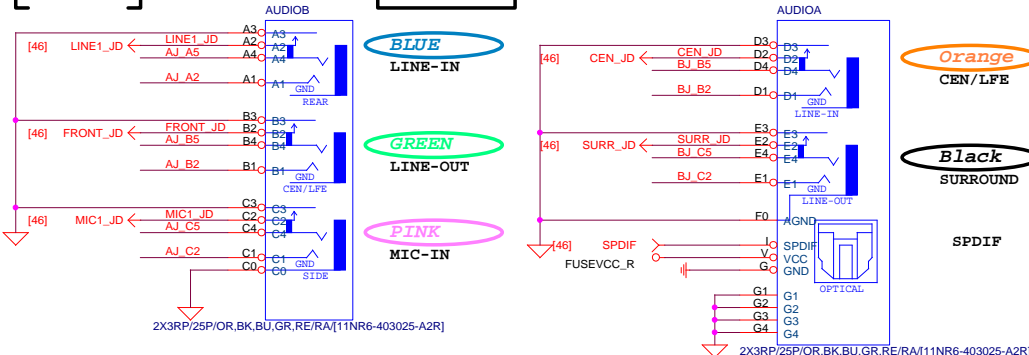
LINE-IN

GREEN

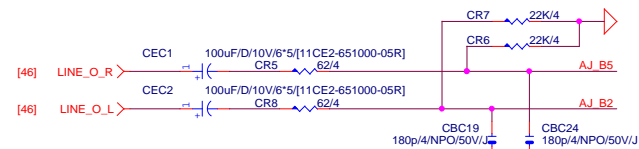
LINE-OUT

PINK

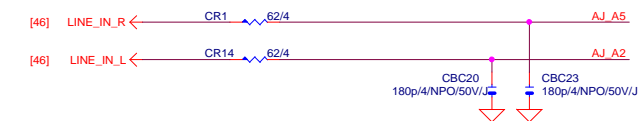
MIC-IN



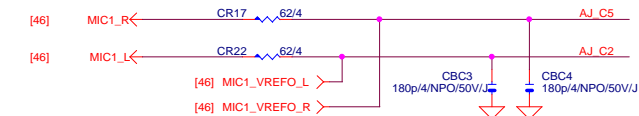
LINE-OUT



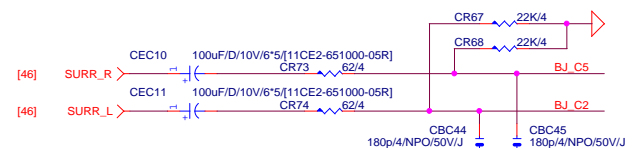
LINE-IN



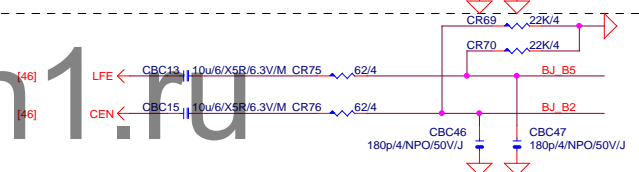
MIC-IN



SURROUND

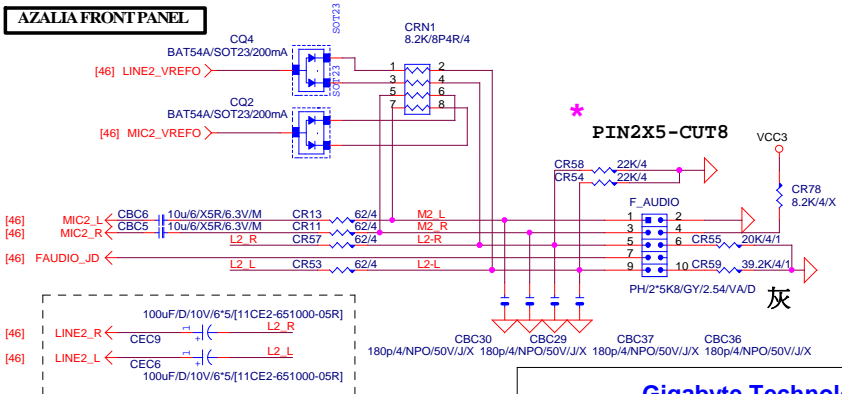


CEN/LFE

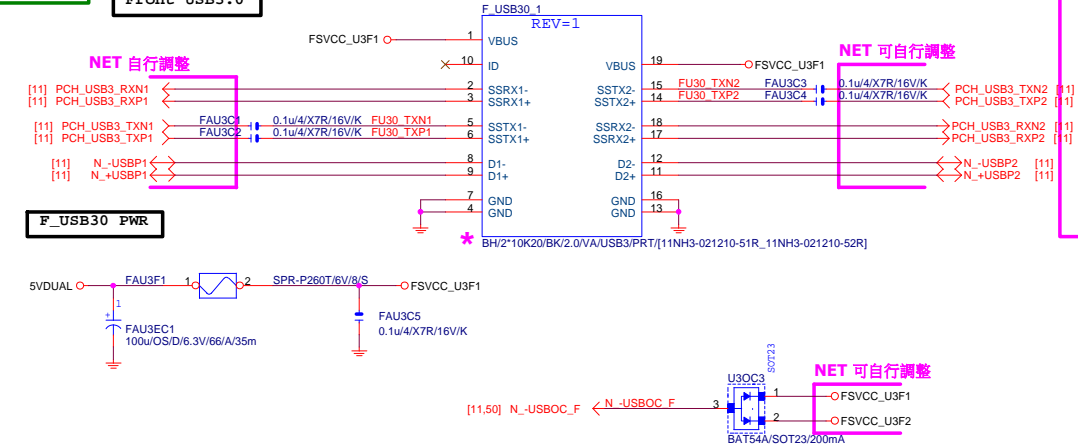


SURRBACK

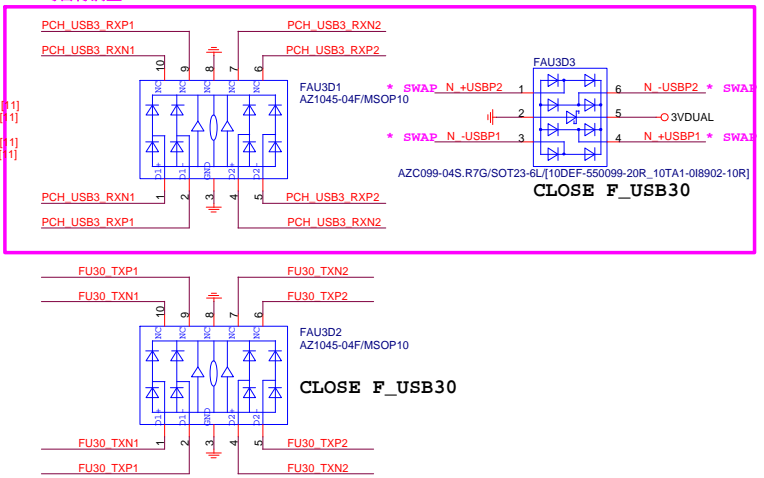
AZALIA FRONT PANEL



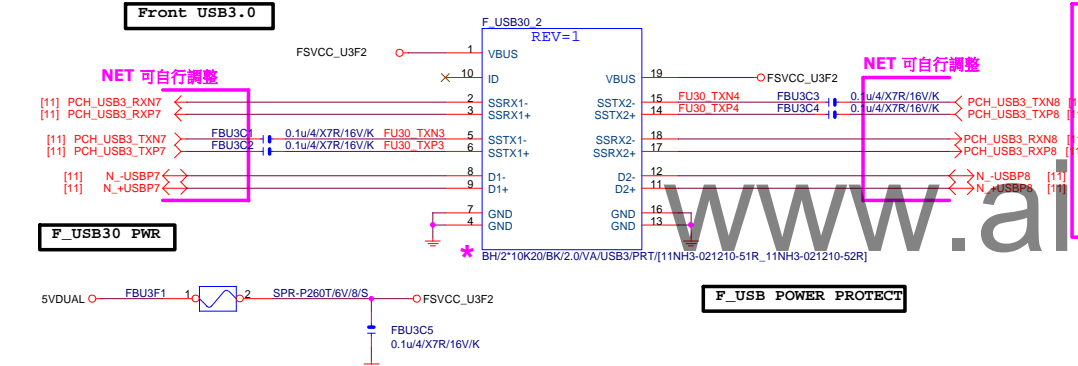
Front USB3.0



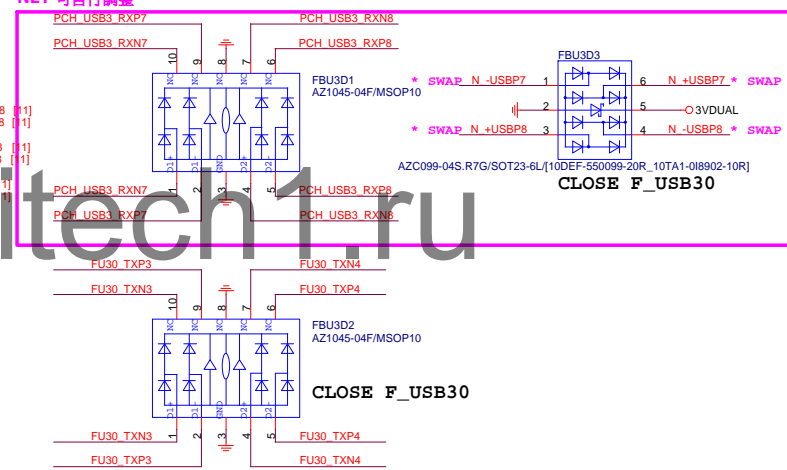
NET 可自行調整



Front USB3.0

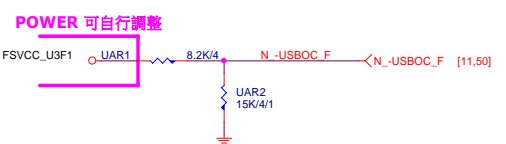


NET 可自行調整

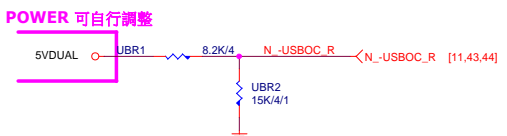


F_USB POWER PROTECT

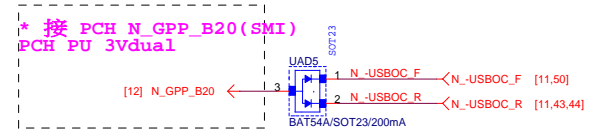
-USBOC_F



-USBOC_R



* 接 PCH N_GPP_B20(SMI)
PCH PU 3Vdual



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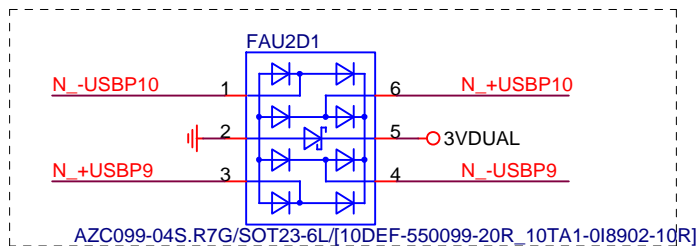
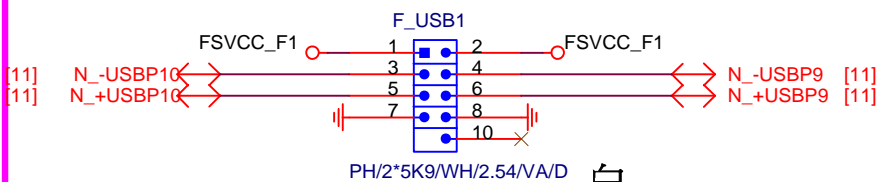
Title		F_USB30, USB_OC	
Size		Document Number	
Custom		GA-Q170M-D3H-GSM	
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FRONT USB1

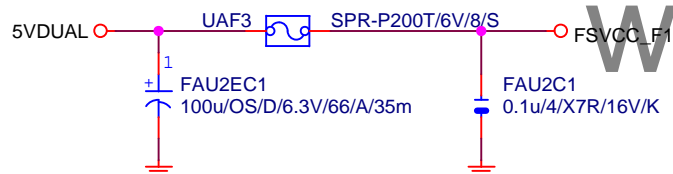
NET 可變

FUSB2X5-S



Close to connector

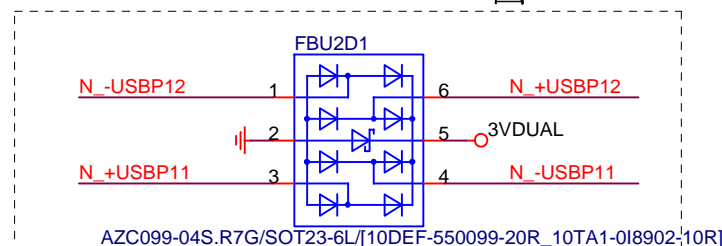
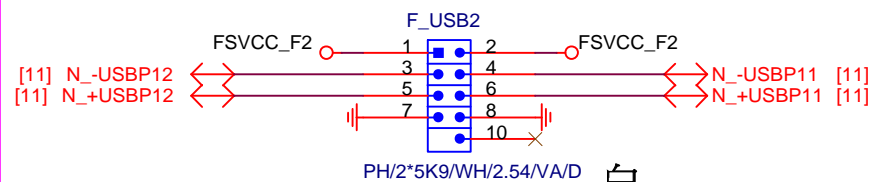
FUSE 2 Port 1 Fuse 2A



FRONT USB2

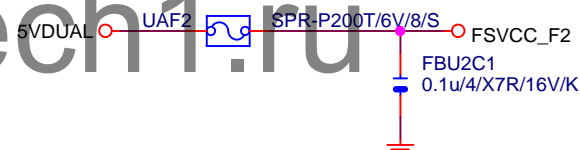
NET 可變

FUSB2X5-S

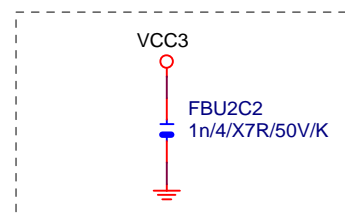
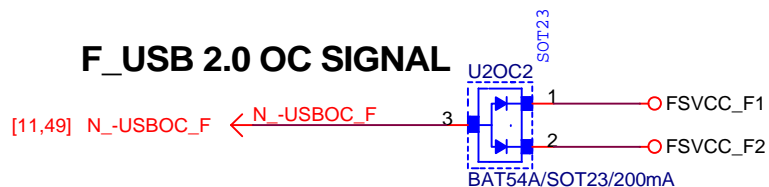


Close to connector

FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL



* 放置N_DB_CLK與T_TPMCLK中間(EMI)

Gigabyte Technology

Title

F_USB

Size
A

Document Number

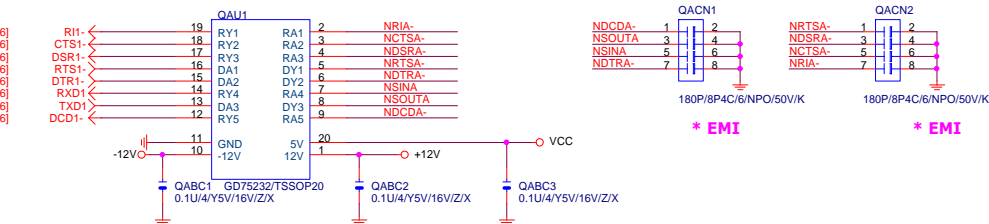
GA-Q170M-D3H-GSM

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Rev
1.0

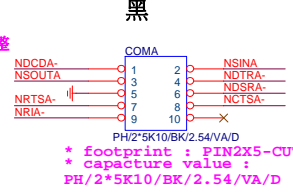
COM PORT



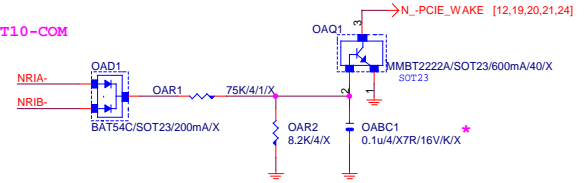
COMA

COMA 自行調整

OR

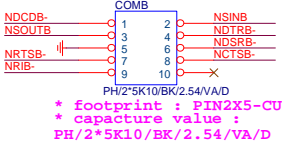


* 接 N-PCIE_WAKE

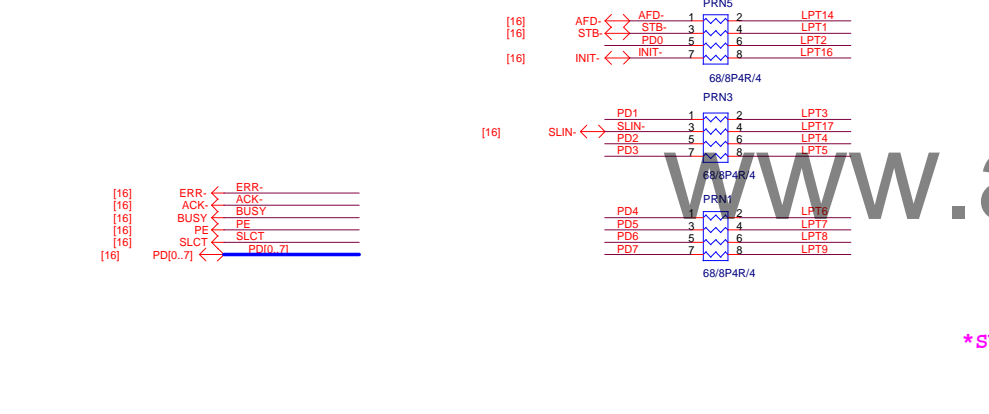


COMB

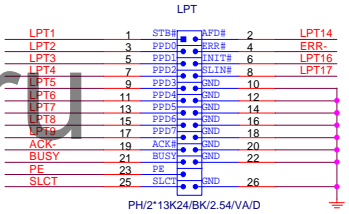
黑



LPT PORT

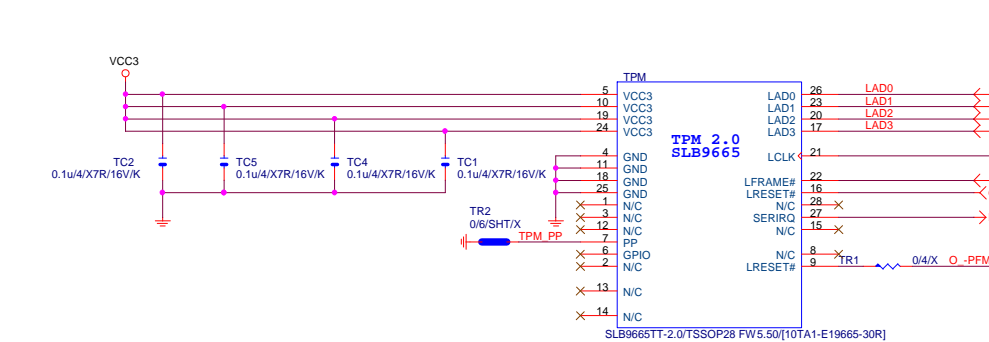


R&D技術通報151 有使用PRINT PORT的
MODEL, 需使用新料號:10HP2-118728-72R (CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。

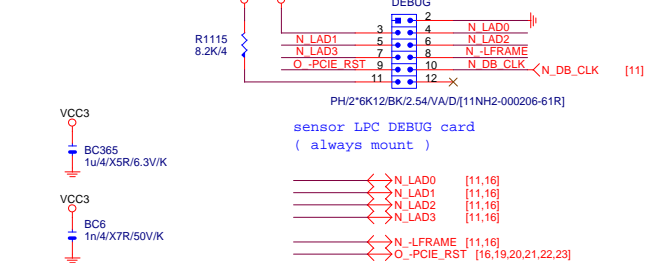


* footprint : PIN2X13_LPT-CUT24

TPM onboard

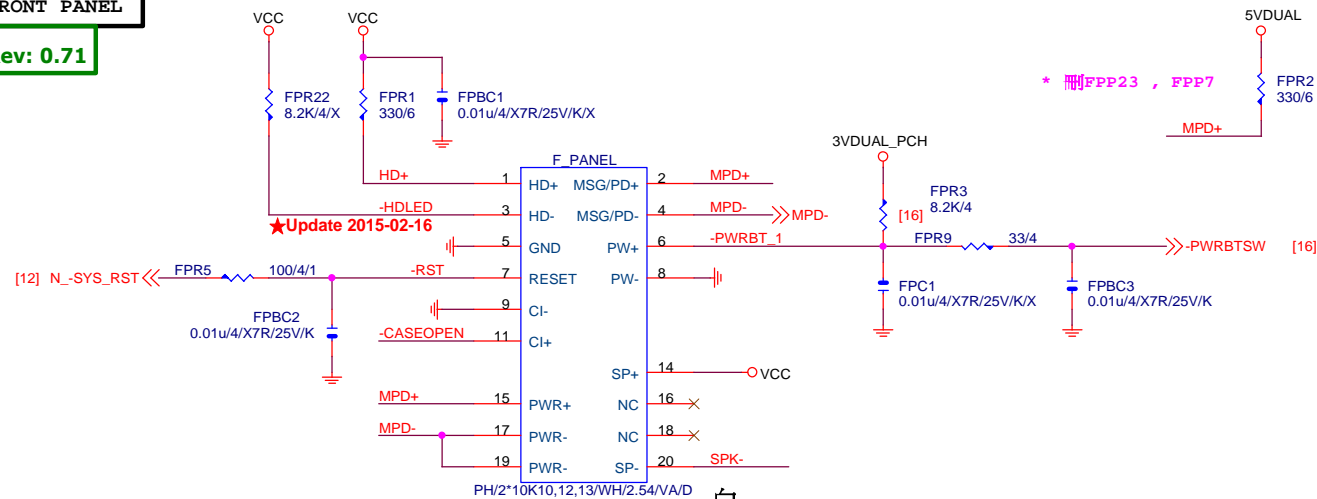


80 PORT

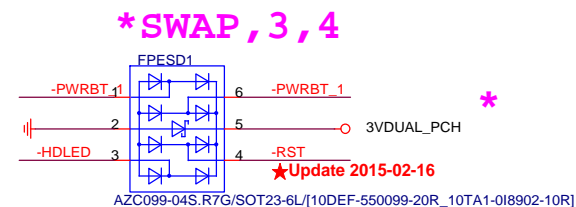


GIGABYTE

Title		COM, LPT, TPM, DEBUG	
Size	Document Number	GA-Q170M-D3H-GSM	
Custom			
Date:	Thursday, January 14, 2016	Sheet	51 of 57

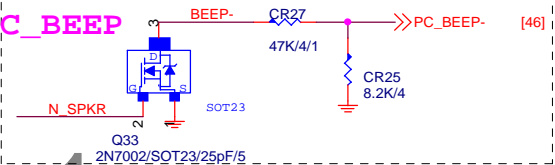
Rev: 0.71

***FOOTPRINT:PIN2X10PANEL-NEW**



Schematic diagram of the RTCVDD power supply network. The circuit includes a 1M4 resistor connected to the N_RTCVDD pin. A 0.01uF/4/X7R/25V/K capacitor (FPBC4) is connected to ground. A 0/4 resistor (R117) is connected to the N_INTRUDER pin. A -CASEOPEN pin is also shown. Annotations include '[12,14] N_RTCVDD', 'FPR8', '1M4', 'R117 0/4', 'N_INTRUDER [12]', '* for Q170 (Case Open)', '-CASEOPEN [16]', and 'FPBC4 0.01uF/4/X7R/25V/K'.

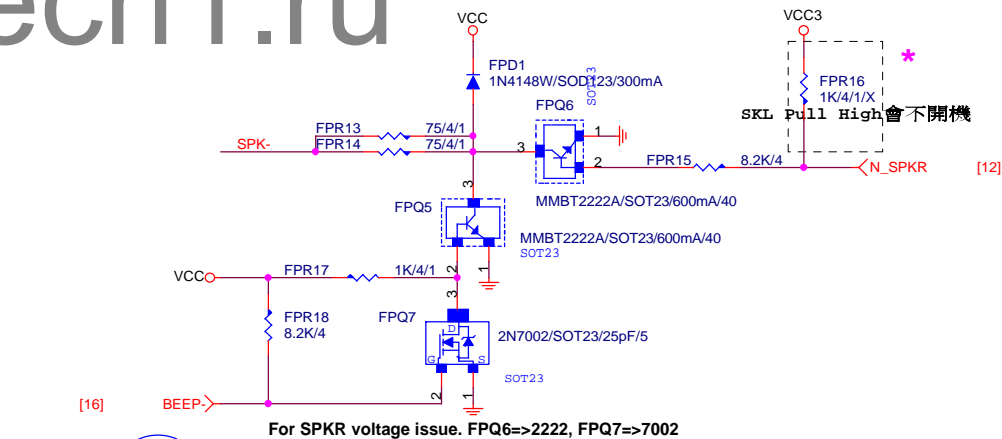
* PC BEEP



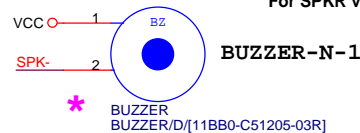
For internal speaker generate Boot & PC health beep

```
BEEP- : def 5V
N_SPKR : def 0V
SPK- : def 5V
```

For internal speaker generation 2N7002/SOT23/25pF/5



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



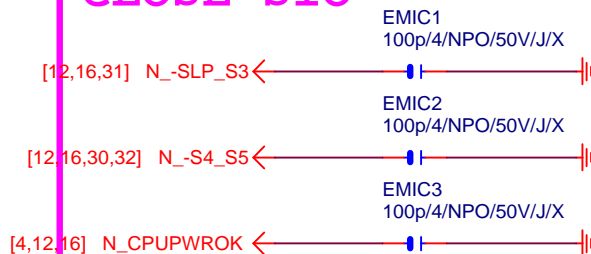
Gigabyte Technology

FP,SPK,BZ

GA-Q170M-D3H-GSM Rev 1.0

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CLOSE SIO



CLOSE PCH

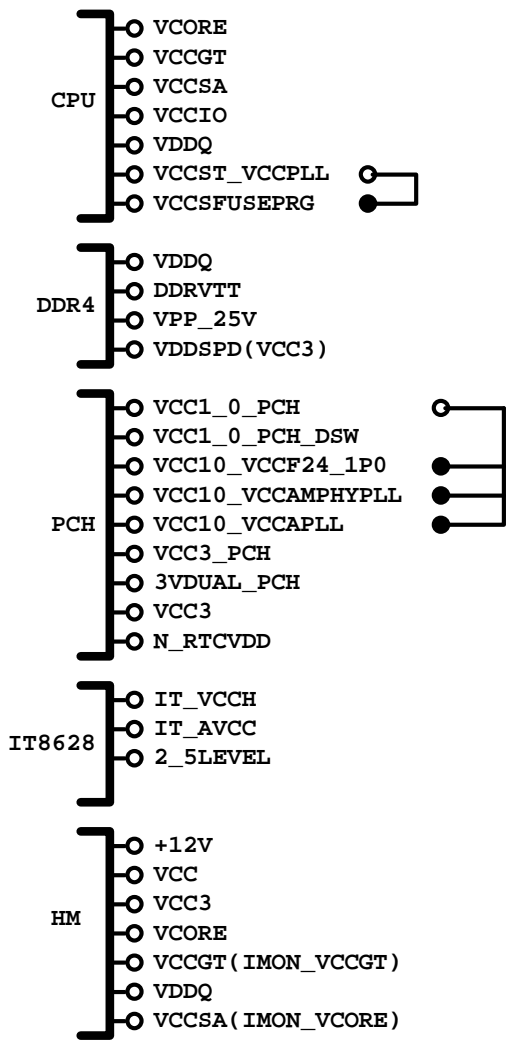


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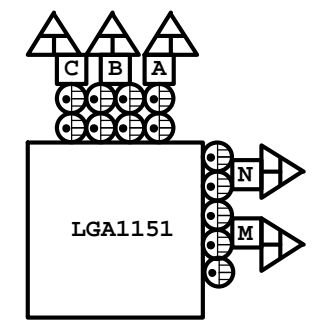
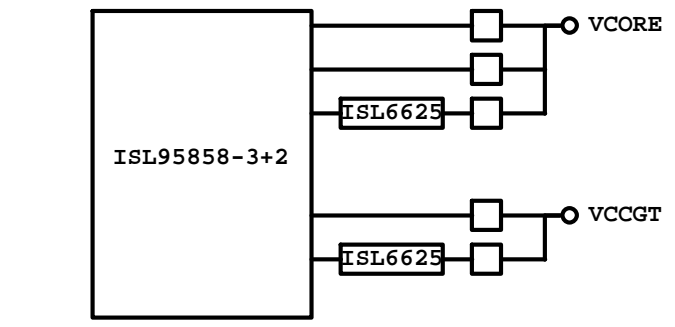
GIGABYTE™

Title			EM/ESD		
Size	Document Number				Rev
A	GA-Q170M-D3H-GSM				1.0
Date:		Thursday, January 14, 2016		Sheet	53 of 57

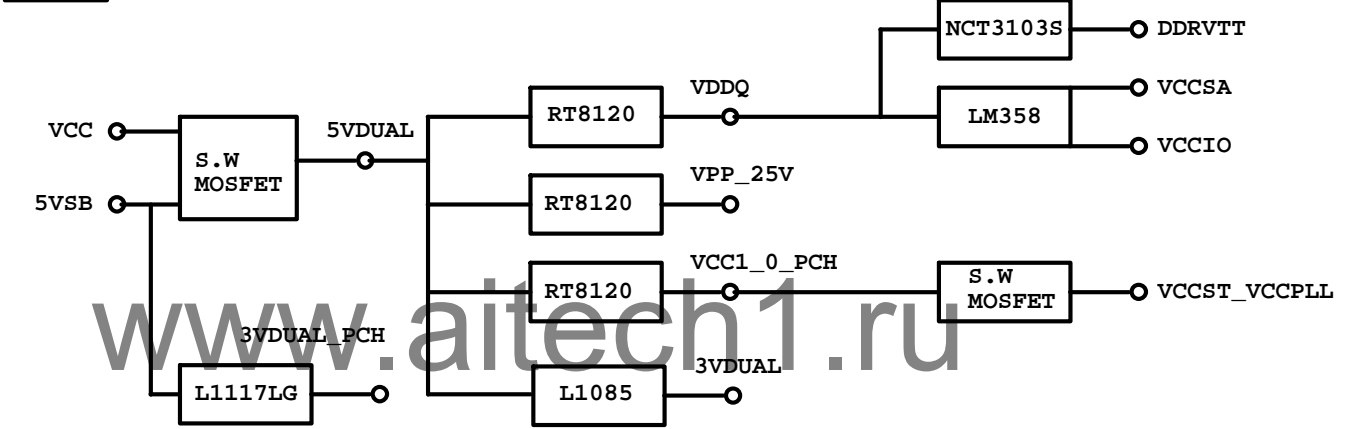
POWER BLOCK MAP



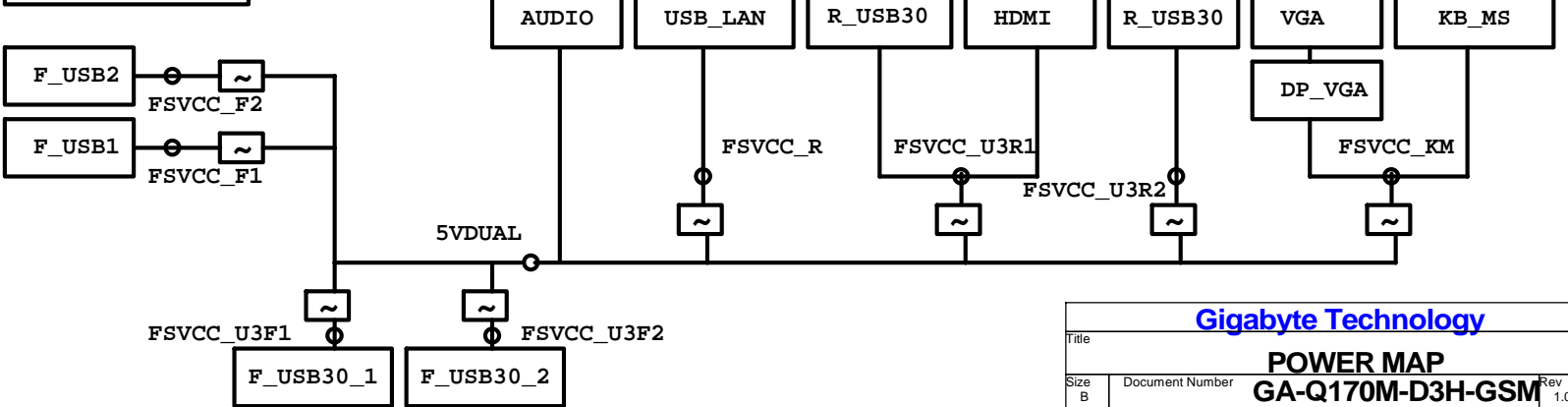
VCORE/VCCGT



POWER



FUSE POWER F/R



Gigabyte Technology

Title			POWER MAP
Size	Document Number	GA-Q170M-D3H-GSM	
B		Rev	1.0
Date:	Thursday, January 14, 2016	Sheet	54 of 57

固態電容料號.請自行修改

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

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

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

PWM料號

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

REGULATOR

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

IRON CHOKE

	料號	Capture Value	SIZE	Footprint	
DIP	11LC5-M4500C-01R	0.5uH/40A/IMD109/M/D	10*10	CH0KE05U-40A-1PQ-3	閃電P
DIP	11LC5-M4500C-11R	0.5uH/40A/IMD109/M/NP/D	10*10	CH0KE05U-40A-1PQ-3	無閃電P
DIP	11LC5-M2500C-01R	0.5uH/20A/IMD0809/M/D	8*8	CH0KE1U-R50M-IF	

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

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CH0KE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CH0KE1U-R50M-IF
SMD	10LC5-F4300C-01R	0.3uH/40A/SIUC/FR/S	10*7	CH0KE11X8MM-SMD

BEAD

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

Rev 0.3

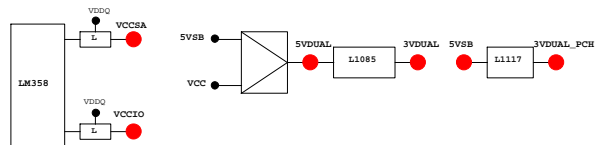
GIGABYTE™

Title POWER零件使用表			
Size Custom	Document Number GA-Q170M-D3H-GSM		Rev 1.0
Date:	Thursday, January 14, 2016	Sheet 55 of 57	

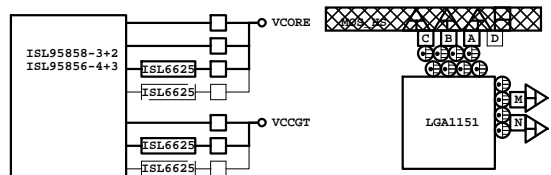
NAME	PWR	Default	USAGE	NOTE	
GPP_A0	MAIN	NATIVE	N_KBRST	P/U 8.2K VCC3	
GPP_A1	MAIN	NATIVE	N_LADO	N/A	
GPP_A2	MAIN	NATIVE	N_LAD1	N/A	
GPP_A3	MAIN	NATIVE	N_LAD2	N/A	
GPP_A4	MAIN	NATIVE	N_LAD3	N/A	
GPP_A5	MAIN	NATIVE	N_LFRAME	N/A	
GPP_A6	MAIN	NATIVE	N_SBRIG1	P/U 8.2K VCC3	
GPP_A7	MAIN	NATIVE	N_LDRQ0	P/U 8.2K VCC3	
GPP_A8	MAIN	NATIVE	N_GPP_A8	P/U 8.2K VCC3	
GPP_A9	MAIN	NATIVE	TPMCLK / N_LPC34MA	N/A	
GPP_A10	MAIN	NATIVE	WGA24MCLK / N_DB_CLK	P/U 8.2K VCC3	
GPP_A11	MAIN	NATIVE	N_P_PME	P/U 8.2K VCC3	
GPP_A12	MAIN	GPI	N_GPP_A12	P/U 8.2K VCC3	
GPP_A13	MAIN	GPI	N_S_WARN	N/A	
GPP_A14	MAIN	NATIVE	N_GPP_A14	P/U 8.2K VCC3	
GPP_A15	MAIN	NATIVE	N_S_ACK	N/A	
GPP_B0	MAIN	CORR_VID0	N_DDR_V_SEL	P/U 8.2K VCC3	
GPP_B1	MAIN	CORR_VID0	N_N	N/A	
GPP_B2	MAIN	GPI	N_VREALT	P/U 8.2K VCC3	
GPP_B5	MAIN	GPI	N_PCIRK16_PR	P/U 8.2K VCC3	
GPP_B6	MAIN	GPI	N_GPP_B6	P/U 8.2K VCC3	
GPP_B7	MAIN	GPI	N_GPP_B7	P/U 8.2K VCC3	
GPP_B8	MAIN	GPI	N_PCIRK4_PR	P/U 8.2K VCC3	
GPP_B9	MAIN	GPI	N_GPP_B9	P/D GND	
GPP_B10	MAIN	GPI	NA_-CLKRQ5	P/U 8.2K VCC3	
GPP_B11	MAIN	GPI	N_SLP_00	N/A	
GPP_B12	MAIN	SLP_B0	N_SLP_00	N/A	
GPP_B13	MAIN	FLTRST	N_PFRST2	N/A	
GPP_B14	MAIN	N-G	GPI	N_S_FK6	P/U 1K VCC3
GPP_B18	MAIN	N-G	GPI	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN	GPI	N_GPP_B20	P/U 8.2K VCC3	
GPP_B22	MAIN	GPI	N_GPP_B22	P/D 1K GND	
GPP_B23	MAIN	GPI	N_PCH_RBT	N/A	
GPP_C0	MAIN	SMCLK	N_SMCLK	P/U 1K VCC3	
GPP_C1	MAIN	SHMDATA	N_SHMDATA	P/U 1K VCC3	
GPP_C2	MAIN	N-G	GPI	N_GPP_C2	P/U 8.2K VCC3
GPP_C3	MAIN	SHCLK	N_SHCLK	P/U 499 VCC3	
GPP_C4	MAIN	SHLODAT	N_SHLODAT	P/U 499 VCC3	
GPP_C5	MAIN	N-G	GPI	N_GPP_C5	N/A
GPP_C6	MAIN	GPI	N_SHCLK	P/U 8.2K VCC3	
GPP_C7	MAIN	GPI	N_SHLDAT	P/U 8.2K VCC3	
GPP_D4	MAIN	GPI	N_GPP_D4	P/U 8.2K VCC3	
GPP_D7	MAIN	GPI	N_GPP_D7	P/U 1K VCC3	
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 VCC3	
GPP_D0	MAIN	NATIVE	N_GPP_D0	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/A	N/A	
GPP_E4	MAIN	GPI	N_DVSFLK6	N/A	
GPP_E6	MAIN	GPI	N_DVSFLP2	N/A	
GPP_E7	MAIN	GPI	N/A	N/A	
GPP_E8	MAIN	GPI	N_-SATALED	N/A	
GPP_E9	MAIN	N-G	GPI	N_-USBOC_F	N/A
GPP_E10	MAIN	N-G	GPI	N_-USBOC_R	N/A
GPP_E11	MAIN	N-G	GPI	N_-USBOC_R	N/A
GPP_E12	MAIN	N-G	GPI	N_-USBOC_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_GPP_F6	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_-SKTVC0	P/U 8.2K VCC3	
GPP_F15	MAIN	GPI	N_-USBOC_F	N/A	
GPP_F16	MAIN	GPI	N_-USBOC_F	N/A	
GPP_F17	MAIN	GPI	N_-USBOC_R	N/A	
GPP_F18	MAIN	GPI	N_-USBOC_R	P/U 8.2K VCC3	
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_G13	MAIN	GPI	N_GPP_G13	N/A	
GPP_G14	MAIN	GPI	N_GT_S	P/U 8.2K VCC3	
GPP_G15	MAIN	GPI	N_CPU_S	P/U 8.2K VCC3	
GPP_G16	MAIN	GPI	N/A	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_G30	MAIN	GPI	N_GPP_G30	P/U 8.2K VCC3	
GPP_G31	MAIN	GPI	N_GPP_G31	P/U 8.2K VCC3	
GPP_H19	MAIN	GPI	N_GPP_H19	P/U 8.2K VCC3	
GPP_H20	MAIN	GPI	N_GPP_H20	P/U 8.2K VCC3	
GPP_H21	MAIN	GPI	N_GPP_H21	P/U 8.2K VCC3	

PIN NAME	POWER	Default	USAGE	NOTE
GFP_R22	MAIN	GPI	N_GPP_H22	P/U 8.2K 3VDDA
GFP_0	MAIN	GPI	N_HDMI_HDP_F	N/A
GFP_11	MAIN	GPI	N_DVI_HDP_F	P/U 1M VCC3
GFP_12	MAIN	GPI	DP_HDP	N/A
GFP_13	MAIN	GPI	VGA_HDP	N/A
GFP_14	MAIN	GPI	N_GFP_14	P/D 100K VDD
GFP_15	MAIN	GPI	N_DOPD_CTRLCLK	P/U 2.2K VCC3
GFP_16	MAIN	GPO	N_DOPD_CTRLDATA	P/U 2.2K VCC3
GFP_17	MAIN	GPI	N_DOPD_CTRLCLK	P/U 2.2K VCC3
GFP_18	MAIN	GPI	N_DOPD_CTRLDATA	P/U 2.2K VCC3
GFP_19	MAIN	GPI	N_DOPD_CTRLCLK	P/U 2.2K VCC3
GFP_110	MAIN	GPI	N_DOPD_CTRLCLK	P/U 2.2K VCC3
GD0	STBY	BATLOW	N_BATLOW	P/U 8.2K 3VDDAL PC
GD1	STBY	ACPRESENT	N_GP1_D	P/U 8.2K 3VDDAL PC
GD2	STBY	LAN_WAKE	N_LAN_WAKE	P/U 8.2K 3VDDAL PC
GD3	STBY	PWRBTN	O_PWRBTN	P/U 8.2K 3VDDAL PC
GD4	STBY	SLEP_S1	N_SLEP_S1	P/U 8.2K 3VDDAL PC
GD5	STBY	SLEP_S4	N_SLEP_S4	P/U 8.2K 3VDDAL PC
GD6	STBY	SLEP_S1	N_SLEP_S1	P/U 8.2K 3VDDAL PC
GD7	STBY	NATIVE	N/A	P/D 1.5K VDD
GD8	STBY	SUSCLK	N_SUSCLK	P/U 8.2K 3VDDAL PC
GD9	STBY	SLEP_S5	N_SLEP_S5	N/A
GD11	STBY	LAMPHY	N_LAN_DIO	P/U 8.2K 3VDDAL PC

Super I/O ITE8628 GPIO Table



PWM各相位的擺法如下：



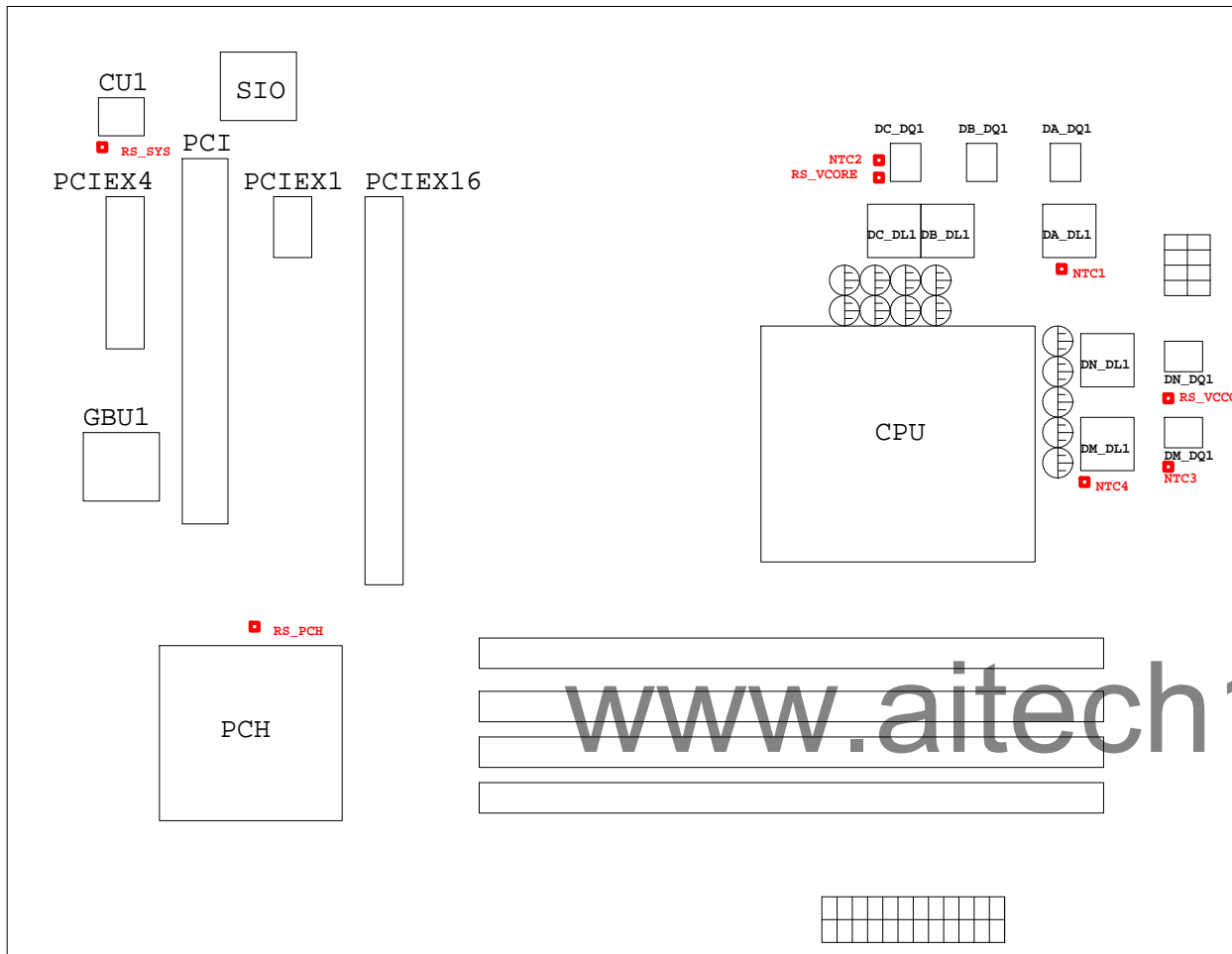
BIOS超電壓對應表:

散熱模組料號:

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCSA	CPU System Agent Voltage
VCCIO	CPU I/O Voltage
VCC1_0 PCH	PCIe core
VDDO	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVT	DRAM Termination
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

Q170M-D3H-GSM :
PCH : 12SP2-030005-51R / 53R
MOSFET : N/A

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	+12V	FANPWM1	FANIO1	IT8628
SYS FAN1	FANPWM2	VCC	FANIO2	IT8628
	FAN1_VOUT	N/A	N/A	NCT3941



熱敏電阻	擺放靠近位置	走線方式
NTC1	DM_DL1	Differential
NTC2	DA_DL1	Differential
NTC3	DA_DQ1	Differential
NTC4	DM_DQ1	Differential
RS_VCORE	DC_DQ1	N/A
RS_VCCGT	DN_DQ1	N/A
RS_PCH	PCH	N/A
RS_SYS	CU1	N/A