

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B-DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR4 CHANNEL A
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	ETRON EJ1790D TYPE_C
21	M.2X4
22	M.2 WIFI
23	SATA EXPRESS
24	ISL95858 PWM_VCORE
25	ISL95858 MOS_VCORE
26	ISL95858 MOS_VCCGT
27	VCCSA_VCCIO_VCCPLL

SHEET TITLE

28	RT8120_DDR_VDDQ
29	RT8068_VPP_25V
30	RT8120_PCH_VCC1_0_PCH
31	DISCRETE POWER
32	NCT3933
33	ATX POWER , A_-PROCHOT
34	R_USB30,KB_MS_USB3
35	DVI-D CONN
36	HDMI DUAL
37	INTEL I219
38	INTEL I211
39	DUAL_USB30_LAN -I219_I211
40	Realtek ALC1150
41	REAR AUDIO JACK
42	AUDIO POWER
43	F_USB30
44	F_USB
45	F_PANEL
46	EMI-ESD
47	TABLE LIST
48	POWER MAP

rev 1.0

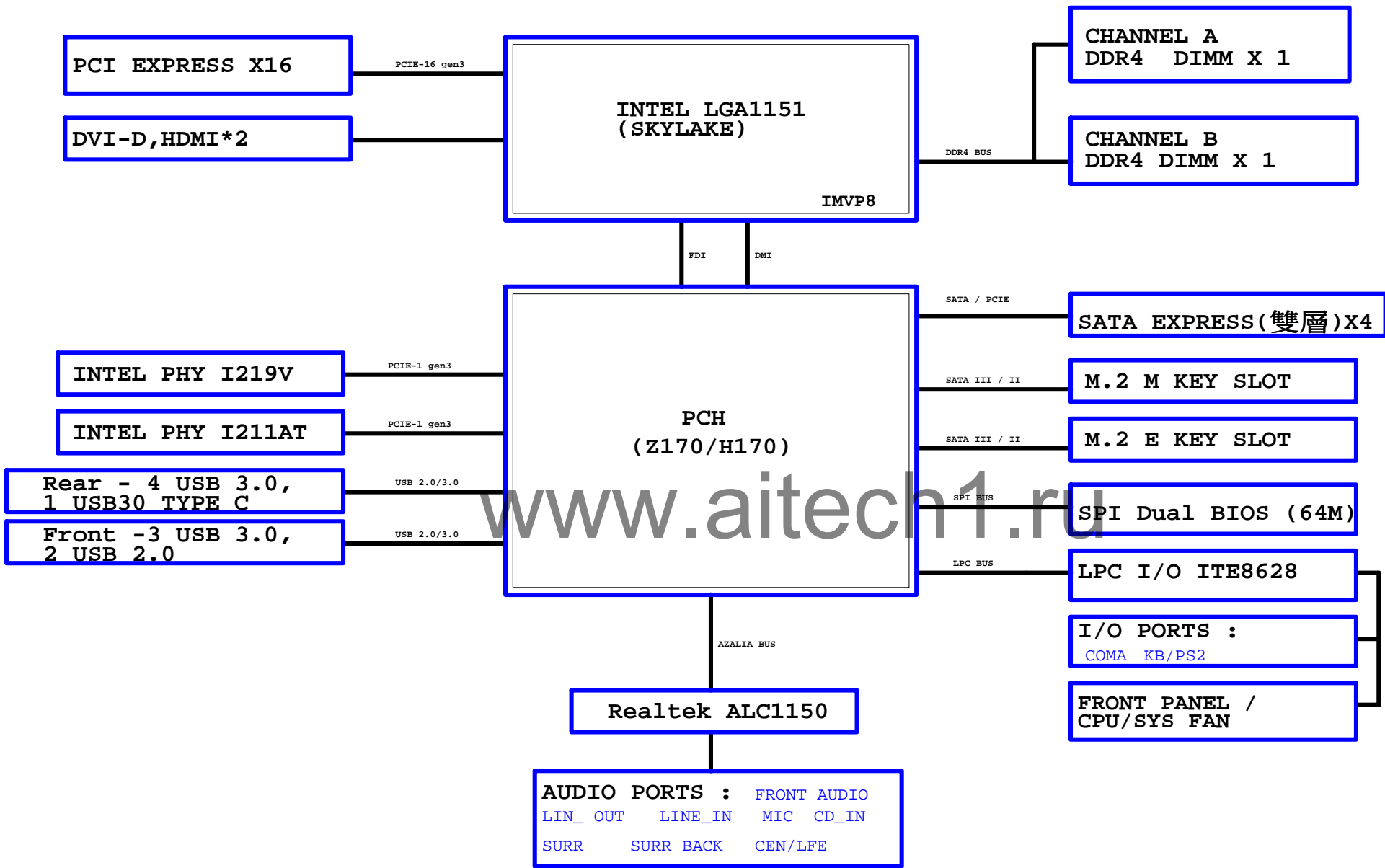
Circuit or PCB layout change

Component value change history

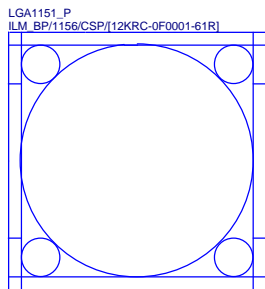
2015/07/17

[illegible][illegible]

BLOCK DIAGRAM



* 改DDR4 net



Need check the new CPU ME

BLACK NI

[8] MODT_A[0..1] ↔ MODT_A0_11

[9] MODT_B[0..1] ↔ MODT_B0_11

[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]

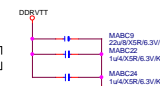
[9] M_DQSBB[0..7] ↔ M_DQSBB[0_7]

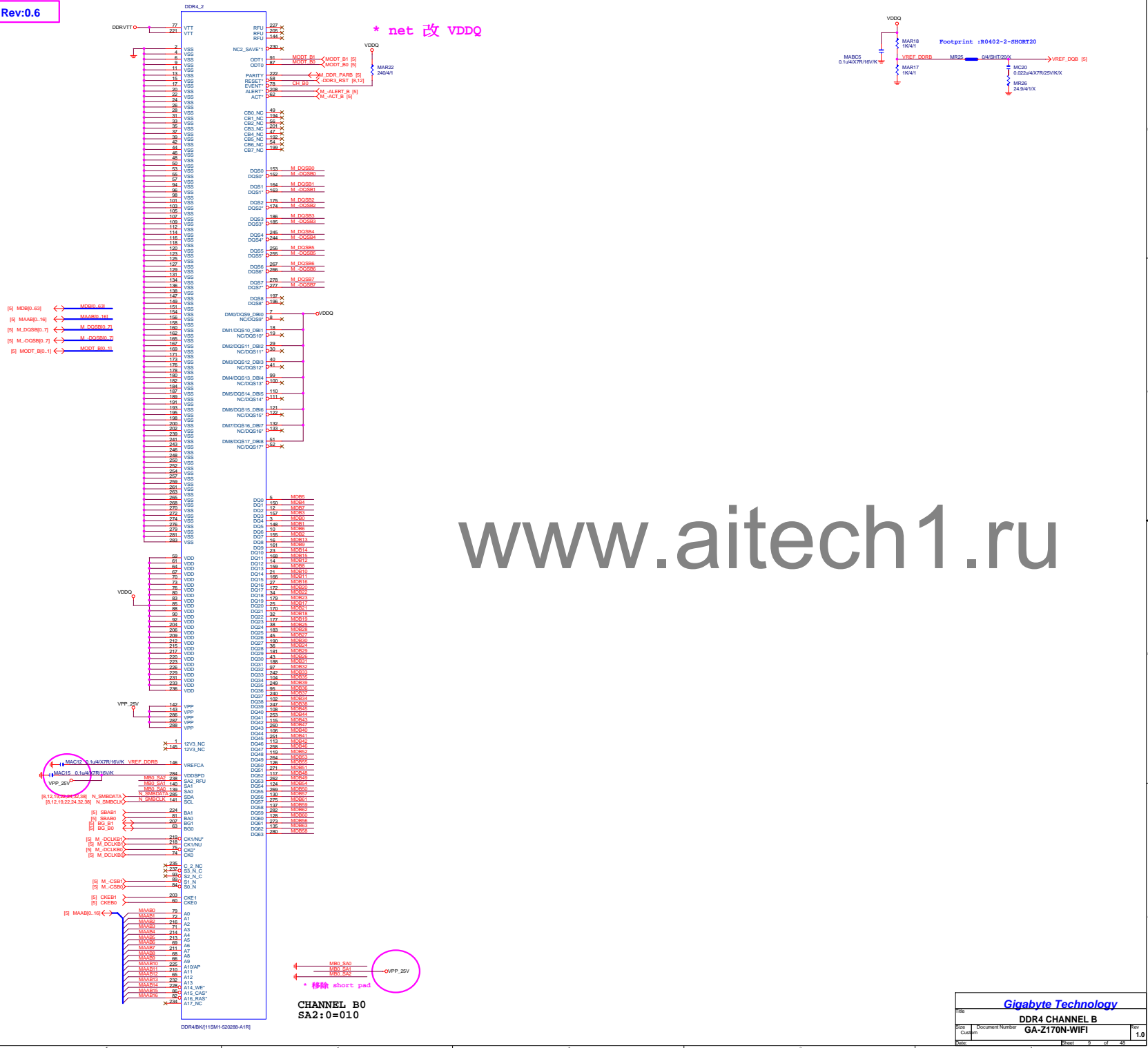
[9] M_-DQSBB[0..7] ↔ M_-DQSBB[0_7]

Gigabyte Technology

Title **CRILL CA1151 B**

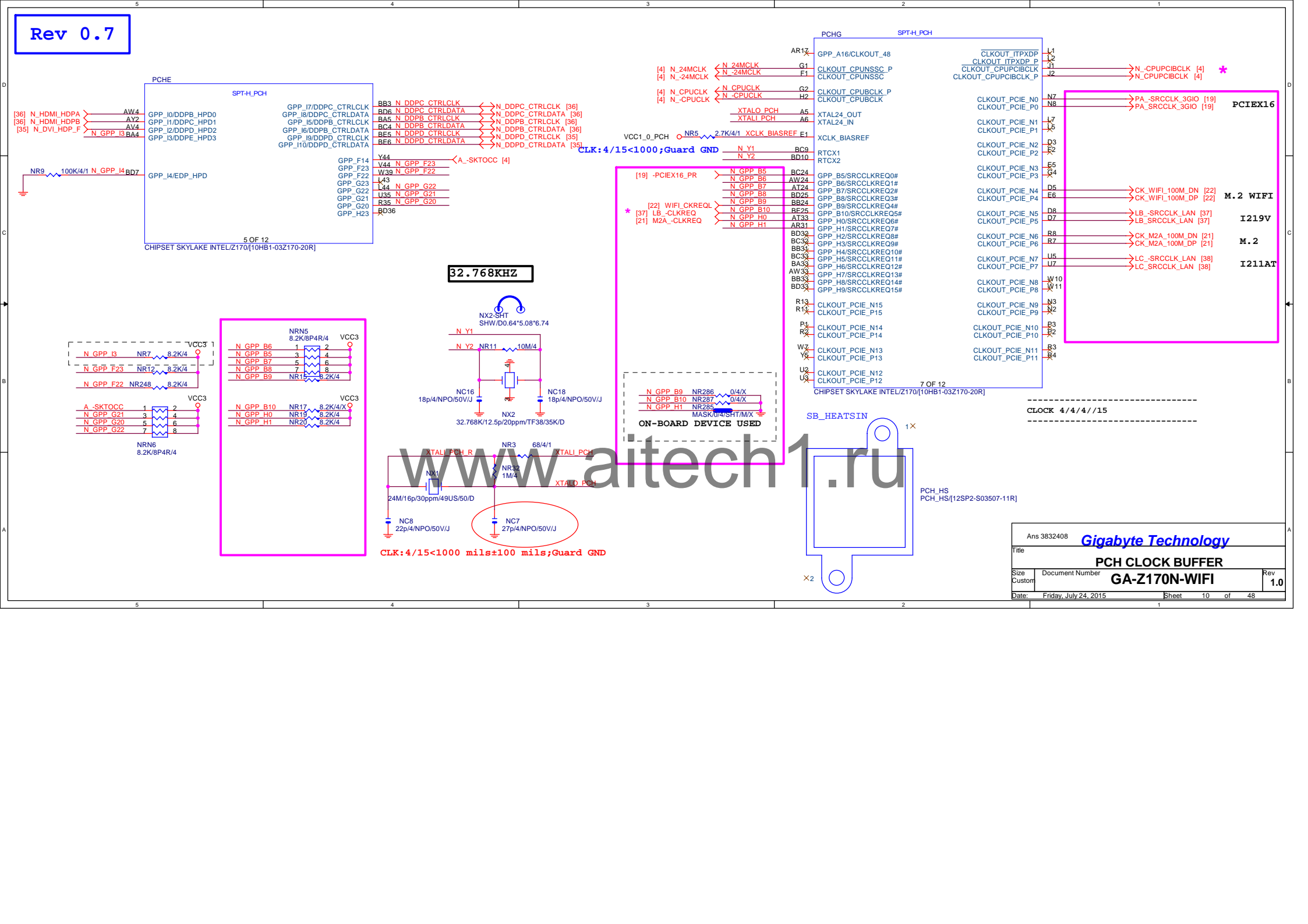
Size Custom	Document Number GA-Z170N-WIFI	Rev 1.0
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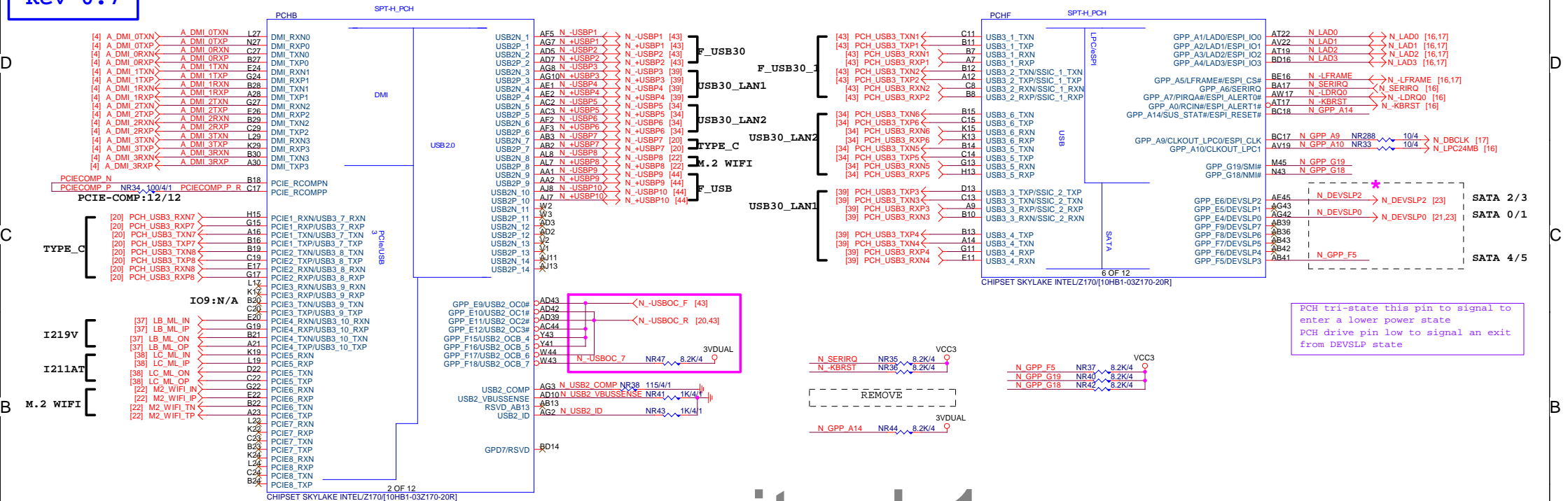




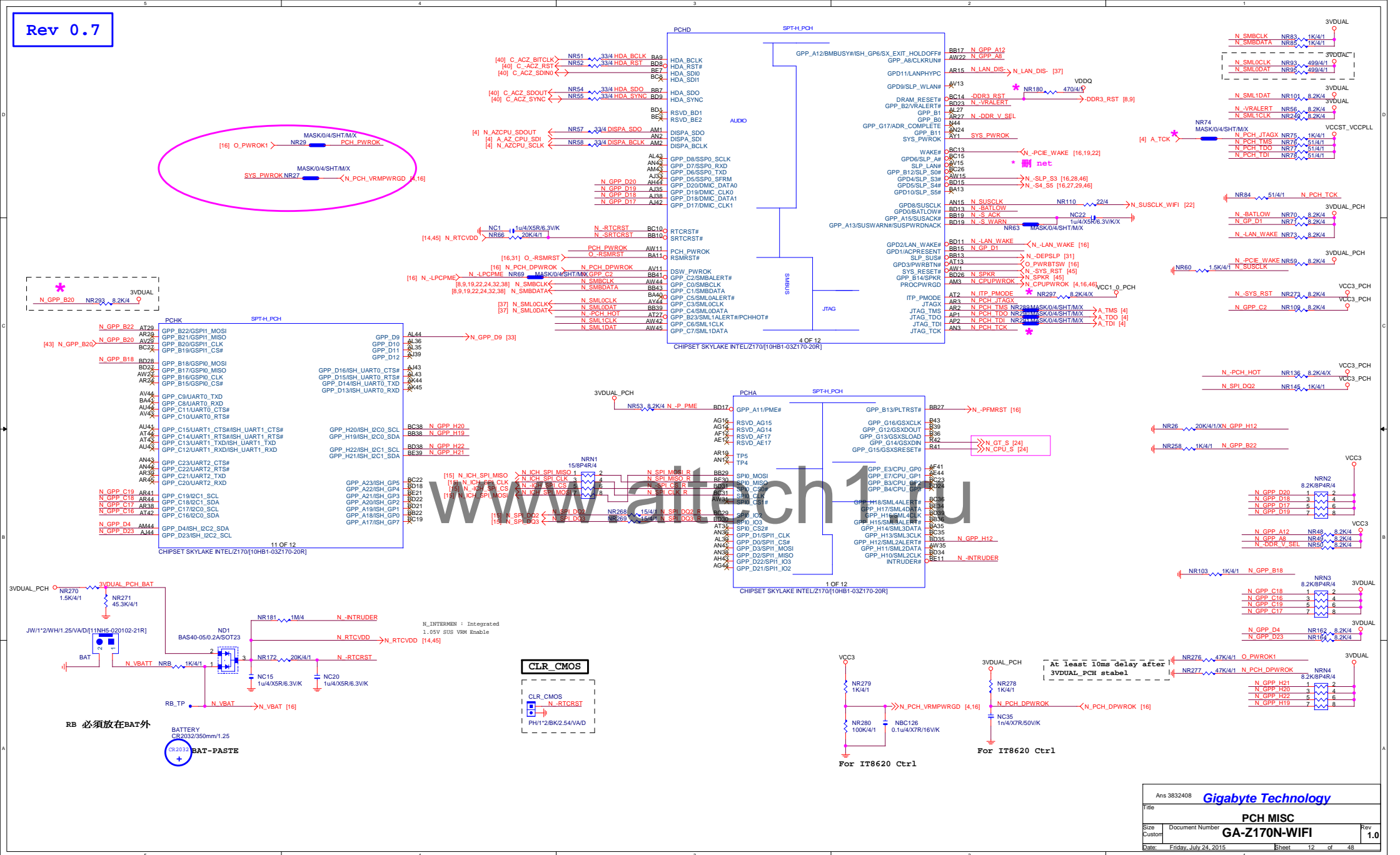
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Rev 0.7



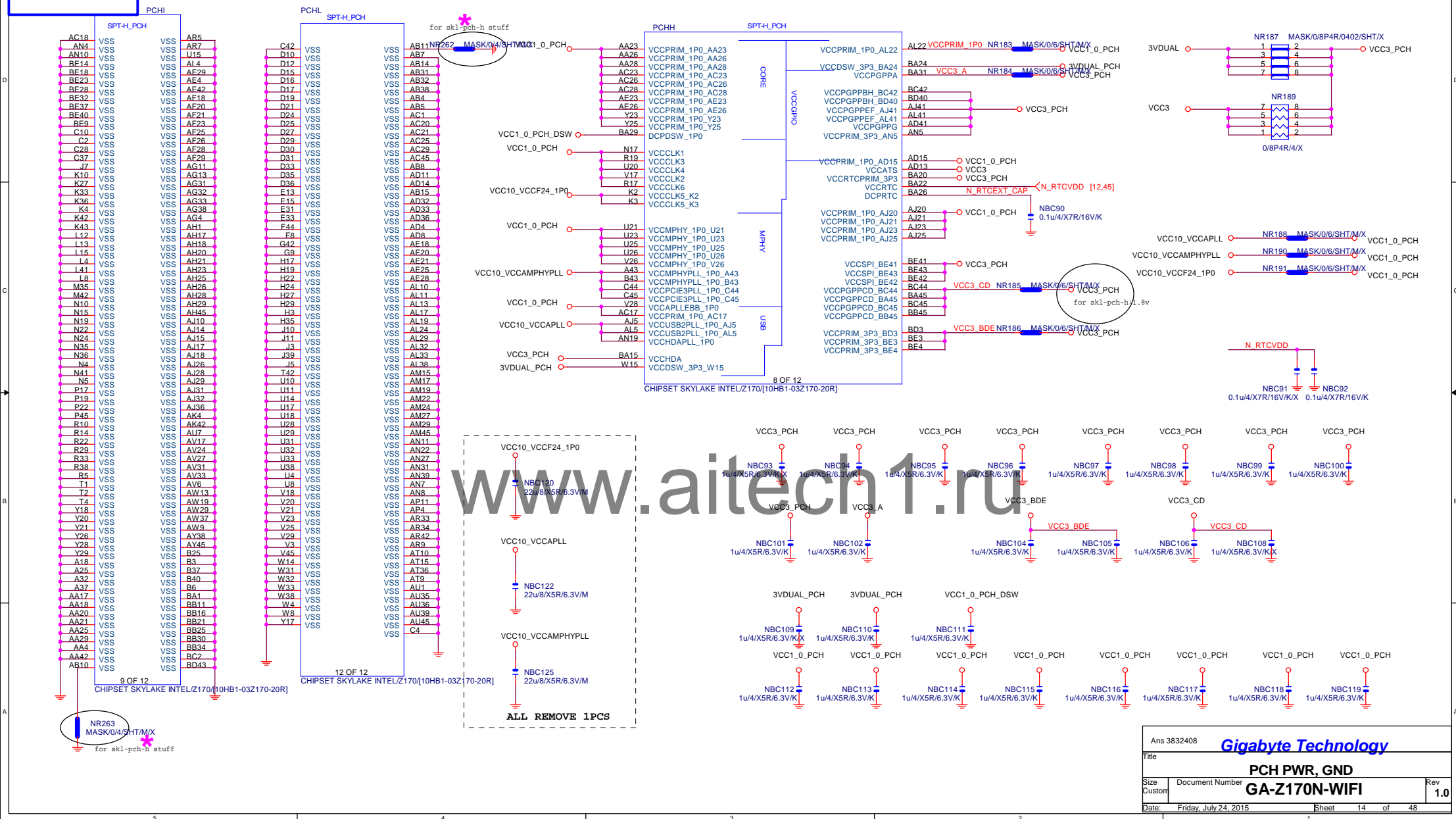


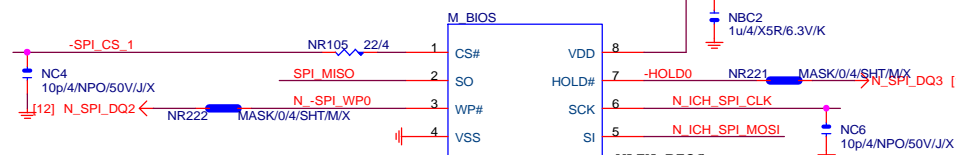
www.aitech1.ru



Rev 0.7

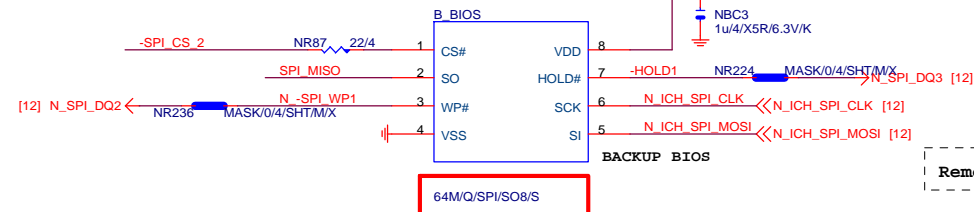






64M/Q/SPI/SO8/S

* (footprint
改SOIC8-SPI-SOCKET)



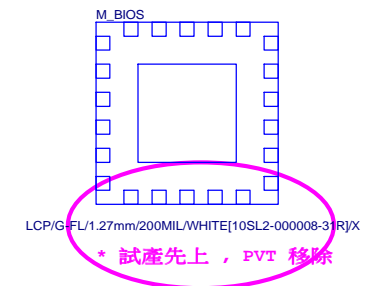
* (footprint 改 IC8-BIOS)

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

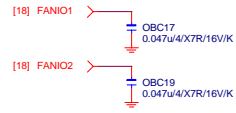
1 means floating
0 means PD 1K

Remove NBC4

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SIO IT8628cX REV:1.08



CPU_FAN
SYS_FAN1

新增

[12] N_PCH_DPWRCK
[45] BEEP-

THRMTRIP 1

[12] N_PFMST
[11] N_LDRQ0
[11,17] N_LFRAME

PWRCK

N_PFMST

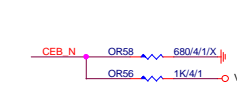
Placement CPU

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

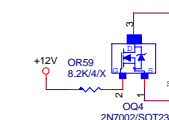
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL4 FAN_TAC4
OPT_FAN or SYS_FAN4	N/A
THRMTRIP1	YES PIN56
THRMTRIP2	YES PIN31

IT8628E GPIO問題匯整	
PIN 50	GP26-第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLDE FUNCTION, GP93 BYPASS TO GP92 高阻時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟PAN6 FUNCTION 擇一使用, 不然會互相干擾
PIN 22	PIN23-, 需高於3V-, 若低於此部分COM PORT及LPT裝置 蜂鳴器會異常動作。

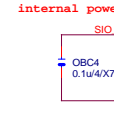
DUAL BIOS OPT STRAP



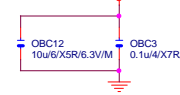
Power leakage



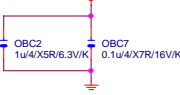
SIO_18V



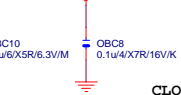
SIO CAP



IT_VCCB



IT_AVCC



3VDUAL_PCH



2_5LEVEL



MB ID



PWR SHT



SIO PU



N_LDRQ0



ITE_PWRCK2



ITE_PWRCK



PROCHOT_CON



N_A20GATE



SIO STRAP



EUP control detect



JP2

1 Disable WDT

0 Enable WDT to rest PWRCK

JP3

1 SPI-Flash Disable

0 SPI-Flash 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

JP5

1 1 The default value of EC Index 63h/6Bh/73h is 80h.

JP3 1 0 The default value of EC Index 63h/6Bh/73h is FFh

JP5 0 1 The default value of EC Index 63h/6Bh/73h is 00h.

JP5 0 0 The default value of EC Index 63h/6Bh/73h is 40h.

ERP WAKE on LAN (依LAN組態選擇)

(組態一)

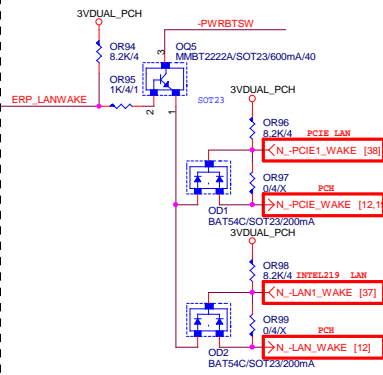
Realtek/ATHEROS LAN

(組態二)

Intel LAN

(組態三)

Dual LAN

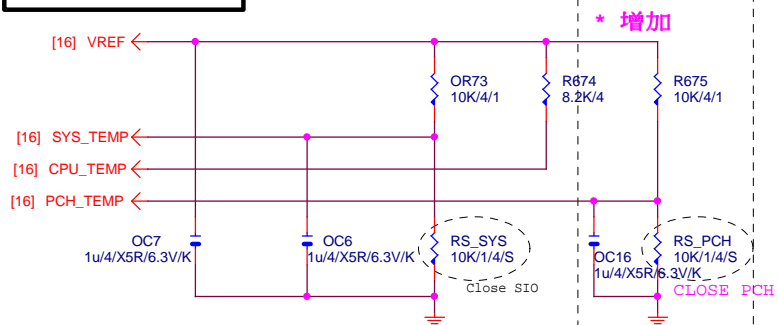


ERP Wake on LAN		
Single LAN	Realtek	組態一
	Atheros	組態一
Dual LAN	Intel 219	組態二
	Atheros+Atheros	組態一
	Intel 219+Atheros	組態一
No Support ERP	Intel 219+Intel 210	組態三
	BOM不上	N/A

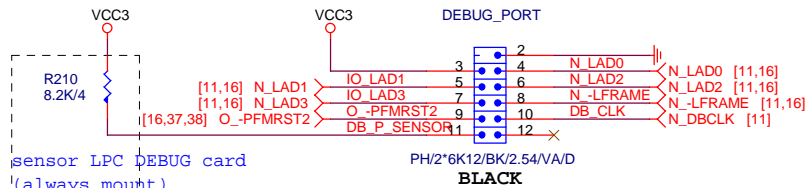
Gigabyte Technology			
ITE 8628 LPC IO			
GA-Z170N-WIFI			
Size Custom	Document Number	Rev 1.0	
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REV:1.07

TEMP H/W MONITOR

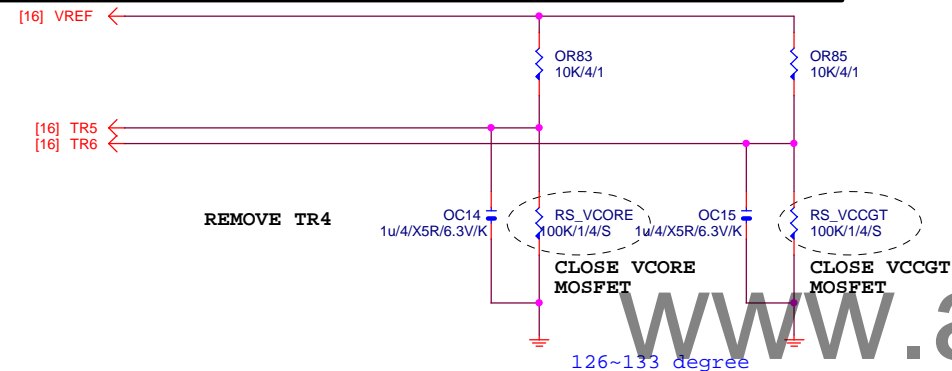


DEBUG PORT

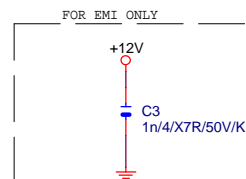
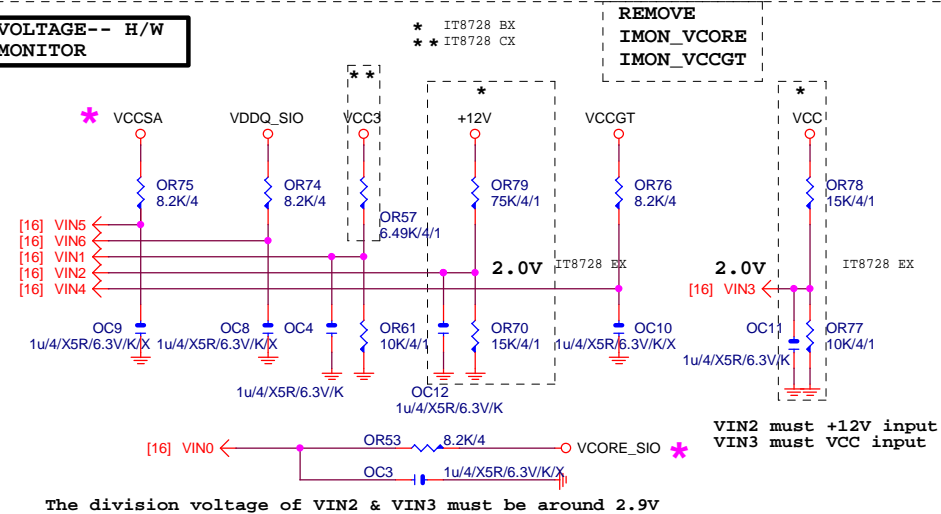


RS_VCORE > RS_VCCGT CLOSE CPU_VCORE & VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function



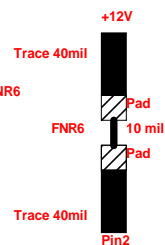
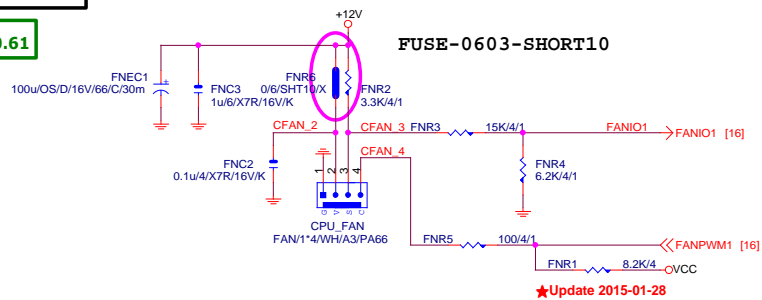
VOLTAGE-- H/W MONITOR



Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL	
Size	Document Number	GA-Z170N-WIFI		Rev
Custom				1.0
Date:	Friday, July 24, 2015	Sheet	17 of 48	

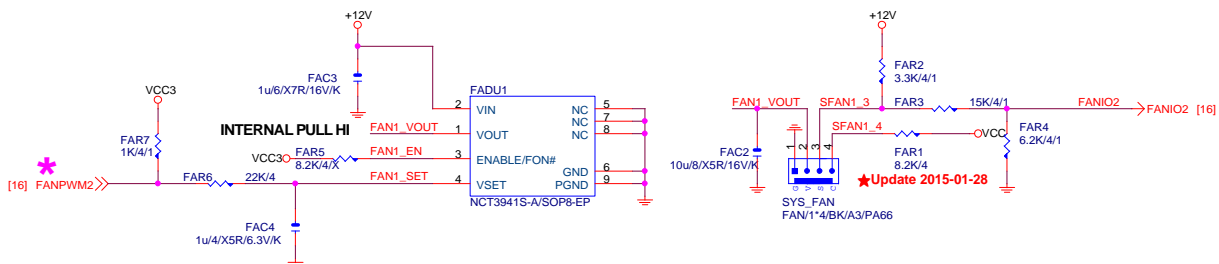
Rev: 0.61



Linear SYS_FAN

Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

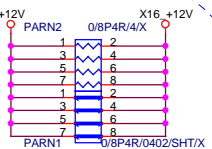
A.



N/A

N/A

Rev 0.2

+12V_protect
short-wire test

PCIESLOT-164P

[8,9,12,22,24,32,38] N_SMBCLK
[8,9,12,22,24,32,38] N_SMBDATA

[12,16,22] N_-PCIE_WAKE

[10] -PCIE16_PR

PA_EXP_RXP0..15] >> PA_EXP_RXP0..15] [4]
 PA_EXP_RXN0..15] >> PA_EXP_RXN0..15] [4]
 PA_EXP_TXP0..15] >> PA_EXP_TXP0..15] [4]
 PA_EXP_TXN0..15] >> PA_EXP_TXN0..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

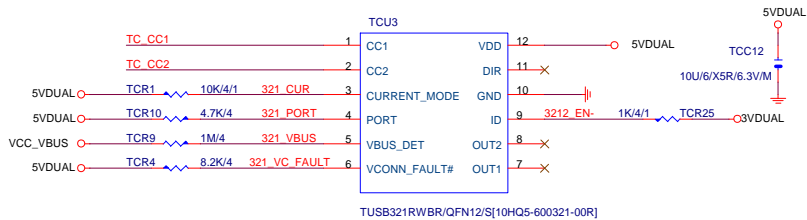
PCI-E REV:2.0--> 5GHZ

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

NPA雙魚叉

Gigabyte Technology		
Title		
PCI EXPRESS * 16		
Size Custom		
Document Number		
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Type C U30 SW Rev. 1.02

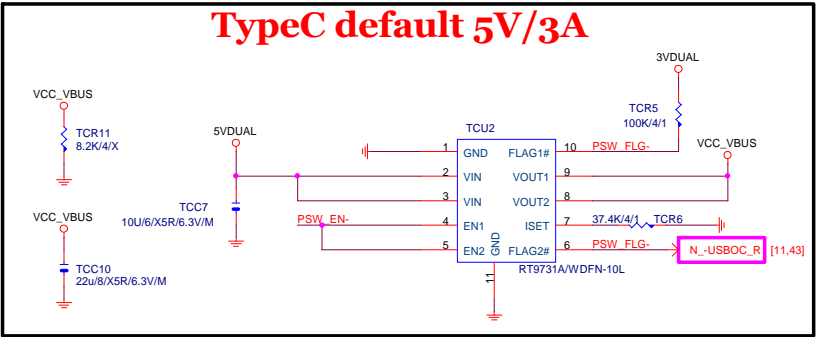


CURRENT MODE

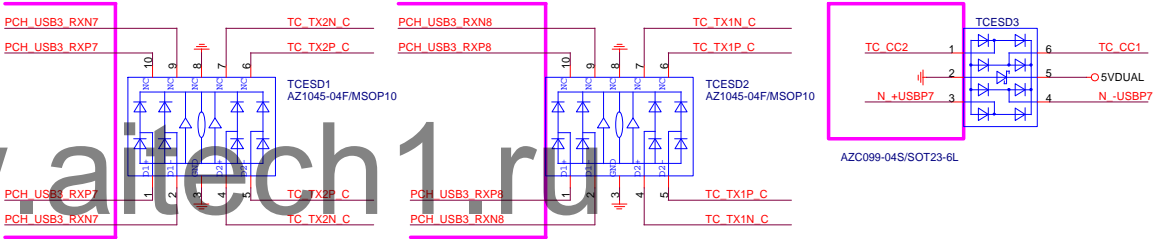
L - Default current / Pull down to GND or NC
M - Medium (1.5A) current / Pull up to VDD 500K
H - High (3.0A) current / Pull up to VDD 10K

PORT

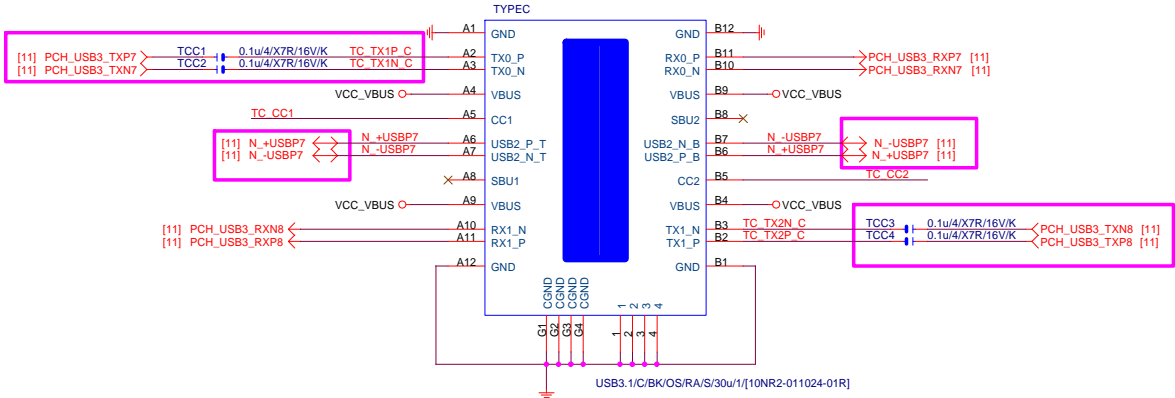
H - HOST
L - Device
NC - Dual Role



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Color markers can be changed by model



USB2.0 can be used the same source

M.2 Lane4 from PCH port18

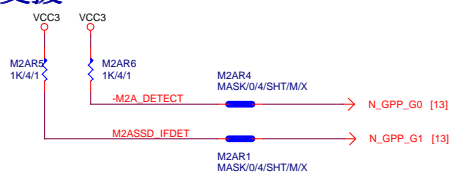
M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

M.2 Lane2 from PCH port15

需與M2_-CLKREQ對應

支援SATA and M.2 function

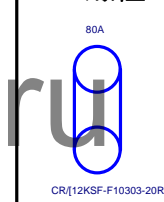
SATA : GND
PCIE : NC

M2插卡時為Low

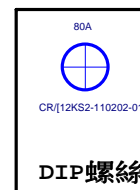
NGFF-M-75P-CUT42
REMOVE 42A, FOOTPRINT正反共用.

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

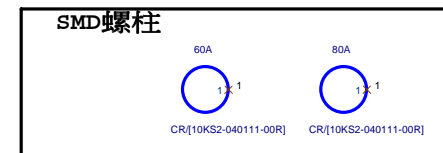
DIP螺柱



DIP螺絲



SMD螺柱



FOOTPRINT: 276c236B165P

M.2上在背板須修改:

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

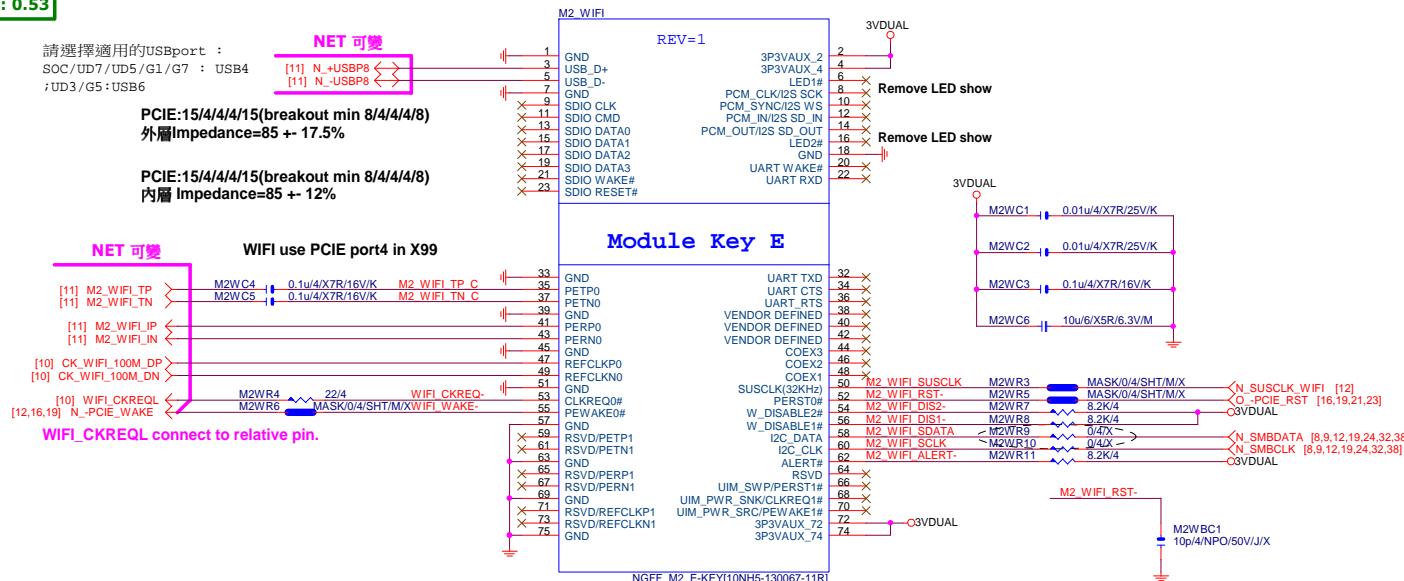
Gigabyte Technology

M.2 X4

GA-Z170N-WIFI

Rev
1.0

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FOR M.2 WIFI MODULE ON BOARD

WIFI CARD 螺絲BOM建成WIFI-BRACKET

WIFI-SCREW

SCREW M2*4mm[12KS2-010204-31R]/X

N/A-->已包含在WIFI-BRACKET內

FOR M.2 WIFI PIN SIZE

SMA ANT2
SMA[11NH6-010001-71R]

SMA ANT1
SMA[11NH6-010001-71R]

ANTENNA_BRACKET
BRACKET[12AC2-000001-01R]

WIFI-CAP 白色透明

M2_WIFI_CAP[111KWP-000001-11R]

MODULE 可變

M.2 EKEY

WIFI_MODULE
Wi-Fi WITH BT M.2 CARD QUALCOM[20CB1-028260-10R]

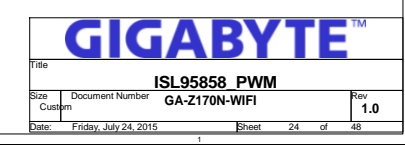
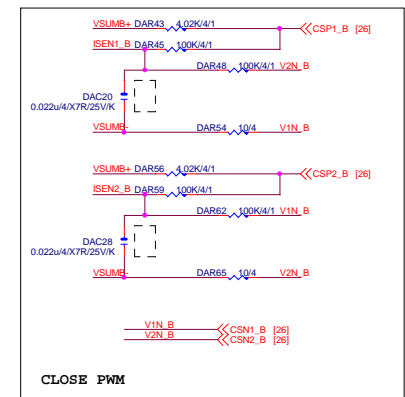
WIFI-BRACKET

1 X 1 2 X 2

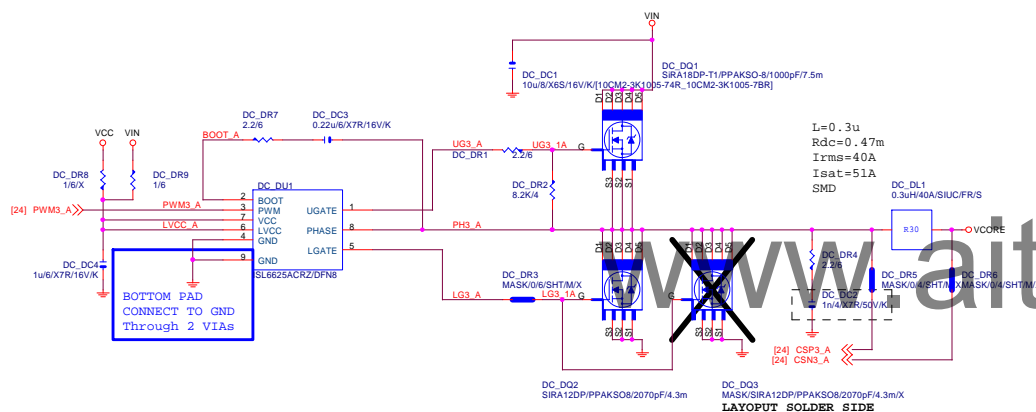
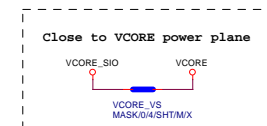
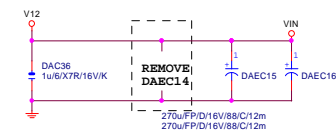
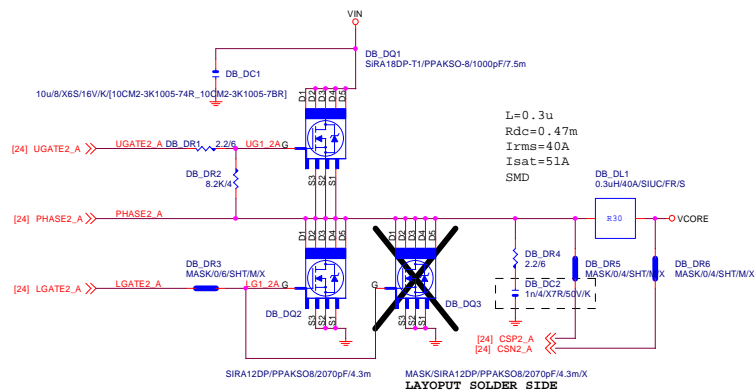
WIFI-BRACKET[12AC2-000005-01R]

M.2 WIFI 支架料號包含
底座螺絲及CARD螺絲

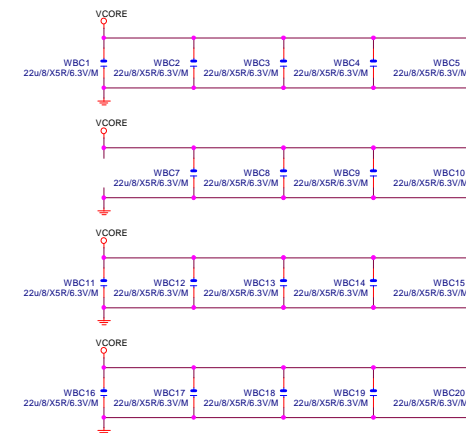
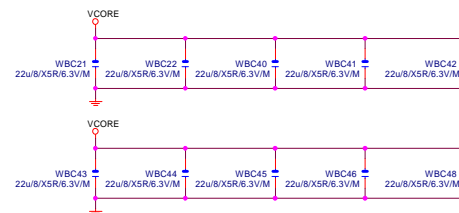
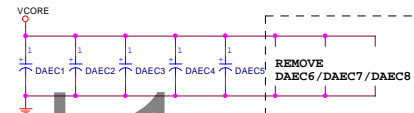
FOOTPRINT:
M2-WIFI-BRACKET



VCORE



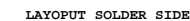
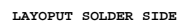
VCORE CAP 560u*5PCS
22u*29PCS



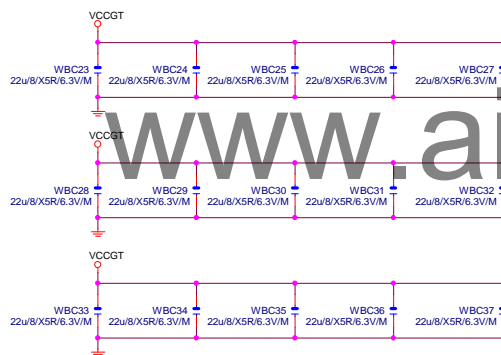
GIGABYTE™

Title			
ISL95858 MOS			
Size	Document Number	Rev	
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[24] L



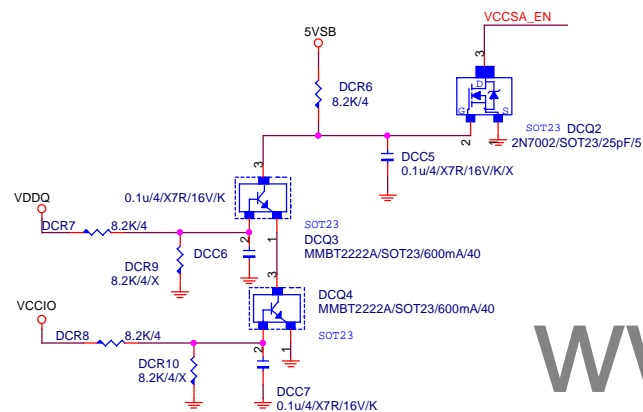
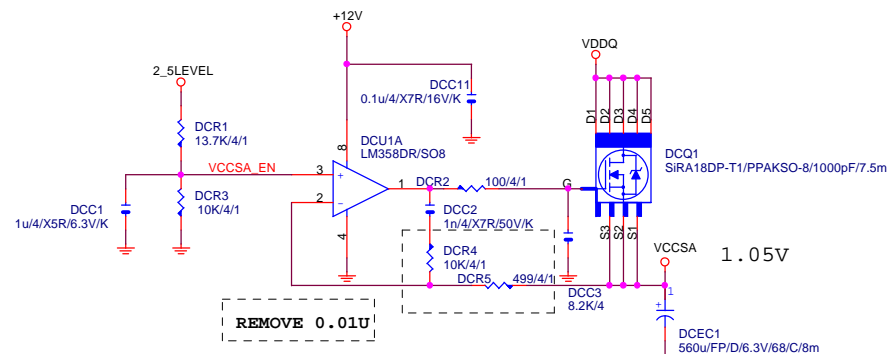
560u*3PCS
22u*15PCS



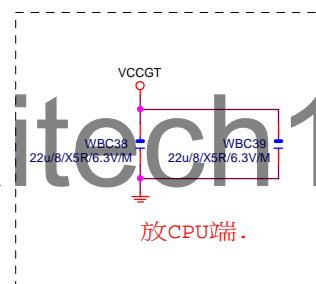
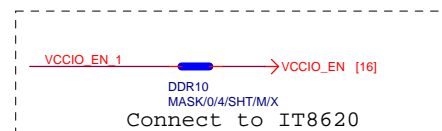
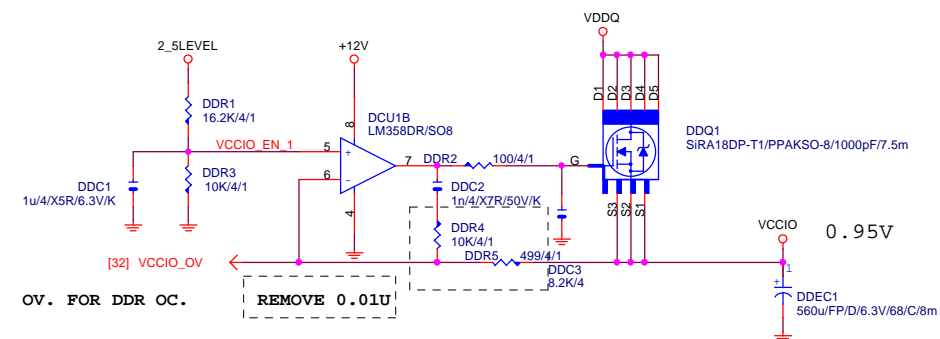
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VCCSA

REV:0.4

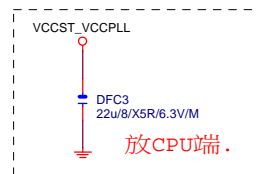
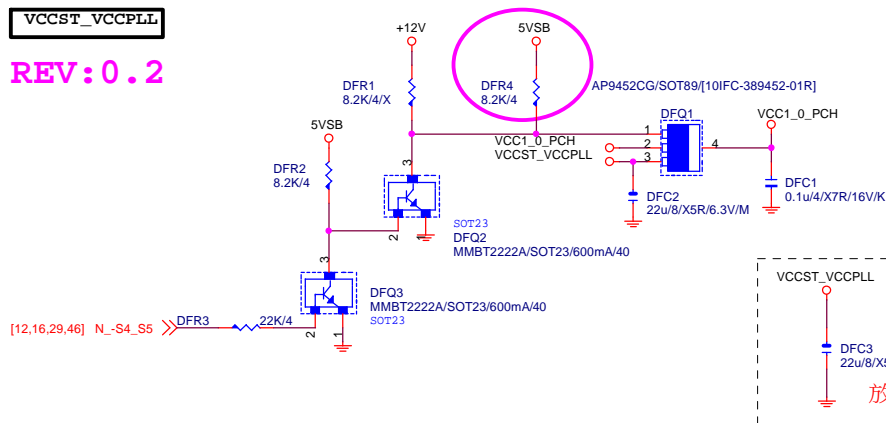


VCCIO



VCCST_VCCPLL

REV:0.2

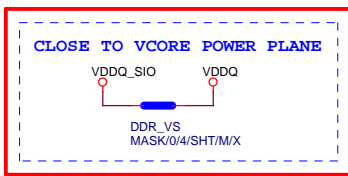


GIGABYTE™

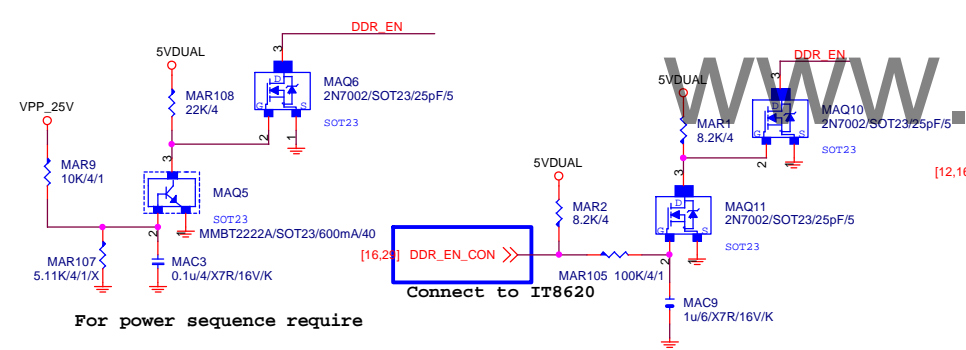
Title			VCCSA VCCIO
Size	Document Number		GA-Z170N-WIFI
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DDR4 VDDQ

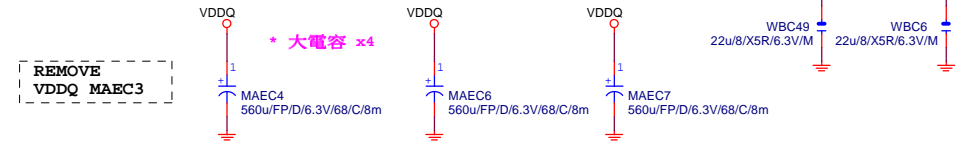
REV:0.86



PWR SEQ



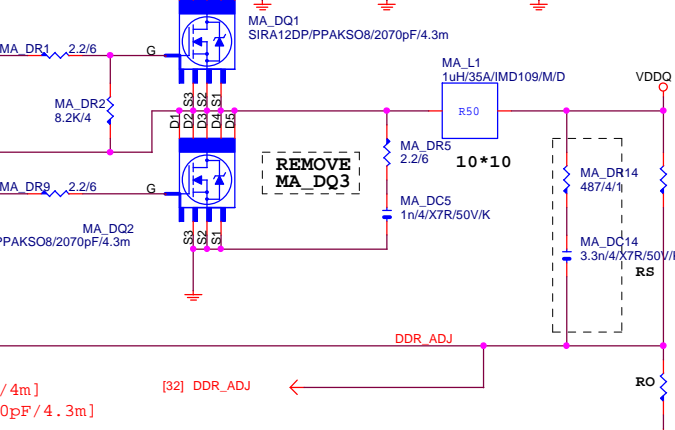
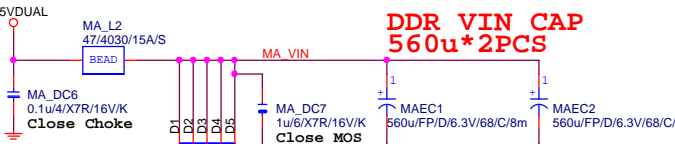
DDR CAP 560u*4PCS 22u*2PCS



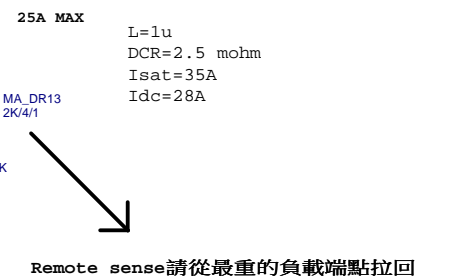
DDRVTT CAP



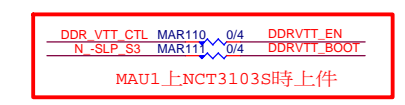
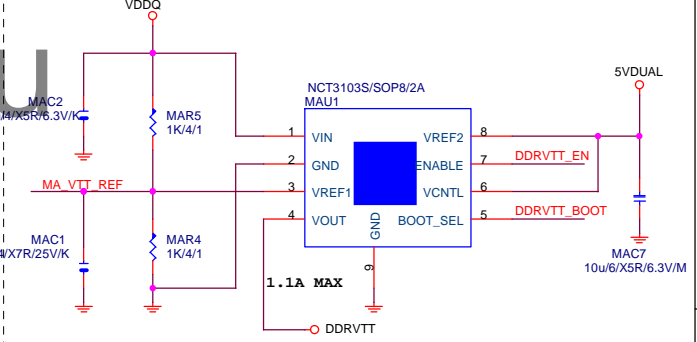
CHOKES與CAP料號可變



SUPPORT DDR4 1.2V



DDRVTT



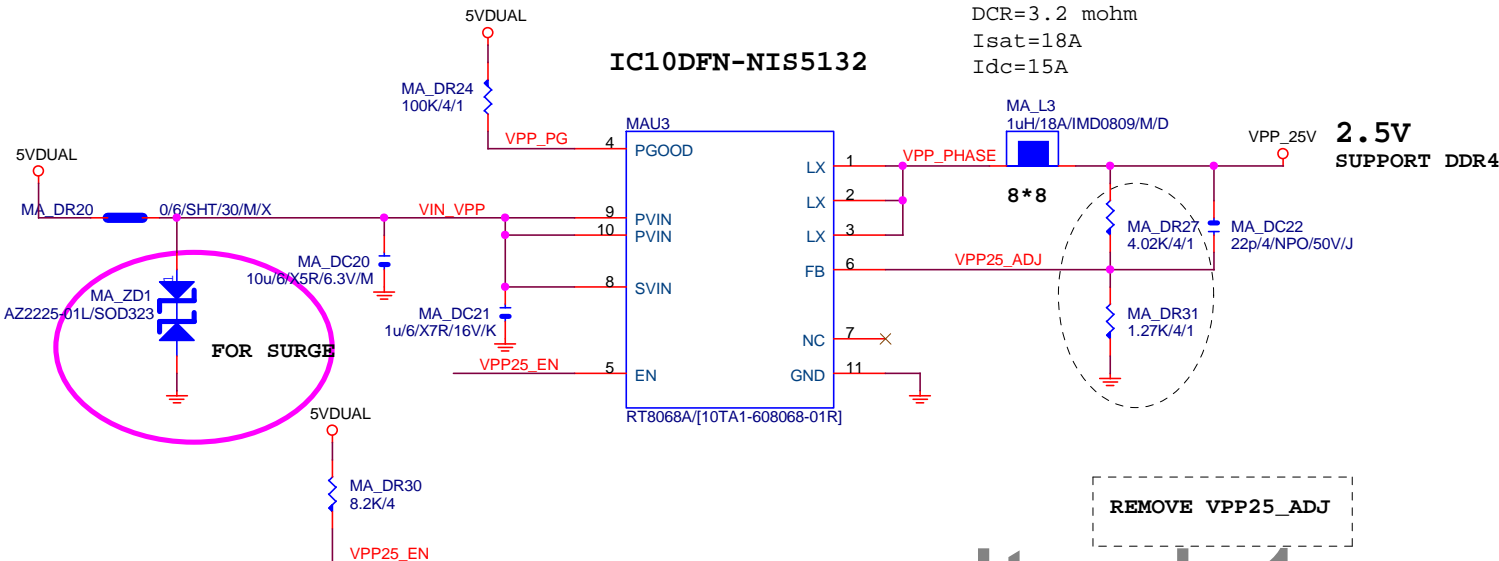
GIGABYTE™			
Title RT8120_DDR POWER			
Size Custom	Document Number GA-Z170N-WIFI	Rev 1.0	
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VPP_25V

REV:0.88 (IRON CHOKE)

CHOKE與CAP料號可變

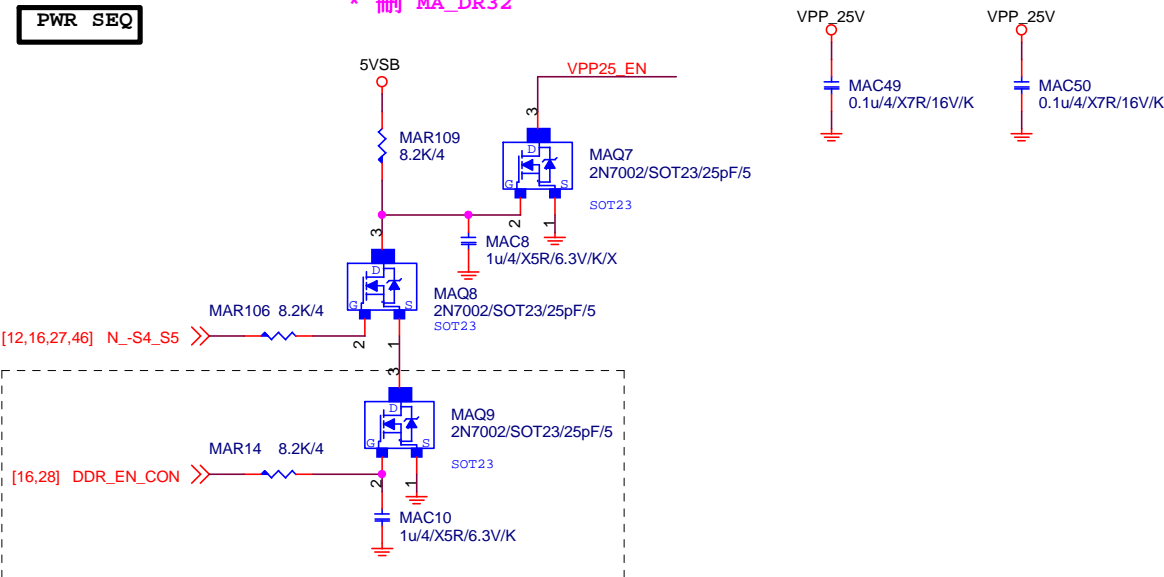
L=1u
DCR=3.2 mohm
Isat=18A
Idc=15A



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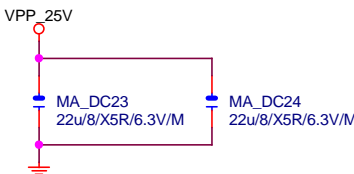
PWR_SEQ

* 刪 MA_DR32



VPP CAP 22u*1PCS

* 大電容 x0

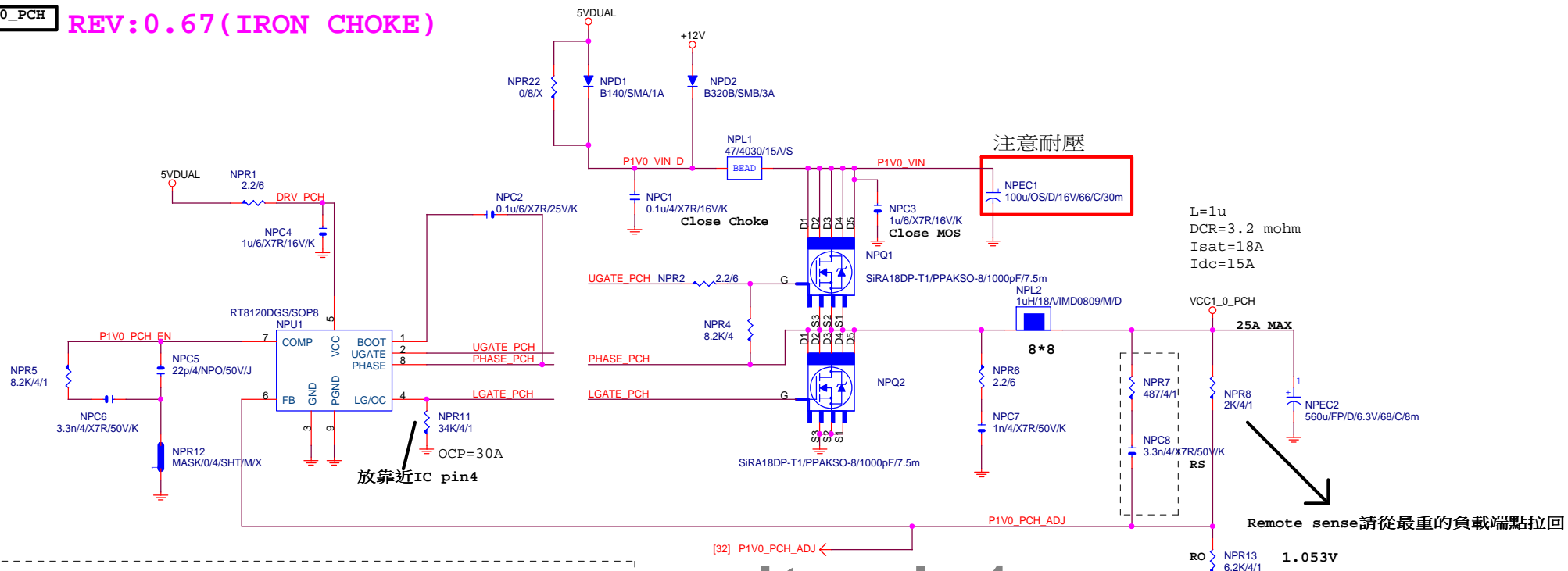


GIGABYTE™

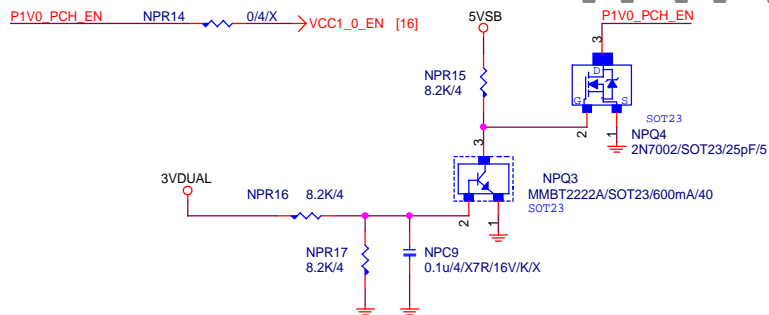
Title RT8068A_VPP25 POWER		
Size Custom	Document Number GA-Z170N-WIFI	Rev 1.0
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VCC1_0_PCH

REV:0.67 (IRON CHOKE)



PWR_SEQ

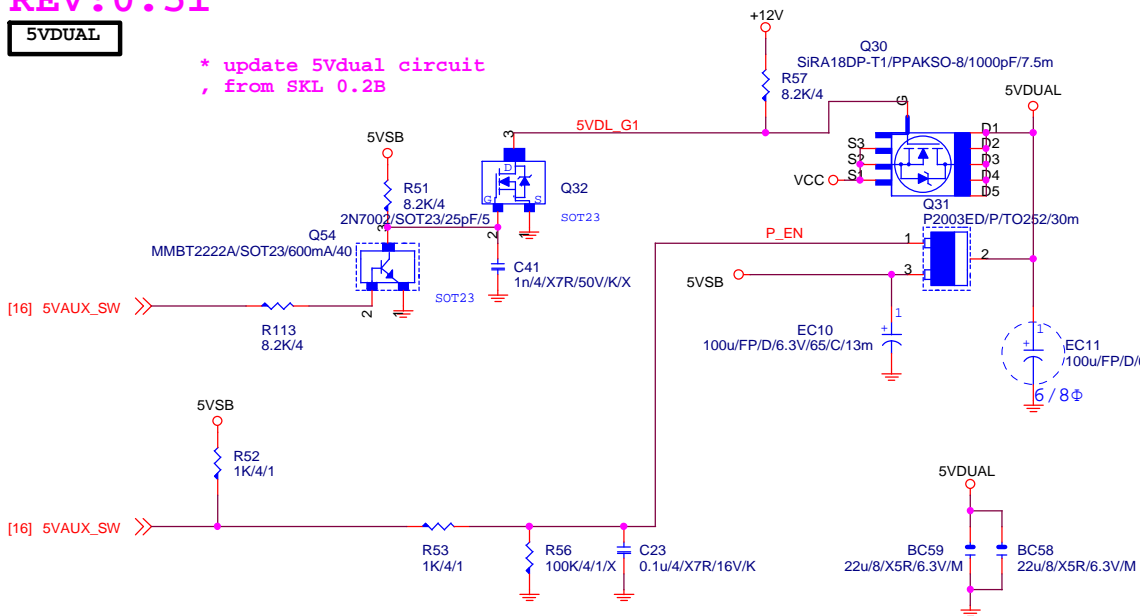


GIGABYTE™			
Title			
RT8120_PCH POWER			
Size	Document Number	Rev	
Custom	GA-Z170N-WIFI	1.0	
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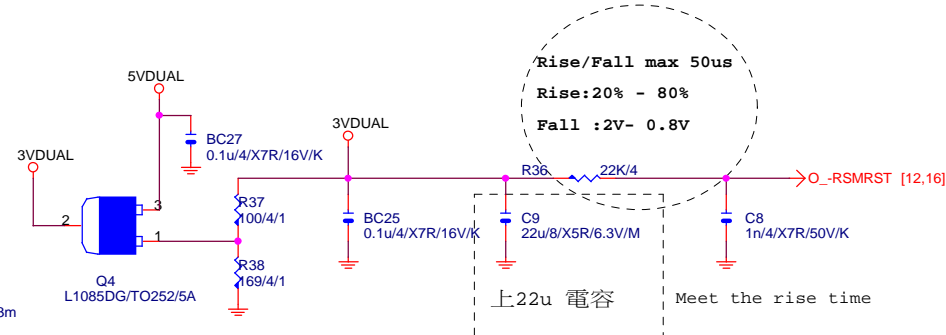
REV:0.51

5VDUAL

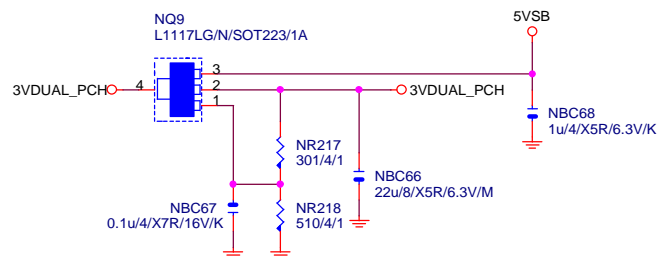
* update 5Vdual circuit
from SKL 0.2B



3VDUAL

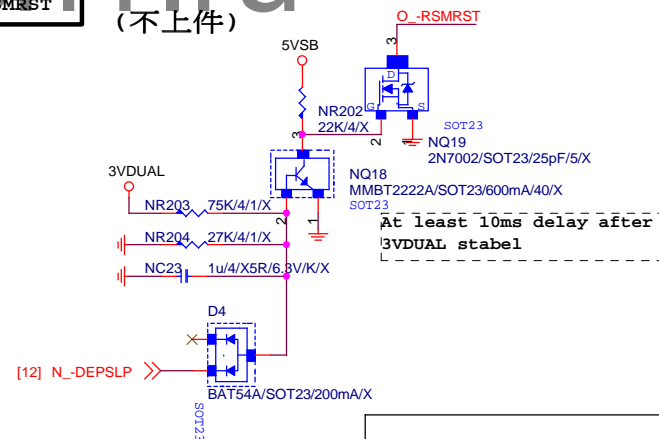


3VDUAL_PCH



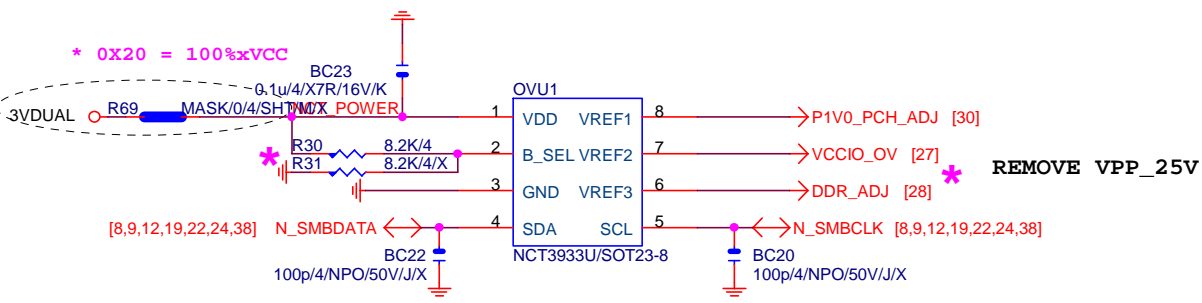
O_RSMRST

(不上件)



Gigabyte Technology			
Title			
DISCRETE POWER			
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Custom		1.0	
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OVER VOLTAGE

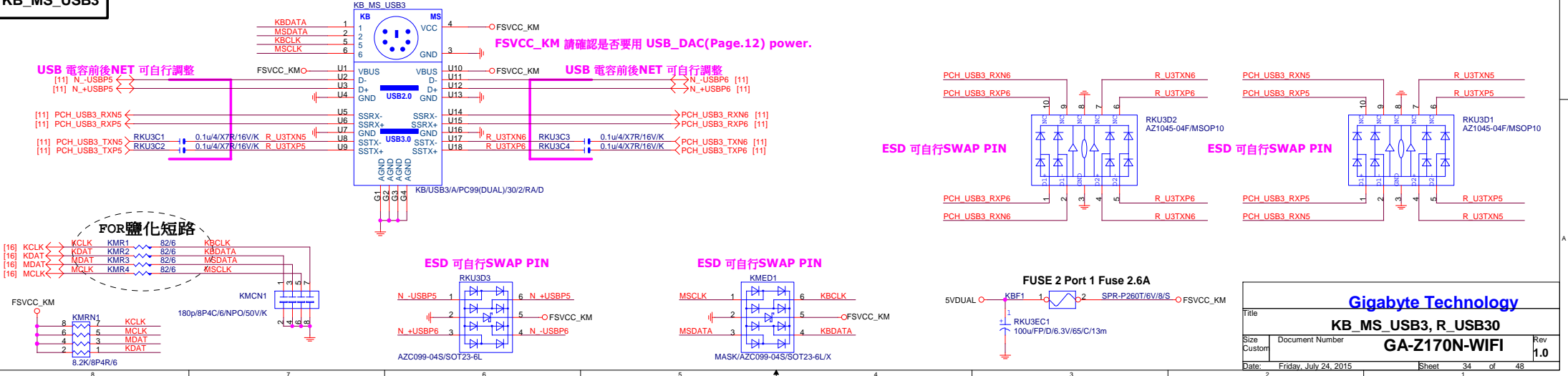


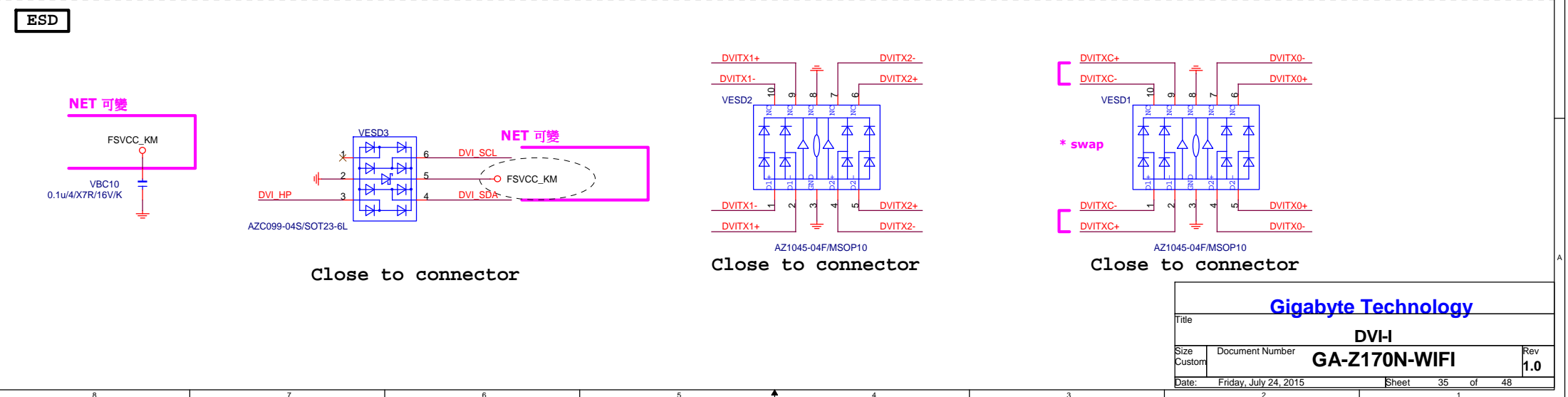
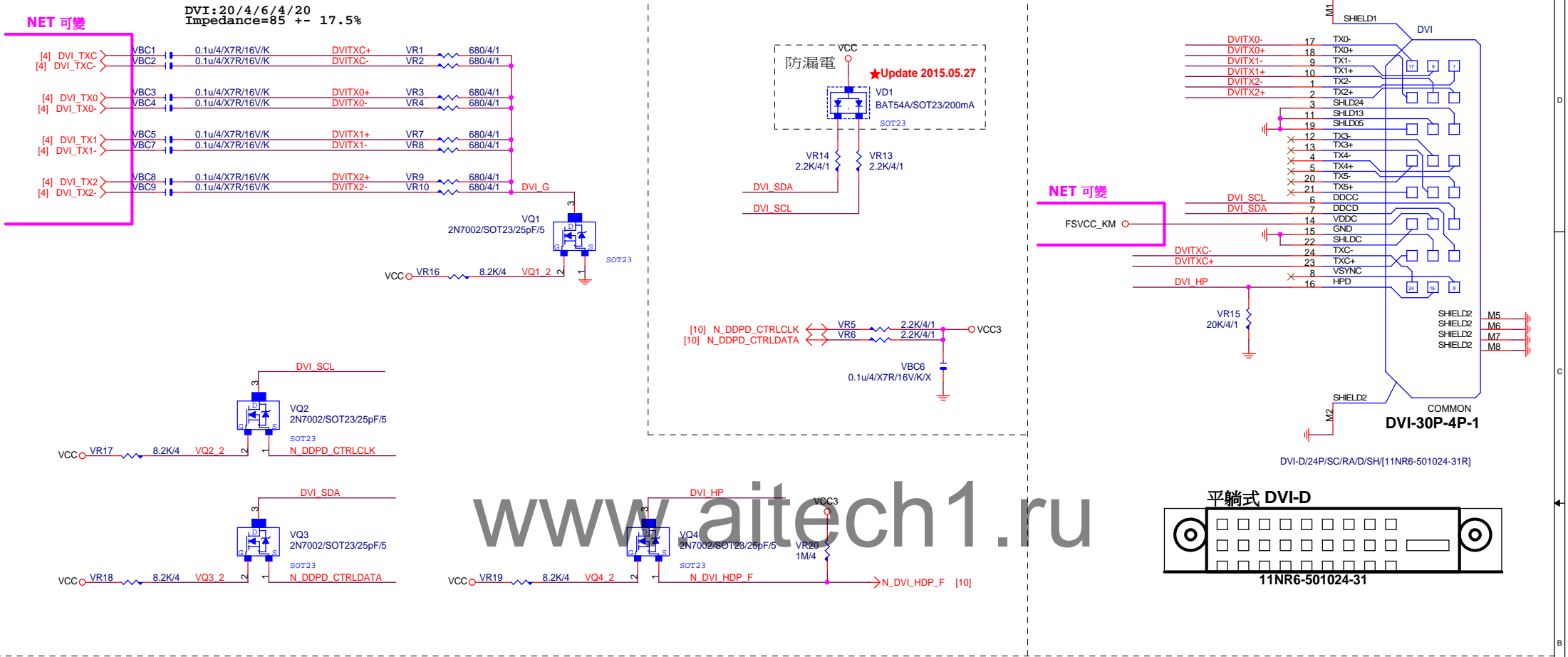
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCCL_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology		
CPU CORE VR-2		
Title	Document Number	Rev
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KB_MS_USB3





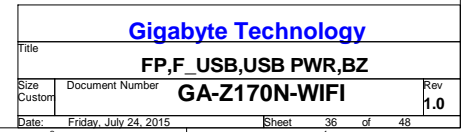
Rev: 0.62



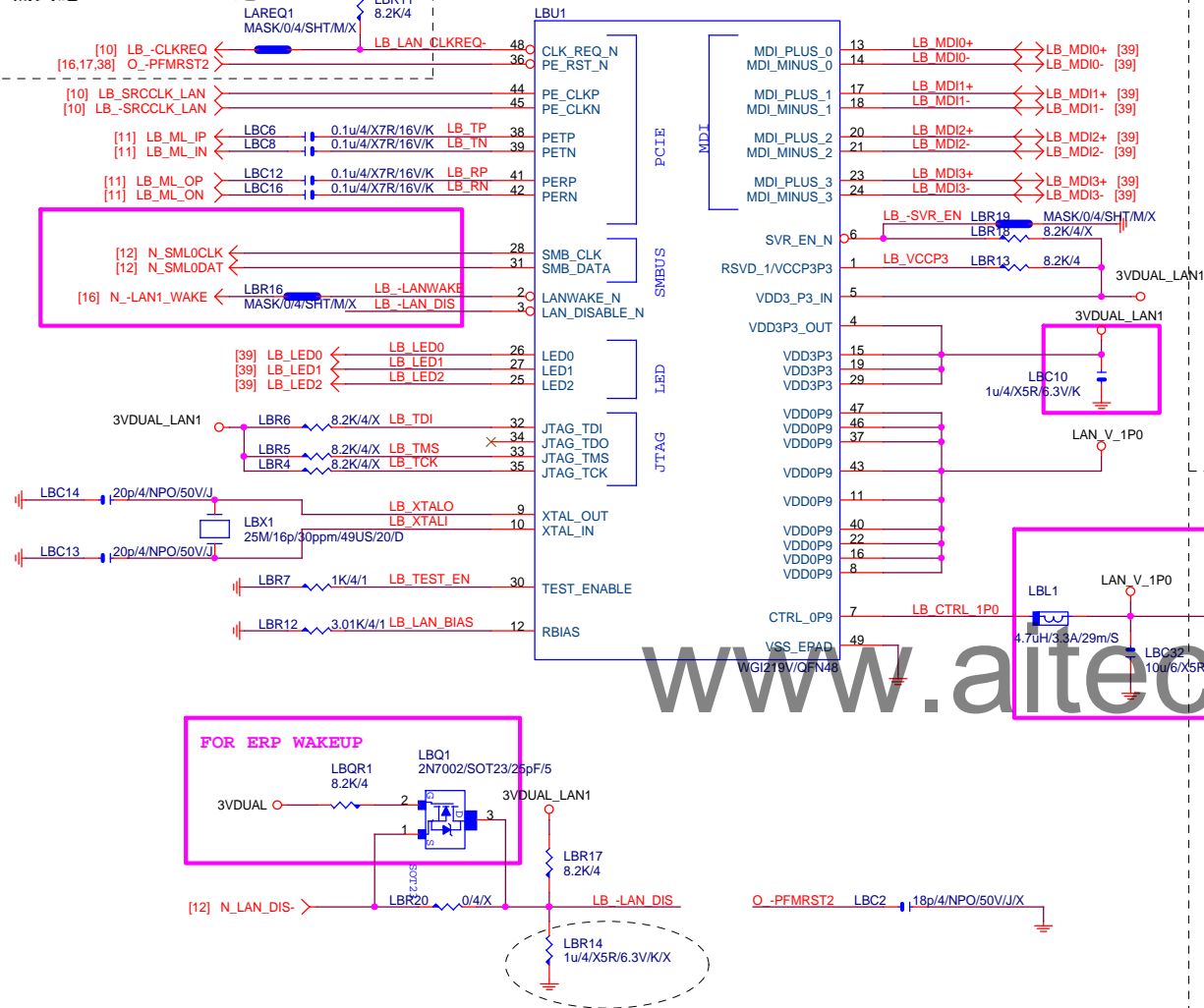
【技術通報R&D技術通報150】
HDMI eye diagram 1.4版(deep color)會fail
原因: 因目前的HDMI訊號過慢,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)



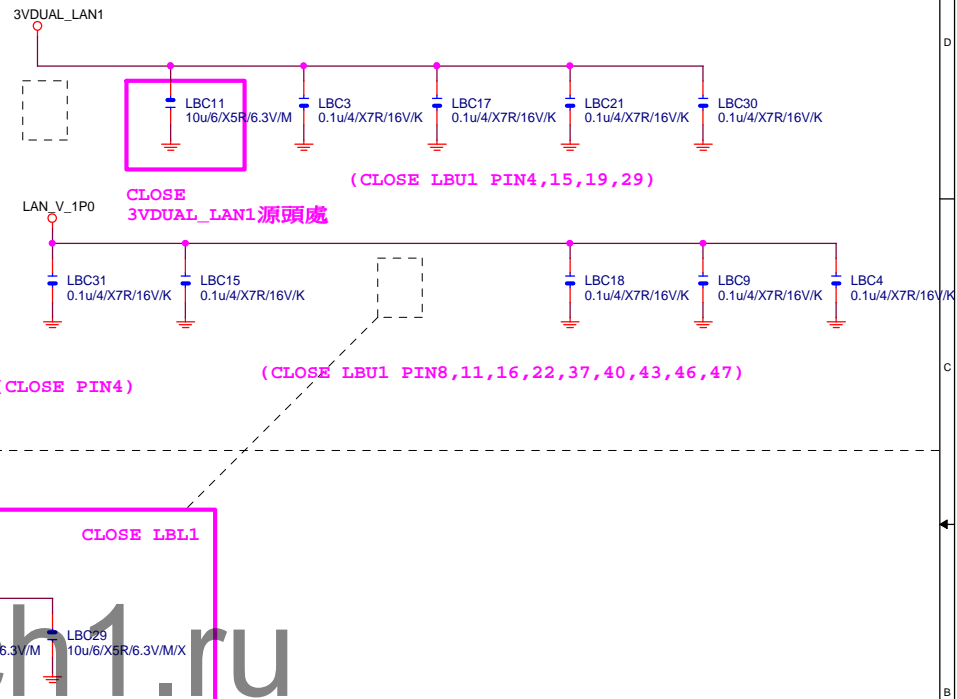
【技術通報R&D技術通報150】
HDMI eye diagram 1.4版(deep color)會fail
原因: 因目前的HDMI訊號過慢,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)



L1+CLK REQ# 節能：
需對應LA_SRCCLK_LAN之CLKREQ#



LAN POWER



Gigabyte Technology

DUAL LAN~ I219

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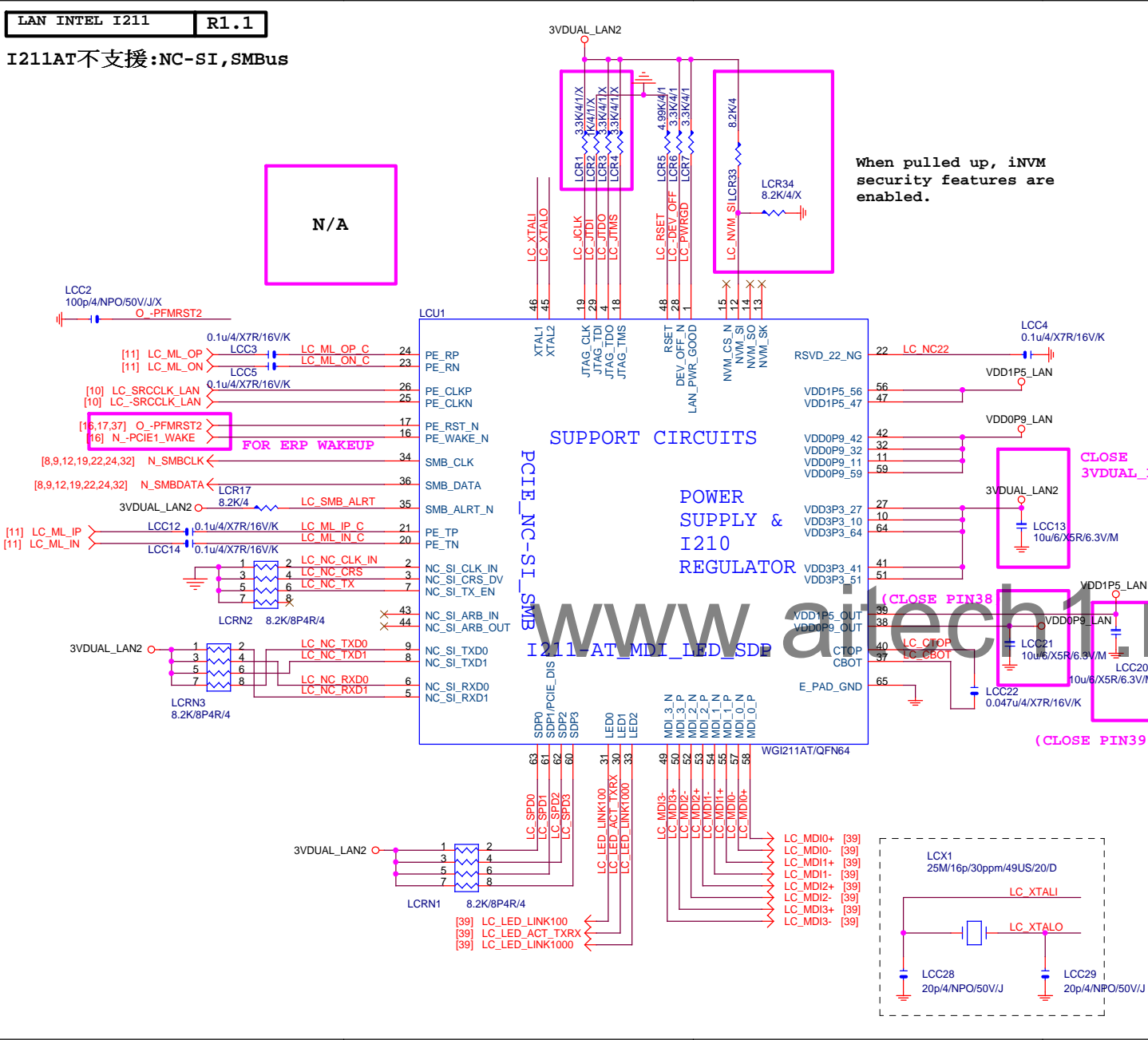
GA-Z170N-WIFI

Rev
1.0

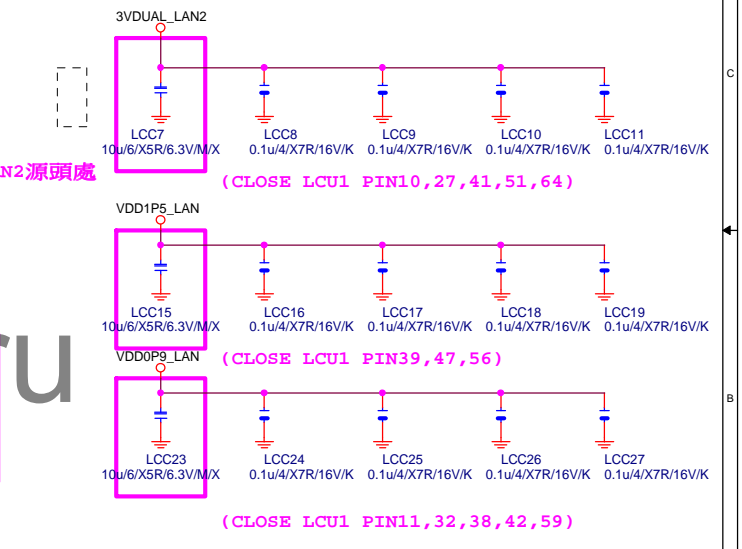
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I211AT不支援:NC-SI,SMBus



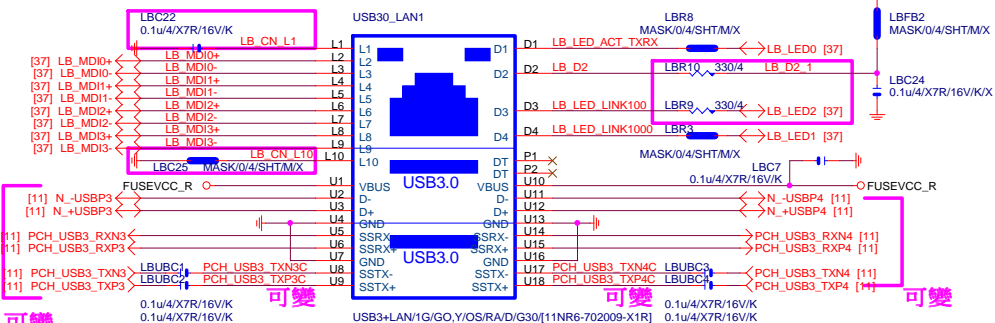
N/A



note:可變更USB NAME

note:可變更USB NAME

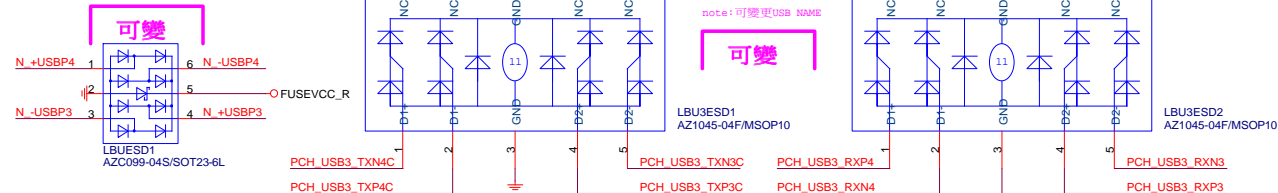
[I219]



LA_MDI-->100歐姆:[20/4/8/4/20]

RMA ESD PROTECT

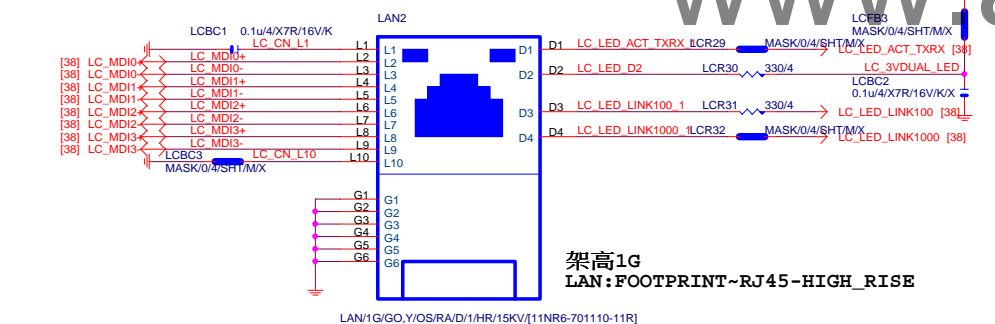
note:可變更USB NAME



USB_LAN CONNECTOR-C

note:可變更USB NAME

[I211]

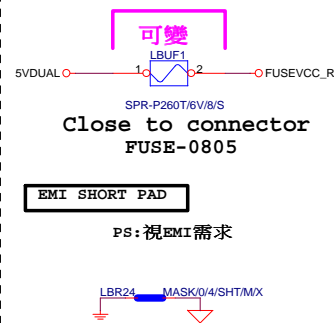


LA_MDI-->100歐姆:[20/4/8/4/20]

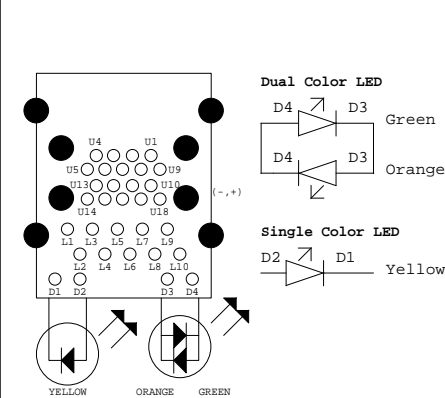
RMA ESD PROTECT

USB POWER

note: 可變更FUSB



USB30_LAN LAYOUT示意圖



LAN_COVER

N/A

可變
[視SPEC需求]

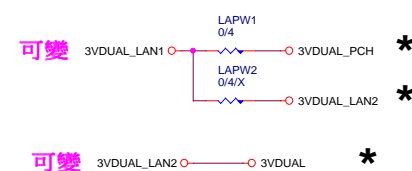
FOOT PRINT:LAN_COVER

NOTE:

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

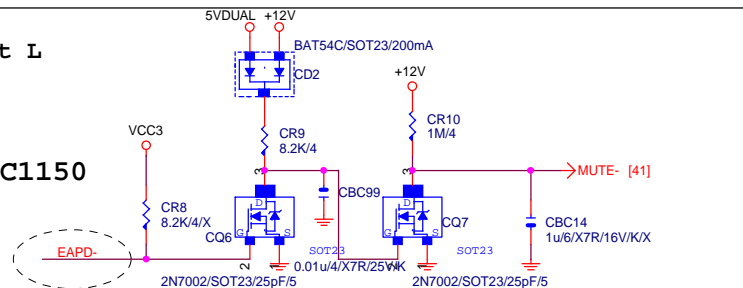
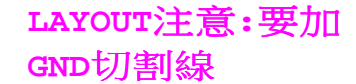
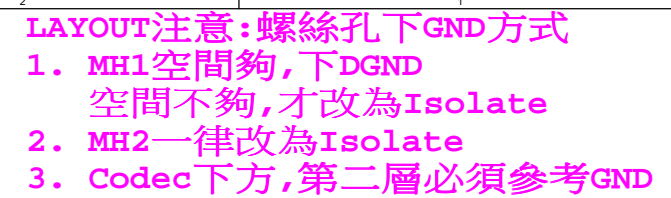
LAN POWER

note: lan power連接及電流



~USB30_LAN1設定在ERP可LAN WAKEUP
~USB30_LAN2由獨立LAN POWER L1117供給

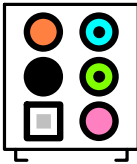
ALC1150 五孔+SPDIF
AUDIO JACK



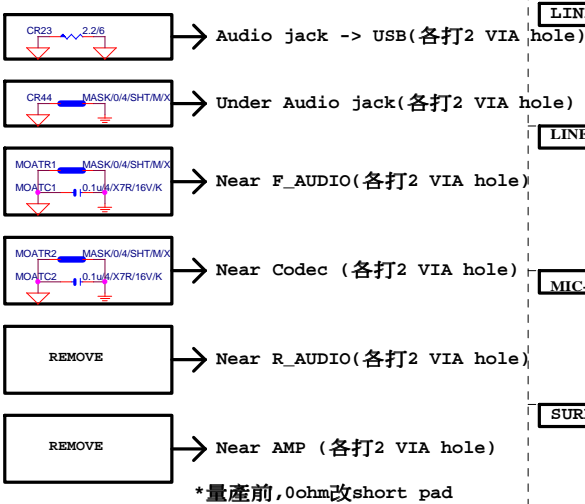
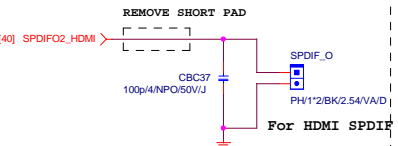
AUDIO
COVER: N/A

Rev 0.93

AZALIA JACK



SPDIF_OUT



LINE-OUT

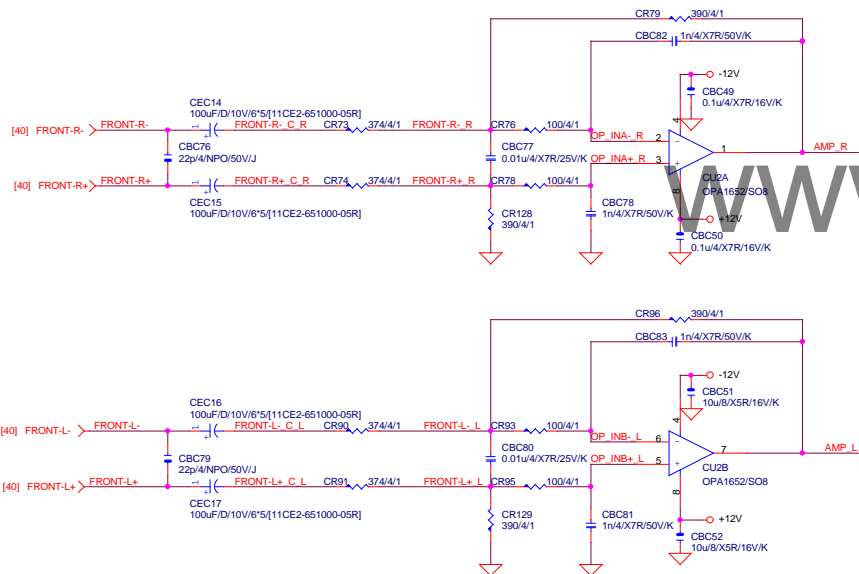
LINE-IN

MIC-IN

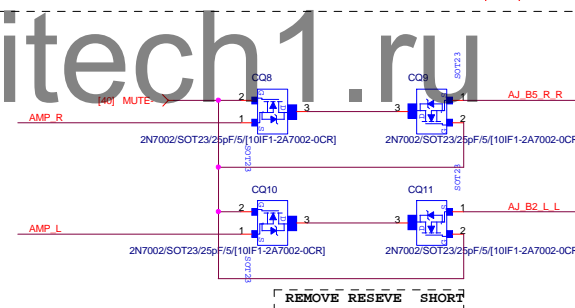
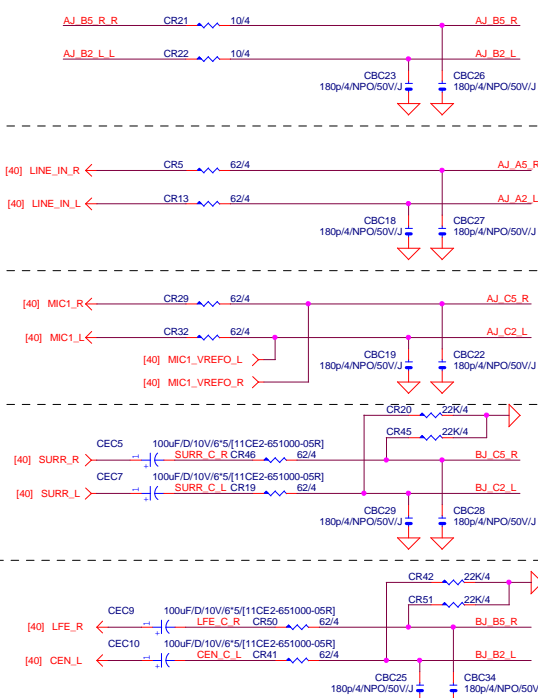
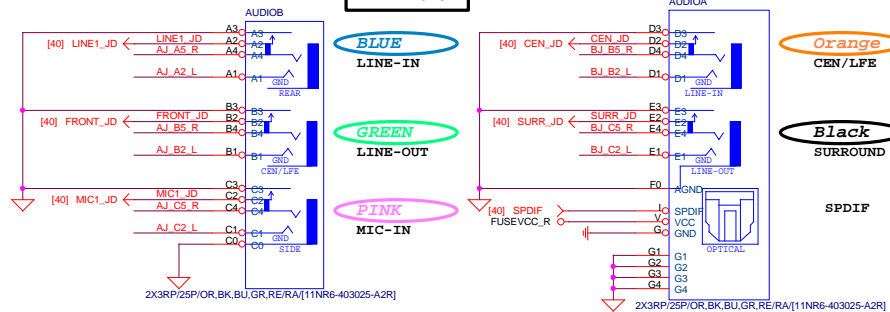
SURROUND

CEN/LFE

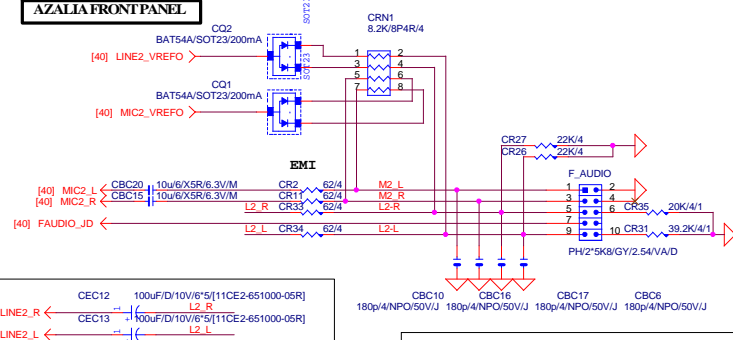
Differential to Single-End AMPLIFIED



AZALIA JACK



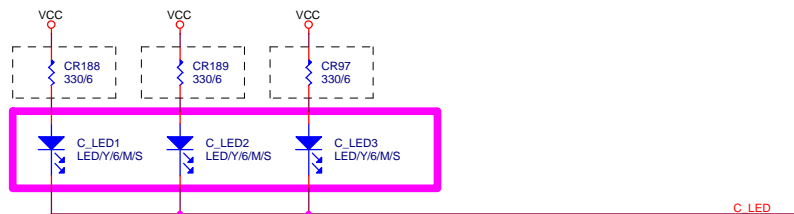
AZALIA FRONT PANEL



Gigabyte Technology

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VALUE可變,LED顏色請自行修改

[UD系列--> 中亮黃LED(黃色):LED/Y/6/M/S]

[SOC系列--> 中亮橘LED(橘色):LED/O/M/0603/S]

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

上限截止頻率

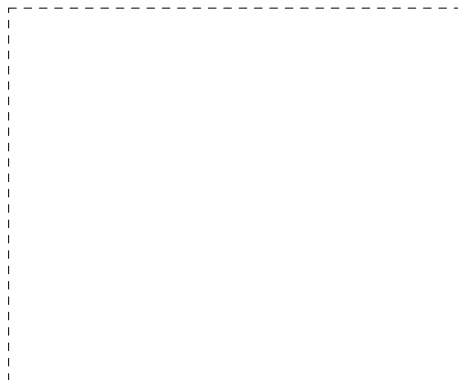
$$f_H = 1 / [2\pi * (R * C)] = 194\text{Hz}$$

電壓增益

$$A_v = 1 + (R_f / R_n) = 100\text{倍}$$

Rear Panel LED ON/OFF

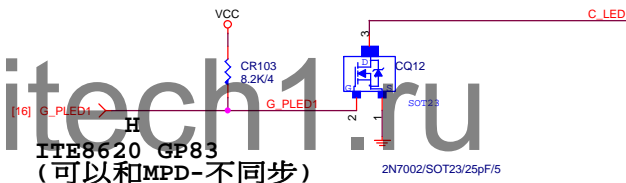
	IO_GP80
REAR LED ON	H
REAR LED OFF	L



LAYOUT OPTION : SOC/UD7系列要LAYOUT,
其餘UD系列機種不留LAYOUT

LAYOUT注意:

CQ12, CQ18, CQ19必須擺放在一起



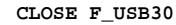
AUDIO LED Control (沒有LPT model)

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

AUDIO LED Control (有LPT model)

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

GIGABYTE TM		
Title		
AUDIO LED		
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-USB0C_F

-USB0C_R

F_USB 2.0 OC SIGNAL

[11] N_USBOC_F ← N_USBOC_F

U2OC2

1 FSVCC_F1

2 FSVCC_U3F1

BAT54A/SOT23/200mA

[1,120] N_USBOC_R ← N_USBOC_R

U30C4

BAT54A/SOT23/200mA

1 ○ FSVCC_KM

2 ○ FUSEVCC_R

3

```
| PCH  PU  3Vdual
```

[12] N_GPP_B20 ← 3 N_USBOC_F [11]
2 N_USBOC_R [11,20]

POWER 可自行調整

5VDUAL \rightarrow UAR1 \rightarrow 8.2K/4 \rightarrow N_USBOC_F \rightarrow N_USBOC_F [11]

UAR2 15K/4/1 \rightarrow GND

POWER 可自行調整

5VDUAL

UBR1

8.2K/4

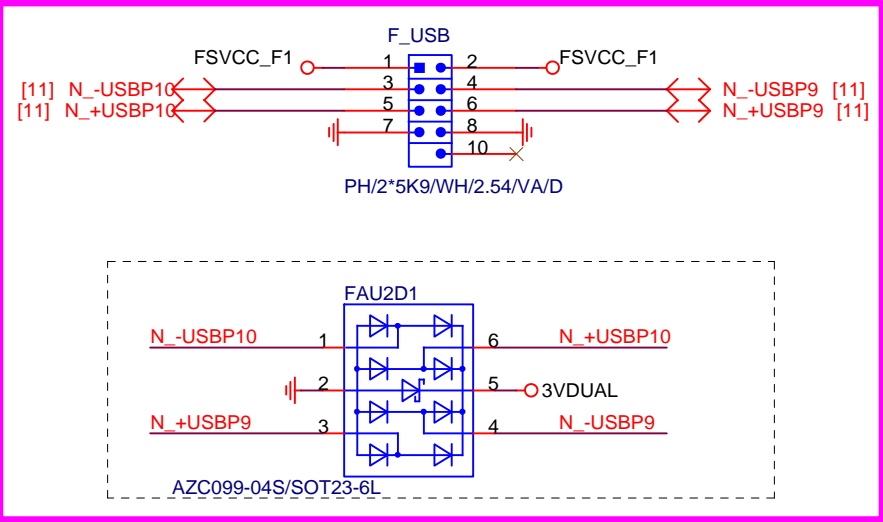
N_USBOC_R

N_USBOC_R [11,20]

UBR2

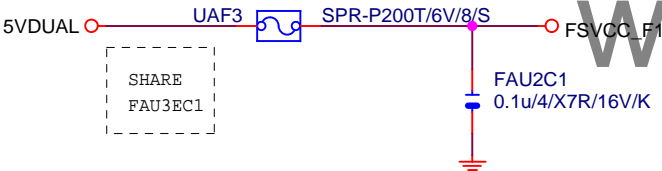
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Close to connector

FUSE 2 Port 1 Fuse 2A



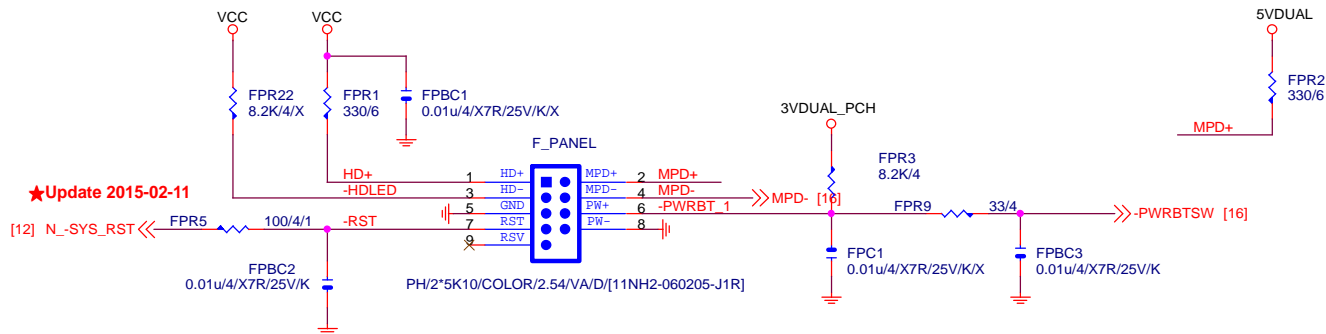
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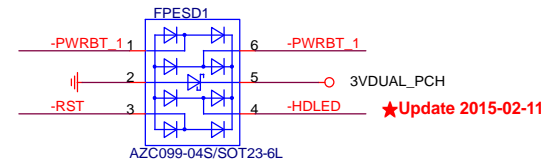
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Size A	Document Number	Rev
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FRONT PANEL

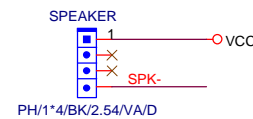
Rev: 0.61



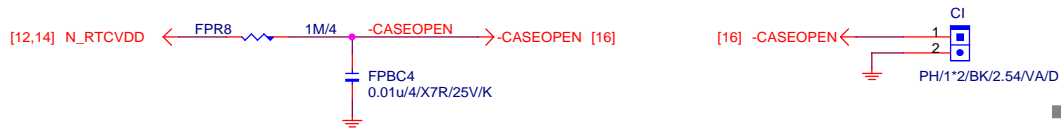
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SPEAKER

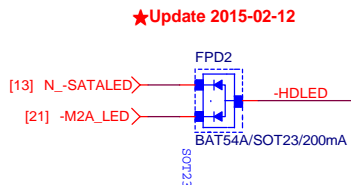


CASE OPEN

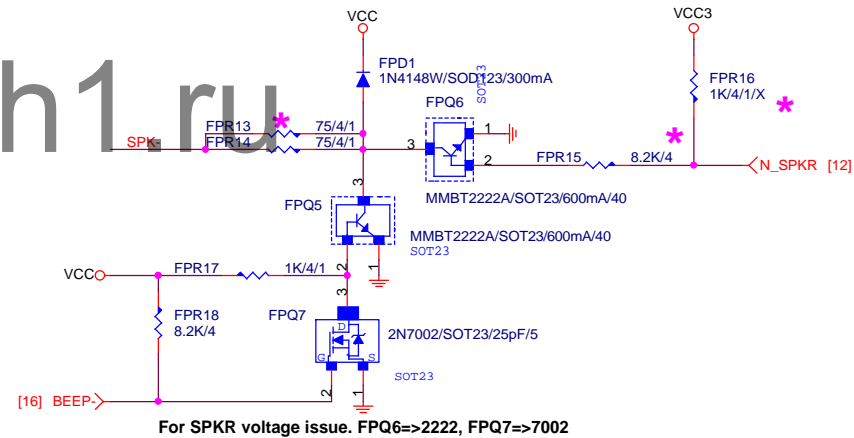


SATA LED

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



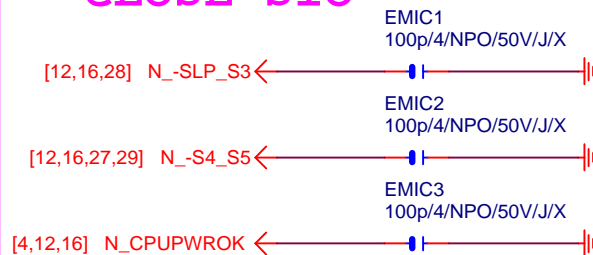
SPKR



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CLOSE SIO



CLOSE PCH



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Title

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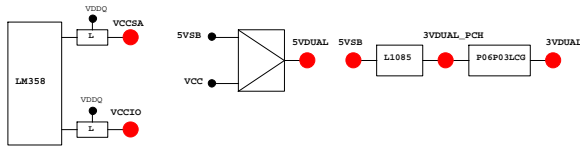
PCH GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE	
GPP_A0	MAIN	NATIVE	N_KBRST	P/U 8.2K VCC3	
GPP_A1	MAIN	NATIVE	N_LAD0	N/A	
GPP_A2	MAIN	NATIVE	N_LAD1	N/A	
GPP_A3	MAIN	NATIVE	N_LAD2	N/A	
GPP_A4	MAIN	NATIVE	N_LAD3	N/A	
GPP_A5	MAIN	NATIVE	N_LFRAME	N/A	
GPP_A6	MAIN	NATIVE	N_SBRIRQ	P/U 8.2K VCC3	
GPP_A7	MAIN	NATIVE	N_LDRQ0	P/U 8.2K 3VDUAL	
GPP_A8	MAIN	NATIVE	N_GPP_A8	P/U 8.2K VCC3	
GPP_A9	MAIN	NATIVE	N_LPC24MB	N/A	
GPP_A10	MAIN	NATIVE	N_LPC24MA	N/A	
GPP_A11	MAIN	NATIVE	N_P_FMR	P/U 8.2K 3VDUAL_PCH	
GPP_A12	MAIN	GPI	N_GPP_A12	P/U 8.2K VCC3	
GPP_A13	MAIN	NATIVE	N_S_WARN	N/A	
GPP_A14	MAIN	NATIVE	N_GPP_A14	P/U 8.2K 3VDUAL	
GPP_A15	MAIN	NATIVE	N_S_ACK	N/A	
GPP_B0	MAIN	CORE_VIO0	N_DDR_V_SEL	P/U 8.2K VCC3	
GPP_B1	MAIN	CORE_VIO1	N/A	N/A	
GPP_B2	MAIN	GPI	N_VRALEERT	P/U 8.2K 3VDUAL	
GPP_B5	MAIN	GPI	-PCIEX16_PR	P/U 8.2K VCC3	
GPP_B6	MAIN	GPI	-PCIEX16_PR1	P/U 8.2K VCC3	
GPP_B7	MAIN	GPI	-PCIEX16_PR2	P/U 8.2K VCC3	
GPP_B8	MAIN	GPI	-PCIEX4_PR	P/U 8.2K VCC3	
GPP_B9	MAIN	GPI	N/A	N/A	
GPP_B10	MAIN	GPI	N/A	N/A	
GPP_B11	MAIN	GPO	N/A	N/A	
GPP_B12	MAIN	SLP_S0	N_SLP_S0	N/A	
GPP_B13	MAIN	PLTRST	N_PPMRST	N/A	
GPP_B14	MAIN	H-Z	GPO	N_SPKR	N/A
GPP_B18	MAIN	H-Z	GPO	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN	GPI	N_GPP_B20	P/U 8.2K 3VDUAL	
GPP_B22	MAIN	GPI	N_GPP_B22	P/D 1K GND	
GPP_C0	MAIN	SMCLK	N/A	N/A	
GPP_C1	MAIN	SMBDATA	N/A	N/A	
GPP_C2	MAIN	H-Z	GPO	N_LPCFMR	N/A
GPP_C3	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C4	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C5	MAIN	H-Z	GPO	N_GPP_C5	N/A
GPP_C6	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_C7	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_D4	MAIN	GPI	N_GPP_D4	P/U 8.2K 3VDUAL	
GPP_D7	MAIN	GPI	N_GPP_D7	N/A	
GPP_D9	MAIN	GPI	N_GPP_D9	N/A	
GPP_D17	MAIN	GPI	N_GPP_D17	P/U 8.2K VCC3	
GPP_D18	MAIN	GPI	N_GPP_D18	P/U 8.2K VCC3	
GPP_D19	MAIN	GPI	N_GPP_D19	P/U 8.2K VCC3	
GPP_D20	MAIN	GPI	N_GPP_D20	P/U 8.2K VCC3	
GPP_D23	MAIN	GPI	N_GPP_D23	P/U 8.2K 3VDUAL	
GPP_E0	MAIN	NATIVE	N_GPP_E0	P/U 8.2K VCC3	
GPP_E1	MAIN	NATIVE	N_GPP_E1	P/U 8.2K VCC3	
GPP_E2	MAIN	NATIVE	N_GPP_E2	P/U 8.2K VCC3	
GPP_E3	MAIN	GPI	N_CPU_S	P/U 8.2K VCC3	
GPP_E4	MAIN	GPI	N_DEVSLP0	P/U 8.2K VCC3	
GPP_E6	MAIN	GPI	N_DEVSLP2	P/U 8.2K VCC3	
GPP_E7	MAIN	GPI	N_GT_S	P/U 8.2K VCC3	
GPP_E8	MAIN	GPI	N_SATALED	N/A	
GPP_E9	MAIN	H-Z	GPI	N_USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E12	MAIN	H-Z	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_DEVSLP4	P/U 8.2K VCC3	
GPP_F10	MAIN	GPI	N_GPP_F10	P/U 8.2K VCC3	
GPP_F11	MAIN	GPI	N_GPP_F11	P/U 8.2K VCC3	
GPP_F12	MAIN	GPI	N_GPP_F12	P/U 8.2K VCC3	
GPP_F13	MAIN	GPI	N_GPP_F13	P/U 8.2K VCC3	
GPP_F14	MAIN	GPI	A_SKT0CC	P/U 8.2K VCC3	
GPP_F15	MAIN	GPI	N_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_F	P/U 8.2K 3VDUAL	
GPP_F22	MAIN	GPI	N_GPP_F22	P/U 8.2K VCC3	
GPP_F23	MAIN	GPI	N_GPP_F23	P/U 8.2K VCC3	
GPP_G0	MAIN	GPI	N_GPP_G0	P/U 1K VCC3	
GPP_G1	MAIN	GPI	N_GPP_G1	P/U 1K VCC3	
GPP_G12	MAIN	GPI	N_GPP_G12	P/U 3.3K VCC3	
GPP_G16	MAIN	GPI	N_GPP_G16	N/A	
GPP_G18	MAIN	GPI	N_GPP_G18	P/U 8.2K VCC3	
GPP_G19	MAIN	GPI	N_GPP_G19	P/U 8.2K VCC3	
GPP_G20	MAIN	GPI	N_GPP_G20	P/U 8.2K VCC3	
GPP_G21	MAIN	GPI	N_GPP_G21	P/U 8.2K VCC3	
GPP_G22	MAIN	GPI	N_GPP_G22	P/U 8.2K VCC3	
GPP_H0	MAIN	GPI	M2_CLKREQ	P/U 8.2K VCC3	
GPP_H12	MAIN	GPO	N_GPP_H12	P/U 8.2K VCC3	
GPP_H19	MAIN	GPI	N_GPP_H19	P/U 8.2K 3VDUAL	
GPP_H20	MAIN	GPI	N_GPP_H20	P/U 8.2K 3VDUAL	
GPP_H21	MAIN	GPI	N_GPP_H21	P/U 8.2K 3VDUAL	
GPP_H22	MAIN	GPI	N_GPP_H22	P/U 8.2K 3VDUAL	
GPP_I0	MAIN	GPI	N_HDMI_HDP_F	N/A	
GPP_I1	MAIN	GPI	N_DVI_HDP_F	P/U 1M VCC3	
GPP_I2	MAIN	GPI	N_VGA_HDP_F	N/A	

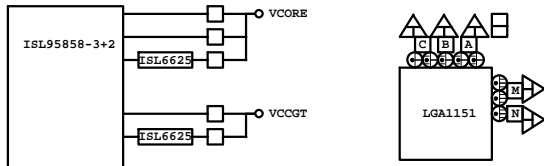
PIN NAME	PWR	Default	USAGE	NOTE
GPP_I3	MAIN	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN	GPO	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I7	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I9	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I10	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPD0	STBY	BATLOW	N_BATLOW	P/U 8.2K 3VDUAL_PCH
GPD1	STBY	ACPRESENT	N_GP_D1	P/U 8.2K 3VDUAL_PCH
GPD2	STBY	LAM_MAKE	N_LAM_MAKE	N/A
GPD3	STBY	PMRSTN	O_PMRSTN	P/U 8.2K 3VDUAL_PCH
GPD4	STBY	SLP_S3	N_SLP_S3	N/A
GPD5	STBY	SLP_S4	N_SLP_S4	N/A
GPD6	STBY	SLP_A	N_SLP_A	P/U 8.2K 3VDUAL
GPD7	STBY	NATIVE	N_S_ACK	N/A
GPD8	STBY	SUSCLK	N_SUSCLK	N/A
GPD10	STBY	SLP_S5	N_SLP_S5	N/A

Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
PCIRST#/GP10/VDINH_STR_EN	N/A	
PCIRST#2#/GP11	O_PCIE_RST	
PCIRST#1#/GP12	O_PPMRST2	
SVC/FRC1_RQ7/GP14	TPM_GP14	
SLP_SUS#/PCIRST#1#/CIRT#2/GP15	-PCIRSTIN	
PSI_L/FAN_CLT5/CIR#2/GP16	N_THERMTRIP	
R12#/GP17	MB_ID2	
THR_PWM_CTS#2#/GP20	N_THERMTRIP	
IO_SMT#DCD#2#/GP21	IO_FIN	
SPI_S1/GP22	BEEP-	
DPWRKOK/CPU_RQ/GP23	N_PCH_DPWRKOK	
FAN_TACS/RTS#2#/GP24	IO_FAN	
FAN_TAC4/DSR#2#/GP25	FANIO4	
INV_OUT1_SOUT#2/GP26	Q_PLED	
INV_IN1/SIN#2/GP27	INV_IN1	
ATXPG/GP30	FWOK	
CTS1/GP31	CTS1-	
OCWD#3/R1#8/GP32	R11-	
OCWD#2/DCD#1#8/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSB#8#/GP40	IO_FAN	
OCWD#1/SIN#1/GP41	RXD1	
GP42/SCK/FAN_CTL4	IO_FAN	
PANS#8#/GP43	-PWRBTSM	
PWRON#/GP44	O_PWRBTSM	
OCWD#0/DSR#1#8/GP45	DSR1-	
CE2_N/GP47/J#6	CEB_N	
GP50/J#1	IO_FAN	
FAN_CTL#4/GP51	FANPWM2	
FAN_TAC#3/GP52	FANIO2	
SUSOC/GP53	N_S4_S5	
PWR#8/GP54	N_LPCVME	
RSMB#8#/CIR#1#8/GP55	O_RSMBST	
KCLK/FAN_TAC#5/GP56	KCLK	
MDAT/FAN_CTL#6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST#8/GP62	N_KBRST	
HOLD_B#8/GP63	-SPI_HOLD_B	
HOLD_B#8/GP64	-SPI_HOLD_M	
VLD#_EN/PCH_DQ#8/GP65	IO_FAN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	IO_FAN	
USB_FS1/PD0/GP70	PD0	
USB_FS2/PD1/GP71	PD1	
USB_FS3/PD2/GP72	PD2	
USB_FS3/PD3/GP73	PD3	
USB_FS5/PD4/GP74	PD4	
USB_FS6/PD5/GP75	PD5	
USB_FS7/PD7/GP76	PD6	
USB_FS8/PD8/GP77	PD7	
LS-IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#8/GP83	ACK-	
IPHONE_CHARGE#8/SLIN#8/GP84	SLIN-	
OC_IN/INIT#8/GP85	INIT-	
OC_OUT/AFD#8/GP86	AFD-	
USB_OC4/STB#8/GP87	STB-	
DOR_EN/GP90	MA_EN	
PWRLED/GP91	HPD-	
HOLD_OUT/GP92	IO_FAN	
HDLED_IN/GP93	IO_FAN	
PROC#HOT#8/GP94	-PROC#HOT_CON	
CPUPWRGD/GP95	IO_FAN	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	



PWM各相位的擺法如下:



BIOS超電壓對應表:

散熱模組料號:

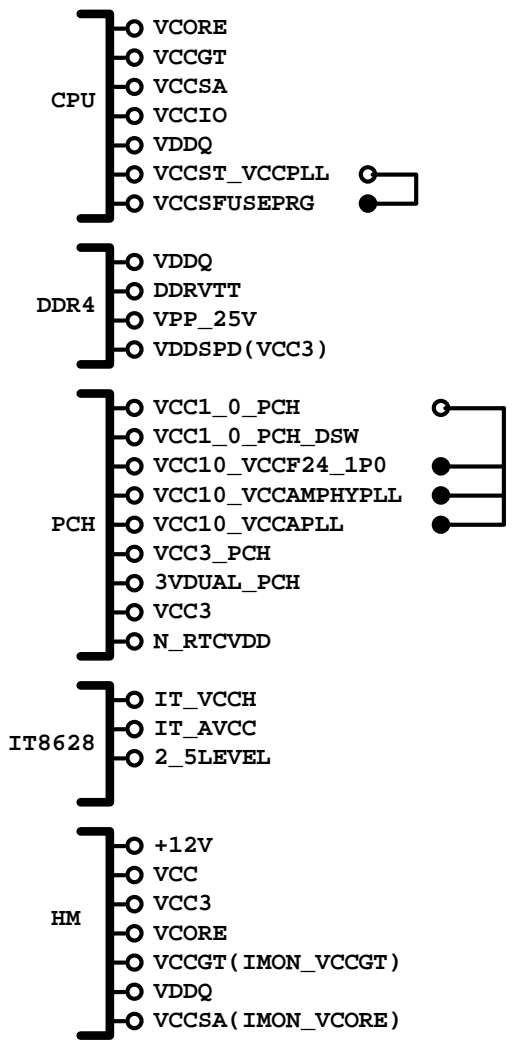
12SP2-S03507-11R

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	CPU Vcore
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Terminatio
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

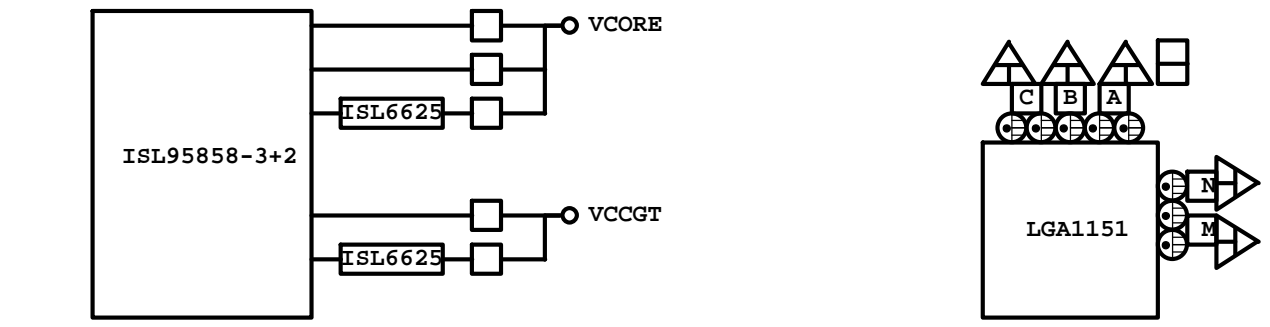
	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	+12V	FANPWM1	FANIO1	IT8628
SYS FAN	FANPWM2	VCC	FANIO2	IT8628
	FAN1_VOUT	N/A	N/A	NCT3941

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TABLE LIST			
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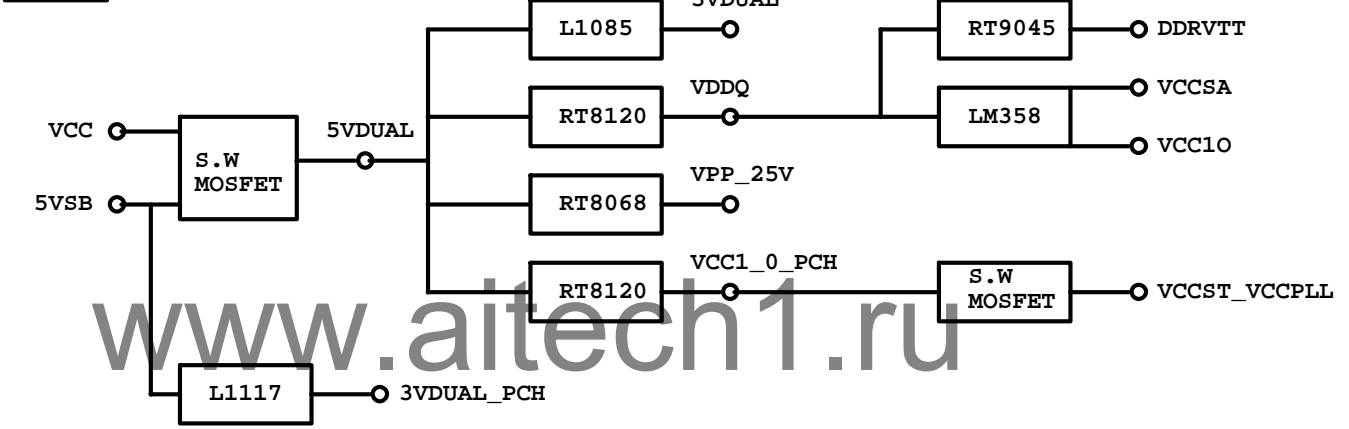
POWER BLOCK MAP



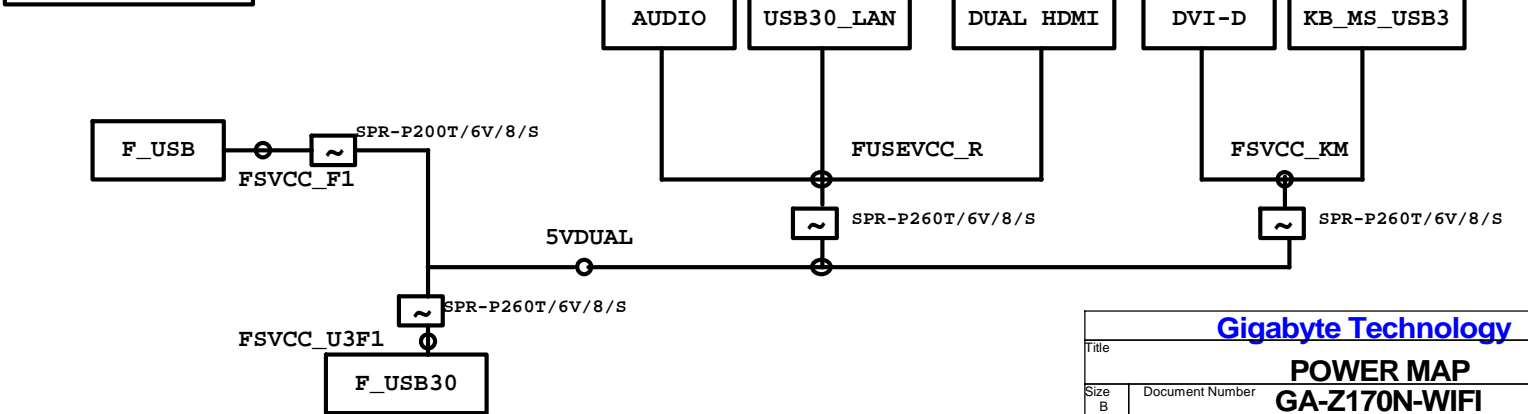
VCORE/VCCGT



POWER



FUSE POWER F/R



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Title			
POWER MAP			
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