

Model Name: GA-B150M-PIO-SI

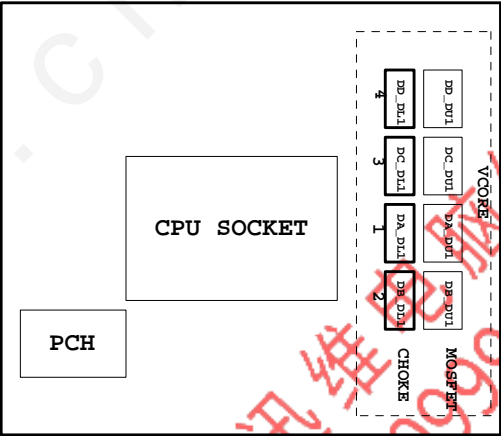
SHEET TITLE Rev 1.0

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B-DDR3
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR 4 CHANNEL A
09	DDR 4 CHANNEL B
10	PCH CLOCK BUFFER
11	PCH DMI,USB,PCIE
12	PCH MISC
13	PCH SATA,PCIE,SATA_EXPRESS
14	PCH_PWR,GND
15	Dual BIOS
16	I/O ITE8628
17	HWM
18	FAN CTRL-SIO
19	PCIEX16 SLOT
20	PCIEX1*2 SLOT
21	M.2 x4
22	
23	IT8892
24	IT8892 POWER
25	PCI SLOT
26	ISL95858_856 PWM
27	ISL95858_856 MOS_VCORE
28	ISL95858_856 MOS_VCCGT
29	VCCSA_VCCIO_VCCPLL
30	RT8237_DDR_BEAD
31	
32	RT8237_PCH-BEAD
33	DISCRETE POWER
34	NCP3933 OVER VOLTAGE

www.xinxunwei.com 400-800-9990

SHEET TITLE

35	ATX POWER , -PROCHOT
36	KB_MS_USB
37	DVI
38	RTD2168 - DP to VGA - IC
39	RTD2168 - DP to VGA - Conn
40	HDMI
41	R_USB30
42	Realtek 8111HS
43	USB30_LAN CONNECTOR-8111HS
44	ALC887-VD2 CODEC
45	REAR AUDIO JACK
46	F_USB30
47	F_USB20
48	COM , LPT , TPM
49	F_PANEL
50	TABLE LIST



Gigabyte Technology

Cover Sheet		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date	Tuesday, March 08, 2016	Sheet 1 of 52



Rev 1.0

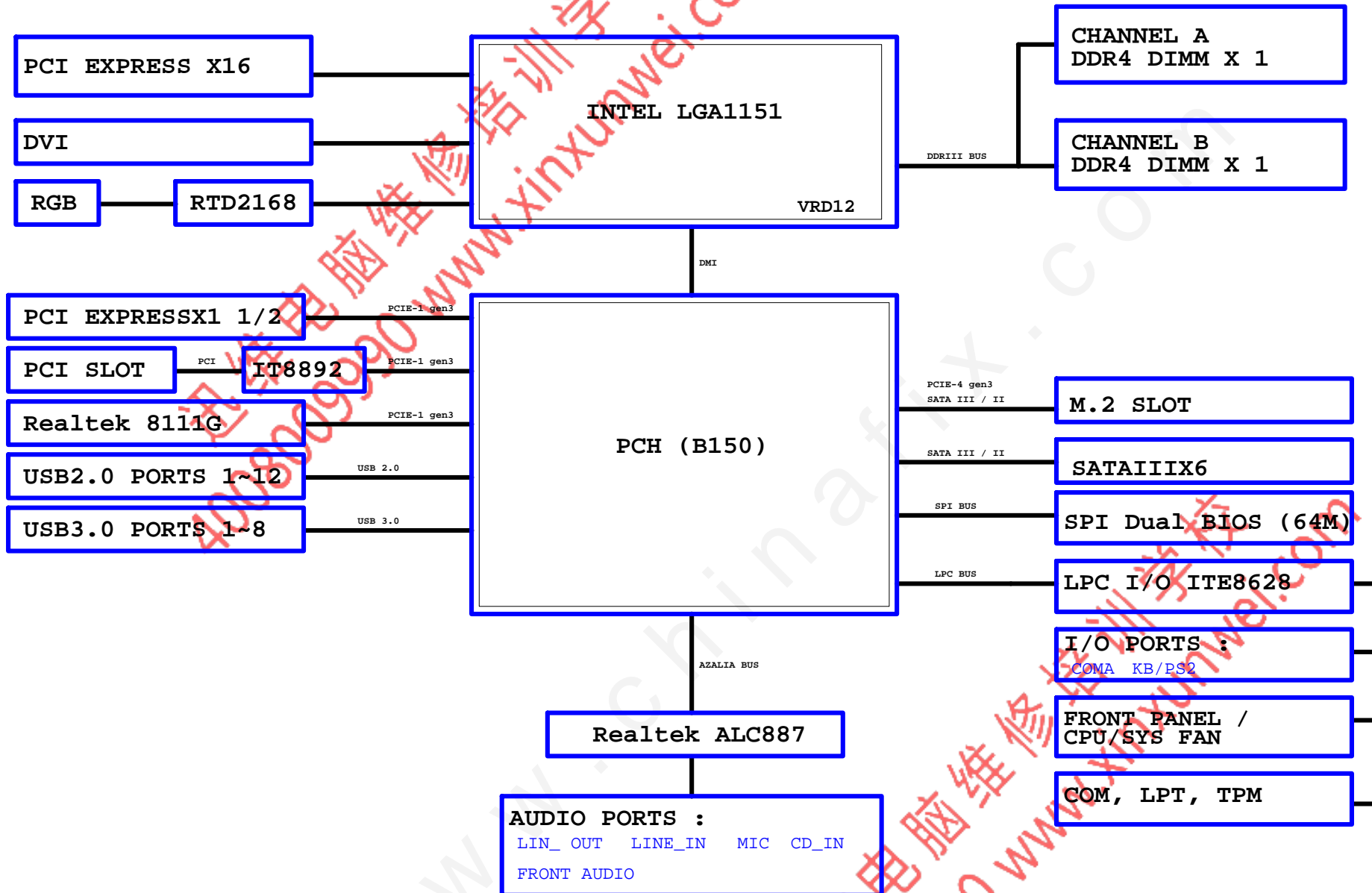
CHINA FDX

2016/01/07

[illegible]

BLOCK DIAGRAM

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Gigabyte Technology			
BLOCK DIAGRAM			
Size	Document Number	GA-B150M-PIO-SI	Rev
C			1.0
Date:	Friday, January 05, 2016	Sheet	3 of 52

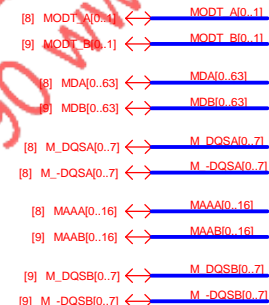
www.xinxunwei.com 400-800-9990



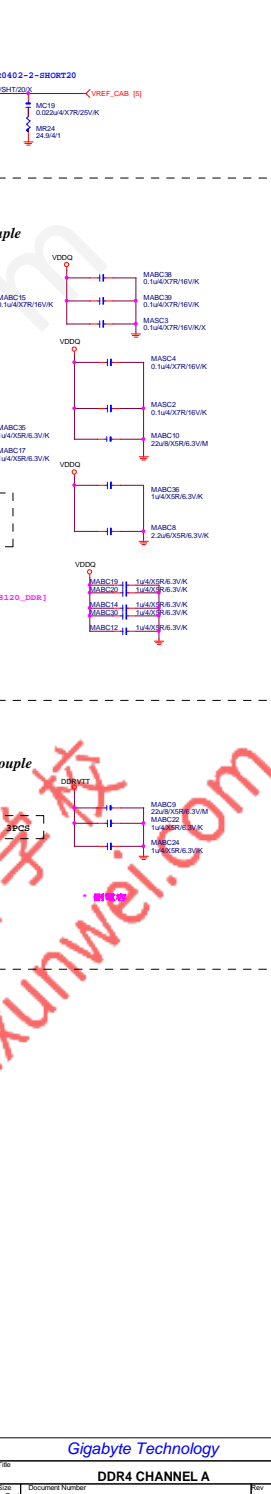
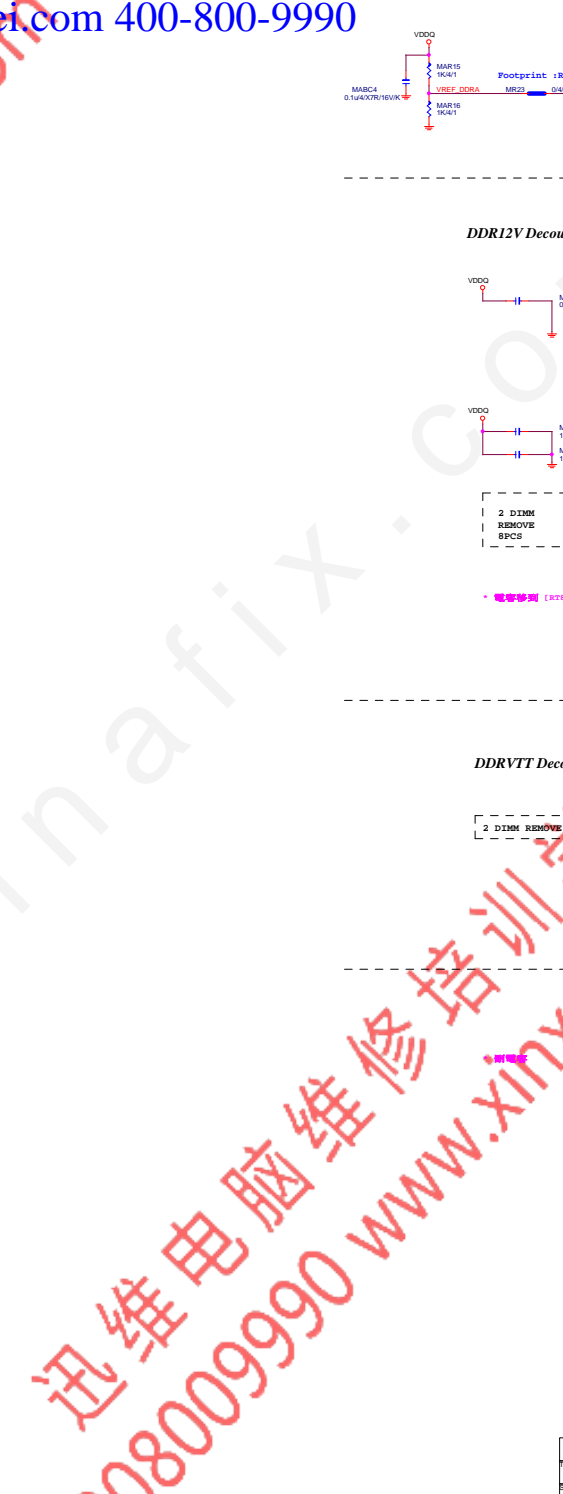
```
PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [19]
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [19]
PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] [19]
PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [19]
```

Impedance=85 +/- 15%
W=12 mil out of CPU
S=15 mil out of CPU

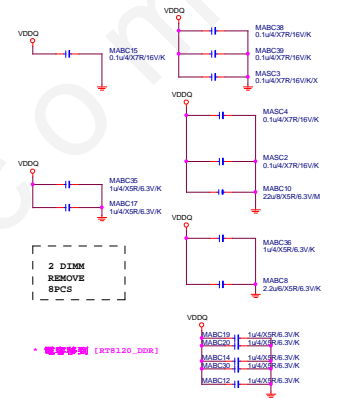
<i>Gigabyte Technology</i>			
Title			
CPU LGA1151-A			
Size Custom	Document Number		Rev
	GA-B150M-PIO-SI		1.0
Date:	Tuesday, March 08, 2016		Sheet 4 of 52







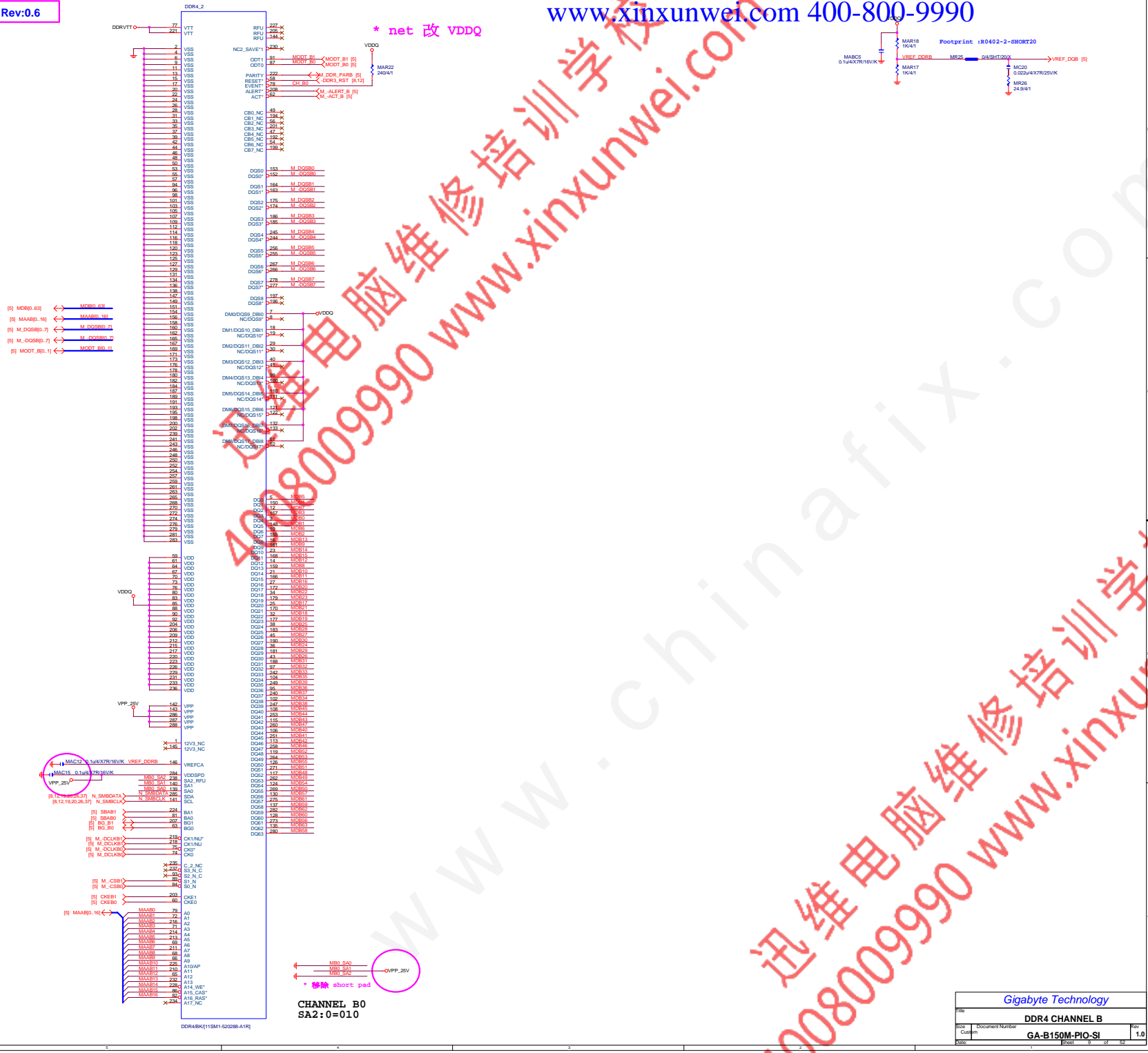
DDR12V Decouple



DDRVTT Decouple



Gigabyte Technology			
DDR4 CHANNEL A			
Docu	Document Number	GA-B150M-PIO-SI	Rev
1.0			



Gigabyte Technology		
File	DDR4 CHANNEL B	
Doc. Number	GA-B150M-PIO-SI	
Version	1.0	1.0

PCHE

SPT-H_PCH

GPP_I0/DDPB_HPD0
GPP_I1/DDPC_HPD1
GPP_I2/DDPD_HPD2
GPP_I3/DDPE_HPD3

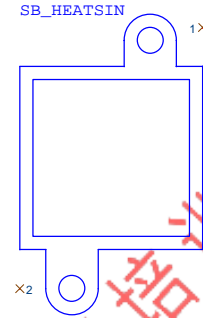
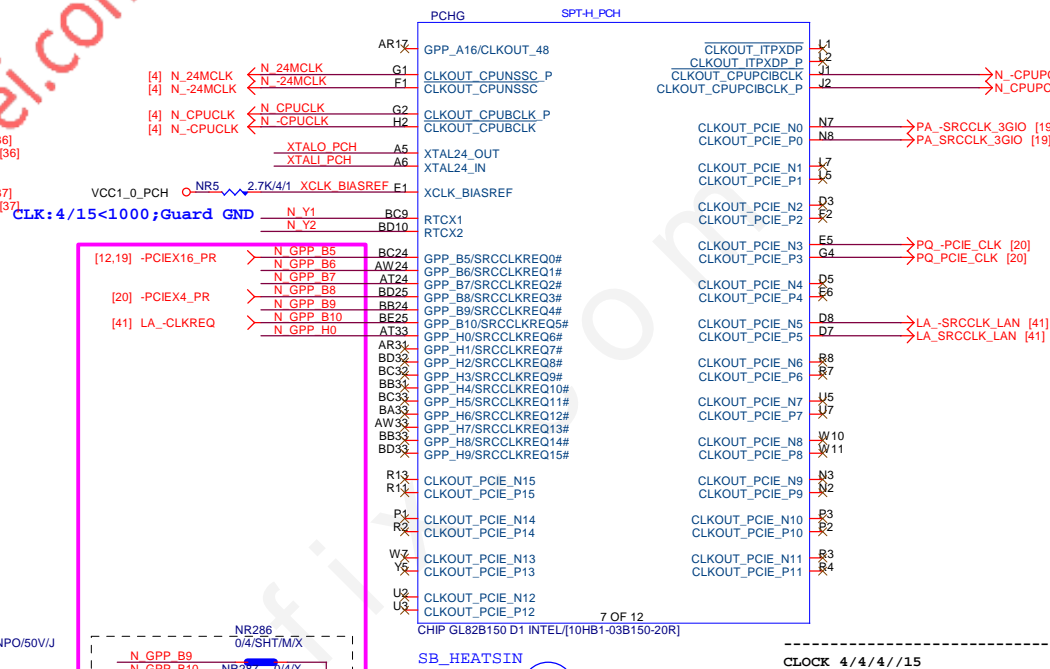
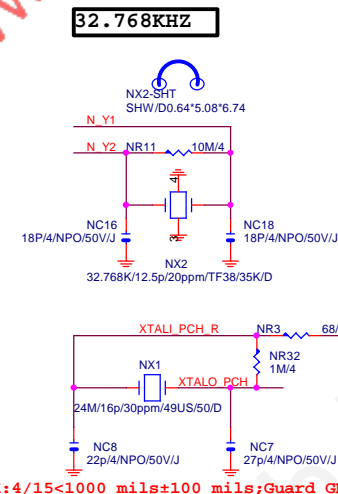
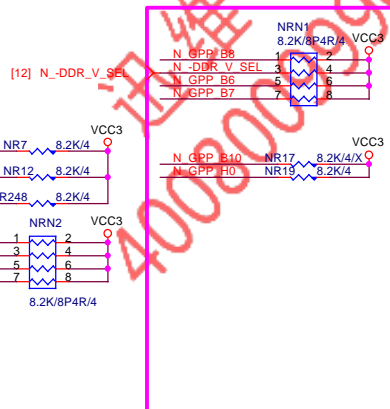
GPP_I7/DDPC_CTRLCLK
GPP_I8/DDPC_CTRLDATA
GPP_I5/DDPB_CTRLCLK
GPP_I6/DDPB_CTRLDATA
GPP_I9/DDPD_CTRLCLK
GPP_I10/DDPD_CTRLDATA

GPP_F14
GPP_F23
GPP_F22
GPP_G23
GPP_G22
GPP_G21
GPP_G20
GPP_H23

GPP_I4/EDP_HPD

5 OF 12

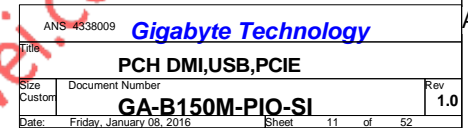
CHIP GL82B150 D1 INTEL(10HB1-03B150-20R)

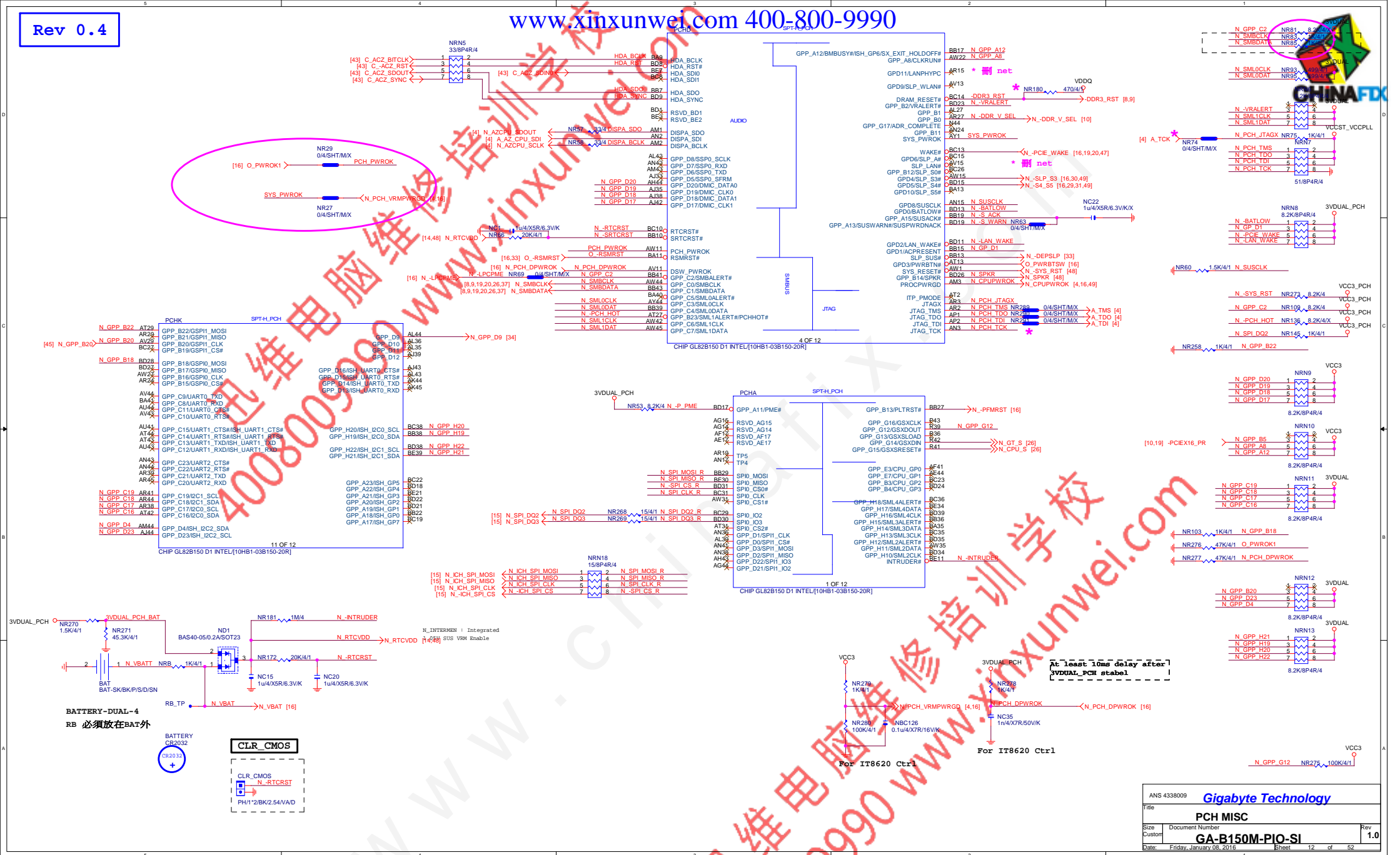


LOW COST ICH7 HEATSINK
BLACK HS

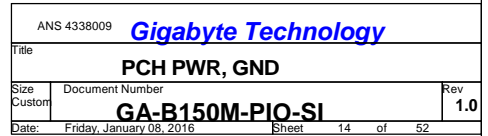
PCH_HS
PCH_HS/12SP2-030005-51R_12SP2-030005-52R_12SP2-030005-53R]

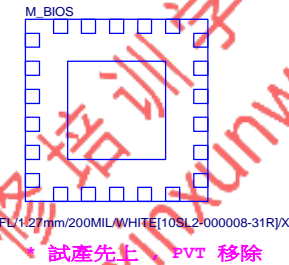
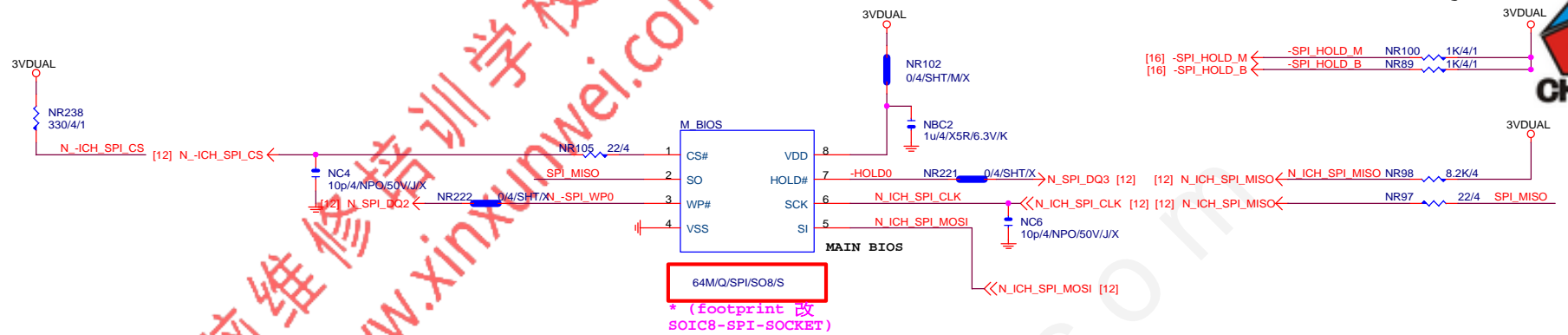
ANS 4338009		Gigabyte Technology	
Title		PCH CLOCK BUFFER	
Size Custom	Document Number	Rev	
GA-B150M-PIO-SI		1.0	
Date:	Friday, January 08, 2016	Sheet	10 of 52







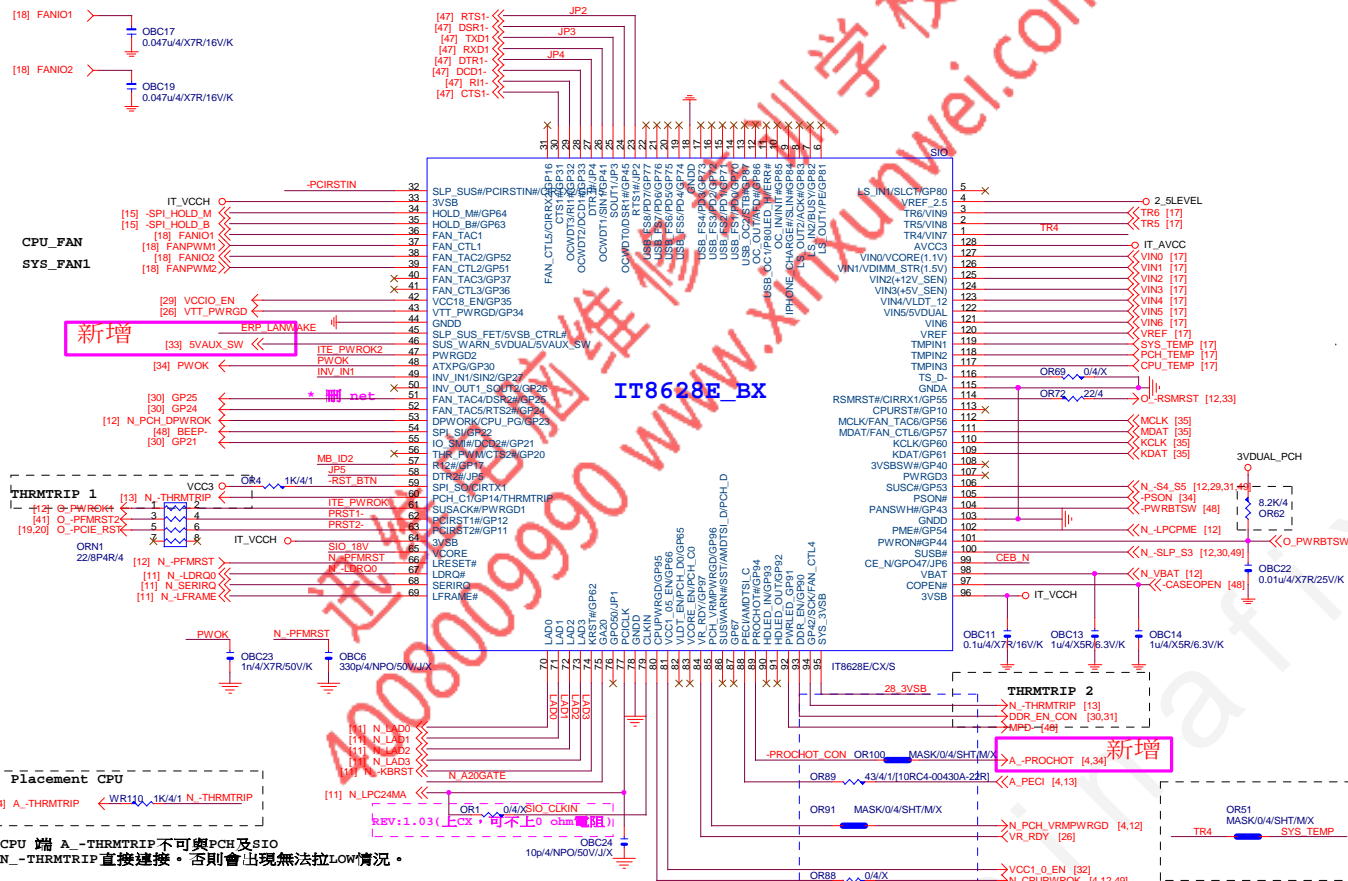




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Title		BIOS	
Size	Document Number	GA-B150M-PIO-SI	Rev 1.0
Date:	Tuesday, March 08, 2016	Sheet 15 of 52	

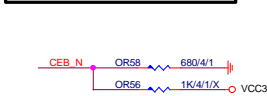
SIO IT8628BX REV:1.05



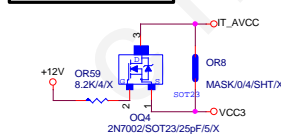
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL5 FAN_TAC5
OPT_FAN or SYS_FAN4	N/A
THRMTRIP1	YES PIN60
THRMTRIP2	YES PIN94

IT8628E 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 高阻時 GP92 會被拉 Lo (ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 Lo
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用, 不然會互相干擾
PIN 22	PIN22, 需高於3V, 若低於該部分COM PORT及LPT裝置 蜂鳴器會異常動作。

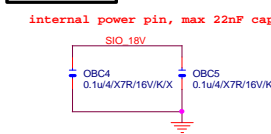
DUAL BIOS OPT STRAP



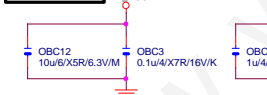
Power leakage



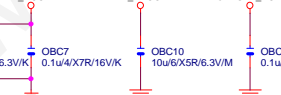
SIO_18V



SIO CAP



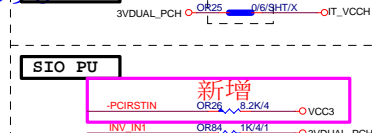
SIO CAP



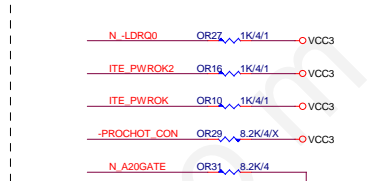
SIO CAP



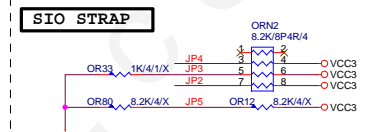
PWR SHT



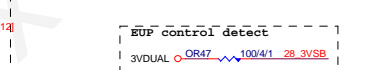
SIO PU



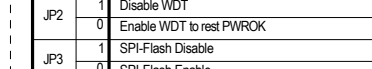
SIO STRAP



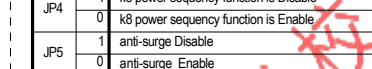
SIO STRAP



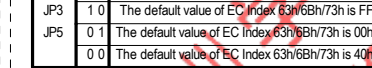
SIO STRAP



SIO STRAP



SIO STRAP



SIO STRAP



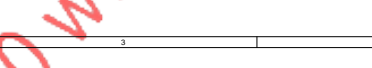
SIO STRAP



SIO STRAP



SIO STRAP



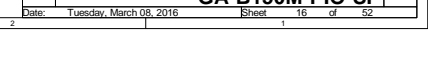
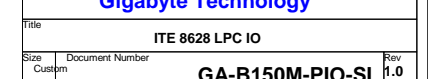
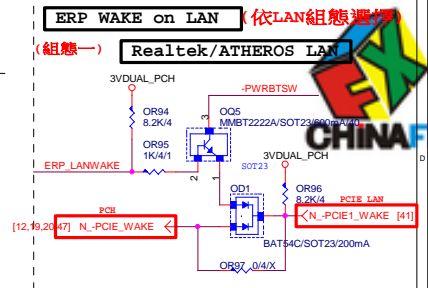
SIO STRAP



SIO STRAP



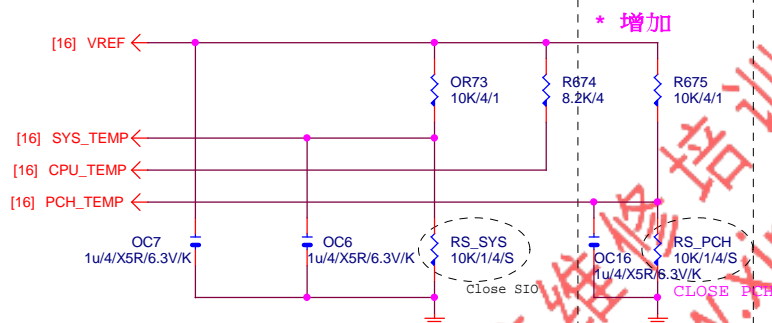
SIO STRAP



Gigabyte Technology	
ITE 8628 LPC IO	
Size	Document Number
Custom	GA-B150M-PIO-SI
Date:	Tuesday, March 08, 2016
Sheet	16 of 52

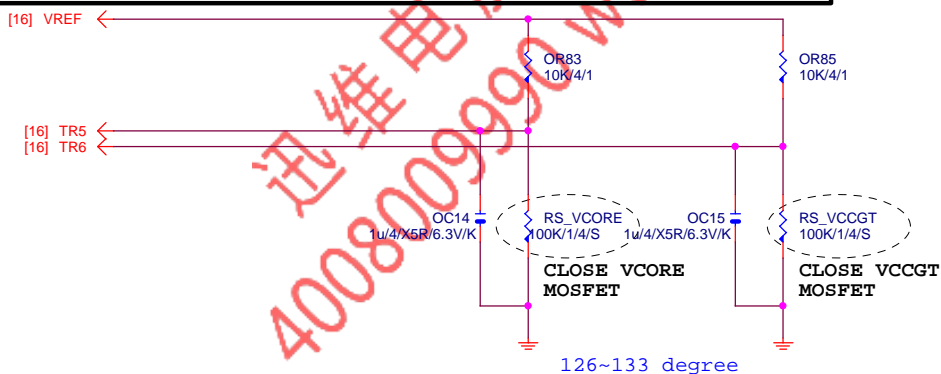
TEMP H/W MONITOR

REV 1.04



RS_VCORE, RS_VCCGT, CLOSE CPU_VCORE & VCCGT MOSFET

-PROCHOT: 有mos heartsink不用prochot function

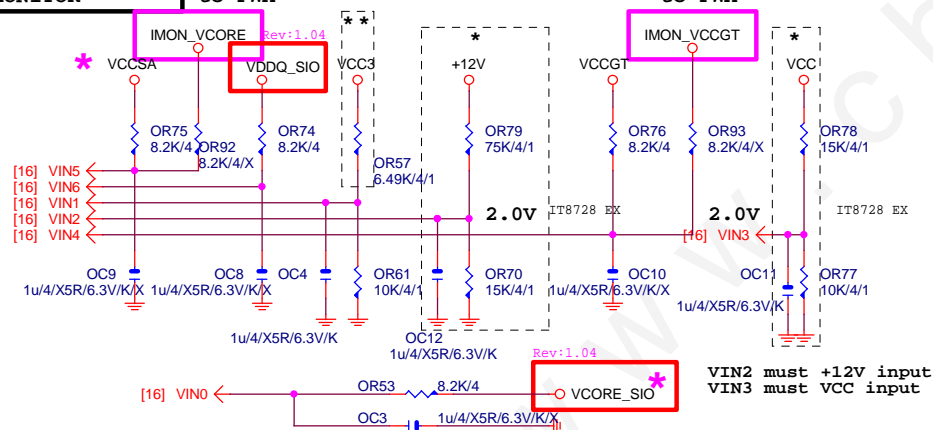


VOLTAGE-- H/W MONITOR

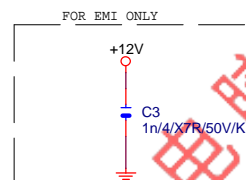
Connect to PWM

* IT8728 BX
** IT8728 CX

Connect to PWM



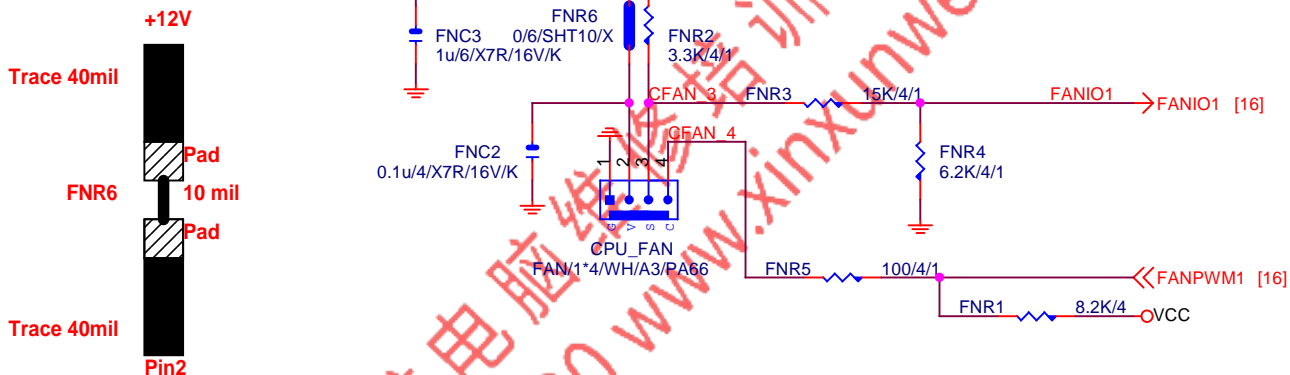
The division voltage of VIN2 & VIN3 must be around 2.9V

VIN2 must +12V input
VIN3 must VCC input

Gigabyte Technology

Title		
HWM,KB/MS, FAN CTRL		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date:	Tuesday, March 03, 2016	Sheet 17 of 52

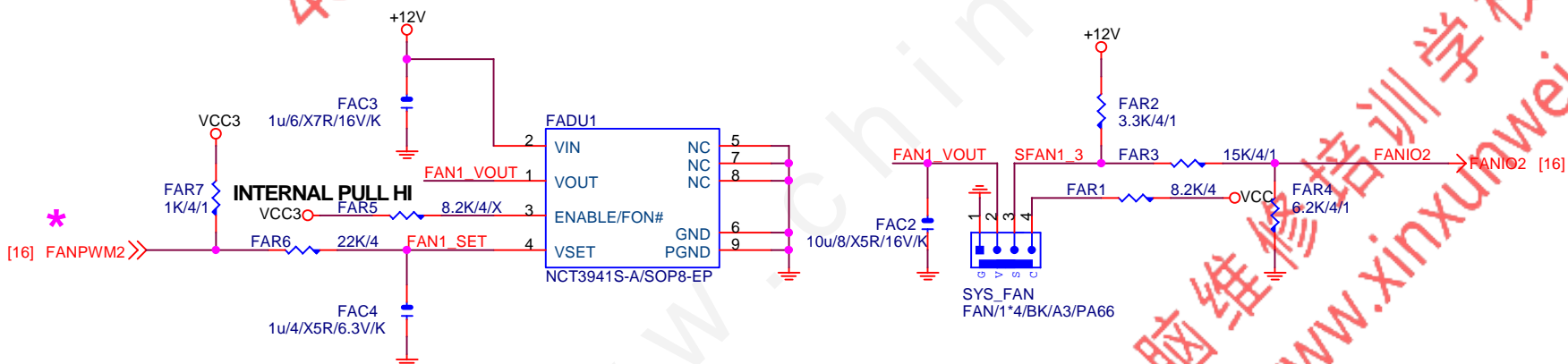
FNR6 Footprint:
FUSE-0603-SHORT10



SYSTEM FAN1

Linear SYS FAN

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



Gigabyte Technology

Title	HWM,KB/MS, FAN CTRL
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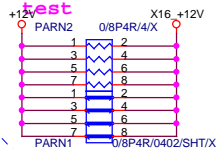
Size	Document Number
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GA-B150M-PIO-SI

Rev	
1.0	

Date: Friday, January 08, 2016

Sheet 18 of 52

* +12V protect
short-wire
test

PA_EXP_RXP0_15I >> PA_EXP_RXP[0..15] [4]
PA_EXP_RXN0_15I >> PA_EXP_RXN[0..15] [4]
PA_EXP_TXP0_15I >> PA_EXP_TXP[0..15] [4]
PA_EXP_TXN0_15I >> PA_EXP_TXN[0..15] [4]

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

PCIEX16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

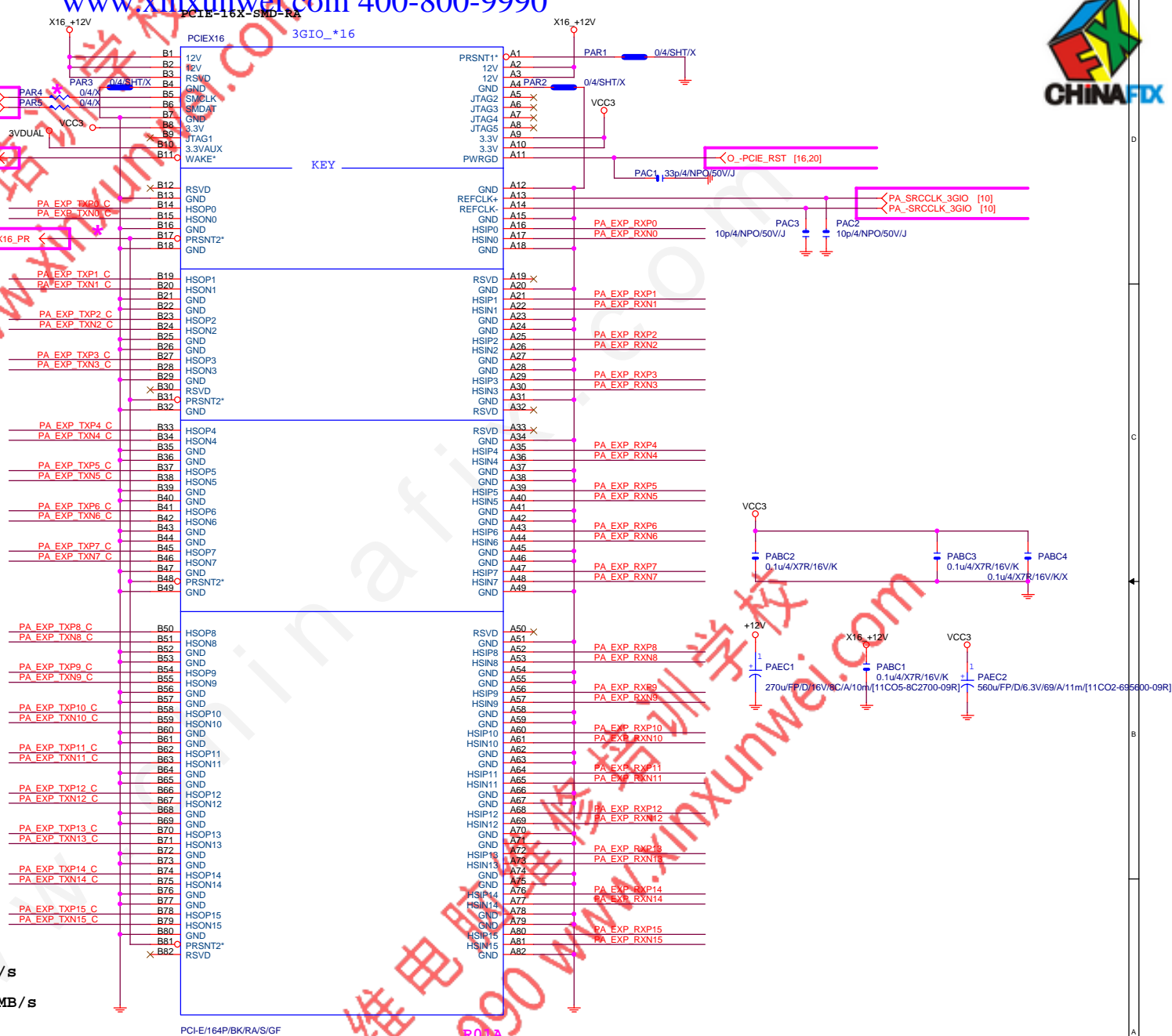
PCE-E X1(單向) BANDWIDTH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

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

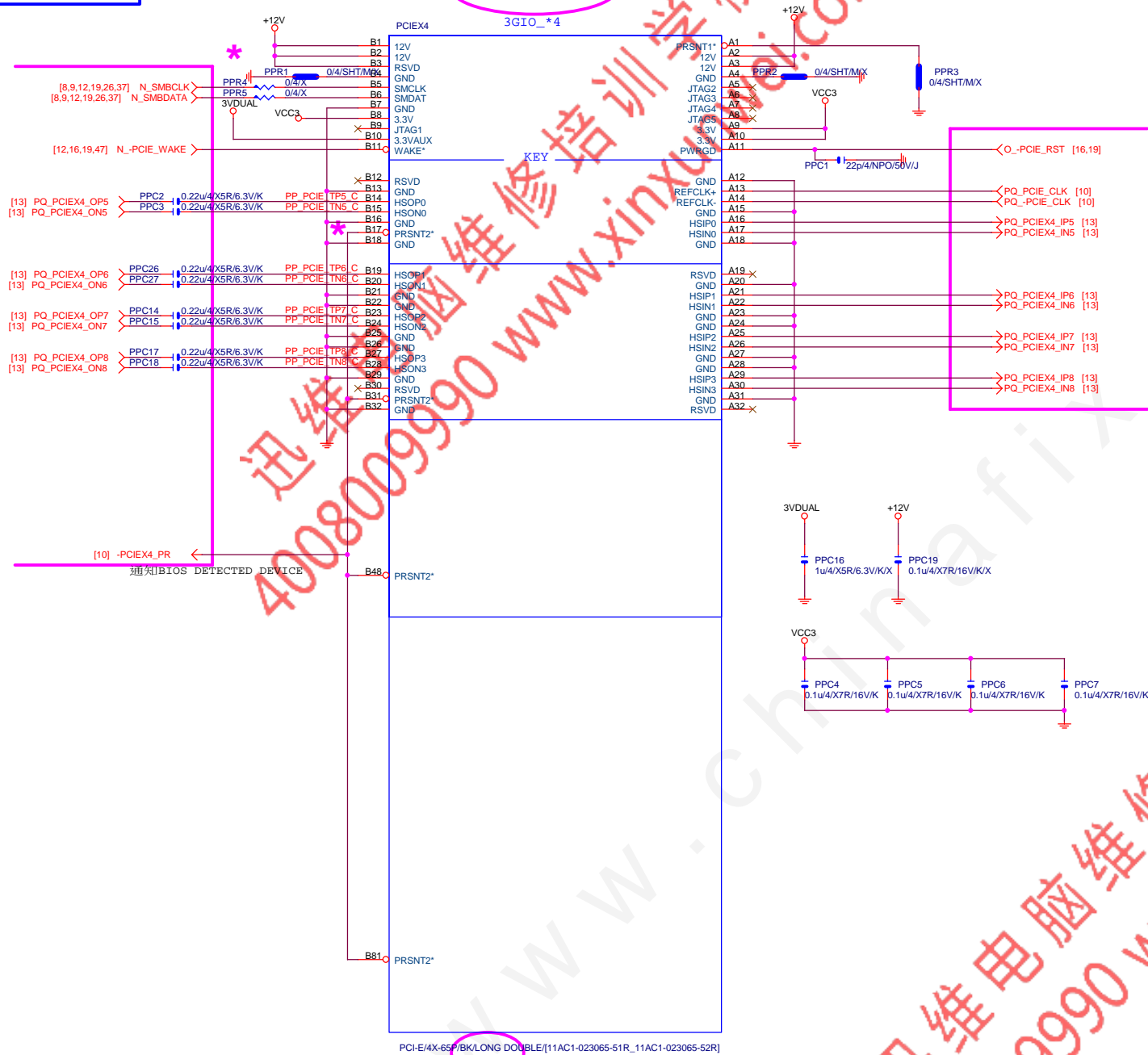


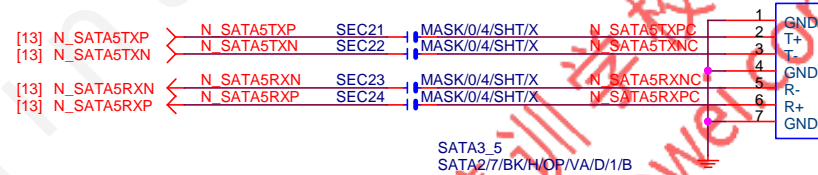
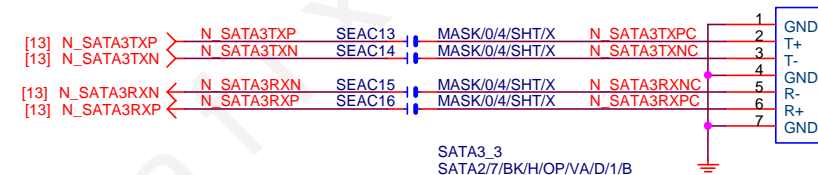
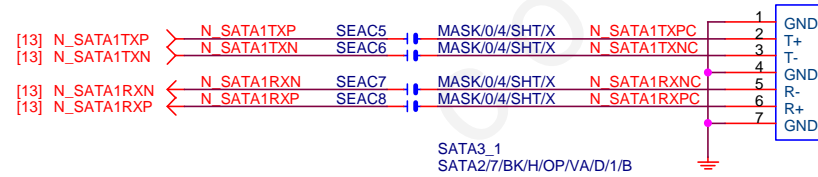
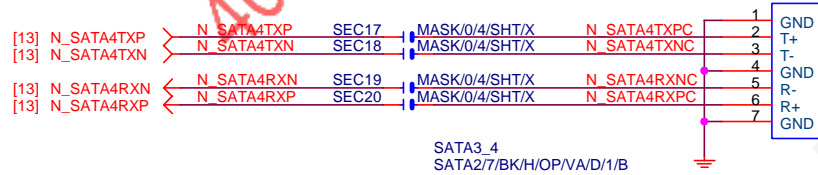
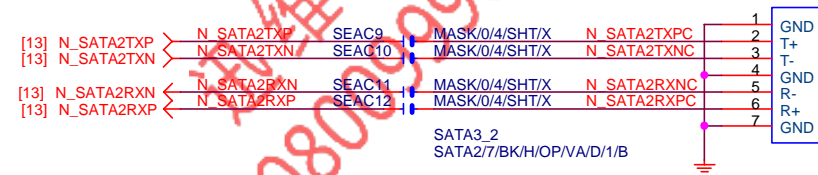
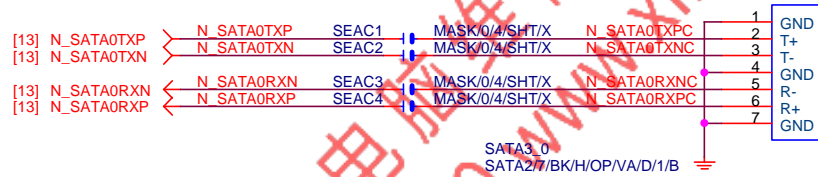
PCI-E/16P/BK/RA/S/GF

R01A

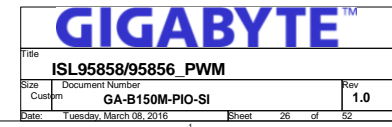
Gigabyte Technology

Title			PCI EXPRESS * 16	
Size	Document Number	GA-B150M-PIO-SI		Rev
Custom				1.0
Date:	Tuesday, March 08, 2016	Sheet	19	of 52



**Gigabyte Technology**

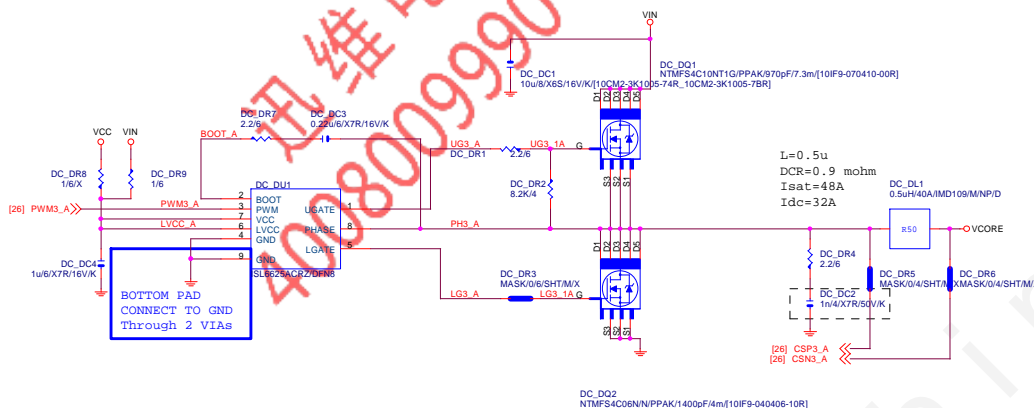
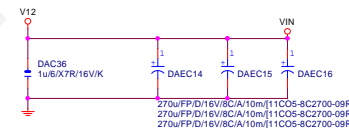
Title		
SATA EXPRESS		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date:	Tuesday, March 08, 2016	Sheet 1 of 52



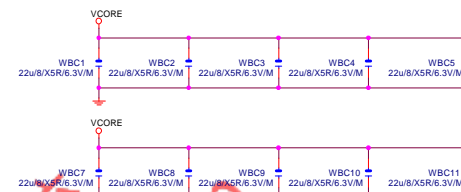
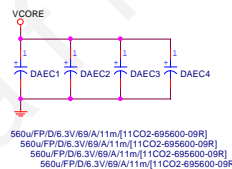
VCORE



VIN CAP 270u*3PCS

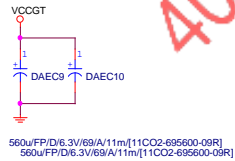
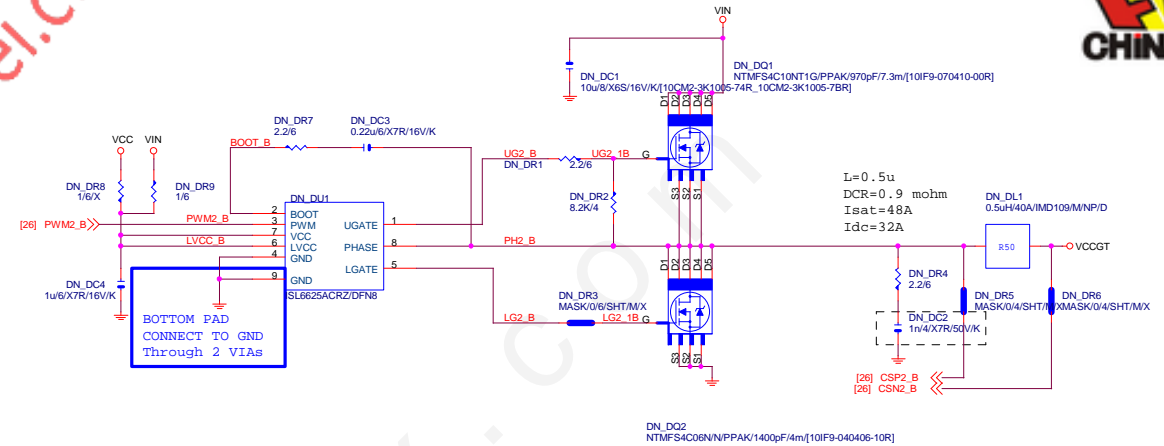



VCORE CAP 560u*8PCS
22u*29PCS

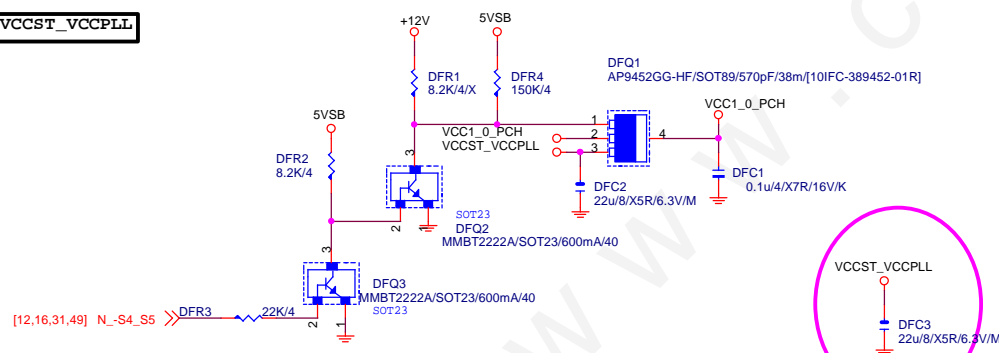
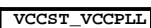
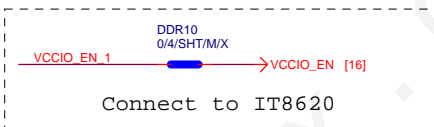
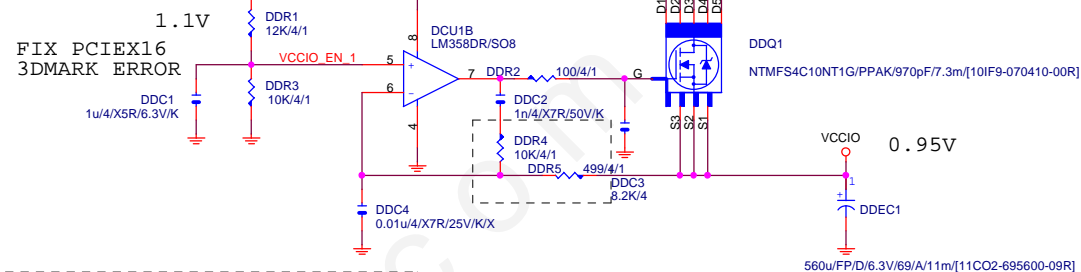


GIGABYTE™

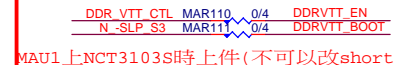
Title			ISL95858_MOS
Size	Document Number	Rev	
	GA-B150M-PIO-SI	1.0	
Date	Tuesday, March 08, 2016	Sheet	27 of 52



			
Title			
ISL95858_MOS			
Size	Document Number		Rev
Custom	GA-B150M-PIO-SI		1.0
Date:	Tuesday, March 08, 2016	Sheet	28 of 52



DDR VIN CAP
560u*2PCS



Title			
RT8120_DDR POWER			
Size	Document Number	Rev	
Custom	GA-B150M-PIO-SI	1.0	
Date:	Tuesday, March 08, 2016	Sheet	30 of 52

Date: Tuesday, March 08, 2016	Sheet 30 of 52
-------------------------------	----------------

REV:0.33

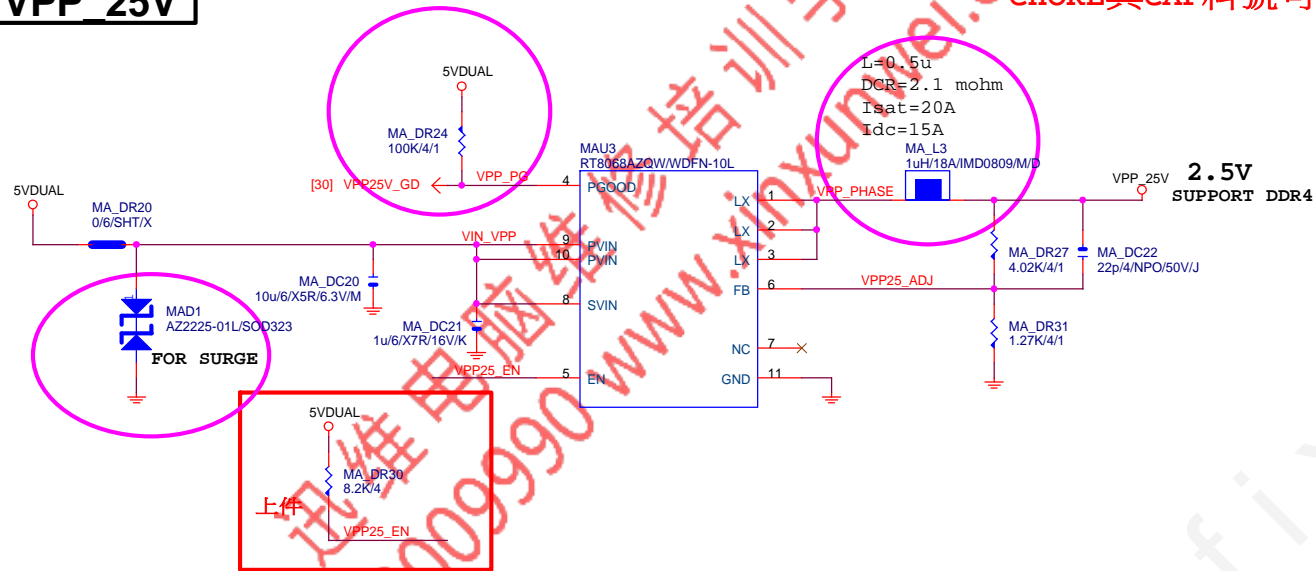
www.xinxunwei.com 400-800-9990



VPP_25V

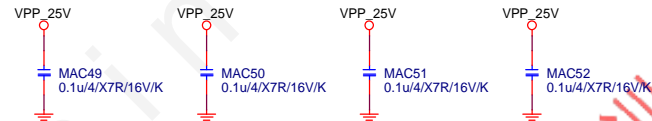
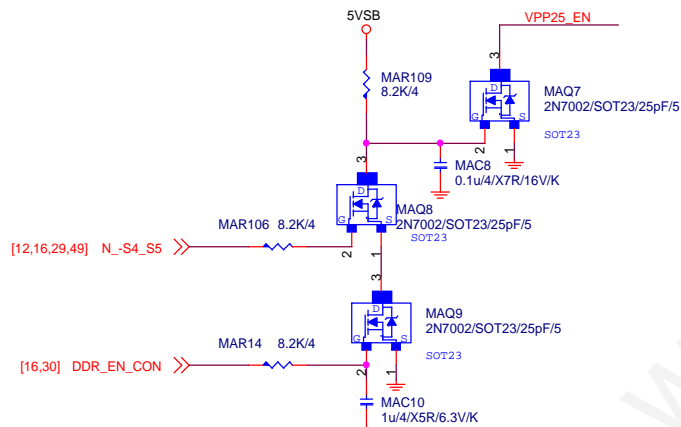
VPP25V_GD不能使用會亂打

CHOKER與CAP料號可變



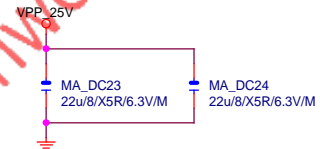
PWR_SEQ

* 刪 MA_DR32



VPP CAP 22u*1PCS

* 大電容 22u



GIGABYTE™

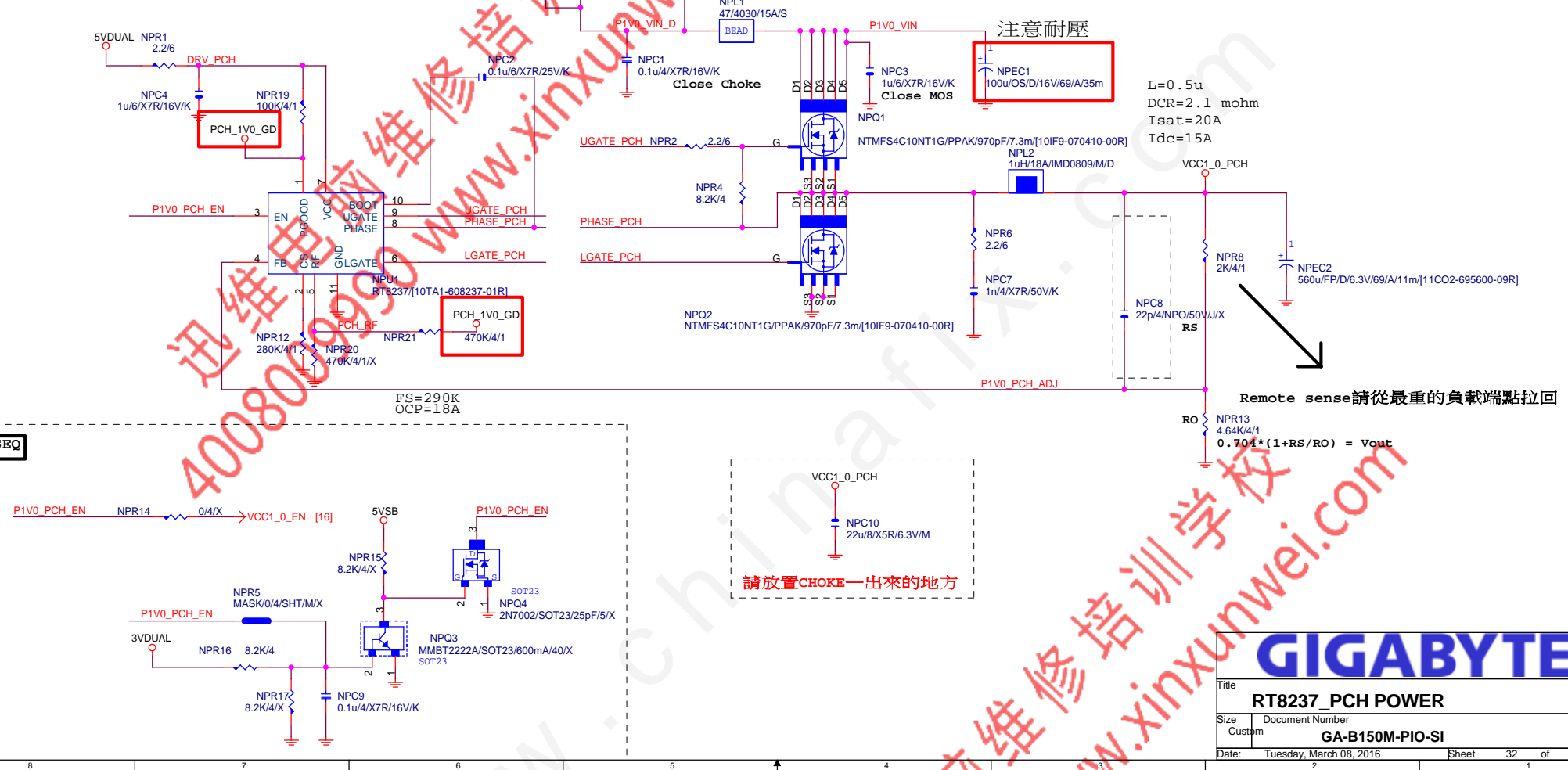
Title		
RT8068A_VPP25 POWER		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date:	Tuesday, March 08, 2016	Sheet 31 of 52

REV:0.47

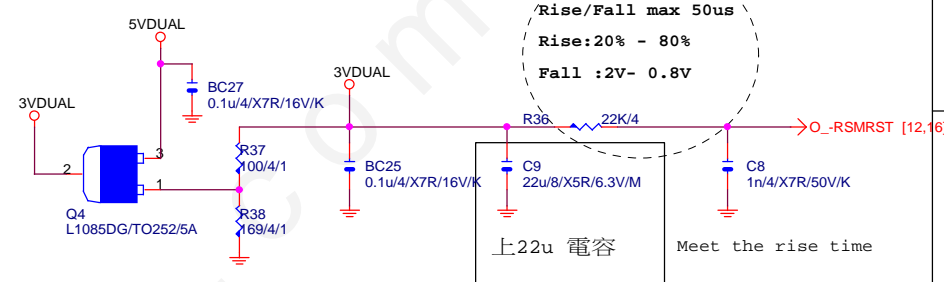
www.xinxunwei.com 400-800-9990



CHOKES與CAP料號可變



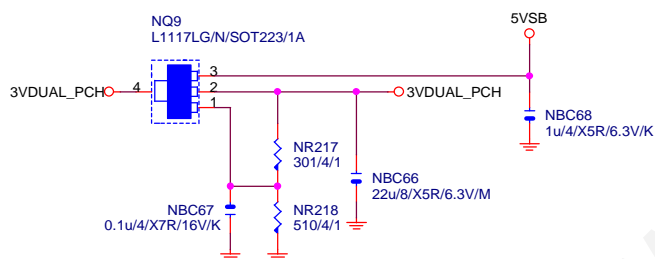

```
* 5Vdual , update
from SKL 0.2B
```



上22u 電容

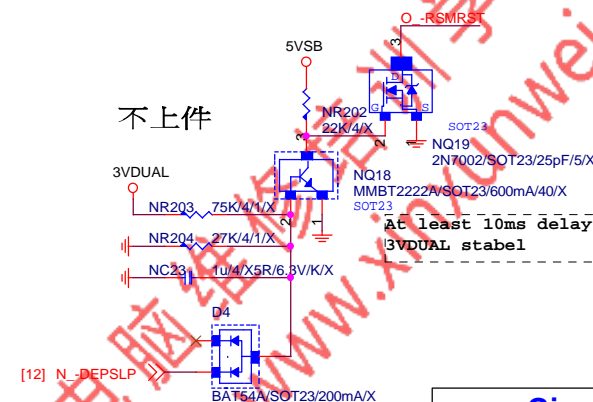
Meet the rise time

3VDUAL PCH



O_-RSMRST

不上件

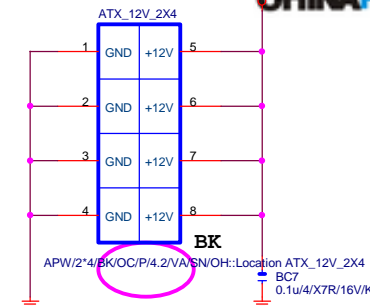
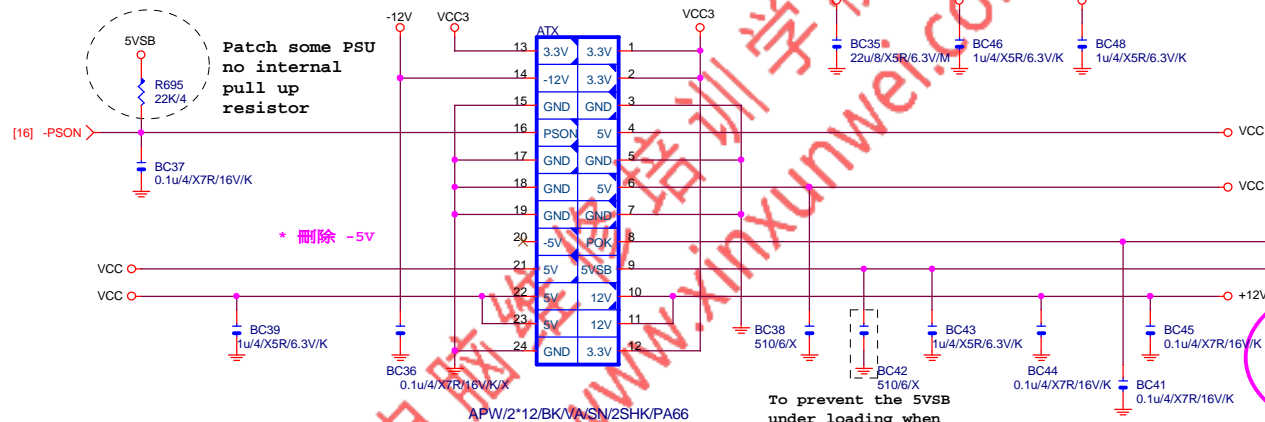


```
At least 10ms delay after
3VDUAL stabel
```

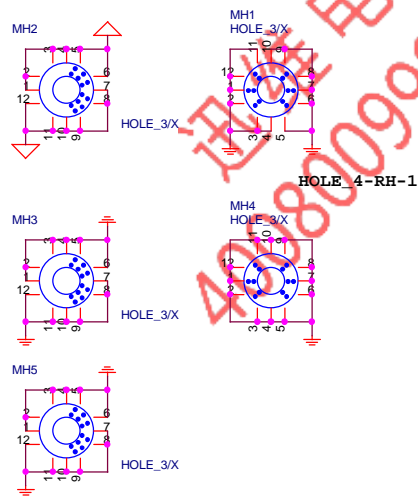
ATXX24 POWER CONNECTOR

www.xinxunwei.com 400-800-9990

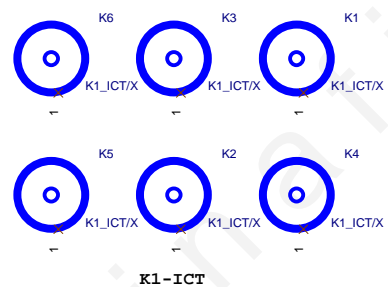
ATXX4 POWER CONNECTOR



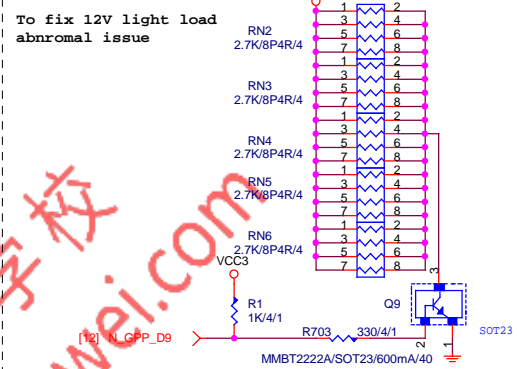
螺絲孔



固定孔/光學點

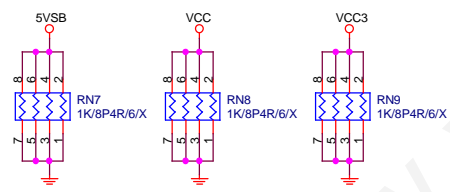


+12V DUMMY LOAD

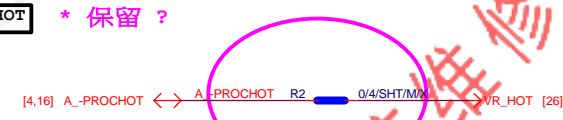


【技術通報R&D技術通報153】

DUMMY LOAD



-PROHOT

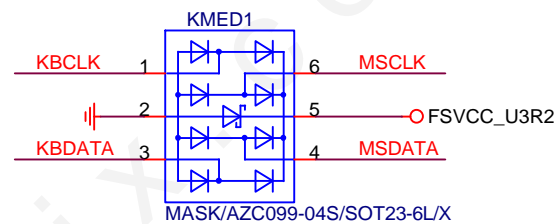
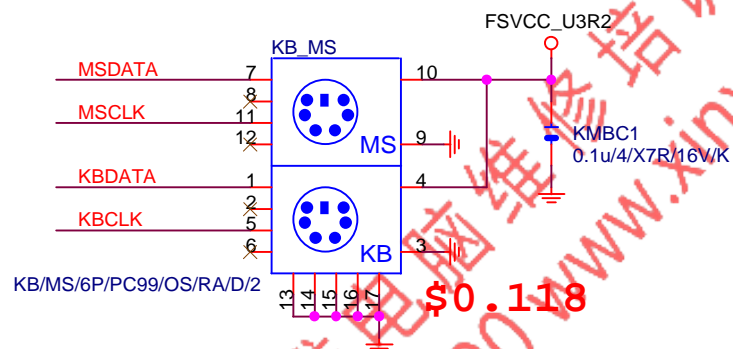


COUPON

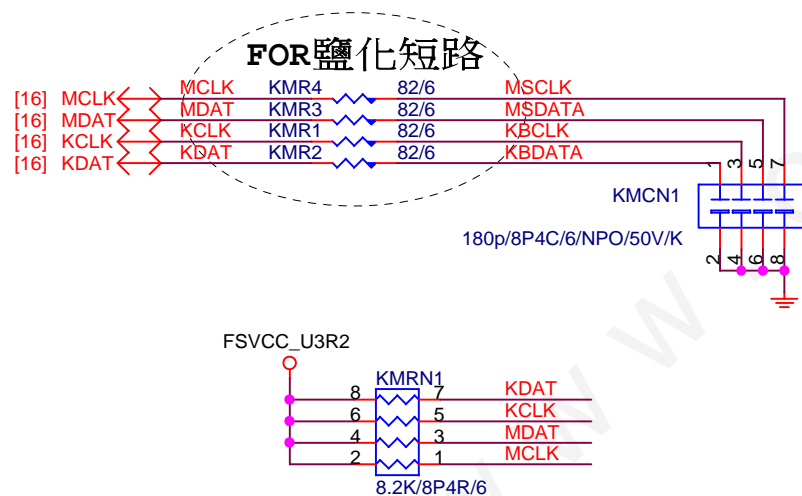


Gigabyte Technology

ATX POWER CONNECTOR			Rev 1.0
Title	Document Number	GA-B150M-PIO-SI	
Size Custom	Date: Tuesday, March 08, 2016		Sheet 34 of 52



KB_MS_USB DAMPING/PU



KB MS USB PWR

USB OC PROTECT

Gigabyte Technology

AUDIO JACK

GA-B150M-PIO-SI

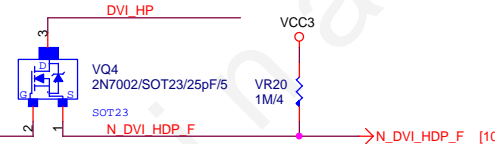
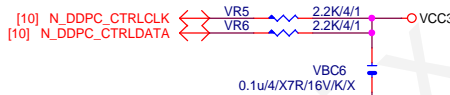
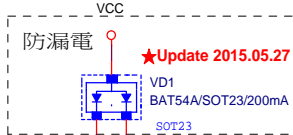
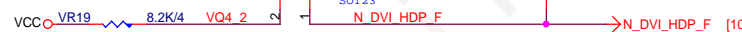
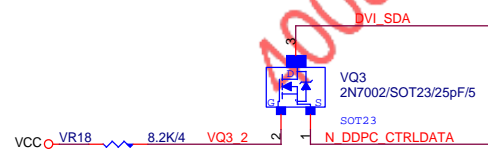
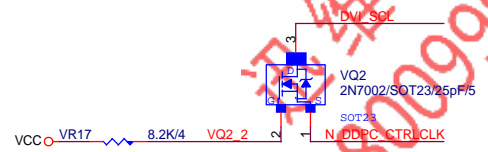
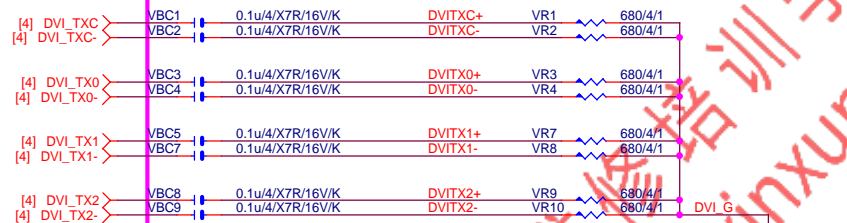
Rev	1.0
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Date: Tuesday, March 08, 2016

Sheet 35 of 52

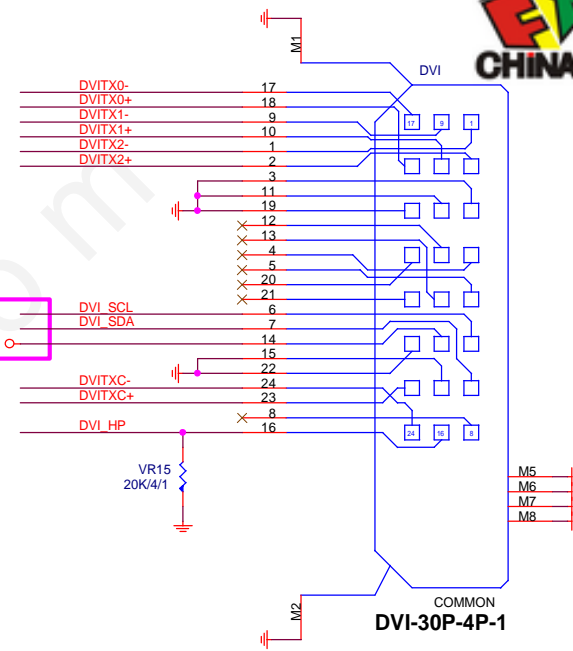


NET 可變

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

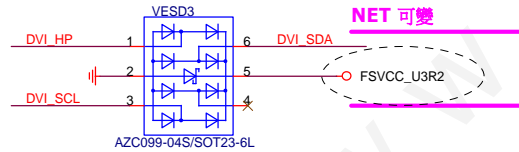
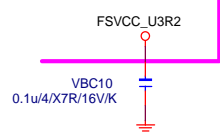
NET 可變

* FSVCC_U3R2



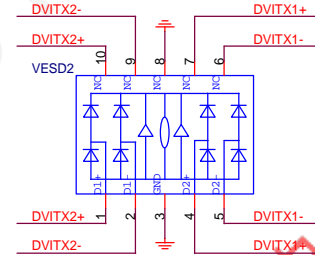
ESD

NET 可變



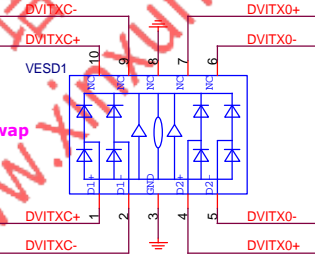
Close to connector

NET 可變



Close to connector

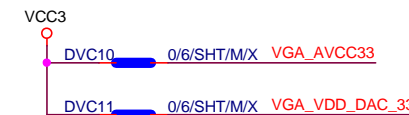
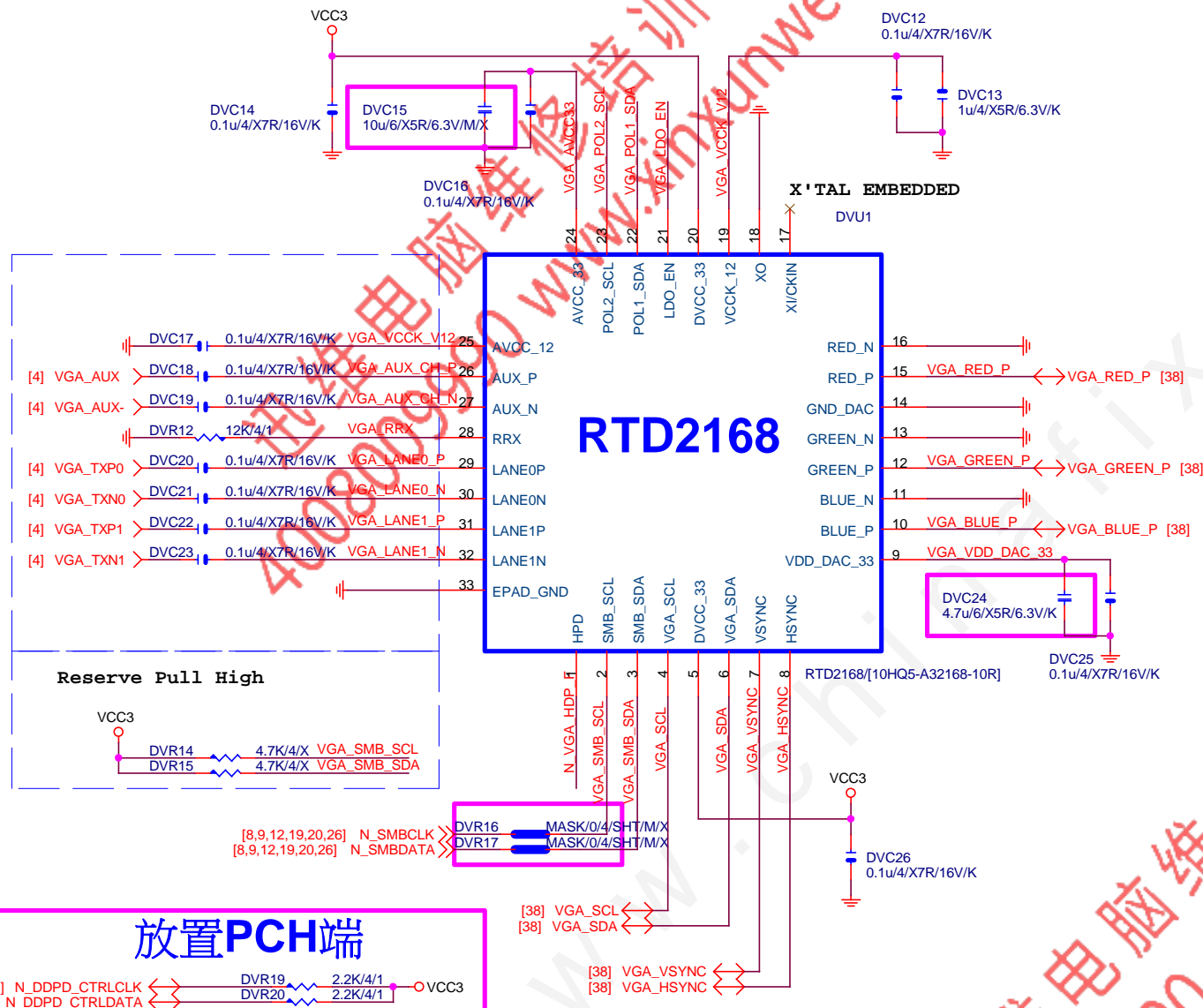
* swap



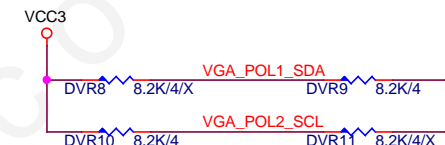
Close to connector

Gigabyte Technology

Title			
FP,F_USB,USB PWR,BZ			
Size	Document Number	Rev	
Custom	GA-B150M-PIO-SI	1.0	
Date:	Tuesday, March 08, 2016	Sheet	36 of 52

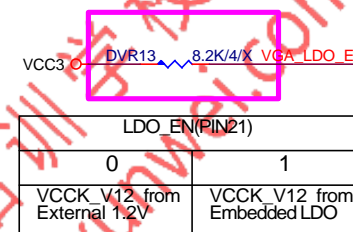


Power on latch

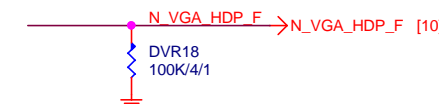


		POL1_SDA(PIN22)	
		0	1
POL2_SCL (PIN23)	0	X	EP MODE
	1	ROM ONLY MODE	EEPROM MODE

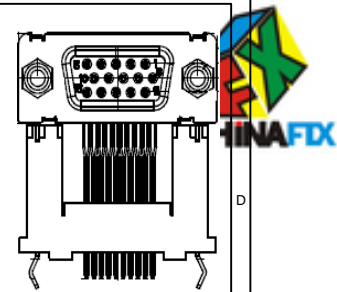
Embedded LDO



DP HPD

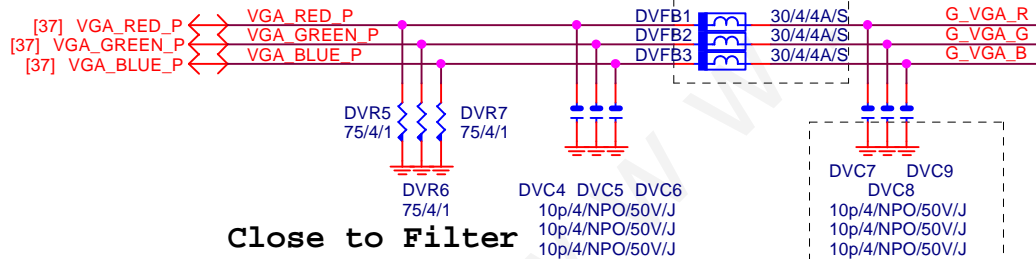
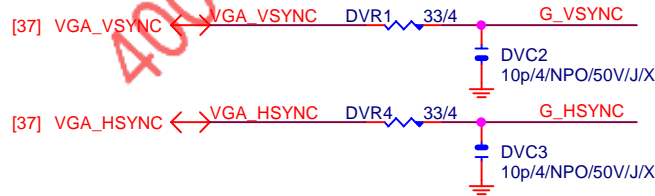


Gigabyte Technology
DP-VGA RTD2168



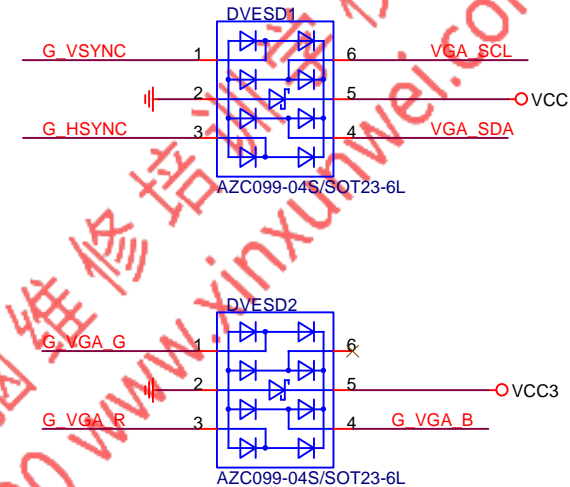
DVR2 2.2K/4/1
DVR3 2.2K/4/1

[37] VGA_SDA <-> VGA_SDA
[37] VGA_SCL <-> VGA_SCL



FOR EMI

VGA ESD



Gigabyte Technology

DP-VGA RTD2168

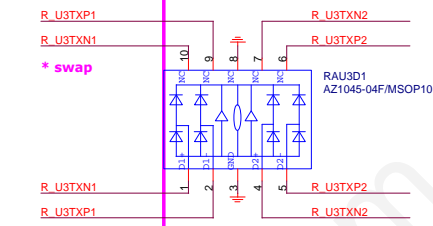
Title		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date:	Tuesday, March 08, 2016	Sheet 38 of 52

R_USB30_1

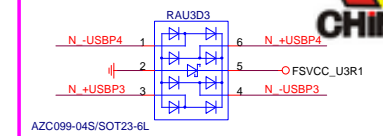
ESD 可自行SWAP PIN ,CONN端 NET 名稱 不可

ESD

NET 可自行調整



NET 可自行調整



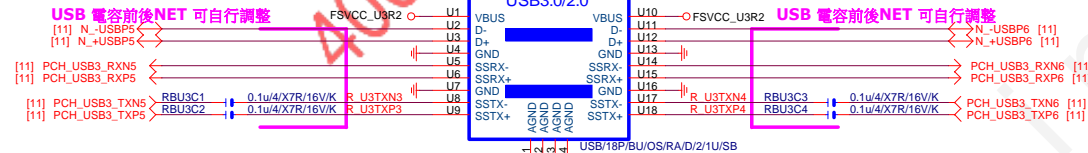
FUSE

FUSE 2 Port 1 Fuse 2.6A



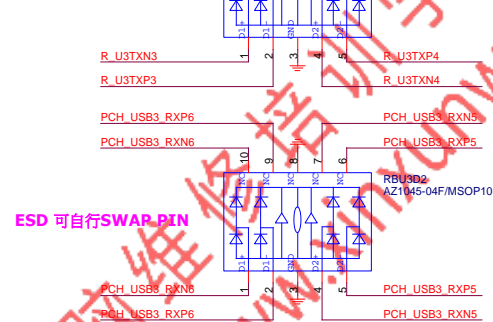
R_USB30_2

USB 電容前後NET 可自行調整

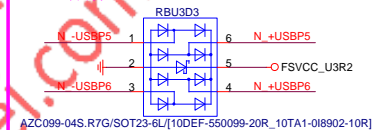


USB 電容前後NET 可自行調整

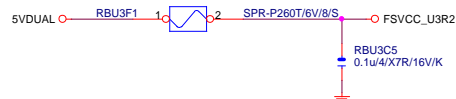
ESD 可自行SWAP PIN



ESD 可自行SWAP PIN

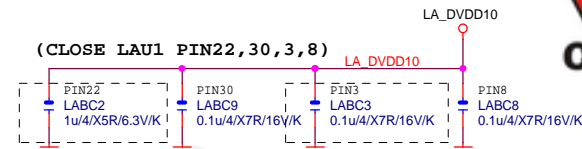


FUSE 2 Port 1 Fuse 2.6A



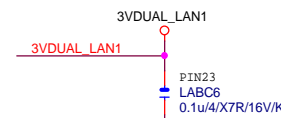
Gigabyte Technology

Title	R_USB30,F_USB30, USB_OC		
Size	Document Number	GA-B150M-PIO-SI	Rev 1.0
Custom	Date:	Tuesday, March 08, 2016	Sheet 40 of 52

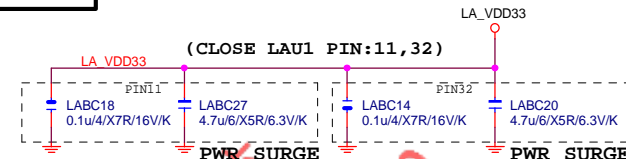


LAN POWER

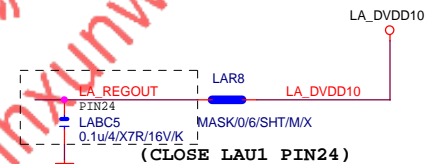
note: lan power 連接及電流



(CLOSE LAU1 PIN23)



```
LABC18,27:CLOSE PIN11[REALTEK SURGE]
LABC14,20:CLOSE PIN32[REALTEK SURGE]
```

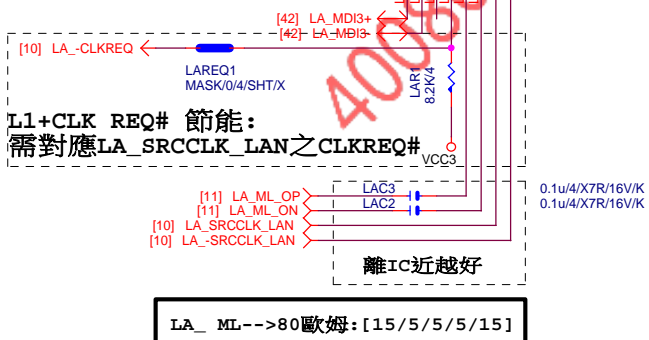


Gigabyte Technology

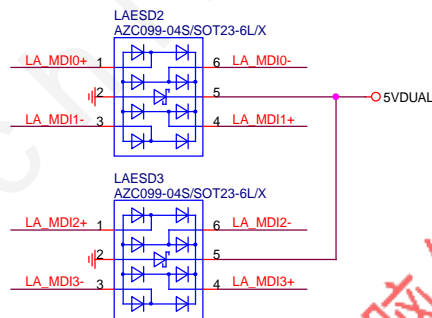
Title	Realtek RTL8111GUS
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Size	Document Number
Custom	GA-B150M-PIO-SI

Date: Tuesday, March 08, 2016 Sheet 41 of 52

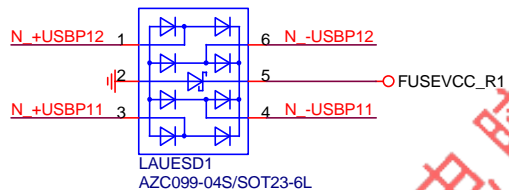


MDI ESD預留

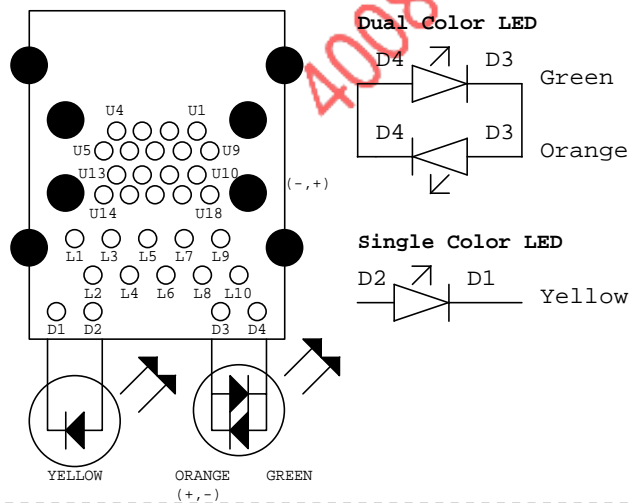


note:可變更USB NAME

可變



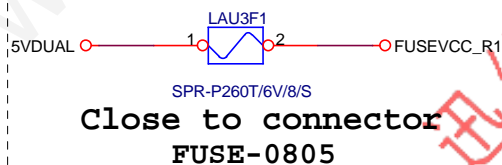
USB30_LAN LAYOUT示意圖



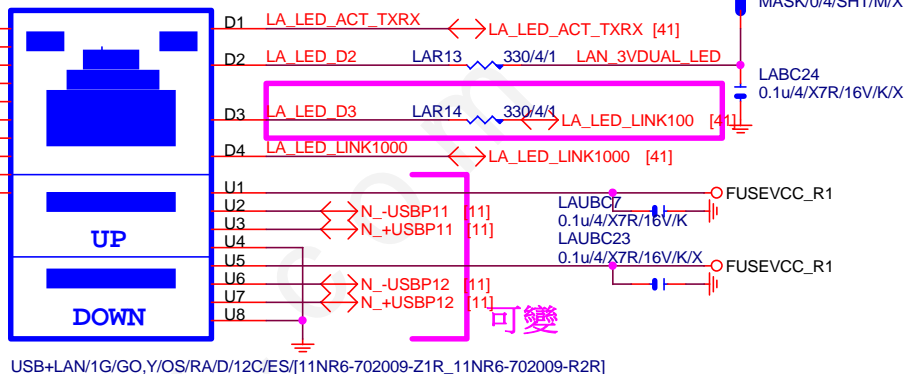
USB POWER

note:可變更FUSE

可變



USB LAN



LA MDI-->100歐姆:[20/4/8/4/20]

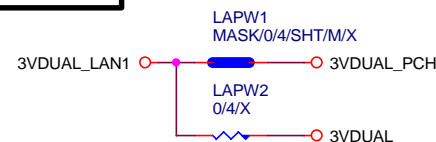
EMI SHORT PAD

PS: 視EMI需求

LAN POWER

note: lan power連接及電流

可變



Gigabyte Technology

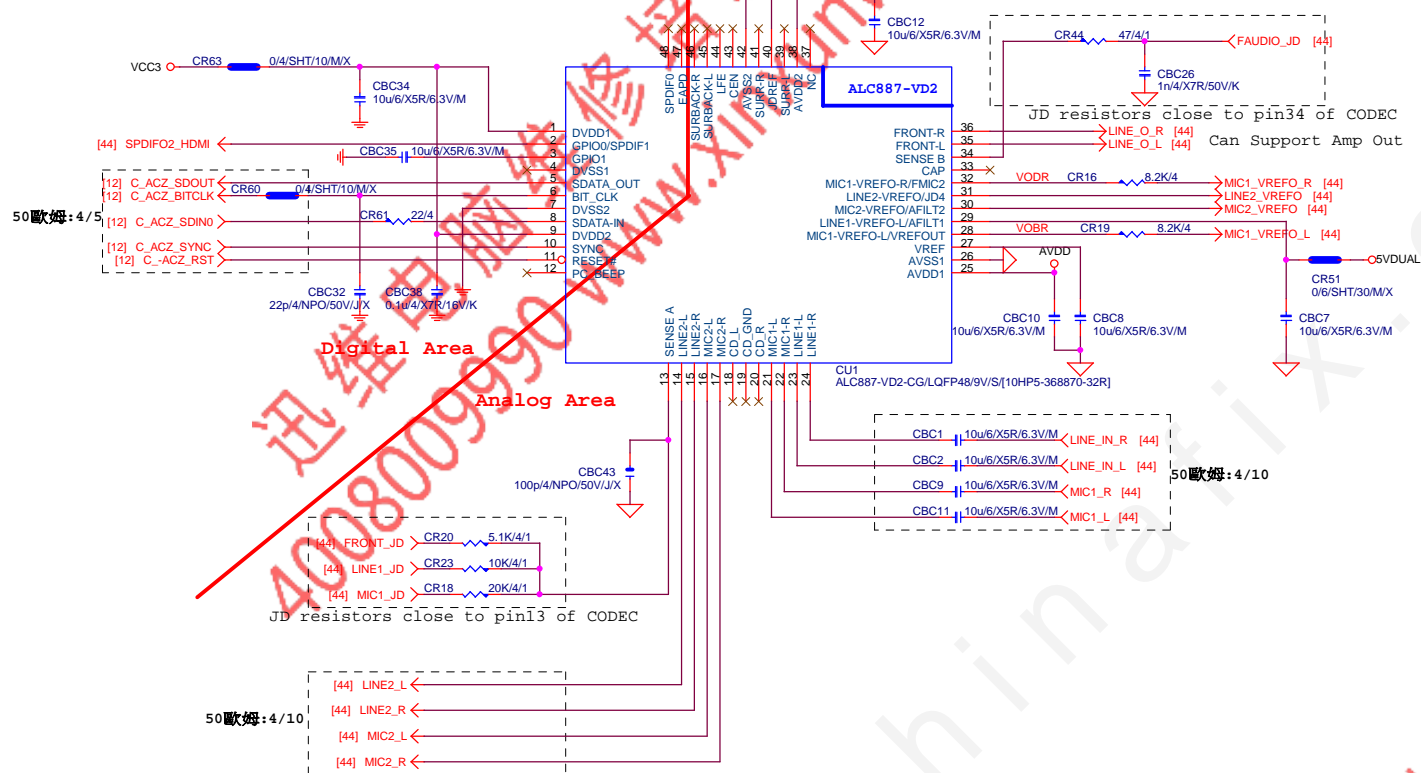
LAN CONNECTOR-RTL8111G

Size	Document Number
Custom	

GA-B150M-PIO-SI

Rev	1.0
-----	-----

ALC887 三孔 AUDIO JACK



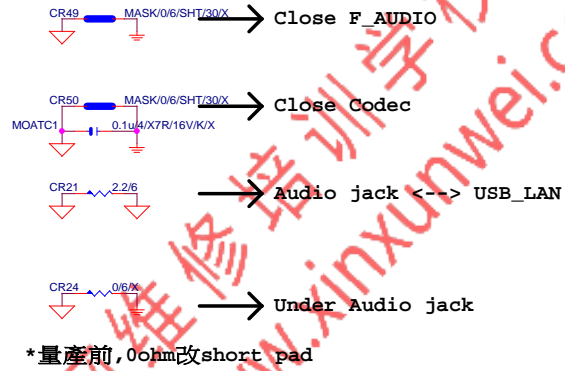
<input type="radio"/> MH1	<input type="radio"/> MH2
DGND	Isolate

Gigabyte Technology

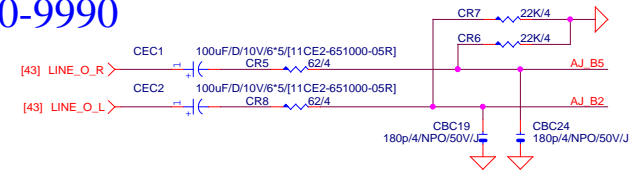
Title		
HD AUDIO ALC887		
Size	Document Number	Rev
Custom	GA-B150M-PIO-SI	1.0
Date:	Tuesday, March 08, 2016	Sheet 43 of 52

Rev 0.5

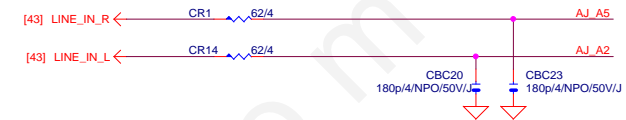
www.xinxunwei.com 400-800-9990



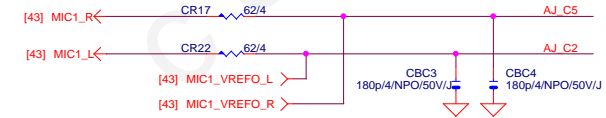
LINE-OUT



LINE-IN



MIC-IN

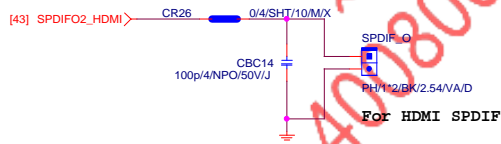


SURROUND

CEN/LFE

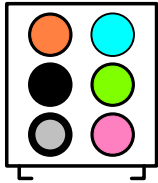
SURRBACK

SPDIF_OUT

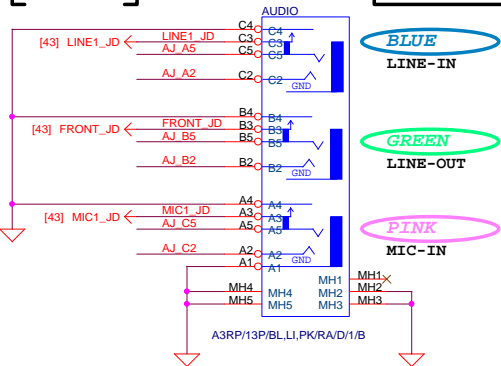


SPDIF_IN

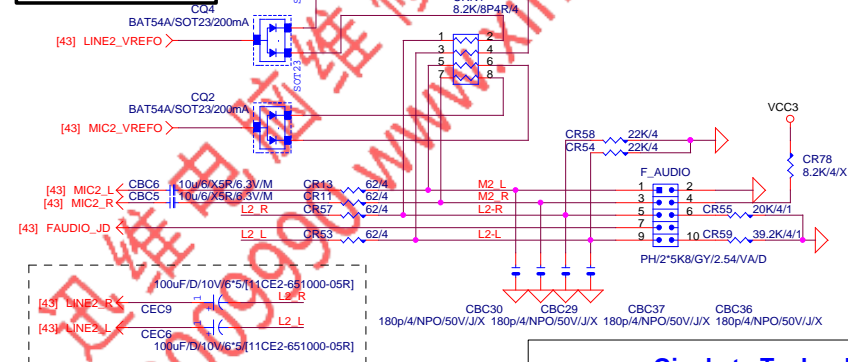
AZALIA JACK



AZALIA JACK



AZALIA FRONT PANEL



Gigabyte Technology

Title			
AUDIO JACK			
Size	Document Number	GA-B150M-PIO-SI	Rev
Custom			1.0
Date:	Tuesday, March 08, 2016	Sheet	44 of 52

Rev: 0.53

Front USB3.0

F_USB30

REV=1

FSVCC_U3F1

VBUS

ID

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

D1+

GND

GND

GND

BH2*10K20/BK/ON2.0VA/USB3.0/PRT

VBUS

SSRX1-

SSRX1+

SSRX2-

SSRX2+

D1-

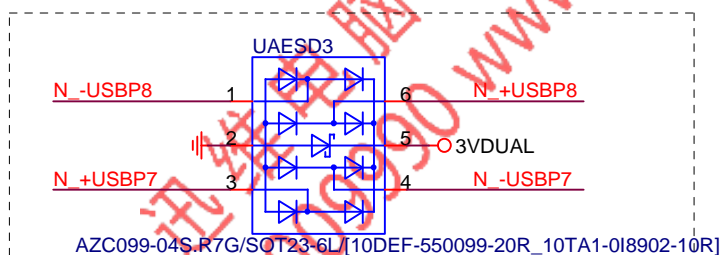
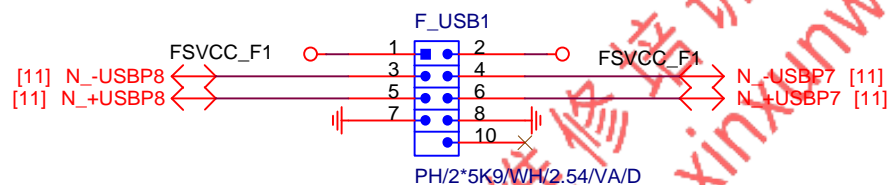
D1+

GND

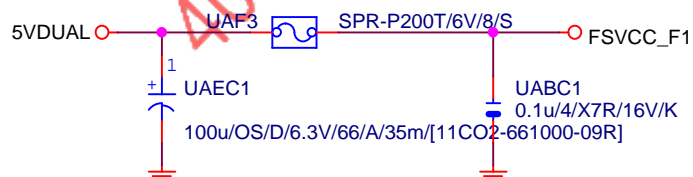
GND

GND

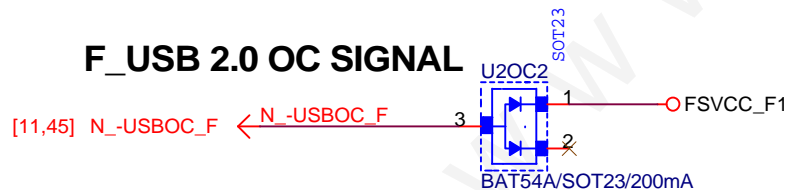
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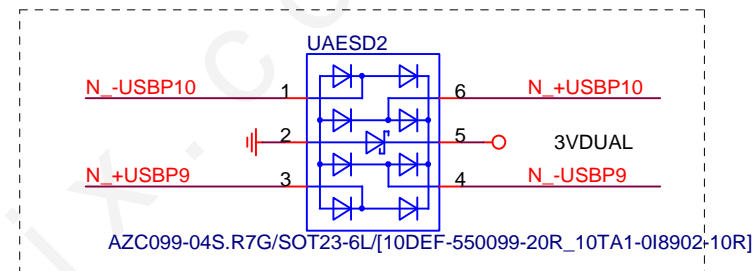
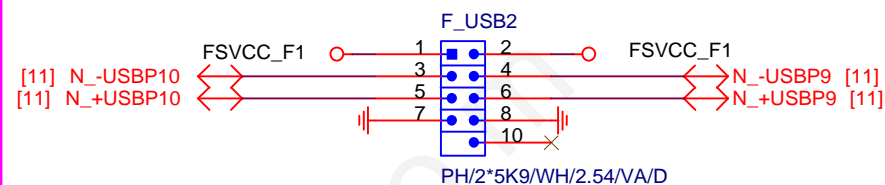
Close to connector
FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL



NET 可變



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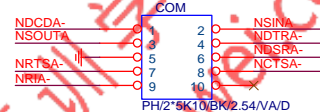
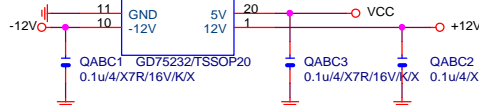
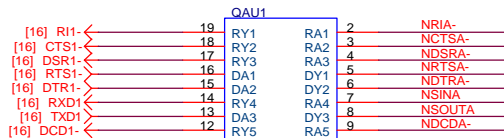
USB2.0

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Size	Document Number	GA-B150M-PIO-SI	Rev 1.0
Custom			
Date:	Friday, January 08, 2016	Sheet	46 of 52

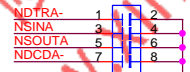
Rev: 0.53

COM PORT

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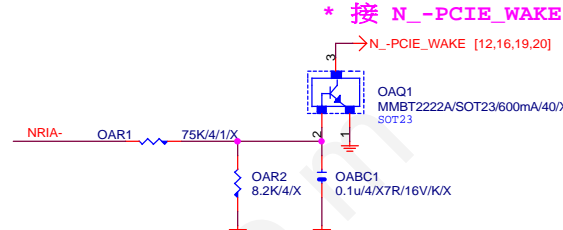
* footprint :
PIN2X5-CU10-COM



* EMI
180p/8P4C/6/NPO/50V/K/X

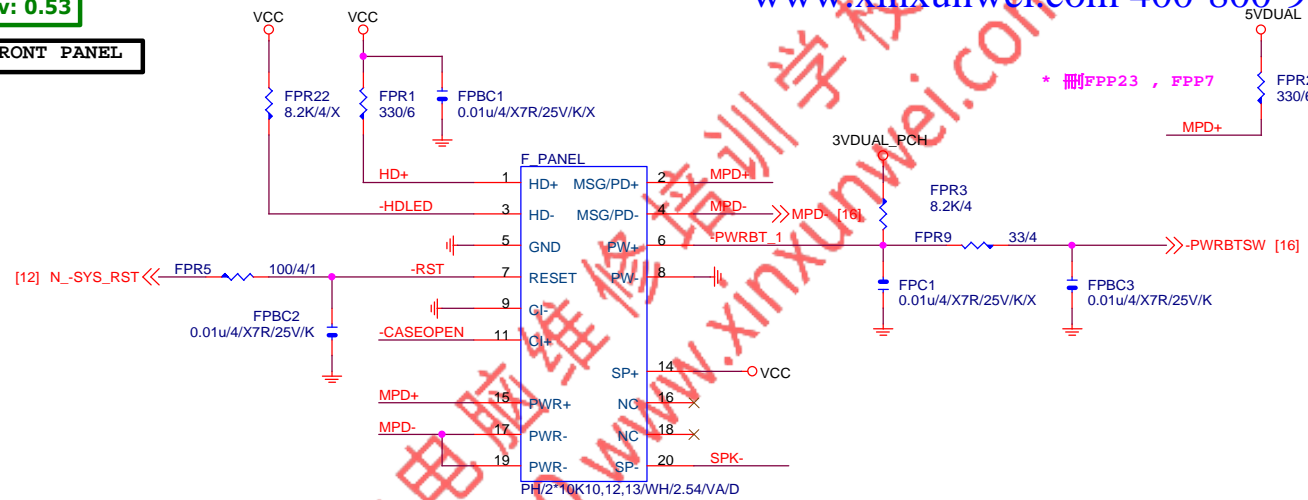


* EMI
180p/8P4C/6/NPO/50V/K/X



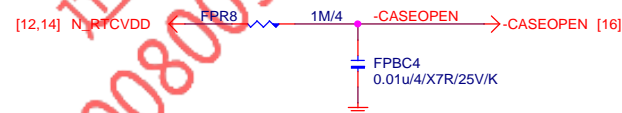
Gigabyte Technology			
Title			
FP,F_USB,USB PWR,BZ			
Size	Document Number	GA-B150M-PIO-SI	Rev
Custom			1.0
Date:	Tuesday, March 08, 2016	Sheet	47 of 52

FRONT PANEL



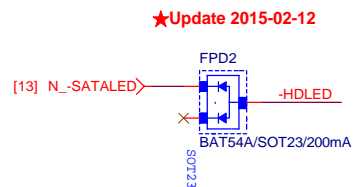
FOOTPRINT: PIN2X10PANEL-NEW

CASE OPEN

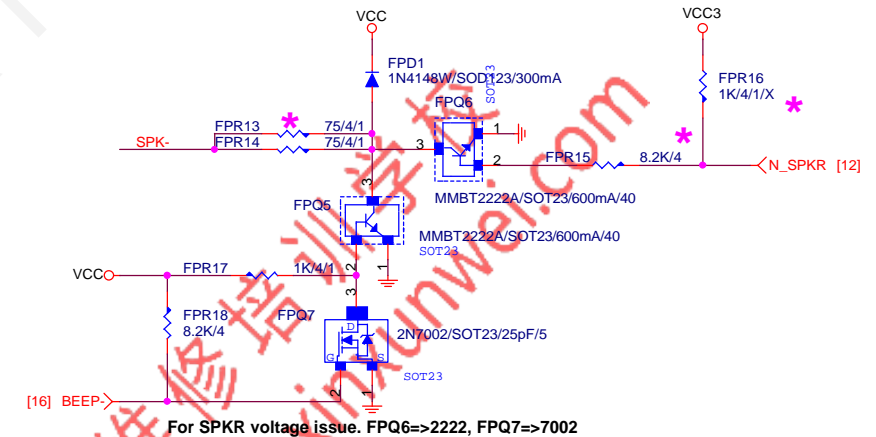


SATA LED

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

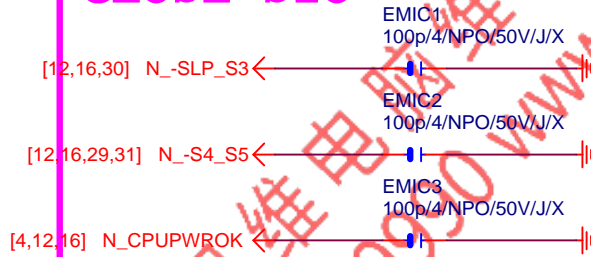


SPKR



Gigabyte Technology			
Title			
FRONT PANEL			
Size Custom	Document Number	GA-B150M-PIO-SI	Rev 1.0
Date:	Tuesday, March 08, 2016	Sheet 48 of 52	

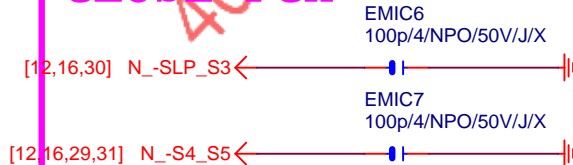
CLOSE SIO



CLOSE PCH



CLOSE PCH



For H1703M-HD3 USB



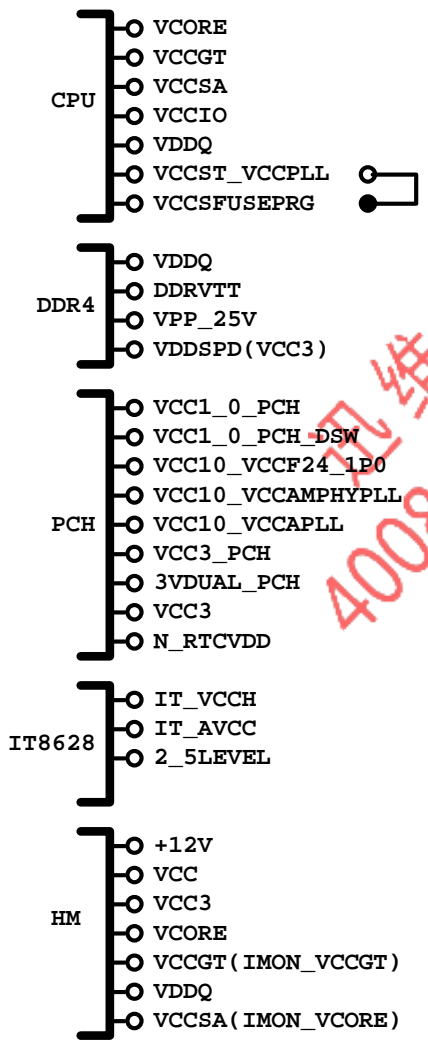
GIGABYTE™

Title		
EMI/ESD		
Size A	Document Number GA-B150M-PIO-SI	Rev 1.0
Date:	Tuesday, March 08, 2016	Sheet 49 of 52

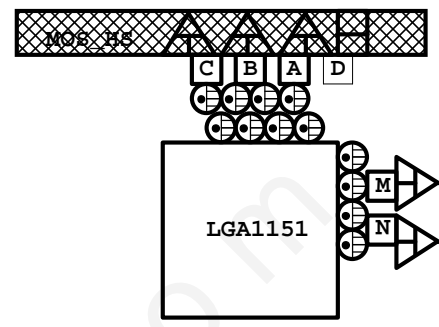
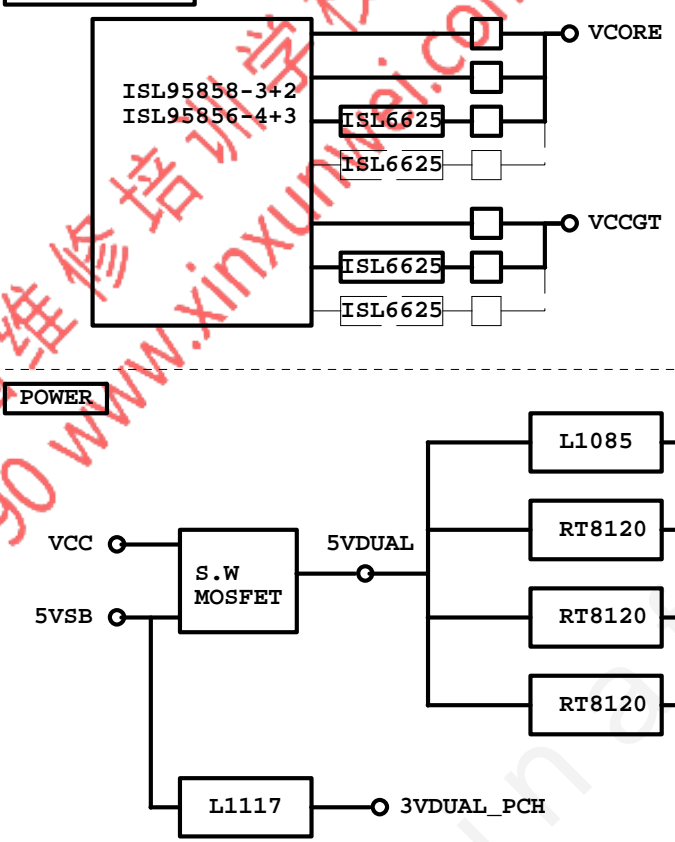
POWER BLOCK MAP

VCORE/VCCGT

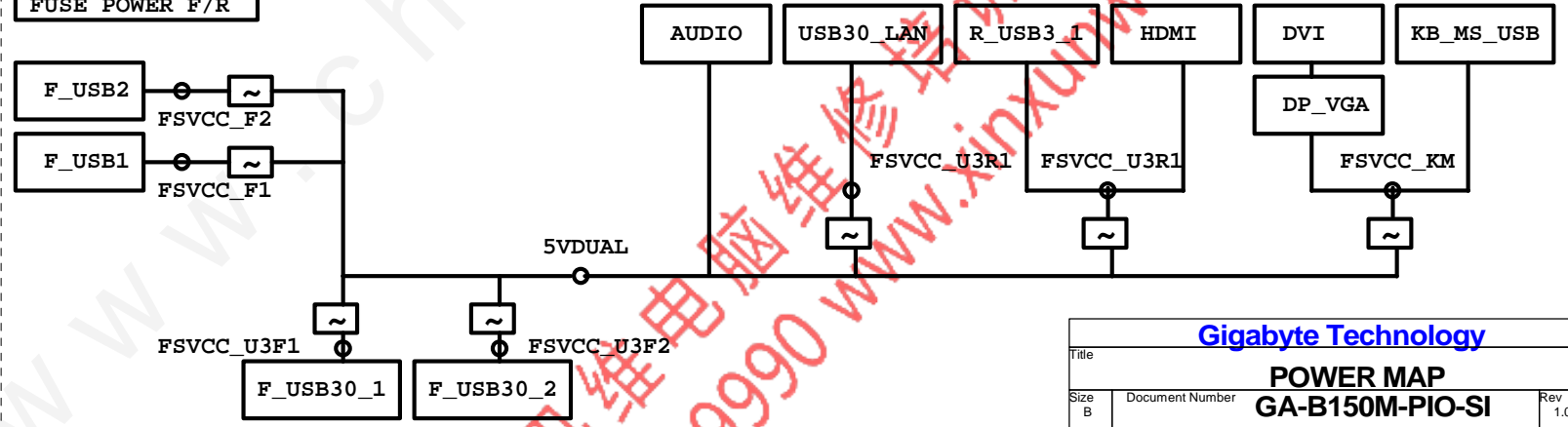
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POWER



FUSE POWER F/R



Gigabyte Technology

Title			
POWER MAP			
Size	Document Number	Rev	
B	GA-B150M-PIO-SI	1.0	
Date:	Tuesday, March 08, 2016	Sheet	50 of 52

固態電容料號.請自行修改

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

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

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

IRON CHOKE

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

Ferrite

	料號	Capture Value	SIZE	Footprint
DIP	11LC5-F3500C-11R	0.5uH/32A/INCG109/FSI/D	10*10	CHOKE05U-40A-1PQ-3
DIP	11LC5-F2500C-11R	0.5uH/25A/INC0809/F/D	8*8	CHOKE1U-R50M-IF
SMD	未建(SIUC1007-R30M-JJ1W)		10*7	CHOKE11X8MM-SMD

BEAD

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

PWM料號

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



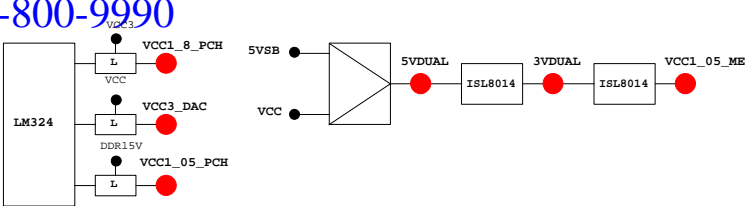
GIGABYTE™			
Title POWER零件使用表			
Size Custom	Document Number GA-B150M-PIO-SI		Rev 1.0
Date:	Tuesday, March 08, 2016	Sheet 1	51 of 52



PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GP0	MAIN	H-Z	GPI0	GPI0	N/A
GP1/TACH1	MAIN		GPI0	GPI0	N/A
GP2/PIRQ#	MAIN		GPI	-PIRQ#	P/U 8.2K VCC3
GP3/PIRQ#	MAIN		GPI	-PIRQ#	P/U 8.2K VCC3
GP4/PIRQ#	MAIN		GPI	-PIRQ#	P/U 8.2K VCC3
GP5/PIRQ#	MAIN		GPI	-PIRQ#	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPI07	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPI08	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPI012	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPI015(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPI016	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPI017	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPI019	P/U 8.2K VCC3
GP20	MAIN		GPI	GPI020	P/U 8.2K VCC3
GP21	MAIN		GPI	GPI021	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPI022	P/U 8.2K VCC3
GP23	MAIN		GPI	GPI023	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPI027	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR_LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPI029	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPI039	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPI044	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPI045	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPI046	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPI048	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPI049	P/U 8.2K 3VDUAL
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPI063	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY			Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#/CIRR1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VBSBW#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	SEC_PIN	FST_2X8
INIT#/GP85/SMB_D_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWROK#/GP44	VCORE_OV1	
PANSW#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMB_D_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRR2X/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：

