

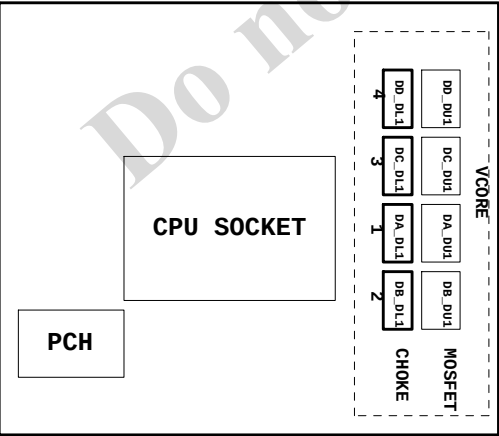
Model Name: GA-B150M-HD3

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 3 CHANNEL A
09	DDR 3 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	SATA EXPRESS
23	ASM1083
24	ASM1083 POWER
25	PCI SLOT
26	ISL95858_856 PWM
27	ISL95858_856 MOS_VCORE
28	ISL95858_856 MOS_VCCGT
29	VCCSA_VCCIO_VCCPLL
30	RT8120_DDR_BEAD
31	RT8068A_VPP
32	RT8120_PCH-BEAD
33	DISCRETE POWER
34	NCP3933 OVER VOLTAGE

SHEET TITLE

35	ATX POWER , -PROCHOT
36	KB_MS_USB
37	DVI
38	PTN3356 - DP to VGA - IC
39	PTN3356 - DP to VGA - Conn
40	HDMI
41	R_USB30
42	Realtek 8111G
43	USB30_LAN CONNECTOR-8111G
44	ALC887-VD2 CODEC
45	REAR AUDIO JACK
46	F_USB30
47	F_USB20
48	COM , LPT , TPM
49	F_PANEL
50	TABLE LIST



Rev1.0

Component value change history

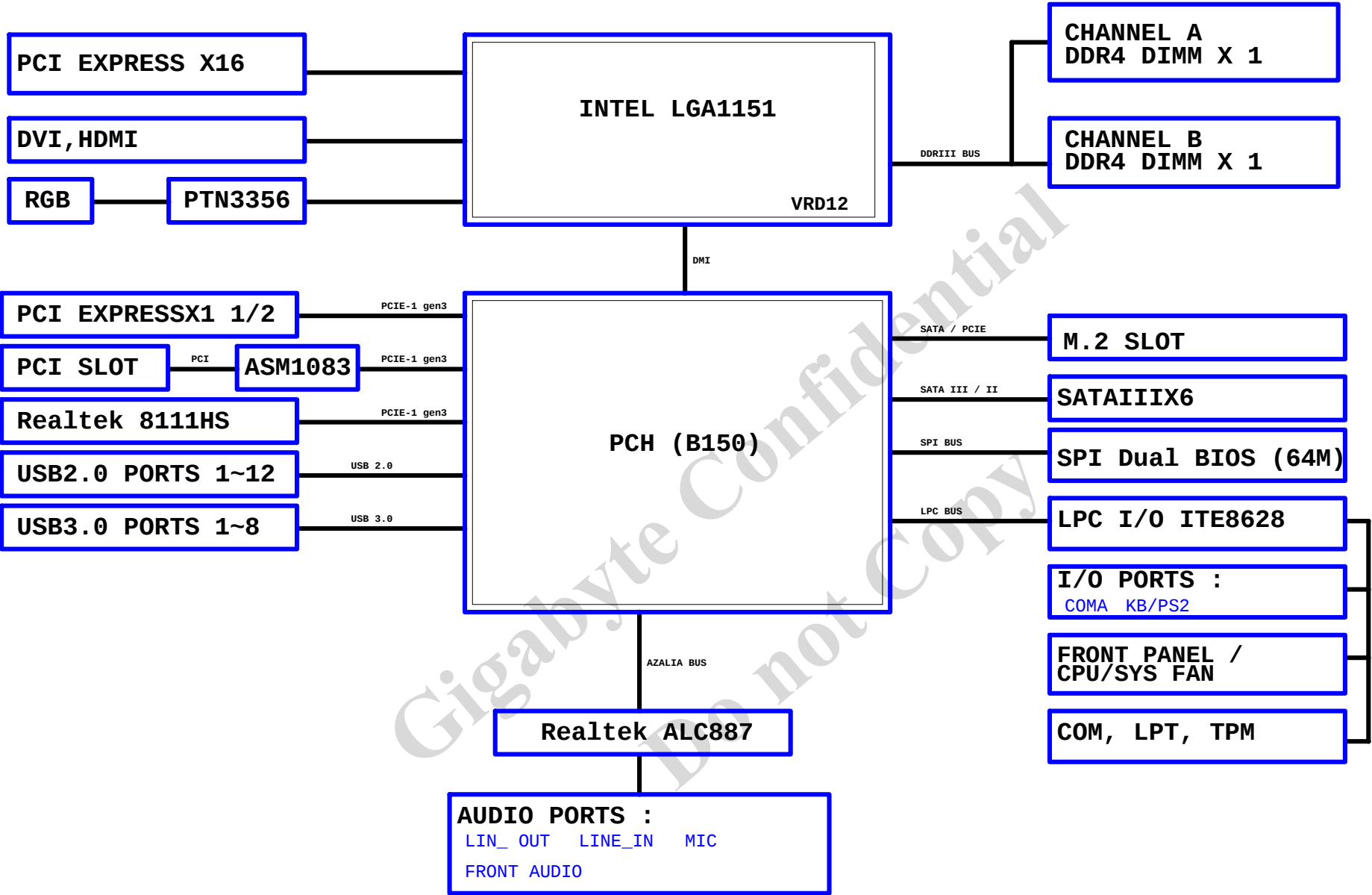
2015/09/17

[illegible]

Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM



* Rev0.2B

D

C

B

A

A

* [10] N_CPUCLK > N_CPUCLK W5
[10] N_CPUCLK > N_CPUCLK W4

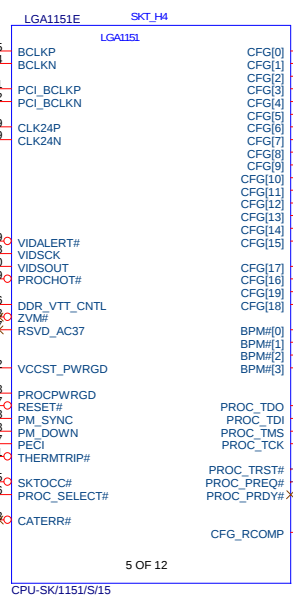
* [10] N_CPUPCIBCLK > N_CPUPCIBCLK W1
[10] N_CPUPCIBCLK > N_CPUPCIBCLK W2

* [10] N_24MCLK > N_24MCLK K9
[10] N_24MCLK > N_24MCLK J9

* [10] N_24MCLK > N_24MCLK K9
[10] N_24MCLK > N_24MCLK J9

* [10] N_24MCLK > N_24MCLK K9
[10] N_24MCLK > N_24MCLK J9

* 刪 net

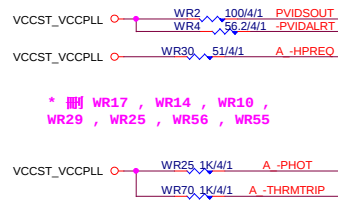


檢查組態調整線路
The CFG signals
default value of
'1'

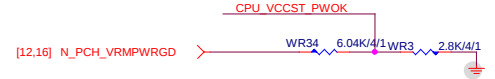
* 刪 net

* 刪 net

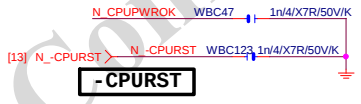
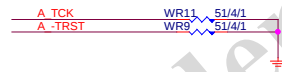
* 刪 net



* 刪 WR91



* 刪 net N_CPU_VCCST_PWOK



3 OF 12

CPU-SK/1151/S/15



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

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

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

G-15u : (CPU-SK/1151/S/15)
10SC1-F01151-11R / 10SC1-F01151-12R
G-FL : (CPU-SK/1151/S/GF)
10SC1-F01151-21R / 10SC1-F01151-22R

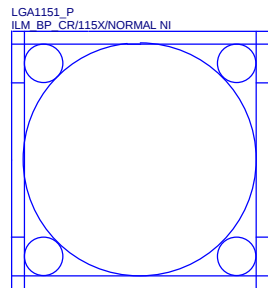
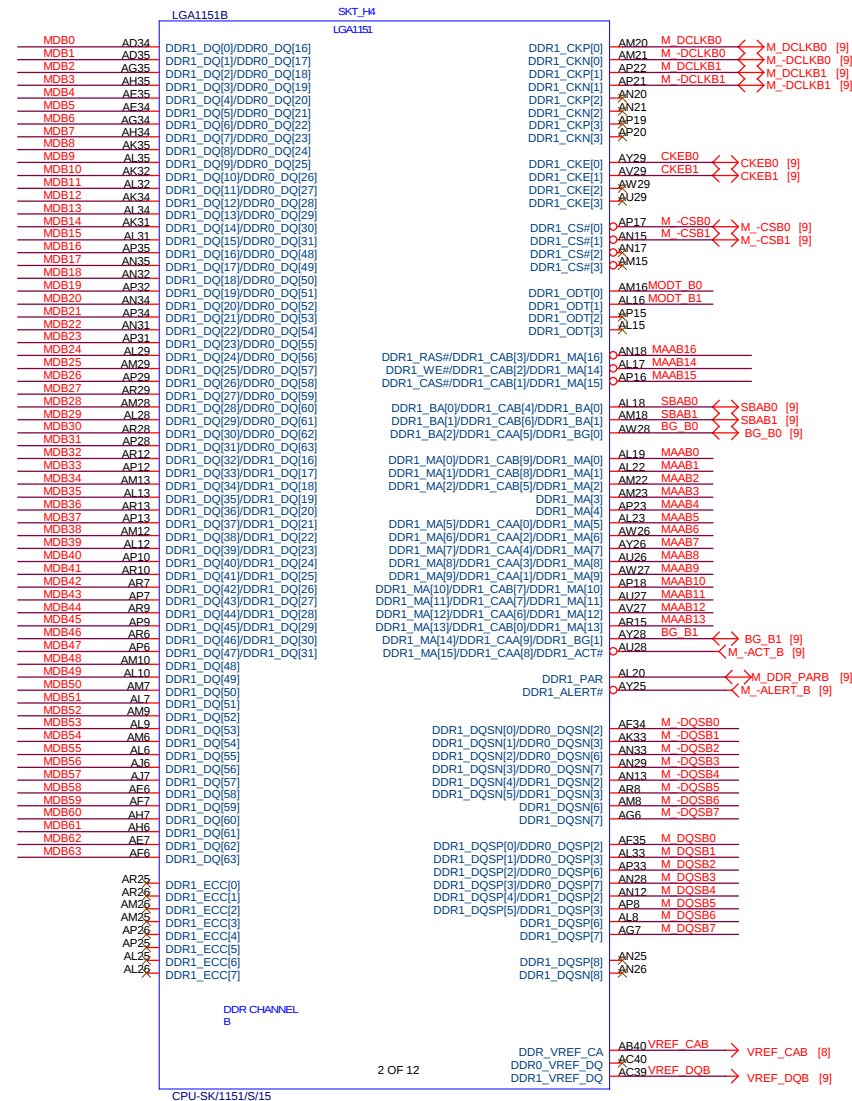
4 layer HDMI/DP/eDP=====4/4/4//15
6 layer HDMI/DP/eDP=====4/5.5/4//15

Impedance=85 +- 15%

Bifurcation Config.	Signals Lanes		
	CFG[6]	CFG[5]	CFG[2]
1x16	1	1	1
1x16 Reversed	1	1	0
2x8	1	0	1
2x8 Reversed	1	0	0
1x8+2x4	0	0	1
1x8+2x4 Reversed	0	0	0

Gigabyte Technology		
CPU LGA1151-A		
Size Custom	Document Number	Rev 1.0
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* 改DDR4 net



Need check the new CPU ME

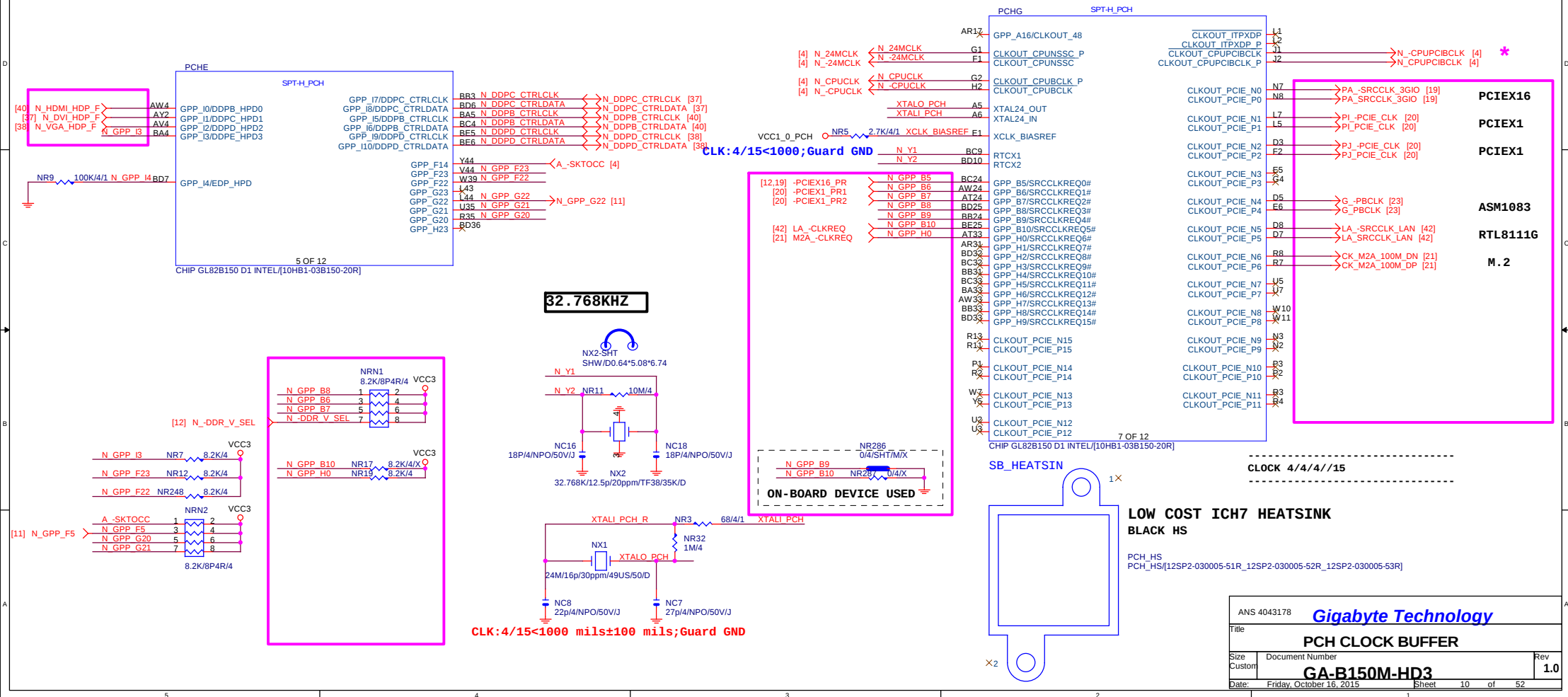
Figure 1 illustrates the mapping of 8-bit and 16-bit data from a 16-bit bus to 8-bit and 16-bit registers. The diagram is organized into two columns. The left column shows 8-bit data (MODT_A[0..1], MODT_B[0..1], MDA[0..63], MDB[0..63], M_DQSA[0..7], M_-DQSA[0..7], MAA_A[0..16], MAA_B[0..16], M_DQSB[0..7], M_-DQSB[0..7]) and the right column shows 16-bit data (MODT_A0_11, MODT_B0_11, MDA0_63, MDB0_63, M_DQSA0_71, M_-DQSA0_71, MAA_A0_16, MAA_B0_16, M_DQSB0_71, M_-DQSB0_71). Red arrows indicate the mapping from the 16-bit bus to the 8-bit and 16-bit registers.

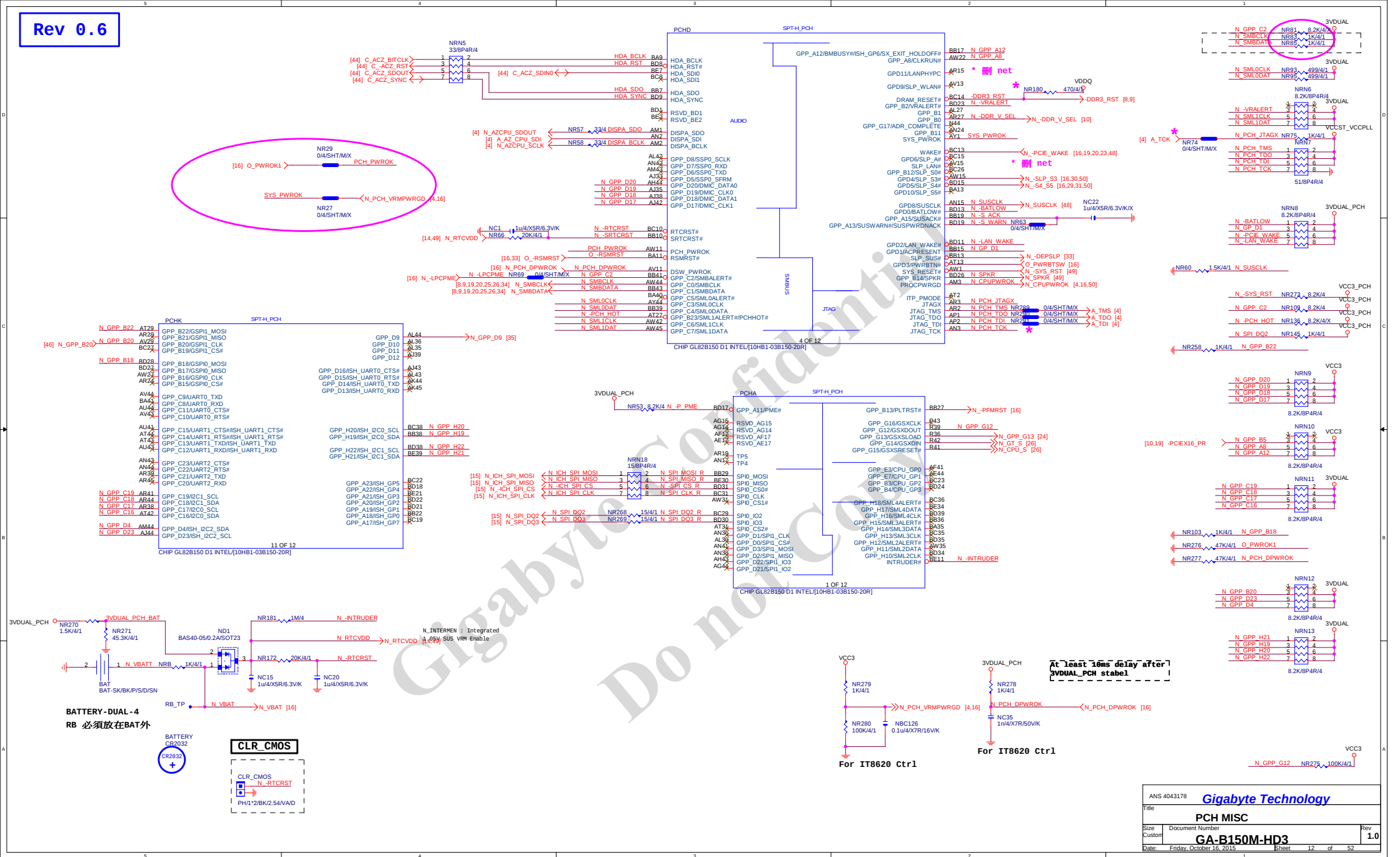
Gigabyte Technology

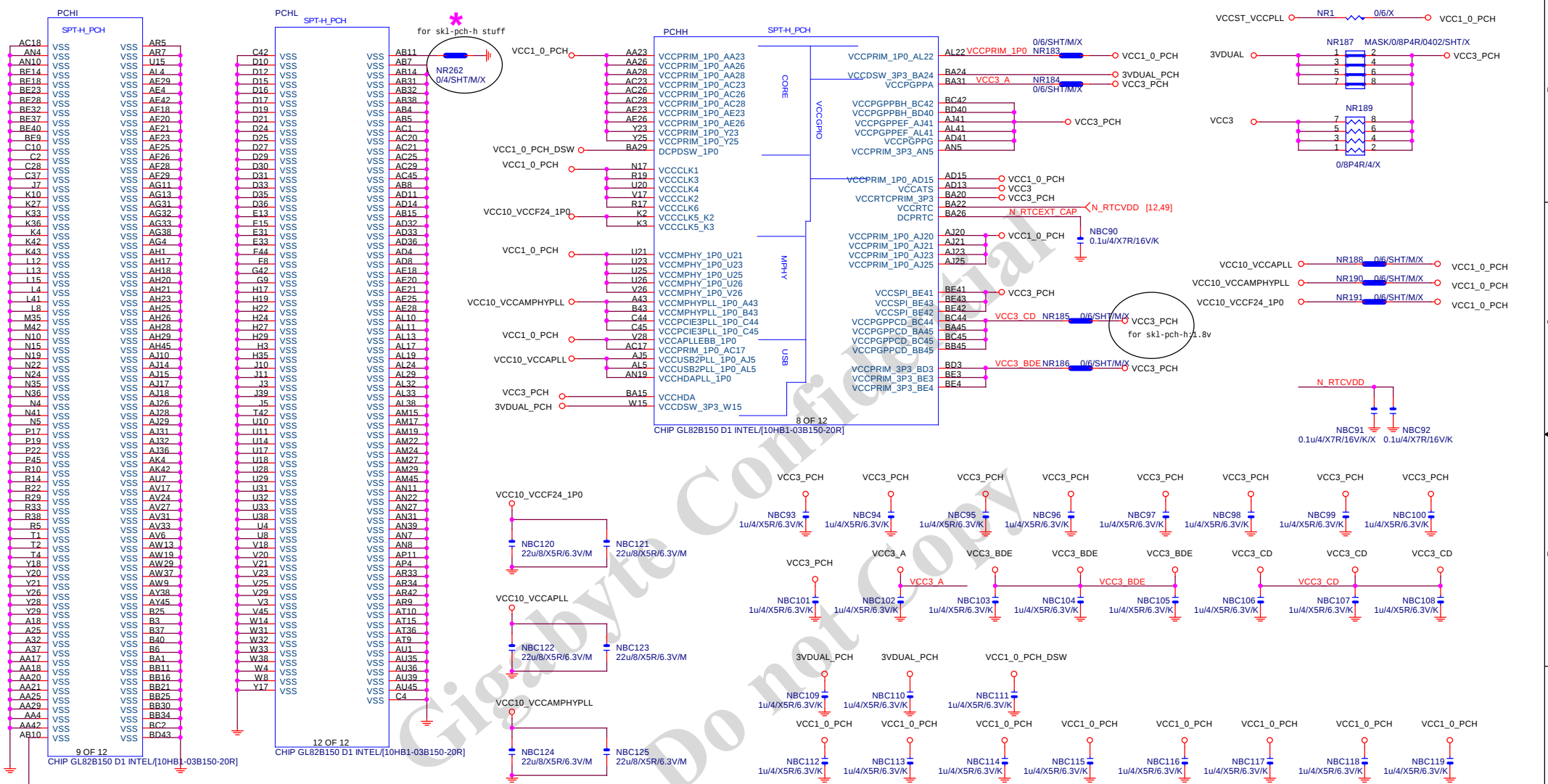
Title			
CPU LGA1151-B			
Size	Document Number	Rev	
Custom	GA-B150M-HD3	1.0	
Date:	Friday, October 16, 2015	Sheet	5 of 52



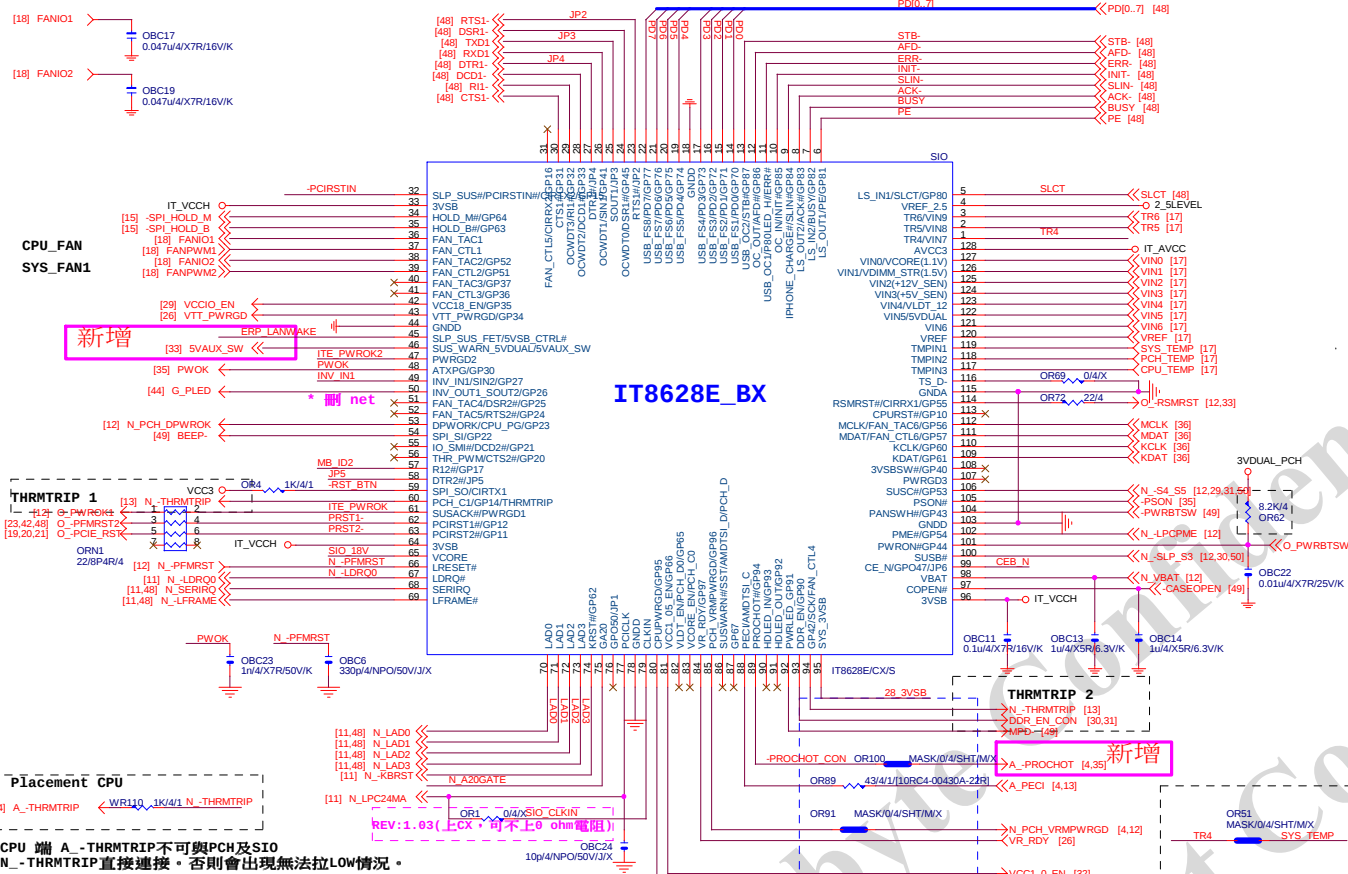
*** Rev0.6**







SIO IT8628BX REV:1.05



Placement CPU

[4] A_THRMTRIP <WR11> 1K/4/1 N_THRMTRIP

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。

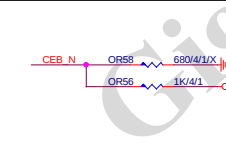
FAN TABLE

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

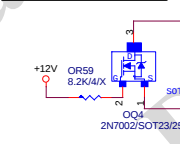
IT8628E GPIO問題匯整

PIN 50	GP26-第一次接上POWER時會拉LO
PIN 90/91	DEFAULT為HOLD 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, 若低於此部分CPU PORT及LPT裝置 蜂鳴器會異常動作。

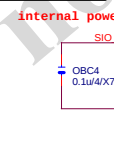
DUAL BIOS OPT STRAP



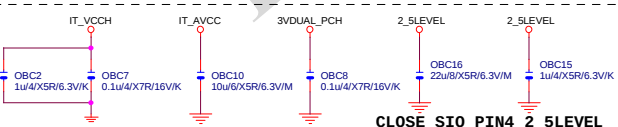
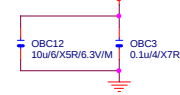
Power leakage



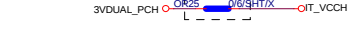
SIO 18V



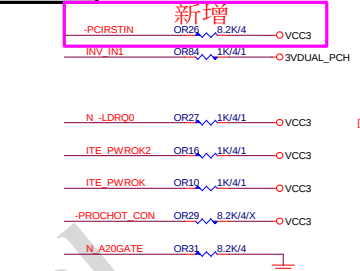
SIO CAP



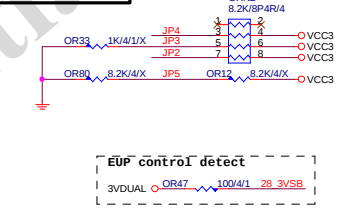
PWR SHT



SIO PU



SIO STRAP

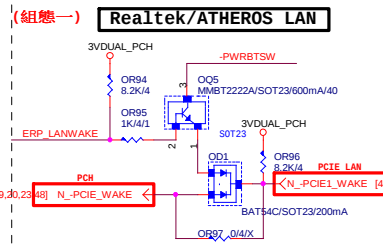


JP2	1	Disable WDT
JP2	0	Enable WDT to rest PWR0K
JP3	1	SPI-Flash Disable
JP3	0	SPI-Flash Enable
JP4	1	k8 power sequency function is Disable
JP4	0	k8 power sequency function is Enable
JP5	1	anti-surge Disable
JP5	0	anti-surge Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
JP3	1 0	The default value of EC Index 63h/6Bh/73h is FFh
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
JP5	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

MB ID



ERP WAKE on LAN (依LAN組態選擇)



Realtek/ATHEROS LAN



Gigabyte Technology

Title: ITE 8628 LPC IO

Size: Custom

Document Number: GA-B150M-HD3

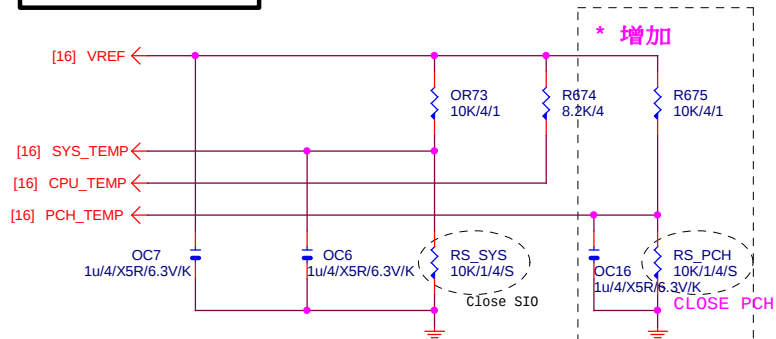
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Rev: 1.0

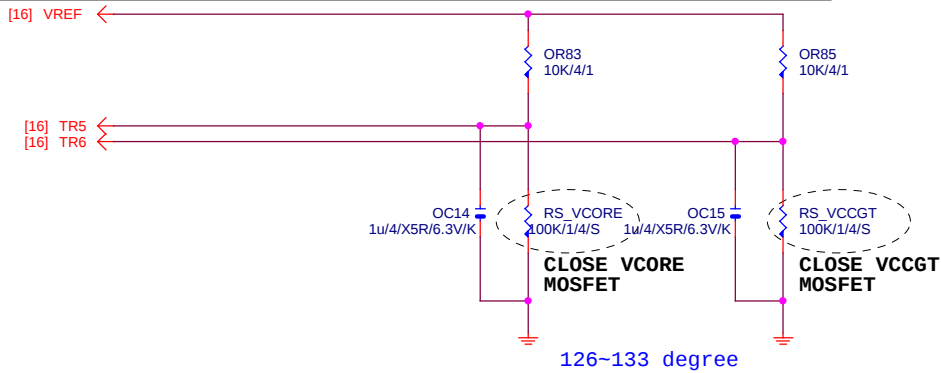
TEMP H/W MONITOR

REV 1.04



RS_VCORE, RS_VCCGT, CLOSE CPU_VCORE & VCCGT MOSFET

-PROCHOT:有mos heartsink不用prochot function

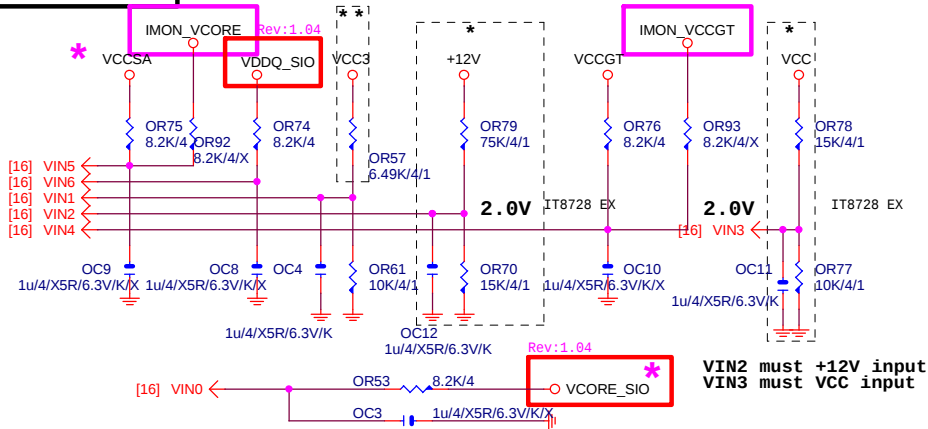


VOLTAGE -- H/W MONITOR

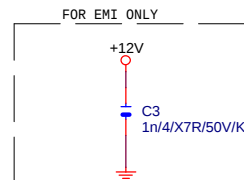
Connect to PWM

* IT8728 BX
* IT8728 CX

Connect to PWM



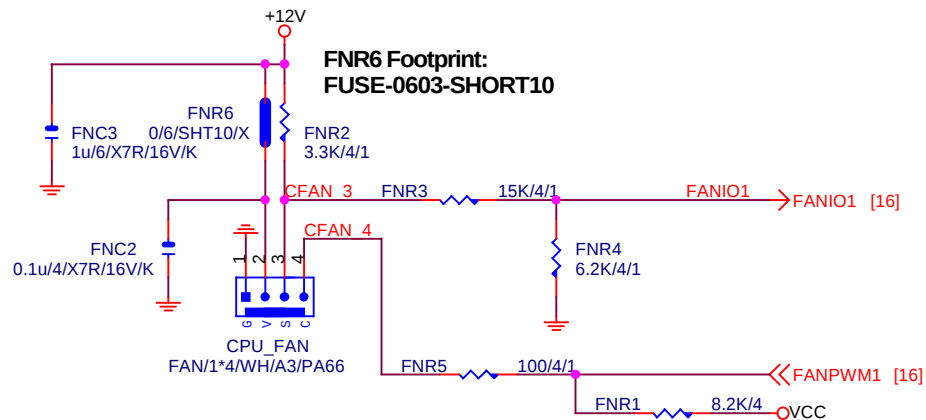
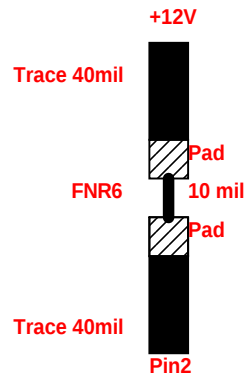
The division voltage of VIN2 & VIN3 must be around 2.9V



Gigabyte Technology

Title			HWM,KB/MS, FAN CTRL		
Size	Document Number				Rev
Custom	GA-B150M-HD3				1.0
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Rev: 0.53



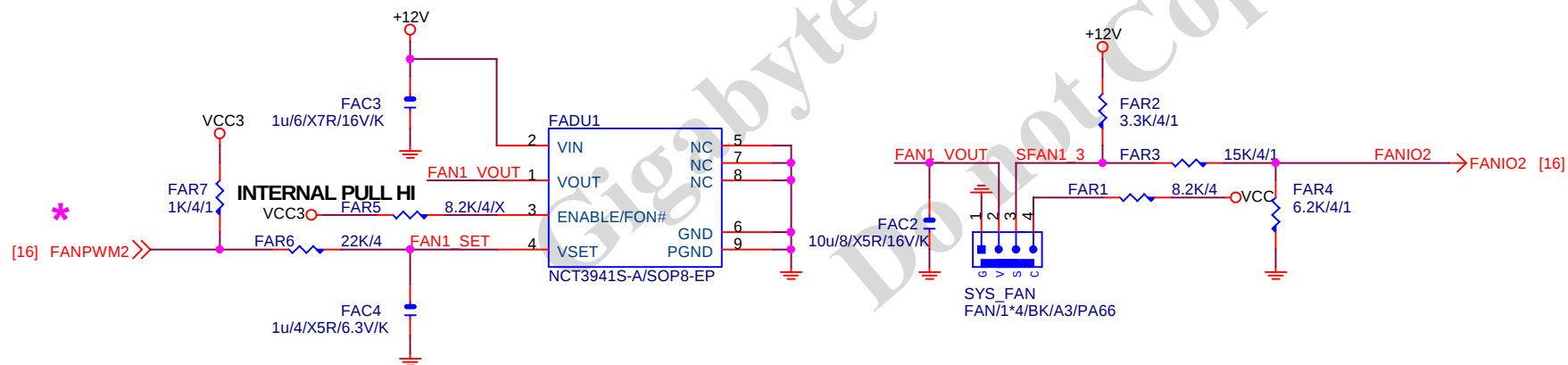
SYSTEM FAN1

Linear SYS_FAN

Enable Function (NCT3941S)

Full Turn On Function

(NCT3941S-A)



Gigabyte Technology

Title

HWM,KB/MS, FAN CTRL

Size

Document Number

Rev

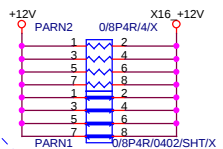
GA-B150M-HD3

1.0

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Rev 0.2

* +12 protect
short-wire test[8,9,12,20,25,26,34] N_SMBCLK
[8,9,12,20,25,26,34] N_SMBDATA

[12,16,20,23,48] N_-PCIE_WAKE

[10,12] -PCIE16_PR

PA_EXP_RXP0_15I >>> PA_EXP_RXP0[0..15] [4]

PA_EXP_RXN0_15I >>> PA_EXP_RXN0[0..15] [4]

PA_EXP_TXP0_15I >>> PA_EXP_TXP0[0..15] [4]

PA_EXP_TXN0_15I >>> PA_EXP_TXN0[0..15] [4]

PA_EXP_TXP0	PAC5	0.22u4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8	PAC21	0.22u4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC20	0.22u4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u4/X5R/6.3V/K	PA_EXP_TXN15_C

PCIE16:16/5/5/5/16

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

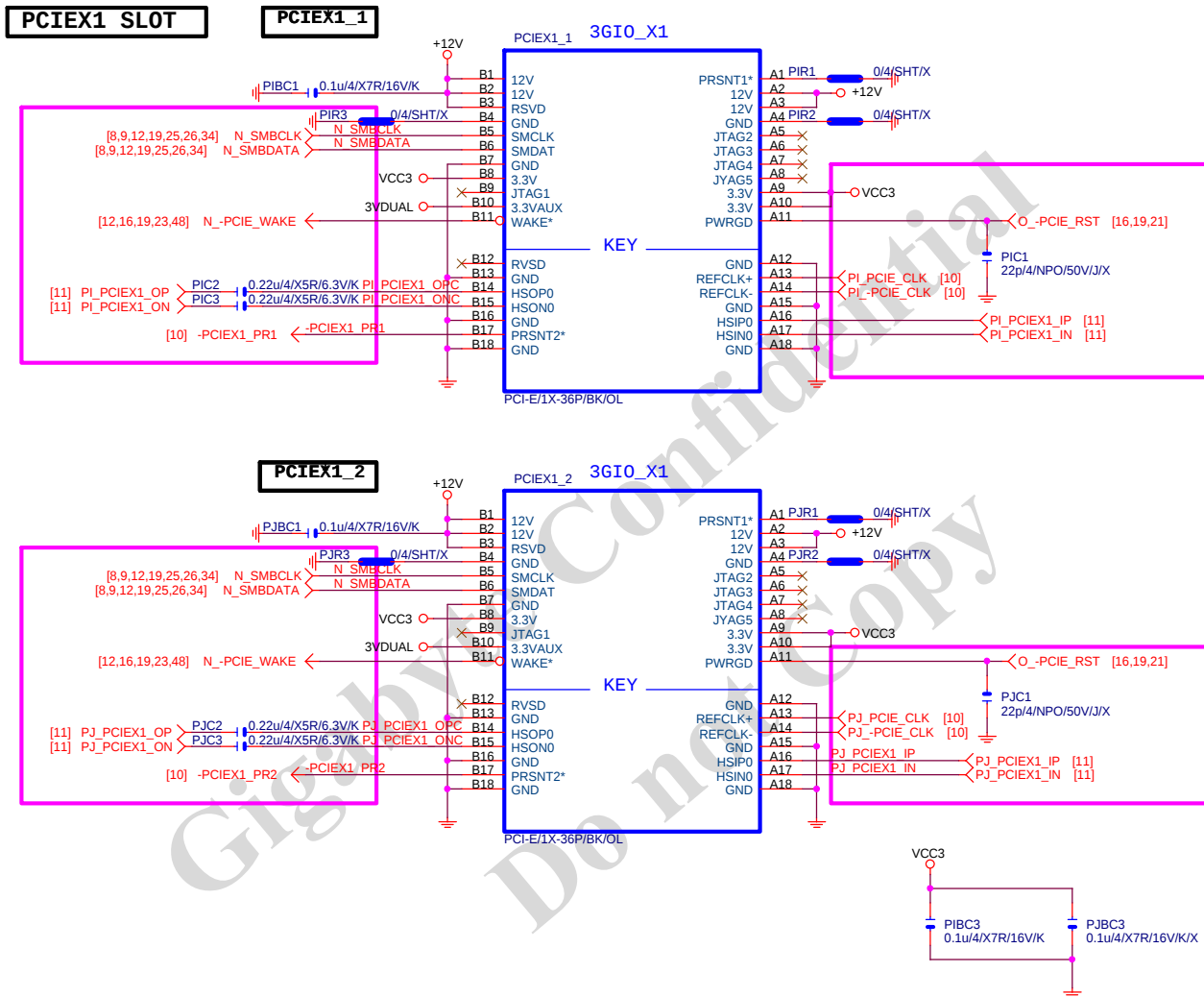
PCIESLOT-164P

3GIO_*16

PCH-E/16X-164P/BK/LONG DOUBLE/[11AC1-023164-D1R]

R01A

Gigabyte Technology			
Title			
PCI EXPRESS * 16			
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Custom	GA-B150M-HD3	1.0	
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Gigabyte Technology

Title		PCIE_X1 1,2	
Size	Custom	Document Number	GA-B150M-HD3
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Rev
1.0

M.2 Lane4 from PCH port18

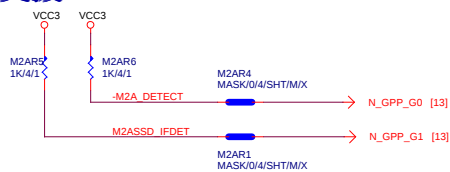
M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

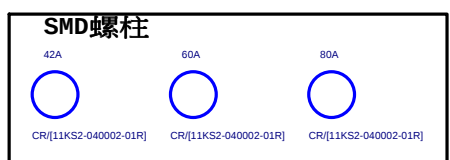
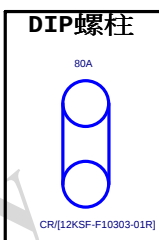
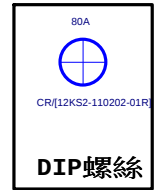
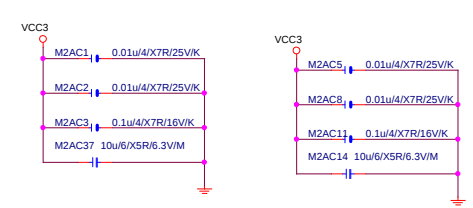
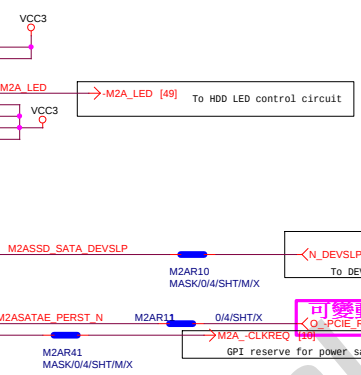
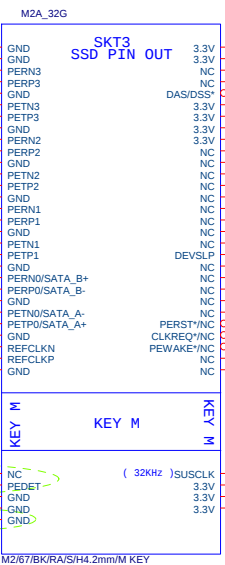
M.2 Lane2 from PCH port15

需與M2_-CLKREQ對應

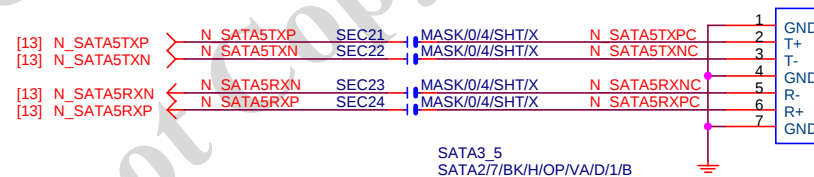
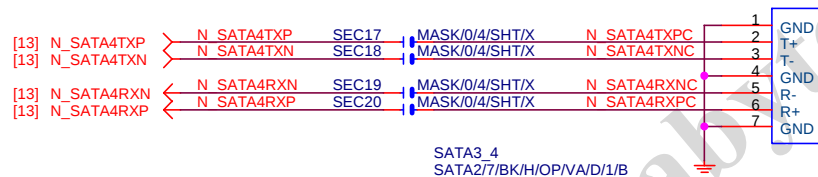
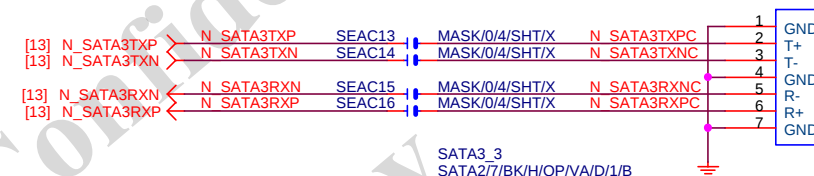
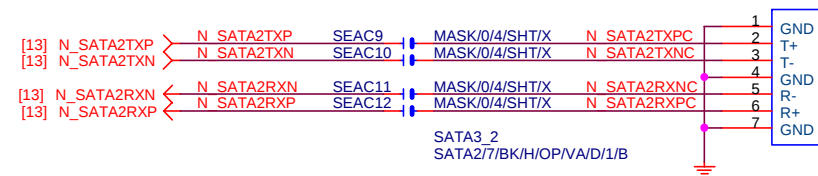
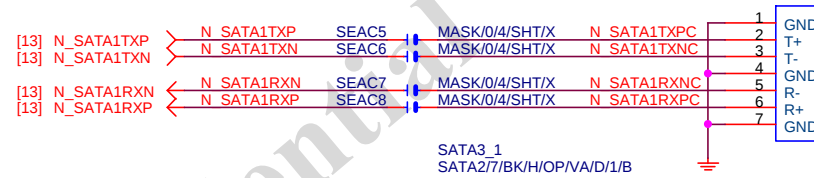
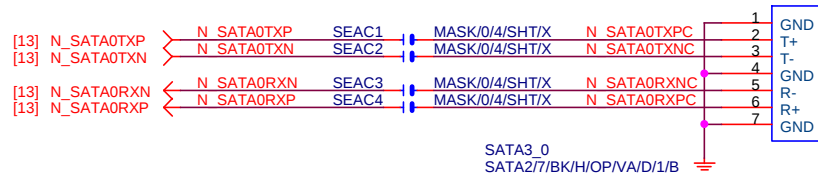
支援SATA and M.2 function

SATA : GND
PCIE : NC

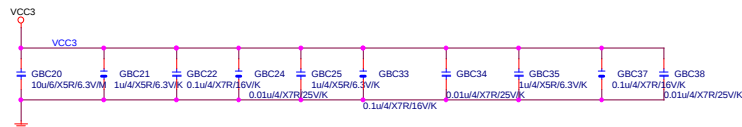
M2插卡時為Low



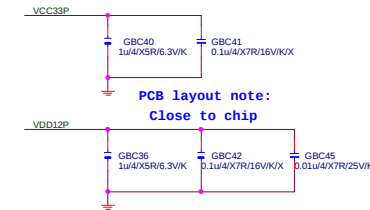
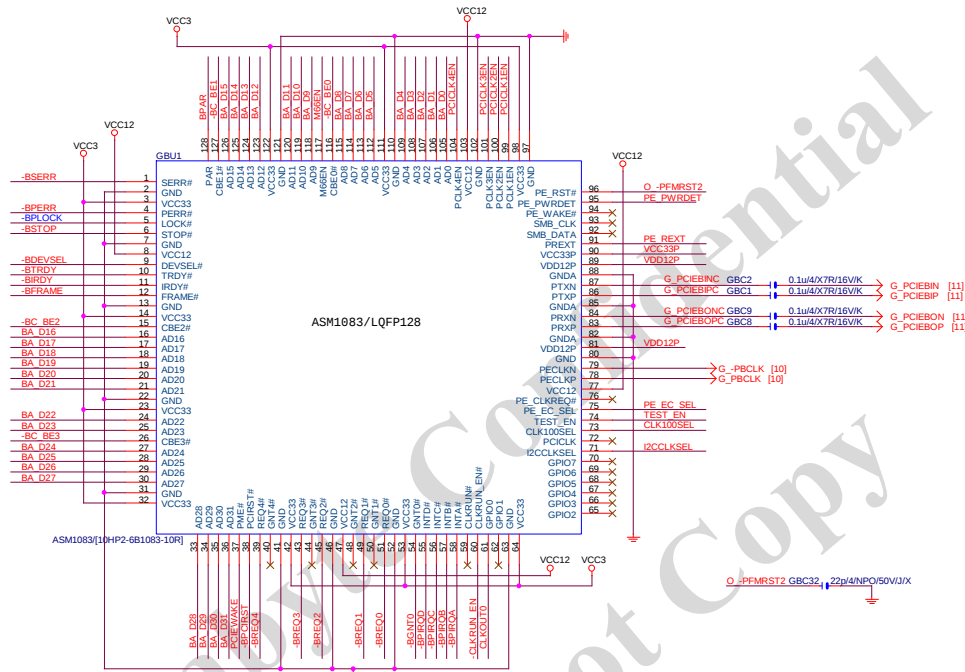
M.2 有插卡 /沒插卡 GPP_G0	M.2插何種卡? GPP_G1	SATA Express 插何種硬碟? GPP_E0/E2/F1	IO15 (S0)	IO16 (S1)	IO17	IO18	IO19 (S0)	IP20 (S1)
有插卡 (Low)	SATA Mode (Low)	SATA (Hi)	SATA (M.2)	PCIE x1	PCIE x1	PCIE X1	PCIE x1	SATA
		SATA Express (Low)	SATA (M.2)	PCIE x1	PCIE x1	PCIE x1	SATA Express	
	PCIE Mode (Hi)	SATA (Hi)		PCIE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

**Gigabyte Technology**

Title		
SATA EXPRESS		
Size	Document Number	Rev
Custom	GA-B150M-HD3	1.0
Date:	Friday, October 16, 2015	Sheet 1 of 52

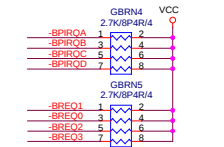


BA_D[0..31] ← BA_D[0..31] [25]
 -BC_BE0 [-BC_BE0 [25]
 -BC_BE1 [-BC_BE1 [25]
 -BC_BE2 [-BC_BE2 [25]
 -BC_BE3 [-BC_BE3 [25]
 -BPERR [-BPERR [25]
 -BSERR [-BSERR [25]
 -BPAR [-BPAR [25]
 -BDEVEL [-BDEVEL [25]
 -BSTOP [-BSTOP [25]
 -BTRDY [-BTRDY [25]
 -BIRDY [-BIRDY [25]
 -BFRAME [-BFRAME [25]
 O_PFMIRST2 [-P_FMRST2 [16,42,48]
 -BPCIRST [-BPCIRST [25]
 -BREQ0 [-BREQ0 [25]
 -BGNT0 [-BGNT0 [25]
 -BPIRQA [-BPIRQA [25]
 -BPIROB [-BPIROB [25]
 -BPIROC [-BPIROC [25]
 -BPIROD [-BPIROD [25]



PCB layout note:
Close to chip

CLKOUT0 GBR11 22k → BPCLK0 [25]



CLK100SEL Strapping Set

CLK100SEL	H	L
PCIe CLK	100M +/-N%	100M +/-N%
PCICLK_IN	X	33M
PCICLK0	33M +/-N%	33M

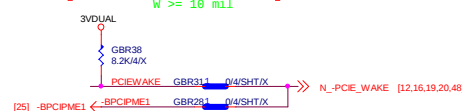
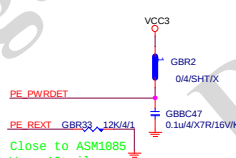
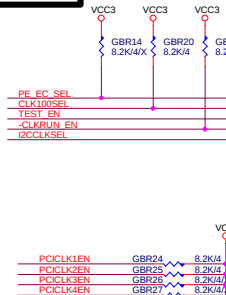
PE_EC_SEL-
"H" for Express Card mode
"L" for PCIe Riser Card mode

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

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

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

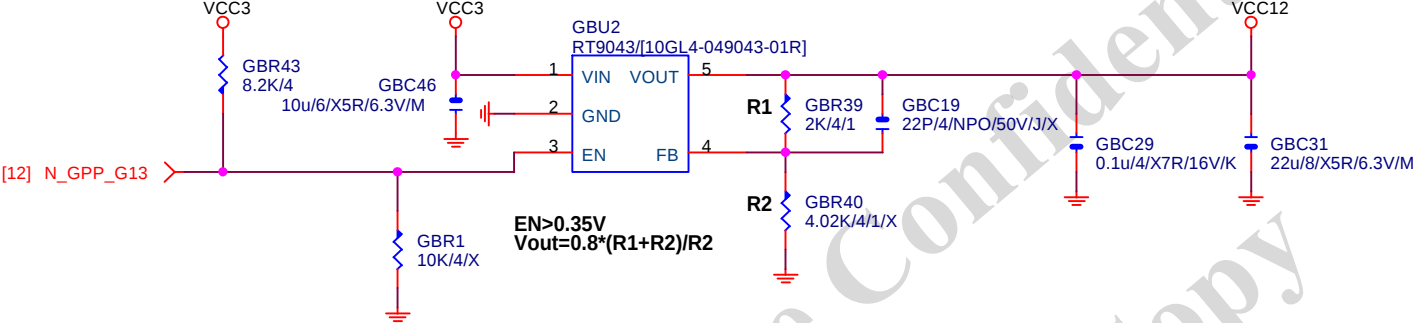
I2CCLKSEL-
"H" is 135KHz I2CCLK
"L" is 67.5KHz I2CCLK



Gigabyte Technology

Title		
ASM1083		
Size	Document Number	Rev
Custom	GA-B150M-HD3	1.0
Date:	Friday, October 16, 2015	Sheet 23 of 52

Rev 0.9



Gigabyte Technology

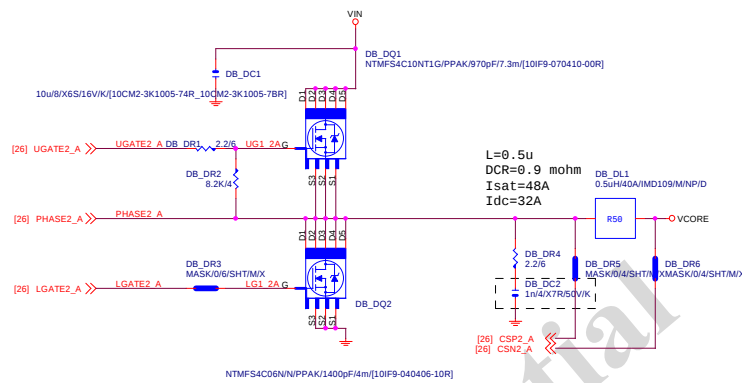
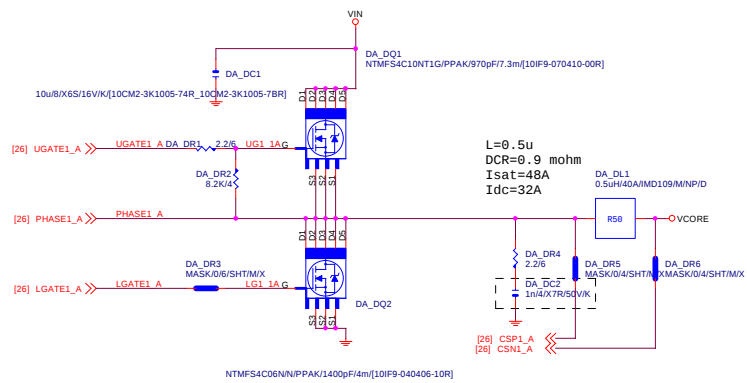
Title		
ASM1085 POWER		
Size	Document Number	Rev
Custom	GA-B150M-HD3	1.0
Date:	Friday, October 16, 2015	Sheet 24 of 52

PCI SLOT 1

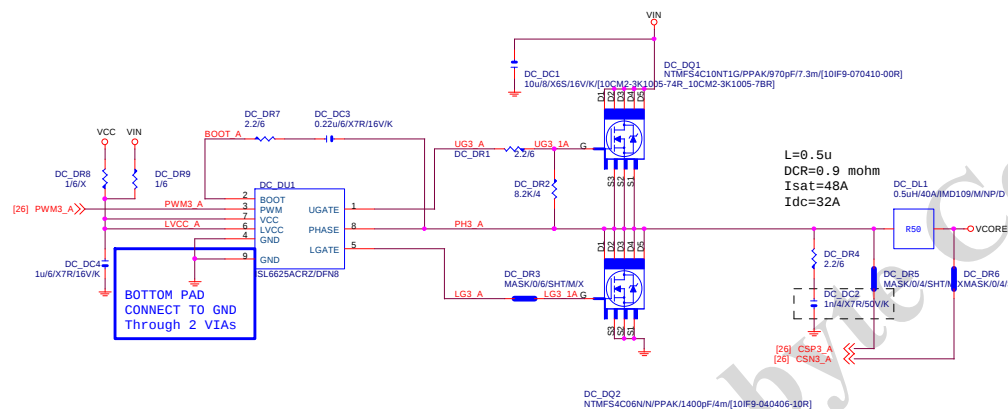
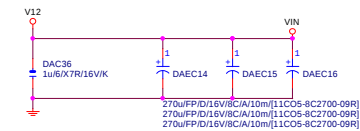
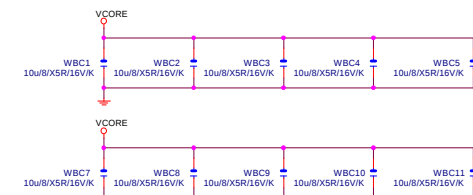
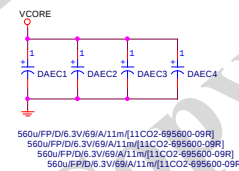


Rev	1.0
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VCORE



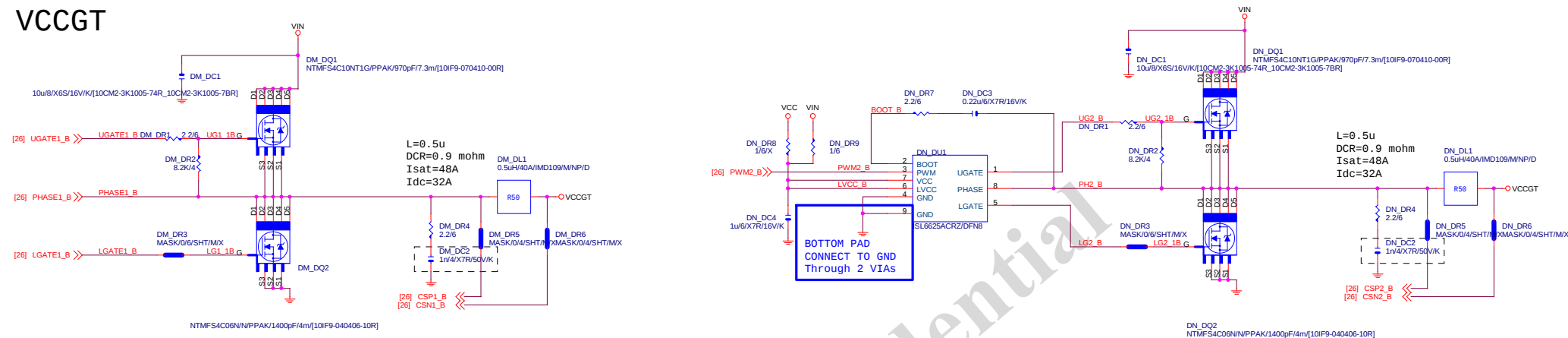
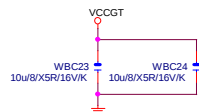
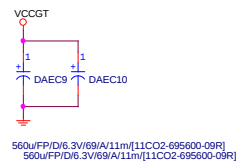
VIN CAP 270u*3PCS

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

GIGABYTE™

Title			ISL95858_MOS
Size	Document Number	Rev	
Custm	GA-B150M-HD3	1.0	
Date	Friday, October 16, 2015	Sheet	27 of 52

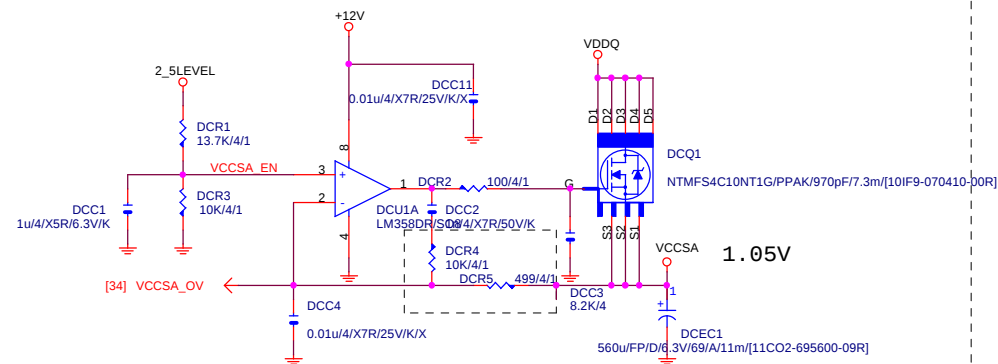
VCCGT

VCCGT CAP 560u*5PCS
22u*15PCS

GIGABYTE™			
Title			
ISL95858 MOS			
Size		Document Number	
Custom		GA-B150M-HD3	
Date:		Friday, October 16, 2015	
Sheet		28 of 52	
Rev		1.0	

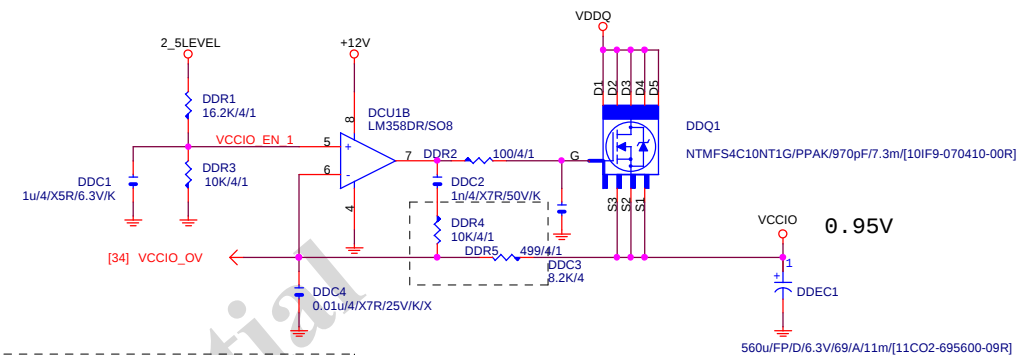
VCCSA

REV:0.4



1.05V

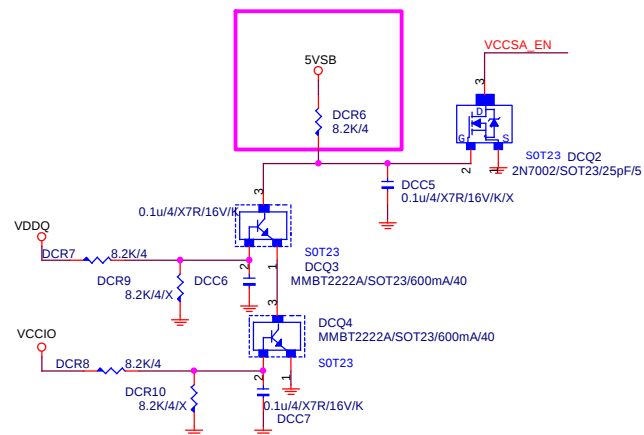
VCCIO



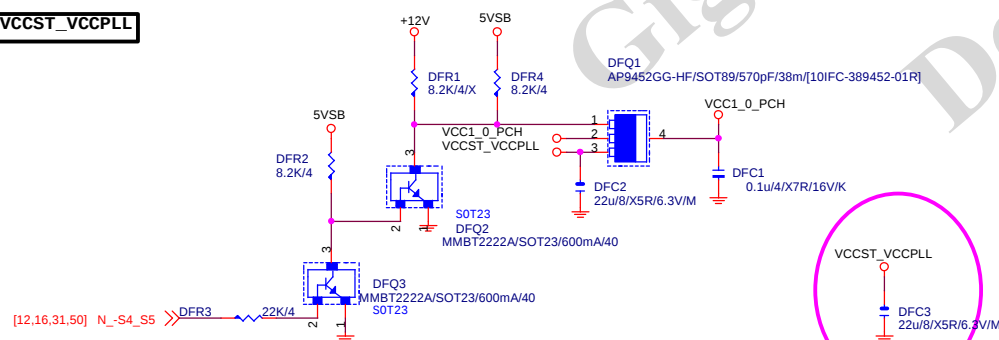
0.95V



Connect to IT8620



VCCST_VCCPLL



VCCST_VCCPLL

GIGABYTE™

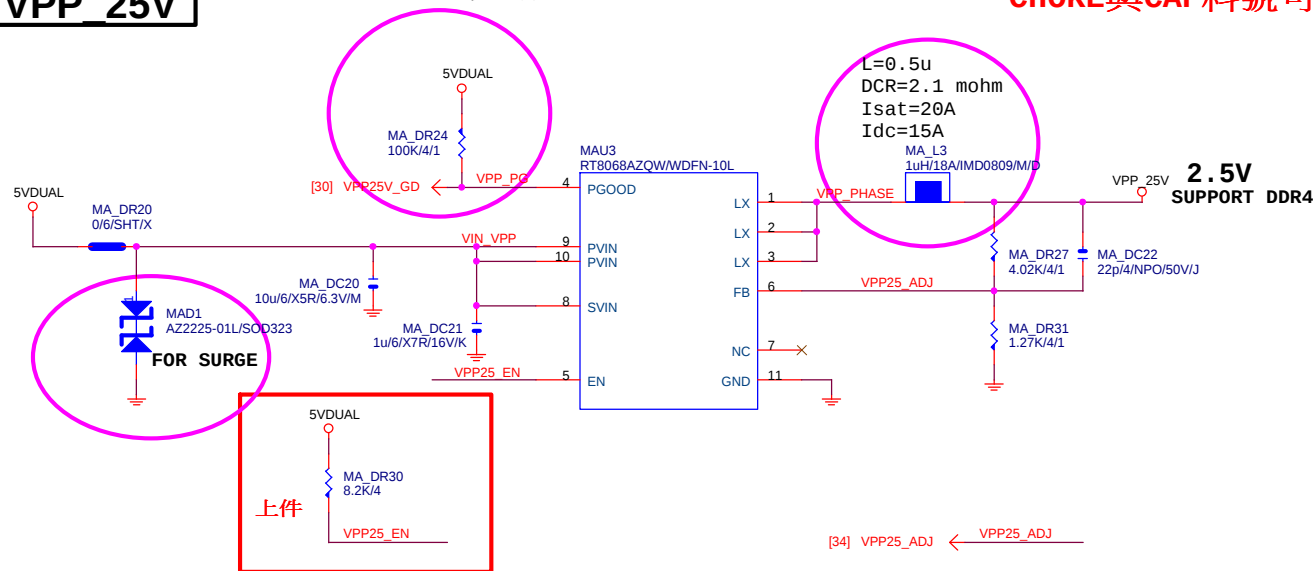
Title		VCCSA_VCCIO	
Size	Document Number	Rev	
Custom	GA-B150M-HD3	1.0	
Date:	Friday, October 16, 2015	Sheet	29 of 52

REV:0.33

VPP_25V

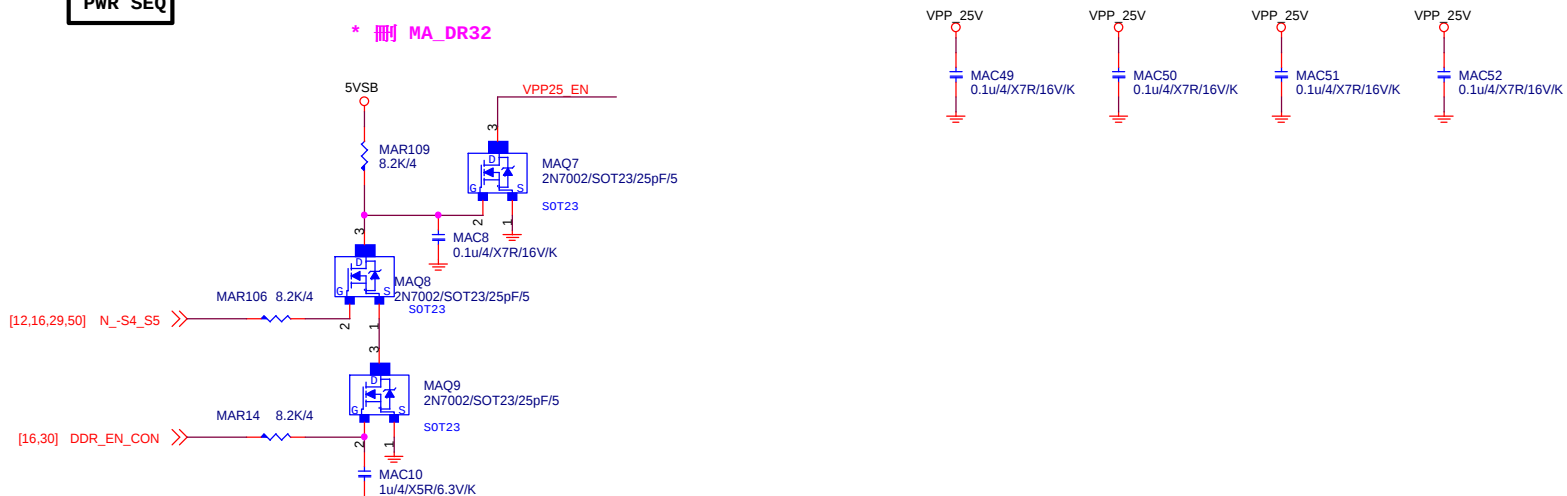
VPP25V_GD不能使用會亂打

CHOKE與CAP料號可變



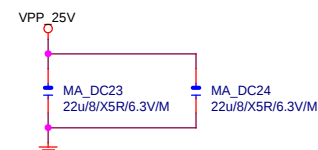
PWR_SEQ

* 刪 MA_DR32



VPP CAP 22u*1PCS

* 大電容 x0

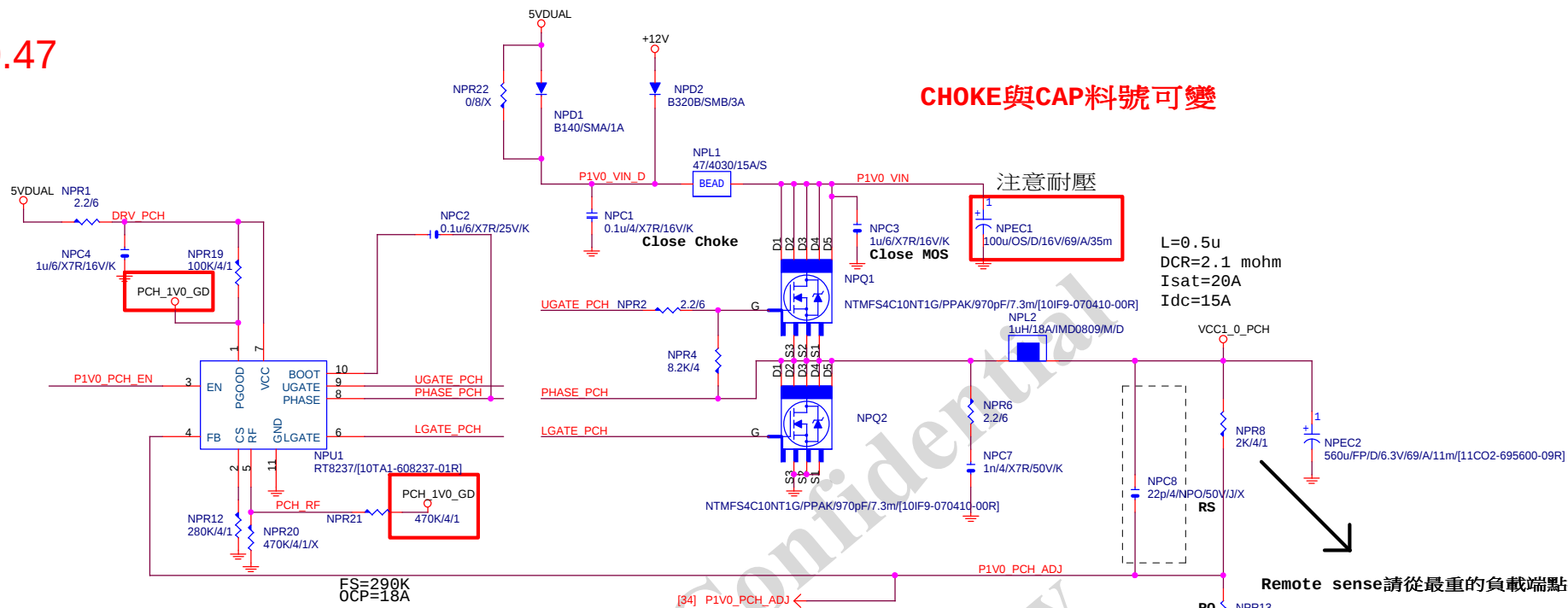


GIGABYTE™

Title		
RT8068A_VPP25 POWER		
Size	Document Number	Rev
Custom	GA-B150M-HD3	1.0
Date:	Friday, October 16, 2015	Sheet 31 of 52

REV:0.47

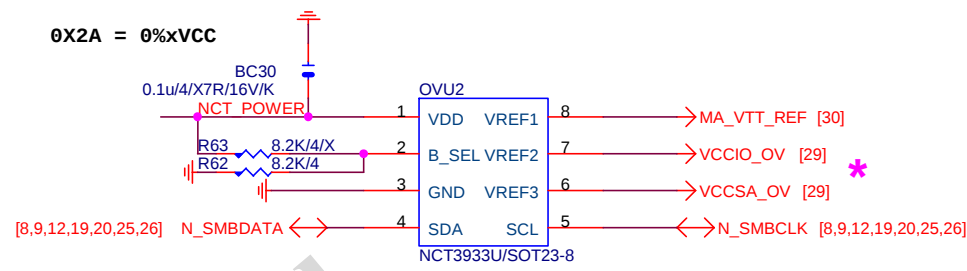
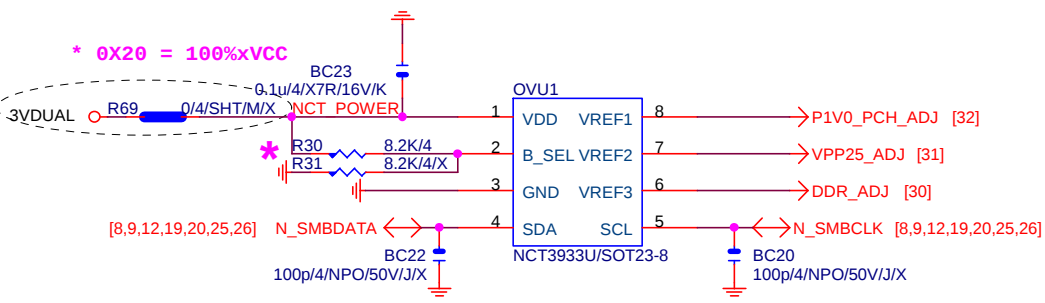
CHOKE與CAP料號可變



GIGABYTE™

Title		
RT8120_PCH POWER		
Size	Document Number	Rev
Custom	GA-B150M-HD3	1.0
Date:	Friday, October 16, 2015	Sheet 32 of 52

OVER VOLTAGE



0X22 = 75%xVCC

* 删除 OVU3

NCT3933	0X20	0X2A	
VREF1	PCH Core	DDRVTT	
VREF2	N/A	VCCIO	
VREF3	DDR	VCCSA	

Gigabyte Technology

TitleCPU CORE VR-2

SizeCustom

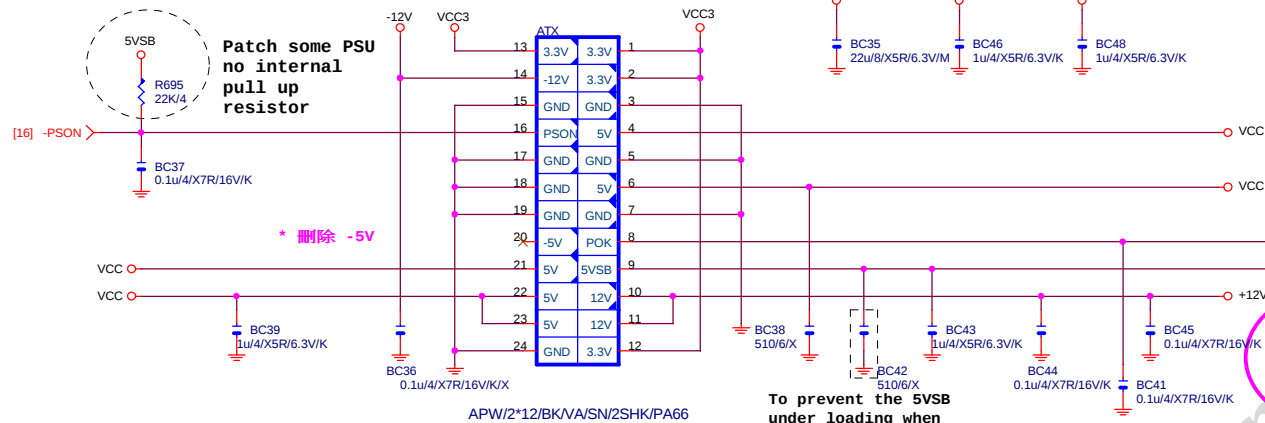
Document Number

Rev1.0

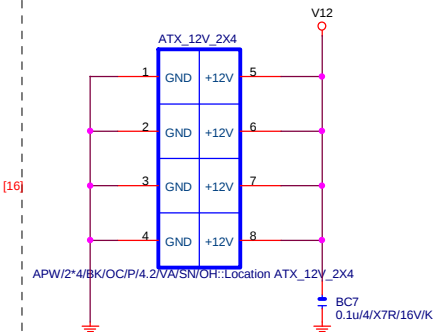
Date:Friday, October 16, 2015

Sheet34 of 52

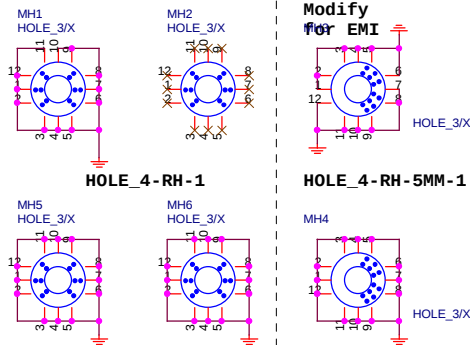
ATXX24 POWER CONNECTOR



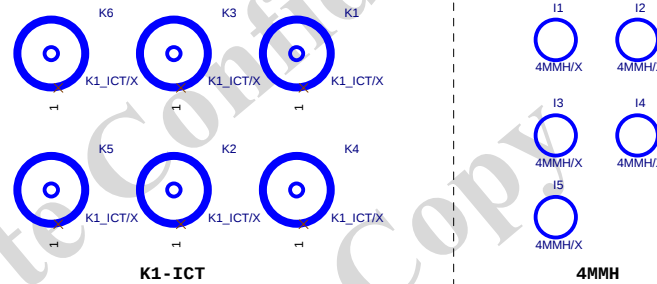
ATXX4 POWER CONNECTOR



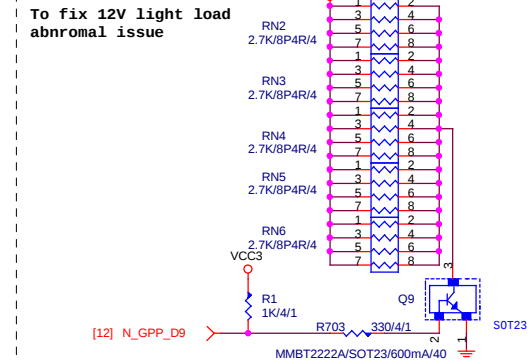
螺絲孔



固定孔/光學點

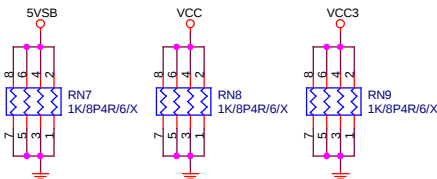


+12V DUMMY LOAD

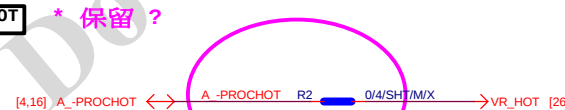


【技術通報R&D技術通報153】

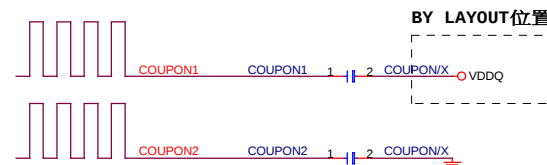
DUMMY LOAD



-PROHOT

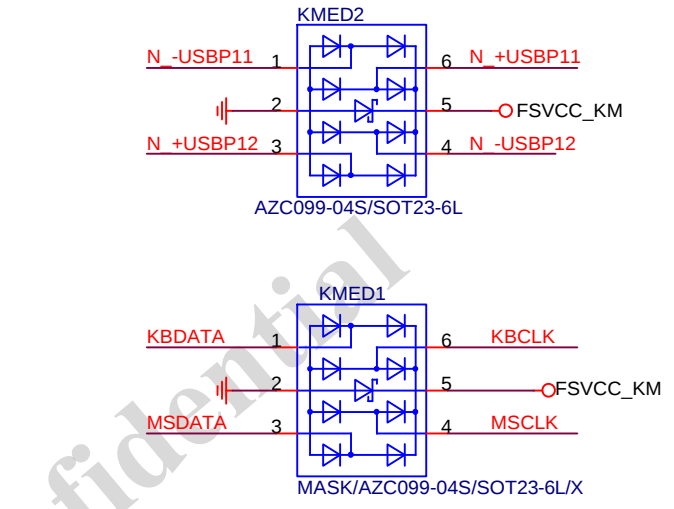
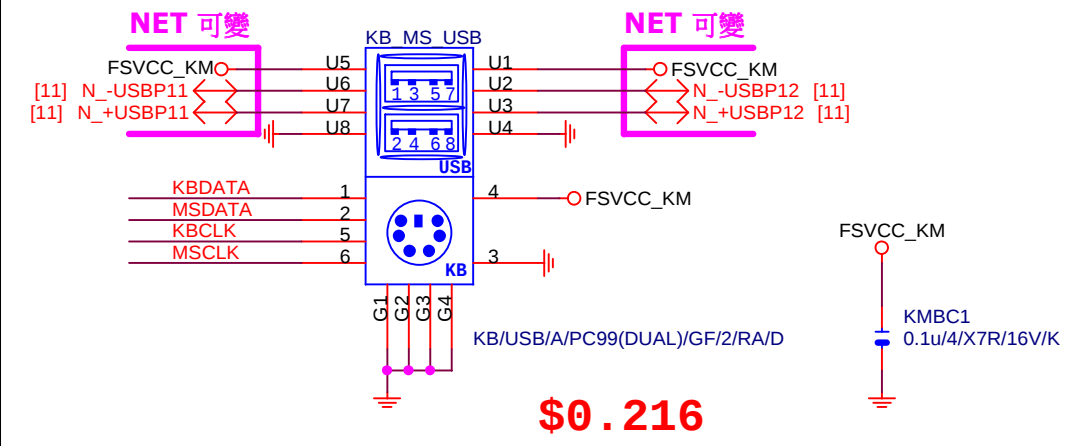


COUPON

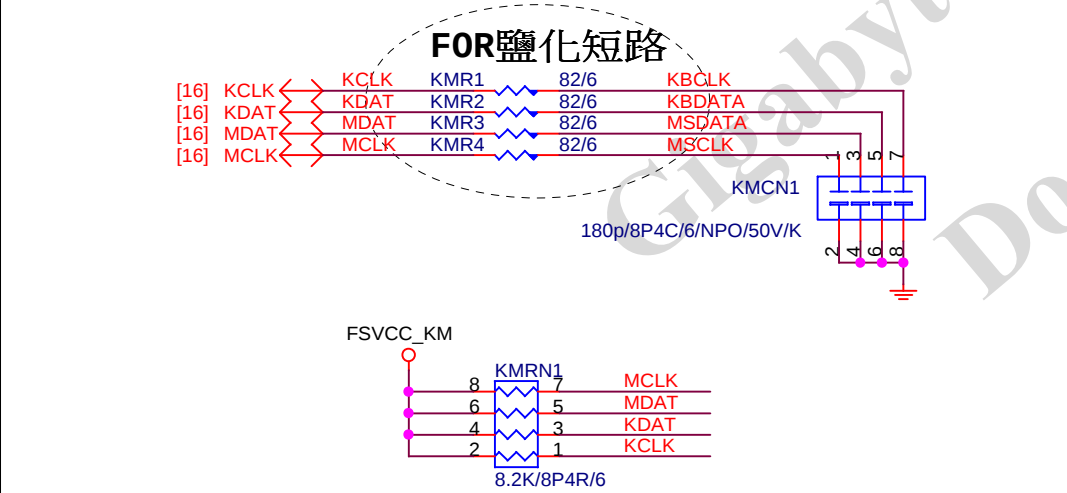


Gigabyte Technology

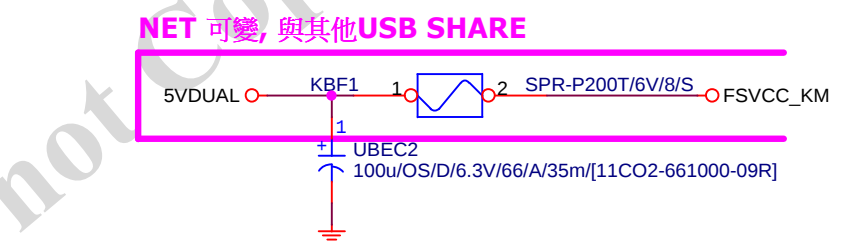
Title				
ATX POWER CONNECTOR				
Size	Document Number			Rev
Custom	GA-B150M-HD3			1.0
Date:	Friday, October 16, 2015	Sheet	35 of 52	



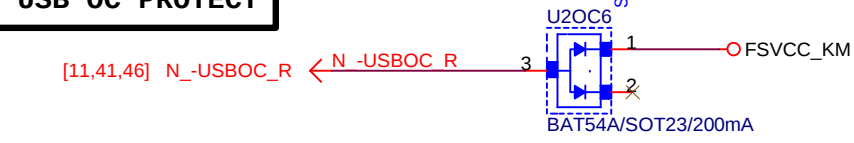
KB_MS_USB DAMPING/PU



KB_MS_USB PWR

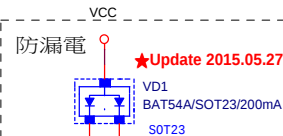
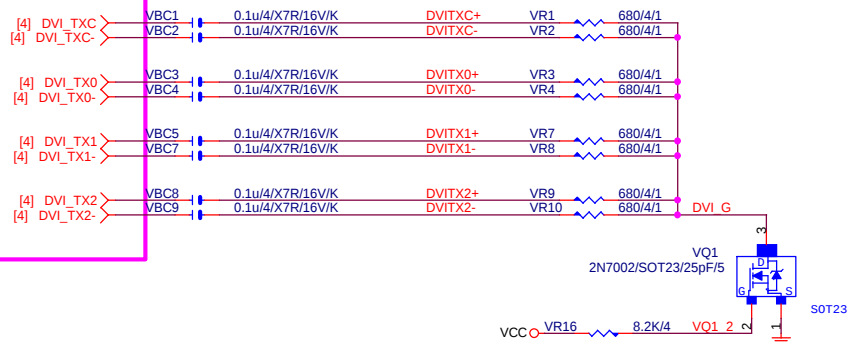


USB OC PROTECT



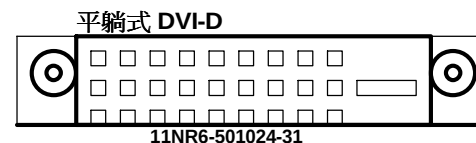
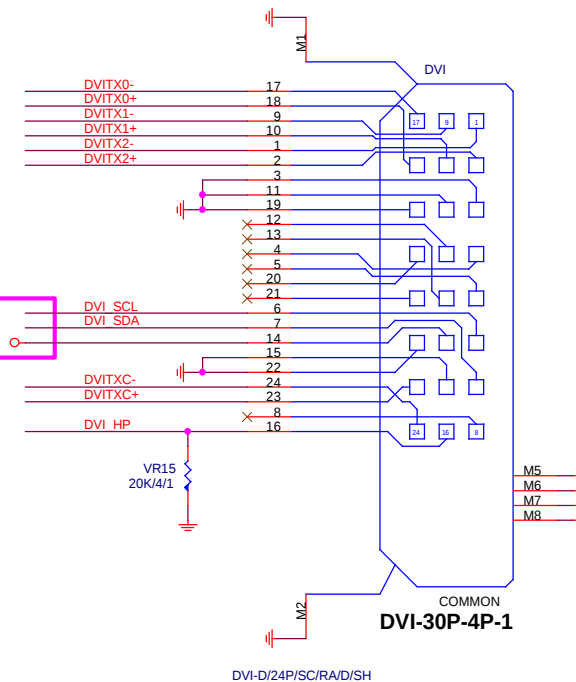
DVI: 20/4/6/4/20
Impedance=85 +- 17.5%

NET 可變

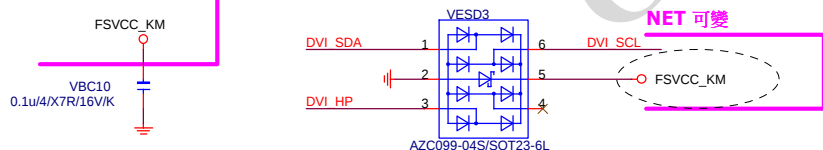


NET 可變

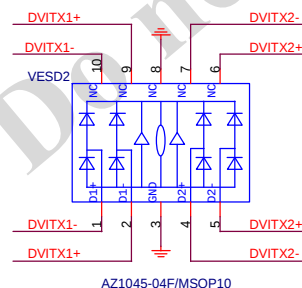
* FSVCC_KM



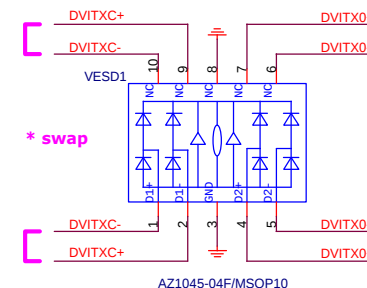
NET 可變



Close to connector



Close to connector



Close to connector

Gigabyte Technology

Title		FP,F_USB,USB PWR,BZ	
Size		GA-B150M-HD3	
Date:		Friday, October 16, 2015	
Sheet		37 of 52	
Rev		1.0	

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

省X'TAL COST DOWN:

1. 上件:

DVC28 [10p/4/NPO/50V/J]

DVC11 [10p/4/NPO/50V/J]~修改值

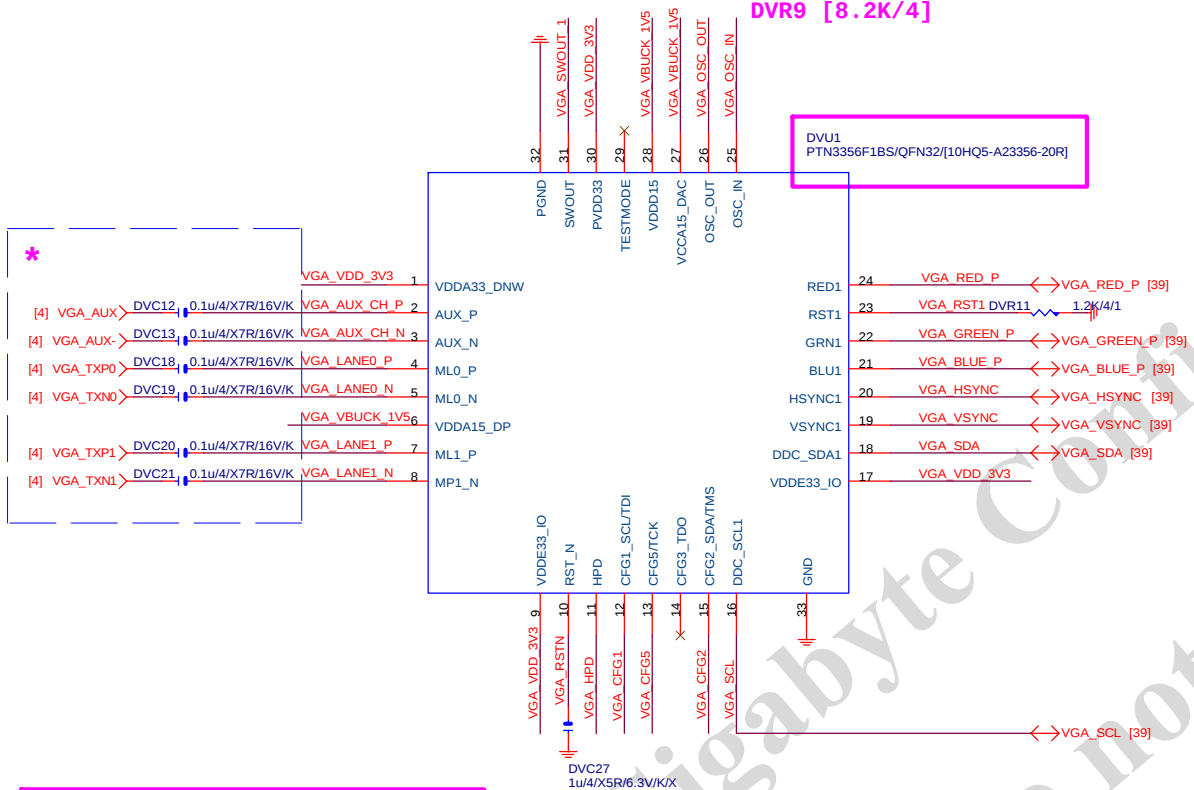
DVR10 [8.2K/4]

2. 删除:

DVX1 [25M/16p/30ppm/49US/20/D]

DVC10 [20p/4/NPO/50V/J]

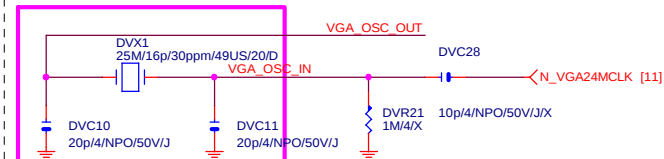
DVR9 [8.2K/4]



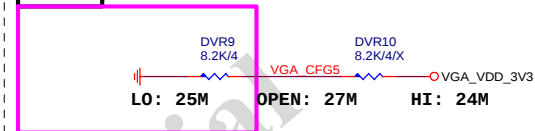
放置PCH端

[10] N_DDPD_CTRLCLK <--> DVR19 2.2K/4/1 <--> VCC3
[10] N_DDPD_CTRLDATA <--> DVR20 2.2K/4/1 <--> VCC3

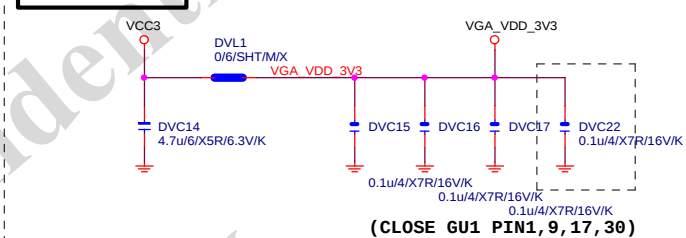
25M Crystal FROM PCH 24MHZ ISSUE



CFG5 For Crystal Less

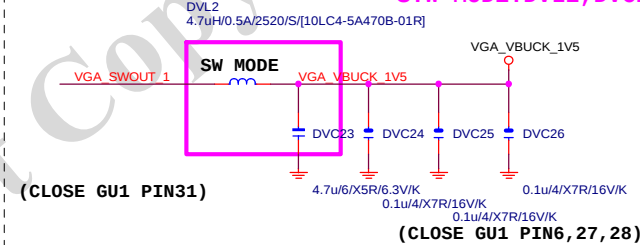


ADAPTER POWER



(CLOSE GU1 PIN1, 9, 17, 30)

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



(CLOSE GU1 PIN31)

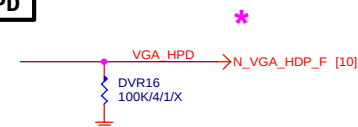
(CLOSE GU1 PIN6, 27, 28)

CFG1&2

Non-Compliant



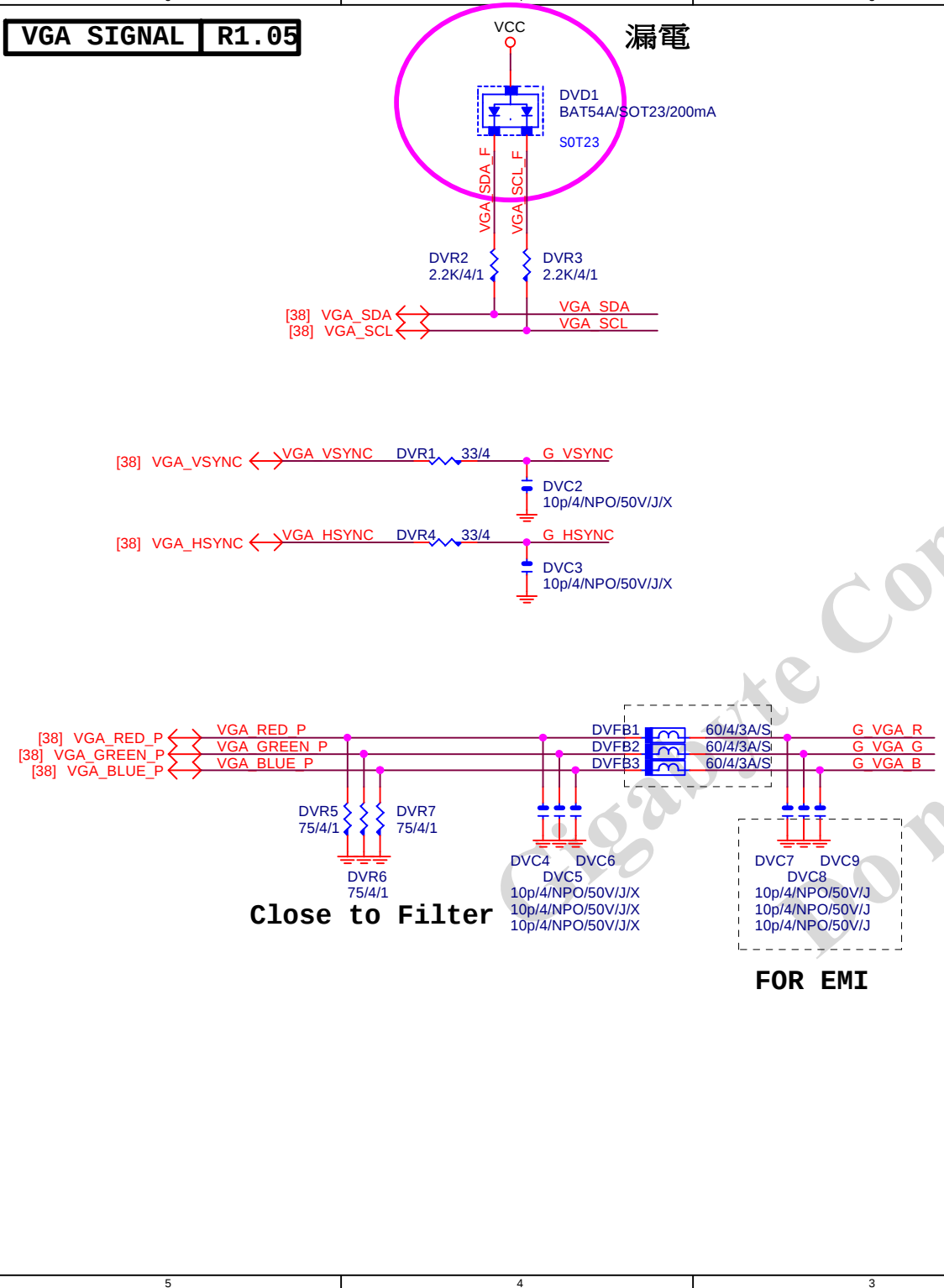
HPD



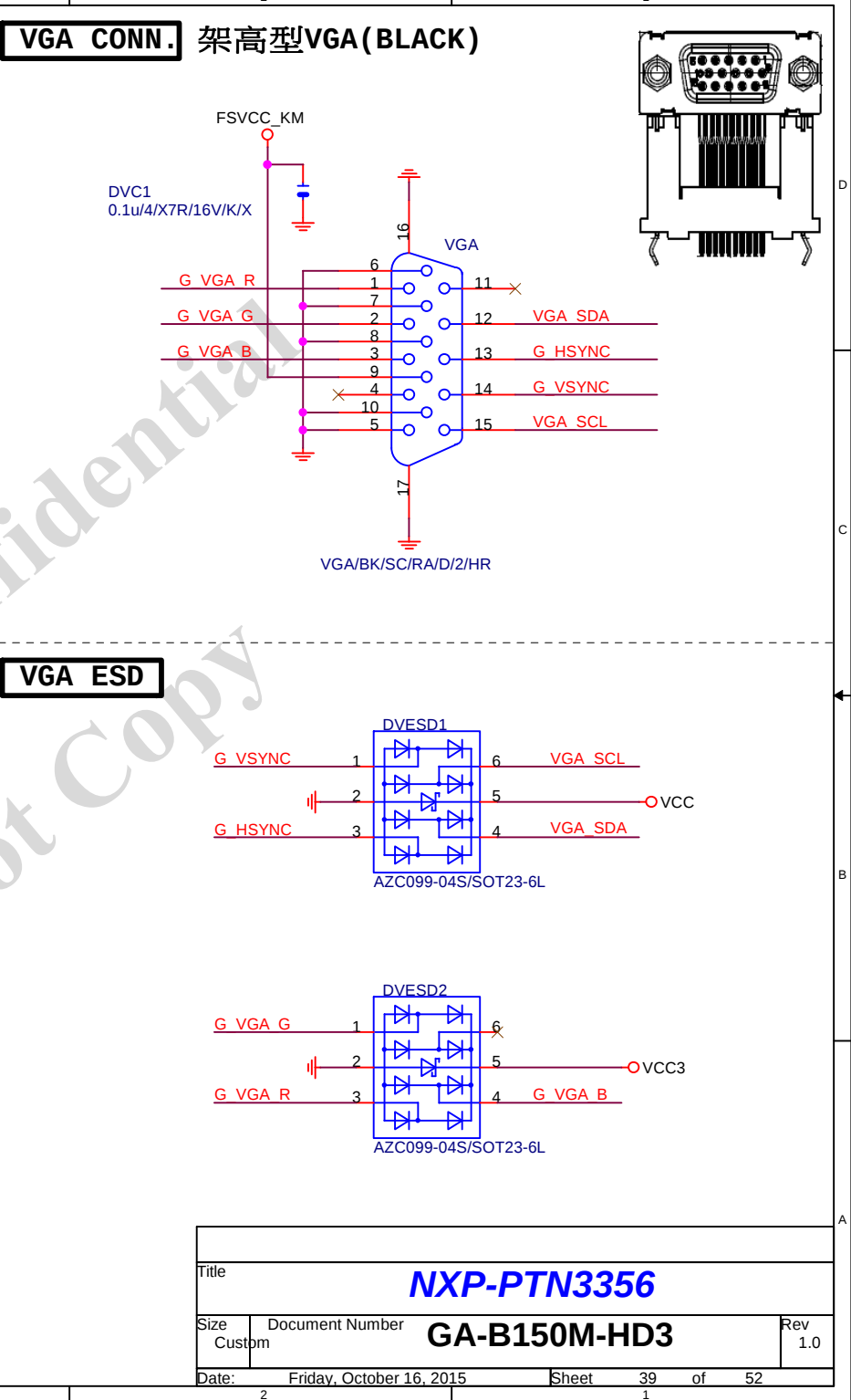
Gigabyte Technology
NXP-PTN3356

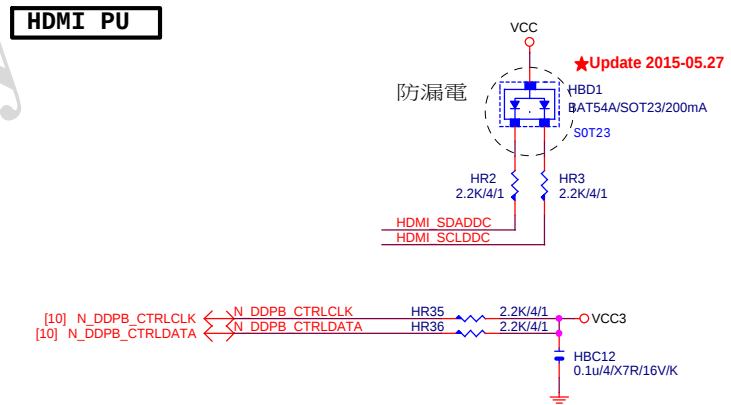
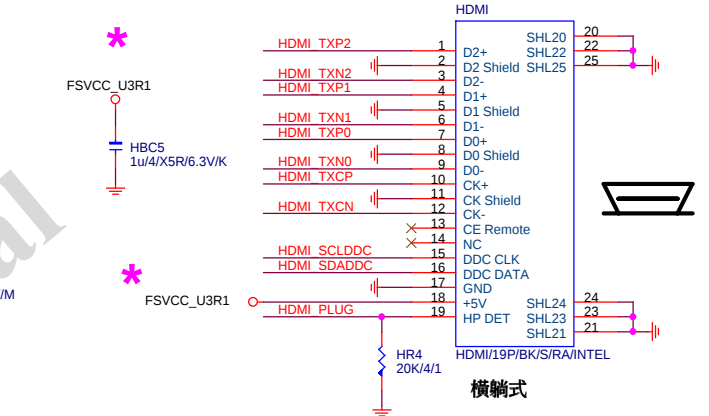
Title	Document Number	Rev
Size	GA-B150M-HD3	1.0
Custom		
Date:	Friday, October 16, 2015	Sheet 38 of 52

VGA SIGNAL R1.05



VGA CONN. 架高型VGA (BLACK)



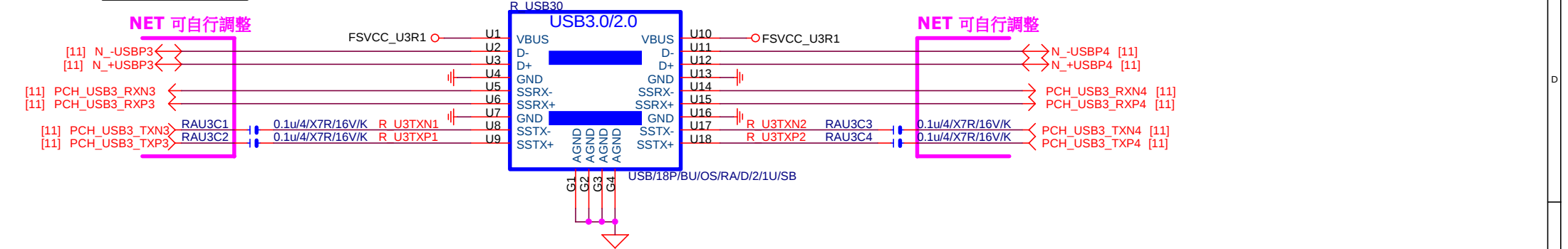


ASM1442:紅色框要上,HR12:3.16K

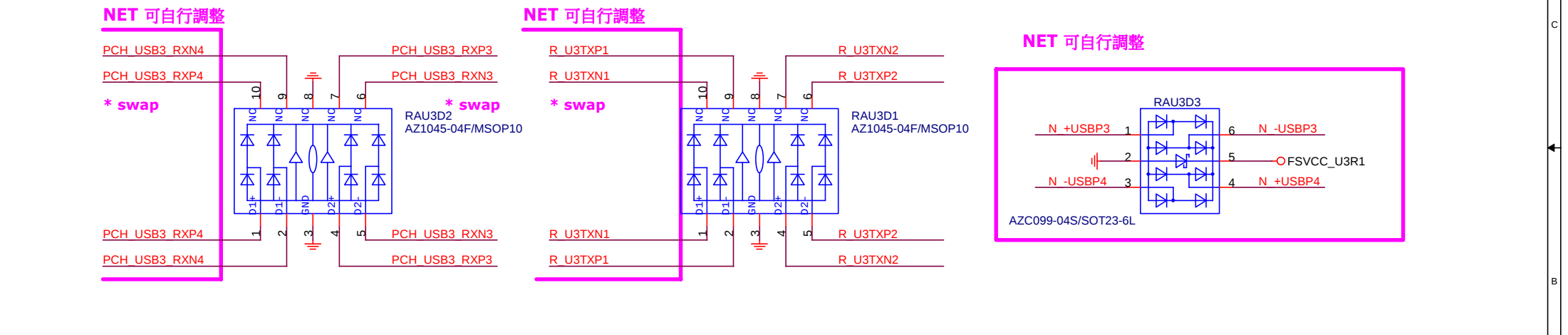
【技術通報R&D技術通報150】
HDMI eye diagram 1.4版(deep color)會fail
原因：因目前的HDMI訊號過長，造成RISING TIME過慢，而會壓到eye diagram
改善：ASMEDIA ASM1442：3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

R_USB30_1

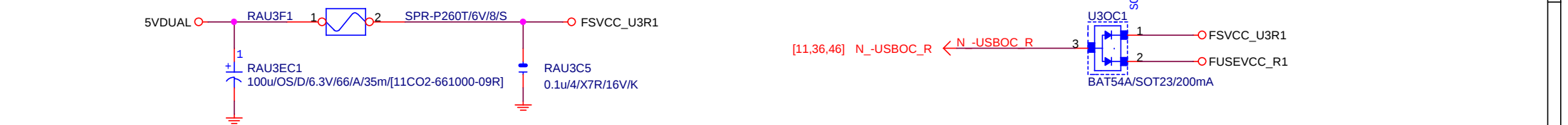
ESD 可自行SWAP PIN ,CONN端 NET 名稱 不可



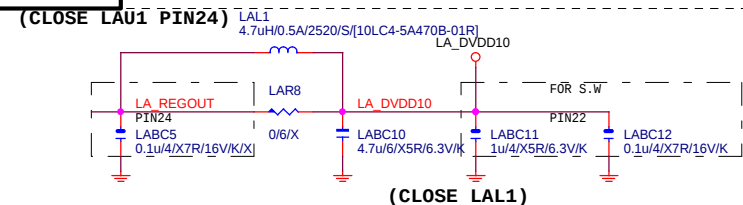
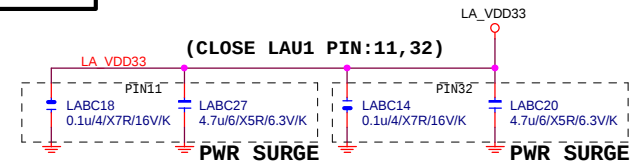
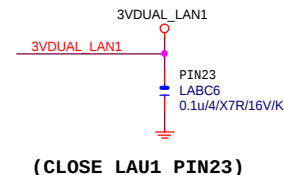
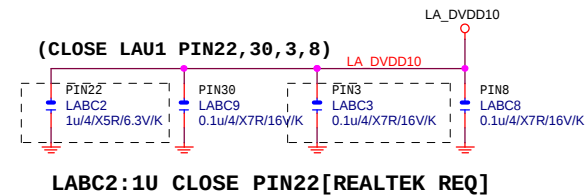
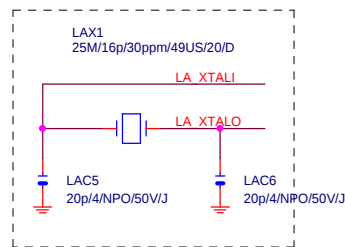
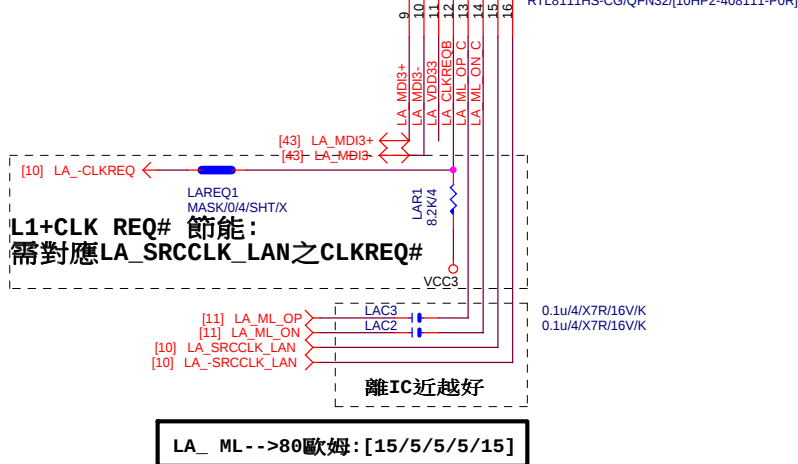
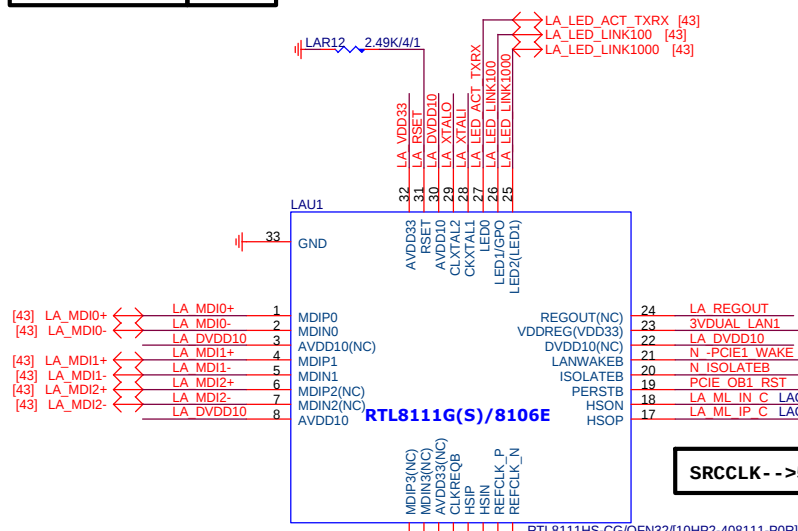
ESD



FUSE



Gigabyte Technology			
Title			
R_USB30,F_USB30, USB_OC			
Size	Document Number		Rev
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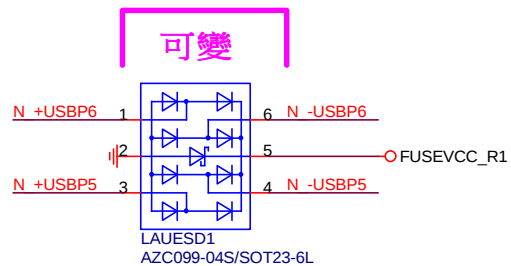
NOTE:
RT8106E:PIN3, 11, 22, 24-->NC
LABC2LABC3, LABC5, LABC18, LABC27-->N/A

USB_LAN CONNECTOR

R1.06

RMA ESD PROTECT

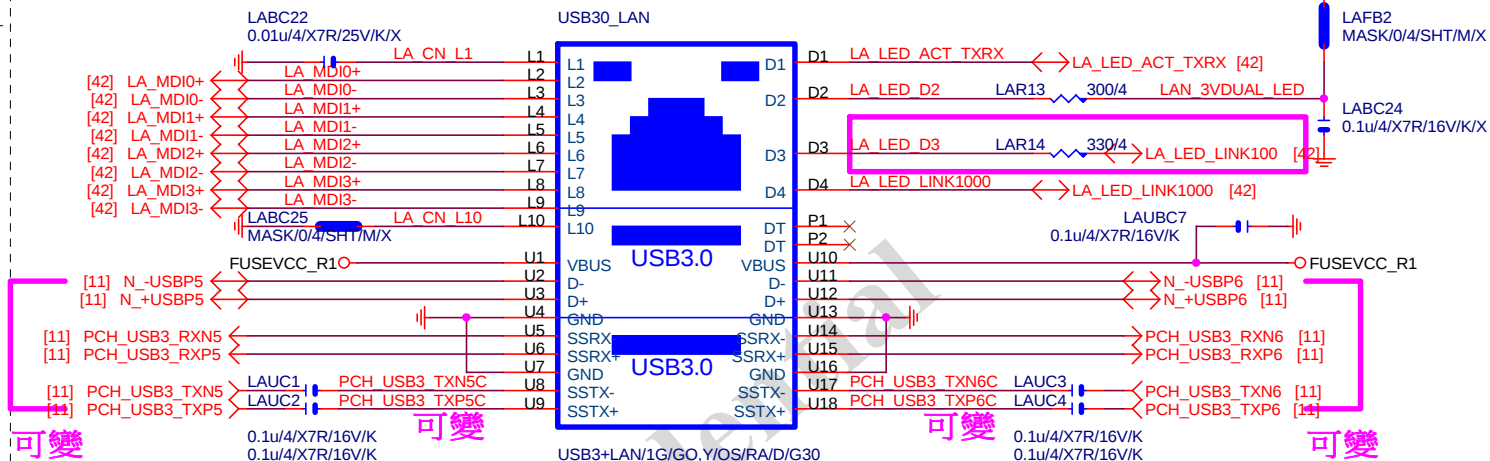
note:可變更USB NAME



USB_LAN CONNECTOR

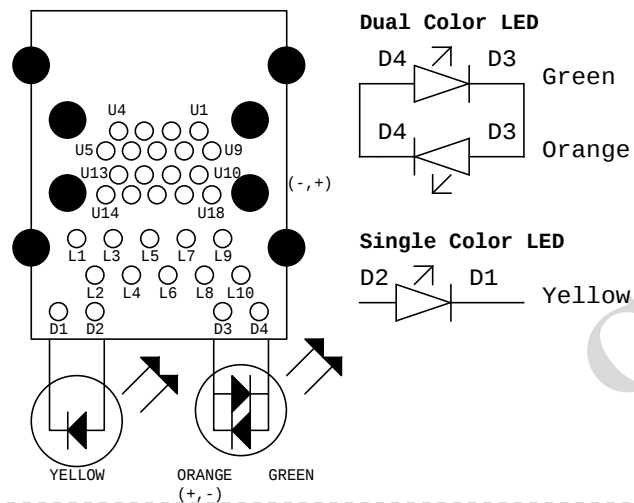
note:可變更USB NAME

[RTL8111G]



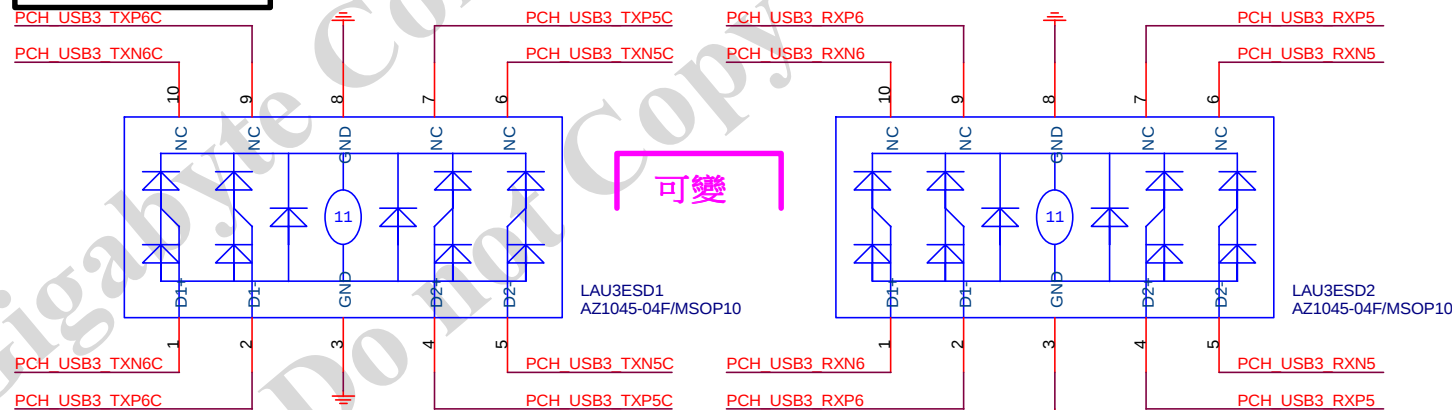
LA MDI-->100歐姆:[20/4/8/4/20]

USB30 LAN LAYOUT示意图



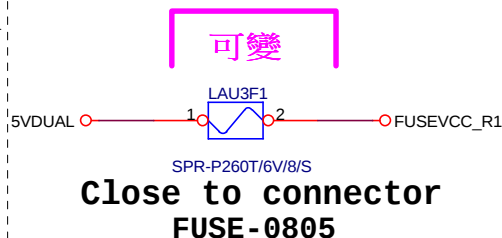
RMA ESD PROTECT

note:可變更USB NAME



USB POWER

note:可變更FUSE



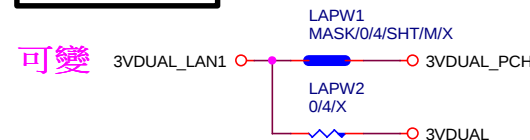
EMI SHORT PAD

PS:視EMI需求



LAN POWER

note:lan power連接及電流



Gigabyte Technology

LAN CONNECTOR-RTL8111G

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GA-B150M-HD3

ALC887 三孔 AUDIO JACK

50歐姆:4/5

Digital Area

Analog Area

JD resistors close to pin13 of CODEC

50歐姆:4/10

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

*LAYOUT與否, 依照各Model spec

LAYOUT注意: 螺絲孔下GND方式

1. MH1空間夠, 下DGND
空間不夠, 改為Isolate
2. MH2一律改為Isolate

☐ MH1	☐ MH2
DGND	Isolate

LAYOUT注意: 要加

GND切割線

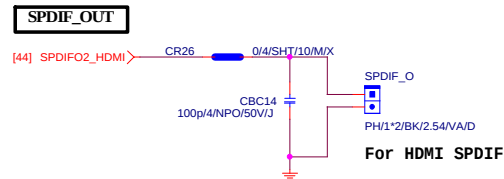
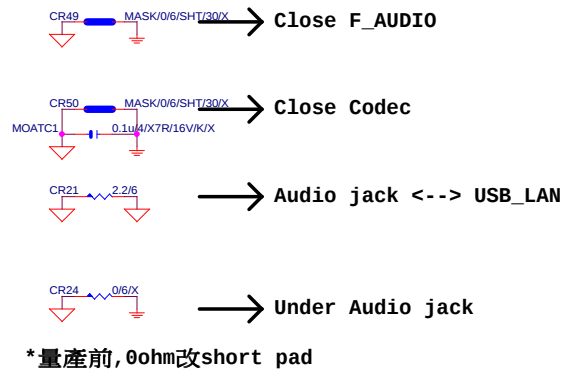
音效區域印刷

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

Gigabyte Technology

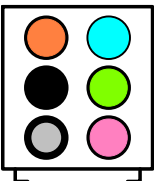
Title		
HD AUDIO ALC887		
Size	Document Number	Rev
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Rev 0.5



SPDIF_IN

AZALIA JACK

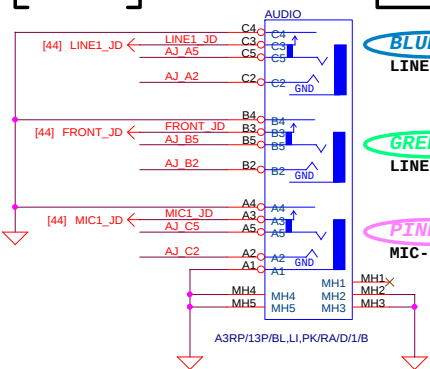


AZALIA JACK

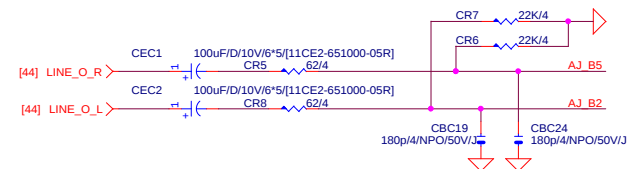
BLUE
LINE-IN

GREEN
LINE-OUT

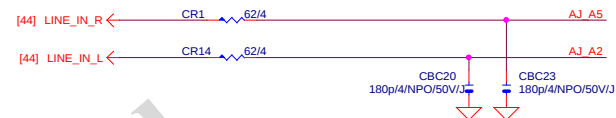
PINK
MIC-IN



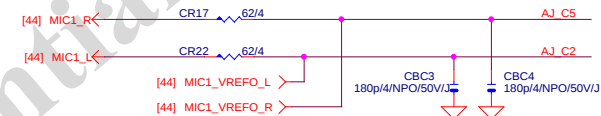
LINE-OUT



LINE-IN



MIC-IN

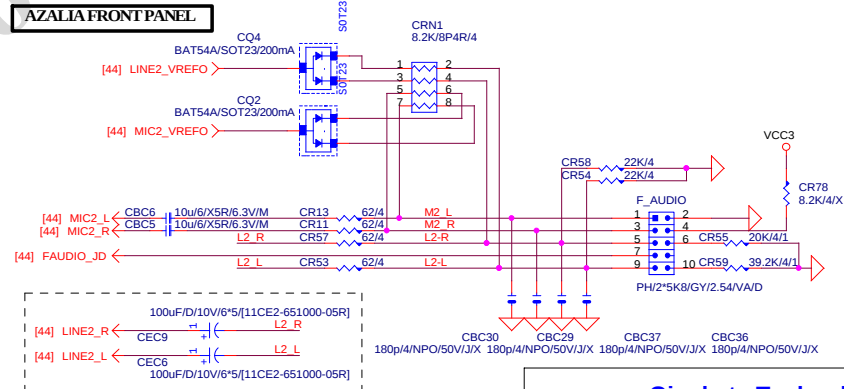


SURROUND

CEN/LFE

SURRBACK

AZALIA FRONT PANEL

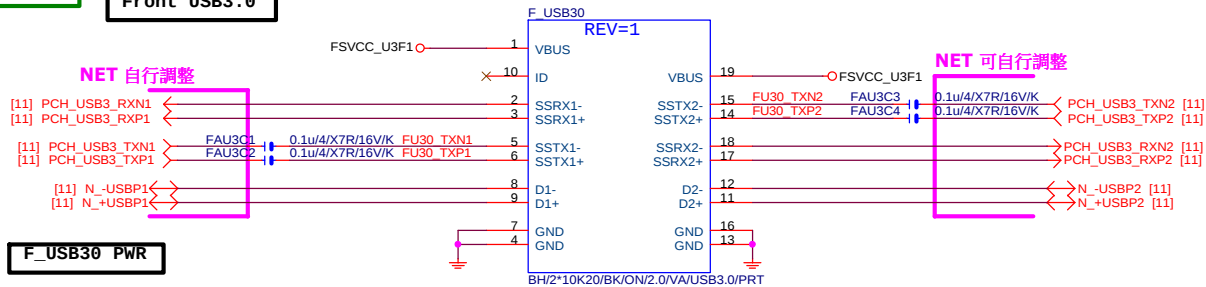


Gigabyte Technology

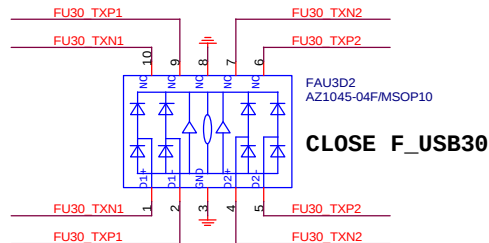
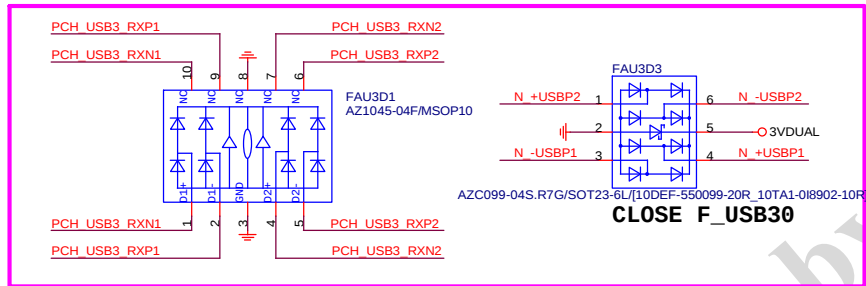
Title			AUDIO JACK
Size			GA-B150M-HD3
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Front USB3.0

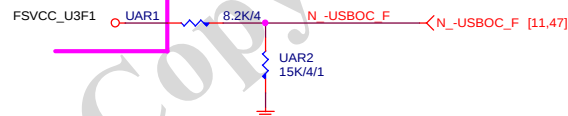


NET 可自行調整



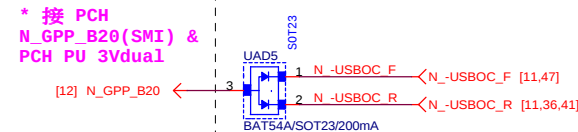
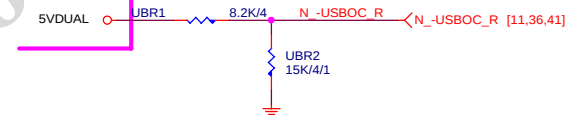
-USBOC_F

POWER 可自行調整



-USBOC_R

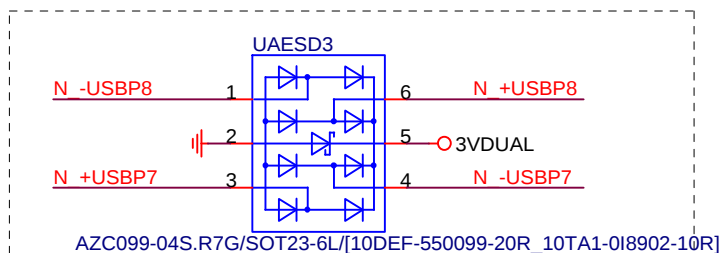
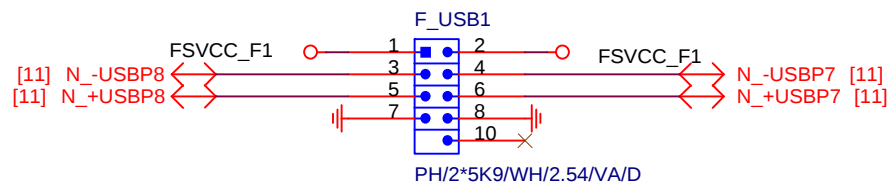
POWER 可自行調整



Gigabyte Technology

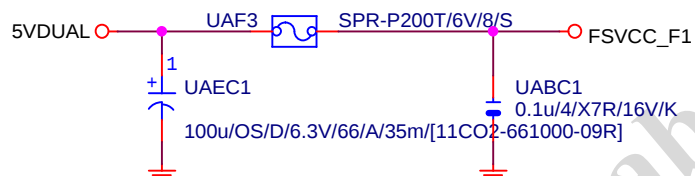
Title			
R_USB30,F_USB30,USB_OC			
Size	Document Number	Rev	
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NET 可變

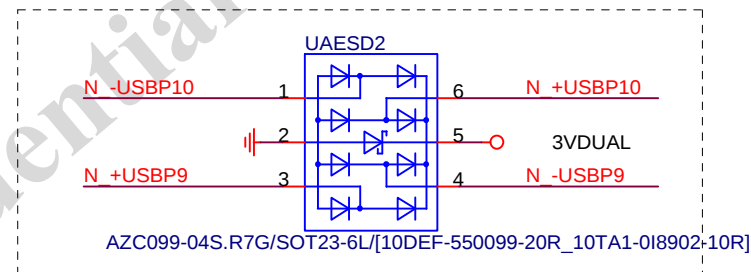
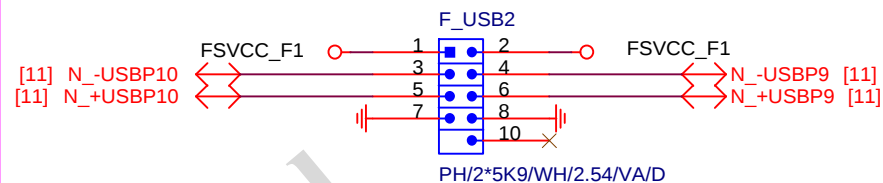


Close to connector

FUSE 2 Port 1 Fuse 2A



NET 可變

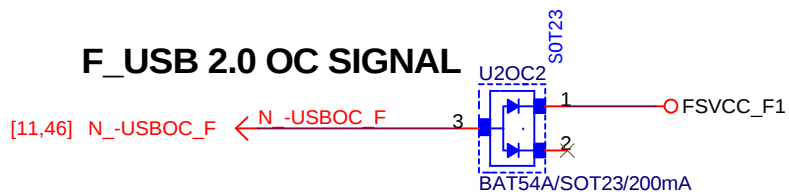


Close to connector

FUSE 2 Port 1 Fuse 2A



F_USB 2.0 OC SIGNAL



Gigabyte Technology

Title

USB2.0

Size
Custom

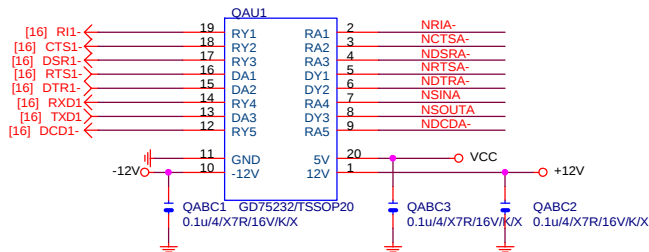
Document Number

GA-B150M-HD3

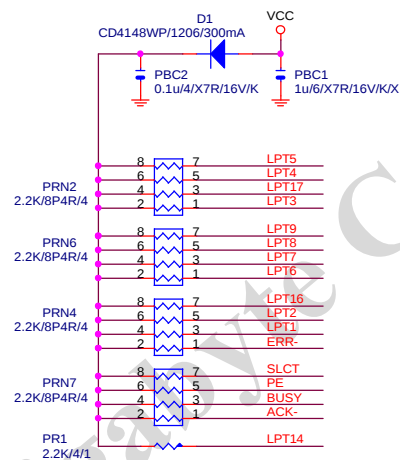
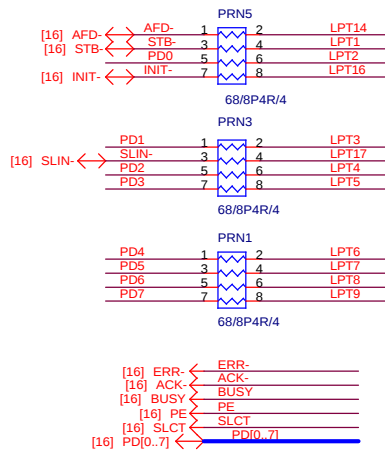
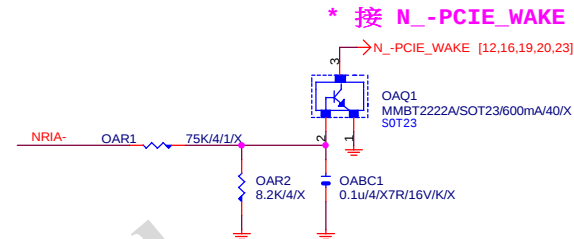
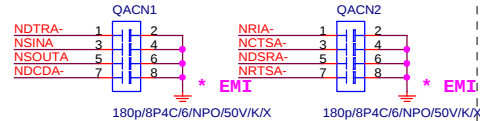
Rev
1.0

Date: Friday, October 16, 2015

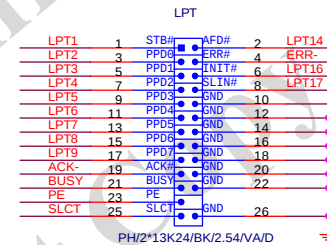
Sheet 47 of 52



* footprint :
PIN2X5-CUT10-COM

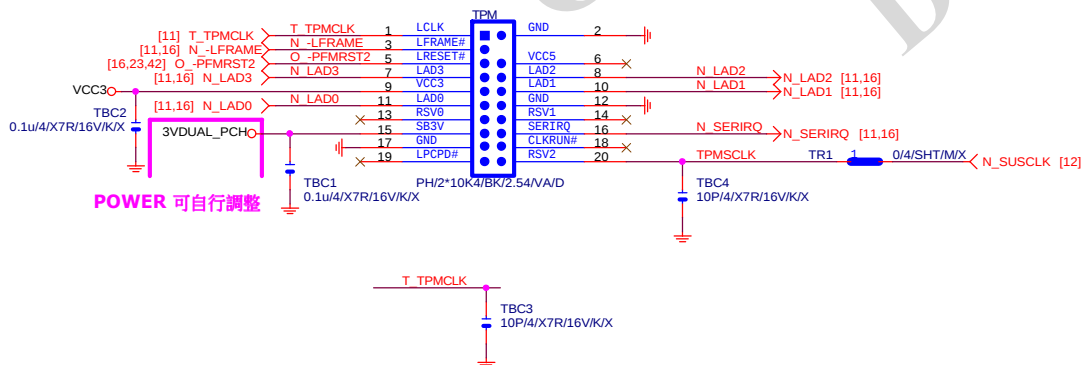


R&D技術通報151 有使用PRINT PORT的
MODEL，需使用新料號:10HP2-118728-72R。(CHIP IT8728F/EX (GB) ITE/SMD
QFP128 PRINTPORT SORTING)料件。串電阻33 ohm改為68 ohm。



* footprint :
PIN2X13_LPT-CUT24

PH2X10-CUT4_TPM

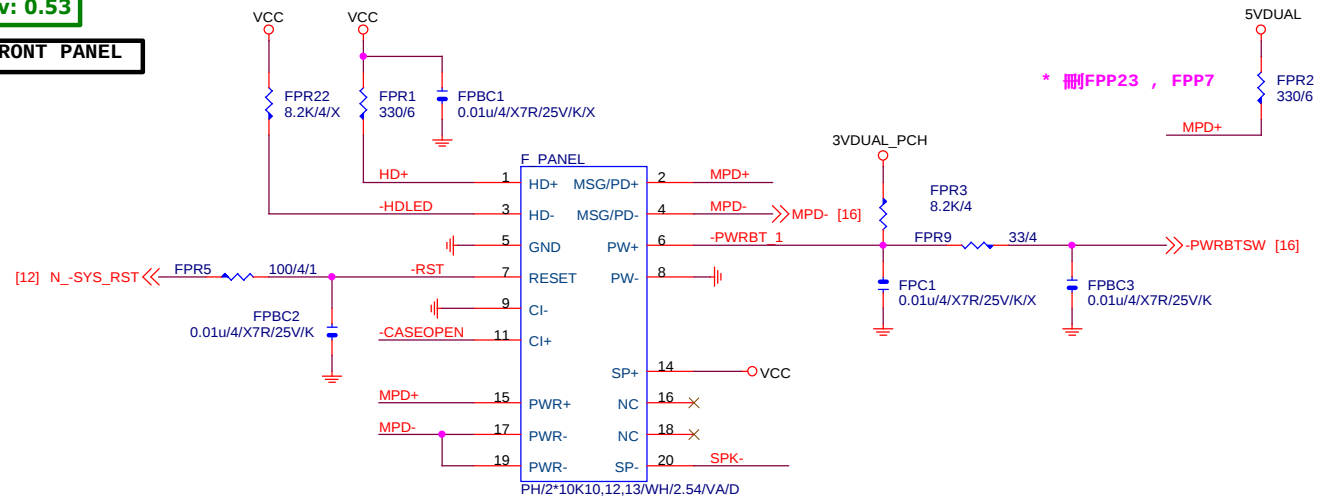


Gigabyte Technology

Title			
FP,F_USB,USB PWR,BZ			
Size	Document Number	GA-B150M-HD3	
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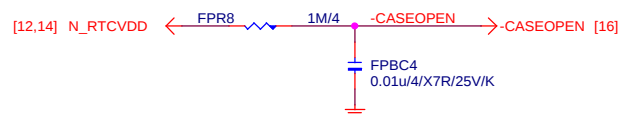
Rev: 0.53

FRONT PANEL



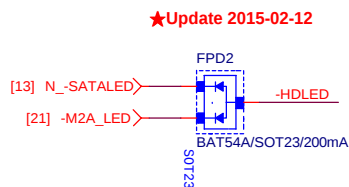
FOOTPRINT : PIN2X10PANEL -NEW

CASE OPEN

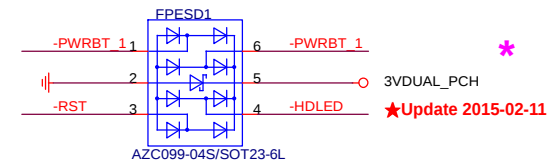


SATA LED

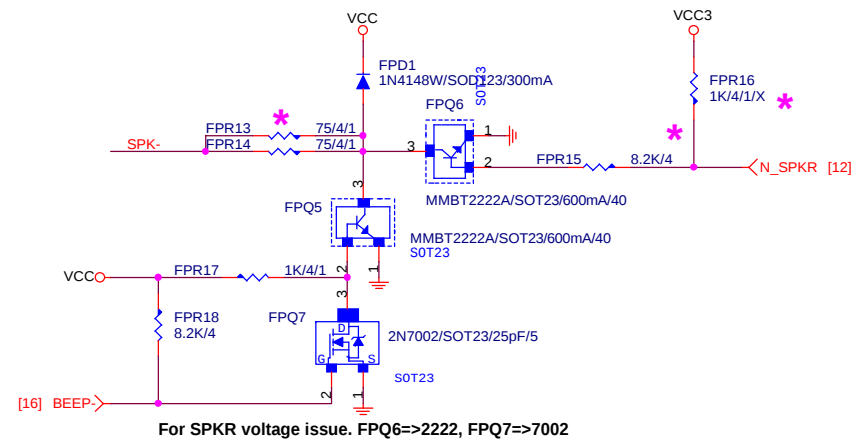
SATALED# signal open-collector, pull-up (8.2 k Ω to 10 k Ω) to Vcc3_3



ESD



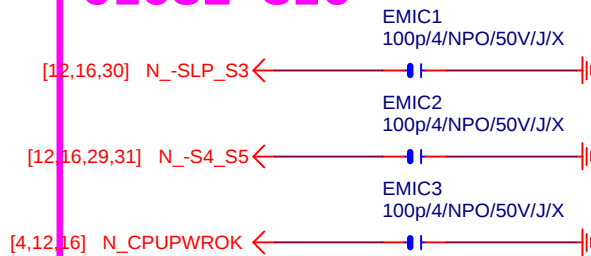
SPKR



Gigabyte Technology

Title		
FRONT PANEL		
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CLOSE SIO



CLOSE PCH



For H1703M-HD3 USB



GIGABYTE™

Title

EMI/ESD

Size
A

Document Number

GA-B150M-HD3

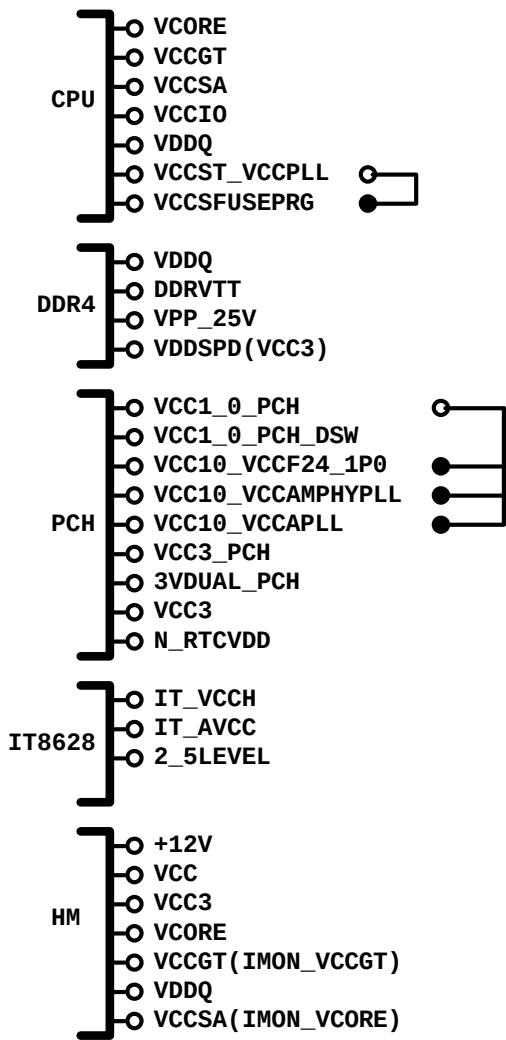
Rev

1.0

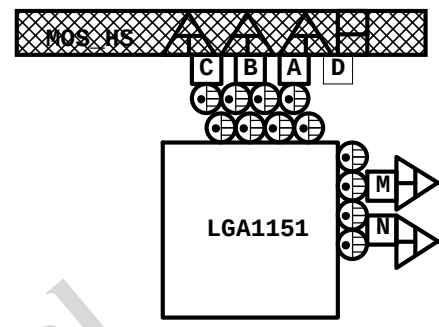
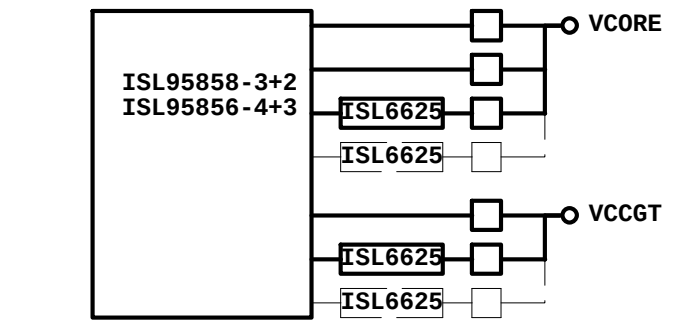
Date: Friday, October 16, 2015

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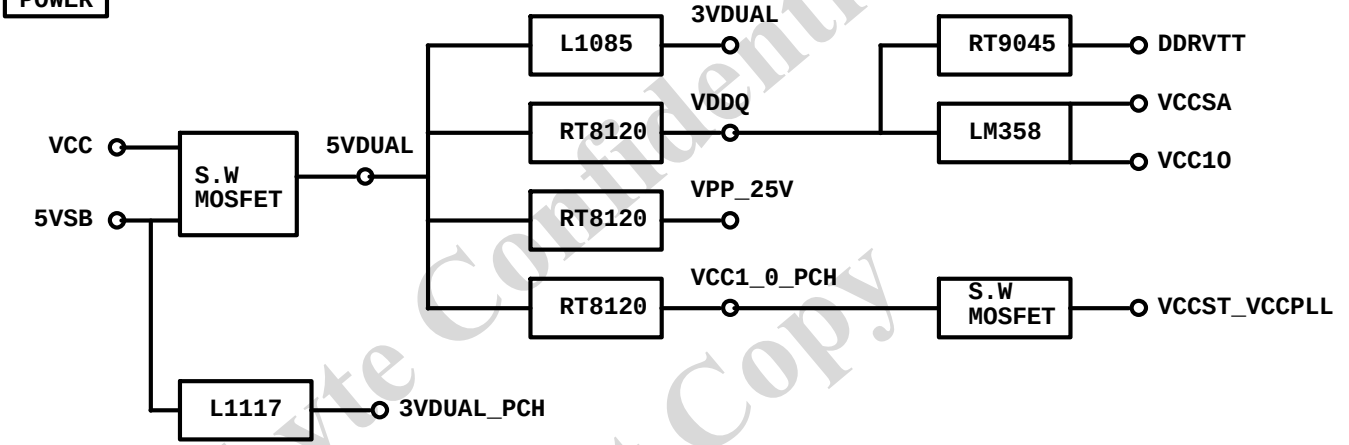
POWER BLOCK MAP



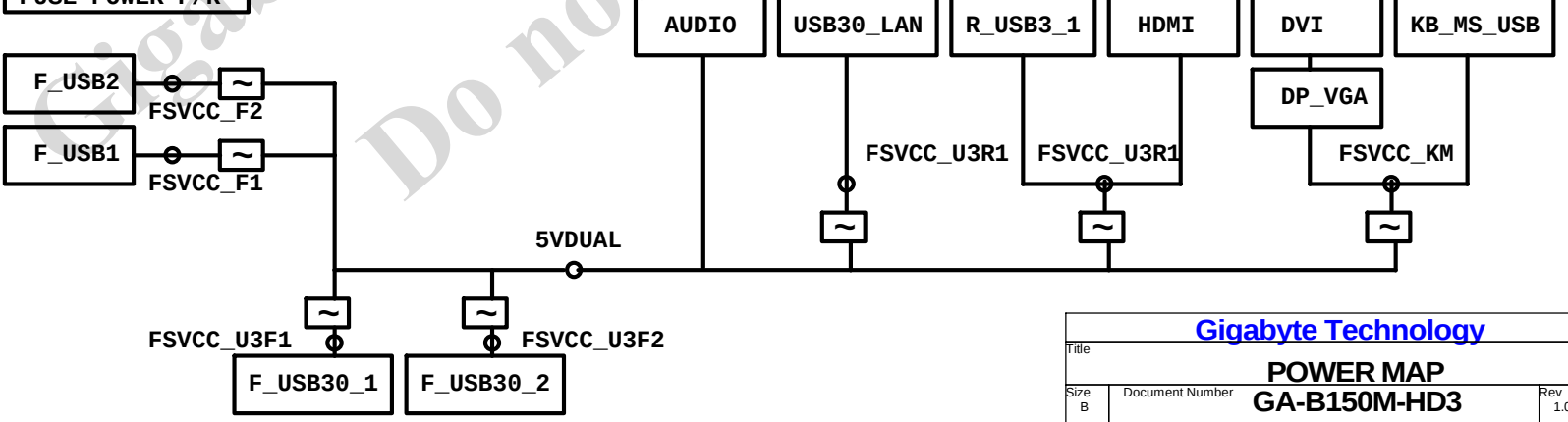
VCORE/VCCGT



POWER



FUSE POWER F/R



Gigabyte Technology			
Title			
POWER MAP			
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B	GA-B150M-HD3	1.0	
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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

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1.0

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