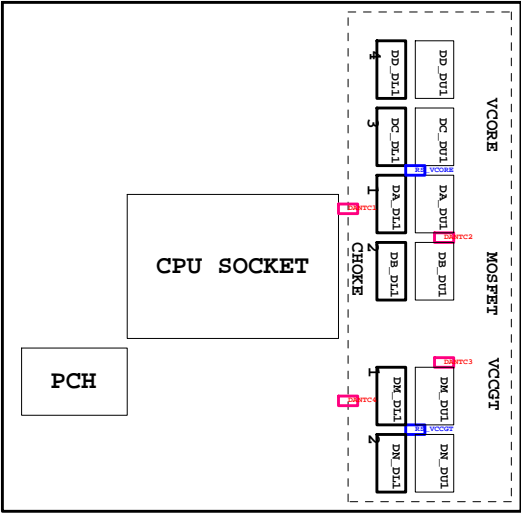


01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1151-A
05	CPU_LGA1151-B-DDR4
06	CPU_LGA1151-C
07	CPU_LGA1151-D
08	DDR 4 CHANNEL A (REV0.6)
09	DDR 4 CHANNEL B (REV0.6)
10	PCH CLOCK BUFFER (REV0.7)
11	PCH DMI,USB,PCIE (REV0.7)
12	PCH MISC (REV0.7)
13	PCH SATA,PCIE,SATA_EXPRESS (REV0.7)
14	PCH_PWR,GND (REV0.7)
15	Dual BIOS (REV0.1)
16	I/O ITE8628 (REV1.08)
17	HWM (REV1.08)
18	FAN CTRL-SIO (REV0.7)
19	PCIEX16 SLOT
20	PCIEX4 SLOT (REV0.51)
21	PCIEX1*2 SLOT (REV0.51)
22	M.2 x4 (REV0.6)
23	SATA EXPRESS (REV0.6)
24	VCORE_ ISL95856(PWM) (REV1.0)
25	VCORE_ ISL95856(Vcore) (REV1.0)
26	VCORE_ ISL95856(VccGT) (REV1.0)
27	VCCSA_VCCIO_VCCPLL (REV0.4)
28	RT8120_DDR (REV0.88)
29	RT8120_VTT (REV0.88)
30	RT8120_PCH (REV0.67)
31	DISCRETE POWER (REV0.51)
32	NCP3933 OVER VOLTAGE
33	ATX POWER , -PROCHOT
34	KB_MS_USB (REV0.7)

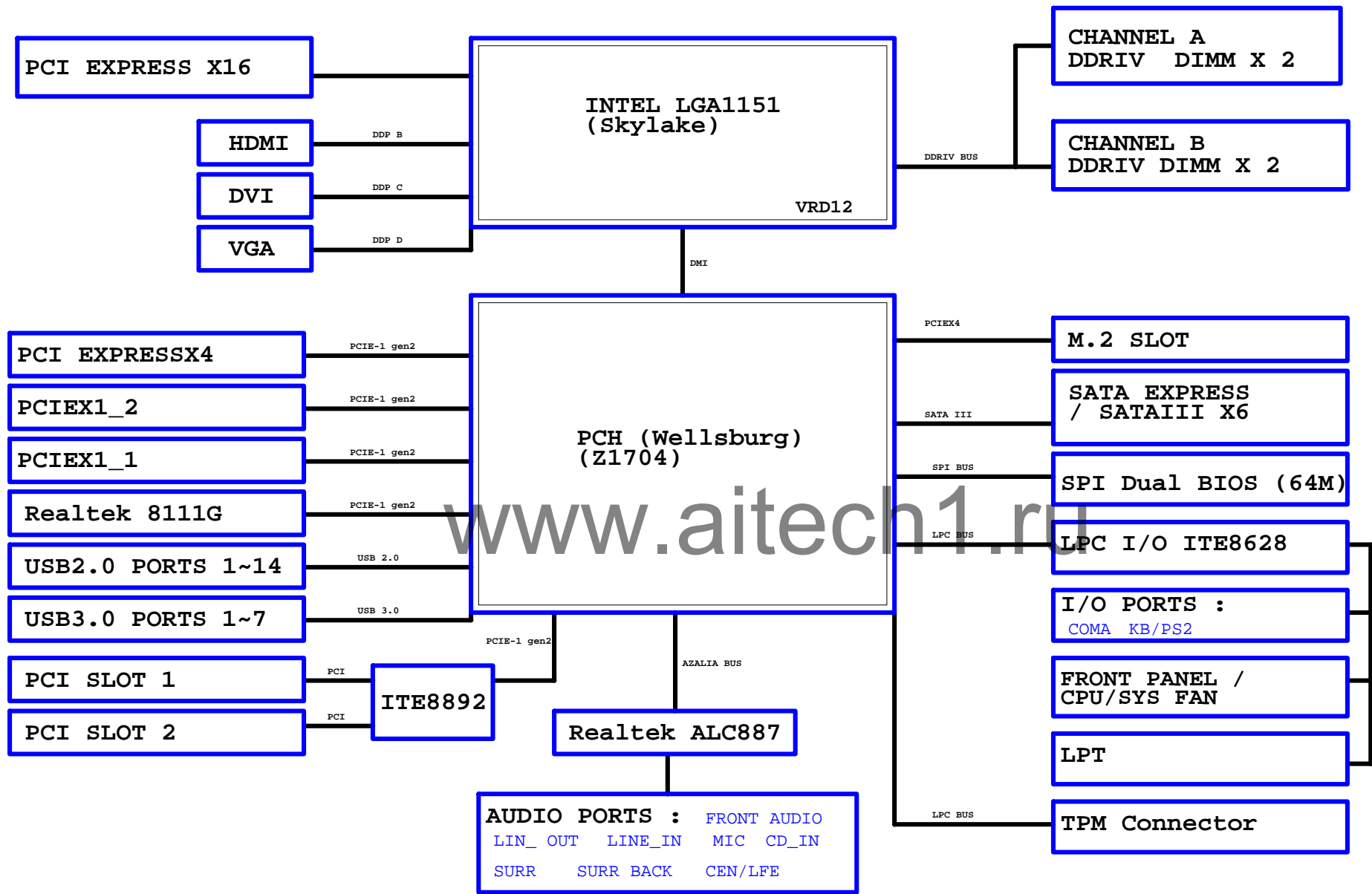
35	DVI (REV0.7)
36	NXP-PTN3356 - DP to VGA - IC (REV1.08)
37	NXP-PTN3356 - DP to VGA - Cont (REV1.08)
38	HDMI (REV0.7)
39	R_USB30 (REV0.7)
40	Realtek 8111HS (REV1.06)
41	USB30_LAN CONNECTOR-8111HS (REV1.06)
42	ALC887-VD2 CODEC (REV0.7)
43	REAR AUDIO JACK (REV0.7)
44	F_USB30 (REV0.7)
45	F_USB20 (REV0.7)
46	COM , LPT , TPM , THB (REV0.7)
47	F_PANEL (REV0.62)
48	ASM1083
49	PCI SLOT 1&2 (REV0.9)
50	ASM1083 POWER
51	EMI-ESD (REV0.1)
52	TABLE LIST
53	
54	

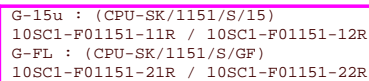


Component value change history

[illegible][illegible]

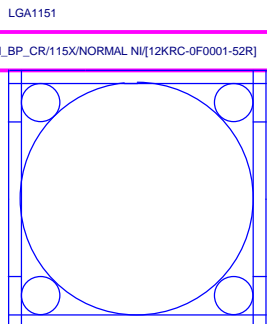
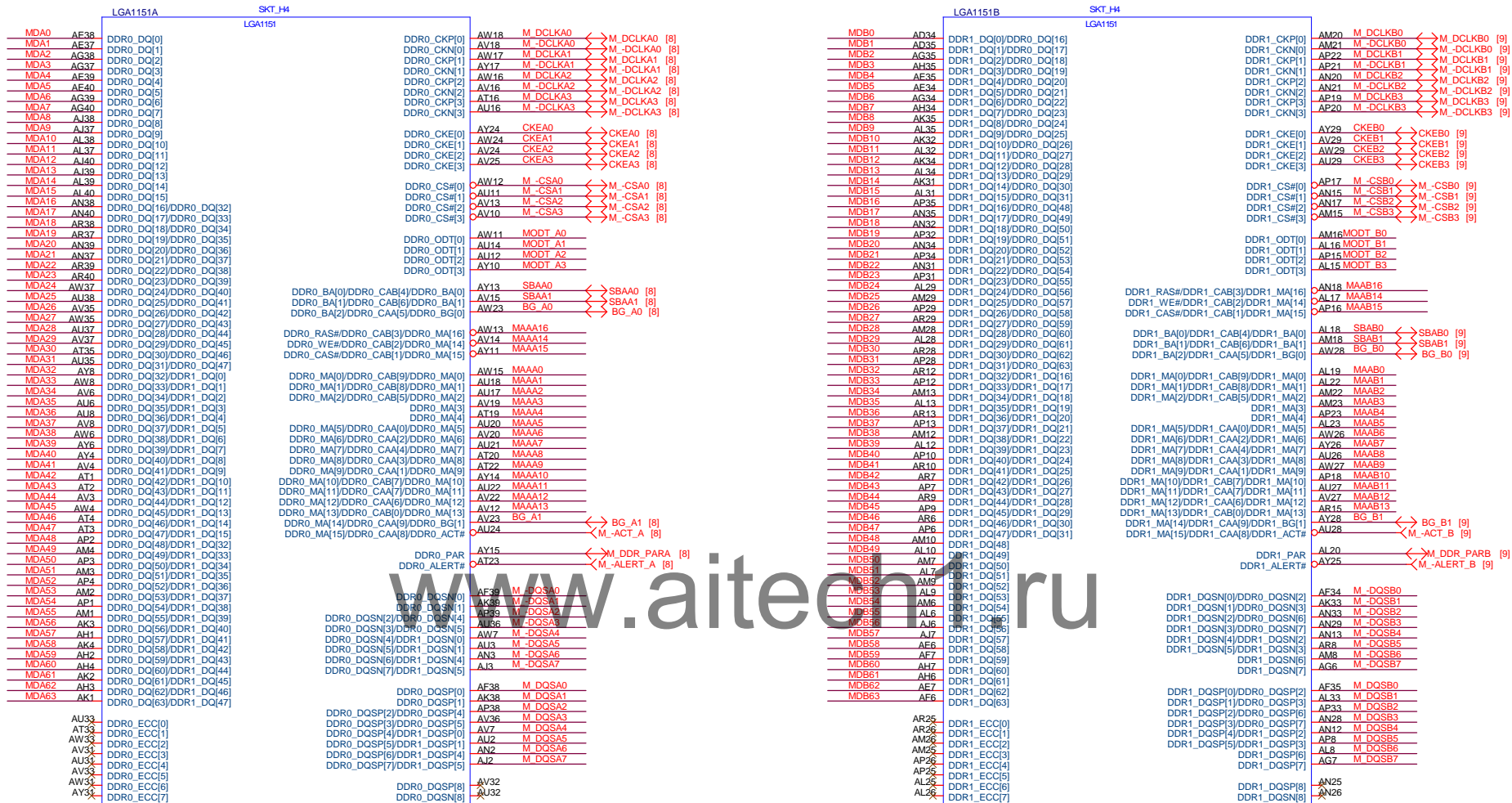
BLOCK DIAGRAM



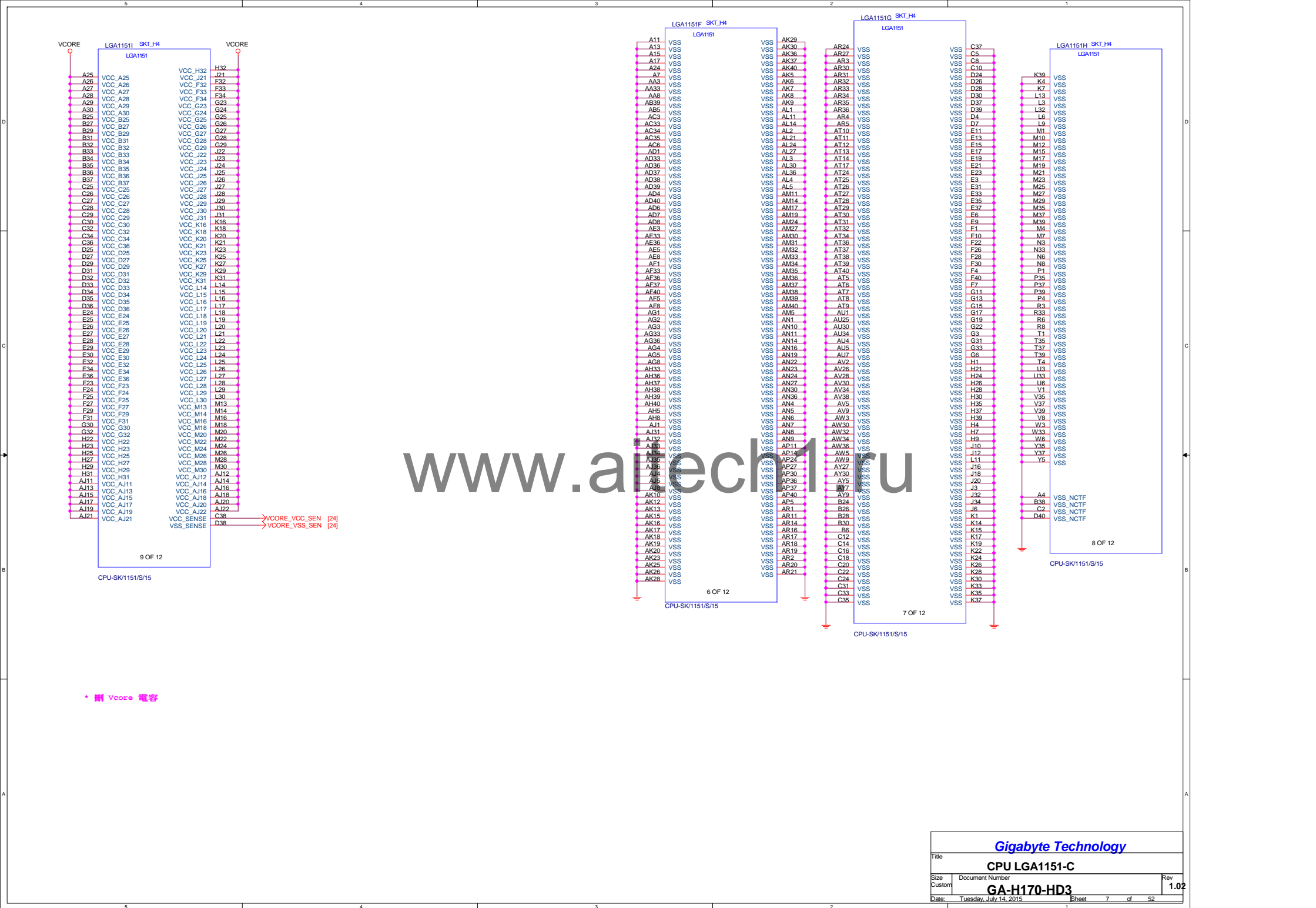


N_CPUSTR
WBC123
1n4/X7R/50V/K

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

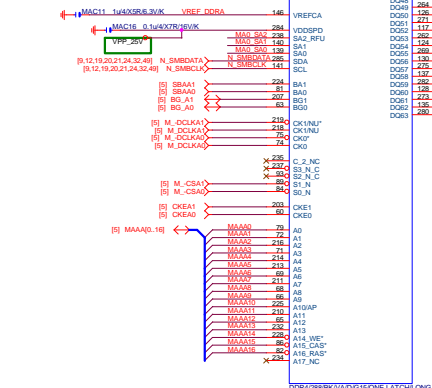


Need check the new CPU ME

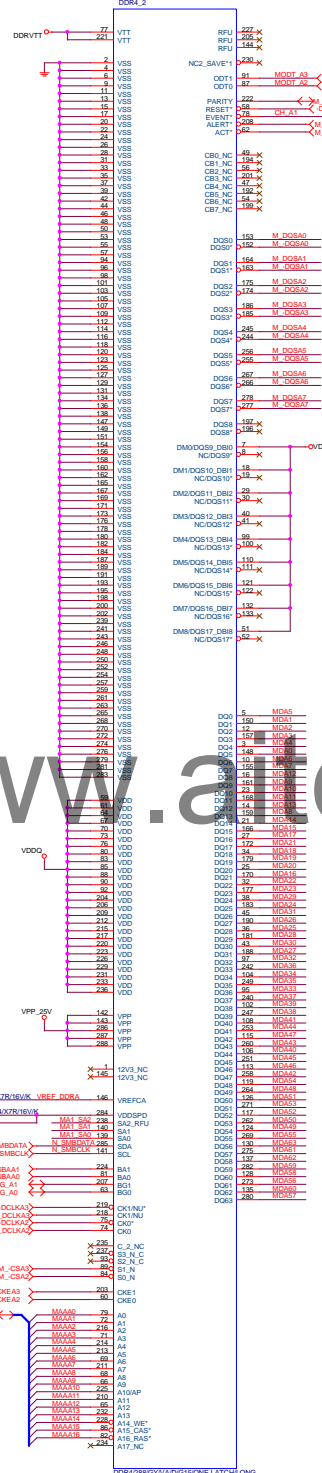


[R] MDAQ_R3 ← MDAQ_R3
[R] MAAAP_17 ← MAAAP_17
[R] M_DQSA0_7 ← M_DQSA0_7
[R] M_DQSA0_7 ← M_DQSA0_7

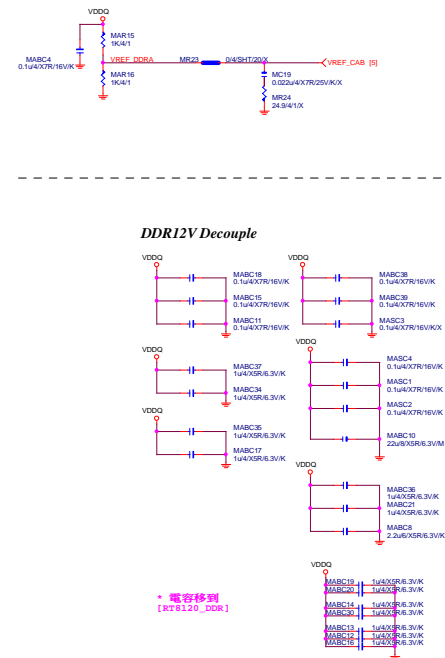
刪除HS22 & VDDSPD SHORT PROTECT



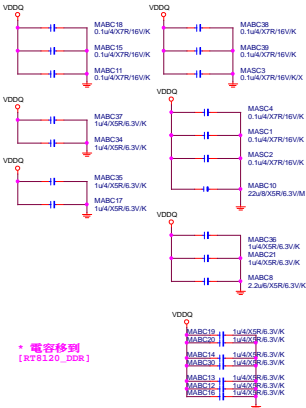
刪除 short pad
CHANNEL A0
SA2:0=000



刪除 short pad
CHANNEL A1
SA2:0=001

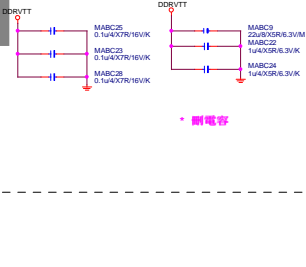


DDR12V Decouple

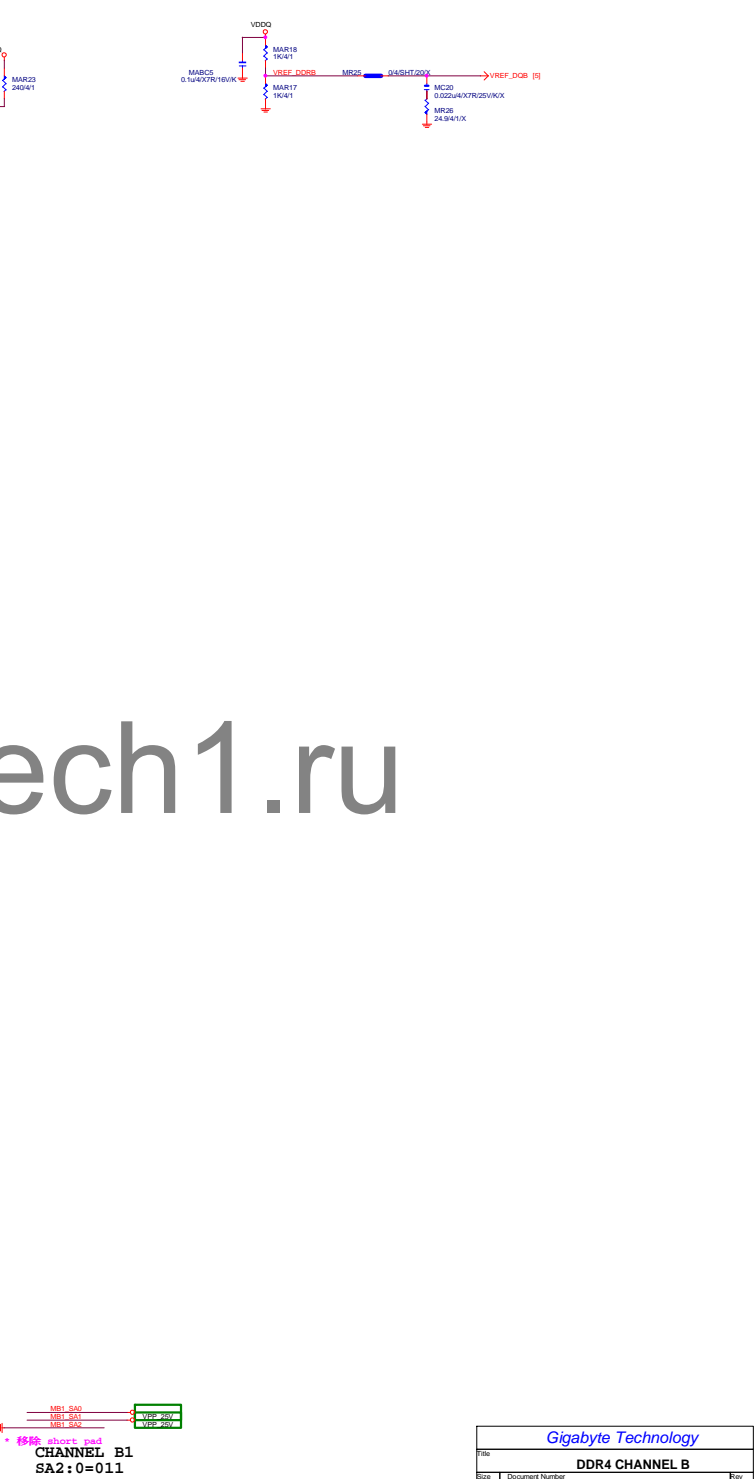
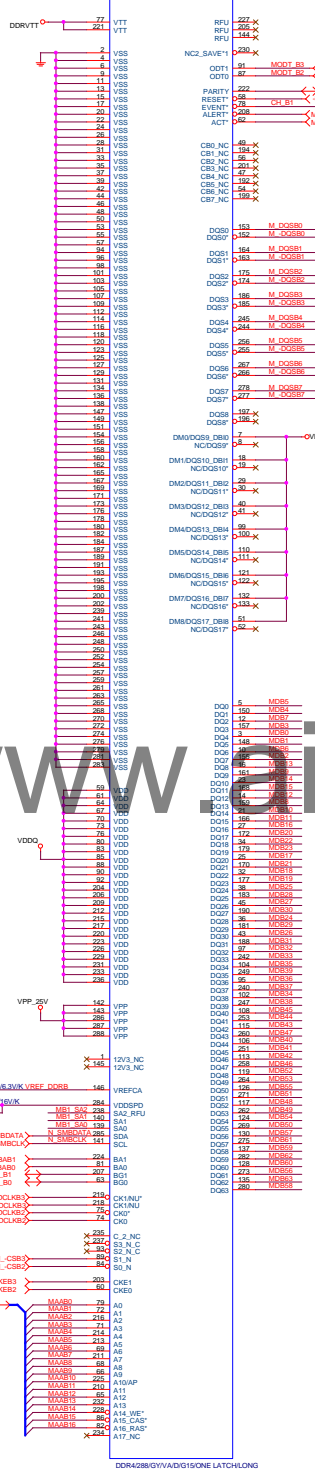
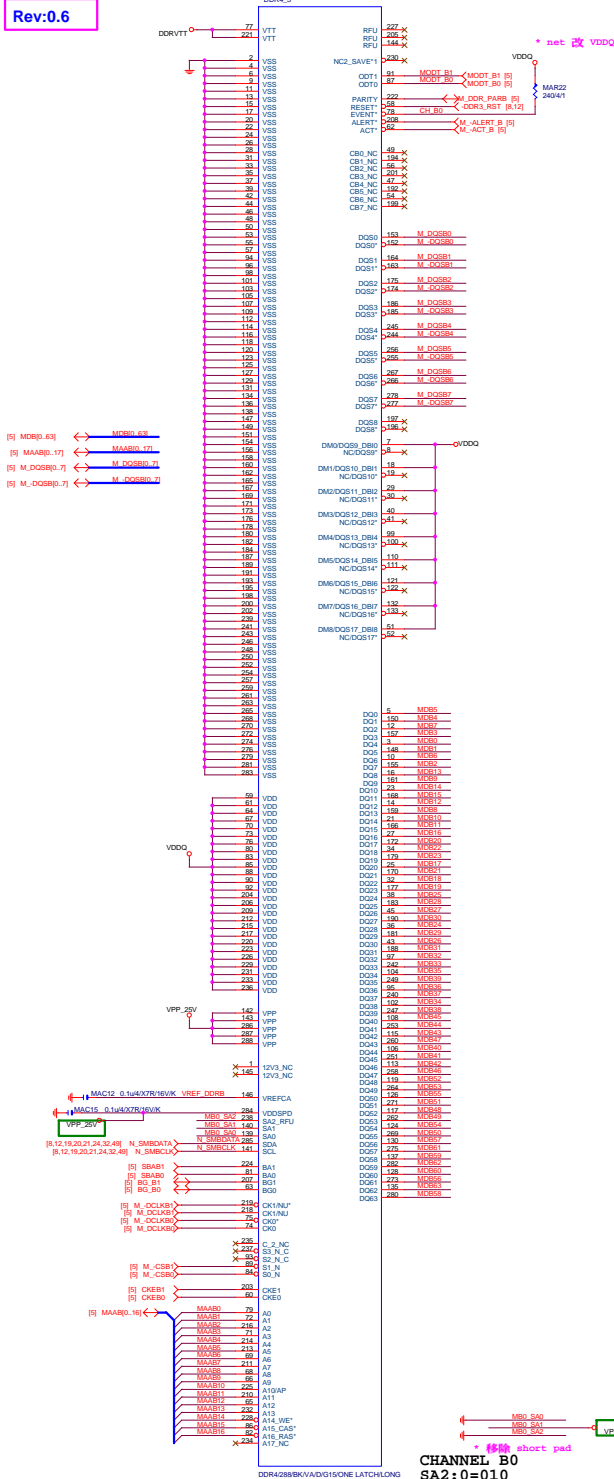


* 電容移到
[R]B120, DDD

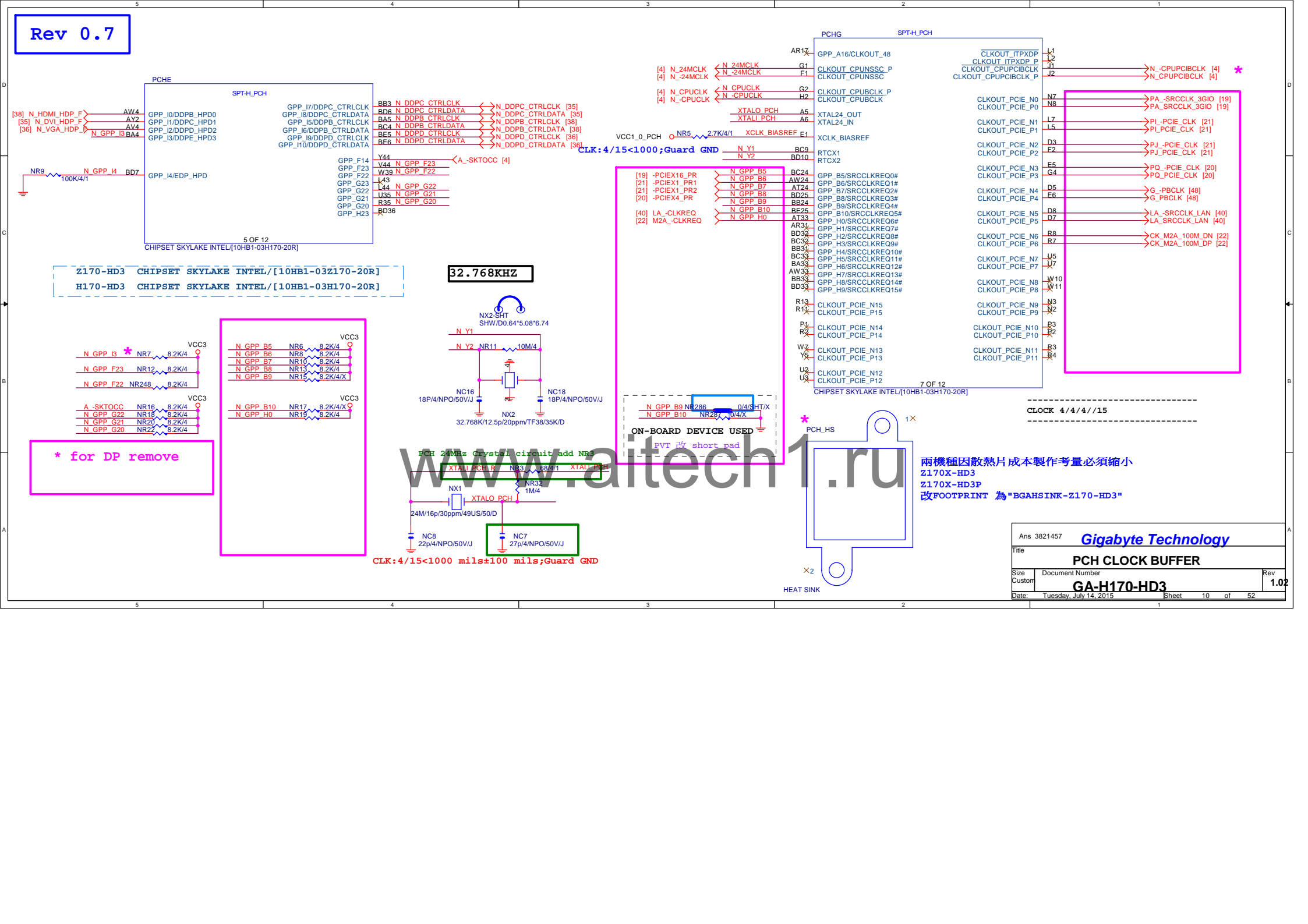
DDRVT Decouple

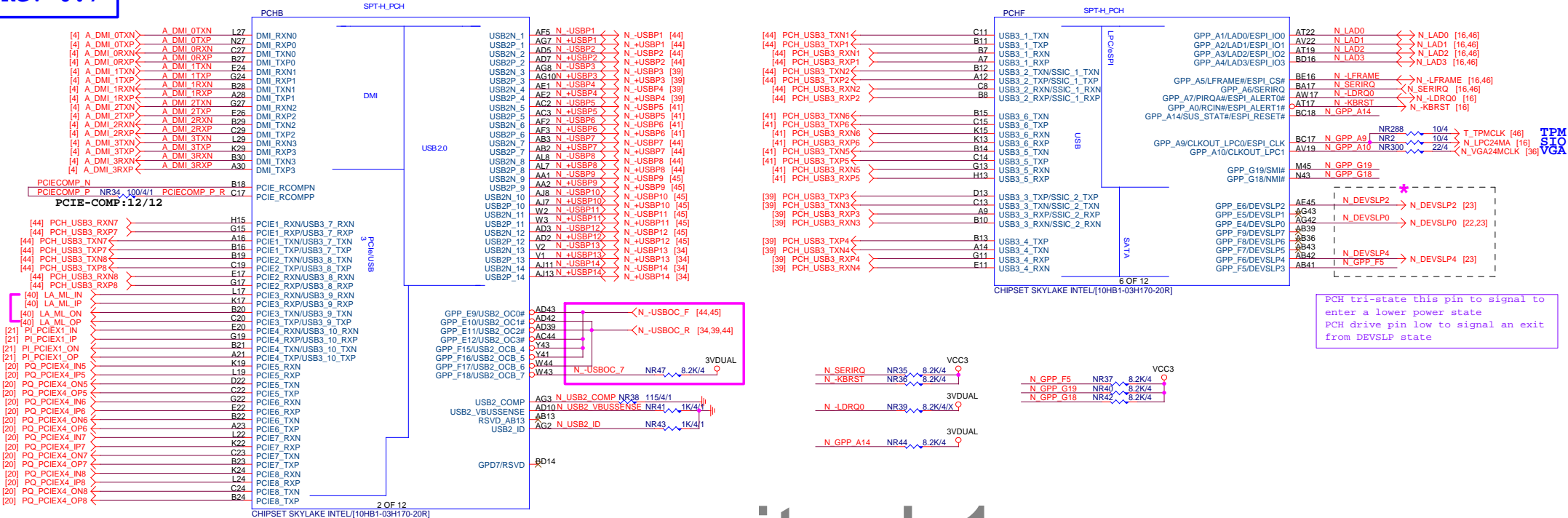


* 刪電容

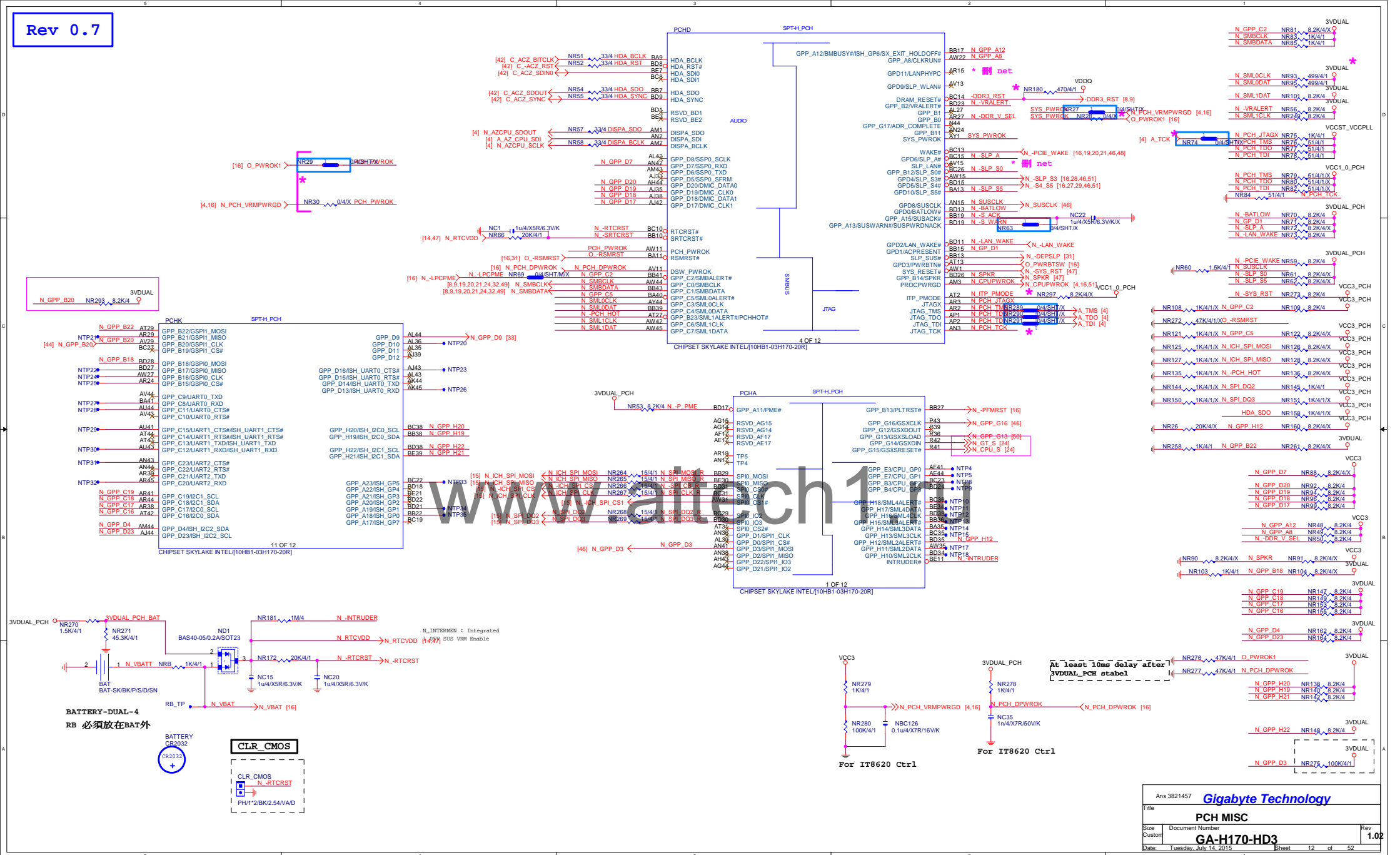


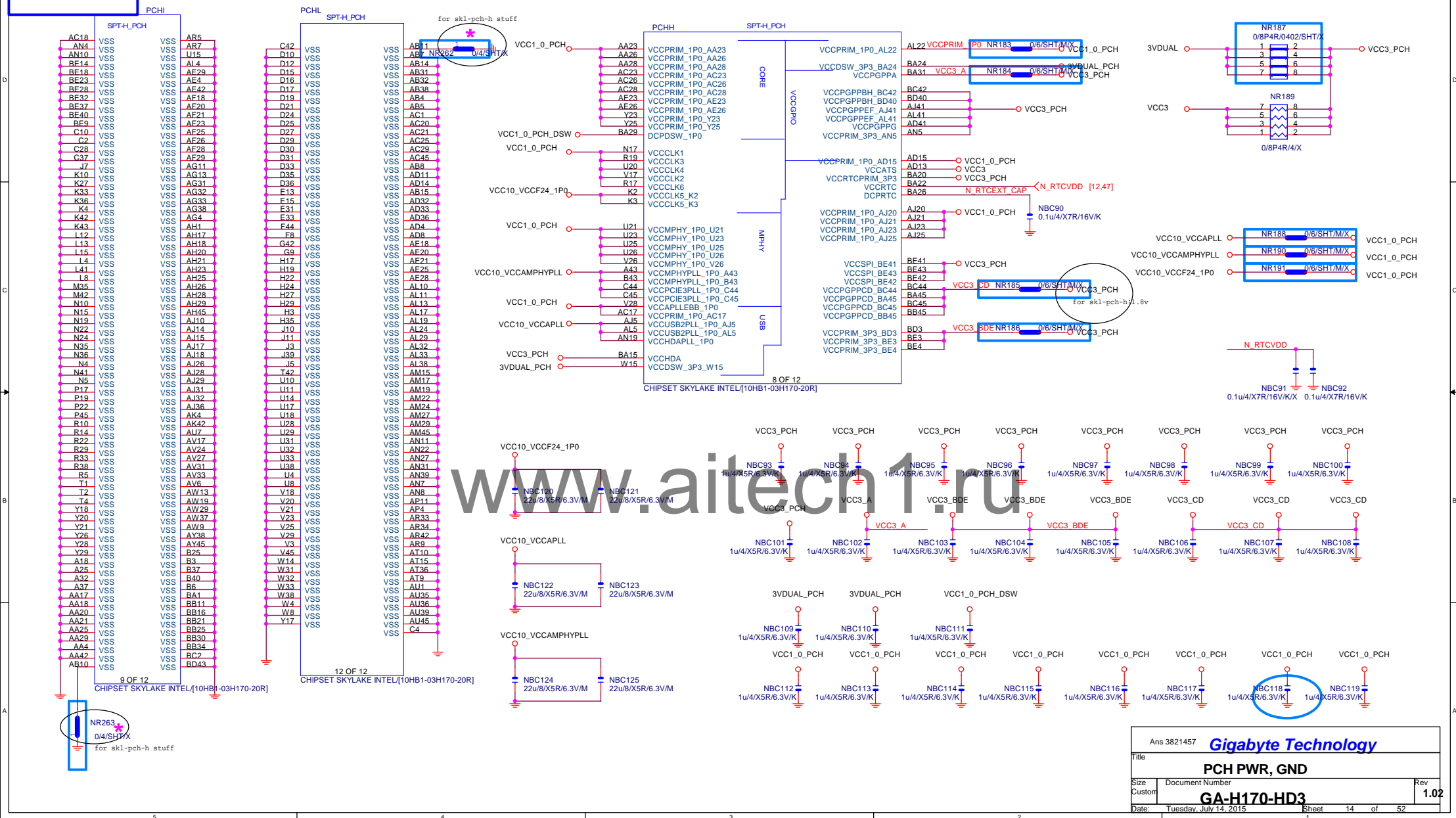
Rev 0.7

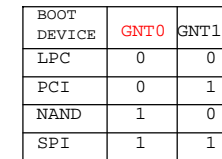




www.aitech1.ru







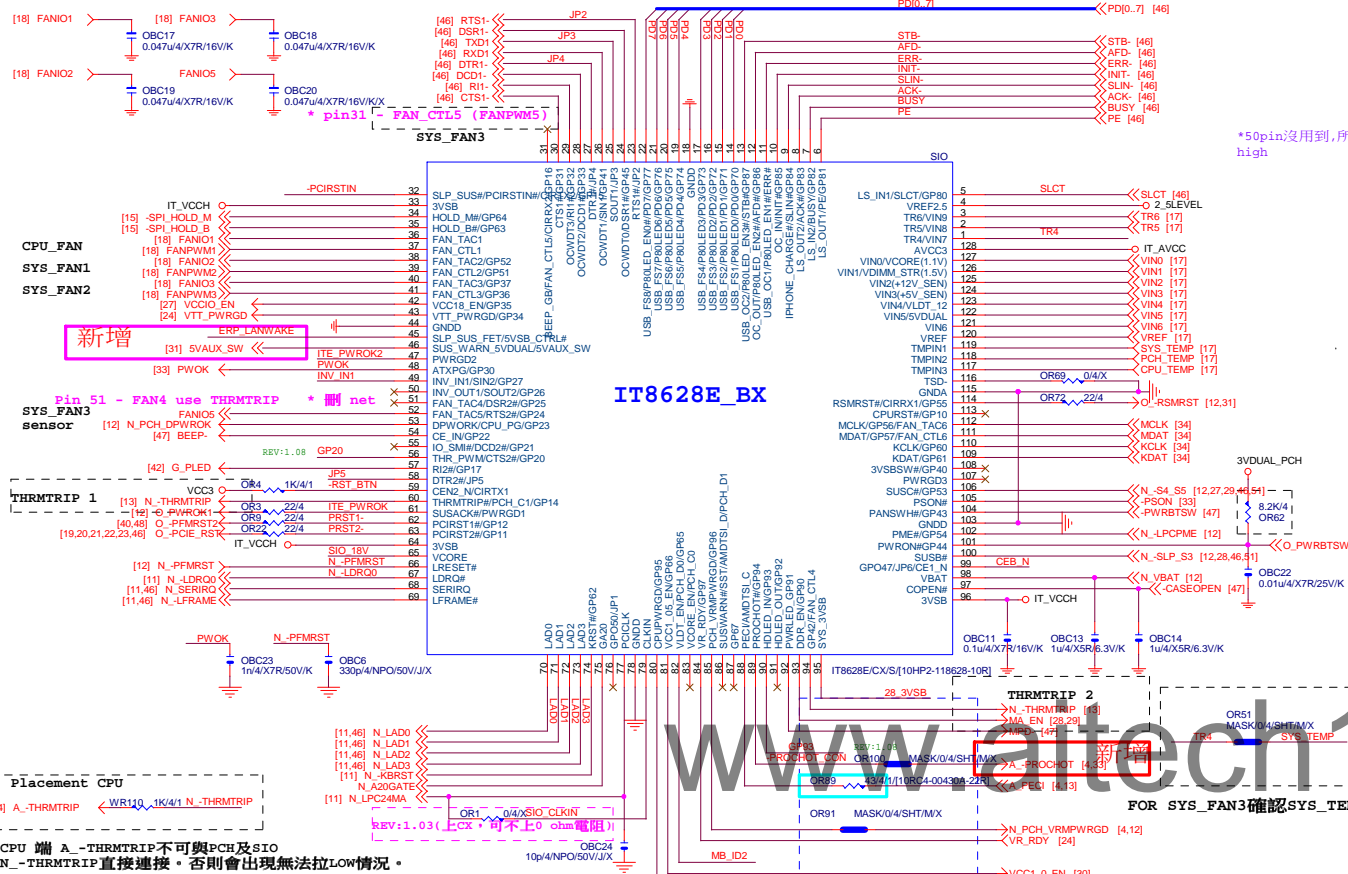
www.aitech1.ru



footprint :BIOS2X5-RH-1 * 試産先上 , PVT mask

<i>Gigabyte Technology</i>			
Title		BIOS	
Size Custom	Document Number	GA-H170-HD3	Rev 1.02
Date:	Tuesday, Jul 14, 2015	Sheet 15 of 52	

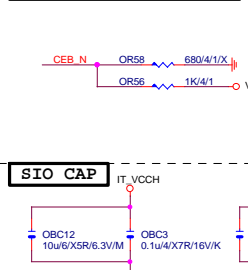
SIO IT8628BX REV:1.08



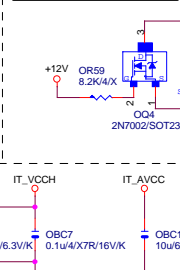
FAN TABLE	
CPU_FAN	FAN_CTL1 FAN_TAC1
SYS_FAN1	FAN_CTL2 FAN_TAC2
SYS_FAN2	FAN_CTL3 FAN_TAC3
SYS_FAN3	FAN_CTL5 FAN_TAC5
OPT_FAN or SYS_FAN4	N/A
THRMTrip1	YES PIN60
THRMTrip2	YES PIN94

IT8620E 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PAN6 FUNCTION 擇一使用, 不然會互相干擾
PIN 22	PIN23, 需高於3V, 若低於此部分COM PORT及LPT裝置 蜂鳴器會異常動作。

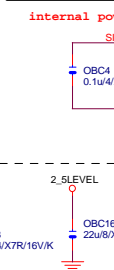
DUAL BIOS OPT STRAP



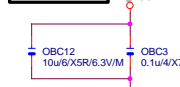
Power leakage



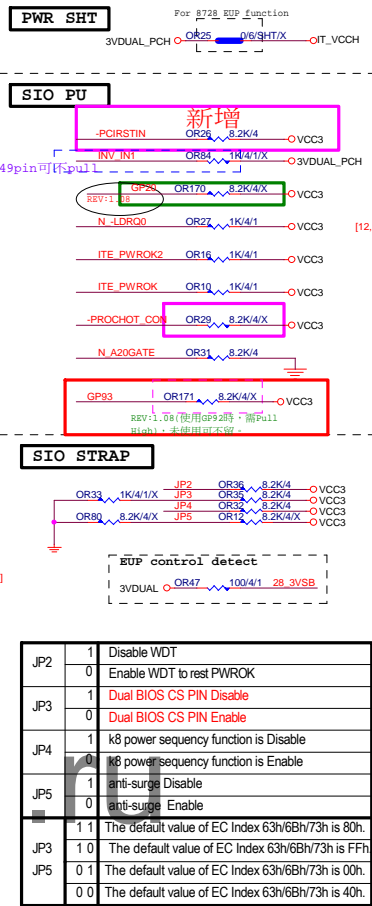
SIO_18V



SIO CAP

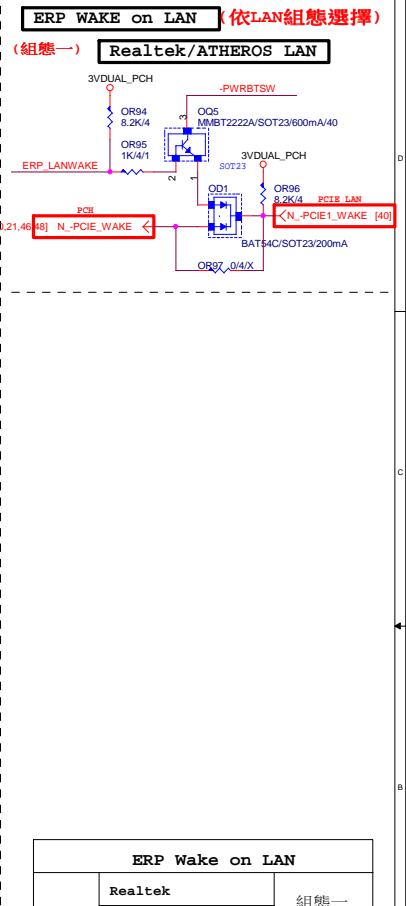


CLOSE SIO PIN4 2_5LEVEL



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

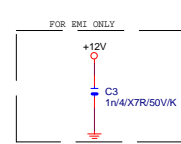
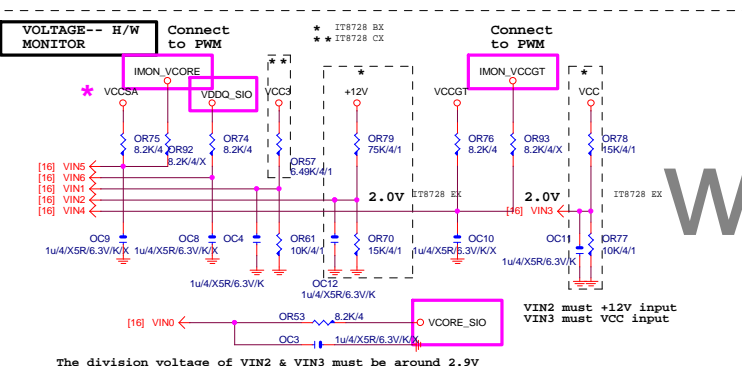
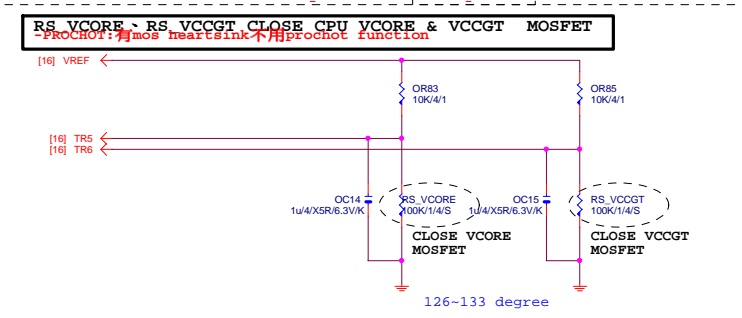
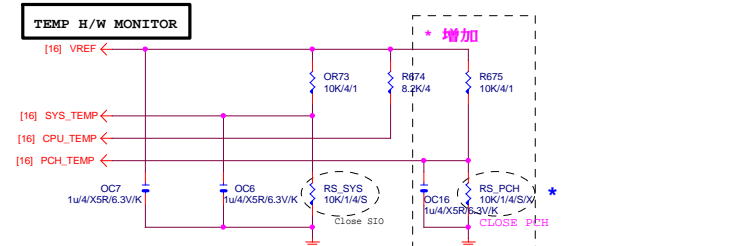
MB ID



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

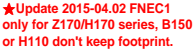
Gigabyte Technology		
ITE 8628 LPC IO		
Size	Document Number	Rev
Custom	GA-H170-HD3	1.02
Date:	Tuesday, July 14, 2015	Sheet 16 of 52

REV:1.07



Rev: 0.7

CPU SMART FAN



SYSTEM FAN1

Linear SYS_FAN

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



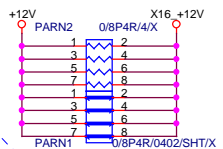
SYSTEM FAN2



SYSTEM FANX



Rev 0.1

* +12 protect
short-wire test

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

PA_EXP_TXP0	PAC5	0.22u4/X5R/6.3V/K	PA_EXP_TXP0 C
PA_EXP_TXN0	PAC4	0.22u4/X5R/6.3V/K	PA_EXP_TXN0 C
PA_EXP_TXP1	PAC6	0.22u4/X5R/6.3V/K	PA_EXP_TXP1 C
PA_EXP_TXN1	PAC7	0.22u4/X5R/6.3V/K	PA_EXP_TXN1 C
PA_EXP_TXP2	PAC8	0.22u4/X5R/6.3V/K	PA_EXP_TXP2 C
PA_EXP_TXN2	PAC9	0.22u4/X5R/6.3V/K	PA_EXP_TXN2 C
PA_EXP_TXP3	PAC10	0.22u4/X5R/6.3V/K	PA_EXP_TXP3 C
PA_EXP_TXN3	PAC11	0.22u4/X5R/6.3V/K	PA_EXP_TXN3 C
PA_EXP_TXP4	PAC12	0.22u4/X5R/6.3V/K	PA_EXP_TXP4 C
PA_EXP_TXN4	PAC13	0.22u4/X5R/6.3V/K	PA_EXP_TXN4 C
PA_EXP_TXP5	PAC14	0.22u4/X5R/6.3V/K	PA_EXP_TXP5 C
PA_EXP_TXN5	PAC15	0.22u4/X5R/6.3V/K	PA_EXP_TXN5 C
PA_EXP_TXP6	PAC16	0.22u4/X5R/6.3V/K	PA_EXP_TXP6 C
PA_EXP_TXN6	PAC17	0.22u4/X5R/6.3V/K	PA_EXP_TXN6 C
PA_EXP_TXP7	PAC18	0.22u4/X5R/6.3V/K	PA_EXP_TXP7 C
PA_EXP_TXN7	PAC19	0.22u4/X5R/6.3V/K	PA_EXP_TXN7 C
PA_EXP_TXP8	PAC21	0.22u4/X5R/6.3V/K	PA_EXP_TXP8 C
PA_EXP_TXN8	PAC20	0.22u4/X5R/6.3V/K	PA_EXP_TXN8 C
PA_EXP_TXP9	PAC22	0.22u4/X5R/6.3V/K	PA_EXP_TXP9 C
PA_EXP_TXN9	PAC23	0.22u4/X5R/6.3V/K	PA_EXP_TXN9 C
PA_EXP_TXP10	PAC24	0.22u4/X5R/6.3V/K	PA_EXP_TXP10 C
PA_EXP_TXN10	PAC25	0.22u4/X5R/6.3V/K	PA_EXP_TXN10 C
PA_EXP_TXP11	PAC26	0.22u4/X5R/6.3V/K	PA_EXP_TXP11 C
PA_EXP_TXN11	PAC27	0.22u4/X5R/6.3V/K	PA_EXP_TXN11 C
PA_EXP_TXP12	PAC28	0.22u4/X5R/6.3V/K	PA_EXP_TXP12 C
PA_EXP_TXN12	PAC29	0.22u4/X5R/6.3V/K	PA_EXP_TXN12 C
PA_EXP_TXP13	PAC30	0.22u4/X5R/6.3V/K	PA_EXP_TXP13 C
PA_EXP_TXN13	PAC31	0.22u4/X5R/6.3V/K	PA_EXP_TXN13 C
PA_EXP_TXP14	PAC32	0.22u4/X5R/6.3V/K	PA_EXP_TXP14 C
PA_EXP_TXN14	PAC33	0.22u4/X5R/6.3V/K	PA_EXP_TXN14 C
PA_EXP_TXP15	PAC34	0.22u4/X5R/6.3V/K	PA_EXP_TXP15 C
PA_EXP_TXN15	PAC35	0.22u4/X5R/6.3V/K	PA_EXP_TXN15 C

PCIEX16:16/5/5/5/16

PCI-E REV:1.1--> 2.5GHZ

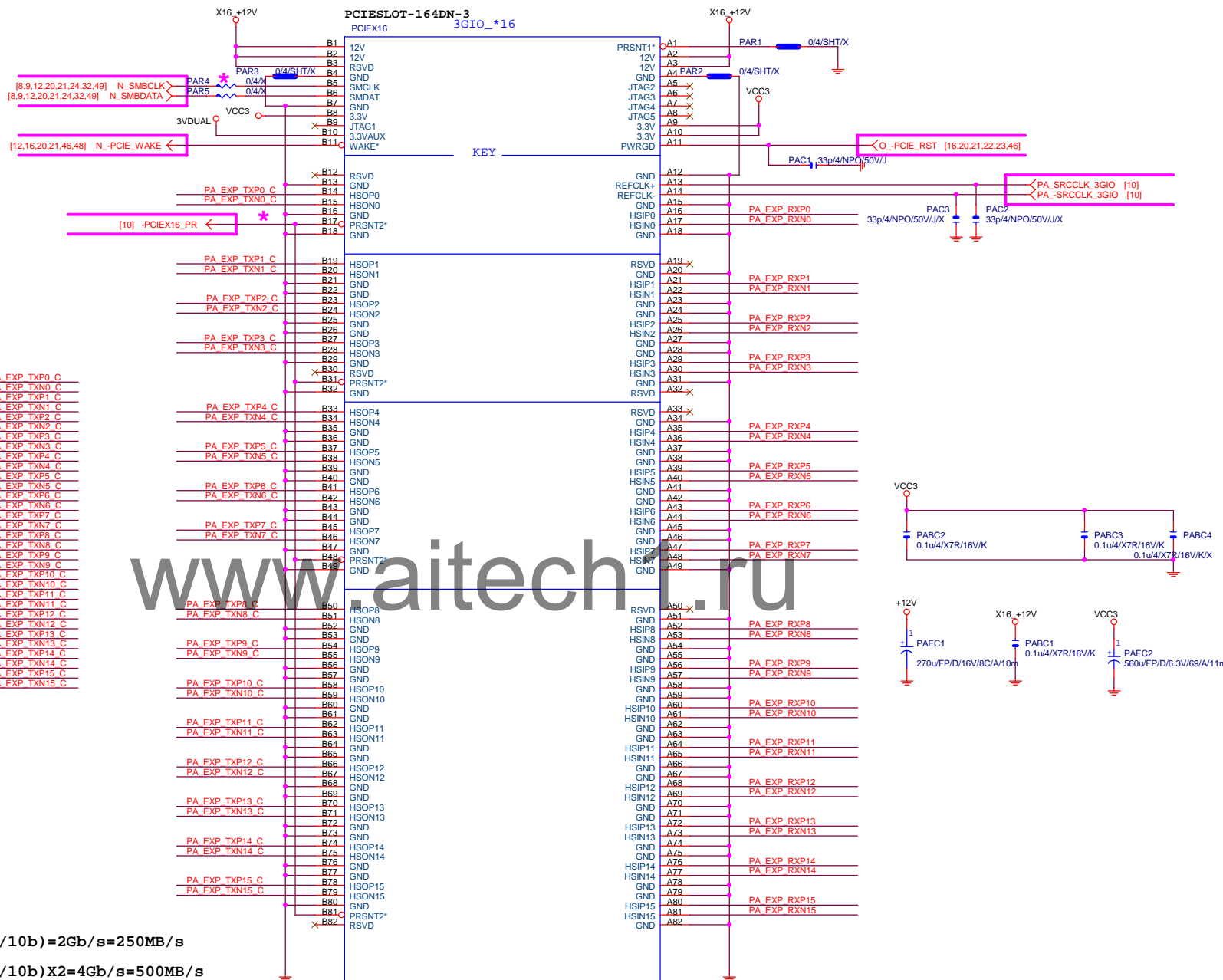
PCE-E X1(單向) BANDWIDTH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

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

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

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

PCI-E REV:2.0--> 5GHZ



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

PCIEX16需更新無強化孔的Footprint

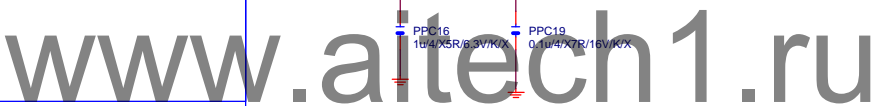
一般Footprint :PCIESLOT-164P

Gigabyte Technology

Title			PCI EXPRESS * 16	
Size			Document Number	
Custom			GA-H170-HD3	
Date:			Tuesday, July 14, 2015	Sheet 19 of 52
			2	1

Rev 1.02

PCIE*4



一般Footprint PCIESLOT-64P-1

PCIEX1 SLOT



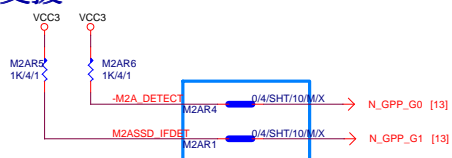
M.2 Lane4 from PCH port18

M.2 Lane3 from PCH port17

M.2 Lane2 from PCH port16

M.2 Lane2 from PCH port15

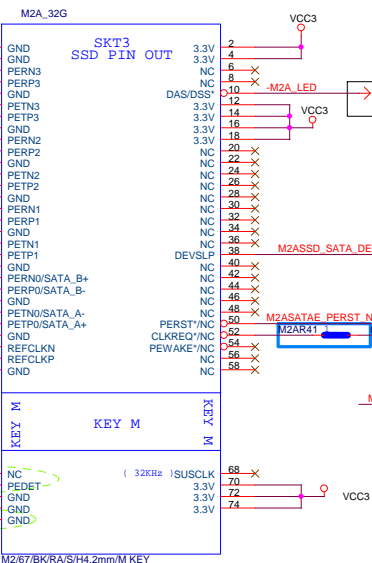
支援SATA and M.2 function



需與M2_-CLKREQ對應

SATA : GND
PCIE : NC

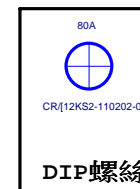
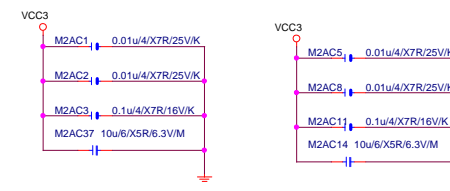
M2插卡時為Low

M2ASATAE PERST_N
M2AR4
M2A7
10p/4/NPO/50V/J/X

DIP螺柱



CR[12KSF-F10303-01R]



DIP螺絲

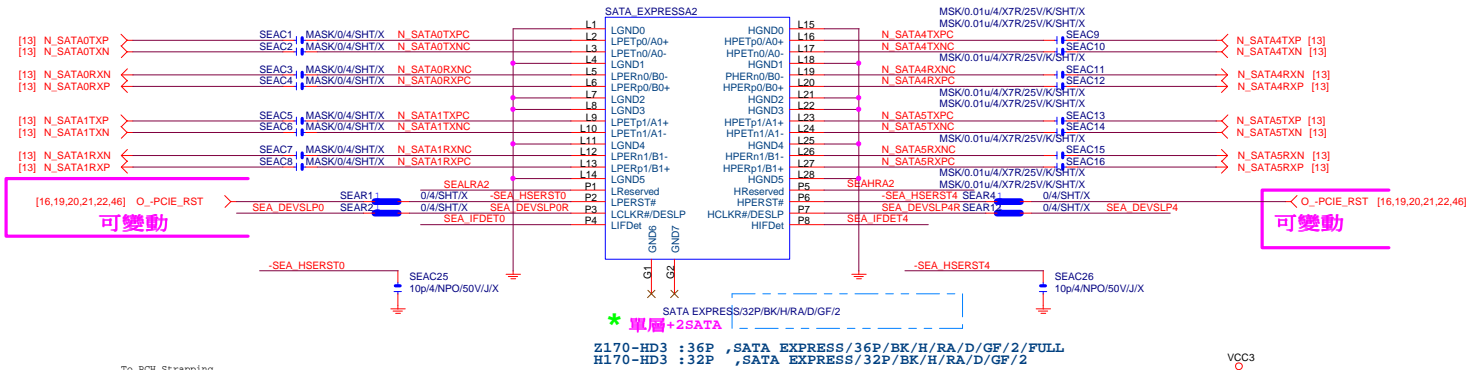
SMD螺柱



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	

SATA EXPRESS 下層 To SATA3
port0/1

SATA EXPRESS 上層 To SATA3
port4/5



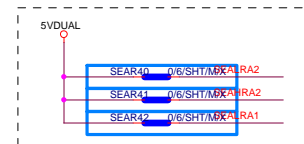
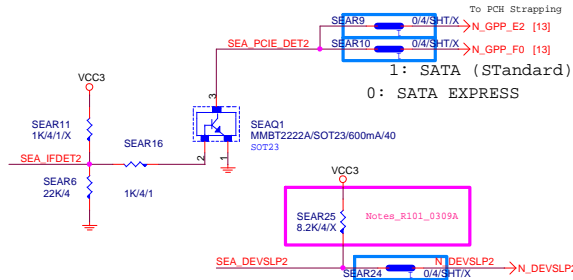
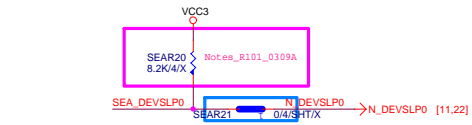
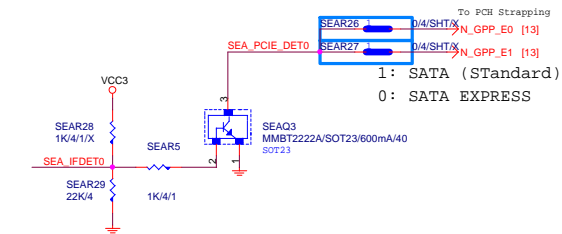
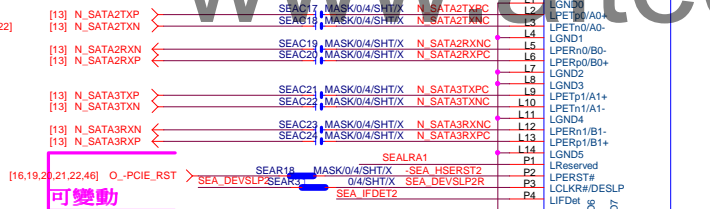
SATA EXPRESS料號

雙層:11NR6-C10236-11R

單層+2SATA : 11NR6-C10232-11R

單層:11NR6-C10118-31R

To SATA3
port2/3



SATA 5 (文字面寫SATA 1)
SATA 4 (文字面寫SATA 0)
SATA 3
SATA 2
SATA 1 (文字面寫SATA 5)
SATA 0 (文字面寫SATA 4)

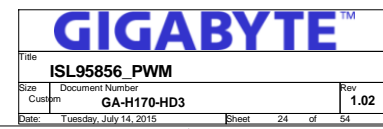
Gigabyte Technology

SATA EXPRESS

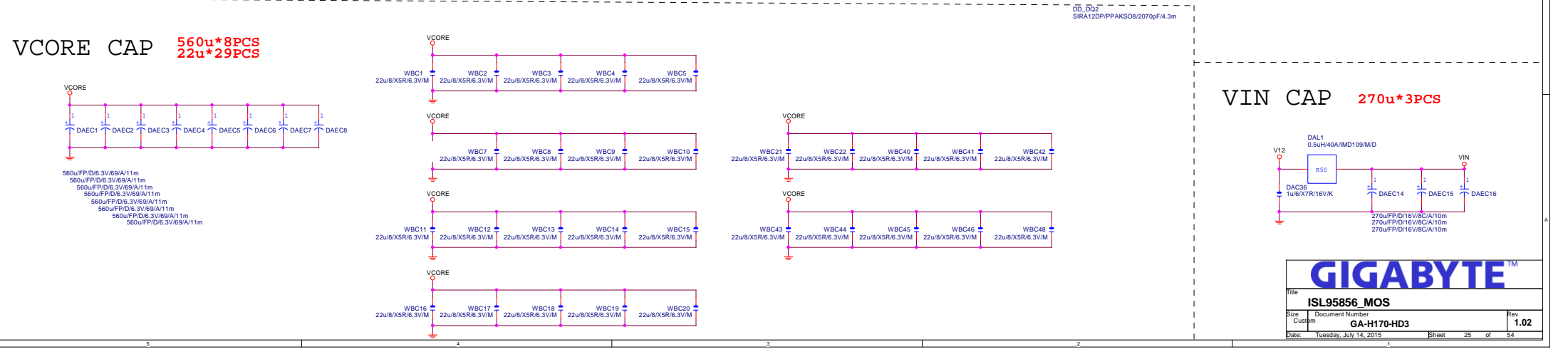
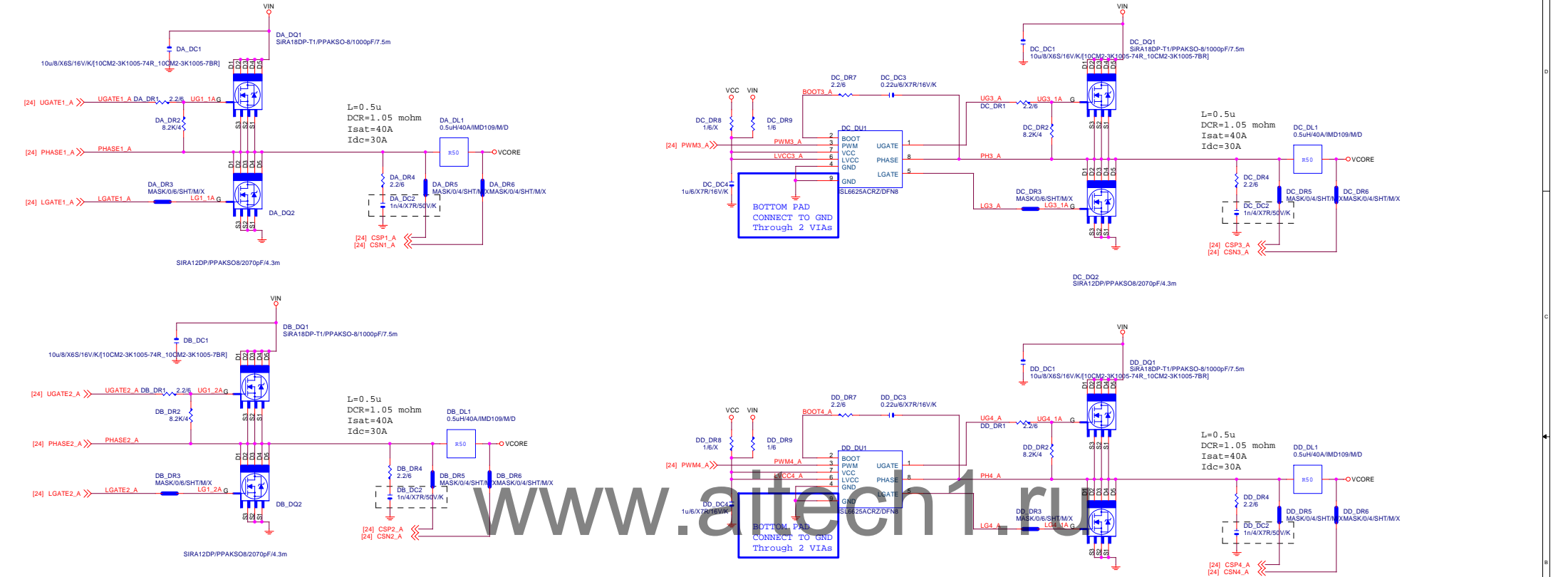
GA-H170-HD3

Rev
1.02

Date: Tuesday, July 14, 2015 Sheet 23 of 52

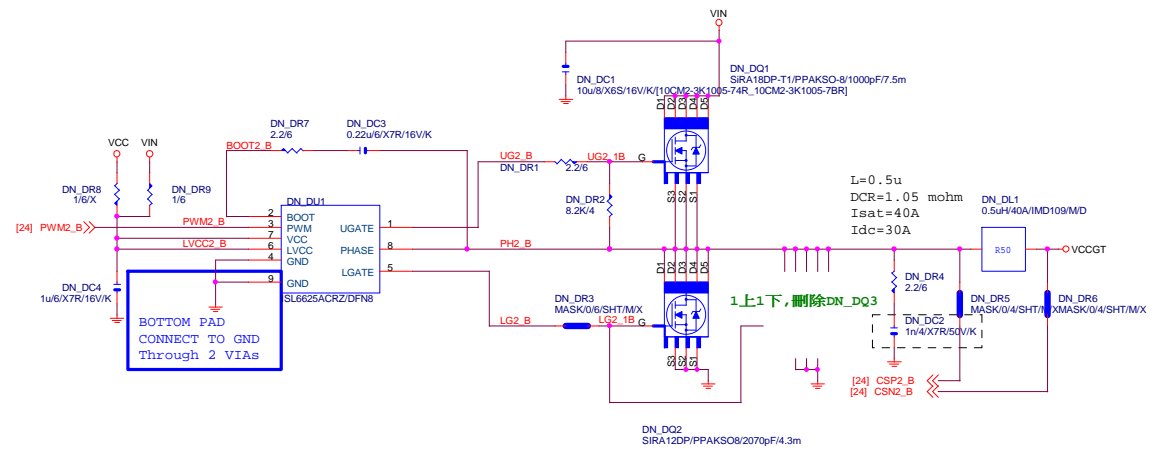
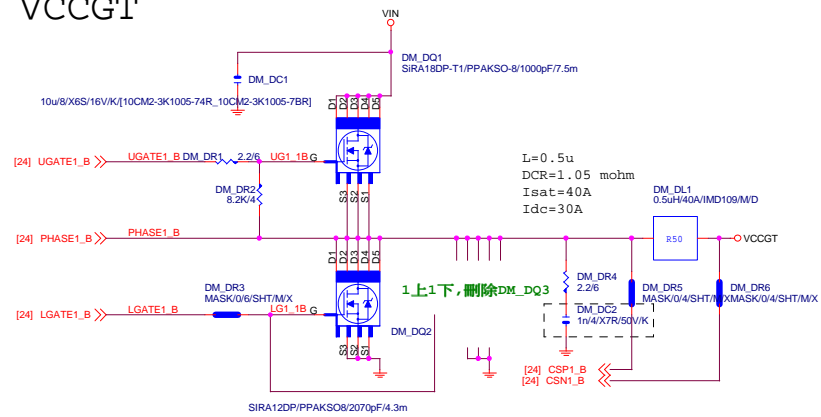
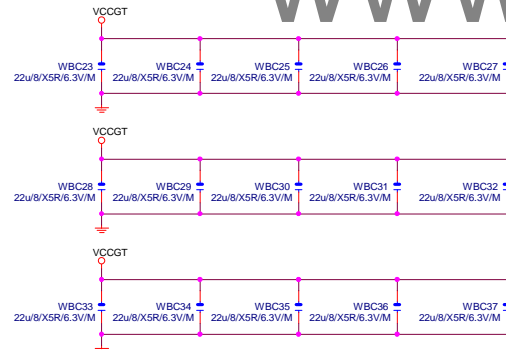
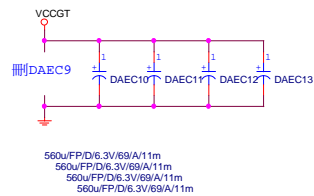


VCORE

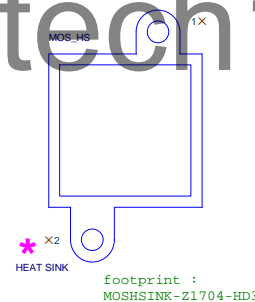


GIGABYTE™		
ISL95856_MOS		
Size	Document Number	Rev
Custom	GA-H170-HD3	1.02
Date:	Tuesday, July 14, 2015	Sheet 25 of 54

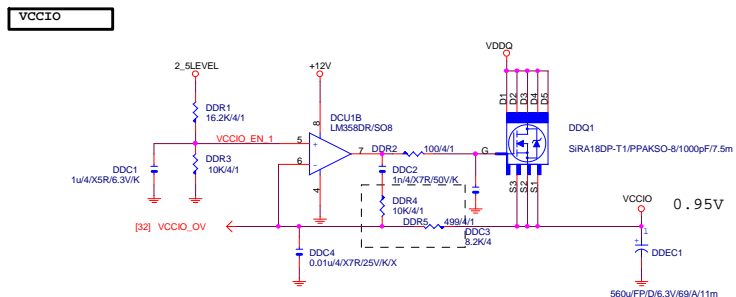
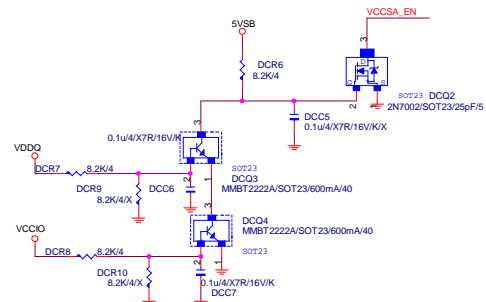
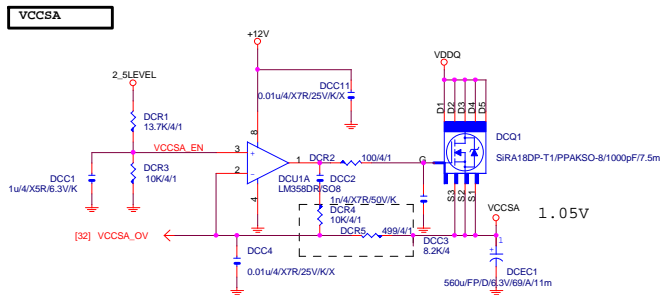
VCCGT

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

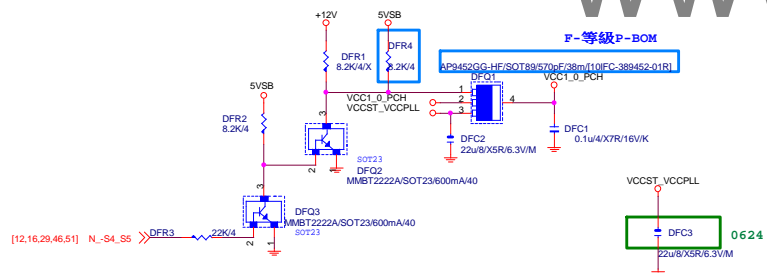
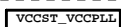
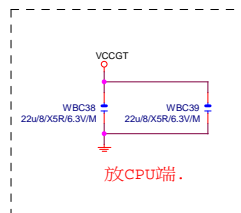
www.aitech1.ru



GIGABYTE™			
Title			
ISL95856_MOS			
Size	Document Number	Rev	
Custom	GA-H170-HD3	1.02	
Date:	Tuesday, July 14, 2015	Sheet	26 of 54

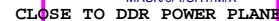


Connect to IT8620



www.aitech1.ru

DDR4



1.2V

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

Remote sense請從最重的負載端點拉回

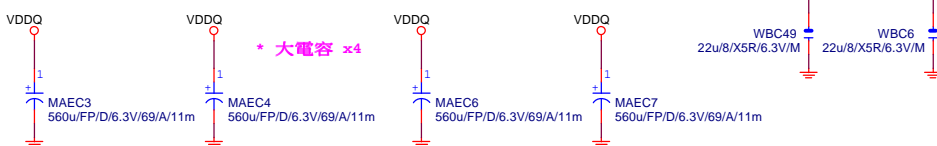


For PVT : for chang Mode=>
MAR110/MAR111不能改short pad

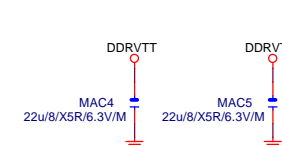
DDR_VTT_CTL	MAR110	0/4	DDRVTT_EN
N -SLP_S3	MAR111	0/4	DDRVTT_BOOT

MAU1上NCT3103S時上件

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

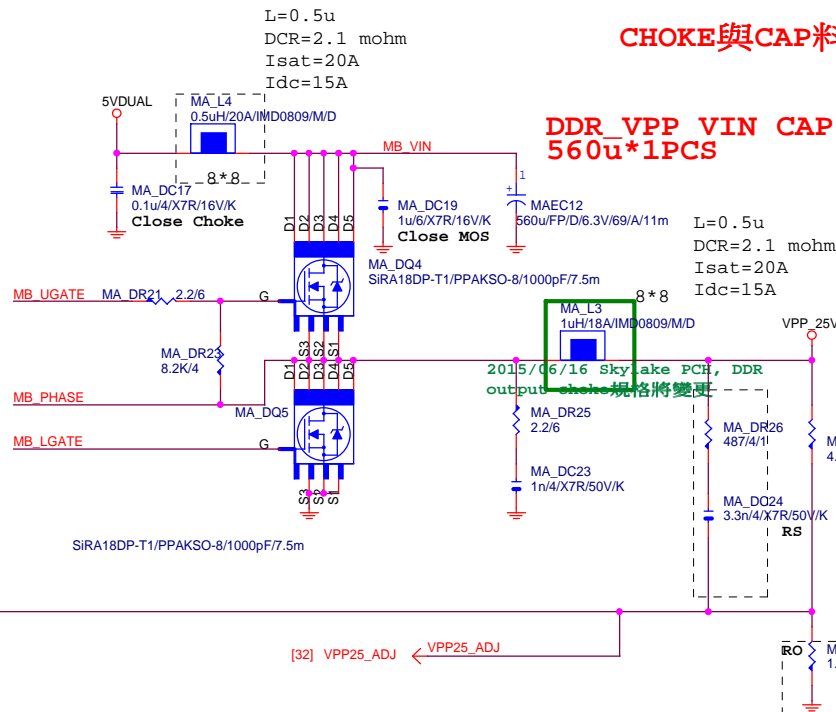


DDRVTT CAP

**GIGABYTE™**

Title			
RT8120_DDR4 POWER			
Size	Document Number	Rev	
Custom	GA-H170-HD3	1.02	
Date:	Tuesday, July 14, 2015	Sheet	28 of 52

VPP_25V



CHOKES與CAP料號可變

DDR_VPP VIN CAP
560u*1PCS

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

SUPPORT DDR4 2.5V

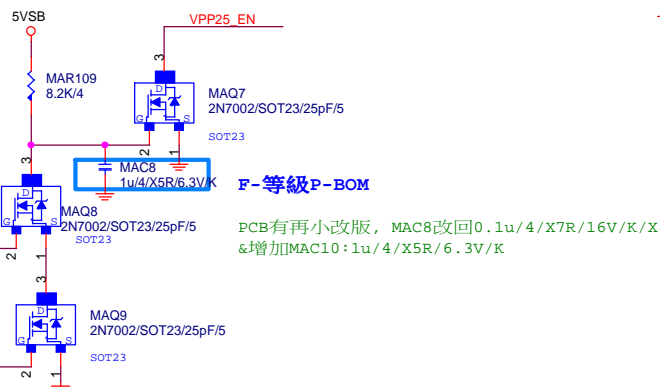
25A MAX

2015/06/16 Skylake PCH, DDR3
output check規格將變更

Remote sense請從最重的負載端點拉回

PWR SEQ

*  MA_DR32



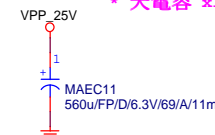
F-等級P-BOM

PCB有再小改版, MAC8改回0.1u/4/X7R/16V/K/X
&增加MAC10:1u/4/X5R/6.3V/K

www.aitech1.ru

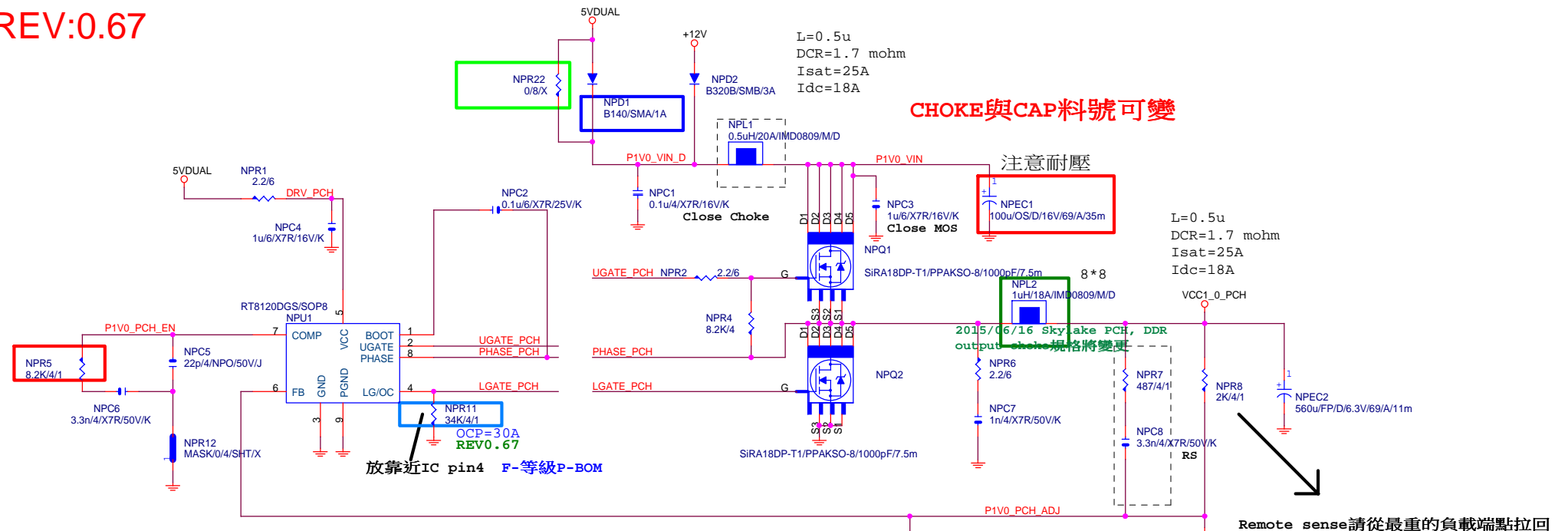
VPP CAP 560u*1PCS

* 大電容 x1

**GIGABYTE™**

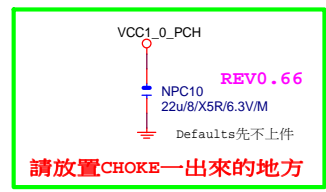
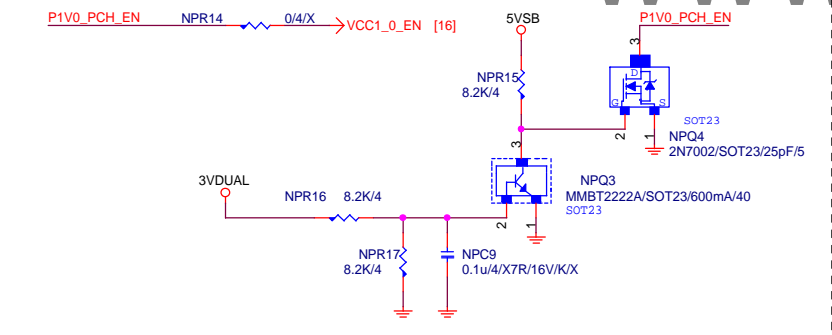
Title			
RT8120_VPP25 POWER			
Size	Document Number	Rev	
Custom	GA-H170-HD3	1.02	
Date:	Tuesday, July 14, 2015	Sheet	29 of 52

REV:0.67



PWR_SEQ

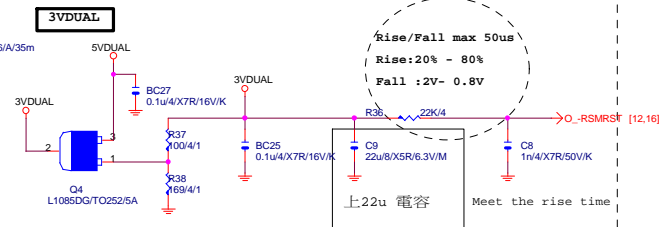
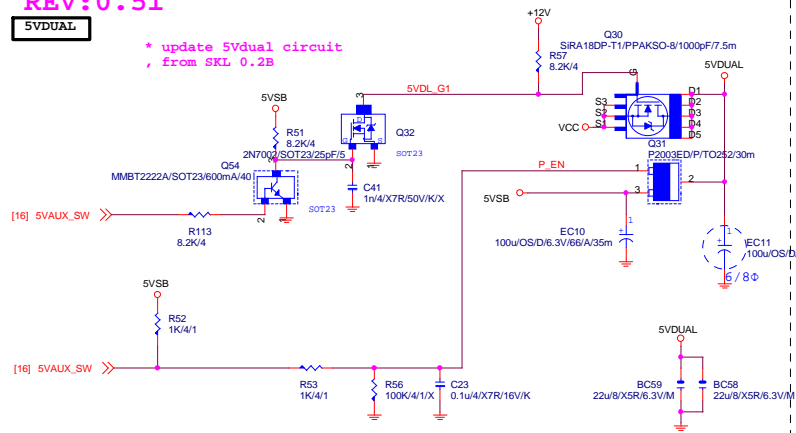
www.aitech1.ru



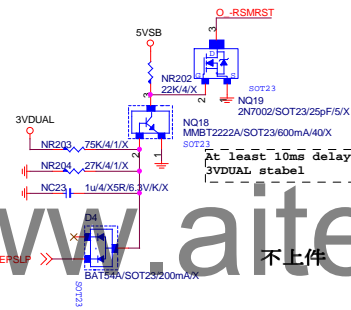
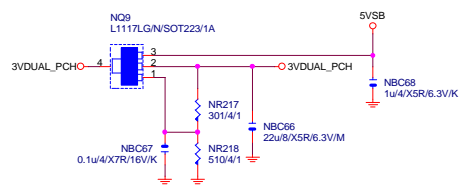
GIGABYTE™			
Title			
RT8120_PCH POWER			
Size	Document Number	Rev	
Custom	GA-H170-HD3	1.02	
Date:	Tuesday, July 14, 2015	Sheet	30 of 52

5VDUAL

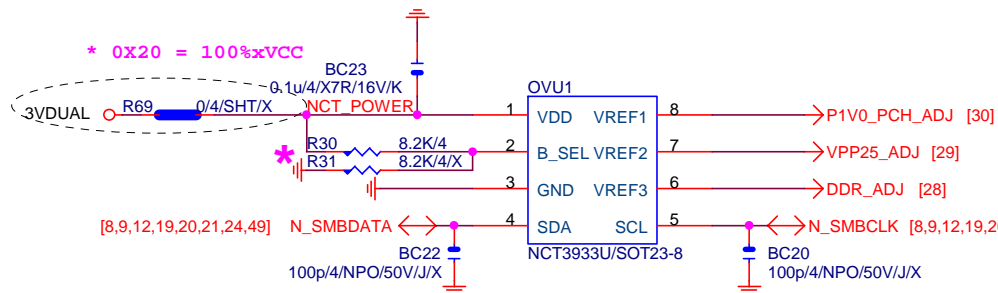
```
* update 5Vdual circuit
, from SKL 0.2B
```



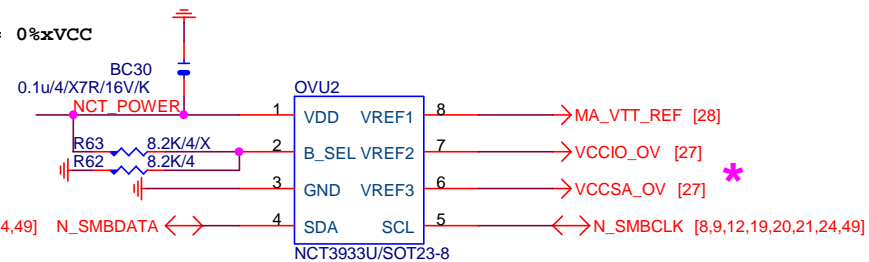
3VDUAL_PCH



OVER VOLTAGE



0X2A = 0%xVCC



0X22 = 75%xVCC

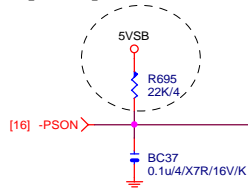
* 删除 OVU3

NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

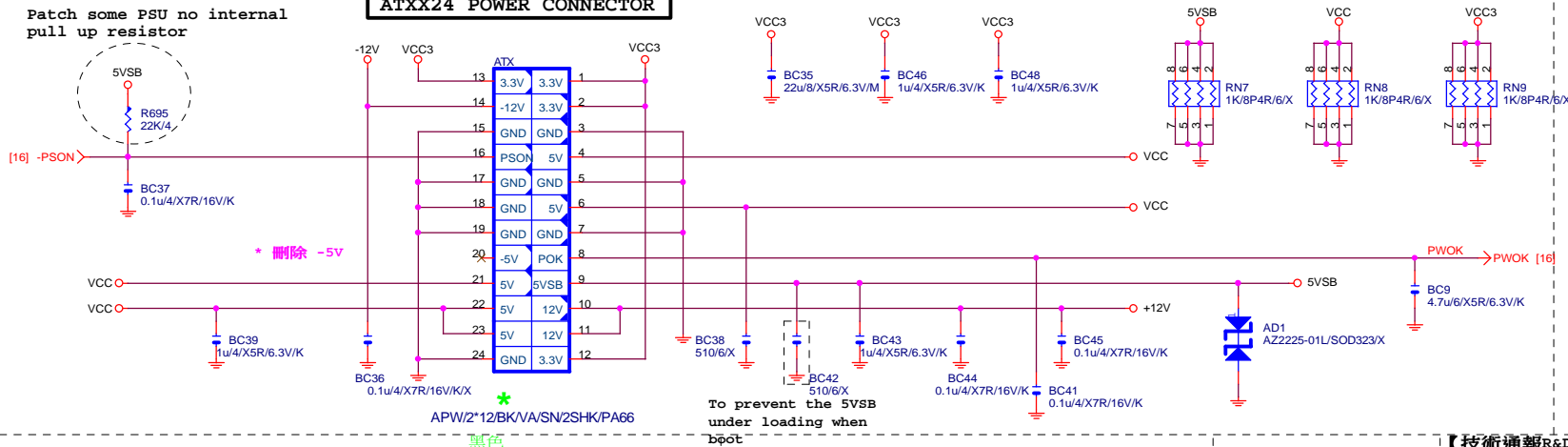
Gigabyte Technology

Title		
CPU CORE VR-2		
Size	Document Number	Rev
Custom	GA-H170-HD3	1.02
Date:	Tuesday, July 14, 2015	Sheet 32 of 52

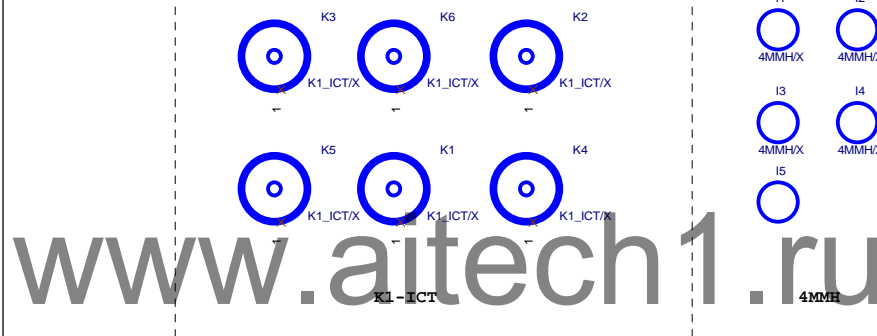
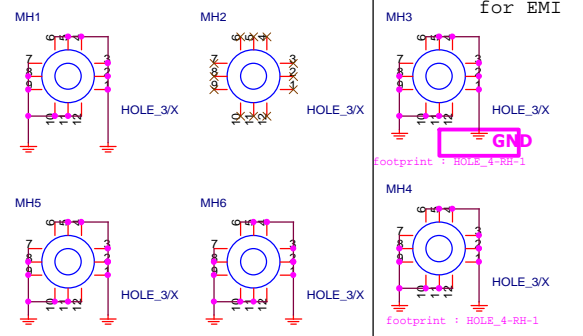
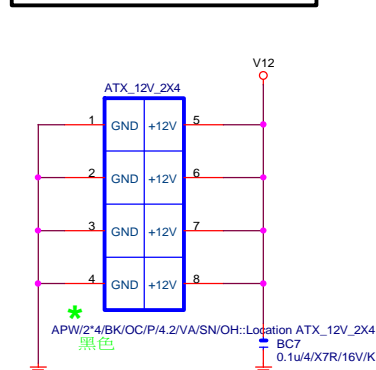
Patch some PSU no internal pull up resistor



ATXX24 POWER CONNECTOR

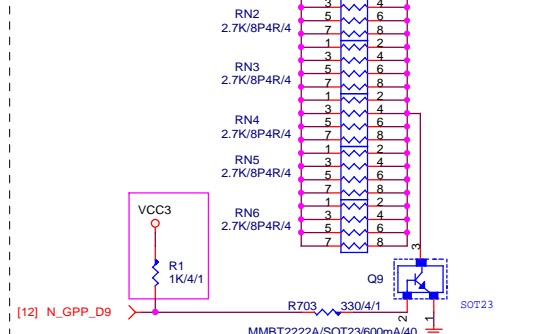


ATXX4 POWER CONNECTOR



【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

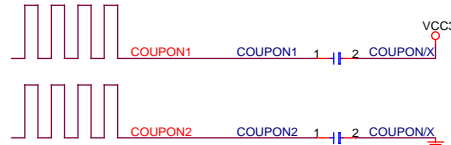


www.aitech1.ru

-PROHOT



COUPON



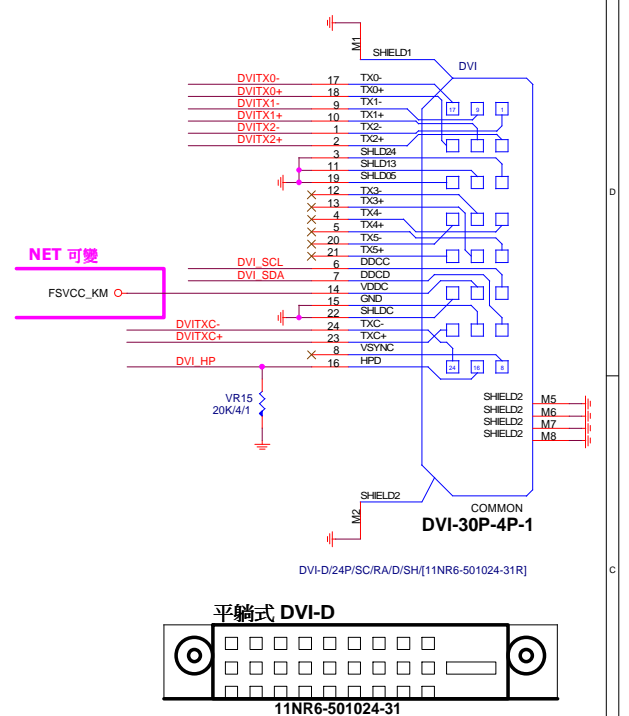
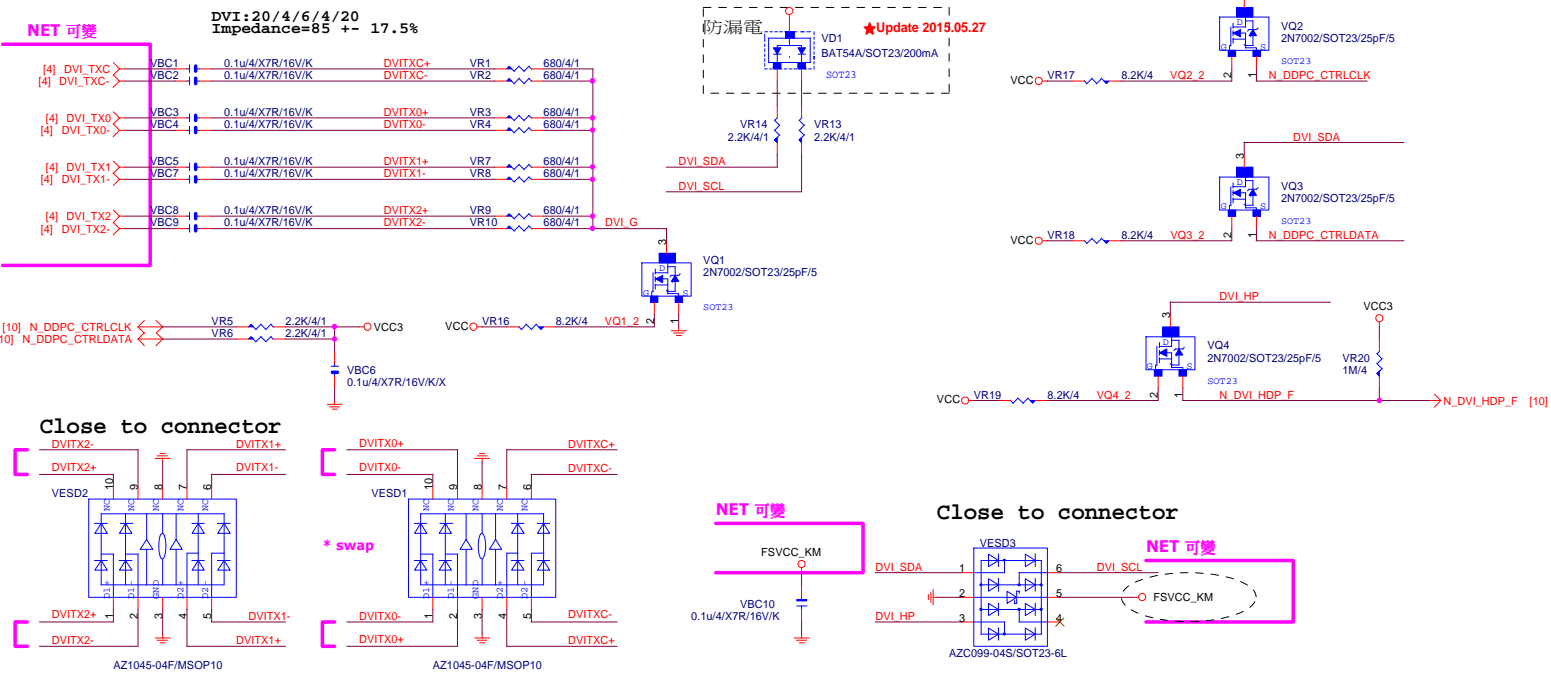
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-H170-HD3	1.02
Date:	Tuesday, July 14, 2015	Sheet 33 of 52



USB_DAC

www.aitech1.ru



www.aitech1.ru

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]

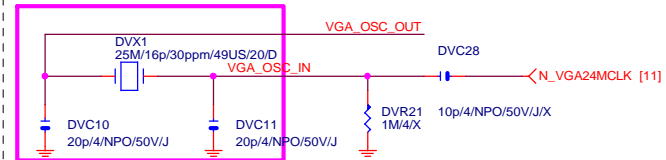
2. 删除:

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

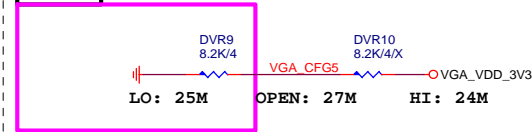
DVC10 [20p/4/NPO/50V/J]

DVR9 [8.2K/4]

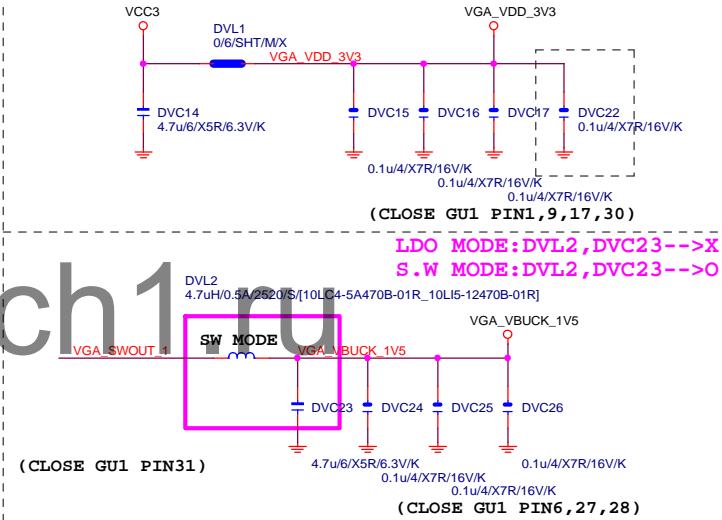
25M Crystal FROM PCH 24MHZ ISSUE



CFG5 For Crystal Less

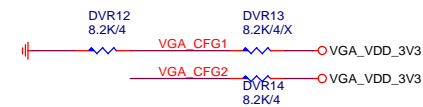


ADAPTER POWER

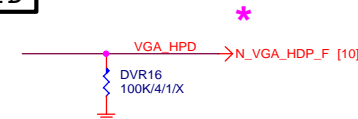


CFG1&2

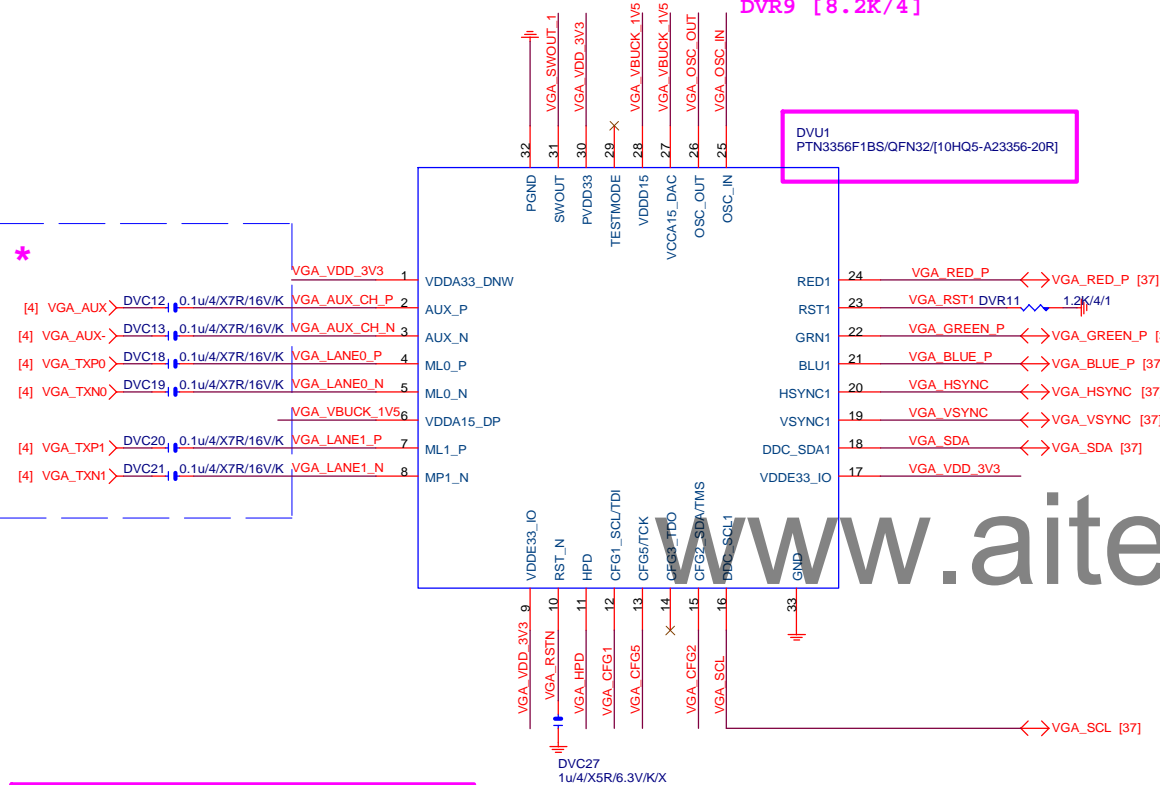
Non-Compliant



HPD

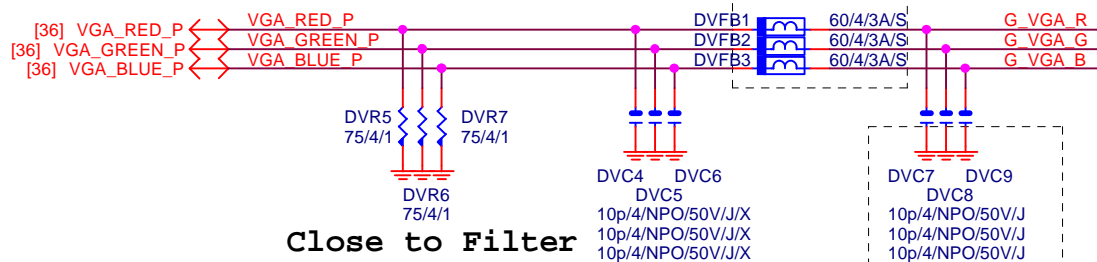
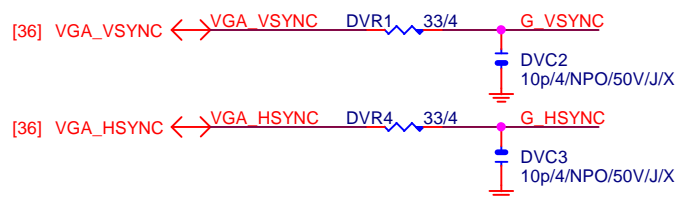
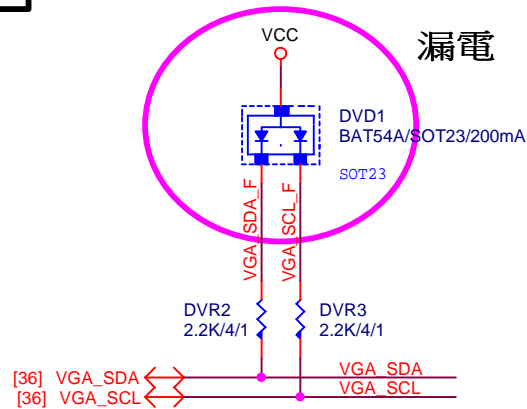
Gigabyte Technology
NXP-PTN3356

Title	GA-H170-HD3	Rev	1.02
Size	Document Number		
Custom			
Date:	Tuesday, July 14, 2015	Sheet	36 of 52



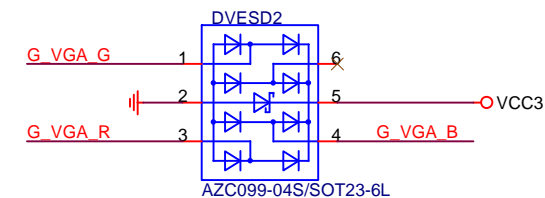
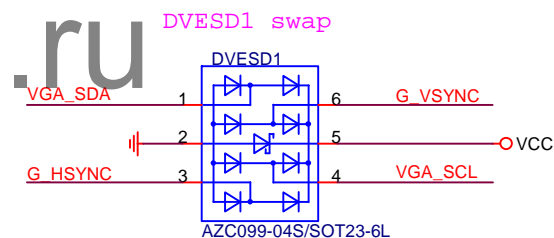
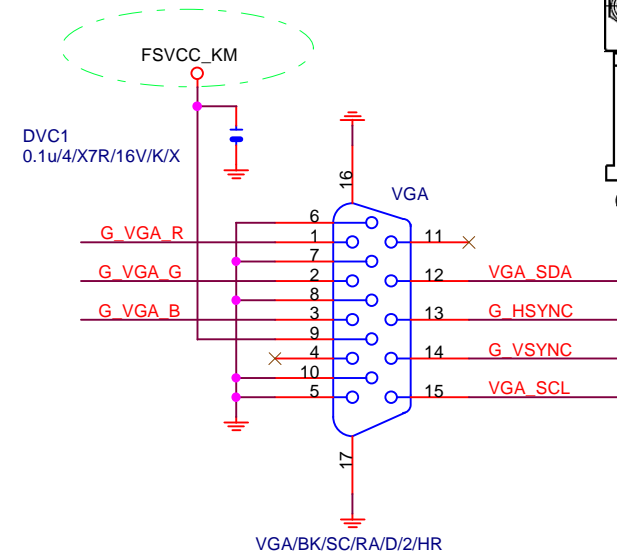
放置PCH端





Close to Filter

FOR EMI



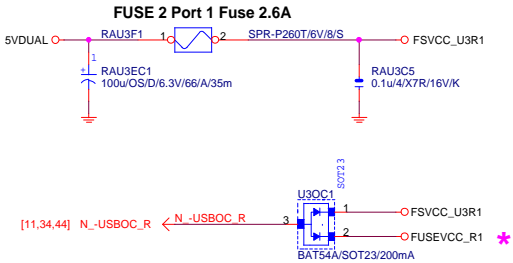
Gigabyte Technology
NXP-PTN3356

Size Custom Document Number GA-H170-HD3

Rev 1.02

Date: Tuesday, July 14, 2015 Sheet 37 of 52

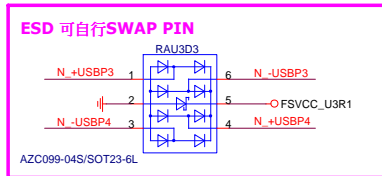
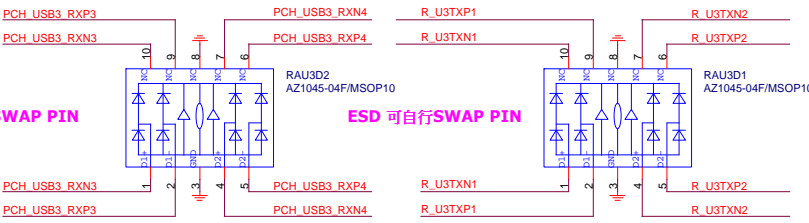
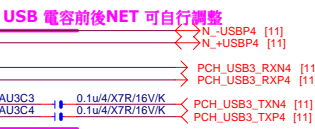
R_USB30_1



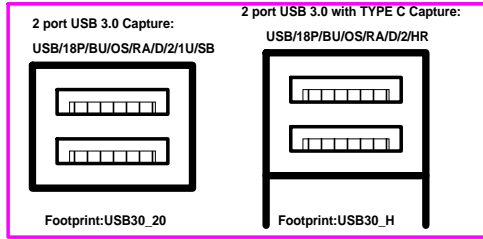
R_USB30_2

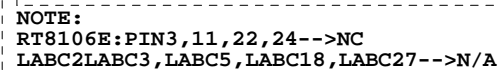
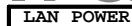
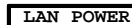
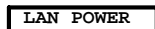
KB_MS_USB3

www.aitech1.ru



CONNECTOR 自行調整



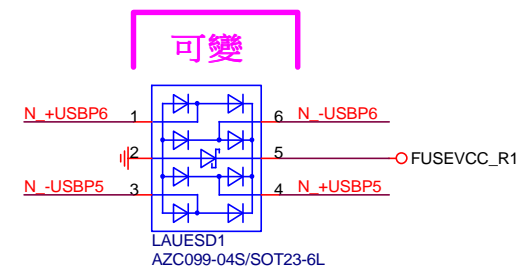


GA-H170-HD3

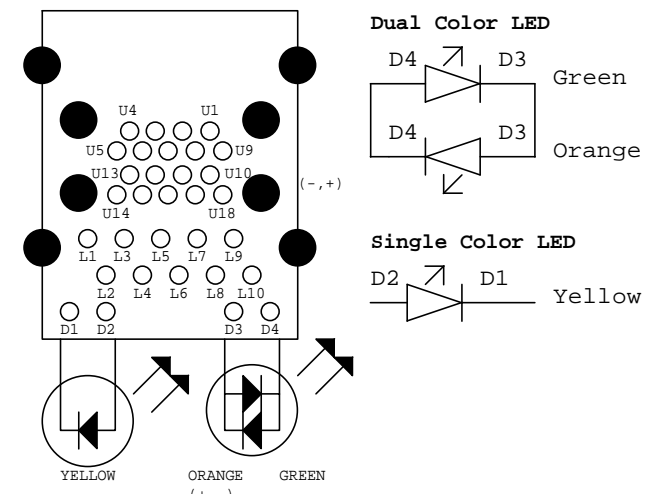
Title			
<p align="center">Signabyte Technology Realtek RTL8111GUS</p>			
Size Custom	Document Number		Rev
	GA-H170-HD3		1.02
Date:	Tuesday, July 14, 2015	Sheet	40 of 52

USB_LAN CONNECTOR R1.06

RMA ESD PROTECT note:可變更USB NAME



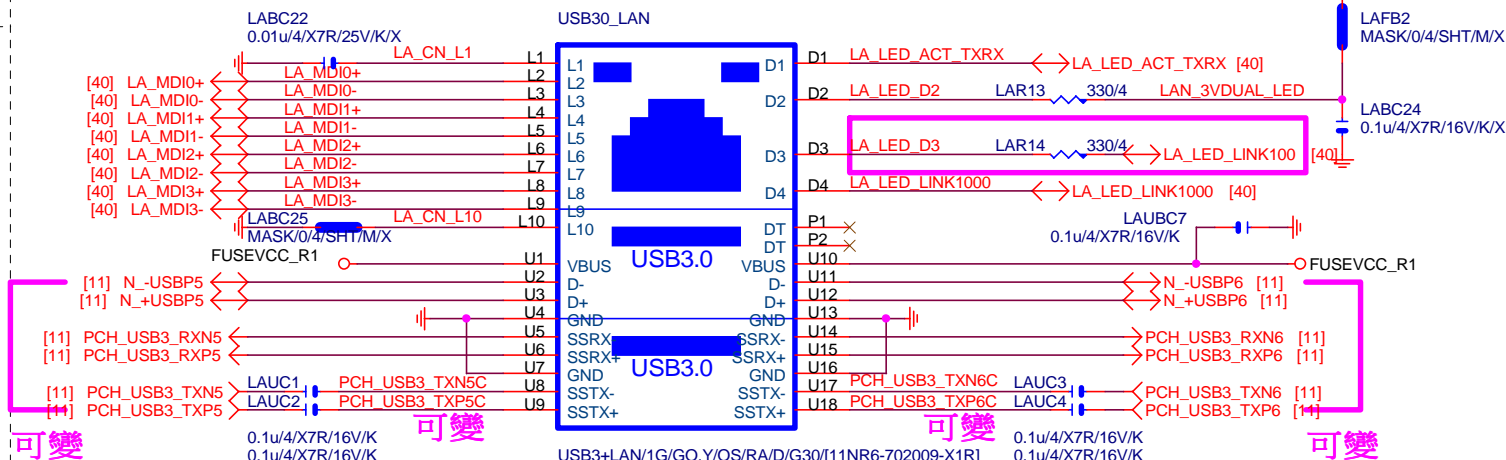
USB30 LAN LAYOUT示意圖



USB_LAN CONNECTOR

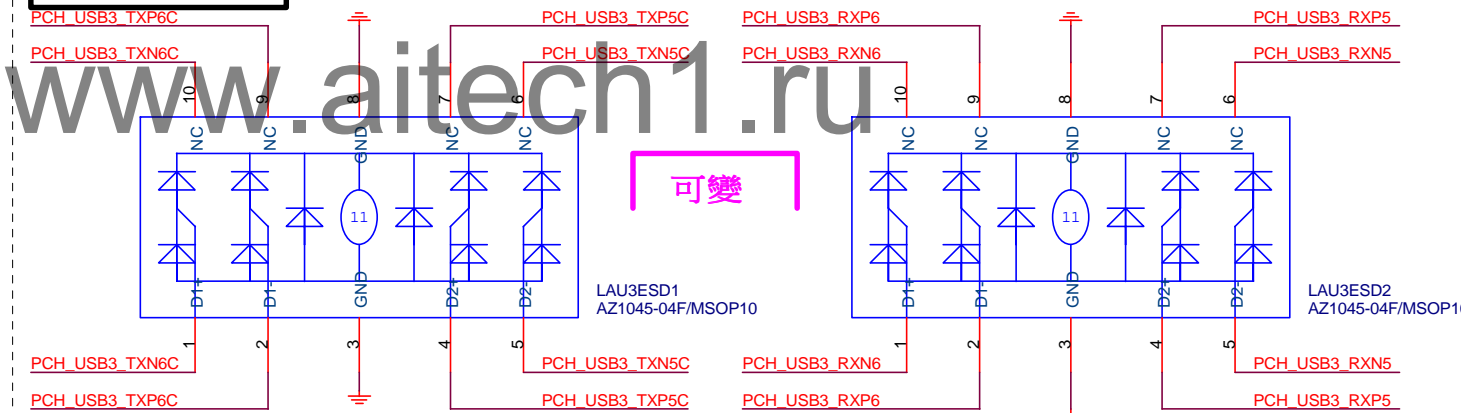
note:可變更USB NAME

[RTL8111GUS]

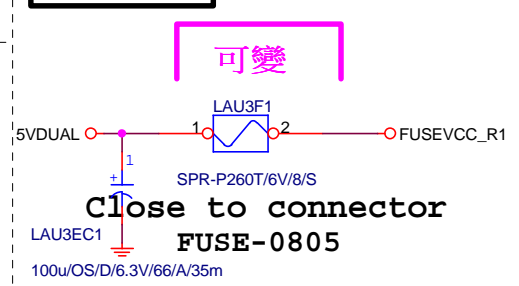


LA_MDI-->100歐姆:[20/4/8/4/20]

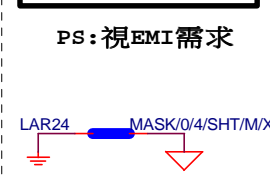
RMA ESD PROTECT note:可變更USB NAME



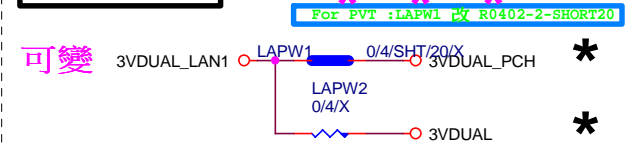
USB POWER note:可變更FUSE



EMI SHORT PAD PS:視EMI需求



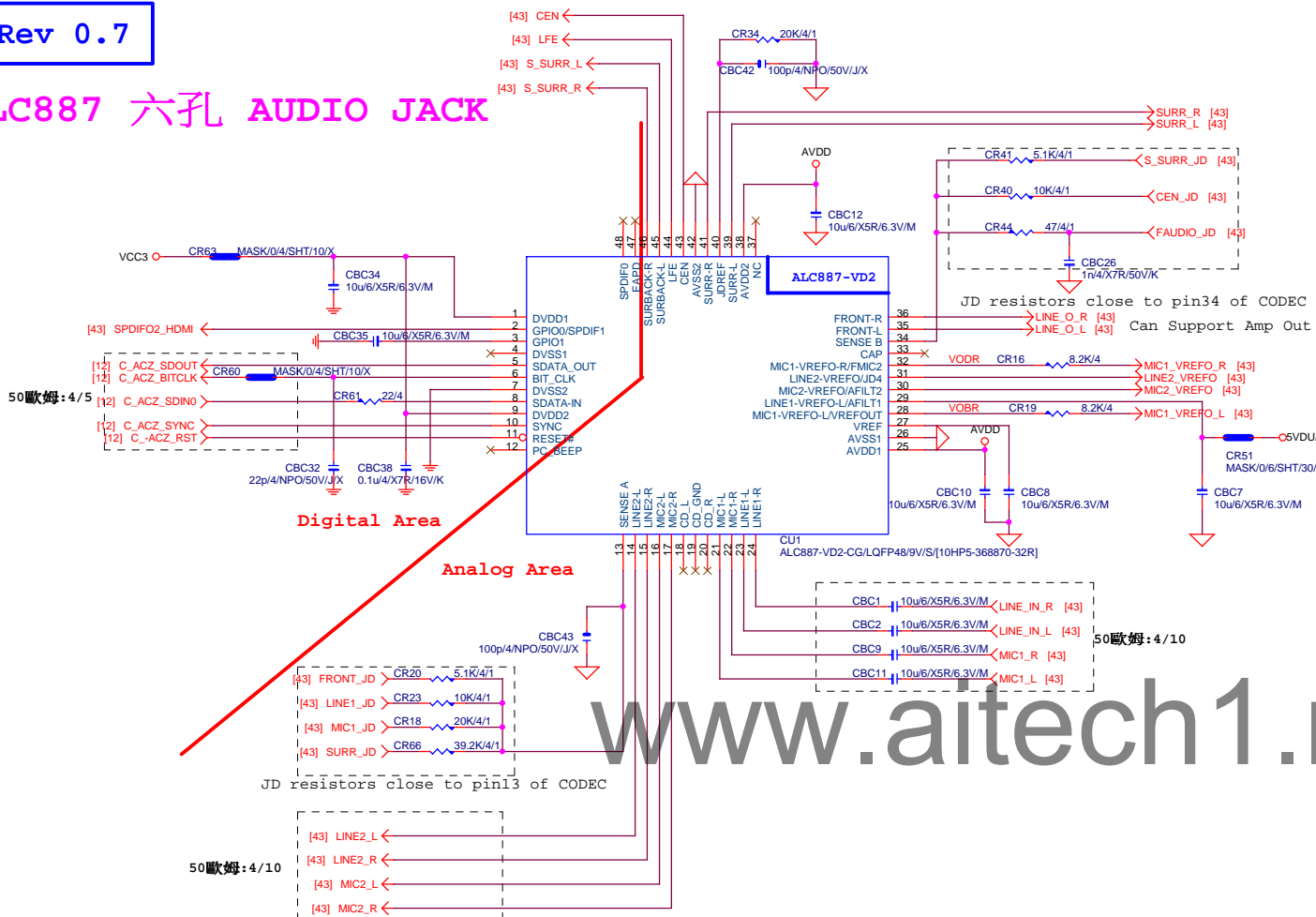
LAN POWER note: lan power連接及電流



Gigabyte Technology			
LAN CONNECTOR-RTL8111GUS			
Title	Document Number	Rev	1.02
Size	Custom	GA-H170-HD3	
Date:	Tuesday, July 14, 2015	Sheet	41 of 52

Rev 0.7

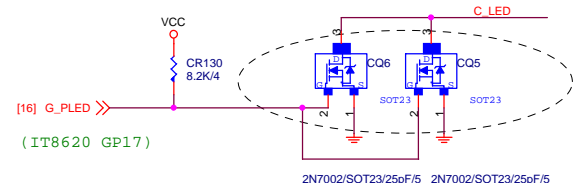
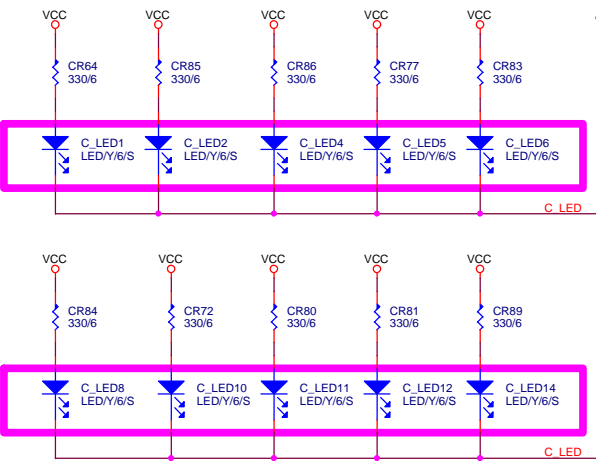
ALC887 六孔 AUDIO JACK



LAYOUT注意: 螺絲孔下GND方式
 1. MH1空間夠, 下DGND
 空間不夠, 才改為Isolate
 2. MH2一律改為Isolate
 3. Codec下方, 第二層必須參考GND

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

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

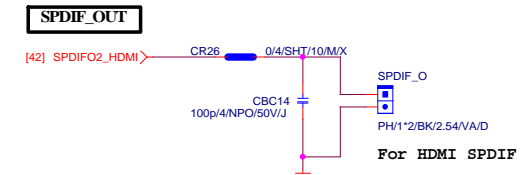
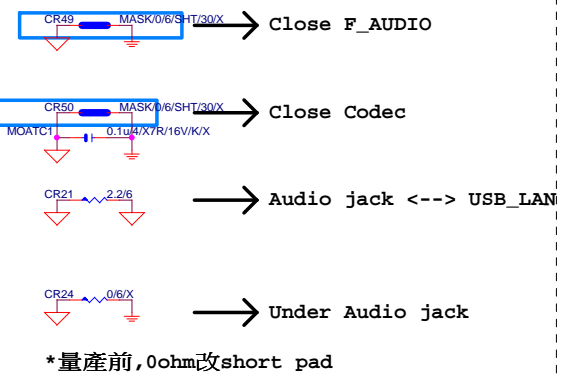


LAYOUT注意:
 CQ5, CQ6必須擺放在一起

BOM OPTION : 1. Chemicon音效電容
 2. 金屬外罩 Reserve (LAYOUT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)

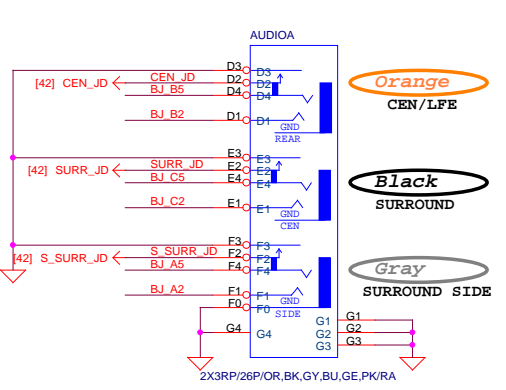
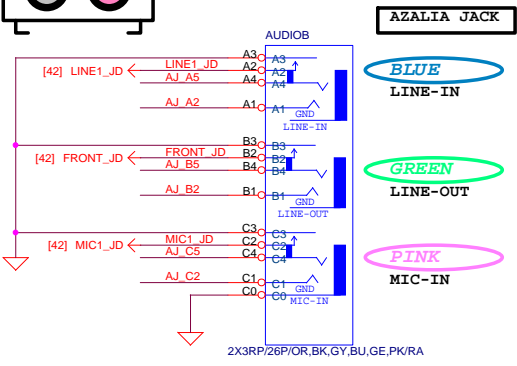
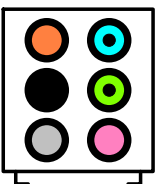
LAYOUT注意: 要加
 GND切割線
 音效區域印刷

Gigabyte Technology		
Title HD AUDIO ALC887		
Size Custom	Document Number GA-H170-HD3	Rev 1.02
Date: Tuesday, July 14, 2015	Sheet 42 of 52	

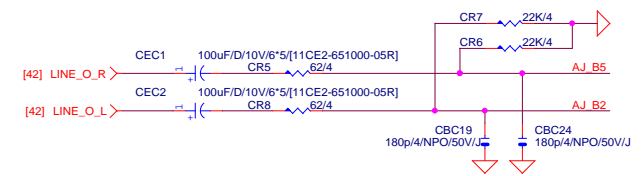


SPDIF_IN

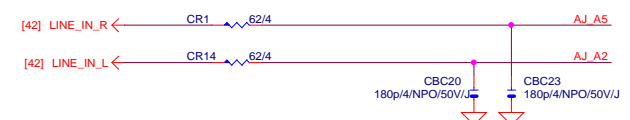
AZALIA JACK



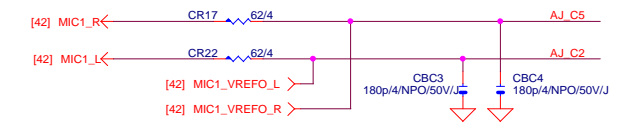
LINE-OUT



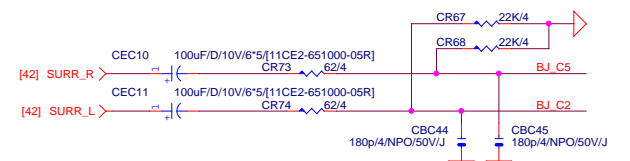
LINE-IN



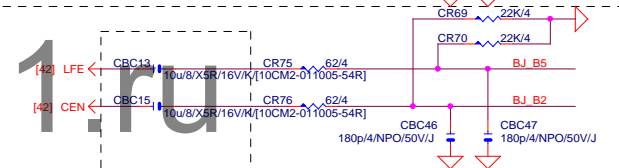
MIC-IN



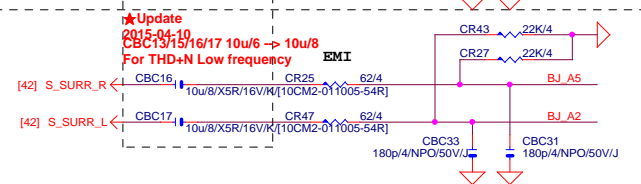
SURROUND



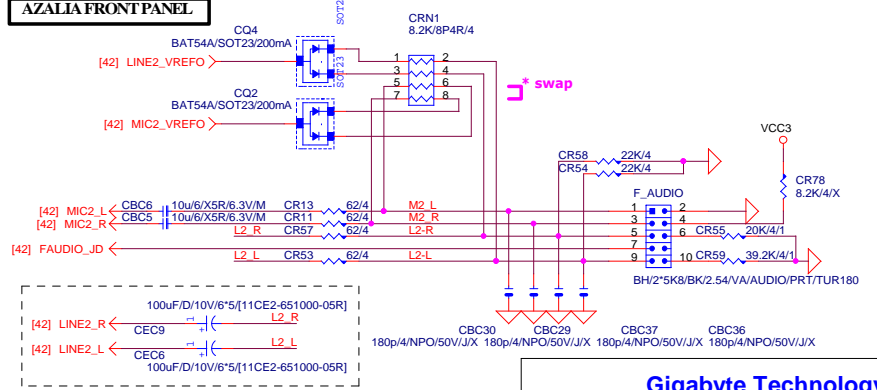
CEN/LFE



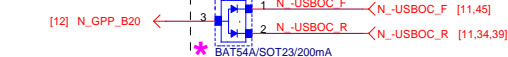
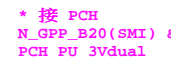
SURRBACK



AZALIA FRONT PANEL

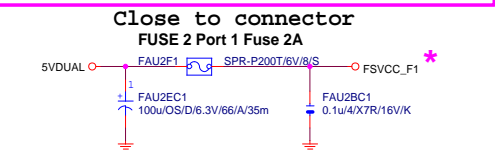
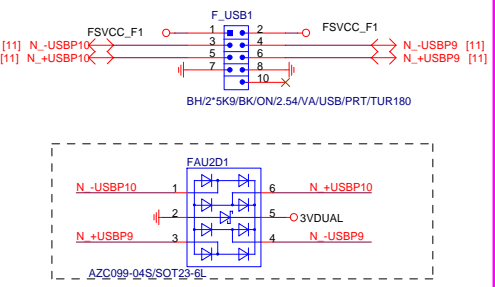


Gigabyte Technology			
Title			
AUDIO JACK			
GA-H170-HD3			
Size	Document Number	Rev	
Custom		1.02	
Date:	Tuesday, July 14, 2015	Sheet	43 of 52



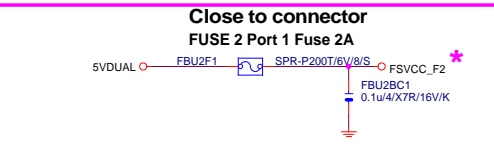
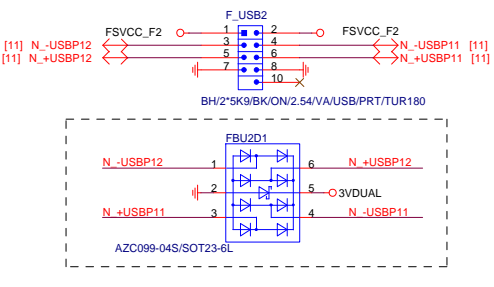
FRONT USB1

NET 可變



FRONT USB2

NET 可變

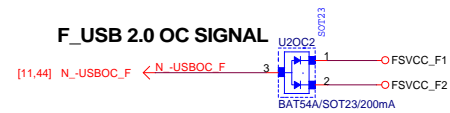


FRONT USB3

FRONT USB4

REAR USB1

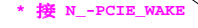
REAR USB2



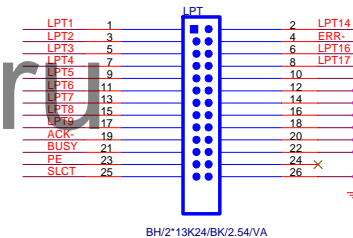
www.aitech1.ru



OR



LPT PORT

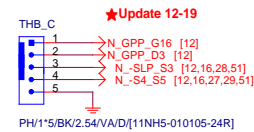


BH/2*13K24/BK/2.54/VA

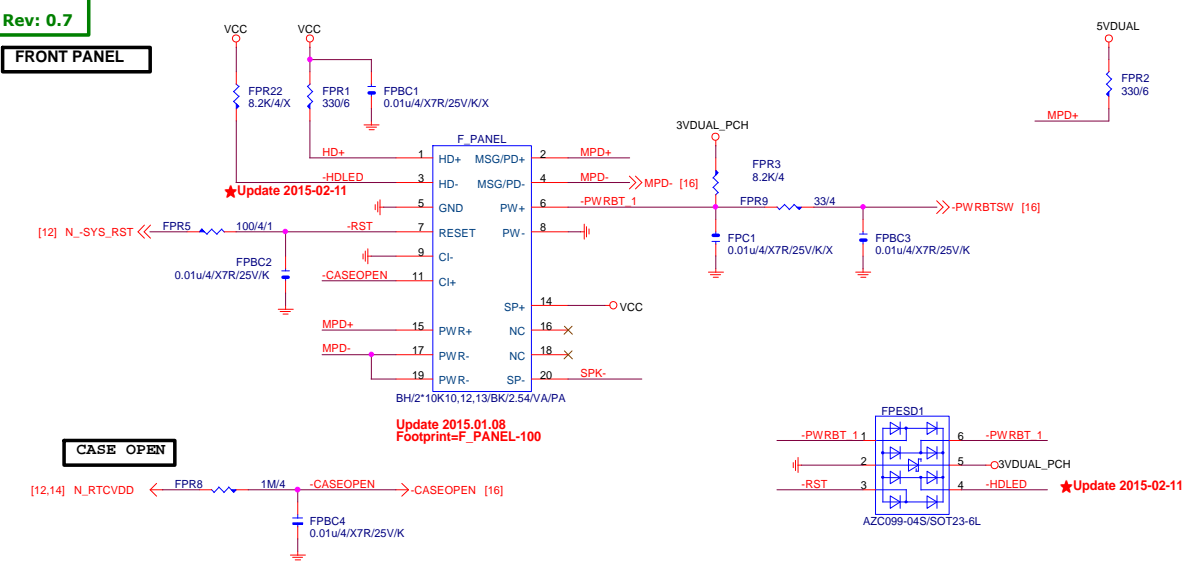
TPM CONNECTOR



Thunderbolt

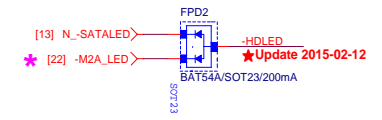


FRONT PANEL

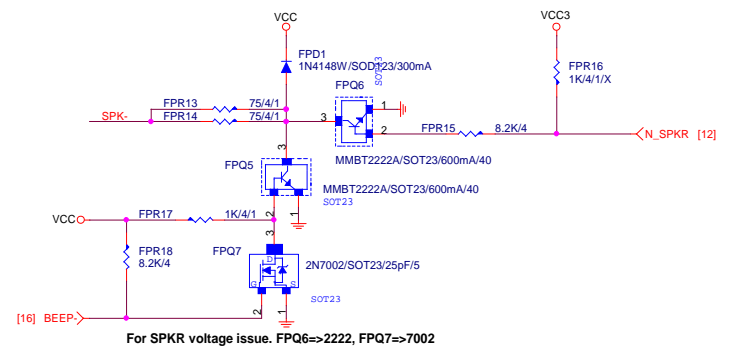


CASE OPEN

SATA LED

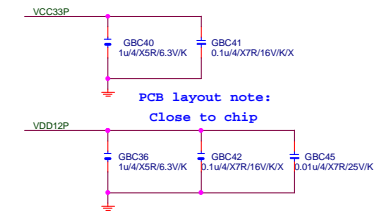
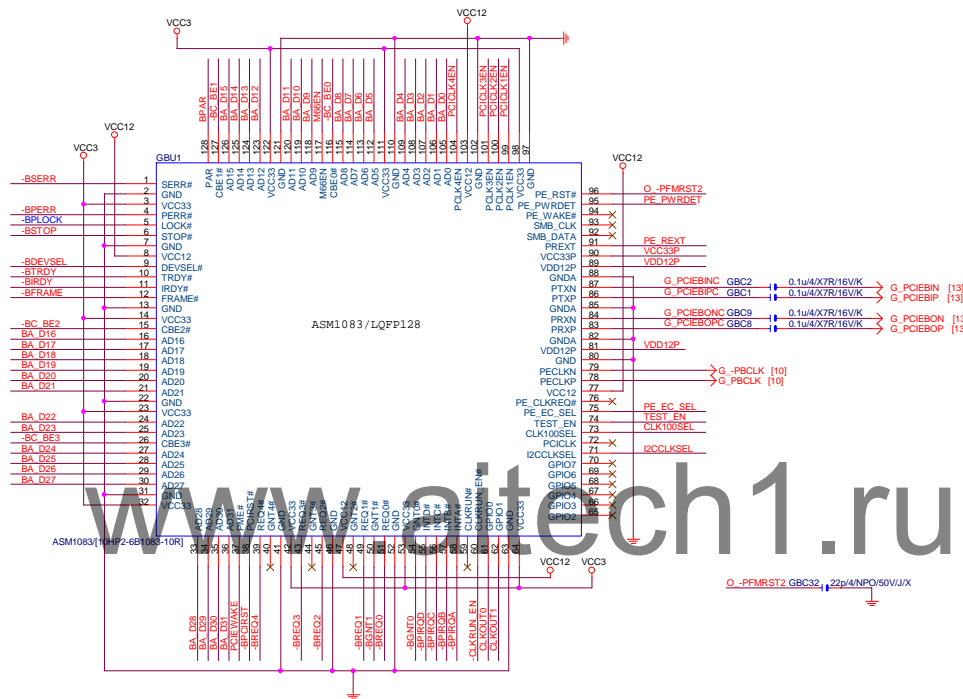
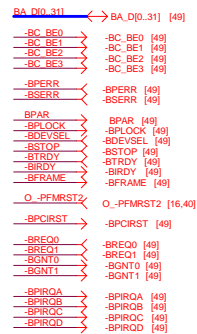
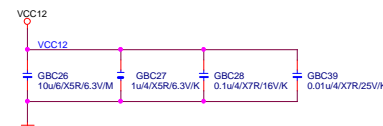
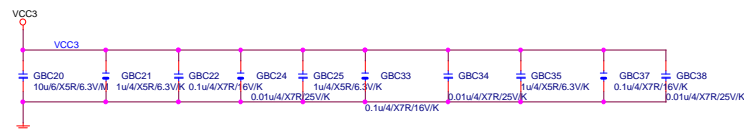


SPKR

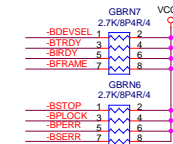
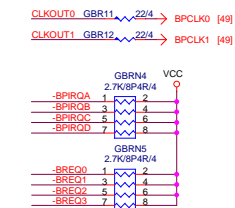


FRONT PANEL SHORT

www.aitech1.ru



PCB layout note:
Close to chip



GBRN4 & GBRN6 swap

CLK100SEL Strapping Set

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

PE_EC_SEL-

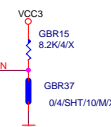
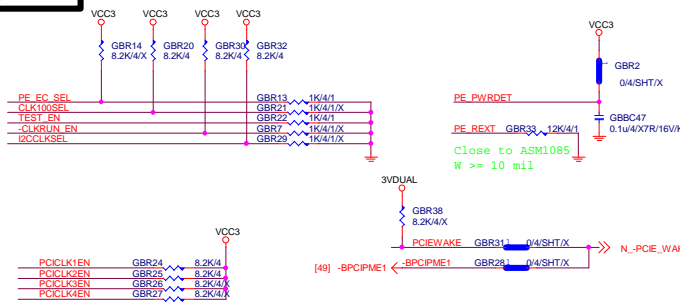
- "H" for Express Card mode
- "L" for PCIe Riser Card mode

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
```

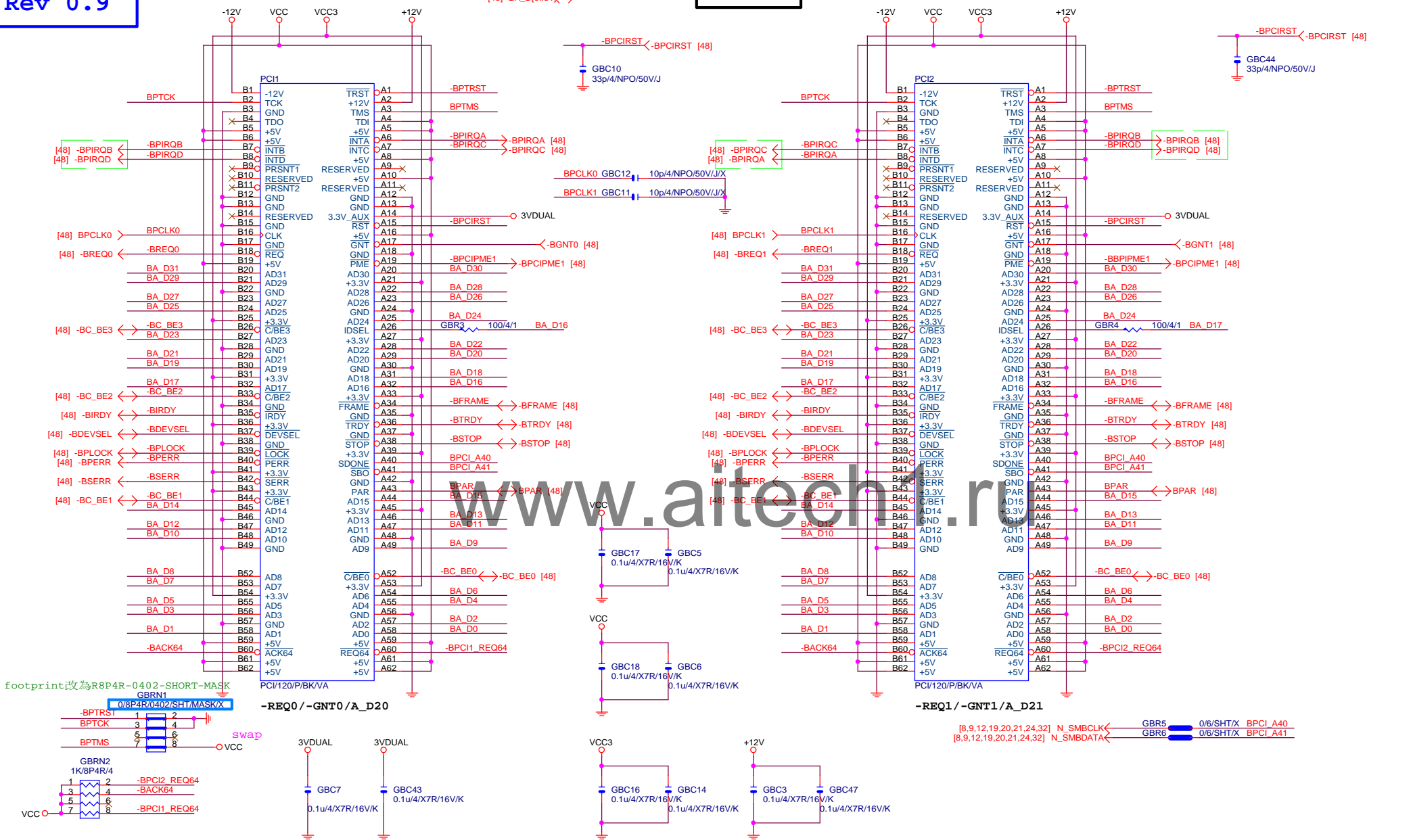
```
I2CCLKSEL-
"H" is 135KHz I2CCLK
"L" is 67.5KHz I2CCLK
```



Rev 0.9

PCI SLOT 1

PCI SLOT 2



Rev 0.9



Gigabyte Technology			
Title			
ASM1085 POWER			
Size Custom	Document Number	GA-H170-HD3	Rev 1.02
Date:	Tuesday, July 14, 2015	Sheet 50 of 52	

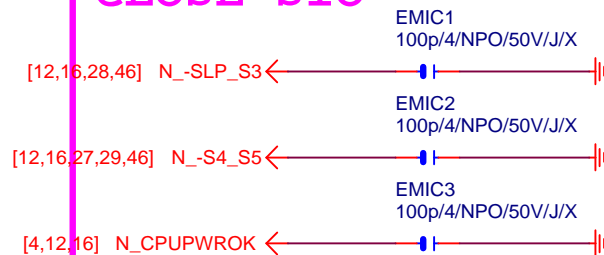
Title	ASM1085 POWER
-------	----------------------

ASMT085 POWER		
Size	Document Number	Rev

Rev	
1.02	

Sheet	50	of	52
-------	----	----	----

CLOSE SIO



CLOSE PCH



www.aitech1.ru

GIGABYTE™

Title

EMI/ESD

Size
A

Document Number

GA-H170-HD3

Rev

1.02

Date: Tuesday, July 14, 2015

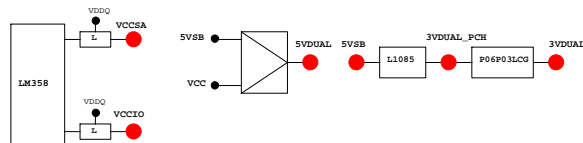
Sheet 51 of 52

PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	NOTE	
GPP_A0	MAIN	NATIVE	N_KBRST	P/U 8.2K VCC3	
GPP_A1	MAIN	NATIVE	N_LAD0	N/A	
GPP_A2	MAIN	NATIVE	N_LAD1	N/A	
GPP_A3	MAIN	NATIVE	N_LAD2	N/A	
GPP_A4	MAIN	NATIVE	N_LAD3	N/A	
GPP_A5	MAIN	NATIVE	N_LFRAME	N/A	
GPP_A6	MAIN	NATIVE	N_SBR1Q	P/U 8.2K VCC3	
GPP_A7	MAIN	NATIVE	N_LDRQ0	P/U 8.2K 3VDUAL	
GPP_A8	MAIN	NATIVE	N_GPP_A8	P/U 8.2K VCC3	
GPP_A9	MAIN	NATIVE	N_LPC24MB	N/A	
GPP_A10	MAIN	NATIVE	N_LPC24MA	N/A	
GPP_A11	MAIN	NATIVE	N_P_FMR	P/U 8.2K 3VDUAL_PCH	
GPP_A12	MAIN	GPI	N_GPP_A12	P/U 8.2K VCC3	
GPP_A13	MAIN	NATIVE	N_S_WARN	N/A	
GPP_A14	MAIN	NATIVE	N_GPP_A14	P/U 8.2K 3VDUAL	
GPP_A15	MAIN	NATIVE	N_S_ACK	N/A	
GPP_B0	MAIN	CORE_V1D0	N_DDR_V_SRL	P/U 8.2K VCC3	
GPP_B1	MAIN	CORE_V1D1	N/A	N/A	
GPP_B2	MAIN	GPI	N_VRALEST	P/U 8.2K 3VDUAL	
GPP_B5	MAIN	GPI	-PCIEIX1_6_PR	P/U 8.2K VCC3	
GPP_B6	MAIN	GPI	-PCIEIX1_PR1	P/U 8.2K VCC3	
GPP_B7	MAIN	GPI	-PCIEIX1_PR2	P/U 8.2K VCC3	
GPP_B8	MAIN	GPI	-PCIEIX4_PR	P/U 8.2K VCC3	
GPP_B9	MAIN	GPI	N/A	N/A	
GPP_B10	MAIN	GPI	N/A	N/A	
GPP_B11	MAIN	GPO	N/A	N/A	
GPP_B12	MAIN	SLP_S0	N_SLP_S0	N/A	
GPP_B13	MAIN	PLTRST	N_P_PMRST	N/A	
GPP_B14	MAIN	H-Z	GPO	N_SFRR	N/A
GPP_B18	MAIN	H-Z	GPO	N_GPP_B18	P/D 1K GND
GPP_B20	MAIN	GPI	N_GPP_B20	P/U 8.2K 3VDUAL	
GPP_B22	MAIN	GPI	N_GPP_B22	P/D 1K GND	
GPP_C0	MAIN	SMBCLK	N/A	N/A	
GPP_C1	MAIN	SMBDATA	N/A	N/A	
GPP_C2	MAIN	H-Z	GPO	N_LPCVME	N/A
GPP_C3	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C4	MAIN	SMCLK	N_SMLCLK	P/U 499 3VDUAL	
GPP_C5	MAIN	H-Z	GPO	N_GPP_C5	N/A
GPP_C6	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_C7	MAIN	GPI	N_SMLCLK	P/U 8.2K 3VDUAL	
GPP_D4	MAIN	GPI	N_GPP_D4	P/U 8.2K 3VDUAL	
GPP_D7	MAIN	GPI	N_GPP_D7	N/A	
GPP_D9	MAIN	GPI	N_GPP_D9	N/A	
GPP_D17	MAIN	GPI	N_GPP_D17	P/U 8.2K VCC3	
GPP_D18	MAIN	GPI	N_GPP_D18	P/U 8.2K VCC3	
GPP_D19	MAIN	GPI	N_GPP_D19	P/U 8.2K VCC3	
GPP_D20	MAIN	GPI	N_GPP_D20	P/U 8.2K VCC3	
GPP_D23	MAIN	GPI	N_GPP_D23	P/U 8.2K 3VDUAL	
GPP_E0	MAIN	NATIVE	N_GPP_E0	P/U 8.2K VCC3	
GPP_E1	MAIN	NATIVE	N_GPP_E1	P/U 8.2K VCC3	
GPP_E2	MAIN	NATIVE	N_GPP_E2	P/U 8.2K VCC3	
GPP_E3	MAIN	GPI	N_CPU_S	P/U 8.2K VCC3	
GPP_E4	MAIN	GPI	N_DEVSLP0	P/U 8.2K VCC3	
GPP_E6	MAIN	GPI	N_DEVSLP2	P/U 8.2K VCC3	
GPP_E7	MAIN	GPI	N_GT_S	P/U 8.2K VCC3	
GPP_E8	MAIN	GPI	N_SATALED	N/A	
GPP_E9	MAIN	H-Z	GPI	N_USBOC_F	N/A
GPP_E10	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E11	MAIN	H-Z	GPI	N_USBOC_R	N/A
GPP_E12	MAIN	H-Z	GPI	N_USBOC_F	N/A
GPP_F0	MAIN	NATIVE	N_GPP_F0	P/U 8.2K VCC3	
GPP_F1	MAIN	NATIVE	N_GPP_F1	P/U 8.2K VCC3	
GPP_F2	MAIN	NATIVE	N_GPP_F2	P/U 8.2K VCC3	
GPP_F3	MAIN	GPI	N_GPP_F3	P/U 8.2K VCC3	
GPP_F4	MAIN	GPI	N_GPP_F4	P/U 8.2K VCC3	
GPP_F5	MAIN	GPI	N_GPP_F5	P/U 8.2K VCC3	
GPP_F6	MAIN	GPI	N_DEVSLP4	P/U 8.2K VCC3	
GPP_F10	MAIN	GPI	N_GPP_F10	P/U 8.2K VCC3	
GPP_F11	MAIN	GPI	N_GPP_F11	P/U 8.2K VCC3	
GPP_F12	MAIN	GPI	N_GPP_F12	P/U 8.2K VCC3	
GPP_F13	MAIN	GPI	N_GPP_F13	P/U 8.2K VCC3	
GPP_F14	MAIN	GPI	A_SKT0CC	P/U 8.2K VCC3	
GPP_F15	MAIN	GPI	N_USBOC_F	N/A	
GPP_F16	MAIN	GPI	N_USBOC_F	N/A	
GPP_F17	MAIN	GPI	N_USBOC_R	N/A	
GPP_F18	MAIN	GPI	N_USBOC_F	P/U 8.2K 3VDUAL	
GPP_F22	MAIN	GPI	N_GPP_F22	P/U 8.2K VCC3	
GPP_F23	MAIN	GPI	N_GPP_F23	P/U 8.2K VCC3	
GPP_G0	MAIN	GPI	N_GPP_G0	P/U 1K VCC3	
GPP_G1	MAIN	GPI	N_GPP_G1	P/U 1K VCC3	
GPP_G12	MAIN	GPI	N_GPP_G12	P/U 3.3K VCC3	
GPP_G16	MAIN	GPI	N_GPP_G16	N/A	
GPP_G18	MAIN	GPI	N_GPP_G18	P/U 8.2K VCC3	
GPP_G19	MAIN	GPI	N_GPP_G19	P/U 8.2K VCC3	
GPP_G20	MAIN	GPI	N_GPP_G20	P/U 8.2K VCC3	
GPP_G21	MAIN	GPI	N_GPP_G21	P/U 8.2K VCC3	
GPP_G22	MAIN	GPI	N_GPP_G22	P/U 8.2K VCC3	
GPP_H0	MAIN	GPI	M2_CLKREQ	P/U 8.2K VCC3	
GPP_H12	MAIN	GPO	N_GPP_H12	P/U 8.2K VCC3	
GPP_H19	MAIN	GPI	N_GPP_H19	P/U 8.2K 3VDUAL	
GPP_H20	MAIN	GPI	N_GPP_H20	P/U 8.2K 3VDUAL	
GPP_H21	MAIN	GPI	N_GPP_H21	P/U 8.2K 3VDUAL	
GPP_H22	MAIN	GPI	N_GPP_H22	P/U 8.2K 3VDUAL	
GPP_I0	MAIN	GPI	N_HDMI_HDP_F	N/A	
GPP_I1	MAIN	GPI	N_DVI_HDP_F	P/U 1M VCC3	
GPP_I2	MAIN	GPI	N_VGA_HDP_F	N/A	

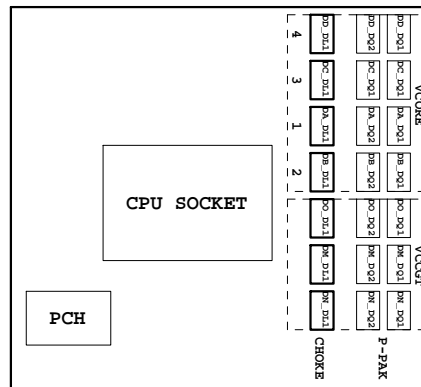
PIN NAME	PWR	Default	USAGE	NOTE
GPP_I3	MAIN	GPI	N_GPP_I3	P/U 8.2K VCC3
GPP_I4	MAIN	GPI	N_GPP_I4	P/D 100K GND
GPP_I5	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I6	MAIN	GPO	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I7	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I8	MAIN	GPI	N_DDPB_CTRLCLK	P/U 2.2K VCC3
GPP_I9	MAIN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

Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
PCIRSTF3#/GP10/VDIMM_STR_EN	N/A	
PCIRSTF2#/GP11	O_PCIE_RST	
PCIRSTF1#/GP12	O_PPMRST2	
SVC/FRC1_RQ7/GP14	TPM_GP14	
SLP_SUS#/PCIRSTIN/CIKTX2/GP15	-PCIRSTIN	
PSI_L/FAN_CLT5/CIKRX2/GP16	N_THERMTRIP	
R12#/GP17	MB_ID2	
THR_PWM_CTS2#/GP20	N_THERMTRIP	
IO_SMI#DCD2#/GP21	FIN	
SPI_S1/GP22	BEEP-	
DPWRKOK/CPU_RQ/GP23	N_PCH_DPWRKOK	
FAN_TACS/RTS2#/GP24	FIN	
FAN_TAC4/DSR2#/GP25	FANIO4	
INV_OUT1_SOUT2/GP26	Q_PLED	
INV_IN1/SIN2/GP27	INV_IN1	
ATXPG/GP30	FWOK	
CTS1/GP31	CTS1-	
OCWD13/R11#/GP32	R11-	
OCWD12/DCD1#/GP33	DCD1-	
VTT_PWRGD/GP34	VTT_PWRGD	
VCC18_EN/GP35	VCCIO_EN	
FAN_CTL3/GP36	FANPWM3	
FAN_TAC3/GP37	FANIO3	
3VSB#W#/GP40	FIN	
OCWD11/SIN1/GP41	RXD1	
GP42/CLK/FAN_CTL4	FIN	
PANSW#/GP43	-PWRBTSW	
PWRON#/GP44	O_PWRBTSW	
OCWD10/DSR1#/GP45	DSR1-	
CE2_N/GP47/JP6	CEB_N	
GP50/JP1	FIN	
FAN_CTL4/GP51	FANPWM2	
FAN_TAC5/GP52	FANIO2	
SUSOC/GP53	N_S4_S5	
PWR#/GP54	N_LPCVME	
RSMBST#/CIKRX1/GP55	O_RSMBST	
KCLK/FAN_TAC5/GP56	KCLK	
MDAT/FAN_CTL6/GP57	MDAT	
KCLK/GP60	KCLK	
KDAT/GP61	KDAT	
KRST#/GP62	N_KRST	
HOLD_B#/GP63	-SPI_HOLD_B	
HOLD_B#/GP64	-SPI_HOLD_M	
VLD1T_EN/PCH_D0/GP65	FIN	
VCC1_05_EN/GP66	VCC1_0_EN	
GP67	FIN	
USB_FS1/PD0/GP70	PD0	
USB_FS2/PD1/GP71	PD1	
USB_FS3/PD2/GP72	PD2	
USB_FS3/PD3/GP73	PD3	
USB_FS5/PD4/GP74	PD4	
USB_FS6/PD5/GP75	PD5	
USB_FS7/PD7/GP76	PD6	
USB_FS8/PD8/GP77	PD7	
LS_IN1/SLCT/GP80	SLCT	
LS_OUT1/PE/GP81	PE	
LS_IN2/BUSY/GP82	BUSY	
LS_OUT2/ACK#/GP83	ACK-	
IPHONE_CHARGE#/SLIN#/GP84	SLIN-	
OC_IN/INIT#/GP85	INIT-	
OC_OUT/AFD#/GP86	AFD-	
USB_OC4/STB#/GP87	STB-	
DOX_EN/GP90	NA_EN	
PWRLED/GP91	HPD-	
HOLD_OUT/GP92	FIN	
HDLED_IN/GP93	FIN	
PROCHOT#/GP94	-PROCHOT_CON	
CPUPWRGD/GP95	FIN	
PCH_VRMPWRGD/GP96	N_PCH_VRMPWRGD	
VR_RDY/GP97	VR_RDY	



PWM各相位的擺法如下:



BIOS超電壓對應表:

散熱模組料號:

Z1704-HD3 :

PCH :

MOSFET :

線路圖名稱	BIOS選項
Vcore	CPU Vcore
VCCGT	CPU Graphic Voltage
VCCSA	CPU System Agent Voltage
VCCIO	CPU I/O Voltage
VCC1_0_PCH	CPU Vcore
VDDQ	DRAM voltage
VPP_25V	DRAM VPP voltage
DDRVTT	DRAM Terminatio
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	+12V	FANPWM1	FANIO1	IT8628
SYS FAN1	FANPWM2	VCC	FANIO2	IT8628
	FAN1_VOUT	N/A	N/A	NCT3941
SYS FAN2	FANPWM3	VCC	FANIO3	IT8628
	FAN2_VOUT	N/A	N/A	NCT3941
SYS FAN3	+12V	N/A	FANIO4	IT8628