

Model Name: GA-Z87-D3HP

1.1

SHEET

TITLE

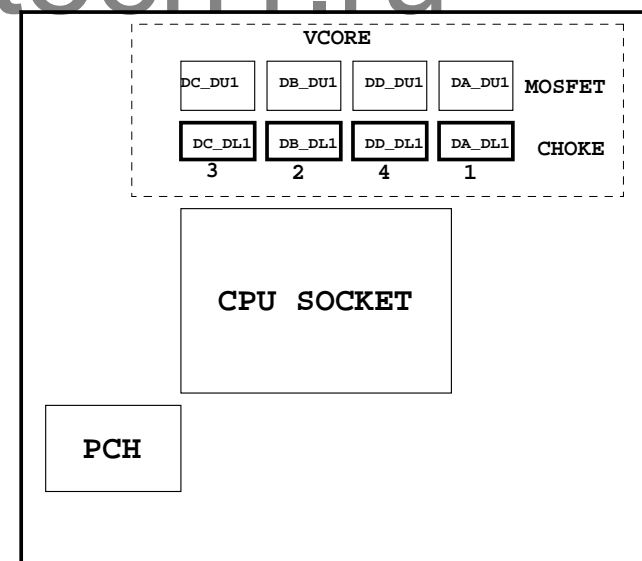
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8728
19	COM, -PROHOT, R_USB
20	Dual BIOS , TPM SLB9635TT
21	ALC892 CODEC
22	REAR AUDIO JACK
23	VCORE PWM_IR3564a
24	VCORE+DDR PWM IR3553+IR3598
25	ME POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET

TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	LAN INTEL i217
32	DVI
33	HDMI , R_USB30
34	TABLE LIST
35	
36	
37	
38	
39	
40	

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GA-Z87-D3HP

Component value change history

Data	Change Item	Reason
0.1-0925	E-BOM	
	1. Z77-D3H改為削光黑PCB, slots同原本削光黑機種配色, CPU socket鍍黑	
	2. 8 series IR digital power PWM因Intel spec change, 須改用b版 (必須發行Firmware)	
	3. H77-D3H 注意上H87 chips, 上ME power, 咖啡黑機種配色	
	3. H77-D3H GPIO37 需Pull up to 3VDUAL	
0.2	1. Load-line DAR47 2.06K --> 2.37K , DAR46/50 1.4K --> 1.6K , DAC17 150P --> 100P	
	2. N_-LAN_WAKE NR60 8.2K/4 --> 1K/4/1	
	3. DA_DUI1,DB_DUI1,DD_DUI1,DC_DUI1 10IFB-403553-01R --> 0TA1-603551-00R	
	4. DDR CHOKE阻值調整	
	5. CPU SOCKET + RM 要用新料號?	
0.2B	1. 確定Power stage用料:IR3553 or IR3550 or 3551?	
	2. GPIO8 "NR136"不上	
	3. Add +12V排阻 RN2-RN6	
0.2C	1. HU1 , HU2 level shifter change to NXP	
0.3	1. PWM MOSFET修改 IR3564B + power stage 改成 IR3564B + IR3535 + power pak (Cancel)	
	3. PWM MOSFET修改 IR3564B + power stage 改成 IR3564B + IR3535 + power pak	
1.0	1. PCIEX16 patch reset circuit 怎麼上?	
	2. Prochot是否只上一組	
	3. PCH_HS & MOS_HS change new 料號	
	4. 因DII 2222禁用, 注意Z87-D3H試產時用Panjit 2222是否可用(BOM已內建)	
	5. HDMI/DVI change to NXP level shifter	
	6. CHECK 5VSB保護線路是否上件	
Z87-D3HP		
1.0A	1. 5VDUAL OVP --> 5VSB OVP	
	2. Remove 全成信PCB	
1.0B	1. Remove DAJP1	
	2. HR29 3.09K --> 3.3K	
	3. USB3.0 HUB add RT9018	
10C	1. MOS_HS 12SP2-S08824-21R/22R/23R --> 12SP2-S08824-51R/52R/53R	
11A	1. For Z87 Rev.C2	
11B	1. Disable Anti-surge Function	
11C	1. 5VSB --> 5VDUAL OVP & Remove CD1:AZ2225	

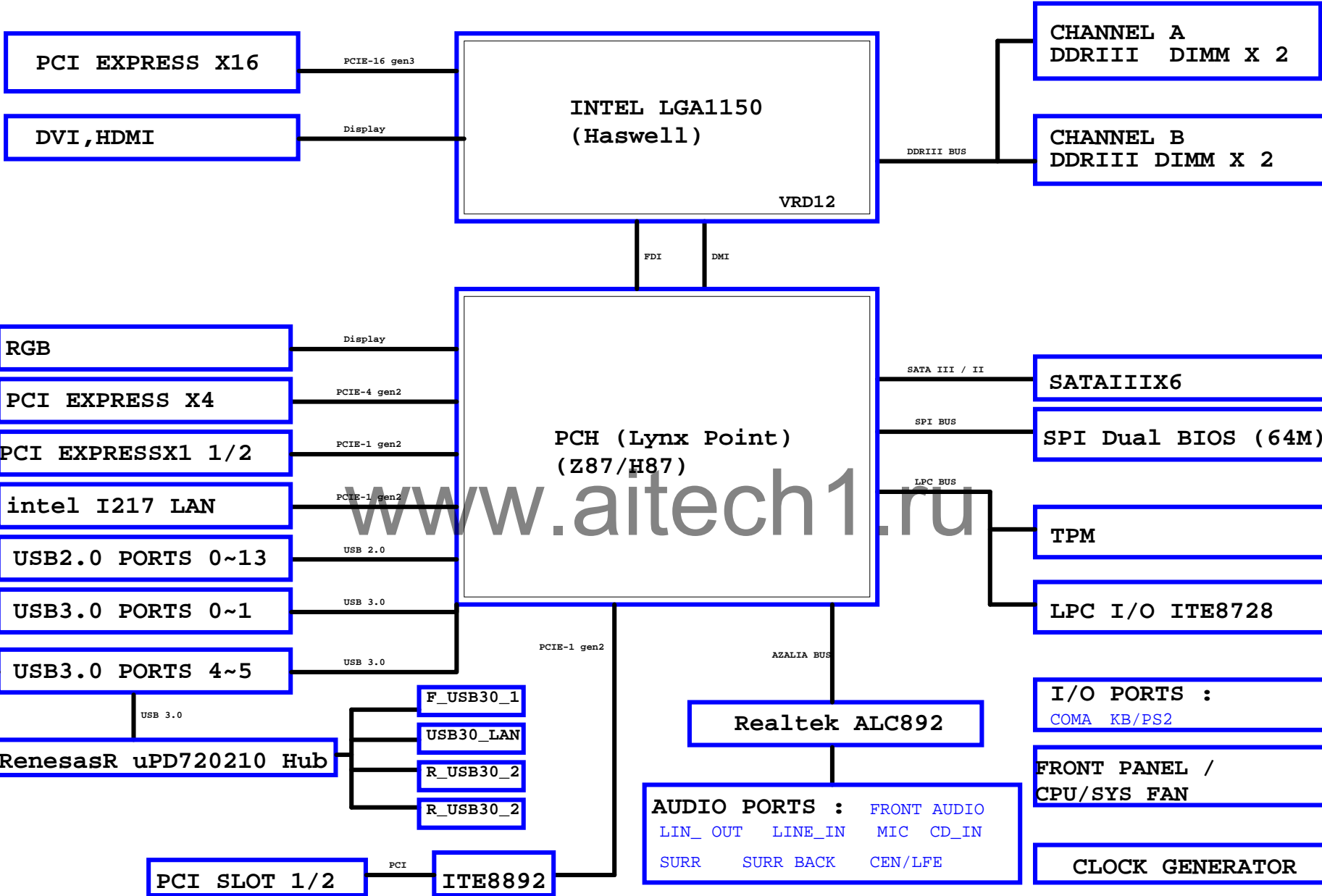
Circuit or PCB layout change

DATE	Change Item	Reason
0.1	E-BOM	
0.2	1. U8 pin3加粗40mils 2. Update LAYOUT NEW RULE for四層板 3. MDA6線長T型要繞等長 4. N_GPIO37 pull up VCC3 --> 3VDUAL 5. CPU Thertrip CPU_VTT --> VCC1_05_PCH 6. 確認 R/G/B ESD擺放位置 7. Add PCIEX16 reset patch circuit 8. PCIE signal by group 成對走 9. VIN0 --> VCORE0 , VIN5 --> VCORE 10. CS 1pin --> 2pin 11. 後窗部份鋪銅會挖 + 字處理 12. Add MA_DR8 , MA_DC8單獨下地 13. add VTT_PWRGD control circit 14. Update F_PANEL footprint "H2X10PANEL-3" 15. NR132跟NC59 layout位置交換 16. Add DS_ME GP67 control 17. Q6位置靠近 PWM power control pin 18. WR59 change to "R0204-2" 19. 文字面 "DualBIOS" , 改為" Dual UEFI BIOS" , Add "Intel GbE LAN" 20. MAU2 REF "GND" 21. DDR Choke ML1,ML2 1.2uH/20A --> 0.8uH/35A	
0.21	1. AUDIO SPDIF-IN CR77 "0402-2" FOR short protection 2. add AUDIO ON/OFF PLAYER 3. Change PCIEX1/PCIX4 CLK 4. Update F_PANEL footprint 5. CPU VRIN OV IO_GP81 --> IO_GP21	
0.3	1. PWM MOSFET修改 IR3564B + power stage 改成 IR3564B + IR3535 + power pak (Cancel)	
1.0	1. 0 ohm --> short pad 2. 簡化CPU Config setting 3. Remove "BIOS_PH" & "M_BIOS socket" & "CS" pin 4. 注意Slot和後窗正面有做十字Thermal處理 5. NBC65移靠近PCH 6. Add R700-R702 for FAN short protection 7. PWR_LED 改為IO_GP65 8. VTT_PWRGD Update 9. N_GPIO37 pull-up to VCC3 10. +12V RN2-RN6 & VCC/VCC3/5VSB dummy load 排阻 11. DDR_15V H/W monitor detect 改從 DDR slot 拉回 12. 5VSB AD1要過 NET 13. DDR VIN 間隔拉開 , 背板GATE往上移 14. Add DDR_15V dummy load 15. 5VSB/5VDUAL OVP protection 16. 預留N_PCH_DPWROK 控制線路	
Z87-D3HP-0.1	1. add USB3.0 Hub	

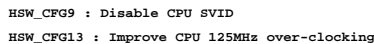
Z87-D3HP-1.0	1. DART2改成R0402-2(靠近DD_DUI1) ,DART4改成R0603-RH(放在DART2左邊) , RS1改成R0402-2 2. Add DAR82 For MOSFET "PHSFLT-" protect
Z87-D3HP-1.1	1. 改文字面Rev1.1 For Z87 Rev.C2
Z87-D3HP-1.2	1. PCH X'TAL 25MHz REF "GND" 2. Add MF1 FUSE for VDDSPD

Gigabyte Technology			
BOM & PCB MODIFY HISTORY			
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BLOCK DIAGRAM

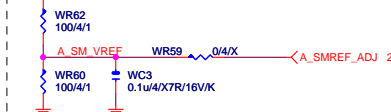
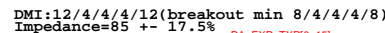
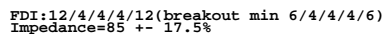


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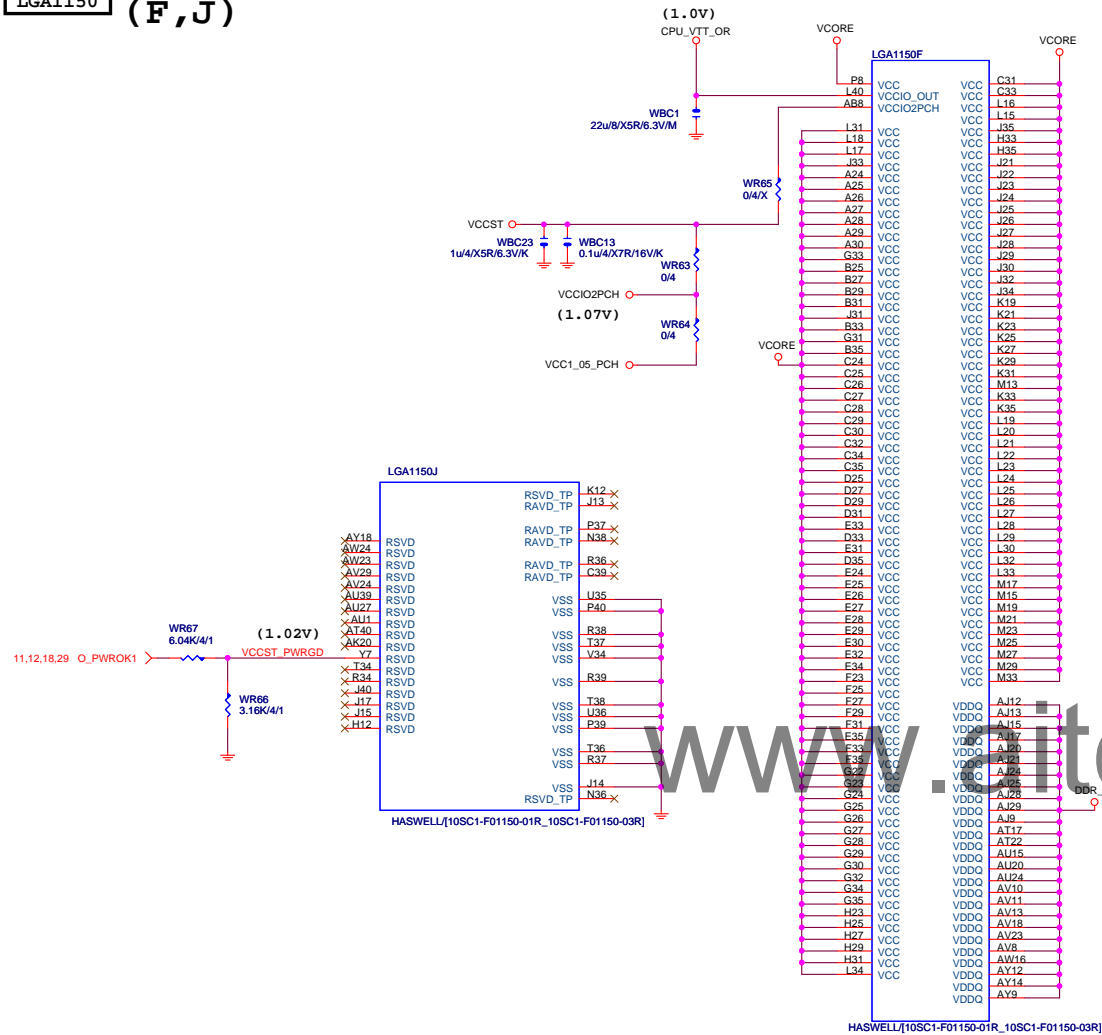
CFG 0-17 all internal PULL-UP

(D)



Title			
CPU LGA1150-A			
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LGA1150 (F,J)

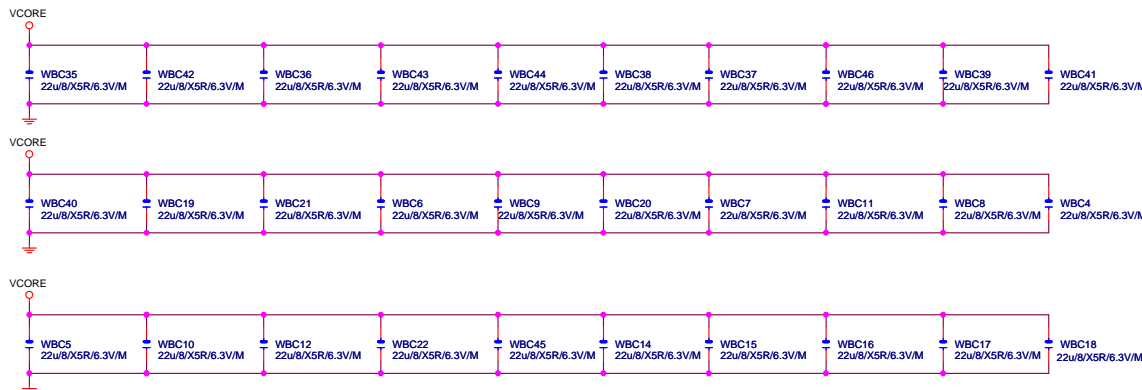


LGA1150 (G,H,I)



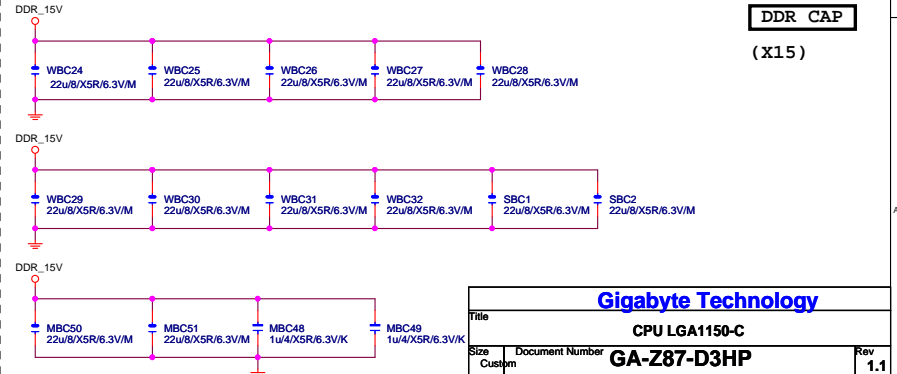
VCore CAP

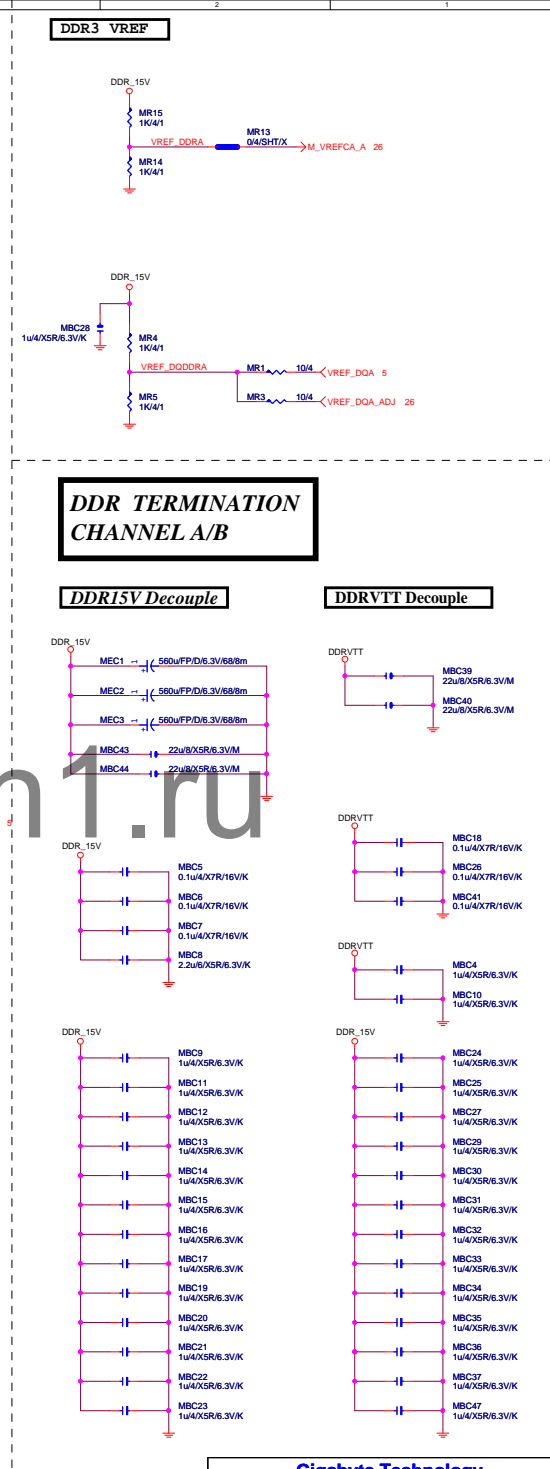
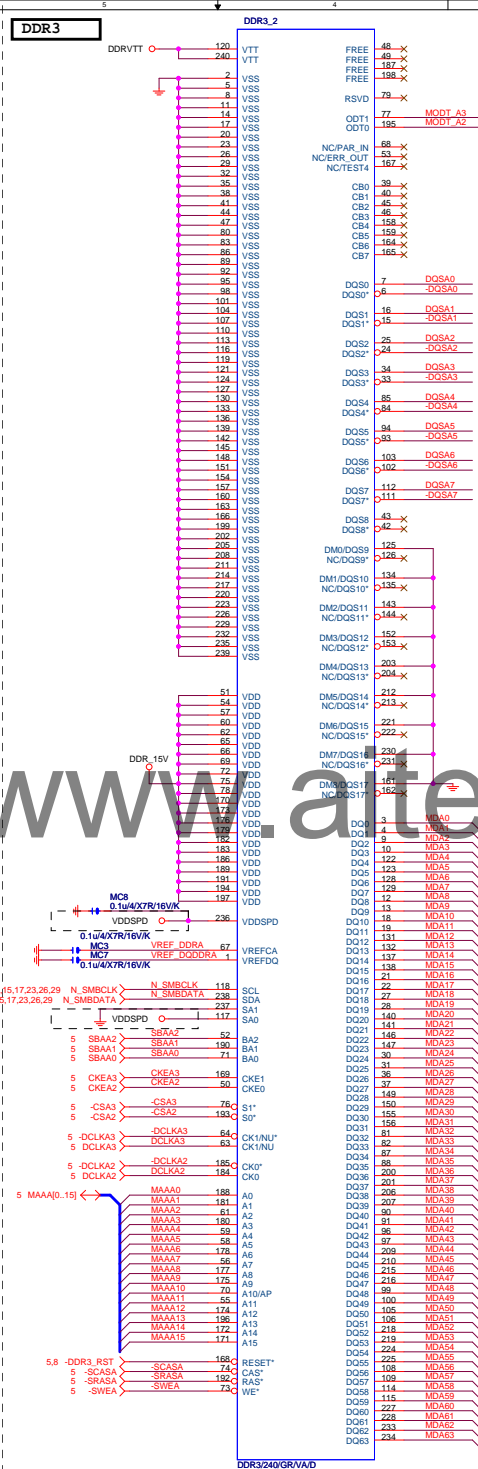
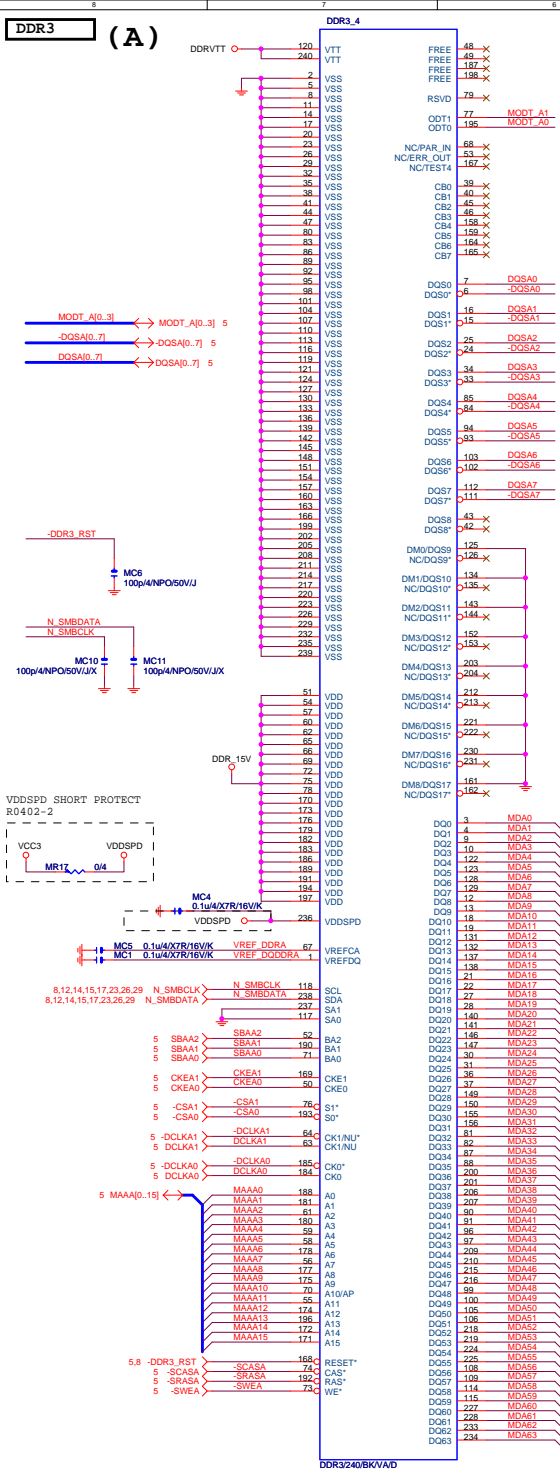
(X30)

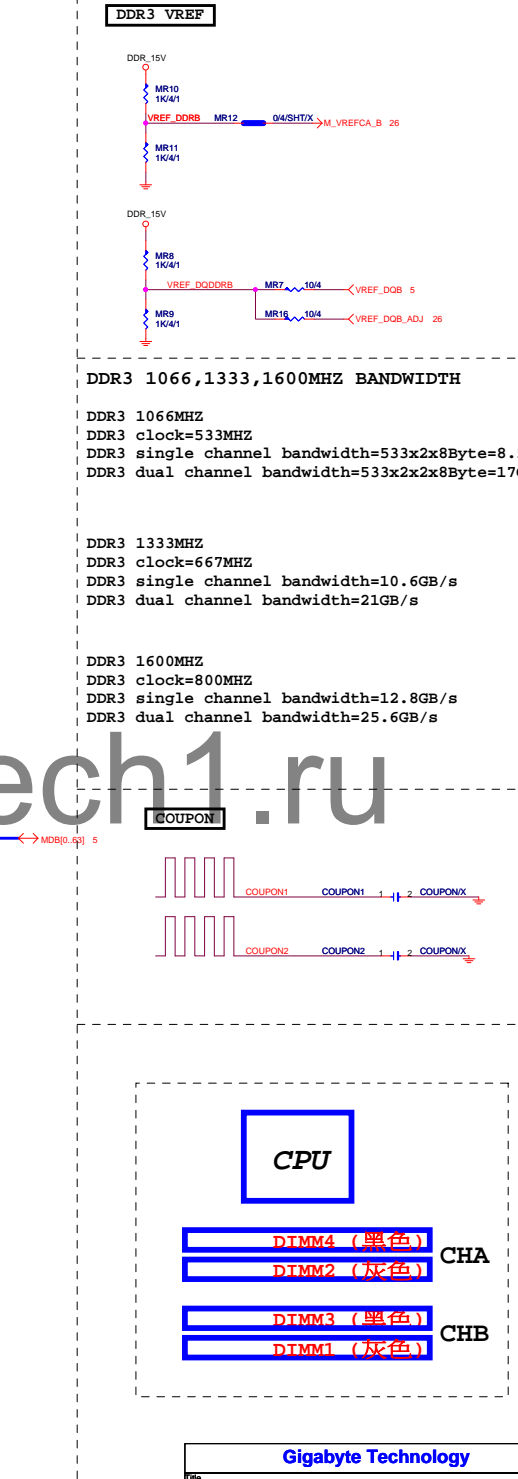
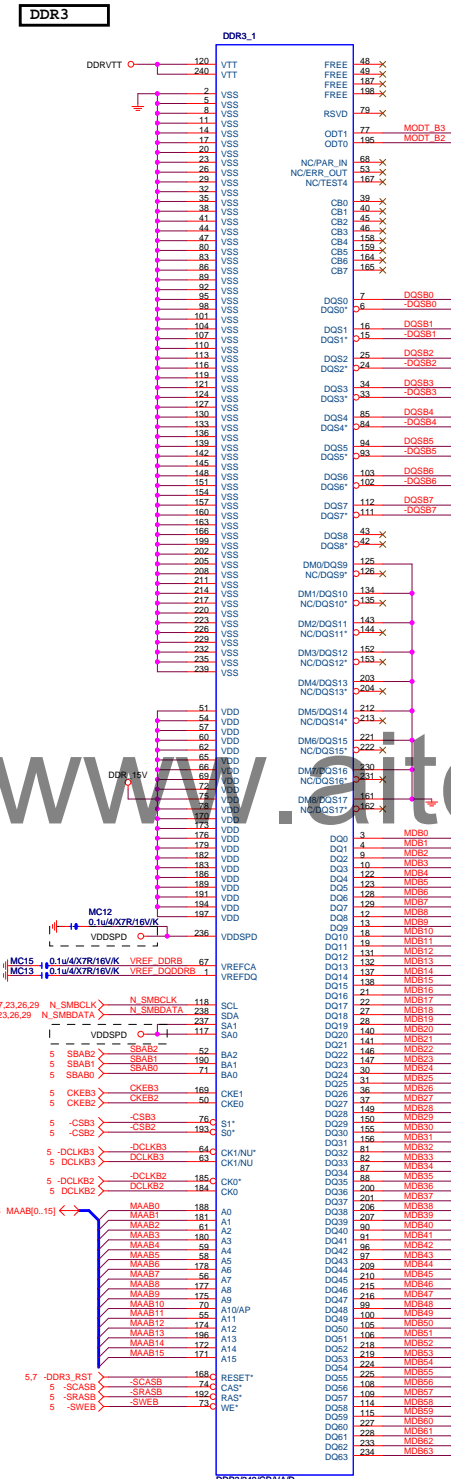
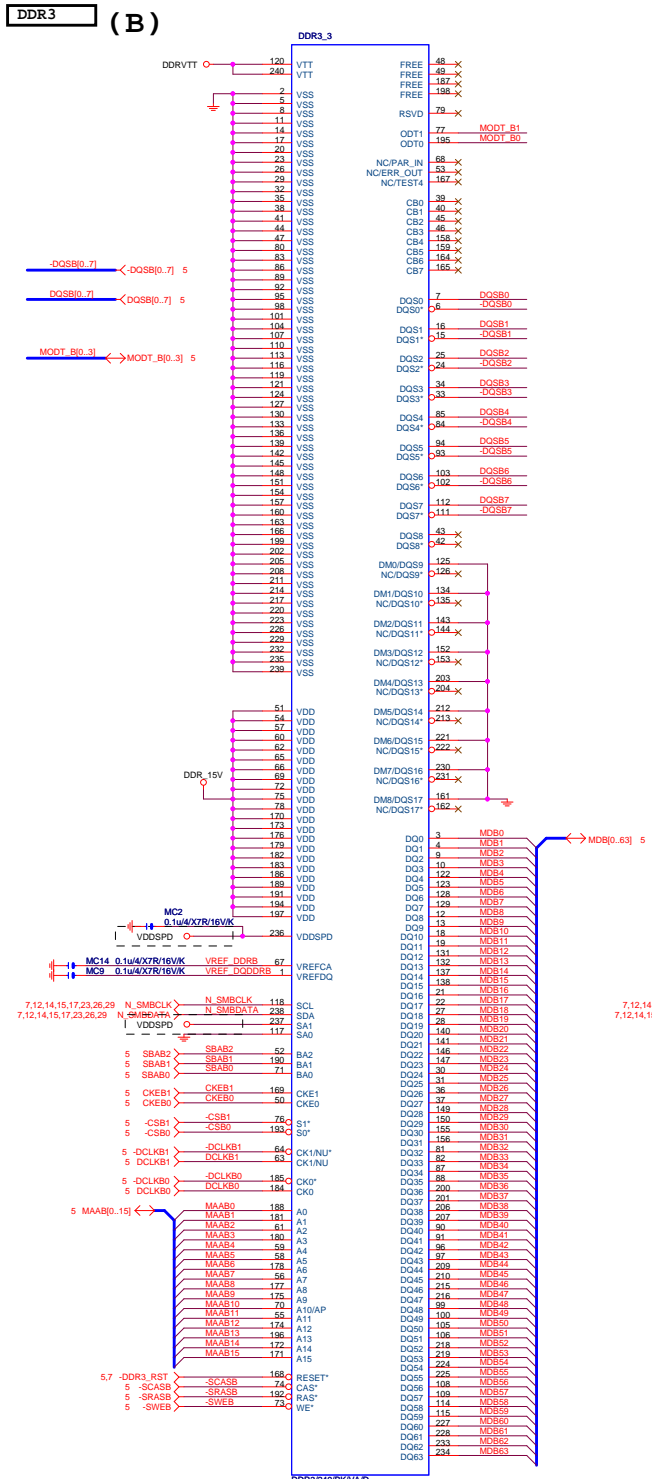


DDR CAP

(X15)







DDR3 1066,1333,1600MHZ BANDWIDTH

DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

COUPON



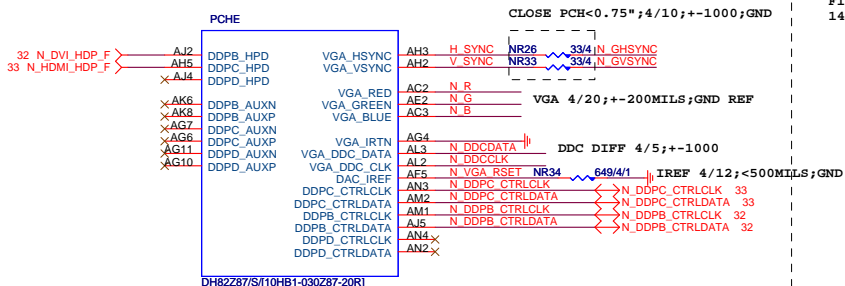
CPU

DIMM4 (黑色) CHA
DIMM2 (灰色) CHA
DIMM3 (黑色) CHB
DIMM1 (灰色) CHB

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File		DDR3 CHANNEL B		Rev 1.1
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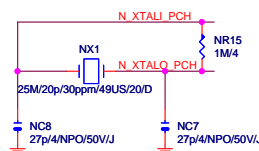
PCH (E)



VGA DISABLE	
R,G,B	NC OR GND
IRTN / IREF	GND
VGA_HSYNC, VGA_VSYNC, DDC_CLK, DDC_DATA	NC
POWER VCCADAC(AF2), VCCADACBG(AE1)	GND

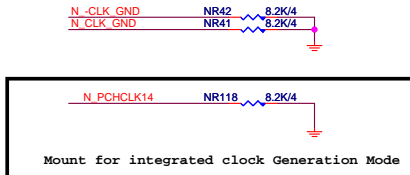
PCH (G)

Flex1,2,3,4 : 14/24/33/48MHZ

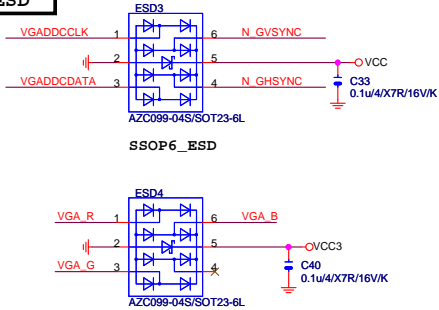


Differential Clock:15/4/6/4/15
Impedance=90 +- 15%

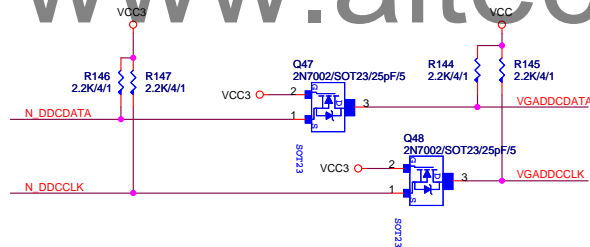
PCH CLK PD



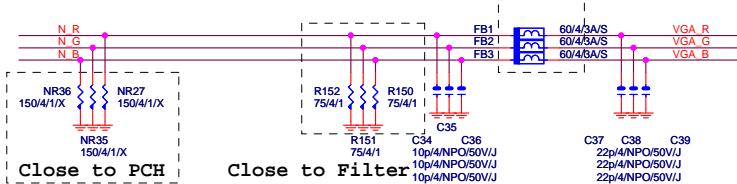
VGA ESD



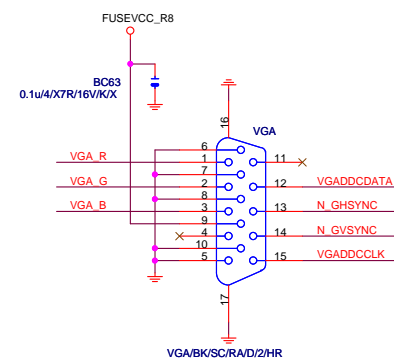
VGA DDC



VGA DDC



VGA CONNECTOR

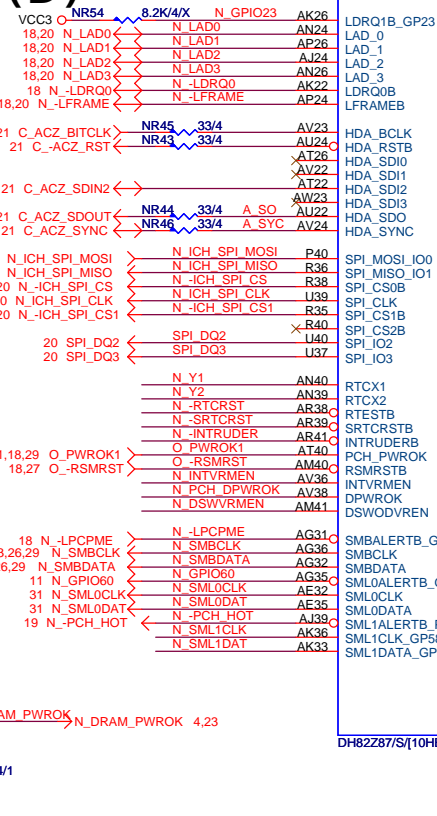


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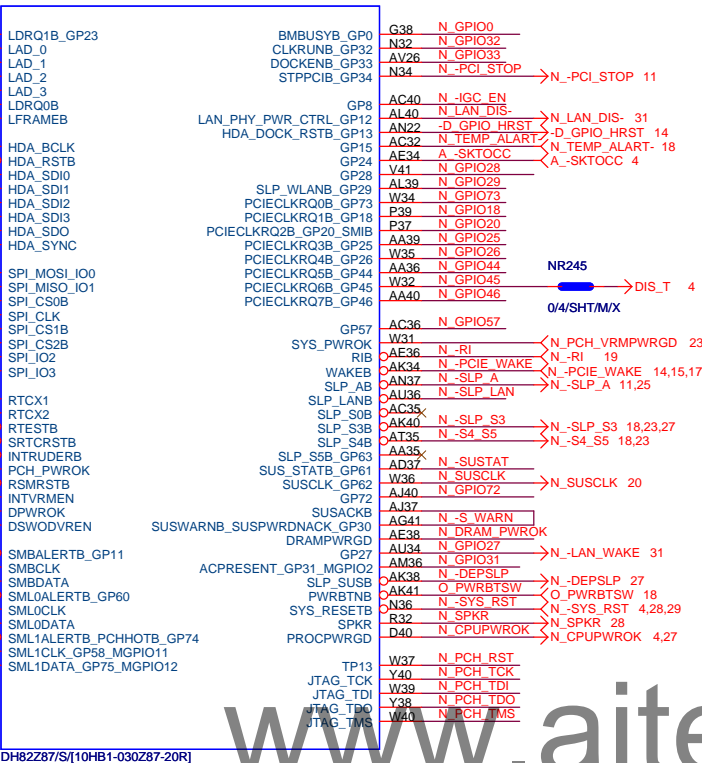
Title		
PCH DISPLAY ,CLK BUFFER		
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PCH

(D)



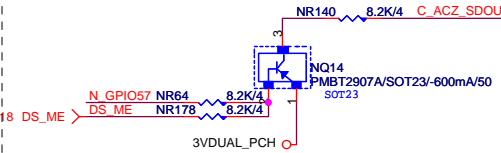
PCHD



ACZ_SDOUT

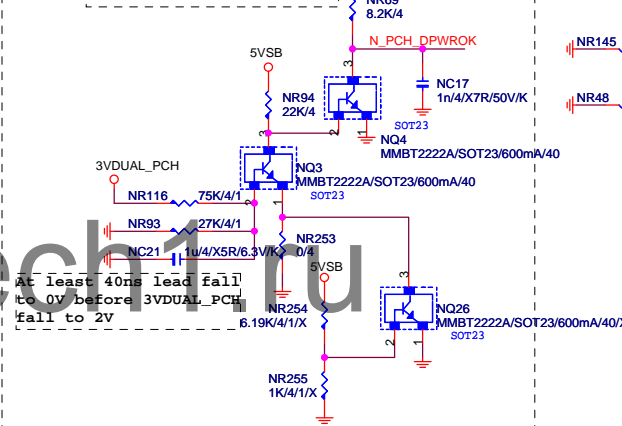
SPI OVERRIDE PROTECTION

C_ACZ_SDOUT : HI --> ME Enable
Lo --> ME Disable

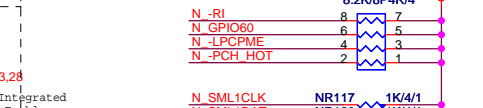
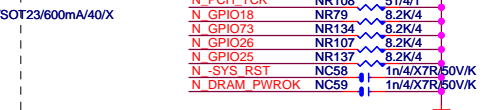
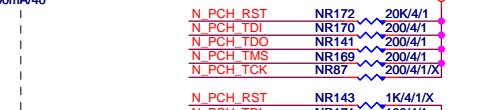
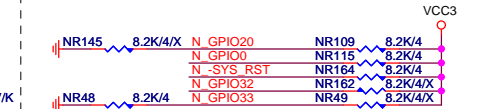
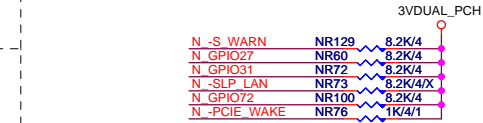
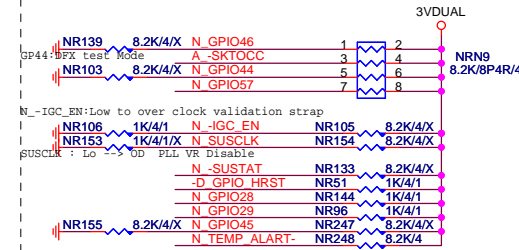


PCH_DPWROK

At least 10ms delay after 3V3V_PCH stable

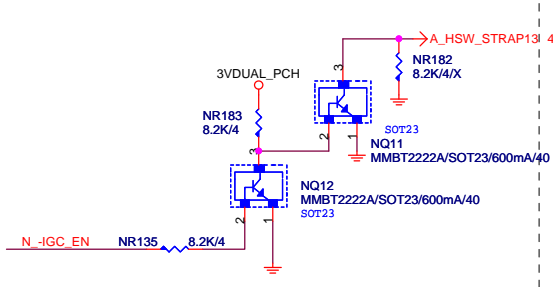


PCH PU/PD

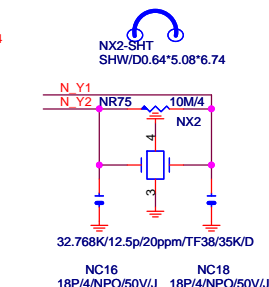


Gigabyte Technology			
PCH GPIO , CTRL , AUDIO			
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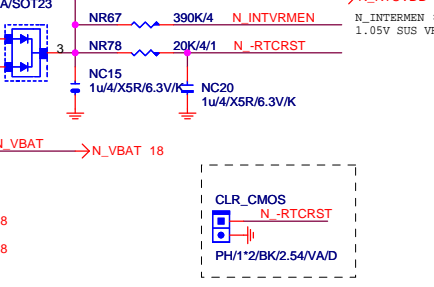
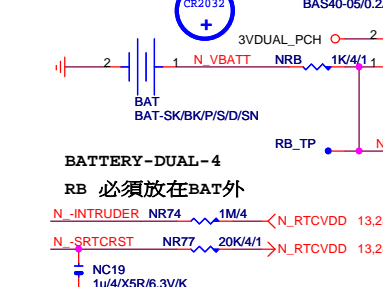
HSW_STRAP13



32.768KHZ

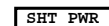
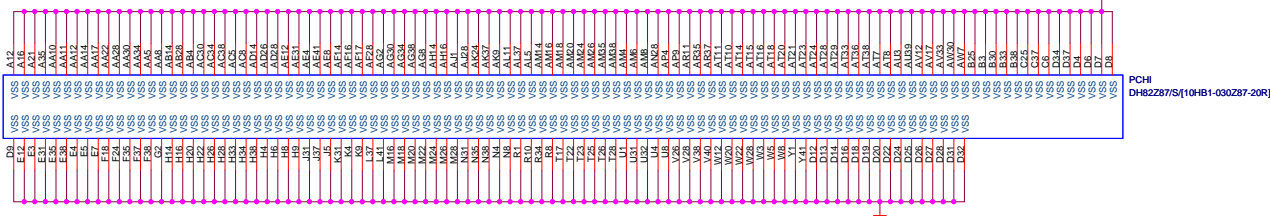


CLR_CMOS

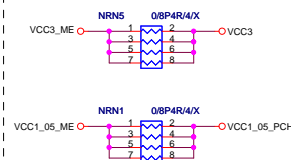
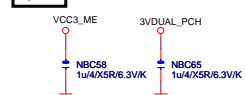


Gigabyte Technology			
PCH GPIO , CTRL , AUDIO			
Title	Document Number	Rev	1.1
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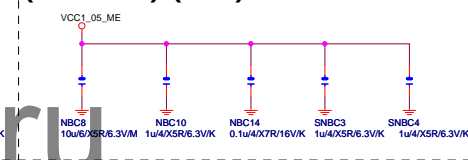
PCH (I)



CAP



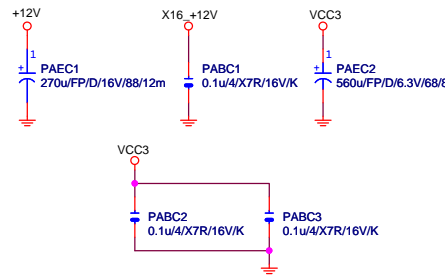
(1.05V) (x5)



(1.05V)(x2) (3.3V) (x2)

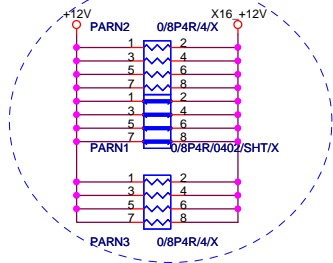


PCIEX16 CAP



PCIEX16 PROTECT SHT

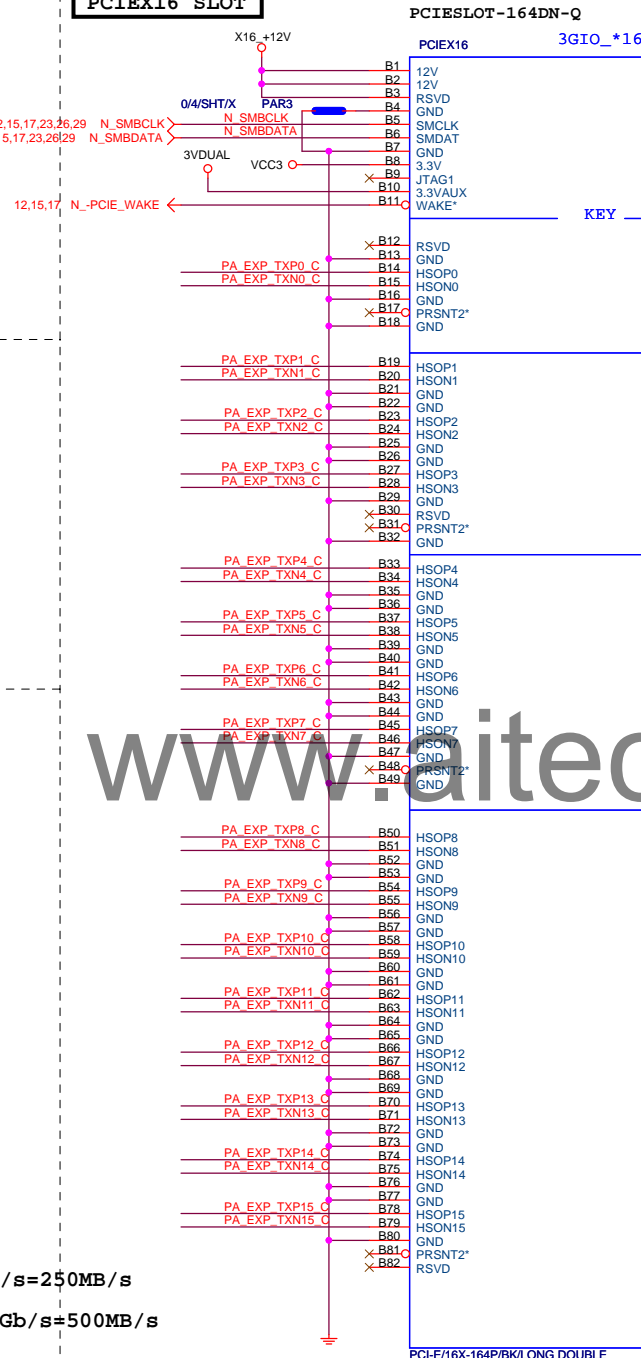
+12 protect
short-wire test



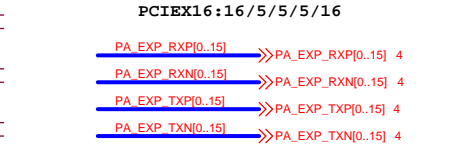
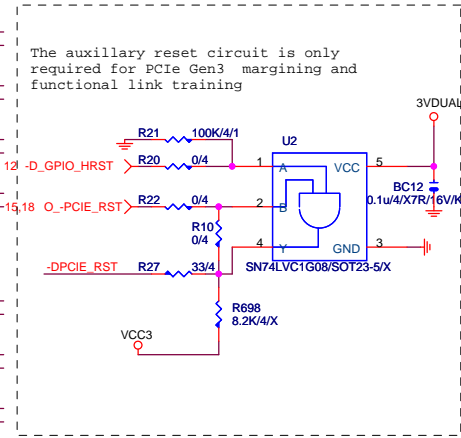
PCIEX16 AC CAP

PA EXP TXP0 C	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXP1 C	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN0 C	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP2 C	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN1 C	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP3 C	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN2 C	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP4 C	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN3 C	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP5 C	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN4 C	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP6 C	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN5 C	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP7 C	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN6 C	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP8 C	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN7 C	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP9 C	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN8 C	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP10 C	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN9 C	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP11 C	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN10 C	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP12 C	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN11 C	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP13 C	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN12 C	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP14 C	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN13 C	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP15 C	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN14 C	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP16 C	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXP16 C
PA EXP TXN15 C			

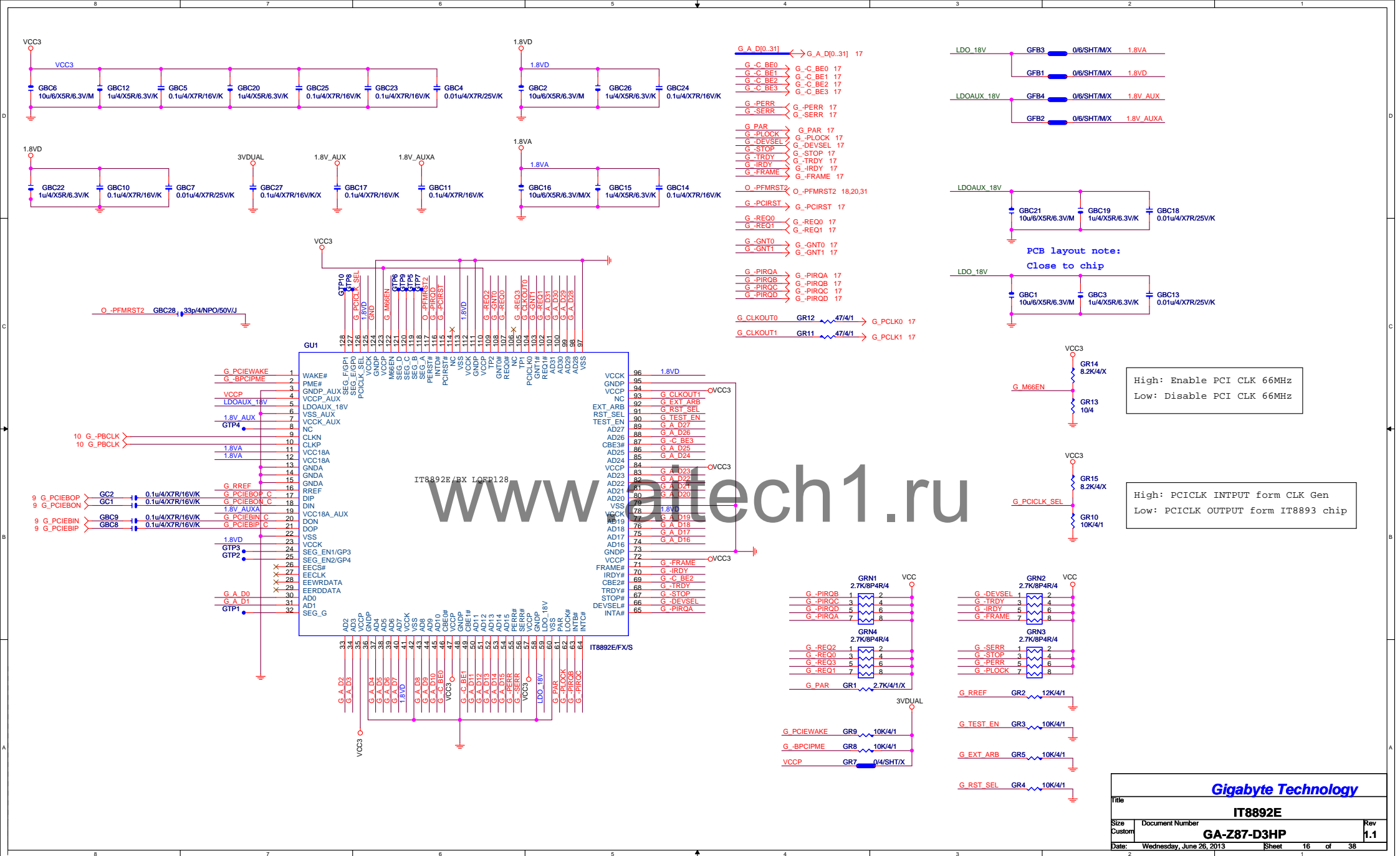
PCIEX16 SLOT



PCI-E16X-164P/BK/LONG DOUBLE



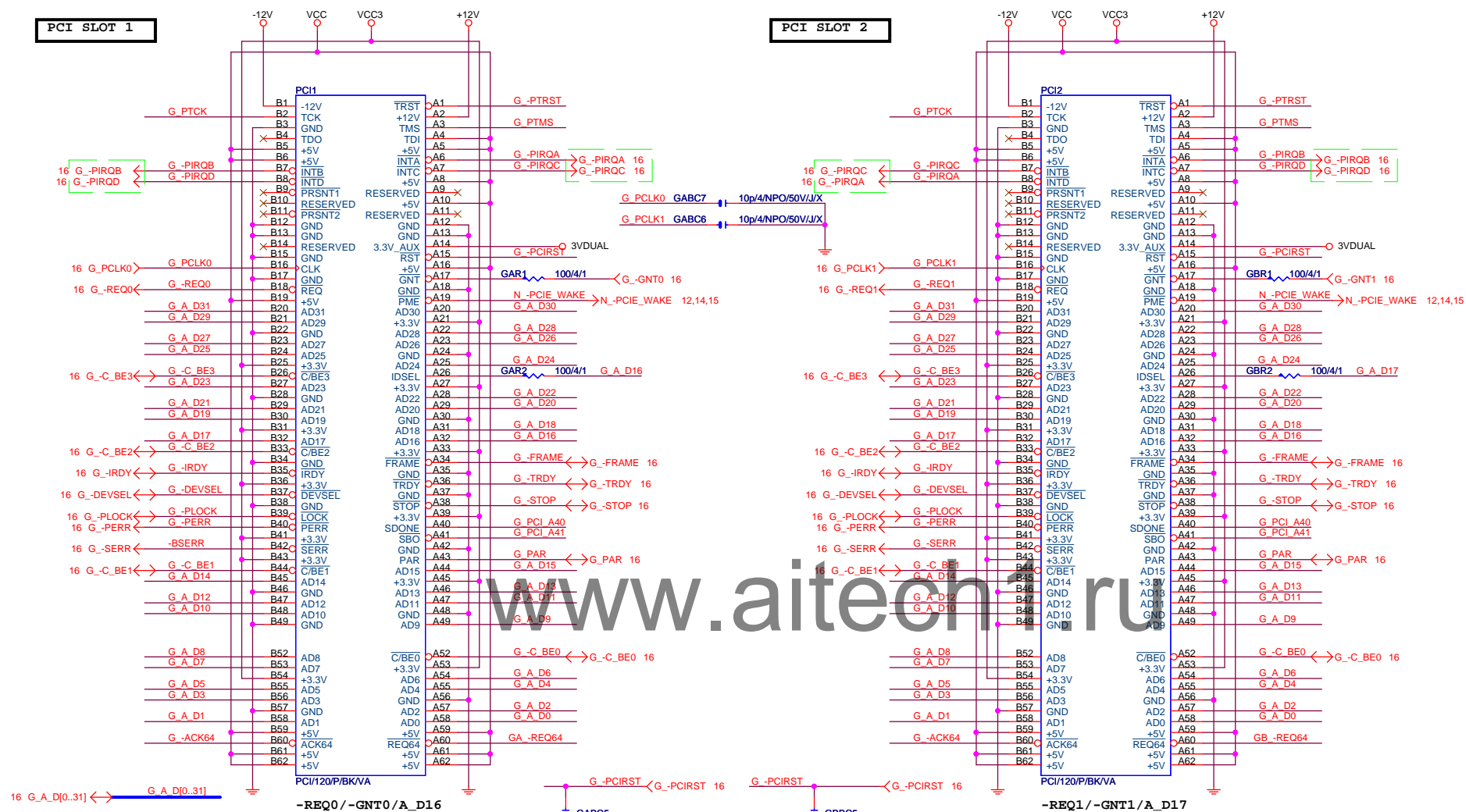
Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size Custom	Document Number	GA-Z87-D3HP	Rev 1.1
Date:	Wednesday, June 26, 2013	Sheet 14	of 38



Gigabyte Technology		
File		
IT8892E		
Size	Document Number	Rev
Custom	GA-Z87-D3HP	1.1
Date:	Wednesday, June 26, 2013	Sheet 16 of 38

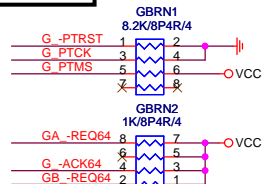
PCI SLOT 1

PCI SLOT 2

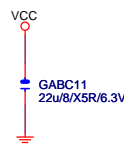


PCI PU

PCI CAP



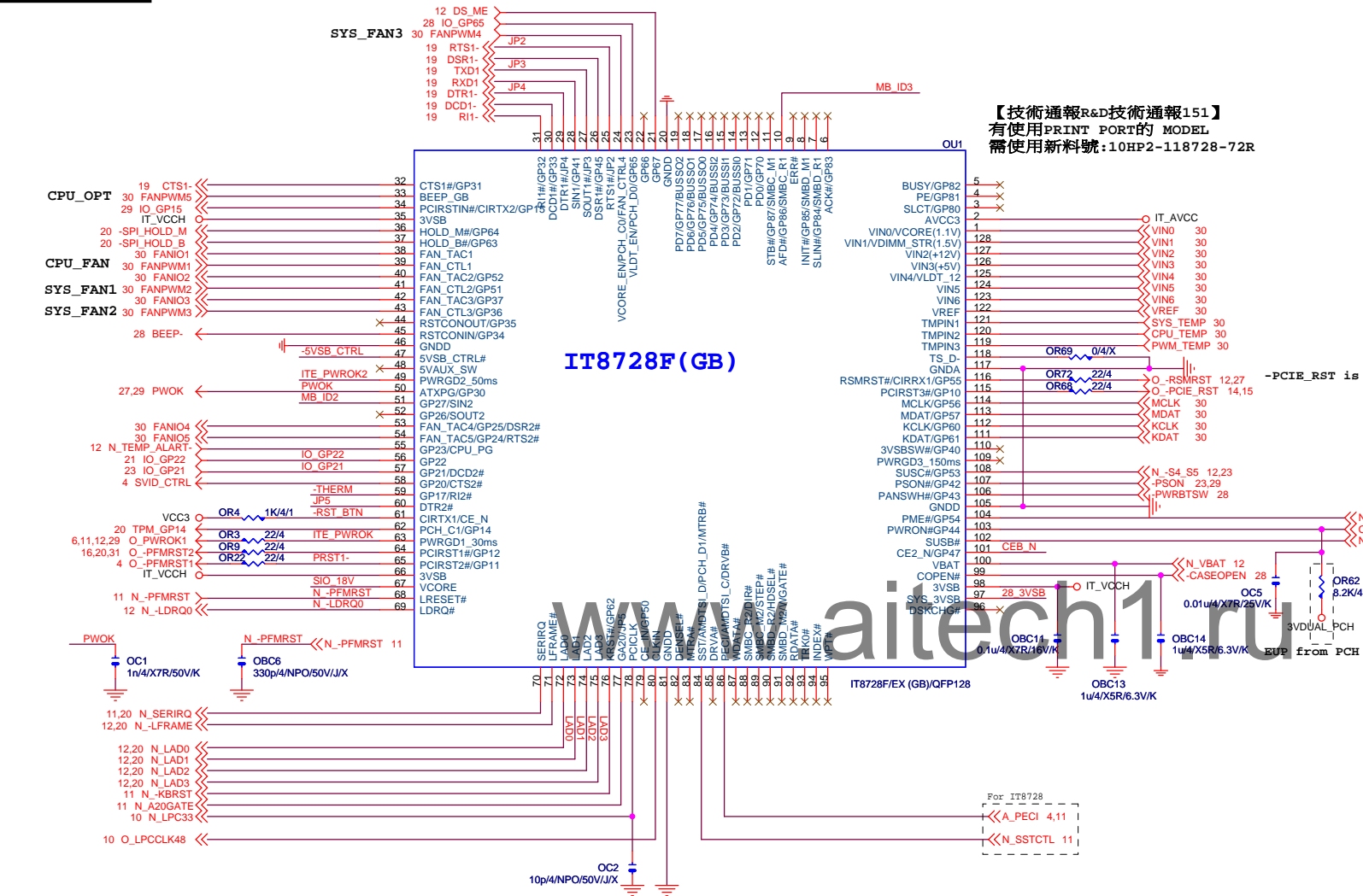
PCI CAP



GIGABYTE

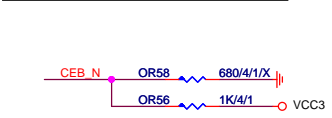
PCI SLOT 1&2		
Size	Document Number	Rev
Custom	GA-Z87-D3HP	1.1
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SIO IT8728F

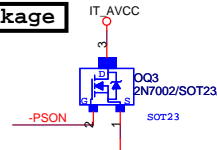


IT8728F NOTE	
	IT8728
PIN121	VCORE_EN#/PCH_C0
PIN120	VLDI_TN#/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSL_D/MTRB#/PCH_D1
PIN55	PCI/AMDTSL_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

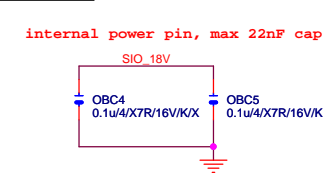
DUAL BIOS OPT STRAP



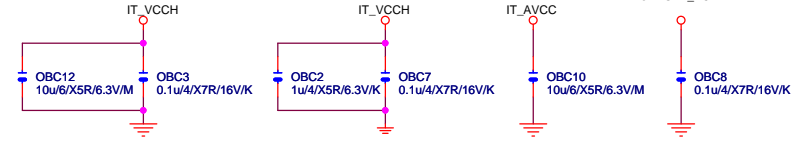
Power leakage



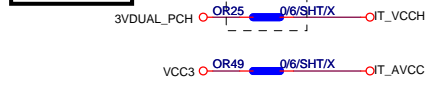
SIO_18V



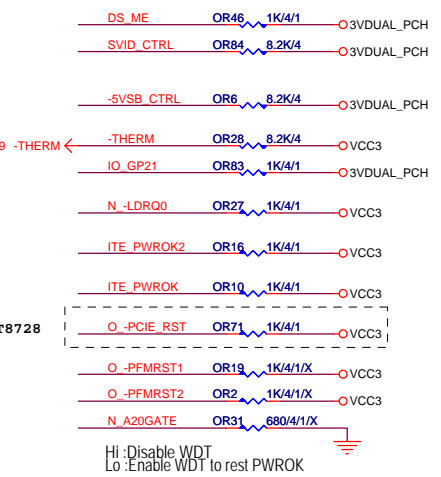
SIO CAP



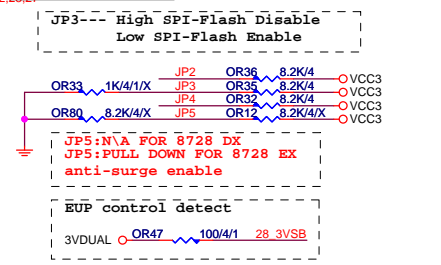
PWR SHT



SIO PU

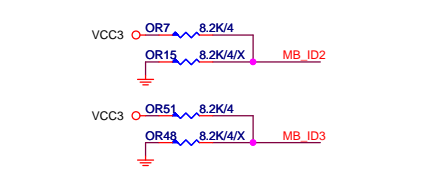


SIO STRAP



JP4	1	k8 power sequency function is Disable
JP4	0	k8 power sequency function is 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



Gigabyte Technology

Title

ITE 8728 LPC IO

Size B

Document Number

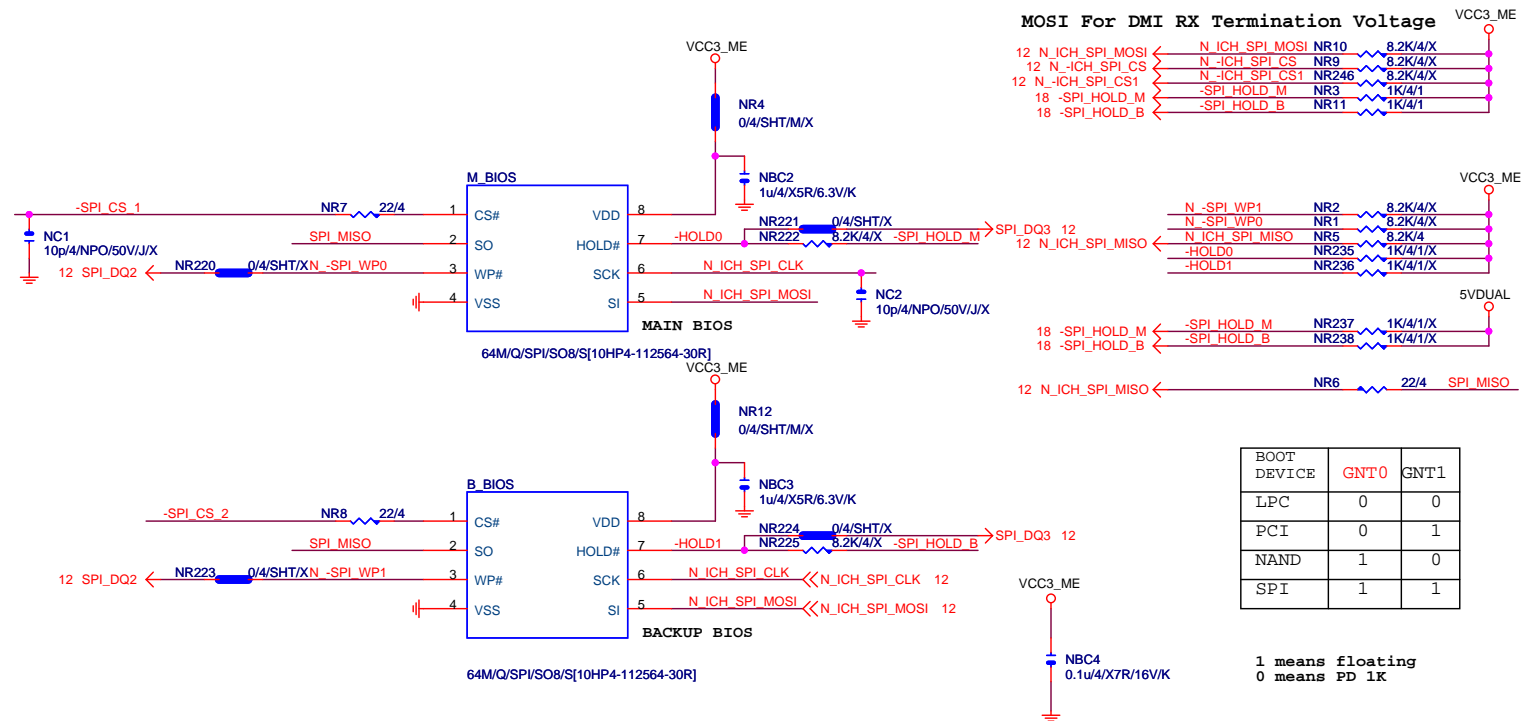
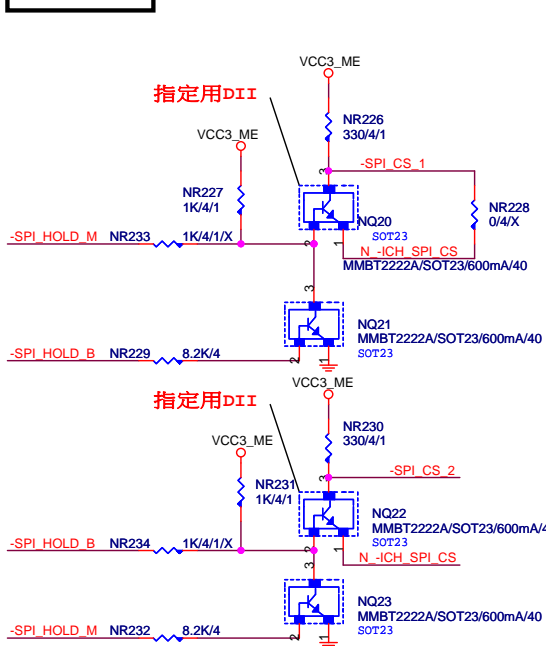
GA-Z87-D3HP

Date: Monday, July 01, 2013

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Rev 1.1

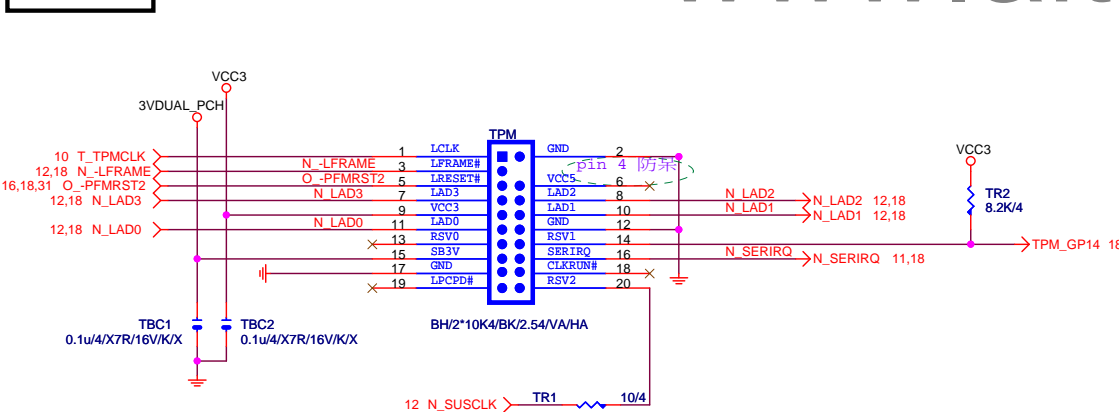
DUAL BIOS



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

1 means floating
0 means PD 1K

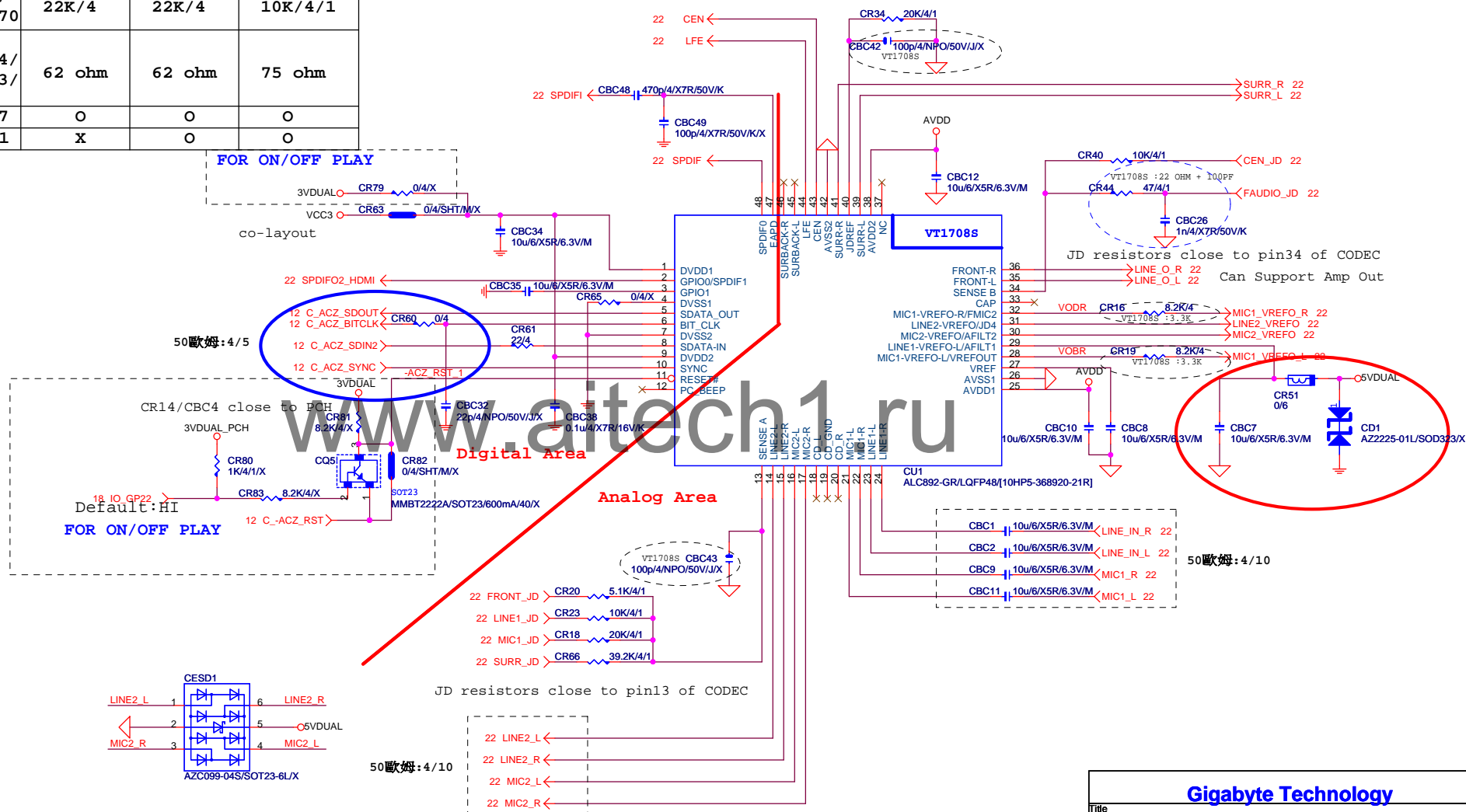
TPM CONNECT

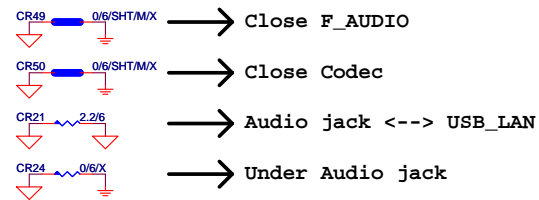


Gigabyte Technology

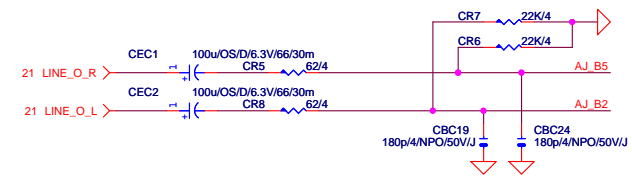
Title				BIOS			
Size	Document Number						Rev
Customr	GA-Z87-D3HP						1.1
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	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	X	O	O



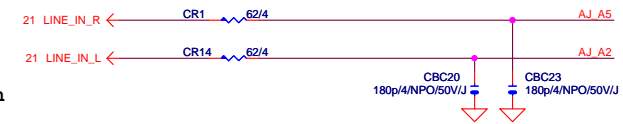


LINE-OUT



LINE-IN

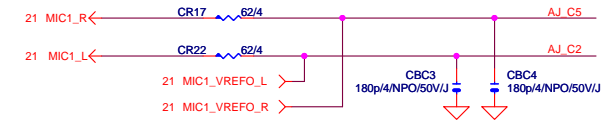
Only reserved for ALC888



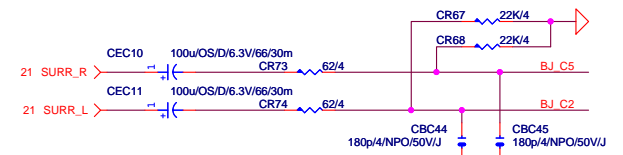
Verify MIC function
in LINE-in

For 889A/888

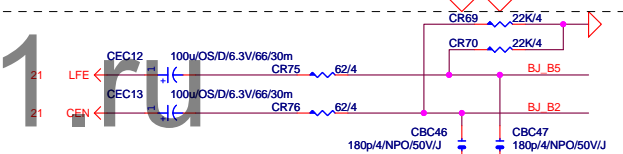
MIC-IN



SURROUND

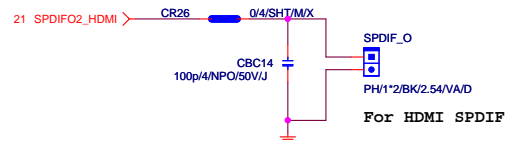


CEN/LFE



SURR BACK

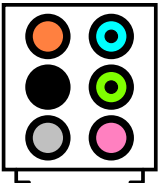
SPDIF_OUT



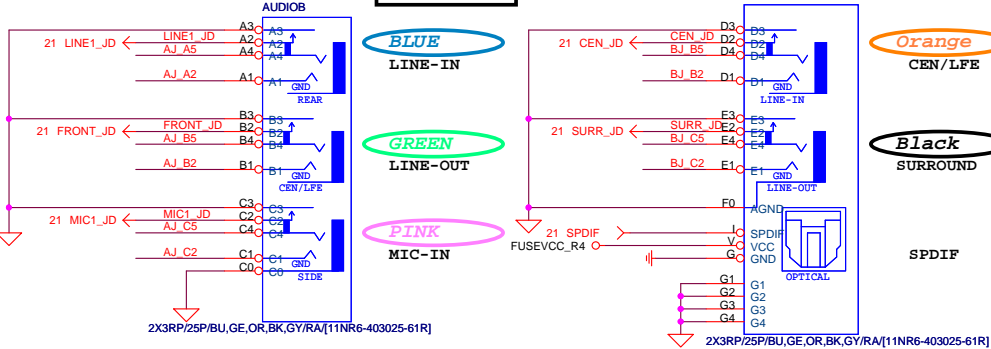
SPDIF_IN



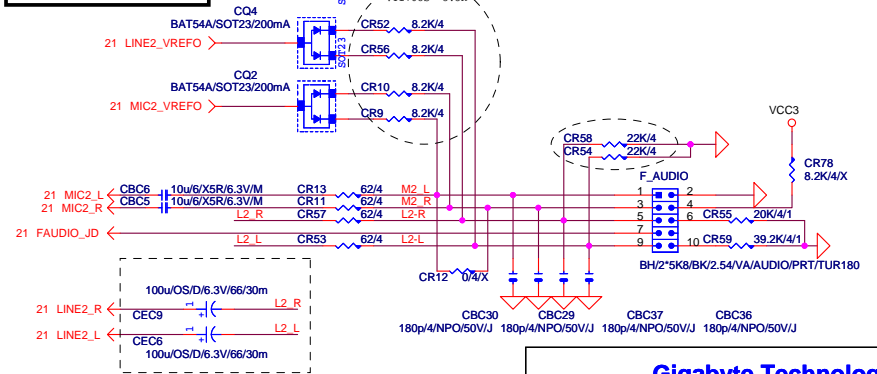
AZALIA JACK



AZALIA JACK



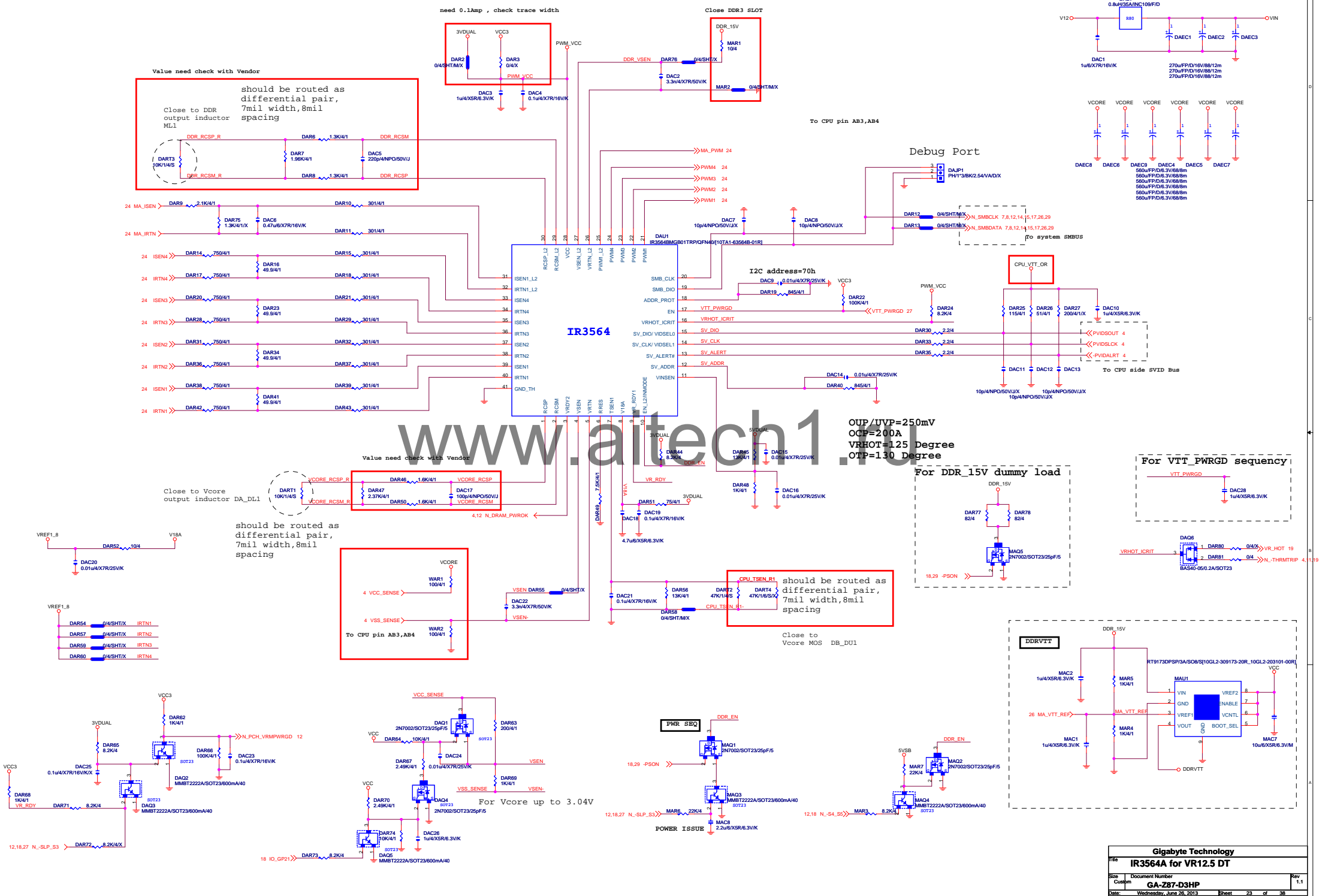
AZALIA FRONT PANEL



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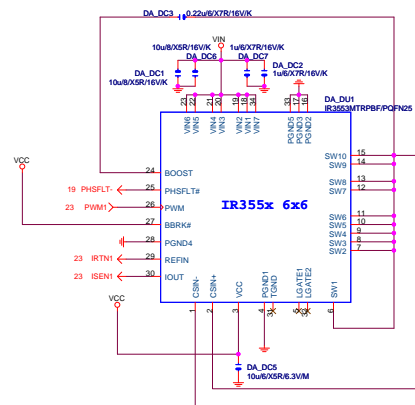
AUDIO JACK

Title	Document Number	Rev
	GA-Z87-D3HP	1.1
Date: Wednesday, June 26, 2013	Sheet 22 of 38	

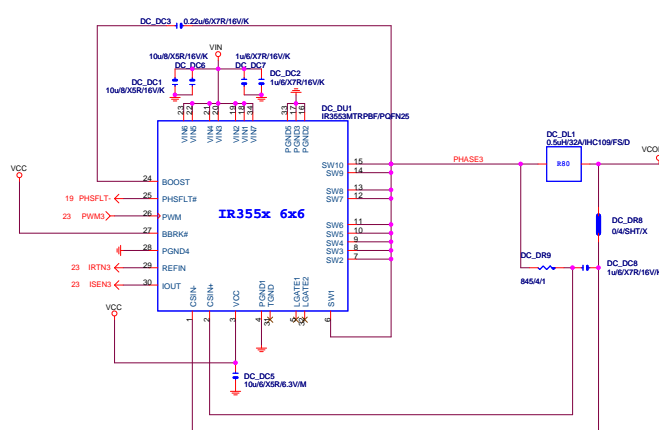


VCORE

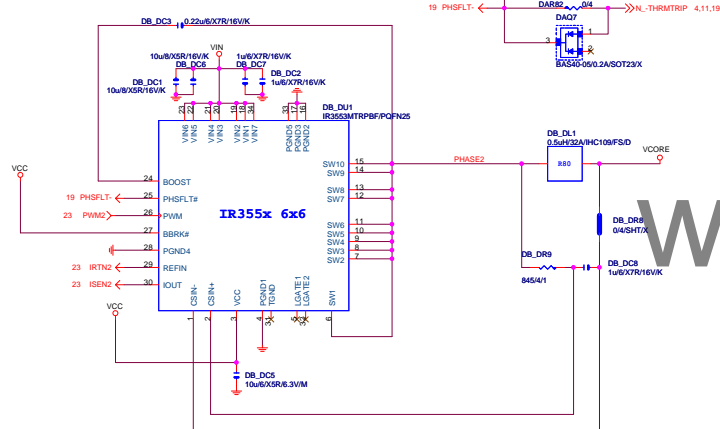
VCORE-PHASE1



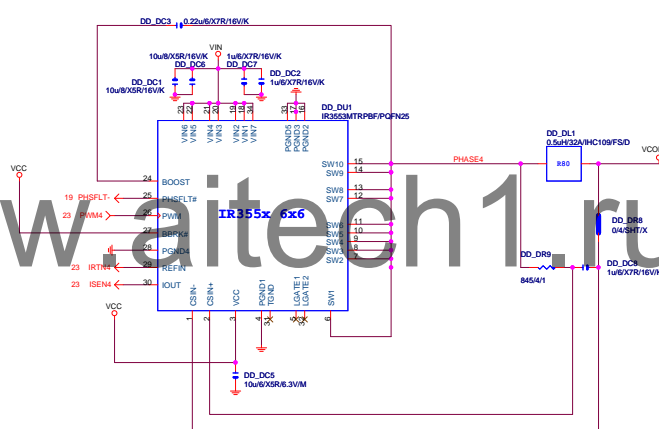
VCORE-PHASE3



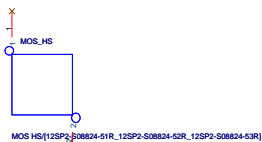
VCORE-PHASE2



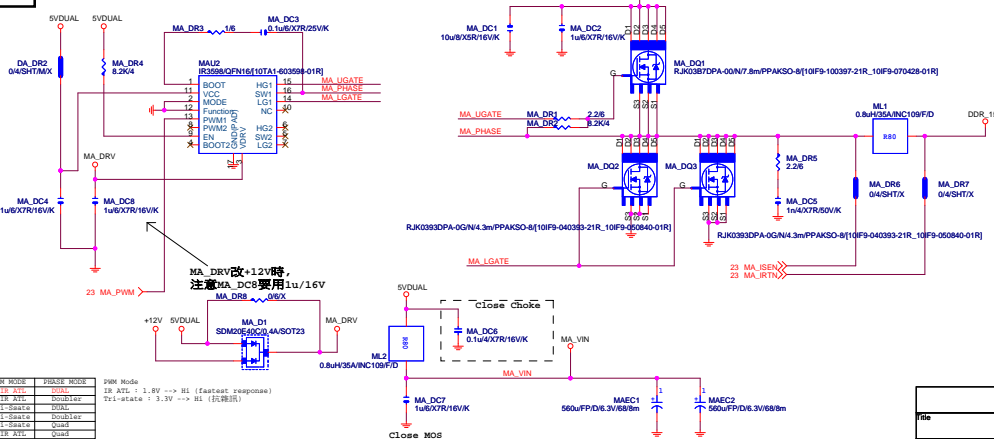
VCORE-PHASE4



MOSFET HEATSINK

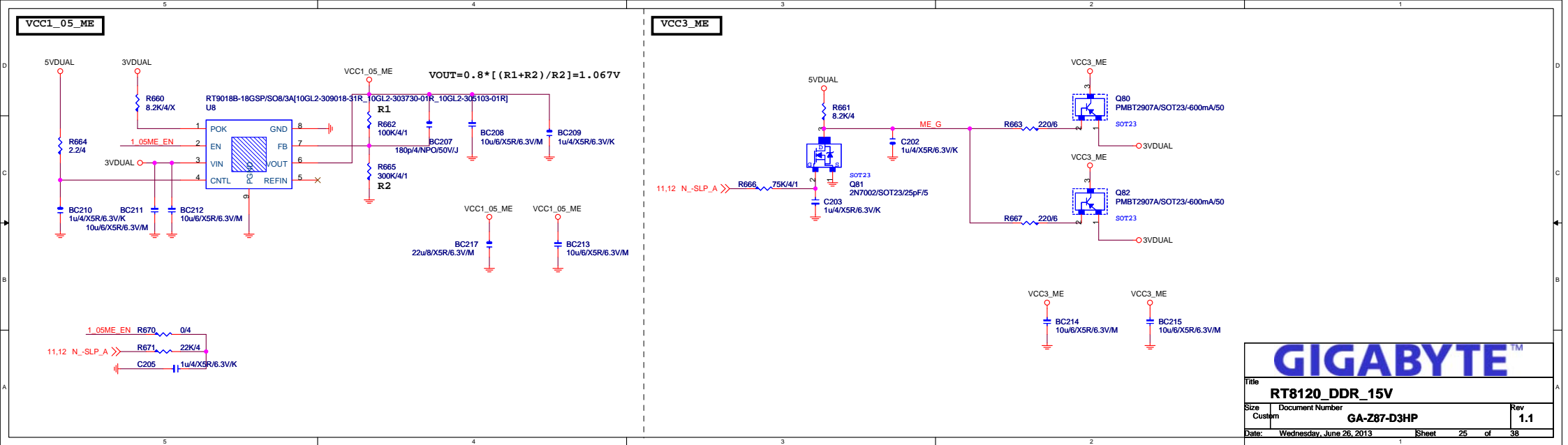


DDR_15V



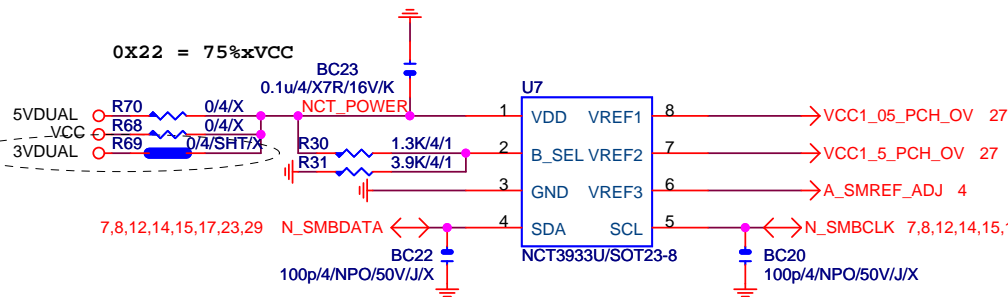
PHASE	MODE	PHASE	MODE
0	1	18	20
1	19	21	22
2	23	24	25
3	26	27	28
4	29	30	31
5	32	33	34
6	35	36	37
7	38	39	40
8	41	42	43
9	44	45	46
10	47	48	49
11	50	51	52
12	53	54	55
13	56	57	58
14	59	60	61
15	62	63	64
16	65	66	67
17	68	69	70
18	71	72	73
19	74	75	76
20	77	78	79
21	80	81	82
22	83	84	85
23	86	87	88
24	89	90	91
25	92	93	94
26	95	96	97
27	98	99	100

In Quad mode, IC1 pin19 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PJ

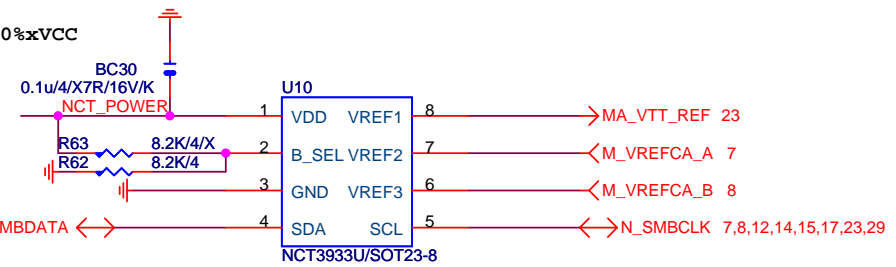


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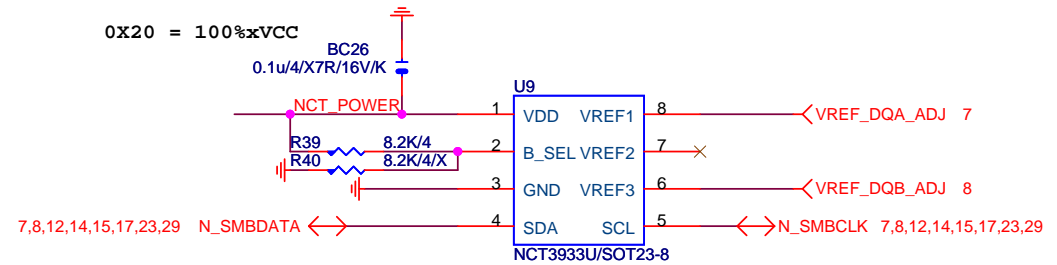
OVER VOLTAGE



0X2A = 0%xVCC



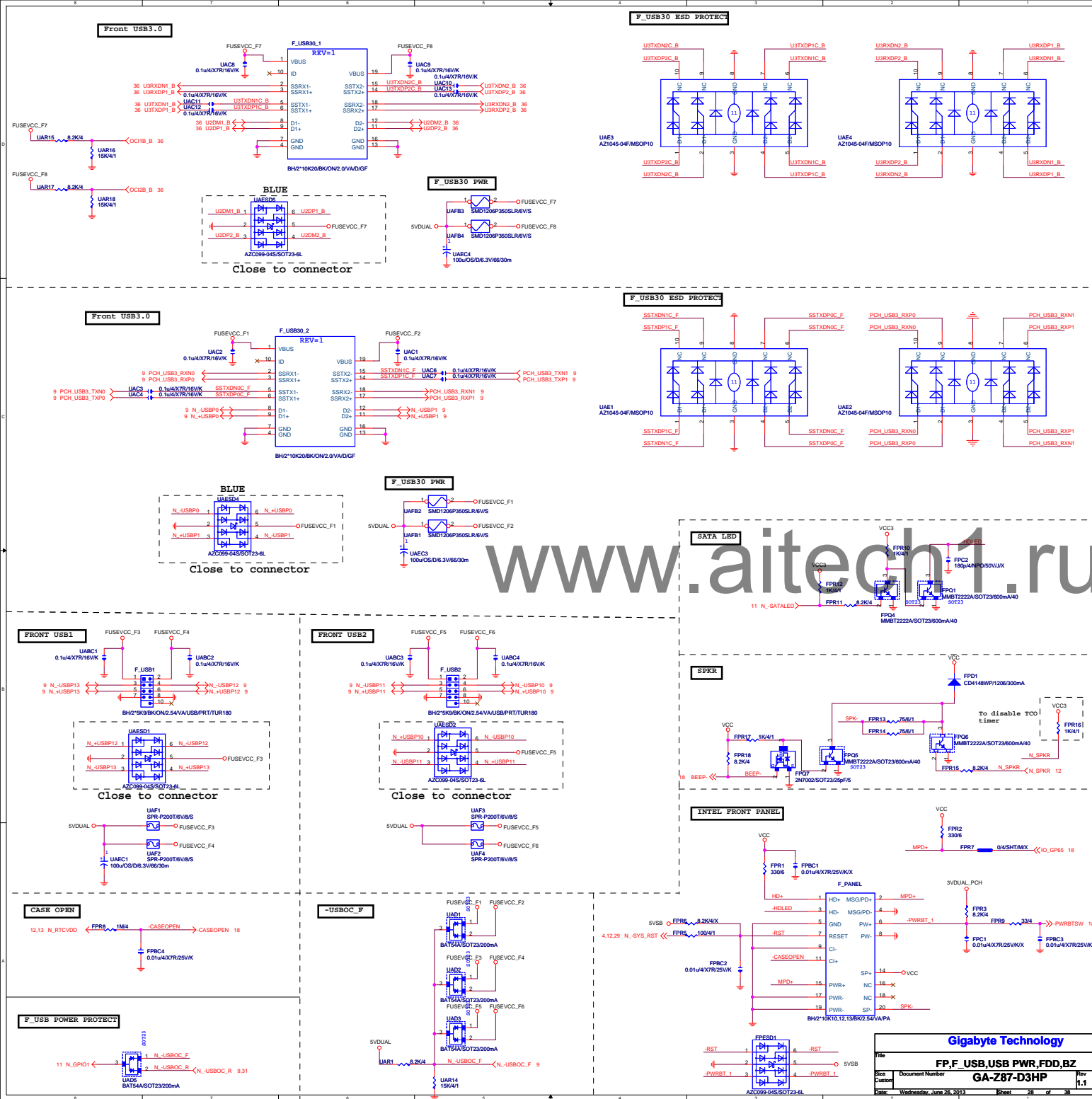
0X20 = 100%xVCC



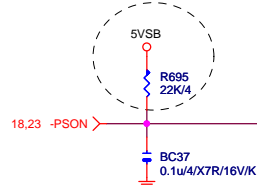
NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

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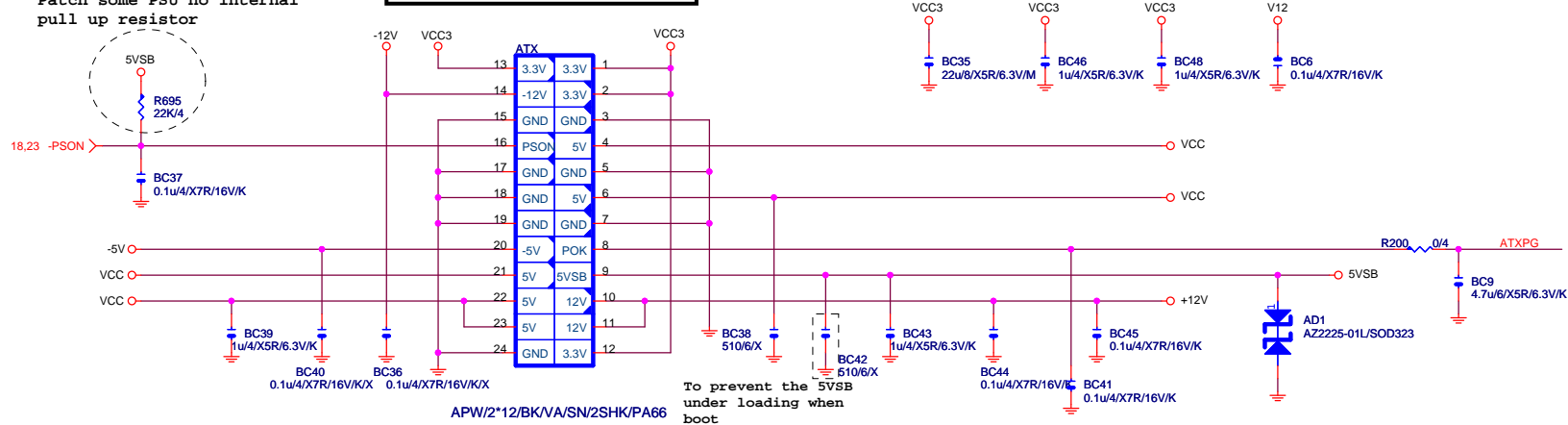
Title		
CPU CORE VR-2		
Size	Document Number	Rev
Custom	GA-Z87-D3HP	1.1
Date:	Wednesday, June 26, 2013	Sheet 26 of 38



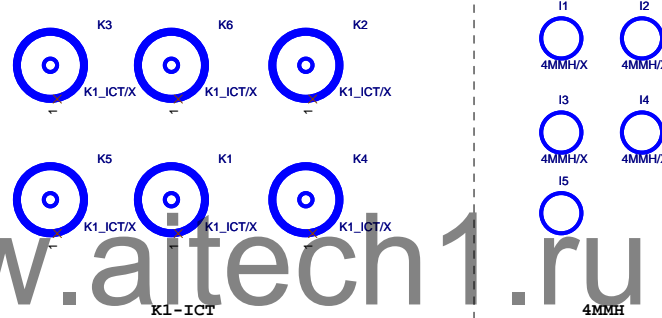
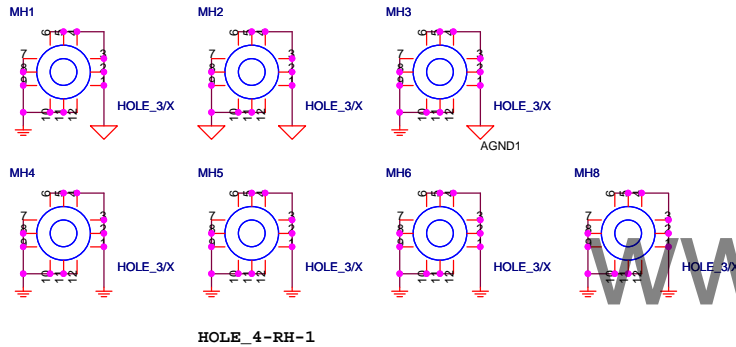
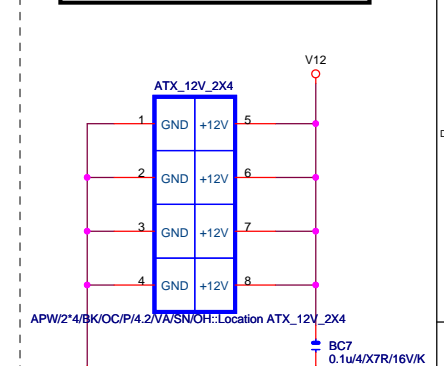
Patch some PSU no internal pull up resistor



ATXX24 POWER CONNECTOR

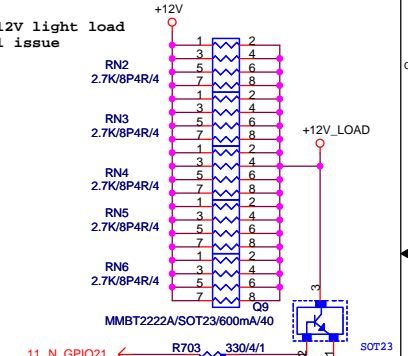


ATXX4 POWER CONNECTOR



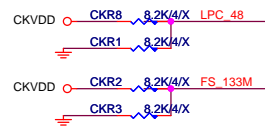
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue

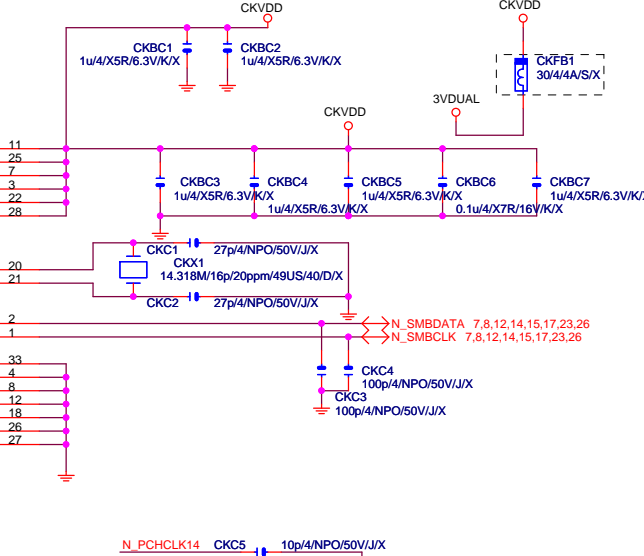
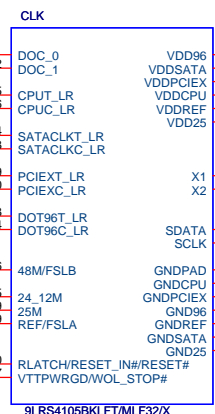
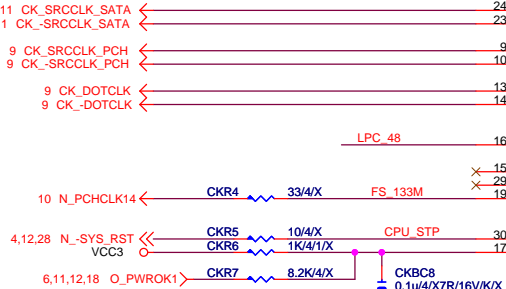


CLK GEN

CPU Frequency Selection

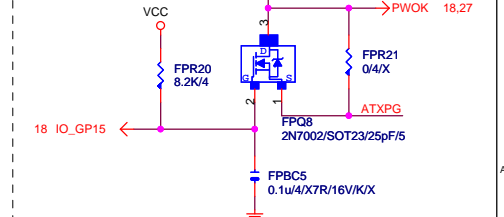


FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



PWOK PATCH

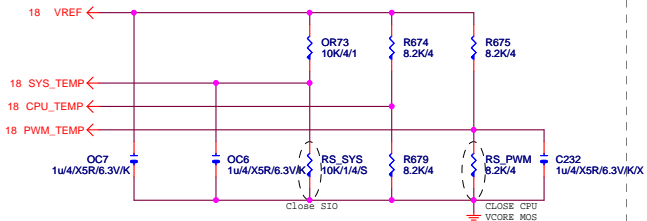
【技術通報R&D技術通報154】



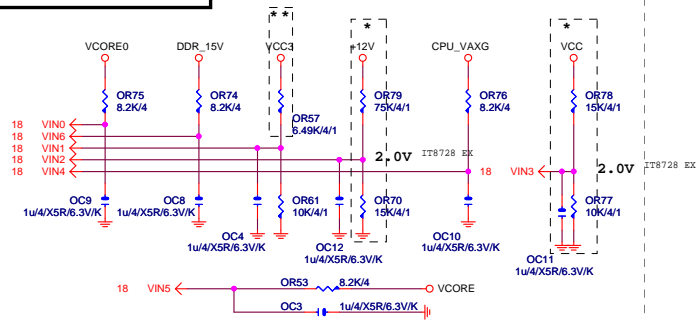
Gigabyte Technology

Title			ATX POWER CONNECTOR
Size	Document Number	GA-Z87-D3HP	
Custom			
Date	Wednesday, June 26, 2013	Sheet	29 of 38
			Rev 1.1

TEMP H/W MONITOR

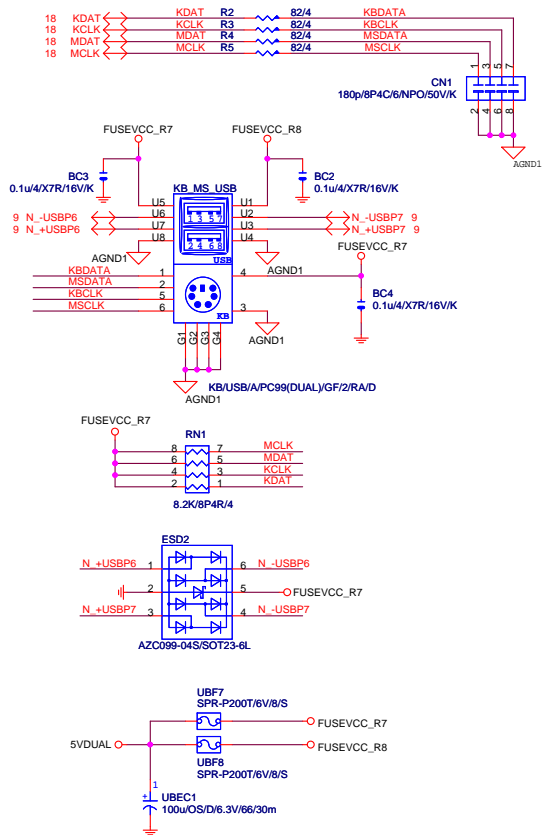


VOLTAGE-- H/W MONITOR

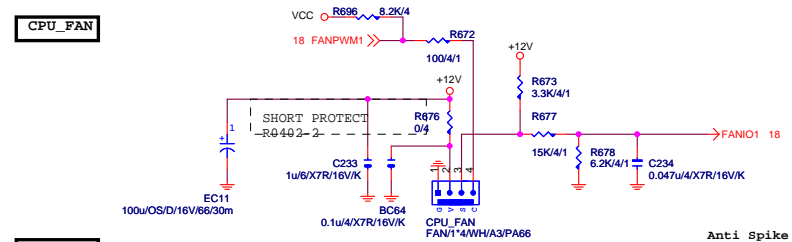


The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB

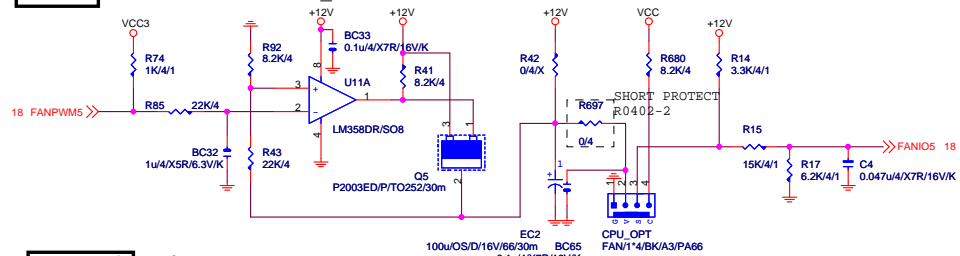


CPU FAN



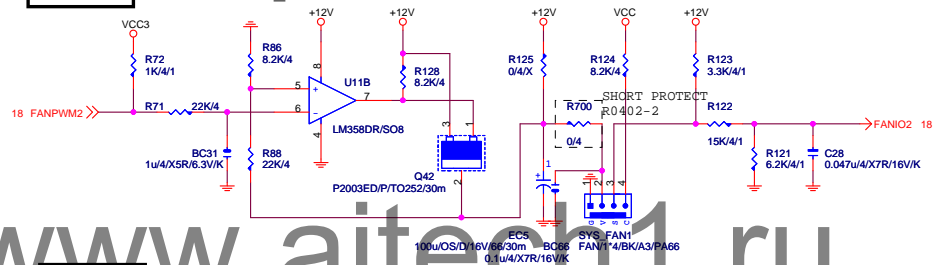
CPU OPT

Linear CPU OPT



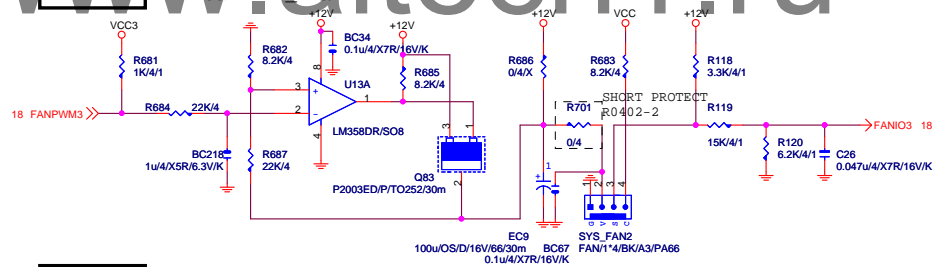
SYS FAN_1

Linear SYS FAN



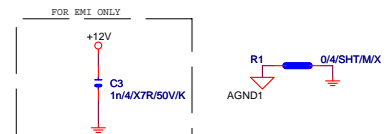
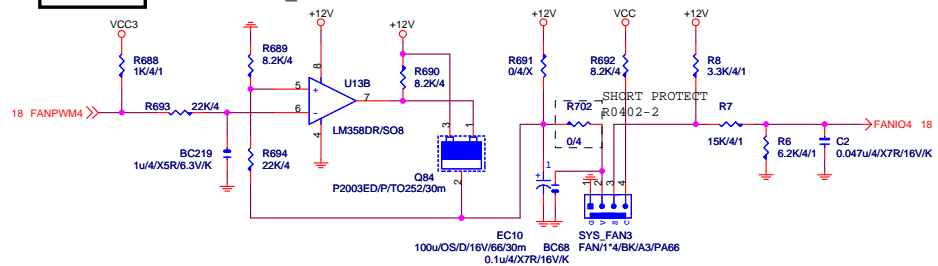
SYS FAN

Linear SYS FAN



SYS FAN_

Linear SYS FAN



Gigabyte Technology

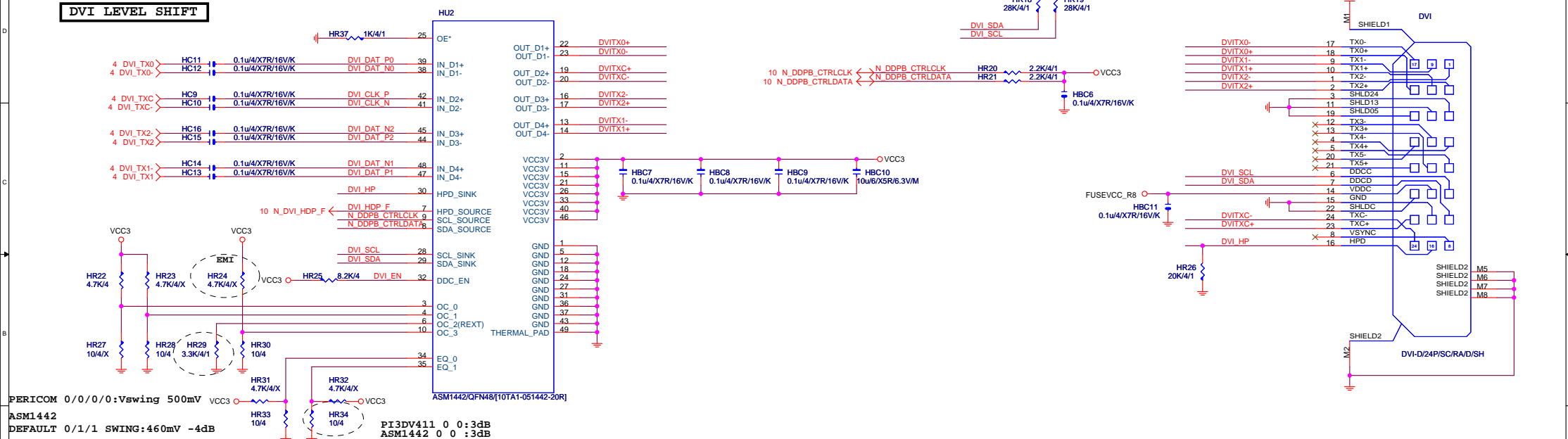
Title	HWM,KB/MS. FAN CTRL
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Size	Document Number
Custom	GA-Z87-D3HP

1.1

DVI LEVEL SHIFT

DVI:15/4/4/15
Impedance=85 +- 17.5%



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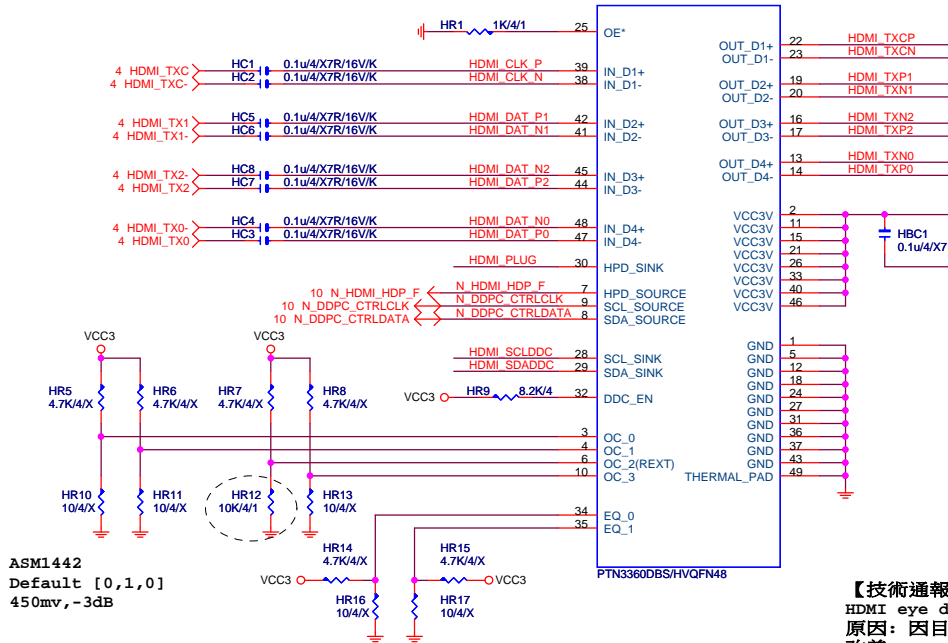
Gigabyte Technology			
TI TSB43AB23 1394			
Size Custom	Document Number	GA-Z87-D3HP	
Date: Wednesday, June 26, 2013	Sheet	32	of 38
	Rev	1.1	

HDMI LEVEL SHIFT

HDMI:15/4/4/15

Impedance=85 +- 17.5%

HU1



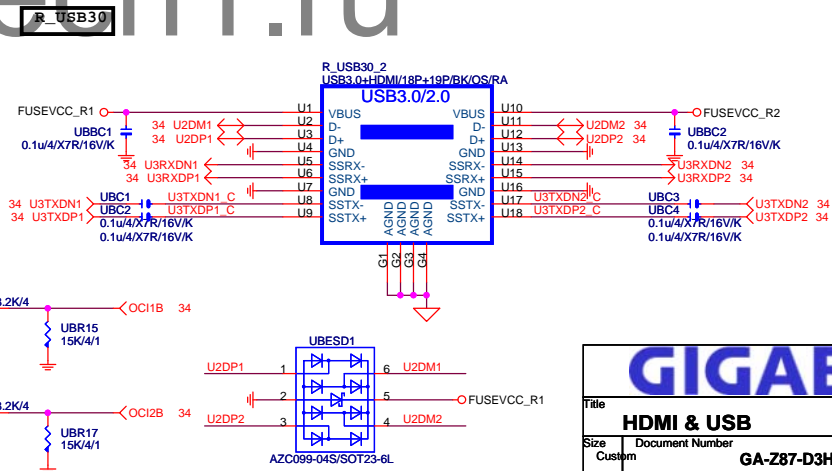
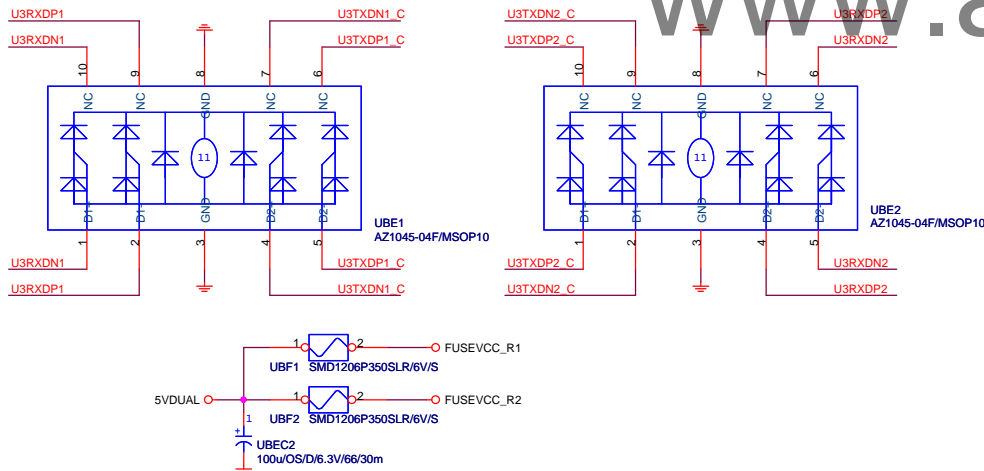
【技術通報R&D技術通報150】

HDMI eye diagram 1.4版(deep color)會fail

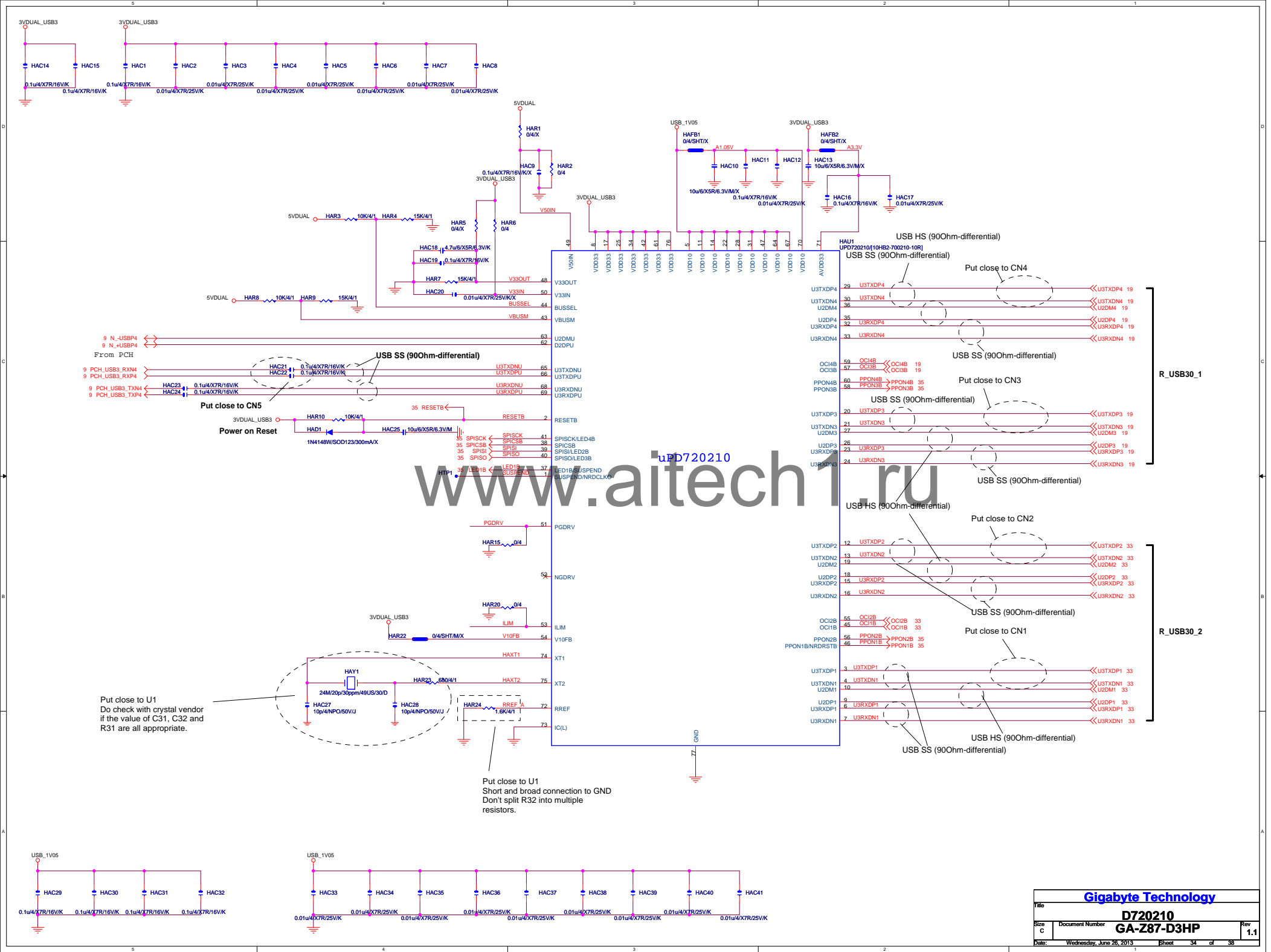
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram

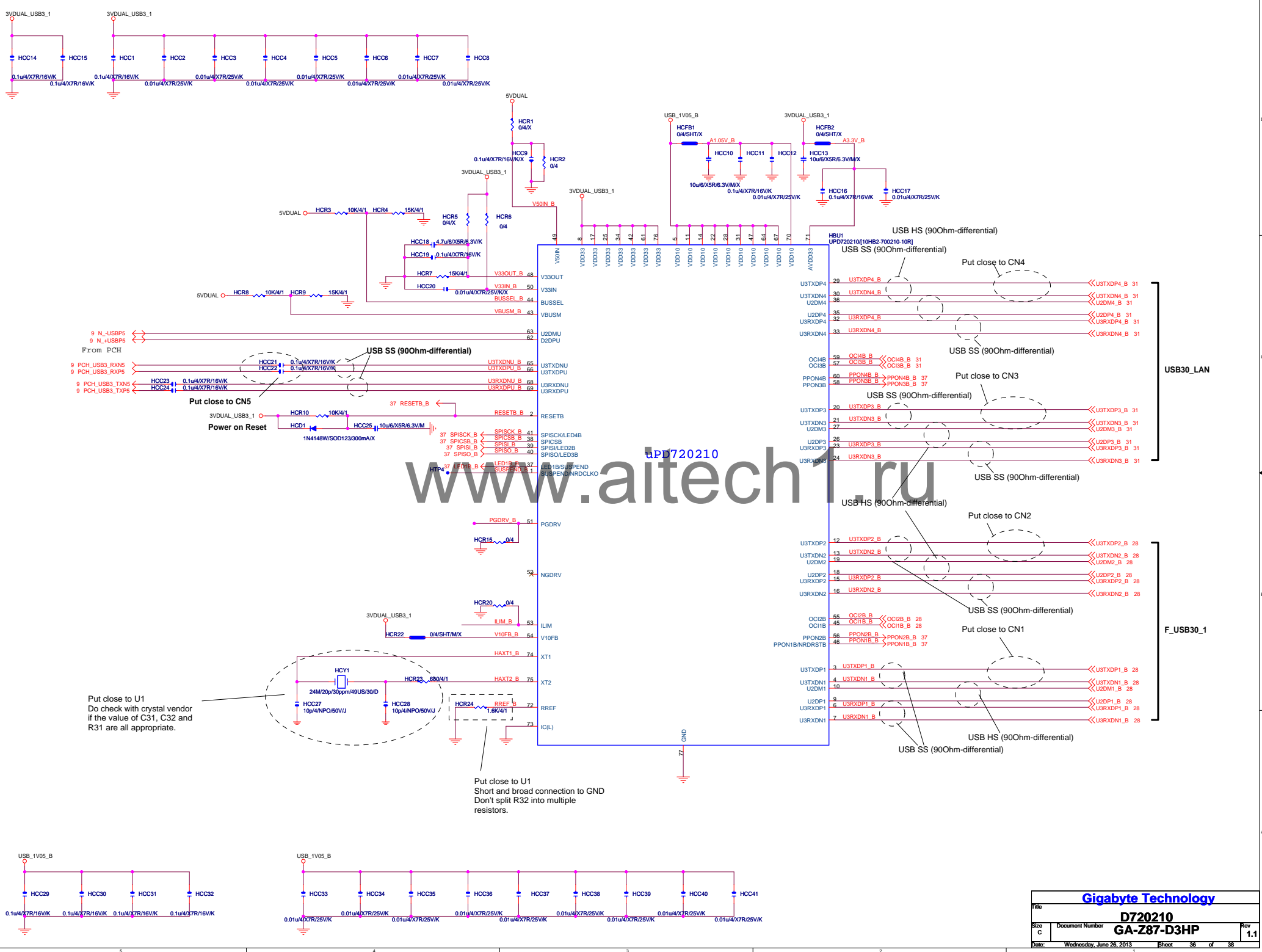
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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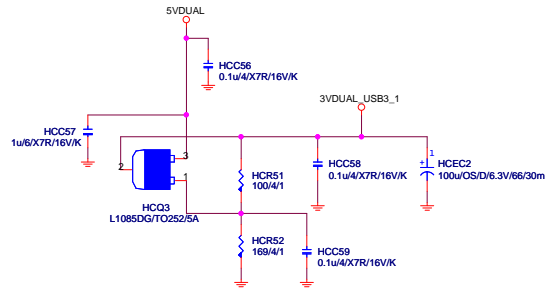


GIGABYTE™			
HDMI & USB			
File	Document Number	Rev	
	GA-Z87-D3HP	1.1	
Date	Wednesday, June 26, 2013	Sheet	33 of 38

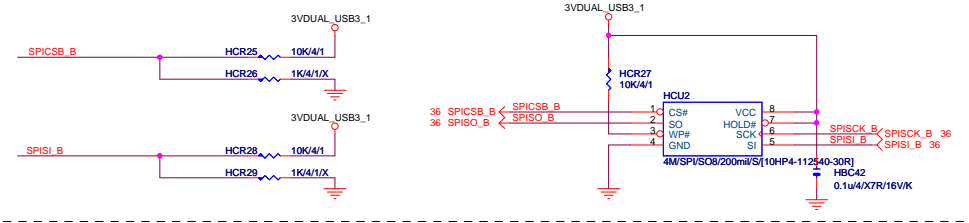




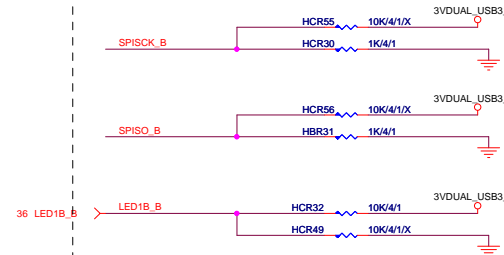
3VDUAL_USB_2



External SPI ROM ; SPI ROM attached mode

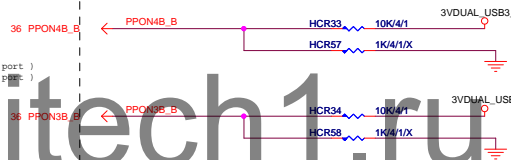


Battery Charging

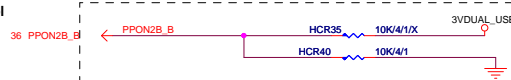


Number of Ports ; 4Ports mode

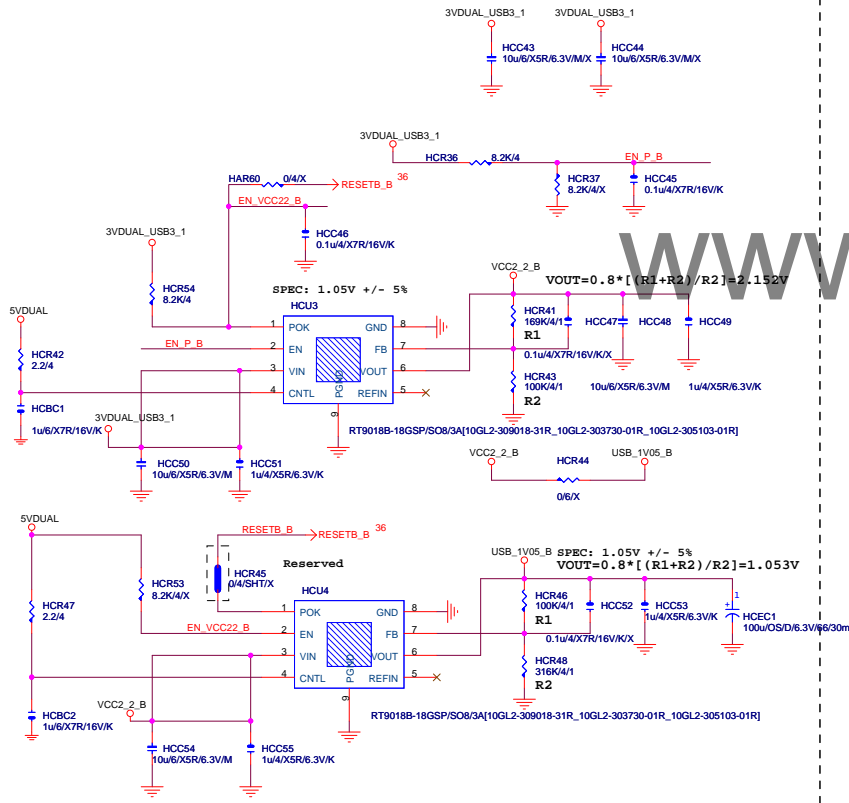
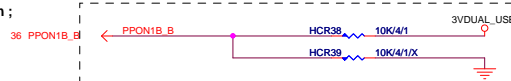
PPON3B / PPON4B : H / H (4 port)
PPON3B / PPON4B : L / L (2 port)



#5 VBUS Power Control ; Individual mode



PPON1B Pin Function ; Port1 PPONB mode



Gigabyte Technology

D720210

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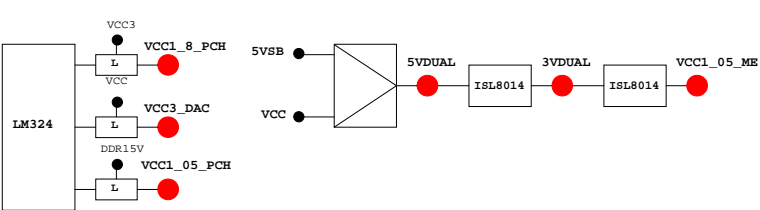
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAG	NOTE
GP0	MAIN	H-Z	GPIO0	N/A
GP1/TACH1	MAIN	GPI	GPIO1	N/A
GP2/PIRQE#	MAIN	GPI	~PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	GPI	~PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	GPI	~PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	GPI	~PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN	GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8
GP9/OC5#	STBY	NATIVE	USB OC5#	N/A
GP10/OC6#	STBY	NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY	NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12
GP13	STBY	L	GPI	LPCPME#
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)
GP16	MAIN	GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN	GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN	GPI	Mobile Only	N/A
GP19	MAIN	GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN	GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN	GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22
GP23	MAIN	GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	PWR LED
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	~PCI_STOP
GP35	MAIN	L	GPO	~ACZ_DET
GP36	MAIN	GPI	N/A	N/A
GP37	MAIN	GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect
GP39	MAIN	H-Z	GPI	GPIO39
GP40	STBY	NATIVE	USB OC1#	N/A
GP41	STBY	NATIVE	USB OC2#	N/A
GP42	STBY	NATIVE	USB OC3#	N/A
GP43	STBY	NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44
GP45	STBY	NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48
GP49	MAIN	H-Z	IN	GPIO49
GP50	MAIN	NATIVE	~REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	~GNT1
GP52	MAIN	NATIVE	~REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	~GNT2
GP54	MAIN	NATIVE	~REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	~GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	~SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

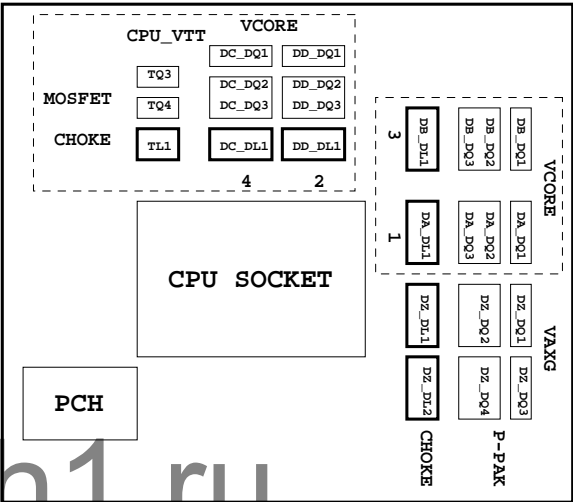
Super I/O ITE8720 GPIO Table

PIN NAME	USAG	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAG	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
VIDO5/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSC#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CSISBSL	
VIDO0/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMB_C_R	SEC_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

散熱模組料號：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

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TABLE LIST			
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