Model Name: GA-H97M-D3H

Revision 1.0

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 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
16	PCI SLOT1,2
17	ITE 8620 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC892-GR
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX ,TPM
27	VCORE ISL95820_1

SHEET	TITLE
28	VCORE ISL95820 2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI, HDMI
32	IT8892E

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H97M-D3H | Rev: 1.0

Date: Monday, April 28, 2014 | Sheet 1 of 32

Model Name: GA-H97M-D3H

Revision 1.0

Component value change history

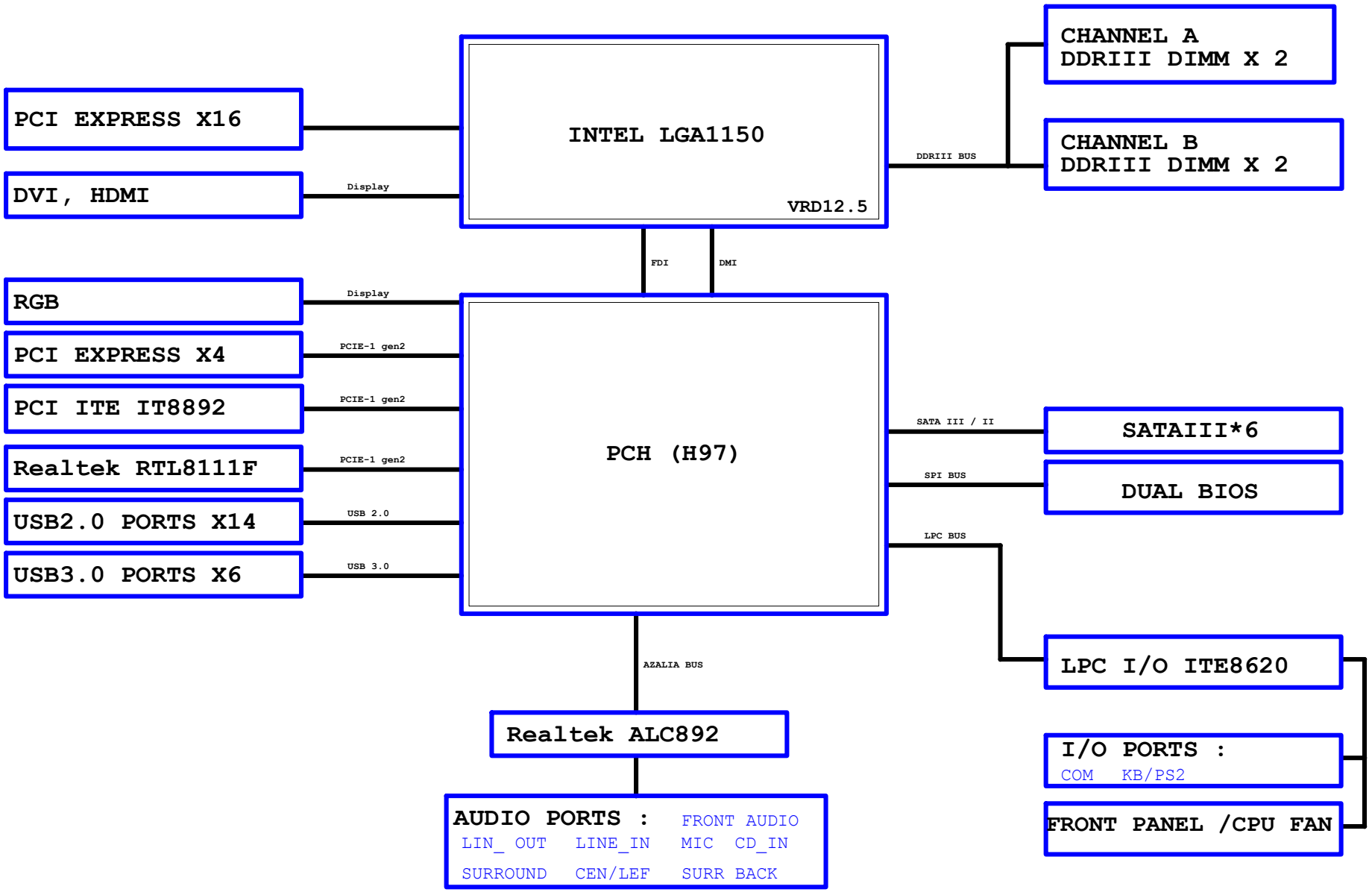
2014/04/25

Data	Change Item	Reason
2013/12/09	機構變更MOS_HS尺寸:長度大小由89修改為79mm,孔大小由D3mm修改為D4mm	
2013/12/11	MR.LIN:移除1 PORT 1 FUSE規格	
2013/12/12	MR.LIN:移除DVI LEVEL SHIFTER改成COSTDOWN設計方式	
2013/12/20	HDD LED/FUSB3.0 ESD PROTECTOR	
2013/12/24	MODIFY AP NOTE	
2013/12/26	MODIFY AP NOTE:USB防燒,IT8620斜插ISSUE	
2013/12/27	R0.1 GERBER OUT	
2014/1/13	AP NOTE:DVI LEVEL SHIFTER改回	
	PCH_HS,MOS_HS:9 SERIES	
	加回AP431 BOM VCC1_5_PCH_OV	
2014/1/16	AP NOTE(UATX):DVI LEVEL SHIFTER移除,BIOS DRIVING 800mV 2dB	
	BIOS_PH移除	
2014/1/27	COSTDOWN:5VDUAL-->FUSEVCC_R2,DEL UD7 BAT54A	
2014/1/28	AP NOTE:移除F_USB保護線路及AP431	
2014/2/10	CPU_FAN PIN2增加C319 0.1U/4/X7R/16V/K	
	Q47,Q48:2N7002 GATE~VCC3	
	FOOT MASK	
2014/2/18	C136:0.1u/6/X7R/25V/K	
	H97 Vcore	
	High /low side ON: 10IF9-584081-00R NTMFS4C08NT1G	
	Non-Vcore High /low side	
	ON: 10IF9-070410-00R NTMFS4C10NT1G	
2014/2/19	R1.0 GERBER OUT	
2014/04/11	Update H97 Chipset 料號 [10HB1-030H97-20R]	
2014/04/25	Update DDR RC	PBOM: 9MH97MD3H-00-10C
	R396: 27K -> 20K	
	R657: 487 -> 680	
	R380: 2.26K -> 2.15K	

Circuit or PCB layout change

DATE	Change Item	Reason

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H97M-D3H	Rev: 1.0
Date: Monday, April 28, 2014	Sheet 3 of 32	

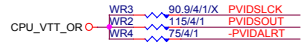
LGA1150 (E)

CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

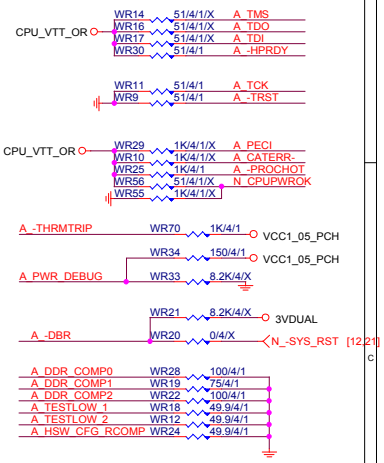
CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

LGA1155 (C)

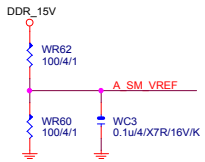
CPU SVID



CPU PU/PD

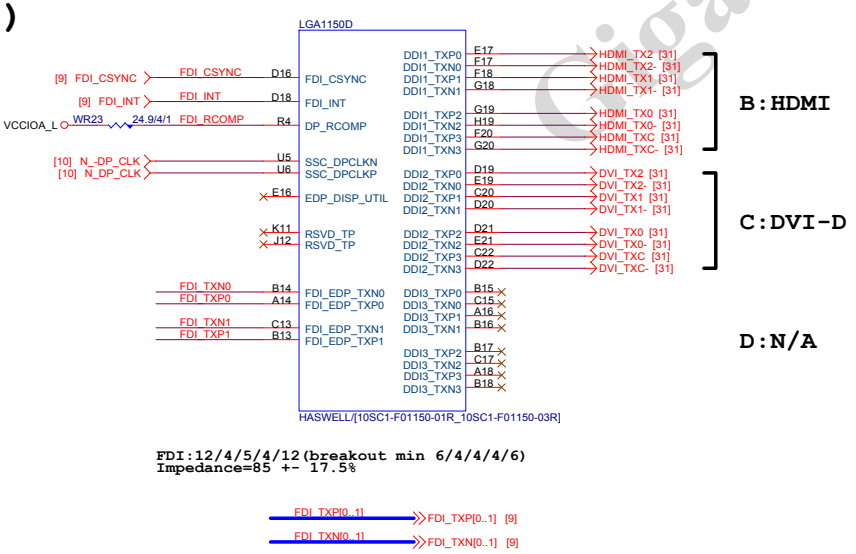


SM REF

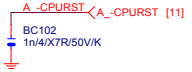


LGA1150 (D)

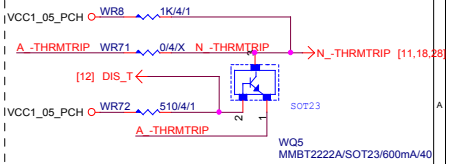
DVI-I + HDMI組態就是: DVI-I port B, HDMI port C
DVI-D + HDMI組態就是: DVI-D port C, HDMI port B



-CPURST



THRMTRIP DISABLE



Title	CPU LGA1150-A	
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
Date: Monday, April 28, 2014	Sheet 4 of 32	

Gigabyte Technology

LGA1150 (A)

LGA1150A

MAAA0	AU13	DDR0_MA0	DDR0_DQ0	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_DQ1	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_DQ2	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_DQ3	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_DQ4	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_DQ5	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_DQ6	AF37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_DQ7	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_DQ8	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_DQ9	AH39	MDA13
MAAA10	AW11	DDR0_MA10	DDR0_DQ10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_DQ11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_DQ12	AH37	MDA12
MAAA13	AY10	DDR0_MA13	DDR0_DQ13	AH38	MDA8
MAAA14	AT20	DDR0_MA14	DDR0_DQ14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_DQ15	AK40	MDA15
			DDR0_DQ16	AM40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_DQ17	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_DQ18	AP38	MDA18
MODT_A2	AW9	DDR0_ODT2	DDR0_DQ19	AP39	MDA19
MODT_A3	AU8	DDR0_ODT3	DDR0_DQ20	AM37	MDA20
			DDR0_DQ21	AM38	MDA16
	AW33	DDR0_ECC0	DDR0_DQ22	AP37	MDA22
	AV33	DDR0_ECC1	DDR0_DQ23	AP40	MDA23
	AU31	DDR0_ECC2	DDR0_DQ24	AV37	MDA25
	AV31	DDR0_ECC3	DDR0_DQ25	AW37	MDA29
	AT33	DDR0_ECC4	DDR0_DQ26	AU35	MDA26
	AU33	DDR0_ECC5	DDR0_DQ27	AV35	MDA27
	AT31	DDR0_ECC6	DDR0_DQ28	AT37	MDA28
	AW31	DDR0_ECC7	DDR0_DQ29	AU37	MDA24
			DDR0_DQ30	AT35	MDA30
			DDR0_DQ31	AW35	MDA31
[7] SBAA0	SBAA0	AV12	DDR0_BA0	AY6	MDA33
[7] SBAA1	SBAA1	AY11	DDR0_BA1	AU6	MDA37
[7] SBAA2	SBAA2	AT21	DDR0_BA2	AV4	MDA34
				AU4	MDA35
[7] CKEA0	CKEA0	AV22	DDR0_CKE0	AW6	MDA36
[7] CKEA1	CKEA1	AT23	DDR0_CKE1	AV6	MDA32
[7] CKEA2	CKEA2	AU22	DDR0_CKE2	AW4	MDA38
[7] CKEA3	CKEA3	AU23	DDR0_CKE3	AY4	MDA39
				AR1	MDA41
[7] -CSA0	-CSA0	AU14	DDR0_CS_N0	AR4	MDA45
[7] -CSA1	-CSA1	AV9	DDR0_CS_N1	AN3	MDA42
[7] -CSA2	-CSA2	AU10	DDR0_CS_N2	AN4	MDA43
[7] -CSA3	-CSA3	AW8	DDR0_CS_N3	AR2	MDA44
				AR3	MDA40
[7] DCLKA0	DCLKA0	AY15	DDR0_CLK_P0	AN2	MDA46
[7] -DCLKA0	-DCLKA0	AY16	DDR0_CLK_N0	AN1	MDA47
[7] DCLKA1	DCLKA1	AW15	DDR0_CLK_P1	AL1	MDA49
[7] -DCLKA1	-DCLKA1	AV15	DDR0_CLK_N1	AL4	MDA53
[7] DCLKA2	DCLKA2	AV14	DDR0_CLK_P2	AJ3	MDA50
[7] -DCLKA2	-DCLKA2	AW14	DDR0_CLK_N2	AJ4	MDA51
[7] DCLKA3	DCLKA3	AW13	DDR0_CLK_P3	AL2	MDA52
[7] -DCLKA3	-DCLKA3	AY13	DDR0_CLK_N3	AL3	MDA48
				AJ2	MDA54
	AW12	RSVD		AJ1	MDA55
				AG1	MDA57
				AG4	MDA61
				AE3	MDA58
				AE4	MDA59
				AG2	MDA60
				AG3	MDA56
				AE2	MDA62
[7] -SRASA	-SRASA	AU12	DDR0_RAS*	AE1	MDA63
[7] -SWE A	-SWE A	AU11	DDR0_WE*	AE39	DQSA0
				AJ39	DQSA1
	AV20	RSVD		AN39	DQSA2
				AV36	DQSA3
	AW27	RSVD		AV5	DQSA4
				AP3	DQSA5
[7] -SCASA	-SCASA	AU9	DDR0_CAS*	AK3	DQSA6
				AF3	DQSA7
[7,8] -DDR3_RST		AK22	DDR_RESET*	AV32	
				AE38	-DQSA0
				AJ38	-DQSA1
				AN38	-DQSA2
				AU36	-DQSA3
				AW5	-DQSA4
				AP2	-DQSA5
				AK2	-DQSA6
				AF2	-DQSA7
				AU32	

WR61
MASK/0/4/SHT/M/X

WC4
0.1u/4/X7R/16V/K/X

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (B)

LGA1150B

MAAB0	AL19	DDR1_MA0	DDR1_DQ0	AE34	MDB0
MAAB1	AK23	DDR1_MA1	DDR1_DQ1	AE35	MDB1
MAAB2	AM22	DDR1_MA2	DDR1_DQ2	AG35	MDB2
MAAB3	AM23	DDR1_MA3	DDR1_DQ3	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_DQ4	AD34	MDB4
MAAB5	AL23	DDR1_MA5	DDR1_DQ5	AD35	MDB5
MAAB6	AY24	DDR1_MA6	DDR1_DQ6	AG34	MDB6
MAAB7	AV25	DDR1_MA7	DDR1_DQ7	AH34	MDB7
MAAB8	AU26	DDR1_MA8	DDR1_DQ8	AL34	MDB8
MAAB9	AW25	DDR1_MA9	DDR1_DQ9	AL35	MDB9
MAAB10	AP18	DDR1_MA10	DDR1_DQ10	AK31	MDB10
MAAB11	AY25	DDR1_MA11	DDR1_DQ11	AL31	MDB11
MAAB12	AV26	DDR1_MA12	DDR1_DQ12	AK34	MDB12
MAAB13	AR15	DDR1_MA13	DDR1_DQ13	AK35	MDB13
MAAB14	AV27	DDR1_MA14	DDR1_DQ14	AK32	MDB14
MAAB15	AY28	DDR1_MA15	DDR1_DQ15	AL32	MDB15
			DDR1_DQ16	AN34	MDB17
MODT_B0	AM17	DDR1_ODT0	DDR1_DQ17	AP34	MDB21
MODT_B1	AL16	DDR1_ODT1	DDR1_DQ18	AN31	MDB19
MODT_B2	AM16	DDR1_ODT2	DDR1_DQ19	AP31	MDB23
MODT_B3	AK15	DDR1_ODT3	DDR1_DQ20	AN35	MDB20
			DDR1_DQ21	AP35	MDB16
	AM26	DDR1_ECC0	DDR1_DQ22	AN32	MDB18
	AM25	DDR1_ECC1	DDR1_DQ23	AP32	MDB22
	AP25	DDR1_ECC2	DDR1_DQ24	AM29	MDB25
	AP26	DDR1_ECC3	DDR1_DQ25	AM28	MDB28
	AL26	DDR1_ECC4	DDR1_DQ26	AR29	MDB27
	AL25	DDR1_ECC5	DDR1_DQ27	AR28	MDB30
	AR26	DDR1_ECC6	DDR1_DQ28	AL29	MDB24
	AR25	DDR1_ECC7	DDR1_DQ29	AL28	MDB29
			DDR1_DQ30	AP29	MDB26
[8] SBAB0	SBAB0	AK17	DDR1_BA0	AP28	MDB31
[8] SBAB1	SBAB1	AL18	DDR1_BA1	AR12	MDB32
[8] SBAB2	SBAB2	AW28	DDR1_BA2	AP12	MDB33
				AL13	MDB34
[8] CKEB0	CKEB0	AW29	DDR1_CKE0	AL12	MDB35
[8] CKEB1	CKEB1	AY29	DDR1_CKE1	AR13	MDB36
[8] CKEB2	CKEB2	AU28	DDR1_CKE2	AP13	MDB37
[8] CKEB3	CKEB3	AU29	DDR1_CKE3	AM13	MDB38
				AM12	MDB39
[8] -CSB0	-CSB0	AP17	DDR1_CS_N0	AR9	MDB45
[8] -CSB1	-CSB1	AN15	DDR1_CS_N1	AP9	MDB41
[8] -CSB2	-CSB2	AN17	DDR1_CS_N2	AR6	MDB47
[8] -CSB3	-CSB3	AL15	DDR1_CS_N3	AP6	MDB43
				AR10	MDB44
				AP10	MDB40
				AR7	MDB46
				AP7	MDB42
[8] DCLKB0	DCLKB0	AM20	DDR1_CLK_P0	AM9	MDB52
[8] -DCLKB0	-DCLKB0	AM21	DDR1_CLK_N0	AL9	MDB53
[8] DCLKB1	DCLKB1	AP22	DDR1_CLK_P1	AL6	MDB50
[8] -DCLKB1	-DCLKB1	AP21	DDR1_CLK_N1	AL7	MDB55
				AM10	MDB48
[8] DCLKB2	DCLKB2	AN20	DDR1_CLK_P2	AL10	MDB49
[8] -DCLKB2	-DCLKB2	AN21	DDR1_CLK_N2	AM6	MDB54
[8] DCLKB3	DCLKB3	AP19	DDR1_CLK_P3	AM7	MDB51
[8] -DCLKB3	-DCLKB3	AP20	DDR1_CLK_N3	AH6	MDB61
				AH7	MDB60
[8] -SCASB	-SCASB	AP16	DDR1_CAS*	AE6	MDB59
		AL20	RSVD	AE7	MDB63
[8] -SRASB	-SRASB	AM18	DDR1_RAS*	AJ6	MDB56
[8] -SWE B	-SWEB	AK16	DDR1_WE*	AJ7	MDB57
				AF6	MDB58
[7] VREF_DQA	VREF_DQA	AB39	DDR_VREF_DQ0	AF7	MDB62
[8] VREF_DQB	VREF_DQB	AB40	DDR_VREF_DQ1	AE35	DQSB0
			DDR1_DQS_P0	AL33	DQSB1
			DDR1_DQS_P1	AP33	DQSB2
			DDR1_DQS_P2	AN28	DQSB3
			DDR1_DQS_P3	AN12	DQSB4
			DDR1_DQS_P4	AP8	DQSB5
			DDR1_DQS_P5	AL8	DQSB6
			DDR1_DQS_P6	AG7	DQSB7
			DDR1_DQS_P7	AN25	
			DDR1_DQS_P8	AE34	-DQSB0
			DDR1_DQS_N0	AK33	-DQSB1
			DDR1_DQS_N1	AN33	-DQSB2
			DDR1_DQS_N2	AN29	-DQSB3
			DDR1_DQS_N3	AN13	-DQSB4
			DDR1_DQS_N4	AR8	-DQSB5
			DDR1_DQS_N5	AM8	-DQSB6
			DDR1_DQS_N6	AG6	-DQSB7
			DDR1_DQS_N7	AN26	
			DDR1_DQS_N8		

VREF_DQA
VREF_DQB
WBC34 0.1u/4/X7R/16V/K
WBC33 0.1u/4/X7R/16V/K
Place in CPU bottom side

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (CR)

CR
CPU RETAINTION/X

LGA1150_P

ILM_BP/1156/CSP/ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

DDR BUS

[7] MODT_A[0..3]	MODT_A[0..3]
[8] MODT_B[0..3]	MODT_B[0..3]
[7] MDA[0..63]	MDA[0..63]
[8] MDB[0..63]	MDB[0..63]
[7] DQSA[0..7]	DQSA[0..7]
[7] -DQSA[0..7]	-DQSA[0..7]
[7] MAAA[0..15]	MAAA[0..15]
[8] MAAB[0..15]	MAAB[0..15]
[8] DQSB[0..7]	DQSB[0..7]
[8] -DQSB[0..7]	-DQSB[0..7]

Gigabyte Technology			
Title: CPU LGA1150-B			
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
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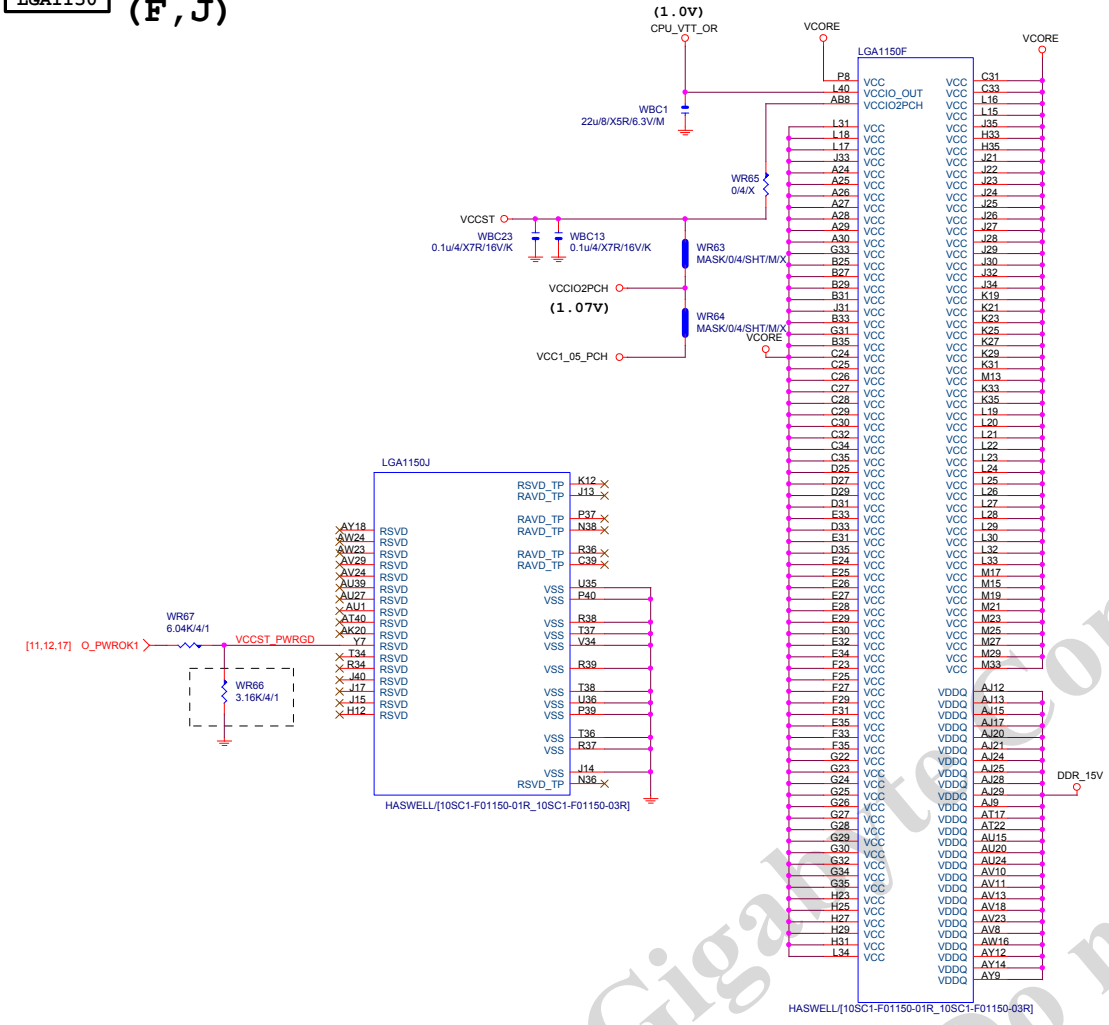
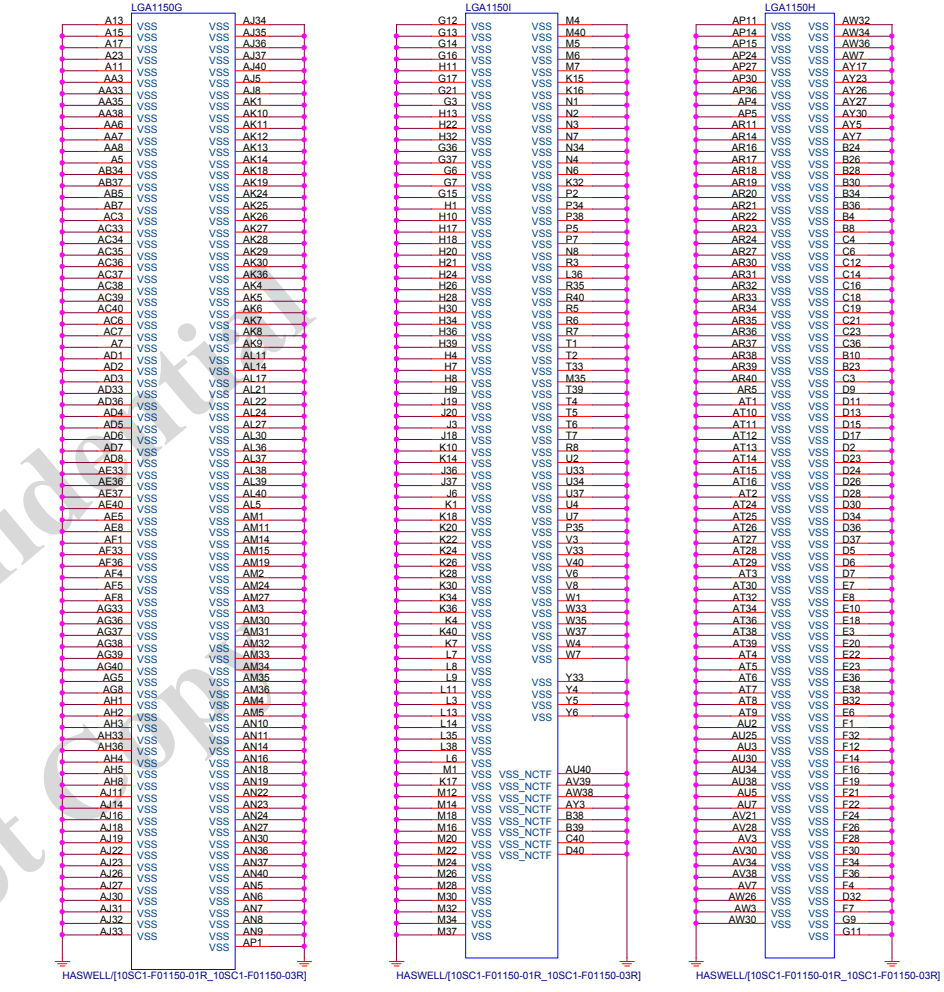
LGA1150 (F,J)

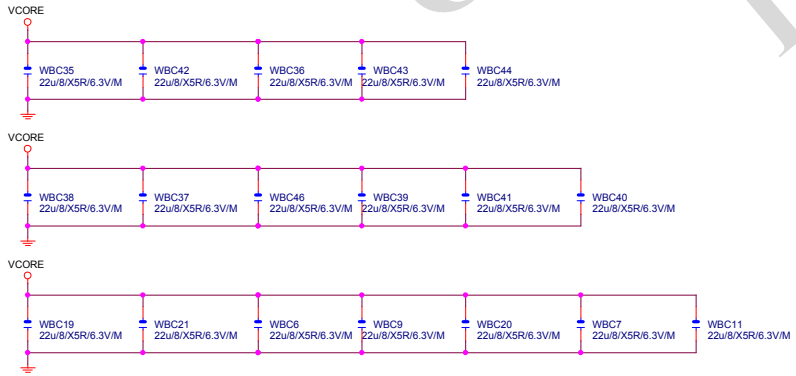


LGA1155 (G,H,I)



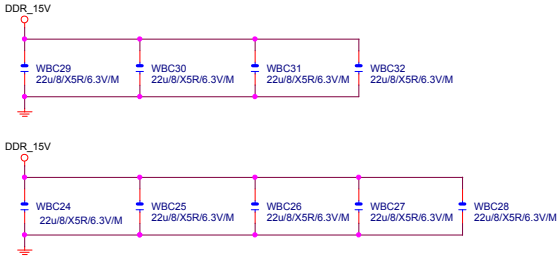
VCore CAP

(X18)

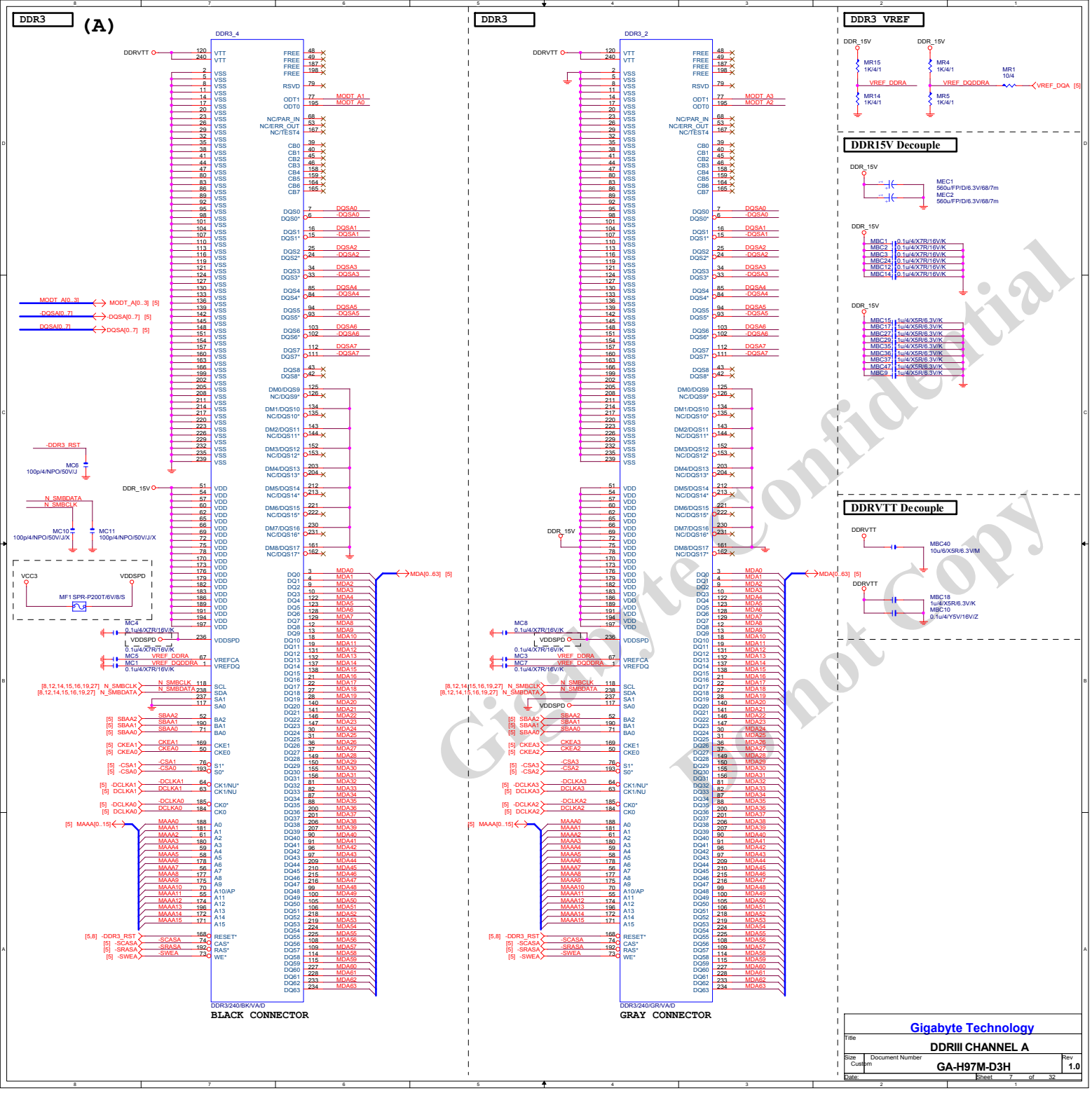


DDR CAP

(X9)

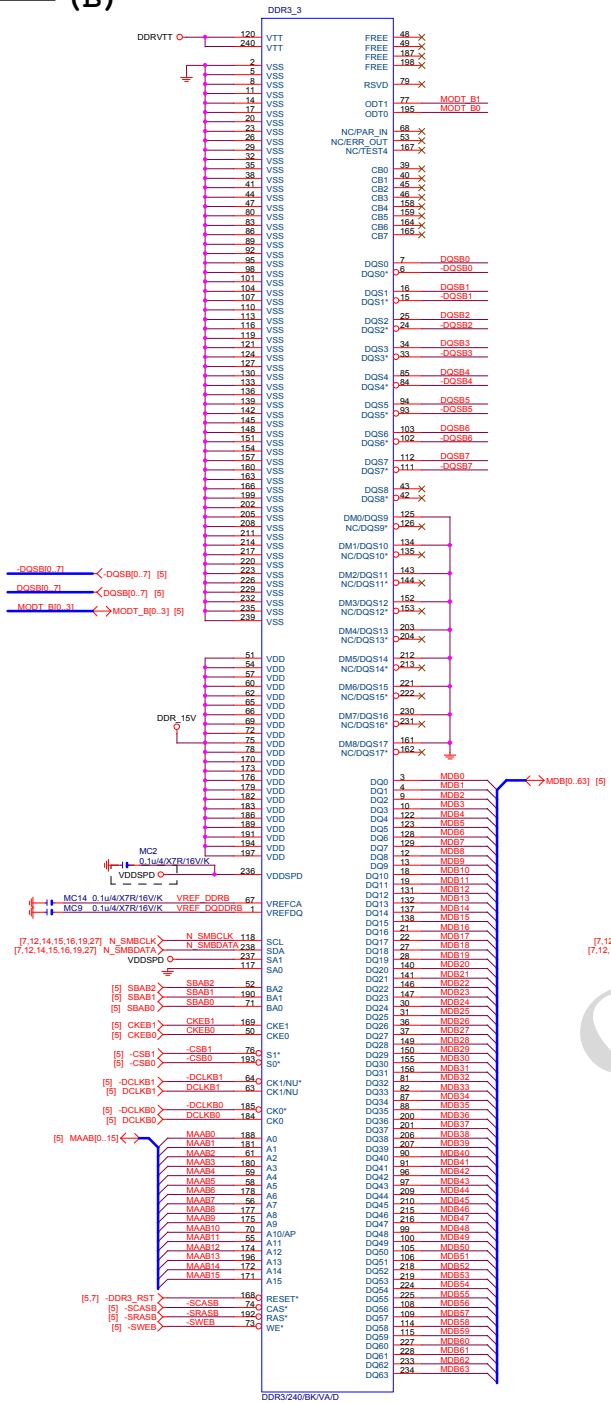


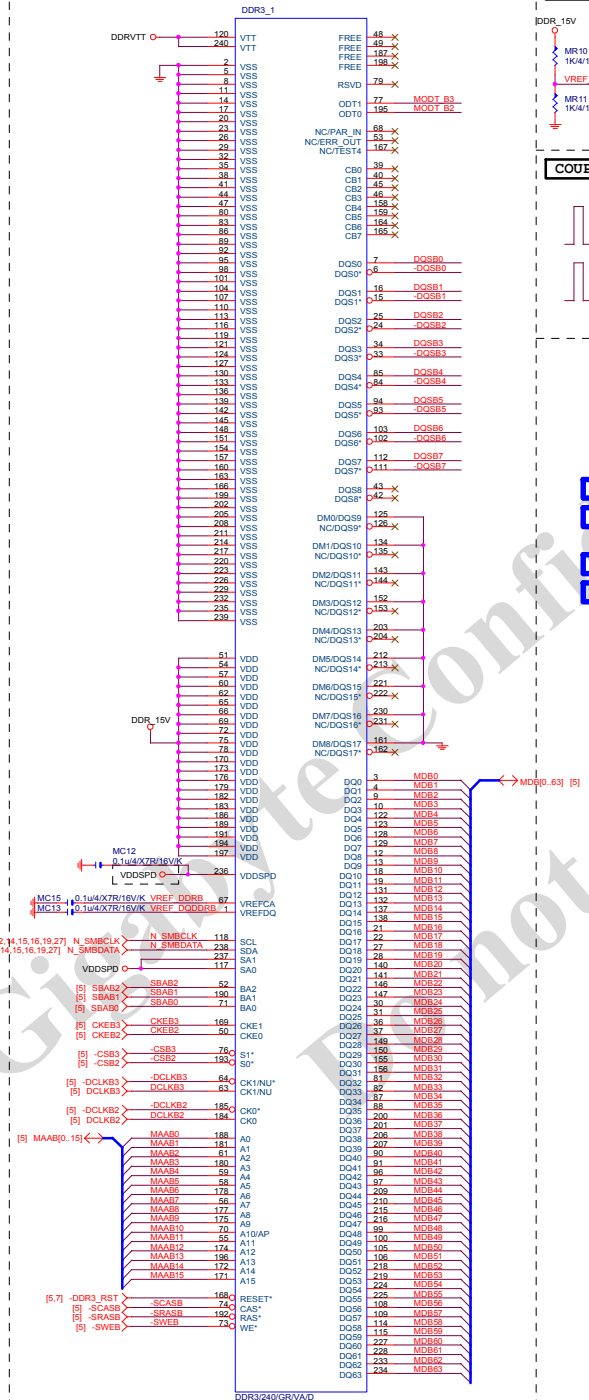
Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
Date: Monday, April 28, 2014	Sheet 6 of 32	

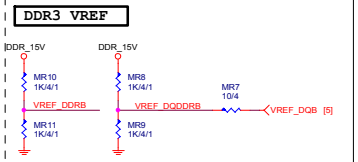


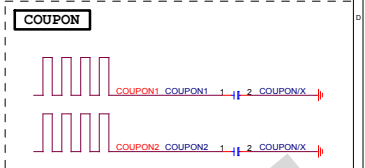
Gigabyte Technology			
Title: DDRIII CHANNEL A			
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0	
Date:	Sheet 7 of 32		

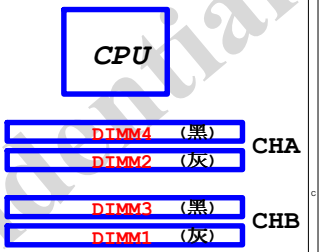
DDR3 (B)











Gigabyte Technology		
Title: DDRIII CHANNEL B		
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
Date:	Sheet 8 of 32	

PCH (B)

PORT1,PORT9[DEBUG PORT]FOR WHQL一定要拉出PORT

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

B85: Port 6/7 N/A
H81: Port 6/7/12/13 N/A

USB2.0/3.0 PORT要對應

PCHB

USB3.0

8111F

8892

PCIEx4

電容放靠近 Device & PCI-E Slot

CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]

PCIEX1:15/4/4/4/15 (breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCH (F)

PCHF

CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]

USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

PCH CLK PD

Mount for integrated clock Generation Mode

NR225 short to GND in non graphic SKU

PCH (J)

PCH PCIE ,DMI 15/4/4/4//15

usb2.0 12/5/7/5//12
usb3.0 20/5/7/5//20

PCHJ

CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]

PCH H/S

9 Series PCH Heatsink

SB_HEATSIN

PCH_HS
9 SERIES PCH_HS/[12SP2-S04242-01R_12SP2-S04242-02R_12SP2-S04242-03R]

USB TABLE

OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC#	Configure
OC0#	F_USB30
OC1#	R_USB30
OC2#	USB30_LAN
OC3#	F_USB3
OC4#	F_USB2
OC5#	KB_MS_USB
OC6#	F_USB1
OC7#	Not Use

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE,NVRAM

Size: Custom | Document Number: GA-H97M-D3H | Rev: 1.0

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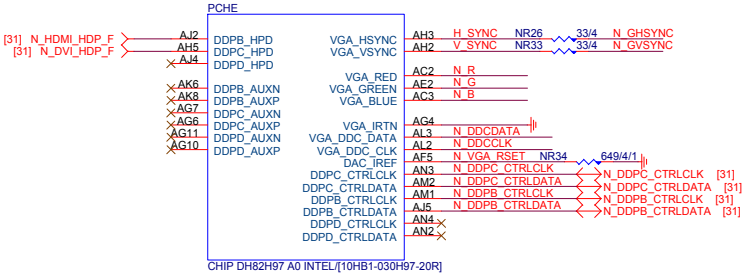
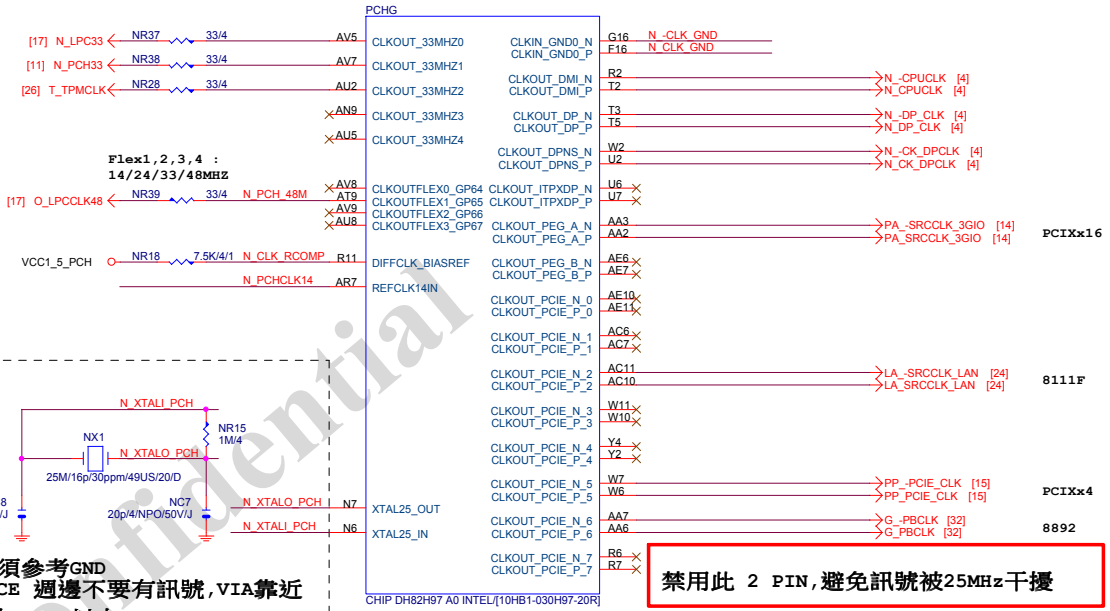
PCH (E)



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)

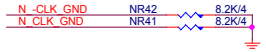


X'TAL 25MHz須參考GND
CRYSTAL/TRACE 週邊不要有訊號,VIA靠近
走線遠離其他40mil以上

禁用此 2 PIN,避免訊號被25MHz干擾

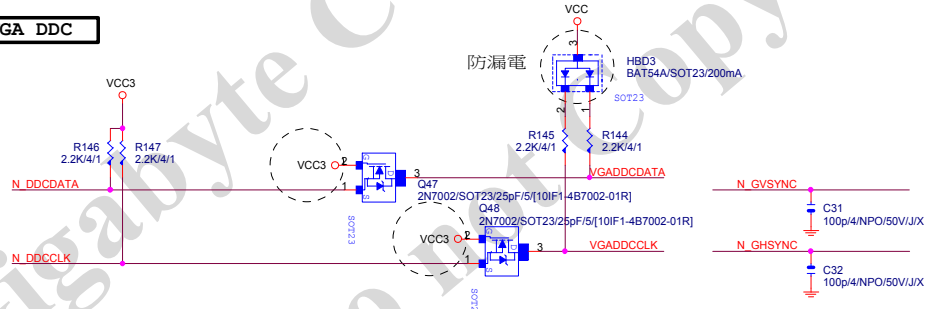
Differential Clock:18/4/6/4/18
Impedance=90 +- 15%

PCH CLK PD

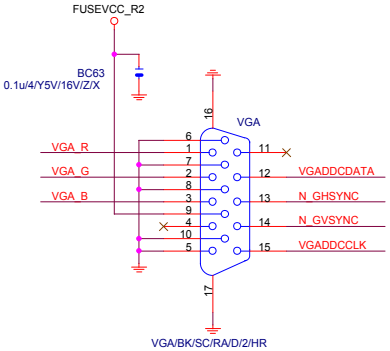


Mount for integrated clock Generation Mode

VGA DDC

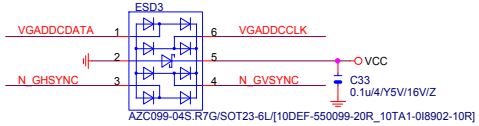


VGA CONNECTOR

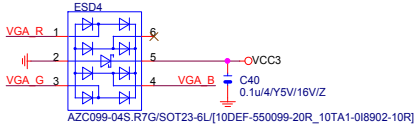


BLACK CONNECTOR

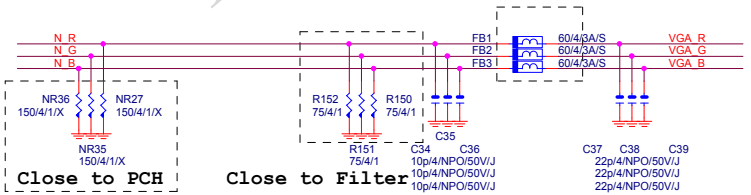
VGA ESD



SSOP6_ESD



VGA DDC



Gigabyte Technology			
Title: PCH DISPLAY ,CLK BUFFER			
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
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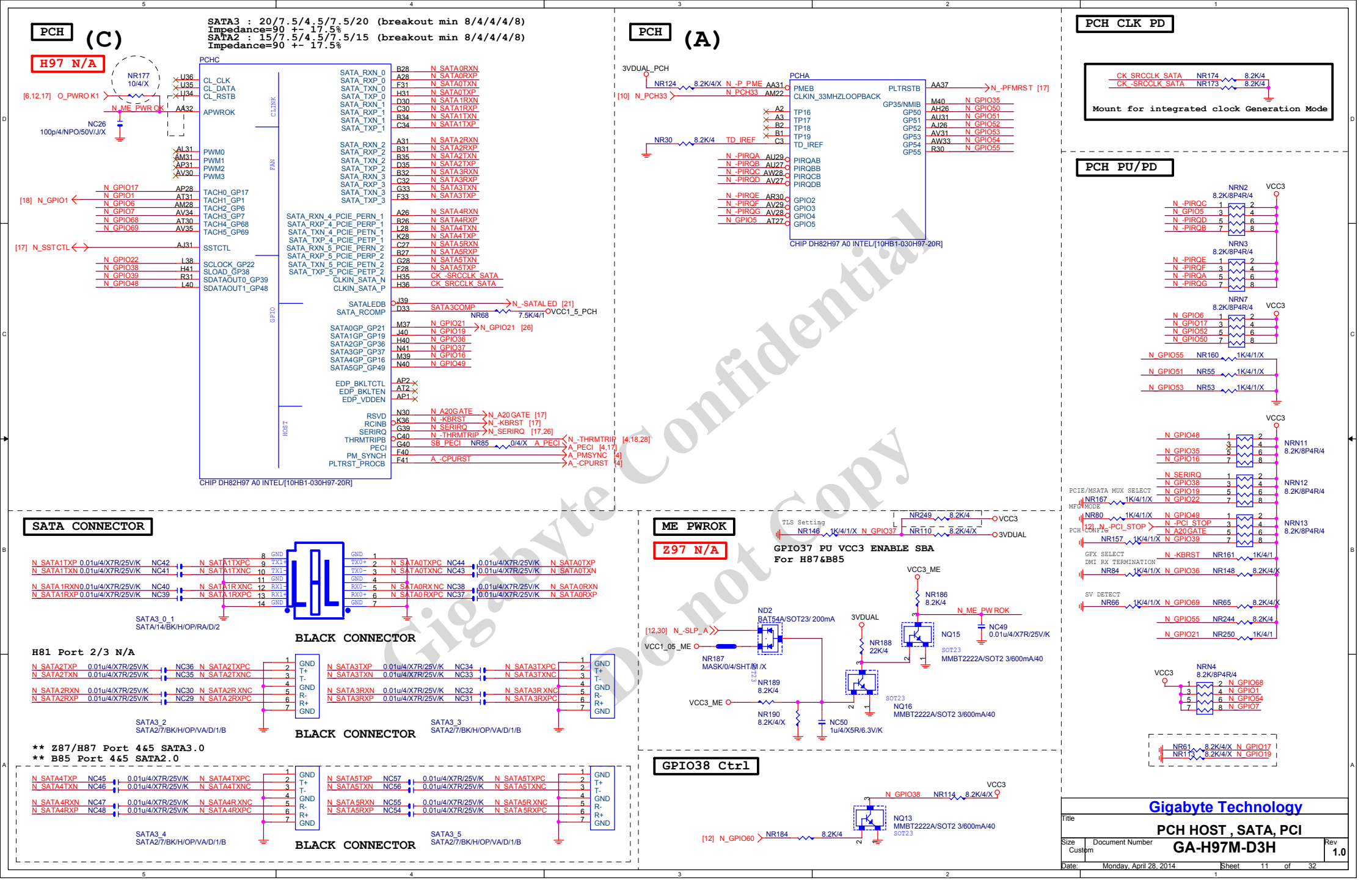
PCH (C)
H97 N/A
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
PCHC
CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]
PCH (A)
PCHA
CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]
PCH CLK PD
Mount for integrated clock Generation Mode
PCH PU/PD
SATA CONNECTOR
BLACK CONNECTOR
H81 Port 2/3 N/A
** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0
ME PWROK
Z97 N/A
GPIO37 PU VCC3 ENABLE SBA
For H87&B85
GPIO38 Ctrl
Gigabyte Technology
PCH HOST , SATA, PCI
GA-H97M-D3H
Rev 1.0
Monday, April 28, 2014
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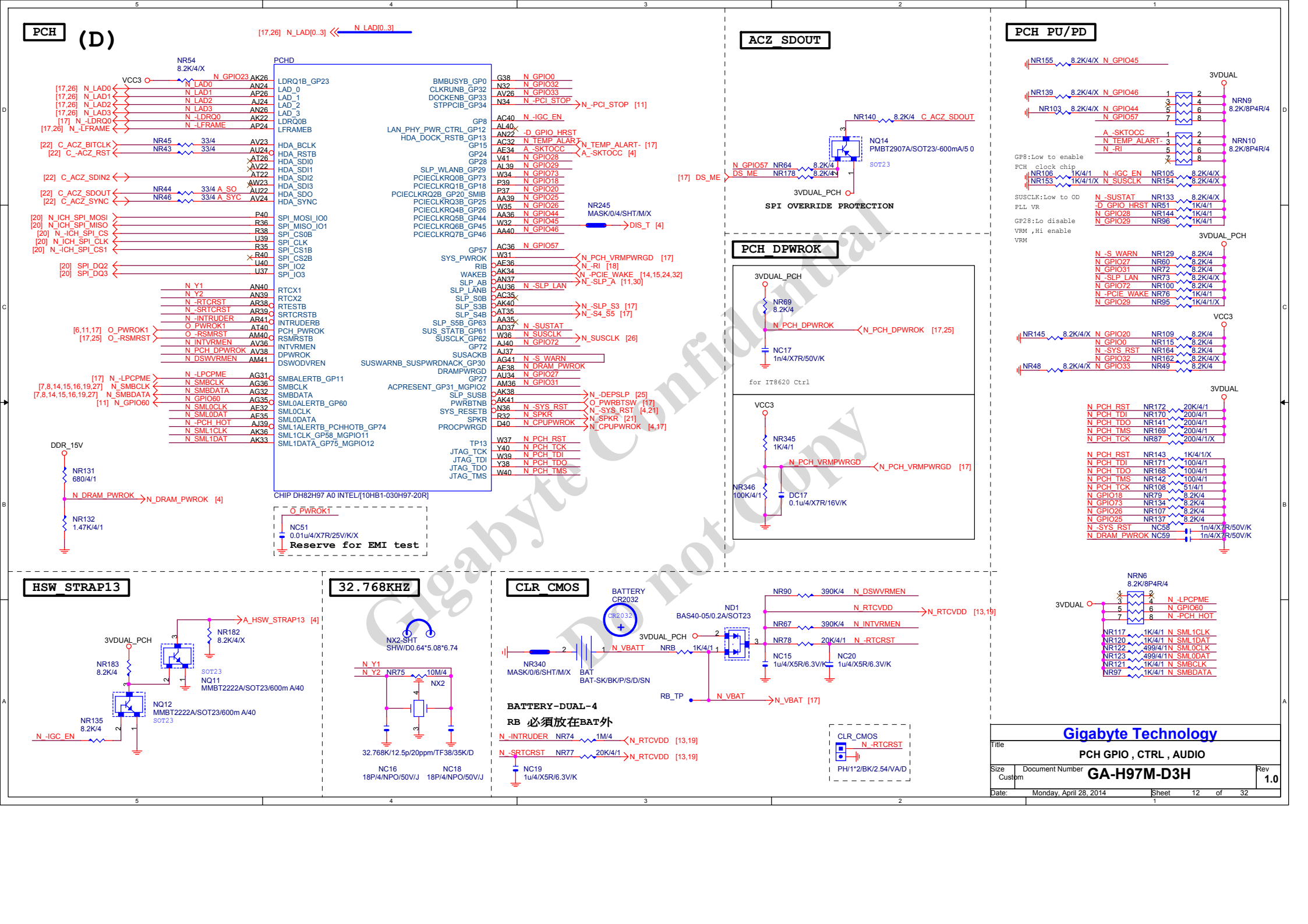
Do not Copy


PCH
(D)
[17,26] N_LAD[0..3]
N_LAD[0..3]
PCHD
CHIP DH82H97 A0 INTEL/[10HB1-030H97-20R]
ACZ_SDOUT
SPI OVERRIDE PROTECTION
PCH_DPWROK
for IT8620 Ctrl
PCH PU/PD
HSW_STRAP13
32.768KHZ
CLR_CMOS
BATTERY-DUAL-4
RB 必须放在BAT外
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-H97M-D3H
Rev 1.0
Monday, April 28, 2014
Sheet 12 of 32
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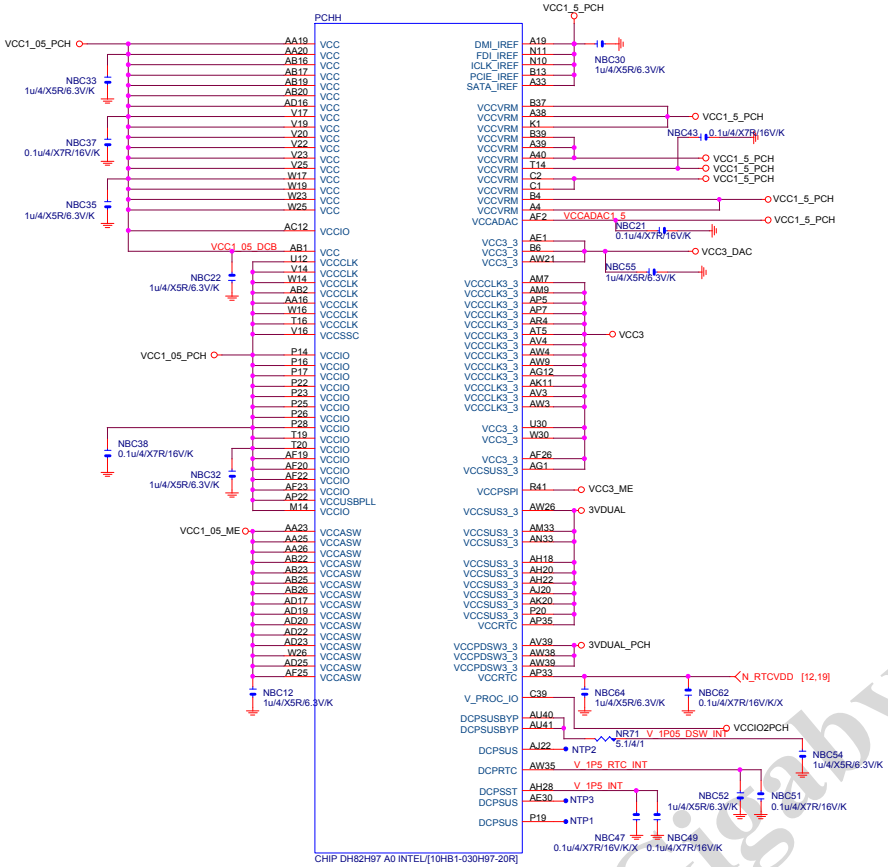
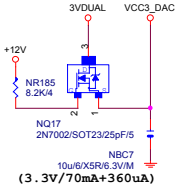
Do not Copy

PCH (H)

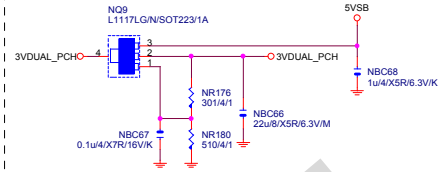


VCC3_DAC

CLOSE北橋(注意震盪水波紋)



3VDUAL_PCH

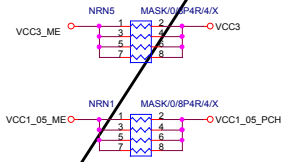


SHT PWR

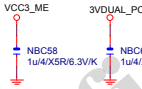
H97 N/A

MASK FOOT

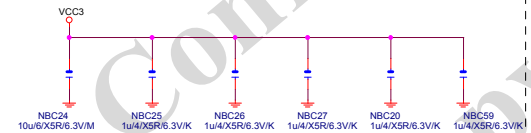
MASK



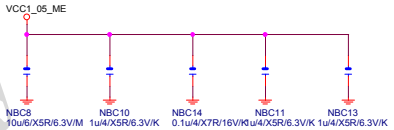
CAP



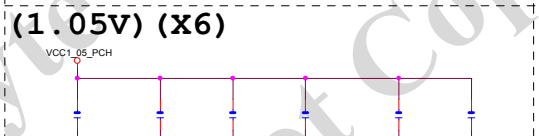
(3.3V) (X6)



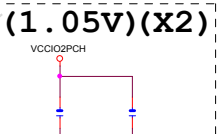
(1.05V) (X5)



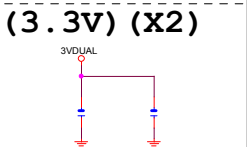
(1.05V) (X6)



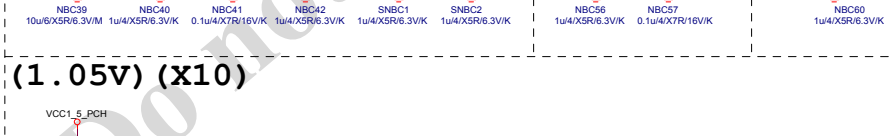
(1.05V)(X2)



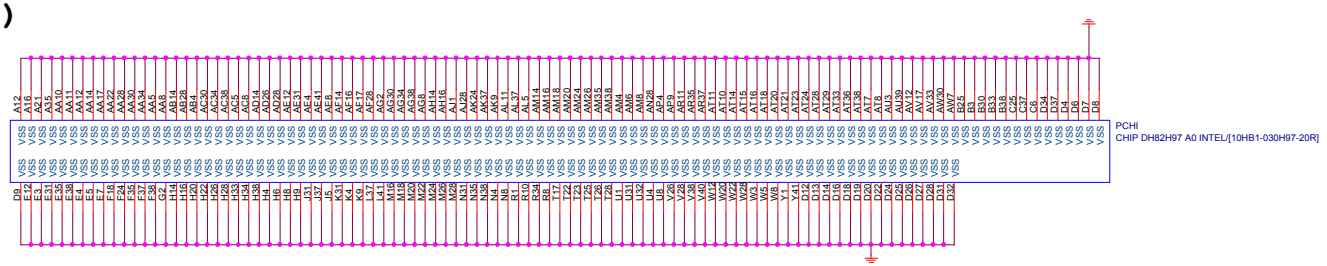
(3.3V) (X2)



(1.05V) (X10)

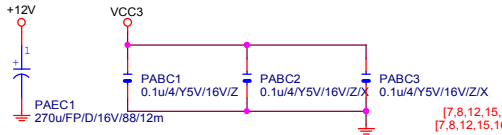


PCH (I)

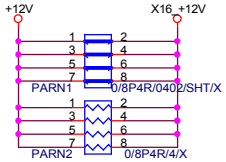


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
Date: Monday, April 28, 2014	Sheet 13 of 32		

PCIEX16 CAP



PCIEX16 PROTECT SHT



PCIEX16 AC CAP

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

PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] [4]

PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [4]

PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [4]

PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [4]

PCIEX16 SLOT

PCIESLOT-164DN-Q-1

3GIO_*16

PCIEX16

	B1	12V	PRSNT1*	A1	
	B2	12V	12V	A2	
	B3	RSVD	12V	A3	
PAR3 MASK/0/4/SHT/M/X	B4	GND	GND	A4	PAR1 MASK/0/4/SHT/M/X
[7,8,12,15,16,19,27] N_SMBCLK	B5	SMCLK	JTAG2	A5	
[7,8,12,15,16,19,27] N_SMBDATA	B6	SMDAT	JTAG3	A6	
	B7	GND	JTAG4	A7	
3VDUAL / VCC3	B8	3.3V	JTAG5	A8	PAR2 MASK/0/4/SHT/M/X
	B9	JTAG1	3.3V	A9	VCC3
	B10	3.3VAUX	3.3V	A10	
[12,15,24,32] N_-PCIE_WAKE	B11	WAKE*	PWRGD	A11	-PCIE_RST -PCIE_RST [15,17,32]
		KEY			
	B12	RSVD	GND	A12	
	B13	GND	REFCLK+	A13	PA_SRCCLK_3GIO [10]
PA_EXP_TXP0_C	B14	HSOP0	REFCLK-	A14	PA_-SRCCLK_3GIO [10]
PA_EXP_TXN0_C	B15	HSON0	GND	A15	
	B16	GND	HSIP0	A16	PA_EXP_RXP0
	B17	PRSNT2*	HSIN0	A17	PA_EXP_RXN0
	B18	GND	GND	A18	
PA_EXP_TXP1_C	B19	HSOP1	RSVD	A19	
PA_EXP_TXN1_C	B20	HSON1	GND	A20	
	B21	GND	HSIP1	A21	PA_EXP_RXP1
	B22	GND	HSIN1	A22	PA_EXP_RXN1
PA_EXP_TXP2_C	B23	HSOP2	GND	A23	
PA_EXP_TXN2_C	B24	HSON2	GND	A24	
	B25	GND	HSIP2	A25	PA_EXP_RXP2
	B26	GND	HSIN2	A26	PA_EXP_RXN2
PA_EXP_TXP3_C	B27	HSOP3	GND	A27	
PA_EXP_TXN3_C	B28	HSON3	GND	A28	
	B29	GND	HSIP3	A29	PA_EXP_RXP3
	B30	RSVD	HSIN3	A30	PA_EXP_RXN3
	B31	PRSNT2*	GND	A31	
	B32	GND	RSVD	A32	
PA_EXP_TXP4_C	B33	HSOP4	RSVD	A33	
PA_EXP_TXN4_C	B34	HSON4	GND	A34	
	B35	GND	HSIP4	A35	PA_EXP_RXP4
	B36	GND	HSIN4	A36	PA_EXP_RXN4
PA_EXP_TXP5_C	B37	HSOP5	GND	A37	
PA_EXP_TXN5_C	B38	HSON5	GND	A38	
	B39	GND	HSIP5	A39	PA_EXP_RXP5
	B40	GND	HSIN5	A40	PA_EXP_RXN5
PA_EXP_TXP6_C	B41	HSOP6	GND	A41	
PA_EXP_TXN6_C	B42	HSON6	GND	A42	
	B43	GND	HSIP6	A43	PA_EXP_RXP6
	B44	GND	HSIN6	A44	PA_EXP_RXN6
PA_EXP_TXP7_C	B45	HSOP7	GND	A45	
PA_EXP_TXN7_C	B46	HSON7	GND	A46	
	B47	GND	HSIP7	A47	PA_EXP_RXP7
	B48	PRSNT2*	HSIN7	A48	PA_EXP_RXN7
	B49	GND	GND	A49	
PA_EXP_TXP8_C	B50	HSOP8	RSVD	A50	
PA_EXP_TXN8_C	B51	HSON8	GND	A51	
	B52	GND	HSIP8	A52	PA_EXP_RXP8
	B53	GND	HSIN8	A53	PA_EXP_RXN8
PA_EXP_TXP9_C	B54	HSOP9	GND	A54	
PA_EXP_TXN9_C	B55	HSON9	GND	A55	
	B56	GND	HSIP9	A56	PA_EXP_RXP9
	B57	GND	HSIN9	A57	PA_EXP_RXN9
PA_EXP_TXP10_C	B58	HSOP10	GND	A58	
PA_EXP_TXN10_C	B59	HSON10	GND	A59	
	B60	GND	HSIP10	A60	PA_EXP_RXP10
	B61	GND	HSIN10	A61	PA_EXP_RXN10
PA_EXP_TXP11_C	B62	HSOP11	GND	A62	
PA_EXP_TXN11_C	B63	HSON11	GND	A63	
	B64	GND	HSIP11	A64	PA_EXP_RXP11
	B65	GND	HSIN11	A65	PA_EXP_RXN11
PA_EXP_TXP12_C	B66	HSOP12	GND	A66	
PA_EXP_TXN12_C	B67	HSON12	GND	A67	
	B68	GND	HSIP12	A68	PA_EXP_RXP12
	B69	GND	HSIN12	A69	PA_EXP_RXN12
PA_EXP_TXP13_C	B70	HSOP13	GND	A70	
PA_EXP_TXN13_C	B71	HSON13	GND	A71	
	B72	GND	HSIP13	A72	PA_EXP_RXP13
	B73	GND	HSIN13	A73	PA_EXP_RXN13
PA_EXP_TXP14_C	B74	HSOP14	GND	A74	
PA_EXP_TXN14_C	B75	HSON14	GND	A75	
	B76	GND	HSIP14	A76	PA_EXP_RXP14
	B77	GND	HSIN14	A77	PA_EXP_RXN14
PA_EXP_TXP15_C	B78	HSOP15	GND	A78	
PA_EXP_TXN15_C	B79	HSON15	GND	A79	
	B80	GND	HSIP15	A80	PA_EXP_RXP15
	B81	PRSNT2*	HSIN15	A81	PA_EXP_RXN15
	B82	RSVD	GND	A82	

-PCIE_RST

PAC1
33p/4/NPO/50V/J/X

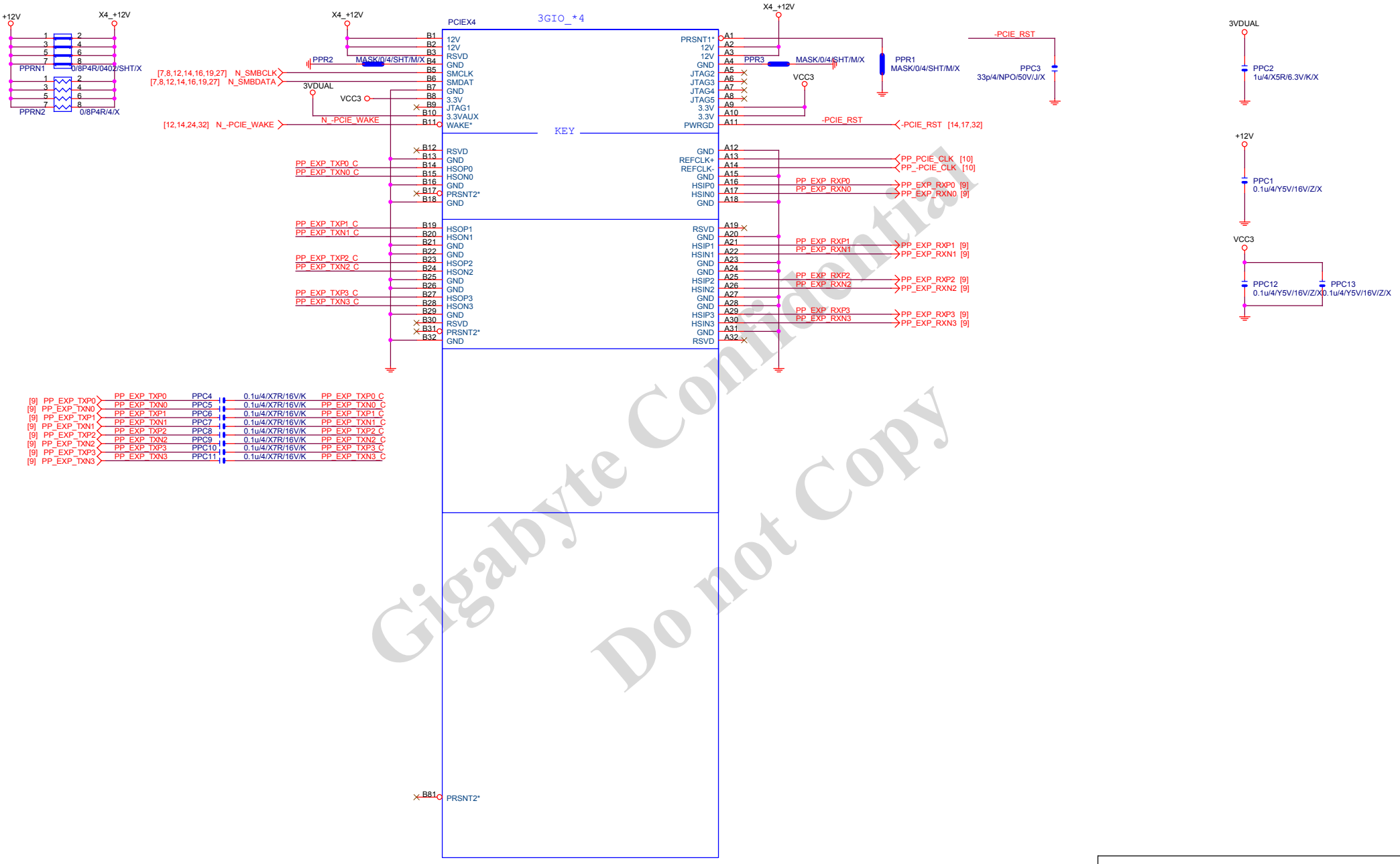
PCI-E/16X-164P/BK/LONG DOUBLE

BLACK CONNECTOR

Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
Date: Monday, April 28, 2014	Sheet 14 of 32	

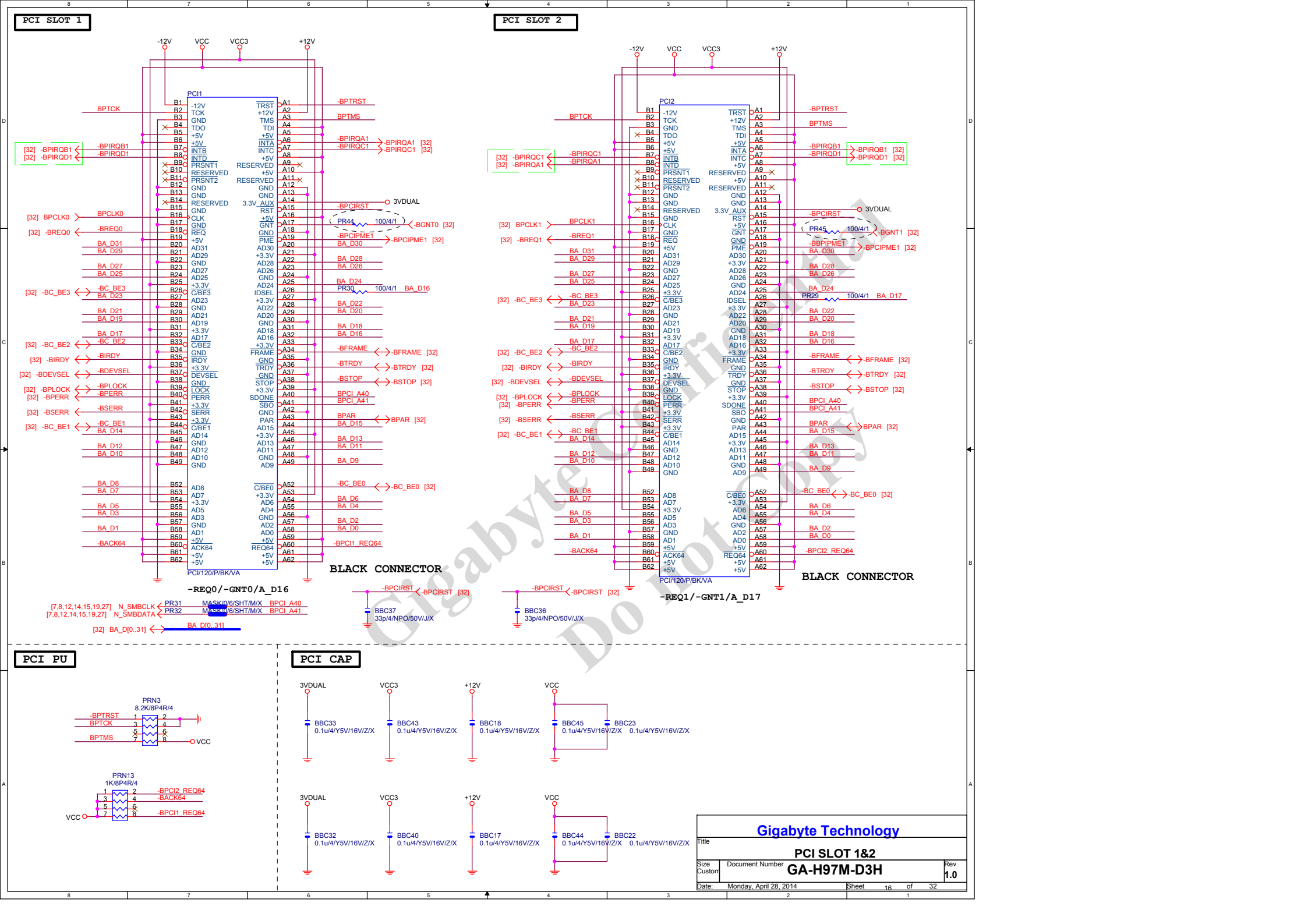
PCIEX4 SLOT

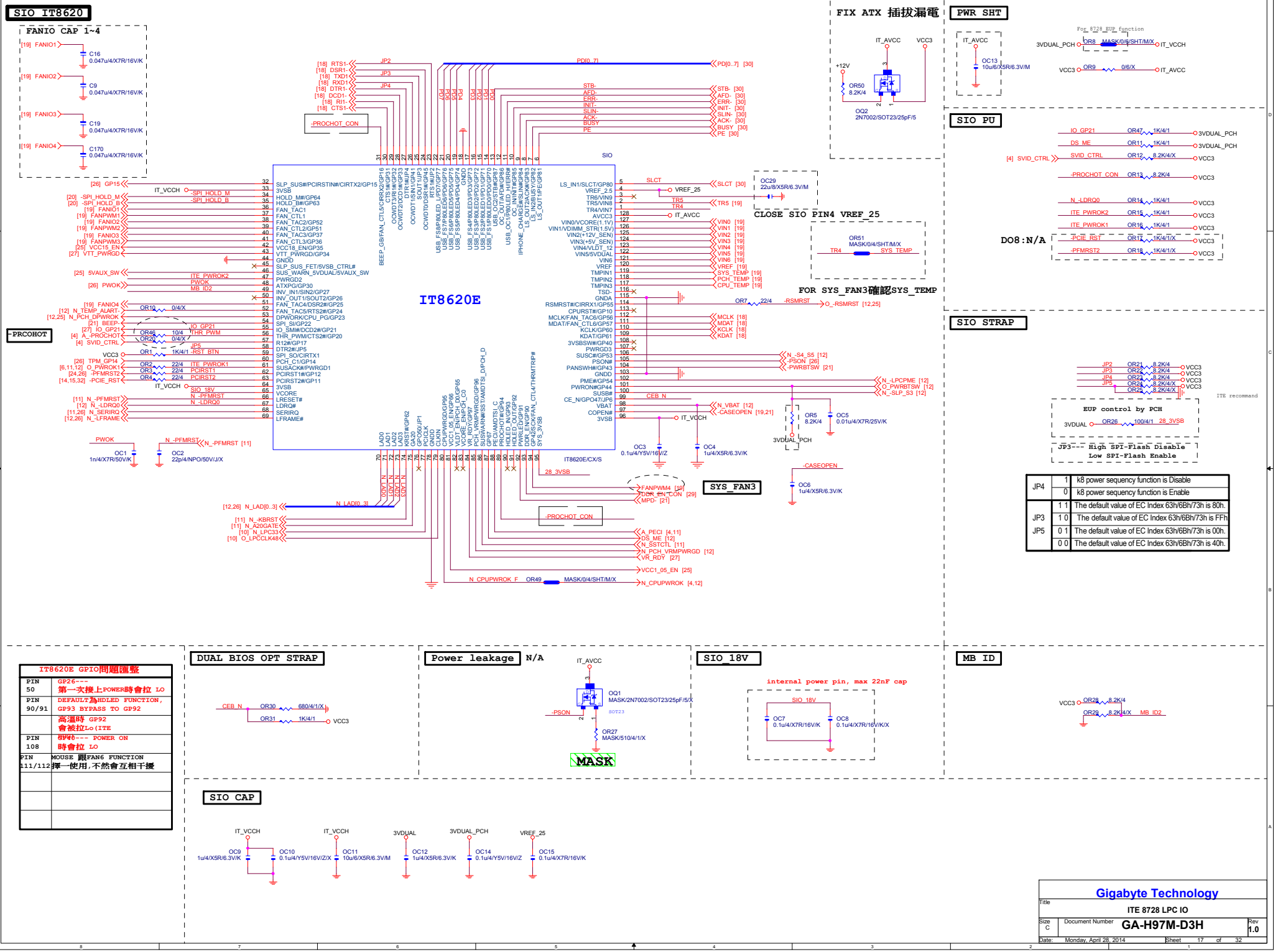
PCIESLOT-64D-98D-P



[9] PP_EXP_TXP0	PP_EXP_TXP0	PPC4	0.1u/4/X7R/16V/K	PP_EXP_TXP0_C
[9] PP_EXP_TXN0	PP_EXP_TXN0	PPC5	0.1u/4/X7R/16V/K	PP_EXP_TXN0_C
[9] PP_EXP_TXP1	PP_EXP_TXP1	PPC6	0.1u/4/X7R/16V/K	PP_EXP_TXP1_C
[9] PP_EXP_TXN1	PP_EXP_TXN1	PPC7	0.1u/4/X7R/16V/K	PP_EXP_TXN1_C
[9] PP_EXP_TXP2	PP_EXP_TXP2	PPC8	0.1u/4/X7R/16V/K	PP_EXP_TXP2_C
[9] PP_EXP_TXN2	PP_EXP_TXN2	PPC9	0.1u/4/X7R/16V/K	PP_EXP_TXN2_C
[9] PP_EXP_TXP3	PP_EXP_TXP3	PPC10	0.1u/4/X7R/16V/K	PP_EXP_TXP3_C
[9] PP_EXP_TXN3	PP_EXP_TXN3	PPC11	0.1u/4/X7R/16V/K	PP_EXP_TXN3_C

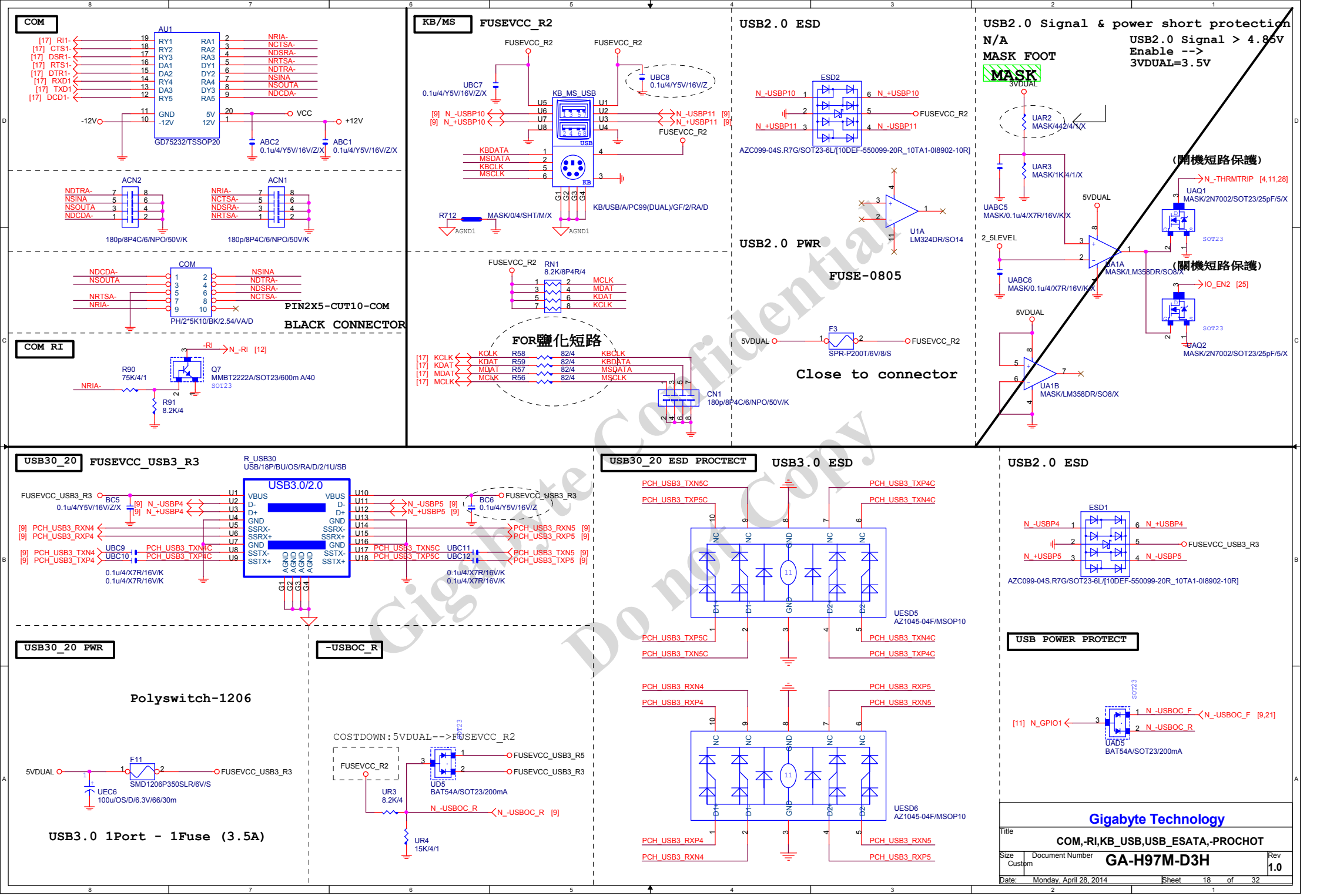
Gigabyte Technology			
Title: PCI EXPRESS X 1 PORT			
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
Date: Monday, April 28, 2014	Sheet 15 of 32		


PCI SLOT 1
PCI SLOT 2
PCI PU
PCI CAP
PCI1
PCI2
-REQ0/-GNT0/A_D16
-REQ1/-GNT1/A_D17
BLACK CONNECTOR
PCI/120/P/BK/VA
Gigabyte Technology
PCI SLOT 1&2
GA-H97M-D3H
Rev 1.0
Monday, April 28, 2014
Sheet 16 of 32
Gigabyte Confidential
Do Not Copy

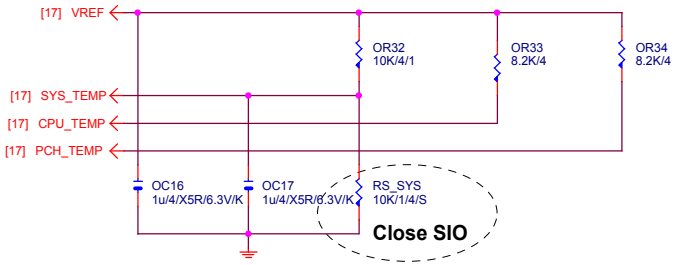


JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

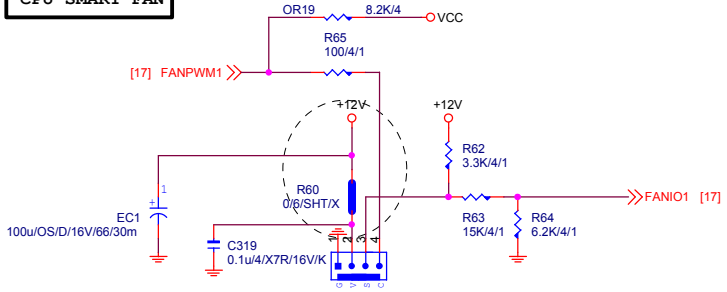
IT8620E GPIO問題匯整	
PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉LO(ITE
PIN 108	GP96--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾



TEMP H/W MONITOR



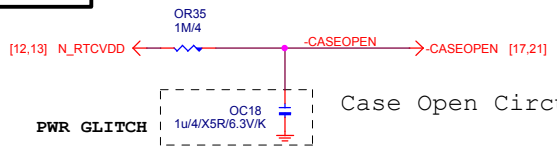
CPU SMART FAN



FOR HOT-PLUG ISSUE

WHITE CONNECTOR

CASE OPEN



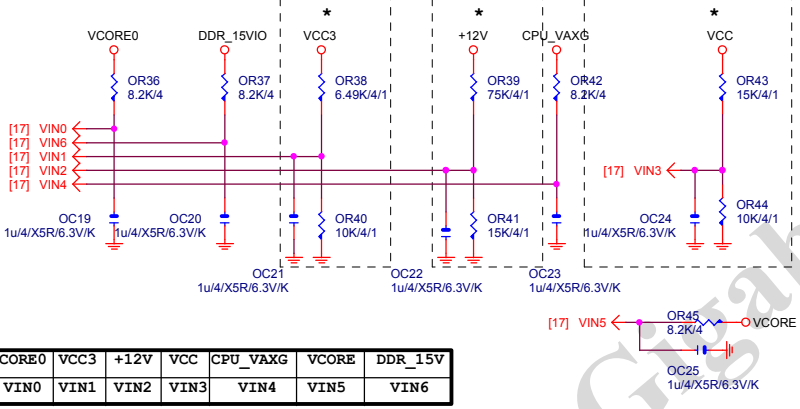
PWR GLITCH

Case Open Circuits

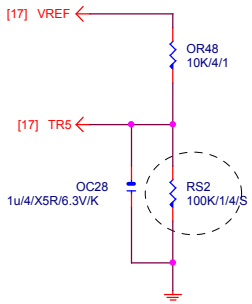
VOLTAGE-- H/W MONITOR

VIN2:75K/15K = 2V

VIN3:15K/10K = 2V



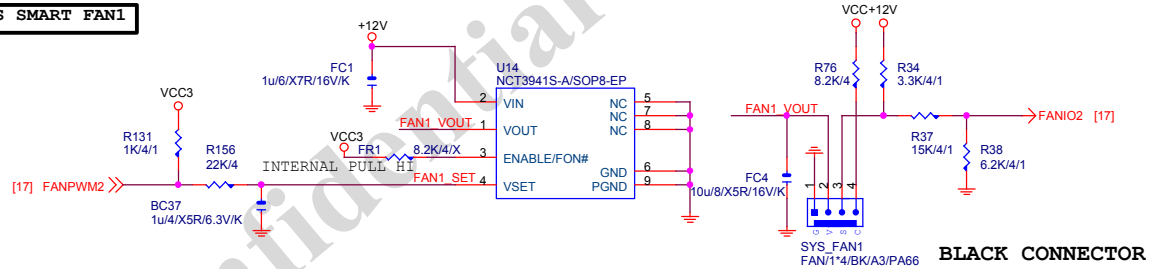
VCORE0	VCC3	+12V	VCC	CPU_VAXG	VCORE	DDR_15V
VIN0	VIN1	VIN2	VIN3	VIN4	VIN5	VIN6



RS2 CLOSE CPU VR MOSFET

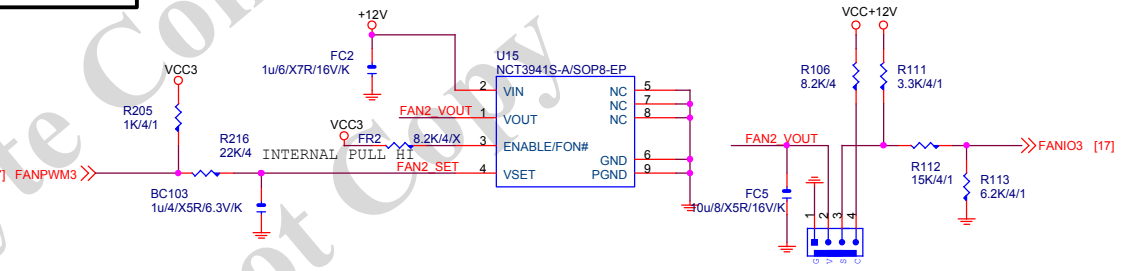
RS2 CLOSE MOSFET(VIN): DCQ1

SYS SMART FAN1



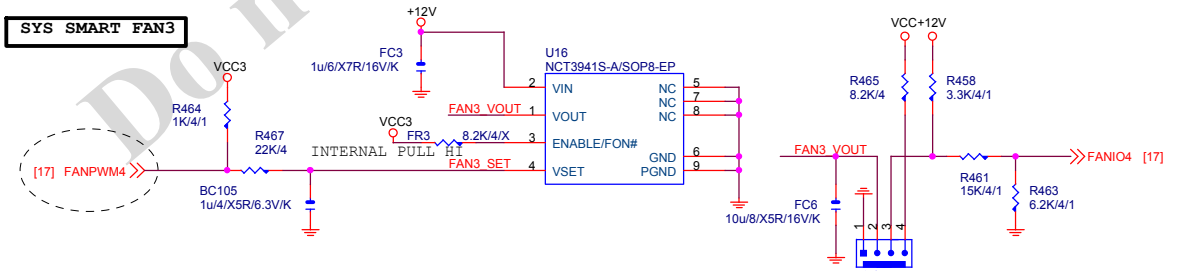
BLACK CONNECTOR

SYS SMART FAN2



BLACK CONNECTOR

SYS SMART FAN3

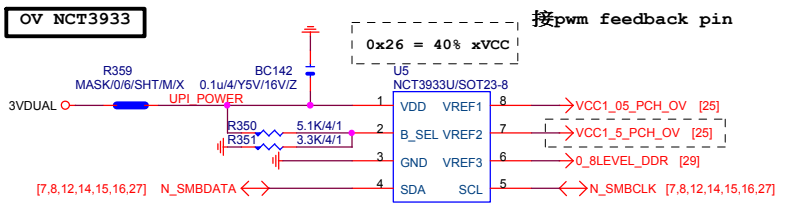


BLACK CONNECTOR

OV NCT3933

接pwm feedback pin

0x26 = 40% xVCC



Gigabyte Technology			
Title: HWM,FAN CTRL,OV			
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
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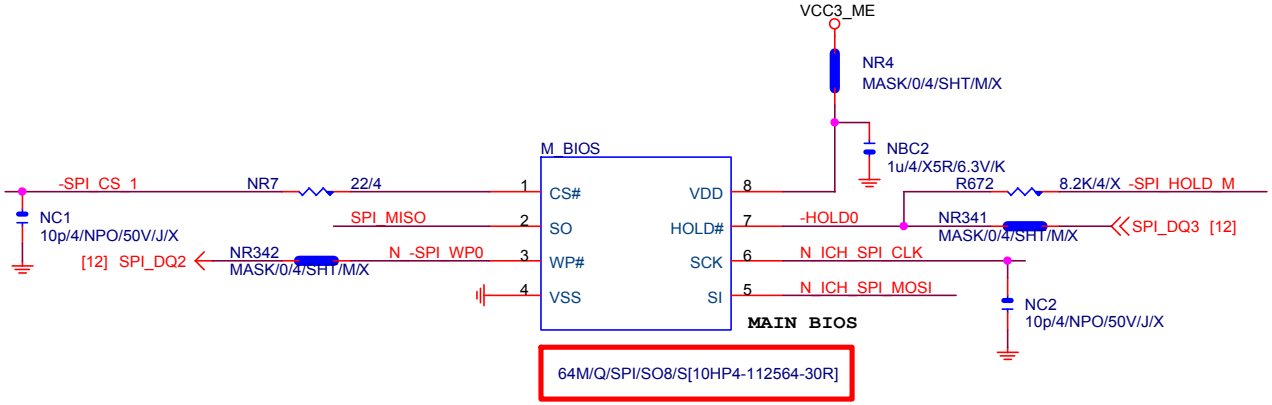
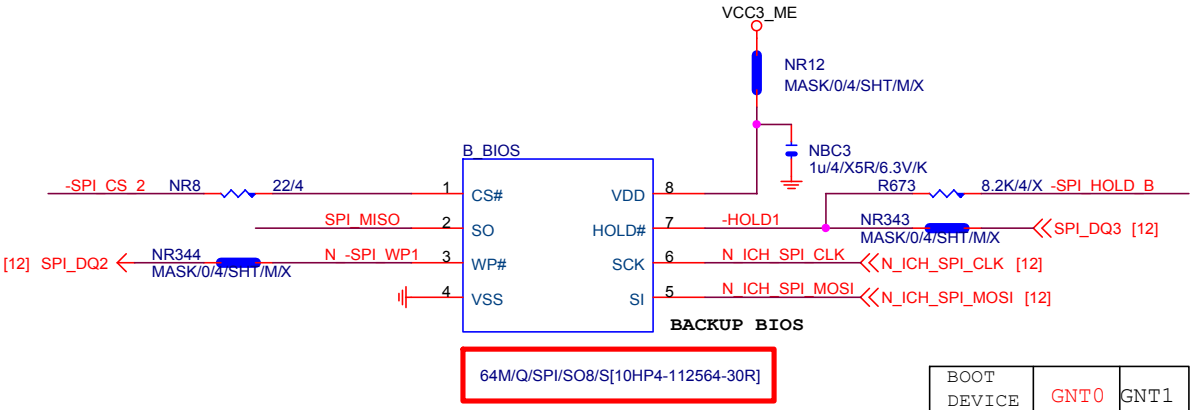
BIOS DEBUG PORT

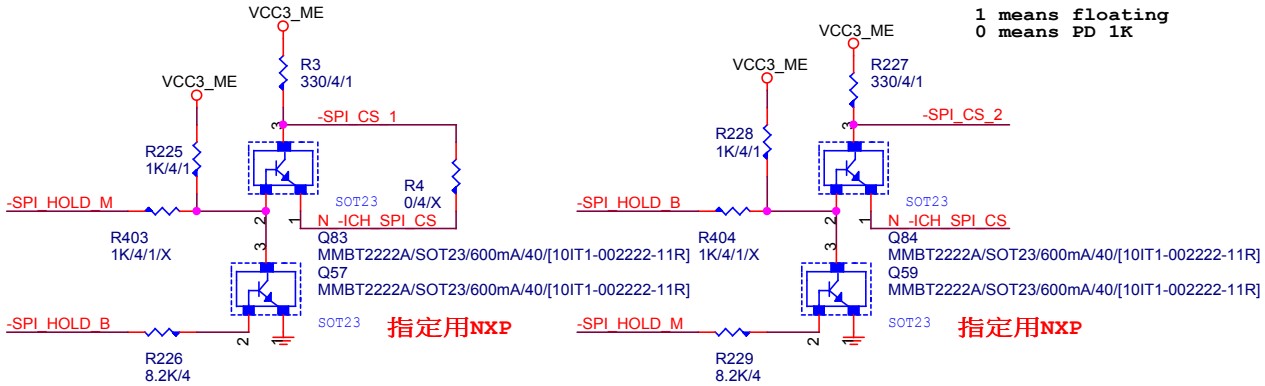
BIOS_PH R1.0 移除

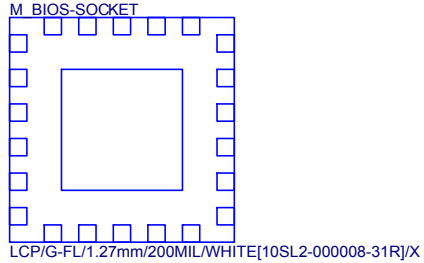




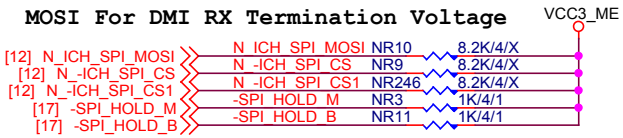
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

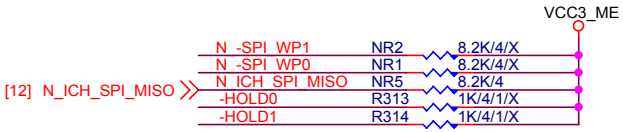
1 means floating
0 means PD 1K

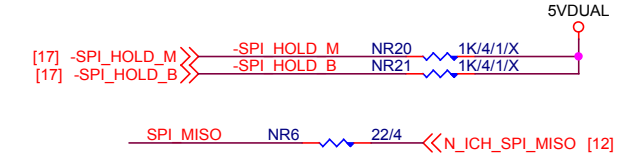




MOSI For DMI RX Termination Voltage



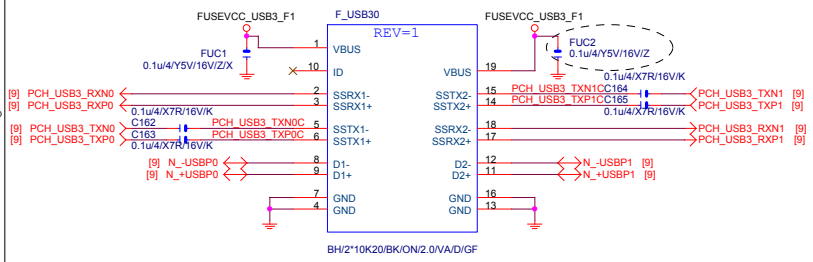




Gigabyte Technology

Title	DUAL BIOS		
Size: Custom	Document Number: GA-H97M-D3H		Rev: 1.0
Date: Monday, April 28, 2014	Sheet 20 of 32		

F_USB30 FUSEVCC_USB3_F1

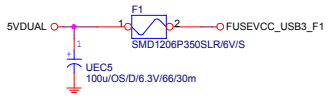


BH/2*10K20/BK/ON/2.0/VA/D/GF

BLACK CONNECTOR

F_USB30 PWR

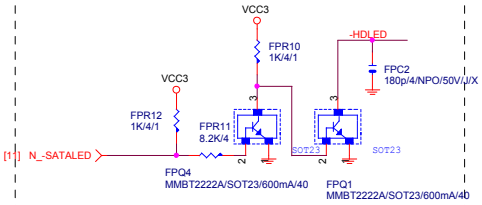
Polyswitch-1206



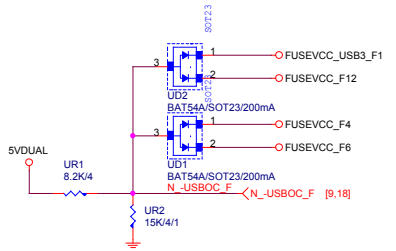
USB3.0 1Port - 1Fuse (3.5A)

Close to connector

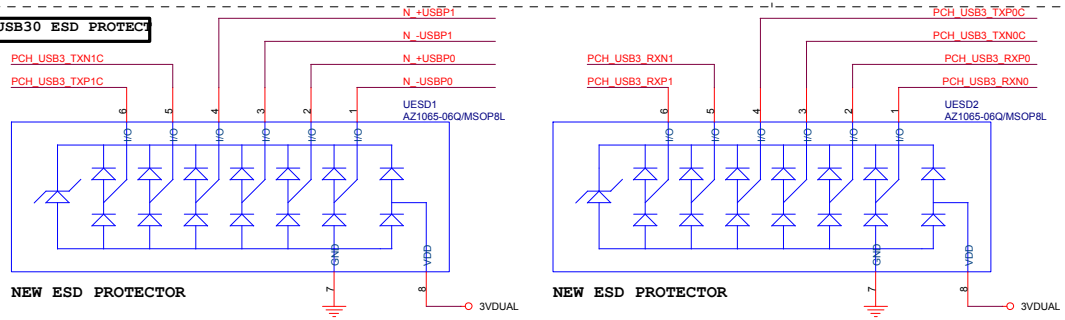
SATA LED



-USBOC_F



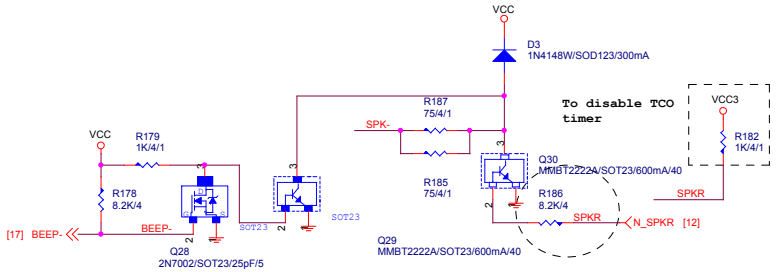
F_USB30 ESD PROTECT



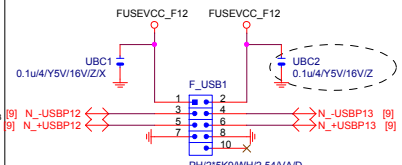
NEW ESD PROTECTOR

NEW ESD PROTECTOR

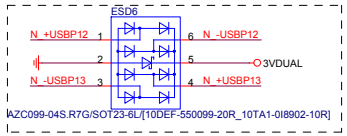
SPKR



FRONT USB1 FUSEVCC_F12

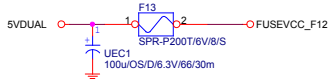


WHITE CONNECTOR

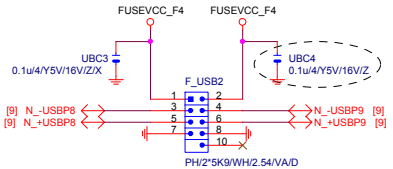


Close to connector

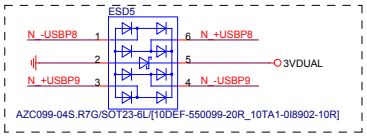
FUSE-0805



FRONT USB2 FUSEVCC_F4

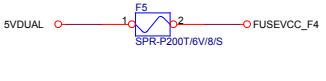


WHITE CONNECTOR

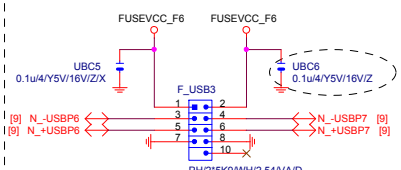


Close to connector

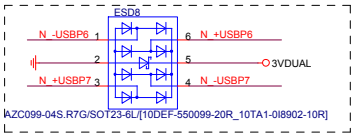
FUSE-0805



FRONT USB3 FUSEVCC_F6

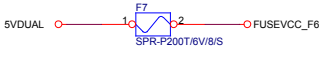


WHITE CONNECTOR

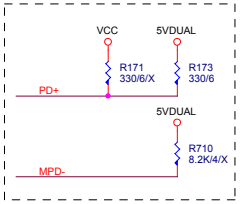


Close to connector

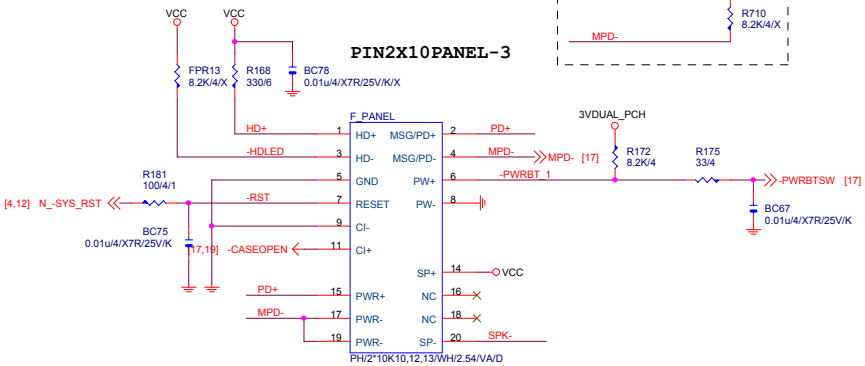
FUSE-0805

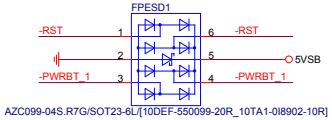


INTEL FRONT PANEL



PIN2X10PANEL-3



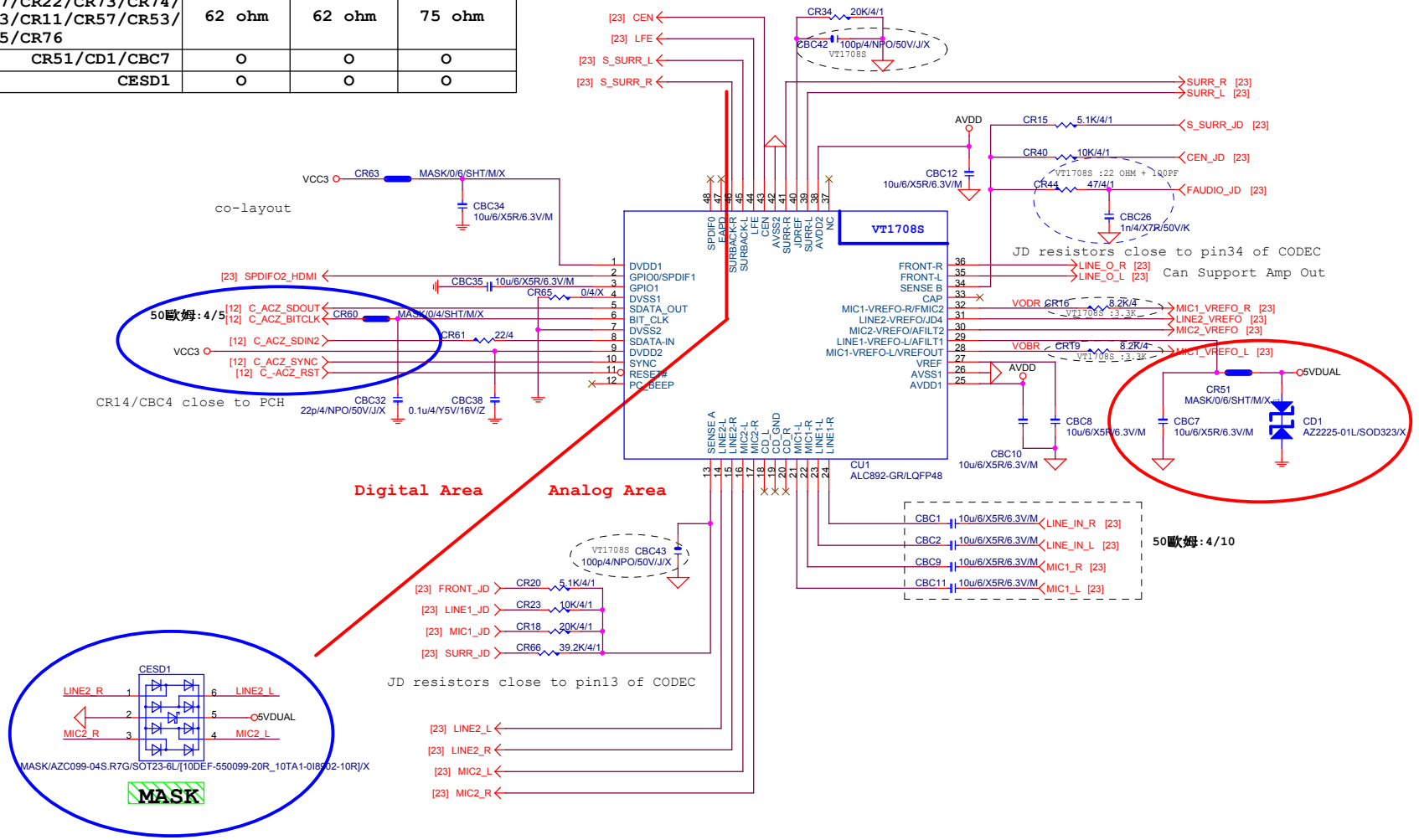


Gigabyte Technology

Title	FP,F_USB,USB PWR,SPKR,SATA LED	
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
Date: Monday, April 28, 2014	Sheet 21 of 32	

AZALIA CODEC *ALC892/ALC887-VD2/VT1708-CE Colay*

	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
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	O	O	O

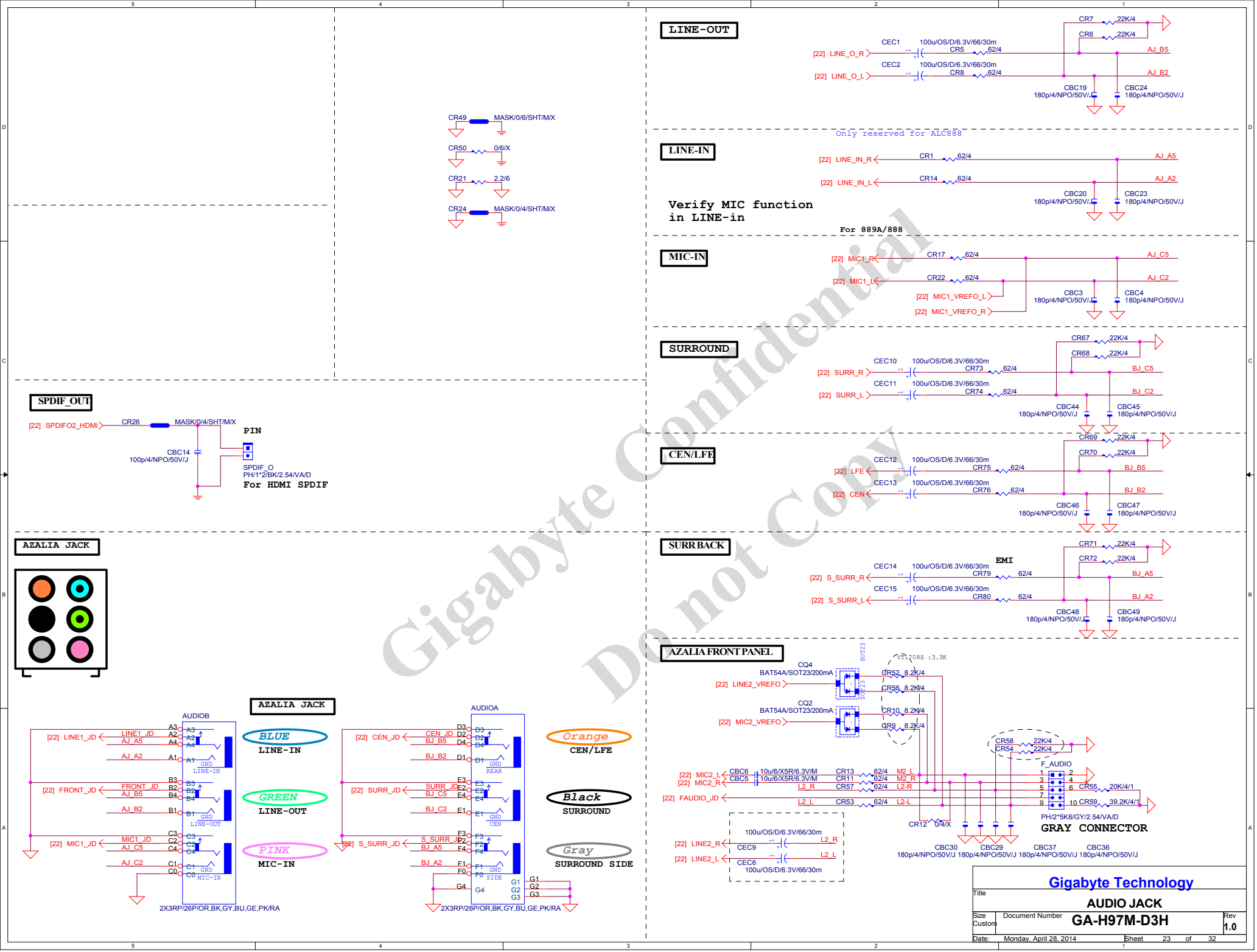


Gigabyte Technology

Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021

Size: Custom | Document Number: GA-H97M-D3H | Rev: 1.0

Date: Monday, April 28, 2014 | Sheet 22 of 32


LINE-OUT
[22] LINE_O_R
[22] LINE_O_L
CEC1
CEC2
100u/OS/D/6.3V/66/30m
CR5 62/4
CR8 62/4
CR7 22K/4
CR6 22K/4
AJ_B5
AJ_B2
CBC19 180p/4/NPO/50V/J
CBC24 180p/4/NPO/50V/J
Only reserved for ALC888
LINE-IN
[22] LINE_IN_R
[22] LINE_IN_L
CR1 62/4
CR14 62/4
AJ_A5
AJ_A2
CBC20 180p/4/NPO/50V/J
CBC23 180p/4/NPO/50V/J
Verify MIC function in LINE-in
For 889A/888
MIC-IN
[22] MIC1_R
[22] MIC1_L
[22] MIC1_VREFO_L
[22] MIC1_VREFO_R
CR17 62/4
CR22 62/4
AJ_C5
AJ_C2
CBC3 180p/4/NPO/50V/J
CBC4 180p/4/NPO/50V/J
SURROUND
[22] SURR_R
[22] SURR_L
CEC10
CEC11
CR73 62/4
CR74 62/4
CR67 22K/4
CR68 22K/4
BJ_C5
BJ_C2
CBC44 180p/4/NPO/50V/J
CBC45 180p/4/NPO/50V/J
CEN/LFE
[22] LFE
[22] CEN
CEC12
CEC13
CR75 62/4
CR76 62/4
CR69 22K/4
CR70 22K/4
BJ_B5
BJ_B2
CBC46 180p/4/NPO/50V/J
CBC47 180p/4/NPO/50V/J
SURR BACK
[22] S_SURR_R
[22] S_SURR_L
CEC14
CEC15
EMI
CR79 62/4
CR80 62/4
CR71 22K/4
CR72 22K/4
BJ_A5
BJ_A2
CBC48 180p/4/NPO/50V/J
CBC49 180p/4/NPO/50V/J
AZALIA FRONT PANEL
CQ4 BAT54A/SOT23/200mA
CQ2 BAT54A/SOT23/200mA
[22] LINE2_VREFO
[22] MIC2_VREFO
CR52 8.2K/4
CR56 8.2K/4
CR10 8.2K/4
CR9 8.2K/4
[22] MIC2_L
[22] MIC2_R
[22] FAUDIO_JD
[22] LINE2_R
[22] LINE2_L
CBC6 10u/6/X5R/6.3V/M
CBC5 10u/6/X5R/6.3V/M
CR13 62/4 M2_L
CR11 62/4 M2_R
CR57 62/4 L2-R
CR53 62/4 L2-L
CR12 0/4/X
CR58 22K/4
CR54 22K/4
CR55 20K/4/1
CR59 39.2K/4/1
F_AUDIO
PH/2*5K8/GY/2.54/VA/D
GRAY CONNECTOR
CEC9
CEC6
100u/OS/D/6.3V/66/30m
CBC30 180p/4/NPO/50V/J
CBC29 180p/4/NPO/50V/J
CBC37 180p/4/NPO/50V/J
CBC36 180p/4/NPO/50V/J
CR49 MASK/0/6/SHT/M/X
CR50 0/6/X
CR21 2.2/6
CR24 MASK/0/4/SHT/M/X
SPDIF_OUT
[22] SPDIFO2_HDMI
CR26 MASK/0/4/SHT/M/X
CBC14 100p/4/NPO/50V/J
PIN
SPDIF_O
PH/1*2/BK/2.54/VA/D
For HDMI SPDIF
AZALIA JACK
AUDIOB
AUDIOA
[22] LINE1_JD
[22] FRONT_JD
[22] MIC1_JD
[22] CEN_JD
[22] SURR_JD
[22] S_SURR_JD
BLUE
LINE-IN
GREEN
LINE-OUT
PINK
MIC-IN
Orange
CEN/LFE
Black
SURROUND
Gray
SURROUND SIDE
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA
Gigabyte Confidential
Do not Copy
Gigabyte Technology
Title
AUDIO JACK
Size Custom
Document Number
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LAN:RTL8111F/VB/VL

LA_VDD33

LAR10 1K/4/1

LAR12 2.49K/4/1

LAR8 MASK/0/6/SHT/M/X

LA_ENSWREG

ENABLE SW

LAU1

RTL8111F-VL-CG/QFN48

LAX1 25M/16p/30ppm/49US/20/D

LA_XTALI

LA_XTALO

LAC5 20p/4/NPO/50V/J

LAC6 20p/4/NPO/50V/J

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

LA_VDD33

LAC3 0.1u/4/X7R/16V/K

LAC2 0.1u/4/X7R/16V/K

LAC1 0.1u/4/X7R/16V/K

LAC4 0.1u/4/X7R/16V/K

離IC近越好

LA_REGOUT

LA_ENSWREG

LA_EEDI

LA_LED_LINK1000

LA_EECS

LA_DVDD10

N_-PCIE_WAKE

LA_VDD33

N_ISOLATEB

-PFMRST2

LAR7 8.2K/4

LAR6 8.2K/4

LABC12 0.1u/4/X7R/16V/K

LABC13 4.7u/6/X5R/6.3V/K

LABC4 100p/4/NPO/50V/J/X

LAR9 1/6

LAR4 1K/4/1

LAR5 15K/4/1

VCC3

MDI ESD預留28KV ★

LASED2 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

LASED3 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

5VDUAL

LAN POWER

3VDUAL

LA_VDD33

LABC26 10u/6/X5R/6.3V/M

LABC6 0.1u/4/X7R/16V/K/X

LABC16 0.1u/4/X7R/16V/K

LABC15 0.1u/4/X7R/16V/K/X

LABC5 0.1u/4/X7R/16V/K/X

LABC18 0.1u/4/X7R/16V/K/X

LABC14 0.1u/4/X7R/16V/K/X

(CLOSE LAU1 PIN:12,27,39,42,47,48)

LA_DVDD10

LABC11 0.1u/4/X7R/16V/K/X

LABC10 0.1u/4/X7R/16V/K

LABC9 0.1u/4/X7R/16V/K/X

LABC3 0.1u/4/X7R/16V/K

LABC19 0.1u/4/X7R/16V/K/X

LABC17 0.1u/4/X7R/16V/K

LABC8 0.1u/4/X7R/16V/K/X

(CLOSE LAU1 PIN3,6,9,13,29,41,45)

(CLOSE LAU1 PIN36)

LAL1 4.7uH/0.5A/2520/S/[10LC4-5A470B-01R_10LI5-124708-01R]

CLOSE LAL1

LABC20 4.7u/6/X5R/6.3V/K

LABC21 0.1u/4/X7R/16V/K/X

LA_EVDD10

LAFB1 MASK/0/6/SHT/M/X

LABC2 1u/4/X5R/6.3V/K

LABC1 0.1u/4/X7R/16V/K/X

(CLOSE LAU1 PIN21)

Power domain chart

	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

USB_LAN CONNECTOR

FUSEVCC_USB3_R5

RMA ESD PROTECT

LAESD1 MASK/AZC099-04S/SOT23-6L/X

MASK

UBESD3

★ AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

使用RU9 USB_LAN可省略LAESD1保護LED

LA_MDI-->100歐姆:[20/4/8/4/20]

LABC22 0.01u/4/X7R/25V/K/X

USB30_LAN

USB3.0

LABC23 0.1u/4/Y5V/16V/Z/X

LABC25 MASK/0/6/SHT/M/X

LAFB2 MASK/0/6/SHT/M/X

LABC24 0.1u/4/X7R/16V/K/X

LAR13 150/6 LAN_3VDUAL_LED

LABC7 0.1u/4/Y5V/16V/Z

FUSEVCC_USB3_R5

0.1u/4/X7R/16V/K

0.1u/4/X7R/16V/K

USB3+LAN/1G/GO,Y/OS/RA/D/G30

USB X3 POWER

Polyswitch-1206

5VDUAL

F9 SMD1206P350SLR/6V/S

FUSEVCC_USB3_R5

UEC4 100u/OS/D/6.3V/66/30m

USB3.0 1Port - 1Fuse (3.5A)

EMI SHORT PAD

PS:視EMI需求

LAR24 MASK/0/6/SHT/M/X

PCH_USB3_TXP3C

PCH_USB3_TXN3C

PCH_USB3_TXP2C

PCH_USB3_TXN2C

PCH_USB3_RXP3

PCH_USB3_RXN3

PCH_USB3_RXP2

PCH_USB3_RXN2

UESD3 AZ1045-04F/MSOP10

UESD4 AZ1045-04F/MSOP10

注意:USB PORT(目前:暫代6,7PORT)

USB-->90歐姆:[15/4.5/7.5/4.5/15]

BOM NOTICE ★

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)

[LED獨立走線,可省略外加AZC099料件LAESD1]

1. 9KV ESD BOM:
   USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
   USB_LAN (RU9):11NR6-702009-96R
   LAESD2,LAESD3:上件AZC398-04S

Dual Color LED

D4 D3 Green

D4 D3 Orange

Single Color LED

D2 D1 Yellow

YELLOW ORANGE GREEN

(+,-)

Gigabyte Technology

Title: Realtek RTL8111G

Size: Custom | Document Number: GA-H97M-D3H | Rev: 1.0

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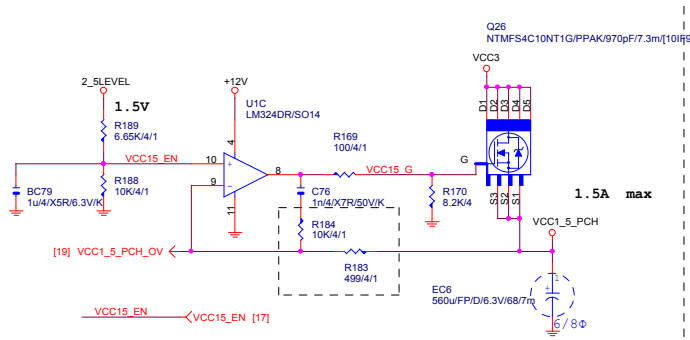
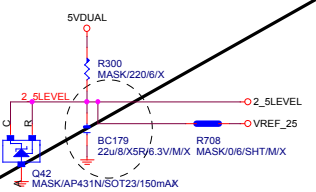
VCC1_5_PCH



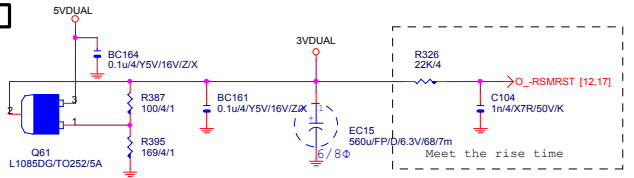
2_5LEVEL

FOOT MASK

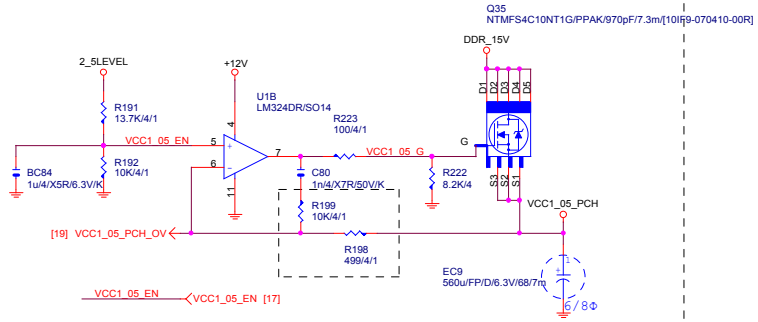
MASK

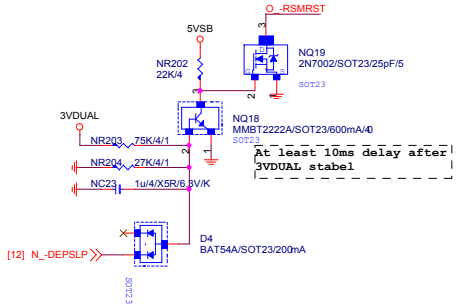


3VDUAL

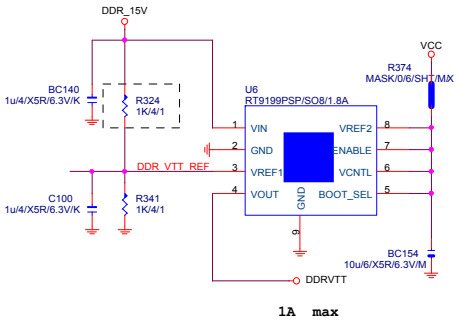


VCC1_05_PCH

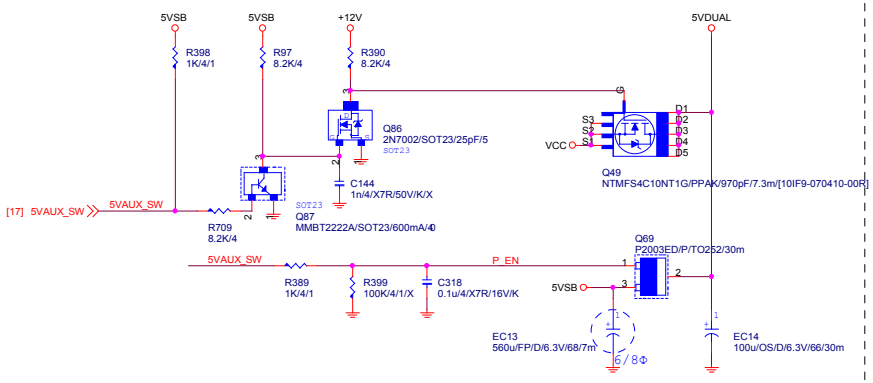




DDRVTT

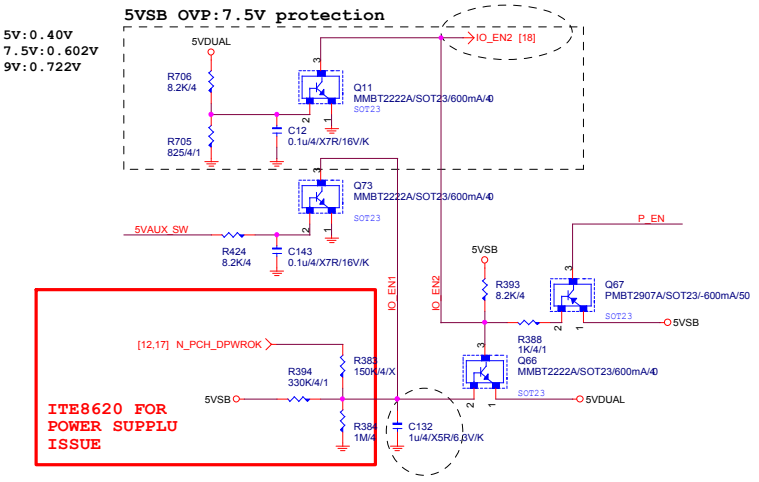


5VDUAL



5VDUAL SHORT PROTECT

5V:0.40V
7.5V:0.602V
9V:0.722V



Gigabyte Technology

Title: DISCRETE POWER

Size: Custom | Document Number: GA-H97M-D3H | Rev: 1.0

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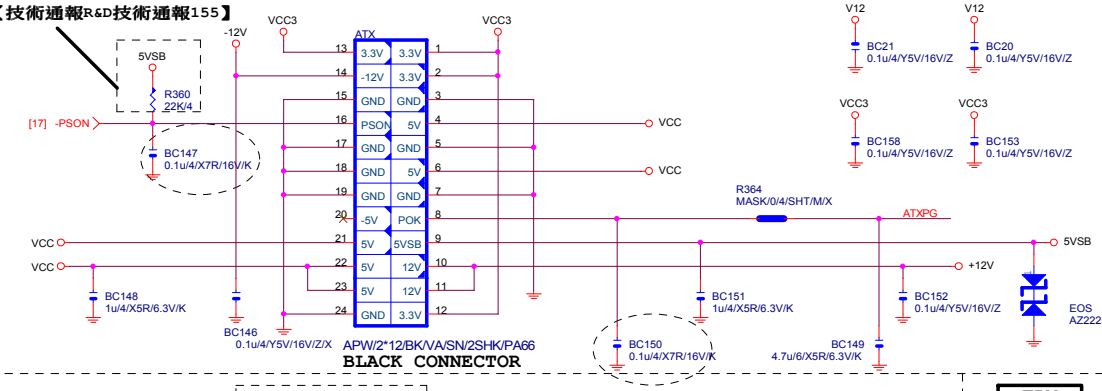
ATXX24 POWER CONNECTOR

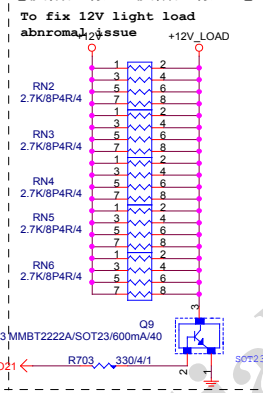
【技術通報R&D技術通報155】



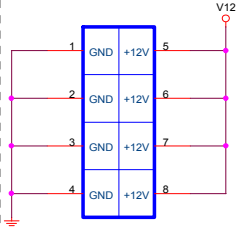
BLACK CONNECTOR

【技術通報R&D技術通報153】

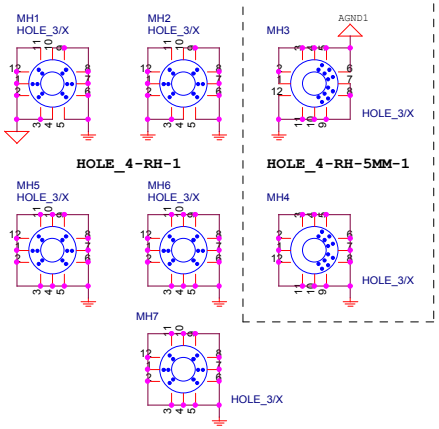
To fix 12V light load abnroma issue

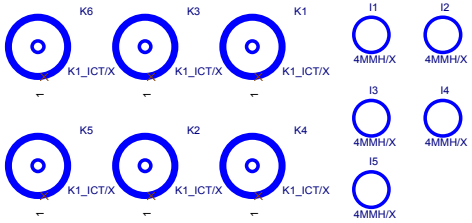


ATXX4 POWER CONNECTOR



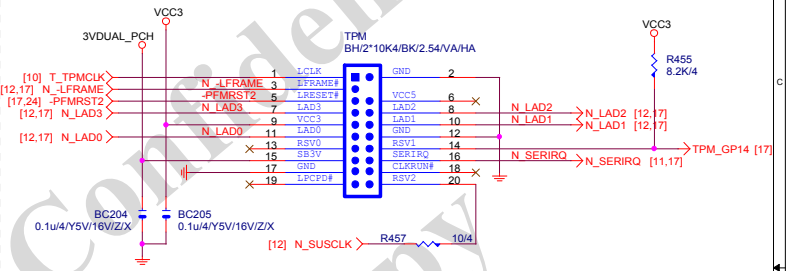
BLACK CONNECTOR



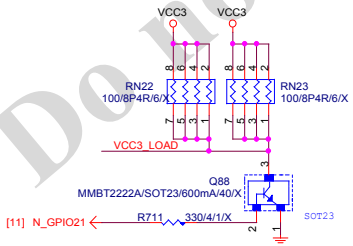


To prevent the 5VSB under loading when boot

TPM

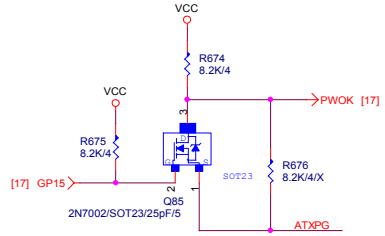


FIX PWR MINMUN LOAD



PWOK PATCH

【技術通報R&D技術通報154】



Gigabyte Technology		
Title: ATX CONNECTOR		
Size: Custom	Document Number: GA-H97M-D3H	Rev: 1.0
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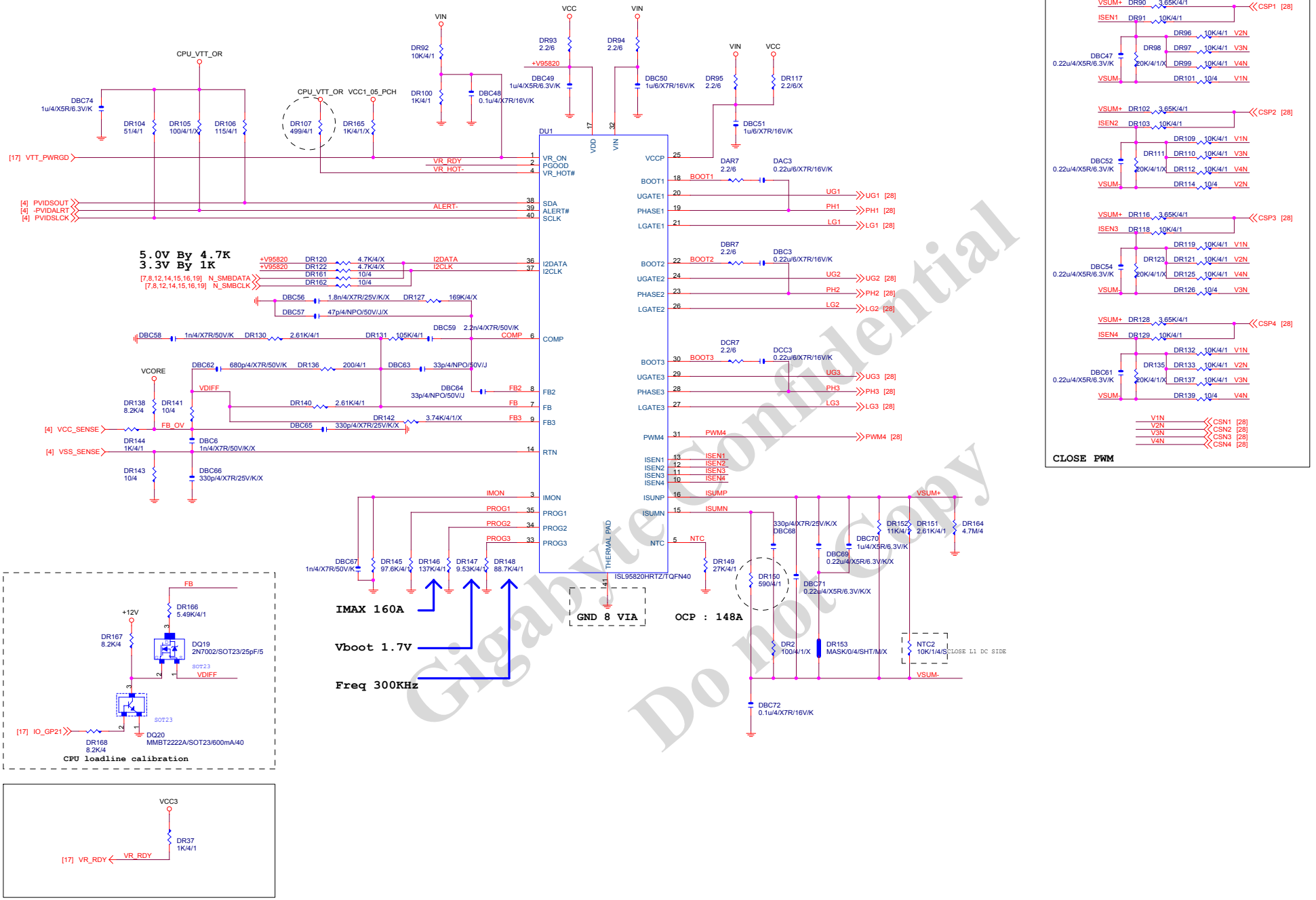

Title	CPU CORE VR-1
Size / Document Number	Custom / GA-H97M-D3H
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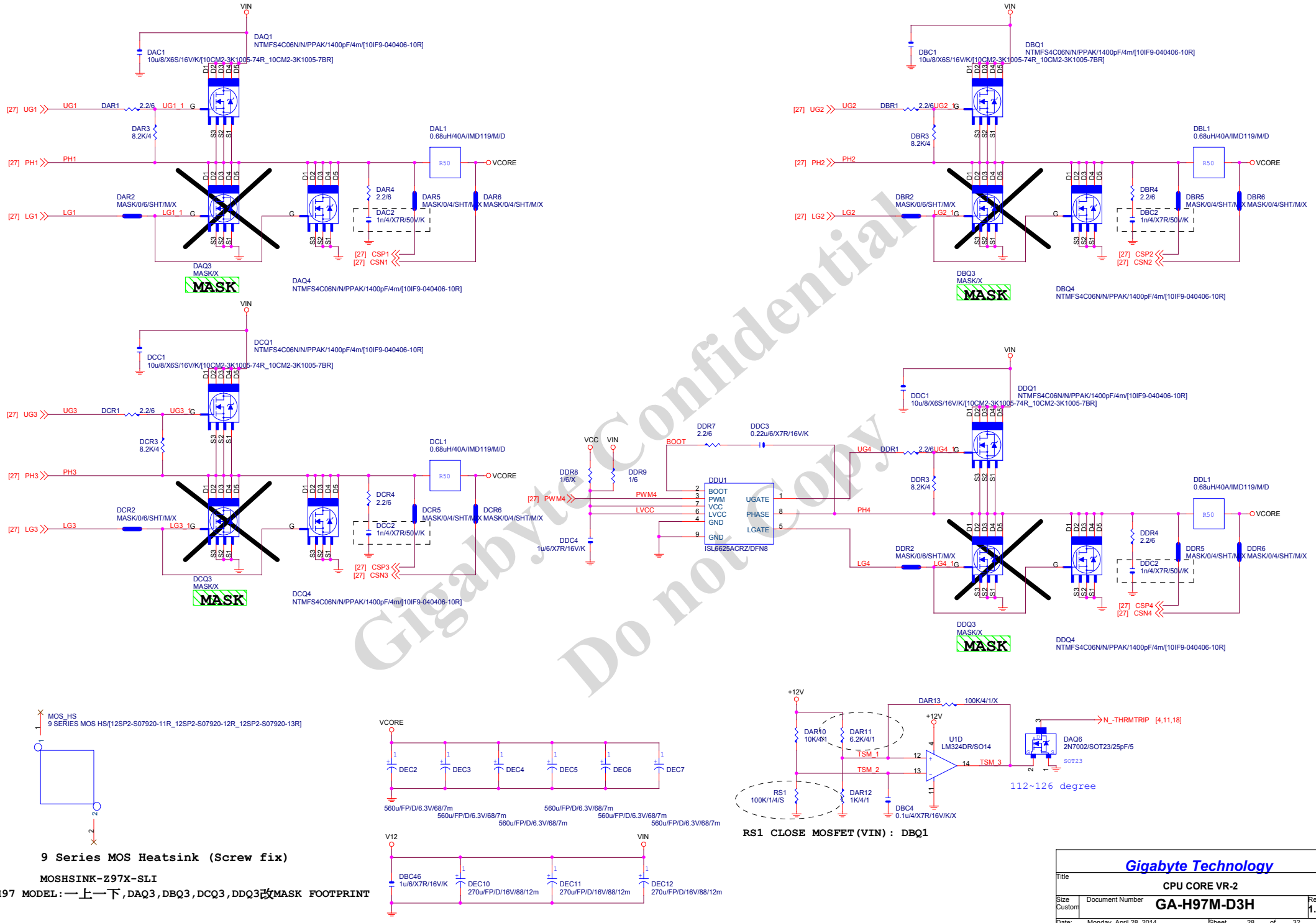
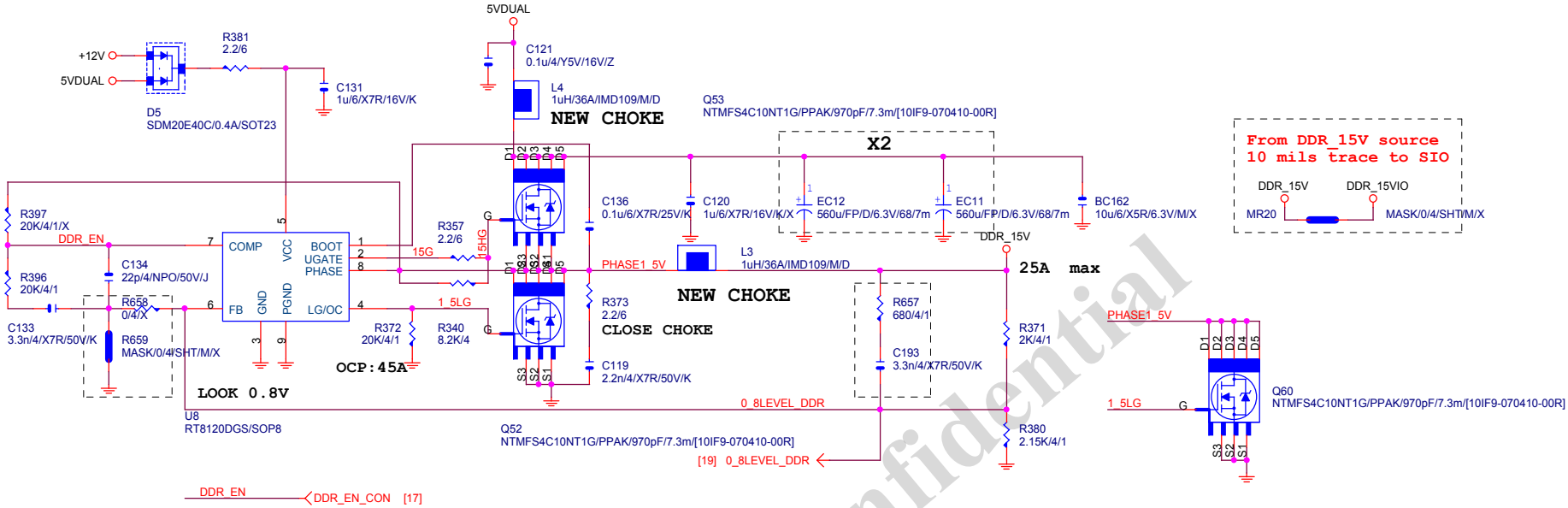
Gigabyte Technology



DDR15V



PWR SEQ

VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)

VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

Rocset=(Iocp*Lgate,rdson)/Iocset

Rocset=(45A*6.7mOhm)/10uA = 30K

Iocset=10uA

Gigabyte Technology		
Title: DDR POWER		
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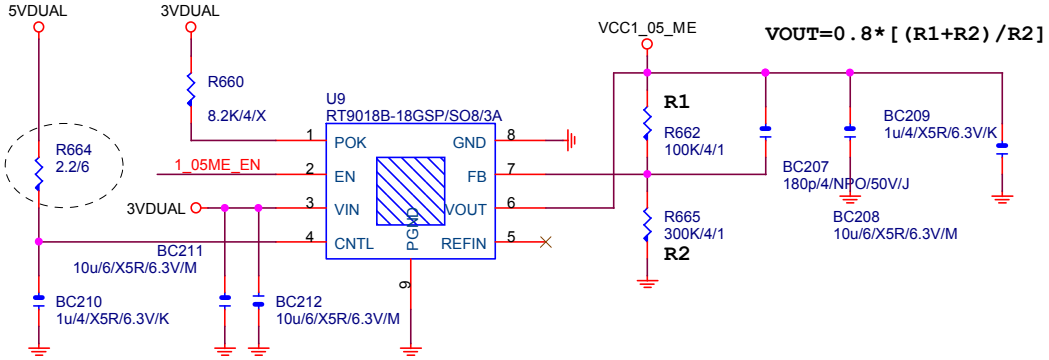
VCC1_05_ME

Z97 N/A

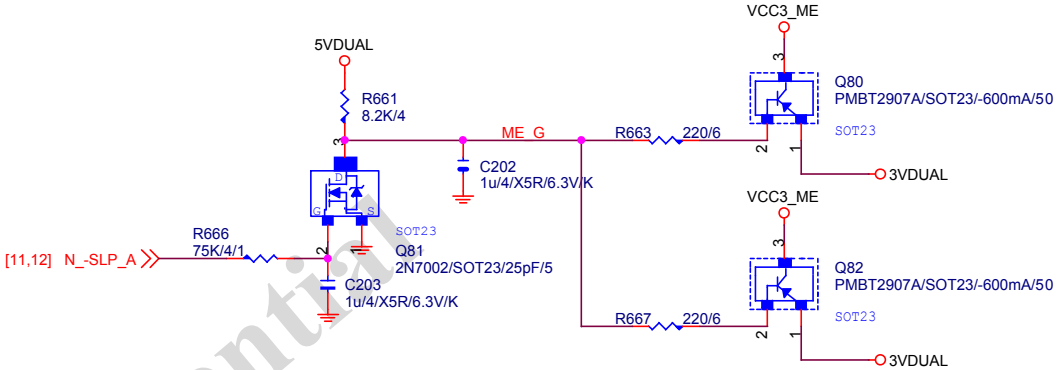
【技術通報R&D技術通報156】
(RICHTEK), (NUVOTON), (EMC)做共用
PIN7分壓阻值須做修改為100K以上電阻值

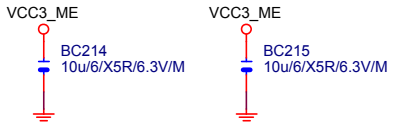


Second source
EM5103 - 10GL2-305103-01R
NCT3730S -
10GL2-303730-01R

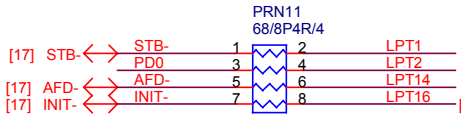
VCC3_ME

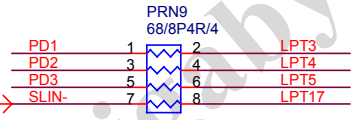
Z97 N/A

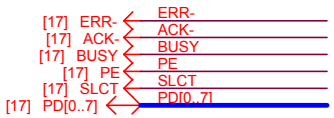


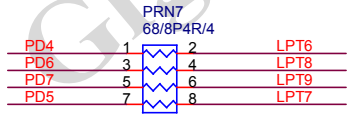


LPT PORT









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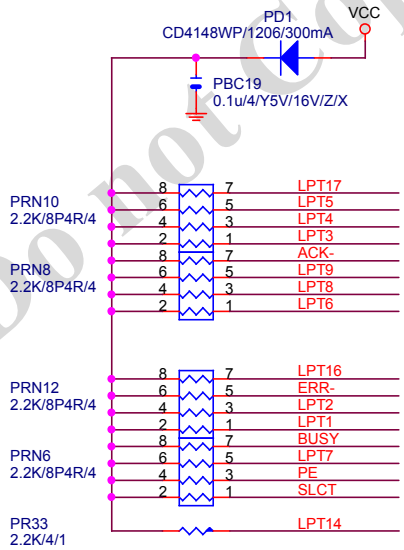
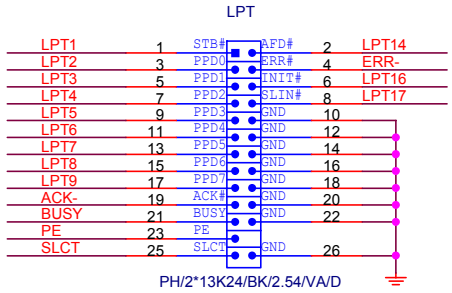
33ohm Change to 68ohm





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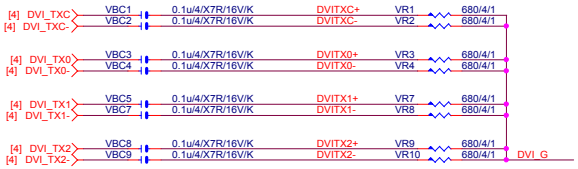
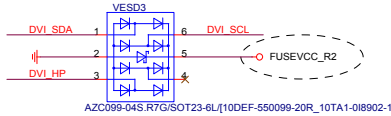
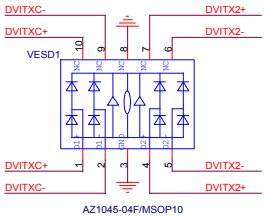
DVI LEVEL SHIFT





Close to connector



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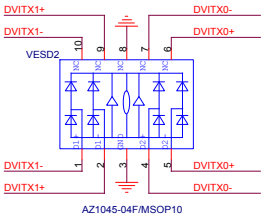

Close to connector

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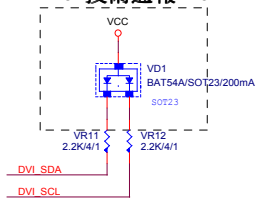
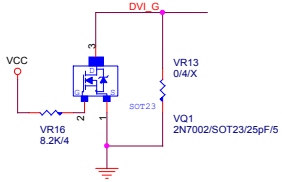
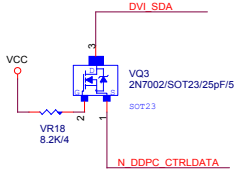
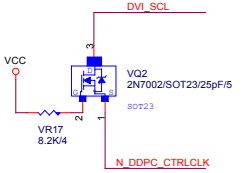
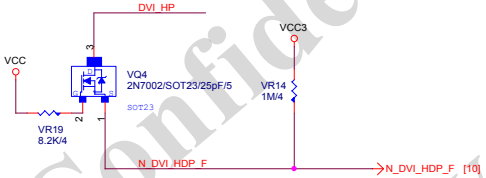
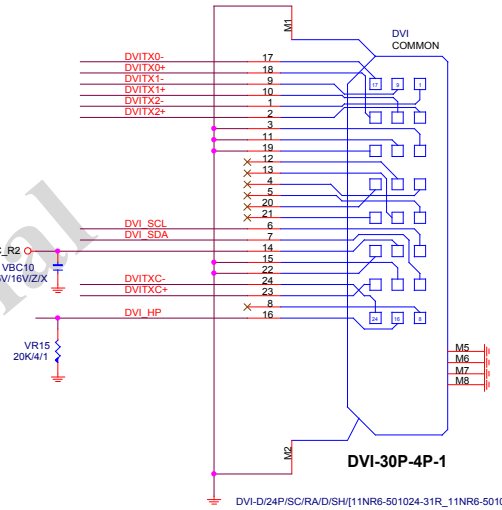




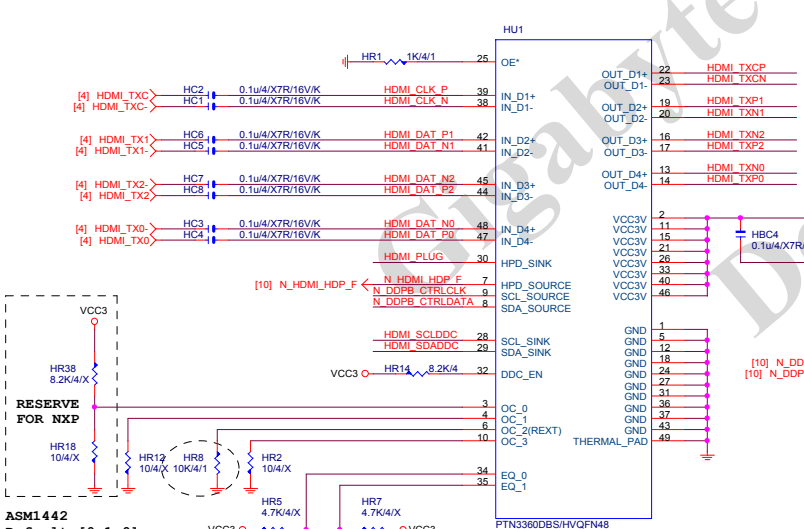


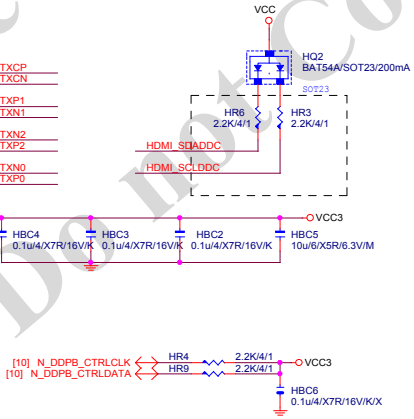


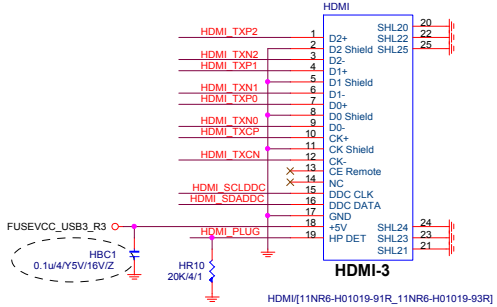




HDMI LEVEL SHIFT







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PCIE TO PCI

PCI:5/4/5 Impedance=50 +- 15%

Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm

IT8892: PR46 -> X
IT8893: PR46 -> O

IT8892: PR19 -> O
IT8893: PR19 -> X

High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

IT8892

PCI slot

chipset side

IT8892E/BX LQFP128

IT8892E/FX/S

PCB layout note:
Close to chip

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