Model Name: GA-H81M-HD3

Revision 1.03

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,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS X16 SLOT
15	PCI EXPRESS X1 SLOT
16	PCI SLOT 1,2
17	ITE 8620 LPC IO
18	COM,LPT,KB_MS
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	R_USB30,FP,FUSB,SPK,SATALED
22	CODEC ALC892
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95812_1

SHEET	TITLE
28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	DVI
31	ITE IT8892E
32	USB3 VL805
33	HDMI/DP
34	F_USB30

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 1.03

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Model Name: GA-H81M-HD3

Revision 1.03

Component value change history

2013/04/22

Data	Change Item	Reason
2013.05.26	8 Series 78 , 79	
2013.06.13	Add HBC11 0.1uF	
2013.06.14	移除 OL_1 ，上ORN1	
2013.06.21	上EC1	
2013.06.25	Add R715	
	移除 R383 不上，R384改1M	
	R389 改1K	
2013.07.01	移除 OR25	
2013.07.10	移除 CD1	
	Add R706 R705 C10 Q10	
Rev 1.03		
2013.08.19	改 x16 魚叉腳	
2013.08.19	DR54 Load Line	
2013.08.19	WR57 改不上件	

Circuit or PCB layout change

DATE	Change Item	Reason
2013.06.13	移除 SYS_FAN2	
Rev 1.0		
2013.06.20	Add USB 保護線路	
2013.06.25	移除 FAN_+12V_L，改成 +12V	
2013.07.01	增加POWER CORE不過電線路	
2013.07.01	增加POWER CORE不過電線路	
2013.07.08	修改DVI Connect 端 layout differential	
Rev 1.03		
2013.08.19	via VL805 X'TAL Reference GND	

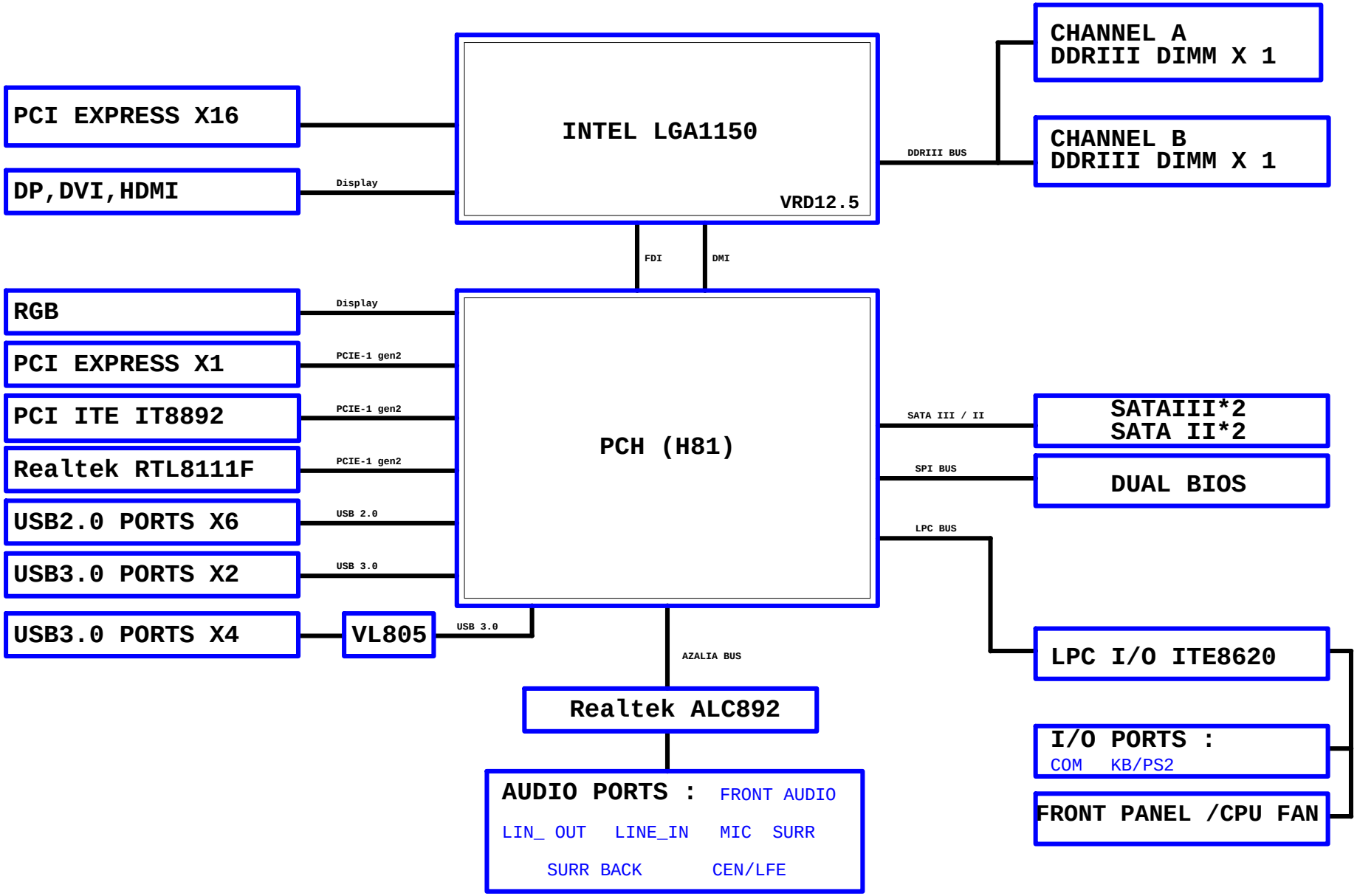
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 1.03

Date: Tuesday, August 20, 2013 | Sheet 2 of 33

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 3 of 33	

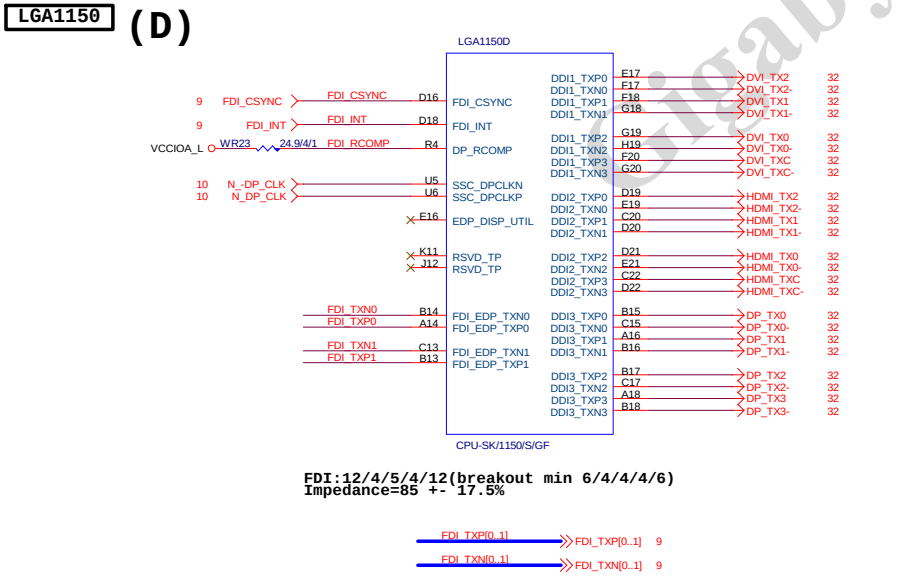
LGA1150 (E)

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

CFG 0-17 all internal PULL-UP

LGA1150 (D)

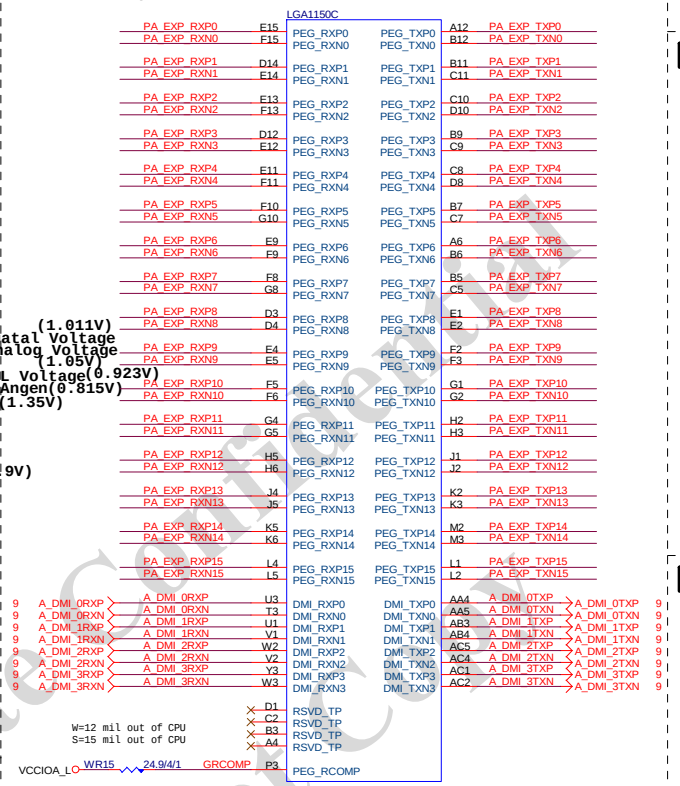


FDI:12/4/5/4/12(breakout min 6/4/4/4/6)
Impedance=85 +- 17.5%

FDI_TXP[0..1] → FDI_TXP[0..1] 9
FDI_TXN[0..1] → FDI_TXN[0..1] 9

LGA1155 (C)

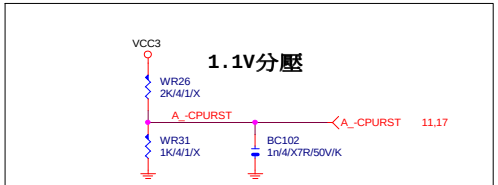
PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



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

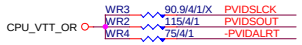
PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] 14
PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] 14
PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] 14
PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] 14

-CPURST

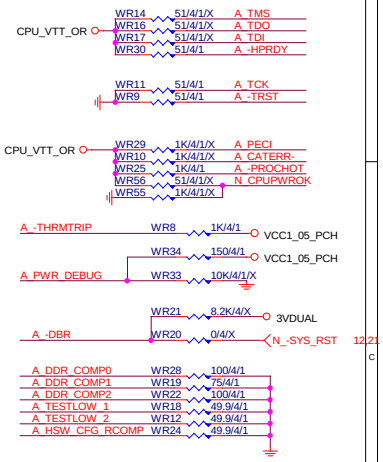


For IT8620 Ctrl

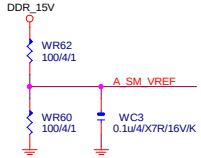
CPU SVID



CPU PU/PD



SM REF



Gigabyte Technology		
Title: CPU LGA1150-A		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
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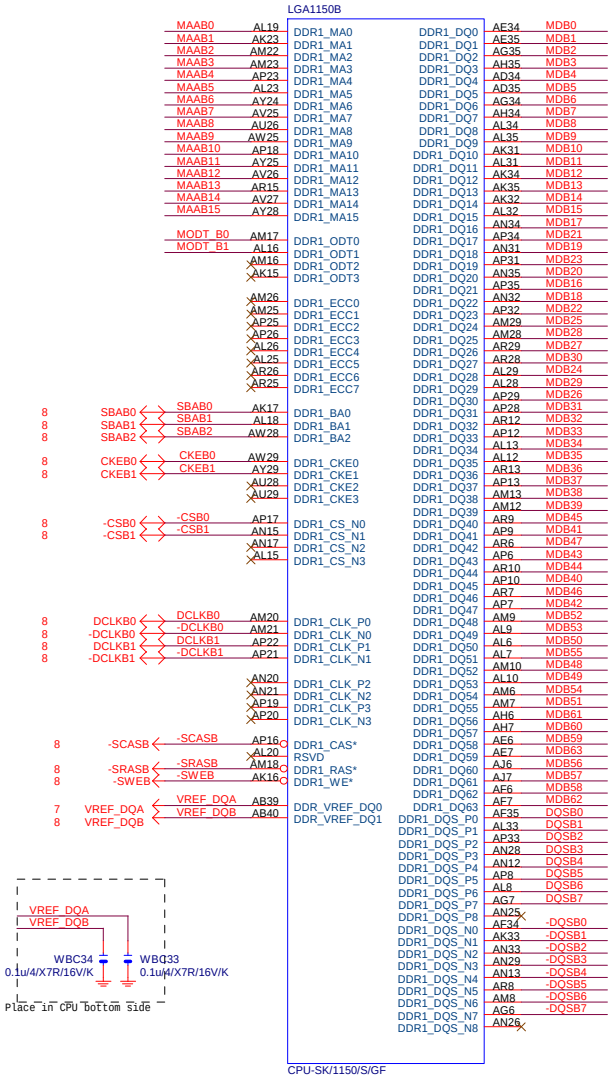
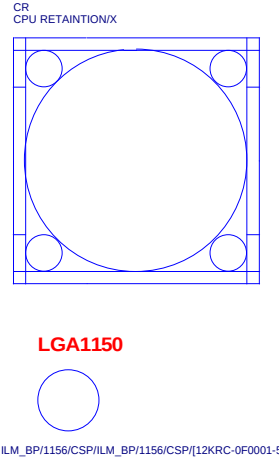
LGA1150 (A)

LGA1150 (B)



LGA1150 (CR)



DDR BUS

7 MODT_A[0..1] MODT_A[0..1]
8 MODT_B[0..1] MODT_B[0..1]
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		
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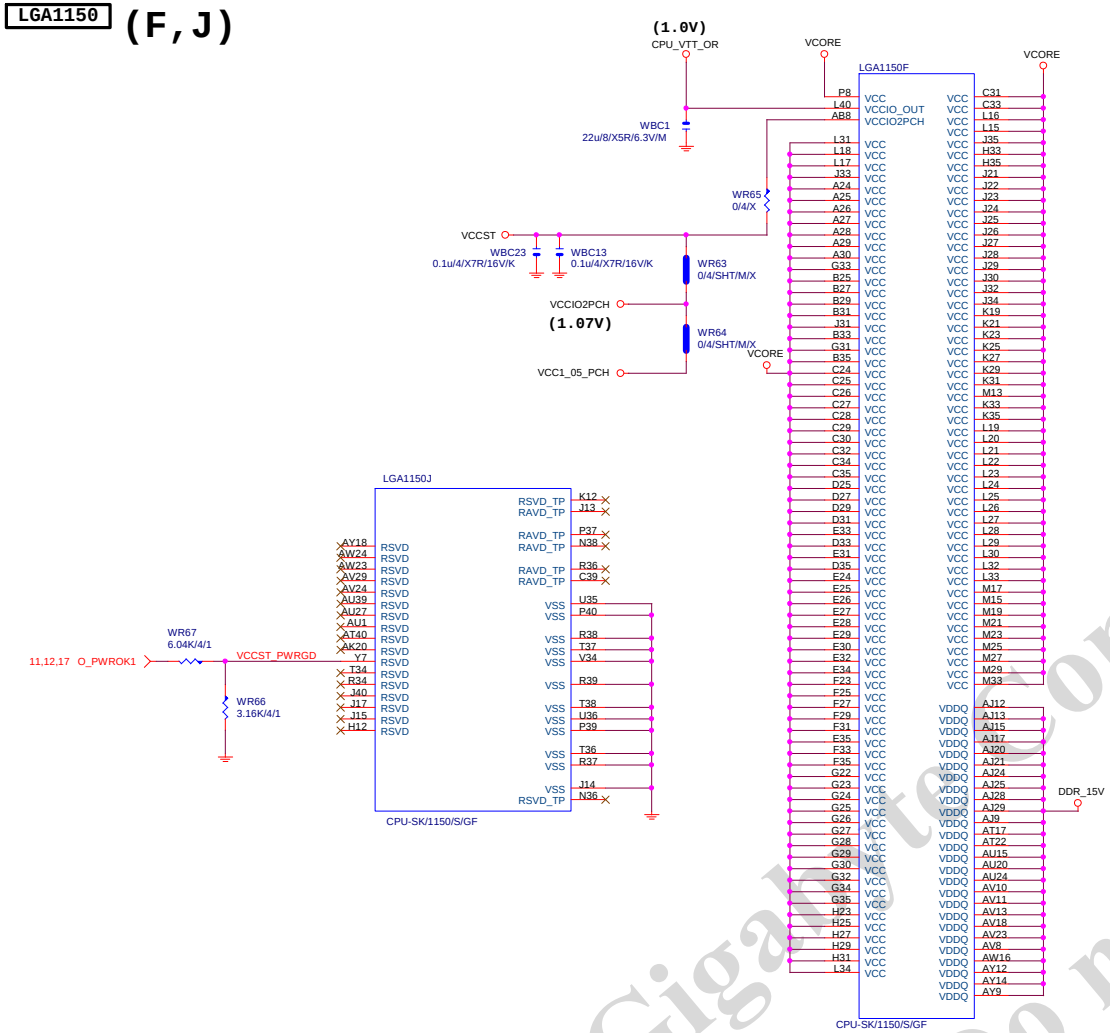
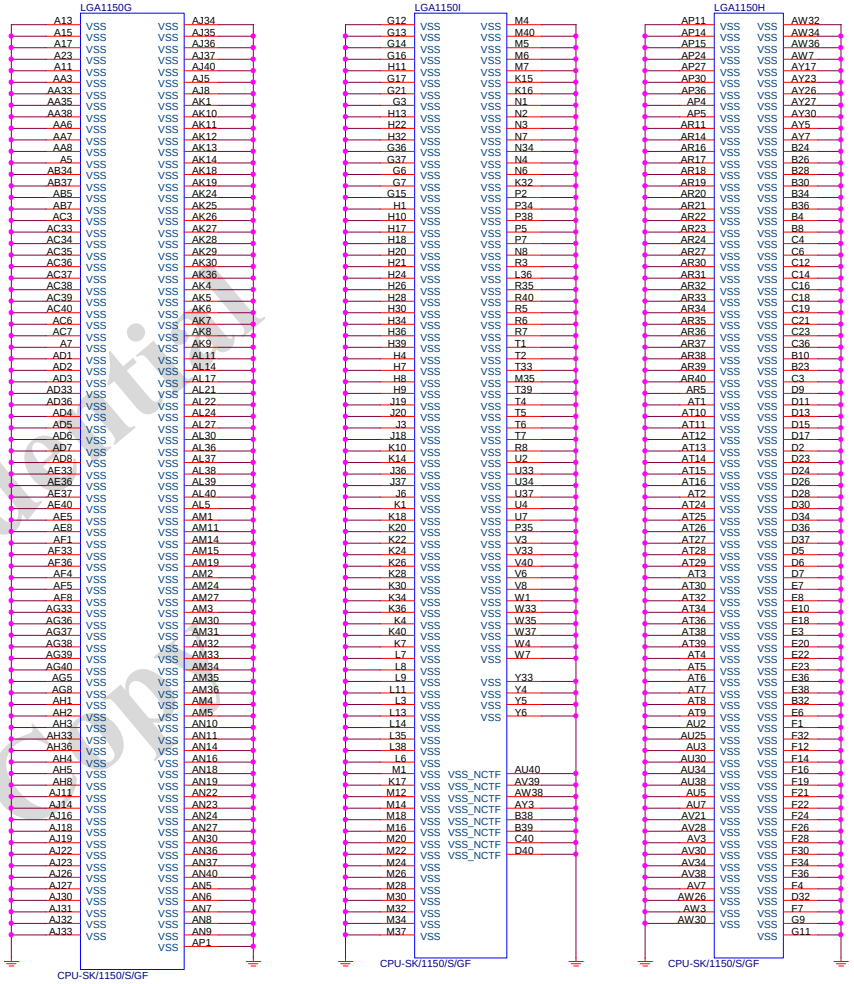
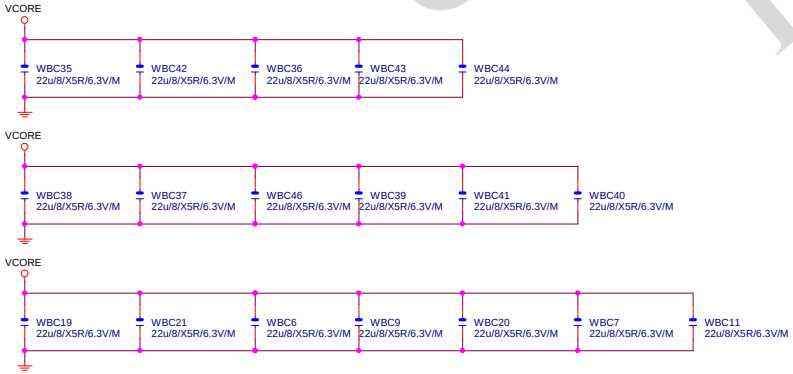
LGA1150 (F,J)



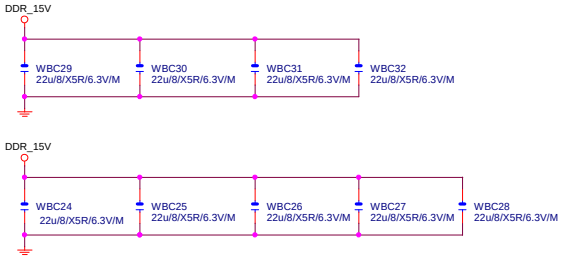
LGA1155 (G,H,I)



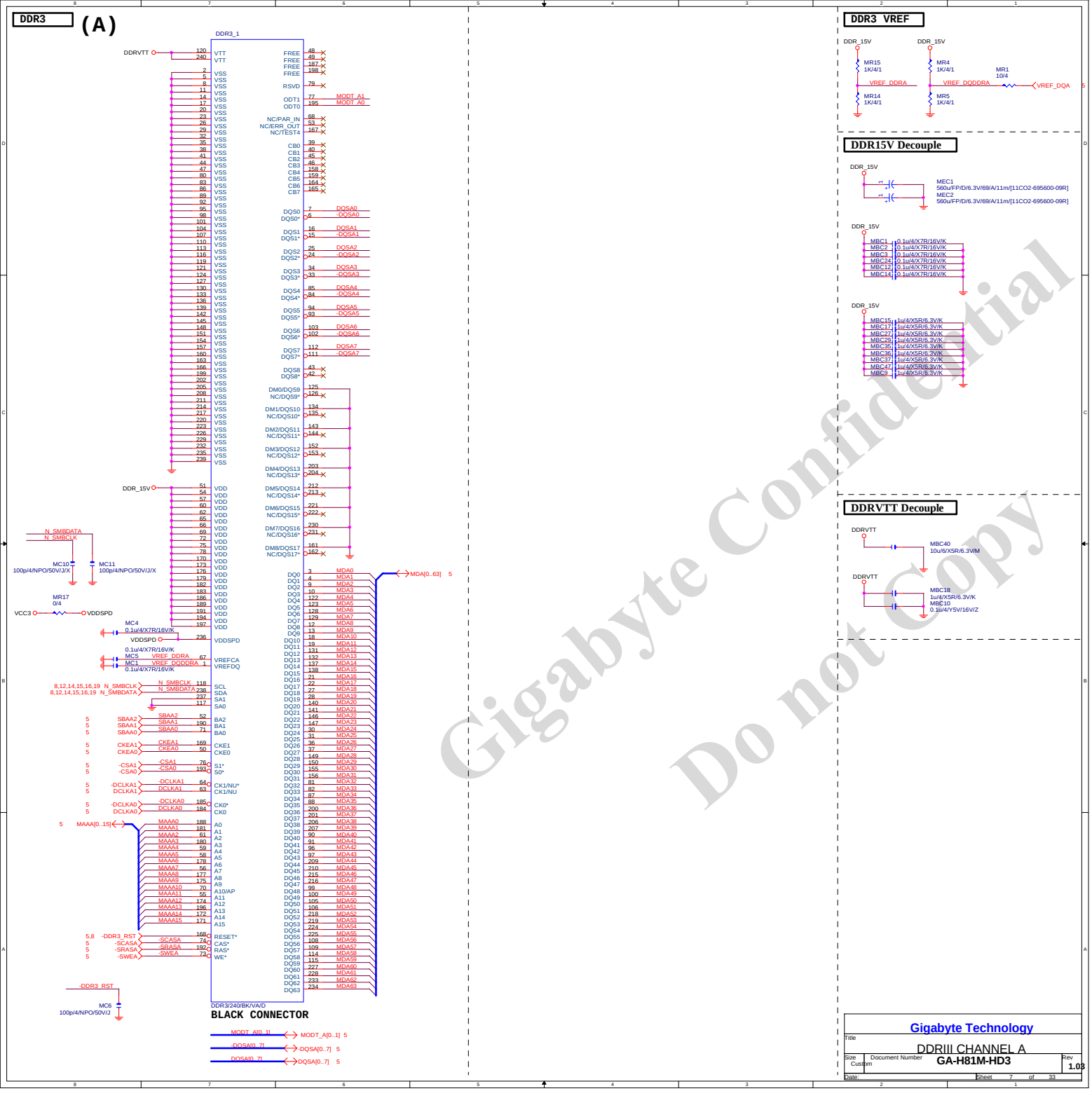
VCore CAP (X18)



DDR CAP (X9)



Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 6 of 33	



Gigabyte Technology			
Title: DDRIII CHANNEL A			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 1.03
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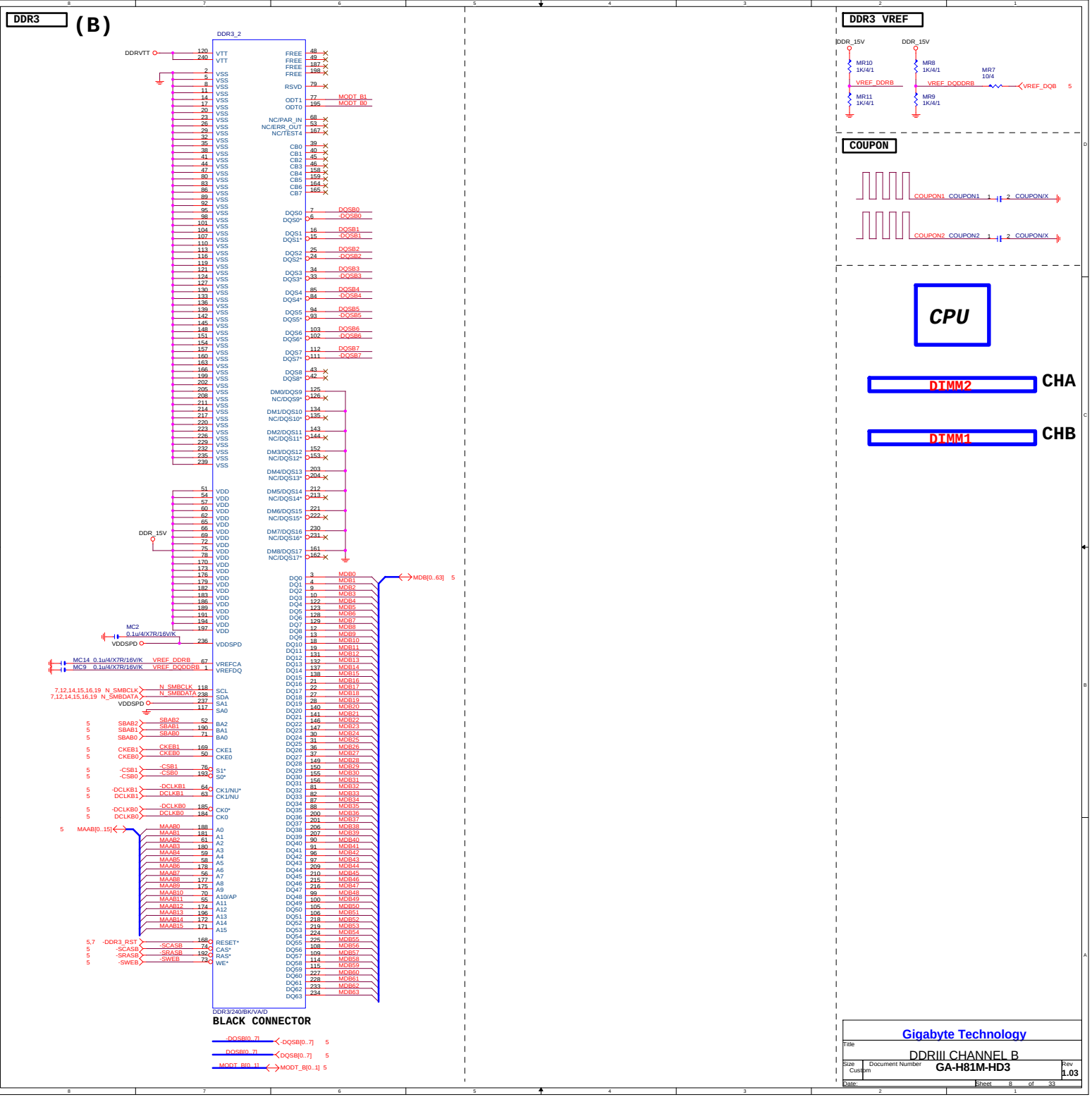
DDR3
(B)
DDR3_2
DDRVTT
DDR_15V
MC2
0.1u/4/X7R/16V/K
VDDSPD
MC14 0.1u/4/X7R/16V/K VREF_DDRB
MC9 0.1u/4/X7R/16V/K VREF_DQDDRB
7,12,14,15,16,19 N_SMBCLK
7,12,14,15,16,19 N_SMBDATA
MAAB[0..15]
-DDR3_RST
-SCASB
-SRASB
-SWEB
MDB[0..63] 5
-DQSB[0..7] -DQSB[0..7] 5
DQSB[0..7] DQSB[0..7] 5
MODT_B[0..1] MODT_B[0..1] 5
DDR3/240/BK/VA/D
BLACK CONNECTOR
DDR3 VREF
DDR_15V
MR10 1K/4/1
MR11 1K/4/1
MR8 1K/4/1
MR9 1K/4/1
MR7 10/4
VREF_DDRB
VREF_DQDDRB
VREF_DQB 5
COUPON
COUPON1 COUPON1 1 2 COUPON/X
COUPON2 COUPON2 1 2 COUPON/X
CPU
DTMM2
CHA
DTMM1
CHB
Gigabyte Technology
Title
DDRIII CHANNEL B
Size Custom
Document Number GA-H81M-HD3
Rev 1.03
Date:
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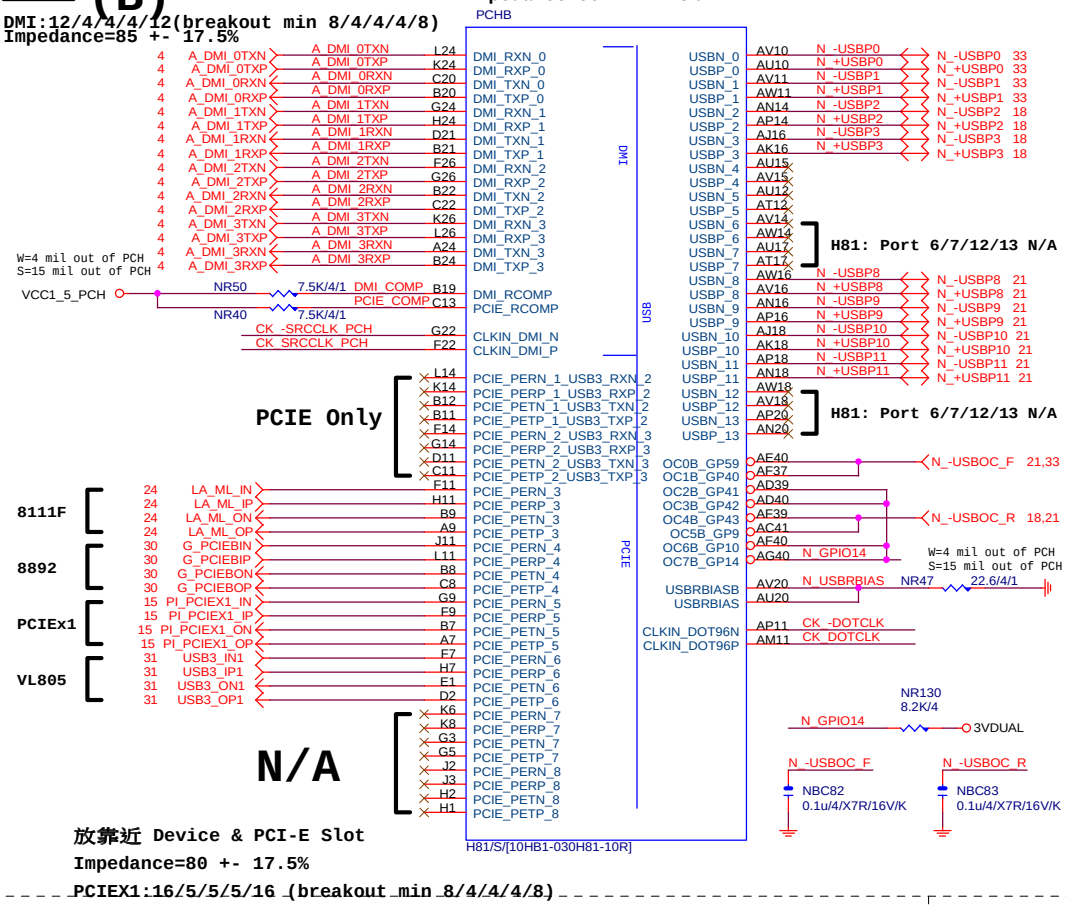
PCH (B)

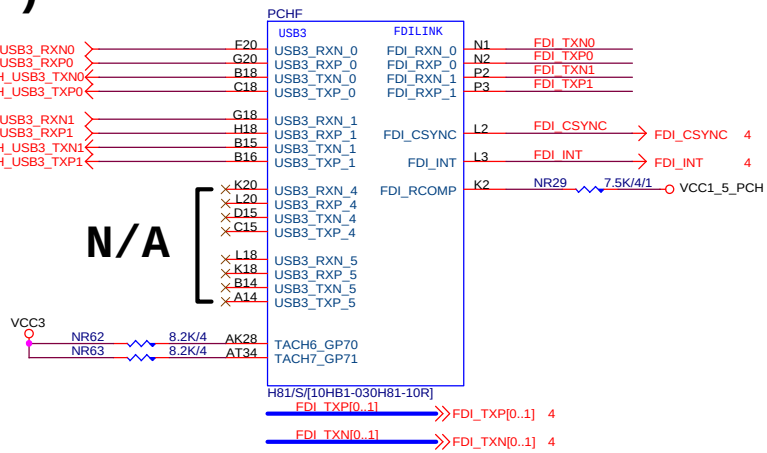
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

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



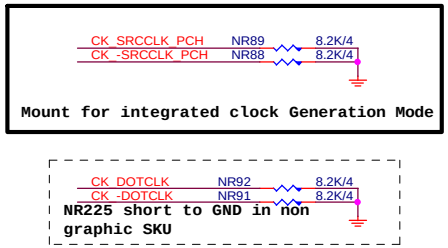
放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCH (F)

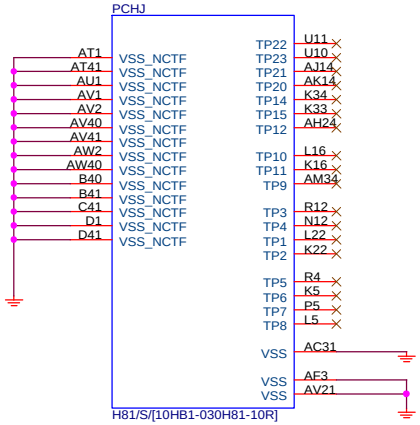


USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

PCH CLK PD

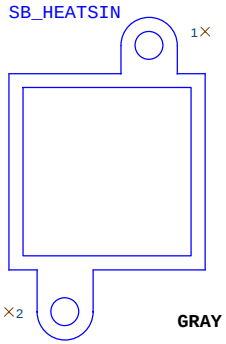


PCH (J)



PCH H/S

LOW COST ICH7 HEATSINK



USB TABLE

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

USB OC#	Configure
OC0#	R_USB30
OC1#	USB30_LAN
OC2#	N/A
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	N/A
OC7#	Not Use

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE,NVRAM
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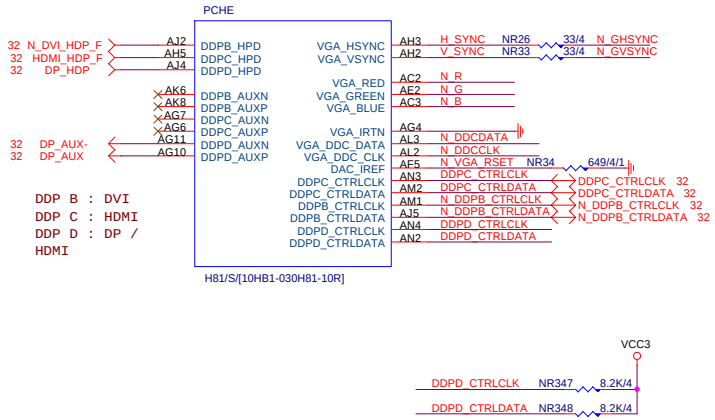
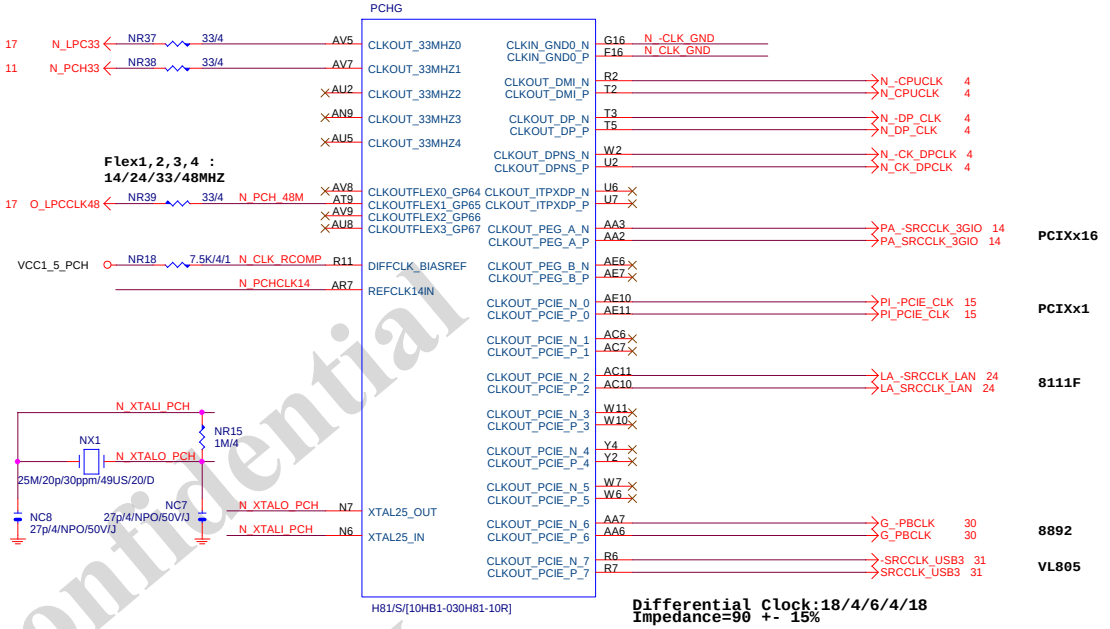
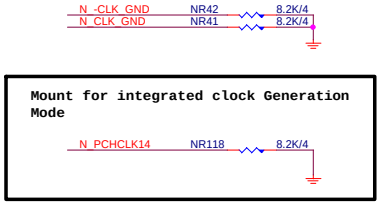
PCH (E)



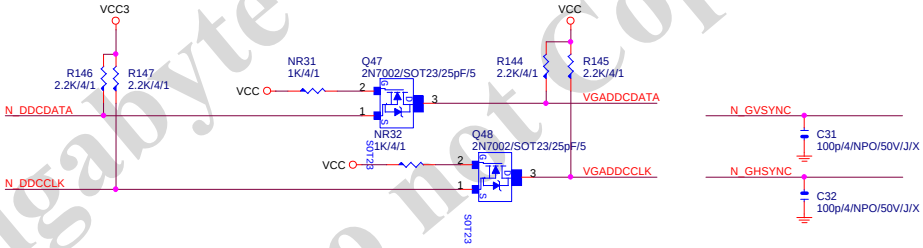
PCH (G)



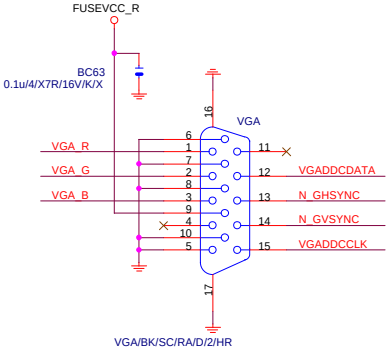
PCH CLK PD



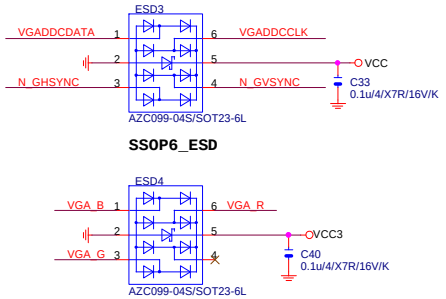
VGA DDC



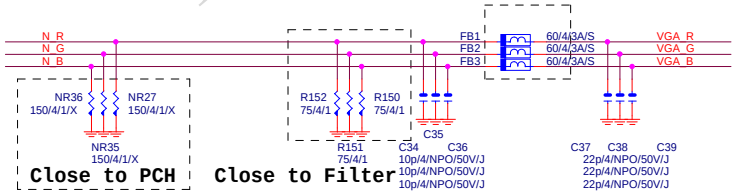
VGA CONNECTOR



VGA ESD



VGA DDC



Gigabyte Technology

Title: PCH DISPLAY ,CLK BUFFER

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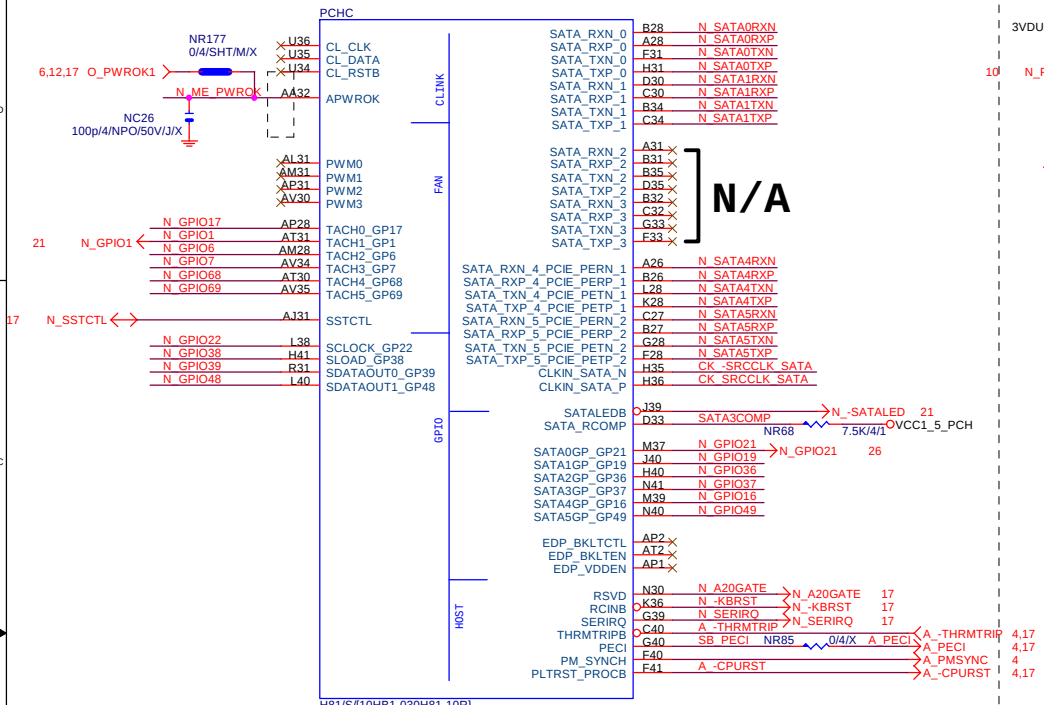
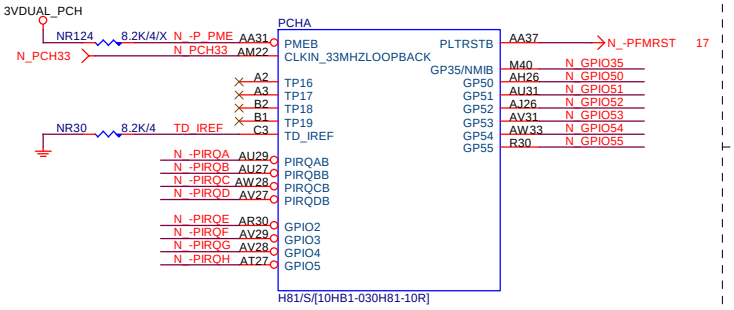
PCH (C)

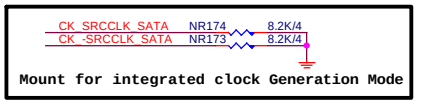
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



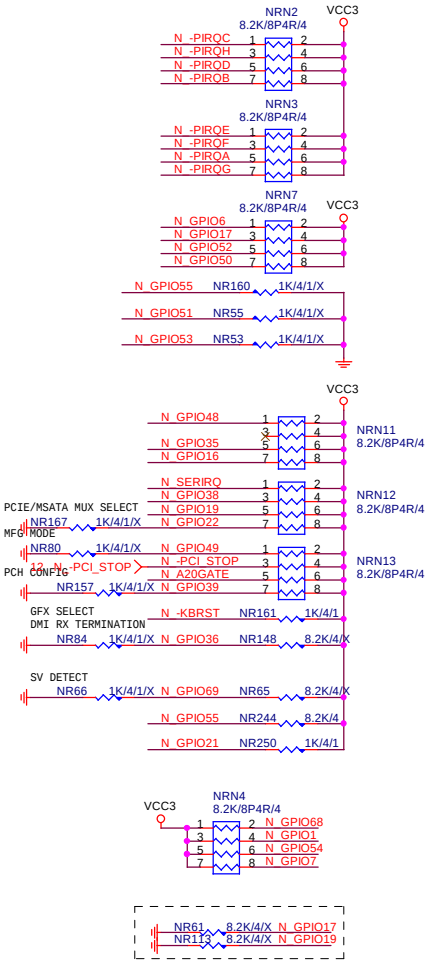
PCH (A)



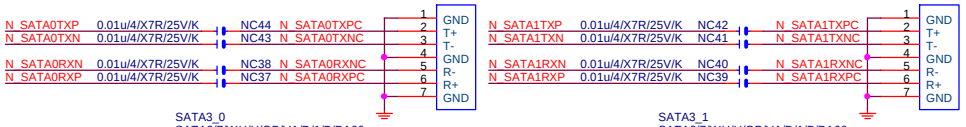
PCH CLK PD



PCH PU/PD



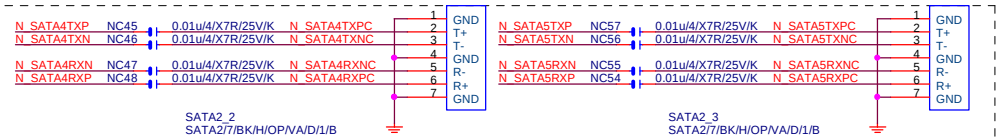
SATA CONNECTOR



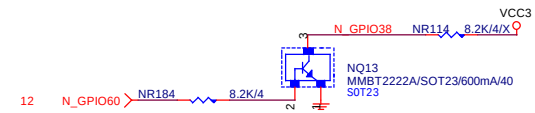
TLS Setting

GPIO37 PU VCC3 ENABLE SBA
For H87&B85

** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0



GPIO38 Ctrl



Gigabyte Technology

Title	PCH HOST , SATA, PCI	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
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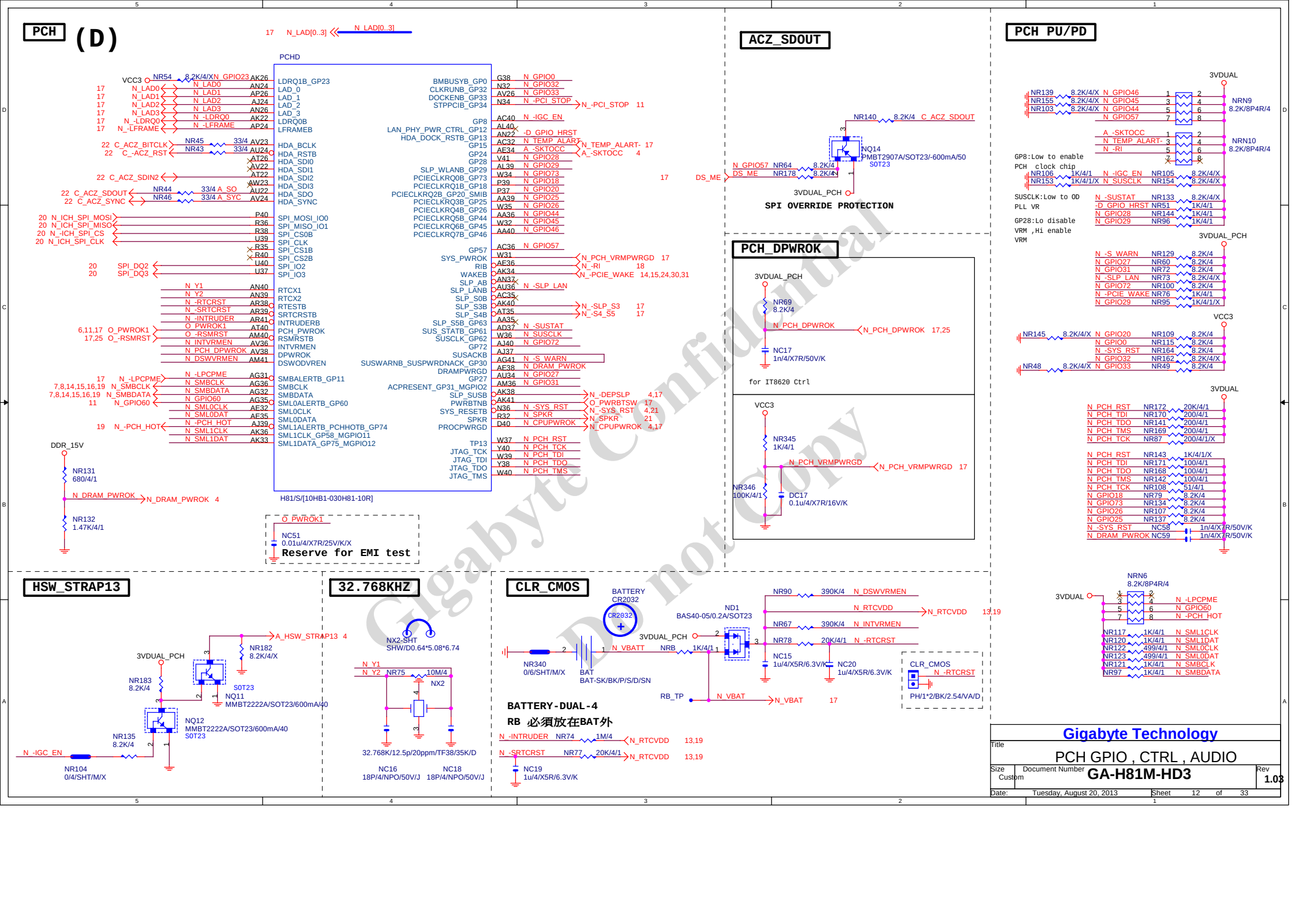
PCH (D)
PCHD
H81S/[10HB1-030H81-10R]
ACZ_SDOUT
SPI OVERRIDE PROTECTION
PCH_DPWROK
for IT8620 Ctrl
PCH PU/PD
GP8:Low to enable PCH clock chip
SUSCLK:Low to OD PLL VR
GP28:Lo disable VRM ,Hi enable VRM
Reserve for EMI test
HSW_STRAP13
32.768KHZ
CLR_CMOS
BATTERY-DUAL-4
RB 必須放在BAT外
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-H81M-HD3
1.03
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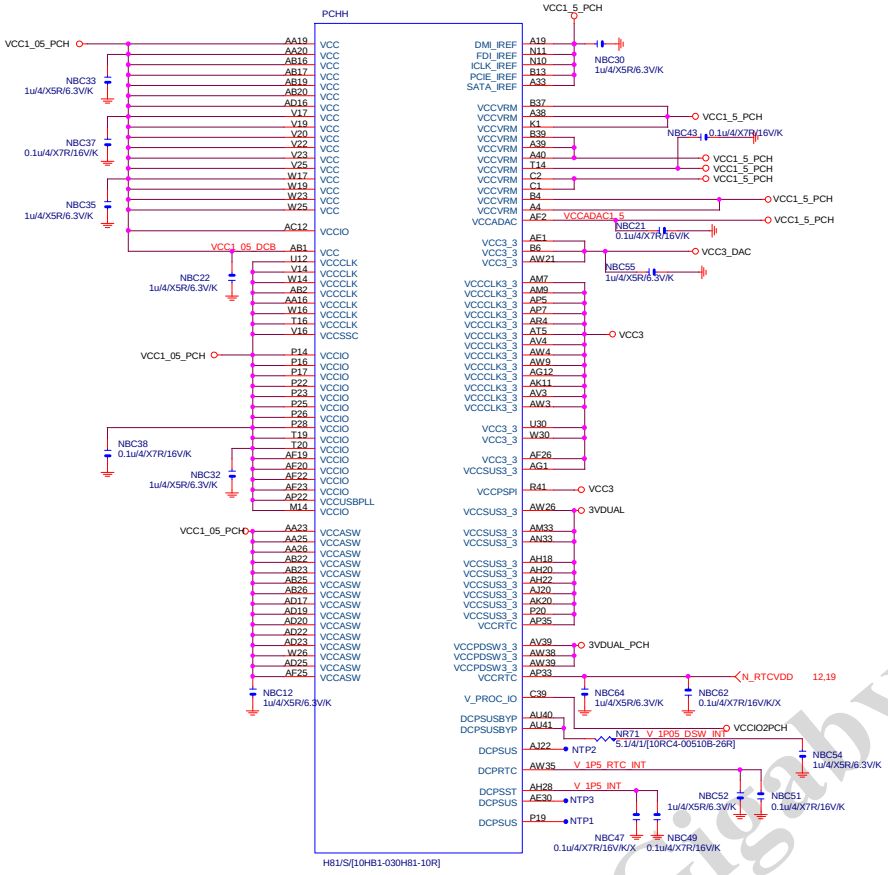
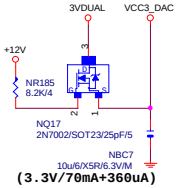
Do not Copy

PCH (H)



VCC3_DAC

CLOSE北橋(注意震盪水波紋)



(3.3V/70mA+360uA)

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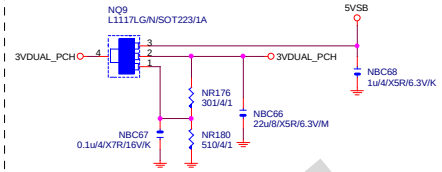
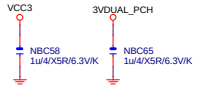


SHT PWR

CAP



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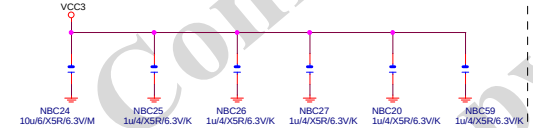
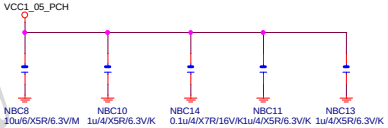


(1.05V)(X5)



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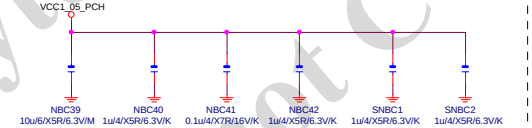

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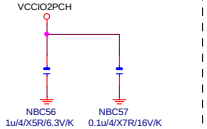

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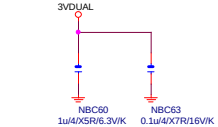

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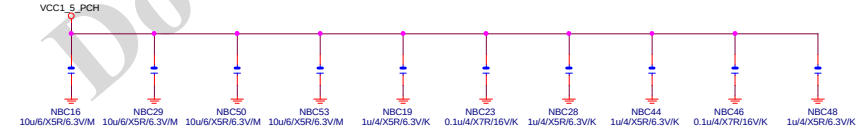
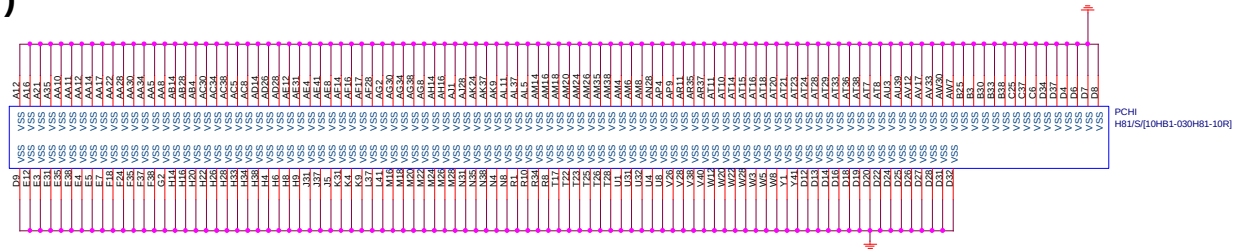
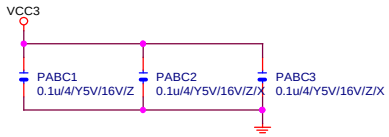


PCH (I)

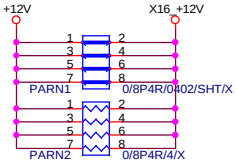


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 1.03
Date: Tuesday, August 20, 2013		Sheet 13 of 33	

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-P

3GIO_*16

PCIEX16

		12V	B1	A1	PRSNT1*	
		12V	B2	A2	12V	
		RSVD	B3	A3	12V	
PAR3	0/4/SHT/M/X	GND	B4	A4	GND	PAR1 0/4/SHT/M/X
7,8,12,15,16,19 N_SMBCLK	SMBCLK	SMCLK	B5	A5	JTAG2	
7,8,12,15,16,19 N_SMBDATA	SMBDATA	SMDAT	B6	A6	JTAG3	
		GND	B7	A7	JTAG4	PAR2 0/4/SHT/M/X
3VDUAL	VCC3	3.3V	B8	A8	JTAG5	VCC3
		JTAG1	B9	A9	3.3V	
		3.3VAUX	B10	A10	3.3V	
12,15,24,30,31 N_-PCIE_WAKE		WAKE*	B11	A11	PWRGD	-PCIE_RST -PCIE_RST 15,17,30 -PCIE_RST
		KEY				
		RSVD	B12	A12	GND	
		GND	B13	A13	REFCLK+	PA_SRCCLK_3GIO_10
PA_EXP_TXP0_C		HSOP0	B14	A14	REFCLK-	PA_-SRCCLK_3GIO_10
PA_EXP_TXN0_C		HSON0	B15	A15	GND	
		GND	B16	A16	HSIP0	PA_EXP_RXP0
		PRSNT2*	B17	A17	HSIN0	PA_EXP_RXN0
		GND	B18	A18	GND	
PA_EXP_TXP1_C		HSOP1	B19	A19	RSVD	
PA_EXP_TXN1_C		HSON1	B20	A20	GND	
		GND	B21	A21	HSIP1	PA_EXP_RXP1
		GND	B22	A22	HSIN1	PA_EXP_RXN1
PA_EXP_TXP2_C		HSOP2	B23	A23	GND	
PA_EXP_TXN2_C		HSON2	B24	A24	GND	
		GND	B25	A25	HSIP2	PA_EXP_RXP2
		GND	B26	A26	HSIN2	PA_EXP_RXN2
PA_EXP_TXP3_C		HSOP3	B27	A27	GND	
PA_EXP_TXN3_C		HSON3	B28	A28	GND	
		GND	B29	A29	HSIP3	PA_EXP_RXP3
		RSVD	B30	A30	HSIN3	PA_EXP_RXN3
		PRSNT2*	B31	A31	GND	
		GND	B32	A32	RSVD	
PA_EXP_TXP4_C		HSOP4	B33	A33	RSVD	
PA_EXP_TXN4_C		HSON4	B34	A34	GND	
		GND	B35	A35	HSIP4	PA_EXP_RXP4
		GND	B36	A36	HSIN4	PA_EXP_RXN4
PA_EXP_TXP5_C		HSOP5	B37	A37	GND	
PA_EXP_TXN5_C		HSON5	B38	A38	GND	
		GND	B39	A39	HSIP5	PA_EXP_RXP5
		GND	B40	A40	HSIN5	PA_EXP_RXN5
PA_EXP_TXP6_C		HSOP6	B41	A41	GND	
PA_EXP_TXN6_C		HSON6	B42	A42	GND	
		GND	B43	A43	HSIP6	PA_EXP_RXP6
		GND	B44	A44	HSIN6	PA_EXP_RXN6
PA_EXP_TXP7_C		HSOP7	B45	A45	GND	
PA_EXP_TXN7_C		HSON7	B46	A46	GND	
		GND	B47	A47	HSIP7	PA_EXP_RXP7
		PRSNT2*	B48	A48	HSIN7	PA_EXP_RXN7
		GND	B49	A49	GND	
PA_EXP_TXP8_C		HSOP8	B50	A50	RSVD	
PA_EXP_TXN8_C		HSON8	B51	A51	GND	
		GND	B52	A52	HSIP8	PA_EXP_RXP8
		GND	B53	A53	HSIN8	PA_EXP_RXN8
PA_EXP_TXP9_C		HSOP9	B54	A54	GND	
PA_EXP_TXN9_C		HSON9	B55	A55	GND	
		GND	B56	A56	HSIP9	PA_EXP_RXP9
		GND	B57	A57	HSIN9	PA_EXP_RXN9
PA_EXP_TXP10_C		HSOP10	B58	A58	GND	
PA_EXP_TXN10_C		HSON10	B59	A59	GND	
		GND	B60	A60	HSIP10	PA_EXP_RXP10
		GND	B61	A61	HSIN10	PA_EXP_RXN10
PA_EXP_TXP11_C		HSOP11	B62	A62	GND	
PA_EXP_TXN11_C		HSON11	B63	A63	GND	
		GND	B64	A64	HSIP11	PA_EXP_RXP11
		GND	B65	A65	HSIN11	PA_EXP_RXN11
PA_EXP_TXP12_C		HSOP12	B66	A66	GND	
PA_EXP_TXN12_C		HSON12	B67	A67	GND	
		GND	B68	A68	HSIP12	PA_EXP_RXP12
		GND	B69	A69	HSIN12	PA_EXP_RXN12
PA_EXP_TXP13_C		HSOP13	B70	A70	GND	
PA_EXP_TXN13_C		HSON13	B71	A71	GND	
		GND	B72	A72	HSIP13	PA_EXP_RXP13
		GND	B73	A73	HSIN13	PA_EXP_RXN13
PA_EXP_TXP14_C		HSOP14	B74	A74	GND	
PA_EXP_TXN14_C		HSON14	B75	A75	GND	
		GND	B76	A76	HSIP14	PA_EXP_RXP14
		GND	B77	A77	HSIN14	PA_EXP_RXN14
PA_EXP_TXP15_C		HSOP15	B78	A78	GND	
PA_EXP_TXN15_C		HSON15	B79	A79	GND	
		GND	B80	A80	HSIP15	PA_EXP_RXP15
		PRSNT2*	B81	A81	HSIN15	PA_EXP_RXN15
		RSVD	B82	A82	GND	

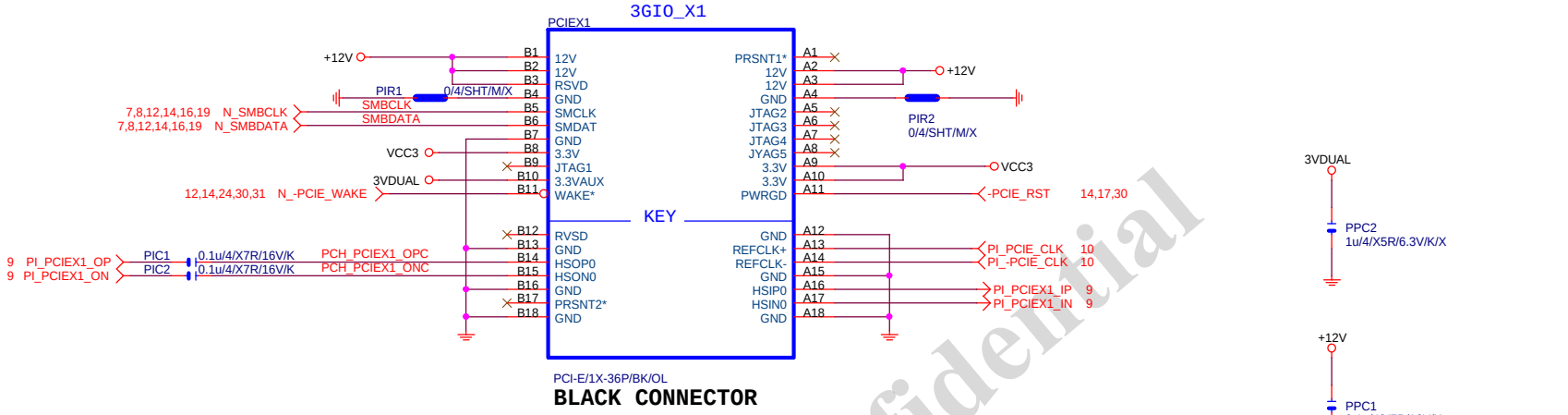
PAC1 22p/4/NPO/50V/J/X

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

BLACK CONNECTOR

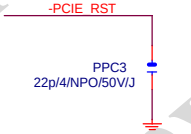
Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 14 of 33	

PCIEX1 SLOT



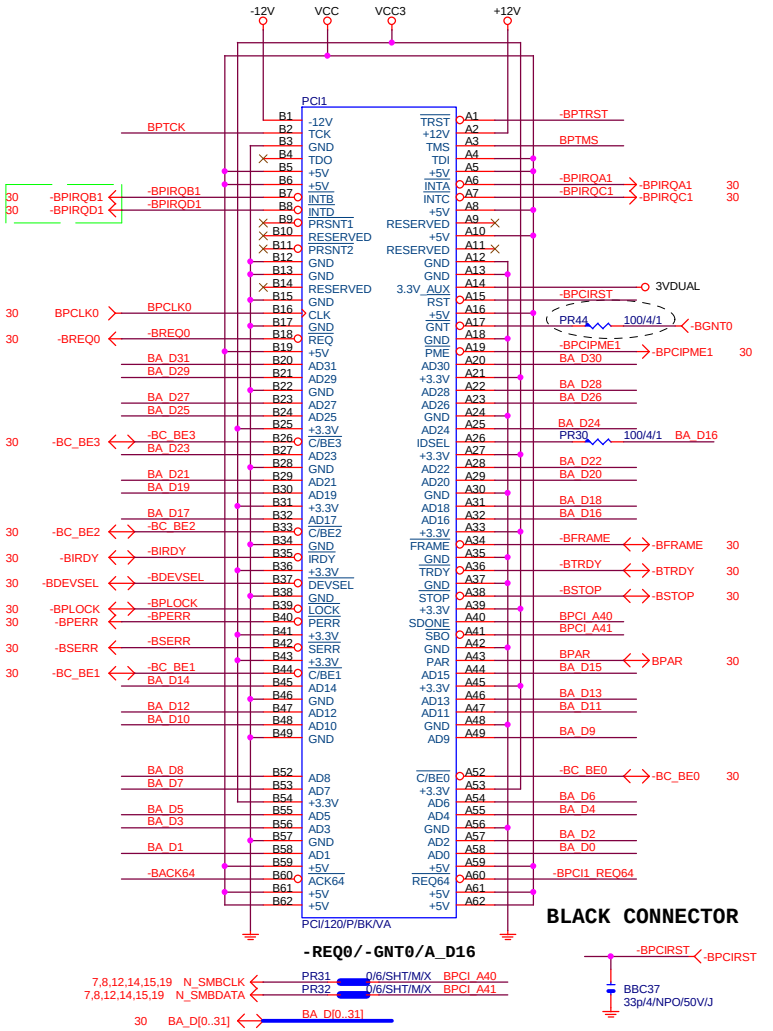
PCI-E/1X-36P/BK/OL

BLACK CONNECTOR

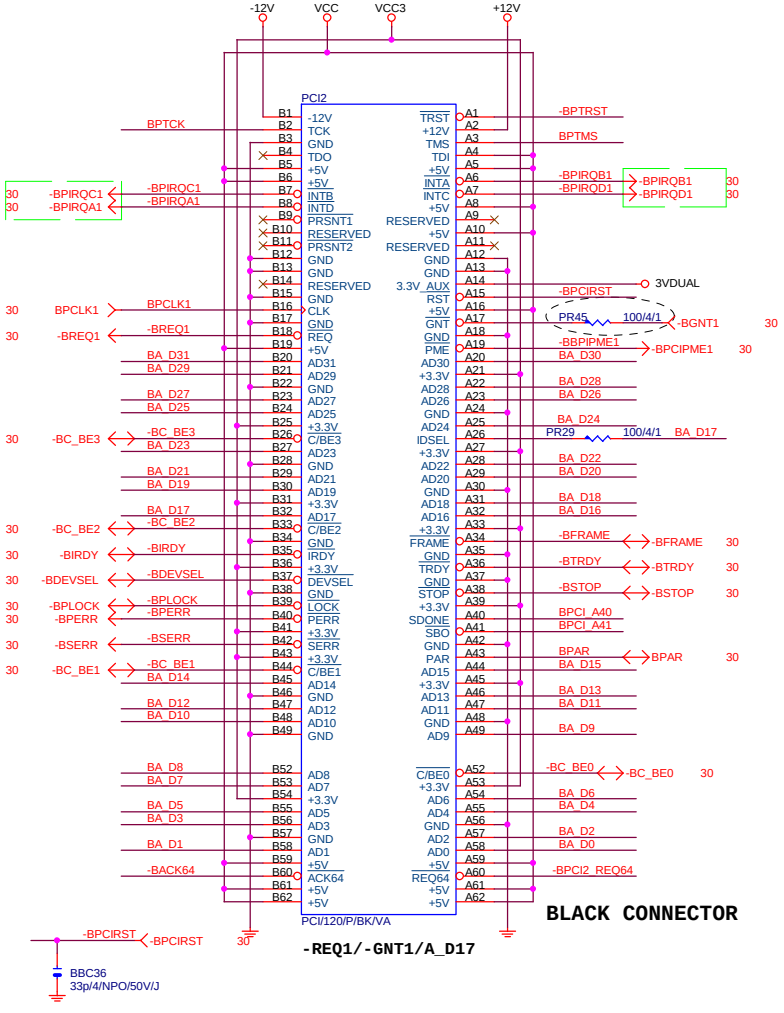


Gigabyte Technology		
Title: PCI EXPRESS X 1 PORT		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 15 of 33	

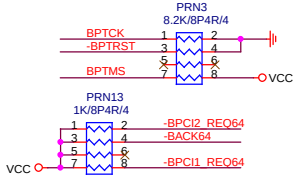
PCI SLOT 1



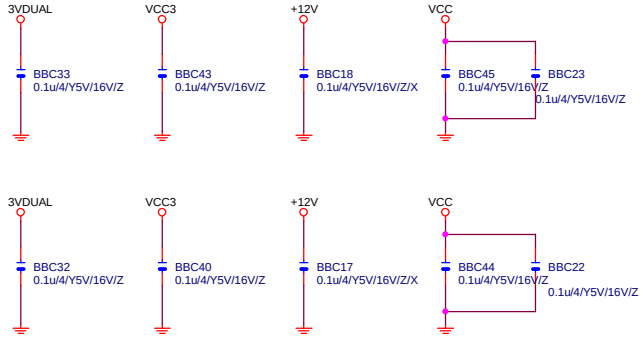
PCI SLOT 2



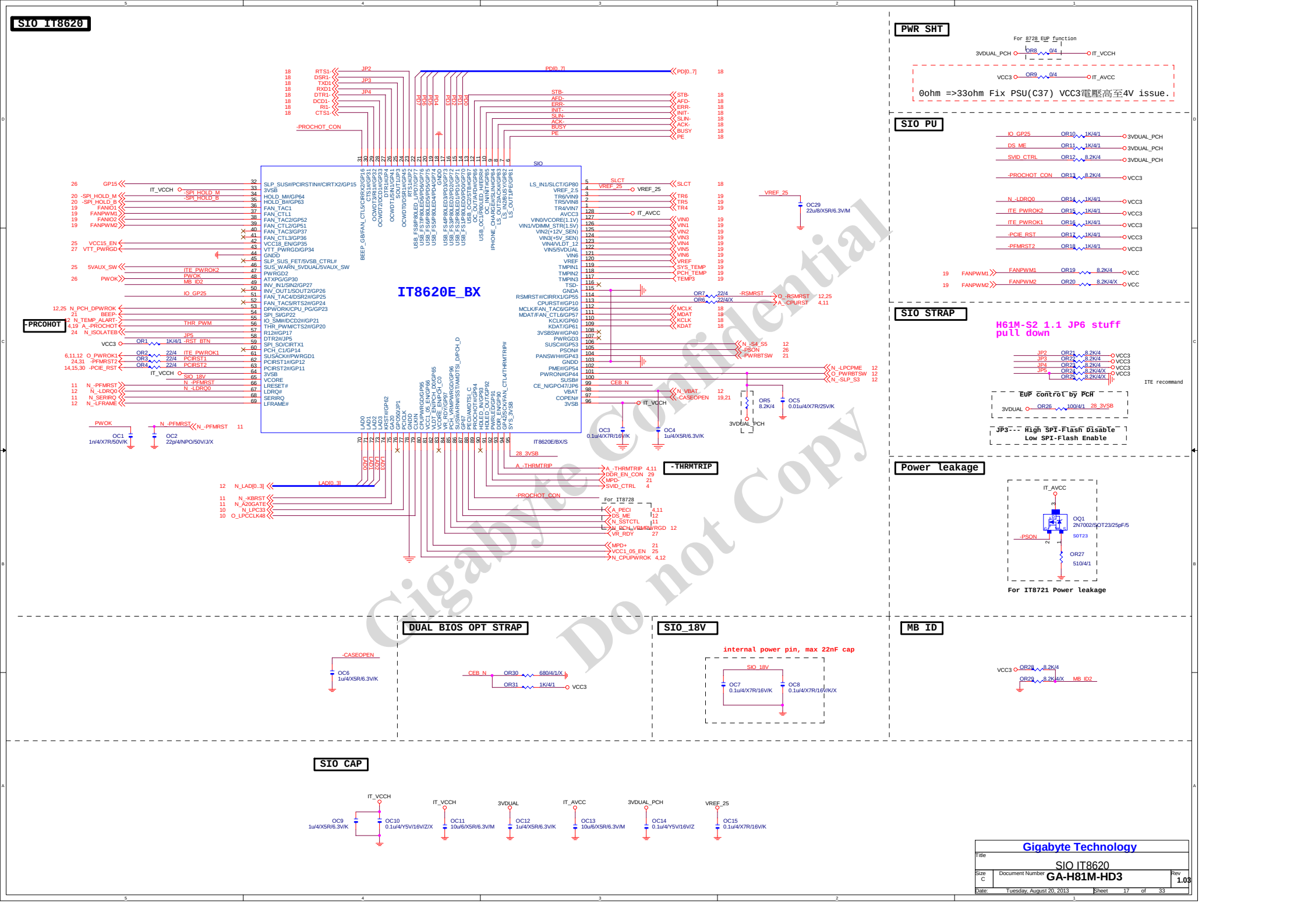
PCI PU



PCI CAP



Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 16 of 33	


SIO IT8620
IT8620E_BX
SIO
PWR SHT
For 8728 EUP function
3VDUAL_PCH
OR8 0/4
IT_VCCH
VCC3
OR9 0/4
IT_AVCC
0ohm =>33ohm Fix PSU(C37) VCC3電壓高至4V issue.
SIO PU
IO_GP25 OR10 1K/4/1 3VDUAL_PCH
DS_ME OR11 1K/4/1 3VDUAL_PCH
SVID_CTRL OR12 8.2K/4 3VDUAL_PCH
-PROCHOT_CON OR13 8.2K/4 VCC3
N_-LDRQ0 OR14 1K/4/1 VCC3
ITE_PWROK2 OR15 1K/4/1 VCC3
ITE_PWROK1 OR16 1K/4/1 VCC3
-PCIE_RST OR17 1K/4/1 VCC3
-PFMRST2 OR18 1K/4/1 VCC3
FANPWM1 OR19 8.2K/4 VCC
FANPWM2 OR20 8.2K/4/X VCC
SIO STRAP
H61M-S2 1.1 JP6 stuff pull down
JP2 OR21 8.2K/4 VCC3
JP3 OR22 8.2K/4 VCC3
JP4 OR23 8.2K/4 VCC3
JP5 OR24 8.2K/4/X VCC3
OR25 8.2K/4/X
ITE recommand
EUP control by PCH
3VDUAL OR26 100/4/1 28_3VSB
JP3 -- High SPI-Flash Disable
Low SPI-Flash Enable
Power leakage
IT_AVCC
OQ1
2N7002/SOT23/25pF/5
SOT23
-PSON
OR27
510/4/1
For IT8721 Power leakage
-PRCOHOT
-THRMTRIP
DUAL BIOS OPT STRAP
-CASEOPEN
OC6
1u/4/X5R/6.3V/K
CEB_N
OR30 680/4/1/X
OR31 1K/4/1
VCC3
SIO_18V
internal power pin, max 22nF cap
SIO_18V
OC7
0.1u/4/X7R/16V/K
OC8
0.1u/4/X7R/16V/K/X
MB ID
VCC3
OR28 8.2K/4
OR29 8.2K/4/X MB_ID2
SIO CAP
IT_VCCH
OC9
1u/4/X5R/6.3V/K
OC10
0.1u/4/Y5V/16V/Z/X
IT_VCCH
OC11
10u/6/X5R/6.3V/M
3VDUAL
OC12
1u/4/X5R/6.3V/K
IT_AVCC
OC13
10u/6/X5R/6.3V/M
3VDUAL_PCH
OC14
0.1u/4/Y5V/16V/Z
VREF_25
OC15
0.1u/4/X7R/16V/K
Gigabyte Technology
Title
SIO IT8620
Size C
Document Number GA-H81M-HD3
Rev 1.03
Date: Tuesday, August 20, 2013
Sheet 17 of 33
Gigabyte Confidential
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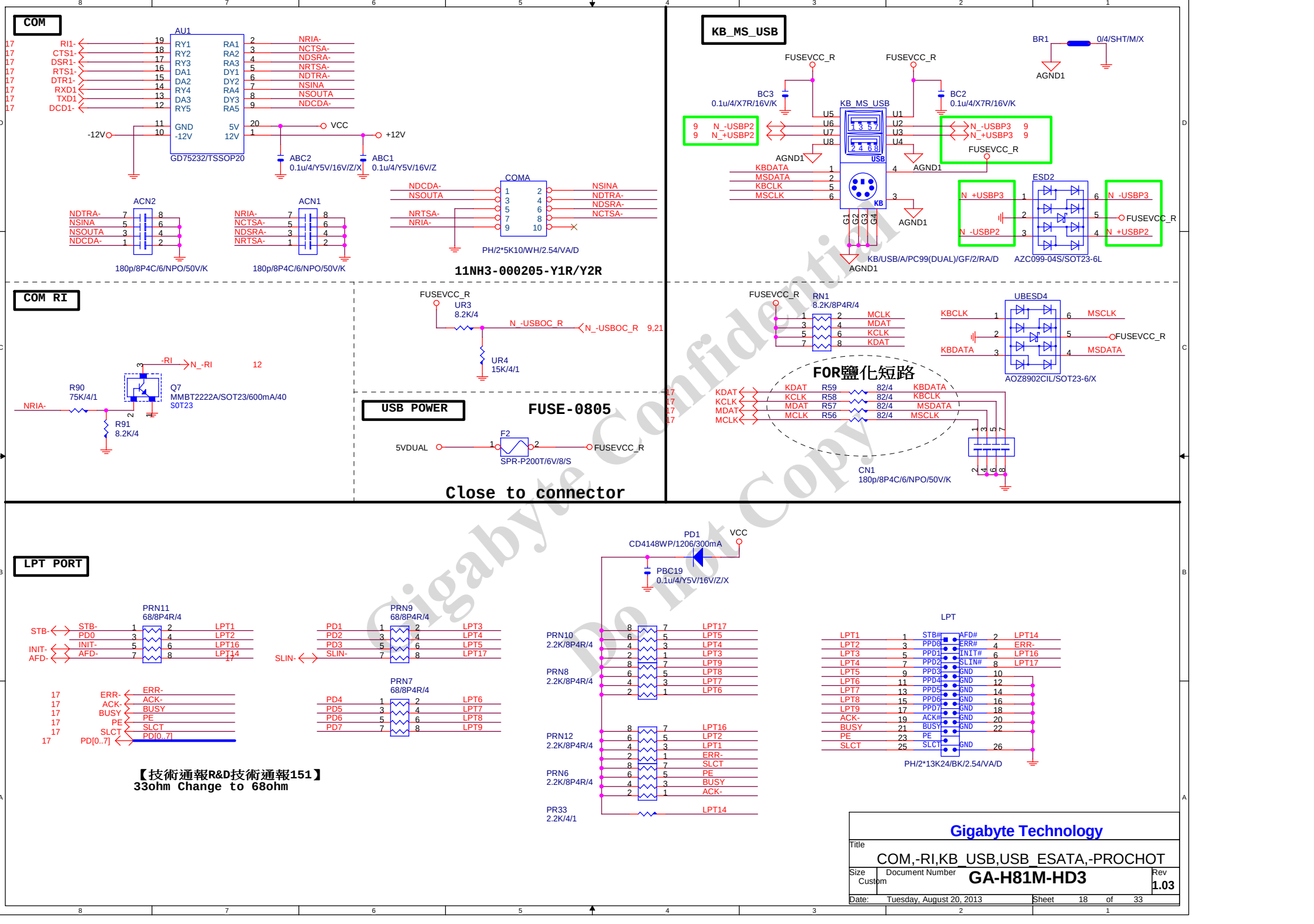
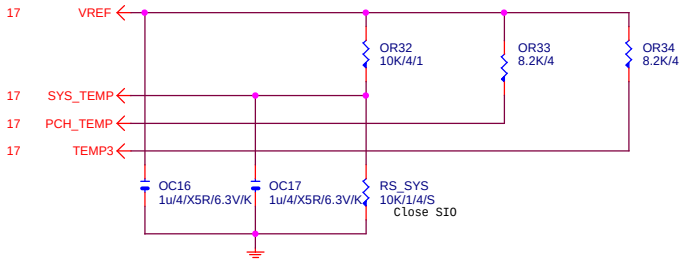
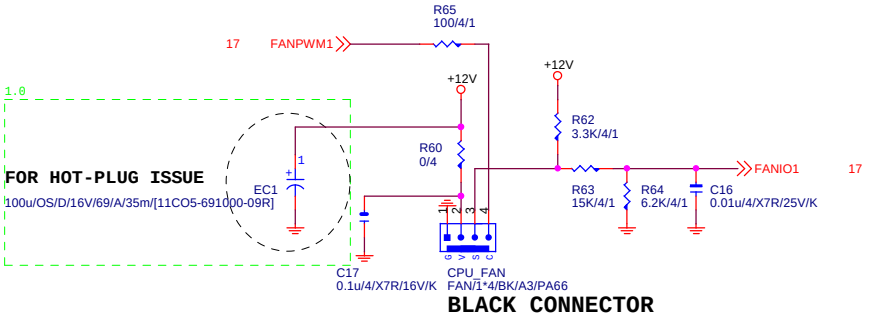


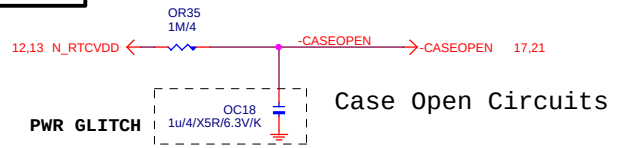
TEMP H/W MONITOR



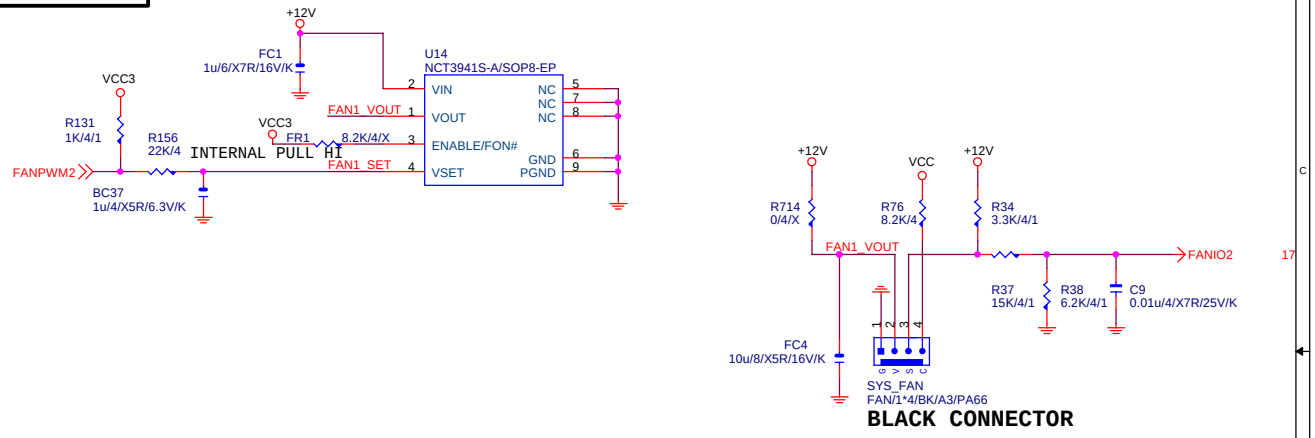
CPU SMART FAN



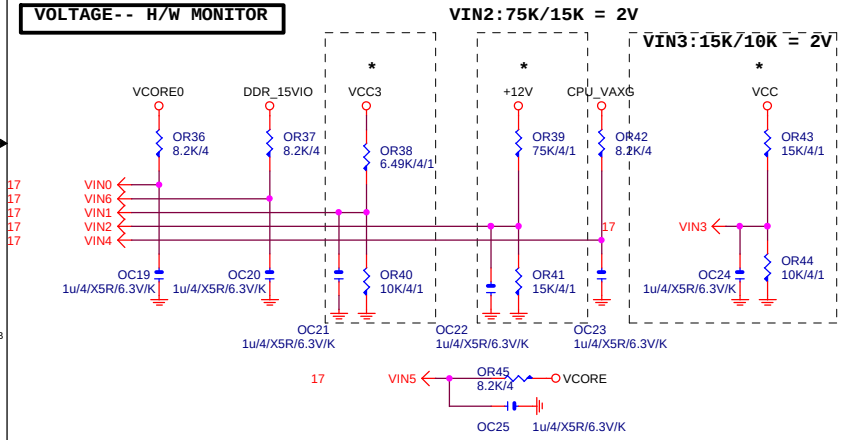
CASE OPEN



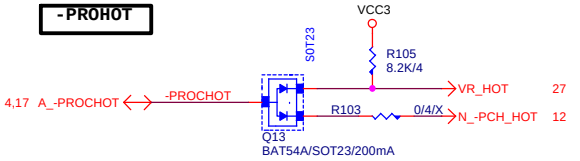
SYS SMART FAN

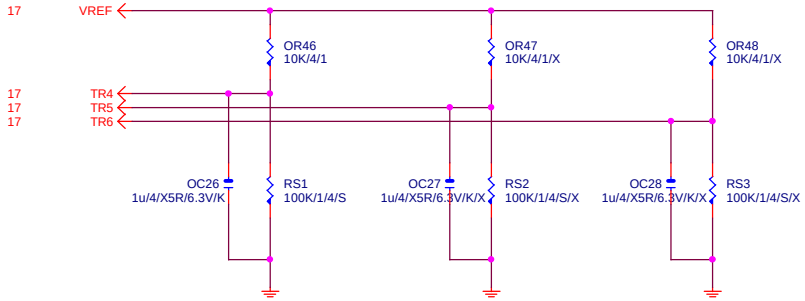


VOLTAGE-- H/W MONITOR



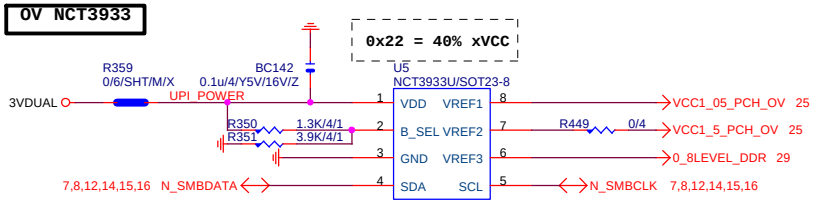
-PROHOT





接pwm feedback pin

OV NCT3933

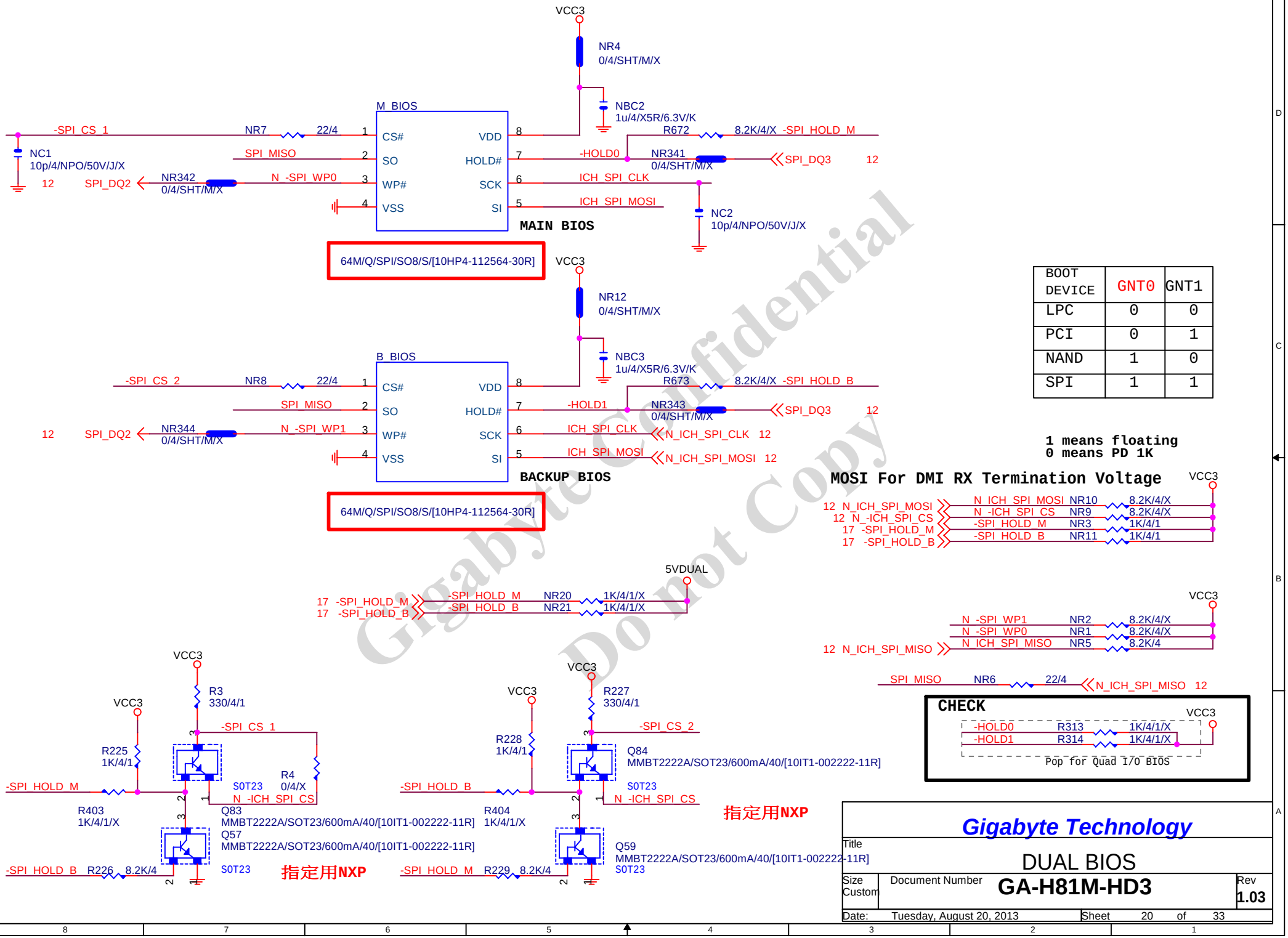


Gigabyte Technology

Title: HWM,FAN CTRL,OV

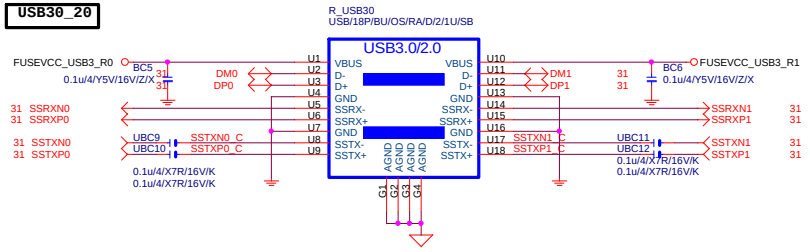
Size: Custom | Document Number: GA-H81M-HD3 | Rev: 1.03

Date: Tuesday, August 20, 2013 | Sheet 19 of 33



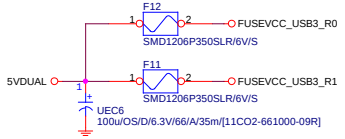
Gigabyte Technology		
Title	DUAL BIOS	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 20 of 33	

USB30_20



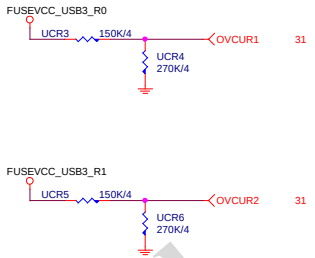
USB30_20 PWR

Polyswitch-1206

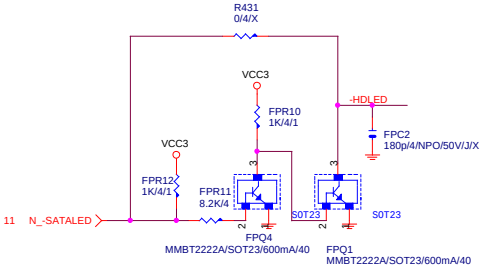


USB3.0 1Port - 1Fuse (3.5A)

-USBOC_R



SATA LED



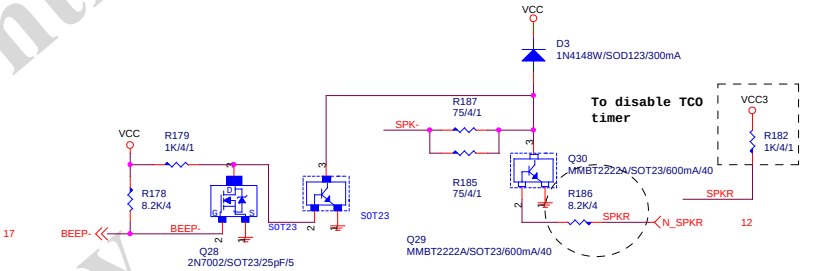
USB30_20 ESD PROCTECT

USB3.0 ESD

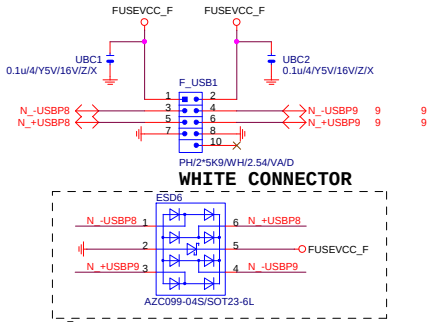
Close to connector

Close to connector

SPKR



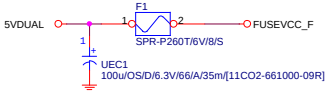
FRONT USB1



WHITE CONNECTOR

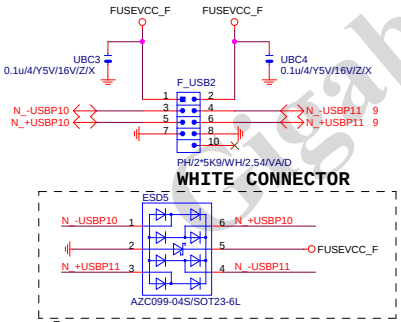
Close to connector

FUSE-0805



F_USB1, F_USB2 4-Port 2.6A

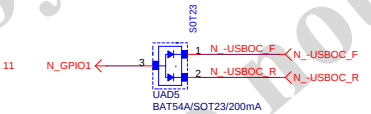
FRONT USB2



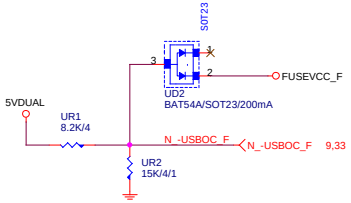
WHITE CONNECTOR

Close to connector

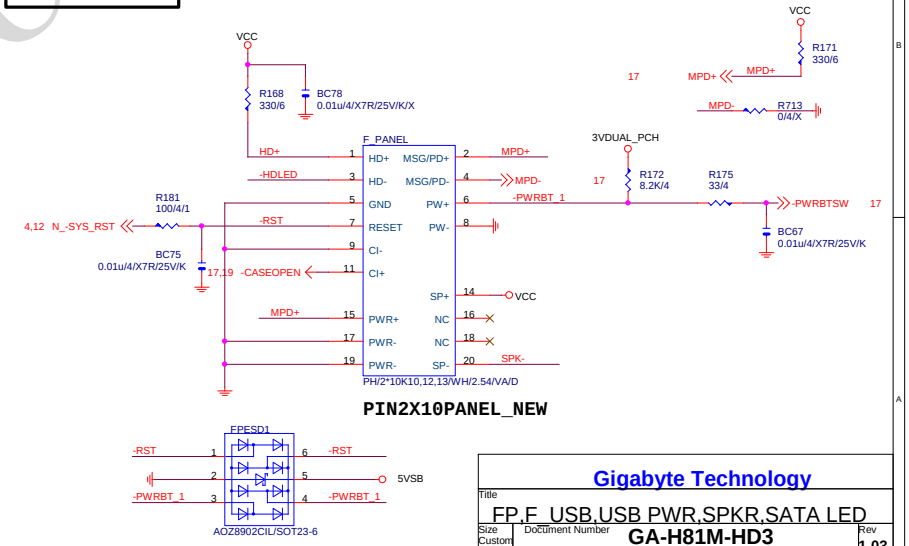
USB POWER PROTECT



-USBOC_F



INTEL FRONT PANEL



Gigabyte Technology		
Title: FP,F_USB,USB PWR,SPKR,SATA LED		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
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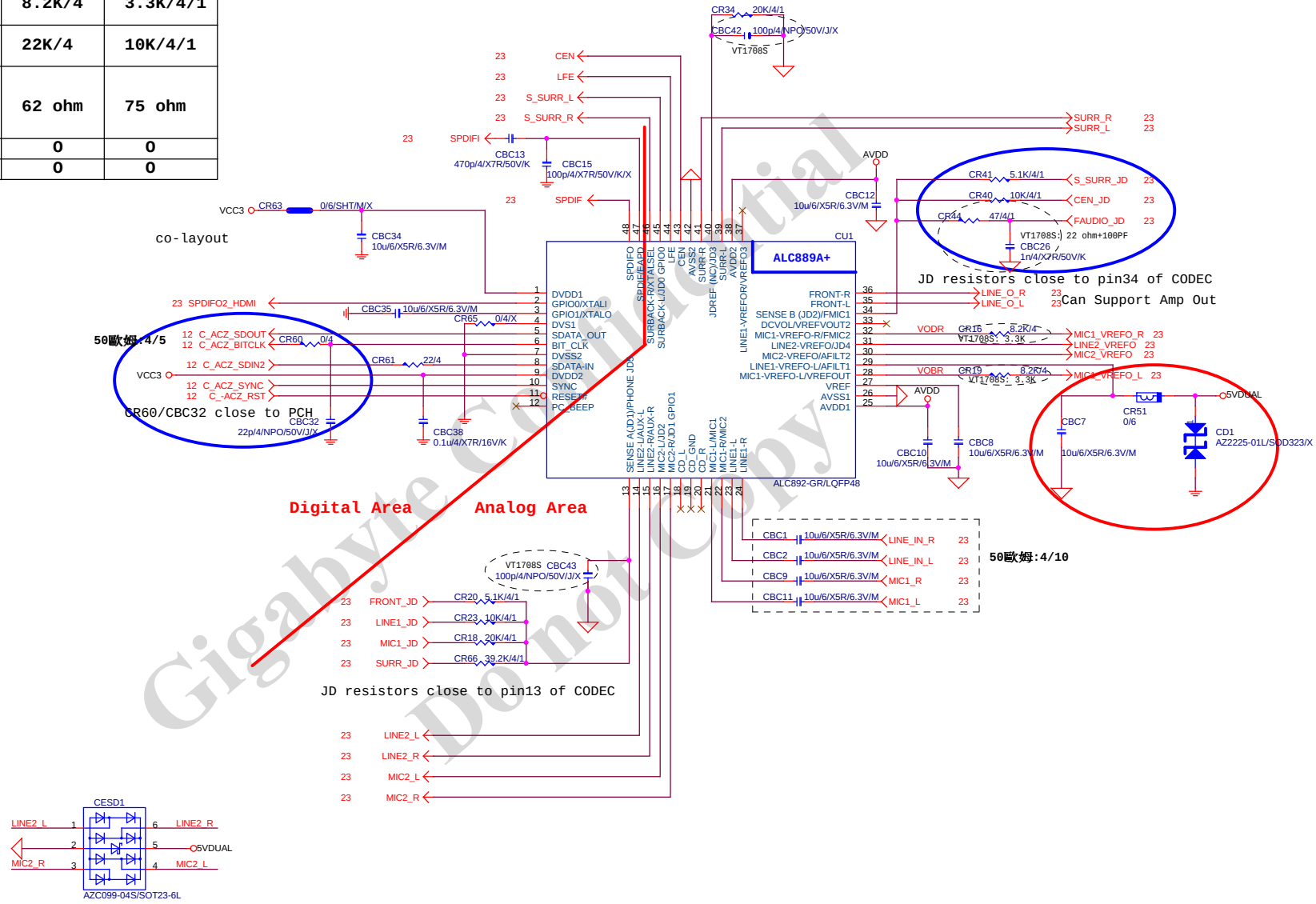
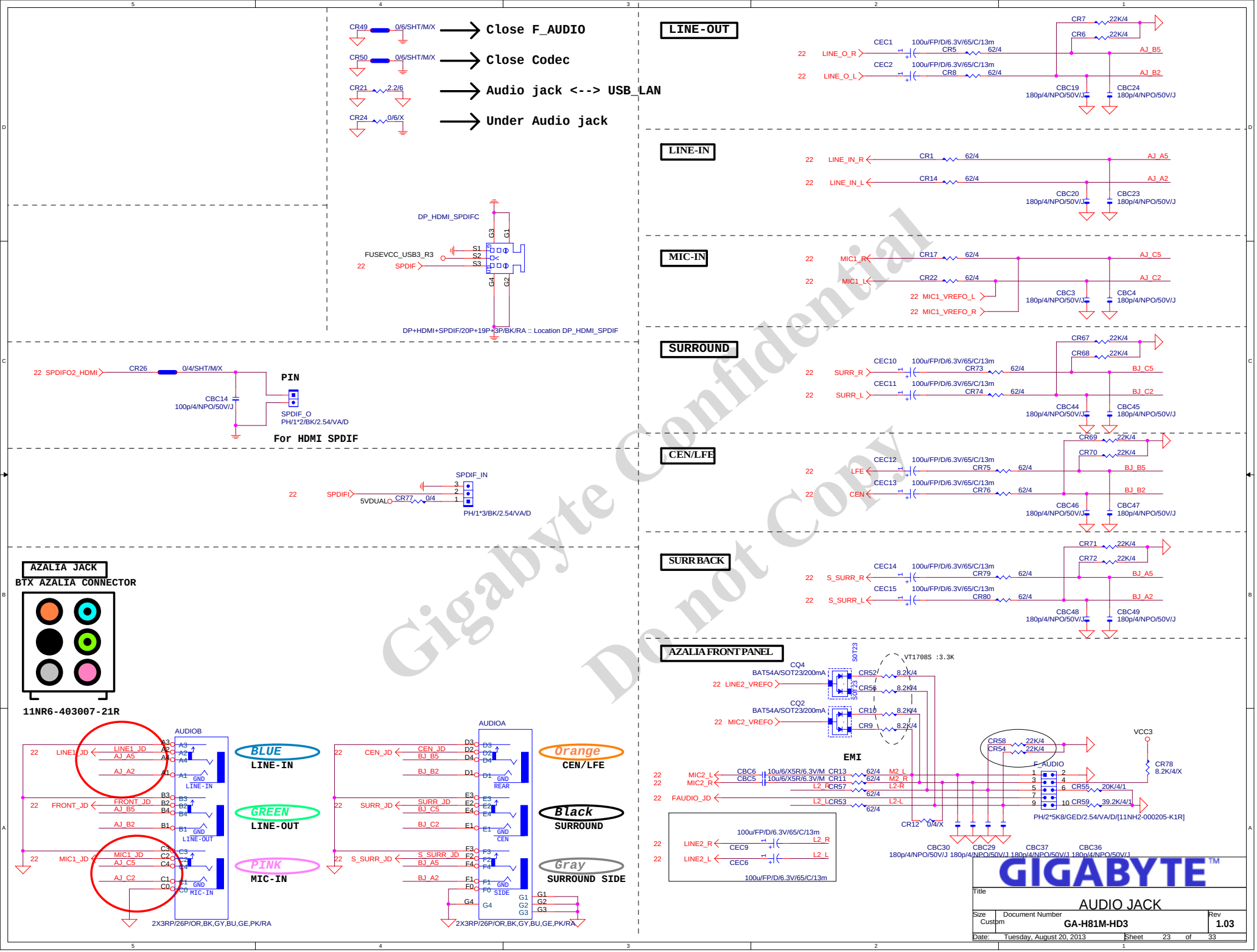
AZALIA CODEC *ALC892/ALC887-VD2/VT1708-CE Colay*

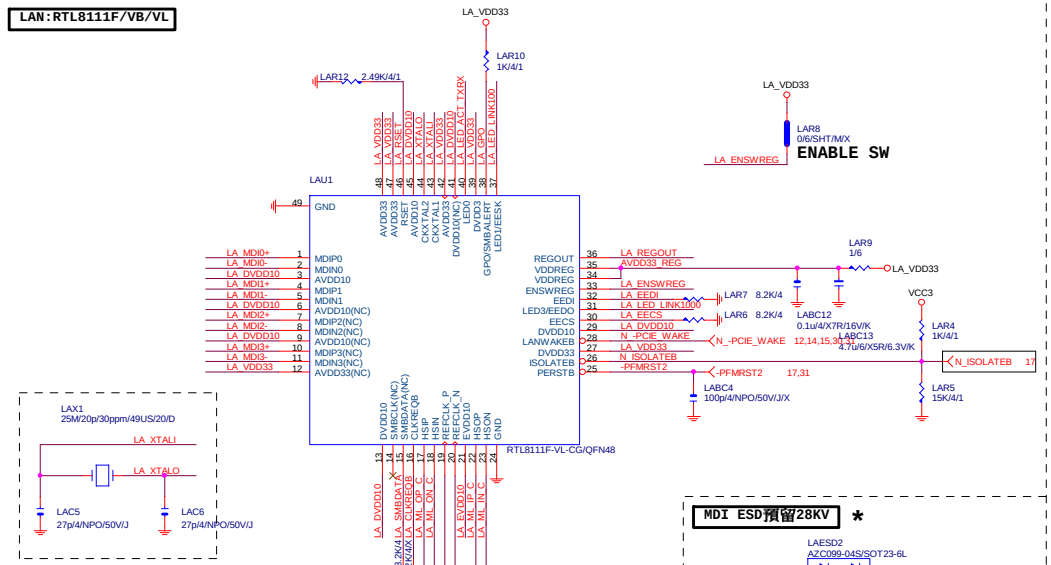
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	0	0	0



GIGABYTE™			
Title: HD AUDIO ALC892			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 22 of 33		

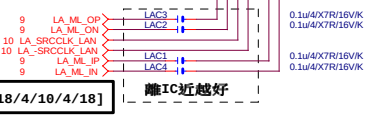


LAN:RTL8111F/VB/VL



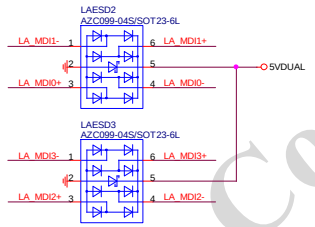
LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

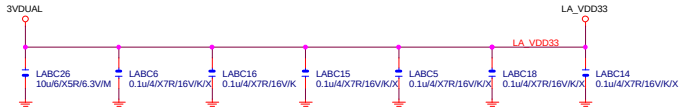


離IC近越好

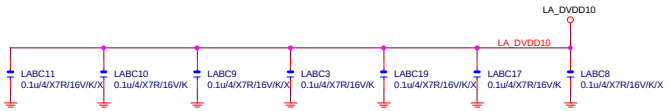
MDI ESD預留28KV *



LAN POWER

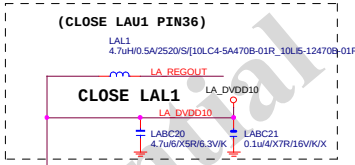


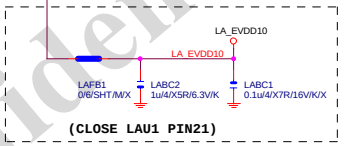
(CLOSE LAU1 PIN:12,27,39,42,47,48)



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

(CLOSE LAU1 PIN36)





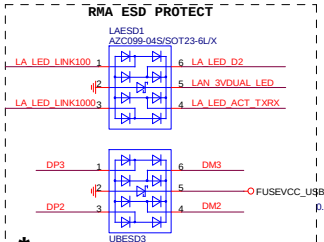
(CLOSE LAU1 PIN21)

Power domain chart

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

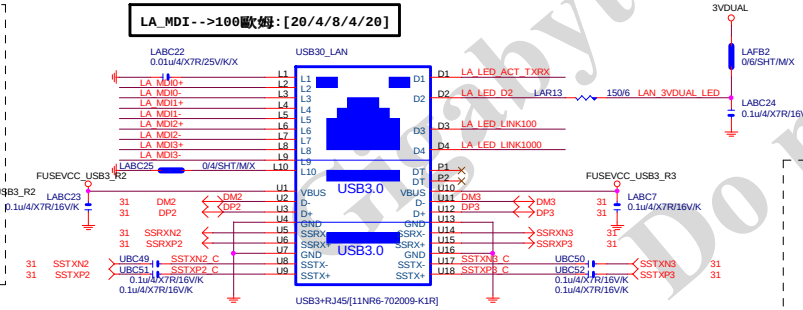
USB_LAN CONNECTOR

RMA ESD PROTECT



*
使用RU9 USB_LAN可省略LAESD1保護LED

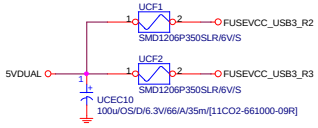
LA_MDI-->100歐姆:[20/4/8/4/20]



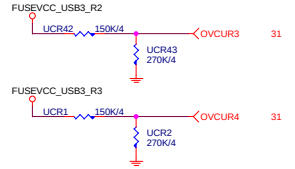
EMI SHORT PAD

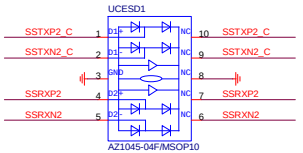
PS:視EMI需求

Polyswitch-1206

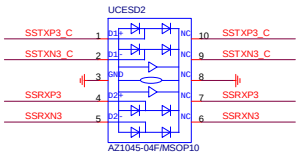


USB3.0 1Port - 1Fuse (3.5A)

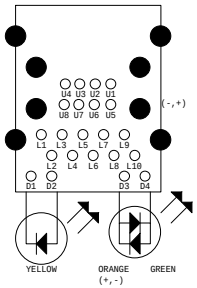


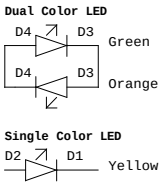


Close to connector



Close to connector





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

Gigabyte Technology

Title: Realtek RTL8111G

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 1.03

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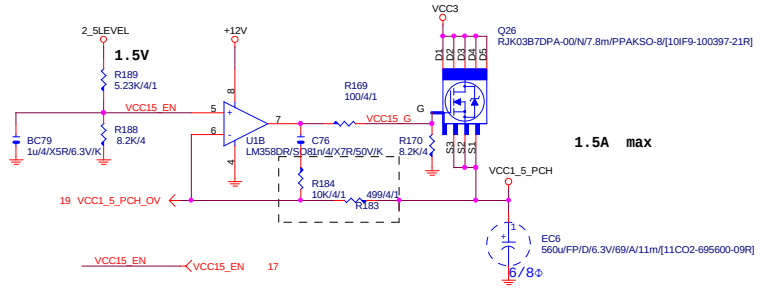
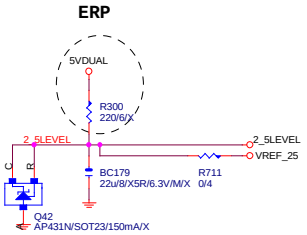
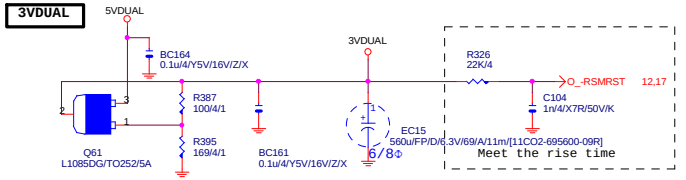
VCC1_5_PCH



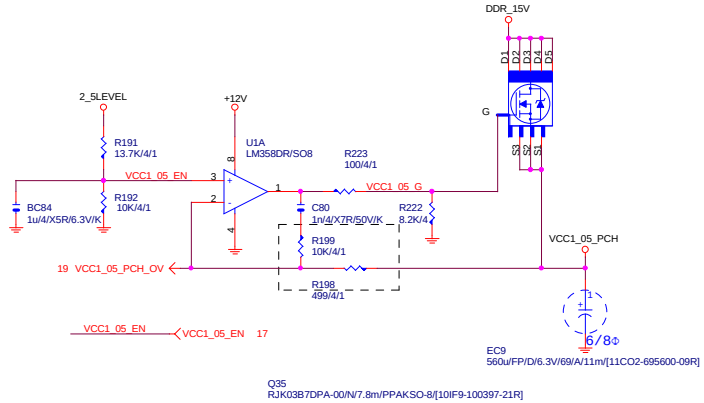
2_5LEVEL



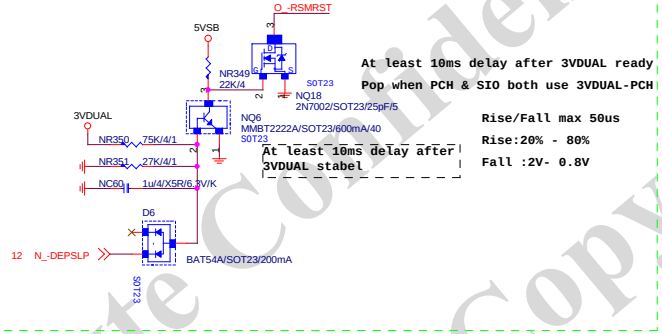
3VDUAL



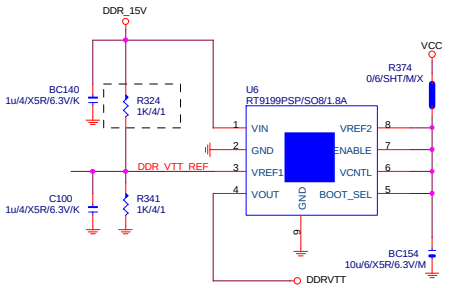
VCC1_05_PCH



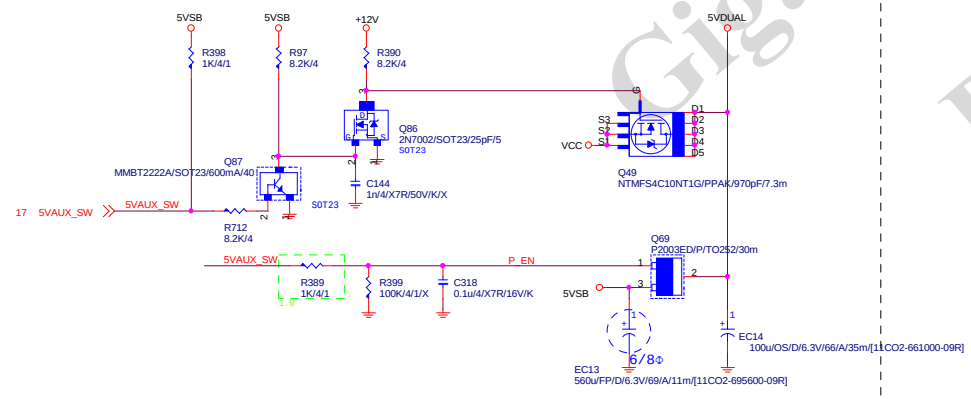
1.0



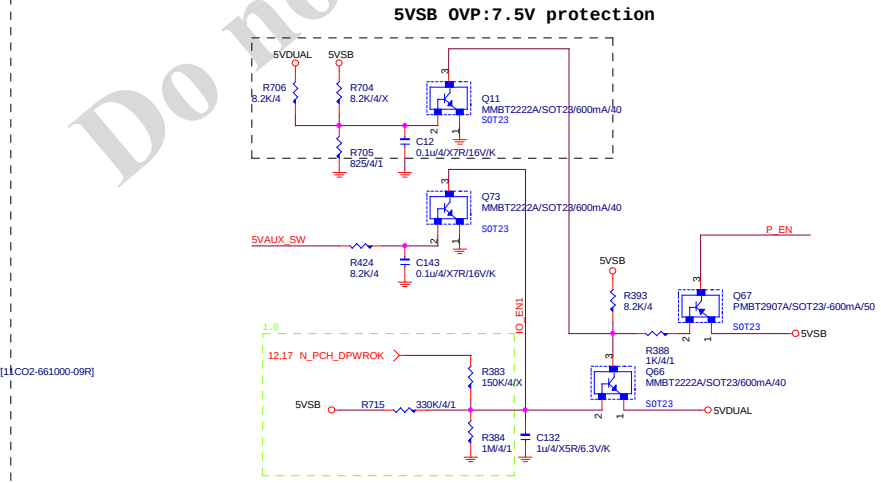
DDRVTT



5VDUAL



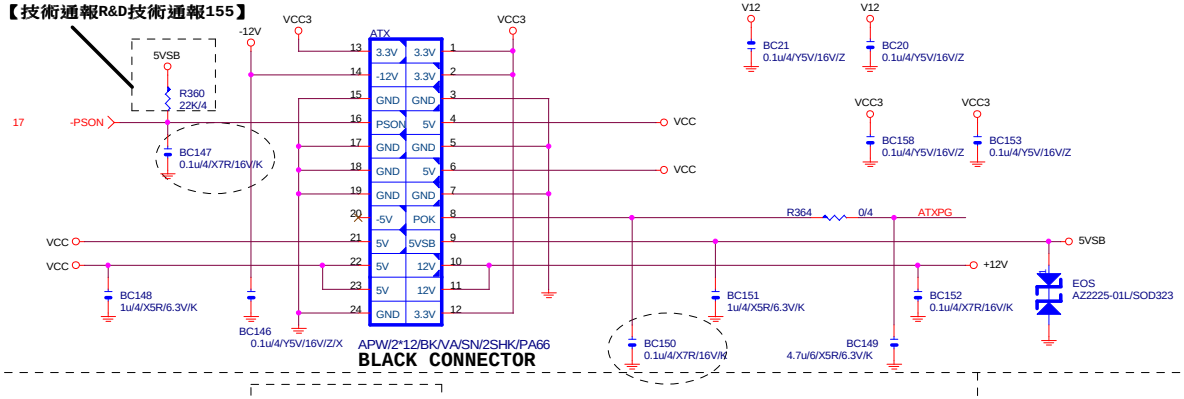
5VDUAL SHORT PROTECT



Title	Gigabyte Technology DISCRETE POWER	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 1.03
Date: Tuesday, August 20, 2013	Sheet 25 of 33	

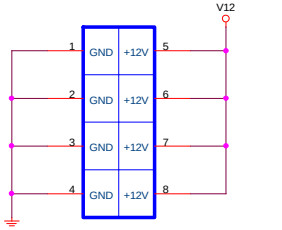
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



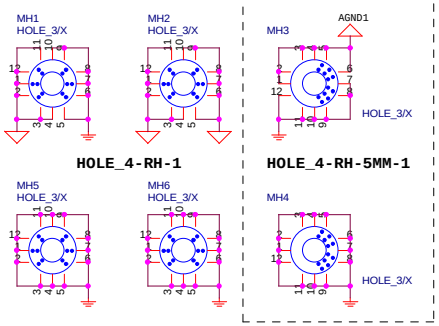
BLACK CONNECTOR

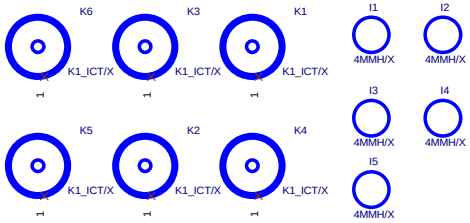
ATXX4 POWER CONNECTOR



ATX_12V_2X4
APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4

BLACK CONNECTOR

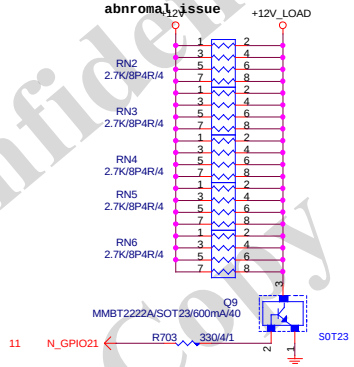




To prevent the 5VSB under loading when boot

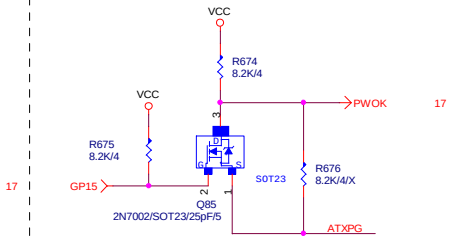
【技術通報R&D技術通報153】

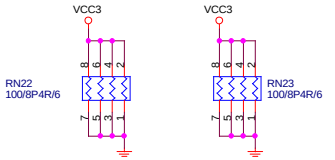
To fix 12V light load abnormal issue



PWOK PATCH

【技術通報R&D技術通報154】





FIX PWR MINMUN LOAD

Gigabyte Technology			
Title: ATX CONNECTOR			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 1.03
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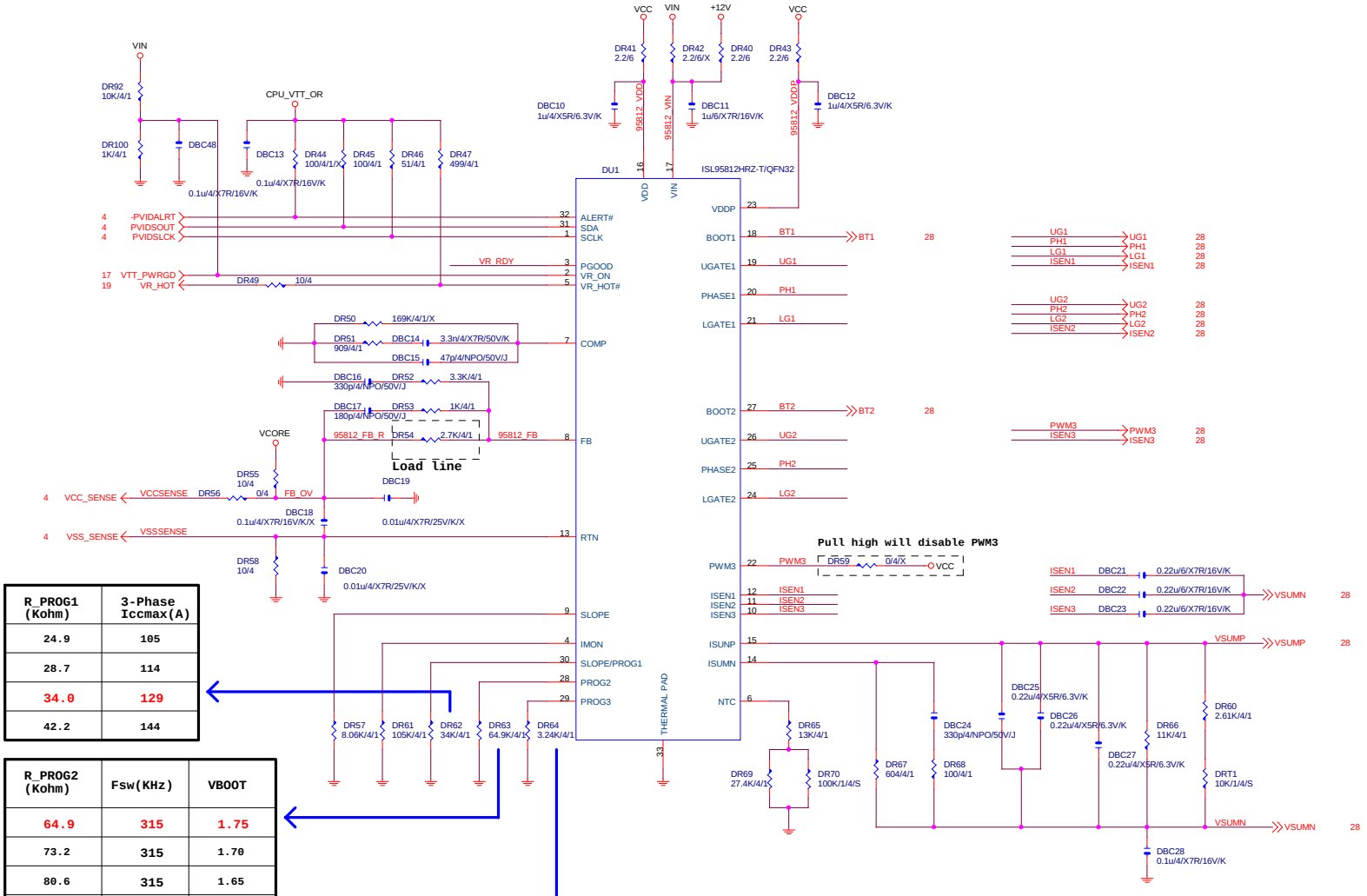

R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

R_PROG2 (Kohm)	Fsw(KHz)	VBOOT
64.9	315	1.75
73.2	315	1.70
80.6	315	1.65
90.9	315	0

R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45

Gigabyte Technology

Title: CPU CORE VR-1

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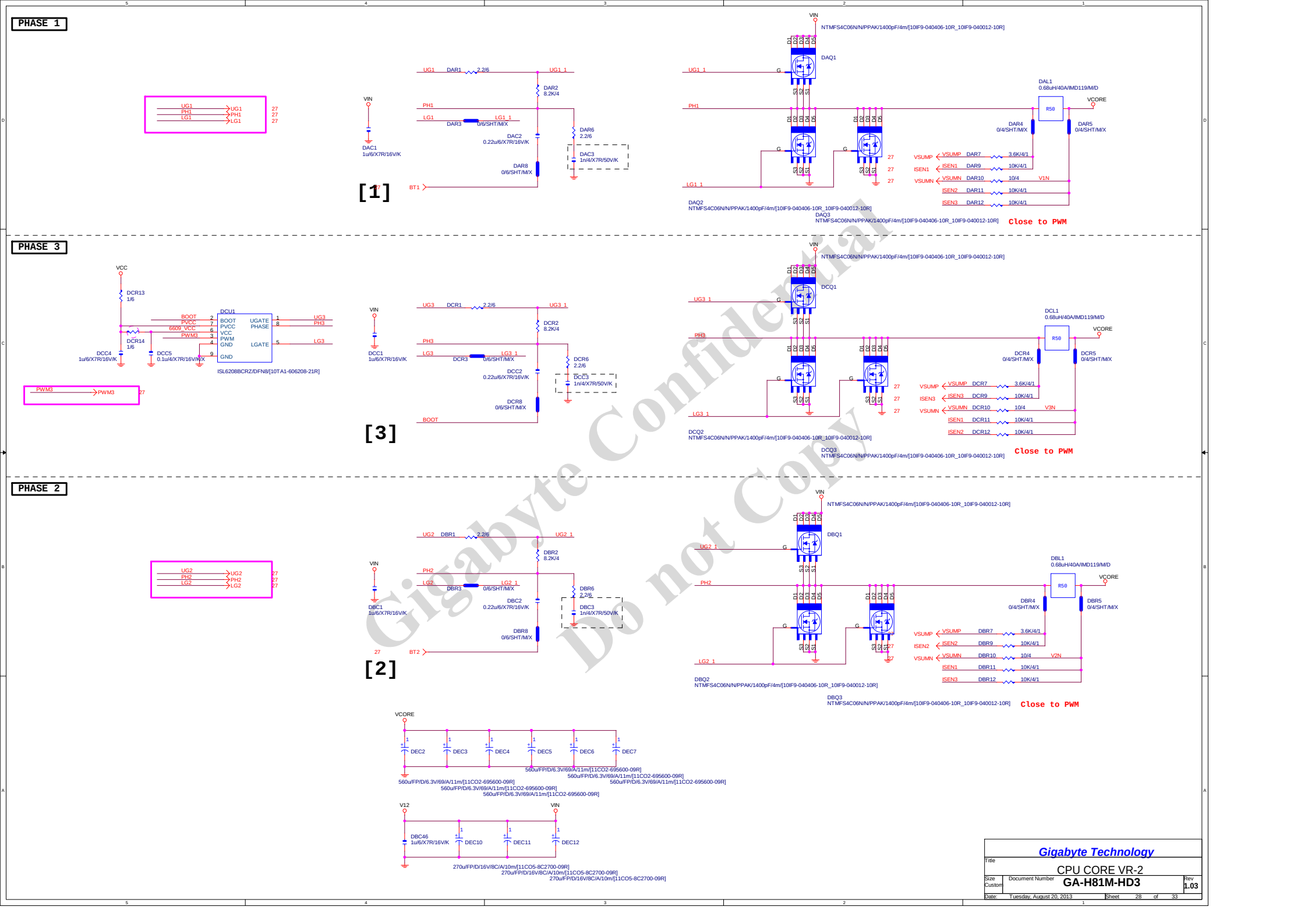

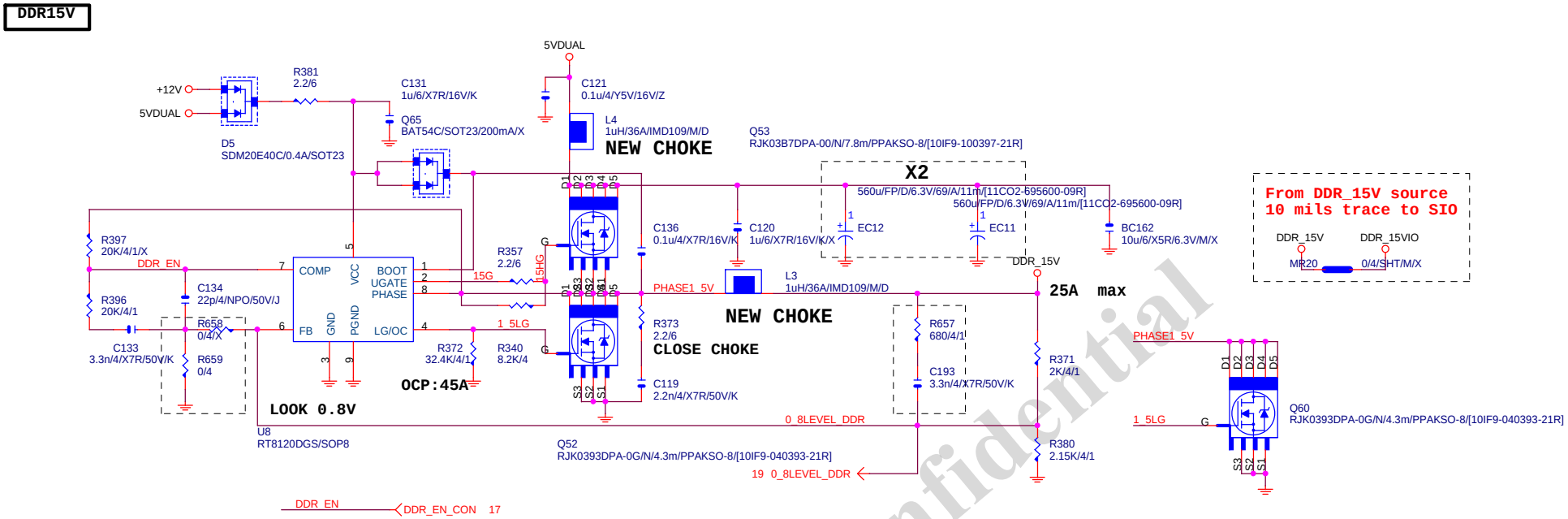

PWR SEQ

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: RT8120_DDR POWER			
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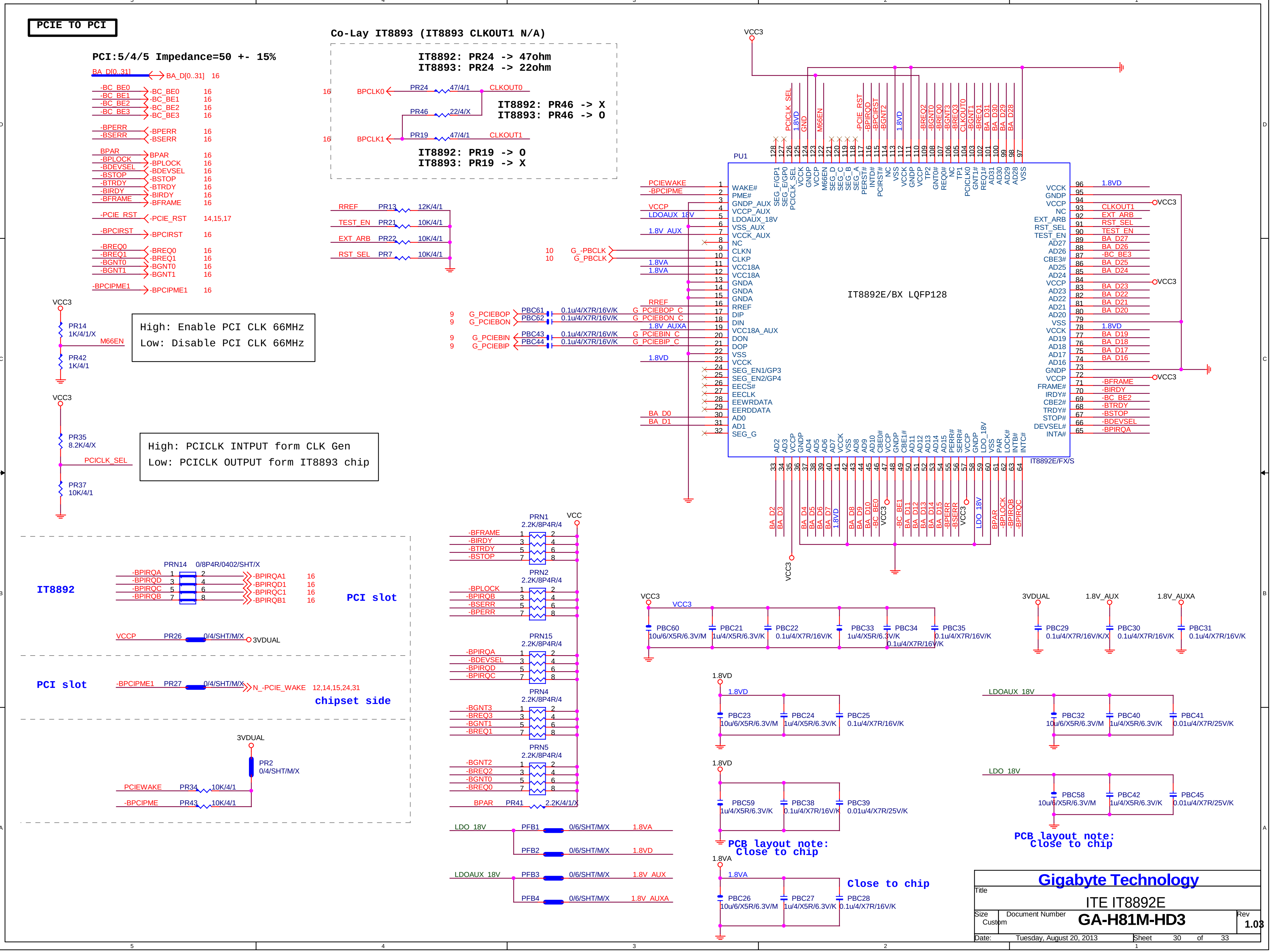

PCIE TO PCI
PCI:5/4/5 Impedance=50 +- 15%
Co-Lay IT8893 (IT8893 CLKOUT1 N/A)
IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm
IT8892: PR46 -> X
IT8893: PR46 -> O
IT8892: PR19 -> O
IT8893: PR19 -> X
High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz
High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip
IT8892E/BX LQFP128
IT8892E/FX/S
PU1
IT8892
PCI slot
PCI slot
chipset side
PCB layout note:
Close to chip
PCB layout note:
Close to chip
Close to chip
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Title
ITE IT8892E
Size
Custom
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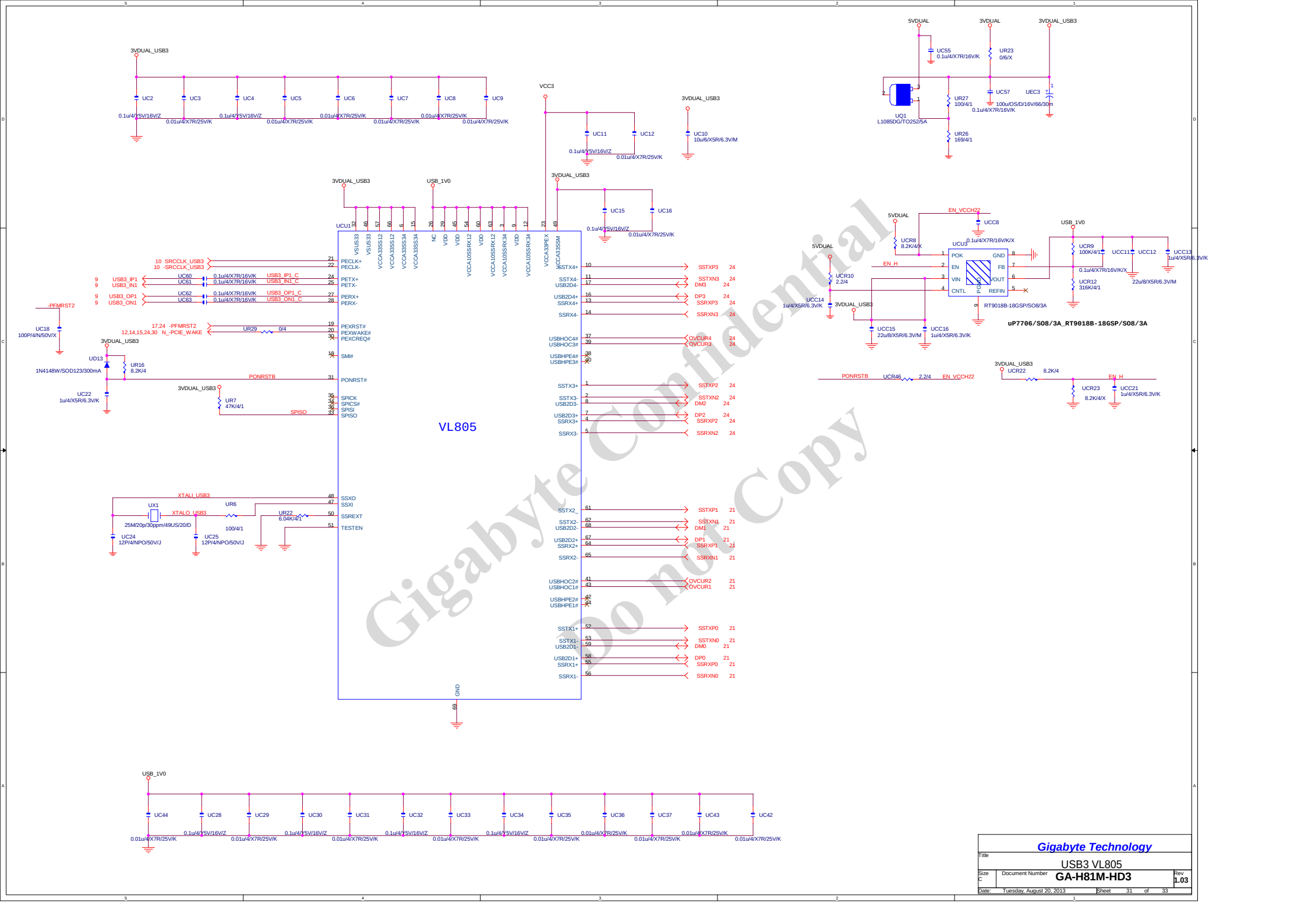
VL805
3VDUAL_USB3
USB_1V0
VCC3
5VDUAL
UCU1
PECLK+
PECLK-
PETX+
PETX-
PERX+
PERX-
PEXRST#
PEXWAKE#
PEXCREQ#
SMI#
PONRST#
SPICK
SPICS#
SPISI
SPISO
SSXP3
SSXN3
DM3
DP3
SSRXP3
SSRXN3
SSXP2
SSXN2
DM2
DP2
SSRXP2
SSRXN2
SSXP1
SSXN1
DM1
DP1
SSRXP1
SSRXN1
SSXP0
SSXN0
DM0
DP0
SSRXP0
SSRXN0
OVCUR4
OVCUR3
OVCUR2
OVCUR1
SSXO
SSXI
SSREXT
TESTEN
XTALI_USB3
XTALO_USB3
25M/20p/30ppm/49US/20/D
GND
UC2
UC3
UC4
UC5
UC6
UC7
UC8
UC9
UC10
UC11
UC12
UC15
UC16
UC18
UC22
UC24
UC25
UC44
UC28
UC29
UC30
UC31
UC32
UC33
UC34
UC35
UC36
UC37
UC43
UC42
UD13
1N4148W/SOD123/300mA
UR16
UR7
UR22
UR29
UX1
UQ1
L1085DG/TO252/5A
UC55
UC57
UEC3
UR23
UR27
UR26
UCU3
RT9018B-18GSP/SO8/3A
uP7706/SO8/3A_RT9018B-18GSP/SO8/3A
UCR8
UCR9
UCR10
UCR12
UCR22
UCR23
UCR46
UCC8
UCC11
UCC12
UCC13
UCC14
UCC15
UCC16
UCC21
EN_VCCH22
EN_H
PONRSTB
-PFMRST2
N_PCIE_WAKE
USB3_IP1
USB3_IN1
USB3_OP1
USB3_ON1
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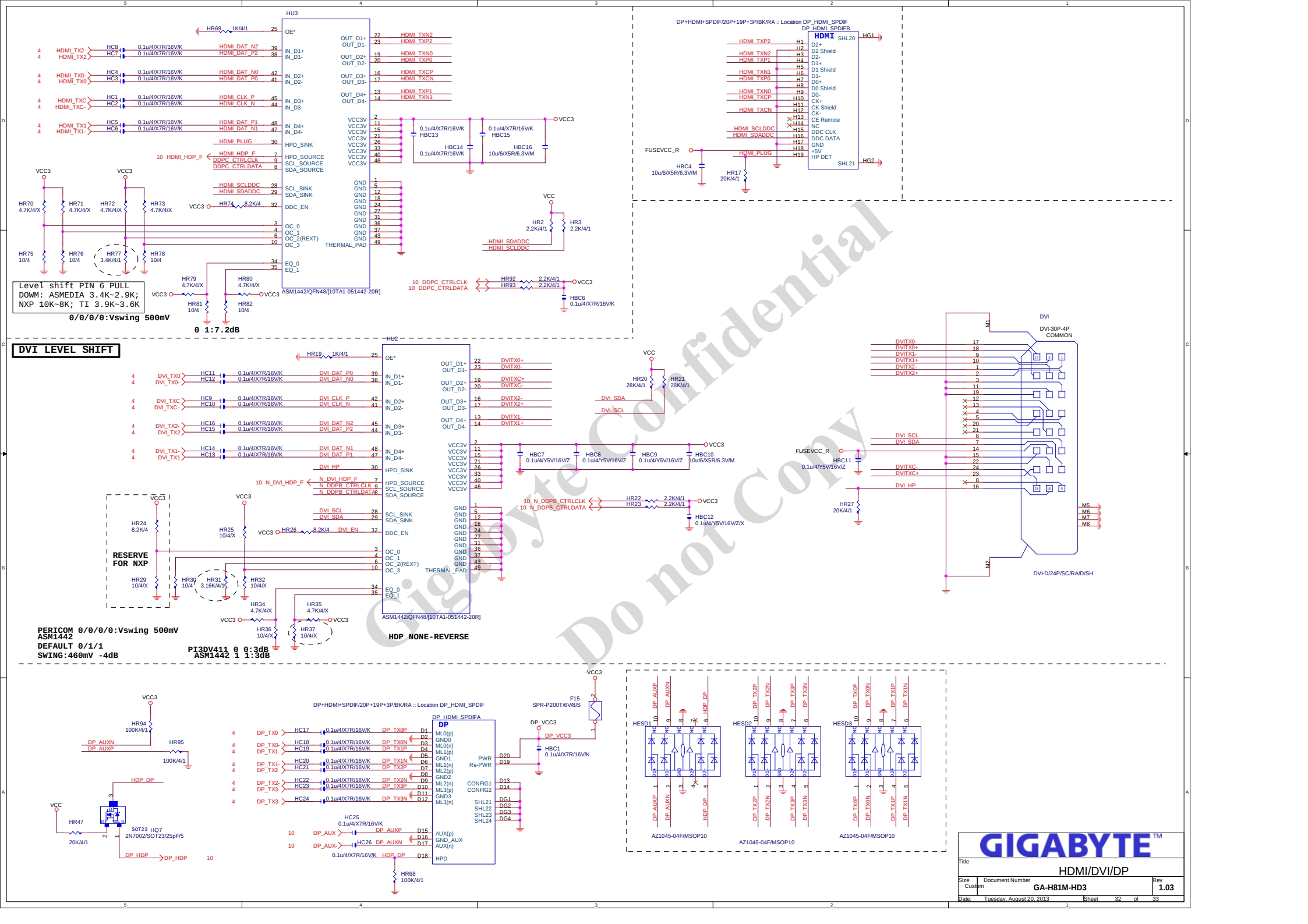

Title	HDMI/DVI/DP
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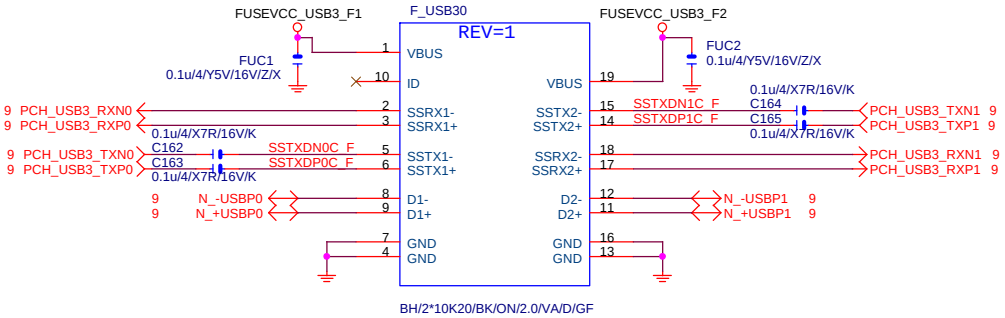
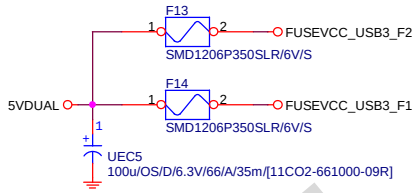
F_USB30



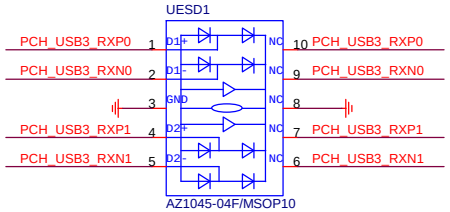
BLACK CONNECTOR

F_USB30 PWR

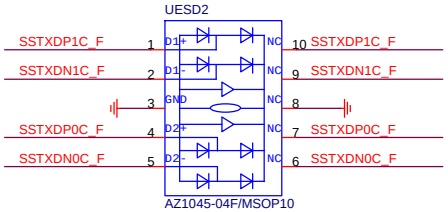
Polyswitch-1206



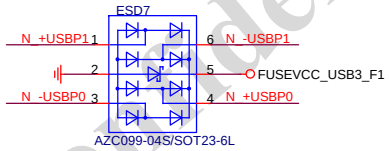
USB3.0 1Port - 1Fuse (3.5A)



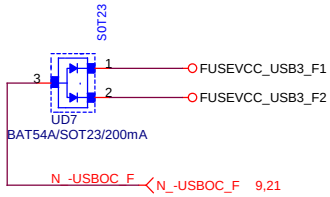
Close to connector



Close to connector



Close to connector



Gigabyte Technology			
Title: F_USB30			
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