Model Name: GA-H81M-D3V-JP JP

SHEET	TITLE	Revision 1.01
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*16 SLOT	
15	PCI EXPRESS X1 *3 SLOT	
16	PCI SLOT (NA)	
17	ITE 8620 LPC IO	
18	COM,KB_MS_USB,USB30_20	
19	HWM,FAN CTRL,OV	
20	DUAL BIOS	
21	FP,FUSB,SPK,SATALED	
22	Realtek ALC887-VD2	
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	LPT
31	DVI
32	IT8892E (NA)
33	USB3 VL805

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H81M-D3V-JP JP | Rev: 1.01

Date: Friday, November 08, 2013 | Sheet 1 of 33

Model Name:
GA-H81M-D3V-JP JP

Component value change history

2013/05/17

Data	Change Item	Reason
2013/05/15	New BOM	9MH81MD2V-00-01

Circuit or PCB layout change

DATE	Change Item	Reason
2013/04/22	1.由B85M-HD3 Rev 1.0來修改 2.SIO change to IT8620 3.PWM change to ISL95812+6208 4.Delete 2 port SATA3 5.Add VL805 6.Delete HDMI 7.COM port change to rear 8.Delete PCI IT8892E 9.Fan control change to NCT3941S 10.SIO 統一命名O開頭	Rev 0.1
2013/05/17	H81M-D2V_R01_0514A-BOM.DSN 1. 由H81M-D2V Rev 0.1 來修改 2. COM port change to pin header 3. VGA connect 改為不架高 4. Add PCIEX1 slot 3 5. U1 改LM358	Rev 0.1
2013/05/17	1.由H81M-D3V-JP Rev 1.0改文字面	Rev 1.0
2013/09/13	1.修改PCH 25MHz走線,跟旁邊所有走線40 mils以上 2.R60 change to 0603 3.PPAK footprint change to Q_TDSON8-GDS-T 4.1206 fuse change to POLYSWITCH-1206-1 5.MR17 change to 0603 6.NCT3941S footprint 改為SOP8-NCT3941S 7.PCIEX16 footprint change to PCIESLOT-164DN-Q-1	Rev 1.01

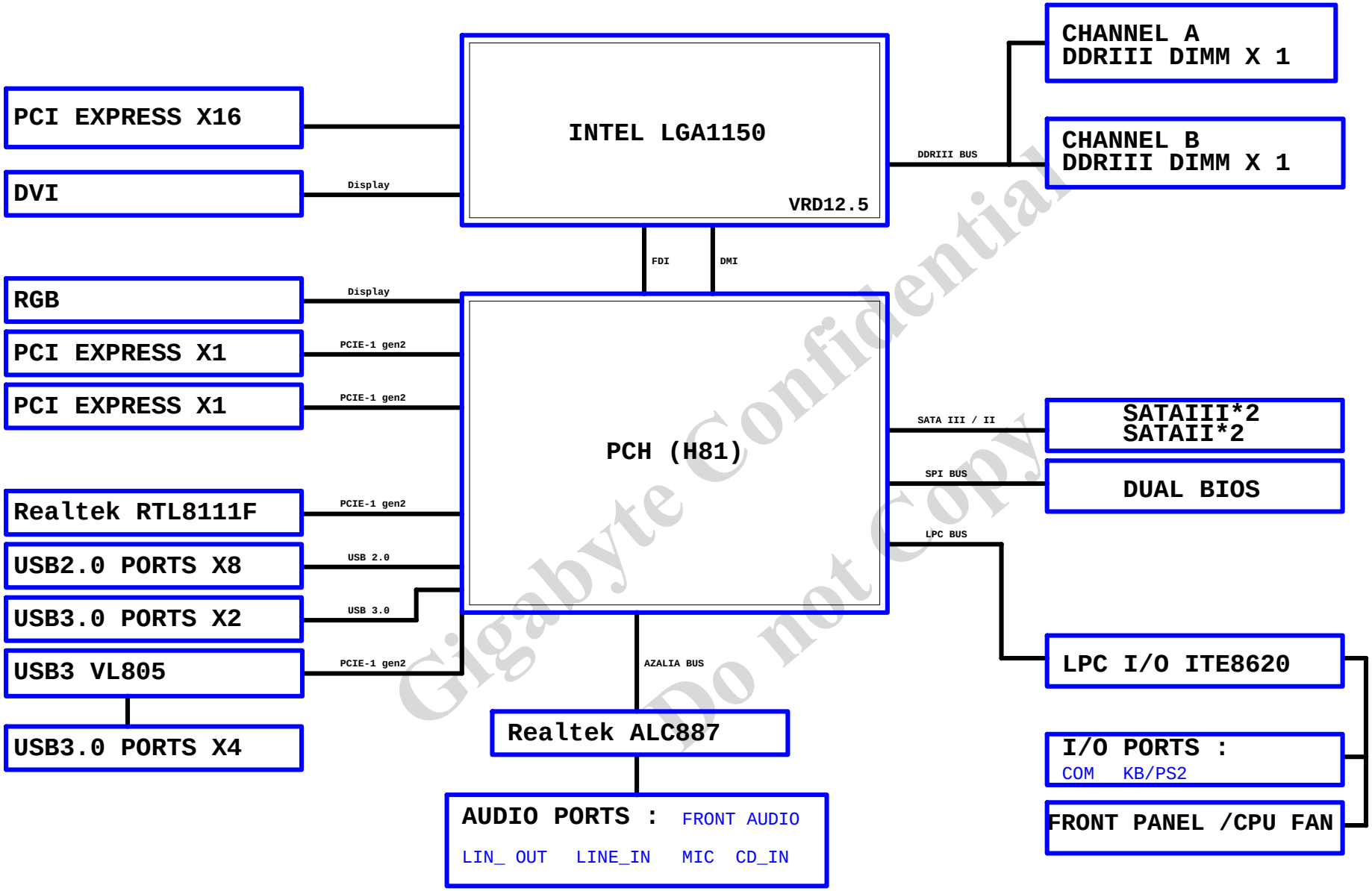
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-H81M-D3V-JP UC | Rev: 1.01

Date: Friday, November 08, 2013 | Sheet 2 of 33

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
Date: Friday, November 08, 2013	Sheet 3 of 33	

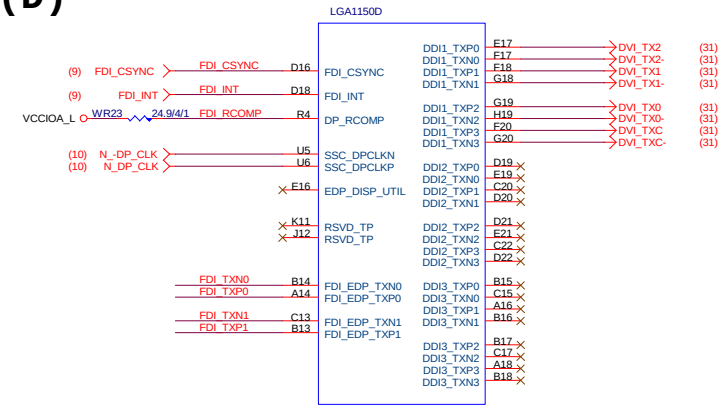
LGA1150 (E)

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%

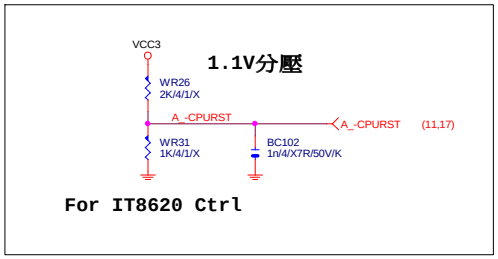
LGA1155 (C)

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

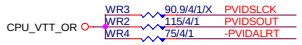
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

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)

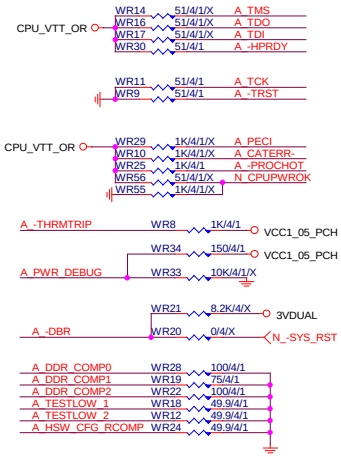
-CPURST



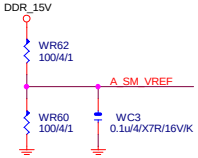
CPU SVID



CPU PU/PD



SM REF



Gigabyte Technology				
Title: CPU LGA1150-A				
Size: Custom	Document Number: GA-H81M-D3V-JP JP			Rev: 1.01
Date: Friday, November 08, 2013		Sheet 4 of 33		

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	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_DQ7	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_DQ8	AH40	MDA8
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
	AW9	DDR0_ODT2	DDR0_DQ19	AP39	MDA19
	AU8	DDR0_ODT3	DDR0_DQ20	AM37	MDA20
			DDR0_DQ21	AM38	MDA16
	AW33		DDR0_DQ22	AP37	MDA22
	AV33	DDR0_ECC0	DDR0_DQ23	AP40	MDA23
	AU31	DDR0_ECC1	DDR0_DQ24	AV37	MDA25
	AV31	DDR0_ECC2	DDR0_DQ25	AW37	MDA29
	AT33	DDR0_ECC3	DDR0_DQ26	AU35	MDA26
	AU33	DDR0_ECC4	DDR0_DQ27	AV35	MDA27
	AT31	DDR0_ECC5	DDR0_DQ28	AT37	MDA28
	AW31	DDR0_ECC6	DDR0_DQ29	AU37	MDA24
		DDR0_ECC7	DDR0_DQ30	AT35	MDA30
			DDR0_DQ31	AW35	MDA31
				AY6	MDA33
(7) SBAA0	SBAA0	AV12	DDR0_BA0	DDR0_DQ32	AU6	MDA37
(7) SBAA1	SBAA1	AY11	DDR0_BA1	DDR0_DQ33	AV4	MDA34
(7) SBAA2	SBAA2	AT21	DDR0_BA2	DDR0_DQ34	AU4	MDA35
(7) CKEA0	CKEA0	AV22	DDR0_CKE0	DDR0_DQ35	AW6	MDA36
(7) CKEA1	CKEA1	AT23	DDR0_CKE1	DDR0_DQ36	AV6	MDA32
		AU22	DDR0_CKE2	DDR0_DQ37	AW4	MDA38
		AU23	DDR0_CKE3	DDR0_DQ38	AY4	MDA39
(7) -CSA0	-CSA0	AU14	DDR0_CS_N0	DDR0_DQ39	AR1	MDA41
(7) -CSA1	-CSA1	AV9	DDR0_CS_N1	DDR0_DQ40	AR4	MDA45
		AU10	DDR0_CS_N2	DDR0_DQ41	AN3	MDA42
		AW8	DDR0_CS_N3	DDR0_DQ42	AN4	MDA43
				DDR0_DQ43	AR2	MDA44
				DDR0_DQ44	AR3	MDA40
(7) DCLKA0	DCLKA0	AY15	DDR0_CLK_P0	DDR0_DQ45	AN2	MDA46
(7) -DCLKA0	-DCLKA0	AY16	DDR0_CLK_N0	DDR0_DQ46	AN1	MDA47
(7) DCLKA1	DCLKA1	AW15	DDR0_CLK_P1	DDR0_DQ47	AL1	MDA49
(7) -DCLKA1	-DCLKA1	AV15	DDR0_CLK_N1	DDR0_DQ48	AL4	MDA53
		AY14	DDR0_CLK_P2	DDR0_DQ49	AJ3	MDA50
		AW14	DDR0_CLK_N2	DDR0_DQ50	AJ4	MDA51
		AW13	DDR0_CLK_P3	DDR0_DQ51	AL2	MDA52
		AY13	DDR0_CLK_N3	DDR0_DQ52	AL3	MDA48
				DDR0_DQ53	AJ2	MDA54
		AW12	RSVD	DDR0_DQ54	AJ1	MDA55
				DDR0_DQ55	AG1	MDA57
				DDR0_DQ56	AG4	MDA61
				DDR0_DQ57	AE3	MDA58
				DDR0_DQ58	AE4	MDA59
				DDR0_DQ59	AG2	MDA60
				DDR0_DQ60	AG3	MDA56
				DDR0_DQ61	AE2	MDA62
(7) -SRASA	-SRASA	AU12	DDR0_RAS*	DDR0_DQ62	AE1	MDA63
(7) -SWEA	-SWEA	AU11	DDR0_WE*	DDR0_DQ63	AE39	DQSA0
		AV20	RSVD	DDR0_DQS_P0	AJ39	DQSA1
		AW27	RSVD	DDR0_DQS_P1	AN39	DQSA2
(7) -SCASA	-SCASA	AU9	DDR0_CAS*	DDR0_DQS_P2	AV36	DQSA3
				DDR0_DQS_P3	AV5	DQSA4
				DDR0_DQS_P4	AP3	DQSA5
				DDR0_DQS_P5	AK3	DQSA6
(7,8) -DDR3_RST	WR61 0/4/SHT/M/X	AK22	DDR_RESET*	DDR0_DQS_P6	AE3	DQSA7
				DDR0_DQS_P7	AV32	
				DDR0_DQS_P8	AE38	-DQSA0
				DDR0_DQS_N0	AJ38	-DQSA1
				DDR0_DQS_N1	AN38	-DQSA2
				DDR0_DQS_N2	AU36	-DQSA3
				DDR0_DQS_N3	AW5	-DQSA4
				DDR0_DQS_N4	AP2	-DQSA5
				DDR0_DQS_N5	AK2	-DQSA6
				DDR0_DQS_N6	AF2	-DQSA7
				DDR0_DQS_N7	AU32	
				DDR0_DQS_N8		

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

HASWELL/[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150 (B)

LGA1150B

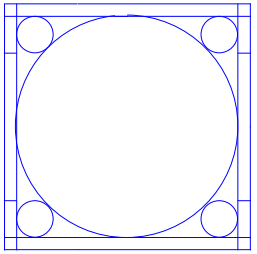
MAAB0	AL19	DDR1_MA0	DDR1_DQ0	AE34	MDB0
MAAB1	AK23	DDR1_MA1	DDR1_DQ1	AE35	MDB1
MAAB2	AM22	DDR1_MA2	DDR1_DQ2	AG35	MDB2
MAAB3	AM23	DDR1_MA3	DDR1_DQ3	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_DQ4	AD34	MDB4
MAAB5	AL23	DDR1_MA5	DDR1_DQ5	AD35	MDB5
MAAB6	AY24	DDR1_MA6	DDR1_DQ6	AG34	MDB6
MAAB7	AV25	DDR1_MA7	DDR1_DQ7	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
	AM16	DDR1_ODT2	DDR1_DQ19	AP31	MDB23
	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
			DDR1_DQ31	AP28	MDB31
				AR12	MDB32
(8) SBAB0	SBAB0	AK17	DDR1_BA0	DDR1_DQ32	AP12	MDB33
(8) SBAB1	SBAB1	AL18	DDR1_BA1	DDR1_DQ33	AL13	MDB34
(8) SBAB2	SBAB2	AW28	DDR1_BA2	DDR1_DQ34	AL12	MDB35
(8) CKEB0	CKEB0	AW29	DDR1_CKE0	DDR1_DQ35	AR13	MDB36
(8) CKEB1	CKEB1	AY29	DDR1_CKE1	DDR1_DQ36	AP13	MDB37
		AU28	DDR1_CKE2	DDR1_DQ37	AM13	MDB38
		AU29	DDR1_CKE3	DDR1_DQ38	AM12	MDB39
(8) -CSB0	-CSB0	AP17	DDR1_CS_N0	DDR1_DQ39	AR9	MDB45
(8) -CSB1	-CSB1	AN15	DDR1_CS_N1	DDR1_DQ40	AP9	MDB41
		AN17	DDR1_CS_N2	DDR1_DQ41	AR6	MDB47
		AL15	DDR1_CS_N3	DDR1_DQ42	AP6	MDB43
				DDR1_DQ43	AR10	MDB44
				DDR1_DQ44	AP10	MDB40
				DDR1_DQ45	AR7	MDB46
				DDR1_DQ46	AP7	MDB42
				DDR1_DQ47	AM9	MDB52
(8) DCLKB0	DCLKB0	AM20	DDR1_CLK_P0	DDR1_DQ48	AL9	MDB53
(8) -DCLKB0	-DCLKB0	AM21	DDR1_CLK_N0	DDR1_DQ49	AL6	MDB50
(8) DCLKB1	DCLKB1	AP22	DDR1_CLK_P1	DDR1_DQ50	AL7	MDB55
(8) -DCLKB1	-DCLKB1	AP21	DDR1_CLK_N1	DDR1_DQ51	AM10	MDB48
		AN20	DDR1_CLK_P2	DDR1_DQ52	AL10	MDB49
		AN21	DDR1_CLK_N2	DDR1_DQ53	AM6	MDB54
		AP19	DDR1_CLK_P3	DDR1_DQ54	AM7	MDB51
		AP20	DDR1_CLK_N3	DDR1_DQ55	AH6	MDB61
				DDR1_DQ56	AH7	MDB60
(8) -SCASB	-SCASB	AP16	DDR1_CAS*	DDR1_DQ57	AE6	MDB59
		AL20	RSVD	DDR1_DQ58	AE7	MDB63
(8) -SRASB	-SRASB	AM18	DDR1_RAS*	DDR1_DQ59	AJ6	MDB56
(8) -SWEB	-SWEB	AK16	DDR1_WE*	DDR1_DQ60	AJ7	MDB57
				DDR1_DQ61	AF6	MDB58
	VREF_DQA	AB39		DDR1_DQ62	AF7	MDB62
(7) VREF_DQA	VREF_DQB	AB40	DDR_VREF_DQ0	DDR1_DQ63	AE35	DQSB0
(8) VREF_DQB			DDR_VREF_DQ1	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	AF34	-DQSB0
				DDR1_DQS_N0	AK33	-DQSB1
				DDR1_DQS_N1	AN33	-DQSB2
				DDR1_DQS_N2	AP29	-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-F01150-11R_10SC1-F01150-12R]

LGA1150 (CR)

CR
CPU RETAINTION/X



LGA1150

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

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]

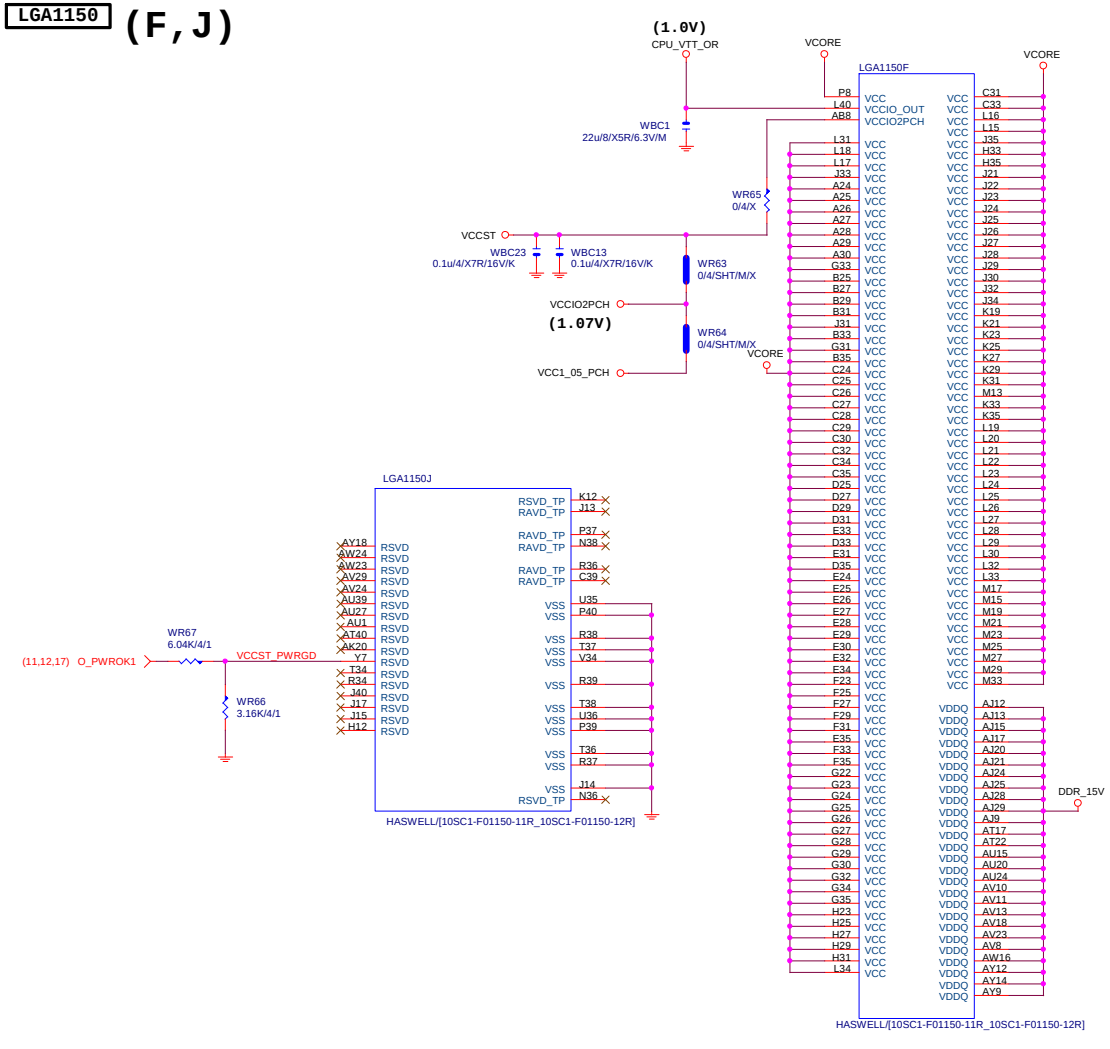
(7) DQSA[0..7] — DQSA[0..7]
(7) -DQSA[0..7] — -DQSA[0..7]

(7) MAAA[0..15] — MAAA[0..15]
(8) MAAB[0..15] — MAAB[0..15]

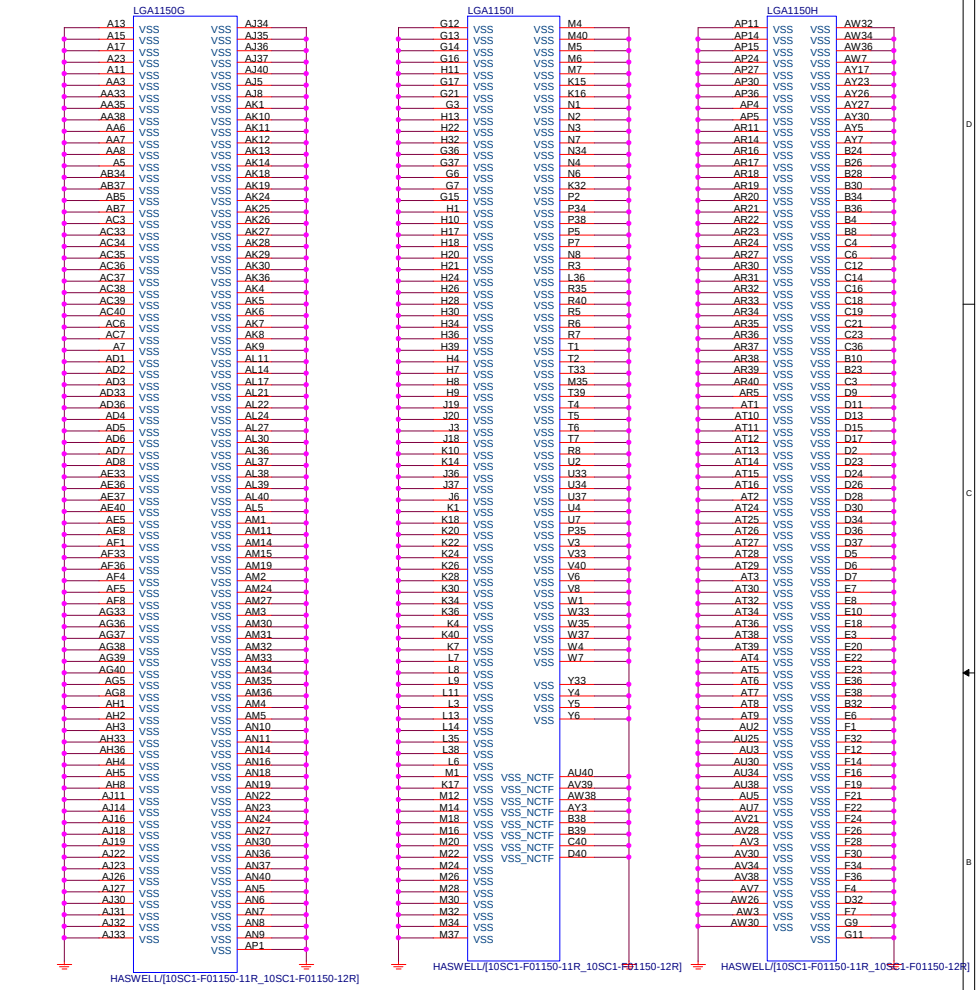
(8) DQSB[0..7] — DQSB[0..7]
(8) -DQSB[0..7] — -DQSB[0..7]

Gigabyte Technology			
Title: CPU LGA1150-B			
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013	Sheet 5 of 33		

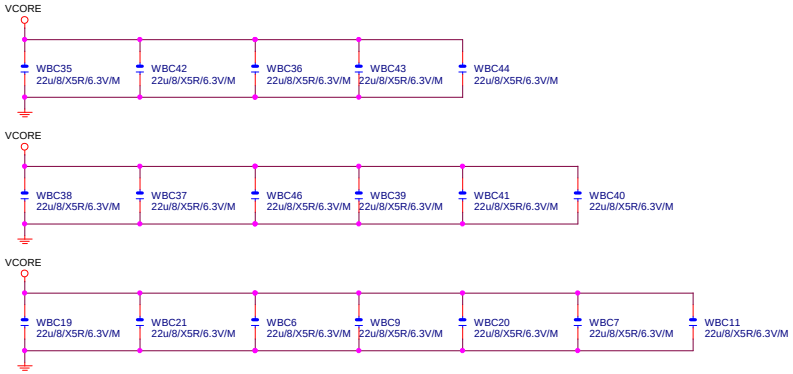
LGA1150 (F,J)



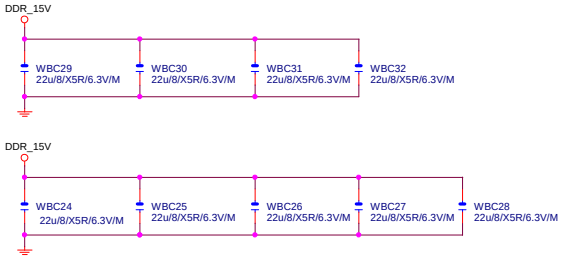
LGA1155 (G,H,I)



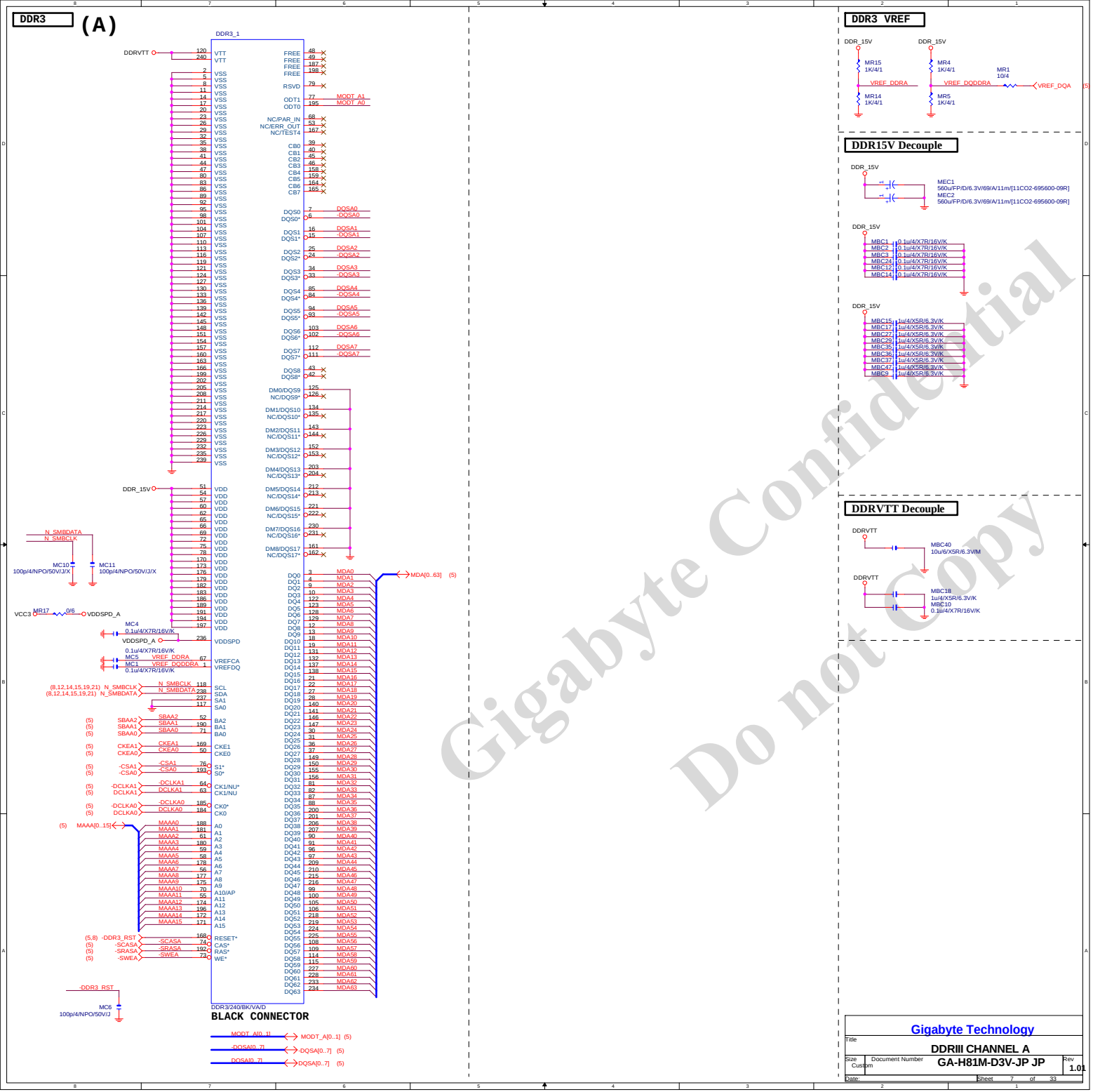
VCore CAP (X18)



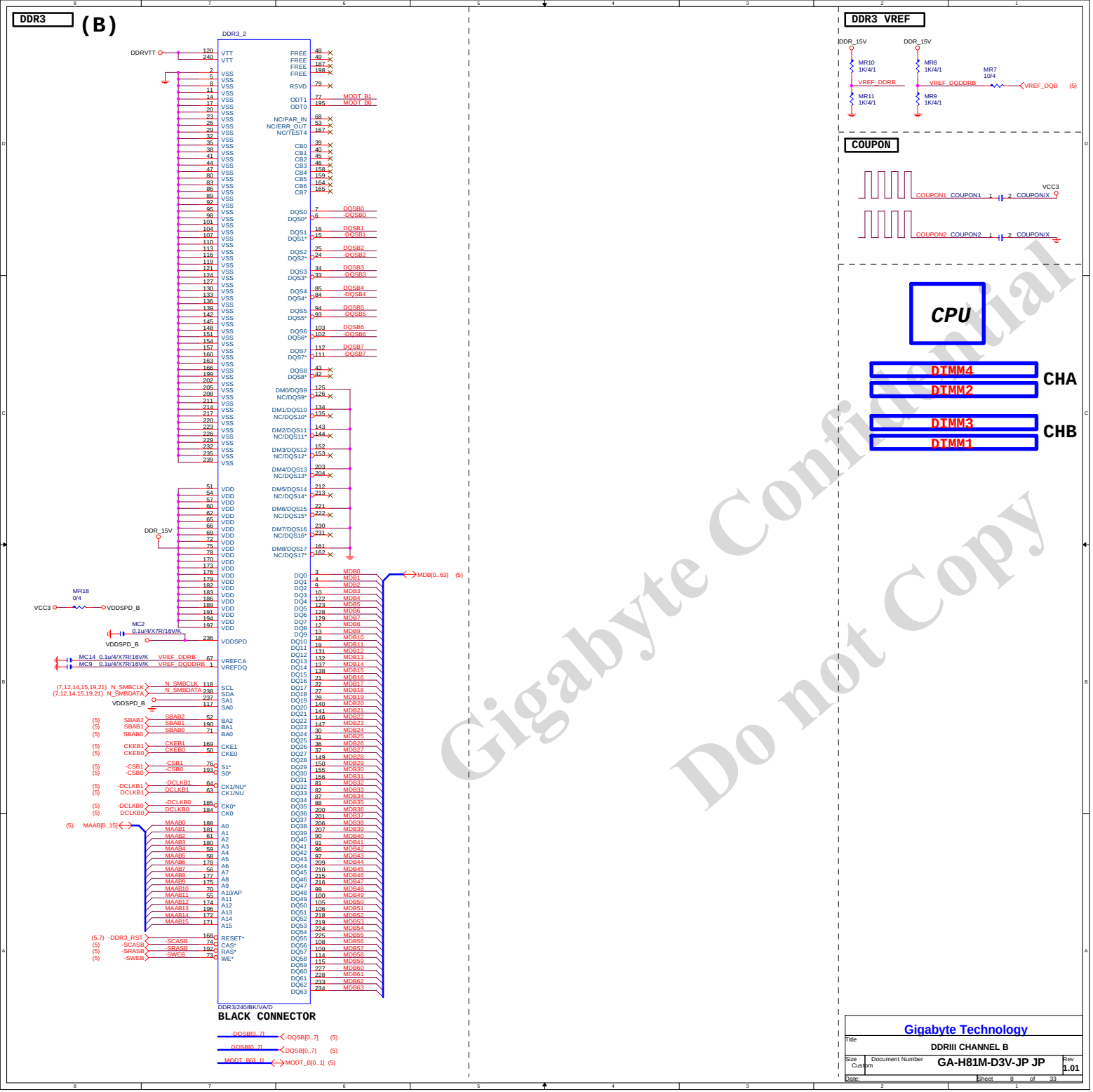
DDR CAP (X9)



Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
Date: Friday, November 08, 2013	Sheet 6 of 33	



Gigabyte Technology	
Title	DDRIII CHANNEL A
Size: Custom	Document Number: GA-H81M-D3V-JP JP
Rev	1.01
Date:	Sheet 7 of 33



Gigabyte Technology

Title: DDRIII CHANNEL B

Size: Custom | Document Number: GA-H81M-D3V-JP JP | Rev: 1.01

Date: | Sheet 8 of 33

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%

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

PCHB

DMI_RXN_0 DMI_RXP_0 DMI_TXN_0 DMI_TXP_0 DMI_RXN_1 DMI_RXP_1 DMI_TXN_1 DMI_TXP_1 DMI_RXN_2 DMI_RXP_2 DMI_TXN_2 DMI_TXP_2 DMI_RXN_3 DMI_RXP_3 DMI_TXN_3 DMI_TXP_3 — DMI

A_DMI_0TXN L24 (4)
A_DMI_0TXP K24 (4)
A_DMI_0RXN C20 (4)
A_DMI_0RXP B20 (4)
A_DMI_1TXN G24 (4)
A_DMI_1TXP H24 (4)
A_DMI_1RXN D21 (4)
A_DMI_1RXP B21 (4)
A_DMI_2TXN F26 (4)
A_DMI_2TXP G26 (4)
A_DMI_2RXN B22 (4)
A_DMI_2RXP C22 (4)
A_DMI_3TXN K26 (4)
A_DMI_3TXP L26 (4)
A_DMI_3RXN A24 (4)
A_DMI_3RXP B24 (4)

W=4 mil out of PCH
S=15 mil out of PCH

VCC1_5_PCH — NR50 7.5K/4/1 DMI_COMP B19
PCIE_COMP C13
NR40 7.5K/4/1

CK_-SRCCLK_PCH G22
CK_SRCCLK_PCH F22

DMI_RCOMP
PCIE_RCOMP
CLKIN_DMI_N
CLKIN_DMI_P

USBN_0 USBP_0 USBN_1 USBP_1 USBN_2 USBP_2 USBN_3 USBP_3 USBN_4 USBP_4 USBN_5 USBP_5 USBN_6 USBP_6 USBN_7 USBP_7 USBN_8 USBP_8 USBN_9 USBP_9 USBN_10 USBP_10 USBN_11 USBP_11 USBN_12 USBP_12 USBN_13 USBP_13 — USB

AV10 N_-USBP0 — N_-USBP0 (24)
AU10 N_+USBP0 — N_+USBP0 (24)
AV11 N_-USBP1 — N_-USBP1 (24)
AW11 N_+USBP1 — N_+USBP1 (24)
AN14 N_-USBP2 — N_-USBP2 (18)
AP14 N_+USBP2 — N_+USBP2 (18)
AJ16 N_-USBP3 — N_-USBP3 (18)
AK16 N_+USBP3 — N_+USBP3 (18)
AU15
AV15
AU12
AT12
AV14
AW14
AU17
AT17

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

AW16 N_-USBP8 — N_-USBP8 (21)
AV16 N_+USBP8 — N_+USBP8 (21)
AN16 N_-USBP9 — N_-USBP9 (21)
AP16 N_+USBP9 — N_+USBP9 (21)
AJ18 N_-USBP10 — N_-USBP10 (21)
AK18 N_+USBP10 — N_+USBP10 (21)
AP18 N_-USBP11 — N_-USBP11 (21)
AN18 N_+USBP11 — N_+USBP11 (21)
AW18
AV18
AP20
AN20

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

PCIE Only

PCIE_PERN_1_USB3_RXN_2 PCIE_PERP_1_USB3_RXP_2 PCIE_PETN_1_USB3_TXN_2 PCIE_PETP_1_USB3_TXP_2 PCIE_PERN_2_USB3_RXN_3 PCIE_PERP_2_USB3_RXP_3 PCIE_PETN_2_USB3_TXN_3 PCIE_PETP_2_USB3_TXP_3 — PCIE

L14 K14 B12 B11 F14 G14 D11 C11

8111G

LA_ML_IN F11 (24)
LA_ML_IP H11 (24)
LA_ML_ON B9 (24)
LA_ML_OP A9 (24)

VL805

J11 L11 B8 C8

PCIEx1

PI_PCIEX1_IN G9 (15)
PI_PCIEX1_IP F9 (15)
PI_PCIEX1_ON B7 (15)
PI_PCIEX1_OP A7 (15)
PJ_PCIEX1_IN E7 (15)
PJ_PCIEX1_IP H7 (15)
PJ_PCIEX1_ON E1 (15)
PJ_PCIEX1_OP D2 (15)

N/A

K6 K8 G3 G5 J2 J3 H2 H1

PERN_3 PERP_3 PETN_3 PETP_3 PERN_4 PERP_4 PETN_4 PETP_4 PERN_5 PERP_5 PETN_5 PETP_5 PERN_6 PERP_6 PETN_6 PETP_6 PERN_7 PERP_7 PETN_7 PETP_7 PERN_8 PERP_8 PETN_8 PETP_8

OC0B_GP59 OC1B_GP40 OC2B_GP41 OC3B_GP42 OC4B_GP43 OC5B_GP9 OC6B_GP10 OC7B_GP14

AE40
AF37 — N_-USBOC_R (18)
AD39
AD40
AF39 — N_-USBOC_F (18,21)
AC41
AF40
AG40 N_GPIO14

USBRBIASB USBRBIAS

AV20 N_USBRBIAS NR47 22.6/4/1
AU20

CLKIN_DOT96N CLKIN_DOT96P

AP11 CK_-DOTCLK
AM11 CK_DOTCLK

NR130 8.2K/4
N_GPIO14 — 3VDUAL

N_-USBOC_F — NBC82 0.1u/4/X7R/16V/K
N_-USBOC_R — NBC83 0.1u/4/X7R/16V/K

H81/S

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)

PCHF

USB3 FDILINK

(24) PCH_USB3_RXN0 F20 — USB3_RXN_0 — FDI_RXN_0 N1 FDI_TXN0
(24) PCH_USB3_RXP0 G20 — USB3_RXP_0 — FDI_RXP_0 N2 FDI_TXP0
(24) PCH_USB3_TXN0 B18 — USB3_TXN_0 — FDI_RXN_1 P2 FDI_TXN1
(24) PCH_USB3_TXP0 C18 — USB3_TXP_0 — FDI_RXP_1 P3 FDI_TXP1

(24) PCH_USB3_RXN1 G18 — USB3_RXN_1
(24) PCH_USB3_RXP1 H18 — USB3_RXP_1 — FDI_CSYNC L2 FDI_CSYNC — FDI_CSYNC (4)
(24) PCH_USB3_TXN1 B15 — USB3_TXN_1 — FDI_INT L3 FDI_INT — FDI_INT (4)
(24) PCH_USB3_TXP1 B16 — USB3_TXP_1 — FDI_RCOMP K2 NR29 7.5K/4/1 — VCC1_5_PCH

N/A

K20 L20 D15 C15 — USB3_RXN_4 USB3_RXP_4 USB3_TXN_4 USB3_TXP_4
L18 K18 B14 A14 — USB3_RXN_5 USB3_RXP_5 USB3_TXN_5 USB3_TXP_5

VCC3 — NR62 8.2K/4 — AK28
NR63 8.2K/4 — AT34

TACH6_GP70
TACH7_GP71

H81/S

FDI_TXP[0..1] — FDI_TXP[0..1] (4)
FDI_TXN[0..1] — FDI_TXN[0..1] (4)

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

CK_SRCCLK_PCH NR89 8.2K/4
CK_-SRCCLK_PCH NR88 8.2K/4

Mount for integrated clock Generation Mode

CK_DOTCLK NR92 8.2K/4
CK_-DOTCLK NR91 8.2K/4

NR225 short to GND in non graphic SKU

PCH (J)

PCHJ

AT1 AT41 AU1 AV1 AV2 AV40 AV41 AW2 AW40 B40 B41 C41 D1 D41 — VSS_NCTF

TP22 TP23 TP21 TP20 TP14 TP15 TP12 TP10 TP11 TP9 TP3 TP4 TP1 TP2 TP5 TP6 TP7 TP8

U11 U10 AJ14 AK14 K34 K33 AH24 L16 K16 AM34 R12 N12 L22 K22 R4 K5 P5 L5

VSS — AC31
VSS — AF3
VSS — AV21

H81/S

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSIN

1 2

GRAY HS

PCH_HS
PCH_HS/[12SP2-030005-41R]

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#	USB_LAN
OC2#	R_USB30
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	KB_MS_USB
OC7#	Not Use

Gigabyte Technology

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

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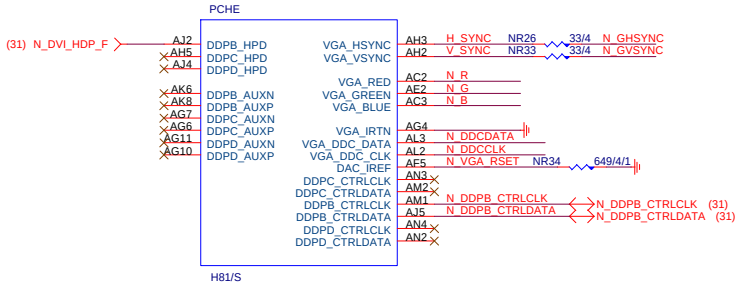
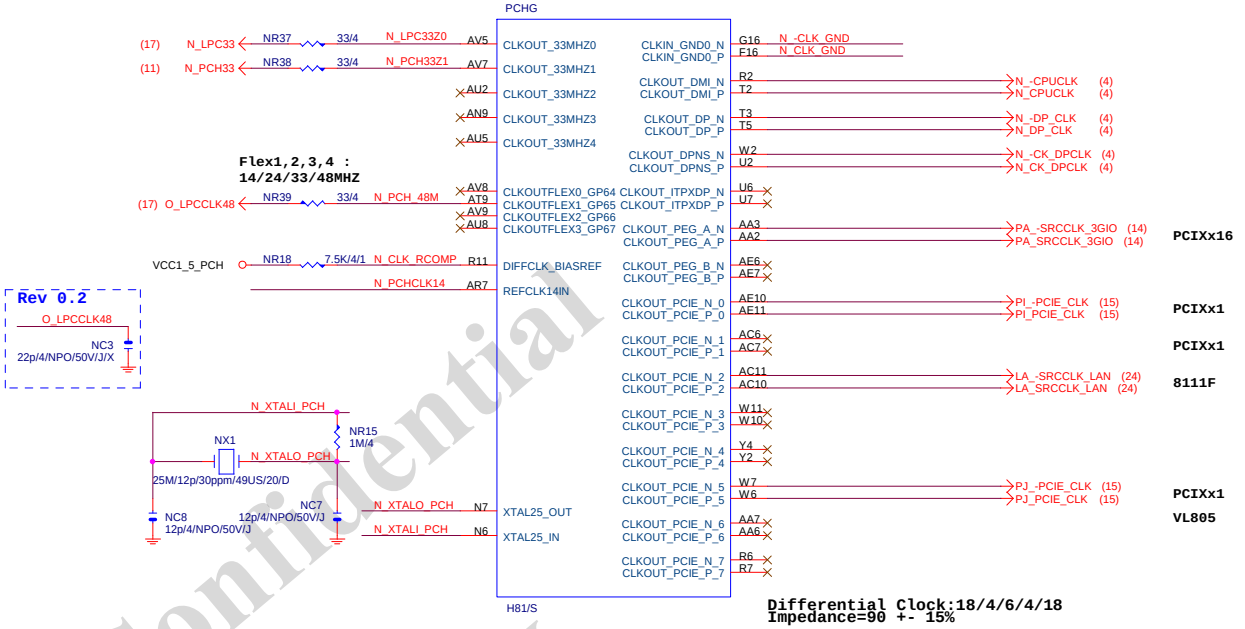
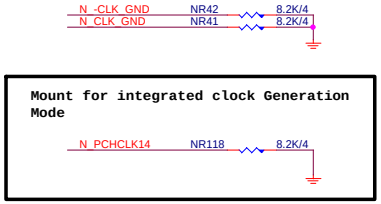
PCH (E)



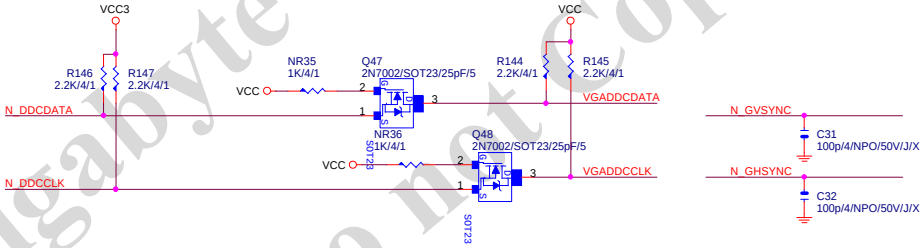
PCH (G)



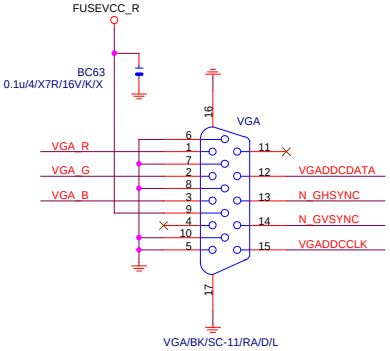
PCH CLK PD



VGA DDC

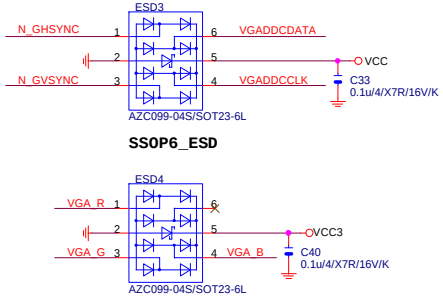


VGA CONNECTOR

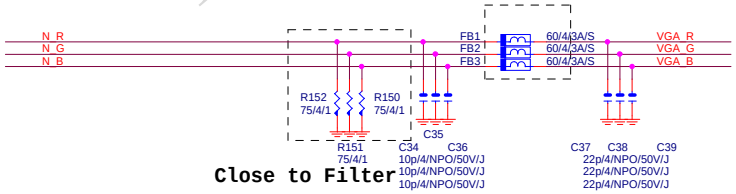


BLACK CONNECTOR

VGA ESD



VGA DDC



Close to Filter

Gigabyte Technology		
Title	PCH DISPLAY ,CLK BUFFER	
Size: Custom	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
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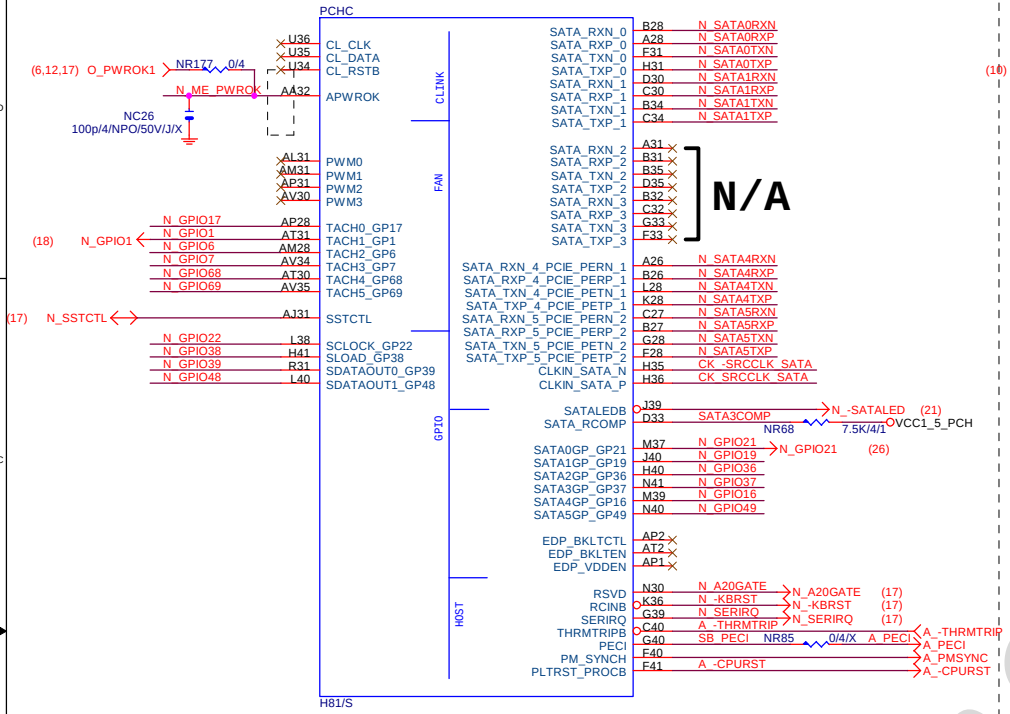
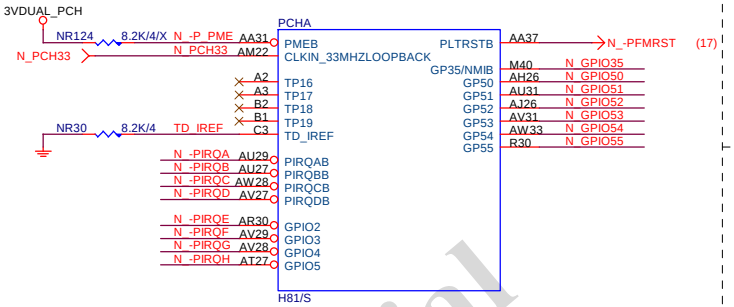
PCH (C)

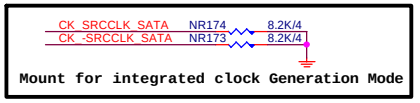
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



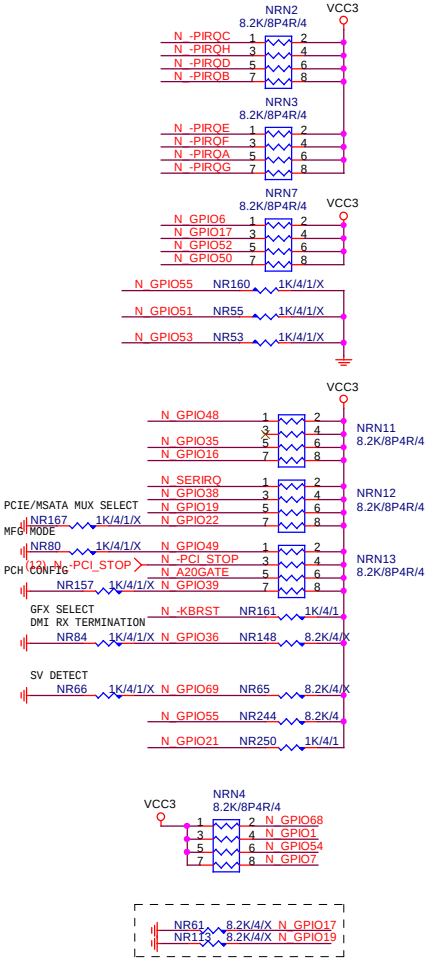
PCH (A)



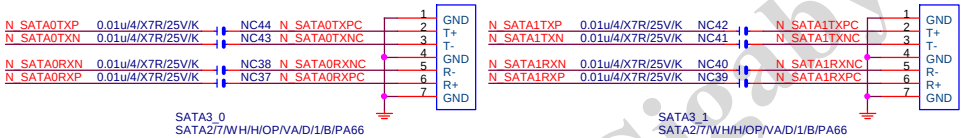
PCH CLK PD



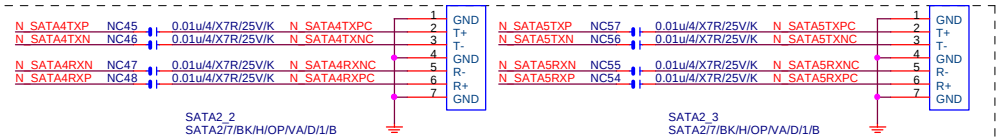
PCH PU/PD



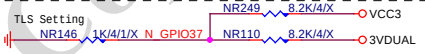
SATA CONNECTOR



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

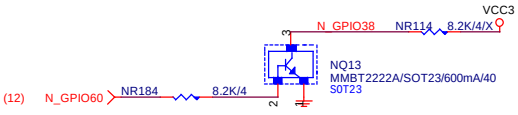


ME PWROK



GPIO37 PU VCC3 ENABLE SBA
For H87&B85

GPIO38 Ctrl



Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-H81M-D3V-JP | Rev: 1.01

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PCH (D)

(17) N_LAD[0..3] → N_LAD[0..3]

PCHD

VCC3 NR54 8.2K/4/X	N_GPIO23	AK26	LDRQ1B_GP23		
(17) N_LAD0	N_LAD0	AN24	LAD_0		
(17) N_LAD1	N_LAD1	AP26	LAD_1		
(17) N_LAD2	N_LAD2	AJ24	LAD_2		
(17) N_LAD3	N_LAD3	AN26	LAD_3		
(17) N_-LDRQ0	N_-LDRQ0	AK22	LDRQ0B		
(17) N_-LFRAME	N_-LFRAME	AP24	LFRAMEB		
(22) C_ACZ_BITCLK NR45 33/4		AV23	HDA_BCLK		
(22) C_-ACZ_RST NR43 33/4		AU24	HDA_RSTB		
		AT26	HDA_SDI0		
		AV22	HDA_SDI1		
(22) C_ACZ_SDIN2		AT22	HDA_SDI2		
		AW23	HDA_SDI3		
(22) C_ACZ_SDOUT NR44 33/4 A_SO		AU22	HDA_SDO		
(22) C_ACZ_SYNC NR46 33/4 A_SYC		AV24	HDA_SYNC		
(20) N_ICH_SPI_MOSI		P40	SPI_MOSI_IO0		
(20) N_ICH_SPI_MISO		R36	SPI_MISO_IO1		
(20) N_-ICH_SPI_CS		R38	SPI_CS0B		
(20) N_ICH_SPI_CLK		U39	SPI_CLK		
		R35	SPI_CS1B		
		R40	SPI_CS2B		
(20) SPI_DQ2		U40	SPI_IO2		
(20) SPI_DQ3		U37	SPI_IO3		
N_Y1		AN40	RTCX1		
N_Y2		AN39	RTCX2		
N_-RTCRST		AN38	RTESTB		
N_-SRTCRST		AR39	SRTCRSTB		
N_-INTRUDER		AR41	INTRUDERB		
(6,11,17) O_PWROK1		AT40	PCH_PWROK		
(17,25) O_-RSMRST		AM40	RSMRSTB		
N_INTVRMEN		AV36	INTVRMEN		
N_PCH_DPWROK		AV38	DPWROK		
N_DSWVRMEN		AM41	DSWODVREN		
(17) N_-LPCPME	N_-LPCPME	AG31	SMBALERTB_GP11		
(7,8,14,15,19,21) N_SMBCLK	N_SMBCLK	AG36	SMBCLK		
(7,8,14,15,19,21) N_SMBDATA	N_SMBDATA	AG32	SMBDATA		
(11) N_GPIO60	N_GPIO60	AG35	SML0ALERTB_GP60		
	N_SML0CLK	AE32	SML0CLK		
	N_SML0DAT	AE35	SML0DATA		
(19) N_-PCH_HOT	N_-PCH_HOT	AJ39	SML1ALERTB_PCHHOTB_GP74		
	N_SML1CLK	AK36	SML1CLK_GP58_MGPIO11		
	N_SML1DAT	AK33	SML1DATA_GP75_MGPIO12		
				G38	N_GPIO0
				N32	N_GPIO32
				AV26	N_GPIO33
				N34	N_-PCI_STOP → N_-PCI_STOP (11)
				AC40	N_-IGC_EN
			GP8	AL40	
			LAN_PHY_PWR_CTRL_GP12	AN22	-D_GPIO_HRST
			HDA_DOCK_RSTB_GP13	AC32	N_TEMP_ALART- → N_TEMP_ALART- (17)
			GP15	AE34	A_-SKTOCC → A_-SKTOCC (4)
			GP24	V41	N_GPIO28
			GP28	AL39	N_GPIO29
			SLP_WLANB_GP29	W34	N_GPIO73
			PCIECLKRQ0B_GP73	P39	N_GPIO18 (17) DS_ME
			PCIECLKRQ1B_GP18	P37	N_GPIO20
			PCIECLKRQ2B_GP20_SMIB	AA39	N_GPIO25
			PCIECLKRQ3B_GP25	W35	N_GPIO26
			PCIECLKRQ4B_GP26	AA36	N_GPIO44
			PCIECLKRQ5B_GP44	W32	N_GPIO45
			PCIECLKRQ6B_GP45	AA40	N_GPIO46
			PCIECLKRQ7B_GP46		
			GP57	AC36	N_GPIO57
			SYS_PWROK	W31	N_PCH_VRMPWRGD → N_PCH_VRMPWRGD (17)
			RIB	AE36	N_-RI
			WAKEB	AK34	N_-PCIE_WAKE (14,15,24)
			SLP_AB	AN37	
			SLP_LANB	AU36	N_-SLP_LAN
			SLP_S0B	AC35	
			SLP_S3B	AK40	N_-SLP_S3 (17)
			SLP_S4B	AT35	N_-S4_S5 (17)
			SLP_S5B_GP63	AA35	
			SUS_STATB_GP61	AD37	N_-SUSTAT
			SUSCLK_GP62	W36	N_SUSCLK
			GP72	AJ40	N_GPIO72
			SUSACKB	AJ37	
			SUSWARNB_SUSPWRDNACK_GP30	AG41	N_-S_WARN
			DRAMPWRGD	AE38	N_DRAM_PWROK
			GP27	AU34	N_GPIO27
			ACPRESENT_GP31_MGPIO2	AM36	N_GPIO31
			SLP_SUSB	AK38	N_-DEPSLP → N_-DEPSLP (25)
			PWRBTNB	AK41	O_PWRBTSW → O_PWRBTSW (17)
			SYS_RESETB	N36	N_-SYS_RST → N_-SYS_RST (4,21)
			SPKR	R32	N_SPKR → N_SPKR (21)
			PROCPWRGD	D40	N_CPUPWROK → N_CPUPWROK (4,17)
				W37	N_PCH_RST
			TP13	Y40	N_PCH_TCK
			JTAG_TCK	W39	N_PCH_TDI
			JTAG_TDI	Y38	N_PCH_TDO
			JTAG_TDO	W40	N_PCH_TMS
			JTAG_TMS		

H81/S

DDR_15V
NR131 680/4/1
N_DRAM_PWROK → N_DRAM_PWROK (4)
NR132 1.47K/4/1

O_PWROK1
NC51 0.01u/4/X7R/25V/K/X
Reserve for EMI test

At least 40ns lead fall to 0V before 3VDUAL_PCH fall to 2V

At least 10ms delay after 3VDUAL_PCH stabel

ACZ_SDOUT

NR140 8.2K/4 C_ACZ_SDOUT
NQ14 PMBT2907A/SOT23/-600mA/50 S0T23
N_GPIO57 NR64 8.2K/4
DS_ME NR178 8.2K/4
3VDUAL_PCH

SPI OVERRIDE PROTECTION

PCH_DPWROK

3VDUAL_PCH
NR69 8.2K/4
N_PCH_DPWROK → N_PCH_DPWROK (17,25)
NC17 1n/4/X7R/50V/K
for IT8620 Ctrl

VCC3
NR345 1K/4/1
N_PCH_VRMPWRGD → N_PCH_VRMPWRGD (17)
NR346 100K/4/1
NC14 0.1u/4/X7R/16V/K

PCH PU/PD

3VDUAL

NR139	8.2K/4/X	N_GPIO46	1	2	NRN9 8.2K/8P4R/4
NR155	8.2K/4/X	N_GPIO45	3	4	
NR103	8.2K/4/X	N_GPIO44	5	6	
		N_GPIO57	7	8	
		A_-SKTOCC	1	2	NRN10 8.2K/8P4R/4
		N_TEMP_ALART-	3	4	
		N_-RI	5	6	
			7	8	

GP8:Low to enable PCH clock chip

NR106	1K/4/1	N_-IGC_EN	NR105	8.2K/4/X	
NR153	1K/4/1/X	N_SUSCLK	NR154	8.2K/4/X	

SUSCLK:Low to OD PLL VR

N_-SUSTAT	NR133	8.2K/4/X	
-D_GPIO_HRST	NR51	1K/4/1	
N_GPIO28	NR144	1K/4/1	
N_GPIO29	NR96	1K/4/1	

GP28:Lo disable VRM ,Hi enable VRM

3VDUAL_PCH

N_-S_WARN	NR129	8.2K/4			
N_GPIO27	NR60	8.2K/4			
N_GPIO31	NR72	8.2K/4			
N_-SLP_LAN	NR73	8.2K/4/X			
N_GPIO72	NR100	8.2K/4			
N_-PCIE_WAKE	NR76	1K/4/1			
N_GPIO29	NR95	1K/4/1/X			

VCC3

NR145	8.2K/4/X	N_GPIO20	NR109	1K/4/1	
		N_GPIO0	NR115	8.2K/4	
		N_-SYS_RST	NR164	8.2K/4	
		N_GPIO32	NR162	8.2K/4/X	
NR48	8.2K/4/X	N_GPIO33	NR49	8.2K/4	

3VDUAL

N_PCH_RST	NR172	20K/4/1			
N_PCH_TDI	NR170	200/4/1			
N_PCH_TDO	NR141	200/4/1			
N_PCH_TMS	NR169	200/4/1			
N_PCH_TCK	NR87	200/4/1/X			
N_PCH_RST	NR143	1K/4/1/X			
N_PCH_TDI	NR171	100/4/1			
N_PCH_TDO	NR168	100/4/1			
N_PCH_TMS	NR142	100/4/1			
N_PCH_TCK	NR108	51/4/1			
N_GPIO18	NR79	8.2K/4			
N_GPIO73	NR134	8.2K/4			
N_GPIO26	NR107	8.2K/4			
N_GPIO25	NR137	8.2K/4			
N_-SYS_RST	NC58	1n/4/X7R/50V/K			
N_DRAM_PWROK	NC59	1n/4/X7R/50V/K			

NRN6 8.2K/8P4R/4

3VDUAL			1	2	
		N_-LPCPME	3	4	
		N_GPIO60	5	6	
		N_-PCH_HOT	7	8	
NR117	1K/4/1	N_SML1CLK			
NR120	1K/4/1	N_SML1DAT			
NR122	499/4/1	N_SML0CLK			
NR123	499/4/1	N_SML0DAT			
NR121	1K/4/1	N_SMBCLK			
NR97	1K/4/1	N_SMBDATA			

HSW_STRAP13

A_HSW_STRAP13 (4)
3VDUAL_PCH
NR182 8.2K/4/X
NR183 8.2K/4
NQ11 MMBT2222A/SOT23/600mA/40
S0T23
VCC3
NR136 1K/4/1/X
NR135 8.2K/4
NQ12 MMBT2222A/SOT23/600mA/40
S0T23
N_-IGC_EN
NR104 0/4/SHT/M/X

32.768KHZ

NX2-SHT SHW/D0.64*5.08*6.74
N_Y1
N_Y2 NR75 10M/4
NX2
32.768K/12.5p/20ppm/TF38/35K/D
NC16 18P/4/NPO/50V/J
NC18 18P/4/NPO/50V/J

CLR_CMOS

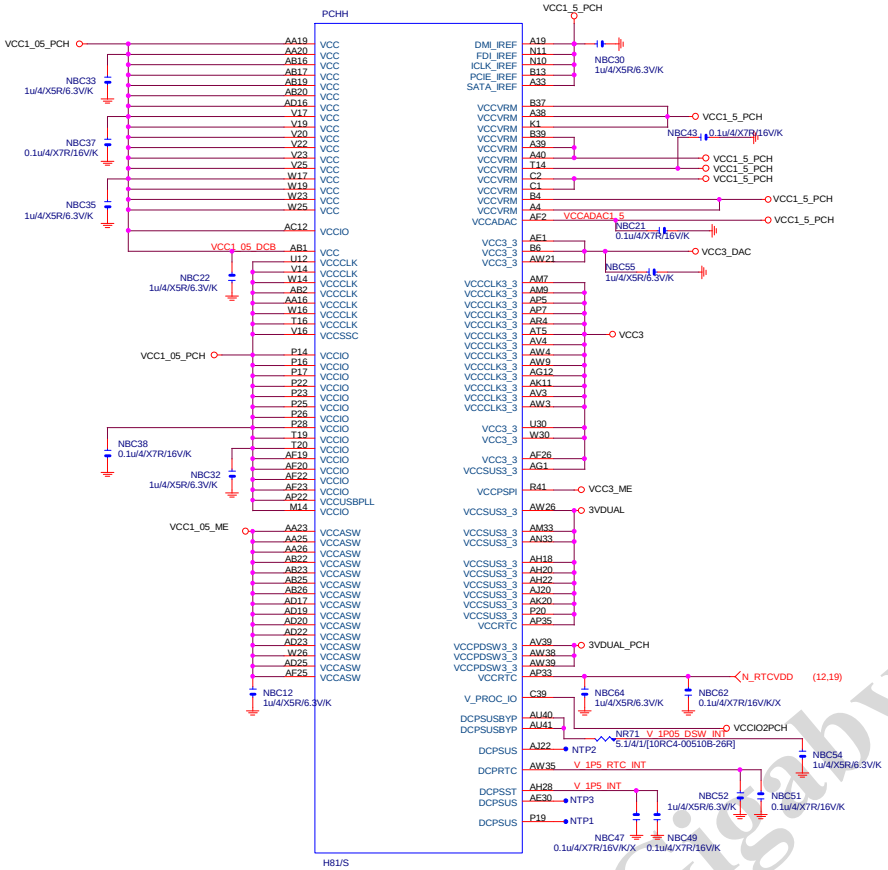
BATTERY CR2032
NR340 0/6/SHT/M/X
BAT BAT-SK/BK/P/S/D/SN
N_VBATT
NRB 1K/4/1
3VDUAL_PCH
ND1 BAS40-05/0.2A/SOT23
NR90 390K/4 N_DSWVRMEN
N_RTCVDD (13,19)
NR67 390K/4 N_INTVRMEN
NR78 20K/4/1 N_-RTCRST
NC15 1u/4/X5R/6.3V/K
NC20 1u/4/X5R/6.3V/K
RB_TP
N_VBAT (17)
CLR_CMOS
N_-RTCRST
PH/1*2/BK/2.54/VA/D

BATTERY-DUAL-4
RB 必须放在BAT外

N_-INTRUDER NR74 1M/4 → N_RTCVDD (13,19)
N_-SRTCRST NR77 20K/4/1 → N_RTCVDD (13,19)
NC19 1u/4/X5R/6.3V/K

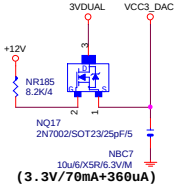
Gigabyte Technology			
Title: PCH GPIO , CTRL , AUDIO			
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013	Sheet 12 of 33		

PCH (H)



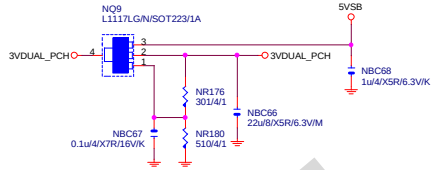
VCC3_DAC

CLOSE北橋(注意震盪水波紋)



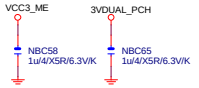
(3.3V/70mA+360uA)

3VDUAL_PCH

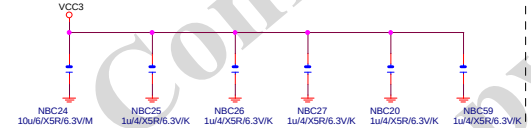


SHT PWR

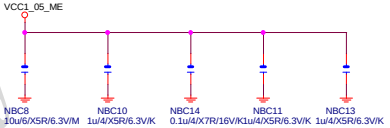
CAP



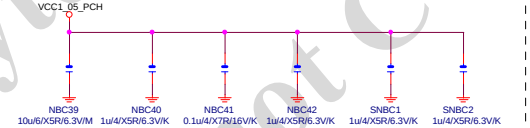
(3.3V)(X6)



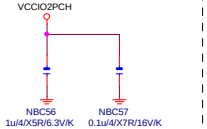
(1.05V)(X5)



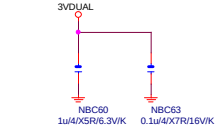
(1.05V)(X6)



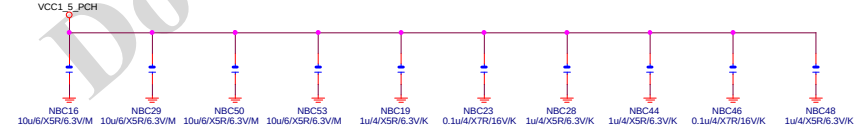
(1.05V)(X2)



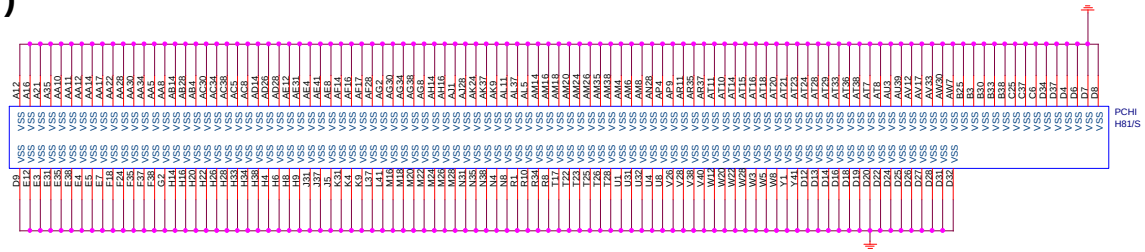
(3.3V)(X2)



(1.05V)(X10)

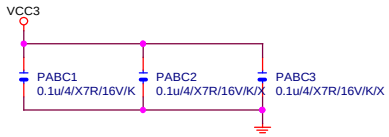


PCH (I)

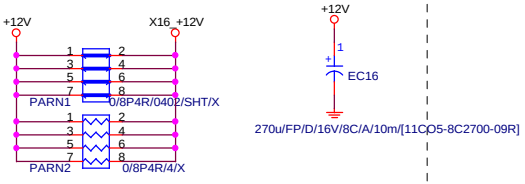


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013		Sheet 13 of 33	

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)

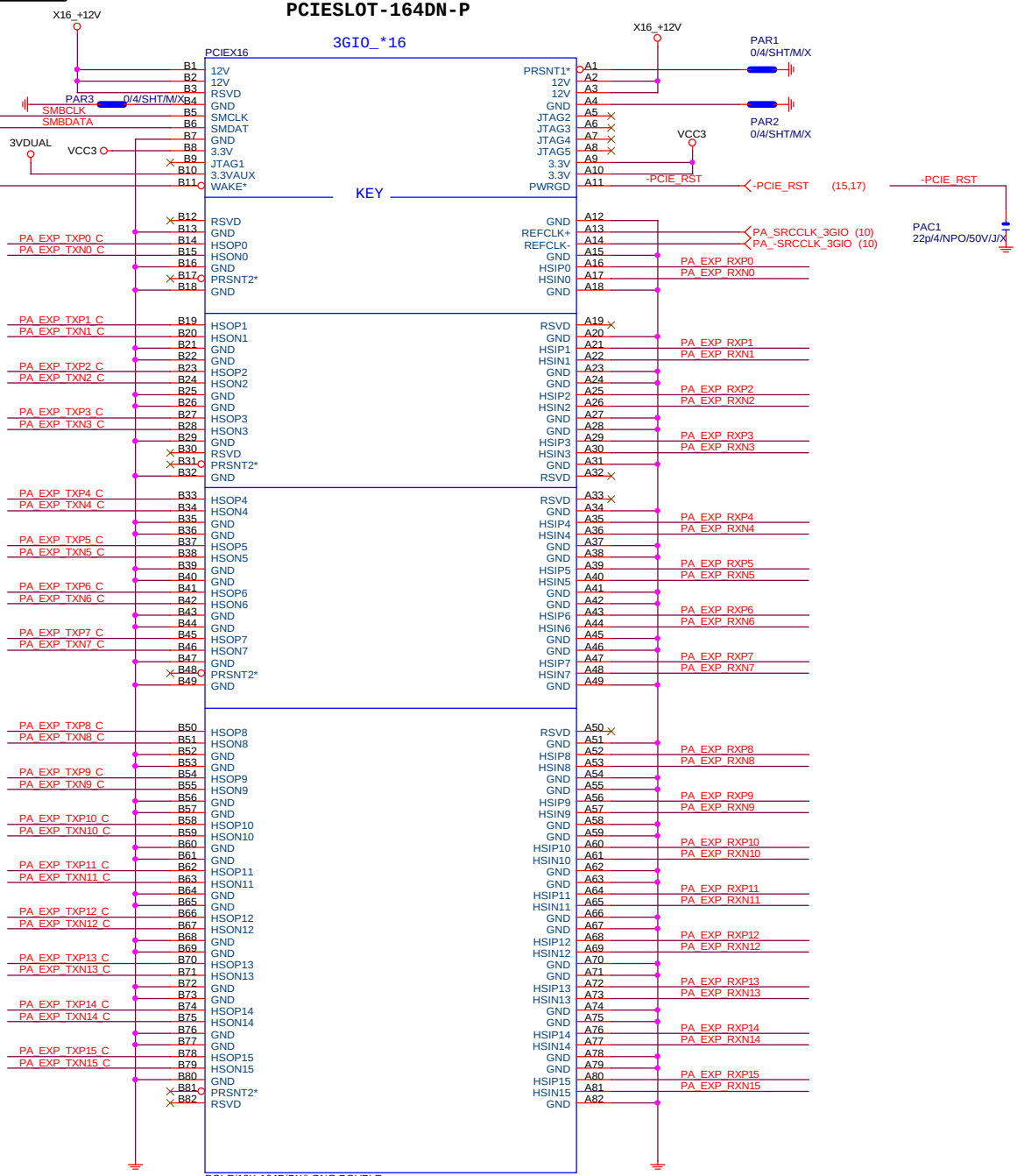
PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] (4)

The auxiliary reset circuit is only required for PCIe Gen3 margining and functional link training

PCIEX16 SLOT

PCIESLOT-164DN-P

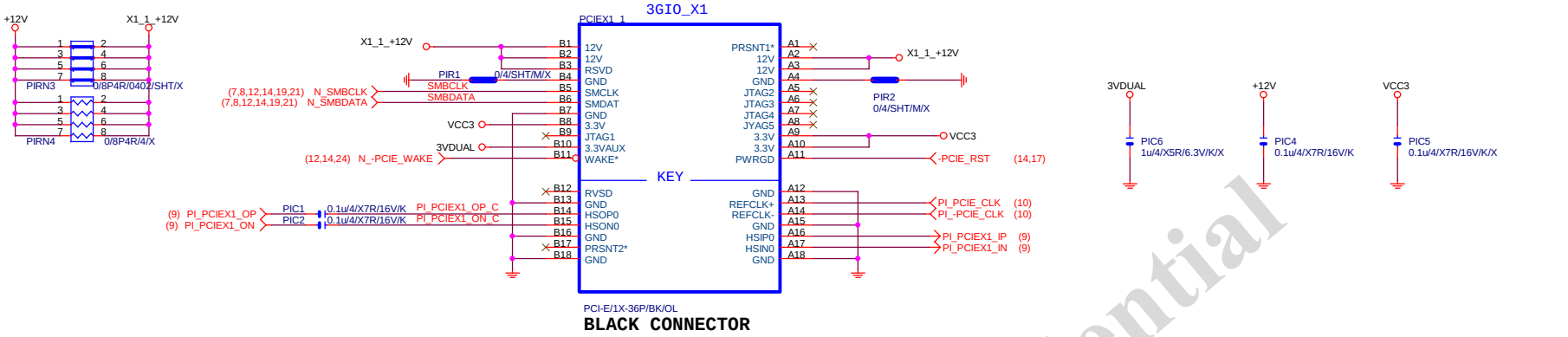
3GIO_*16

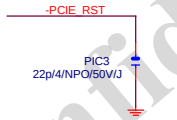


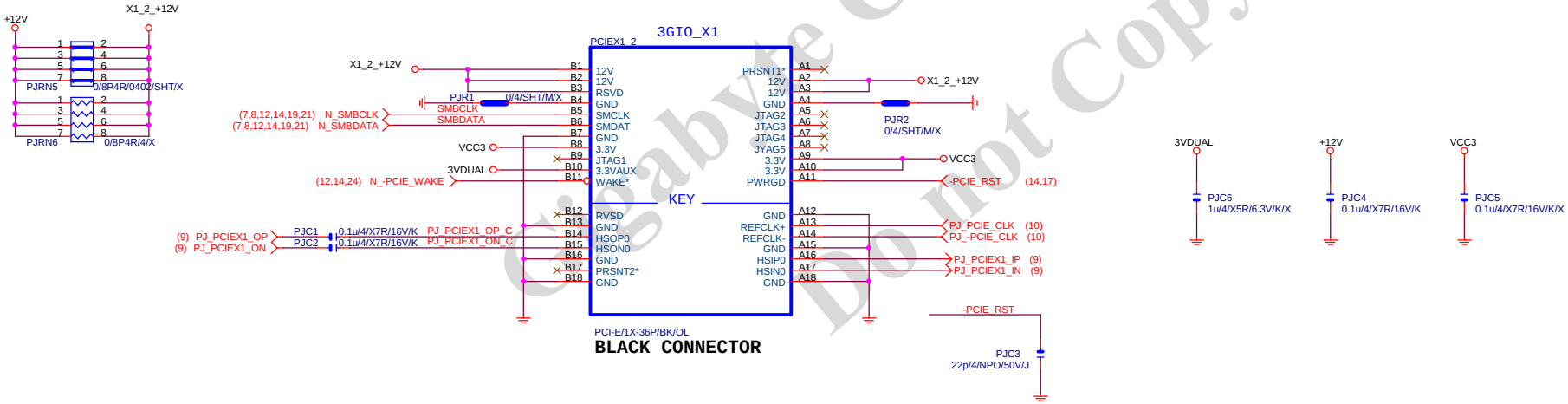
BLACK CONNECTOR

Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013	Sheet 14 of 33		

PCIEX1 SLOT







Gigabyte Technology		
Title: PCI EXPRESS X 1 PORT		
Size: Custom	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
Date: Friday, November 08, 2013	Sheet 15 of 33	

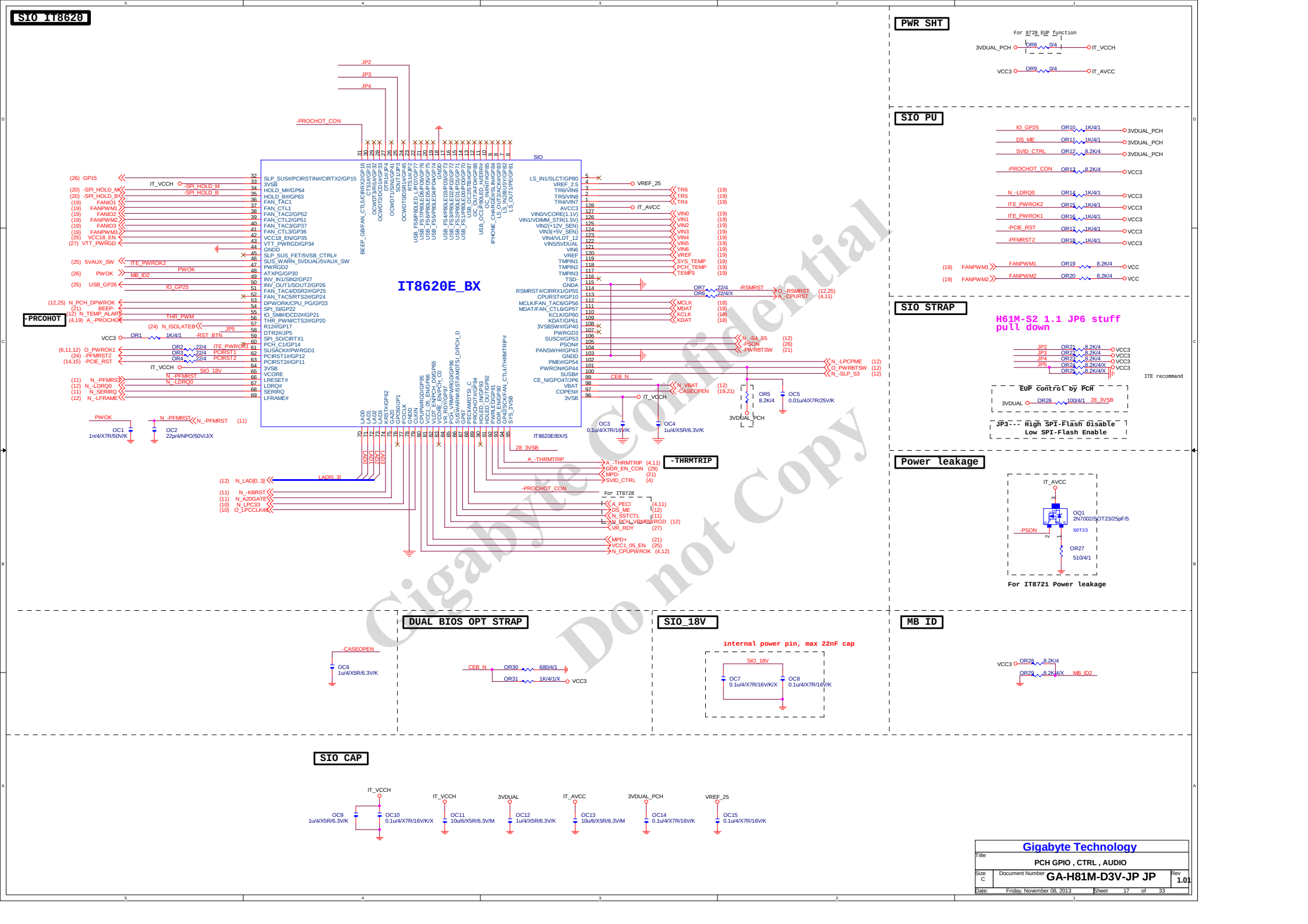
Gigabyte Technology

Title

PCI SLOT 1&2

Size	Document Number	Rev
Custom	GA-H81M-D3V-JP JP	1.01

Date:	Sheet	of
Friday, November 08, 2013	16	33


SIO IT8620
IT8620E_BX
-PRCOHOT
-THRMTRIP
PWR SHT
SIO PU
SIO STRAP
H61M-S2 1.1 JP6 stuff pull down
EUP control by PCH
JP3--- High SPI-Flash Disable
Low SPI-Flash Enable
Power leakage
For IT8721 Power leakage
DUAL BIOS OPT STRAP
SIO_18V
internal power pin, max 22nF cap
MB ID
SIO CAP
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-H81M-D3V-JP JP
1.01
Friday, November 08, 2013
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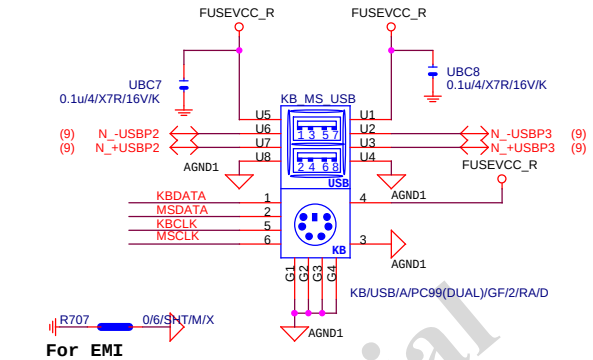
Cigabyte Confidential
Do not Copy

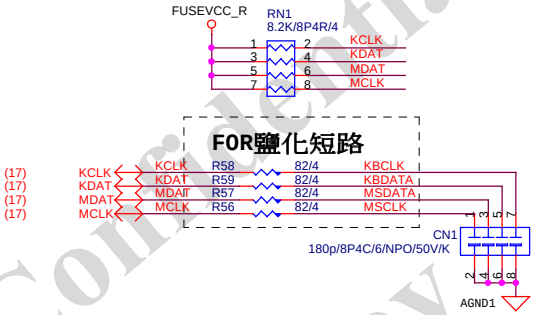
COM

COM RI

KB/MS

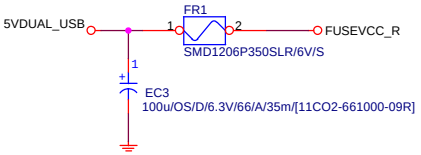


For EMI



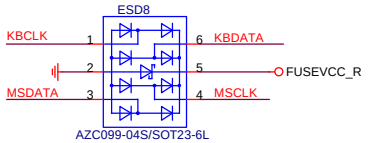
USB2.0 PWR

FUSE-0805
KB_MS_USB 2-Port 2.0A

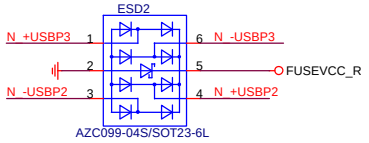


Close to connector

KB/MS ESD



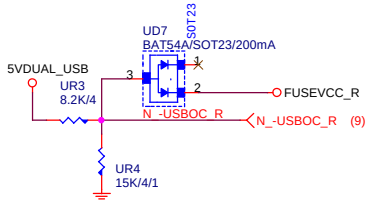
USB2.0 ESD



USB30_20

USB30_20 PWR

-USBOC_R

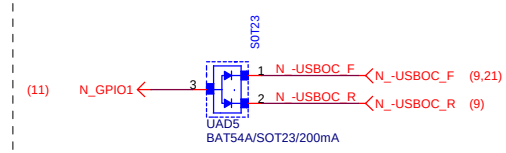


USB30_20 ESD PROCTECT

USB3.0 ESD

USB2.0 ESD

USB POWER PROTECT



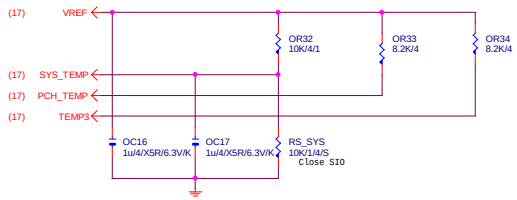
Gigabyte Technology

Title: COM,-RI,KB_USB,USB_ESATA,-PROCHOT

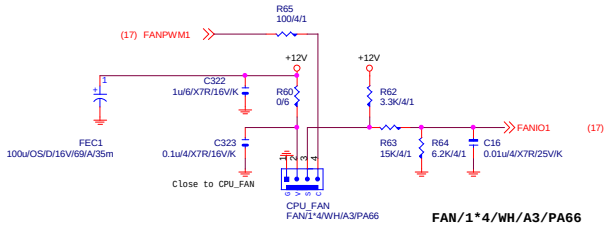
Size: Custom | Document Number: GA-H81M-D3V-JP JP | Rev: 1.01

Date: Friday, November 08, 2013 | Sheet 18 of 33

TEMP H/W MONITOR



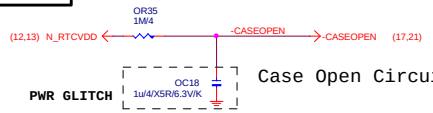
CPU SMART FAN



FAN/1*4/WH/A3/PA66

White Connect

CASE OPEN

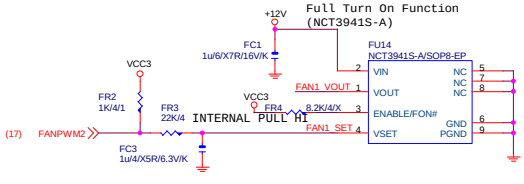


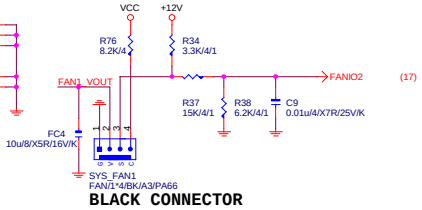
Case Open Circuits

SYS SMART FAN

Linear SYS_FAN

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



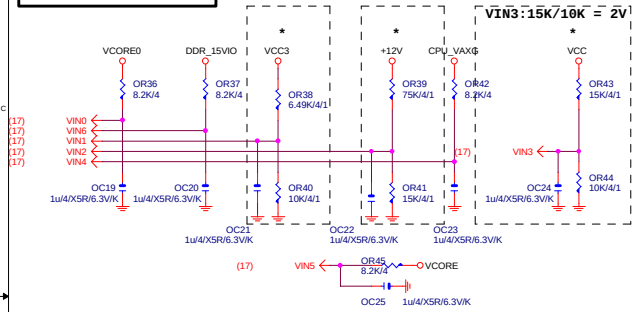


BLACK CONNECTOR

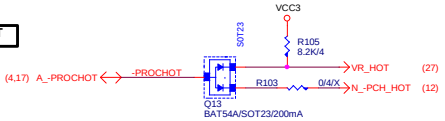
VOLTAGE-- H/W MONITOR

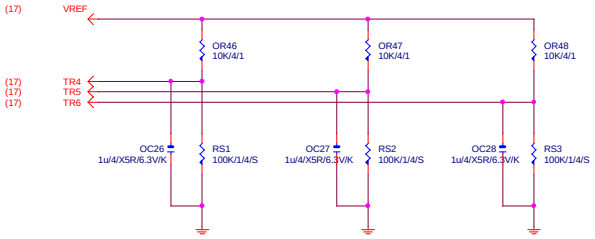
VIN2:75K/15K = 2V

VIN3:15K/10K = 2V



-PROHOT

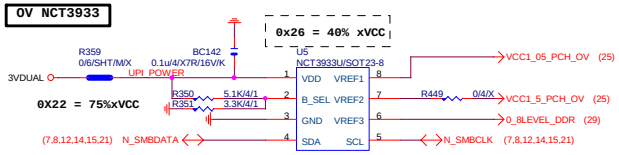




RS1、RS2、RS3 CLOSE CPU
VR MOSFET

接pwm feedback pin

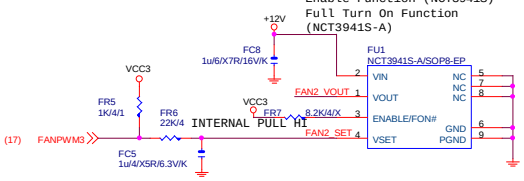
OV NCT3933

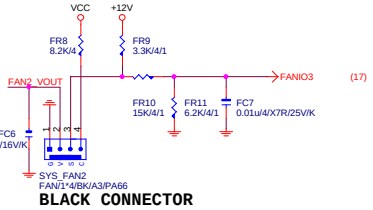


NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Linear SYS_FAN

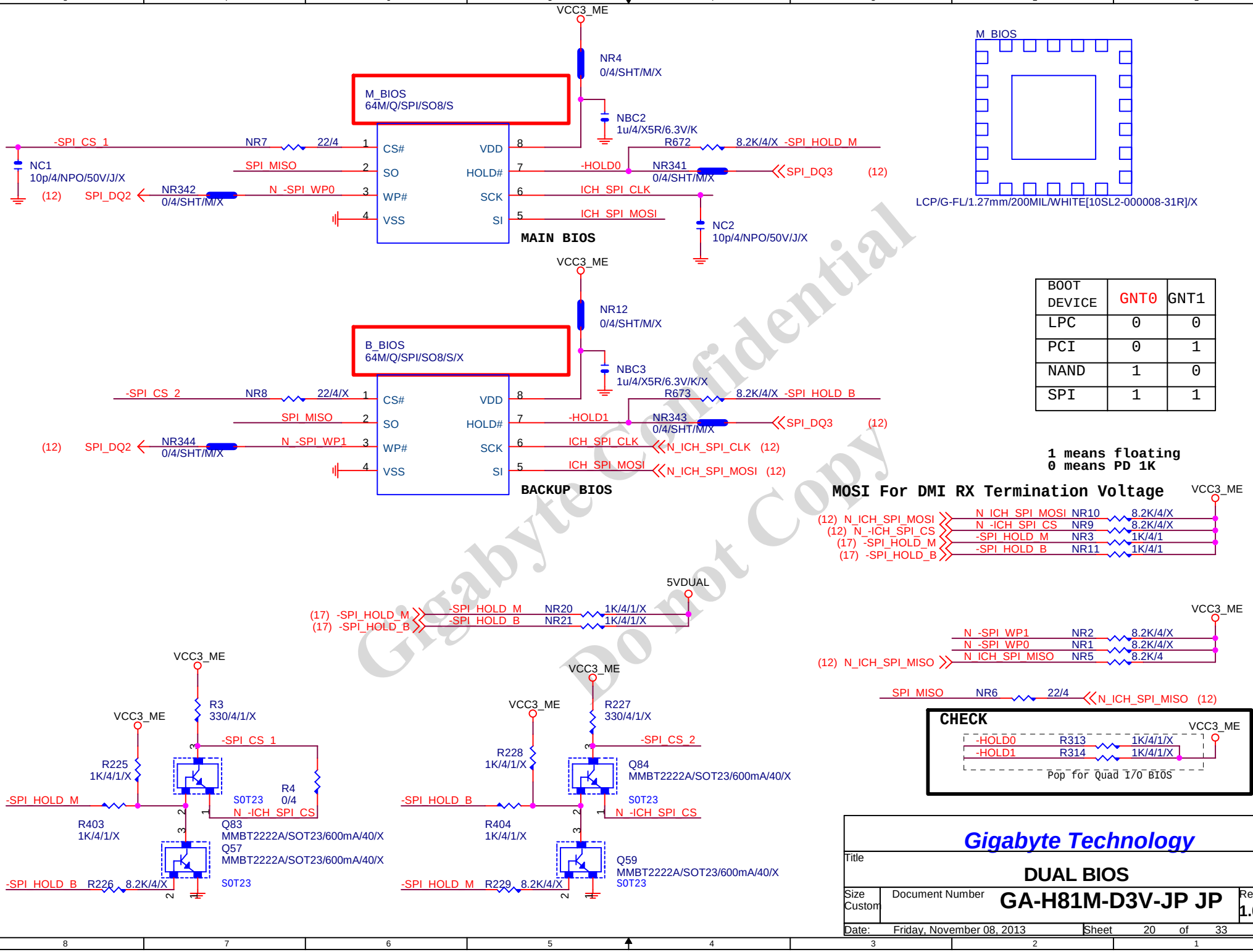
Enable Function (NCT3941S)
Full Turn On Function
(NCT3941S-A)





BLACK CONNECTOR

Gigabyte Technology			
Title	HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013	Sheet 19 of 33		



Gigabyte Technology

Title: DUAL BIOS

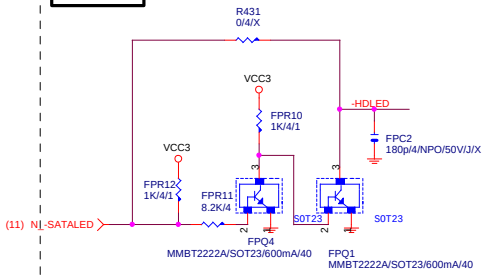
Size: Custom | Document Number: GA-H81M-D3V-JP JP | Rev: 1.01

Date: Friday, November 08, 2013 | Sheet 20 of 33

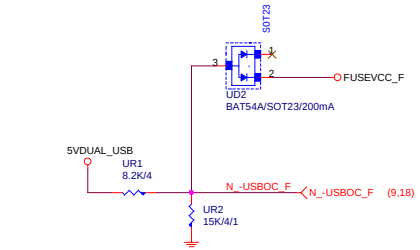
F_USB30

F_USB30 PWR

SATA LED

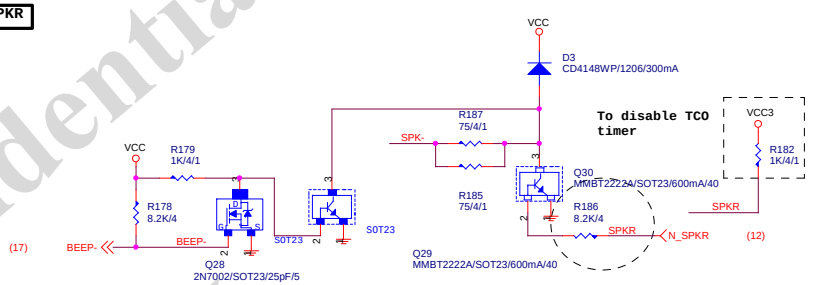


-USBOC_F

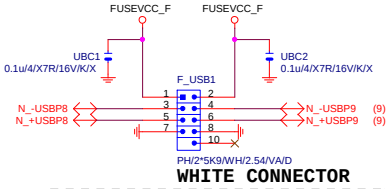


F_USB30 ESD PROTECT

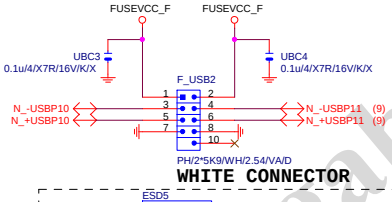
SPKR



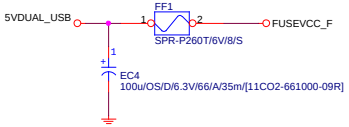
FRONT USB1



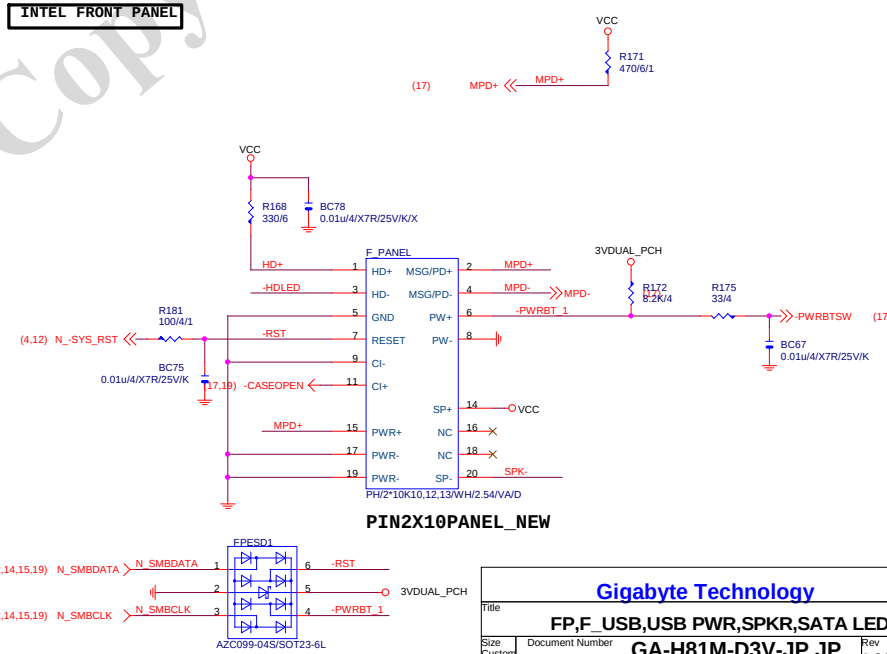
FRONT USB2



FUSE-0805
F_USB1, F_USB2 4-Port 2.6A



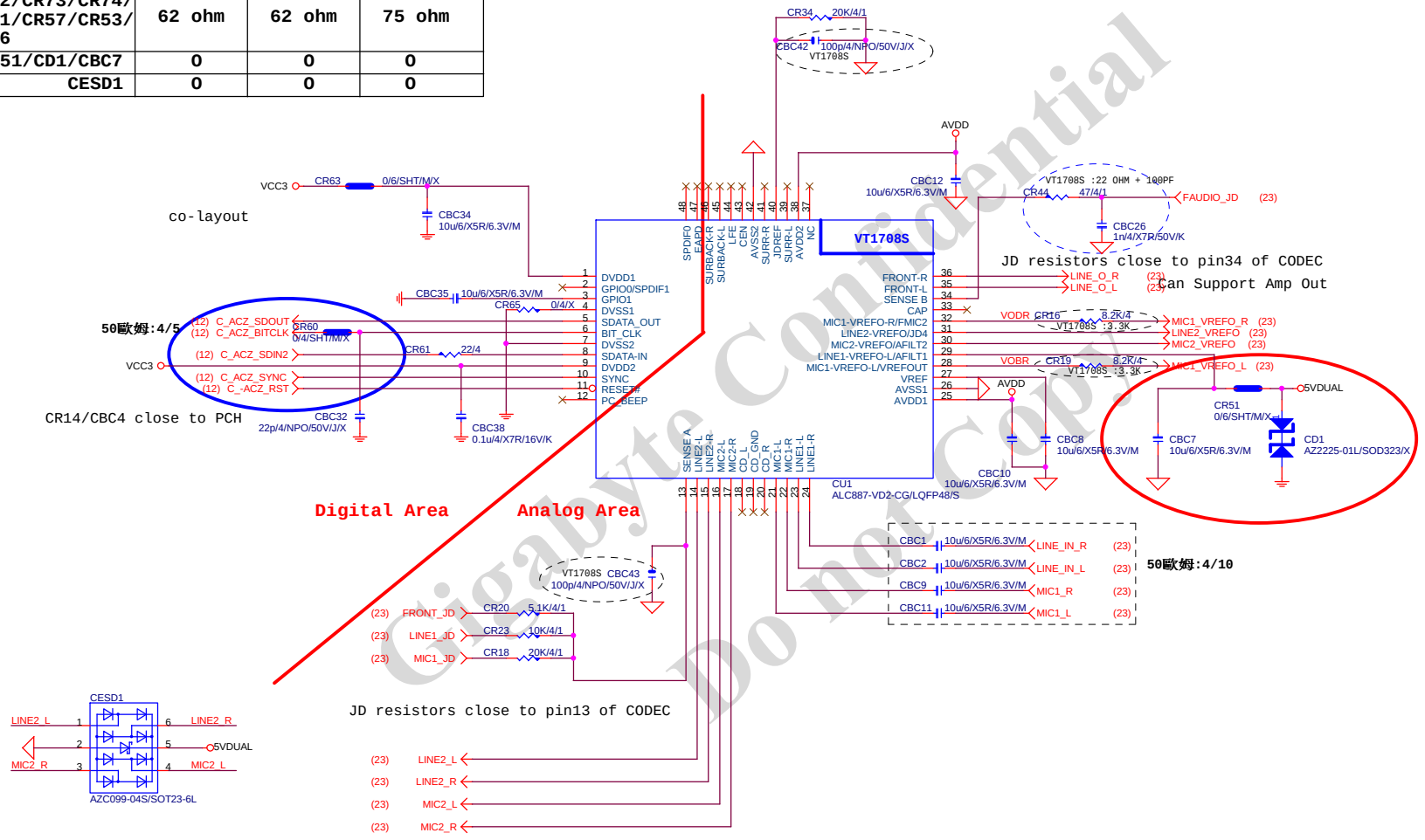
INTEL FRONT PANEL



Gigabyte Technology	
Title	FP,F_USB,USB PWR,SPKR,SATA LED
Size: Custom	Document Number: GA-H81M-D3V-JP JP
Rev	1.01
Date: Friday, November 08, 2013	Sheet 21 of 33

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	0	0	0
CESD1	0	0	0



Gigabyte Technology

Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021

Size: Custom | Document Number: GA-H81M-D3V-JP JP | Rev: 1.01

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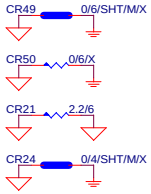
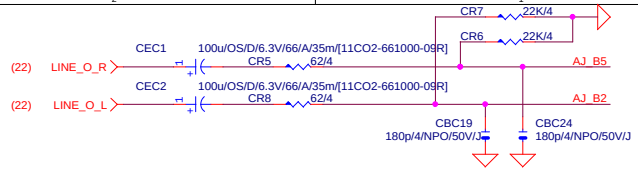
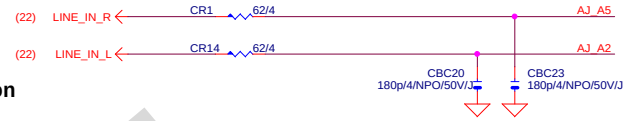


LINE-OUT



Only reserved for ALC888

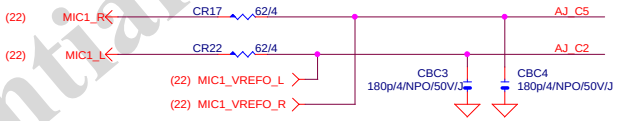
LINE-IN



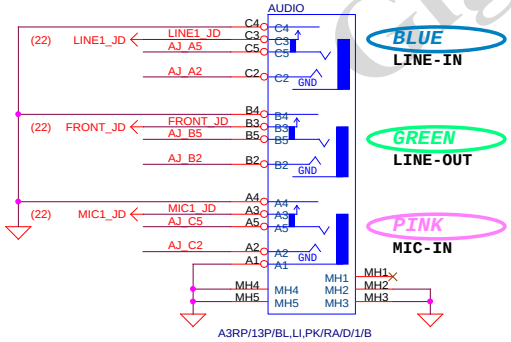
Verify MIC function in LINE-in

For 889A/888

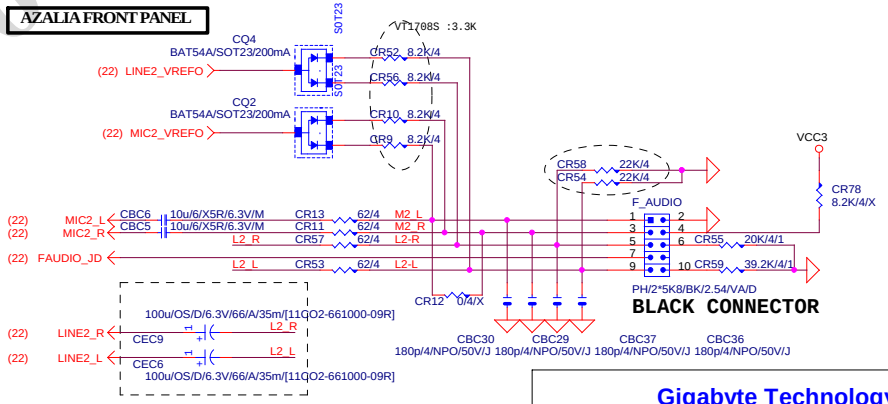
MIC-IN



SPDIF_OUT

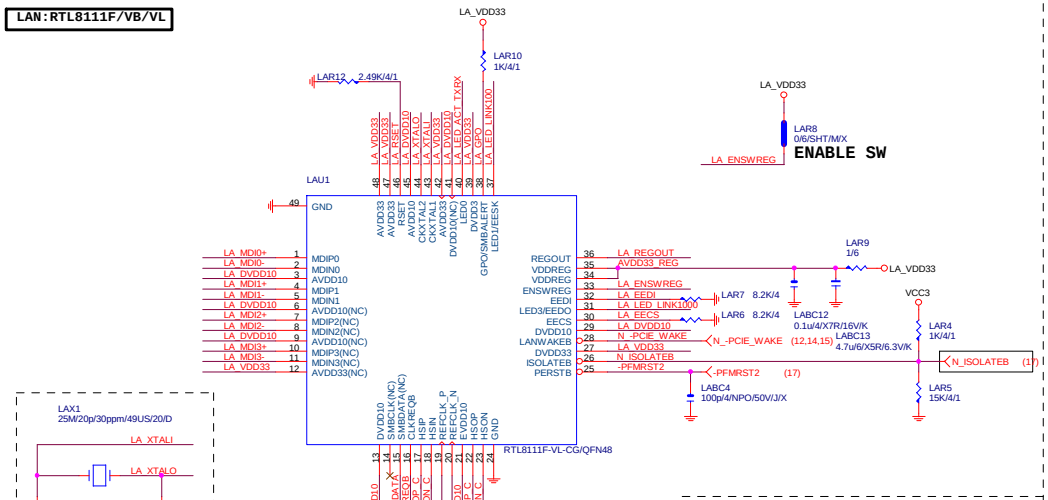


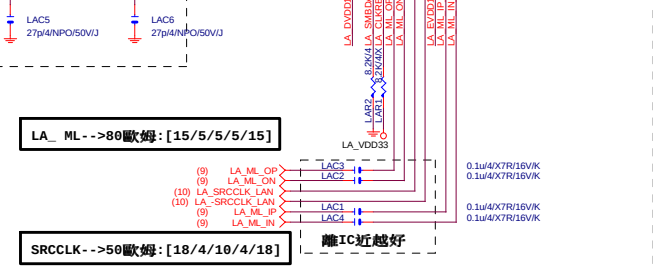
AZALIA FRONT PANEL



Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
Date: Friday, November 08, 2013	Sheet 23 of 33	

LAN:RTL8111F/VB/VL



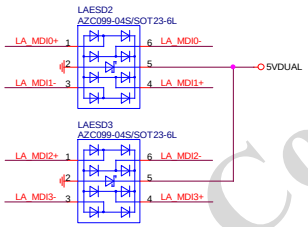


LA_ ML-->80歐姆:[15/5/5/5/15]

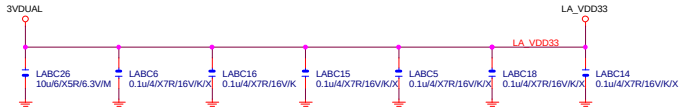
SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

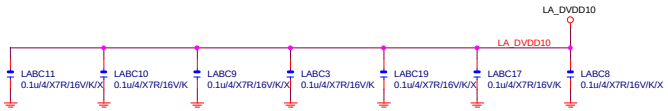
MDI ESD預留28KV *



LAN POWER

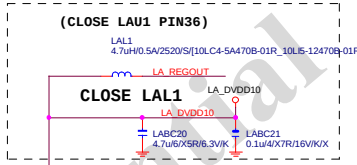


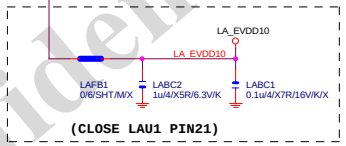
(CLOSE LAU1 PIN:12,27,39,42,47,48)



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

(CLOSE LAU1 PIN36)





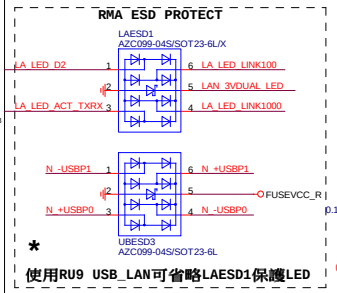
(CLOSE LAU1 PIN21)

Power domain chart

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

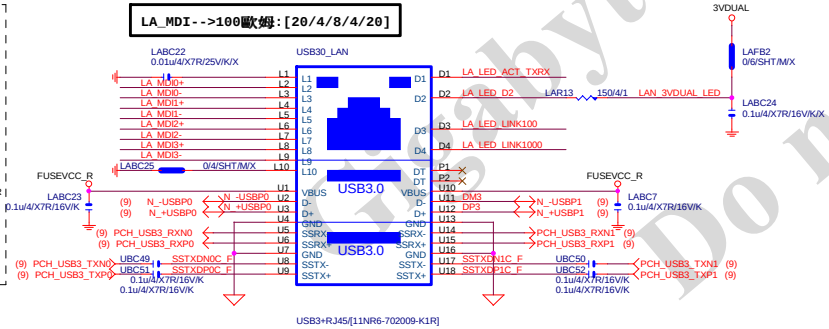
USB_LAN CONNECTOR

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]



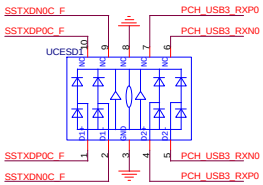
USB3+RJ45/[11NR6-702009-K1R]

注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

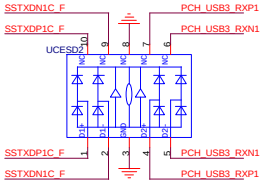
USB X3 POWER

EMI SHORT PAD

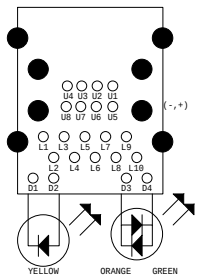
PS:視EMI需求

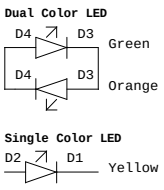


Close to connector



Close to connector





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-D3V-JP JP | Rev: 1.01

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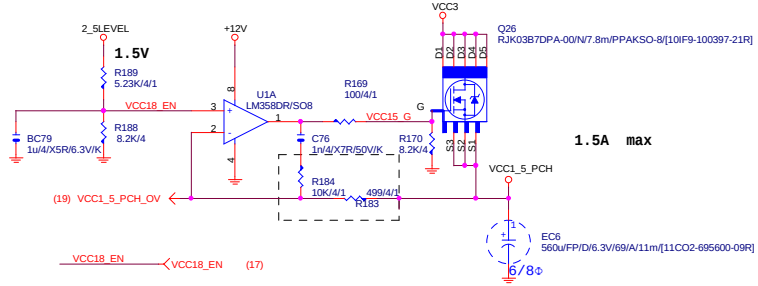
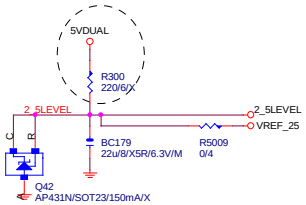
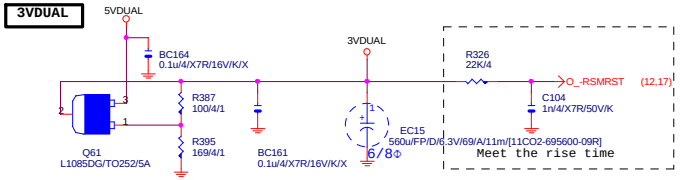
VCC1_8_PCH

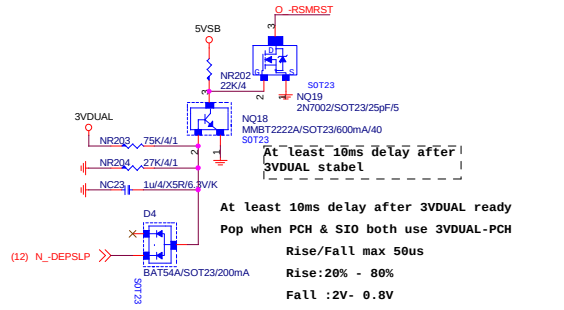


2_5LEVEL

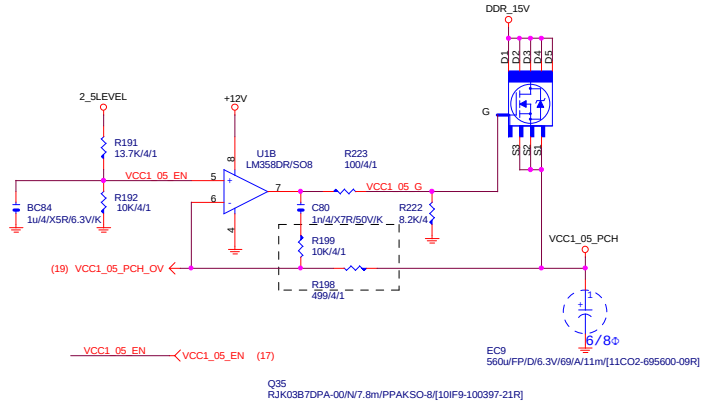


3VDUAL



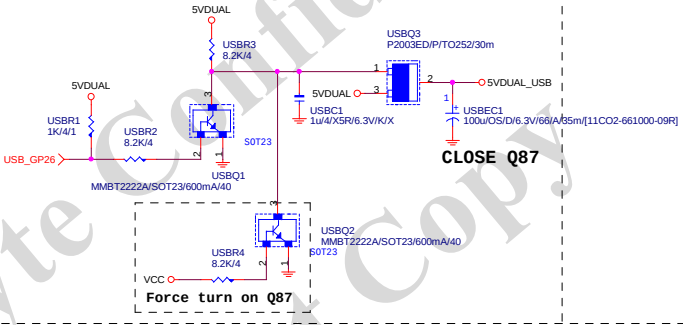


VCC1_05_PCH

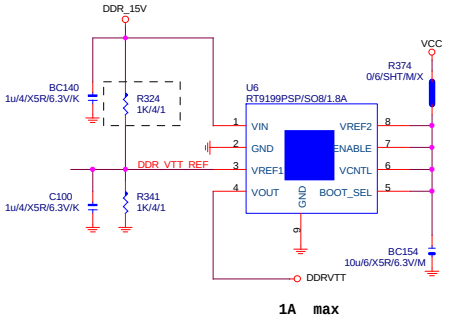


5VDUAL_USB Ctrl
KB_USB, R_USB30,
USB_LAN_F_USB30,
F_USB2 Power

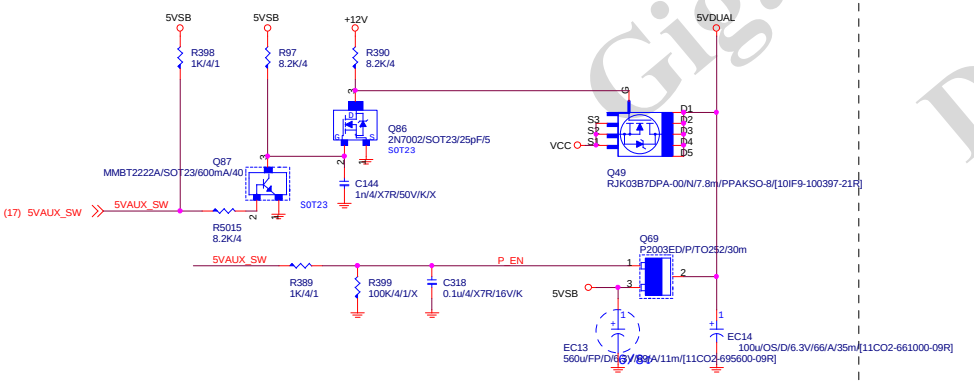
GPIO	5VDUAL_USB
High	Power ON
Low	Power OFF



DDRVTT

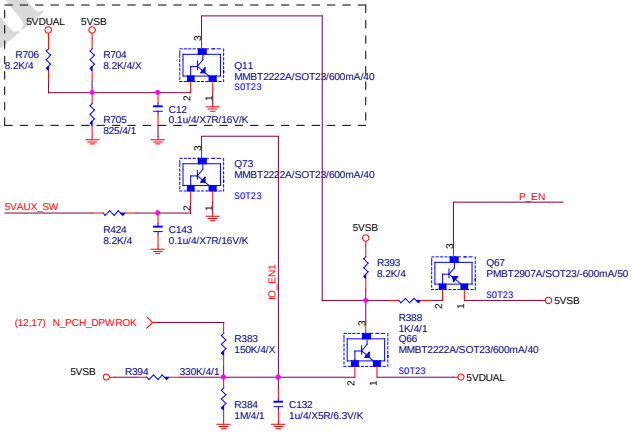


5VDUAL



5VDUAL SHORT PROTECT

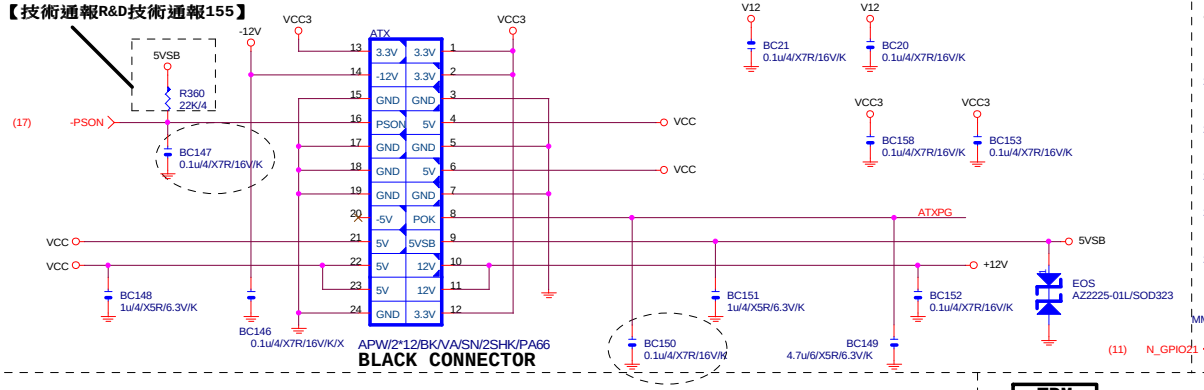
5VSB OVP:7.5V protection



Title	Gigabyte Technology		
	DISCRETE POWER		
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
Date: Friday, November 08, 2013	Sheet 25 of 33		

ATXX24 POWER CONNECTOR

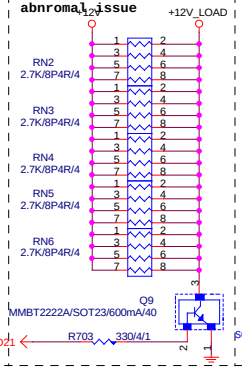
【技術通報R&D技術通報155】



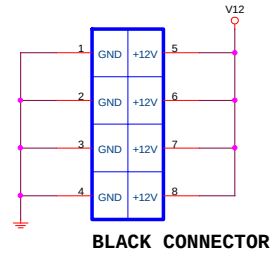
BLACK CONNECTOR

【技術通報R&D技術通報158】

To fix 12V light load abnroma l issue



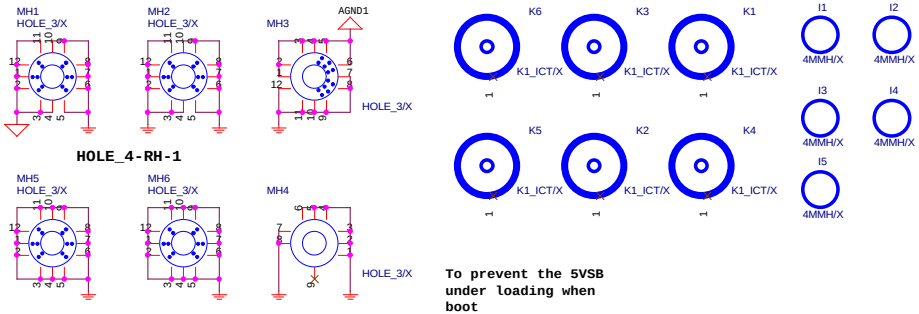
ATXX4 POWER CONNECTOR



BLACK CONNECTOR

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

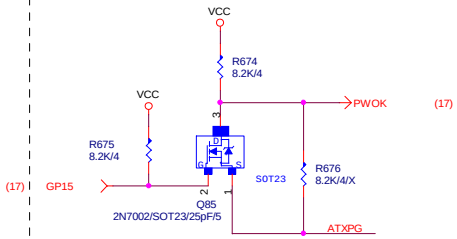
TPM

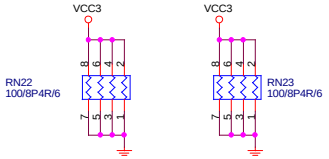


To prevent the 5VSB under loading when boot

PWOK PATCH

【技術通報R&D技術通報154】





FIX PWR MINMUN LOAD

Gigabyte Technology

Title: ATX CONNECTOR

Size	Document Number	Rev
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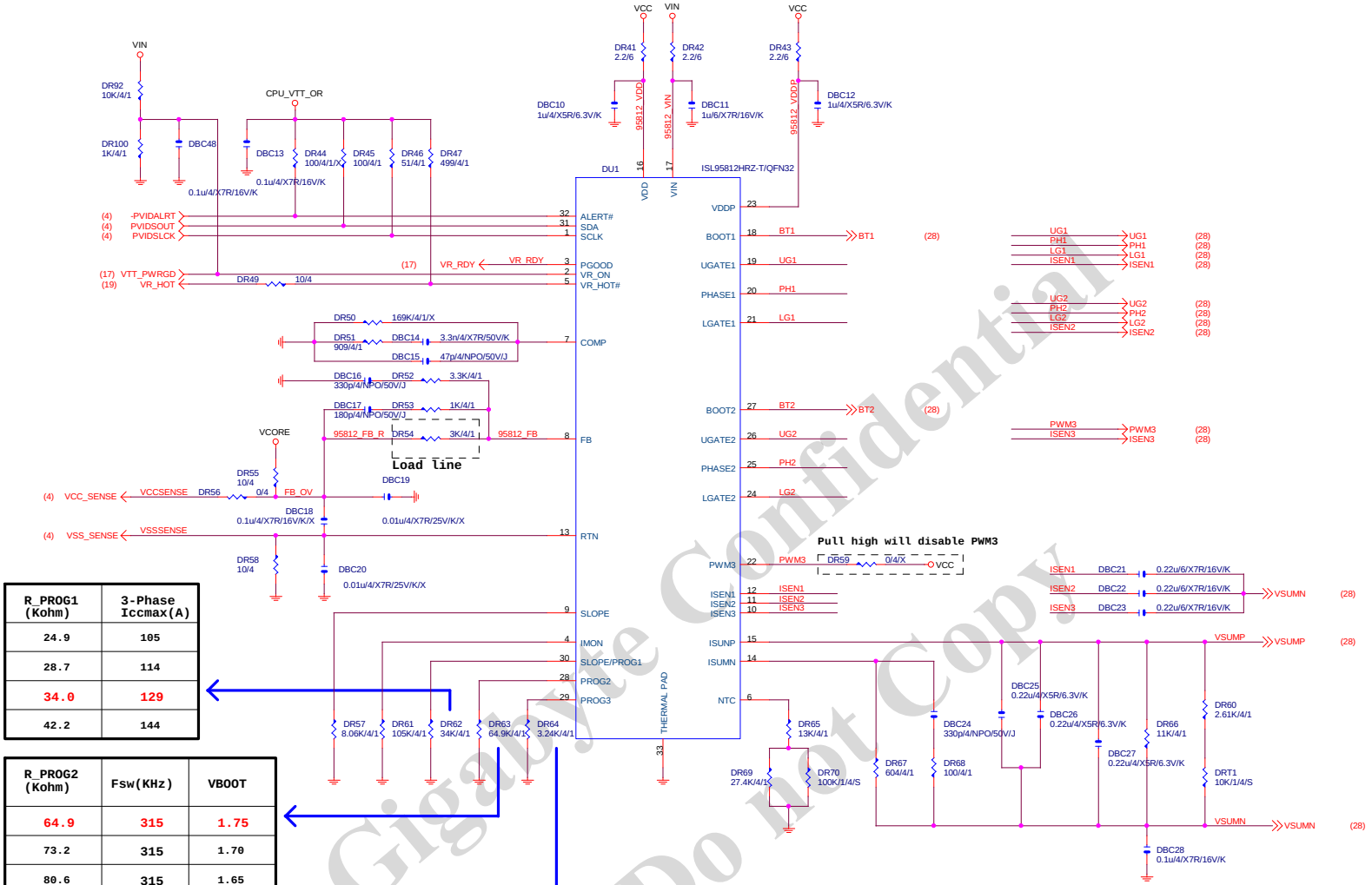

R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

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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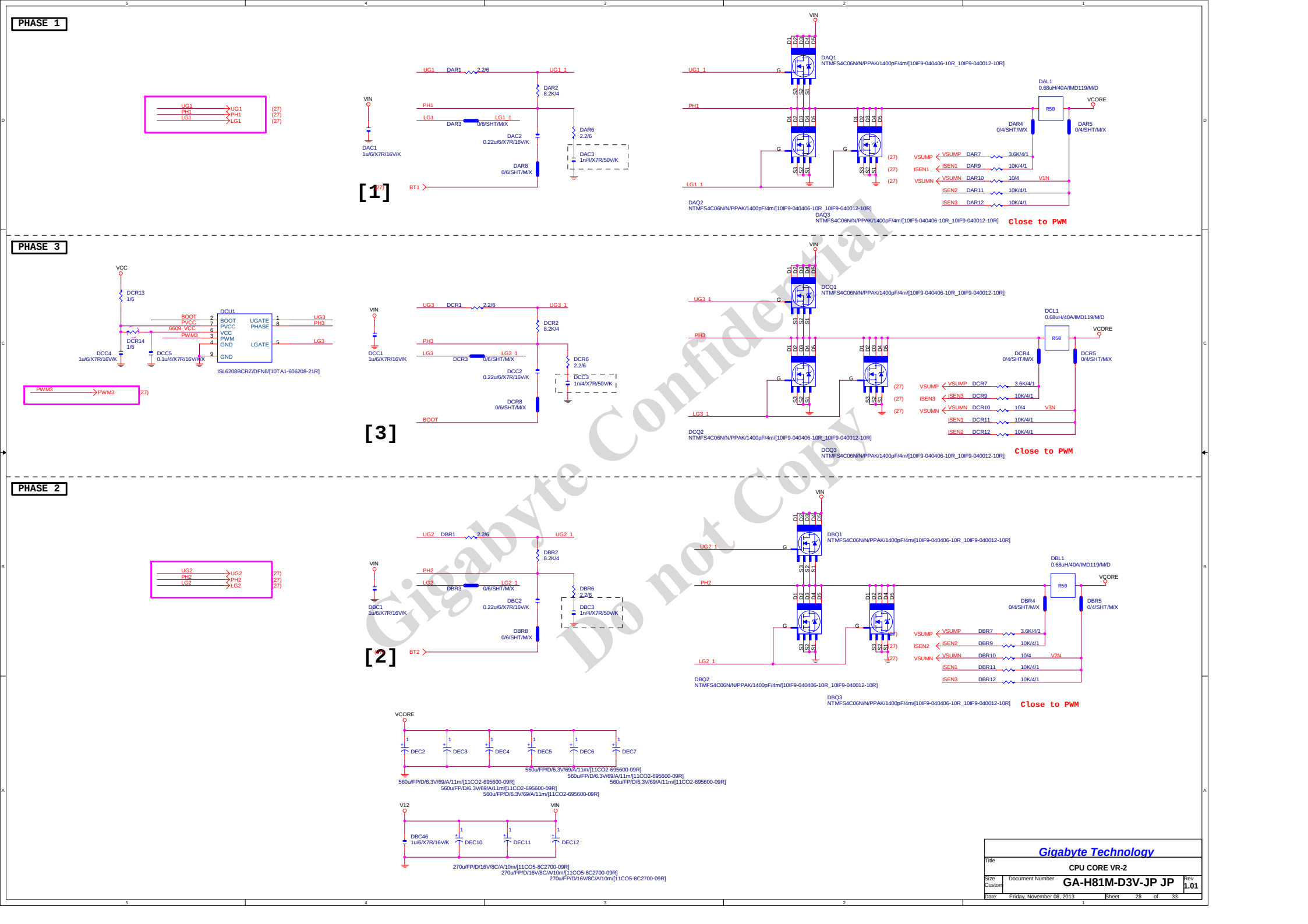

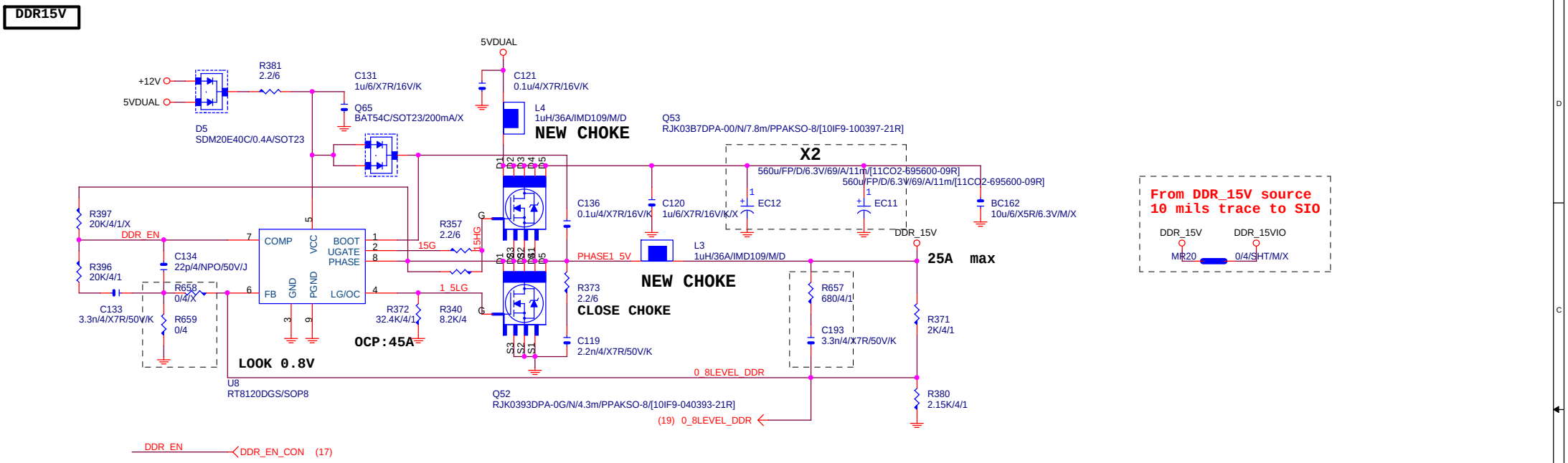

VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

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

【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

VCC3_ME

Gigabyte Technology

Title: LPT

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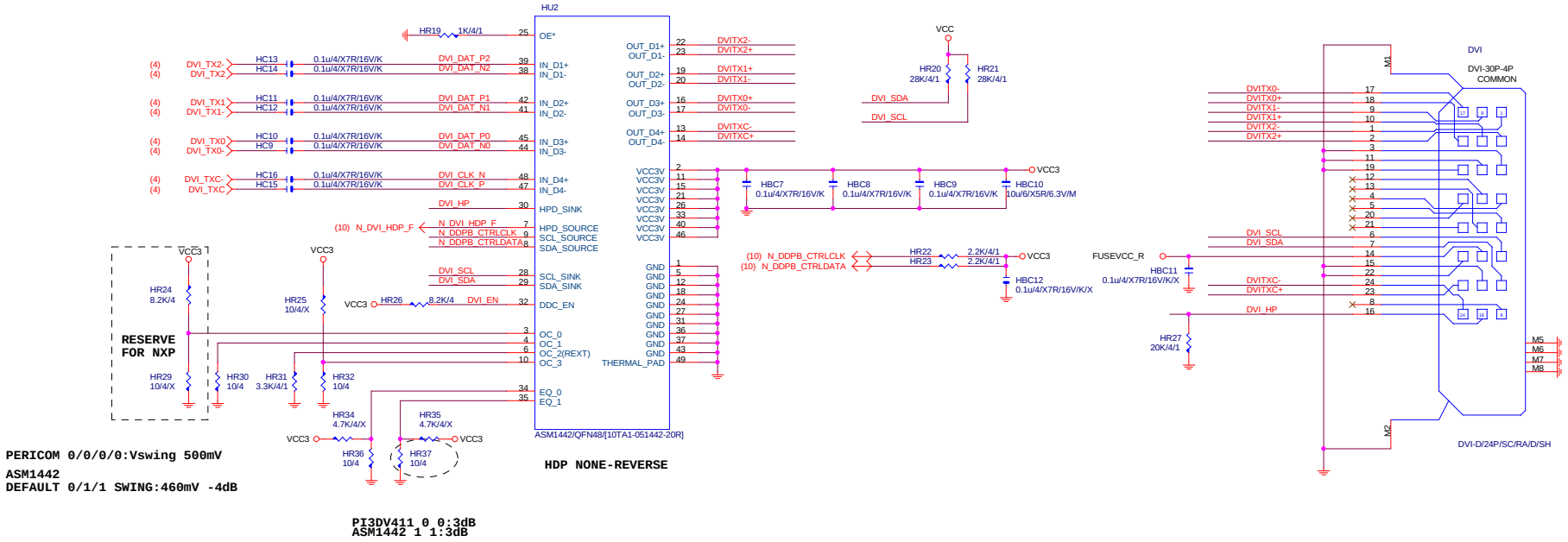
DVI LEVEL SHIFT



PERICOM 0/0/0/0:Vswing 500mV

ASM1442
DEFAULT 0/1/1 SWING:460mV -4dB

HDP NONE-REVERSE

PI3DV411 0 0:3dB
ASM1442 1 1:3dB

HDMI LEVEL SHIFT

Gigabyte Technology			
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Gigabyte Technology			
Title: ITE IT8892E			
Size: Custom	Document Number: GA-H81M-D3V-JP JP		Rev: 1.01
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Gigabyte Technology		
Title: USB3 EJ188		
Size: C	Document Number: GA-H81M-D3V-JP JP	Rev: 1.01
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