Model Name: GA-H81M-DS2

Revision 3.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
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 *2 SLOT
16	ITE 8620 LPC IO
17	COM,KB_MS_USB,USB30_20
18	HWM,FAN CTRL,OV,-PROCHOT
19	DUAL BIOS
20	FP,FUSB,SPK,SATALED
21	Realtek ALC887-VD2
22	REAR AUDIO JACK
23	REALTEK RTL8111G
24	DISCRETE POWER
25	ATX , CLOCK GEN
26	VCORE ISL95812_1
27	VCORE ISL95812_2

SHEET	TITLE
28	RT8120_DDR POWER
29	LPT

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

Date: Tuesday, August 19, 2014 | Sheet 1 of 29

Model Name: GA-H81M-DS2

Revision 3.0

Component value change history

2013/06/27

Data	Change Item	Reason
2014/08/18	1、Release BOM	9MH81MDS2-00-30B

Circuit or PCB layout change

DATE	Change Item	Reason
2013/04/22	Change from B85M-HD3 Rev 1.0 1、Change KB_MS_USB to KB_MS 2、Change SIO IT8728 to IT8620 3、Del F_USB 3.0 4、Del HDMI/DVI 5、Del SATA3 2&3 6、Change VRIN PWM to ISL95812 7、Change COM/LPT to Rear 8、Del PCI slot	9MB85MHD3-00-10A
2013/06/25	1、Add FEC1、R394 2、Change location LGA1150_P to LGA1150 (DFM issue)	9MH81MDS2-00-10A
2013/09/11	1、Change Polyswitch 1206 footprint. 2、Change Power-PAK MOSFET footprint. 3、Change PXIEX16 footprint. 4、Change R60、MR17 to 0603 footprint. 5、Del MR18.	9MH81MDS2-00-20A
2014/02/25	1、Change MAF1 Polyswitch 0805 footprint. 2、Change Vcore Mosfet to 1High/1Low 3、MASK VCORE&DDR_15V CAP	9MH81MDS2-00-21A
2014/06/17	1、Change SATA MLCC to short pad	9MH81MDS2-00-21F
2014/07/14	1、Change Lan 8111F to 8111G 2、Add Audio Cutting line 3、Change CEC1、CEC2、CEC6、CEC9 to Audio cap 4、DEL FEC1	9MH81MDS2-00-30B

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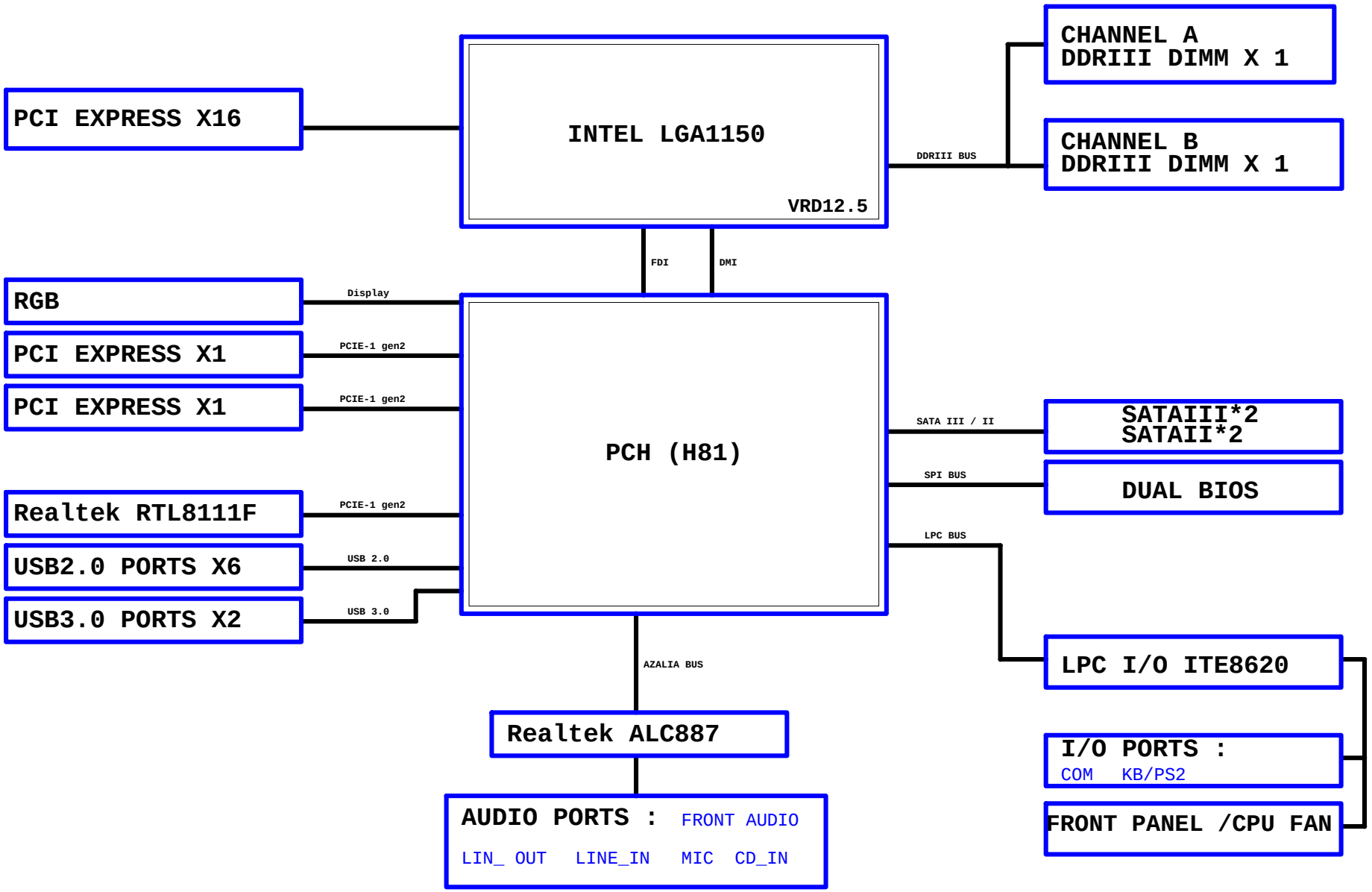
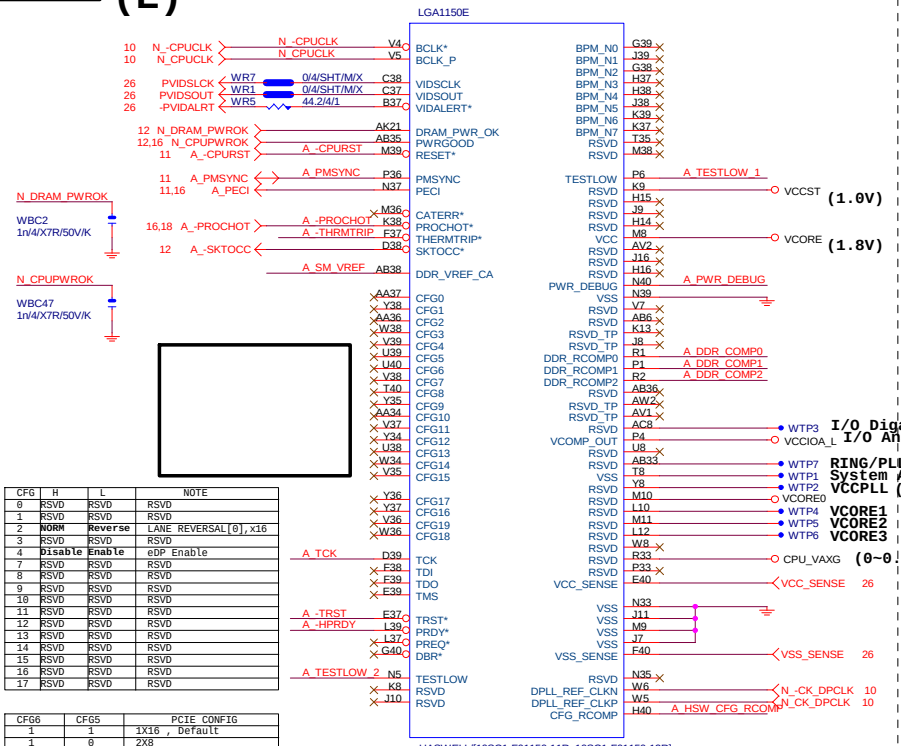
Title	BOM & PCB MODIFY HISTORY		
Size Custom	Document Number GA-H81M-DS2		Rev 3.0
Date: Tuesday, August 19, 2014	Sheet 2 of 29		

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 3 of 29	

LGA1150 (E)

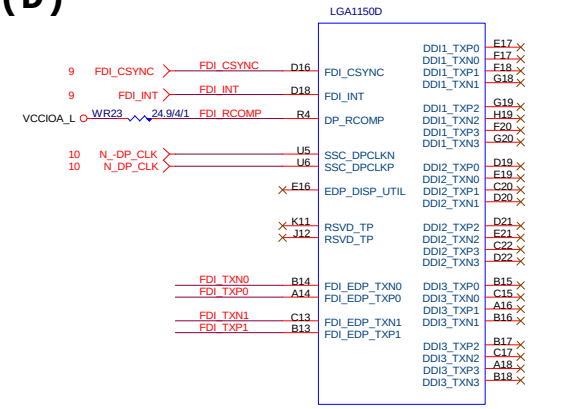


CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

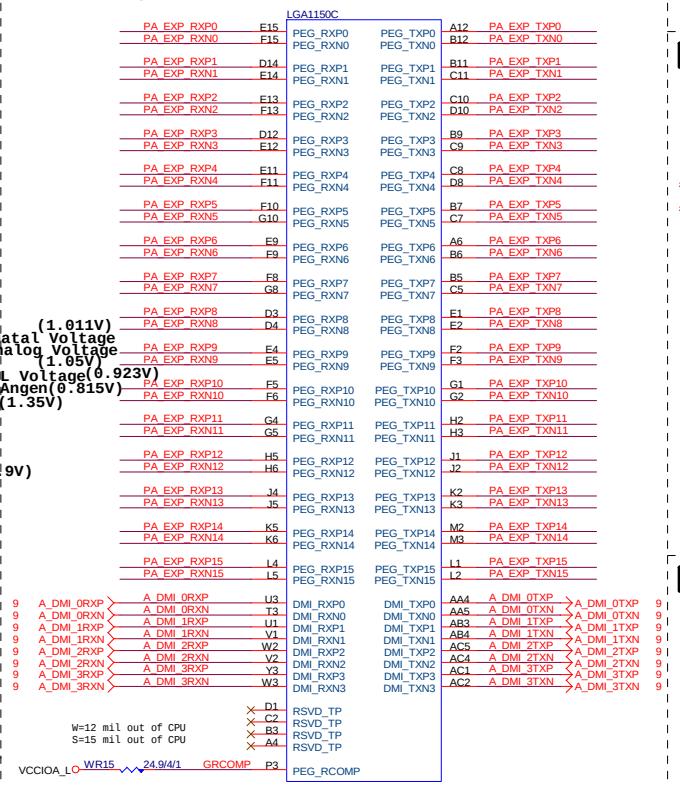
LGA1150 (D)



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%

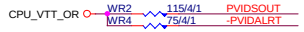


DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

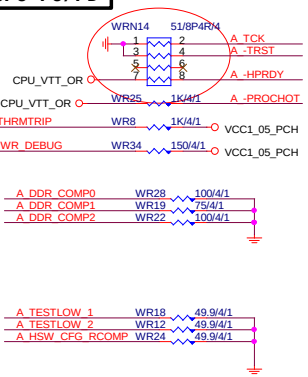
-CPURST

1.1V分壓

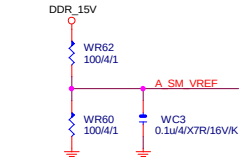
CPU SVID



CPU PU/PD



SM REF



Title	CPU LGA1150-A
Size	Custom
Document Number	GA-H81M-DS2
Rev	3.0
Date:	Tuesday, August 19, 2014
Sheet	4 of 29

Gigabyte Technology

LGA1150 (A)

LGA1150A

MAAA0 AU13 DDR0_MA0
MAAA1 AV16 DDR0_MA1
MAAA2 AU16 DDR0_MA2
MAAA3 AW17 DDR0_MA3
MAAA4 AU17 DDR0_MA4
MAAA5 AW18 DDR0_MA5
MAAA6 AV17 DDR0_MA6
MAAA7 AT18 DDR0_MA7
MAAA8 AU18 DDR0_MA8
MAAA9 AT19 DDR0_MA9
MAAA10 AW11 DDR0_MA10
MAAA11 AV19 DDR0_MA11
MAAA12 AU19 DDR0_MA12
MAAA13 AY10 DDR0_MA13
MAAA14 AT20 DDR0_MA14
MAAA15 AU21 DDR0_MA15

MODT_A0 AW10 DDR0_ODT0
MODT_A1 AY8 DDR0_ODT1
AW9 DDR0_ODT2
AU8 DDR0_ODT3

AW33 DDR0_ECC0
AV33 DDR0_ECC1
AU31 DDR0_ECC2
AV31 DDR0_ECC3
AT33 DDR0_ECC4
AU33 DDR0_ECC5
AT31 DDR0_ECC6
AW31 DDR0_ECC7

7 SBAA0 SBAA0 AV12 DDR0_BA0
7 SBAA1 SBAA1 AY11 DDR0_BA1
7 SBAA2 SBAA2 AT21 DDR0_BA2

7 CKEA0 CKEA0 AV22 DDR0_CKE0
7 CKEA1 CKEA1 AT23 DDR0_CKE1
AU22 DDR0_CKE2
AU23 DDR0_CKE3

7 -CSA0 -CSA0 AU14 DDR0_CS_N0
7 -CSA1 -CSA1 AV9 DDR0_CS_N1
AU10 DDR0_CS_N2
AW8 DDR0_CS_N3

7 DCLKA0 DCLKA0 AY15 DDR0_CLK_P0
7 -DCLKA0 -DCLKA0 AY16 DDR0_CLK_N0
7 DCLKA1 DCLKA1 AW15 DDR0_CLK_P1
7 -DCLKA1 -DCLKA1 AV15 DDR0_CLK_N1
AY14 DDR0_CLK_P2
AW14 DDR0_CLK_N2
AW13 DDR0_CLK_P3
AY13 DDR0_CLK_N3

AW12 RSVD

7 -SRASA -SRASA AU12 DDR0_RAS*
7 -SWEA -SWEA AU11 DDR0_WE*
AV20 RSVD
AW27 RSVD
7 -SCASA -SCASA AU9 DDR0_CAS*
7,8 -DDR3_RST WR61 0/4/SHT/M/X AK22 DDR_RESET*
WC4 0.1u/4/X7R/16V/K/X

DDR0_DQ0 AD38 MDA0
DDR0_DQ1 AD39 MDA1
DDR0_DQ2 AF38 MDA2
DDR0_DQ3 AF39 MDA3
DDR0_DQ4 AD37 MDA4
DDR0_DQ5 AD40 MDA5
DDR0_DQ6 AE37 MDA6
DDR0_DQ7 AF40 MDA7
DDR0_DQ8 AH40 MDA8
DDR0_DQ9 AH39 MDA13
DDR0_DQ10 AK38 MDA10
DDR0_DQ11 AK39 MDA11
DDR0_DQ12 AH37 MDA12
DDR0_DQ13 AH38 MDA8
DDR0_DQ14 AK37 MDA14
DDR0_DQ15 AK40 MDA15
DDR0_DQ16 AM40 MDA17
DDR0_DQ17 AM39 MDA21
DDR0_DQ18 AP38 MDA18
DDR0_DQ19 AP39 MDA19
DDR0_DQ20 AM37 MDA20
DDR0_DQ21 AM38 MDA16
DDR0_DQ22 AP37 MDA22
DDR0_DQ23 AP40 MDA23
DDR0_DQ24 AV37 MDA25
DDR0_DQ25 AW37 MDA29
DDR0_DQ26 AU35 MDA26
DDR0_DQ27 AV35 MDA27
DDR0_DQ28 AT37 MDA28
DDR0_DQ29 AU37 MDA24
DDR0_DQ30 AT35 MDA30
DDR0_DQ31 AW35 MDA31
DDR0_DQ32 AY6 MDA33
DDR0_DQ33 AU6 MDA37
DDR0_DQ34 AV4 MDA34
DDR0_DQ35 AU4 MDA35
DDR0_DQ36 AW6 MDA36
DDR0_DQ37 AV6 MDA32
DDR0_DQ38 AW4 MDA38
DDR0_DQ39 AY4 MDA39
DDR0_DQ40 AR1 MDA41
DDR0_DQ41 AR4 MDA45
DDR0_DQ42 AN3 MDA42
DDR0_DQ43 AN4 MDA43
DDR0_DQ44 AR2 MDA44
DDR0_DQ45 AR3 MDA40
DDR0_DQ46 AN2 MDA46
DDR0_DQ47 AN1 MDA47
DDR0_DQ48 AL1 MDA49
DDR0_DQ49 AL4 MDA53
DDR0_DQ50 AJ3 MDA50
DDR0_DQ51 AJ4 MDA51
DDR0_DQ52 AL2 MDA52
DDR0_DQ53 AL3 MDA48
DDR0_DQ54 AJ2 MDA54
DDR0_DQ55 AJ1 MDA55
DDR0_DQ56 AG1 MDA57
DDR0_DQ57 AG4 MDA61
DDR0_DQ58 AE3 MDA58
DDR0_DQ59 AE4 MDA59
DDR0_DQ60 AG2 MDA60
DDR0_DQ61 AG3 MDA56
DDR0_DQ62 AE2 MDA62
DDR0_DQ63 AE1 MDA63
DDR0_DQS_P0 AE39 DQSA0
DDR0_DQS_P1 AJ39 DQSA1
DDR0_DQS_P2 AN39 DQSA2
DDR0_DQS_P3 AV36 DQSA3
DDR0_DQS_P4 AV5 DQSA4
DDR0_DQS_P5 AP3 DQSA5
DDR0_DQS_P6 AK3 DQSA6
DDR0_DQS_P7 AE3 DQSA7
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

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

LGA1150 (B)

LGA1150B

MAAB0 AL19 DDR1_MA0
MAAB1 AK23 DDR1_MA1
MAAB2 AM22 DDR1_MA2
MAAB3 AM23 DDR1_MA3
MAAB4 AP23 DDR1_MA4
MAAB5 AL23 DDR1_MA5
MAAB6 AY24 DDR1_MA6
MAAB7 AV25 DDR1_MA7
MAAB8 AU26 DDR1_MA8
MAAB9 AW25 DDR1_MA9
MAAB10 AP18 DDR1_MA10
MAAB11 AY25 DDR1_MA11
MAAB12 AV26 DDR1_MA12
MAAB13 AR15 DDR1_MA13
MAAB14 AV27 DDR1_MA14
MAAB15 AY28 DDR1_MA15

MODT_B0 AM17 DDR1_ODT0
MODT_B1 AL16 DDR1_ODT1
AM16 DDR1_ODT2
AK15 DDR1_ODT3

AM26 DDR1_ECC0
AM25 DDR1_ECC1
AP25 DDR1_ECC2
AP26 DDR1_ECC3
AL26 DDR1_ECC4
AL25 DDR1_ECC5
AR26 DDR1_ECC6
AR25 DDR1_ECC7

8 SBAB0 SBAB0 AK17 DDR1_BA0
8 SBAB1 SBAB1 AL18 DDR1_BA1
8 SBAB2 SBAB2 AW28 DDR1_BA2

8 CKEB0 CKEB0 AW29 DDR1_CKE0
8 CKEB1 CKEB1 AY29 DDR1_CKE1
AU28 DDR1_CKE2
AU29 DDR1_CKE3

8 -CSB0 -CSB0 AP17 DDR1_CS_N0
8 -CSB1 -CSB1 AN15 DDR1_CS_N1
AN17 DDR1_CS_N2
AL15 DDR1_CS_N3

8 DCLKB0 DCLKB0 AM20 DDR1_CLK_P0
8 -DCLKB0 -DCLKB0 AM21 DDR1_CLK_N0
8 DCLKB1 DCLKB1 AP22 DDR1_CLK_P1
8 -DCLKB1 -DCLKB1 AP21 DDR1_CLK_N1
AN20 DDR1_CLK_P2
AN21 DDR1_CLK_N2
AP19 DDR1_CLK_P3
AP20 DDR1_CLK_N3

8 -SCASB -SCASB AP16 DDR1_CAS*
AL20 RSVD
8 -SRASB -SRASB AM18 DDR1_RAS*
8 -SWEB -SWEB AK16 DDR1_WE*

7 VREF_DQA VREF_DQA AB39 DDR_VREF_DQ0
8 VREF_DQB VREF_DQB AB40 DDR_VREF_DQ1

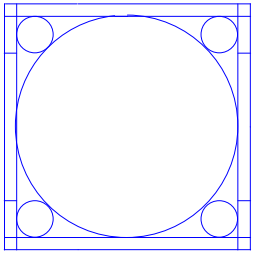
VREF_DQA
VREF_DQB
WBC34 0.1u/4/X7R/16V/K/X
WBC33 0.1u/4/X7R/16V/K/X
Place in CPU bottom side

DDR1_DQ0 AE34 MDB0
DDR1_DQ1 AE35 MDB1
DDR1_DQ2 AG35 MDB2
DDR1_DQ3 AH35 MDB3
DDR1_DQ4 AD34 MDB4
DDR1_DQ5 AD35 MDB5
DDR1_DQ6 AG34 MDB6
DDR1_DQ7 AH34 MDB7
DDR1_DQ8 AL35 MDB8
DDR1_DQ9 AK31 MDB9
DDR1_DQ10 AL31 MDB10
DDR1_DQ11 AK34 MDB11
DDR1_DQ12 AK35 MDB12
DDR1_DQ13 AK32 MDB13
DDR1_DQ14 AL32 MDB14
DDR1_DQ15 AN34 MDB15
DDR1_DQ16 AP34 MDB17
DDR1_DQ17 AN31 MDB21
DDR1_DQ18 AP31 MDB19
DDR1_DQ19 AN35 MDB23
DDR1_DQ20 AP35 MDB20
DDR1_DQ21 AN32 MDB16
DDR1_DQ22 AP32 MDB18
DDR1_DQ23 AP29 MDB22
DDR1_DQ24 AM28 MDB25
DDR1_DQ25 AR29 MDB28
DDR1_DQ26 AR28 MDB27
DDR1_DQ27 AL29 MDB30
DDR1_DQ28 AL28 MDB24
DDR1_DQ29 AP29 MDB29
DDR1_DQ30 AP28 MDB26
DDR1_DQ31 AR12 MDB31
DDR1_DQ32 AP12 MDB32
DDR1_DQ33 AL13 MDB33
DDR1_DQ34 AL12 MDB34
DDR1_DQ35 AR13 MDB35
DDR1_DQ36 AP13 MDB36
DDR1_DQ37 AM13 MDB37
DDR1_DQ38 AM12 MDB38
DDR1_DQ39 AR9 MDB39
DDR1_DQ40 AP9 MDB45
DDR1_DQ41 AR6 MDB41
DDR1_DQ42 AP6 MDB47
DDR1_DQ43 AR10 MDB43
DDR1_DQ44 AP10 MDB44
DDR1_DQ45 AR7 MDB40
DDR1_DQ46 AP7 MDB46
DDR1_DQ47 AM9 MDB42
DDR1_DQ48 AL9 MDB52
DDR1_DQ49 AL6 MDB53
DDR1_DQ50 AL7 MDB50
DDR1_DQ51 AM10 MDB55
DDR1_DQ52 AL10 MDB48
DDR1_DQ53 AM6 MDB49
DDR1_DQ54 AM7 MDB54
DDR1_DQ55 AH6 MDB51
DDR1_DQ56 AH7 MDB61
DDR1_DQ57 AE6 MDB60
DDR1_DQ58 AE7 MDB59
DDR1_DQ59 AJ6 MDB63
DDR1_DQ60 AJ7 MDB56
DDR1_DQ61 AF6 MDB57
DDR1_DQ62 AF7 MDB58
DDR1_DQ63 AE35 MDB62
DDR1_DQS_P0 AL33 DQSB0
DDR1_DQS_P1 AP33 DQSB1
DDR1_DQS_P2 AN28 DQSB2
DDR1_DQS_P3 AN12 DQSB3
DDR1_DQS_P4 AP8 DQSB4
DDR1_DQS_P5 AL8 DQSB5
DDR1_DQS_P6 AG7 DQSB6
DDR1_DQS_P7 AN25 DQSB7
DDR1_DQS_P8 AF34 -DQSB0
DDR1_DQS_N0 AK33 -DQSB1
DDR1_DQS_N1 AN33 -DQSB2
DDR1_DQS_N2 AN29 -DQSB3
DDR1_DQS_N3 AN13 -DQSB4
DDR1_DQS_N4 AR8 -DQSB5
DDR1_DQS_N5 AM8 -DQSB6
DDR1_DQS_N6 AG6 -DQSB7
DDR1_DQS_N7 AN26
DDR1_DQS_N8

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]

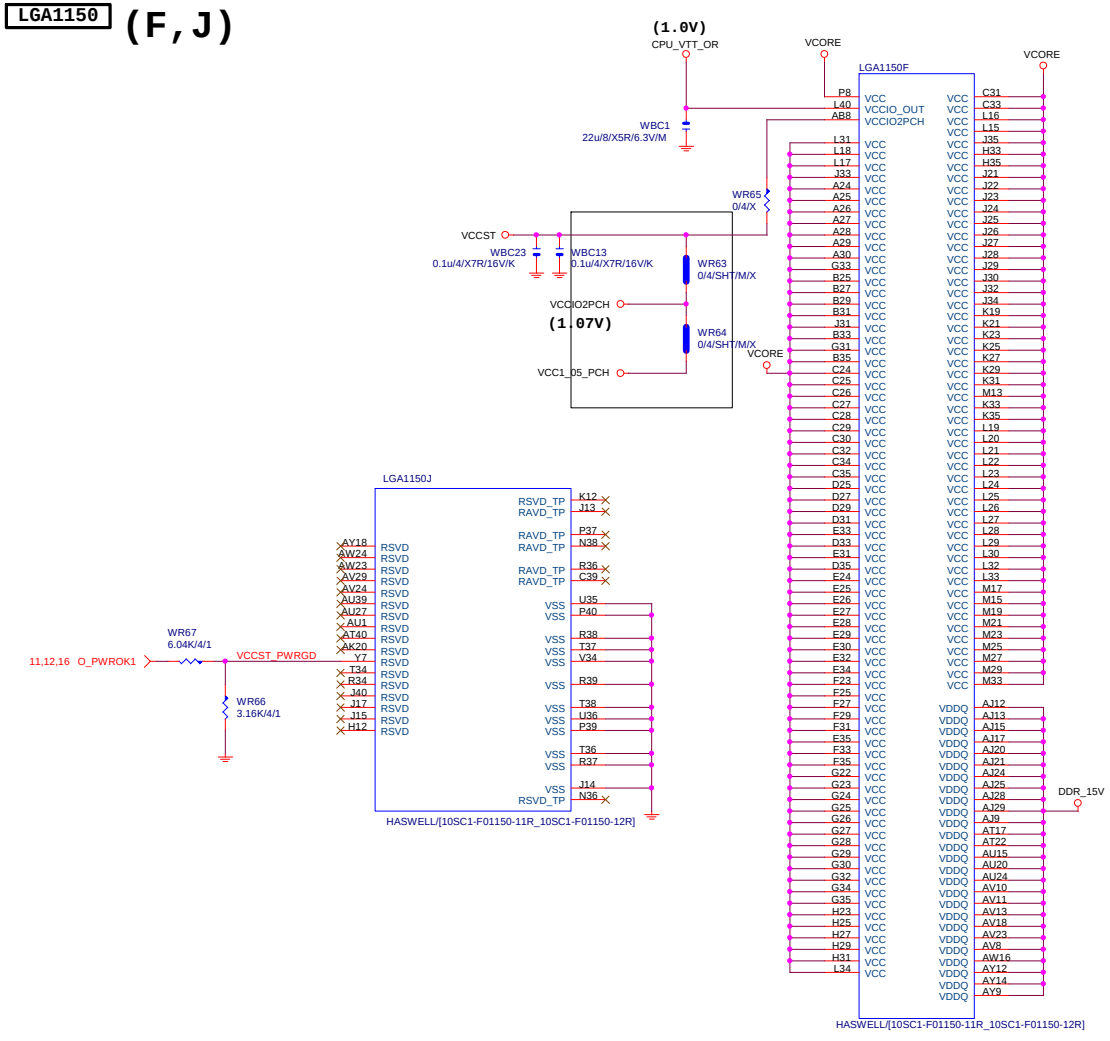
7 MAAA[0..15] MAAA[0..15]
8 MAAB[0..15] MAAB[0..15]

8 DQSB[0..7] DQSB[0..7]
8 -DQSB[0..7] -DQSB[0..7]

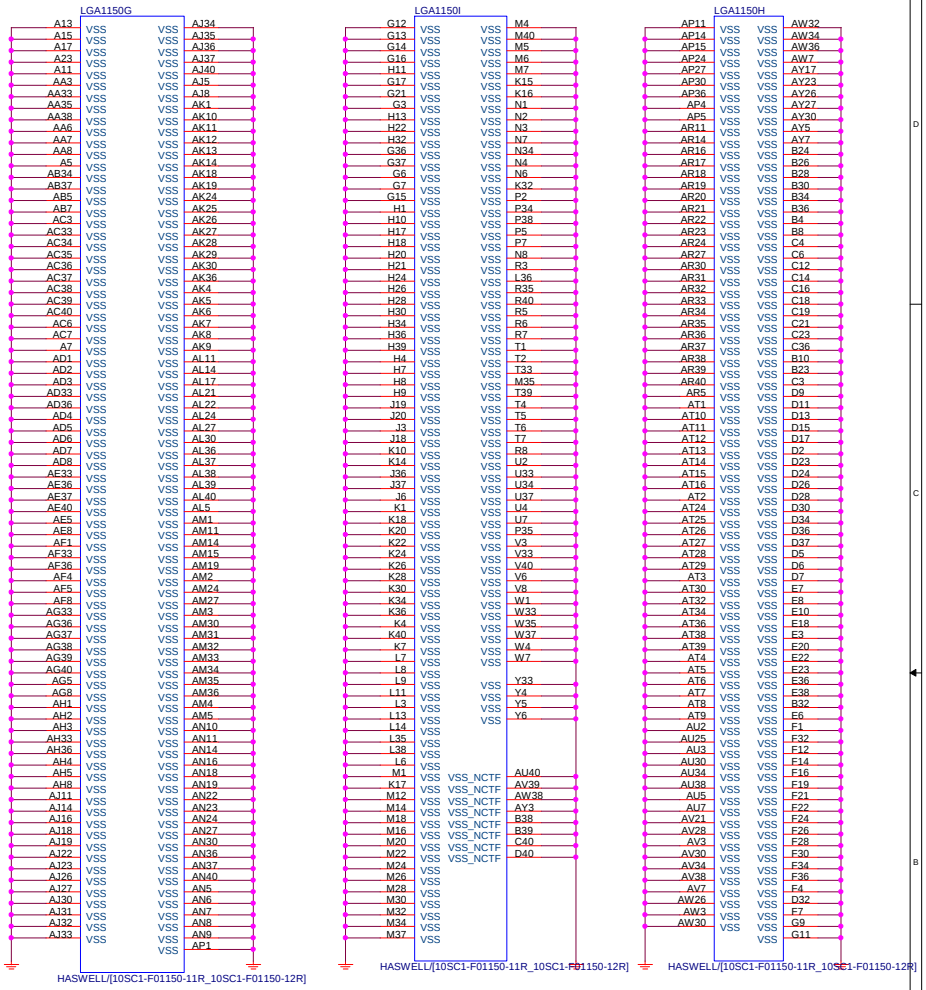
Gigabyte Technology

Title	CPU LGA1150-B		
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 5 of 29		

LGA1150 (F,J)

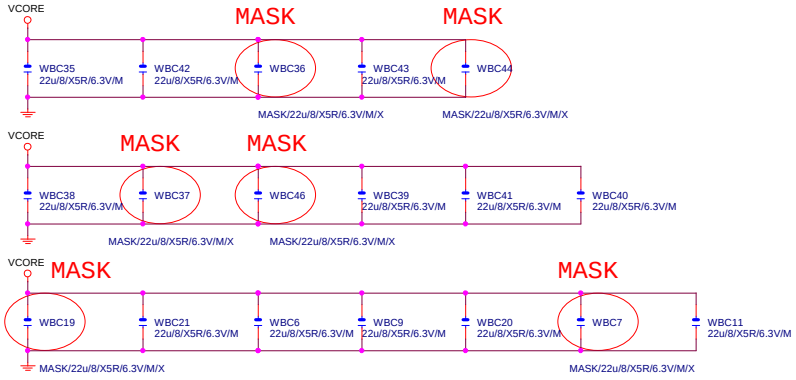


LGA1155 (G,H,I)



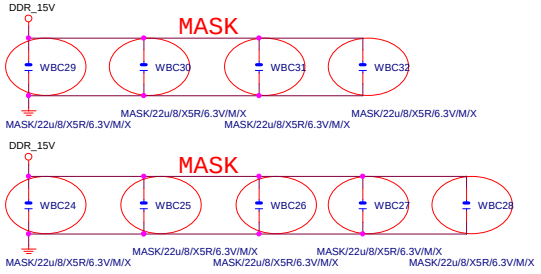
VCore CAP

(X18)

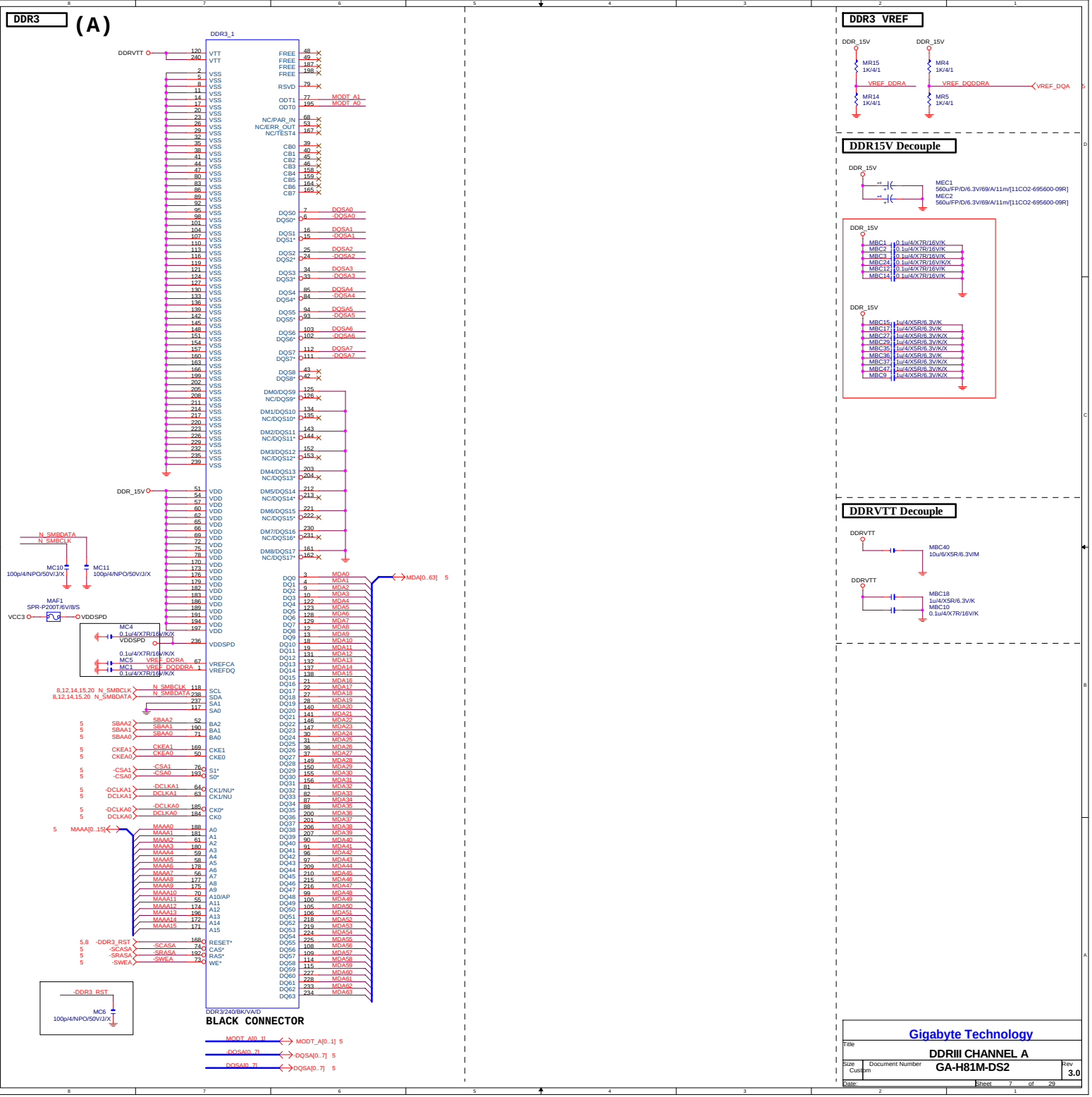


DDR CAP

(X9)



Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 6 of 29	



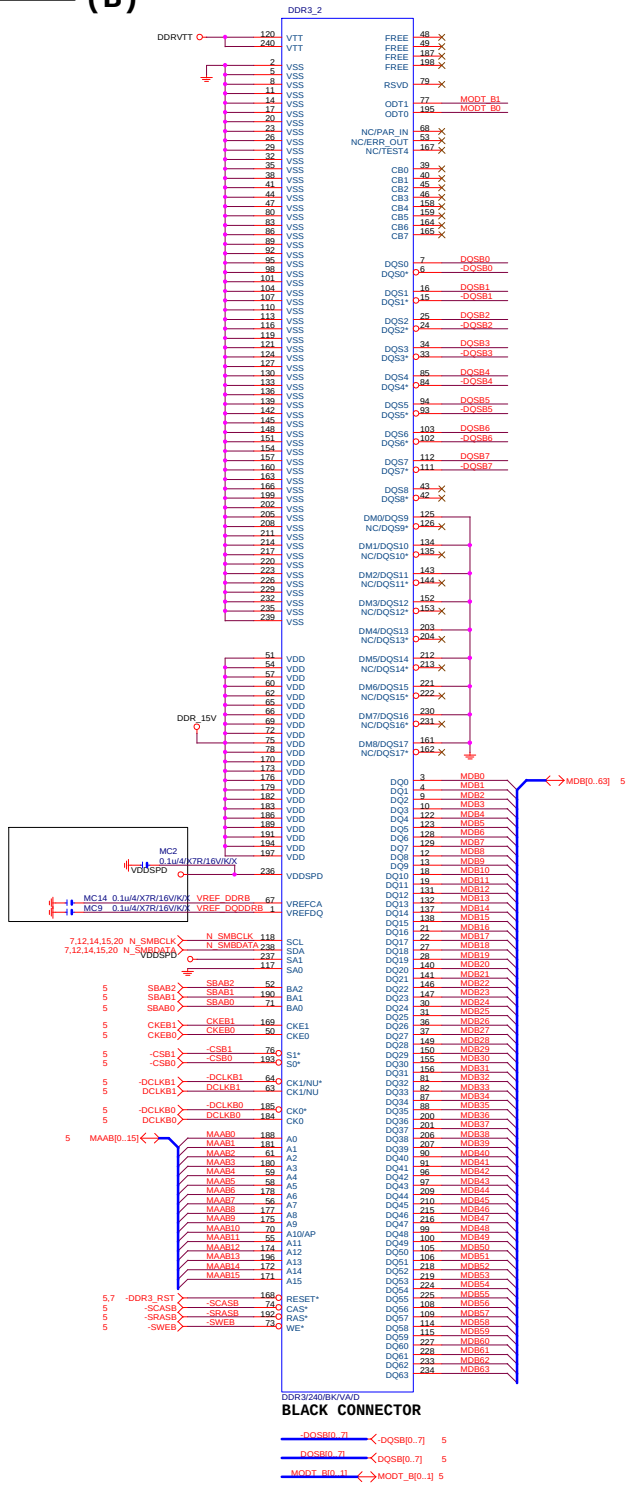
Gigabyte Technology

Title: DDRIII CHANNEL A

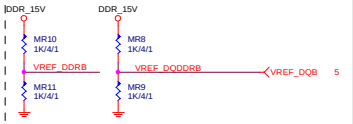
Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

Date: | Sheet 7 of 29

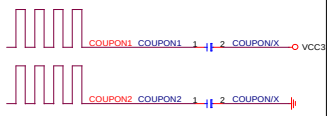
DDR3 (B)



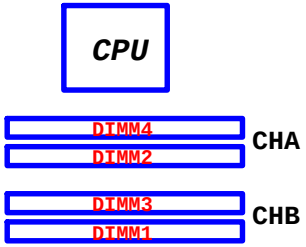
DDR3 VREF



COUPON



CPU



Gigabyte Technology	
Title	DDRIII CHANNEL B
Size: Custom	Document Number: GA-H81M-DS2
Rev	3.0
Date:	Sheet 8 of 29

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_RCOMP PCIE_RCOMP CLKIN_DMI_N CLKIN_DMI_P

A_DMI_0TXN A_DMI_0TXP A_DMI_0RXN A_DMI_0RXP A_DMI_1TXN A_DMI_1TXP A_DMI_1RXN A_DMI_1RXP A_DMI_2TXN A_DMI_2TXP A_DMI_2RXN A_DMI_2RXP A_DMI_3TXN A_DMI_3TXP A_DMI_3RXN A_DMI_3RXP

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

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

10 CK_-SRCCLK_PCH — CK_-SRCCLK_PCH
10 CK_SRCCLK_PCH — CK_SRCCLK_PCH

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

AV10 AU10 AV11 AW11 AN14 AP14 AJ16 AK16 — N_-USBP0 N_+USBP0 N_-USBP1 N_+USBP1 N_-USBP2 N_+USBP2 N_-USBP3 N_+USBP3 — N_-USBP0 17 N_+USBP0 17 N_-USBP1 17 N_+USBP1 17 N_-USBP2 23 N_+USBP2 23 N_-USBP3 23 N_+USBP3 23

AU15 AV15 AU12 AT12 AV14 AW14 AU17 AT17 — H81: Port 6/7/12/13 N/A

AW16 AV16 AN16 AP16 AJ18 AK18 AP18 AN18 — N_-USBP8 N_+USBP8 N_-USBP9 N_+USBP9 N_-USBP10 N_+USBP10 N_-USBP11 N_+USBP11 — N_-USBP8 20 N_+USBP8 20 N_-USBP9 20 N_+USBP9 20 N_-USBP10 20 N_+USBP10 20 N_-USBP11 20 N_+USBP11 20

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

L14 K14 B12 B11 F14 G14 D11 C11

8111G

23 LA_ML_IN — F11
23 LA_ML_IP — H11
23 LA_ML_ON — B9
23 LA_ML_OP — A9

PCIE_PERN_3 PCIE_PERP_3 PCIE_PETN_3 PCIE_PETP_3 PCIE_PERN_4 PCIE_PERP_4 PCIE_PETN_4 PCIE_PETP_4 PCIE_PERN_5 PCIE_PERP_5 PCIE_PETN_5 PCIE_PETP_5 PCIE_PERN_6 PCIE_PERP_6 PCIE_PETN_6 PCIE_PETP_6 PCIE_PERN_7 PCIE_PERP_7 PCIE_PETN_7 PCIE_PETP_7 PCIE_PERN_8 PCIE_PERP_8 PCIE_PETN_8 PCIE_PETP_8

J11 L11 B8 C8 G9 F9 B7 A7 E7 H7 E1 D2 K6 K8 G3 G5 J2 J3 H2 H1

PCIEx1

15 PI_PCIEX1_IN
15 PI_PCIEX1_IP
15 PI_PCIEX1_ON
15 PI_PCIEX1_OP
15 PJ_PCIEX1_IN
15 PJ_PCIEX1_IP
15 PJ_PCIEX1_ON
15 PJ_PCIEX1_OP

N/A

OC0B_GP59 OC1B_GP40 OC2B_GP41 OC3B_GP42 OC4B_GP43 OC5B_GP9 OC6B_GP10 OC7B_GP14 — AE40 AF37 AD39 AD40 AF39 AC41 AF40 AG40 — N_-USBOC_R 17 — N_GPIO14 — N_-USBOC_F 20 — N_GPIO14

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

USBRBIASB USBRBIAS — AV20 AU20 — N_USBRBIAS — NR47 22.6/4/1

CLKIN_DOT96N CLKIN_DOT96P — AP11 AM11 — CK_-DOTCLK 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

BD82B81S/S/[10HB1-030H81-10R]

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

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

17 PCH_USB3_RXN1 — G18 USB3_RXN_1
17 PCH_USB3_RXP1 — H18 USB3_RXP_1
17 PCH_USB3_TXN1 — B15 USB3_TXN_1
17 PCH_USB3_TXP1 — B16 USB3_TXP_1

FDI_CSYNC — L2 FDI_CSYNC — FDI_CSYNC 4
FDI_INT — L3 FDI_INT — FDI_INT 4

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

FDI_RCOMP — K2 NR29 7.5K/4/1 — VCC1_5_PCH

N/A

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

TACH6_GP70
TACH7_GP71

BD82B81S/S/[10HB1-030H81-10R]

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

Mount for integrated clock Generation Mode

10 N_PCHCLK14 — N_PCHCLK14 — NRN16 8.2K/8P4R/4
CK_DOTCLK
CK_-DOTCLK

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 — U11 U10 AJ14 AK14 K34 K33 AH24
TP10 TP11 TP9 — L16 K16 AM34
TP3 TP4 TP1 TP2 — R12 N12 L22 K22
TP5 TP6 TP7 TP8 — R4 K5 P5 L5
VSS — AC31
VSS — AF3
VSS — AV21

BD82B81S/S/[10HB1-030H81-10R]

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSIN

1 2

GRAY HS

PCH_HS
PCH_HS/[12SP2-030005-51R_12SP2-030005-52R_12SP2-030005-53R]

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

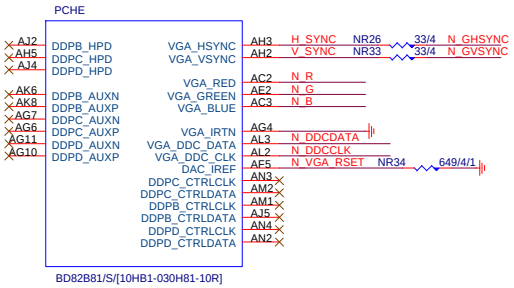
Gigabyte Technology

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

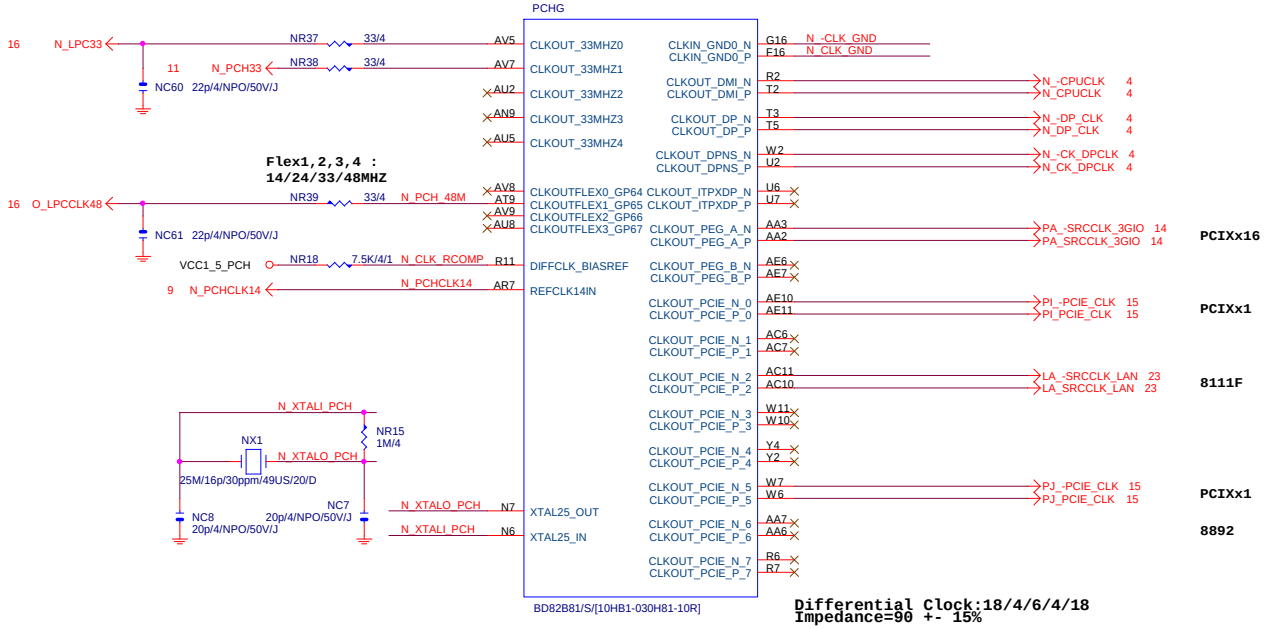
Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

Date: Tuesday, August 19, 2014 | Sheet 9 of 29

PCH (E)

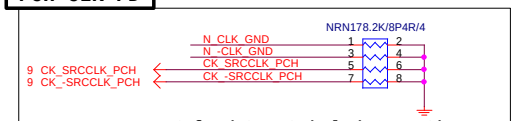


PCH (G)



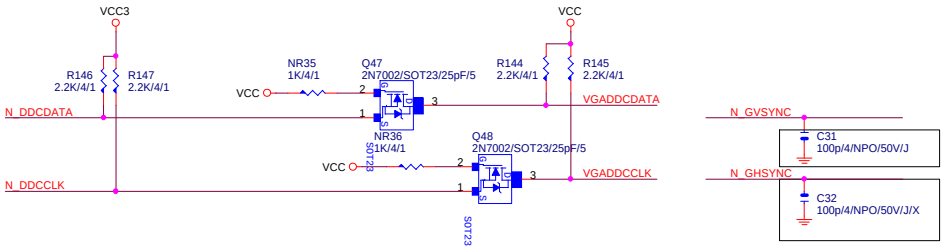
Differential Clock:18/4/6/4/18
Impedance=90 +- 15%

PCH CLK PD

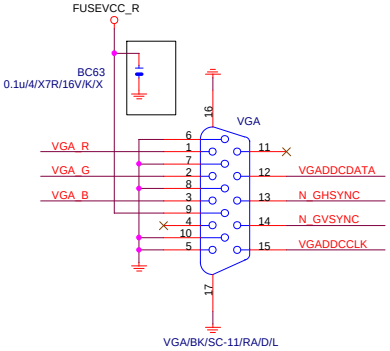


Mount for integrated clock Generation Mode

VGA DDC

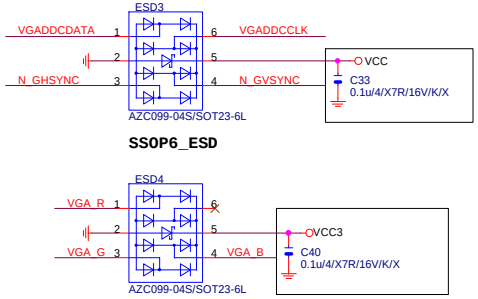


VGA CONNECTOR



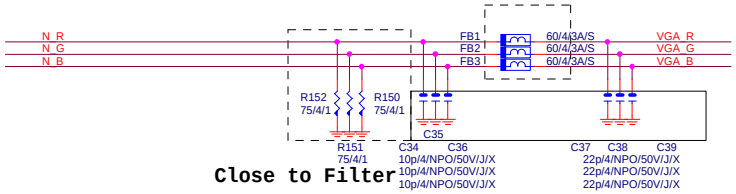
BLACK CONNECTOR

VGA ESD



SSOP6_ESD

VGA DDC

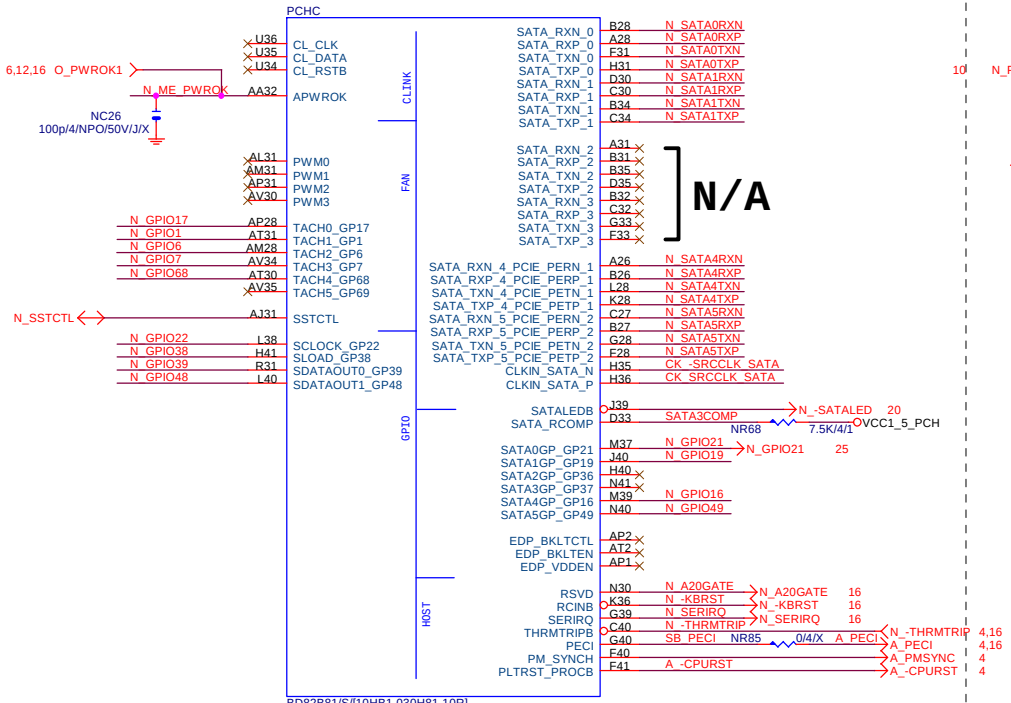


Close to Filter

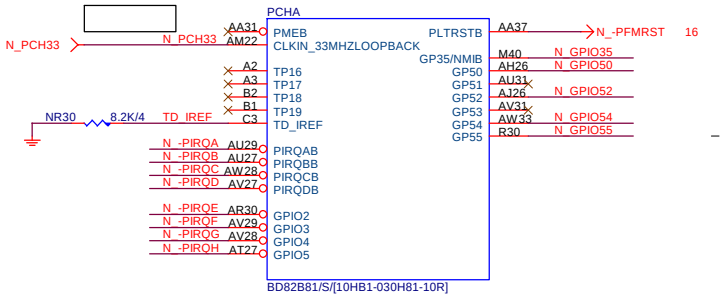
Gigabyte Technology			
Title: PCH DISPLAY ,CLK BUFFER			
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 10 of 29		

PCH (C)

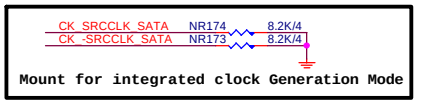
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



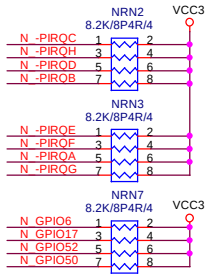
PCH (A)

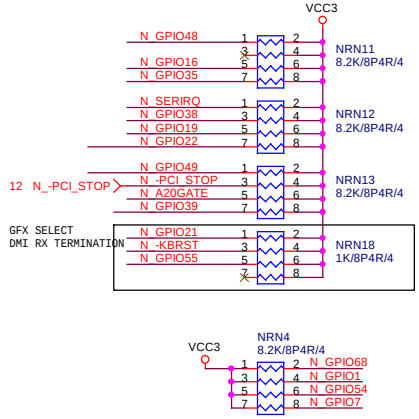


PCH CLK PD

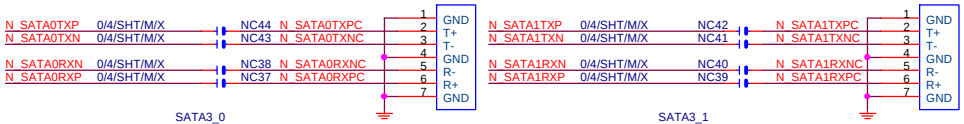


PCH PU/PD



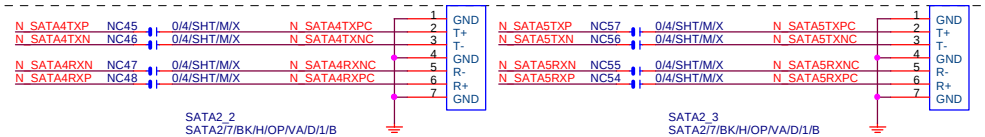


SATA CONNECTOR



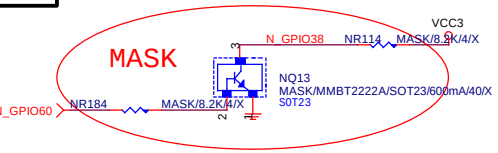
H81 Port 2/3 N/A

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



ME PWROK

GPIO38 Ctrl



Gigabyte Technology			
Title: PCH HOST , SATA, PCI			
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 11 of 29		

PCH (D)

PCHD

BD82B81/S/[10HB1-030H81-10R]

ACZ_SDOUT

PCH_DPWROK

PCH PU/PD

HSW_STRAP13

32.768KHZ

CLR_CMOS

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

At least 10ms delay after 3VDUAL_PCH stabel

Reserve for EMI test

BATTERY-DUAL-4

RB 必須放在BAT外

Gigabyte Technology	
Title	PCH GPIO , CTRL , AUDIO
Size: Custom	Document Number: GA-H81M-DS2 Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 12 of 29

PCH (H)

VCC3_DAC

3VDUAL_PCH

SHT PWR

CLOSE北橋(注意震盪水波紋)

(3.3V/70mA+360uA)

CAP

(3.3V)(X6)

(1.05V)(X2)

(3.3V)(X2)

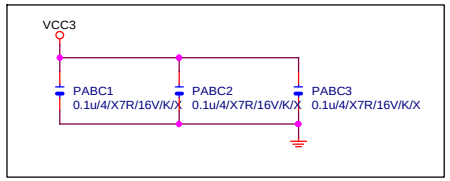
(1.05V)(X10)

PCH (I)

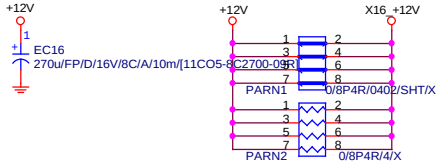
Title	PCH PWR ,GND
Size	Custom
Document Number	GA-H81M-DS2
Rev	3.0
Date:	Tuesday, August 19, 2014
Sheet	13 of 29

Gigabyte Technology

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
7,8,12,15,20 N_SMBCLK	SMBCLK	SMCLK	B5	A5	JTAG2	
7,8,12,15,20 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	
12,15,23 N_-PCIE_WAKE		WAKE*	B11	A11	PWRGD	-PCIE_RST 15,16
		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	

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

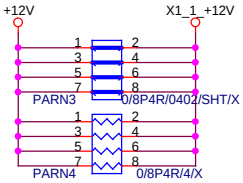
BLACK CONNECTOR

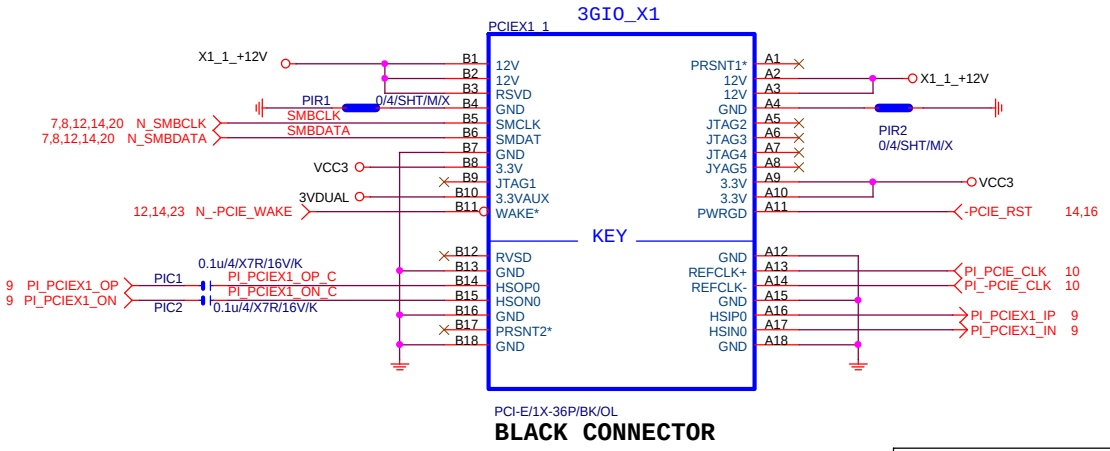
-PCIE_RST
PAC1
22p/4/NPO/50V/J/X

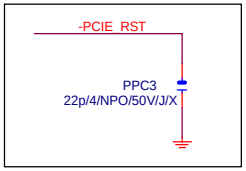
Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 14 of 29	

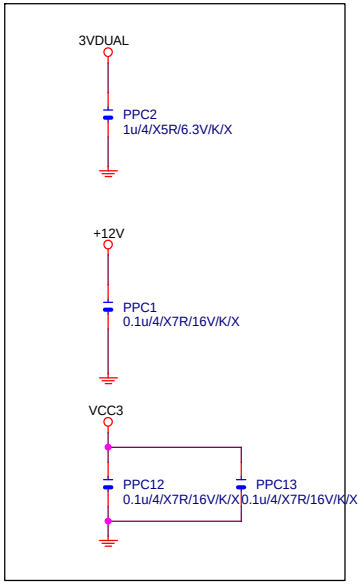
PCIEX1 SLOT

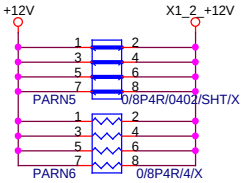
PCIEX1 PROTECT SHT

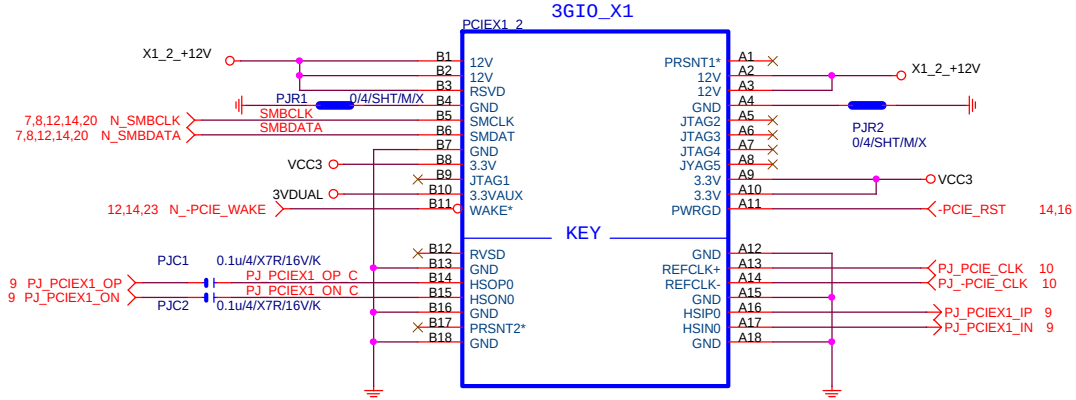








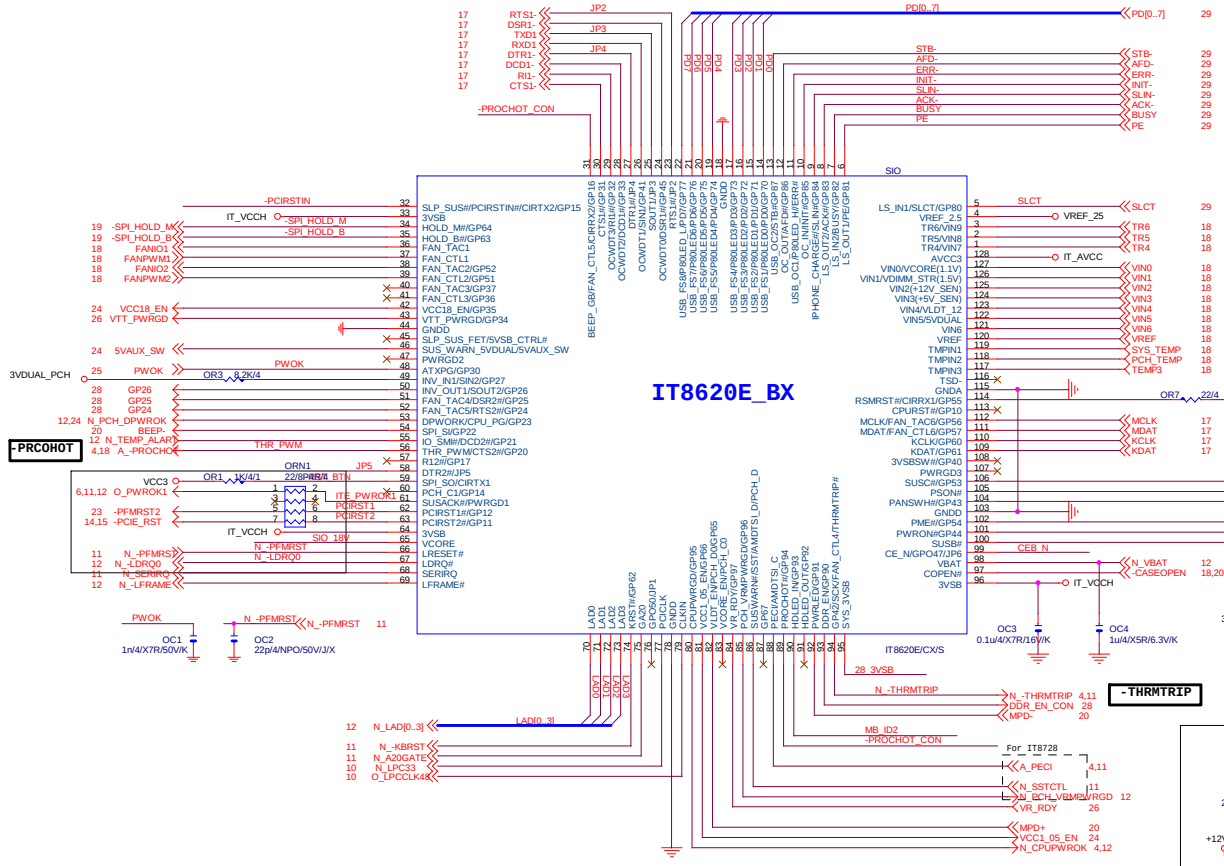




Gigabyte Technology

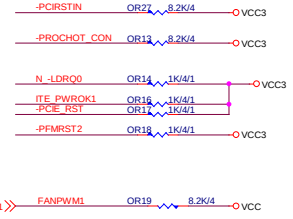
Title	PCI EXPRESS X 1 PORT	
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 15 of 29	

SIO IT8620

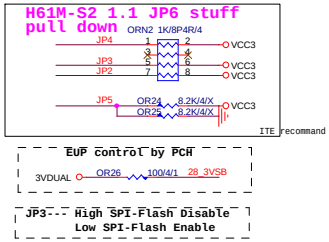


PWR SHT

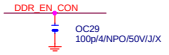
SIO PU



SIO STRAP

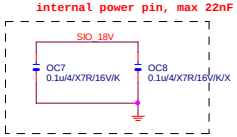


Power leakage



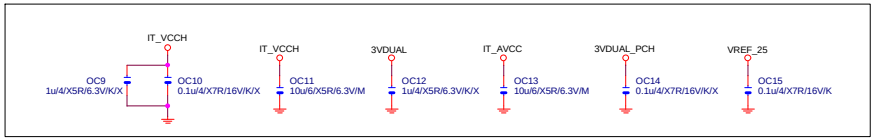
DUAL BIOS OPT STRAP

SIO_18V



MB ID

SIO CAP



Gigabyte Technology		
Title: PCH GPIO , CTRL , AUDIO		
Size: C	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 16 of 29	

COM

AU1 — GD75232/TSSOP20

RI1-	19	RY1	RA1	2	NRIA-
CTS1-	18	RY2	RA2	3	NCTSA-
DSR1-	17	RY3	RA3	4	NDSRA-
RTS1-	16	DA1	DY1	5	NRTSA-
DTR1-	15	DA2	DY2	6	NDTRA-
RXD1	14	RY4	RA4	7	NSINA
TXD1	13	DA3	DY3	8	NSOUTA
DCD1-	12	RY5	RA5	9	NDCDA-
-12V	10	GND / -12V	5V / 12V	1	VCC / +12V

ABC2 0.1u/4/X7R/16V/K/X
ABC1 0.1u/4/X7R/16V/K

ACN1: NRIA- NCTSA- NDSRA- NRTSA- — 180p/8P4C/6/NPO/50V/K

ACN2: NDTRA- NSINA NSOUTA NDCDA- — 180p/8P4C/6/NPO/50V/K

COM: NDCDA- NDSRA- NSINA NRTSA- NSOUTA NCTSA- NDTRA- NRIA-

COM/GE/SC-6mm/RA/1/D/[11NR6-111009-1QR_11NR6-111009-1JR]

COM RI

-RI → N_-RI 12

R90 75K/4/1

Q7 MMBT2222A/SOT23/600mA/40 SOT23

R91 8.2K/4

16 16 16 16

KB/MS

KB_MS: MSDATA MSCLK KBDATA KBCLK

FUSEVCC_R

BC8 0.1u/4/X7R/16V/K/X

KB/MS/6P/PC99/OS/RA/D/2

AGND

KB_MS ESD

ESD18: KBCLK MSDATA FUSEVCC_R KBDATA MSCLK

AZC099-04S/SOT23-6L

USB2.0 PWR

FUSE-0805

5VDUAL — FR1 SPR-P200T/6V/8/S — FUSEVCC_R

UBEC2 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R]

Close to connector

For EMI

R707 0/6/X

FOR鹽化短路

RN1 8.2K/8P4R/6

KCLK	R58	82/6	KBCLK
KDAT	R59	82/6	KBDATA
MDAT	R57	82/6	MSDATA
MCLK	R56	82/6	MSCLK

MSCLK MSDATA KBDATA KBCLK

CN1 180p/8P4C/6/NPO/50V/K

AGND1

USB30_20

R_USB30 USB/18P/BU/OS/RA/D/2/1U/SB

USB3.0/2.0

FUSEVCC_USB3_R3 — BC5 0.1u/4/X7R/16V/K/X

N_-USBP0 N_+USBP0

9 PCH_USB3_RXN0 9 PCH_USB3_RXP0

9 PCH_USB3_TXN0 9 PCH_USB3_TXP0

UBC9 UBC10 — PCH_USB3_TXN0C PCH_USB3_TXP0C — 0.1u/4/X7R/16V/K 0.1u/4/X7R/16V/K

U1	VBUS	VBUS	U10
U2	D-	D-	U11
U3	D+	D+	U12
U4	GND	GND	U13
U5	SSRX-	SSRX-	U14
U6	SSRX+	SSRX+	U15
U7	GND	GND	U16
U8	SSTX-	SSTX-	U17
U9	SSTX+	SSTX+	U18

AGND AGND AGND AGND — G1 G2 G3 G4

U17 PCH_USB3_TXN1C UBC11

U18 PCH_USB3_TXP1C UBC12 — 0.1u/4/X7R/16V/K 0.1u/4/X7R/16V/K

N_-USBP1 N_+USBP1 9

BC6 0.1u/4/X7R/16V/K/X — FUSEVCC_USB3_R3

PCH_USB3_RXN1 9 PCH_USB3_RXP1 9

PCH_USB3_TXN1 9 PCH_USB3_TXP1 9

USB30_20 PWR

Polyswitch-0805

5VDUAL — F11 SPR-P260T/6V/8/S — FUSEVCC_USB3_R3

UEC4 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R]

-USBOC_R

SOT23

5VDUAL — UR3 8.2K/4 — N_-USBOC_R — N_-USBOC_R 9

UD5 BAT54A/SOT23/200mA

FUSEVCC_R FUSEVCC_USB3_R3

UR4 15K/4/1

USB30_20 ESD PROCTECT

USB3.0 ESD

PCH_USB3_TXN1C PCH_USB3_TXP1C — PCH_USB3_TXP0C PCH_USB3_TXN0C

NC NC GND NC NC — 10 9 8 7 6 — 11

D1 D1 GND D2 D2 — 1 2 3 4 5

UESD5 AZ1045-04F/MSOP10

PCH_USB3_TXP1C PCH_USB3_TXN1C — PCH_USB3_TXN0C PCH_USB3_TXP0C

PCH_USB3_RXN0 PCH_USB3_RXP0 — PCH_USB3_RXP1 PCH_USB3_RXN1

NC NC GND NC NC — 10 9 8 7 6 — 11

D1 D1 GND D2 D2 — 1 2 3 4 5

UESD6 AZ1045-04F/MSOP10

PCH_USB3_RXP0 PCH_USB3_RXN0 — PCH_USB3_RXN1 PCH_USB3_RXP1

USB POWER PROTECT

ESD1

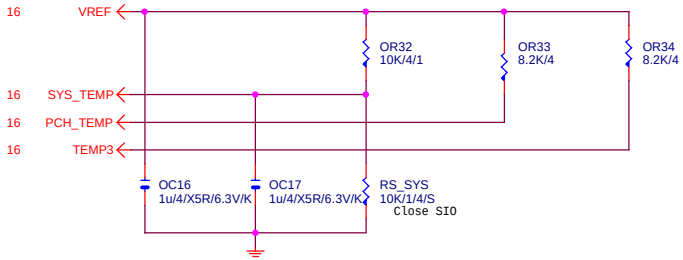
N_-USBP0 N_+USBP0 — FUSEVCC_USB3_R3 — N_+USBP1 N_-USBP1

AZC099-04S/SOT23-6L

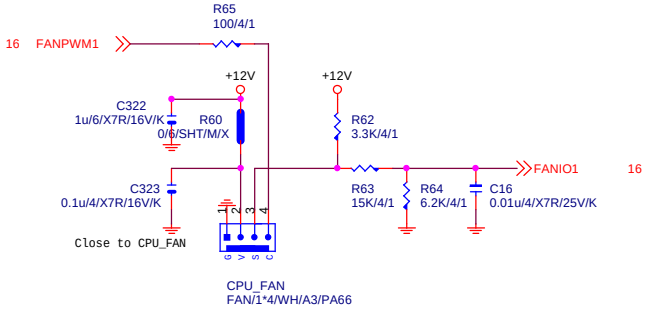
Gigabyte Technology

Title	COM,-RI,KB_USB,USB_ESATA,-PROCHOT		
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 17 of 29		

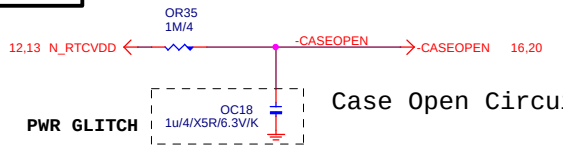
TEMP H/W MONITOR



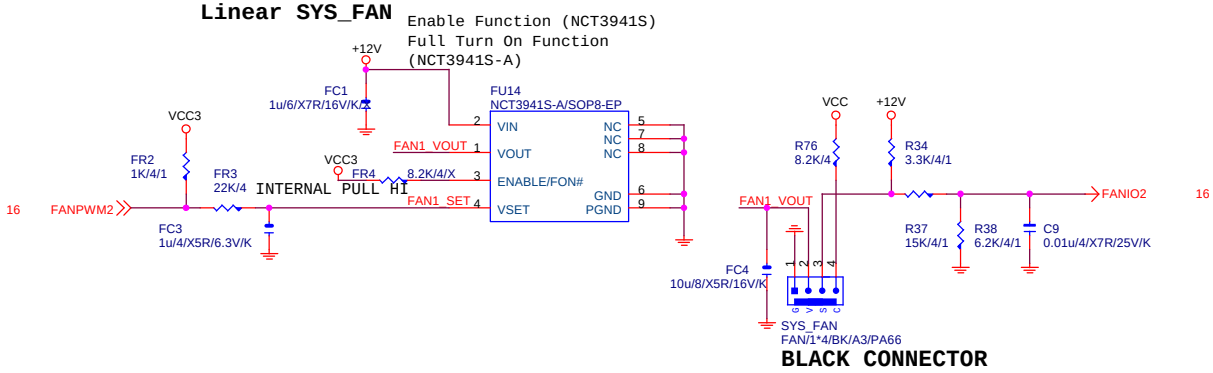
CPU SMART FAN



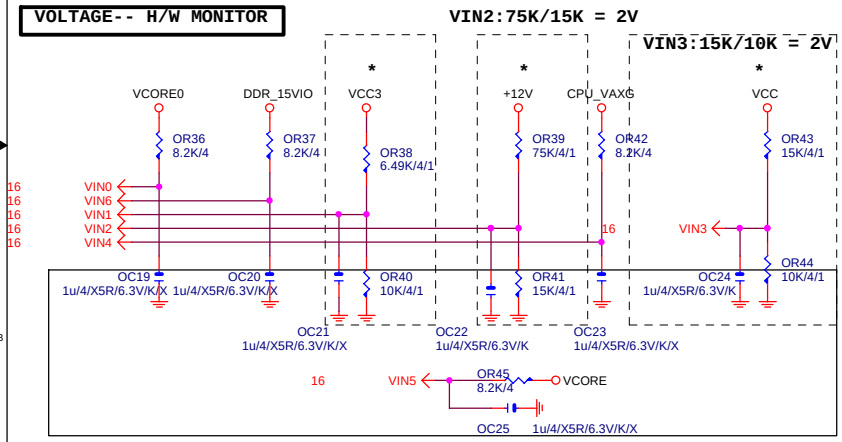
CASE OPEN



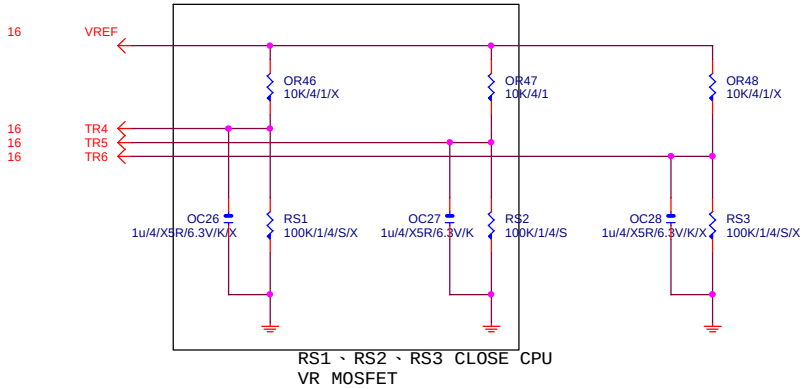
SYS SMART FAN



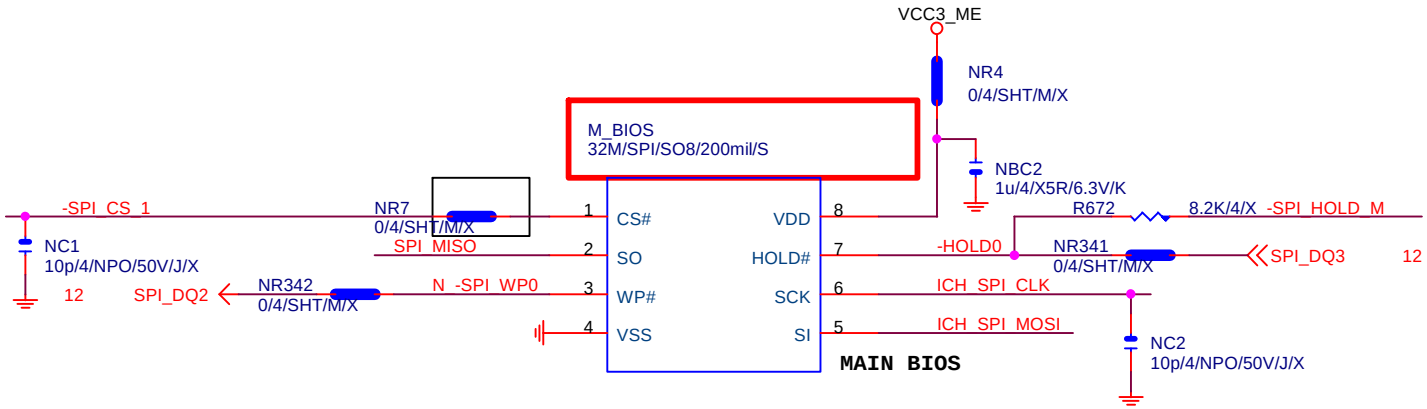
VOLTAGE-- H/W MONITOR

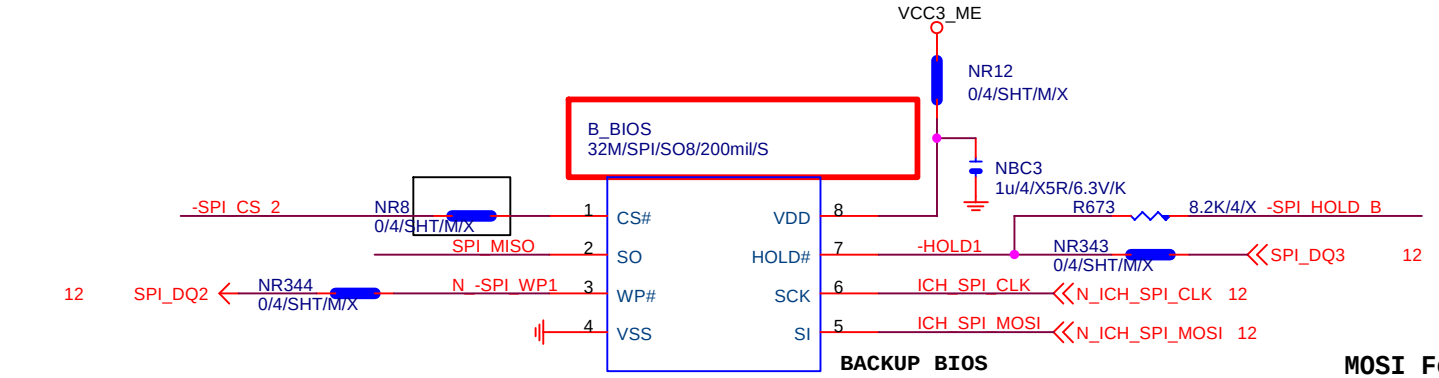


-PROHOT



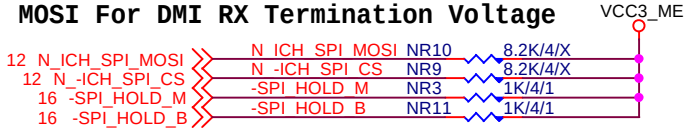
Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 18 of 29	

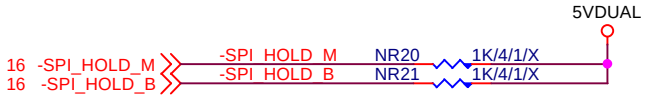


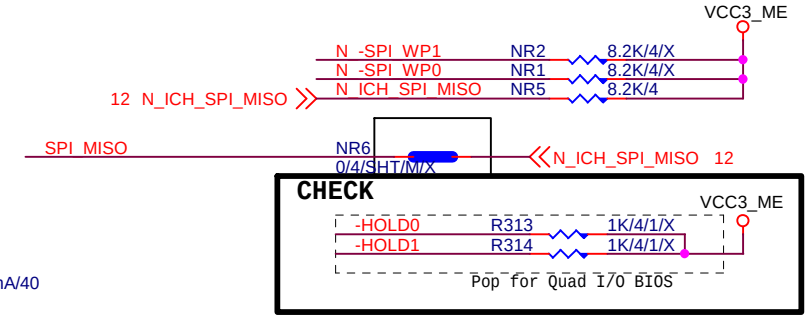


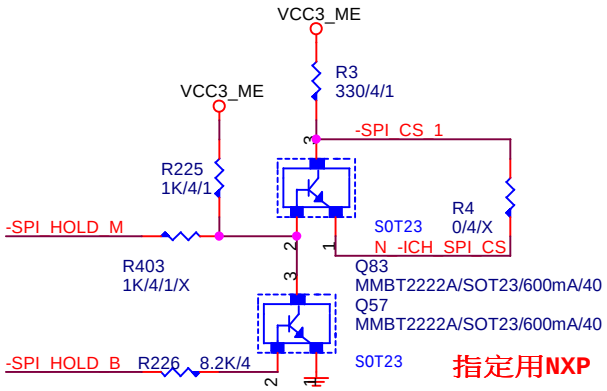
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

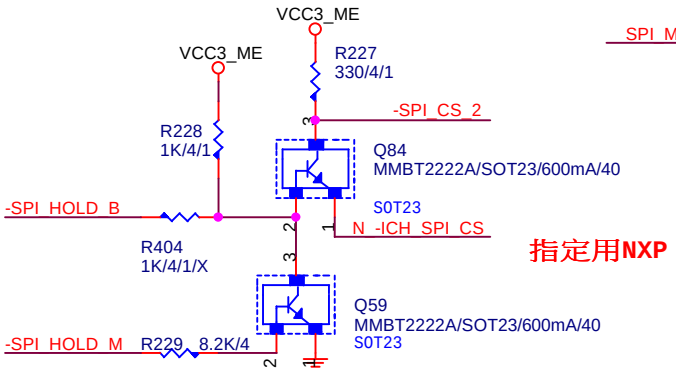
1 means floating
0 means PD 1K











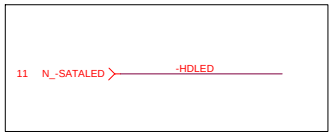
Gigabyte Technology

Title: DUAL BIOS

Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

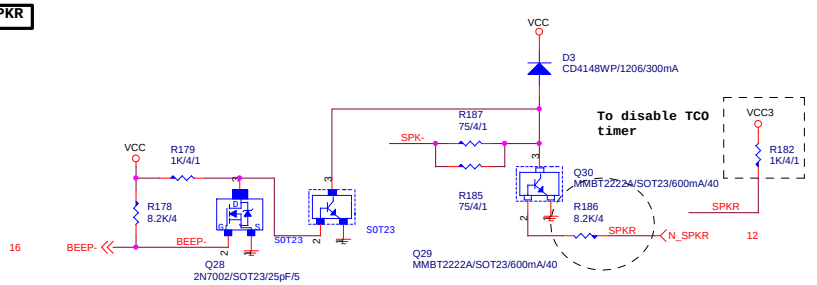
Date: Tuesday, August 19, 2014 | Sheet 19 of 29

SATA LED

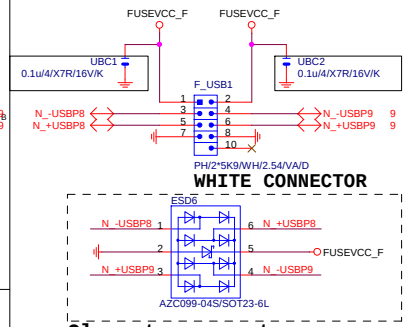


-USBOC_F

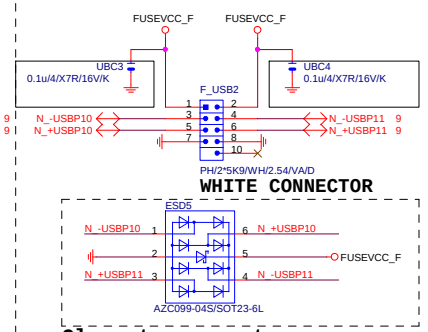
SPKR



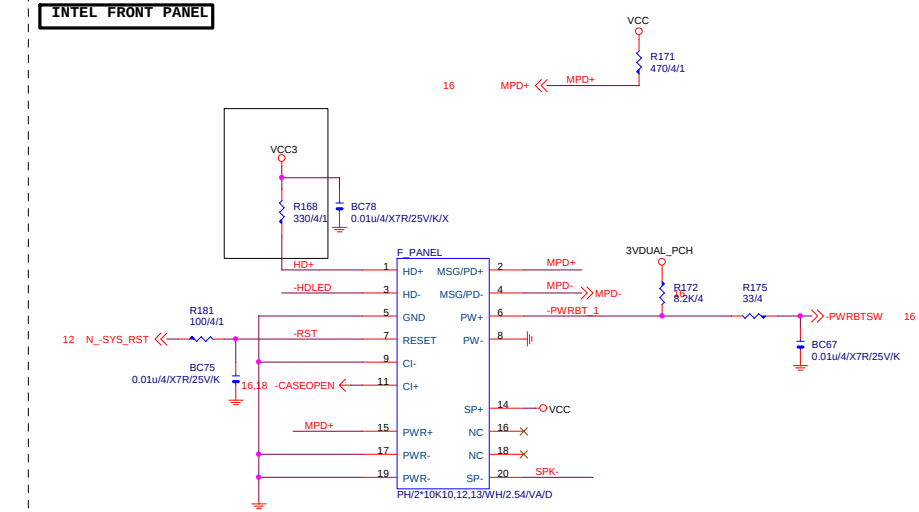
FRONT USB1

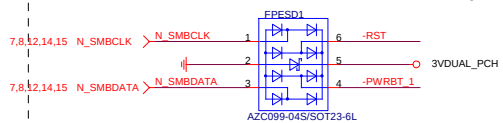


FRONT USB2

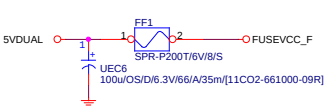


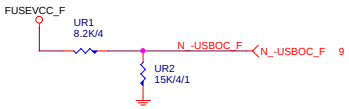
INTEL FRONT PANEL





FUSE-0805



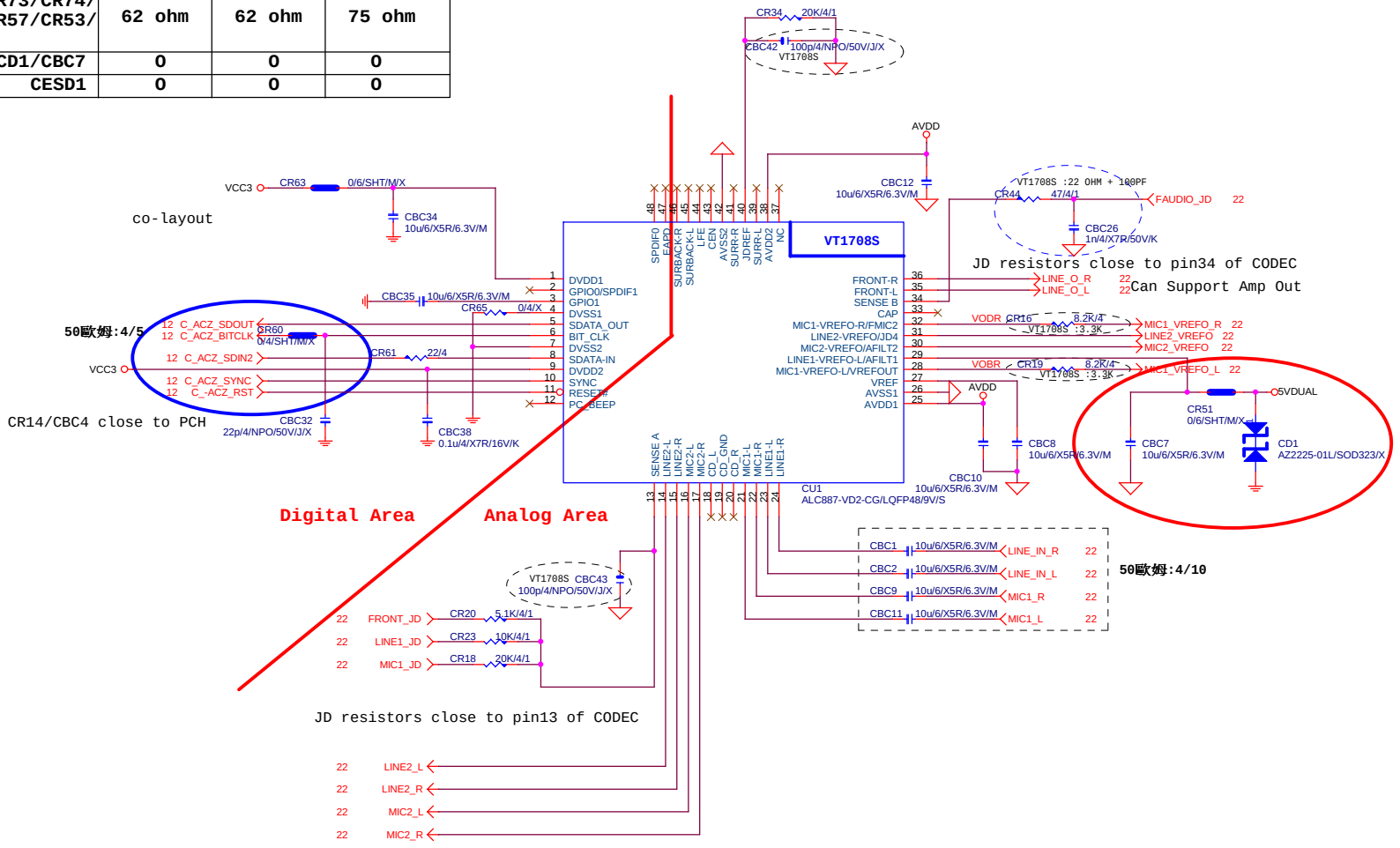


F_USB1, F_USB2 4-Port 2.6A

Gigabyte Technology		
Title: FP,F_USB,USB PWR,SPKR,SATA LED		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 20 of 29	

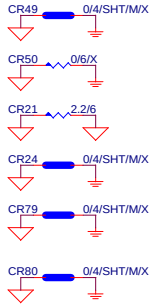
AZALIA CODEC *ALC892/ALC887-VD2/VT1708-CE Colay*

	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

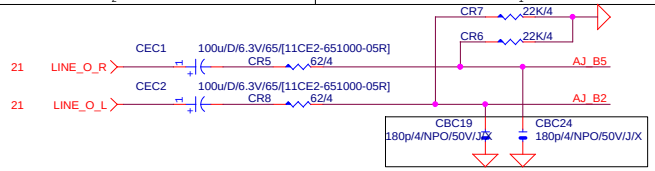


Gigabyte Technology

Title	HD AUDIO ALC887B-VD2/VT1708S/VT2021	
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 21 of 29	

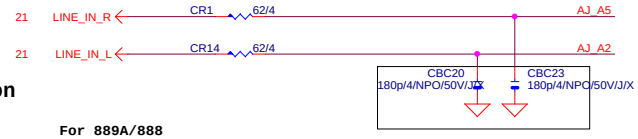


LINE-OUT



Only reserved for ALC888

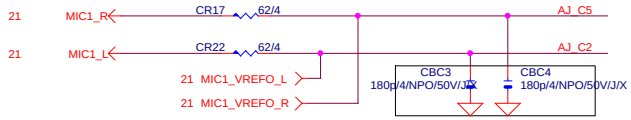
LINE-IN



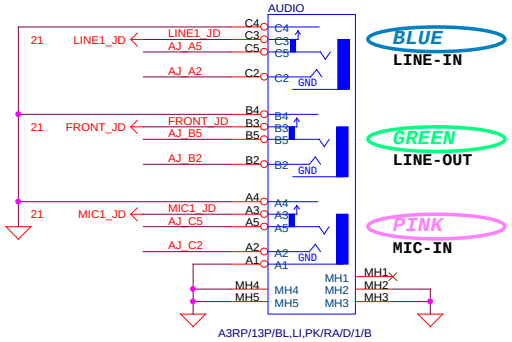
Verify MIC function in LINE-in

For 889A/888

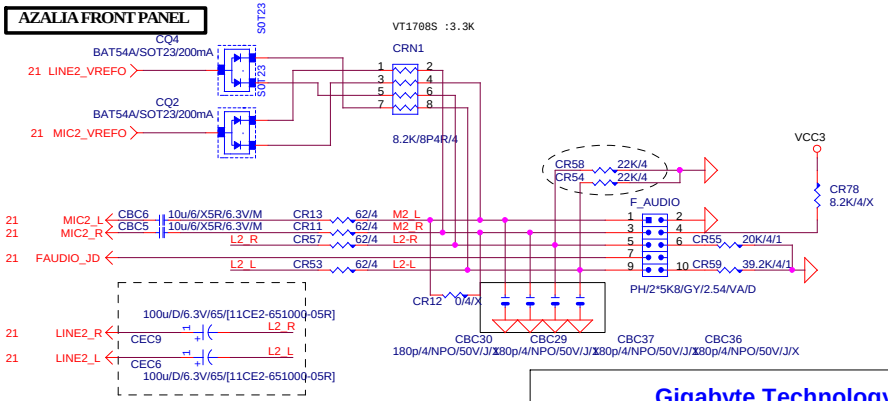
MIC-IN



SPDIF_OUT

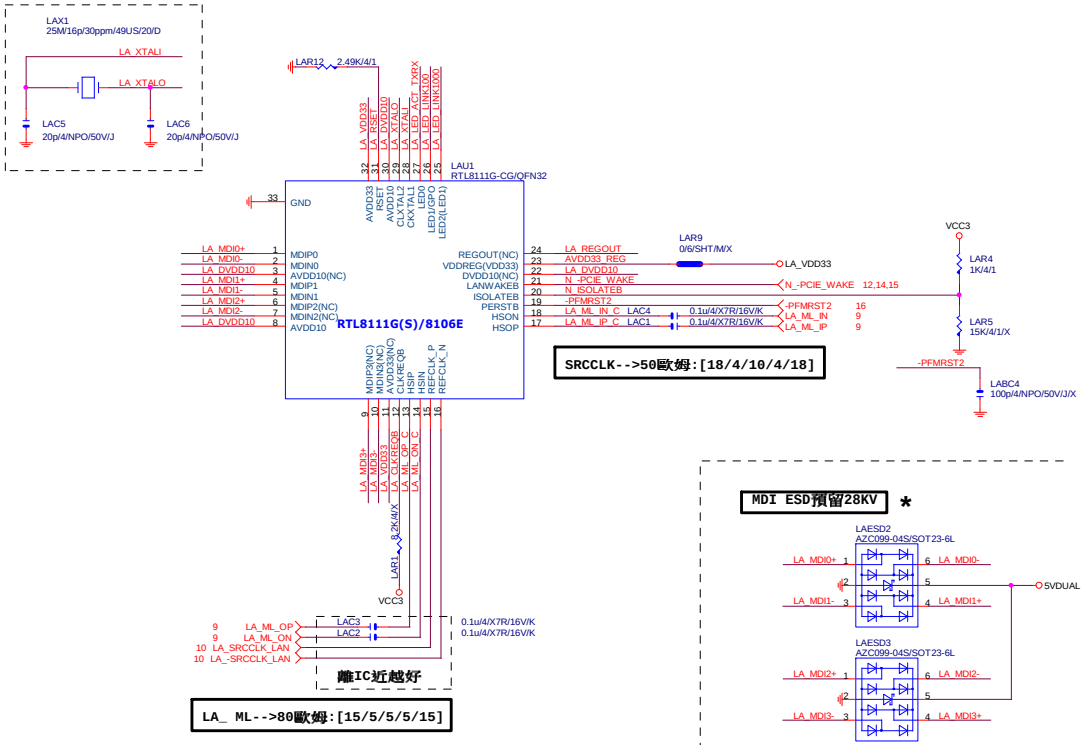


AZALIA FRONT PANEL



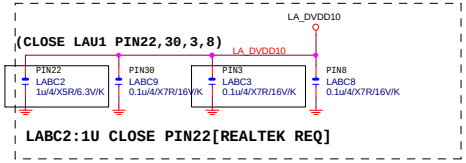
Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 22 of 29	

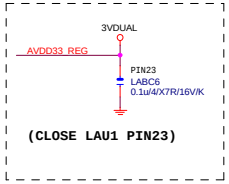
LAN:RTL8111G

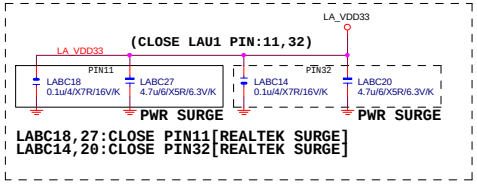


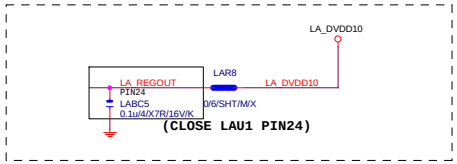
MDI ESD預留28KV *

LAN POWER



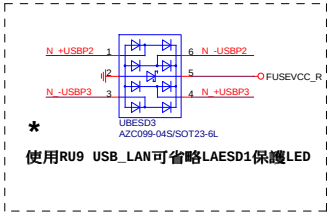




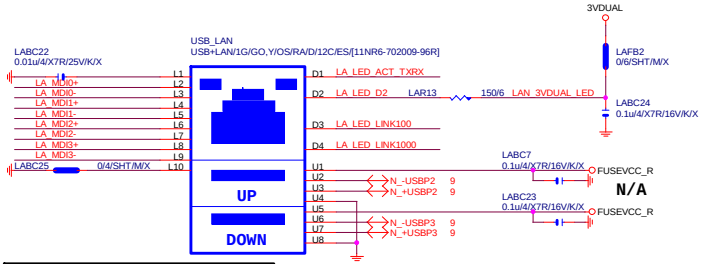


NOTE:
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

USB_LAN CONNECTOR



* 使用RU9 USB_LAN可省略LAESD1保護LED

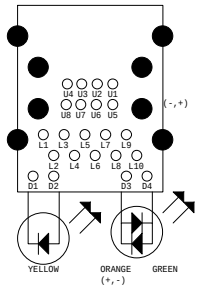


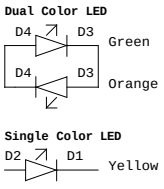
LA_MDI-->100歐姆:[20/4/8/4/20]

EMI SHORT PAD

PS:視EMI需求

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

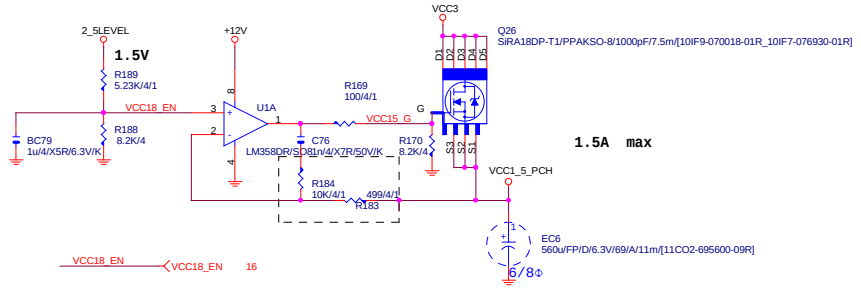
Gigabyte Technology

Title: DISCRETE POWER

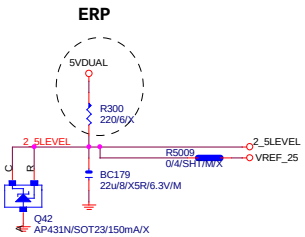
Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

Date: Tuesday, August 19, 2014 | Sheet 23 of 29

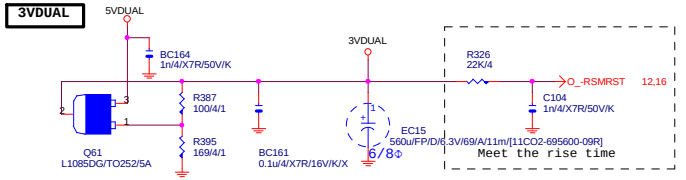
VCC1_8_PCH



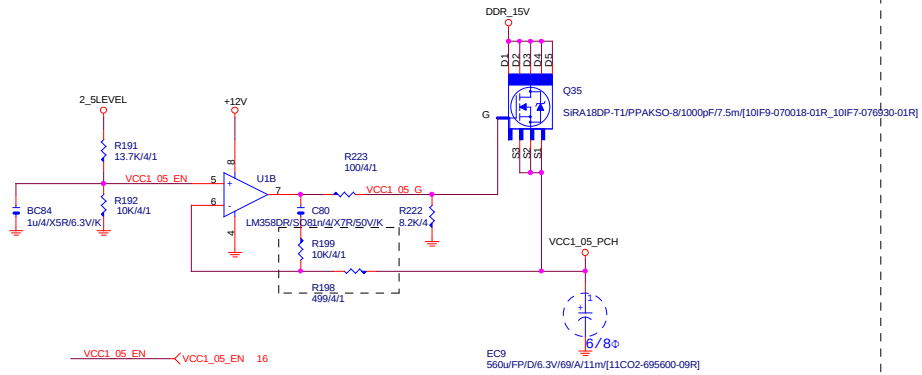
2_5LEVEL

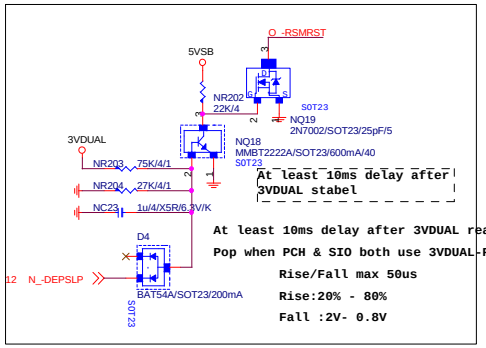


3VDUAL

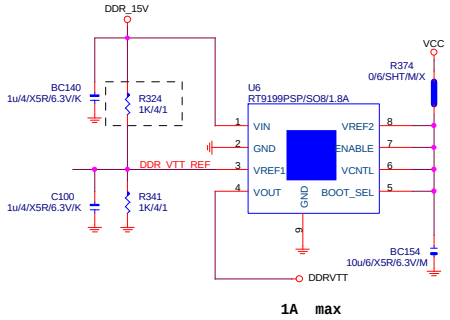


VCC1_05_PCH

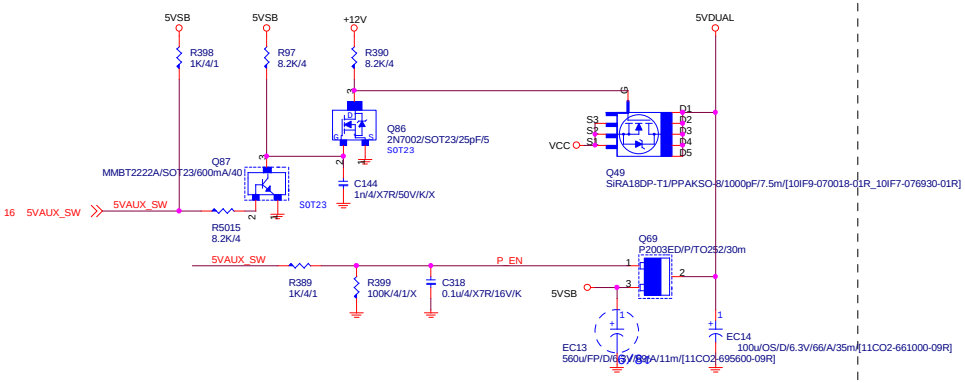




DDRVTT



5VDUAL

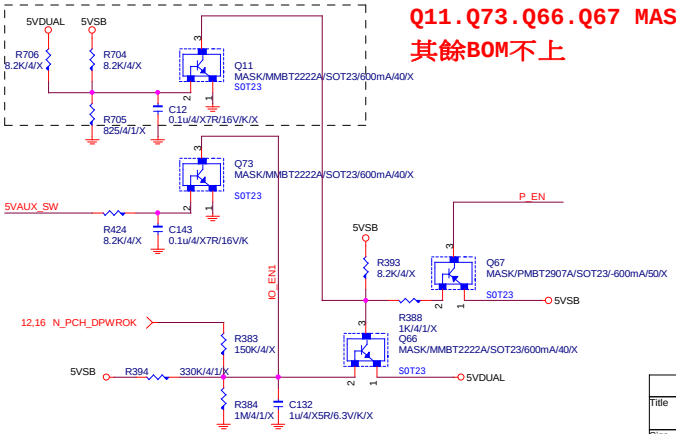


5VDUAL SHORT PROTECT

5VSB OVP:7.5V protection

Q11.Q73.Q66.Q67 MASK

其餘BOM不上

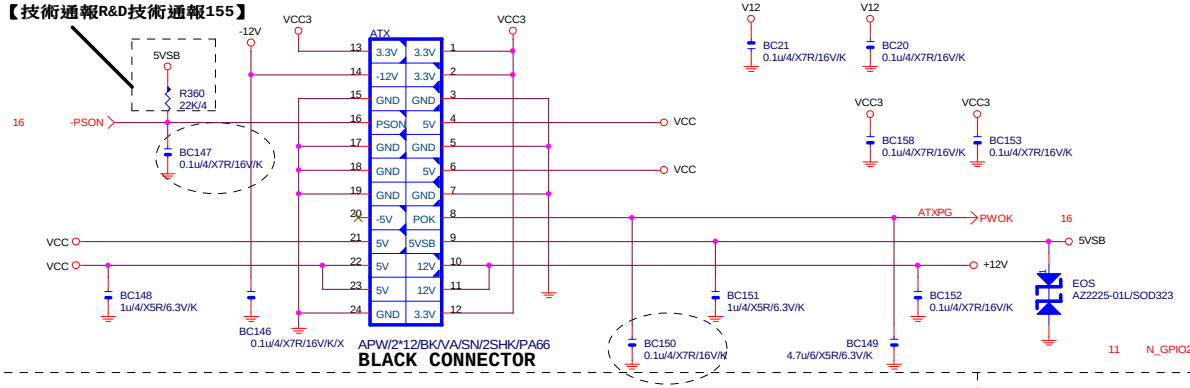


Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-H81M-DS2	Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 24 of 29	

HOLE_4-RH-5MM-1

ATXX24 POWER CONNECTOR

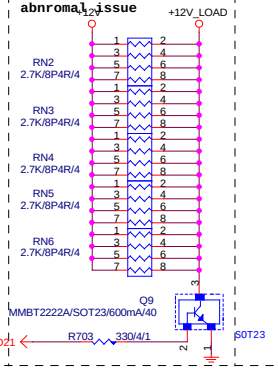
【技術通報R&D技術通報155】



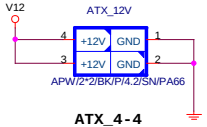
BLACK CONNECTOR

【技術通報R&D技術通報158】

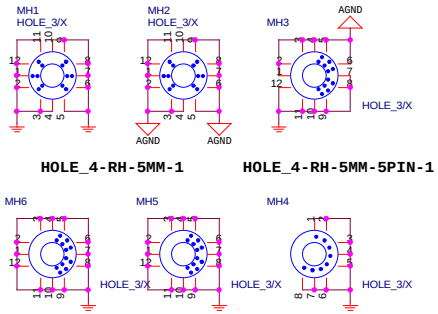
To fix 12V light load abnroma1 issue



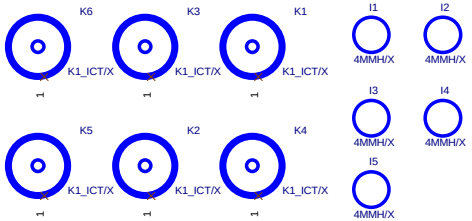
ATXX4 POWER CONNECTOR



ATX_4-4



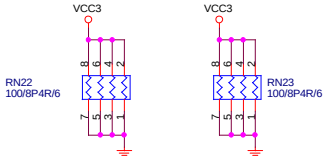
HOLE_4-RH-5MM-1 **HOLE_4-RH-5MM-5PIN-1**



To prevent the 5VSB under loading when boot

PWOK PATCH

【技術通報R&D技術通報154】



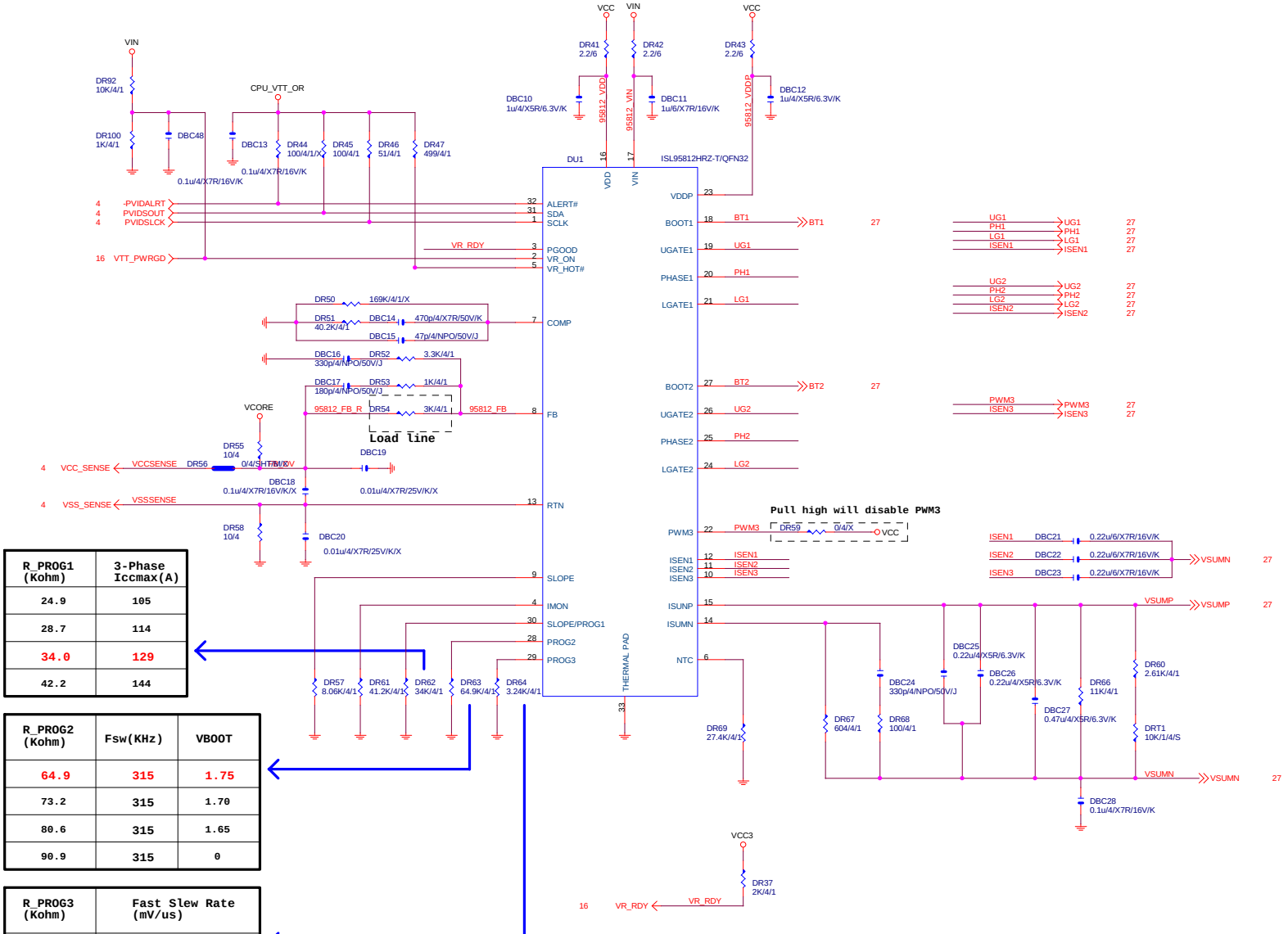
FIX PWR MINMUN LOAD

Gigabyte Technology

Title: ATX CONNECTOR

Size	Document Number	Rev
Custom	GA-H81M-DS2	3.0

Date: Tuesday, August 19, 2014 Sheet 25 of 29



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

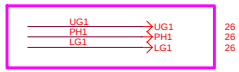
Gigabyte Technology

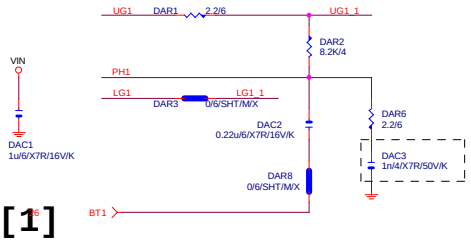
Title: CPU CORE VR-1

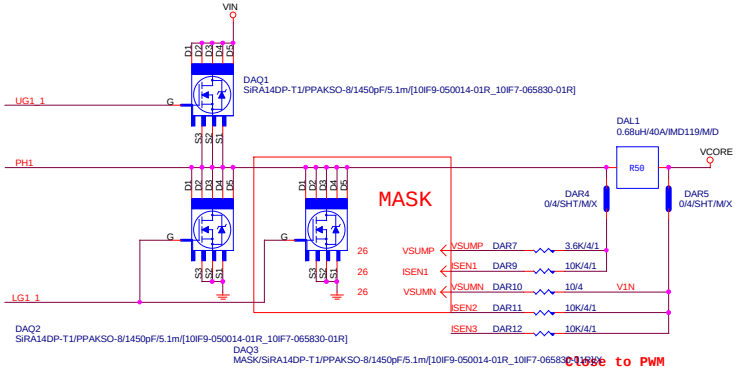
Size: Custom | Document Number: GA-H81M-DS2 | Rev: 3.0

Date: Tuesday, August 19, 2014 | Sheet 26 of 29

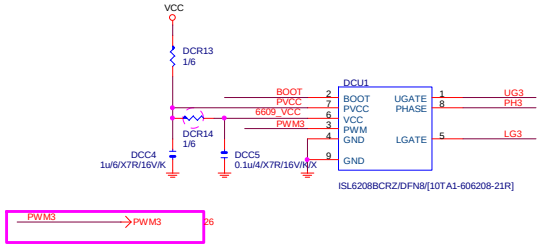
PHASE 1

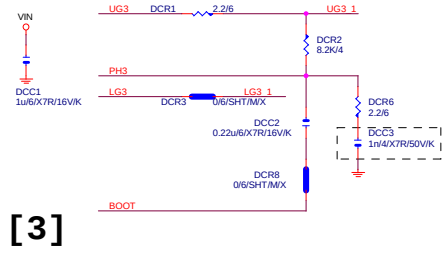


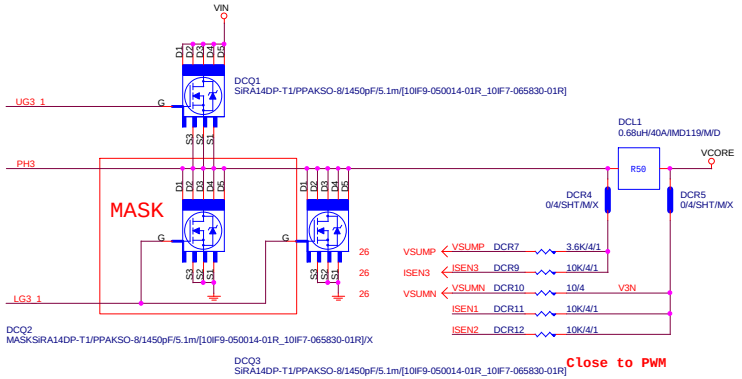




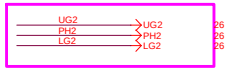
PHASE 3

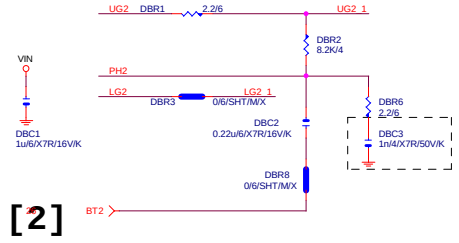


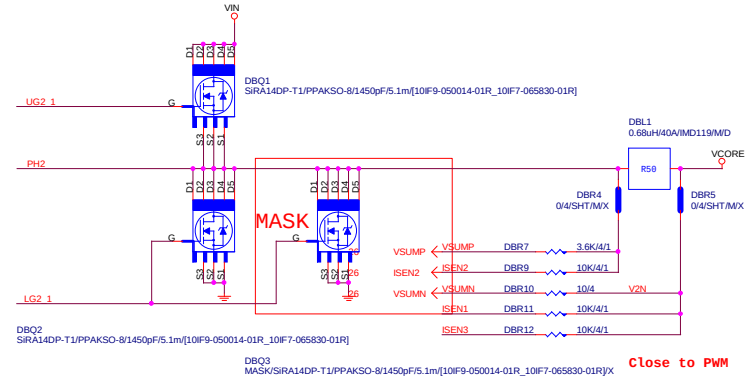


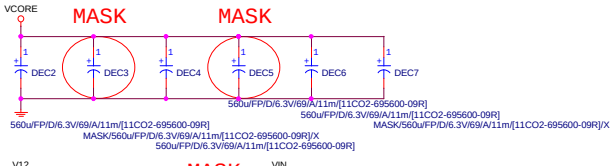


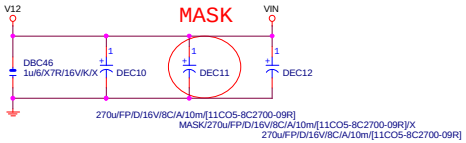
PHASE 2



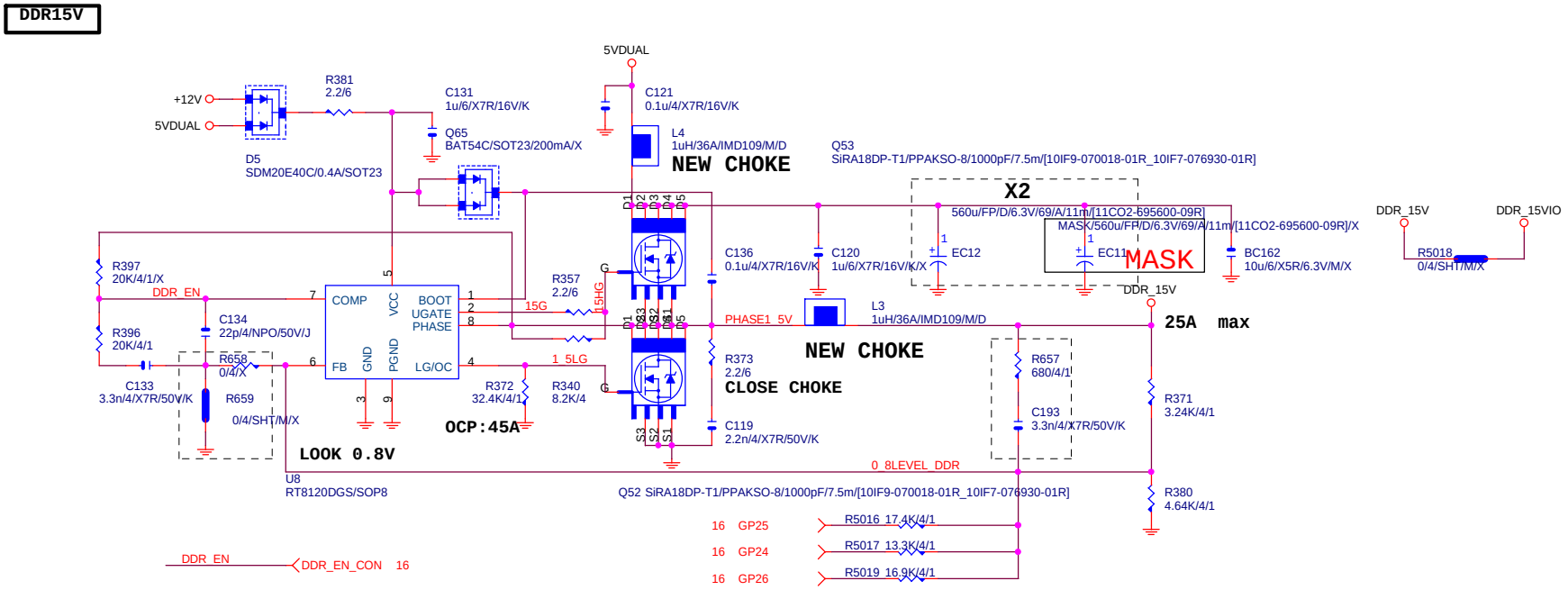








Gigabyte Technology			
Title	CPU CORE VR-2		
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 27 of 29		



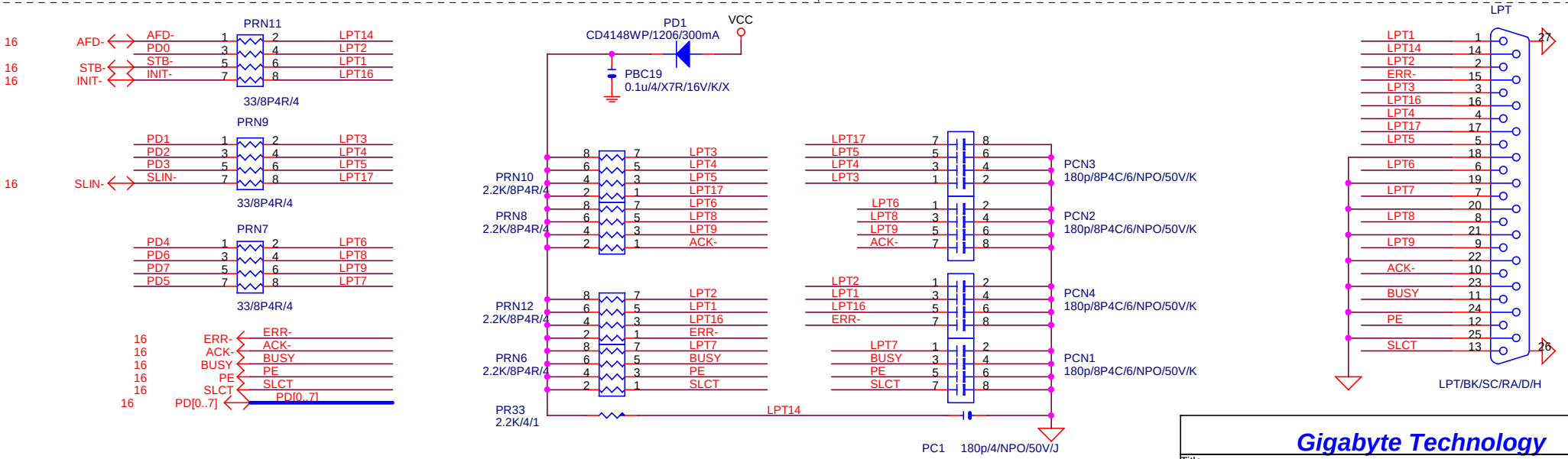
VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

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			
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 28 of 29		



Gigabyte Technology			
Title: LPT			
Size: Custom	Document Number: GA-H81M-DS2		Rev: 3.0
Date: Tuesday, August 19, 2014	Sheet 29 of 29		