Model Name: GA-H61M-S2P-R3 *Revision 3.01*

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-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*1 SLOT
16	IT8892E
17	PCI SLOT1&2
18	ITE 8728 LPC IO
19	COM,KB_USB,USB_ESATA,-PROCHOT
20	HWM,FAN CTRL,OV,
21	DUAL BIOS
22	FP,FUSB,SPK,SATALED
23	Realtek ALC887-VD2
24	REAR AUDIO JACK
25	REALTEK RTL8111F-VL
26	DISCRETE POWER
27	ATX

SHEET	TITLE
28	LINEAR CPU_VTT
29	VCORE ISL95836_1
30	VCORE ISL95836_2
31	VCORE ISL95836_3
32	LPT
33	USB3.0 VL805

Gigabyte Technology

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Model Name: GA-H61M-S2P-R3 *Revision 3.01*

Component value change history

2013/04/18

Data	Change Item	Reason
2011/06/09	MODIFY FROM H61M-D2P-B3 R1.01. VCORE 3PHASE.LAN/CODEC.PCIE*1.	PBOM:9M61MS2PB-00-10B
2011/07/05	Update Rev: 1.1 Cost Down	
	Model Name Remove "-B3"	
2011/07/26	Model Name ADD "-B3"	
2011/08/04	P-BOM 9M61MS2PB-00-11B	
	Codec Change VIA VT2021	
2011/10/27	R2.01 ,PWM VCORE ISL95836+ISL6208B.	
	VTT/DDR RT8120.CODEC ALC887-VB2.COST DOWN.	
2011/11/04	R2.0 Model Name Remove "-B3"	
2011/11/29	R2.01 UPDATE ISL95836 CIRCUIT.	PBOM:9MH61MS2P-00-20B.
2011/12/07	ECN U6 CHANGE RT9199.	
2011/12/08	MODIFY ISL95836 RC MATCH.	FPBOM:9MH61MS2P-00-20C.
2011/12/21	MODIFY IT8728/EX.	FPBOM:9MH61MS2P-00-20D.
2012/04/27	FIX PWM O.V CIRCUIT FB FAIL, MODIFY LOAD LINE.	FPBOM:9MH61MS2P-00-20E.
2012/05/25	MODIFY LAN RTL8111F,ADD PWOK 4.7u/6 FOR POWER SUPPLY.	BOM:9MH61MS2P-00-21A.
2012/06/19	PBOM.	PBOM:9MH61MS2P-00-21A.
2012/07/09	R2.11.ADD CPU/SYS FAN +12V 防燒.	
2012/12/17	R2.2.Vtt change to linear power.VCORE/VAXG/VTT MOS HI/LO SIDE*1.10U-->0603.	
2012/12/27	R3.0 ADD USB3.0 VL805,F_USB30/R_USB30.	
2013/01/18	R3.01 VL805 MODIFY LAYOUT FIX TEMP.ADD LAN ESD.	
2013/01/31	PBOM.	FPBOM:9MH61MS2P-00-30B.
2013/02/05	ADD ASSEMBLY "R3" FOR SALES/CUSTOMER.	FPBOM:9MH61MS2P-R3-30B.
2013/04/18	CHANGE MODEL NAME H61M-S2P-R3 R3.01	FPBOM:9M61M2PR3-00-30B.

Circuit or PCB layout change

DATE	Change Item	Reason

Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

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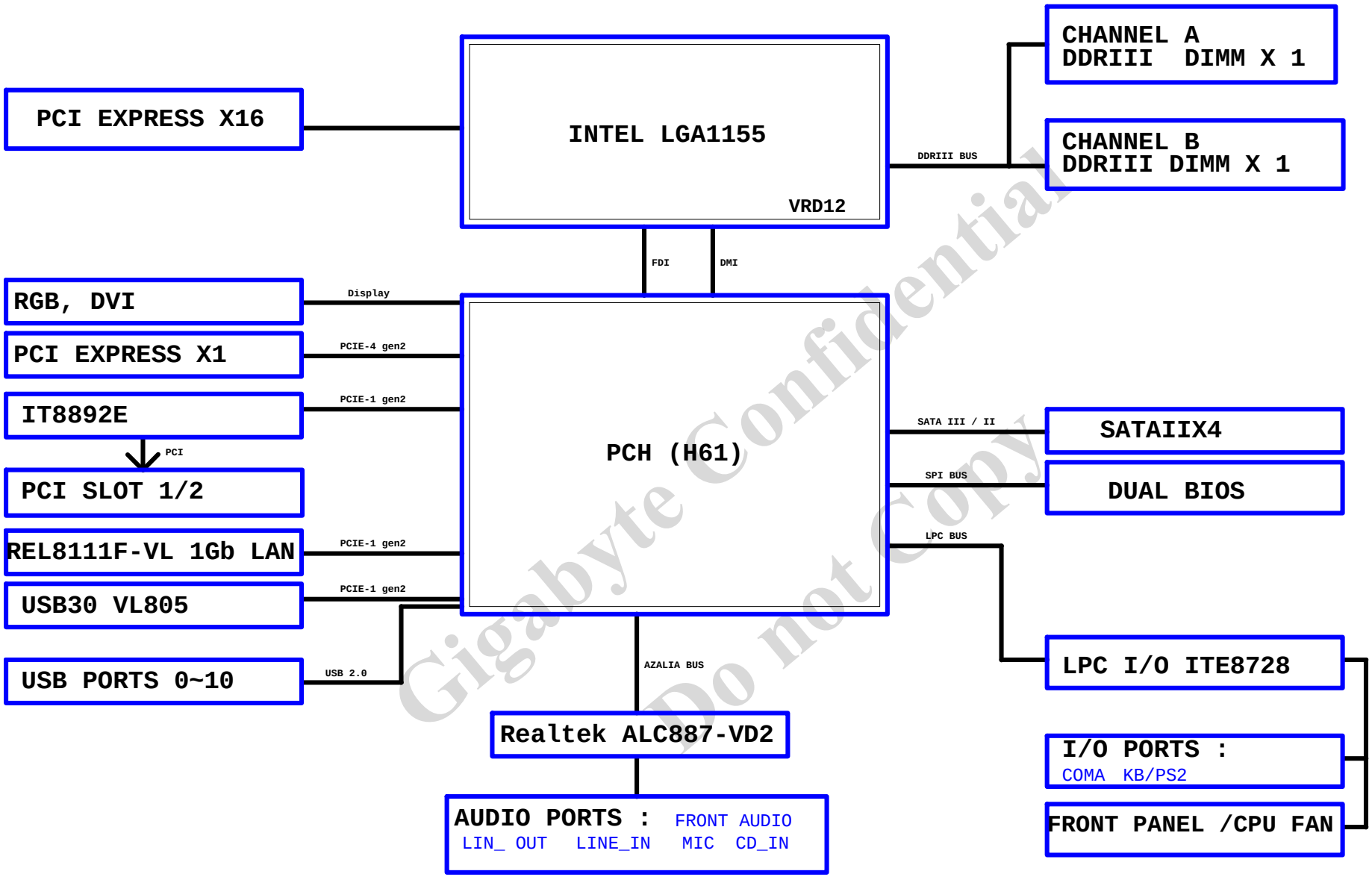
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H61M-S2P-R3	Rev: 3.01
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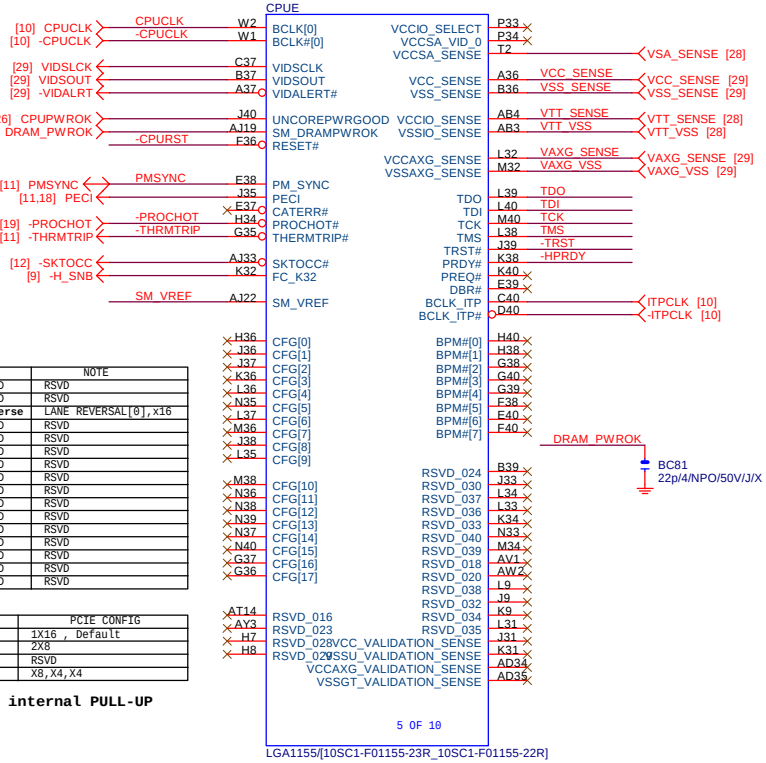
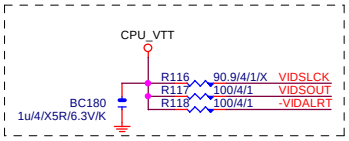
CPU E

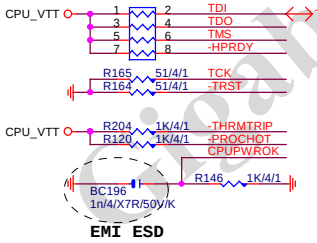


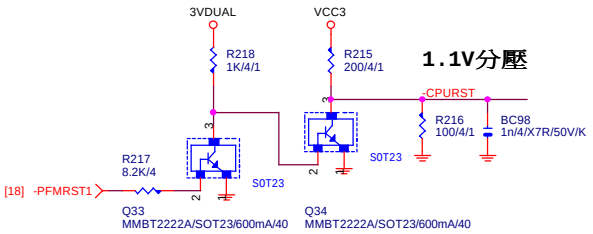
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
5	RSVD	RSVD	RSVD
6	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15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

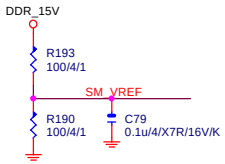
CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

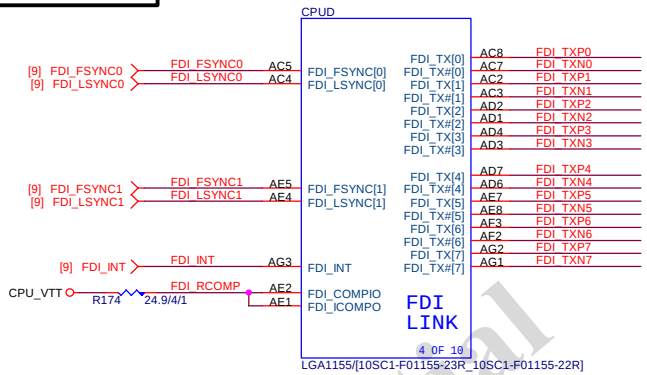






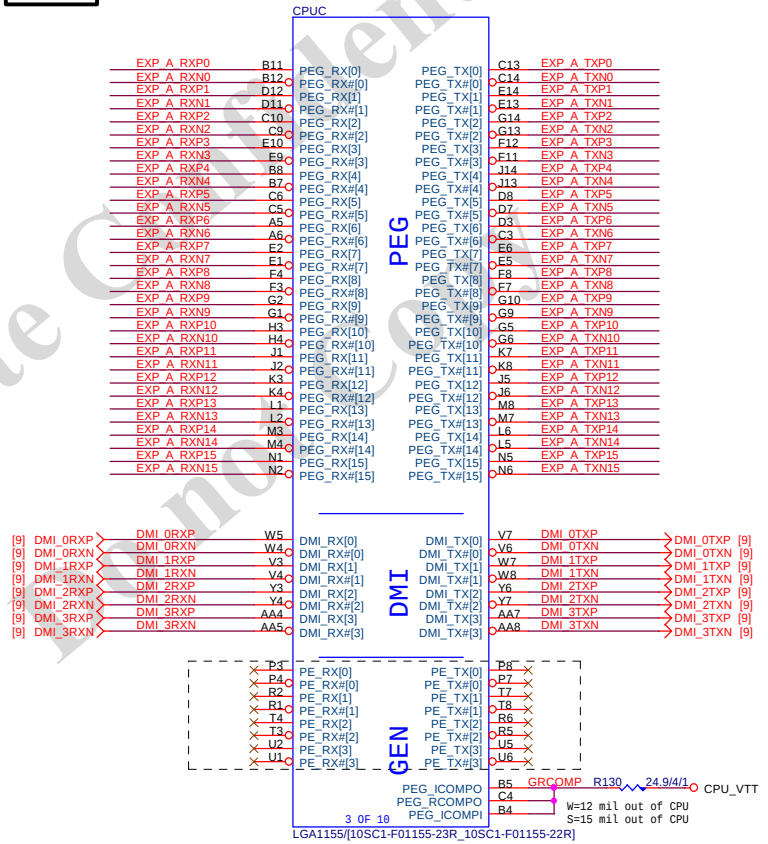


CPU D FDI



FDI_TXP[0..7] → FDI_TXP[0..7] [9]
FDI_TXN[0..7] → FDI_TXN[0..7] [9]
EXP_A_TXP[0..15] → EXP_A_TXP[0..15] [14]
EXP_A_TXN[0..15] → EXP_A_TXN[0..15] [14]
EXP_A_RXP[0..15] → EXP_A_RXP[0..15] [14]
EXP_A_RXN[0..15] → EXP_A_RXN[0..15] [14]

CPU C



STITCHING CAP.

N/A

Stitching caps for PCIE,DMI,FDI bus

Gigabyte Technology			
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CPU_A

CPUA

MAAA0 AV27 — SA_MA[0]
MAAA1 AY24 — SA_MA[1]
MAAA2 AW24 — SA_MA[2]
MAAA3 AW23 — SA_MA[3]
MAAA4 AV23 — SA_MA[4]
MAAA5 AT24 — SA_MA[5]
MAAA6 AT23 — SA_MA[6]
MAAA7 AU22 — SA_MA[7]
MAAA8 AV22 — SA_MA[8]
MAAA9 AT22 — SA_MA[9]
MAAA10 AV28 — SA_MA[10]
MAAA11 AU21 — SA_MA[11]
MAAA12 AT21 — SA_MA[12]
MAAA13 AW32 — SA_MA[13]
MAAA14 AU20 — SA_MA[14]
MAAA15 AT20 — SA_MA[15]

[7] -SWEA — -SWEA AW29 — SA_WE#
[7] -SCASA — -SCASA AV30 — SA_CAS#
[7] -SRASA — -SRASA AU28 — SA_RAS#

[7] SBAA0 — SBAA0 AY29 — SA_BS[0]
[7] SBAA1 — SBAA1 AW28 — SA_BS[1]
[7] SBAA2 — SBAA2 AV20 — SA_BS[2]

[7] -CSA0 — -CSA0 AU29 — SA_CS#[0]
[7] -CSA1 — -CSA1 AV32 — SA_CS#[1]
AW30 — SA_CS#[2]
AU33 — SA_CS#[3]

[7] CKEA0 — CKEA0 AV19 — SA_CKE[0]
[7] CKEA1 — CKEA1 AT19 — SA_CKE[1]
AU18 — SA_CKE[2]
AV18 — SA_CKE[3]

MODT_A0 AV31 — SA_ODT[0]
MODT_A1 AU32 — SA_ODT[1]
AU30 — SA_ODT[2]
AW33 — SA_ODT[3]

[7] DCLKA0 — DCLKA0 AY25 — SA_CK[0]
[7] -DCLKA0 — -DCLKA0 AW25 — SA_CK#[0]
[7] DCLKA1 — DCLKA1 AU24 — SA_CK[1]
[7] -DCLKA1 — -DCLKA1 AU25 — SA_CK#[1]
AW27 — SA_CK[2]
AV27 — SA_CK#[2]
AV26 — SA_CK[3]
AW26 — SA_CK#[3]

[7,8] -DDR3_RST — AW18 — SM_DRAMRST#

AV13 — SA_DQS[8]
AV12 — SA_DQS#[8]

AU12 — SA_ECC_CB[0]
AU14 — SA_ECC_CB[1]
AW13 — SA_ECC_CB[2]
AY13 — SA_ECC_CB[3]
AU13 — SA_ECC_CB[4]
AU11 — SA_ECC_CB[5]
AY12 — SA_ECC_CB[6]
AW12 — SA_ECC_CB[7]

SA_DQS[0] AK3 — DQSA0
SA_DQS#[0] AK2 — -DQSA0

SA_DQ[0] AJ3 — MDA0
SA_DQ[1] AJ4 — MDA1
SA_DQ[2] AL3 — MDA2
SA_DQ[3] AL4 — MDA3
SA_DQ[4] AJ2 — MDA4
SA_DQ[5] AJ1 — MDA5
SA_DQ[6] AL2 — MDA6
SA_DQ[7] AL1 — MDA7

SA_DQS[1] AP3 — DQSA1
SA_DQS#[1] AP2 — -DQSA1

SA_DQ[8] AN1 — MDA8
SA_DQ[9] AN4 — MDA9
SA_DQ[10] AR3 — MDA10
SA_DQ[11] AR4 — MDA11
SA_DQ[12] AN2 — MDA12
SA_DQ[13] AN3 — MDA13
SA_DQ[14] AR2 — MDA14
SA_DQ[15] AR1 — MDA15

SA_DQS[2] AW4 — DQSA2
SA_DQS#[2] AV4 — -DQSA2

SA_DQ[16] AV2 — MDA16
SA_DQ[17] AW3 — MDA17
SA_DQ[18] AV5 — MDA18
SA_DQ[19] AW5 — MDA19
SA_DQ[20] AU2 — MDA20
SA_DQ[21] AU3 — MDA21
SA_DQ[22] AU5 — MDA22
SA_DQ[23] AV5 — MDA23

SA_DQS[3] AV8 — DQSA3
SA_DQS#[3] AW8 — -DQSA3

SA_DQ[24] AY7 — MDA24
SA_DQ[25] AU7 — MDA25
SA_DQ[26] AV9 — MDA26
SA_DQ[27] AU9 — MDA27
SA_DQ[28] AW7 — MDA28
SA_DQ[29] AW9 — MDA29
SA_DQ[30] AY9 — MDA30
SA_DQ[31] — MDA31

SA_DQS[4] AV37 — DQSA4
SA_DQS#[4] AV36 — -DQSA4

SA_DQ[32] AU35 — MDA32
SA_DQ[33] AW37 — MDA33
SA_DQ[34] AU39 — MDA34
SA_DQ[35] AU36 — MDA35
SA_DQ[36] AW35 — MDA36
SA_DQ[37] AY36 — MDA37
SA_DQ[38] AU38 — MDA38
SA_DQ[39] AU37 — MDA39

SA_DQS[5] AP38 — DQSA5
SA_DQS#[5] AP39 — -DQSA5

SA_DQ[40] AR40 — MDA40
SA_DQ[41] AR37 — MDA41
SA_DQ[42] AN38 — MDA42
SA_DQ[43] AN37 — MDA43
SA_DQ[44] AR39 — MDA44
SA_DQ[45] AR38 — MDA45
SA_DQ[46] AN39 — MDA46
SA_DQ[47] AN40 — MDA47

SA_DQS[6] AK38 — DQSA6
SA_DQS#[6] AK39 — -DQSA6

SA_DQ[48] AL40 — MDA48
SA_DQ[49] AL37 — MDA49
SA_DQ[50] AJ38 — MDA50
SA_DQ[51] AJ37 — MDA51
SA_DQ[52] AL39 — MDA52
SA_DQ[53] AL38 — MDA53
SA_DQ[54] AJ39 — MDA54
SA_DQ[55] AJ40 — MDA55

SA_DQS[7] AE38 — DQSA7
SA_DQS#[7] AE39 — -DQSA7

SA_DQ[56] AG40 — MDA56
SA_DQ[57] AG37 — MDA57
SA_DQ[58] AE38 — MDA58
SA_DQ[59] AE37 — MDA59
SA_DQ[60] AG39 — MDA60
SA_DQ[61] AG38 — MDA61
SA_DQ[62] AE39 — MDA62
SA_DQ[63] AE40 — MDA63

DDR_0
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LGA1155/[10SC1-F01155-23R_10SC1-F01155-22R]

CPU_B

CPUB

MAAB0 AK24 — SB_MA[0]
MAAB1 AM20 — SB_MA[1]
MAAB2 AM19 — SB_MA[2]
MAAB3 AK18 — SB_MA[3]
MAAB4 AP19 — SB_MA[4]
MAAB5 AP18 — SB_MA[5]
MAAB6 AM18 — SB_MA[6]
MAAB7 AL18 — SB_MA[7]
MAAB8 AN18 — SB_MA[8]
MAAB9 AY17 — SB_MA[9]
MAAB10 AN23 — SB_MA[10]
MAAB11 AU17 — SB_MA[11]
MAAB12 AT18 — SB_MA[12]
MAAB13 AR26 — SB_MA[13]
MAAB14 AY16 — SB_MA[14]
MAAB15 AV16 — SB_MA[15]

[8] -SWEB — -SWEB AR25 — SB_WE#
[8] -SCASB — -SCASB AK25 — SB_CAS#
[8] -SRASB — -SRASB AP24 — SB_RAS#

[8] SBAB0 — SBAB0 AP23 — SB_BS[0]
[8] SBAB1 — SBAB1 AM24 — SB_BS[1]
[8] SBAB2 — SBAB2 AW17 — SB_BS[2]

[8] -CSB0 — -CSB0 AN25 — SB_CS#[0]
[8] -CSB1 — -CSB1 AN26 — SB_CS#[1]
AL25 — SB_CS#[2]
AT26 — SB_CS#[3]

[8] CKEB0 — CKEB0 AU16 — SB_CKE[0]
[8] CKEB1 — CKEB1 AY15 — SB_CKE[1]
AW15 — SB_CKE[2]
AV15 — SB_CKE[3]

MODT_B0 AL26 — SB_ODT[0]
MODT_B1 AP26 — SB_ODT[1]
AM26 — SB_ODT[2]
AK26 — SB_ODT[3]

[8] DCLKB0 — DCLKB0 AL21 — SB_CK[0]
[8] -DCLKB0 — -DCLKB0 AL22 — SB_CK#[0]
[8] DCLKB1 — DCLKB1 AL20 — SB_CK[1]
[8] -DCLKB1 — -DCLKB1 AK20 — SB_CK#[1]
AL23 — SB_CK[2]
AM22 — SB_CK#[2]
AP21 — SB_CK[3]
AN21 — SB_CK#[3]

VREF_DQB AH1 — FC_AH1
VREF_DQA AH4 — FC_AH4

AN16 — SB_DQS[8]
AN15 — SB_DQS#[8]

AL16 — SB_ECC_CB[0]
AM16 — SB_ECC_CB[1]
AP16 — SB_ECC_CB[2]
AR16 — SB_ECC_CB[3]
AL15 — SB_ECC_CB[4]
AM15 — SB_ECC_CB[5]
AR15 — SB_ECC_CB[6]
AP15 — SB_ECC_CB[7]

SB_DQS[0] AH7 — DQSB0
SB_DQS#[0] AH6 — -DQSB0

SB_DQ[0] AG7 — MDB0
SB_DQ[1] AG8 — MDB1
SB_DQ[2] AJ9 — MDB2
SB_DQ[3] AJ8 — MDB3
SB_DQ[4] AG5 — MDB4
SB_DQ[5] AG6 — MDB5
SB_DQ[6] AJ6 — MDB6
SB_DQ[7] AJ7 — MDB7

SB_DQS[1] AM8 — DQSB1
SB_DQS#[1] AL8 — -DQSB1

SB_DQ[8] AL7 — MDB8
SB_DQ[9] AM7 — MDB9
SB_DQ[10] AM10 — MDB10
SB_DQ[11] AL10 — MDB11
SB_DQ[12] AL6 — MDB12
SB_DQ[13] AM6 — MDB13
SB_DQ[14] AL9 — MDB14
SB_DQ[15] AM9 — MDB15

SB_DQS[2] AR8 — DQSB2
SB_DQS#[2] AP8 — -DQSB2

SB_DQ[16] AP7 — MDB16
SB_DQ[17] AR7 — MDB17
SB_DQ[18] AP10 — MDB18
SB_DQ[19] AR10 — MDB19
SB_DQ[20] AP6 — MDB20
SB_DQ[21] AR6 — MDB21
SB_DQ[22] AP9 — MDB22
SB_DQ[23] AR9 — MDB23

SB_DQS[3] AN13 — DQSB3
SB_DQS#[3] AN12 — -DQSB3

SB_DQ[24] AM12 — MDB24
SB_DQ[25] AM13 — MDB25
SB_DQ[26] AR13 — MDB26
SB_DQ[27] AP13 — MDB27
SB_DQ[28] AL12 — MDB28
SB_DQ[29] AL13 — MDB29
SB_DQ[30] AR12 — MDB30
SB_DQ[31] AP12 — MDB31

SB_DQS[4] AN29 — DQSB4
SB_DQS#[4] AN28 — -DQSB4

SB_DQ[32] AR28 — MDB32
SB_DQ[33] AR29 — MDB33
SB_DQ[34] AL28 — MDB34
SB_DQ[35] AL29 — MDB35
SB_DQ[36] AP28 — MDB36
SB_DQ[37] AP29 — MDB37
SB_DQ[38] AM28 — MDB38
SB_DQ[39] AM29 — MDB39

SB_DQS[5] AP33 — DQSB5
SB_DQS#[5] AR33 — -DQSB5

SB_DQ[40] AP32 — MDB40
SB_DQ[41] AP31 — MDB41
SB_DQ[42] AP35 — MDB42
SB_DQ[43] AP34 — MDB43
SB_DQ[44] AR32 — MDB44
SB_DQ[45] AR31 — MDB45
SB_DQ[46] AR35 — MDB46
SB_DQ[47] AR34 — MDB47

SB_DQS[6] AL33 — DQSB6
SB_DQS#[6] AM33 — -DQSB6

SB_DQ[48] AM32 — MDB48
SB_DQ[49] AM31 — MDB49
SB_DQ[50] AL35 — MDB50
SB_DQ[51] AL32 — MDB51
SB_DQ[52] AM34 — MDB52
SB_DQ[53] AL31 — MDB53
SB_DQ[54] AM35 — MDB54
SB_DQ[55] AL34 — MDB55

SB_DQS[7] AG35 — DQSB7
SB_DQS#[7] AG34 — -DQSB7

SB_DQ[56] AH35 — MDB56
SB_DQ[57] AH34 — MDB57
SB_DQ[58] AE34 — MDB58
SB_DQ[59] AE35 — MDB59
SB_DQ[60] AJ35 — MDB60
SB_DQ[61] AJ34 — MDB61
SB_DQ[62] AF33 — MDB62
SB_DQ[63] AF35 — MDB63

DDR_1
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LGA1155/[10SC1-F01155-23R_10SC1-F01155-22R]

CPU_SOCKET

CR
CPU RETAINTION/X

Need check the new CPU ME

CPU_P

COVER

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

DDR_SIGNAL

VREF_DQA
VREF_DQB

BC80 0.1u/4/X7R/16V/K
BC82 0.1u/4/X7R/16V/K

Place in CPU bottom side

[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]

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Title: CPU LGA1156-B		
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
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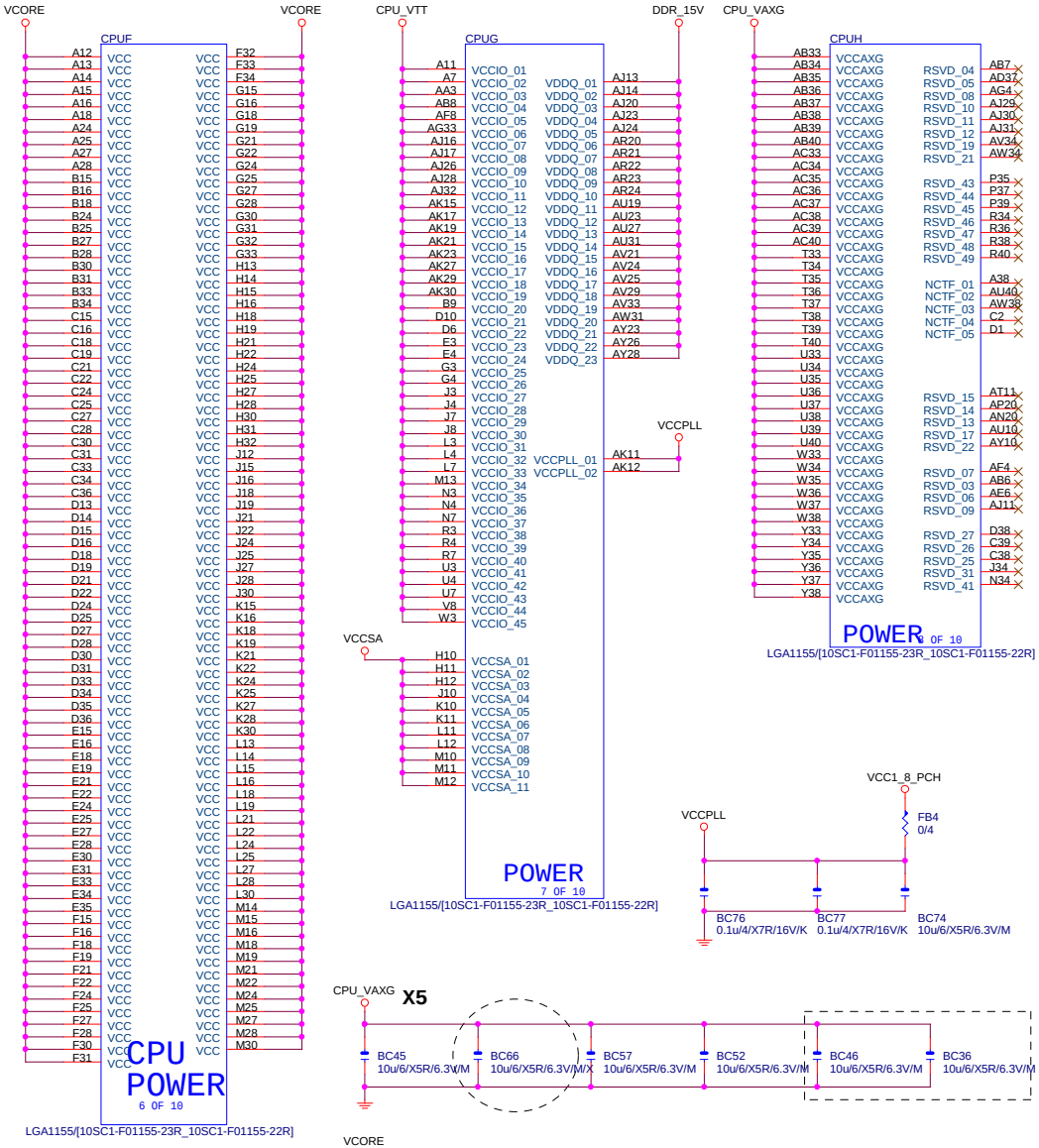
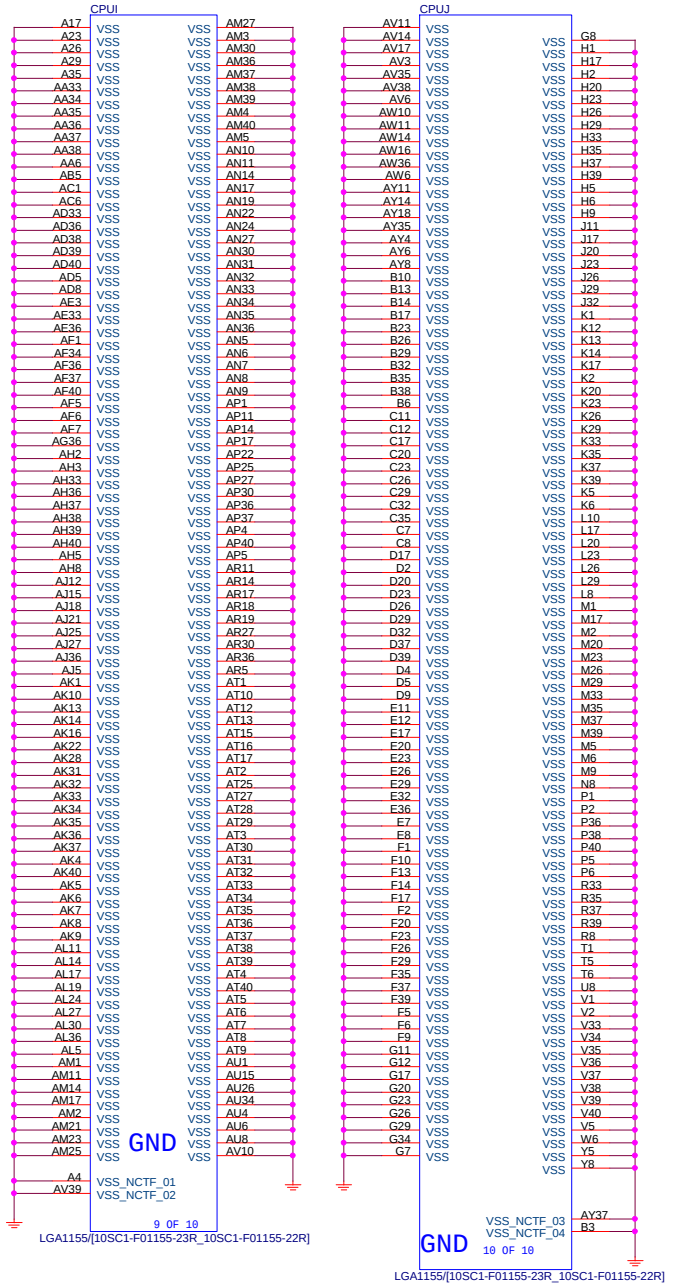
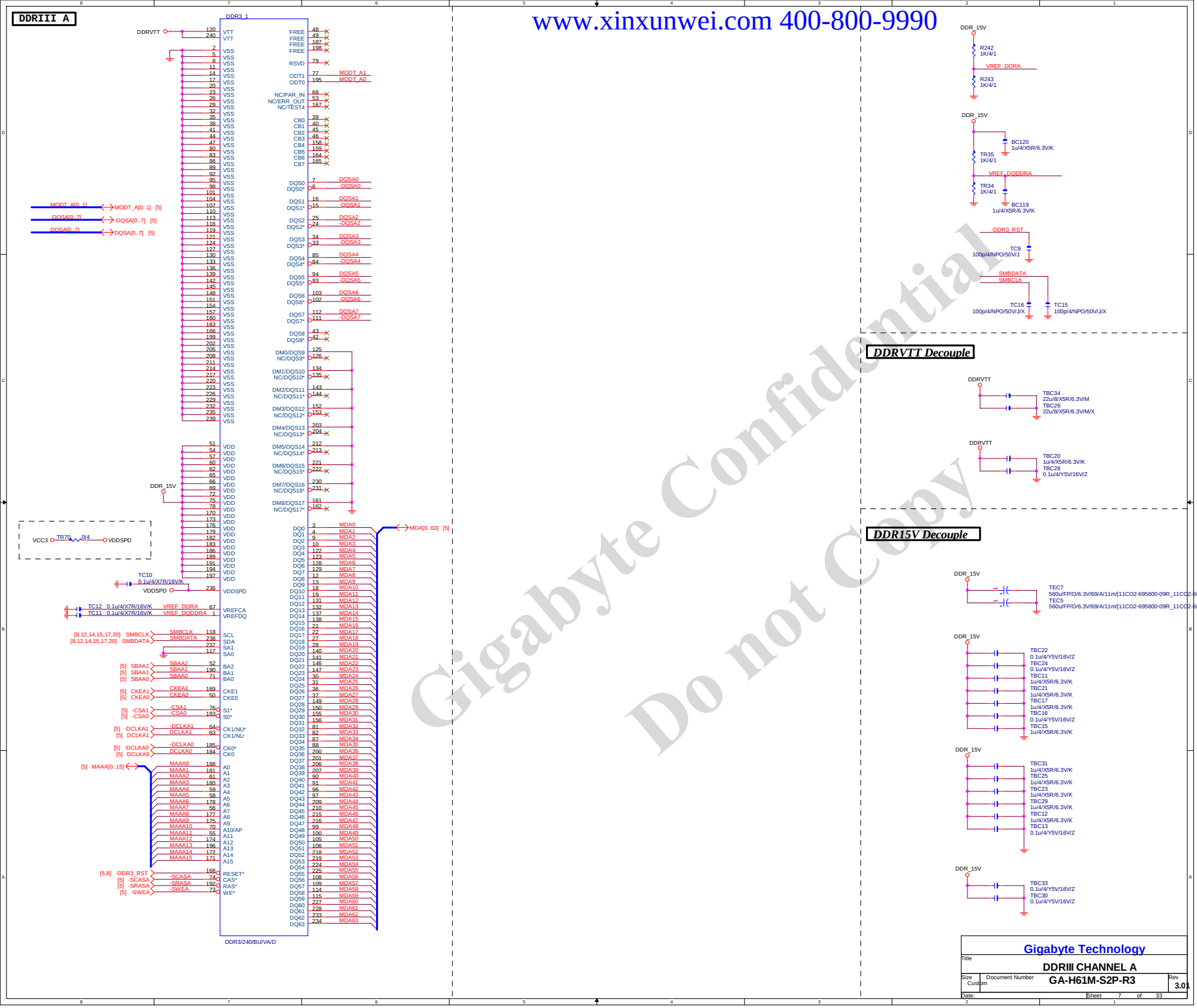
CPU F,G,H POWER



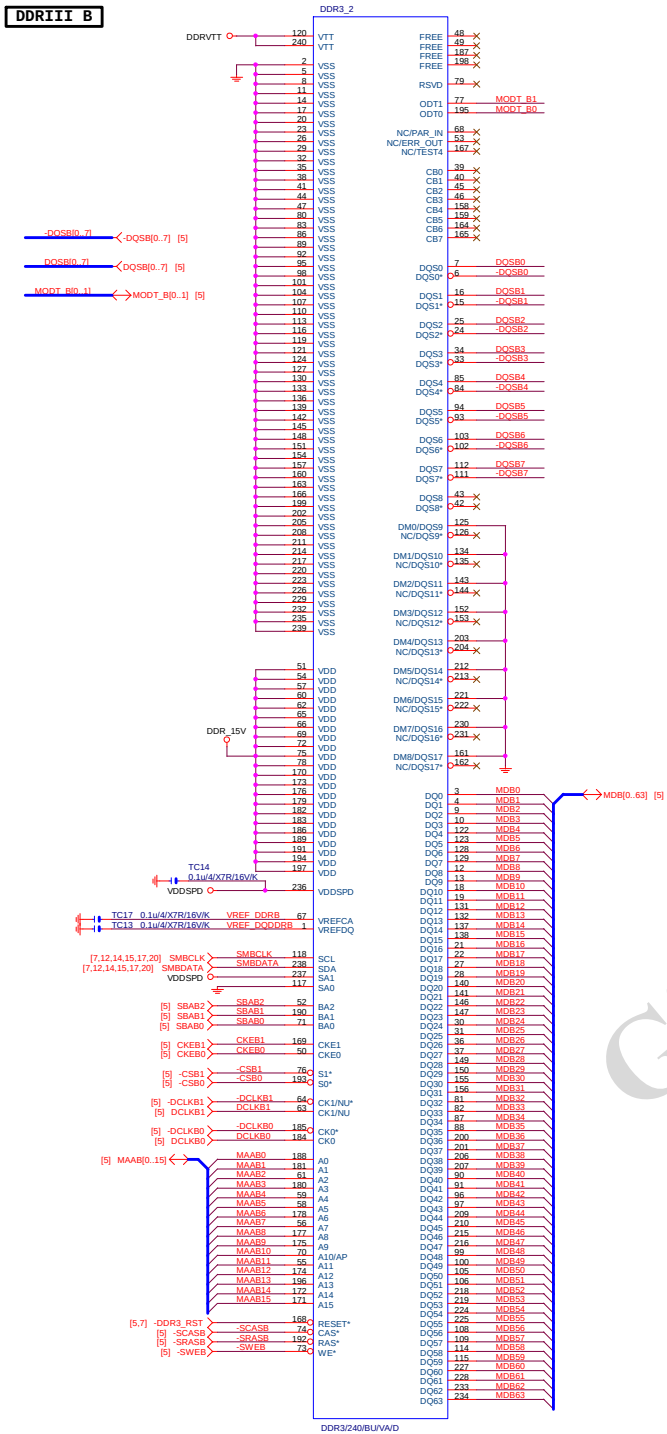
CPU I,J GND

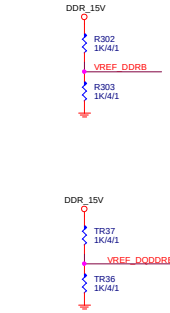


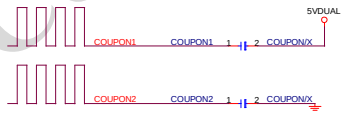
Gigabyte Technology	
Title	CPU LGA1156-C
Size: Custom	Document Number: GA-H61M-S2P-R3
Rev	3.01
Date: Thursday, April 18, 2013	Sheet 6 of 33



DDRIII B







CPU

DIMM1 **CHA**

DIMM2 **CHB**

Gigabyte Technology			
Title: DDRIII CHANNEL B			
Size: Custom	Document Number: GA-H61M-S2P-R3		Rev: 3.01
Date:	Sheet 8 of 33		

PCH B

H67: USB2.0 X14
B65: USB2.0 X12[6/7 PORT-->N/A]
H61: USB2.0 X10[6/7/12/13 PORT-->N/A]

PCHB

DMI_0TXN DMI_0TXP DMI_0RXN DMI_0RXP DMI_1TXN DMI_1TXP DMI_1RXN DMI_1RXP DMI_2TXN DMI_2TXP DMI_2RXN DMI_2RXP DMI_3TXN DMI_3TXP DMI_3RXN DMI_3RXP DMI_COMP
VCC1_05_PCH R232 49.9/4/1
-SRCCLK_PCH SRCCLK_PCH
CLKIN_DMI_N CLKIN_DMI_P

DMI

USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P

-USBP0 +USBP0 -USBP1 +USBP1 -USBP2 +USBP2 -USBP3 +USBP3 N_-USBP4 N_+USBP4 N_-USBP5 N_+USBP5

N/A

USB

PCIEX1

PCIE_IN1 PCIE_IP1 PCIE_TN1 PCIE_TP1

USB3

USB3_IN USB3_IP USB3_ON USB3_OP

0.1u/4/X7R/16V/K C33 PET_N1 C31 PET_P1 C210 PET_N2 C211 PET_P2

PERN1 PERP1 PETN1 PETP1 PERN2 PERP2 PETN2 PETP2 PERN3 PERP3 PETN3 PETP3 PERN4 PERP4 PETN4 PETP4 PERN5 PERP5 PETN5 PETP5 PERN6 PERP6 PETN6 PETP6 PERN7 PERP7 PETN7 PETP7 PERN8 PERP8 PETN8 PETP8

PCI-E

BRIDGE LAN

LA_ML_IN LA_ML_IP LA_ML_ON LA_ML_OP PCIEBIN PCIEBIP PCIEBON PCIEBOP

0.1u/4/X7R/16V/K C86 PET_N6 C85 PET_P6

H61 PORT 7/8 N/A

OC0#/GPIO59 OC1#/GPIO40 OC2#/GPIO41 OC3#/GPIO42 OC4#/GPIO43 OC5#/GPIO9 OC6#/GPIO10 OC7#/GPIO14

-USBOC_F -USBOC_R GPIO14

BC121 0.1u/4/X7R/16V/K BC126 0.1u/4/X7R/16V/K

USBRBIAS# USBRBIAS BP25 BM25 USBRBIAS R229 22.6/4/1

CLKIN_DOT_96N CLKIN_DOT_96P BD38 BF38 -DOTCLK DOTCLK

DMI2RBIAS A32 R233 750/4/1

2 OF 11

H61/BGA942/B3/[10HB1-030H61-20R]

USB OC# Configure	
OC0#	USB0,1(F_USB1)
OC1#	USB2,3(F_USB2)
OC2#	USB4,5(USB_LAN)
OC3#	USB6,7(H61:N/A)
OC4#	USB8,9(R_USB)
OC5#	USB10~11(N/A)
OC6#	USB12~13(N/A)
OC7#	GPIO14

PCH G FDI

FDI_TXP[0..7] FDI_TXP[0..7] [4]
FDI_TXN[0..7] FDI_TXN[0..7] [4]

PCHG

FDILINK

TP21 TP25 TP29 TP33 TP22 TP26 TP30 TP34 TP23 TP27 TP31 TP35 TP24 TP28 TP32 TP36

FDI_RXN0 FDI_RXP0 FDI_RXN1 FDI_RXP1 FDI_RXN2 FDI_RXP2 FDI_RXN3 FDI_RXP3 FDI_RXN4 FDI_RXP4 FDI_RXN5 FDI_RXP5 FDI_RXN6 FDI_RXP6 FDI_RXN7 FDI_RXP7

FDI_TXN0 FDI_TXP0 FDI_TXN1 FDI_TXP1 FDI_TXN2 FDI_TXP2 FDI_TXN3 FDI_TXP3 FDI_TXN4 FDI_TXP4 FDI_TXN5 FDI_TXP5 FDI_TXN6 FDI_TXP6 FDI_TXN7 FDI_TXP7

FDI_FSYNC0 FDI_LSYNC0 FDI_FSYNC1 FDI_LSYNC1 FDI_INT

FDI_FSYNC0 [4] FDI_LSYNC0 [4] FDI_FSYNC1 [4] FDI_LSYNC1 [4] FDI_INT [4]

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H61/BGA942/B3/[10HB1-030H61-20R]

3VDUAL

R238 8.2K/4 GPIO14

SRCCLK_PCH R414 8.2K/4
-SRCCLK_PCH R416 8.2K/4

DOTCLK R417 8.2K/4
-DOTCLK R419 8.2K/4

R1018 short to GND in non graphic SKU

[12] GPIO11 SOT23 -USBOC_F -USBOC_R D4 BAT54A/SOT23/200mA

FOR FUSE SHORT GPIO

PCH E

VCC1_8_PCH R282 1K/4/1 NV_CLE R257 8.2K/4 -H_SNB [4] BC139 0.1u/4/X7R/16V/K

DMI /FDI termination voltage

PCHE

NV_CLE

RESERVED_29 DF_TVS RESERVED_6 RESERVED_4 RESERVED_3 RESERVED_2 RESERVED_1

RESERVED_22 RESERVED_21 RESERVED_14 RESERVED_13 RESERVED_12 RESERVED_11 RESERVED_10 RESERVED_9 RESERVED_8 RESERVED_7 RESERVED_20 RESERVED_19 RESERVED_18 RESERVED_17 RESERVED_16 RESERVED_15

RESERVED_28 RESERVED_27 RESERVED_26 RESERVED_25

RESERVED_24 RESERVED_23

RESERVED_5 R50 NV_RCOMP R256 33/4

32.4/4/1 for ONFI enable

NVRAM

5 OF 11

H61/BGA942/B3/[10HB1-030H61-20R]

PCH HS

LOW COST ICH7 HEATSINK

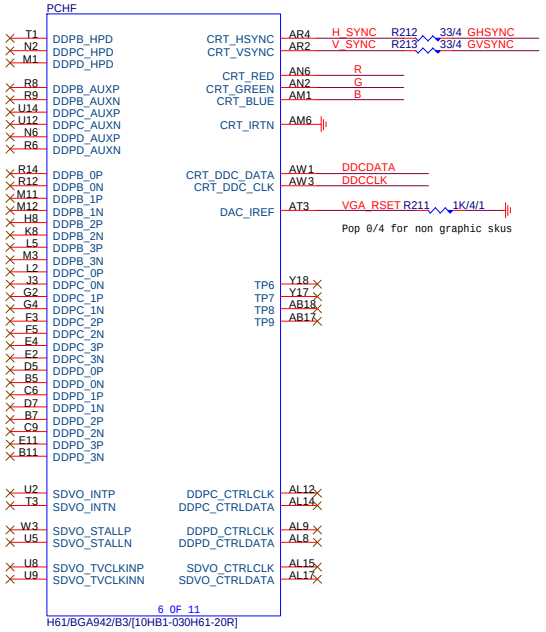
SB_HEATSIN

PCH_HS/[12SP2-030005-43R_12SP2-030005-41R_12SP2-030005-42R]

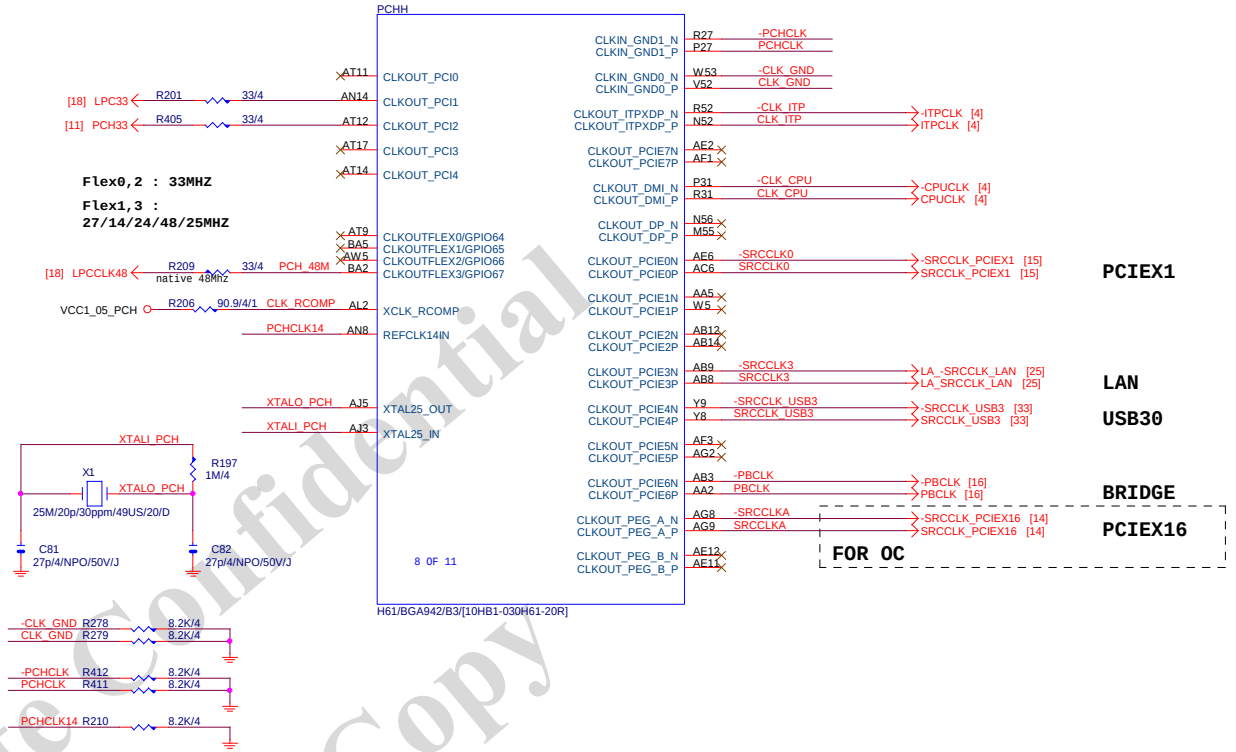
PCH_HS GRAY HS

Gigabyte Technology			
Title: PCH FDI,DMI,USB ,PCIE,NVRAM			
Size: Custom	Document Number: GA-H61M-S2P-R3		Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 9 of 33		

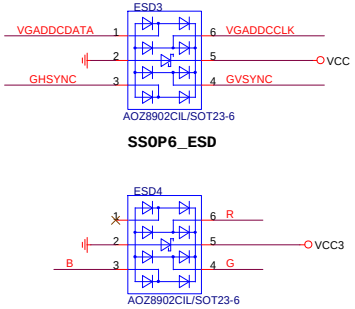
PCH F DISPLAY



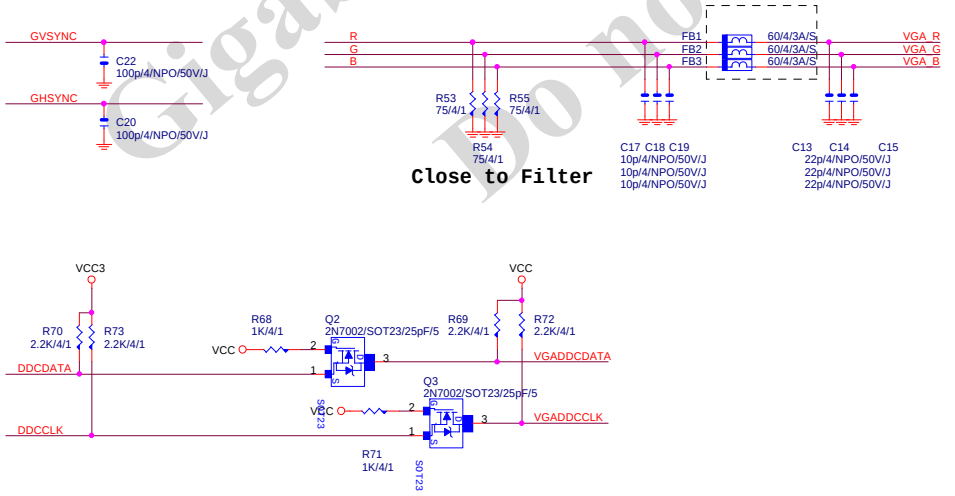
PCH H CLK BUFFER



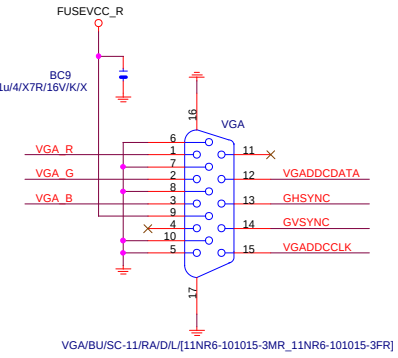
VGA ESD



VGA SIGNAL



D-SUB



Gigabyte Technology			
Title: PCH DISPLAY ,CLK BUFFER			
Size: Custom	Document Number: GA-H61M-S2P-R3		Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 10 of 33		

PCH C

PCHC

For WIFI
BA50 CL_CLK1
BF50 CL_DATA1
BF49 CL_RST1#
CLINK

[12,18] PWROK1 — BC46 APWROK

BN21 PWM0
BT21 PWM1
BM20 PWM2
BN19 PWM3

GPIO17 BT17 TACH0/GPIO17
GPIO1 BR19 TACH1/GPIO1
GPIO6 BA22 TACH2/GPIO6
GPIO7 BR16 TACH3/GPIO7
GPIO68 BU16 TACH4_GPIO68
BM18 TACH5_GPIO69
GPIO70 BN17 TACH6_GPIO70
GPIO71 BP15 TACH7_GPIO71
FAN

[18] SSTCTL — BC43 SST

GPIO22 BA53 SCLOCK/GPIO22
GPIO38 BE54 SLOAD/GPIO38
GPIO39 BF55 SDATAOUT0/GPIO39
GPIO48 AW53 SDATAOUT1/GPIO48
GPIO

AY20 NC_5

SATA3
SATA0RXN AC56 SATA0RXN
SATA0RXP AB55 SATA0RXP
SATA0TXN AE46 SATA0TXN
SATA0TXP AE44 SATA0TXP
SATA1RXN AA53 SATA1RXN
SATA1RXP AA56 SATA1RXP
SATA1TXN AG49 SATA1TXN
SATA1TXP AG47 SATA1TXP

SATA2
SATA2RXN AL50
SATA2RXP AL49
SATA2TXN AL56
SATA2TXP AL53
SATA3RXN AN46
SATA3RXP AN44
SATA3TXN AN56
SATA3TXP AM55
SATA4RXN AN49 SATA4RXN
SATA4RXP AN50 SATA4RXP
SATA4TXN AT50 SATA4TXN
SATA4TXP AT49 SATA4TXP
SATA5RXN AT46 SATA5RXN
SATA5RXP AT44 SATA5RXP
SATA5TXN AV50 SATA5TXN
SATA5TXP AV49 SATA5TXP

CLKIN_SATA_N AF55 -SRCCLK_SATA
CLKIN_SATA_P AG56 SRCCLK_SATA

SATALED# BF57 -SATALED [22]
SATAICOMPI AJ55
SATAICOMPO AJ53 SATACOMP R286 37.4/4/1 VCC1_05_PCH

SATA0GP/GPIO21 BC54 GPIO21
SATA1GP/GPIO19 AY52 GPIO19
SATA2GP/GPIO36 BB55
SATA3GP/GPIO37 BG53
SATA4GP/GPIO16 AU56 GPIO16
SATA5GP/GPIO49 BA56 TEMP_ALART-

SATA3COMPI AE54
SATA3RCOMPO AE52 SATA3COMP R287 49.9/4/1 VCC1_05_PCH

TP16 AE50

SATA3RBIAS AC52 SATA3BIAS R288 750/4/1

HOST
A20GATE BB57 A20GATE A20GATE [18]
INIT3_3V# BN56
RCIN# BG56 -KBRST -KBRST [18]
SERIRQ AV52 SERIRQ SERIRQ [18]
THRMTRIP# E56 -THRMTRIP -THRMTRIP [4]
PECI H48 SB_PECI R283 0/4/X PECI PECI [4,18]
PMSYNCH F55 PMSYNC [4]

3 OF 11
H61/BGA942/B3/[10HB1-030H61-20R]

B65 SATA3.0 ONLY PORT0
H61 N/A

FDI RX
[18] TEMP_ALART- R310 1K/4/1/X
GPIO19 TEMP_ALART-
GPIO22
A20GATE
RN16 8.2K/8P4R/4

GPIO16 SERIRQ GPIO48 GPIO0
[12] GPIO0
RN17 8.2K/8P4R/4

GPIO21 GPIO38 GPIO39 GPIO20
[12] GPIO20
RN18 8.2K/8P4R/4

-KBRST R304 1K/4/1

VCC3
SRCCLK_SATA R261 8.2K/4
-SRCCLK_SATA R262 8.2K/4

VCC3
RN12 8.2K/8P4R/4
GPIO70 GPIO6 GPIO17 GPIO1
-PIRQG GPIO68 GPIO7
RN11 8.2K/8P4R/4

MB-ID
R224 8.2K/4/X GPIO17
R333 8.2K/4/X GPIO19

PCH A

PCHA

[10] PCH33 — PCH33 BD15
-DEVSEL BH9
-IRDY BF11
-SERR BR6
-STOP BC12
-PLOCK BA17
-TRDY BC8
-PERR BM3
-FRAME BC11

BH8 PAR
DEVSEL#
CLKIN_PCILOOPBACK
PCIRST#
IRDY#
PME#
SERR#
STOP#
PLOCK#
TRDY#
PERR#
FRAME#

BA15 GNT0#
AV8 GNT1#/GPIO51
BU12 GNT2#/GPIO53
BE2 GNT3#/GPIO55

-REQ0 BG5 REQ0#
-REQ1 BT5 REQ1#/GPIO50
-REQ2 BK8 REQ2#/GPIO52
-REQ3 AV11 REQ3#/GPIO54

-PIRQA BK10 PIRQA#
-PIRQB BJ5 PIRQB#
-PIRQC BM15 PIRQC#
-PIRQD BP5 PIRQD#
-PIRQE BN9 PIRQE#/GPIO2
-PIRQF AV9 PIRQF#/GPIO3
-PIRQG BT15 PIRQG#/GPIO4
-PIRQH BR4 PIRQH#/GPIO5

AD0 BF15
AD1 BF17
AD2 BT7
AD3 BT13
AD4 BG12
AD5 BN11
AD6 BJ12
AD7 BU9
AD8 BR12
AD9 BJ3
AD10 BR9
AD11 BJ10
AD12 BM8
AD13 BF3
AD14 BN2
AD15 BE4
AD16 BE6
AD17 BG15
AD18 BC6
AD19 BT11
AD20 BA14
AD21 BL2
AD22 BC4
AD23 BL4
AD24 BC2
AD25 BM13
AD26 BA9
AD27 BF9
AD28 BA8
AD29 BF8
AD30 AV17
AD31 BK12

C/BE0# BN4
C/BE1# BP7
C/BE2# BG2
C/BE3# BP13

PCI
1 OF 11
H61/BGA942/B3/[10HB1-030H61-20R]

RN7 8.2K/8P4R/4 VCC
-PERR -REQ0 -REQ3 -TRDY

RN6 8.2K/8P4R/4 VCC
-DEVSEL -SERR -REQ1 -REQ2

RN8 8.2K/8P4R/4
-STOP -PLOCK -IRDY -FRAME

RN9 8.2K/8P4R/4 VCC3
-PIRQA -PIRQB -PIRQD -PIRQF

RN10 8.2K/8P4R/4
GPIO71 -PIRQC -PIRQE -PIRQH

SATA CONN.

SATA2_0
SATA0TXP 0.01u/4/X7R/25V/K C114 SATA0TXPC
SATA0TXN 0.01u/4/X7R/25V/K C118 SATA0TXNC
SATA0RXN 0.01u/4/X7R/25V/K C125 SATA0RXNC
SATA0RXP 0.01u/4/X7R/25V/K C129 SATA0RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B/[11NH5-110307-E2R_11NH5-110307-E1R]

SATA2_2
SATA4TXP 0.01u/4/X7R/25V/K C112 SATA4TXPC
SATA4TXN 0.01u/4/X7R/25V/K C116 SATA4TXNC
SATA4RXN 0.01u/4/X7R/25V/K C123 SATA4RXNC
SATA4RXP 0.01u/4/X7R/25V/K C127 SATA4RXPC
GND T+ T- GND R- R+ GND
SATA2/7/BU/H/OP/VA/D/1/B/[11NH5-110307-E2R_11NH5-110307-E1R]

SATA2_1
SATA1TXP 0.01u/4/X7R/25V/K C113 SATA1TXPC
SATA1TXN 0.01u/4/X7R/25V/K C117 SATA1TXNC
SATA1RXN 0.01u/4/X7R/25V/K C124 SATA1RXNC
SATA1RXP 0.01u/4/X7R/25V/K C128 SATA1RXPC
GND T+ T- GND R- R+ GND

H61 SATA3.0 N/A
SATA2/7/BU/H/OP/VA/D/1/B/[11NH5-110307-E2R_11NH5-110307-E1R]

SATA2_3
SATA5TXP 0.01u/4/X7R/25V/K C111 SATA5TXPC
SATA5TXN 0.01u/4/X7R/25V/K C115 SATA5TXNC
SATA5RXN 0.01u/4/X7R/25V/K C122 SATA5RXNC
SATA5RXP 0.01u/4/X7R/25V/K C126 SATA5RXPC
GND T+ T- GND R- R+ GND

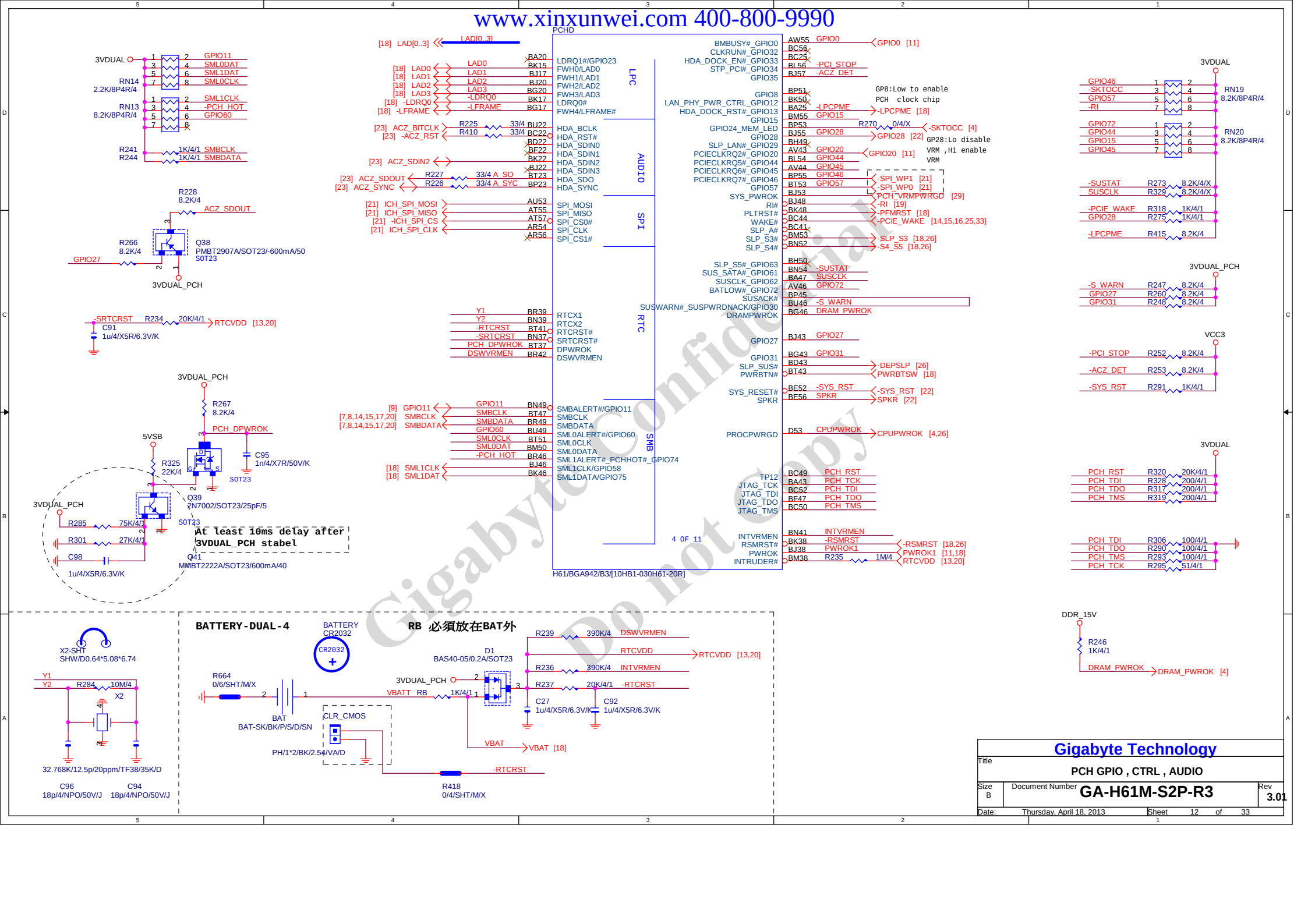
H1X7-SATA2-HS-MASK
SATA2/7/BU/H/OP/VA/D/1/B/[11NH5-110307-E2R_11NH5-110307-E1R]

Gigabyte Technology

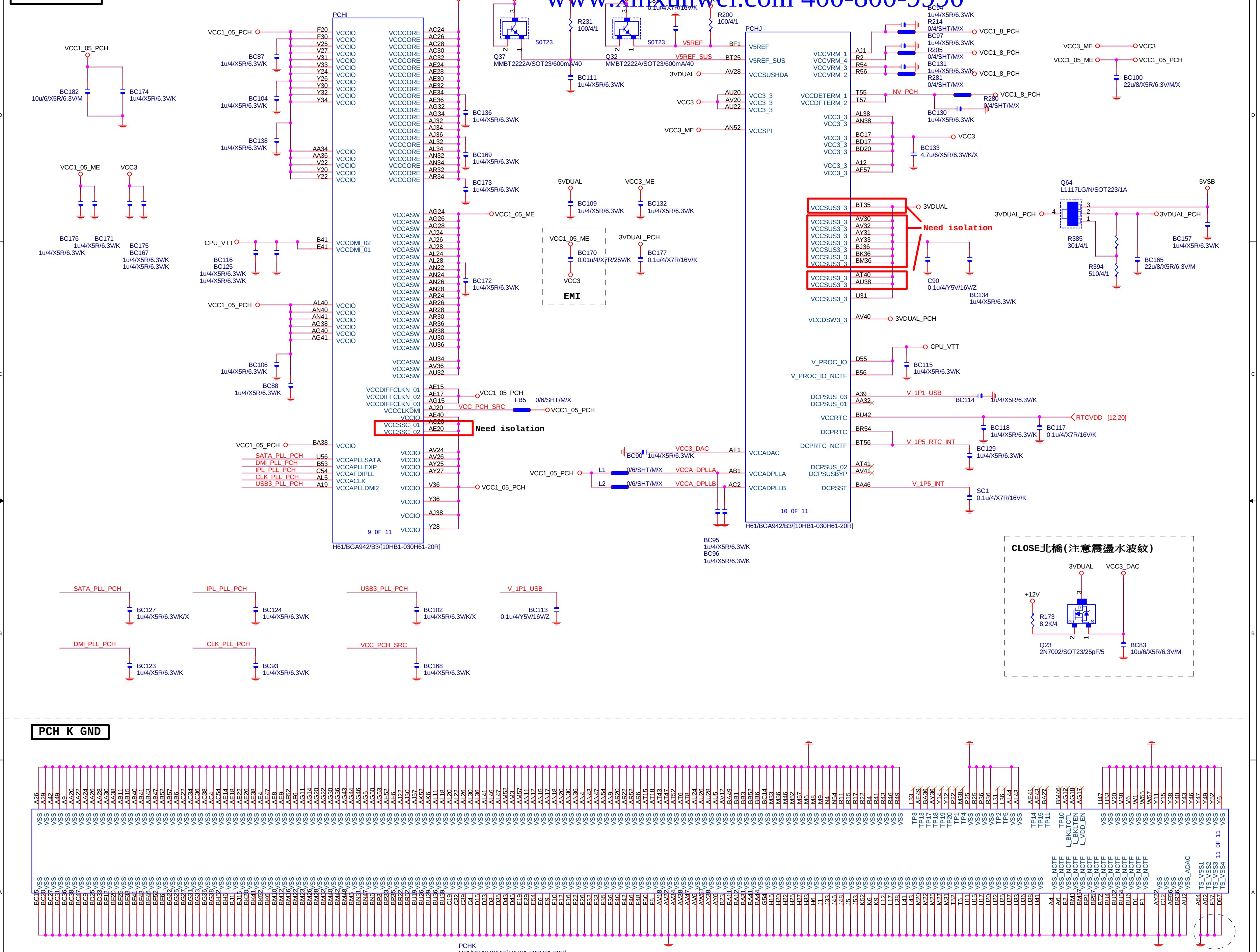
Title: PCH HOST , SATA, PCI

Size: B | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

Date: Thursday, April 18, 2013 | Sheet 11 of 33



www.xinxunwei.com 400-800-9990



Gigabyte Technology

Title: PCH PWR ,GND

Size: Custom | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

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PCIEX16

PCIESLOT-164DN-P

3GIO_*16

PCIEX16

KEY

VCC3

BC30 0.1u/4/Y5V/16V/Z

BC26 0.1u/4/Y5V/16V/Z

BC28 0.1u/4/Y5V/16V/Z/X

+12V

EC2 270u/FP/D/16V/8C/A/10m/[11CO5-8C2700-09R]

X16_+12V

R97 0/4/SHT/M/X

R92 0/4/SHT/M/X

R96 0/4/SHT/M/X

3VDUAL

RN4 0/8P4R/0402/SHT/X

RN2 0/8P4R/4/X

[7,8,12,15,17,20] SMBCLK

[7,8,12,15,17,20] SMBDATA

[12,15,16,25,33] -PCIE_WAKE

-PCIE_RST [15,16,18]

-PCIE_RST

C29 22p/4/NPO/50V/J/X

B	Net	A	Net
B1	12V	A1	PRSNT1*
B2	12V	A2	12V
B3	RSVD	A3	12V
B4	GND	A4	GND
B5	SMCLK	A5	JTAG2
B6	SMDAT	A6	JTAG3
B7	GND	A7	JTAG4
B8	3.3V	A8	JTAG5
B9	JTAG1	A9	3.3V
B10	3.3VAUX	A10	3.3V
B11	WAKE*	A11	PWRGD
B12	RSVD	A12	GND
B13	GND	A13	REFCLK+
B14	HSOP0	A14	REFCLK-
B15	HSON0	A15	GND
B16	GND	A16	HSIP0
B17	PRSNT2*	A17	HSIN0
B18	GND	A18	GND
B19	HSOP1	A19	RSVD
B20	HSON1	A20	GND
B21	GND	A21	HSIP1
B22	GND	A22	HSIN1
B23	HSOP2	A23	GND
B24	HSON2	A24	GND
B25	GND	A25	HSIP2
B26	GND	A26	HSIN2
B27	HSOP3	A27	GND
B28	HSON3	A28	GND
B29	GND	A29	HSIP3
B30	RSVD	A30	HSIN3
B31	PRSNT2*	A31	GND
B32	GND	A32	RSVD
B33	HSOP4	A33	RSVD
B34	HSON4	A34	GND
B35	GND	A35	HSIP4
B36	GND	A36	HSIN4
B37	HSOP5	A37	GND
B38	HSON5	A38	GND
B39	GND	A39	HSIP5
B40	GND	A40	HSIN5
B41	HSOP6	A41	GND
B42	HSON6	A42	GND
B43	GND	A43	HSIP6
B44	GND	A44	HSIN6
B45	HSOP7	A45	GND
B46	HSON7	A46	GND
B47	GND	A47	HSIP7
B48	PRSNT2*	A48	HSIN7
B49	GND	A49	GND
B50	HSOP8	A50	RSVD
B51	HSON8	A51	GND
B52	GND	A52	HSIP8
B53	GND	A53	HSIN8
B54	HSOP9	A54	GND
B55	HSON9	A55	GND
B56	GND	A56	HSIP9
B57	GND	A57	HSIN9
B58	HSOP10	A58	GND
B59	HSON10	A59	GND
B60	GND	A60	HSIP10
B61	GND	A61	HSIN10
B62	HSOP11	A62	GND
B63	HSON11	A63	GND
B64	GND	A64	HSIP11
B65	GND	A65	HSIN11
B66	HSOP12	A66	GND
B67	HSON12	A67	GND
B68	GND	A68	HSIP12
B69	GND	A69	HSIN12
B70	HSOP13	A70	GND
B71	HSON13	A71	GND
B72	GND	A72	HSIP13
B73	GND	A73	HSIN13
B74	HSOP14	A74	GND
B75	HSON14	A75	GND
B76	GND	A76	HSIP14
B77	GND	A77	HSIN14
B78	HSOP15	A78	GND
B79	HSON15	A79	GND
B80	GND	A80	HSIP15
B81	PRSNT2*	A81	HSIN15
B82	RSVD	A82	GND

PCI-E/16X-164P/297C/LONG DOUBLE

LONG DOUBLE PUSH LATCH

EXP_A_RXP[0..15]	EXP_A_RXP[0..15] [4]	
EXP_A_RXN[0..15]	EXP_A_RXN[0..15] [4]	
EXP_A_TXP[0..15]	EXP_A_TXP[0..15] [4]	
EXP_A_TXN[0..15]	EXP_A_TXN[0..15] [4]	

EXP_A_TXP0	C32	0.22u/4/X5R/6.3V/K EXP_A_TXP0C
EXP_A_TXN0	C30	0.22u/4/X5R/6.3V/K EXP_A_TXN0C
EXP_A_TXP1	C35	0.22u/4/X5R/6.3V/K EXP_A_TXP1C
EXP_A_TXN1	C37	0.22u/4/X5R/6.3V/K EXP_A_TXN1C
EXP_A_TXP2	C39	0.22u/4/X5R/6.3V/K EXP_A_TXP2C
EXP_A_TXN2	C41	0.22u/4/X5R/6.3V/K EXP_A_TXN2C
EXP_A_TXP3	C43	0.22u/4/X5R/6.3V/K EXP_A_TXP3C
EXP_A_TXN3	C45	0.22u/4/X5R/6.3V/K EXP_A_TXN3C
EXP_A_TXP4	C46	0.22u/4/X5R/6.3V/K EXP_A_TXP4C
EXP_A_TXN4	C49	0.22u/4/X5R/6.3V/K EXP_A_TXN4C
EXP_A_TXP5	C50	0.22u/4/X5R/6.3V/K EXP_A_TXP5C
EXP_A_TXN5	C51	0.22u/4/X5R/6.3V/K EXP_A_TXN5C
EXP_A_TXP6	C52	0.22u/4/X5R/6.3V/K EXP_A_TXP6C
EXP_A_TXN6	C54	0.22u/4/X5R/6.3V/K EXP_A_TXN6C
EXP_A_TXP7	C57	0.22u/4/X5R/6.3V/K EXP_A_TXP7C
EXP_A_TXN7	C58	0.22u/4/X5R/6.3V/K EXP_A_TXN7C
EXP_A_TXP8	C60	0.22u/4/X5R/6.3V/K EXP_A_TXP8C
EXP_A_TXN8	C61	0.22u/4/X5R/6.3V/K EXP_A_TXN8C
EXP_A_TXP9	C62	0.22u/4/X5R/6.3V/K EXP_A_TXP9C
EXP_A_TXN9	C63	0.22u/4/X5R/6.3V/K EXP_A_TXN9C
EXP_A_TXP10	C64	0.22u/4/X5R/6.3V/K EXP_A_TXP10C
EXP_A_TXN10	C65	0.22u/4/X5R/6.3V/K EXP_A_TXN10C
EXP_A_TXP11	C66	0.22u/4/X5R/6.3V/K EXP_A_TXP11C
EXP_A_TXN11	C67	0.22u/4/X5R/6.3V/K EXP_A_TXN11C
EXP_A_TXP12	C68	0.22u/4/X5R/6.3V/K EXP_A_TXP12C
EXP_A_TXN12	C70	0.22u/4/X5R/6.3V/K EXP_A_TXN12C
EXP_A_TXP13	C72	0.22u/4/X5R/6.3V/K EXP_A_TXP13C
EXP_A_TXN13	C73	0.22u/4/X5R/6.3V/K EXP_A_TXN13C
EXP_A_TXP14	C74	0.22u/4/X5R/6.3V/K EXP_A_TXP14C
EXP_A_TXN14	C75	0.22u/4/X5R/6.3V/K EXP_A_TXN14C
EXP_A_TXP15	C77	0.22u/4/X5R/6.3V/K EXP_A_TXP15C
EXP_A_TXN15	C78	0.22u/4/X5R/6.3V/K EXP_A_TXN15C

EXP_A_RXP0	EXP_A_RXN0
EXP_A_RXP1	EXP_A_RXN1
EXP_A_RXP2	EXP_A_RXN2
EXP_A_RXP3	EXP_A_RXN3
EXP_A_RXP4	EXP_A_RXN4
EXP_A_RXP5	EXP_A_RXN5
EXP_A_RXP6	EXP_A_RXN6
EXP_A_RXP7	EXP_A_RXN7
EXP_A_RXP8	EXP_A_RXN8
EXP_A_RXP9	EXP_A_RXN9
EXP_A_RXP10	EXP_A_RXN10
EXP_A_RXP11	EXP_A_RXN11
EXP_A_RXP12	EXP_A_RXN12
EXP_A_RXP13	EXP_A_RXN13
EXP_A_RXP14	EXP_A_RXN14
EXP_A_RXP15	EXP_A_RXN15

SRCCLK_PCIEX16 [10]

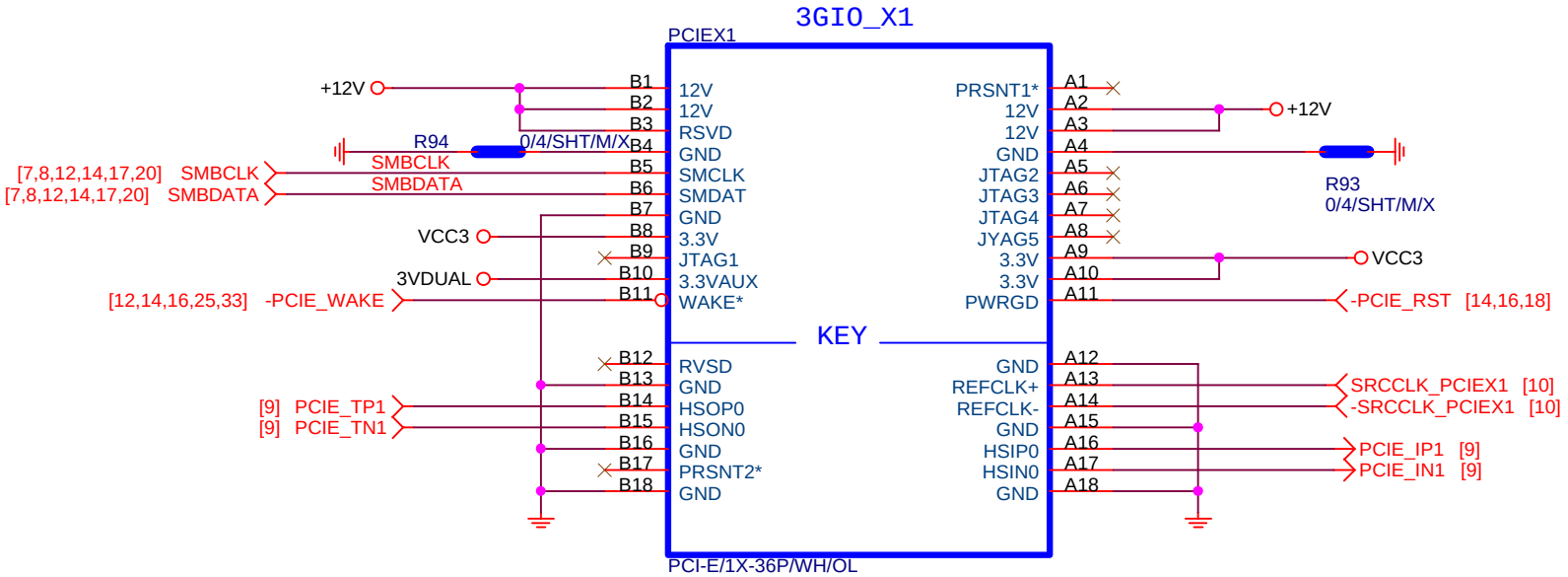
-SRCCLK_PCIEX16 [10]

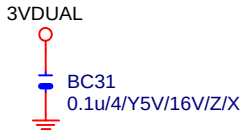
Gigabyte Technology

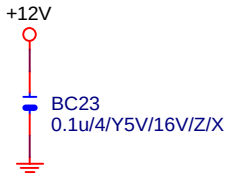
Title: PCI EXPRESS * 16

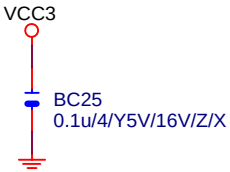
Size: Custom | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

Date: Thursday, April 18, 2013 | Sheet 14 of 33









Gigabyte Technology		
Title: PCI EXPRESS X 1 PORT		
Size: A	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 15 of 33	

PCIE TO PCI

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

BA_D[0..31] BA_D[0..31] [17]

-BC_BE0 -BC_BE0 [17]
-BC_BE1 -BC_BE1 [17]
-BC_BE2 -BC_BE2 [17]
-BC_BE3 -BC_BE3 [17]

-BPERR -BPERR [17]
-BSERR -BSERR [17]

BPAR BPAR [17]
-BPLOCK -BPLOCK [17]
-BDEVSEL -BDEVSEL [17]
-BSTOP -BSTOP [17]
-BTRDY -BTRDY [17]
-BIRDY -BIRDY [17]
-BFRAME -BFRAME [17]

-PCIE_RST -PCIE_RST [14,15,18]

-BPCIRST -BPCIRST [17]

-BREQ0 -BREQ0 [17]
-BREQ1 -BREQ1 [17]
-BGNT0 -BGNT0 [17]
-BGNT1 -BGNT1 [17]

-BPCIPME1 -BPCIPME1 [17]

[17] BPCLK0 PR24 47/4/1 CLKOUT0
[17] BPCLK1 PR19 47/4/1 CLKOUT1

RREF PR13 12K/4/1
TEST_EN PR21 10K/4/1
EXT_ARB PR22 10K/4/1
RST_SEL PR7 10K/4/1

M66EN
PR42 1K/4/1

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

PCICLK_SEL
PR37 10K/4/1

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

VCC

PU1

IT8892E/BX LQFP128

PCIEWAKE 1 WAKE#
-BPCIPME 2 PME#
3 GNDP_AUX
VCCP 4 VCCP_AUX
LDOAUX_18V 5 LDOAUX_18V
1.8V_AUX 6 VSS_AUX
7 VCCK_AUX
8 NC
[10] -PBCLK 9 CLKN
[10] PBCLK 10 CLKP
1.8VA 11 VCC18A
1.8VA 12 VCC18A
13 GNDA
14 GNDA
15 GNDA
RREF 16 RREF
[9] PCIEBOP 17 DIP
[9] PCIEBON 18 DIN
1.8V_AUXA 19 VCC18A_AUX
[9] PCIEBIN PBC43 0.1u/4/X7R/16V/K 20 DON
[9] PCIEBIP PBC44 0.1u/4/X7R/16V/K 21 DOP
1.8VD 22 VSS
23 VCCK
24 SEG_EN1/GP3
25 SEG_EN2/GP4
26 EECS#
27 EECLK
28 EEWRDATA
29 EERDDATA
BA_D0 30 AD0
BA_D1 31 AD1
32 SEG_G

PCICLK_SEL 128 SEG_F/GP1
127 SEG_E/GP0
126 PCICLK_SEL
1.8VD 125 VCCK
GND 124 GNDP
123 VCCP
M66EN 122 M66EN
121 SEG_D
120 SEG_C
119 SEG_B
118 SEG_A
-PCIE_RST 117 PERST#
-BPIRQD 116 INTD#
-BPCIRST 115 PCIRST#
-BGNT2 114 NC
1.8VD 113 VSS
112 VCCK
GNDP 111 GNDP
VCCP 110 VCCP
-BREQ2 109 TP2
-BGNT0 108 GNT0#
-BREQ0 107 REQ0#
-BGNT3 106 NC
-BPIRQA 105 TP1
CLKOUT0 104 PCICLK0
-BGNT1 103 GNT1#
-BREQ1 102 REQ1#
BA_D31 101 AD31
BA_D30 100 AD30
BA_D29 99 AD29
BA_D28 98 AD28
97 VSS

96 VCCK 1.8VD
95 GNDP
94 VCCP VCC3
93 NC CLKOUT1
92 EXT_ARB EXT_ARB
91 RST_SEL RST_SEL
90 TEST_EN TEST_EN
89 AD27 BA_D27
88 AD26 BA_D26
87 CBE3# -BC_BE3
86 AD25 BA_D25
85 AD24 BA_D24
84 VCCP VCC3
83 AD23 BA_D23
82 AD22 BA_D22
81 AD21 BA_D21
80 AD20 BA_D20
79 VSS
78 VCCK 1.8VD
77 AD19 BA_D19
76 AD18 BA_D18
75 AD17 BA_D17
74 AD16 BA_D16
73 GNDP
72 VCCP VCC3
71 FRAME# -BFRAME
70 IRDY# -BIRDY
69 CBE2# -BC_BE2
68 TRDY# -BTRDY
67 STOP# -BSTOP
66 DEVSEL# -BDEVSEL
65 INTA# -BPIRQA

IT8892E/FX/S/[10HP2-698892-40R]

33 AD2 BA_D2
34 AD3 BA_D3
35 VCCP
36 GNDP
37 AD4 BA_D4
38 AD5 BA_D5
39 AD6 BA_D6
40 AD7 BA_D7
41 VCCK 1.8VD
42 VSS
43 AD8 BA_D8
44 AD9 BA_D9
45 AD10 BA_D10
46 CBE0# -BC_BE0
47 VCCP VCC3
48 GNDP
49 CBE1# -BC_BE1
50 AD11 BA_D11
51 AD12 BA_D12
52 AD13 BA_D13
53 AD14 BA_D14
54 AD15 BA_D15
55 PERR# -BPERR
56 SERR# -BSERR
57 VCCP VCC3
58 GNDP
59 LDO_18V LDO_18V
60 VSS
61 PAR BPAR
62 LOCK# -BPLOCK
63 INTB# -BPIRQB
64 INTC# -BPIRQC

VCC3

IT8892 — PCI slot

PRN14 0/8P4R/0402/SHT/X
-BPIRQA 1 2 -BPIRQA1 [17]
-BPIRQD 3 4 -BPIRQD1 [17]
-BPIRQC 5 6 -BPIRQC1 [17]
-BPIRQB 7 8 -BPIRQB1 [17]

VCCP PR26 0/4/SHT/M/X 3VDUAL

PCI slot — chipset side

-BPCIPME1 PR27 0/4/SHT/M/X -PCIE_WAKE [12,14,15,25,33]

3VDUAL
PR2 0/4/SHT/M/X
PCIEWAKE PR34 10K/4/1
-BPCIPME PR43 10K/4/1

PRN1 2.2K/8P4R/4
-BFRAME 1 2
-BTRDY 3 4
-BSTOP 5 6
-BDEVSEL 7 8

PRN2 2.2K/8P4R/4
-BIRDY 1 2
-BPERR 3 4
-BSERR 5 6
-BPLOCK 7 8

PRN15 2.2K/8P4R/4
-BPIRQB 1 2
-BPIRQC 3 4
-BPIRQD 5 6
-BPIRQA 7 8

PRN4 2.2K/8P4R/4
-BGNT1 1 2
-BREQ1 3 4
-BGNT2 5 6
-BREQ2 7 8

PRN5 2.2K/8P4R/4
-BGNT0 1 2
-BREQ0 3 4
-BGNT3 5 6
-BREQ3 7 8

BPAR PR41 2.2K/4/1/X

LDO_18V PFB1 0/6/SHT/M/X 1.8VA
PFB2 0/6/SHT/M/X 1.8VD
LDOAUX_18V PFB3 0/6/SHT/M/X 1.8V_AUX
PFB4 0/6/SHT/M/X 1.8V_AUXA

VCC3 bulk: PBC60 10u/6/X5R/6.3V/M; PBC21 1u/4/X5R/6.3V/K; PBC22 0.1u/4/X7R/16V/K; PBC33 1u/4/X5R/6.3V/K; PBC34 0.1u/4/X7R/16V/K; PBC35 0.1u/4/X7R/16V/K

3VDUAL: PBC29 0.1u/4/X7R/16V/K/X
1.8V_AUX: PBC30 0.1u/4/X7R/16V/K
1.8V_AUXA: PBC31 0.1u/4/X7R/16V/K

1.8VD bulk: PBC23 10u/6/X5R/6.3V/M; PBC24 1u/4/X5R/6.3V/K; PBC25 0.1u/4/X7R/16V/K

1.8VD: PBC59 1u/4/X5R/6.3V/K; PBC38 0.1u/4/X7R/16V/K; PBC39 0.01u/4/X7R/25V/K

PCB layout note: Close to chip

1.8VA: PBC26 10u/6/X5R/6.3V/M; PBC27 1u/4/X5R/6.3V/K; PBC28 0.1u/4/X7R/16V/K

Close to chip

LDOAUX_18V: PBC32 10u/6/X5R/6.3V/M; PBC40 1u/4/X5R/6.3V/K; PBC41 0.01u/4/X7R/25V/K

LDO_18V: PBC58 10u/6/X5R/6.3V/M; PBC42 1u/4/X5R/6.3V/K; PBC45 0.01u/4/X7R/25V/K

PCB layout note: Close to chip

Gigabyte Technology

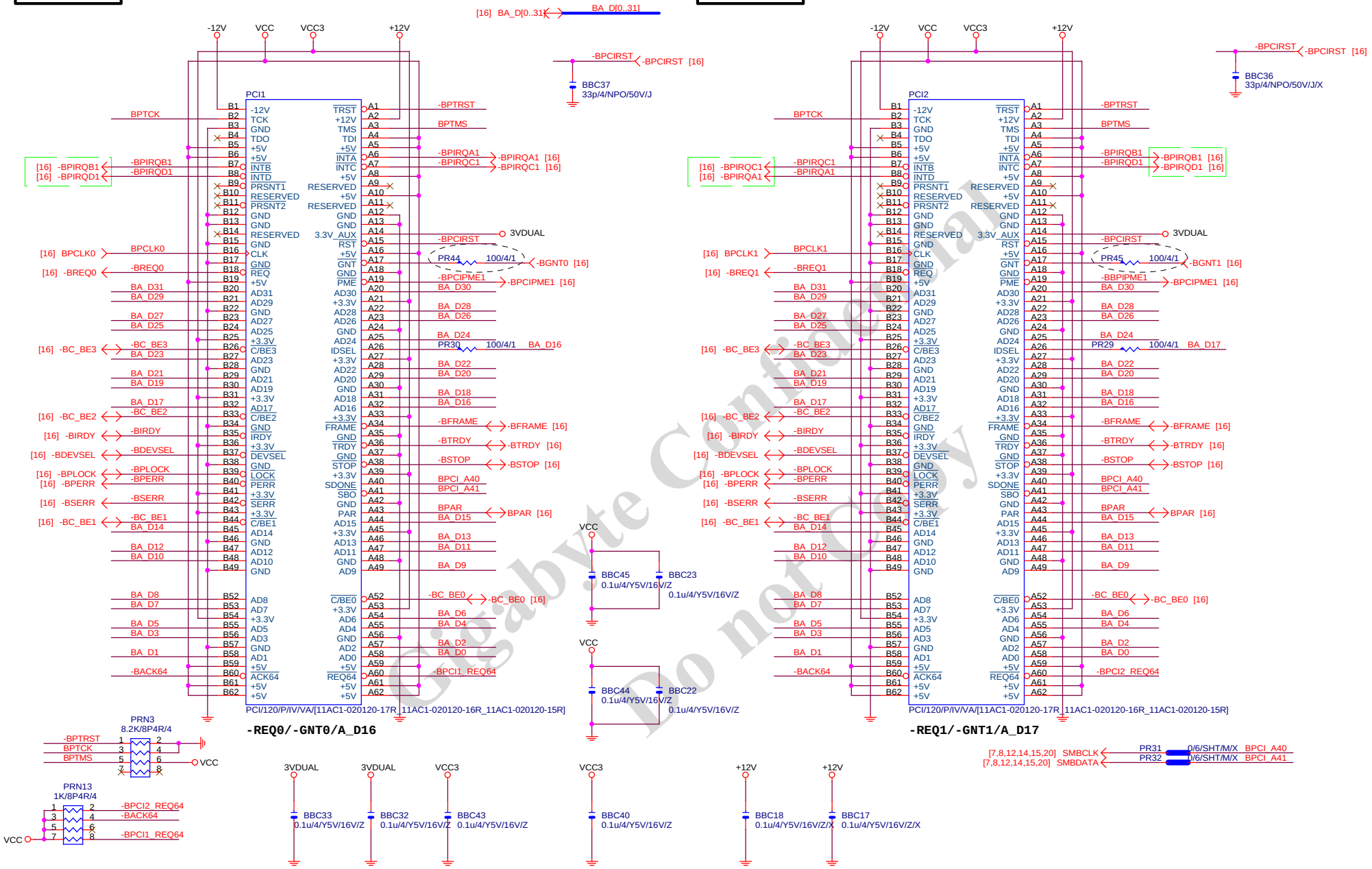
Title: ITE IT8892E

Size: Custom | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

Date: Thursday, April 18, 2013 | Sheet 16 of 33

PCI SLOT 1

PCI SLOT 2



Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 17 of 33	

I/O

IT8728F(GB)

CPU_FAN SYS_FAN

CHK GPIO53

EUP

For IT8728

For 8728 EUP function

For IT8721 Power leakage

IT8728F/EX (GB)/QFP128/[10HP2-118728-70R]

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

PCIRST1 is OD in IT8728

internal power pin, max 22nF cap

FOR LOW TEMP POWER ON INTO TEST MODE ISSUE

IT8728-EX
PULL DOWN ENABLE OVP

EUP control by PCH

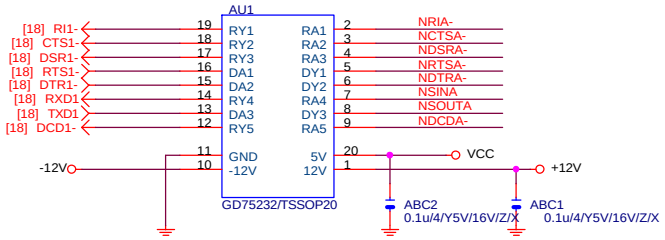
JP3--- High SPI-Flash Disable
Low SPI-Flash Enable

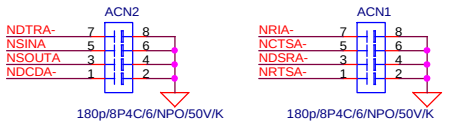
EMI

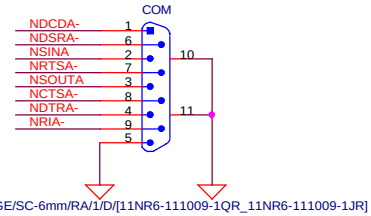
Title	ITE 8728 LPC IO
Size	Custom
Document Number	GA-H61M-S2P-R3
Rev	3.01
Date:	Thursday, April 18, 2013
Sheet	18 of 33

Gigabyte Technology

COM

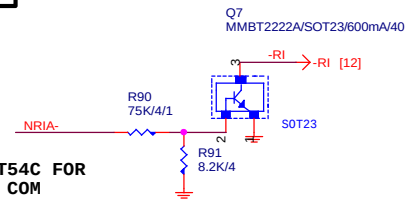






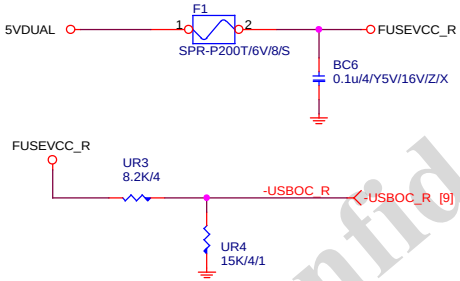
VITE -1QR

VCOM/RI

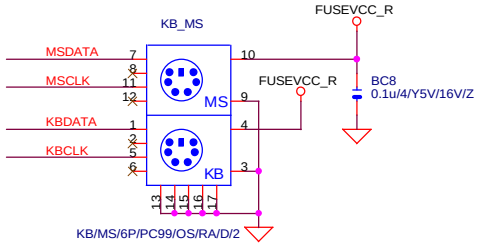


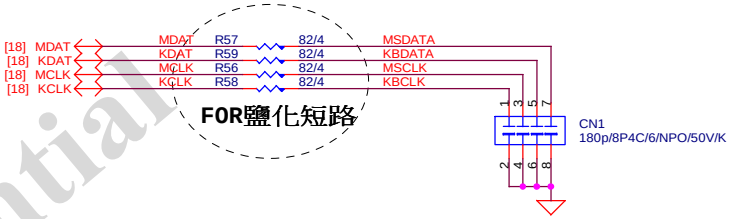
R_USB POWER

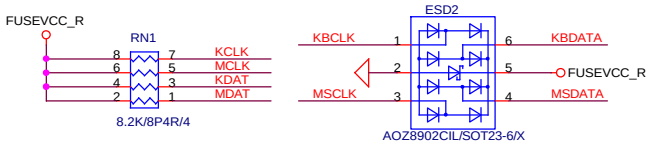
CLOSE R_USB



KB/MS

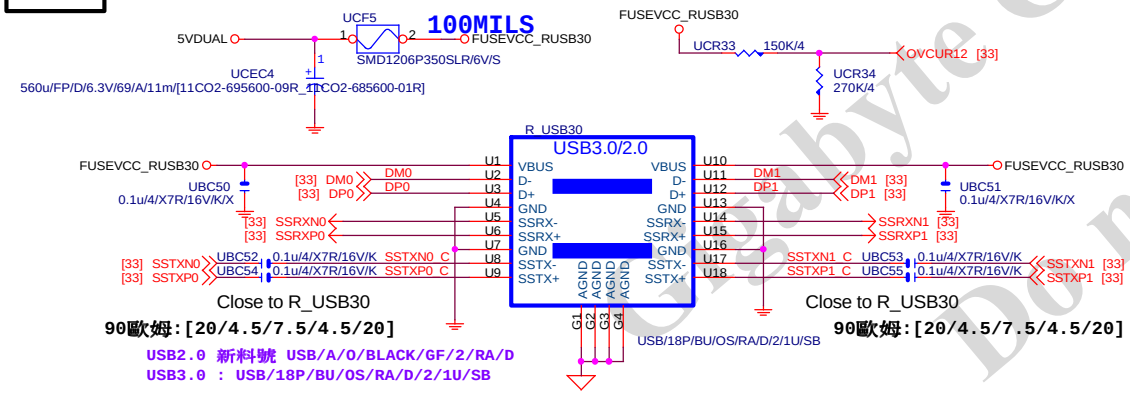




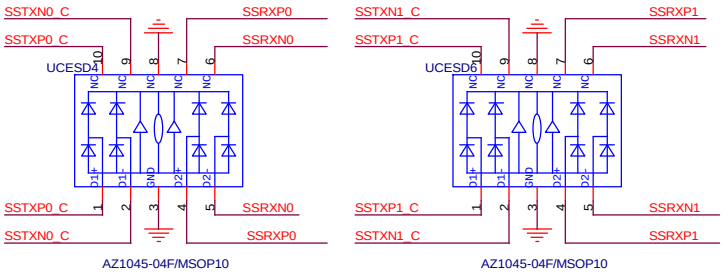


CLOSE KB_MS

R_USB30

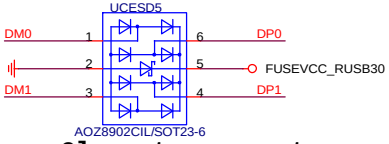


USB2.0 新料號 USB/A/O/BLACK/GF/2/RA/D
USB3.0 : USB/18P/BU/OS/RA/D/2/1U/SB



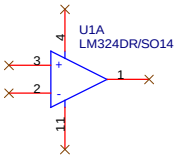
Close to connector

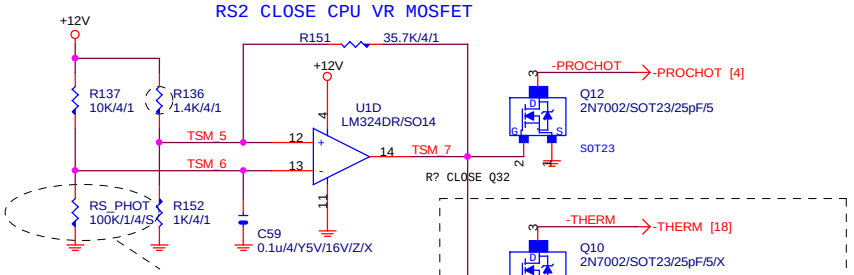
Close to connector



Close to connector

-PROHOT



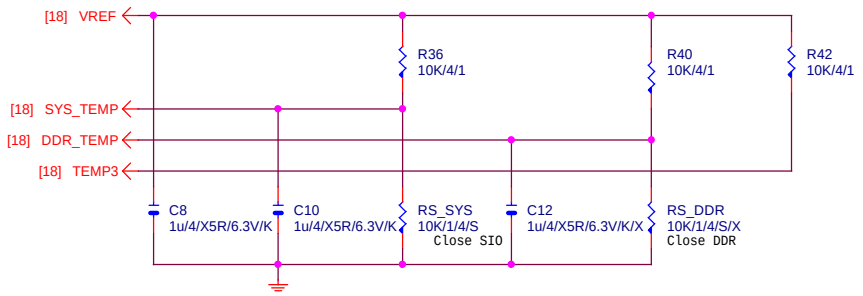


CLOSE PWM HOT MOSFET

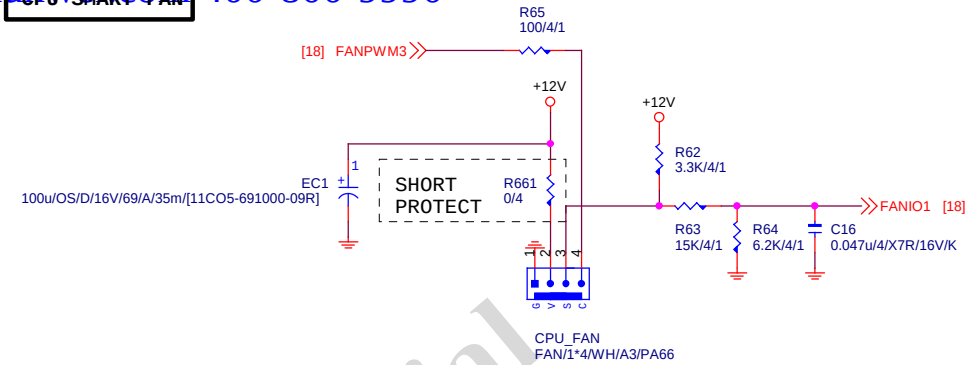
THERMAL SHUTDOWN
BIOS NO FUNCTION

Gigabyte Technology		
Title: COM,-RI,KB_USB,USB_ESATA,-PROCHOT		
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 19 of 33	

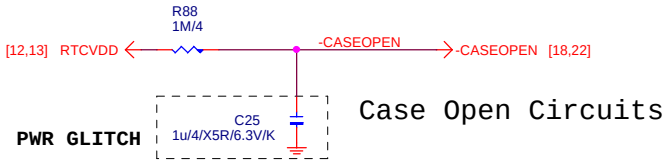
TEMP H/W MONITOR



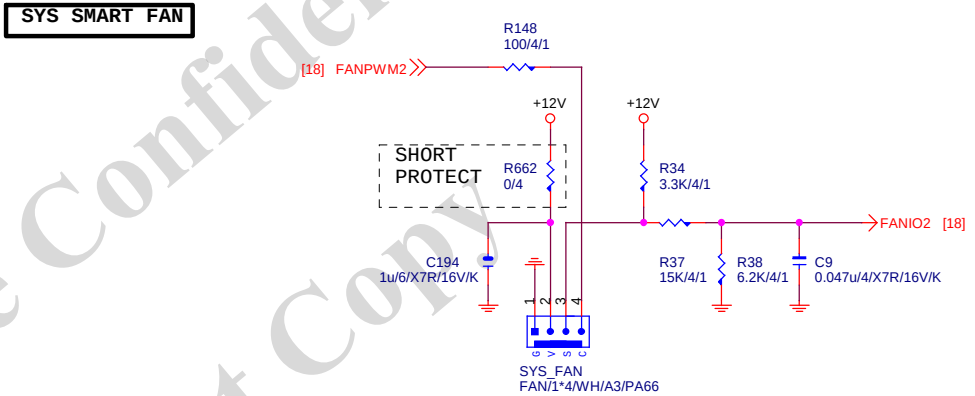
CPU SMART FAN



CASE OPEN

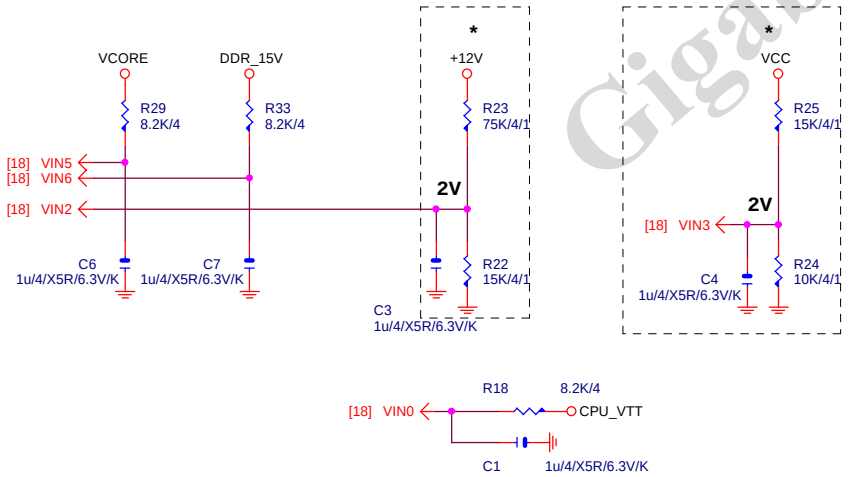


SYS SMART FAN

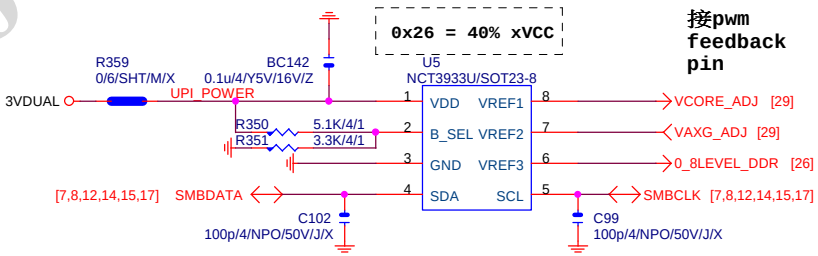


VOLTAGE-- H/W MONITOR

IT8728/EX VIN2/VIN3-->2V

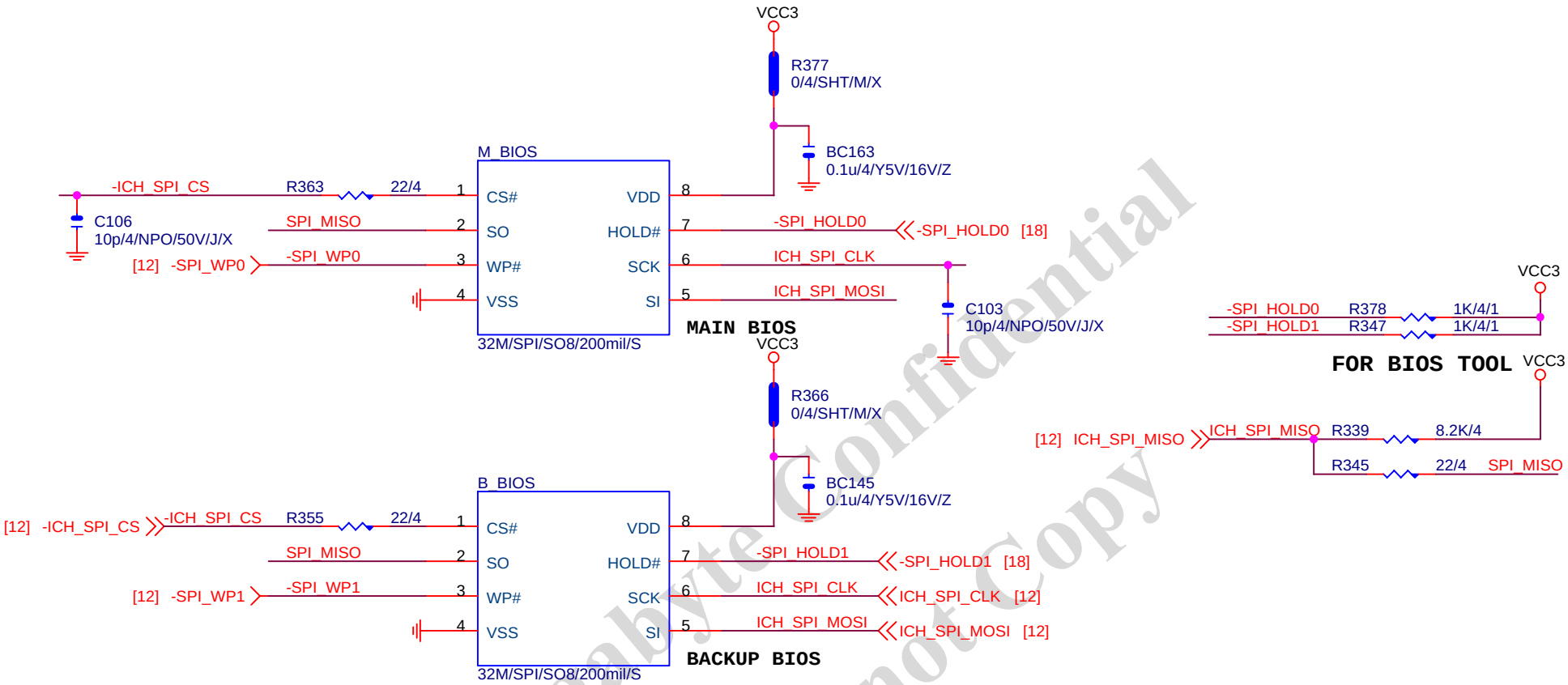


O.V.



Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 20 of 33	

DUAL BIOS



B65使用64M BIOS

使用H67暂用32M

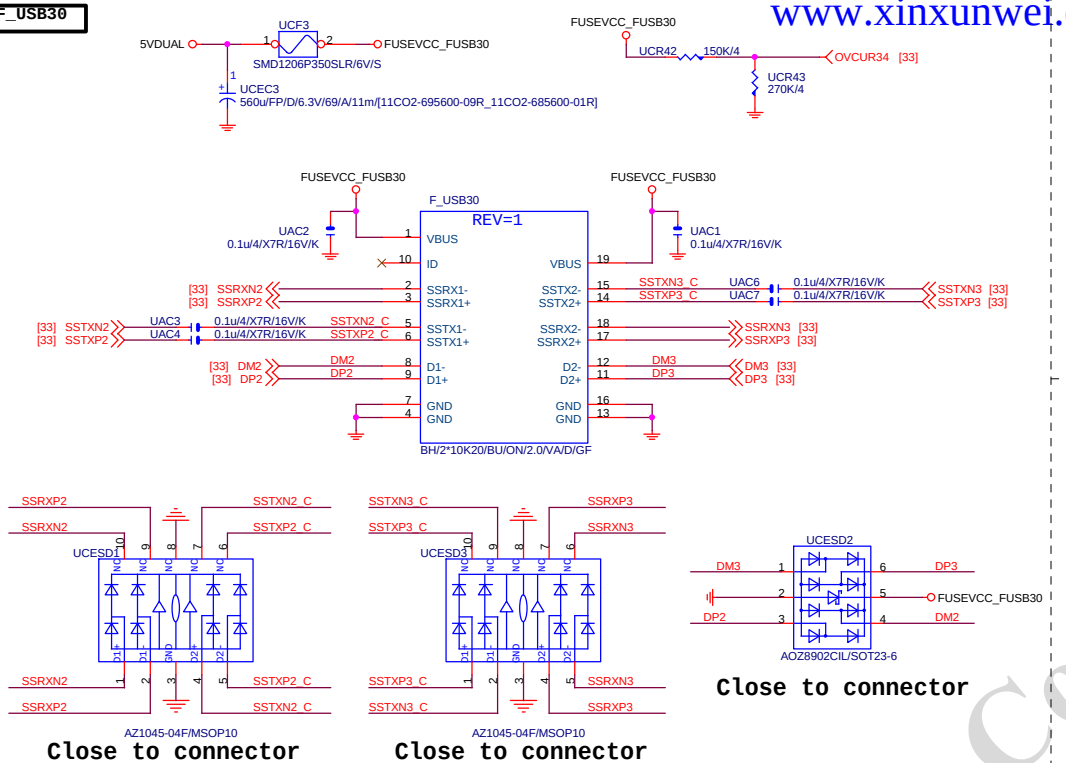
H61使用32M BIOS

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

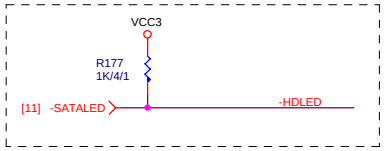
1 means floating
0 means PD 1K

Gigabyte Technology		
Title: DUAL BIOS		
Size: A	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 21 of 33	

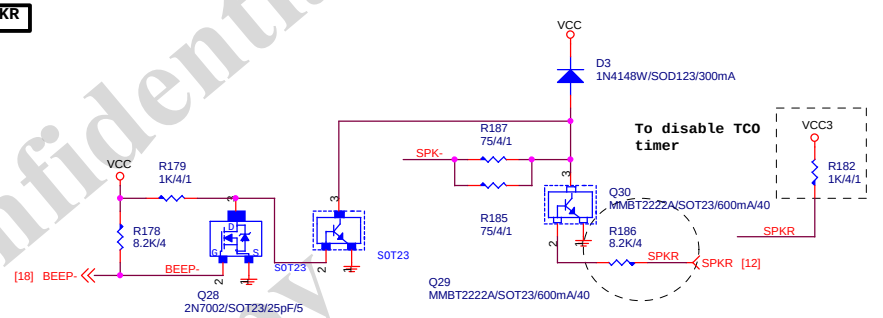
F_USB30



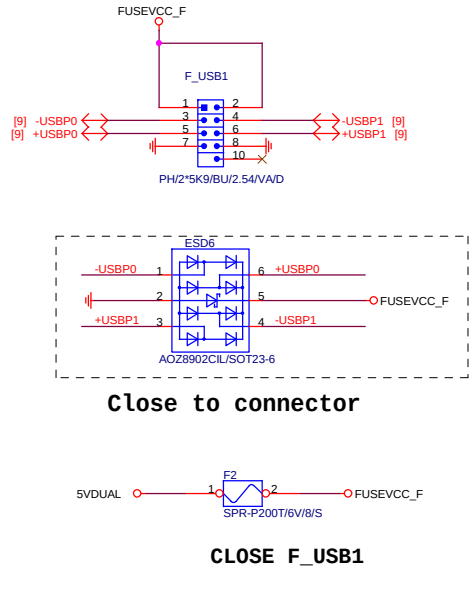
SATA LED



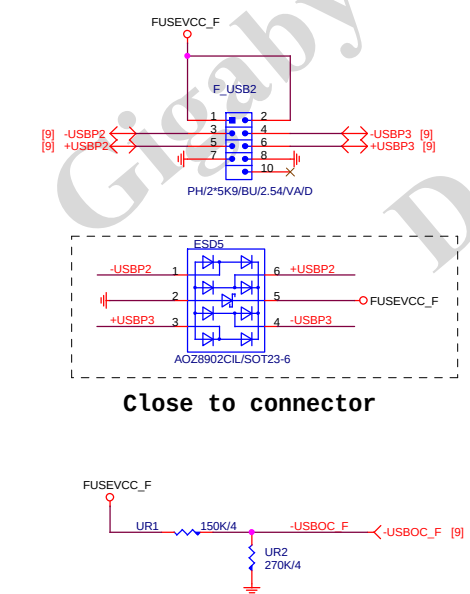
SPKR



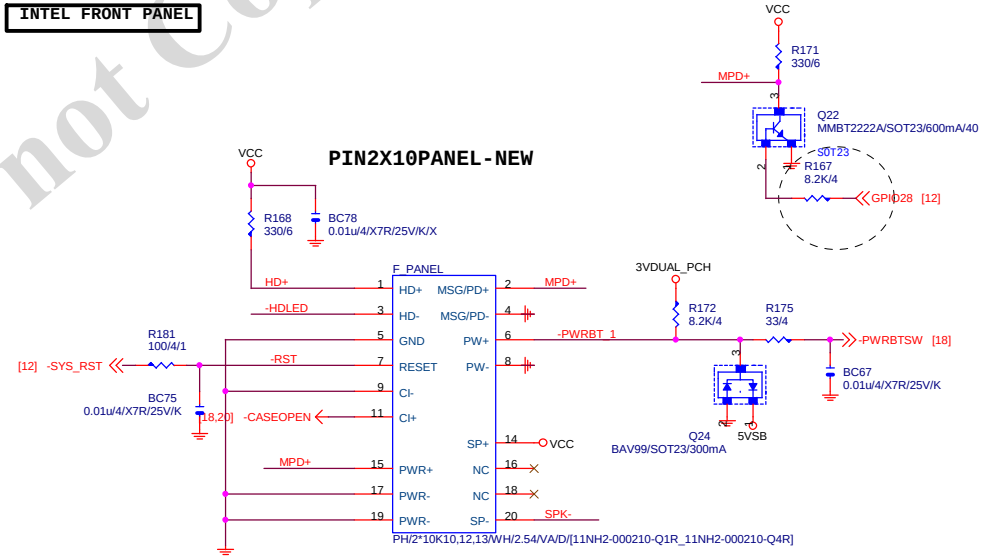
FRONT USB1



FRONT USB2



INTEL FRONT PANEL



Gigabyte Technology

Title: FP,F_USB,USB PWR,SPKR,SATA LED

Size: Custom | Document Number: GA-H61M-S2P-R3 | Rev: 3.01

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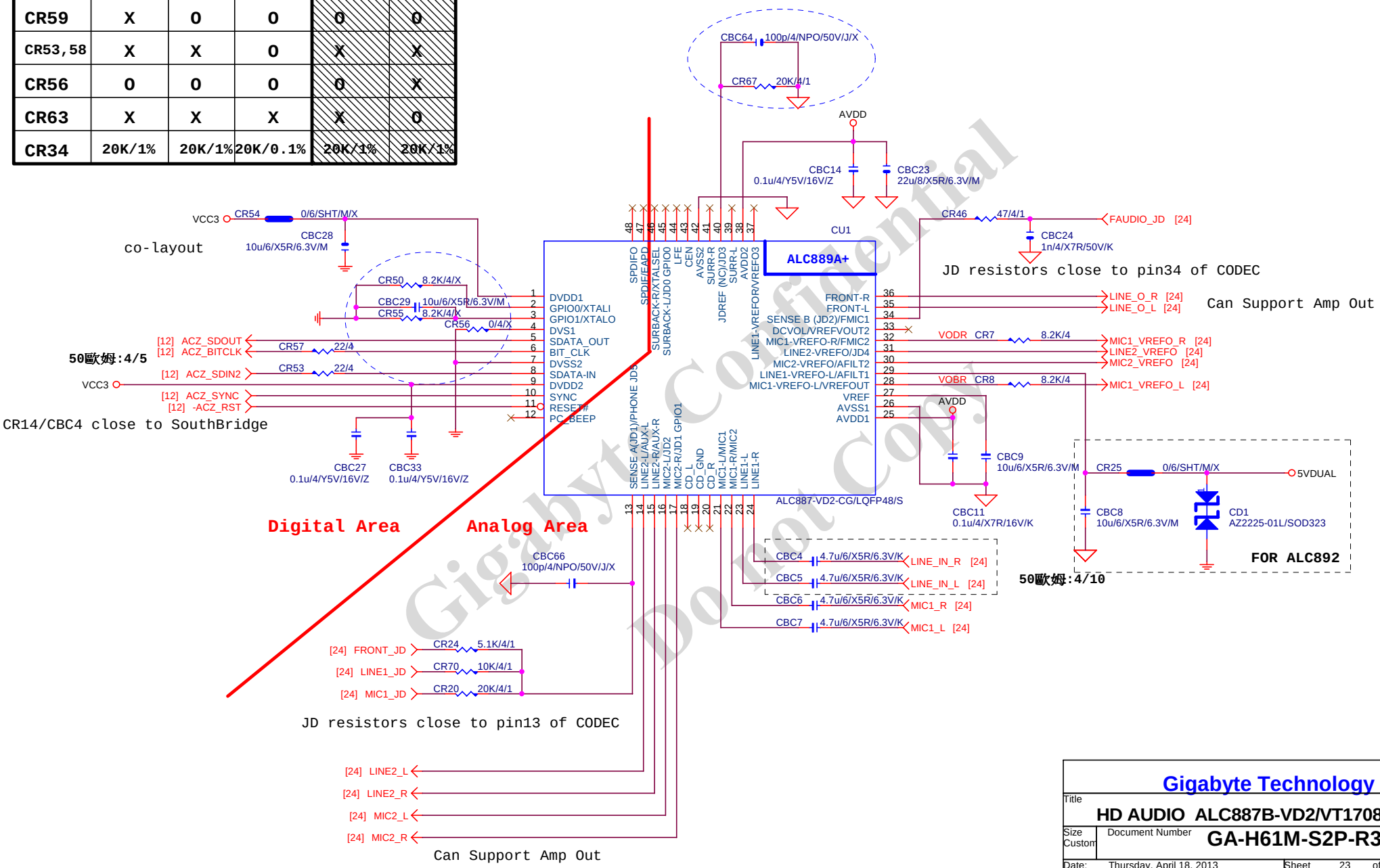
AZALIA CODEC *ALC892/ALC889A/ALC889/ALC888B Colay*

	ALC888B	ALC888 -VA	ALC889A	ALC888 -VD	ALC892
CR59	X	0	0	0	0
CR53,58	X	X	0	X	X
CR56	0	0	0	0	X
CR63	X	X	X	X	0
CR34	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%



Gigabyte Technology

Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021

Size	Document Number	Rev
Custom	GA-H61M-S2P-R3	3.01

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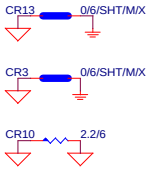
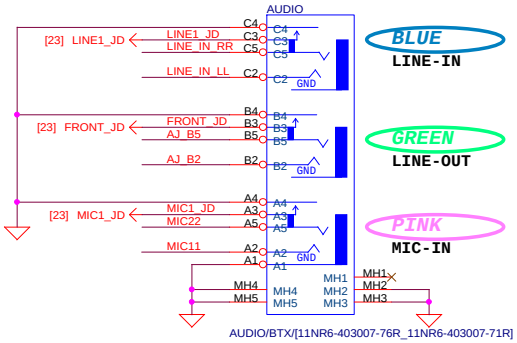
CODEC POWER/EMI PAD



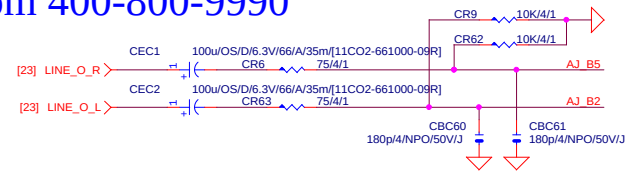
SPDIF

N/A

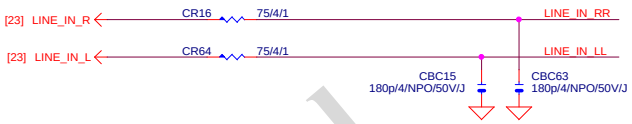
AZALIA JACK



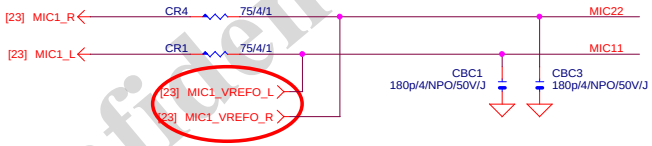
LINE-OUT



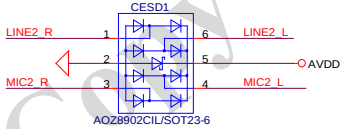
LINE-IN



MIC-IN

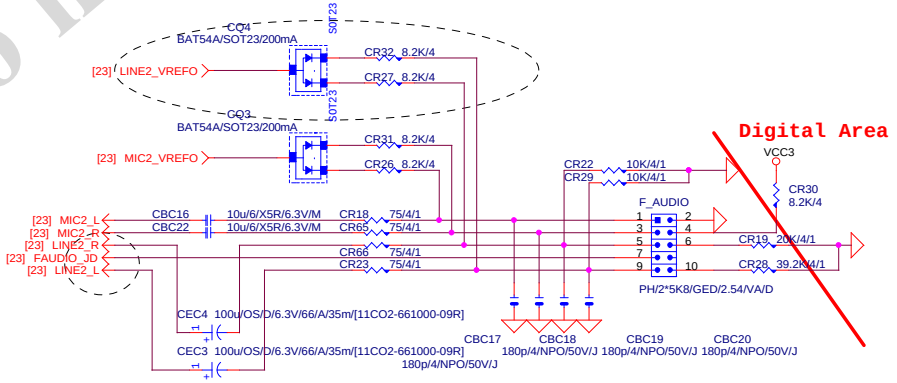


F_AUDIO ESD



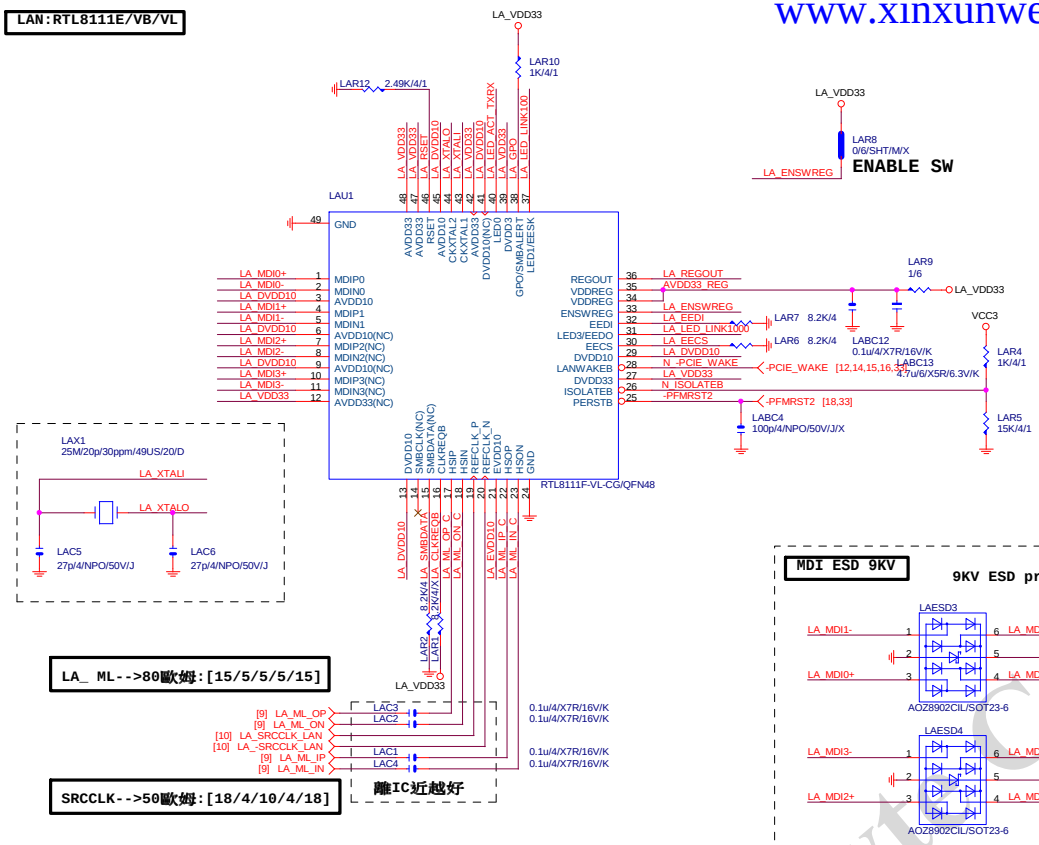
SS0P6-1

AZALIA FRONT PANEL



Gigabyte Technology		
Title	AUDIO JACK	
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
Date: Thursday, April 18, 2013	Sheet 24 of 33	

LAN:RTL8111E/VB/VL

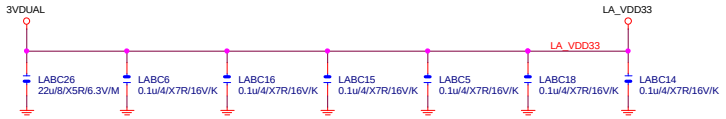


LA_ ML-->80歐姆:[15/5/5/5/15]

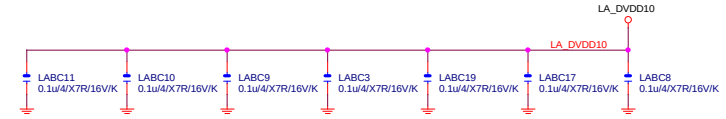
SRCCLK-->50歐姆:[18/4/10/4/18]

離IC近越好

LAN POWER

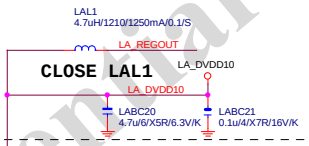


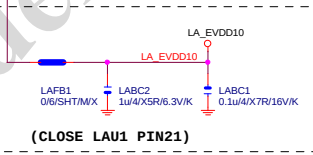
(CLOSE LAU1 PIN:12,27,39,42,47,48)



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

(CLOSE LAU1 PIN36)



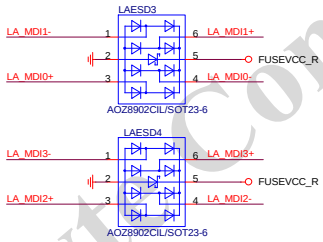


(CLOSE LAU1 PIN21)

CLOSE LAN CHIP

MDI ESD 9KV

9KV ESD protection

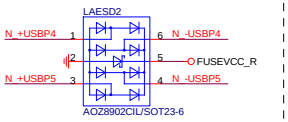


Power domain chart

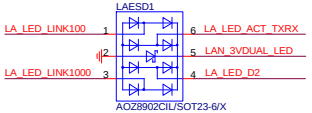
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

USB_LAN CONNECTOR

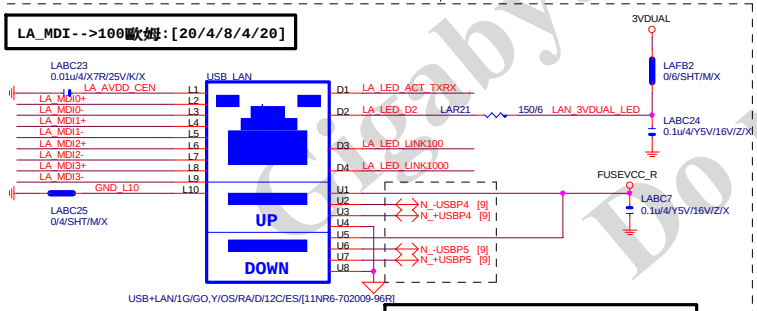
RMA ESD PROTECT



使用RU9 USB_LAN可省略LAESD1保護LED



LA_MDI-->100歐姆:[20/4/8/4/20]



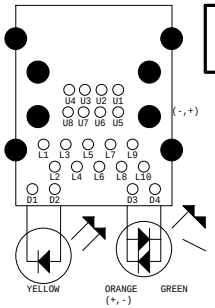
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

USB X3 POWER

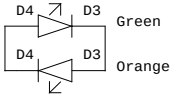
EMI SHORT PAD

PS:視EMI需求

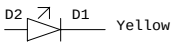
注意:LAN LED PROTECT:(CO-LAYOUT)
1.ESD(6PIN):AOZ8902CIL/SOT23-6(DEFAULT)
2.SURGE(5PIN):AZ2025-04S/SOT23-5L



Dual Color LED



Single Color LED



料號	規格	廠商
11NR6-702009-0ER	1G LAN (12core)	UDE
11NR6-702009-91R	1G LAN(8 core)	FOXCONN
11NR6-702009-92R	1G LAN(8 core)	UDE
11NR6-702009-11R	1G LAN(12core/RED)	UDE
11NR6-702009-12R	1G LAN(8 core/RED)	FOXCONN

USB_LAN BOM區分:

1.(紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2.(黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3.(黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

Title: REALTEK RTL8111F-VL

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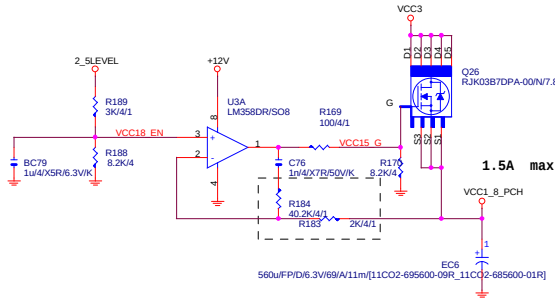
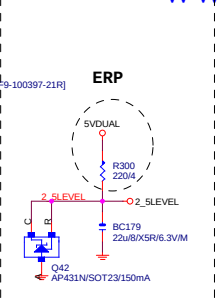
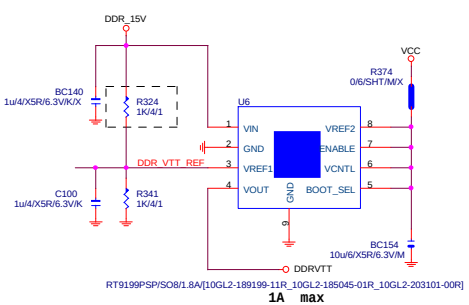
VCC1_8_PCH



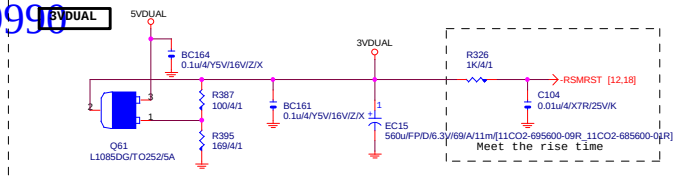
2_5LEVEL



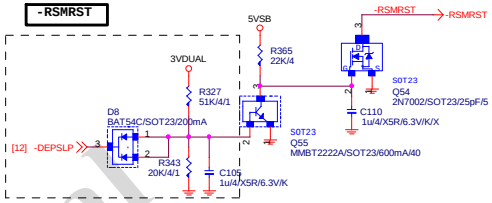
DDRVTT



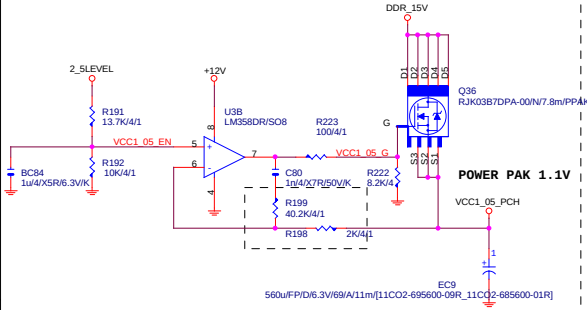
3VDUAL



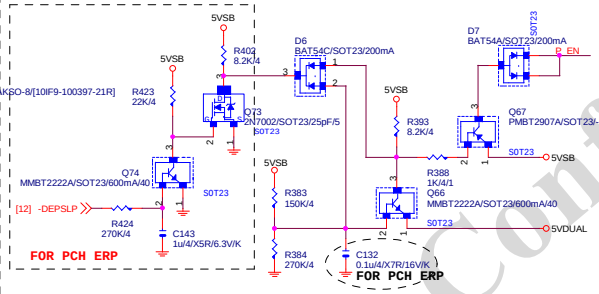
-RSMRST



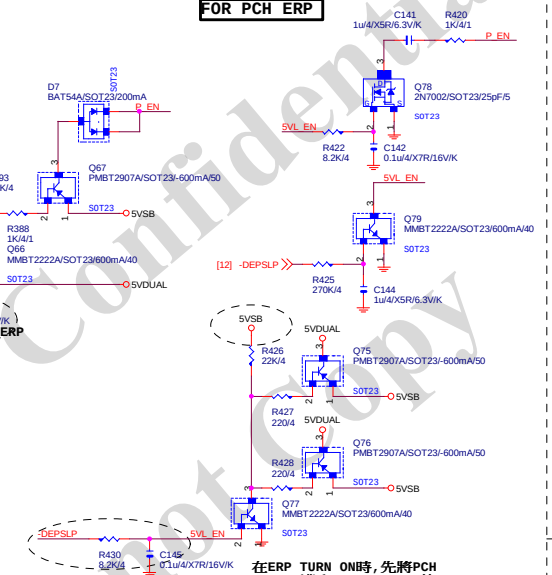
VCC1_05_PCH



5VDUAL SHORT PROTECT



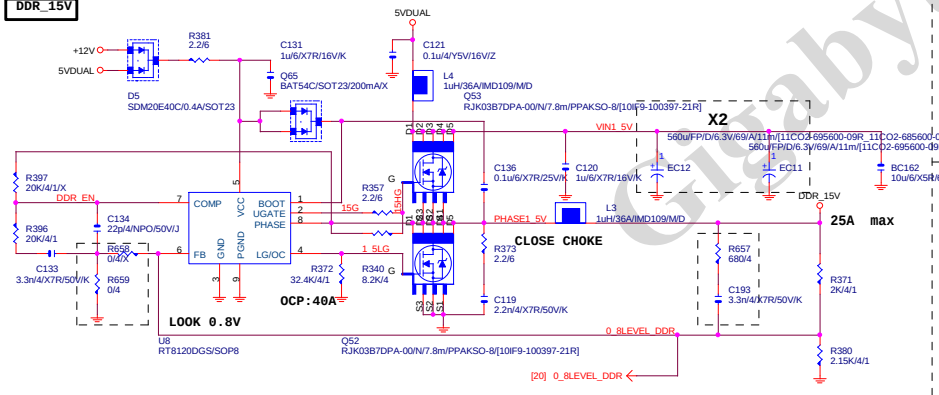
FOR PCH ERP



FOR I/O ERP

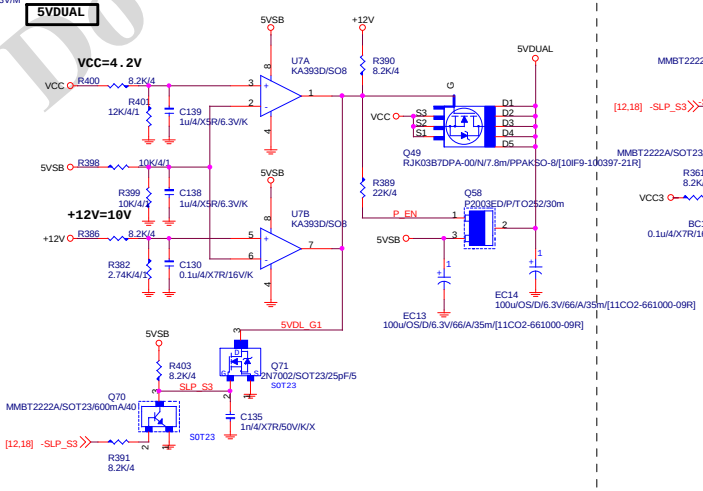
N/A

DDR_15V

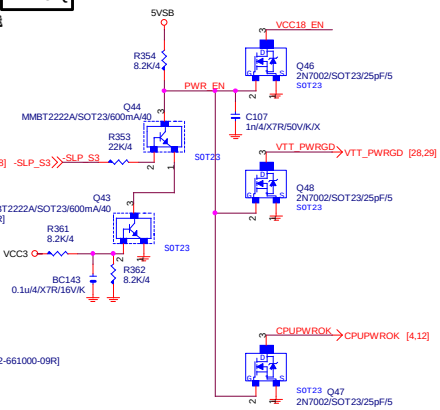


Rocset=(Iocp*Lgate,rdson)/Iocset
Iocset=10uA
OCP:40A(Rdson:7.8m)~59A(Rdson:5.5m)

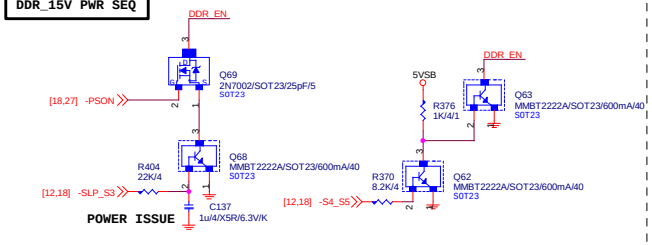
5VDUAL



PWR SEQ

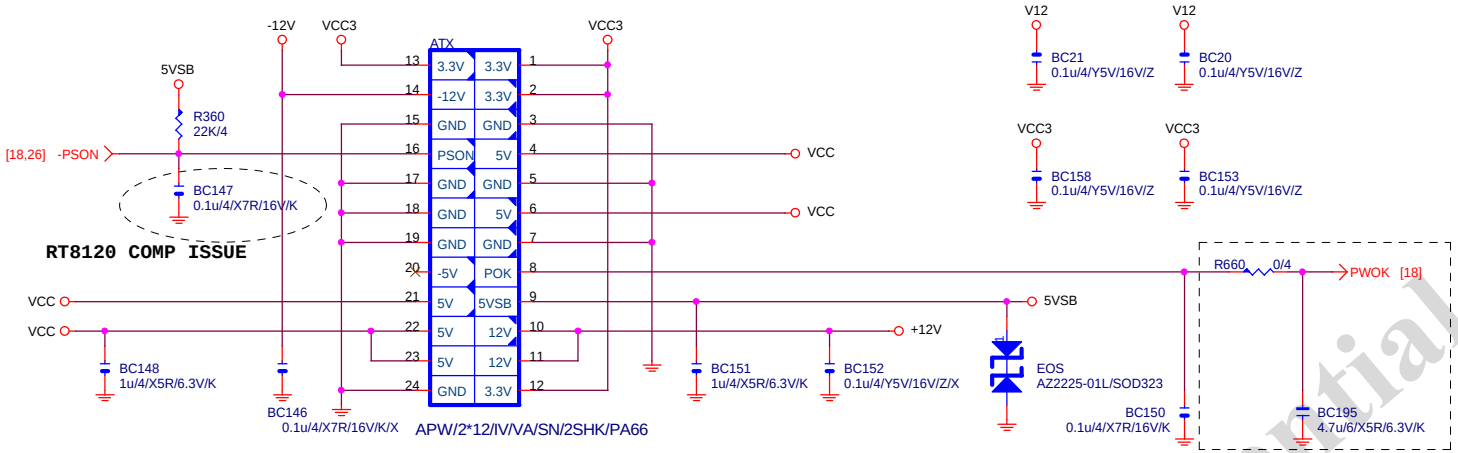


DDR_15V PWR SEQ

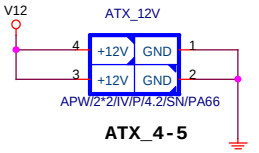


Gigabyte Technology		
Title	DISCRETE POWER	
Size C	Document Number GA-H61M-S2P-R3	Rev 3.01
Date: Thursday, April 18, 2013	Sheet 26 of 33	

ATXX24 POWER CONNECTOR

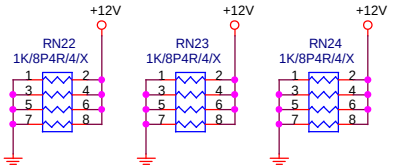


ATXX4 POWER CONNECTOR

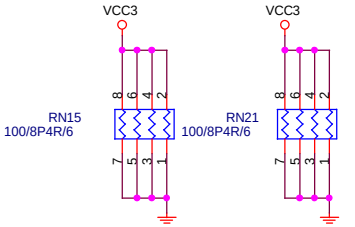


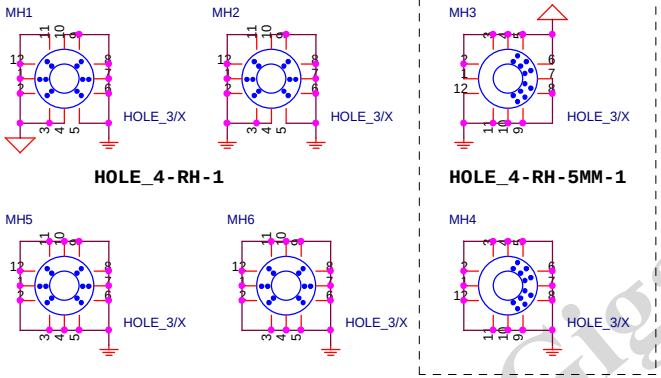
ATX_4-5

MIN. LOAD



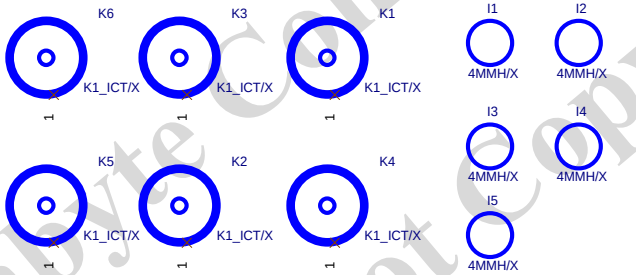
FIX PWR MINMUN LOAD





HOLE_4-RH-1

HOLE_4-RH-5MM-1



To prevent the 5VSB under loading when boot

Gigabyte Technology		
Title: ATX CONNECTOR		
Size: Custom	Document Number: GA-H61M-S2P-R3	Rev: 3.01
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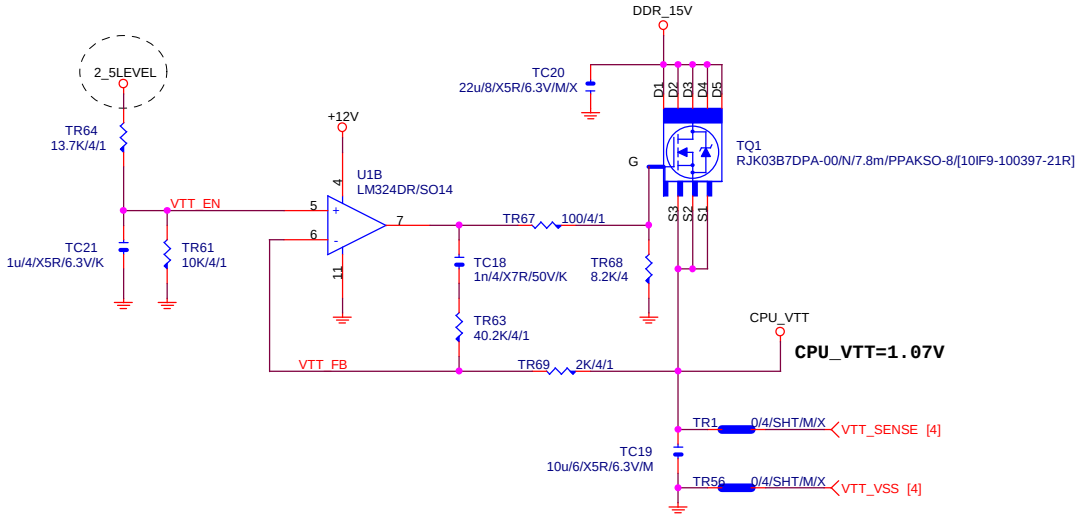
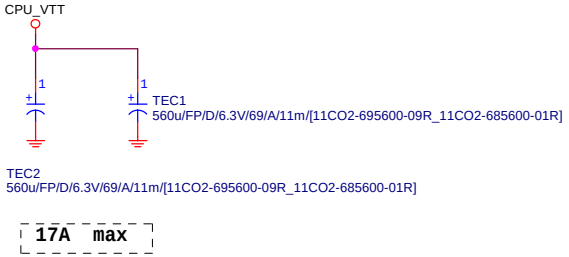
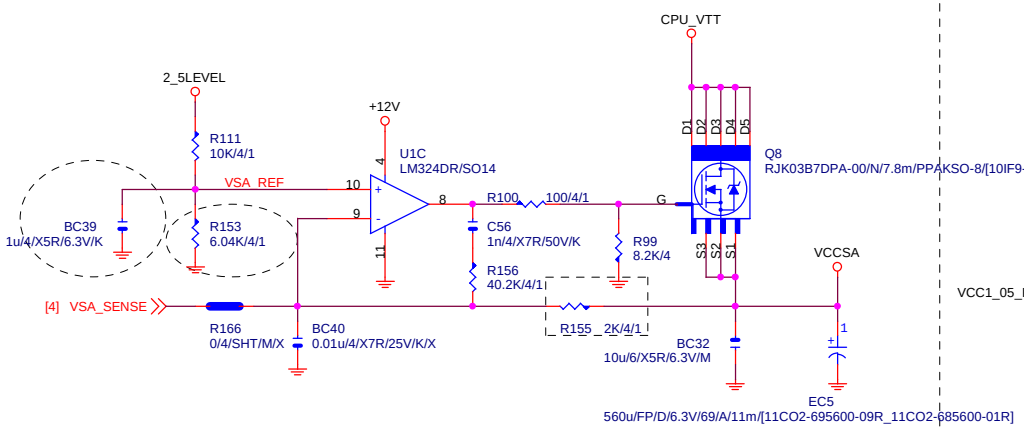
CPU_VTT

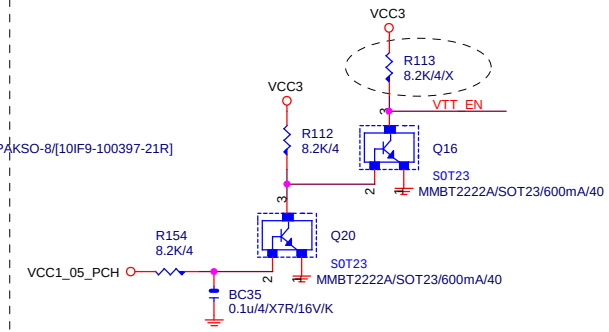




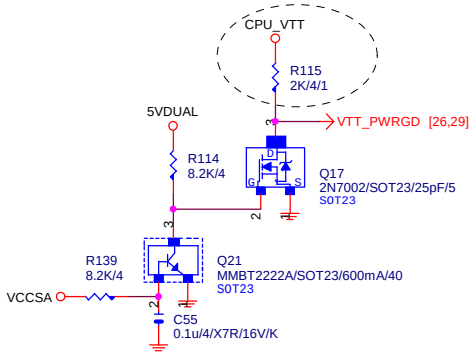
VCCSA



CPU_VTT PWR SEQ



VTT_PWRGD



GIGABYTE™

Title	CPU_VTT PWM_RT8120	
Size B	Document Number GA-H61M-S2P-R3	Rev 3.01
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VCORE PWM

FIX 0.V CIRCUIT FAIL

CPU_VAXG — DR445 100/4/1 — VSENG — [4] VAXG_SENSE

[20] VAXG_ADJ — DR45 0/4/SHT/M/X — FBG_OV

DBC93 0.01u/4/X7R/25V/K — DBC95 0.01u/4/X7R/25V/K — [4] VAXG_VSS — RTNG — DR450 10/4

DR444 2K/4/1 — DBC90 330p/4/NPO/50V/J

DR446 845/4/1 — DBC91 1n/4/X7R/50V/K — DBC92 47p/4/NPO/50V/J

DR447 3.83K/4/1 — DBC94 680p/4/X7R/50V/K — DR448 270K/4

DR449 169K/4/1

Load line-->4.1mohm

S.W frequncy-->300Khz
Imax-->45A

LAYOUT RESERVE
CHOKE SPACE

V12 — VIN

DBC1 1u/6/X7R/16V/K — DEC6 270u/FP/D/16V/8C/A/10m/[11CO5-8C2700-09R] — DEC2 270u/FP/D/16V/8C/A/10m/[11CO5-8C2700-09R]

Close DL6

[30] VSUMNG — DBC113 0.1u/4/X7R/16V/K — DRT4 10K/1/4/S — DR159 11K/4/1 — DR157 7.5K/4/1

DR475 100/4/1 — DBC114 330p/4/NPO/50V/J — DR162 665/4/1 — ISUMNG

RGi

IGocp-->56A

RGntc=(RGseries+DRT4)//RGparellel

RGseries — RGparellel

DBC66 0.047u/4/X7R/16V/K — DBC67 0.22u/4/X5R/6.3V/K — DBC64 0.047u/4/X7R/16V/K/X

[30] VSUMPG — ISUMPG

CHOKE 0.6U--> Ci:0.2839u

DBC96 0.22u/6/X7R/16V/K/X

DR452 8.2K/4 — VCC3

DR453 0/4/X — VCC

PWM2G — LGS — PHS — UGS — BTS — BTS [30]

DU1

ISUMNG — RTNG — FBG — COMPG — VAXG_RDY — PWM2G — LGATE1G — PHASE1G — UGATE1G — BOOT1G

CPU_VTT — VCC — disable PWM2G — DR454 0/4/SHT/M/X — ISEN2G

DBC69 0.1u/4/X7R/16V/K — DR81 100/4/1 — DR84 100/4/1 — DR76 100/4/1 — DR79 100/4/1

DISABLE NTCG — DR456 27K/4/1

[4] VIDSLCK — DR477 51/4/1 — PVIDSLCK_F

[4] -VIDALRT

[4] VIDSOUT

[26,28] VTT_PWRGD

DISABLE NTC — DR59 27K/4/1

1 ISUMPG — 2 ISEN1G — 3 ISEN2G — 4 NTCG — 5 SCLK — 6 ALERT# — 7 SDA — 8 VR_HOT# — 9 VR_ON — 10 NTC — 41 PAD

BOOT2 30 — UGATE2 29 — PHASE2 28 — LGATE2 27 — VCCP 26 — VDD 25 — PWM3 24 — LGATE1 23 — PHASE1 22 — UGATE1 21

PWM
INTERSIL
ISL95836HRTZ

DBC98 1u/4/X5R/6.3V/K — DR457 2.2/6 — DR458 2.2/6 — DBC99 1u/4/X5R/6.3V/K — VCC

BT2 — BT2 [31] — UG2 — PH2 — LG2 — PWM3 — PWM3 [31] — LG1 — PH1 — UG1

BOTTOM PAD
CONNECT TO GND
THROUGH 10 VIA

ISL95836HRZ/[10TA1-695836-01R]

ISEN3FB2 11 — ISEN2 12 — ISEN1 13 — ISUMP 14 — ISUMN 15 — RTN 16 — FB 17 — COMP 18 — PGOOD 19 — BOOT1 20

[31] ISEN3 — ISEN3 — [31] ISEN2 — ISEN2 — [31] ISEN1 — ISEN1

BT1 — BT1 [31]

DBC100 0.22u/6/X7R/16V/K — ISEN3
[31] VSUMN — DBC101 0.22u/6/X7R/16V/K — ISEN2
DBC102 0.22u/6/X7R/16V/K — ISEN1

UG1 — PH1 — LG1 — ISEN1 — UG1 [31] PH1 [31] LG1 [31] ISEN1 [31]

UG2 — PH2 — LG2 — ISEN2 — UG2 [31] PH2 [31] LG2 [31] ISEN2 [31]

UGS — PHS — LGS — UGS [30] PHS [30] LGS [30]

PWM3 — ISEN3 — PWM3 [31] ISEN3 [31]

3VDUAL — DR108 8.2K/4 — DR110 100K/4/1 — DR109 1K/4/1 — PCH_VRMPWRGD [12]

VCC3 — DC17 0.1u/4/X7R/16V/K

C84 0.1u/4/X7R/16V/K/X — DR85 1K/4/1 — DR91 8.2K/4 — VR_RDY

DQ19 S0T23 MMBT2222A/SOT23/600mA/40
DQ18 MMBT2222A/SOT23/600mA/40 S0T23

CHOKE 0.6U--> Ci:0.669u

[31] VSUMP — VSUMP — Close DL2 — Rseries — DR478 2.61K/4/1

DBC25 0.22u/6/X7R/16V/K — DBC23 0.22u/4/X5R/6.3V/K — DBC20 330p/4/NPO/50V/J

DR46 11K/4/1 — DBC117 0.22u/4/X5R/6.3V/K — DR47 750/4/1 — DR49 100/4/1

Rntc=(Rseries+DRT3)//Rparellel — DRT3 10K/1/4/S — Rparellel — Ri

[31] VSUMN — VSUMN — DBC29 0.1u/4/X7R/16V/K

Iocp-->150A

COMP — DBC103 10p/4/NPO/50V/J/X — ISEN3 [31]

DR462 3.24K/4/1/X — DBC104 1n/4/X7R/50V/K — DR461 845/4/1 — DBC105 47p/4/NPO/50V/J — DR465 3.24K/4/1 — VBOOT

DR463 4.3K/4/1 — DR464 470K/4/1 — DBC106 680p/4/X7R/50V/K

Vboot-->0V
Imax-->99A

FB_OV — VCORE — DR466 100/4/1 — VCCSENSE — VCC_SENSE [4]

DBC107 1n/4/X7R/50V/K/X — DBC108 0.01u/4/X7R/25V/K

FIX O.V CIRCUIT FAIL

DBC109 0.01u/4/X7R/25V/K — VSSSENSE — VSS_SENSE [4] — DR468 100/4/1

Load line-->1.7mohm

[20] VCORE_ADJ — DR42 0/4/SHT/M/X — FB_OV

FOR RMA

VCC3 — VBOOT — DR184 8.2K/4/X — S0T23 DQ56 MMBT2222A/SOT23/600mA/40

CPU_VTT — DR185 1K/4/1/X — S0T23 DQ55 MMBT2222A/SOT23/600mA/40/X

[4] TDI — DR126 330/4

Set VBOOT=GND for Vboot=0V
VBOOT=OPEN for Vboot=1.1V

SET MMBT2222 BJT
N/A 2N7002 MOSFET

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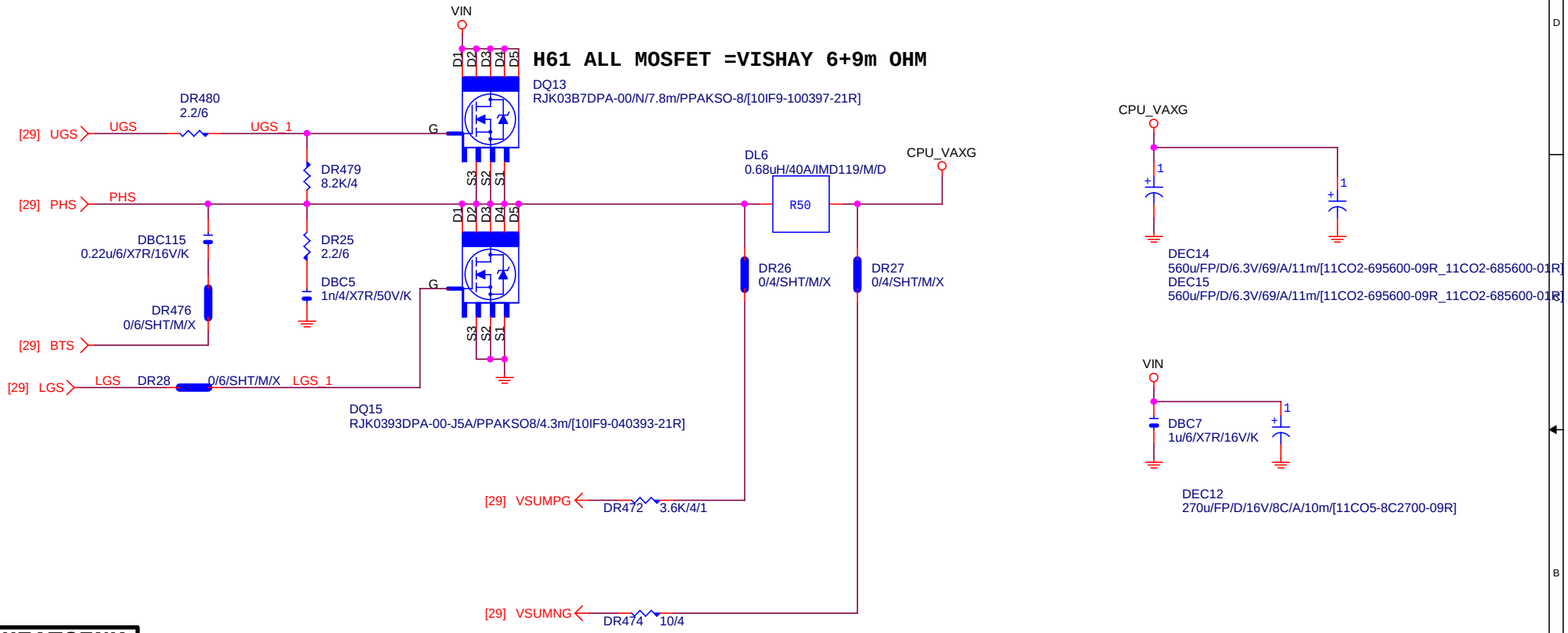
VAXG



MOS HEATSINK

N/A

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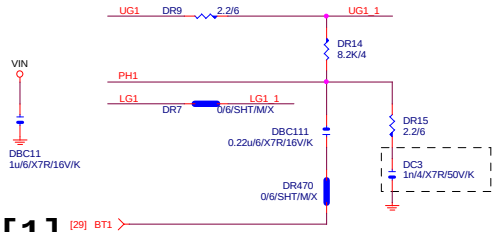
PHASE 1



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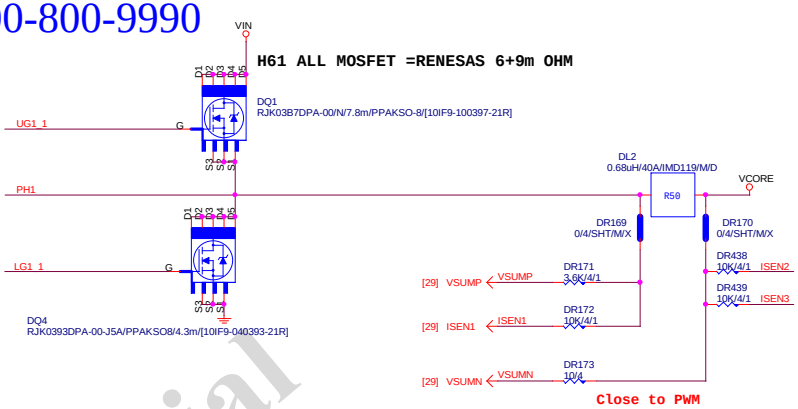
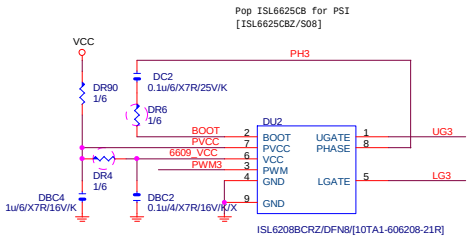
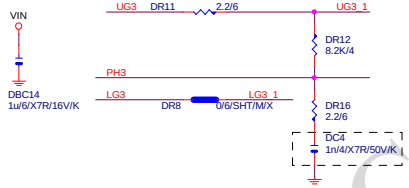


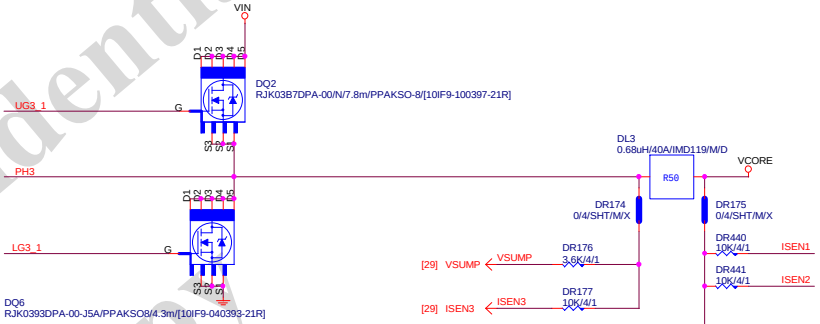
Close to PWM

PHASE 3



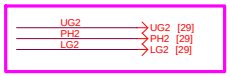


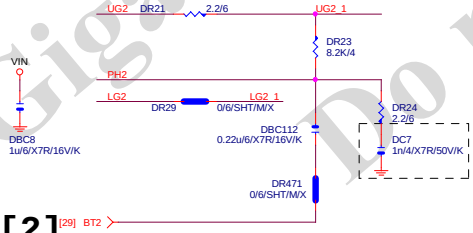
[3]



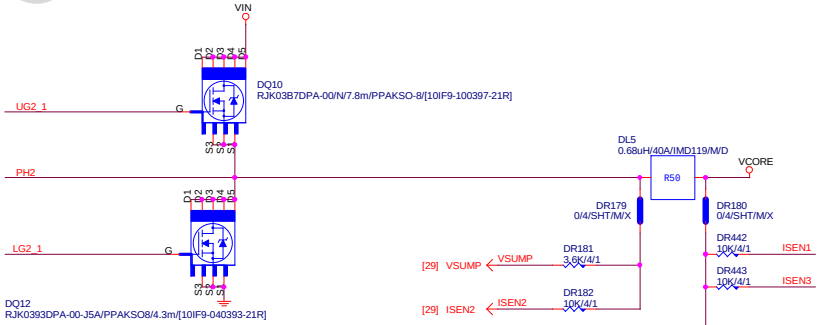
Close to PWM

PHASE 2

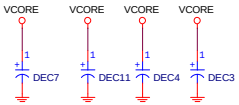




[2]



Close to PWM



560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-685600-01R]
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-685600-01R]
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-685600-01R]
560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R_11CO2-685600-01R]

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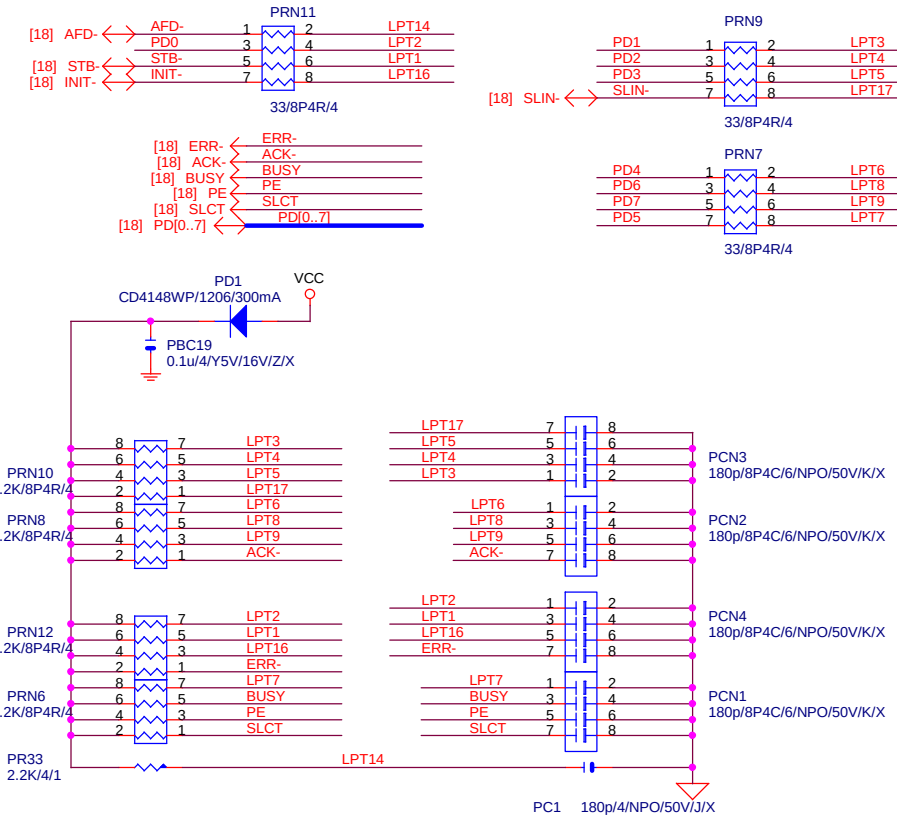
TPM

N/A

LPT PORT



COMB

N/A

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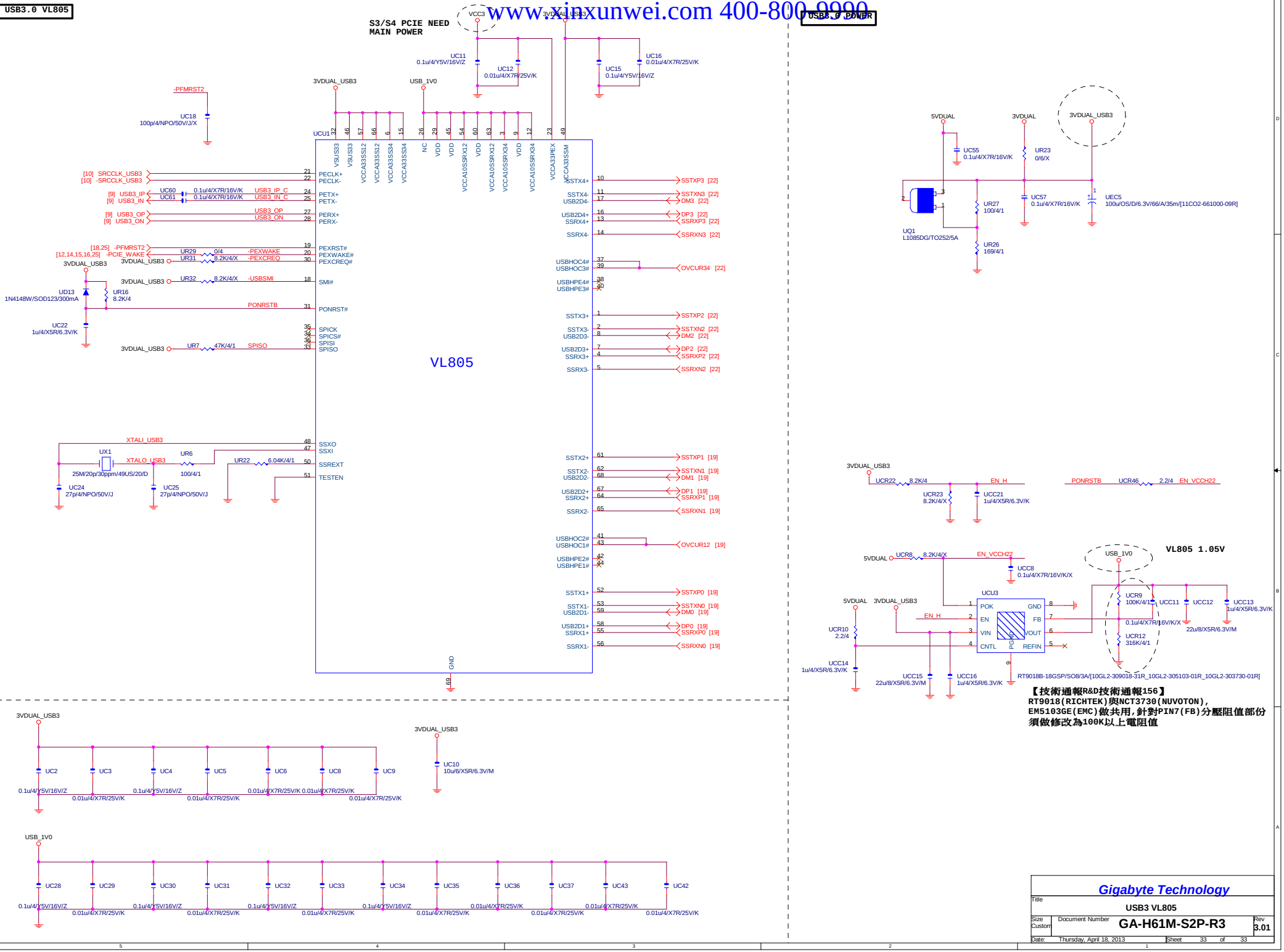
USB3.0 VL805

S3/S4 PCIE NEED MAIN POWER

USB3.0 POWER



【技術通報R&D技術通報156】
RT9018(RICHTEK)與NCT3730(NUVOTON), EM5103GE(EMC)做共用,針對PIN7(FB)分壓阻值部份須做修改為100K以上電阻值

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