Model Name: GA-H67MA-USB3-B3

Revision 1.0

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 1,2
08	DDR III CHANNEL B 1,2
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS*4 SLOT
16	PCI EXPRESS*1x2 SLOT
17	ITE 8728 LPC IO
18	COM,KB_USB,USB_ESATA,-PROCHOT
19	HWM,FAN CTRL
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	ALC889
23	REAR AUDIO JACK
24	REALTEK RTL8111E
25	HDMI/DVI/DP
26	USB3.0- EJ168
27	DISCRETE POWER

SHEET	TITLE
28	ATX,TPM
29	ISL95870_CPU_VTT
30	VCORE ISL6364_1
31	VCORE ISL6364_2
32	VCORE ISL6364_3

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H67MA-USB3-B3 | Rev: 1.0

Date: Wednesday, March 02, 2011 | Sheet 1 of 32

Model Name: GA-H67MA-USB3-B3 *Revision 1.0*

Component value change history

2011/02/25

Data	Change Item	Reason
2011/01/24	MODIFY FORM H67M-UD2H.USB3.0 EJ168. REMOVE IT8275.AUDIO JACK 1*3.	
2011/01/27	MODIFY TPM LIBRARY, FOOTPRINT.	
2011/01/28	MODIFY THRMTRIP.	
2011/02/15	RENAME H67MA-USB3-B3.PCH B3.DVI ASM1442.	PBOM:9M67MAB3B-00-10A
2011/02/25	REMOVE MOS_HS & I/O PIN60 PULL HIGH .	FPBOM:9M67MAB3B-00-10B

Circuit or PCB layout change

DATE	Change Item	Reason

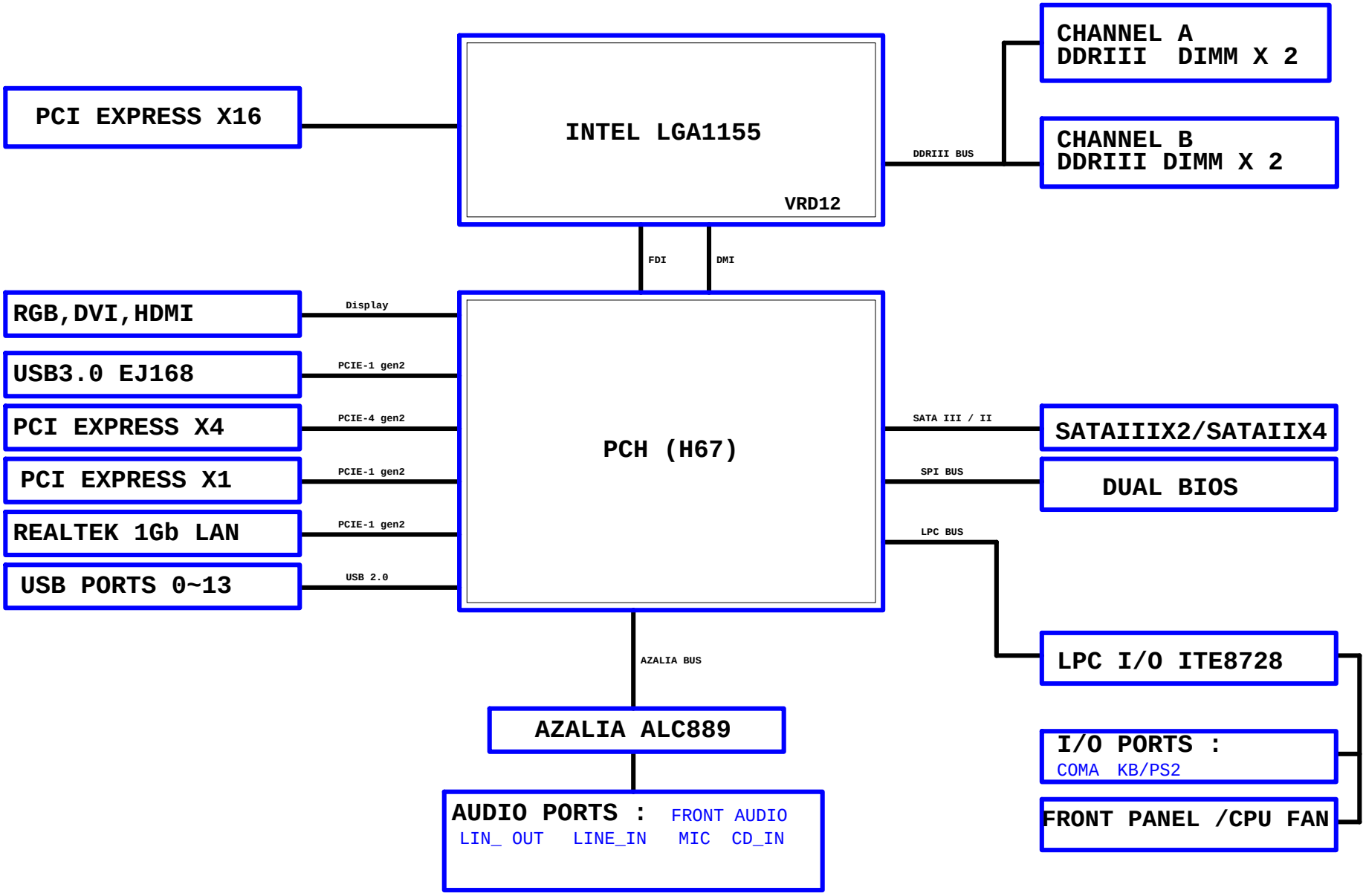
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

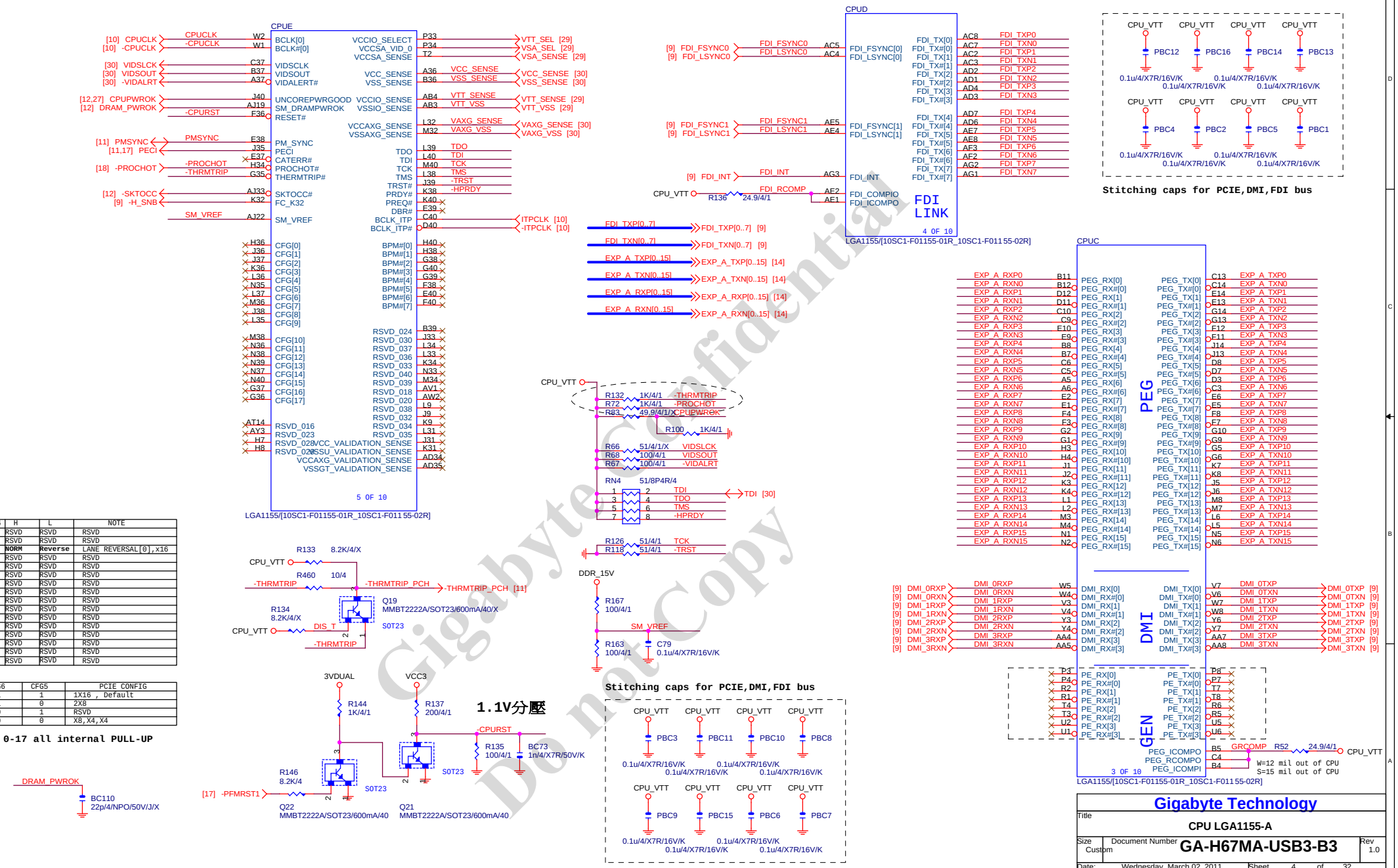
Size: Custom | Document Number: GA-H67MA-USB3-B3 | Rev: 1.0

Date: Wednesday, March 02, 2011 | Sheet 2 of 32

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 3 of 32	



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
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

CPUA

MAAA0 AV27
MAAA1 AY24
MAAA2 AW24
MAAA3 AW23
MAAA4 AV23
MAAA5 AT24
MAAA6 AT23
MAAA7 AU22
MAAA8 AV22
MAAA9 AT22
MAAA10 AV28
MAAA11 AU21
MAAA12 AT21
MAAA13 AW32
MAAA14 AU20
MAAA15 AT20

[7] -SWEA AW29
[7] -SCASA AV30
[7] -SRASA AU28

[7] SBAA0 AY29
[7] SBAA1 AW28
[7] SBAA2 AV20

[7] -CSA0 AU29
[7] -CSA1 AV32
[7] -CSA2 AW30
[7] -CSA3 AU33

[7] CKEA0 AV19
[7] CKEA1 AT19
[7] CKEA2 AU18
[7] CKEA3 AV18

MODT_A0 AV31
MODT_A1 AU32
MODT_A2 AU30
MODT_A3 AW33

[7] DCLKA0 AY25
[7] -DCLKA0 AW25
[7] DCLKA1 AU24
[7] -DCLKA1 AU25
[7] DCLKA2 AW27
[7] -DCLKA2 AV27
[7] DCLKA3 AV26
[7] -DCLKA3 AW26

[7,8] -DDR3_RST AW18

C88
0.1u/4/X7R/16V/K/X

R191
0/4/SHT/M/X

SA_MA[0]
SA_MA[1]
SA_MA[2]
SA_MA[3]
SA_MA[4]
SA_MA[5]
SA_MA[6]
SA_MA[7]
SA_MA[8]
SA_MA[9]
SA_MA[10]
SA_MA[11]
SA_MA[12]
SA_MA[13]
SA_MA[14]
SA_MA[15]

SA_WE#
SA_CAS#
SA_RAS#

SA_BS[0]
SA_BS[1]
SA_BS[2]

SA_CS#[0]
SA_CS#[1]
SA_CS#[2]
SA_CS#[3]

SA_CKE[0]
SA_CKE[1]
SA_CKE[2]
SA_CKE[3]

SA_ODT[0]
SA_ODT[1]
SA_ODT[2]
SA_ODT[3]

SA_CK[0]
SA_CK#[0]
SA_CK[1]
SA_CK#[1]
SA_CK[2]
SA_CK#[2]
SA_CK[3]
SA_CK#[3]

SM_DRAMRST#

SA_DQS[0] AK3
SA_DQS#[0] AK2

SA_DQ[0] AJ3
SA_DQ[1] AJ4
SA_DQ[2] AL3
SA_DQ[3] AL4
SA_DQ[4] AJ2
SA_DQ[5] AJ1
SA_DQ[6] AL2
SA_DQ[7] AL1

SA_DQS[1] AP3
SA_DQS#[1] AP2

SA_DQ[8] AN1
SA_DQ[9] AN4
SA_DQ[10] AR3
SA_DQ[11] AR4
SA_DQ[12] AN2
SA_DQ[13] AN3
SA_DQ[14] AR2
SA_DQ[15] AR1

SA_DQS[2] AW4
SA_DQS#[2] AV4

SA_DQ[16] AV2
SA_DQ[17] AW3
SA_DQ[18] AV5
SA_DQ[19] AW5
SA_DQ[20] AU2
SA_DQ[21] AU3
SA_DQ[22] AU5
SA_DQ[23] AY5

SA_DQS[3] AV8
SA_DQS#[3] AW8

SA_DQ[24] AY7
SA_DQ[25] AU7
SA_DQ[26] AV9
SA_DQ[27] AU9
SA_DQ[28] AW7
SA_DQ[29] AW9
SA_DQ[30] AY9
SA_DQ[31] AV9

SA_DQS[4] AV37
SA_DQS#[4] AV36

SA_DQ[32] AU35
SA_DQ[33] AW37
SA_DQ[34] AU39
SA_DQ[35] AU36
SA_DQ[36] AW35
SA_DQ[37] AY36
SA_DQ[38] AU38
SA_DQ[39] AU37

SA_DQS[5] AP38
SA_DQS#[5] AP39

SA_DQ[40] AR40
SA_DQ[41] AR37
SA_DQ[42] AN38
SA_DQ[43] AN37
SA_DQ[44] AR39
SA_DQ[45] AR38
SA_DQ[46] AN39
SA_DQ[47] AN40

SA_DQS[6] AK38
SA_DQS#[6] AK39

SA_DQ[48] AL40
SA_DQ[49] AL37
SA_DQ[50] AJ38
SA_DQ[51] AJ37
SA_DQ[52] AL39
SA_DQ[53] AL38
SA_DQ[54] AJ39
SA_DQ[55] AJ40

SA_DQS[7] AF38
SA_DQS#[7] AF39

SA_DQ[56] AG40
SA_DQ[57] AG37
SA_DQ[58] AE38
SA_DQ[59] AE37
SA_DQ[60] AG39
SA_DQ[61] AG38
SA_DQ[62] AE39
SA_DQ[63] AE40

SA_DQS[8] AV13
SA_DQS#[8] AV12

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

DDR_0
1 OF 10

LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]

[7] MODT_A[0..3] MODT_A[0..3]
[8] MODT_B[0..3] MODT_B[0..3]

[7] MDA[0..63] MDA[0..63]
[8] MDB[0..63] MDB[0..63]

[7] DQSA[0..7] DQSA[0..7]
[7] -DQSA[0..7] -DQSA[0..7]

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

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

CPUB

MAAB0 AK24
MAAB1 AM20
MAAB2 AM19
MAAB3 AK18
MAAB4 AP19
MAAB5 AP18
MAAB6 AM18
MAAB7 AL18
MAAB8 AN18
MAAB9 AY17
MAAB10 AN23
MAAB11 AU17
MAAB12 AT18
MAAB13 AR26
MAAB14 AY16
MAAB15 AV16

[8] -SWEB AR25
[8] -SCASB AK25
[8] -SRASB AP24

[8] SBAB0 AP23
[8] SBAB1 AM24
[8] SBAB2 AW17

[8] -CSB0 AN25
[8] -CSB1 AN26
[8] -CSB2 AL25
[8] -CSB3 AT26

[8] CKEB0 AU16
[8] CKEB1 AY15
[8] CKEB2 AW15
[8] CKEB3 AV15

MODT_B0 AL26
MODT_B1 AP26
MODT_B2 AM26
MODT_B3 AK26

[8] DCLKB0 AL21
[8] -DCLKB0 AL22
[8] DCLKB1 AL20
[8] -DCLKB1 AK20
[8] DCLKB2 AL23
[8] -DCLKB2 AM22
[8] DCLKB3 AP21
[8] -DCLKB3 AN21

VREF_DQB AH1
VREF_DQA AH4

FC_AH1
FC_AH4

SB_MA[0]
SB_MA[1]
SB_MA[2]
SB_MA[3]
SB_MA[4]
SB_MA[5]
SB_MA[6]
SB_MA[7]
SB_MA[8]
SB_MA[9]
SB_MA[10]
SB_MA[11]
SB_MA[12]
SB_MA[13]
SB_MA[14]
SB_MA[15]

SB_WE#
SB_CAS#
SB_RAS#

SB_BS[0]
SB_BS[1]
SB_BS[2]

SB_CS#[0]
SB_CS#[1]
SB_CS#[2]
SB_CS#[3]

SB_CKE[0]
SB_CKE[1]
SB_CKE[2]
SB_CKE[3]

SB_ODT[0]
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SB_ODT[3]

SB_CK[0]
SB_CK#[0]
SB_CK[1]
SB_CK#[1]
SB_CK[2]
SB_CK#[2]
SB_CK[3]
SB_CK#[3]

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SB_DQS#[0] AH6

SB_DQ[0] AG7
SB_DQ[1] AG8
SB_DQ[2] AJ9
SB_DQ[3] AJ8
SB_DQ[4] AG5
SB_DQ[5] AG6
SB_DQ[6] AJ6
SB_DQ[7] AJ7

SB_DQS[1] AM8
SB_DQS#[1] AL8

SB_DQ[8] AL7
SB_DQ[9] AM7
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SB_DQ[11] AL10
SB_DQ[12] AL6
SB_DQ[13] AM6
SB_DQ[14] AL9
SB_DQ[15] AM9

SB_DQS[2] AR8
SB_DQS#[2] AP8

SB_DQ[16] AP7
SB_DQ[17] AR7
SB_DQ[18] AP10
SB_DQ[19] AR10
SB_DQ[20] AP6
SB_DQ[21] AR6
SB_DQ[22] AP9
SB_DQ[23] AR9

SB_DQS[3] AN13
SB_DQS#[3] AN12

SB_DQ[24] AM12
SB_DQ[25] AM13
SB_DQ[26] AR13
SB_DQ[27] AP13
SB_DQ[28] AL12
SB_DQ[29] AL13
SB_DQ[30] AR12
SB_DQ[31] AP12

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SB_DQS#[4] AN28

SB_DQ[32] AR28
SB_DQ[33] AR29
SB_DQ[34] AL28
SB_DQ[35] AL29
SB_DQ[36] AP28
SB_DQ[37] AP29
SB_DQ[38] AM28
SB_DQ[39] AM29

SB_DQS[5] AP33
SB_DQS#[5] AR33

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SB_DQ[42] AP35
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SB_DQ[44] AR32
SB_DQ[45] AR31
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SB_DQ[47] AR34

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SB_DQS#[6] AM33

SB_DQ[48] AM32
SB_DQ[49] AM31
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SB_DQ[51] AL32
SB_DQ[52] AM34
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SB_DQ[55] AL34

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SB_DQS#[7] AG34

SB_DQ[56] AH35
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SB_DQ[62] AF33
SB_DQ[63] AF35

SB_DQS[8] AN16
SB_DQS#[8] AN15

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

DDR_1
2 OF 10

LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]

CR
CPU RETAINTION/X

Need check the new CPU ME

CPU_P

ILM_BP/1156/CSP/[12KRC-0F0001-01R_12KRC-0F0001-04R]

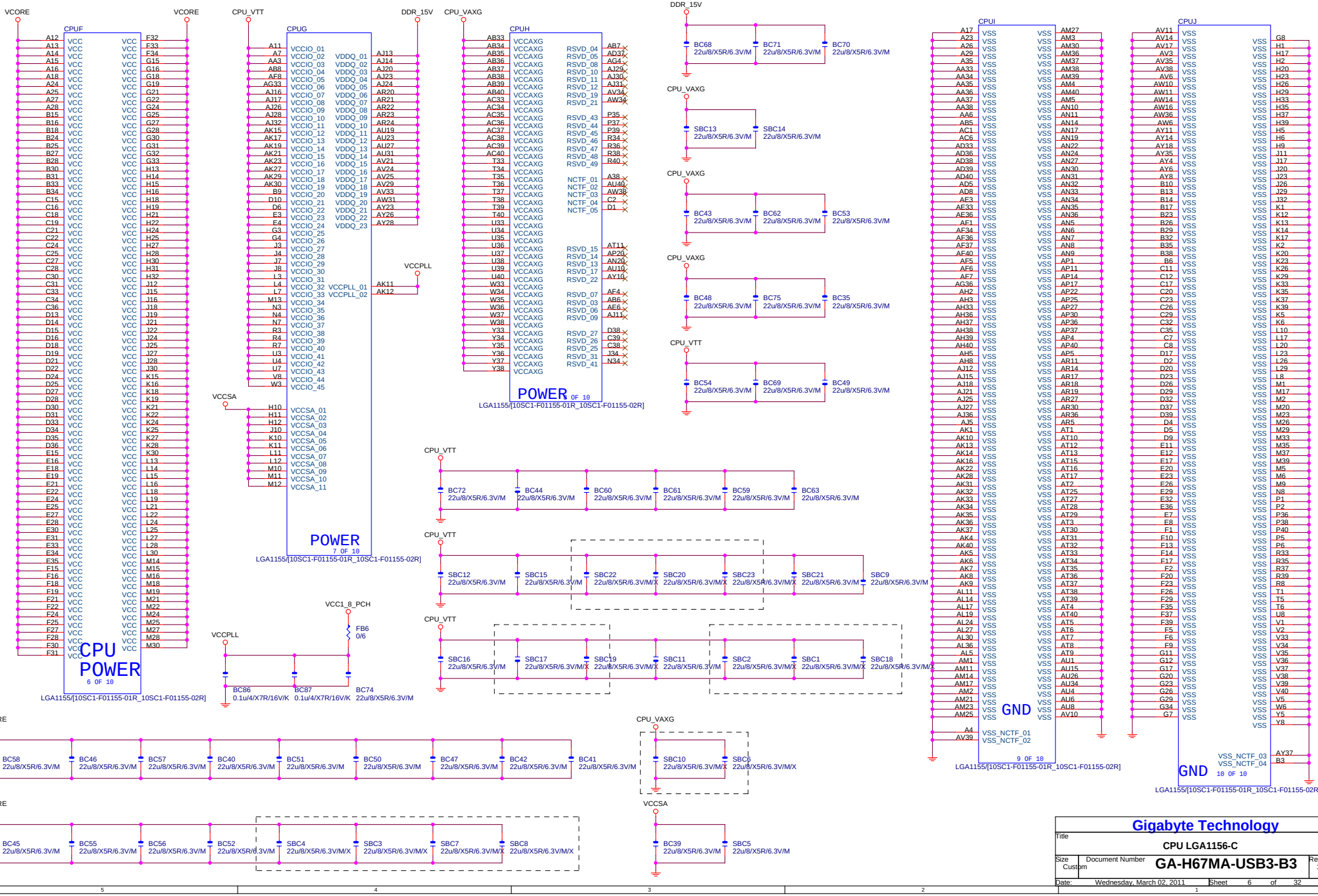
VREF_DQA
VREF_DQB

BC90
0.1u/4/X7R/16V/K

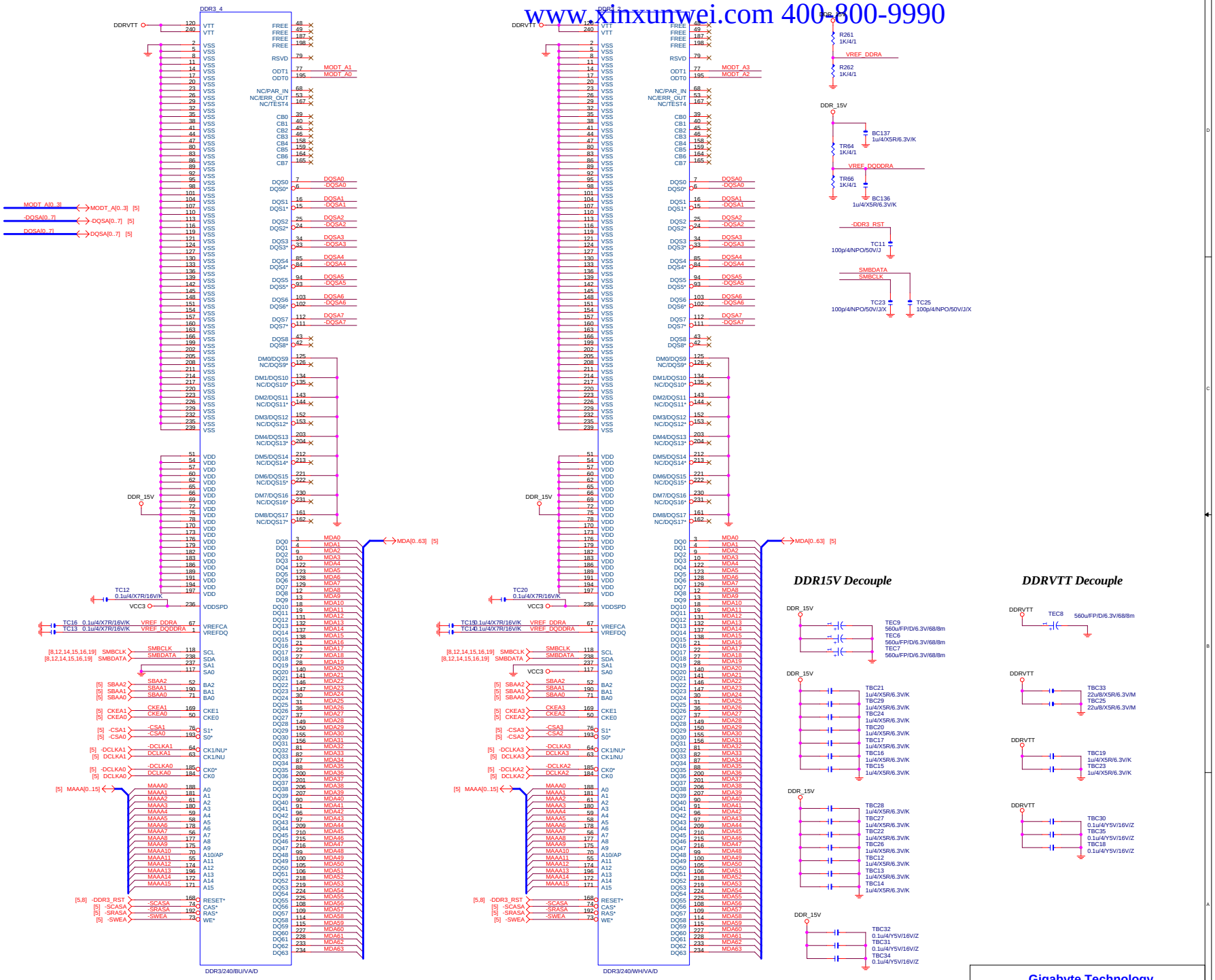
BC89
0.1u/4/X7R/16V/K

Place in CPU bottom side

Gigabyte Technology			
Title: CPU LGA1156-B			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 5 of 32		

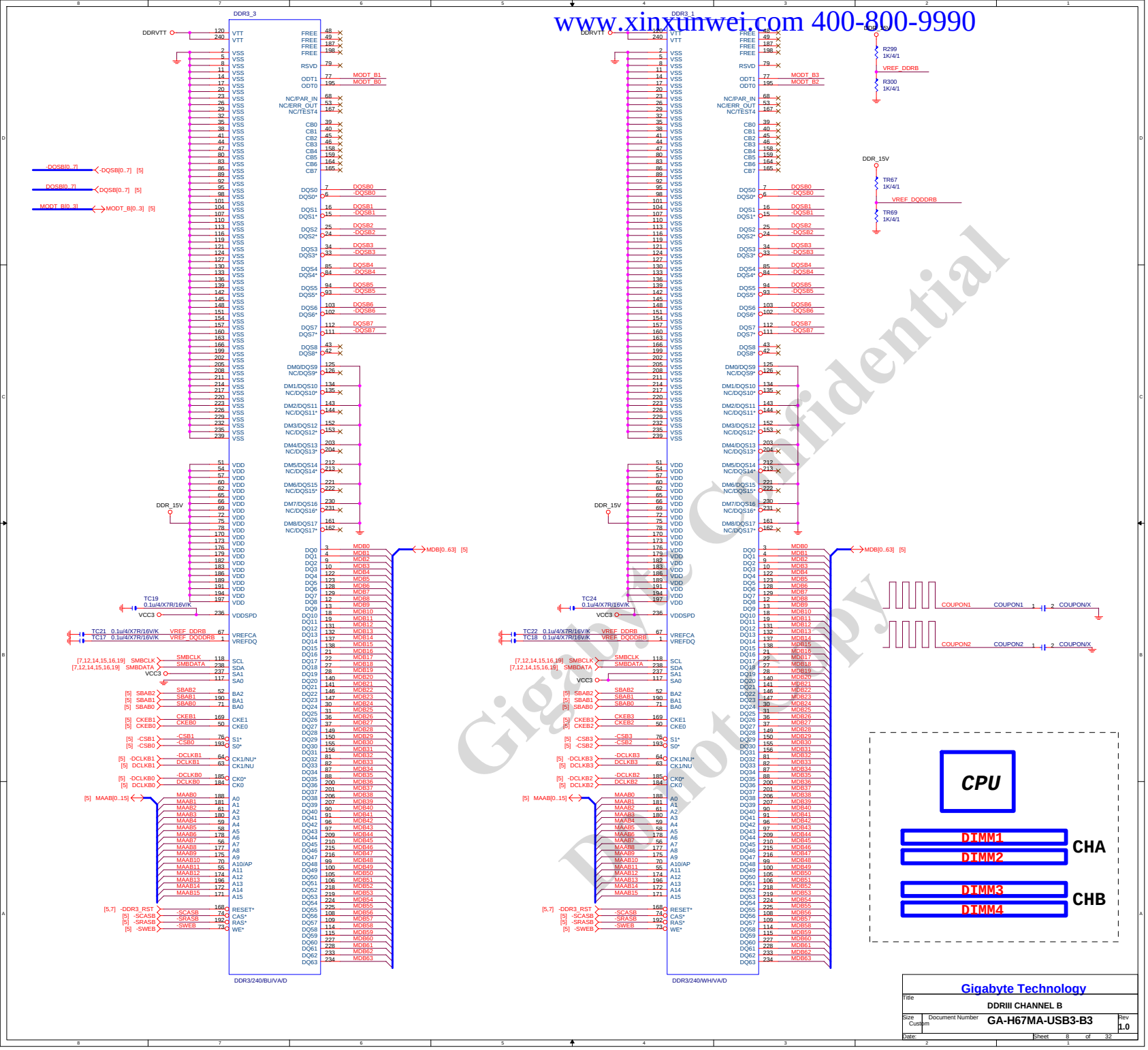


Gigabyte Technology			
Title: CPU LGA1156-C			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 6 of 32		

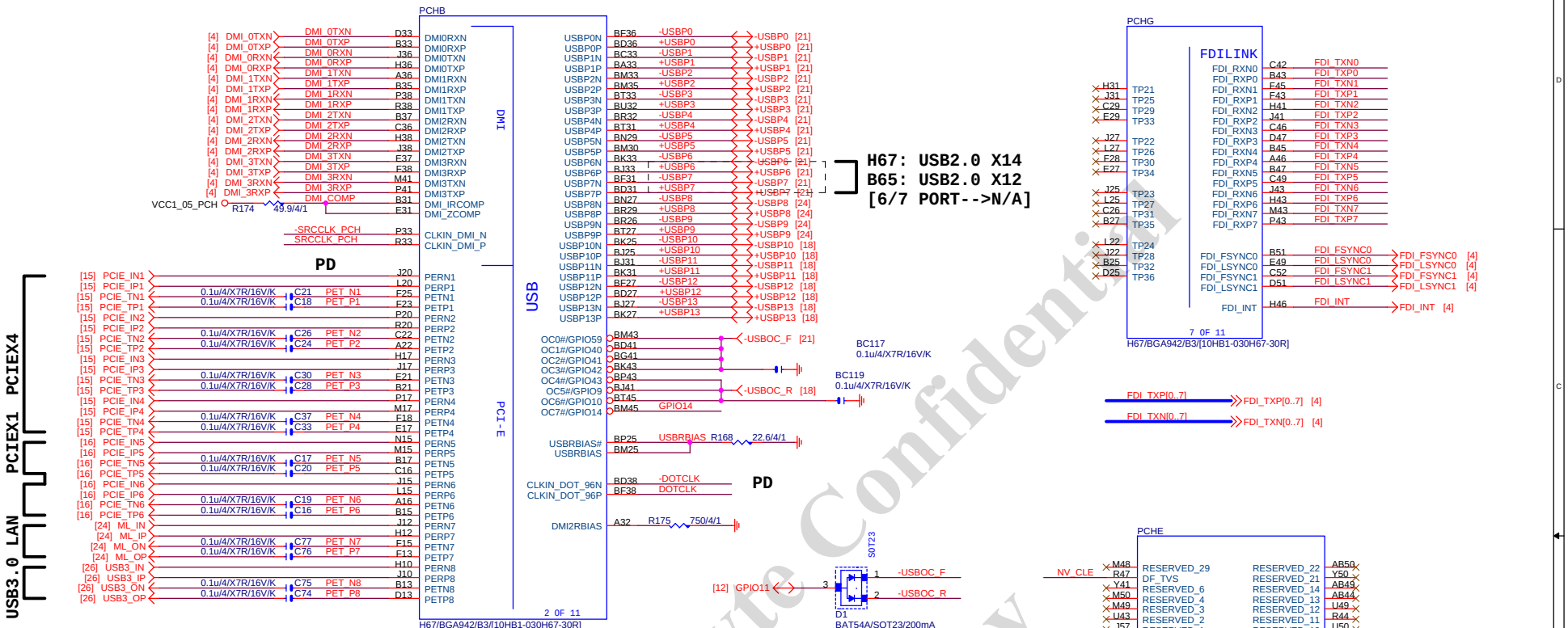


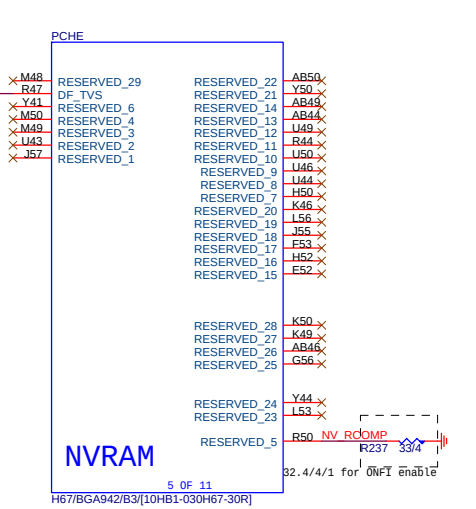
Gigabyte Technology

Title	DDRIII CHANNEL A	
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date:	Sheet 7 of 32	



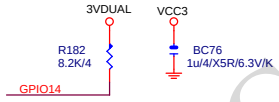
Gigabyte Technology		
Title: DDRIII CHANNEL B		
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date:	Sheet 8 of 32	



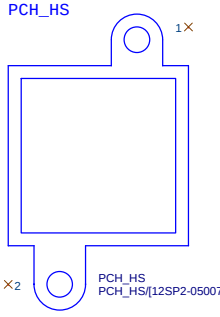


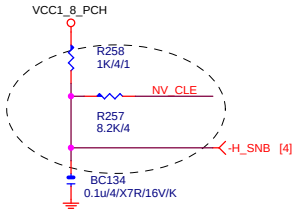
FOR FUSE SHORT GPIO

USB OC#	Configure
OC0#	USB0,1(F_USB1)
OC1#	USB2,3(F_USB2)
OC2#	USB4,5(F_USB3)
OC3#	USB6,7(F_USB4)
OC4#	USB8,9(USB_LAN)
OC5#	USB10~11(USB30_20)
OC6#	USB12~13(KB_USB)
OC7#	GPIO14

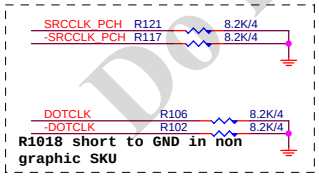


NEW FOOTPRINT:BGAHSINK_PCH_HS

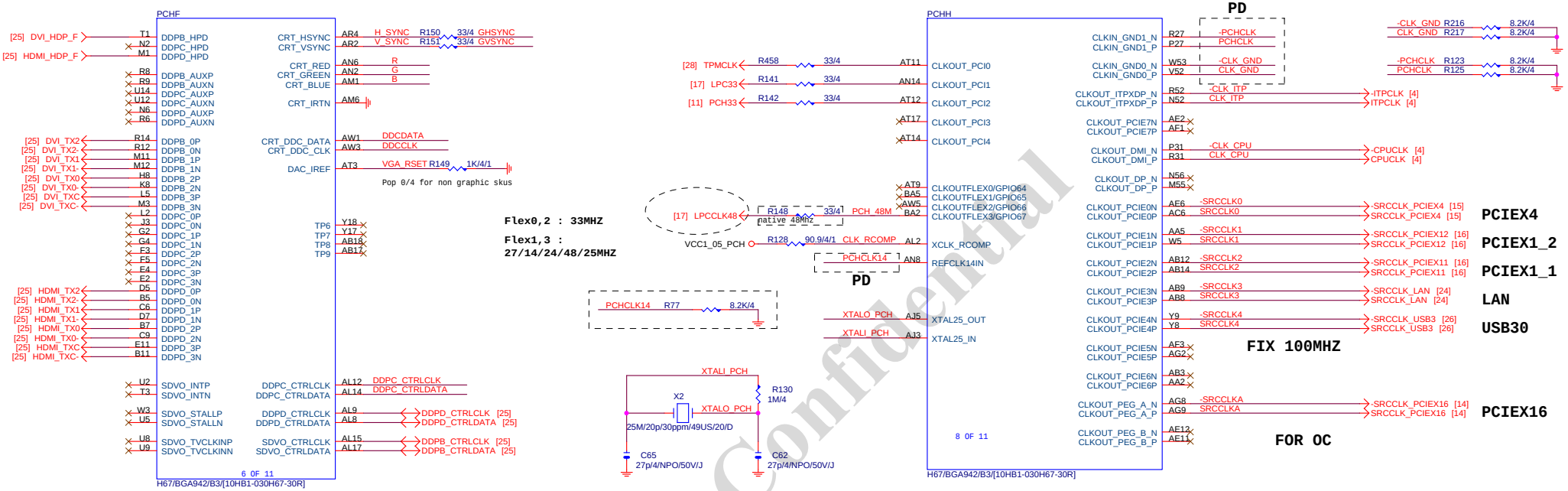


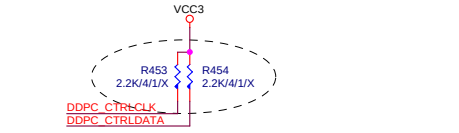


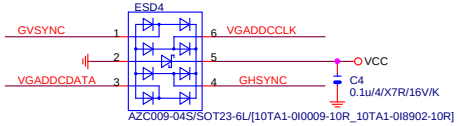
DMI /FDI termination voltage



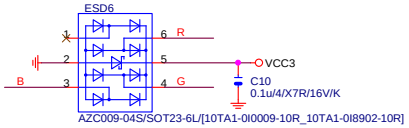
Gigabyte Technology			
Title: PCH FDI,DMI,USB ,PCIE,NVRAM			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 9 of 32		

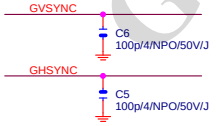




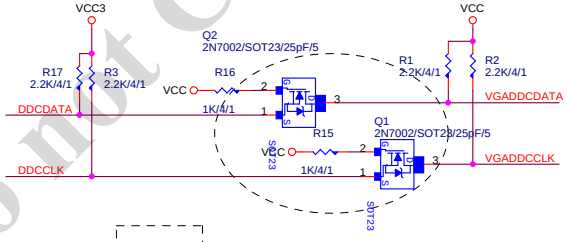


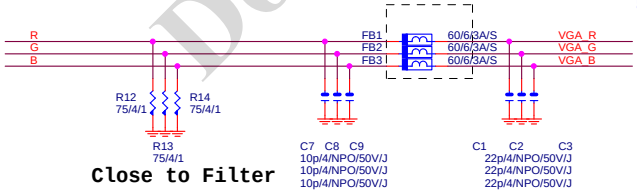
SSOP6_ESD



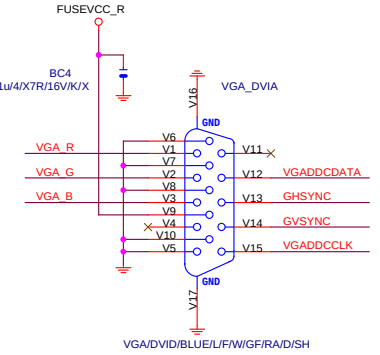


FIX CHK EDID





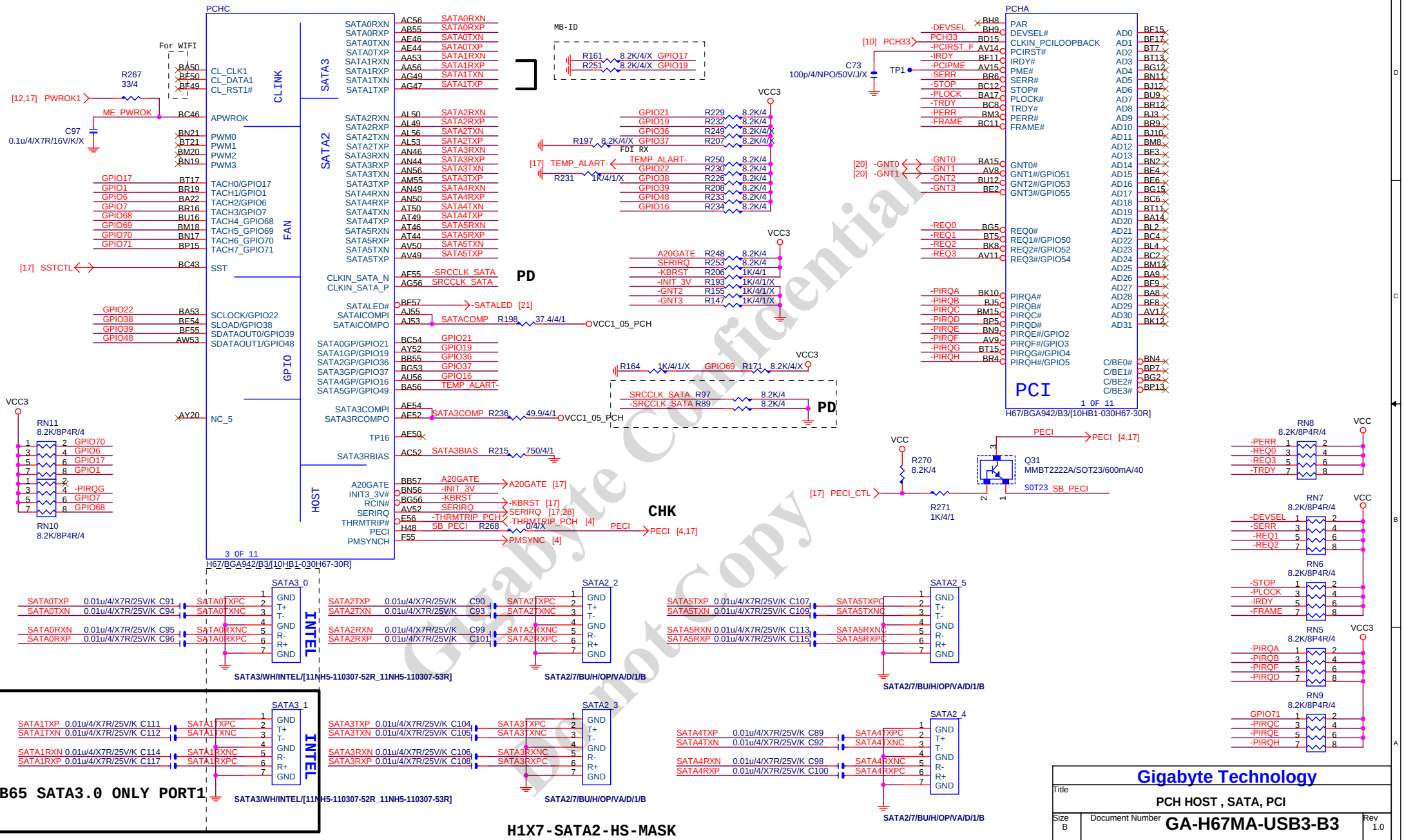
Close to Filter



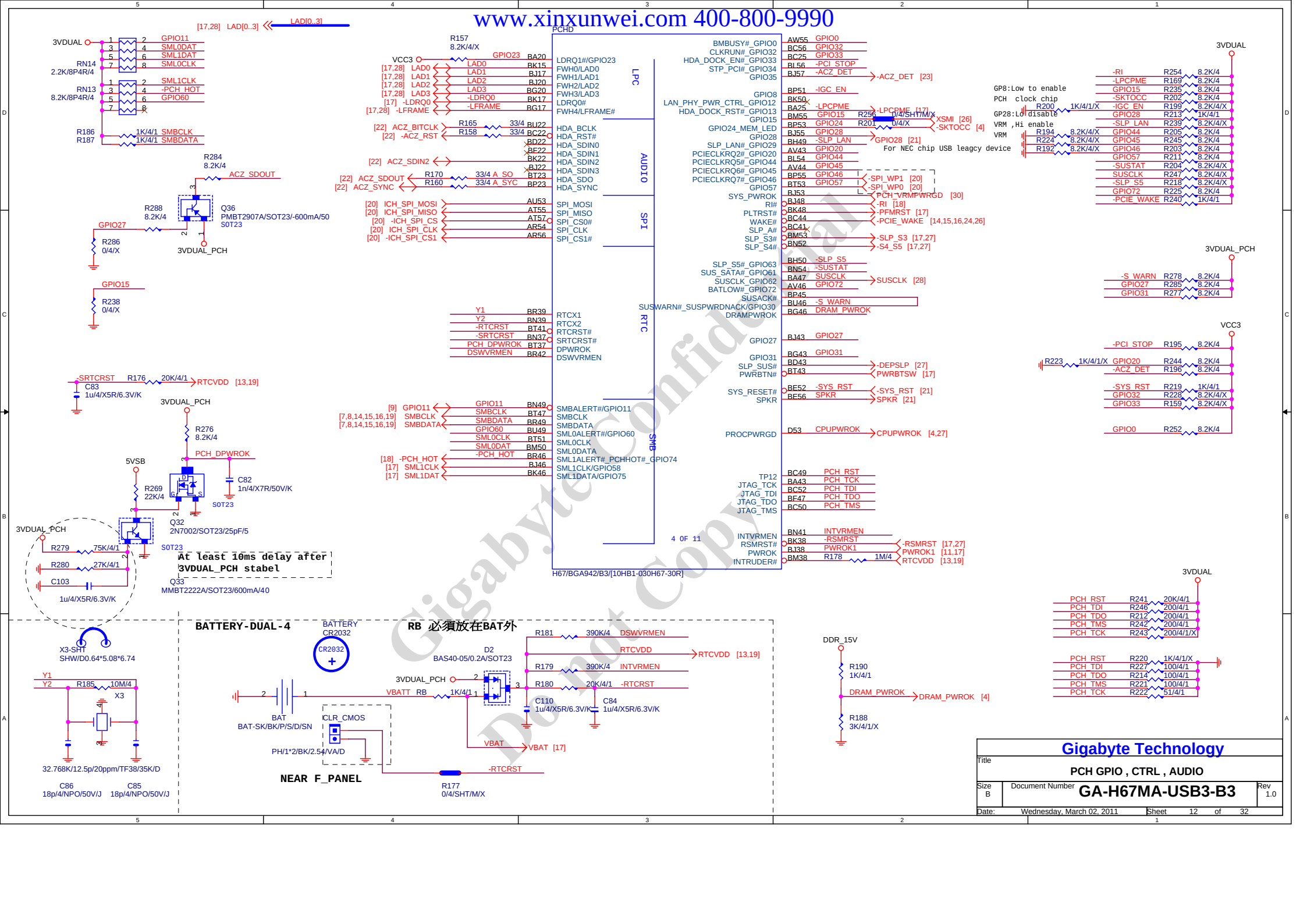
VGA/DVID/BLUE/L/F/W/GF/RA/D/SH

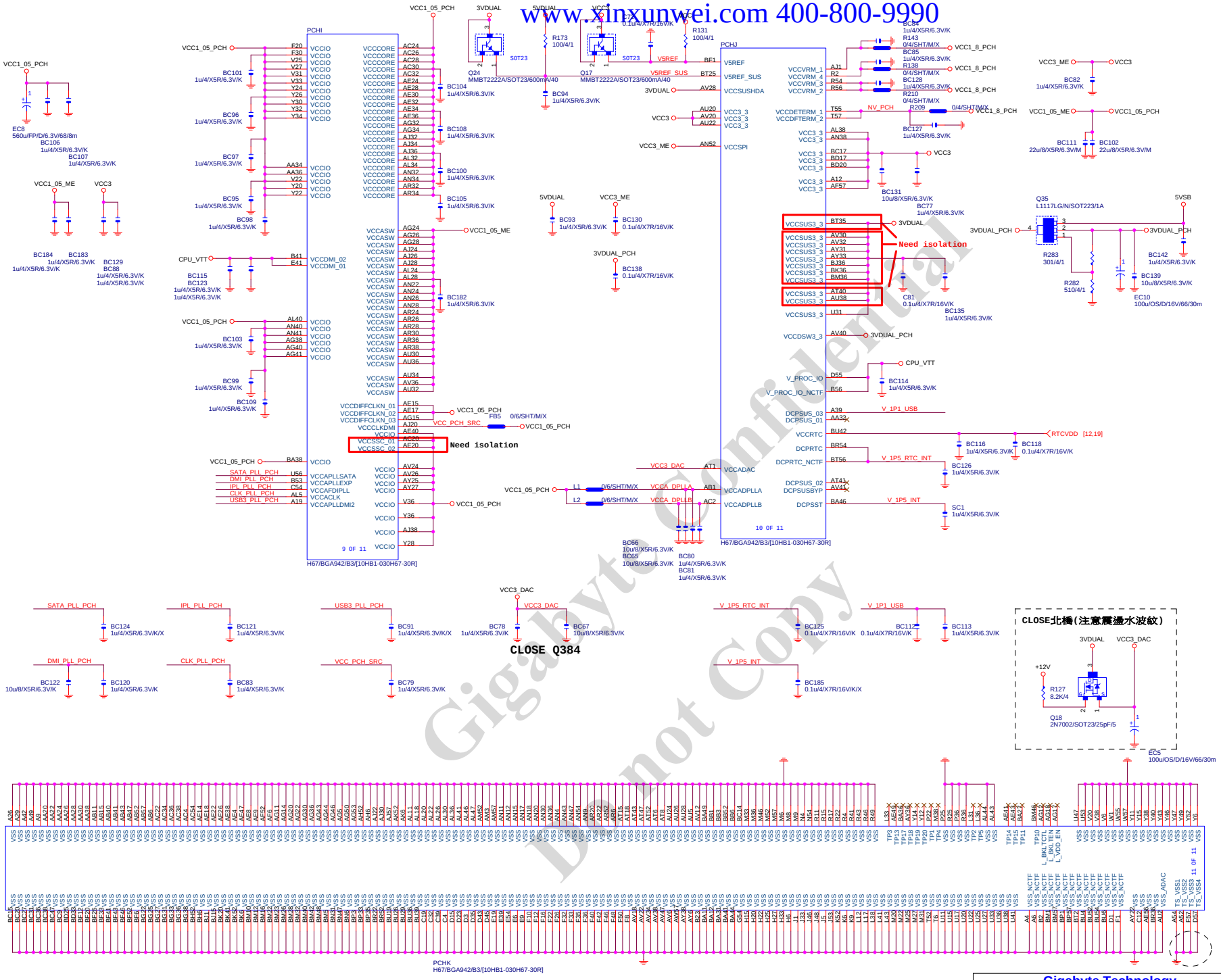
Gigabyte Technology		
Title	PCH DISPLAY ,CLK BUFFER	
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 10 of 32	

B65 SATA3.0 ONLY PORT1



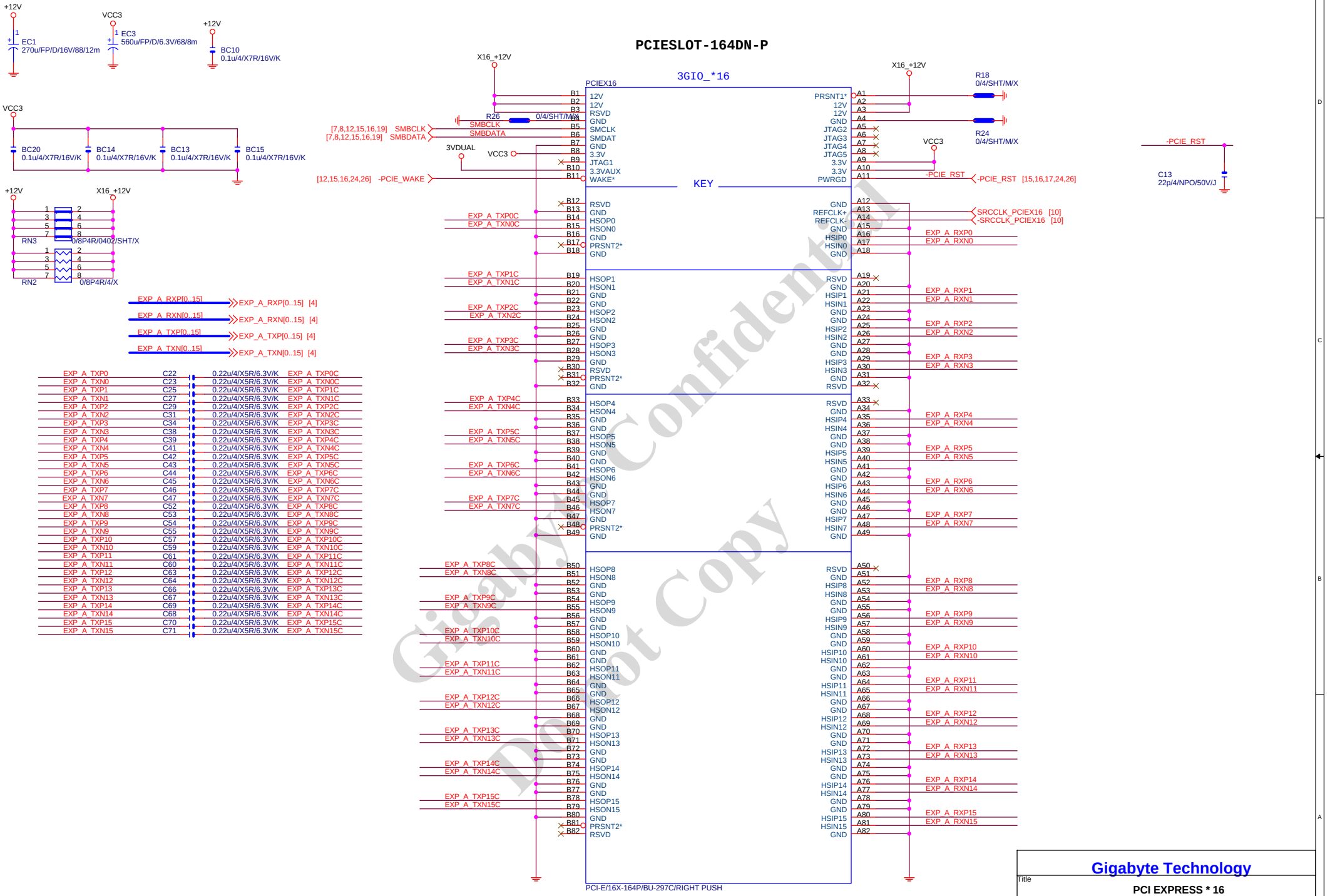
Gigabyte Technology	
Title	PCH HOST , SATA, PCI
Size B	Document Number GA-H67MA-USB3-B3 Rev 1.0
Date: Wednesday, March 02, 2011	Sheet 11 of 32



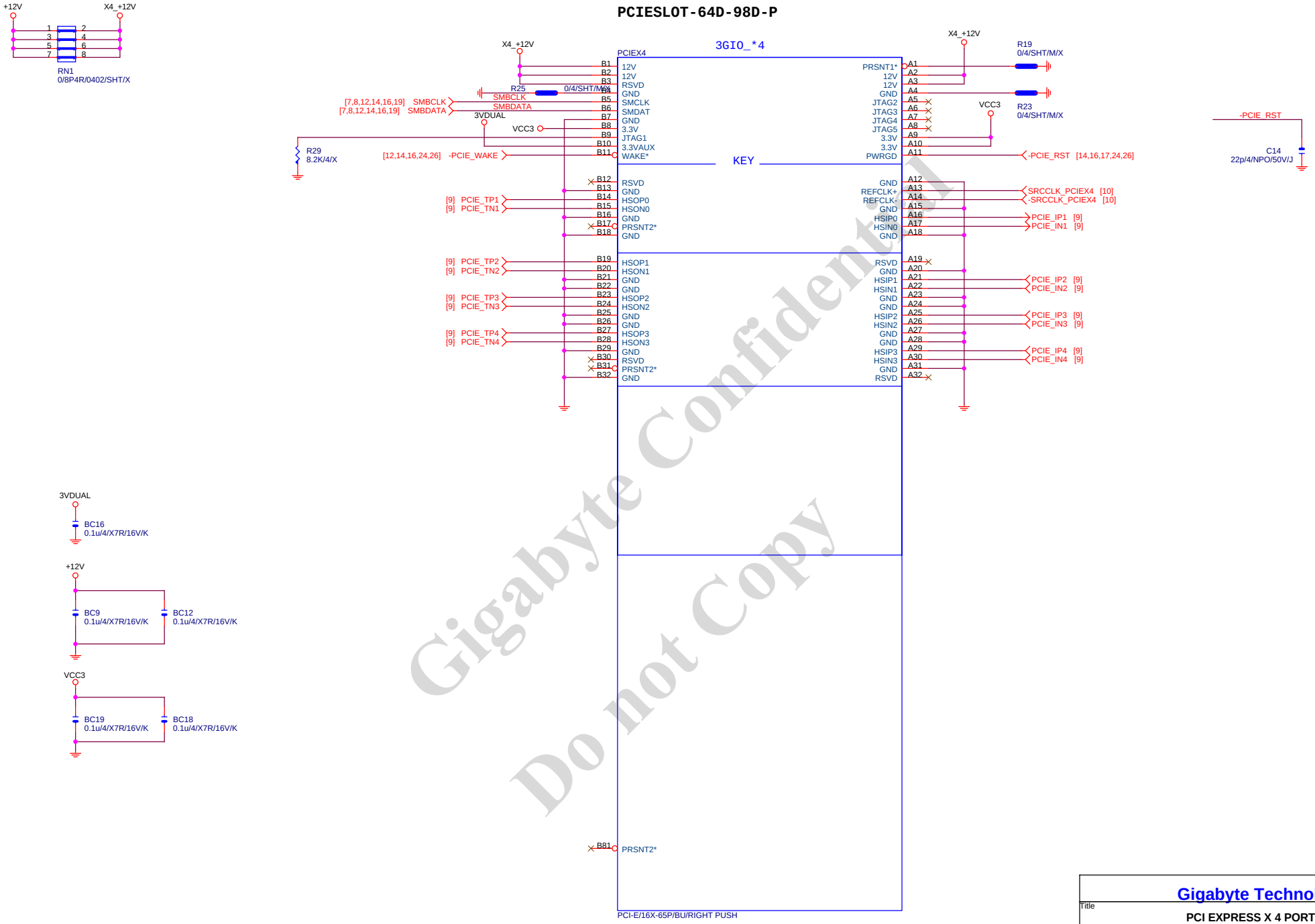


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011		Sheet 13 of 32	

PCIESLOT-164DN-P

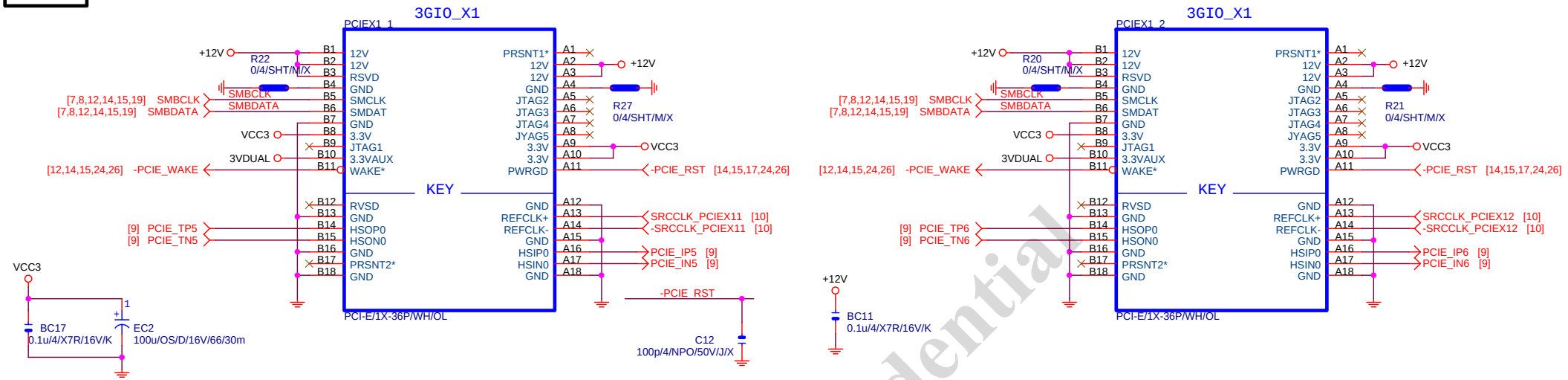


Gigabyte Technology	
Title	PCI EXPRESS * 16
Size: Custom	Document Number: GA-H67MA-USB3-B3
Rev	1.0
Date:	Wednesday, March 02, 2011
Sheet	14 of 32



Gigabyte Technology			
Title: PCI EXPRESS X 4 PORT			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011		Sheet 15 of 32	

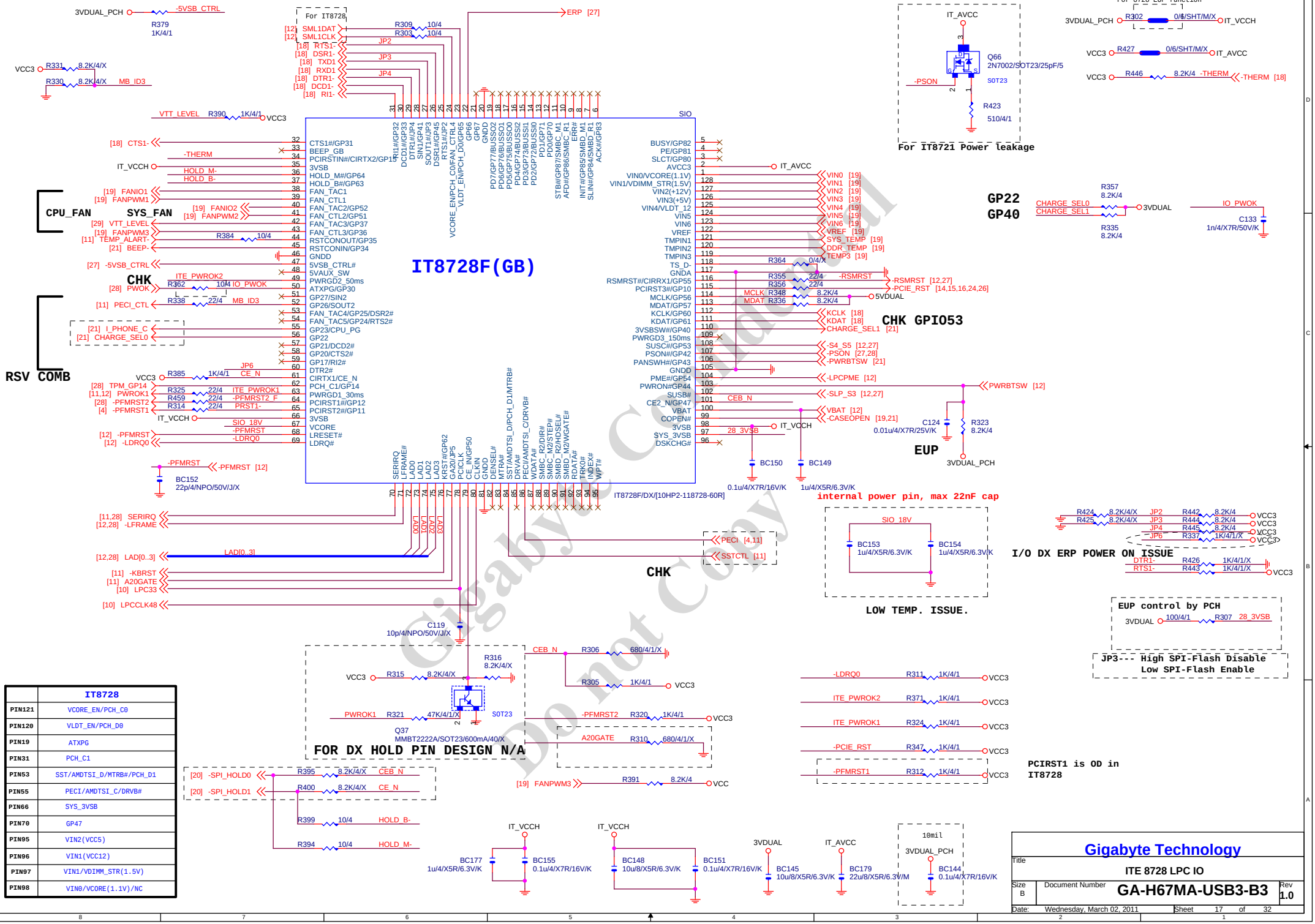
PCIE*1



CLK GEN CK505

N/A

Gigabyte Technology		
Title: PCIEX1,X2		
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 16 of 32	



	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

Title	ITE 8728 LPC IO
Size	B
Document Number	GA-H67MA-USB3-B3
Rev	1.0
Date:	Wednesday, March 02, 2011
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Gigabyte Technology

COM

AU1 GD75232/TSSOP20

[17] RI1- → NRIA-
[17] CTS1- → NCTSA-
[17] DSR1- → NDSRA-
[17] RTS1- → NRTSA-
[17] DTR1- → NDTRA-
[17] RXD1 → NSINA
[17] TXD1 → NSOUTA
[17] DCD1- → NDCDA-

-12V, +12V, VCC
ABC3 0.1u/4/X7R/16V/K/X
ABC2 0.1u/4/X7R/16V/K/X
ABC1 0.1u/4/X7R/16V/K/X

COM BH/2*5K10/IV/2.54/VA/COM

NDCDA- NSOUTA NRTSA- NRIA- ↔ NSINA NDTRA- NDSRA- NCTSA-

11NH3-000205-Y1R/Y2R

ACN2: NDTRA- NSINA NSOUTA NDCDA-
ACN1: NRIA- NCTSA- NDSRA- NRTSA-
180p/8P4C/6/NPO/50V/K

COM RI

Q57 MMBT2222A/SOT23/600mA/40
D5 BAT54C/SOT23/200mA
R392 75K/4/1
R397 8.2K/4
-RI [12]
NRIA-
SOT23

KB/USB

[17] KDAT
[17] KCLK
KDAT R5 82/4 KBDATA
KCLK R7 82/4 KBCLK

FUSEVCC_R12, FUSEVCC_R13
UBC2 0.1u/4/Y5V/16V/Z
UBC1 0.1u/4/Y5V/16V/Z
BC6 180p/4/NPO/50V/J
BC5 180p/4/NPO/50V/J
KB_USB
[9] -USBP12 [9] +USBP12
-USBP13 [9] +USBP13 [9]
AGND1
FUSEVCC_R
KBDATA KBCLK
BC3 0.1u/4/Y5V/16V/Z
USB KB

FUSEVCC_R
R6 8.2K/4 KCLK
R4 8.2K/4 KDAT

ESD1
+USBP12 -USBP12
FUSEVCC_R12
+USBP13 -USBP13
AZC009-04S/SOT23-6L/[10TA1-0I0009-10R_10TA1-0I8902-10R]

USB30_20

UD1 UD3 UD4 UD2 BAT54A/SOT23/200mA
FUSEVCC_USB31
FUSEVCC_USB32
FUSEVCC_R8
FUSEVCC_R9
FUSEVCC_R13
FUSEVCC_R12
FUSEVCC_R

USB_LAN

KB/2USB/PC99(DUAL)/RED/RA/GF/[11NR6-804006-21R_11NR6-804006-22R]

KB/2USB/PC99(DUAL)/RED/RA/GF:NEW RED

KB_USB

CLOSE KB_USB

5VDUAL
UR1 150K/4
UR2 270K/4
-USBOC_R → -USBOC_R [9]
UEC1 100u/OS/D/16V/66/30m
F6 F5 F7 SMD1206P200SLR/S

KB/VGA/DVI

USB30_20

USB30_20
USB3.0/2.0
FUSEVCC_USB31 ↔ FUSEVCC_USB32
BC2 0.1u/4/X7R/16V/K
BC1 0.1u/4/X7R/16V/K
DM11 DP11 ↔ DM22 DP22
[26] SSRXDN1 [26] SSRXDP1 ↔ SSRXDN2 [26] SSRXDP2 [26]
[26] SSTXDN1C [26] SSTXDP1C ↔ SSTXDN2C [26] SSTXDP2C [26]
AGND AGND AGND AGND
G1 G2 G3 G4
USB30_20/[11NR6-302009-21R_11NR6-302009-22R]

ESD3
DM22 DP22 FUSEVCC_USB31
DM11 DP11
AZC009-04S/SOT23-6L/[10TA1-0I0009-10R_10TA1-0I8902-10R]

FUSEVCC_USB31 R8 150K/4 -USB30OC_R1 → -USB30OC_R1 [26]
R10 270K/4
FUSEVCC_USB32 R9 150K/4 -USB30OC_R2 → -USB30OC_R2 [26]
R11 270K/4

Close to connector

AZ1045-04F/MSOP10
SSRXDP1 SSRXDN1 SSTXDN1C SSTXDP1C
UESD2
SSTXDP2C SSTXDN2C SSRXDN2 SSRXDP2
UESD1

5VDUAL
UEC3 560u/FP/D/6.3V/68/8m
F4 F3 SMD1206P300SLR/S
FUSEVCC_USB31
FUSEVCC_USB32

CLOSE USB30_LAN

[26] DM1 [26] DP1 ↔ DM11 DP11
LR14 LR13 LR18 LR17 0/4 0/4 0/4/X 0/4/X
DM22 DP22 ↔ DM2 [26] DP2 [26]
LR12 LR11 LR16 LR15 0/4 0/4 0/4/X 0/4/X
[9] -USBP10 [9] +USBP10
-USBP11 [9] +USBP11 [9]

-PROHOT

Q14 BAT54A/SOT23/200mA
[4] -PROCHOT → -PROCHOT
VCC3 R46 8.2K/4
R56 0/4/X
VR_HOT [30]
-PCH_HOT [12]

-THERM [17]
VCC
R47 22K/4
Q10 2N7002/SOT23/25pF/5
R50 8.2K/4
Q9 MMBT2222A/SOT23/600mA/40
-PROCHOT

deasserted at 116 degree

RS2 CLOSE CPU VR MOSFET

+12V
R63 35.7K/4/1
R51 10K/4/1
R57 1.4K/4/1
U1D LM324DR/SO14
TSM_5 TSM_6 TSM_7
RS_PHOT 100K/1/4/S
R59 1K/4/1
C40 0.1u/4/X7R/16V/K/X
R? CLOSE Q32
Q13 2N7002/SOT23/25pF/5
Q11 2N7002/SOT23/25pF/5
-PROCHOT [4]
-THERM [17]

CLOSE PWM HOT MOSFET

Gigabyte Technology	
Title	COM,-RI,KB_USB,USB_ESATA,-PROCHOT
Size: Custom	Document Number: GA-H67MA-USB3-B3 Rev: 1.0
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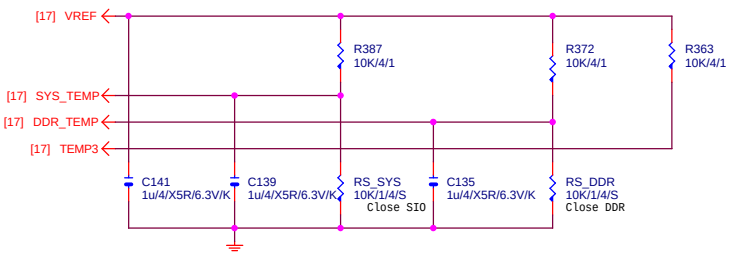
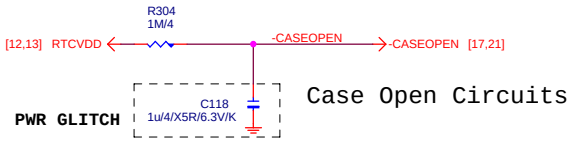
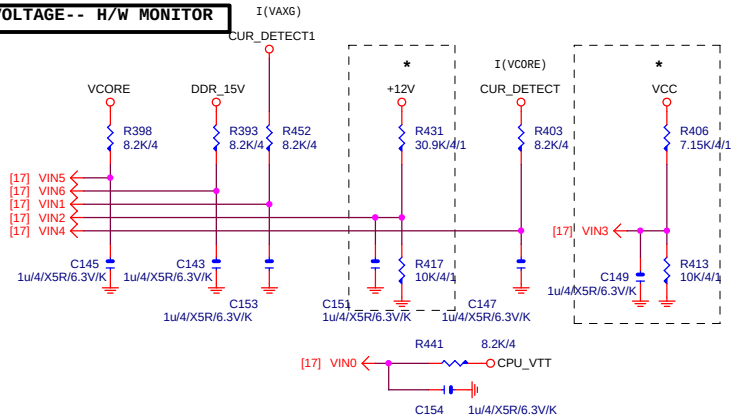
TEMP H/W MONITOR



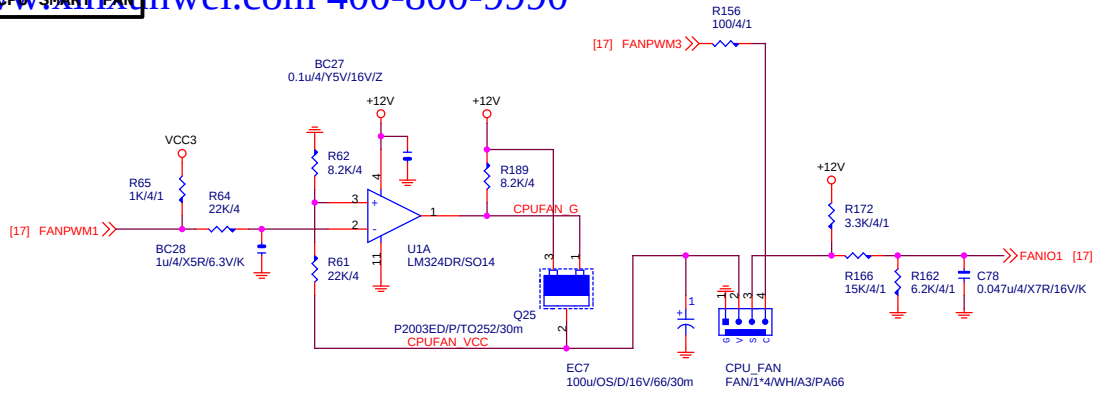
CASE OPEN



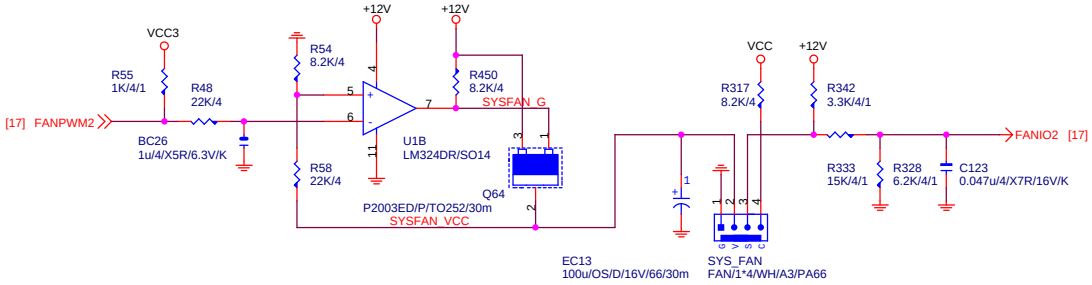
VOLTAGE-- H/W MONITOR

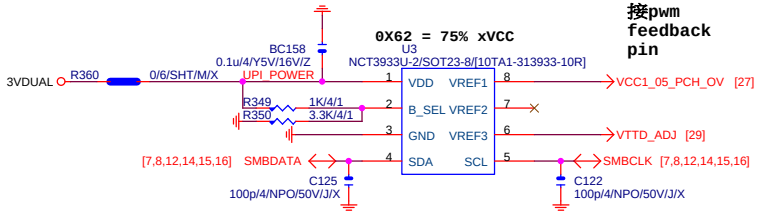


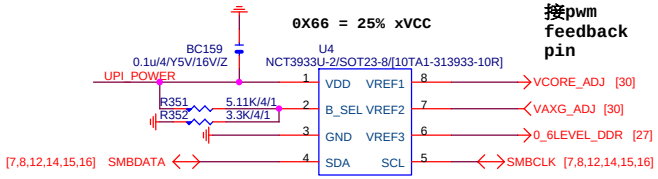
CPU SMART FAN



SYS SMART FAN







Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
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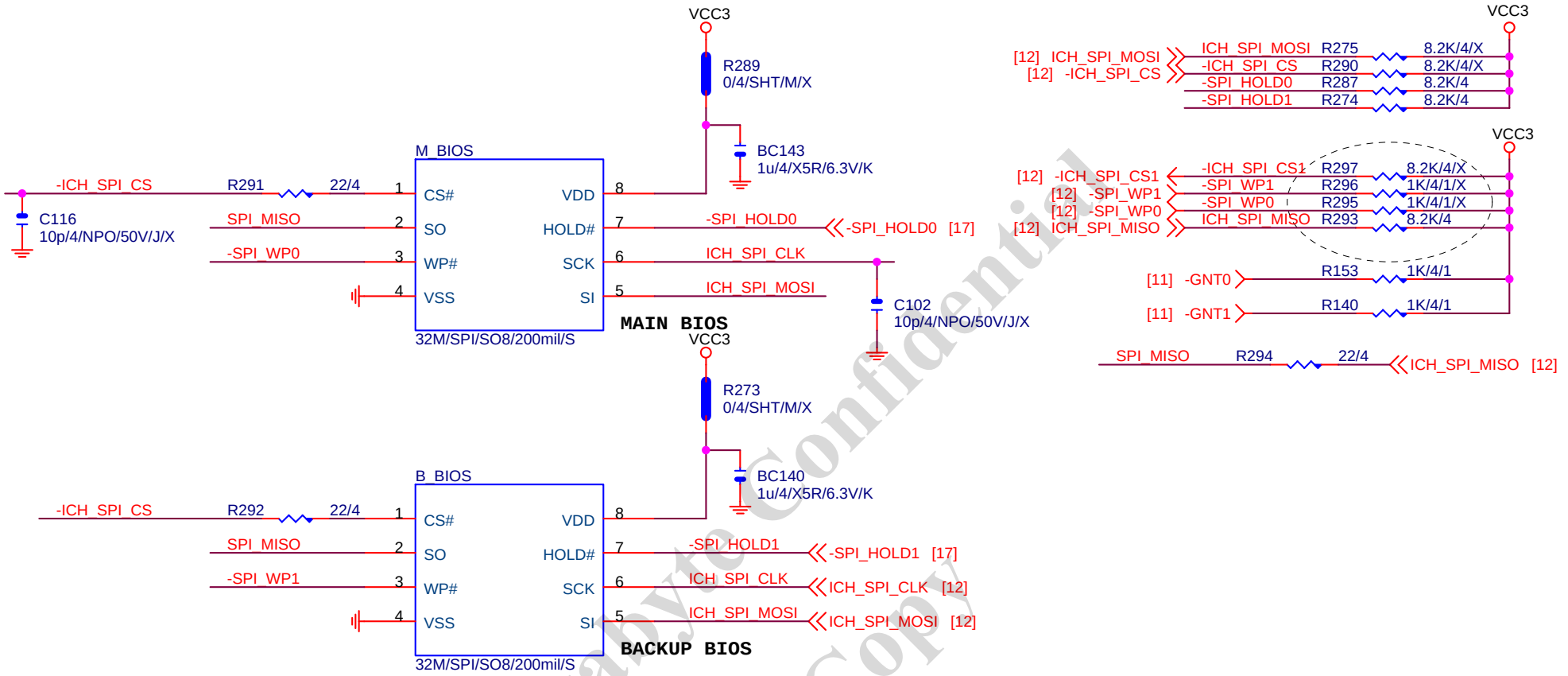
DUAL BIOS



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-H67MA-USB3-B3	Rev: 1.0
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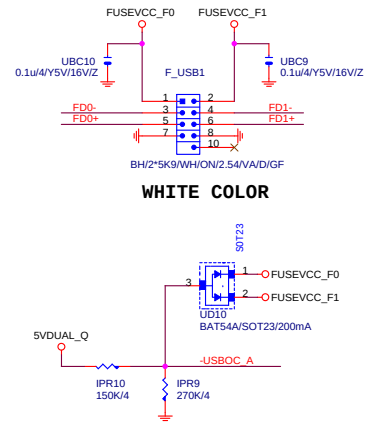
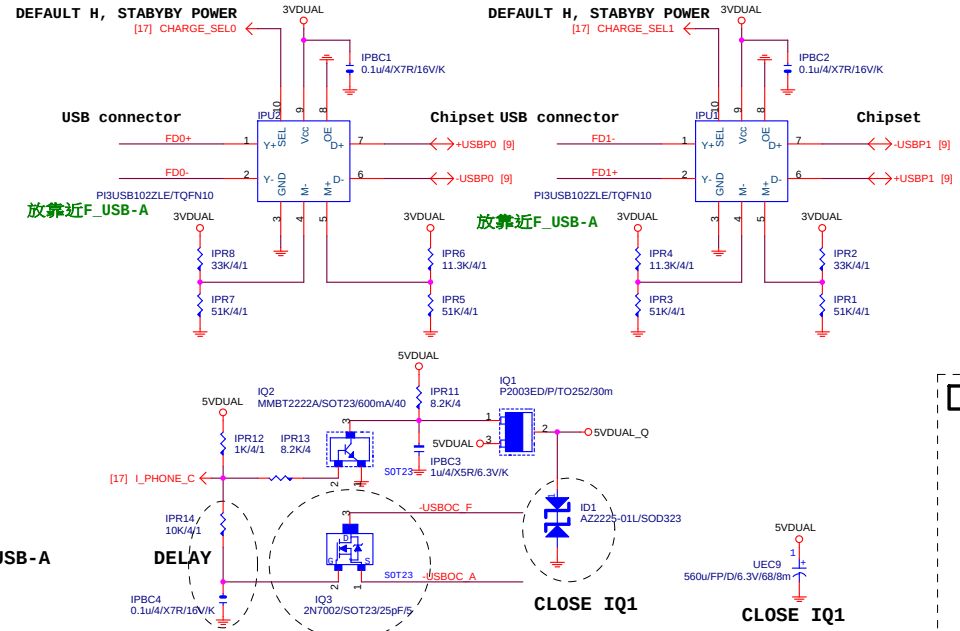
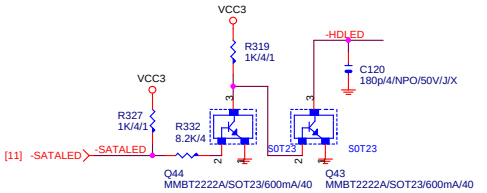
FRONT USB1



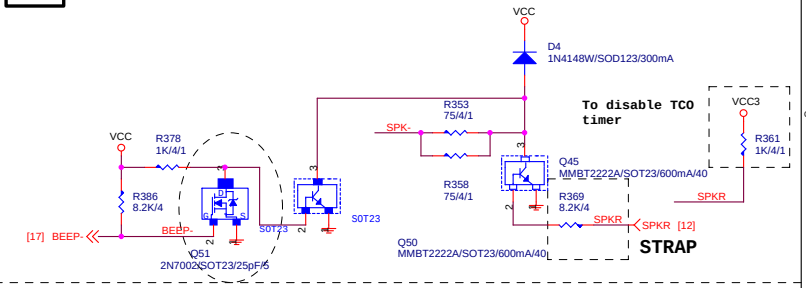
i_phone charger circuit



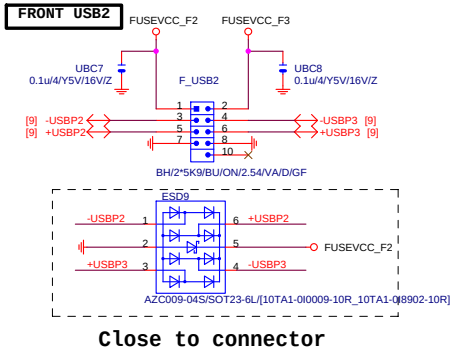
SATA LED



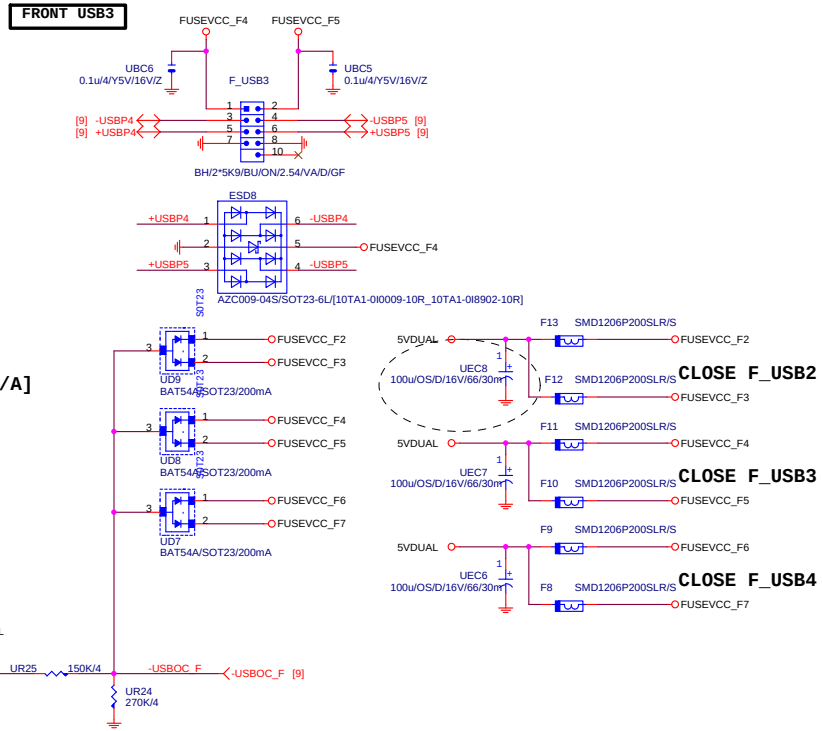
SPKR



FRONT USB2

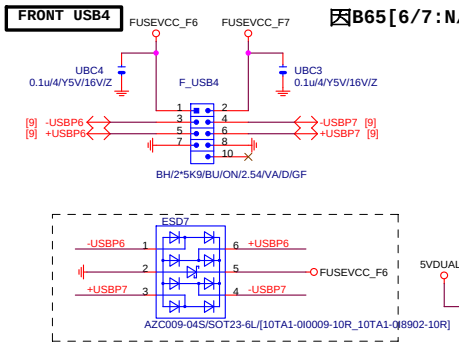


FRONT USB3

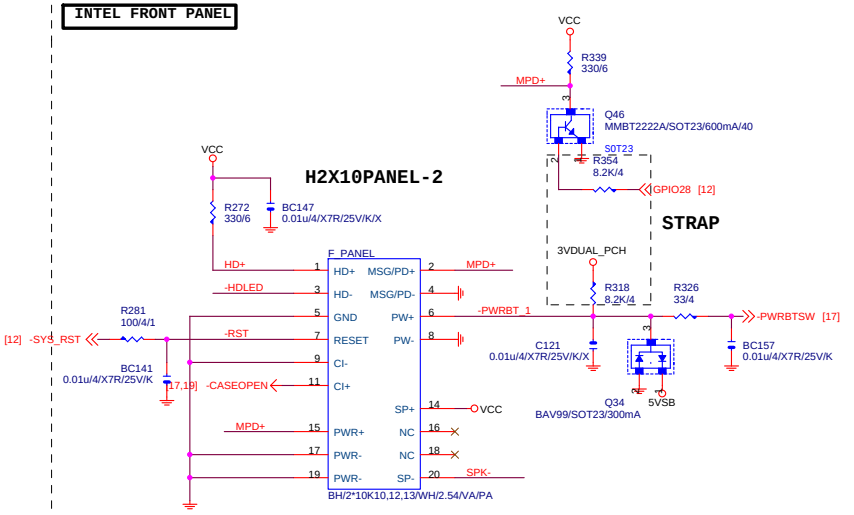


FRONT USB4

因B65[6/7:N/A]



INTEL FRONT PANEL



Gigabyte Technology		
Title: FP,F_USB,USB PWR,SPKR,SATA LED		
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
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AZALIA CODEC — ALC892/ALC889A/ALC888Vx/ALC888B co'lay

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

20K/4/0.1% @ALC889A
20K/4/1% @ALC889A+/ALC888Vx

CR28 20K/4/1

CR51 8.2K/4/X

CR25 10/4/X → VOCR [23]

AVDD

CBC14 0.1u/4/Y5V/16V/Z

[23] SPDIF

VCC3 CR54 2.2/8

CBC28 22u/8/X5R/6.3V/M

co-layout

[23] SPDIFO2_HDMI

CR49 8.2K/4/X

10U FOR ALC892

CBC29 10u/8/X5R/6.3V/K/X

CR55 8.2K/4/X

CR56 0/4

50歐姆:4/5

[12] ACZ_SDOUT
[12] ACZ_BITCLK
CR57 22/4

[12] ACZ_SDIN2
CR53 22/4

VCC3

[12] ACZ_SYNC
[12] -ACZ_RST

CR14/CBC4 close to SouthBridge

CBC27 0.1u/4/Y5V/16V/Z

CBC33 0.1u/4/Y5V/16V/Z

CU1

ALC889A+

1 DVDD1
2 GPIO0/XTALI
3 GPIO1/XTALO
4 DVS1
5 SDATA_OUT
6 BIT_CLK
7 DVSS2
8 SDATA-IN
9 DVDD2
10 SYNC
11 RESET#
12 PC_BEEP

48 SPDIFO
47 SPDIF/EAPD
46 SURBACK-R/XTALSEL
45 SURBACK-L/JD0 GPIO0
44 LFE
43 CEN
42 AVSS2
41 SURR-R
40 JDREF (NC)/JD3
39 SURR-L
38 AVDD2
37 LINE1-VREFOR/VREFO3

36 FRONT-R
35 FRONT-L
34 SENSE B (JD2)/FMIC1
33 DCVOL/VREFVOUT2
32 MIC1-VREFO-R/FMIC2
31 LINE2-VREFO/JD4
30 MIC2-VREFO/AFILT2
29 LINE1-VREFO-L/AFILT1
28 MIC1-VREFO-L/VREFOUT
27 VREF
26 AVSS1
25 AVDD1

13 SENSE A(JD1)/PHONE JD1
14 LINE2-L/AUX-L
15 LINE2-R/AUX-R
16 MIC2-L/JD2
17 MIC2-R/JD1 GPIO1
18 CD_L
19 CD_GND
20 CD_R
21 MIC1-L/MIC1
22 MIC1-R/MIC2
23 LINE1-L
24 LINE1-R

ALC889-GR/S

CR45 47/4/1 → FAUDIO_JD [23]

CBC24 1n/4/X7R/50V/K

JD resistors close to pin34 of CODEC

Can Support Amp Out

VODR CR7 8.2K/4 → MIC1_VREFO_R [23]
LINE2_VREFO [23]
MIC2_VREFO [23]

CR26 10/4 → VOCR [23]

VOBR CR8 8.2K/4 → MIC1_VREFO_L [23]

AVDD

CBC9 10u/8/X5R/6.3V/K

CBC11 0.1u/4/Y5V/16V/Z

CR58 0/6/X → 5VDUAL

CBC8 10u/8/X5R/6.3V/K/X

CD1 AZ2225-01L/SOD323/X

FOR ALC892

50歐姆:4/10

Digital Area

Analog Area

THD+N ISSUE

CBC4 22u/8/X5R/6.3V/M → LINE_IN_R [23]
CBC5 22u/8/X5R/6.3V/M → LINE_IN_L [23]
CBC6 10u/8/X5R/6.3V/K → MIC1_R [23]
CBC7 10u/8/X5R/6.3V/K → MIC1_L [23]

[23] FRONT_JD CR23 5.11K/4/1
[23] LINE1_JD CR24 10K/4/1
[23] MIC1_JD CR20 20K/4/1

JD resistors close to pin13 of CODEC

[23] LINE2_L
[23] LINE2_R
[23] MIC2_L
[23] MIC2_R

Can Support Amp Out

Gigabyte Technology

Title: HD AUDIO ALC889/ALC892

Size: Custom | Document Number: GA-H67MA-USB3-B3 | Rev: 1.0

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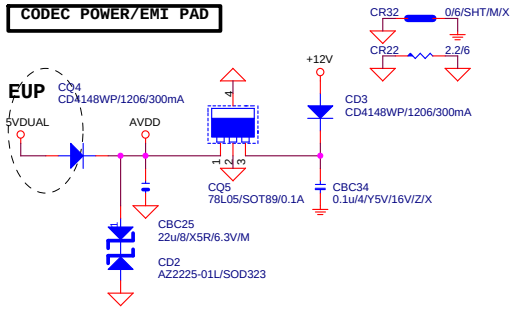
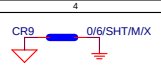
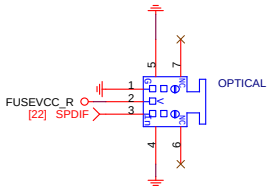
CODEC POWER/EMI PAD

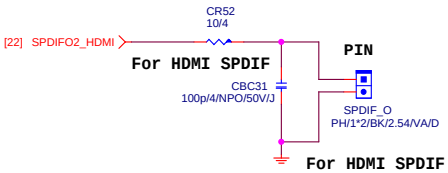






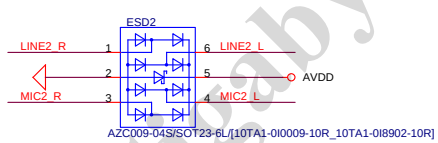
FR/5P/BK/T/D/S(GY)

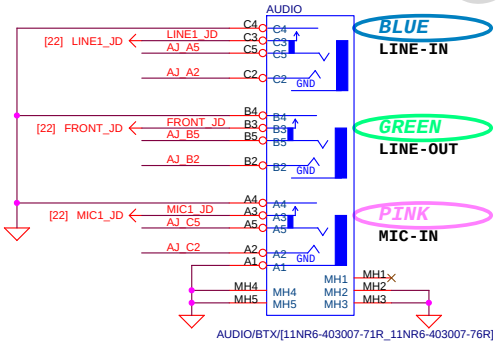
HDMI SPDIF



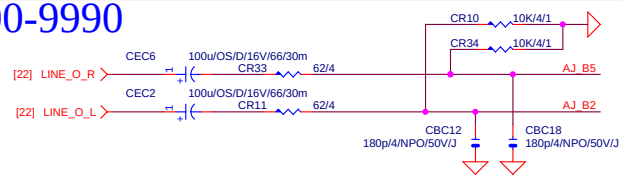
SPDIF_IN

AZALIA JACK



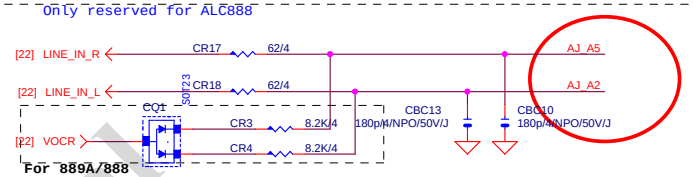


LINE-OUT



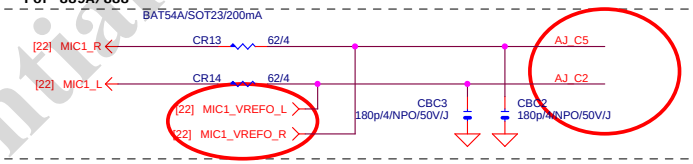
LINE-IN

Only reserved for ALC888

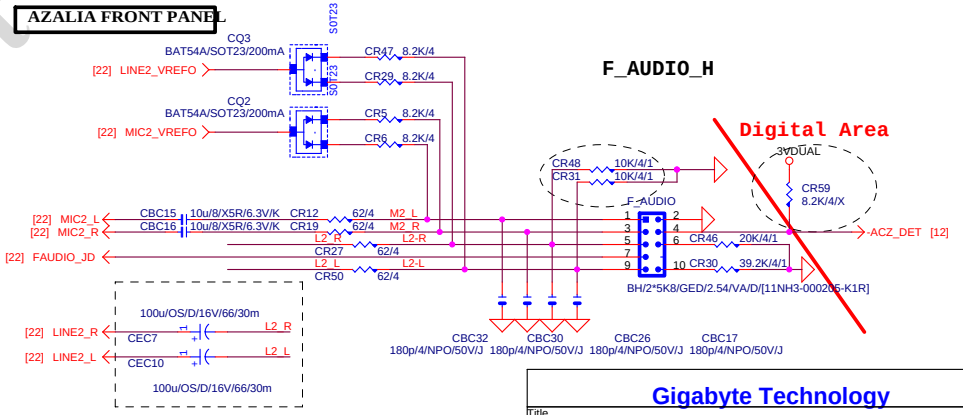


Verify MIC function in LINE-in

MIC-IN



AZALIA FRONT PANEL



Gigabyte Technology		
Title	AUDIO JACK	
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
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PCIE-1G LAN

XTAL2:外部CLK IN

RSET需LAYOUT GND GUARD

FOR DSM MODE
(DEEP SLUMBER MODE)

ENABLE SW

Dual Color LED

Single Color LED

RTL8111E-VL-CG/QFN48/S

CLOSE LAN CHIP

(CLOSE LU1)

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

CLOSE LL1

(PIN21)

P35-152-19W9

USB_LAN CONNECTOR

90歐姆:[20/4/8/4/20]

CLOSE USB_LAN

USB_LANDUAL-N

FOR EMI

90歐姆:[15/4.5/7.5/4.5/15]

RTL8111DL

RED 11NR6-702009-11R:1G/12CORE
11NR6-702009-41R:1G/8CORE

CLOSE USB_LAN

Title	Gigabyte Technology
	REALTEK RTL8111E
Size / Custom	Document Number: GA-H67MA-USB3-B3
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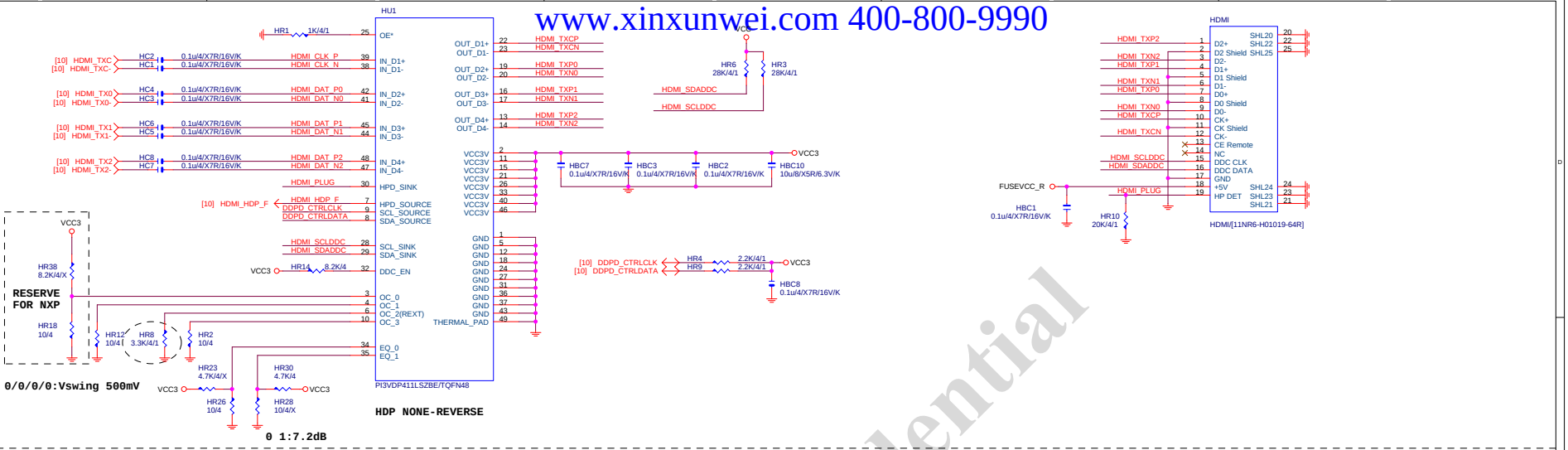
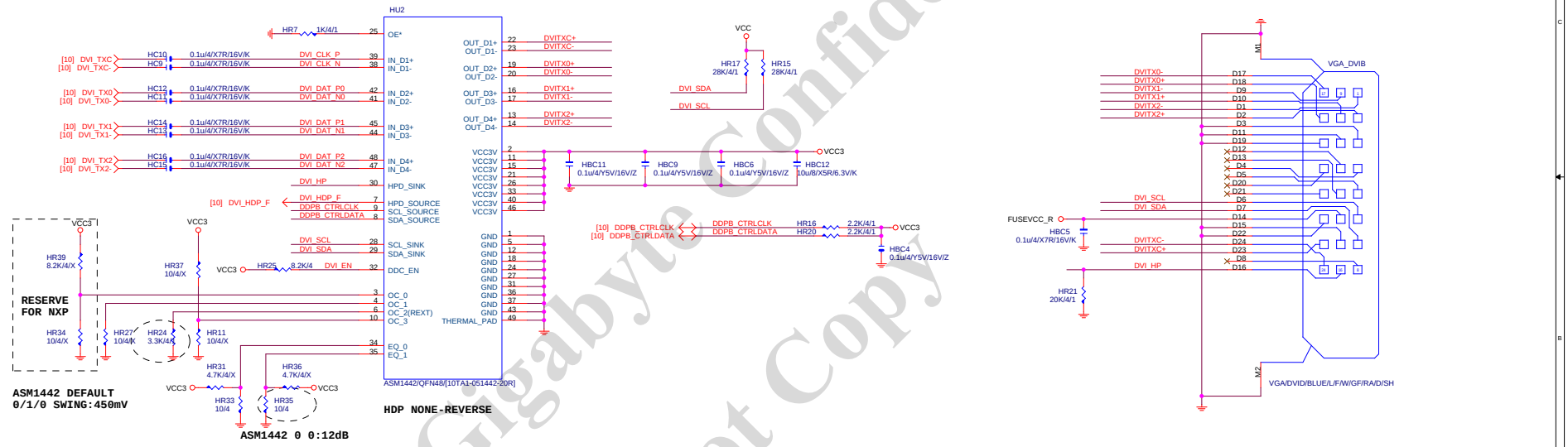
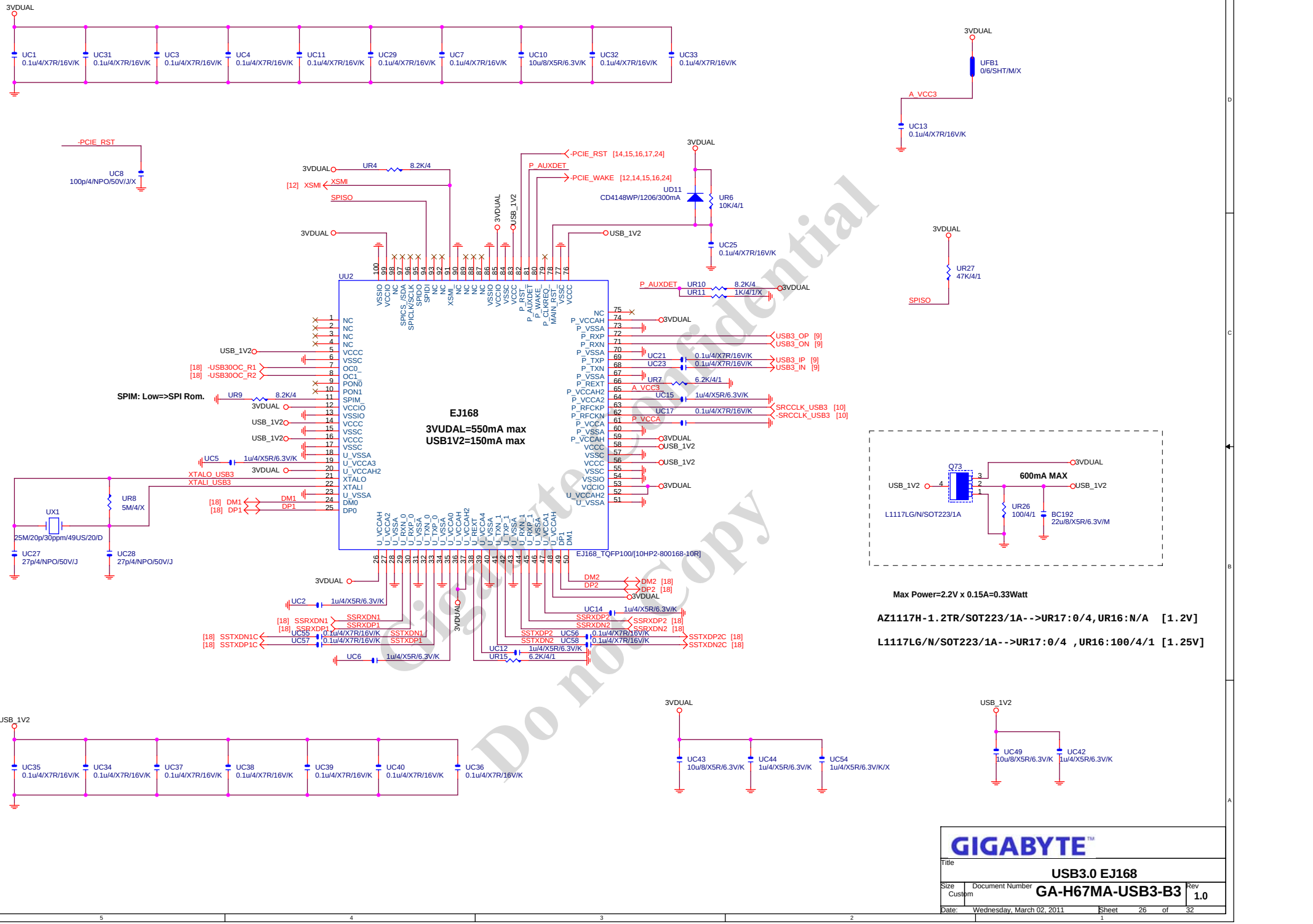


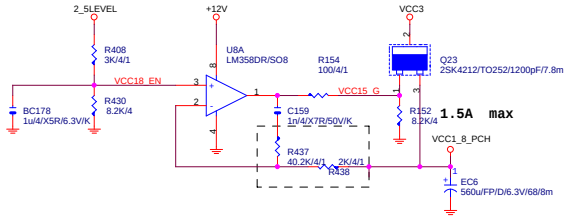


Gigabyte Technology			
Title: HDMI / DVI/DP			
Size: C	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 25 of 32		

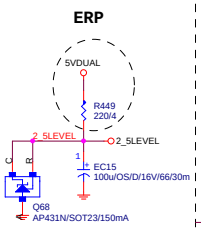


GIGABYTE		
Title	USB3.0 EJ168	
Size: Custom	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 26 of 32	

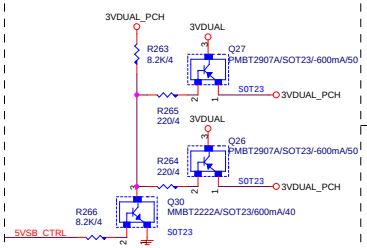
VCC1_8_PCH



2_5LEVEL

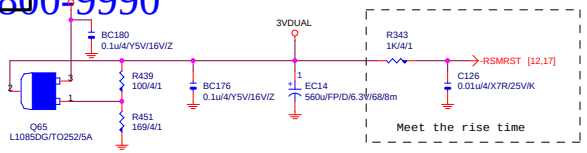


FIX ERP 5VSB PROB

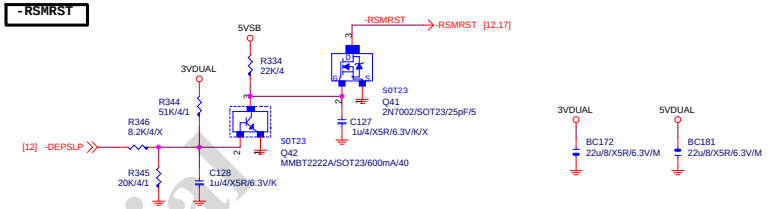


在ERP TURN ON時,先將PCH 3VDUAL灌入3VDUAL_PCH,使TURN ON -SLP_S3功能

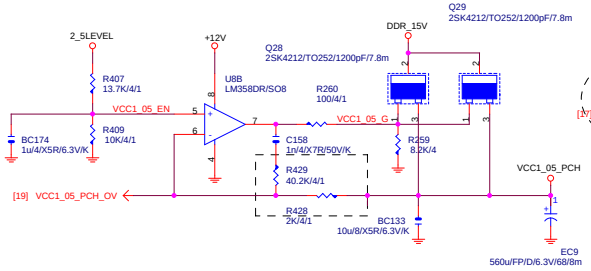
3VDUAL



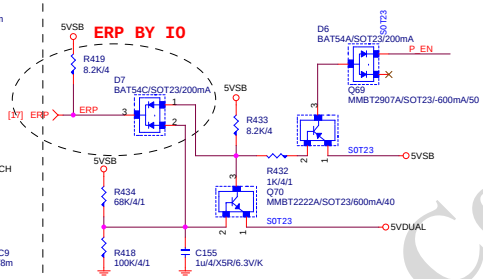
-RSMRST



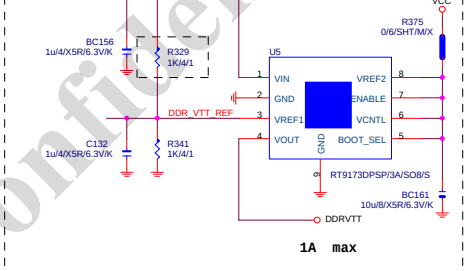
VCC1_05_PCH



5VDUAL SHORT PROTECT

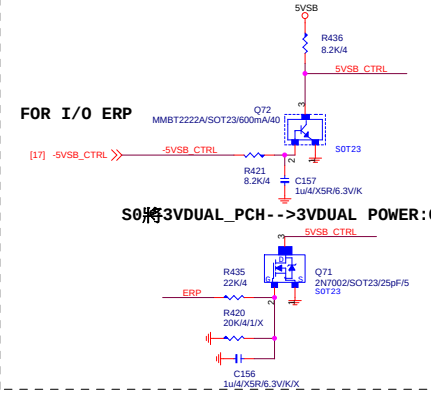


DDRVTT

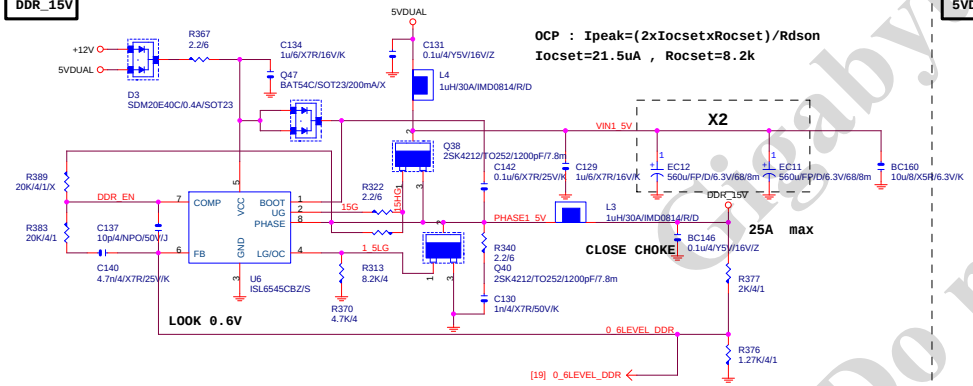


PWR SEQ

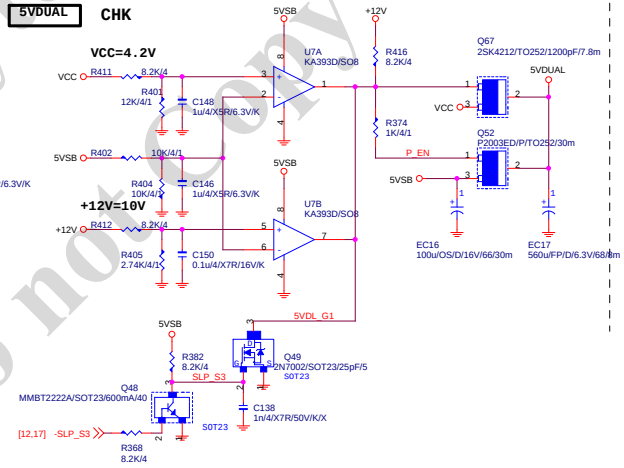
I/O 5VSB_CTRL反向

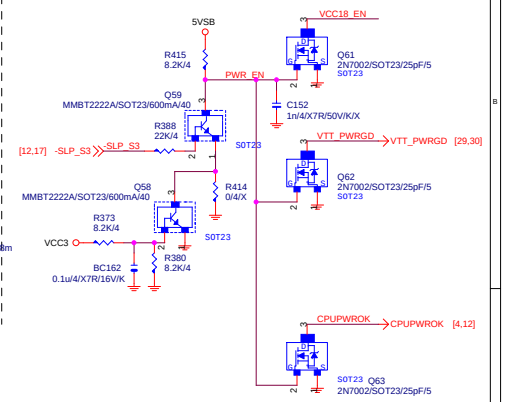


DDR_15V

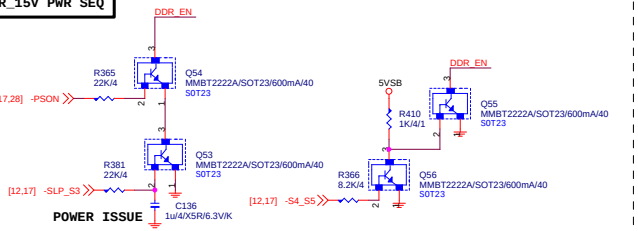


5VDUAL CHK





DDR_15V PWR SEQ



Q39 2SK4212/TO252/1200pF/7.8m

PHASE1_5V

1_5LG

LOW SIDE RDS-ON同HI SIDE,否則太低,ISL6545過燙

Gigabyte Technology		
Title: DISCRETE POWER		
Size: C	Document Number: GA-H67MA-USB3-B3	Rev: 1.0
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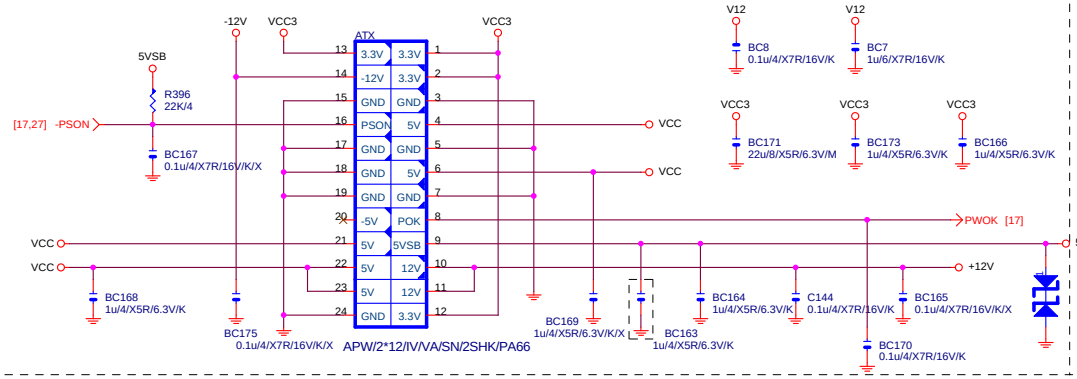
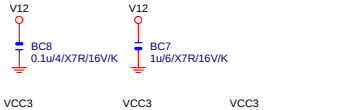
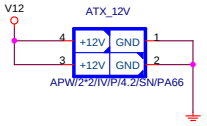
ATXX24 POWER CONNECTOR

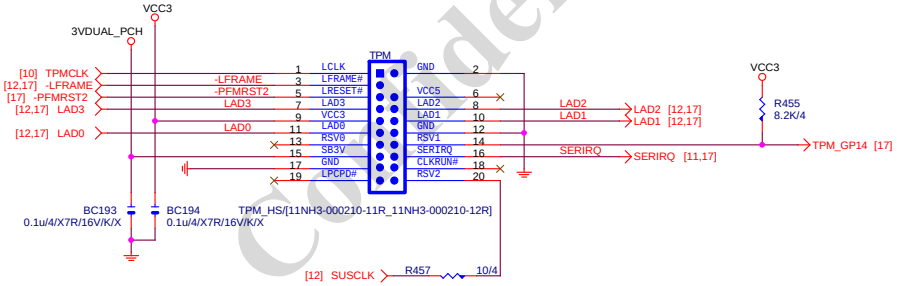


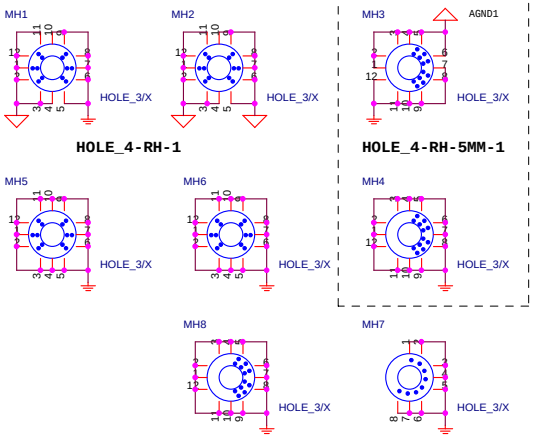




ATX_4-5

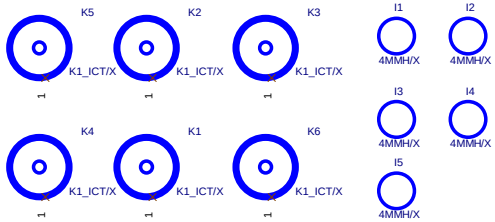
TPM





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

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



To prevent the 5VSB under loading when boot

Gigabyte Technology			
Title: ATX CONNECTOR,TPM			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
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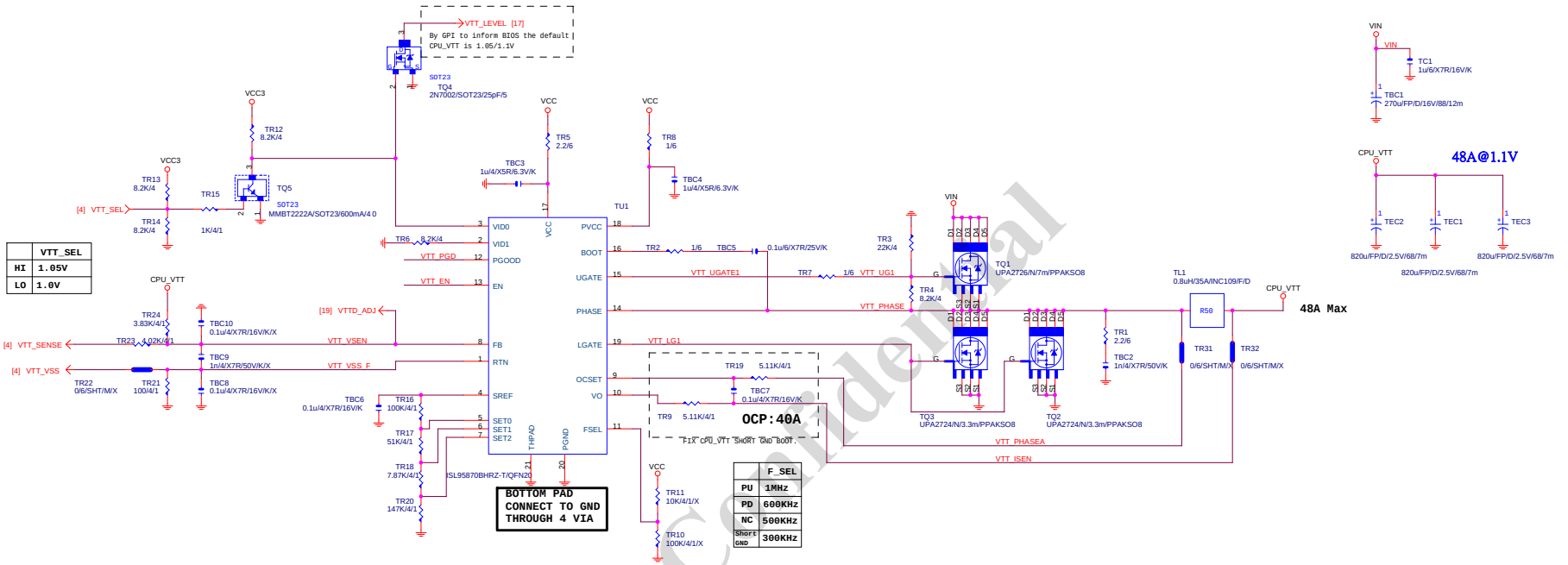
CPU_VTT



	VTT_SEL
HI	1.05V
LO	1.0V

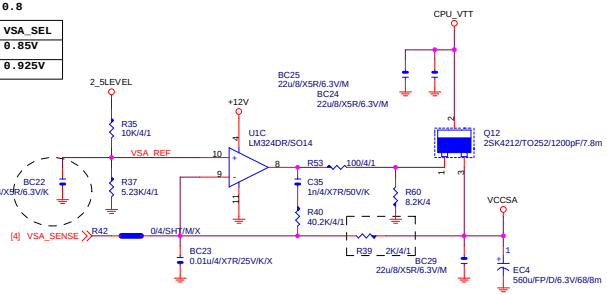
	F_SEL
PU	1MHz
PD	600KHz
NC	500KHz
Short GND	300KHz

BOTTOM PAD CONNECT TO GND THROUGH 4 VIA

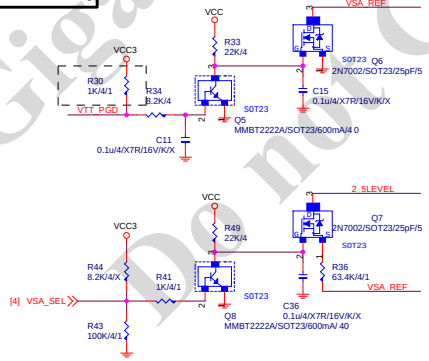
VCCSA

PDG 0.8

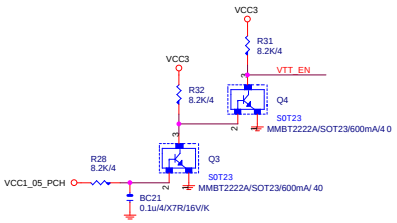
	VSA_SEL
HI	0.85V
LO	0.925V



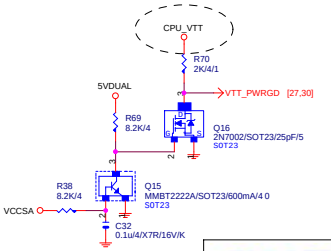
VCCSA PWR SEQ



CPU_VTT PWR SEQ



VTT_PWRGD



GIGABYTE

Title	CPU_VTT PWM_ISL6322CRZ
Size / Document Number	Custom / GA-H67MA-USB3-B3
Rev	1.0
Date:	Wednesday, March 02, 2011
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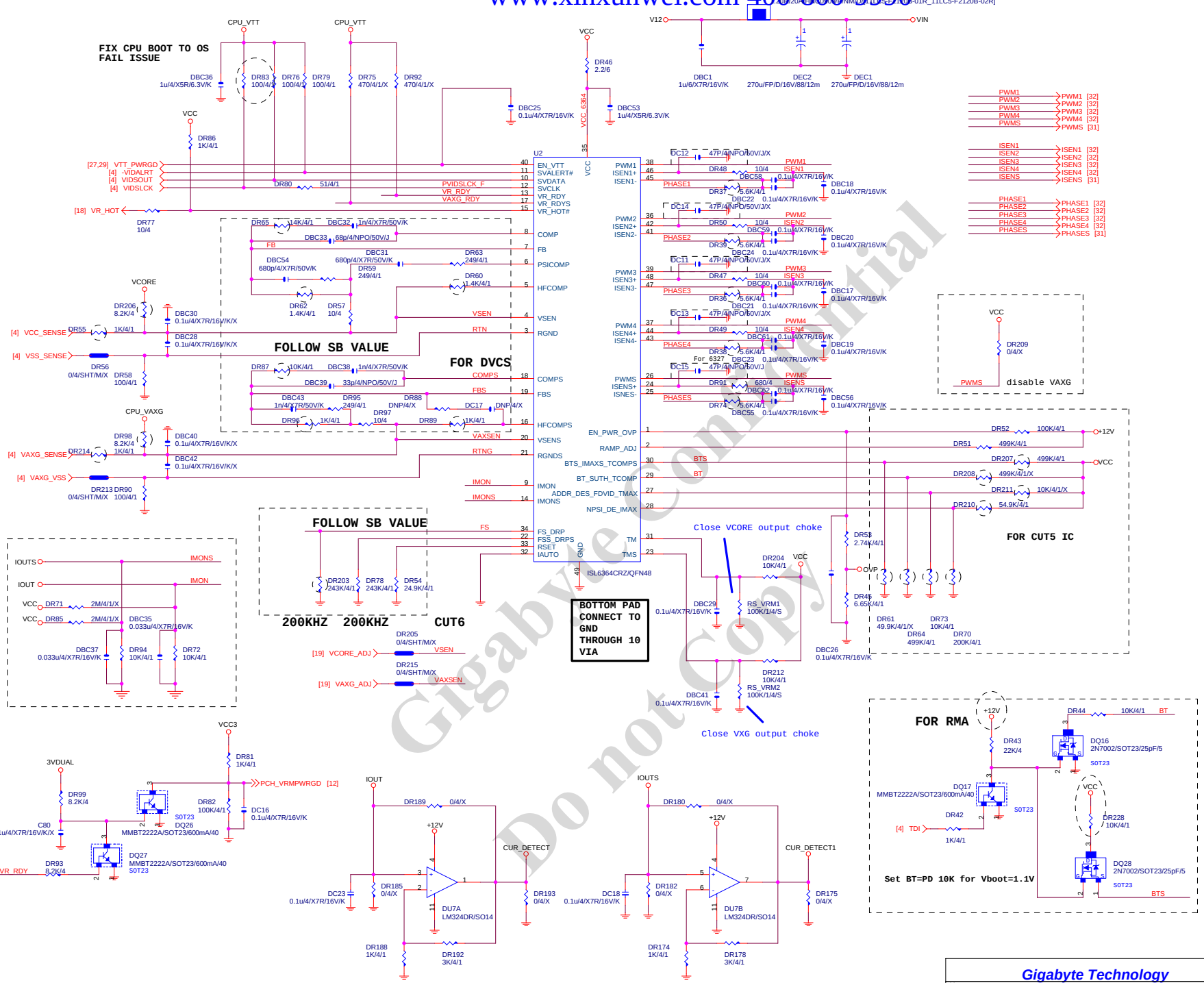

Gigabyte Technology			
Title	CPU CORE VR-1		
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
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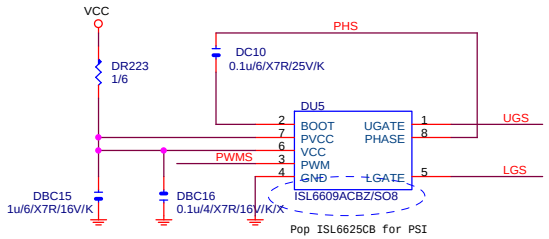
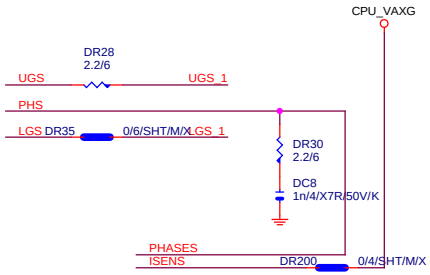
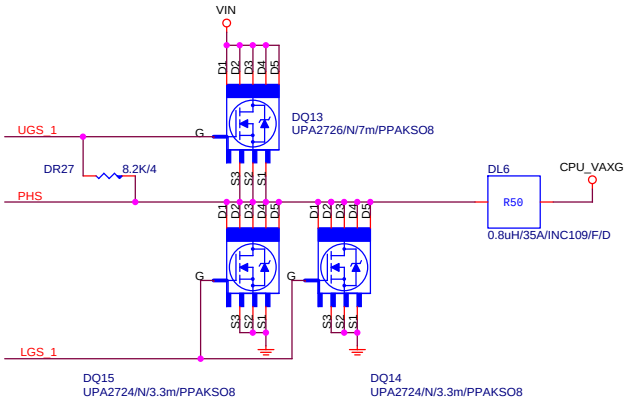
VAXG

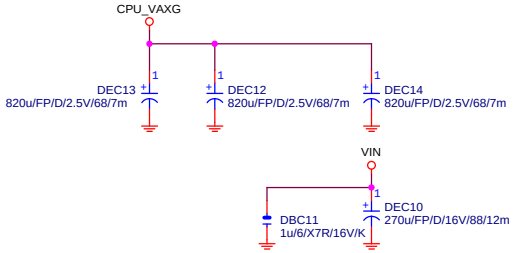
ISL6612 use +12V
ISL6609 use VCC

ISL6612 use 1 ohm
ISL6609 use 0 ohm



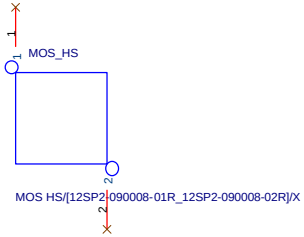




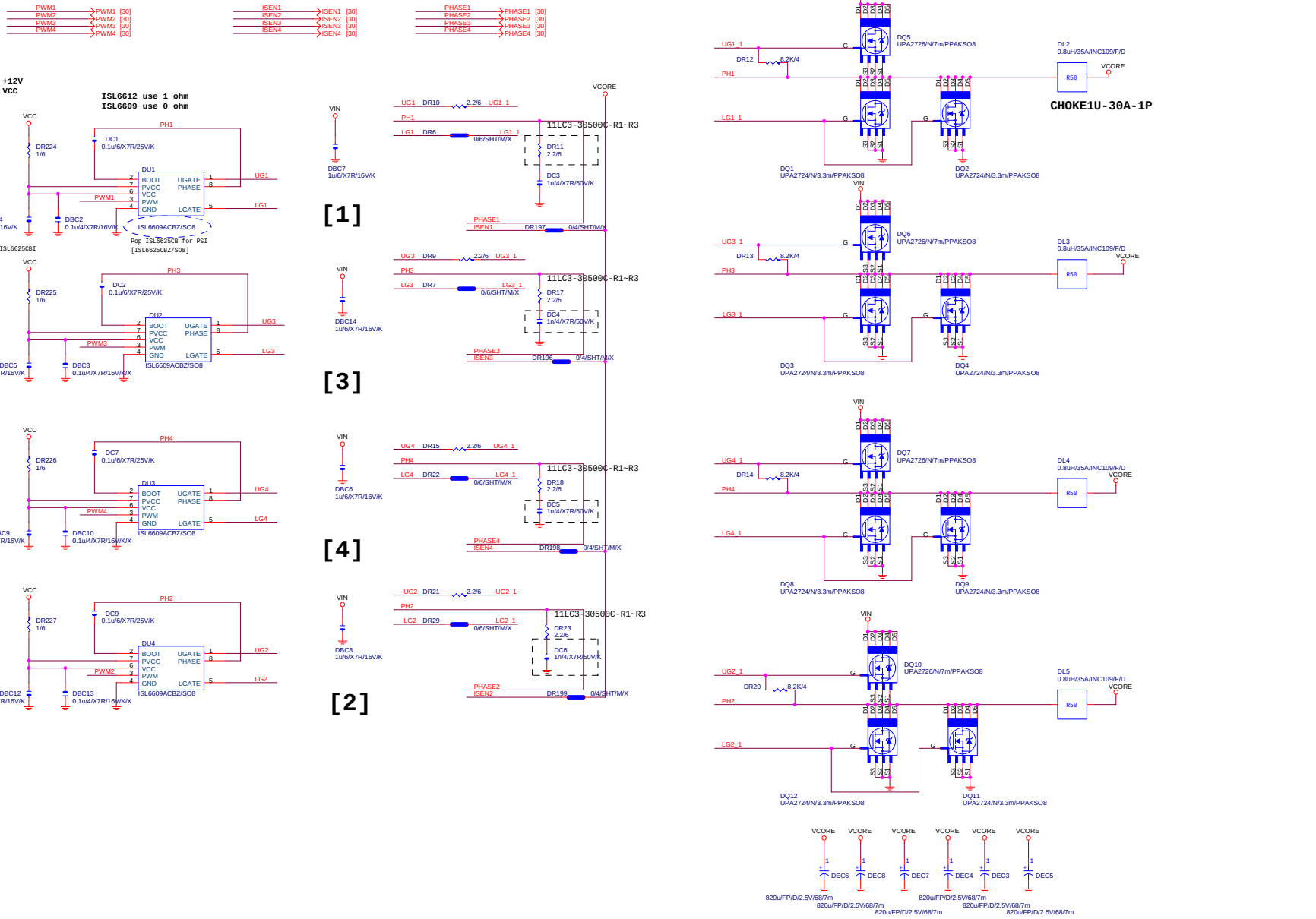


MOS HEATSINK

MOSHSINK-P67A-D3



Gigabyte Technology			
Title: CPU CORE VR-2			
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 31 of 32		



Gigabyte Technology			
Title	CPU CORE VR-3		
Size: Custom	Document Number: GA-H67MA-USB3-B3		Rev: 1.0
Date: Wednesday, March 02, 2011	Sheet 32 of 32		