Model Name: GA-Z77M-D3H

Revision 1.01

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 1,2
08	DDR III CHANNEL B 1,2
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	PCI EXPRESS*4 SLOT
17	PCI SLOT1
18	ITE 8728 LPC IO
19	COM,KB_USB,R_USB30
20	HWM,FAN CTRL,OV,-PROCHOT
21	DUAL BIOS
22	FP,FUSB,SPK,SATALED
23	VIA VT2021
24	REAR AUDIO JACK
25	ARTHEROS AR8161/AR8151
26	DISCRETE POWER
27	ATX,CLK GEN

SHEET	TITLE
28	RT8120_CPU_VTT
29	VCORE ISL95836_1
30	VCORE ISL95836_2
31	RT8120_DDR POWER
32	LPT,TPM
33	HDMI/DVI
34	IT8892E

Gigabyte Technology

Title: Cover Sheet		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 1 of 34	

Model Name: GA-Z77M-D3H

Revision 1.01

Component value change history

2012/04/26

Data	Change Item	Reason
2012/01/09	Modify from H77M-D3H R1.0	
2012/02/23	Update to Rev1.01	
	FIX DDR O.C, Add DDR VREF	
2012/04/26	FIX ISL95836 OVP ISSUE	9MZ77MD3H-00-10B
	Modify R23, R22 (75K/15K)	

Circuit or PCB layout change

DATE	Change Item	Reason

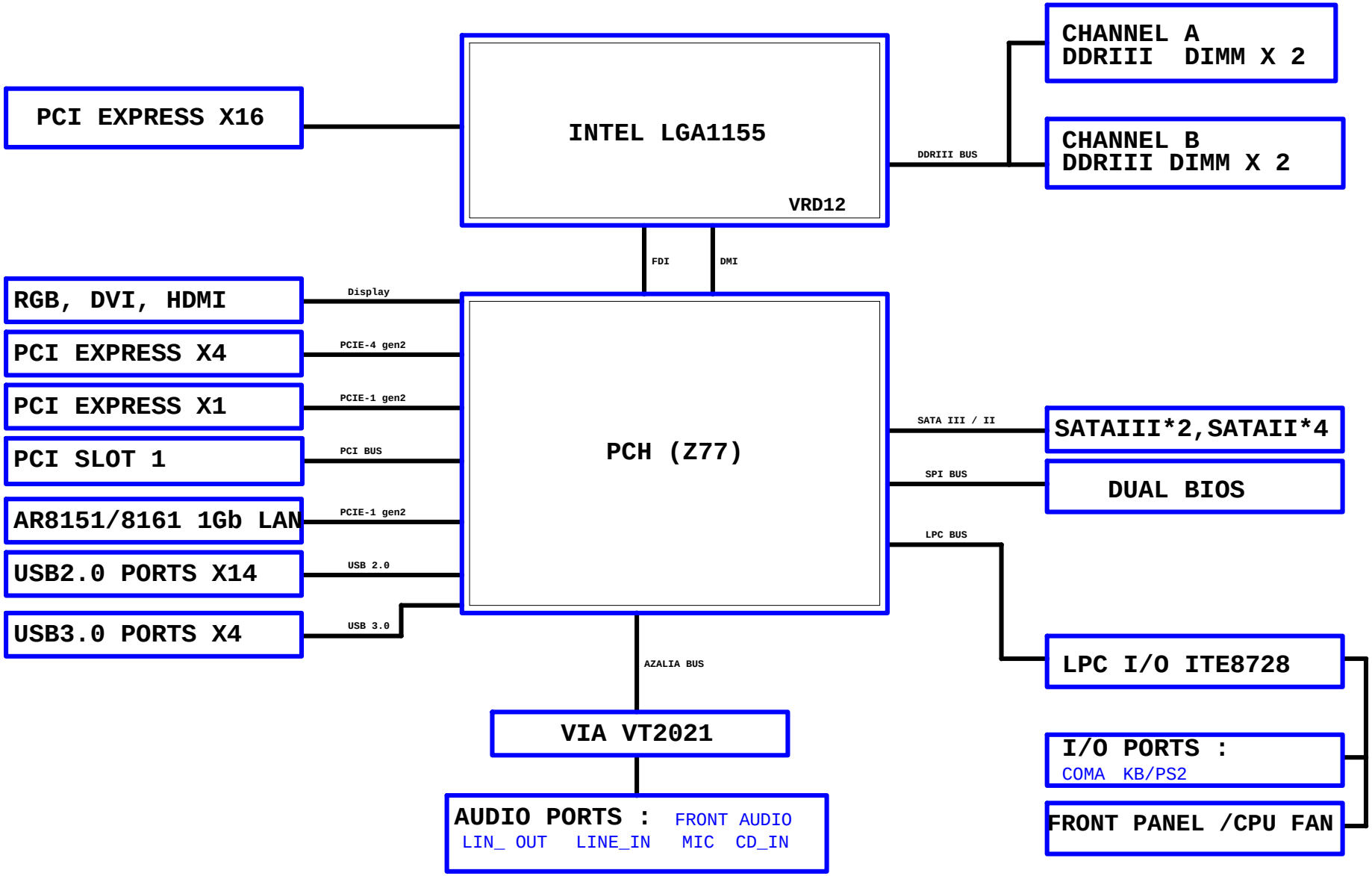
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

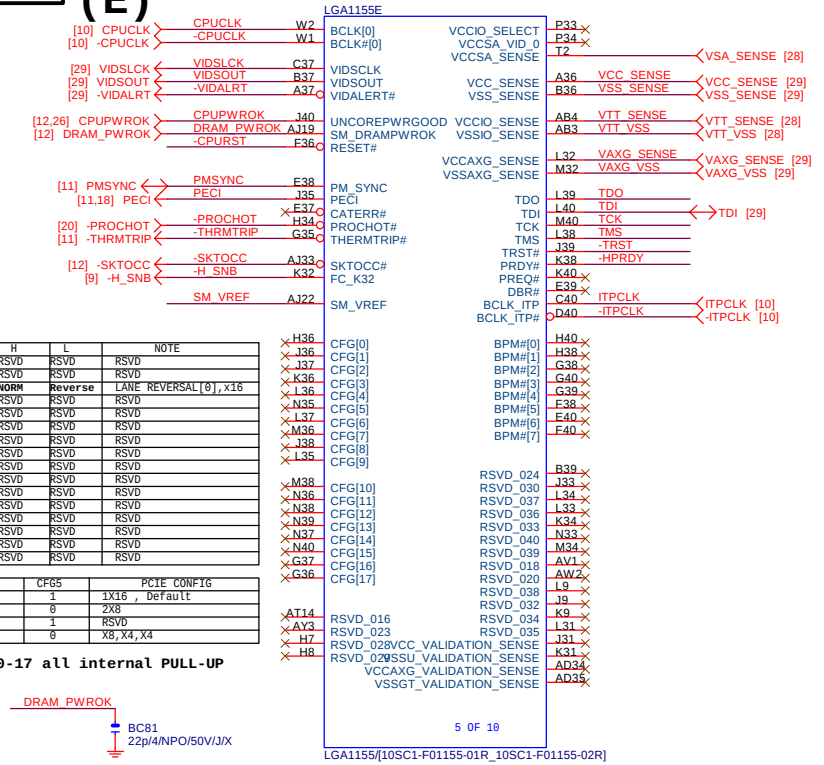
Date: Friday, April 27, 2012 | Sheet 2 of 34

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 3 of 34	

LGA1155 (E)



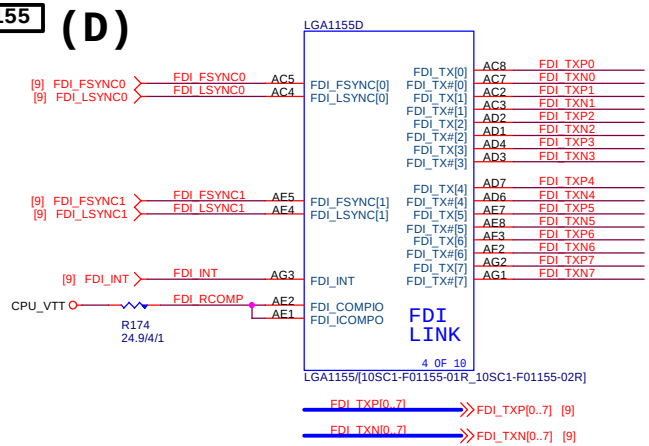
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD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

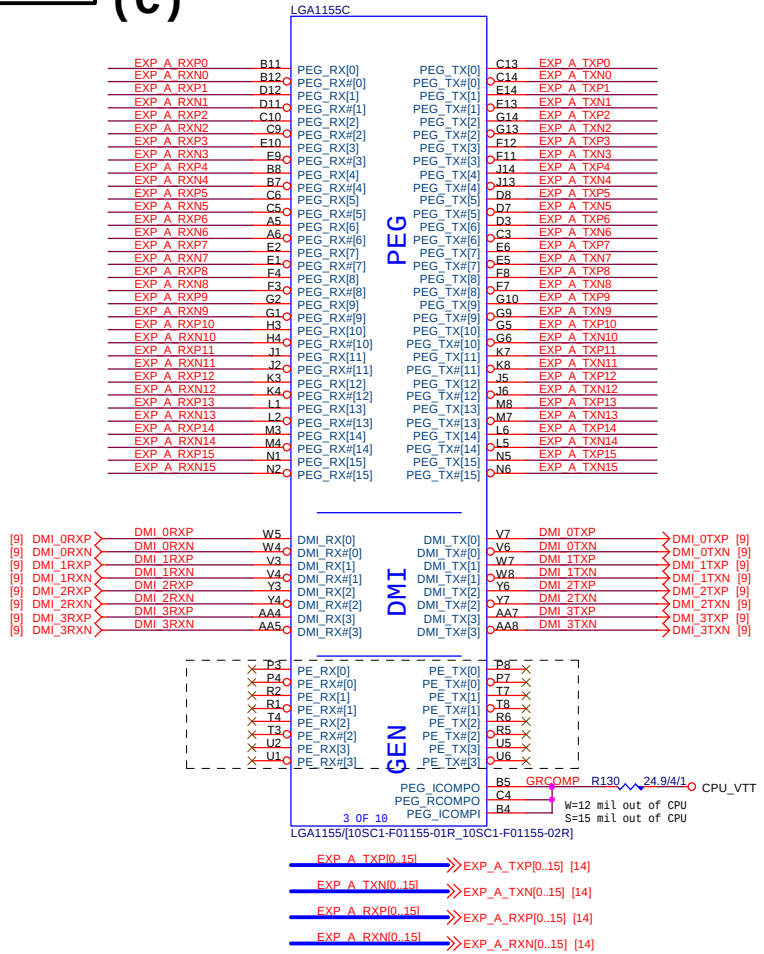
DRAM_PWROK — BC81 22p/4/NPO/50V/J/X

LGA1155 (D)

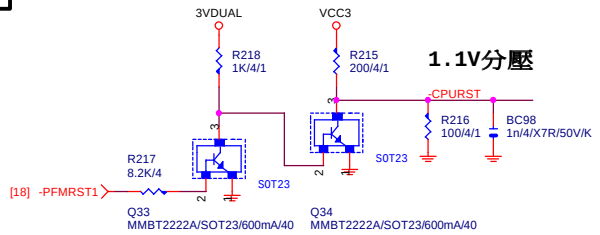


R174 24.9/4/1

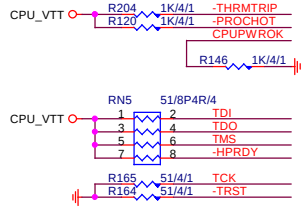
LGA1155 (C)



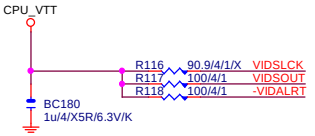
-CPURST



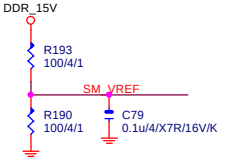
CPU PU/PD



CPU SVID



SM REF



Title	CPU LGA1155-A
Size	Custom
Document Number	GA-Z77M-D3H
Rev	1.01
Date:	Friday, April 27, 2012
Sheet	4 of 34

Gigabyte Technology

LGA1155 (A)

LGA1155A

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

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

[7] -CSA0 AU29 — SA_CS#[0]
[7] -CSA1 AV32 — SA_CS#[1]
[7] -CSA2 AW30 — SA_CS#[2]
[7] -CSA3 AU33 — SA_CS#[3]

[7] CKEA0 AV19 — SA_CKE[0]
[7] CKEA1 AT19 — SA_CKE[1]
[7] CKEA2 AU18 — SA_CKE[2]
[7] CKEA3 AV18 — SA_CKE[3]

MODT_A0 AV31 — SA_ODT[0]
MODT_A1 AU32 — SA_ODT[1]
MODT_A2 AU30 — SA_ODT[2]
MODT_A3 AW33 — SA_ODT[3]

[7] DCLKA0 AY25 — SA_CK[0]
[7] -DCLKA0 AW25 — SA_CK#[0]
[7] DCLKA1 AU24 — SA_CK[1]
[7] -DCLKA1 AU25 — SA_CK#[1]
[7] DCLKA2 AW27 — SA_CK[2]
[7] -DCLKA2 AY27 — SA_CK#[2]
[7] DCLKA3 AV26 — SA_CK[3]
[7] -DCLKA3 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] AY5 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] AY7 MDA28
SA_DQ[29] AW7 MDA29
SA_DQ[30] AW9 MDA30
SA_DQ[31] AY9 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] AF38 DQSA7
SA_DQS#[7] AF39 -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

[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]

DDR_0
1 OF 10

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

LGA1155 (B)

LGA1155B

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 AP26 — SB_MA[13]
MAAB14 AY16 — SB_MA[14]
MAAB15 AV16 — SB_MA[15]

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

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

[8] -CSB0 AN25 — SB_CS#[0]
[8] -CSB1 AN26 — SB_CS#[1]
[8] -CSB2 AL25 — SB_CS#[2]
[8] -CSB3 AT26 — SB_CS#[3]

[8] CKEB0 AU16 — SB_CKE[0]
[8] CKEB1 AY15 — SB_CKE[1]
[8] CKEB2 AW15 — SB_CKE[2]
[8] CKEB3 AV15 — SB_CKE[3]

MODT_B0 AL26 — SB_ODT[0]
MODT_B1 AP26 — SB_ODT[1]
MODT_B2 AM26 — SB_ODT[2]
MODT_B3 AK26 — SB_ODT[3]

[8] DCLKB0 AL21 — SB_CK[0]
[8] -DCLKB0 AL22 — SB_CK#[0]
[8] DCLKB1 AL20 — SB_CK[1]
[8] -DCLKB1 AK20 — SB_CK#[1]
[8] DCLKB2 AL23 — SB_CK[2]
[8] -DCLKB2 AM22 — SB_CK#[2]
[8] DCLKB3 AP21 — SB_CK[3]
[8] -DCLKB3 AN21 — SB_CK#[3]

[8] VREF_DQB — VREF_DQB AH1 — FC_AH1
[7] VREF_DQA — 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]

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

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

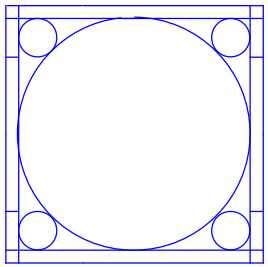
SB_DQ[56] AH35 MDB56
SB_DQ[57] AH34 MDB57
SB_DQ[58] AE34 MDB58
SB_DQ[59] AE35 MDB59
SB_DQ[60] AJ35 MDB60
SB_DQ[61] AJ34 MDB61
SB_DQ[62] AF33 MDB62
SB_DQ[63] AF35 MDB63

DDR_1
2 OF 10

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

LGA1155 (CR)

CR
CPU RETAINTION/X



LGA1155_P

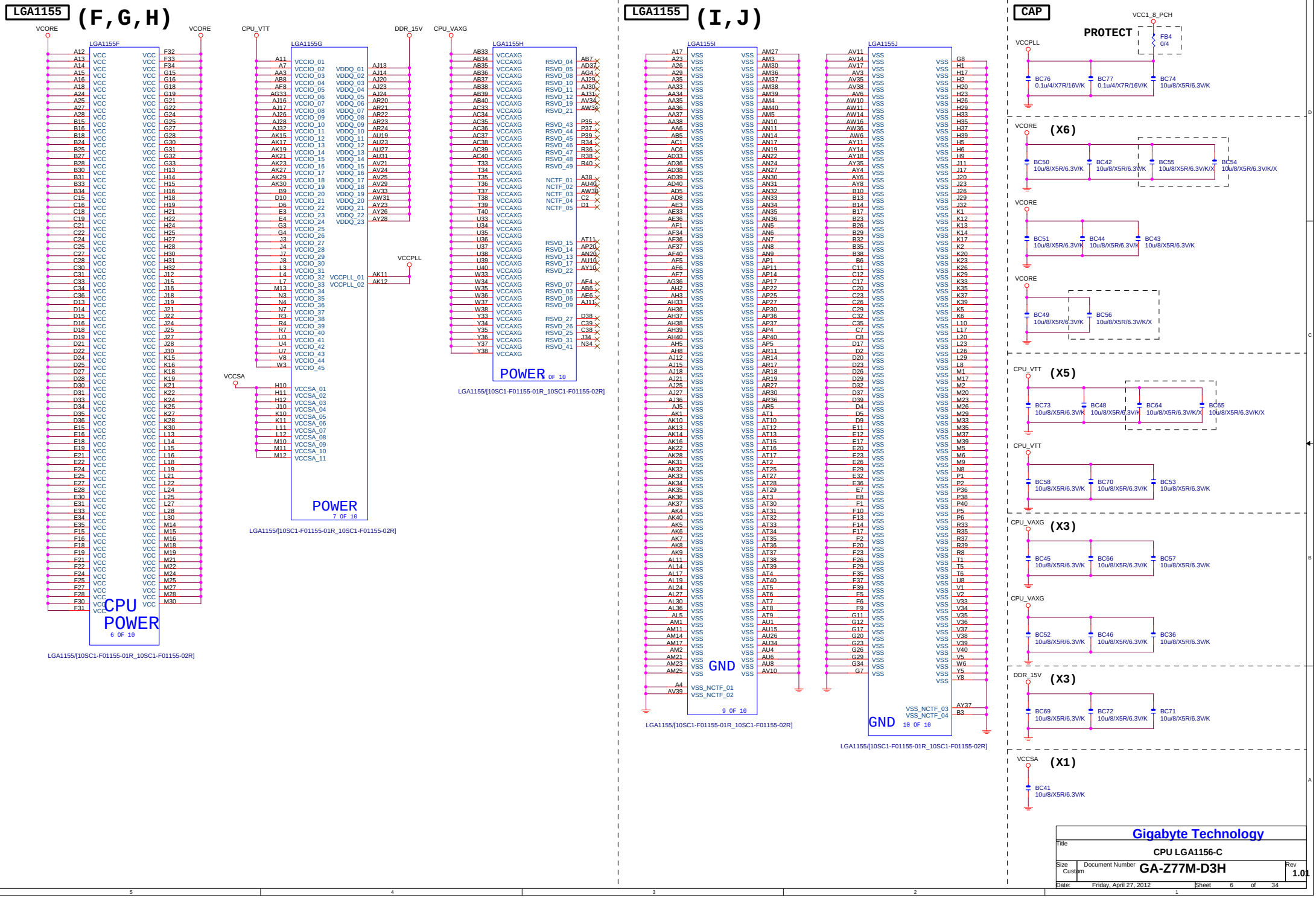
ILM_BP/1156/CSP/ILM_BP/1156/CSP/[12KRC-0F0001-05R_12KRC-0F0001-31R]

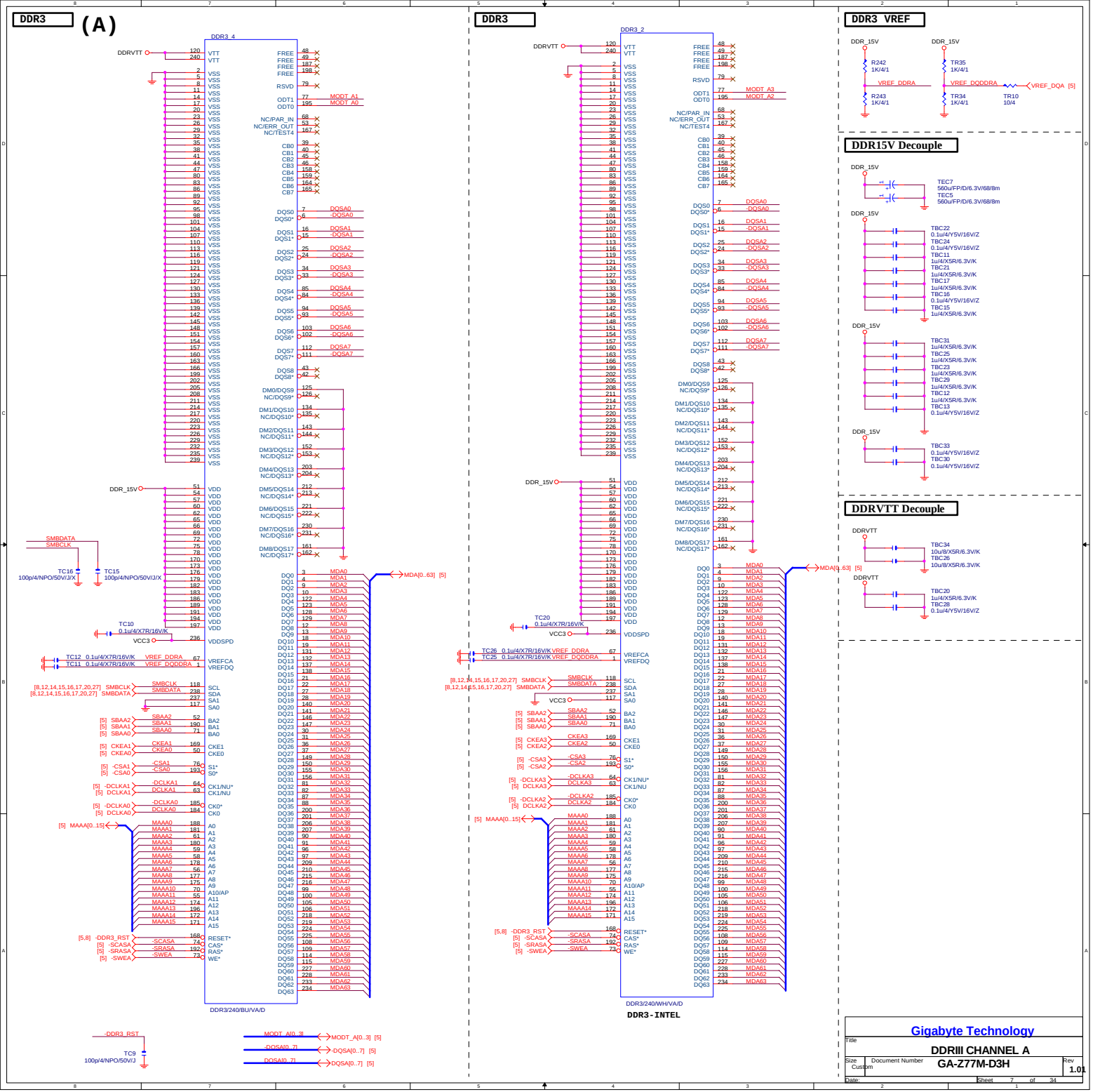
Gigabyte Technology

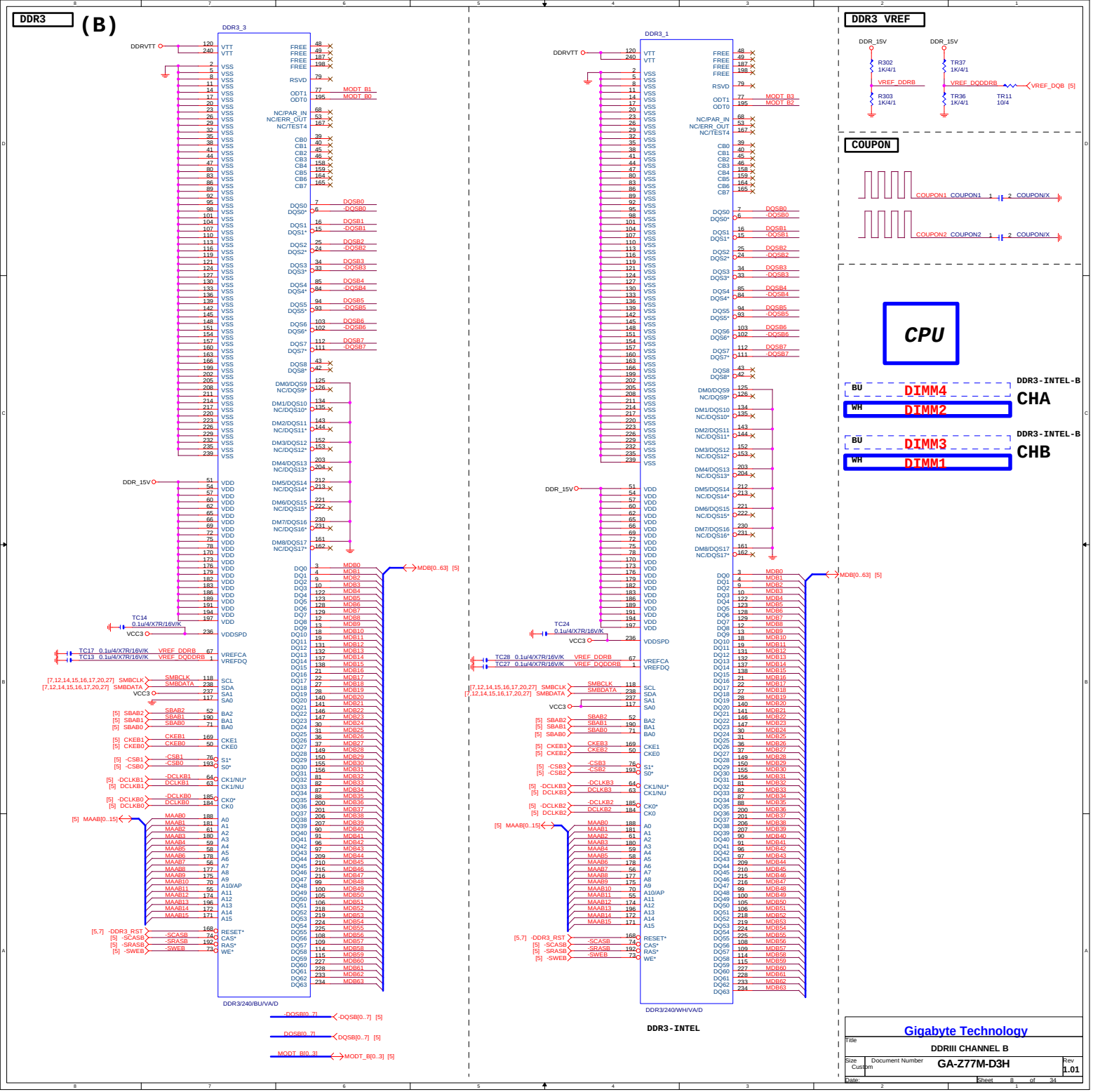
Title: CPU LGA1156-B

Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

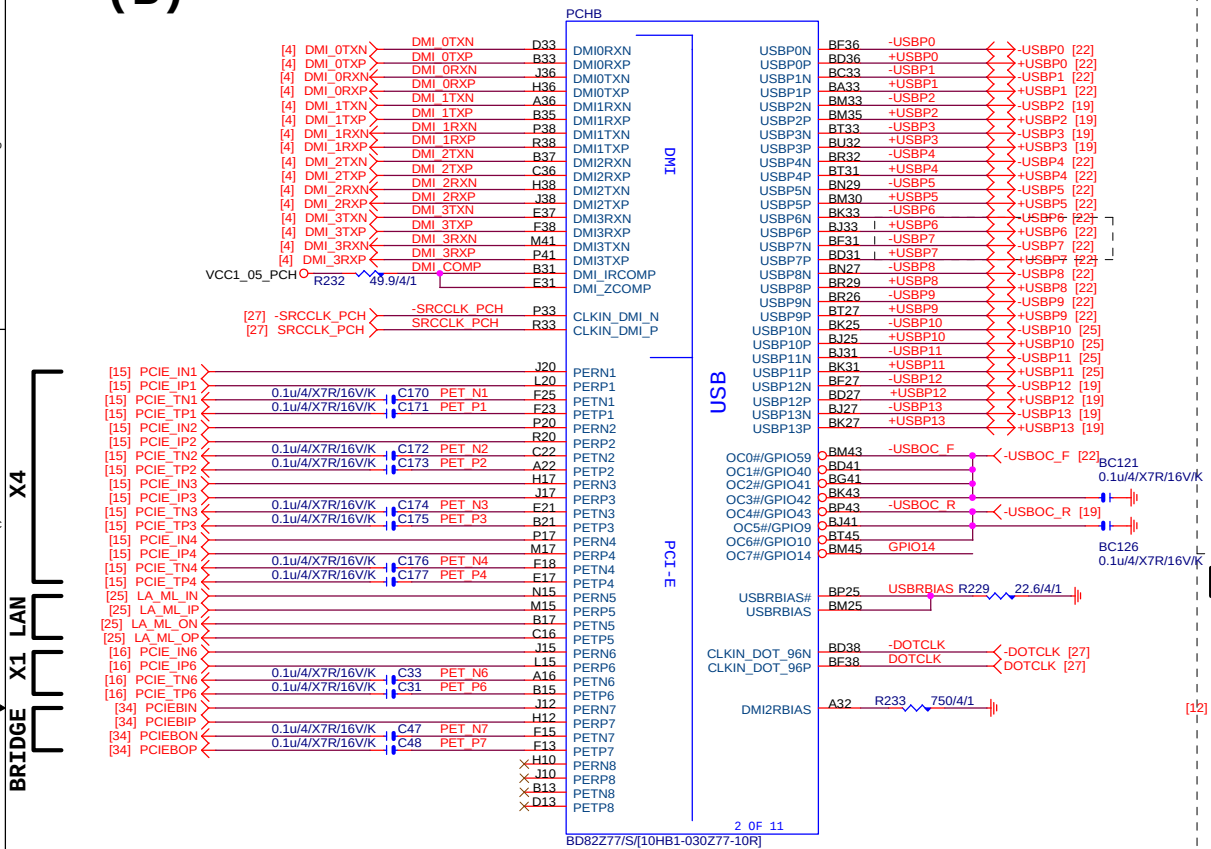
Date: Friday, April 27, 2012 | Sheet 5 of 34


LGA1155 (F,G,H)
LGA1155F
CPU POWER
6 OF 10
LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]
LGA1155G
POWER
7 OF 10
LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]
LGA1155H
POWER
8 OF 10
LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]
LGA1155 (I,J)
LGA1155I
GND
9 OF 10
LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]
LGA1155J
GND
10 OF 10
LGA1155/[10SC1-F01155-01R_10SC1-F01155-02R]
CAP
PROTECT
FB4
0/4
BC76 0.1u/4/X7R/16V/K
BC77 0.1u/4/X7R/16V/K
BC74 10u/8/X5R/6.3V/K
(X6)
BC50 10u/8/X5R/6.3V/K
BC42 10u/8/X5R/6.3V/K
BC55 10u/8/X5R/6.3V/K/X
BC54 10u/8/X5R/6.3V/K/X
BC51 10u/8/X5R/6.3V/K
BC44 10u/8/X5R/6.3V/K
BC43 10u/8/X5R/6.3V/K
BC49 10u/8/X5R/6.3V/K
BC56 10u/8/X5R/6.3V/K/X
(X5)
BC73 10u/8/X5R/6.3V/K
BC48 10u/8/X5R/6.3V/K
BC64 10u/8/X5R/6.3V/K/X
BC65 10u/8/X5R/6.3V/K/X
BC58 10u/8/X5R/6.3V/K
BC70 10u/8/X5R/6.3V/K
BC53 10u/8/X5R/6.3V/K
(X3)
BC45 10u/8/X5R/6.3V/K
BC66 10u/8/X5R/6.3V/K
BC57 10u/8/X5R/6.3V/K
BC52 10u/8/X5R/6.3V/K
BC46 10u/8/X5R/6.3V/K
BC36 10u/8/X5R/6.3V/K
(X3)
BC69 10u/8/X5R/6.3V/K
BC72 10u/8/X5R/6.3V/K
BC71 10u/8/X5R/6.3V/K
(X1)
BC41 10u/8/X5R/6.3V/K
Gigabyte Technology
CPU LGA1156-C
GA-Z77M-D3H
1.01
Friday, April 27, 2012
6 of 34

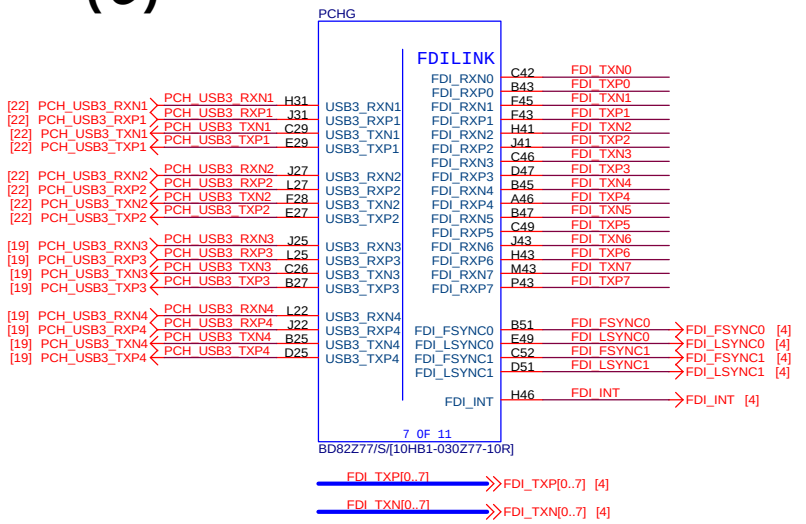

DDR3
(A)
DDR3_4
DDRVTT
DDR_15V
SMBDATA
SMBCLK
TC16
100p/4/NPO/50V/J/X
TC15
100p/4/NPO/50V/J/X
TC10
0.1u/4/X7R/16V/K
VCC3
TC12 0.1u/4/X7R/16V/K
TC11 0.1u/4/X7R/16V/K
VREF_DDRA
VREF_DQDDRA
[8,12,14,15,16,17,20,27] SMBCLK
[8,12,14,15,16,17,20,27] SMBDATA
[5] SBAA2
[5] SBAA1
[5] SBAA0
[5] CKEA1
[5] CKEA0
[5] -CSA1
[5] -CSA0
[5] -DCLKA1
[5] DCLKA1
[5] -DCLKA0
[5] DCLKA0
[5] MAAA[0..15]
[5,8] -DDR3_RST
[5] -SCASA
[5] -SRASA
[5] -SWEA
MDA[0..63] [5]
DDR3/240/BU/VA/D
-DDR3_RST
TC9
100p/4/NPO/50V/J
MODT_A[0..3]
-DQSA[0..7]
DQSA[0..7]
MODT_A[0..3] [5]
-DQSA[0..7] [5]
DQSA[0..7] [5]
DDR3
DDR3_2
DDRVTT
DDR_15V
TC20
0.1u/4/X7R/16V/K
VCC3
TC26 0.1u/4/X7R/16V/K
TC25 0.1u/4/X7R/16V/K
VREF_DDRA
VREF_DQDDRA
[8,12,14,15,16,17,20,27] SMBCLK
[8,12,14,15,16,17,20,27] SMBDATA
[5] SBAA2
[5] SBAA1
[5] SBAA0
[5] CKEA3
[5] CKEA2
[5] -CSA3
[5] -CSA2
[5] -DCLKA3
[5] DCLKA3
[5] -DCLKA2
[5] DCLKA2
[5] MAAA[0..15]
[5,8] -DDR3_RST
[5] -SCASA
[5] -SRASA
[5] -SWEA
MDA[0..63] [5]
DDR3/240/WH/VA/D
DDR3-INTEL
DDR3_VREF
DDR_15V
R242 1K/4/1
R243 1K/4/1
VREF_DDRA
VREF_DQDDRA
TR35 1K/4/1
TR34 1K/4/1
TR10 10/4
VREF_DQA [5]
DDR15V Decouple
TEC7 560u/FP/D/6.3V/68/8m
TEC5 560u/FP/D/6.3V/68/8m
TBC22 0.1u/4/Y5V/16V/Z
TBC24 0.1u/4/Y5V/16V/Z
TBC11 1u/4/X5R/6.3V/K
TBC21 1u/4/X5R/6.3V/K
TBC17 1u/4/X5R/6.3V/K
TBC16 0.1u/4/Y5V/16V/Z
TBC15 1u/4/X5R/6.3V/K
TBC31 1u/4/X5R/6.3V/K
TBC25 1u/4/X5R/6.3V/K
TBC23 1u/4/X5R/6.3V/K
TBC29 1u/4/X5R/6.3V/K
TBC12 1u/4/X5R/6.3V/K
TBC13 0.1u/4/Y5V/16V/Z
TBC33 0.1u/4/Y5V/16V/Z
TBC30 0.1u/4/Y5V/16V/Z
DDRVTT Decouple
TBC34 10u/8/X5R/6.3V/K
TBC26 10u/8/X5R/6.3V/K
TBC20 1u/4/X5R/6.3V/K
TBC28 0.1u/4/Y5V/16V/Z
Gigabyte Technology
Title
DDRIII CHANNEL A
Size
Custom
Document Number
GA-Z77M-D3H
Rev
1.01
Date:
Sheet 7 of 34


DDR3 (B)
DDR3_3
DDR3_1
DDR3 VREF
DDR_15V
R302 1K/4/1
R303 1K/4/1
VREF_DDRB
VREF_DQDDRB
VREF_DQB [5]
TR37 1K/4/1
TR36 1K/4/1
TR11 10/4
COUPON
COUPON1 COUPON1 1 2 COUPON/X
COUPON2 COUPON2 1 2 COUPON/X
CPU
BU DIMM4
WH DIMM2
DDR3-INTEL-B
CHA
BU DIMM3
WH DIMM1
DDR3-INTEL-B
CHB
DDRVTT
DDR_15V
VCC3
TC14 0.1u/4/X7R/16V/K
TC17 0.1u/4/X7R/16V/K VREF_DDRB
TC13 0.1u/4/X7R/16V/K VREF_DQDDRB
TC24 0.1u/4/X7R/16V/K
TC28 0.1u/4/X7R/16V/K VREF_DDRB
TC27 0.1u/4/X7R/16V/K VREF_DQDDRB
[7,12,14,15,16,17,20,27] SMBCLK
[7,12,14,15,16,17,20,27] SMBDATA
MDB[0..63] [5]
DQSB[0..7]
DQSB[0..7] [5]
MODT_B[0..3]
MODT_B[0..3] [5]
DDR3/240/BU/VA/D
DDR3/240/WH/VA/D
DDR3-INTEL
Gigabyte Technology
DDRIII CHANNEL B
GA-Z77M-D3H
Rev 1.01
Sheet 8 of 34

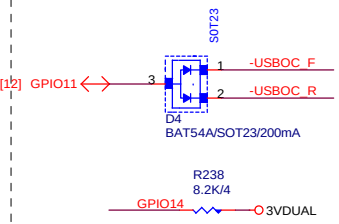
PCH (B)



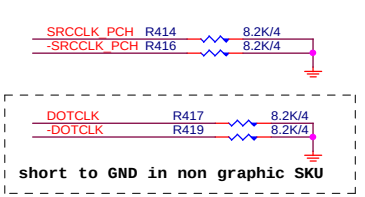
PCH (G)



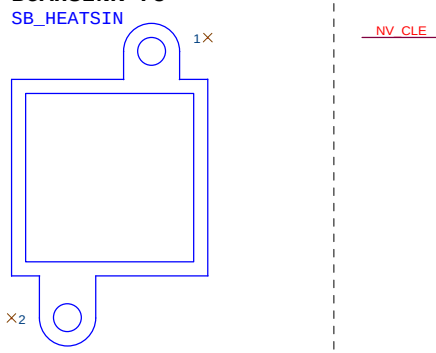
-USBOC F/R PROTECT



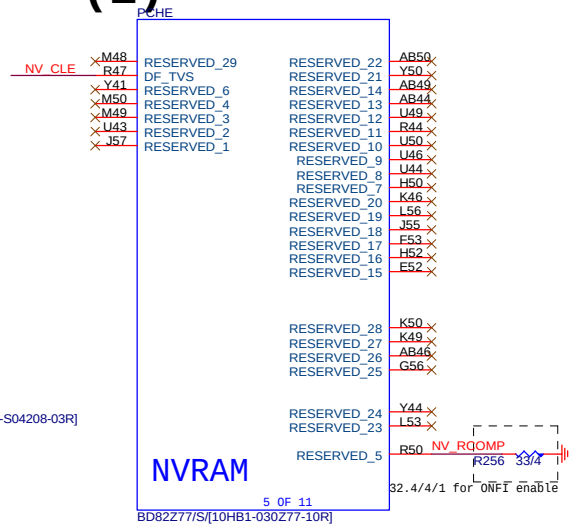
PCH CLK PD



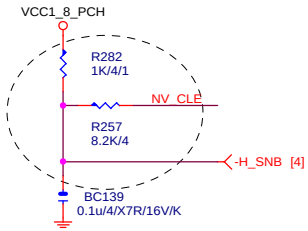
PCH H/S



PCH (E)



NVRAM PU



USB TABLE

USB OC#	Configure
OC0#	USB0,1(F_USB30)
OC1#	USB2,3(USB30_20)
OC2#	USB4,5(F_USB1)
OC3#	USB6,7(B75:N/A)
OC4#	USB8,9(F_USB2)
OC5#	USB10,11(USB_LAN)
OC6#	USB12,13(KB_USB)
OC7#	N/A

Gigabyte Technology

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

Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 9 of 34

PCH (F)

PCHF

DDPB_HPD, DDPC_HPD, DDPD_HPD
DDPB_AUXP, DDPB_AUXN, DDPC_AUXP, DDPC_AUXN, DDPD_AUXP, DDPD_AUXN
DDPB_0P, DDPB_0N, DDPB_1P, DDPB_1N, DDPB_2P, DDPB_2N, DDPB_3P, DDPB_3N
DDPC_0P, DDPC_0N, DDPC_1P, DDPC_1N, DDPC_2P, DDPC_2N, DDPC_3P, DDPC_3N
DDPD_0P, DDPD_0N, DDPD_1P, DDPD_1N, DDPD_2P, DDPD_2N, DDPD_3P, DDPD_3N
SDVO_INTP, SDVO_INTN
SDVO_STALLP, SDVO_STALLN
SDVO_TVCLKINP, SDVO_TVCLKINN
CRT_HSYNC, CRT_VSYNC
CRT_RED, CRT_GREEN, CRT_BLUE
CRT_IRTN
CRT_DDC_DATA, CRT_DDC_CLK
DAC_IREF
DDPC_CTRLCLK, DDPC_CTRLDATA
DDPD_CTRLCLK, DDPD_CTRLDATA
SDVO_CTRLCLK, SDVO_CTRLDATA

[33] DVI_HDP_F, [33] HDMI_HDP_F
[33] DVI_TX2, [33] DVI_TX2-, [33] DVI_TX1, [33] DVI_TX1-, [33] DVI_TX0, [33] DVI_TX0-, [33] DVI_TXC, [33] DVI_TXC-
[33] HDMI_TX2, [33] HDMI_TX2-, [33] HDMI_TX1, [33] HDMI_TX1-, [33] HDMI_TX0, [33] HDMI_TX0-, [33] HDMI_TXC, [33] HDMI_TXC-

H_SYNC R212 33/4 GHSYNC
V_SYNC R213 33/4 GVSYNC
R, G, B
DDCDATA, DDCCLK
VGA_RSET R211 1K/4/1
Pop 0/4 for non graphic skus
TP6, TP7, TP8, TP9
DDPB_CTRLCLK [33], DDPB_CTRLDATA [33]
DDPD_CTRLCLK [33], DDPD_CTRLDATA [33]

6 0F 11

BD82Z77/S/[10HB1-030Z77-10R]

PCH (F)

PCHH

[32] TPMCLK R458 33/4 CLKOUT_PCI0
[18] LPC33 R201 33/4 CLKOUT_PCI1
[11] PCH33 R405 33/4 CLKOUT_PCI2
CLKOUT_PCI3
CLKOUT_PCI4

Flex0,2 : 33MHZ
Flex1,3 : 27/14/24/48/25MHZ

CLKOUTFLEX0/GPIO64
CLKOUTFLEX1/GPIO65
CLKOUTFLEX2/GPIO66
CLKOUTFLEX3/GPIO67
[18] LPCCLK48 R209 33/4 PCH_48M
native 48mhz

VCC1_05_PCH R206 90.9/4/1 CLK_RCOMP → XCLK_RCOMP
[27] PCHCLK14 → REFCLK14IN

XTALO_PCH → XTAL25_OUT
XTALI_PCH → XTAL25_IN

XTALI_PCH, R197 1M/4, X1, XTALO_PCH
25M/20p/30ppm/49US/20/D
C81 27p/4/NPO/50V/J
C82 27p/4/NPO/50V/J

CLKIN_GND1_N/P → -PCHCLK, PCHCLK
CLKIN_GND0_N/P → -CLK_GND, CLK_GND
CLKOUT_ITPXDP_N/P → -CLK_ITP, CLK_ITP → -ITPCLK [4], ITPCLK [4]
CLKOUT_PCIE7N/P
CLKOUT_DMI_N/P → -CLK_CPU, CLK_CPU → -CPUCLK [4], CPUCLK [4]
CLKOUT_DP_N/P
CLKOUT_PCIE0N/P → -SRCCLK0, SRCCLK0 → -SRCCLK_PCIEX1 [16], SRCCLK_PCIEX1 [16] **PCIEX1**
CLKOUT_PCIE1N/P → -SRCCLK1, SRCCLK1 → -SRCCLK_PCIEX4 [15], SRCCLK_PCIEX4 [15] **PCIEX4**
CLKOUT_PCIE2N/P
CLKOUT_PCIE3N/P → -SRCCLK3, SRCCLK3 → LA_-SRCCLK_LAN [25], LA_SRCCLK_LAN [25] **LAN**
CLKOUT_PCIE4N/P
CLKOUT_PCIE5N/P
CLKOUT_PCIE6N/P → -PBCLK, PBCLK → -PBCLK [34], PBCLK [34] **BRIDGE**
CLKOUT_PEG_A_N/P → -SRCCLKA, SRCCLKA → -SRCCLK_PCIEX16 [14], SRCCLK_PCIEX16 [14] **PCIEX16 FOR OC**
CLKOUT_PEG_B_N/P

8 0F 11

BD82Z77/S/[10HB1-030Z77-10R]

PCH CLK PD

PCHCLK14 R210 8.2K/4
-CLK_GND R278 8.2K/4
CLK_GND R279 8.2K/4
-PCHCLK R412 8.2K/4
PCHCLK R411 8.2K/4

VGA DDC

VCC3, VCC
R70 2.2K/4/1, R73 2.2K/4/1, R68 1K/4/1, R69 2.2K/4/1, R72 2.2K/4/1
Q2 2N7002/SOT23/25pF/5
Q3 2N7002/SOT23/25pF/5
DDCDATA, DDCCLK
VGADDCDATA, VGADDCCLK
R71 1K/4/1
SOT23
GVSYNC, GHSYNC
C22 100p/4/NPO/50V/J
C20 100p/4/NPO/50V/J

VGA CONNECTOR

FUSEVCC_R12
BC9 0.1u/4/X7R/16V/K/X
VGA
VGA_R, VGA_G, VGA_B
VGADDCDATA, GHSYNC, GVSYNC, VGADDCCLK

VGA/BU/SC/RA/D/2/HR/[11NR6-102015-R1R]

HIGH TYPE

VGA ESD

ESD3
VGADDCDATA, GHSYNC, VCC, GVSYNC, VGADDCCLK
AOZ8902CIL/SOT23-6
SSOP6_ESD

ESD4
R, G, B, VCC3
AOZ8902CIL/SOT23-6

VGA DDC

R, G, B
FB1, FB2, FB3 60/6/3A/S
VGA_R, VGA_G, VGA_B
R53 75/4/1, R55 75/4/1, R54 75/4/1
C17 C18 C19 10p/4/NPO/50V/J
C13 C14 C15 22p/4/NPO/50V/J

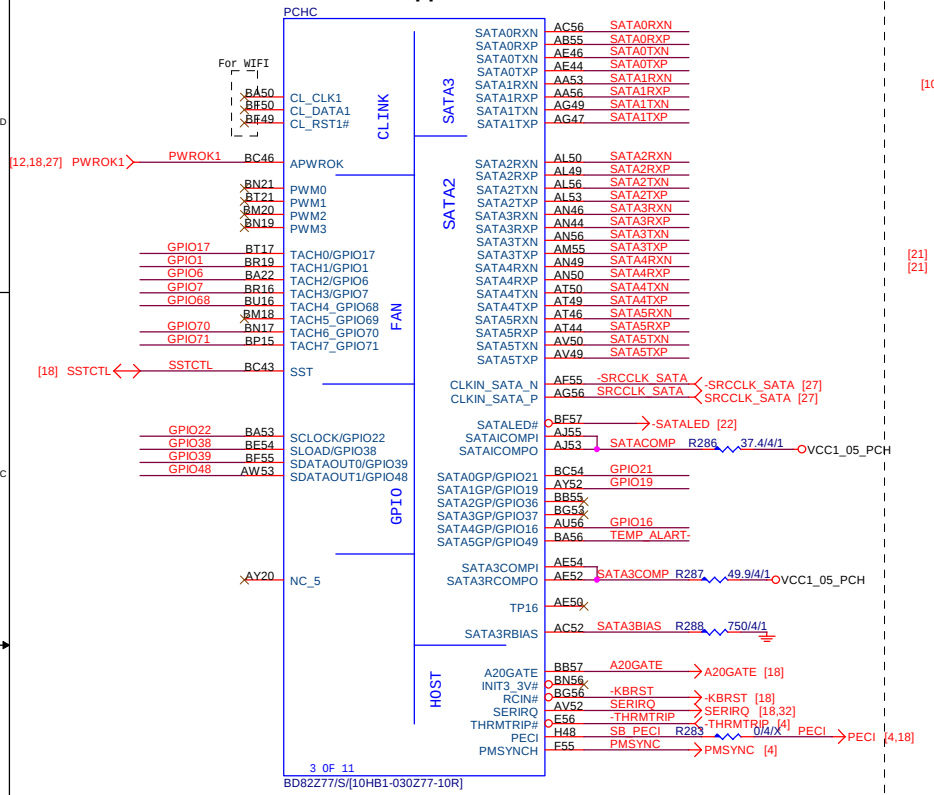
Close to Filter

Gigabyte Technology

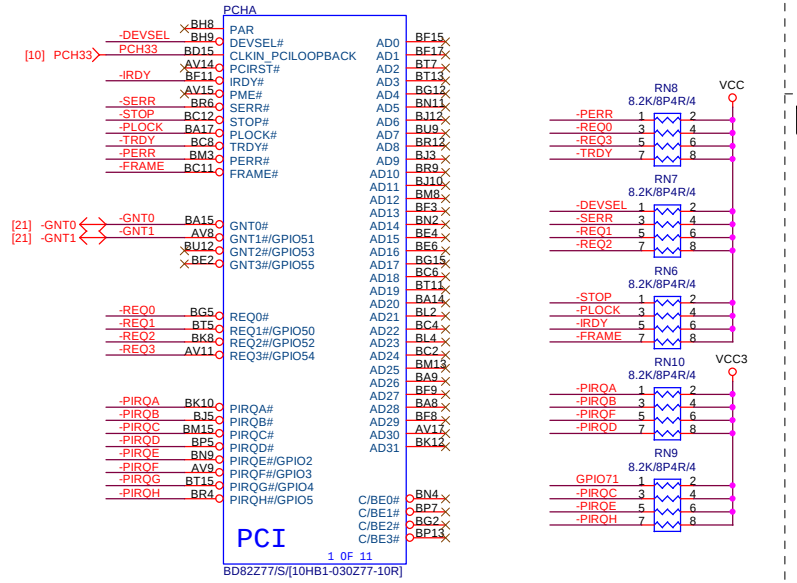
Title	PCH DISPLAY ,CLK BUFFER	
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 10 of 34	

PCH (C)

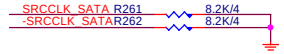
B75 SATA3.0 ONLY PORT0
B75 Not Support RAID



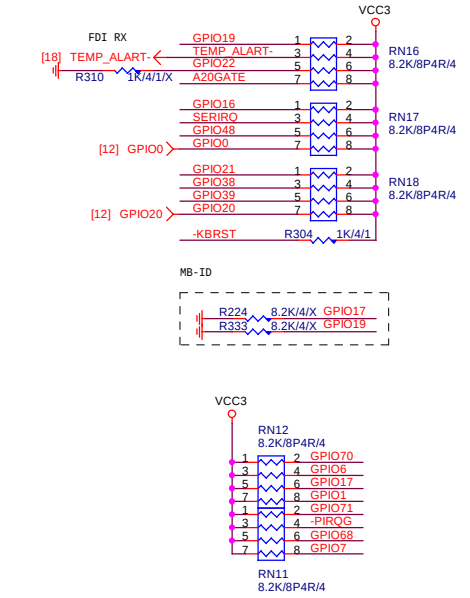
PCH (A)



PCH CLK PD

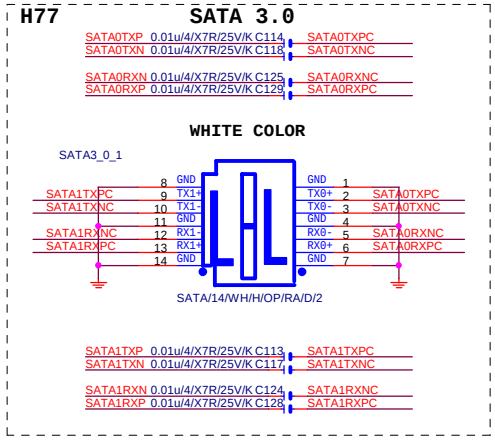


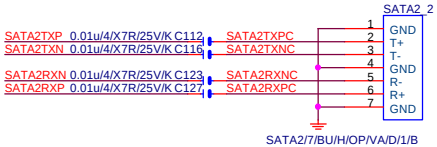
PCH PU/PD

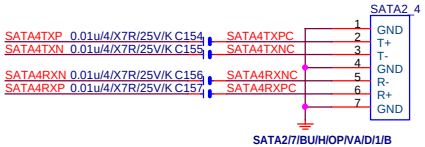


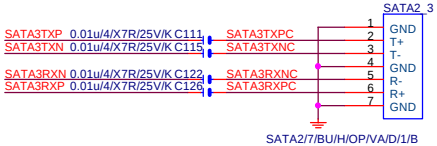
SATA CONNECTOR

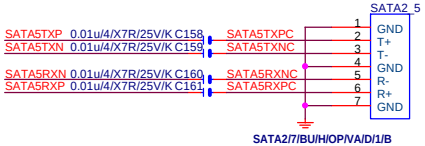
H1X7-SATA2-HS-MASK











Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 11 of 34

PCH (D)

PCHD

LAD[0..3]

LPC: LDRQ1#/GPIO23, FWH0/LAD0, FWH1/LAD1, FWH2/LAD2, FWH3/LAD3, LDRQ0#, FWH4/LFRAME#

AUDIO: HDA_BCLK, HDA_RST#, HDA_SDIN0, HDA_SDIN1, HDA_SDIN2, HDA_SDIN3, HDA_SDO, HDA_SYNC

SPI: SPI_MOSI, SPI_MISO, SPI_CS0#, SPI_CLK, SPI_CS1#

RTC: RTCX1, RTCX2, RTCRST#, SRTCRST#, DPWROK, DSWVRMEN

SMB: SMBALERT#/GPIO11, SMBCLK, SMBDATA, SML0ALERT#/GPIO60, SML0CLK, SML0DATA, SML1ALERT#_PCHHOT#_GPIO74, SML1CLK/GPIO58, SML1DATA/GPIO75

BMBUSY#_GPIO0, CLKRUN#_GPIO32, HDA_DOCK_EN#_GPIO33, STP_PCI#_GPIO34, GPIO35, GPIO8, LAN_PHY_PWR_CTRL_GPIO12, HDA_DOCK_RST#_GPIO13, GPIO15, GPIO24_MEM_LED, GPIO28, SLP_LAN#_GPIO29, PCIECLKRQ2#_GPIO20, PCIECLKRQ5#_GPIO44, PCIECLKRQ6#_GPIO45, PCIECLKRQ7#_GPIO46, GPIO57, SYS_PWROK, RI#, PLTRST#, WAKE#, SLP_A#, SLP_S3#, SLP_S4#, SLP_S5#_GPIO63, SUS_STAT#_GPIO61, SUSCLK_GPIO62, BATLOW#_GPIO72, SUSACK#, SUSWARN#_SUSPWRDNACK/GPIO30, DRAMPWROK, GPIO27, GPIO31, SLP_SUS#, PWRBTN#, SYS_RESET#, SPKR, PROCPWRGD, TP12, JTAG_TCK, JTAG_TDI, JTAG_TDO, JTAG_TMS, INTVRMEN, RSMRST#, PWROK, INTRUDER#

4 OF 11

BD82Z77/S/[10HB1-030Z77-10R]

PCH_DPWROK

At least 10ms delay after 3VDUAL_PCH stabel

3VDUAL_PCH, R267 8.2K/4, PCH_DPWROK, 5VSB, R325 22K/4, C95 1n/4/X7R/50V/K, SOT23, Q39 2N7002/SOT23/25pF/5, R285 75K/4/1, R301 27K/4/1, C98 1u/4/X5R/6.3V/K, Q41 MMBT2222A/SOT23/600mA/40

32.768KHZ

Y1 Y2 R284 10M/4 X2, X2-SHT SHW/D0.64*5.08*6.74, 32.768K/12.5p/20ppm/TF38/35K/D, C96 18p/4/NPO/50V/J, C94 18p/4/NPO/50V/J

ACZ_SDOUT

R228 8.2K/4, ACZ_SDOUT, R266 8.2K/4, GPIO27, Q38 PMBT2907A/SOT23/-600mA/50, SOT23, 3VDUAL_PCH

CLR_CMOS

BATTERY-DUAL-4

RB 必須放在BAT外

BATTERY CR2032, CR2032, BAT, BAT-SK/BK/P/S/D/SN, VBATT, RB 1K/4/1, D1 BAS40-05/0.2A/SOT23, 3VDUAL_PCH, VBAT, VBAT [18], CLR_CMOS, PH/1*2/BK/2.54/V/A/D, -RTCRST, R418 0/4/SHT/M/X

R239 390K/4 DSWVRMEN, RTCVDD, RTCVDD [13,20]

R236 390K/4 INTVRMEN

R237 20K/4/1 -RTCRST

C27 1u/4/X5R/6.3V/K, C92 1u/4/X5R/6.3V/K

-SRTCRST R234 20K/4/1 RTCVDD [13,20], C91 1u/4/X5R/6.3V/K

PCH PU/PD

3VDUAL

R249 8.2K/4/X GPIO46, -SKTOCC, GPIO57, RN19 8.2K/8P4R/4

R251 8.2K/4/X GPIO44, R298 8.2K/4/X GPIO45, GPIO15, GPIO72, RN20 8.2K/8P4R/4

R263 1K/4/1/X -IGC_EN R268 8.2K/4/X, -SLP_LAN R314 8.2K/4/X, -SUSTAT R273 8.2K/4/X, SUSCLK R329 8.2K/4/X

-PCIE_WAKE R318 1K/4/1, GPIO28 R275 1K/4/1

3VDUAL_PCH

-S_WARN R247 8.2K/4, GPIO27 R260 8.2K/4, GPIO31 R248 8.2K/4

VCC3

-PCI_STOP R252 8.2K/4, -ACZ_DET R253 8.2K/4, -SYS_RST R291 1K/4/1, GPIO20 R296 1K/4/1/X

3VDUAL

PCH_RST R320 20K/4/1, PCH_TDI R328 200/4/1, PCH_TDO R317 200/4/1, PCH_TMS R319 200/4/1

PCH_TDI R306 100/4/1, PCH_TDO R290 100/4/1, PCH_TMS R293 100/4/1, PCH_TCK R295 51/4/1

3VDUAL, RN14 2.2K/8P4R/4: GPIO11, SML0DAT, SML1DAT, SML0CLK

RN13 8.2K/8P4R/4: -RI, SML1CLK, -PCH_HOT, GPIO60

R241 1K/4/1 SMBCLK, R244 1K/4/1 SMBDATA

R240 8.2K/4 -LPCPME

DRAM_PWROK [4], DDR_15V, R246 1K/4/1

-ACZ_DET [24]

GP8:Low to enable PCH clock chip

-IGC_EN, -LPCPME [18], GPIO15, R270 0/4/X -SKTOCC [4]

GPIO28 [22] GP28:Lo disable

GPIO20 [11] VRM ,Hi enable VRM

-SPI_WP1 [21], -SPI_WP0 [21], PCH_VRMPWRGD [29]

-RI [19], -PFMRST [18], -PCIE_WAKE [14,15,16,25,34]

-SLP_S3 [18,26,31], -S4_S5 [18,31]

SUSCLK [32]

-S_WARN, -SUSTAT, SUSCLK, GPIO72

-S_WARN, -SUSTAT, SUSCLK, GPIO72, DRAM_PWROK

GPIO27

GPIO31, -DEPSLP, PWRBTSW

-SYS_RST [22,27], SPKR [22]

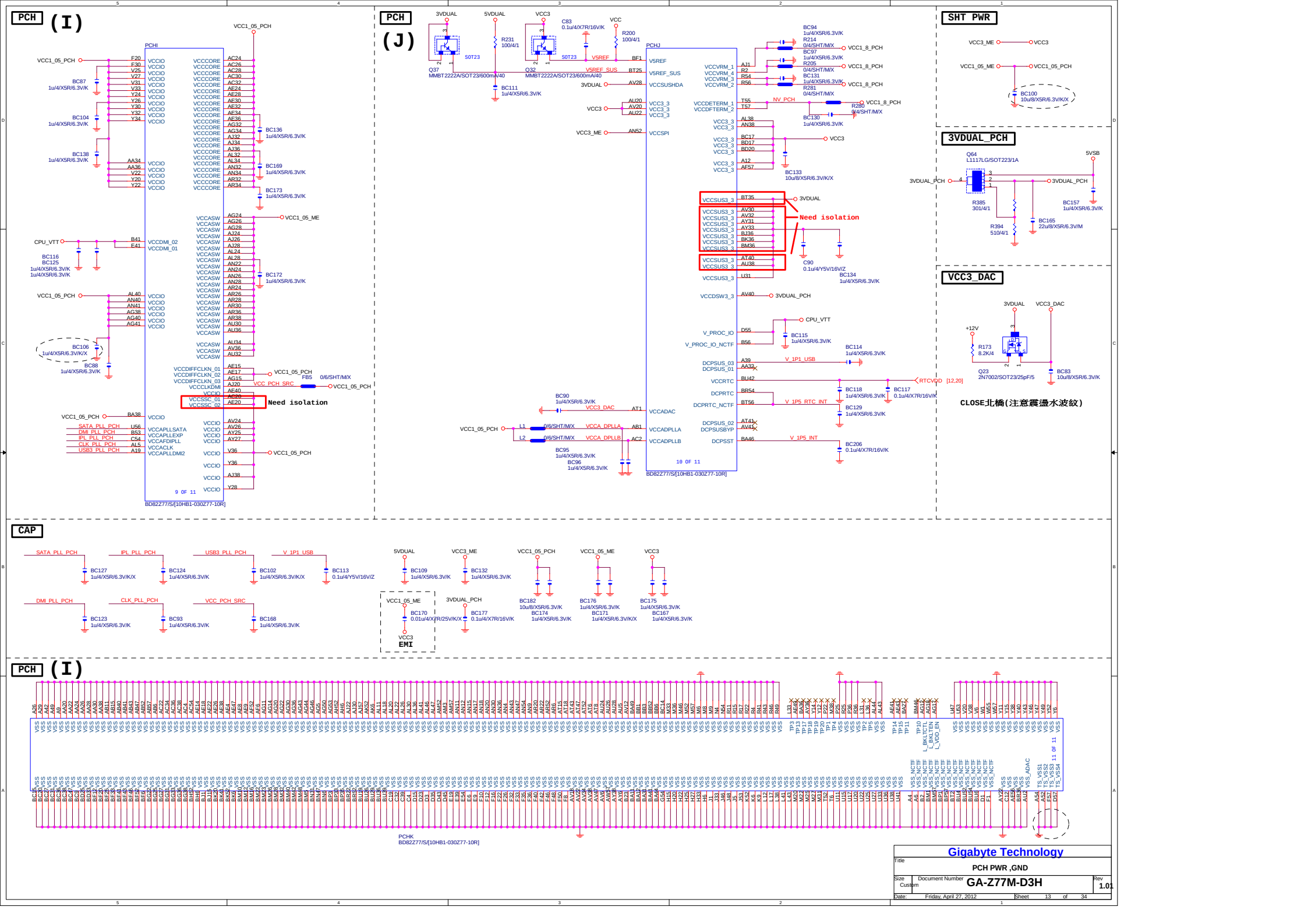
CPUPWROK [4,26]

PCH_RST, PCH_TCK, PCH_TDI, PCH_TDO, PCH_TMS

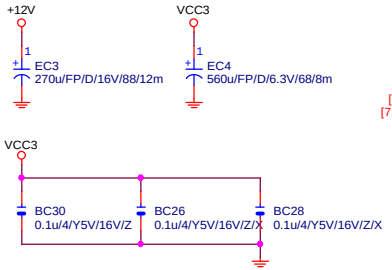
INTVRMEN, -RSMRST [18,26], PWROK1 [11,18,27], RTCVDD [13,20], R235 1M/4

Gigabyte Technology

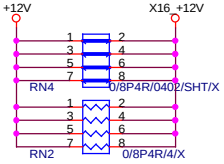
Title	PCH GPIO , CTRL , AUDIO		
Size: Custom	Document Number: GA-Z77M-D3H		Rev: 1.01
Date: Friday, April 27, 2012	Sheet 12 of 34		


PCH (I)
PCH (J)
SHT_PWR
3VDUAL_PCH
VCC3_DAC
CAP
PCH (I)
Need isolation
Need isolation
CLOSE北橋(注意震盪水波紋)
EMI
Gigabyte Technology
PCH PWR ,GND
GA-Z77M-D3H
1.01
Friday, April 27, 2012

PCIEX16 CAP



PCIEX16 PROTECT SHT



PCIEX16 AC CAP

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_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]

PCIEX16 SLOT

PCIESLOT-164DN-P

3GIO_*16

PCIEX16

X16_+12V	B1	12V	
X16_+12V	B2	12V	
X16_+12V	B3	RSVD	
R97 0/4/SHT/M/X	B4	GND	
[7,8,12,15,16,17,20,27] SMBCLK	B5	SMBCLK	
[7,8,12,15,16,17,20,27] SMBDATA	B6	SMBDATA	
	B7	GND	
3VDUAL	B8	3.3V	
VCC3	B9	JTAG1	
	B10	3.3VAUX	
[12,15,16,25,34] -PCIE_WAKE	B11	WAKE*	
KEY			
	B12	RSVD	
	B13	GND	
EXP_A_TXP0C	B14	HSOP0	
EXP_A_TXN0C	B15	HSON0	
	B16	GND	
	B17	PRSNT2*	
	B18	GND	
EXP_A_TXP1C	B19	HSOP1	
EXP_A_TXN1C	B20	HSON1	
	B21	GND	
	B22	GND	
EXP_A_TXP2C	B23	HSOP2	
EXP_A_TXN2C	B24	HSON2	
	B25	GND	
	B26	GND	
EXP_A_TXP3C	B27	HSOP3	
EXP_A_TXN3C	B28	HSON3	
	B29	GND	
	B30	RSVD	
	B31	PRSNT2*	
	B32	GND	
EXP_A_TXP4C	B33	HSOP4	
EXP_A_TXN4C	B34	HSON4	
	B35	GND	
	B36	GND	
EXP_A_TXP5C	B37	HSOP5	
EXP_A_TXN5C	B38	HSON5	
	B39	GND	
	B40	GND	
EXP_A_TXP6C	B41	HSOP6	
EXP_A_TXN6C	B42	HSON6	
	B43	GND	
	B44	GND	
EXP_A_TXP7C	B45	HSOP7	
EXP_A_TXN7C	B46	HSON7	
	B47	GND	
	B48	PRSNT2*	
	B49	GND	
EXP_A_TXP8C	B50	HSOP8	
EXP_A_TXN8C	B51	HSON8	
	B52	GND	
	B53	GND	
EXP_A_TXP9C	B54	HSOP9	
EXP_A_TXN9C	B55	HSON9	
	B56	GND	
	B57	GND	
EXP_A_TXP10C	B58	HSOP10	
EXP_A_TXN10C	B59	HSON10	
	B60	GND	
	B61	GND	
EXP_A_TXP11C	B62	HSOP11	
EXP_A_TXN11C	B63	HSON11	
	B64	GND	
	B65	GND	
EXP_A_TXP12C	B66	HSOP12	
EXP_A_TXN12C	B67	HSON12	
	B68	GND	
	B69	GND	
EXP_A_TXP13C	B70	HSOP13	
EXP_A_TXN13C	B71	HSON13	
	B72	GND	
	B73	GND	
EXP_A_TXP14C	B74	HSOP14	
EXP_A_TXN14C	B75	HSON14	
	B76	GND	
	B77	GND	
EXP_A_TXP15C	B78	HSOP15	
EXP_A_TXN15C	B79	HSON15	
	B80	GND	
	B81	PRSNT2*	
	B82	RSVD	

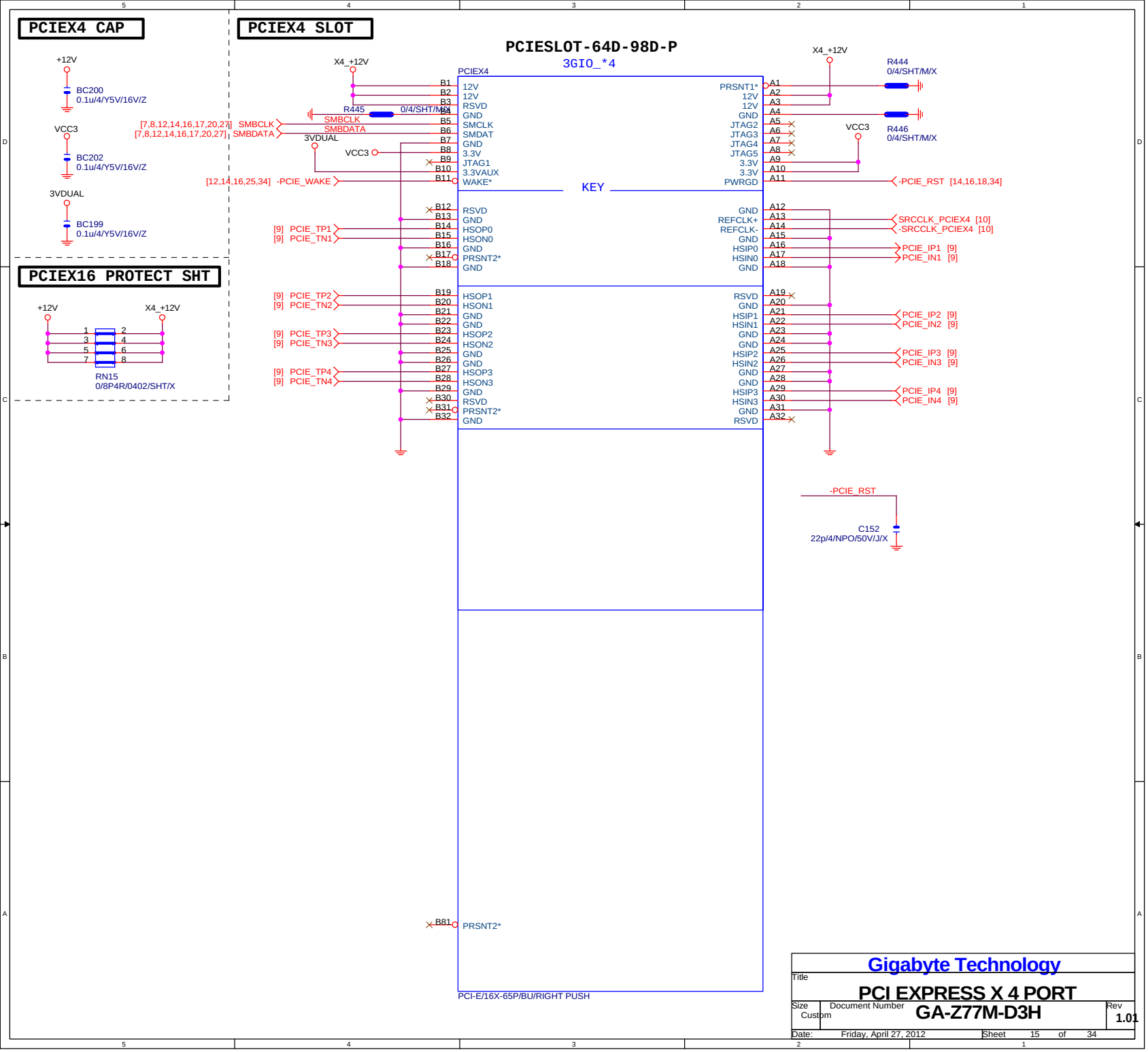
	A1	PRSNT1*	X16_+12V
	A2	12V	X16_+12V
	A3	12V	X16_+12V
R96 0/4/SHT/M/X	A4	GND	
	A5	JTAG2	
	A6	JTAG3	
	A7	JTAG4	
	A8	JTAG5	
VCC3	A9	3.3V	
	A10	3.3V	
-PCIE_RST	A11	PWRGD	-PCIE_RST [15,16,18,34]
	A12	GND	
	A13	REFCLK+	SRCCLK_PCIEX16 [10]
	A14	REFCLK-	-SRCCLK_PCIEX16 [10]
	A15	GND	
EXP_A_RXP0	A16	HSIP0	
EXP_A_RXN0	A17	HSIN0	
	A18	GND	
	A19	RSVD	
	A20	GND	
EXP_A_RXP1	A21	HSIP1	
EXP_A_RXN1	A22	HSIN1	
	A23	GND	
	A24	GND	
EXP_A_RXP2	A25	HSIP2	
EXP_A_RXN2	A26	HSIN2	
	A27	GND	
	A28	GND	
EXP_A_RXP3	A29	HSIP3	
EXP_A_RXN3	A30	HSIN3	
	A31	GND	
	A32	RSVD	
	A33	RSVD	
	A34	GND	
EXP_A_RXP4	A35	HSIP4	
EXP_A_RXN4	A36	HSIN4	
	A37	GND	
	A38	GND	
EXP_A_RXP5	A39	HSIP5	
EXP_A_RXN5	A40	HSIN5	
	A41	GND	
	A42	GND	
EXP_A_RXP6	A43	HSIP6	
EXP_A_RXN6	A44	HSIN6	
	A45	GND	
	A46	GND	
EXP_A_RXP7	A47	HSIP7	
EXP_A_RXN7	A48	HSIN7	
	A49	GND	
	A50	RSVD	
	A51	GND	
EXP_A_RXP8	A52	HSIP8	
EXP_A_RXN8	A53	HSIN8	
	A54	GND	
	A55	GND	
EXP_A_RXP9	A56	HSIP9	
EXP_A_RXN9	A57	HSIN9	
	A58	GND	
	A59	GND	
EXP_A_RXP10	A60	HSIP10	
EXP_A_RXN10	A61	HSIN10	
	A62	GND	
	A63	GND	
EXP_A_RXP11	A64	HSIP11	
EXP_A_RXN11	A65	HSIN11	
	A66	GND	
	A67	GND	
EXP_A_RXP12	A68	HSIP12	
EXP_A_RXN12	A69	HSIN12	
	A70	GND	
	A71	GND	
EXP_A_RXP13	A72	HSIP13	
EXP_A_RXN13	A73	HSIN13	
	A74	GND	
	A75	GND	
EXP_A_RXP14	A76	HSIP14	
EXP_A_RXN14	A77	HSIN14	
	A78	GND	
	A79	GND	
EXP_A_RXP15	A80	HSIP15	
EXP_A_RXN15	A81	HSIN15	
	A82	GND	

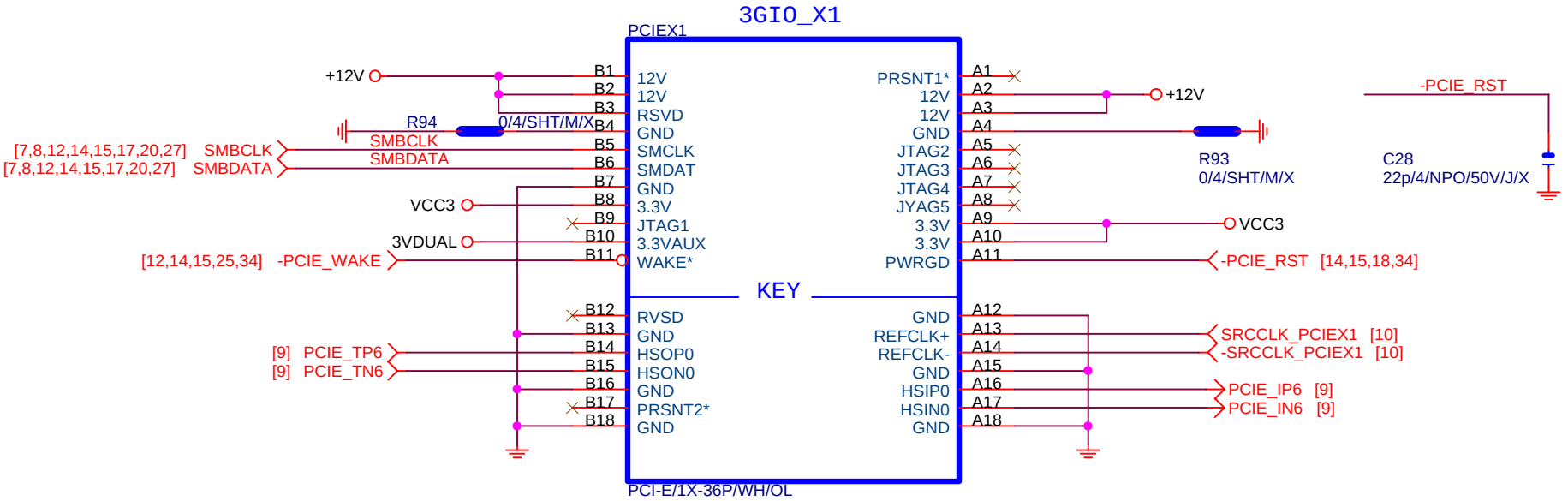
R92 0/4/SHT/M/X

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

PCI-E/16X-164P/BU-297C/RIGHT PUSH

Gigabyte Technology			
Title	PCI EXPRESS * 16		
Size: Custom	Document Number: GA-Z77M-D3H		Rev: 1.01
Date: Friday, April 27, 2012	Sheet 14 of 34		


PCIEX4 CAP
+12V
BC200
0.1u/4/Y5V/16V/Z
VCC3
BC202
0.1u/4/Y5V/16V/Z
3VDUAL
BC199
0.1u/4/Y5V/16V/Z
PCIEX16 PROTECT SHT
+12V
X4_+12V
1 2
3 4
5 6
7 8
RN15
0/8P4R/0402/SHT/X
PCIEX4 SLOT
PCIESLOT-64D-98D-P
3GIO_*4
PCIEX4
X4_+12V
R445
0/4/SHT/M/X
[7,8,12,14,16,17,20,27] SMBCLK
[7,8,12,14,16,17,20,27] SMBDATA
3VDUAL
VCC3
[12,14,16,25,34] -PCIE_WAKE
B1 12V
B2 12V
B3 RSVD
B4 GND
B5 SMBCLK
B6 SMDAT
B7 GND
B8 3.3V
B9 JTAG1
B10 3.3VAUX
B11 WAKE*
KEY
B12 RSVD
B13 GND
[9] PCIE_TP1 B14 HSOP0
[9] PCIE_TN1 B15 HSON0
B16 GND
B17 PRSNT2*
B18 GND
[9] PCIE_TP2 B19 HSOP1
[9] PCIE_TN2 B20 HSON1
B21 GND
B22 GND
[9] PCIE_TP3 B23 HSOP2
[9] PCIE_TN3 B24 HSON2
B25 GND
B26 GND
[9] PCIE_TP4 B27 HSOP3
[9] PCIE_TN4 B28 HSON3
B29 GND
B30 RSVD
B31 PRSNT2*
B32 GND
B81 PRSNT2*
PCI-E/16X-65P/BU/RIGHT PUSH
X4_+12V
R444
0/4/SHT/M/X
R446
0/4/SHT/M/X
VCC3
A1 PRSNT1*
A2 12V
A3 12V
A4 GND
A5 JTAG2
A6 JTAG3
A7 JTAG4
A8 JTAG5
A9 3.3V
A10 3.3V
A11 PWRGD
-PCIE_RST [14,16,18,34]
A12 GND
A13 REFCLK+
A14 REFCLK-
A15 GND
A16 HSIP0
A17 HSIN0
A18 GND
SRCCLK_PCIEX4 [10]
-SRCCLK_PCIEX4 [10]
PCIE_IP1 [9]
PCIE_IN1 [9]
A19 RSVD
A20 GND
A21 HSIP1
A22 HSIN1
A23 GND
A24 GND
A25 HSIP2
A26 HSIN2
A27 GND
A28 GND
A29 HSIP3
A30 HSIN3
A31 GND
A32 RSVD
PCIE_IP2 [9]
PCIE_IN2 [9]
PCIE_IP3 [9]
PCIE_IN3 [9]
PCIE_IP4 [9]
PCIE_IN4 [9]
-PCIE_RST
C152
22p/4/NPO/50V/J/X
Gigabyte Technology
Title
PCI EXPRESS X 4 PORT
Size
Custom
Document Number
GA-Z77M-D3H
Rev
1.01
Date: Friday, April 27, 2012
Sheet 15 of 34



PCIEX1 CAP

3VDUAL — BC31 0.1u/4/Y5V/16V/Z/X

+12V — BC23 0.1u/4/Y5V/16V/Z/X

VCC3 — BC25 0.1u/4/Y5V/16V/Z/X

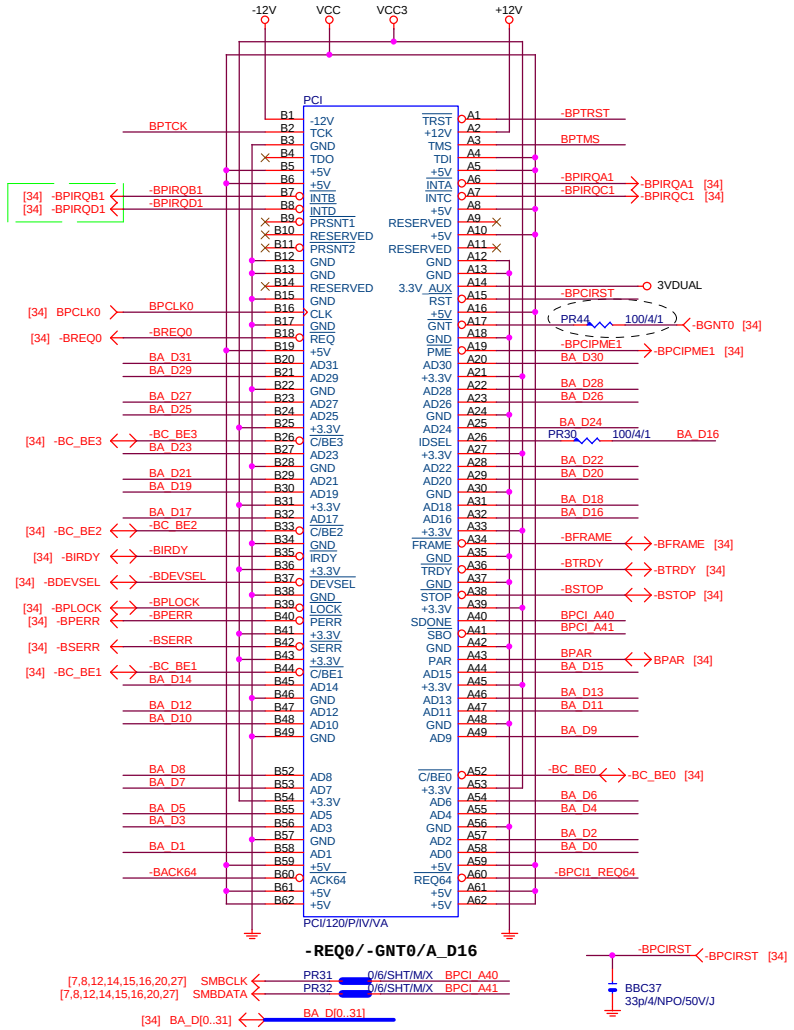
Gigabyte Technology

Title: **PCI EXPRESS X 1 PORT**

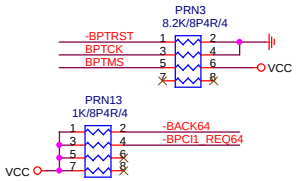
Size	Document Number	Rev
A	GA-Z77M-D3H	1.01

Date: Friday, April 27, 2012 Sheet 16 of 34

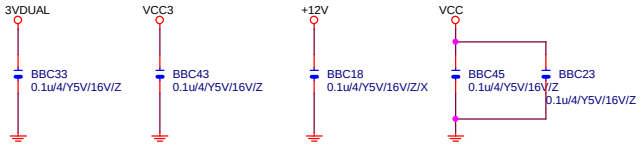
PCI SLOT



PCI PU

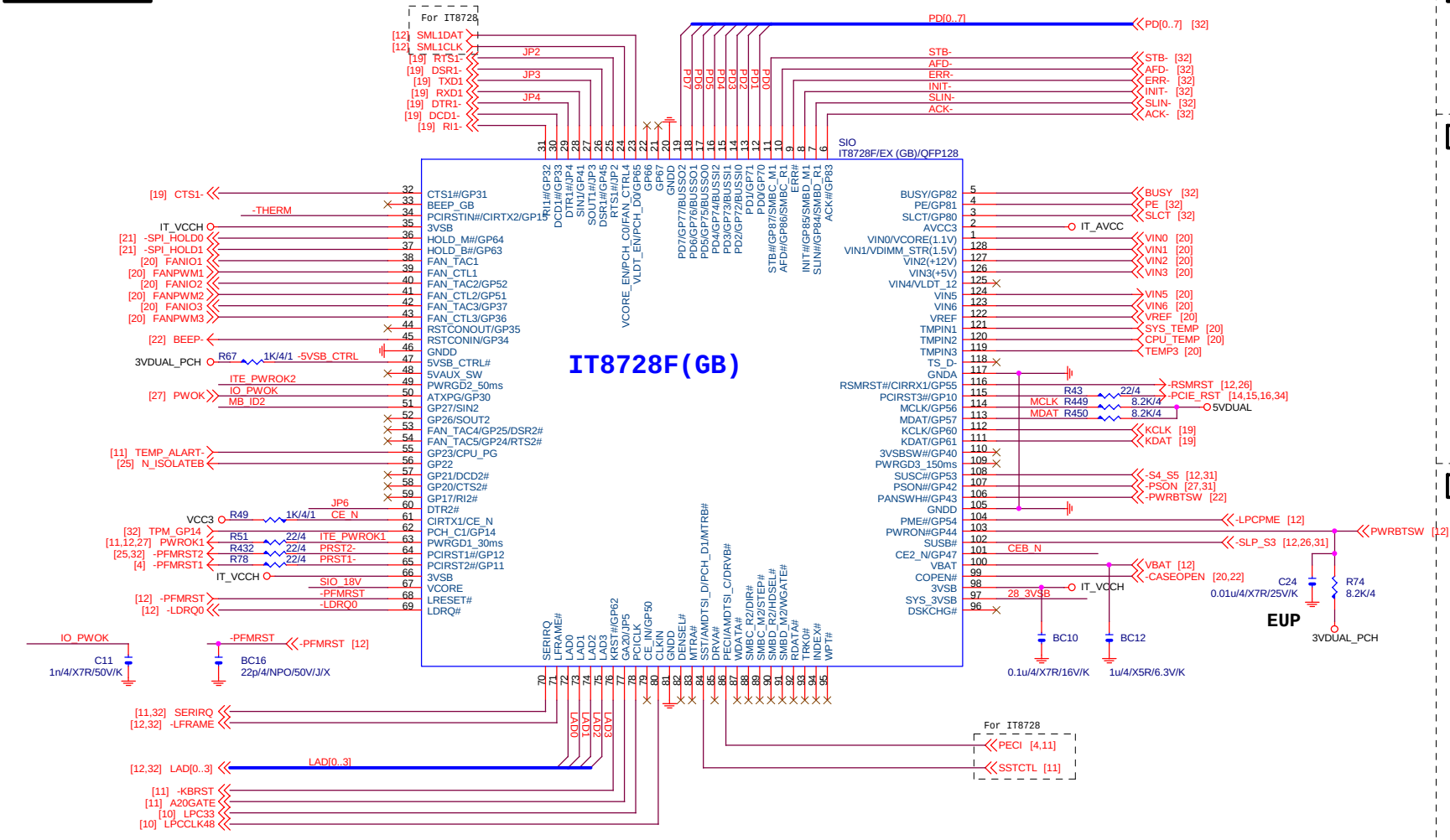


PCI CAP

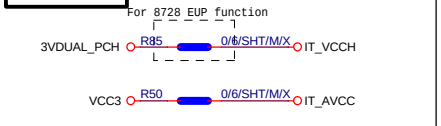


Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 17 of 34	

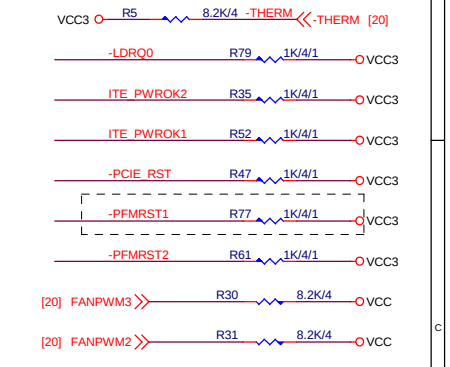
SIO IT8728F



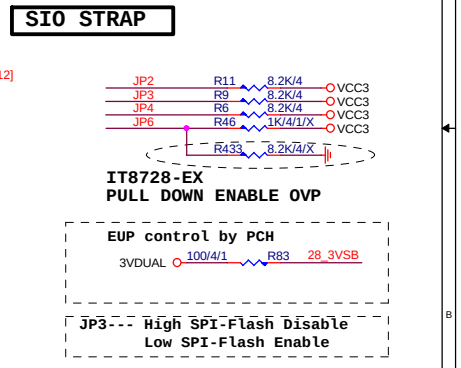
PWR SHT



SIO PU



SIO STRAP

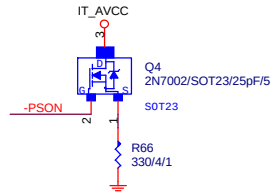


IT8728F NOTE

	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

DUAL BIOS OPT STRAP

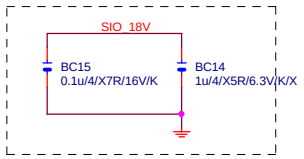
Power leakage



For IT8721 Power leakage

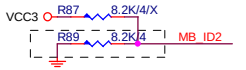
SIO_18V

internal power pin, max 22nF cap



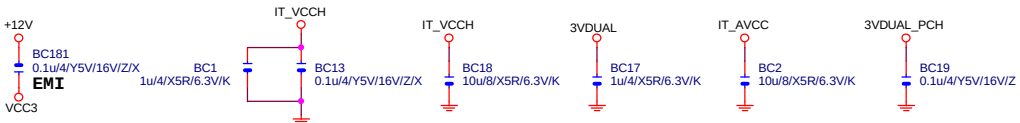
FOR LOW TEMP POWER ON INTO TEST MODE ISSUE

MB ID



Z77M-D3H R1.01 MB ID

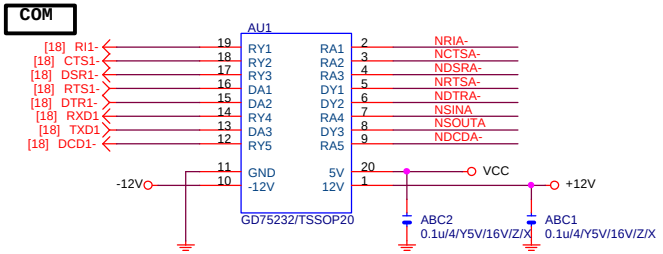
SIO CAP

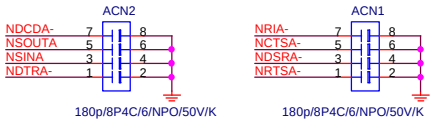


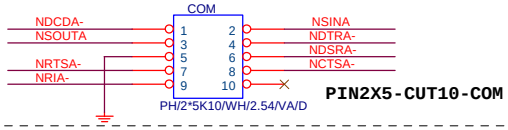
Gigabyte Technology

Title	ITE 8728 LPC IO	
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 18 of 34	

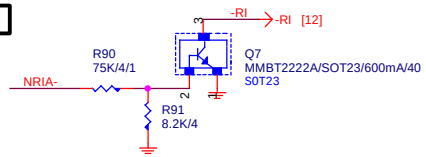
COM



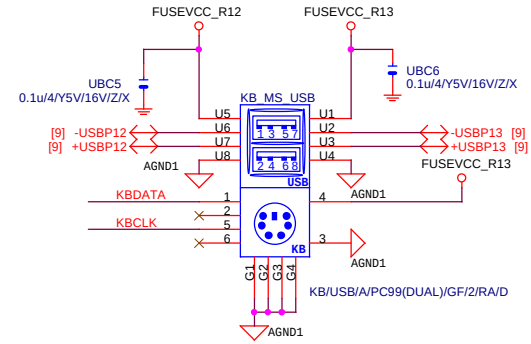


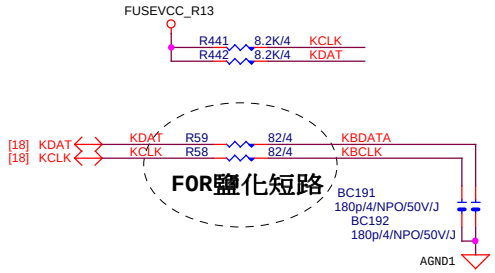


COM RI

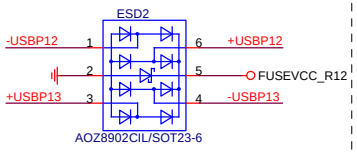


KB/MS

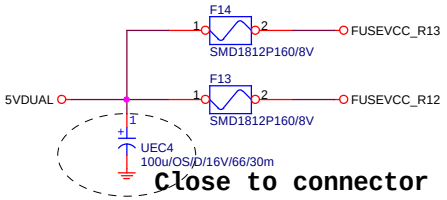




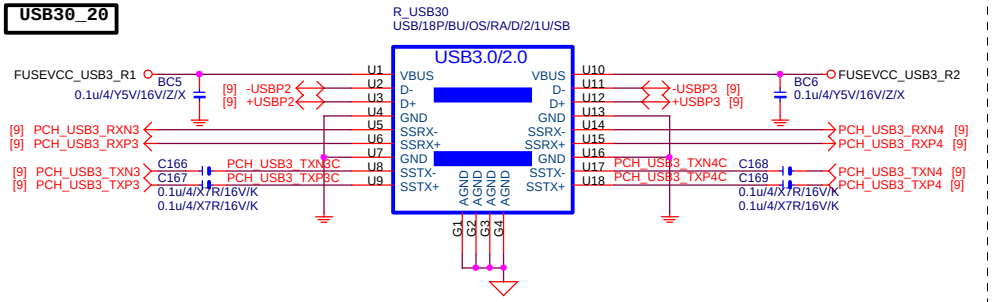
USB2.0 ESD



USB2.0 PWR

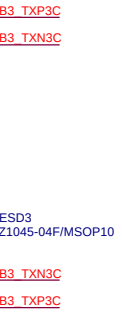


USB30_20

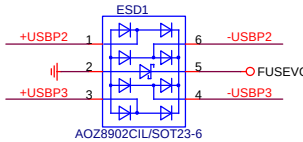


USB30_20 ESD PROCTECT

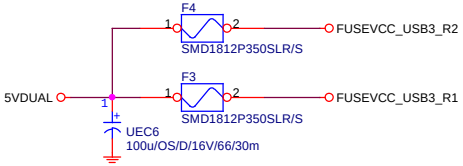
USB3.0 ESD



USB2.0 ESD

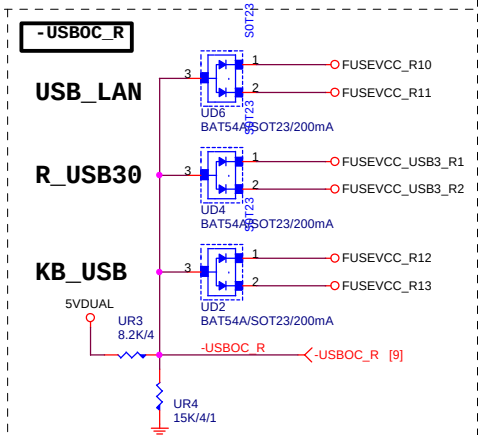


USB30_20 PWR



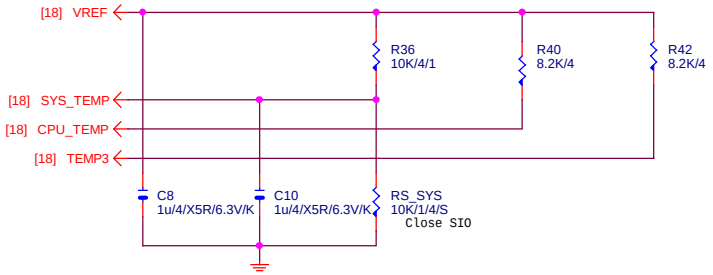
USB3.0 1Port - 1Fuse (3.5A)

-USBOC_R

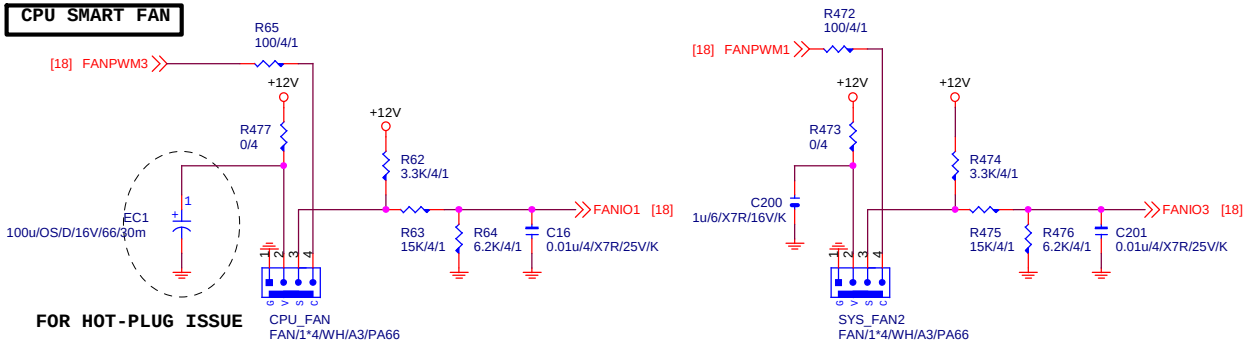


Gigabyte Technology		
Title: COM,-RI,KB_USB,USB_ESATA,-PROCHOT		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 19 of 34	

TEMP H/W MONITOR

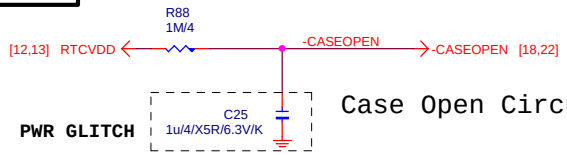


CPU SMART FAN



FOR HOT-PLUG ISSUE

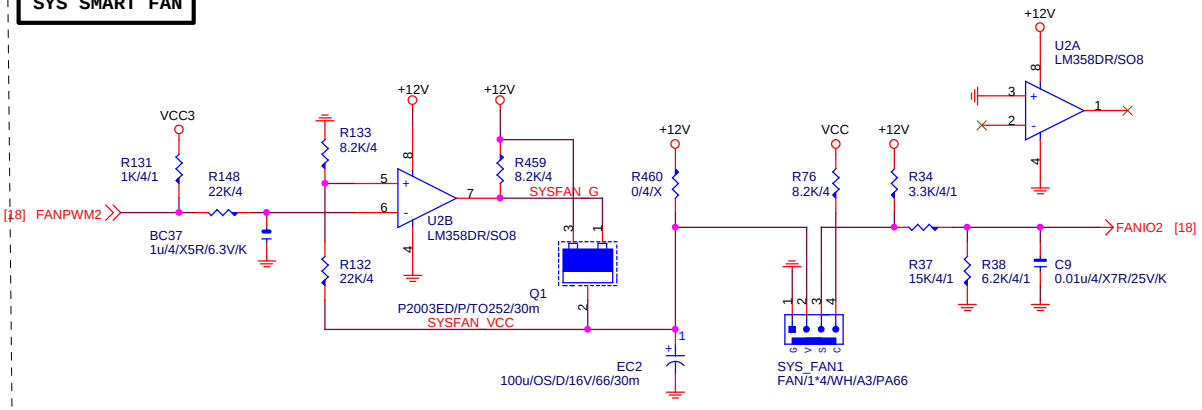
CASE OPEN



PWR GLITCH

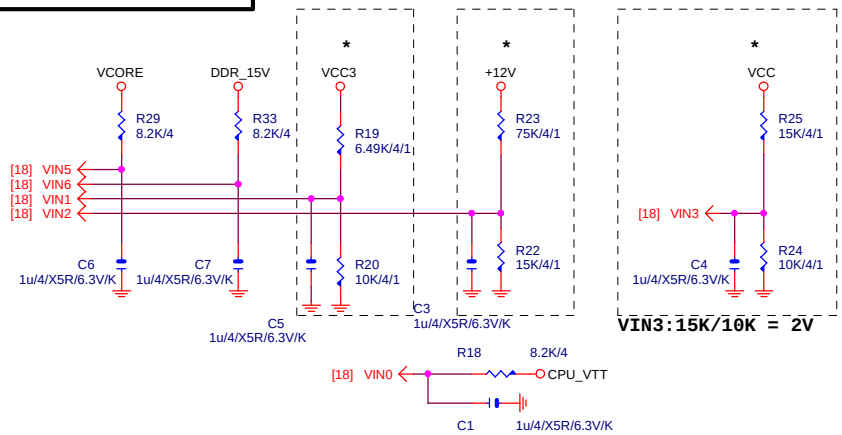
Case Open Circuits

SYS SMART FAN



VOLTAGE-- H/W MONITOR

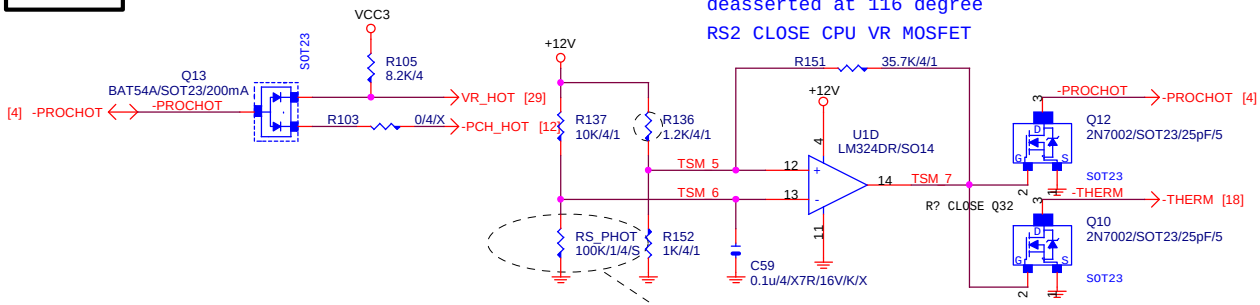
VIN2:75K/15K = 2V



-PROHOT

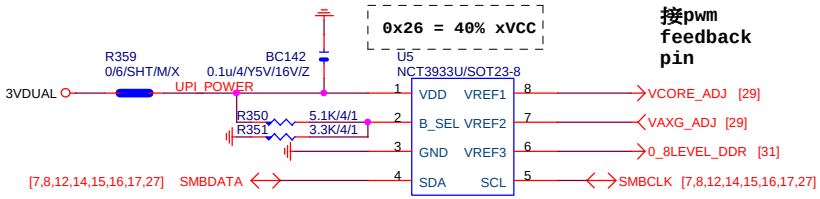
deasserted at 116 degree

RS2 CLOSE CPU VR MOSFET



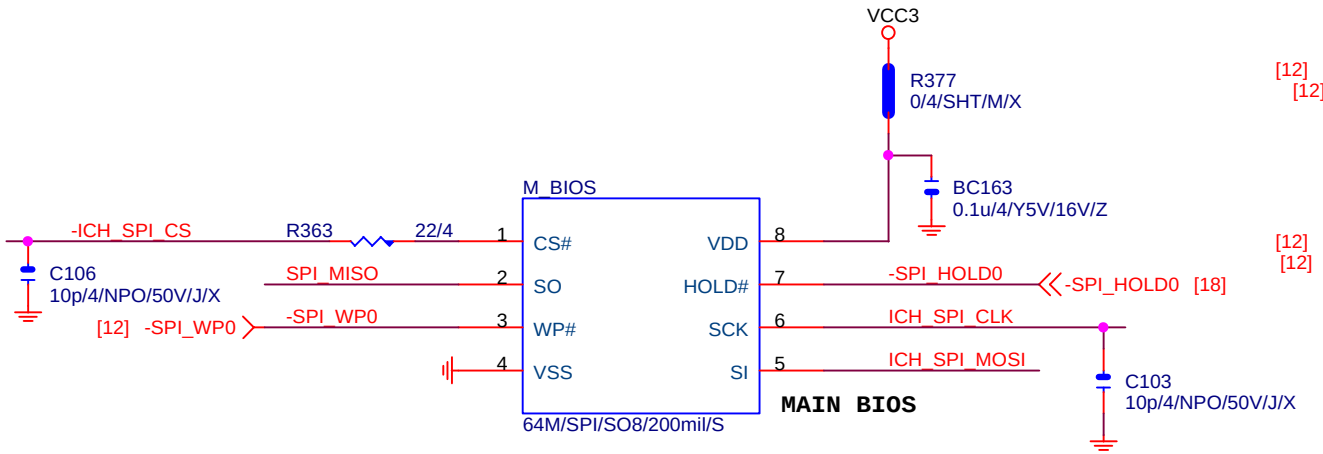
CLOSE PWM HOT MOSFET

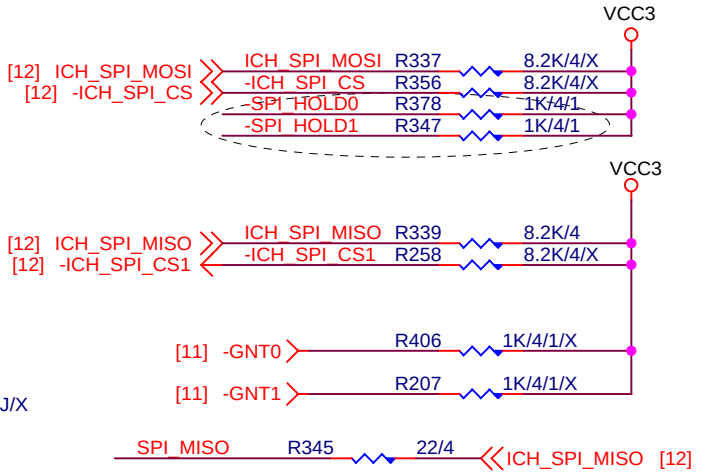
OV NCT3933

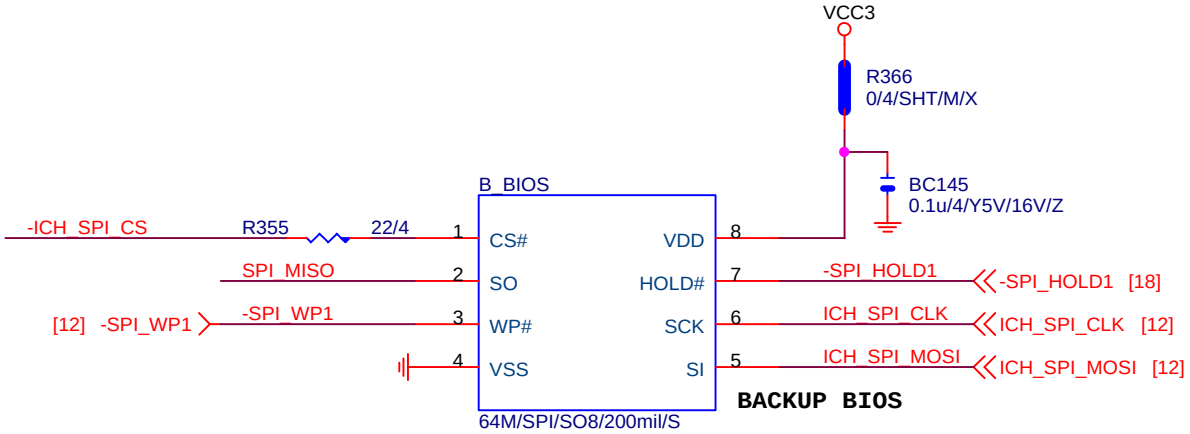


Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 20 of 34	

DUAL BIOS







B65使用64M BIOS

使用H67暫用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

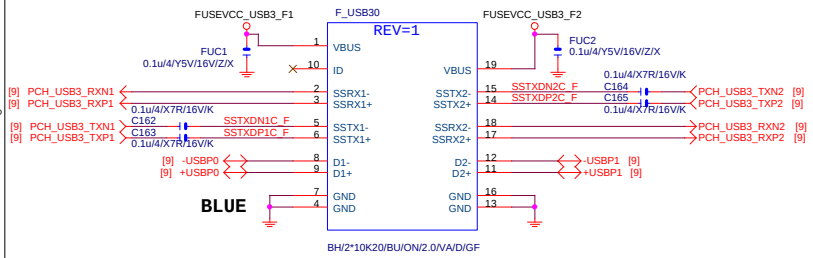
Gigabyte Technology

Title: DUAL BIOS

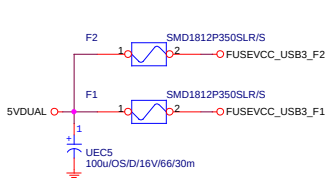
Size: A | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 21 of 34

F_USB30

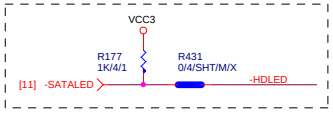


F_USB30 PWR

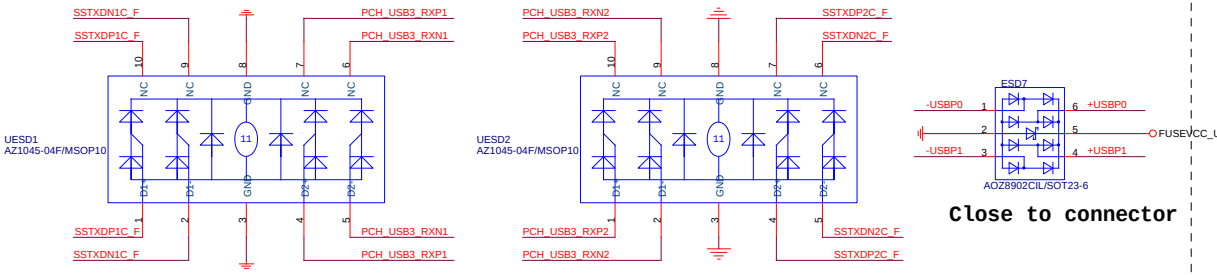


USB3.0 1Port - 1Fuse (3.5A)

SATA LED

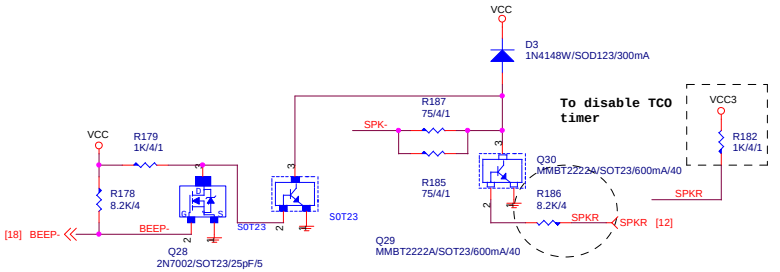


F_USB30 ESD PROTECT

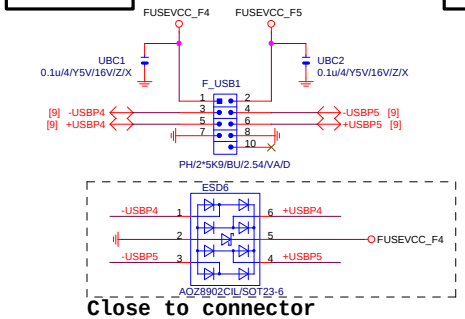


Close to connector

SPKR

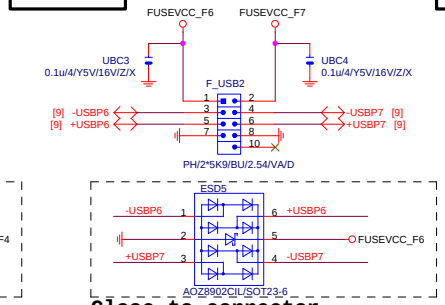


FRONT USB1



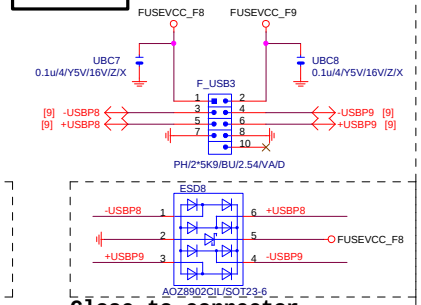
Close to connector

FRONT USB2



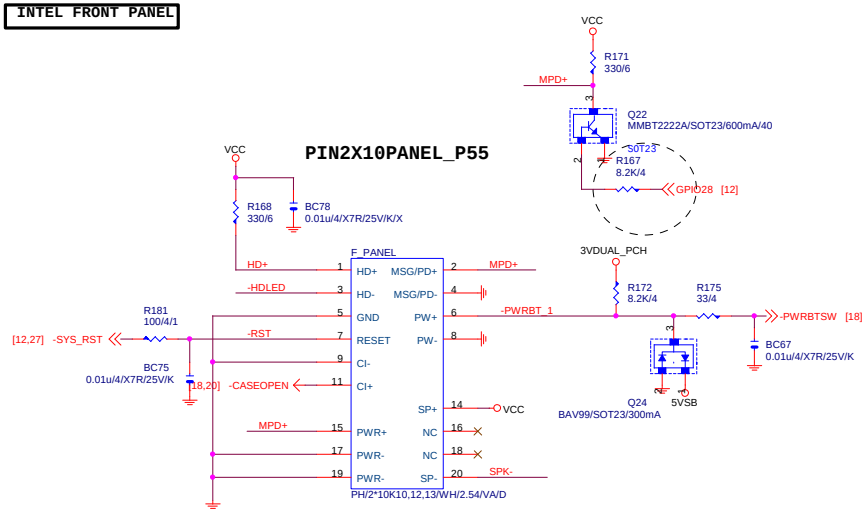
Close to connector

FRONT USB3

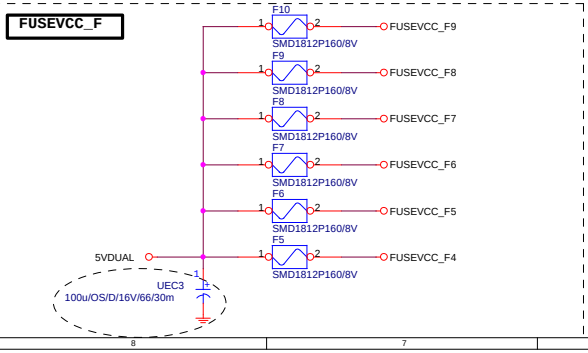


Close to connector

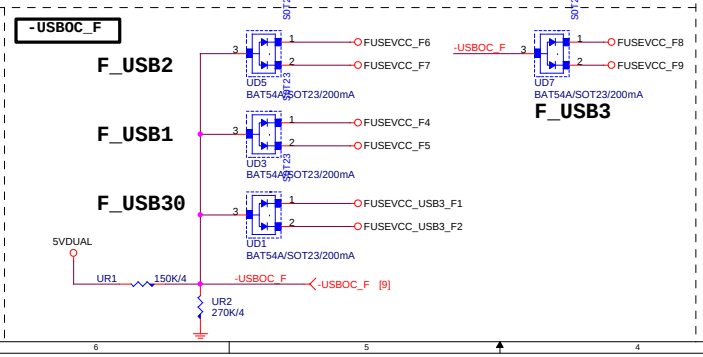
INTEL FRONT PANEL



FUSEVCC_F



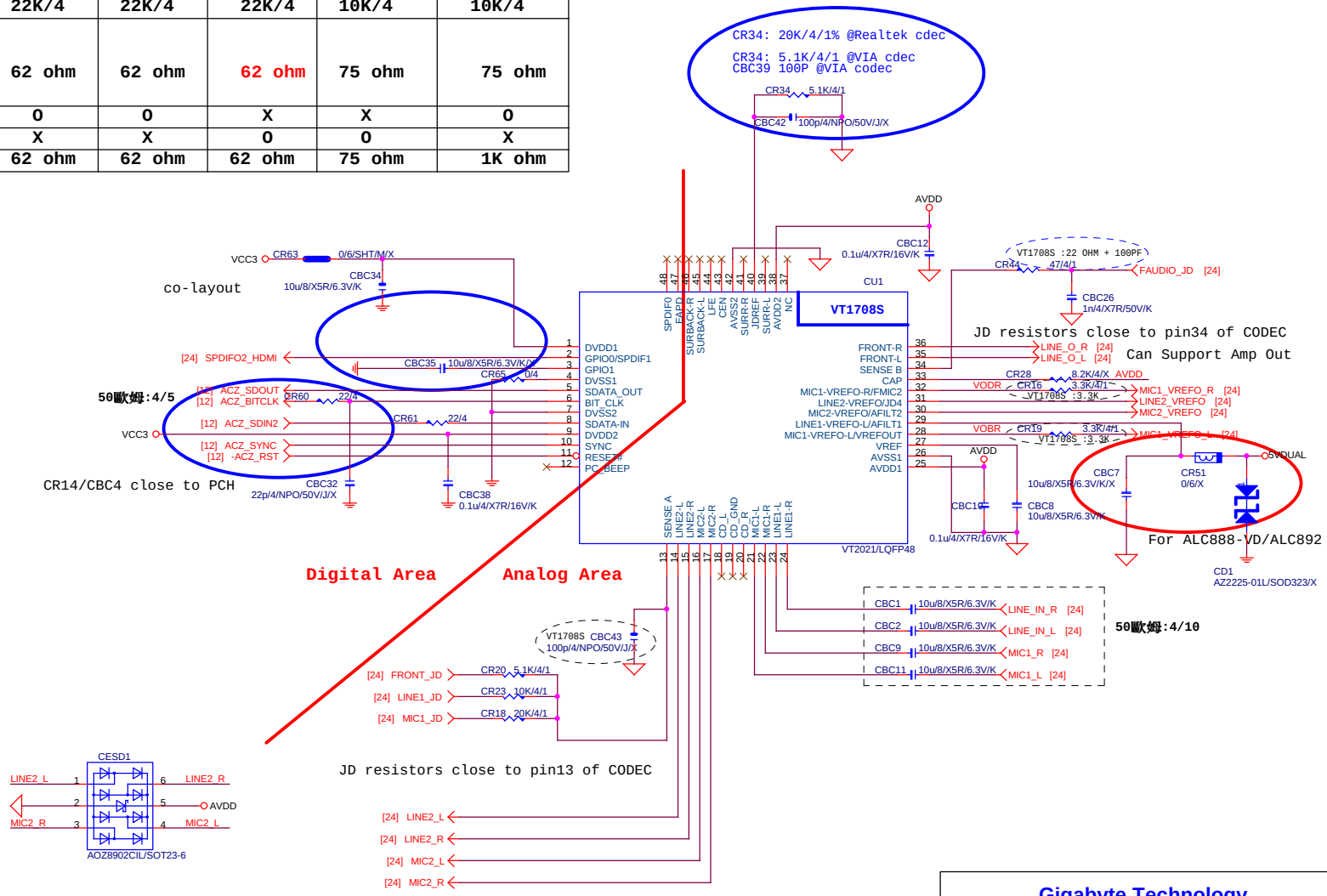
-USBOC_F



Gigabyte Technology		
Title: FP,F_USB,USB PWR,SPKR,SATA LED		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 22 of 34	

AZALIA CODEC *ALC887-VD2/ALC889/VT1708S/VT1708SCE Colay*

	ALC662	ALC887-VD2	ALC889	VT1708S	VT1708SCE
CR65	X	X	O	O	X
CR64	X	X	X	X	0.1u/4
CBC35	O	O	X	X	O
CR44/CBC6	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P
CR31	X	O	O	O	O
CR30	O	X	X	X	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R	22uF/X5R
CR20	5.11K/4/1	5.11K/4/1	5.11K/4/1	5.1K/4/1	5.1K/4/1
CR34	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CBC39/CBC40	N/A	N/A	N/A	100P/4	100P/4
CR6/CR7/CR54/CR58	22K/4	22K/4	22K/4	10K/4	10K/4
CR5/CR8/CR11/CR4/ CR17/CR22/CR45/CR33/ CR47/CR40/CR26/CR37/ CR13/CR11/CR57/CR53	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm
CR51/CD1/CBC7	O	O	X	X	O
CD2/CD3/CQ3/CQ5	X	X	O	O	X
CR1/CR14/CR17/CR22	62 ohm	62 ohm	62 ohm	75 ohm	1K ohm



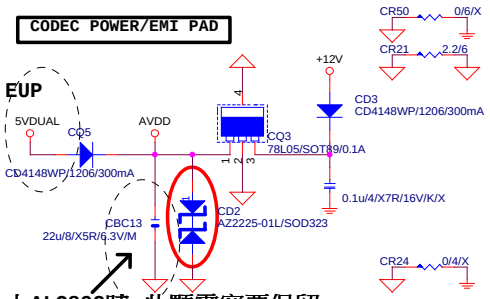
Gigabyte Technology

Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021

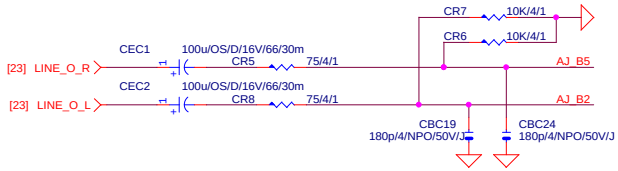
Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 23 of 34

CODEC POWER/EMI PAD

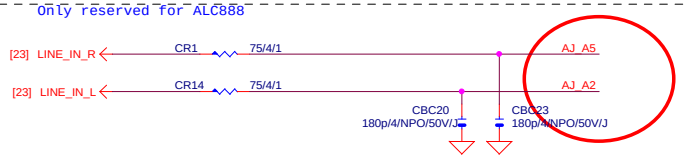


LINE-OUT



Only reserved for ALC888

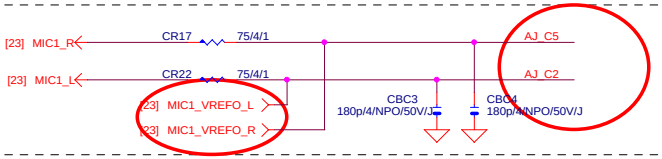
LINE-IN



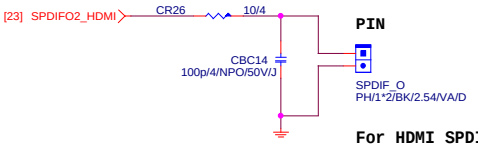
Verify MIC function in LINE-in

For 889A/888

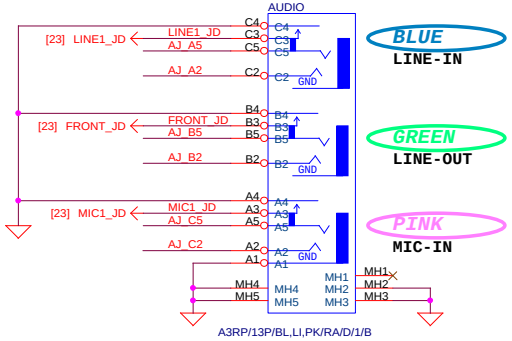
MIC-IN



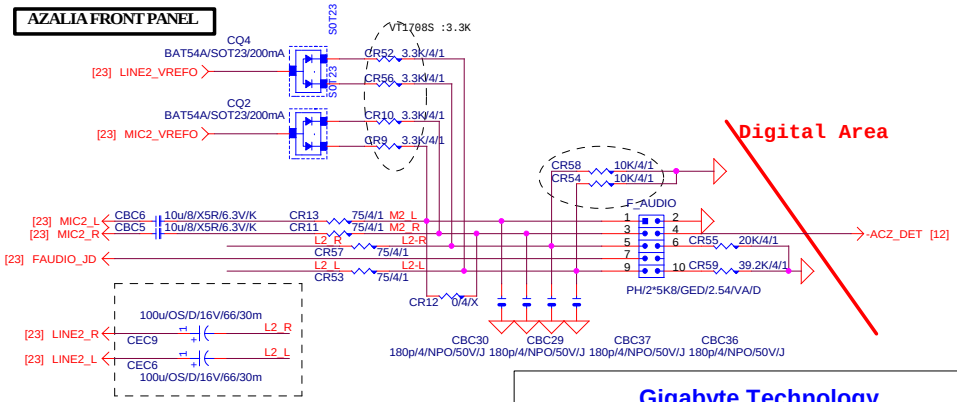
SPDIF_OUT



For HDMI SPDIF



AZALIA FRONT PANEL



Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 24 of 34	

LAN:AR8151/AR8161

離IC近越好

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

LA_ ML-->80歐姆:[15/5/5/5/15]

離IC近越好

AR8161-->N/A (LABC12)

AR8161-->N/A (LABC6)

AR8161-->(0)

AR8161-->N/A (LABC20)

AR8161-->N/A (LAR9,LAC18)

AR8151:LA_AVDDH(LAR20)
AR8161:3VDUAL(LAR19)

SCH BOM OPT:(二擇一使用)
-->(LAC30):M/B有CLK GEN 25M
-->(LAX1,LAC31,LAC32):M/B無CLK GEN 25M

LAN POWER

NEW DESIGN ONLY FOR INTERNAL SWR
AR8151:LAR3(0),LAR5(X)
AR8161:LAR5(0),LAR3/LAR4(X)

CLOSE
LA_LX 200mil

AR8161-->N/A
(LAR3,LAR4)

AR8151 POWER

AR8161 POWER

AR8161-->(0)

AR8161-->(0)

Power domain chart

	AR8151	AR8161
AVDD33	N/A	3.3V
VDD33	3.3V	3.3V
AVDDH	2.7V	2.7V
AVDDL/DVDDL	1.1V	1.1V
VDDCT	1.7V	

MDI : AR8161-->N/A

CLOSE LAN CHIP

USB_LAN CONNECTOR

RMA ESD PROTECT

AOZ8902CIL/SOT23-6

AOZ8902CIL/SOT23-6

LA_MDI-->100歐姆:[20/4/8/4/20]

USB+LAN/1G/GO,Y/OS/RA/D/1

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

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

Dual Color LED

Green

Orange

Single Color LED

Yellow

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

USB X3 POWER

Close to connector

EMI SHORT PAD

PS:視EMI需求

FOR EMI

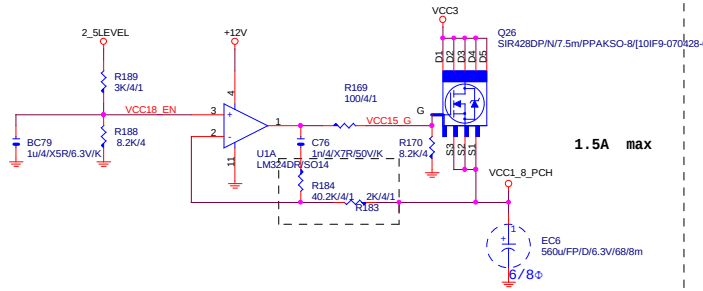
Gigabyte Technology

Title: ARTHEROS AR8151/AR8161

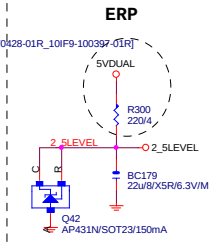
Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 25 of 34

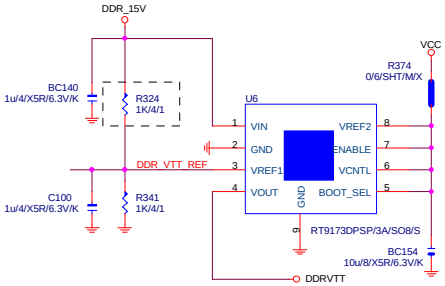
VCC1_8_PCH



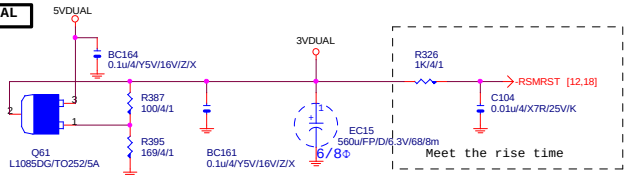
2_5LEVEL



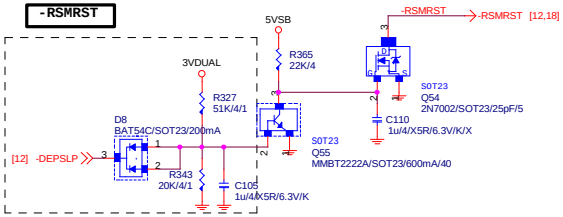
DDRVTT



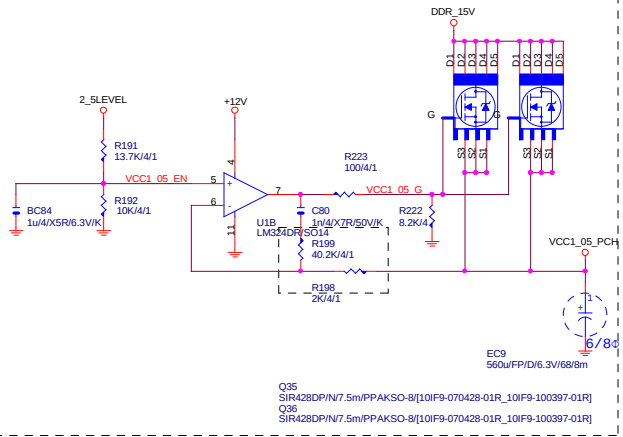
3VDUAL



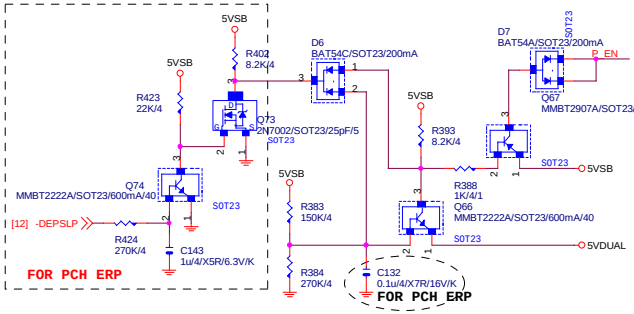
-RSMRST



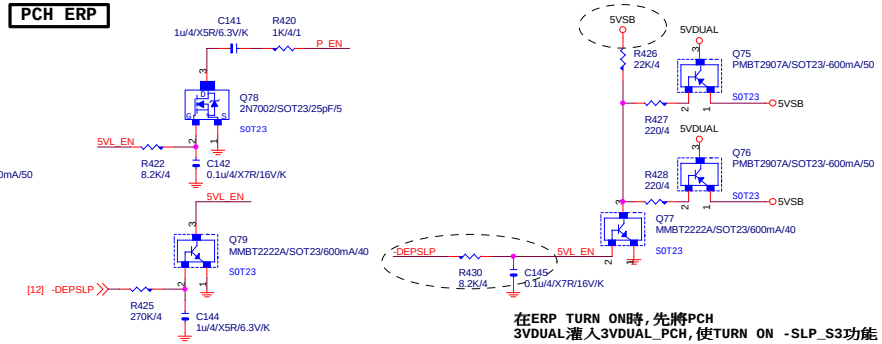
VCC1_05_PCH



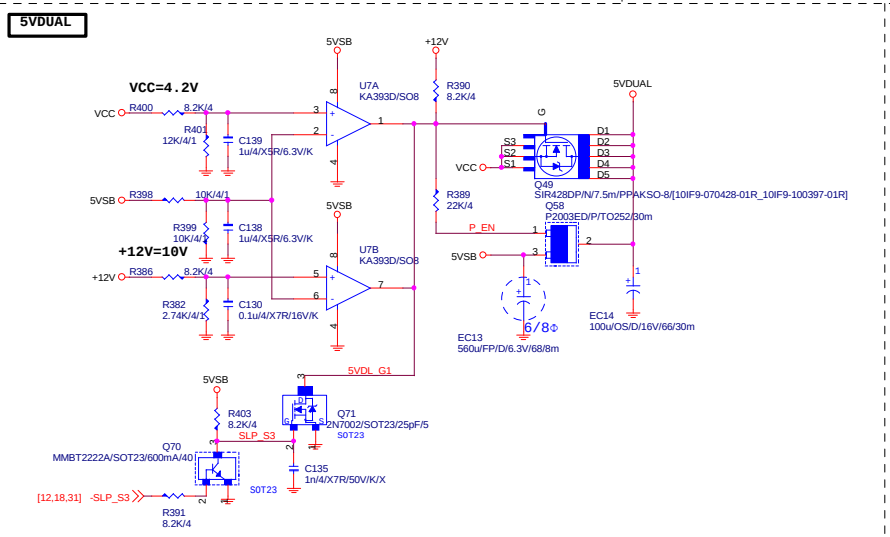
5VDUAL_SHORT_PROTECT



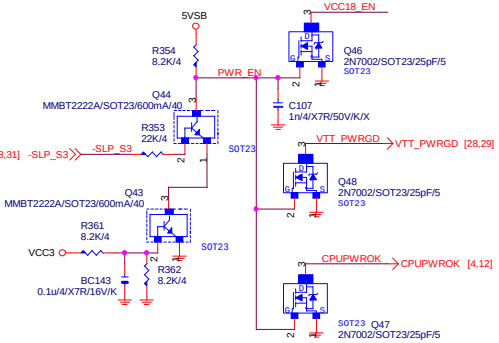
PCH ERP



5VDUAL



PWR SEQ



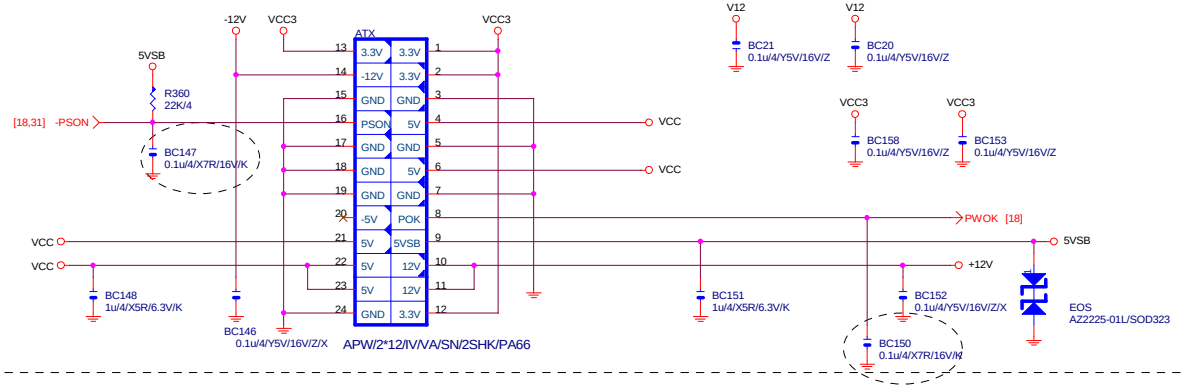
Gigabyte Technology

Title: DISCRETE POWER

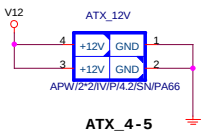
Size: Custom | Document Number: GA-Z77M-D3H | Rev: 1.01

Date: Friday, April 27, 2012 | Sheet 26 of 34

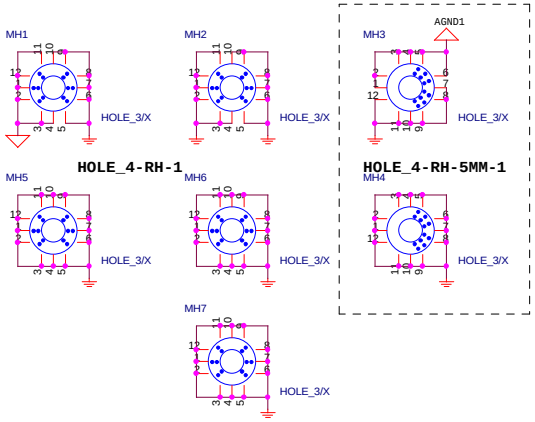
ATXX24 POWER CONNECTOR

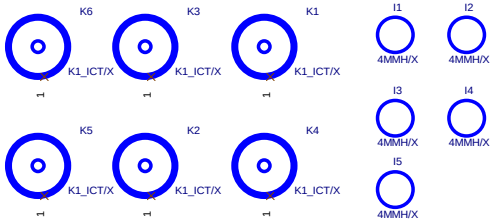


ATXX4 POWER CONNECTOR



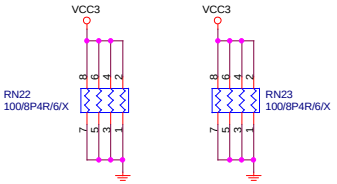
ATX_4-5



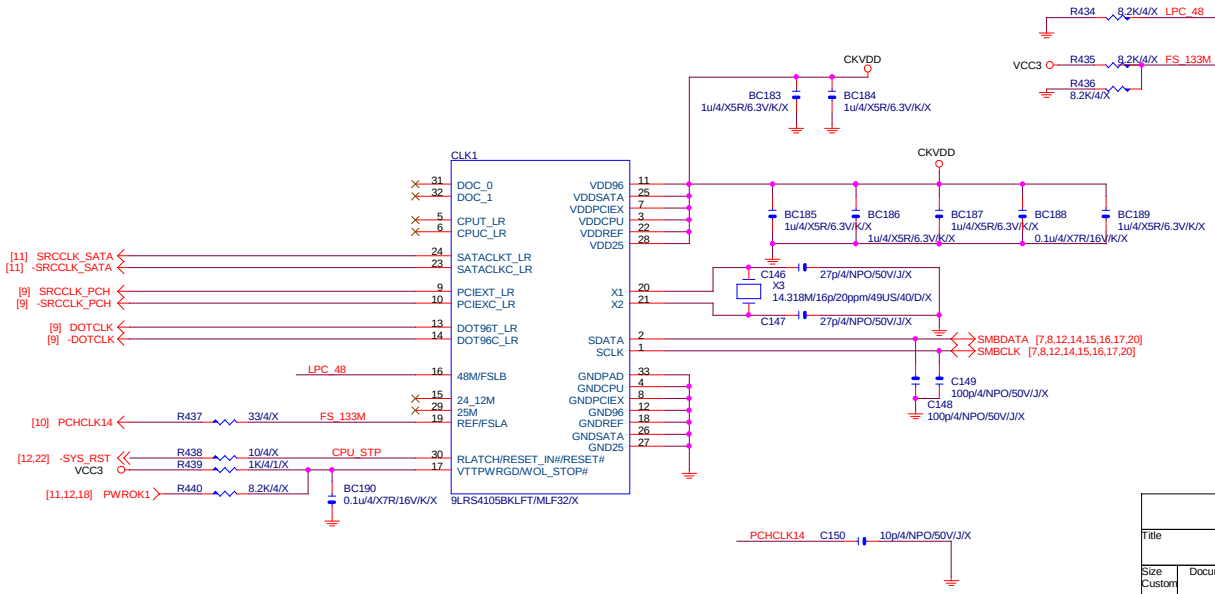


To prevent the 5VSB under loading when boot

FIX PWR MINMUN LOAD



CLK GEN



CPU Frequency Selection

FS	CPU
0	100M <Default>
1	133M

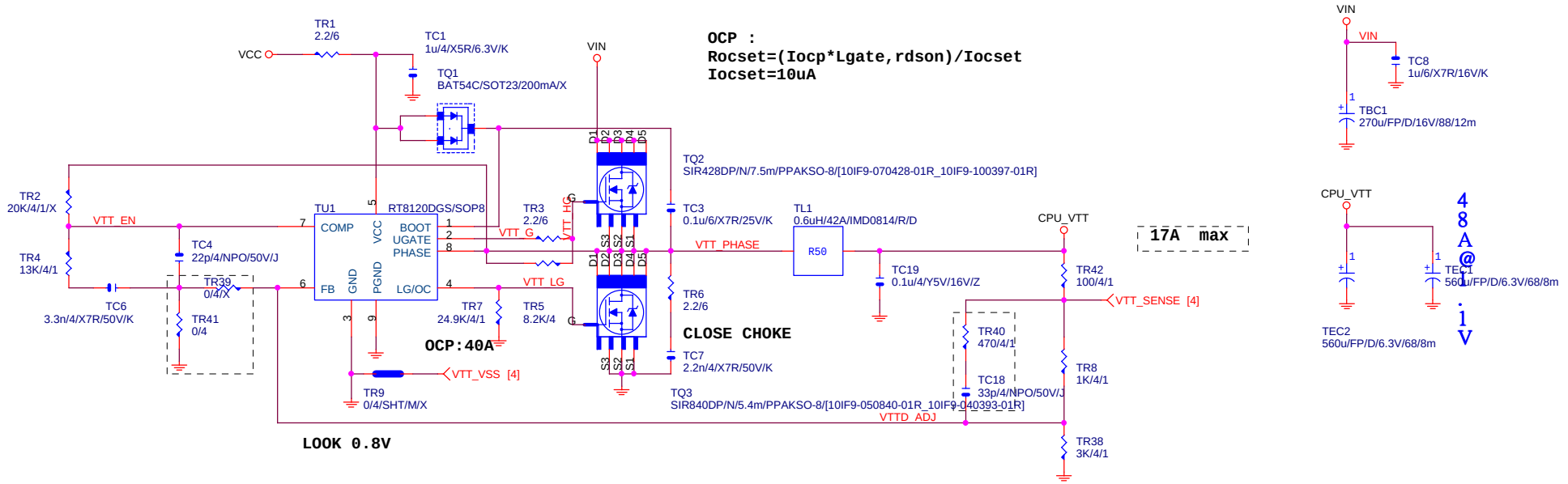
Gigabyte Technology

Title: **ATX CONNECTOR**

Size	Document Number	Rev
Custom	GA-Z77M-D3H	1.01

Date: Friday, April 27, 2012 Sheet 27 of 34

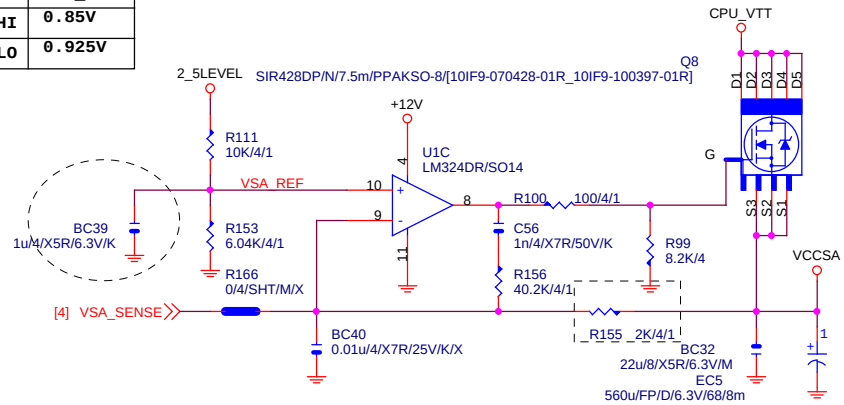
CPU_VTT



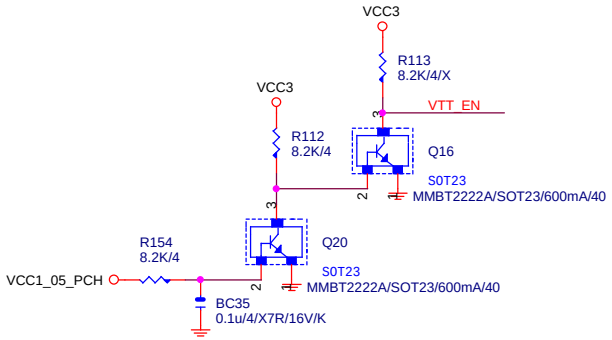
VCCSA

PDG 0.8

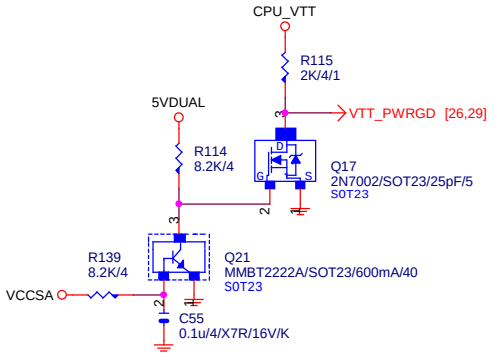
	VSA_SEL
HI	0.85V
LO	0.925V



CPU_VTT PWR SEQ



VTT_PWRGD



GIGABYTE™

Title	CPU_VTT PWM_ISL95870CRZ	
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 28 of 34	

VCORE PWM

Intersil Original Design

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

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

CPU_VAXG — DR445 100/4/1

[4] VAXG_SENSE — VSENG — DR482 0/4

DBC93 0.01u/4/X7R/25V/K — FBG_OV

DBC95 0.01u/4/X7R/25V/K

[4] VAXG_VSS — RTNG — DR450 10/4

DR446 845/4/1 — DBC91 1n/4/X7R/50V/K — DR444 2K/4/1 — DBC90 330p/4/NPO/50V/J

DR447 3.6K/4/1 — Load line-->4.1mohm

DBC92 47p/4/NPO/50V/J — DBC94 680p/4/X7R/50V/K — DR448 270K/4

DR449 169K/4/1 — S.W frequncy-->300Khz Imax-->45A

LAYOUT RESERVE CHOKE SPACE

V12 — VIN

DBC1 1u/6/X7R/16V/K — DEC6 270u/FP/D/16V/88/12m — DEC2 270u/FP/D/16V/88/12m

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

RGntc=(RGseries+DRT4)//RGparellel

RGseries — RGparellel

DBC64 0.047u/4/X7R/16V/K/X — DBC66 0.033u/4/X7R/16V/K — DBC67 0.22u/4/X5R/6.3V/K

DR475 100/4/1 — DBC114 330p/4/NPO/50V/J — DR162 549/4/1 — RGi — ISUMNG

IGocp-->56A

[30] VSUMPG — ISUMPG

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

ISUMMG RTNG FBG COMPG VAXG_RDY PWM2G LGATE1G PHASE1G UGATE1G BOOT1G

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

30 BOOT2 — BT2 — BT2 [30]
29 UGATE2 — UG2
28 PHASE2 — PH2
27 LGATE2 — LG2
26 VCCP
25 VDD
24 PWM3 — PWM3 [30]
23 LGATE1 — LG1
22 PHASE1 — PH1
21 UGATE1 — UG1

ISEN3FB2 ISEN2 ISEN1 ISUMP ISUMN RTN FB COMP PGOOD BOOT1

11 12 13 14 15 16 17 18 19 20

PWM INTERSIL ISL95836HRTZ

ISL95836HRZ/[10TA1-695836-01R]

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

CPU_VTT

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

disable PWM2G

VCC — DR454 0/4/SHT/M/X — ISEN2G

DR456 27K/4/1 — Disable NTCG

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

[4] -VIDALRT

[4] VIDSOUT

[20] VR_HOT — DR82 10/4/X

[26,28] VTT_PWRGD

DR59 27K/4/1 — Disable NTC

BOTTOM PAD CONNECT TO GND THROUGH 10 VIA

DBC100 0.22u/6/X7R/16V/K — ISEN3

[30] VSUMN — DBC101 0.22u/6/X7R/16V/K — ISEN2

DBC102 0.22u/6/X7R/16V/K — ISEN1

[30] ISEN3 — ISEN3

[30] ISEN2 — ISEN2

[30] ISEN1 — ISEN1

BT1 — BT1 [30]

UG1 PH1 LG1 ISEN1 — UG1 [30] PH1 [30] LG1 [30] ISEN1 [30]

UG2 PH2 LG2 ISEN2 — UG2 [30] PH2 [30] LG2 [30] ISEN2 [30]

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

PWM3 ISEN3 — PWM3 [30] ISEN3 [30]

VCC3 — DR109 1K/4/1 — PCH_VRMPWRGD [12]

3VDUAL — DR108 8.2K/4 — DR110 100K/4/1 — DC17 0.1u/4/X7R/16V/K

C84 0.1u/4/X7R/16V/K/X — DQ19 MMBT2222A/SOT23/600mA/40 — SOT23

DR85 1K/4/1 — DQ18 MMBT2222A/SOT23/600mA/40 — SOT23

VR_RDY — DR91 8.2K/4

FOR RMA

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

VCC3 — DR484 8.2K/4/X — DQ56 MMBT2222A/SOT23/600mA/40 — SOT23 — VBOOT

DQ55 MMBT2222A/SOT23/600mA/40/X — SOT23

CPU_VTT — DR481 1K/4/1/X — [4] TDI — DR485 510/4/1

DR485->X, DQ56 -> 7002
DR485->O, DQ56 -> 2222

Close DL2

[30] VSUMP — VSUMP

Rseries — DR478 2.61K/4/1

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

DR46 1K/4/1 — DBC117 0.22u/4/X5R/6.3V/K — Rparellel

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

DR47 620/4/1 — DR49 100/4/1 — Ri

[30] VSUMN — VSUMN

DBC29 0.1u/4/X7R/16V/K

Iocp-->150A

COMP — DBC103 10p/4/NPO/50V/J/X — ISEN3 [30]

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 4.02K/4/1 — DR464 470K/4/1 — DBC106 680p/4/X7R/50V/K

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

FB_OV — DR466 100/4/1 — VCORE

DBC107 1n/4/X7R/50V/K/X — DBC108 0.01u/4/X7R/25V/K — DR483 0/4 — VCCSENSE — VCC_SENSE [4]

Intersil Original Design

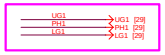
DBC109 0.01u/4/X7R/25V/K — VSSSENSE — VSS_SENSE [4]

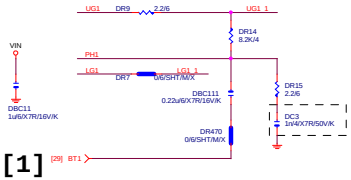
DR468 100/4/1

Load line-->1.7mohm

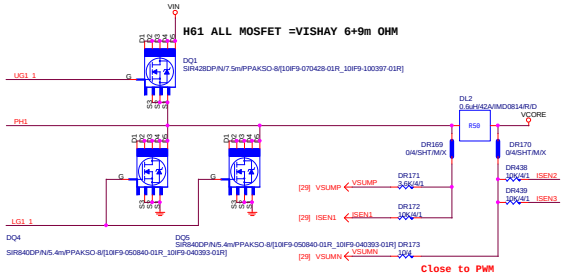
Gigabyte Technology			
Title: CPU CORE VR-1			
Size: Custom	Document Number: GA-Z77M-D3H		Rev: 1.01
Date: Friday, April 27, 2012		Sheet 29 of 34	

PHASE 1

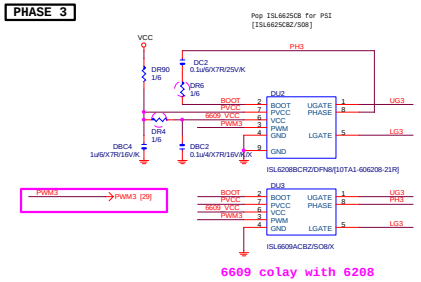


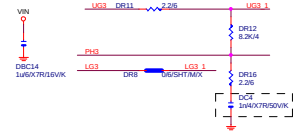


[1]

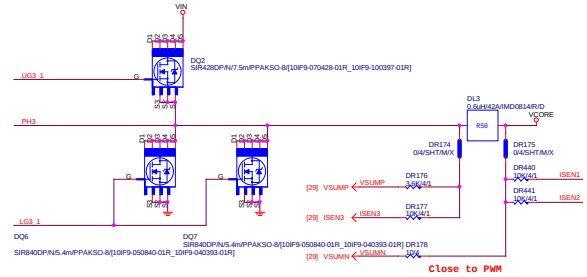


PHASE 3

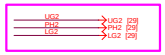


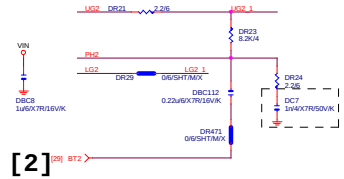


[3]

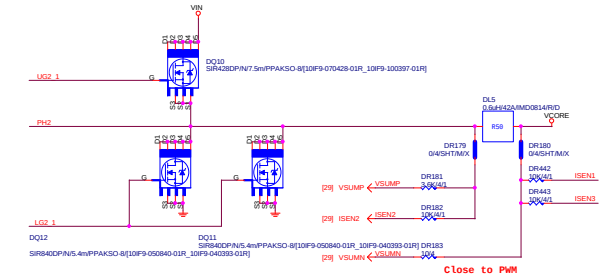


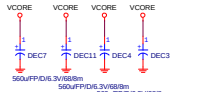
PHASE 2



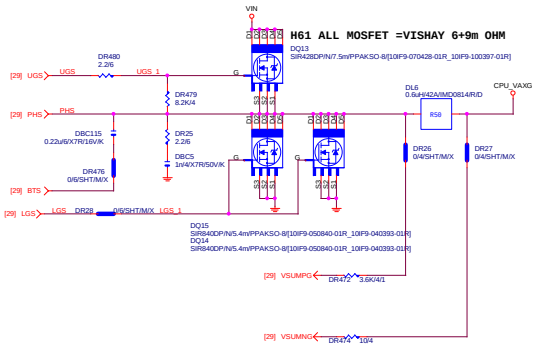


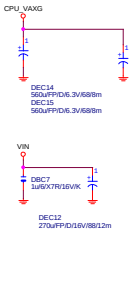
[2]





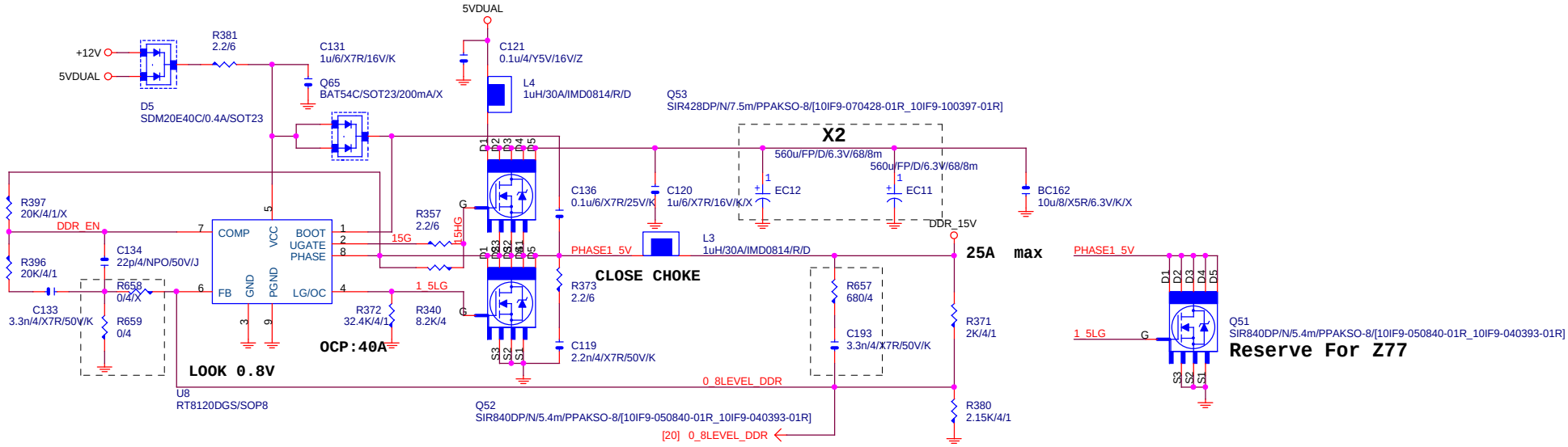
VAXG



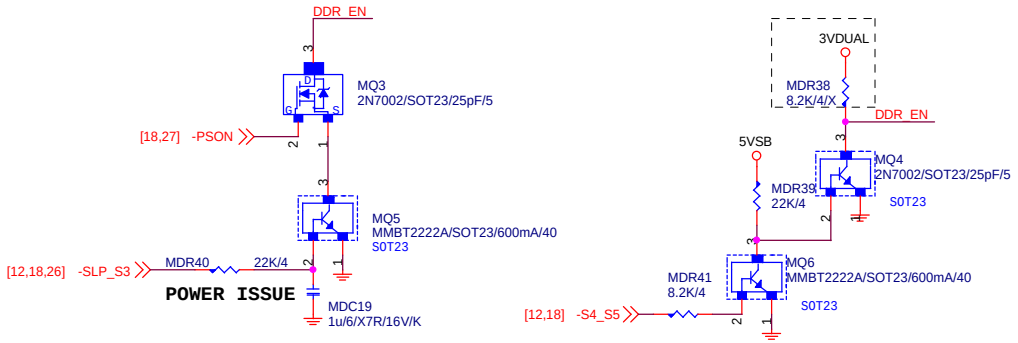


Gigabyte Technology		
Title: CPU CORE VR-2		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 30 of 34	

DDR15V



PWR SEQ



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

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)

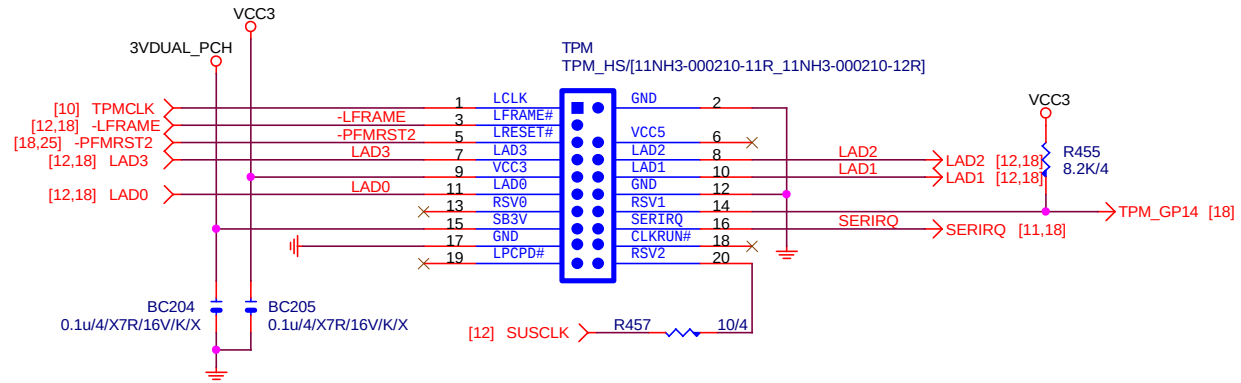
VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=4.7k

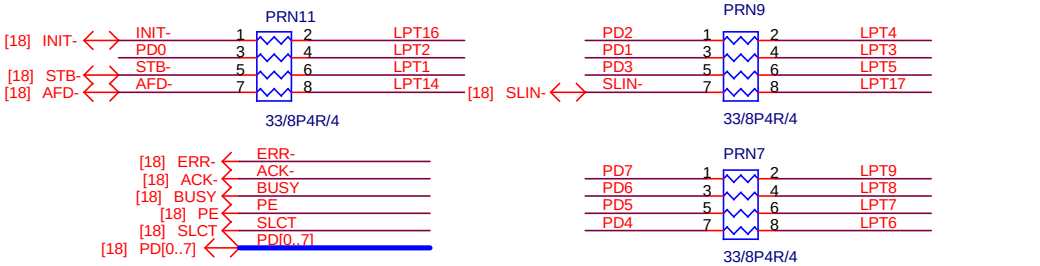
OCP :53.71A=(2x20uax4.7k)/(7m//7m)

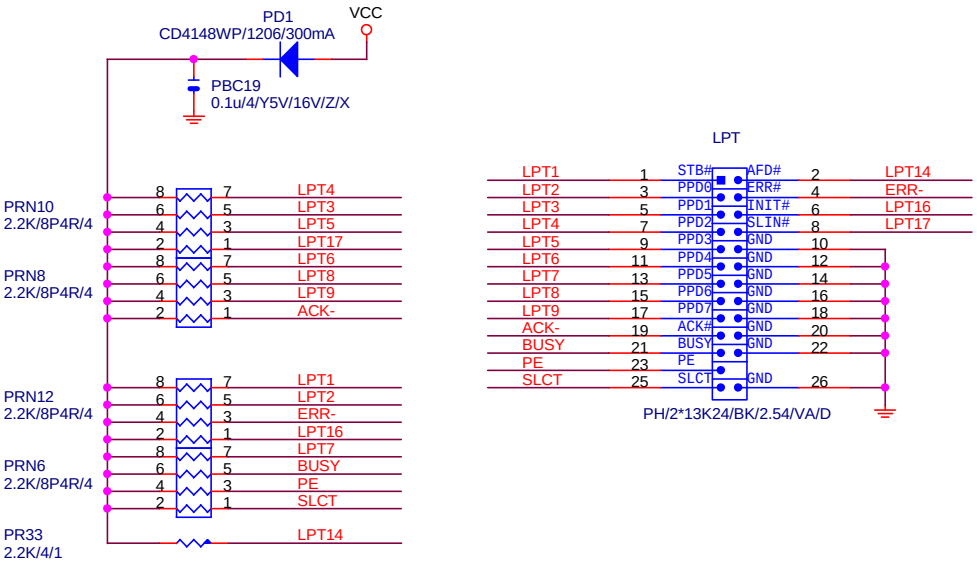
Gigabyte Technology			
Title: DDR POWER			
Size: Custom	Document Number: GA-Z77M-D3H		Rev: 1.01
Date: Friday, April 27, 2012	Sheet 31 of 34		

TPM



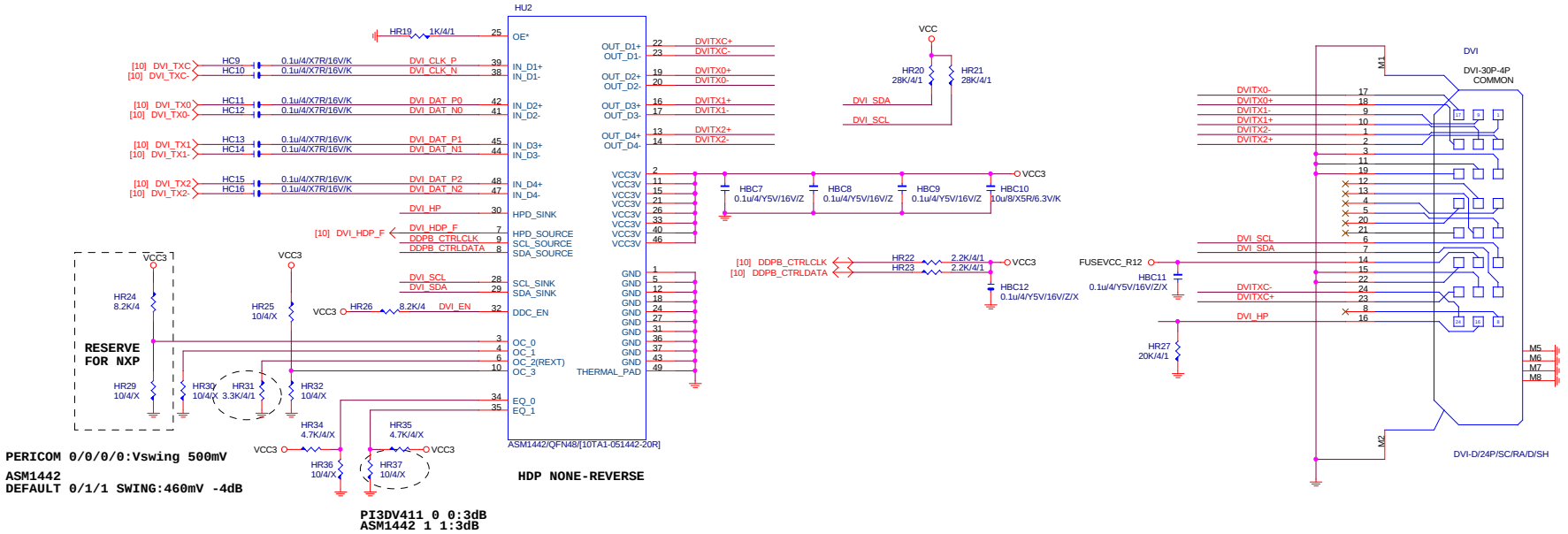
LPT PORT



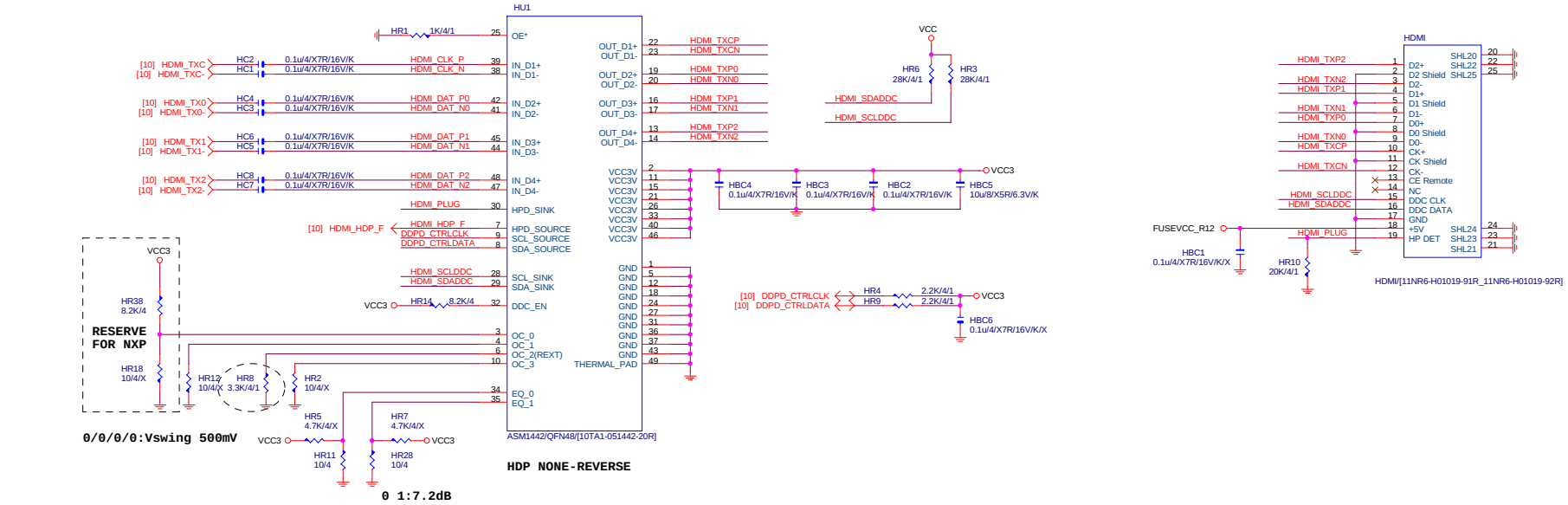


Gigabyte Technology		
Title: LPT		
Size: Custom	Document Number: GA-Z77M-D3H	Rev: 1.01
Date: Friday, April 27, 2012	Sheet 32 of 34	

DVI LEVEL SHIFT



HDMI LEVEL SHIFT



Gigabyte Technology			
Title: DVI			
Size: Custom	Document Number: GA-Z77M-D3H		Rev: 1.01
Date: Friday, April 27, 2012		Sheet 33 of 34	

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 [14,15,16,18]

-BPCIRST <-> -BPCIRST [17]

-BREQ0 <-> -BREQ0 [17]

-BGNT0 <-> -BGNT0 [17]

-BPCIPME1 <-> -BPCIPME1 [17]

[17] BPCLK0 — PR24 47/4/1 — CLKOUT0

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

VCC3
PR14 1K/4/1/X
M66EN
PR42 1K/4/1

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

VCC3
PR35 8.2K/4/X
PCICLK_SEL
PR37 10K/4/1

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

VCC3

PU1

PCIEWAKE 1 WAKE#
-BPCIPME 2 PME#
VCCP 3 GNDP_AUX
4 VCCP_AUX
LDOAUX_18V 5 LDOAUX_18V
6 VSS_AUX
1.8V_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
17 DIP
[9] PCIEBOP 18 DIN
[9] PCIEBON 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 ERRDDATA
BA_D0 30 AD0
BA_D1 31 AD1
32 SEG_G

IT8892E/BX LQFP128

IT8892E/EX/S/[10HP2-698892-30R]

VCC3
PRN1 2.2K/8P4R/4
-BFRAME -BTRDY -BSTOP -BDEVSEL
PRN2 2.2K/8P4R/4
-BSERR -BPERR -BPLOCK -BIRDY
PRN15 2.2K/8P4R/4
-BPIRQB -BPIRQC -BPIRQD -BPIRQA
PRN4 2.2K/8P4R/4
-BGNT1 -BREQ1 -BGNT2 -BREQ2
PRN5 2.2K/8P4R/4
-BGNT0 -BREQ0 -BGNT3 -BREQ3
BPAR PR41 2.2K/4/1/X

IT8892

PRN14 0/8P4R/0402/SHT/X
-BPIRQA -BPIRQD -BPIRQC -BPIRQB
-BPIRQA1 [17]
-BPIRQD1 [17]
-BPIRQC1 [17]
-BPIRQB1 [17]

PCI slot

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

PCI slot

-BPCIPME1 PR27 0/4/SHT/M/X -PCIE_WAKE [12,14,15,16,25]

chipset side

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

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
PBC60 10u/8/X5R/6.3V/K
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
PBC23 10u/8/X5R/6.3V/K
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/8/X5R/6.3V/K
PBC27 1u/4/X5R/6.3V/K
PBC28 0.1u/4/X7R/16V/K

Close to chip

LDOAUX_18V
PBC32 10u/8/X5R/6.3V/K
PBC40 1u/4/X5R/6.3V/K
PBC41 0.01u/4/X7R/25V/K

LDO_18V
PBC58 10u/8/X5R/6.3V/K
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-Z77M-D3H** | Rev: **1.01**

Date: Friday, April 27, 2012 | Sheet 34 of 34