

Model Name: GA-Z68X-UD3R-B3 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
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
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*8 SLOT
16	PCI EXPRESS*16/*8 SWITCH
17	PCI EXPRESS*1 SLOTS X3
18	IT8892 PCI BRIDGE
19	PCI SLOT 1&2
20	I/O ITE8728
21	COM, -PROHOT, RUSB
22	Dual BIOS , TPM
23	ALC889
24	REAR AUDIO JACK
25	VCORE PWM_ISL6364CRZ-1
26	VCORE PWM_ISL6364CRZ-2
27	VCORE PWM_ISL6364CRZ-3

SHEET TITLE

28	DISCRETE POWER I
29	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
30	CPU_VTT PWM_ISL6322G
31	VCCSA POWER
32	F_PANEL , F_USB
33	ATX POWER
34	HWM,KB/MS , FAN CTRL
35	REALTEK RTL8111E
36	VT6308P 1394
37	FRONT EJ168 USB3.0
38	REAR EJ168 USB3.0
39	GSATA M9172
40	TABLE LIST

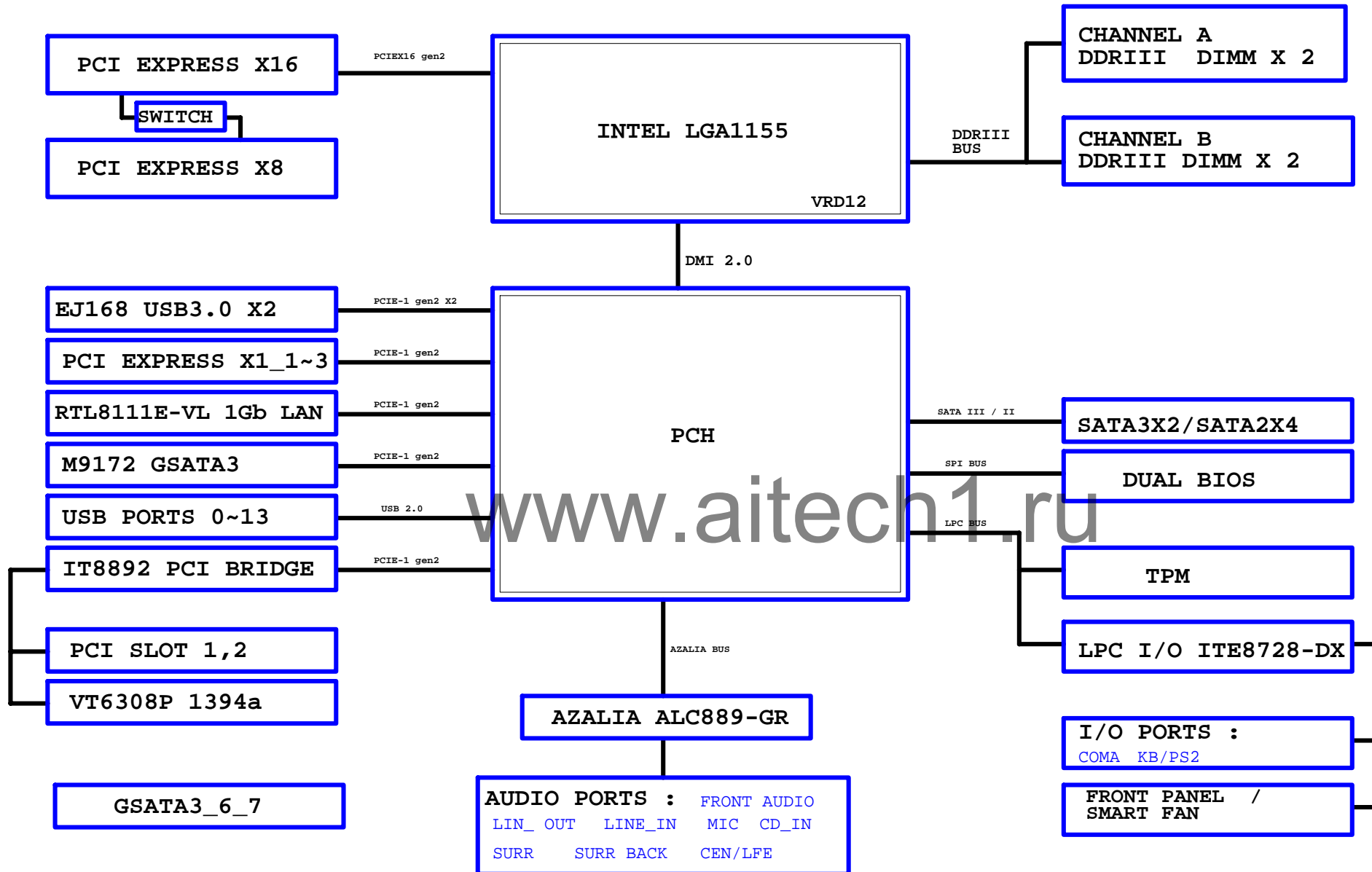
www.aitech1.ru

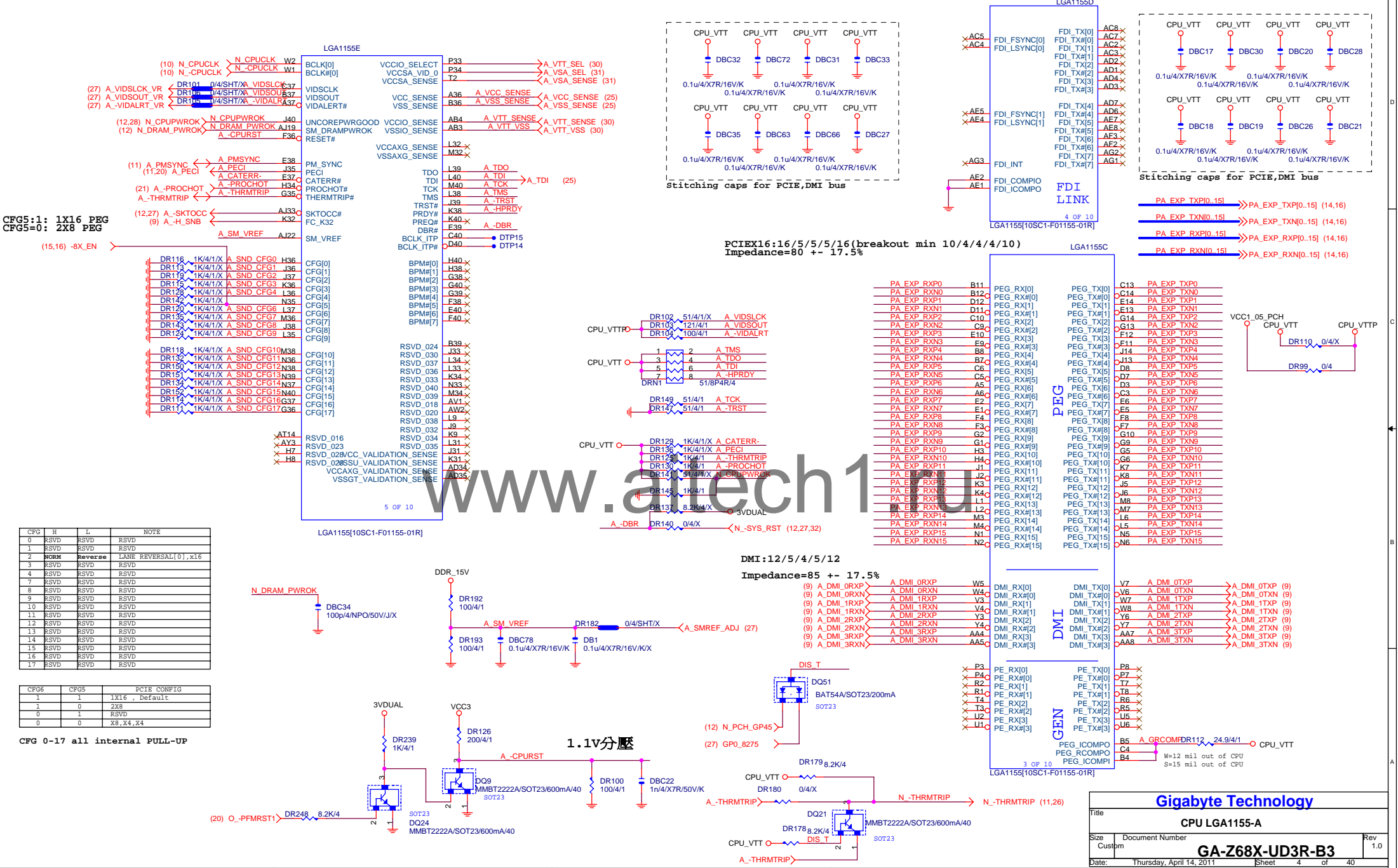
Gigabyte Technology			
Title			
Cover Sheet			
Size Custom	Document Number GA-Z68X-UD3R-B3	Rev 1.0	
Date: Thursday, April 14, 2011	Sheet 1 of 40		

Component value change history

[illegible][illegible]

BLOCK DIAGRAM





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
2	0	2x8
0	1	RSVD
0	0	X8, X4, X4

CFG 0-17 all internal PULL-UP

Gigabyte Technology

Title

CPU LGA1155-A

Size

Document Number

Custom

GA-Z68X-UD3R-B3

Date

Thursday, April 14, 2011

Sheet

4 of 40

Rev

1.0

LGA1155A			
M_AAA0	AV27	SA_MA[0]	SA_DQ[0]
M_AAA1	AY24	SA_MA[1]	SA_DQ[1]
M_AAA2	AW24	SA_MA[2]	SA_DQ[2]
M_AAA3	AV23	SA_MA[3]	SA_DQ[3]
M_AAA4	AV23	SA_MA[4]	SA_DQ[4]
M_AAA5	AT24	SA_MA[5]	SA_DQ[5]
M_AAA6	AT23	SA_MA[6]	SA_DQ[6]
M_AAA7	AU22	SA_MA[7]	SA_DQ[7]
M_AAA8	AV22	SA_MA[8]	SA_DQ[8]
M_AAA9	AT22	SA_MA[9]	SA_DQ[9]
M_AAA10	AV28	SA_MA[10]	SA_DQ[10]
M_AAA11	AU21	SA_MA[11]	SA_DQ[11]
M_AAA12	AT21	SA_MA[12]	SA_DQ[12]
M_AAA13	AW32	SA_MA[13]	SA_DQ[13]
M_AAA14	AU20	SA_MA[14]	SA_DQ[14]
M_AAA15	AT20	SA_MA[15]	SA_DQ[15]
(7) M_SWEA	M_SWEA	AW29	SA_WE#
(7) M_SCASA	M_SCASA	AV30	SA_CAS#
(7) M_SRASA	M_SRASA	AU28	SA_RAS#
(7) M_SBA0	M_SBA0	AY29	SA_BS[0]
(7) M_SBA1	M_SBA1	AW28	SA_BS[1]
(7) M_SBA2	M_SBA2	AV20	SA_BS[2]
(7) M-CSA0	M-CSA0	AU29	SA_CS#0]
(7) M-CSA1	M-CSA1	AV32	SA_CS#1]
(7) M-CSA2	M-CSA2	AW30	SA_CS#2]
(7) M-CSA3	M-CSA3	AU33	SA_CS#3]
(7) M_CKEA0	M_CKEA0	AV19	SA_CKE[0]
(7) M_CKEA1	M_CKEA1	AT19	SA_CKE[1]
(7) M_CKEA2	M_CKEA2	AU18	SA_CKE[2]
(7) M_CKEA3	M_CKEA3	AV18	SA_CKE[3]
M_ODT_A0	AV31	SA_ODT[0]	
M_ODT_A1	AU32	SA_ODT[1]	
M_ODT_A2	AU30	SA_ODT[2]	
M_ODT_A3	AW33	SA_ODT[3]	
(7) M_DCLKA0	M_DCLKA0	AY25	SA_CK[0]
(7) M_DCLKA1	M_DCLKA1	AW25	SA_CK#0]
(7) M_DCLKA2	M_DCLKA2	AU24	SA_CK[1]
(7) M_DCLKA3	M_DCLKA3	AU25	SA_CK#1]
(7) M_DCLKA4	M_DCLKA4	AY27	SA_CK[2]
(7) M_DCLKA5	M_DCLKA5	AU26	SA_CK#2]
(7) M_DCLKA6	M_DCLKA6	AW26	SA_CK[3]
(7) M_DCLKA7	M_DCLKA7	AY28	SA_CK#3]
(7.8) M_DDR3_RST	MRT	AV18	SM_DRAMRST#
	MBC8	0.1u4/X7R/16V/K/X	
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]		
AY12	SA_ECC_CB[5]		
AW12	SA_ECC_CB[6]		
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]		
AY12	SA_ECC_CB[5]		
AW12	SA_ECC_CB[6]		

DDR_0

1 OF 10

LGA1155[10SC1-F01155-01R]

www.aitech1.ru

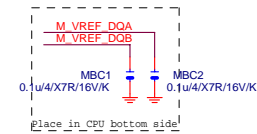
(7) M_ODT_A[0..3]	M_ODT_A[0..3]
(8) M_ODT_B[0..3]	M_ODT_B[0..3]
(7) M_DA[0..63]	M_DA[0..63]
(8) M_DB[0..63]	M_DB[0..63]
(7) M_DQSA[0..7]	M_DQSA[0..7]
(7) M_-DQSA[0..7]	M_-DQSA[0..7]
(7) M_AA[0..15]	M_AA[0..15]
(8) M_AAB[0..15]	M_AAB[0..15]
(8) M_DQSB[0..7]	M_DQSB[0..7]
(8) M_-DQSB[0..7]	M_-DQSB[0..7]

DDR_1

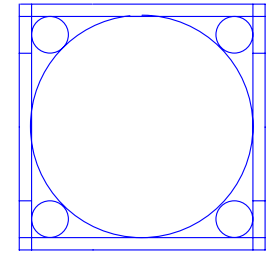
2 OF 10

LGA1155[10SC1-F01155-01R]

LGA1155B			
M_AAB0	AK24	SB_MA[0]	SB_DQS[0]
M_AAB1	AM20	SB_MA[1]	SB_DQS#0]
M_AAB2	AM19	SB_MA[2]	
M_AAB3	AK18	SB_MA[3]	
M_AAB4	AP19	SB_MA[4]	
M_AAB5	AP18	SB_MA[5]	
M_AAB6	AM18	SB_MA[6]	
M_AAB7	AL18	SB_MA[7]	
M_AAB8	AY17	SB_MA[8]	
M_AAB9	AN18	SB_MA[9]	
M_AAB10	AN13	SB_MA[10]	
M_AAB11	AU17	SB_MA[11]	
M_AAB12	AR26	SB_MA[12]	
M_AAB13	AR26	SB_MA[13]	
M_AAB14	AY16	SB_MA[14]	
M_AAB15	AV16	SB_MA[15]	
(8) M_SWEB	M_SWEB	AR25	SB_WE#
(8) M_SCASB	M_SCASB	AK25	SB_CAS#
(8) M_SRASB	M_SRASB	AP24	SB_RAS#
(8) M_SBA0	M_SBA0	AP23	SB_BS[0]
(8) M_SBA1	M_SBA1	AM21	SB_BS[1]
(8) M_SBA2	M_SBA2	AW17	SB_BS[2]
(8) M_-CSB0	M_-CSB0	AN25	SB_CS#0]
(8) M_-CSB1	M_-CSB1	AN26	SB_CS#1]
(8) M_-CSB2	M_-CSB2	AL25	SB_CS#2]
(8) M_-CSB3	M_-CSB3	AT26	SB_CS#3]
(8) M_CKEB0	M_CKEB0	AL18	SB_CKE[0]
(8) M_CKEB1	M_CKEB1	AY15	SB_CKE[1]
(8) M_CKEB2	M_CKEB2	AW15	SB_CKE[2]
(8) M_CKEB3	M_CKEB3	AV15	SB_CKE[3]
M_ODT_B0	AL26	SB_ODT[0]	
M_ODT_B1	AM26	SB_ODT[1]	
M_ODT_B2	AM26	SB_ODT[2]	
M_ODT_B3	AK26	SB_ODT[3]	
(8) M_DCLKB0	M_DCLKB0	AL21	SB_CK[0]
(8) M_DCLKB1	M_DCLKB1	AL22	SB_CK#0]
(8) M_DCLKB2	M_DCLKB2	AK20	SB_CK[1]
(8) M_DCLKB3	M_DCLKB3	AL23	SB_CK#1]
(8) M_DCLKB4	M_DCLKB4	AM22	SB_CK[2]
(8) M_DCLKB5	M_DCLKB5	AP21	SB_CK#2]
(8) M_DCLKB6	M_DCLKB6	AN21	SB_CK[3]
(8) M_DCLKB7	M_DCLKB7	AN21	SB_CK#3]
(8) M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
(7) M_VREF_DQB	M_VREF_DQB	AH4	FC_AH4
AN16	SB_DQS[8]		
AN15	SB_DQS#8]		
AL16	SB_ECC_CB[0]		
AM16	SB_ECC_CB[1]		
AP16	SB_ECC_CB[2]		
AR16	SB_ECC_CB[3]		
AL15	SB_ECC_CB[4]		
AM15	SB_ECC_CB[5]		
AR15	SB_ECC_CB[6]		
AP15	SB_ECC_CB[7]		
SB_DQS[8]	SB_DQS[8]		
SB_DQS#8]	SB_DQS#8]		
SB_DQS[5]	SB_DQS[5]		
SB_DQS#5]	SB_DQS#5]		
AP32	M_DB40		
AP31	M_DB41		
AP30	M_DB42		
AP34	M_DB43		
AR32	M_DB44		
AR31	M_DB45		
AR30	M_DB46		
AR34	M_DB47		
AL33	M_DQSB6		
AM33	M_-DQSB6		
SB_DQ[48]	AM32	M_DB48	
SB_DQ[49]	AM31	M_DB49	
SB_DQ[50]	AL35	M_DB50	
SB_DQ[51]	AL32	M_DB51	
SB_DQ[52]	AM34	M_DB52	
SB_DQ[53]	AL31	M_DB53	
SB_DQ[54]	AM35	M_DB54	
SB_DQ[55]	AL34	M_DB55	
SB_DQ[56]	AG35	M_DQSB7	
SB_DQ[57]	AG34	M_-DQSB7	
SB_DQ[58]	AH35	M_DB56	
SB_DQ[59]	AH34	M_DB57	
SB_DQ[60]	AE34	M_DB58	
SB_DQ[61]	AE35	M_DB59	
SB_DQ[62]	AJ35	M_DB60	
SB_DQ[63]	AJ34	M_DB61	
	AE33	M_DB62	
	AF35	M_DB63	



LGA1155
ILM_BP/1156/BKN/12KRC-0F0001-22R]



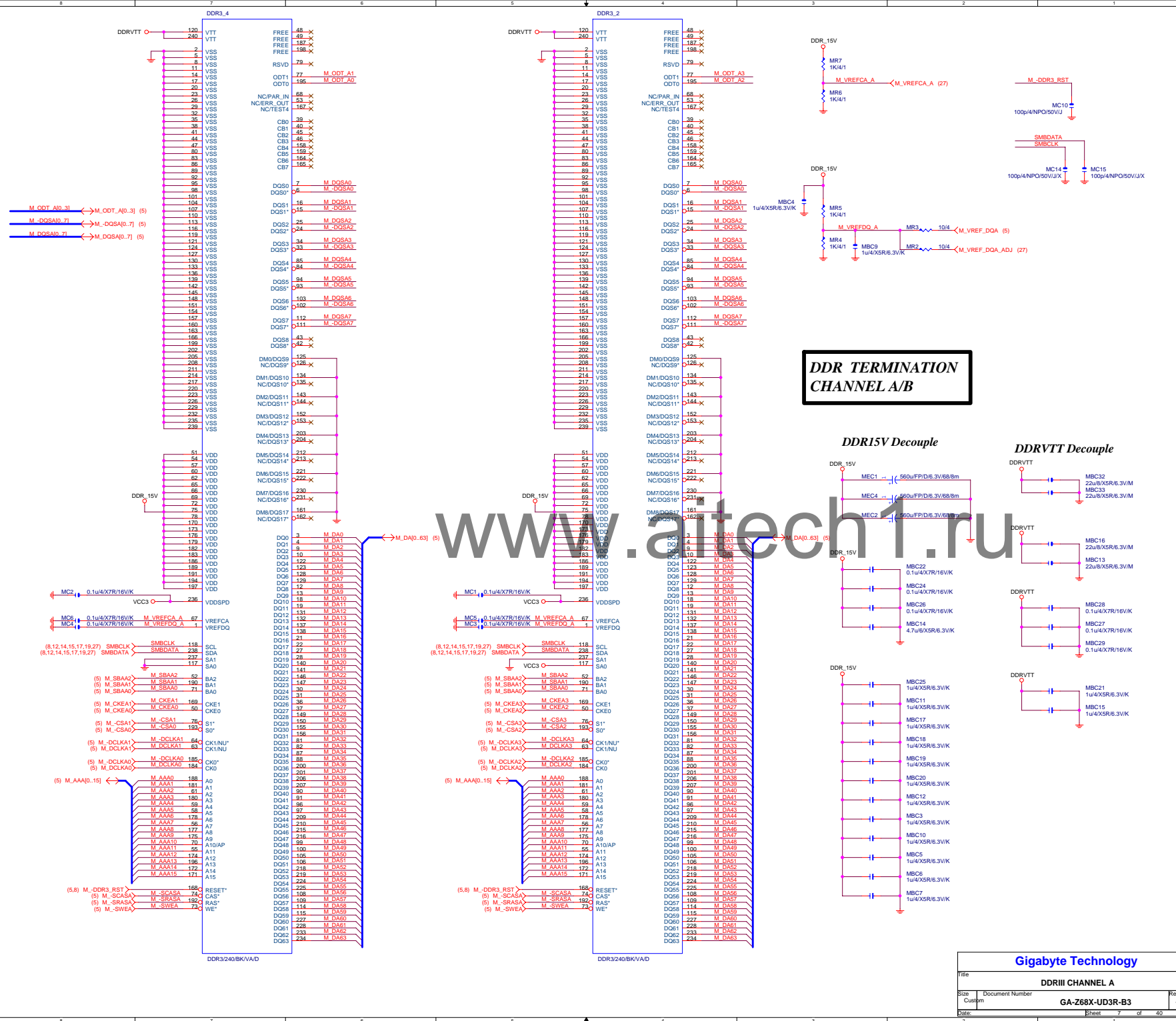
Need check the new CPU ME

Gigabyte Technology

CPU LGA1156-B

Title	Document Number	Rev
Size	Custom	1.0
Date:	Thursday, April 14, 2011	Sheet 5 of 40

GA-Z68X-UD3R-B3



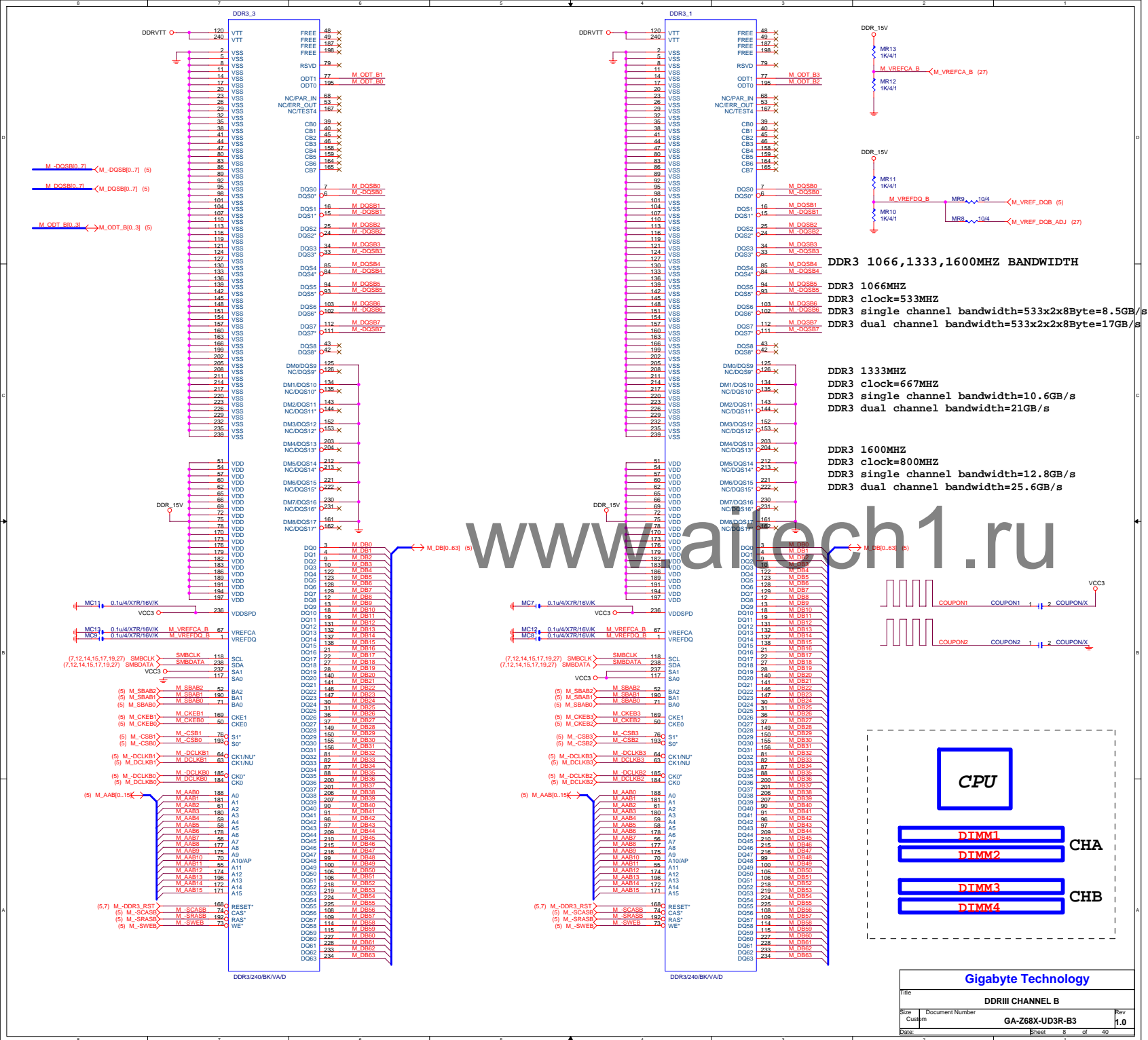
DDR TERMINATION
CHANNEL A/B

DDR15V Decouple

DDRVRTT Decouple

Gigabyte Technology

Title			DDRIII CHANNEL A
Size			Custom
Document Number			GA-Z68X-UD3R-B3
Date:			Sheet 7 of 40
			Rev 1.0



USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHB

(4) A_DMI_0TXN A_DMI_0TXN D33
(4) A_DMI_0TXP A_DMI_0TXP B33
(4) A_DMI_0RXN A_DMI_0RXN J36
(4) A_DMI_0RXP A_DMI_0RXP H36
(4) A_DMI_1TXN A_DMI_1TXN A36
(4) A_DMI_1TXP A_DMI_1TXP B35
(4) A_DMI_1RXN A_DMI_1RXN P38
(4) A_DMI_1RXP A_DMI_1RXP R38
(4) A_DMI_2TXN A_DMI_2TXN C36
(4) A_DMI_2TXP A_DMI_2TXP B37
(4) A_DMI_2RXN A_DMI_2RXN H38
(4) A_DMI_2RXP A_DMI_2RXP J38
(4) A_DMI_3TXN C_DMI_3TXN F38
(4) A_DMI_3TXP A_DMI_3TXP M41
(4) A_DMI_3RXN A_DMI_3RXN P41
(4) A_DMI_3RXP A_DMI_3RXP P41
VCC1_05_PCH NR82 49.9/4/1

CK_SRCCLK_PCH P33
CK_SRCCLK_PCH R33

(17) PL_PCIE_IN1 J20
(17) PL_PCIE_IP1 L20
(17) PL_PCIE_TN1 F25
(17) PL_PCIE_TP1 F23
(17) PJ_PCIE_IN2 P20
(17) PJ_PCIE_IP2 R20
(17) PJ_PCIE_TN2 C22
(17) PJ_PCIE_TP2 H17
(17) PK_PCIE_IN3 J17
(17) PK_PCIE_IP3 E21
(17) PK_PCIE_TP3 P21
(18) G_PCIEBIN B21
(18) G_PCIEBIP M17
(18) G_PCIEBON F18
(18) G_PCIEBOP E17
(38) UA_USB3_IN_F M15
(38) UA_USB3_IP_F M15
(38) UA_USB3_ON_F B17
(38) UA_USB3_OP_F C16
(16) UB_PCIE_IN6 J15
(16) UB_PCIE_IP6 A15
(16) UB_PCIE_TN6 B15
(16) UB_PCIE_TP6 H12
(35) LA_ML_IN H12
(35) LA_ML_IP F15
(35) LA_ML_ON F13
(35) LA_ML_OP H10
(39) RA_SL_IN J10
(39) RA_SL_IP B13
(39) RA_SL_ON D13
PCH_HS

BD82268/B3/S

2 OF 11

PCI-E

USB

DMI

FDI

OC[3:0]# for Device 29 (ports 0-7)

OC[7:4]# for Device 26 (ports 8-13)

OC0# USB0,1

OC1# USB2,3

OC2# USB4,5

OC3# USB6,7

OC4# USB8,9

OC5# USB10,11

OC6# USB12,13

OC7# Not Use

OC8# GPIO10

OC9# GPIO14

OC10# GPIO14

OC11# GPIO14

OC12# GPIO14

OC13# GPIO14

OC14# GPIO14

OC15# GPIO14

OC16# GPIO14

OC17# GPIO14

OC18# GPIO14

OC19# GPIO14

OC20# GPIO14

OC21# GPIO14

OC22# GPIO14

OC23# GPIO14

OC24# GPIO14

OC25# GPIO14

OC26# GPIO14

OC27# GPIO14

OC28# GPIO14

OC29# GPIO14

OC30# GPIO14

OC31# GPIO14

OC32# GPIO14

OC33# GPIO14

OC34# GPIO14

OC35# GPIO14

OC36# GPIO14

OC37# GPIO14

OC38# GPIO14

OC39# GPIO14

OC40# GPIO14

OC41# GPIO14

OC42# GPIO14

OC43# GPIO14

OC44# GPIO14

OC45# GPIO14

OC46# GPIO14

OC47# GPIO14

OC48# GPIO14

OC49# GPIO14

OC50# GPIO14

OC51# GPIO14

OC52# GPIO14

OC53# GPIO14

OC54# GPIO14

OC55# GPIO14

OC56# GPIO14

OC57# GPIO14

OC58# GPIO14

OC59# GPIO14

OC60# GPIO14

OC61# GPIO14

OC62# GPIO14

OC63# GPIO14

OC64# GPIO14

OC65# GPIO14

OC66# GPIO14

OC67# GPIO14

OC68# GPIO14

OC69# GPIO14

OC70# GPIO14

OC71# GPIO14

OC72# GPIO14

OC73# GPIO14

OC74# GPIO14

OC75# GPIO14

OC76# GPIO14

OC77# GPIO14

OC78# GPIO14

OC79# GPIO14

OC80# GPIO14

OC81# GPIO14

OC82# GPIO14

OC83# GPIO14

OC84# GPIO14

OC85# GPIO14

OC86# GPIO14

OC87# GPIO14

OC88# GPIO14

OC89# GPIO14

OC90# GPIO14

OC91# GPIO14

OC92# GPIO14

OC93# GPIO14

OC94# GPIO14

OC95# GPIO14

OC96# GPIO14

OC97# GPIO14

OC98# GPIO14

OC99# GPIO14

OC100# GPIO14

OC101# GPIO14

OC102# GPIO14

OC103# GPIO14

OC104# GPIO14

OC105# GPIO14

OC106# GPIO14

OC107# GPIO14

OC108# GPIO14

OC109# GPIO14

OC110# GPIO14

OC111# GPIO14

OC112# GPIO14

OC113# GPIO14

OC114# GPIO14

OC115# GPIO14

OC116# GPIO14

OC117# GPIO14

OC118# GPIO14

OC119# GPIO14

OC120# GPIO14

OC121# GPIO14

OC122# GPIO14

OC123# GPIO14

OC124# GPIO14

OC125# GPIO14

OC126# GPIO14

OC127# GPIO14

OC128# GPIO14

OC129# GPIO14

OC130# GPIO14

OC131# GPIO14

OC132# GPIO14

OC133# GPIO14

OC134# GPIO14

OC135# GPIO14

OC136# GPIO14

OC137# GPIO14

OC138# GPIO14

OC139# GPIO14

OC140# GPIO14

OC141# GPIO14

OC142# GPIO14

OC143# GPIO14

OC144# GPIO14

OC145# GPIO14

OC146# GPIO14

OC147# GPIO14

OC148# GPIO14

OC149# GPIO14

OC150# GPIO14

OC151# GPIO14

OC152# GPIO14

OC153# GPIO14

OC154# GPIO14

OC155# GPIO14

OC156# GPIO14

OC157# GPIO14

OC158# GPIO14

OC159# GPIO14

OC160# GPIO14

OC161# GPIO14

OC162# GPIO14

OC163# GPIO14

OC164# GPIO14

OC165# GPIO14

OC166# GPIO14

OC167# GPIO14

OC168# GPIO14

OC169# GPIO14

OC170# GPIO14

OC171# GPIO14

OC172# GPIO14

OC173# GPIO14

OC174# GPIO14

OC175# GPIO14

OC176# GPIO14

OC177# GPIO14

OC178# GPIO14

OC179# GPIO14

OC180# GPIO14

OC181# GPIO14

OC182# GPIO14

OC183# GPIO14

OC184# GPIO14

OC185# GPIO14

OC186# GPIO14

OC187# GPIO14

OC188# GPIO14

OC189# GPIO14

OC190# GPIO14

OC191# GPIO14

OC192# GPIO14

OC193# GPIO14

OC194# GPIO14

OC195# GPIO14

OC196# GPIO14

OC197# GPIO14

OC198# GPIO14

OC199# GPIO14

OC200# GPIO14

OC201# GPIO14

OC202# GPIO14

OC203# GPIO14

OC204# GPIO14

OC205# GPIO14

OC206# GPIO14

OC207# GPIO14

OC208# GPIO14

OC209# GPIO14

OC210# GPIO14

OC211# GPIO14

OC212# GPIO14

OC213# GPIO14

OC214# GPIO14

OC215# GPIO14

OC216# GPIO14

OC217# GPIO14

OC218# GPIO14

OC219# GPIO14

OC220# GPIO14

OC221# GPIO14

OC222# GPIO14

OC223# GPIO14

OC224# GPIO14

OC225# GPIO14

OC226# GPIO14

OC227# GPIO14

OC228# GPIO14

OC229# GPIO14

OC230# GPIO14

OC231# GPIO14

OC232# GPIO14

OC233# GPIO14

OC234# GPIO14

OC235# GPIO14

OC236# GPIO14

OC237# GPIO14

OC238# GPIO14

OC239# GPIO14

OC240# GPIO14

OC241# GPIO14

OC242# GPIO14

OC243# GPIO14

OC244# GPIO14

OC245# GPIO14

OC246# GPIO14

OC247# GPIO14

OC248# GPIO14

OC249# GPIO14

OC250# GPIO14

OC251# GPIO14

OC252# GPIO14

OC253# GPIO14

OC254# GPIO14

OC255# GPIO14

OC256# GPIO14

OC257# GPIO14

OC258# GPIO14

OC259# GPIO14

OC260# GPIO14

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

PCHC

For WIFI
BA50
BF50
BF49

CL_CLK1
CL_DATA1#
CL_RST1#

CLINK

APWROK

PWM0

PWM1

PWM2

PWM3

BT17

BR19

BA22

BR16

BU16

BM18

BN17

BP15

TACH0_GPIO17

TACH1_GPIO1

TACH2_GPIO6

TACH3_GPIO7

TACH4_GPIO8

TACH5_GPIO9

TACH6_GPIO10

TACH7_GPIO11

SST

SCLOCK_GPIO22

SLOAD_GPIO38

SDATAOUT0_GPIO39

SDATAOUT1_GPIO48

GPIO

N_GPIO17

N_GPIO1

N_GPIO6

N_PHASE_CTRL

N_GPIO68

N_GPIO69

N_GPIO70

N_GPIO71

N_GPIO22

N_GPIO38

N_GPIO39

N_GPIO48

N_GPIO1

N_GPIO6

N_GPIO7

N_GPIO17

N_GPIO1

N_GPIO6

N_GPIO7

N_GPIO17

N_GPIO1

N_GPIO6

N_GPIO7

N_GPIO17

N_GPIO1

N_GPIO6

N_GPIO7

N_GPIO17

N_GPIO1

N_GPIO6

N_GPIO7

N_GPIO17

SATA0RXN
SATA0RXP
SATA0TXN
SATA0TXP
SATA1RXN
SATA1RXP
SATA1TXN
SATA1TXP

AC56 N SATA0RXN

AB55 N SATA0RXP

AE46 N SATA0TXN

AE44 N SATA0TXP

AA53 N SATA1RXN

AA56 N SATA1RXP

AG49 N SATA1TXN

AG47 N SATA1TXP

SATA2RXN

SATA2RXP

SATA2TXN

SATA2TXP

SATA3RXN

SATA3RXP

SATA3TXN

SATA3TXP

SATA4RXN

SATA4RXP

SATA4TXN

SATA4TXP

SATA5RXN

SATA5RXP

SATA5TXN

SATA5TXP

CLINK_SATA_N

CLINK_SATA_P

SATALED#

SATAICOMPI

SATAICOMPO

SATA0GP/GPIO21

SATA1GP/GPIO19

SATA2GP/GPIO36

SATA3GP/GPIO37

SATA4GP/GPIO16

SATA5GP/GPIO49

SATA3COMPI

SATA3RCOMPO

TP16

SATA3BIAS

A20GATE

INIT3_3V#

RCIN#

SERIRQ

THRMTRIP#

PECI

PMSYNCH

AE54

AE52

AE50

AC52

BB57

BB56

BB55

BB54

BB53

BB52

BB51

BB50

BB49

BB48

BB47

NR64 8.2K/4/X N_GPIO17

NR173 8.2K/4/X N_GPIO19

NR146 8.2K/4/X N_GPIO36

NR172 8.2K/4/X N_GPIO37

NR151 8.2K/4/X N_GPIO38

NR171 8.2K/4/X N_GPIO39

NR144 8.2K/4/X N_GPIO16

NR150 1K/4/1/X N_GPIO68

NR155 8.2K/4/X N_GPIO69

NR154 8.2K/4/X N_GPIO70

NR153 8.2K/4/X N_GPIO71

NR152 8.2K/4/X N_GPIO22

NR151 8.2K/4/X N_GPIO38

NR150 1K/4/1/X N_GPIO39

NR149 8.2K/4/X N_GPIO48

NR148 8.2K/4/X N_GPIO1

NR147 8.2K/4/X N_GPIO6

NR146 8.2K/4/X N_GPIO7

NR145 8.2K/4/X N_GPIO17

NR144 8.2K/4/X N_GPIO1

NR143 8.2K/4/X N_GPIO6

NR142 8.2K/4/X N_GPIO7

NR141 8.2K/4/X N_GPIO17

NR140 8.2K/4/X N_GPIO1

NR139 8.2K/4/X N_GPIO6

NR138 8.2K/4/X N_GPIO7

NR137 8.2K/4/X N_GPIO17

NR136 8.2K/4/X N_GPIO1

NR135 8.2K/4/X N_GPIO6

NR134 8.2K/4/X N_GPIO7

NR133 8.2K/4/X N_GPIO17

NR132 8.2K/4/X N_GPIO1

NR131 8.2K/4/X N_GPIO6

NR130 8.2K/4/X N_GPIO7

NR129 8.2K/4/X N_GPIO17

NR128 8.2K/4/X N_GPIO1

NR127 8.2K/4/X N_GPIO6

NR126 8.2K/4/X N_GPIO7

NR125 8.2K/4/X N_GPIO17

NR124 8.2K/4/X N_GPIO1

NR123 8.2K/4/X N_GPIO6

NR122 8.2K/4/X N_GPIO7

NR121 8.2K/4/X N_GPIO17

NR120 8.2K/4/X N_GPIO1

NR119 8.2K/4/X N_GPIO6

NR118 8.2K/4/X N_GPIO7

NR117 8.2K/4/X N_GPIO17

NR116 8.2K/4/X N_GPIO1

NR115 8.2K/4/X N_GPIO6

NR114 8.2K/4/X N_GPIO7

NR113 8.2K/4/X N_GPIO17

NR112 8.2K/4/X N_GPIO1

NR111 8.2K/4/X N_GPIO6

NR110 8.2K/4/X N_GPIO7

NR109 8.2K/4/X N_GPIO17

NR108 8.2K/4/X N_GPIO1

NR107 8.2K/4/X N_GPIO6

NR106 8.2K/4/X N_GPIO7

NR105 8.2K/4/X N_GPIO17

NR104 8.2K/4/X N_GPIO1

NR103 8.2K/4/X N_GPIO6

NR102 8.2K/4/X N_GPIO7

NR64 8.2K/4/X N_GPIO17

NR173 8.2K/4/X N_GPIO19

NR146 8.2K/4/X N_GPIO36

NR172 8.2K/4/X N_GPIO37

NR151 8.2K/4/X N_GPIO38

NR171 8.2K/4/X N_GPIO39

NR144 8.2K/4/X N_GPIO16

NR150 1K/4/1/X N_GPIO68

NR155 8.2K/4/X N_GPIO69

NR154 8.2K/4/X N_GPIO70

NR153 8.2K/4/X N_GPIO71

NR152 8.2K/4/X N_GPIO22

NR151 8.2K/4/X N_GPIO38

NR150 1K/4/1/X N_GPIO39

NR149 8.2K/4/X N_GPIO48

NR148 8.2K/4/X N_GPIO1

NR147 8.2K/4/X N_GPIO6

NR146 8.2K/4/X N_GPIO7

NR145 8.2K/4/X N_GPIO17

NR144 8.2K/4/X N_GPIO1

NR143 8.2K/4/X N_GPIO6

NR142 8.2K/4/X N_GPIO7

NR141 8.2K/4/X N_GPIO17

NR140 8.2K/4/X N_GPIO1

NR139 8.2K/4/X N_GPIO6

NR138 8.2K/4/X N_GPIO7

NR137 8.2K/4/X N_GPIO17

NR136 8.2K/4/X N_GPIO1

NR135 8.2K/4/X N_GPIO6

NR134 8.2K/4/X N_GPIO7

NR133 8.2K/4/X N_GPIO17

NR132 8.2K/4/X N_GPIO1

NR131 8.2K/4/X N_GPIO6

NR130 8.2K/4/X N_GPIO7

NR129 8.2K/4/X N_GPIO17

NR128 8.2K/4/X N_GPIO1

NR127 8.2K/4/X N_GPIO6

NR126 8.2K/4/X N_GPIO7

NR125 8.2K/4/X N_GPIO17

NR124 8.2K/4/X N_GPIO1

NR123 8.2K/4/X N_GPIO6

NR122 8.2K/4/X N_GPIO7

NR121 8.2K/4/X N_GPIO17

NR120 8.2K/4/X N_GPIO1

NR119 8.2K/4/X N_GPIO6

NR118 8.2K/4/X N_GPIO7

NR117 8.2K/4/X N_GPIO17

NR116 8.2K/4/X N_GPIO1

NR115 8.2K/4/X N_GPIO6

NR114 8.2K/4/X N_GPIO7

NR113 8.2K/4/X N_GPIO17

NR112 8.2K/4/X N_GPIO1

NR111 8.2K/4/X N_GPIO6

NR110 8.2K/4/X N_GPIO7

NR109 8.2K/4/X N_GPIO17

NR108 8.2K/4/X N_GPIO1

NR107 8.2K/4/X N_GPIO6

NR106 8.2K/4/X N_GPIO7

NR105 8.2K/4/X N_GPIO17

NR104 8.2K/4/X N_GPIO1

NR103 8.2K/4/X N_GPIO6

NR102 8.2K/4/X N_GPIO7

NR64 8.2K/4/X N_GPIO17

NR173 8.2K/4/X N_GPIO19

NR146 8.2K/4/X N_GPIO36

NR172 8.2K/4/X N_GPIO37

NR151 8.2K/4/X N_GPIO38

NR171 8.2K/4/X N_GPIO39

NR144 8.2K/4/X N_GPIO16

NR150 1K/4/1/X N_GPIO68

NR155 8.2K/4/X N_GPIO69

NR154 8.2K/4/X N_GPIO70

NR153 8.2K/4/X N_GPIO71

NR152 8.2K/4/X N_GPIO22

NR151 8.2K/4/X N_GPIO38

NR150 1K/4/1/X N_GPIO39

NR149 8.2K/4/X N_GPIO48

NR148 8.2K/4/X N_GPIO1

NR147 8.2K/4/X N_GPIO6

NR146 8.2K/4/X N_GPIO7

NR145 8.2K/4/X N_GPIO17

NR144 8.2K/4/X N_GPIO1

NR143 8.2K/4/X N_GPIO6

NR142 8.2K/4/X N_GPIO7

NR141 8.2K/4/X N_GPIO17

NR140 8.2K/4/X N_GPIO1

NR139 8.2K/4/X N_GPIO6

NR138 8.2K/4/X N_GPIO7

NR137 8.2K/4/X N_GPIO17

NR136 8.2K/4/X N_GPIO1

NR135 8.2K/4/X N_GPIO6

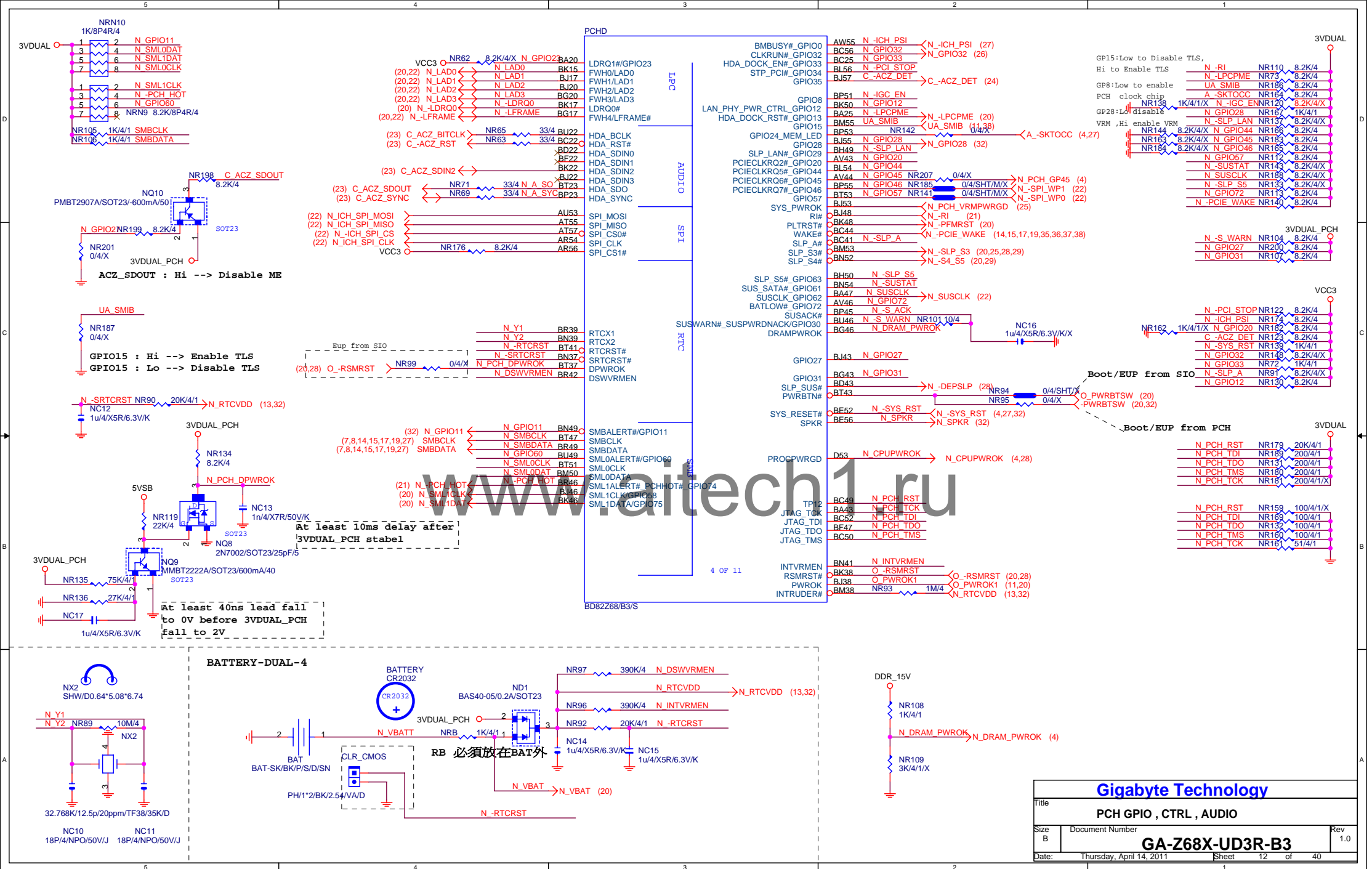
NR134 8.2K/4/X N_GPIO7

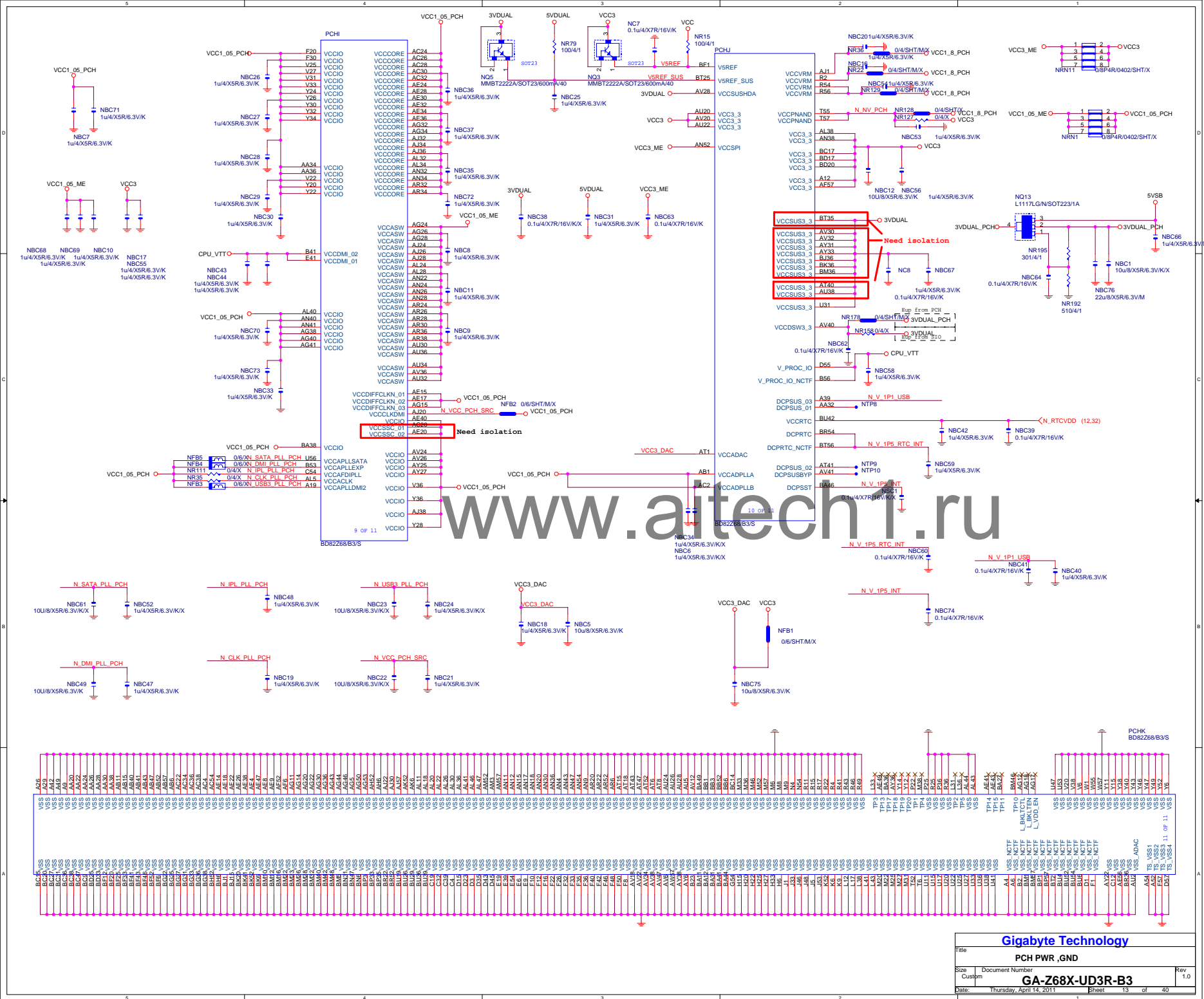
NR133 8.2K/4/X N_GPIO17

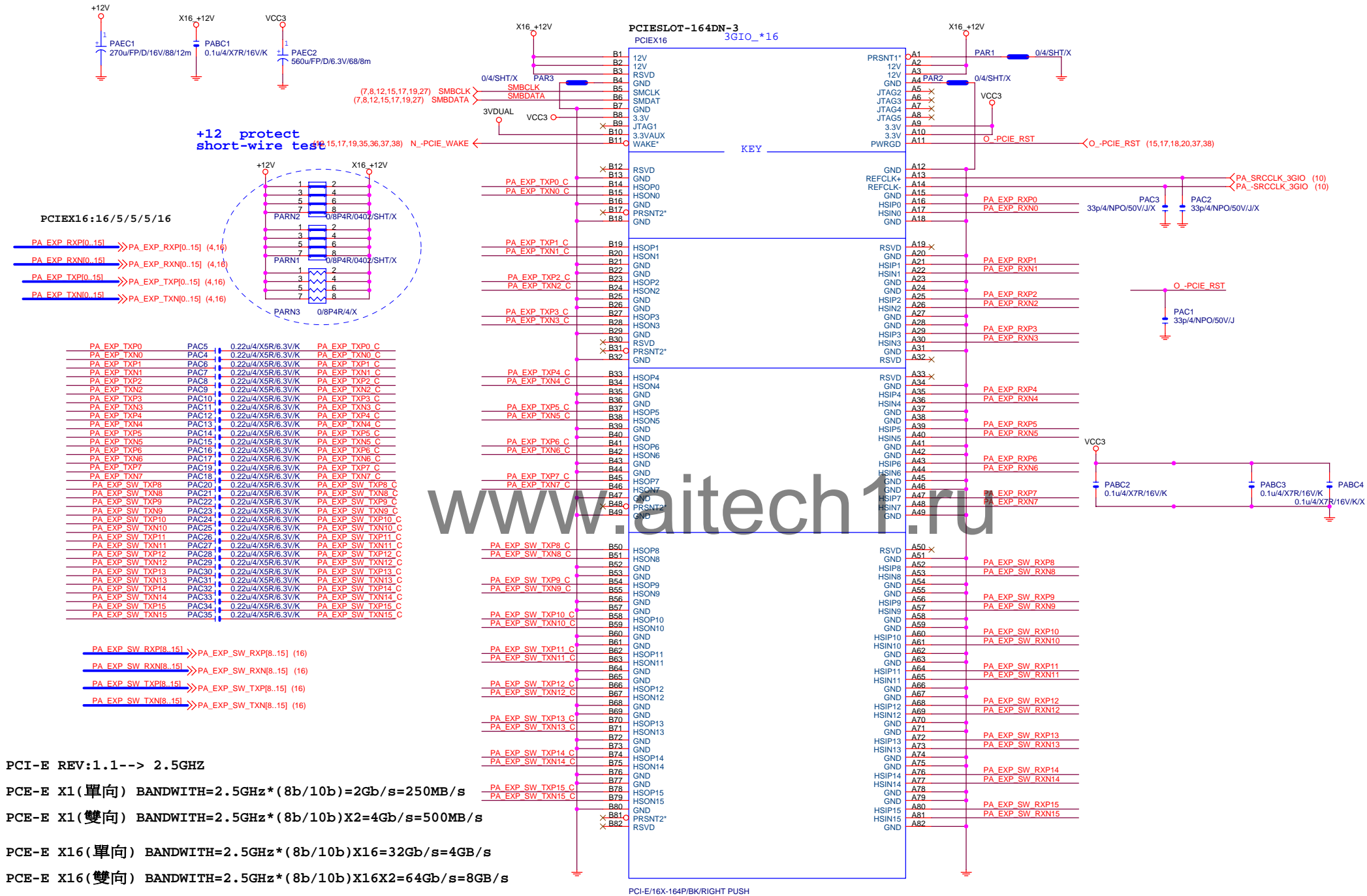
NR132 8.2K/4/X N_GPIO1

NR131 8.2K/4/X N_GPIO6

NR130 8.2K/4/X N

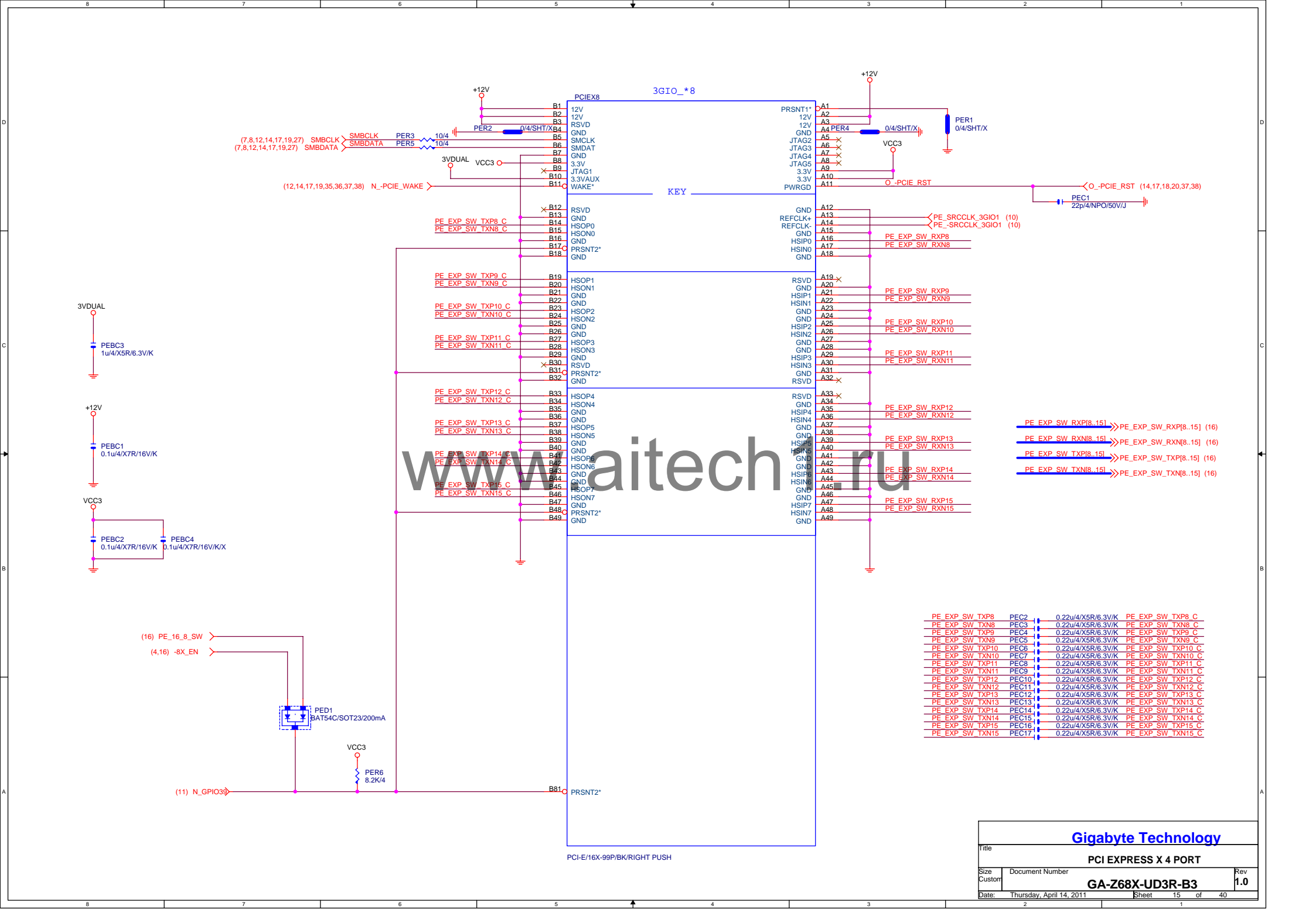


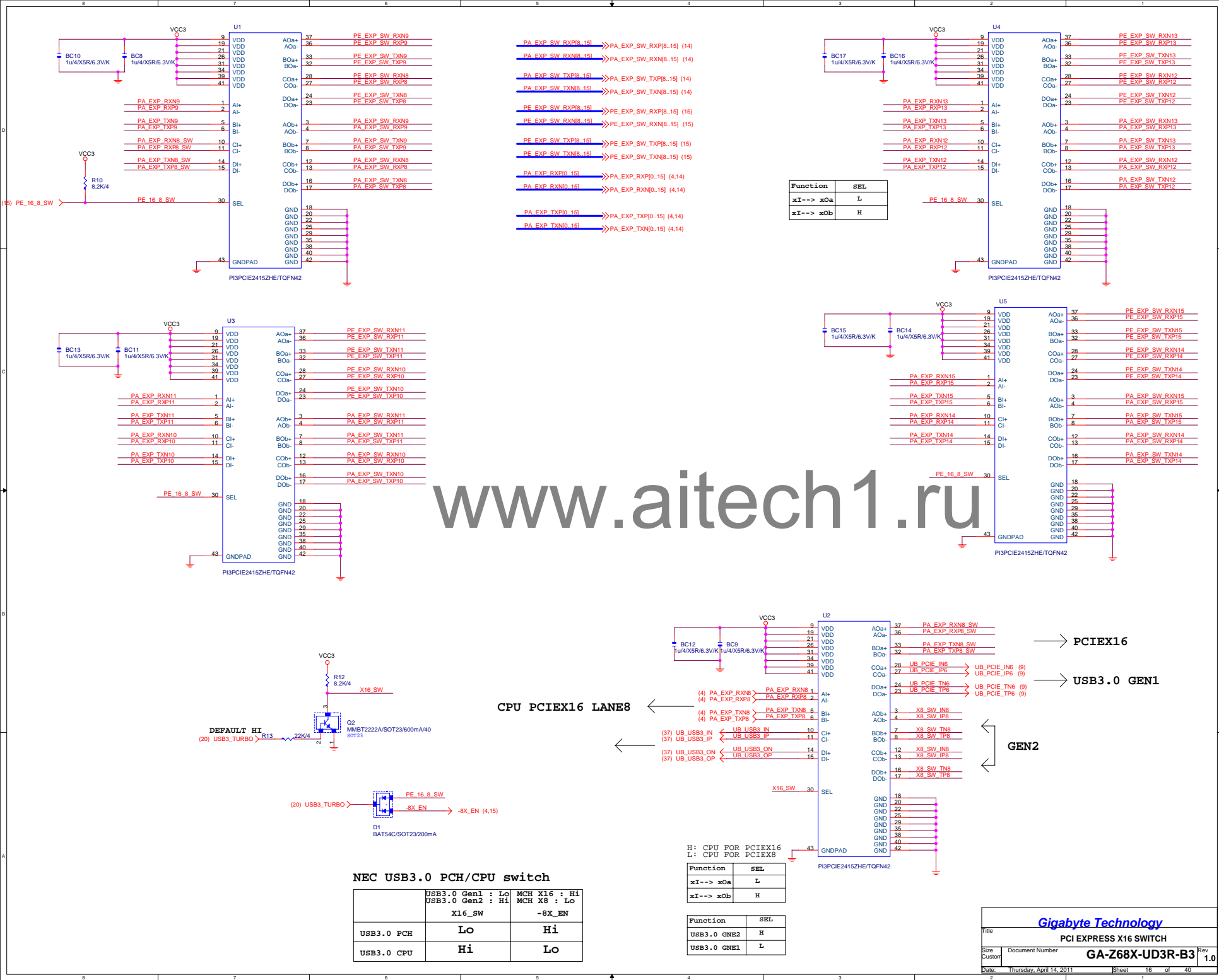


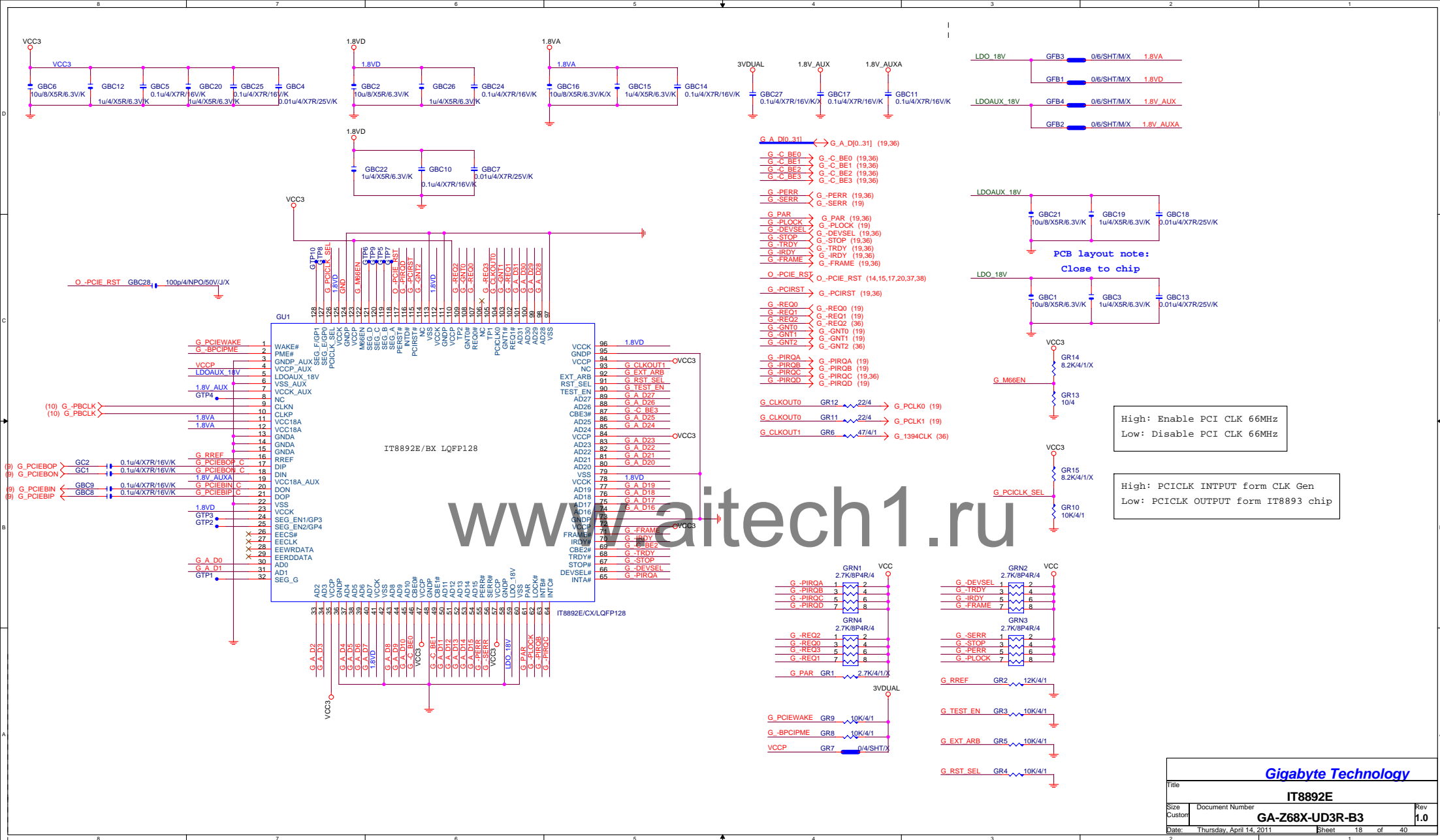


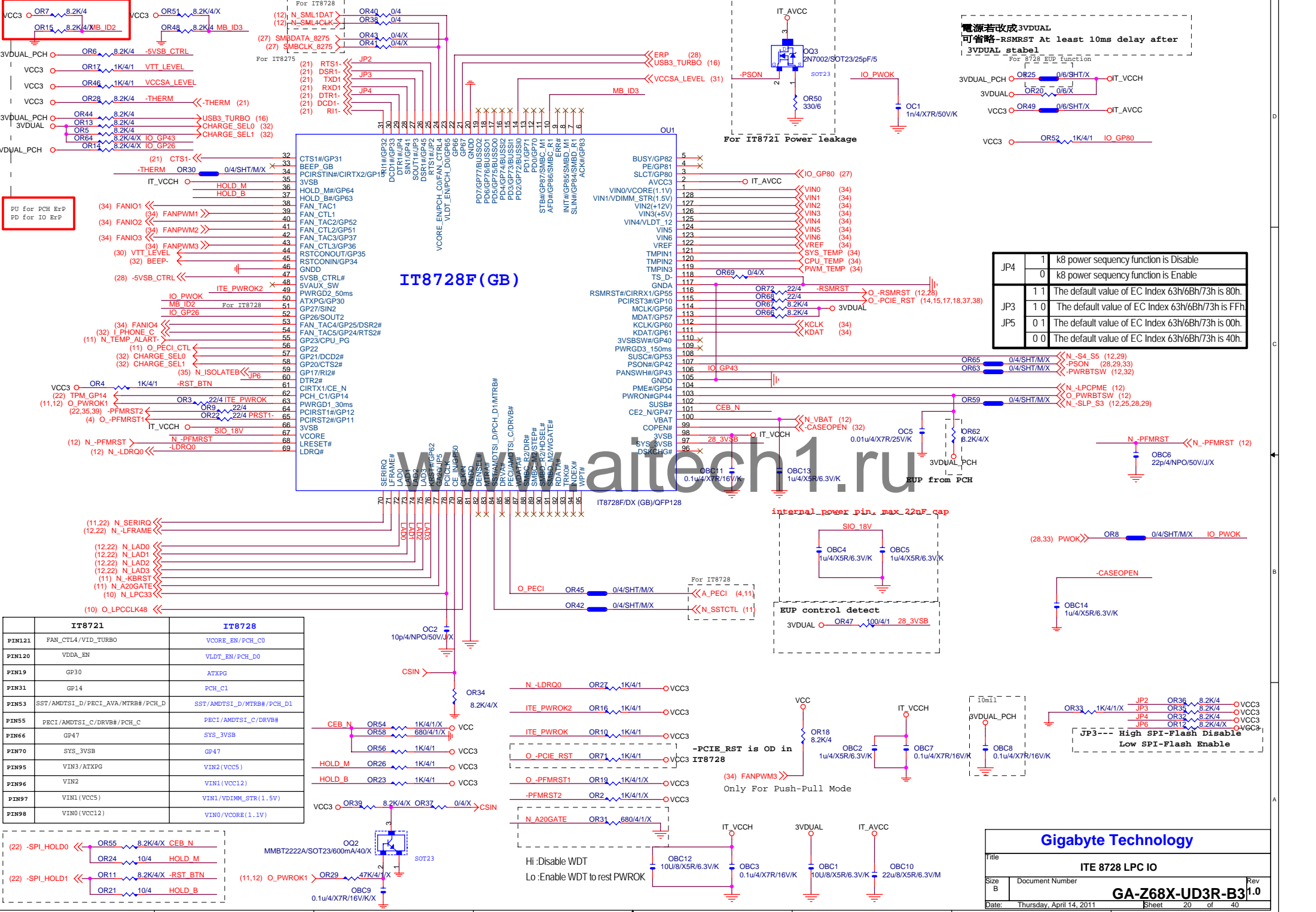
Gigabyte Technology

Title			
PCI EXPRESS * 16			
Size	Document Number	Rev	
Custom	GA-Z68X-UD3R-B3	1.0	
Date:	Thursday, April 14, 2011	Sheet	14 of 40





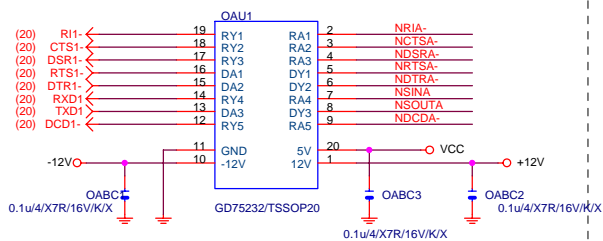




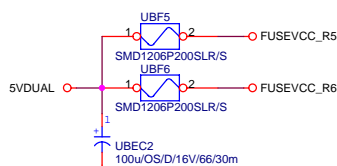
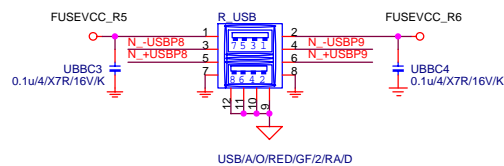
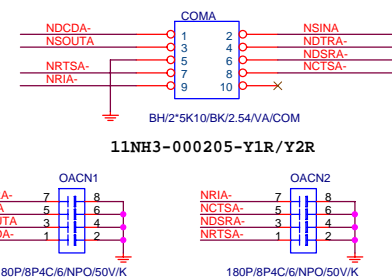
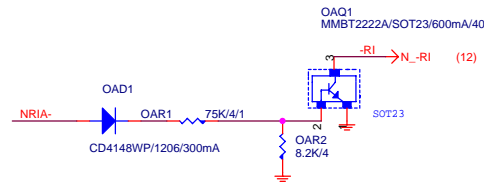
	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDI_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PCI_AVA/MTRB#/PCH_D	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#/PCH_C	PECI/AMDTSI_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2 (VCC5)
PIN96	VIN2	VIN1 (VCC12)
PIN97	VIN1 (VCC5)	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0 (VCC12)	VIN0/VCORE(1.1V)

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

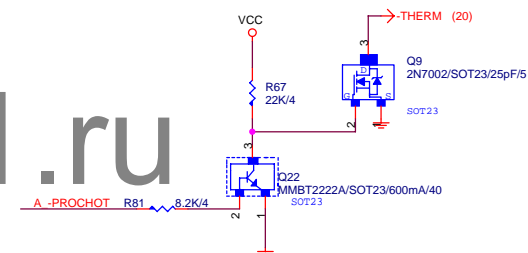
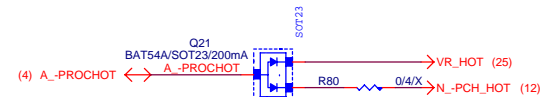
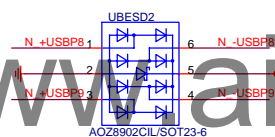
COMA



COM RI

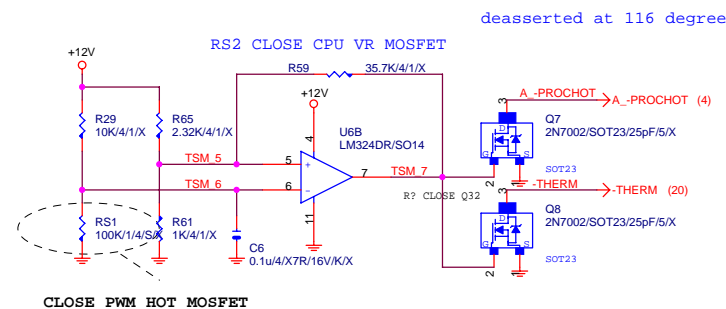


N_-USBP8 (9)
N_-USBP8 (9)
N_-USBP9 (9)
N_-USBP9 (9)

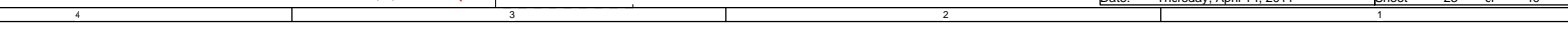


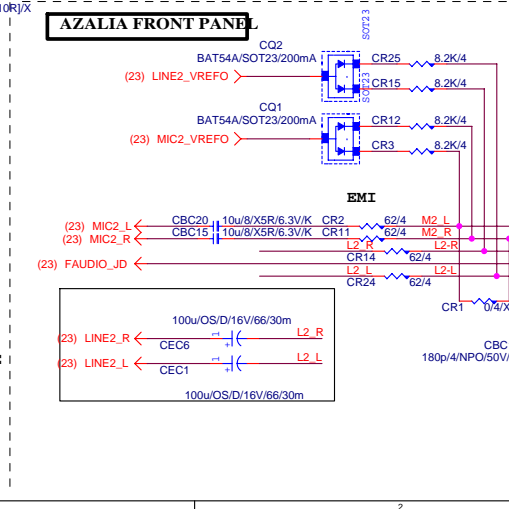
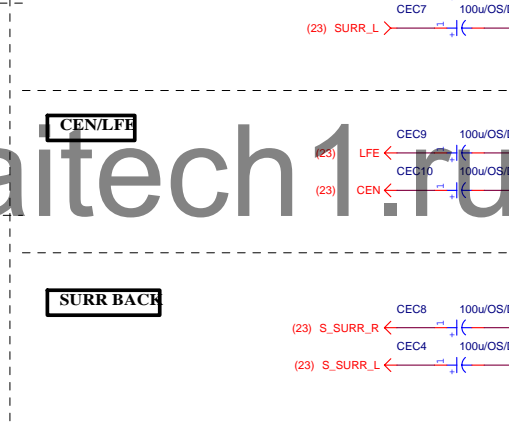
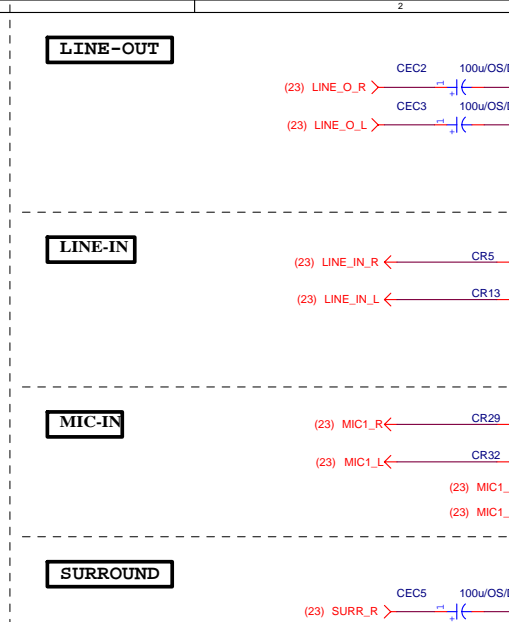
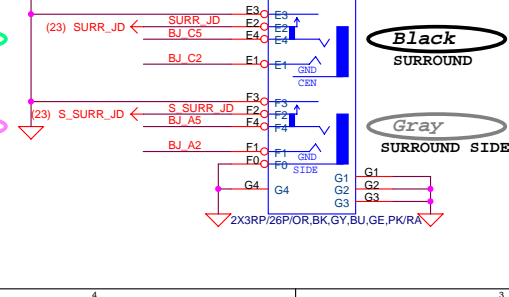
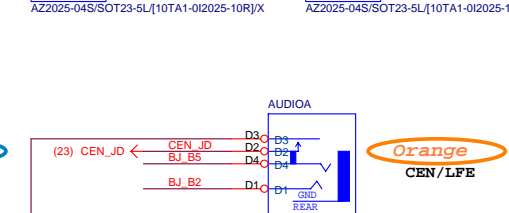
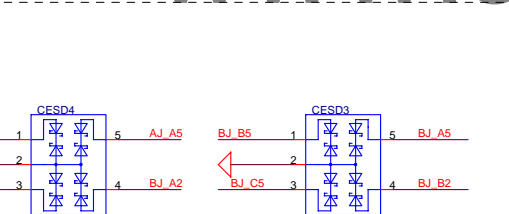
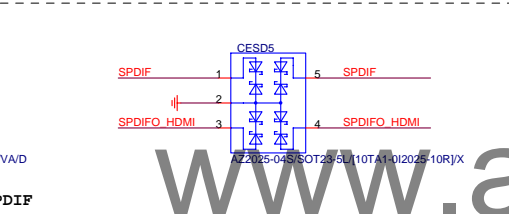
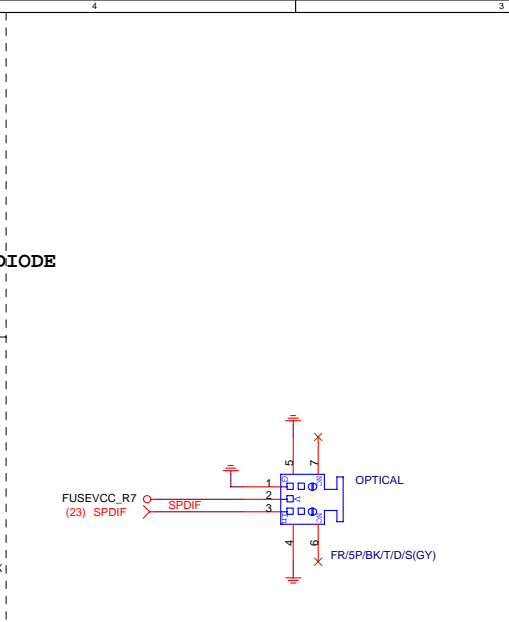
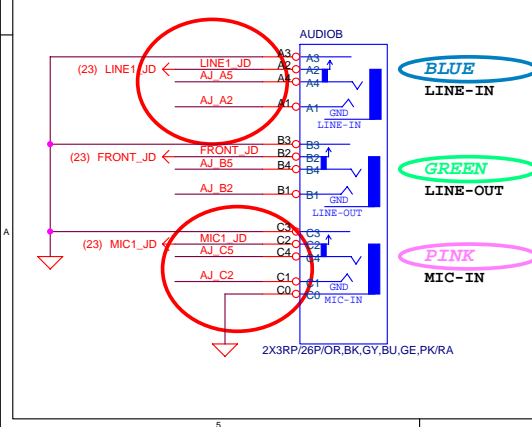
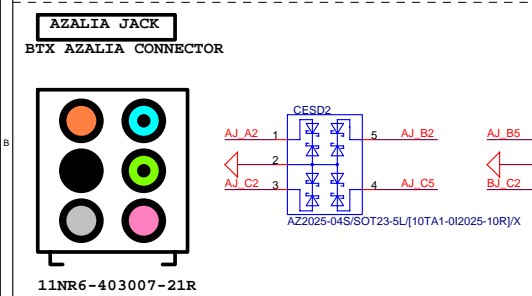
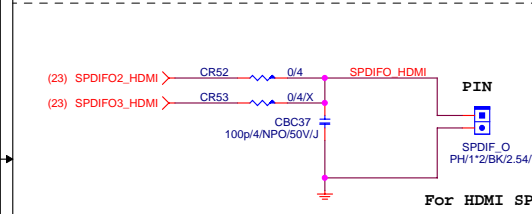
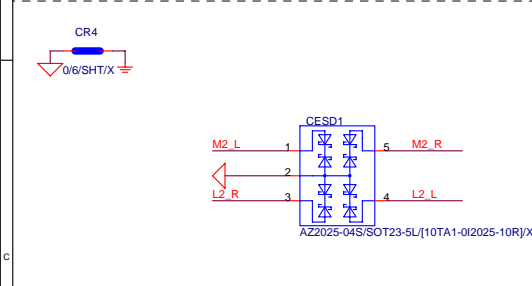
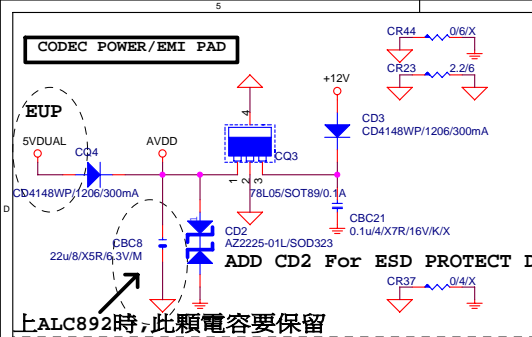
www.aitech1.ru

-PROHOT



--	--	--	--





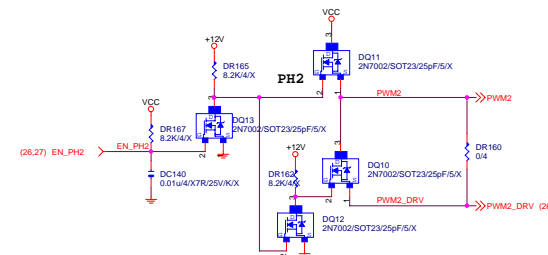
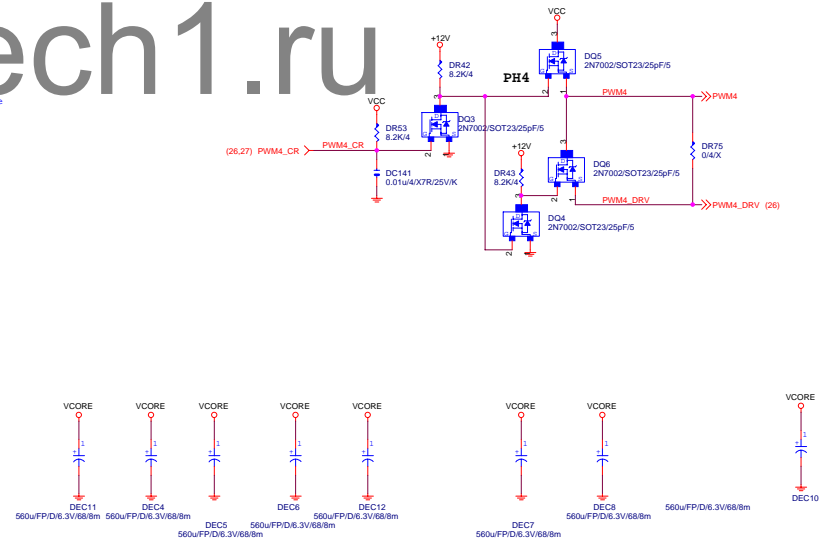
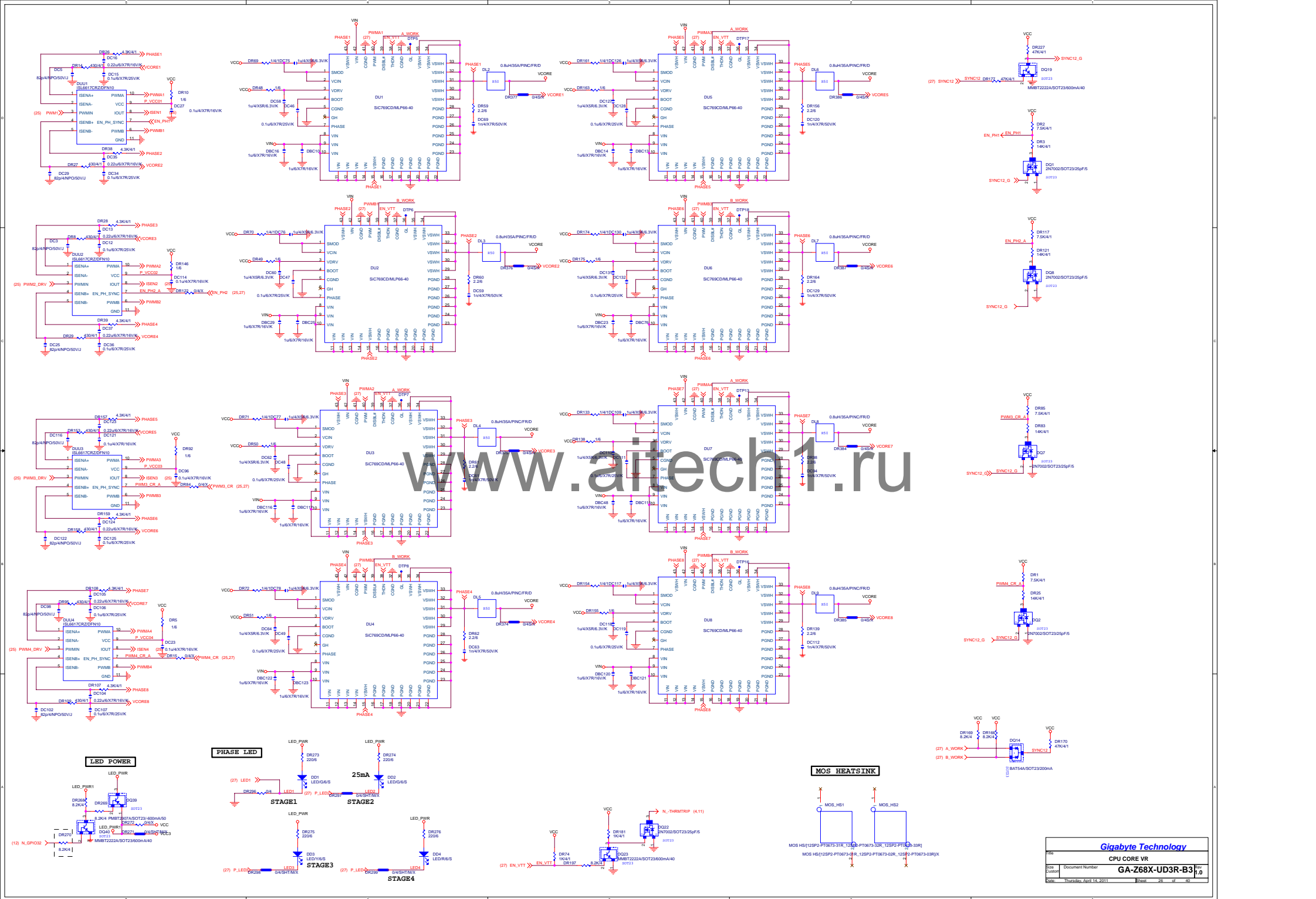
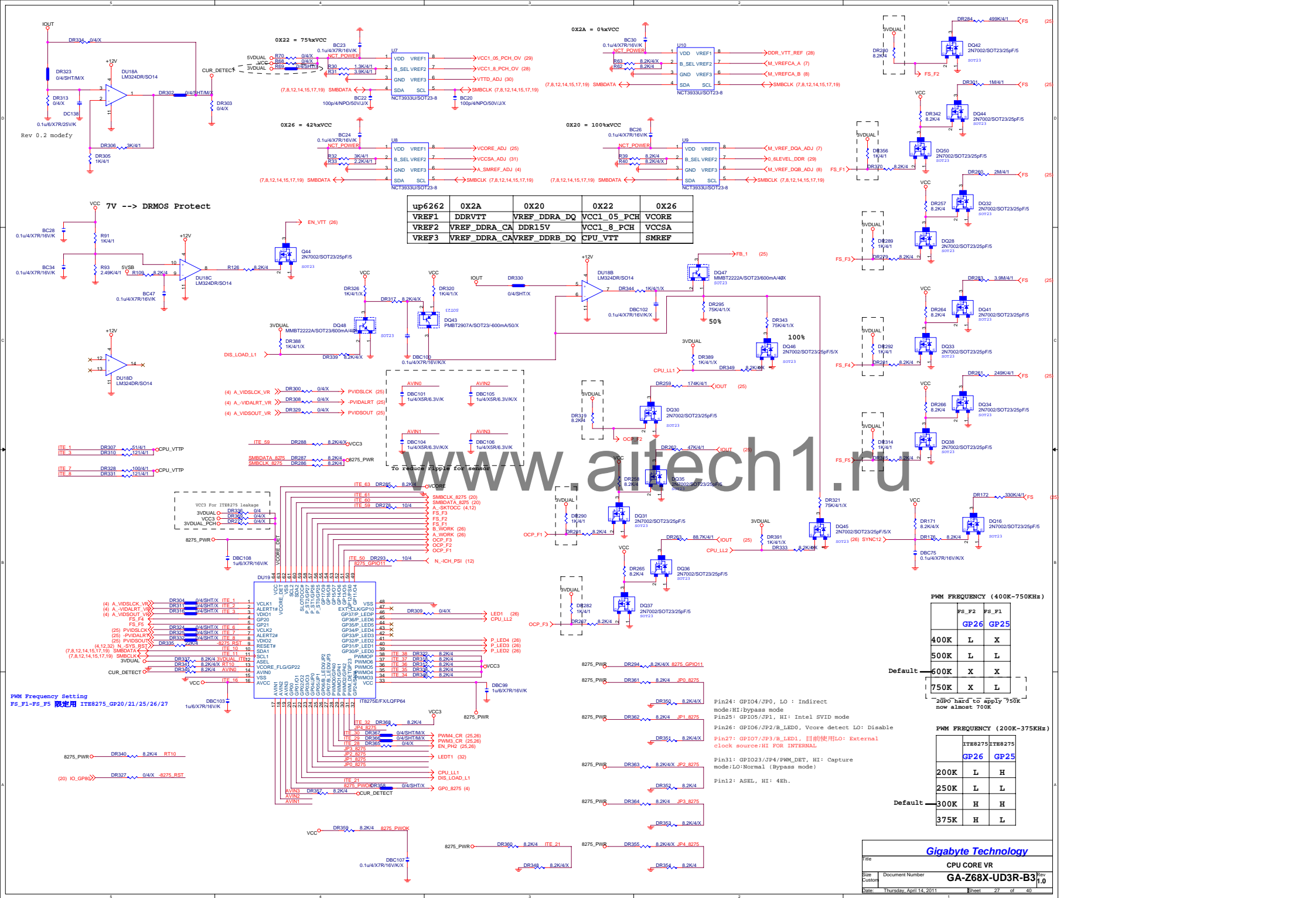


Diagram of the bottom of the board showing connections for the bottom of the board to ground through 8 vias. The diagram includes labels for ISENS+, ISENS-, DR23F, DR23G, 1K/471X, D4/SHT04X, and a note to disable VAXG.

[illegible]





up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CAVREF_DDRB_DQ		CPU_VTT	SMREF

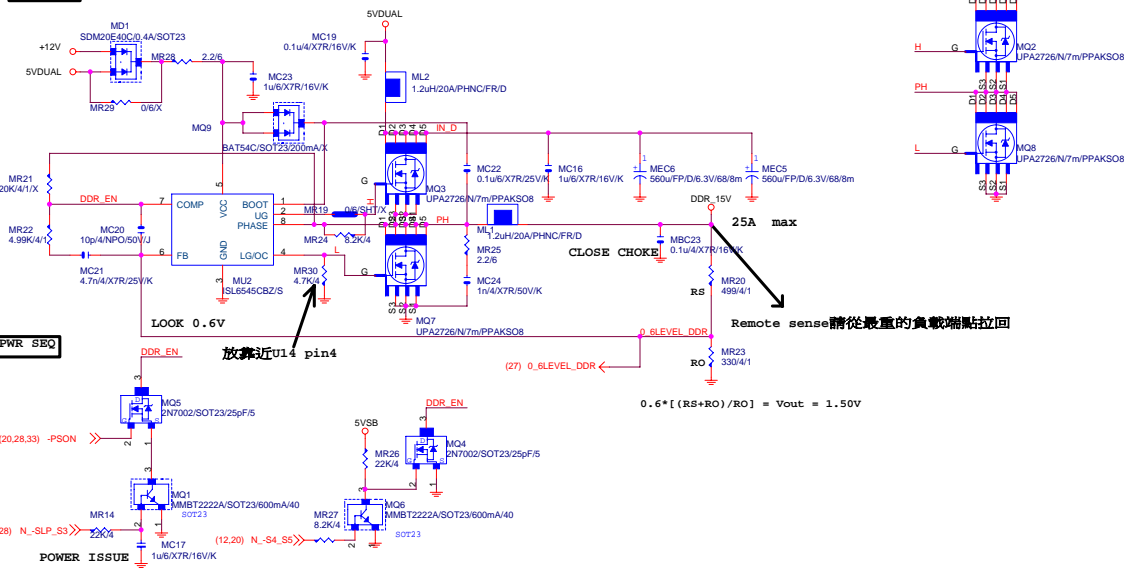
PWM FREQUENCY (400K-750KHz)

	FS_F2	FS_F1
GP26	GP25	
400K	L	X
500K	L	L
600K	X	X
750K	X	L

PWM FREQUENCY (200K-375KHz)

	ITE8275	ITE8275
GP26	GP25	
200K	L	H
250K	L	L
300K	H	H
375K	H	L

DDR18V

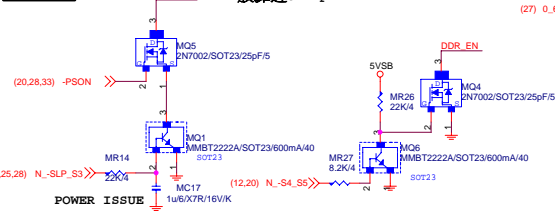


OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 $I_{ocset} = 21.5\mu A$, $R_{ocset} = 4.7k$

OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 $= (2 \times 21.5\mu A \times 4.7k) / (7m/2)$
 $= 57.74A$

注意 : R_{ocset} 的阻值要依據Lo side R_{dson} 改變
 一般 I_{peak} 設定在50~60A即可

PWR SEQ



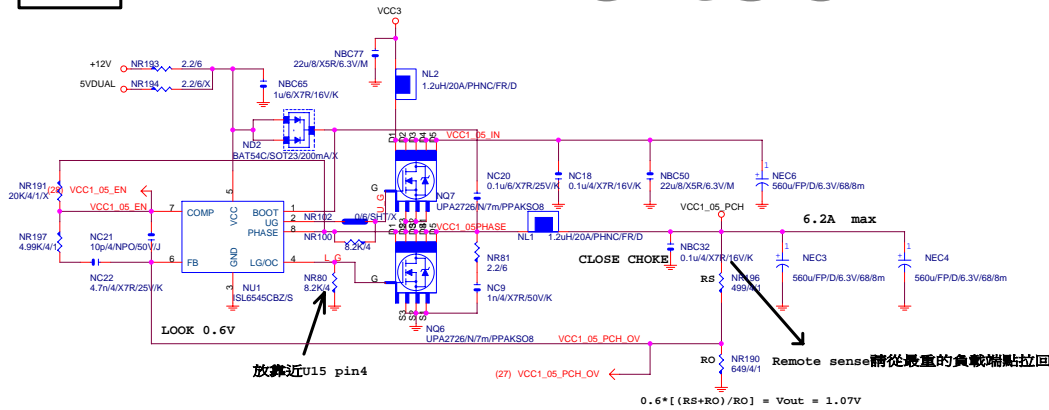
www.aitech1.ru

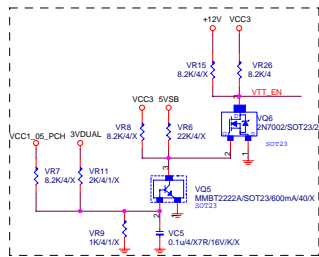
VCC1_05_PCH

OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 $I_{ocset} = 21.5\mu A$, $R_{ocset} = 8.2k$

OCP : $I_{peak} = (2 \times I_{ocset} \times R_{ocset}) / R_{dson}$
 $= (2 \times 21.5\mu A \times 8.2k) / 7m$
 $= 50.37A$

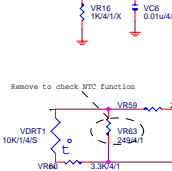
注意 : R_{ocset} 的阻值要依據Lo side R_{dson} 改變
 一般 I_{peak} 設定在50~60A即可





5V : AMD mode
0.6V-3V : VRD11 mode
0V : VRD10 mode

Remove to check RTC function



0.775V * 1.47

(4) A_VTT_SENSE
(4) A_VTT_VSS

For ISL6312

Low to clear 6322 setup

OCPSLE SS

VR40 243K/41 GMCH_SS

Pu for 6322 type2 SMBus address
address 1000_111x

VR36 8.2K/4 DRSL

OCPSLE SS

VR41 243K/41

VR42 158K/41

VR43 158K/41

VR44 158K/41

VR45 158K/41

VR46 158K/41

VR47 158K/41

VR48 158K/41

VR49 158K/41

VR50 158K/41

VR51 158K/41

VR52 158K/41

VR53 158K/41

VR54 158K/41

VR55 158K/41

VR56 158K/41

VR57 158K/41

VR58 158K/41

VR59 158K/41

VR60 158K/41

VR61 158K/41

VR62 158K/41

VR63 158K/41

VR64 158K/41

VR65 158K/41

VR66 158K/41

VR67 158K/41

VR68 158K/41

VR69 158K/41

VR70 158K/41

VR71 158K/41

VR72 158K/41

VR73 158K/41

VR74 158K/41

VR75 158K/41

VR76 158K/41

VR77 158K/41

VR78 158K/41

VR79 158K/41

VR80 158K/41

VR81 158K/41

VR82 158K/41

VR83 158K/41

VR84 158K/41

VR85 158K/41

VR86 158K/41

VR87 158K/41

VR88 158K/41

VR89 158K/41

VR90 158K/41

VR91 158K/41

VR92 158K/41

VR93 158K/41

VR94 158K/41

VR95 158K/41

VR96 158K/41

VR97 158K/41

VR98 158K/41

VR99 158K/41

VR100 158K/41

VR101 158K/41

VR102 158K/41

VR103 158K/41

VR104 158K/41

VR105 158K/41

VR106 158K/41

VR107 158K/41

VR108 158K/41

VR109 158K/41

VR110 158K/41

VR111 158K/41

VR112 158K/41

VR113 158K/41

VR114 158K/41

VR115 158K/41

VR116 158K/41

VR117 158K/41

VR118 158K/41

VR119 158K/41

VR120 158K/41

VR121 158K/41

VR122 158K/41

VR123 158K/41

VR124 158K/41

VR125 158K/41

VR126 158K/41

VR127 158K/41

VR128 158K/41

VR129 158K/41

VR130 158K/41

VR131 158K/41

VR132 158K/41

VR133 158K/41

VR134 158K/41

VR135 158K/41

VR136 158K/41

VR137 158K/41

VR138 158K/41

VR139 158K/41

VR140 158K/41

VR141 158K/41

VR142 158K/41

VR143 158K/41

VR144 158K/41

VR145 158K/41

VR146 158K/41

VR147 158K/41

VR148 158K/41

VR149 158K/41

VR150 158K/41

VR151 158K/41

VR152 158K/41

VR153 158K/41

VR154 158K/41

VR155 158K/41

VR156 158K/41

VR157 158K/41

VR158 158K/41

VR159 158K/41

VR160 158K/41

VR161 158K/41

VR162 158K/41

VR163 158K/41

VR164 158K/41

VR165 158K/41

VR166 158K/41

VR167 158K/41

VR168 158K/41

VR169 158K/41

VR170 158K/41

VR171 158K/41

VR172 158K/41

VR173 158K/41

VR174 158K/41

VR175 158K/41

VR176 158K/41

VR177 158K/41

VR178 158K/41

VR179 158K/41

VR180 158K/41

VR181 158K/41

VR182 158K/41

VR183 158K/41

VR184 158K/41

VR185 158K/41

VR186 158K/41

VR187 158K/41

VR188 158K/41

VR189 158K/41

VR190 158K/41

VR191 158K/41

VR192 158K/41

VR193 158K/41

VR194 158K/41

VR195 158K/41

VR196 158K/41

VR197 158K/41

VR198 158K/41

VR199 158K/41

VR200 158K/41

VR201 158K/41

VR202 158K/41

VR203 158K/41

VR204 158K/41

VR205 158K/41

VR206 158K/41

VR207 158K/41

VR208 158K/41

VR209 158K/41

VR210 158K/41

VR211 158K/41

VR212 158K/41

VR213 158K/41

VR214 158K/41

VR215 158K/41

VR216 158K/41

VR217 158K/41

VR218 158K/41

VR219 158K/41

VR220 158K/41

VR221 158K/41

VR222 158K/41

VR223 158K/41

VR224 158K/41

VR225 158K/41

VR226 158K/41

VR227 158K/41

VR228 158K/41

VR229 158K/41

VR230 158K/41

VR231 158K/41

VR232 158K/41

VR233 158K/41

VR234 158K/41

VR235 158K/41

VR236 158K/41

VR237 158K/41

VR238 158K/41

VR239 158K/41

VR240 158K/41

VR241 158K/41

VR242 158K/41

VR243 158K/41

VR244 158K/41

VR245 158K/41

VR246 158K/41

VR247 158K/41

VR248 158K/41

VR249 158K/41

VR250 158K/41

VR251 158K/41

VR252 158K/41

VR253 158K/41

VR254 158K/41

VR255 158K/41

VR256 158K/41

VR257 158K/41

VR258 158K/41

VR259 158K/41

VR260 158K/41

VR261 158K/41

VR262 158K/41

VR263 158K/41

VR264 158K/41

VR265 158K/41

VR266 158K/41

VR267 158K/41

VR268 158K/41

VR269 158K/41

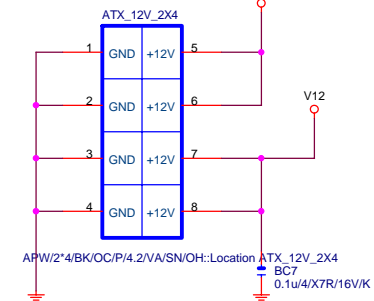
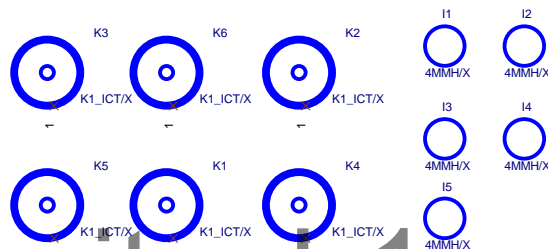
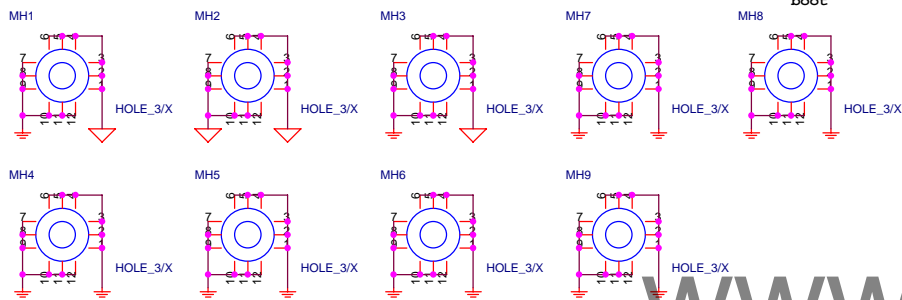
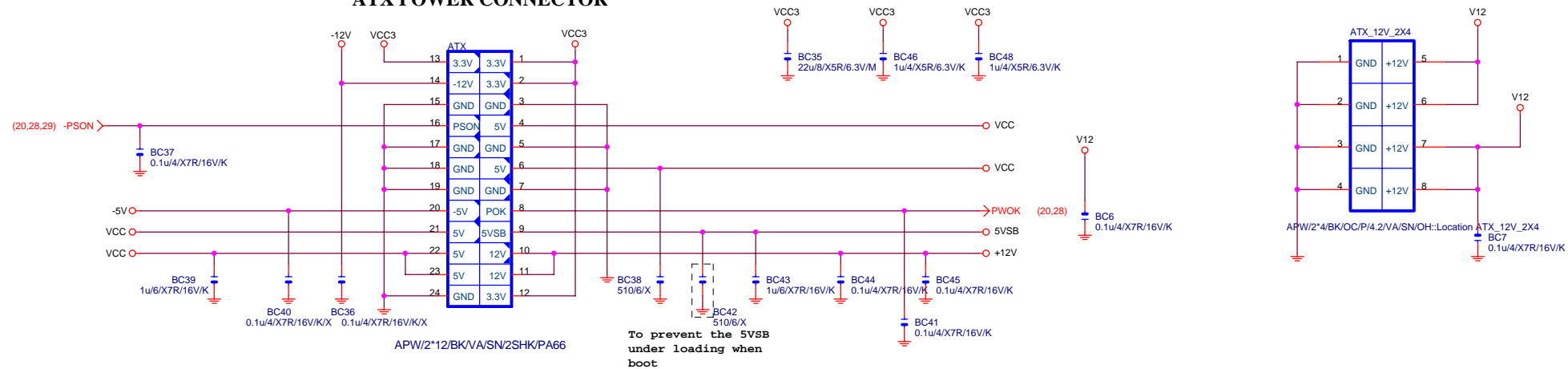
VR270 158K/41

VR271 158K/41

VCC_SA



ATX POWER CONNECTOR

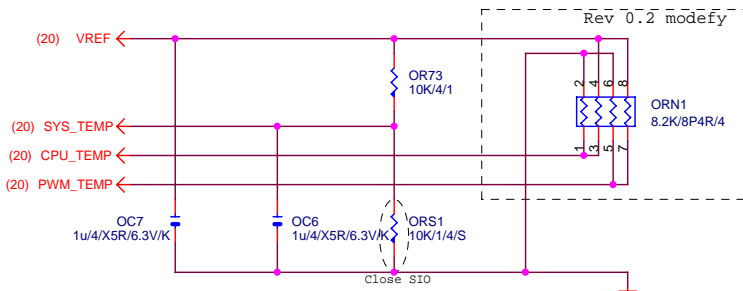


www.aitech1.ru

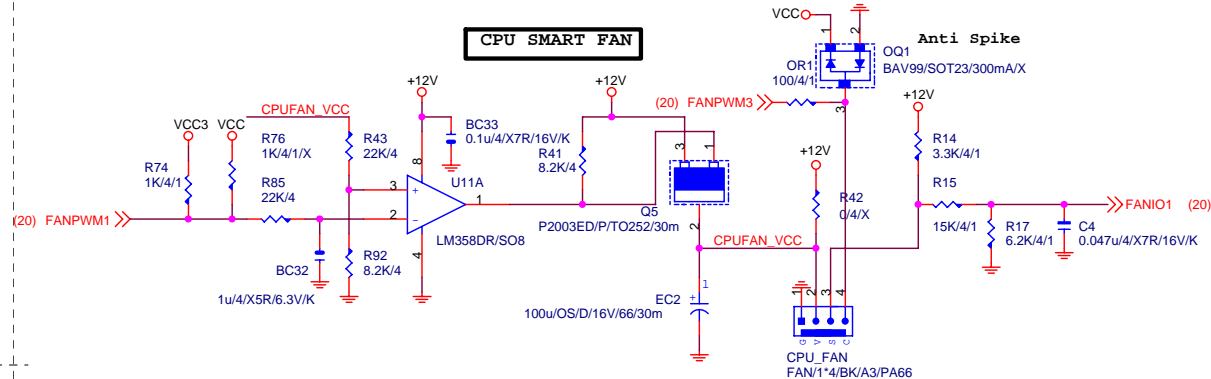
Gigabyte Technology

Title			
ATX POWER CONNECTOR			
Size	Document Number	Rev	
Custom	GA-Z68X-UD3R-B3	1.0	
Date:	Thursday, April 14, 2011	Sheet	33 of 40

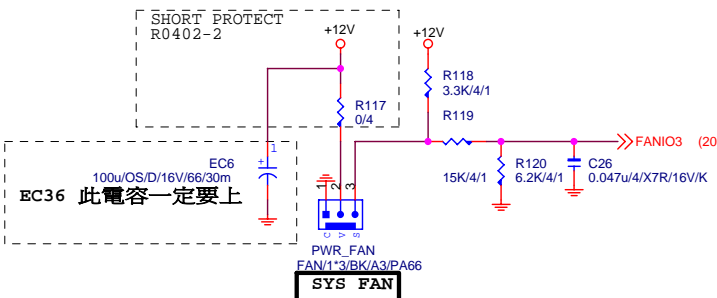
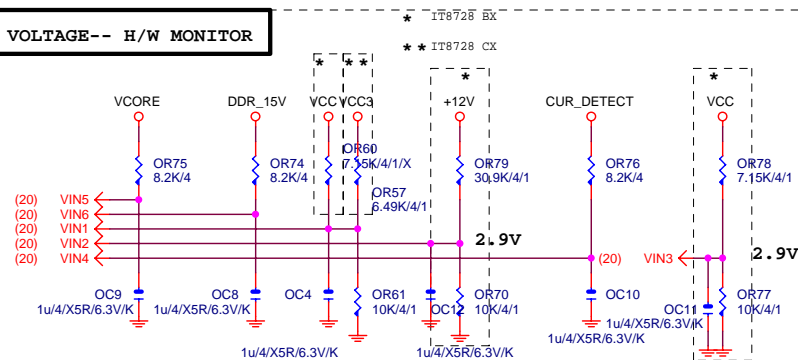
TEMP H/W MONITOR



CPU SMART FAN

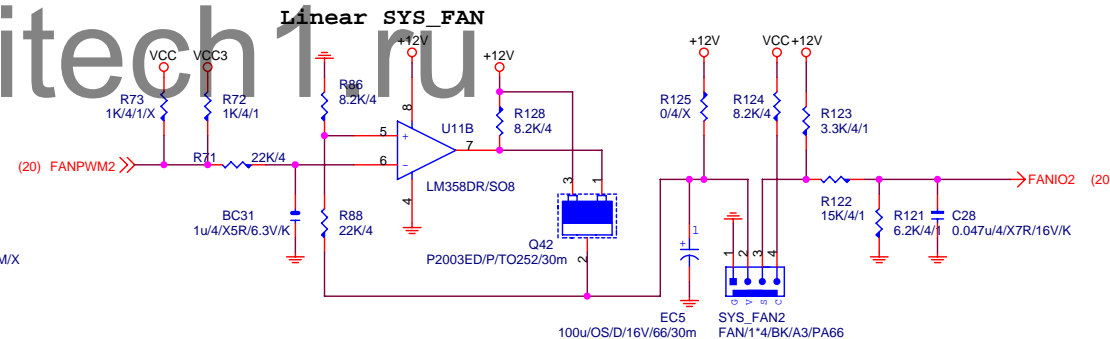
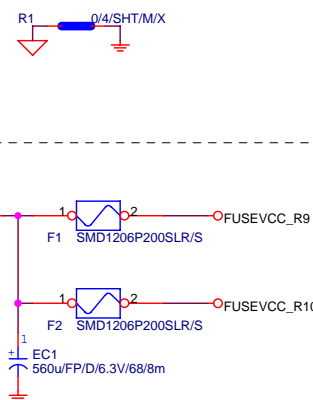
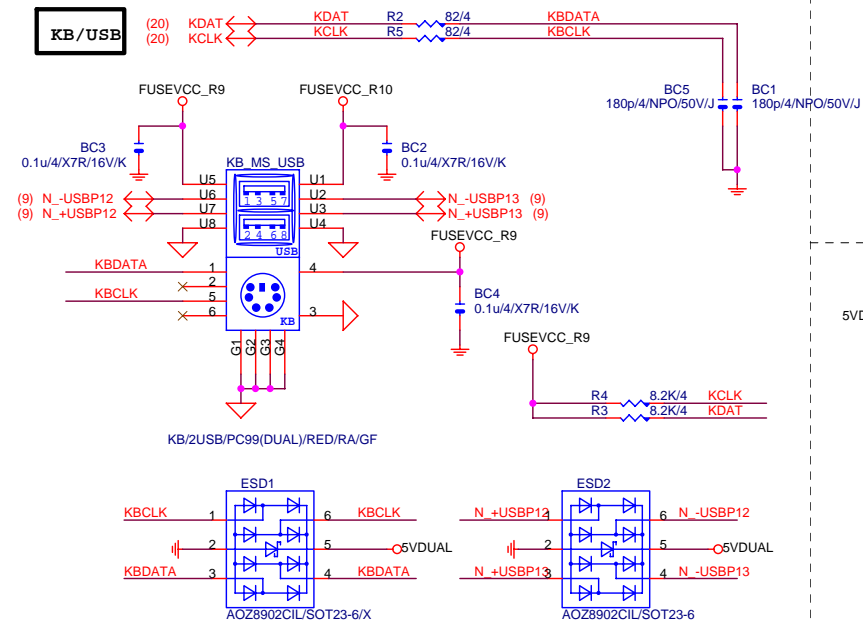


VOLTAGE-- H/W MONITOR



www.aitech1.ru

KB/USB



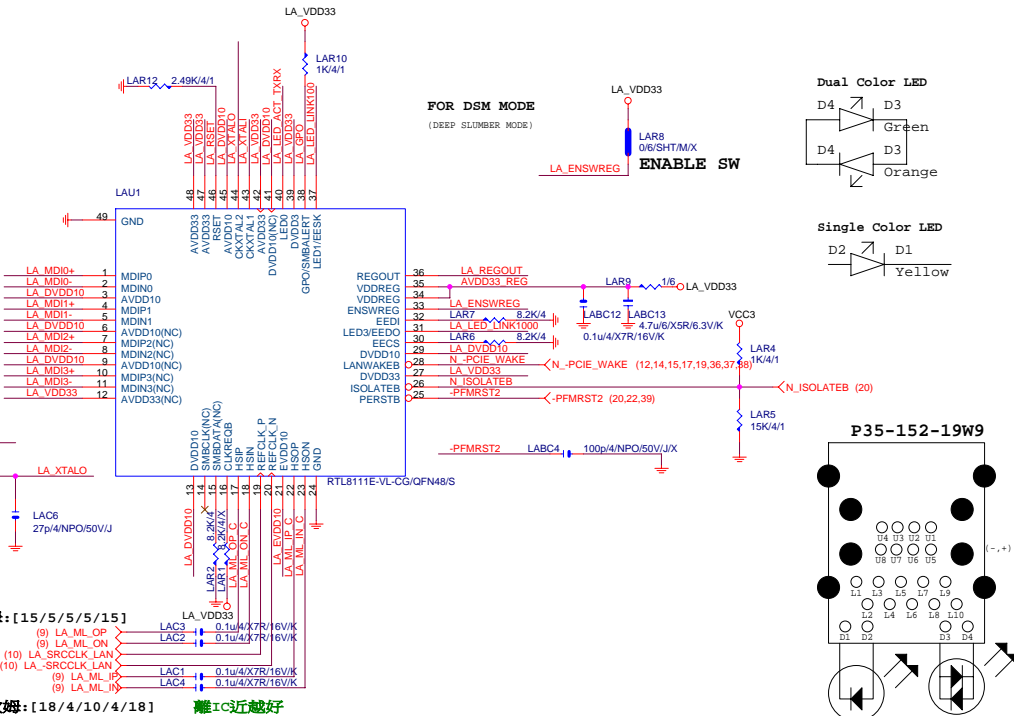
Gigabyte Technology

Title		
HWM,KB/MS, FAN CTRL		
Size	Document Number	Rev
Custom	GA-Z68X-UD3R-B3	1.0
Date:	Thursday, April 14, 2011	Sheet 34 of 40

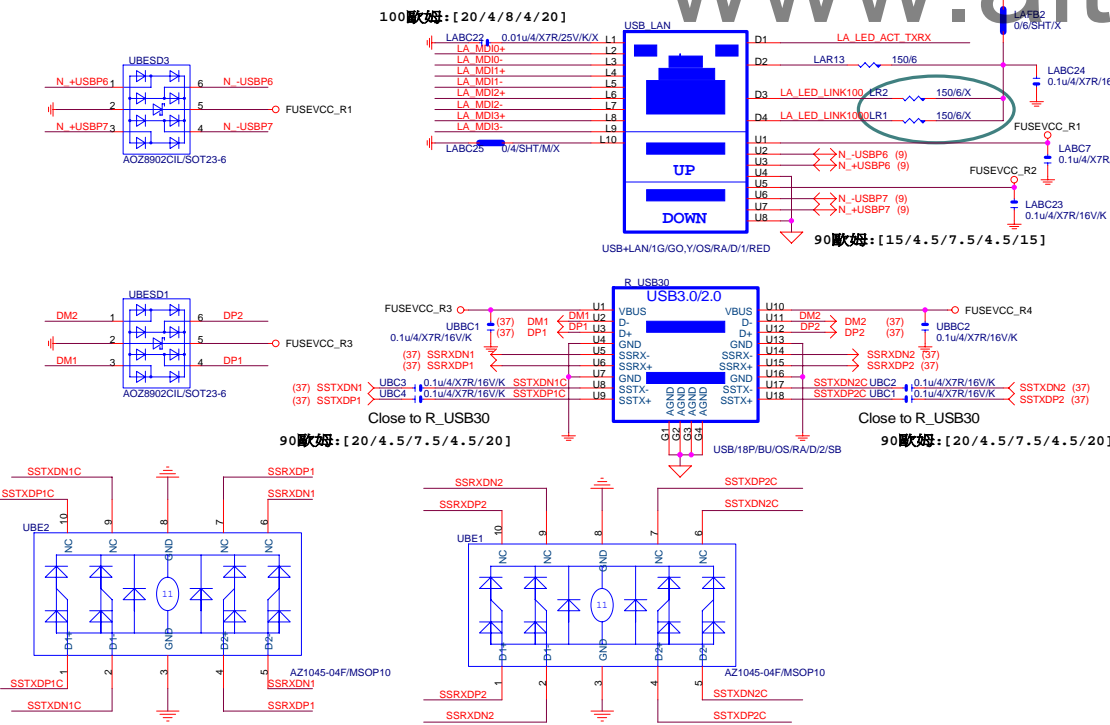
PCIE-1G LAN

Power domain chart

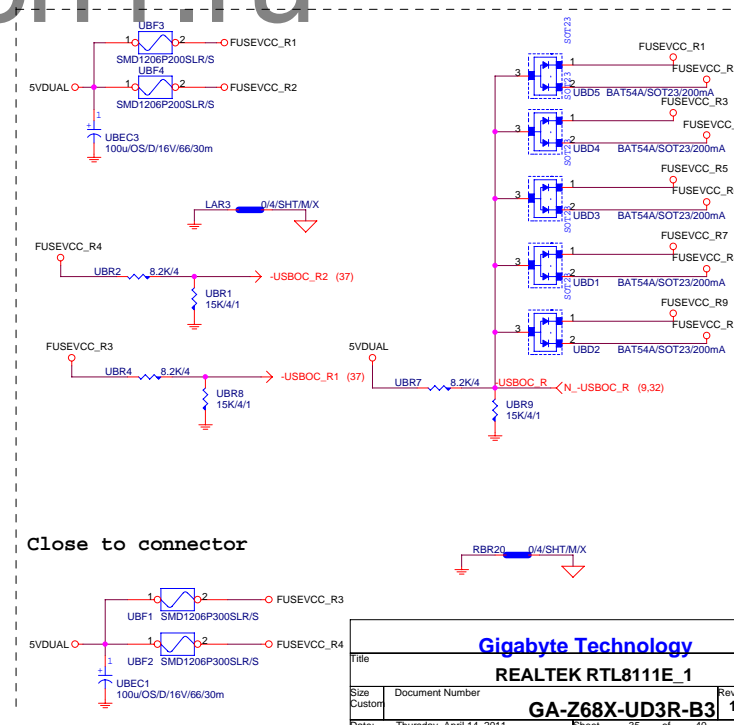
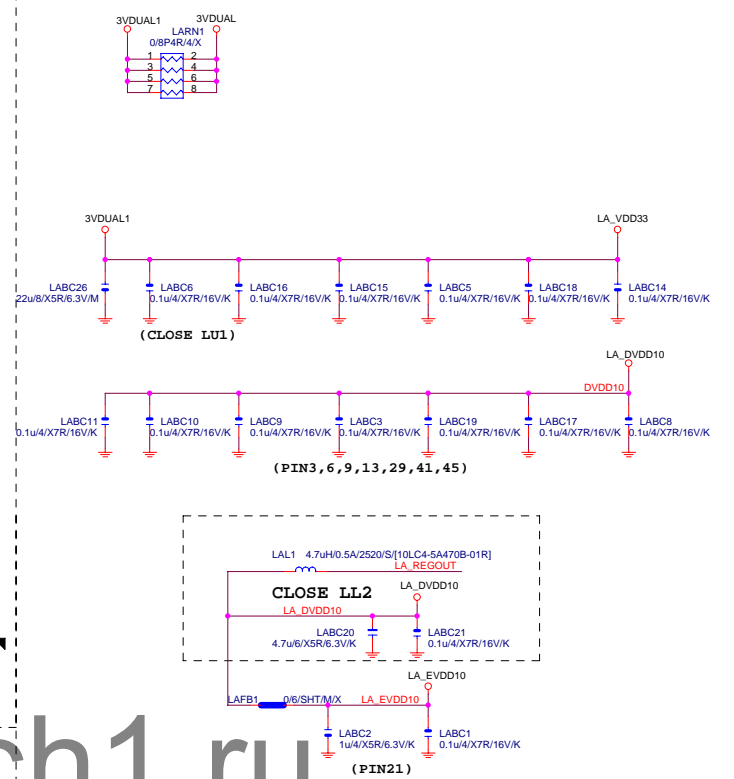
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V

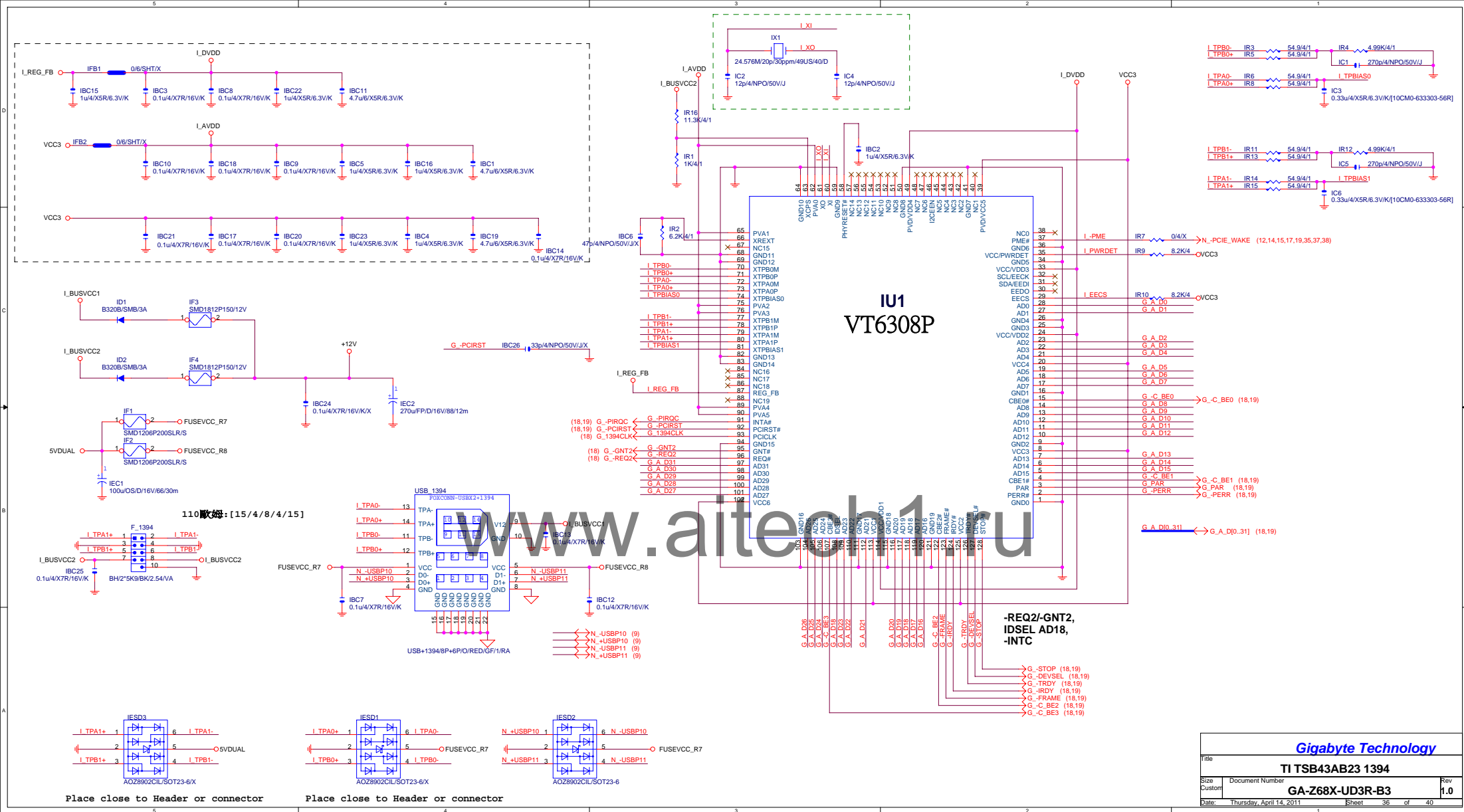


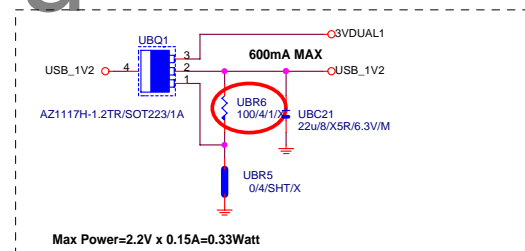
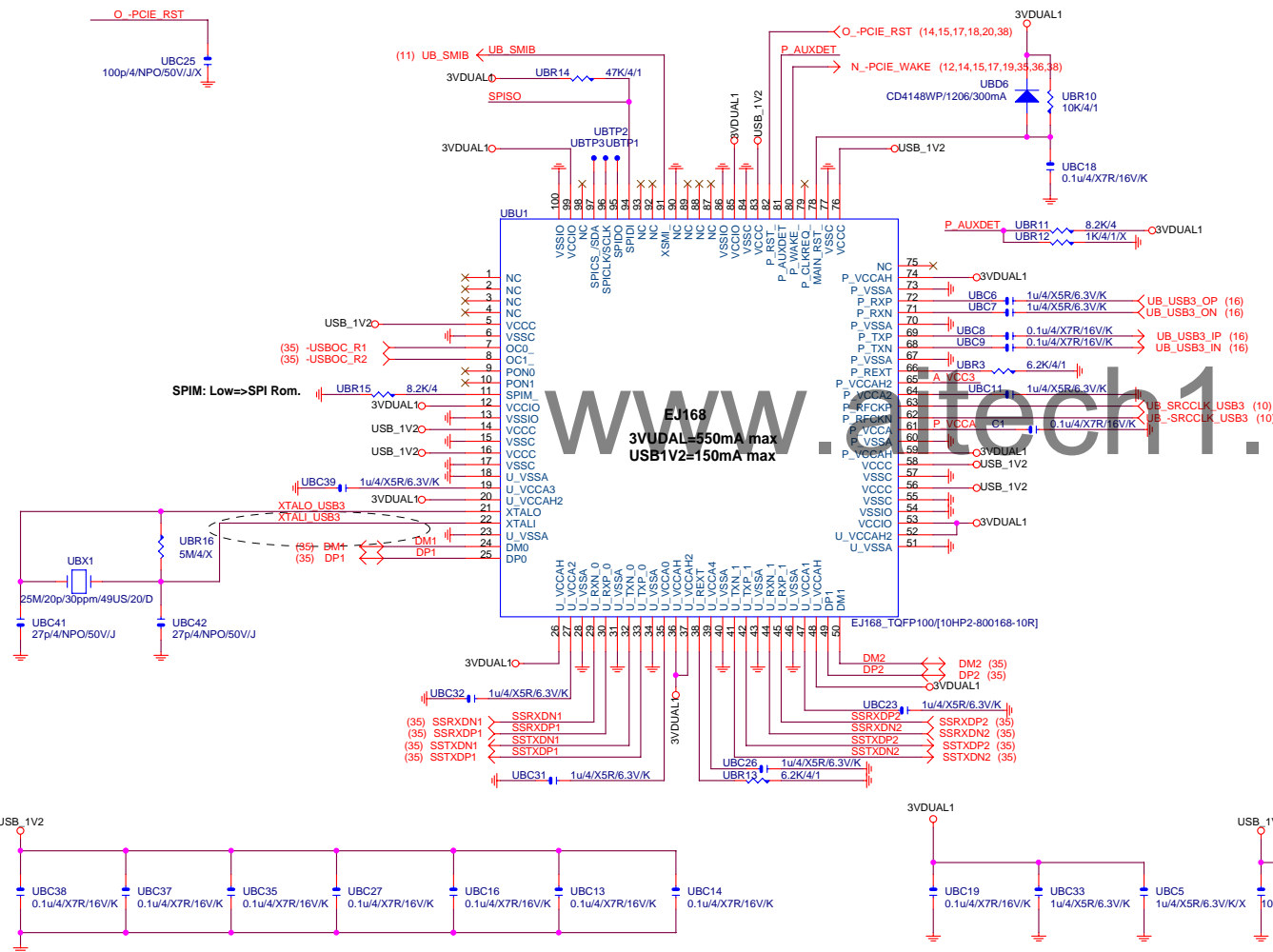
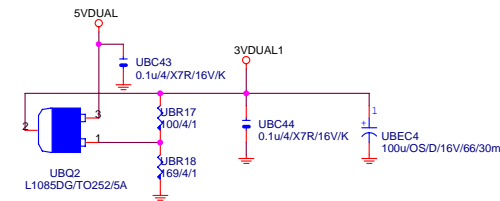
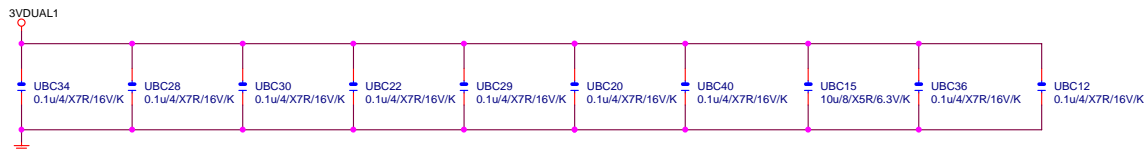
USB30_LAN CONNECTOR



www.aitech1.ru







Max Power=2.2V x 0.15A=0.33Watt

AZ1117H-1.2TR/SOT223/1A-->UR17:0/4,UR16:N/A [1.2V]

L1117LG/N/SOT223/1A-->UR17:0/4,UR16:100/4/1 [1.25V]

USB3.0 --> 5GHz

BANDWITH=5GHz * (8b/10b)=4Gb/s=500MB/s

GIGABYTE			
Title			
uP720200			
Size	Document Number	Rev	
Custom	GA-Z68X-UD3R-B3	1.0	
Date:	Thursday, April 14, 2011	Sheet	37 of 40



