

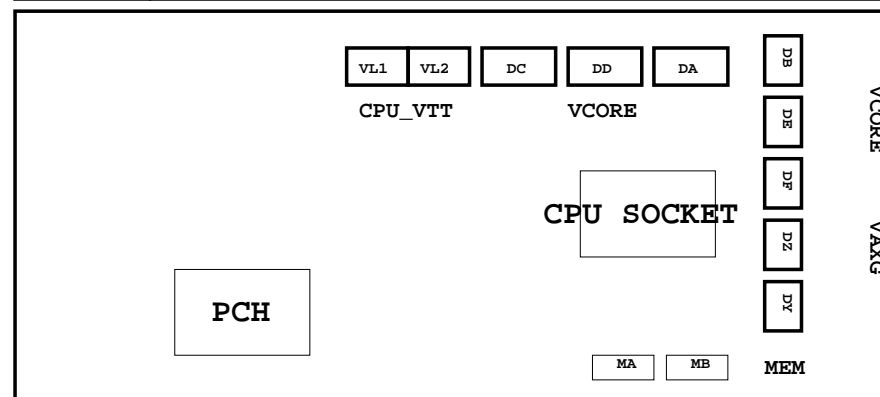
Model Name: GA-Z77X-UP4 TH 1.02

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_HDMI_DVI_DAC,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*4 SLOT
17	PCI EXPRESS*1 SLOTS X3
18	PCI EXPRESS*16/*8/*4 SWITCH
19	IT8892 PCIE to PCI BRIDGE
20	PCI SLOT
21	HDMI / DVI Connector
22	mSATA Connector
23	Dual BIOS , TPM
24	Realtek 892
25	REAR AUDIO JACK
26	VCORE PWM_IR3567A -1
27	VCORE PWM_IR3567A -2

SHEET TITLE

28	DDR_15V & CPUVTT PWM_IR3570-1
29	DDR_15V & CPUVTT PWM_IR3570-2
30	DISCRETE POWER 1
31	DISCRETE POWER 2
32	I/O IT8728F
33	USB3 , KB/USB3, -PHOT
34	F_PANEL , F_USB , F_USB3
35	ATX POWER, CLOCK BUFFER
36	HWM, FAN CTRL
37	REALTEK 8111F
38	PLX PEX8605 PCIE*1 X3
39	OV NCT3933 / COM
40	VIA VL800
41	DP SWITCH
42	CACTUS RIDGE(THUNDERBOLT)
43	mDP -1
44	mDP -2
45	TABLE LIST

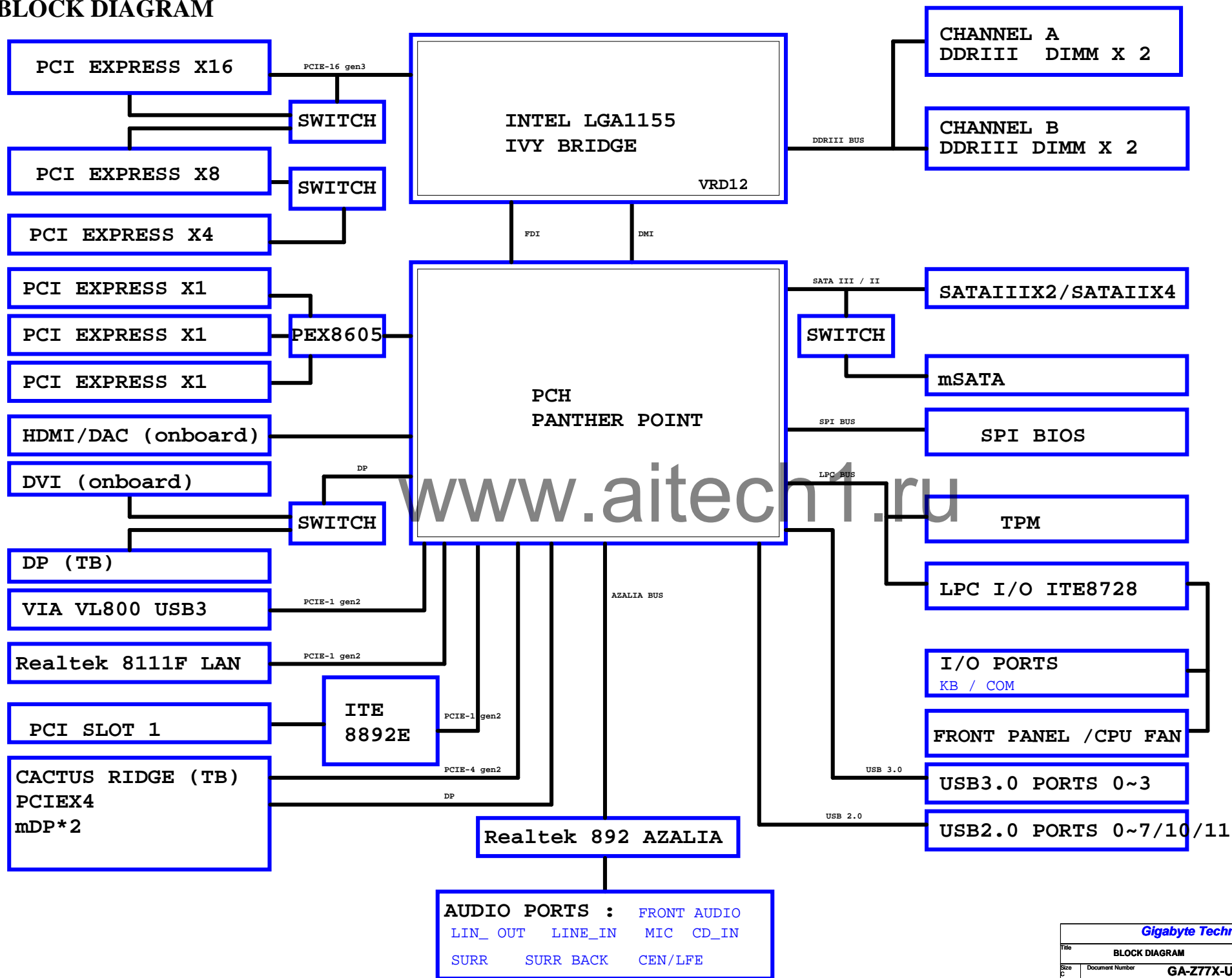


Component value change history

[illegible]

DATE	Change Item	Reason
2012/03/07	0.1 SCH modify from Z77X-UD3H VCOORE change PWRSTAGE 3550 11*11 choke + 820uF VTT change 1+1 / 2 phase TB 4C PLX8605 PCIE*1 SW Remove 9172 SATA3 PCIEX16/X8/X4 sharing COM port	Spec Change
2012/03/30	0.2 SCH modify LAN solution change to 8111F Codec soluion change to 892 VAXG Phase2 ISEN/RSEN link SWAP DP/DVI SW SCH modify	
2012/04/06	Add SPDIF_IN	
2012/04/17	CBC1/2/7/9 CHANGE 0603	
2012/07/12	PLX PCB footprint issue improve	

BLOCK DIAGRAM



LGA1155A

M_AA0	AV27	SA_MA[0]
M_AA1	AY24	SA_MA[1]
M_AA2	AW24	SA_MA[2]
M_AA3	AW23	SA_MA[3]
M_AA4	AV23	SA_MA[4]
M_AA5	AT24	SA_MA[5]
M_AA6	AT23	SA_MA[6]
M_AA7	AU22	SA_MA[7]
M_AA8	AV22	SA_MA[8]
M_AA9	AT22	SA_MA[9]
M_AA10	AV28	SA_MA[10]
M_AA11	AU21	SA_MA[11]
M_AA12	AT21	SA_MA[12]
M_AA13	AW32	SA_MA[13]
M_AA14	AU20	SA_MA[14]
M_AA15	AT20	SA_MA[15]

SA_DQS[0]	AK3	M_DQSA0
SA_DQS[0]	AK2	M_DQSA0
SA_DQ[0]	AJ3	M_DA0
SA_DQ[1]	AJ4	M_DA1
SA_DQ[2]	AL4	M_DA3
SA_DQ[3]	AJ2	M_DA4
SA_DQ[4]	AJ1	M_DA5
SA_DQ[5]	AL2	M_DA6
SA_DQ[6]	AL1	M_DA7
SA_DQS[1]	AP3	M_DQSA1
SA_DQS[1]	AP2	M_DQSA1

SA_WE#	AN1	M_DA8
SA_CAS#	AN4	M_DA9
SA_RAS#	AN2	M_DA10
SA_DQ[10]	AR4	M_DA11
SA_DQ[11]	AN2	M_DA12
SA_DQ[12]	AN3	M_DA13
SA_DQ[13]	AR2	M_DA14
SA_DQ[14]	AR1	M_DA15

SA_BS[0]	M_SBA0	AP23
SA_BS[1]	M_SBA1	AM24
SA_BS[2]	M_SBA2	AW17

SA_CS[0]	M_CS0	AN25
SA_CS[1]	M_CS1	AN26
SA_CS[2]	M_CS2	AL26
SA_CS[3]	M_CS3	AT26

SA_CKE[0]	M_CKE0	AU18
SA_CKE[1]	M_CKE1	AY15
SA_CKE[2]	M_CKE2	AW15
SA_CKE[3]	M_CKE3	AV15

SA_ODT[0]	M_ODT_0	AW31
SA_ODT[1]	M_ODT_1	AU32
SA_ODT[2]	M_ODT_2	AU30
SA_ODT[3]	M_ODT_3	AW33

SA_DQS[3]	AW8	M_DQSA3
SA_DQS[3]	AW8	M_DQSA3

SA_CK[0]	M_DCLK0	AY25
SA_CK[1]	M_DCLK1	AU24
SA_CK[2]	M_DCLK2	AW27
SA_CK[3]	M_DCLK3	AW26

SA_CK[4]	M_DCLK4	AW26
SA_CK[5]	M_DCLK5	AW26
SA_CK[6]	M_DCLK6	AW26
SA_CK[7]	M_DCLK7	AW26

SA_DQS[4]	AV37	M_DQSA4
SA_DQS[4]	AV36	M_DQSA4

SA_DQ[32]	AU35	M_DA32
SA_DQ[33]	AU37	M_DA33
SA_DQ[34]	AU39	M_DA34
SA_DQ[35]	AU36	M_DA35

SA_DQ[36]	AY36	M_DA36
SA_DQ[37]	AU38	M_DA37
SA_DQ[38]	AU37	M_DA38
SA_DQ[39]	AU37	M_DA39

SA_DQS[5]	AP38	M_DQSA5
SA_DQS[5]	AP39	M_DQSA5

SA_DQ[40]	AR40	M_DA40
SA_DQ[41]	AR37	M_DA41
SA_DQ[42]	AN38	M_DA42
SA_DQ[43]	AN37	M_DA43

SA_DQ[44]	AR39	M_DA44
SA_DQ[45]	AR38	M_DA45
SA_DQ[46]	AN39	M_DA46
SA_DQ[47]	AN40	M_DA47

SA_DQS[6]	AK38	M_DQSA6
SA_DQS[6]	AK39	M_DQSA6

SA_DQ[48]	AL40	M_DA48
SA_DQ[49]	AL37	M_DA49
SA_DQ[50]	AJ38	M_DA50
SA_DQ[51]	AJ37	M_DA51

SA_DQ[52]	AL39	M_DA52
SA_DQ[53]	AL38	M_DA53
SA_DQ[54]	AJ39	M_DA54
SA_DQ[55]	AJ40	M_DA55

SA_DQS[7]	AF38	M_DQSA7
SA_DQS[7]	AF39	M_DQSA7

SA_DQ[56]	AG40	M_DA56
SA_DQ[57]	AG37	M_DA57
SA_DQ[58]	AE38	M_DA58
SA_DQ[59]	AE37	M_DA59

SA_DQ[60]	AG39	M_DA60
SA_DQ[61]	AG38	M_DA61
SA_DQ[62]	AE39	M_DA62
SA_DQ[63]	AE40	M_DA63

DDR_0

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LGA1155[10SC1-F01155-01R]

LGA1155B

M_AAB0	AK24	SB_MA[0]
M_AAB1	AM20	SB_MA[1]
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	AN18	SB_MA[8]
M_AAB9	AY17	SB_MA[9]
M_AAB10	AN23	SB_MA[10]
M_AAB11	AU17	SB_MA[11]
M_AAB12	AT18	SB_MA[12]
M_AAB13	AR26	SB_MA[13]
M_AAB14	AV16	SB_MA[14]
M_AAB15	AV16	SB_MA[15]

M_SWEB#	AR25	SB_WE#
M_SCASB#	AK25	SB_CAS#
M_SRASB#	AP24	SB_RAS#

M_SBA0	AP23	SB_BS[0]
M_SBA1	AM24	SB_BS[1]
M_SBA2	AW17	SB_BS[2]

M_CS0	AN25	SB_CS[0]
M_CS1	AN26	SB_CS[1]
M_CS2	AL26	SB_CS[2]
M_CS3	AT26	SB_CS[3]

M_CKE0	AU18	SB_CKE[0]
M_CKE1	AY15	SB_CKE[1]
M_CKE2	AW15	SB_CKE[2]
M_CKE3	AV15	SB_CKE[3]

M_ODT_0	AW31	SB_ODT[0]
M_ODT_1	AU32	SB_ODT[1]
M_ODT_2	AU30	SB_ODT[2]
M_ODT_3	AW33	SB_ODT[3]

SA_DQS[3]	AW8	M_DQSA3
SA_DQS[3]	AW8	M_DQSA3

SA_CK[0]	M_DCLK0	AY25
SA_CK[1]	M_DCLK1	AU24
SA_CK[2]	M_DCLK2	AW27
SA_CK[3]	M_DCLK3	AW26

SA_CK[4]	M_DCLK4	AW26
SA_CK[5]	M_DCLK5	AW26
SA_CK[6]	M_DCLK6	AW26
SA_CK[7]	M_DCLK7	AW26

SA_DQS[4]	AV37	M_DQSA4
SA_DQS[4]	AV36	M_DQSA4

SA_DQ[32]	AU35	M_DA32
SA_DQ[33]	AU37	M_DA33
SA_DQ[34]	AU39	M_DA34
SA_DQ[35]	AU36	M_DA35

SA_DQ[36]	AY36	M_DA36
SA_DQ[37]	AU38	M_DA37
SA_DQ[38]	AU37	M_DA38
SA_DQ[39]	AU37	M_DA39

SA_DQS[5]	AP38	M_DQSA5
SA_DQS[5]	AP39	M_DQSA5

SA_DQ[40]	AR40	M_DA40
SA_DQ[41]	AR37	M_DA41
SA_DQ[42]	AN38	M_DA42
SA_DQ[43]	AN37	M_DA43

SA_DQ[44]	AR39	M_DA44
SA_DQ[45]	AR38	M_DA45
SA_DQ[46]	AN39	M_DA46
SA_DQ[47]	AN40	M_DA47

SA_DQS[6]	AK38	M_DQSA6
SA_DQS[6]	AK39	M_DQSA6

SA_DQ[48]	AL40	M_DA48
SA_DQ[49]	AL37	M_DA49
SA_DQ[50]	AJ38	M_DA50
SA_DQ[51]	AJ37	M_DA51

SA_DQ[52]	AL39	M_DA52
SA_DQ[53]	AL38	M_DA53
SA_DQ[54]	AJ39	M_DA54
SA_DQ[55]	AJ40	M_DA55

SA_DQS[7]	AF38	M_DQSA7
SA_DQS[7]	AF39	M_DQSA7

SA_DQ[56]	AG40	M_DA56
SA_DQ[57]	AG37	M_DA57
SA_DQ[58]	AE38	M_DA58
SA_DQ[59]	AE37	M_DA59

SA_DQ[60]	AG39	M_DA60
SA_DQ[61]	AG38	M_DA61
SA_DQ[62]	AE39	M_DA62
SA_DQ[63]	AE40	M_DA63

DDR_1

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LGA1155[10SC1-F01155-01R]

SB_DQS[0]	AH7	M_DQSB0
SB_DQS[0]	AH6	M_DQSB0
SB_DQ[0]	AG7	M_DB0
SB_DQ[1]	AG8	M_DB1
SB_DQ[2]	AJ9	M_DB2
SB_DQ[3]	AJ8	M_DB3
SB_DQ[4]	AG5	M_DB4
SB_DQ[5]	AG6	M_DB5
SB_DQ[6]	AJ6	M_DB6
SB_DQ[7]	AJ7	M_DB7
SB_DQS[1]	AM8	M_DQSB1
SB_DQS[1]	AL8	M_DQSB1

SB_WE#	AL7	M_DB8
SB_CAS#	AM7	M_DB9
SB_RAS#	AM10	M_DB10
SB_DQ[10]	AL10	M_DB11
SB_DQ[11]	AL6	M_DB12
SB_DQ[12]	AM6	M_DB13
SB_DQ[13]	AL9	M_DB14
SB_DQ[14]	AM9	M_DB15

SB_CS[0]	AR8	M_DQSB2
SB_CS[1]	AP8	M_DQSB2

SB_CKE[0]	AR7	M_DB16
SB_CKE[1]	AR7	M_DB17
SB_CKE[2]	AP10	M_DB18
SB_CKE[3]	AP10	M_DB19

SB_ODT[0]	AP6	M_DB20
SB_ODT[1]	AP9	M_DB21
SB_ODT[2]	AP9	M_DB22
SB_ODT[3]	AR9	M_DB23

SB_DQS[3]	AN13	M_DQSB3
SB_DQS[3]	AN12	M_DQSB3

SB_CK[0]	AM12	M_DB24
SB_CK[1]	AM13	M_DB25
SB_CK[2]	AP13	M_DB26
SB_CK[3]	AP13	M_DB27

SB_CK[4]	AL12	M_DB28
SB_CK[5]	AL13	M_DB29
SB_CK[6]	AR12	M_DB30
SB_CK[7]	AP12	M_DB31

SB_DQS[4]	AN29	M_DQSB4
SB_DQS[4]	AN28	M_DQSB4

SB_DQ[32]	AR28	M_DB32
SB_DQ[33]	AR29	M_DB33
SB_DQ[34]	AL28	M_DB34
SB_DQ[35]	AL29	M_DB35

SB_DQ[36]	AP28	M_DB36
SB_DQ[37]	AP29	M_DB37
SB_DQ[38]	AM28	M_DB38
SB_DQ[39]	AM29	M_DB39

SB_DQS[5]	AP33	M_DQSB5
SB_DQS[5]	AR33	M_DQSB5

SB_DQ[40]	AP32	M_DB40
SB_DQ[41]	AP31	M_DB41
SB_DQ[42]	AP35	M_DB42
SB_DQ[43]	AP34	M_DB43

SB_DQ[44]	AR32	M_DB44
SB_DQ[45]	AR31	M_DB45
SB_DQ[46]	AR35	M_DB46
SB_DQ[47]	AR34	M_DB47

SB_DQS[6]	AL33	M_DQSB6
SB_DQS[6]	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

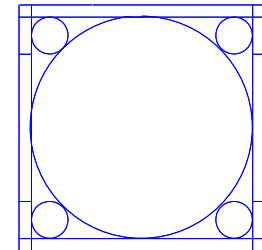
SB_DQS[7]	AG35	M_DQSB7
SB_DQS[7]	AG34	M_DQSB7

SB_DQ[56]	AH35	M_DB56
SB_DQ[57]	AH34	M_DB57
SB_DQ[58]	AE34	M_DB58
SB_DQ[59]	AE35	M_DB59

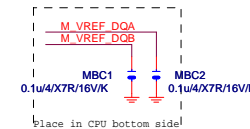
SB_DQ[60]	AJ35	M_DB60
SB_DQ[61]	AJ34	M_DB61
SB_DQ[62]	AF33	M_DB62
SB_DQ[63]	AF35	M_DB63

LGA1155

ILM_BP/1156/BKNI



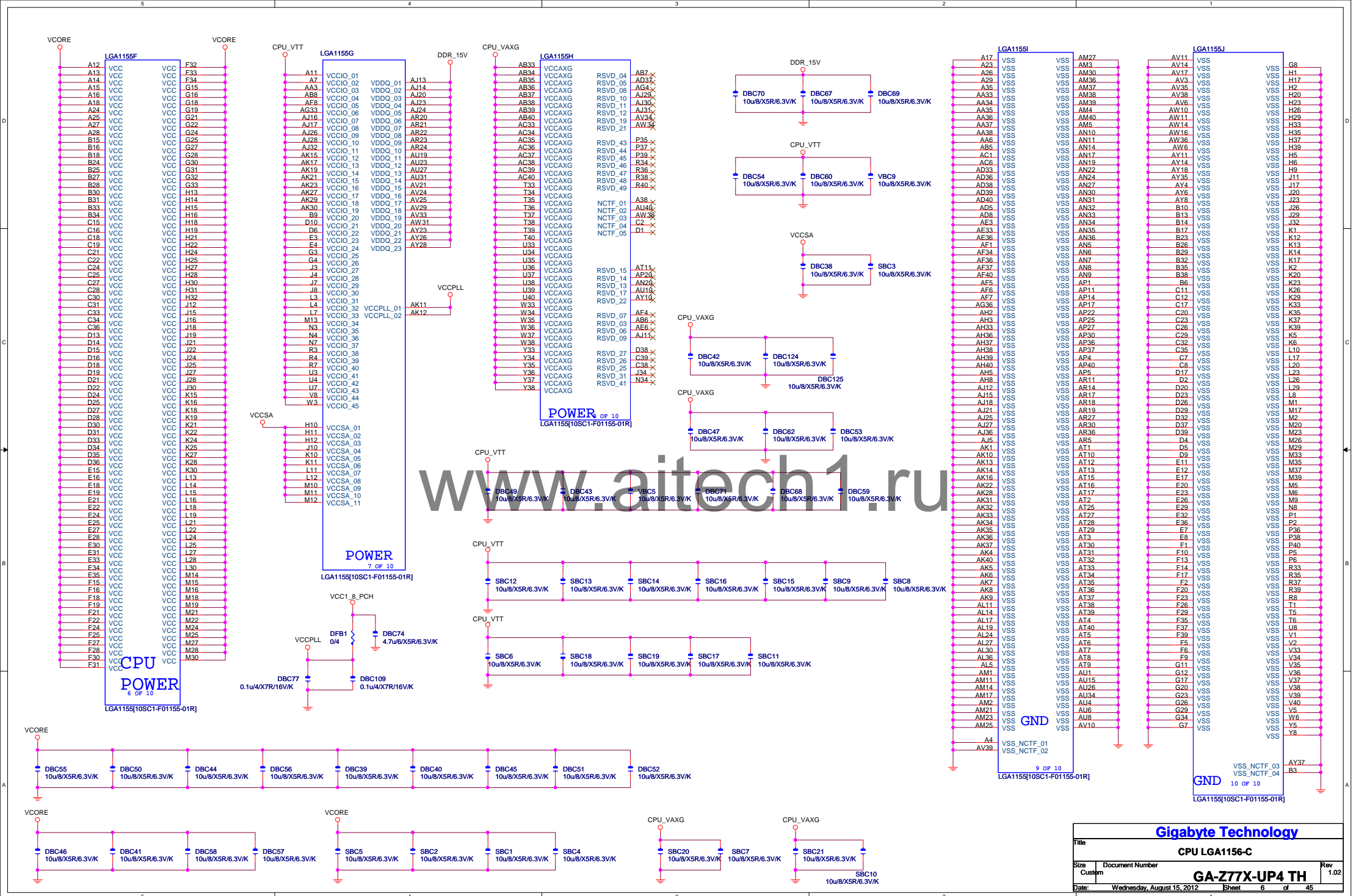
Need check the new CPU ME

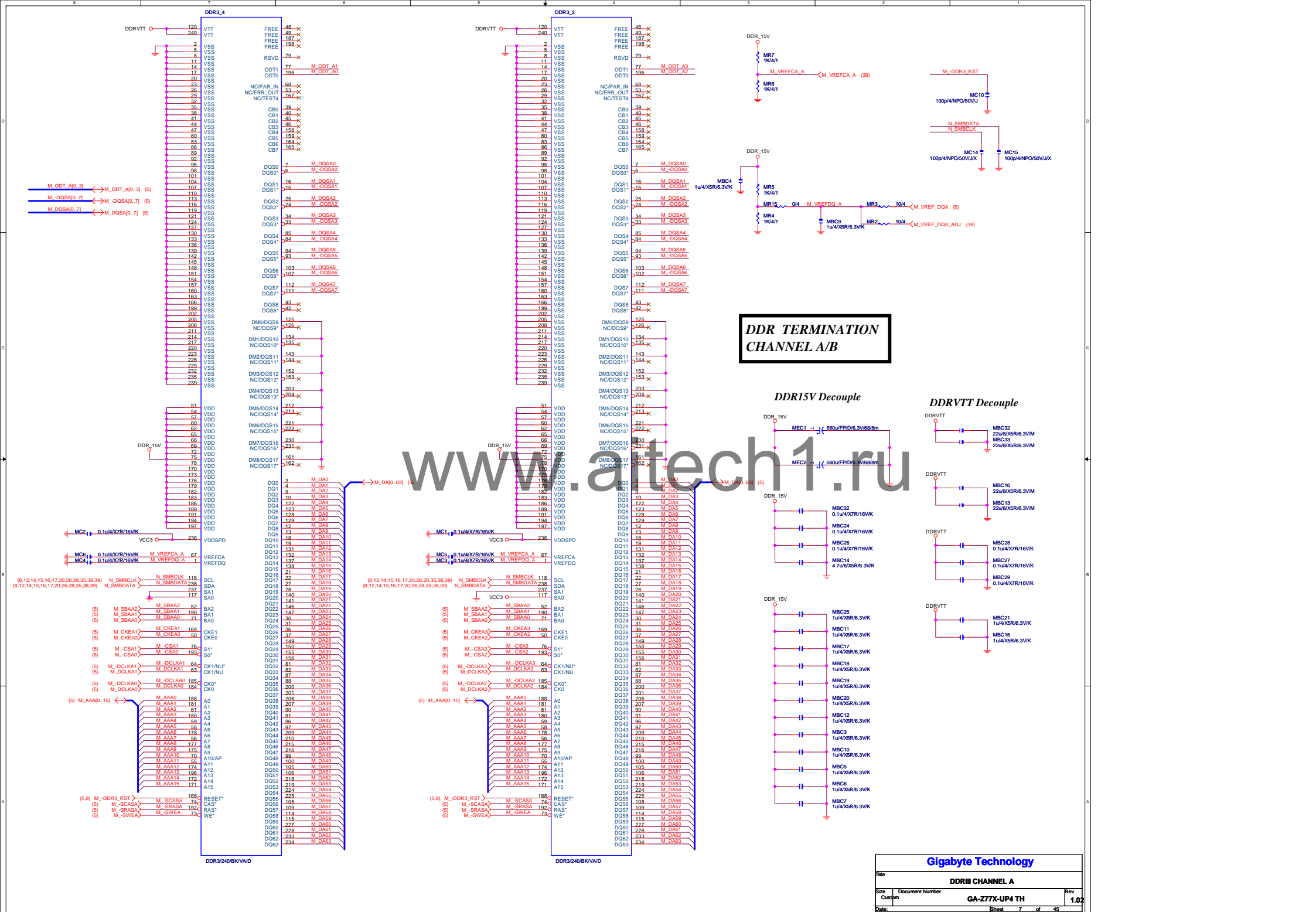


Gigabyte Technology

CPU LGA1156-B

Title	Document Number	Rev
Size	GA-Z77X-UP4 TH	1.02
Date:	Wednesday, August 15, 2012	Sheet 5 of 45

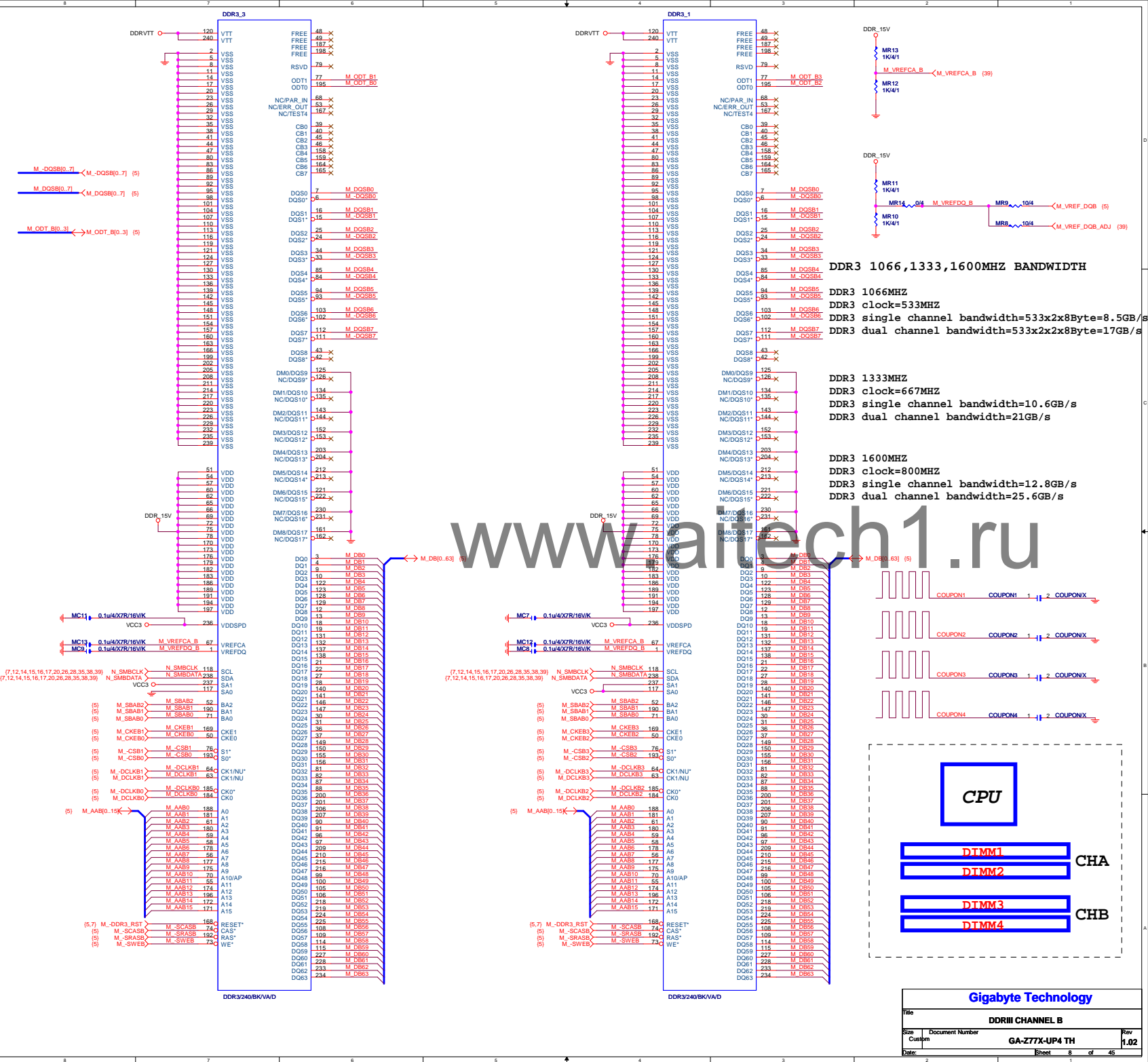


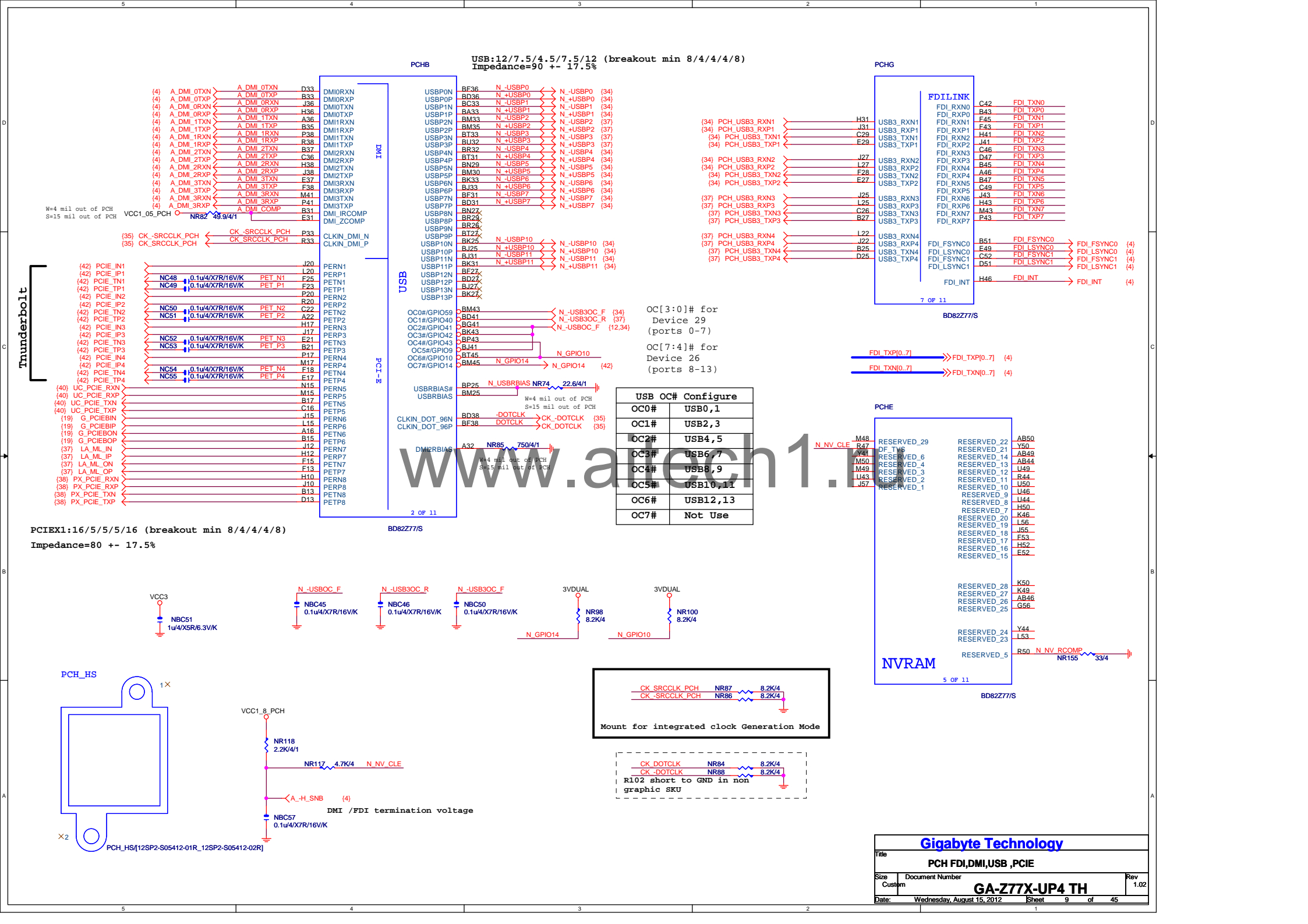


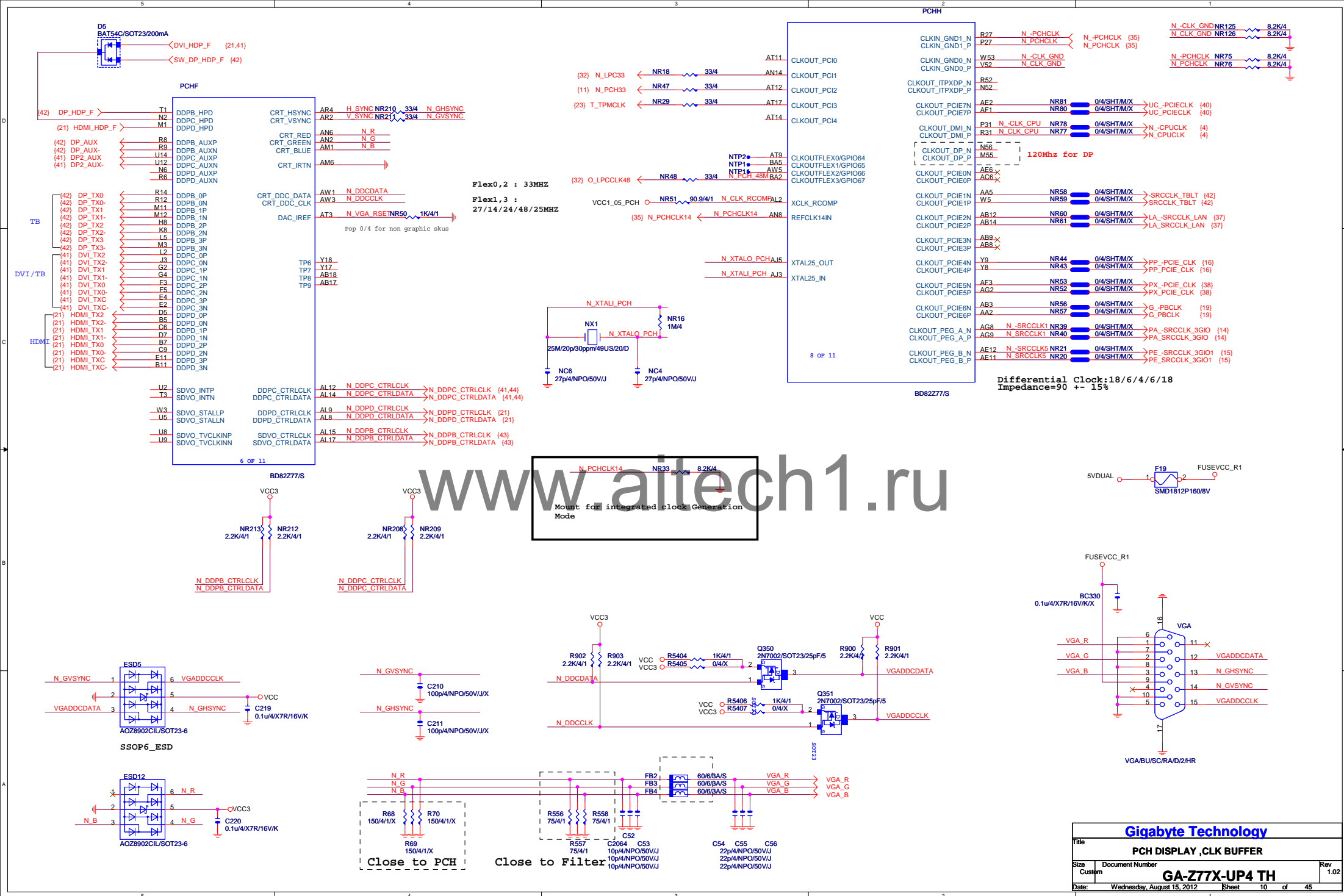
DDR TERMINATION
CHANNEL A/B

DDR15V Decouple

DDRVT Decouple







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

PCHC

PCHA

MB-ID

For WIFI

CL_CLK1

CL_DATA1

CL_RST1#

APWROK

PWM0

PWM1

PWM2

PWM3

TACH0/GPIO17

TACH1/GPIO1

TACH2/GPIO6

TACH3/GPIO7

TACH4/GPIO68

TACH5/GPIO69

TACH6/GPIO70

TACH7/GPIO71

SST

SCLOCK/GPIO22

SLOAD/GPIO38

SDATAOUT0/GPIO39

SDATAOUT1/GPIO48

CLKIN_SATA_N

CLKIN_SATA_P

SATALED#

SATAICOMPI

SATAICOMPO

SATA0GP/GPIO21

SATA1GP/GPIO19

SATA2GP/GPIO36

SATA3GP/GPIO37

SATA4GP/GPIO16

SATA5GP/GPIO49

SATA3COMPI

SATA3RCOMPO

TP16

SATA3RBIAS

A20GATE

INIT3_3V#

RCIN#

SERIRQ

THRMTRIP#

PECI

PMSYNCH

3 OF 11

NC_5

AY20

NR177

0/4/SH/T/MX

N ME PWROK

NC19

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

N GPIO17

N GPIO1

N GPIO6

N PHASE_CTRL

N GPIO68

N GPIO69

N GPIO70

N GPIO71

(32) N_SSTCTL

BA53

BR54

BF55

AW53

N GPIO22

N GPIO38

N GPIO39

N GPIO48

NRN8

8.2K/8P4R/4

N GPIO70

N GPIO6

N GPIO17

N GPIO1

N GPIO71

N PHASE_CTRL

NRN7

8.2K/8P4R/4

N GPIO21

N GPIO19

N GPIO36

N GPIO37

N GPIO16

N GPIO49

N GPIO21

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N GPIO19

N GPIO36

N GPIO37

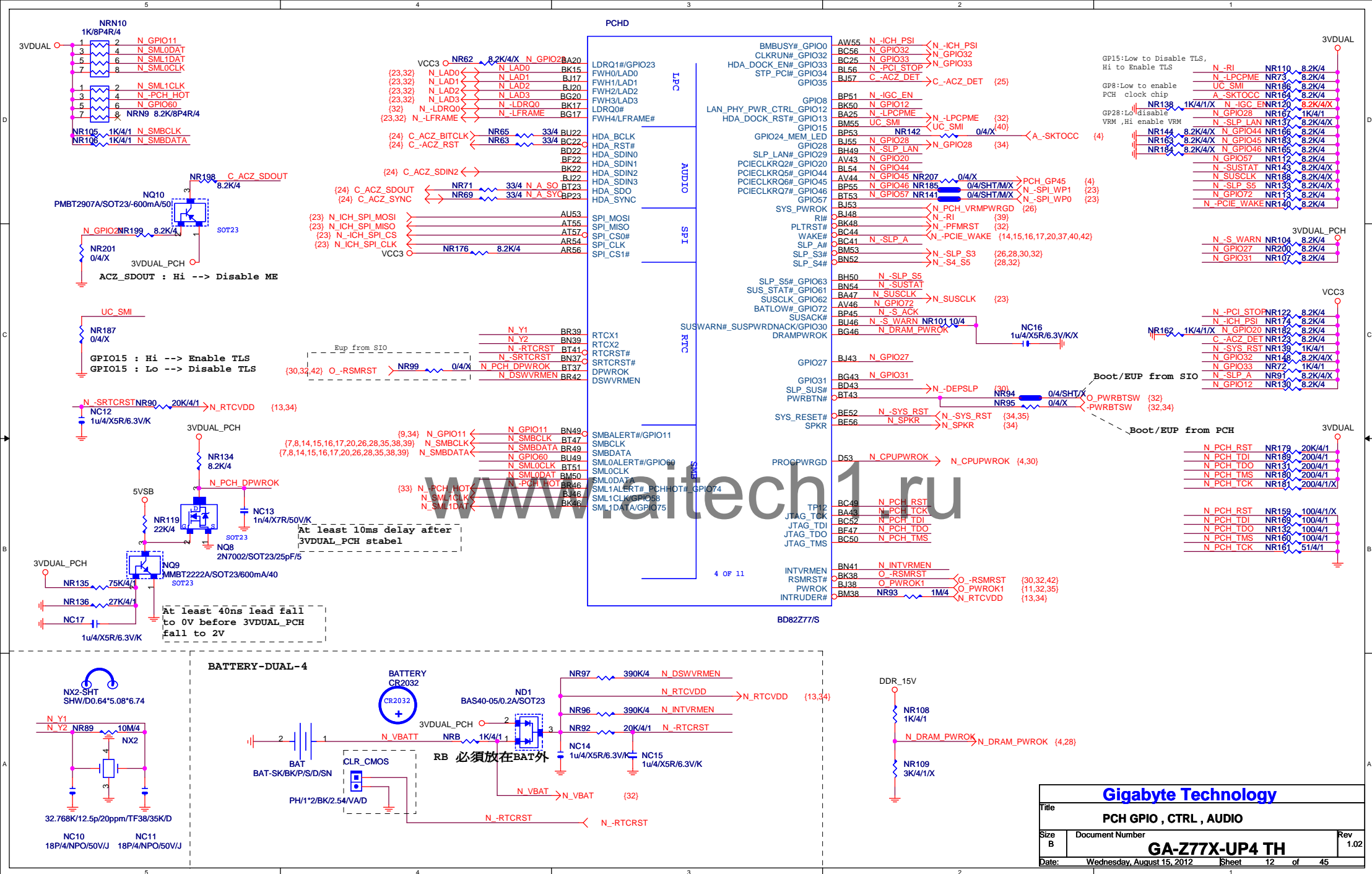
N GPIO16

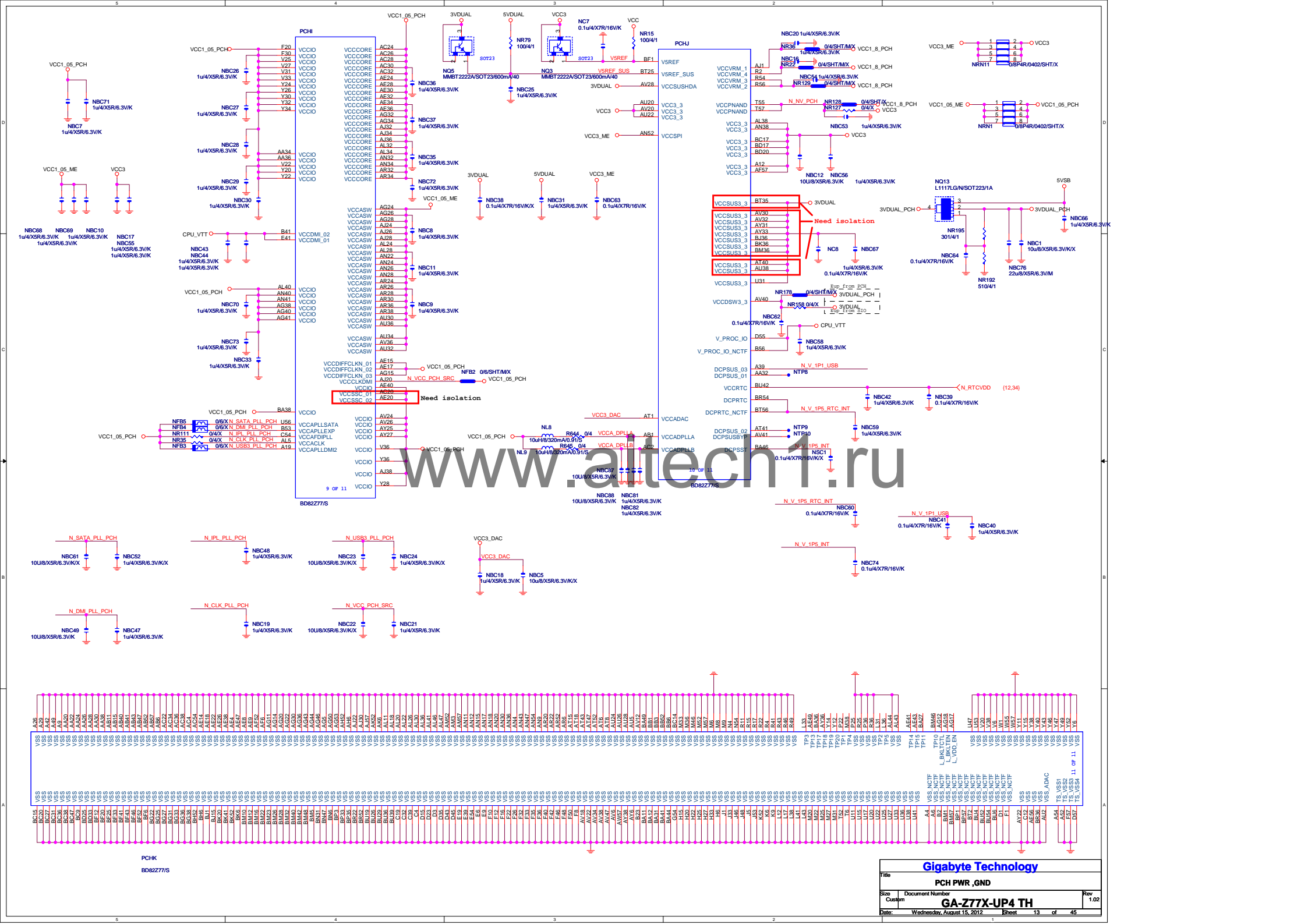
N GPIO49

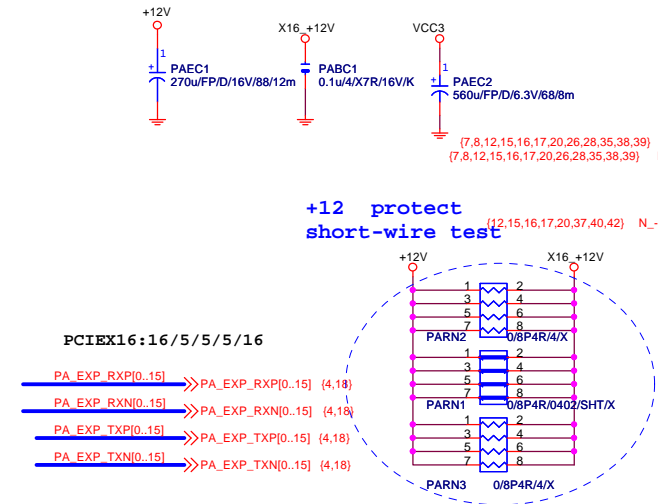
N GPIO21

N GPIO19

N GPIO36







PA EXP TXP0	PAC5	0.22uF/X5R6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22uF/X5R6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22uF/X5R6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22uF/X5R6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22uF/X5R6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22uF/X5R6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22uF/X5R6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22uF/X5R6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22uF/X5R6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22uF/X5R6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22uF/X5R6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22uF/X5R6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22uF/X5R6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22uF/X5R6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22uF/X5R6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC19	0.22uF/X5R6.3V/K	PA EXP TXN7 C
PA EXP SW TXP8	PAC20	0.22uF/X5R6.3V/K	PA EXP SW TXP8 C
PA EXP SW TXN8	PAC21	0.22uF/X5R6.3V/K	PA EXP SW TXN8 C
PA EXP SW TXP9	PAC22	0.22uF/X5R6.3V/K	PA EXP SW TXP9 C
PA EXP SW TXN9	PAC23	0.22uF/X5R6.3V/K	PA EXP SW TXN9 C
PA EXP SW TXP10	PAC24	0.22uF/X5R6.3V/K	PA EXP SW TXP10 C
PA EXP SW TXN10	PAC25	0.22uF/X5R6.3V/K	PA EXP SW TXN10 C
PA EXP SW TXP11	PAC26	0.22uF/X5R6.3V/K	PA EXP SW TXP11 C
PA EXP SW TXN11	PAC27	0.22uF/X5R6.3V/K	PA EXP SW TXN11 C
PA EXP SW TXP12	PAC28	0.22uF/X5R6.3V/K	PA EXP SW TXP12 C
PA EXP SW TXN12	PAC29	0.22uF/X5R6.3V/K	PA EXP SW TXN12 C
PA EXP SW TXP13	PAC30	0.22uF/X5R6.3V/K	PA EXP SW TXP13 C
PA EXP SW TXN13	PAC31	0.22uF/X5R6.3V/K	PA EXP SW TXN13 C
PA EXP SW TXP14	PAC32	0.22uF/X5R6.3V/K	PA EXP SW TXP14 C
PA EXP SW TXN14	PAC33	0.22uF/X5R6.3V/K	PA EXP SW TXN14 C
PA EXP SW TXP15	PAC34	0.22uF/X5R6.3V/K	PA EXP SW TXP15 C
PA EXP SW TXN15	PAC35	0.22uF/X5R6.3V/K	PA EXP SW TXN15 C

PA EXP SW RXP8.15] >> PA_EXP_SW_RXP[8.15] (18)

PA EXP SW RXN8.15] >> PA_EXP_SW_RXN[8.15] (18)

PA EXP SW TXP8.15] >> PA_EXP_SW_TXP[8.15] (18)

PA EXP SW TXN8.15] >> PA_EXP_SW_TXN[8.15] (18)

PCI-E REV:1.1--> 2.5GHZ

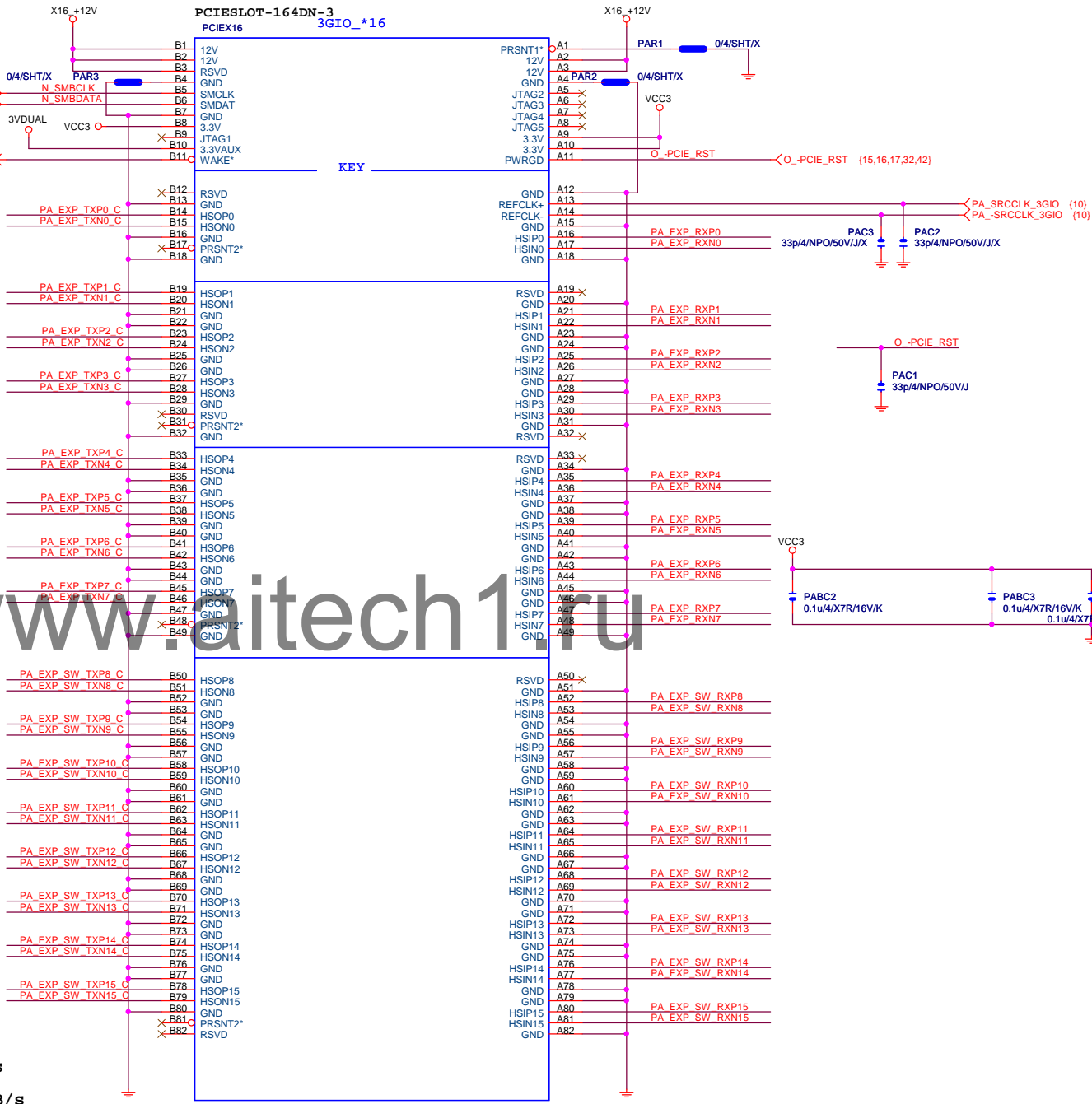
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

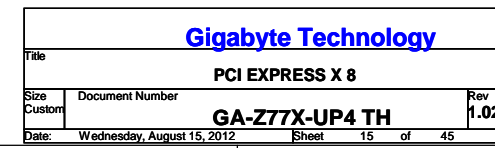
PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

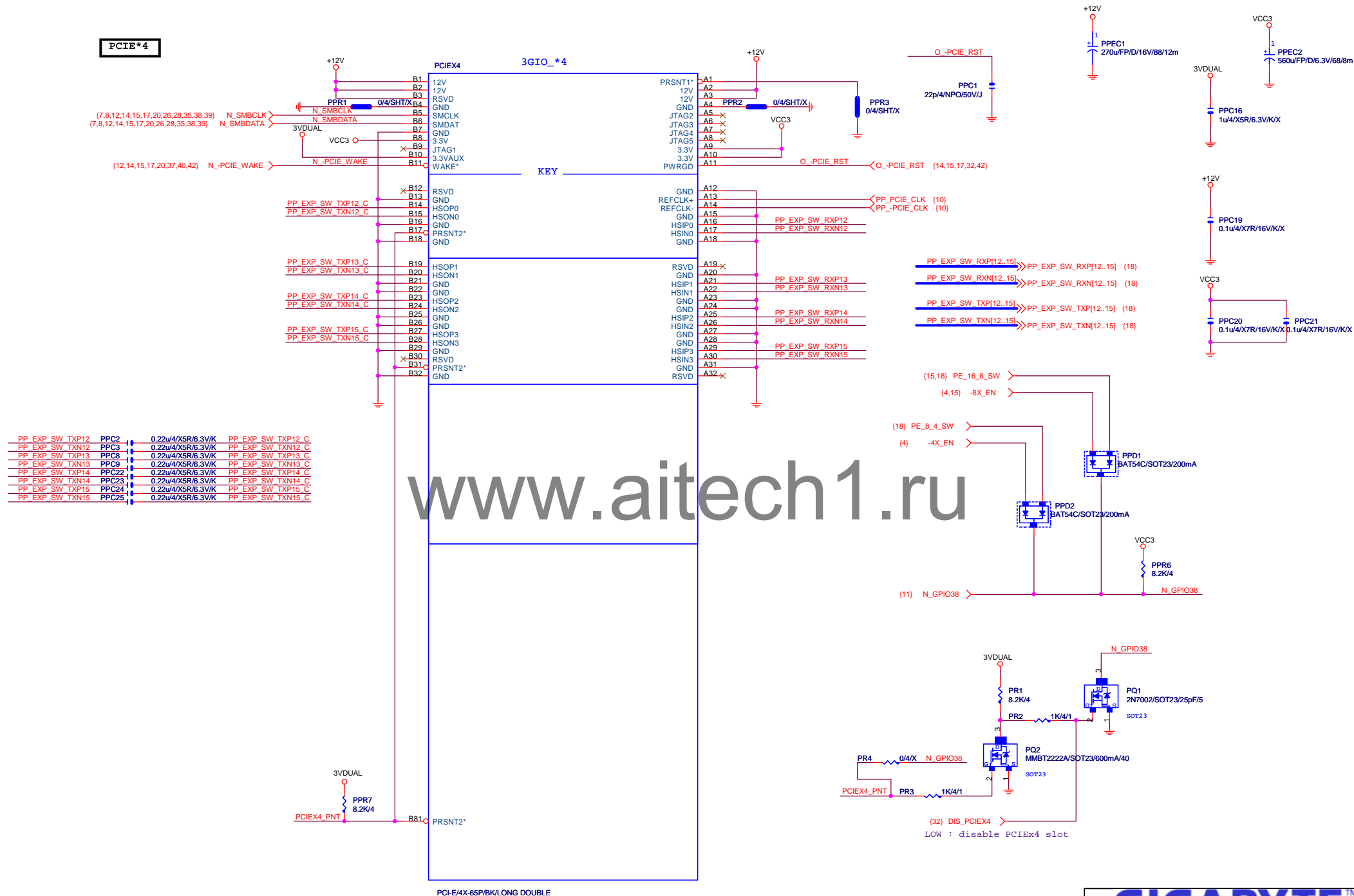


PCI-E/16X-164P/BK/LONG DOUBLE

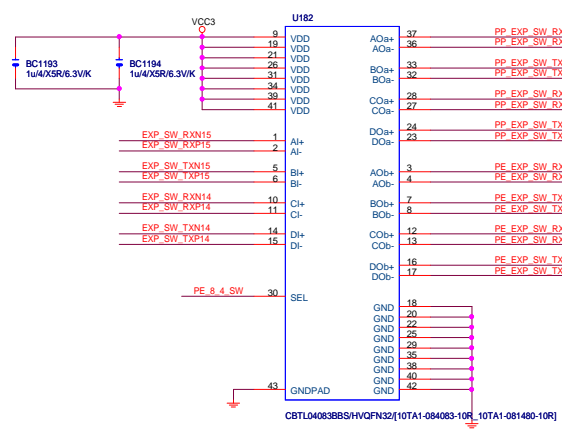
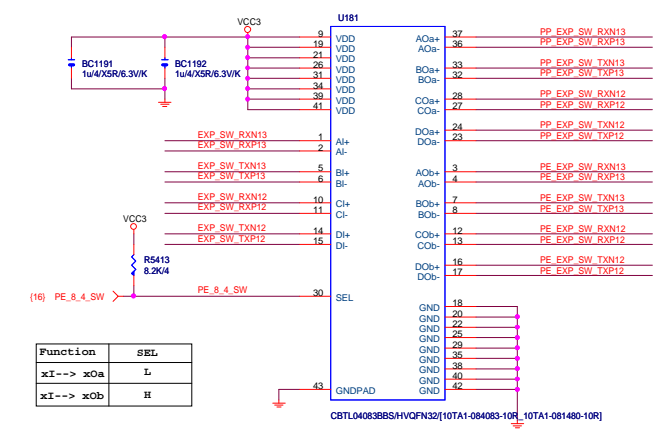
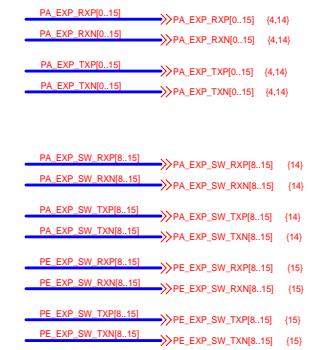
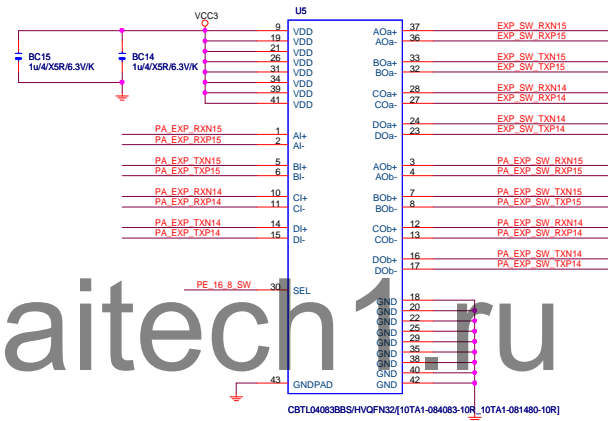
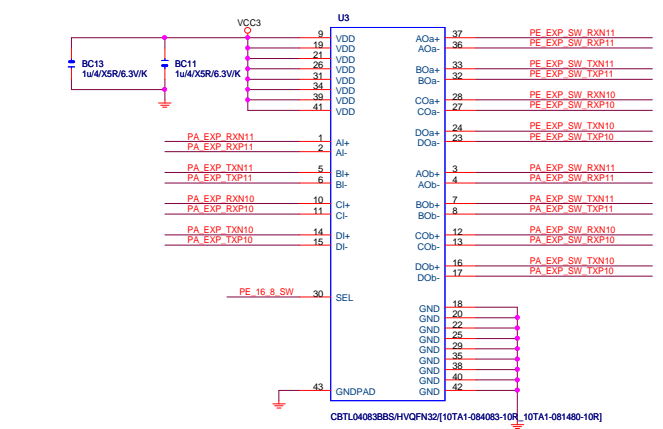
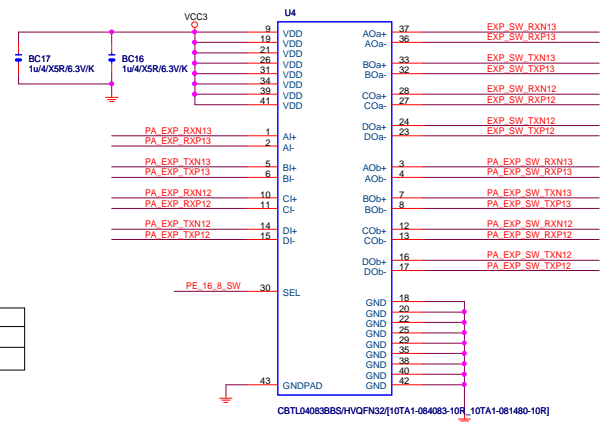
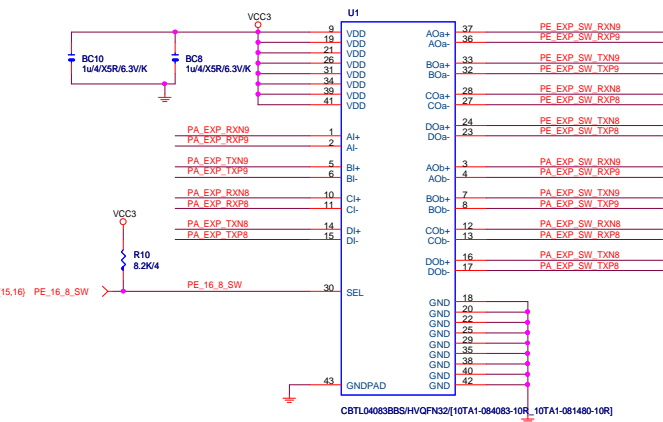
Gigabyte Technology		
Title		
PCI EXPRESS X 16		
Size	Document Number	Rev
Custom	GA-Z77X-UP4 TH	1.02
Date:	Wednesday, August 15, 2012	Sheet 14 of 45

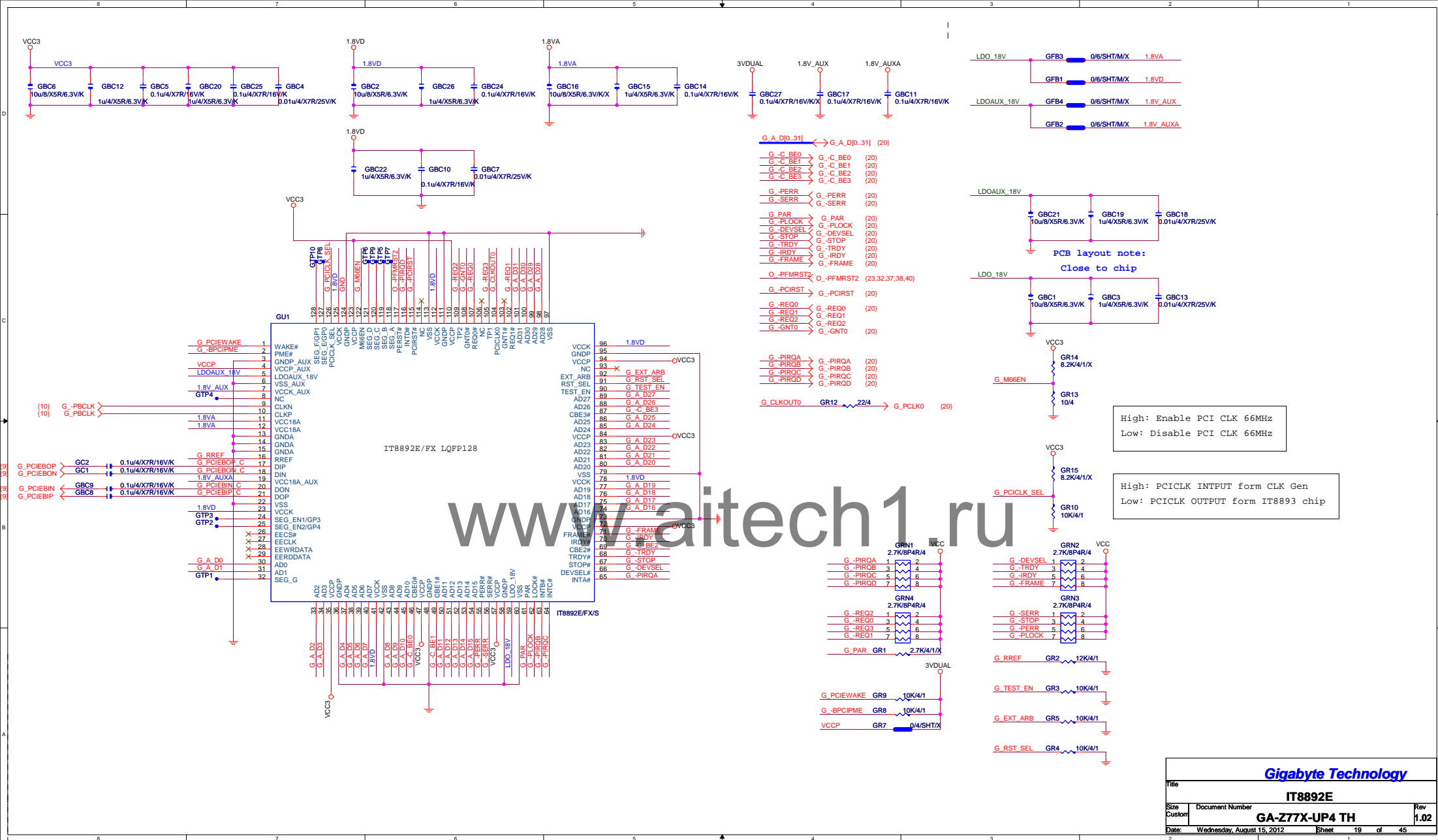


PCIE*4

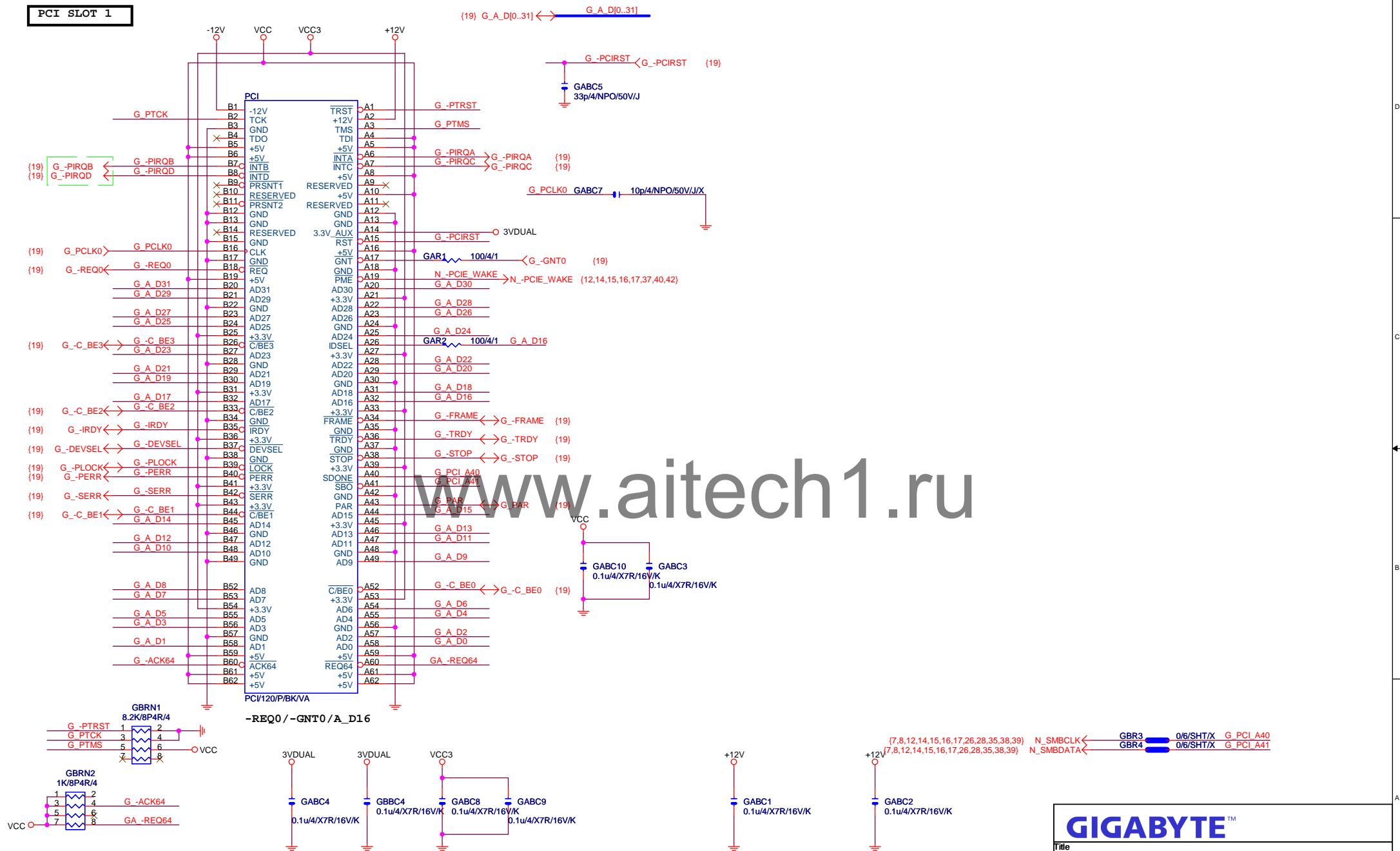


PCI-E/4X-65P/BK/LONG DOUBLE



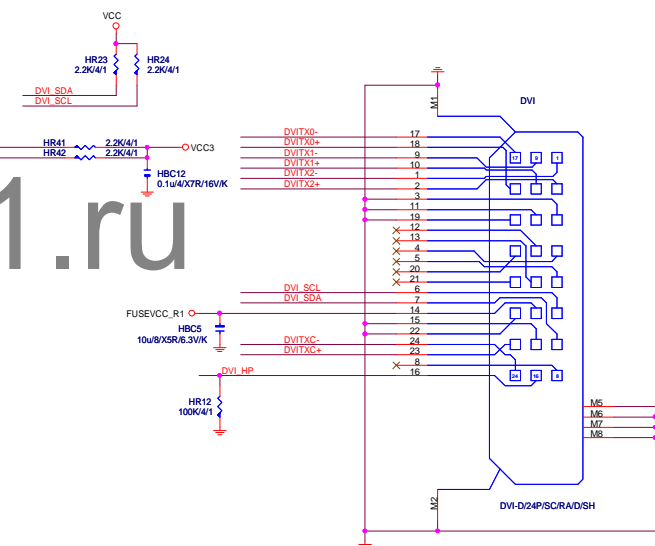
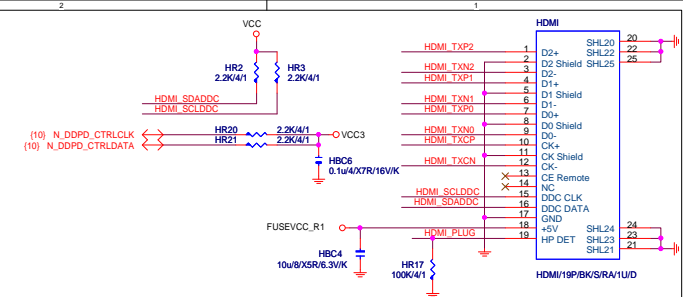


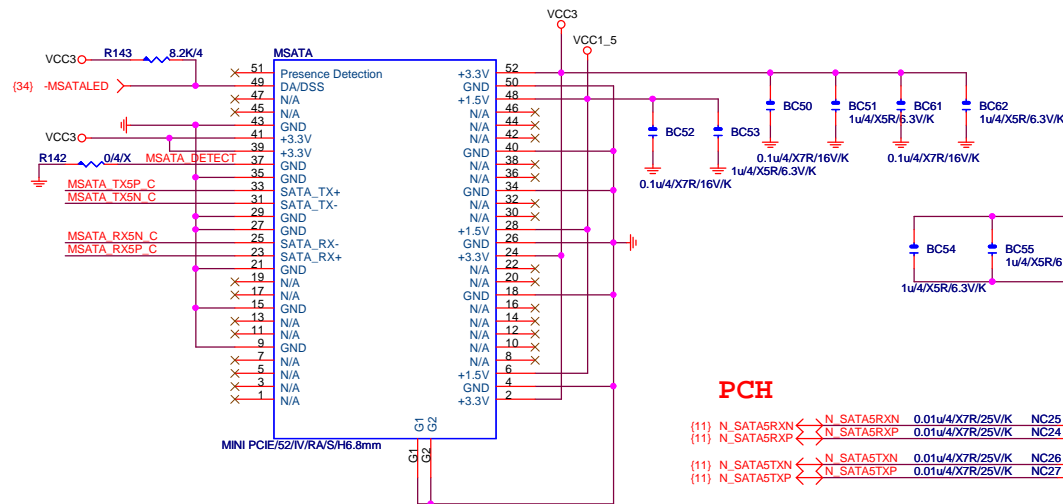
PCI SLOT 1



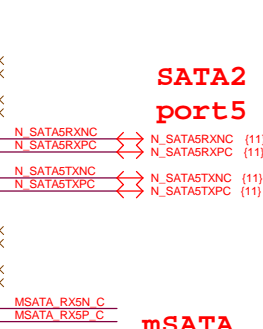
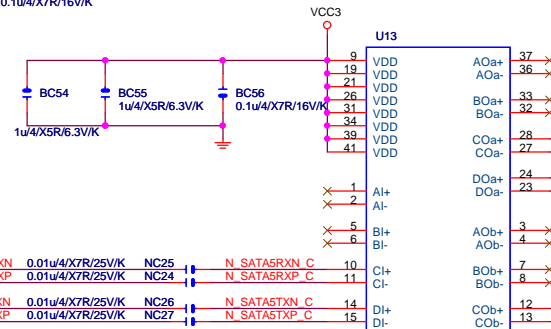
GIGABYTE™

Title			
PCI SLOT 1			
Size	Document Number	Rev	
Custom	GA-Z77X-UP4 TH	1.02	
Date:	Wednesday, August 15, 2012	Sheet	20 of 45





N SATA5RXN C R134 0/4/X N SATA5RXNC
 N SATA5RXP C R136 0/4/X N SATA5RXPC
 N SATA5TXN C R137 0/4/X N SATA5TXNC
 N SATA5TXP C R139 0/4/X N SATA5TXPC
FIX PCH-SATA --> SATA5
R請放在U13背面

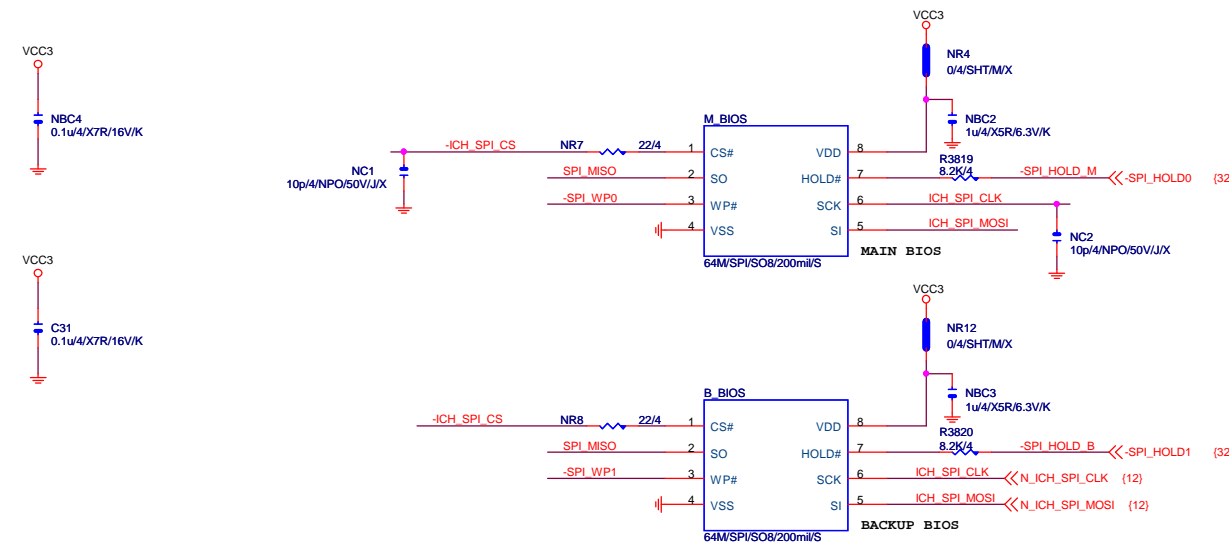


**SATA2
port5**

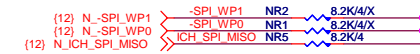
mSATA

Function	SEL
xI--> xOa	L
xI--> xOb	H

www.gitech1.ru



MOSI For DMI RX Termination Voltage



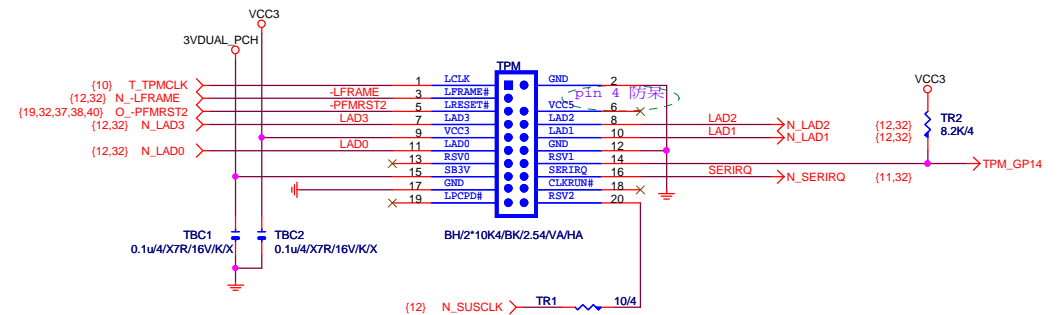
Default int pull up



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

1 means floating
0 means PD 1K

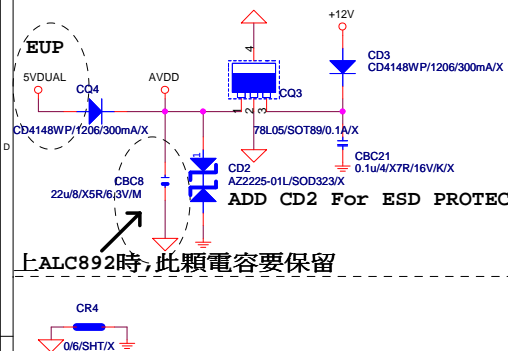
www.aitech1.ru



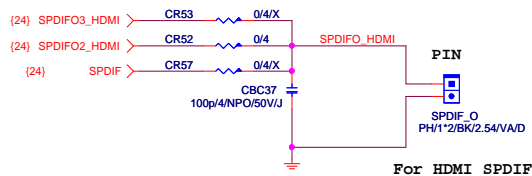
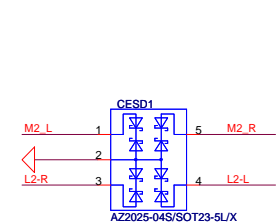
Gigabyte Technology

Title				BIOS	
Size	Custom	Document Number	GA-Z77X-UP4 TH		Rev
				1.02	
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CODEC POWER/EMI PAD

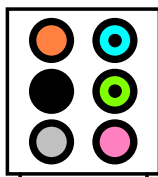


上ALC892時,此顆電容要保留

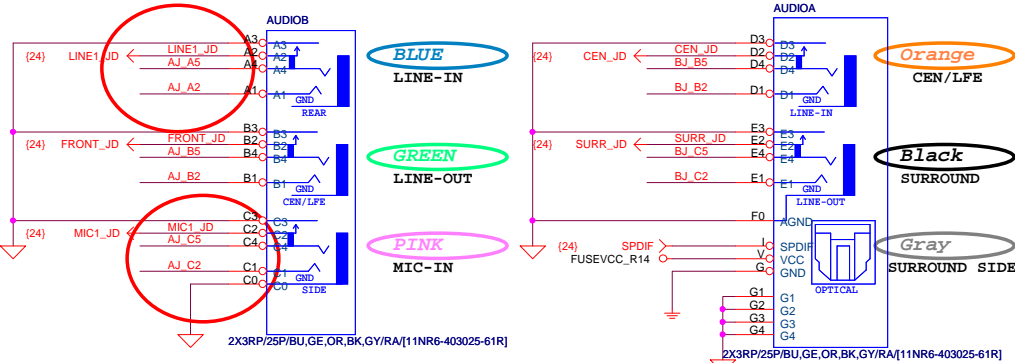
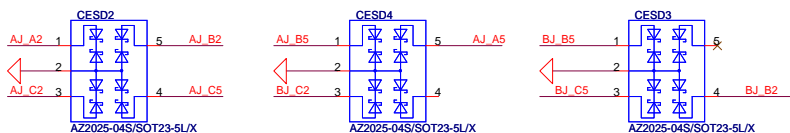


AZALIA JACK

BTX AZALIA CONNECTOR



11NR6-403007-21R



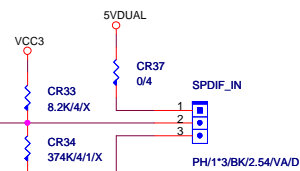
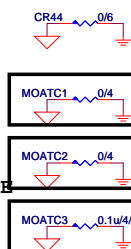
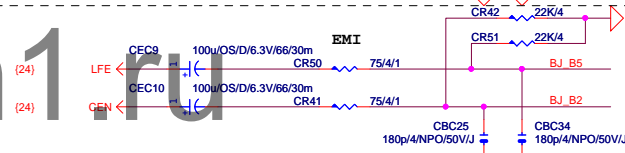
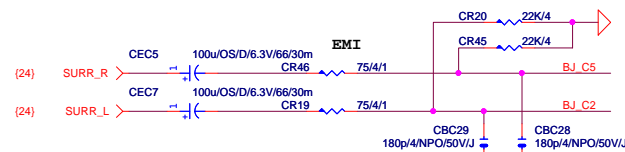
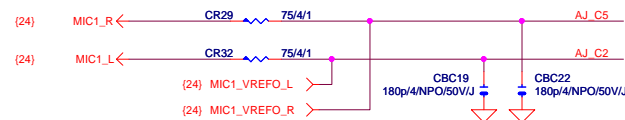
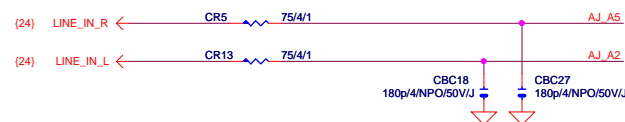
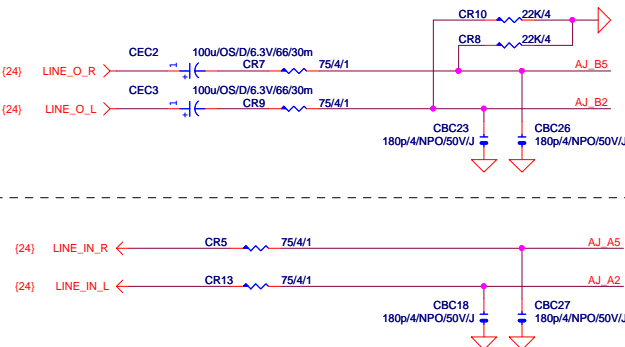
LINE-OUT

Audio jack --> USB

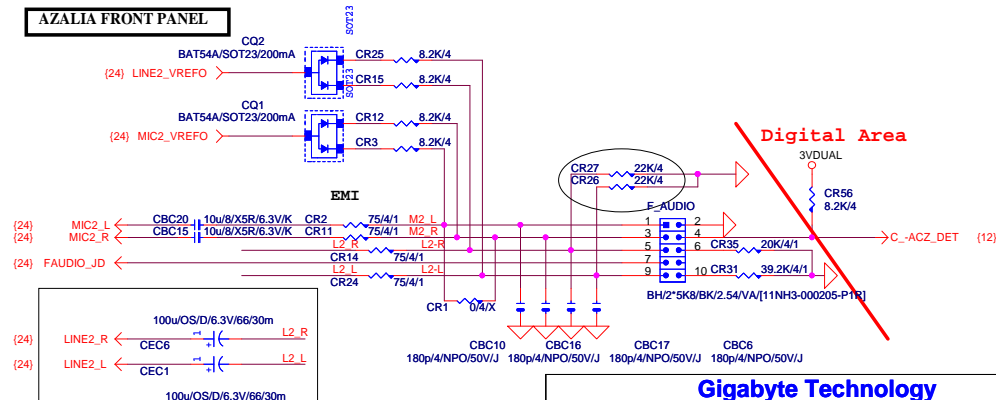
Near Audio jack left

```
Codec --> Audio jack
```

F_AUDIO

**MIC-IN****CEN/LFE****SURR BACK**

AZALIA FRONT PANEL



Digital Area

CR
8.2

CR35 20K/4/1

10 CR31 39.2K/4/1

CBC6
50V/J 180p/4/NPO/50V/J

Gigabyte Tec

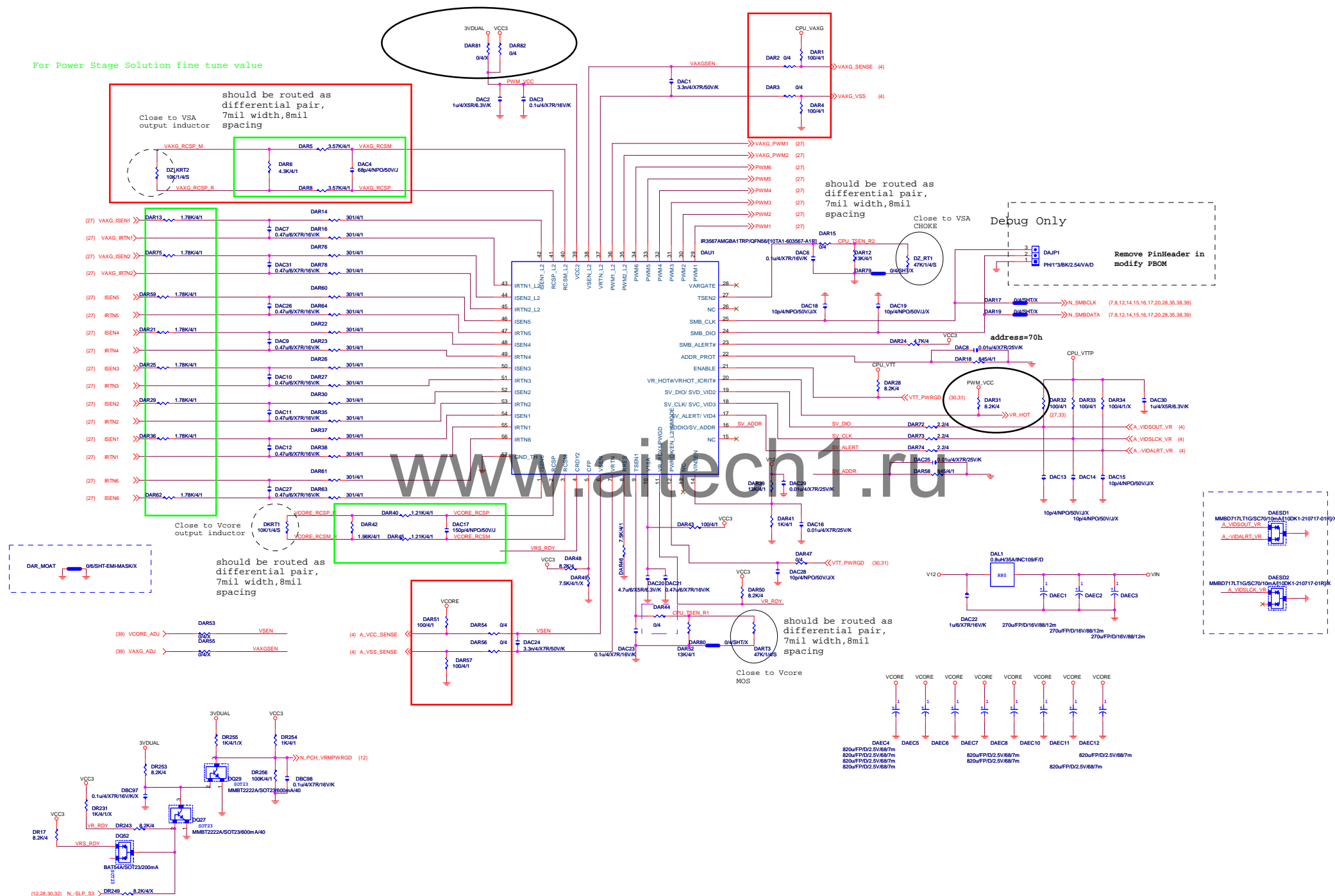
AUDIO JACK

GA-Z77X-U

August 15, 2012 Sheet

1

For Power Stage Solution fine tune value

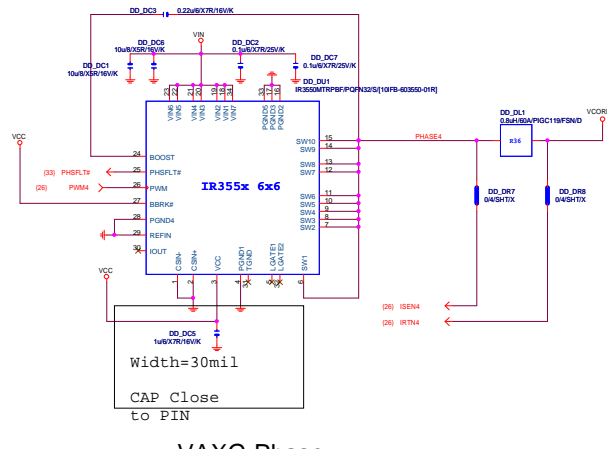
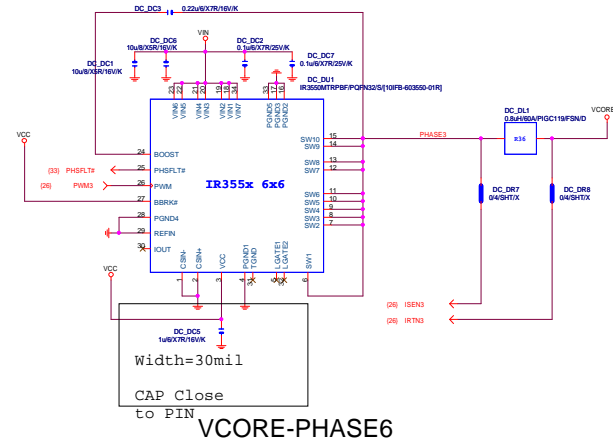
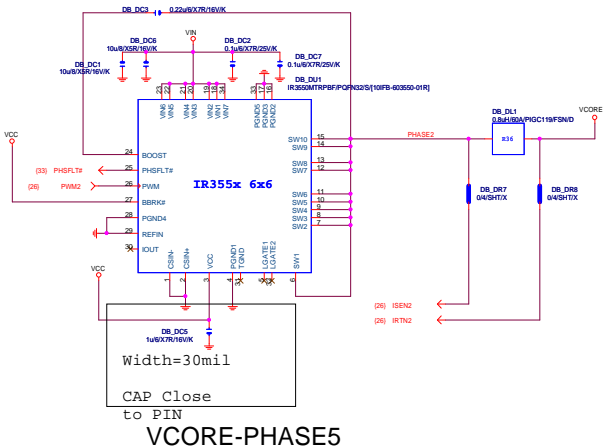
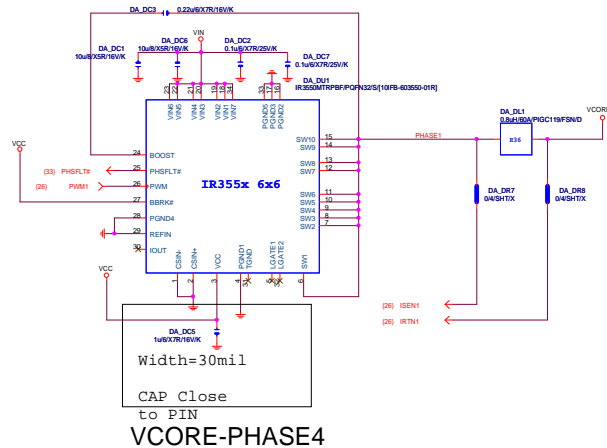


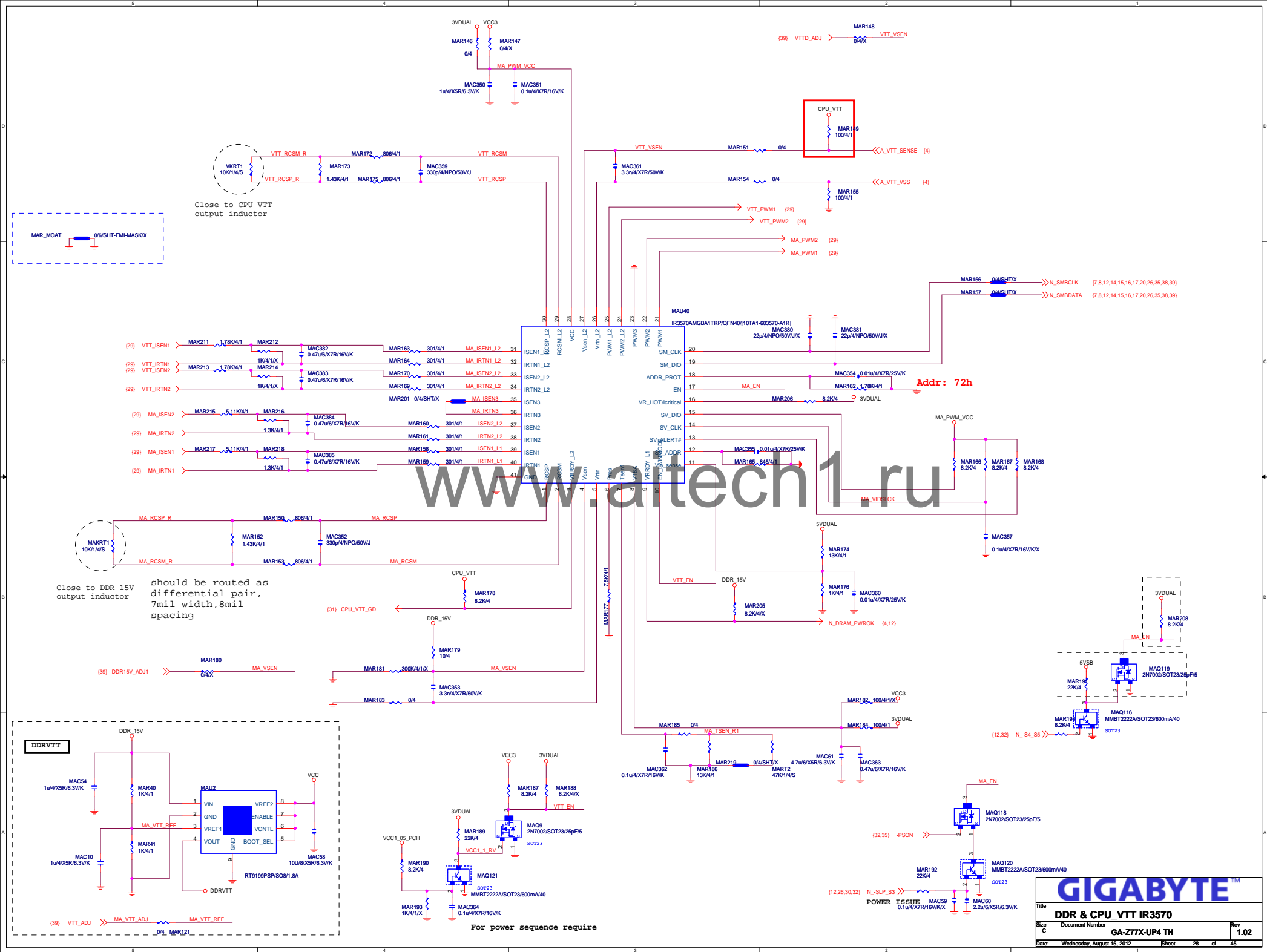
VCORE-PHASE1

(3553 / 3550 co-1ay)

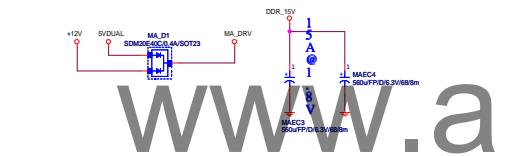
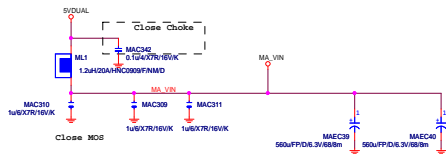
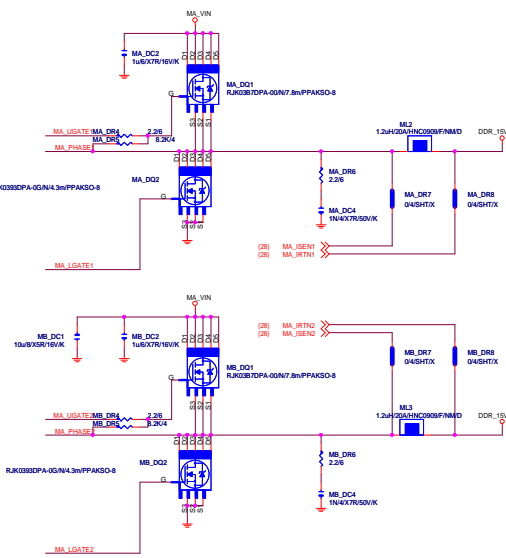
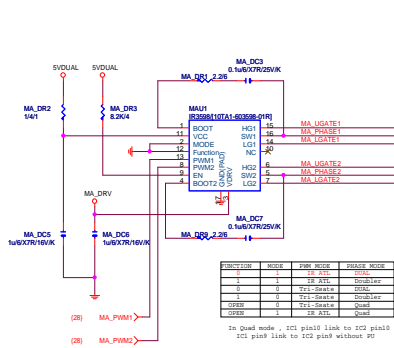
VCORE-PHASE2

VCORE-PHASE3

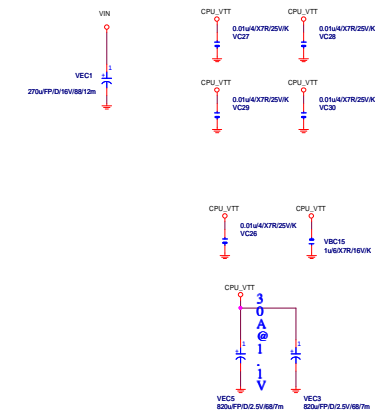
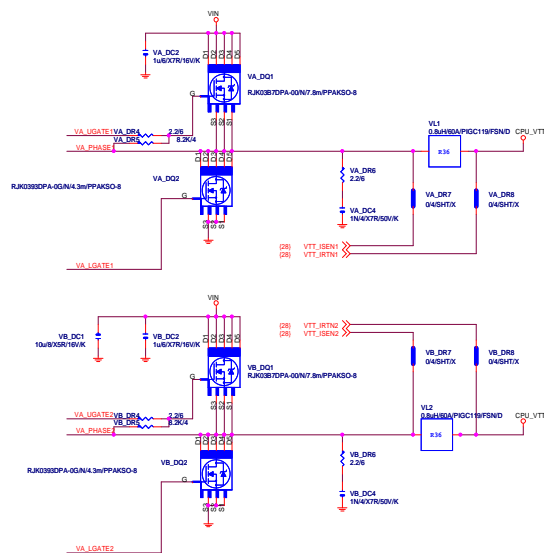
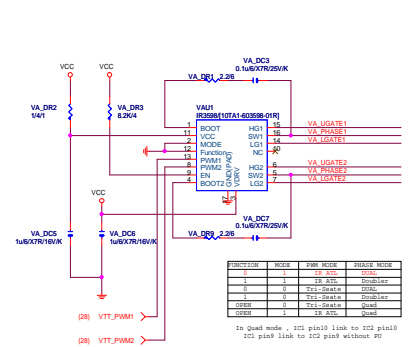


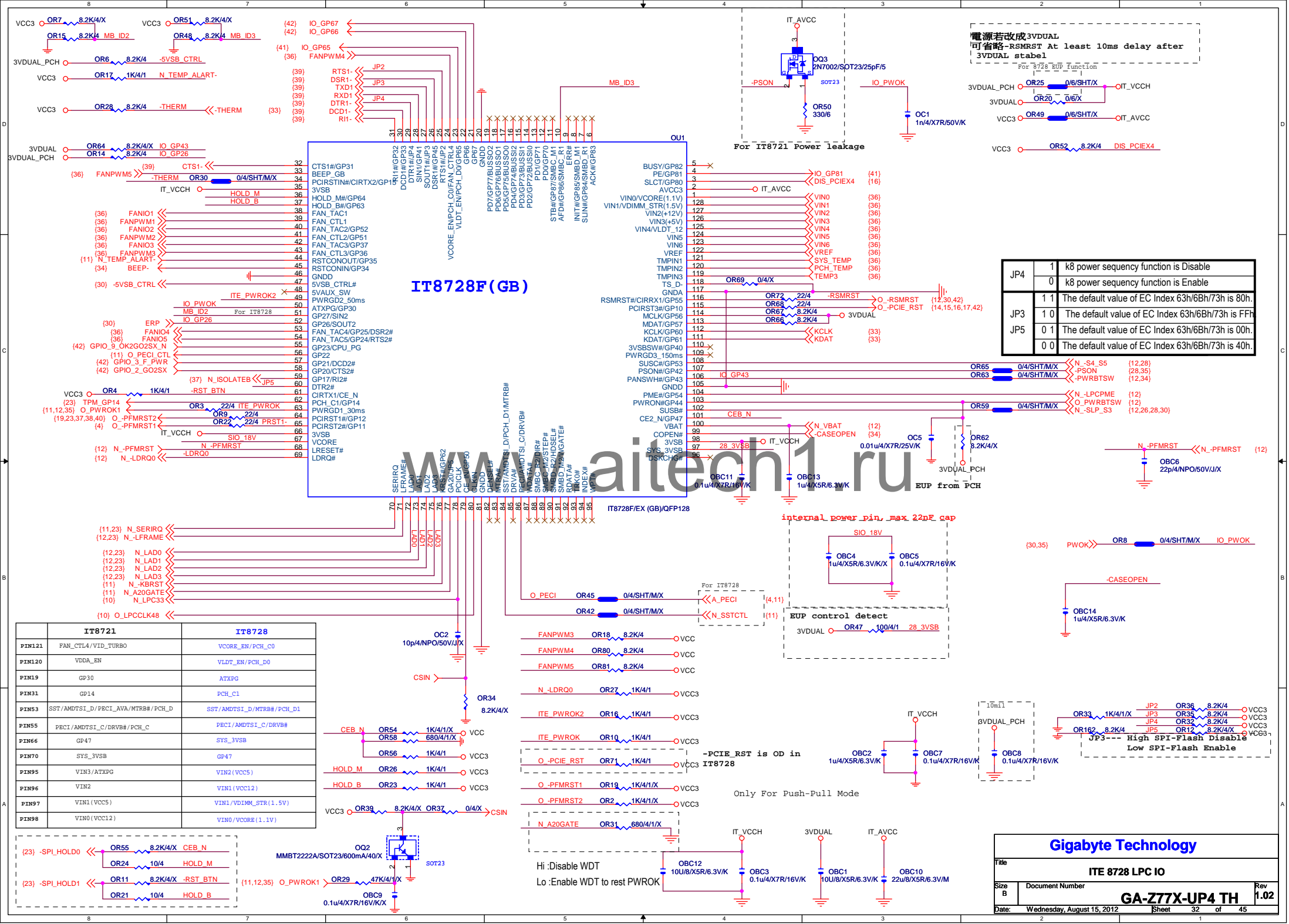


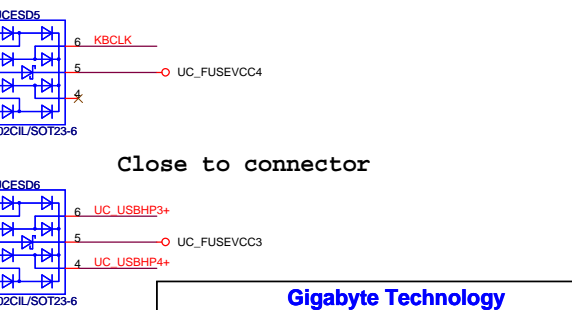
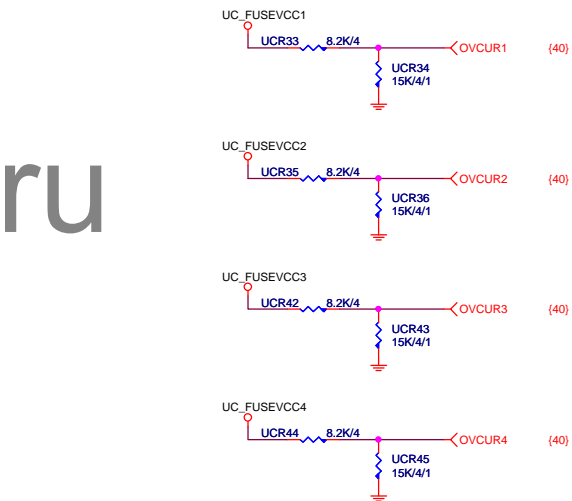
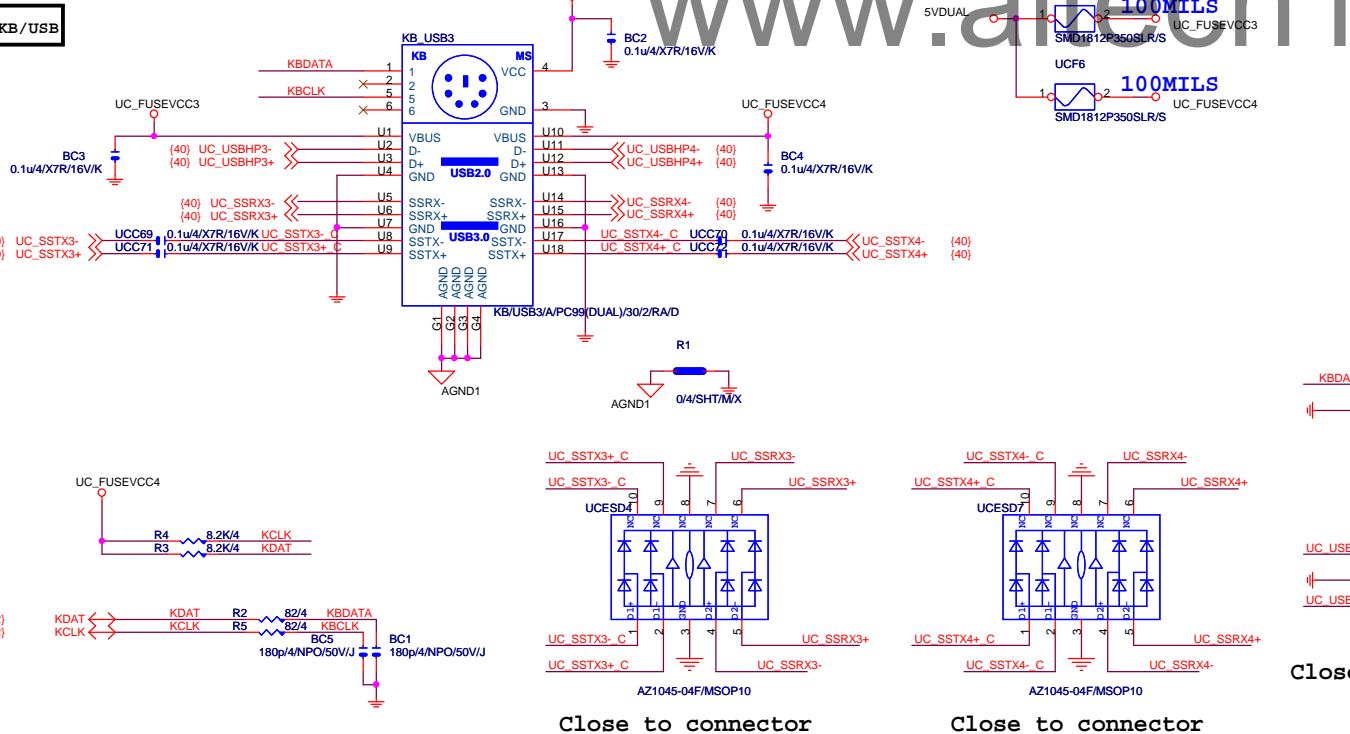
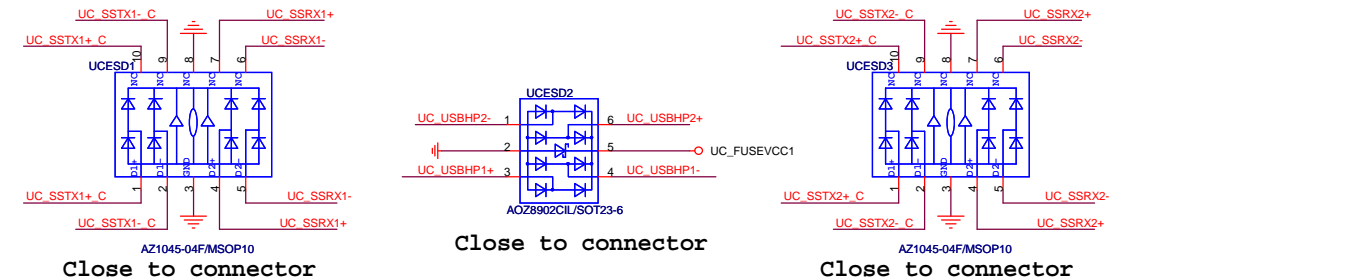
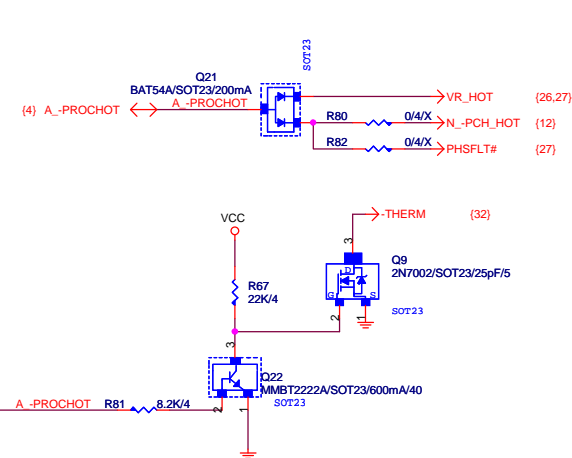
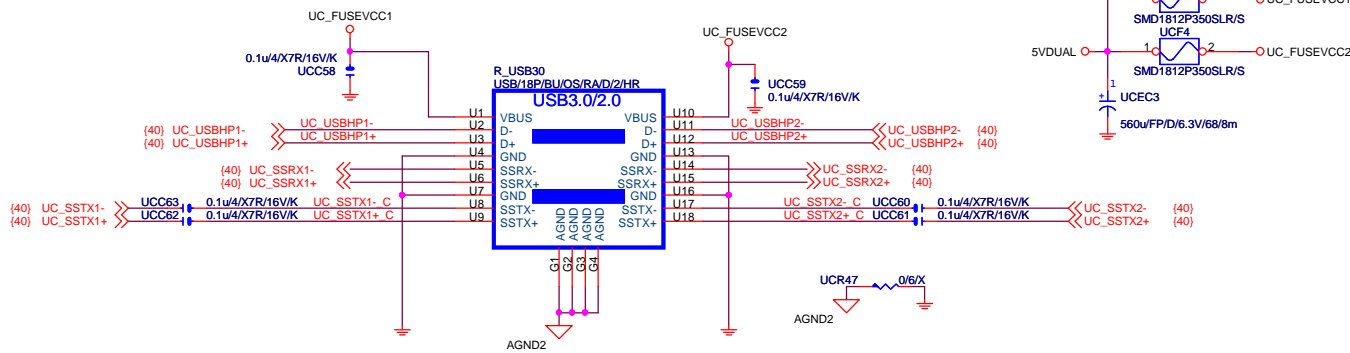
DDR_15V



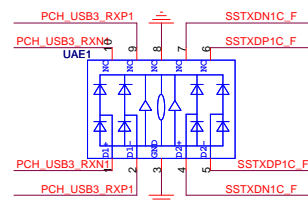
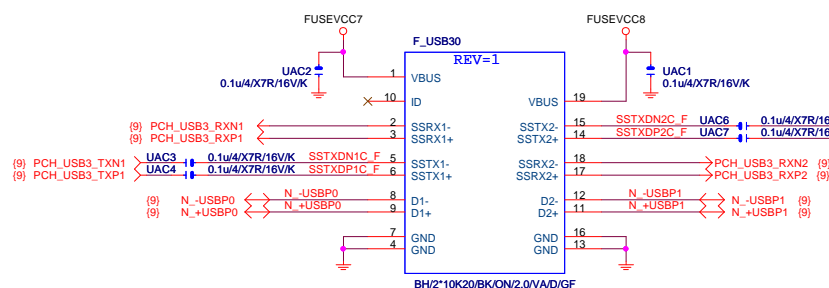
CPU_VTT





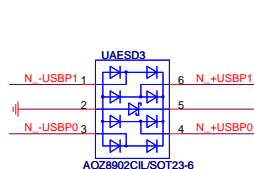


Gigabyte Technology			
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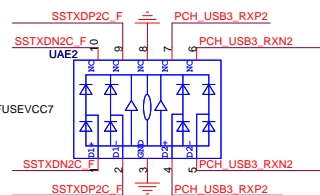


AZ1045-04F/MSOP10

Close to connector

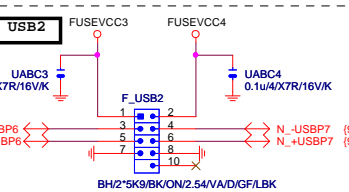
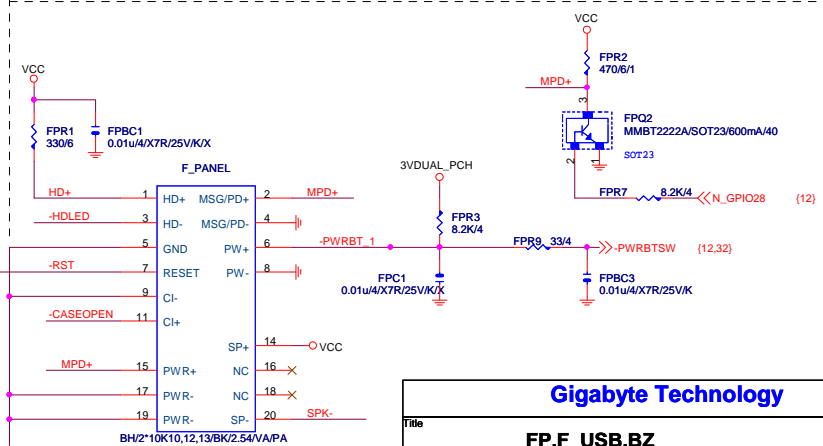
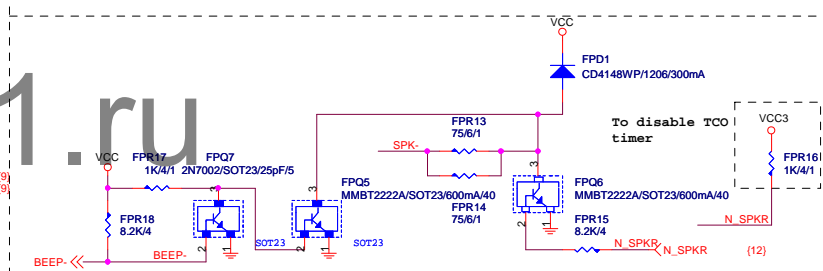
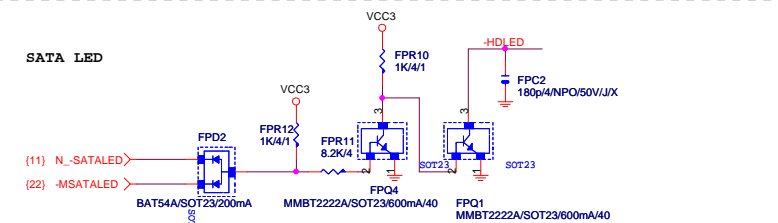
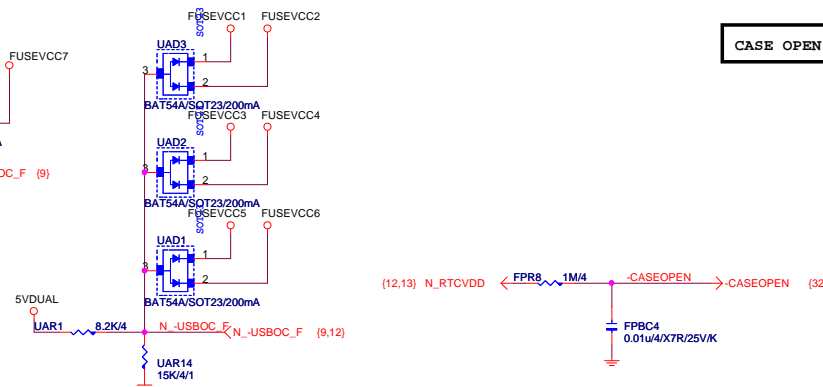
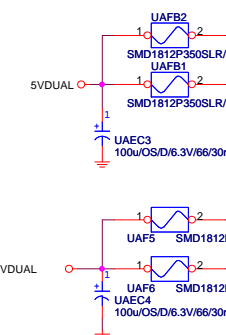


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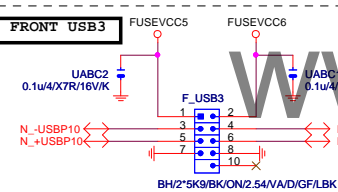


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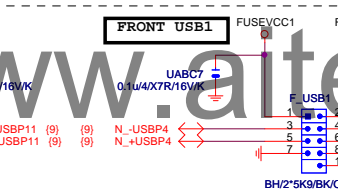
Close to connector



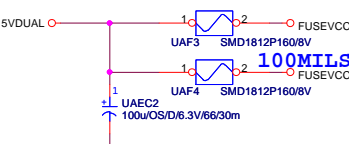
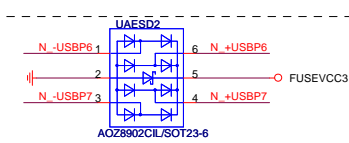
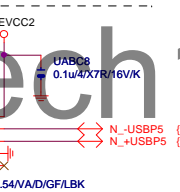
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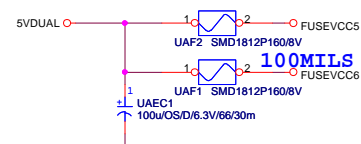
Close to connector



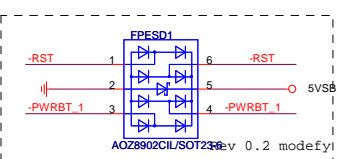
Close to connector



100MILS



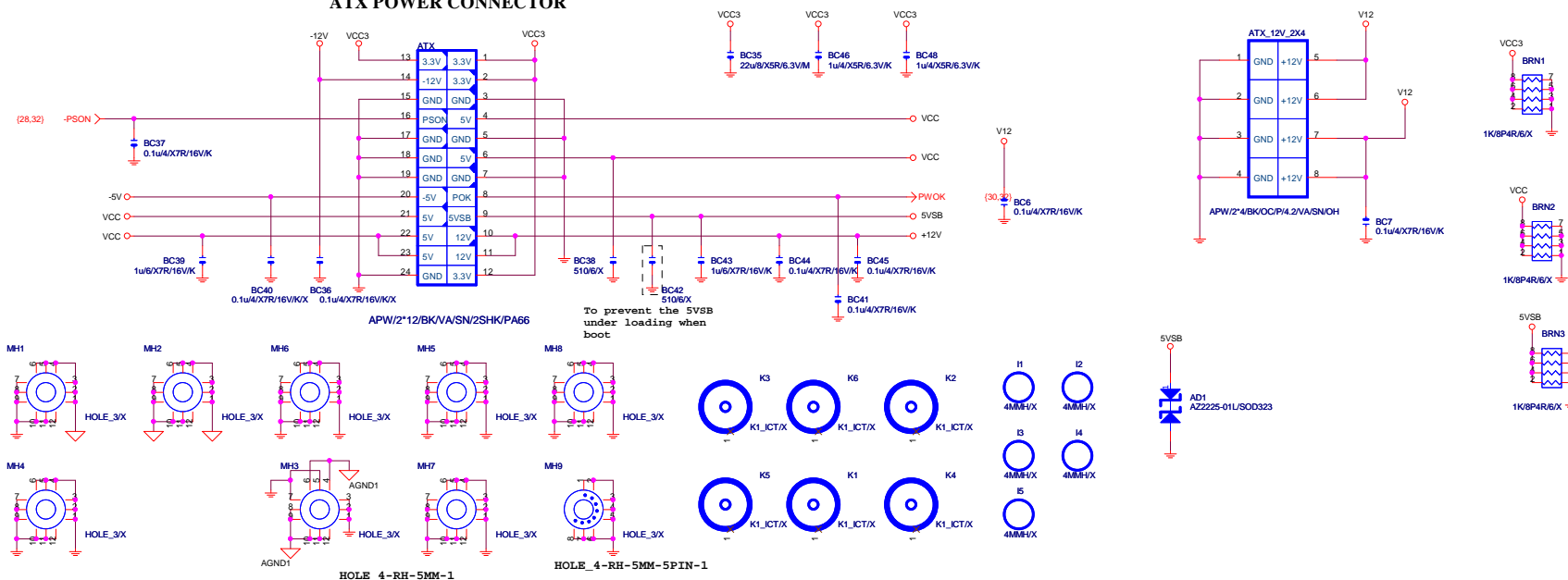
100MILS



Close to connector



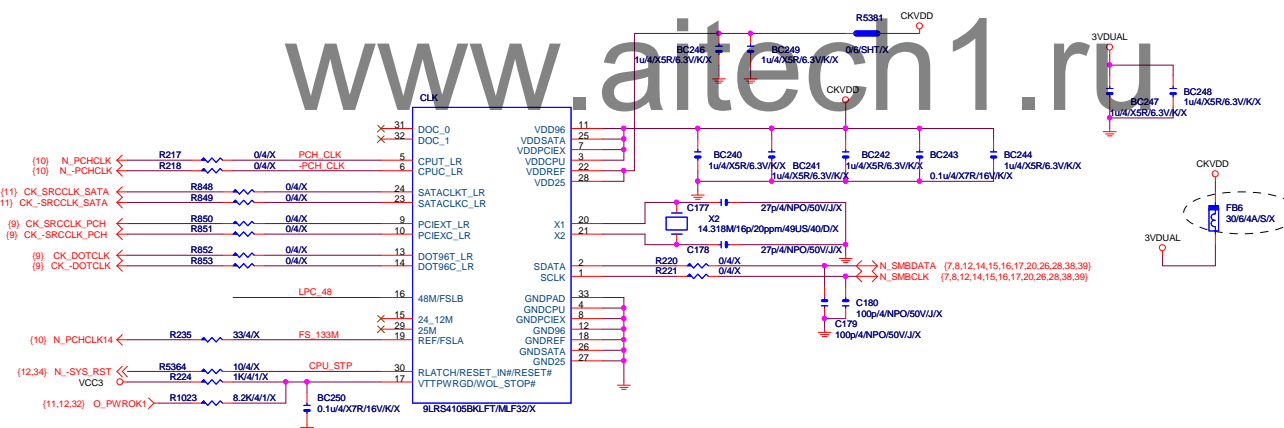
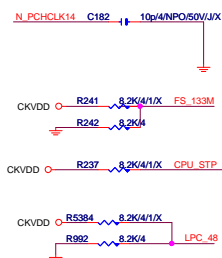
APW/2*12/BK/VA/SN/2SHK/PA66



CLK GEN CK505

CPU Frequency Selection

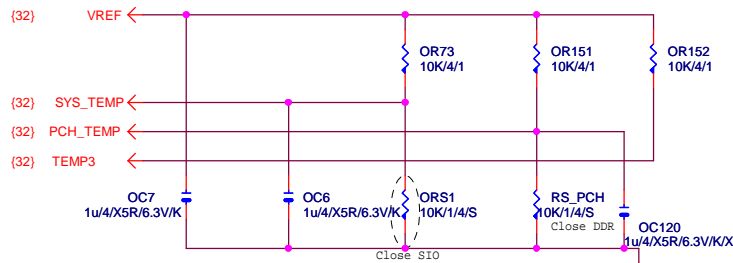
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



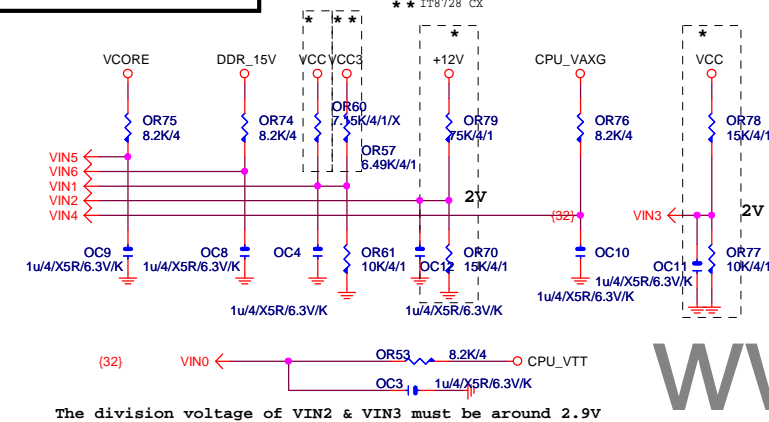
Gigabyte Technology

Title			
ATX POWER CONNECTOR			
Size	Document Number		Rev
Custom	GA-Z77X-UP4 TH		1.02
Date:	Wednesday, August 15, 2012	Sheet	35 of 45

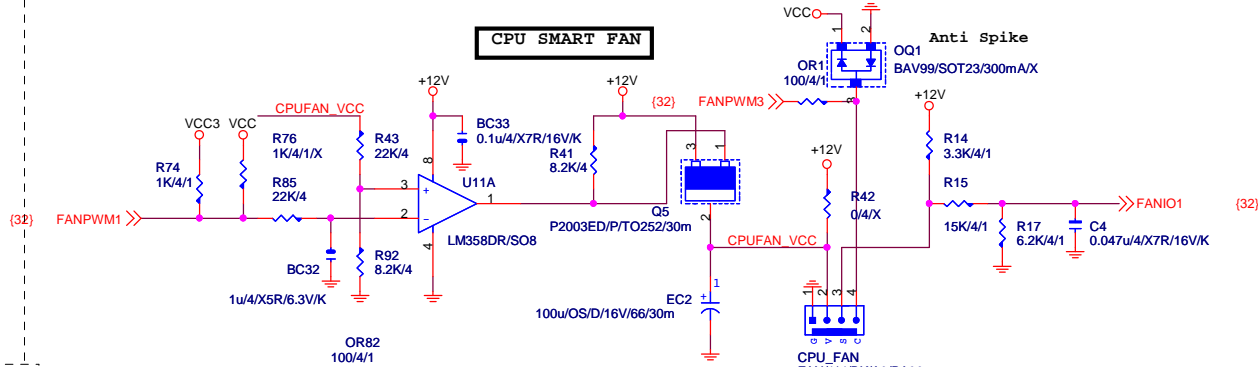
TEMP H/W MONITOR



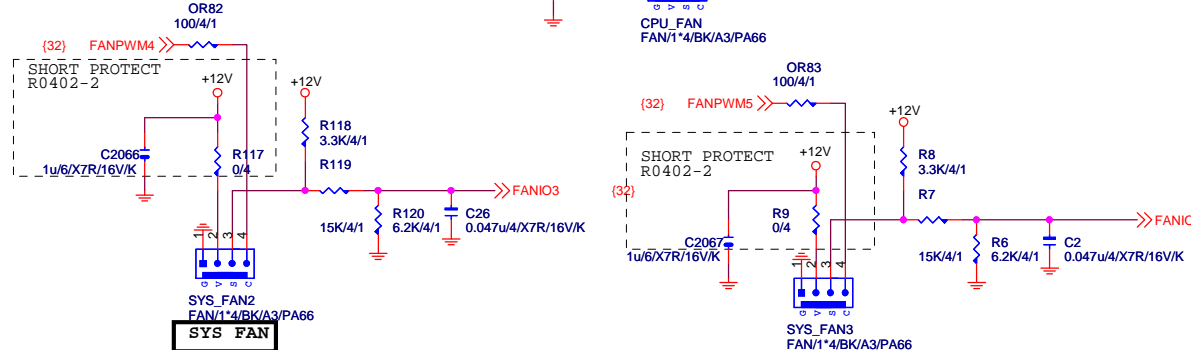
VOLTAGE-- H/W MONITOR



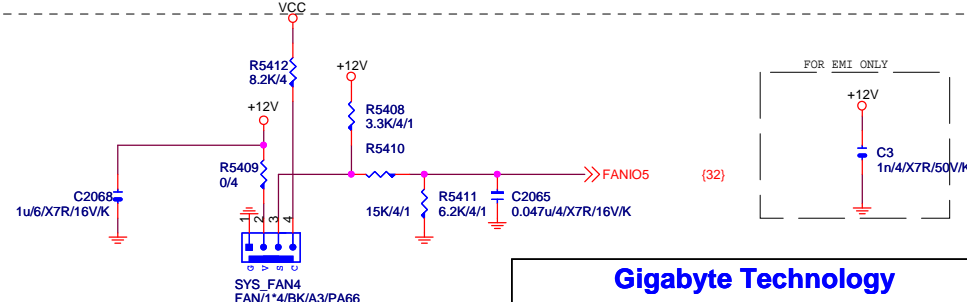
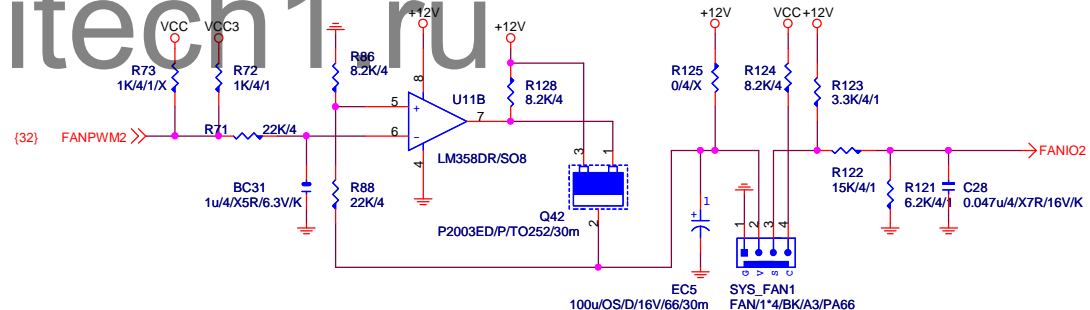
CPU SMART FAN



SYS FAN



Linear SYS_FAN

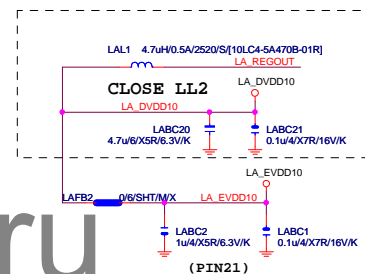
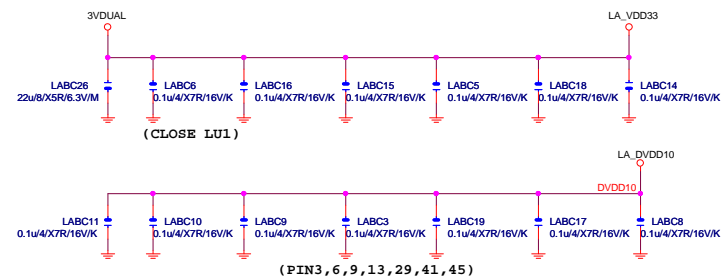
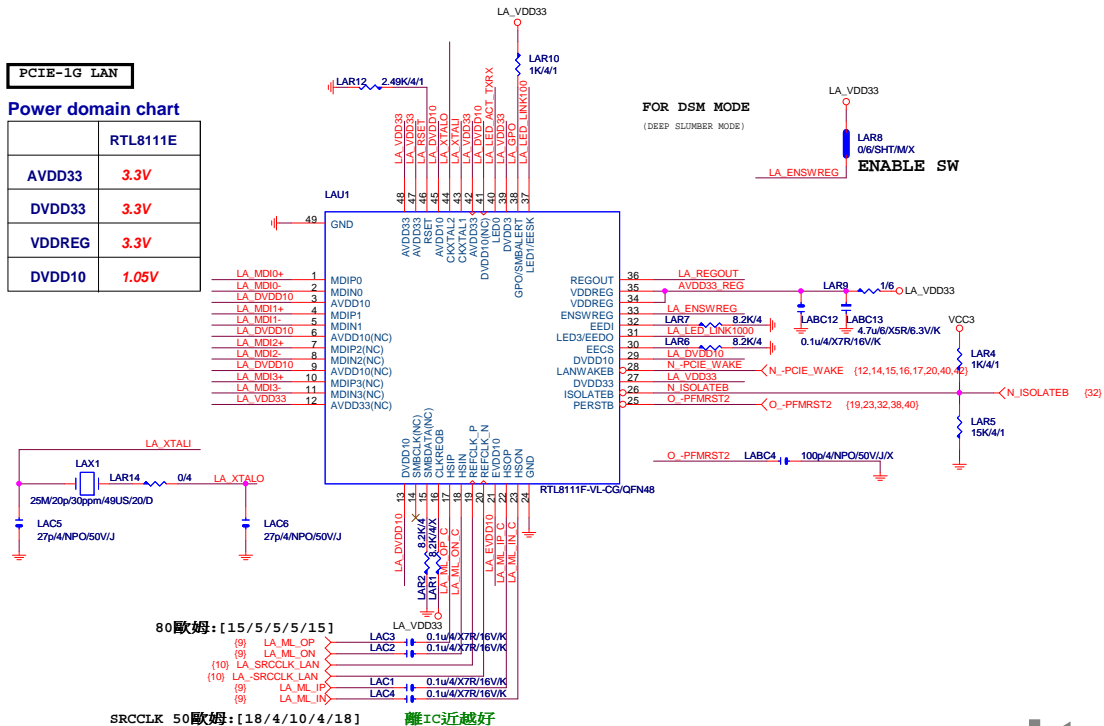


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Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-Z77X-UP4 TH	1.02	
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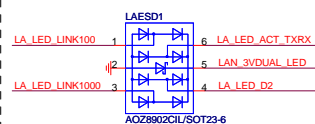
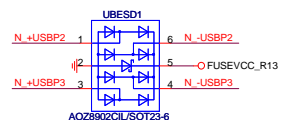
Power domain chart

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



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RMA ESD PROTECT



5VDUAL

UEC4

100uF/OS/D/16V/66/30m

C1

C2

SMD1812P350SLR/S

SMD1812P350SLR/S

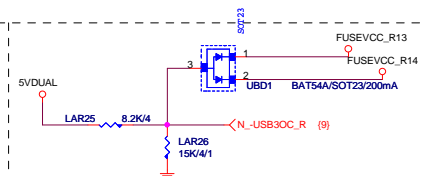
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2

FUSEVCC_R13

FUSEVCC_R14

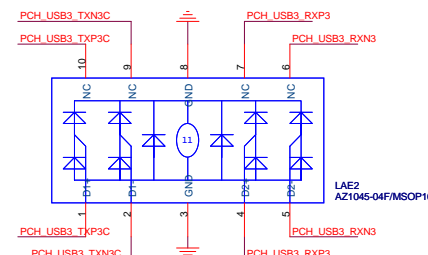
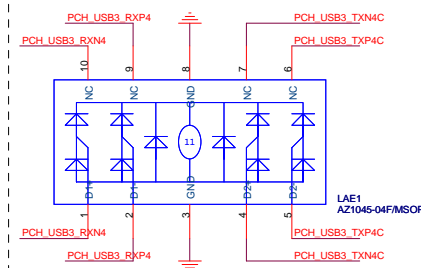
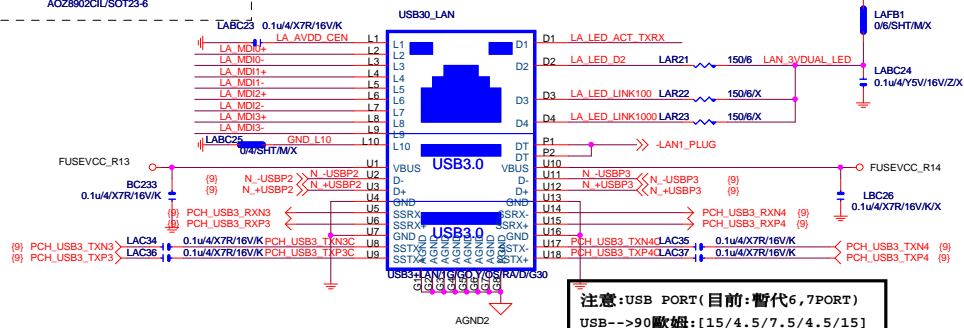
Close to connector

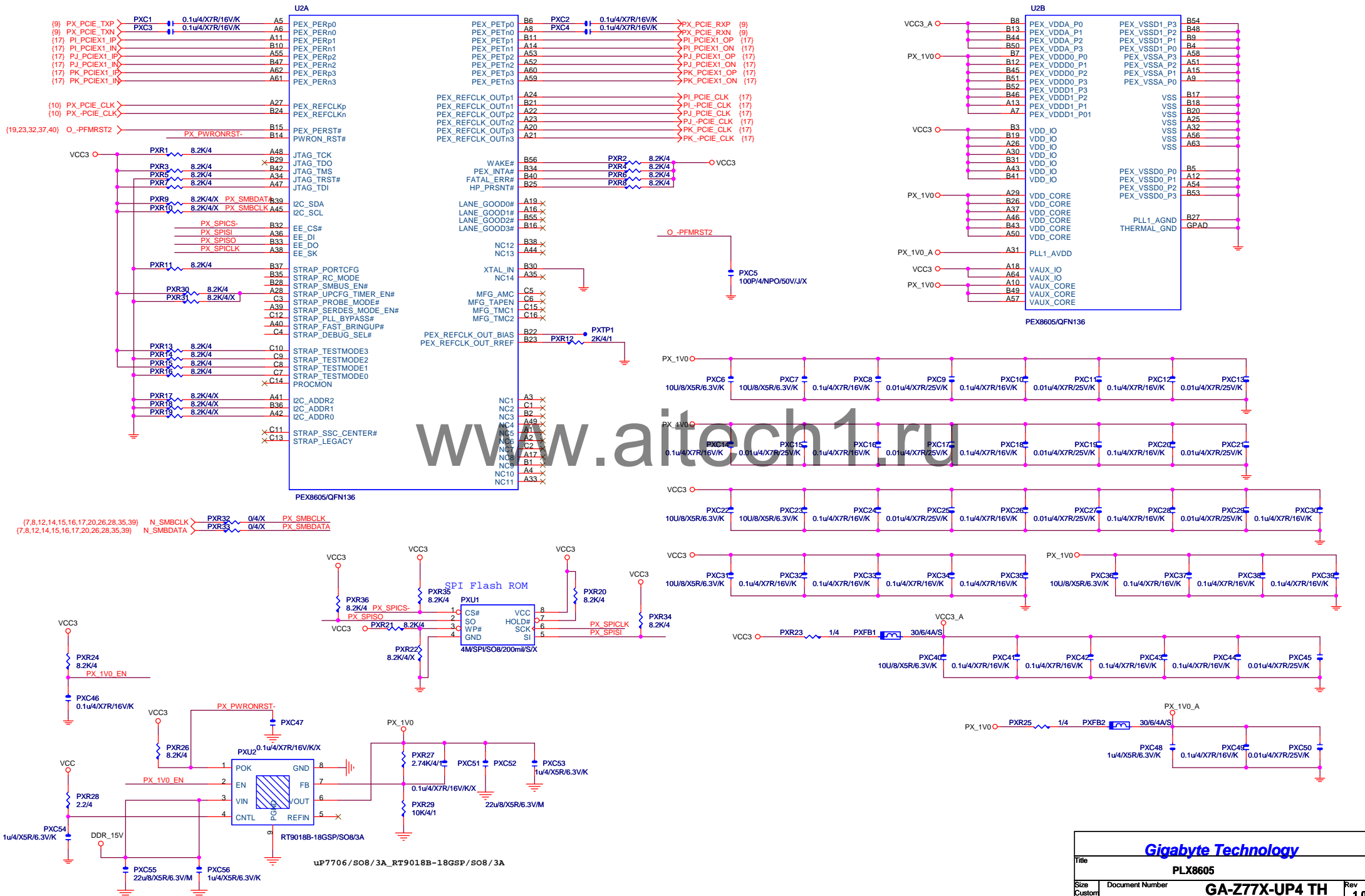


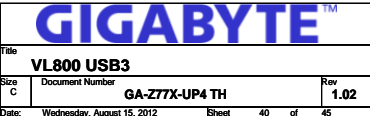
PS:視EMI需求

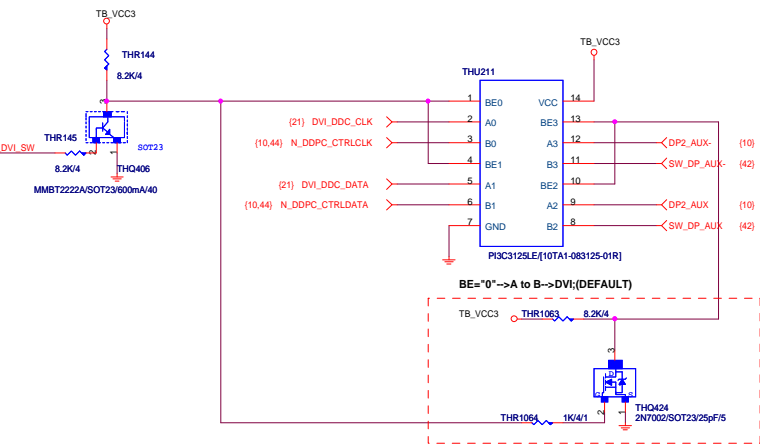
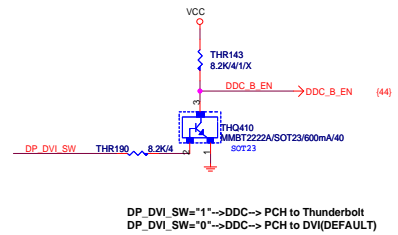
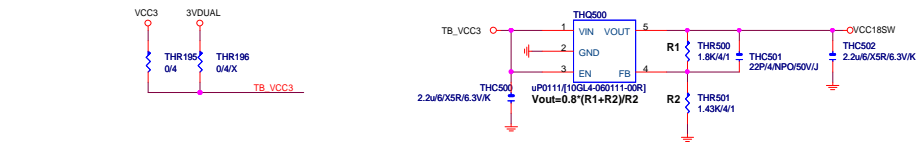
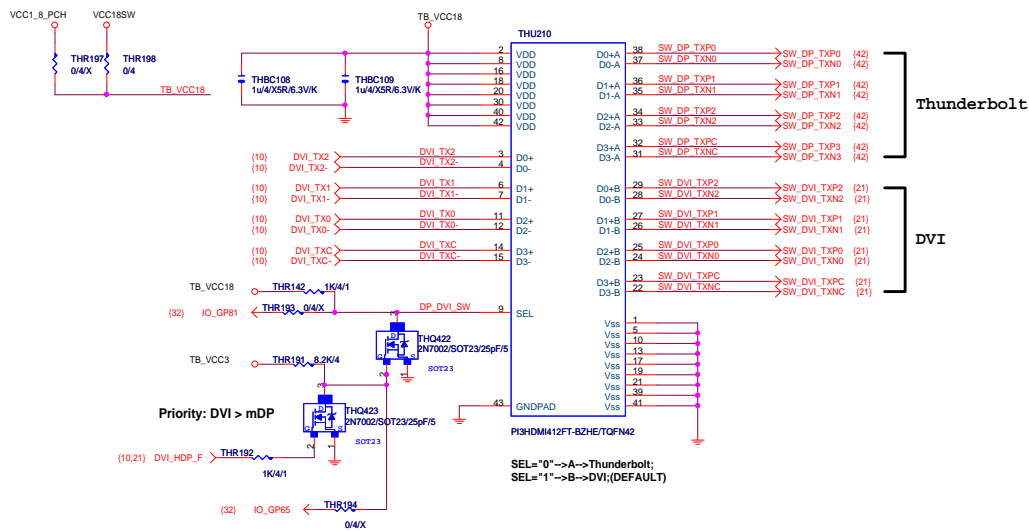


LA MDI-->100歐姆:[20/4/8/4/20]

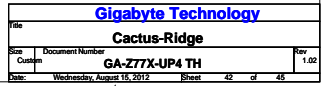




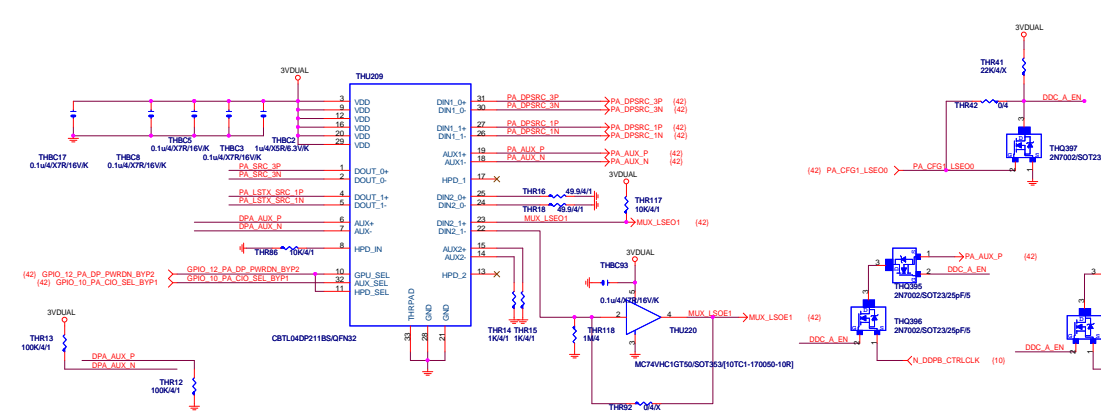




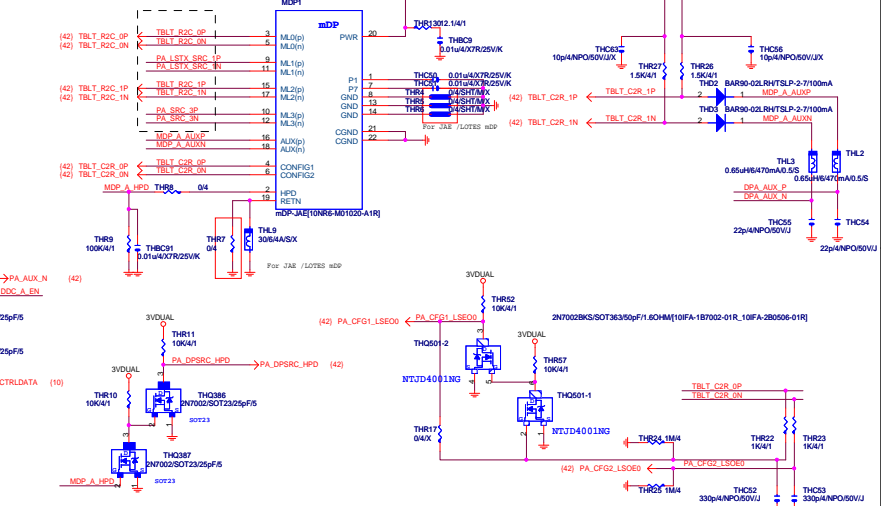
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DP_A

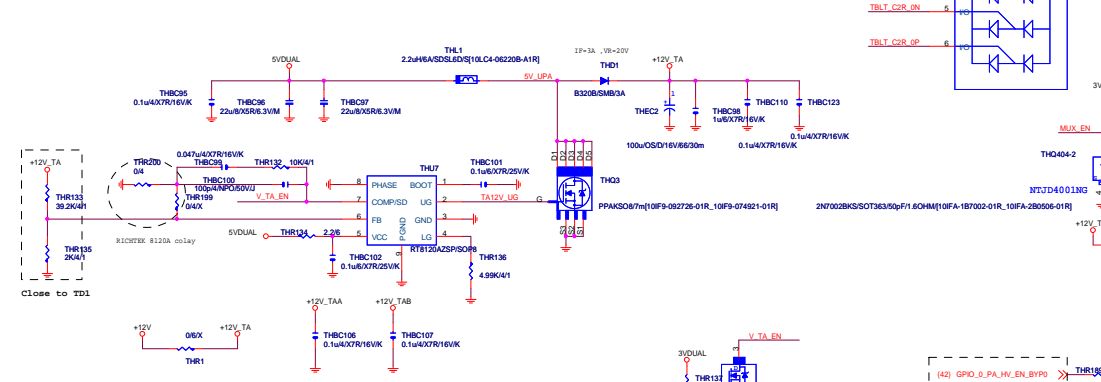


100 speed ,take care layout under 2000mil in whole length

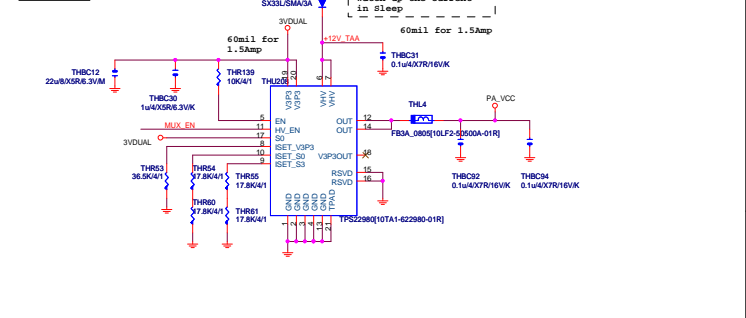


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*12V_TB



MDP_POWER

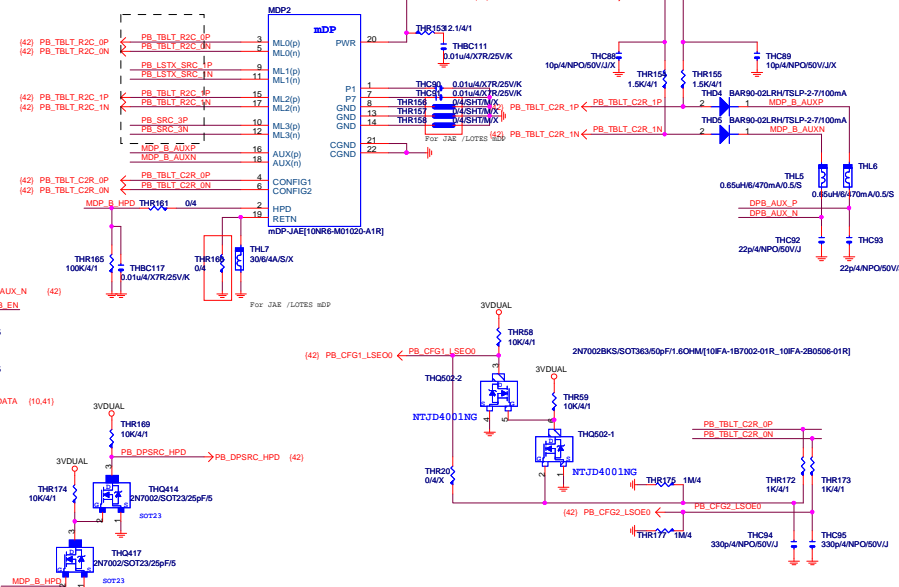
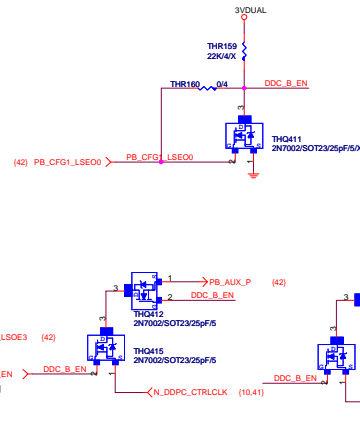
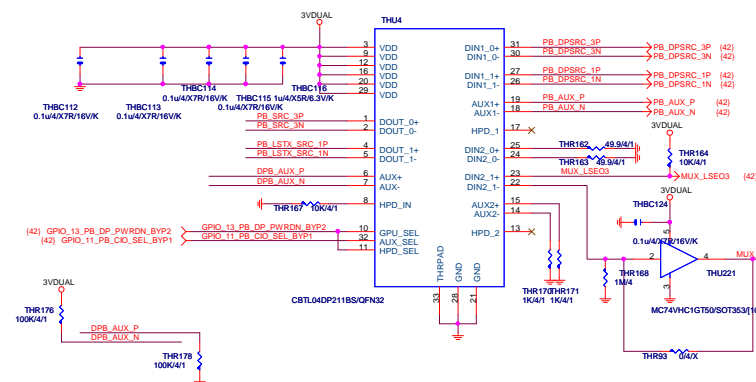


Power Rail	Current budget	S4/S5	S3	S0
VCC3P3_POC	100mA	ON	ON	ON
VCC1_LC	600mA	OFF	ON	ON
VCC1_05_LC	1A	OFF	ON	ON
VCC1_05_CIO	4A	OFF	ON	ON

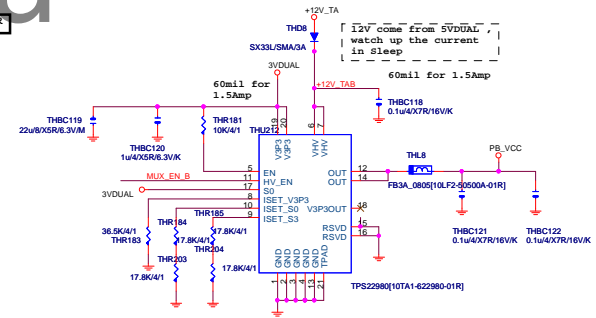
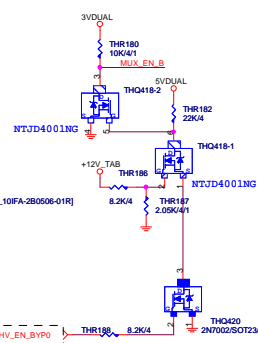
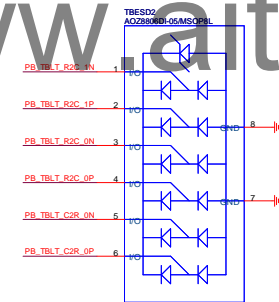
PA_VCC	Power level	Current budget
S4/S5	3.3V/12V	150mA
S3	3.3V/12V	150mA
S0	3.3V/12V	1.5A

Take care ! S0 mode always active

IN	RV_IN	OUT
0	0	0V
0	1	0V
1	0	V3P3
1	1	VHV



POWER CONSUMPTION	
VCC3P3_POC	10mA
VCC3V3_LC	100mA
VCC1V05_LC	2A
VCC1V05_CIO	1.4A



PA_VCC	Power level	Current budget
S4/S5	3.3V/12V	150mA
S3	3.3V/12V	150mA
S0	3.3V/12V	1.5A

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-,- , Take care ! S0
-| mode always
-| active

```

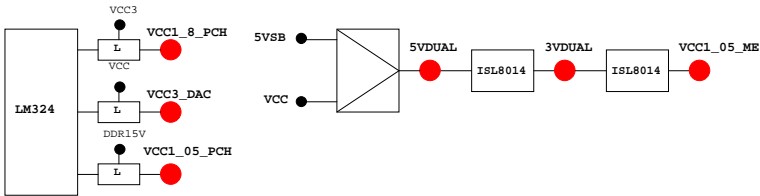
Title				
Cactus-Ridge				
Size	Document Number Custom GA-Z77X-UP4 TH			Rev 1.02
Date:	Wednesday, August 15, 2012		Sheet	44 of 45

PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAG	NOTE	
GP0	MAIN	H-Z	GPI	-PECI_REQ	N/A
GP1/TACH1	MAIN		GPI	ICH_FAN_TACH1	N/A
GP2/PIRQE#	MAIN		GPI	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN		GPI	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN		GPI	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN		GPI	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN		GPI	ICH_FAN_TACH2	N/A
GP7/TACH3	MAIN		GPI	ICH_FAN_TACH3	N/A
GP8	STBY	H	GPO	GPIO8	P/U 8.2K 3VDUAL
GP9/OC5#	STBY		NATIVE	OC5#	N/A
GP10/OC6#	STBY		NATIVE	OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	-SMBALERT	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	LAN_PHY_PWR_CTRL	P/U 8.2K 3VDUAL
GP13	STBY	L	GPI	GPIO13	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	OC7#	N/A
GP15	STBY	L	GPO	GPIO15	N/A
GP16	MAIN		GPI	-SKTOCC	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	ICH_FAN_TACH0	N/A
GP18	MAIN		NATIVE	MB_ID0	P/D 8.2K GND
GP19	MAIN		GPI	-LAN1_ISO	P/U 8.2K VCC3
GP20	MAIN		NATIVE	LED_CTL	P/U 1K VCC3
GP21	MAIN		GPI	VCC18_PCH_OV2	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	VCORE_OV3	P/U 8.2K VCC3
GP23	MAIN		NATIVE	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	L	GPO	TLS	P/U 8.2K 3VDUAL
GP25	STBY		NATIVE	-CPU_STOP	P/U 8.2K 3VDUAL
GP26	STBY		NATIVE	-AC2_DET	P/U 8.2K 3VDUAL
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	GPIO28	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	S_PWR_ACK	P/U 100K 3VDUAL
GP31	STBY	H-Z	GPI	N/A(Reverse)	P/U 8.2K VCC3
GP32	MAIN	H	GPO	MB_ID1	P/D 8.2K GND
GP33	MAIN	H	GPO	LOAD-LINE	P/U 1K VCC3
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	GPIO35	P/U 8.2K VCC3
GP36	MAIN		GPI	-LAN1_DSM	P/U 8.2K VCC3
GP37	MAIN		GPI	N/A	P/U 8.2K VCC3
GP38	MAIN	H-Z	GPI	VCORE_OV2	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	-LAN_DSM	P/U 8.2K VCC3
GP40	STBY		NATIVE	OC1#	N/A
GP41	STBY		NATIVE	OC2#	N/A
GP42	STBY		NATIVE	OC3#	N/A
GP43	STBY		NATIVE	OC4#	N/A
GP44	STBY	L	NATIVE	N/A	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	-LPCPME	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	PWR_LED	P/U 8.2K 3VDUAL
GP47	STBY		NATIVE	PSI_LED	P/U 8.2K 3VDUAL
GP48	MAIN	H-Z	IN	EN_PWM	P/U 8.2K VCC3
GP49	MAIN	H-Z	IN	VCC18_OV1	P/U 8.2K VCC3
GP50	MAIN		NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1	N/A
GP52	MAIN		NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2	N/A
GP54	MAIN		NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3	N/A
GP56	STBY		NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP57	STBY	H-Z	IN	VCORE_OV1	P/U 8.2K 3VDUAL
GP58	STBY	H-Z	NATIVE	F_USB_OC	P/U 8.2K 3VDUAL
GP59	STBY		NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL
GP61	STBY	L	NATIVE	-SUSTAT	N/A
GP62	STBY	L	NATIVE	SUSCLK	N/A
GP63	STBY	L	NATIVE	GPIO63	N/A
GP64	MAIN	L	NATIVE	CLKOUTFLEX0	N/A
GP65	MAIN	L	NATIVE	CLKOUTFLEX1	N/A
GP66	MAIN	L	NATIVE	CLKOUTFLEX2	N/A
GP67	MAIN	L	NATIVE	CLKOUTFLEX3	N/A
GP72	STBY	H-Z	NATIVE	VCORE_OV4	P/U 8.2K 3VDUAL
GP73	STBY		NATIVE	1_05V_OV1	P/U 8.2K 3VDUAL
GP74	STBY	H-Z	NATIVE	1_05V_OV2	P/U 8.2K 3VDUAL
GP75	STBY	H-Z	NATIVE	N/A(Reverse)	P/U 8.2K 3VDUAL

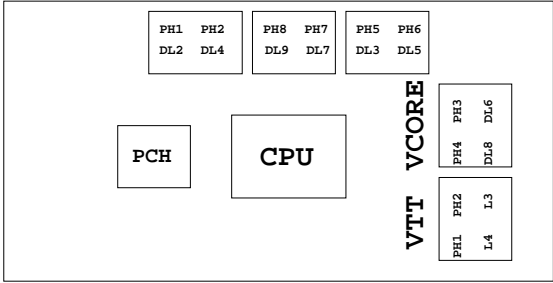
Super I/O ITE8720 GPIO Table

PIN NAME	USAG	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAG	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SEN	LOW_PWR_1	
VID05/GP27/SEN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CsisBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	2X PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT15/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Terminatio
VREF_CA_AVREF_CA_B	DRAM Address Ref
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

散熱模組料號：

8IBP：
1.12SP2-01A001-Y1R/Y2R
2.12SP2-01A001-Z1R/Z2R
(HIBRID模組)包材階

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology			
TABLE LIST			
Size C	Document Number	Rev	
	GA-Z77X-UP4 TH	1.02	
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