

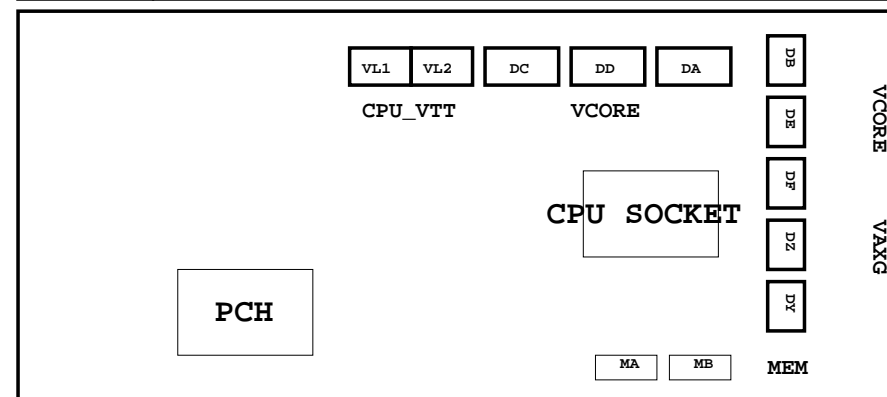
Model Name: GA-Z77X-UP4 TH 1.0

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_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

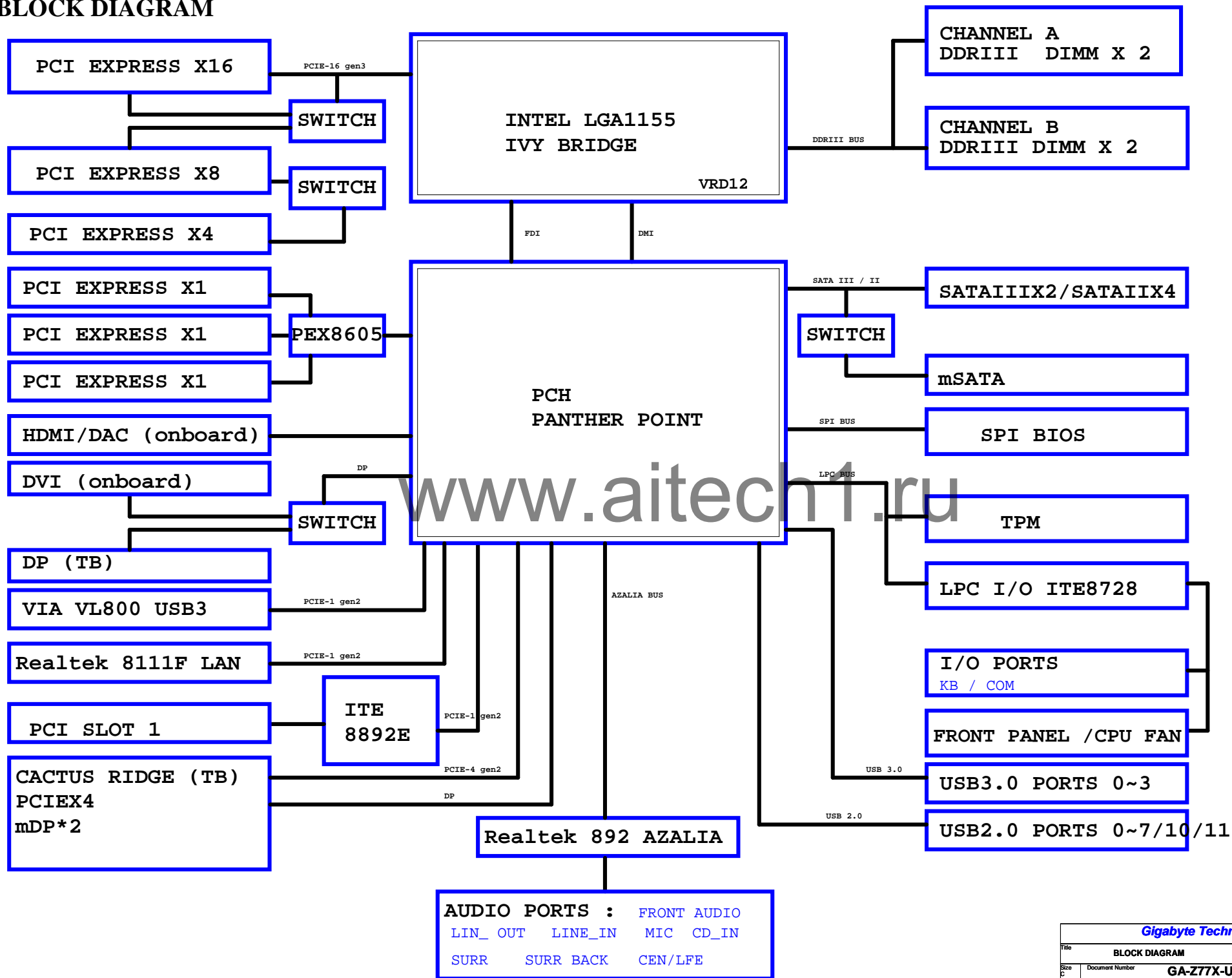


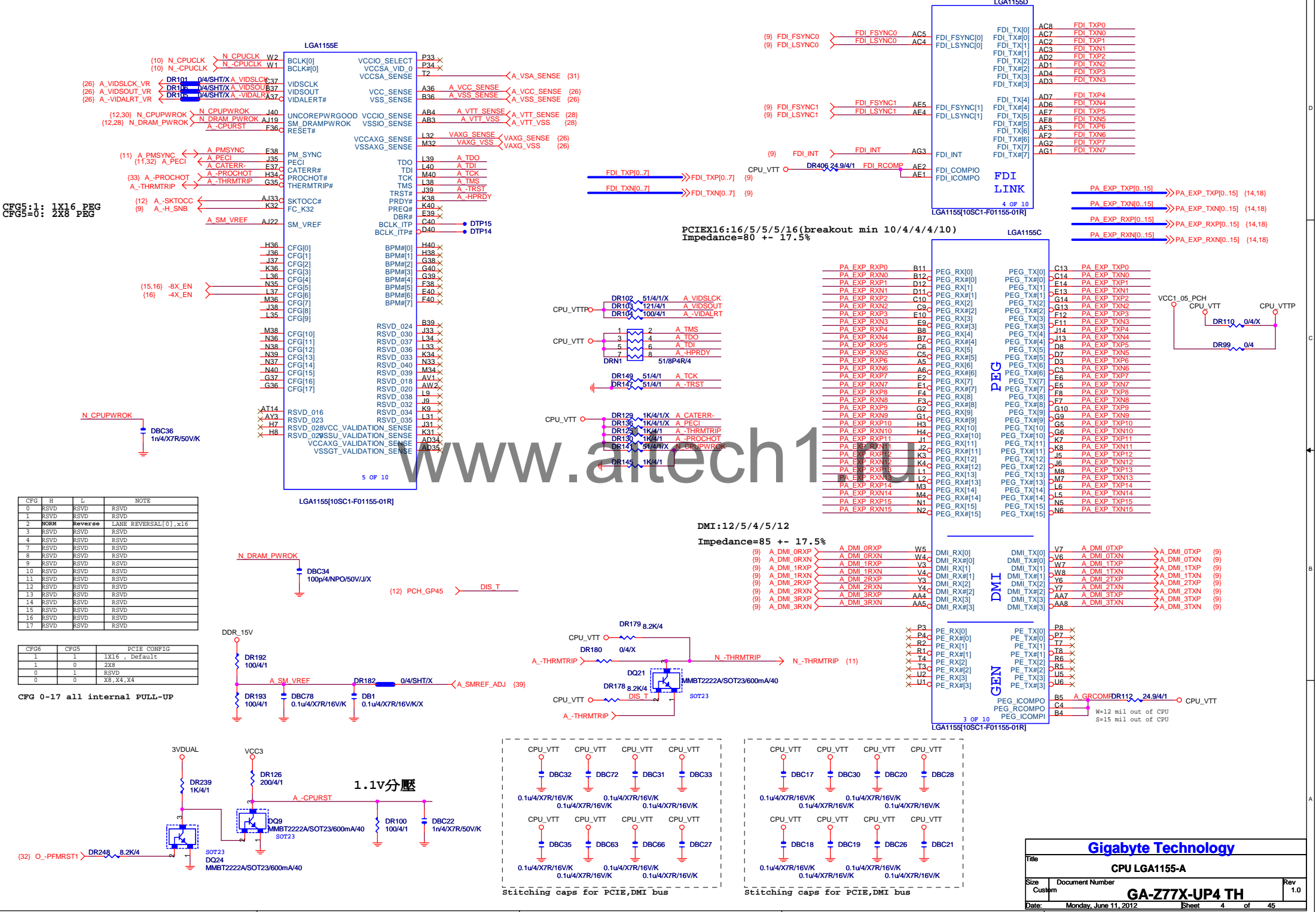
Component value change history

[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	

BLOCK DIAGRAM



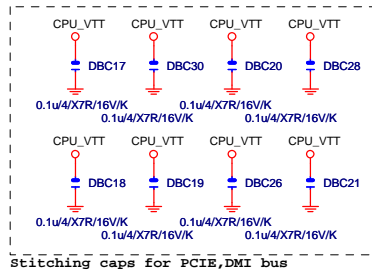
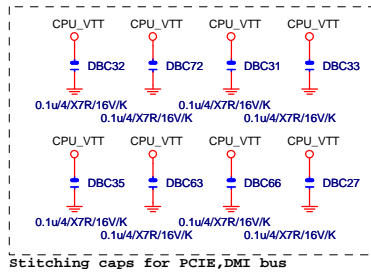
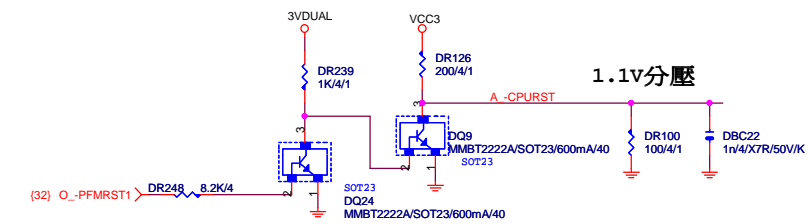


CFG5:1: 1X16 PEG
CFG5:0: 2X8 PEG

CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	RSVD	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



LGA1155A

M_AAA0	AV27	SA_MA[0]	SA_DSQ[0]	AK3	M_DQSA0
M_AAA1	AY24	SA_MA[1]	SA_DSQ[0]	AK2	M_DQSA0
M_AAA2	AW24	SA_MA[2]			
M_AAA3	AW23	SA_MA[3]			
M_AAA4	AV23	SA_MA[4]	SA_DQ[1]	AJ3	M_DA0
M_AAA5	AT24	SA_MA[5]	SA_DQ[1]	AJ4	M_DA1
M_AAA6	AT23	SA_MA[6]	SA_DQ[2]	AJ3	M_DA2
M_AAA7	AU22	SA_MA[7]	SA_DQ[2]	AL4	M_DA3
M_AAA8	AV22	SA_MA[8]	SA_DQ[4]	AJ2	M_DA4
M_AAA9	AT22	SA_MA[9]	SA_DQ[5]	AJ1	M_DA5
M_AAA10	AV28	SA_MA[10]	SA_DQ[6]	AL2	M_DA6
M_AAA11	AU21	SA_MA[11]	SA_DQ[6]	AL1	M_DA7
M_AAA12	AT21	SA_MA[12]	SA_DQ[7]		
M_AAA13	AW32	SA_MA[13]	SA_DSQ[1]	AP3	M_DQSA1
M_AAA14	AU20	SA_MA[14]	SA_DSQ[1]	AP2	M_DQSA1
M_AAA15	AT20	SA_MA[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#
(7)	M-CSA1	M-CSA1	AV32	SA_CS#
(7)	M-CSA2	M-CSA2	AW30	SA_CS#
(7)	M-CSA3	M-CSA3	AU33	SA_CS#

(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_DCLKA0	M_DCLKA0	AW25	SA_CK[0]
(7)	M_DCLKA1	M_DCLKA1	AU24	SA_CK[1]
(7)	M_DCLKA1	M_DCLKA1	AU25	SA_CK[1]
(7)	M_DCLKA2	M_DCLKA2	AW27	SA_CK[2]
(7)	M_DCLKA2	M_DCLKA2	AY27	SA_CK[2]
(7)	M_DCLKA3	M_DCLKA3	AU26	SA_CK[3]
(7)	M_DCLKA3	M_DCLKA3	AW26	SA_CK[3]

7.8) M_DDR3_RST < MR1



AV13	SA_ECC_CB[0]
AV12	SA_ECC_CB[1]
AU12	SA_ECC_CB[2]
AU14	SA_ECC_CB[3]
AW13	SA_ECC_CB[4]
AY13	SA_ECC_CB[5]
AU11	SA_ECC_CB[6]
AY12	SA_ECC_CB[7]
AW12	SA_ECC_CB[7]

DDR_0

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LGA1155[10SC1-F01155-01R]

LGA1155B

M_AAB0	AK24	SB_MA[0]	AH7	M_DQSB0
M_AAB1	AM20	SB_MA[1]	AH6	M_DQSB0
M_AAB2	AM19	SB_MA[2]		
M_AAB3	AK18	SB_MA[3]	AG7	M_DB0
M_AAB4	AP19	SB_MA[4]	AG8	M_DB1
M_AAB5	AP18	SB_MA[5]	AJ9	M_DB2
M_AAB6	AM18	SB_MA[6]	AJ8	M_DB3
M_AAB7	AL18	SB_MA[7]	AG5	M_DB4
M_AAB8	AY17	SB_MA[8]	AG6	M_DB5
M_AAB9	AN18	SB_MA[9]	AJ6	M_DB6
M_AAB10	AN23	SB_MA[10]	AJ7	M_DB7
M_AAB11	AU17	SB_MA[11]		
M_AAB12	AT18	SB_MA[12]	AM8	M_DQSB1
M_AAB13	AR26	SB_MA[13]	AL8	M_DQSB1
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	AM24	SB_BS[1]
(8)	M_SBA2	M_SBA2	AW17	SB_BS[2]

(8)	M-CSB0	M-CSB0	AN25	SB_CS#
(8)	M-CSB1	M-CSB1	AN26	SB_CS#
(8)	M-CSB2	M-CSB2	AL25	SB_CS#
(8)	M-CSB3	M-CSB3	AT26	SB_CS#

(8)	M_CKEB0	M_CKEB0	AU16	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	AP26	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_DCLKB0	M_DCLKB0	AL22	SB_CK[0]
(8)	M_DCLKB1	M_DCLKB1	AL20	SB_CK[1]
(8)	M_DCLKB1	M_DCLKB1	AK20	SB_CK[1]
(8)	M_DCLKB2	M_DCLKB2	AL23	SB_CK[2]
(8)	M_DCLKB2	M_DCLKB2	AM22	SB_CK[2]
(8)	M_DCLKB3	M_DCLKB3	AP21	SB_CK[3]
(8)	M_DCLKB3	M_DCLKB3	AN21	SB_CK[3]

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

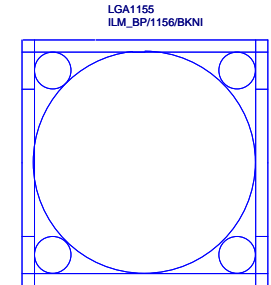
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(7)	M_VREF_DQ8	AH4	FC_AH4

(8)	M_VREF_DQ8	AH1	FC_AH1
(7)	M_VREF_DQ8	AH4	FC_AH4

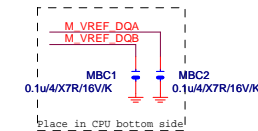
DDR_1

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LGA1155[10SC1-F01155-01R]



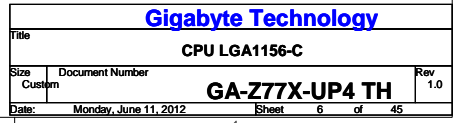
Need check the new CPU ME

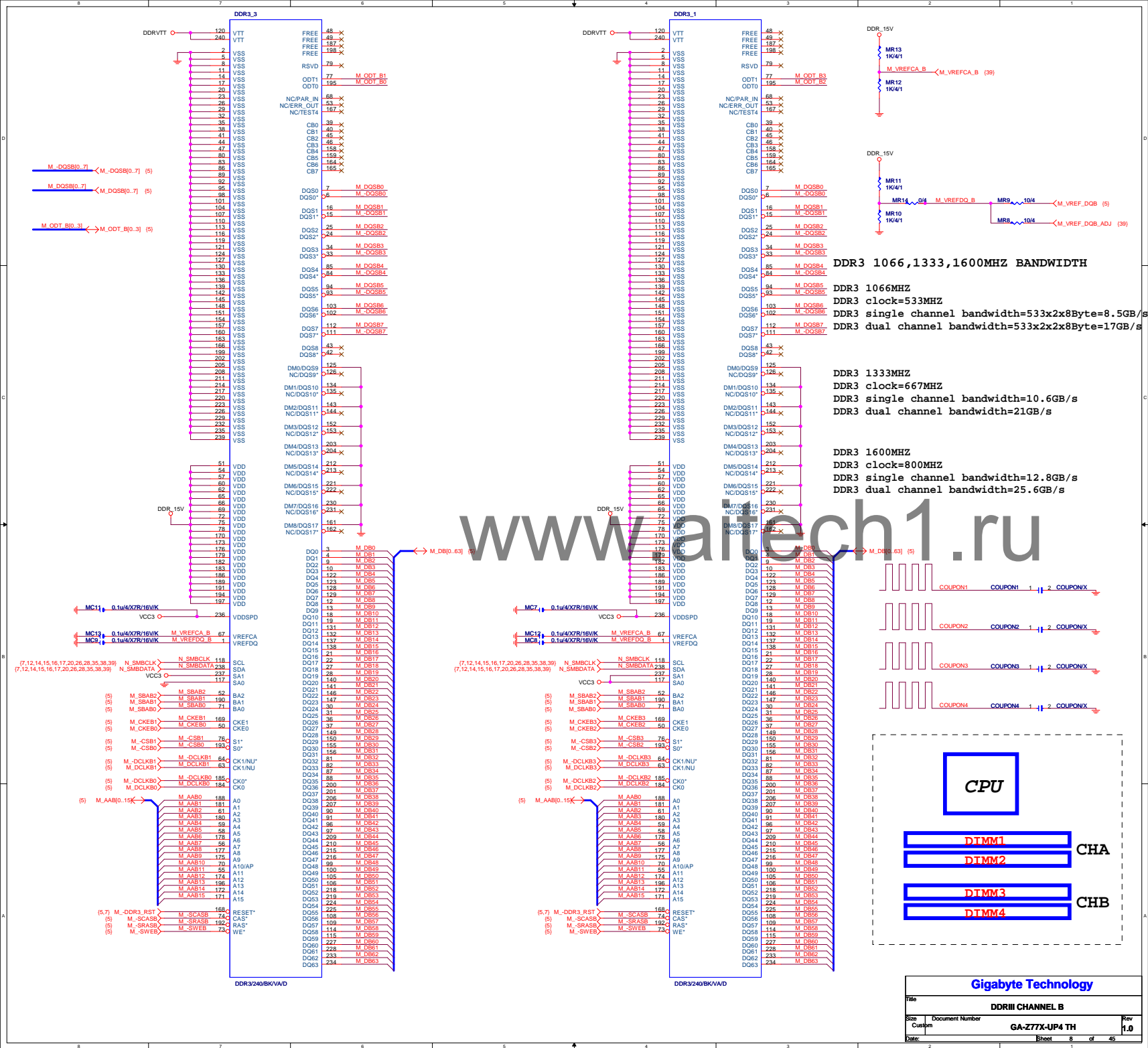


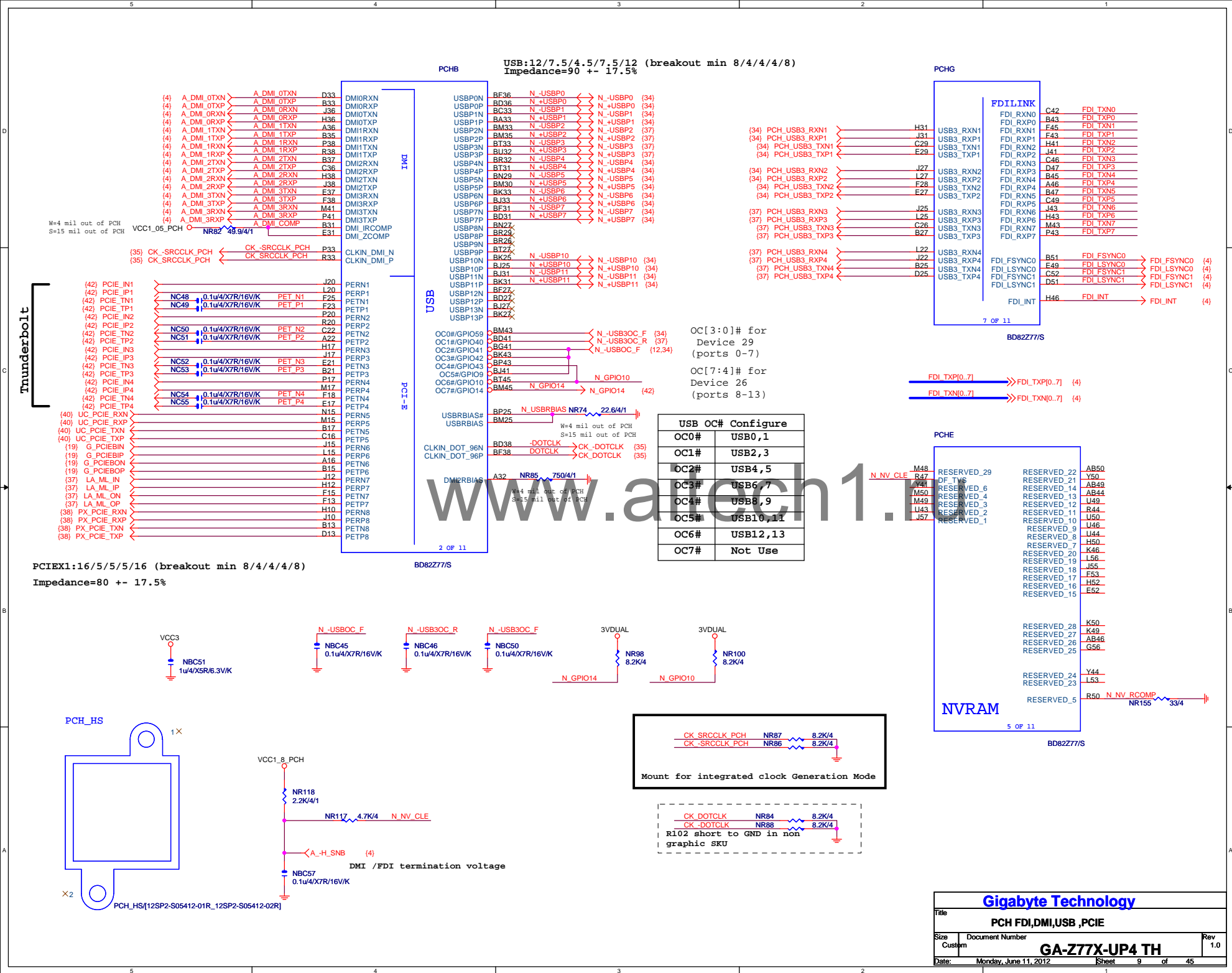
Gigabyte Technology

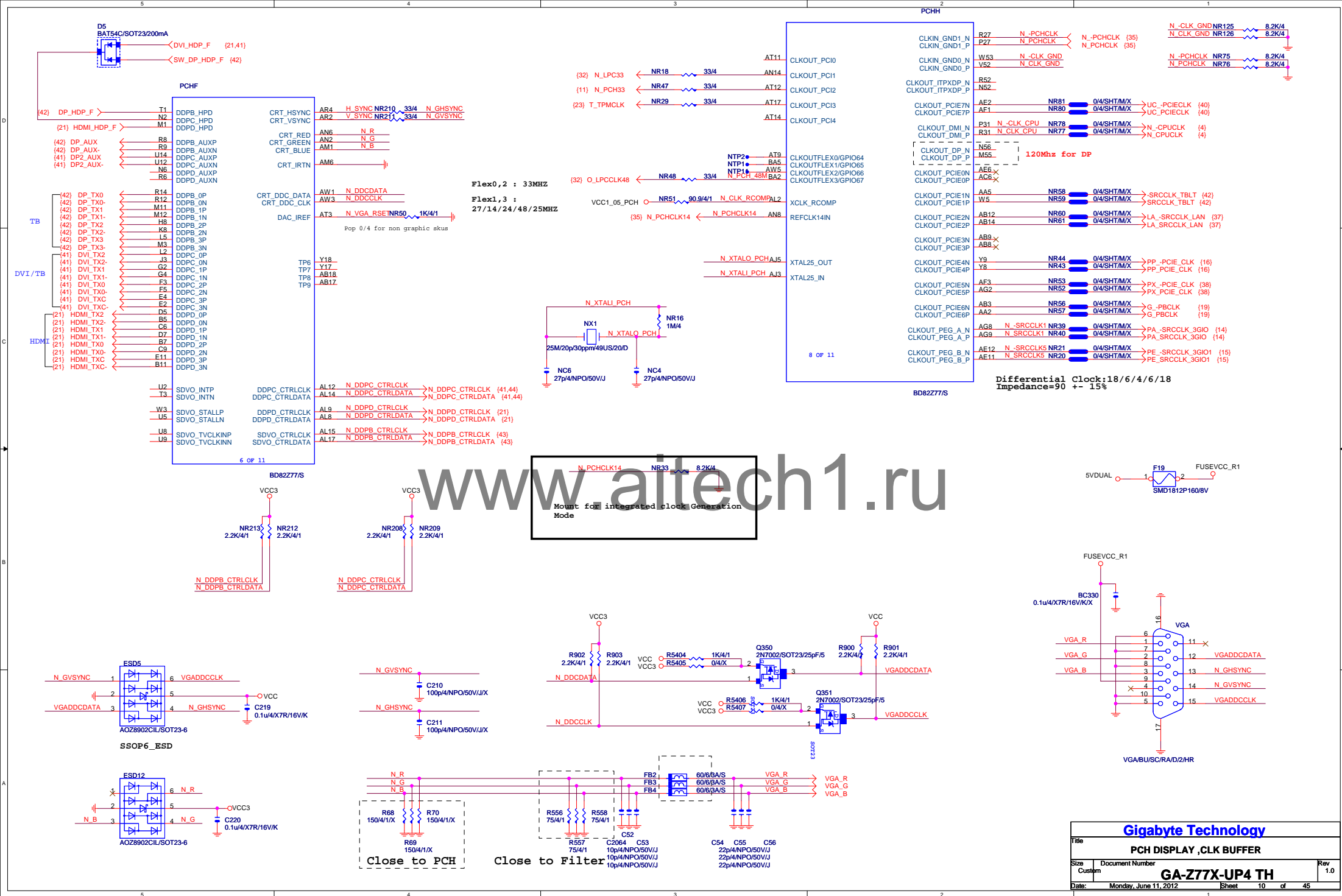
CPU LGA1156-B

Title	Document Number	Rev
Size	GA-Z77X-UP4 TH	1.0
Date:	Monday, June 11, 2012	Sheet 5 of 45

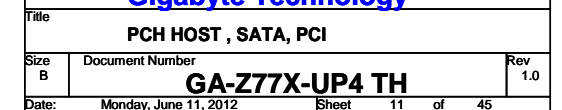


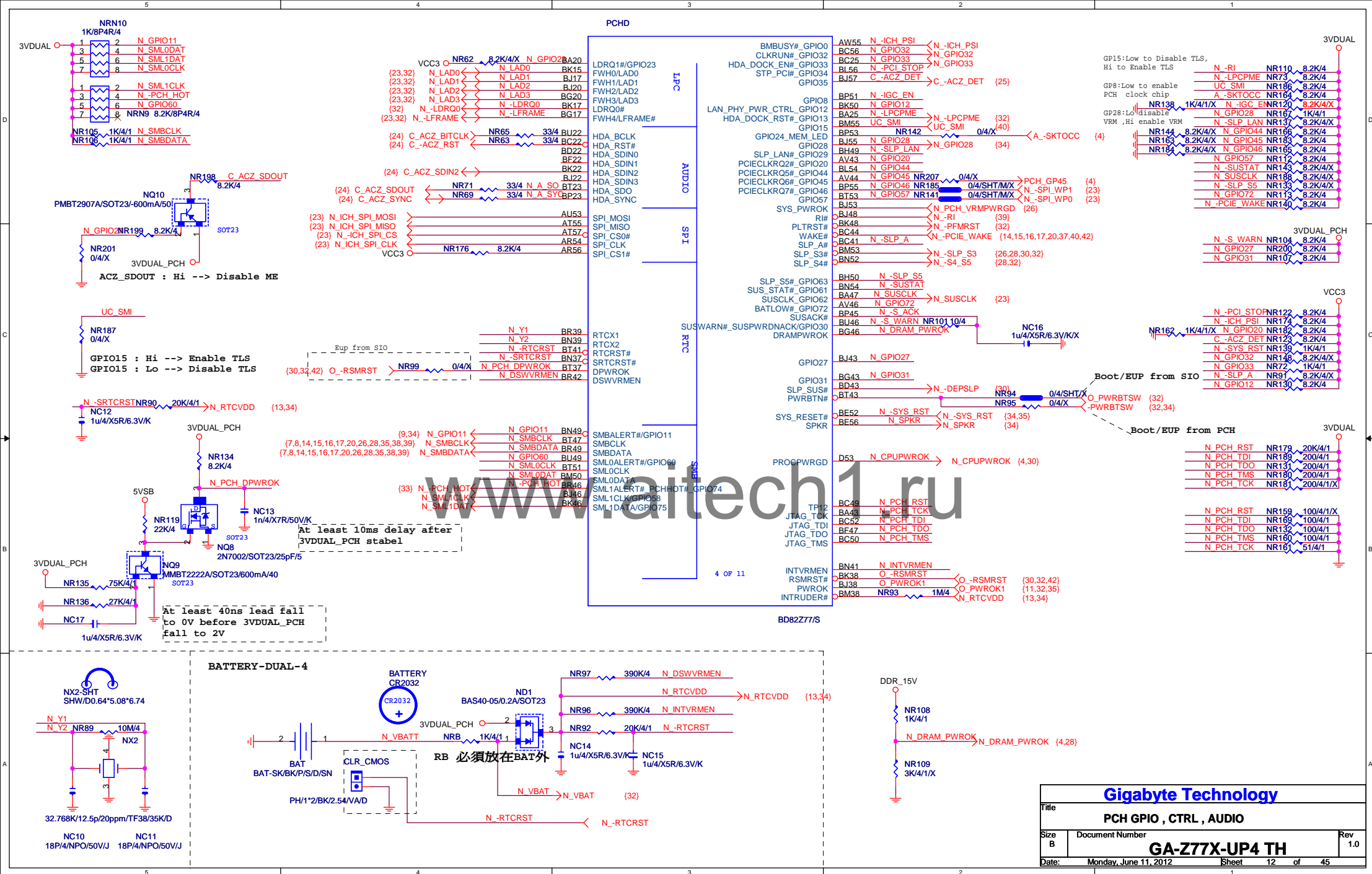


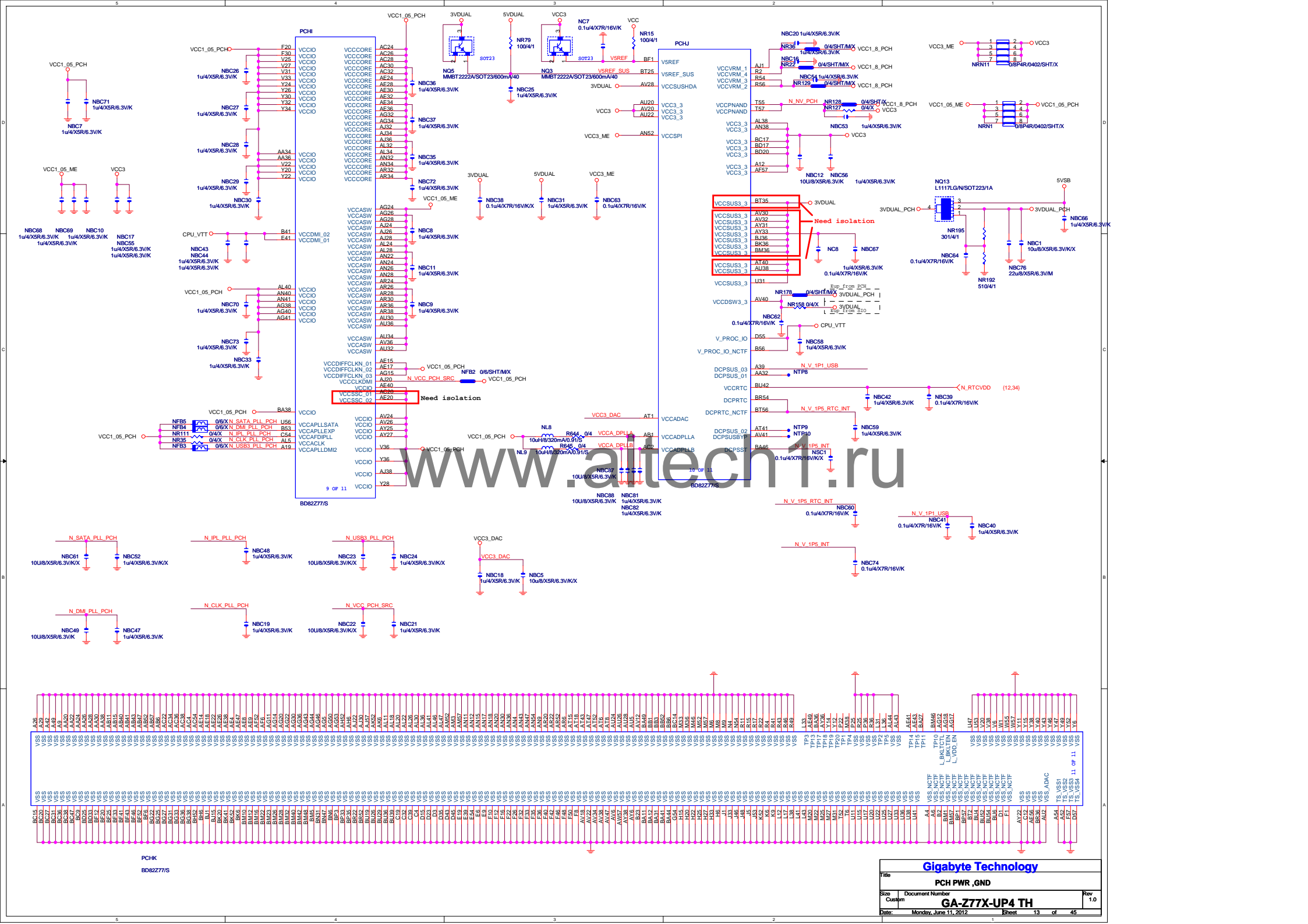


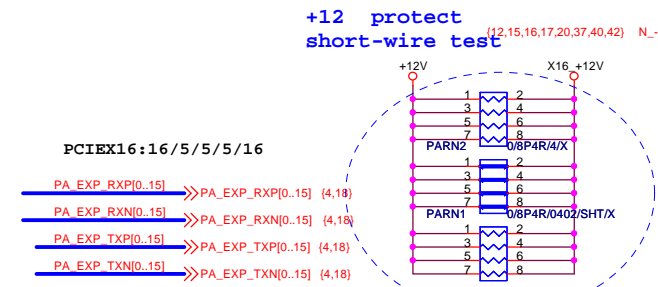
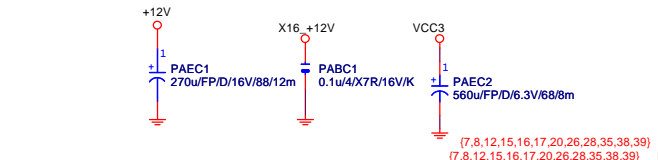


PCHC









PA_EXP_TXP0_C	PAC5	0.22u/4X5R6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0_C	PAC4	0.22u/4X5R6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1_C	PAC6	0.22u/4X5R6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1_C	PAC7	0.22u/4X5R6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2_C	PAC8	0.22u/4X5R6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2_C	PAC9	0.22u/4X5R6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3_C	PAC10	0.22u/4X5R6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3_C	PAC11	0.22u/4X5R6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4_C	PAC12	0.22u/4X5R6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4_C	PAC13	0.22u/4X5R6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5_C	PAC14	0.22u/4X5R6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5_C	PAC15	0.22u/4X5R6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6_C	PAC16	0.22u/4X5R6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6_C	PAC17	0.22u/4X5R6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7_C	PAC18	0.22u/4X5R6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7_C	PAC19	0.22u/4X5R6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8_C	PAC20	0.22u/4X5R6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8_C	PAC21	0.22u/4X5R6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9_C	PAC22	0.22u/4X5R6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9_C	PAC23	0.22u/4X5R6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10_C	PAC24	0.22u/4X5R6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10_C	PAC25	0.22u/4X5R6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11_C	PAC26	0.22u/4X5R6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11_C	PAC27	0.22u/4X5R6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12_C	PAC28	0.22u/4X5R6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12_C	PAC29	0.22u/4X5R6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13_C	PAC30	0.22u/4X5R6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13_C	PAC31	0.22u/4X5R6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14_C	PAC32	0.22u/4X5R6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14_C	PAC33	0.22u/4X5R6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15_C	PAC34	0.22u/4X5R6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15_C	PAC35	0.22u/4X5R6.3V/K	PA_EXP_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

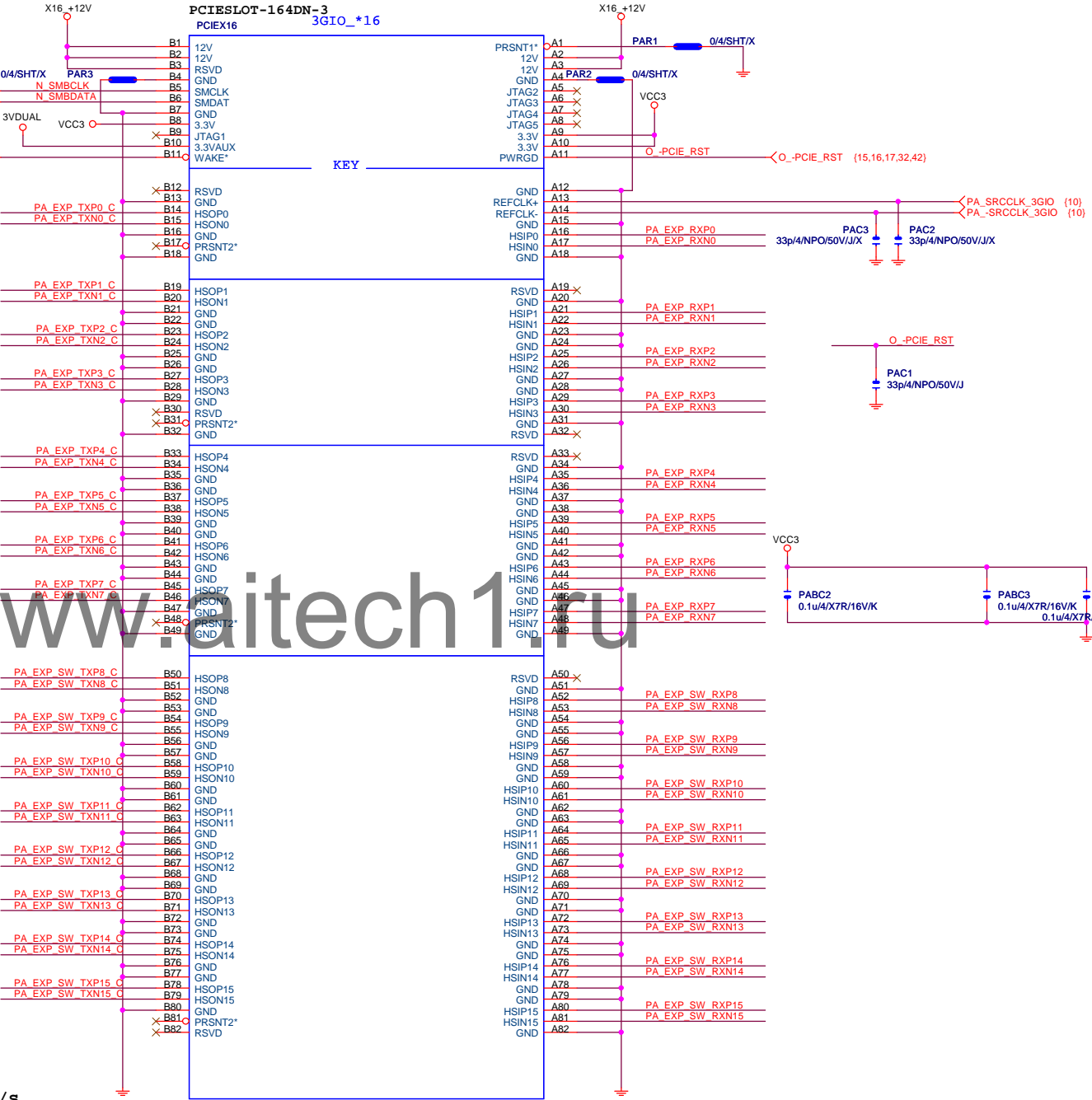
PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

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

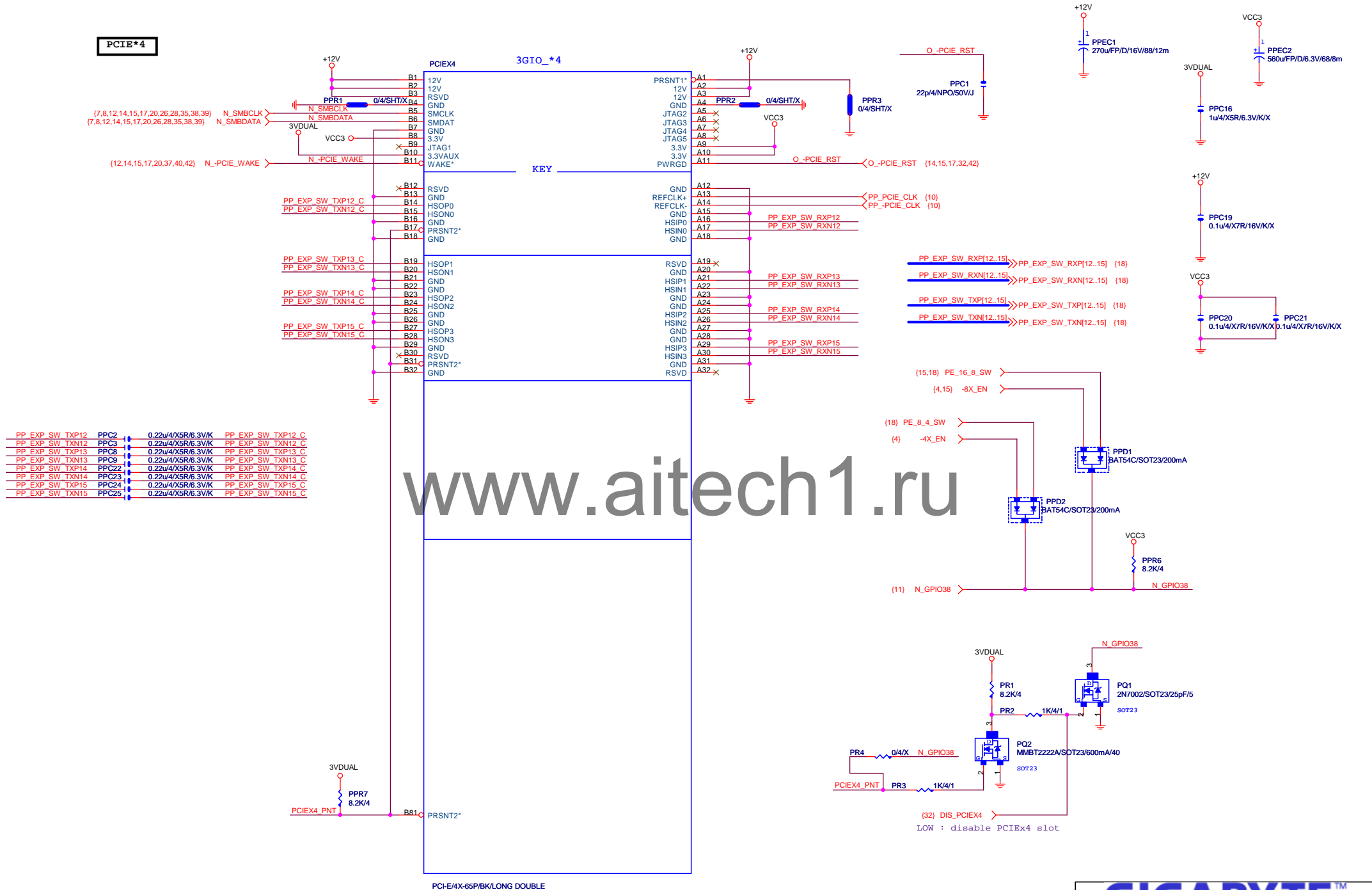
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

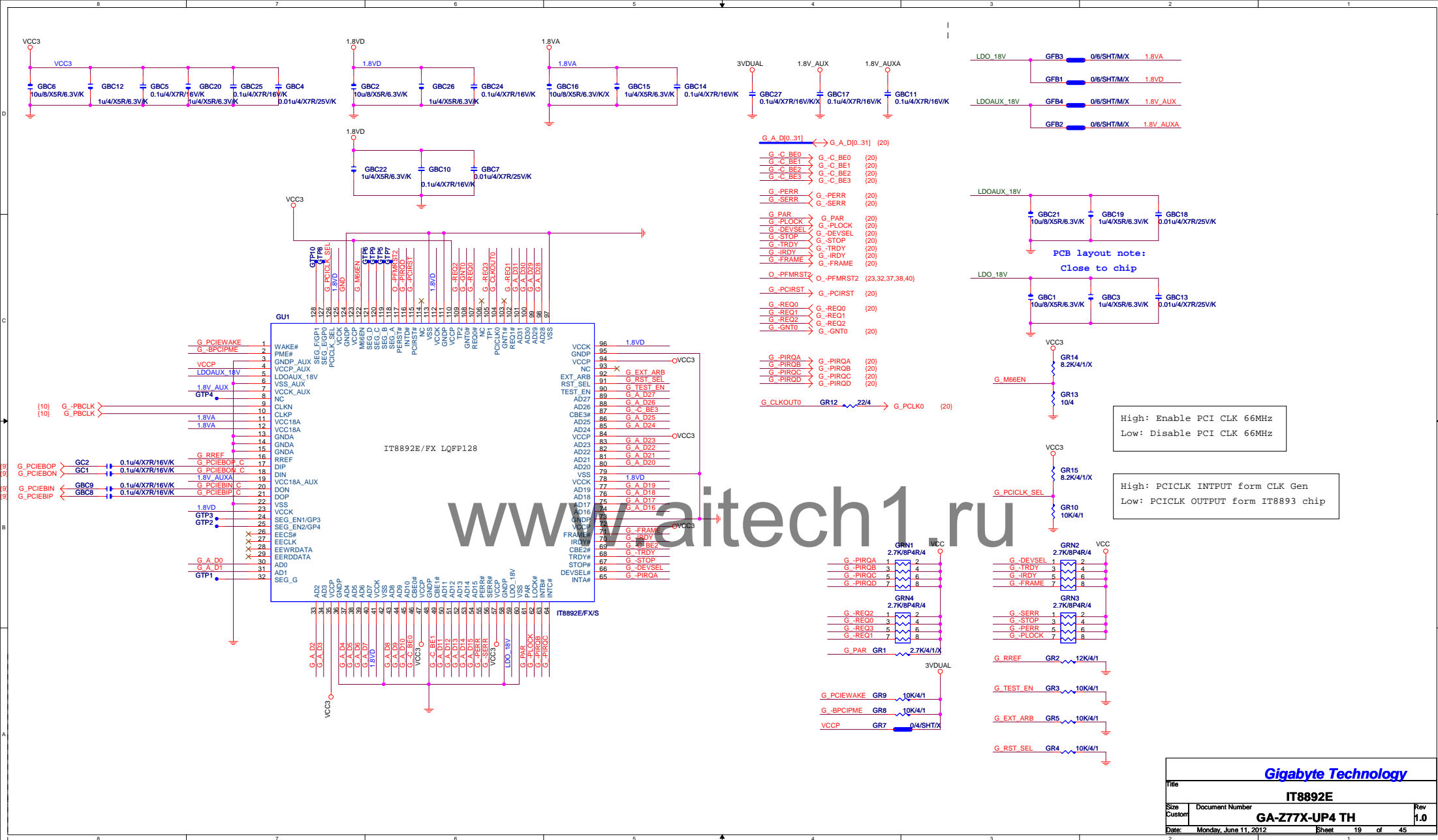


PCIE*4

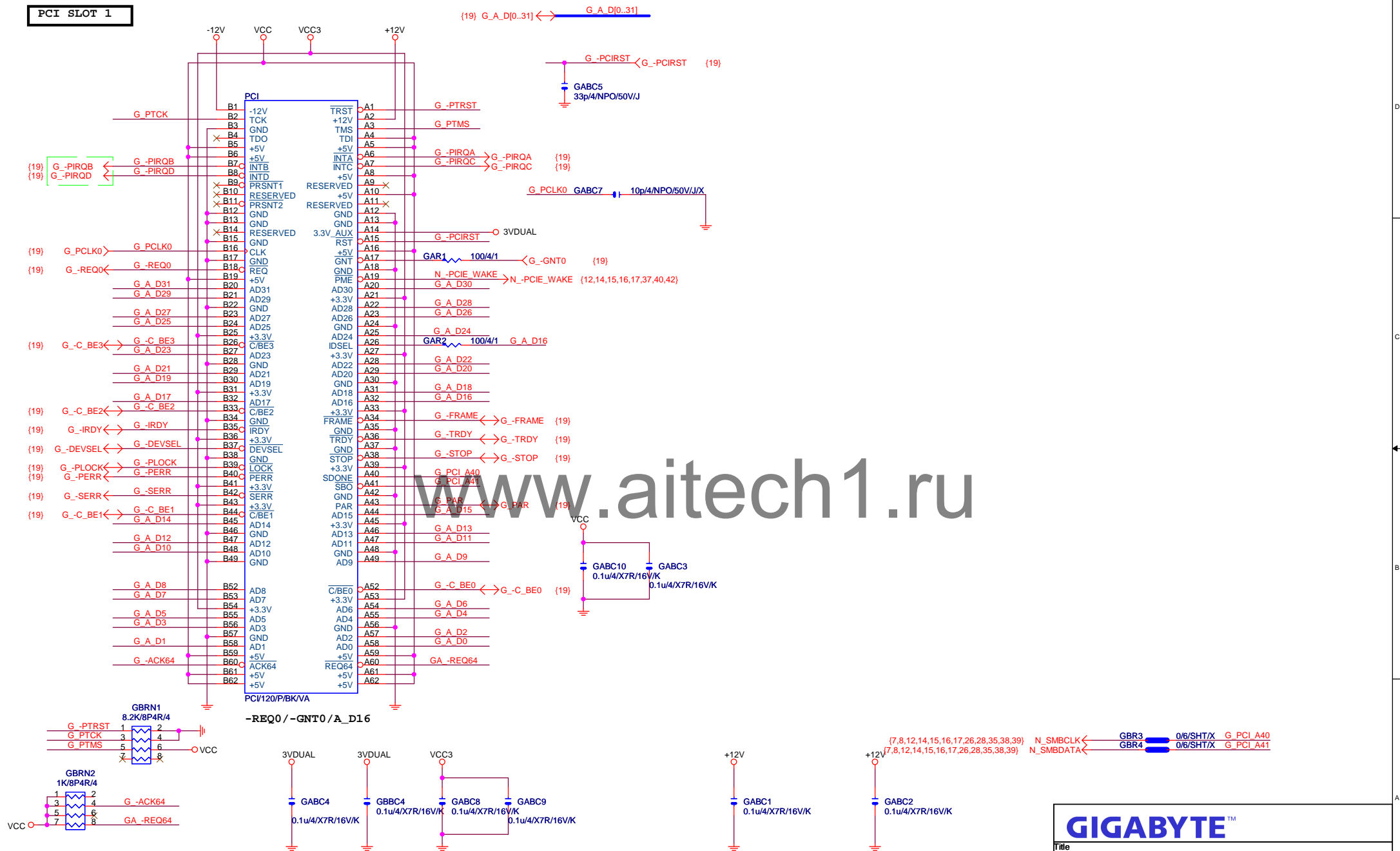


PCI-E/4X-65P/BK/LONG DOUBLE

GIGABYTE™		
Title PCI EXPRESS X 4		
Size Custom	Document Number GA-Z77X-UP4 TH	Rev 1.0
Date: Monday, June 11, 2012	Sheet 16	of 45

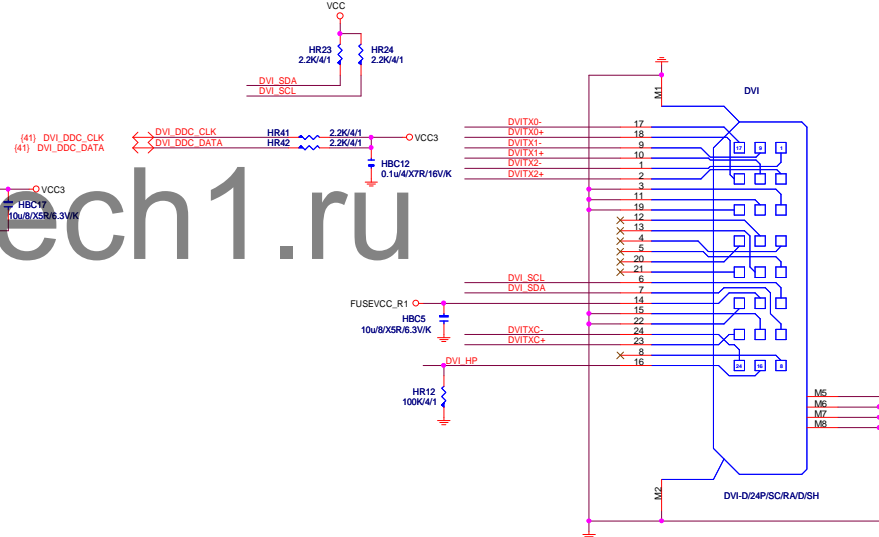
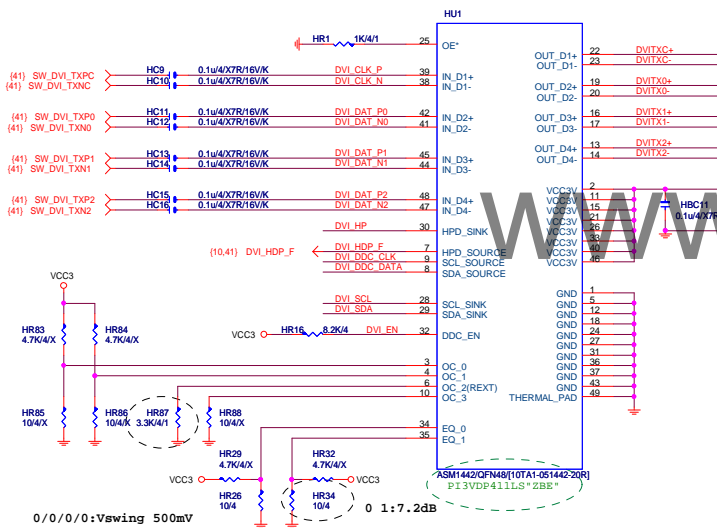
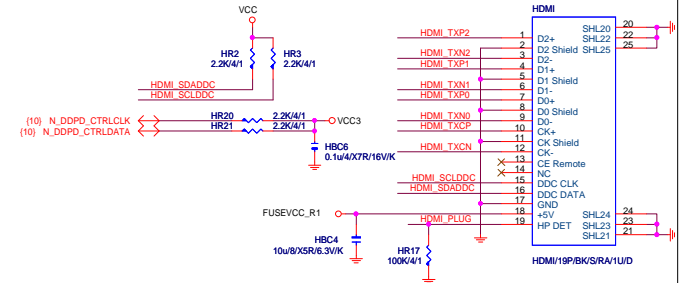
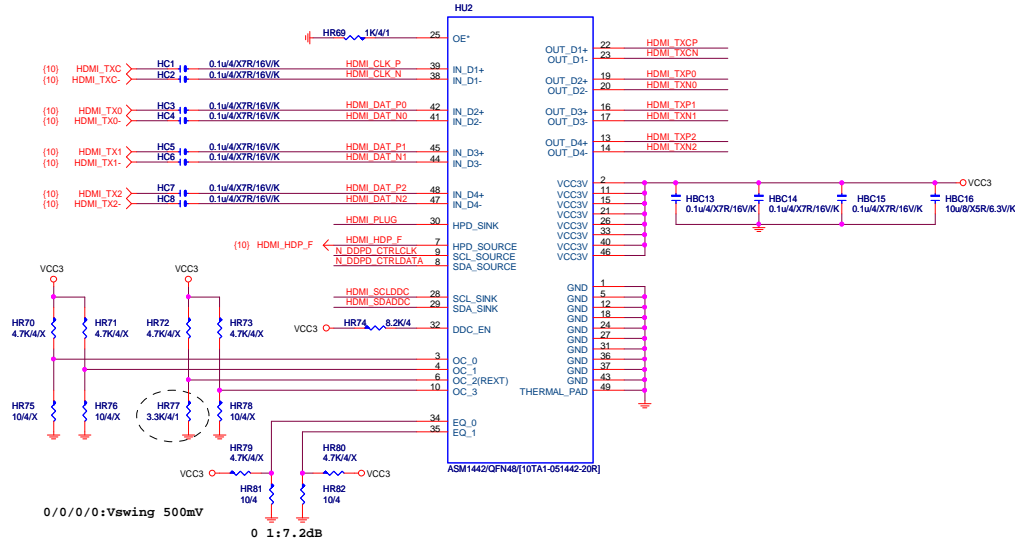


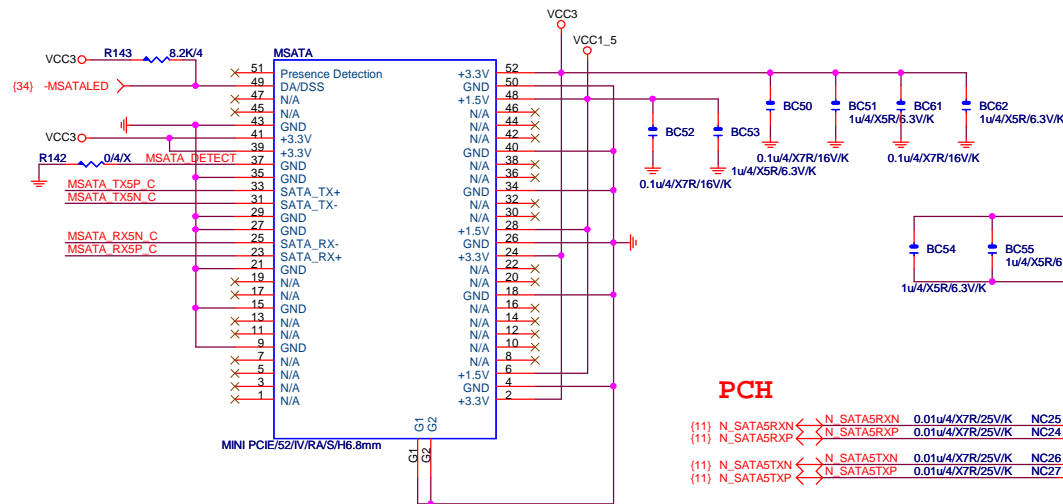
PCI SLOT 1



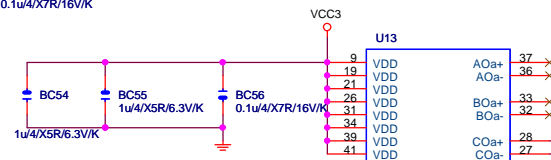
GIGABYTE™

Title			
PCI SLOT 1			
Size	Document Number	Rev	
Custom	GA-Z77X-UP4 TH	1.0	
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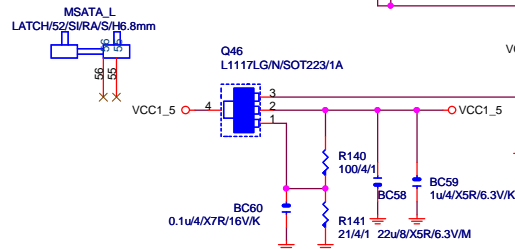


N_SATA5RXN C R134 0/4/X N_SATA5RXNC
 N_SATA5RXP C R136 0/4/X N_SATA5RXPNC
 N_SATA5TXN C R137 0/4/X N_SATA5TXNC
 N_SATA5TXP C R139 0/4/X N_SATA5TXPC
FIX PCH-SATA --> SATA5
R請放在U13背面



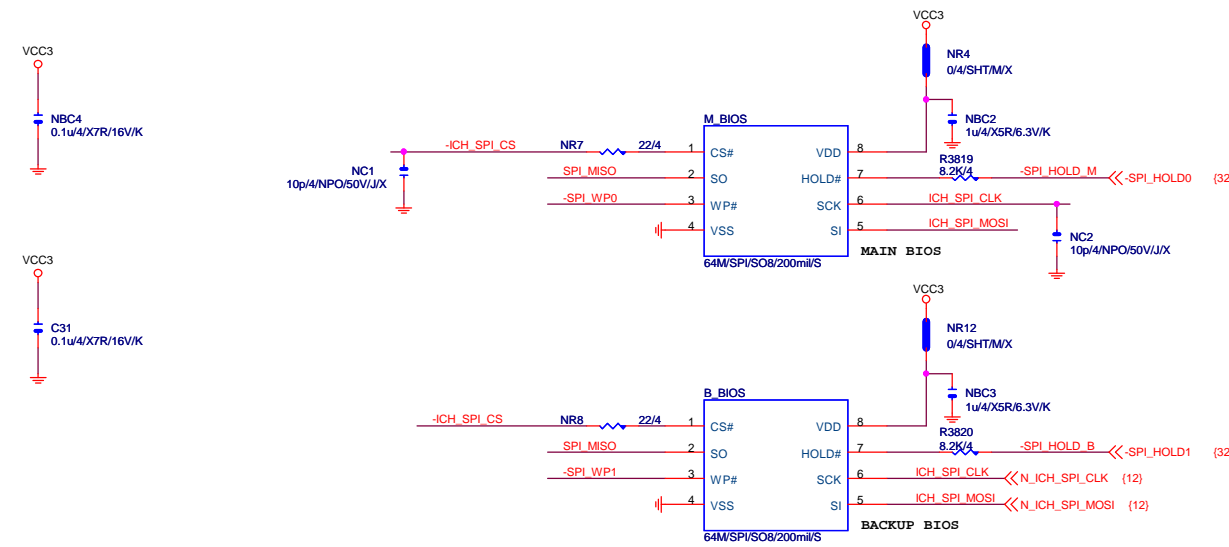
**SATA2
port5**

mSATA

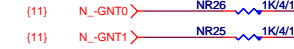
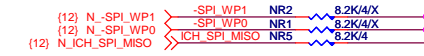
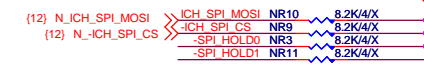


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Function	SEL
xI--> xOa	L
xI--> xOb	H



MOSI For DMI RX Termination Voltage



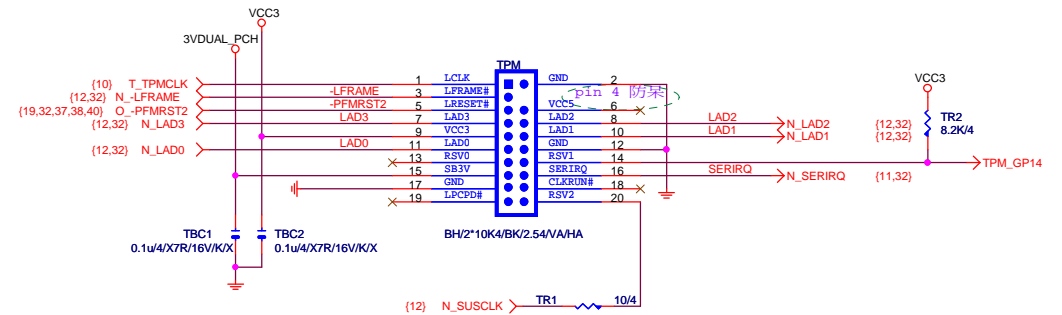
Default int pull up



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

1 means floating
0 means PD 1K

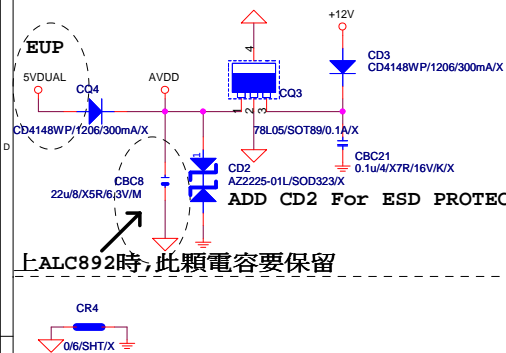
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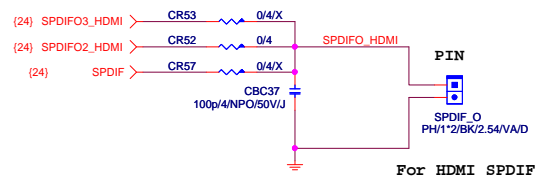
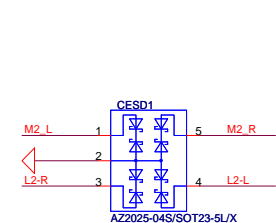
Gigabyte Technology

Title				BIOS	
Size	Custom	Document Number	GA-Z77X-UP4 TH		Rev 1.0
Date:	Monday, June 11, 2012		Sheet	23	of 45

CODEC POWER/EMI PAD

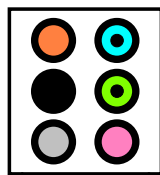


上ALC892時,此顆電容要保留

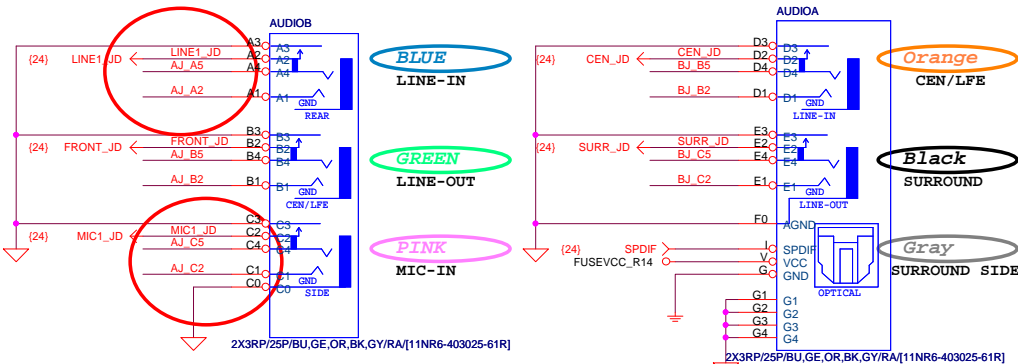
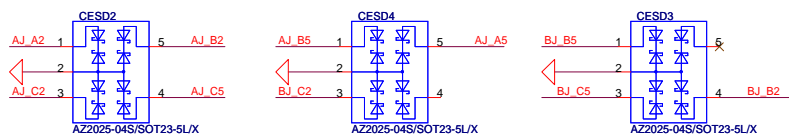


AZALIA JACK

BTX AZALIA CONNECTOR



11NR6-403007-21R



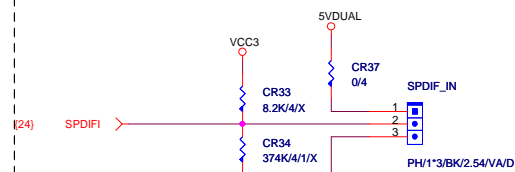
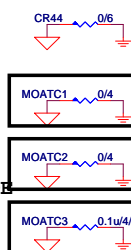
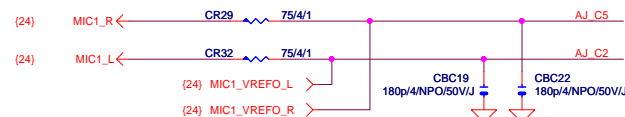
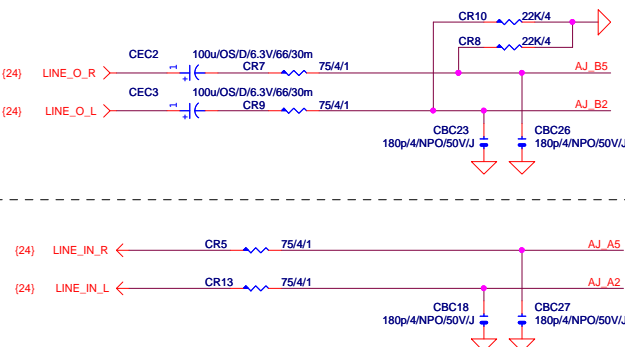
LINE-OUT

- Audio jack --> USB

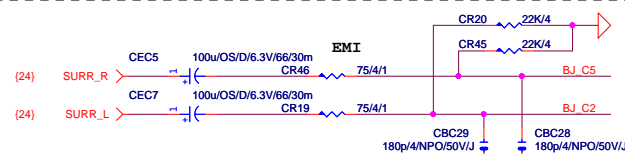
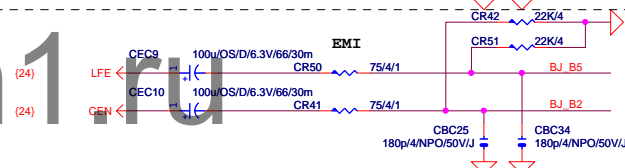
• Near Audio jack left

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

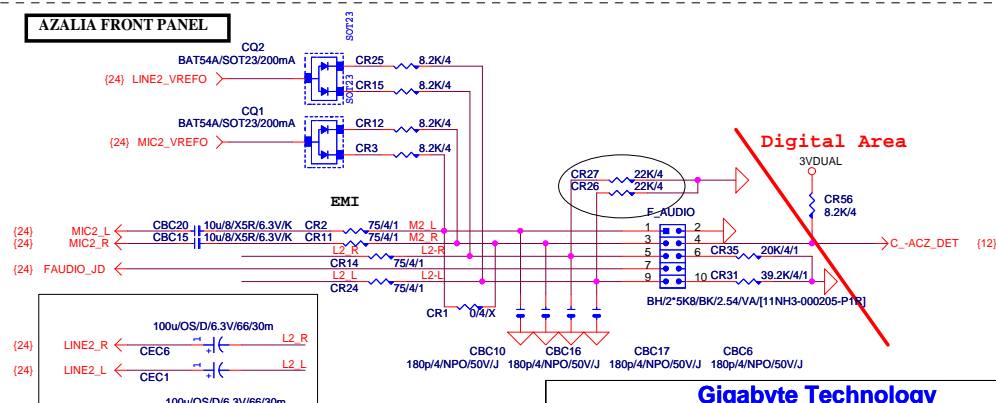
F_AUDIO

**MIC-IN**

SURROUND

**CEN/LFE****SURR BACK**

AZALIA FRONT PANEL



Digital Area

→ C_-ACZ_DET {12}

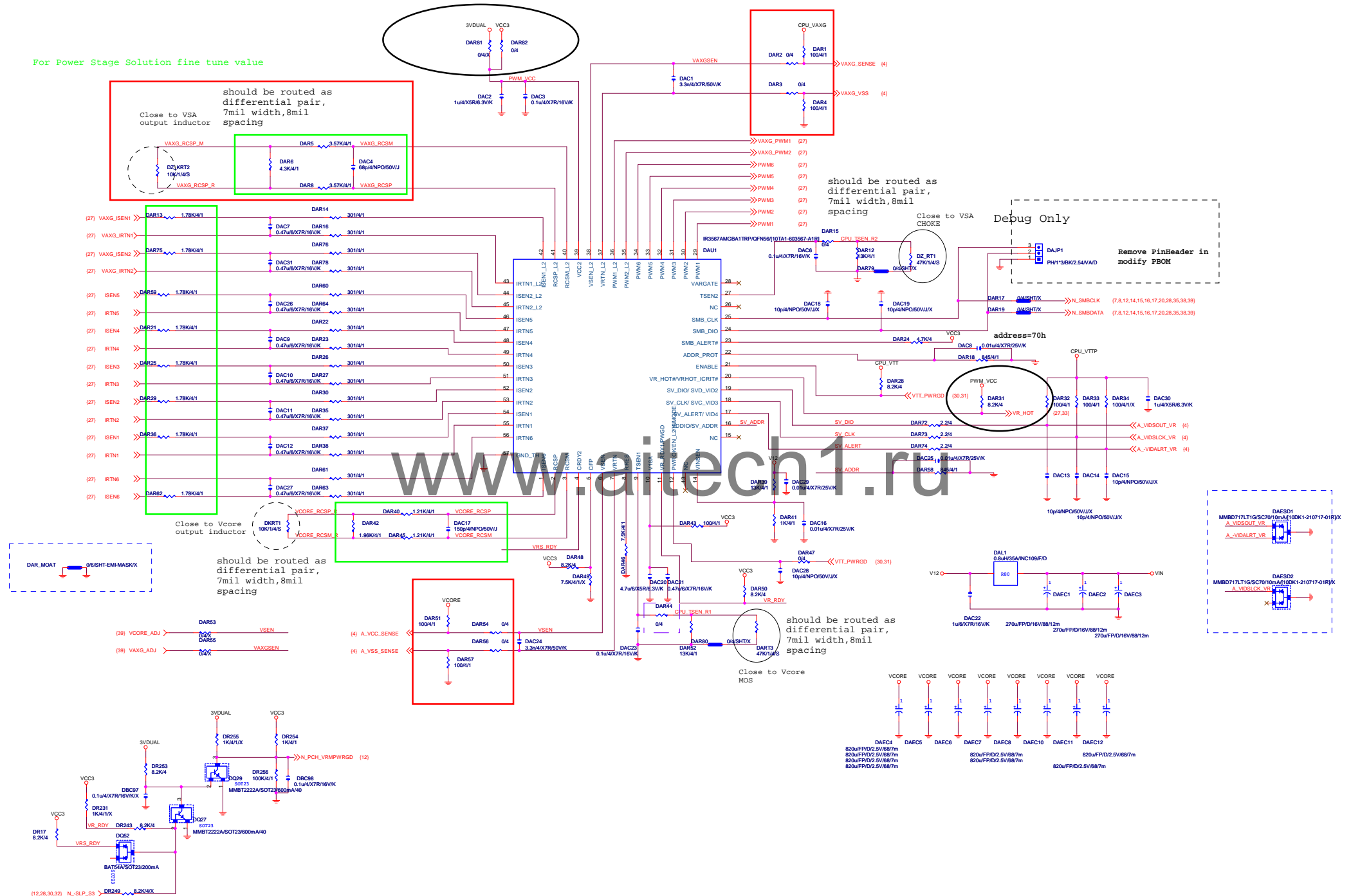
Gigabyte Technology

AUDIO JACK

GA-Z77X-UP4 TH

1.0

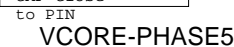
For Power Stage Solution fine tune value



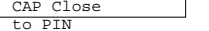
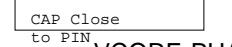
(3553 / 3550 co-lay)



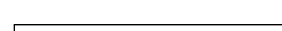
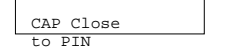
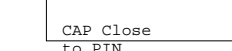
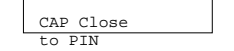
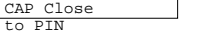
VCORE-PHASE5

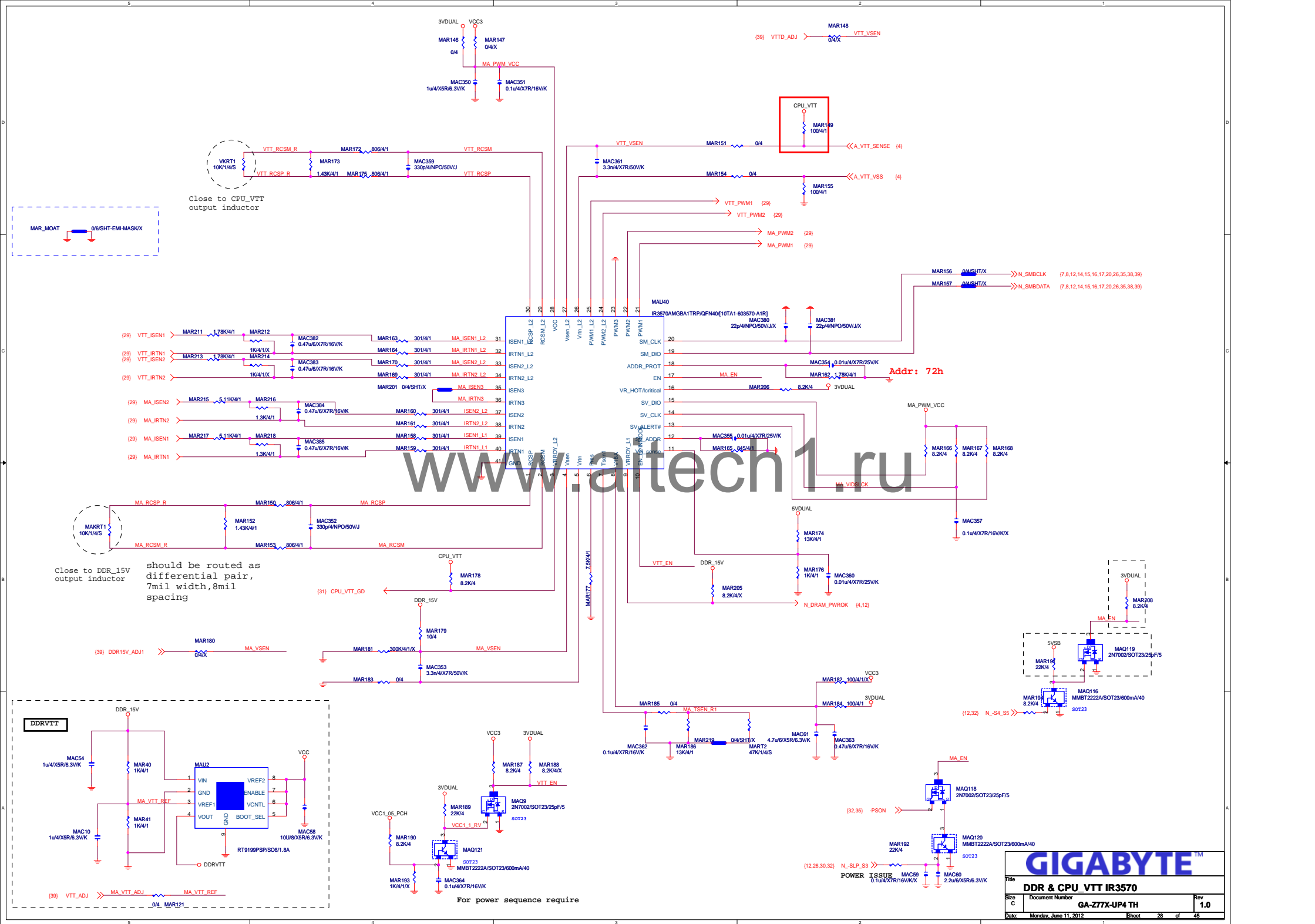


VCORE-PHASE6

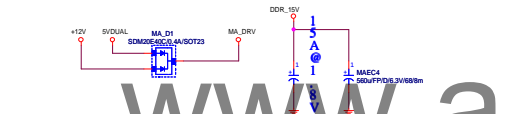
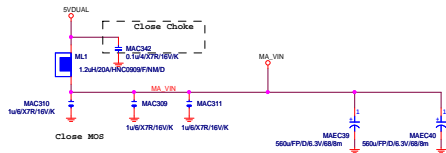
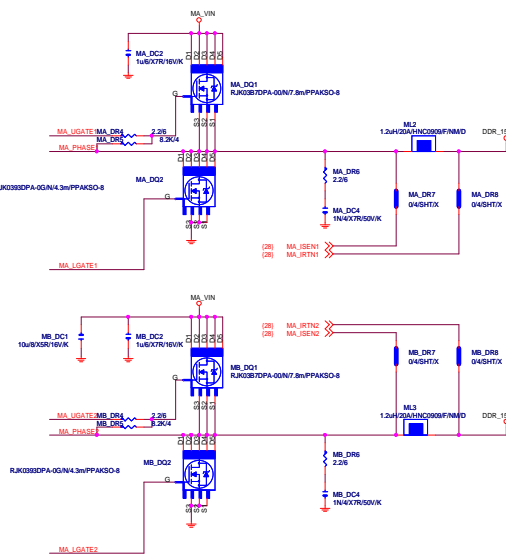
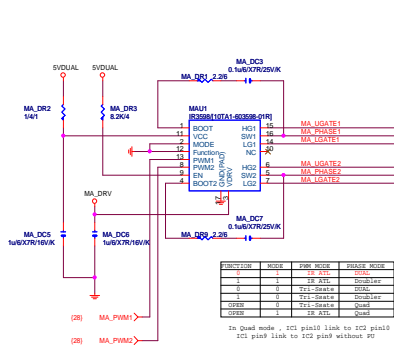


VAXG Phase

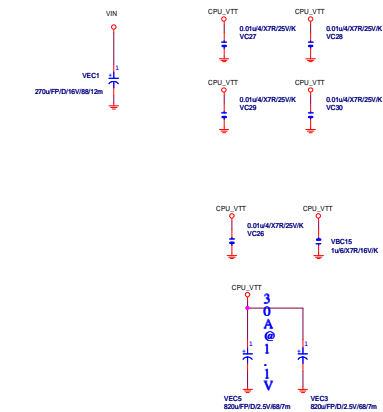
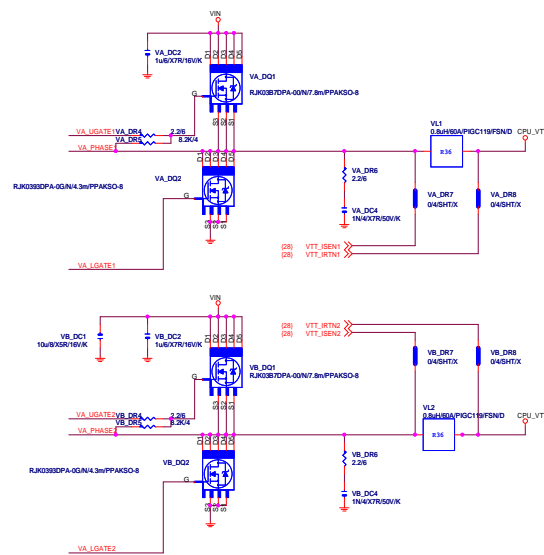
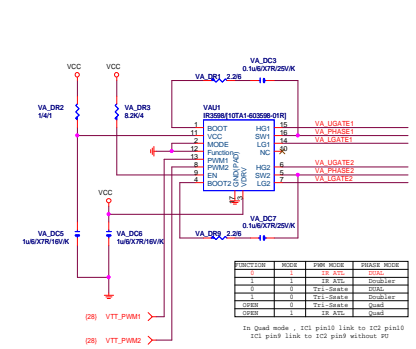


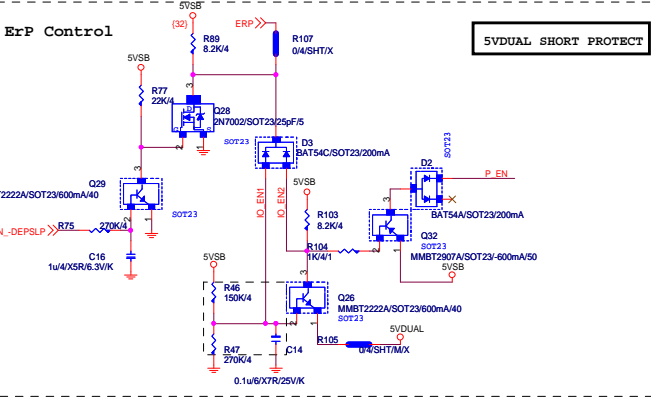
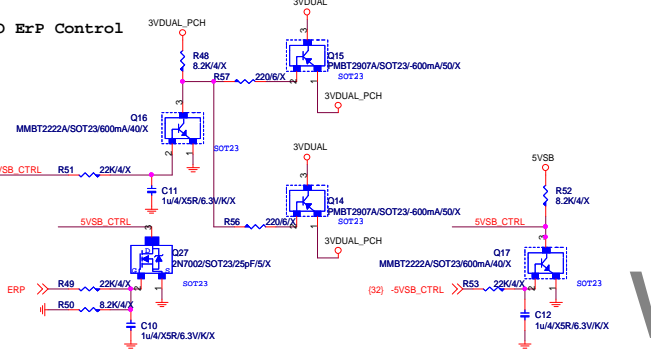
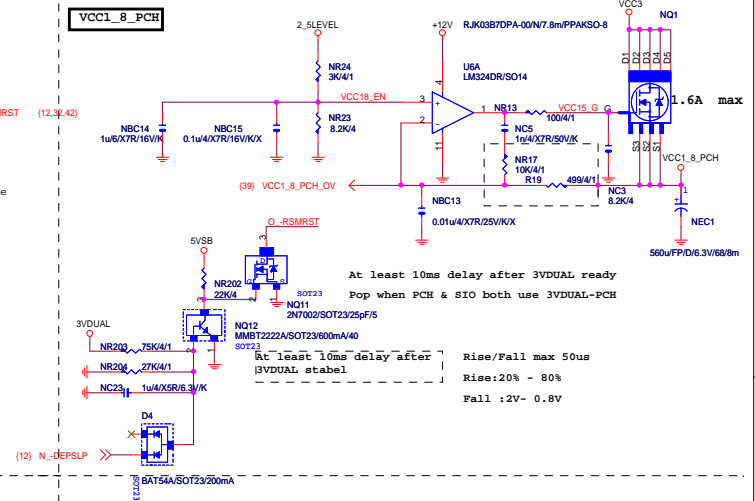
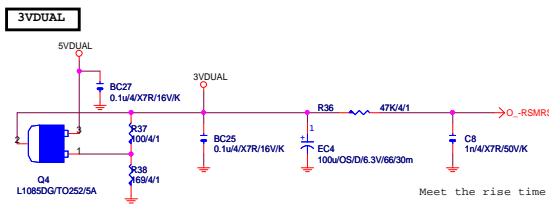
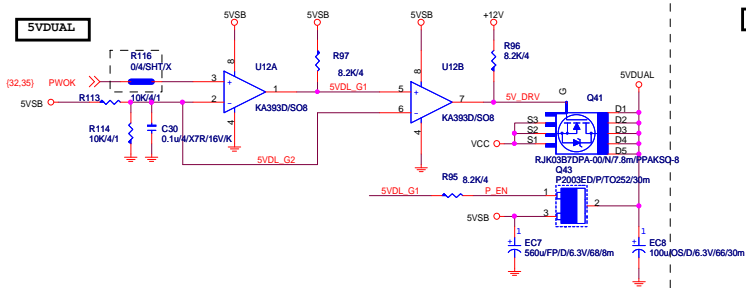


DDR_15V



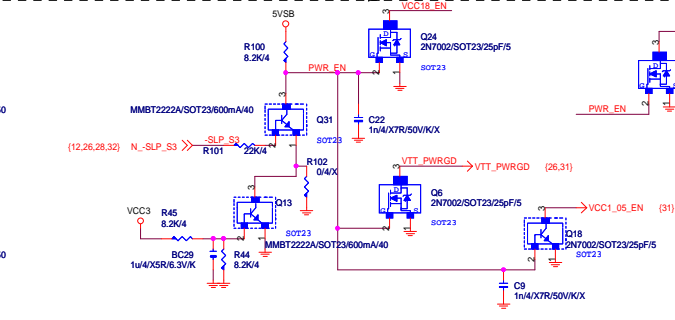
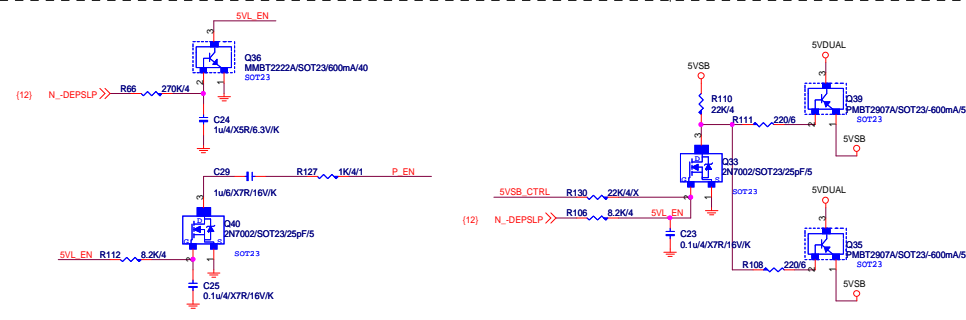
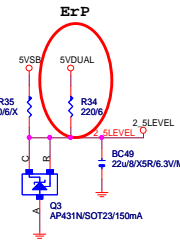
CPU_VTT

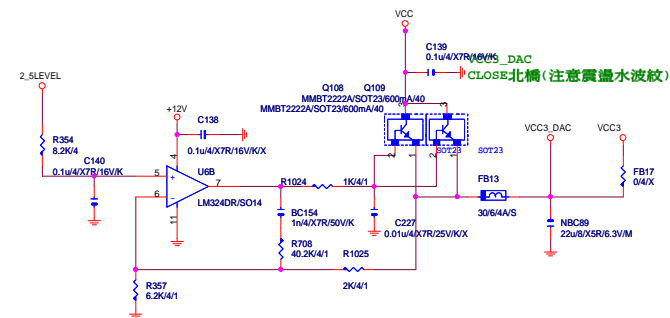
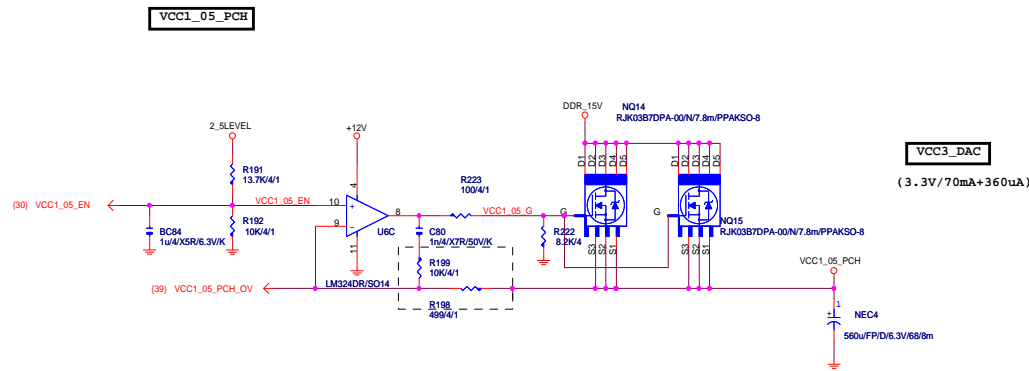




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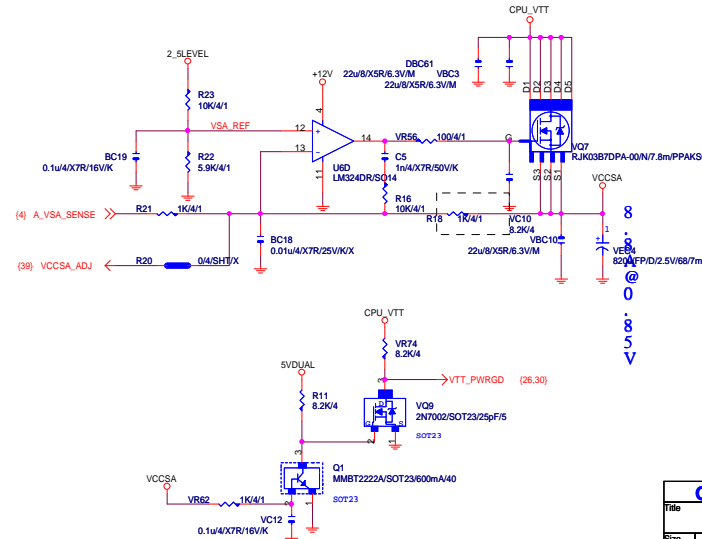
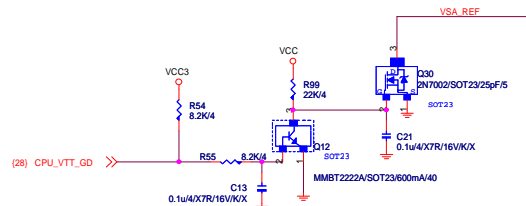
5VDUAL SHORT PROTECT

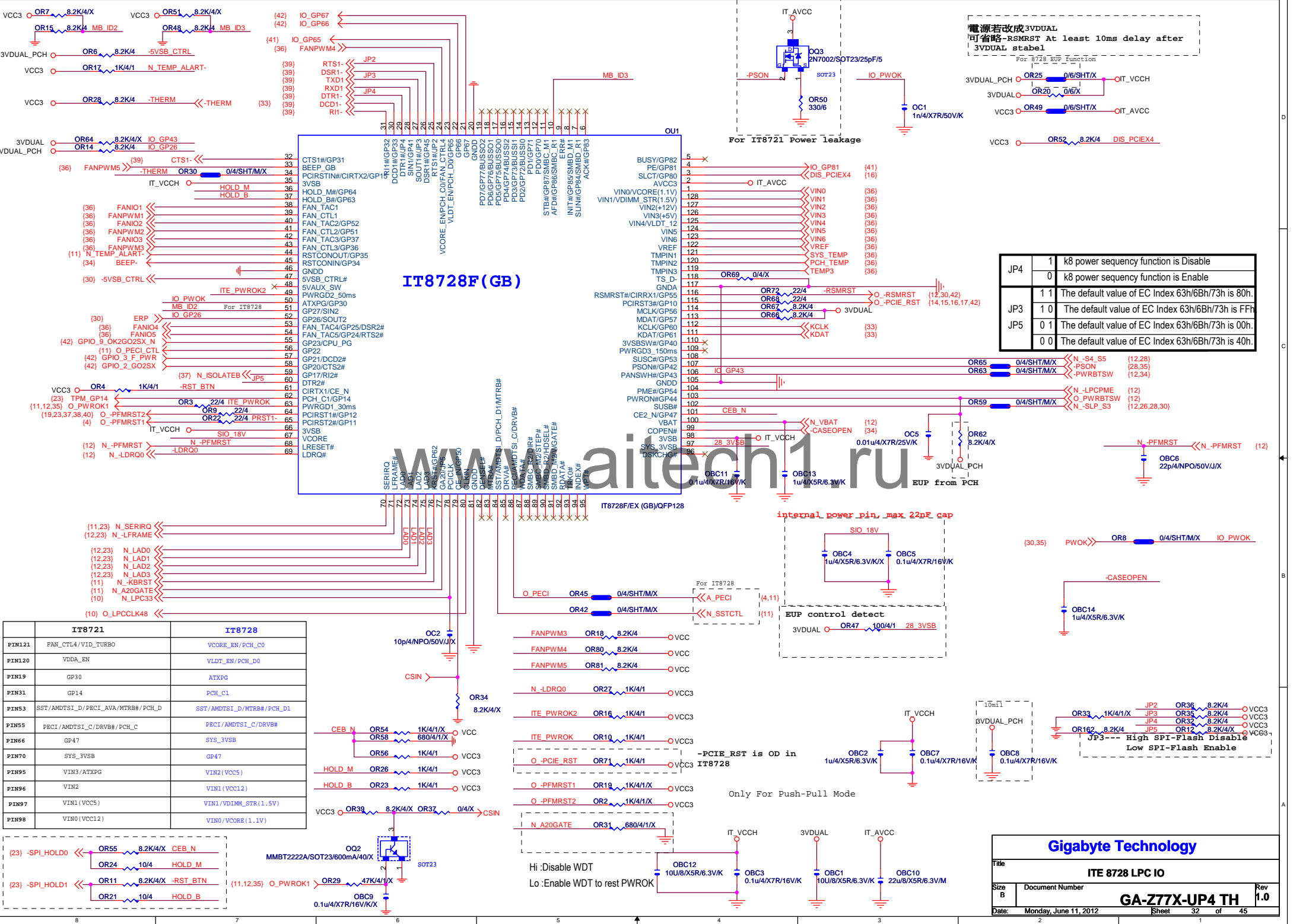




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VCC_SA





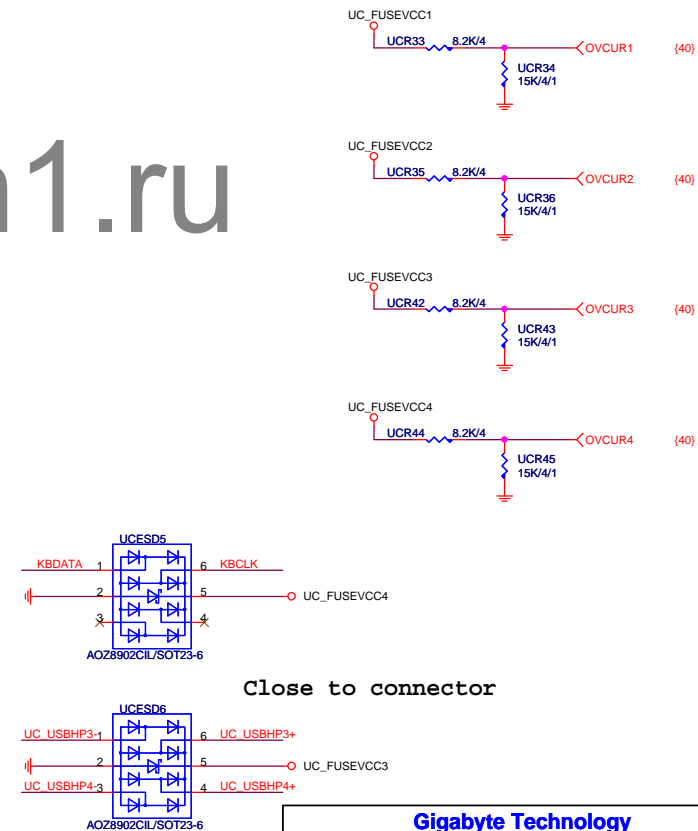
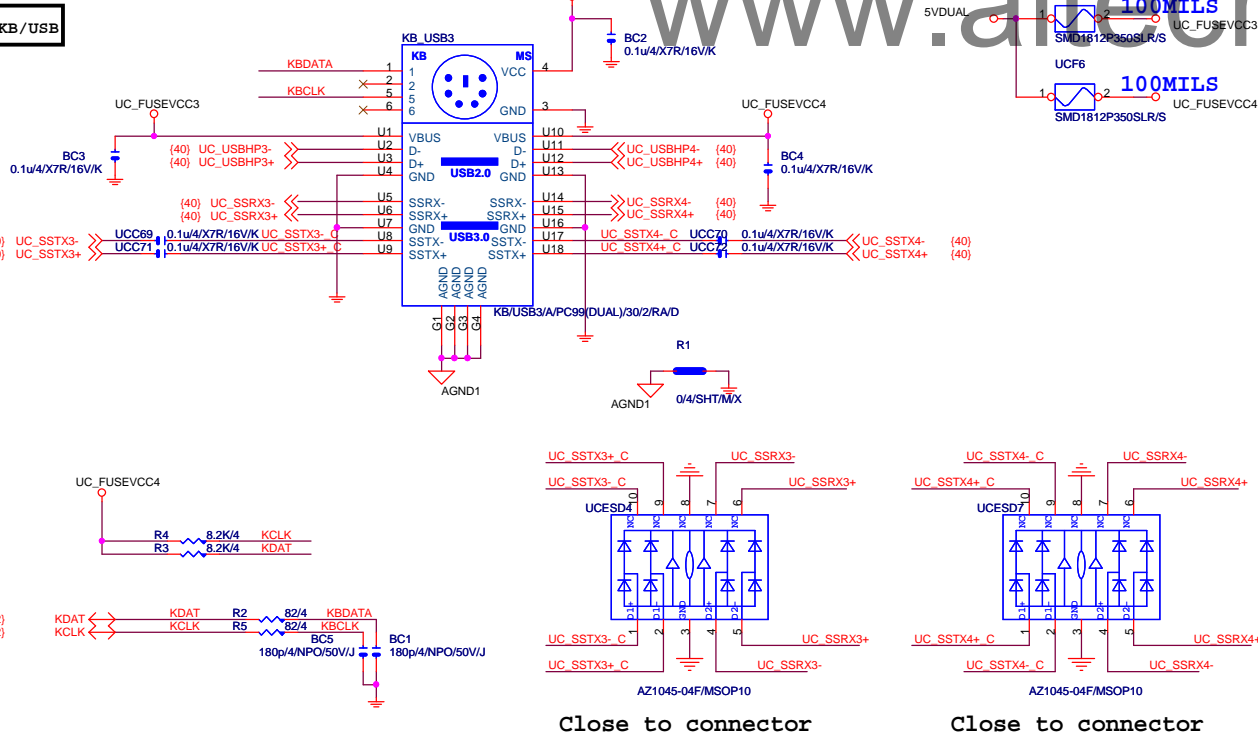
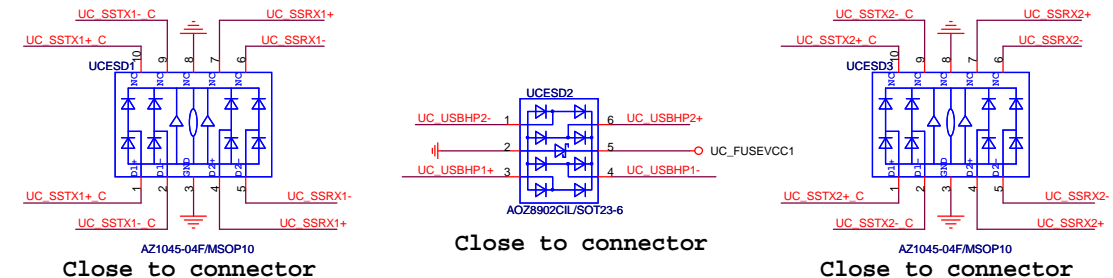
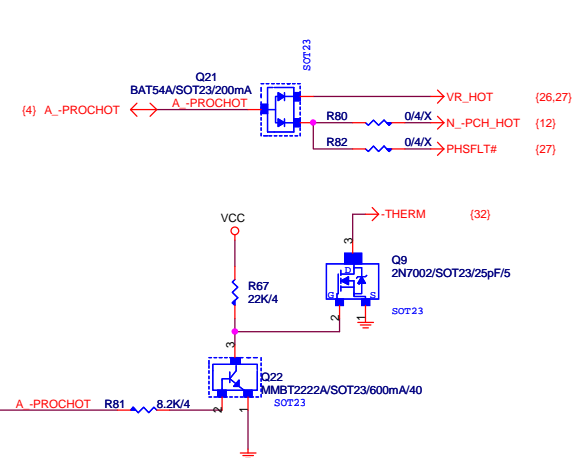
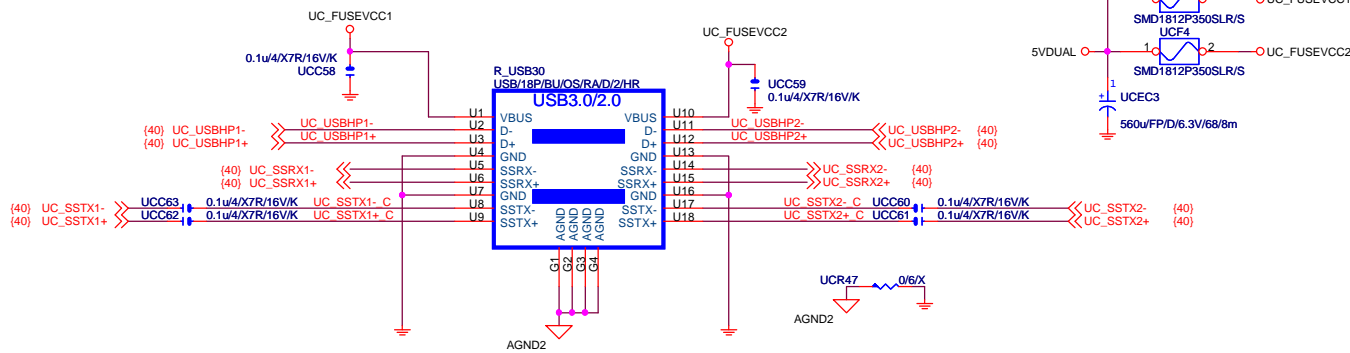
電源若改成3VDUAL
可省略-RSMRST At least 10ms delay after
3VDUAL stabel

For 8728 EUP Function

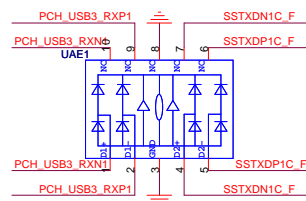
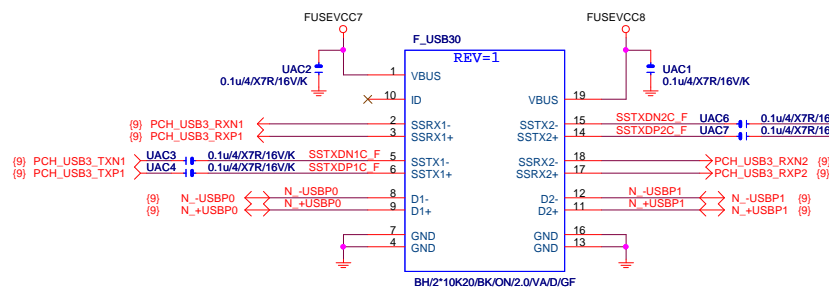
3VDUAL_PCH OR25 0/6/SHT/X IO_T_VCCH
3VDUAL OR20 0/6/X
VCC3 OR49 0/6/SHT/X IO_T_AVCC
VCC3 OR52 8.2K/4 DIS_PCIE4

J4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
J3	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
J5	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.

	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSI_D/PBCL_AVA/MTB#/PCH_D	SST/AMDTSI_D/MTB#B/PCH_D1
PIN55	PBCL1/AMDTSI_C/DRV#B/PCH_C	PBCL1/AMDTSI_C/DRV#B
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)

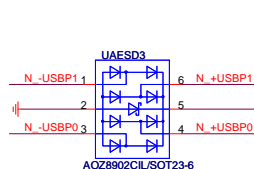


Gigabyte Technology			
File			
USB3_ESATA / KB_USB3			
Size	Document Number	Rev	
Custom		GA-Z77X-UP4 TH	
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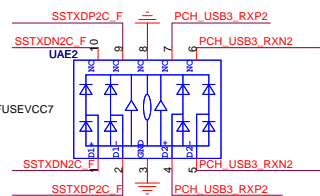


AZ1045-04F/MSOP10

Close to connector

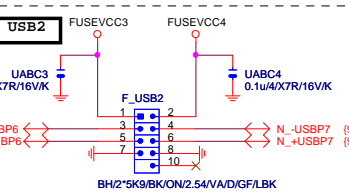
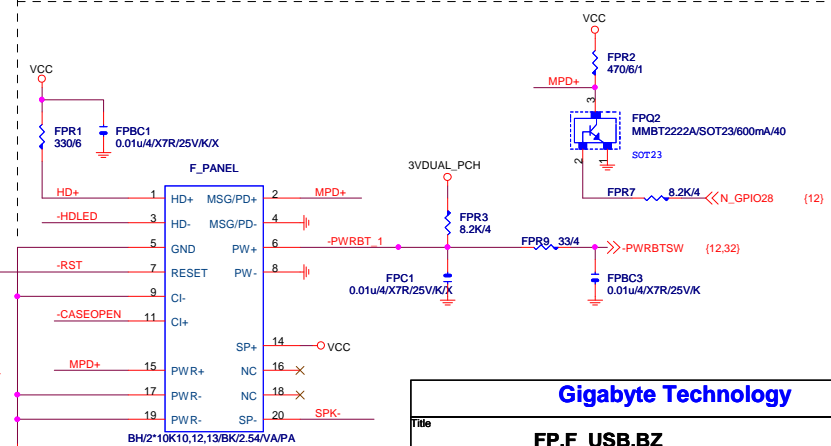
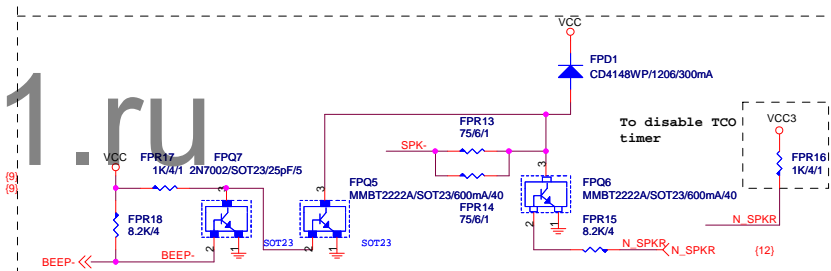
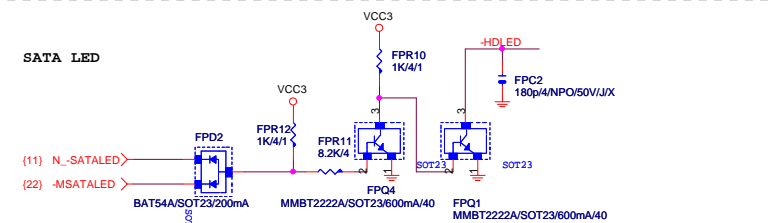
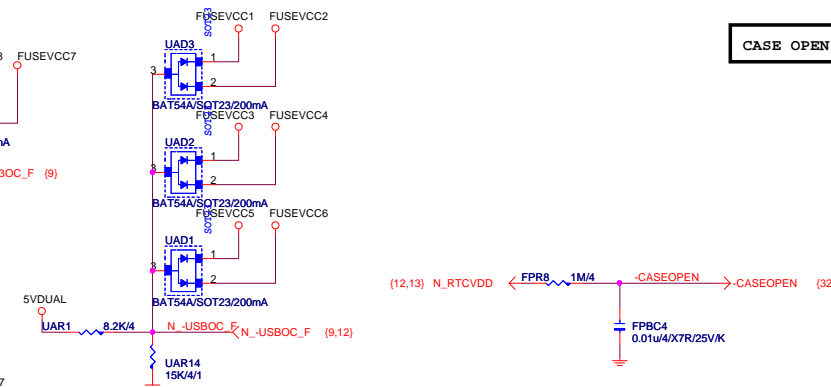
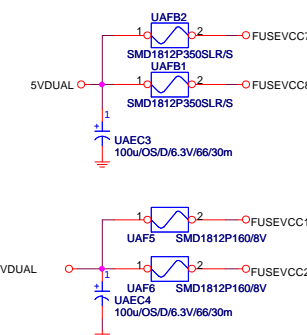


Close to connector

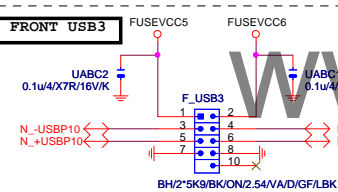


AZ1045-04F/MSOP10

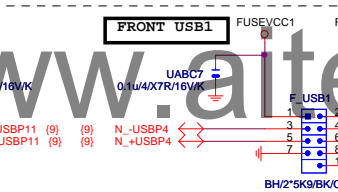
Close to connector



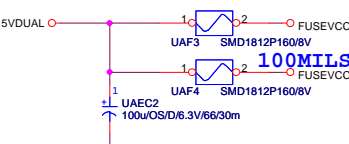
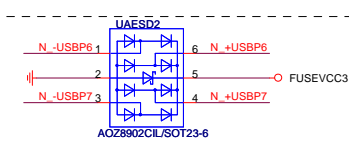
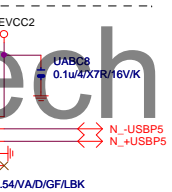
Close to connector



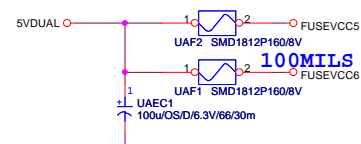
Close to connector



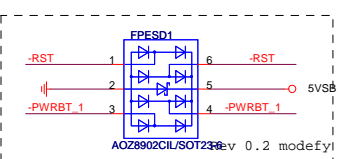
Close to connector



100MILS



100MILS

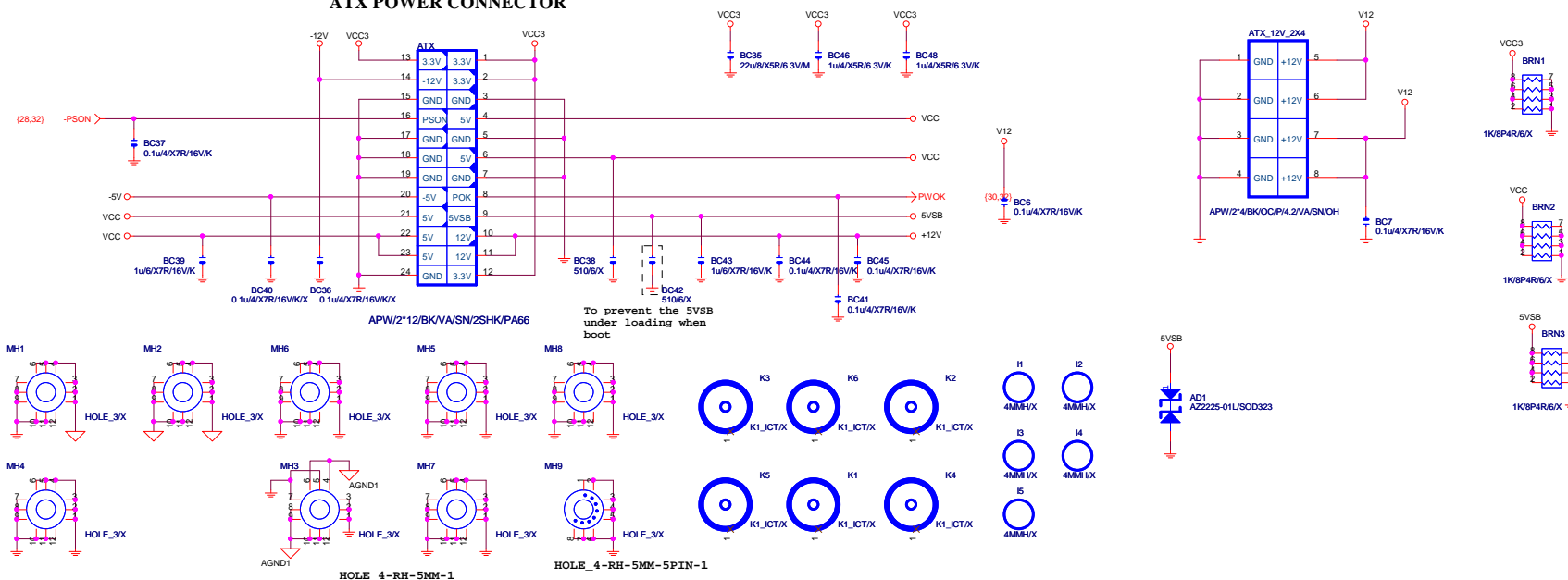


Close to connector



Gigabyte Technology				
Title				
FP,F_USB,BZ				
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Custom				1.0
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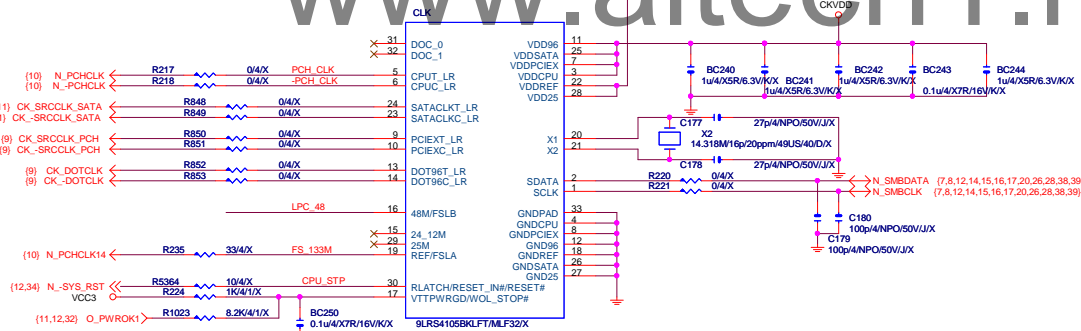
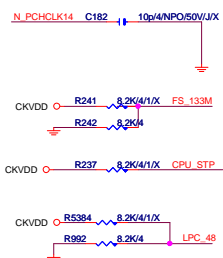
ATX POWER CONNECTOR



CLK GEN CK505

CPU Frequency Selection

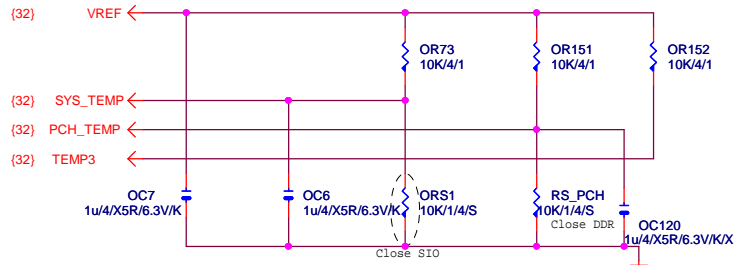
FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M



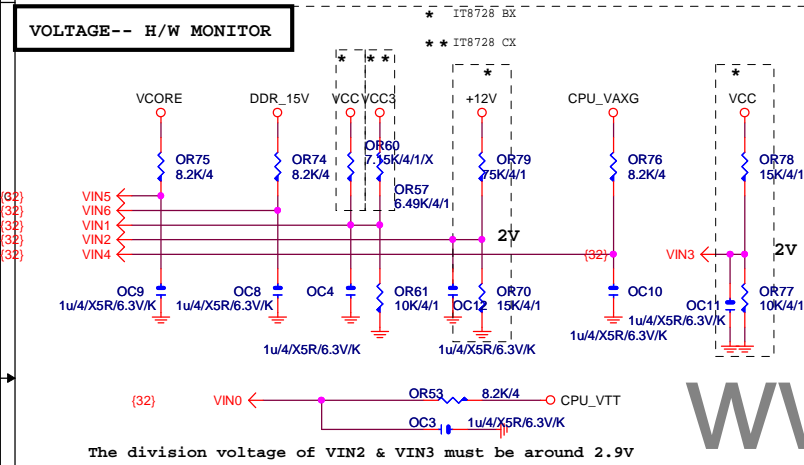
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
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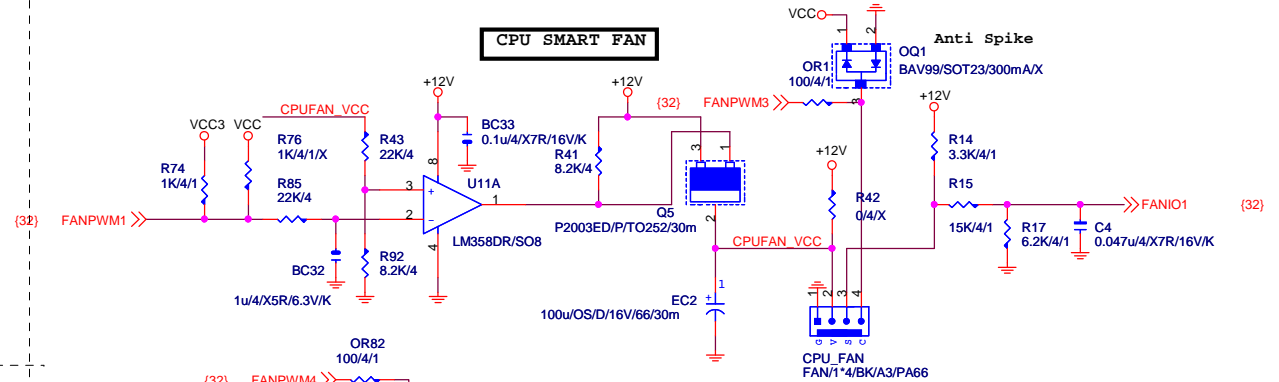
TEMP H/W MONITOR



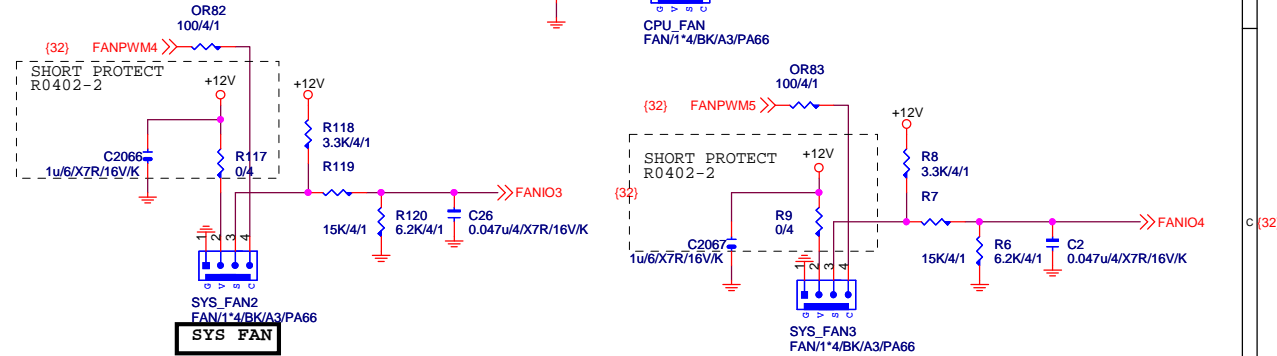
VOLTAGE-- H/W MONITOR



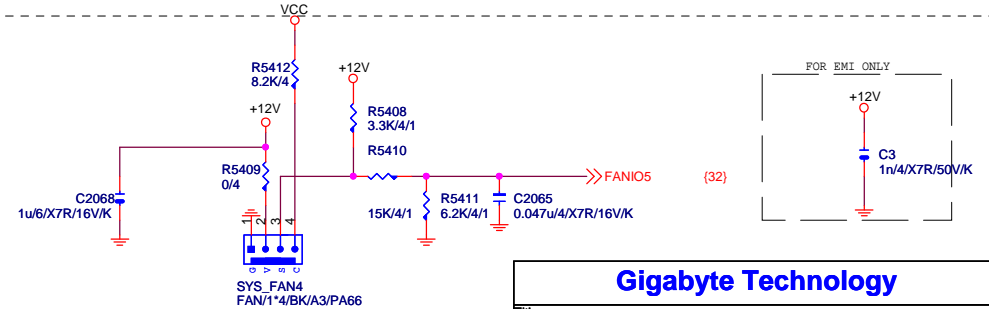
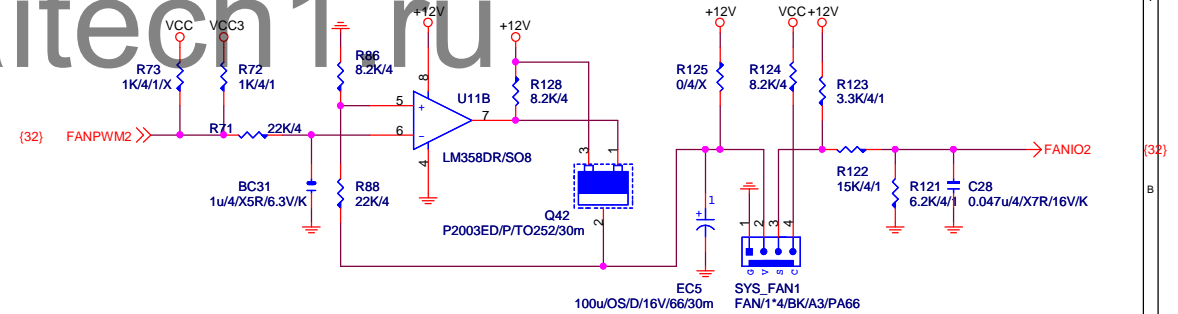
CPU SMART FAN



SYS FAN



Linear SYS_FAN



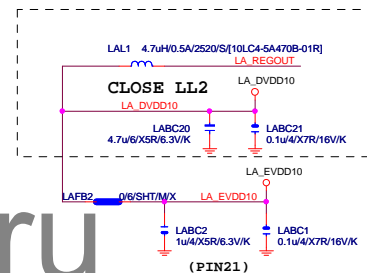
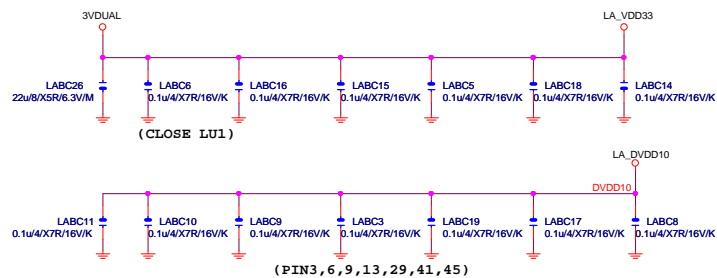
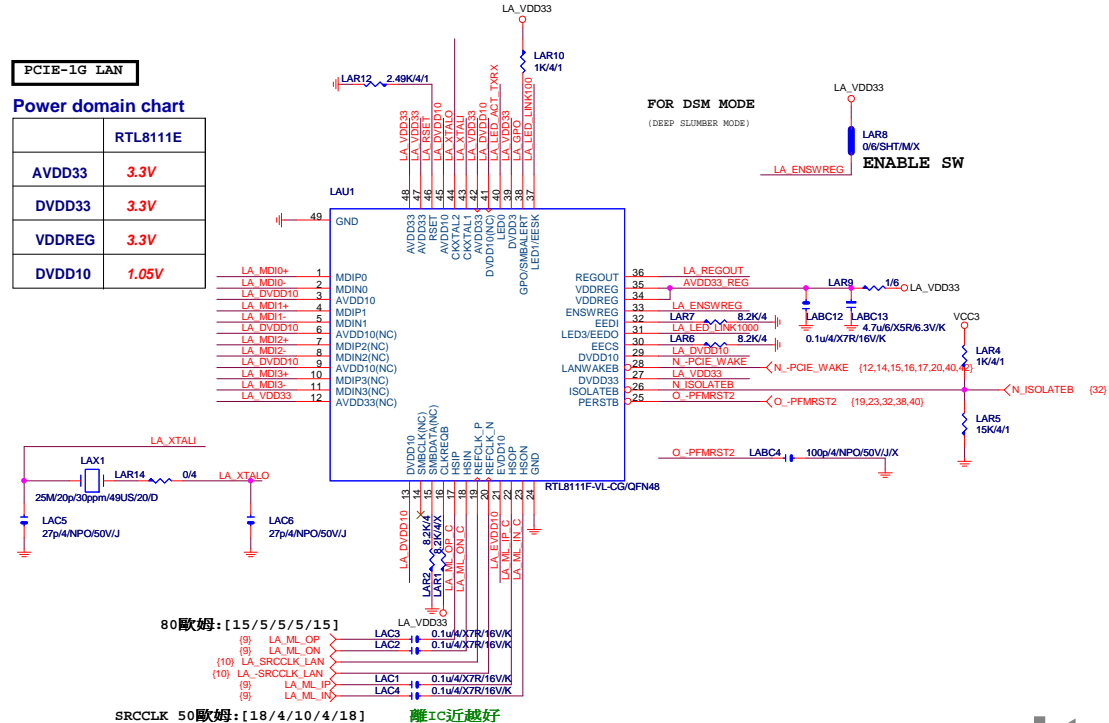
Gigabyte Technology

Title		
HWM,KB/MS, FAN CTRL		
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PCIE-1G LAN

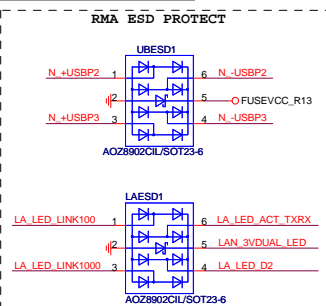
Power domain chart

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

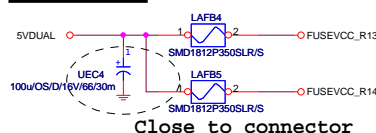


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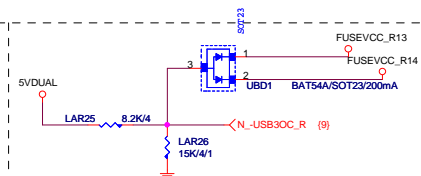
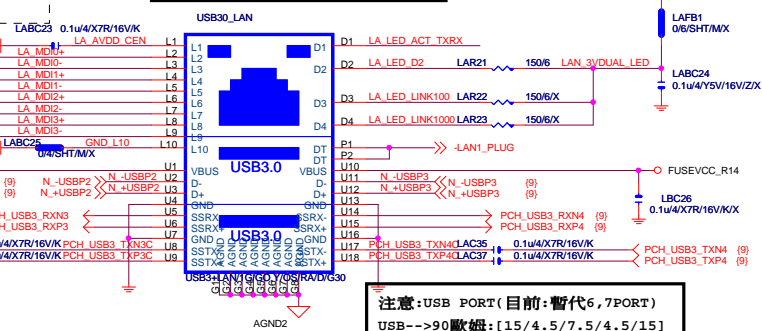
USB_LAN CONNECTOR



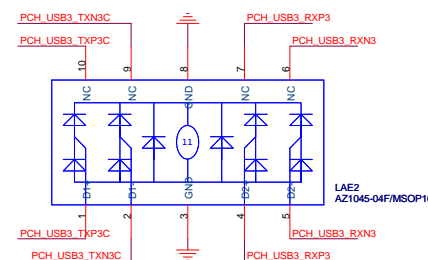
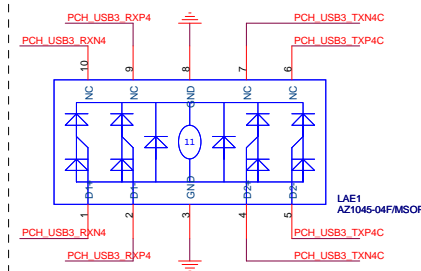
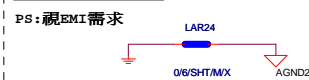
USB X3 POWER



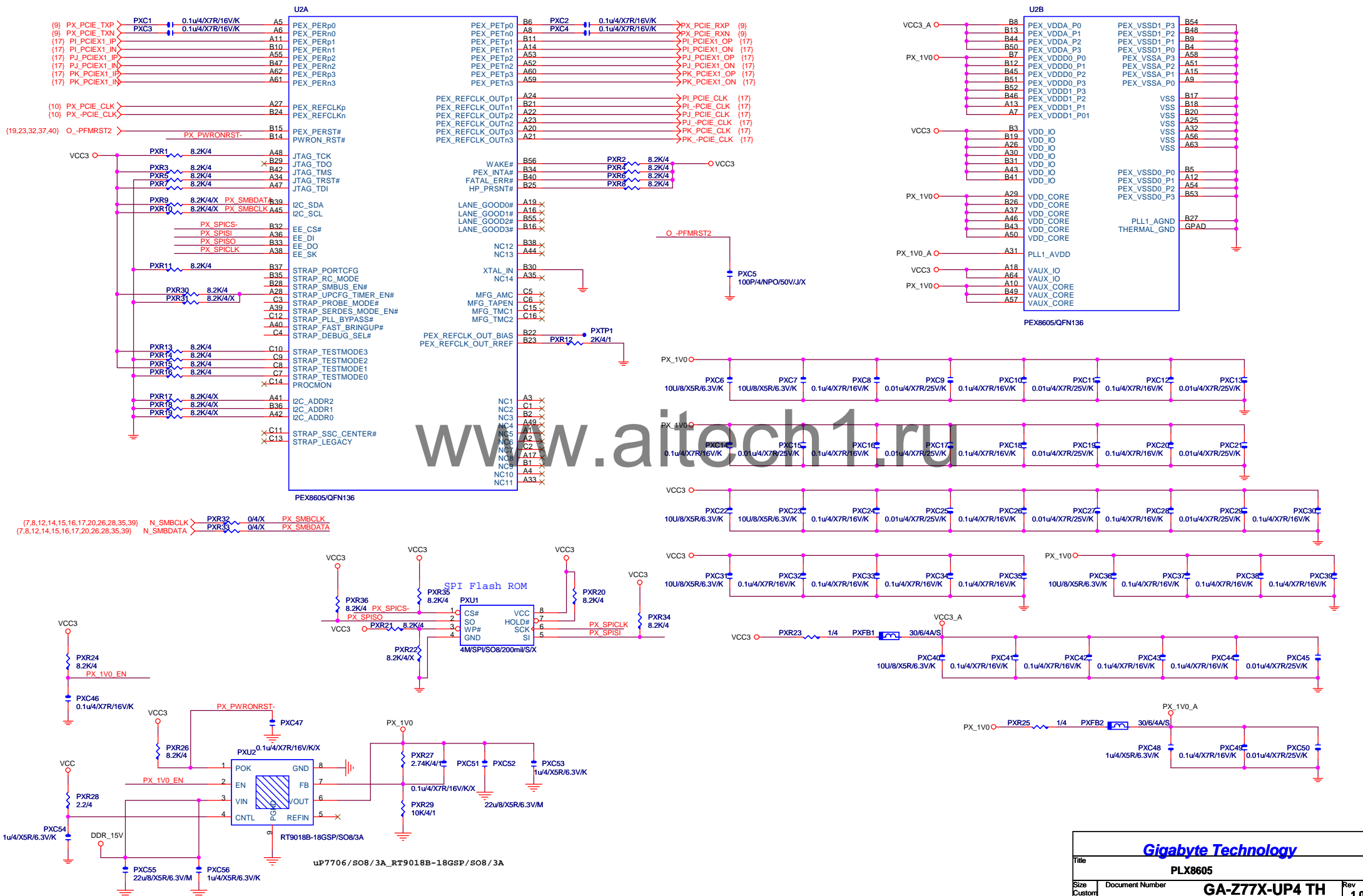
LA_MDI-->100歐姆:[20/4/8/4/20]

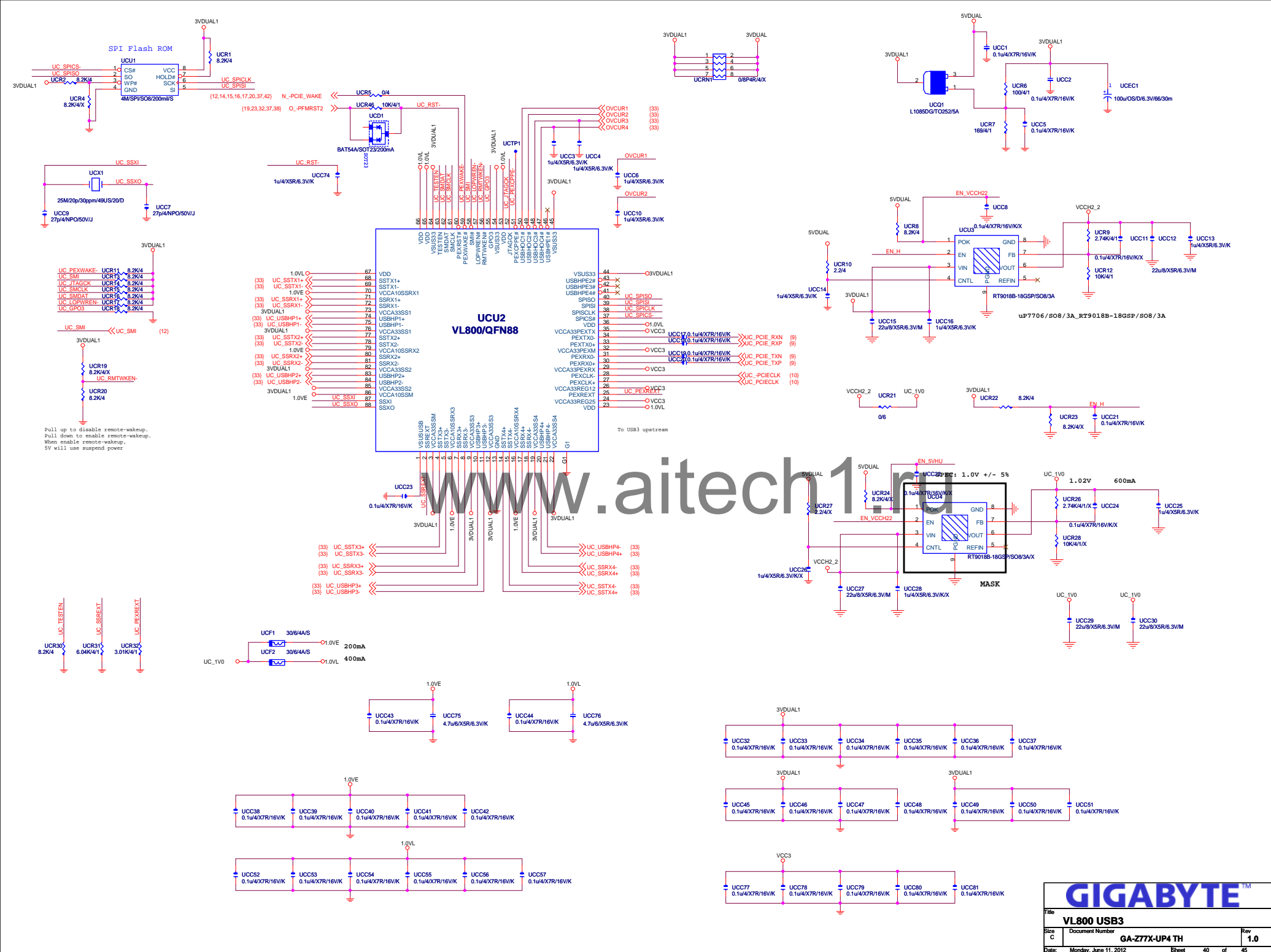


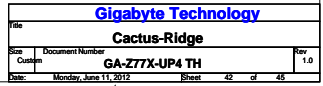
EMI SHORT PAD



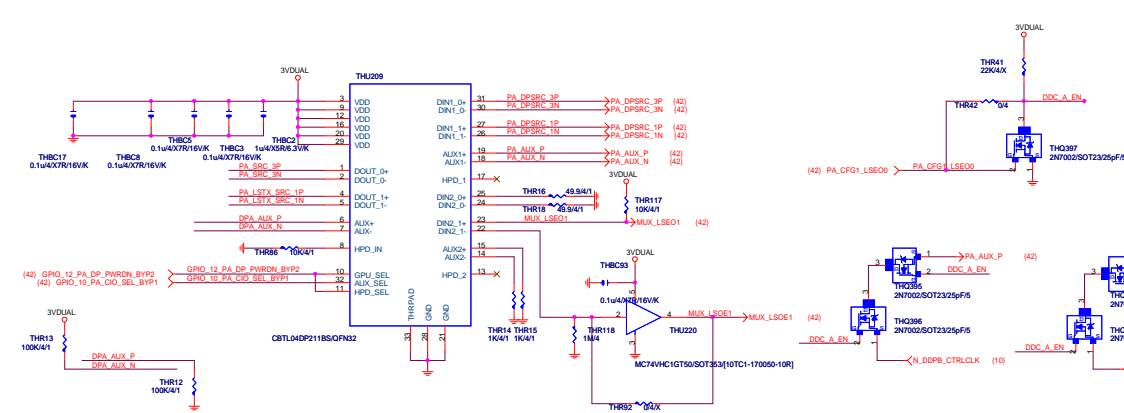
Gigabyte Technology		
Title		
REALTEK 8111F		
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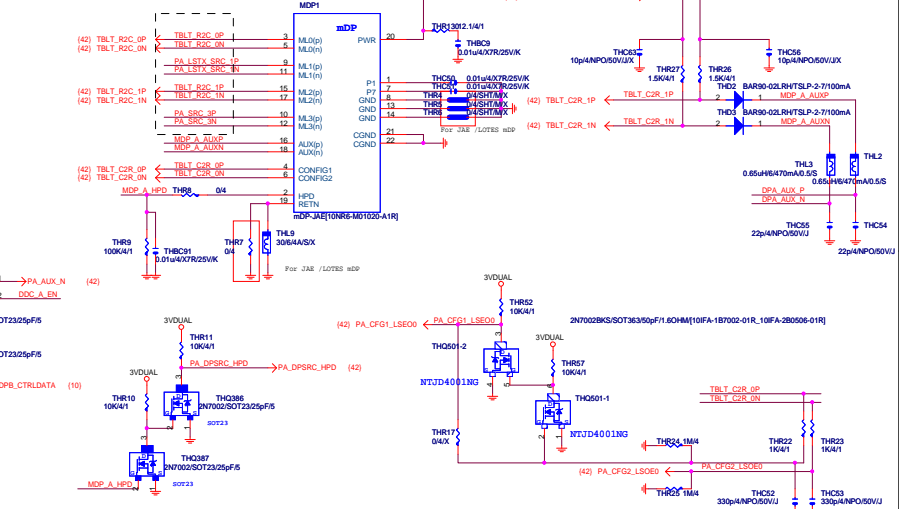




DP_A

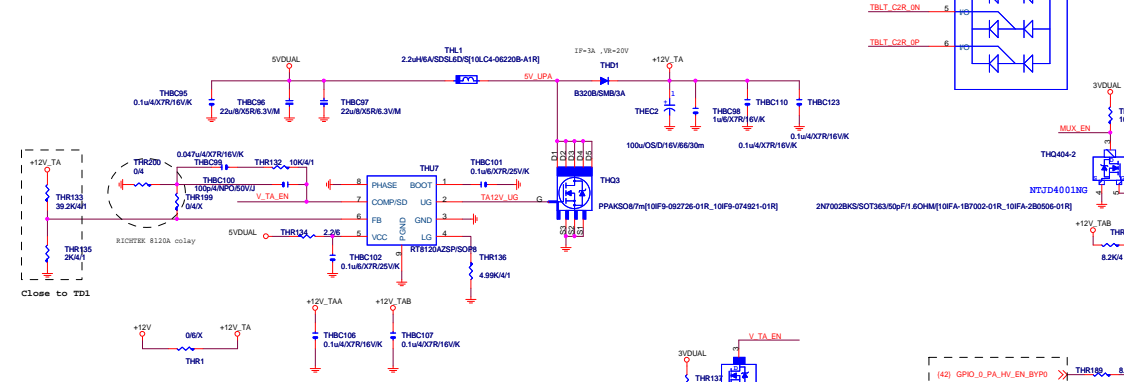


100 speed ,take care layout under 2000mil in whole length

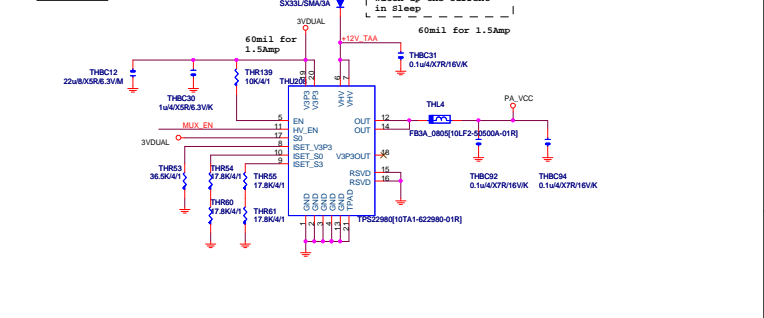


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*12V_TB



MDP_POWER

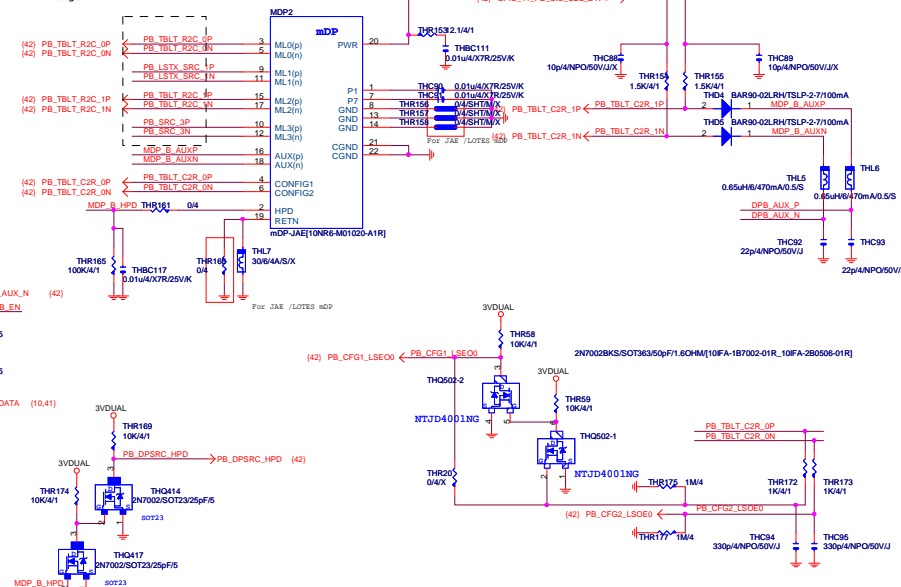
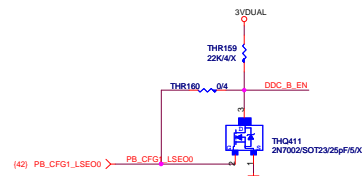
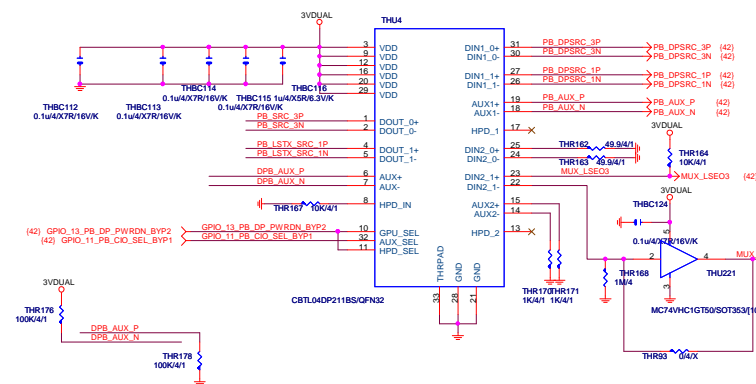


Power Rail	Current budget	S4/S5	S3	S0
VCC3P3_POC	100mA	ON	ON	ON
VCC1_LC	600mA	OFF	ON	ON
VCC1_05_LC	1A	OFF	ON	ON
VCC1_05_C10	4A	OFF	ON	ON

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

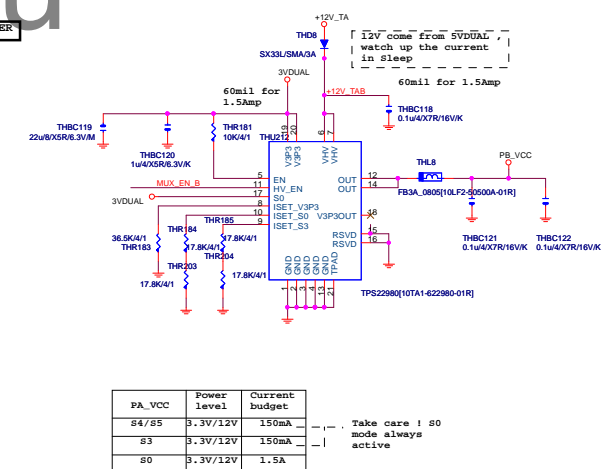
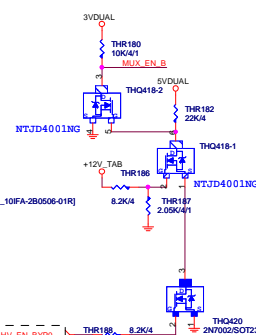
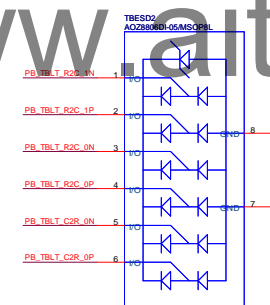
Take care ! S0 mode always active

IN	RV_IN	OUT
0	0	0V
0	1	0V
1	0	V3P3
1	1	VRV



3.3VPOC >> 1.05VLC >> 3.3VLC >> 1.05VCIO

POWER CONSUMPTION	
VCC3P3_POC	10mA
VCC3V3_IC	100mA
VCC1V05_IC	2A
VCC1V05_CIO	1.4A



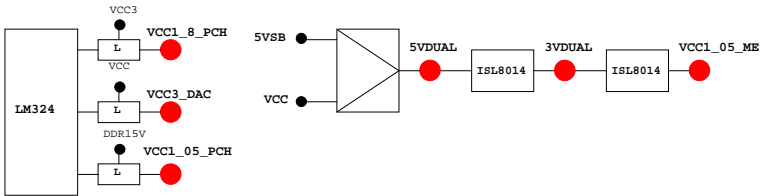
PA_VCC	Power level	Current budget
S4/S5	3.3V/12V	150mA
S3	3.3V/12V	150mA
S0	3.3V/12V	1.5A

PCH GPIO LIST TABLE					
PIN NAME	PWR	Default	USAGE	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

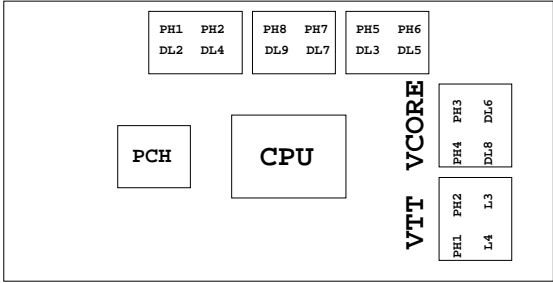
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
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	USAGE	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/SEC	LOW_PWR_1	
VIDO5/GP27/SIN2	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	
VIDO0/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	⚡ PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/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			
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