

Model Name: GA-Z77X-UP7

Rev1.0

SHEET

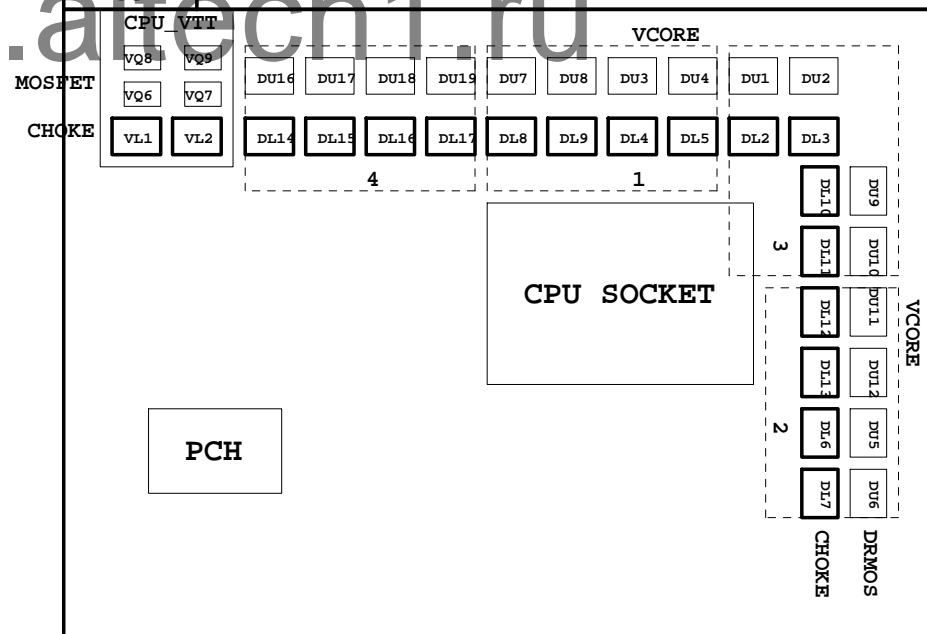
TITLE

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,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT_3
15	PCI EXPRESS*16/*8 SWITCH_2
16	PCI EXPRESS*8 SLOT_2
17	PCI EXPRESS*16 SLOT_1
18	PCI EXPRESS*16/*8 SWITCH_1
19	PCI EXPRESS*8 SLOT_1
20	PCI EXPRESS*1 SLOTS X1
21	HDMI/DVI/DP
22	MSATA
23	Dual BIOS , TPM SLB9635TT
24	ALC 898
25	REAR AUDIO JACK
26	AMplifier
27-30	IR 3563A+IR3550-Vcore
31	DISCRETE POWER1
32	DISCRETE POWER2
33	ITE 8728 LPC IO
34	FP,FUSB,-PHOT
35	ATX POWER, CLOCK GEN
36	HWM,KB/MS , FAN CTRL
37	ARTHEROS AR8151
38	INTEL LAN_82579
39	Marvell 9172A

SHEET

TITLE

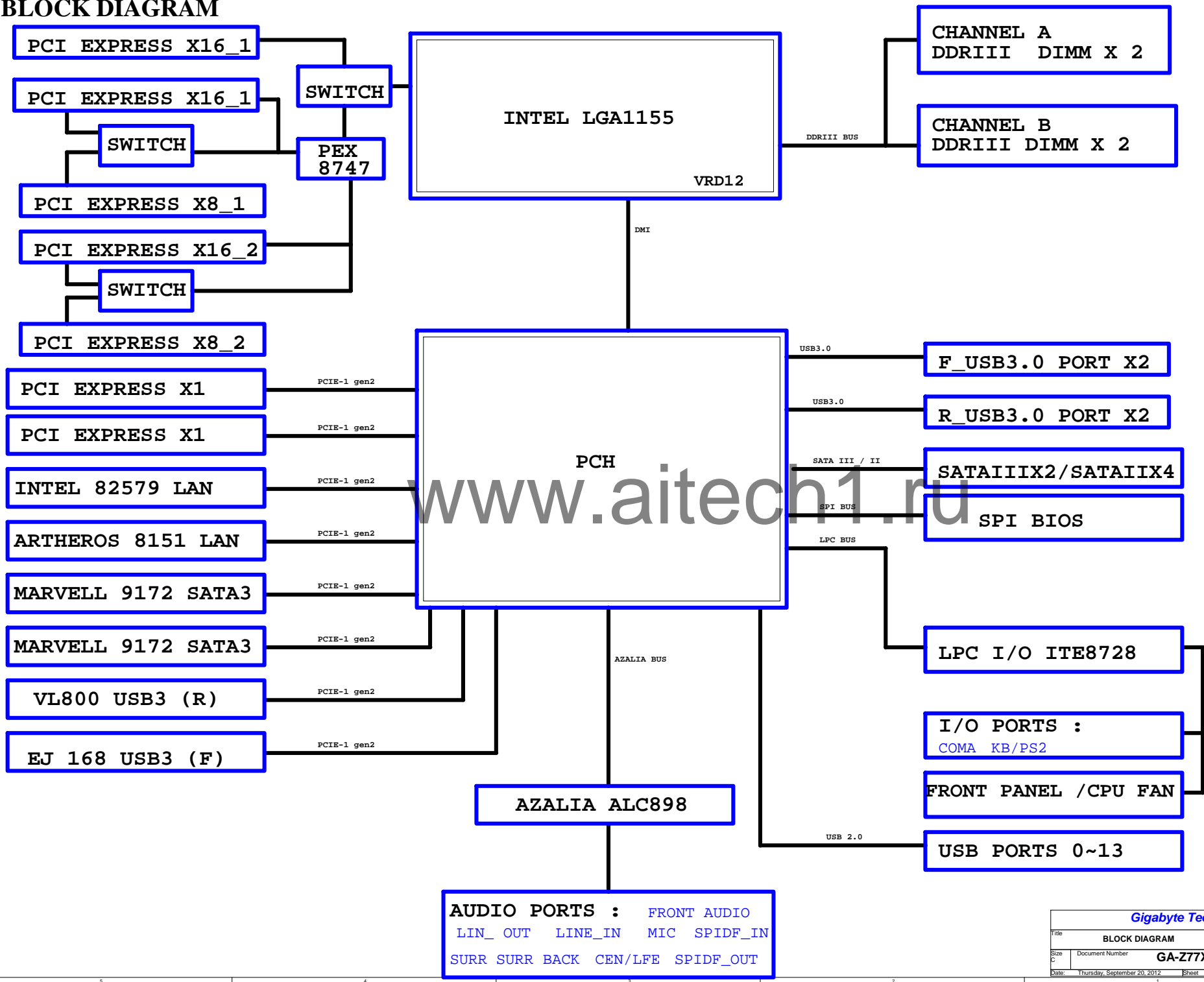
40	Marvell 9172B
41	F_USB30 - EJ168
42	VL800
43	USB3 (F)
44	RST, PWR, CLR_CMOS
45	PEX8747S UPSTREAM & MISC
46	PEX8747S DOWNSTREAM SLOTS
47	PEX8747S STRAP & CPLD INTF
48	PEX8747S POWER
49	REFCLK
50	PEX8747 POWER DESIGN
51-52	IR3570A+IR3550-DDR15+CPUVTT POWER
53-54	IR3570A+IR3550 VAXG POWER
55	SWITCH
56	PCI EXPRESS X16 SWITCH_3-1
57	PCI EXPRESS X16 SWITCH_3-2
58	PCI EXPRESS X16 PORT_2
59	TABLE LIST



Gigabyte Technology

Cover Sheet		
Title	Document Number	Rev
	GA-Z77X-UP7	1.0
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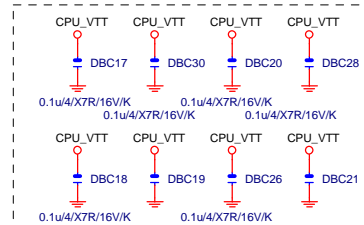
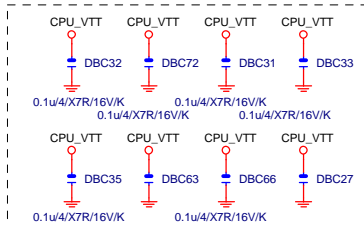
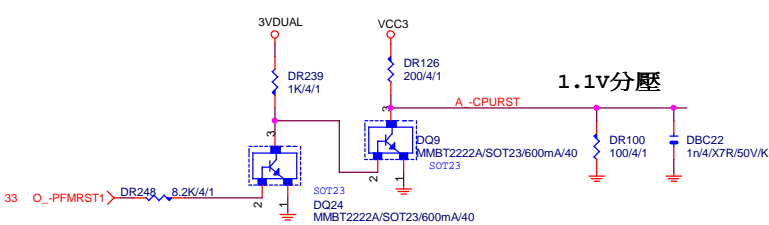
BLOCK DIAGRAM



CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	NORM	Reverse	LANE REVERSAL[0]_x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
5	RSVD	RSVD	RSVD
6	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
0	0	RSVD
0	1	RSVD
0	0	X8_X4_X4

CFG 0-17 all internal PULL-UP



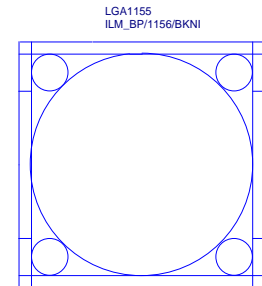
Gigabyte Technology			
CPU LGA1155-A			
Size	Document Number	Rev	
Custom	GA-Z77X-UP7	1.0	
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LGA1155A			
M_AAA0	AV27	SA_MA[0]	SA_DQS[0]
M_AAA1	AY24	SA_MA[1]	SA_DQS[0]
M_AAA2	AW24	SA_MA[2]	
M_AAA3	AW23	SA_MA[3]	
M_AAA4	AV23	SA_MA[4]	
M_AAA5	AT24	SA_MA[5]	
M_AAA6	AT23	SA_MA[6]	
M_AAA7	AU22	SA_MA[7]	
M_AAA8	AV22	SA_MA[8]	
M_AAA9	AT22	SA_MA[9]	
M_AAA10	AV28	SA_MA[10]	
M_AAA11	AU21	SA_MA[11]	
M_AAA12	AT21	SA_MA[12]	
M_AAA13	AW32	SA_MA[13]	
M_AAA14	AU20	SA_MA[14]	
M_AAA15	AT20	SA_MA[15]	
M_SWEA	AW29	SA_WE#	SA_DQ[8]
M_SCASA	AV30	SA_CAS#	SA_DQ[9]
M_SRASA	AU28	SA_RAS#	SA_DQ[10]
M_SBAA0	AY29	SA_BS[0]	SA_DQ[11]
M_SBAA1	AW28	SA_BS[1]	SA_DQ[12]
M_SBAA2	AV20	SA_BS[2]	SA_DQ[13]
M-CSA0	AU29	SA_CS#	SA_DQ[14]
M-CSA1	AV32	SA_CS#	SA_DQ[15]
M-CSA2	AW30	SA_CS#	SA_DQ[16]
M-CSA3	AU33	SA_CS#	SA_DQ[17]
M-CKEA0	AV19	SA_CKE[0]	SA_DQ[18]
M-CKEA1	AT19	SA_CKE[1]	SA_DQ[19]
M-CKEA2	AU18	SA_CKE[2]	SA_DQ[20]
M-CKEA3	AV18	SA_CKE[3]	SA_DQ[21]
M_ODT_A0	AV31	SA_ODT[0]	SA_DQ[22]
M_ODT_A1	AU32	SA_ODT[1]	SA_DQ[23]
M_ODT_A2	AU30	SA_ODT[2]	
M_ODT_A3	AW33	SA_ODT[3]	
M-DCLKA0	AY25	SA_CK[0]	SA_DQ[24]
M-DCLKA0	AW25	SA_CK[0]	SA_DQ[25]
M-DCLKA1	AU24	SA_CK[1]	SA_DQ[26]
M-DCLKA1	AU25	SA_CK[1]	SA_DQ[27]
M-DCLKA2	AW27	SA_CK[2]	SA_DQ[28]
M-DCLKA2	AY27	SA_CK[2]	SA_DQ[29]
M-DCLKA3	AU26	SA_CK[3]	SA_DQ[30]
M-DCLKA3	AW26	SA_CK[3]	SA_DQ[31]
M-DDR3_RST	MR1	SM_DRAMRST#	
AV13	SA_DQS[8]		
AV12	SA_DQS[8]		
AU12	SA_ECC_CB[0]		
AU14	SA_ECC_CB[1]		
AW13	SA_ECC_CB[2]		
AY13	SA_ECC_CB[3]		
AU13	SA_ECC_CB[4]		
AY12	SA_ECC_CB[5]		
AW12	SA_ECC_CB[7]		
DDR_0			
1 OF 10			

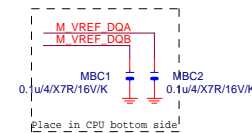
LGA1155[10SC1-F01155-01R]

LGA1155B			
M_AAB0	AK24	SB_MA[0]	SB_DQS[0]
M_AAB1	AM20	SB_MA[1]	SB_DQS[0]
M_AAB2	AM19	SB_MA[2]	
M_AAB3	AK18	SB_MA[3]	
M_AAB4	AP19	SB_MA[4]	
M_AAB5	AP18	SB_MA[5]	
M_AAB6	AM18	SB_MA[6]	
M_AAB7	AL18	SB_MA[7]	
M_AAB8	AY17	SB_MA[8]	
M_AAB9	AN17	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	AY16	SB_MA[14]	
M_AAB15	AV16	SB_MA[15]	
M-SWEB	AR25	SB_WE#	SB_DQ[8]
M-SCASB	AK25	SB_CAS#	SB_DQ[9]
M-SRASB	AP24	SB_RAS#	SB_DQ[10]
M-SBAB0	AP23	SB_BS[0]	SB_DQ[11]
M-SBAB1	AM24	SB_BS[1]	SB_DQ[12]
M-SBAB2	AW17	SB_BS[2]	SB_DQ[13]
M-CSB0	AN25	SB_CS#	SB_DQ[14]
M-CSB1	AN26	SB_CS#	SB_DQ[15]
M-CSB2	AL25	SB_CS#	SB_DQ[16]
M-CSB3	AT26	SB_CS#	SB_DQ[17]
M-CKEB0	AU16	SB_CKE[0]	SB_DQ[18]
M-CKEB1	AY15	SB_CKE[1]	SB_DQ[19]
M-CKEB2	AW15	SB_CKE[2]	SB_DQ[20]
M-CKEB3	AV15	SB_CKE[3]	SB_DQ[21]
M_ODT_B0	AL26	SB_ODT[0]	SB_DQ[22]
M_ODT_B1	AP26	SB_ODT[1]	SB_DQ[23]
M_ODT_B2	AM26	SB_ODT[2]	
M_ODT_B3	AK26	SB_ODT[3]	
M-DCLKB0	AL21	SB_CK[0]	SB_DQ[24]
M-DCLKB0	AL22	SB_CK[0]	SB_DQ[25]
M-DCLKB1	AL20	SB_CK[1]	SB_DQ[26]
M-DCLKB1	AK20	SB_CK[1]	SB_DQ[27]
M-DCLKB2	AL23	SB_CK[2]	SB_DQ[28]
M-DCLKB2	AM22	SB_CK[2]	SB_DQ[29]
M-DCLKB3	AP21	SB_CK[3]	SB_DQ[30]
M-DCLKB3	AN21	SB_CK[3]	SB_DQ[31]
M-VREF_DQB	AH1	FC_AH1	SB_DQ[32]
M-VREF_DQB	AH4	FC_AH4	SB_DQ[33]
AN16	SB_DQS[8]		
AN15	SB_DQS[8]		
AL16	SB_ECC_CB[0]		
AM16	SB_ECC_CB[1]		
AP16	SB_ECC_CB[2]		
AR16	SB_ECC_CB[3]		
AL15	SB_ECC_CB[4]		
AM15	SB_ECC_CB[5]		
AP15	SB_ECC_CB[7]		
DDR_1			
2 OF 10			

LGA1155[10SC1-F01155-01R]



Need check the new CPU ME

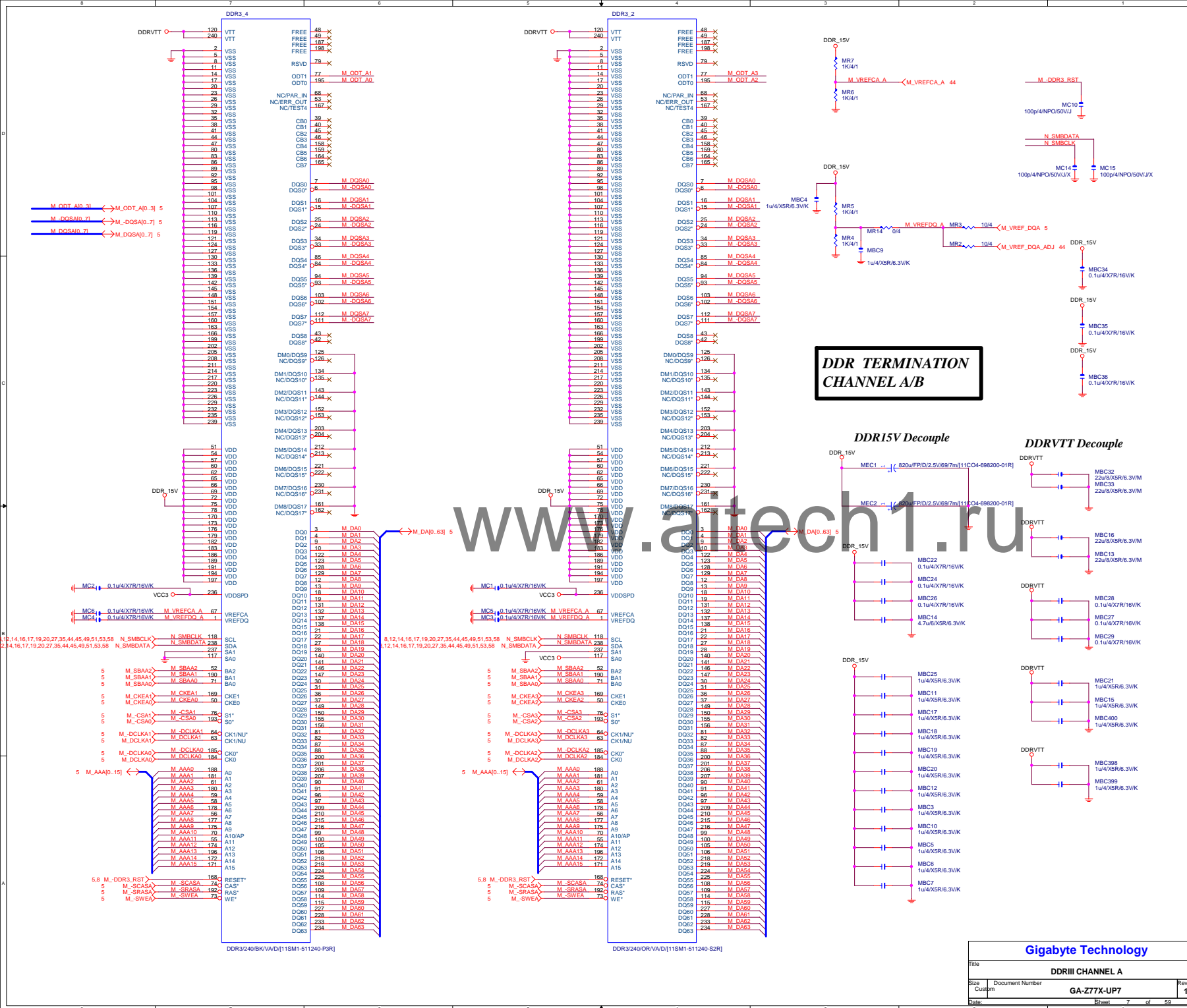


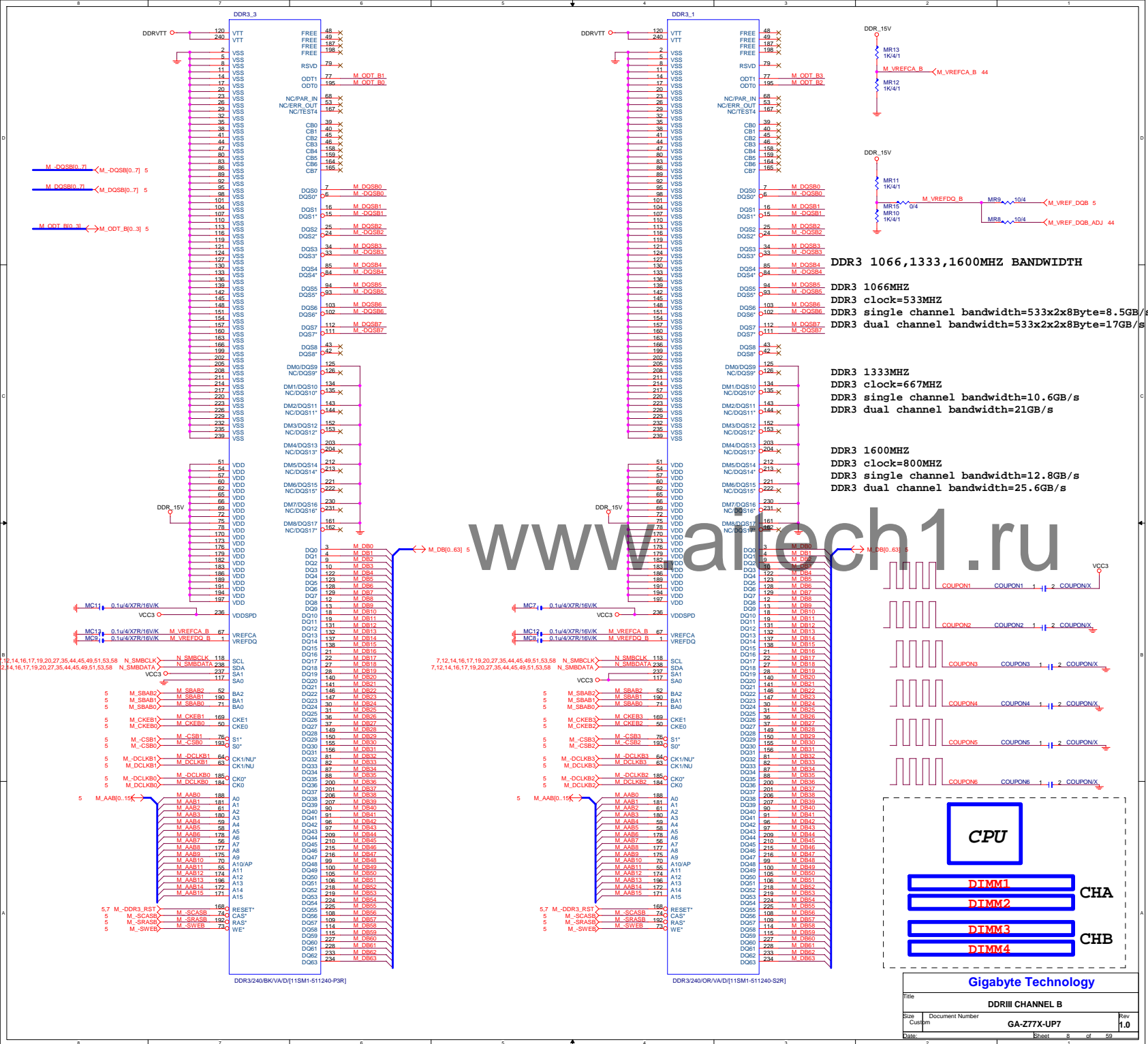
Gigabyte Technology

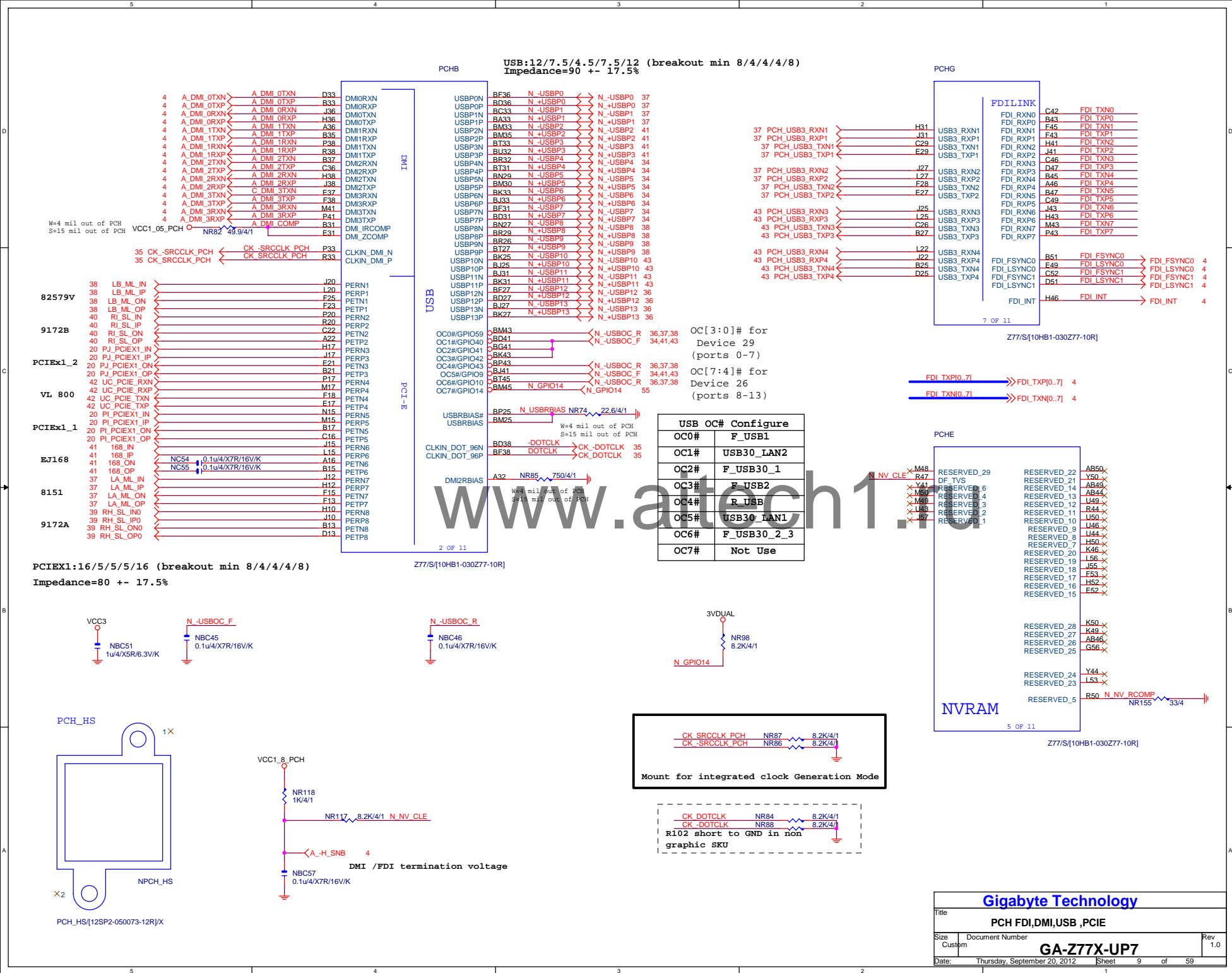
CPU LGA1156-B

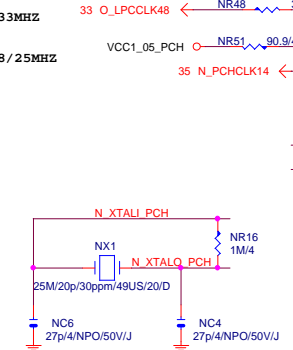
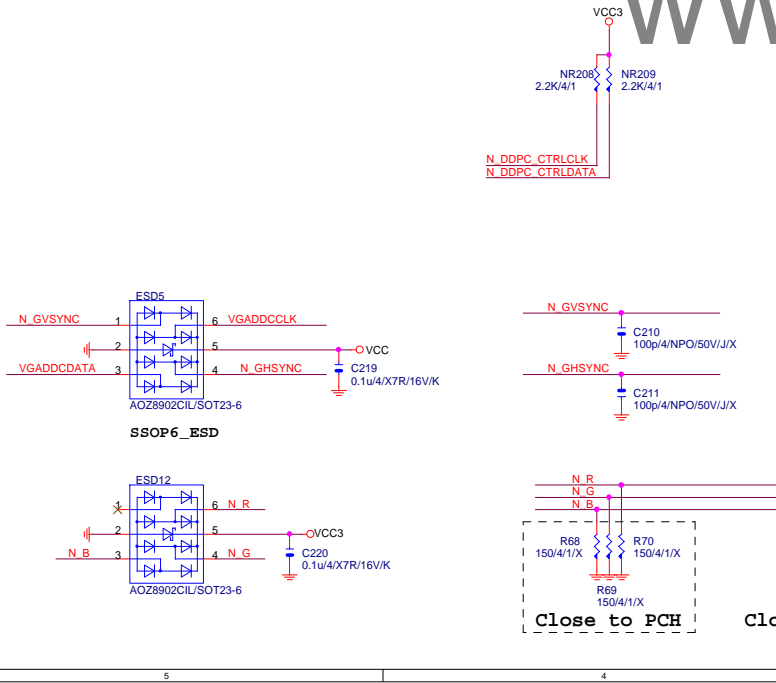
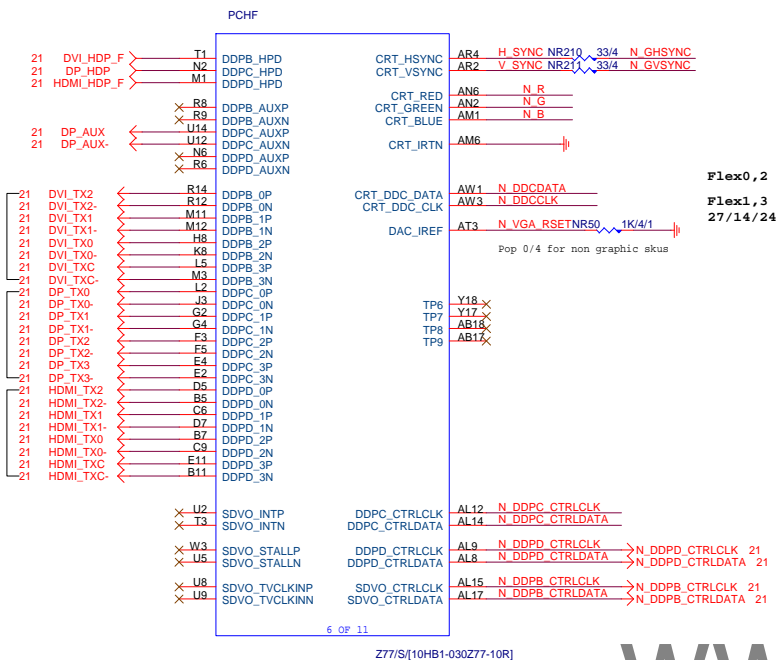
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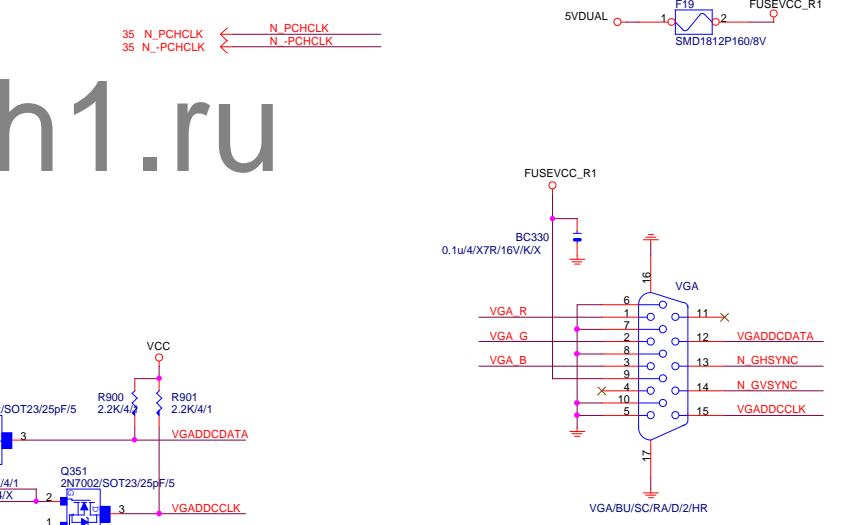
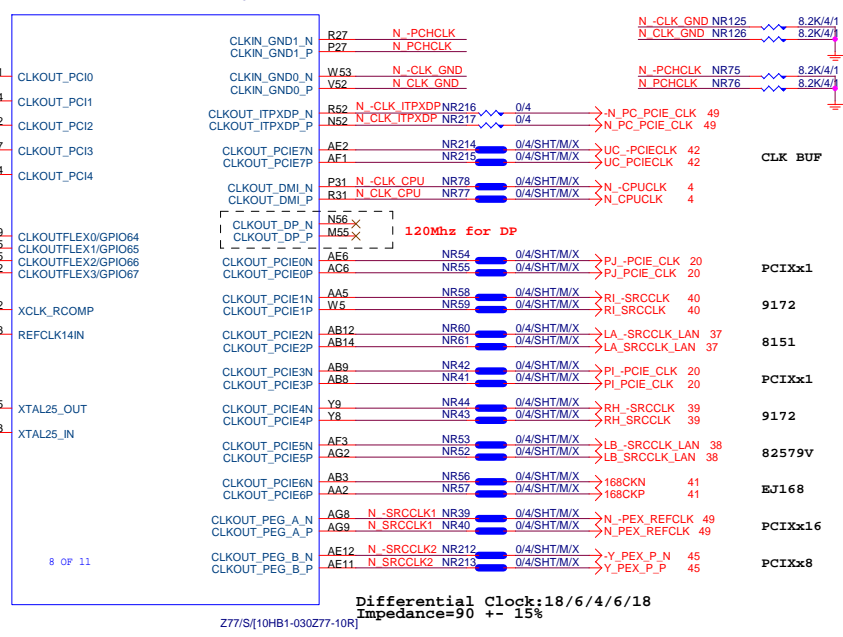






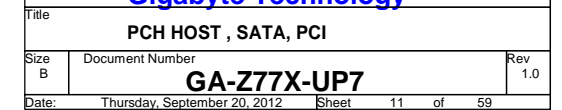


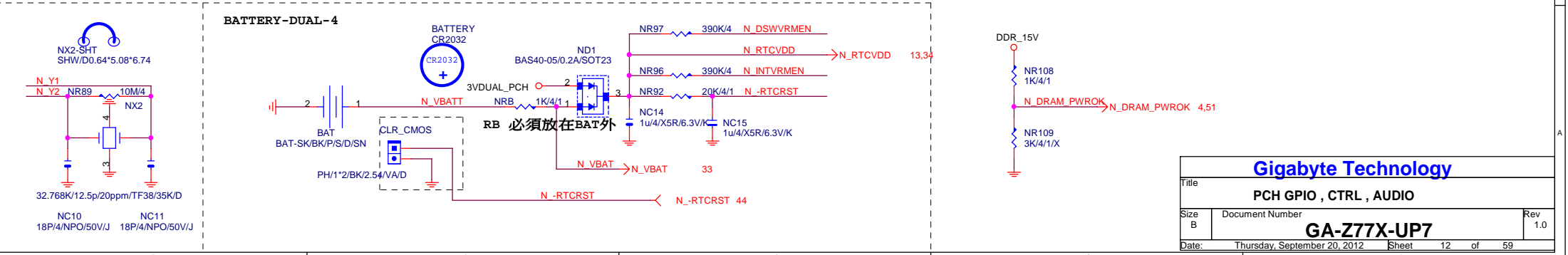
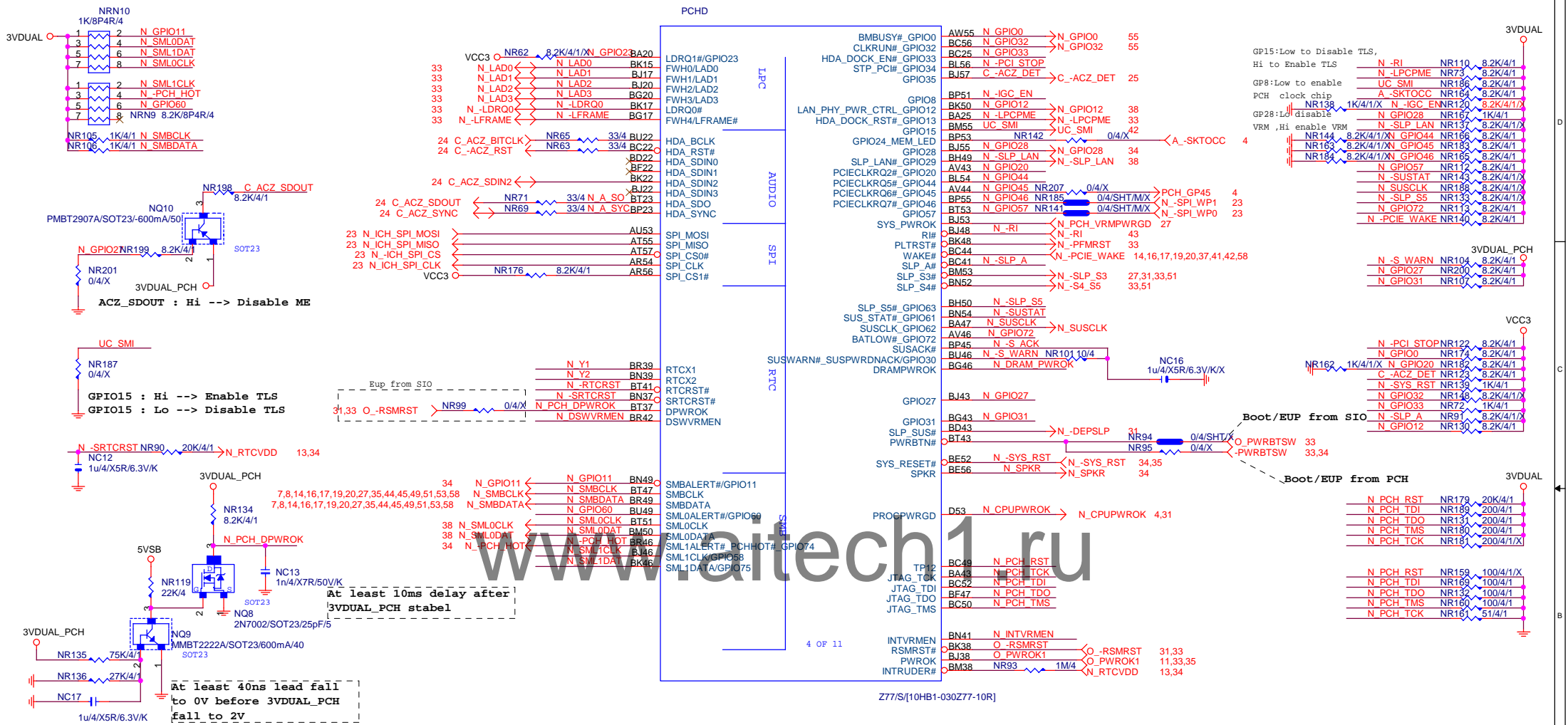
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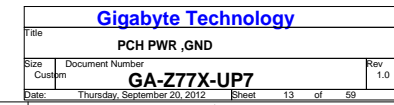


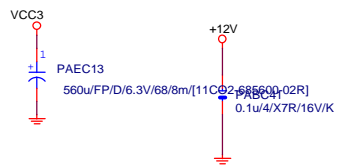
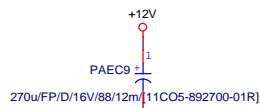
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Title			
PCH DISPLAY ,CLK BUFFER			
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PCHC









PA EXP A TXP15	PAC114	0.22u/4/X5R/6.3V/K	PA EXP A TXP15C
PA EXP A TXN15	PAC115	0.22u/4/X5R/6.3V/K	PA EXP A TXN15C
PA EXP A TXP14	PAC110	0.22u/4/X5R/6.3V/K	PA EXP A TXP14C
PA EXP A TXN14	PAC111	0.22u/4/X5R/6.3V/K	PA EXP A TXN14C
PA EXP A TXP13	PAC109	0.22u/4/X5R/6.3V/K	PA EXP A TXP13C
PA EXP A TXN13	PAC110	0.22u/4/X5R/6.3V/K	PA EXP A TXN13C
PA EXP A TXP12	PAC108	0.22u/4/X5R/6.3V/K	PA EXP A TXP12C
PA EXP A TXN12	PAC109	0.22u/4/X5R/6.3V/K	PA EXP A TXN12C
PA EXP A TXP11	PAC97	0.22u/4/X5R/6.3V/K	PA EXP A TXP11C
PA EXP A TXN11	PAC98	0.22u/4/X5R/6.3V/K	PA EXP A TXN11C
PA EXP A TXP10	PAC92	0.22u/4/X5R/6.3V/K	PA EXP A TXP10C
PA EXP A TXN10	PAC93	0.22u/4/X5R/6.3V/K	PA EXP A TXN10C
PA EXP A TXP9	PAC87	0.22u/4/X5R/6.3V/K	PA EXP A TXP9C
PA EXP A TXN9	PAC88	0.22u/4/X5R/6.3V/K	PA EXP A TXN9C
PA EXP A TXP8	PAC83	0.22u/4/X5R/6.3V/K	PA EXP A TXP8C
PA EXP A TXN8	PAC85	0.22u/4/X5R/6.3V/K	PA EXP A TXN8C

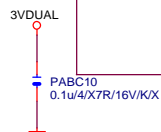
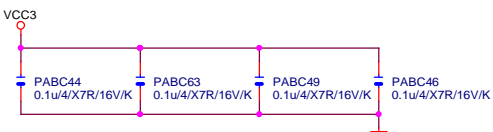
PA EXP A1 TXP7	PAC80	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP7C
PA EXP A1 TXN7	PAC82	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN7C
PA EXP A1 TXP6	PAC74	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP6C
PA EXP A1 TXN6	PAC77	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN6C
PA EXP A1 TXP5	PAC68	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP5C
PA EXP A1 TXN5	PAC70	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN5C
PA EXP A1 TXP4	PAC62	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP4C
PA EXP A1 TXN4	PAC64	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN4C
PA EXP A1 TXP3	PAC56	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP3C
PA EXP A1 TXN3	PAC58	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN3C
PA EXP A1 TXP2	PAC50	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP2C
PA EXP A1 TXN2	PAC52	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN2C
PA EXP A1 TXP1	PAC43	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP1C
PA EXP A1 TXN1	PAC46	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN1C
PA EXP A1 TXP0	PAC39	0.22u/4/X5R/6.3V/K	PA EXP A1 TXP0C
PA EXP A1 TXN0	PAC38	0.22u/4/X5R/6.3V/K	PA EXP A1 TXN0C

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PA EXP A1 RXN18_15] >>> PA_EXP_A_RXN18_15] 46

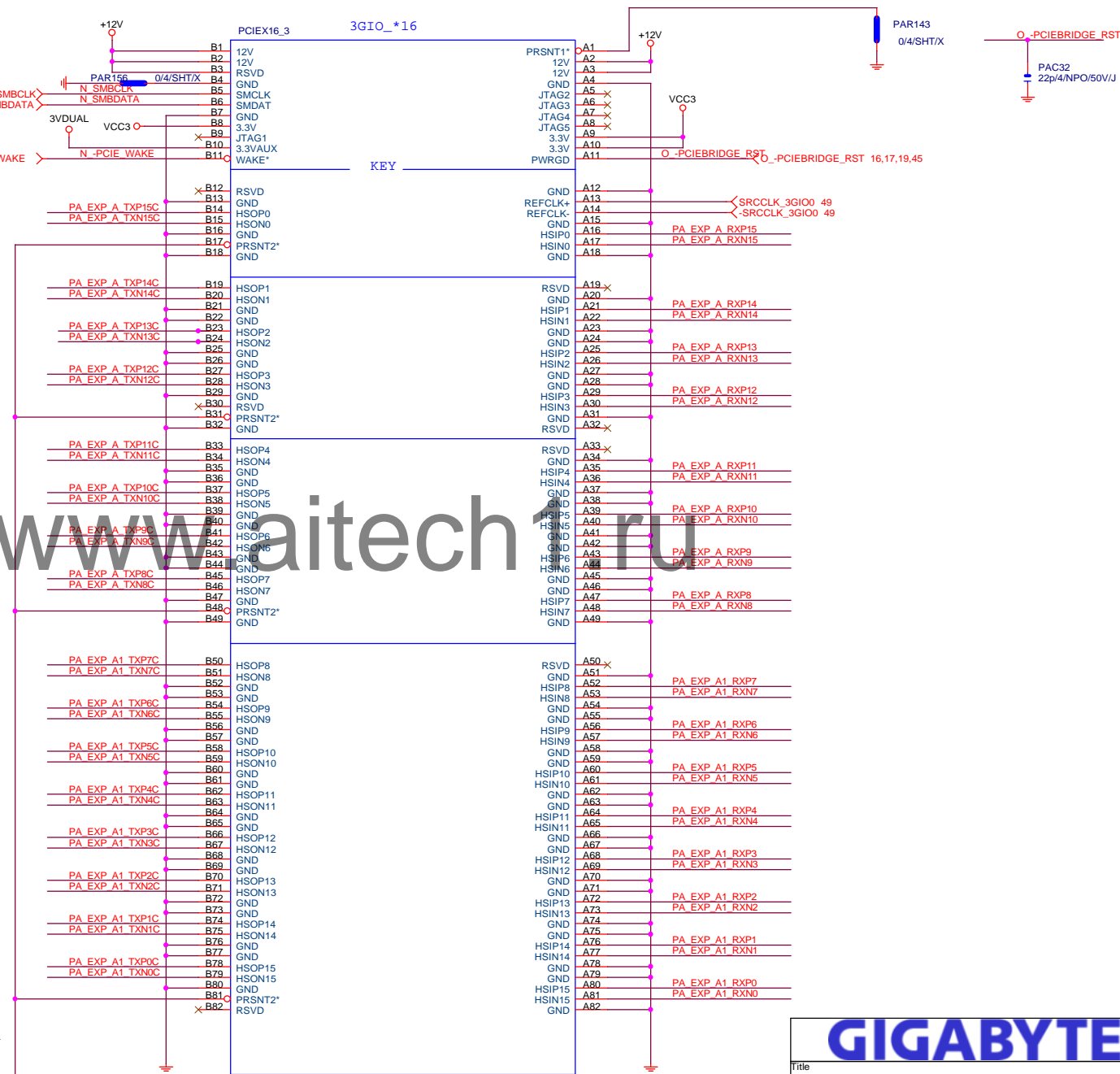
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PA EXP A1 TXN18_15] >>> PA_EXP_A_TXN18_15] 46

PA EXP A1 RXP10_7] >>> PA_EXP_A1_RXP10_7] 15
PA EXP A1 RXN10_7] >>> PA_EXP_A1_RXN10_7] 15

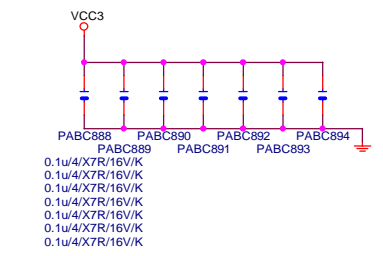
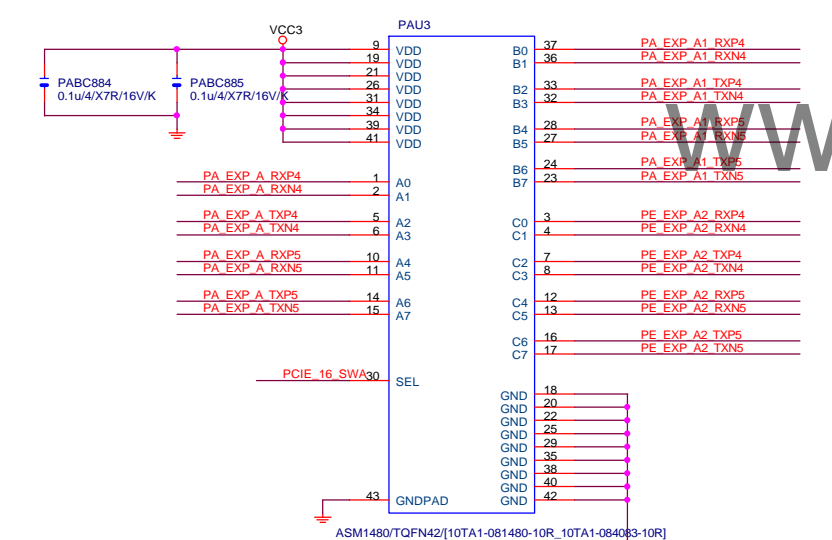
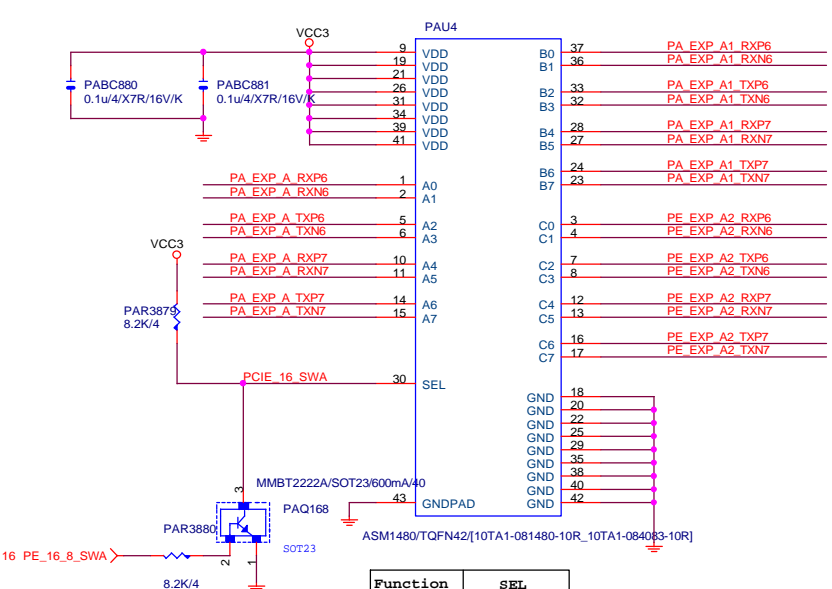
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PA EXP A1 TXN10_7] >>> PA_EXP_A1_TXN10_7] 15



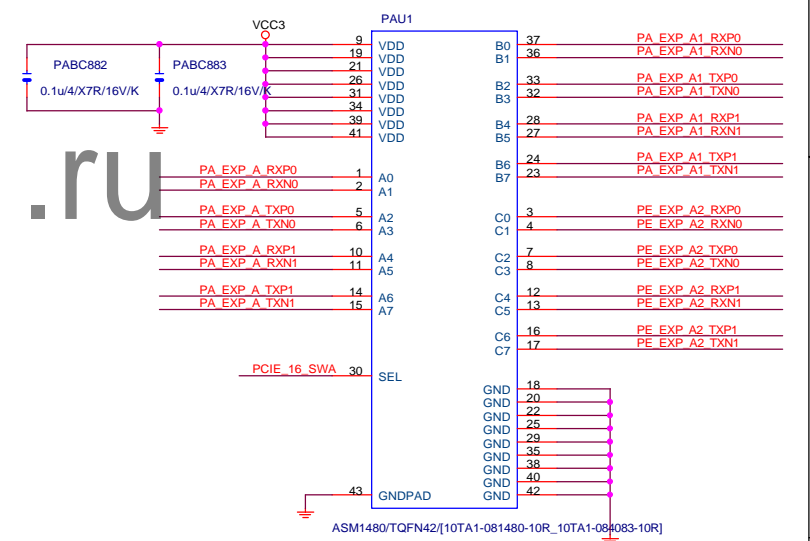
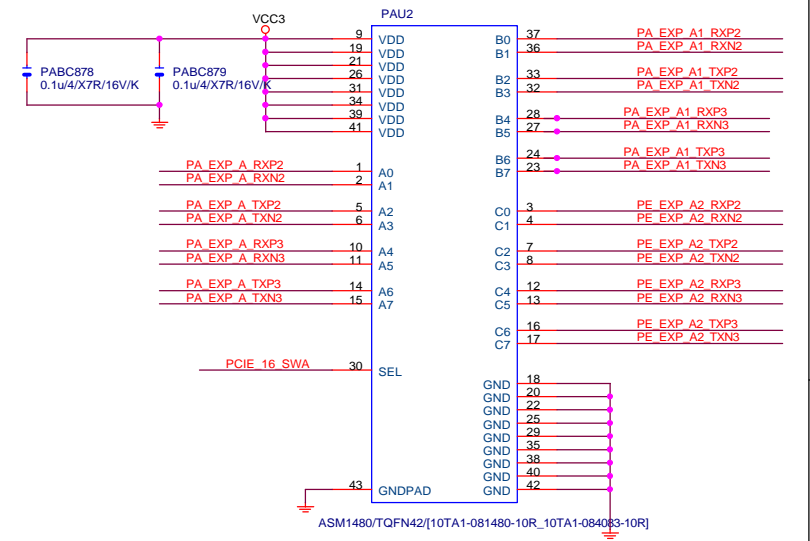
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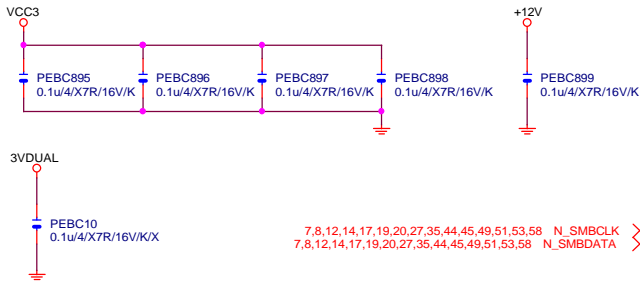


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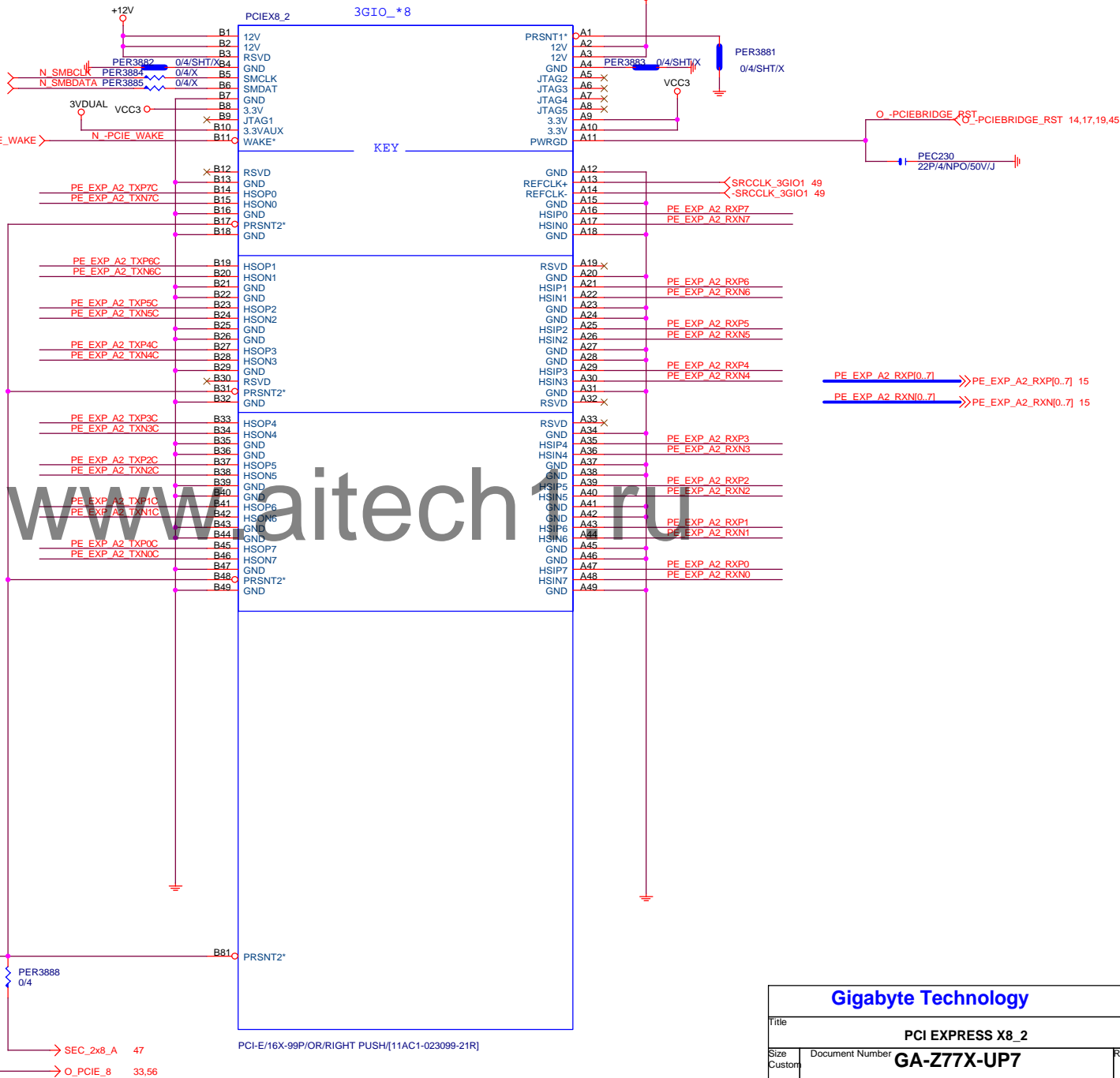
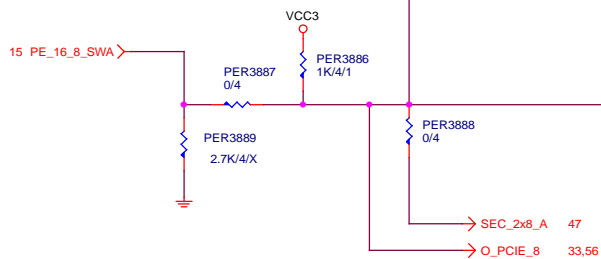


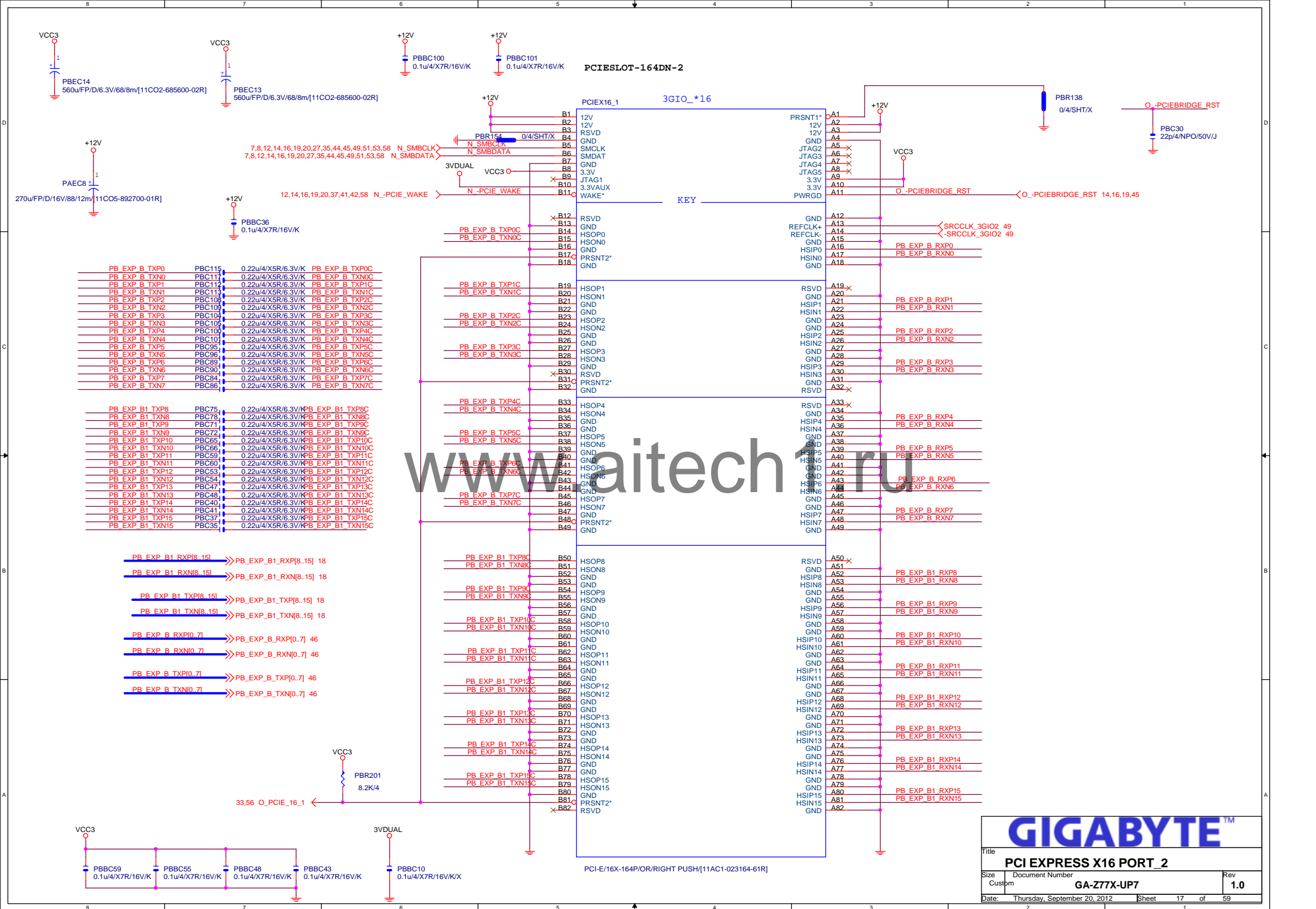
PE EXP A2 RXP0,7I >>> PE_EXP_A2_RXP[0..7] 16
 PE EXP A2 RXN0,7I >>> PE_EXP_A2_RXN[0..7] 16
 PE EXP A2 TXP0,7I >>> PE_EXP_A2_TXP[0..7] 16
 PE EXP A2 TXN0,7I >>> PE_EXP_A2_TXN[0..7] 16
 PA EXP A1 RXP0,7I >>> PA_EXP_A1_RXP[0..7] 14
 PA EXP A1 RXN0,7I >>> PA_EXP_A1_RXN[0..7] 14
 PA EXP A1 TXP0,7I >>> PA_EXP_A1_TXP[0..7] 14
 PA EXP A1 TXN0,7I >>> PA_EXP_A1_TXN[0..7] 14
 PA EXP A RXP0,7I >>> PA_EXP_A_RXP[0..7] 46
 PA EXP A RXN0,7I >>> PA_EXP_A_RXN[0..7] 46
 PA EXP A TXP0,7I >>> PA_EXP_A_TXP[0..7] 46
 PA EXP A TXN0,7I >>> PA_EXP_A_TXN[0..7] 46

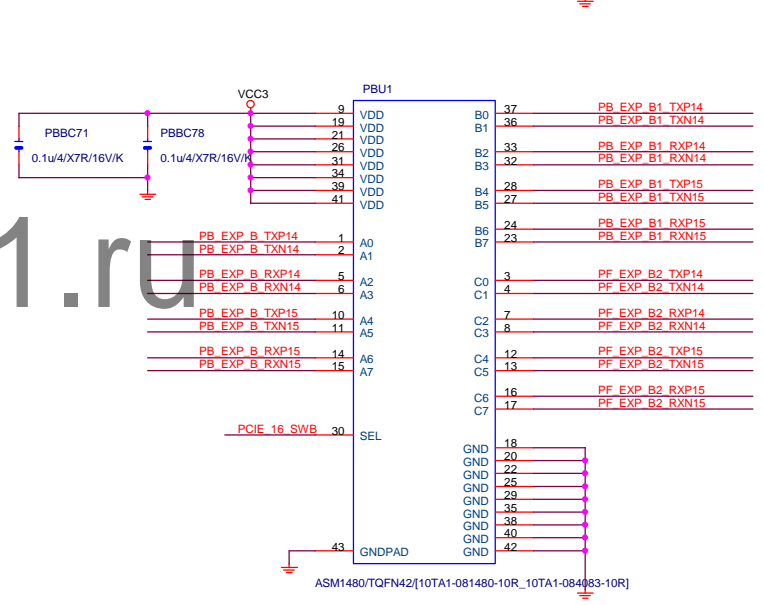
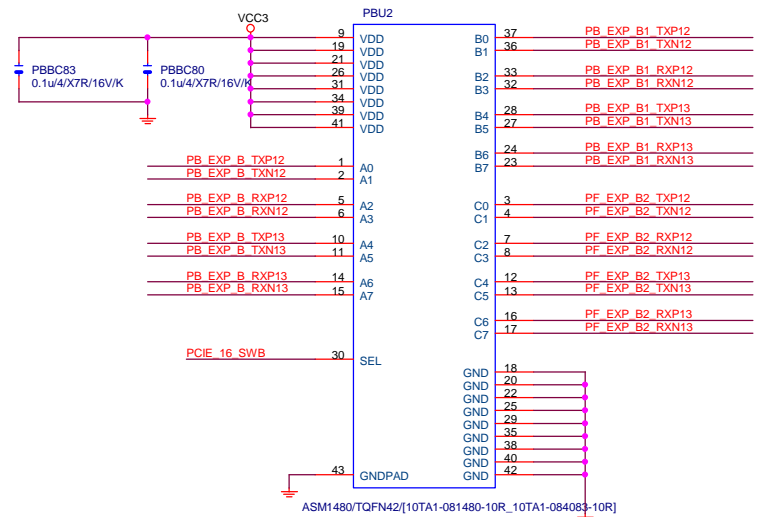
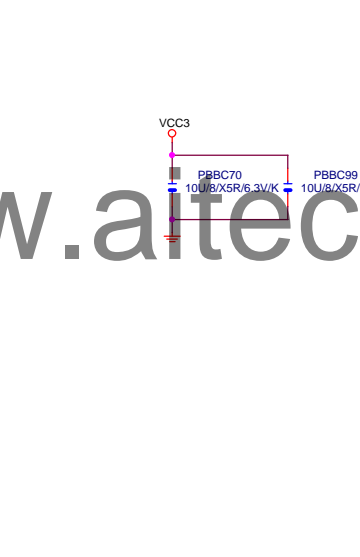
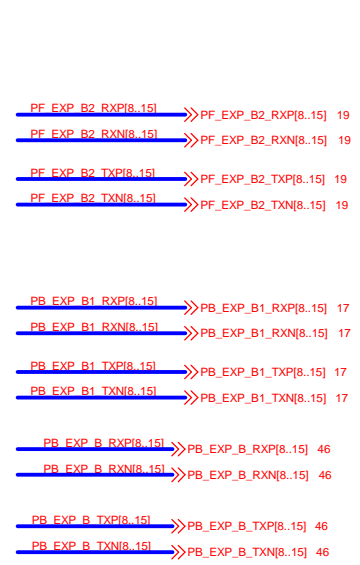
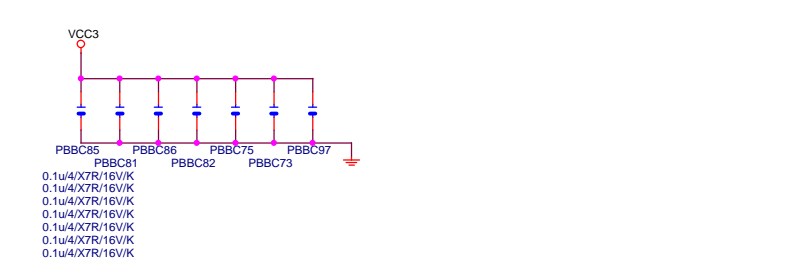
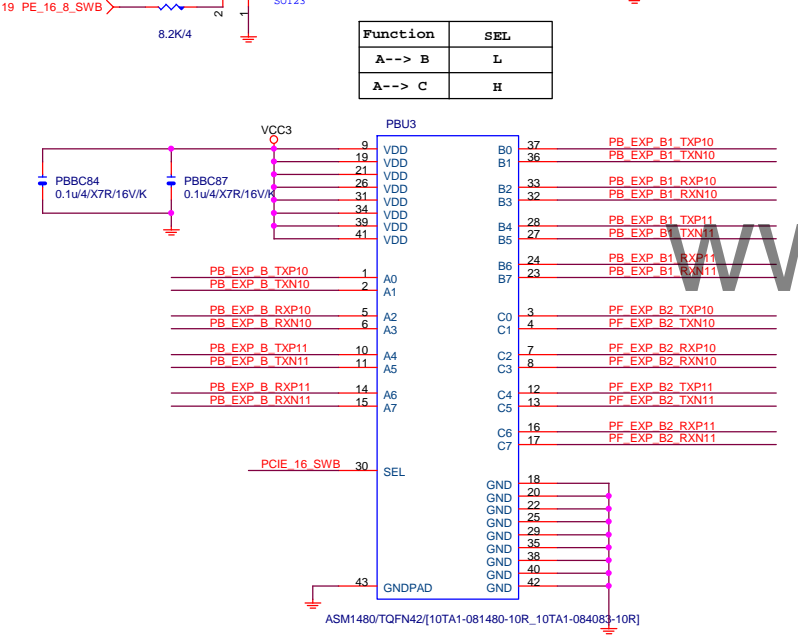
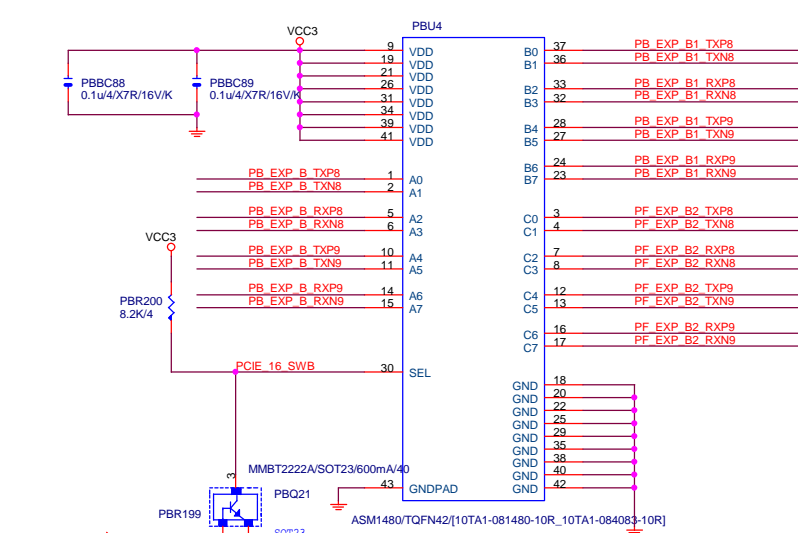


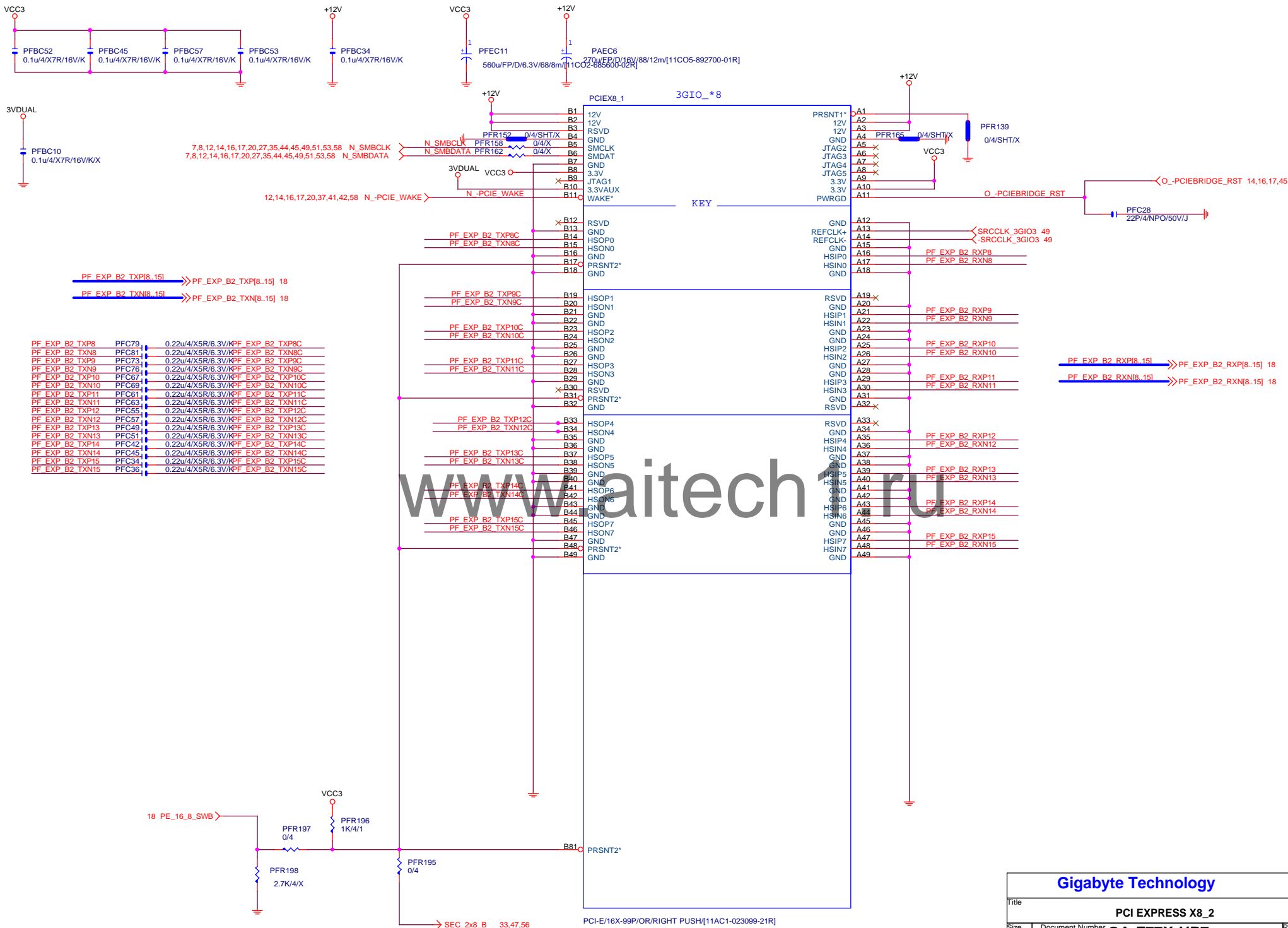


PE_EXP_A2_TXP7	PEC231	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP7C
PE_EXP_A2_TXN7	PEC232	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN7C
PE_EXP_A2_TXP6	PEC233	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP6C
PE_EXP_A2_TXN6	PEC234	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN6C
PE_EXP_A2_TXP5	PEC235	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP5C
PE_EXP_A2_TXN5	PEC236	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN5C
PE_EXP_A2_TXP4	PEC237	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP4C
PE_EXP_A2_TXN4	PEC238	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN4C
PE_EXP_A2_TXP3	PEC239	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP3C
PE_EXP_A2_TXN3	PEC240	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN3C
PE_EXP_A2_TXP2	PEC241	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP2C
PE_EXP_A2_TXN2	PEC242	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN2C
PE_EXP_A2_TXP1	PEC243	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP1C
PE_EXP_A2_TXN1	PEC244	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN1C
PE_EXP_A2_TXP0	PEC245	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXP0C
PE_EXP_A2_TXN0	PEC246	0.22u/4/X5R/6.3V/K	PE_EXP_A2_TXN0C



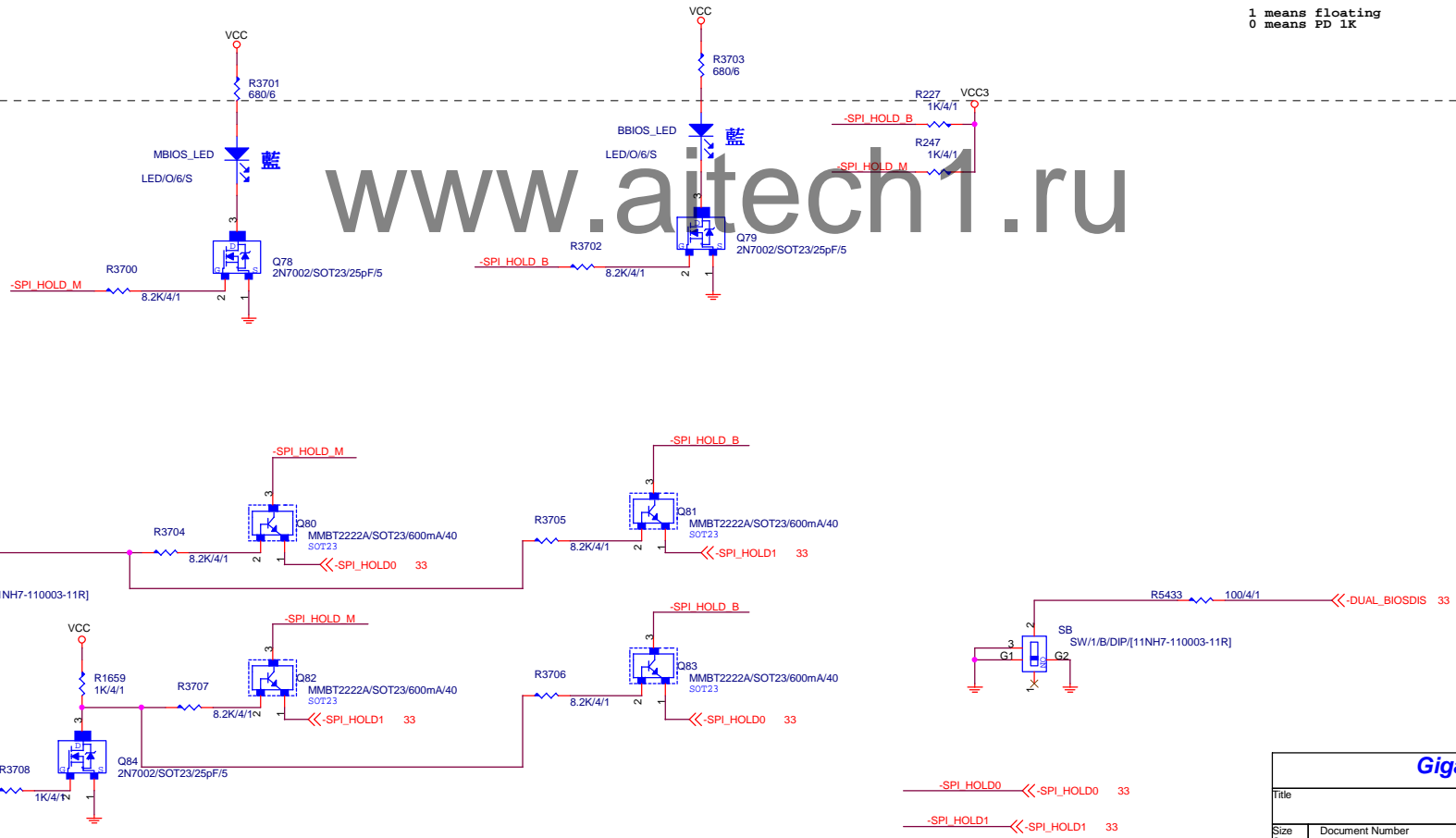
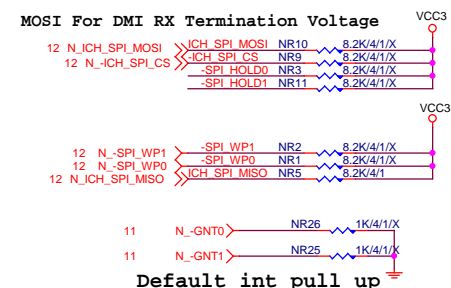


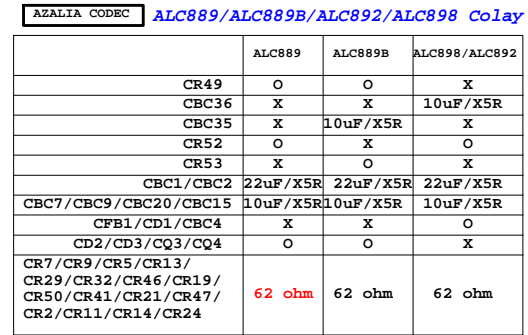




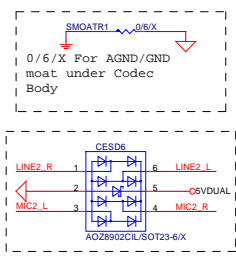
Gigabyte Technology

Title			PCI EXPRESS X8_2
Size	Document Number	Rev	
Custom	GA-Z77X-UP7	1.0	
Date:	Thursday, September 20, 2012	Sheet	19 of 59

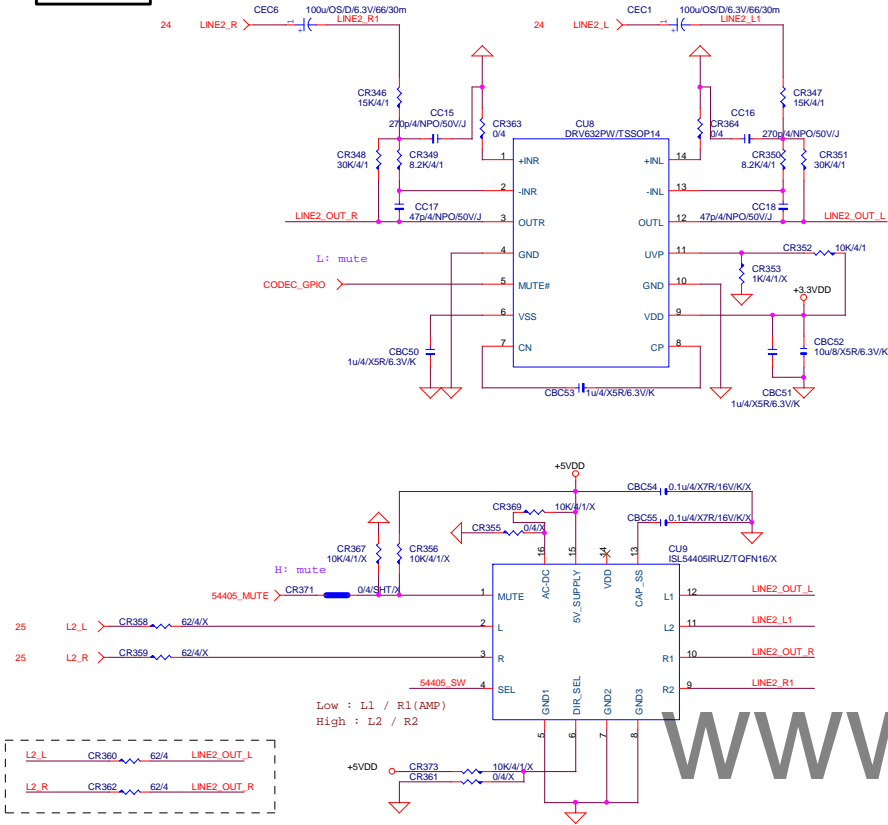




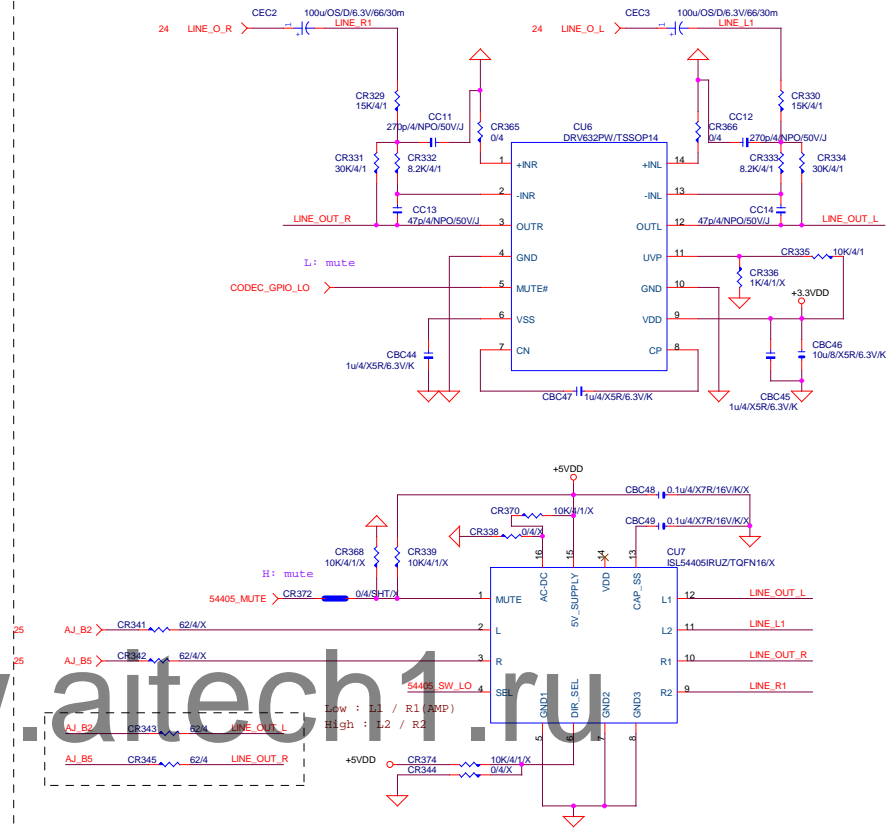
ALZALIA CODEC	ALC662-VD0	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC89
CR49	X	X	X	X	X	O	X
CB036	O	O	O	O	O	X	O
CR28/CB011	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P	47ohm+1nF	47ohm+1nF
CR52	X	O	O	O	O	O	O
CR57	O	X	X	X	X	X	X
CBC1/CBC2	10uF/X5R	10uF/X5R	22uF/X5R	10uF/X5R	10uF/X5R	10uF/X5R	22uF/X5R
CR36	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CR17/CR30/ CR25/CR15/CR12/CR3/	8.2K/4	8.2K/4	8.2K/4	3.3K/4/1	3.3K/4/1	3.3K/4/1	8.2K/4
CBC38/CBC39	X	X	X	100P/4	100P/4	X	X
CR10/CR8/CR20/CR45/ CR42/CR51/CR27/CR26	22K/4	22K/4	22K/4	10K/4/1	10K/4/1	10K/4/1	22K/4
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR2/CR11/ CR14/CR24	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm	75 ohm	62 ohm
CFB1/CD1/CBC4/CBC8	O	O	X	X	O	X	O
CD2/CD3/CQ3/CQ4	X	X	O	O	X	O	X
CEC11	X	X	X	X	X	X	O
CESD6	X	X	X	O	O	O	X



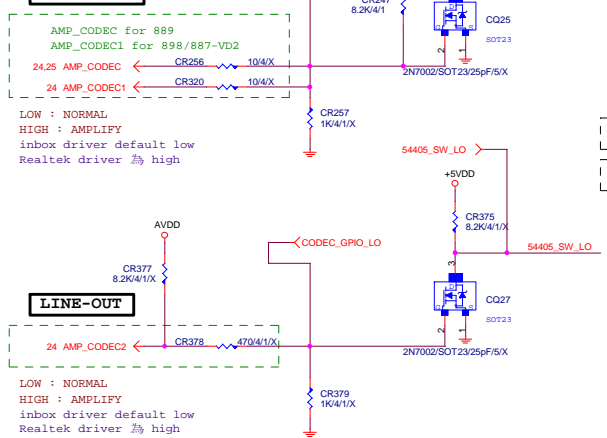
HEADPHONE



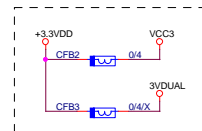
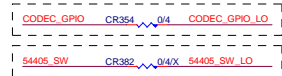
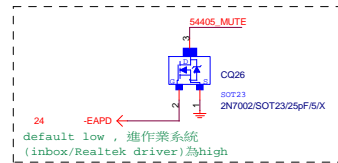
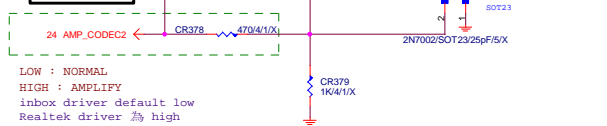
LINE-OUT



HEADPHONE

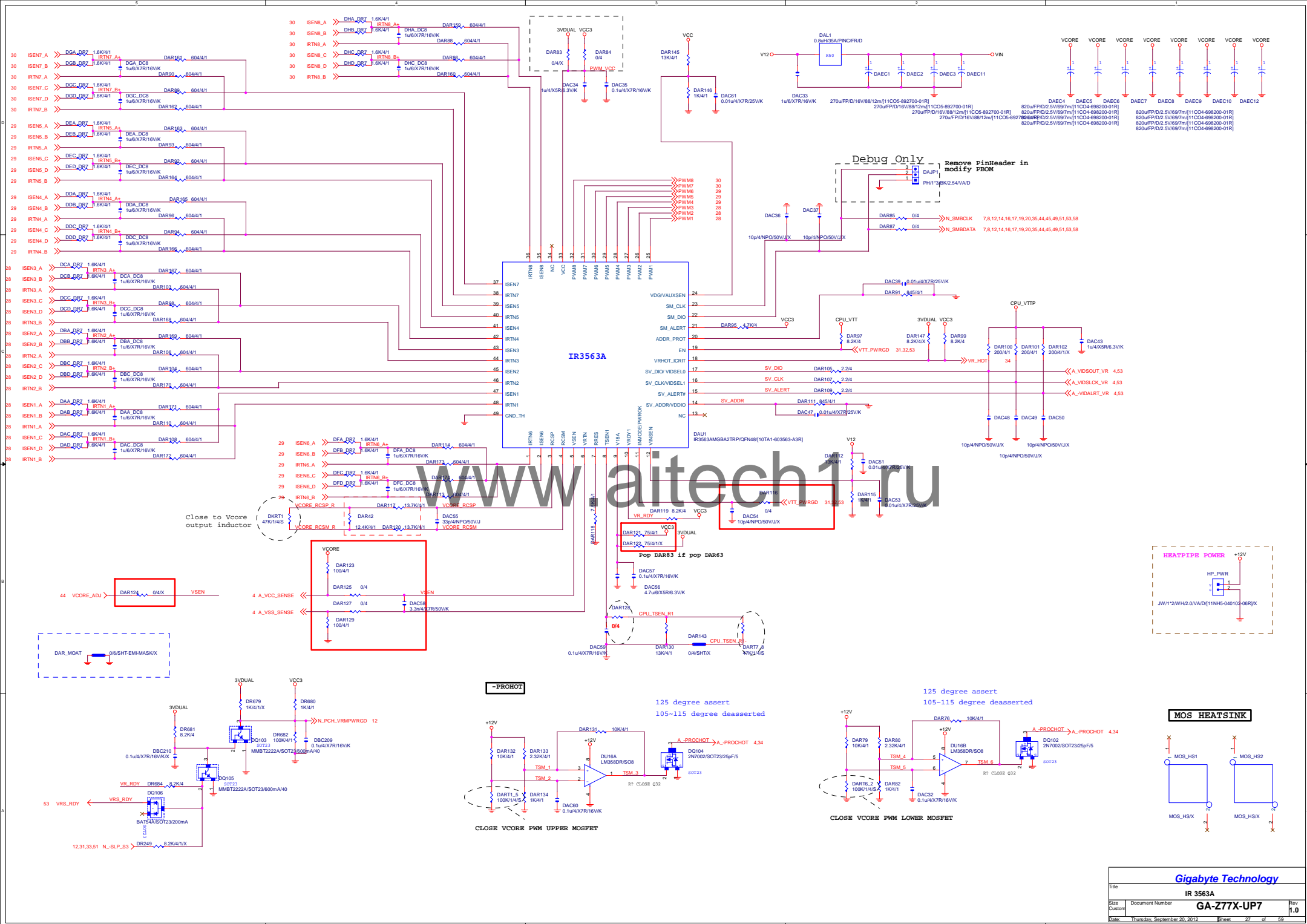


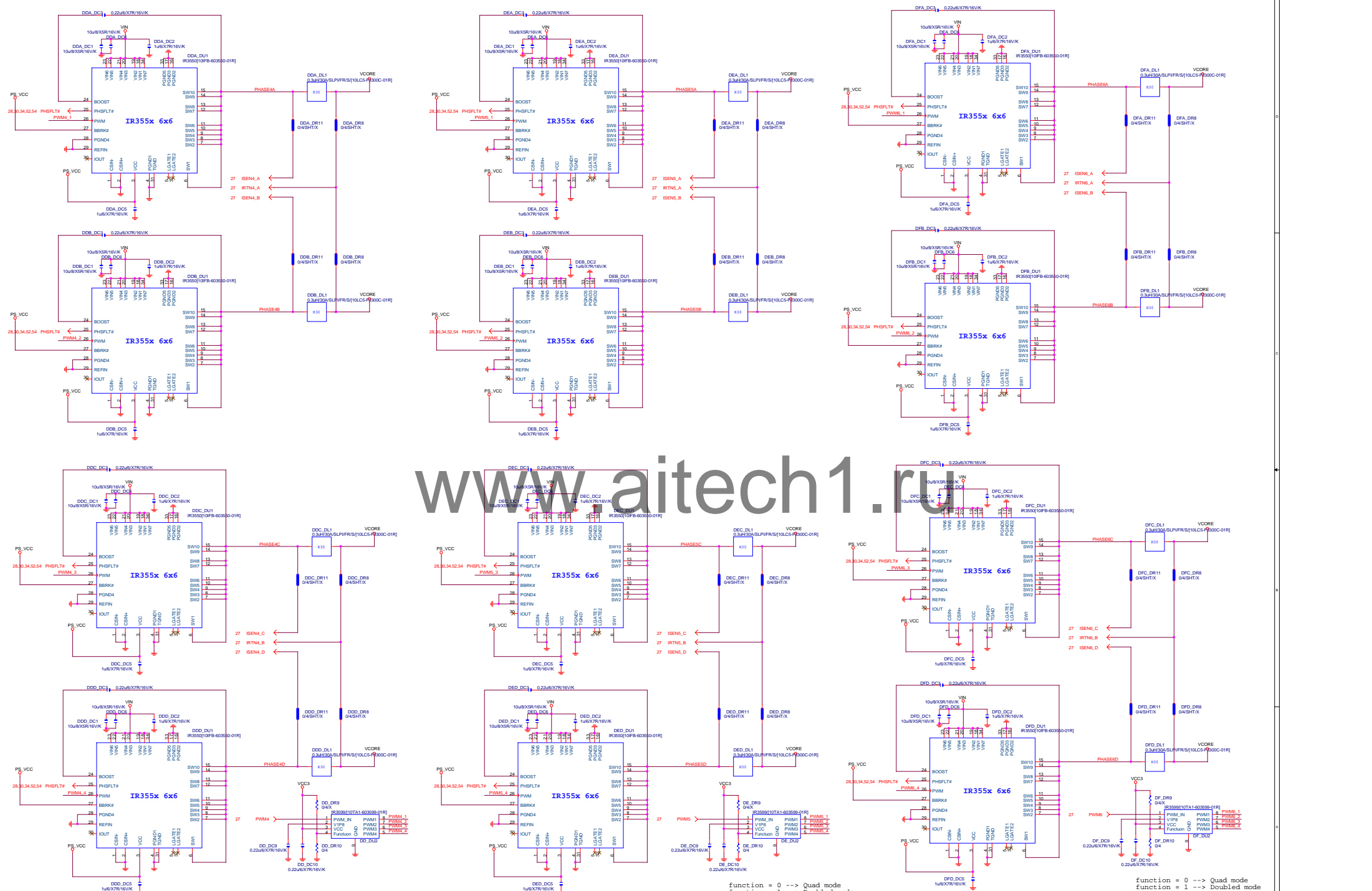
LINE-OUT



Gigabyte Technology

Title		8-CH DAC & Anti-Pop / Mute	
Size	Document Number	GA-Z77X-UP7	
Custom		Rev 1.0	
Date:	Thursday, September 20, 2012	Sheet 26	of 59



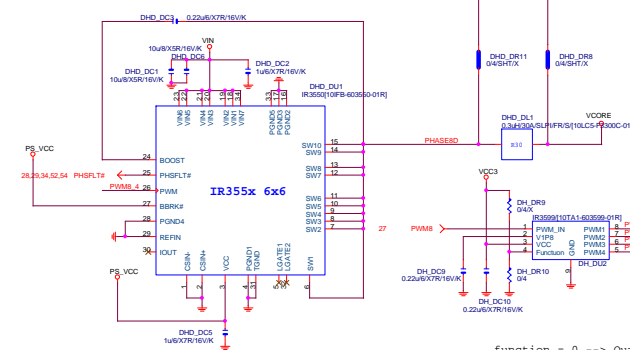
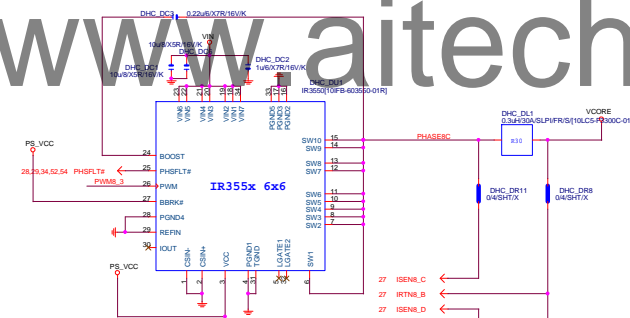
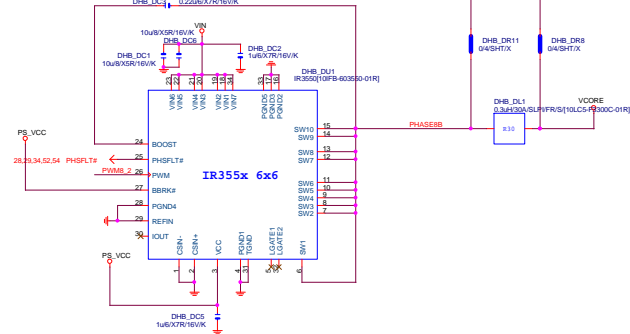
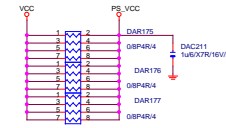


function = 0 --> Quad mode
function = 1 --> Doubled mode

function = 0 --> Quad mode
function = 1 --> Doubled mode

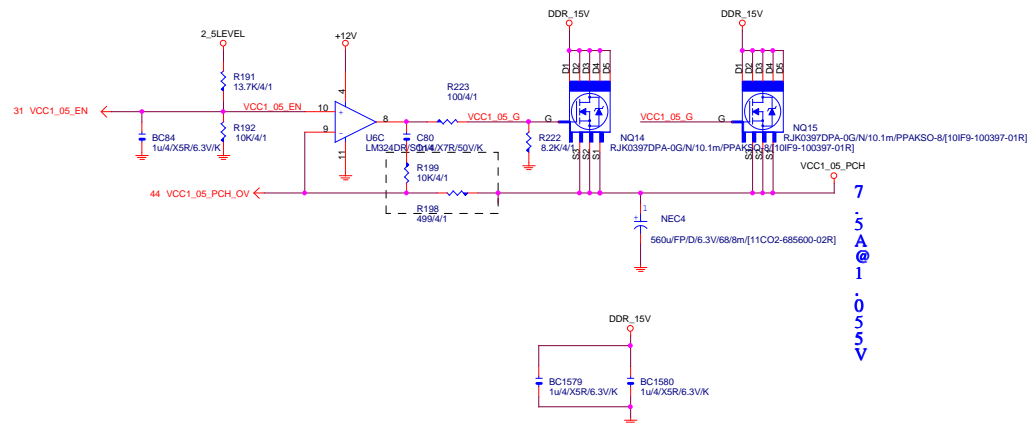
function = 0 --> Quad mode
function = 1 --> Doubled mode

Gigabyte Technology		
CPU CORE VR		
File	Document Number	Rev
	GA-Z77X-UP7	1.0
Date	Thursday, September 20, 2012	Page 29 of 59



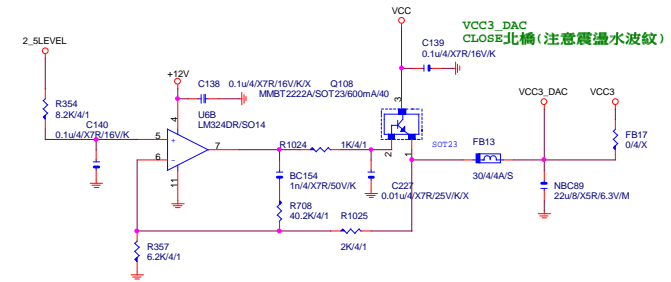
```
function = 0 --> Quad mode
function = 1 --> Doubled mode
```


VCC1_05_PCH

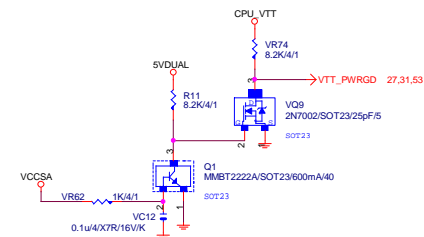
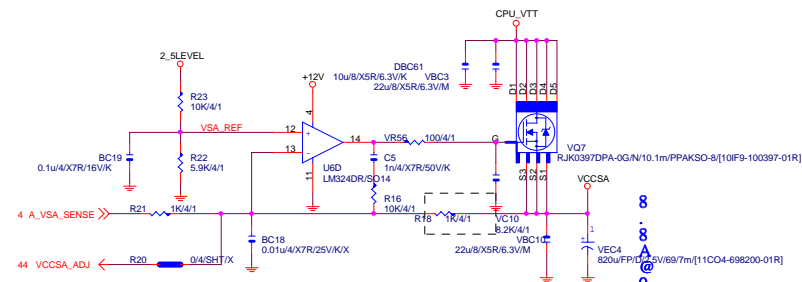
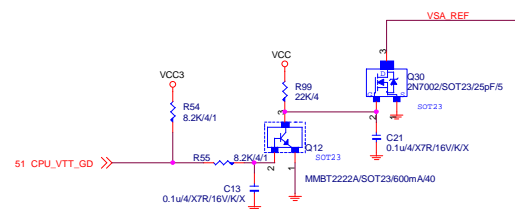


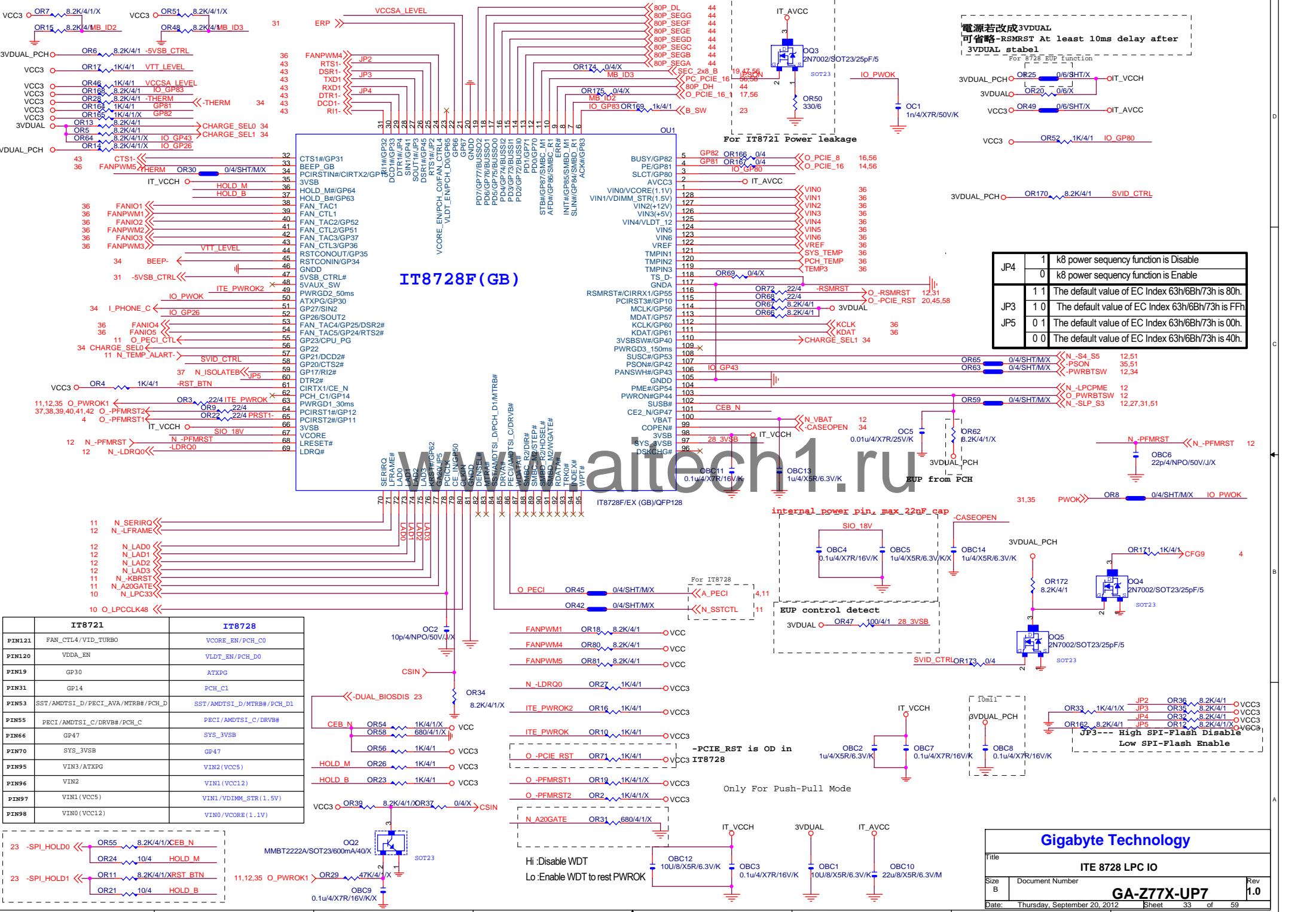
VCC3_DAC

(3.3V/70mA+360uA)



VCC_SA



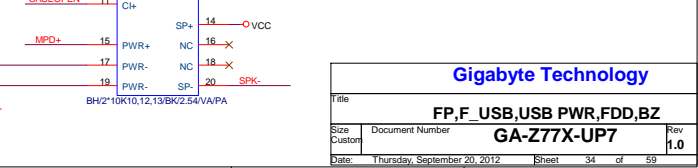
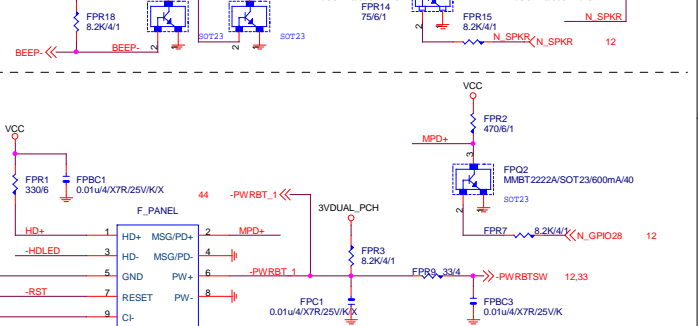
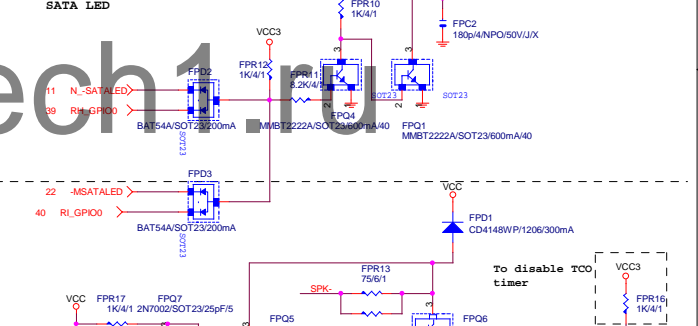
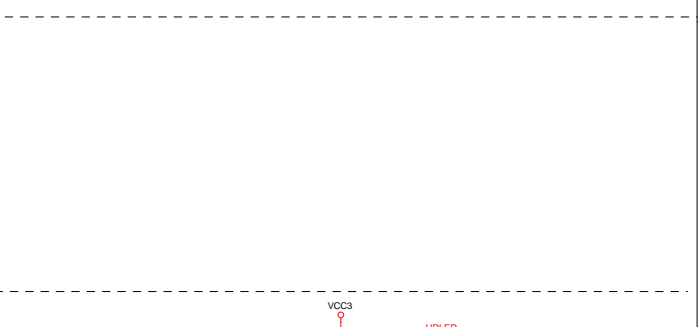
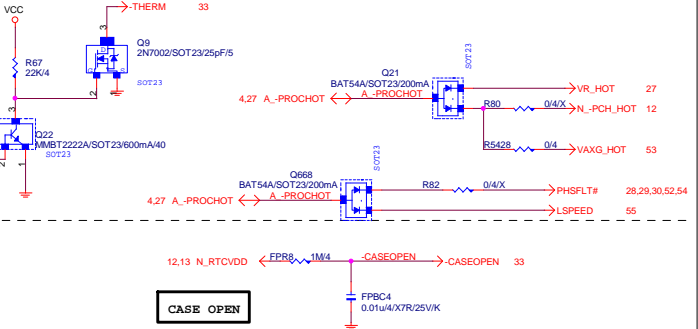
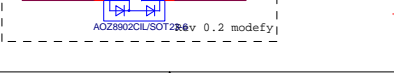
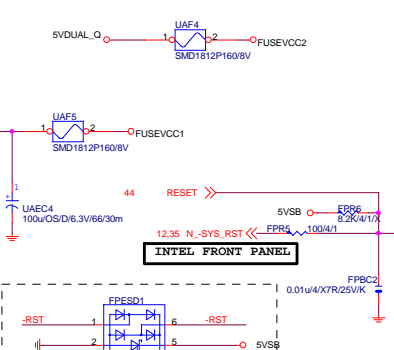
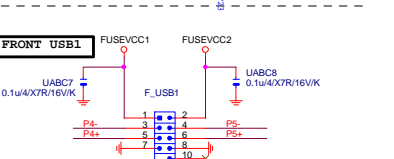
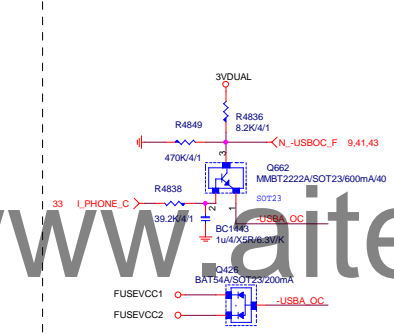
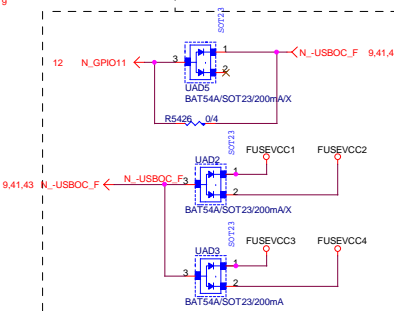
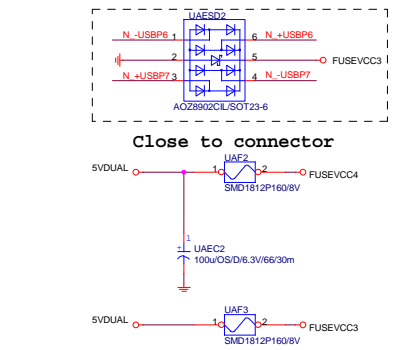
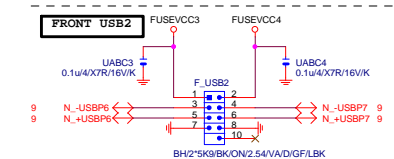
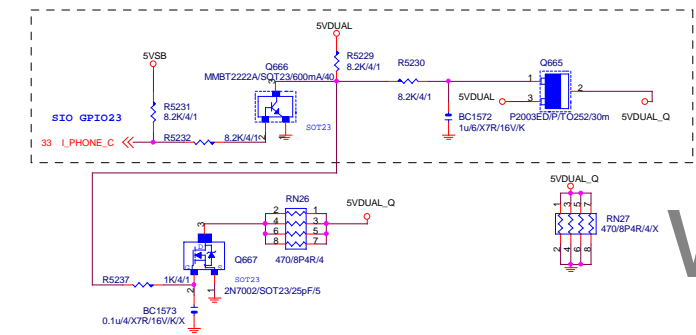
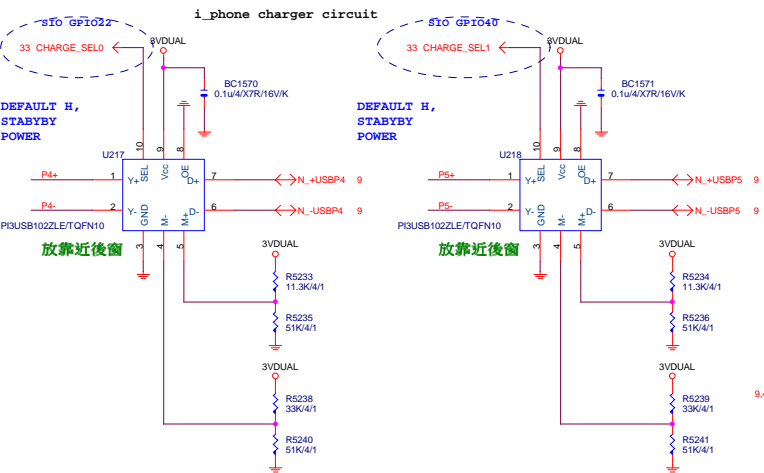


電源若改成3VDUAL
可省略-RSMRST At least 10ms delay after
3VDUAL stabel

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

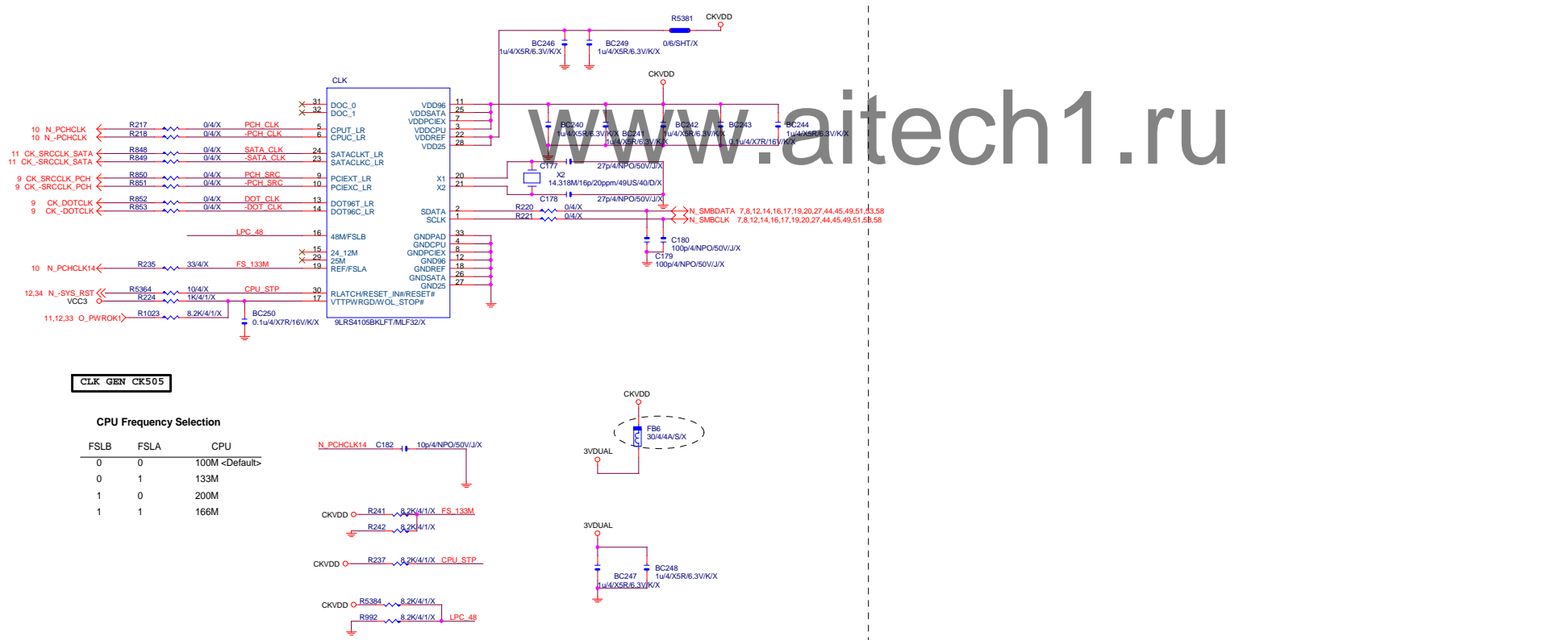
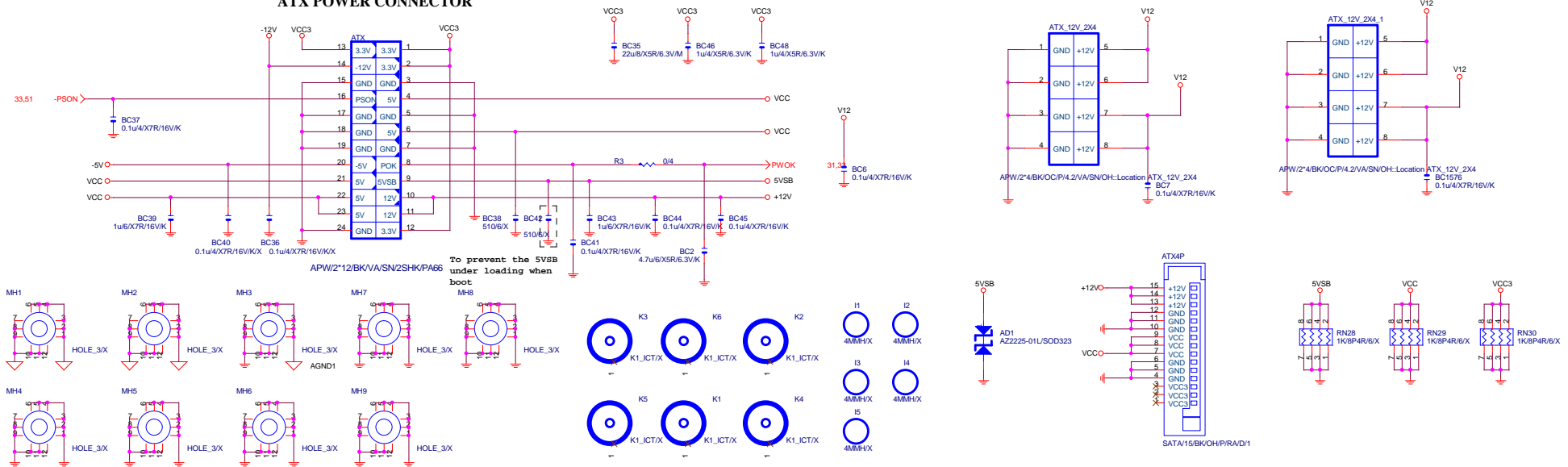
	IT8721	IT8728
PIN121	FAN_CTL4/VID_TURBO	VCORE_EN/PCH_C0
PIN120	VDDA_EN	VLDT_EN/PCH_D0
PIN19	GP30	ATXPG
PIN31	GP14	PCH_C1
PIN53	SST/AMDTSD_I/PECI_AVA/MTRB#/PCH_D	SST/AMDTSD_I/MTRB#/PCH_D1
PIN55	PECI/AMDTSD_I_C/DRVB#/PCH_C	PECI/AMDTSD_I_C/DRVB#
PIN66	GP47	SYS_3VSB
PIN70	SYS_3VSB	GP47
PIN95	VIN3/ATXPG	VIN2(VCC5)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

iPhone charger circuit



Gigabyte Technology		
File	FP,F_USB,USB PWR,FDD,BZ	
Size	Document Number	GA-Z77X-UP7
Custom		Rev 1.0
Date	Thursday, September 20, 2012	Sheet 34 of 59

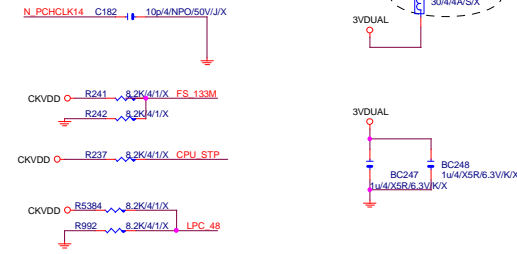
ATX POWER CONNECTOR



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
C	GA-Z77X-UP7	1.0
Date:	Thursday, September 20, 2012	Sheet 35 of 59

VREF ←

33

33

33

33

OC7
1u4/X5R/6.3V/K

OC6
1u4/X5R/6.3V/K

ORS1
10K/1/4/S

Close SIO

RS_PCH
10K/1/4/S
Close DDR

OC120
1u4/X5R/6.3V/K

OR73
10K/4/1

OR151
10K/4/1

OR152
10K/4/1

SYS_TEMP ←

PCH_TEMP ←

TEMP3 ←

CPU SMART FAN

The schematic diagram illustrates the CPU SMART FAN circuit. It features three fan drivers and a CPU_FAN driver. Each fan driver consists of a 12V supply, a resistor (R5434, R5435, R42), a diode (C2068), and a fan (FAN1, FAN6, CPU_FAN). The CPU_FAN driver also includes a diode (OR1), a resistor (R14), a diode (R15), a resistor (R17), and a capacitor (C4). The output of the CPU_FAN driver is labeled FANIO1.

Components:

- FAN1:** FAN1*13/BK/A3/PA66
- FAN6:** FAN1*13/BK/A3/PA66
- CPU_FAN:** FAN1*14/BK/A3/PA66
- Resistors:** R5434 (0/4), R5435 (0/4), R42 (0/4), R14 (3.3K/4/1), R15 (15K/4/1), R17 (6.2K/4/1)
- Capacitors:** C2068 (1u/6/X7R/16V/K), C4 (0.047u/4/X7R/16V/K)
- Diodes:** OR1 (100/4/1), OR82 (100/4/1)
- Transistors:** BC1577 (0.1u/4/X7R/16V/K/X), BC1578 (0.1u/4/X7R/16V/K/X)

STAGE-- H/W MONITOR

*** IT8728 B_X ***

*** IT8728 C_X ***

CPU_VTT

DDR_15V

VCC

VCC3

+12V

CPU_VAXG

VCC

OR75 8.2K/4/1

OR74 8.2K/4/1

OR86 7.5K/4/1/X

OR57 6.49K/4/1

OR79 75K/4/1

OR76 8.2K/4/1

OR78 15K/4/1

OR77 10K/4/1

OC9 1u4/X5R/6.3V/K

OC8 1u4/X5R/6.3V/K

OC4 1u4/X5R/6.3V/K

OC2 1u4/X5R/6.3V/K

OC10 1u4/X5R/6.3V/K

OC1 1u4/X5R/6.3V/K

VIN5

VIN6

VIN1

VIN2

VIN3

2.0V

33

[illegible]

USB X3 POWER

5VDUAL

EC36

100uF/OS/D6, 3V/66/30m

F20

SMD1812P350SLR/S

FUSEVCC_R5

F21

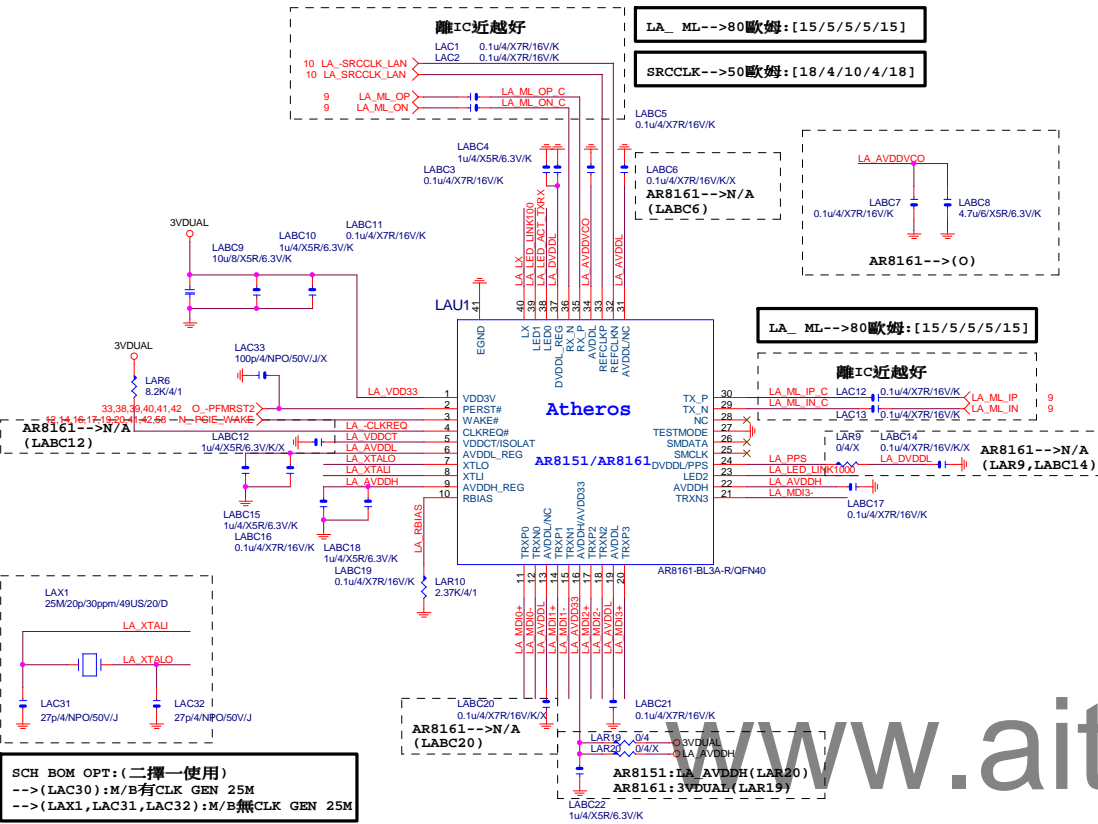
SMD1812P350SLR/S

FUSEVCC_R6

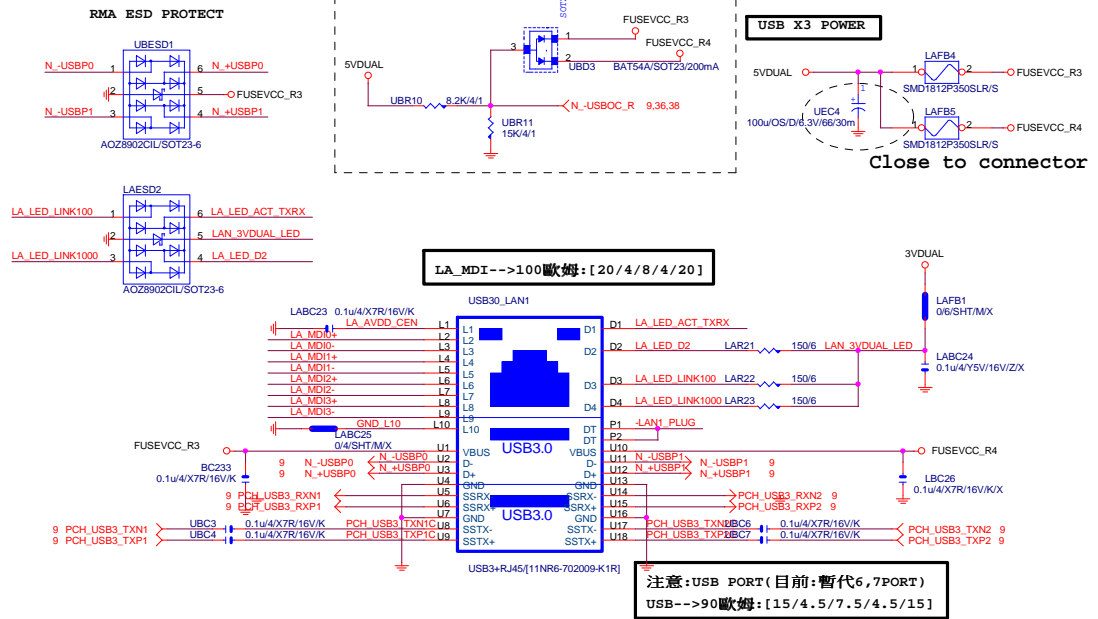
Close to connector

Gigabyte Technology			
Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-Z77X-UP7	1.0	
Date:	Thursday, September 20, 2012	Sheet	36 of 59

LAN:AR8151/AR8161

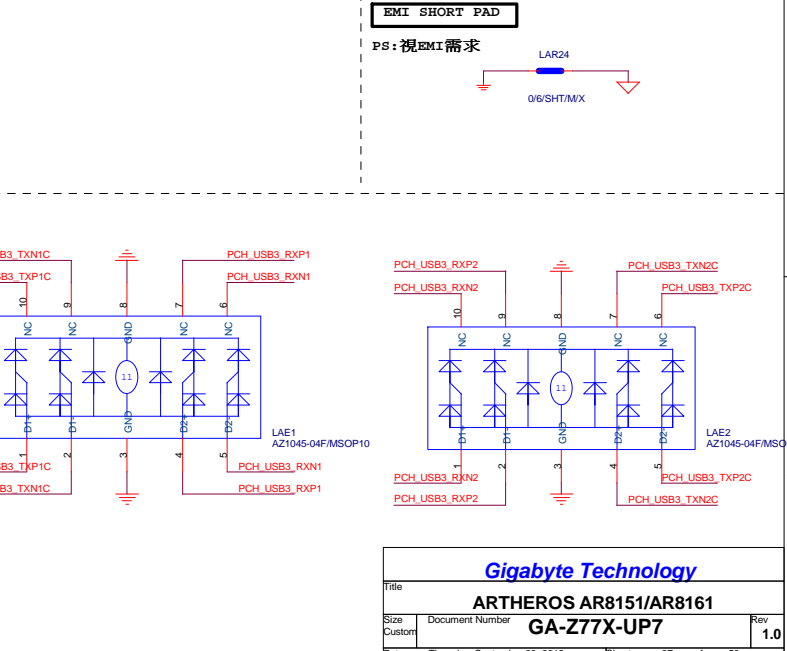
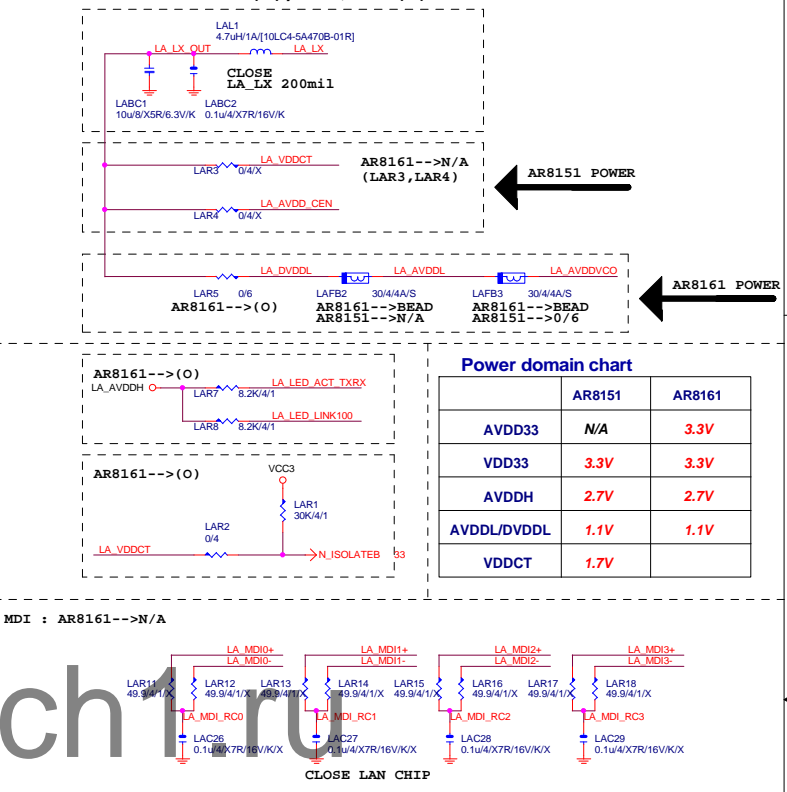


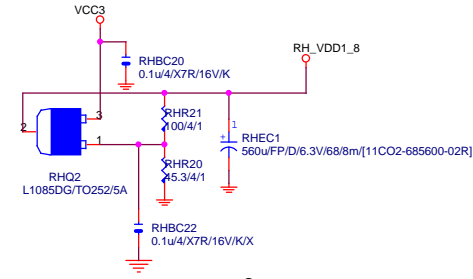
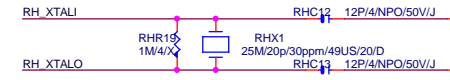
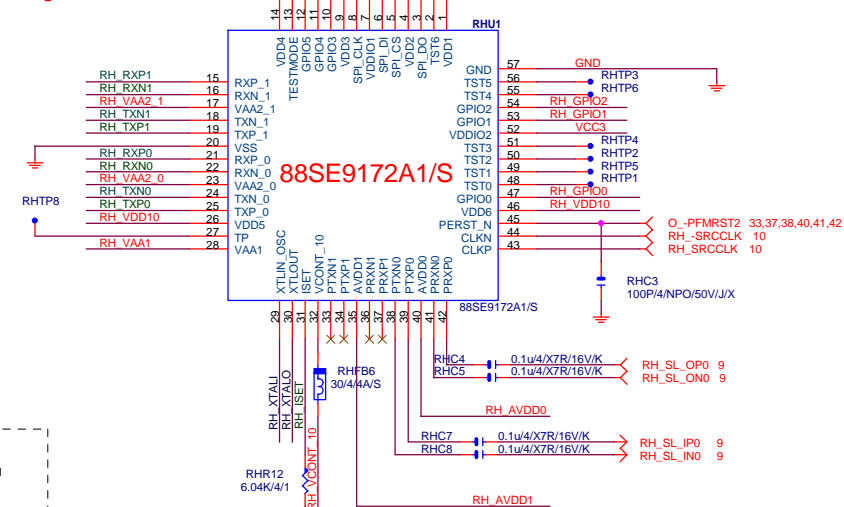
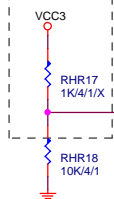
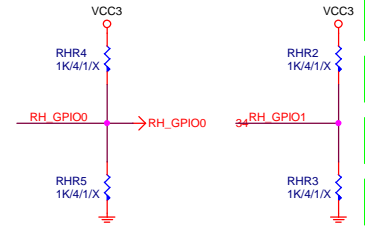
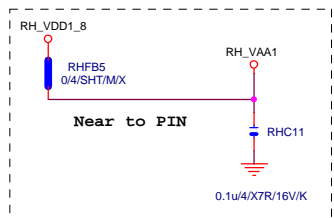
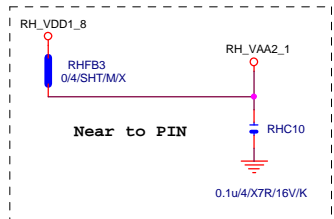
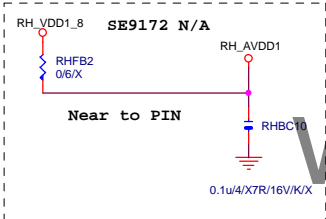
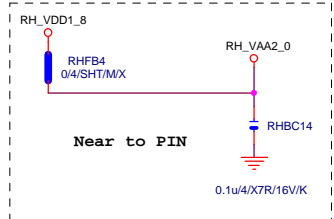
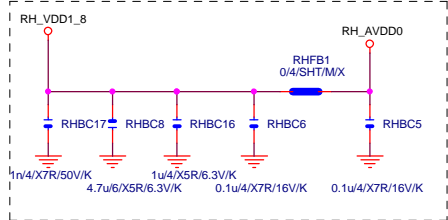
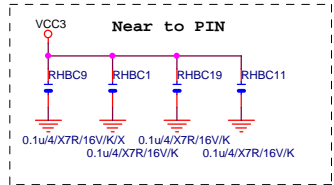
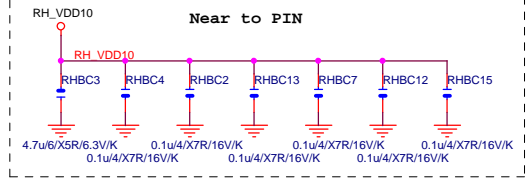
USB_LAN CONNECTOR



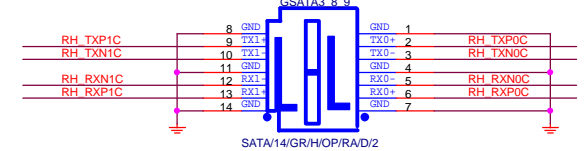
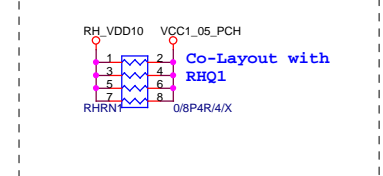
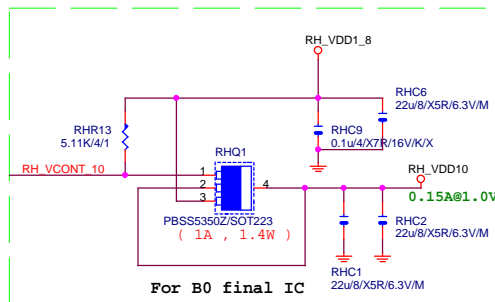
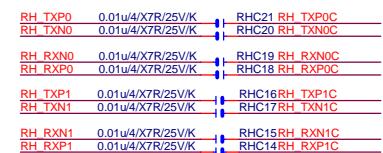
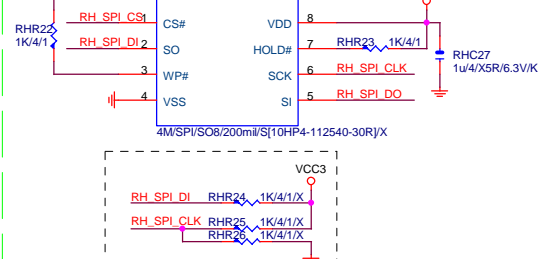
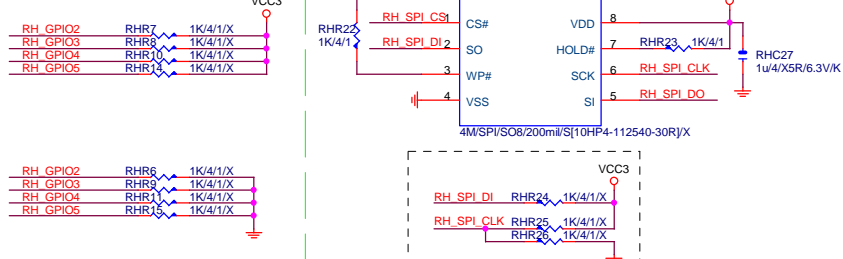
LAN POWER

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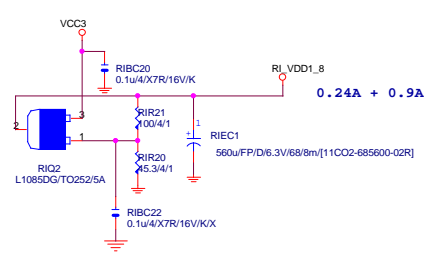
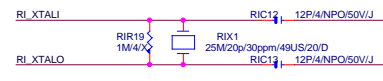
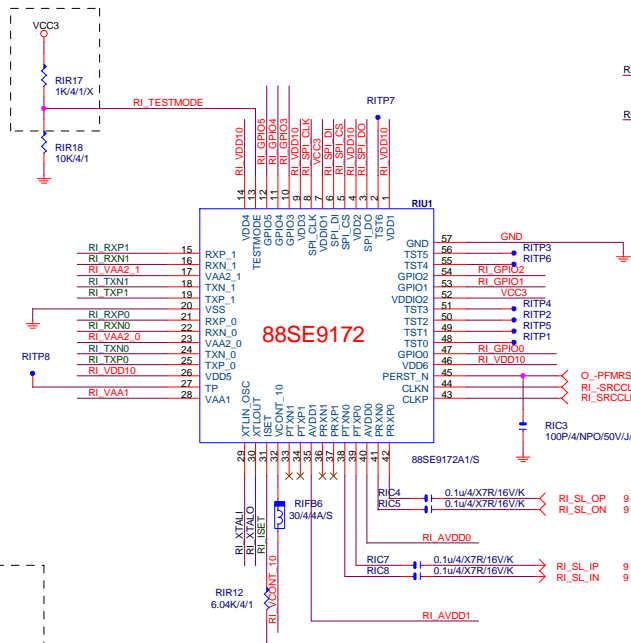
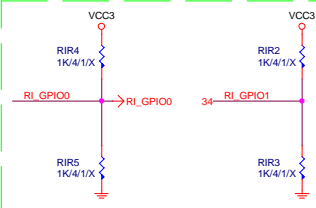
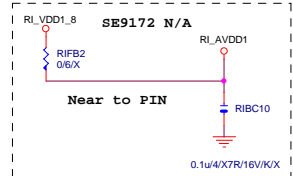
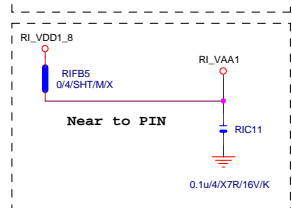
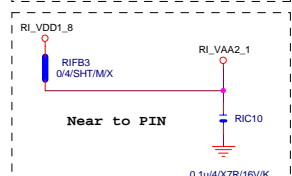
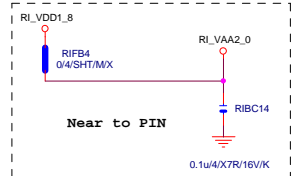
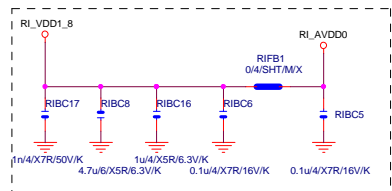
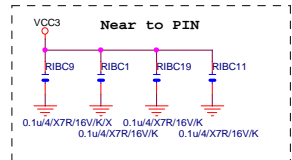
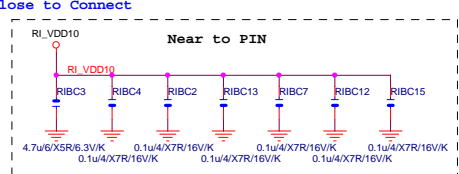
白色 connector

GIGABYTE™

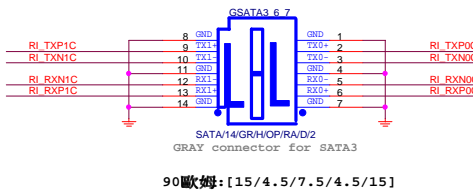
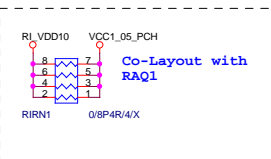
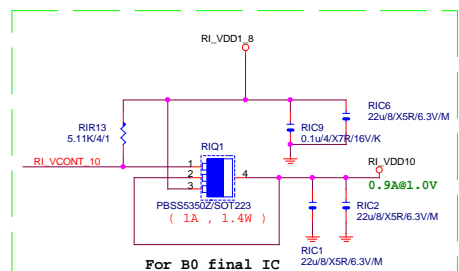
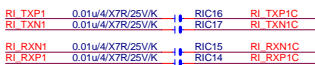
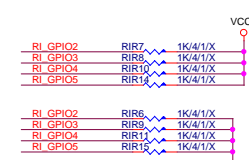
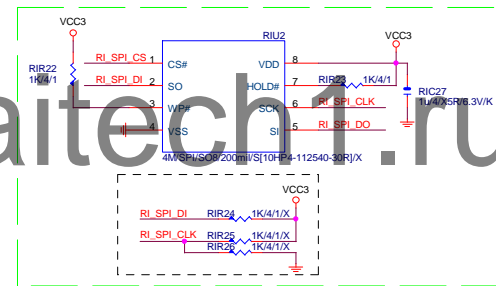
Marvell 9220 SATA 3.0

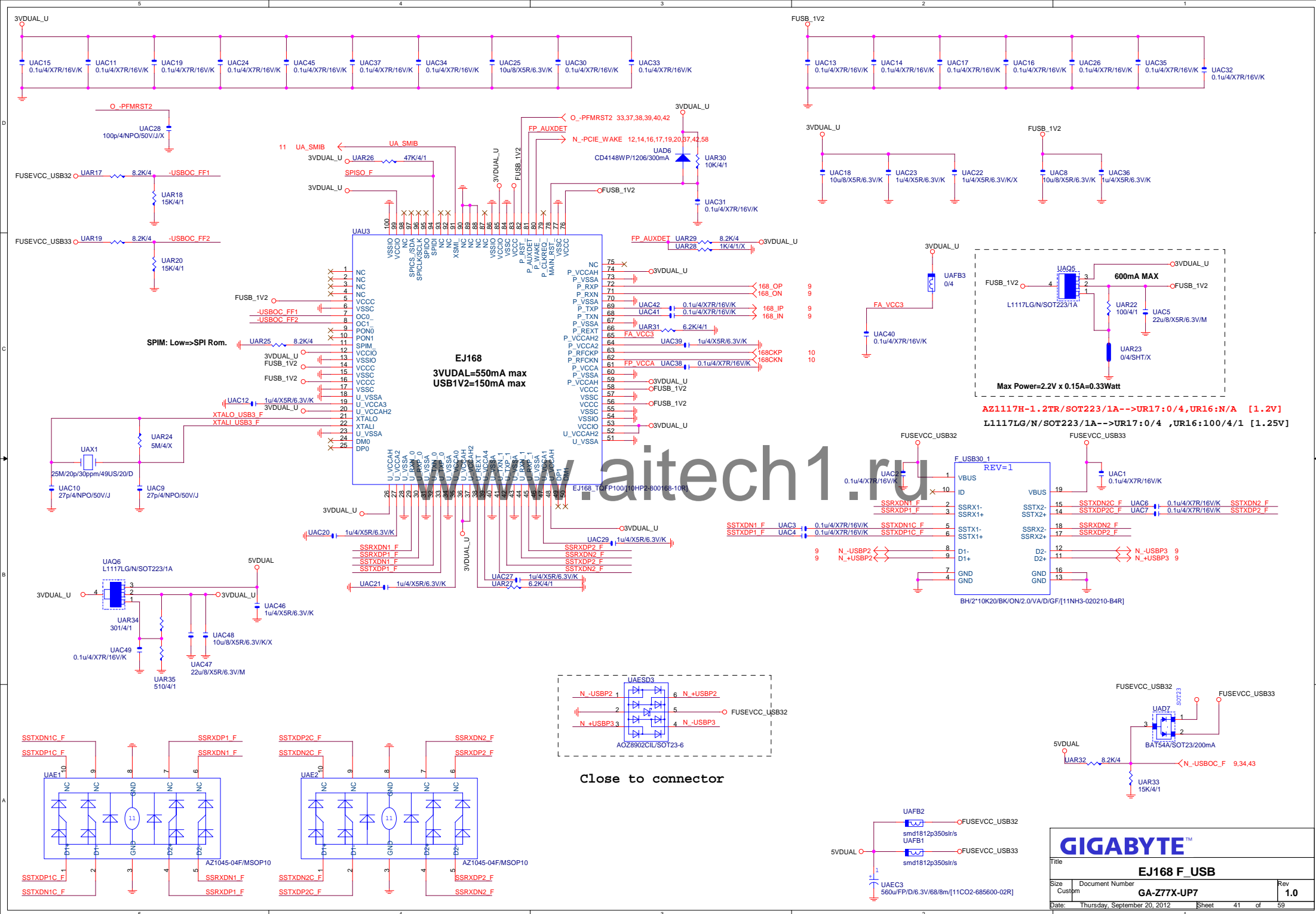
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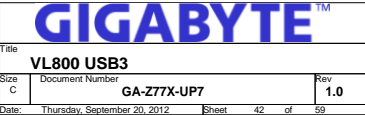
Date: Thursday, September 20, 2012 Sheet: 39 of 59



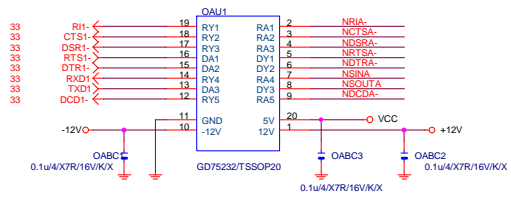
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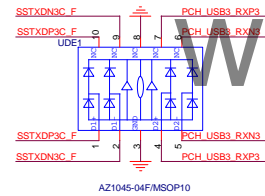
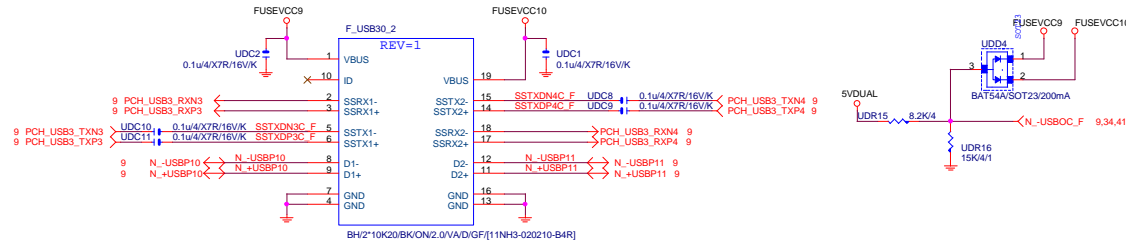
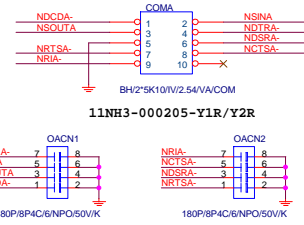
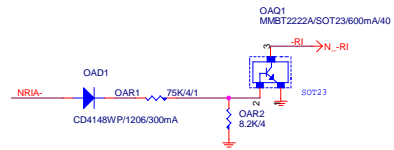




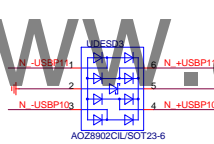
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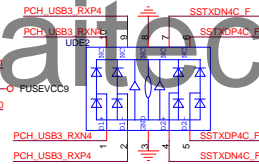
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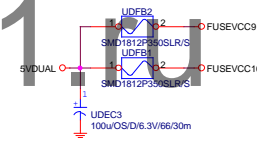
Close to connector



Close to connector



Close to connector



UB			
PA EXP A RXP0	V4	PEX_PETP16	V2
PA EXP A RXN0	V5	PEX_PETN16	V1
PA EXP A RXN1	U4	PEX_PETP17	U2
PA EXP A RXN2	U5	PEX_PETN17	U1
PA EXP A RXN3	R5	PEX_PETP18	R2
PA EXP A RXN4	R4	PEX_PETN18	R1
PA EXP A RXN5	P5	PEX_PETP19	P2
PA EXP A RXN6	P4	PEX_PETN19	P1
PA EXP A RXN7	M5	PEX_PETP20	M2
PA EXP A RXN8	M4	PEX_PETN20	M1
PA EXP A RXN9	L5	PEX_PETP21	L2
PA EXP A RXN0	L4	PEX_PETN21	L1
PA EXP A RXN1	J5	PEX_PETP22	J2
PA EXP A RXN2	J4	PEX_PETN22	J1
PA EXP A RXN3	H5	PEX_PETP23	H2
PA EXP A RXN4	H4	PEX_PETN23	H1
PA EXP A RXN5	D1	PEX_PETP24	A1
PA EXP A RXN6	D2	PEX_PETN24	A2
PA EXP A RXN7	D3	PEX_PETP25	B2
PA EXP A RXN8	E4	PEX_PETN25	B4
PA EXP A RXN9	D4	PEX_PETP26	A4
PA EXP A RXN0	E5	PEX_PETN26	B6
PA EXP A RXN1	D6	PEX_PETP27	A5
PA EXP A RXN2	E7	PEX_PETN27	A7
PA EXP A RXN3	D7	PEX_PETP28	B7
PA EXP A RXN4	E8	PEX_PETN28	B8
PA EXP A RXN5	D8	PEX_PETP29	A8
PA EXP A RXN6	E10	PEX_PETN29	B10
PA EXP A RXN7	D10	PEX_PETP30	A10
PA EXP A RXN8	E11	PEX_PETN30	B11
PA EXP A RXN9	D11	PEX_PETP31	A11
PA EXP A RXN0	V19	PEX_PETN31	A11
PA EXP A RXN1	U19	PEX_PETP32	V22
PA EXP A RXN2	U20	PEX_PETN32	V23
PA EXP A RXN3	R19	PEX_PETP33	U23
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PA EXP A RXN1	H19	PEX_PETP37	M23
PA EXP A RXN2	H20	PEX_PETN37	U23
PA EXP A RXN3	J19	PEX_PETP38	U22
PA EXP A RXN4	J20	PEX_PETN38	U23
PA EXP A RXN5	H19	PEX_PETP39	H22
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PA EXP A RXN7	E22	PEX_PETP40	B23
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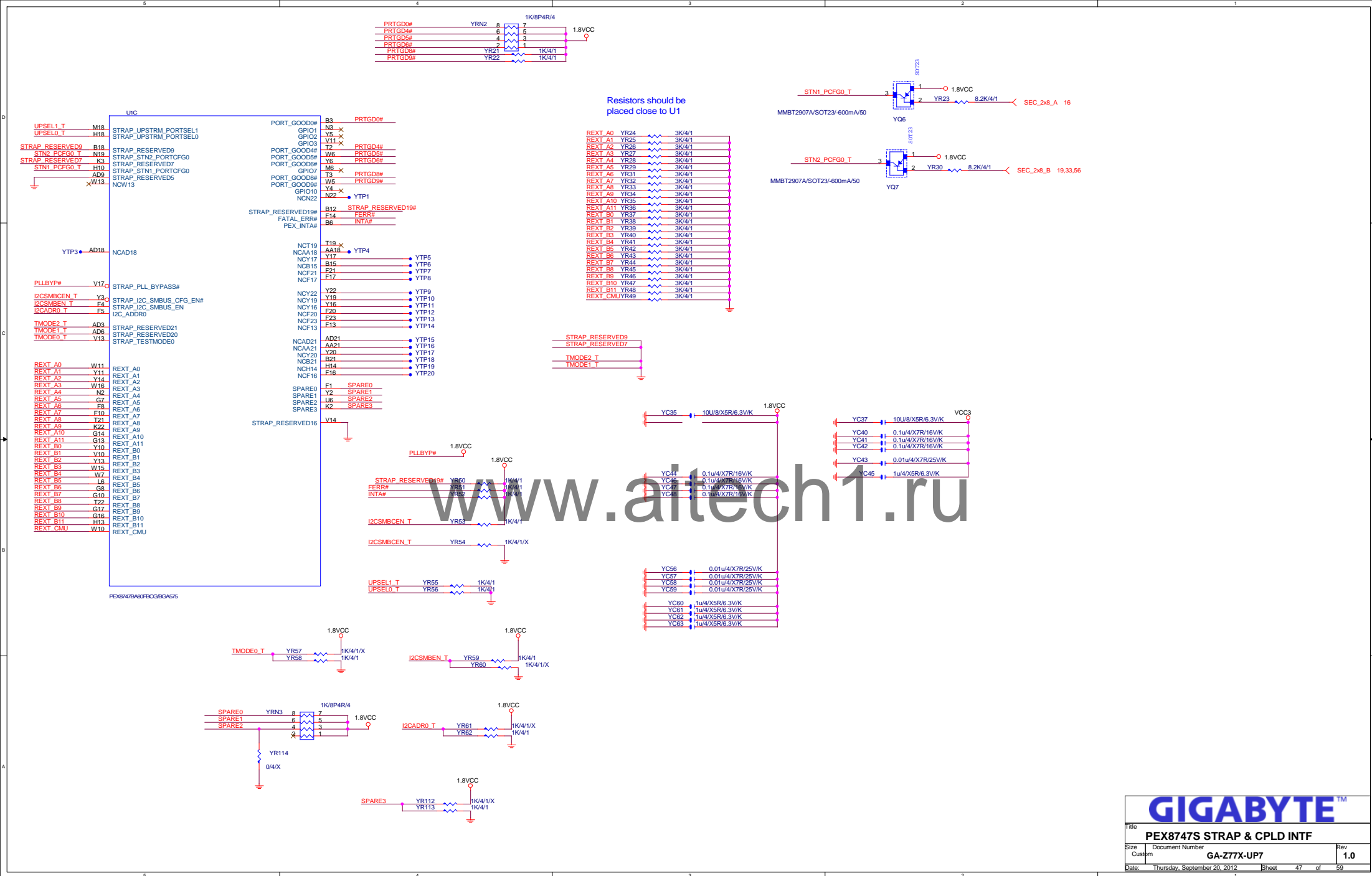
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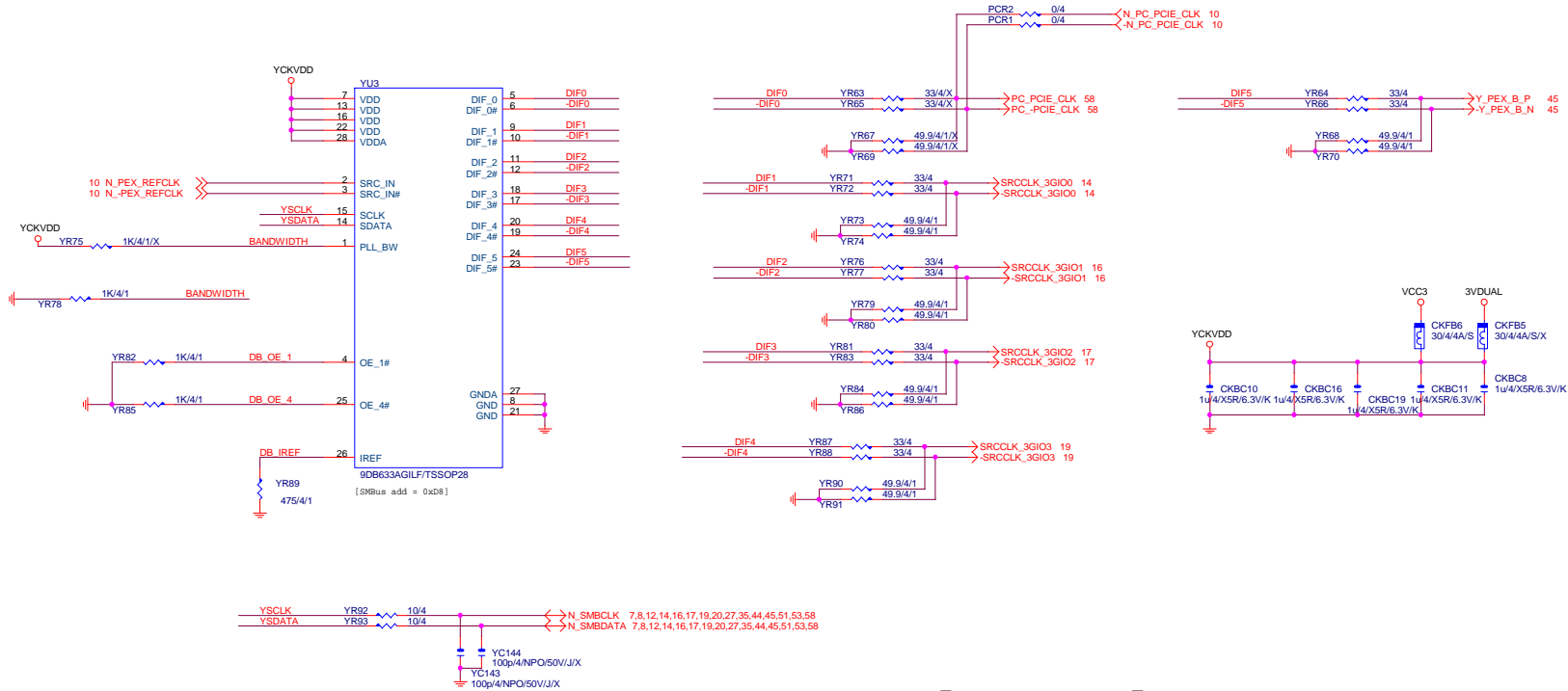
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PA EXP A RXP0.15] >>> PA_EXP_A_RXP[0.15] 14,15
PA EXP A RXN0.15] >>> PA_EXP_A_RXN[0.15] 14,15
PA EXP A TXP0.15] >>> PA_EXP_A_TXP[0.15] 14,15
PA EXP A TXN0.15] >>> PA_EXP_A_TXN[0.15] 14,15
PB EXP B RXP0.15] >>> PB_EXP_B_RXP[0.15] 17,18
PB EXP B RXN0.15] >>> PB_EXP_B_RXN[0.15] 17,18
PB EXP B TXP0.15] >>> PB_EXP_B_TXP[0.15] 17,18
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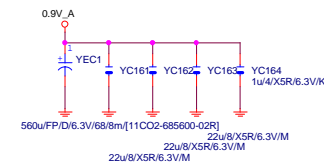
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SYSCLK_INP4 YR17 8.2K/4/X
SYSCLK_INN4 YR19 8.2K/4/X
NOT INSTALL

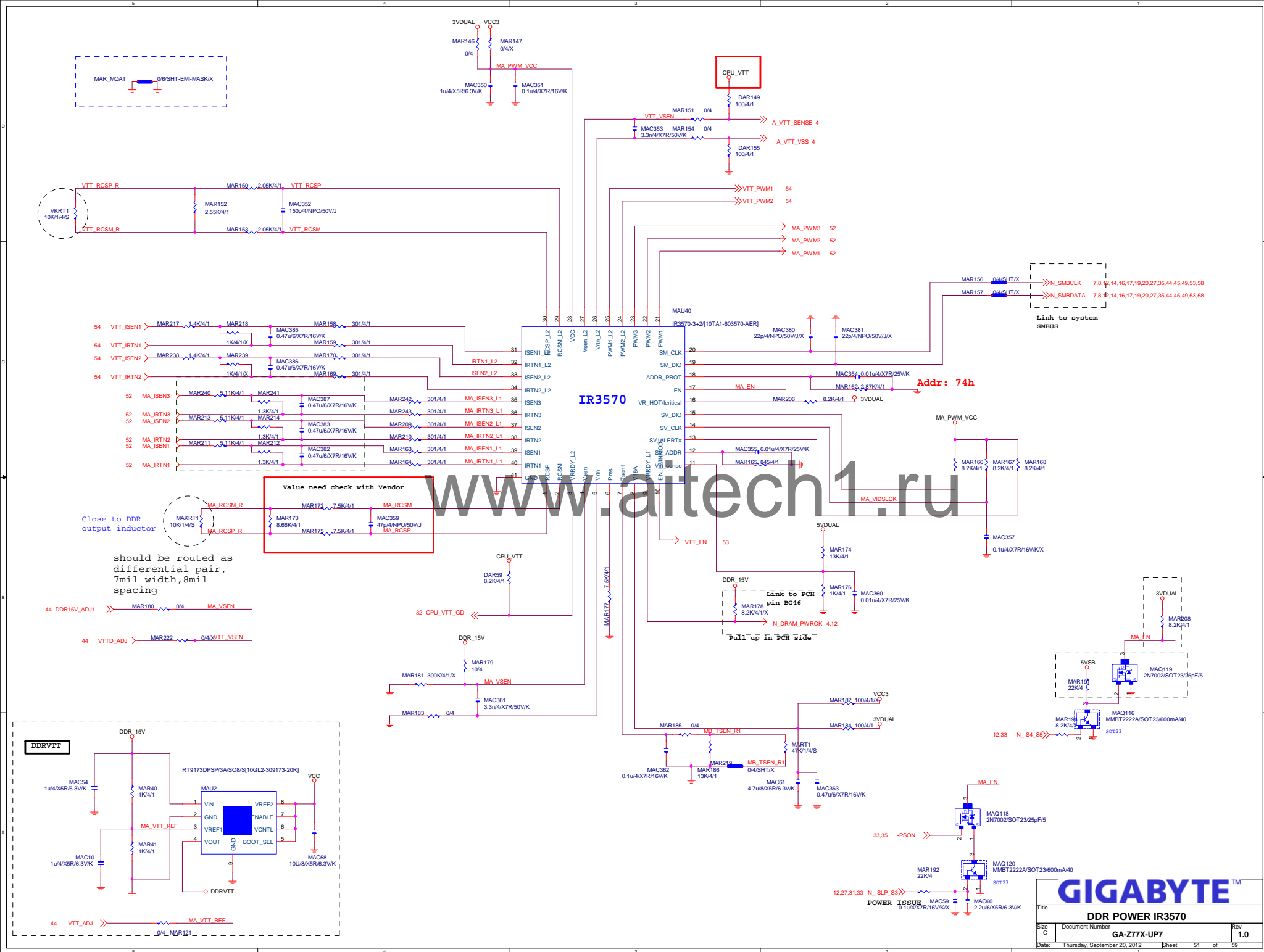
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SYSCLK_INP8 YR18 8.2K/4/X
SYSCLK_INN8 YR20 8.2K/4/X
NOT INSTALL



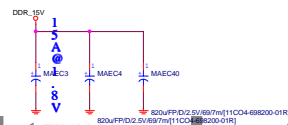
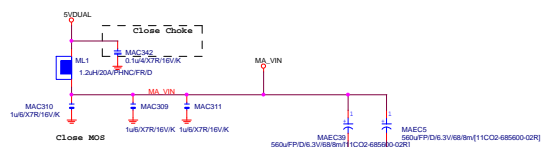
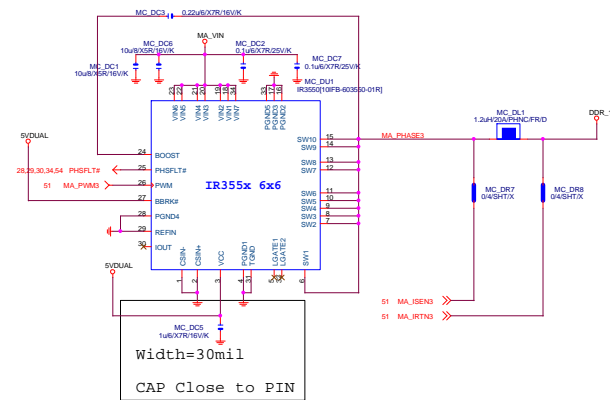
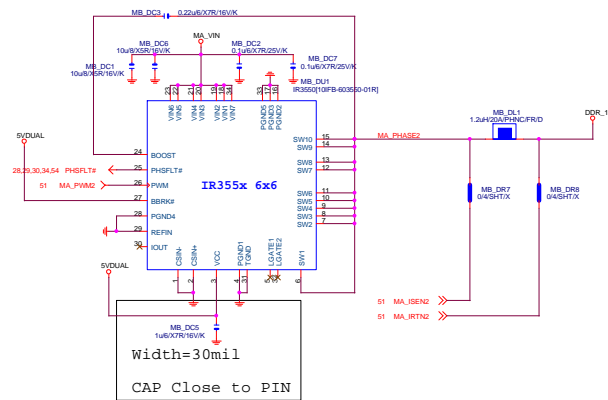
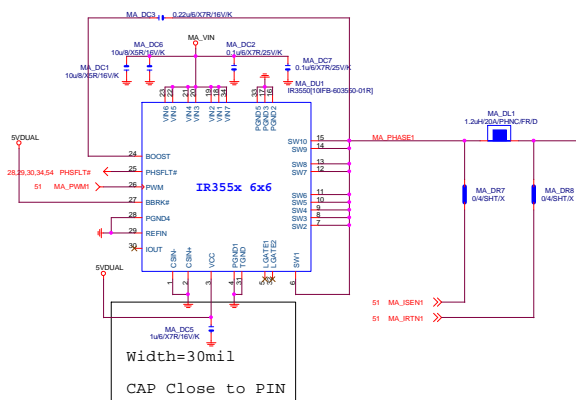


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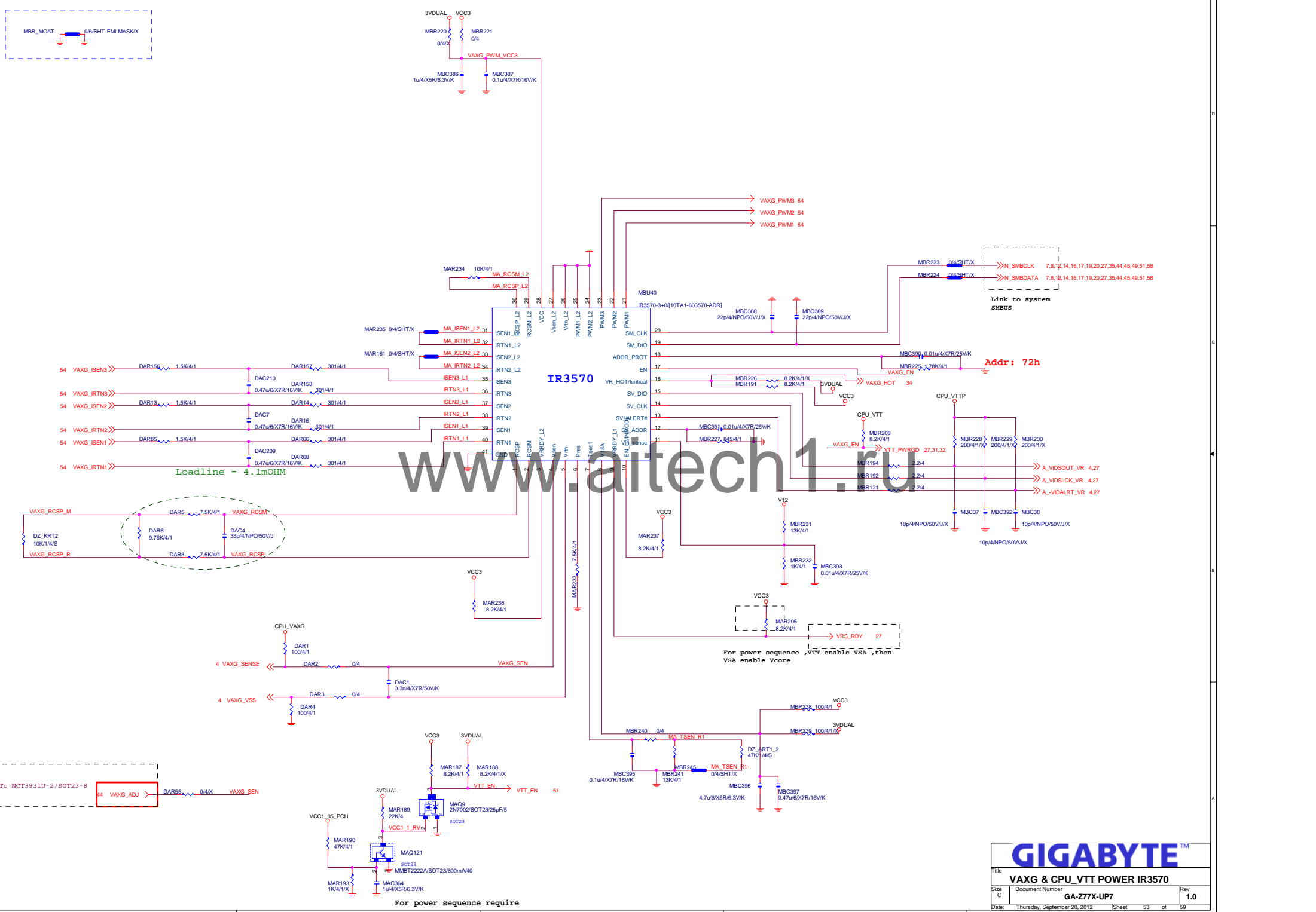


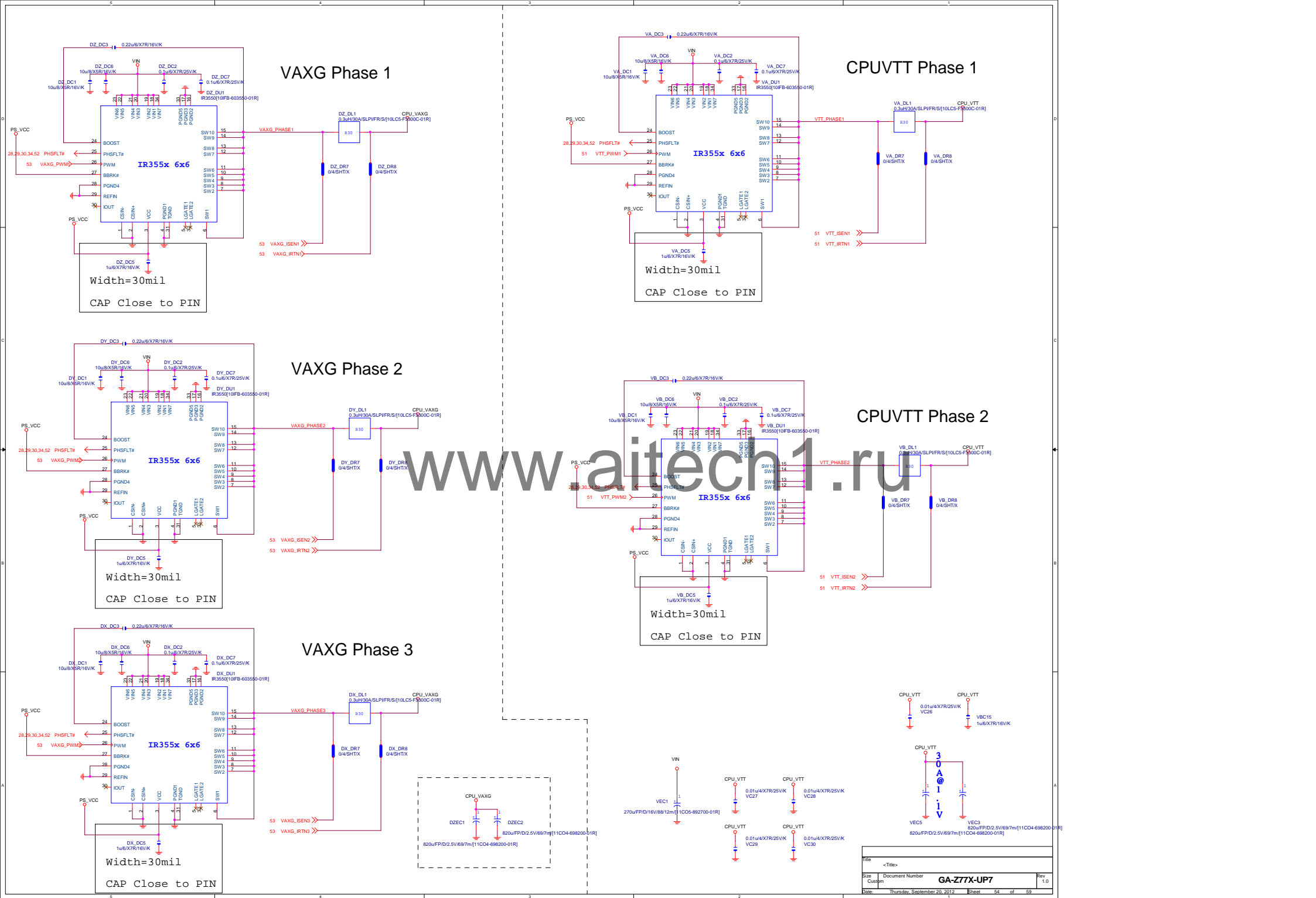


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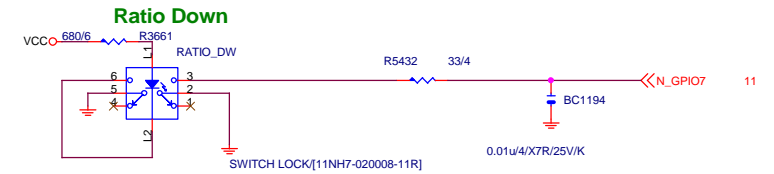
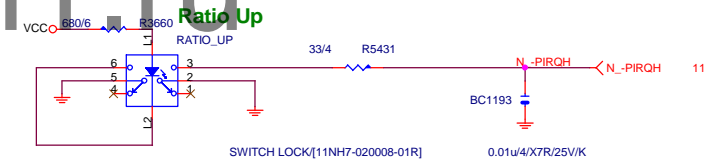
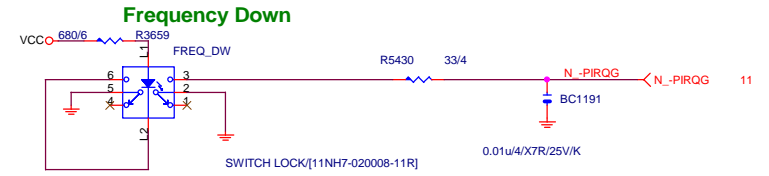
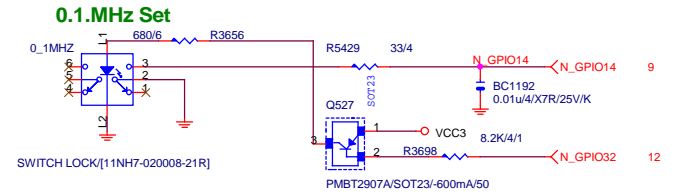
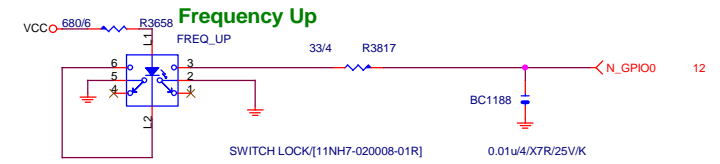
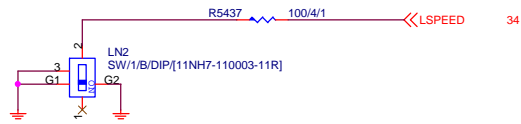


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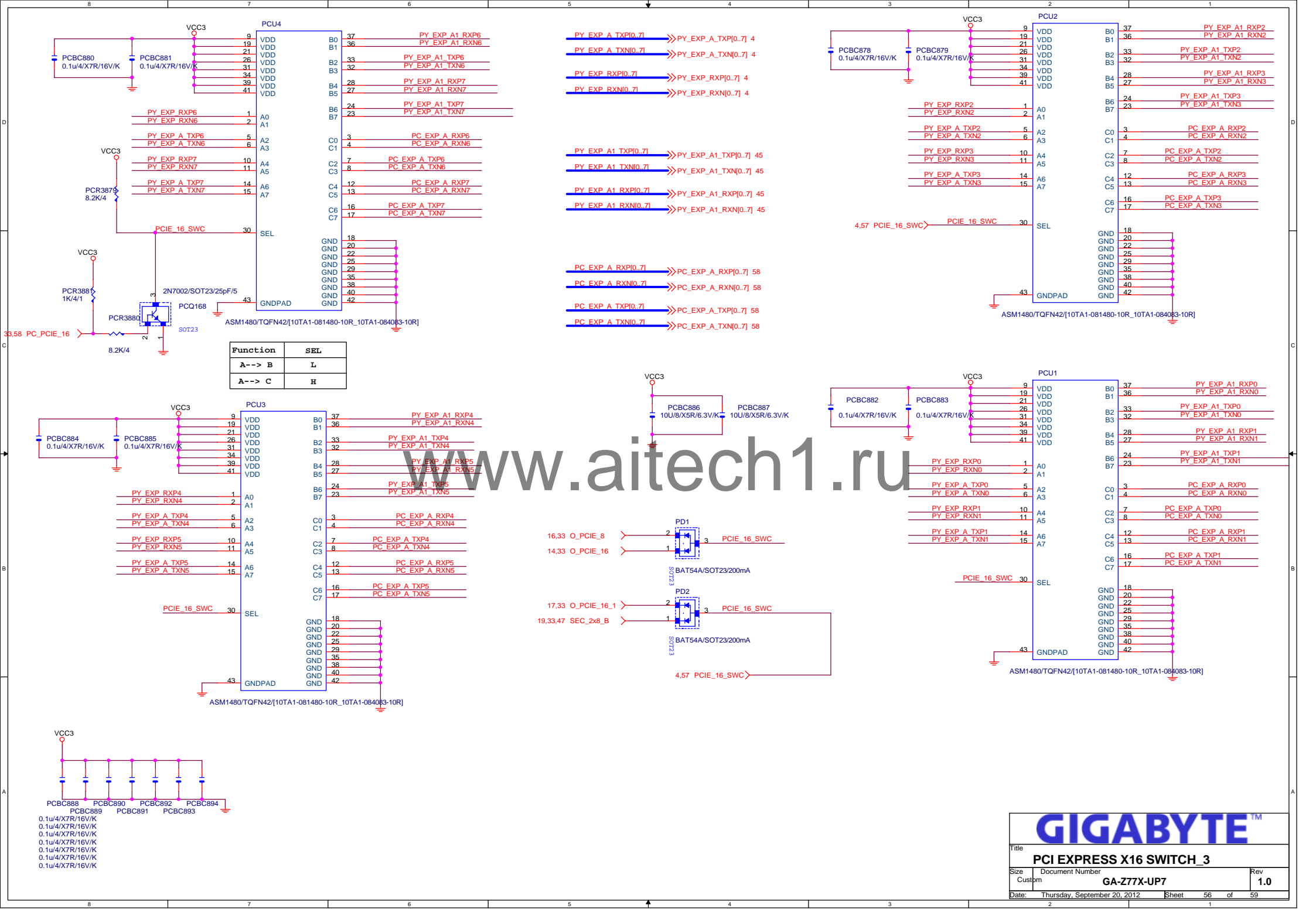


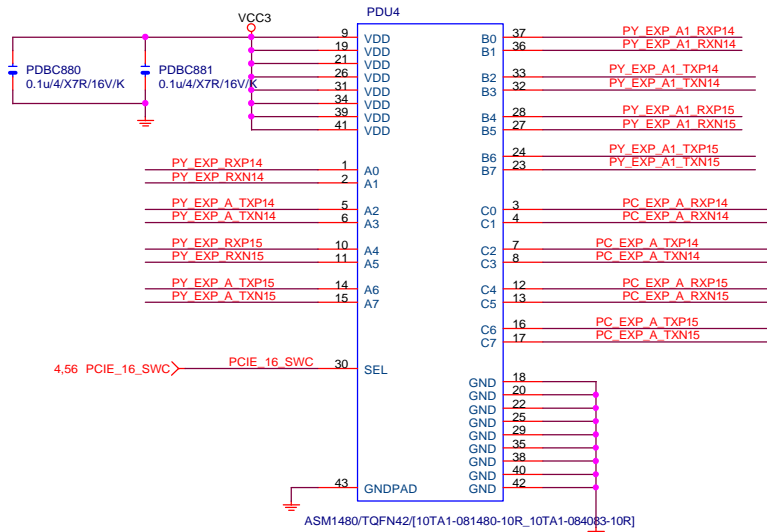


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Rev	1.0	GA-Z77X-UP7	Document Number		
Date	Thursday, September 20, 2012	Esheet	54	of 59	

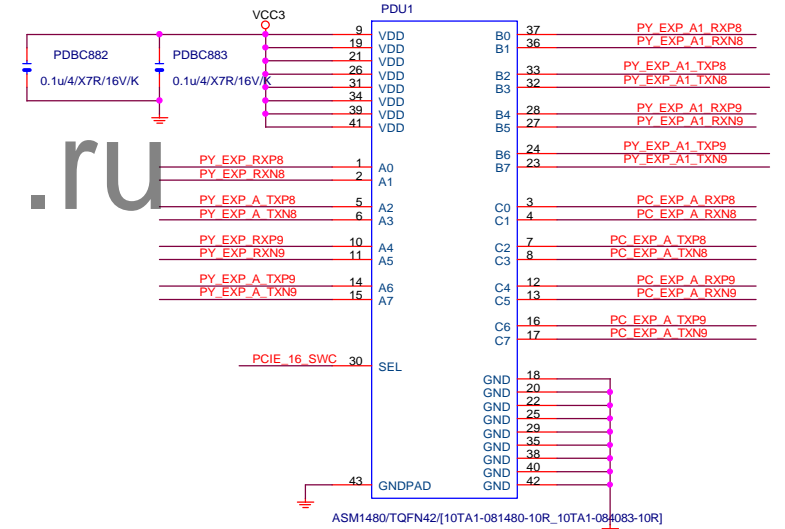
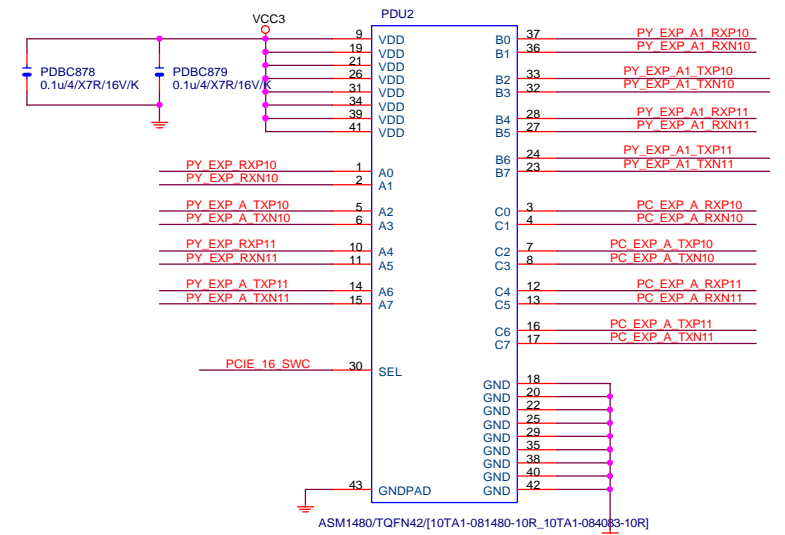
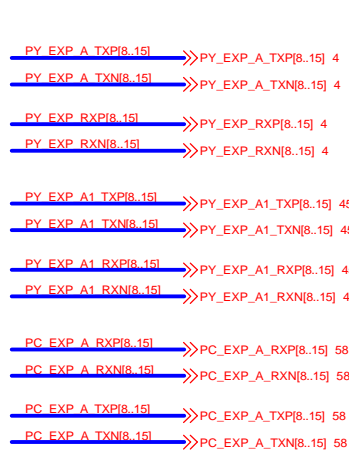
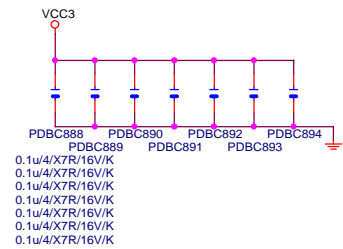
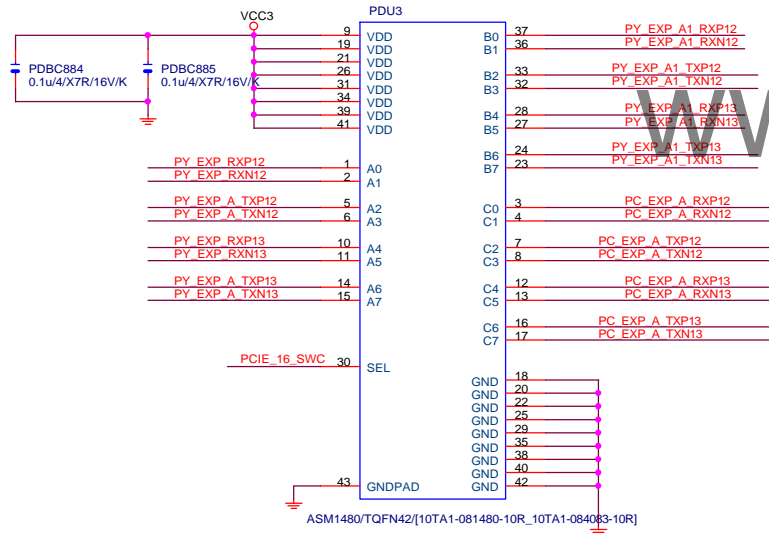


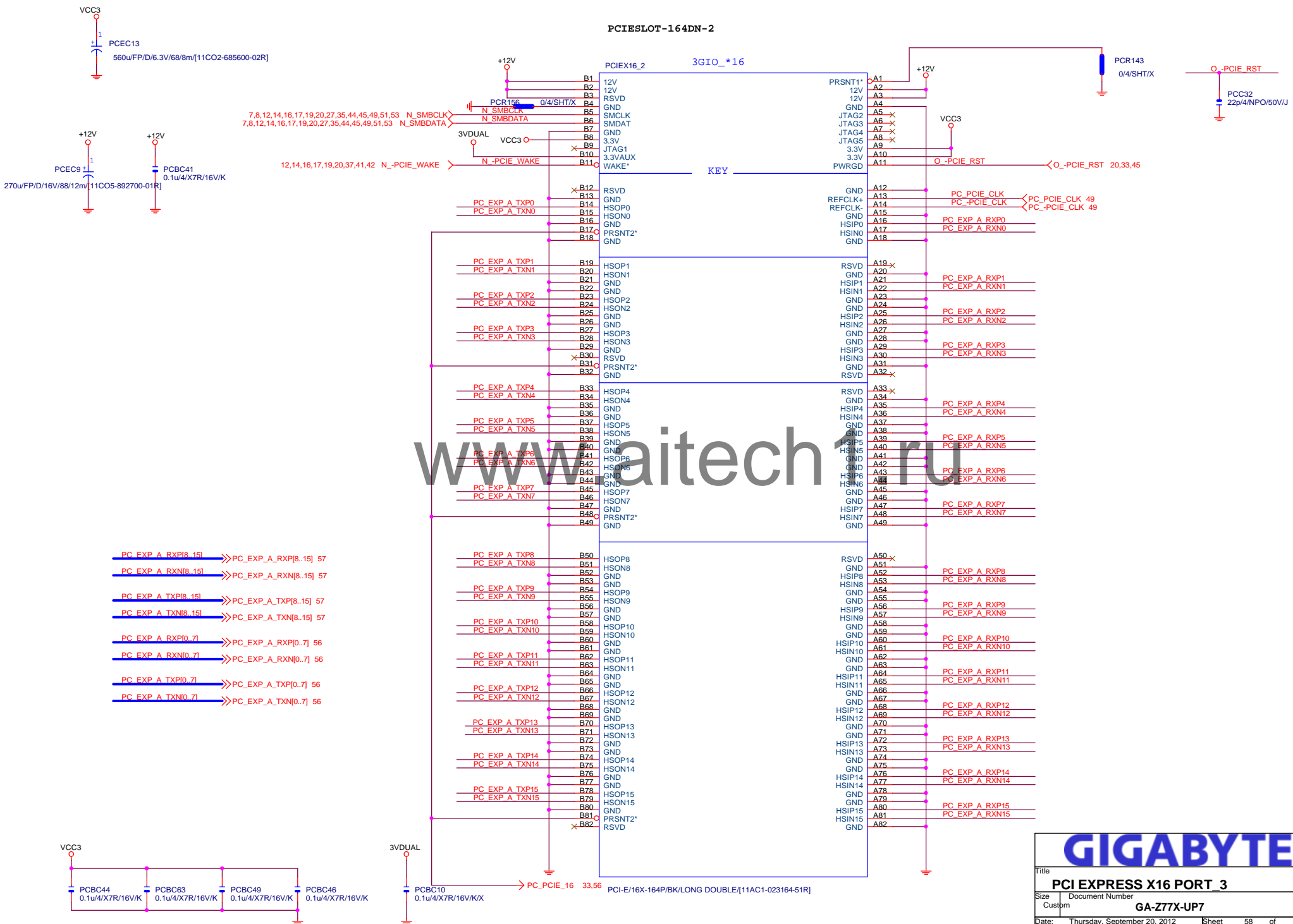
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Function	SEL
A--> B	L
A--> C	H





PIN NAME	PWR	AFTER WDRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	-PECT_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_OV1	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	-ACZ_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	FSR_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

PIN NAME	USAGE	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#CIRRXL/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/BUSSI1	SB_LED1_C	
PD4/GP74/BUSSI2	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSSI0	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSBSW#/GP40	CSI_F0	BSEL166_1
SUSC#/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/BUSSO1	MB_ID3	
PD7/GP77/BUSSO2	MB_ID4	
AFD#/GP86/SMBC_R	2# 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	
PS1_L/FAN_CLT5/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/BUSSO0	SB_LED3_C	

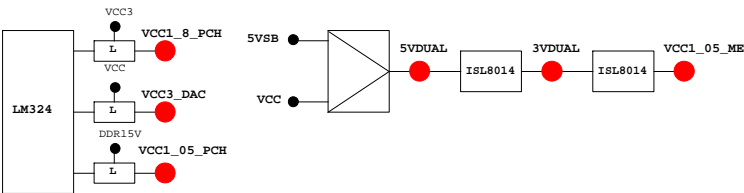


Diagram illustrating a 2D mesh network topology. The central component is the CPU, which is connected to the PCH (Platform Controller Hub). The PCH is connected to a 2x2 grid of nodes. The nodes are labeled PH1, PH2, PH3, PH4, DL1, DL2, DL3, DL4, DL5, DL6, DL7, and DL8. The nodes are arranged in a 2x2 grid with PH1, PH2, PH3, and PH4 in the top row, and DL1, DL2, DL3, and DL4 in the bottom row. The nodes are connected in a mesh pattern. The VTT and VCore labels are on the right side of the diagram.

散熱模組料號:

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 Termination
VREF_CA_AVREF_CA_B	DRAM Address Ref
VREF_DQ_AVREF_DQ_B	DRAM Data Ref

	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