

## Model Name: GA-Z77X-UD5H

rev 1.03

SHEET

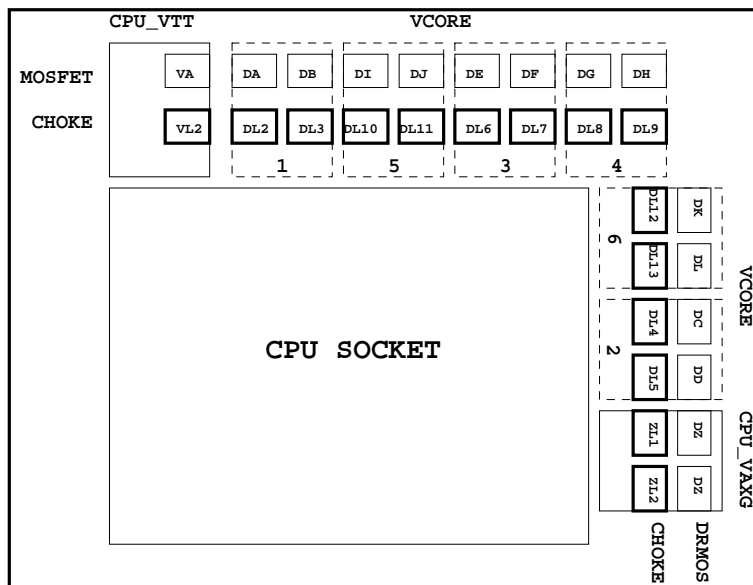
TITLE

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
15	PCI EXPRESS*8 SLOT
16	PCI EXPRESS*4 SLOT
17	PCI EXPRESS*16/*8/*4 SWITCH
18	PCI EXPRESS*1 SLOTS X3
19	ITE 8892
20	PCI SLOT 1
21	HDMI / DVI / DP
22	MSATA
23	Dual BIOS
24	ALC898
25	REAR AUDIO JACK
26	AMPLIFIER
27	PWM_IR 3567
28	VCORE POWER
29	VAXG POWER
30	PWM_IR 3570
31	VTT & DDR POWER
32	DISCRETE POWER I

SHEET

TITLE

33	VCCSA POWER
34	I/O ITE8728
35	F_PANEL , F_USB , PHOT
36	F_USB3.0
37	ATX POWER, CLOCK GEN
38	HWM,KB/MS , FAN CTRL
39	ARTHEROS AR8161/AR8151
40	INTEL 82579V
41	Marvell 9172(F+R)
42	Marvell 9172(F)
43	VT6308P 1394
44	VL810 USB3_HUB1(R)
45	VL810 USB3_HUB1(F)
46	RST, PWR, CLR_CMOS
47	TABLE LIST
48	



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Title		
Cover Sheet		
Size	Document Number	Rev
Custom	GA-Z77X-UD5H	1.03
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GA-Z77X-UD5H

Component value change history

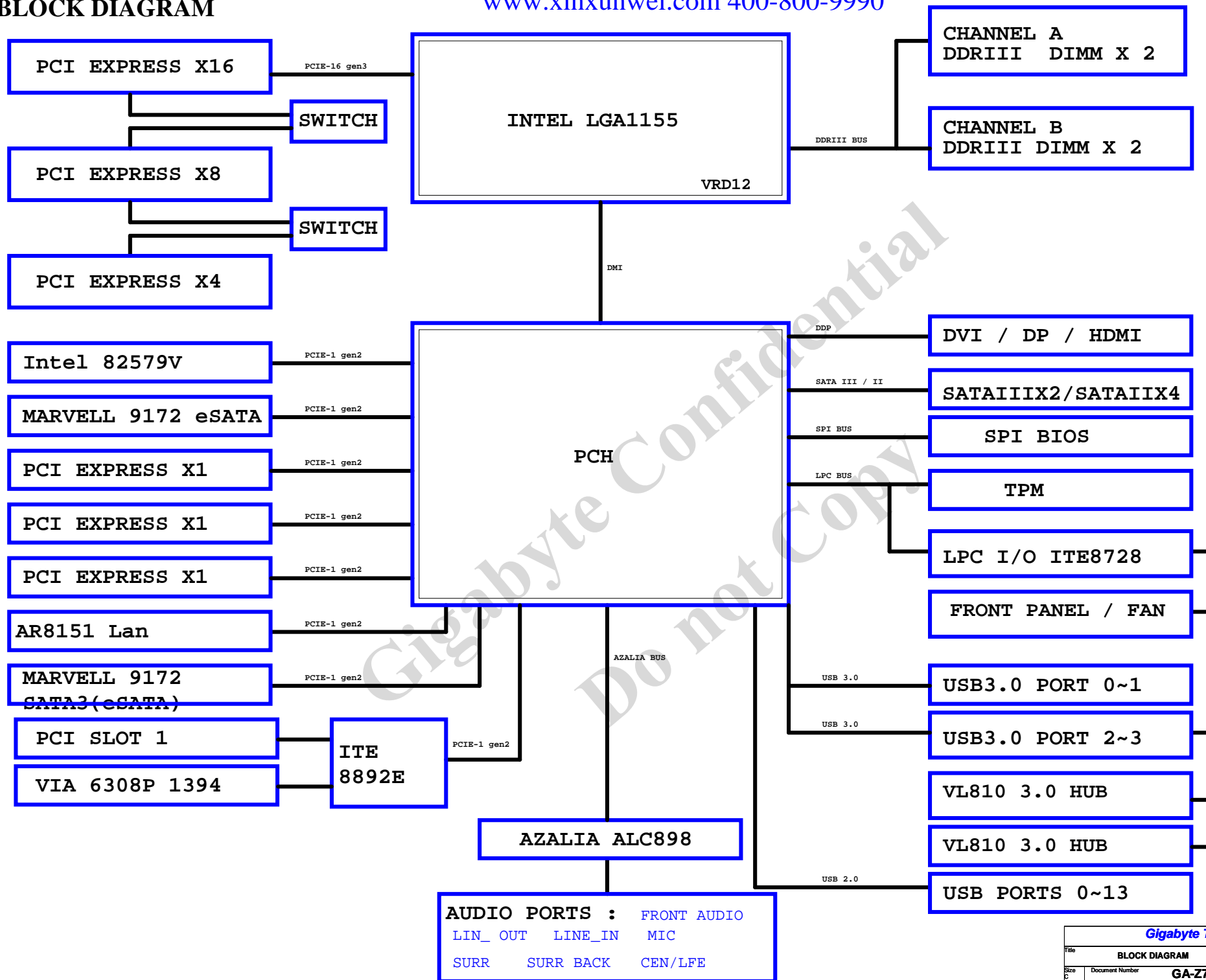
Data	Change Item	Reason
2011/02/10	0.2A	
	REMOVE Amplifier _ISL54405	
2012/01/03	1.0A-EBOM	
	vcore 改 上1下2	
	IT8892改FX	
	Vcore, VTT, vaxg circuit modify =>remove 3931	
2012/01/18	1.0	
	修改值for Magntiude Response高频高於-1dB	
	改+12v driver piull high R=>0ohm	
	Q41=>MODIFY : SIR840DP/N/5.4m/PPAKSO-8/[10IF9-040393-01R] for on/off charge	
2012/01/19	1.01B	
	修改 PCB 文字面 "SYS_FAN 1", "SYS_FAN 2", "SYS_FAN 3""SYS_FAN 4"	
2012/01/30	1.01C	
	改PROCHOT 阻值	
	改driver串0 ohm to 5v	
	改choke : 0.36uH/38A/IGC109/FS/D/[11LC5-F3360B-01R]	
2012/02/03	1.01D	
	FOR Vcore and Vaxg bom modify	
	For dvi test add HR83	
2012/03/05	1.01E	
	ADD HR147 HR148 FOR VIA HUB USB3 LOSS ISSUE ;	
	ADD MB_ID2 ; H : VIA HUB reset L : 1.01	
2012/03/06	1.02J	
	ADD CPU CFG9 CTRIL	
	ADD DBC126 for EMI	
	ADD MB_ID3 H:Rev1.02	
	ADD MR14,MBC34,MBC35,MBC36,MR15	
2012/03/22	1.03K	
	Modify PCB	

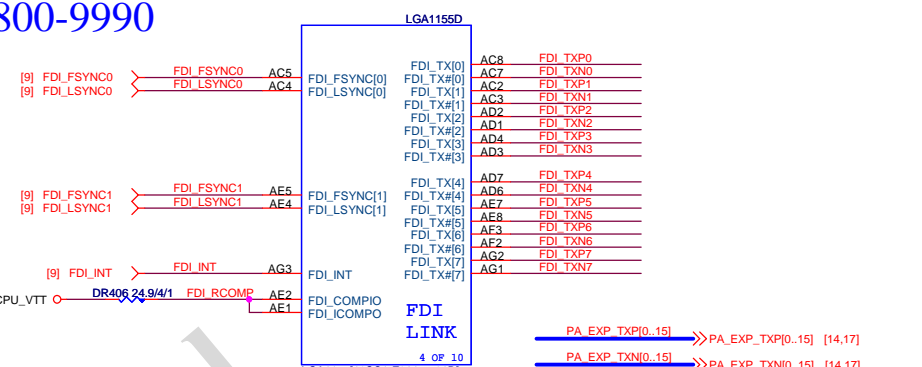
Circuit or PCB layout change

DATE	Change Item	Reason
2012/01/19	REV1.01 修改 PCB 文字面 "SYS_FAN 1", "SYS_FAN 2", "SYS_FAN 3""SYS_FAN 4"	
2012/03/02	REV1.02 修改DDR部分	
2012/03/21	REV1.03 修改文字面	

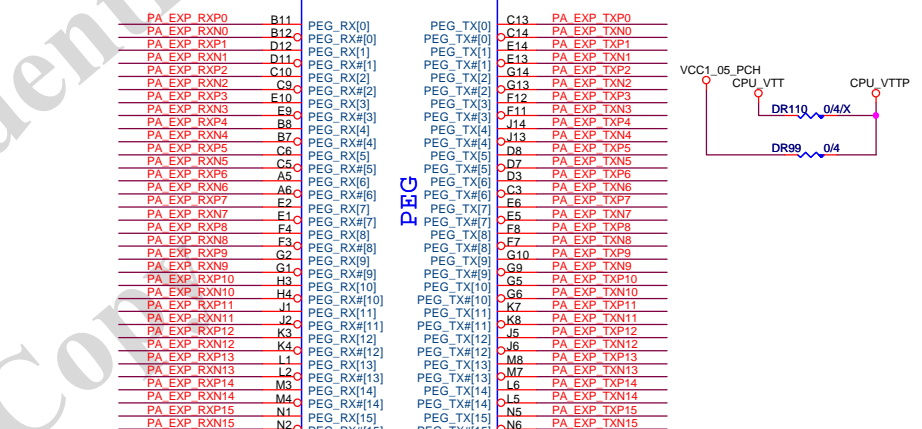
# BLOCK DIAGRAM

www.xinxunwei.com 400-800-9990





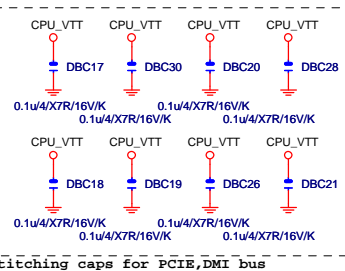
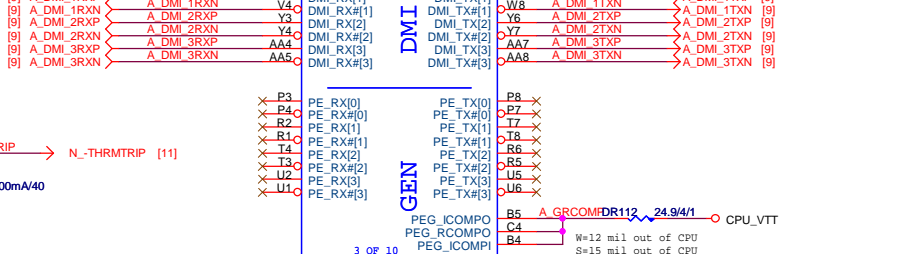
5/5/5/16(breakout min 10/4/4/4/10) LGA1155C PA\_EXP\_RXN[0..15] [14,17]  
0 +- 17.5% PA\_EXP\_RXN[0..15] PA\_EXP\_RXN[0..15] [14,17]



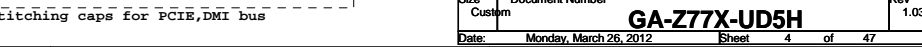
4/5/12

=85 ± 17.5% A DMI ORXP W5 DMI ORXP DMI ORXP V7 A DMI OTXP A DMI OTXP (n)

[9]	A_DMI_0RXN	A_DMI_0RXN	W4	DMI_RX#[0]	DMI_TX#[0]	V6	A_DMI_0TXN	A_DMI_0TXN	[9]
[9]	A_DMI_0RXN	A_DMI_1RXN	V3	DMI_RX#[0]	DMI_TX#[0]	W7	A_DMI_1TXN	A_DMI_1TXN	[9]
[9]	A_DMI_1RXN	A_DMI_1RXN	V3	DMI_RX#[0]	DMI_TX#[0]	W7	A_DMI_1TXN	A_DMI_1TXN	[9]



latching caps for PCIE,DMI bus



## LGA1155A

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

[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_SBAA0	M_SBAA0	AY29	SA_BS[0]
[7] M_SBAA1	M_SBAA1	AW28	SA_BS[1]
[7] M_SBAA2	M_SBAA2	AV20	SA_BS[2]

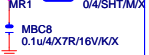
[7] M-CSA0	M-CSA0	AU29	SA_CS#
[7] M-CSA1	M-CSA1	AV32	SA_CS#
[7] M-CSA2	M-CSA2	AW30	SA_CS#
[7] M-CSA3	M-CSA3	AU33	SA_CS#

[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



O4/SHT/MX

0.1uF/4X7R/16V/K

MBC8

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

DDR\_0

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LGA1155[10SC1-F01155-01R]

## LGA1155B

M_AAB0	AK24	SB_MA[0]
M_AAB1	AM20	SB_MA[1]
M_AAB2	AM19	SB_MA[2]
M_AAB3	AK18	SB_MA[3]
M_AAB4	AP19	SB_MA[4]
M_AAB5	AP18	SB_MA[5]
M_AAB6	AM18	SB_MA[6]
M_AAB7	AL18	SB_MA[7]
M_AAB8	AN18	SB_MA[8]
M_AAB9	AY17	SB_MA[9]
M_AAB10	AN23	SB_MA[10]
M_AAB11	AU17	SB_MA[11]
M_AAB12	AT18	SB_MA[12]
M_AAB13	AR26	SB_MA[13]
M_AAB14	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_SBAB0	M_SBAB0	AP23	SB_BS[0]
[8] M_SBAB1	M_SBAB1	AM22	SB_BS[1]
[8] M_SBAB2	M_SBAB2	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_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
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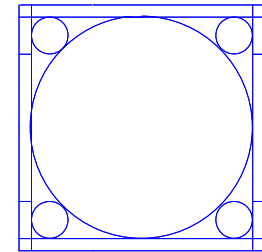
[8] M_VREF_DQB	M_VREF_DQB	AH1	FC_AH1
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[7] M_VREF_DQA	M_VREF_DQA	AH4	FC_AH4

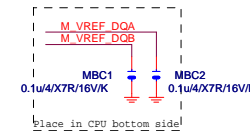
DDR\_1

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LGA1155[10SC1-F01155-01R]

LGA1155  
ILM\_BP/1156/BKN/[12KRC-0F0001-22R]

Need check the new CPU ME



0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

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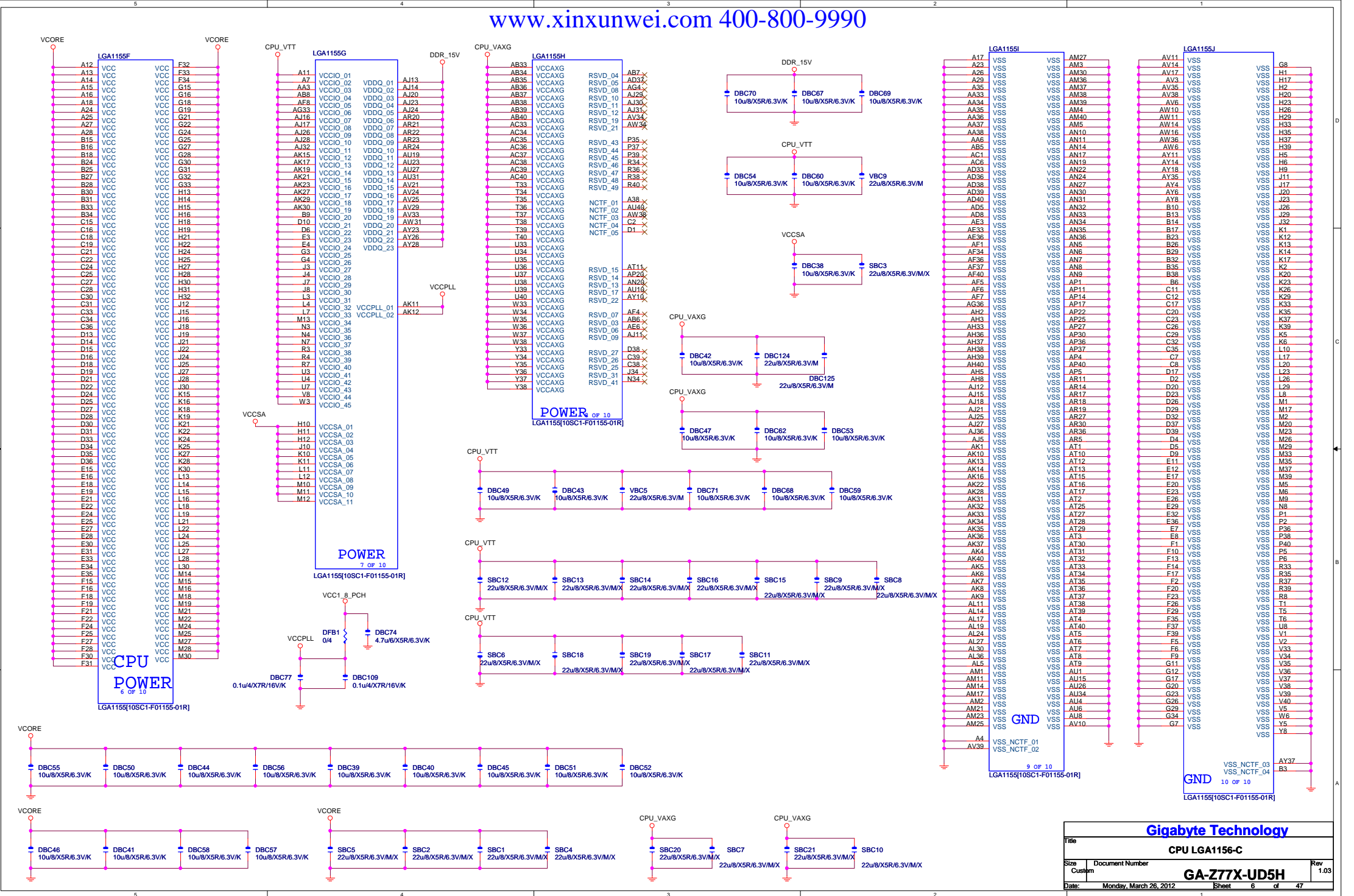
0.1uF/4X7R/16V/K

0.1uF/4X7R/16V/K

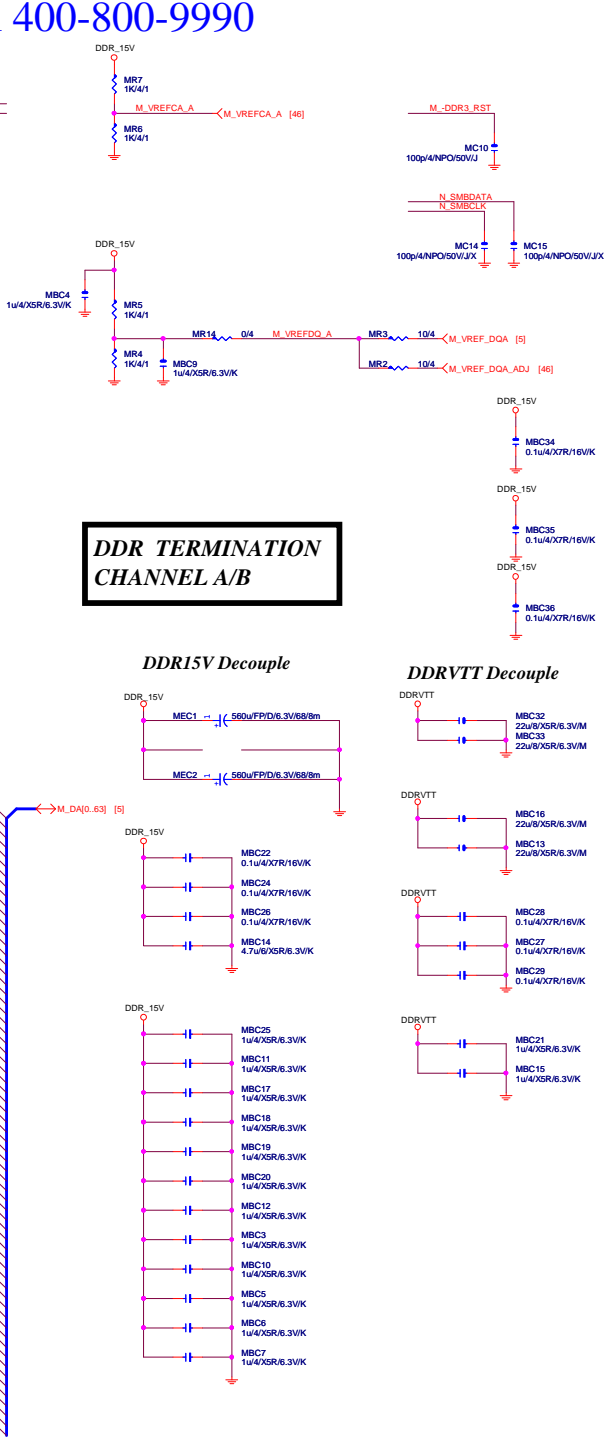
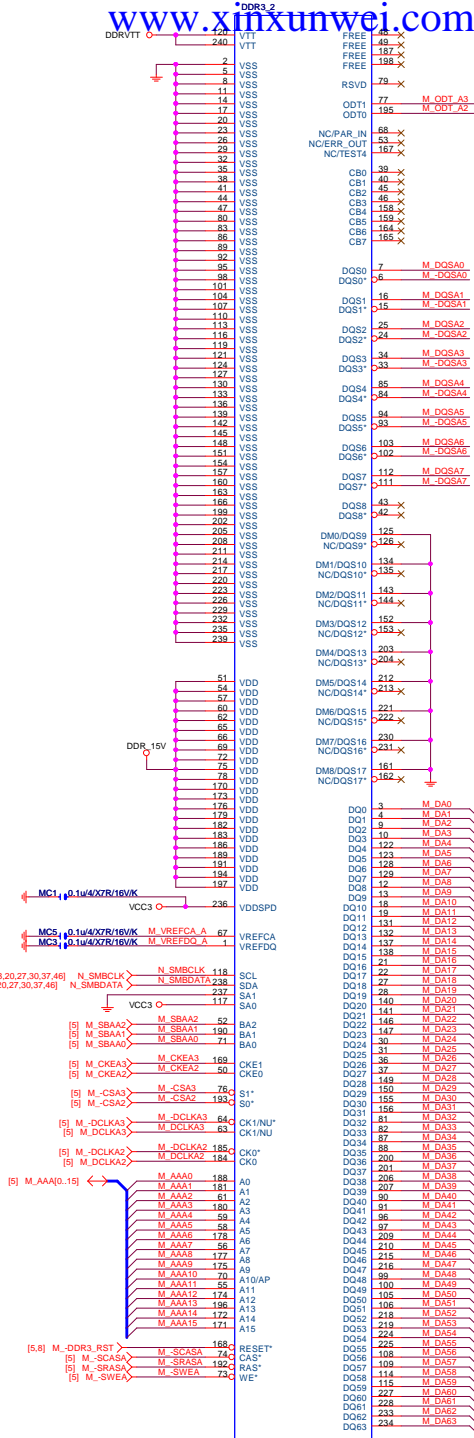
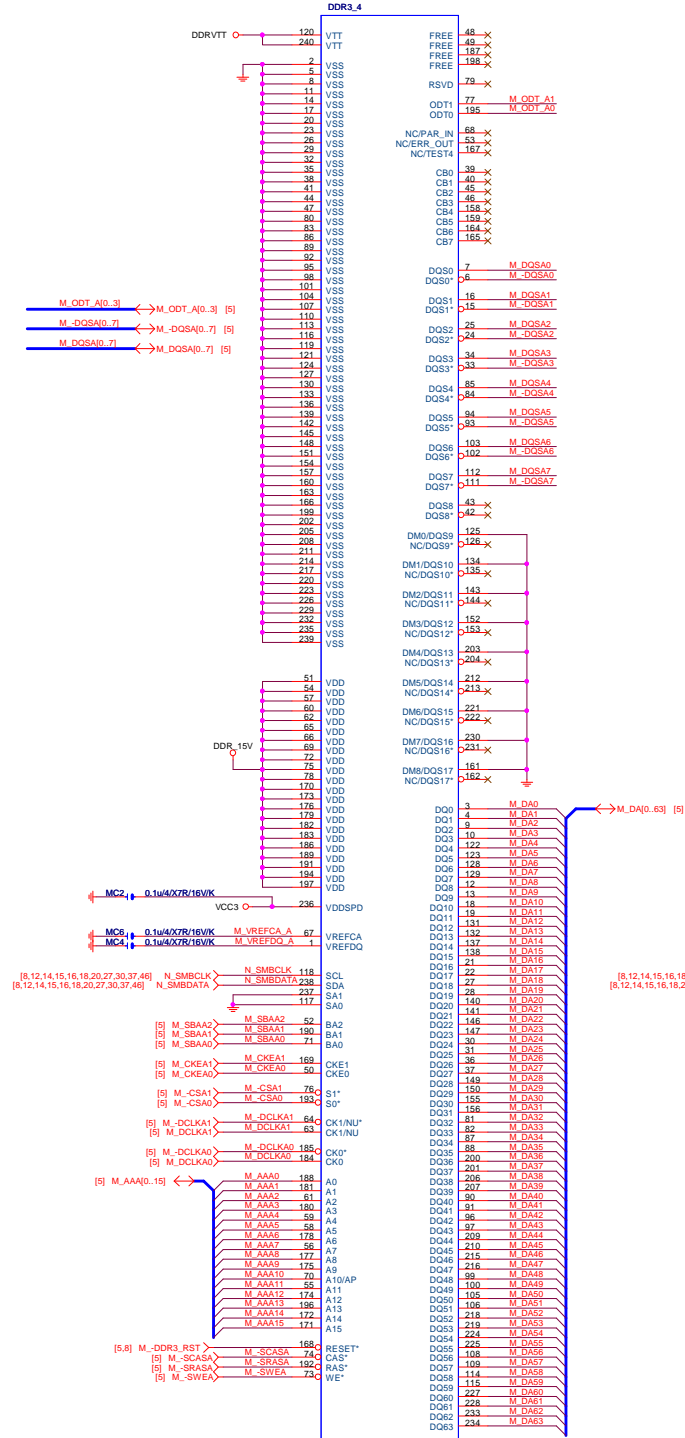
0.1uF/4X7R/16V/K

Gigabyte Technology

Title			CPU LGA1156-B		
Size			Document Number		
Custom			GA-Z77X-UD5H		
Date:			Monday, March 26, 2012		
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Rev			1.03		



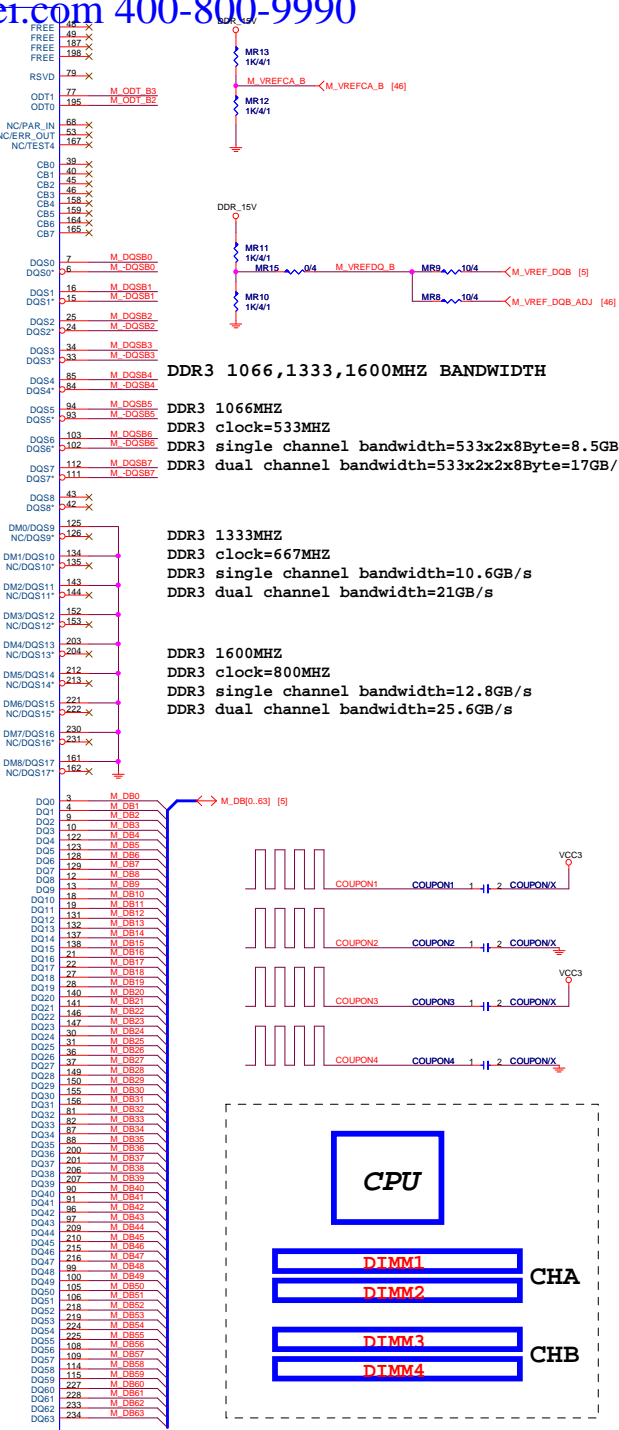
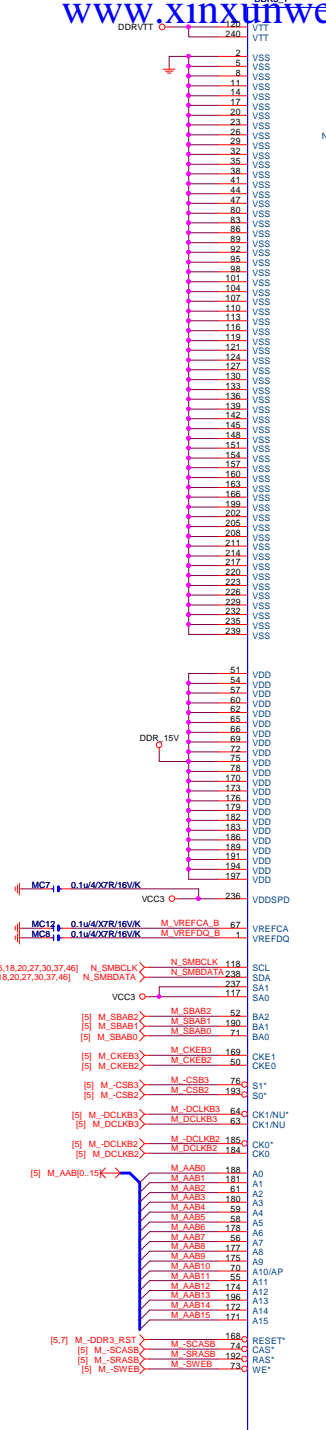
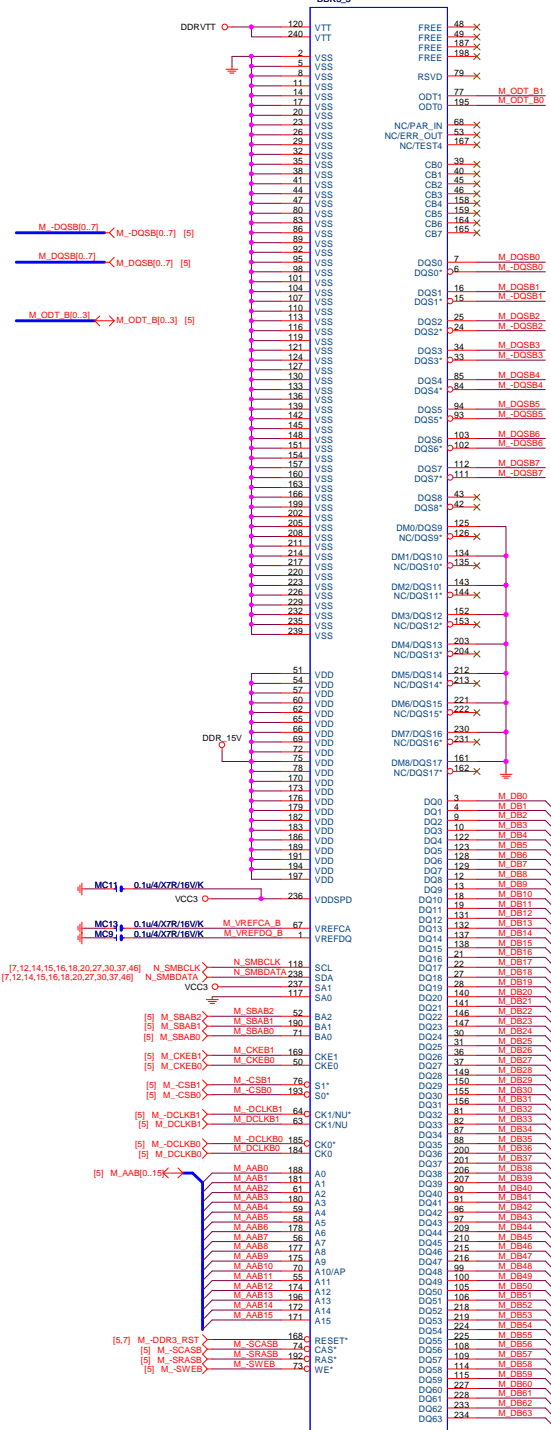




## DDR TERMINATION CHANNEL A/B

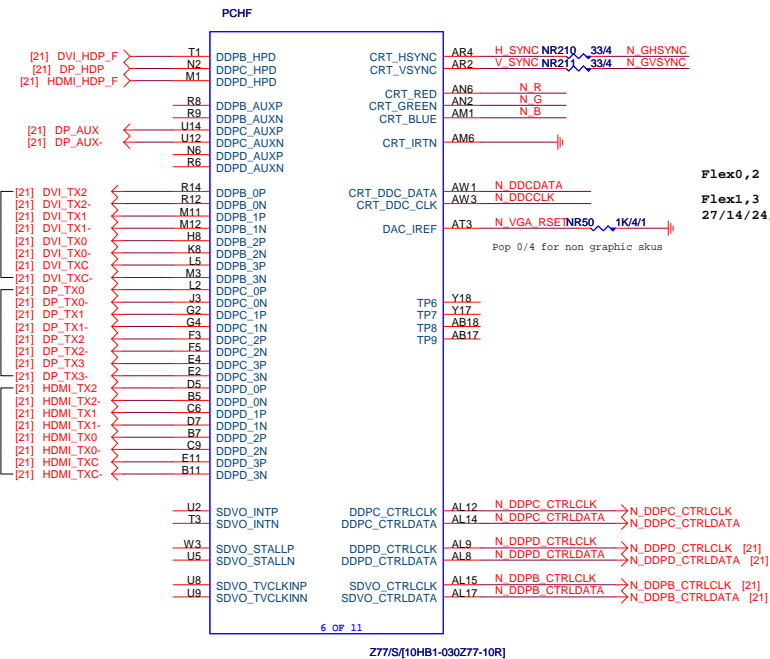
### DDR15V Decouple

### DDRVTT Decouple

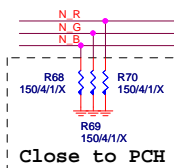
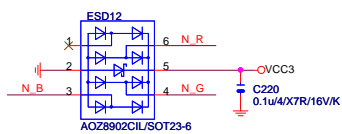
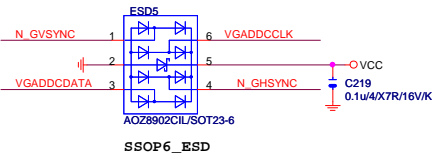




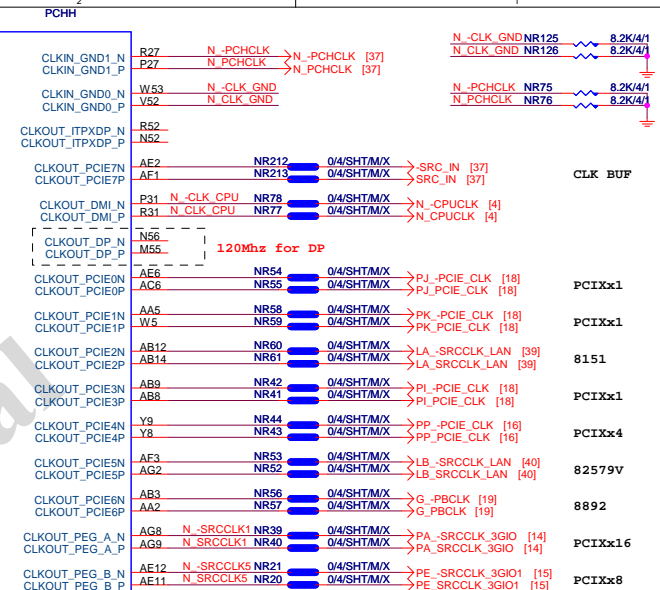
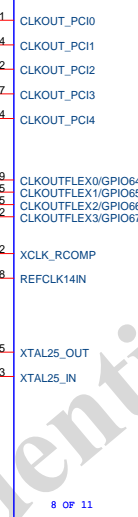
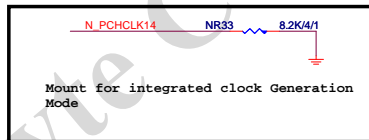
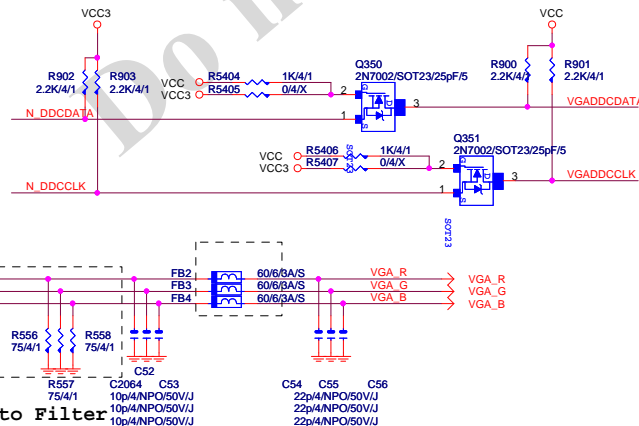




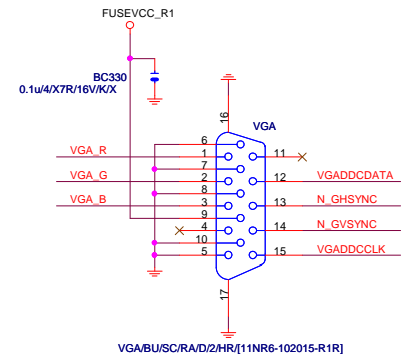
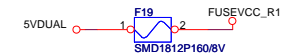
Z77/S[10HB1-030Z77-10R]



Close to Filter

Differential Clock:18/6/4/6/18  
Impedance=90 +- 15%

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



Gigabyte Technology

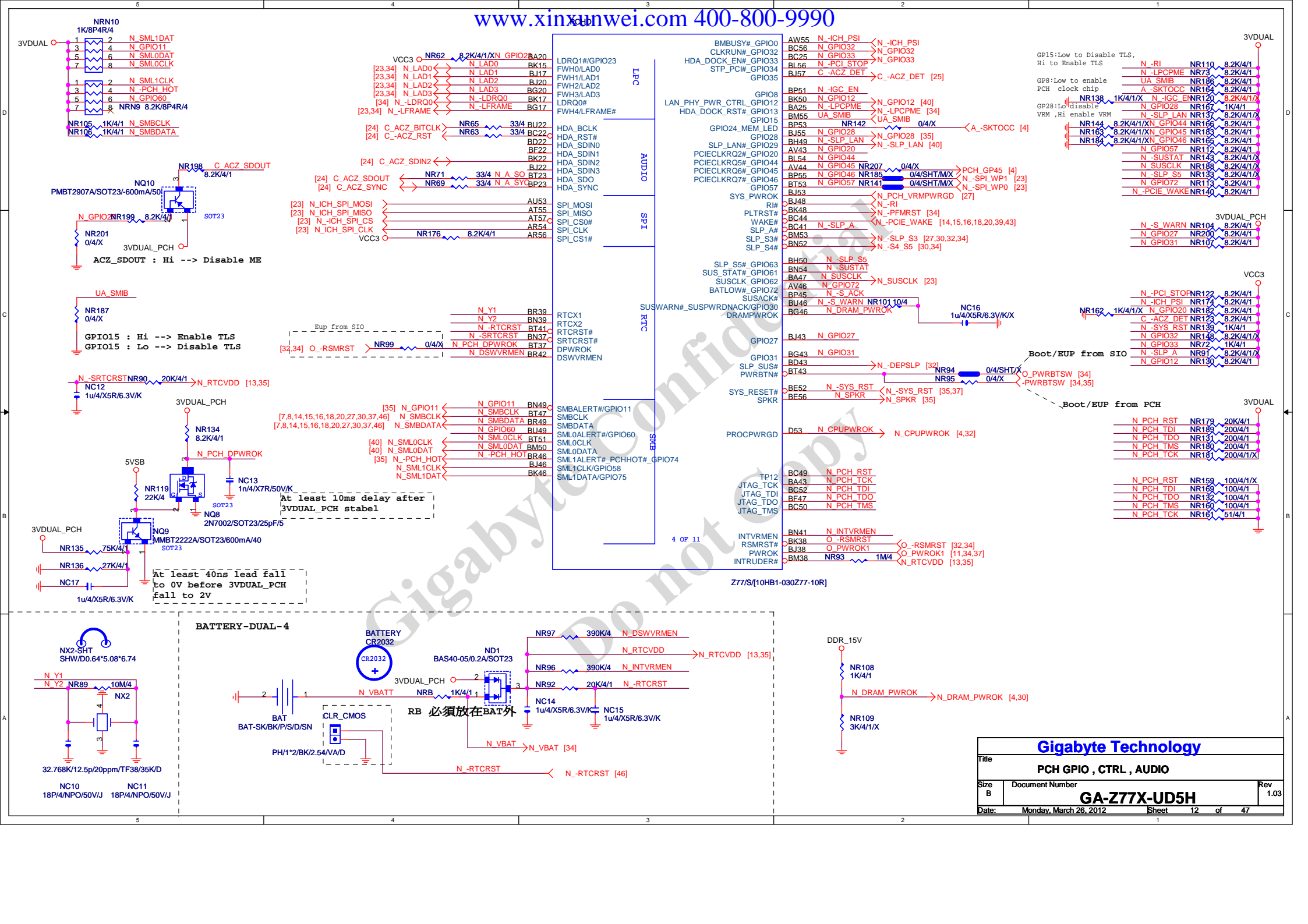
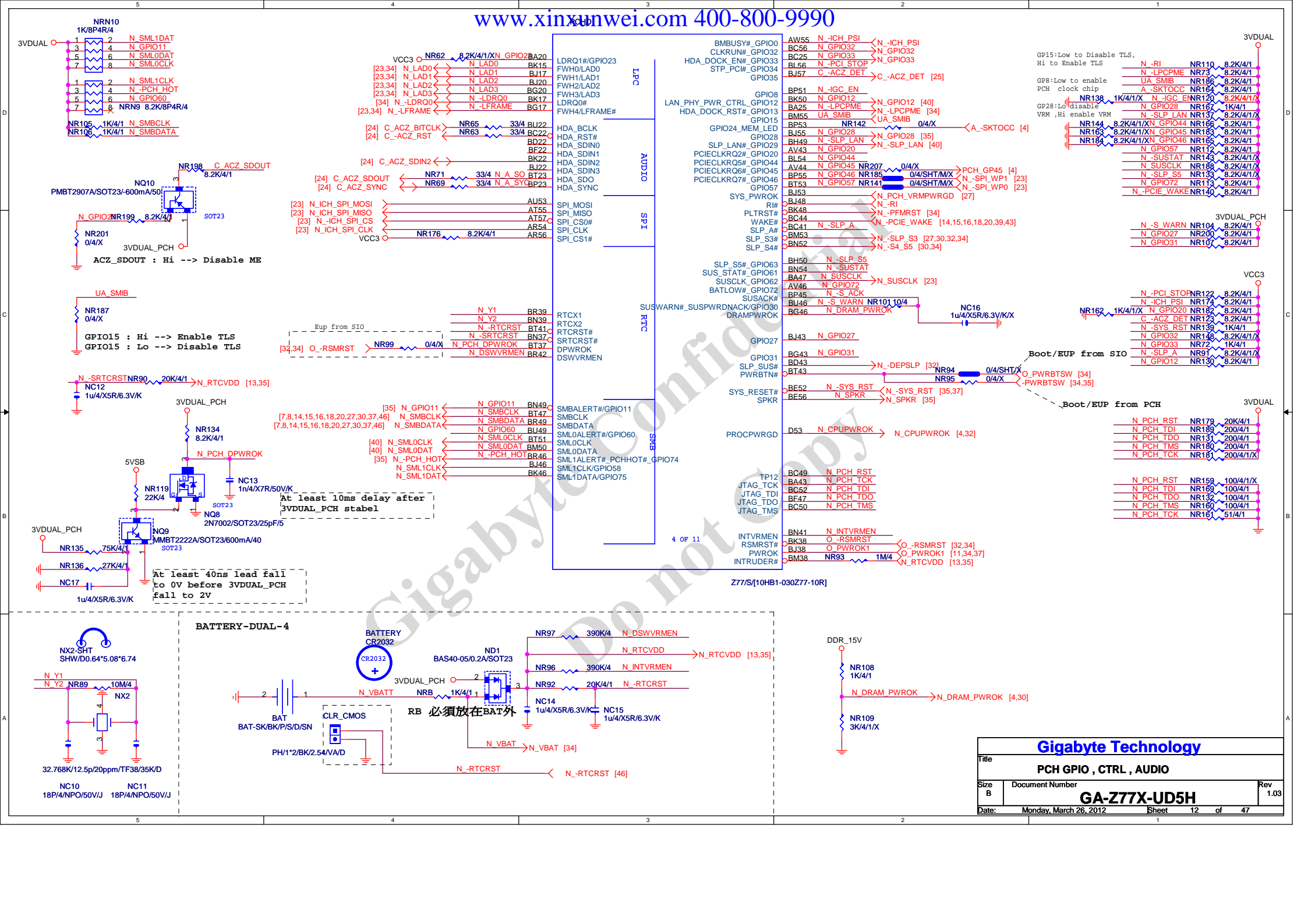
PCH DISPLAY\_CLK BUFFER

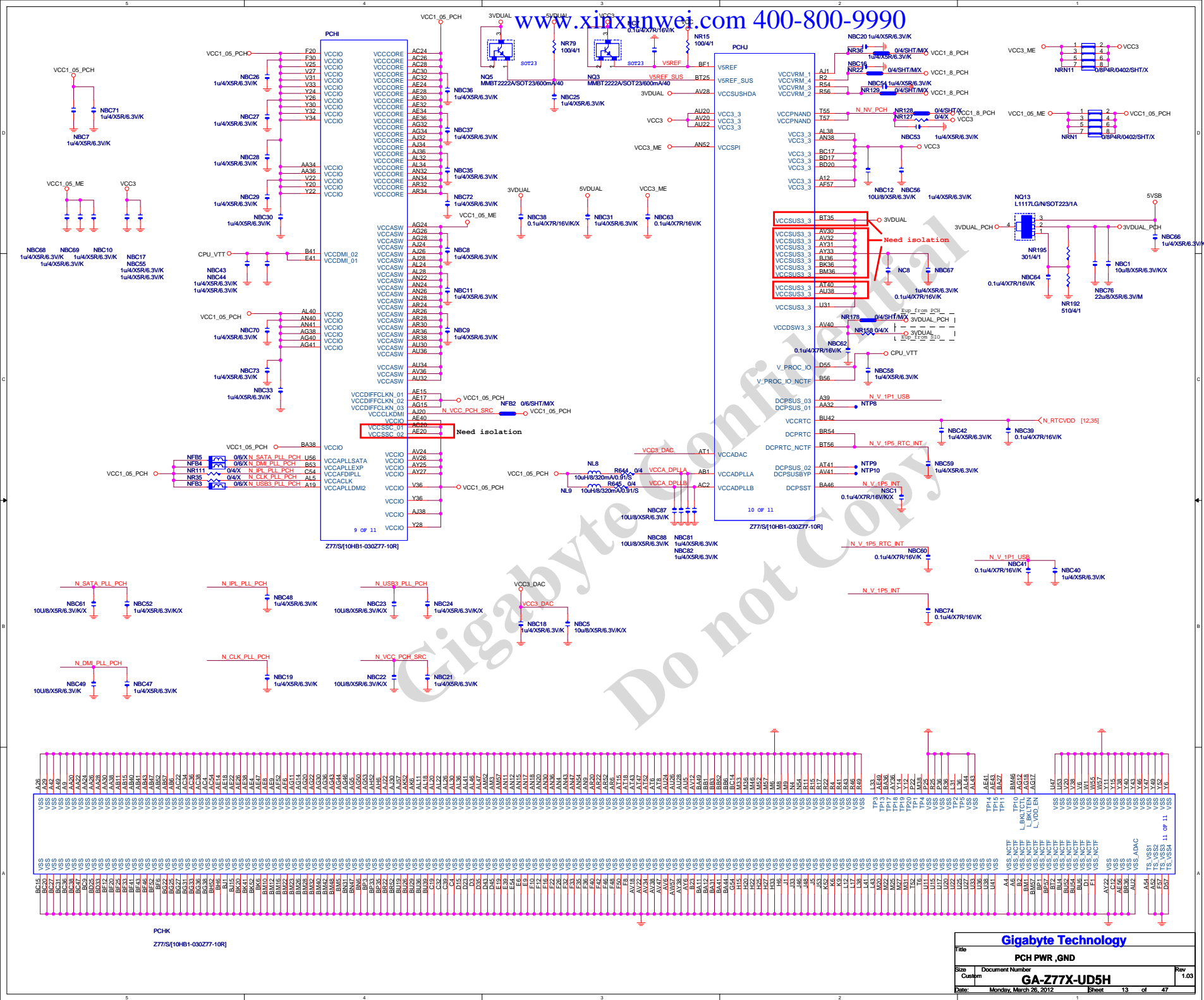
Title	Document Number	Rev
Size	Custom	1.03
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Gigabyte Technology

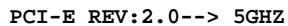
Gigabyte Technology



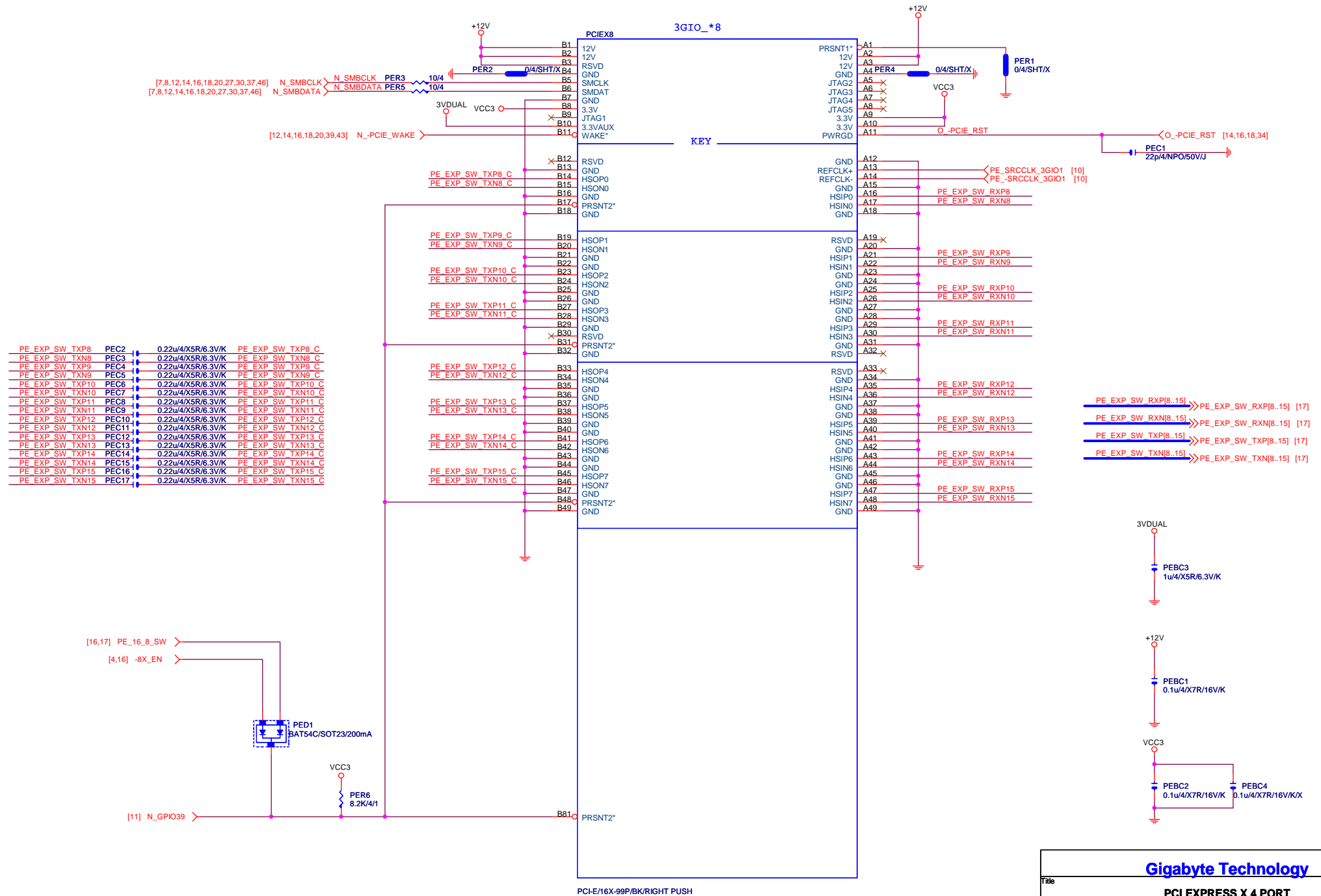








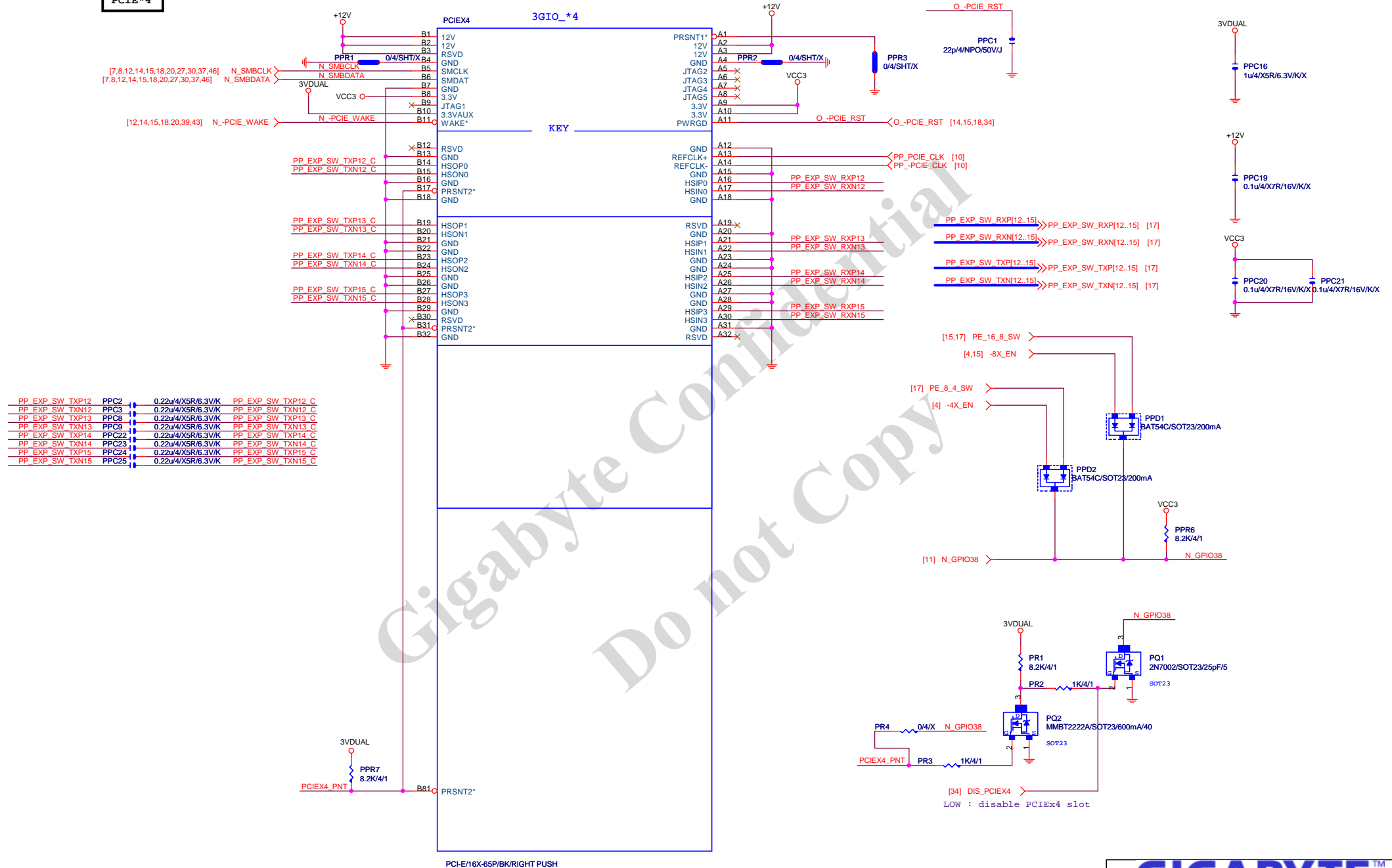




Gigabyte Technology

Title			
PCI EXPRESS X 4 PORT			
Size	Document Number	Rev	
Custom	GA-Z77X-UD5H	1.03	
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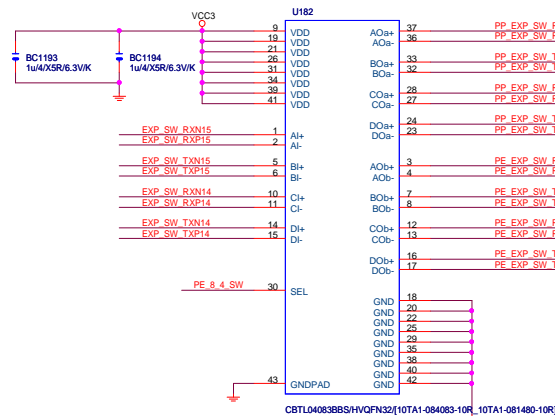
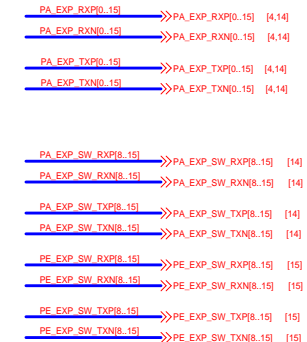
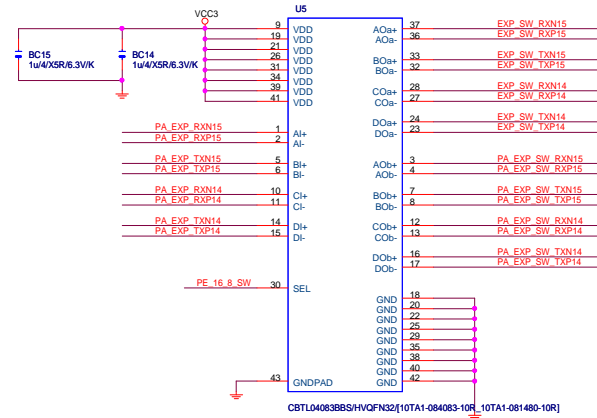
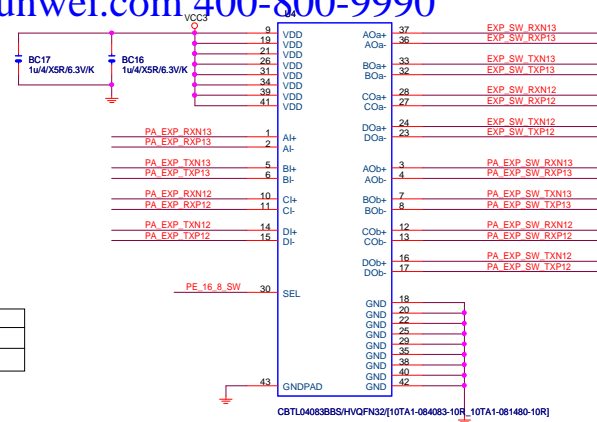
PCIE\*4



PCI-E/16X-65P/BK/RIGHT PUSH

GIGABYTE™

Title		<Title>
Size	Document Number	GA-Z77X-UD5H
Custom		Rev 1.03
Date:	Monday, March 26, 2012	Sheet 16 of 47



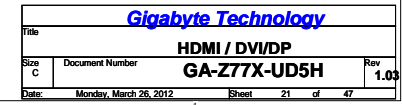
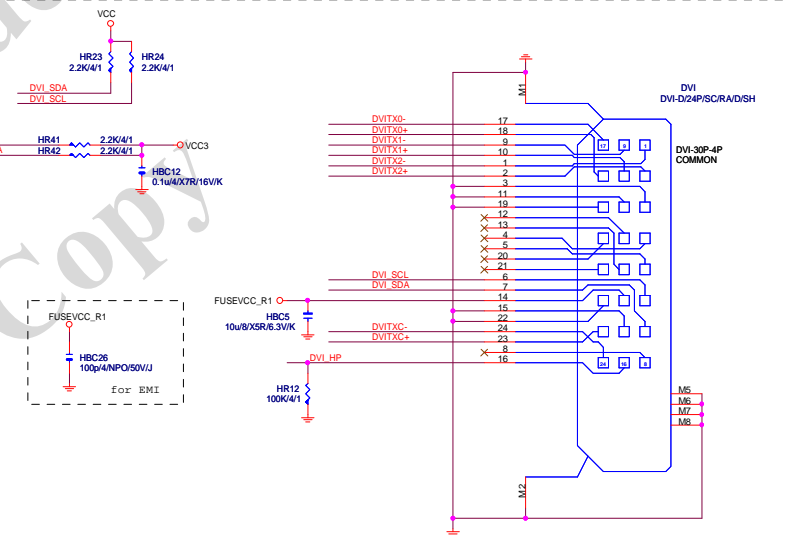
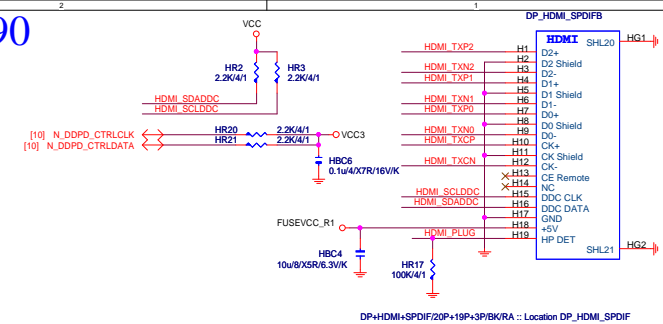
Function	SEL
xI--> x0a	L
xI--> x0b	H

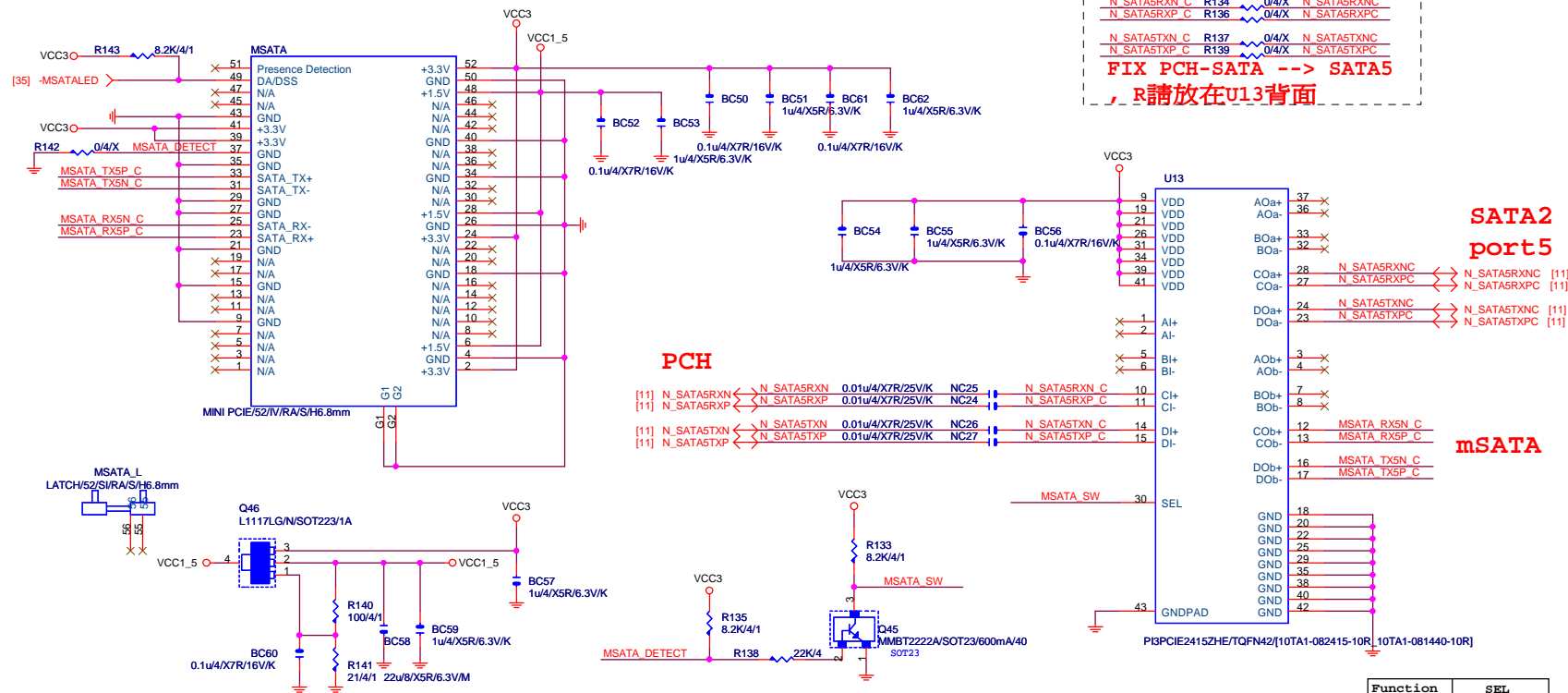




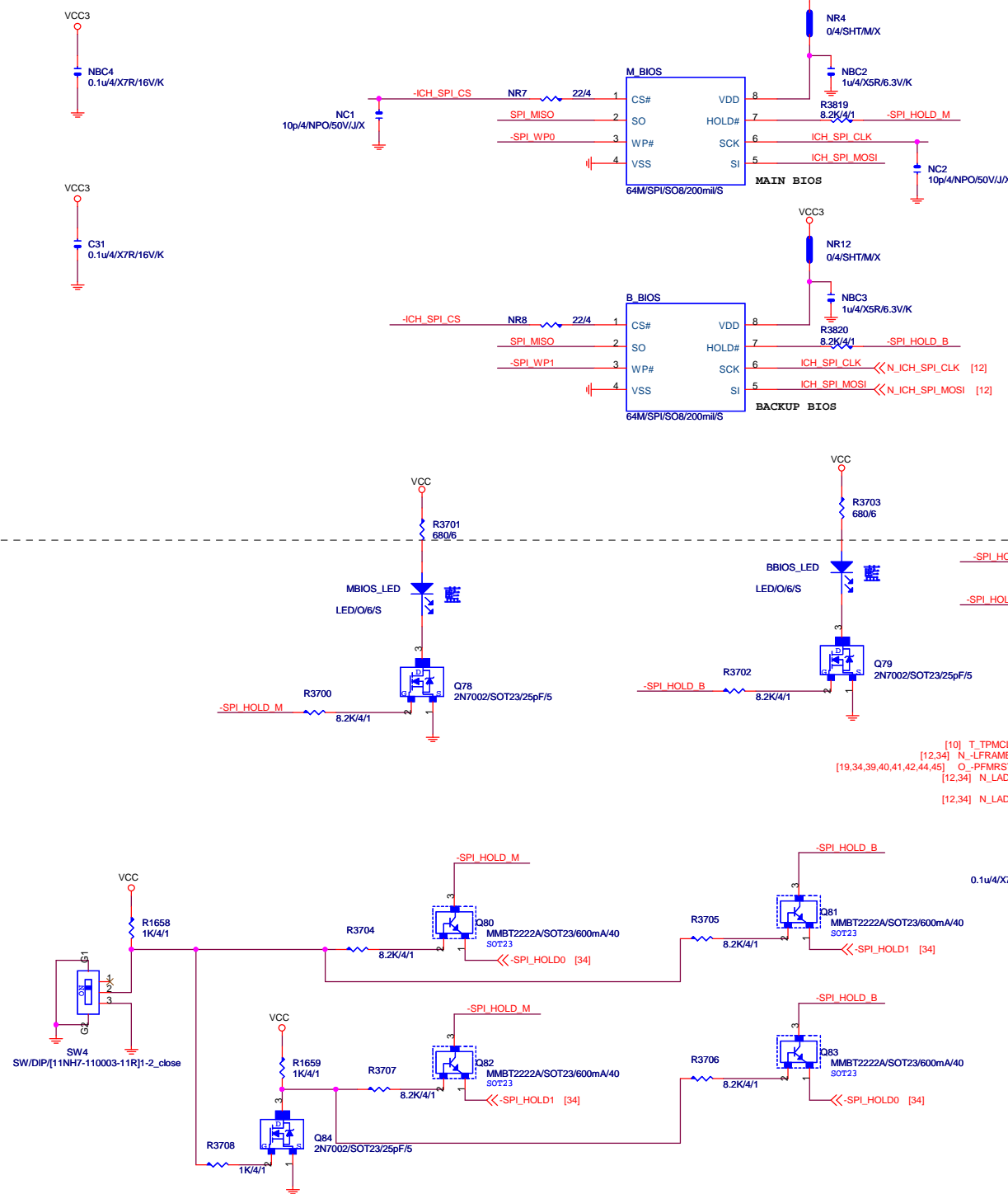


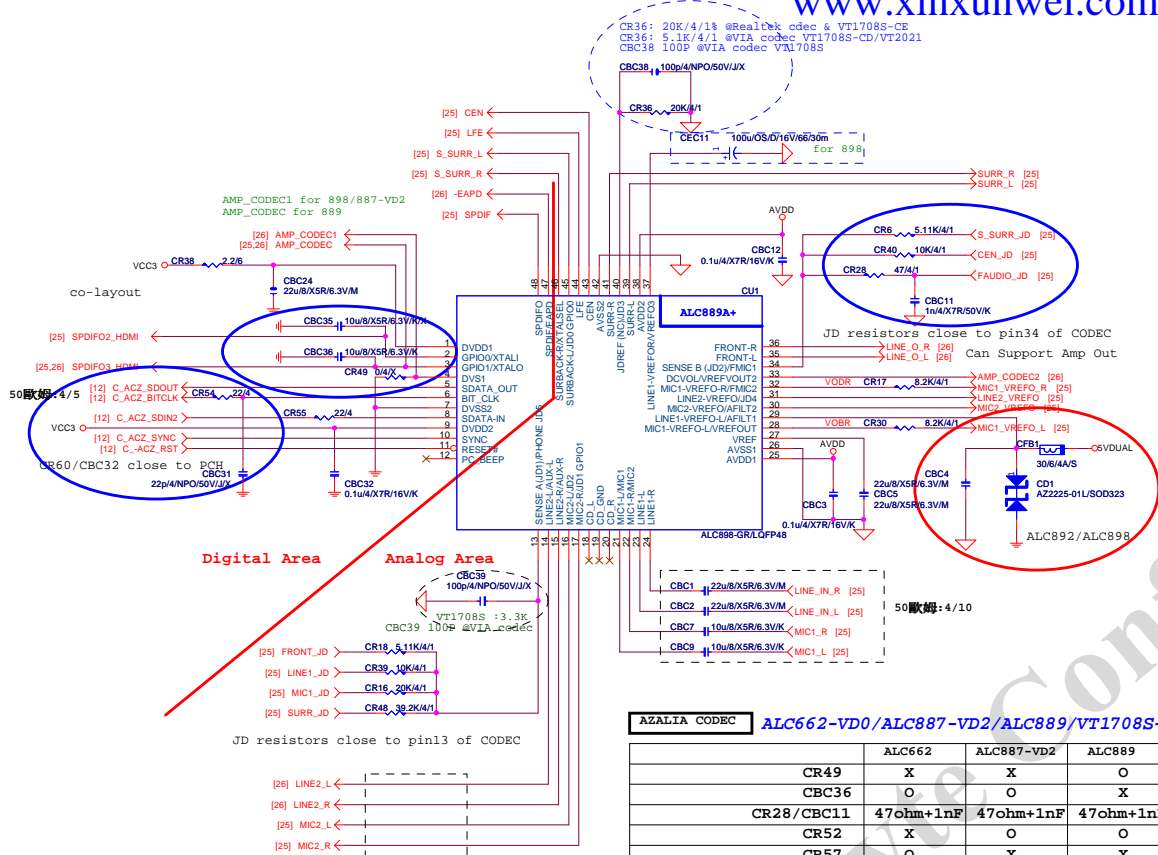






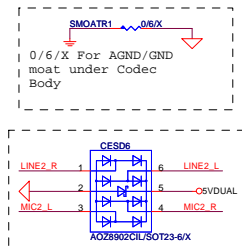
Function	SEL
xI--> xOa	L
xI--> xOb	H





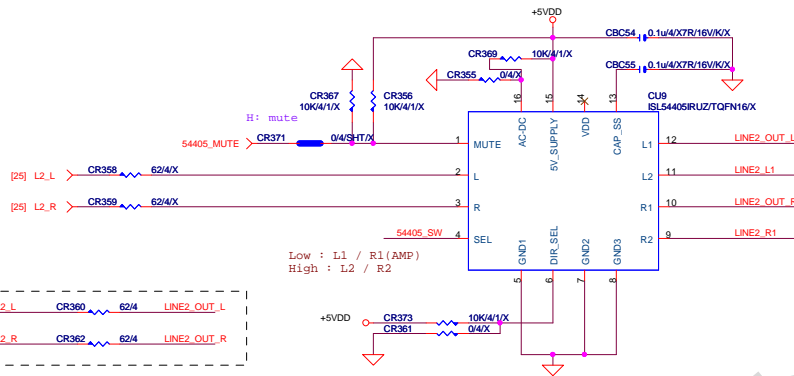
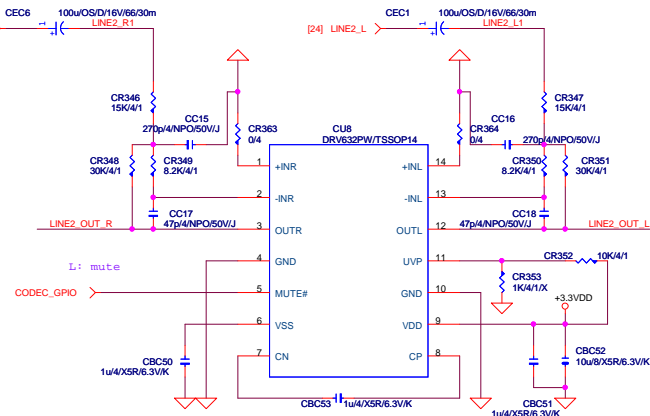
ALC889	ALC889B	ALC892	ALC898	Colay
CR49	O	O	X	
CBC36	X	X	10uF/X5R	
CBC35	X	10uF/X5R	X	
CR52	O	X	O	
CR53	X	O	X	
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R	
CBC7/CBC9/CBC20/CBC15	10uF/X5R	10uF/X5R	10uF/X5R	
CFB1/CD1/CBC4	X	X	O	
CD2/CD3/CQ3/CQ4	O	O	X	
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR21/CR47/ CR2/CR11/CR14/CR24	62 ohm	62 ohm	62 ohm	

АЗАЛИА CODEC	ALC662-VD0/ALC887-VD2/ALC889/VT1708S-CD/VT1708S-CE/VT2021 Colay						
	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC899
CR49	X	X	O	O	X	O	X
CBC36	O	O	X	X	O	X	O
CR28/CBC11	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

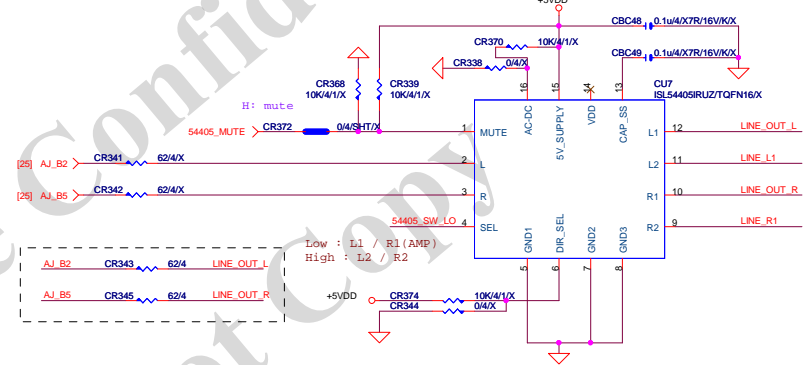
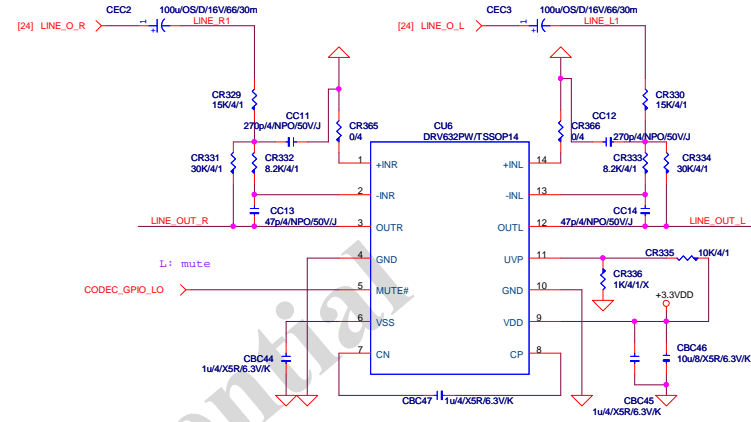




## HEADPHONE



## LINE-OUT



## HEADPHONE

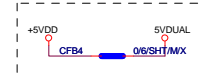
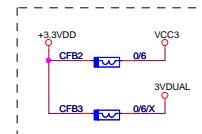
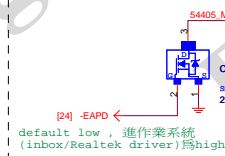
AMP\_CODEC for 889  
AMP\_CODEC1 for 898/887-VD2

[24,25] AMP\_CODEC CR256 10K/4/X  
[24] AMP\_CODEC1 CR320 10K/4/X

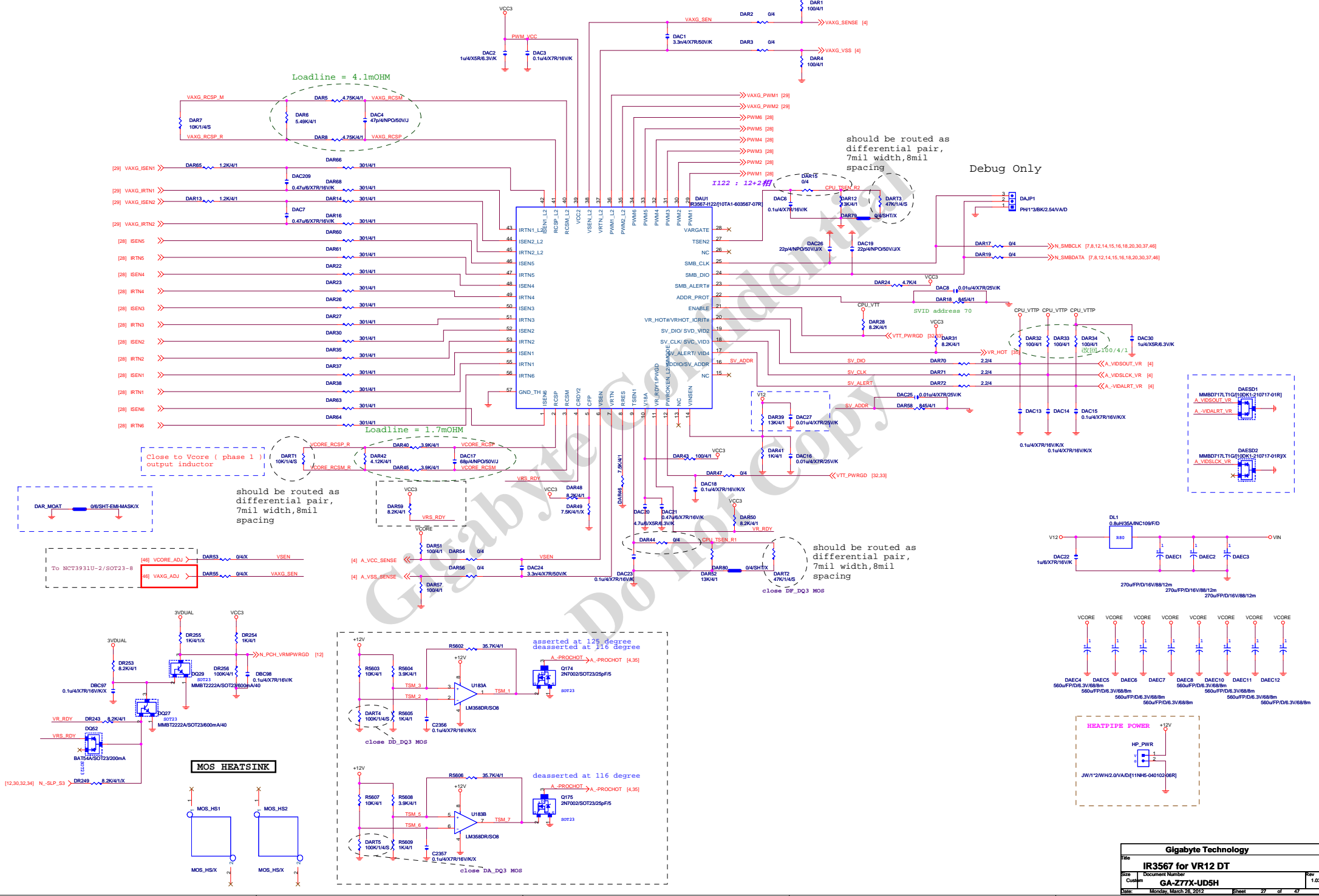
LOW : NORMAL  
HIGH : AMPLIFY  
inbox driver default low  
Realtek driver 為 high

## LINE-OUT

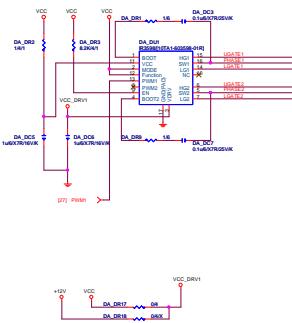
LOW : NORMAL  
HIGH : AMPLIFY  
inbox driver default low  
Realtek driver 為 high



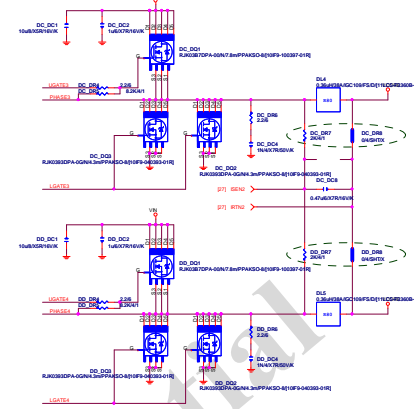
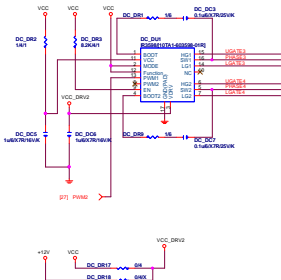
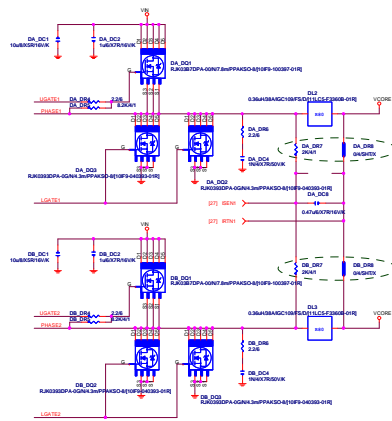




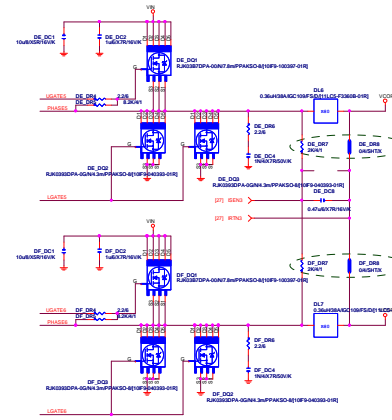
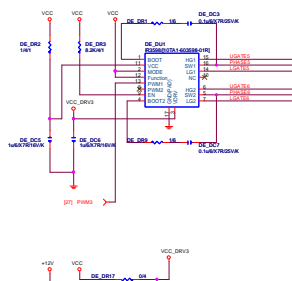
VCORE Phase 1,2



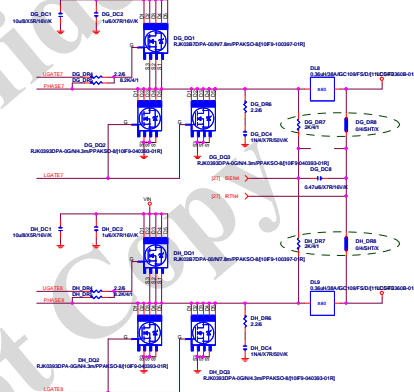
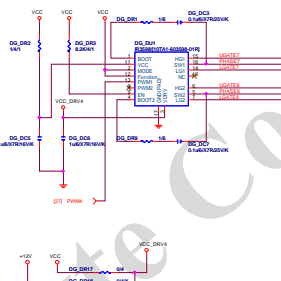
VCORE Phase 2,3



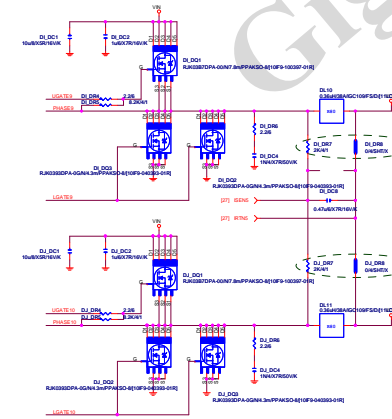
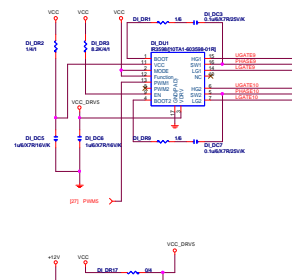
VCORE Phase 5,6



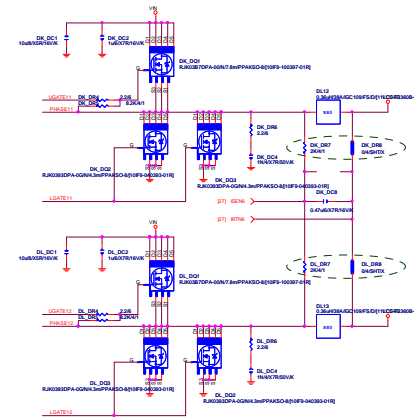
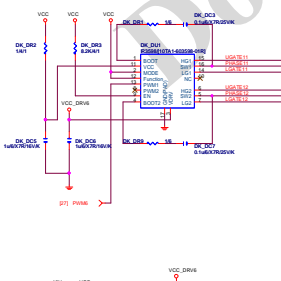
VCORE Phase 7,8



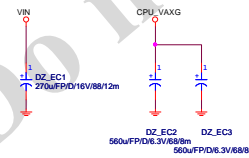
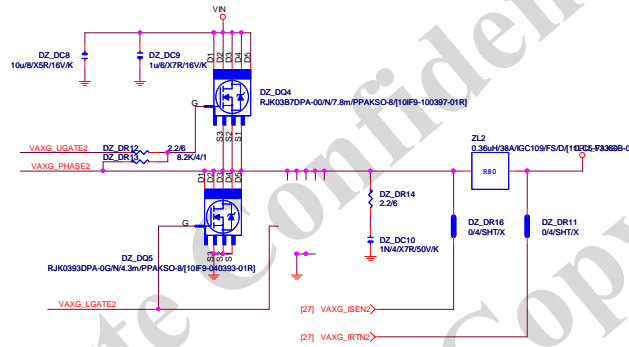
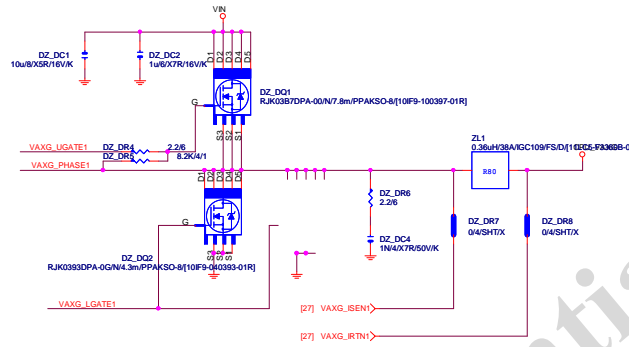
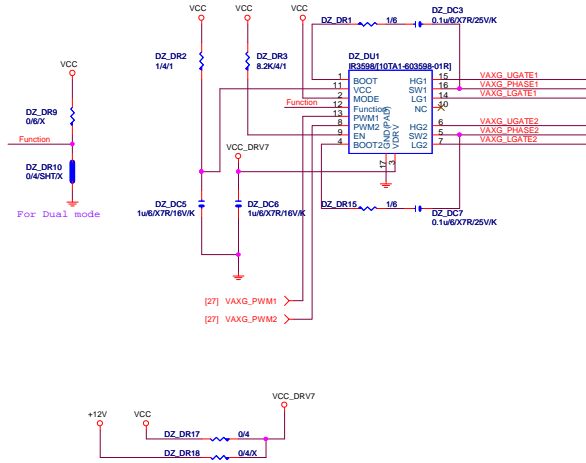
VCORE Phase 9,10

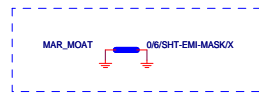


VCORE Phase 11,12

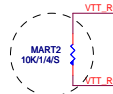


# VAXG Phase

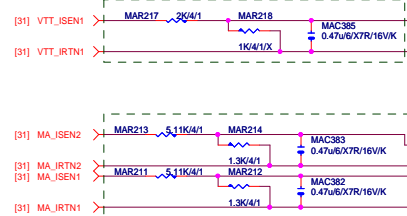
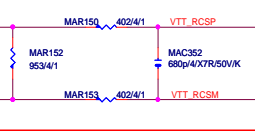




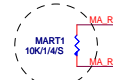
Close to VTT  
output inductor



Value need check with Vendor



Close to DDR  
output inductor

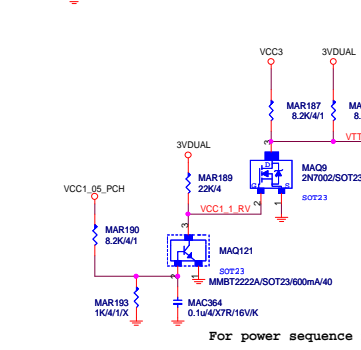
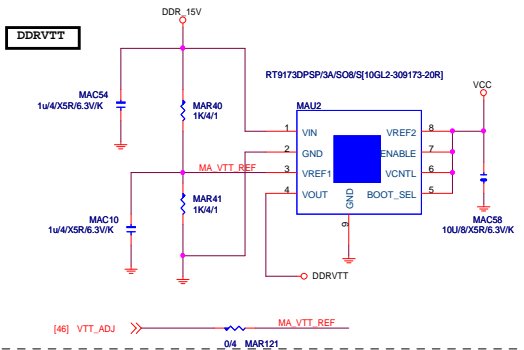
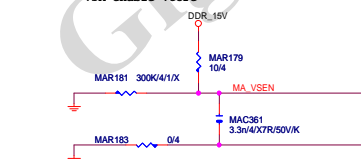


should be routed as  
differential pair,  
7mil width, 8mil  
spacing

[46] DDR15V\_ADJ1 >> MAR180 0.4uH/1X MA\_VSEN

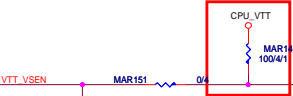
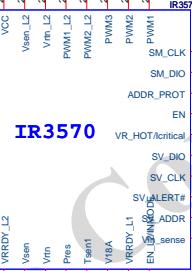
[33] CPU\_VTT\_GD << MAR205 8.2K/4/1

For power sequence ,VTT enable VSA ,then  
VSA enable Vcore



For power sequence require

IR3570



To CPU pin AB3,AB4

Addr: 72h

MA\_PWM\_VCC

MA\_VIDSLCK

MA\_EN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

MA\_VSEN

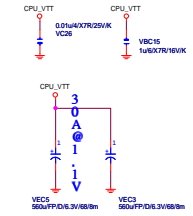
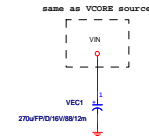
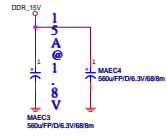
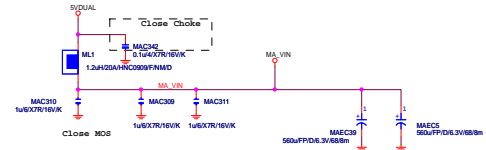
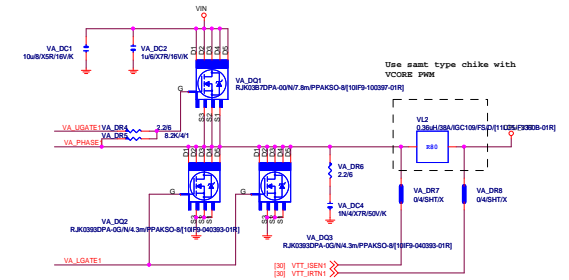
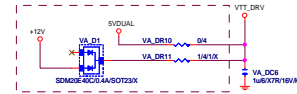
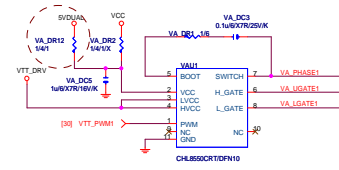
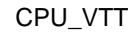
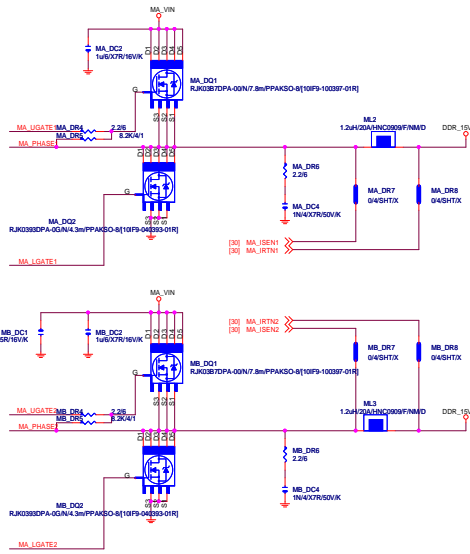
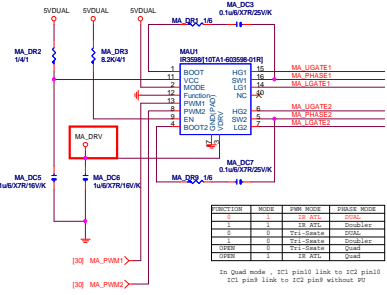
GIGABYTE™

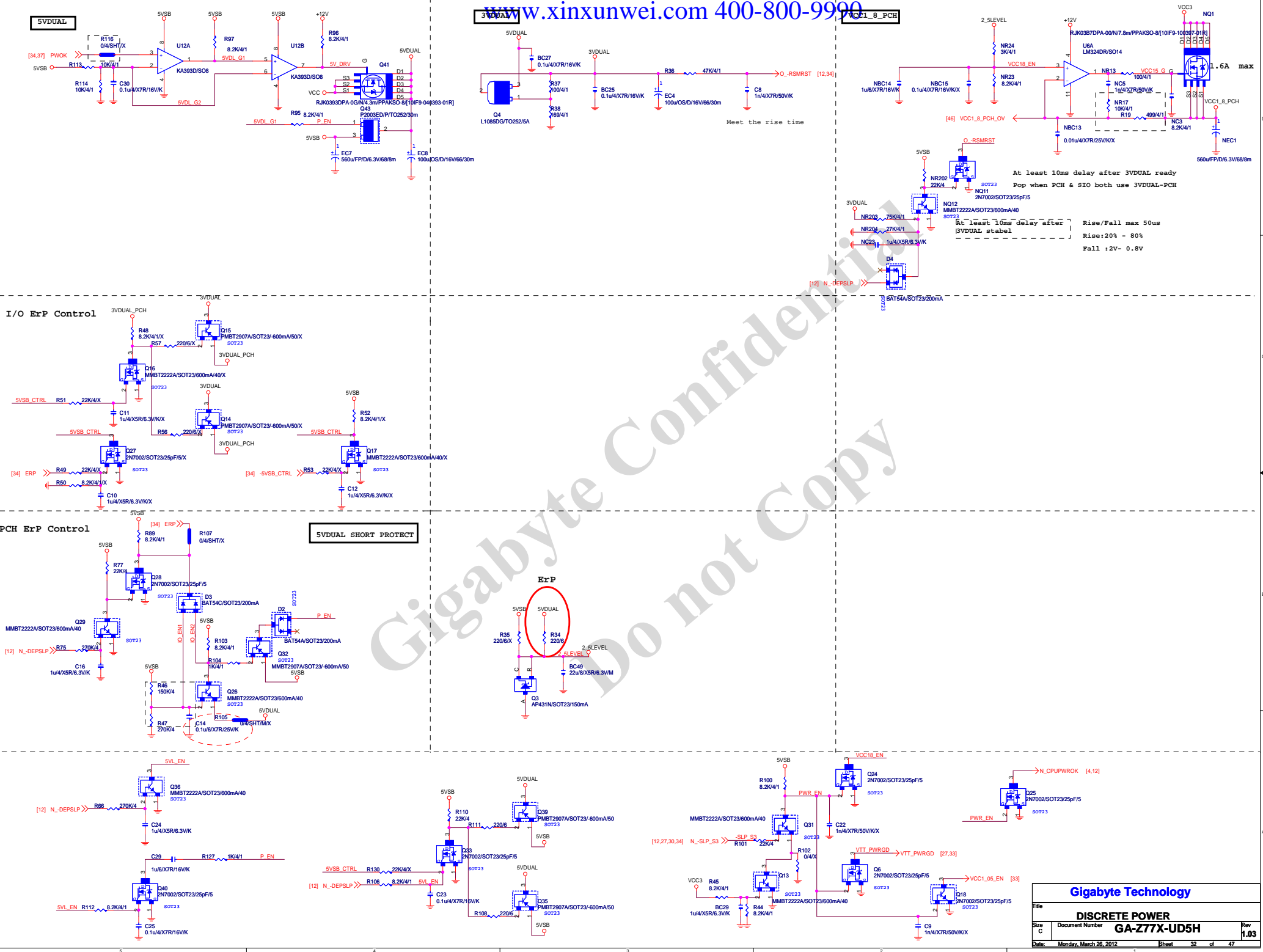
DDR & CPU\_VTT POWER IR3570

Size C Document Number GA-Z77X-UD5H Rev 1.03

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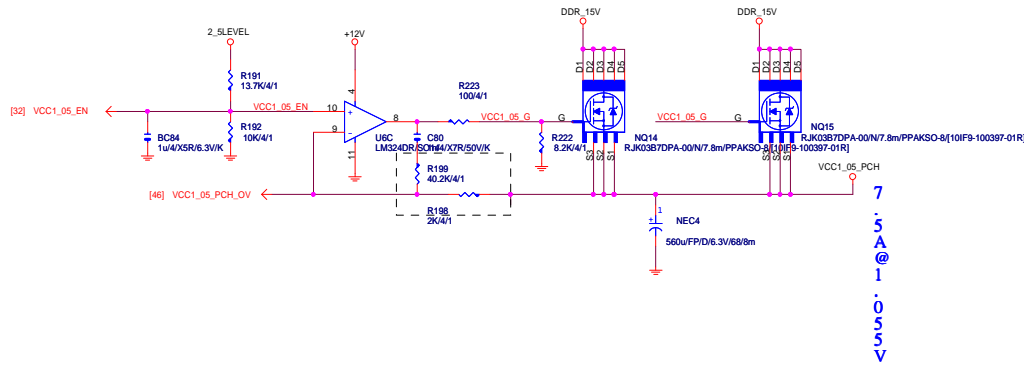
DDR\_15V





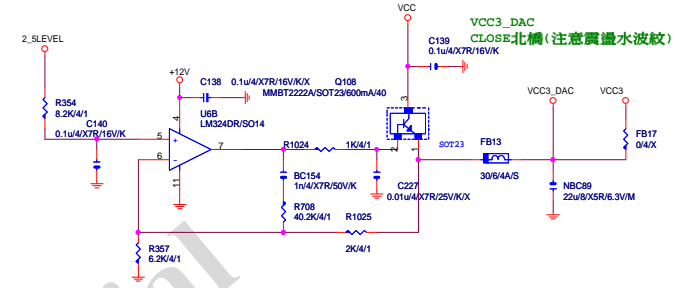


## VCC1\_05\_PCH

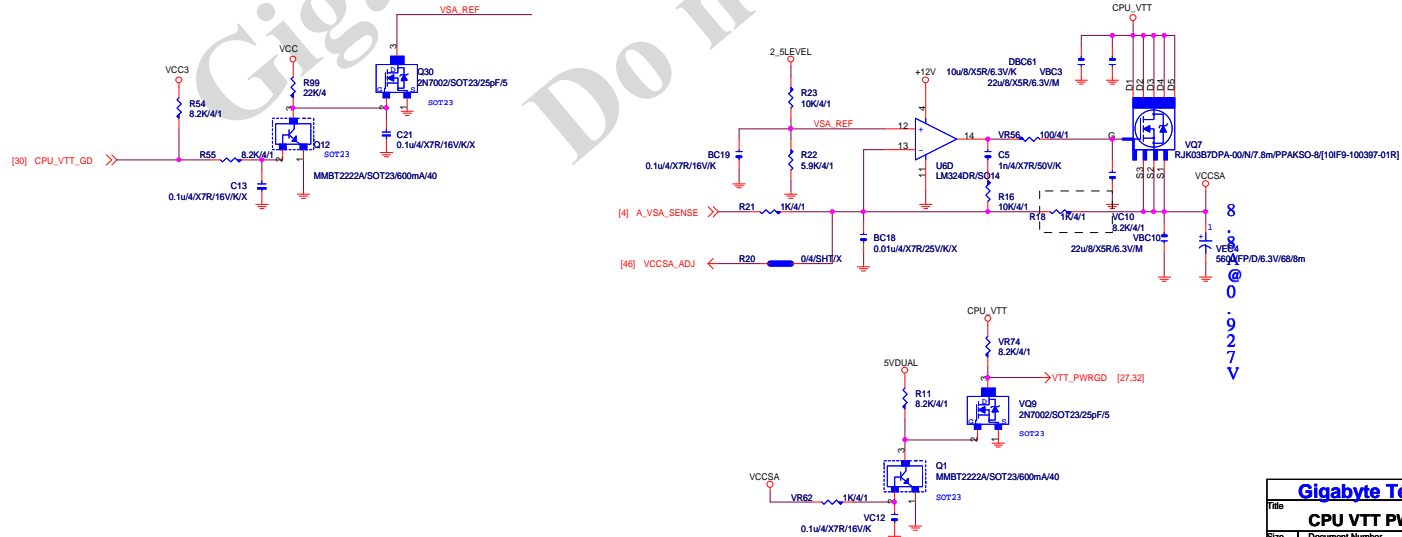


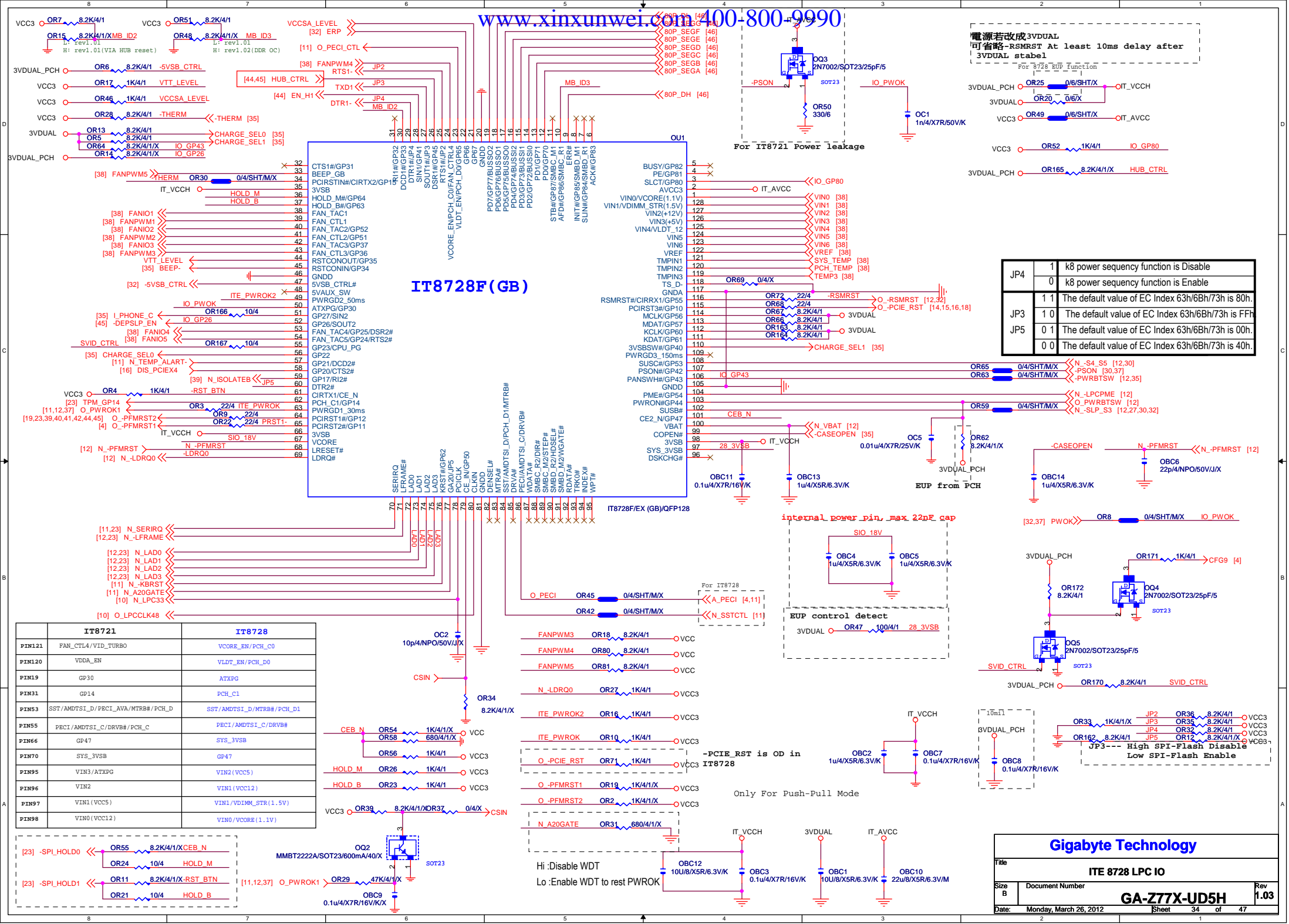
## VCC3\_DAC

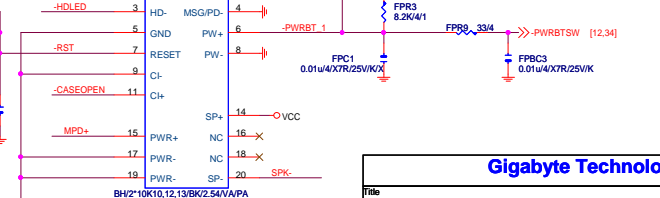
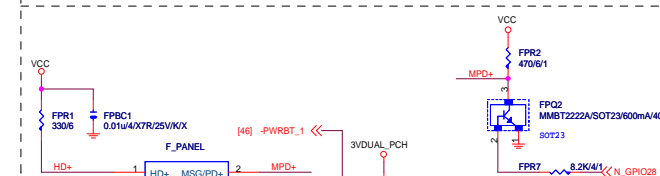
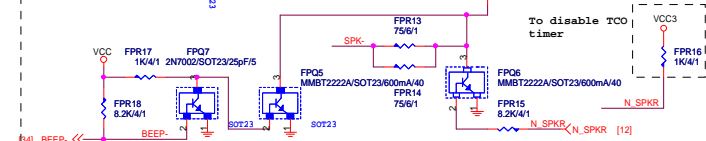
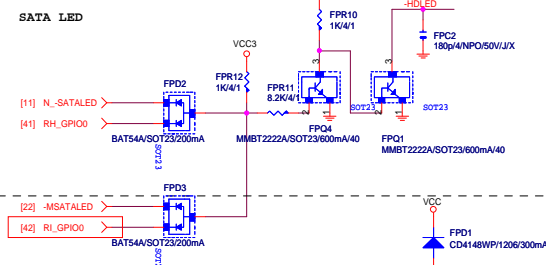
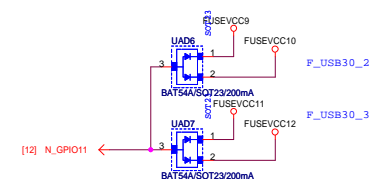
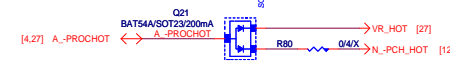
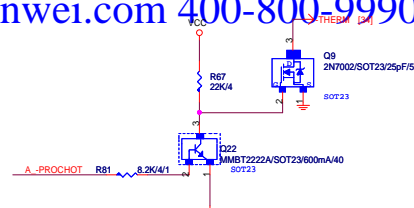
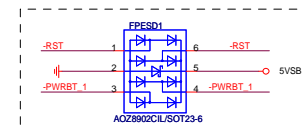
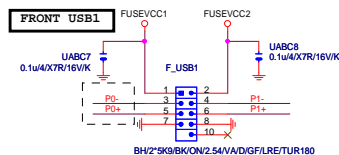
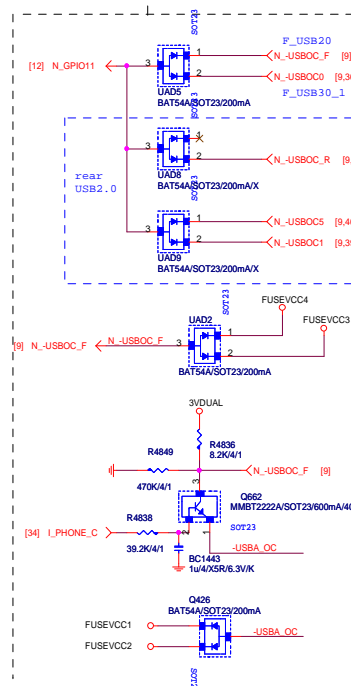
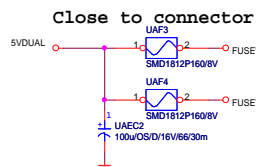
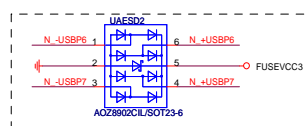
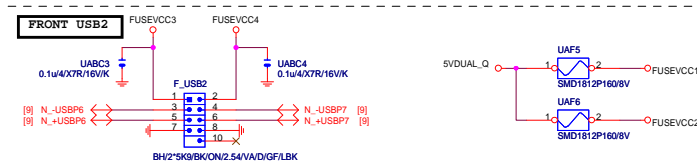
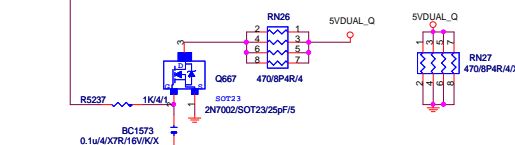
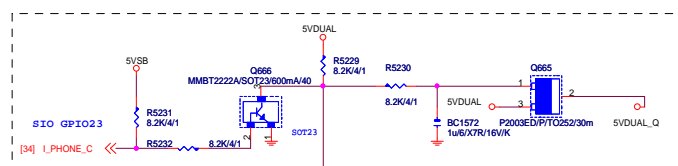
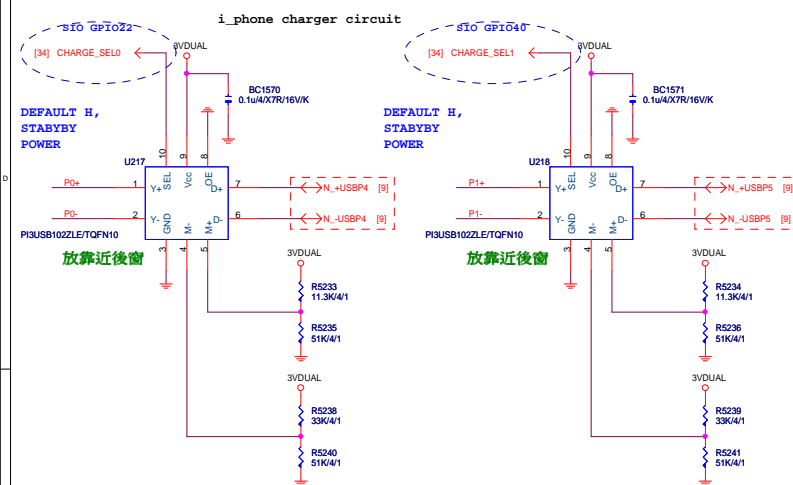
(3.3V/70mA+360uA)

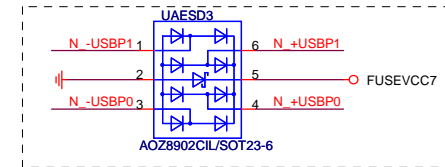
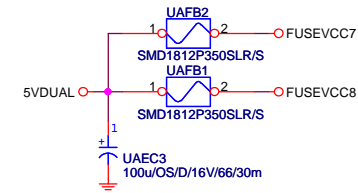
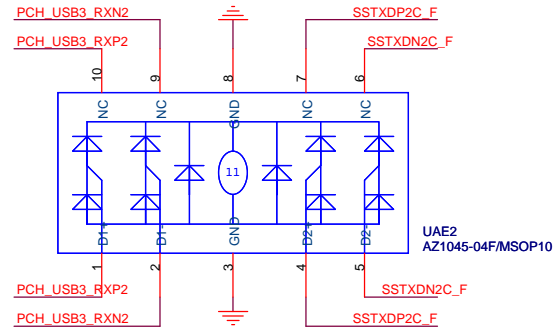
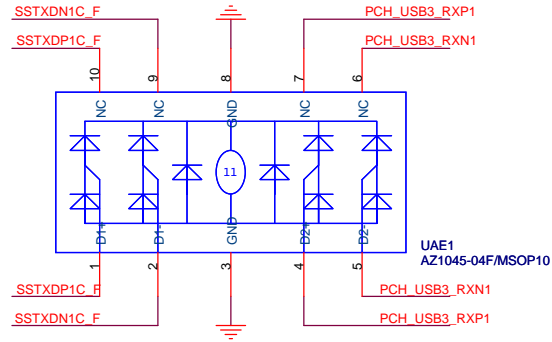
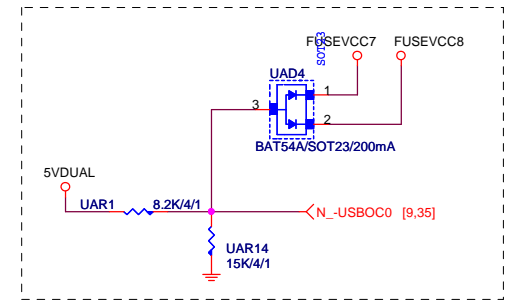
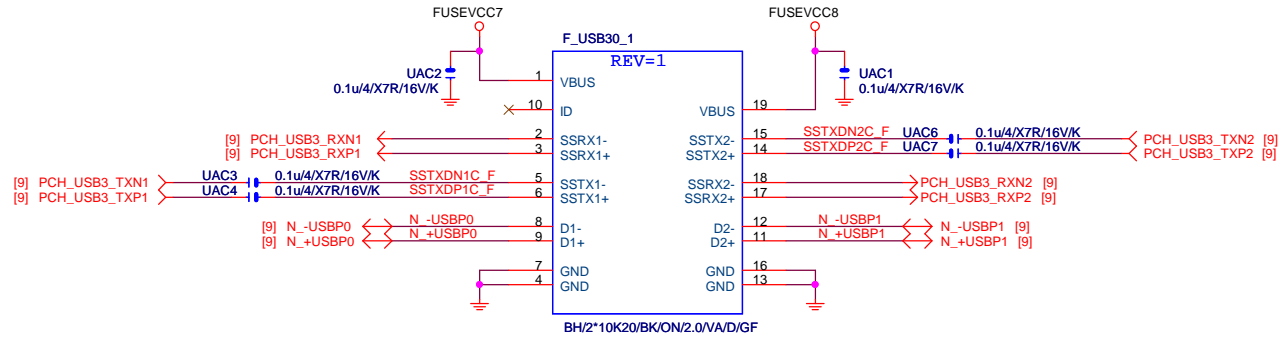


VCC\_SA







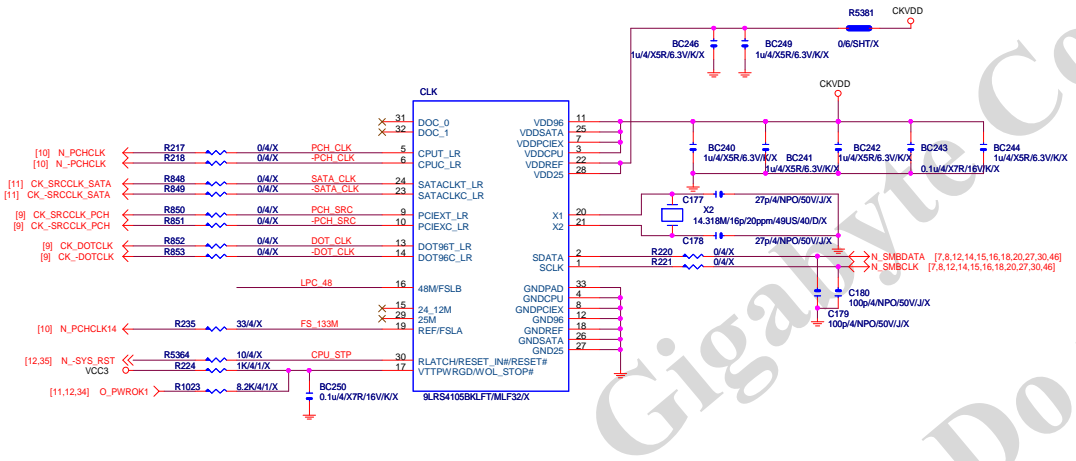
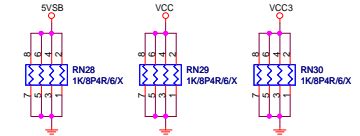
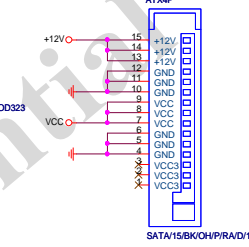
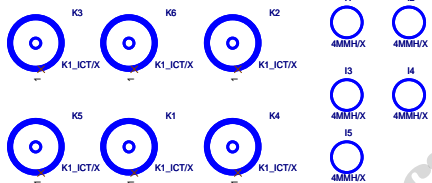
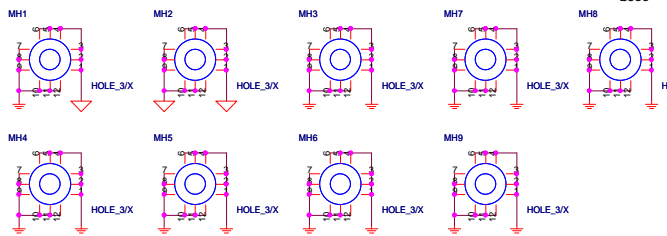
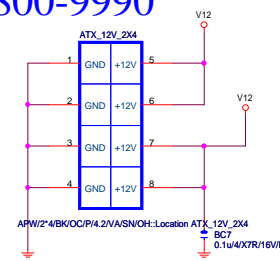
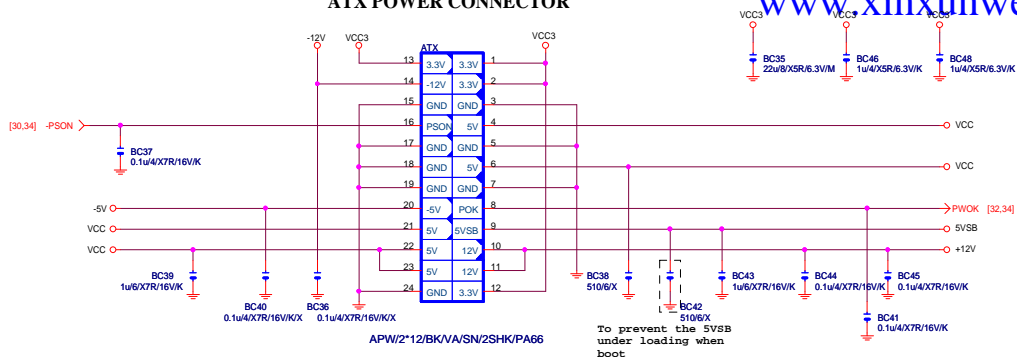


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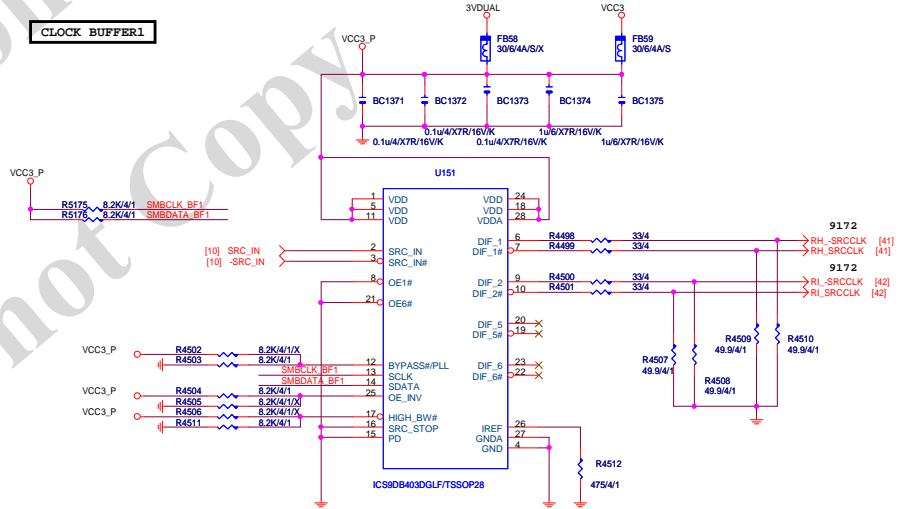
Title			
FP,F_USB,USB PWR,FDD,BZ			
Size	Document Number	Rev	
B	GA-Z77X-UD5H	1.03	
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# ATX POWER CONNECTOR

www.xinxunwei.com 400-800-9990



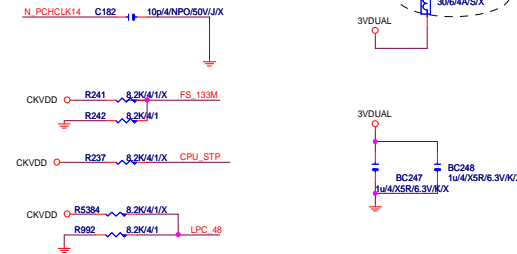
## CLOCK BUFFER1



## CLK GEN CK505

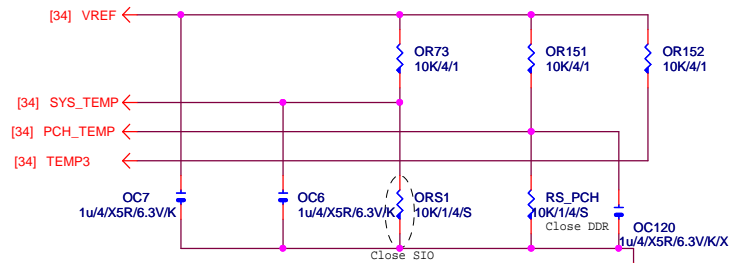
### CPU Frequency Selection

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

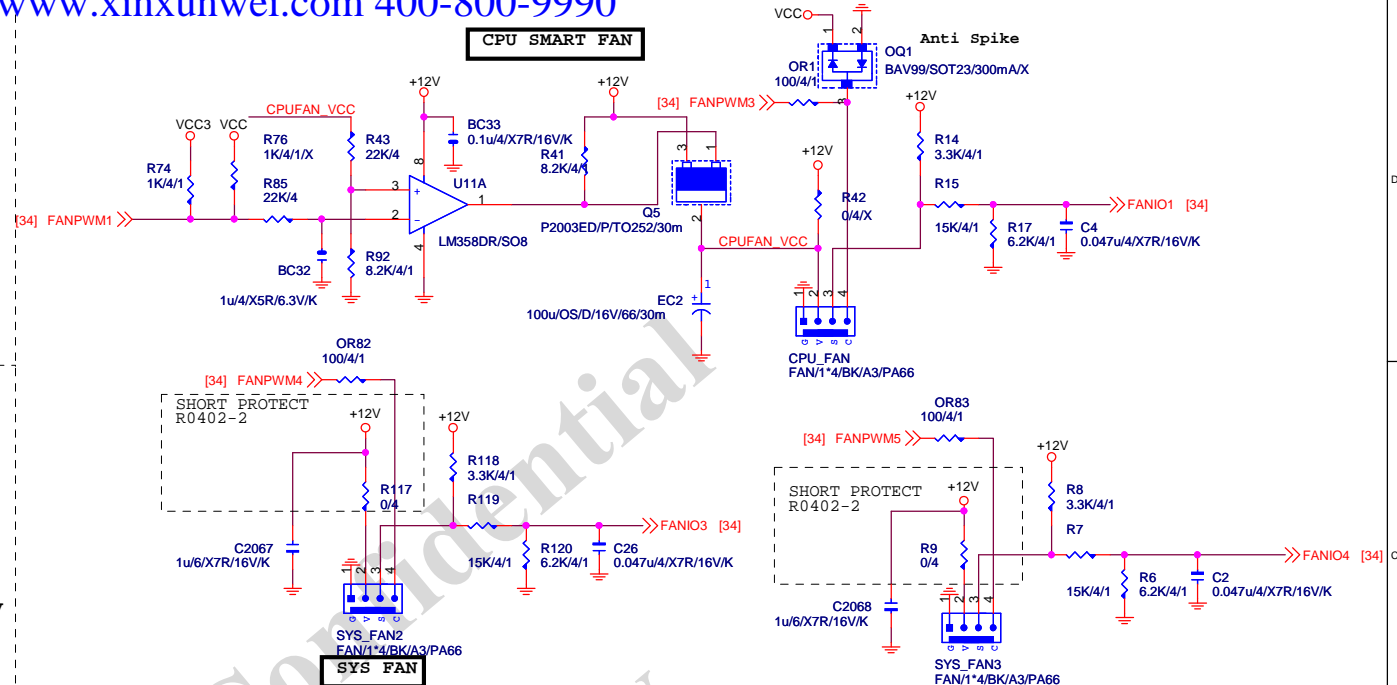


Gigabyte Technology

## TEMP H/W MONITOR

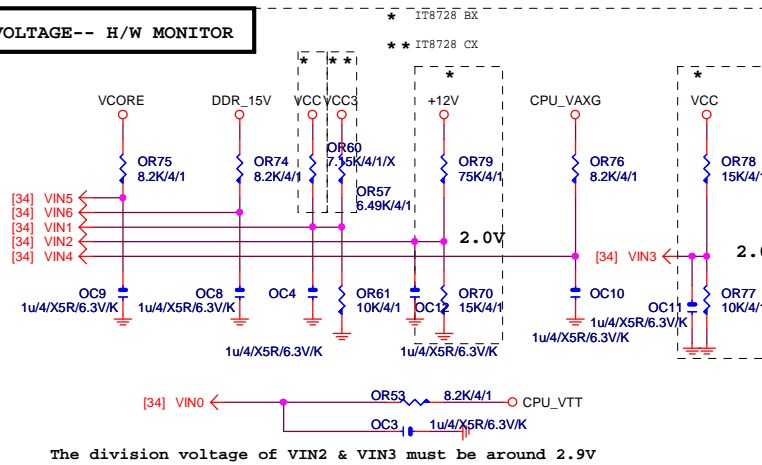


## CPU SMART FAN



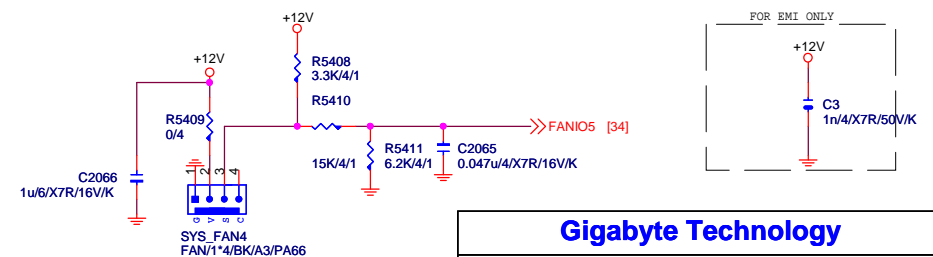
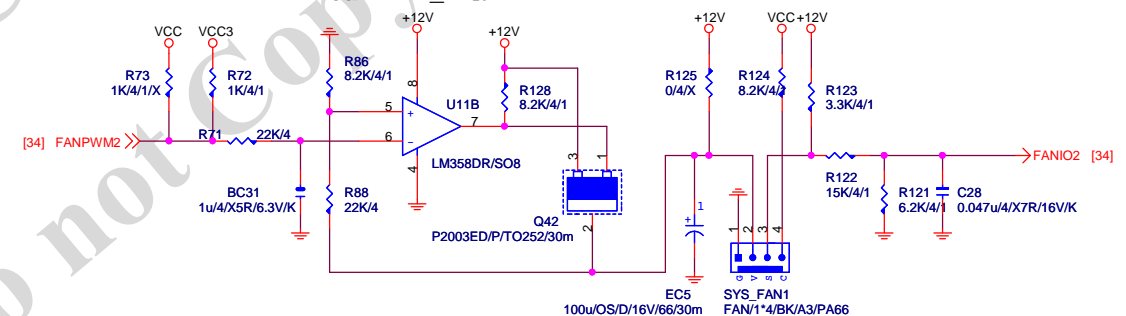
## SYS FAN

## VOLTAGE-- H/W MONITOR



The division voltage of VIN2 & VIN3 must be around 2.9V

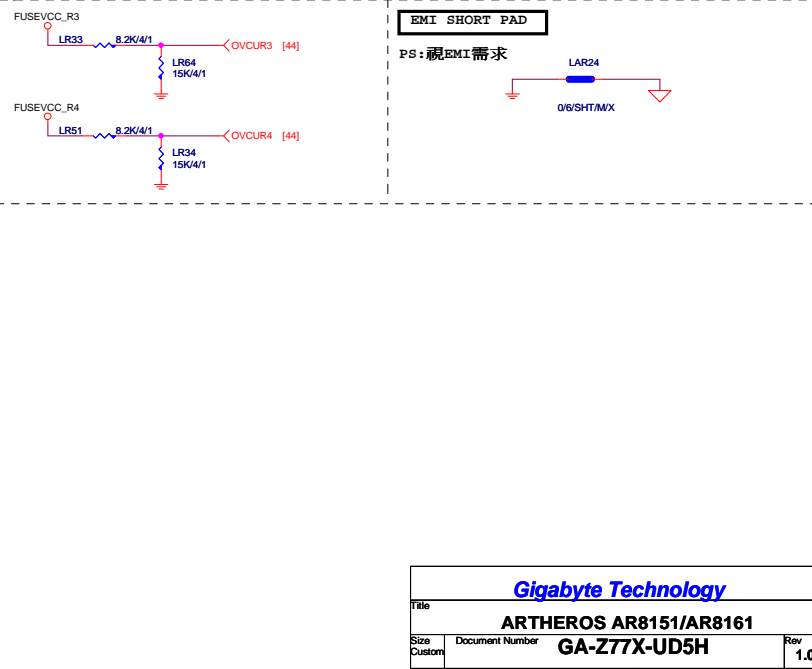
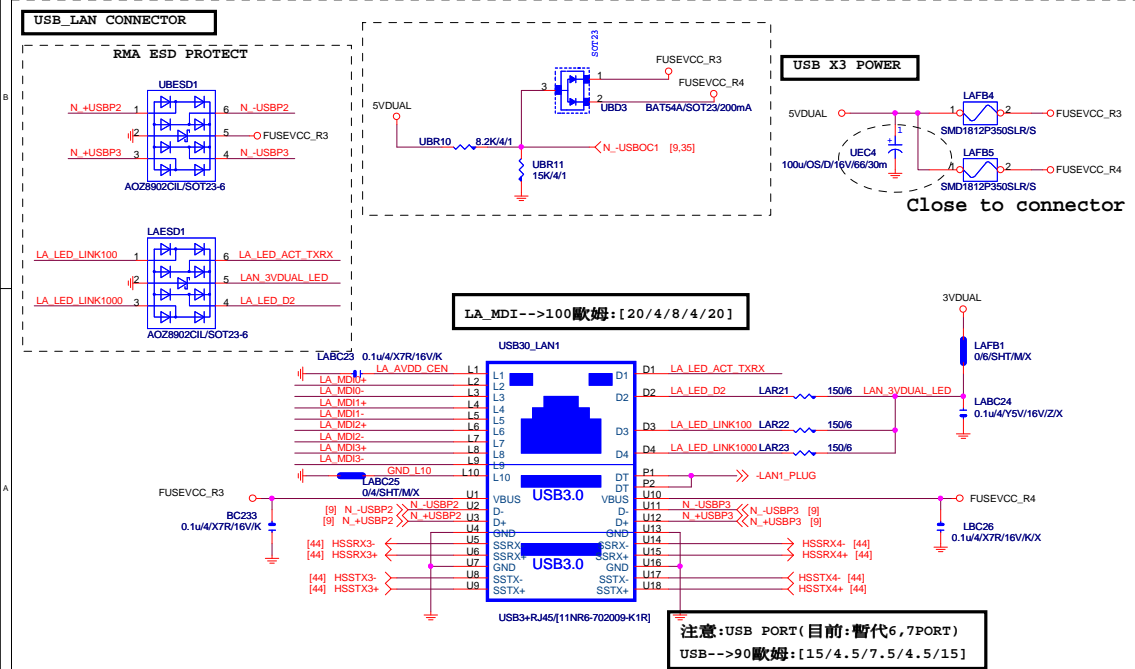
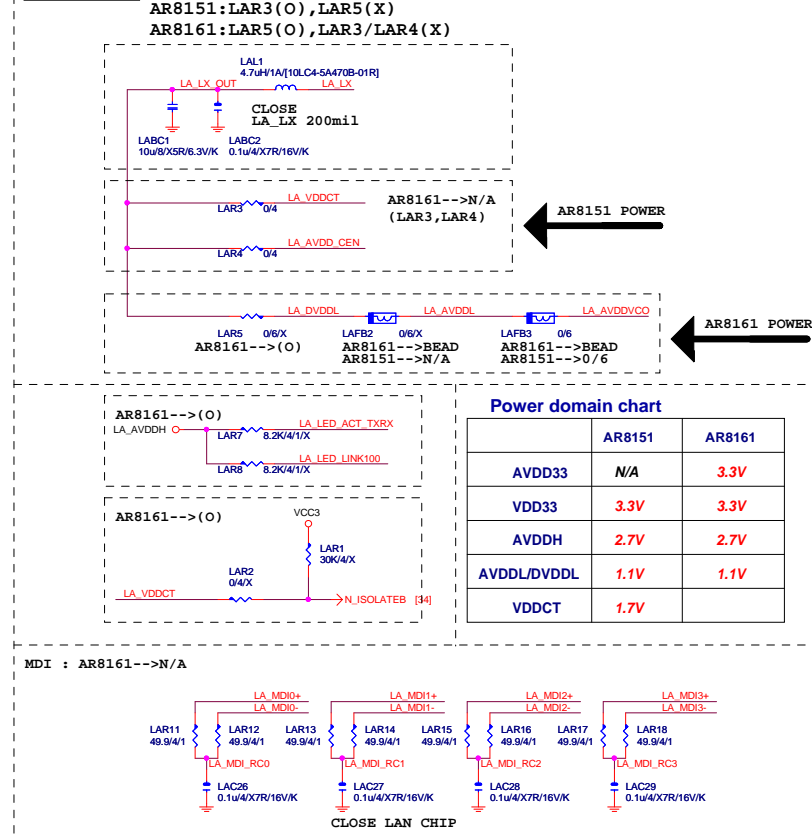
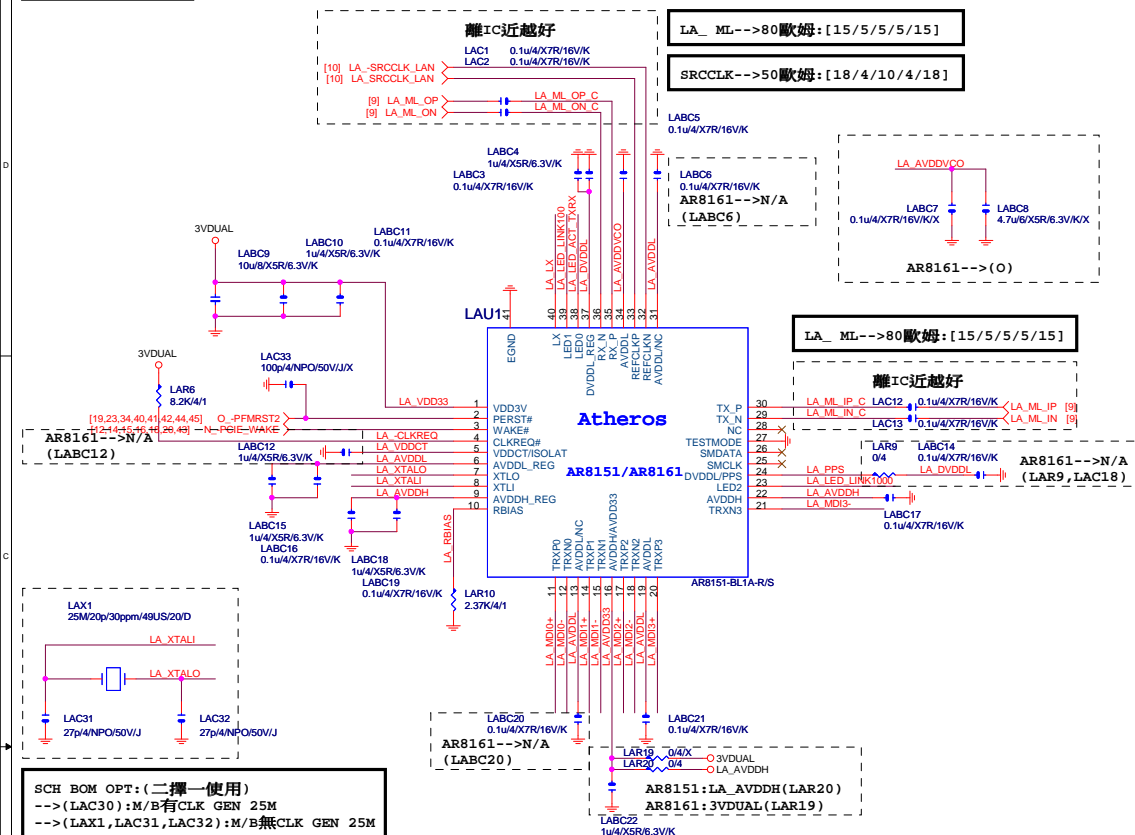
## Linear SYS\_FAN

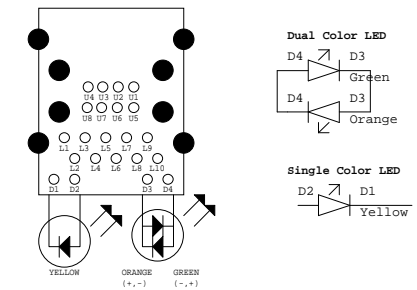
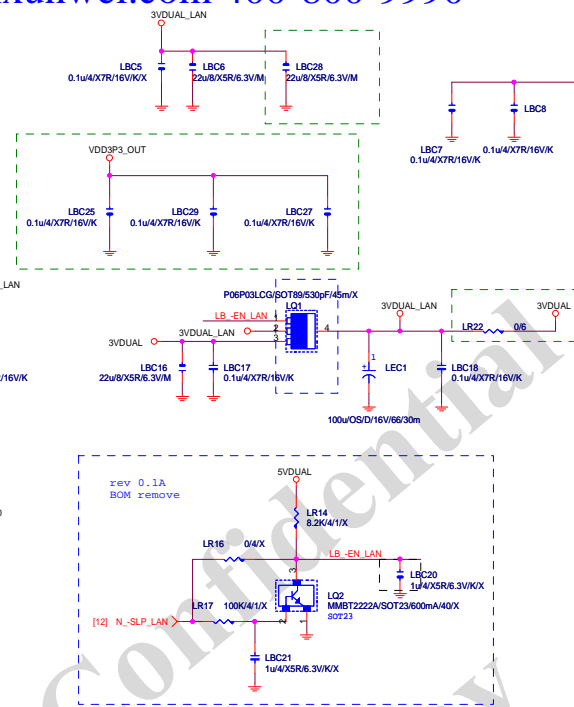


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Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
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1Gb	Orange
100Mb	Green
10Mb	Off

Dual Color LED

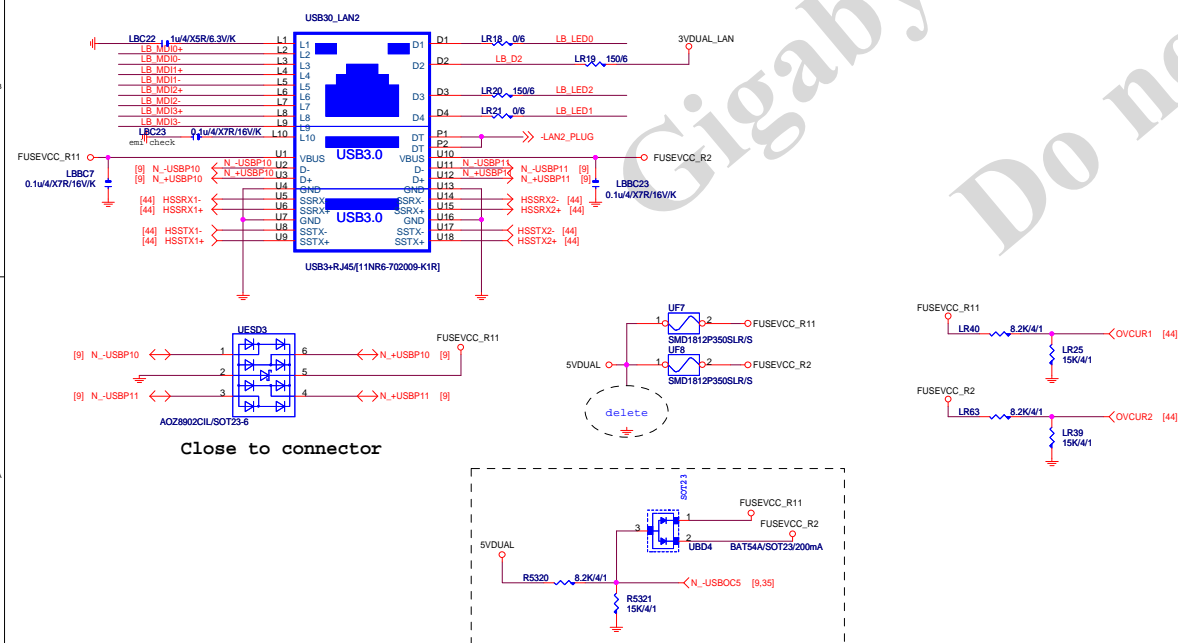
D4 D3 Green

D4 D3 Orange

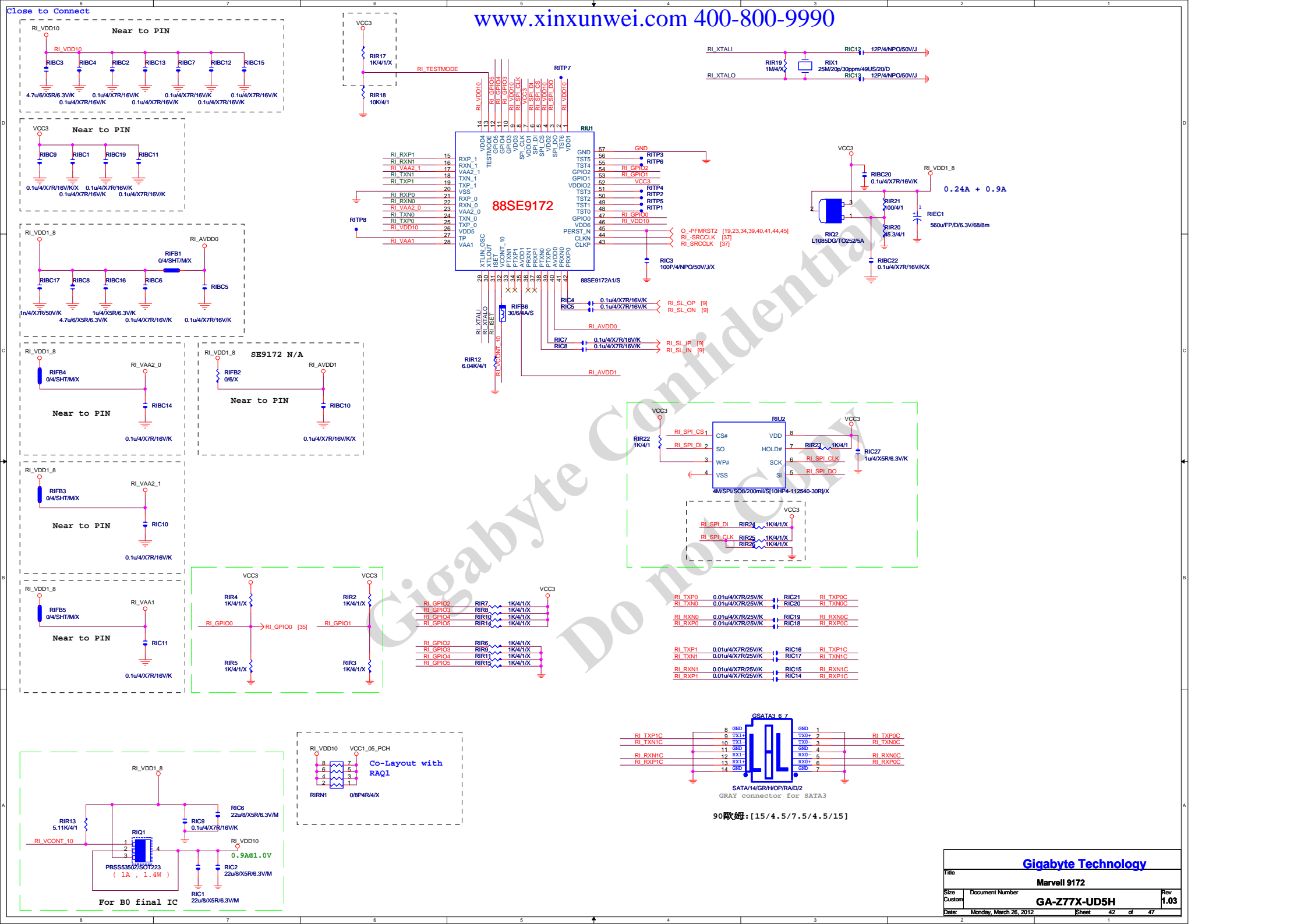
Single Color LED

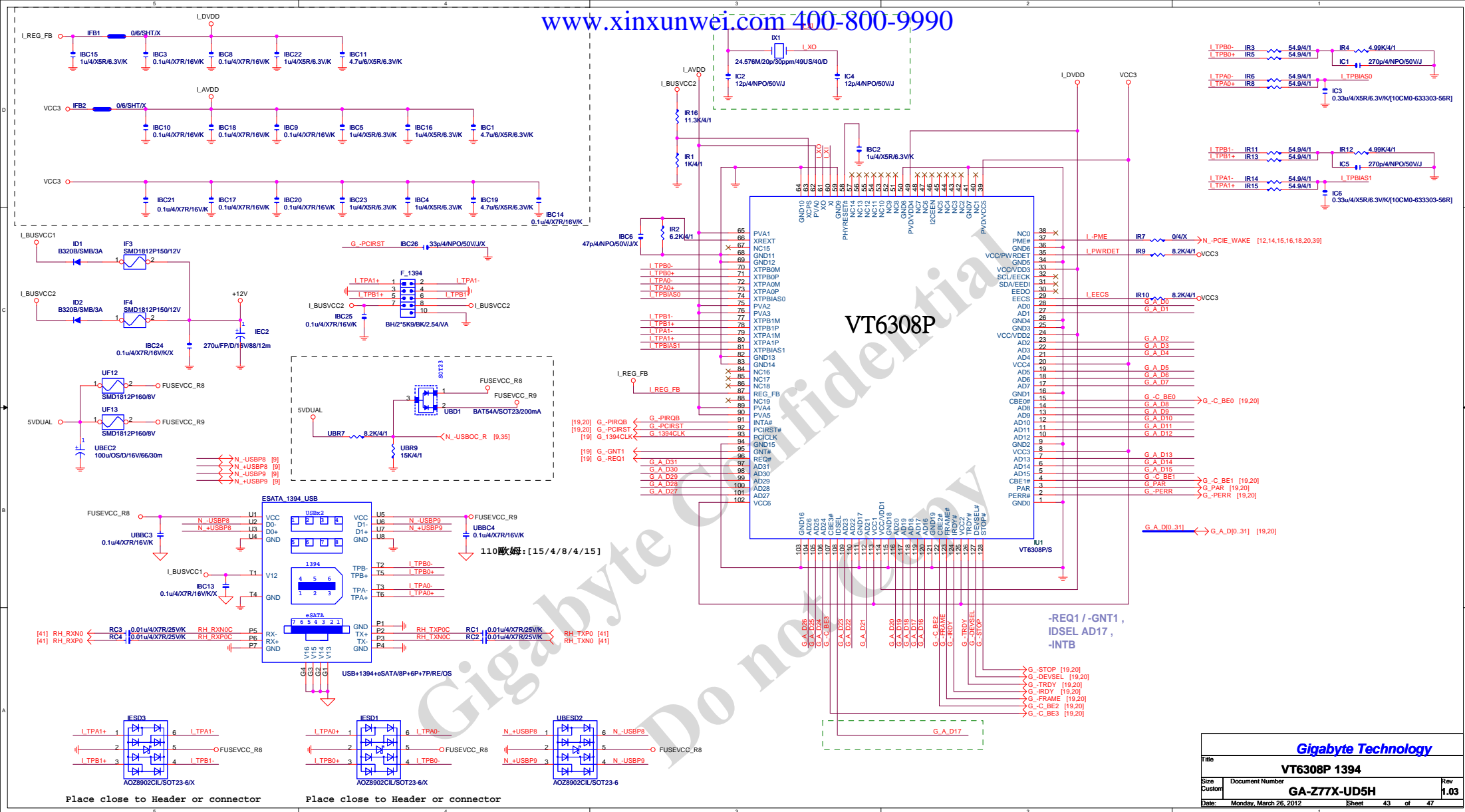
D2  D1  
Yellow

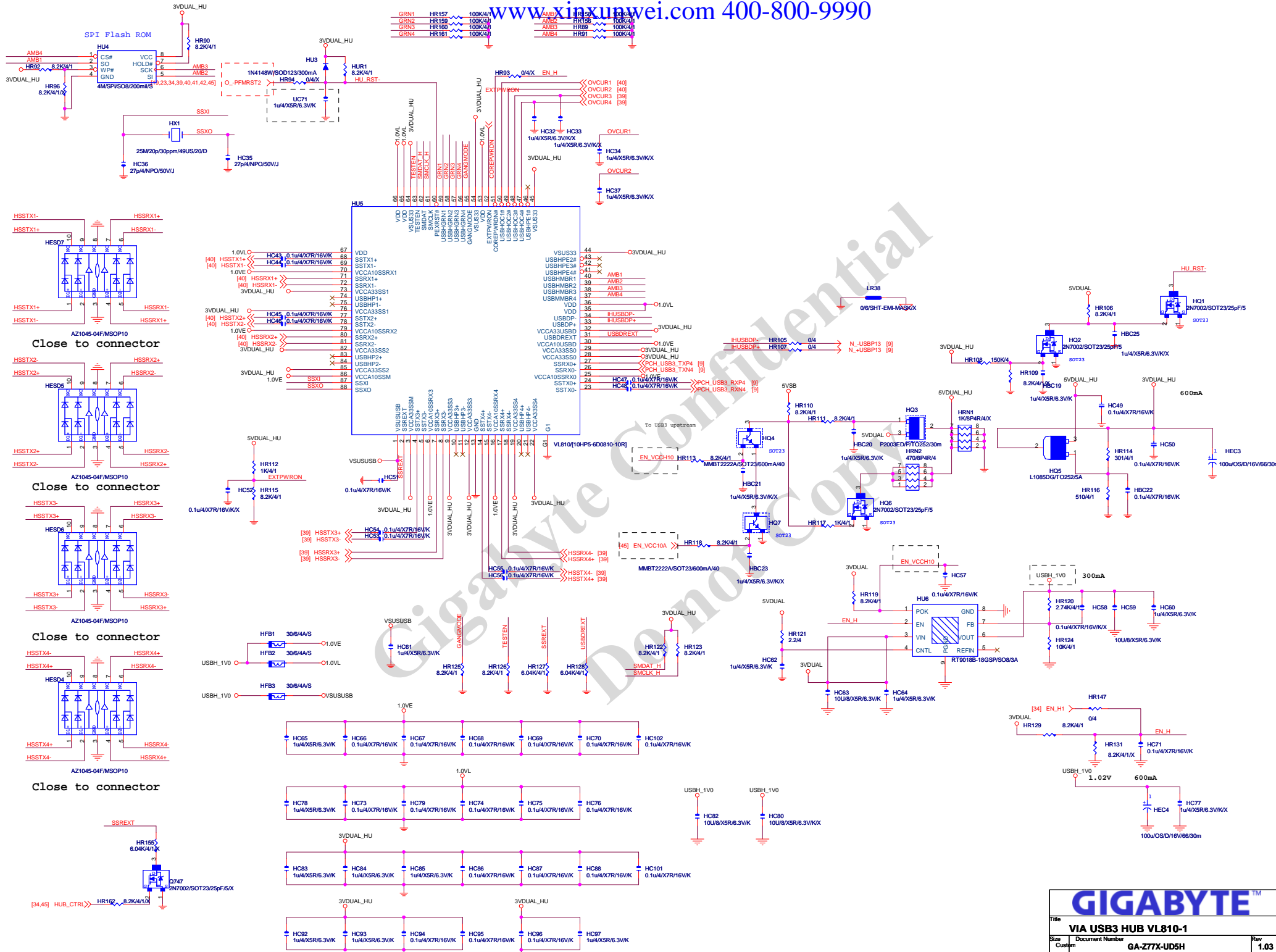
Access	Blinking
Link	Yellow



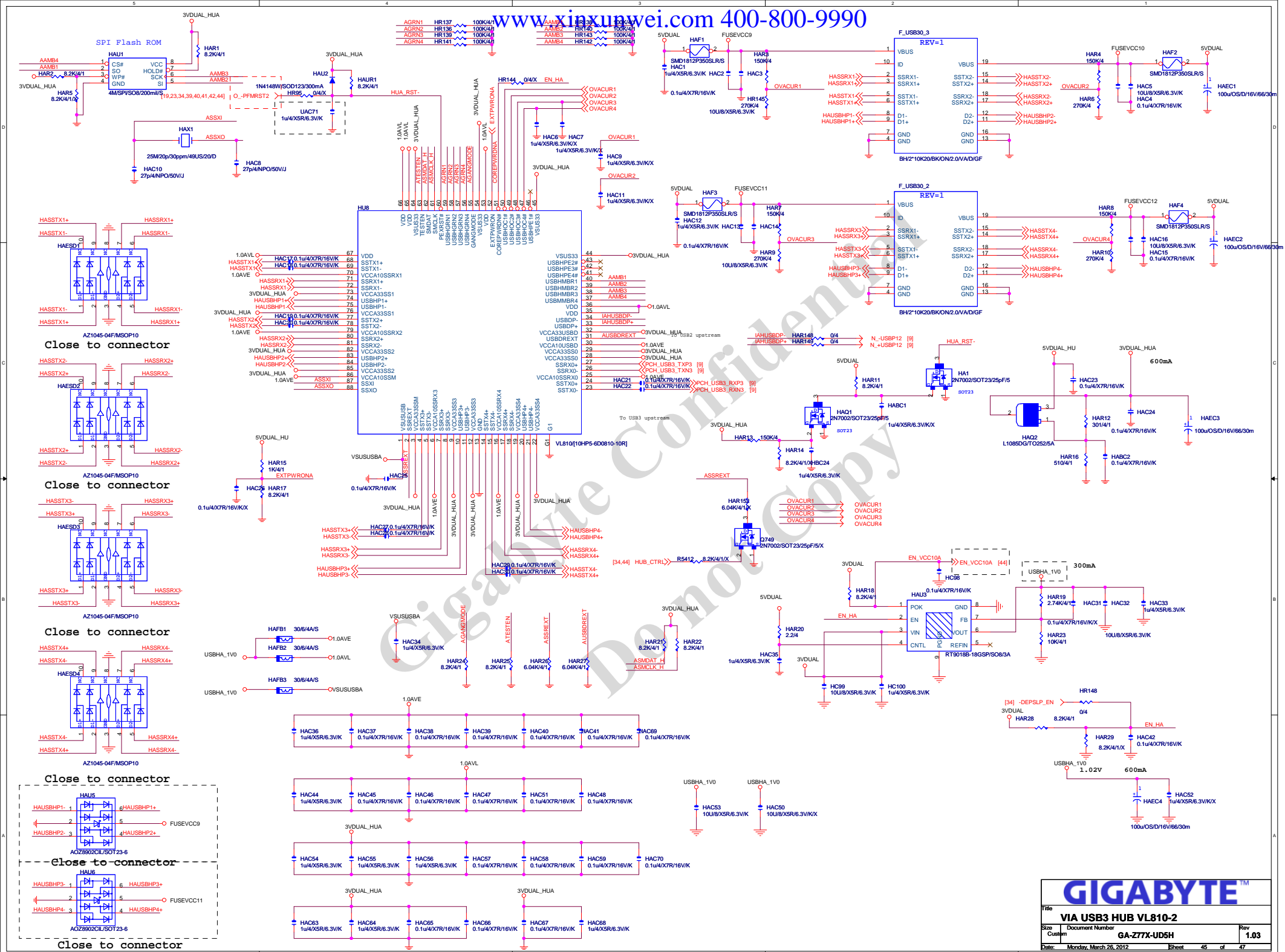




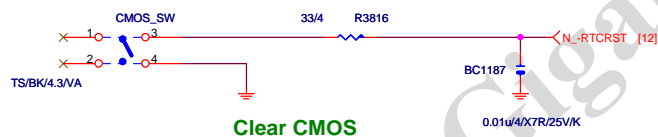
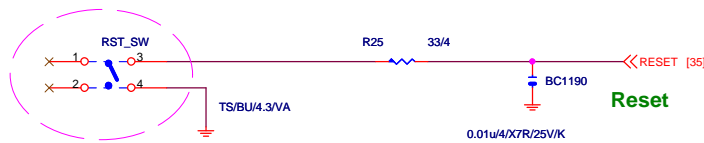
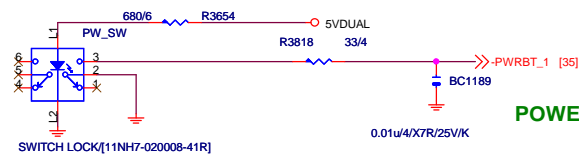
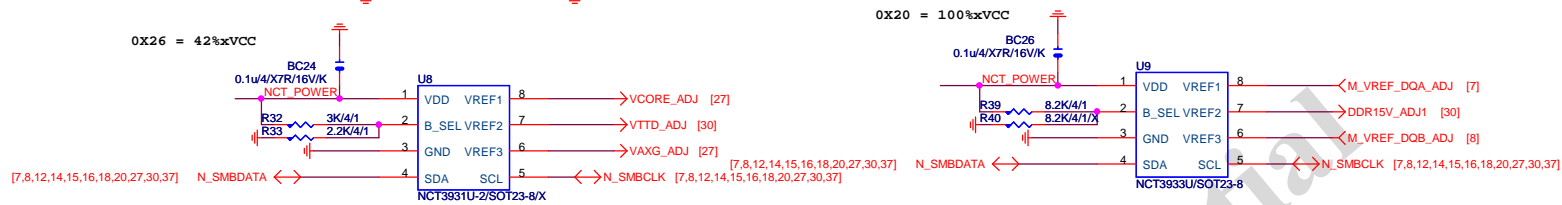
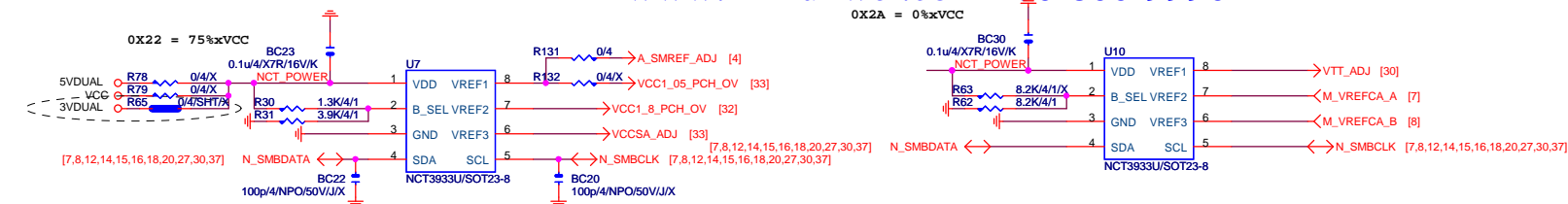




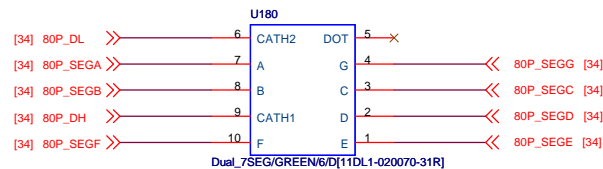
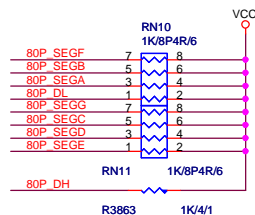




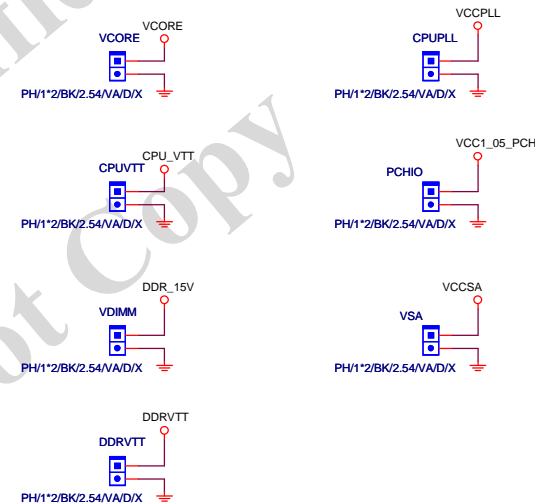
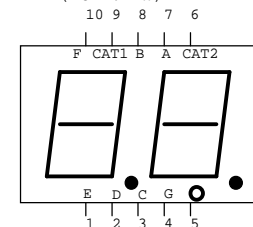




80 PORT



COMMON CATHODE

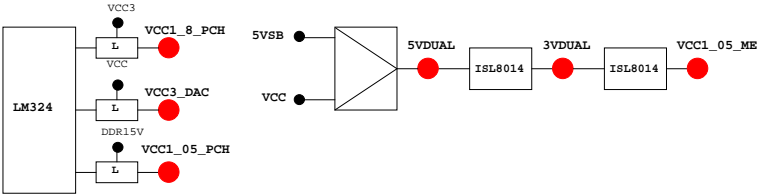
Physical Package  
(TOP VIEW)

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

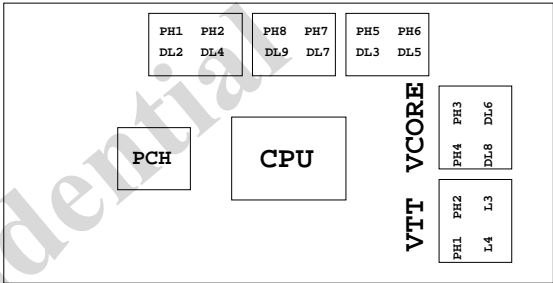
Super I/O ITE8720 GPIO Table

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/SCK	LOW_PWR_1	
VIDO5/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VBSBW#/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/SMB_C_R	PSI_PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMB_C_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_CLT15/CIRRX2/GP16	-THERM	
VIDO4/GP26/SOUT2	DDR18V_PH2_EN	
VIDO2/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VIDO6/GP17/RI2#	1_1V_PH_EN	
VIDO7/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

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

散熱模組料號：

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

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

Gigabyte Technology			
TABLE LIST			
Size C	Document Number	Rev	
	GA-Z77X-UD5H	1.03	
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