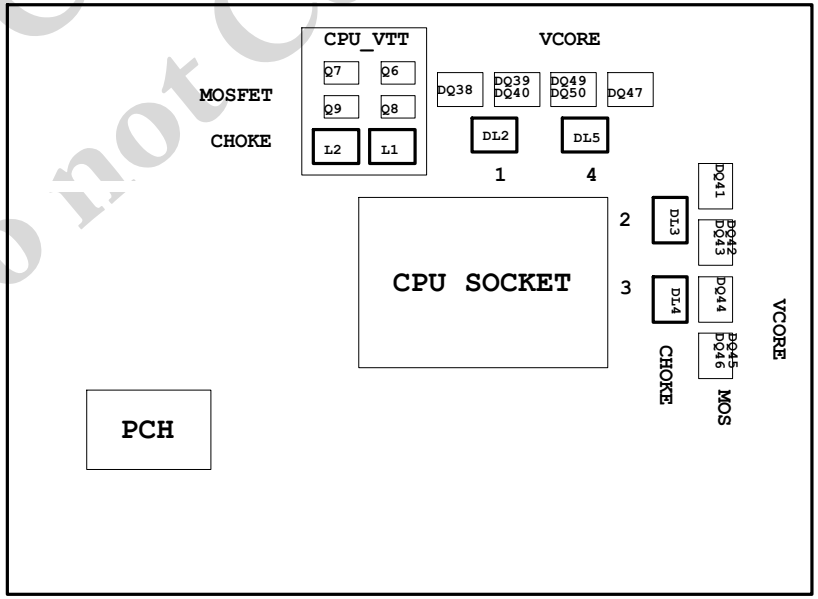
Model Name: GA-Z68AP-D3 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,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 EXPRESSX4 SLOT / PCIE X1 SLOT
16	IT8892
17	PCI SLOT 1&2&3
18	I/O ITE8728
19	COM, LPT, TPM
20	Dual BIOS
21	ALC889
22	REAR AUDIO JACK
23	VCORE PWM_ISL6364CRZ-1
24	VCORE PWM_ISL6364CRZ-2
25	DISCRETE POWER
26	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
27	CPU_VTT PWM_ISL95870

SHEET	TITLE
28	VCCSA POWER
29	F_PANEL , F_USB
30	ATX POWER, CLOCK GEN
31	HWM,KB/MS , FAN CTRL
32	REALTEK RTL8111E
33	ETRON 168A
34	HDMI
35	VAXG POWER, mSATA
36	
37	
38	
39	
40	



Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-Z68AP-D3 | Rev: 1.0

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GA-Z68AP-D3
Component value change history

Data	Change Item	Reason
2011/01/28 EBOM:02	e-bom for P67A-D3-0.2	
2011/02/10 EBOM:01	1.RENAME FOR P67A-D3-B3-0.1	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除	
	3.PCH VCC1_05 switch power------->linear power	
	4.PCH B2---->B3料號;R216 51 ---->1K	
2011/02/25 PBOM:10A	1.DR275 1K--->100K,R220 200 OHM---->1K 2.ADD TBC40,TBC41 FOR CPU VTT POWER RIPPLE	
2011/03/07 PBOM:10B	1.DEL R50 FOR 8278DX JP6 ISSUE	
	2.PCH HEATSINK換成有銘板消庫存	
2011/03/30 EBOM:10T	1.DEL EC30,EC31,TEC3,LEC1	
	2.F1,F4 1206 --->1812 SIZE; ADD R130 FOR ERP compability;add BC259,AD1,TBC42,TBC43,LBC26	
	3.ADD LAESD1 FOR LEN LED PROTECT	
	4.FOR PCH ERP	
2011/05/09 EBOM:01	1.DEL CLOCK GEN.	
	2.ADD HDMI, mSATA ,CPU VAXG POWER	
2011/05/09 EBOM:10A	1.DR309 499 --->1K	
	2.CPU VCORE/VAXG LOADLINE 阻值調整	

Circuit or PCB layout change

DATE	Change Item	Reason
2010/07/05 PCB:0.1	1.NEW MODEL: P67A-D3-0.1	
2010/08/18 PCB:0.2	由GA-P67A-D3-0.1 rename GA-P67A-UD3-0.2	
	1.update MOS_HS footprint 2.2Oz copper pcb	
2010/10/05 PCB:0.1	由GA-P67A-UD3-0.2 修改	
2010/10/18 PCB:0.2	1.確認SATA 6GB PORT0 OR PORT1???	
	2.NO TURBO USB3.0 ,SUR1~SUR8 ------>SHORT WIRE	
2011/01/10 PCB:0.2	1.NEW MODEL: P67A-D3-0.2 由 P65A-D3-0.2修改	
	1.co-lay 電容移除	
	2.CPU VCORE 電容多留不用的MASK起來	
	3.0 OHM---->SHORT-WIRE	
2011/02/08 PCB:0.1	由0.2修改---->RENAME GA-P67A-D3-B3	
	1.co-lay 電容移除	
	2.CPU VCORE EC14,DEC4,DEC5,DEC6,TEC8電容移除;調整MOS_HS與CHOKE及電容的位置避免撞件	
	3.PCH VCC1_05 switch power------->linear power	
2011/02/24 PCB:1.0	1.CR49,CR50 short-wire ----->open,add LR15 FOR AUDIO line out SNR issue	
	2.DR290,DR293,DR312,DR333,DR351,R264,CR31 0 OHM---->SHORT-WIRE	
	3.背面電容mask	
	4.ADD TBC40,TBC41 to reduce CPU VTT power ripple	
2011/03/30 PCB:1.0T	1.ADD CLOCK BUFFER	
2011/05/04 PCB:0.1	1.由P67A-D3-B3-1.0T修改	
	2.DEL CLOCK GEN.	
	3.ADD HDMI, mSATA ,CPU VAXG POWER	

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Title: BOM & PCB MODIFY HISTORY

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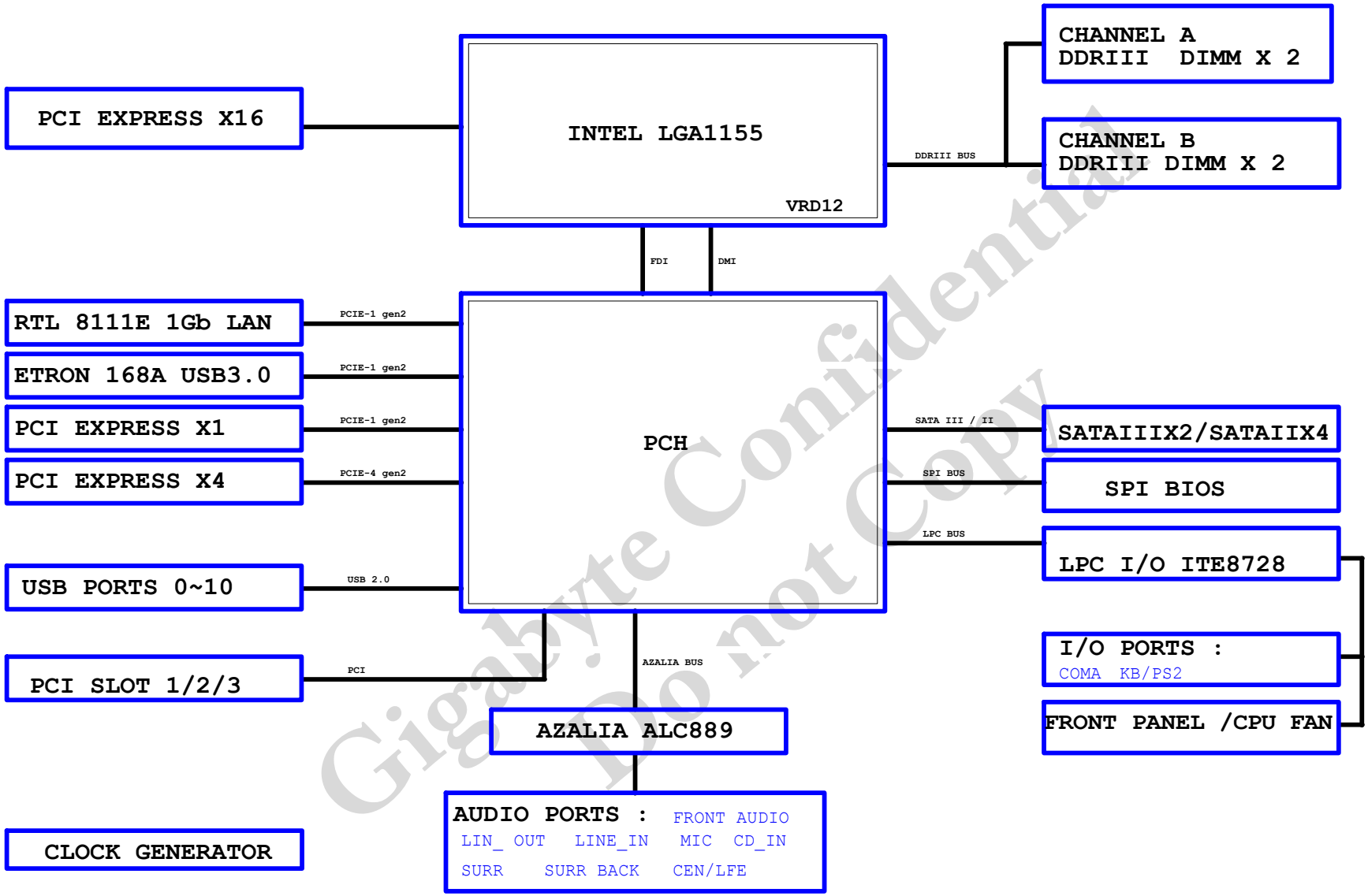
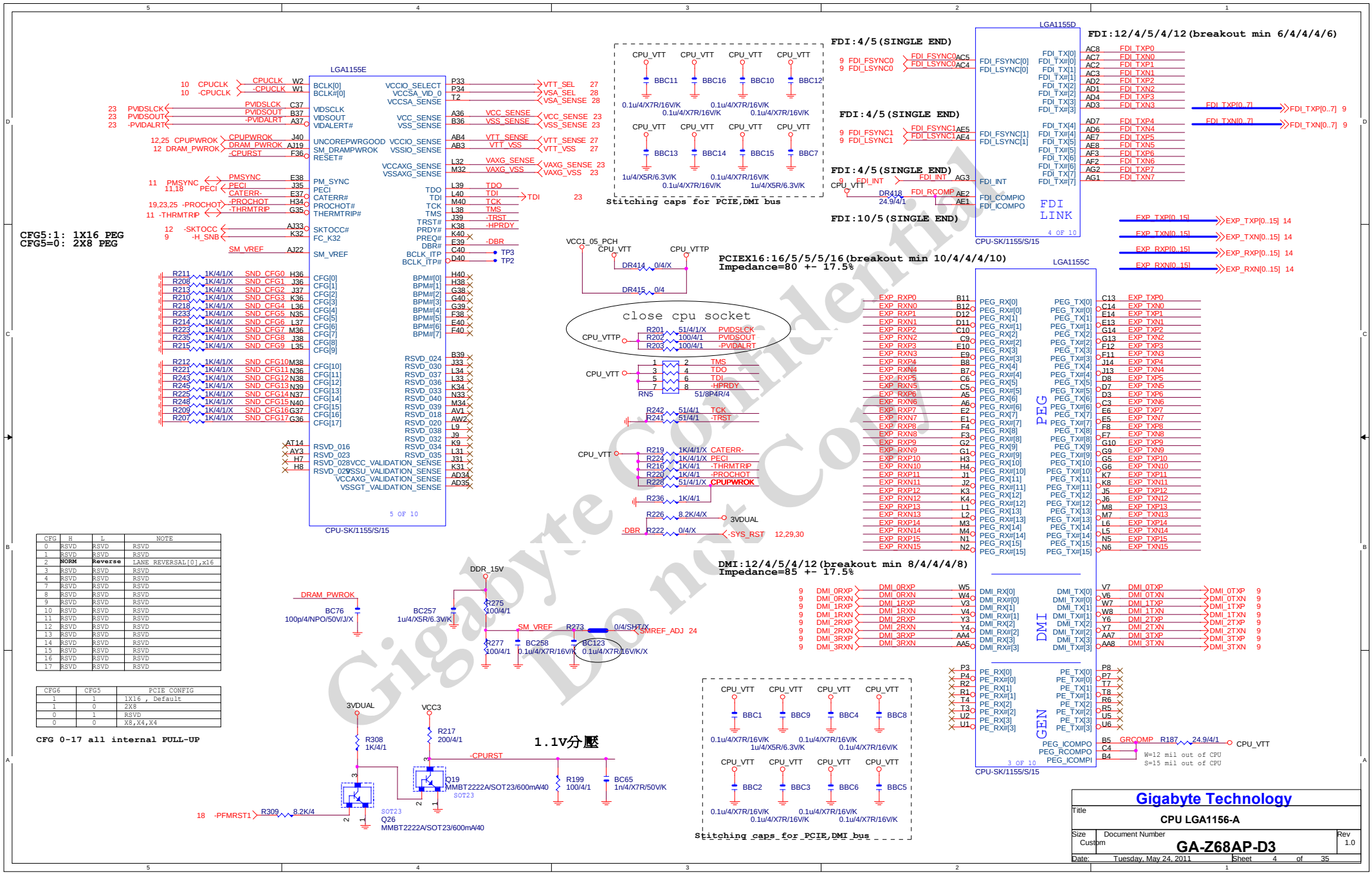
BLOCK DIAGRAM

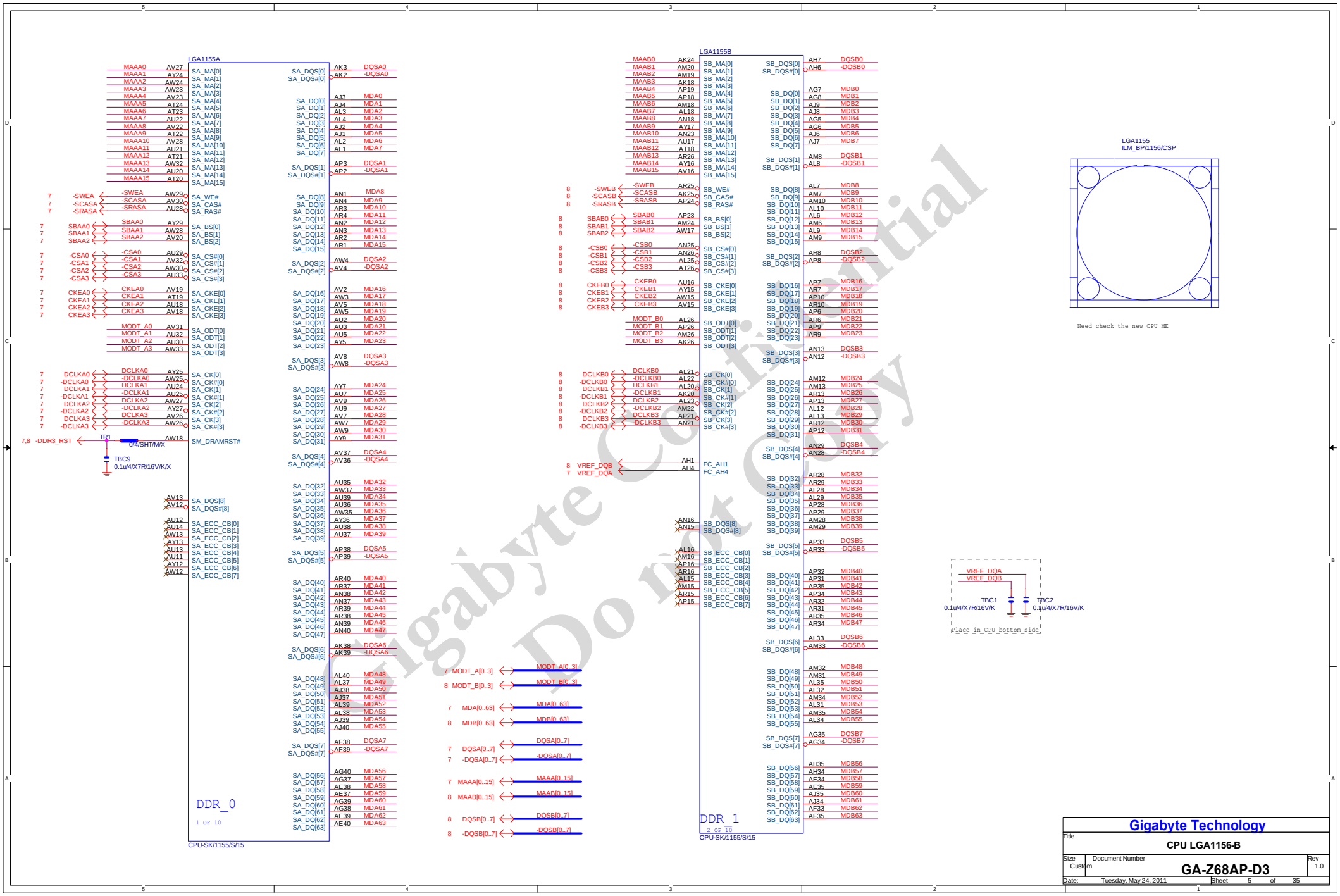


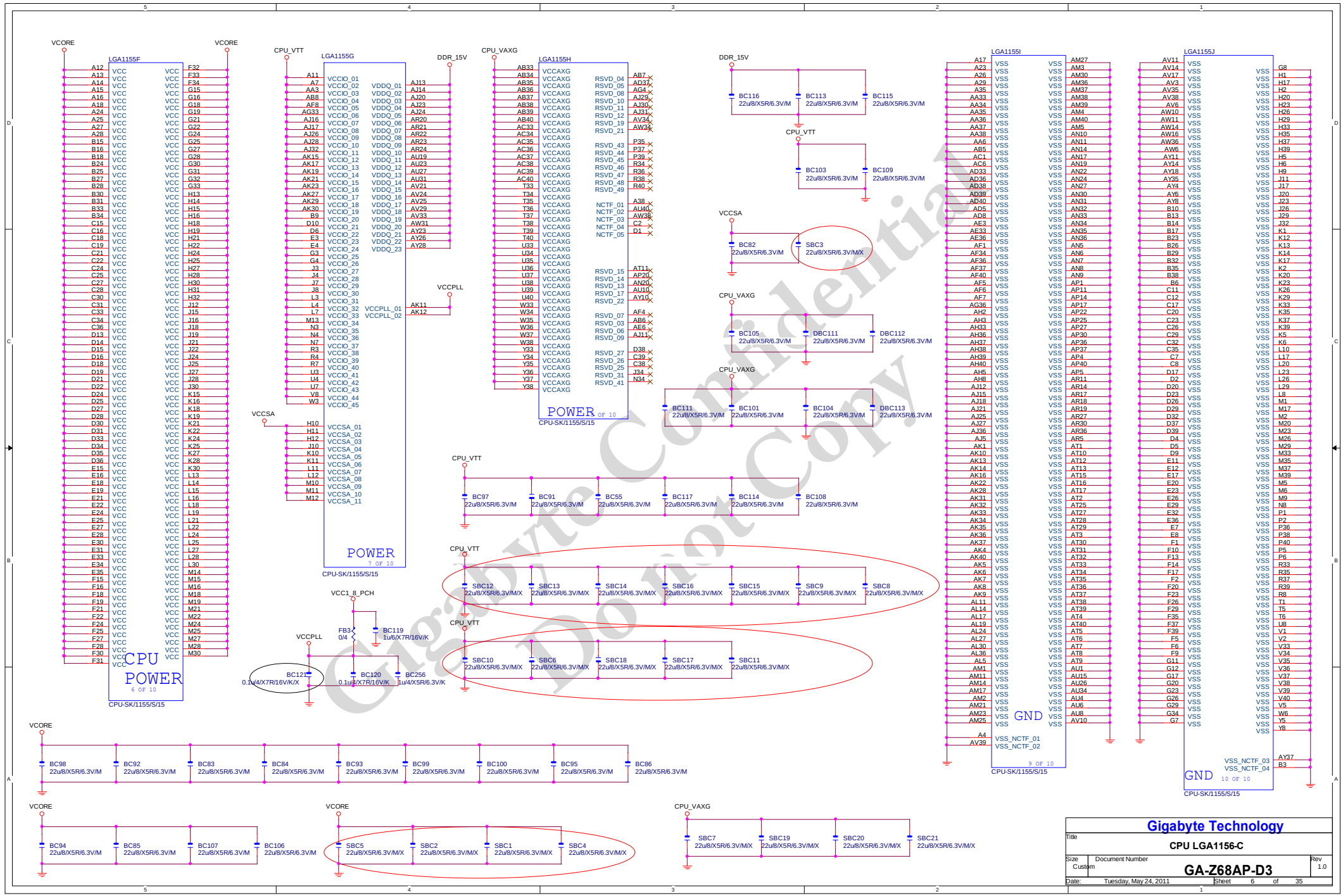
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z68AP-D3	Rev: 1.0
Date: Tuesday, May 24, 2011	Sheet 3 of 35	

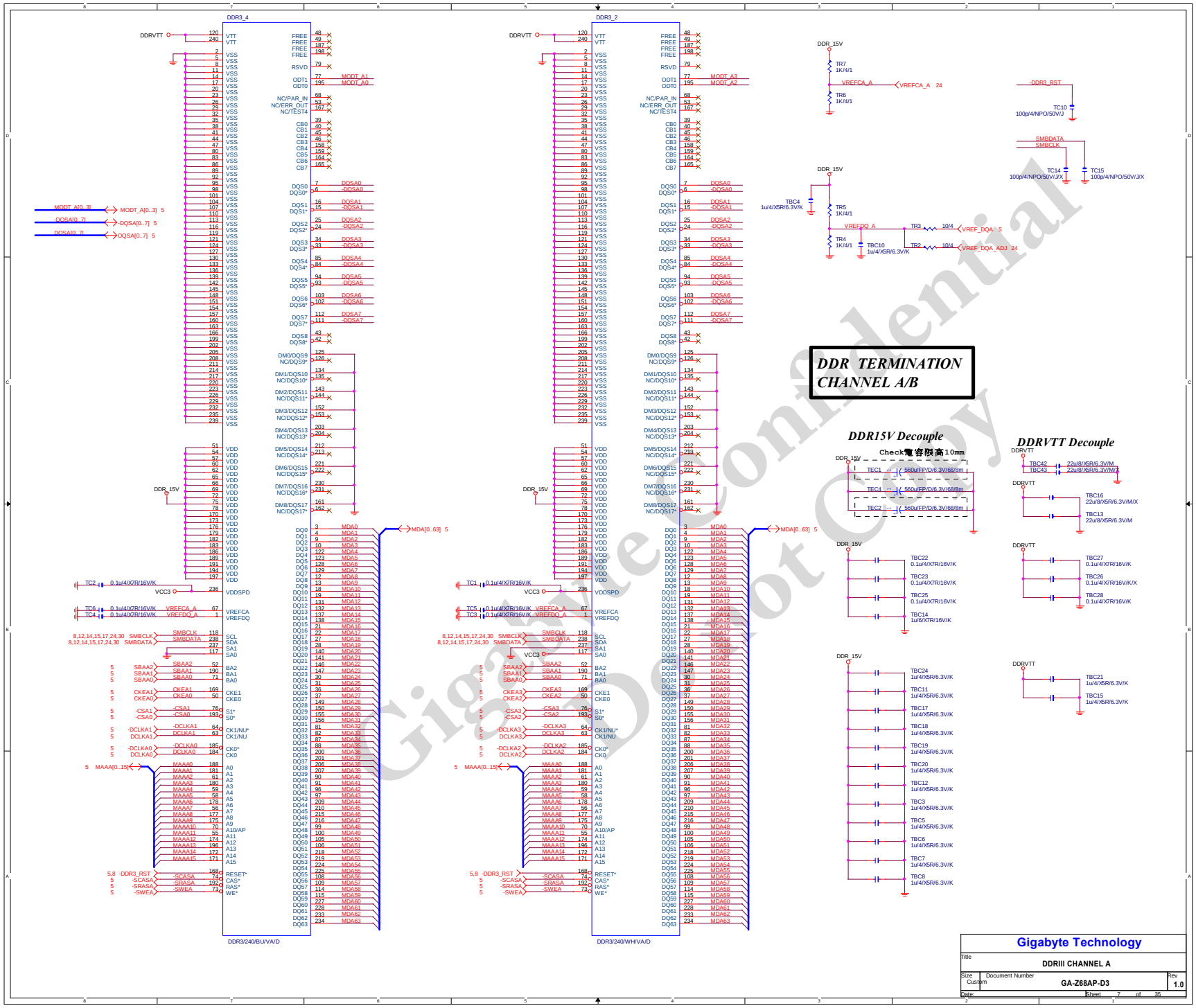


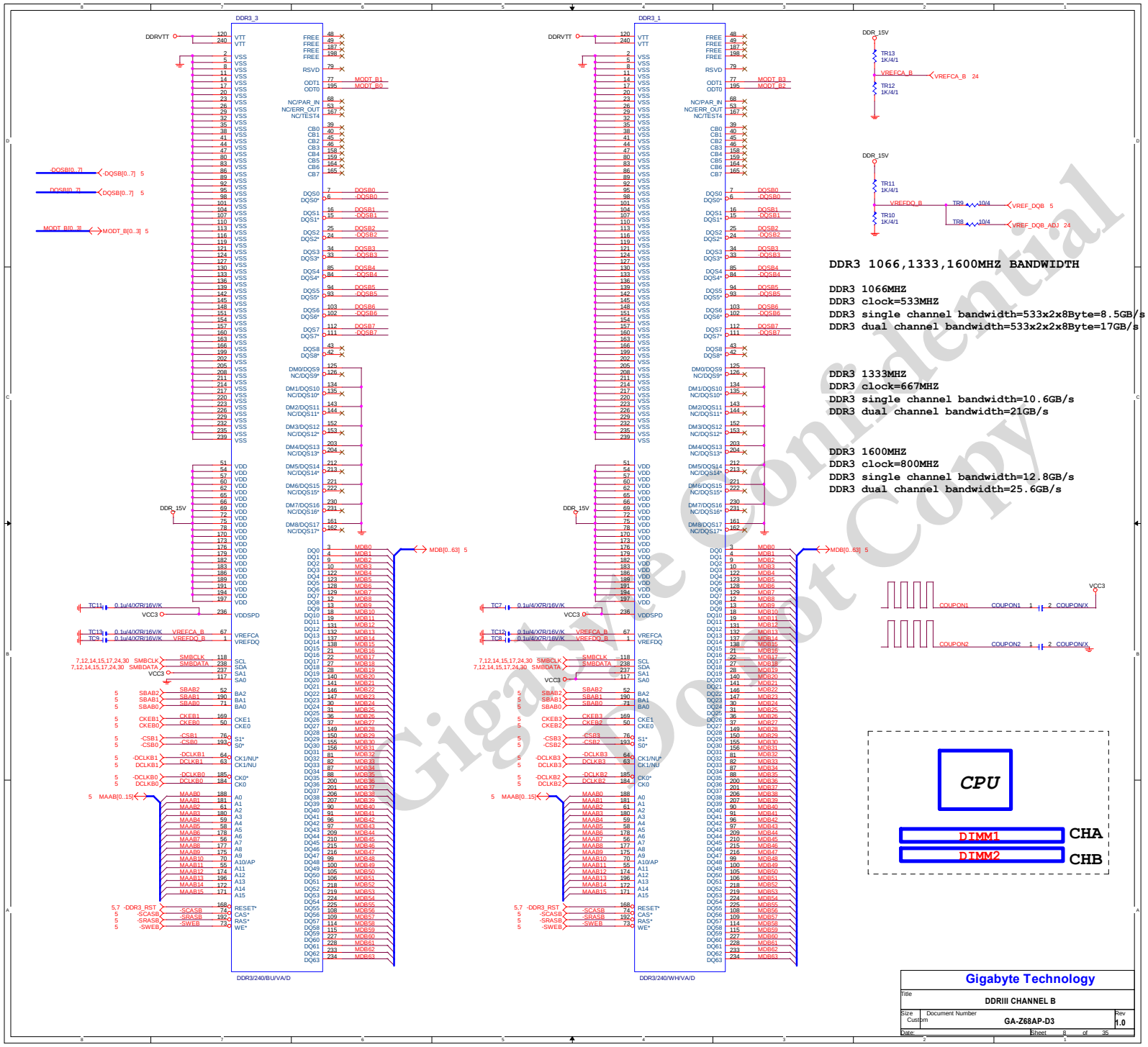
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	RSVD	RSVD	RSVD
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD
16	RSVD	RSVD	RSVD
17	RSVD	RSVD	RSVD

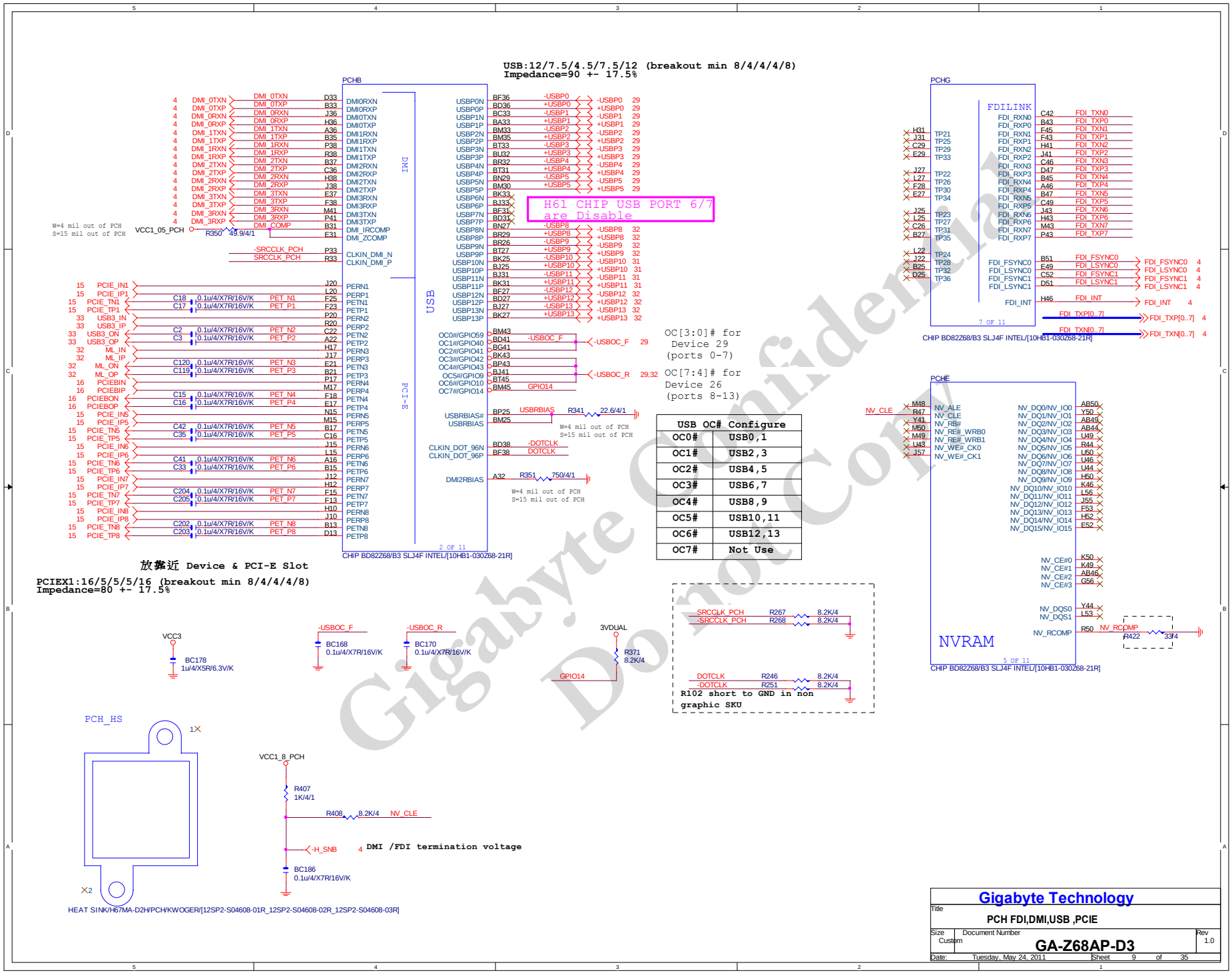
CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

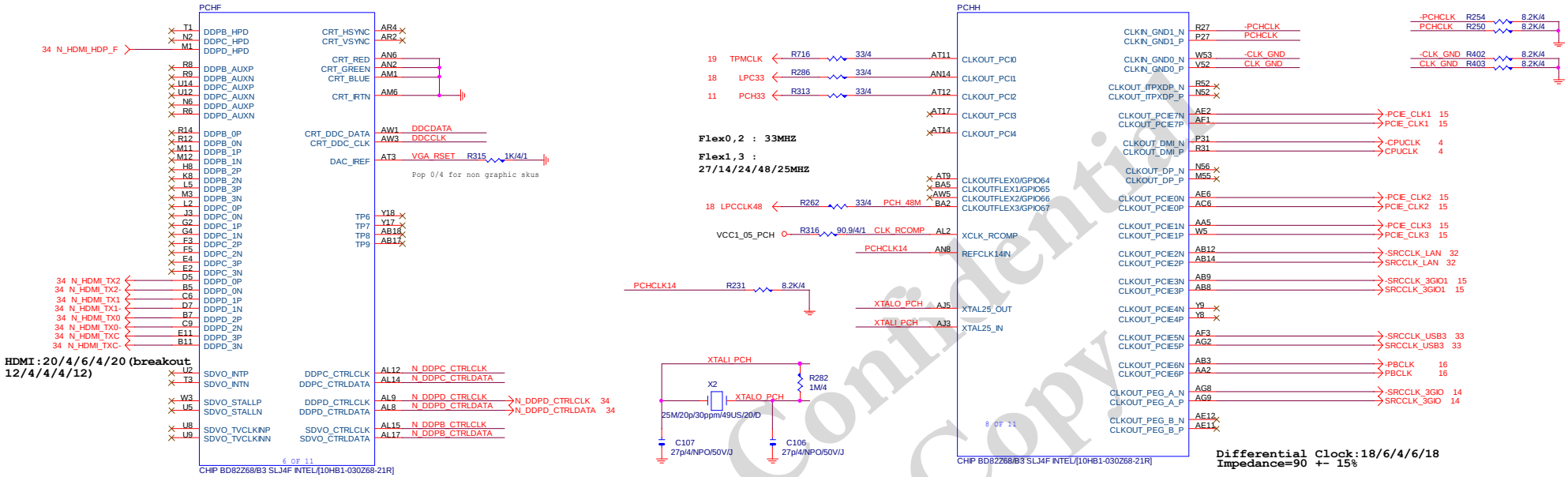












Gigabyte Technology	
Title	PCH DISPLAY ,CLK BUFFER
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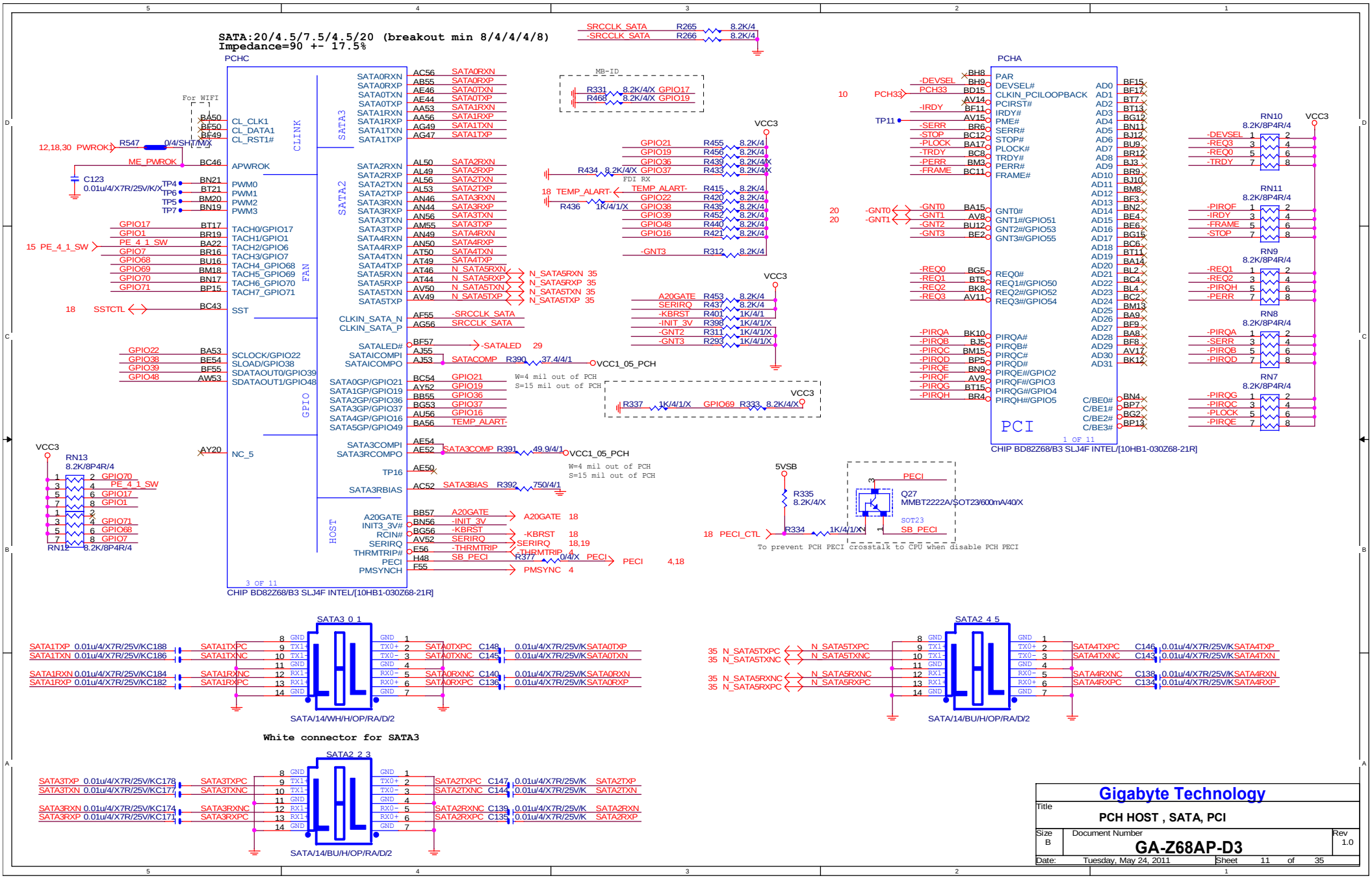

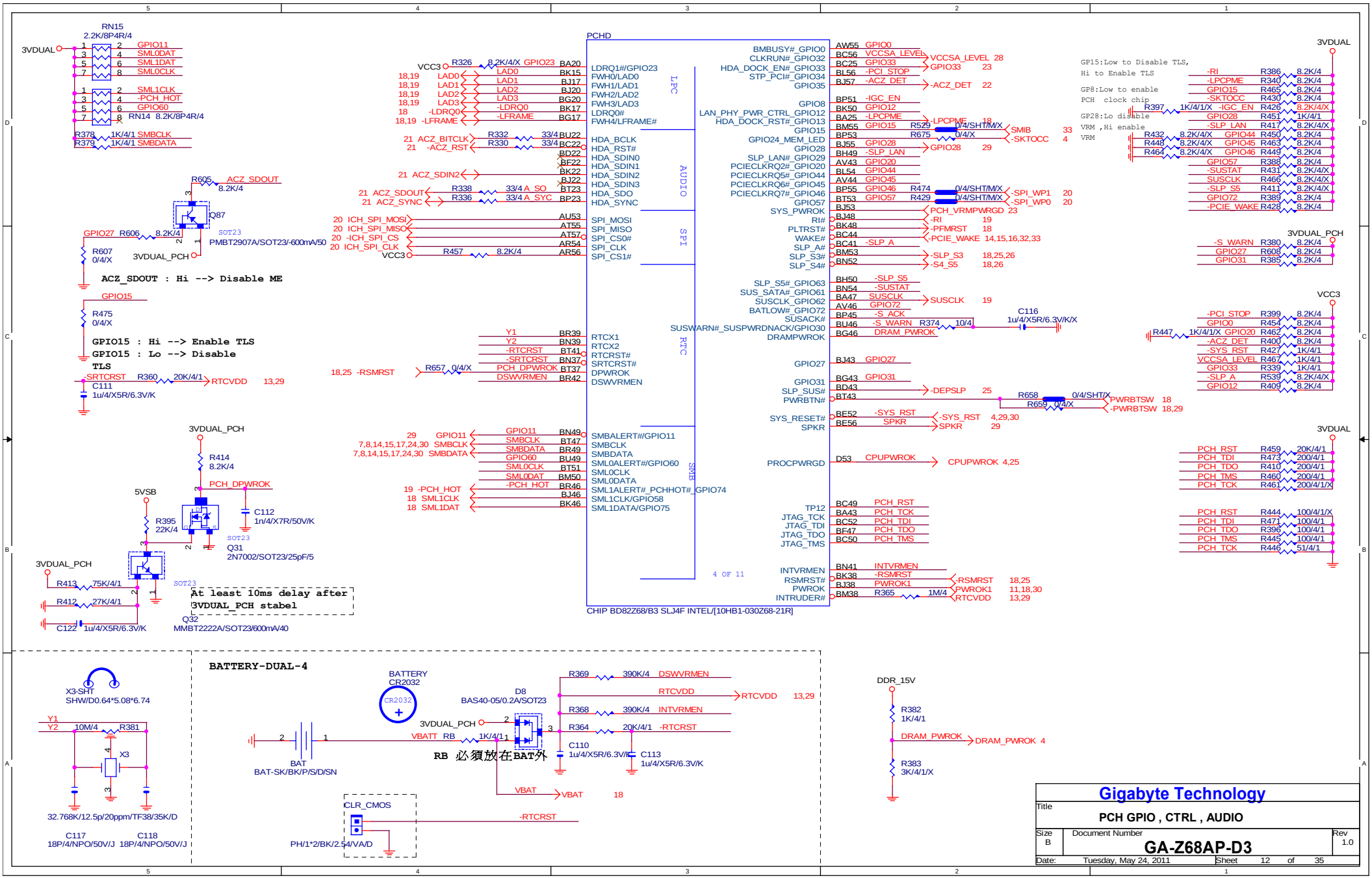

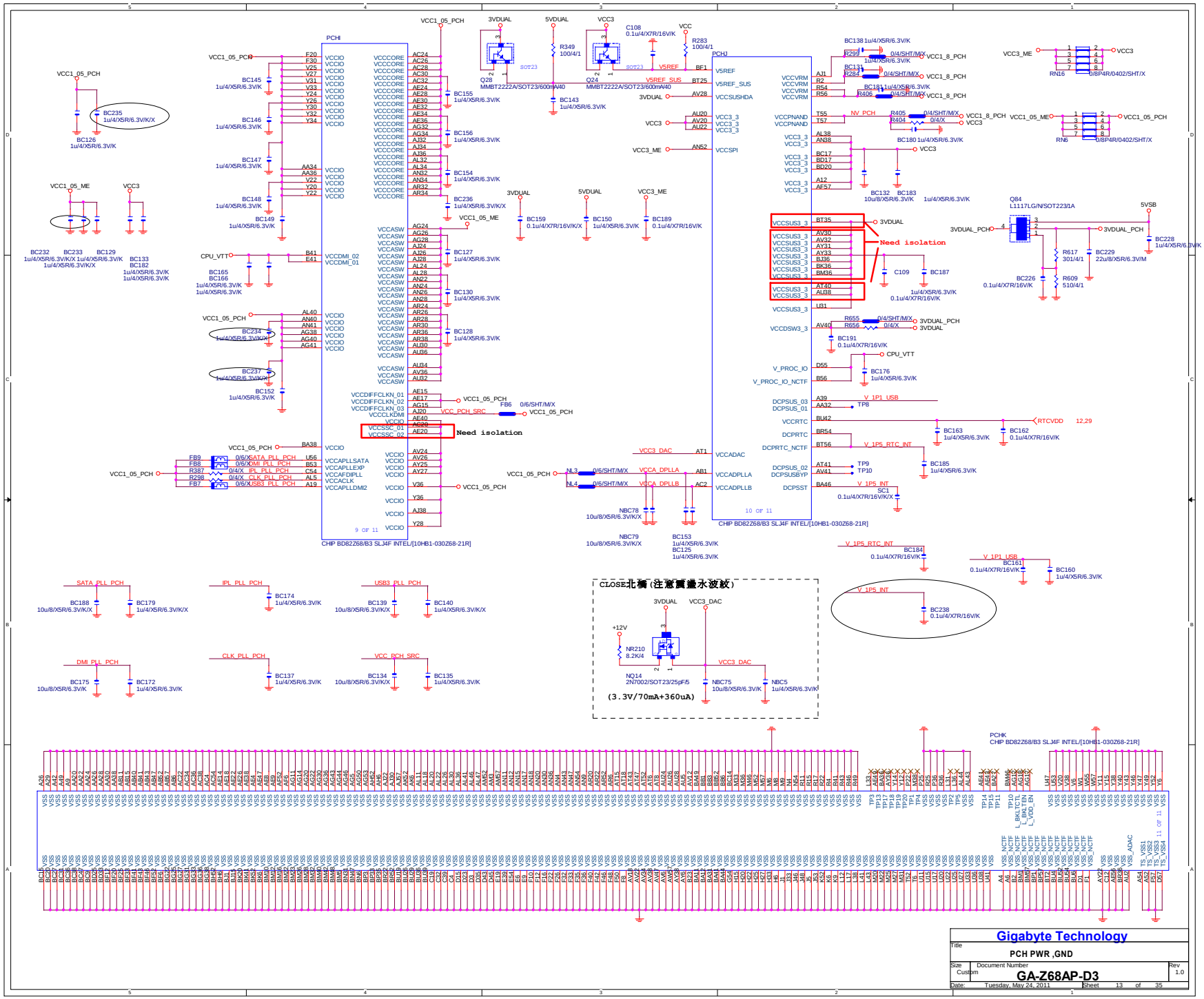

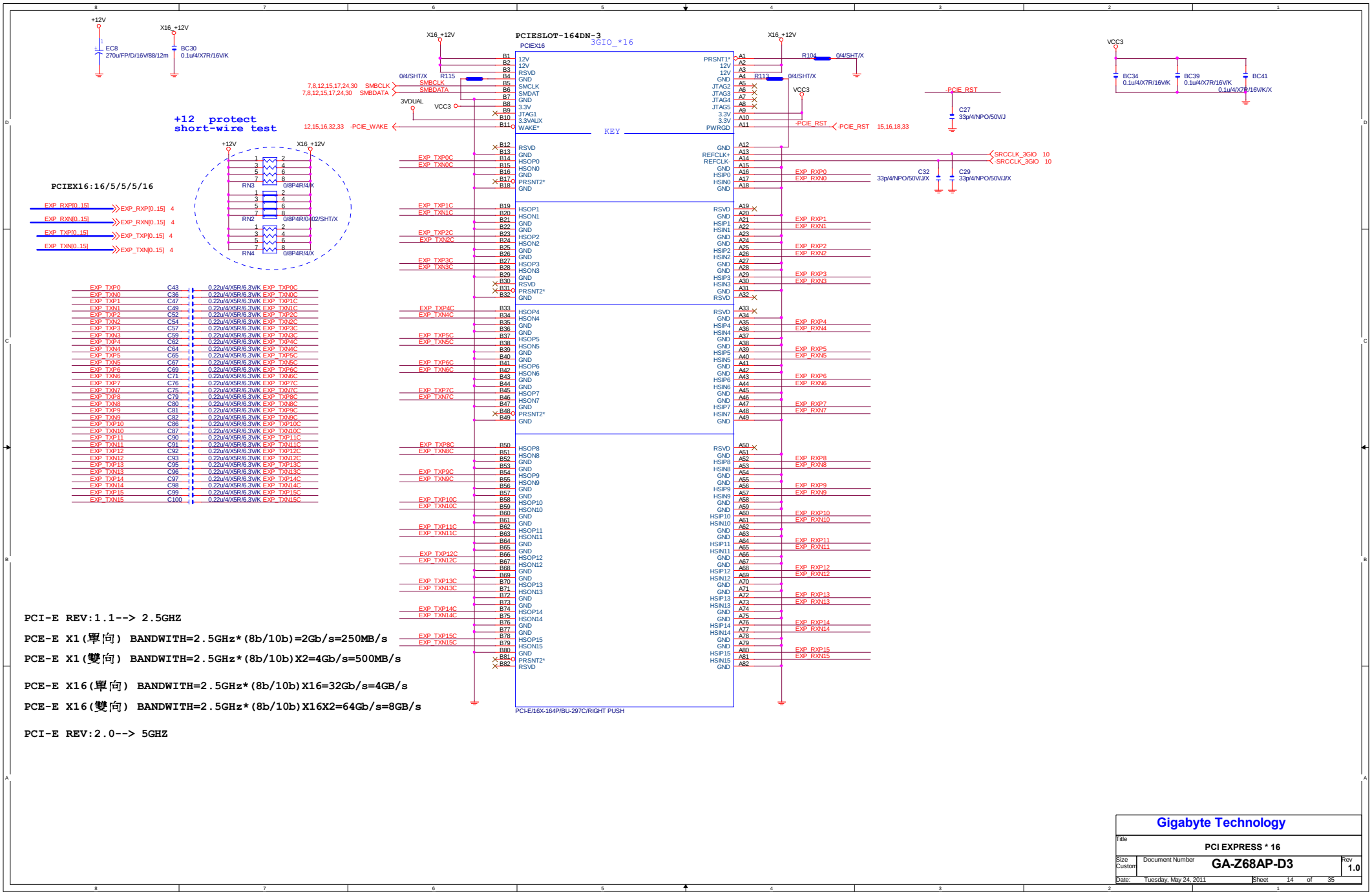

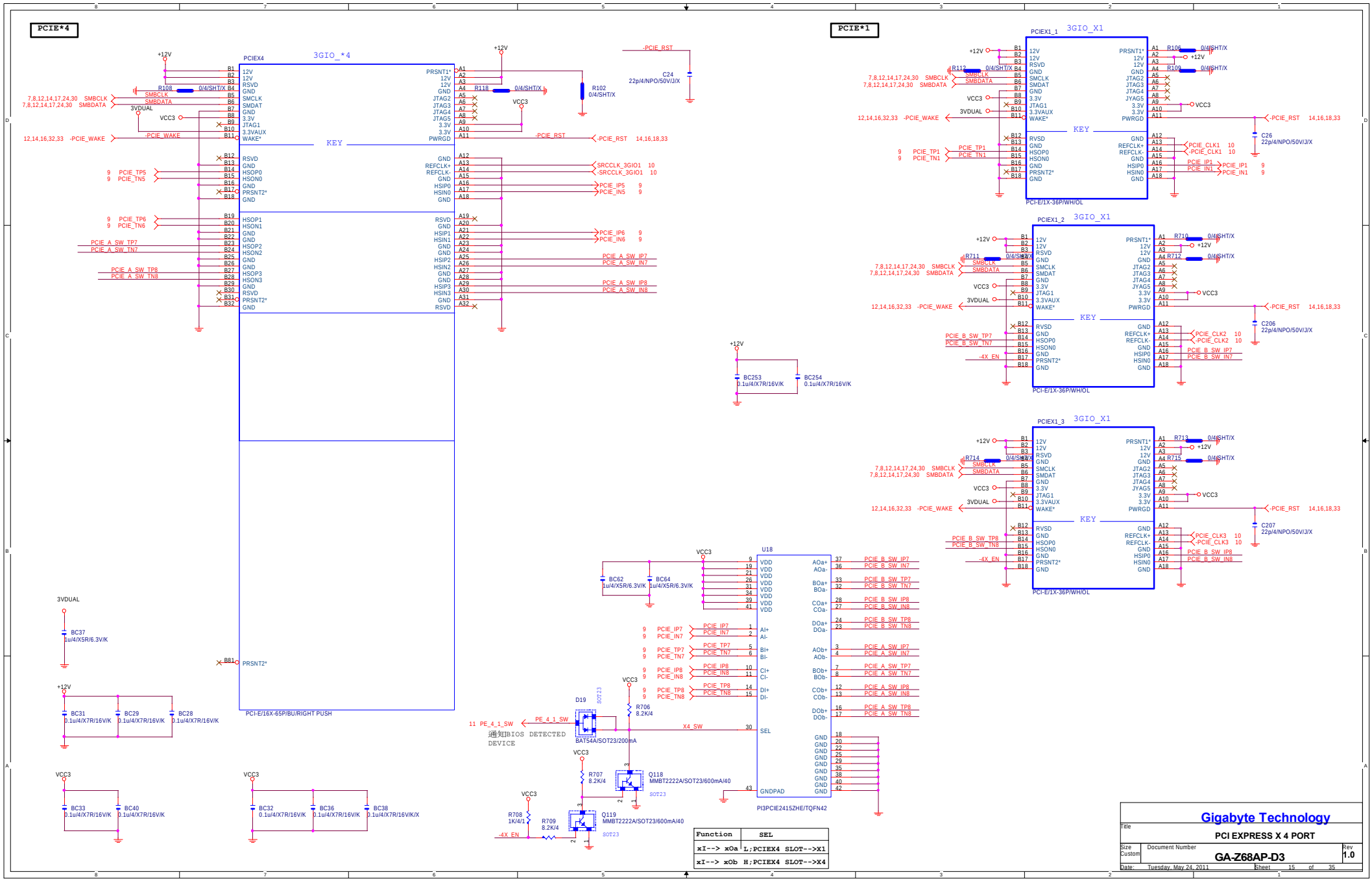

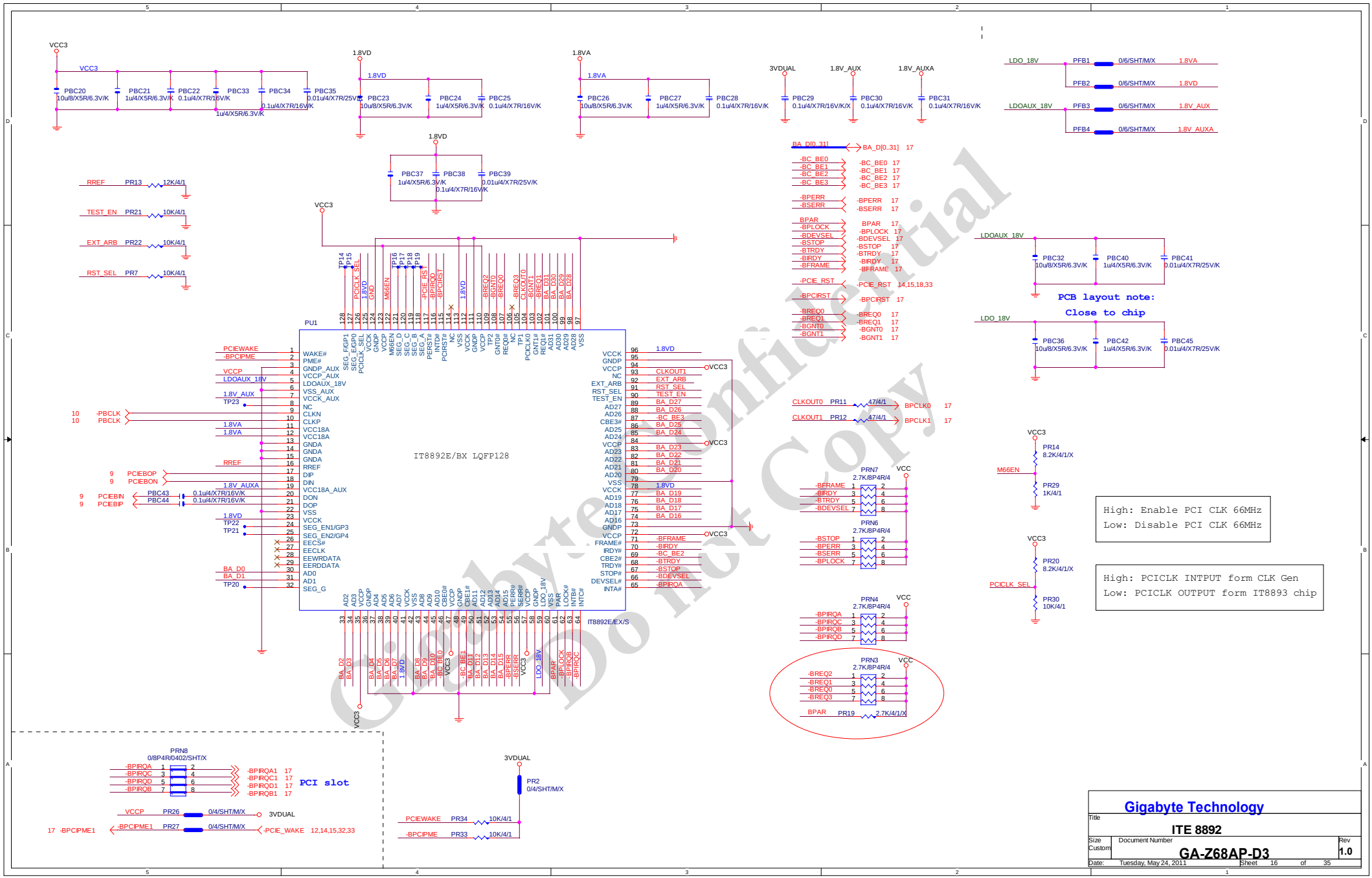

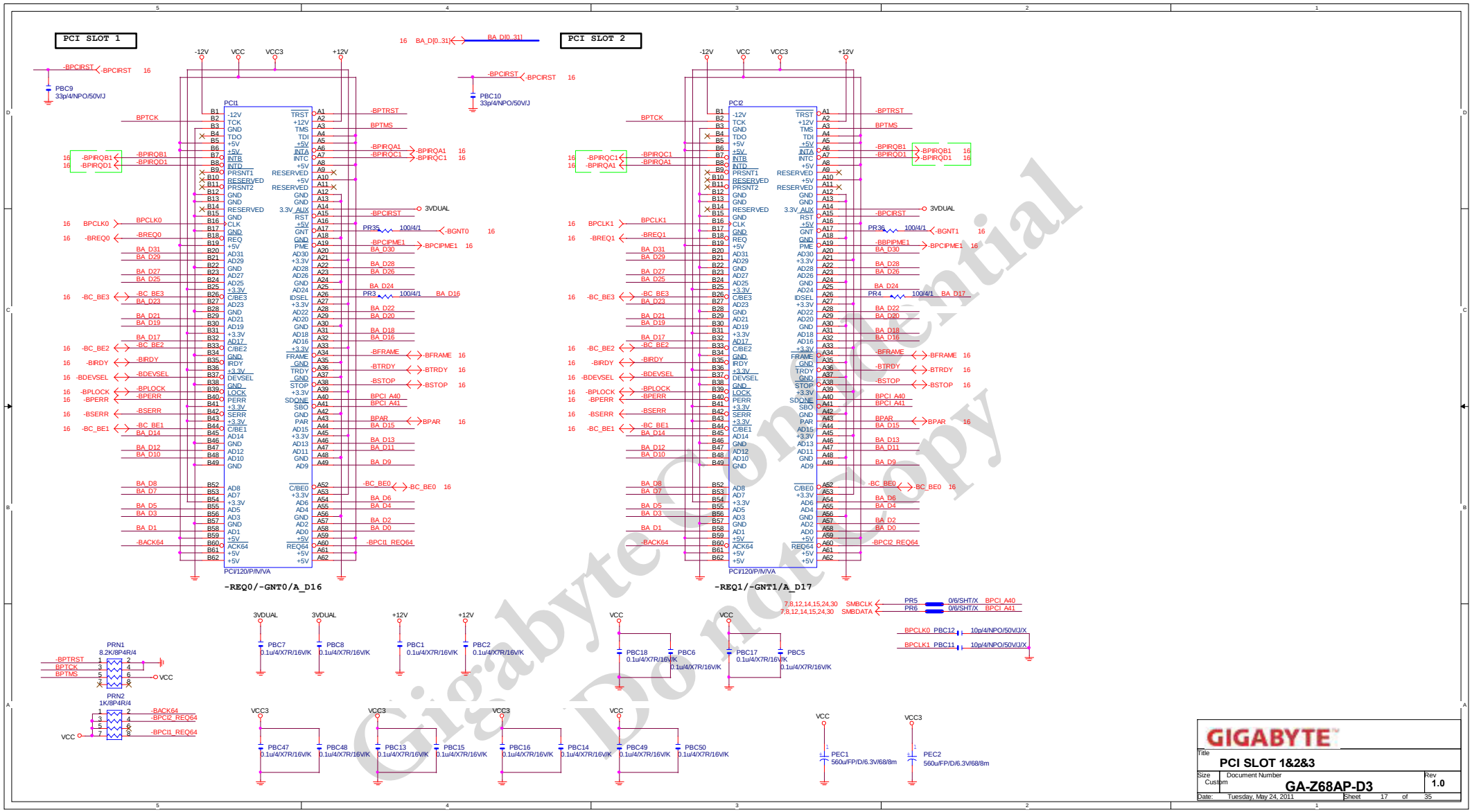

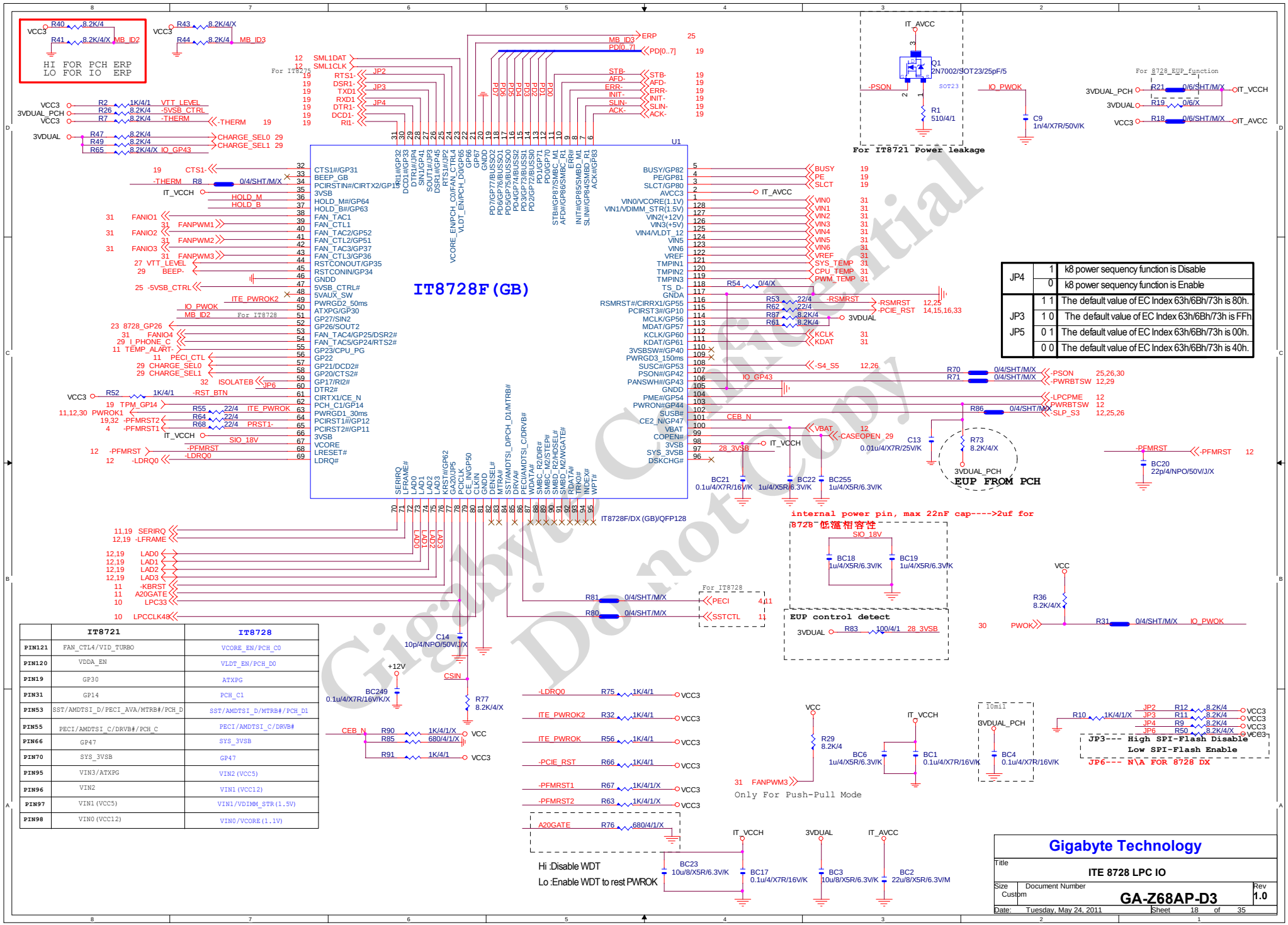

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

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

Gigabyte Technology	
Title	ITE 8728 LPC IO
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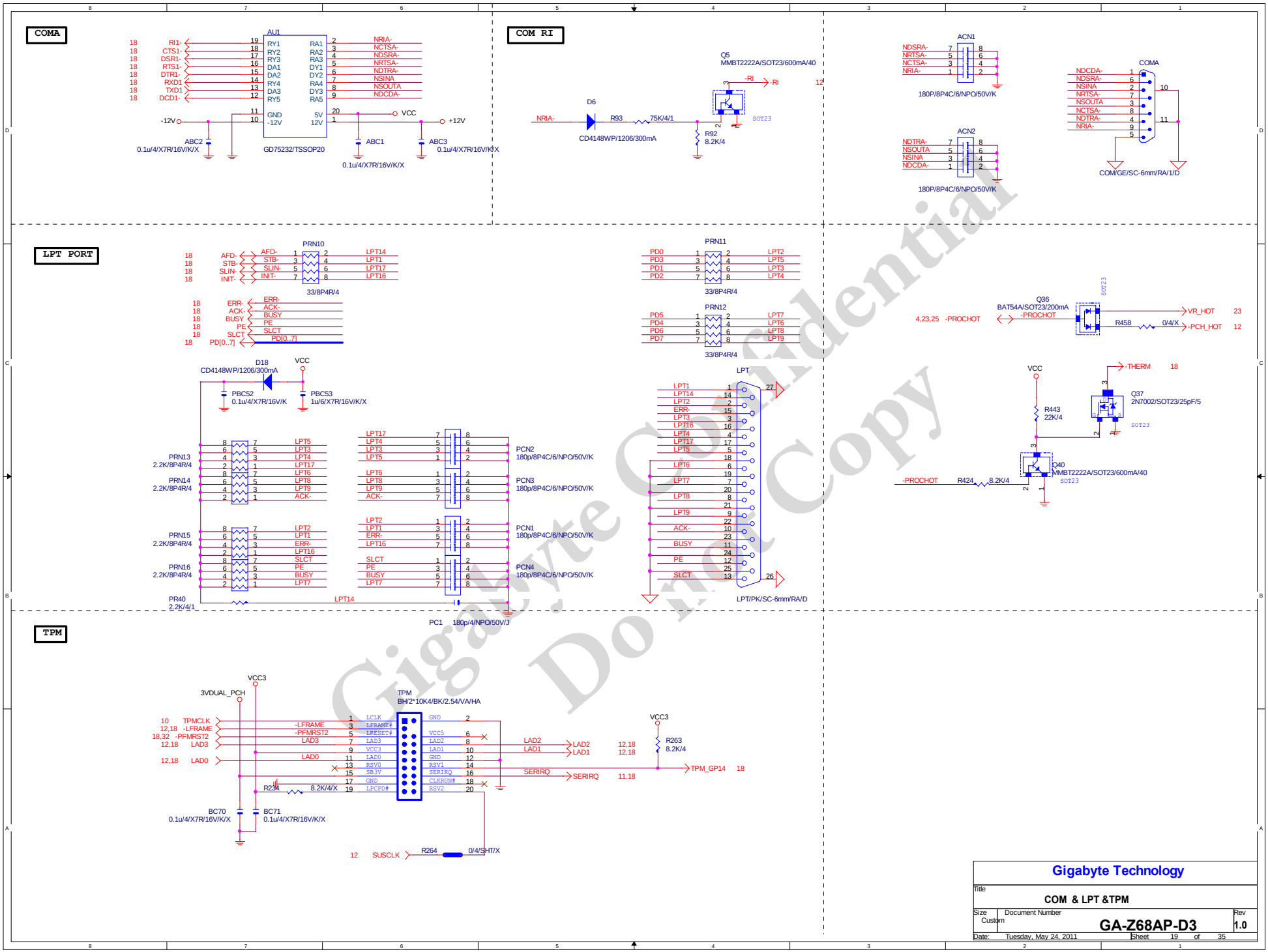

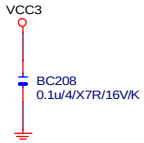

Gigabyte Technology		
Title: BIOS		
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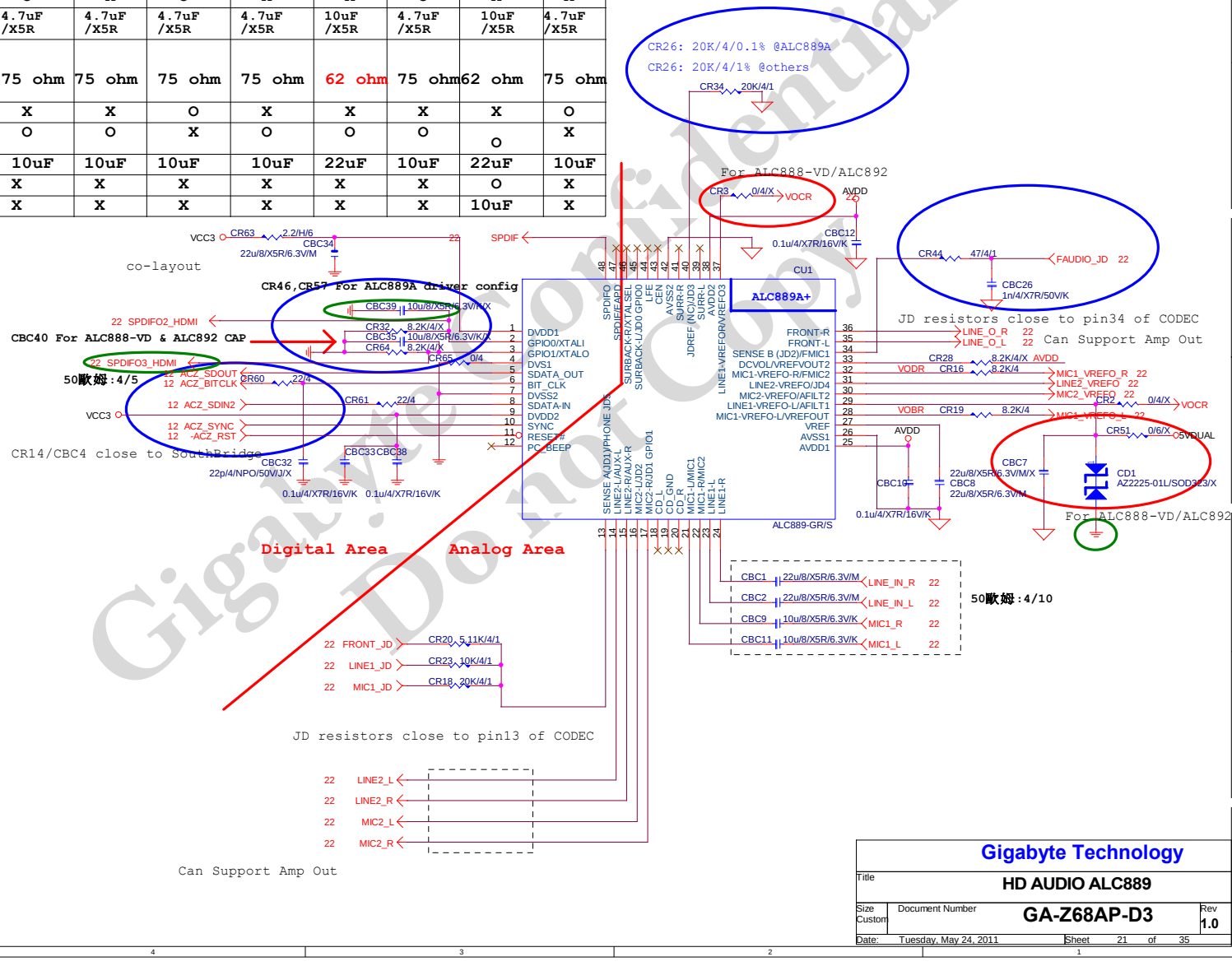
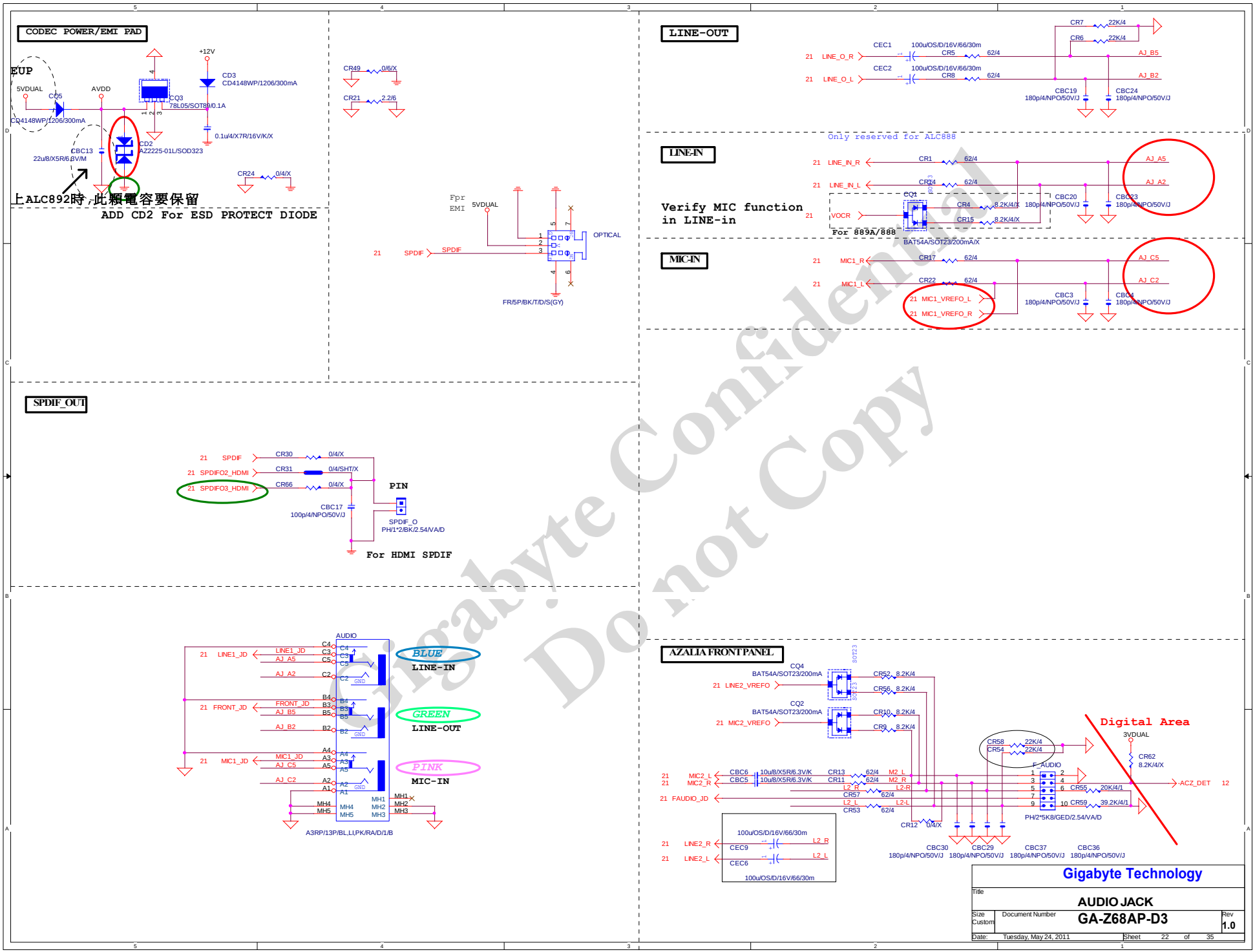
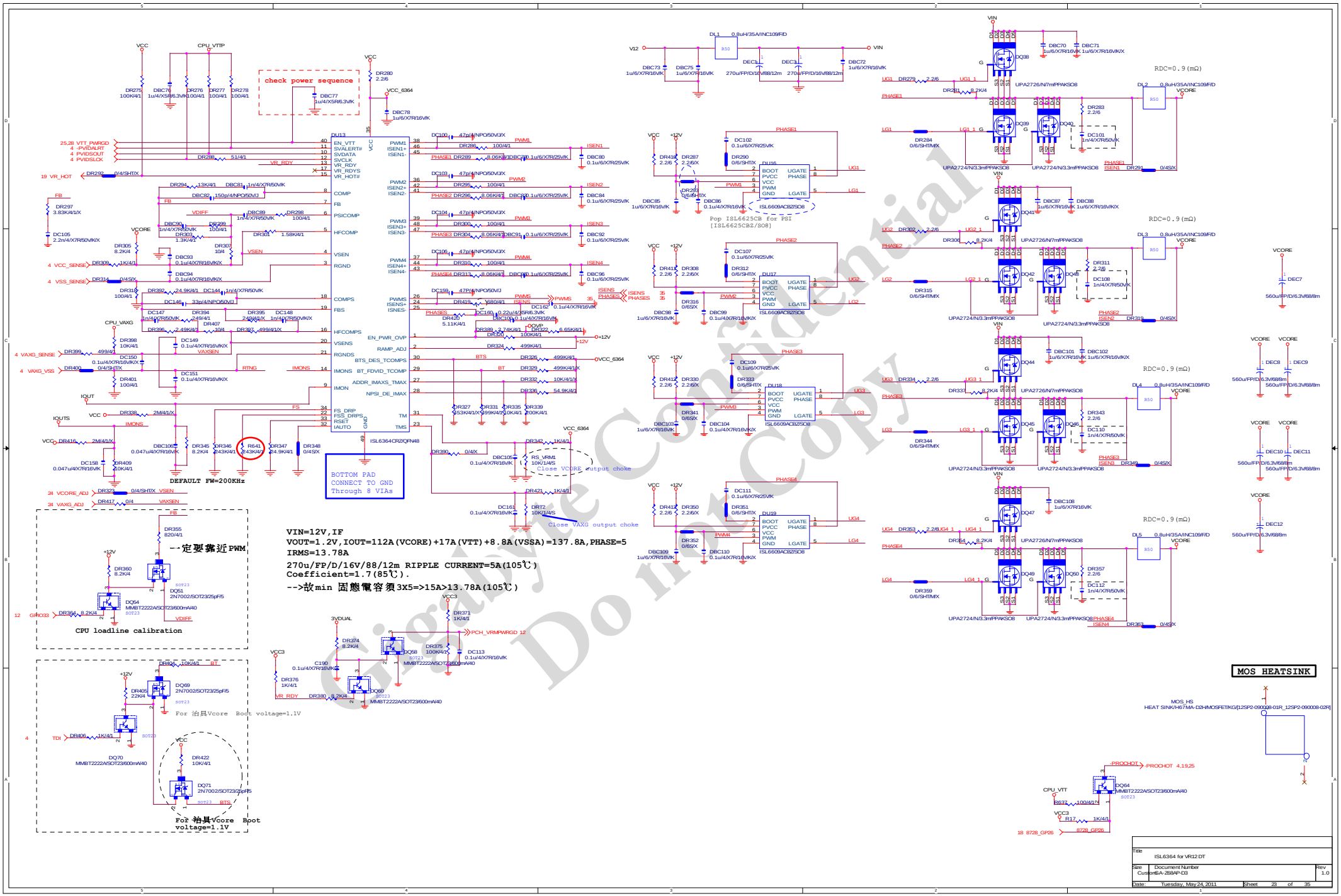
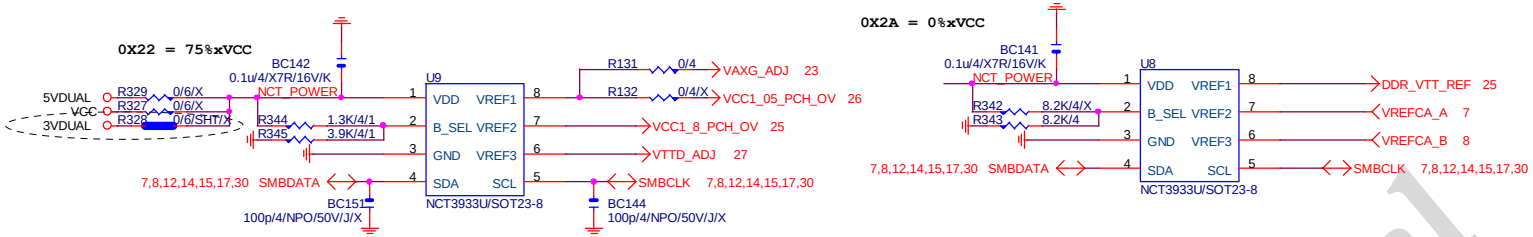
AZALIA CODEC *ALC883/ALC888-A/ALC888B/ALC888-VD/ALC892R/ALC889/ALC889A Colay*

	ALC883	ALC888-VA	ALC888B	ALC888-VD	ALC892R	ALC889	ALC889A	ALC889 New Bonding	ALC898 ALC892
CR32	X	X	X	X	X	X	O	X	X
CR64	X	X	X	X	X	X	O	X	X
CR65	O	O	X	X	X	O	O	O	X
CBC35	X	X	X	10uF/X5R	10uF/X5R	X	X	X	10uF/X5R
CR28	O	X	X	X	X	X	X	X	X
CR34	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/1%	20K/0.1%	20K/1%	20K/1%
CR31	X	X	O	X	O	O	X	X	O
CR30	O	O	X	O	X	X	O	X	X
CBC1/CBC2/CBC5/ CBC6/CBC9/CBC11	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	4.7uF /X5R	10uF /X5R	4.7uF /X5R	10uF /X5R	4.7uF /X5R
CR5/CR8/CR11/CR4/ CR17/CR22/CR45/CR33/ CR47/CR40/CR26/CR37/ CR13/CR11/CR57/CR53	75 ohm	75 ohm	75 ohm	75 ohm	75 ohm	62 ohm	75 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	X	X	X	O	X	X	X	X	O
CD2/CD3/CQ3/CQ5	O	O	O	X	O	O	O	O	X
CBC1/CBC2	10uF	10uF	10uF	10uF	10uF	22uF	10uF	22uF	10uF
CR66	X	X	X	X	X	X	X	O	X
CBC39	X	X	X	X	X	X	X	10uF	X









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

Gigabyte Technology

Title: CPU CORE VR-2

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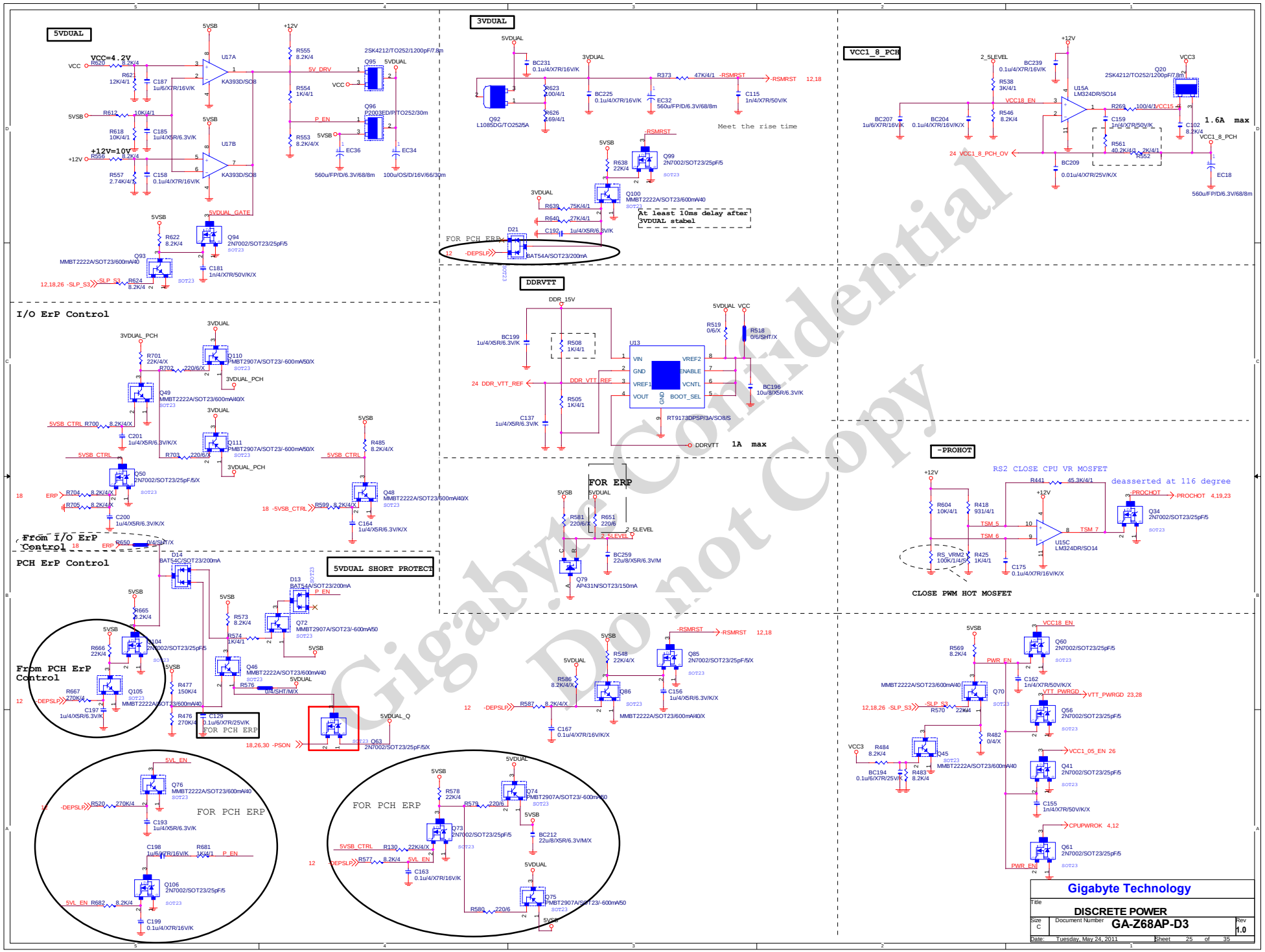
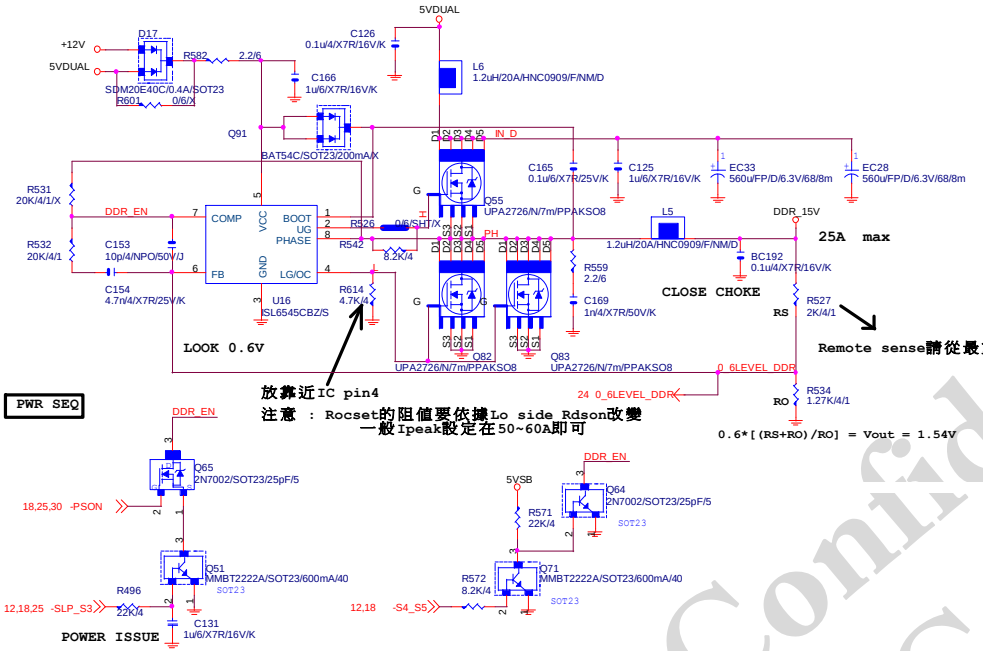


DDR18V



VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)

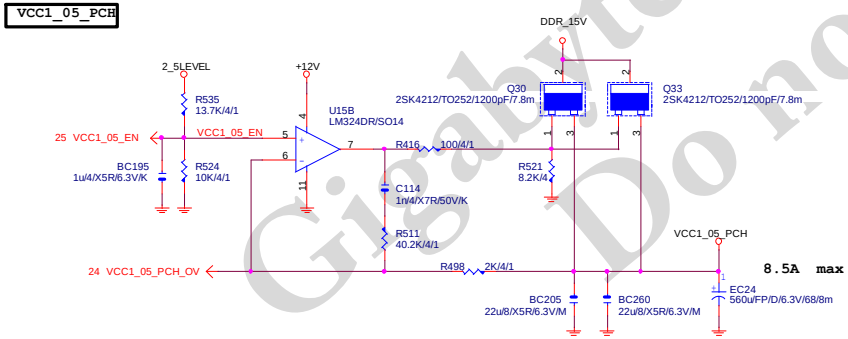
VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=4.7k

OCP :53.71A=(2x20uax4.7k)/(7m//7m)

PWR SEQ

VCC1_05_PCH



VIN=3.3V,VOUT=1.05V,IOUT=8.5A,PHASE=1
IRMS=3.959A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85℃),1(105℃)

VIN Ripple current=4.7X1.7=7.99A(85℃)
-->故固態電容須2X7.99=15.98>11.45A

OCP : Ipeak=(2xIocsetxRocset)/Rdson
typ Iocset=20uA , Rocset=8.2k
OCP :46.86A=(2x20uax8.2k)/7m

Gigabyte Technology		
Title: DDR_15V		
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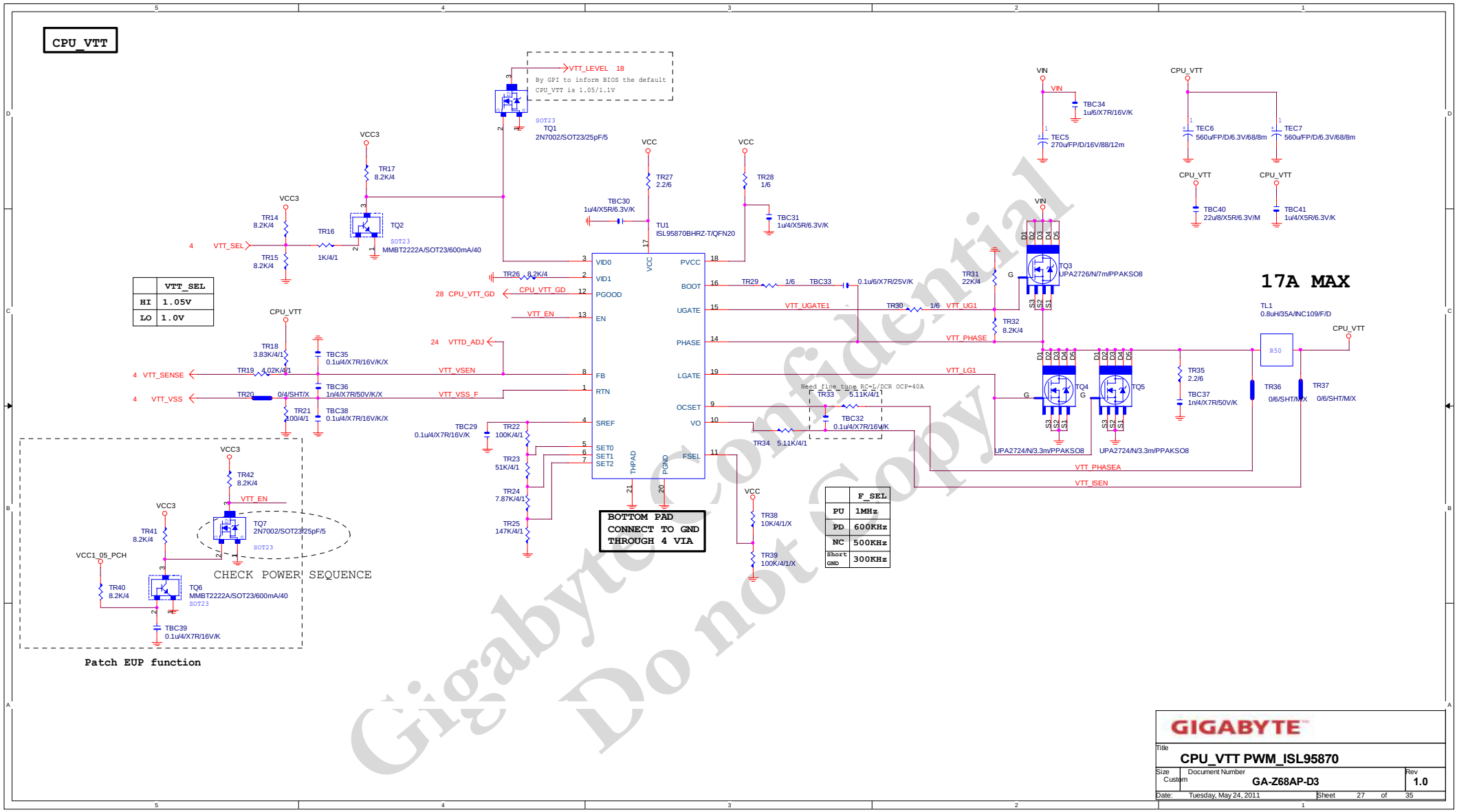
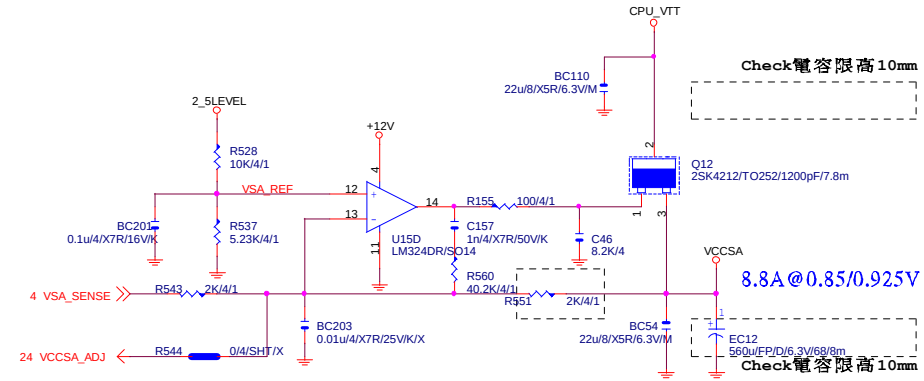
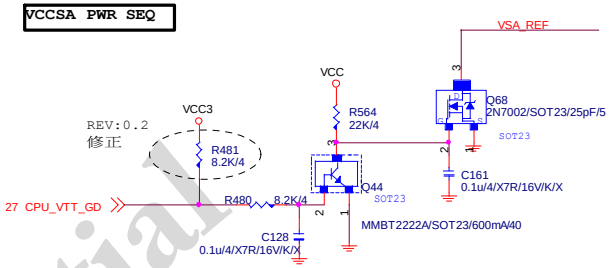
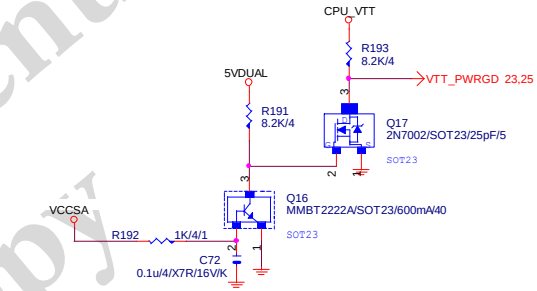
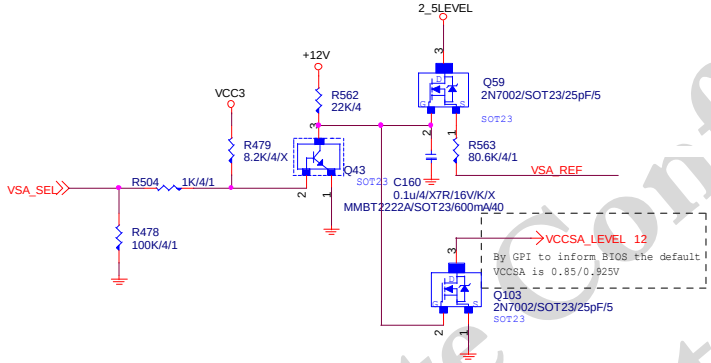


VCC_SA









PDG 1.01

	VSA_SEL
HI	0.85V
LO	0.925V

Gigabyte Technology	
Title	CPU VTT PWM_ISL6312
Size: Custom	Document Number: GA-Z68AP-D3
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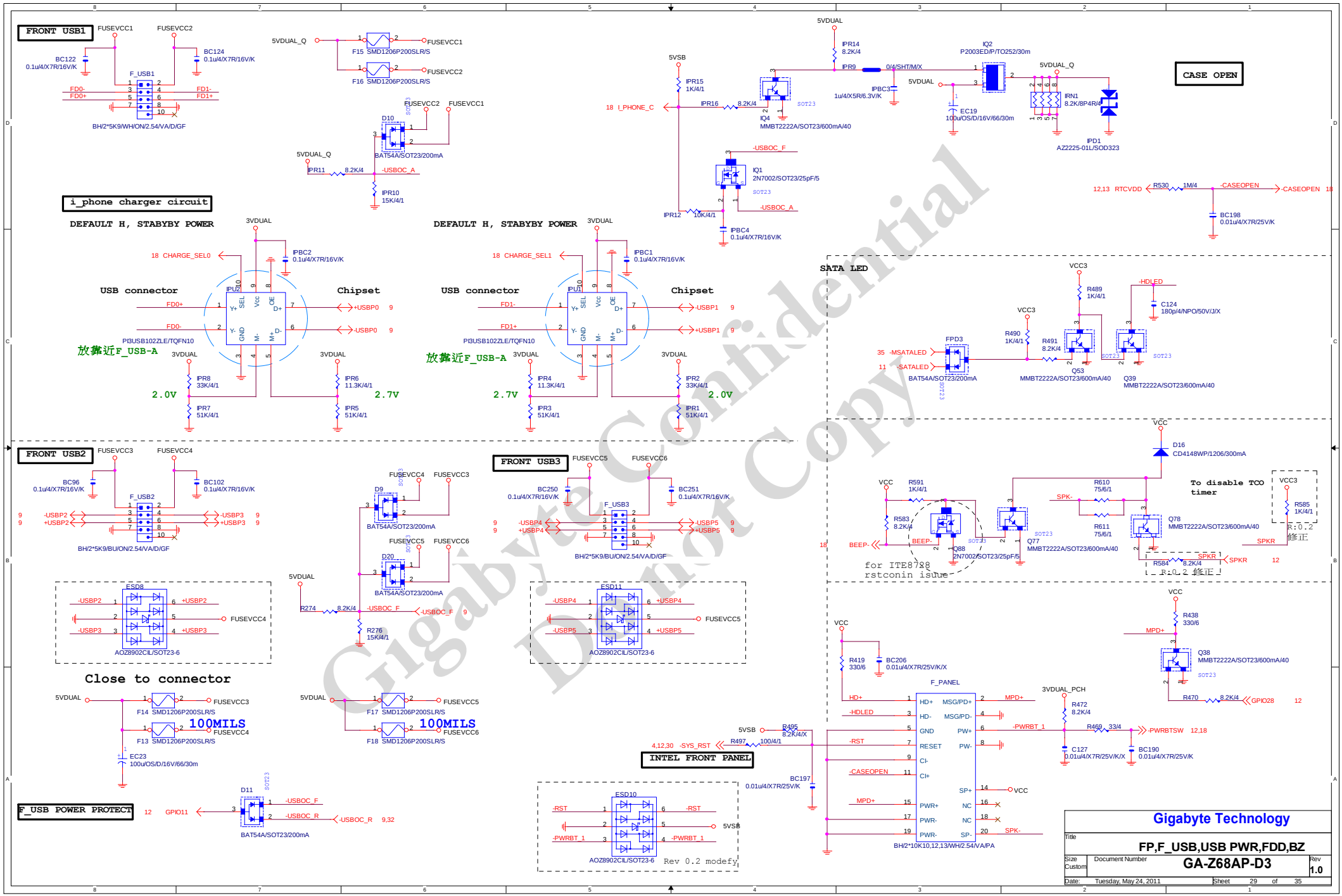
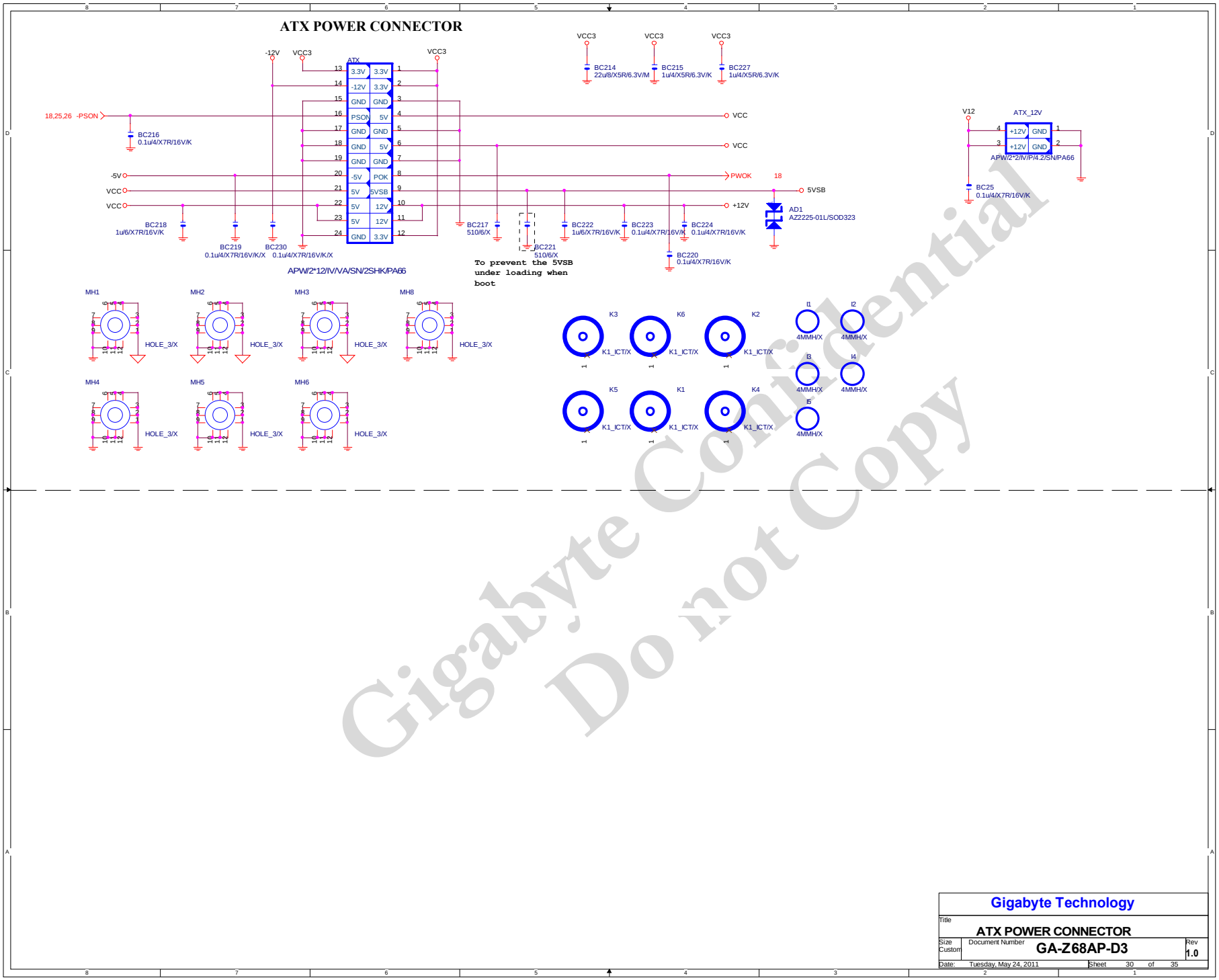
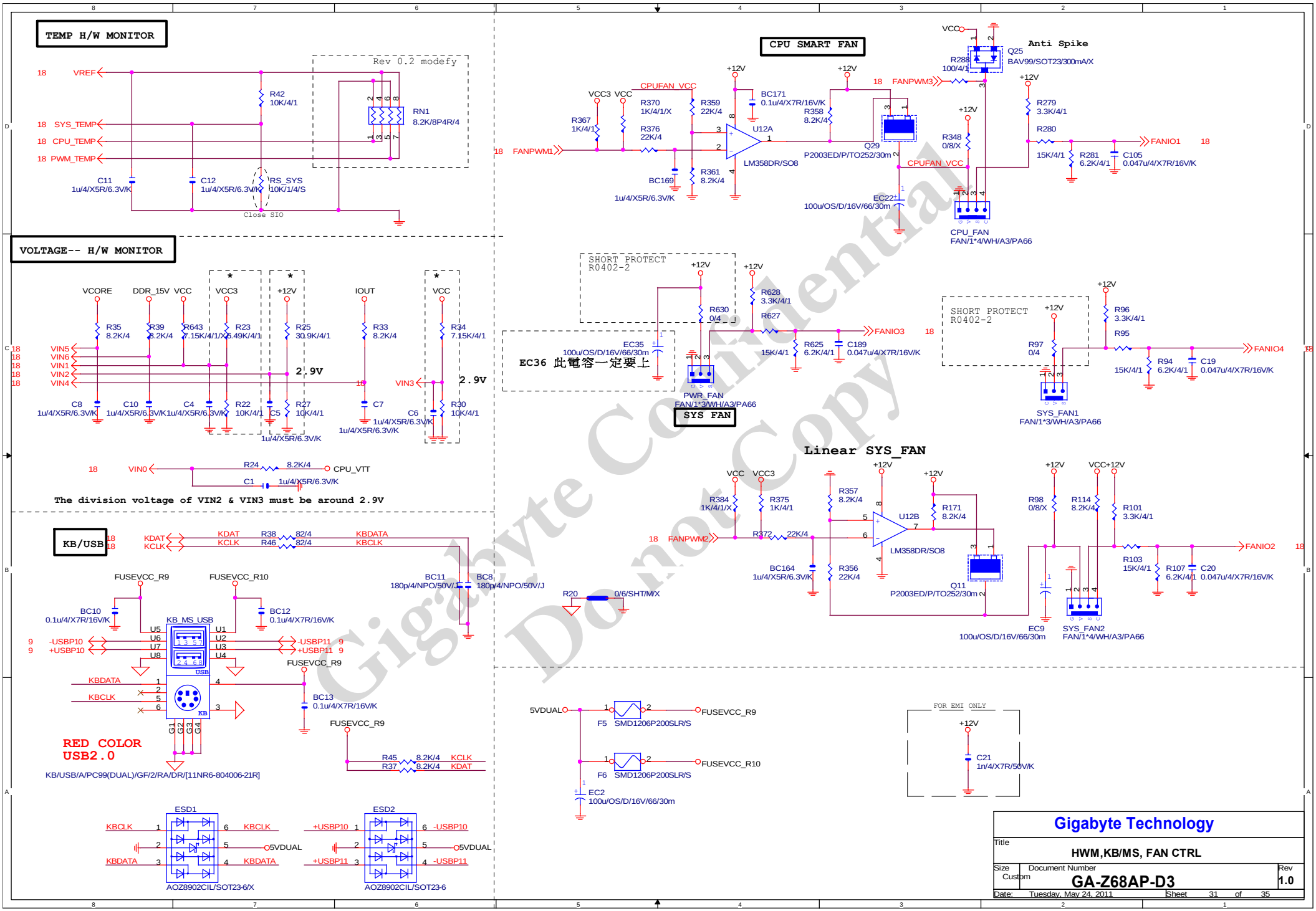
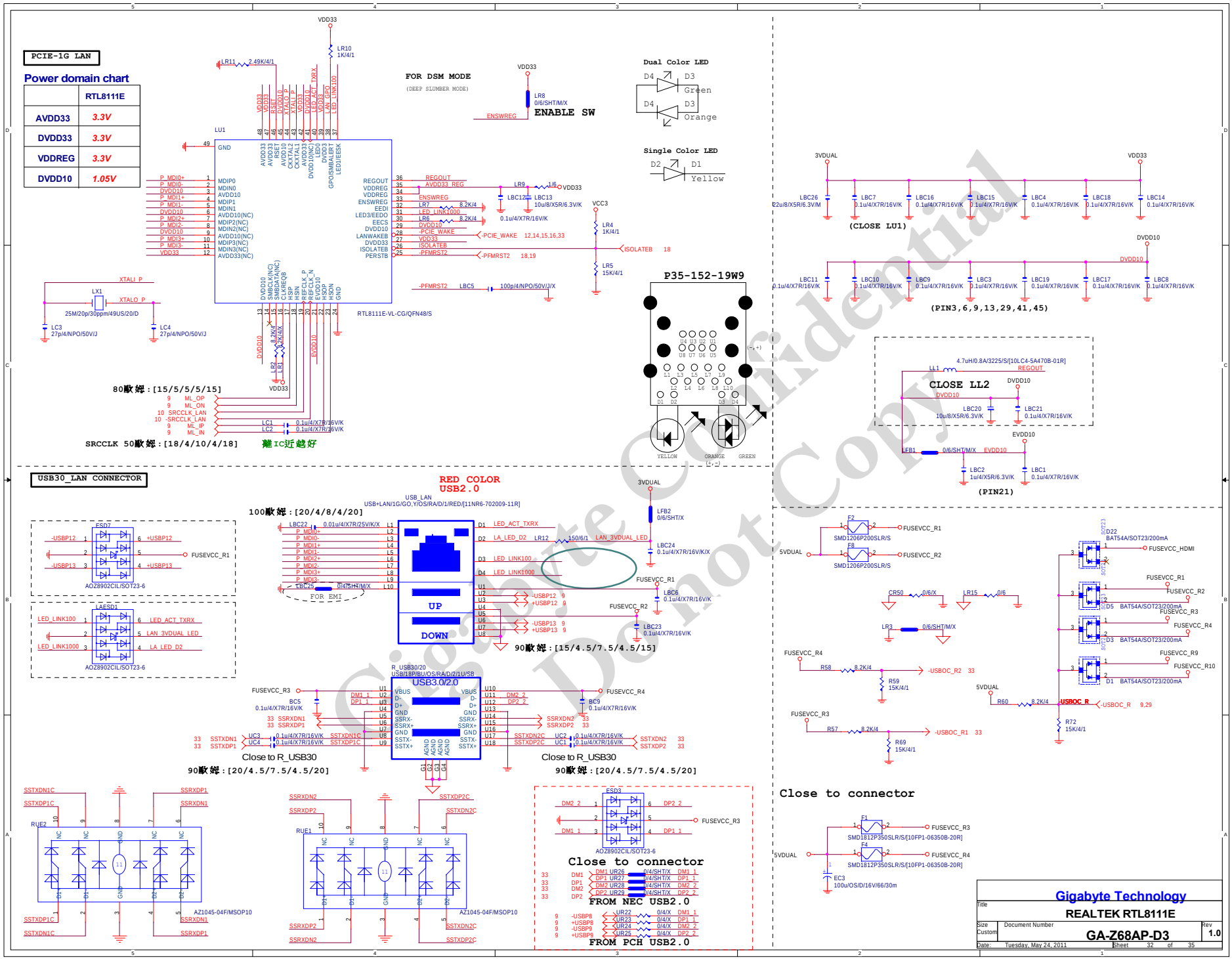
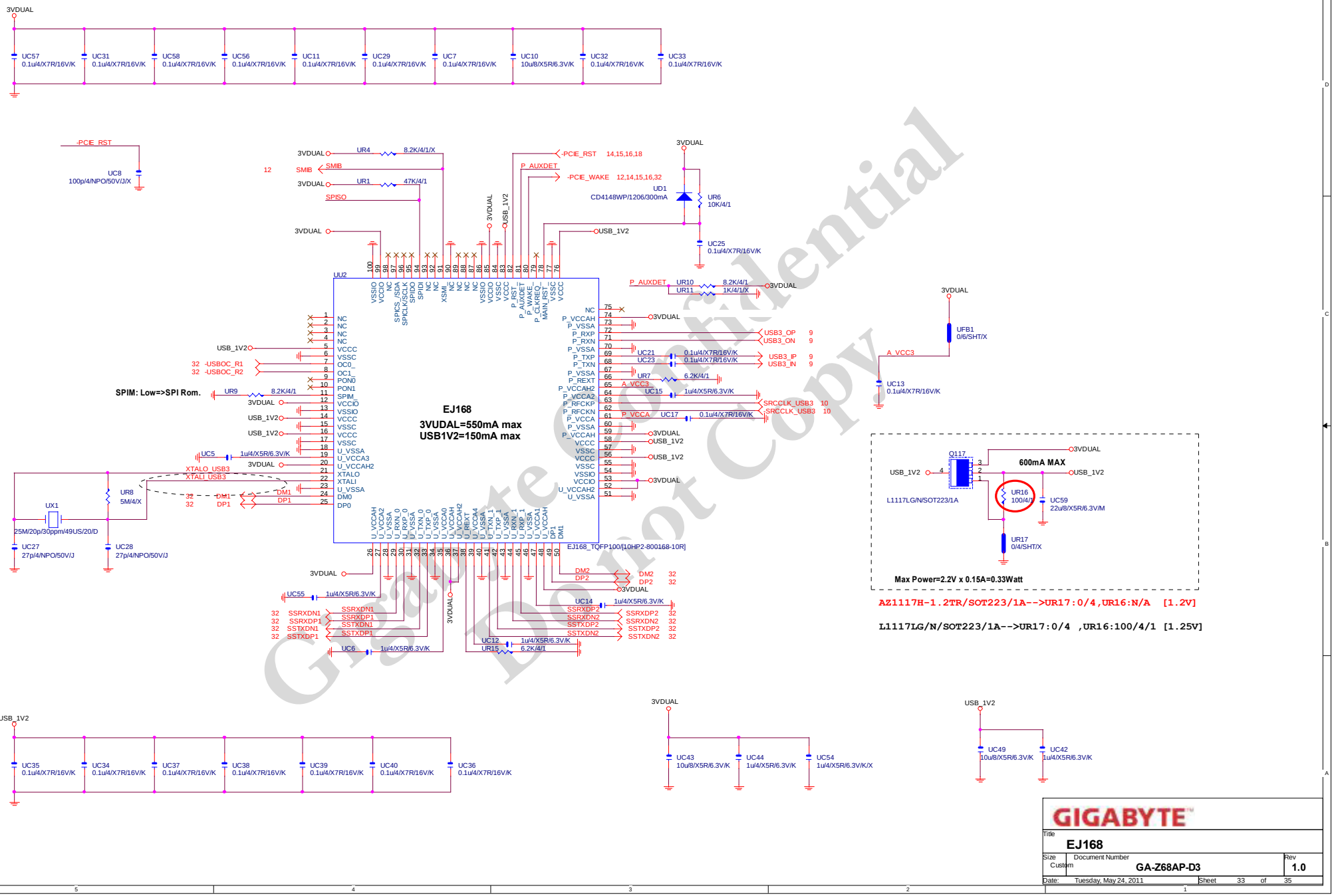
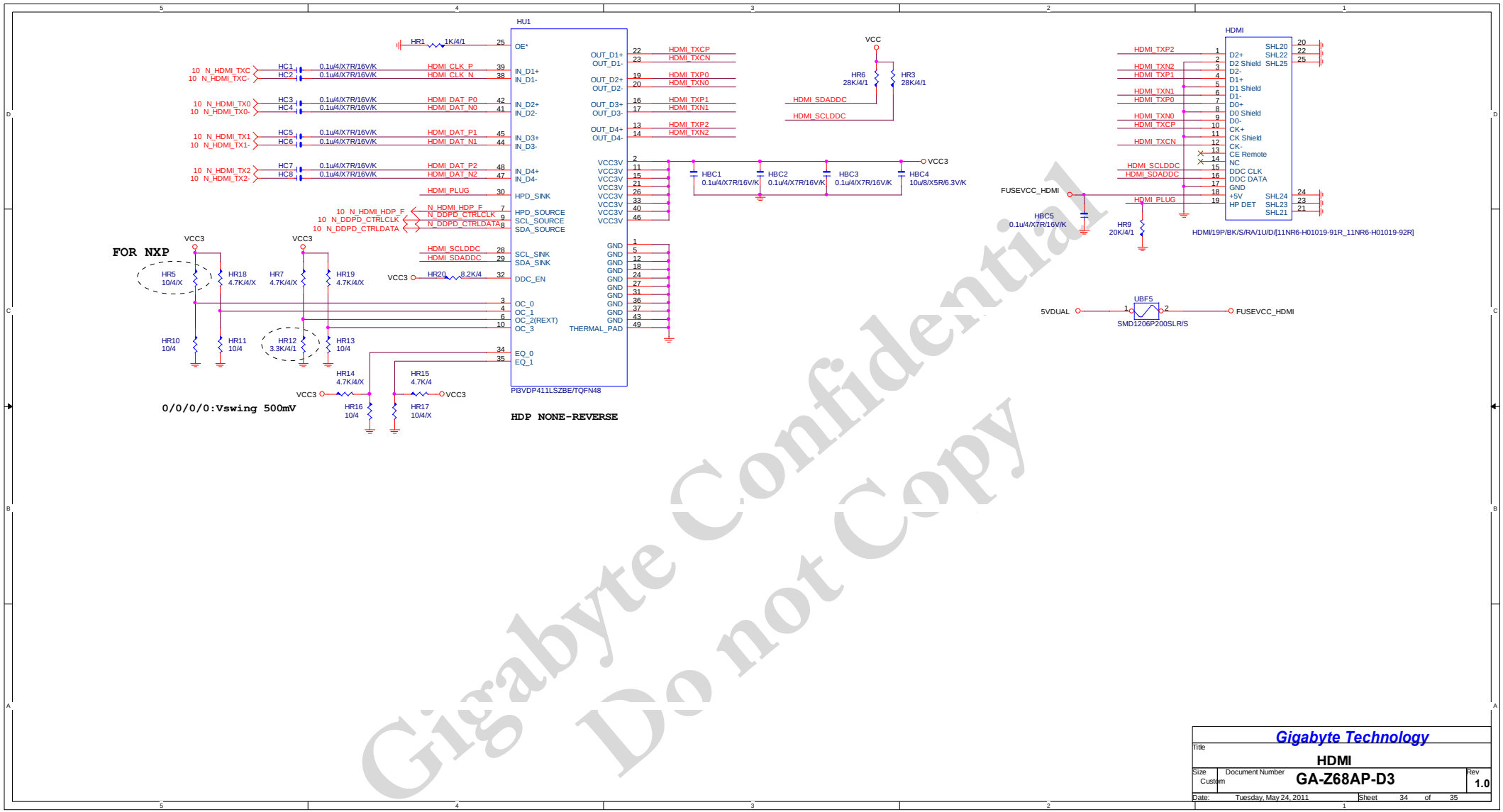








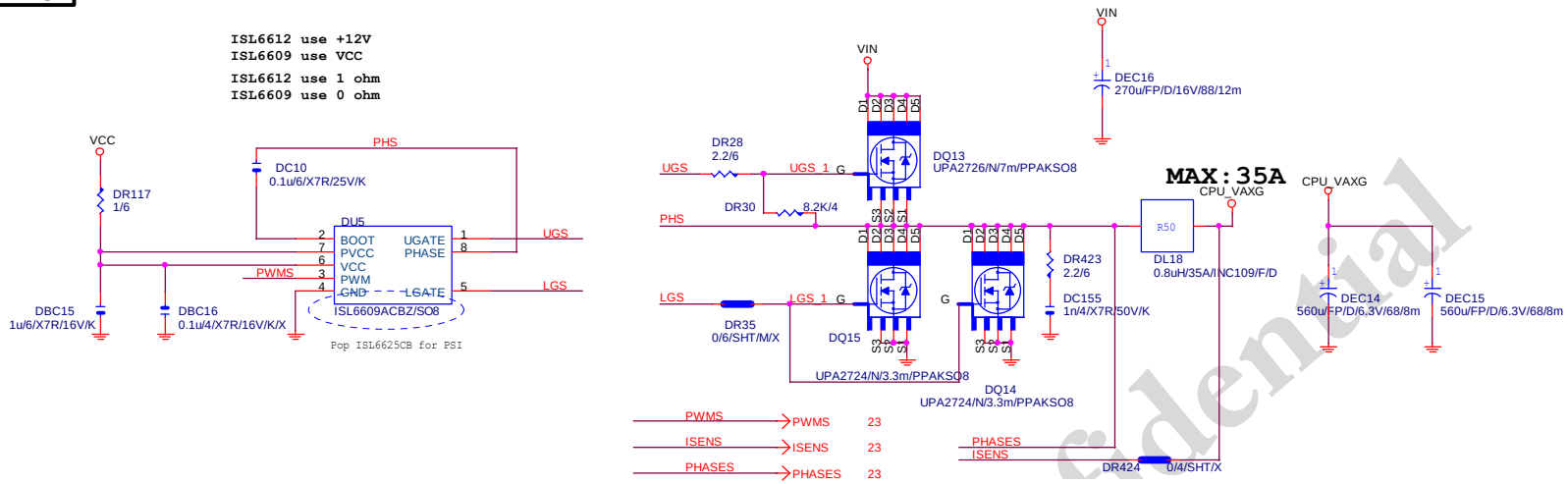


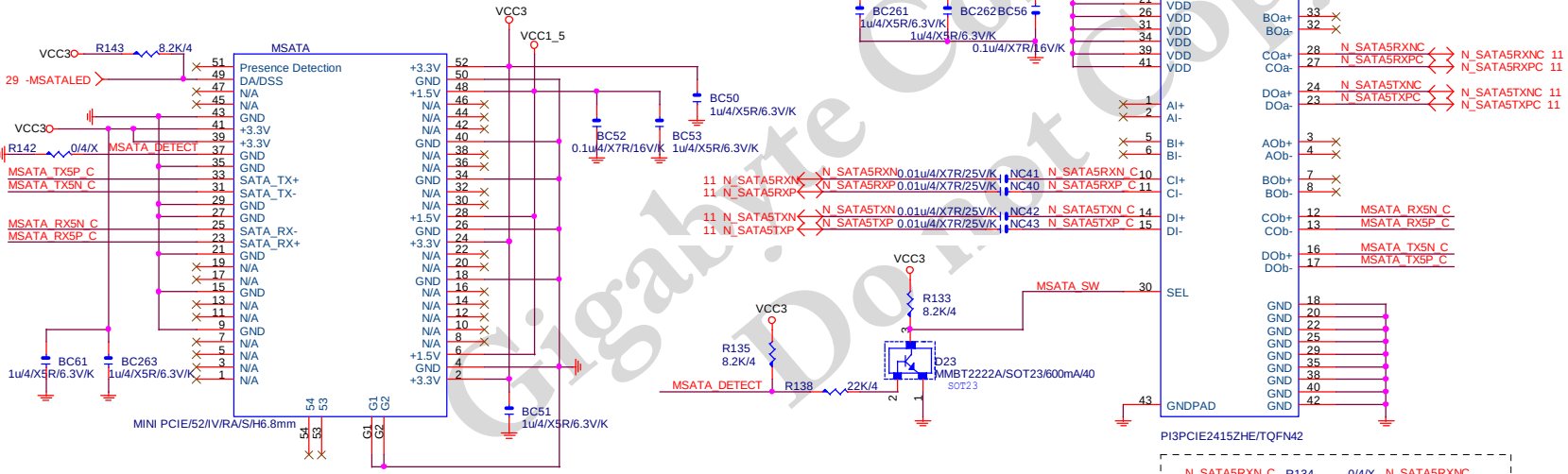


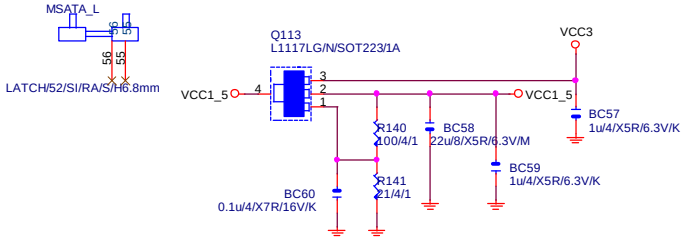
VAXG

ISL6612 use +12V
ISL6609 use VCC

ISL6612 use 1 ohm
ISL6609 use 0 ohm







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

N_SATA5RXN_C R134 0/4/X N_SATA5RXNC
N_SATA5RXP_C R136 0/4/X N_SATA5RXPC
N_SATA5TXN_C R137 0/4/X N_SATA5TXNC
N_SATA5TXP_C R139 0/4/X N_SATA5TXPC

FIX PCH-SATA --> SATA , R請放在U18背面

GIGABYTE

Title: VAXG PHASE

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