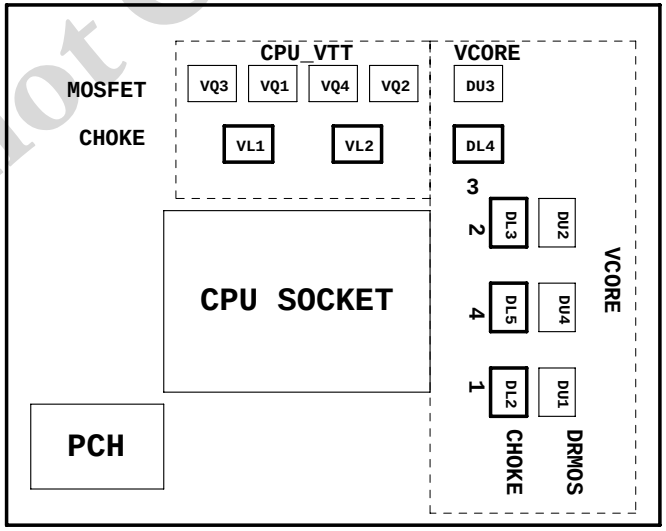
Model Name: GA-Z68X-UD3-B3 *1.02*

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1155-A
05	CPU_LGA1155-B
06	CPU_LGA1155-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,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*16/*8 SWITCH
17	PCI EXPRESS*1 SLOTs X3
18	PI7C9X113SL
19	PI7C9X113SL POWER
20	PCI SLOT 1&2
21	I/O ITE8728
22	COM, -PROHOT, ESATA CONNECT
23	Dual BIOS , TPM SLB9635TT
24	ALC892
25	REAR AUDIO JACK
26	VCORE PWM_ISL6366CRZ-1
27	VCORE PWM_ISL6366CRZ-2

SHEET	TITLE
28	VCORE PWM_ISL6366CRZ-3
29	DISCRETE POWER I
30	DDR_15V & VCC1_05_PCH PWM_ISL6545CBZ
31	CPU_VTT PWM_ISL6322G
32	VCCSA POWER
33	F_PANEL , F_USB , FDD
34	ATX POWER, CLOCK GEN
35	HWM,KB/MS , FAN CTRL
36	REALTEK RTL8111E
37	ESATA SE9128
38	FRONT NEC USB3.0
39	REAR NEC USB3.0
40	TABLE LIST



Gigabyte Technology

Title	Cover Sheet	
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 1 of 42	

GA-Z68X-UD3-B3

Component value change history

Data	Change Item	Reason
P67X-UD3-B3 REV0.1		
10A	1. ESD IC 只上USB2.0/3.0,其餘移除	
	2. 精成PCB移除	
10B	1. EC1 560u --> 100u & Add ESD 5VSB AD1	
	2. UAFB1,UAFB2,UBF1,UBF2 Footprint update 1206-->1812	
Z68X-UD3-B3-10A	1. Add NXP, PANJIT 2N7002料號	
	2. P67 --> Z68	
Z68X-UD3-B3-10B	1. PCB ADD "精成" 1.02	
	2. EUP FUNCTION C14 4.7u --> 1u , R95 1K --> 8.2K	
	3. PCH Chips update : 10HB1-030Z68-21R	
	4. 2N7002,MMBT2222,2N2907 --> NXP	
	5. DPAK NEC --> ON	
Z68X-UD3-B3-10C	1. MOS_HS 12SP2-S08628-01R/02R/03R --> 12SP2-S08628-11R/12R/13R	
	2. Add PCB "精成"	

Circuit or PCB layout change

DATE	Change Item	Reason
P67X-UD3-B3 REV0.1	1. EVT Release	
	1. 移除LAR11 ,LAR14 , NR28 ,新增NTP11 2. 新增DR388,DR389,DR391 ; Remove DQ49,DR347,DR371 3. CR44改成R0603-RH 4. R1,LAR3,RBR20,LABC25 -->R0402-2-SHORT 5. RAQ1 --> Q_TO223-MASK 6. RARN1 --> R8P4R-0402-SHORT 7. CESD1~5 --> SSOP5 8. RAQ2,RAEC1一起往下移40mil 9. CESD2文字面要標pin1	
P67X-UD3-B3 1.0-0308	1. Add "Dolby" logo	
1.02	1. UAFB1,UAFB2,UBF1,UBF2 Footprint update 1206-->1812 2. Add "AD1" FOR 5VSB	
Z68X-UD3-B3 1.02	1. 文字面 : P67X-UD3-B3 --> Z68X-UD3-B3	

4. Add TM & TMS 0 ohm
5. ITE8275_CLK CHANGE TO PCH.AW5

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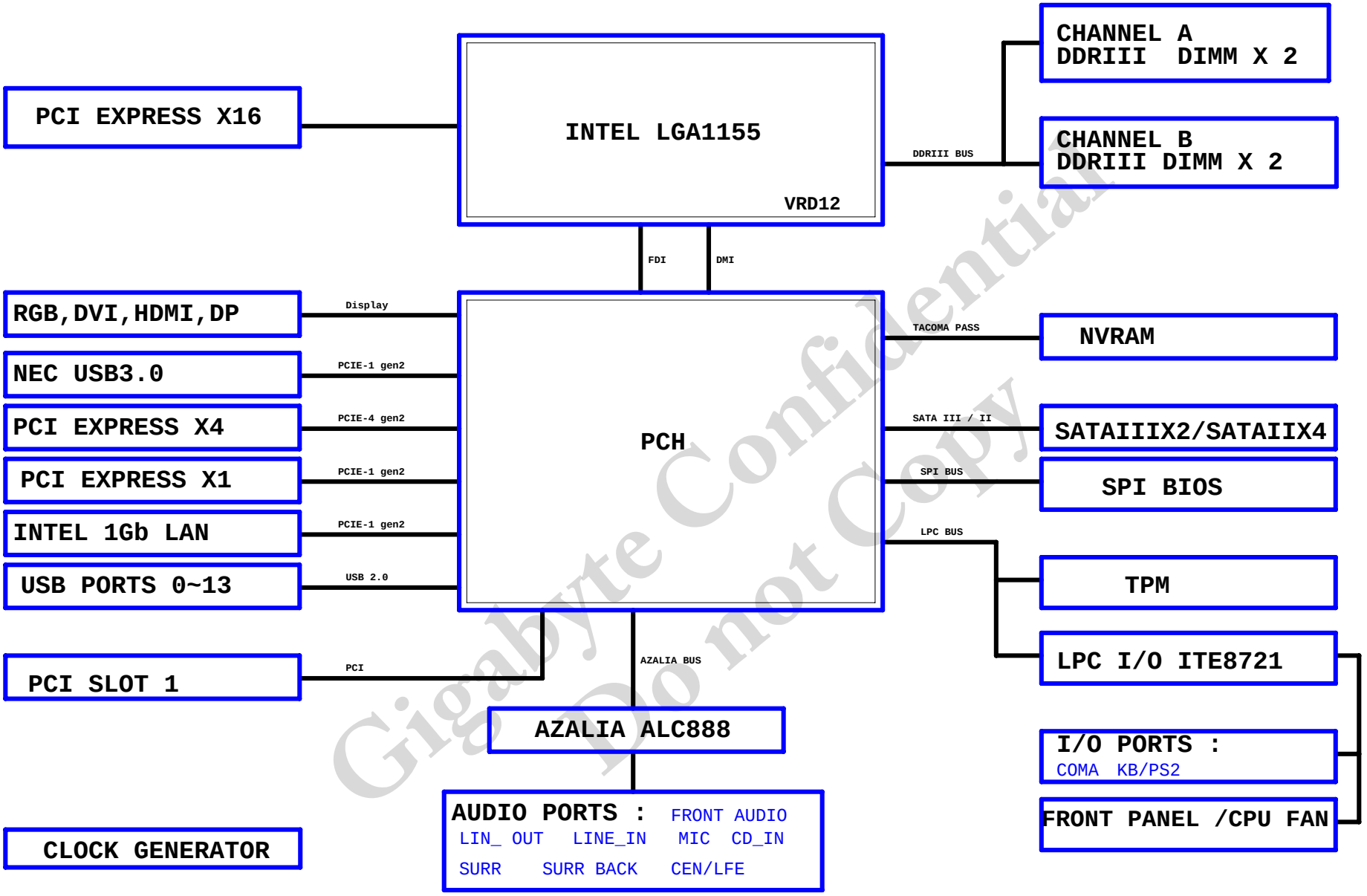
Title: BOM & PCB MODIFY HISTORY

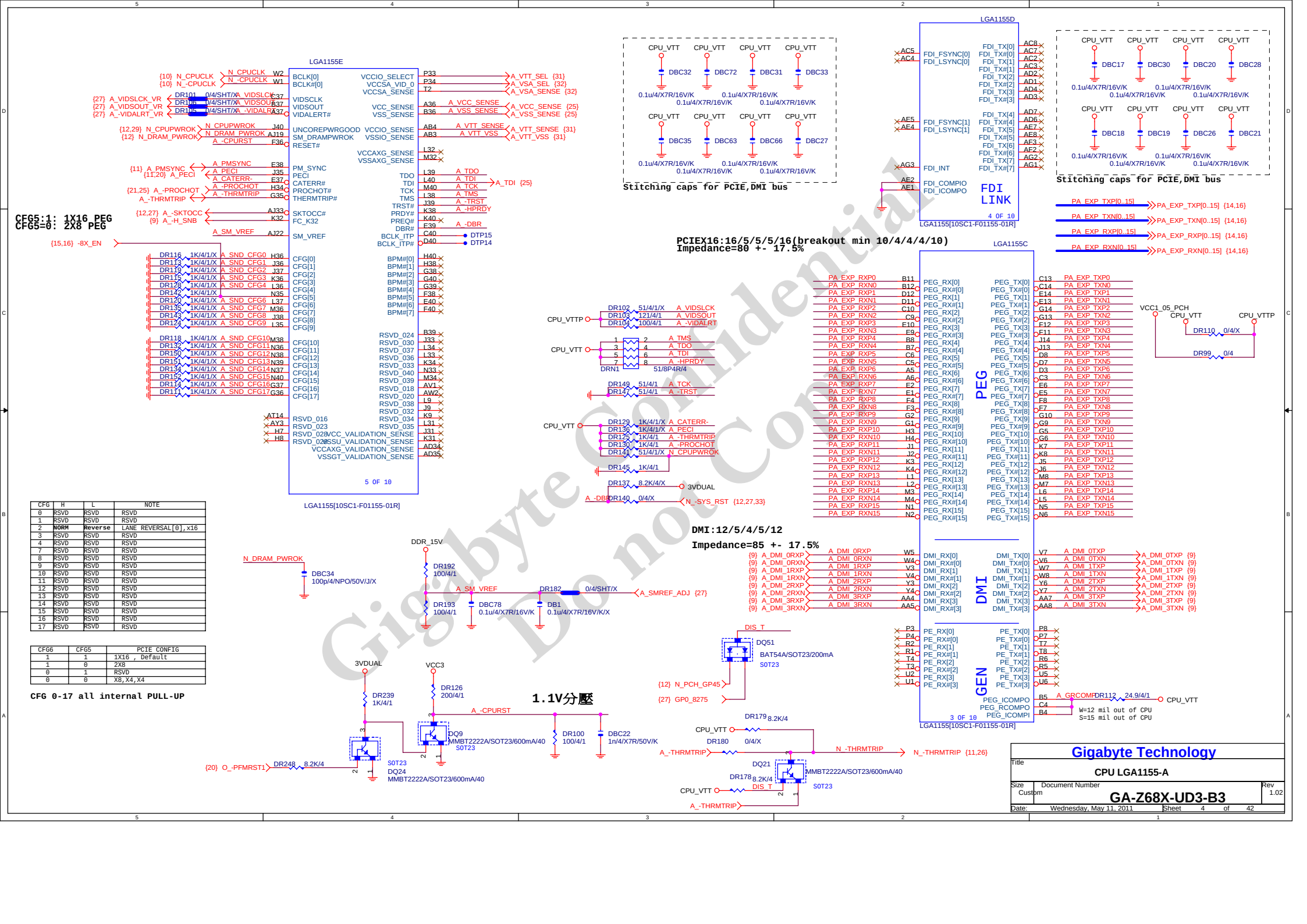
Size: Custom | Document Number: GA-Z68X-UD3-B3 | Rev: 1.02

Date: Wednesday, May 11, 2011 | Sheet 2 of 42

BLOCK DIAGRAM



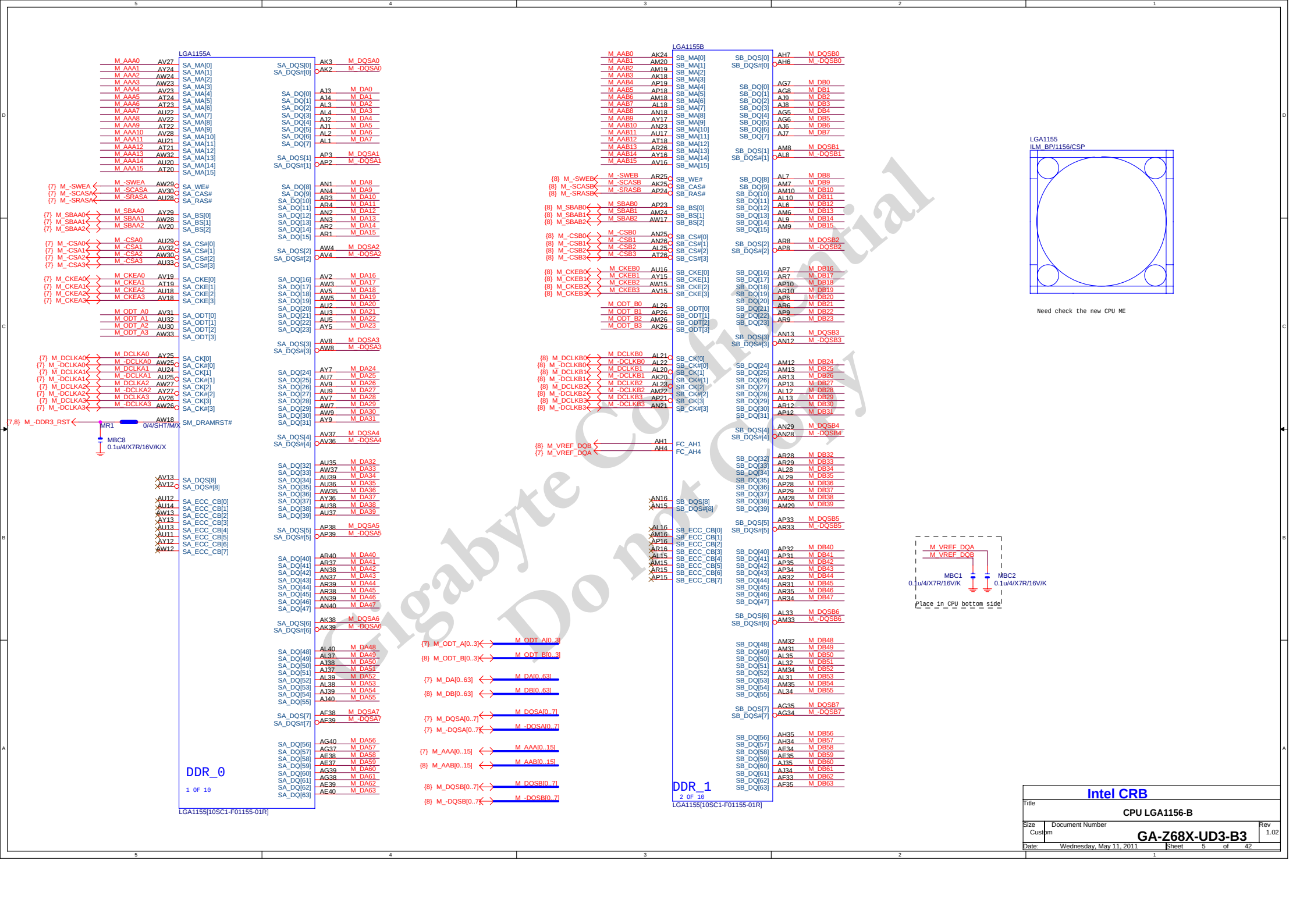
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 3 of 42	



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

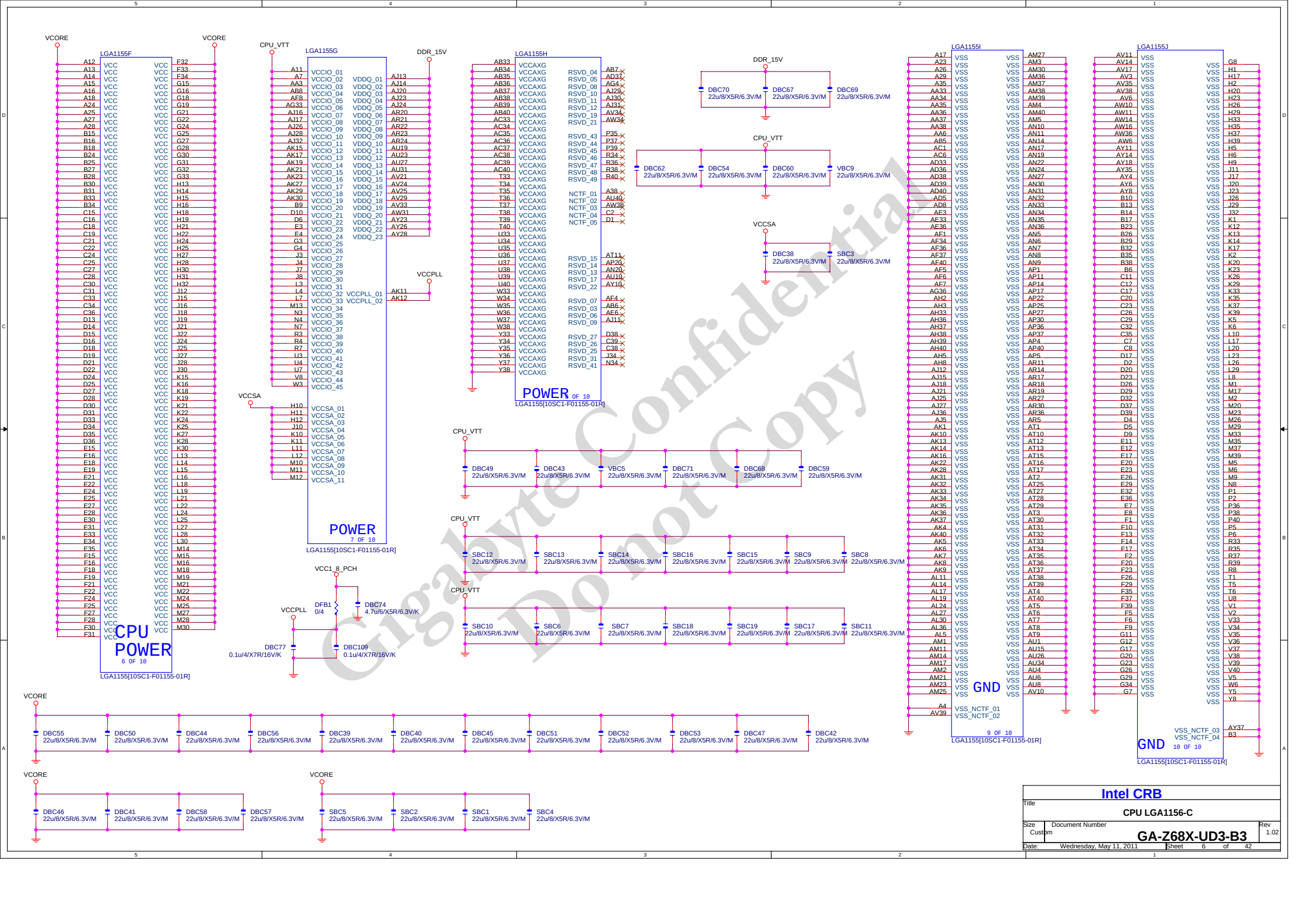
CFG6	CFG5	PCIE CONFIG
1	1	1X16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP



Title	CPU LGA1156-B
Size	Custom
Document Number	GA-Z68X-UD3-B3
Rev	1.02
Date:	Wednesday, May 11, 2011
Sheet	5 of 42

Intel CRB


LGA1155F
LGA1155G
LGA1155H
LGA1155I
LGA1155J
CPU POWER
6 OF 10
POWER
7 OF 10
POWER
8 OF 10
GND
9 OF 10
GND
10 OF 10
LGA1155[10SC1-F01155-01R]
VCORE
CPU_VTT
DDR_15V
VCCPLL
VCCSA
VCC1_8_PCH
DBC70 22u/8/X5R/6.3V/M
DBC67 22u/8/X5R/6.3V/M
DBC69 22u/8/X5R/6.3V/M
DBC62 22u/8/X5R/6.3V/M
DBC54 22u/8/X5R/6.3V/M
DBC60 22u/8/X5R/6.3V/M
VBC9 22u/8/X5R/6.3V/M
DBC38 22u/8/X5R/6.3V/M
SBC3 22u/8/X5R/6.3V/M
DBC49 22u/8/X5R/6.3V/M
DBC43 22u/8/X5R/6.3V/M
VBC5 22u/8/X5R/6.3V/M
DBC71 22u/8/X5R/6.3V/M
DBC68 22u/8/X5R/6.3V/M
DBC59 22u/8/X5R/6.3V/M
SBC12 22u/8/X5R/6.3V/M
SBC13 22u/8/X5R/6.3V/M
SBC14 22u/8/X5R/6.3V/M
SBC16 22u/8/X5R/6.3V/M
SBC15 22u/8/X5R/6.3V/M
SBC9 22u/8/X5R/6.3V/M
SBC8 22u/8/X5R/6.3V/M
SBC10 22u/8/X5R/6.3V/M
SBC6 22u/8/X5R/6.3V/M
SBC7 22u/8/X5R/6.3V/M
SBC18 22u/8/X5R/6.3V/M
SBC19 22u/8/X5R/6.3V/M
SBC17 22u/8/X5R/6.3V/M
SBC11 22u/8/X5R/6.3V/M
DFB1 0/4
DBC74 4.7u/6/X5R/6.3V/K
DBC77 0.1u/4/X7R/16V/K
DBC109 0.1u/4/X7R/16V/K
DBC55 22u/8/X5R/6.3V/M
DBC50 22u/8/X5R/6.3V/M
DBC44 22u/8/X5R/6.3V/M
DBC56 22u/8/X5R/6.3V/M
DBC39 22u/8/X5R/6.3V/M
DBC40 22u/8/X5R/6.3V/M
DBC45 22u/8/X5R/6.3V/M
DBC51 22u/8/X5R/6.3V/M
DBC52 22u/8/X5R/6.3V/M
DBC53 22u/8/X5R/6.3V/M
DBC47 22u/8/X5R/6.3V/M
DBC42 22u/8/X5R/6.3V/M
DBC46 22u/8/X5R/6.3V/M
DBC41 22u/8/X5R/6.3V/M
DBC58 22u/8/X5R/6.3V/M
DBC57 22u/8/X5R/6.3V/M
SBC5 22u/8/X5R/6.3V/M
SBC2 22u/8/X5R/6.3V/M
SBC1 22u/8/X5R/6.3V/M
SBC4 22u/8/X5R/6.3V/M
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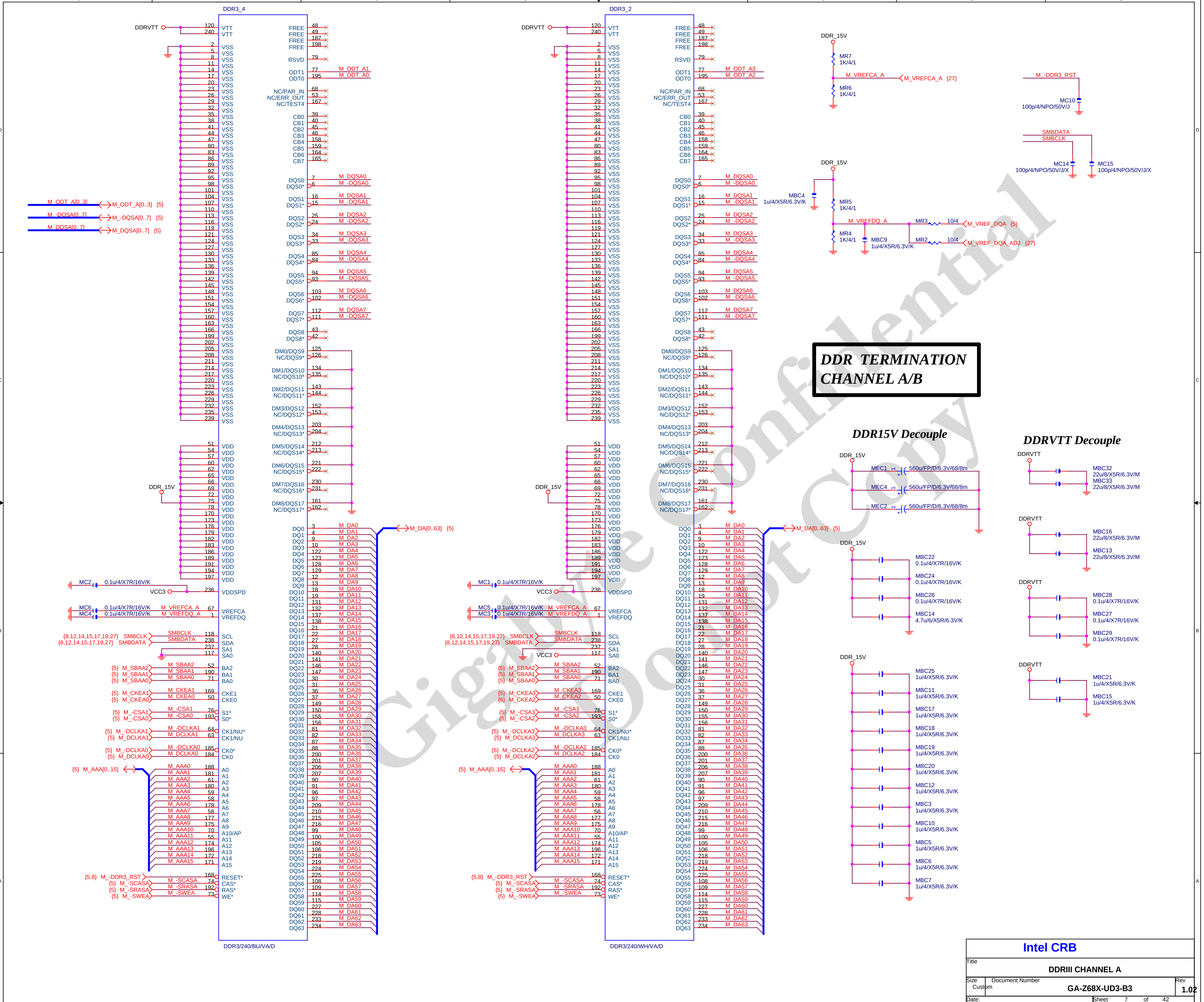
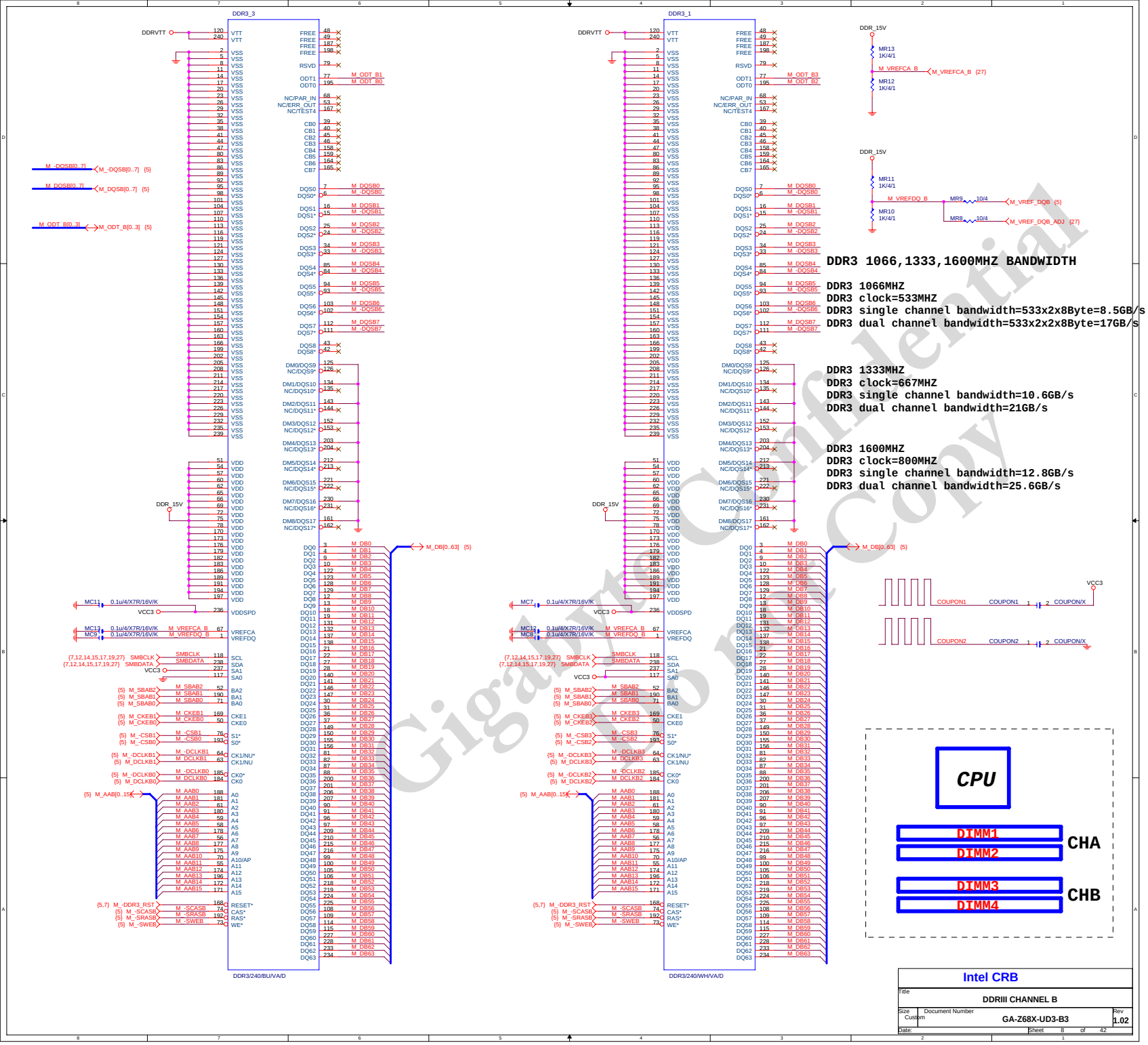
Intel CRB
Title
CPU LGA1156-C
Size
Custom
Document Number
GA-Z68X-UD3-B3
Rev
1.02
Date: Wednesday, May 11, 2011
Sheet 6 of 42



Intel CRB	
Title	DDRIII CHANNEL A
Size: Custom	Document Number: GA-Z68X-UD3-B3
Rev	1.02
Date:	Sheet 7 of 42


DDR3_3
DDR3_1
DDR3/240/BU/VA/D
DDR3/240/WH/VA/D
DDR3 1066,1333,1600MHZ BANDWIDTH
DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s
DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s
DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s
CPU
DIMM1
DIMM2
CHA
DIMM3
DIMM4
CHB
Intel CRB
DDRIII CHANNEL B
GA-Z68X-UD3-B3
1.02
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USB:12/7.5/4.5/7.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCHB

DMI0RXN DMI0RXP DMI0TXP DMI0TXN DMI1RXN DMI1RXP DMI1TXN DMI1TXP DMI2RXN DMI2RXP DMI2TXN DMI2TXP DMI3RXN DMI3RXP DMI3TXN DMI3TXP DMI_IRCOMP DMI_ZCOMP

DMI

{4} A_DMI_0TXN — A_DMI_0TXN — D33
{4} A_DMI_0TXP — A_DMI_0TXP — B33
{4} A_DMI_0RXN — A_DMI_0RXN — J36
{4} A_DMI_0RXP — A_DMI_0RXP — H36
{4} A_DMI_1TXN — A_DMI_1TXN — A36
{4} A_DMI_1TXP — A_DMI_1TXP — B35
{4} A_DMI_1RXN — A_DMI_1RXN — P38
{4} A_DMI_1RXP — A_DMI_1RXP — R38
{4} A_DMI_2TXN — A_DMI_2TXN — B37
{4} A_DMI_2TXP — A_DMI_2TXP — C36
{4} A_DMI_2RXN — A_DMI_2RXN — H38
{4} A_DMI_2RXP — A_DMI_2RXP — J38
C_DMI_3TXN — E37
{4} A_DMI_3TXP — A_DMI_3TXP — F38
{4} A_DMI_3RXN — A_DMI_3RXN — M41
{4} A_DMI_3RXP — A_DMI_3RXP — P41
A_DMI_COMP — B31
E31

W=4 mil out of PCH
S=15 mil out of PCH
VCC1_05_PCH — NR82 49.9/4/1

CK_-SRCCLK_PCH — P33
CK_SRCCLK_PCH — R33
CLKIN_DMI_N
CLKIN_DMI_P

USB

USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P

BF36 N_-USBP0 — N_-USBP0 {33}
BD36 N_+USBP0 — N_+USBP0 {33}
BC33 N_-USBP1 — N_-USBP1 {33}
BA33 N_+USBP1 — N_+USBP1 {33}
BM33 N_-USBP2 — N_-USBP2 {33}
BM35 N_+USBP2 — N_+USBP2 {33}
BT33 N_-USBP3 — N_-USBP3 {33}
BU32 N_+USBP3 — N_+USBP3 {33}
BR32 N_-USBP4 — N_-USBP4 {33}
BT31 N_+USBP4 — N_+USBP4 {33}
BN29 N_-USBP5 — N_-USBP5 {33}
BM30 N_+USBP5 — N_+USBP5 {33}
BK33 N_-USBP6 — N_-USBP6 {36}
BJ33 N_+USBP6 — N_+USBP6 {36}
BF31 N_-USBP7 — N_-USBP7 {36}
BD31 N_+USBP7 — N_+USBP7 {36}
BN27 N_-USBP8 — N_-USBP8 {21}
BR29 N_+USBP8 — N_+USBP8 {21}
BR26 N_-USBP9 — N_-USBP9 {21}
BT27 N_+USBP9 — N_+USBP9 {21}
BK25 N_-USBP10 — N_-USBP10 {37}
BJ25 N_+USBP10 — N_+USBP10 {37}
BJ31 N_-USBP11 — N_-USBP11 {37}
BK31 N_+USBP11 — N_+USBP11 {37}
BF27 N_-USBP12 — N_-USBP12 {35}
BD27 N_+USBP12 — N_+USBP12 {35}
BJ27 N_-USBP13 — N_-USBP13 {35}
BK27 N_+USBP13 — N_+USBP13 {35}

OC0#/GPIO59 BM43
OC1#/GPIO40 BD41 — N_-USBOC_F — N_-USBOC_F {33}
OC2#/GPIO41 BG41
OC3#/GPIO42 BK43
OC4#/GPIO43 BP43
OC5#/GPIO9 BJ41 — N_-USBOC_R {33,36}
OC6#/GPIO10 BT45
OC7#/GPIO14 BM45 — N_GPIO14

USBRBIAS# BP25 — N_USBRBIAS — NR74 22.6/4/1
USBRBIAS BM25
W=4 mil out of PCH
S=15 mil out of PCH

CLKIN_DOT_96N BD38 — CK_-DOTCLK
CLKIN_DOT_96P BF38 — CK_DOTCLK

DMI2RBIAS A32 — NR85 750/4/1
W=4 mil out of PCH
S=15 mil out of PCH

PCI-E

PERN1 PERP1 PETN1 PETP1 PERN2 PERP2 PETN2 PETP2 PERN3 PERP3 PETN3 PETP3 PERN4 PERP4 PETN4 PETP4 PERN5 PERP5 PETN5 PETP5 PERN6 PERP6 PETN6 PETP6 PERN7 PERP7 PETN7 PETP7 PERN8 PERP8 PETN8 PETP8

{17} PI_PCIE_IN1 — J20
{17} PI_PCIE_IP1 — L20
{17} PI_PCIE_TN1 — F25
{17} PI_PCIE_TP1 — F23
{17} PJ_PCIE_IN2 — P20
{17} PJ_PCIE_IP2 — R20
{17} PJ_PCIE_TN2 — C22
{17} PJ_PCIE_TP2 — A22
{17} PK_PCIE_IN3 — H17
{17} PK_PCIE_IP3 — J17
{17} PK_PCIE_TN3 — E21
{17} PK_PCIE_TP3 — B21
{18} G_PCIEBIN — P17
{18} G_PCIEBIP — M17
{18} G_PCIEBON — F18
{18} G_PCIEBOP — E17
{39} UA_USB3_IN_F — N15
{39} UA_USB3_IP_F — M15
{39} UA_USB3_ON_F — B17
{39} UA_USB3_OP_F — C16
{16} UB_PCIE_IN6 — J15
{16} UB_PCIE_IP6 — L15
{16} UB_PCIE_TN6 — A16
{16} UB_PCIE_TP6 — B15
{36} LA_ML_IN — J12
{36} LA_ML_IP — H12
{36} LA_ML_ON — F15
{36} LA_ML_OP — F13
{40} RA_SL_IN — H10
{40} RA_SL_IP — J10
{40} RA_SL_ON — B13
{40} RA_SL_OP — D13

2 OF 11
BD82Z68/B3/S/[10HB1-030Z68-21R]

OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC# Configure	
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

PCHG

FDILINK

FDI_RXN0 C42
FDI_RXP0 B43
FDI_RXN1 F45
FDI_RXP1 F43
FDI_RXN2 H41
FDI_RXP2 J41
FDI_RXN3 C46
FDI_RXP3 D47
FDI_RXN4 B45
FDI_RXP4 A46
FDI_RXN5 B47
FDI_RXP5 C49
FDI_RXN6 J43
FDI_RXP6 H43
FDI_RXN7 M43
FDI_RXP7 P43

H31 TP21
J31 TP25
C29 TP29
E29 TP33
J27 TP22
L27 TP26
F28 TP30
E27 TP34
J25 TP23
L25 TP27
C26 TP31
B27 TP35
L22 TP24
J22 TP28
B25 TP32
D25 TP36

FDI_FSYNC0 B51
FDI_LSYNC0 E49
FDI_FSYNC1 C52
FDI_LSYNC1 D51
FDI_INT H46

7 OF 11
BD82Z68/B3/S/[10HB1-030Z68-21R]

PCHE

N_NV_CLE — M48 NV_ALE
R47 NV_CLE
Y41 NV_RB#
M50 NV_RE#_WRB0
M49 NV_RE#_WRB1
U43 NV_WE#_CK0
J57 NV_WE#_CK1

NV_DQ0/NV_IO0 AB50
NV_DQ1/NV_IO1 Y50
NV_DQ2/NV_IO2 AB49
NV_DQ3/NV_IO3 AB44
NV_DQ4/NV_IO4 U49
NV_DQ5/NV_IO5 R44
NV_DQ6/NV_IO6 U50
NV_DQ7/NV_IO7 U46
NV_DQ8/NV_IO8 U44
NV_DQ9/NV_IO9 H50
NV_DQ10/NV_IO10 K46
NV_DQ11/NV_IO11 L56
NV_DQ12/NV_IO12 J55
NV_DQ13/NV_IO13 F53
NV_DQ14/NV_IO14 H52
NV_DQ15/NV_IO15 E52

NV_CE#0 K50
NV_CE#1 K49
NV_CE#2 AB46
NV_CE#3 G56

NV_DQS0 Y44
NV_DQS1 L53

NV_RCOMP — R50 N_NV_RCOMP — NR155 33/4

NVRAM

5 OF 11
BD82Z68/B3/S/[10HB1-030Z68-21R]

PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)
Impedance=80 +- 17.5%

VCC3 — NBC51 1u/4/X5R/6.3V/K

N_-USBOC_F — NBC45 0.1u/4/X7R/16V/K
N_-USBOC_R — NBC46 0.1u/4/X7R/16V/K

3VDUAL — NR98 8.2K/4 — N_GPIO14

PCH_HS

1
2
PCH_HS/[12SP2-S06510-01R_12SP2-S06510-02R_12SP2-S06510-03R]

VCC1_8_PCH
NR118 1K/4/1
NR117 8.2K/4 — N_NV_CLE
A_-H_SNB {4}
NBC57 0.1u/4/X7R/16V/K

DMI /FDI termination voltage

CK_SRCCLK_PCH — NR87 8.2K/4
CK_-SRCCLK_PCH — NR86 8.2K/4

Mount for integrated clock Generation Mode

CK_DOTCLK — NR84 8.2K/4
CK_-DOTCLK — NR88 8.2K/4

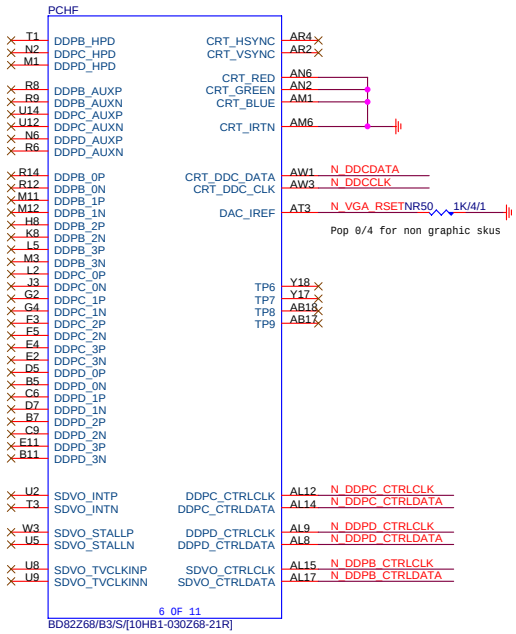
R102 short to GND in non graphic SKU

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE

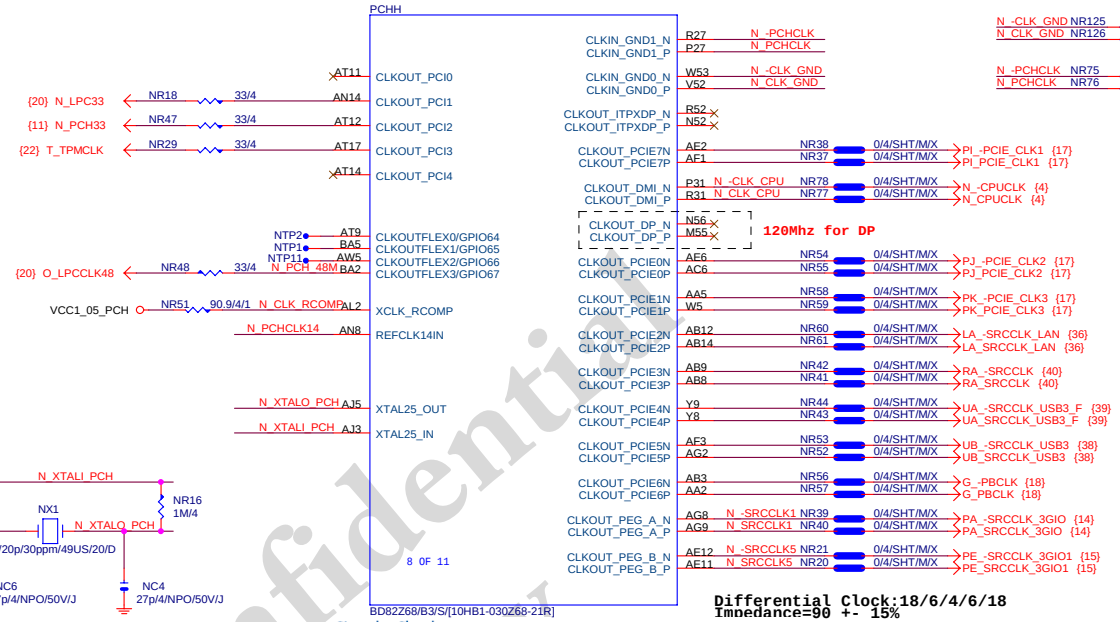
Size: Custom | Document Number: GA-Z68X-UD3-B3 | Rev: 1.02

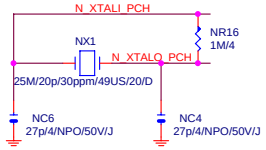
Date: Wednesday, May 11, 2011 | Sheet 9 of 42

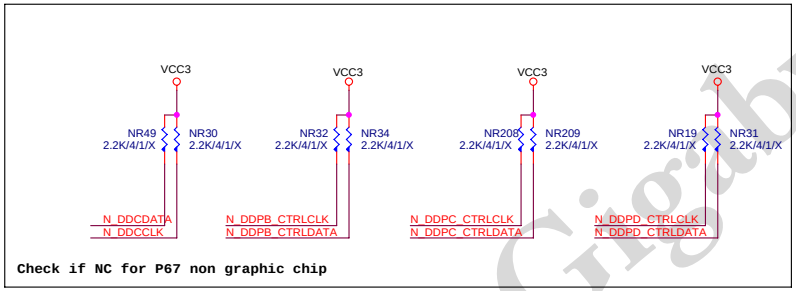


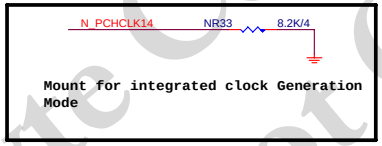
Flex0,2 : 33MHZ

Flex1,3 : 27/14/24/48/25MHZ









Strapping Signals

Name	Type	Recommendations	Reason/Impact
SPKR	I	**Default Mode:** Internal weak Pull-down. **No Reboot Mode with TCO Disabled:** Connect to Vcc3_3 with 8.2k-10k Ohm weak pull-up resistor.	
INIT3_3V#	I	Do not pull low.	
GNT3#/ GPIO55	I/O	**Default Mode:** Internal pull-up. **Top Block Swap Mode:** Connect to ground with 4.7k Ohm weak pull-down resistor.	
SATA1GP/ GPIO19, GNT1#	I/O	**Default (SPI)** Left both SATA1GP/GPIO19 and GNT1# floating. No pull up required. **Boot from PCI** Connect SATA1GP/GPIO19 to ground with 1k Ohm pull-down resistor. Leave GNT1# Floating. **Boot from LPC** Connect both SATA1GP/GPIO19 and GNT1# to ground with 1k Ohm pull-down resistor.	If LPC is selected BIOS may still be placed on LPC, but all platforms with PCH require SPI flash connected directly to the PCH's SPI bus with a valid descriptor in order to boot. Booting to PCI is intended for debut/testing only. Boot BIOS Destination Select to LPC/PCI by functional strap or via Boot BIOS Destination Bit will not affect SPI accesses initiated by Management Engine or Integrated GbE LAN.
GNT2#/ GPIO53	I/O	Do not pull low.	ESI strap for server platform ONLY
HDA_SDO	I/O	**Default** Do not pull high. **Disable ME in Manufacturing Mode** Connect to VccSusHDA with 1k Ohm pull-up resistor through a jumper.	Flash descriptor Overide
SPI_MOSI	I/O	Internal weak pull down.Do not pull high.	DMI RX Termination Voltage
DF_TVS	I/O	Internal weak pull up. Do not pull low.	DMI termination voltage
HDA_SYNC	I/O	Internal weak pull down. Do not pull up.	On die PLL VR volatge selector
GPIO15	I/O	**Enable TLS:** Pull up with 1k Ohm to VccSus3.3. **Default (Disable TLS):** Leave NC. Internal pull down.	TLS confidentiality
GPIO8	I/O	**BTM** Leave floating. Do not pull low. **FCIM** Pull low with 1k Ohm to ground.	FCIM. Can be override by softstrap through ME.
GPIO28	I/O	Internal weak pull up. Do not pull low.	On die PLL voltage regulator
SATA2GP/ GPIO36	I/O	Internal weak pull down.Do not pull high.	
SATA3GP/ GPIO37	I/O	Internal weak pull down.Do not pull high.	

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

GP29 , 35, 36 , 37 power on with 3.3V pluse

GP8 always Hi without PU

GP20 with pluse during power on & reset

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
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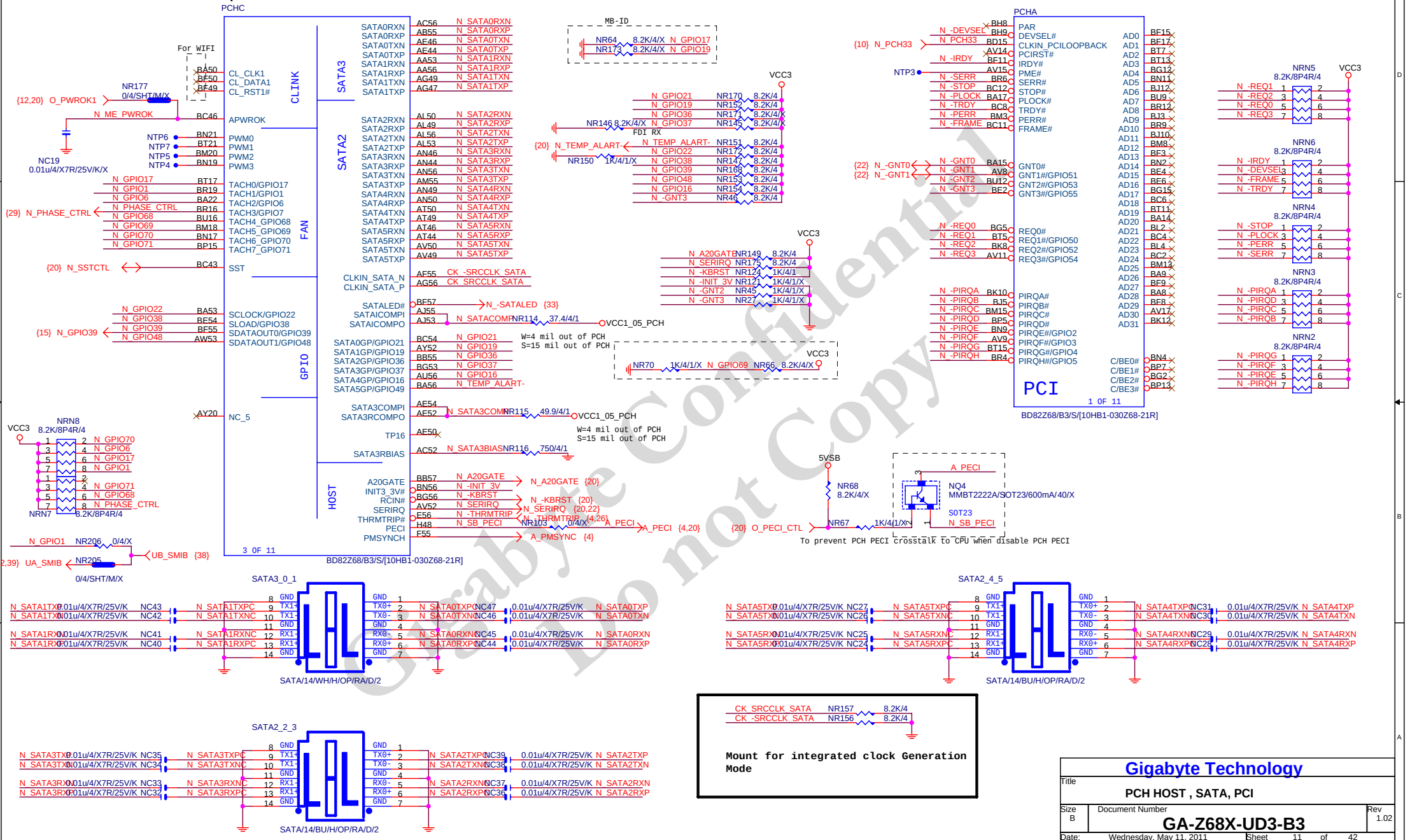
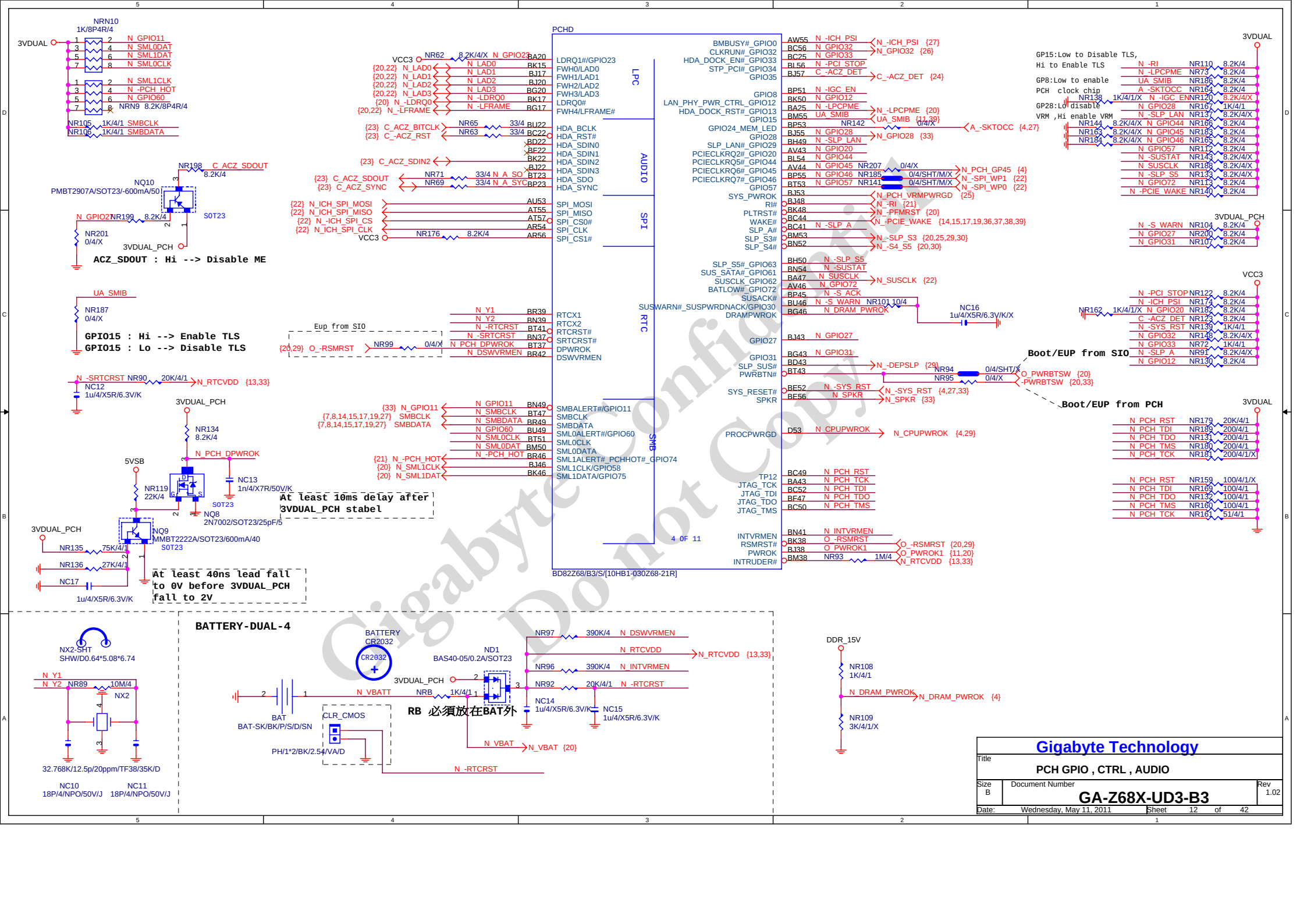
SATA:20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



Gigabyte Technology			
Title: PCH HOST , SATA, PCI			
Size: B	Document Number: GA-Z68X-UD3-B3		Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 11 of 42		


PCHD
LPC
AUDIO
SPI
RTC
SMB
BD82Z68/B3/S/[10HB1-030Z68-21R]
4 OF 11
ACZ_SDOUT : Hi --> Disable ME
GPIO15 : Hi --> Enable TLS
GPIO15 : Lo --> Disable TLS
At least 10ms delay after 3VDUAL_PCH stabel
At least 40ns lead fall to 0V before 3VDUAL_PCH fall to 2V
Boot/EUP from SIO
Boot/EUP from PCH
BATTERY-DUAL-4
RB 必須放在BAT外
GP15:Low to Disable TLS, Hi to Enable TLS
GP8:Low to enable PCH clock chip
GP28:Lo disable VRM ,Hi enable VRM
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-Z68X-UD3-B3
Wednesday, May 11, 2011
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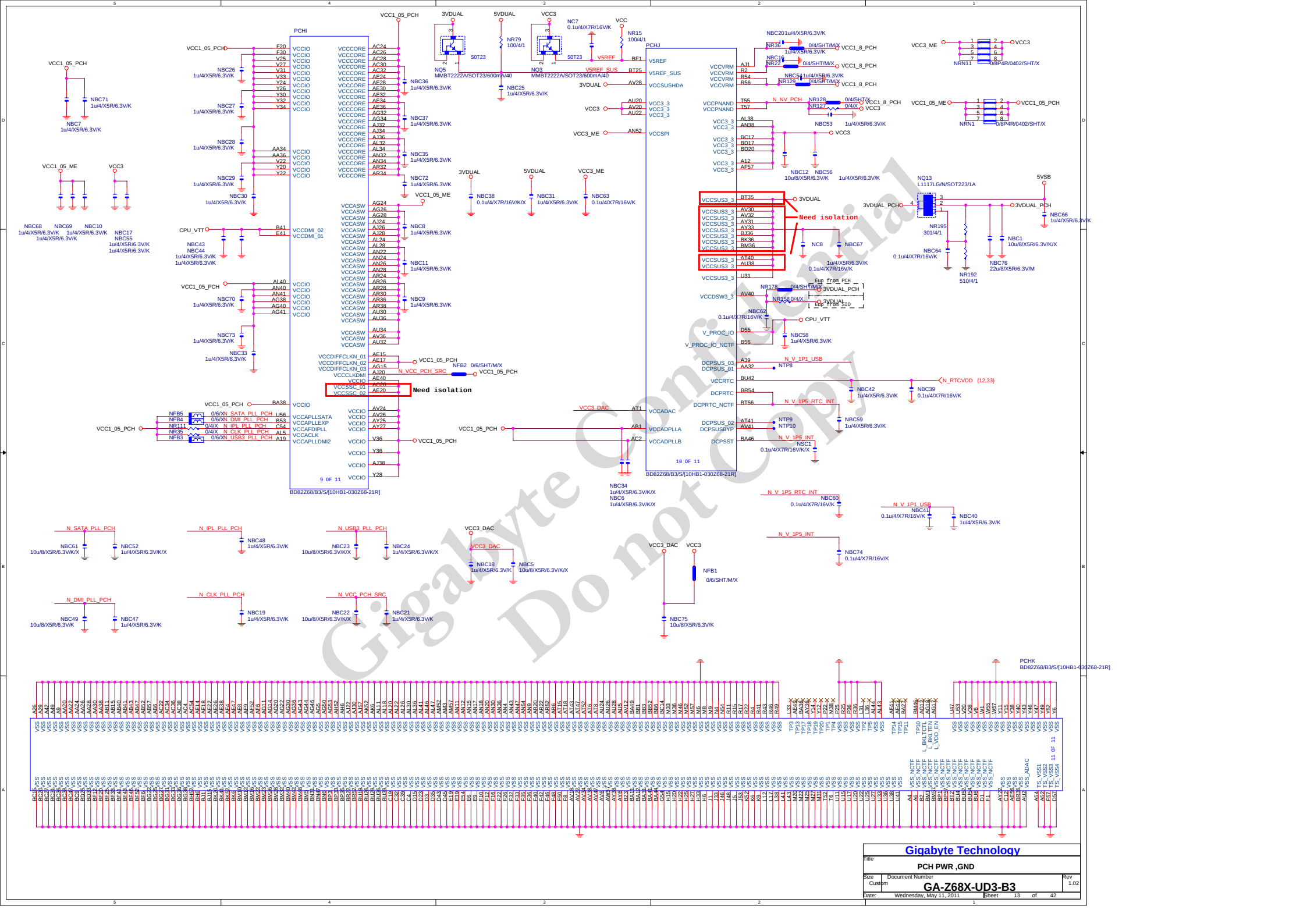
Rev 1.02
Gigabyte Confidential
Do not Copy


PCHI
PCHJ
PCHK
BD82Z68/B3/S/[10HB1-030Z68-21R]
9 OF 11
10 OF 11
Need isolation
Need isolation
Gigabyte Confidential
Do not Copy
Gigabyte Technology
PCH PWR ,GND
GA-Z68X-UD3-B3
Size Custom
Document Number
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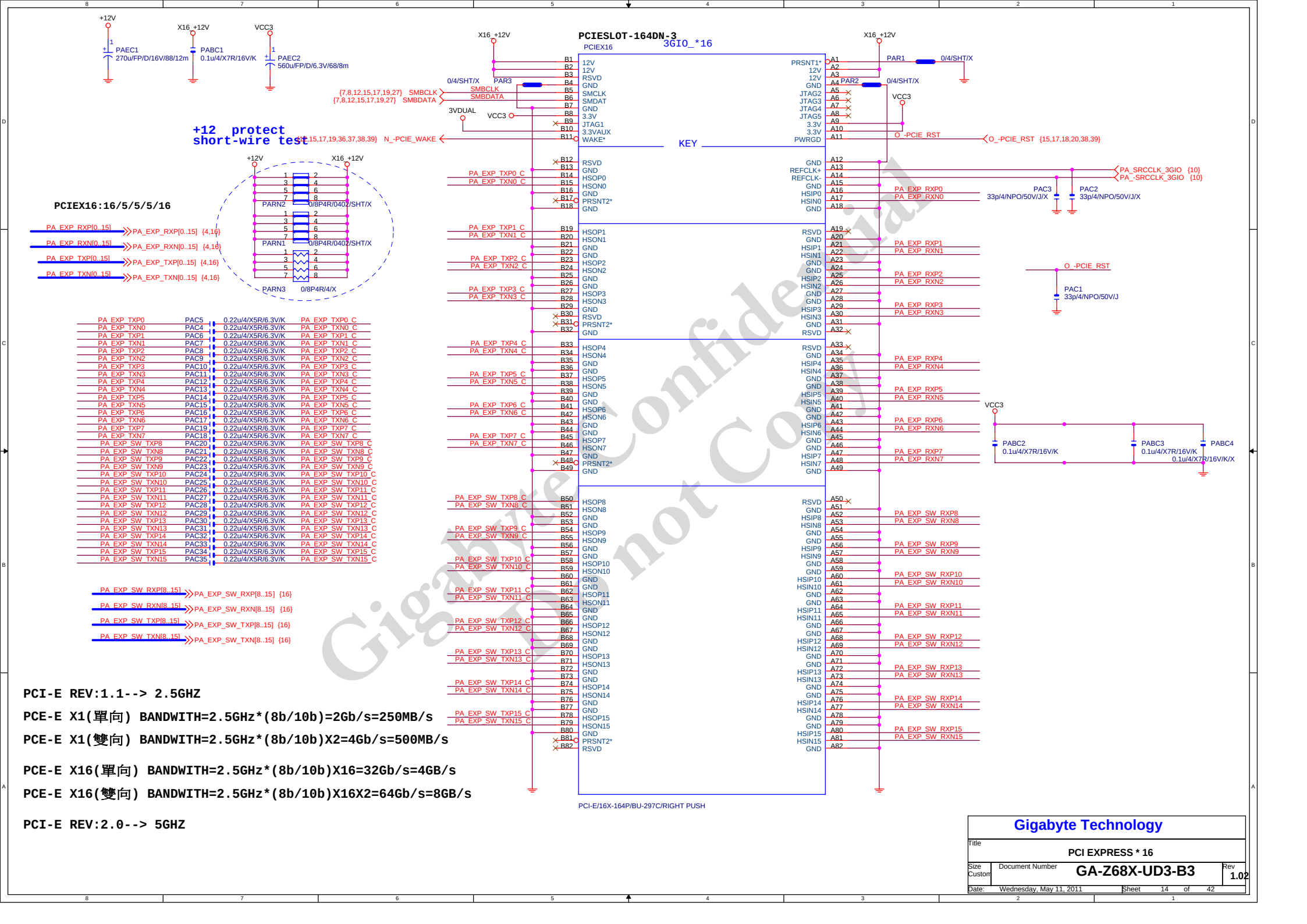

PCI-E REV:1.1--> 2.5GHZ

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

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

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

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

PCI-E REV:2.0--> 5GHZ

Gigabyte Technology	
Title	PCI EXPRESS * 16
Size: Custom	Document Number: GA-Z68X-UD3-B3
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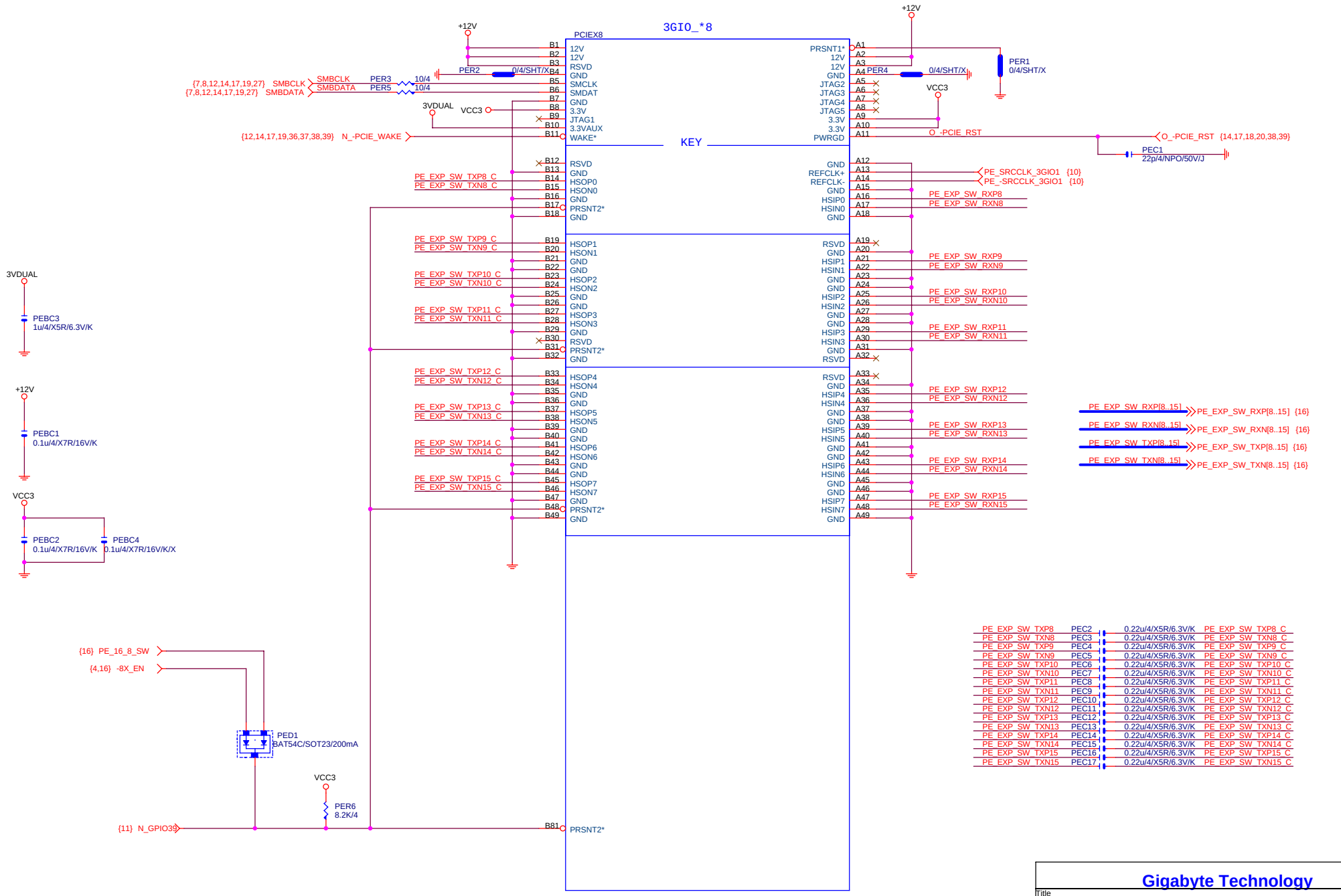

Title	PCI EXPRESS X 4 PORT
Size	Custom
Document Number	GA-Z68X-UD3-B3
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Date:	Wednesday, May 11, 2011
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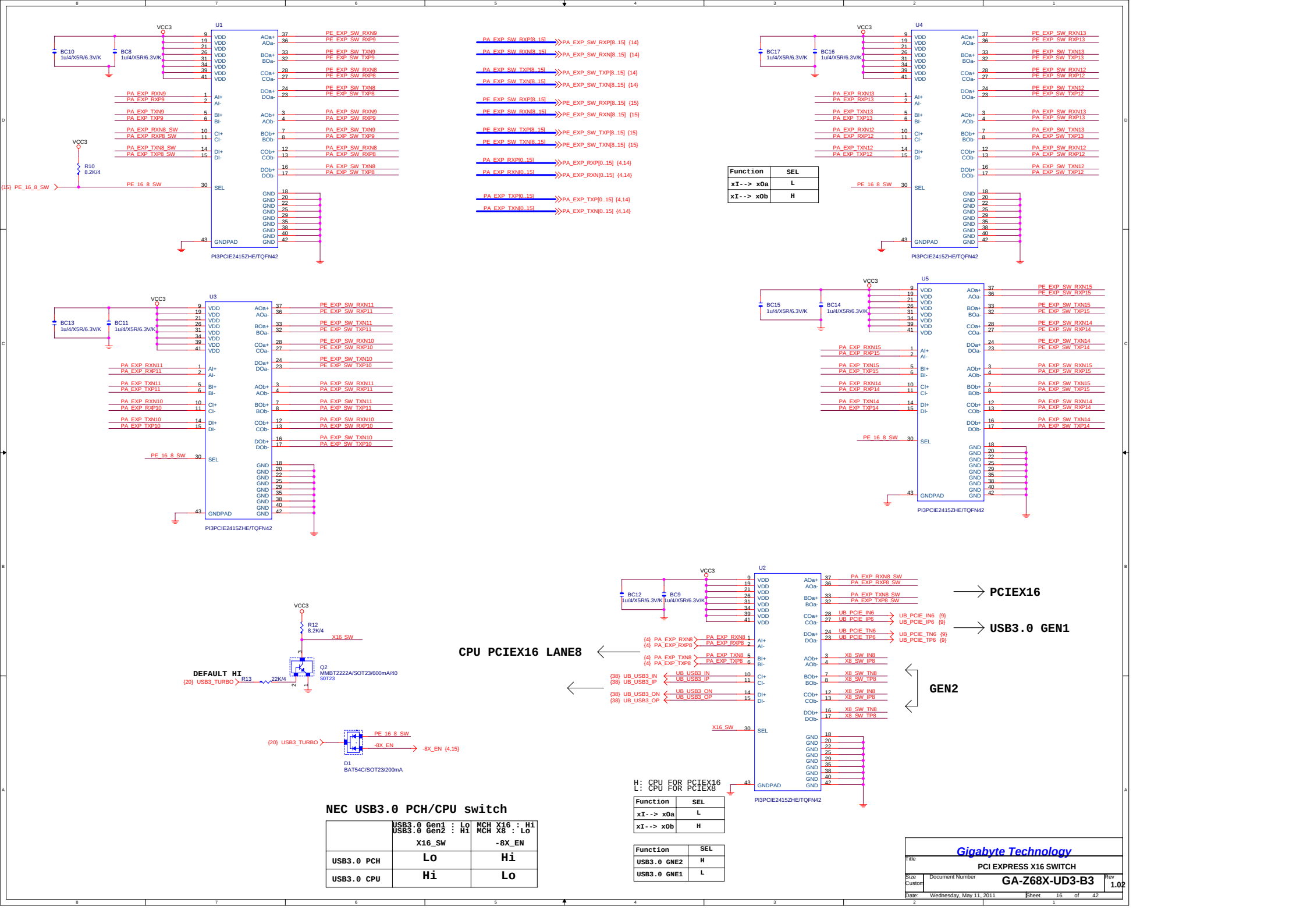
Gigabyte Technology


U1
U3
U4
U5
U2
VCC3
PI3PCIE2415ZHE/TQFN42
PA_EXP_SW_RXP[8..15] {14}
PA_EXP_SW_RXN[8..15] {14}
PA_EXP_SW_TXP[8..15] {14}
PA_EXP_SW_TXN[8..15] {14}
PA_EXP_SW_RXP[8..15] {15}
PA_EXP_SW_RXN[8..15] {15}
PA_EXP_SW_TXP[8..15] {15}
PA_EXP_SW_TXN[8..15] {15}
PA_EXP_RXP[0..15] {4,14}
PA_EXP_RXN[0..15] {4,14}
PA_EXP_TXP[0..15] {4,14}
PA_EXP_TXN[0..15] {4,14}
PE_16_8_SW
{15} PE_16_8_SW
R10 8.2K/4
R12 8.2K/4
X16_SW
DEFAULT HI
{20} USB3_TURBO
R13 22K/4
Q2 MMBT2222A/SOT23/600mA/40 SOT23
D1 BAT54C/SOT23/200mA
-8X_EN
-8X_EN {4,15}
CPU PCIEX16 LANE8
PCIEX16
USB3.0 GEN1
GEN2
H: CPU FOR PCIEX16
L: CPU FOR PCIEX8
Function SEL
xI--> xOa L
xI--> xOb H
NEC USB3.0 PCH/CPU switch
USB3.0 Gen1 : Lo USB3.0 Gen2 : Hi
MCH X16 : Hi MCH X8 : Lo
X16_SW
-8X_EN
USB3.0 PCH Lo Hi
USB3.0 CPU Hi Lo
Function SEL
USB3.0 GNE2 H
USB3.0 GNE1 L
Gigabyte Technology
Title
PCI EXPRESS X16 SWITCH
Size Custom
Document Number GA-Z68X-UD3-B3
Rev 1.02
Date: Wednesday, May 11, 2011
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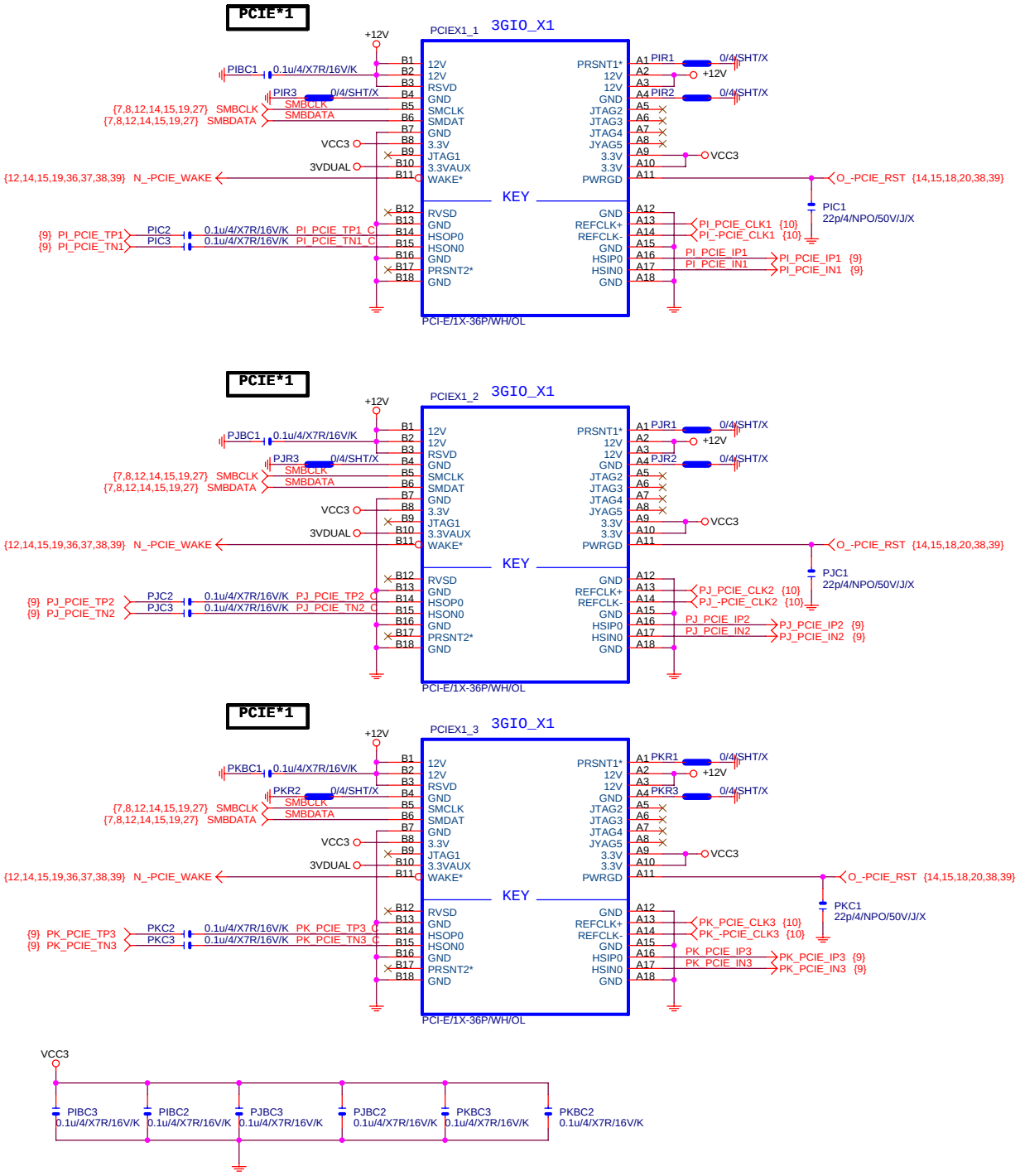

Gigabyte Technology		
Title: PCIE_X1 1,2		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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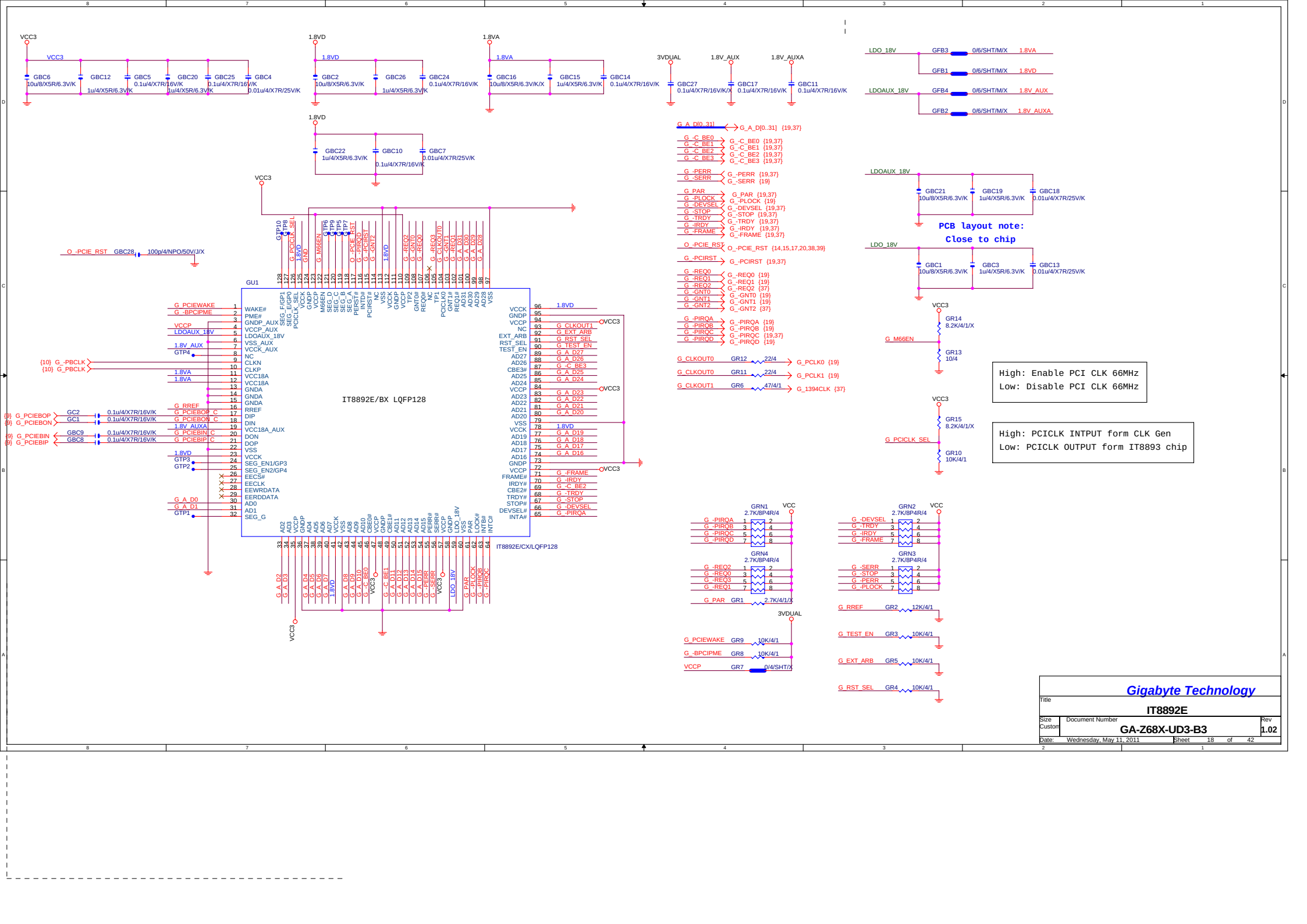
VCC3
GBC6 10u/8/X5R/6.3V/K
GBC12 1u/4/X5R/6.3V/K
GBC5 0.1u/4/X7R/16V/K
GBC20 0.1u/4/X7R/16V/K
GBC25 0.1u/4/X7R/16V/K
GBC4 0.01u/4/X7R/25V/K
1.8VD
GBC2 10u/8/X5R/6.3V/K
GBC26 1u/4/X5R/6.3V/K
GBC24 0.1u/4/X7R/16V/K
1.8VA
GBC16 10u/8/X5R/6.3V/K/X
GBC15 1u/4/X5R/6.3V/K
GBC14 0.1u/4/X7R/16V/K
3VDUAL
GBC27 0.1u/4/X7R/16V/K/X
1.8V_AUX
GBC17 0.1u/4/X7R/16V/K
1.8V_AUXA
GBC11 0.1u/4/X7R/16V/K
LDO_18V
GFB3 0/6/SHT/M/X 1.8VA
GFB1 0/6/SHT/M/X 1.8VD
LDOAUX_18V
GFB4 0/6/SHT/M/X 1.8V_AUX
GFB2 0/6/SHT/M/X 1.8V_AUXA
GBC22 1u/4/X5R/6.3V/K
GBC10 0.1u/4/X7R/16V/K
GBC7 0.01u/4/X7R/25V/K
O_-PCIE_RST GBC28 100p/4/NPO/50V/J/X
GU1
IT8892E/BX LQFP128
IT8892E/CX/LQFP128
G_A_D[0..31] G_A_D[0..31] {19,37}
G_-C_BE0 G_-C_BE0 {19,37}
G_-C_BE1 G_-C_BE1 {19,37}
G_-C_BE2 G_-C_BE2 {19,37}
G_-C_BE3 G_-C_BE3 {19,37}
G_-PERR G_-PERR {19,37}
G_-SERR G_-SERR {19}
G_PAR G_PAR {19,37}
G_-PLOCK G_-PLOCK {19}
G_-DEVSEL G_-DEVSEL {19,37}
G_-STOP G_-STOP {19,37}
G_-TRDY G_-TRDY {19,37}
G_-IRDY G_-IRDY {19,37}
G_-FRAME G_-FRAME {19,37}
O_-PCIE_RST O_-PCIE_RST {14,15,17,20,38,39}
G_-PCIRST G_-PCIRST {19,37}
G_-REQ0 G_-REQ0 {19}
G_-REQ1 G_-REQ1 {19}
G_-REQ2 G_-REQ2 {37}
G_-GNT0 G_-GNT0 {19}
G_-GNT1 G_-GNT1 {19}
G_-GNT2 G_-GNT2 {37}
G_-PIRQA G_-PIRQA {19}
G_-PIRQB G_-PIRQB {19}
G_-PIRQC G_-PIRQC {19,37}
G_-PIRQD G_-PIRQD {19}
G_CLKOUT0 GR12 22/4 G_PCLK0 {19}
G_CLKOUT0 GR11 22/4 G_PCLK1 {19}
G_CLKOUT1 GR6 47/4/1 G_1394CLK {37}
LDOAUX_18V
GBC21 10u/8/X5R/6.3V/K
GBC19 1u/4/X5R/6.3V/K
GBC18 0.01u/4/X7R/25V/K
PCB layout note:
Close to chip
LDO_18V
GBC1 10u/8/X5R/6.3V/K
GBC3 1u/4/X5R/6.3V/K
GBC13 0.01u/4/X7R/25V/K
GR14 8.2K/4/1/X
G_M66EN
GR13 10/4
High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz
GR15 8.2K/4/1/X
G_PCICLK_SEL
GR10 10K/4/1
High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip
GRN1 2.7K/8P4R/4
GRN2 2.7K/8P4R/4
GRN4 2.7K/8P4R/4
GRN3 2.7K/8P4R/4
G_PAR GR1 2.7K/4/1/X
G_PCIEWAKE GR9 10K/4/1
G_-BPCIPME GR8 10K/4/1
VCCP GR7 0/4/SHT/X
G_RREF GR2 12K/4/1
G_TEST_EN GR3 10K/4/1
G_EXT_ARB GR5 10K/4/1
G_RST_SEL GR4 10K/4/1
Gigabyte Technology
Title
IT8892E
Size Custom
Document Number
GA-Z68X-UD3-B3
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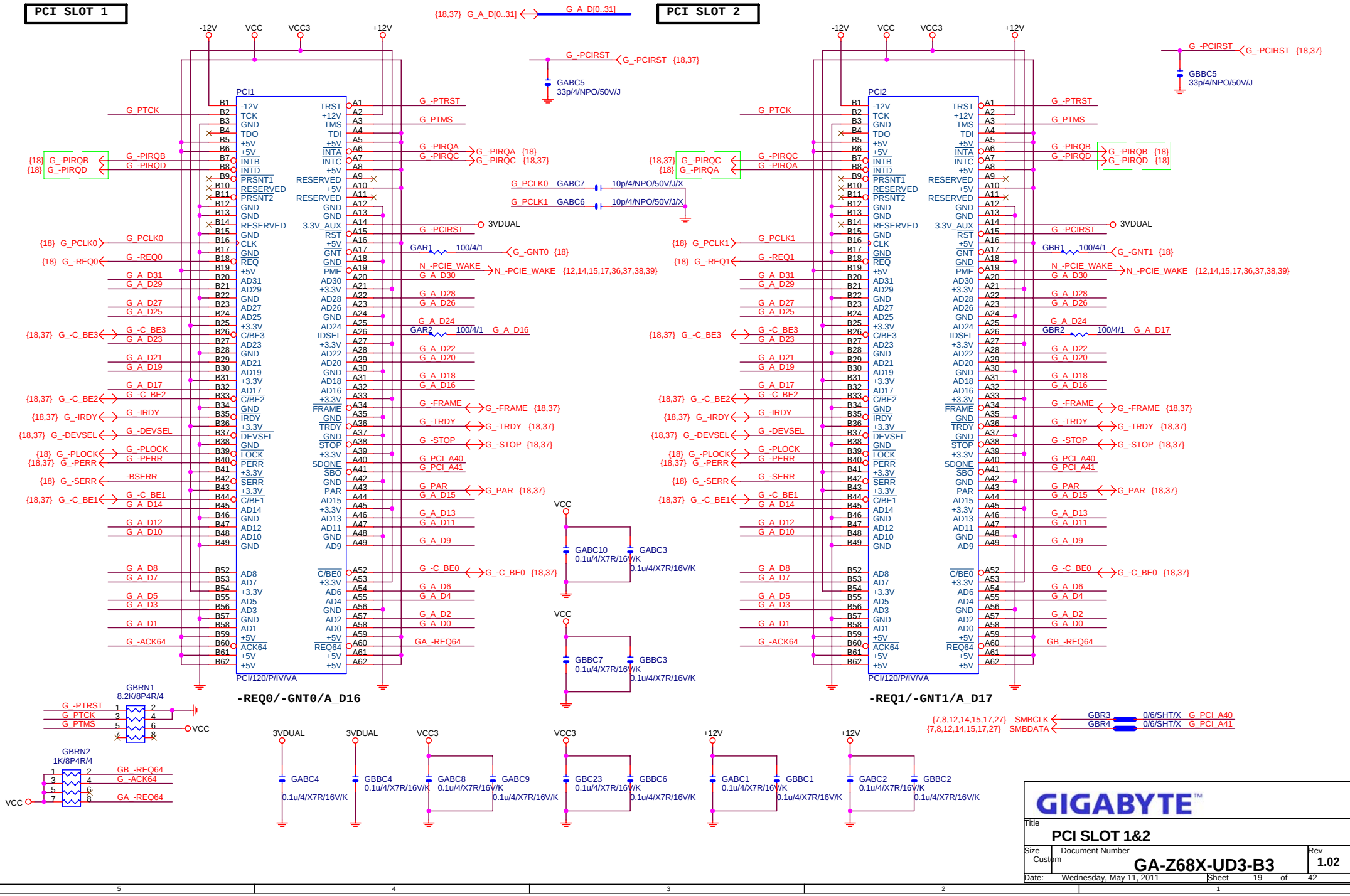
PCI SLOT 1
PCI SLOT 2
PCI1
PCI2
PCI/120/P/IV/VA
-REQ0/-GNT0/A_D16
-REQ1/-GNT1/A_D17
G_A_D[0..31]
GABC5 33p/4/NPO/50V/J
GBBC5 33p/4/NPO/50V/J
GABC7 10p/4/NPO/50V/J/X
GABC6 10p/4/NPO/50V/J/X
GAR1 100/4/1
GAR2 100/4/1
GBR1 100/4/1
GBR2 100/4/1
GBRN1 8.2K/8P4R/4
GBRN2 1K/8P4R/4
GBR3 0/6/SHT/X
GBR4 0/6/SHT/X
GABC10 0.1u/4/X7R/16V/K
GABC3 0.1u/4/X7R/16V/K
GBBC7 0.1u/4/X7R/16V/K
GBBC3 0.1u/4/X7R/16V/K
GABC4 0.1u/4/X7R/16V/K
GBBC4 0.1u/4/X7R/16V/K
GABC8 0.1u/4/X7R/16V/K
GABC9 0.1u/4/X7R/16V/K
GBC23 0.1u/4/X7R/16V/K
GBBC6 0.1u/4/X7R/16V/K
GABC1 0.1u/4/X7R/16V/K
GBBC1 0.1u/4/X7R/16V/K
GABC2 0.1u/4/X7R/16V/K
GBBC2 0.1u/4/X7R/16V/K
GIGABYTE
Title
PCI SLOT 1&2
Size Custom
Document Number
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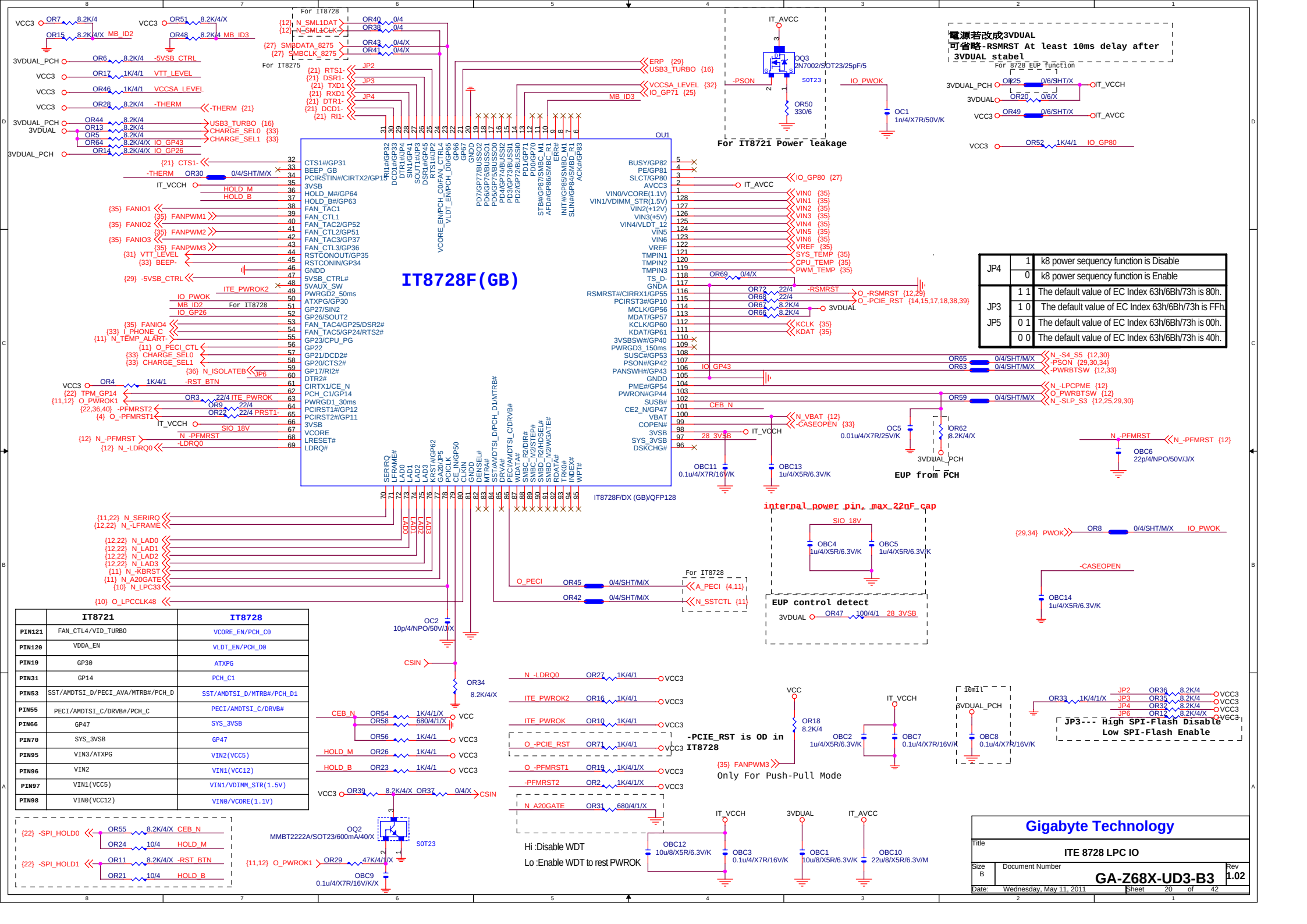

JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h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

Title	ITE 8728 LPC IO
Size	B
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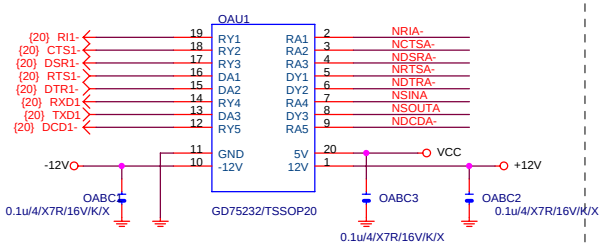
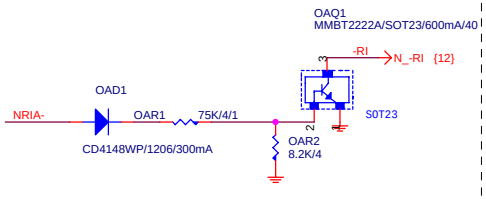
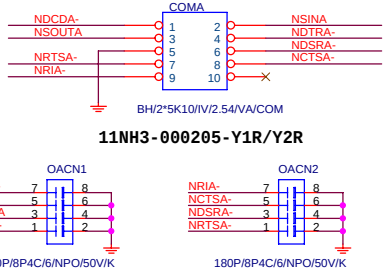
Gigabyte Technology

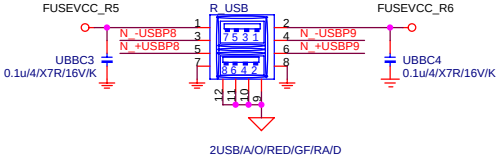
COMA

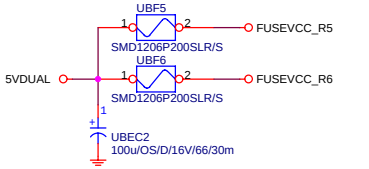


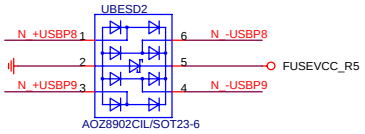
COM RI

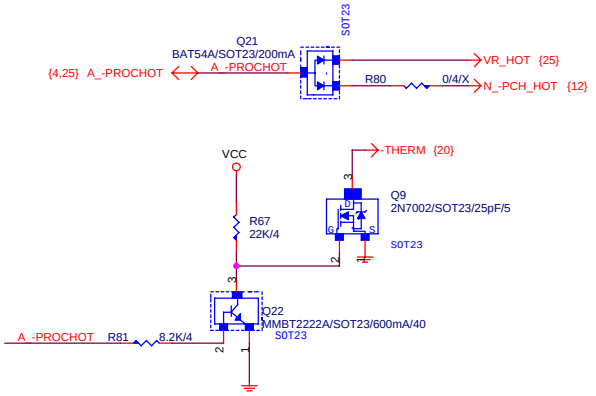




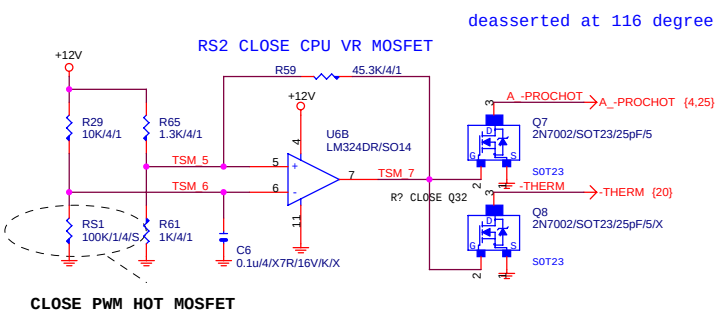




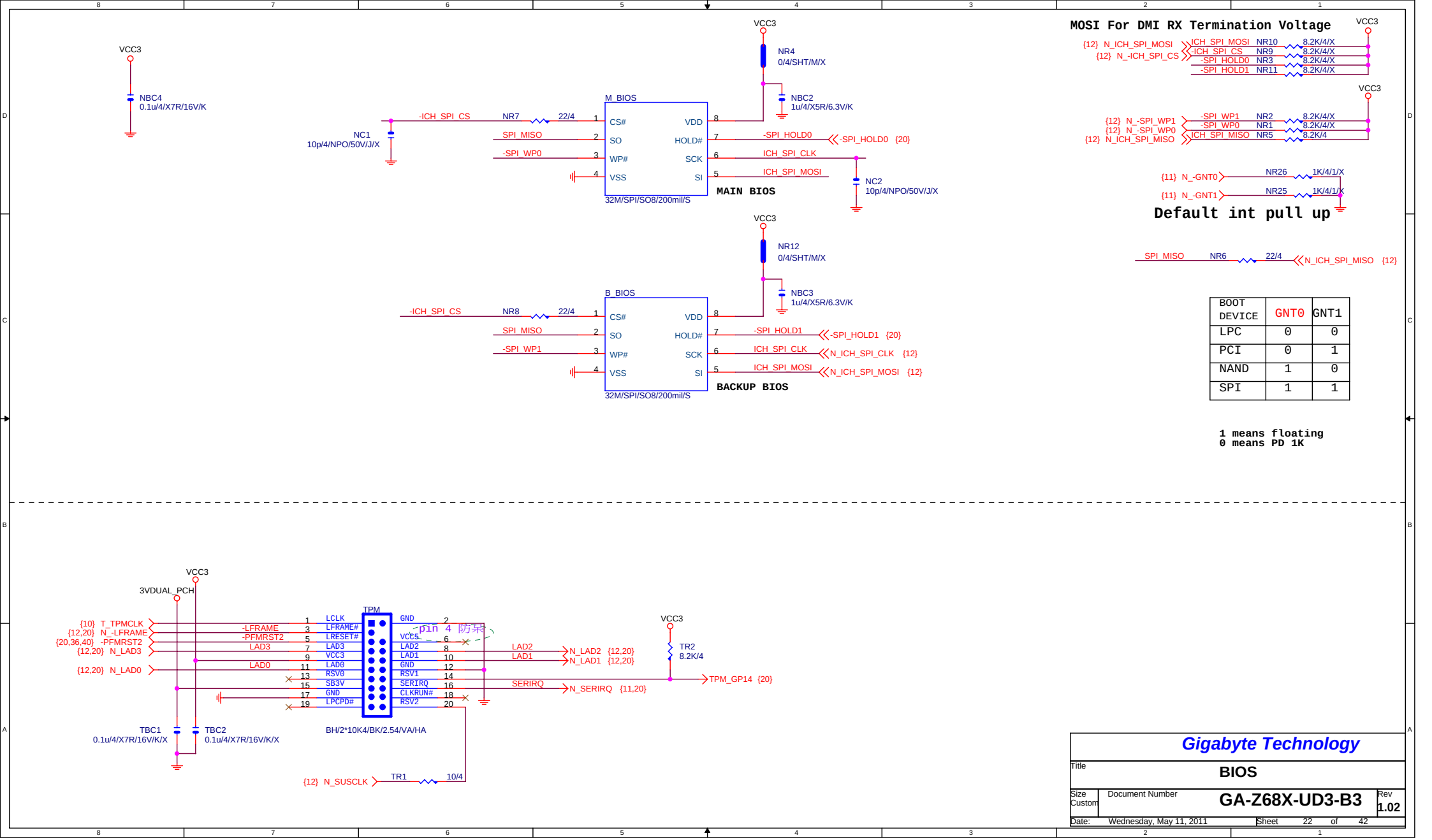




-PROHOT



Gigabyte Technology		
Title: COM & PROHOT/Dynamic O.C.		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 21 of 42	


VCC3
NBC4
0.1u/4/X7R/16V/K
M_BIOS
-ICH_SPI_CS
NR7
22/4
SPI_MISO
-SPI_WP0
NC1
10p/4/NPO/50V/J/X
CS#
SO
WP#
VSS
VDD
HOLD#
SCK
SI
32M/SPI/SO8/200mil/S
MAIN BIOS
NR4
0/4/SHT/M/X
NBC2
1u/4/X5R/6.3V/K
-SPI_HOLD0
ICH_SPI_CLK
ICH_SPI_MOSI
NC2
10p/4/NPO/50V/J/X
B_BIOS
NR8
-SPI_HOLD1
N_ICH_SPI_CLK {12}
N_ICH_SPI_MOSI {12}
BACKUP BIOS
NR12
NBC3
MOSI For DMI RX Termination Voltage
{12} N_ICH_SPI_MOSI
{12} N_-ICH_SPI_CS
ICH_SPI_MOSI NR10
-ICH_SPI_CS NR9
-SPI_HOLD0 NR3
-SPI_HOLD1 NR11
8.2K/4/X
{12} N_-SPI_WP1
{12} N_-SPI_WP0
{12} N_ICH_SPI_MISO
-SPI_WP1 NR2
-SPI_WP0 NR1
ICH_SPI_MISO NR5
8.2K/4
{11} N_-GNT0
{11} N_-GNT1
NR26
NR25
1K/4/1/X
Default int pull up
SPI_MISO NR6 22/4 N_ICH_SPI_MISO {12}
BOOT DEVICE | GNT0 | GNT1
LPC | 0 | 0
PCI | 0 | 1
NAND | 1 | 0
SPI | 1 | 1
1 means floating
0 means PD 1K
3VDUAL_PCH
TPM
{10} T_TPMCLK
{12,20} N_-LFRAME
{20,36,40} -PFMRST2
{12,20} N_LAD3
{12,20} N_LAD0
-LFRAME
-PFMRST2
LAD3
LAD0
LCLK
LFRAME#
LRESET#
VCC3
RSV0
SB3V
GND
LPCPD#
GND
VCC5
LAD2
LAD1
GND
RSV1
SERIRQ
CLKRUN#
RSV2
pin 4 防靜
LAD2
LAD1
SERIRQ
N_LAD2 {12,20}
N_LAD1 {12,20}
N_SERIRQ {11,20}
TR2
8.2K/4
TPM_GP14 {20}
TBC1
0.1u/4/X7R/16V/K/X
TBC2
0.1u/4/X7R/16V/K/X
BH/2*10K4/BK/2.54/VA/HA
{12} N_SUSCLK
TR1
10/4
Gigabyte Technology
Title
BIOS
Size
Custom
Document Number
GA-Z68X-UD3-B3
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1.02
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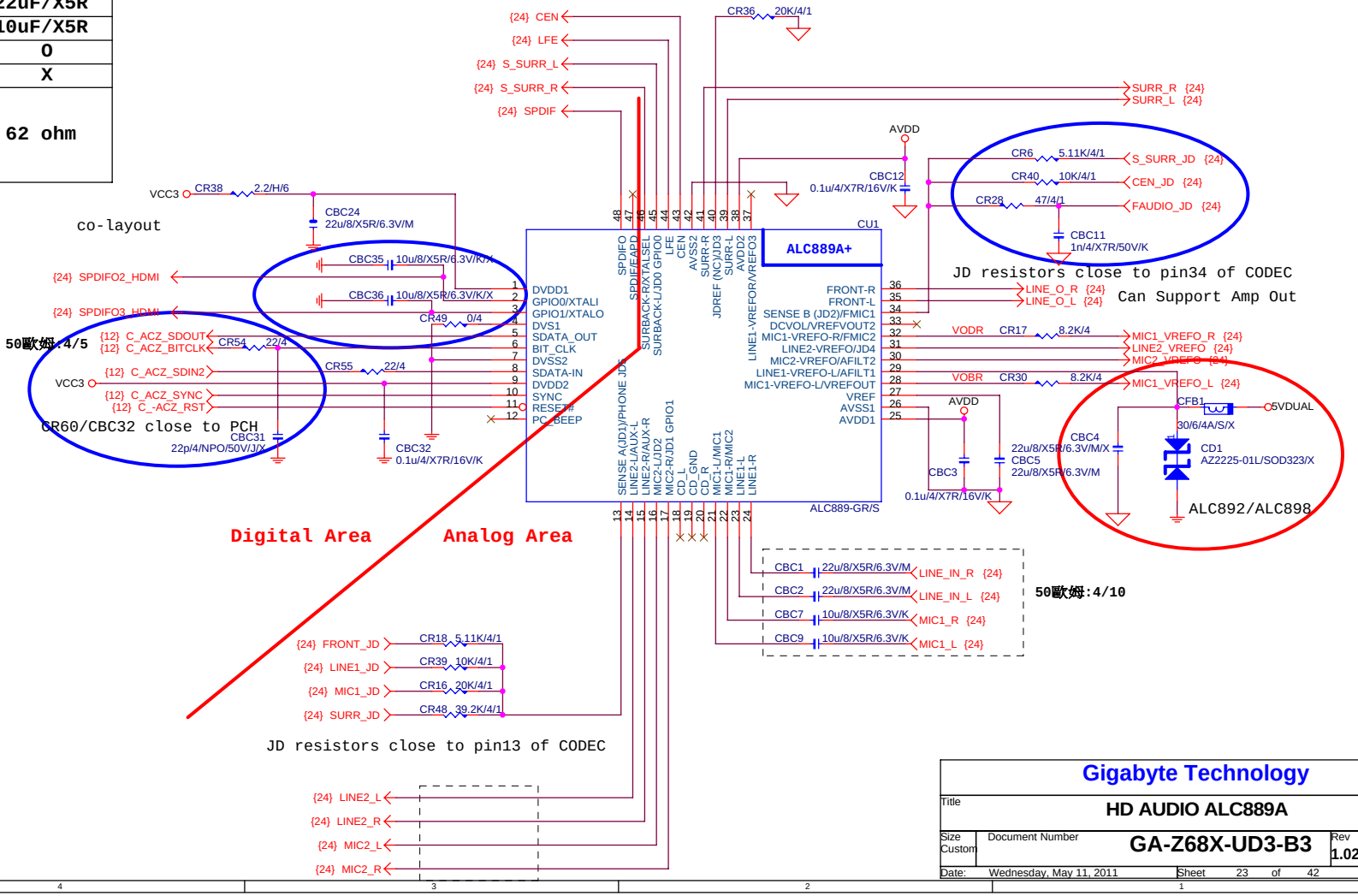
AZALIA CODEC

ALC889/ALC889B/ALC892/ALC898 Colay

	ALC889	ALC889B	ALC898/ALC892
CR49	0	0	X
CBC36	X	X	10uF/X5R
CBC35	X	10uF/X5R	X
CR52	0	X	0
CR53	X	0	X
CBC1/CBC2	22uF/X5R	22uF/X5R	22uF/X5R
CBC7/CBC9/CBC20/CBC15	10uF/X5R	10uF/X5R	10uF/X5R
CFB1/CD1/CBC4	X	X	0
CD2/CD3/CQ3/CQ4	0	0	X
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR21/CR47/ CR2/CR11/CR14/CR24	62 ohm	62 ohm	62 ohm



Gigabyte Technology	
Title	HD AUDIO ALC889A
Size: Custom	Document Number: GA-Z68X-UD3-B3 Rev: 1.02
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CODEC POWER/EMI PAD

EUP

5VDUAL CD4 AVDD

CD4148WP/1206/300mA

CR44 0/6/X

CR23 2.2/6

+12V

CD3 CD4148WP/1206/300mA

CQ3 78L05/SOT89/0.1A

CBC21 0.1u/4/X7R/16V/K/X

CBC8 22u/8/X5R/6.3V/M

CD2 AZ2225-01L/SOD323

ADD CD2 For ESD PROTECT DIODE

CR37 0/4/X

上ALC892時,此顆電容要保留

CR4 0/6/SHT/X

CESD1 AZ2025-04S/SOT23-5L/[10TA1-0I2025-10R]/X

M2_L M2_R L2_R L2_L

FUSEVCC_R7 {23} SPDIF

SPDIF OPTICAL

FR/5P/BK/T/D/S(GY)

{23} SPDIFO2_HDMI CR52 0/4 SPDIFO_HDMI

{23} SPDIFO3_HDMI CR53 0/4/X

CBC37 100p/4/NPO/50V/J

PIN SPDIF_O PH/1*2/BK/2.54/VA/D

For HDMI SPDIF

CESD5 AZ2025-04S/SOT23-5L/[10TA1-0I2025-10R]/X

SPDIF SPDIFO_HDMI

AZALIA JACK

BTX AZALIA CONNECTOR

11NR6-403007-21R

CESD2 CESD4 CESD3 AZ2025-04S/SOT23-5L/[10TA1-0I2025-10R]/X

AJ_A2 AJ_B2 AJ_C2 AJ_B5 AJ_A5 AJ_C5 BJ_B5 BJ_A5 BJ_C2 BJ_A2 BJ_C5 BJ_B2

AUDIOB

{23} LINE1_JD LINE1_JD AJ_A5 AJ_A2 GND LINE-IN

BLUE LINE-IN

{23} FRONT_JD FRONT_JD AJ_B5 AJ_B2 GND LINE-OUT

GREEN LINE-OUT

{23} MIC1_JD MIC1_JD AJ_C5 AJ_C2 GND MIC-IN

PINK MIC-IN

2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

AUDIOA

{23} CEN_JD CEN_JD BJ_B5 BJ_B2 GND REAR

Orange CEN/LFE

{23} SURR_JD SURR_JD BJ_C5 BJ_C2 GND CEN

Black SURROUND

{23} S_SURR_JD S_SURR_JD BJ_A5 BJ_A2 GND SIDE

Gray SURROUND SIDE

2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

LINE-OUT

{23} LINE_O_R CEC2 100u/OS/D/16V/66/30m CR7 62/4 AJ_B5

{23} LINE_O_L CEC3 100u/OS/D/16V/66/30m CR9 62/4 AJ_B2

CR10 22K/4 CR8 22K/4

CBC23 180p/4/NPO/50V/J CBC26 180p/4/NPO/50V/J

LINE-IN

{23} LINE_IN_R CR5 62/4 AJ_A5

{23} LINE_IN_L CR13 62/4 AJ_A2

CBC18 180p/4/NPO/50V/J CBC27 180p/4/NPO/50V/J

MIC-IN

{23} MIC1_R CR29 62/4 AJ_C5

{23} MIC1_L CR32 62/4 AJ_C2

{23} MIC1_VREFO_L

{23} MIC1_VREFO_R

CBC19 180p/4/NPO/50V/J CBC22 180p/4/NPO/50V/J

SURROUND

{23} SURR_R CEC5 100u/OS/D/16V/66/30m CR46 62/4 BJ_C5

{23} SURR_L CEC7 100u/OS/D/16V/66/30m CR19 62/4 BJ_C2

EMI

CR20 22K/4 CR45 22K/4

CBC29 180p/4/NPO/50V/J CBC28 180p/4/NPO/50V/J

CEN/LFE

{23} LFE CEC9 100u/OS/D/16V/66/30m CR50 62/4 BJ_B5

{23} CEN CEC10 100u/OS/D/16V/66/30m CR41 62/4 BJ_B2

EMI

CR42 22K/4 CR51 22K/4

CBC25 180p/4/NPO/50V/J CBC34 180p/4/NPO/50V/J

SURR BACK

{23} S_SURR_R CEC8 100u/OS/D/16V/66/30m CR21 62/4 BJ_A5

{23} S_SURR_L CEC4 100u/OS/D/16V/66/30m CR47 62/4 BJ_A2

EMI

CR43 22K/4 CR22 22K/4

CBC33 180p/4/NPO/50V/J CBC30 180p/4/NPO/50V/J

AZALIA FRONT PANEL

CQ2 BAT54A/SOT23/200mA CQ1 BAT54A/SOT23/200mA SOT23

{23} LINE2_VREFO CR25 8.2K/4 CR15 8.2K/4

{23} MIC2_VREFO CR12 8.2K/4 CR3 8.2K/4

EMI

{23} MIC2_L {23} MIC2_R CBC20 CBC15 10u/8/X5R/6.3V/K CR2 CR11 62/4 M2_L M2_R L2_R L2_L

{23} FAUDIO_JD CR14 CR24 62/4

CR1 0/4/X

F_AUDIO BH/2*5K8/GED/2.54/VA

CR27 CR26 22K/4

CR56 8.2K/4/X CR35 20K/4/1 CR31 39.2K/4/1

C_ACZ_DET {12}

Digital Area

3VDUAL

CBC10 CBC16 CBC17 CBC6 180p/4/NPO/50V/J

{23} LINE2_R {23} LINE2_L CEC6 CEC1 100u/OS/D/16V/66/30m L2_R L2_L

Gigabyte Technology			
Title: AUDIO JACK			
Size: Custom	Document Number: GA-Z68X-UD3-B3		Rev: 1.02
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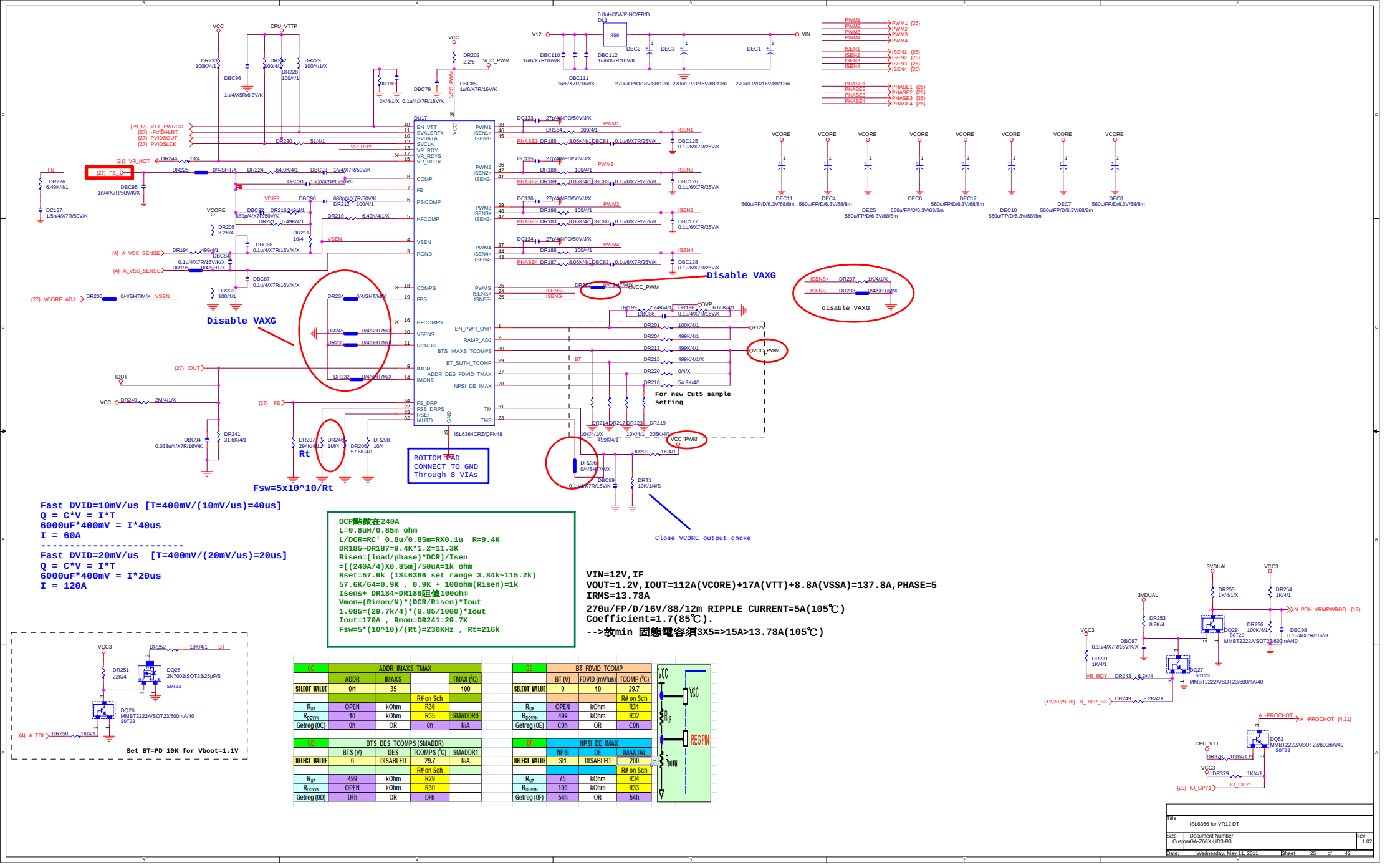

Fast DVID=10mV/us [T=400mV/(10mV/us)=40us]
Q = C*V = I*T
6000uF*400mV = I*40us
I = 60A

Fast DVID=20mV/us [T=400mV/(20mV/us)=20us]
Q = C*V = I*T
6000uF*400mV = I*20us
I = 120A

OCP點做在240A
L=0.8uH/0.85m ohm
L/DCR=RC' 0.8u/0.85m=RX0.1u R=9.4K
DR185~DR187=9.4K*1.2=11.3K
Risen=[load/phase)*DCR]/Isen
=[(240A/4)X0.85m]/50uA=1k ohm
Rset=57.6K (ISL6366 set range 3.84k~115.2k)
57.6K/64=0.9K , 0.9K + 100ohm(Risen)=1k
Isens+ DR184~DR186阻值100ohm
Vmon=(Rimon/N)*(DCR/Risen)*Iout
1.085=(29.7k/4)*(0.85/1000)*Iout
Iout=170A , Rmon=DR241=29.7K
Fsw=5*(10^10)/(Rt)=230KHz , Rt=216k

VIN=12V,IF
VOUT=1.2V,IOUT=112A(VCORE)+17A(VTT)+8.8A(VSSA)=137.8A,PHASE=5
IRMS=13.78A
270u/FP/D/16V/88/12m RIPPLE CURRENT=5A(105℃)
Coefficient=1.7(85℃).
-->故min 固態電容須3X5=>15A>13.78A(105℃)

Set BT=PD 10K for Vboot=1.1V

0C	ADDR_IMAXS_TMAX			
	ADDR	IMAXS		TMAX (°C)
SELECT VALUE	0/1	35		100
			R# on Sch	
R_{UP}	OPEN	kOhm	R36	
R_{DOWN}	10	kOhm	R35	SMADDR0
Getreg (0C)	0h	OR	0h	N/A

0E	BT_FDVID_TCOMP			
	BT (V)	FDVID (mV/us)	TCOMP (°C)	
SELECT VALUE	0	10	29.7	
			R# on Sch	
R_{UP}	OPEN	kOhm	R31	
R_{DOWN}	499	kOhm	R32	
Getreg (0E)	C0h	OR	C0h	

0D	BTS_DES_TCOMPS (SMADDR)			
	BTS (V)	DES	TCOMPS (°C)	SMADDR1
SELECT VALUE	0	DISABLED	29.7	N/A
			R# on Sch	
R_{UP}	499	kOhm	R29	
R_{DOWN}	OPEN	kOhm	R30	
Getreg (0D)	DFh	OR	DFh	

0F	NPSI_DE_IMAX			
	NPSI	DE	IMAX (A)	
SELECT VALUE	Sf1	DISABLED	200	
			R# on Sch	
R_{UP}	75	kOhm	R34	
R_{DOWN}	100	kOhm	R33	
Getreg (0F)	54h	OR	54h	

Title	ISL6366 for VR12 DT
Size: Custom	Document Number: GA-Z68X-UD3-B3
Rev	1.02
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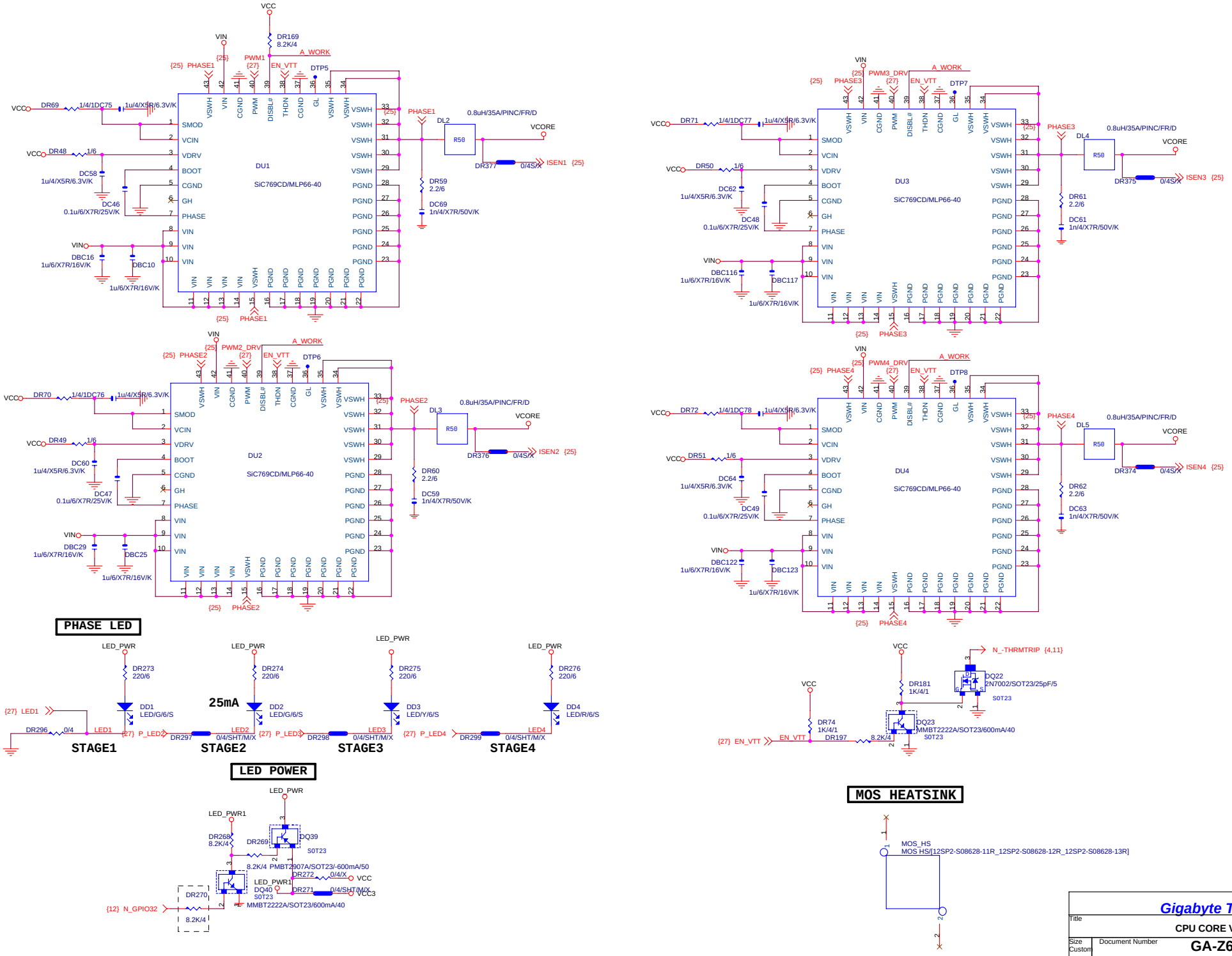

Gigabyte Technology		
Title	CPU CORE VR-4	
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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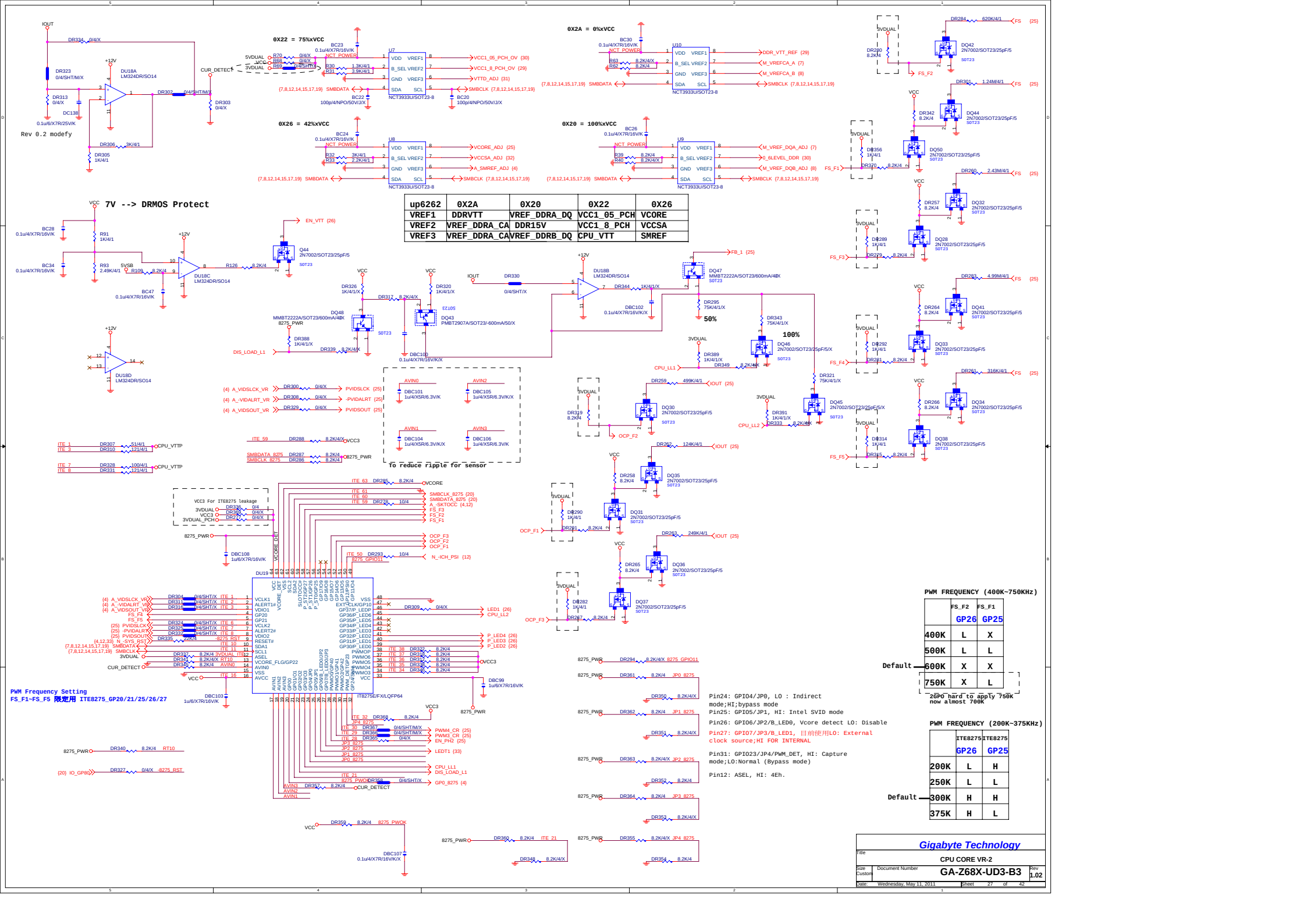

up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	CPU_VTT	SMREF

PWM FREQUENCY (400K~750KHz)

	FS_F2	FS_F1
	GP26	GP25
400K	L	X
500K	L	L
600K	X	X
750K	X	L

Default

26P0 hard to apply 750K now almost 700K

PWM FREQUENCY (200K~375KHz)

	ITE8275	ITE8275
	GP26	GP25
200K	L	H
250K	L	L
300K	H	H
375K	H	L

Default

Gigabyte Technology	
Title	CPU CORE VR-2
Size: Custom	Document Number: GA-Z68X-UD3-B3 Rev: 1.02
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GIGABYTE™

Title: VCORE PHASE GEAR 4

Size: Custom | Document Number: GA-Z68X-UD3-B3 | Rev: 1.02

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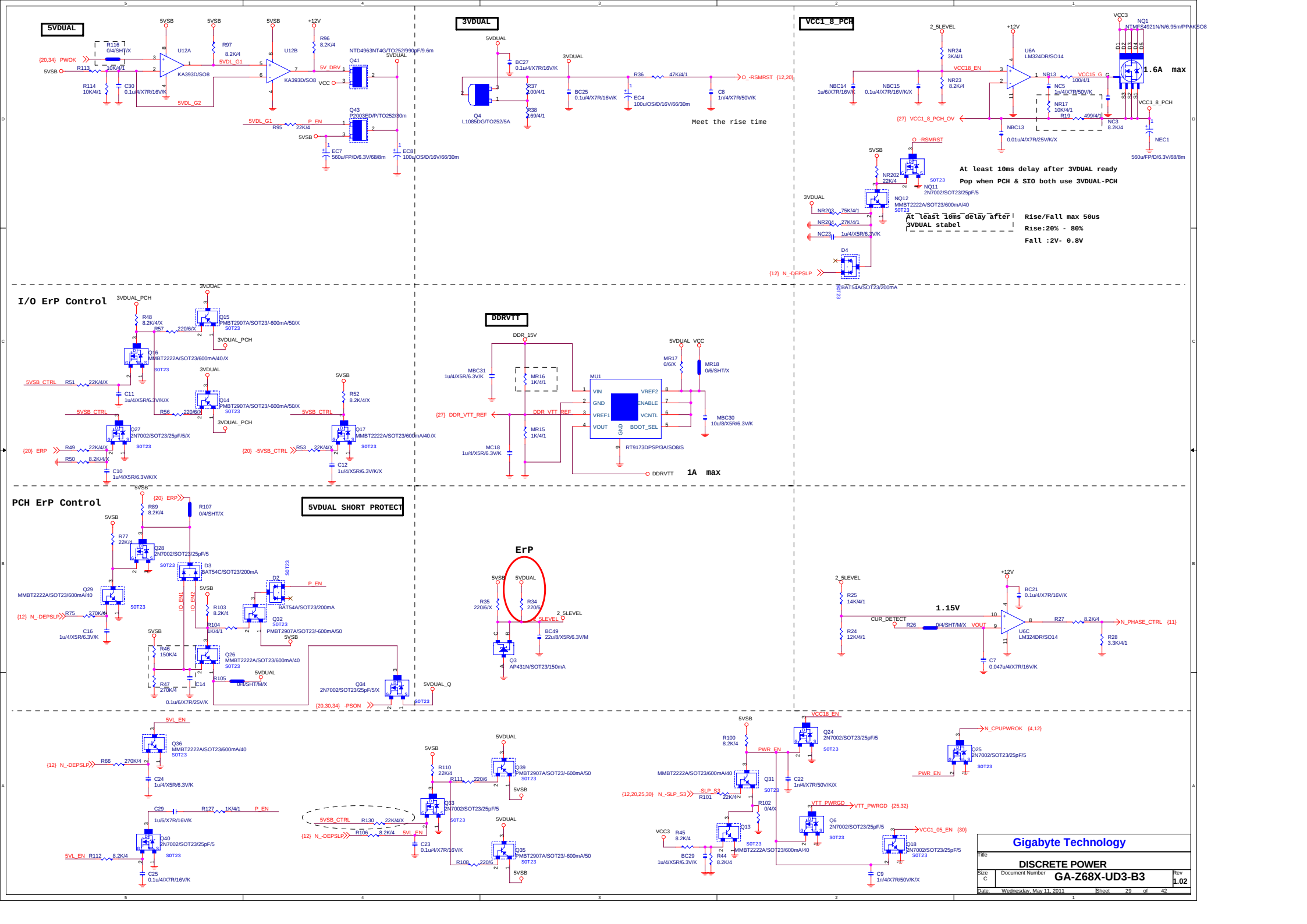
5VDUAL
3VDUAL
VCC1_8_PCH
I/O ErP Control
DDRVTT
PCH ErP Control
5VDUAL SHORT PROTECT
ErP
1.6A max
1A max
1.15V
Meet the rise time
At least 10ms delay after 3VDUAL ready
Pop when PCH & SIO both use 3VDUAL-PCH
At least 10ms delay after 3VDUAL stabel
Rise/Fall max 50us
Rise:20% - 80%
Fall :2V- 0.8V
Gigabyte Technology
DISCRETE POWER
GA-Z68X-UD3-B3
Rev 1.02
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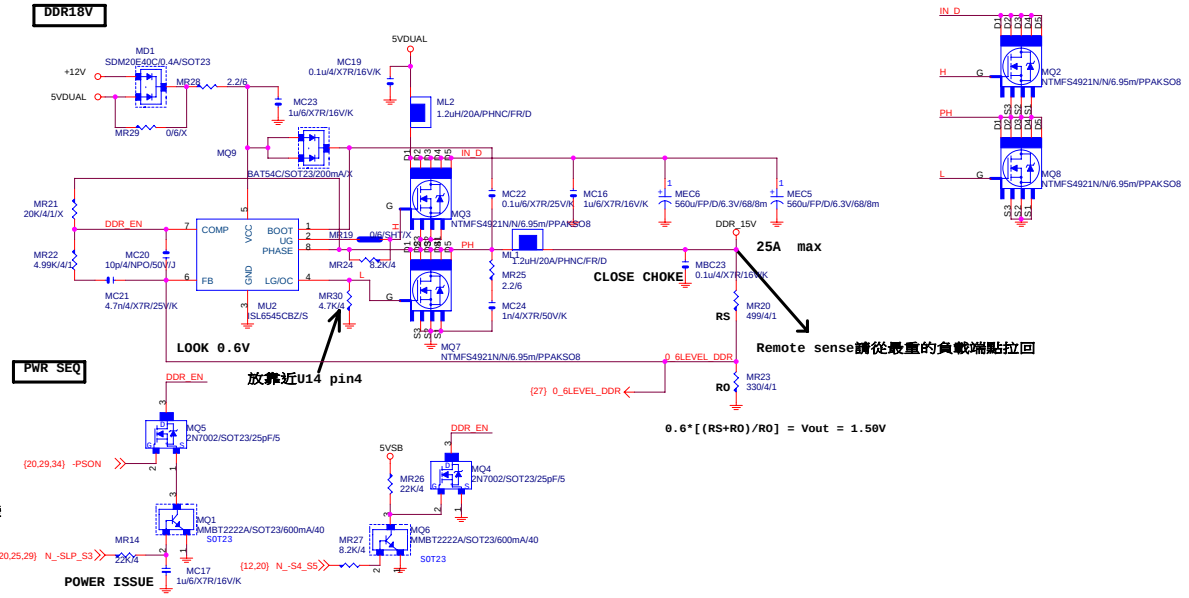


PWR SEQ

DDR_EN

MQ5 2N7002/SOT23/25pF/5

{20,29,34} -PSON

MQ1 MMBT2222A/SOT23/600mA/40 S0T23

MR14 22K/4

{12,20,25,29} N_-SLP_S3

MC17 1u/6/X7R/16V/K

POWER ISSUE

5VSB

MR26 22K/4

MQ4 2N7002/SOT23/25pF/5

MR27 8.2K/4

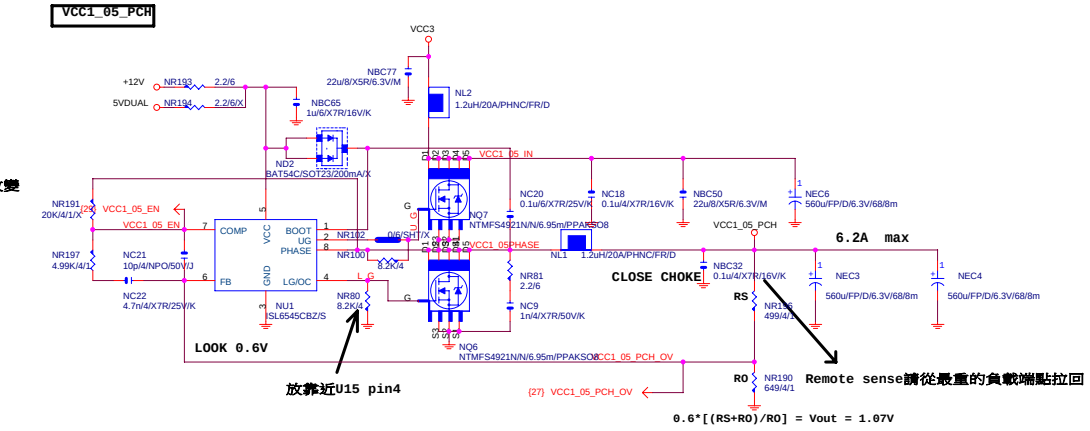
MQ6 MMBT2222A/SOT23/600mA/40 S0T23

{12,20} N_-S4_S5

OCP : Ipeak=(2xIocsetxRocset)/Rdson
Iocset=21.5uA , Rocset=4.7k

OCP : Ipeak=(2xIocsetxRocset)/Rdson
=(2x21.5ux4.7k)/(7m/2)
=57.74A

注意 : Rocset的阻值要依據Lo side Rdson改變
一般Ipeak設定在50~60A即可



OCP : Ipeak=(2xIocsetxRocset)/Rdson
Iocset=21.5uA , Rocset=8.2k

OCP : Ipeak=(2xIocsetxRocset)/Rdson
=(2x21.5ux8.2k)/7m
=50.37A

注意 : Rocset的阻值要依據Lo side Rdson改變
一般Ipeak設定在50~60A即可

Gigabyte Technology		
Title: DDR_15V		
Size: C	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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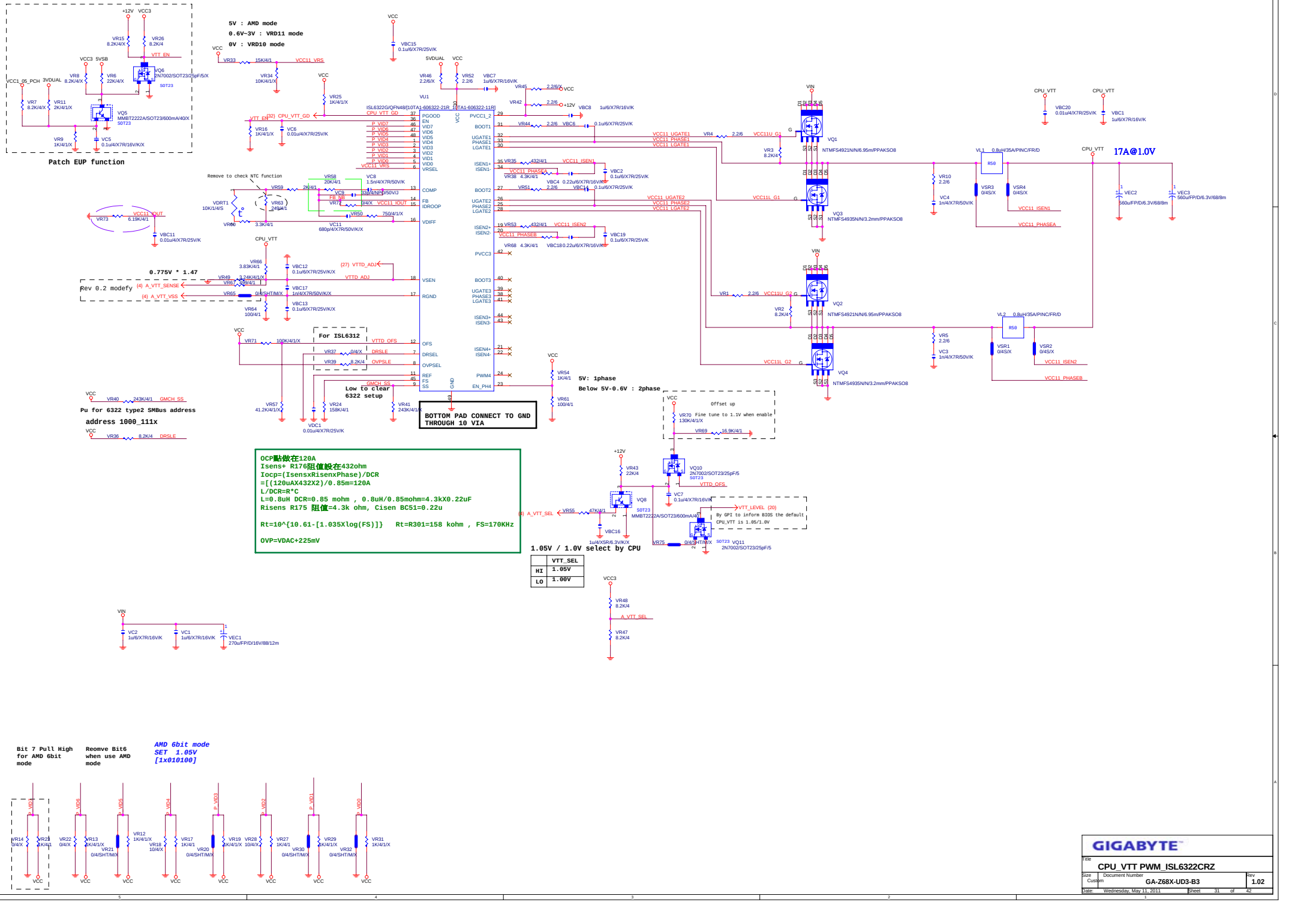
Patch EUP function
5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode
ISL6322G/QFN48[10TA1-606322-21R 10TA1-606322-11R]
Remove to check NTC function
0.775V * 1.47
Rev 0.2 modefy
Pu for 6322 type2 SMBus address
address 1000_111x
For ISL6312
Low to clear
6322 setup
BOTTOM PAD CONNECT TO GND
THROUGH 10 VIA
5V: 1phase
Below 5V-0.6V : 2phase
Offset up
By GPI to inform BIOS the default
CPU_VTT is 1.05/1.0V
1.05V / 1.0V select by CPU
VTT_SEL
HI 1.05V
LO 1.00V
OCP點做在120A
Isens+ R176阻值設在432ohm
Iocp=(IsensxRisenxPhase)/DCR
=[(120uAX432X2)/0.85m=120A
L/DCR=R*C
L=0.8uH DCR=0.85 mohm , 0.8uH/0.85mohm=4.3kX0.22uF
Risens R175 阻值=4.3k ohm, Cisen BC51=0.22u
Rt=10^{10.61-[1.035Xlog(FS)]} Rt=R301=158 kohm , FS=170KHz
OVP=VDAC+225mV
Bit 7 Pull High
for AMD 6bit
mode
Reomve Bit6
when use AMD
mode
AMD 6bit mode
SET 1.05V
[1x010100]
17A@1.0V
GIGABYTE
CPU_VTT PWM_ISL6322CRZ
GA-Z68X-UD3-B3
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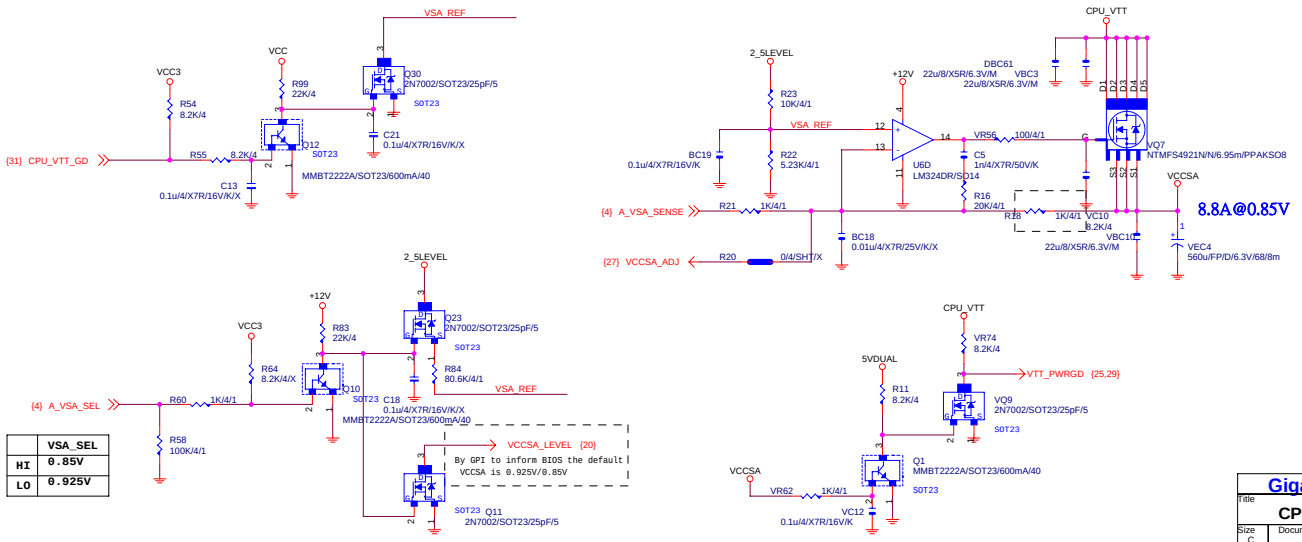
VCC_SA



	VSA_SEL
HI	0.85V
LO	0.925V

Gigabyte Technology		
Title: CPU VTT PWM_ISL6312		
Size: C	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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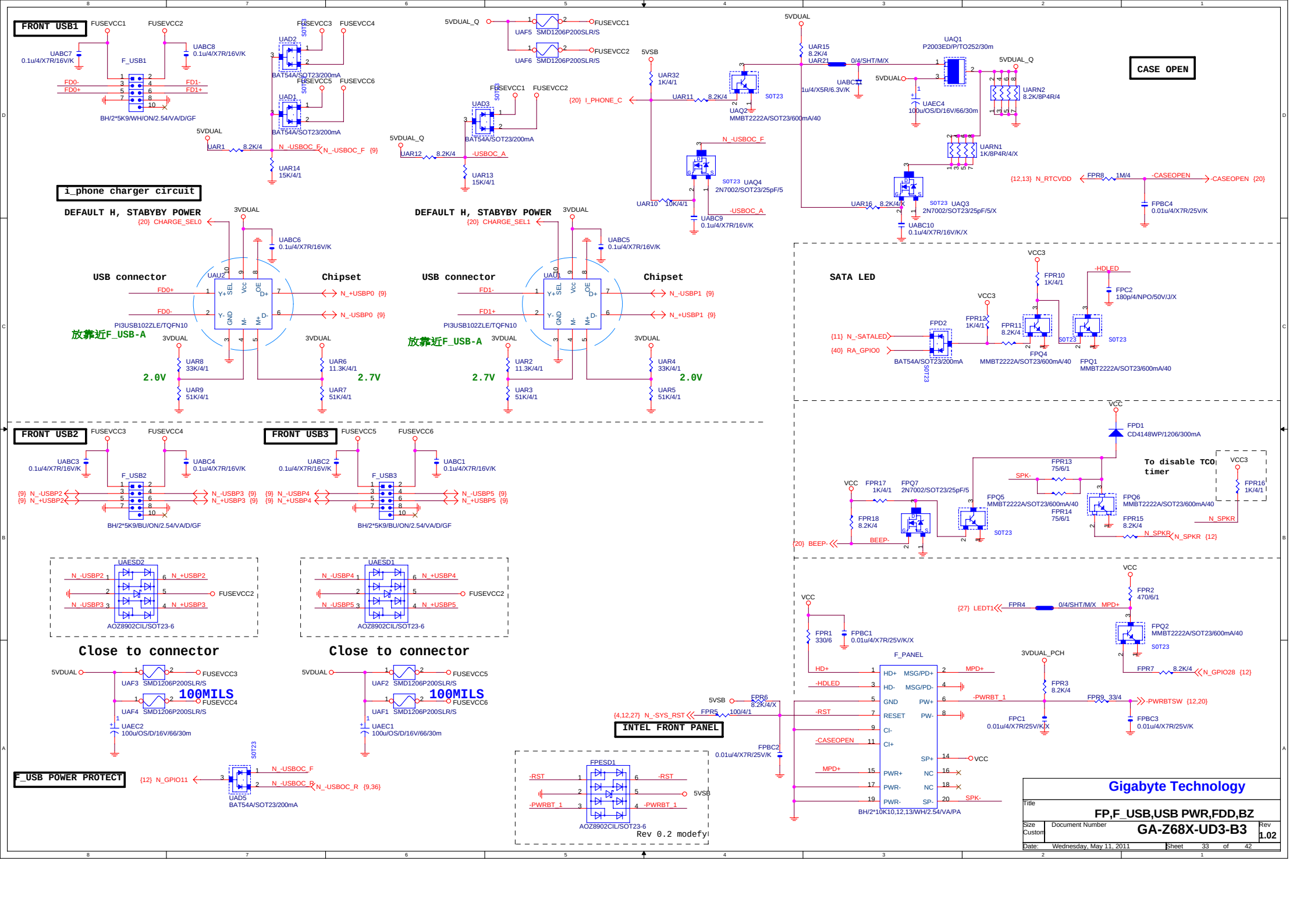
FRONT USB1
FUSEVCC1
FUSEVCC2
UABC7
0.1u/4/X7R/16V/K
UABC8
0.1u/4/X7R/16V/K
F_USB1
FD0-
FD0+
FD1-
FD1+
BH/2*5K9/WH/ON/2.54/VA/D/GF
FUSEVCC3
FUSEVCC4
UAD2
BAT54A/SOT23/200mA
FUSEVCC5
FUSEVCC6
UAD1
BAT54A/SOT23/200mA
5VDUAL
UAR1
8.2K/4
N_-USBOC_F
UAR14
15K/4/1
i_phone charger circuit
5VDUAL_Q
UAF5
SMD1206P200SLR/S
UAF6
SMD1206P200SLR/S
FUSEVCC1
FUSEVCC2
5VSB
UAR32
1K/4/1
UAR11
8.2K/4
{20} I_PHONE_C
UAD3
BAT54A/SOT23/200mA
UAR12
8.2K/4
-USBOC_A
UAR13
15K/4/1
UAR10
10K/4/1
UAQ4
2N7002/SOT23/25pF/5
UABC9
0.1u/4/X7R/16V/K
-USBOC_A
UAQ2
MMBT2222A/SOT23/600mA/40
UAR15
8.2K/4
UAR21
0/4/SHT/M/X
UABC11
1u/4/X5R/6.3V/K
UAQ1
P2003ED/P/TO252/30m
UAEC4
100u/OS/D/16V/66/30m
UARN2
8.2K/8P4R/4
UARN1
1K/8P4R/4/X
UAQ3
2N7002/SOT23/25pF/5/X
UAR16
8.2K/4/X
UABC10
0.1u/4/X7R/16V/K/X
{12,13} N_RTCVDD
FPR8
1M/4
-CASEOPEN
FPBC4
0.01u/4/X7R/25V/K
CASE OPEN
DEFAULT H, STABYBY POWER
{20} CHARGE_SEL0
3VDUAL
UABC6
0.1u/4/X7R/16V/K
USB connector
Chipset
UAU2
PI3USB102ZLE/TQFN10
FD0+
FD0-
N_+USBP0 {9}
N_-USBP0 {9}
放靠近F_USB-A
UAR8
33K/4/1
UAR9
51K/4/1
2.0V
UAR6
11.3K/4/1
UAR7
51K/4/1
2.7V
DEFAULT H, STABYBY POWER
{20} CHARGE_SEL1
UABC5
0.1u/4/X7R/16V/K
USB connector
Chipset
UAU1
PI3USB102ZLE/TQFN10
FD1-
FD1+
N_-USBP1 {9}
N_+USBP1 {9}
放靠近F_USB-A
UAR2
11.3K/4/1
UAR3
51K/4/1
2.7V
UAR4
33K/4/1
UAR5
51K/4/1
2.0V
SATA LED
VCC3
FPR10
1K/4/1
-HDLED
FPC2
180p/4/NPO/50V/J/X
FPR12
1K/4/1
FPR11
8.2K/4
{11} N_-SATALED
{40} RA_GPIO0
FPD2
BAT54A/SOT23/200mA
FPQ4
MMBT2222A/SOT23/600mA/40
FPQ1
MMBT2222A/SOT23/600mA/40
FRONT USB2
FUSEVCC3
FUSEVCC4
UABC3
0.1u/4/X7R/16V/K
UABC4
0.1u/4/X7R/16V/K
F_USB2
{9} N_-USBP2
{9} N_+USBP2
N_-USBP3 {9}
N_+USBP3 {9}
BH/2*5K9/BU/ON/2.54/VA/D/GF
FRONT USB3
FUSEVCC5
FUSEVCC6
UABC2
0.1u/4/X7R/16V/K
UABC1
0.1u/4/X7R/16V/K
F_USB3
{9} N_-USBP4
{9} N_+USBP4
N_-USBP5 {9}
N_+USBP5 {9}
BH/2*5K9/BU/ON/2.54/VA/D/GF
FPD1
CD4148WP/1206/300mA
To disable TCO timer
FPR13
75/6/1
SPK-
FPR17
1K/4/1
FPQ7
2N7002/SOT23/25pF/5
FPQ5
MMBT2222A/SOT23/600mA/40
FPR14
75/6/1
FPQ6
MMBT2222A/SOT23/600mA/40
FPR18
8.2K/4
FPR15
8.2K/4
FPR16
1K/4/1
N_SPKR
{20} BEEP-
BEEP-
UAESD2
N_-USBP2
N_+USBP2
N_-USBP3
N_+USBP3
FUSEVCC2
AOZ8902CIL/SOT23-6
Close to connector
UAESD1
N_-USBP4
N_+USBP4
N_-USBP5
N_+USBP5
FUSEVCC2
AOZ8902CIL/SOT23-6
Close to connector
5VDUAL
UAF3
SMD1206P200SLR/S
FUSEVCC3
100MILS
UAF4
SMD1206P200SLR/S
FUSEVCC4
UAEC2
100u/OS/D/16V/66/30m
UAF2
SMD1206P200SLR/S
FUSEVCC5
100MILS
UAF1
SMD1206P200SLR/S
FUSEVCC6
UAEC1
100u/OS/D/16V/66/30m
F_USB POWER PROTECT
{12} N_GPIO11
UAD5
BAT54A/SOT23/200mA
N_-USBOC_F
N_-USBOC_R
N_-USBOC_R {9,36}
FPESD1
-RST
-PWRBT_1
5VSB
AOZ8902CIL/SOT23-6
Rev 0.2 modefy
INTEL FRONT PANEL
5VSB
FPR6
8.2K/4/X
{4,12,27} N_-SYS_RST
FPR5
100/4/1
FPBC2
0.01u/4/X7R/25V/K
VCC
FPR1
330/6
FPBC1
0.01u/4/X7R/25V/K/X
F_PANEL
HD+
-HDLED
-RST
-CASEOPEN
MPD+
HD+
HD-
GND
RESET
CI-
CI+
PWR+
PWR-
MSG/PD+
MSG/PD-
PW+
PW-
SP+
NC
NC
SP-
BH/2*10K10,12,13/WH/2.54/VA/PA
FPR2
470/6/1
{27} LEDT1
FPR4
0/4/SHT/M/X
MPD+
FPQ2
MMBT2222A/SOT23/600mA/40
FPR7
8.2K/4
N_GPIO28 {12}
3VDUAL_PCH
FPR3
8.2K/4
-PWRBT_1
FPR9
33/4
-PWRBTSW {12,20}
FPC1
0.01u/4/X7R/25V/K/X
FPBC3
0.01u/4/X7R/25V/K
SPK-
VCC
VCC3
SOT23
SOT23-6
Gigabyte Technology
Title
FP,F_USB,USB PWR,FDD,BZ
Size
Custom
Document Number
GA-Z68X-UD3-B3
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1.02
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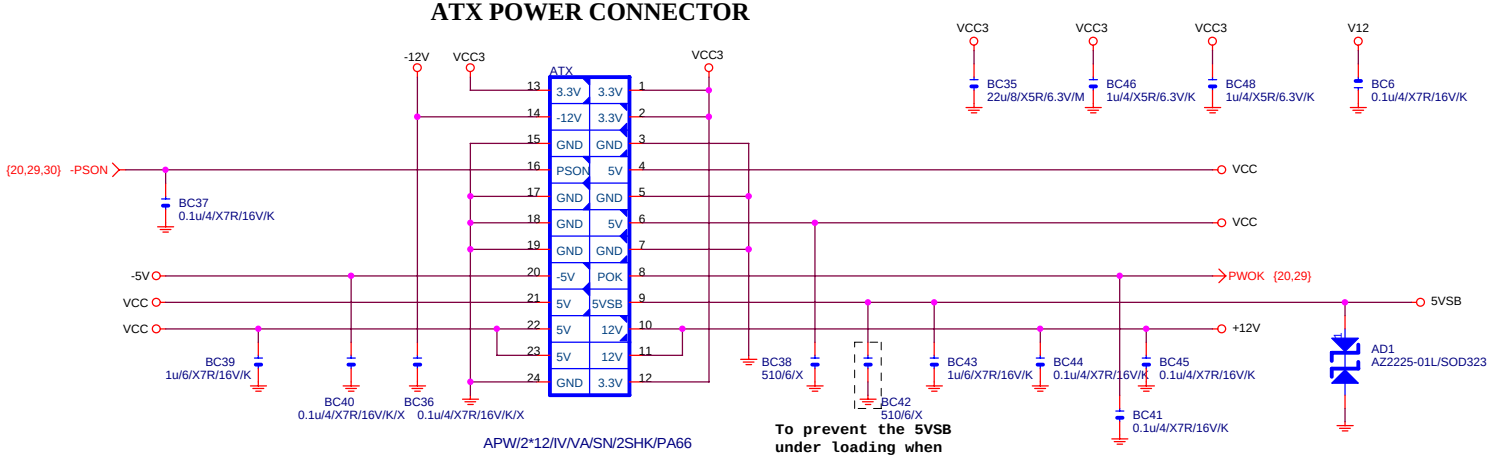
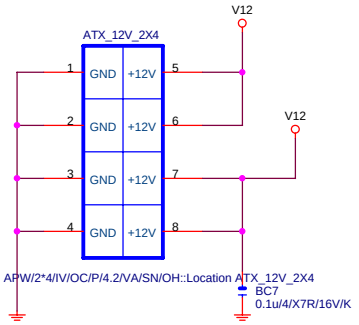
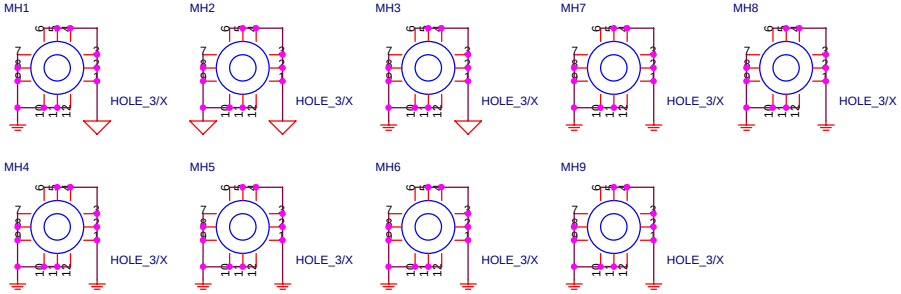
42

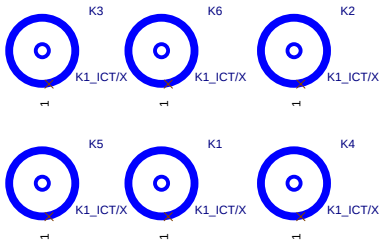
ATX POWER CONNECTOR

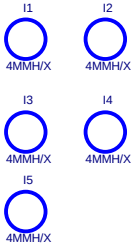


To prevent the 5VSB under loading when boot









Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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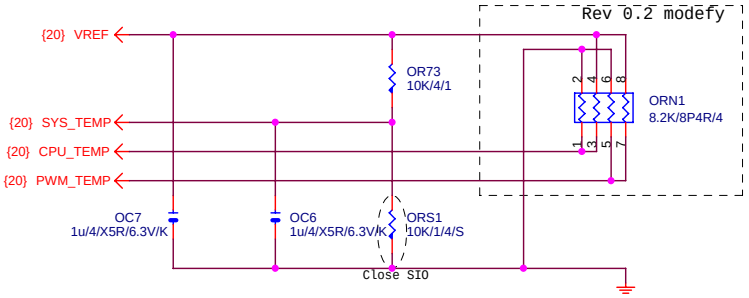
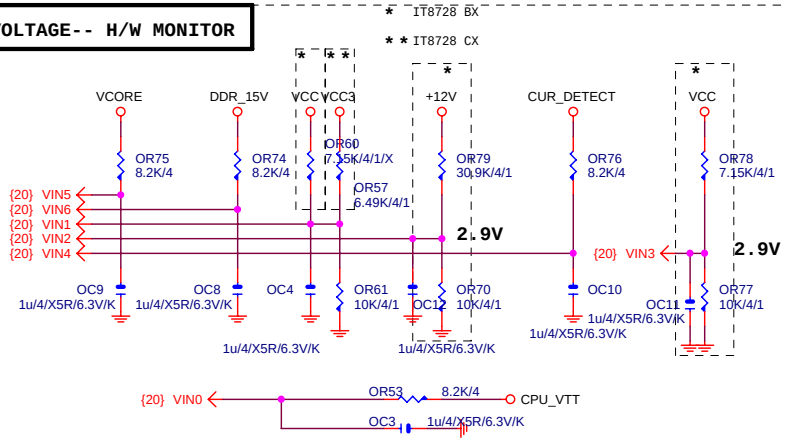
TEMP H/W MONITOR

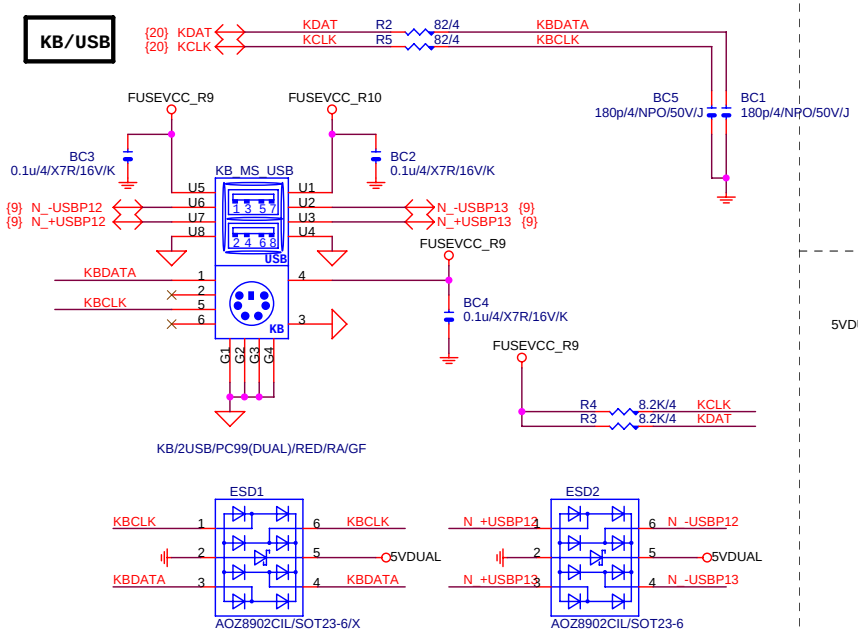


VOLTAGE-- H/W MONITOR

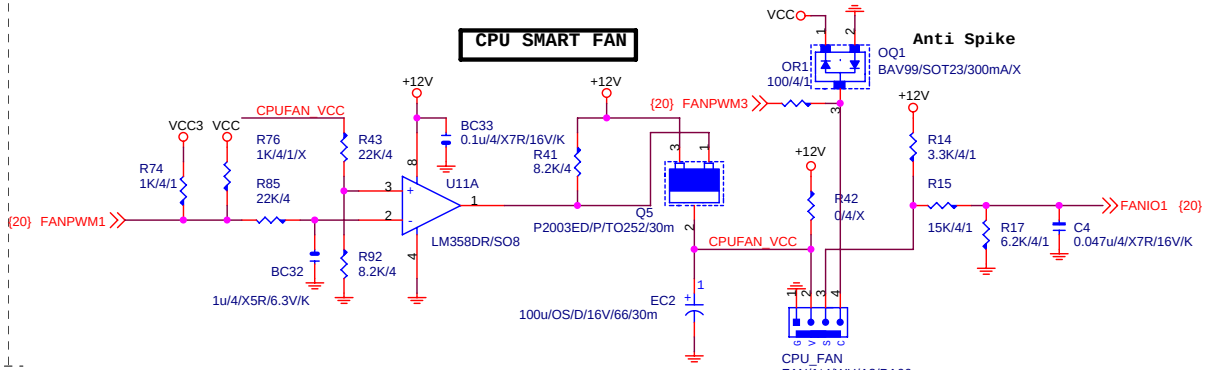


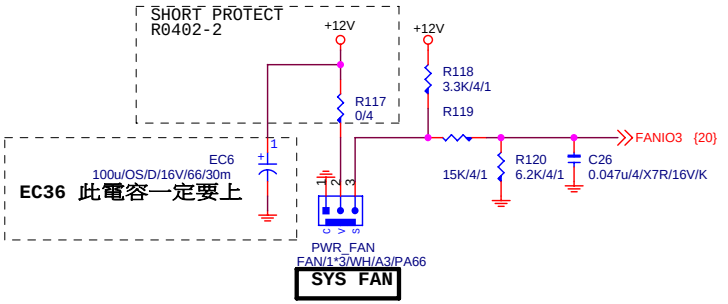
The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB

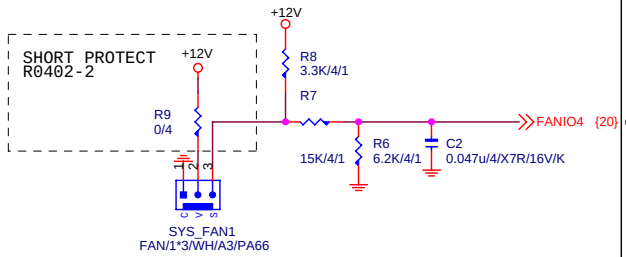


CPU SMART FAN

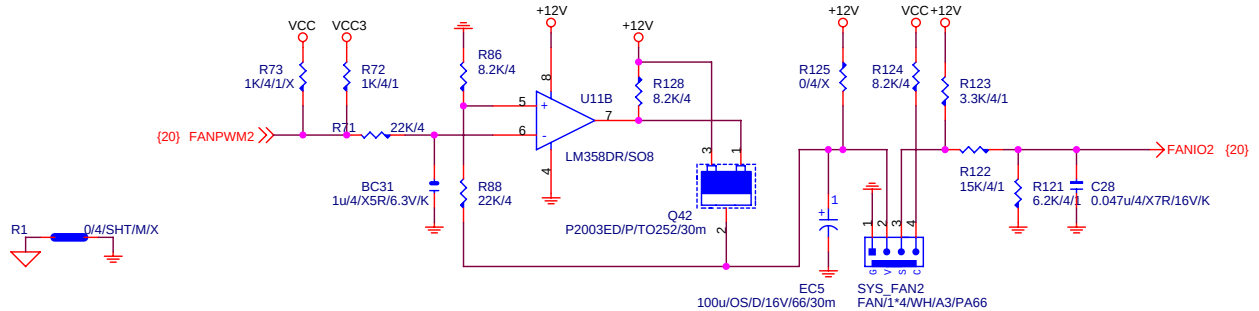


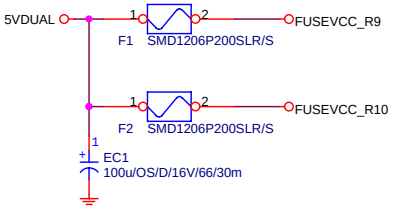


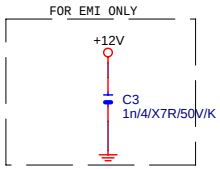
SYS FAN



Linear SYS_FAN







Gigabyte Technology

Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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PCIE-1G LAN

Power domain chart

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

FOR DSM MODE
(DEEP SLUMBER MODE)

ENABLE SW

Dual Color LED
D4 D3 Green
D4 D3 Orange

Single Color LED
D2 D1 Yellow

RTL8111E-VL-CG/QFN48/S

P35-152-19W9

80歐姆:[15/5/5/5/15]

SRCCLK 50歐姆:[18/4/10/4/18]

離IC近越好

USB30_LAN CONNECTOR

100歐姆:[20/4/8/4/20]

USB+LAN/1G/GO,Y/OS/RA/D/1/RED

90歐姆:[15/4.5/7.5/4.5/15]

USB3.0/2.0

USB+LAN/1G/GO,Y/OS/RA/D/1/SB

90歐姆:[20/4.5/7.5/4.5/20]

Close to R_USB30

90歐姆:[20/4.5/7.5/4.5/20]

Close to R_USB30

AZ1045-04F/MSOP10

AZ1045-04F/MSOP10

(CLOSE LU1)

(PIN3,6,9,13,29,41,45)

CLOSE LL2

(PIN21)

Close to connector

Gigabyte Technology		
Title: REALTEK RTL8111E_1		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
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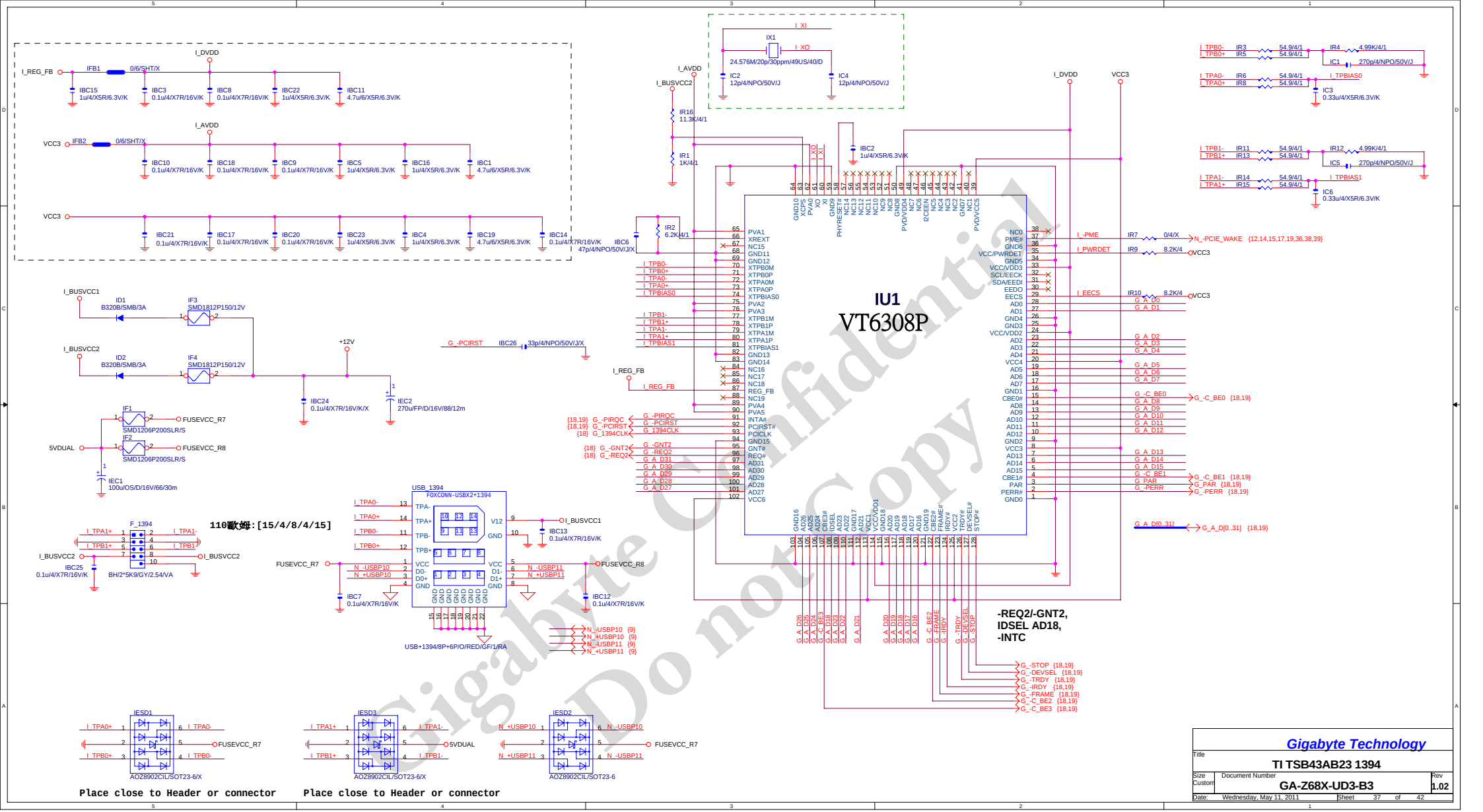
IU1
VT6308P
I_REG_FB
I_DVDD
I_AVDD
VCC3
I_BUSVCC2
I_BUSVCC1
5VDUAL
+12V
I_XI
I_XO
24.576M/20p/30ppm/49US/40/D
IBC15 1u/4/X5R/6.3V/K
IBC3 0.1u/4/X7R/16V/K
IBC8 0.1u/4/X7R/16V/K
IBC22 1u/4/X5R/6.3V/K
IBC11 4.7u/6/X5R/6.3V/K
IBC10 0.1u/4/X7R/16V/K
IBC18 0.1u/4/X7R/16V/K
IBC9 0.1u/4/X7R/16V/K
IBC5 1u/4/X5R/6.3V/K
IBC16 1u/4/X5R/6.3V/K
IBC1 4.7u/6/X5R/6.3V/K
IBC21 0.1u/4/X7R/16V/K
IBC17 0.1u/4/X7R/16V/K
IBC20 0.1u/4/X7R/16V/K
IBC23 1u/4/X5R/6.3V/K
IBC4 1u/4/X5R/6.3V/K
IBC19 4.7u/6/X5R/6.3V/K
IBC14 0.1u/4/X7R/16V/K
IBC6 47p/4/NPO/50V/J/X
IBC2 1u/4/X5R/6.3V/K
IR16 11.3K/4/1
IR1 1K/4/1
IR2 6.2K/4/1
IBC24 0.1u/4/X7R/16V/K/X
IEC2 270u/FP/D/16V/88/12m
IEC1 100u/OS/D/16V/66/30m
IBC25 0.1u/4/X7R/16V/K
IBC7 0.1u/4/X7R/16V/K
IBC12 0.1u/4/X7R/16V/K
IBC13 0.1u/4/X7R/16V/K
IR3 54.9/4/1
IR4 4.99K/4/1
IR5 54.9/4/1
IC1 270p/4/NPO/50V/J
IR6 54.9/4/1
IR8 54.9/4/1
IC3 0.33u/4/X5R/6.3V/K
IR11 54.9/4/1
IR12 4.99K/4/1
IR13 54.9/4/1
IC5 270p/4/NPO/50V/J
IR14 54.9/4/1
IR15 54.9/4/1
IC6 0.33u/4/X5R/6.3V/K
IR7 0/4/X
IR9 8.2K/4
IR10 8.2K/4
ID1 B320B/SMB/3A
ID2 B320B/SMB/3A
IF3 SMD1812P150/12V
IF4 SMD1812P150/12V
IF1 SMD1206P200SLR/S
IF2 SMD1206P200SLR/S
F_1394
USB_1394
FOXCONN-USBX2+1394
USB+1394/8P+6P/O/RED/GF/1/RA
IESD1
IESD3
IESD2
AOZ8902CIL/SOT23-6/X
AOZ8902CIL/SOT23-6
-REQ2/-GNT2,
IDSEL AD18,
-INTC
110歐姆:[15/4/8/4/15]
Place close to Header or connector
Place close to Header or connector
Gigabyte Confidential
Do not copy
Gigabyte Technology
TI TSB43AB23 1394
GA-Z68X-UD3-B3
Custom
1.02
Wednesday, May 11, 2011
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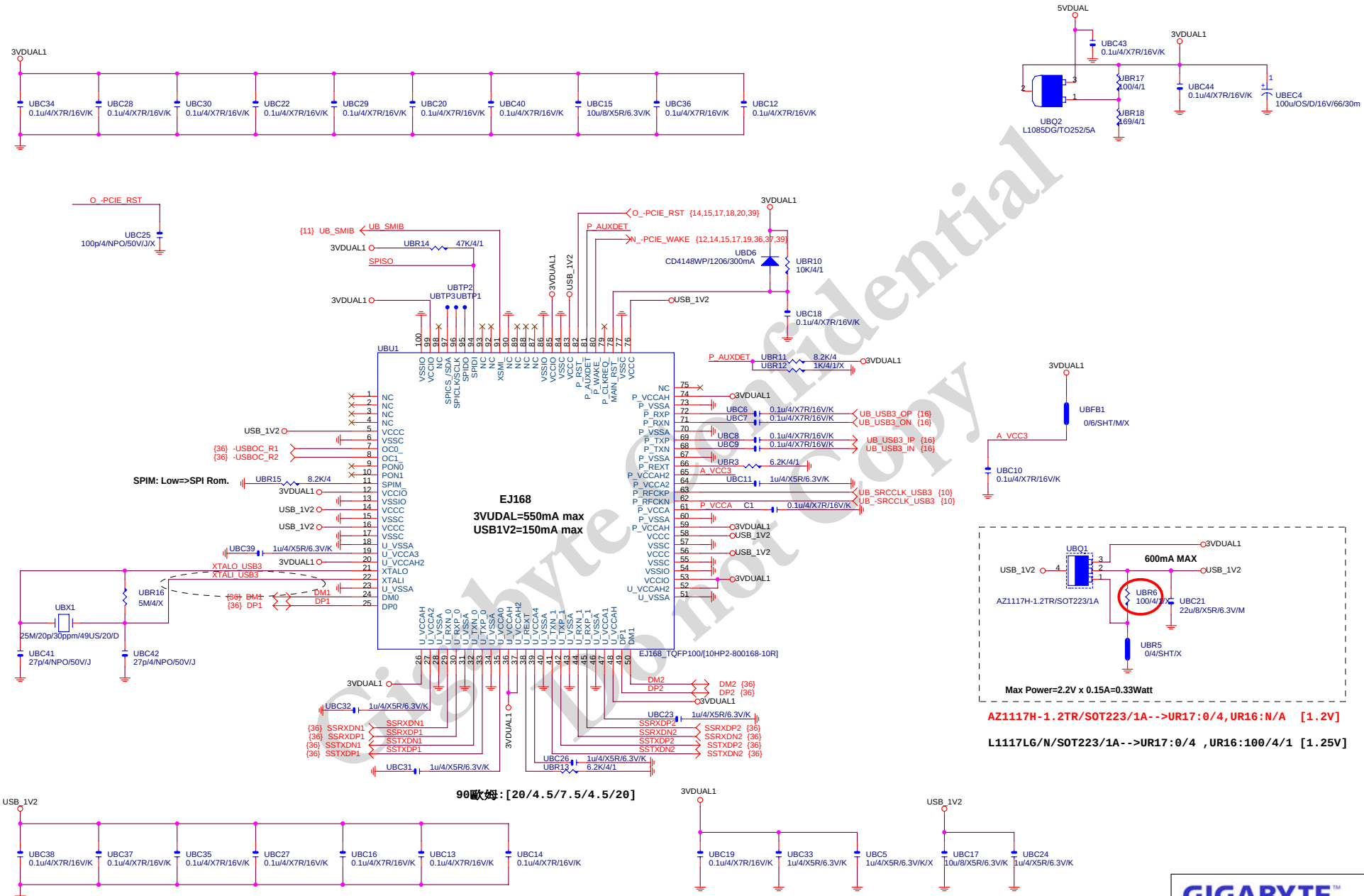
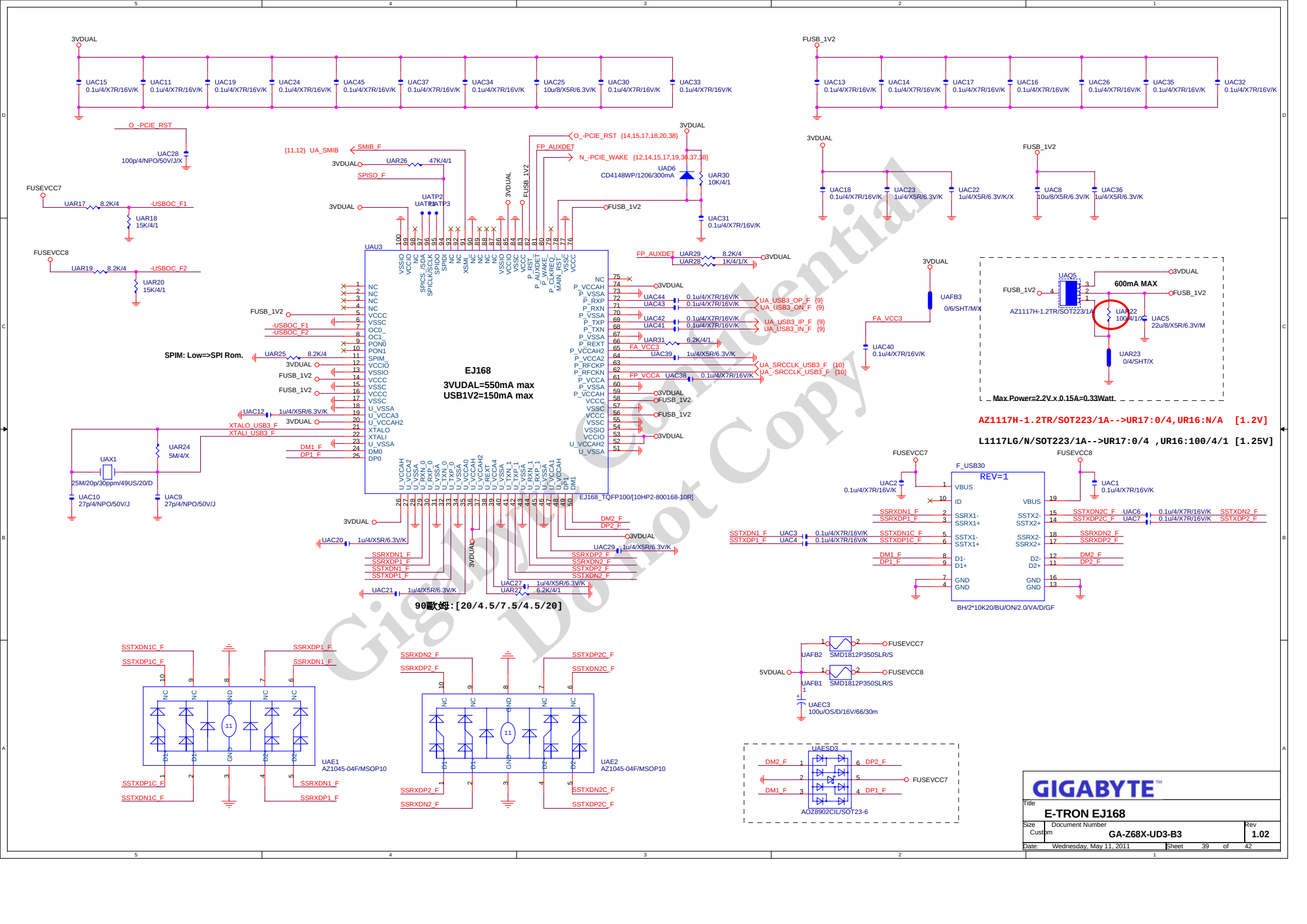
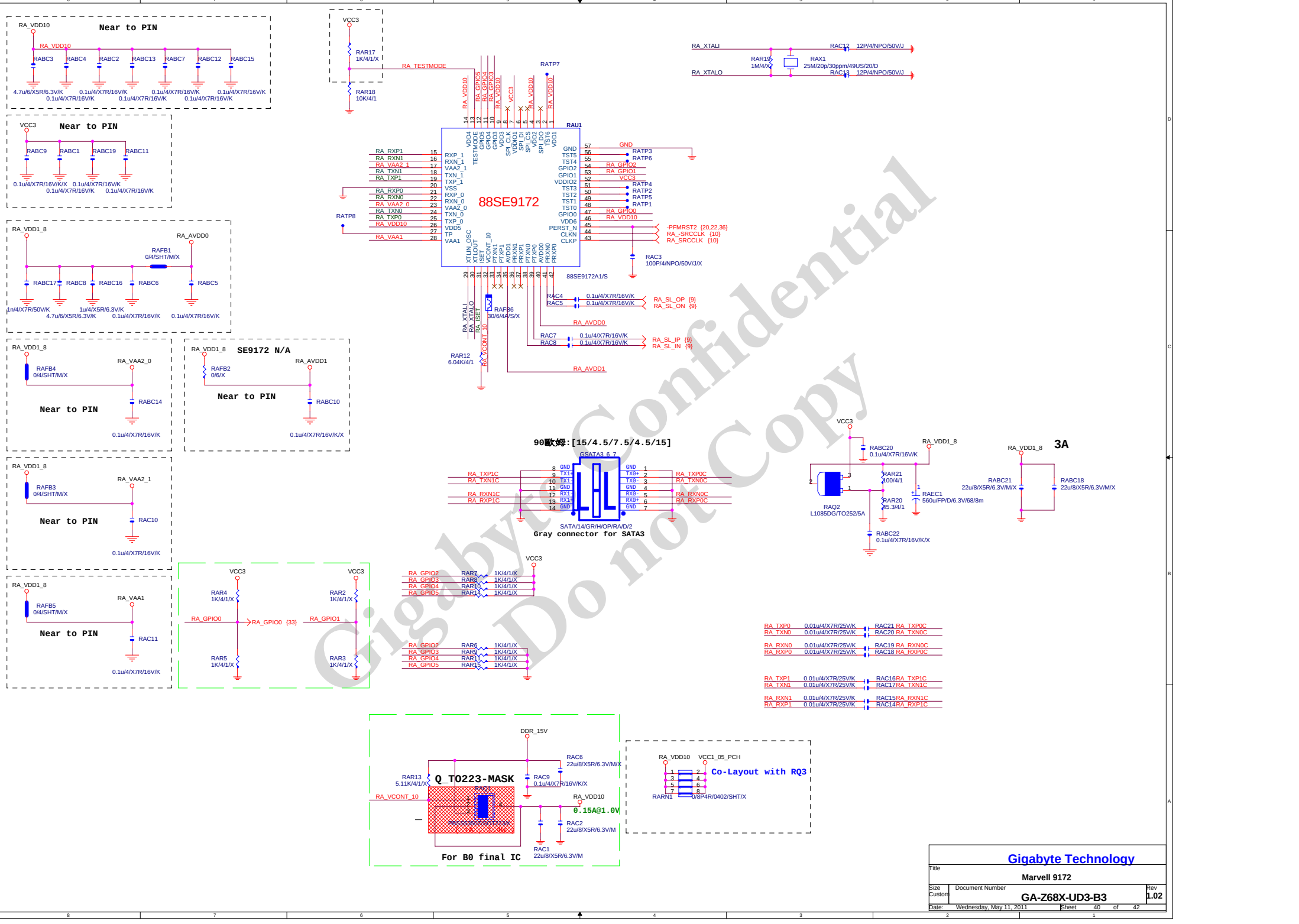


GIGABYTE™

Title	E-TRON EJ168	
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 38 of 42	





Title	Marvell 9172
Size / Custom	Document Number: GA-Z68X-UD3-B3
Rev	1.02
Date:	Wednesday, May 11, 2011
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Gigabyte Technology

Gigabyte Technology		
Title: Marvell 9172		
Size: Custom	Document Number: GA-Z68X-UD3-B3	Rev: 1.02
Date: Wednesday, May 11, 2011	Sheet 41 of 42	

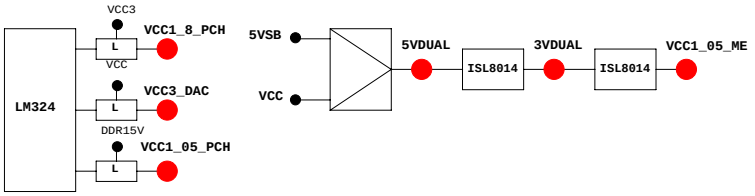
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	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	-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	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

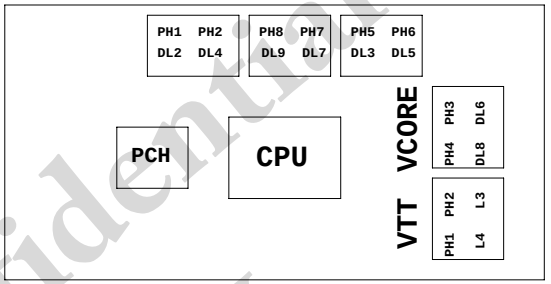
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KBRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSSO0	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	空 PIN	FST_2X8
INIT#/GP85/SMBD_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VIDO1/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBD_R	-EN_PWM2	
PSI_L/FAN_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	



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_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_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

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Title: TABLE LIST

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