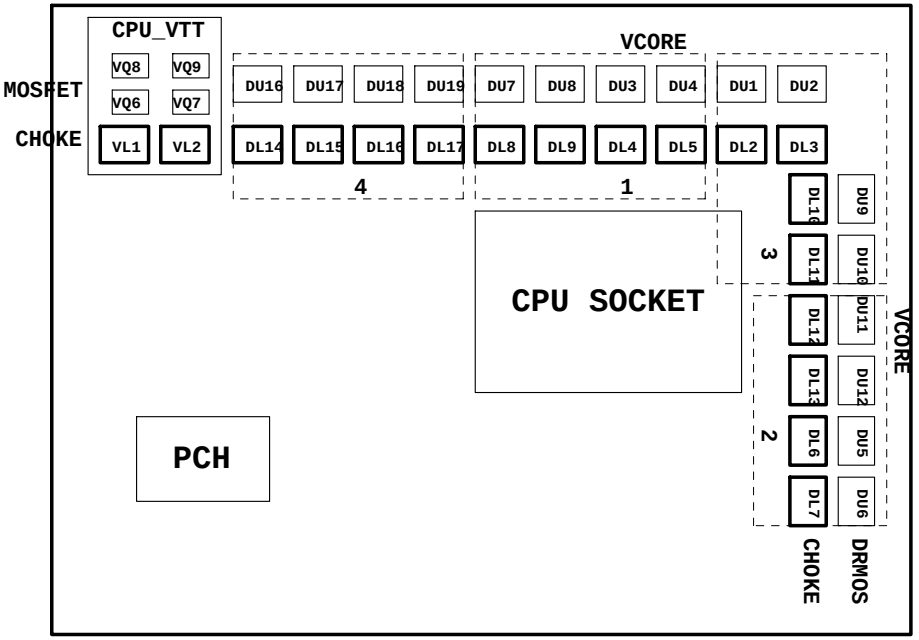
Model Name: GA-Z68X-UD4-B3 *1.0*

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 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-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 1 of 42	

GA-Z68X-UD4-B3

Component value change history

Data	Change Item	Reason
2011/03/14	1.0A-PBOM	
	Modify from P67X-UD4-B3-1.0A PBOM	
	change chipset to Z68-B3	
	包材change	

Circuit or PCB layout change

DATE	Change Item	Reason
2011/03/14-1.0	Modify from P67X-UD4-B3 1.0 Change model name to Z68X-UD4-B3, only silksreen chnage	

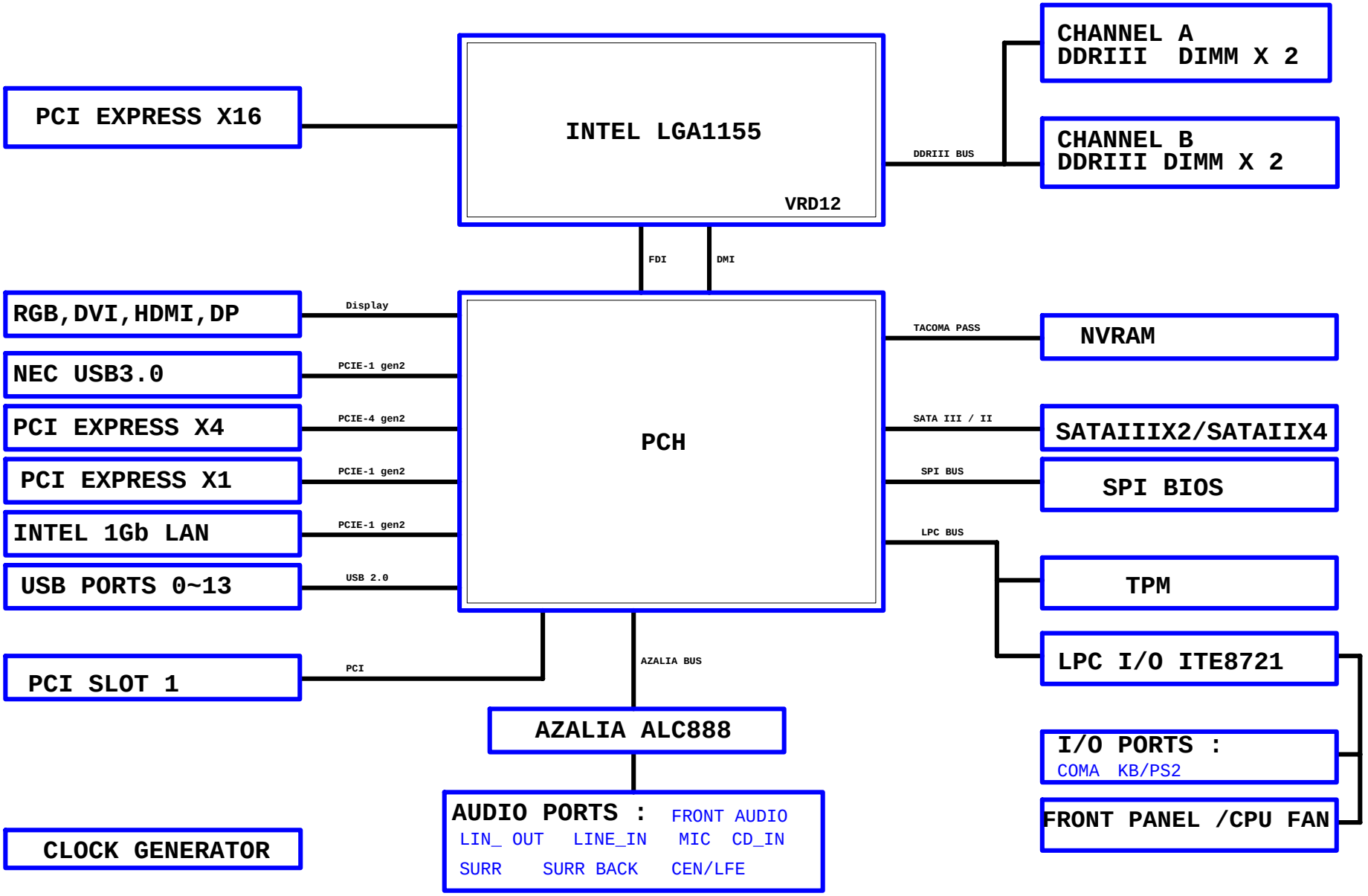
Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

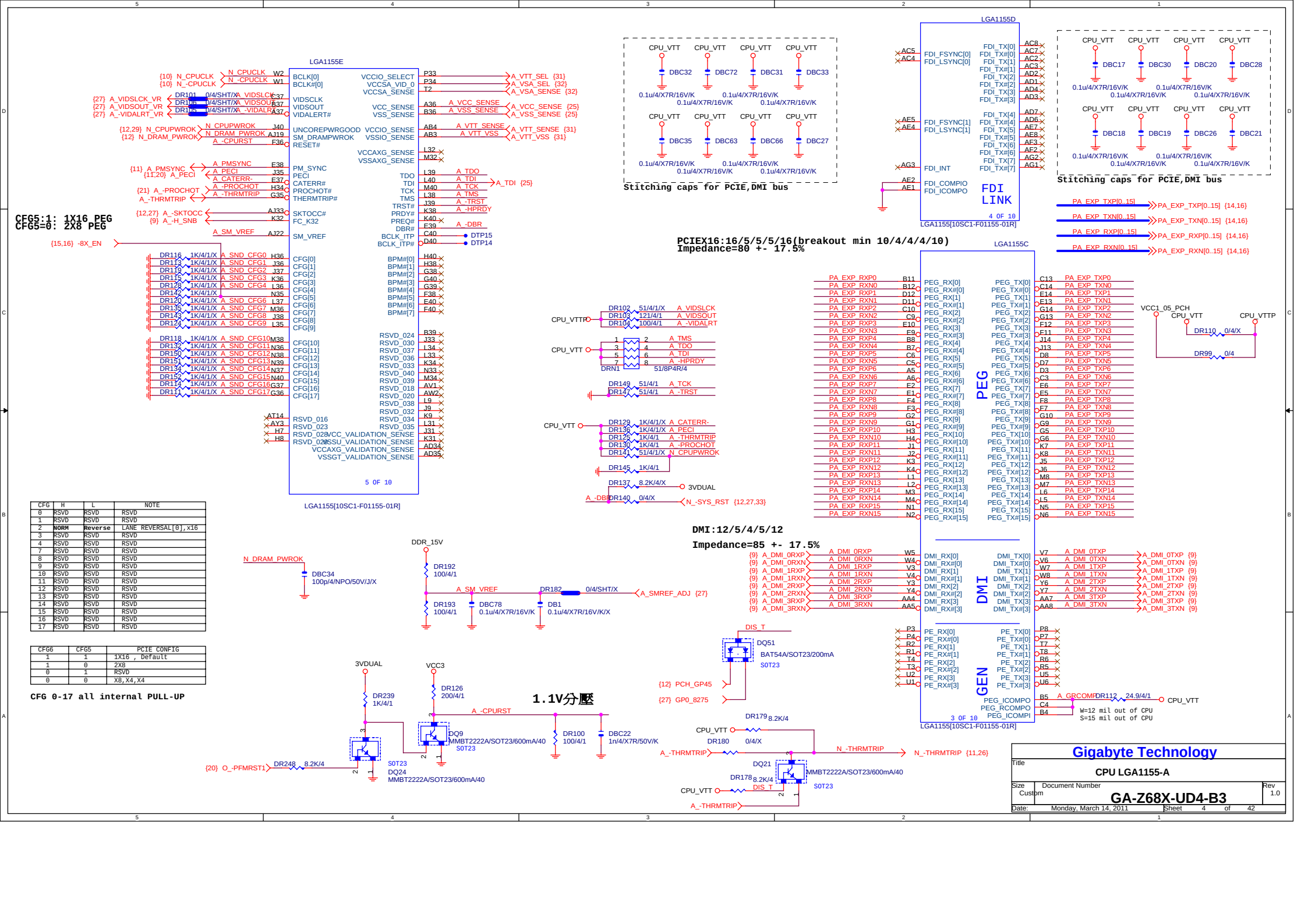
Size: Custom | Document Number: GA-Z68X-UD4-B3 | Rev: 1.0

Date: Monday, March 14, 2011 | Sheet 2 of 42

BLOCK DIAGRAM

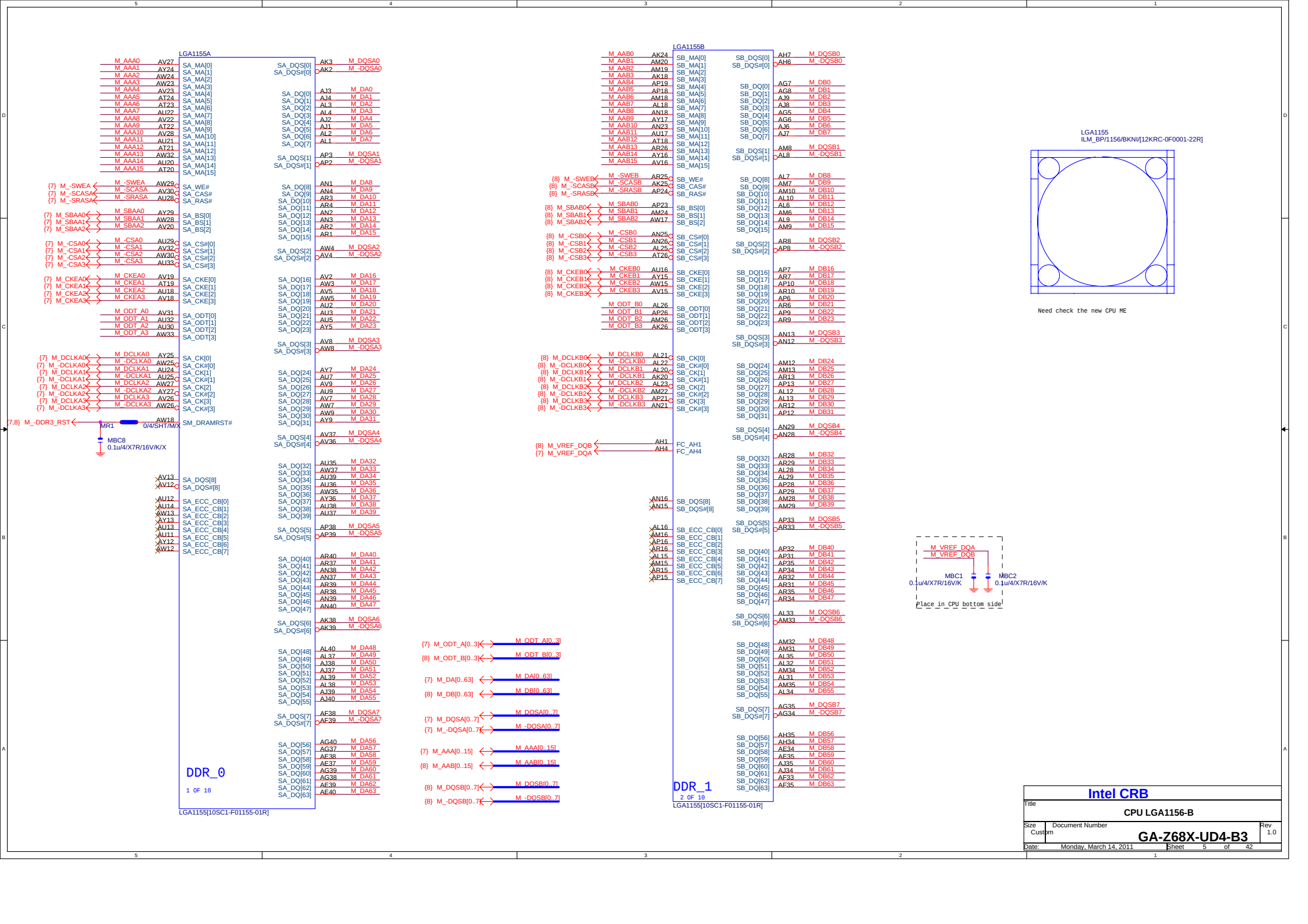


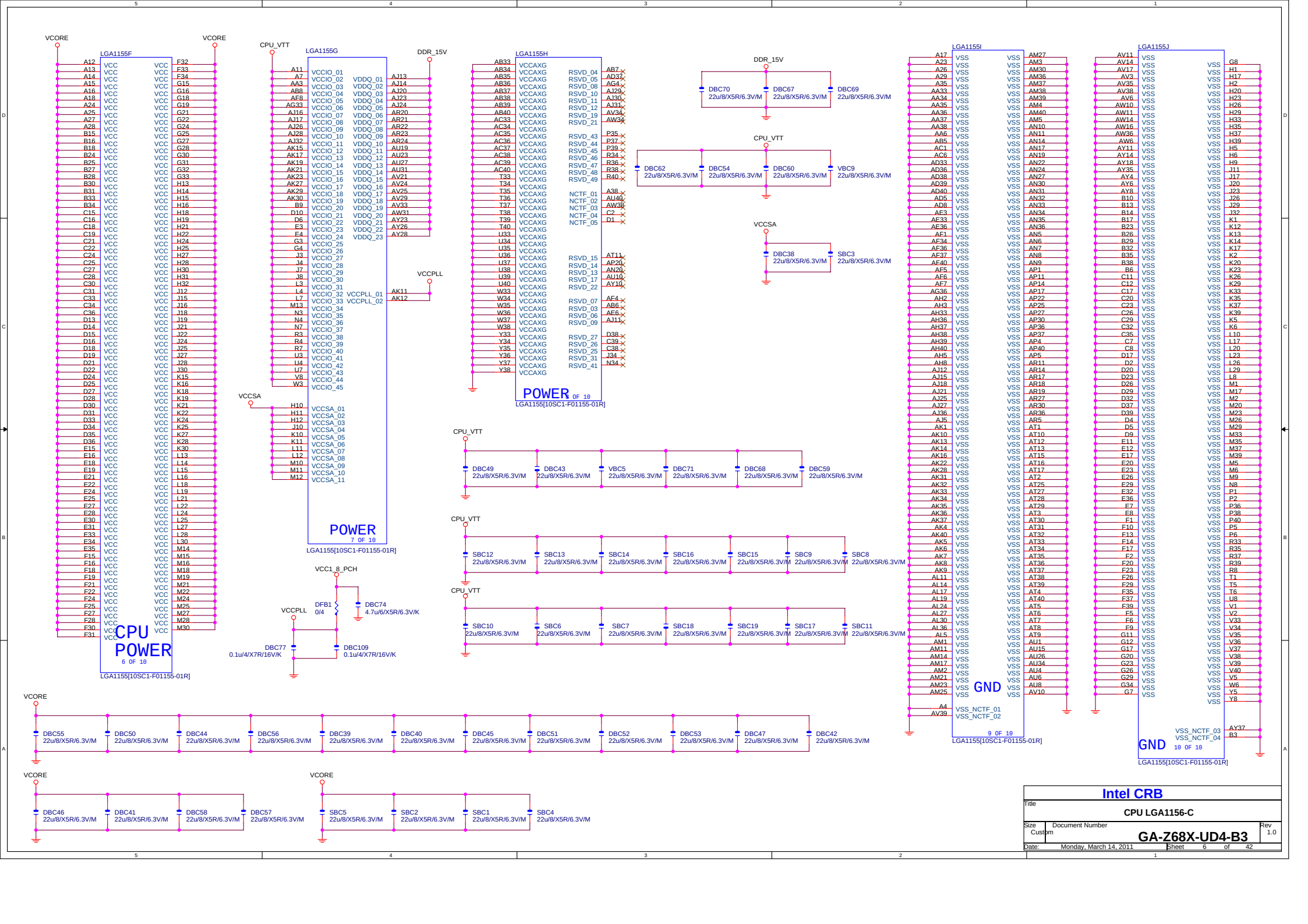
Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 3 of 42	



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


LGA1155A
DDR_0
1 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155B
DDR_1
2 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155
ILM_BP/1156/BKNI/[12KRC-0F0001-22R]
Need check the new CPU ME
Place in CPU bottom side
MBC8
0.1u/4/X7R/16V/K/X
MBC1
0.1u/4/X7R/16V/K
MBC2
0.1u/4/X7R/16V/K
MR1
0/4/SHT/M/X
Intel CRB
CPU LGA1156-B
GA-Z68X-UD4-B3
Monday, March 14, 2011


LGA1155F
CPU POWER
6 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155G
POWER
7 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155H
POWER
8 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155I
GND
9 OF 10
LGA1155[10SC1-F01155-01R]
LGA1155J
GND
10 OF 10
LGA1155[10SC1-F01155-01R]
VCORE
CPU_VTT
DDR_15V
VCCPLL
VCCSA
VCC1_8_PCH
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
Intel CRB
Title
CPU LGA1156-C
Size
Custom
Document Number
GA-Z68X-UD4-B3
Rev
1.0
Date:
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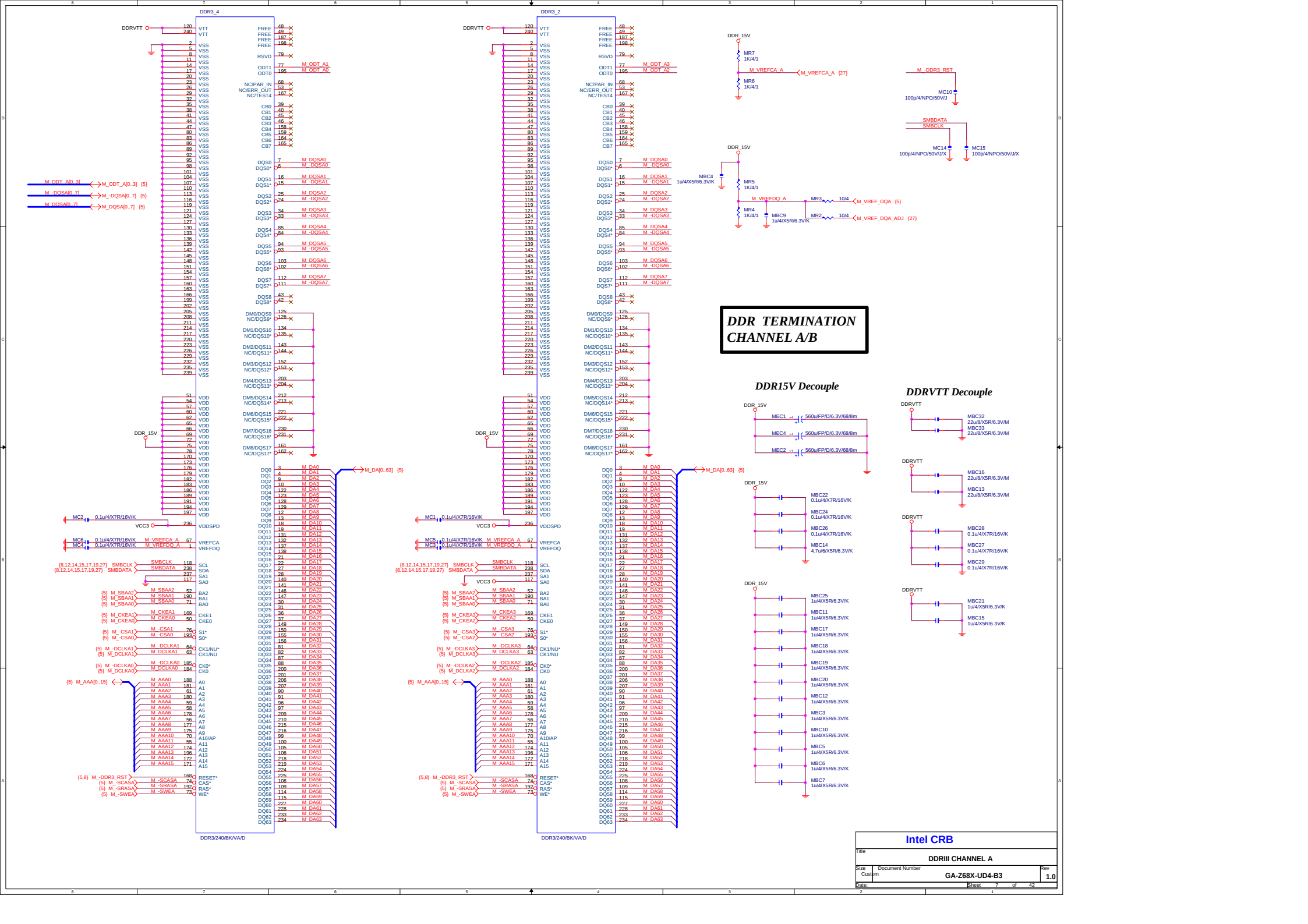
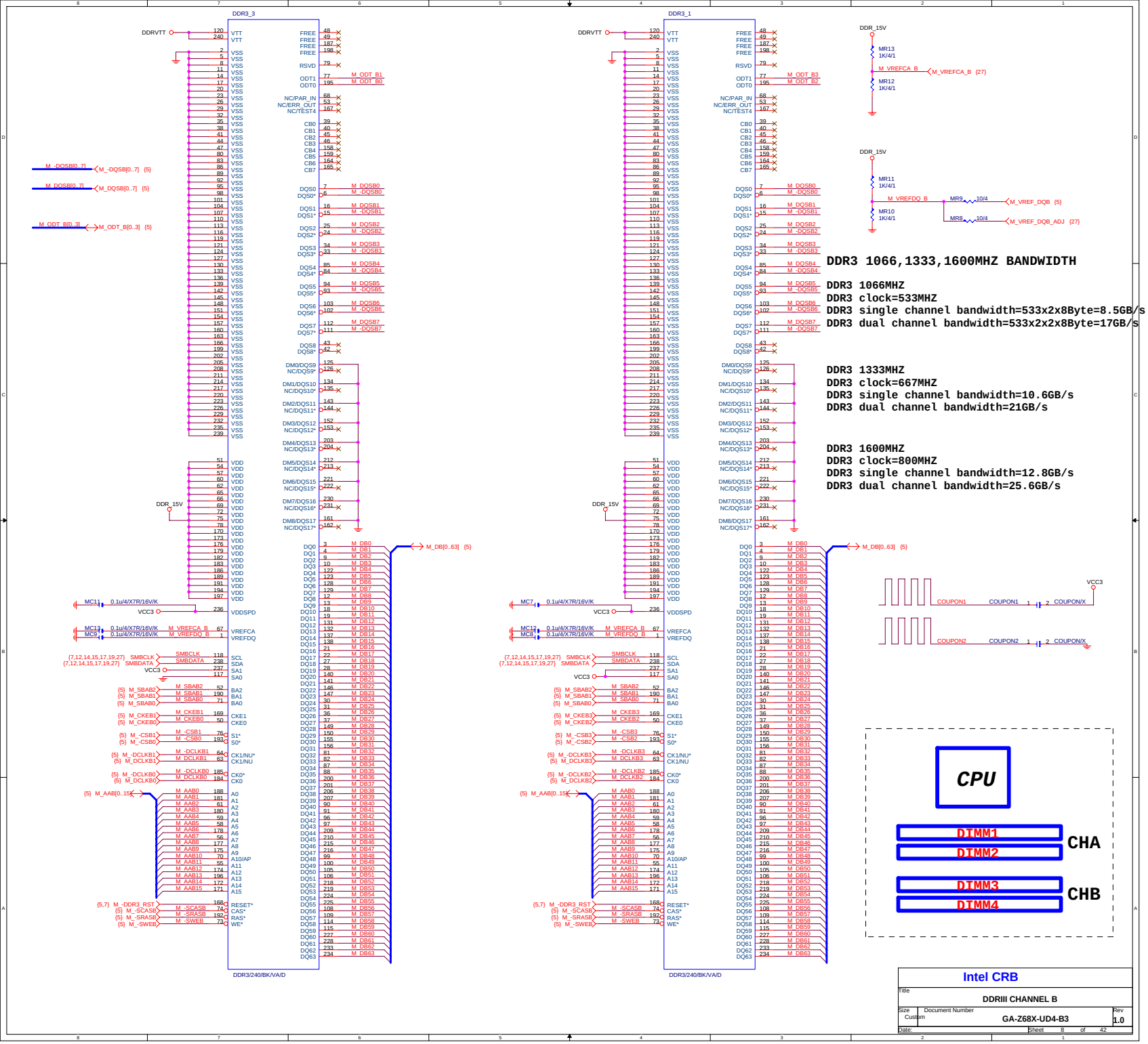

DDR3_4
DDR3_2
DDRVTT
DDR_15V
VCC3
VDDSPD
VREFCA
VREFDQ
SCL
SDA
SA0
SA1
BA0
BA1
BA2
CKE0
CKE1
S0*
S1*
CK0
CK0*
CK1NU
CK1NU*
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15
RESET*
CAS*
RAS*
WE*
DDR3/240/BK/VA/D
M_ODT_A[0..3] {5}
M_-DQSA[0..7] {5}
M_DQSA[0..7] {5}
M_DA[0..63] {5}
M_VREFCA_A {27}
M_VREFDQ_A {5}
M_-DDR3_RST
M_VREFCA_A
M_VREFDQ_A
M_VREF_DQA {5}
M_VREF_DQA_ADJ {27}
DDR TERMINATION CHANNEL A/B
DDR15V Decouple
DDRVTT Decouple
Intel CRB
DDRIII CHANNEL A
GA-Z68X-UD4-B3
Custom
1.0
Sheet 7 of 42



Intel CRB			
Title: DDRIII CHANNEL B			
Size: Custom	Document Number: GA-Z68X-UD4-B3		Rev: 1.0
Date:	Sheet 8 of 42		

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
{4} A_DMI_3TXN — 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 — CK_-SRCCLK_PCH — P33
CK_SRCCLK_PCH — 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 OC1#/GPIO40 OC2#/GPIO41 OC3#/GPIO42 OC4#/GPIO43 OC5#/GPIO9 OC6#/GPIO10 OC7#/GPIO14

BM43
BD41 N_-USBOC_F — N_-USBOC_F {33}
BG41
BK43
BP43
BJ41 — N_-USBOC_R {33,36}
BT45
BM45 N_GPIO14

PCI-E

{41} RB_SL_IN — J20 — PERN1
{41} RB_SL_IP — L20 — PERP1
{41} RB_SL_ON — F25 — PETN1
{41} RB_SL_OP — F23 — PETP1
{17} PJ_PCIE_IN2 — P20 — PERN2
{17} PJ_PCIE_IP2 — R20 — PERP2
{17} PJ_PCIE_TN2 — C22 — PETN2
{17} PJ_PCIE_TP2 — A22 — PETP2
{17} PK_PCIE_IN3 — H17 — PERN3
{17} PK_PCIE_IP3 — J17 — PERP3
{17} PK_PCIE_TN3 — E21 — PETN3
{17} PK_PCIE_TP3 — B21 — PETP3
{18} G_PCIEBIN — P17 — PERN4
{18} G_PCIEBIP — M17 — PERP4
{18} G_PCIEBON — F18 — PETN4
{18} G_PCIEBOP — E17 — PETP4
{39} UA_USB3_IN_F — N15 — PERN5
{39} UA_USB3_IP_F — M15 — PERP5
{39} UA_USB3_ON_F — B17 — PETN5
{39} UA_USB3_OP_F — C16 — PETP5
{16} UB_PCIE_IN6 — J15 — PERN6
{16} UB_PCIE_IP6 — L15 — PERP6
{16} UB_PCIE_TN6 — A16 — PETN6
{16} UB_PCIE_TP6 — B15 — PETP6
{36} LA_ML_IN — J12 — PERN7
{36} LA_ML_IP — H12 — PERP7
{36} LA_ML_ON — F15 — PETN7
{36} LA_ML_OP — F13 — PETP7
{40} RA_SL_IN — H10 — PERN8
{40} RA_SL_IP — J10 — PERP8
{40} RA_SL_ON — B13 — PETN8
{40} RA_SL_OP — D13 — PETP8

2 OF 11
BD82Z68/B3/S

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

CLKIN_DOT_96N CLKIN_DOT_96P — BD38 -DOTCLK — CK_-DOTCLK; BF38 DOTCLK — CK_DOTCLK

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

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 FDI_RXP0 FDI_RXN1 FDI_RXP1 FDI_RXN2 FDI_RXP2 FDI_RXN3 FDI_RXP3 FDI_RXN4 FDI_RXP4 FDI_RXN5 FDI_RXP5 FDI_RXN6 FDI_RXP6 FDI_RXN7 FDI_RXP7 FDI_FSYNC0 FDI_LSYNC0 FDI_FSYNC1 FDI_LSYNC1 FDI_INT

C42 B43 F45 F43 H41 J41 C46 D47 B45 A46 B47 C49 J43 H43 M43 P43 B51 E49 C52 D51 H46

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

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BD82Z68/B3/S

PCHE

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

NV_DQ0/NV_IO0 NV_DQ1/NV_IO1 NV_DQ2/NV_IO2 NV_DQ3/NV_IO3 NV_DQ4/NV_IO4 NV_DQ5/NV_IO5 NV_DQ6/NV_IO6 NV_DQ7/NV_IO7 NV_DQ8/NV_IO8 NV_DQ9/NV_IO9 NV_DQ10/NV_IO10 NV_DQ11/NV_IO11 NV_DQ12/NV_IO12 NV_DQ13/NV_IO13 NV_DQ14/NV_IO14 NV_DQ15/NV_IO15

AB50 Y50 AB49 AB44 U49 R44 U50 U46 U44 H50 K46 L56 J55 F53 H52 E52

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

NV_DQS0 NV_DQS1 — Y44 L53

NV_RCOMP — R50 N_NV_RCOMP — NR155 33/4

NVRAM

5 OF 11
BD82Z68/B3/S

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]

VCC1_8_PCH — NR118 1K/4/1 — NR117 8.2K/4/4 — 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

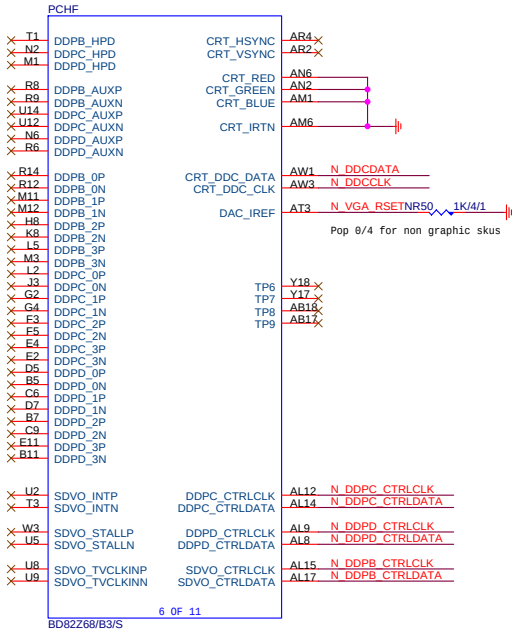
R102 short to GND in non graphic SKU

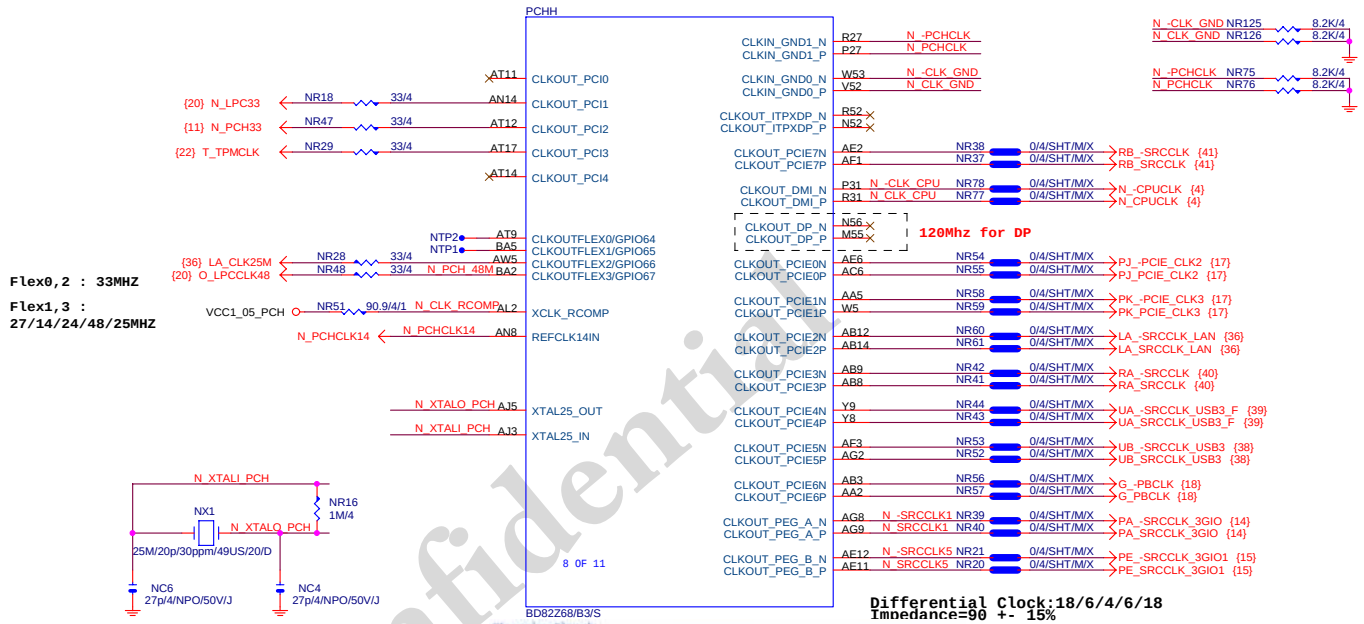
Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE

Size: Custom | Document Number: GA-Z68X-UD4-B3 | Rev: 1.0

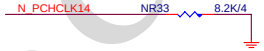
Date: Monday, March 14, 2011 | Sheet 9 of 42

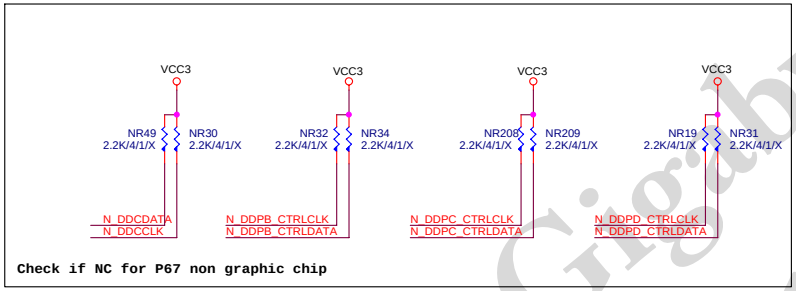




Flex0,2 : 33MHZ

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 debug/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.	SSE strap for server platform ONLY
HDA_SDO	I/O	**Default** Do not pull high. **Disable ME in Manufacturing Mode** Connect to Vcc3_3 with 1k Ohm pull-up resistor through a jumper.	Flash descriptor Override
SPI_MOSI	I/O	Internal weak pull down.Do not pull high.	20K Rt Termination Voltage
DF_TVS	I/O	Internal weak pull up. Do not pull low.	20K termination voltage
HDA_SYNC	I/O	Internal weak pull down. Do not pull up.	On die PLL VR voltage selector
GPIO15	I/O	**Enable TLS:** Pull up with 1k Ohm to Vcc3_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.	RCIM 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.	

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

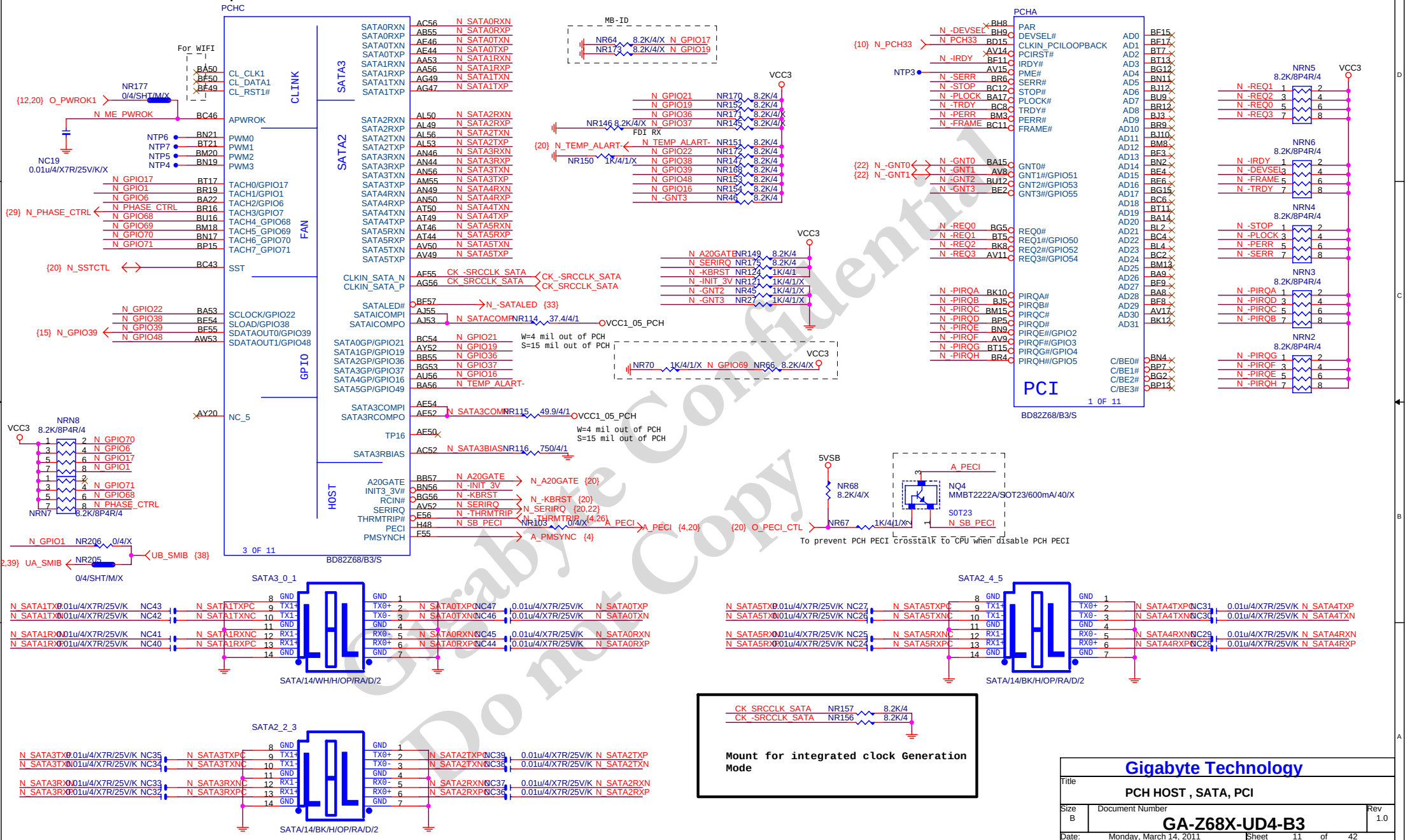
GP8 always Hi without PU

GP20 with pluse during power on & reset

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

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 10 of 42	

SATA:20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



Title	PCH HOST , SATA, PCI
Size	B
Document Number	GA-Z68X-UD4-B3
Rev	1.0
Date:	Monday, March 14, 2011
Sheet	11 of 42

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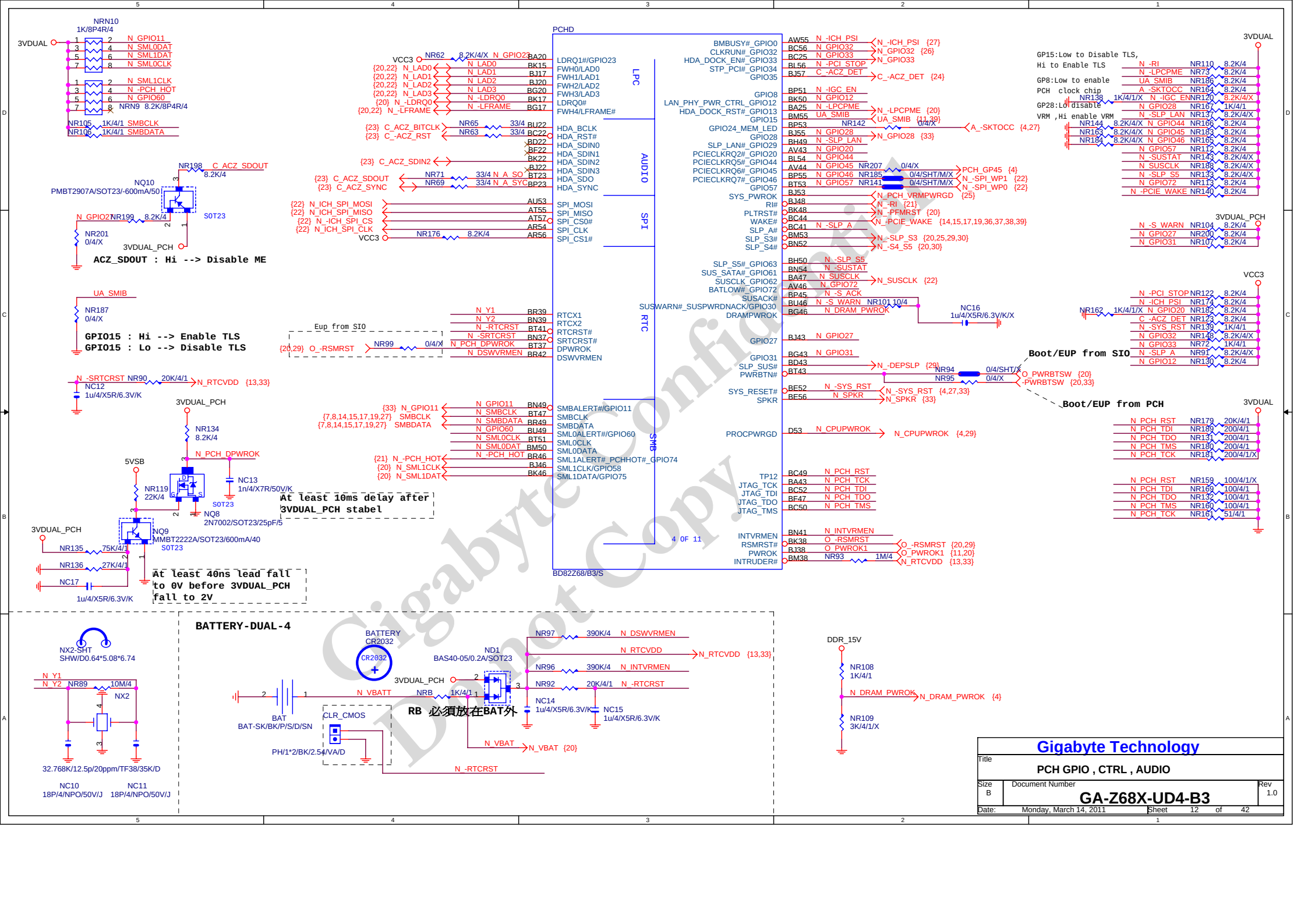
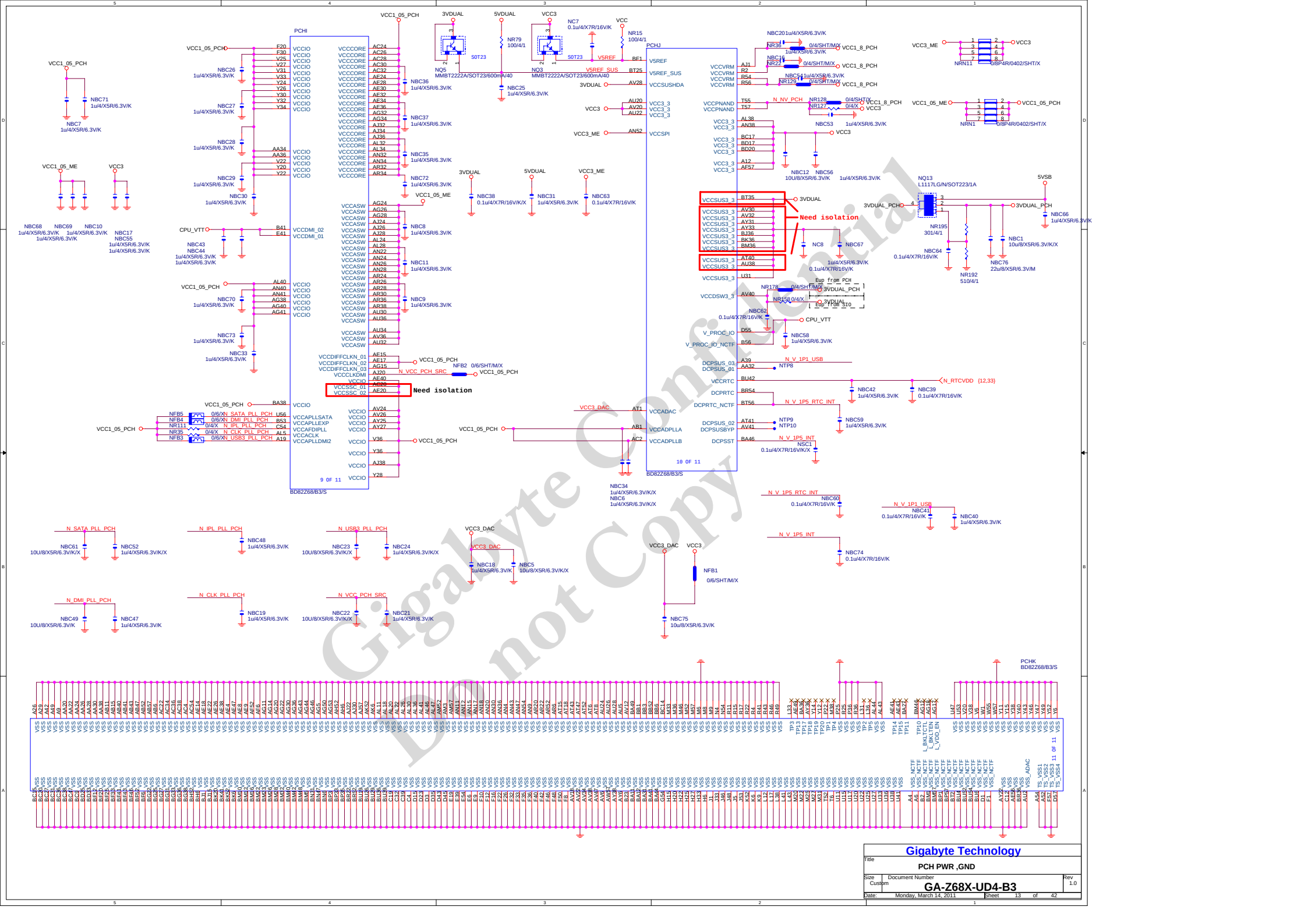

PCHD
LPC
AUDIO
SPI
RTC
SMB
ACZ_SDOUT : Hi --> Disable ME
GPIO15 : Hi --> Enable TLS
GPIO15 : Lo --> Disable TLS
Eup from SIO
Boot/EUP from SIO
Boot/EUP from PCH
At least 10ms delay after 3VDUAL_PCH stabel
At least 40ns lead fall to 0V before 3VDUAL_PCH fall to 2V
BATTERY-DUAL-4
RB 必須放在BAT外
BD82Z68/B3/S
4 OF 11
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
GA-Z68X-UD4-B3
Monday, March 14, 2011


PCHI
PCHJ
PCHK
BD82Z68/B3/S
Need isolation
Need isolation
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Gigabyte Technology
PCH PWR ,GND
GA-Z68X-UD4-B3
Size Custom
Document Number
Rev 1.0
Date: Monday, March 14, 2011
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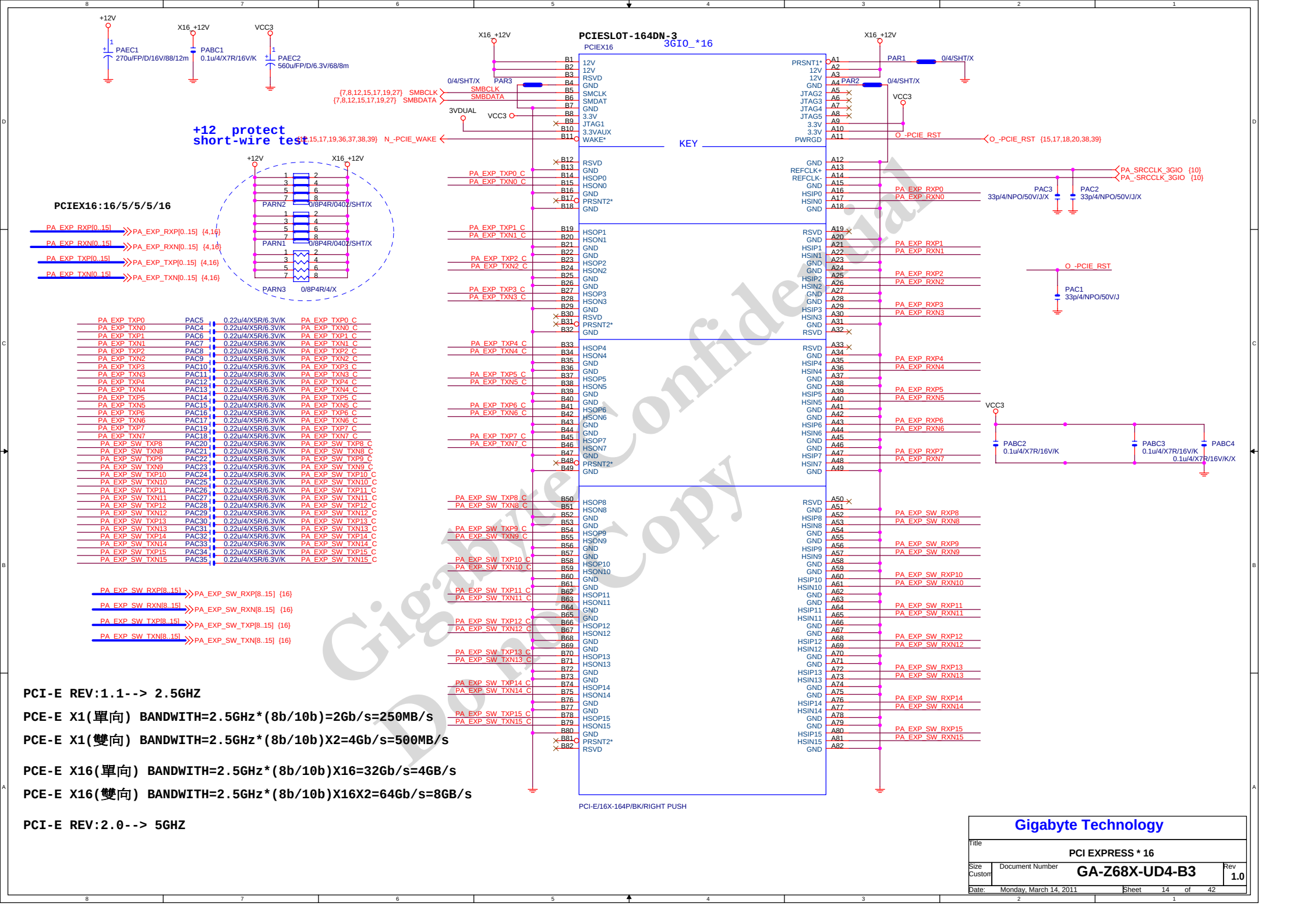
PCIESLOT-164DN-3
PCIEX16
3GIO_*16
KEY
PCI-E/16X-164P/BK/RIGHT PUSH
+12V
X16_+12V
VCC3
3VDUAL
PAEC1 270u/FP/D/16V/88/12m
PABC1 0.1u/4/X7R/16V/K
PAEC2 560u/FP/D/6.3V/68/8m
+12 protect short-wire test
PCIEX16:16/5/5/5/16
PARN1 0/8P4R/0402/SHT/X
PARN2 0/8P4R/0402/SHT/X
PARN3 0/8P4R/4/X
PAR1 0/4/SHT/X
PAR2 0/4/SHT/X
PAR3 0/4/SHT/X
PAC1 33p/4/NPO/50V/J
PAC2 33p/4/NPO/50V/J/X
PAC3 33p/4/NPO/50V/J/X
PABC2 0.1u/4/X7R/16V/K
PABC3 0.1u/4/X7R/16V/K
PABC4 0.1u/4/X7R/16V/K/X
PA_EXP_RXP[0..15] {4,16}
PA_EXP_RXN[0..15] {4,16}
PA_EXP_TXP[0..15] {4,16}
PA_EXP_TXN[0..15] {4,16}
PA_EXP_SW_RXP[8..15] {16}
PA_EXP_SW_RXN[8..15] {16}
PA_EXP_SW_TXP[8..15] {16}
PA_EXP_SW_TXN[8..15] {16}
{7,8,12,15,17,19,27} SMBCLK
{7,8,12,15,17,19,27} SMBDATA
{15,17,19,36,37,38,39} N_-PCIE_WAKE
O_-PCIE_RST {15,17,18,20,38,39}
PA_SRCCLK_3GIO {10}
PA_-SRCCLK_3GIO {10}
PA_EXP_TXP0_C
PA_EXP_TXN0_C
PA_EXP_TXP1_C
PA_EXP_TXN1_C
PA_EXP_TXP2_C
PA_EXP_TXN2_C
PA_EXP_TXP3_C
PA_EXP_TXN3_C
PA_EXP_TXP4_C
PA_EXP_TXN4_C
PA_EXP_TXP5_C
PA_EXP_TXN5_C
PA_EXP_TXP6_C
PA_EXP_TXN6_C
PA_EXP_TXP7_C
PA_EXP_TXN7_C
PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15_C
PA_EXP_RXP0
PA_EXP_RXN0
PA_EXP_RXP1
PA_EXP_RXN1
PA_EXP_RXP2
PA_EXP_RXN2
PA_EXP_RXP3
PA_EXP_RXN3
PA_EXP_RXP4
PA_EXP_RXN4
PA_EXP_RXP5
PA_EXP_RXN5
PA_EXP_RXP6
PA_EXP_RXN6
PA_EXP_RXP7
PA_EXP_RXN7
PA_EXP_SW_RXP8
PA_EXP_SW_RXN8
PA_EXP_SW_RXP9
PA_EXP_SW_RXN9
PA_EXP_SW_RXP10
PA_EXP_SW_RXN10
PA_EXP_SW_RXP11
PA_EXP_SW_RXN11
PA_EXP_SW_RXP12
PA_EXP_SW_RXN12
PA_EXP_SW_RXP13
PA_EXP_SW_RXN13
PA_EXP_SW_RXP14
PA_EXP_SW_RXN14
PA_EXP_SW_RXP15
PA_EXP_SW_RXN15
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
PCI EXPRESS * 16
GA-Z68X-UD4-B3
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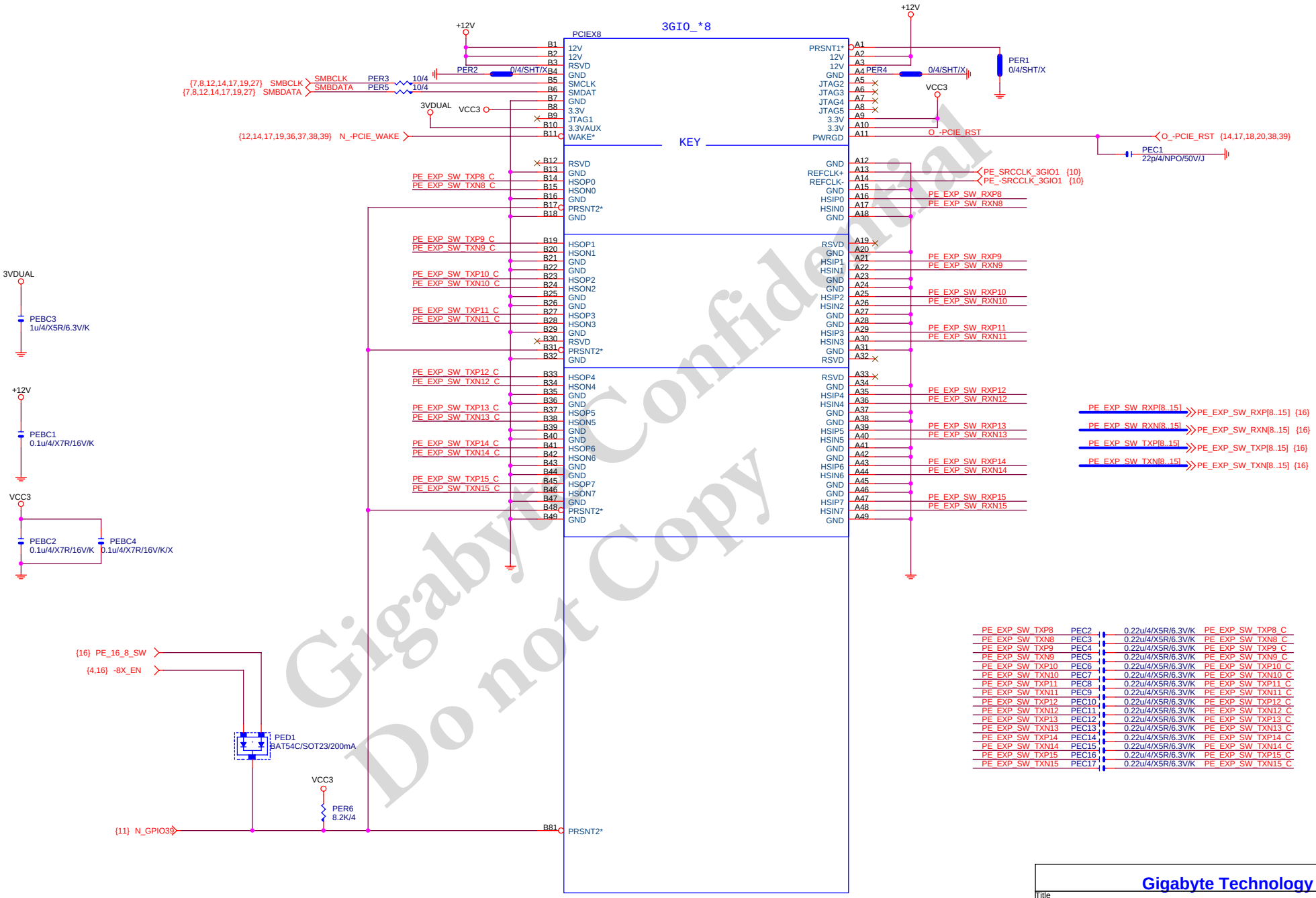
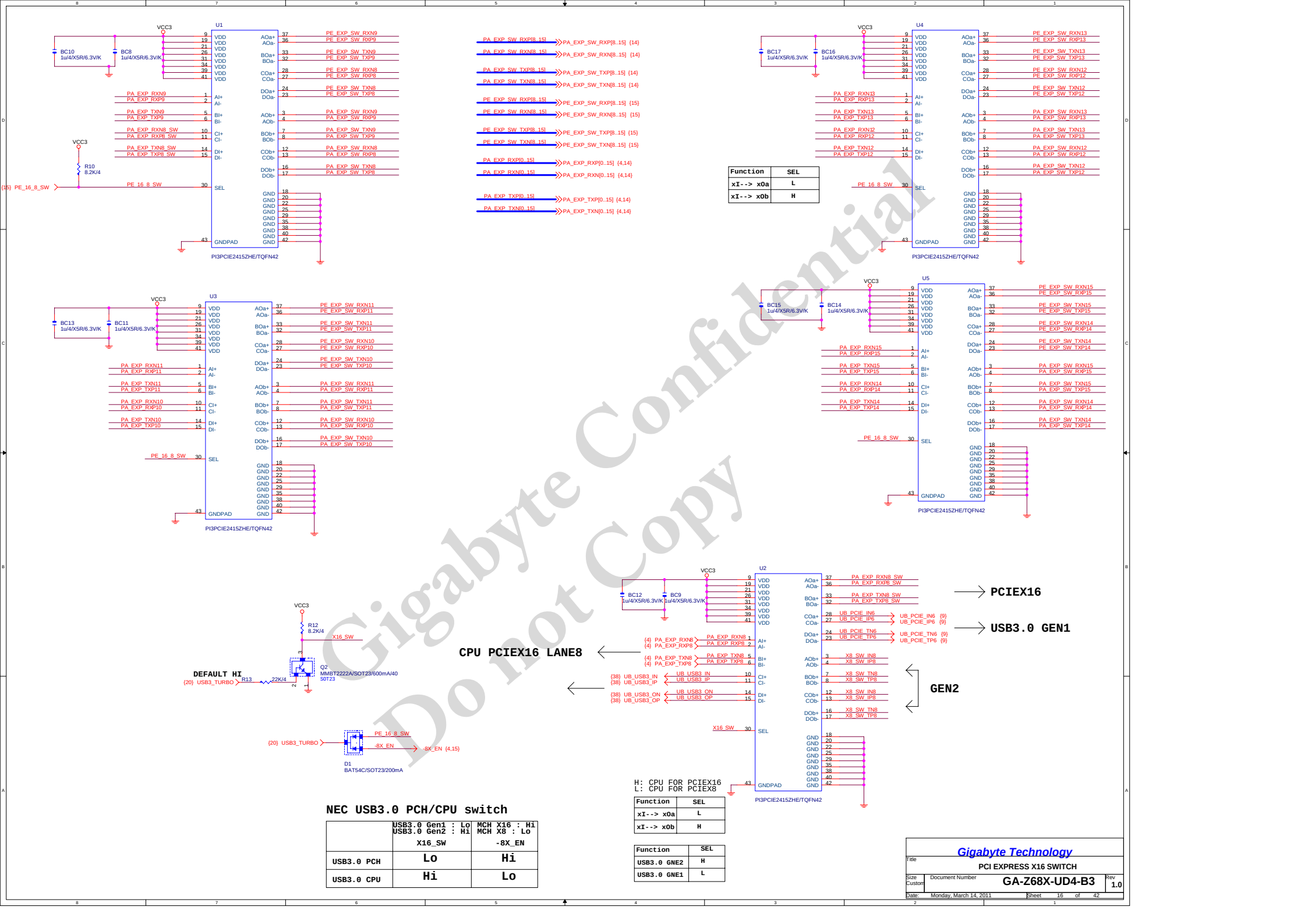
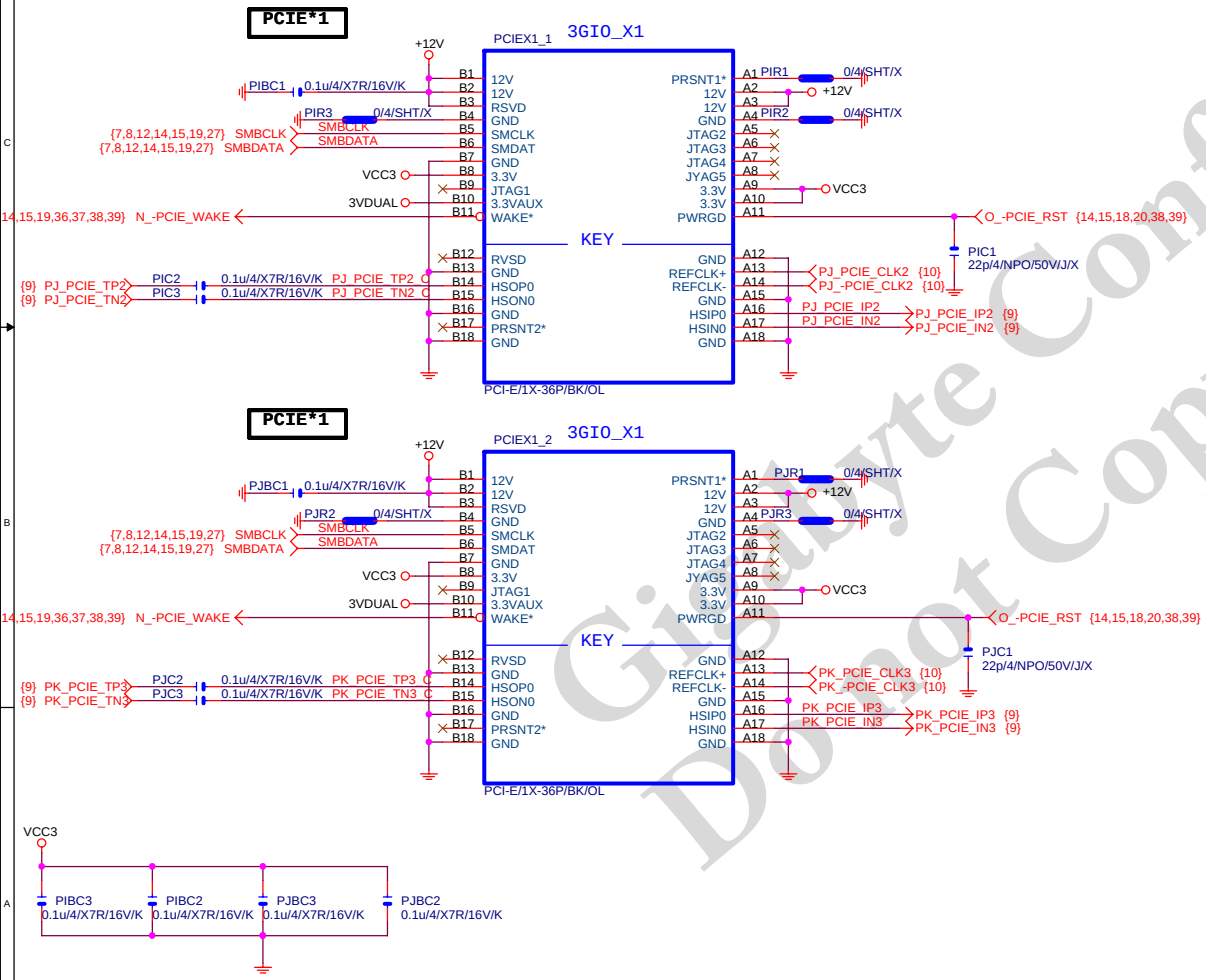
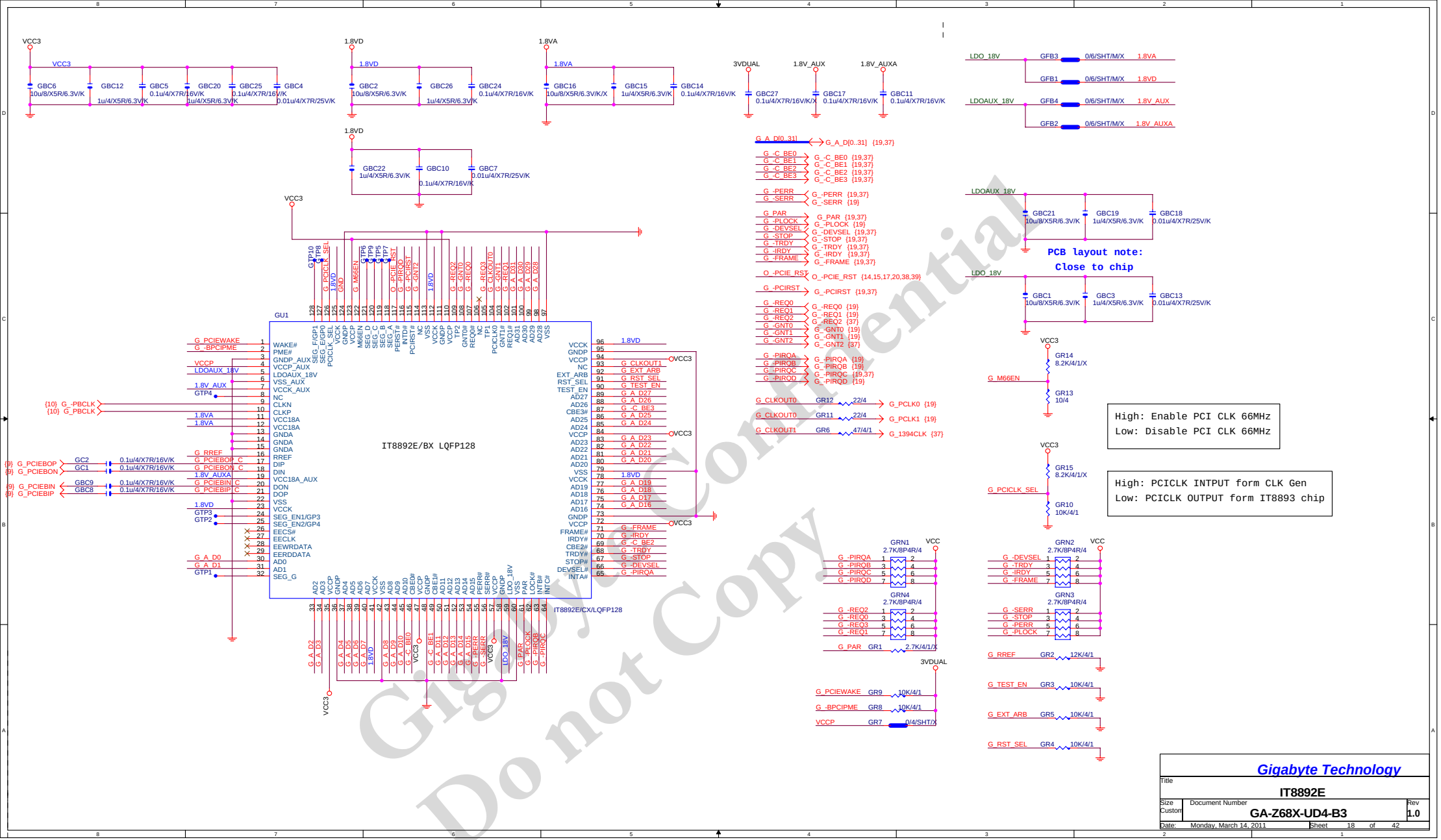


Gigabyte Technology			
Title: PCI EXPRESS X 4 PORT			
Size: Custom	Document Number: GA-Z68X-UD4-B3		Rev: 1.0
Date: Monday, March 14, 2011	Sheet 15 of 42		





Gigabyte Technology		
Title: PCIE_X1 1,2		
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 17 of 42	


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
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}
PCB layout note:
Close to chip
LDOAUX_18V
GBC21 10u/8/X5R/6.3V/K
GBC19 1u/4/X5R/6.3V/K
GBC18 0.01u/4/X7R/25V/K
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
GRN3 2.7K/8P4R/4
GRN4 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
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Gigabyte Technology
Title
IT8892E
Size Custom
Document Number
GA-Z68X-UD4-B3
Rev 1.0
Date: Monday, March 14, 2011
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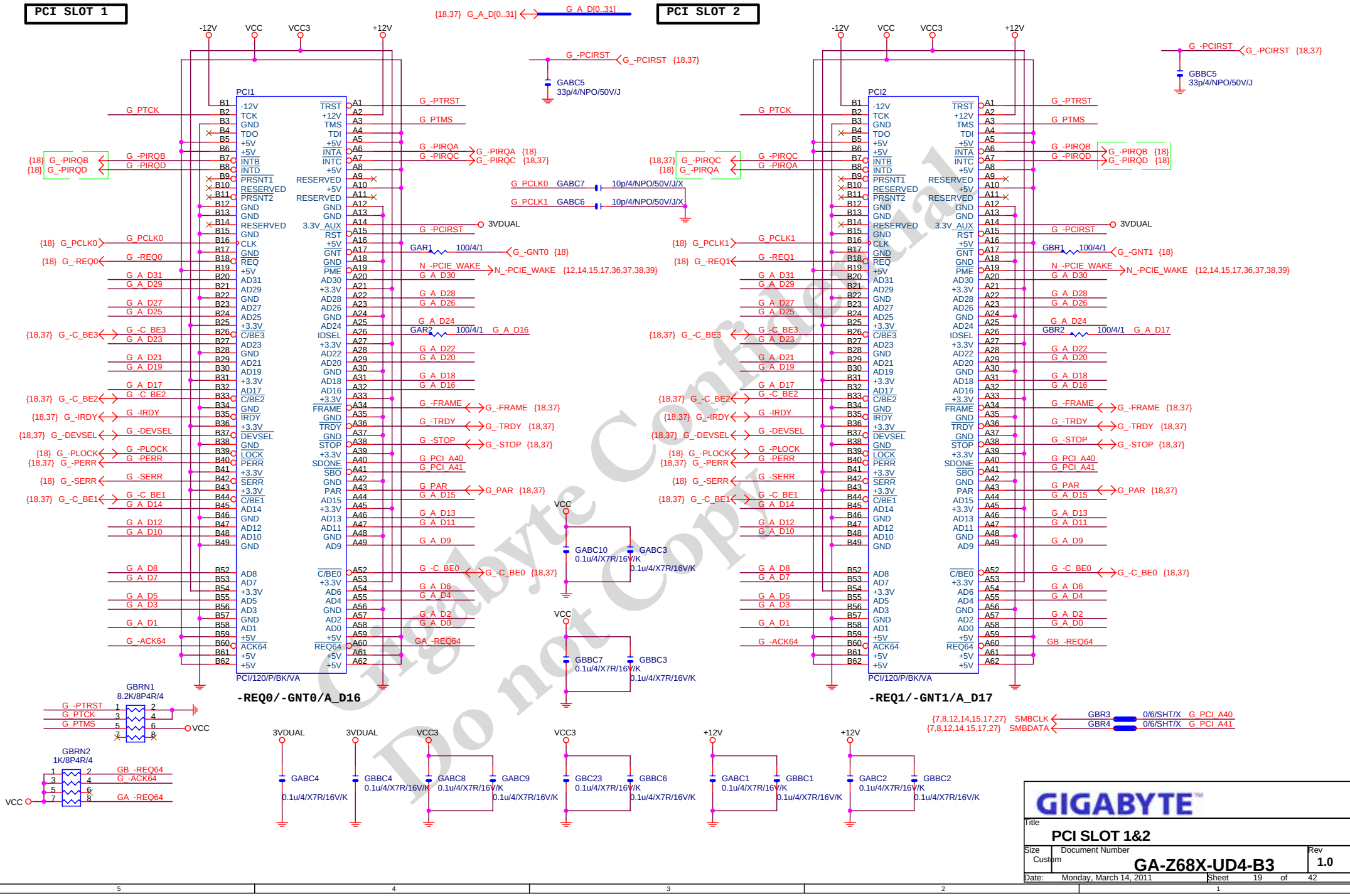

Title	PCI SLOT 1&2
Size	Custom
Document Number	GA-Z68X-UD4-B3
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Date:	Monday, March 14, 2011
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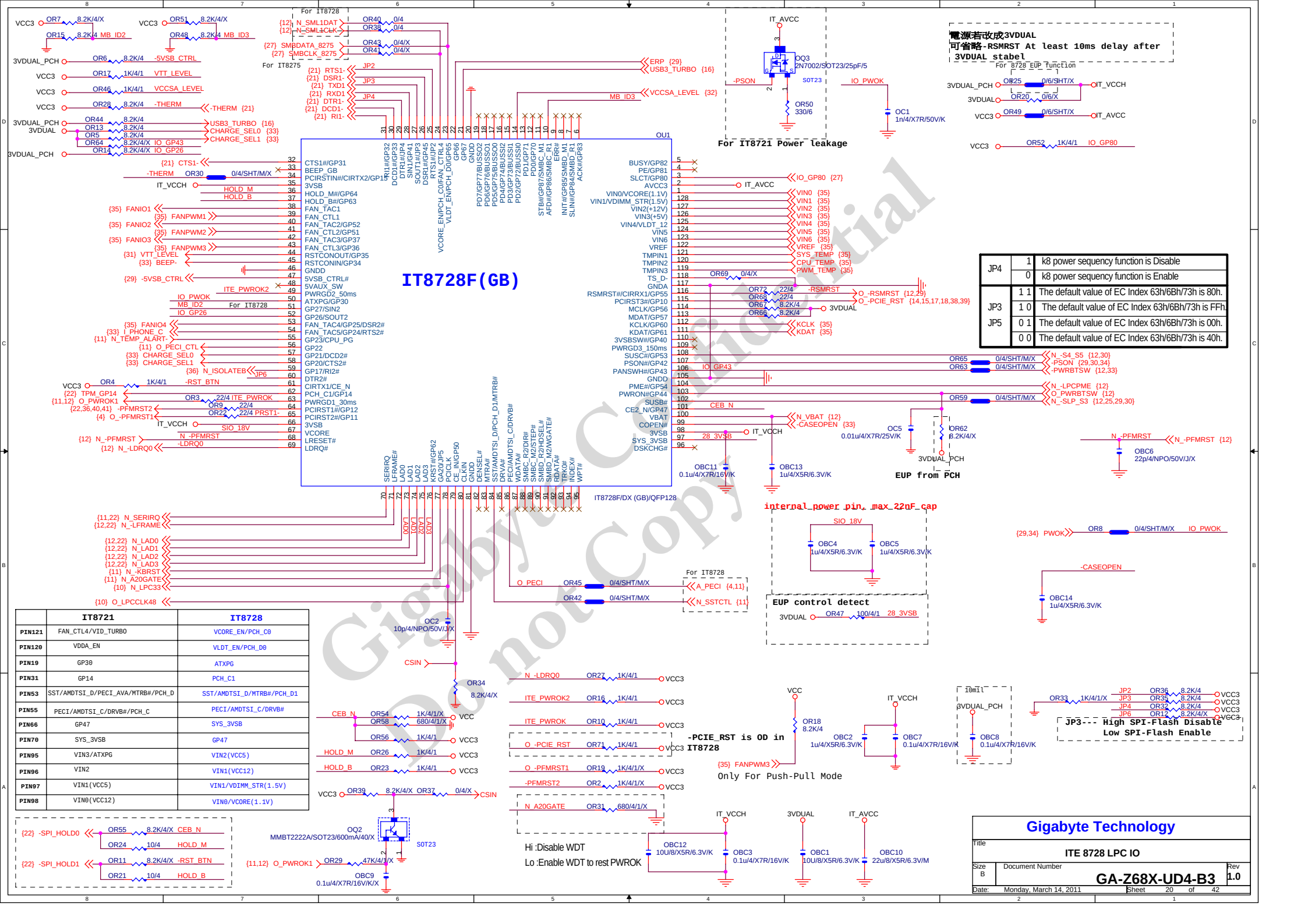
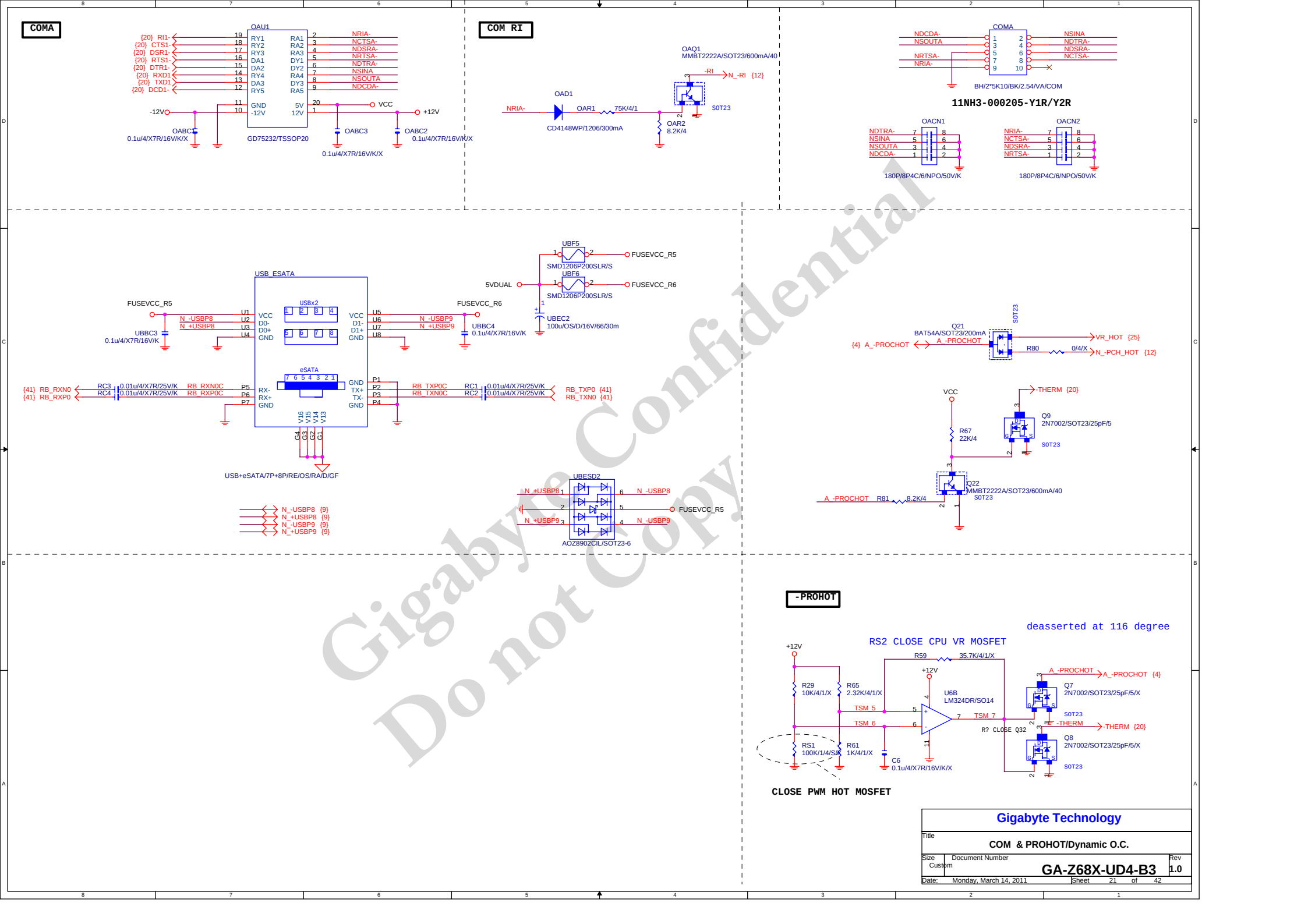


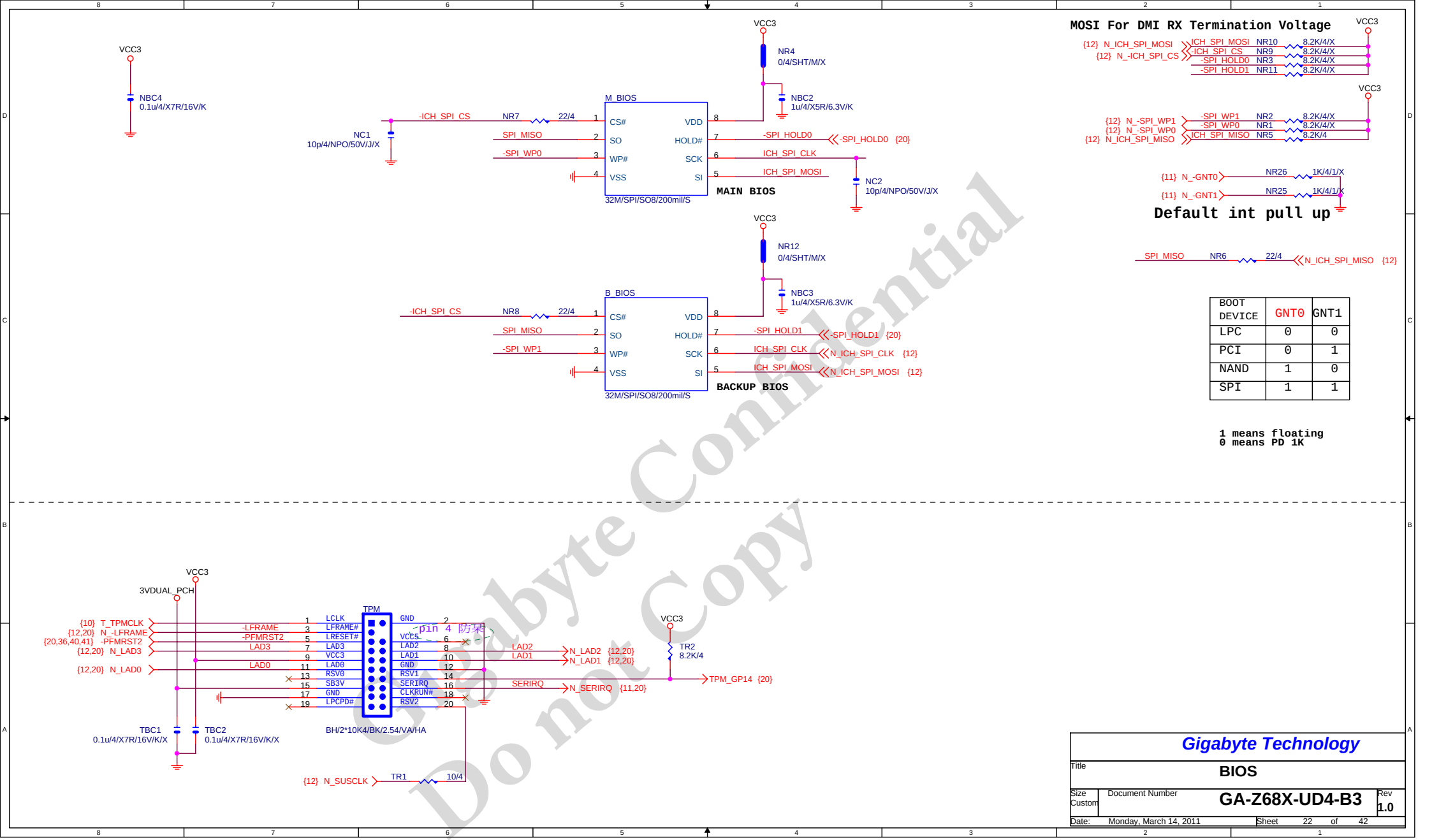
JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3 JP5	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h 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
Size B	Document Number GA-Z68X-UD4-B3 Rev 1.0
Date: Monday, March 14, 2011	Sheet 20 of 42



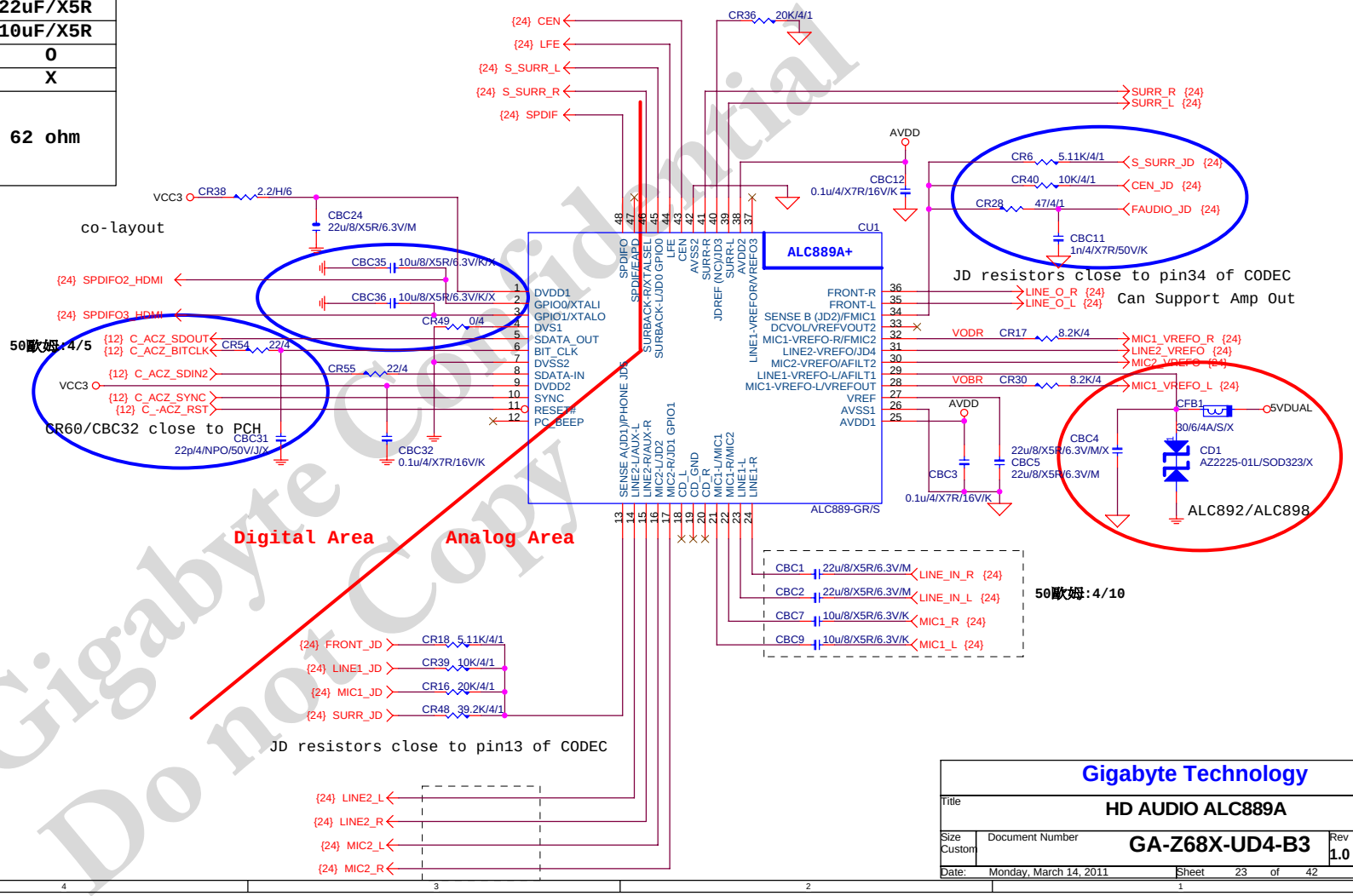
Gigabyte Technology		
Title: COM & PROHOT/Dynamic O.C.		
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 21 of 42	



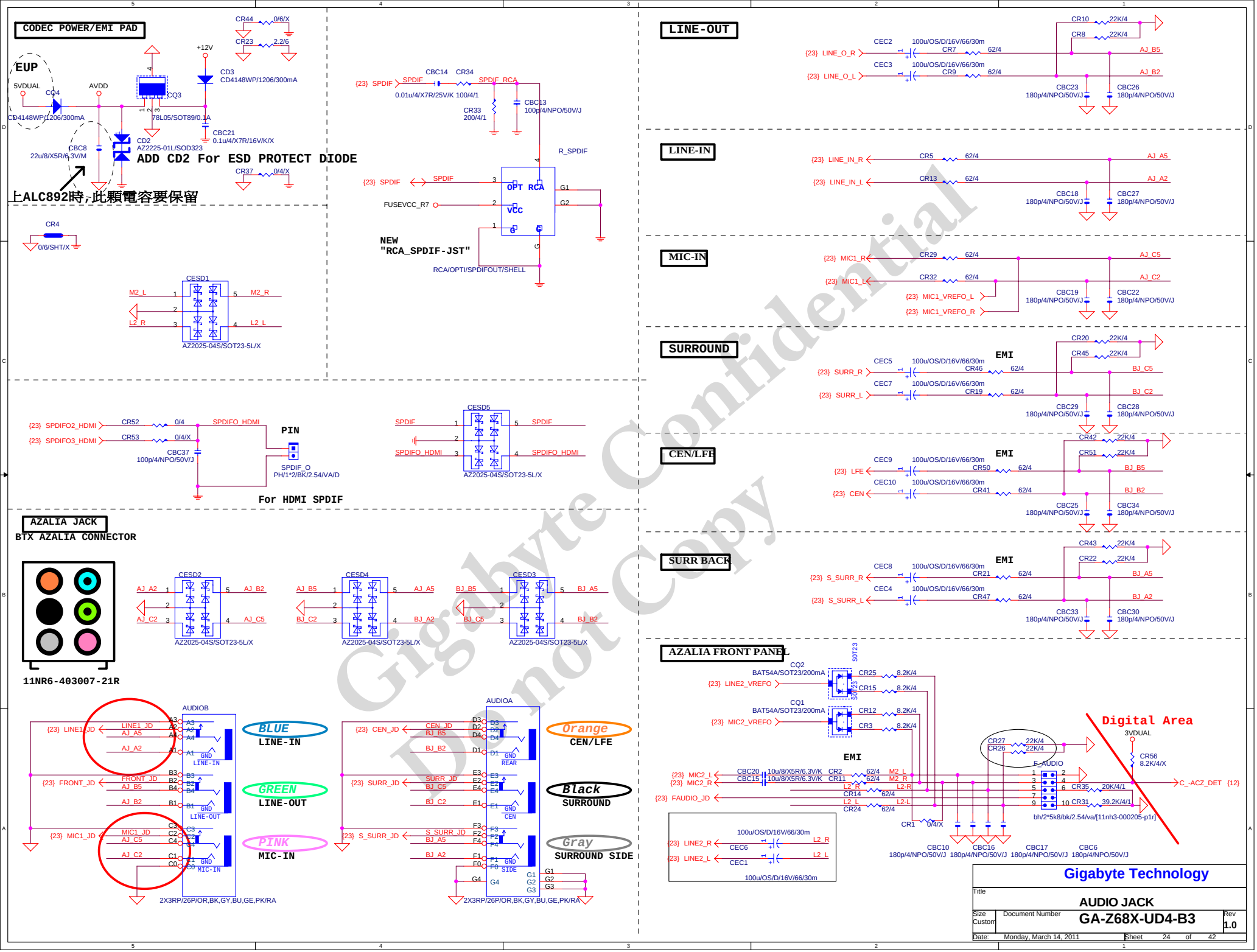
AZALIA CODEC

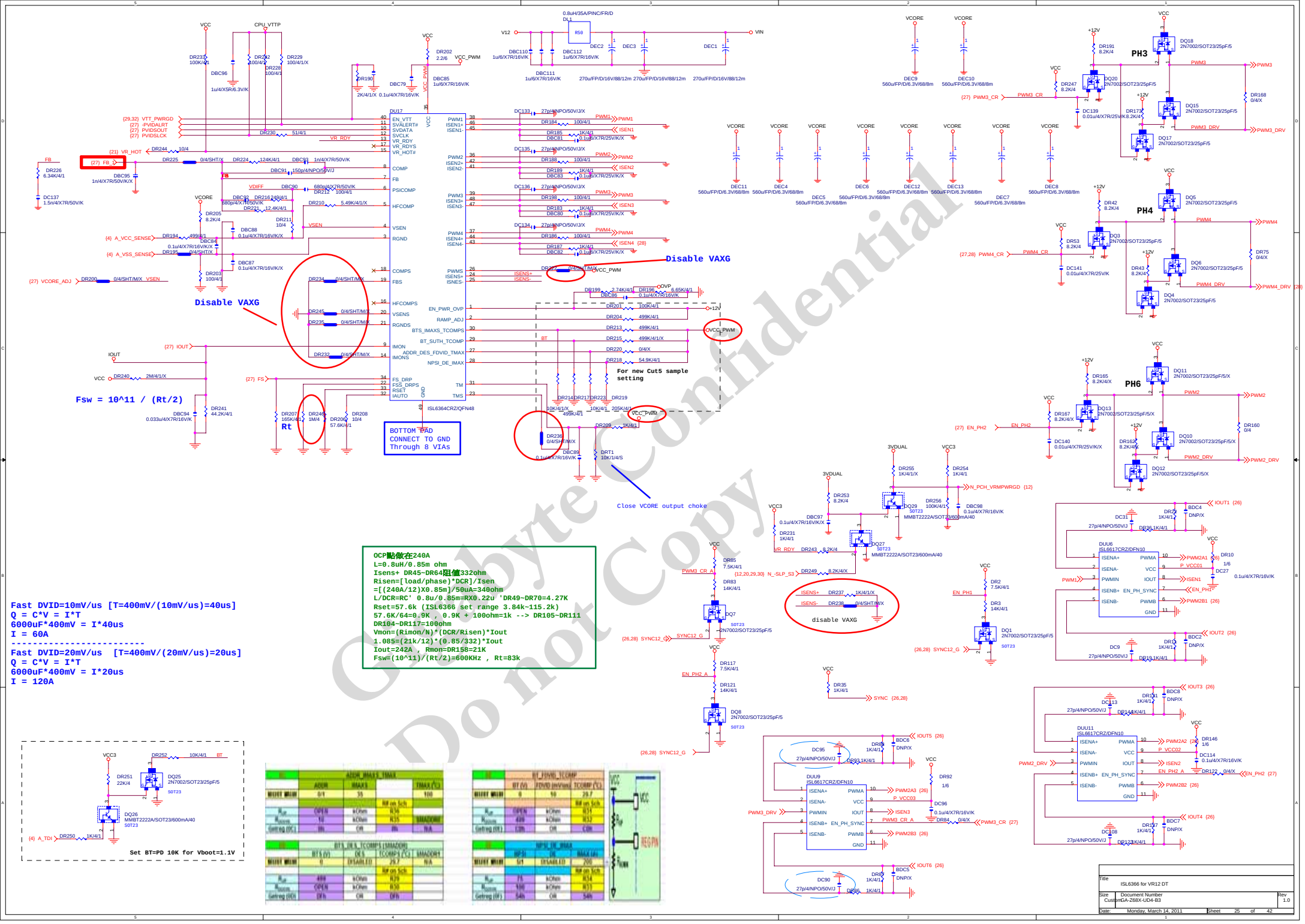
ALC889/ALC889B/ALC892/ALC898 Colay

	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-UD4-B3
Rev	1.0
Date: Monday, March 14, 2011	Sheet 23 of 42





Title	ISL6366 for VR12 DT
Size	Document Number: CustomGA-Z68X-UD4-B3
Rev	1.0
Date:	Monday, March 14, 2011
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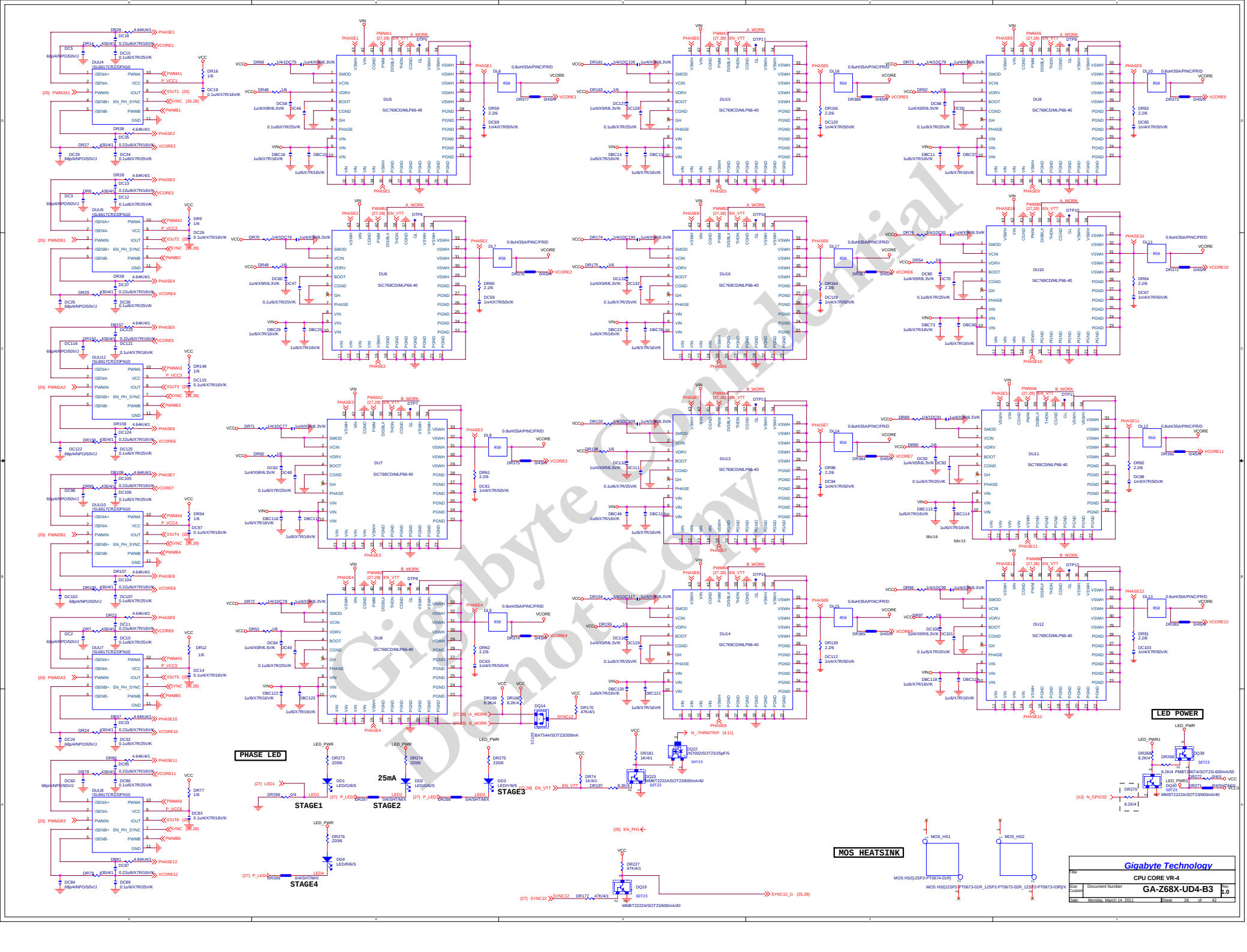
PHASE LED
STAGE1
STAGE2
STAGE3
STAGE4
25mA
LED POWER
MOS HEATSINK
Gigabyte Technology
CPU CORE VR-4
GA-Z68X-UD4-B3
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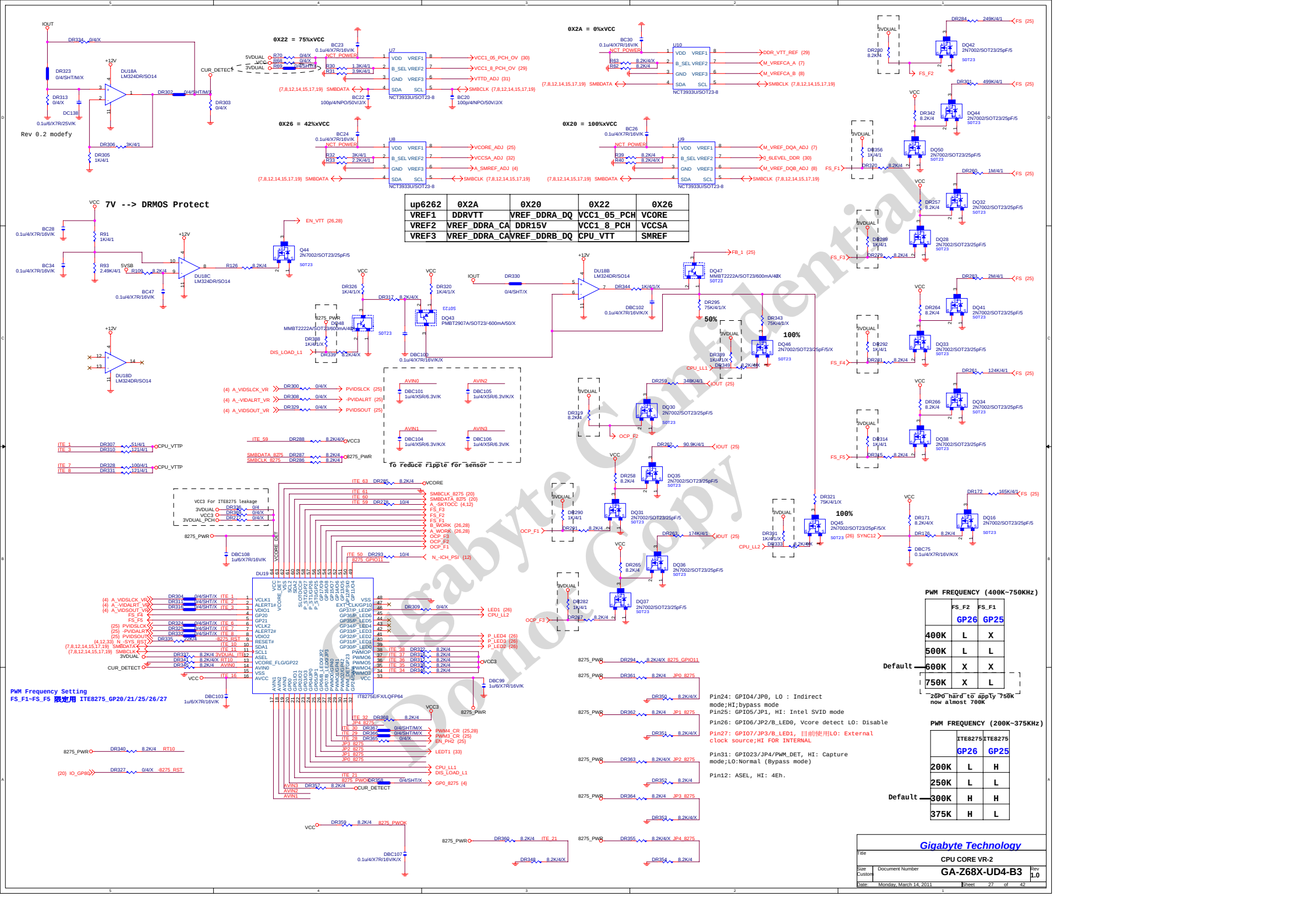
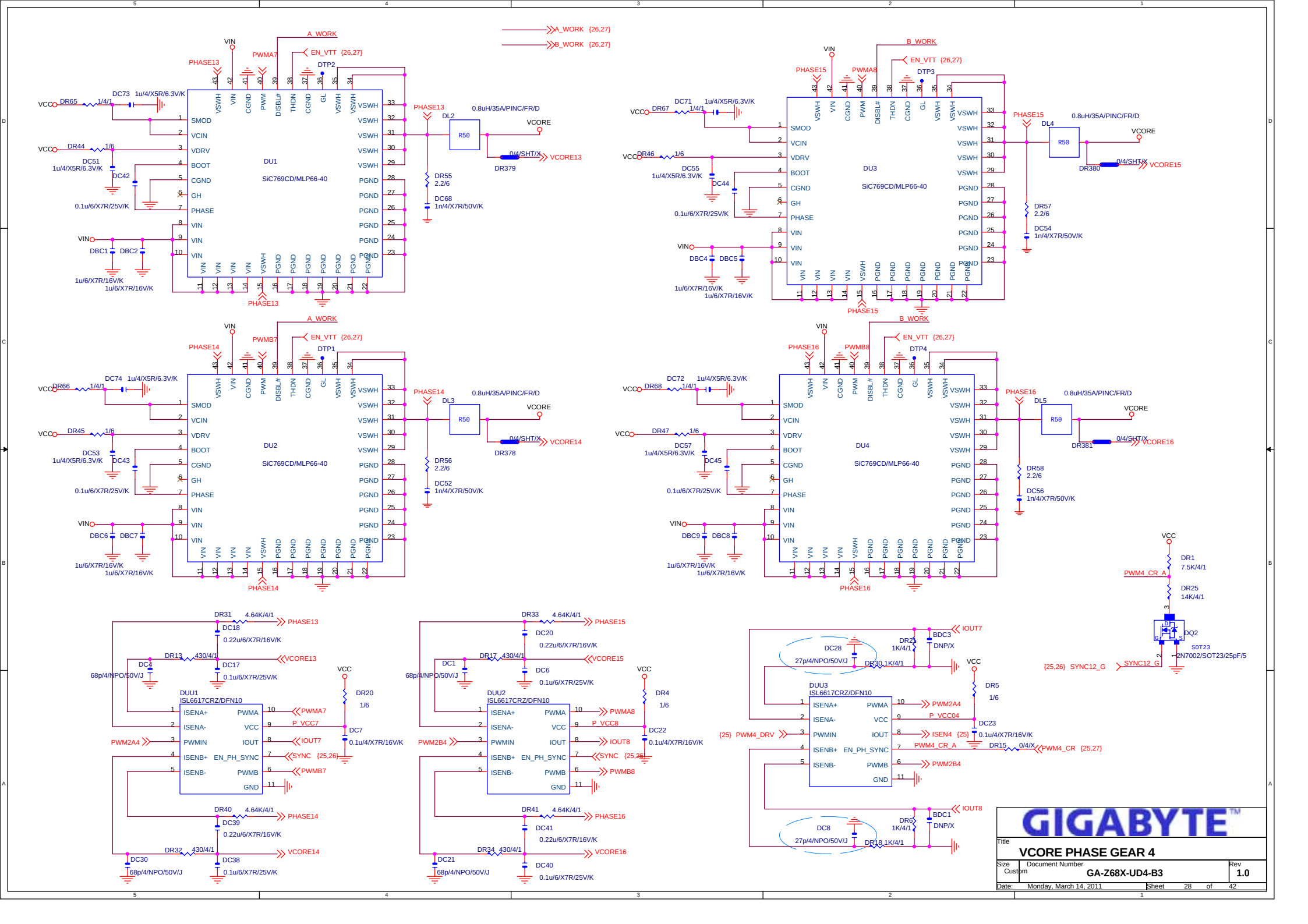


up6262	0X2A	0X20	0X22	0X26
VREF1	DDRVTT	VREF_DDRA_DQ	VCC1_05_PCH	VCORE
VREF2	VREF_DDRA_CA	DDR15V	VCC1_8_PCH	VCCSA
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	CPU_VTT	SMREF

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

26Po hard to apply 750k now almost 700K

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


A_WORK {26,27}
B_WORK {26,27}
DU1 SiC769CD/MLP66-40
DU2 SiC769CD/MLP66-40
DU3 SiC769CD/MLP66-40
DU4 SiC769CD/MLP66-40
DUU1 ISL6617CRZ/DFN10
DUU2 ISL6617CRZ/DFN10
DUU3 ISL6617CRZ/DFN10
0.8uH/35A/PINC/FR/D
VCORE
VCORE13
VCORE14
VCORE15
VCORE16
0/4/SHT/X
DR379
DR378
DR380
DR381
DR55 2.2/6
DR56 2.2/6
DR57 2.2/6
DR58 2.2/6
DC68 1n/4/X7R/50V/K
DC52 1n/4/X7R/50V/K
DC54 1n/4/X7R/50V/K
DC56 1n/4/X7R/50V/K
DR1 7.5K/4/1
DR25 14K/4/1
DQ2
2N7002/SOT23/25pF/5
SOT23
SYNC12_G
PWM4_CR_A
PWM4_DRV
PWM4_CR
P_VCC04
P_VCC7
P_VCC8
PWM2A4
PWM2B4
PWM2B4
ISEN4
IOUT7
IOUT8
BDC1
BDC3
DNP/X
GIGABYTE
Title
VCORE PHASE GEAR 4
Size Custom
Document Number GA-Z68X-UD4-B3
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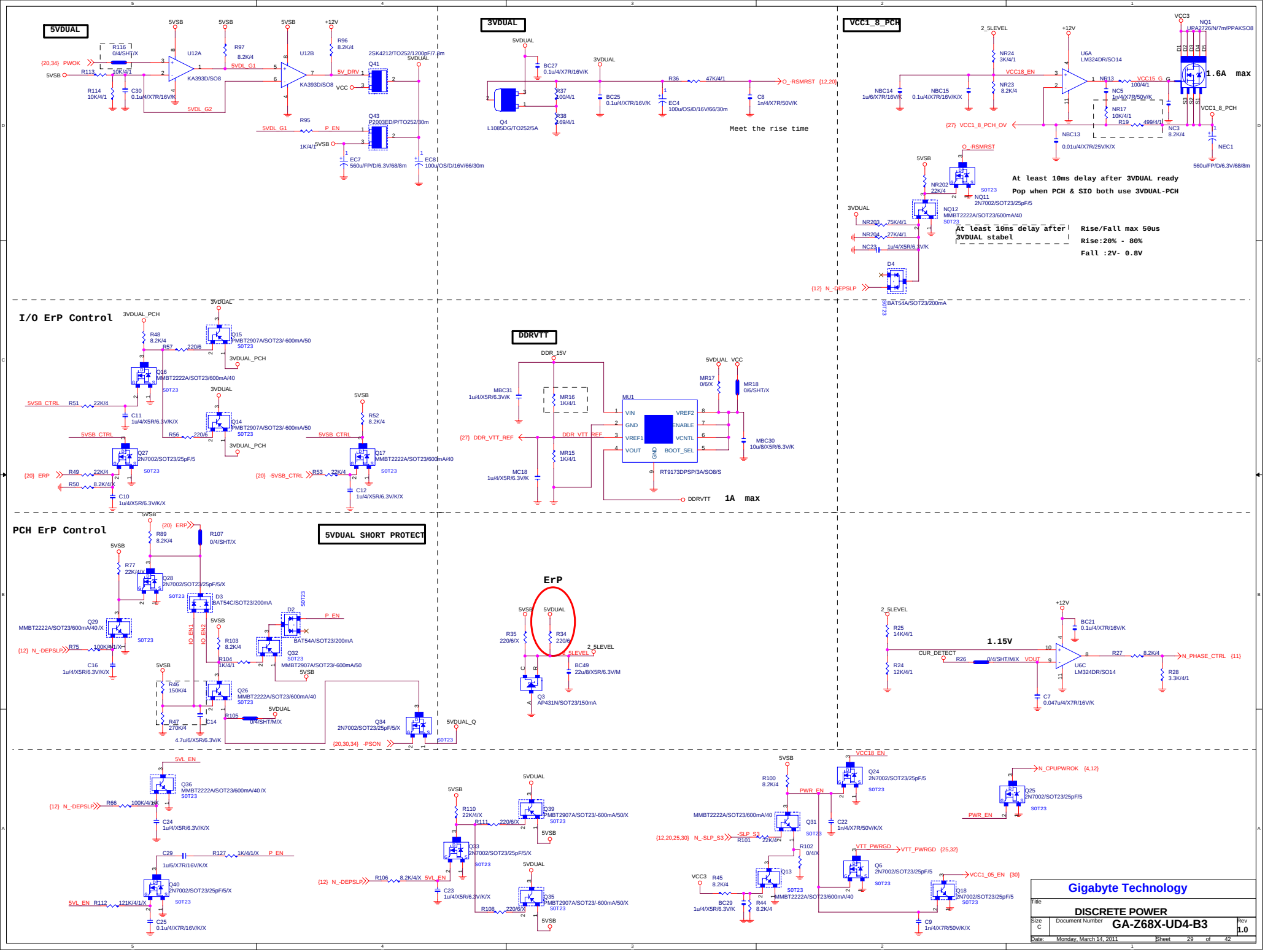
5VDUAL
3VDUAL
VCC1_8_PCH
I/O ErP Control
DDRVTT
PCH ErP Control
5VDUAL SHORT PROTECT
ErP
1.6A max
1A max
1.15V
At least 10ms delay after 3VDUAL ready
Pop when PCH & SIO both use 3VDUAL-PCH
At least 10ms delay after 3VDUAL stabel
Rise/Fall max 50us
Rise:20% - 80%
Fall :2V- 0.8V
Meet the rise time
Gigabyte Technology
DISCRETE POWER
GA-Z68X-UD4-B3
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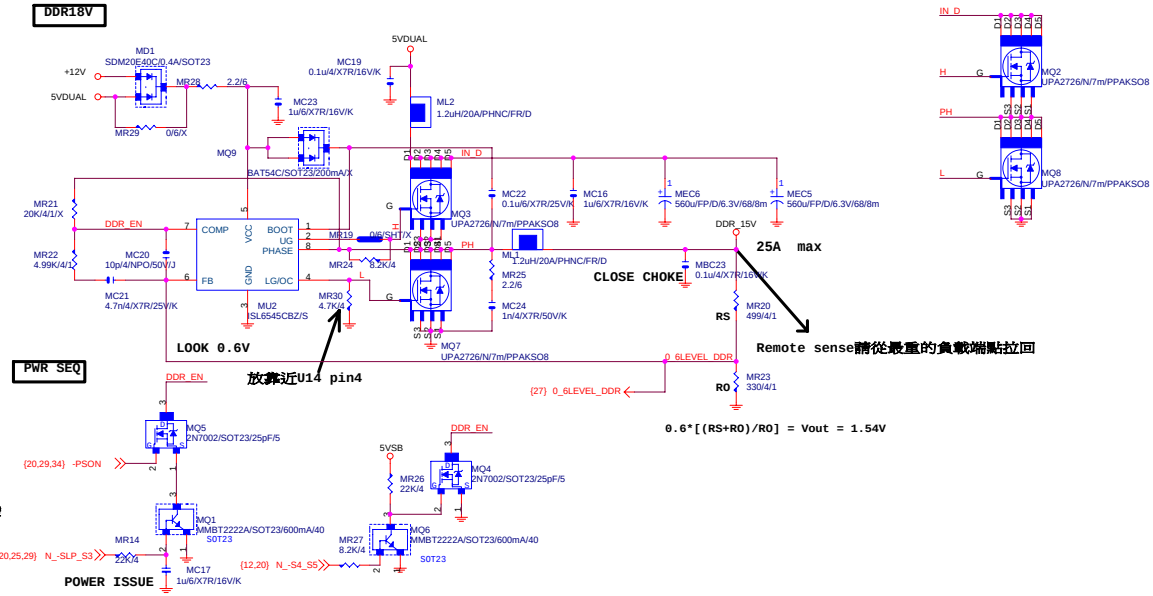
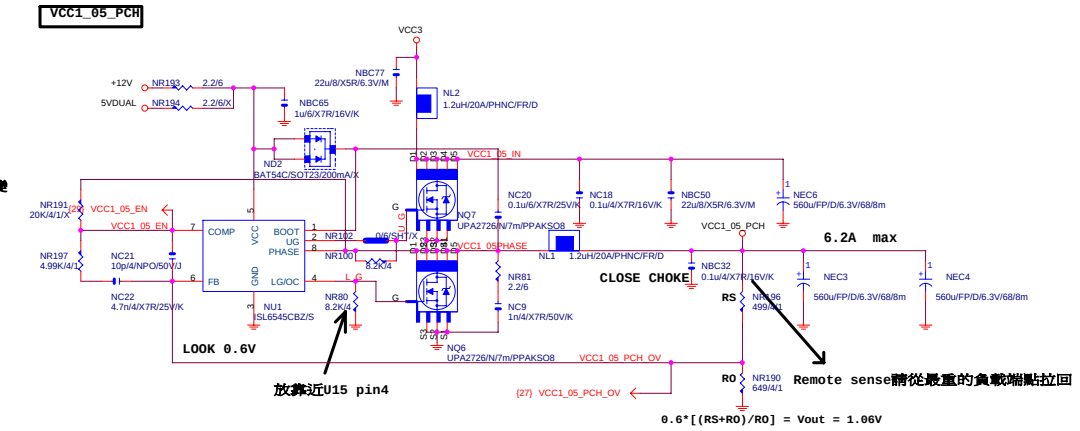


OCP : Ipeak=(2xIocsetxRocset)/Rdson
Iocset=21.5uA , Rocset=4.7k

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

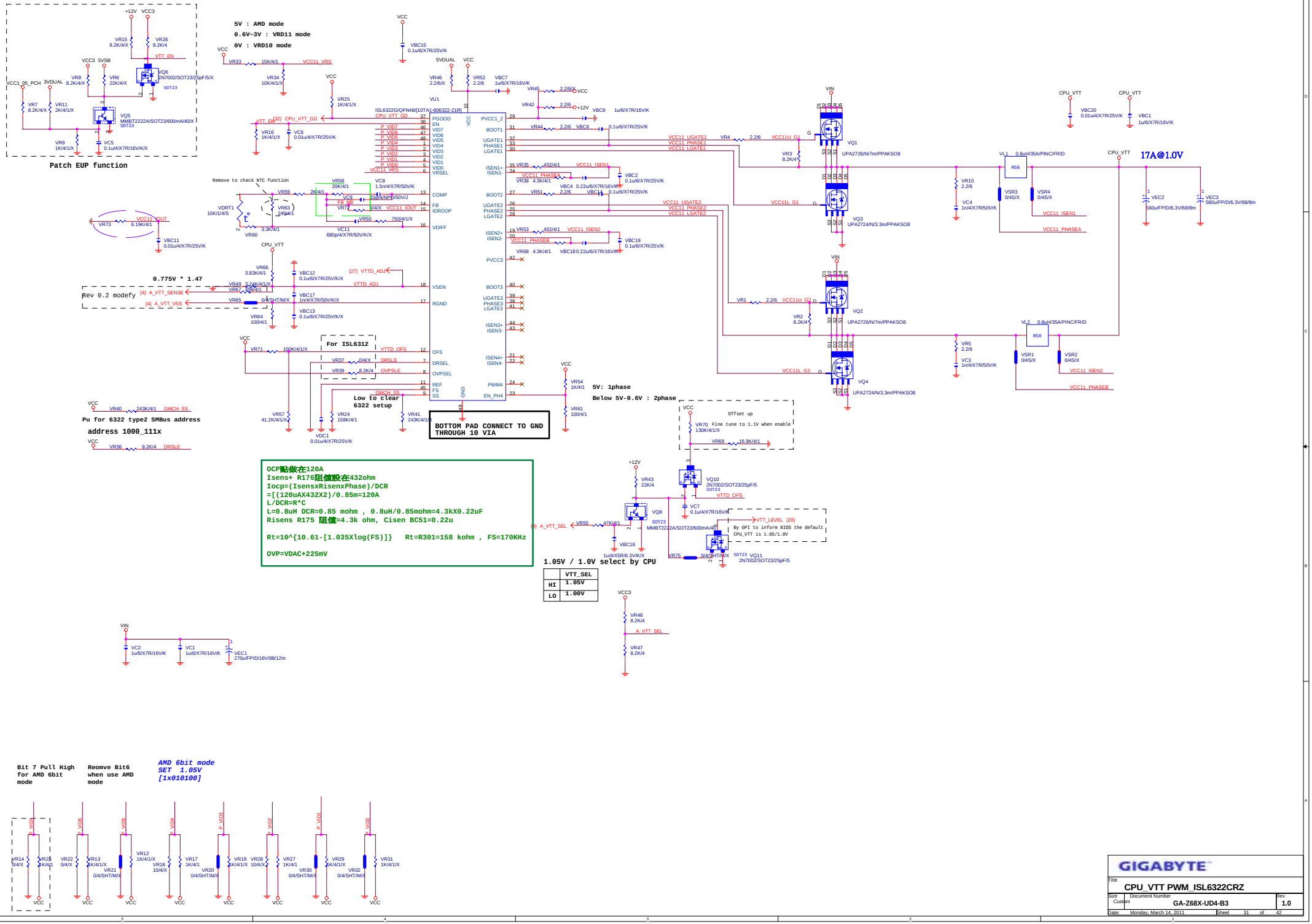


OCP : Ipeak=(2xIocsetxRocset)/Rdson
Iocset=21.5uA , Rocset=8.2k

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-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 30 of 42	


5V : AMD mode
0.6V~3V : VRD11 mode
0V : VRD10 mode
Patch EUP function
ISL6322G/QFN48[10TA1-606322-21R]
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
1.05V / 1.0V select by CPU
VTT_SEL
HI 1.05V
LO 1.00V
17A@1.0V
UPA2726/N/7m/PPAKSO8
UPA2724/N/3.3m/PPAKSO8
OCP點設在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]
GIGABYTE
CPU_VTT PWM_ISL6322CRZ
GA-Z68X-UD4-B3
Rev 1.0
Monday, March 14, 2011
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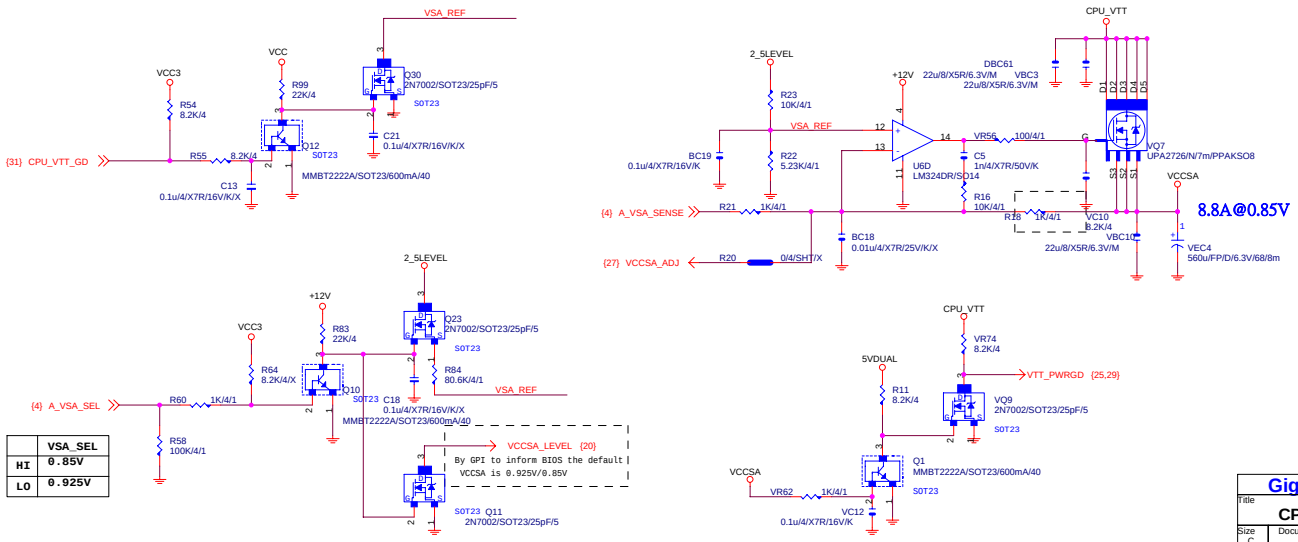
VCC_SA



	VSA_SEL
HI	0.85V
LO	0.925V

Gigabyte Technology		
Title: CPU VTT PWM_ISL6312		
Size: C	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
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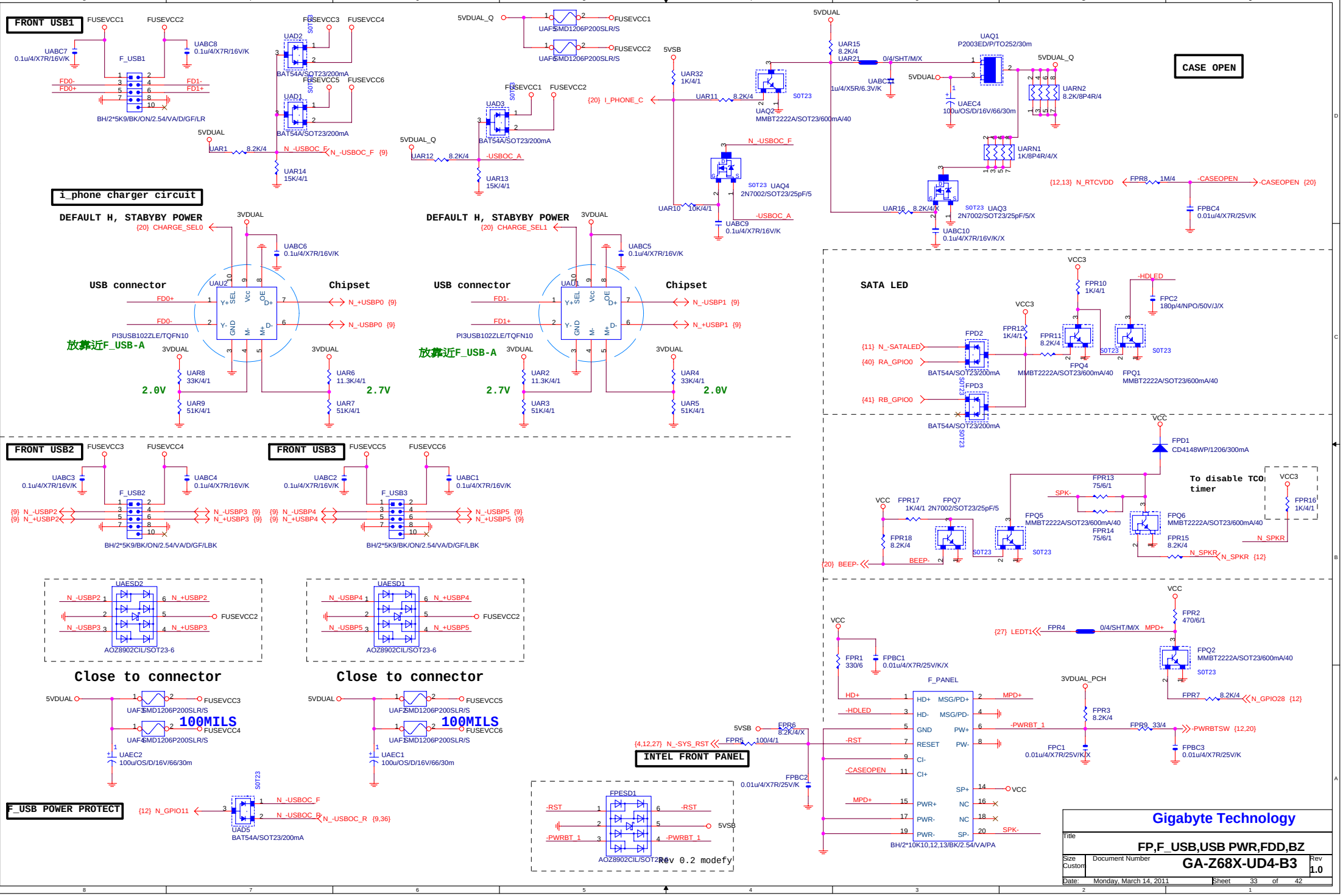
FRONT USB1
FUSEVCC1
FUSEVCC2
UABC7
0.1u/4/X7R/16V/K
UABC8
0.1u/4/X7R/16V/K
F_USB1
FD0-
FD0+
FD1-
FD1+
BH/2*5K9/BK/ON/2.54/VA/D/GF/LR
FUSEVCC3
FUSEVCC4
UAD2
BAT54A/SOT23/200mA
FUSEVCC5
FUSEVCC6
UAD1
BAT54A/SOT23/200mA
5VDUAL
UAR1
8.2K/4
N_-USBOC_F
N_-USBOC_F {9}
UAR14
15K/4/1
5VDUAL_Q
UAF1
SMD1206P200SLR/S
FUSEVCC1
UAF2
SMD1206P200SLR/S
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
UAR15
8.2K/4
UAR21
0/4/SHT/M/X
UABC11
1u/4/X5R/6.3V/K
UAQ2
MMBT2222A/SOT23/600mA/40
UAQ1
P2003ED/P/TO252/30m
UAEC4
100u/OS/D/16V/66/30m
UARN2
8.2K/8P4R/4
UARN1
1K/8P4R/4/X
N_-USBOC_F
UAQ4
2N7002/SOT23/25pF/5
UAR10
10K/4/1
UABC9
0.1u/4/X7R/16V/K
UAR16
8.2K/4/X
UAQ3
2N7002/SOT23/25pF/5/X
UABC10
0.1u/4/X7R/16V/K/X
{12,13} N_RTCVDD
FPR8
1M/4
-CASEOPEN
-CASEOPEN {20}
FPBC4
0.01u/4/X7R/25V/K
CASE OPEN
i_phone charger circuit
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
UAU1
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
{41} RB_GPIO0
FPD2
FPD3
BAT54A/SOT23/200mA
FPQ4
MMBT2222A/SOT23/600mA/40
FPQ1
MMBT2222A/SOT23/600mA/40
FRONT USB2
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/BK/ON/2.54/VA/D/GF/LBK
FRONT USB3
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/BK/ON/2.54/VA/D/GF/LBK
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
FUSEVCC3
FUSEVCC4
100MILS
UAEC2
100u/OS/D/16V/66/30m
FUSEVCC5
FUSEVCC6
100MILS
UAEC1
100u/OS/D/16V/66/30m
F_USB POWER PROTECT
{12} N_GPIO11
UAD5
BAT54A/SOT23/200mA
N_-USBOC_R
N_-USBOC_R {9,36}
FPESD1
-RST
-PWRBT_1
5VSB
AOZ8902CIL/SOT23-6
Rev 0.2 modefy
INTEL FRONT PANEL
{4,12,27} N_-SYS_RST
FPR5
100/4/1
FPR6
8.2K/4/X
FPBC2
0.01u/4/X7R/25V/K
F_PANEL
HD+
HD-
GND
RESET
CI-
CI+
PWR+
PWR-
MSG/PD+
MSG/PD-
PW+
PW-
SP+
NC
SP-
MPD+
-PWRBT_1
-CASEOPEN
BH/2*10K10,12,13/BK/2.54/VA/PA
FPR1
330/6
FPBC1
0.01u/4/X7R/25V/K/X
{27} LEDT1
FPR4
0/4/SHT/M/X
MPD+
FPR2
470/6/1
FPQ2
MMBT2222A/SOT23/600mA/40
FPR7
8.2K/4
N_GPIO28 {12}
3VDUAL_PCH
FPR3
8.2K/4
FPR9
33/4
-PWRBTSW {12,20}
FPC1
0.01u/4/X7R/25V/K/X
FPBC3
0.01u/4/X7R/25V/K
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
FPR15
8.2K/4
N_SPKR
FPR16
1K/4/1
FPR18
8.2K/4
{20} BEEP-
BEEP-
Gigabyte Technology
Title
FP,F_USB,USB PWR,FDD,BZ
Size
Custom
Document Number
GA-Z68X-UD4-B3
Rev
1.0
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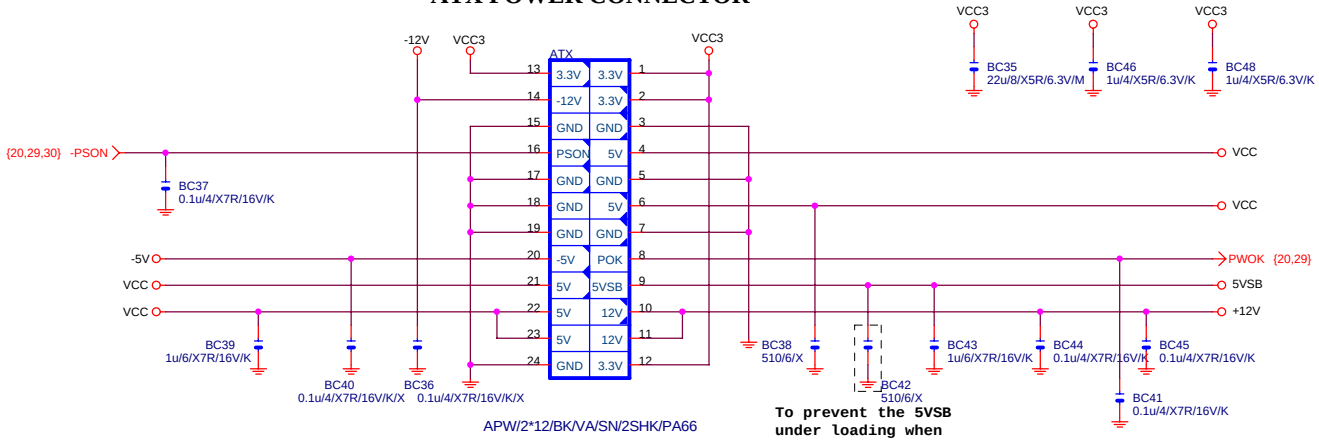
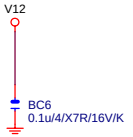
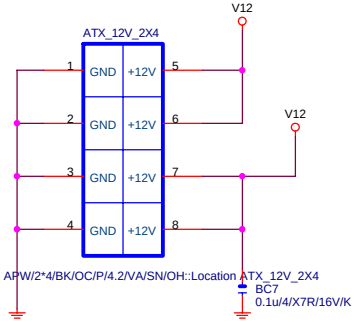
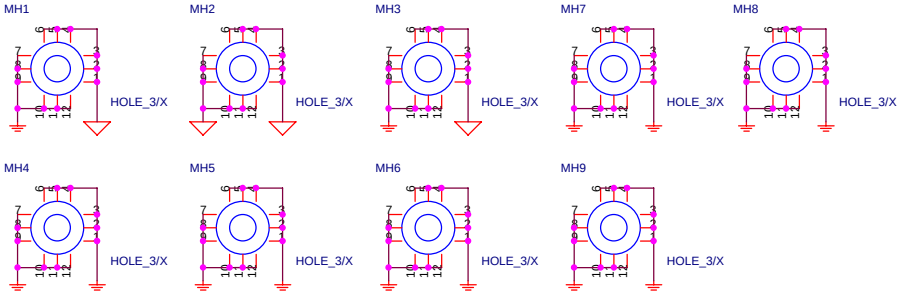
ATX POWER CONNECTOR

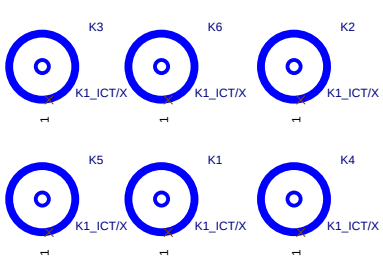


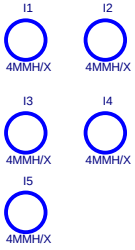
To prevent the 5VSB under loading when boot











Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
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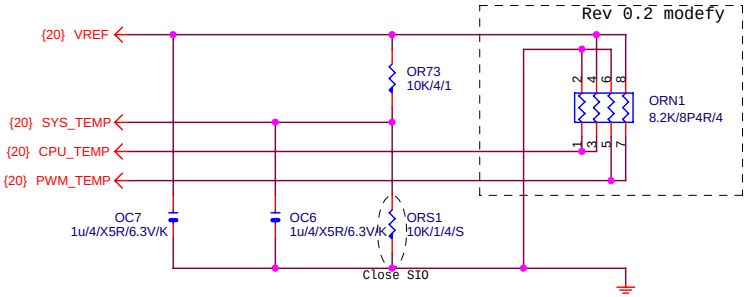
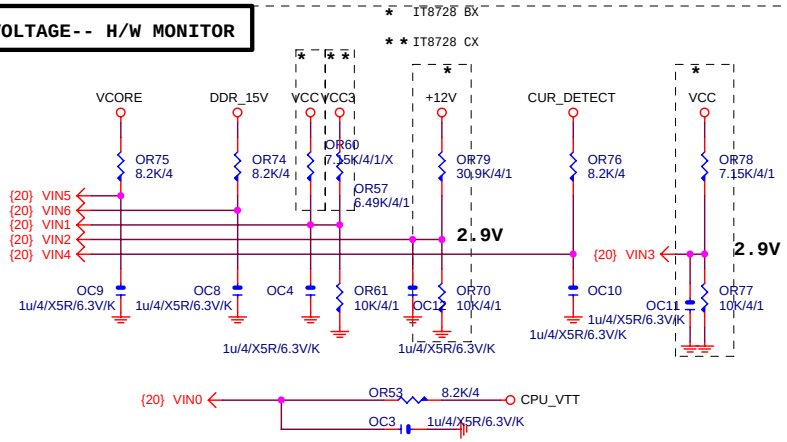
TEMP H/W MONITOR

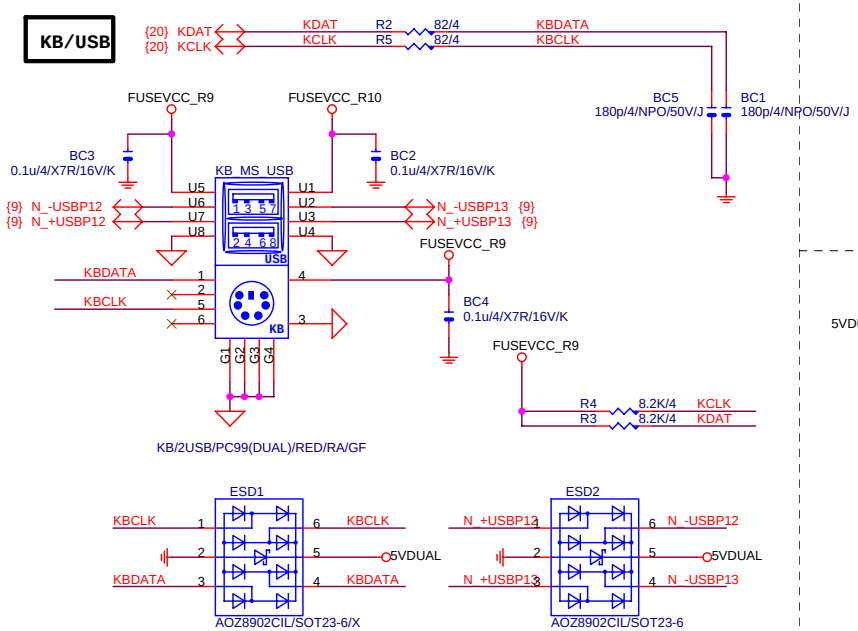


VOLTAGE-- H/W MONITOR

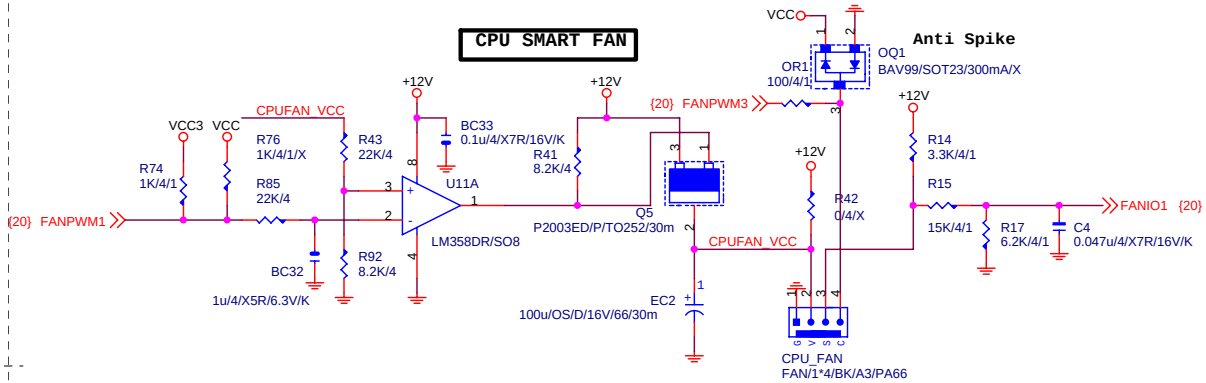


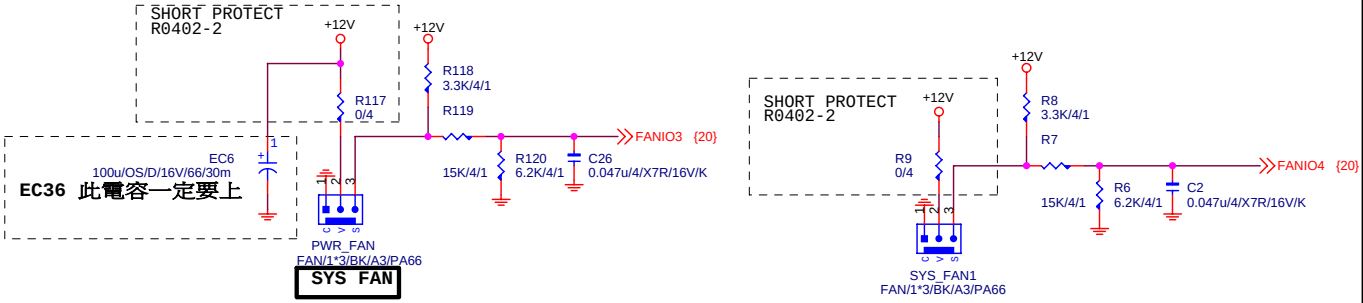
The division voltage of VIN2 & VIN3 must be around 2.9V

KB/USB

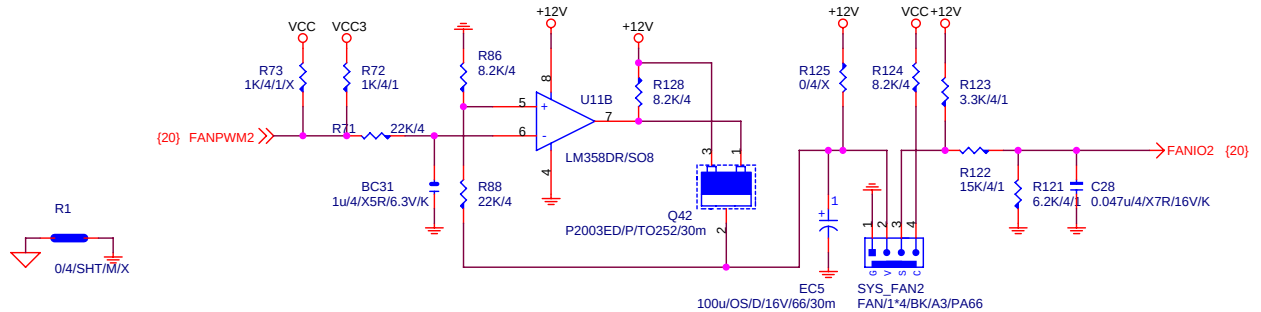


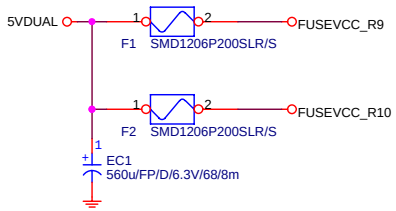
CPU SMART FAN

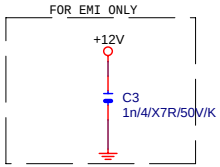




Linear SYS_FAN







Gigabyte Technology

Title	HWM,KB/MS, FAN CTRL	
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
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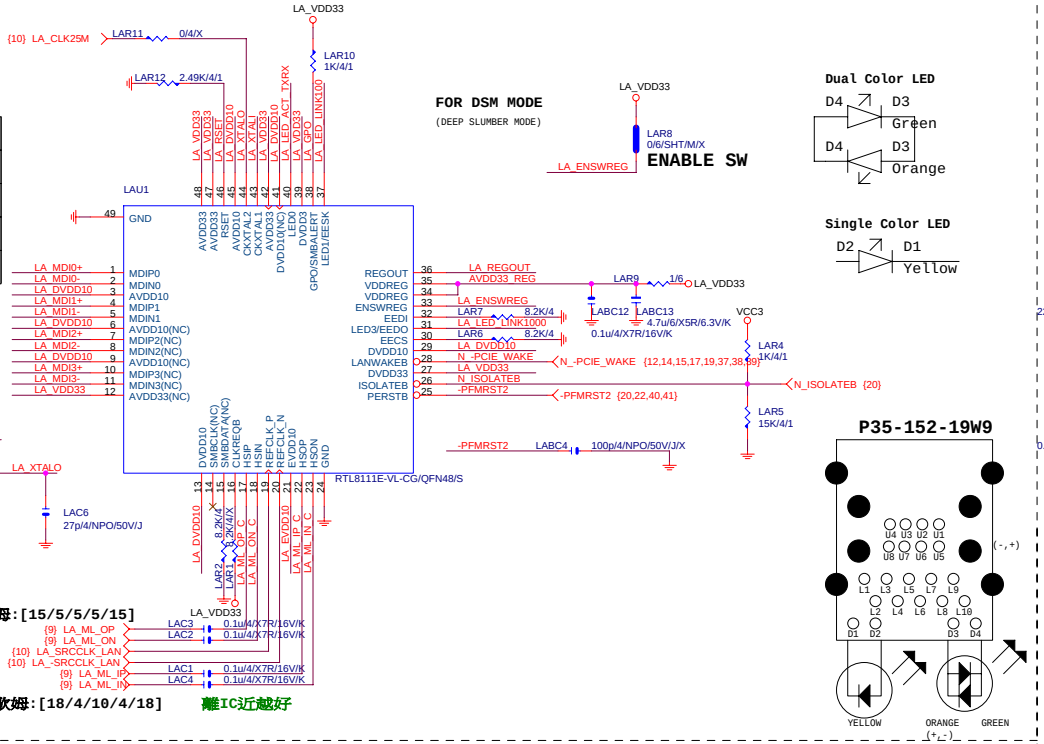
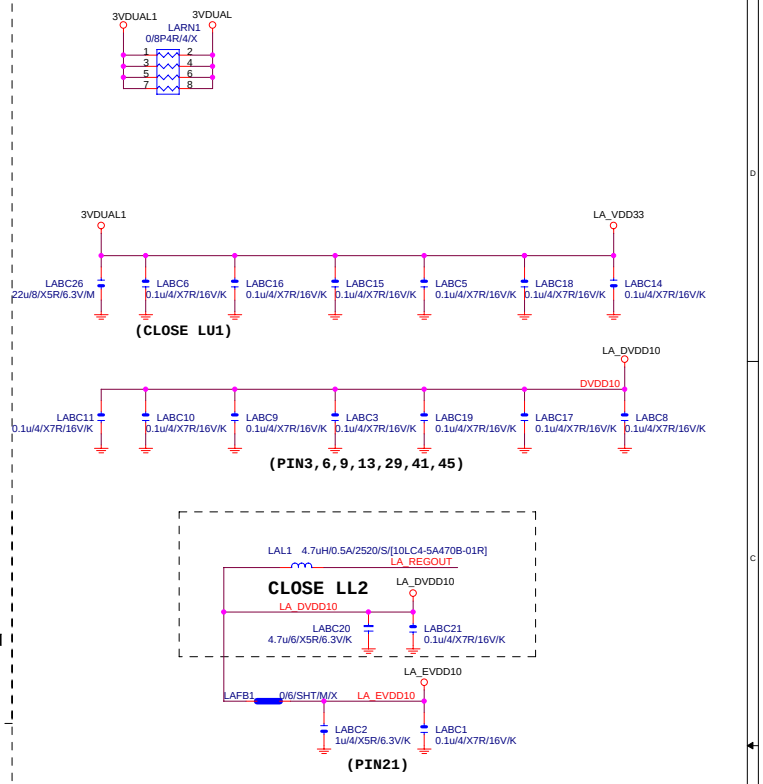
PCIE-1G LAN

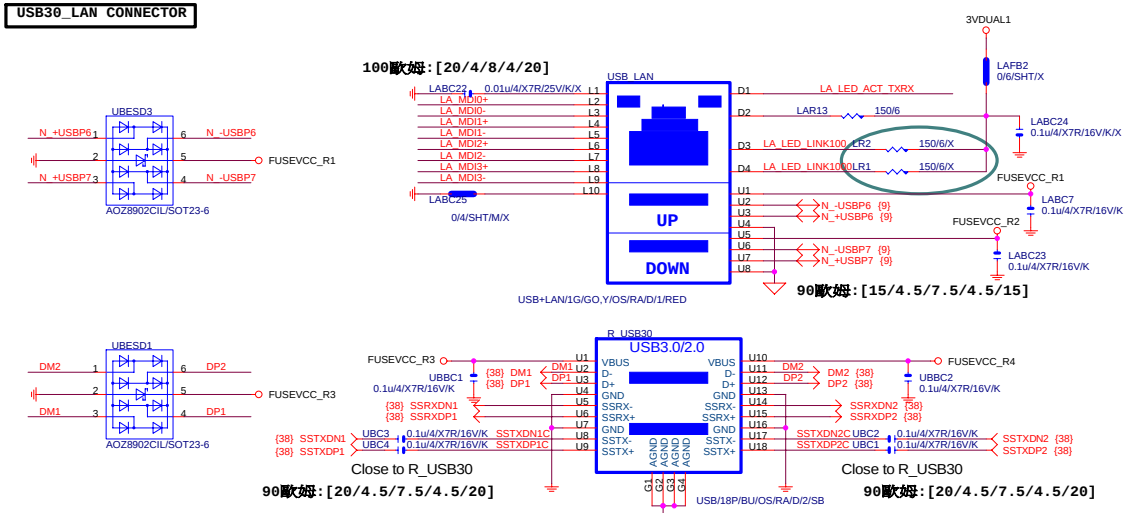
Power domain chart

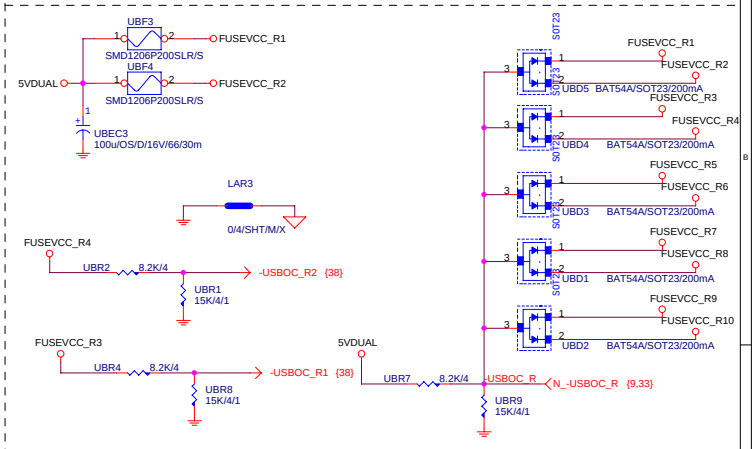
	RTL8111E
AVDD33	3.3V
DVDD33	3.3V
VDDREG	3.3V
DVDD10	1.05V



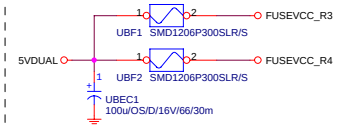


USB30_LAN CONNECTOR





Close to connector



Title	REALTEK RTL8111E_1
Size: Custom	Document Number: GA-Z68X-UD4-B3
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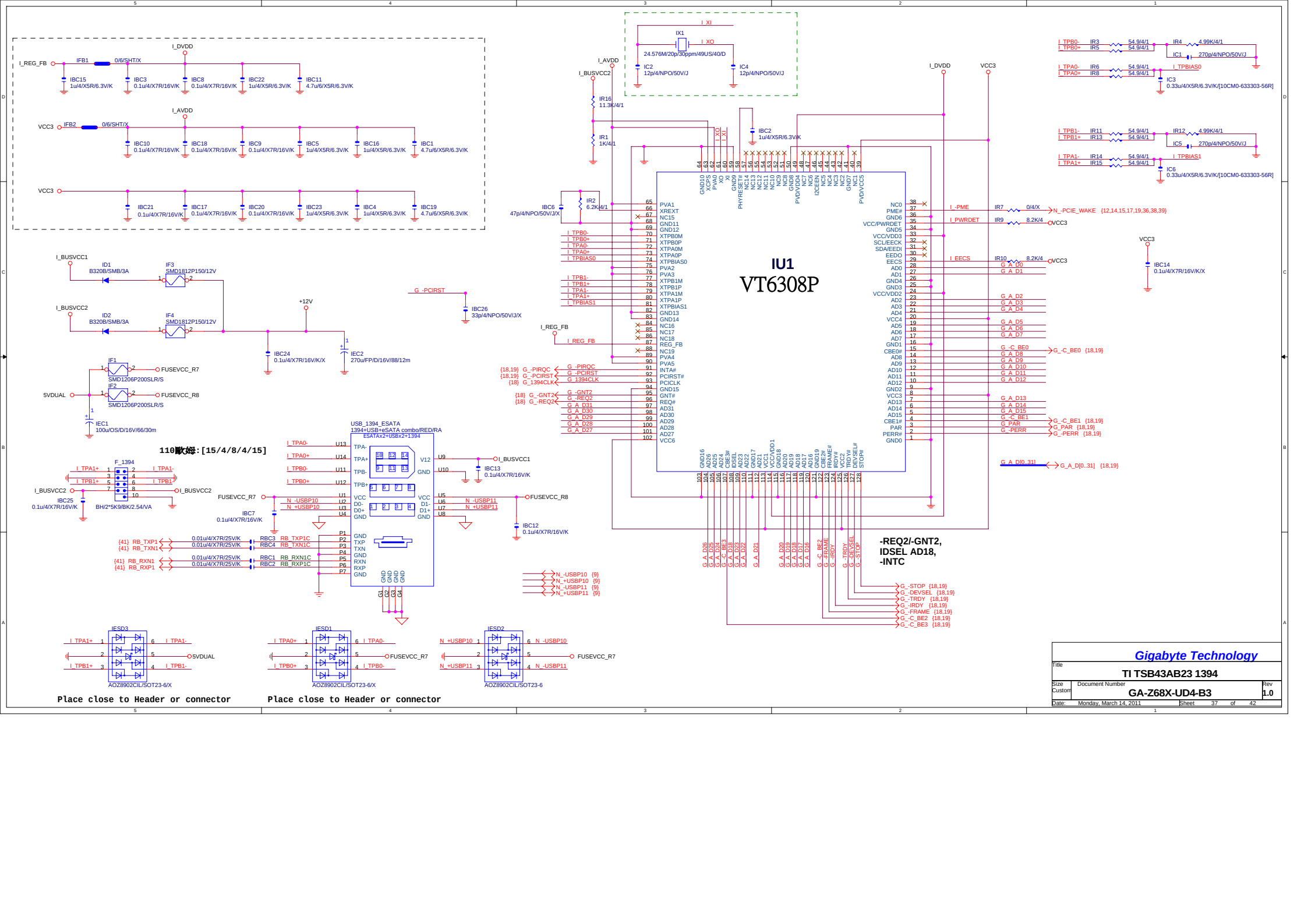
Gigabyte Technology


IU1
VT6308P
I_DVDD
I_AVDD
I_BUSVCC2
I_REG_FB
VCC3
I_XI
I_XO
IX1
24.576M/20p/30ppm/49US/40/D
IC2 12p/4/NPO/50V/J
IC4 12p/4/NPO/50V/J
IR16 11.3K/4/1
IR1 1K/4/1
IR2 6.2K/4/1
IBC2 1u/4/X5R/6.3V/K
IBC6 47p/4/NPO/50V/J/X
I_TPB0- I_TPB0+ I_TPA0- I_TPA0+ I_TPBIAS0
I_TPB1- I_TPB1+ I_TPA1- I_TPA1+ I_TPBIAS1
I_PME
I_PWRDET
I_EECS
IR7 0/4/X
IR9 8.2K/4
IR10 8.2K/4
N_-PCIE_WAKE {12,14,15,17,19,36,38,39}
VCC3
G_A_D0
G_A_D1
G_A_D2
G_A_D3
G_A_D4
G_A_D5
G_A_D6
G_A_D7
G_-C_BE0
G_A_D8
G_A_D9
G_A_D10
G_A_D11
G_A_D12
G_A_D13
G_A_D14
G_A_D15
G_-C_BE1
G_PAR
G_-PERR
G_A_D[0..31]
G_-PIRQC
G_-PCIRST
G_1394CLK
G_-GNT2
G_-REQ2
G_A_D31
G_A_D30
G_A_D29
G_A_D28
G_A_D27
-REQ2/-GNT2,
IDSEL AD18,
-INTC
G_-STOP
G_-DEVSEL
G_-TRDY
G_-IRDY
G_-FRAME
G_-C_BE2
G_-C_BE3
I_TPB0- IR3 54.9/4/1 IR4 4.99K/4/1
I_TPB0+ IR5 54.9/4/1 IC1 270p/4/NPO/50V/J
I_TPA0- IR6 54.9/4/1 I_TPBIAS0
I_TPA0+ IR8 54.9/4/1 IC3 0.33u/4/X5R/6.3V/K/[10CM0-633303-56R]
I_TPB1- IR11 54.9/4/1 IR12 4.99K/4/1
I_TPB1+ IR13 54.9/4/1 IC5 270p/4/NPO/50V/J
I_TPA1- IR14 54.9/4/1 I_TPBIAS1
I_TPA1+ IR15 54.9/4/1 IC6 0.33u/4/X5R/6.3V/K/[10CM0-633303-56R]
IBC14 0.1u/4/X7R/16V/K/X
I_REG_FB IFB1 0/6/SHT/X
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
VCC3 IFB2 0/6/SHT/X
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
I_BUSVCC1
I_BUSVCC2
ID1 B320B/SMB/3A
ID2 B320B/SMB/3A
IF3 SMD1812P150/12V
IF4 SMD1812P150/12V
+12V
IBC24 0.1u/4/X7R/16V/K/X
IEC2 270u/FP/D/16V/88/12m
G_-PCIRST
IBC26 33p/4/NPO/50V/J/X
IF1 SMD1206P200SLR/S
IF2 SMD1206P200SLR/S
FUSEVCC_R7
FUSEVCC_R8
5VDUAL
IEC1 100u/OS/D/16V/66/30m
110歐姆:[15/4/8/4/15]
F_1394
IBC25 0.1u/4/X7R/16V/K
BH/2*5K9/BK/2.54/VA
USB_1394_ESATA
1394+USB+eSATA combo/RED/RA
ESATAx2+USBx2+1394
IBC7 0.1u/4/X7R/16V/K
IBC12 0.1u/4/X7R/16V/K
IBC13 0.1u/4/X7R/16V/K
N_-USBP10 {9}
N_+USBP10 {9}
N_-USBP11 {9}
N_+USBP11 {9}
{41} RB_TXP1
{41} RB_TXN1
{41} RB_RXN1
{41} RB_RXP1
RBC3 RB_TXP1C
RBC4 RB_TXN1C
RBC1 RB_RXN1C
RBC2 RB_RXP1C
0.01u/4/X7R/25V/K
IESD3
IESD1
IESD2
AOZ8902CIL/SOT23-6/X
AOZ8902CIL/SOT23-6
Place close to Header or connector
Place close to Header or connector
Gigabyte Technology
TI TSB43AB23 1394
GA-Z68X-UD4-B3
Rev 1.0
Monday, March 14, 2011
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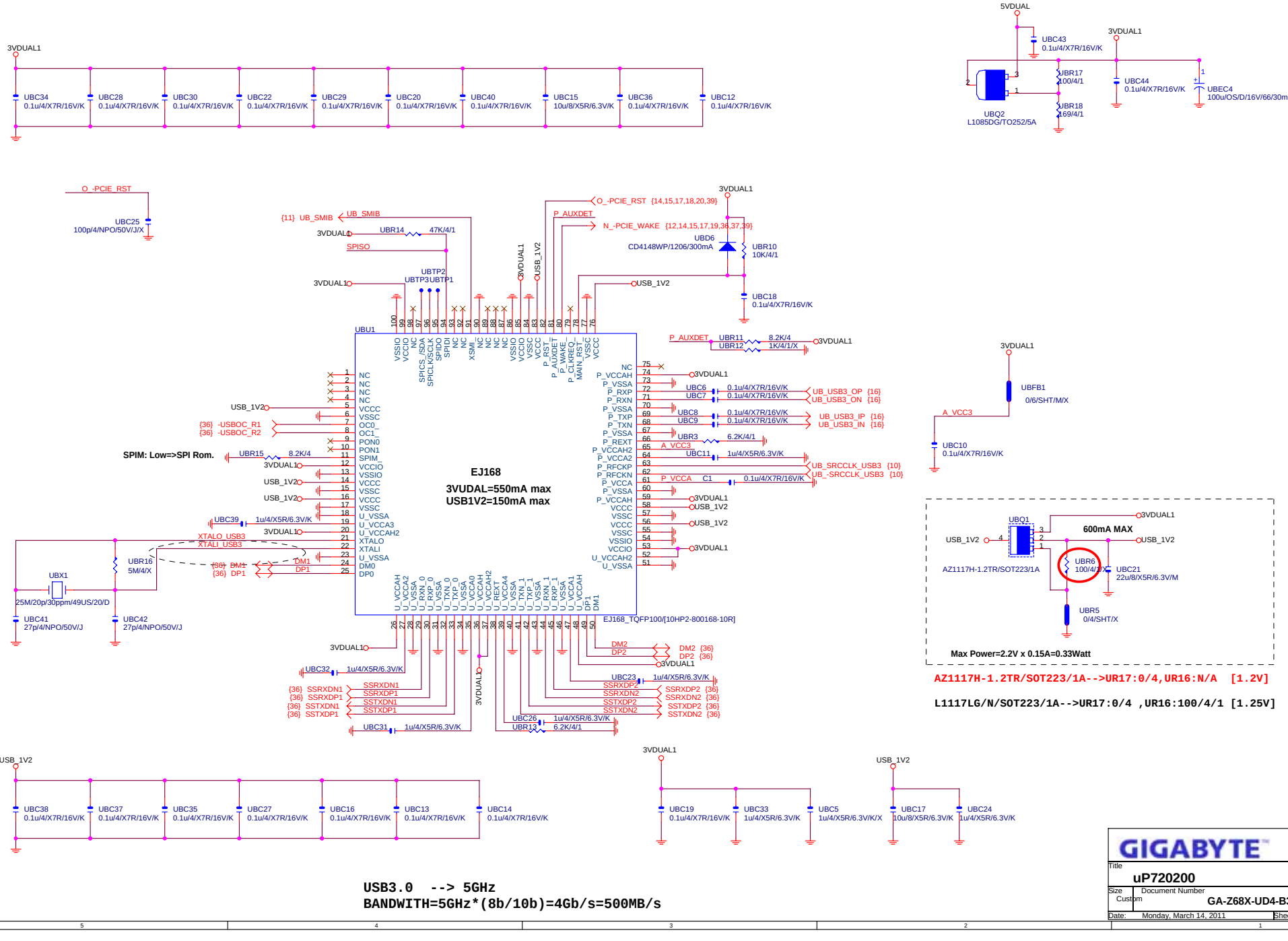
3VDUAL1
UBC34 0.1u/4/X7R/16V/K
UBC28 0.1u/4/X7R/16V/K
UBC30 0.1u/4/X7R/16V/K
UBC22 0.1u/4/X7R/16V/K
UBC29 0.1u/4/X7R/16V/K
UBC20 0.1u/4/X7R/16V/K
UBC40 0.1u/4/X7R/16V/K
UBC15 10u/8/X5R/6.3V/K
UBC36 0.1u/4/X7R/16V/K
UBC12 0.1u/4/X7R/16V/K
5VDUAL
UBC43 0.1u/4/X7R/16V/K
UBQ2 L1085DG/TO252/5A
UBR17 100/4/1
UBR18 169/4/1
UBC44 0.1u/4/X7R/16V/K
UBEC4 100u/OS/D/16V/66/30m
O_-PCIE_RST
UBC25 100p/4/NPO/50V/J/X
{11} UB_SMIB
UB_SMIB
UBR14 47K/4/1
SPISO
UBTP2 UBTP3 UBTP1
P_AUXDET
O_-PCIE_RST {14,15,17,18,20,39}
N_-PCIE_WAKE {12,14,15,17,19,36,37,39}
UBD6 CD4148WP/1206/300mA
UBR10 10K/4/1
USB_1V2
UBC18 0.1u/4/X7R/16V/K
UBU1
P_AUXDET UBR11 8.2K/4 UBR12 1K/4/1/X
SPIM: Low=>SPI Rom.
UBR15 8.2K/4
{36} -USBOC_R1
{36} -USBOC_R2
UBC39 1u/4/X5R/6.3V/K
XTALO_USB3
XTALI_USB3
UBR16 5M/4/X
UBX1 25M/20p/30ppm/49US/20/D
UBC41 27p/4/NPO/50V/J
UBC42 27p/4/NPO/50V/J
{36} DM1
{36} DP1
EJ168
3VUDAL=550mA max
USB1V2=150mA max
EJ168_TQFP100/[10HP2-800168-10R]
UB_USB3_OP {16}
UB_USB3_ON {16}
UB_USB3_IP {16}
UB_USB3_IN {16}
UBC6 0.1u/4/X7R/16V/K
UBC7 0.1u/4/X7R/16V/K
UBC8 0.1u/4/X7R/16V/K
UBC9 0.1u/4/X7R/16V/K
UBR3 6.2K/4/1
A_VCC3
UBC11 1u/4/X5R/6.3V/K
P_VCCA C1 0.1u/4/X7R/16V/K
UB_SRCCLK_USB3 {10}
UB_-SRCCLK_USB3 {10}
UBFB1 0/6/SHT/M/X
UBC10 0.1u/4/X7R/16V/K
UBQ1 AZ1117H-1.2TR/SOT223/1A
600mA MAX
UBR6 100/4/1
UBC21 22u/8/X5R/6.3V/M
UBR5 0/4/SHT/X
Max Power=2.2V x 0.15A=0.33Watt
AZ1117H-1.2TR/SOT223/1A-->UR17:0/4,UR16:N/A [1.2V]
L1117LG/N/SOT223/1A-->UR17:0/4 ,UR16:100/4/1 [1.25V]
DM2 {36}
DP2 {36}
UBC32 1u/4/X5R/6.3V/K
UBC23 1u/4/X5R/6.3V/K
{36} SSRXDN1
{36} SSRXDP1
{36} SSTXDN1
{36} SSTXDP1
SSRXDN1
SSRXDP1
SSTXDN1
SSTXDP1
SSRXDP2 {36}
SSRXDN2 {36}
SSTXDP2 {36}
SSTXDN2 {36}
UBC31 1u/4/X5R/6.3V/K
UBC26 1u/4/X5R/6.3V/K
UBR13 6.2K/4/1
UBC38 0.1u/4/X7R/16V/K
UBC37 0.1u/4/X7R/16V/K
UBC35 0.1u/4/X7R/16V/K
UBC27 0.1u/4/X7R/16V/K
UBC16 0.1u/4/X7R/16V/K
UBC13 0.1u/4/X7R/16V/K
UBC14 0.1u/4/X7R/16V/K
UBC19 0.1u/4/X7R/16V/K
UBC33 1u/4/X5R/6.3V/K
UBC5 1u/4/X5R/6.3V/K/X
UBC17 10u/8/X5R/6.3V/K
UBC24 1u/4/X5R/6.3V/K
USB3.0 --> 5GHz
BANDWITH=5GHz*(8b/10b)=4Gb/s=500MB/s
GIGABYTE
Title
uP720200
Size Custom
Document Number GA-Z68X-UD4-B3
Rev 1.0
Date: Monday, March 14, 2011
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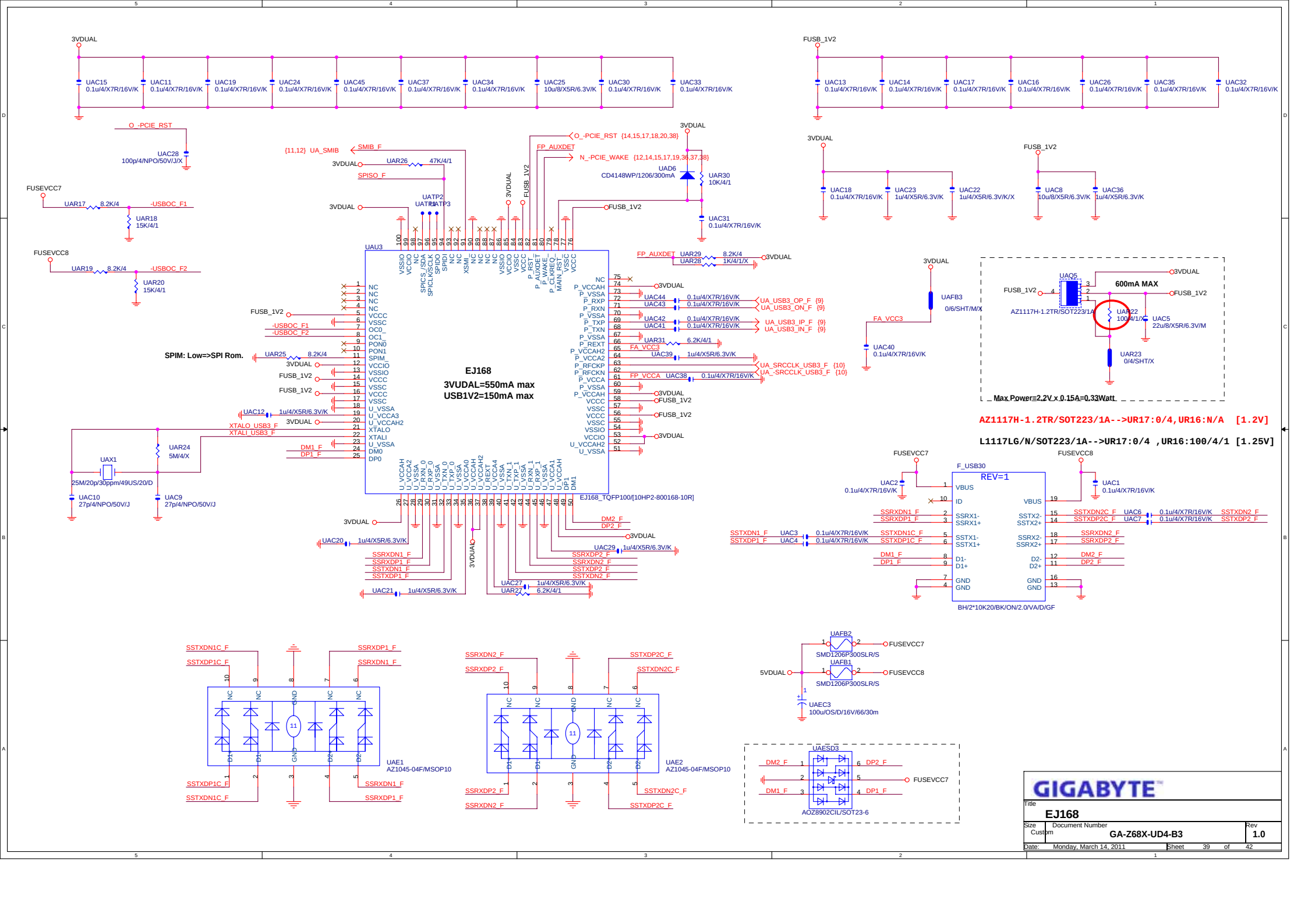
3VDUAL
UAC15 0.1u/4/X7R/16V/K
UAC11 0.1u/4/X7R/16V/K
UAC19 0.1u/4/X7R/16V/K
UAC24 0.1u/4/X7R/16V/K
UAC45 0.1u/4/X7R/16V/K
UAC37 0.1u/4/X7R/16V/K
UAC34 0.1u/4/X7R/16V/K
UAC25 10u/8/X5R/6.3V/K
UAC30 0.1u/4/X7R/16V/K
UAC33 0.1u/4/X7R/16V/K
FUSB_1V2
UAC13 0.1u/4/X7R/16V/K
UAC14 0.1u/4/X7R/16V/K
UAC17 0.1u/4/X7R/16V/K
UAC16 0.1u/4/X7R/16V/K
UAC26 0.1u/4/X7R/16V/K
UAC35 0.1u/4/X7R/16V/K
UAC32 0.1u/4/X7R/16V/K
O_-PCIE_RST
UAC28 100p/4/NPO/50V/J/X
FUSEVCC7
UAR17 8.2K/4
-USBOC_F1
UAR18 15K/4/1
FUSEVCC8
UAR19 8.2K/4
-USBOC_F2
UAR20 15K/4/1
{11,12} UA_SMIB
SMIB_F
UAR26 47K/4/1
SPISO_F
UATP2
UATP3
UAU3
SPIM: Low=>SPI Rom.
UAR25 8.2K/4
UAC12 1u/4/X5R/6.3V/K
XTALO_USB3_F
XTALI_USB3_F
UAR24 5M/4/X
UAX1
25M/20p/30ppm/49US/20/D
UAC10 27p/4/NPO/50V/J
UAC9 27p/4/NPO/50V/J
DM1_F
DP1_F
EJ168
3VUDAL=550mA max
USB1V2=150mA max
EJ168_TQFP100/[10HP2-800168-10R]
O_-PCIE_RST {14,15,17,18,20,38}
FP_AUXDET
N_-PCIE_WAKE {12,14,15,17,19,36,37,38}
UAD6 CD4148WP/1206/300mA
UAR30 10K/4/1
UAC31 0.1u/4/X7R/16V/K
FP_AUXDET UAR29 8.2K/4
UAR28 1K/4/1/X
UAC44 0.1u/4/X7R/16V/K
UAC43 0.1u/4/X7R/16V/K
UA_USB3_OP_F {9}
UA_USB3_ON_F {9}
UAC42 0.1u/4/X7R/16V/K
UAC41 0.1u/4/X7R/16V/K
UA_USB3_IP_F {9}
UA_USB3_IN_F {9}
UAR31 6.2K/4/1
FA_VCC3
UAC39 1u/4/X5R/6.3V/K
UA_SRCCLK_USB3_F {10}
UA_-SRCCLK_USB3_F {10}
FP_VCCA UAC38 0.1u/4/X7R/16V/K
UAC20 1u/4/X5R/6.3V/K
UAC29 1u/4/X5R/6.3V/K
UAC21 1u/4/X5R/6.3V/K
UAC27 1u/4/X5R/6.3V/K
UAR27 6.2K/4/1
SSRXDN1_F
SSRXDP1_F
SSTXDN1_F
SSTXDP1_F
SSRXDP2_F
SSRXDN2_F
SSTXDP2_F
SSTXDN2_F
UAC18 0.1u/4/X7R/16V/K
UAC23 1u/4/X5R/6.3V/K
UAC22 1u/4/X5R/6.3V/K/X
UAC8 10u/8/X5R/6.3V/K
UAC36 1u/4/X5R/6.3V/K
UAFB3 0/6/SHT/M/X
FA_VCC3
UAC40 0.1u/4/X7R/16V/K
UAQ5
AZ1117H-1.2TR/SOT223/1A
600mA MAX
UAR22 100/4/1/X
UAC5 22u/8/X5R/6.3V/M
UAR23 0/4/SHT/X
Max Power=2.2V x 0.15A=0.33Watt
AZ1117H-1.2TR/SOT223/1A-->UR17:0/4,UR16:N/A [1.2V]
L1117LG/N/SOT223/1A-->UR17:0/4 ,UR16:100/4/1 [1.25V]
F_USB30
REV=1
UAC2 0.1u/4/X7R/16V/K
UAC1 0.1u/4/X7R/16V/K
UAC3 0.1u/4/X7R/16V/K
UAC4 0.1u/4/X7R/16V/K
UAC6 0.1u/4/X7R/16V/K
UAC7 0.1u/4/X7R/16V/K
BH/2*10K20/BK/ON/2.0/VA/D/GF
UAE1
AZ1045-04F/MSOP10
UAE2
AZ1045-04F/MSOP10
UAFB2
UAFB1
SMD1206P300SLR/S
UAEC3 100u/OS/D/16V/66/30m
UAESD3
AOZ8902CIL/SOT23-6
GIGABYTE
Title
EJ168
Size Custom
Document Number GA-Z68X-UD4-B3
Rev 1.0
Date: Monday, March 14, 2011
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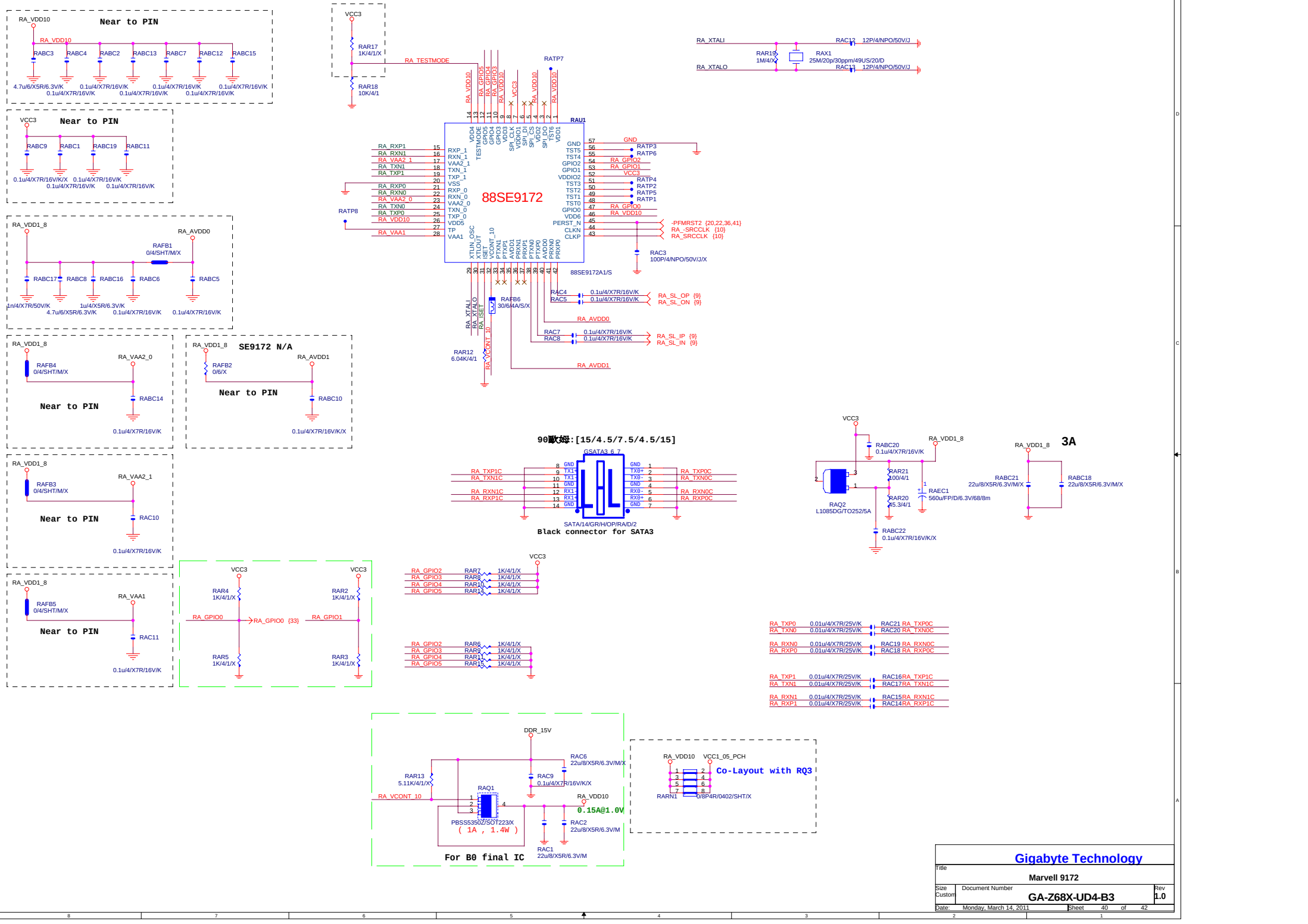
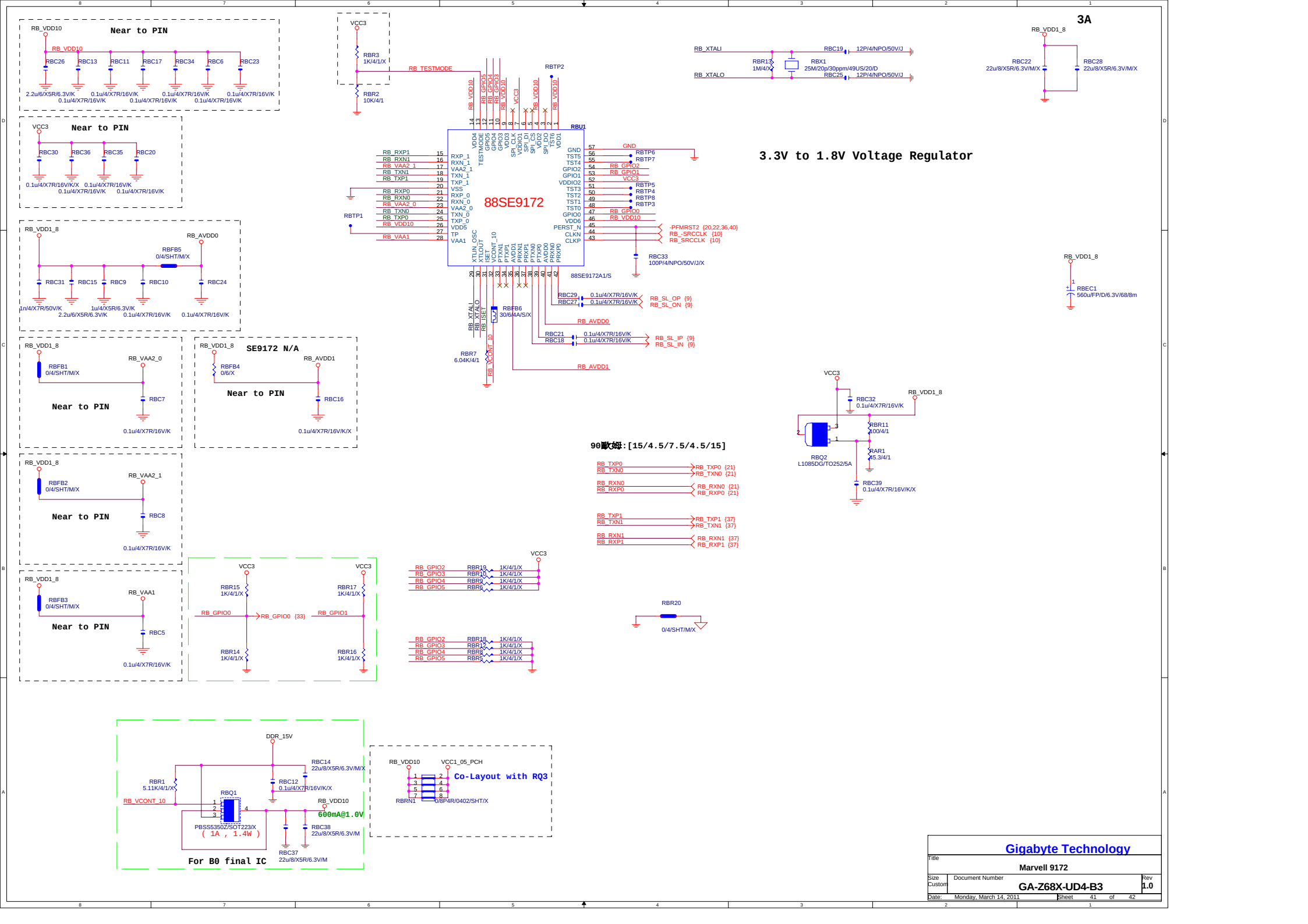


Gigabyte Technology		
Title	Marvell 9172	
Size: Custom	Document Number: GA-Z68X-UD4-B3	Rev: 1.0
Date: Monday, March 14, 2011	Sheet 40 of 42	


3A
3.3V to 1.8V Voltage Regulator
88SE9172
88SE9172A1/S
Near to PIN
SE9172 N/A
For B0 final IC
Co-Layout with RQ3
600mA@1.0V
(1A , 1.4W)
90歐姆:[15/4.5/7.5/4.5/15]
Gigabyte Technology
Marvell 9172
GA-Z68X-UD4-B3
1.0
Monday, March 14, 2011

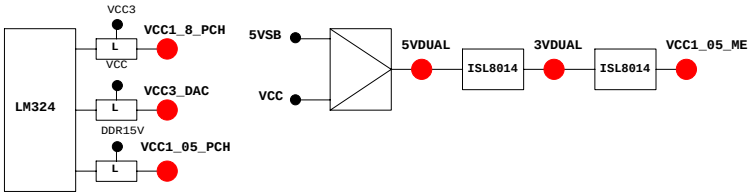
PCH GPIO LIST TABLE

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

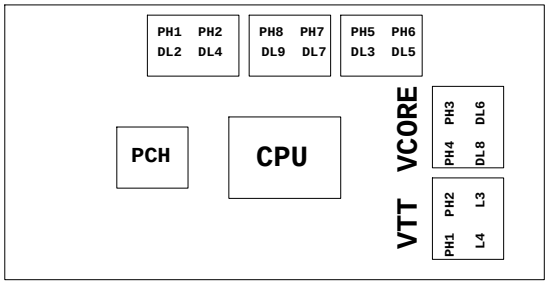
Super I/O ITE8720 GPIO Table

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

Gigabyte Technology

Title: TABLE LIST

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