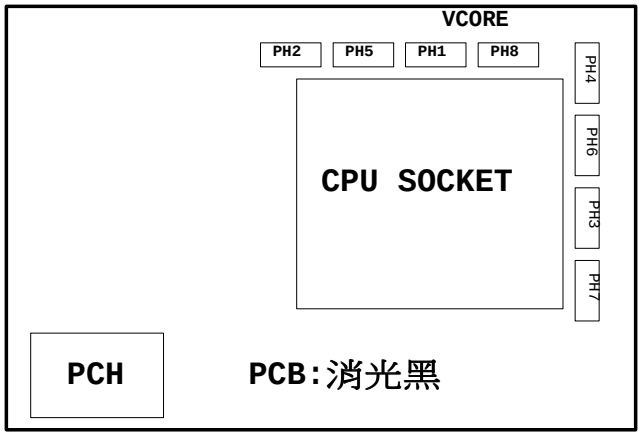
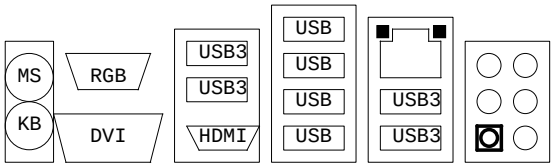
Model Name: GA-Z97X-GAMING 7 Rev 1.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,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 SWITCH
17	PCI EXPRESS*4 SLOT
18	PCI EXPRESS*1 1,2,3 SLOT
19	ITE8892E
20	PCI SLOT
21	ALC1150 CODEC
22	REAR AUDIO JACK
23	ITE8620
24	COM/KB_MS/R_USB/PROHOT/USB PROTECT
25	IR3563B
26	IR3598 VCORE Phase 1, 4, 2, 5
27	DDR POWER

SHEET	TITLE
28	DISCRETE POWER,NCT3933
29	DUAL BIOS
30	FP,F_USB,USB PWR,BZ
31	ATX POWER CONNECTOR
32	H/W MONITOR,FAN CTRL
33	DVI
34	HDMI_USB30
35	ARTHEROS E2201
36	M.2_SATA_EXPRESS
37	TABLE LIST
38	IR3598 VCORE Phase 6, 8, 3, 7
39	IR3570 _DDR PWM
40	IR 3598-DDR_2-Phase
41	Marvell 9172
42	RST, PWR, CLR_CMOS





Layout: 俊平 1992
RDPM:Candice 1928/2340

Gigabyte Technology

Title: Cover Sheet

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Date: Thursday, March 13, 2014 | Sheet 1 of 41

Model Name: GA-Z97X-GAMING 7

Component value change history

Data	Change Item	Reason
2013/01/07	1. New BOM 9MZ97GMI7-00-01.txt	9MZ97GMI7-00-01
2013/02/20	Modify 1. ESD change to 加強版 2. Heatsink change to MP version 3. R675 8.2K to 10K for HM 4. VGA,DVI change to golden 5. 8.2K/4/1 change to 8.2K/4 6. C14 0420 to 0603 7. PWM RC match 1.4K/4/1 to 1.43K/4/1 8. AUDIO HS to 黑銀 9. CQ3,CQ4,CQ8,CQ11,限用10IF1-2A7002-0CR 10. VIN 電容限用X6S 11. SE9172 A1 to A2 12. M2_SK to M2 Add 1. New THMERTRIP circuit 2. CR21,CR22 for MUTE 3. OBC15 for SIO REF25 Delete 1. DAR102,DAR67,DAR104,DAR68,DAR49,M2R13,WR41,NR177,MAR26,WR37, 2. M2_SK, 3. CBC14,UABC7,UABC8, 4. R34, 5. MR16,MR3, 6. UAQ2,UAQ1, 7. UA1, 8. LAESD1,LAESD3, 9. UAR15, 10. BC49, 11. NRN1,M2RN2,NRN5, 12. BIOS_PH, 13. Q3, 14. PPC3,PAC1,GBC28,PEC6, 15. UAR16,	9MZ97GMI7-00-02
2013/03/04	1. 修改文字面為Rev 1.0	9MZ97GMI7-00-10A

Circuit or PCB layout change

DATE	Change Item	Reason
2013/01/07 Rev 0.1	1.由Z97X-Gaming 5 Rev 0.1來修改 2.DDR15V change to IR3570A+3598 3.PCIEX4 from CPU 4.Add SE9172 5.Add button 6.Add BIOS_SW and SB switch 7.Add Voltage measure 8.Add ATX4P	SCH:Z97X-GAMING 7_R01_0107A.DSN
2014/02/18 Rev 0.2	1.請由GA-Z97X-Gaming 7 Rev 0.1來修改 2.VCORE修改請依照Z97X-Gaming 5 3.BIOS LED修改請依照 Z97X-UD5H 4.F_AUDIO, SPDIF_O, CEC12, CEC10, AUDIO_HS, ML2,MAEC2, ML1零件孔與背板SMD零件距離不足5mm ---工廠DFM,看是否可以修改 5.沒有用到的零件改MASK 6.CBC14 change to 0603 7.C14 change to 0402 8.Add CR21,CR22 for audio mute 9.DQ6 net change to N_-THRMTRIP 10.Add MAR46 11. M2_SK rename to M2	
2014/03/04 Rev 1.0	1. 修改文字面為Rev 1.0	

Gigabyte Technology

Title	BOM & PCB MODIFY HISTORY	
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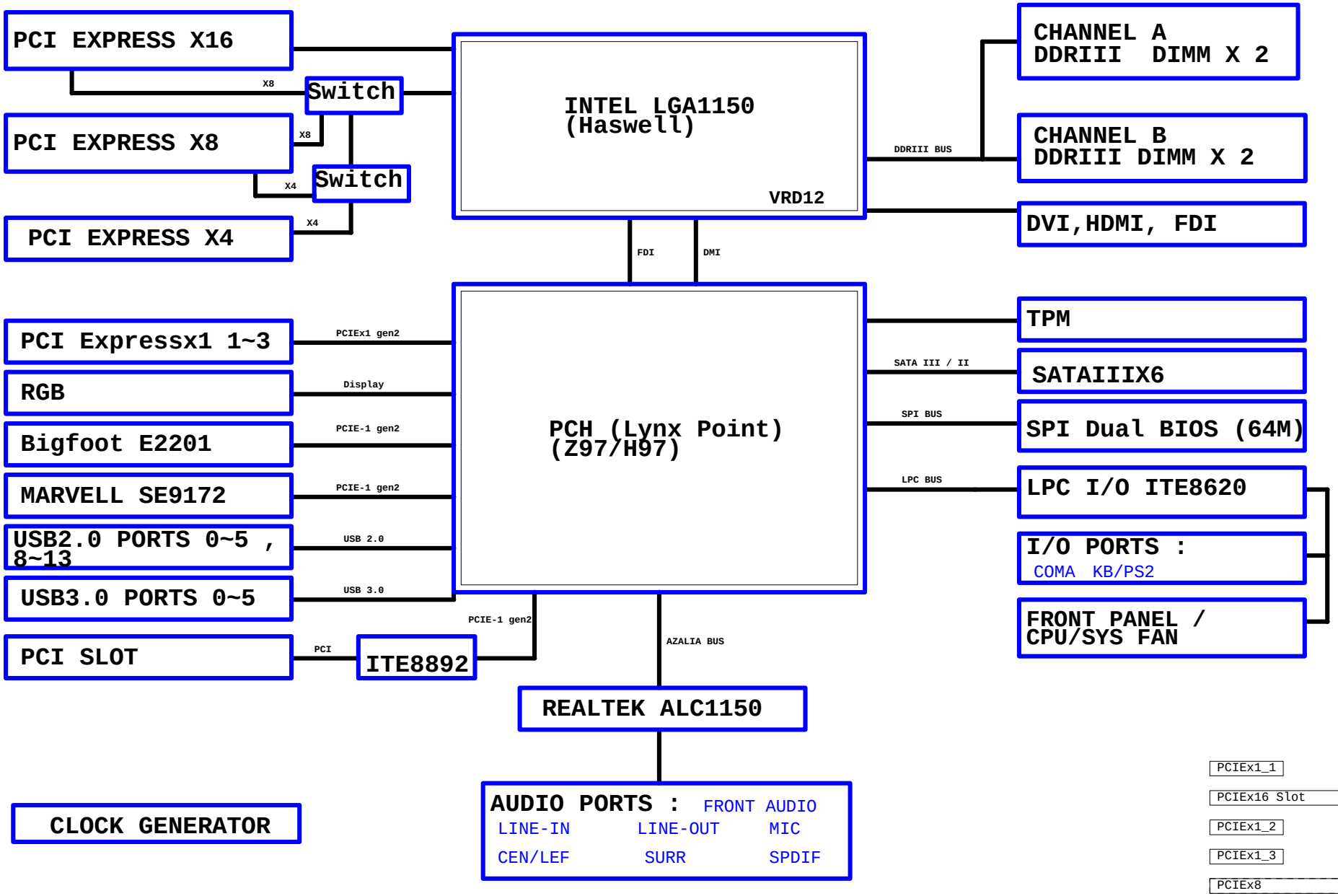
Date: Thursday, March 13, 2014	Sheet 2 of 41	

PCIE-1 gen2

BLOCK DIAGRAM



PCIEx1_1

PCIEx16 Slot

PCIEx1_2

PCIEx1_3

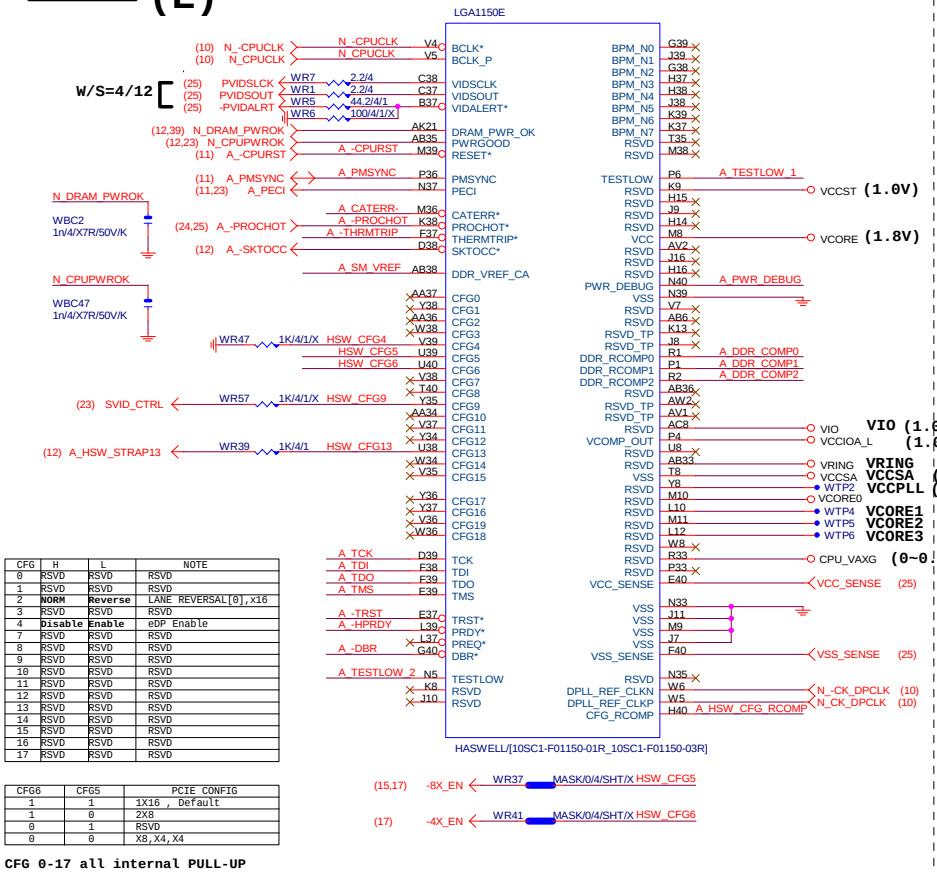
PCIEx8

PCI Slot

PCIEx4

Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: Z97X-Gaming 7	Rev: 1.0
Date: Thursday, March 13, 2014	Sheet 3 of 41	

LGA1150 (E)

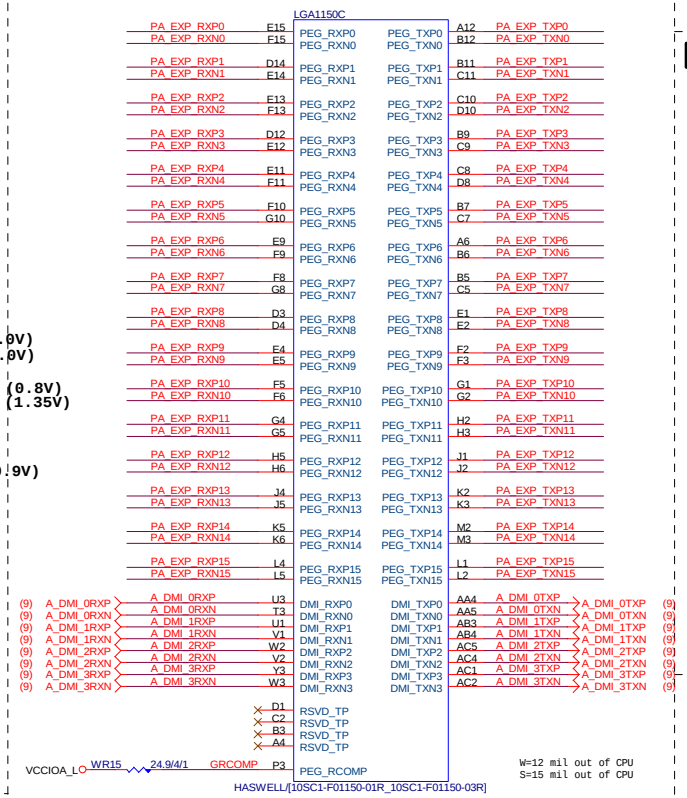


CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

LGA1155 (C)

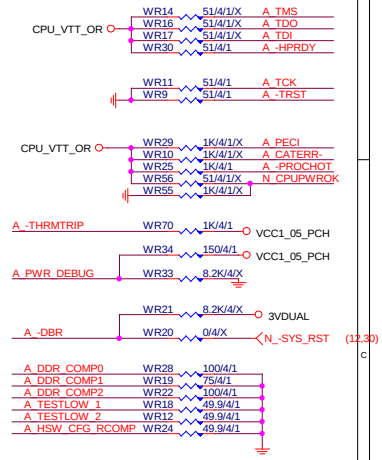


CPU PEG 5/5/5//20 Impedance=80 +- 15%

DMI 4/4/4//15 Impedance=85 +- 15%

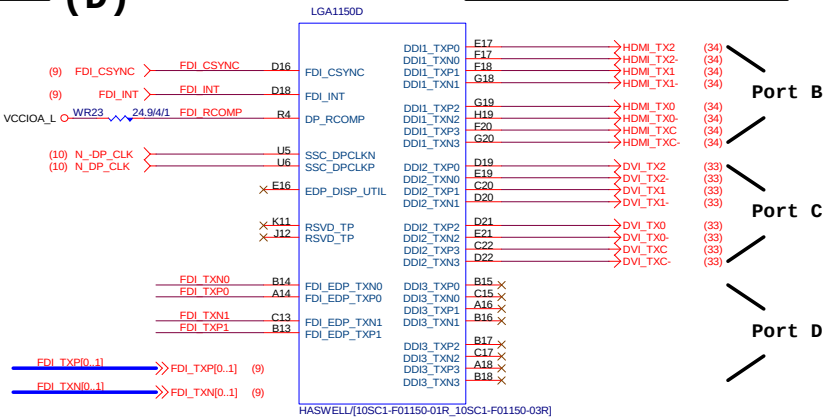
CPU SVID

CPU PU/PD



LGA1150 (D)

HDMI需接Port B for WHQL

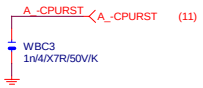


FDI:4/4/4//15(breakout min 4/4/4//8)
Impedance=85 +- 15%

DP/HDMI 4/4/4//20 FDI 4/4/4/12

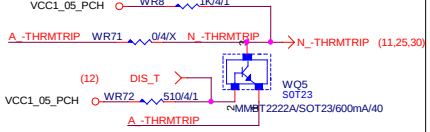
Impedance=85 +- 15%

-CPURST



1.1V分壓

THRMTRIP DISABLE FOR Z87 OVERCLOCK



Gigabyte Technology			
Title: CPU LGA1150-A			
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LGA1150 (A)

LGA1150A

MAAA0 AU13 DDR0_MA0
MAAA1 AV16 DDR0_MA1
MAAA2 AU16 DDR0_MA2
MAAA3 AW17 DDR0_MA3
MAAA4 AU17 DDR0_MA4
MAAA5 AW18 DDR0_MA5
MAAA6 AV17 DDR0_MA6
MAAA7 AT18 DDR0_MA7
MAAA8 AU18 DDR0_MA8
MAAA9 AT19 DDR0_MA9
MAAA10 AW11 DDR0_MA10
MAAA11 AV19 DDR0_MA11
MAAA12 AU19 DDR0_MA12
MAAA13 AY10 DDR0_MA13
MAAA14 AT20 DDR0_MA14
MAAA15 AU21 DDR0_MA15

MODT_A0 AW10 DDR0_ODT0
MODT_A1 AY8 DDR0_ODT1
MODT_A2 AW9 DDR0_ODT2
MODT_A3 AU8 DDR0_ODT3

AW33 DDR0_ECC0
AV33 DDR0_ECC1
AU31 DDR0_ECC2
AV31 DDR0_ECC3
AT33 DDR0_ECC4
AU33 DDR0_ECC5
AT31 DDR0_ECC6
AW31 DDR0_ECC7

(7) SBAA0 SBAA0 AV12 DDR0_BA0
(7) SBAA1 SBAA1 AY11 DDR0_BA1
(7) SBAA2 SBAA2 AT21 DDR0_BA2

(7) CKEA0 CKEA0 AV22 DDR0_CKE0
(7) CKEA1 CKEA1 AT23 DDR0_CKE1
(7) CKEA2 CKEA2 AU22 DDR0_CKE2
(7) CKEA3 CKEA3 AU23 DDR0_CKE3

(7) -CSA0 -CSA0 AU14 DDR0_CS_N0
(7) -CSA1 -CSA1 AV9 DDR0_CS_N1
(7) -CSA2 -CSA2 AU10 DDR0_CS_N2
(7) -CSA3 -CSA3 AW8 DDR0_CS_N3

(7) DCLKA0 DCLKA0 AY15 DDR0_CLK_P0
(7) -DCLKA0 -DCLKA0 AY16 DDR0_CLK_N0
(7) DCLKA1 DCLKA1 AW15 DDR0_CLK_P1
(7) -DCLKA1 -DCLKA1 AV15 DDR0_CLK_N1
(7) DCLKA2 DCLKA2 AY14 DDR0_CLK_P2
(7) -DCLKA2 -DCLKA2 AW14 DDR0_CLK_N2
(7) DCLKA3 DCLKA3 AW13 DDR0_CLK_P3
(7) -DCLKA3 -DCLKA3 AY13 DDR0_CLK_N3

AW12 RSVD

(7) -SRASA -SRASA AU12 DDR0_RAS*
(7) -SWEA -SWEA AU11 DDR0_WE*
AV20 RSVD
AW27 RSVD
(7) -SCASA -SCASA AU9 DDR0_CAS*
(7,8) -DDR3_RST WR61 1 0/4/SHT/MIX AK22 DDR_RESET*
WC4 0.1u/4/X7R/16V/K/X

DDR0_DQ0 AD38 MDA0
DDR0_DQ1 AD39 MDA1
DDR0_DQ2 AF38 MDA2
DDR0_DQ3 AF39 MDA3
DDR0_DQ4 AD37 MDA4
DDR0_DQ5 AD40 MDA5
DDR0_DQ6 AE37 MDA6
DDR0_DQ7 AF40 MDA7
DDR0_DQ8 AH40 MDA8
DDR0_DQ9 AH39 MDA13
DDR0_DQ10 AK38 MDA10
DDR0_DQ11 AK39 MDA11
DDR0_DQ12 AH37 MDA12
DDR0_DQ13 AH38 MDA8
DDR0_DQ14 AK37 MDA14
DDR0_DQ15 AK40 MDA15
DDR0_DQ16 AM40 MDA17
DDR0_DQ17 AM39 MDA21
DDR0_DQ18 AP38 MDA18
DDR0_DQ19 AP39 MDA19
DDR0_DQ20 AM37 MDA20
DDR0_DQ21 AM38 MDA16
DDR0_DQ22 AP37 MDA22
DDR0_DQ23 AP40 MDA23
DDR0_DQ24 AV37 MDA25
DDR0_DQ25 AW37 MDA29
DDR0_DQ26 AU35 MDA26
DDR0_DQ27 AV35 MDA27
DDR0_DQ28 AT37 MDA28
DDR0_DQ29 AU37 MDA24
DDR0_DQ30 AT35 MDA30
DDR0_DQ31 AW35 MDA31
DDR0_DQ32 AY6 MDA33
DDR0_DQ33 AU6 MDA37
DDR0_DQ34 AV4 MDA34
DDR0_DQ35 AU4 MDA35
DDR0_DQ36 AW6 MDA36
DDR0_DQ37 AV6 MDA32
DDR0_DQ38 AW4 MDA38
DDR0_DQ39 AY4 MDA39
DDR0_DQ40 AR1 MDA41
DDR0_DQ41 AR4 MDA45
DDR0_DQ42 AN3 MDA42
DDR0_DQ43 AN4 MDA43
DDR0_DQ44 AR2 MDA44
DDR0_DQ45 AR3 MDA40
DDR0_DQ46 AN2 MDA46
DDR0_DQ47 AN1 MDA47
DDR0_DQ48 AL1 MDA49
DDR0_DQ49 AL4 MDA53
DDR0_DQ50 AJ3 MDA50
DDR0_DQ51 AJ4 MDA51
DDR0_DQ52 AL2 MDA52
DDR0_DQ53 AL3 MDA48
DDR0_DQ54 AJ2 MDA54
DDR0_DQ55 AJ1 MDA55
DDR0_DQ56 AG1 MDA57
DDR0_DQ57 AG4 MDA61
DDR0_DQ58 AE3 MDA58
DDR0_DQ59 AE4 MDA59
DDR0_DQ60 AG2 MDA60
DDR0_DQ61 AG3 MDA56
DDR0_DQ62 AE2 MDA62
DDR0_DQ63 AE1 MDA63

DDR0_DQS_P0 AE39 DQSA0
DDR0_DQS_P1 AJ39 DQSA1
DDR0_DQS_P2 AN39 DQSA2
DDR0_DQS_P3 AV36 DQSA3
DDR0_DQS_P4 AV5 DQSA4
DDR0_DQS_P5 AP3 DQSA5
DDR0_DQS_P6 AK3 DQSA6
DDR0_DQS_P7 AE3 DQSA7
AV32
DDR0_DQS_P8 AE38 -DQSA0
DDR0_DQS_N0 AJ38 -DQSA1
DDR0_DQS_N1 AN38 -DQSA2
DDR0_DQS_N2 AU36 -DQSA3
DDR0_DQS_N3 AW5 -DQSA4
DDR0_DQS_N4 AP2 -DQSA5
DDR0_DQS_N5 AK2 -DQSA6
DDR0_DQS_N6 AF2 -DQSA7
DDR0_DQS_N7 AU32
DDR0_DQS_N8

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (B)

LGA1150B

MAAB0 AL19 DDR1_MA0
MAAB1 AK23 DDR1_MA1
MAAB2 AM22 DDR1_MA2
MAAB3 AM23 DDR1_MA3
MAAB4 AP23 DDR1_MA4
MAAB5 AL23 DDR1_MA5
MAAB6 AY24 DDR1_MA6
MAAB7 AV25 DDR1_MA7
MAAB8 AU26 DDR1_MA8
MAAB9 AW25 DDR1_MA9
MAAB10 AP18 DDR1_MA10
MAAB11 AY25 DDR1_MA11
MAAB12 AV26 DDR1_MA12
MAAB13 AR15 DDR1_MA13
MAAB14 AV27 DDR1_MA14
MAAB15 AY28 DDR1_MA15

MODT_B0 AM17 DDR1_ODT0
MODT_B1 AL16 DDR1_ODT1
MODT_B2 AM16 DDR1_ODT2
MODT_B3 AK15 DDR1_ODT3

AM26 DDR1_ECC0
AM25 DDR1_ECC1
AP25 DDR1_ECC2
AP26 DDR1_ECC3
AL26 DDR1_ECC4
AL25 DDR1_ECC5
AR26 DDR1_ECC6
AR25 DDR1_ECC7

(8) SBAB0 SBAB0 AK17 DDR1_BA0
(8) SBAB1 SBAB1 AL18 DDR1_BA1
(8) SBAB2 SBAB2 AW28 DDR1_BA2

(8) CKEB0 CKEB0 AW29 DDR1_CKE0
(8) CKEB1 CKEB1 AY29 DDR1_CKE1
(8) CKEB2 CKEB2 AU28 DDR1_CKE2
(8) CKEB3 CKEB3 AU29 DDR1_CKE3

(8) -CSB0 -CSB0 AP17 DDR1_CS_N0
(8) -CSB1 -CSB1 AN15 DDR1_CS_N1
(8) -CSB2 -CSB2 AN17 DDR1_CS_N2
(8) -CSB3 -CSB3 AL15 DDR1_CS_N3

(8) DCLKB0 DCLKB0 AM20 DDR1_CLK_P0
(8) -DCLKB0 -DCLKB0 AM21 DDR1_CLK_N0
(8) DCLKB1 DCLKB1 AP22 DDR1_CLK_P1
(8) -DCLKB1 -DCLKB1 AP21 DDR1_CLK_N1

(8) DCLKB2 DCLKB2 AN20 DDR1_CLK_P2
(8) -DCLKB2 -DCLKB2 AN21 DDR1_CLK_N2
(8) DCLKB3 DCLKB3 AP19 DDR1_CLK_P3
(8) -DCLKB3 -DCLKB3 AP20 DDR1_CLK_N3

(8) -SCASB -SCASB AP16 DDR1_CAS*
AL20 RSVD
(8) -SRASB -SRASB AM18 DDR1_RAS*
(8) -SWEB -SWEB AK16 DDR1_WE*

AB39 DDR_VREF_DQ0
(7) VREF_DQA AB40 DDR_VREF_DQ1
(8) VREF_DQB

VREF_DQA
VREF_DQB
WBC34 0.1u/4/X7R/16V/K
WBC33 0.1u/4/X7R/16V/K
Place in CPU bottom side

DDR1_DQ0 AE34 MDB0
DDR1_DQ1 AE35 MDB1
DDR1_DQ2 AG35 MDB2
DDR1_DQ3 AH35 MDB3
DDR1_DQ4 AD34 MDB4
DDR1_DQ5 AD35 MDB5
DDR1_DQ6 AG34 MDB6
DDR1_DQ7 AH34 MDB8
DDR1_DQ8 AL35 MDB9
DDR1_DQ9 AK31 MDB10
DDR1_DQ10 AL31 MDB11
DDR1_DQ11 AK34 MDB12
DDR1_DQ12 AK35 MDB13
DDR1_DQ13 AK32 MDB14
DDR1_DQ14 AL32 MDB15
DDR1_DQ15 AN34 MDB17
DDR1_DQ16 AP34 MDB21
DDR1_DQ17 AN31 MDB19
DDR1_DQ18 AP31 MDB23
DDR1_DQ19 AN35 MDB20
DDR1_DQ20 AP35 MDB16
DDR1_DQ21 AN32 MDB18
DDR1_DQ22 AP32 MDB22
DDR1_DQ23 AM29 MDB25
DDR1_DQ24 AM28 MDB28
DDR1_DQ25 AR29 MDB27
DDR1_DQ26 AR28 MDB30
DDR1_DQ27 AL29 MDB24
DDR1_DQ28 AL28 MDB29
DDR1_DQ29 AP29 MDB26
DDR1_DQ30 AP28 MDB31
DDR1_DQ31 AR12 MDB32
DDR1_DQ32 AP12 MDB33
DDR1_DQ33 AL13 MDB34
DDR1_DQ34 AL12 MDB35
DDR1_DQ35 AR13 MDB36
DDR1_DQ36 AP13 MDB37
DDR1_DQ37 AM13 MDB38
DDR1_DQ38 AM12 MDB39
DDR1_DQ39 AR9 MDB45
DDR1_DQ40 AP9 MDB41
DDR1_DQ41 AR6 MDB47
DDR1_DQ42 AP6 MDB43
DDR1_DQ43 AR10 MDB44
DDR1_DQ44 AP10 MDB40
DDR1_DQ45 AR7 MDB46
DDR1_DQ46 AP7 MDB42
DDR1_DQ47 AM9 MDB52
DDR1_DQ48 AL9 MDB53
DDR1_DQ49 AL6 MDB50
DDR1_DQ50 AL7 MDB55
DDR1_DQ51 AM10 MDB48
DDR1_DQ52 AL10 MDB49
DDR1_DQ53 AM6 MDB54
DDR1_DQ54 AM7 MDB51
DDR1_DQ55 AH6 MDB61
DDR1_DQ56 AH7 MDB60
DDR1_DQ57 AE6 MDB59
DDR1_DQ58 AE7 MDB63
DDR1_DQ59 AJ6 MDB56
DDR1_DQ60 AJ7 MDB57
DDR1_DQ61 AF6 MDB58
DDR1_DQ62 AF7 MDB62
DDR1_DQ63 AE35 DQSB0

DDR1_DQS_P0 AL33 DQSB1
DDR1_DQS_P1 AP33 DQSB2
DDR1_DQS_P2 AN28 DQSB3
DDR1_DQS_P3 AN12 DQSB4
DDR1_DQS_P4 AP8 DQSB5
DDR1_DQS_P5 AL8 DQSB6
DDR1_DQS_P6 AG7 DQSB7
DDR1_DQS_P7 AN25
DDR1_DQS_P8 AF34 -DQSB0
DDR1_DQS_N0 AK33 -DQSB1
DDR1_DQS_N1 AN33 -DQSB2
DDR1_DQS_N2 AP29 -DQSB3
DDR1_DQS_N3 AN13 -DQSB4
DDR1_DQS_N4 AR8 -DQSB5
DDR1_DQS_N5 AM8 -DQSB6
DDR1_DQS_N6 AG6 -DQSB7
DDR1_DQS_N7 AN26
DDR1_DQS_N8

HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (CR)

LGA_BRD/[12KRC/115X/BKNI/[12KRC-0F0001-61R_12KRC-0F0001-62R]

DDR BUS

(7) MODT_A[0..3] MODT_A[0..3]
(8) MODT_B[0..3] MODT_B[0..3]

(7) MDA[0..63] MDA[0..63]
(8) MDB[0..63] MDB[0..63]

(7) DQSA[0..7] DQSA[0..7]
(7) -DQSA[0..7] -DQSA[0..7]

(7) MAAA[0..15] MAAA[0..15]
(8) MAAB[0..15] MAAB[0..15]

(8) DQSB[0..7] DQSB[0..7]
(8) -DQSB[0..7] -DQSB[0..7]

Gigabyte Technology

Title: CPU LGA1150-B

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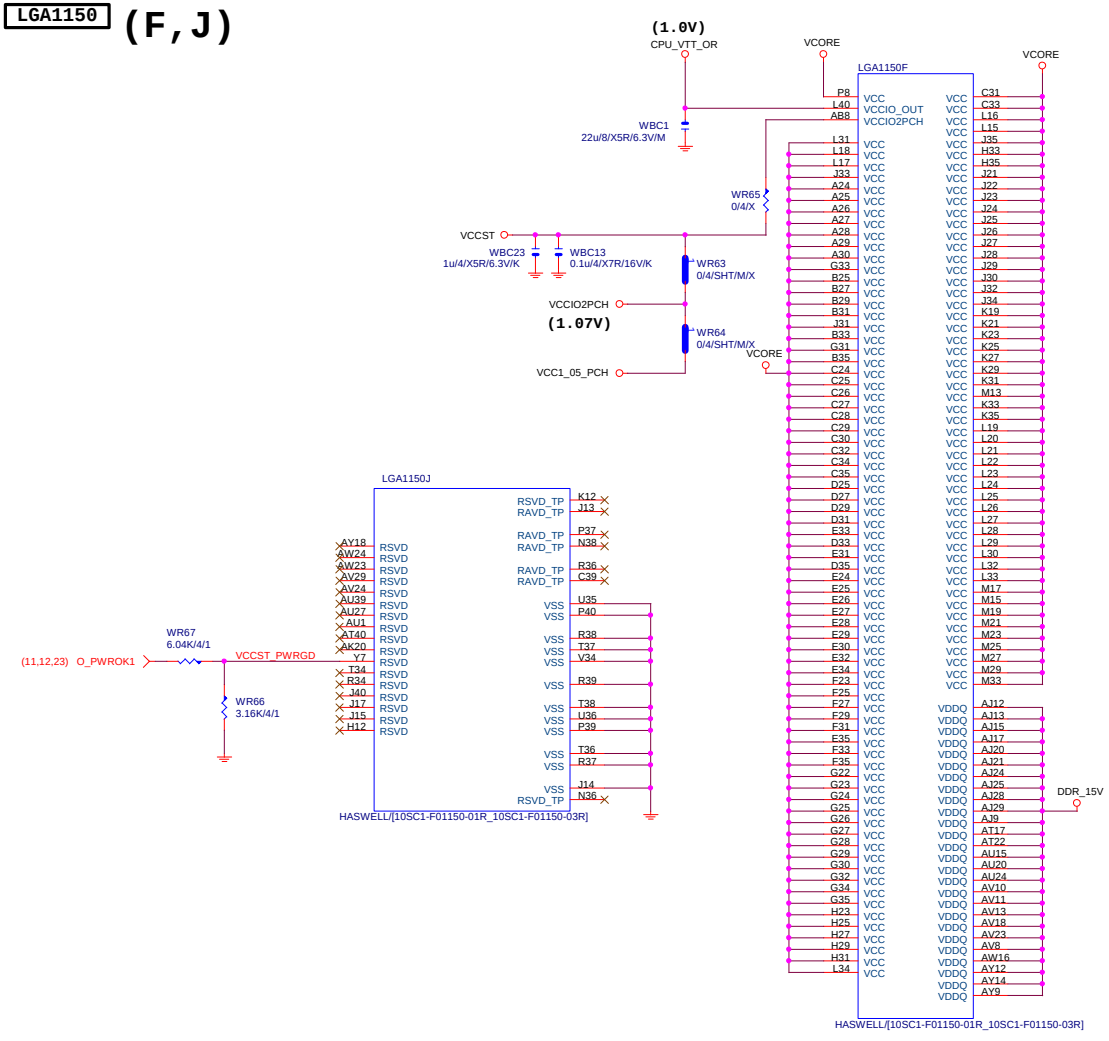
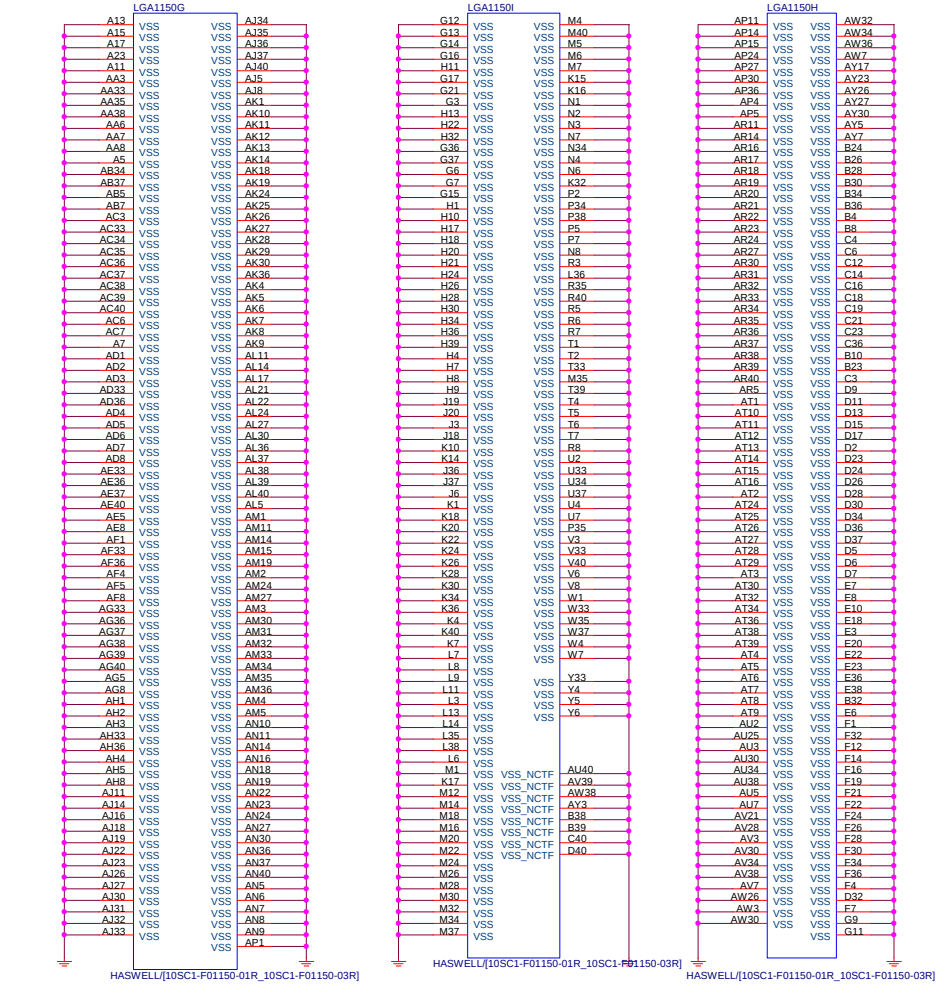
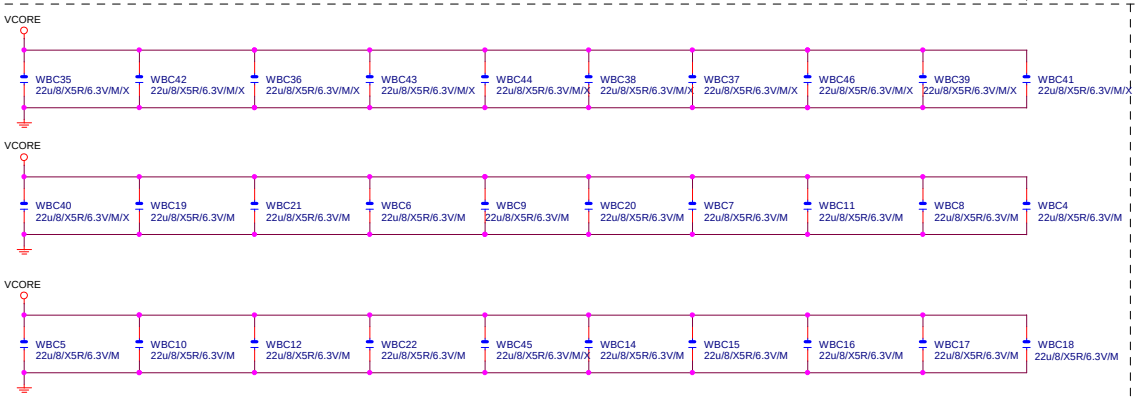
LGA1150 (F,J)



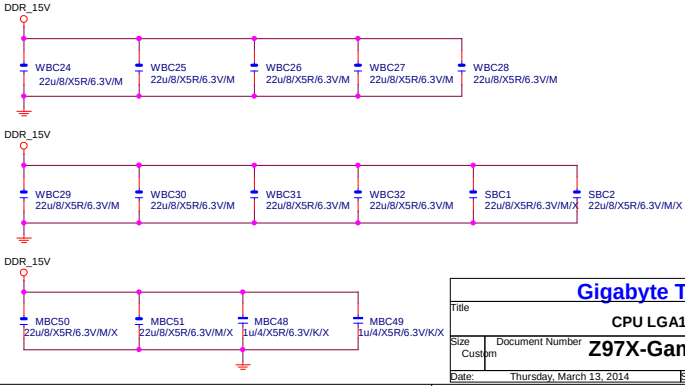
LGA1150 (G,H,I)



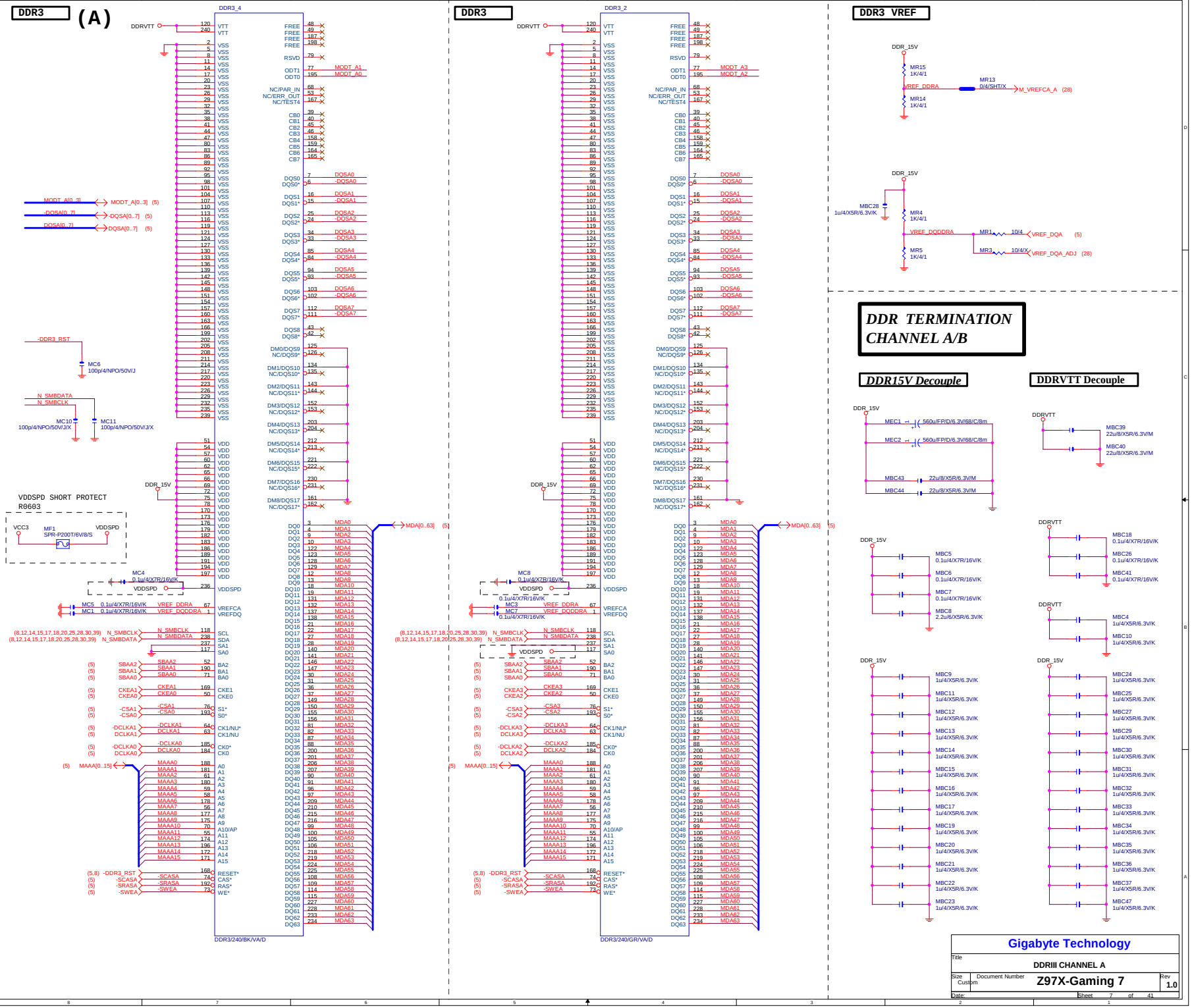
VCore CAP (X30)

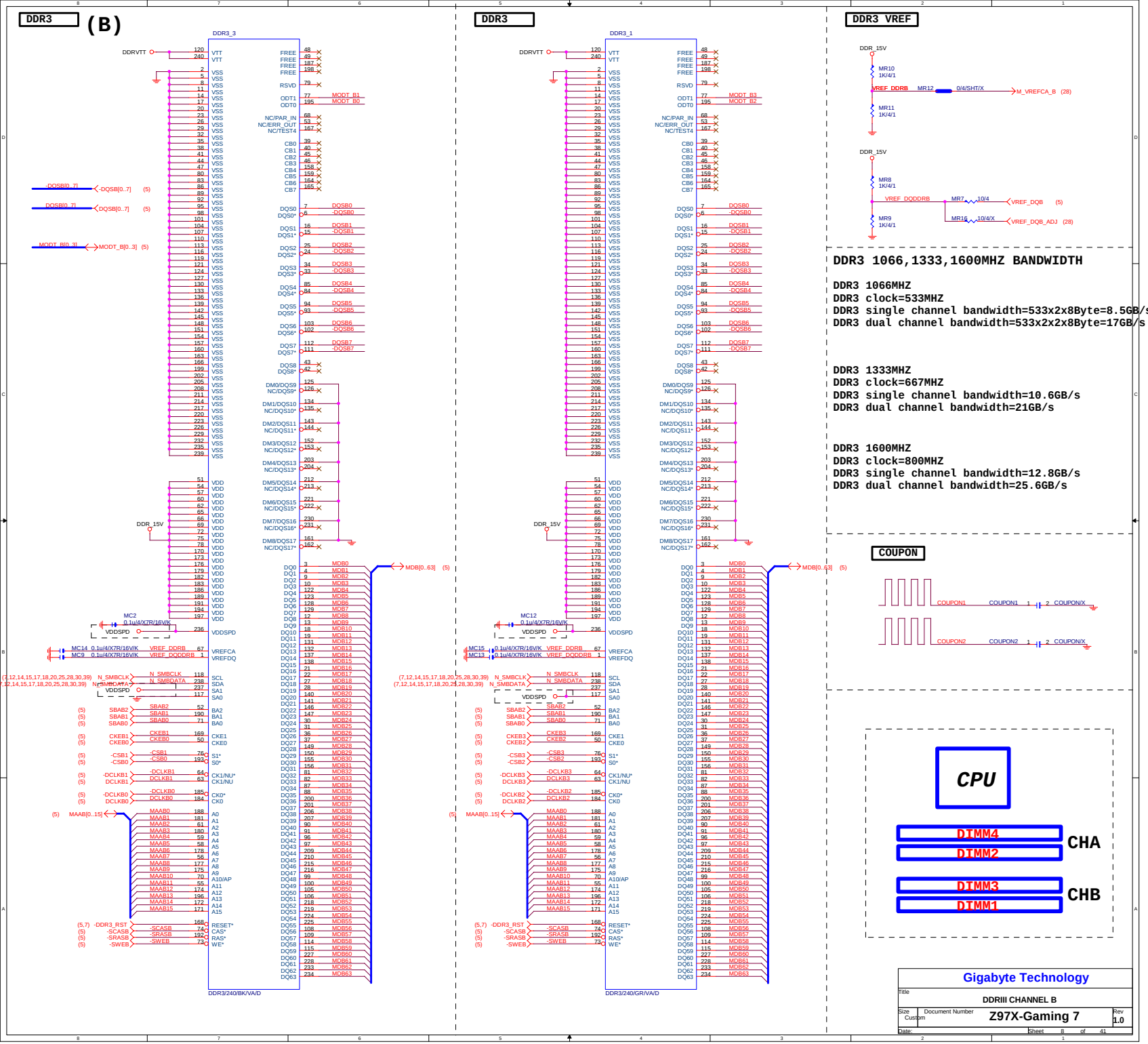


DDR CAP (X15)



Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
Date: Thursday, March 13, 2014	Sheet 6 of 41	


DDR3 (A)
DDR3_4
DDRVTT
MODT_A[0..3] (5)
-DQSA[0..7] (5)
DQSA[0..7] (5)
-DDR3_RST
MC6 100p/4/NPO/50V/J
N_SMBDATA
N_SMBCLK
MC10 100p/4/NPO/50V/J/X
MC11 100p/4/NPO/50V/J/X
VDDSPD SHORT PROTECT R0603
VCC3
MF1 SPR-P200T/6V/8/S
VDDSPD
DDR_15V
MC4 0.1u/4/X7R/16V/K
MC5 0.1u/4/X7R/16V/K VREF_DDRA
MC1 0.1u/4/X7R/16V/K VREF_DODDRA
(8,12,14,15,17,18,20,25,28,30,39) N_SMBCLK
(8,12,14,15,17,18,20,25,28,30,39) N_SMBDATA
SBAA2 SBAA1 SBAA0
CKEA1 CKEA0
-CSA1 -CSA0
-DCLKA1 DCLKA1
-DCLKA0 DCLKA0
(5) MAAA[0..15]
(5,8) -DDR3_RST
(5) -SCASA
(5) -SRASA
(5) -SWEA
MODT_A1 MODT_A0
DQSA0 -DQSA0
DQSA1 -DQSA1
DQSA2 -DQSA2
DQSA3 -DQSA3
DQSA4 -DQSA4
DQSA5 -DQSA5
DQSA6 -DQSA6
DQSA7 -DQSA7
MDA[0..63] (5)
DDR3/240/BK/VA/D
DDR3
DDR3_2
MODT_A3 MODT_A2
DDR3/240/GR/VA/D
DDR3 VREF
MR15 1K/4/1
MR13 0/4/SHT/X
MR14 1K/4/1
VREF_DDRA
M_VREFCA_A (28)
MBC28 1u/4/X5R/6.3V/K
MR4 1K/4/1
MR5 1K/4/1
VREF_DODDRA
MR1 10/4
MR3 10/4/X
VREF_DQA (5)
VREF_DQA_ADJ (28)
DDR TERMINATION CHANNEL A/B
DDR15V Decouple
MEC1 560u/FP/D/6.3V/68/C/8m
MEC2 560u/FP/D/6.3V/68/C/8m
MBC43 22u/8/X5R/6.3V/M
MBC44 22u/8/X5R/6.3V/M
DDRVTT Decouple
MBC39 22u/8/X5R/6.3V/M
MBC40 22u/8/X5R/6.3V/M
MBC5 0.1u/4/X7R/16V/K
MBC6 0.1u/4/X7R/16V/K
MBC7 0.1u/4/X7R/16V/K
MBC8 2.2u/6/X5R/6.3V/K
MBC18 0.1u/4/X7R/16V/K
MBC26 0.1u/4/X7R/16V/K
MBC41 0.1u/4/X7R/16V/K
MBC4 1u/4/X5R/6.3V/K
MBC10 1u/4/X5R/6.3V/K
MBC9 1u/4/X5R/6.3V/K
MBC11 1u/4/X5R/6.3V/K
MBC12 1u/4/X5R/6.3V/K
MBC13 1u/4/X5R/6.3V/K
MBC14 1u/4/X5R/6.3V/K
MBC15 1u/4/X5R/6.3V/K
MBC16 1u/4/X5R/6.3V/K
MBC17 1u/4/X5R/6.3V/K
MBC19 1u/4/X5R/6.3V/K
MBC20 1u/4/X5R/6.3V/K
MBC21 1u/4/X5R/6.3V/K
MBC22 1u/4/X5R/6.3V/K
MBC23 1u/4/X5R/6.3V/K
MBC24 1u/4/X5R/6.3V/K
MBC25 1u/4/X5R/6.3V/K
MBC27 1u/4/X5R/6.3V/K
MBC29 1u/4/X5R/6.3V/K
MBC30 1u/4/X5R/6.3V/K
MBC31 1u/4/X5R/6.3V/K
MBC32 1u/4/X5R/6.3V/K
MBC33 1u/4/X5R/6.3V/K
MBC34 1u/4/X5R/6.3V/K
MBC35 1u/4/X5R/6.3V/K
MBC36 1u/4/X5R/6.3V/K
MBC37 1u/4/X5R/6.3V/K
MBC47 1u/4/X5R/6.3V/K
Gigabyte Technology
Title
DDRIII CHANNEL A
Size Custom
Document Number Z97X-Gaming 7
Rev 1.0
Date:
Sheet 7 of 41


DDR3 (B)
DDR3_3
DDRVTT
DDR_15V
VDDSPD
MC2
MC14 0.1u/4/X7R/16V/K
MC9 0.1u/4/X7R/16V/K
VREF_DDRB
VREF_DDQDRB
VREFCA
VREFDQ
N_SMBCLK
N_SMBDATA
SA0
SA1
SBAB2
SBAB1
SBAB0
BA2
BA1
BA0
CKEB1
CKEB0
CKE1
CKE0
-CSB1
-CSB0
S1*
S0*
-DCLKB1
DCLKB1
CK1/NU*
CK1/NU
-DCLKB0
DCLKB0
CK0*
CK0
MAAB[0..15]
-DDR3_RST
-SCASB
-SRASB
-SWEB
RESET*
CAS*
RAS*
WE*
-DQSB[0..7]
DQSB[0..7]
MODT_B[0..3]
MODT_B1
MODT_B0
DQSB0
-DQSB0
DQSB1
-DQSB1
DQSB2
-DQSB2
DQSB3
-DQSB3
DQSB4
-DQSB4
DQSB5
-DQSB5
DQSB6
-DQSB6
DQSB7
-DQSB7
MDB[0..63]
DDR3/240/BK/VA/D
DDR3_1
MC12
MC15
MC13
DDR3/240/GR/VA/D
DDR3 VREF
MR10 1K/4/1
MR11 1K/4/1
MR12
0/4/SHT/X
M_VREFCA_B (28)
MR8 1K/4/1
MR9 1K/4/1
MR7 10/4
MR16 10/4/X
VREF_DQB (5)
VREF_DQB_ADJ (28)
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
COUPON
COUPON1
COUPON2
CPU
DIMM4
DIMM2
DIMM3
DIMM1
CHA
CHB
Gigabyte Technology
DDRIII CHANNEL B
Z97X-Gaming 7
Rev 1.0
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PCH (B)

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

USB2.0 : 12/5/7/5/12 (breakout min 8/4/4/4/8)
Impedance=85 +- 15%

PCHB

A_DMI_0TXN / A_DMI_0TXP / A_DMI_0RXN / A_DMI_0RXP
A_DMI_1TXN / A_DMI_1TXP / A_DMI_1RXN / A_DMI_1RXP
A_DMI_2TXN / A_DMI_2TXP / A_DMI_2RXN / A_DMI_2RXP
A_DMI_3TXN / A_DMI_3TXP / A_DMI_3RXN / A_DMI_3RXP

VCC1_5_PCH
NR50 7.5K/4/1 DMI_COMP B19
PCIE_COMP C13
NR40 7.5K/4/1
CK_-SRCCLK_PCH G22
CK_SRCCLK_PCH F22
W=8 mil out of PCH
S=15 mil to other signals

DMI_RXN_0 / DMI_RXP_0 / DMI_TXN_0 / DMI_TXP_0
DMI_RXN_1 / DMI_RXP_1 / DMI_TXN_1 / DMI_TXP_1
DMI_RXN_2 / DMI_RXP_2 / DMI_TXN_2 / DMI_TXP_2
DMI_RXN_3 / DMI_RXP_3 / DMI_TXN_3 / DMI_TXP_3
DMI_RCOMP
PCIE_RCOMP
CLKIN_DMI_N
CLKIN_DMI_P

USBN_0 / USBP_0 / USBN_1 / USBP_1 / USBN_2 / USBP_2 / USBN_3 / USBP_3
USBN_4 / USBP_4 / USBN_5 / USBP_5 / USBN_6 / USBP_6 / USBN_7 / USBP_7
USBN_8 / USBP_8 / USBN_9 / USBP_9 / USBN_10 / USBP_10 / USBN_11 / USBP_11
USBN_12 / USBP_12 / USBN_13 / USBP_13

N_-USBP0 / N_+USBP0 / N_-USBP1 / N_+USBP1 / N_-USBP2 / N_+USBP2 / N_-USBP3 / N_+USBP3
N_-USBP4 / N_+USBP4 / N_-USBP5 / N_+USBP5 / N_-USBP6 / N_+USBP6 / N_-USBP7 / N_+USBP7
N_-USBP8 / N_+USBP8 / N_-USBP9 / N_+USBP9 / N_-USBP10 / N_+USBP10 / N_-USBP11 / N_+USBP11
N_-USBP12 / N_+USBP12 / N_-USBP13 / N_+USBP13

Port要對應

B85/H81: 6/7 N\A
H81:USB3.0 N\A
H81:12/13 N\A

OC0B_GP59 / OC1B_GP40 / OC2B_GP41 / OC3B_GP42 / OC4B_GP43 / OC5B_GP9 / OC6B_GP10 / OC7B_GP14
N_USBOC_F (30)
N_USBOC_R (30)
N_GPIO14

USBRBIASB / USBRBIAS
N_USBRBIAS NR47 22.6/4/1
W=8 mil out of PCH
S=15 mil to other signals

CLKIN_DOT96N / CLKIN_DOT96P
CK_-DOTCLK
CK_DOTCLK

N_GPIO14 NR130 8.2K/4 3VDUAL

N_-USBOC_F — NBC82 0.1u/4/X7R/16V/K
N_-USBOC_R — NBC83 0.1u/4/X7R/16V/K

REAR USB3.0
B85/H81:USB N\A

PCH_USB3_RXN2 / RXP2 / TXN2 / TXP2 / RXN3 / RXP3 / TXN3 / TXP3

LAN E2201

LB_ML_IN / LB_ML_IP / LB_ML_ON / LB_ML_OP

ITE8892 PCI Bridge

G_PCIEBIN / G_PCIEBIP / G_PCIEBON / G_PCIEBOP
RI_SL_IN / RI_SL_IP / RI_SL_ON / RI_SL_OP

PCIEX1_1

PF_PCIE_IN2 / PF_PCIE_IP2 / PF_PCIE_TN2 / PF_PCIE_TP2

PCIEX1_2

PI_PCIE_IN3 / PI_PCIE_IP3 / PI_PCIE_TN3 / PI_PCIE_TP3

PCIEX1_3

PJ_PCIE_IN4 / PJ_PCIE_IP4 / PJ_PCIE_TN4 / PJ_PCIE_TP4

PCIE_PERN_1_USB3_RXN_2 / PCIE_PERP_1_USB3_RXP_2 / PCIE_PETN_1_USB3_TXN_2 / PCIE_PETP_1_USB3_TXP_2
PCIE_PERN_2_USB3_RXN_3 / PCIE_PERP_2_USB3_RXP_3 / PCIE_PETN_2_USB3_TXN_3 / PCIE_PETP_2_USB3_TXP_3
PCIE_PERN_3 / PCIE_PERP_3 / PCIE_PETN_3 / PCIE_PETP_3
PCIE_PERN_4 / PCIE_PERP_4 / PCIE_PETN_4 / PCIE_PETP_4
PCIE_PERN_5 / PCIE_PERP_5 / PCIE_PETN_5 / PCIE_PETP_5
PCIE_PERN_6 / PCIE_PERP_6 / PCIE_PETN_6 / PCIE_PETP_6
PCIE_PERN_7 / PCIE_PERP_7 / PCIE_PETN_7 / PCIE_PETP_7
PCIE_PERN_8 / PCIE_PERP_8 / PCIE_PETN_8 / PCIE_PETP_8

Z97/S

電容放靠近 Device & PCI-E Slot

PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

usb2.0 5/7/5//12
usb3.0 5/7/5//20 Impedance=85 +- 15%

PCH (F)

PCHF

USB3_RXN_0 / RXP_0 / TXN_0 / TXP_0
USB3_RXN_1 / RXP_1 / TXN_1 / TXP_1
USB3_RXN_4 / RXP_4 / TXN_4 / TXP_4
USB3_RXN_5 / RXP_5 / TXN_5 / TXP_5
TACH6_GP70
TACH7_GP71

FDI_RXN_0 / FDI_RXP_0 / FDI_RXN_1 / FDI_RXP_1
FDI_CSYNC
FDI_INT
FDI_RCOMP

FDI_TXN0 / FDI_TXP0 / FDI_TXN1 / FDI_TXP1
FDI_CSYNC (4)
FDI_INT (4)
NR29 7.5K/4/1 VCC1_5_PCH

FDI:12/4/5/4/12
Impedance=85 +- 17.5%

Z97/S

Port1 & 9為Debug Port，
一定要拉到Connector。

NR62 8.2K/4
NR63 8.2K/4

FDI_TXP[0..1] → FDI_TXP[0..1] (4)
FDI_TXN[0..1] → FDI_TXN[0..1] (4)

USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

CK_SRCCLK_PCH NR89 8.2K/4
CK_-SRCCLK_PCH NR88 8.2K/4
Mount for integrated clock Generation Mode

CK_DOTCLK NR92 8.2K/4
CK_-DOTCLK NR91 8.2K/4
NR92 short to GND in non graphic SKU

PCH (J)

PCHJ

VSS_NCTF
TP22 / TP23 / TP21 / TP20 / TP14 / TP15 / TP12
TP10 / TP11 / TP9
TP3 / TP4 / TP1 / TP2
TP5 / TP6 / TP7 / TP8
VSS

Z97/S

PCH H/S

PCH_HS

PCH_HS/[12SP2-SG6080-01R_12SP2-SG6080-02R_12SP2-SG6080-03R]

USB TABLE

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

USB Usage & OC# Configure			
OC0#	USB0,1	F_USB30	FUSEVCC_F1_F2
OC1#	USB2,3	USB30_LAN	FUSEVCC_R7_R8
OC2#	USB4,5	HDMI & R_USB3	FUSEVCC_R1_R2
OC3#	USB6,7	4 Ports R_USB (Up)	FUSEVCC_R5_R6
OC4#	USB8,9	4 Ports R_USB (Down)	FUSEVCC_R3_R4
OC5#	USB10,11	F_USB2	FUSEVCC_F5_F6
OC6#	USB12,13	F_USB1	FUSEVCC_F3_F4
OC7#	Not Use		

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE

Size: Custom | Document Number: Z97X-Gaming 7 | Rev: 1.0

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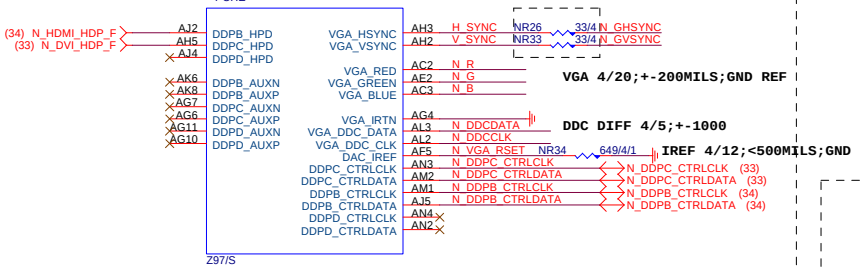
PCH (E)



CLOSE PCH<0.75";4/10;+-1000;GND

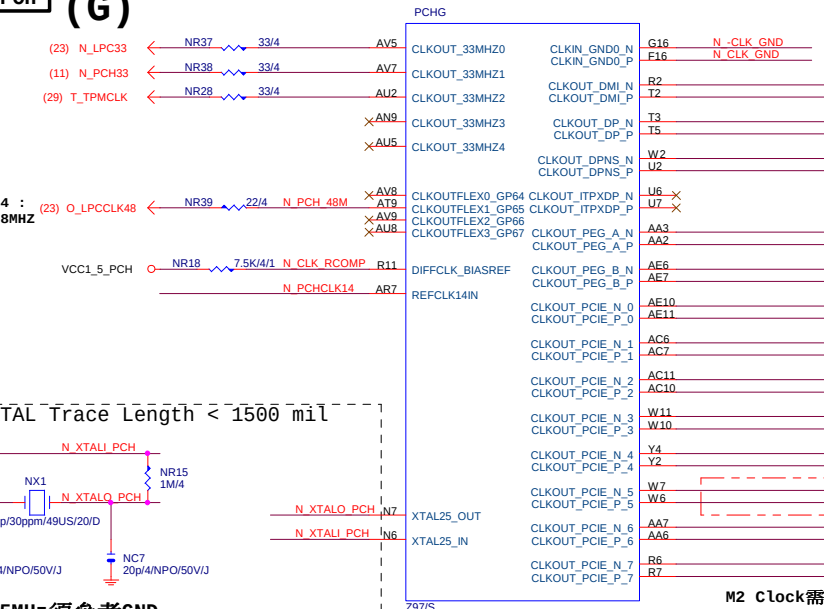
VGA 4/20;+-200MILS;GND REF

DDC DIFF 4/5;+-1000

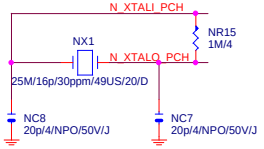
IREF 4/12;<500MILS;GND

VGA DISABLE
R,G,B NC OR GND
IRTN / IREF GND
VGA_HSYNC, VGA_VSYNC,DDC_CLK, DDC_DATA NC
POWER VCCADAC(AF2), VCCADACBG(AE1) GND

PCH (G)



XTAL Trace Length < 1500 mil



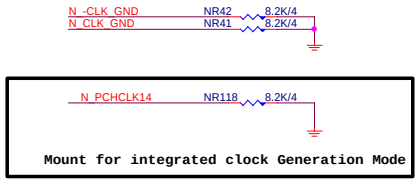
X'TAL 25MHz須參考GND
CRYSTAL/TRACE 週邊不要有訊號,VIA靠近
走線遠離其他40mil以上

M2 Clock需接Clock#0

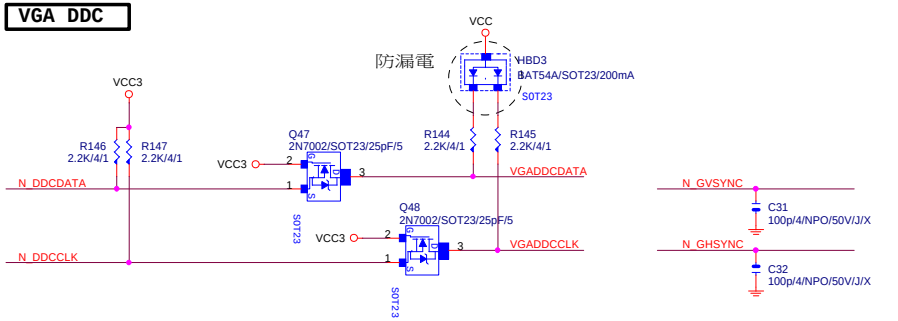
PCIEX4 CLOCK(PE_SRCCLK_3GIO1)由PIN R6,R7 換成PIN W7,W6 避免跟CRYSTAL 25MHZ干擾

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

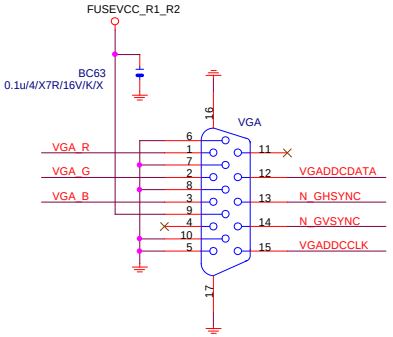
PCH CLK PD



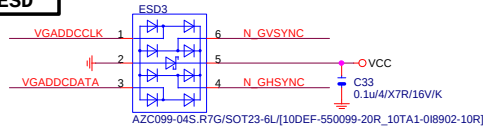
VGA DDC



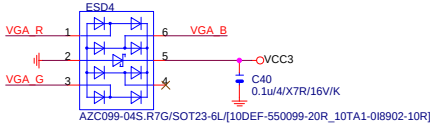
VGA CONNECTOR



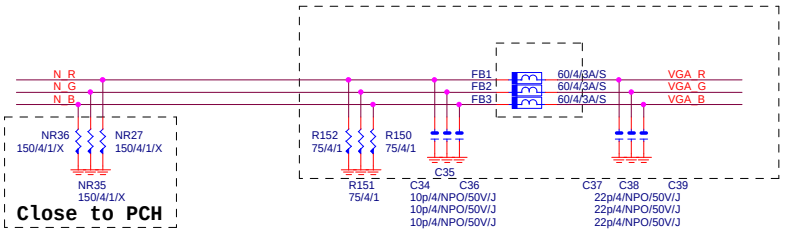
VGA ESD



SSOP6_ESD



VGA DDC



Close to VGA connector

Gigabyte Technology

Title: PCH DISPLAY ,CLK BUFFER

Size: Custom | Document Number: Z97X-Gaming 7 | Rev: 1.0

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PCH (C)

SATA3 : 20/4/4/4/20 (breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%
SATA2 4/4/4//15
SATA3 4/4/4//20

PCHC

CL_CLK
CL_DATA
CL_RSTB
APWROK
PWM0
PWM1
PWM2
PWM3
TACH0_GP17
TACH1_GP1
TACH2_GP6
TACH3_GP7
TACH4_GP68
TACH5_GP69
SSTCTL
SCLOCK_GP22
SLOAD_GP38
SDATAOUT0_GP39
SDATAOUT1_GP48

CLINK
FAN
GPIO
HOST

SATA_RXN_0 B28 N_SATA0RXN
SATA_RXP_0 A28 N_SATA0RXP
SATA_TXN_0 F31 N_SATA0TXN
SATA_TXP_0 H31 N_SATA0TXP
SATA_RXN_1 D30 N_SATA1RXN
SATA_RXP_1 C30 N_SATA1RXP
SATA_TXN_1 B34 N_SATA1TXN
SATA_TXP_1 C34 N_SATA1TXP
SATA_RXN_2 A31 N_SATA2RXN (36)
SATA_RXP_2 B31 N_SATA2RXP (36)
SATA_TXN_2 B35 N_SATA2TXN (36)
SATA_TXP_2 D35 N_SATA2TXP (36)
SATA_RXN_3 B32 N_SATA3RXN (36)
SATA_RXP_3 C32 N_SATA3RXP (36)
SATA_TXN_3 G33 N_SATA3TXN (36)
SATA_TXP_3 F33 N_SATA3TXP (36)
SATA_RXN_4_PCIE_PERN_1 A26 N_SATA4RXN (36)
SATA_RXP_4_PCIE_PERP_1 B26 N_SATA4RXP (36)
SATA_TXN_4_PCIE_PETN_1 L28 N_SATA4TXN (36)
SATA_TXP_4_PCIE_PETP_1 K28 N_SATA4TXP (36)
SATA_RXN_5_PCIE_PERN_2 C27 N_SATA5RXN (36)
SATA_RXP_5_PCIE_PERP_2 B27 N_SATA5RXP (36)
SATA_TXN_5_PCIE_PETN_2 G28 N_SATA5TXN (36)
SATA_TXP_5_PCIE_PETP_2 F28 N_SATA5TXP (36)
CLKIN_SATA_N H35 CK_-SRCCLK_SATA
CLKIN_SATA_P H36 CK_SRCCLK_SATA

H81 6G
B85 6G
H81 X
B85/H81 3G

SATALEDB J39
SATA_RCOMP D33 SATA3COMP
NR68 7.5K/4/1
VCC1_5_PCH
N_-SATALED (30)
W=8 mil out of PCH
S=15 mil to other signals

SATA0GP_GP21 M37 N_GPIO21 N_GPIO21 (31)
SATA1GP_GP19 J40 N_GPIO19
SATA2GP_GP36 H40 N_GPIO36
SATA3GP_GP37 N41 N_GPIO37
SATA4GP_GP16 M39 N_GPIO16 N_GPIO16 (36)
SATA5GP_GP49 N40 N_GPIO49 N_GPIO49 (36)

EDP_BKLTCTL AP2
EDP_BKLTEN AT2
EDP_VDDEN AP1

RSVD N30 N_A20GATE N_A20GATE (23)
RCINB K36 N_-KBRST N_-KBRST (23)
SERIRQ G39 N_SERIRQ N_SERIRQ (23,29)
THRMTRIPB C40 N_-THRMTRIP
PECI G40 SB_PECI NR85 0/4/X A_PECI N_-THRMTRIP A_PECI
PM_SYNCH F40 A_PMSYNC
PLTRST_PROCB F41 A_-CPURST

(6,12,23) O_PWROK1
N_ME_PWROK AA32
NC26 100p/4/NPO/50V/J/X
0/4/SHT/M/X NR177 1
(30) N_GPIO1
N_GPIO17 AP28
N_GPIO1 AT31
N_GPIO6 AM28
N_GPIO7 AV34
N_GPIO68 AT30
(36) N_GPIO69 N_GPIO69 AV35
(23) N_SSTCTL N_SSTCTL AJ31
N_GPIO22 L38
N_GPIO38 H41
(15) N_GPIO39 N_GPIO39 R31
(17) N_GPIO48 N_GPIO48 L40

Z97/S

PCH (A)

3VDUAL_PCH
NR124 8.2K/4/X N_-P_PME AA31
(10) N_PCH33 N_PCH33 AM22
NR30 8.2K/4 TD_IREF C3
N_-PIRQA AU29
N_-PIRQB AU27
N_-PIRQC AW28
N_-PIRQD AV27
N_-PIRQE AR30
N_-PIRQF AV29
N_-PIRQG AV28
N_GPIO5 AT27

PCHA
PMEB
CLKIN_33MHZLOOPBACK
TP16 A2
TP17 A3
TP18 B2
TP19 B1
PIRQAB
PIRQBB
PIRQCB
PIRQDB
GPIO2
GPIO3
GPIO4
GPIO5
PLTRSTB AA37
GP35/NMIB M40 N_GPIO35
GP50 AH26 N_GPIO50
GP51 AU31 N_GPIO51
GP52 AJ26 N_GPIO52
GP53 AV31 N_GPIO53
GP54 AW33 N_GPIO54
GP55 R30 N_GPIO55

Z97/S

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

Default int pull up on GP51,
Default SPI boot devices

PCH CLK PD

(23)
CK_SRCCLK_SATA NR174 8.2K/4
CK_-SRCCLK_SATA NR173 8.2K/4
Mount for integrated clock Generation Mode

PCH PU/PD

NRN2 8.2K/8P4R/4
N_-PIRQC
N_GPIO5
N_-PIRQD
N_-PIRQB
NRN3 8.2K/8P4R/4
N_-PIRQE
N_-PIRQF
N_-PIRQA
N_-PIRQG
NRN7 8.2K/8P4R/4
N_GPIO50
N_GPIO52
N_GPIO17
N_GPIO6

N_GPIO55:A16 SWAP OVERRIDE NR160 4.7K/4/1/X N_GPIO55
N_GPIO53:DMI AC COUPLING NR53 1K/4/1/X N_GPIO53
NR55 1K/4/1/X N_GPIO51
NR113 1K/4/1/X N_GPIO19
NR61 8.2K/4/X N_GPIO17

N_GPIO22:PCH CONFIG NR167 1K/4/1/X N_A20GATE N_GPIO22
(12) N_-PCI_STOP NR157 1K/4/1/X N_-PCI_STOP N_GPIO39
N_GPIO39:GFX MODE
N_SERIRQ N_GPIO19 N_GPIO48
NRN11 8.2K/8P4R/4
NRN12 8.2K/8P4R/4
N_GPIO35 N_GPIO16 N_GPIO49
NRN13 8.2K/8P4R/4
NR80 1K/4/1/X
N_GPIO49:PCIE/MSATA MUX SELECT

soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

N_GPIO21 NR252 1K/4/1
N_-KBRST NR161 1K/4/1
N_GPIO36:DMI RX TERMINATION NR84 1K/4/1/X N_GPIO36 NR148 8.2K/4/X
NR66 1K/4/1/X N_GPIO69 NR65 8.2K/4/X
N_GPIO69:SVID DETECT
N_GPIO55 NR244 8.2K/4
NRN4 8.2K/8P4R/4
N_GPIO7
N_GPIO54
N_GPIO1
N_GPIO68

ME PWROK

MASK

3VDUAL
ND2 MASK/BAT54A/SOT23/200mA/X
(12,27) N_-SLP_A
VCC1_05_ME
NR187 MASK/0/4/X
SOT23
VCC3_ME
NR186 MASK/8.2K/4/X
N_ME_PWROK
NC49 MASK/0.01u/4/X7R/25V/K/X
NR188 MASK/22K/4/X
NQ15 S0T23 MASK/MMBT2222A/SOT23/600mA/40/X
NQ16 MASK/MMBT2222A/SOT23/600mA/40/X S0T23
NR119 1K/4/1/X
VCC3
(4,25,30)
(4,25)VCC3_ME
NR189 MASK/8.2K/4/X
NR190 MASK/8.2K/4/X
NC50 MASK/1u/4/X5R/6.3V/K/X
NR146 1K/4/1/X N_GPIO37 NR110 1K/4/1/X
3VDUAL
TLS Setting enable for SBA

GPIO38 Ctrl

MFG Mode
N_GPIO38 : Lo --> Enable
Hi --> Disable

VCC3
N_GPIO38 NR114 8.2K/4
NQ13 MMBT2222A/SOT23/600mA/40 S0T23
(12) N_GPIO60 NR184 8.2K/4

SATA CONNECTOR

SATA3_0_1
N_SATA1TXP 0.01u/4/X7R/25V/K NC42 N_SATA1TXPC 9 TX1+
N_SATA1TXN 0.01u/4/X7R/25V/K NC41 N_SATA1TXNC 10 TX1-
11 GND
N_SATA1RXN 0.01u/4/X7R/25V/K NC40 N_SATA1RXNC 12 RX1-
N_SATA1RXP 0.01u/4/X7R/25V/K NC39 N_SATA1RXPC 13 RX1+
14 GND
8 GND
N_SATA0TXPC NC44 0.01u/4/X7R/25V/K N_SATA0TXP TX0+ 2
N_SATA0TXNC NC43 0.01u/4/X7R/25V/K N_SATA0TXN TX0- 3
GND 4
N_SATA0RXNC NC38 0.01u/4/X7R/25V/K N_SATA0RXN RX0- 5
N_SATA0RXPC NC37 0.01u/4/X7R/25V/K N_SATA0RXP RX0+ 6
GND 7
SATA/14/BK/H/OP/RA/D/2

Gigabyte Technology

Title: PCH HOST , SATA, PCI
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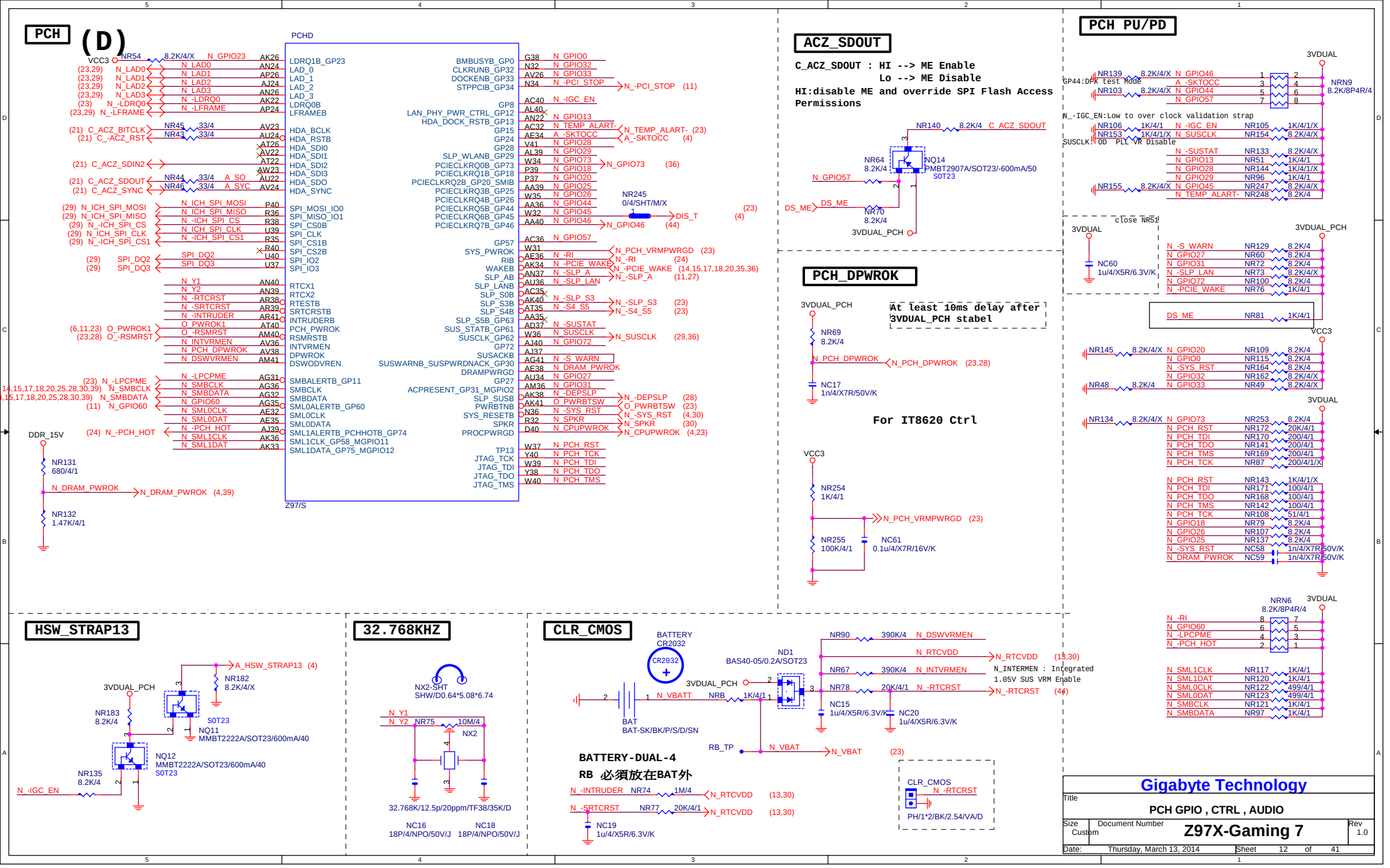
PCH
(D)
PCHD
LDRQ1B_GP23
LAD_0
LAD_1
LAD_2
LAD_3
LDRQ0B
LFRAMEB
HDA_BCLK
HDA_RSTB
HDA_SDI0
HDA_SDI1
HDA_SDI2
HDA_SDI3
HDA_SDO
HDA_SYNC
SPI_MOSI_IO0
SPI_MISO_IO1
SPI_CS0B
SPI_CLK
SPI_CS1B
SPI_CS2B
SPI_IO2
SPI_IO3
RTCX1
RTCX2
RTESTB
SRTCRSTB
INTRUDERB
PCH_PWROK
RSMRSTB
INTVRMEN
DPWROK
DSWODVREN
SMBALERTB_GP11
SMBCLK
SMBDATA
SML0ALERTB_GP60
SML0CLK
SML0DATA
SML1ALERTB_PCHHOTB_GP74
SML1CLK_GP58_MGPIO11
SML1DATA_GP75_MGPIO12
BMBUSYB_GP0
CLKRUNB_GP32
DOCKENB_GP33
STPPCIB_GP34
GP8
LAN_PHY_PWR_CTRL_GP12
HDA_DOCK_RSTB_GP13
GP15
GP24
GP28
SLP_WLANB_GP29
PCIECLKRQ0B_GP73
PCIECLKRQ1B_GP18
PCIECLKRQ2B_GP20_SMIB
PCIECLKRQ3B_GP25
PCIECLKRQ4B_GP26
PCIECLKRQ5B_GP44
PCIECLKRQ6B_GP45
PCIECLKRQ7B_GP46
GP57
SYS_PWROK
RIB
WAKEB
SLP_AB
SLP_LANB
SLP_S0B
SLP_S3B
SLP_S4B
SLP_S5B_GP63
SUS_STATB_GP61
SUSCLK_GP62
GP72
SUSACKB
SUSWARNB_SUSPWRDNACK_GP30
DRAMPWRGD
GP27
ACPRESENT_GP31_MGPIO2
SLP_SUSB
PWRBTNB
SYS_RESETB
SPKR
PROCPWRGD
TP13
JTAG_TCK
JTAG_TDI
JTAG_TDO
JTAG_TMS
Z97/S
ACZ_SDOUT
C_ACZ_SDOUT : HI --> ME Enable
Lo --> ME Disable
HI:disable ME and override SPI Flash Access Permissions
PCH_DPWROK
At least 10ms delay after 3VDUAL_PCH stabel
For IT8620 Ctrl
PCH PU/PD
HSW_STRAP13
32.768KHZ
CLR_CMOS
BATTERY-DUAL-4
RB 必須放在BAT外
Gigabyte Technology
PCH GPIO , CTRL , AUDIO
Z97X-Gaming 7
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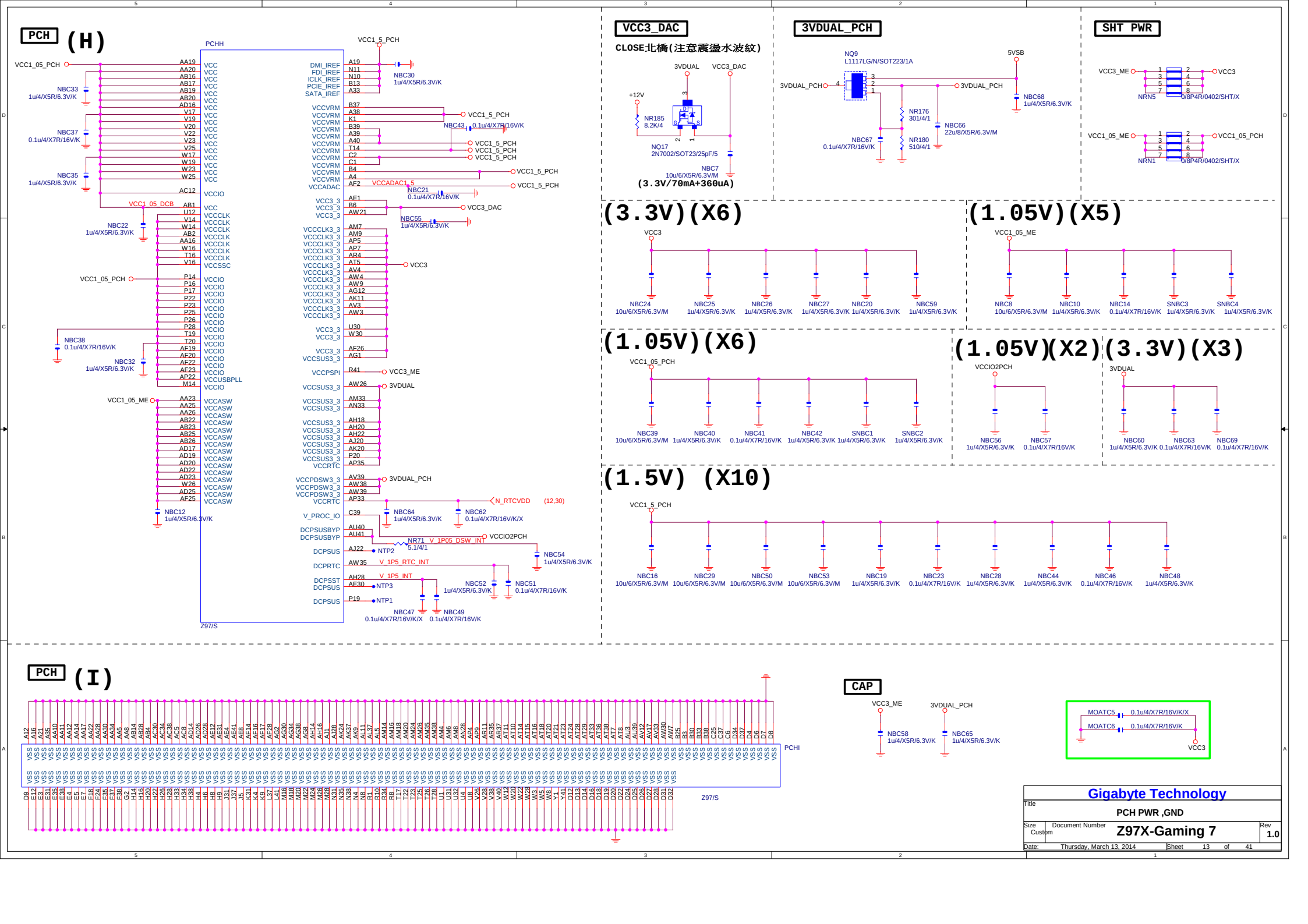
PCH (H)
PCHH
Z97/S
VCC3_DAC
CLOSE北橋(注意震盪水波紋)
3VDUAL
VCC3_DAC
+12V
NR185 8.2K/4
NQ17 2N7002/SOT23/25pF/5
NBC7 10u/6/X5R/6.3V/M
(3.3V/70mA+360uA)
3VDUAL_PCH
NQ9 L1117LG/N/SOT223/1A
5VSB
NR176 301/4/1
NR180 510/4/1
NBC66 22u/8/X5R/6.3V/M
NBC67 0.1u/4/X7R/16V/K
NBC68 1u/4/X5R/6.3V/K
SHT PWR
VCC3_ME
VCC3
NRN5 0/8P4R/0402/SHT/X
VCC1_05_ME
VCC1_05_PCH
NRN1 0/8P4R/0402/SHT/X
(3.3V)(X6)
NBC24 10u/6/X5R/6.3V/M
NBC25 1u/4/X5R/6.3V/K
NBC26 1u/4/X5R/6.3V/K
NBC27 1u/4/X5R/6.3V/K
NBC20 1u/4/X5R/6.3V/K
NBC59 1u/4/X5R/6.3V/K
(1.05V)(X5)
NBC8 10u/6/X5R/6.3V/M
NBC10 1u/4/X5R/6.3V/K
NBC14 0.1u/4/X7R/16V/K
SNBC3 1u/4/X5R/6.3V/K
SNBC4 1u/4/X5R/6.3V/K
(1.05V)(X6)
NBC39 10u/6/X5R/6.3V/M
NBC40 1u/4/X5R/6.3V/K
NBC41 0.1u/4/X7R/16V/K
NBC42 1u/4/X5R/6.3V/K
SNBC1 1u/4/X5R/6.3V/K
SNBC2 1u/4/X5R/6.3V/K
(1.05V)(X2)
VCCIO2PCH
NBC56 1u/4/X5R/6.3V/K
NBC57 0.1u/4/X7R/16V/K
(3.3V)(X3)
3VDUAL
NBC60 1u/4/X5R/6.3V/K
NBC63 0.1u/4/X7R/16V/K
NBC69 0.1u/4/X7R/16V/K
(1.5V) (X10)
VCC1_5_PCH
NBC16 10u/6/X5R/6.3V/M
NBC29 10u/6/X5R/6.3V/M
NBC50 10u/6/X5R/6.3V/M
NBC53 10u/6/X5R/6.3V/M
NBC19 1u/4/X5R/6.3V/K
NBC23 0.1u/4/X7R/16V/K
NBC28 1u/4/X5R/6.3V/K
NBC44 1u/4/X5R/6.3V/K
NBC46 0.1u/4/X7R/16V/K
NBC48 1u/4/X5R/6.3V/K
PCH (I)
PCHI
Z97/S
CAP
VCC3_ME
3VDUAL_PCH
NBC58 1u/4/X5R/6.3V/K
NBC65 1u/4/X5R/6.3V/K
MOATC5 0.1u/4/X7R/16V/K/X
MOATC6 0.1u/4/X7R/16V/K
VCC3
Gigabyte Technology
Title
PCH PWR ,GND
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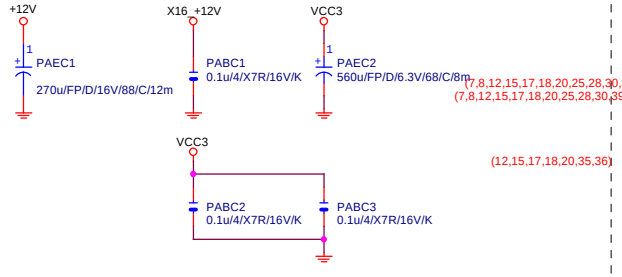
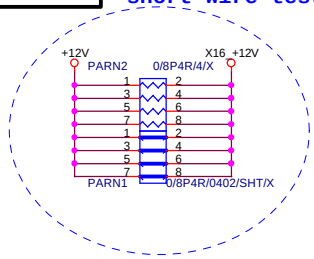
PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA_EXP_TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA_EXP_TXP0_C
PA_EXP_TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA_EXP_TXN0_C
PA_EXP_TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA_EXP_TXP1_C
PA_EXP_TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA_EXP_TXN1_C
PA_EXP_TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA_EXP_TXP2_C
PA_EXP_TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA_EXP_TXN2_C
PA_EXP_TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA_EXP_TXP3_C
PA_EXP_TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA_EXP_TXN3_C
PA_EXP_TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA_EXP_TXP4_C
PA_EXP_TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA_EXP_TXN4_C
PA_EXP_TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA_EXP_TXP5_C
PA_EXP_TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA_EXP_TXN5_C
PA_EXP_TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA_EXP_TXP6_C
PA_EXP_TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA_EXP_TXN6_C
PA_EXP_TXP7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_SW_TXP8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP8_C
PA_EXP_SW_TXN8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN8_C
PA_EXP_SW_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP9_C
PA_EXP_SW_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN9_C
PA_EXP_SW_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP10_C
PA_EXP_SW_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN10_C
PA_EXP_SW_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP11_C
PA_EXP_SW_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN11_C
PA_EXP_SW_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP12_C
PA_EXP_SW_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN12_C
PA_EXP_SW_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP13_C
PA_EXP_SW_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN13_C
PA_EXP_SW_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP14_C
PA_EXP_SW_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN14_C
PA_EXP_SW_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXP15_C
PA_EXP_SW_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_SW_TXN15_C

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

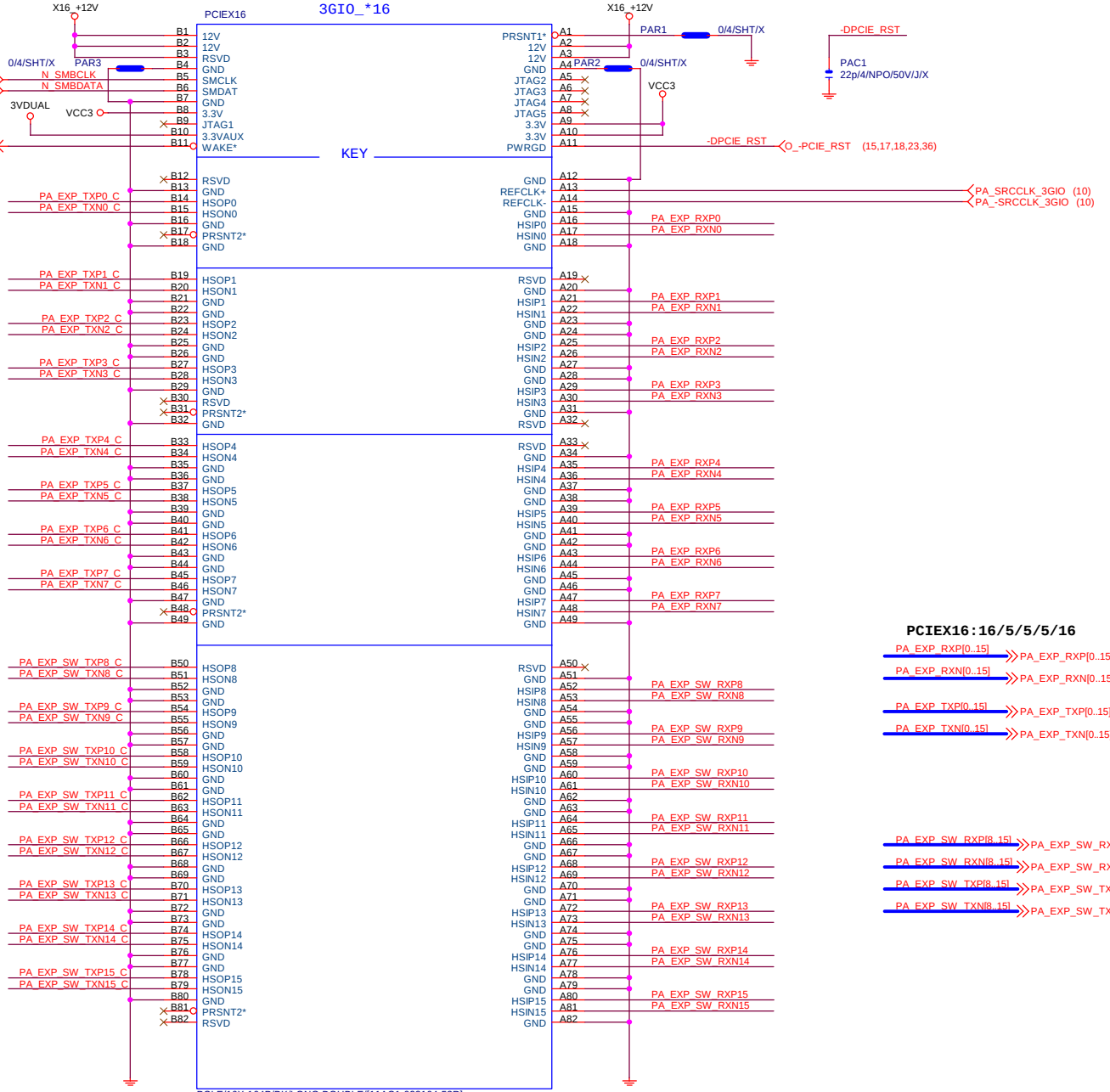
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

PCIESLOT-164DN-Q



PCIEX16:16/5/5/5/16

PA_EXP_RXP[0..15] → PA_EXP_RXP[0..15] (4,16)

PA_EXP_RXN[0..15] → PA_EXP_RXN[0..15] (4,16)

PA_EXP_TXP[0..15] → PA_EXP_TXP[0..15] (4,16)

PA_EXP_TXN[0..15] → PA_EXP_TXN[0..15] (4,16)

PA_EXP_SW_RXP[8..15] → PA_EXP_SW_RXP[8..15] (16)

PA_EXP_SW_RXN[8..15] → PA_EXP_SW_RXN[8..15] (16)

PA_EXP_SW_TXP[8..15] → PA_EXP_SW_TXP[8..15] (16)

PA_EXP_SW_TXN[8..15] → PA_EXP_SW_TXN[8..15] (16)

Gigabyte Technology

Title	PCI EXPRESS * 16	
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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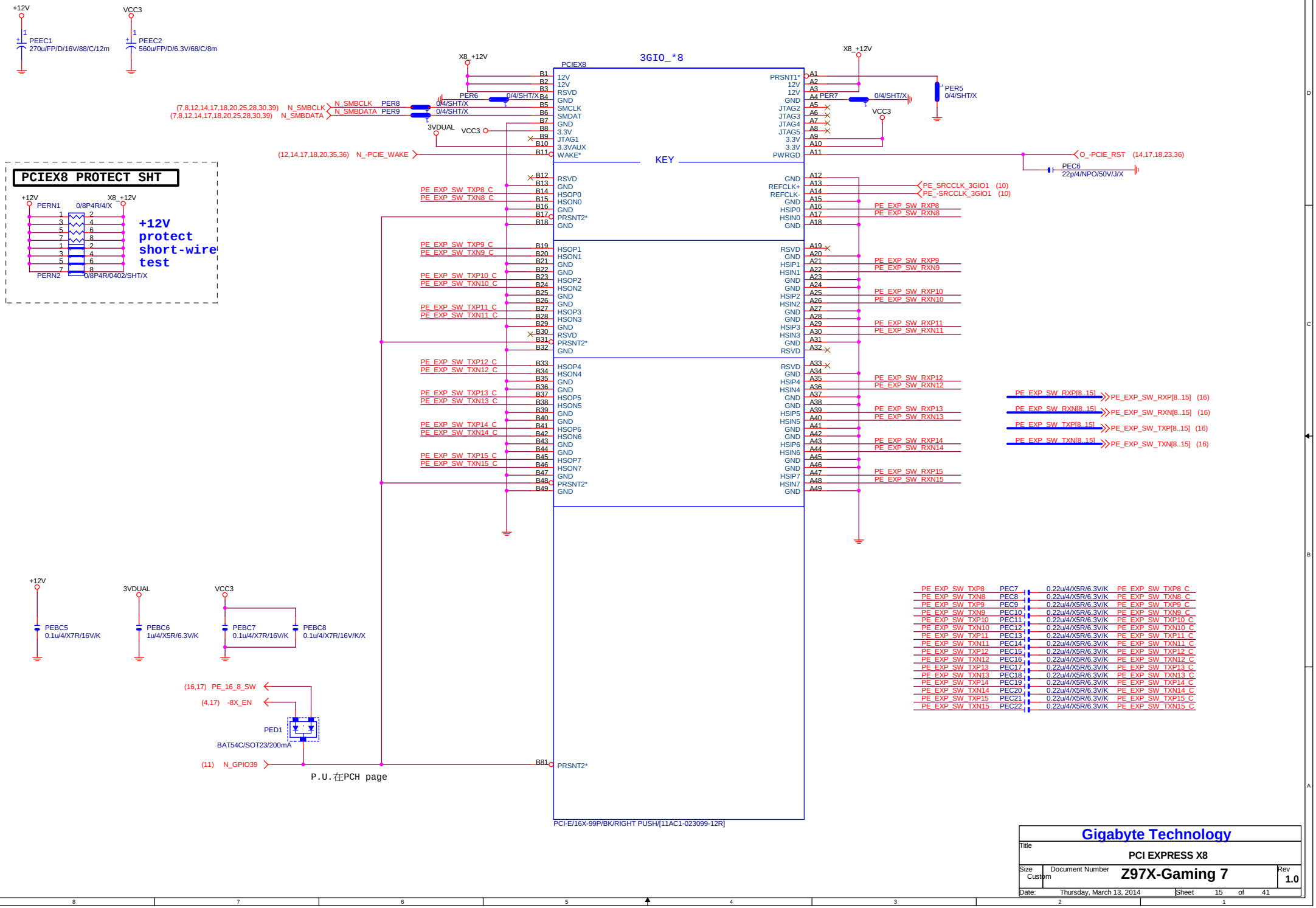
PCIEX8 PROTECT SHT
+12V protect short-wire test
PCIEX8
3GIO_*8
KEY
PCI-E/16X-99P/BK/RIGHT PUSH/[11AC1-023099-12R]
P.U.在PCH page
PEEC1 270u/FP/D/16V/88/C/12m
PEEC2 560u/FP/D/6.3V/68/C/8m
PEBC5 0.1u/4/X7R/16V/K
PEBC6 1u/4/X5R/6.3V/K
PEBC7 0.1u/4/X7R/16V/K
PEBC8 0.1u/4/X7R/16V/K/X
PED1 BAT54C/SOT23/200mA
PEC6 22p/4/NPO/50V/J/X
PER5 0/4/SHT/X
PER6 0/4/SHT/X
PER7 0/4/SHT/X
PERN1 0/8P4R/4/X
PERN2 0/8P4R/0402/SHT/X
PE_EXP_SW_RXP[8..15] PE_EXP_SW_RXP[8..15] (16)
PE_EXP_SW_RXN[8..15] PE_EXP_SW_RXN[8..15] (16)
PE_EXP_SW_TXP[8..15] PE_EXP_SW_TXP[8..15] (16)
PE_EXP_SW_TXN[8..15] PE_EXP_SW_TXN[8..15] (16)
Gigabyte Technology
PCI EXPRESS X8
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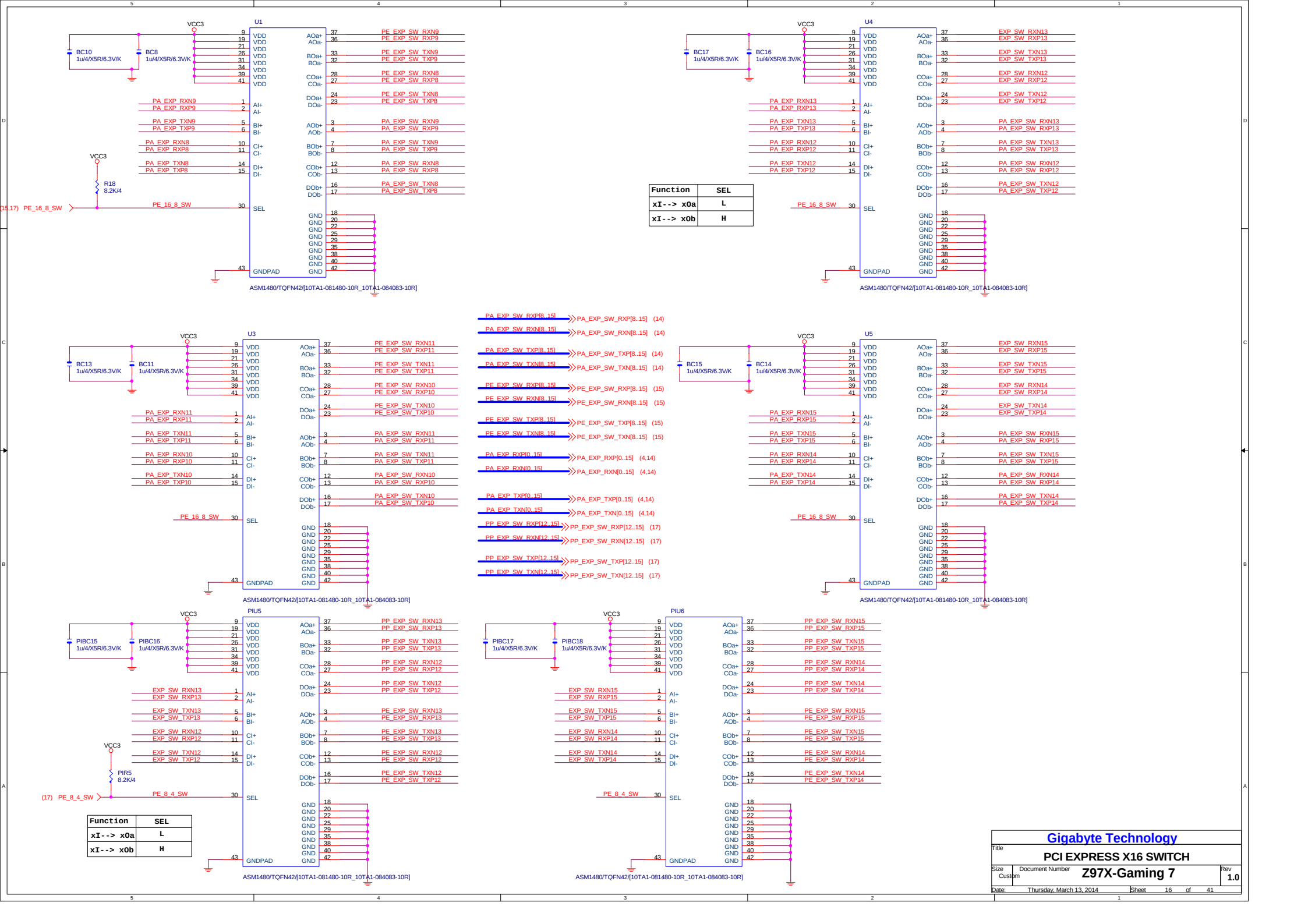
U1
VCC3
BC10 1u/4/X5R/6.3V/K
BC8 1u/4/X5R/6.3V/K
R18 8.2K/4
PE_16_8_SW
(15,17) PE_16_8_SW
PA_EXP_RXN9
PA_EXP_RXP9
PA_EXP_TXN9
PA_EXP_TXP9
PA_EXP_RXN8
PA_EXP_RXP8
PA_EXP_TXN8
PA_EXP_TXP8
PE_EXP_SW_RXN9
PE_EXP_SW_RXP9
PE_EXP_SW_TXN9
PE_EXP_SW_TXP9
PE_EXP_SW_RXN8
PE_EXP_SW_RXP8
PE_EXP_SW_TXN8
PE_EXP_SW_TXP8
PA_EXP_SW_RXN9
PA_EXP_SW_RXP9
PA_EXP_SW_TXN9
PA_EXP_SW_TXP9
PA_EXP_SW_RXN8
PA_EXP_SW_RXP8
PA_EXP_SW_TXN8
PA_EXP_SW_TXP8
VDD
AOa+
AOa-
BOa+
BOa-
COa+
COa-
DOa+
DOa-
AI+
AI-
BI+
BI-
CI+
CI-
DI+
DI-
AOb+
AOb-
BOb+
BOb-
COb+
COb-
DOb+
DOb-
SEL
GND
GNDPAD
ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]
U4
BC17 1u/4/X5R/6.3V/K
BC16 1u/4/X5R/6.3V/K
PA_EXP_RXN13
PA_EXP_RXP13
PA_EXP_TXN13
PA_EXP_TXP13
PA_EXP_RXN12
PA_EXP_RXP12
PA_EXP_TXN12
PA_EXP_TXP12
PE_16_8_SW
EXP_SW_RXN13
EXP_SW_RXP13
EXP_SW_TXN13
EXP_SW_TXP13
EXP_SW_RXN12
EXP_SW_RXP12
EXP_SW_TXN12
EXP_SW_TXP12
PA_EXP_SW_RXN13
PA_EXP_SW_RXP13
PA_EXP_SW_TXN13
PA_EXP_SW_TXP13
PA_EXP_SW_RXN12
PA_EXP_SW_RXP12
PA_EXP_SW_TXN12
PA_EXP_SW_TXP12
Function | SEL
xI--> xOa | L
xI--> xOb | H
U3
BC13 1u/4/X5R/6.3V/K
BC11 1u/4/X5R/6.3V/K
PA_EXP_RXN11
PA_EXP_RXP11
PA_EXP_TXN11
PA_EXP_TXP11
PA_EXP_RXN10
PA_EXP_RXP10
PA_EXP_TXN10
PA_EXP_TXP10
PE_16_8_SW
PE_EXP_SW_RXN11
PE_EXP_SW_RXP11
PE_EXP_SW_TXN11
PE_EXP_SW_TXP11
PE_EXP_SW_RXN10
PE_EXP_SW_RXP10
PE_EXP_SW_TXN10
PE_EXP_SW_TXP10
PA_EXP_SW_RXN11
PA_EXP_SW_RXP11
PA_EXP_SW_TXN11
PA_EXP_SW_TXP11
PA_EXP_SW_RXN10
PA_EXP_SW_RXP10
PA_EXP_SW_TXN10
PA_EXP_SW_TXP10
ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]
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)
PE_EXP_SW_RXP[8..15] (15)
PE_EXP_SW_RXN[8..15] (15)
PE_EXP_SW_TXP[8..15] (15)
PE_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)
PP_EXP_SW_RXP[12..15] (17)
PP_EXP_SW_RXN[12..15] (17)
PP_EXP_SW_TXP[12..15] (17)
PP_EXP_SW_TXN[12..15] (17)
U5
BC15 1u/4/X5R/6.3V/K
BC14 1u/4/X5R/6.3V/K
PA_EXP_RXN15
PA_EXP_RXP15
PA_EXP_TXN15
PA_EXP_TXP15
PA_EXP_RXN14
PA_EXP_RXP14
PA_EXP_TXN14
PA_EXP_TXP14
PE_16_8_SW
EXP_SW_RXN15
EXP_SW_RXP15
EXP_SW_TXN15
EXP_SW_TXP15
EXP_SW_RXN14
EXP_SW_RXP14
EXP_SW_TXN14
EXP_SW_TXP14
PA_EXP_SW_RXN15
PA_EXP_SW_RXP15
PA_EXP_SW_TXN15
PA_EXP_SW_TXP15
PA_EXP_SW_RXN14
PA_EXP_SW_RXP14
PA_EXP_SW_TXN14
PA_EXP_SW_TXP14
ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]
PIU5
PIBC15 1u/4/X5R/6.3V/K
PIBC16 1u/4/X5R/6.3V/K
PIR5 8.2K/4
(17) PE_8_4_SW
EXP_SW_RXN13
EXP_SW_RXP13
EXP_SW_TXN13
EXP_SW_TXP13
EXP_SW_RXN12
EXP_SW_RXP12
EXP_SW_TXN12
EXP_SW_TXP12
PE_8_4_SW
PP_EXP_SW_RXN13
PP_EXP_SW_RXP13
PP_EXP_SW_TXN13
PP_EXP_SW_TXP13
PP_EXP_SW_RXN12
PP_EXP_SW_RXP12
PP_EXP_SW_TXN12
PP_EXP_SW_TXP12
PE_EXP_SW_RXN13
PE_EXP_SW_RXP13
PE_EXP_SW_TXN13
PE_EXP_SW_TXP13
PE_EXP_SW_RXN12
PE_EXP_SW_RXP12
PE_EXP_SW_TXN12
PE_EXP_SW_TXP12
Function | SEL
xI--> xOa | L
xI--> xOb | H
ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]
PIU6
PIBC17 1u/4/X5R/6.3V/K
PIBC18 1u/4/X5R/6.3V/K
EXP_SW_RXN15
EXP_SW_RXP15
EXP_SW_TXN15
EXP_SW_TXP15
EXP_SW_RXN14
EXP_SW_RXP14
EXP_SW_TXN14
EXP_SW_TXP14
PE_8_4_SW
PP_EXP_SW_RXN15
PP_EXP_SW_RXP15
PP_EXP_SW_TXN15
PP_EXP_SW_TXP15
PP_EXP_SW_RXN14
PP_EXP_SW_RXP14
PP_EXP_SW_TXN14
PP_EXP_SW_TXP14
PE_EXP_SW_RXN15
PE_EXP_SW_RXP15
PE_EXP_SW_TXN15
PE_EXP_SW_TXP15
PE_EXP_SW_RXN14
PE_EXP_SW_RXP14
PE_EXP_SW_TXN14
PE_EXP_SW_TXP14
ASM1480/TQFN42/[10TA1-081480-10R_10TA1-084083-10R]
Gigabyte Technology
Title
PCI EXPRESS X16 SWITCH
Size
Custom
Document Number
Z97X-Gaming 7
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1.0
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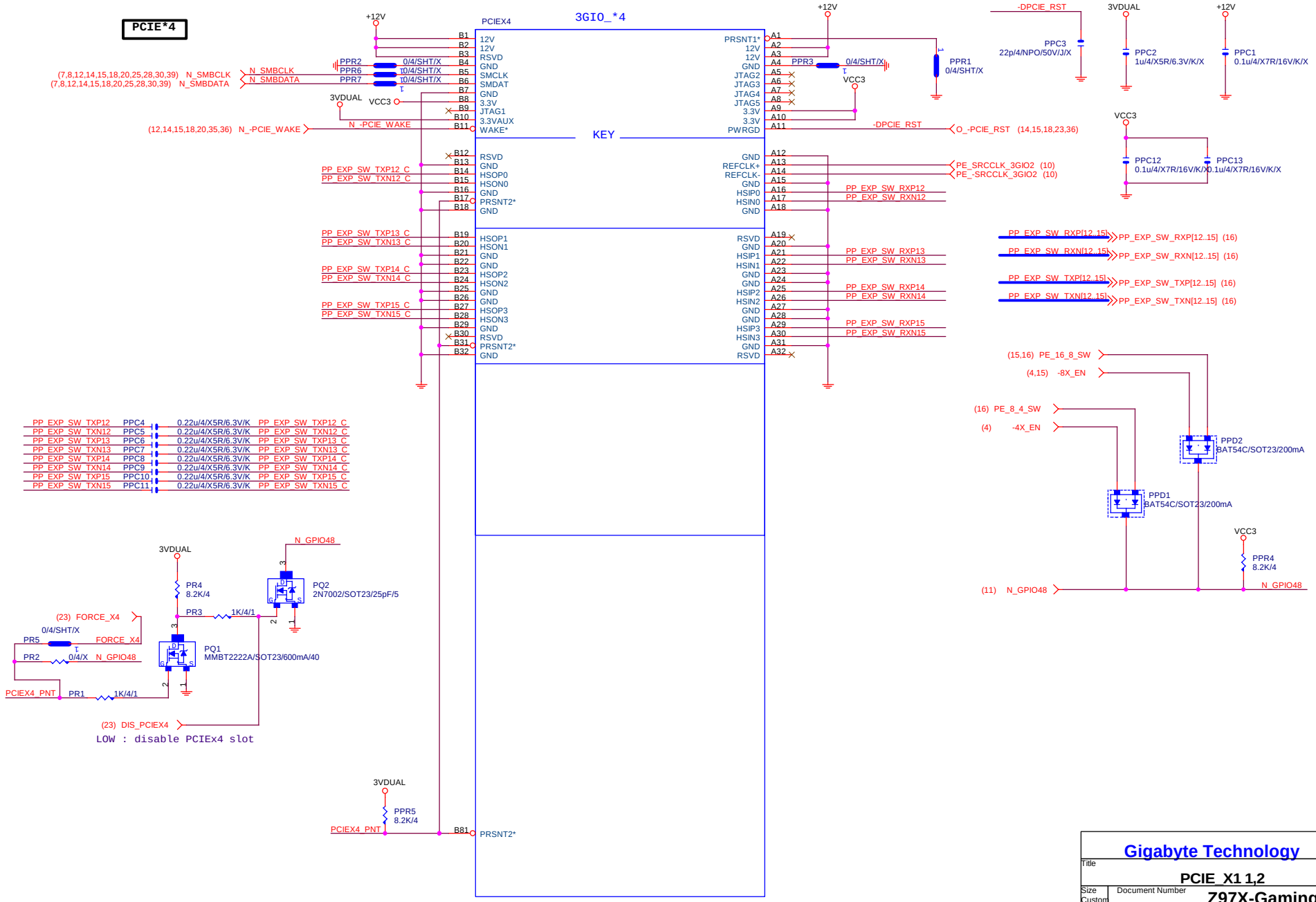
PCIE*4
PCIEX4
3GIO_*4
KEY
+12V
3VDUAL
VCC3
B1 12V
B2 12V
B3 RSVD
B4 GND
B5 SMCLK
B6 SMDAT
B7 GND
B8 3.3V
B9 JTAG1
B10 3.3VAUX
B11 WAKE*
B12 RSVD
B13 GND
B14 HSOP0
B15 HSON0
B16 GND
B17 PRSNT2*
B18 GND
B19 HSOP1
B20 HSON1
B21 GND
B22 GND
B23 HSOP2
B24 HSON2
B25 GND
B26 GND
B27 HSOP3
B28 HSON3
B29 GND
B30 RSVD
B31 PRSNT2*
B32 GND
B81 PRSNT2*
A1 PRSNT1*
A2 12V
A3 12V
A4 GND
A5 JTAG2
A6 JTAG3
A7 JTAG4
A8 JTAG5
A9 3.3V
A10 3.3V
A11 PWRGD
A12 GND
A13 REFCLK+
A14 REFCLK-
A15 GND
A16 HSIP0
A17 HSIN0
A18 GND
A19 RSVD
A20 GND
A21 HSIP1
A22 HSIN1
A23 GND
A24 GND
A25 HSIP2
A26 HSIN2
A27 GND
A28 GND
A29 HSIP3
A30 HSIN3
A31 GND
A32 RSVD
PPR2 0/4/SHT/X
PPR6 0/4/SHT/X
PPR7 0/4/SHT/X
PPR3 0/4/SHT/X
PPR1 0/4/SHT/X
PPR5 8.2K/4
PPR4 8.2K/4
PR1 1K/4/1
PR2 0/4/X
PR3 1K/4/1
PR4 8.2K/4
PR5 0/4/SHT/X
PPC3 22p/4/NPO/50V/J/X
PPC2 1u/4/X5R/6.3V/K/X
PPC1 0.1u/4/X7R/16V/K/X
PPC12 0.1u/4/X7R/16V/K/X
PPC13 0.1u/4/X7R/16V/K/X
PPC4 0.22u/4/X5R/6.3V/K
PPC5 0.22u/4/X5R/6.3V/K
PPC6 0.22u/4/X5R/6.3V/K
PPC7 0.22u/4/X5R/6.3V/K
PPC8 0.22u/4/X5R/6.3V/K
PPC9 0.22u/4/X5R/6.3V/K
PPC10 0.22u/4/X5R/6.3V/K
PPC11 0.22u/4/X5R/6.3V/K
PPD1 BAT54C/SOT23/200mA
PPD2 BAT54C/SOT23/200mA
PQ1 MMBT2222A/SOT23/600mA/40
PQ2 2N7002/SOT23/25pF/5
N_SMBCLK
N_SMBDATA
N_-PCIE_WAKE
-DPCIE_RST
O_-PCIE_RST (14,15,18,23,36)
PE_SRCCLK_3GIO2 (10)
PE_-SRCCLK_3GIO2 (10)
PP_EXP_SW_RXP12
PP_EXP_SW_RXN12
PP_EXP_SW_RXP13
PP_EXP_SW_RXN13
PP_EXP_SW_RXP14
PP_EXP_SW_RXN14
PP_EXP_SW_RXP15
PP_EXP_SW_RXN15
PP_EXP_SW_RXP[12..15] (16)
PP_EXP_SW_RXN[12..15] (16)
PP_EXP_SW_TXP[12..15] (16)
PP_EXP_SW_TXN[12..15] (16)
PP_EXP_SW_TXP12_C
PP_EXP_SW_TXN12_C
PP_EXP_SW_TXP13_C
PP_EXP_SW_TXN13_C
PP_EXP_SW_TXP14_C
PP_EXP_SW_TXN14_C
PP_EXP_SW_TXP15_C
PP_EXP_SW_TXN15_C
(15,16) PE_16_8_SW
(4,15) -8X_EN
(16) PE_8_4_SW
(4) -4X_EN
(11) N_GPIO48
N_GPIO48
(23) FORCE_X4
(23) DIS_PCIEX4
PCIEX4_PNT
LOW : disable PCIEx4 slot
PCI-E/4X-65P/BK/LONG DOUBLE
Gigabyte Technology
Title
PCIE_X1 1,2
Size Custom
Document Number
Z97X-Gaming 7
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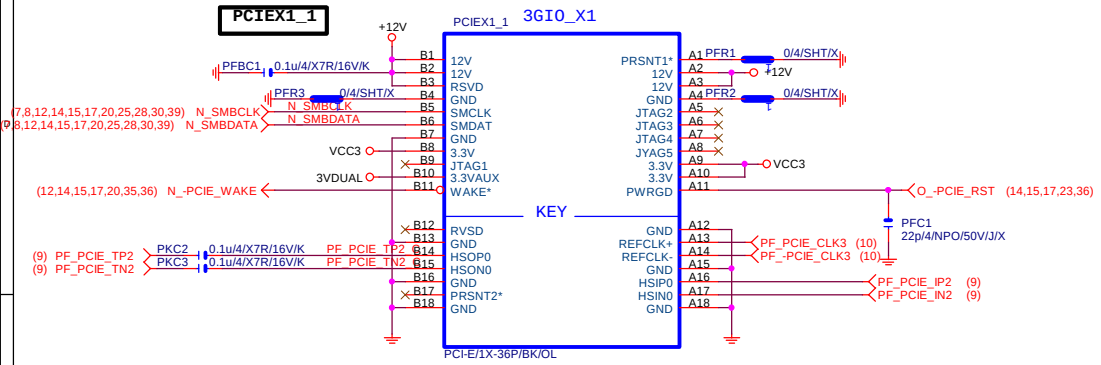
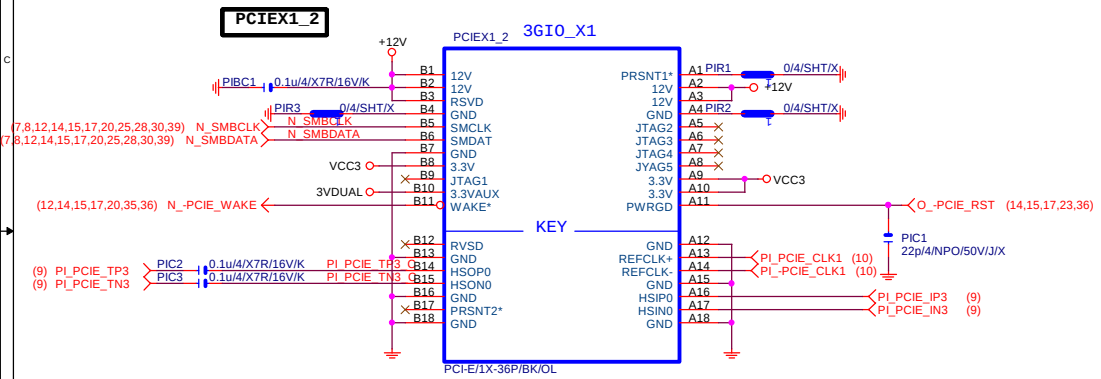
PCIEX1 SLOT

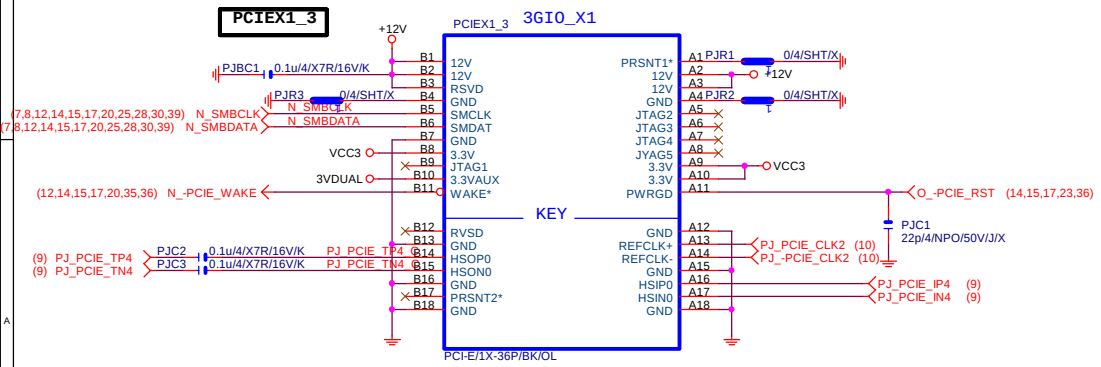
PCIEX1_1

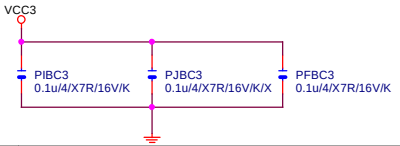


PCIEX1_2



PCIEX1_3





Gigabyte Technology		
Title: PCIE_X1 1,2,3		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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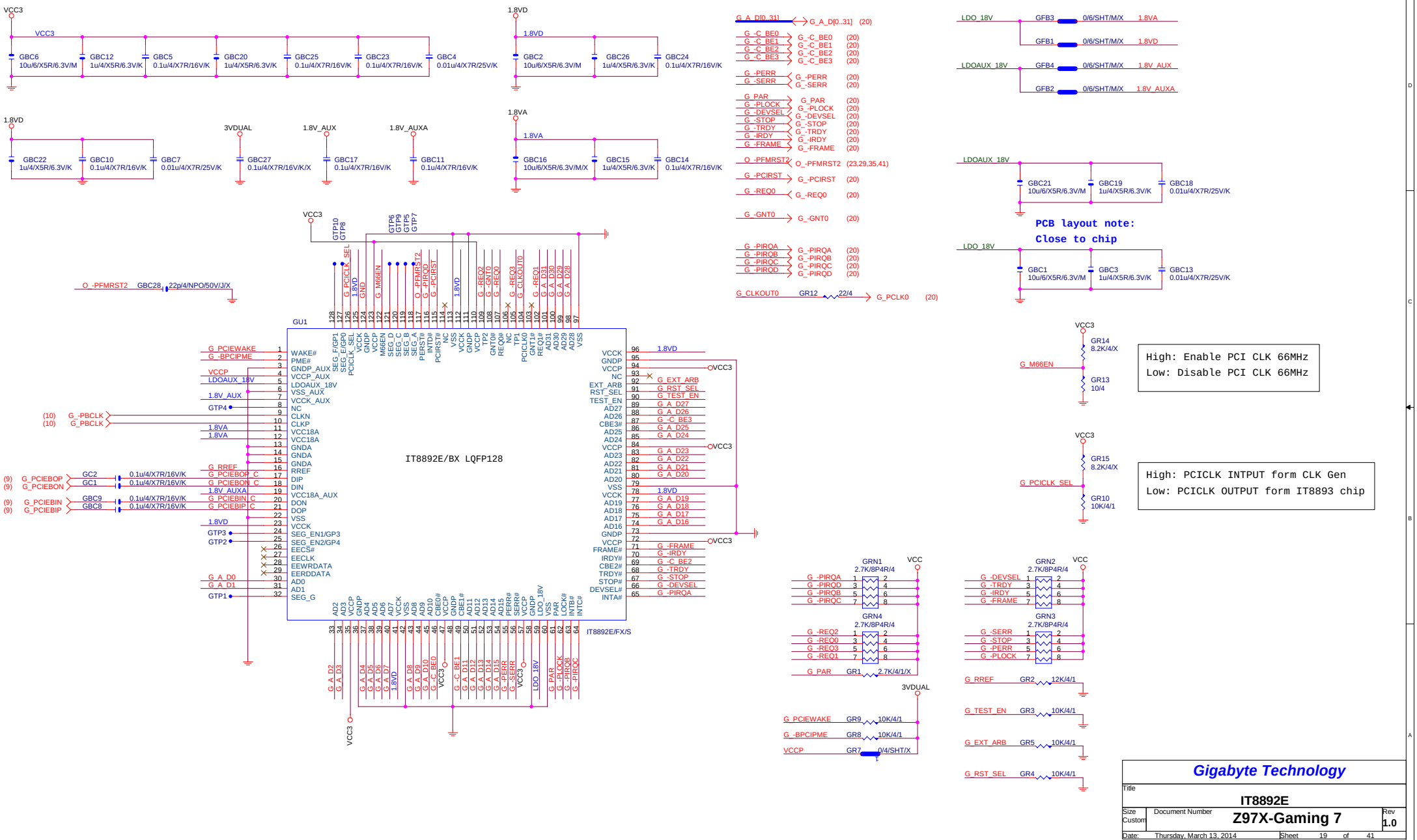
VCC3
GBC6 10u/6/X5R/6.3V/M
GBC12 1u/4/X5R/6.3V/K
GBC5 0.1u/4/X7R/16V/K
GBC20 1u/4/X5R/6.3V/K
GBC25 0.1u/4/X7R/16V/K
GBC23 0.1u/4/X7R/16V/K
GBC4 0.01u/4/X7R/25V/K
1.8VD
GBC2 10u/6/X5R/6.3V/M
GBC26 1u/4/X5R/6.3V/K
GBC24 0.1u/4/X7R/16V/K
1.8VD
GBC22 1u/4/X5R/6.3V/K
GBC10 0.1u/4/X7R/16V/K
GBC7 0.01u/4/X7R/25V/K
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
1.8VA
GBC16 10u/6/X5R/6.3V/M/X
GBC15 1u/4/X5R/6.3V/K
GBC14 0.1u/4/X7R/16V/K
G_A_D[0..31]
G_A_D[0..31] (20)
G_-C_BE0
G_-C_BE1
G_-C_BE2
G_-C_BE3
G_-PERR
G_-SERR
G_PAR
G_-PLOCK
G_-DEVSEL
G_-STOP
G_-TRDY
G_-IRDY
G_-FRAME
O_-PFMRST2
O_PFMRST2 (23,29,35,41)
G_-PCIRST
G_-REQ0
G_-GNT0
G_-PIRQA
G_-PIRQB
G_-PIRQC
G_-PIRQD
G_CLKOUT0
GR12 22/4
G_PCLK0 (20)
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
GBC21 10u/6/X5R/6.3V/M
GBC19 1u/4/X5R/6.3V/K
GBC18 0.01u/4/X7R/25V/K
PCB layout note:
Close to chip
GBC1 10u/6/X5R/6.3V/M
GBC3 1u/4/X5R/6.3V/K
GBC13 0.01u/4/X7R/25V/K
O_-PFMRST2 GBC28 22p/4/NPO/50V/J/X
GU1
IT8892E/BX LQFP128
IT8892E/FX/S
GR14 8.2K/4/X
G_M66EN
GR13 10/4
High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz
GR15 8.2K/4/X
G_PCICLK_SEL
GR10 10K/4/1
High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip
(10) G_-PBCLK
(10) G_PBCLK
(9) G_PCIEBOP
(9) G_PCIEBON
(9) G_PCIEBIN
(9) G_PCIEBIP
GC2 0.1u/4/X7R/16V/K
GC1 0.1u/4/X7R/16V/K
GBC9 0.1u/4/X7R/16V/K
GBC8 0.1u/4/X7R/16V/K
GRN1 2.7K/8P4R/4
GRN4 2.7K/8P4R/4
GR1 2.7K/4/1/X
GRN2 2.7K/8P4R/4
GRN3 2.7K/8P4R/4
GR2 12K/4/1
GR3 10K/4/1
GR5 10K/4/1
GR4 10K/4/1
GR9 10K/4/1
GR8 10K/4/1
GR7 0/4/SHT/X
G_PCIEWAKE
G_-BPCIPME
VCCP
Gigabyte Technology
Title
IT8892E
Size Custom
Document Number
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Date: Thursday, March 13, 2014
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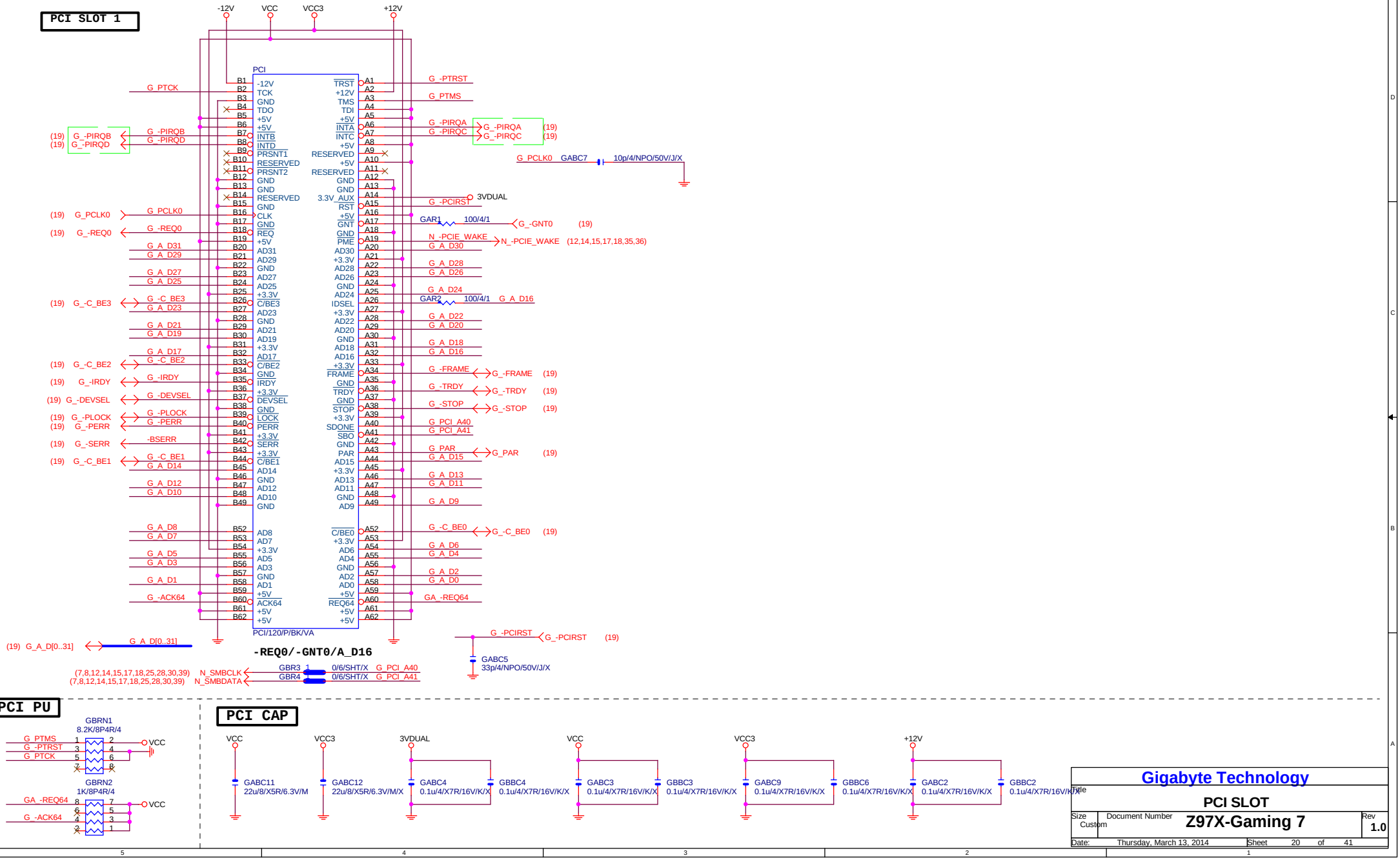
PCI SLOT 1
-12V
VCC
VCC3
+12V
PCI
PCI/120/P/BK/VA
-REQ0/-GNT0/A_D16
G_PTCK
G_-PTRST
G_PTMS
G_-PIRQA
G_-PIRQC
G_-PIRQB
G_-PIRQD
G_PCLK0
GABC7
10p/4/NPO/50V/J/X
3VDUAL
G_-PCIRST
GAR1
100/4/1
G_-GNT0
N_-PCIE_WAKE
GAR2
G_-C_BE3
G_-C_BE2
G_-IRDY
G_-DEVSEL
G_-PLOCK
G_-PERR
-BSERR
G_-SERR
G_-C_BE1
G_-FRAME
G_-TRDY
G_-STOP
G_PCI_A40
G_PCI_A41
G_PAR
G_A_D[0..31]
GABC5
33p/4/NPO/50V/J/X
GBR3
GBR4
N_SMBCLK
N_SMBDATA
PCI PU
GBRN1
8.2K/8P4R/4
GBRN2
1K/8P4R/4
GA_-REQ64
G_-ACK64
PCI CAP
GABC11
22u/8/X5R/6.3V/M
GABC12
22u/8/X5R/6.3V/M/X
GABC4
0.1u/4/X7R/16V/K/X
GBBC4
GABC3
GBBC3
GABC9
GBBC6
GABC2
GBBC2
Gigabyte Technology
PCI SLOT
Z97X-Gaming 7
Rev 1.0
Thursday, March 13, 2014
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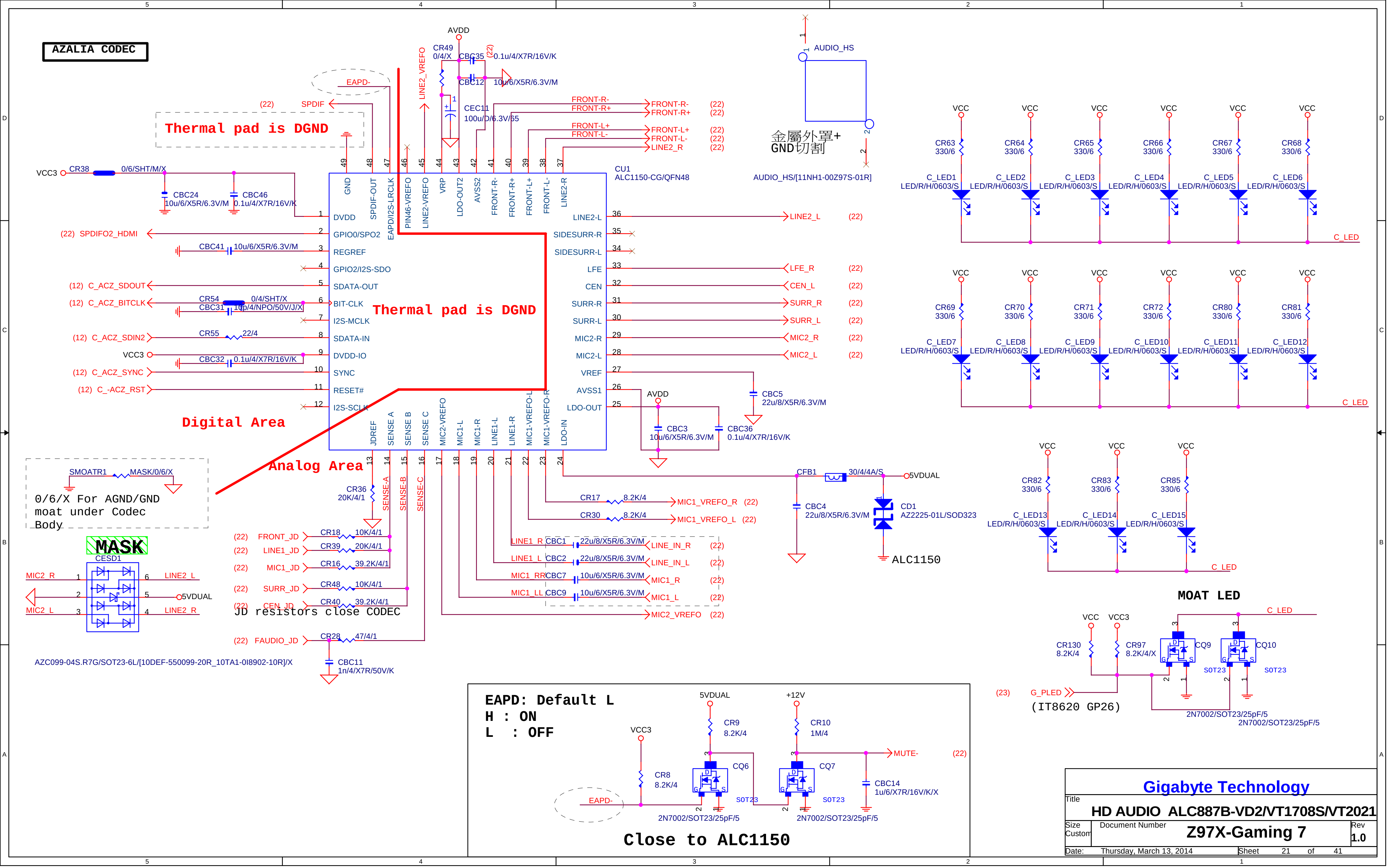

AZALIA CODEC
Thermal pad is DGND
Digital Area
Analog Area
CU1
ALC1150-CG/QFN48
AVDD
CR49 0/4/X
CBC35 0.1u/4/X7R/16V/K
CBC12 10u/6/X5R/6.3V/M
CEC11 100u/D/6.3V/55
EAPD-
SPDIF
LINE2_VREFO
FRONT-R-
FRONT-R+
FRONT-L+
FRONT-L-
LINE2_R
VCC3
CR38 0/6/SHT/M/X
CBC24 10u/6/X5R/6.3V/M
CBC46 0.1u/4/X7R/16V/K
SPDIFO2_HDMI
CBC41 10u/6/X5R/6.3V/M
C_ACZ_SDOUT
C_ACZ_BITCLK
CR54 0/4/SHT/X
CBC31 10p/4/NPO/50V/J/X
C_ACZ_SDIN2
CR55 22/4
CBC32 0.1u/4/X7R/16V/K
C_ACZ_SYNC
C_-ACZ_RST
DVDD
GPIO0/SPO2
REGREF
GPIO2/I2S-SDO
SDATA-OUT
BIT-CLK
I2S-MCLK
SDATA-IN
DVDD-IO
SYNC
RESET#
I2S-SCLK
GND
SPDIF-OUT
EAPD/I2S-LRCLK
PIN46-VREFO
LINE2-VREFO
VRP
LDO-OUT2
AVSS2
LINE2-L
SIDESURR-R
SIDESURR-L
LFE
CEN
SURR-R
SURR-L
MIC2-R
MIC2-L
VREF
AVSS1
LDO-OUT
JDREF
SENSE A
SENSE B
SENSE C
MIC2-VREFO
MIC1-L
MIC1-R
LINE1-L
LINE1-R
MIC1-VREFO-L
MIC1-VREFO-R
LDO-IN
LINE2_L
LFE_R
CEN_L
SURR_R
SURR_L
MIC2_R
MIC2_L
CBC5 22u/8/X5R/6.3V/M
CBC3 10u/6/X5R/6.3V/M
CBC36 0.1u/4/X7R/16V/K
CFB1 30/4/4A/S
5VDUAL
CBC4 22u/8/X5R/6.3V/M
CD1 AZ2225-01L/SOD323
ALC1150
CR36 20K/4/1
SENSE-A
SENSE-B
SENSE-C
CR17 8.2K/4 MIC1_VREFO_R
CR30 8.2K/4 MIC1_VREFO_L
LINE1_R CBC1 22u/8/X5R/6.3V/M LINE_IN_R
LINE1_L CBC2 22u/8/X5R/6.3V/M LINE_IN_L
MIC1_RR CBC7 10u/6/X5R/6.3V/M MIC1_R
MIC1_LL CBC9 10u/6/X5R/6.3V/M MIC1_L
MIC2_VREFO
SMOATR1 MASK/0/6/X
0/6/X For AGND/GND moat under Codec Body
MASK
CESD1
MIC2_R LINE2_L MIC2_L LINE2_R 5VDUAL
AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]/X
FRONT_JD CR18 10K/4/1
LINE1_JD CR39 20K/4/1
MIC1_JD CR16 39.2K/4/1
SURR_JD CR48 10K/4/1
CEN_JD CR40 39.2K/4/1
JD resistors close CODEC
FAUDIO_JD CR28 47/4/1
CBC11 1n/4/X7R/50V/K
AUDIO_HS
金屬外罩+GND切割
AUDIO_HS/[11NH1-00Z97S-01R]
VCC
CR63 330/6 C_LED1 LED/R/H/0603/S
CR64 330/6 C_LED2 LED/R/H/0603/S
CR65 330/6 C_LED3 LED/R/H/0603/S
CR66 330/6 C_LED4 LED/R/H/0603/S
CR67 330/6 C_LED5 LED/R/H/0603/S
CR68 330/6 C_LED6 LED/R/H/0603/S
CR69 330/6 C_LED7 LED/R/H/0603/S
CR70 330/6 C_LED8 LED/R/H/0603/S
CR71 330/6 C_LED9 LED/R/H/0603/S
CR72 330/6 C_LED10 LED/R/H/0603/S
CR80 330/6 C_LED11 LED/R/H/0603/S
CR81 330/6 C_LED12 LED/R/H/0603/S
CR82 330/6 C_LED13 LED/R/H/0603/S
CR83 330/6 C_LED14 LED/R/H/0603/S
CR85 330/6 C_LED15 LED/R/H/0603/S
C_LED
MOAT LED
CR130 8.2K/4
CR97 8.2K/4/X
CQ9 CQ10 SOT23
G_PLED
(IT8620 GP26)
2N7002/SOT23/25pF/5
EAPD: Default L
H : ON
L : OFF
CR8 8.2K/4
CR9 8.2K/4
CR10 1M/4
+12V
CQ6 CQ7
MUTE-
CBC14 1u/6/X7R/16V/K/X
Close to ALC1150
Gigabyte Technology
Title
HD AUDIO ALC887B-VD2/VT1708S/VT2021
Size Custom
Document Number
Z97X-Gaming 7
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Date: Thursday, March 13, 2014
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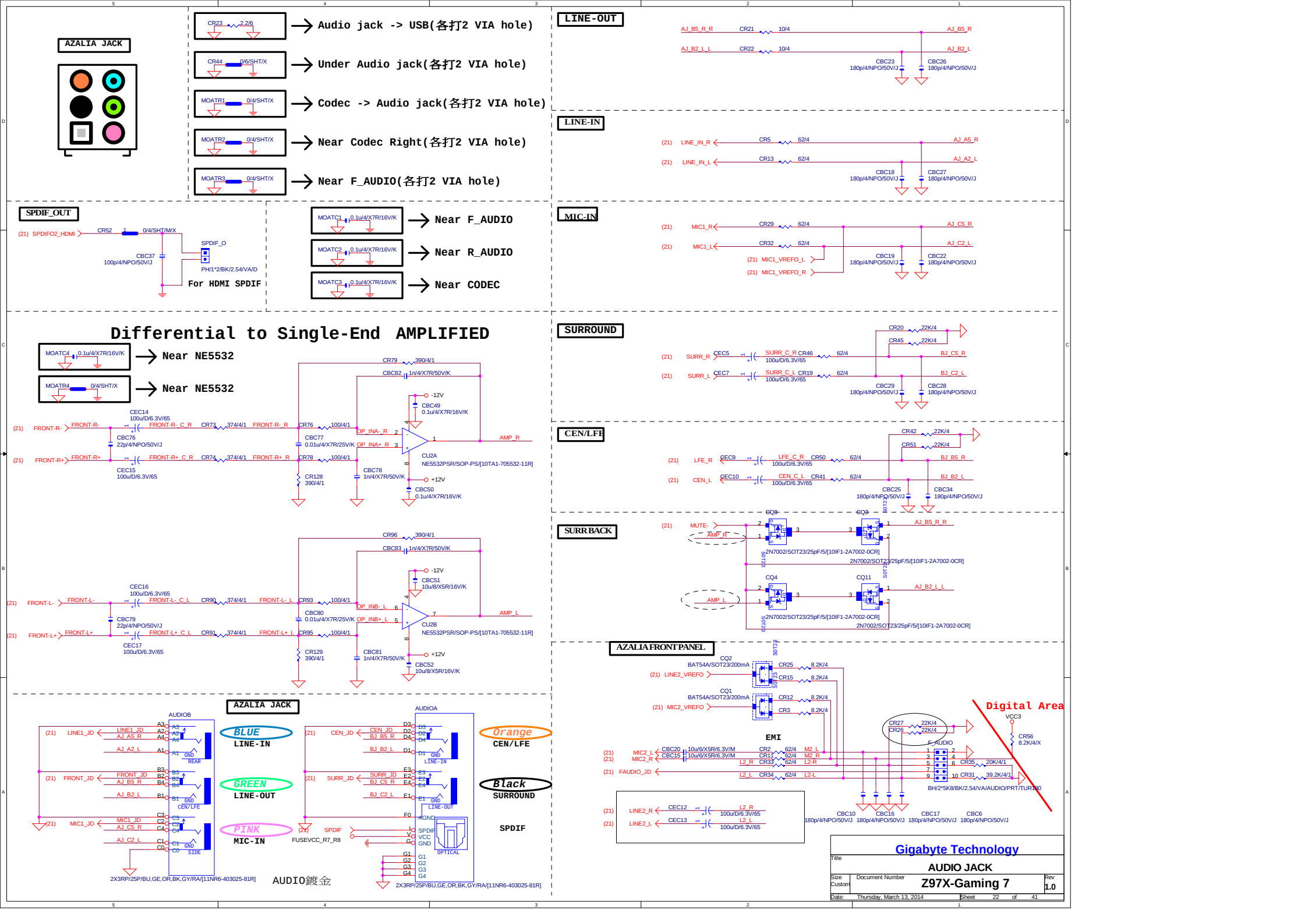
AZALIA JACK
CR23 2.2/6
Audio jack -> USB(各打2 VIA hole)
CR44 0/6/SHT/X
Under Audio jack(各打2 VIA hole)
MOATR1 0/4/SHT/X
Codec -> Audio jack(各打2 VIA hole)
MOATR2 0/4/SHT/X
Near Codec Right(各打2 VIA hole)
MOATR3 0/4/SHT/X
Near F_AUDIO(各打2 VIA hole)
SPDIF_OUT
(21) SPDIFO2_HDMI
CR52 0/4/SHT/M/X
CBC37 100p/4/NPO/50V/J
SPDIF_O
PH/1*2/BK/2.54/VA/D
For HDMI SPDIF
MOATC1 0.1u/4/X7R/16V/K
Near F_AUDIO
MOATC2 0.1u/4/X7R/16V/K
Near R_AUDIO
MOATC3 0.1u/4/X7R/16V/K
Near CODEC
Differential to Single-End AMPLIFIED
MOATC4 0.1u/4/X7R/16V/K
Near NE5532
MOATR4 0/4/SHT/X
Near NE5532
CEC14 100u/D/6.3V/65
FRONT-R-
FRONT-R- C R
CR73 374/4/1
FRONT-R- R
CR76 100/4/1
CBC76 22p/4/NPO/50V/J
CBC77 0.01u/4/X7R/25V/K
OP_INA- R
OP_INA+ R
CU2A NE5532PSR/SOP-PS/[10TA1-705532-11R]
AMP_R
CEC15 100u/D/6.3V/65
FRONT-R+
FRONT-R+ C R
CR74 374/4/1
FRONT-R+ R
CR78 100/4/1
CR128 390/4/1
CBC78 1n/4/X7R/50V/K
CBC49 0.1u/4/X7R/16V/K
CBC50 0.1u/4/X7R/16V/K
CR79 390/4/1
CBC82 1n/4/X7R/50V/K
-12V
+12V
CEC16 100u/D/6.3V/65
FRONT-L-
FRONT-L- C L
CR90 374/4/1
FRONT-L- L
CR93 100/4/1
CBC79 22p/4/NPO/50V/J
CBC80 0.01u/4/X7R/25V/K
OP_INB- L
OP_INB+ L
CU2B NE5532PSR/SOP-PS/[10TA1-705532-11R]
AMP_L
CEC17 100u/D/6.3V/65
FRONT-L+
FRONT-L+ C L
CR91 374/4/1
FRONT-L+ L
CR95 100/4/1
CR129 390/4/1
CBC81 1n/4/X7R/50V/K
CBC51 10u/8/X5R/16V/K
CBC52 10u/8/X5R/16V/K
CR96 390/4/1
CBC83 1n/4/X7R/50V/K
AZALIA JACK
AUDIOB
LINE1_JD
LINE1 JD
AJ_A5_R
AJ_A2_L
REAR
FRONT_JD
FRONT JD
AJ_B5_R
AJ_B2_L
CEN/LFE
MIC1_JD
MIC1 JD
AJ_C5_R
AJ_C2_L
SIDE
BLUE
LINE-IN
GREEN
LINE-OUT
PINK
MIC-IN
AUDIOA
CEN_JD
CEN JD
BJ_B5_R
BJ_B2_L
LINE-IN
SURR_JD
SURR JD
BJ_C5_R
BJ_C2_L
LINE-OUT
SPDIF
FUSEVCC_R7_R8
AGND
VCC
GND
OPTICAL
Orange
CEN/LFE
Black
SURROUND
SPDIF
2X3RP/25P/BU,GE,OR,BK,GY/RA/[11NR6-403025-81R]
AUDIO鍍金
LINE-OUT
AJ_B5_R
AJ_B2_L
CR21 10/4
CR22 10/4
CBC23 180p/4/NPO/50V/J
CBC26 180p/4/NPO/50V/J
LINE-IN
LINE_IN_R
LINE_IN_L
CR5 62/4
CR13 62/4
AJ_A5_R
AJ_A2_L
CBC18 180p/4/NPO/50V/J
CBC27 180p/4/NPO/50V/J
MIC-IN
MIC1_R
MIC1_L
CR29 62/4
CR32 62/4
AJ_C5_R
AJ_C2_L
MIC1_VREFO_L
MIC1_VREFO_R
CBC19 180p/4/NPO/50V/J
CBC22 180p/4/NPO/50V/J
SURROUND
SURR_R
SURR_L
CEC5
CEC7
SURR_C_R
SURR_C_L
CR46 62/4
CR19 62/4
100u/D/6.3V/65
CR20 22K/4
CR45 22K/4
BJ_C5_R
BJ_C2_L
CBC29 180p/4/NPO/50V/J
CBC28 180p/4/NPO/50V/J
CEN/LFE
LFE_R
CEN_L
CEC9
CEC10
LFE_C_R
CEN_C_L
CR50 62/4
CR41 62/4
CR42 22K/4
CR51 22K/4
BJ_B5_R
BJ_B2_L
CBC25 180p/4/NPO/50V/J
CBC34 180p/4/NPO/50V/J
SURR BACK
MUTE-
AMP_R
AMP_L
CQ8
CQ9
CQ4
CQ11
2N7002/SOT23/25pF/5/[10IF1-2A7002-0CR]
AJ_B5_R_R
AJ_B2_L_L
AZALIA FRONT PANEL
CQ2
CQ1
BAT54A/SOT23/200mA
LINE2_VREFO
MIC2_VREFO
CR25 8.2K/4
CR15 8.2K/4
CR12 8.2K/4
CR3 8.2K/4
EMI
MIC2_L
MIC2_R
FAUDIO_JD
CBC20 10u/6X5R/6.3V/M
CBC15 10u/6X5R/6.3V/M
CR2 62/4
CR11 62/4
CR33 62/4
CR34 62/4
M2_L
M2_R
L2-R
L2-L
L2_R
L2_L
CR27 22K/4
CR26 22K/4
F_AUDIO
CR35 20K/4/1
CR31 39.2K/4/1
BH/2*5K8/BK/2.54/VA/AUDIO/PRT/TUR180
Digital Area
VCC3
CR56 8.2K/4/X
LINE2_R
LINE2_L
CEC12
CEC13
L2_R
L2_L
100u/D/6.3V/65
CBC10 180p/4/NPO/50V/J
CBC16 180p/4/NPO/50V/J
CBC17 180p/4/NPO/50V/J
CBC6 180p/4/NPO/50V/J
Gigabyte Technology
Title
AUDIO JACK
Size Custom
Document Number
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SIO IT8728F

IT8620E_BX

CPU_OPT

PWR SHT

SIO PU

SIO STRAP

SIO_18V

MB ID

Power leakage

DUAL BIOS OPT STRAP

SIO CAP

IT8620E GPIO問題匯整

PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾

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.

Breath LED's GPIO :
GP14 : Disable
GP65 : Brightness

Gigabyte Technology

Title: ITE 8620CX LPC IO

Size: B | Document Number: Z97X-Gaming 7 | Rev: 1.0

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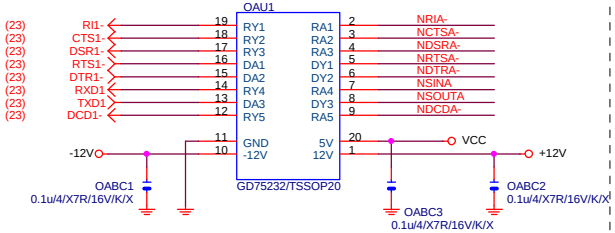
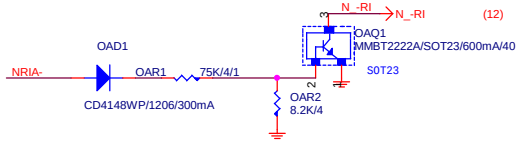
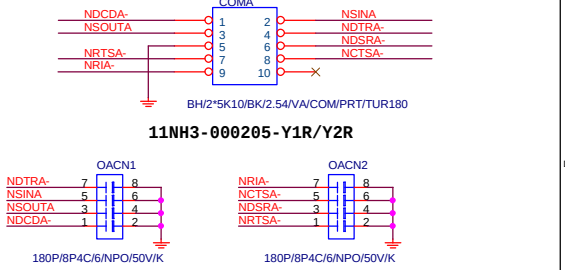
COMA



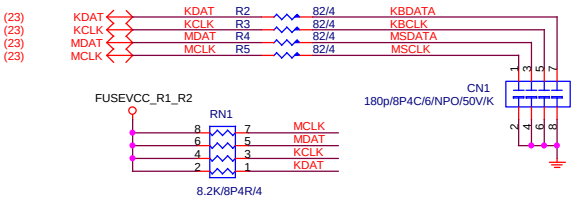
COM RI

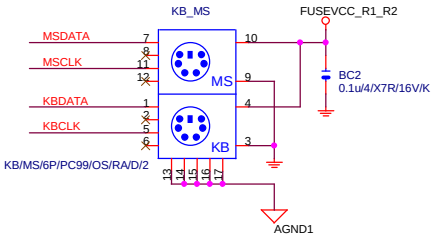


COM BUFFER

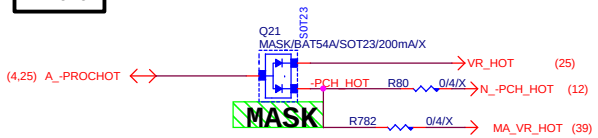


KB/USB





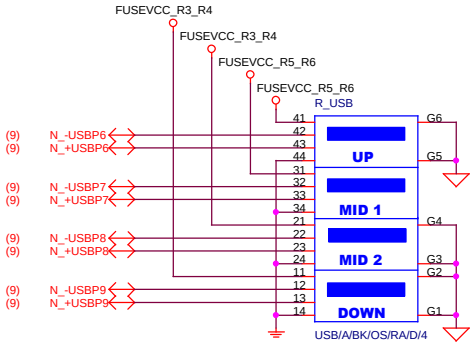
-PROHOT



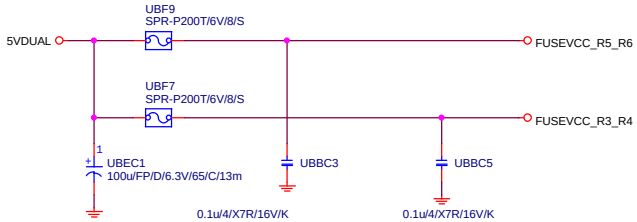
Thunderbolt pin header

Removed

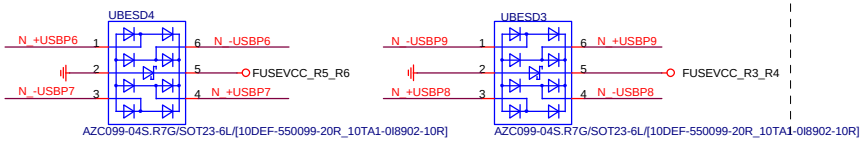
R_USB



USB20 FUSE



USB20 ESD PROCTECT



Gigabyte Technology		
Title: COM/ PROHOT/ R_USB		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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-PROHOT

OTP:132度 / PCB THERMAL TRIP:122 度

125 degree assert, 105~115 degree deasserted

+12V

DAR90 10K/4/1

DAR83 3.3K/4/1

DAR84 10K/4/1

DU1A LM358DR/SO8

DATSM_1

DATSM_2

DATSM_3

R? CLOSE Q32

DART2_5 100K/1/4/S

DAR86 1K/4/1

DAC30 0.1u/4/X7R/16V/K

DQ6 2N7002/SOT23/25pF/5

SOT23

N_-THRMTRIP (4,11,30)

0.1不上件

CLOSE VCORE PWM UPPER MOSFET

3VDUAL VCC3

DAR57 0/4/X

DAR55 0/4/SHT/X

PWM_VCC

DAC12 1u/4/X5R/6.3V/K

DAC13 0.1u/4/X7R/16V/K

VCC

DAR61 13K/4/1

DAR60 1K/4/1

DAC15 0.01u/4/X7R/25V/K

DAL1 0.8uH/35A/INC109/F/D

R36

V12

VIN

DAC33 1u/6/X7R/16V/K

DAC3 DAC2 DAC1 DAC4

270u/FP/D/16V/88/C/12m

VCORE

DAEC7 DAEC10 DAEC8 DAEC9 DAEC11 DAEC12 DAEC5 DAEC6

560u/FP/D/6.3V/68/C/8m

Debug Only

Remove PinHeader in modify PBOM

DAJP1

PH/1*3/BK/2.54/VA/D/X

DAD1

BAS40-05/0.2A/SOT23

VRHOT_ICRIT

DAR101 0/4/X

DAR102 0/4/SHT/M/X

VR_HOT (24)

N_-THRMTRIP (4,11,30)

DAC17 DAC23

10p/4/NPO/50V/J/X

DAR68 DAR67 0/4/SHT/M/X

N_SMBCLK (7,8,12,14,15,17,18,20,28,30,39)

N_SMBDATA (7,8,12,14,15,17,18,20,28,30,39)

(26) ISEN8

(26) IRTN8

DAR48 1.43K/4/1

DAR46 301/4/1

DAC1 0.47u/4/X5R/6.3V/K

DAR42 301/4/1

PWM8 (26)
PWM7 (38)
PWM6 (38)
PWM5 (26)
PWM4 (38)
PWM3 (38)
PWM2 (26)
PWM1 (26)

IR3563B

(38) ISEN7
(38) IRTN7
(26) ISEN5
(26) IRTN5
(38) ISEN4
(38) IRTN4
(38) ISEN3
(38) IRTN3
(26) ISEN2
(26) IRTN2
(26) ISEN1
(26) IRTN1

DAR23 DAR37 DAR20 DAR36 DAR17 DAR35 DAR14 DAR34 DAR11 DAR33 DAR8 DAR32 DAR31 DAR30 DAR29 DAR28 DAR27 DAR26

1.43K/4/1 301/4/1

DAC2 DAC3 DAC4 DAC5 DAC6 DAC7

0.47u/4/X5R/6.3V/K

VDG/VAUXSEN
SM_CLK
SM_DIO
SM_ALERT
ADDR_PROT
EN
VRHOT_ICRIT
SV_DIO/ VIDSEL0
SV_CLK/VIDSEL1
SV_ALERT#
SV_ADDR/VDDIO
NC

DAR79 4.7K/4

VCC3

DAC22 0.01u/4/X7R/25V/K

DAR66 845/4/1

Addr: 70h

DAR72 8.2K/4

DAR78 8.2K/4

VTT_PWRGD (23)

SV_DIO DAR65 2.2/4

SV_CLK DAR64 2.2/4

SV_ALERT DAR63 2.2/4

SV_ADDR DAR74 845/4/1

DAC21 0.01u/4/X7R/25V/K

DAU1 IR3563BMGB05TRP/S/[10TA1-63563B-05R]

MOS HEATSINK

CPU_VTT_OR

DAR77 115/4/1 DAR76 51/4/1 DAR75 200/4/1/X

DAC25 1u/4/X5R/6.3V/K

DAC28 DAC27 DAC26

10p/4/NPO/50V/J/X

PVIDSOUT (4)

PVIDSLCK (4)

-PVIDALRT (4)

MOS_HS

MOS_HS2

MOS HS/[12SP2-S07924-01R_12SP2-S07924-02R_12SP2-S07924-03R]

MOS HS/[12SP2-S07924-21R_12SP2-S07924-22R_12SP2-S07924-23R]

(38) IRTN6

(38) ISEN6

DAR25 301/4/1

DAR3 1.43K/4/1

DAC8 0.47u/4/X5R/6.3V/K

DAR24 301/4/1

Close to Vcore output inductor

DKRT1 10K/1/4/S

VCORE_RCSP_R

VCORE_RCSM_R

DAR40 1.43K/4/1

DAR41 2.05K/4/1

DAR44 1.43K/4/1

VCORE_RCSP

VCORE_RCSM

DAC9 150p/4/NPO/50V/J

V12

DAR81 13K/4/1

DAC51 0.01u/4/X7R/25V/K

DAR73 1K/4/1

DAC20 0.01u/4/X7R/25V/K

DAR71

DAC19 10p/4/NPO/50V/J/X

8.2K/4

VR_RDY DAR62 8.2K/4

VR_RDY (23)

V18A

DAR54 7.5K/4/1

PWM_VCC

DAR69 75/4/1

Pop DAR83 if pop DAR63

DAC16 0.1u/4/X7R/16V/K

DAC18 4.7u/6/X5R/6.3V/K

VCORE

DAR1 100/4/1

For Phase margin and gain margin measure

(4) VCC_SENSE

(4) VSS_SENSE

DAR49 0/4/SHT/M/X

DAC11 3.3n/4/X7R/50V/K

VSEN

VSEN-

DAR2 100/4/1

DAR_MOAT 0/6/SHT-EMI-MASK/X

DAR56 0/4/SHT/X

DAR59 0/4/SHT/X

CPU_TSEN_R1

-CPU_TSEN_R1

DAC14 0.1u/4/X7R/16V/K

DAR58 13K/4/1

DART7_3 47K/1/4/S

125 degree assert, 105~115 degree deasserted

+12V

DAR85 10K/4/1

DAR89 10K/4/1

DAR87 3.9K/4/1

DU1B LM358DR/SO8

DATSM_4

DATSM_5

DATSM_6

R? CLOSE Q32

DART4_6 100K/1/4/S

DAR88 1K/4/1

DAC29 0.1u/4/X7R/16V/K

TEMP_HOT DAR103 0/4/X

DAR104 0/4/SHT/M/X

A_-PROCHOT (4,24)

N_-THRMTRIP (4,11,30)

2N7002/SOT23/25pF/5

DQ5

SOT23

CLOSE VCORE PWM LOWER MOSFET

Gigabyte Technology

Title: IR 3563A

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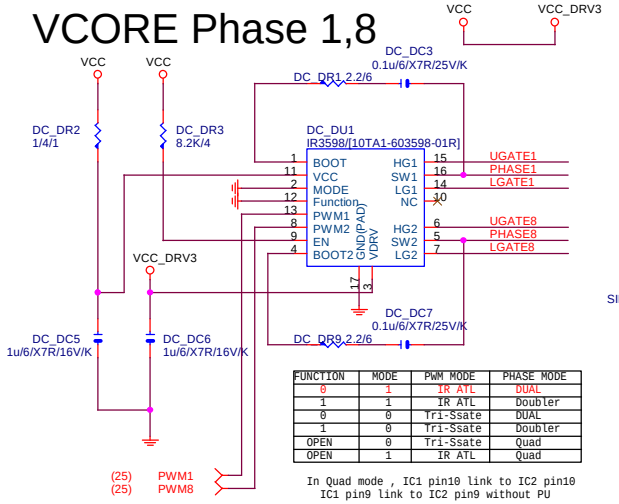
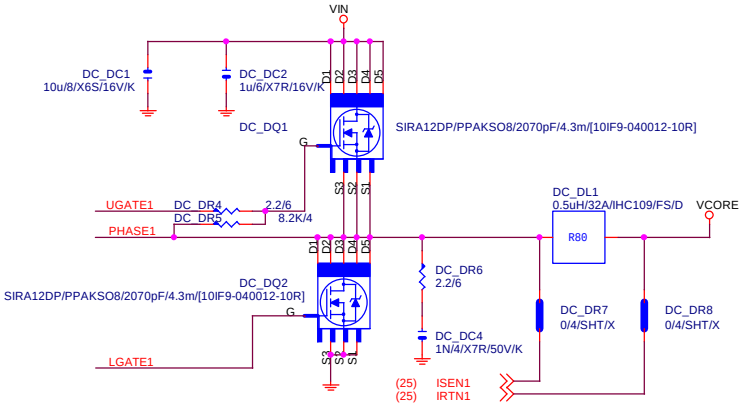
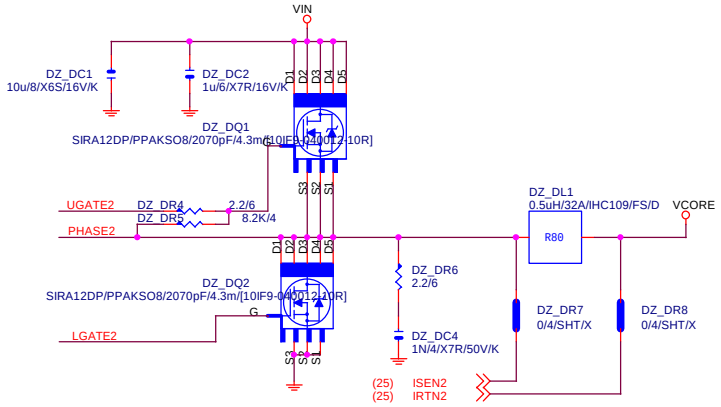
VCORE Phase 1,8



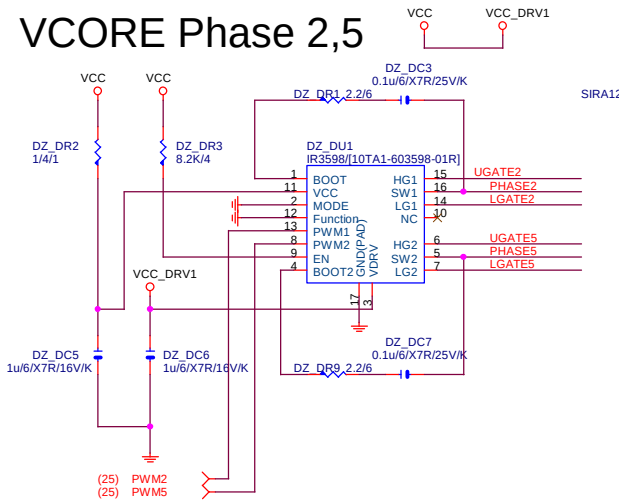
FUNCTION	MODE	PWM MODE	PHASE MODE
0	1	IR ATL	DUAL
1	1	IR ATL	Doubler
0	0	Tri-Ssate	DUAL
1	0	Tri-Ssate	Doubler
OPEN	0	Tri-Ssate	Quad
OPEN	1	IR ATL	Quad

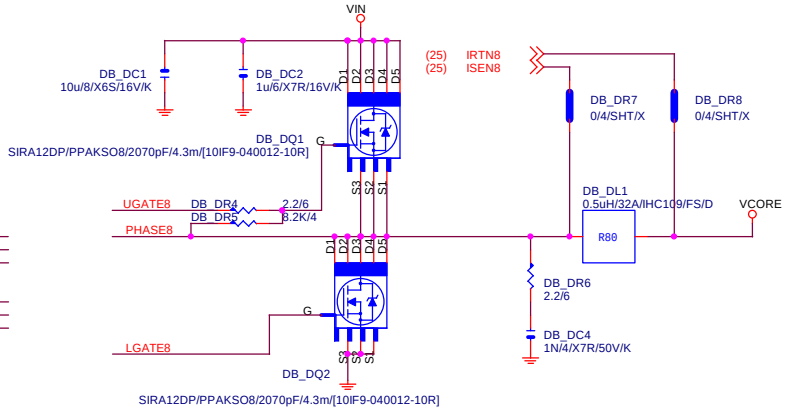
In Quad mode , IC1 pin10 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PU

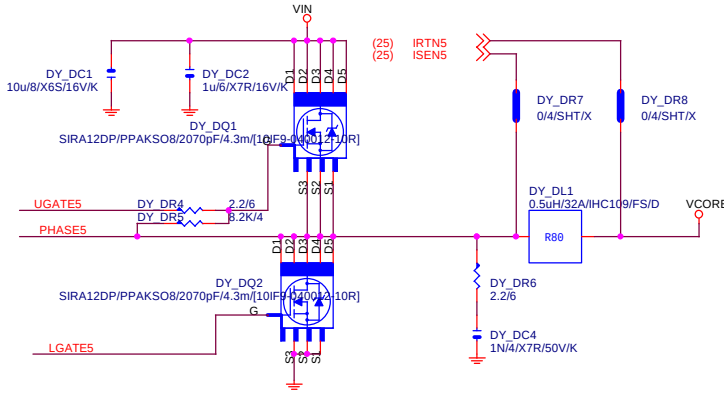




VCORE Phase 2,5







Gigabyte Technology			
Title: CPU CORE_IR3563B			
Size: Custom	Document Number: Z97X-Gaming 7		Rev: 1.0
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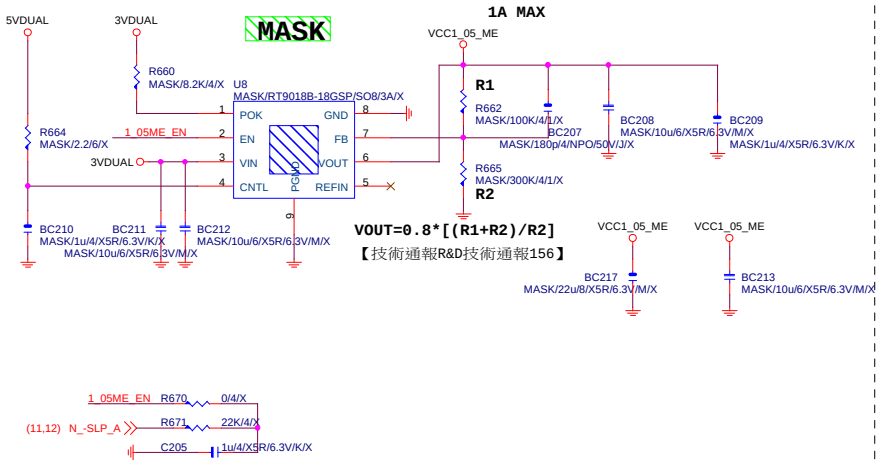
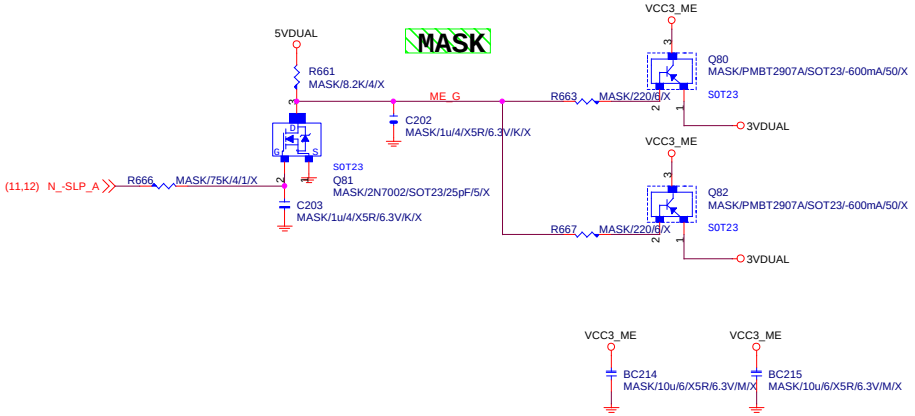
VCC1_05_ME



VCC3_ME

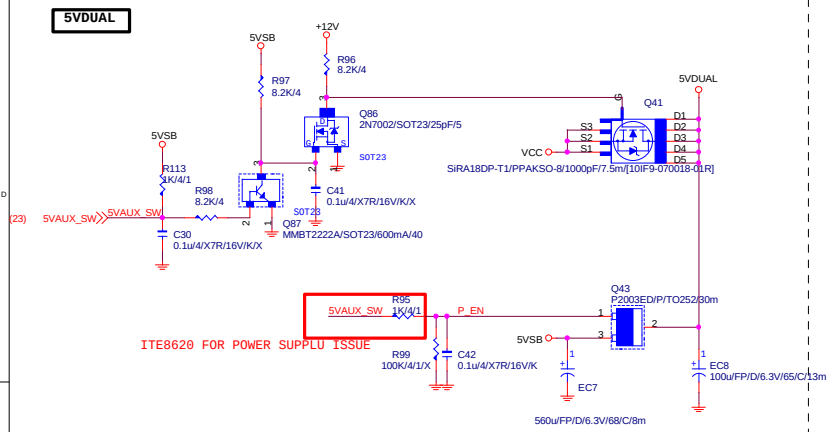


DDR_15V

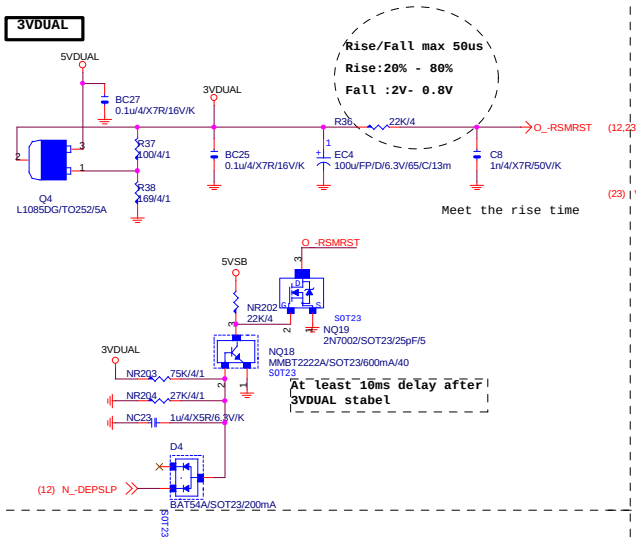
DDRVTT

Gigabyte Technology		
Title: DDR15V/M3 POWER		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
Date: Thursday, March 13, 2014	Sheet 27 of 41	

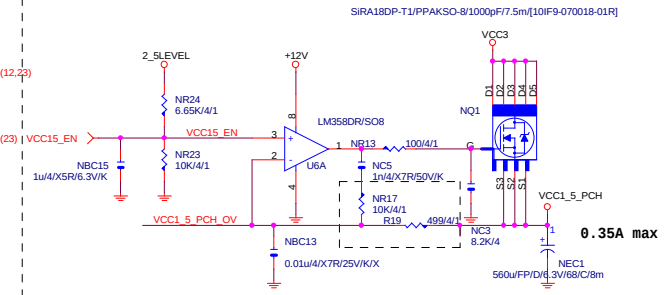
5VDUAL



3VDUAL



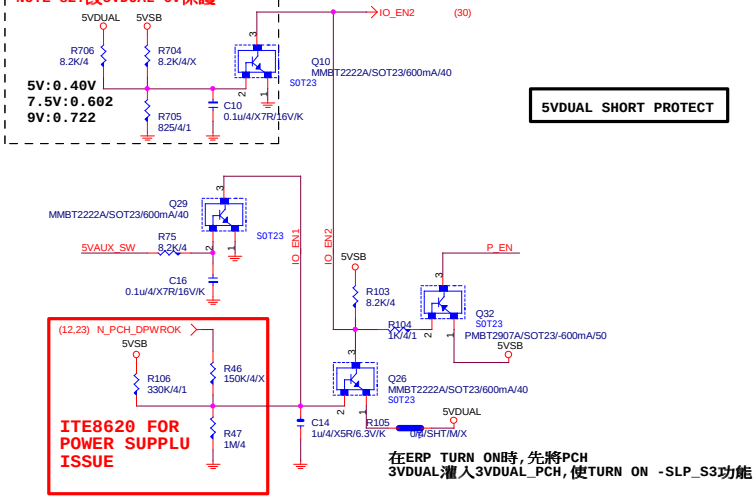
VCC1_5_PCH



5VSB OVP:7.5V protection

NOTE 82:改5VDUAL 6v保護

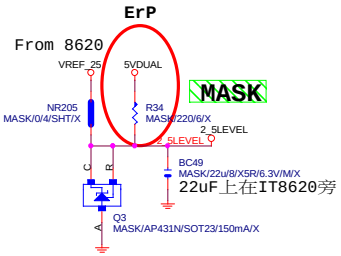
5V:0.40V
7.5V:0.602
9V:0.722



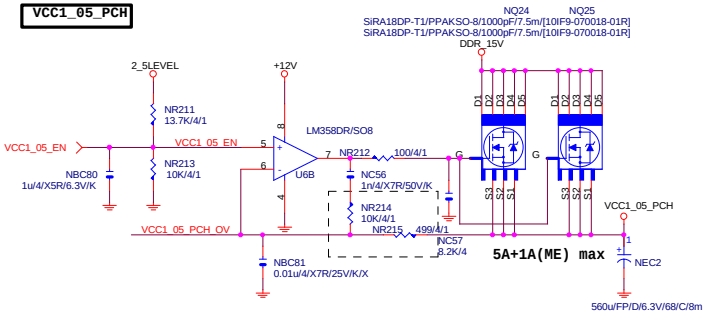
5VDUAL SHORT PROTECT

在ERP TURN ON時,先將PCH 3VDUAL灌入3VDUAL_PCH,使TURN ON -SLP_S3功能

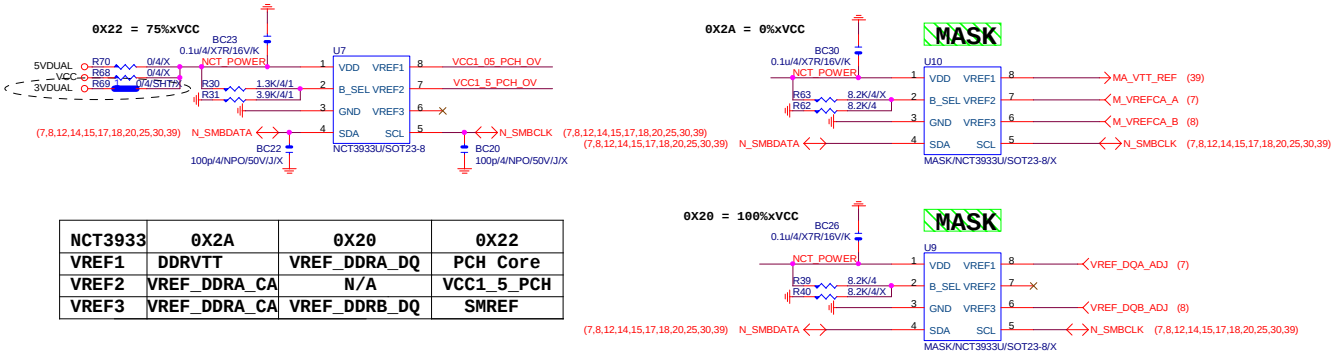
2_5LEVEL



VCC1_05_PCH



OVER VOLTAGE



NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

Gigabyte Technology

Title: DISCRETE POWER

Size: Custom | Document Number: Z97X-Gaming 7 | Rev: 1.0

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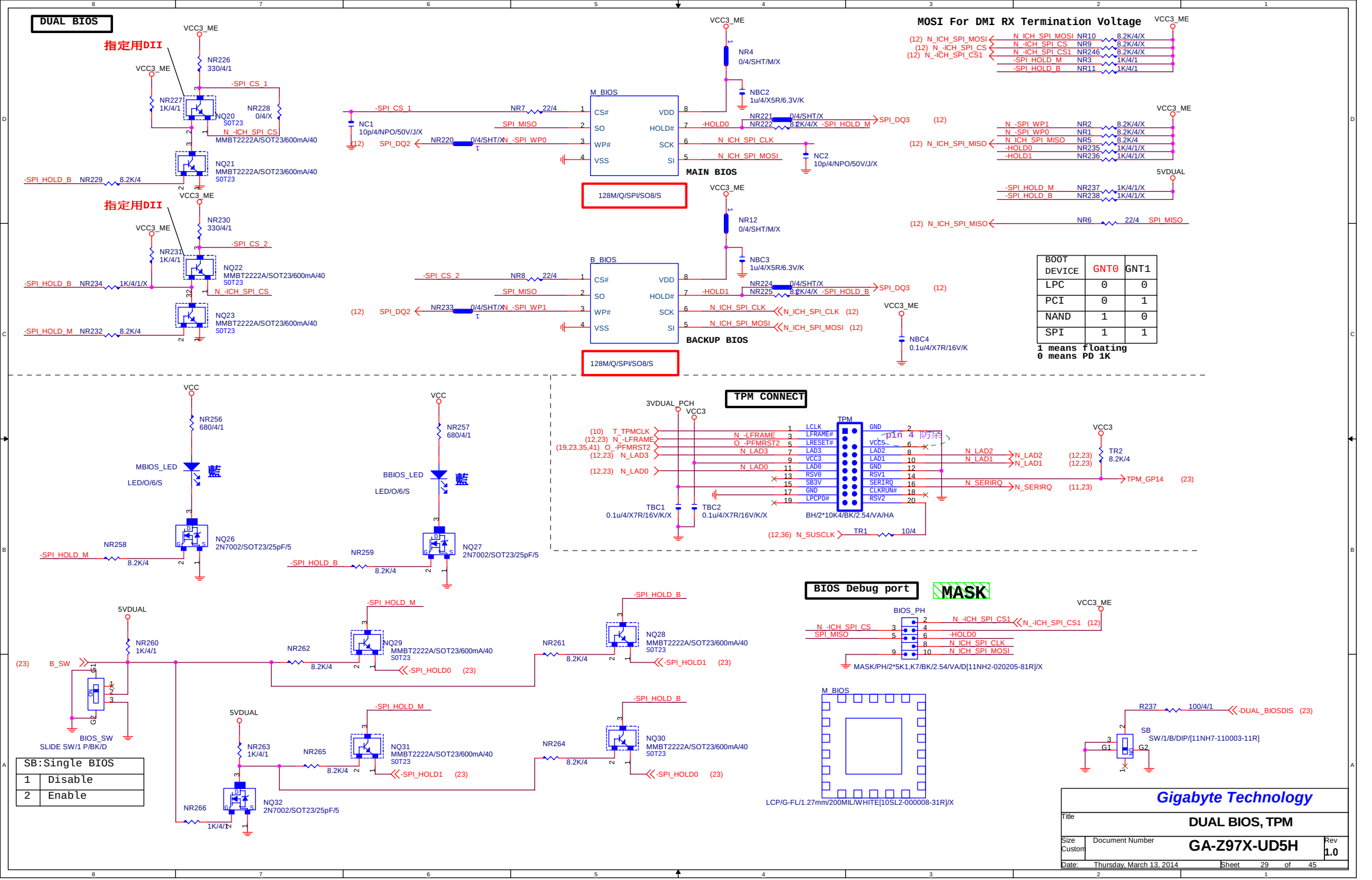
DUAL BIOS
指定用DII
VCC3_ME
NR226 330/4/1
NR227 1K/4/1
NR228 0/4/X
NQ20 S0T23
-SPI_CS_1
N_-ICH_SPI_CS
MMBT2222A/SOT23/600mA/40
NQ21 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_B NR229 8.2K/4
指定用DII
NR230 330/4/1
NR231 1K/4/1
-SPI_CS_2
NQ22 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_B NR234 1K/4/1/X
N_-ICH_SPI_CS
NQ23 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD_M NR232 8.2K/4
M_BIOS
CS# SO WP# VSS VDD HOLD# SCK SI
-SPI_CS_1 NR7 22/4
SPI_MISO
NC1 10p/4/NPO/50V/J/X
(12) SPI_DQ2 NR220 0/4/SHT/X N_-SPI_WP0
NR4 0/4/SHT/M/X
NBC2 1u/4/X5R/6.3V/K
-HOLD0 NR221 0/4/SHT/X NR222 8.2K/4/X -SPI_HOLD_M SPI_DQ3 (12)
N_ICH_SPI_CLK
N_ICH_SPI_MOSI
NC2 10p/4/NPO/50V/J/X
MAIN BIOS
128M/Q/SPI/SO8/S
B_BIOS
-SPI_CS_2 NR8 22/4
SPI_MISO
(12) SPI_DQ2 NR233 0/4/SHT/X N_-SPI_WP1
NR12 0/4/SHT/M/X
NBC3 1u/4/X5R/6.3V/K
-HOLD1 NR224 0/4/SHT/X NR225 8.2K/4/X -SPI_HOLD_B SPI_DQ3 (12)
N_ICH_SPI_CLK (12)
N_ICH_SPI_MOSI (12)
BACKUP BIOS
128M/Q/SPI/SO8/S
NBC4 0.1u/4/X7R/16V/K
MOSI For DMI RX Termination Voltage
(12) N_ICH_SPI_MOSI N_ICH_SPI_MOSI NR10 8.2K/4/X
(12) N_-ICH_SPI_CS N_-ICH_SPI_CS NR9 8.2K/4/X
(12) N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 NR246 8.2K/4/X
-SPI_HOLD_M NR3 1K/4/1
-SPI_HOLD_B NR11 1K/4/1
(12) N_ICH_SPI_MISO N_-SPI_WP1 NR2 8.2K/4/X
N_-SPI_WP0 NR1 8.2K/4/X
N_ICH_SPI_MISO NR5 8.2K/4
-HOLD0 NR235 1K/4/1/X
-HOLD1 NR236 1K/4/1/X
5VDUAL
-SPI_HOLD_M NR237 1K/4/1/X
-SPI_HOLD_B NR238 1K/4/1/X
(12) N_ICH_SPI_MISO NR6 22/4 SPI_MISO
BOOT DEVICE | GNT0 | GNT1
LPC | 0 | 0
PCI | 0 | 1
NAND | 1 | 0
SPI | 1 | 1
1 means floating
0 means PD 1K
VCC
NR256 680/4/1
MBIOS_LED
LED/O/6/S
藍
NQ26 2N7002/SOT23/25pF/5
NR258
-SPI_HOLD_M 8.2K/4
NR257 680/4/1
BBIOS_LED
LED/O/6/S
藍
NQ27 2N7002/SOT23/25pF/5
NR259
-SPI_HOLD_B 8.2K/4
TPM CONNECT
3VDUAL_PCH
VCC3
TPM
(10) T_TPMCLK
(12,23) N_-LFRAME
(19,23,35,41) O_-PFMRST2
(12,23) N_LAD3
(12,23) N_LAD0
N_-LFRAME
O_-PFMRST2
N_LAD3
N_LAD0
LCLK LFRAME# LRESET# LAD3 VCC3 LAD0 RSV0 SB3V GND LPCPD# GND LAD2 LAD1 GND RSV1 SERIRQ CLKRUN# RSV2
pin 4 防呆
N_LAD2
N_LAD1
N_SERIRQ
(11,23)
TPM_GP14 (23)
TR2 8.2K/4
TBC1 0.1u/4/X7R/16V/K/X
TBC2 0.1u/4/X7R/16V/K/X
BH/2*10K4/BK/2.54/VA/HA
(12,36) N_SUSCLK TR1 10/4
5VDUAL
NR260 1K/4/1
(23) B_SW
BIOS_SW
SLIDE SW/1 P/BK/D
-SPI_HOLD_M
NR262 8.2K/4
NQ29 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD0 (23)
-SPI_HOLD_B
NR261 8.2K/4
NQ28 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD1 (23)
5VDUAL
NR263 1K/4/1
-SPI_HOLD_M
NR265 8.2K/4
NQ31 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD1 (23)
NR266 1K/4/1
NQ32 2N7002/SOT23/25pF/5
-SPI_HOLD_B
NR264 8.2K/4
NQ30 MMBT2222A/SOT23/600mA/40 S0T23
-SPI_HOLD0 (23)
SB:Single BIOS
1 Disable
2 Enable
BIOS Debug port
MASK
BIOS_PH
N_-ICH_SPI_CS
SPI_MISO
N_-ICH_SPI_CS1 N_-ICH_SPI_CS1 (12)
-HOLD0
N_ICH_SPI_CLK
N_ICH_SPI_MOSI
MASK/PH/2*5K1,K7/BK/2.54/VA/D[11NH2-020205-81R]/X
M_BIOS
LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X
R237 100/4/1
-DUAL_BIOSDIS (23)
SB
SW/1/B/DIP/[11NH7-110003-11R]
Gigabyte Technology
Title
DUAL BIOS, TPM
Size Custom
Document Number
GA-Z97X-UD5H
Rev 1.0
Date: Thursday, March 13, 2014
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Front USB3.0

F_USB30 REV=1
BH/2*10K20/BK/ON/2.0/VA/D/GF

F_USB30 ESD PROTECT

UAE1 AZ1065-06Q/MSOP8L
UAE2 AZ1065-06Q/MSOP8L

Close to connector

F_USB30 PWR

SMD1206P350SLR/6V/S
UAEC3 100u/FP/D/6.3V/65/C/13m

FRONT USB1

F_USB1
BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180
UAESD1 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Close to connector

UAF1 SPR-P200T/6V/8/S
UAEC1 560u/FP/D/6.3V/68/C/8m

FRONT USB2

F_USB2
BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180
UAESD2 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Close to connector

UAF3 SPR-P200T/6V/8/S
共用一個560uF

-USBOC_R

UBD1 BAT54A/SOT23/200mA
UBD3 BAT54A/SOT23/200mA

-USBOC_F

BAT54A/SOT23/200mA

SATA LED

SATALED# signal open-collector,pull-up (8.2 kΩ to 10 kΩ) to Vcc3_3

SATA LED
BAT54A/SOT23/200mA
MMBT2222A/SOT23/600mA/40

SPKR

To disable TCO timer

CASE OPEN

F_USB POWER PROTECT

UAD5 BAT54A/SOT23/200mA

USB2.0 Signal & power short protection

USB2.0 Signal > 4.85V
Enable -->
3VDUAL=3.5V

MASK

(開機短路保護)
(開機短路保護)

INTEL FRONT PANEL

F_PANEL
BH/2*10K10,12,13/BK/2.54/VA/PA
FPESD1 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

Title	FP,F_USB,USB PWR,FDD,BZ
Size	Custom
Document Number	Z97X-Gaming 7
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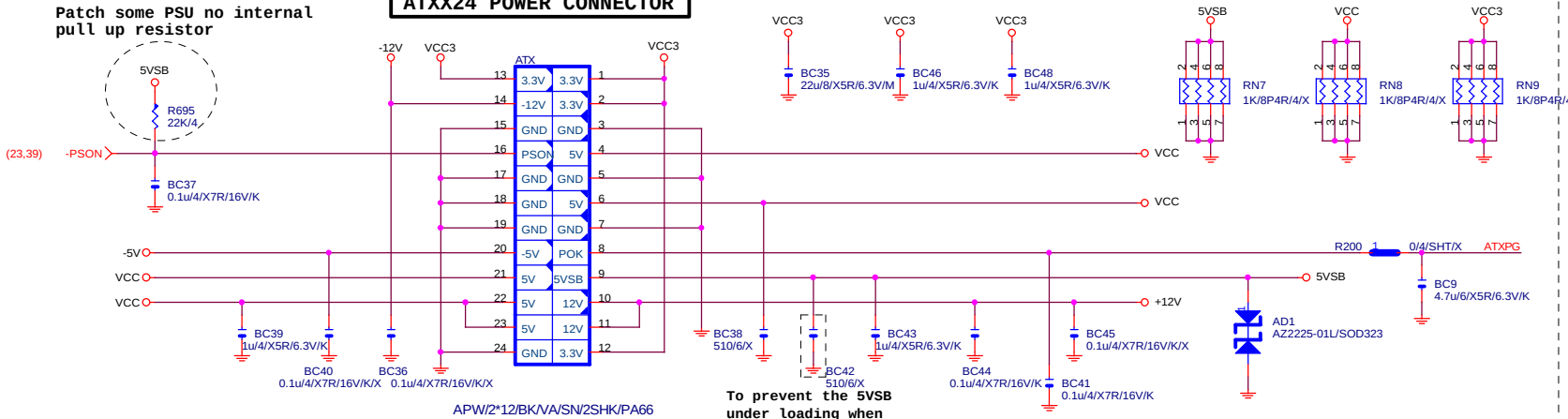
Gigabyte Technology

Patch some PSU no internal pull up resistor

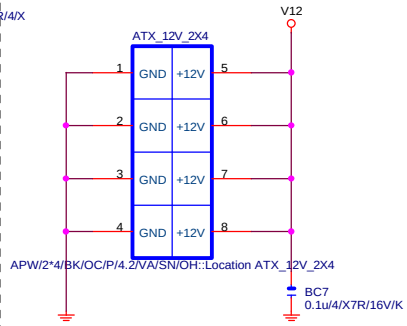
ATXX24 POWER CONNECTOR



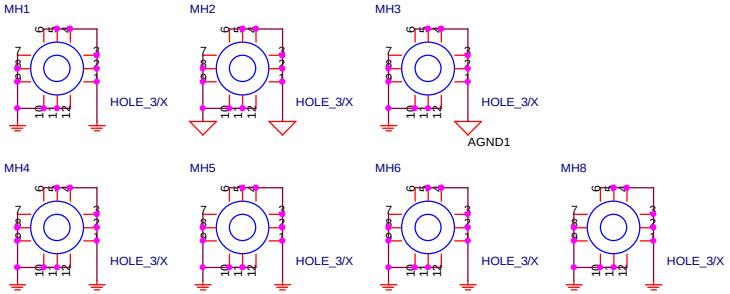
APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

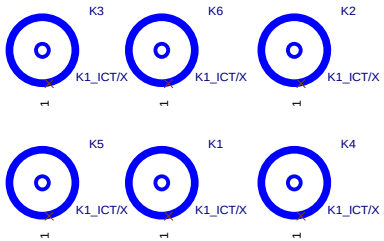
ATXX4 POWER CONNECTOR



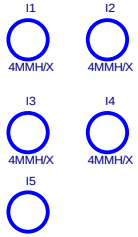
APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4



HOLE_4-RH-1



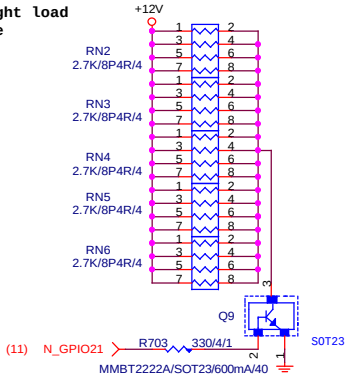
K1-ICT

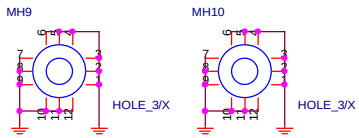


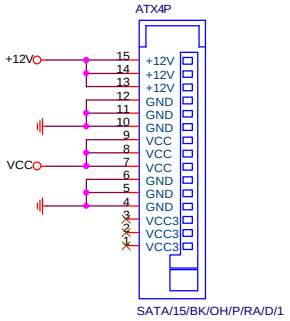
4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue



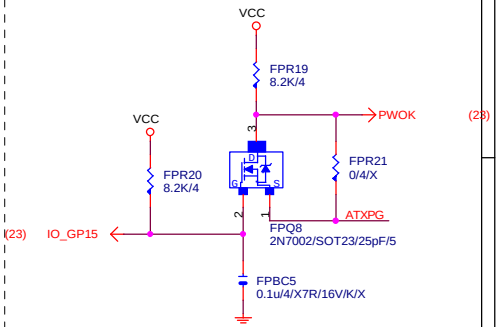




SATA/15/BK/OH/P/RA/D/1

PWOK PATCH

【技術通報R&D技術通報154】



Gigabyte Technology

Title: ATX POWER CONNECTOR

Size	Document Number	Rev
Custom	Z97X-Gaming 7	1.0

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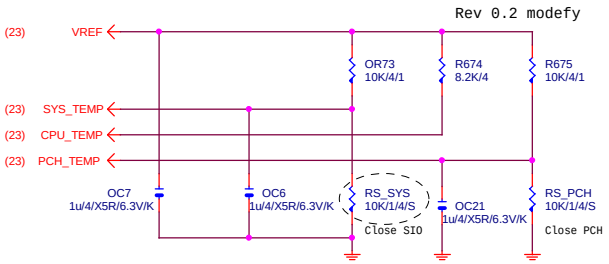
TEMP H/W MONITOR

Rev 0.2 modefy

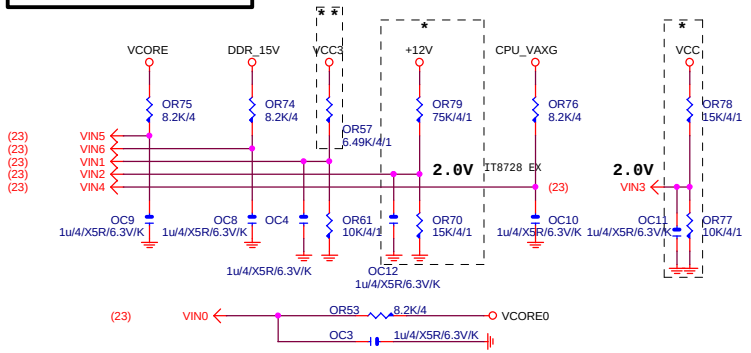


Thrmtrip#改用LM358做

VOLTAGE-- H/W MONITOR

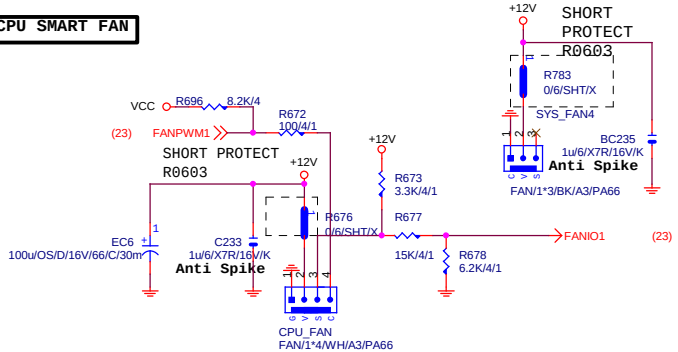
* IT8728 BX
** IT8728 CX

VIN2 must +12V input
VIN3 must VCC input



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

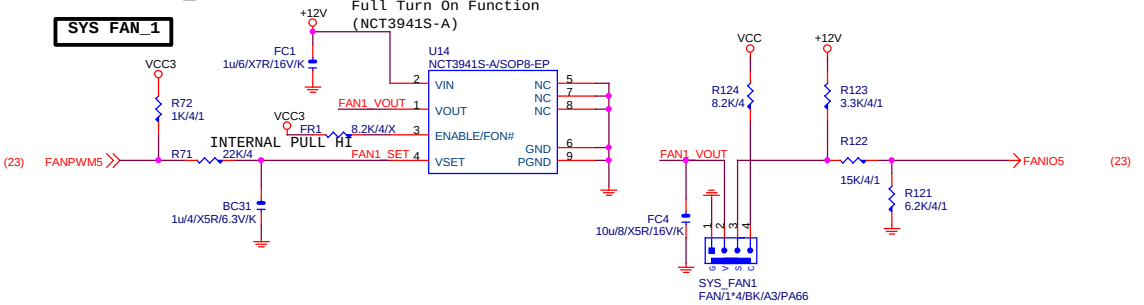
CPU SMART FAN



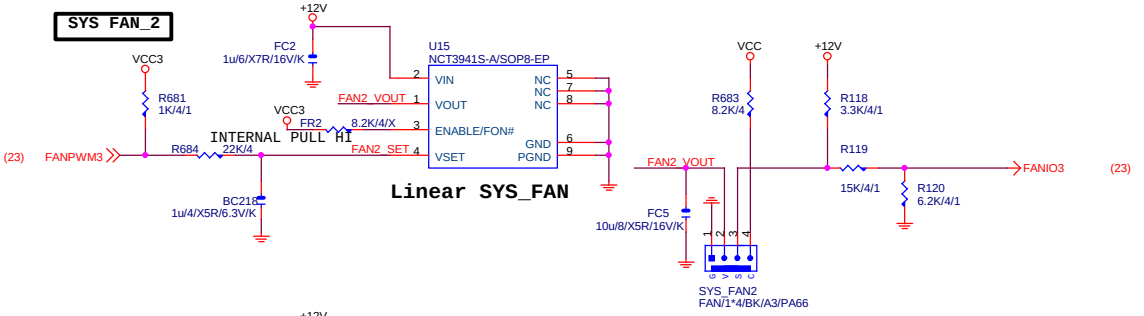
Linear SYS_FAN

Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

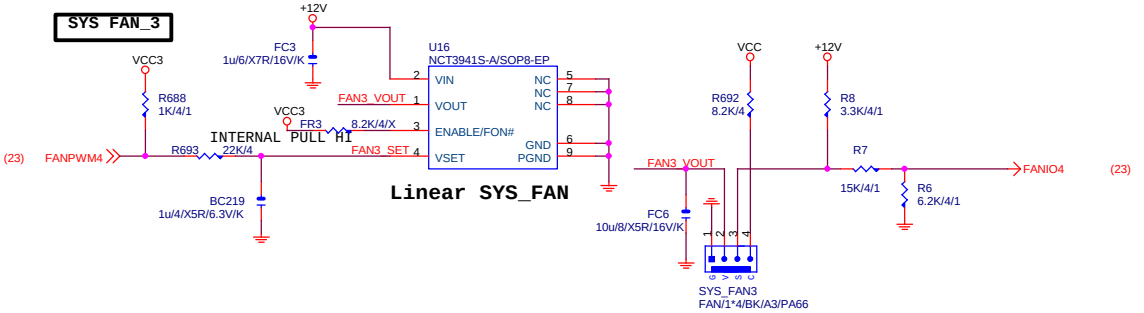
SYS FAN_1



SYS FAN_2

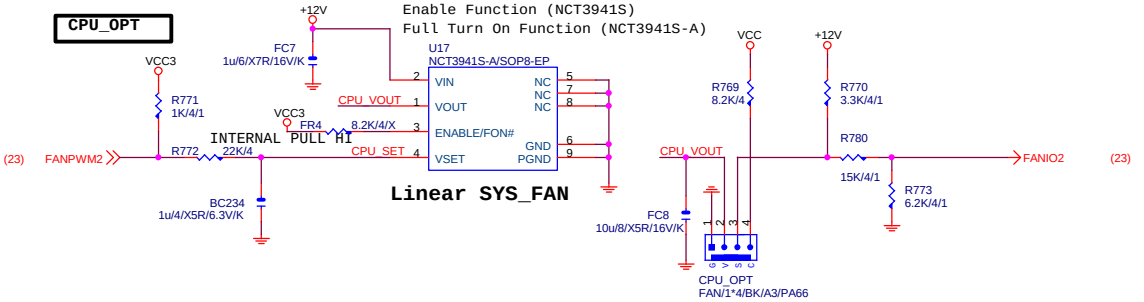


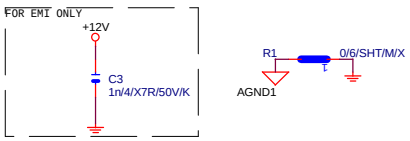
SYS FAN_3



CPU_OPT

Enable Function (NCT3941S)
Full Turn On Function (NCT3941S-A)

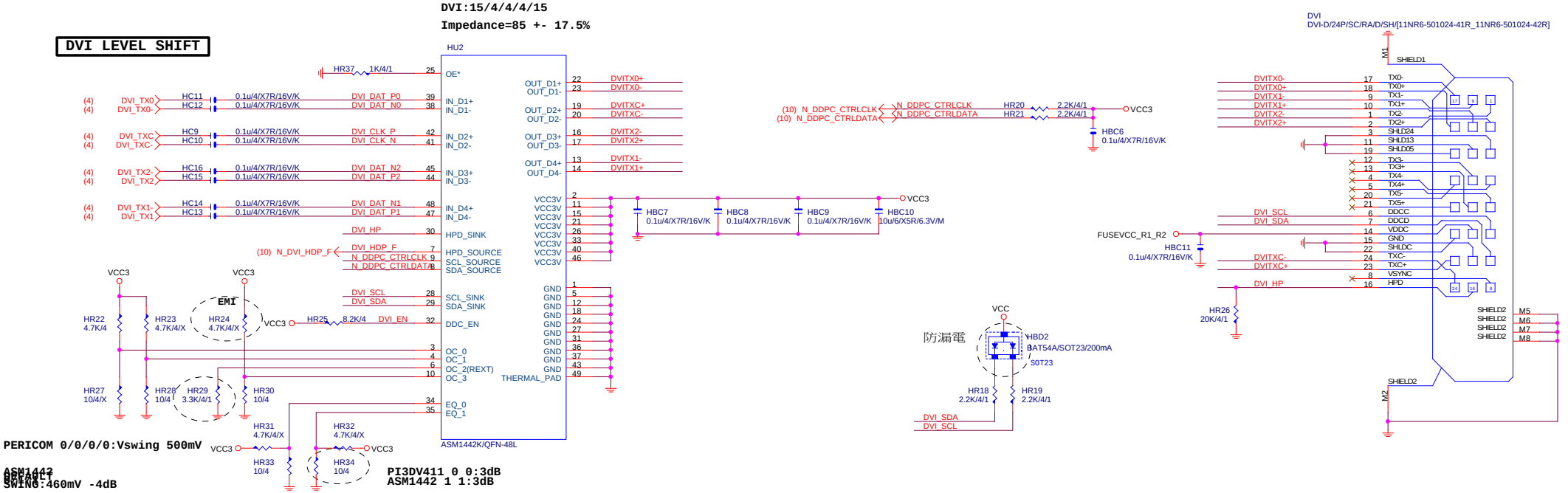




Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
Date: Thursday, March 13, 2014	Sheet 32 of 41	

DVI LEVEL SHIFT

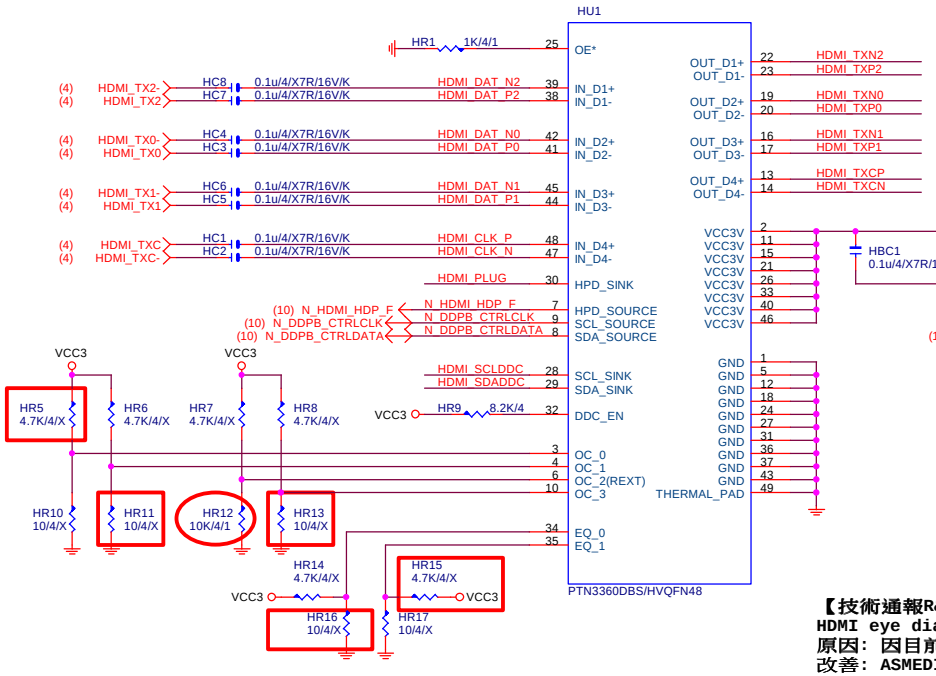
DVI:15/4/4/4/15
Impedance=85 +- 17.5%

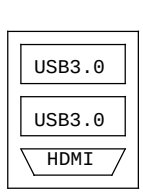


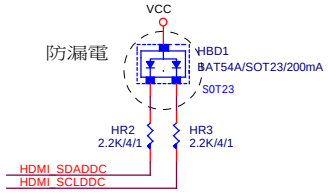
Gigabyte Technology			
Title: DVI			
Size: Custom	Document Number: Z97X-Gaming 7		Rev: 1.0
Date: Thursday, March 13, 2014	Sheet 33 of 41		

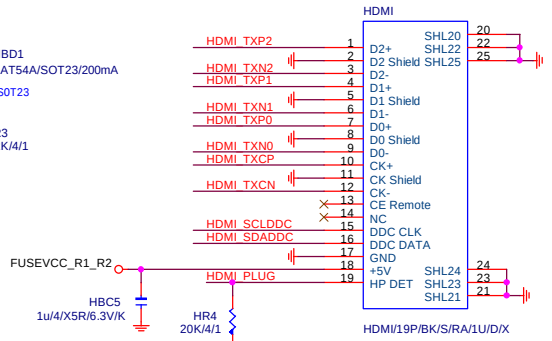
HDMI LEVEL SHIFT

HDMI:20/4/6/4/20
Impedance=85 +- 17.5%









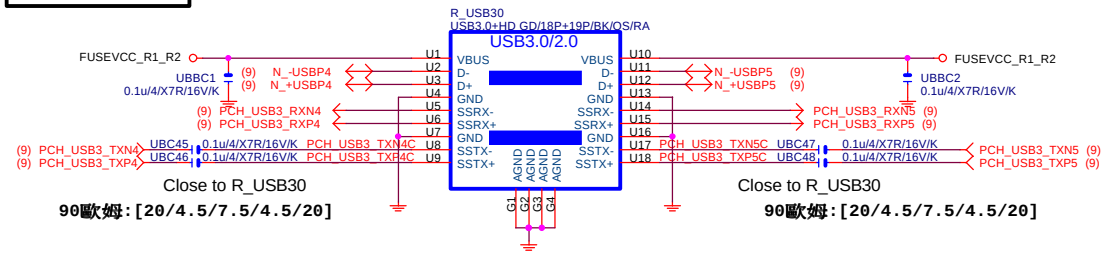
HDMI與R_USB共用一個料件

【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMEDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

USB30_20 CONNECT

HDMI鍍金



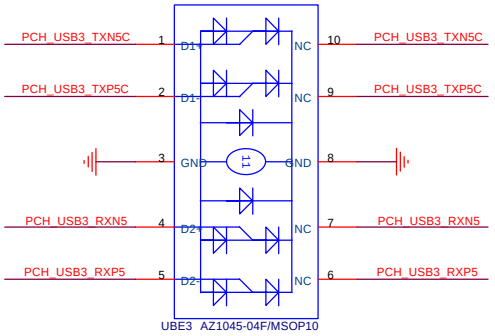
Close to R_USB30

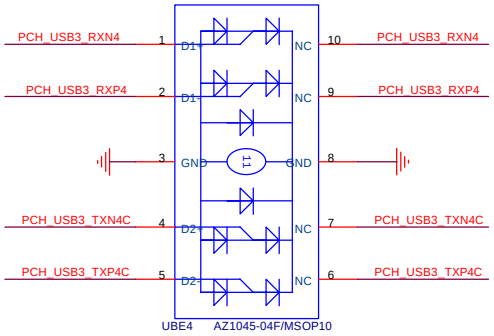
90歐姆:[20/4.5/7.5/4.5/20]

Close to R_USB30

90歐姆:[20/4.5/7.5/4.5/20]

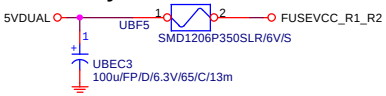
USB30 ESD PROCTECT



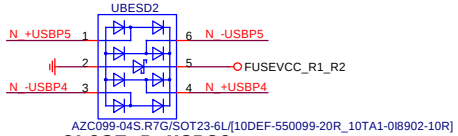


USB30 PWR

Polyswitch-1206



USB20 ESD PROCTECT



CLOSE R_USB30

USB3.0 1Port - 1Fuse (3.5A)

Gigabyte Technology		
Title: HDMI		
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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LAN:AR8151/AR8161

離IC近越好

LA_ ML-->80歐姆:[15/5/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

AR8161-->N/A (LABC6)

AR8161-->(0)

LA_ ML-->80歐姆:[15/5/5/5/15]

AR8161-->N/A (LABC12)

AR8161-->N/A (LAR9,LABC14)

AR8161-->N/A (LABC20)

AR8151:LA_AVDDH(LAR20)
AR8161:3VDUAL(LAR19)

SCH BOM OPT:(二擇一使用)
-->(LAC30):M/B有CLK GEN 25M
-->(LAX1,LAC31,LAC32):M/B無CLK GEN 25M

LAN POWER

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

CLOSE
LA_LX 200mil

AR8161-->N/A (LAR3,LAR4)

AR8151 POWER

AR8161 POWER

AR8161-->(0)

AR8161-->(0)

AR8161-->(0)

Power domain chart

	AR8151	AR8161
AVDD33	N/A	3.3V
VDD33	3.3V	3.3V
AVDDH	2.7V	2.7V
AVDDL/DVDDL	1.1V	1.1V
VDDCT	1.7V	

MDI : AR8161-->N/A

CLOSE LAN CHIP

USB_LAN CONNECTOR

RMA ESD PROTECT

AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

USB X3 POWER

SMD1206P350SLR/6V/S

Close to connector

EMI SHORT PAD

PS:視EMI需求

MASK/AOZ8902CIL/SOT23-6/X

MASK

LA_MDI-->100歐姆:[20/4/8/4/20]

USB3.0

USB3+RJ45/[11NR6-702009-K1R]

注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

AZ1045-04F/MSOP10

Gigabyte Technology		
Title	ARTHEROS AR8151/AR8161	
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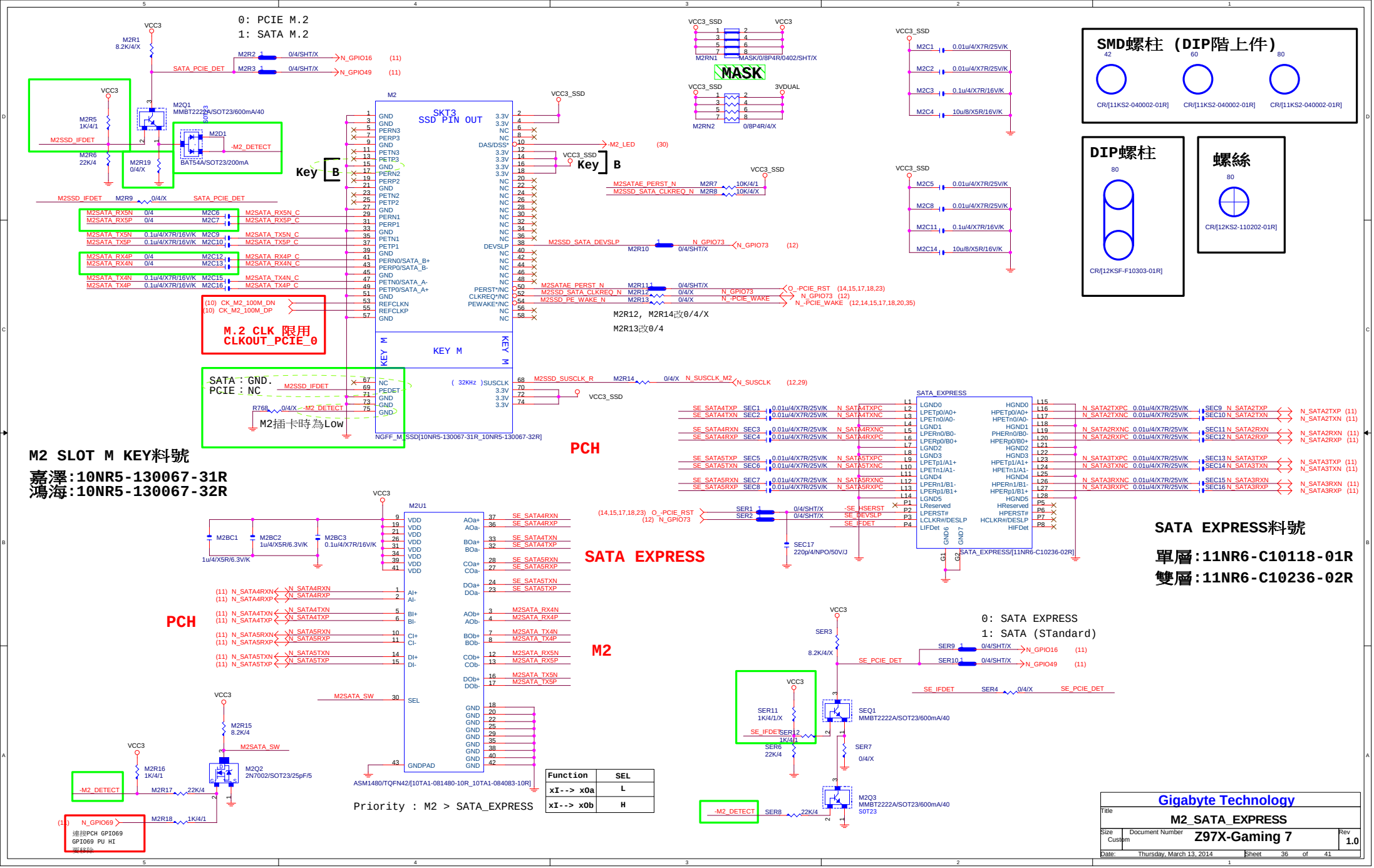
0: PCIE M.2
1: SATA M.2
M2 SLOT M KEY料號
嘉澤:10NR5-130067-31R
鴻海:10NR5-130067-32R
M.2 CLK 限用
CLKOUT_PCIE_0
SATA：GND.
PCIE：NC
M2插卡時為Low
PCH
SATA EXPRESS
M2
0: SATA EXPRESS
1: SATA (STandard)
SATA EXPRESS料號
單層:11NR6-C10118-01R
雙層:11NR6-C10236-02R
SMD螺柱 (DIP階上件)
DIP螺柱
螺絲
M2插卡時為Low
Priority : M2 > SATA_EXPRESS
Function | SEL
xI--> xOa | L
xI--> xOb | H
Gigabyte Technology
M2_SATA_EXPRESS
Z97X-Gaming 7
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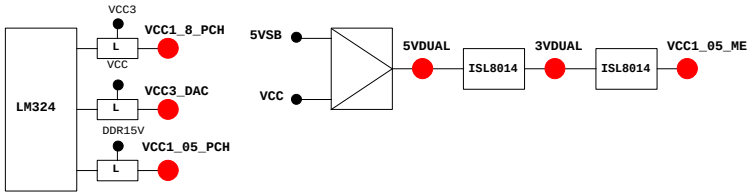
PCH GPIO LIST TABLE

PIN NAME	PWR	AFTER/PLTRST	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPI	GPIO0	N/A
GP1/TACH1	MAIN		GPI	GPIO1	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	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN		GPI	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPI	GPIO8	N/A
GP9/OC5#	STBY		NATIVE	USB OC5#	N/A
GP10/OC6#	STBY		NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY		NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPI	GPIO12	N/A
GP13	STBY	L	GPI	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY		NATIVE	USB OC7#	N/A
GP15	STBY	L	GPI	GPIO15(TLS Enable)	P/U 8.2K 3VDUAL
GP16	MAIN		GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN		GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN		GPI	Mobile Only	N/A
GP19	MAIN		GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN		GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN		GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPI	GPIO22	P/U 8.2K VCC3
GP23	MAIN		GPI	GPIO23	N/A
GP24	STBY	L	GPI	SKTOCC#	N/A
GP25	STBY			Mobile Only	N/A
GP26	STBY			Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27	P/U 8.2K 3VDUAL
GP28	STBY	H	GPO	PWR LED	P/U 8.2K 3VDUAL
GP29	STBY	L	GPI	GPIO29	N/A
GP30	STBY	H-Z	GPI	Mobile Only	N/A
GP31	STBY	H-Z	GPI	Mobile Only	N/A
GP32	MAIN	H	GPO	N/A	N/A
GP33	MAIN	H	GPO	N/A	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP	P/U 8.2K VCC3
GP35	MAIN	L	GPO	-ACZ_DET	P/U 8.2K VCC3
GP36	MAIN		GPI	N/A	N/A
GP37	MAIN		GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect	P/U 8.2K VCC3
GP39	MAIN	H-Z	GPI	GPIO39	P/U 8.2K VCC3
GP40	STBY		NATIVE	USB OC1#	N/A
GP41	STBY		NATIVE	USB OC2#	N/A
GP42	STBY		NATIVE	USB OC3#	N/A
GP43	STBY		NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44	P/U 8.2K 3VDUAL
GP45	STBY		NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46	P/U 8.2K 3VDUAL
GP47	STBY			Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48	P/U 8.2K 3VDUAL
GP49	MAIN	H-Z	IN	GPIO49	P/U 8.2K 3VDUAL
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	Mobile Only	N/A
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			Mobile Only	N/A
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

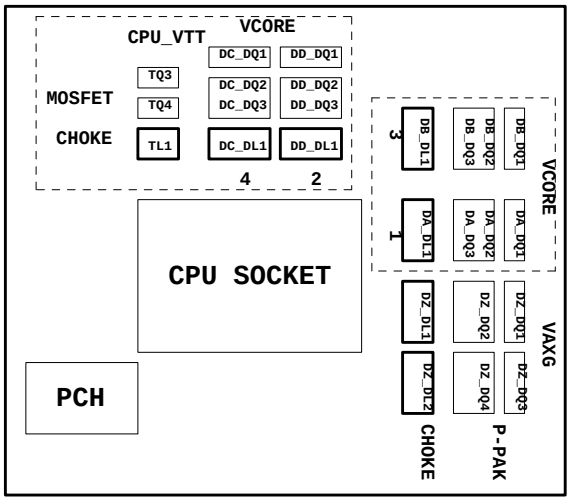
Super I/O ITE8720 GPIO Table

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：

Z77-D3H :
PCH :
12SP2-S05511-01R/02R/03R
MOSFET :
12SP2-S08924-01R/02R/03R

	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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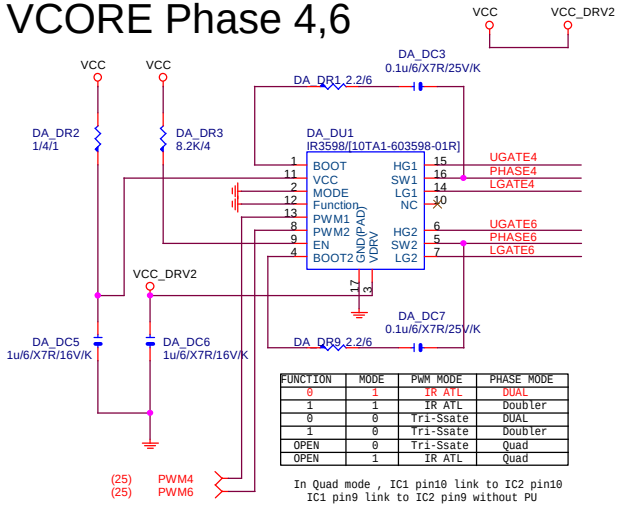
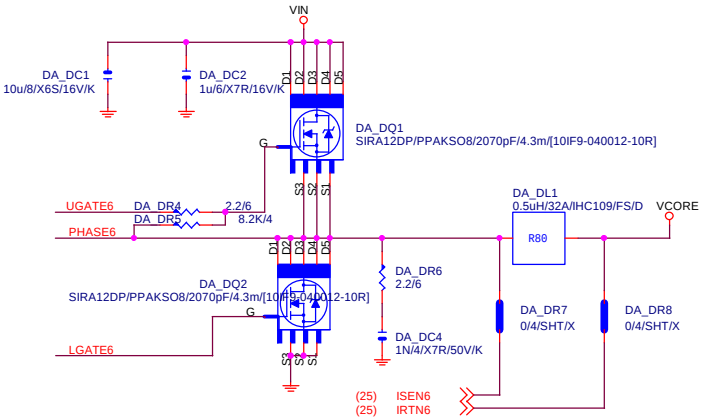
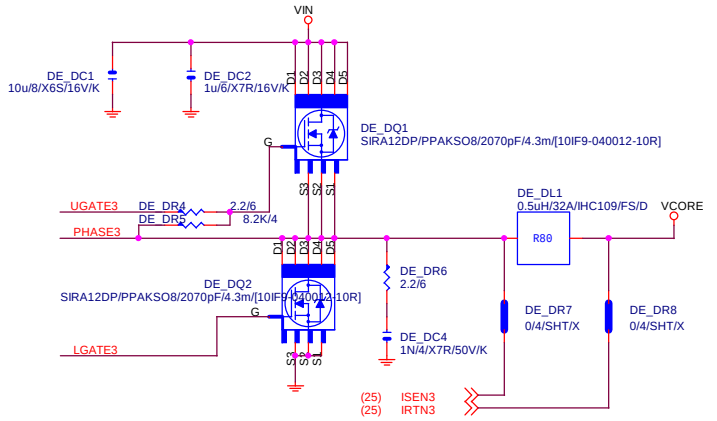
VCORE Phase 4,6



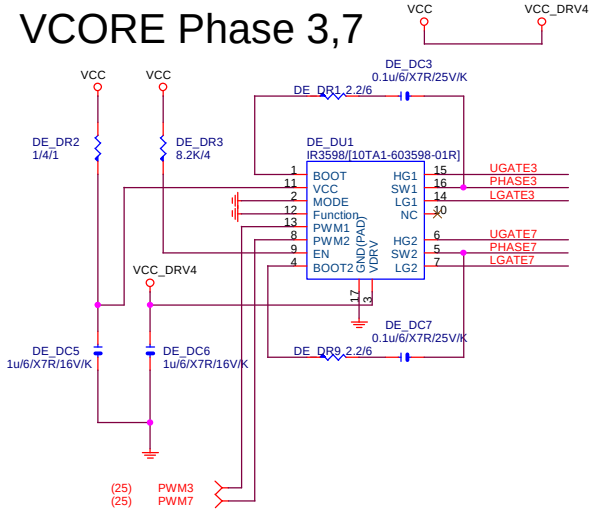
FUNCTION	MODE	PWM MODE	PHASE MODE
0	1	IR ATL	DUAL
1	1	IR ATL	Doubler
0	0	Tri-Ssate	DUAL
1	0	Tri-Ssate	Doubler
OPEN	0	Tri-Ssate	Quad
OPEN	1	IR ATL	Quad

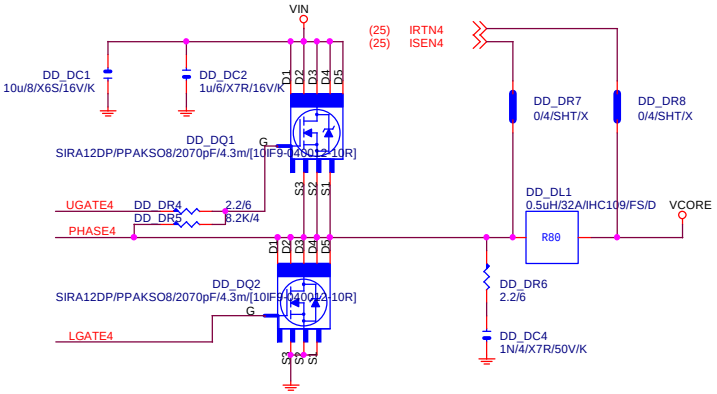
In Quad mode , IC1 pin10 link to IC2 pin10
IC1 pin9 link to IC2 pin9 without PU

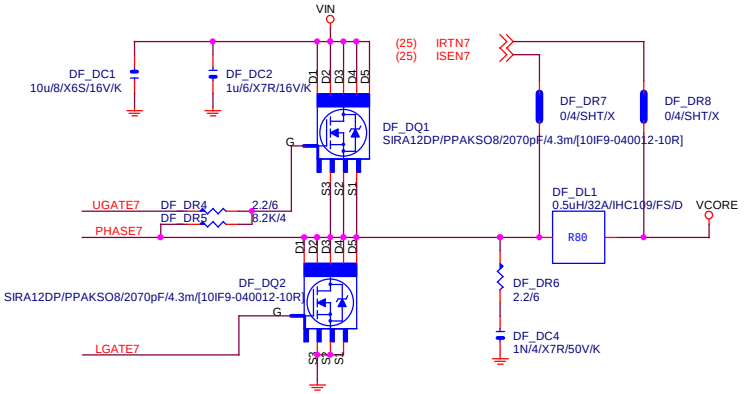




VCORE Phase 3,7







Gigabyte Technology

Title: CPU CORE_IR3563B

Size: Custom | Document Number: Z97X-Gaming 7 | Rev: 1.0

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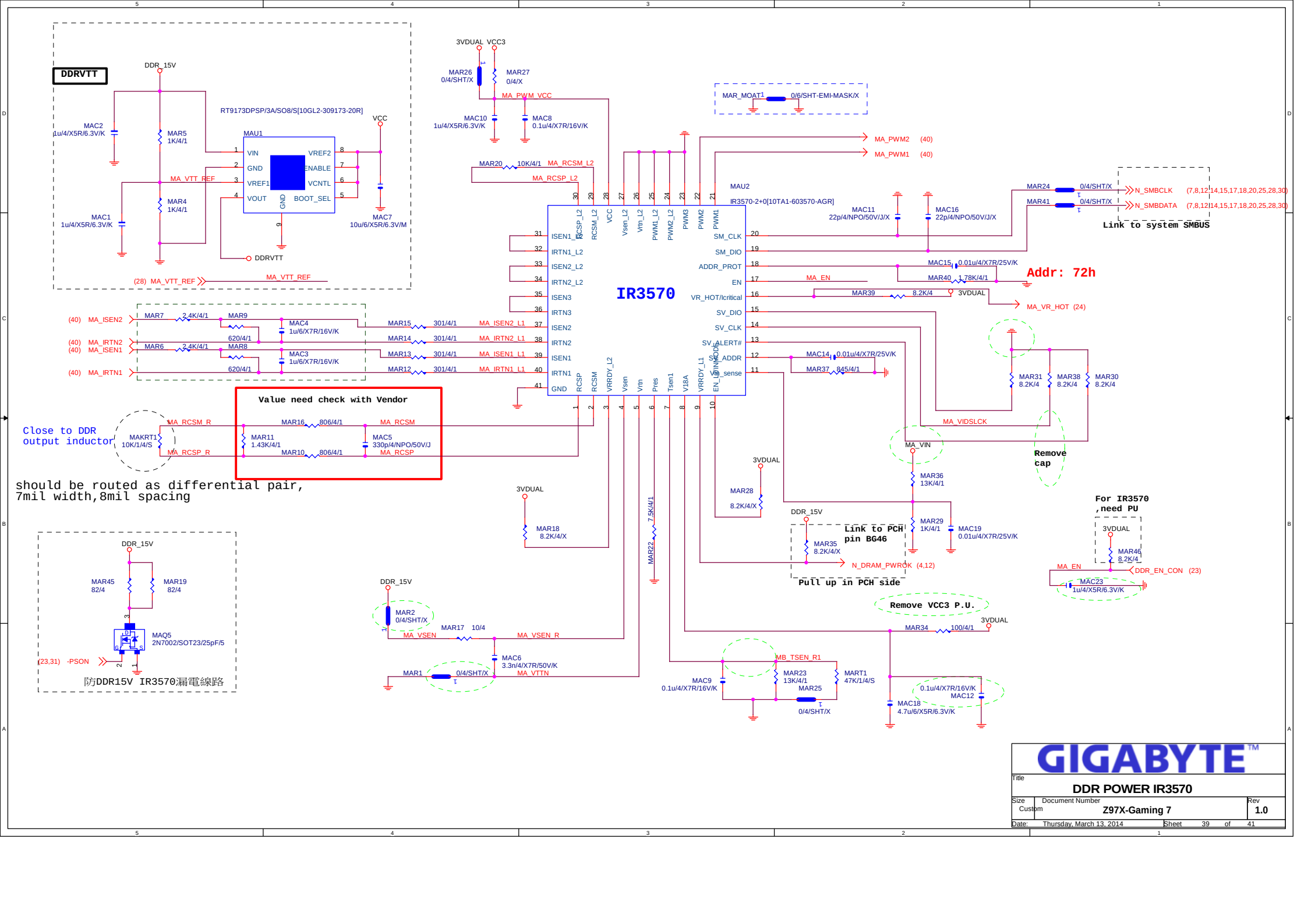

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Title	DDR POWER IR3570	
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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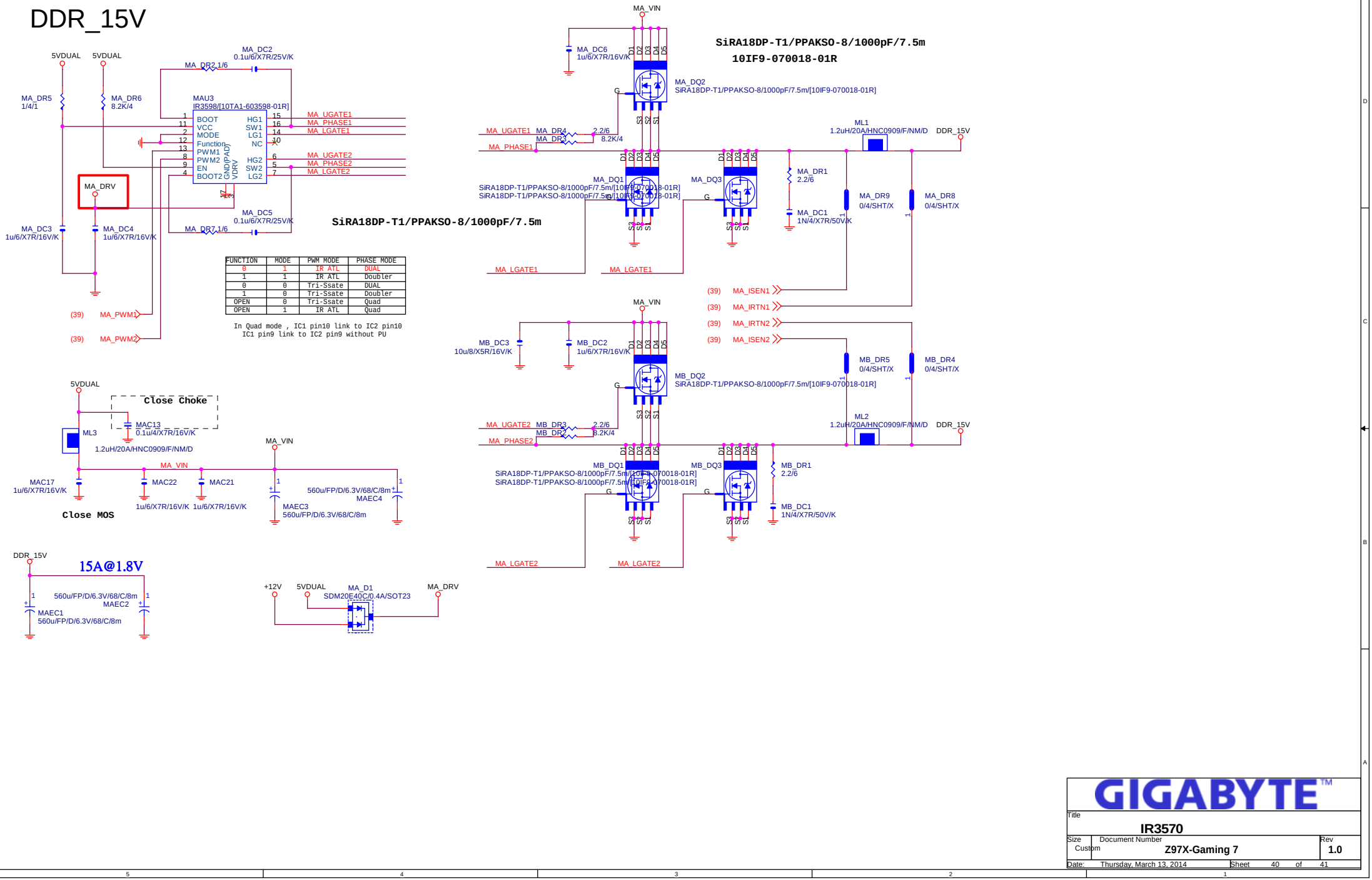
DDR_15V



GIGABYTE™

Title	IR3570	
Size: Custom	Document Number: Z97X-Gaming 7	Rev: 1.0
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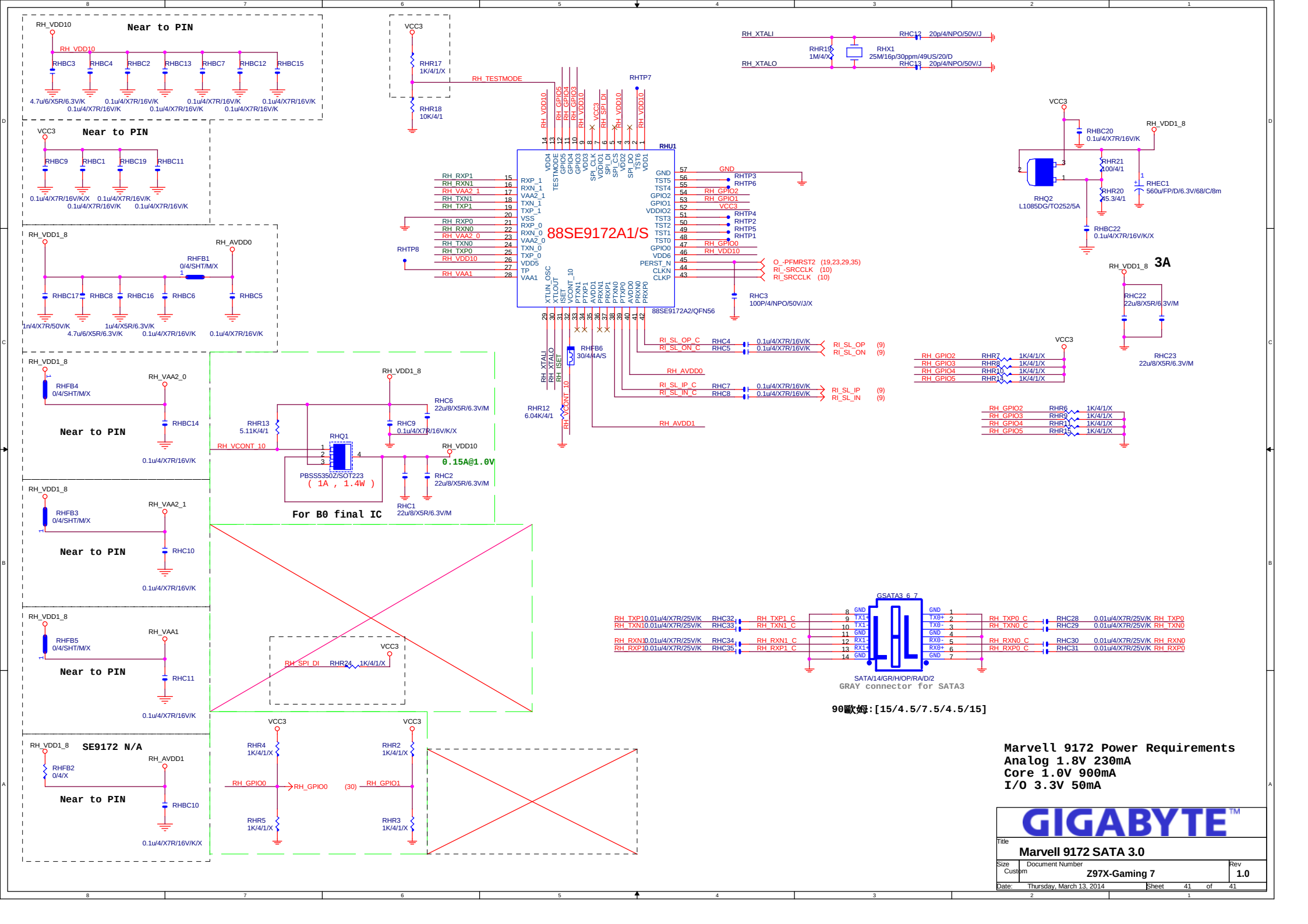
Near to PIN
RH_VDD10
RHBC3
RHBC4
RHBC2
RHBC13
RHBC7
RHBC12
RHBC15
4.7u/6/X5R/6.3V/K
0.1u/4/X7R/16V/K
Near to PIN
VCC3
RHBC9
RHBC1
RHBC19
RHBC11
Near to PIN
RH_VDD1_8
RH_AVDD0
RHFB1
0/4/SHT/M/X
RHBC17
RHBC8
RHBC16
RHBC6
RHBC5
1u/4/X7R/50V/K
4.7u/6/X5R/6.3V/K
Near to PIN
RH_VDD1_8
RH_VAA2_0
RHFB4
0/4/SHT/M/X
RHBC14
Near to PIN
RH_VDD1_8
RH_VAA2_1
RHFB3
0/4/SHT/M/X
RHC10
Near to PIN
RH_VDD1_8
RH_VAA1
RHFB5
0/4/SHT/M/X
RHC11
Near to PIN
RH_VDD1_8
SE9172 N/A
RH_AVDD1
RHFB2
0/4/X
RHBC10
0.1u/4/X7R/16V/K/X
VCC3
RHR17
1K/4/1/X
RH_TESTMODE
RHR18
10K/4/1
RHTP7
RHU1
88SE9172A1/S
88SE9172A2/QFN56
RHTP8
RHC3
100P/4/NPO/50V/J/X
RH_XTALI
RH_XTALO
RHR19
1M/4/X
RHX1
25M/16p/30ppm/49US/20/D
RHC12
RHC13
20p/4/NPO/50V/J
RH_VCONT_10
RHR13
5.11K/4/1
RHQ1
PBSS53502/SOT223
(1A , 1.4W)
RHC6
22u/8/X5R/6.3V/M
RHC9
0.1u/4/X7R/16V/K/X
RHC2
22u/8/X5R/6.3V/M
RHC1
22u/8/X5R/6.3V/M
0.15A@1.0V
For B0 final IC
RHFB6
30/4/4A/S
RHR12
6.04K/4/1
RI_SL_OP_C
RI_SL_ON_C
RHC4
RHC5
0.1u/4/X7R/16V/K
RI_SL_OP
RI_SL_ON
RI_SL_IP_C
RI_SL_IN_C
RHC7
RHC8
RI_SL_IP
RI_SL_IN
RH_AVDD0
RH_AVDD1
RH_SPI_DI
RHR24
1K/4/1/X
RHR4
RHR5
RHR2
RHR3
RH_GPIO0
RH_GPIO1
(30)
RHQ2
L1085DG/TO252/5A
RHBC20
0.1u/4/X7R/16V/K
RHR21
100/4/1
RHR20
45.3/4/1
RHEC1
560u/FP/D/6.3V/68/C/8m
RHBC22
0.1u/4/X7R/16V/K/X
3A
RHC22
22u/8/X5R/6.3V/M
RHC23
22u/8/X5R/6.3V/M
RH_GPIO2
RH_GPIO3
RH_GPIO4
RH_GPIO5
RHR7
RHR8
RHR10
RHR14
RHR6
RHR9
RHR11
RHR15
1K/4/1/X
GSATA3_6_7
SATA/14/GR/H/OP/RA/D/2
GRAY connector for SATA3
RH_TXP1_C
RH_TXN1_C
RH_RXN1_C
RH_RXP1_C
RHC32
RHC33
RHC34
RHC35
RH_TXP0_C
RH_TXN0_C
RH_RXN0_C
RH_RXP0_C
RHC28
RHC29
RHC30
RHC31
0.01u/4/X7R/25V/K
90歐姆:[15/4.5/7.5/4.5/15]
Marvell 9172 Power Requirements
Analog 1.8V 230mA
Core 1.0V 900mA
I/O 3.3V 50mA
GIGABYTE
Title
Marvell 9172 SATA 3.0
Size
Custom
Document Number
Z97X-Gaming 7
Rev
1.0
Date:
Thursday, March 13, 2014
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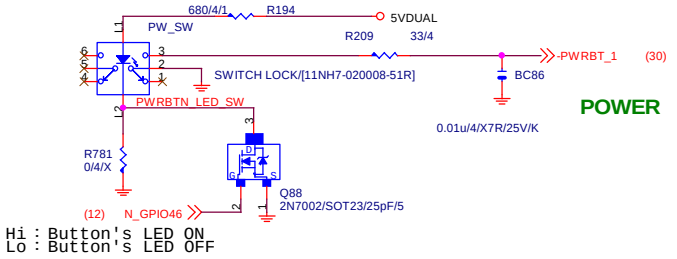
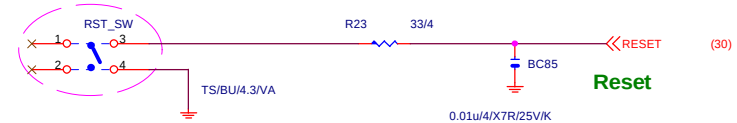
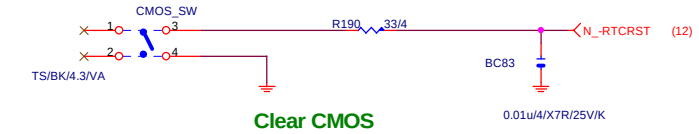
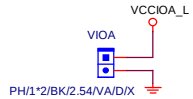
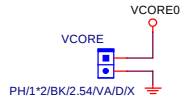
of
41

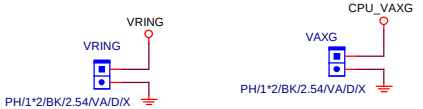


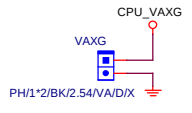












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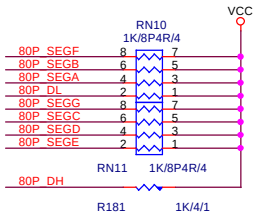

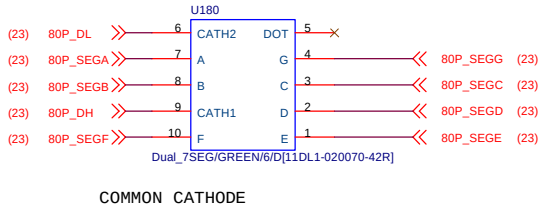

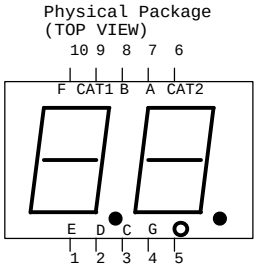

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Size: Custom	Document Number: GA-Z97X-UD5H	Rev: 1.0
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