Model Name: GA-Z97P-D3

1.01

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	PCIEX4 /PCIEX1 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1~2
18	I/O ITE8620
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC887 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET	TITLE
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	HDMI
33	TABLE LIST
34	
35	
36	
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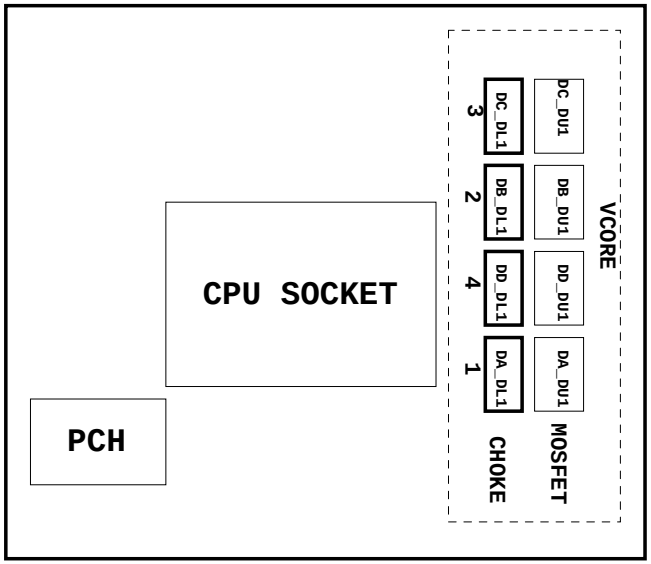

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Title	Cover Sheet	
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GA-Z97P-D3

Component value change history

Data	Change Item	Reason
2012/12/25 EBOM:01	E-BOM	
2013/01/24 EBOM:02	1.移除cpu vcore hi-side mos ,變成1上,2下,DDQ2,DBQ2,DCQ2,DAQ6	
	2.DAC2,DBC2,DCC2,DDC2 2.2nf --->1nf,避免過熱.	
	3.修改DDR DIMM 顏色順序	
	4.DR166 1K--->5.76K FOR CPU loadline calibration	
2013/03/28 PBOM:10A	1.LEVEL SHIFT限用NXP	
	2.不用PROCHOT改用Thermtrip線路	
2013/05/23 PBOM:10B	1.CHANGE MOS_HS	
2013/06/28 PBOM:11A	1.Z87 C1 CHIP change TO C2	
2013/08/09 EBOM:15A	1.Z87P-D3 15A BOM	
2013/09/16 EBOM:20A	1.Z87P-D3 2.0 for C1 CHIP	
2013/10/16 PBOM:20B	1.移除BC30,U10,R62 等,	
	2.NX1 25MHZ/20PF --->25MHZ/12PF;NC7,NC8 27PF ------>10PF FOR CRYSTAL 干擾ISSUE	
	3.DEL R82	
	1.Z87P-D3 2.1 for C2 CHIP	
2013/11/21 EBOM:01	Z97P-D3-01 E-BOM	
2013/11/21 EBOM:02	Z97P-D3-02 E-BOM	
2014/02/19 PBOM:10A	1.check ALC887 改32R;NR24 5.6K-->6.65K,NR23 8.2K--->10K	
SINGLE BOM	2.DEL UAU1(LM358),UAQ1,UAQ2,UAR2,UAR3,UABC7,UABC8,R34,Q3,	
	3.ESD PROTECT DIODE改爲用AMC099加強版	
	4.DEL FPR6,PAC1,PEC1	
	5.DAC4,DDC1,DCC1,DBC1 限用10UF/X6S,SAMSUNG/MURATA	
	6.NON VCORE MOS改用新料 ON /VISHAY	
2014/03/05 PBOM:10B	Z97 CHIP 的VCORE/NON VCORE MOS限用VISHAY	
	1.NR24 6.65K-->6.8K FOR PCH IO電壓更精確	
2014/04/15 PBOM:10C	Z97 CHIP 的料號更換爲20R FOR MP	
2014/05/08 PBOM:10D	1.MA_DQ1,MA_DQ2.MA_DQ3 DDR MOS由VISHAY換成ON	
2014/06/24 PBOM:10E	1.SATA / SATA Express remove MLCC,3.修改爲short pad + Mask ; PCB跳小版本(次版次)	

Circuit or PCB layout change

DATE	Change Item	Reason
2013/10/24 PCB:0.2	1.由Z87P-D3-2.0 修改成Z97P-D3-0.2	
2014/01/07 PCB:0.2	1.SPEC change USB two port one fuse 2.SPEC change 移除 THUNDERBALL PIN HEADER	
	3.FPR22/CR60/R200/OR34 0402 ---->SHORT MASK	
	4.CR51/DCR2/DDR2/DBR2/DAR2/DDR9 0603----->0603 SHORT MASK	
	5.修改HDLED線路 6.Swap HDMI PORTC------>PORTB	7.update PCH heatsink footprint
	8.R691/R676 ---->0603 SHORT10	9.OR68(CPU RESET) 不上件
	10.F_USB30 ESD PROTECT(UAE1,UAE2,UAESD4)改成 AZ1065	
	11.USB2.0/3.0 Signal & power short protection sch	
2014/02/13 PCB:1.0	1.ND2,NQ15,NQ16,NR186,NR187,NR188,NR189,NR190,NC49,NC50 MASK	
	2.U10,BC30,R62,R63 MASK	
	3.UAU1,UAQ1,UAQ2,UAR2,UAR3,UABC7,UABC8 MASK	
	4.LBESD1 MASK;NRN5,NRN1 SHORT MASK	
	5.NR205 SHORT ,R34,Q3 MASK	
	6.R660,R664,BC210,BC211,BC212,U8,R662,R665,BC207,BC208,R671,MASK	
	7.C205,R666,R661,Q80,Q81,Q82,C202,C203,R663,R667,BC214,BC215 MASK	
	8.Q21,R80,R81 MASK	
2014/06/24 PCB:1.01	1.SATA / SATA Express remove MLCC,3.修改爲short pad + Mask ; PCB跳小版本(次版次)	

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Title: BOM & PCB MODIFY HISTORY

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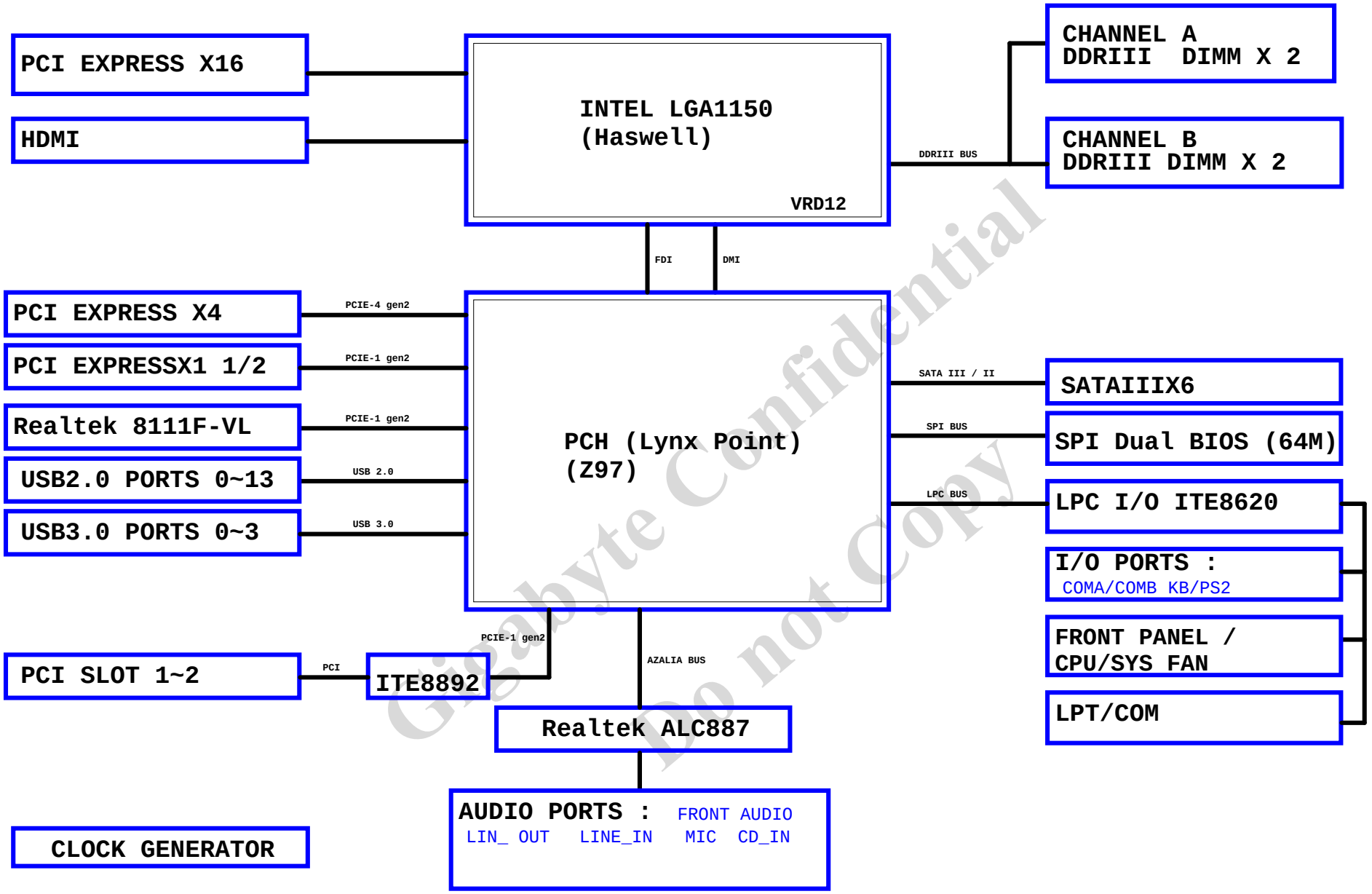
BLOCK DIAGRAM



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Title: BLOCK DIAGRAM			
Size: C	Document Number: GA-Z97P-D3		Rev: 1.01
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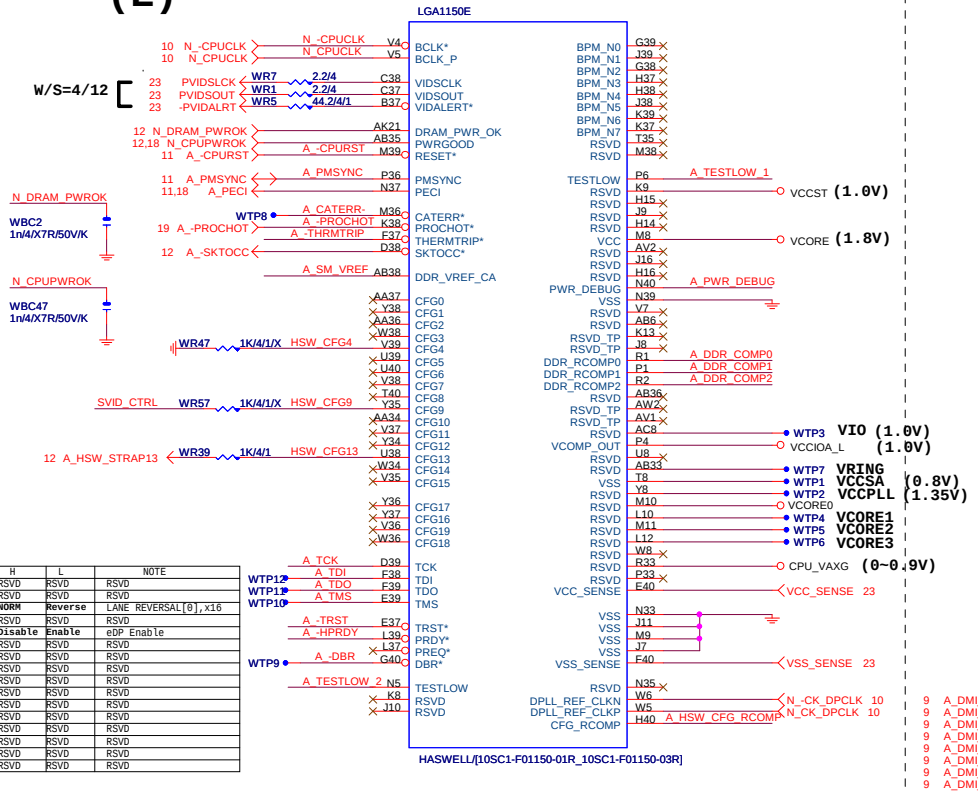
LGA1150 (E)



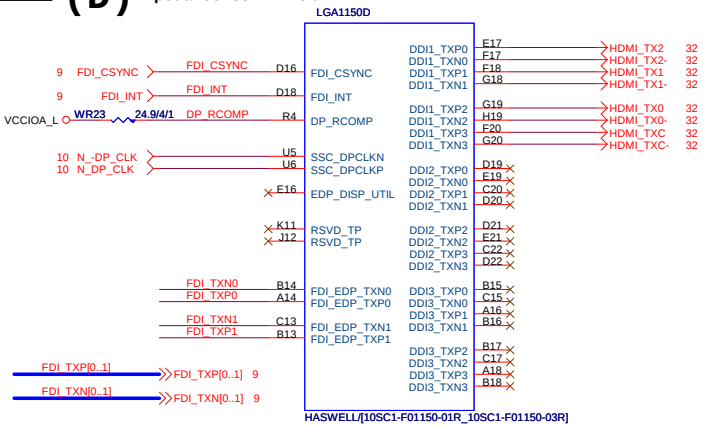
CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

LGA1150 (D)

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

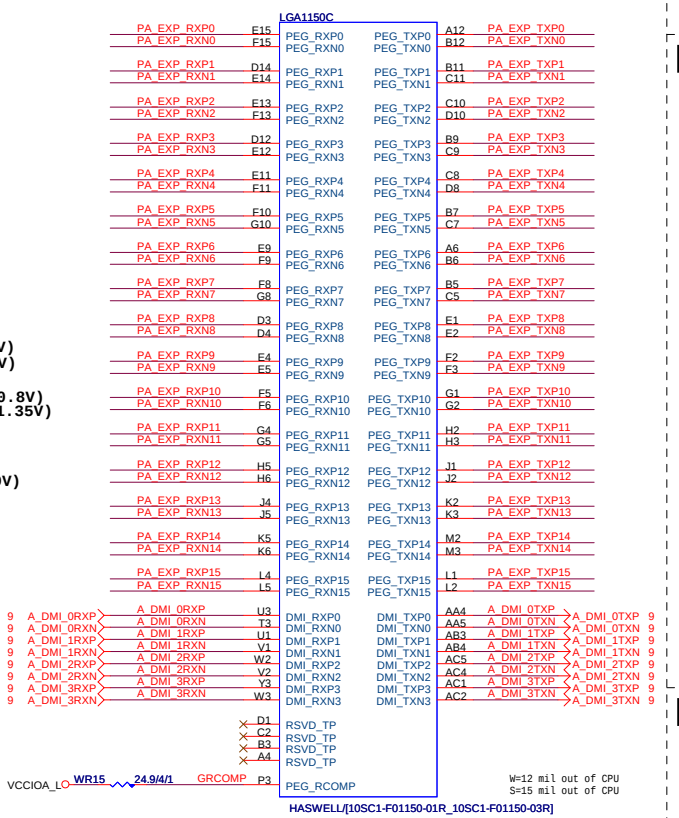


FDI DISABLE
FDI TX/RX NC
FDI CSYNC / FDI INT CONNECT
FDI RCOMP(PCH) /FDI IREF (POWER)NC

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

Impedance=85 +- 15%

LGA1155 (C)



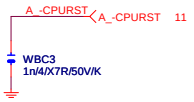
CPU PEG 5/5/5//20 Impedance=80 +- 15%

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

PA_EXP_TXP[0..15] 14
PA_EXP_TXN[0..15] 14
PA_EXP_RXP[0..15] 14
PA_EXP_RXN[0..15] 14

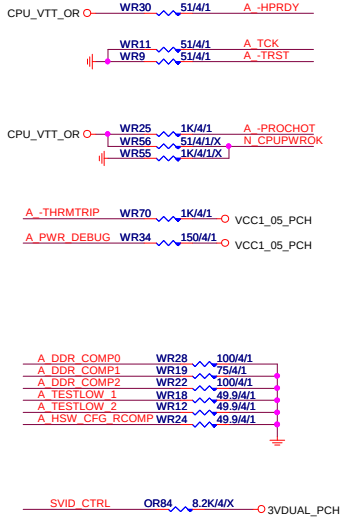
-CPURST

1.1V分壓

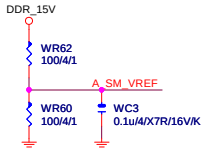


CPU SVID

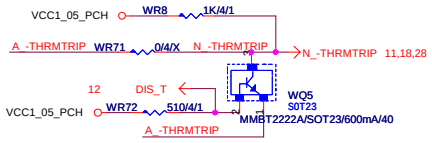
CPU PU/PD



SM REF



THRMTRIP DISABLE FOR Z87 OVERCLOCK



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LGA1150 (A)

LGA1150A

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

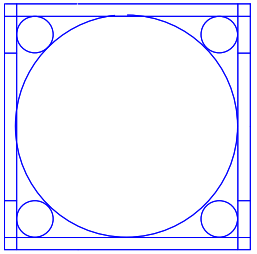
LGA1150 (B)

LGA1150B

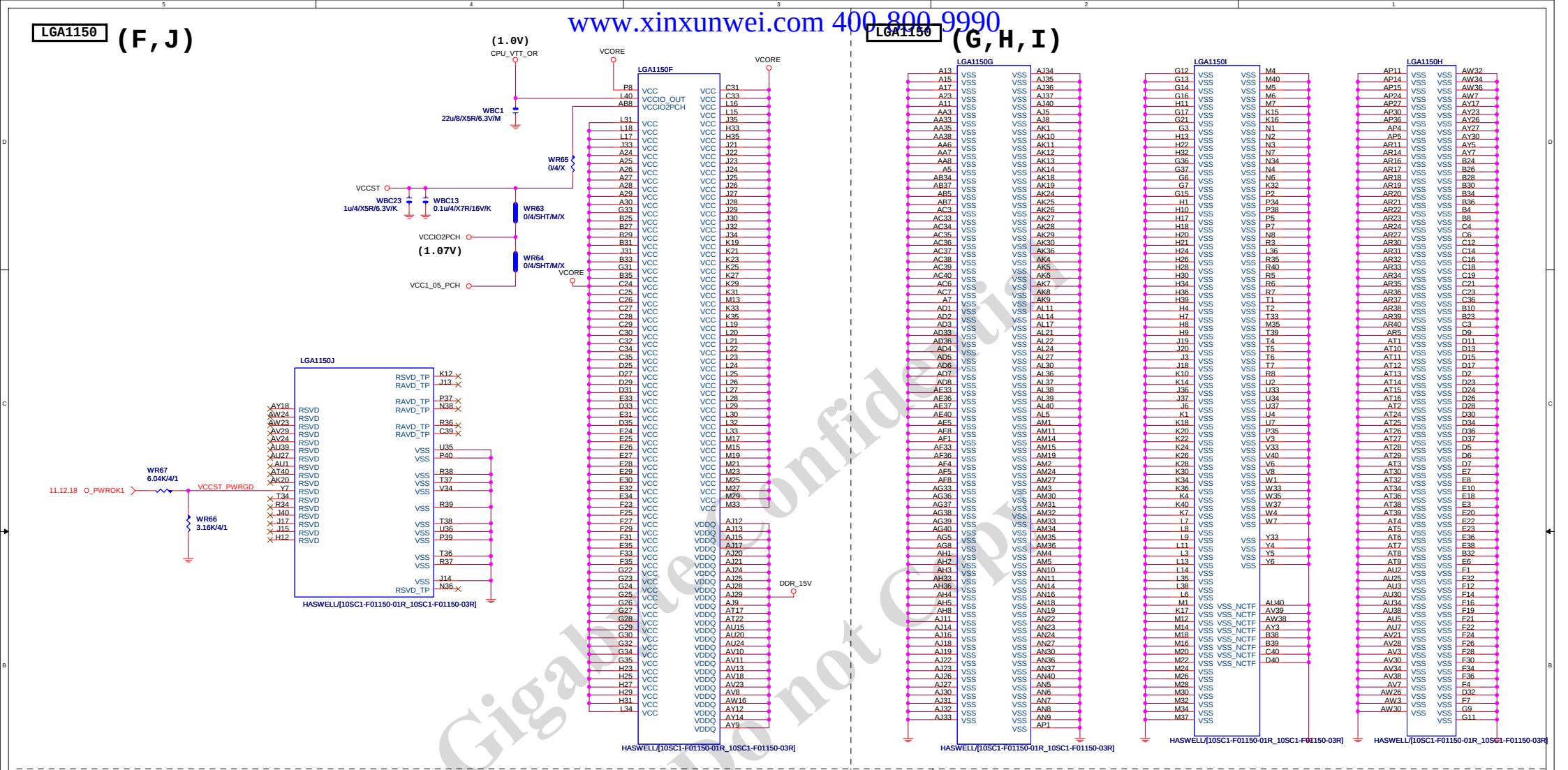
HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]

LGA1150 (CR)

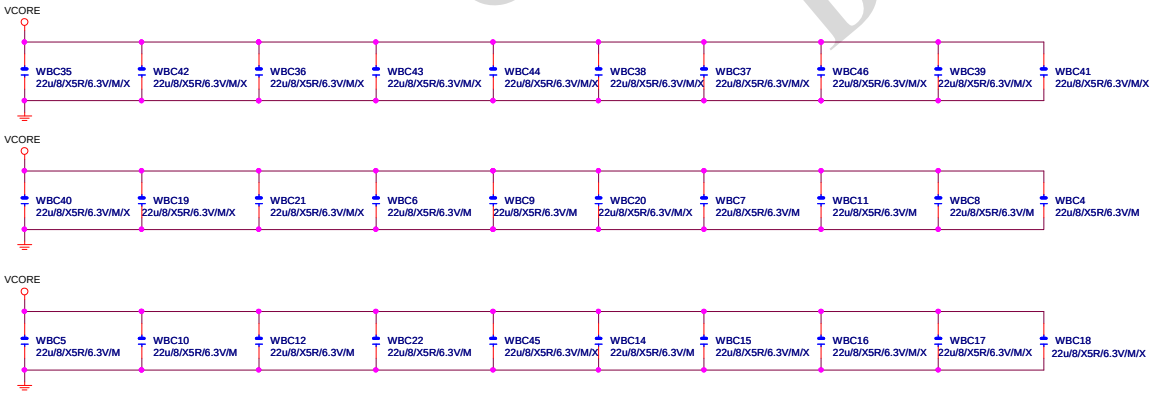
LGA1150
ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]



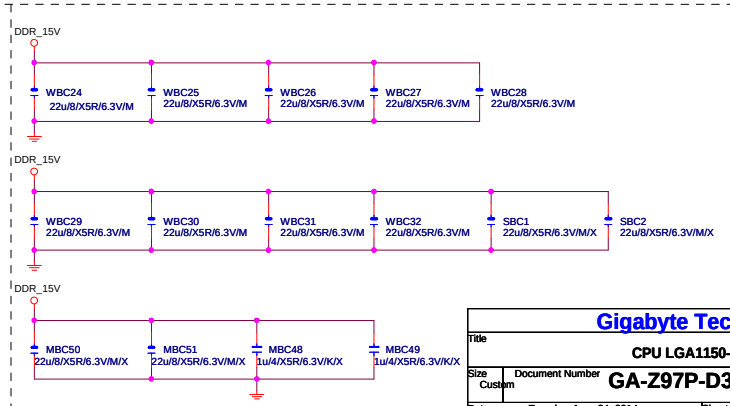
DDR BUS



VCore CAP (X30)



DDR CAP (X15)



Gigabyte Technology		
Title: CPU LGA1150-C		
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DDR3 (A)

DDR3_4

DDRVTT
VTT
VSS
FREE
RSVD
ODT1
ODT0
NC/PAR_IN
NC/ERR_OUT
NC/TEST4
CB0
CB1
CB2
CB3
CB4
CB5
CB6
CB7
DQS0
DQS0*
DQS1
DQS1*
DQS2
DQS2*
DQS3
DQS3*
DQS4
DQS4*
DQS5
DQS5*
DQS6
DQS6*
DQS7
DQS7*
DQS8
DQS8*
DM0/DQS9
NC/DQS9*
DM1/DQS10
NC/DQS10*
DM2/DQS11
NC/DQS11*
DM3/DQS12
NC/DQS12*
DM4/DQS13
NC/DQS13*
DM5/DQS14
NC/DQS14*
DM6/DQS15
NC/DQS15*
DM7/DQS16
NC/DQS16*
DM8/DQS17
NC/DQS17*
VDD
DQ0
DQ1
DQ2
DQ3
DQ4
DQ5
DQ6
DQ7
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
DQ16
DQ17
DQ18
DQ19
DQ20
DQ21
DQ22
DQ23
DQ24
DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
DQ32
DQ33
DQ34
DQ35
DQ36
DQ37
DQ38
DQ39
DQ40
DQ41
DQ42
DQ43
DQ44
DQ45
DQ46
DQ47
DQ48
DQ49
DQ50
DQ51
DQ52
DQ53
DQ54
DQ55
DQ56
DQ57
DQ58
DQ59
DQ60
DQ61
DQ62
DQ63
MODT_A[0..3]
-DQSA[0..7]
DQSA[0..7]
MODT_A1
MODT_A0
DQSA0
-DQSA0
DQSA1
-DQSA1
DQSA2
-DQSA2
DQSA3
-DQSA3
DQSA4
-DQSA4
DQSA5
-DQSA5
DQSA6
-DQSA6
DQSA7
-DQSA7
MDA[0..63]
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
R0402-2
VCC3
VDDSPD
MF1 SPR-P200T/6V/8/S
MC4 0.1u/4/X7R/16V/K
MC5 0.1u/4/X7R/16V/K
MC1 0.1u/4/X7R/16V/K
VREF_DDRA
VREF_DQDDRA
VREFCA
VREFDQ
SCL
SDA
SA1
SA0
BA2
BA1
BA0
CKE1
CKE0
-CSA1
-CSA0
S1*
S0*
-DCLKA1
DCLKA1
CK1/NU*
CK1/NU
-DCLKA0
DCLKA0
CK0*
CK0
MAAA[0..15]
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10/AP
A11
A12
A13
A14
A15
RESET*
CAS*
RAS*
WE*
-SCASA
-SRASA
-SWEA
DDR3/240/BK/VA/D

DDR3_2

DDR3/240/GR/VA/D

DDR3_VREF

DDR_15V
MR15 1K/4/1
MR13 0/4/SHT/X
MR14 1K/4/1
VREF_DDRA
M_VREFCA_A 26
MBC28 1u/4/X5R/6.3V/K
MR4 1K/4/1
MR5 1K/4/1
VREF_DQDDRA
MR1 10/4
MR3 10/4/X
VREF_DQA 5
VREF_DQA_ADJ 26

DDR TERMINATION CHANNEL A/B

DDR15V Decouple

MEC1 560u/FP/D/6.3V/69/A/11m
MEC2 560u/FP/D/6.3V/69/A/11m
MEC3 560u/FP/D/6.3V/69/A/11m
MBC43 22u/8/X5R/6.3V/M
MBC44 22u/8/X5R/6.3V/M

DDRVTT Decouple

DDRVTT
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			
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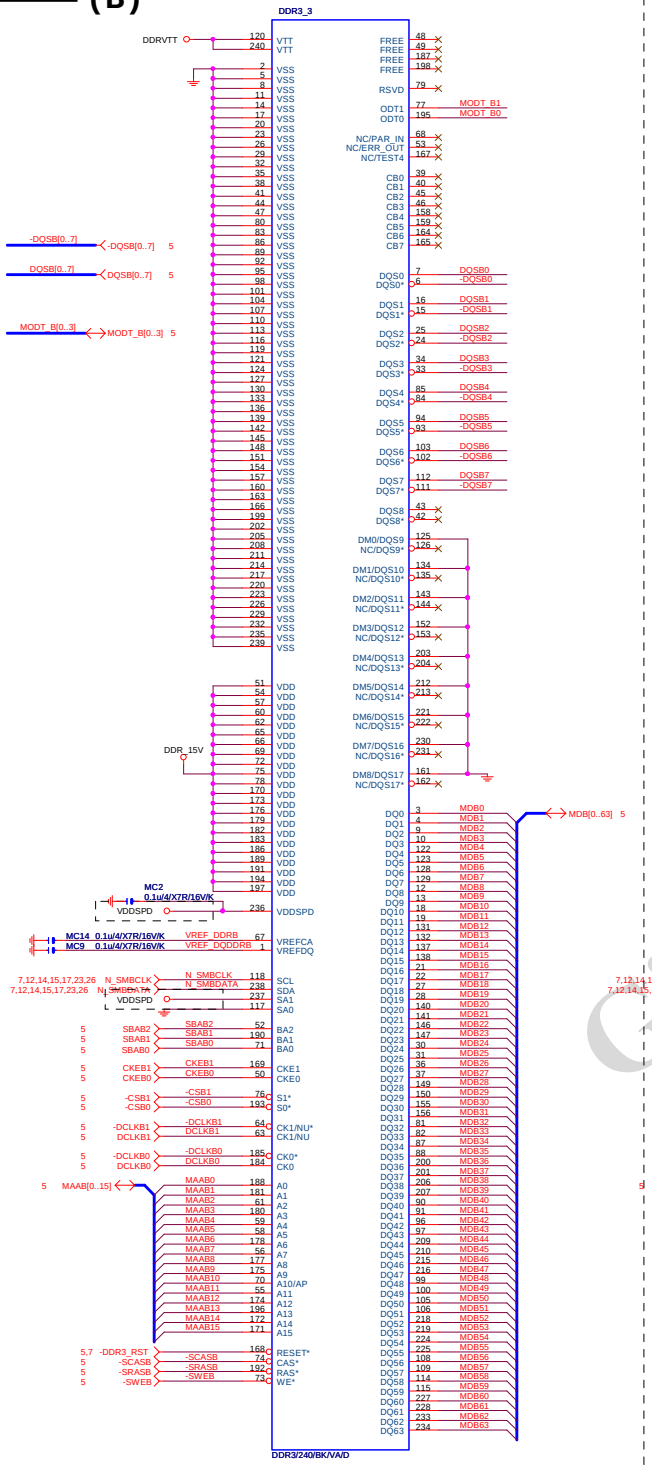
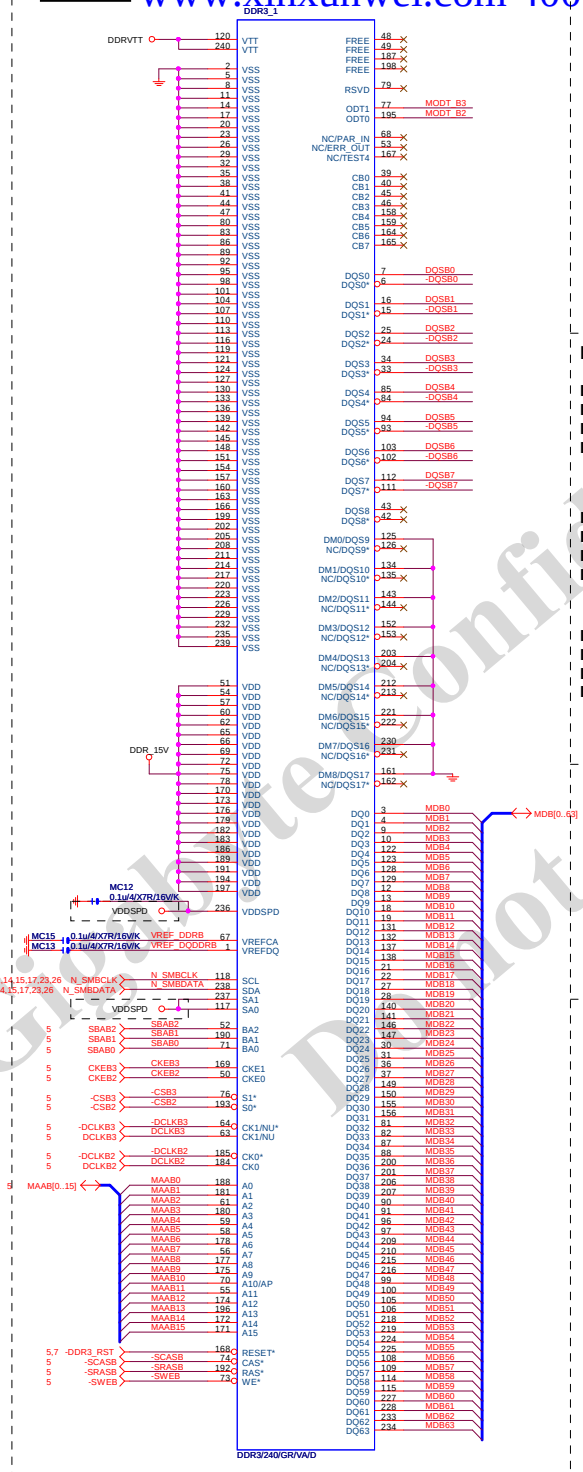
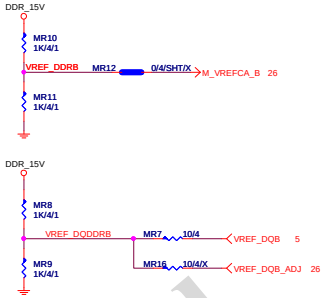
DDR3 (B)



DDR3



DDR3 VREF



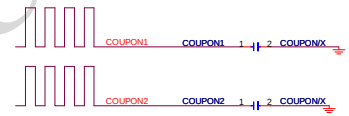
DDR3 1066,1333,1600MHZ BANDWIDTH

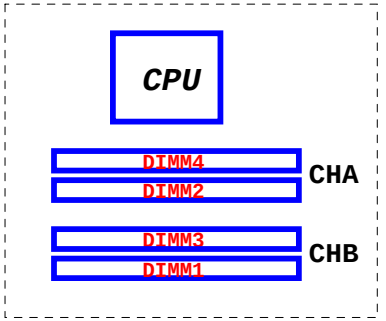
DDR3 1066MHZ
DDR3 clock=533MHZ
DDR3 single channel bandwidth=533x2x8Byte=8.5GB/s
DDR3 dual channel bandwidth=533x2x2x8Byte=17GB/s

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





Gigabyte Technology		
Title: DDRIII CHANNEL B		
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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

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

OC0B_GP59 OC1B_GP40 OC2B_GP41 OC3B_GP42 OC4B_GP43 OC5B_GP9 OC6B_GP10 OC7B_GP14

USBRBIASB USBRBIAS

CLKIN_DOT96N CLKIN_DOT96P

Port要對應

B85/H81: 6/7 N\A

H81:USB3.0 N\A

H81:12/13 N\A

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

LAN AR8161

ITE8892 PCI Bridge

PCIEX4 port1

PCIEX4 port2

PCIEX4 port3
PCIEX1_1

H81:PCIE 7/8X
PCIEX4 port4
PCIEX1_2

PA_PCIE_IN1 PA_PCIE_IP1 PA_PCIE_TN1 PA_PCIE_TP1 PB_PCIE_IN2 PB_PCIE_IP2 PB_PCIE_TN2 PB_PCIE_TP2

LB_ML_IN LB_ML_IP LB_ML_ON LB_ML_OP

G_PCIEBIN G_PCIEBIP G_PCIEBON G_PCIEBOP

PE_PCIE_IN1 PE_PCIE_IP1 PE_PCIE_TN1 PE_PCIE_TP1

PF_PCIE_IN2 PF_PCIE_IP2 PF_PCIE_TN2 PF_PCIE_TP2

PI_PCIE_IN3 PI_PCIE_IP3 PI_PCIE_TN3 PI_PCIE_TP3

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

放靠近 Device & PCI-E Slot

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

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%

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

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

VCC1_5_PCH NR50 7.5K/4/1 DMI_COMP
PCIE_COMP NR40 7.5K/4/1
W=8 mil out of PCH
S=15 mil to other signals

CK_-SRCCLK_PCH
CK_SRCCLK_PCH

PCH (F)

PCHF

USB3_RXN_0 USB3_RXP_0 USB3_TXN_0 USB3_TXP_0 USB3_RXN_1 USB3_RXP_1 USB3_TXN_1 USB3_TXP_1 USB3_RXN_4 USB3_RXP_4 USB3_TXN_4 USB3_TXP_4 USB3_RXN_5 USB3_RXP_5 USB3_TXN_5 USB3_TXP_5

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 FDI_INT

NR29 7.5K/4/1 VCC1_5_PCH

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

FDI_TXP[0..1] FDI_TXN[0..1]

TACH6_GP70 TACH7_GP71

NR62 8.2K/4 NR63 8.2K/4

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

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

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

PCH H/S

BGAHSINK_SB-9M

PCH_HS

HEAT SINK/N-BG/GBT MK/Z87/KWOG/[12SP2-S04208-91R_12SP2-S04208-92R_12SP2-S04208-93R]

USB TABLE

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

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

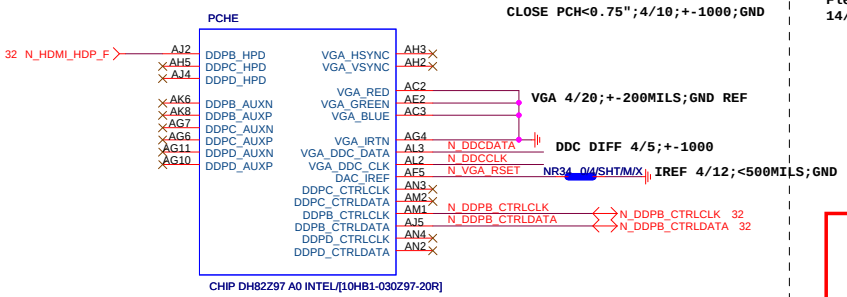
Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE

Size: Custom | Document Number: GA-Z97P-D3 | Rev: 1.01

Date: Tuesday, June 24, 2014 | Sheet 9 of 33

PCH (E)



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

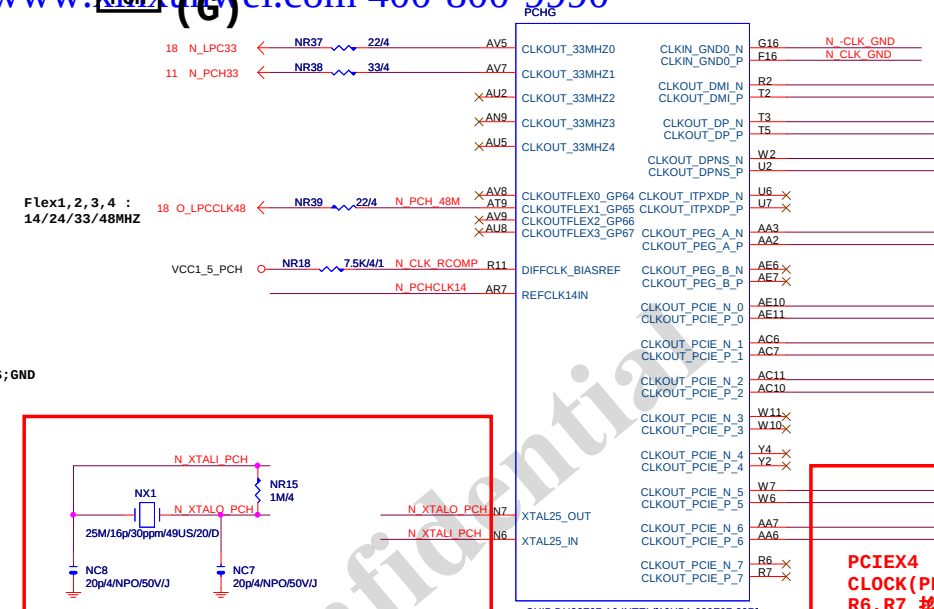
VGA 4/20;+-200MILS;GND REF

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)

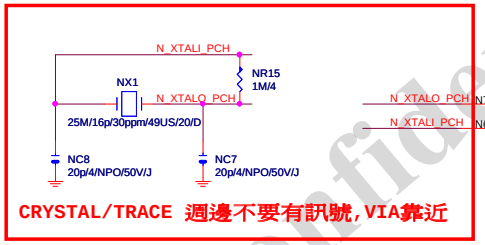


PCIXx16

Realtek lan

ITE8892

PCIXx4

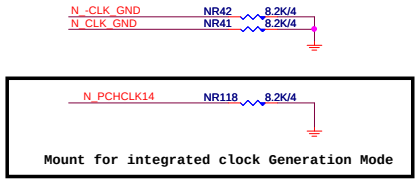


CRYSTAL/TRACE 週邊不要有訊號,VIA靠近

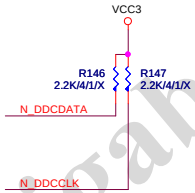
PCIEX4
CLOCK(PE_SRCCLK_3GIO1)由PIN R6,R7 換成PIN W7,W6
避免跟CRYSTAL 25MHZ干擾

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

PCH CLK PD



VGA DDC



VGA CONNECTOR

VGA DDC

Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 10 of 33	

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

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

PCH (A)

PCHA

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

BOOT DEVICE	GP51	GP19
LPC	0	0
SPI	float	float

Default int pull up on GP51,
Default SPI boot devices

PCH CLK PD

Mount for integrated clock Generation Mode

PCH PU/PD

MB ID

ME PWROK

TLS Setting enable for SBA

SATA CONNECTOR

White connector for SATA3

SATA所有電容改SHORT-PAD MASK

[Z87/H87] all SATA3
SATA3(From Z87) - 黑色
SATA3(From Marvell) - 灰色
[B85] SATA2+SATA3
SATA2(From B85) - 黑色
SATA3(From B85) - 白色

SATA所有電容改SHORT-PAD MASK

** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0

H81 Port 2/3 N/A

GPIO38 Ctrl

MFG Mode

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

soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-Z97P-D3 | Rev: 1.01

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PCH (D)

PCHD

CHIP DH82Z97 A0 INTEL/[10HB1-030Z97-20R]

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			
Title: PCH GPIO , CTRL , AUDIO			
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PCH (H)

VCC3_DAC

CLOSE北橋(注意震盪水波紋)

3VDUAL_PCH

SHT PWR

CAP

(3.3V)(X6)

(1.05V)(X5)

(1.05V)(X6)

(1.05V)(X2)

(3.3V)(X2)

(1.5V) (X10)

PCH (I)

Gigabyte Technology	
Title	PCH PWR ,GND
Size: Custom	Document Number: GA-Z97P-D3
Rev	1.01
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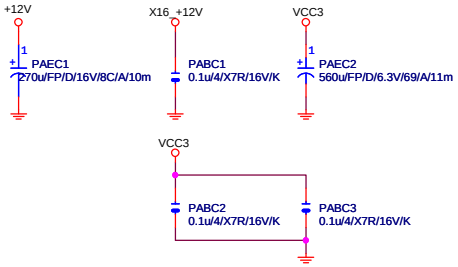
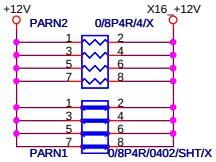
PCIEX16 CAP



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	PAC19	0.22u/4/X5R/6.3V/K	PA_EXP_TXP7_C
PA_EXP_TXN7	PAC18	0.22u/4/X5R/6.3V/K	PA_EXP_TXN7_C
PA_EXP_TXP8	PAC20	0.22u/4/X5R/6.3V/K	PA_EXP_TXP8_C
PA_EXP_TXN8	PAC21	0.22u/4/X5R/6.3V/K	PA_EXP_TXN8_C
PA_EXP_TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA_EXP_TXP9_C
PA_EXP_TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA_EXP_TXN9_C
PA_EXP_TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA_EXP_TXP10_C
PA_EXP_TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA_EXP_TXN10_C
PA_EXP_TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA_EXP_TXP11_C
PA_EXP_TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA_EXP_TXN11_C
PA_EXP_TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA_EXP_TXP12_C
PA_EXP_TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA_EXP_TXN12_C
PA_EXP_TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA_EXP_TXP13_C
PA_EXP_TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA_EXP_TXN13_C
PA_EXP_TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA_EXP_TXP14_C
PA_EXP_TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA_EXP_TXN14_C
PA_EXP_TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA_EXP_TXP15_C
PA_EXP_TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA_EXP_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

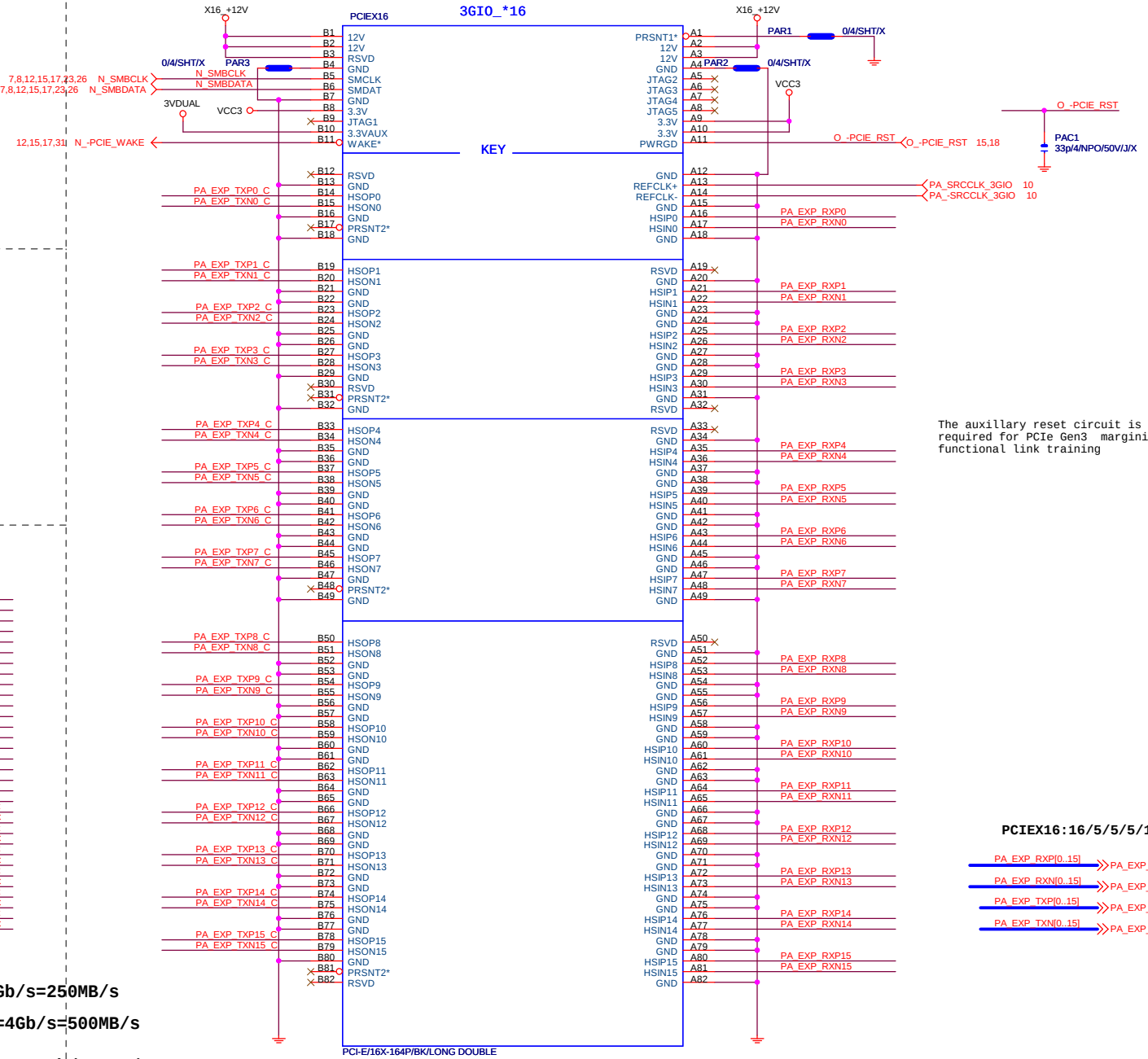
PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

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

PCI-E REV:2.0--> 5GHZ

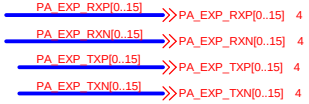
PCIEX16 SLOT

PCIESLOT-164DN-Q



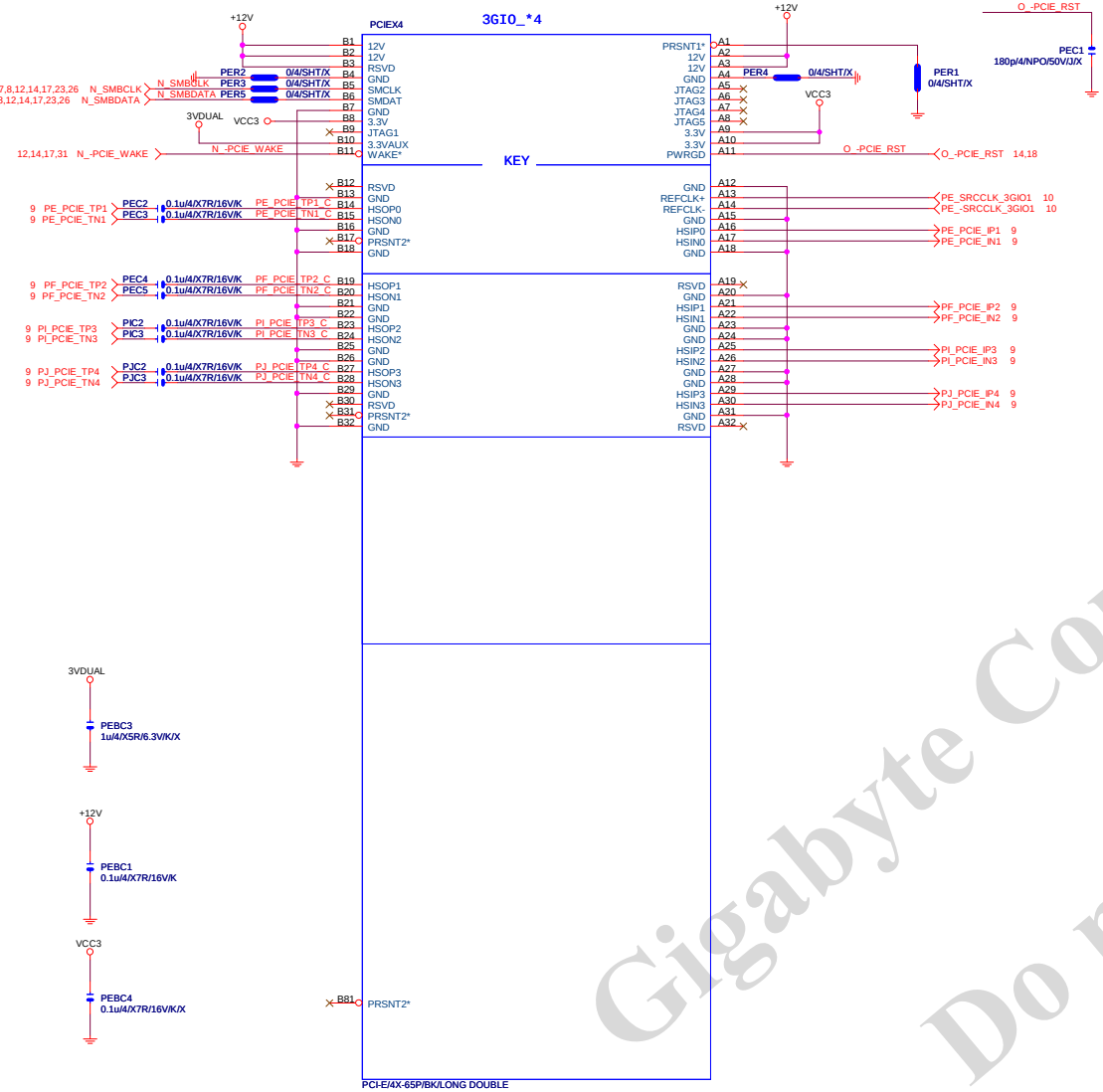
The auxillary reset circuit is only required for PCIe Gen3 margining and functional link training

PCIEX16:16/5/5/5/16

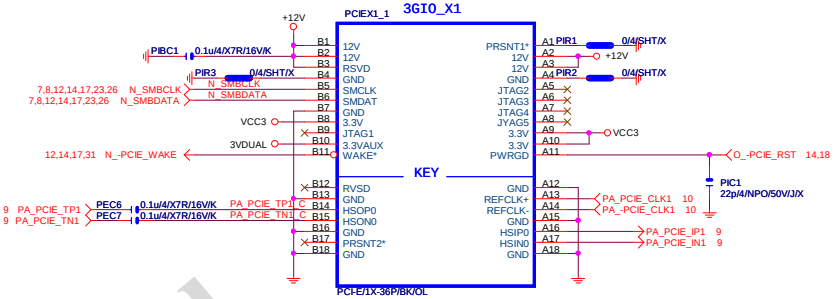


Gigabyte Technology			
Title: PCI EXPRESS * 16			
Size: Custom	Document Number: GA-Z97P-D3		Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 14 of 33		

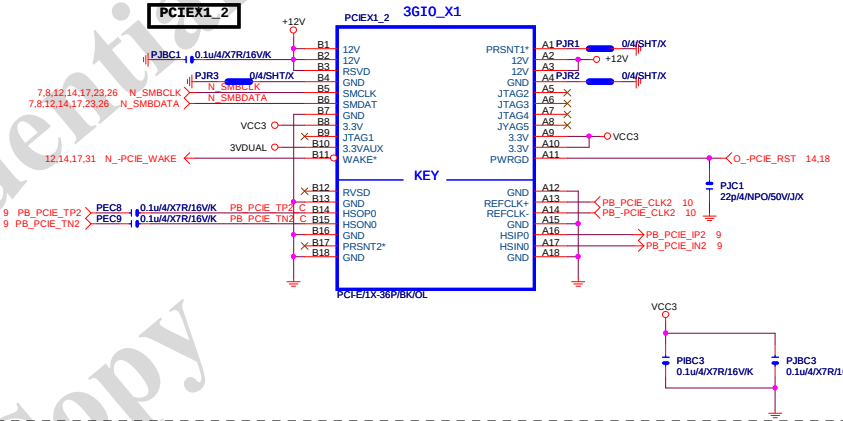
PCIEX4 SLOT



PCIEX1_1



PCIEX1_2



PCIEX4/X1 SWITCH

	N_PCIE_4_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4 No devices	H	H
PCIEX4 -> X1	H	H
PCIEX4 Have devices	L	L
PCIEX4 -> X4		
PCIEX1_1/2 --> N/A		

Function	SEL
xI--> x0a	L;PCIEX4 SLOT-->X1
xI--> x0b	H;PCIEX4 SLOT-->X4

Gigabyte Technology

Title: PCIE_X1 1,2

Size: Custom | Document Number: GA-Z97P-D3 | Rev: 1.01

Date: Tuesday, June 24, 2014 | Sheet 15 of 33

Gigabyte Technology

Title	IT8892E	
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 16 of 33	

PCI SLOT 1

-12V VCC VCC3 +12V

PCI1

B1	-12V	TRST	A1	G_-PTRST	
B2	TCK	+12V	A2		
B3	GND	TMS	A3	G_PTMS	
B4	TDO	TDI	A4		
B5	+5V	+5V	A5		
B6	+5V	INTA	A6	G_-PIRQA	G_-PIRQA 16
B7	INTB	INTC	A7	G_-PIRQC	G_-PIRQC 16
B8	INTD	+5V	A8		
B9	PRSNT1	RESERVED	A9		
B10	RESERVED	+5V	A10		
B11	PRSNT2	RESERVED	A11		
B12	GND	GND	A12		
B13	GND	GND	A13		
B14	RESERVED	3.3V_AUX	A14	G_-PCIRST	3VDUAL
B15	GND	RST	A15		
B16	CLK	+5V	A16		
B17	GND	GNT	A17	GAR1 100/4/1	G_-GNT0 16
B18	REQ	GND	A18		
B19	+5V	PME	A19	N_-PCIE_WAKE	N_-PCIE_WAKE 12,14,15,31
B20	AD31	AD30	A20	G_A_D30	
B21	AD29	+3.3V	A21		
B22	GND	AD28	A22	G_A_D28	
B23	AD27	AD26	A23	G_A_D26	
B24	AD25	GND	A24		
B25	+3.3V	AD24	A25	G_A_D24	
B26	C/BE3	IDSEL	A26	GAR2 100/4/1	G_A_D16
B27	AD23	+3.3V	A27		
B28	GND	AD22	A28	G_A_D22	
B29	AD21	AD20	A29	G_A_D20	
B30	AD19	GND	A30		
B31	+3.3V	AD18	A31	G_A_D18	
B32	AD17	AD16	A32	G_A_D16	
B33	C/BE2	+3.3V	A33		
B34	GND	FRAME	A34	G_-FRAME	G_-FRAME 16
B35	IRDY	GND	A35		
B36	+3.3V	TRDY	A36	G_-TRDY	G_-TRDY 16
B37	DEVSEL	GND	A37		
B38	GND	STOP	A38	G_-STOP	G_-STOP 16
B39	LOCK	+3.3V	A39		
B40	PERR	SDONE	A40	G_PCI_A40	
B41	+3.3V	SBO	A41	G_PCI_A41	
B42	SERR	GND	A42		
B43	+3.3V	PAR	A43	G_PAR	G_PAR 16
B44	C/BE1	AD15	A44	G_A_D15	
B45	AD14	+3.3V	A45		
B46	GND	AD13	A46	G_A_D13	
B47	AD12	AD11	A47	G_A_D11	
B48	AD10	GND	A48		
B49	GND	AD9	A49	G_A_D9	
B52	AD8	C/BE0	A52	G_-C_BE0	G_-C_BE0 16
B53	AD7	+3.3V	A53		
B54	+3.3V	AD6	A54	G_A_D6	
B55	AD5	AD4	A55	G_A_D4	
B56	AD3	GND	A56		
B57	GND	AD2	A57	G_A_D2	
B58	AD1	AD0	A58	G_A_D0	
B59	+5V	+5V	A59		
B60	ACK64	REQ64	A60	GA_-REQ64	
B61	+5V	+5V	A61		
B62	+5V	+5V	A62		

PCI/120/P/BK/VA

-REQ0/-GNT0/A_D16

PCI SLOT 2

-12V VCC VCC3 +12V

PCI2

B1	-12V	TRST	A1	G_-PTRST	
B2	TCK	+12V	A2		
B3	GND	TMS	A3	G_PTMS	
B4	TDO	TDI	A4		
B5	+5V	+5V	A5		
B6	+5V	INTA	A6	G_-PIRQB	G_-PIRQB 16
B7	INTB	INTC	A7	G_-PIRQD	G_-PIRQD 16
B8	INTD	+5V	A8		
B9	PRSNT1	RESERVED	A9		
B10	RESERVED	+5V	A10		
B11	PRSNT2	RESERVED	A11		
B12	GND	GND	A12		
B13	GND	GND	A13		
B14	RESERVED	3.3V_AUX	A14	3VDUAL	
B15	GND	RST	A15	G_-PCIRST	
B16	CLK	+5V	A16		
B17	GND	GNT	A17	GBR1 100/4/1	G_-GNT1 16
B18	REQ	GND	A18		
B19	+5V	PME	A19	N_-PCIE_WAKE	
B20	AD31	AD30	A20	G_A_D30	
B21	AD29	+3.3V	A21		
B22	GND	AD28	A22	G_A_D28	
B23	AD27	AD26	A23	G_A_D26	
B24	AD25	GND	A24		
B25	+3.3V	AD24	A25	G_A_D24	
B26	C/BE3	IDSEL	A26	GBR2 100/4/1	G_A_D17
B27	AD23	+3.3V	A27		
B28	GND	AD22	A28	G_A_D22	
B29	AD21	AD20	A29	G_A_D20	
B30	AD19	GND	A30		
B31	+3.3V	AD18	A31	G_A_D18	
B32	AD17	AD16	A32	G_A_D16	
B33	C/BE2	+3.3V	A33		
B34	GND	FRAME	A34	G_-FRAME	G_-FRAME 16
B35	IRDY	GND	A35		
B36	+3.3V	TRDY	A36	G_-TRDY	G_-TRDY 16
B37	DEVSEL	GND	A37		
B38	GND	STOP	A38	G_-STOP	G_-STOP 16
B39	LOCK	+3.3V	A39		
B40	PERR	SDONE	A40	G_PCI_A40	
B41	+3.3V	SBO	A41	G_PCI_A41	
B42	SERR	GND	A42		
B43	+3.3V	PAR	A43	G_PAR	G_PAR 16
B44	C/BE1	AD15	A44	G_A_D15	
B45	AD14	+3.3V	A45		
B46	GND	AD13	A46	G_A_D13	
B47	AD12	AD11	A47	G_A_D11	
B48	AD10	GND	A48		
B49	GND	AD9	A49	G_A_D9	
B52	AD8	C/BE0	A52	G_-C_BE0	G_-C_BE0 16
B53	AD7	+3.3V	A53		
B54	+3.3V	AD6	A54	G_A_D6	
B55	AD5	AD4	A55	G_A_D4	
B56	AD3	GND	A56		
B57	GND	AD2	A57	G_A_D2	
B58	AD1	AD0	A58	G_A_D0	
B59	+5V	+5V	A59		
B60	ACK64	REQ64	A60	GB_-REQ64	
B61	+5V	+5V	A61		
B62	+5V	+5V	A62		

PCI/120/P/BK/VA

-REQ1/-GNT1/A_D17

16 G_A_D[0..31] G_A_D[0..31]

7,8,12,14,15,23,26 N_SMBCLK GBR3 0/4/SHT/M/X G_PCI_A40

7,8,12,14,15,23,26 N_SMBDATA GBR4 0/4/SHT/M/X G_PCI_A41

PCI PU

GBRN1 8.2K/8P4R/4

G_-PTRST G_PTCK G_PTMS VCC

GBRN2 1K/8P4R/4

GA_-REQ64 G_-ACK64 GB_-REQ64 VCC

PCI CAP

VCC: GABC11 22u/8/X5R/6.3V/M; GABC12 22u/8/X5R/6.3V/M/X

3VDUAL: GABC4 0.1u/4/X7R/16V/K/X — GBBC4 0.1u/4/X7R/16V/K

VCC: GABC3 0.1u/4/X7R/16V/K/X — GBBC3 0.1u/4/X7R/16V/K/X

G_PCLK0 GABC6 10p/4/NPO/50V/J/X

G_PCLK1 GBBC6 10p/4/NPO/50V/J/X

G_-PCIRST G_-PCIRST 16 — GABC5 33p/4/NPO/50V/J/X

VCC3: GABC7 0.1u/4/X7R/16V/K/X — GBBC7 0.1u/4/X7R/16V/K/X

+12V: GABC2 0.1u/4/X7R/16V/K/X — GBBC2 0.1u/4/X7R/16V/K/X

G_-PCIRST G_-PCIRST 16 — GBBC5 33p/4/NPO/50V/J/X

GIGABYTE™

Title	PCI SLOT 1&2		
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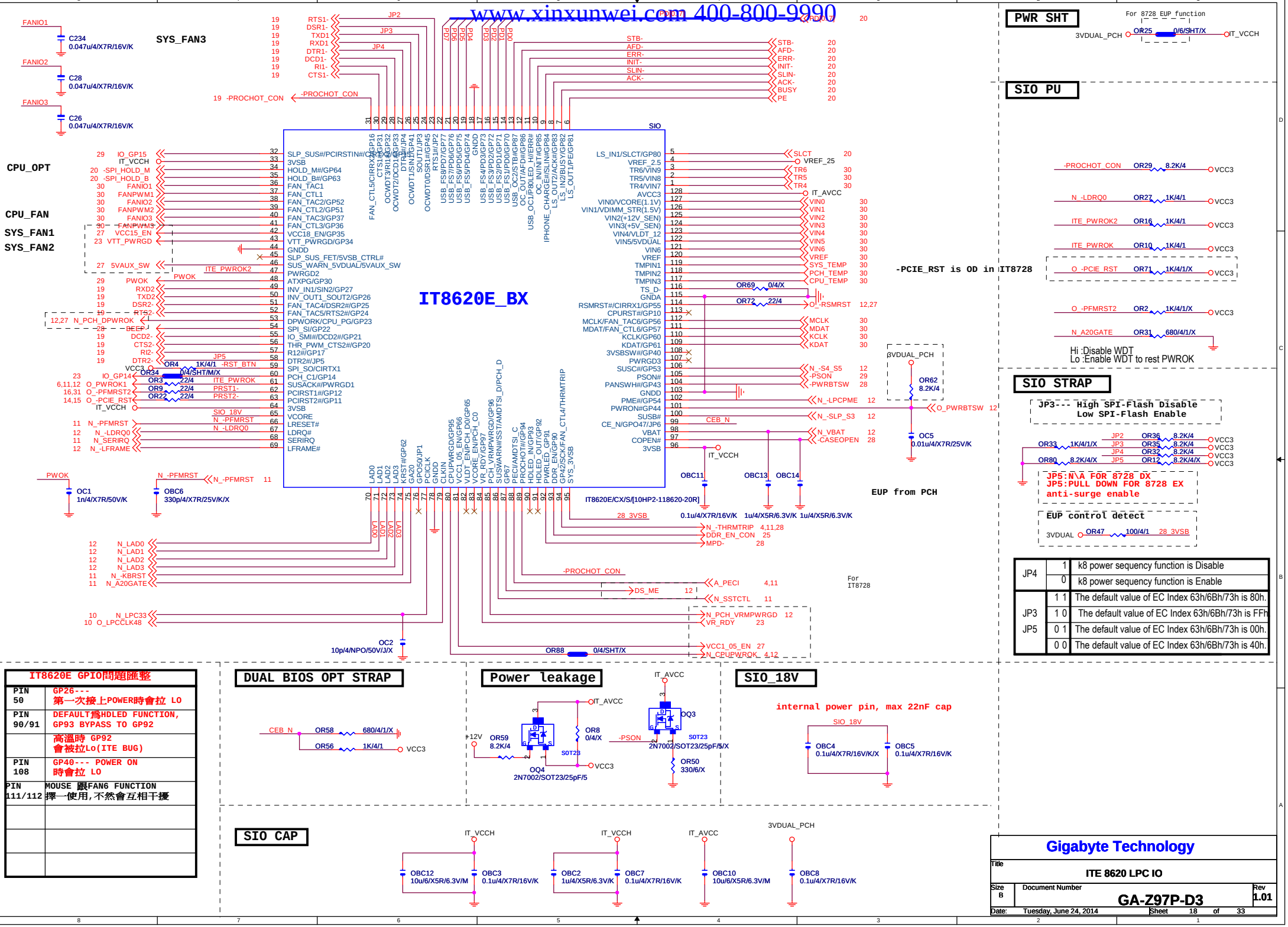
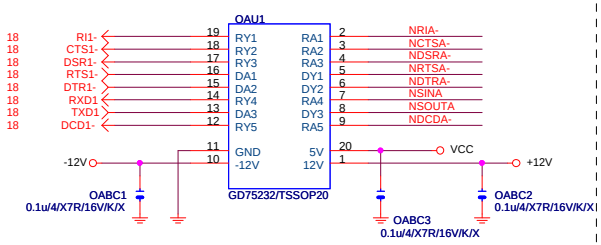
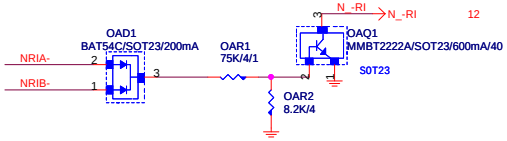


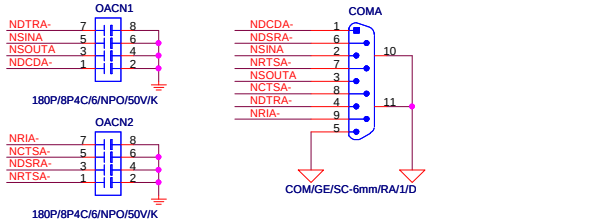
COMA



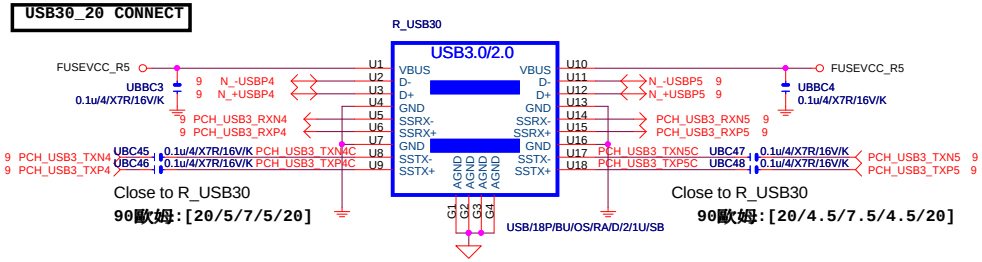
COM RI



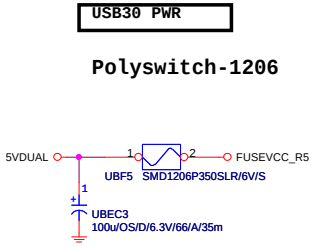
COM BUFFER



USB30_20 CONNECT

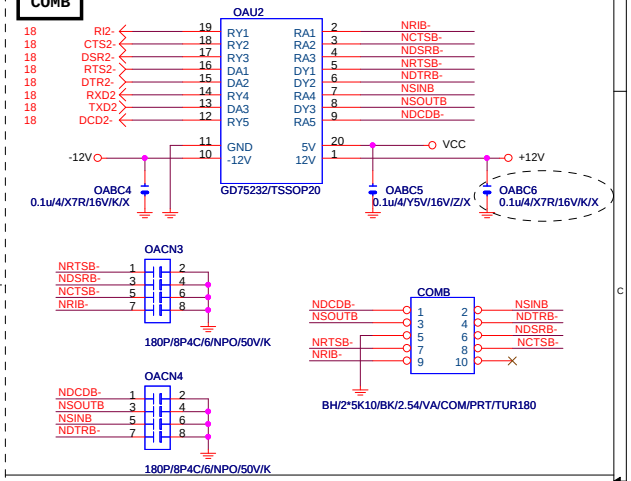


USB30 PWR

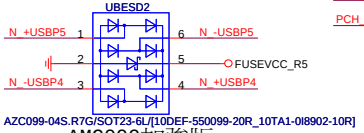


USB3.0 1Port - 1Fuse (3.5A)

COMB

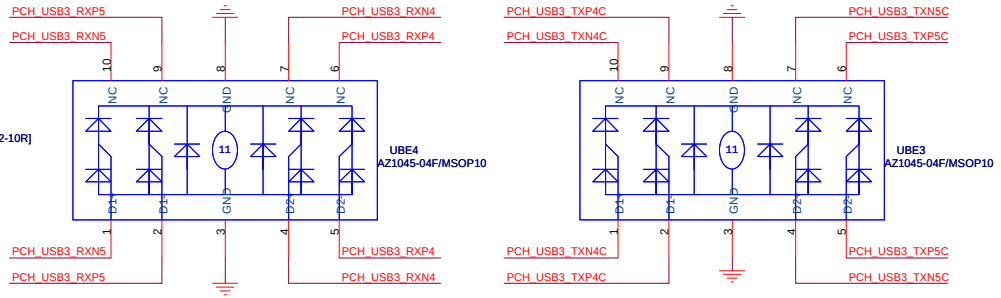


USB20 ESD PROTECT

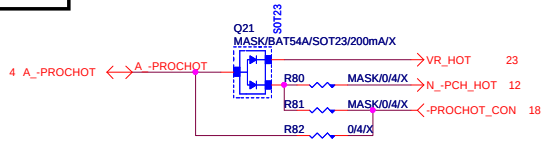


USB30 ESD PROTECT

CLOSE R_USB30

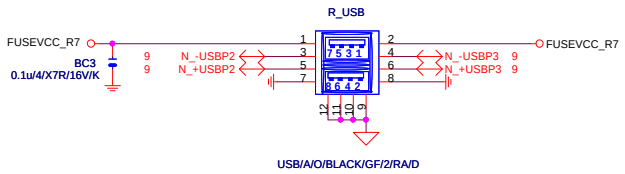


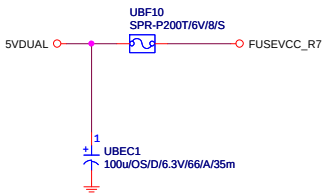
-PROHOT



ALL MASK

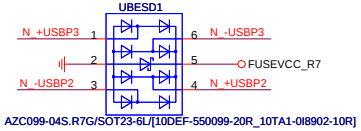
R_USB30





Thunderbolt pin header

USB20 ESD PROTECT



CLOSE R_USB

AMC099加強版

USB30 ESD PROTECT

Gigabyte Technology			
Title: COM/PROHOT/R_USB3			
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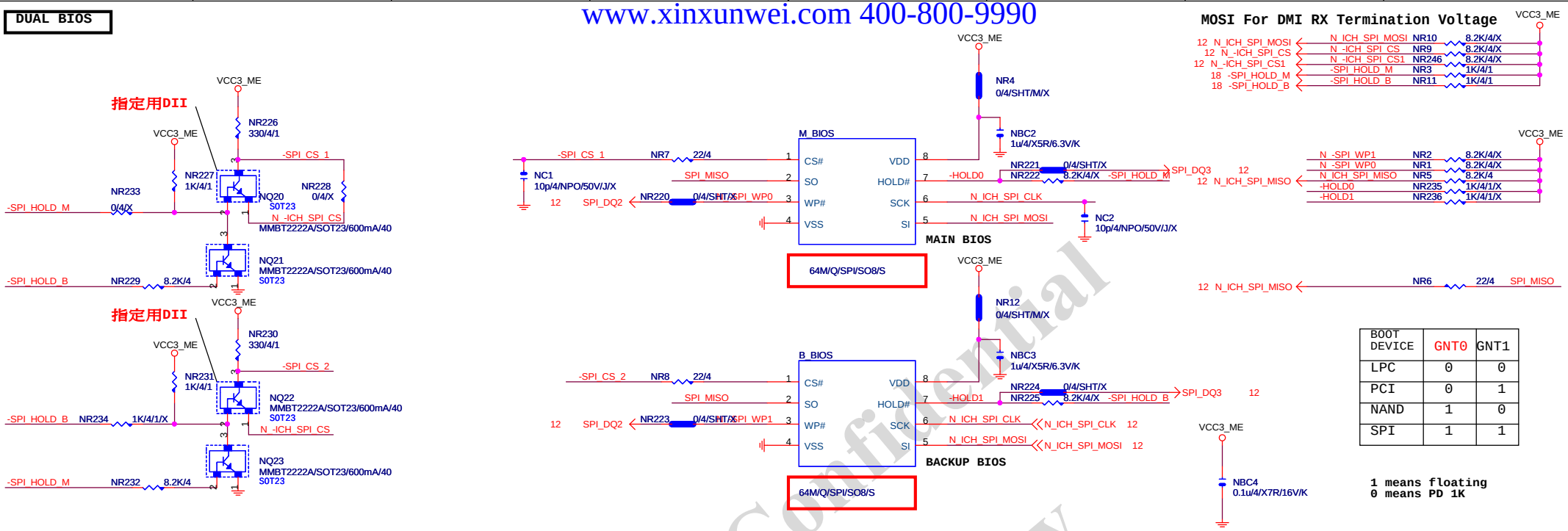
DUAL BIOS

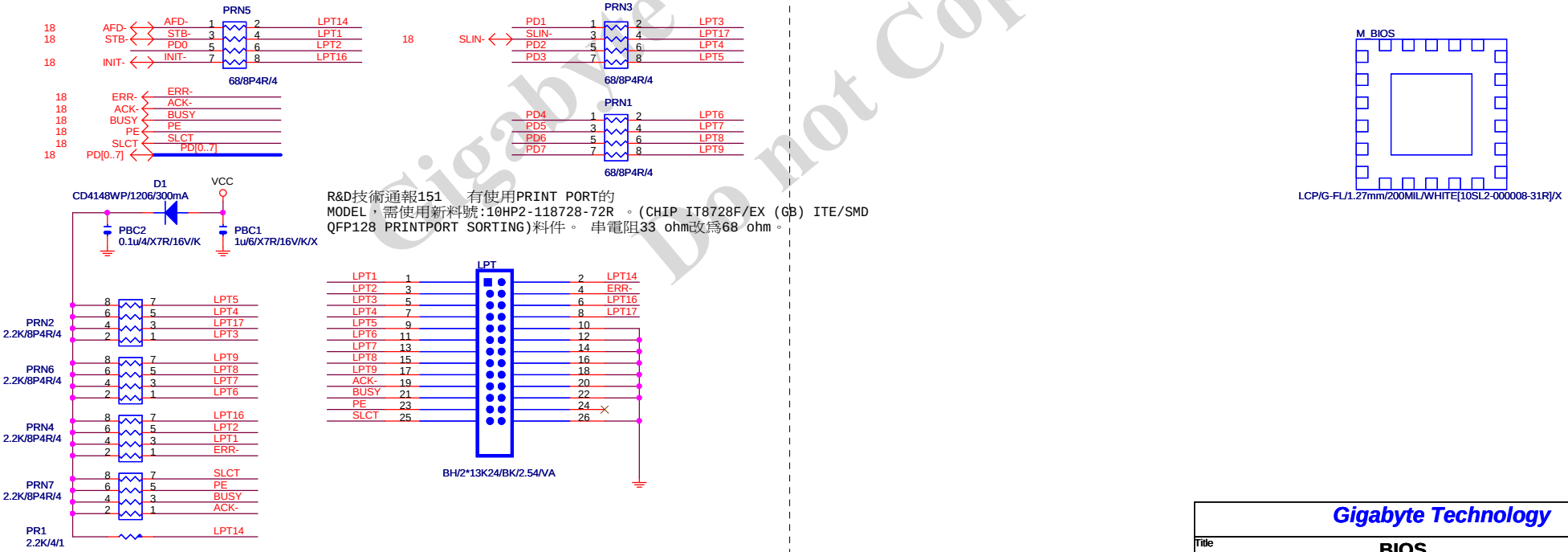
MOSI For DMI RX Termination Voltage



BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

LPT PORT



R&D技術通報151　有使用PRINT PORT的MODEL，需使用新料號:10HP2-118728-72R 。(CHIP IT8728F/EX (GB) ITE/SMD QFP128 PRINTPORT SORTING)料件。 串電阻33 ohm改爲68 ohm。

Gigabyte Technology		
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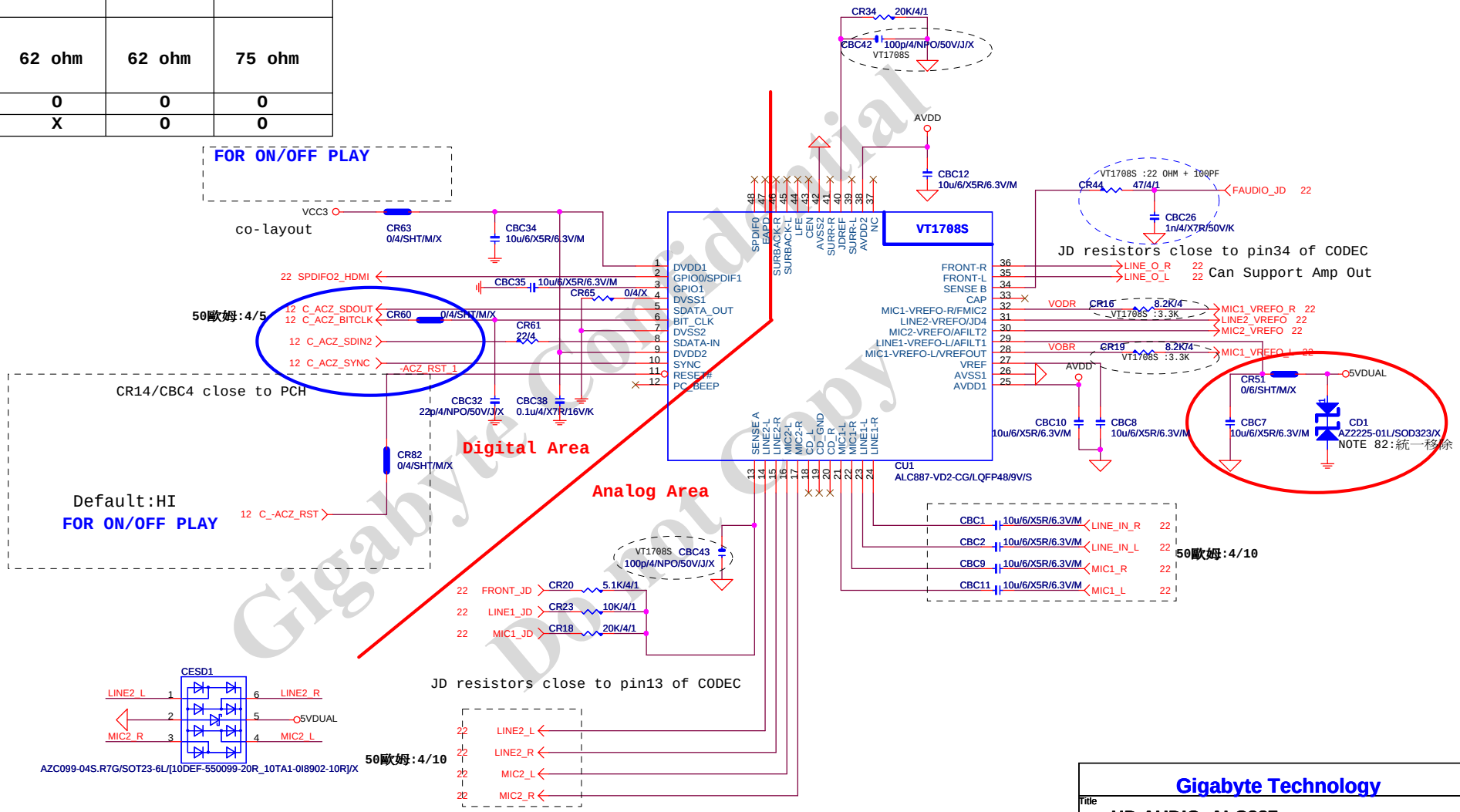
AZALIA CODEC **ALC892/ALC887-VD2/VT1708-CE Colay**

	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR16/CR19 CR52/CR56/CR10/CR9	8.2K/4	8.2K/4	3.3K/4/1
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	X	0	0



Gigabyte Technology

Title: HD AUDIO ALC887

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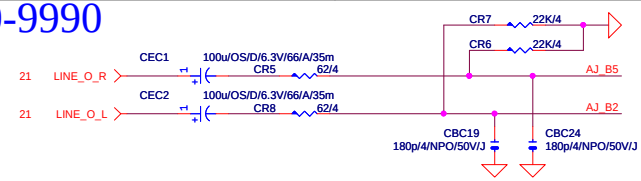
CR49 0/6/SHT/M/X → Close F_AUDIO

CR50 0/6/SHT/M/X → Close Codec

CR21 2.2/6 → Audio jack <--> USB_LAN

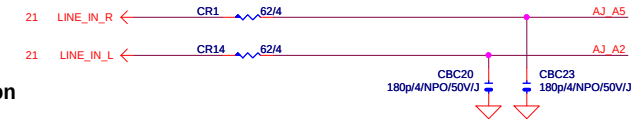
CR24 0/6/X → Under Audio jack

LINE-OUT



Only reserved for ALC888

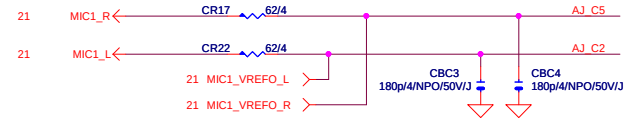
LINE-IN



Verify MIC function in LINE-in

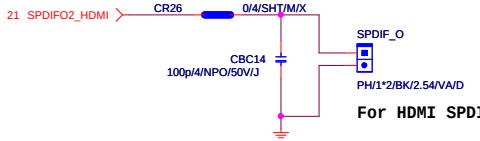
For 889A/888

MIC-IN



SURROUND

SPDIF_OUT

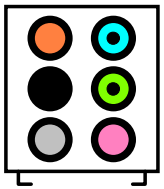


For HDMI SPDIF

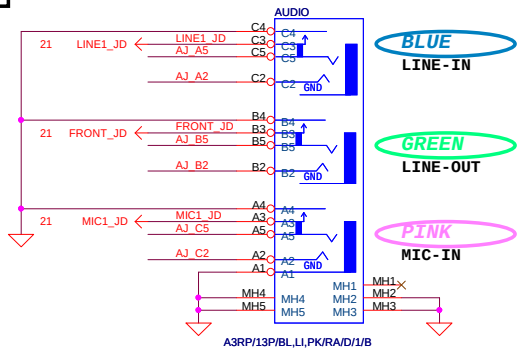
SPDIF_IN

CEN/LFE

AZALIA JACK



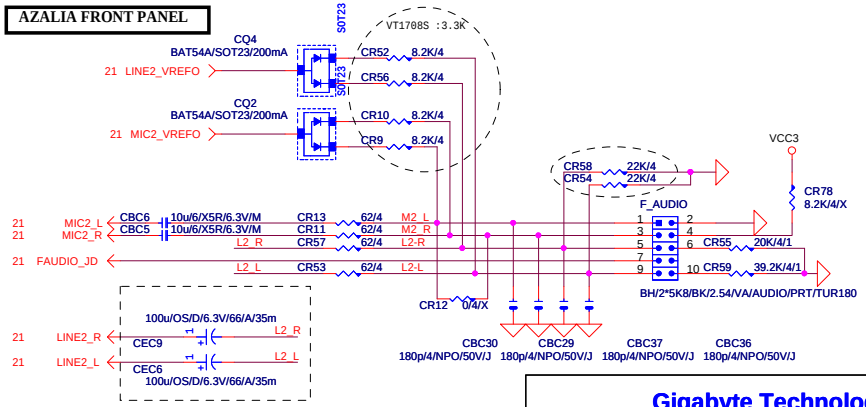
AZALIA JACK



A3RP/13P/BL,LI,PK/RA/D/1/B

SURR BACK

AZALIA FRONT PANEL



Gigabyte Technology

Title: AUDIO JACK

Size: Custom | Document Number: GA-Z97P-D3 | Rev: 1.01

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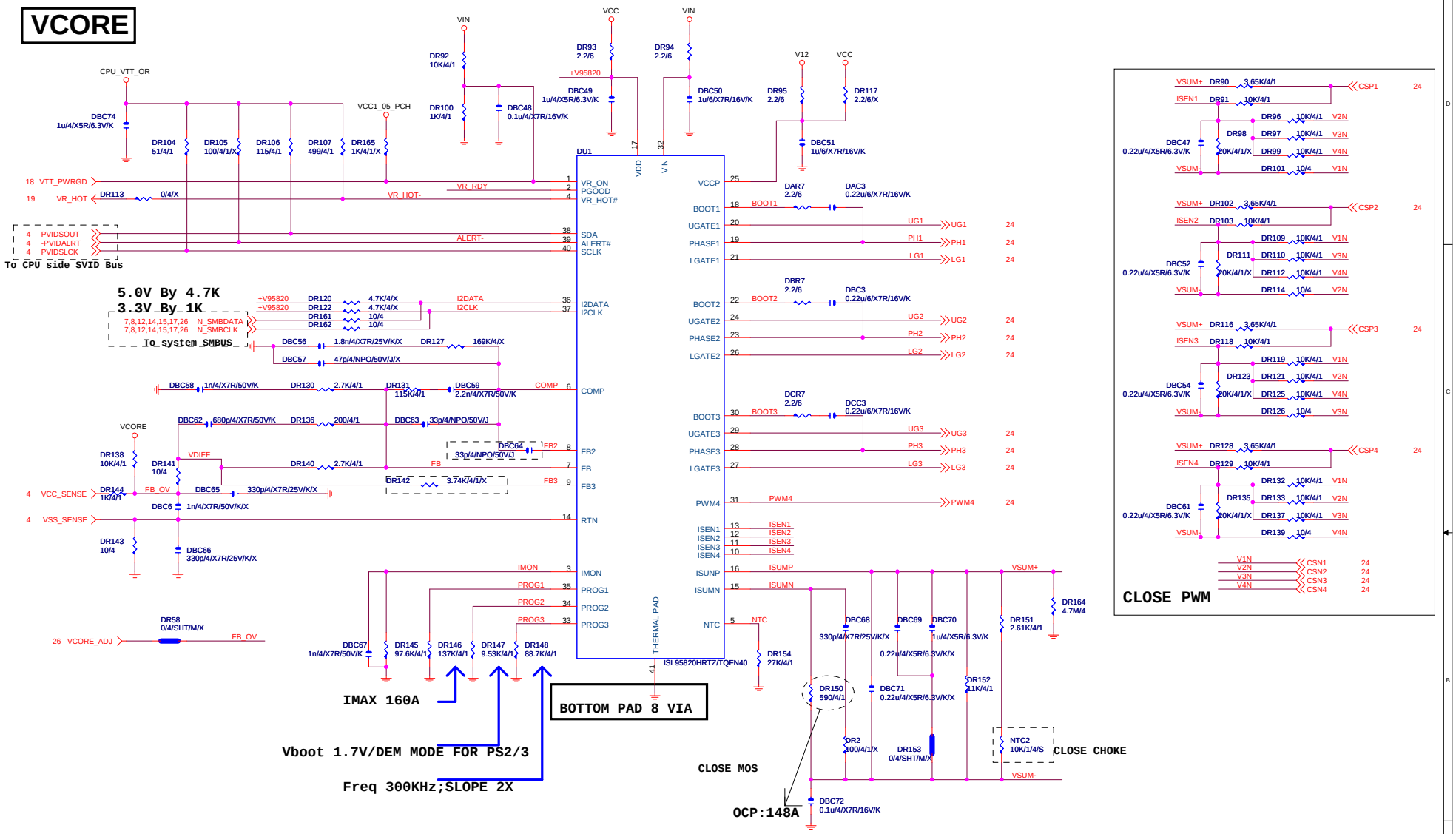
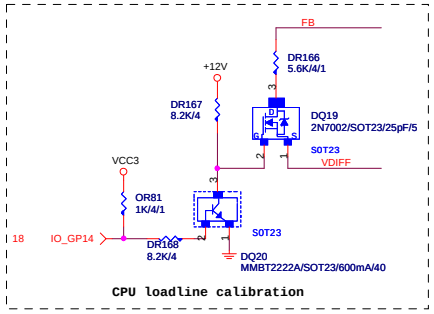
VCORE





Gigabyte Technology	
Title	VCORE_ ISL95820
Size: Custom	Document Number: GA-Z97P-D3
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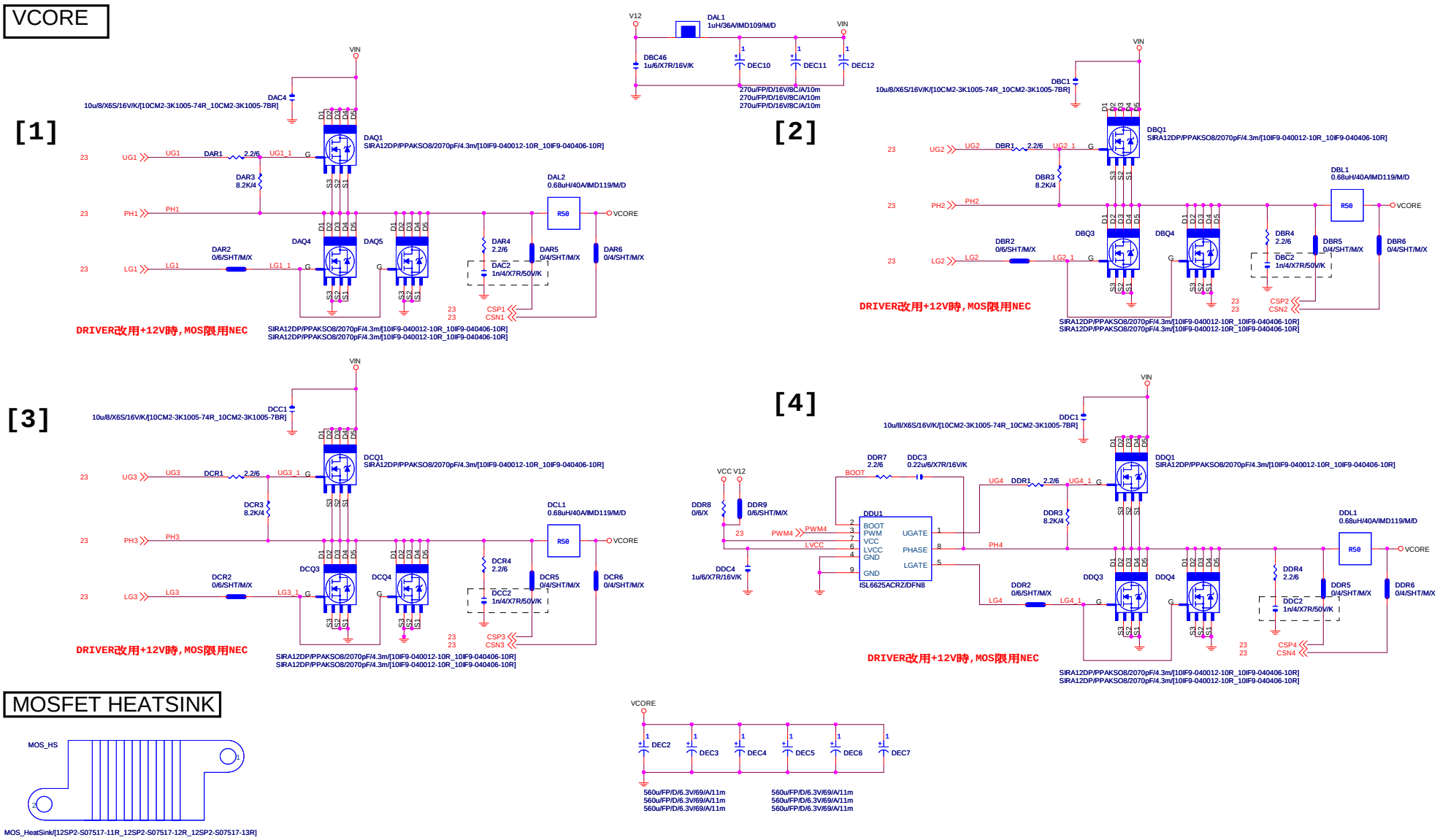
Date: Tuesday, June 24, 2014	Sheet 23 of 33

VCORE



MOSFET HEATSINK

Gigabyte Technology		
Title	ISL95820_2	
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
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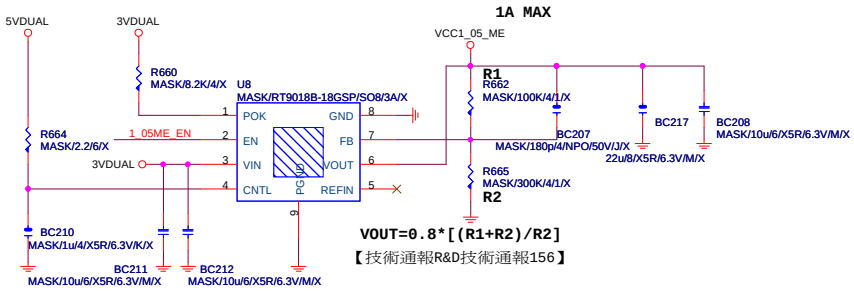
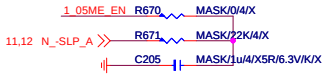
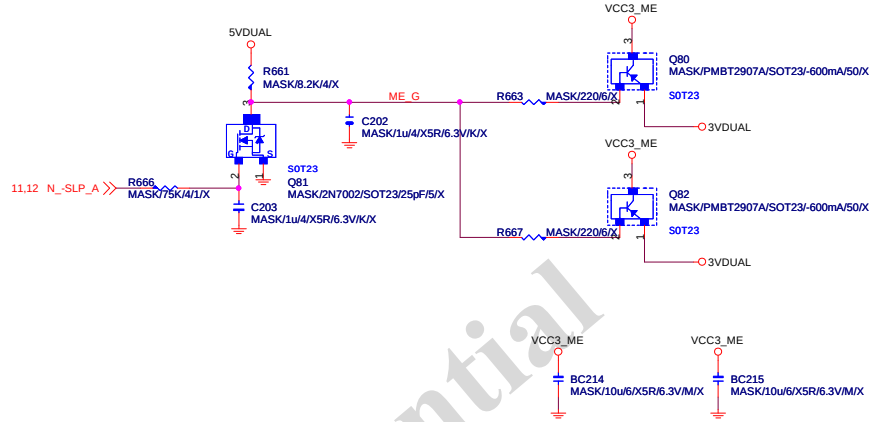
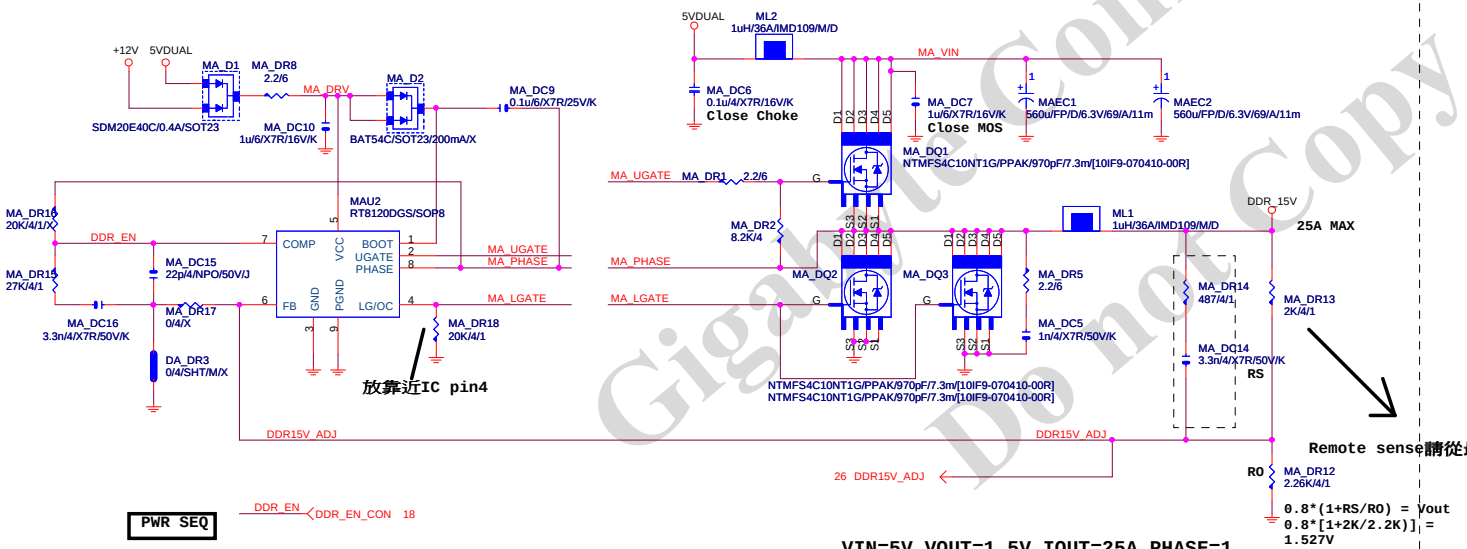
VCC1_05_ME







DDR_15V



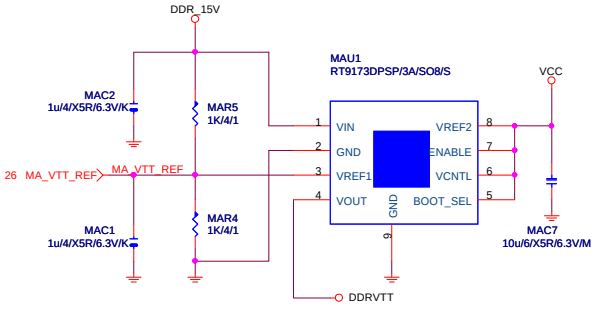
VIN=5V,VOUT=1.5V,IOUT=25A,PHASE=1
IRMS=11.45A

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

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

OCP:35.82A for Rds=6.7m for vishay@4.5V
OCP:72.727A for Rds=3.3m for renesas@10V
OCP:48A=Roset*Iocset / Rds(on)
=12K*10uA / [5//5]

DDRVTT



GIGABYTE™

Title	DDR15V / M3 POWER	
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
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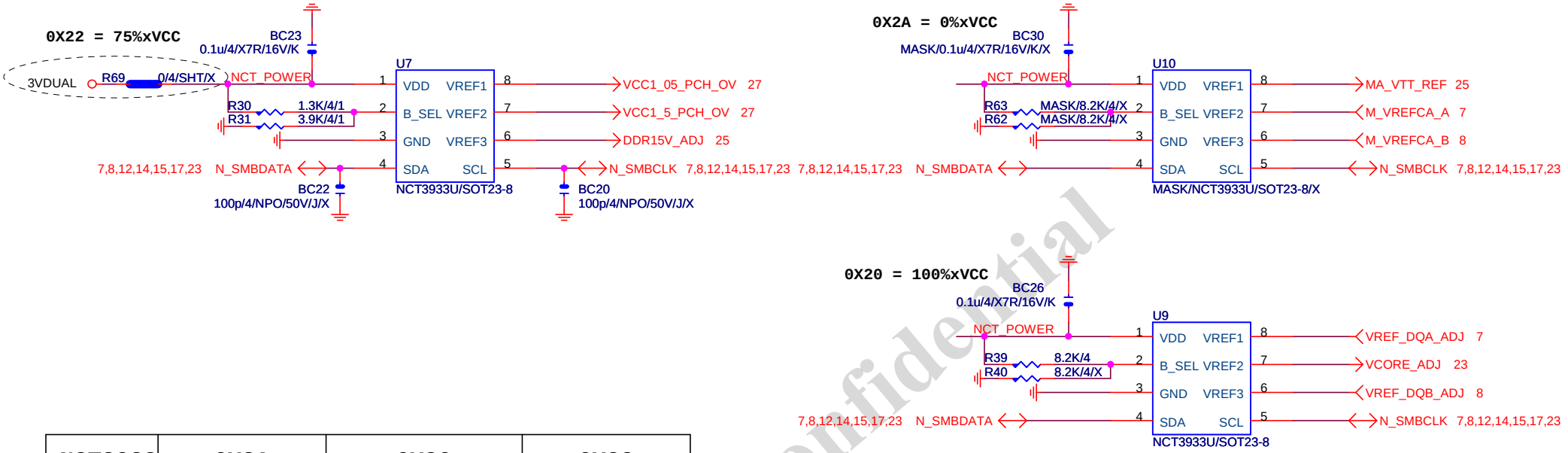
OVER VOLTAGE



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: CPU CORE VR-2			
Size: Custom	Document Number: GA-Z97P-D3		Rev: 1.01
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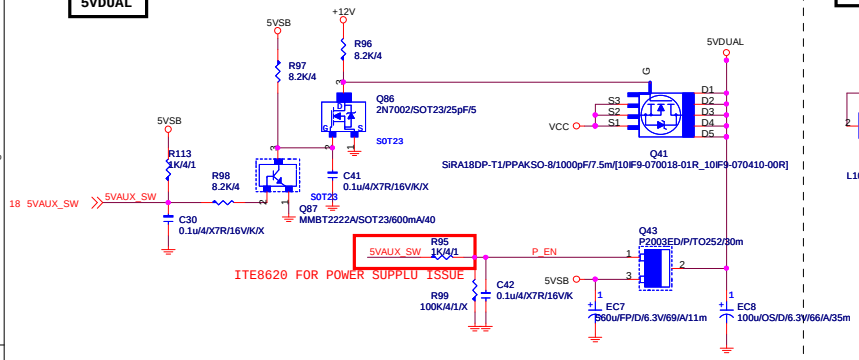
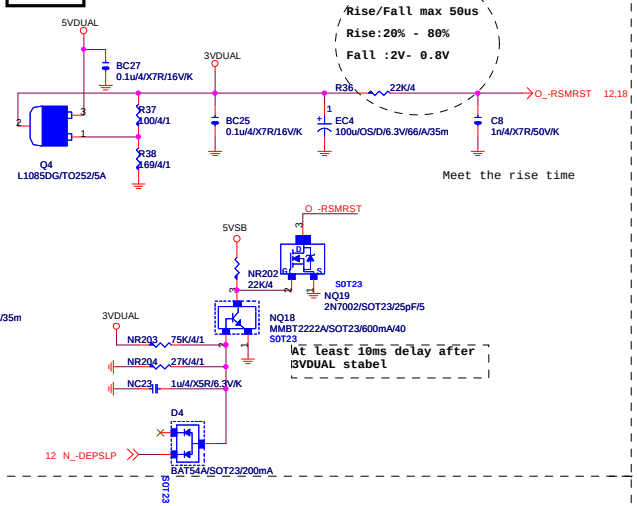
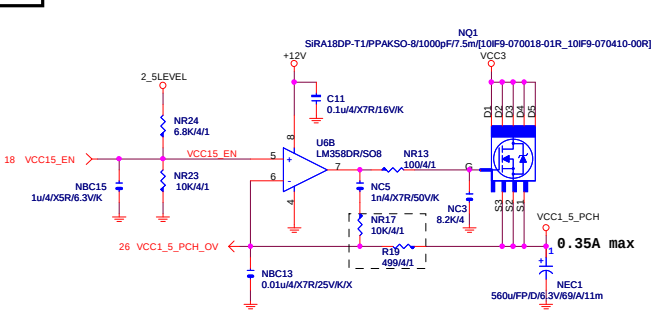
5VDUAL



3VDUAL

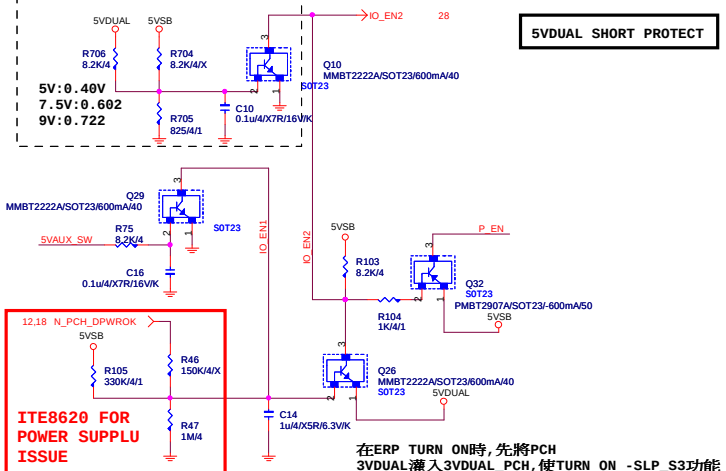


VCC1_5_PCH



5VSB OVP:7.5V protection

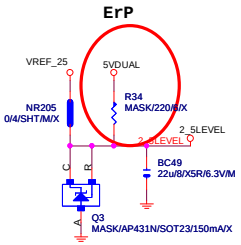
NOTE 82:改5V DUAL,6V保護



5VDUAL SHORT PROTECT

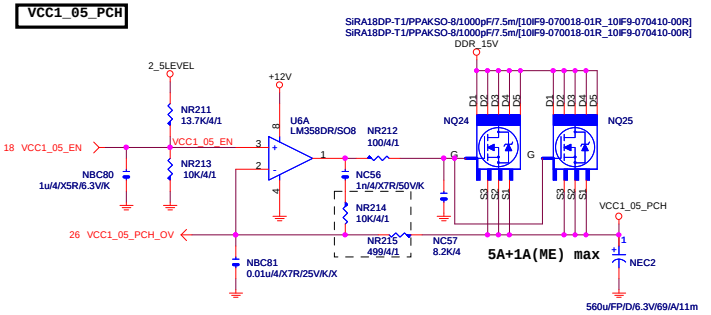
在ERP TURN ON時,先將PCH 3VDUAL灌入3VDUAL_PCH,使TURN ON -SLP_S3功能

2_5LEVEL



ALL MASK

VCC1_05_PCH



PWR SEQ

PCH ERP

Gigabyte Technology			
Title: DISCRETE POWER			
Size: Custom	Document Number: GA-Z97P-D3		Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 27 of 33		

Front USB3.0

F_USB30 REV=1

BH/2*10K20/BK/ON/2.0/VA/D/GF

F_USB30 PWR

UAFB2 SMD1206P350SLR/6V/S

UAEC3 100u/OS/D/6.3V/66/A/35m

Close to connector

USB30 ESD PROTECT

HCBE2 AZ1065-06Q/MSOP8L

HCBE1 AZ1065-06Q/MSOP8L

Close to connector

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 100u/OS/D/6.3V/66/A/35m

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

AMC099加強版

UAF3 SPR-P200T/6V/8/S

FRONT USB3

F_USB3

BH/2*5K9/BK/ON/2.54/VA/USB/PRT/TUR180

UAESD3 AZC099-04S.R7G/SOT23-6L/[10DEF-550099-20R_10TA1-0I8902-10R]

AMC099加強版

UAF5 SPR-P200T/6V/8/S

SATA LED

FPQ1 MMBT2222A/SOT23/600mA/40

MMBT2222A/SOT23/600mA/40

SPKR

FPD1 CD4148WP/1206/300mA

To disable TCO timer

FPQ6 MMBT2222A/SOT23/600mA/40

FPQ5 MMBT2222A/SOT23/600mA/40

FPQ7 2N7002/SOT23/25pF/5

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]

CASE OPEN

FPBC4 0.01u/4X7R/25V/K

F_USB POWER PROTECT

UAD5 BAT54A/SOT23/200mA

-USBOC_F

UAD1 BAT54A/SOT23/200mA

UAD2 BAT54A/SOT23/200mA

UAR1 8.2K/4

UAR14 15K/4/1

USB2.0/3.0 Signal & power short protection

USB2.0 Signal > 4.85V

Enable --> 3VDUAL=3.5V

UAR2 MASK/442/4/1/X

UAR3 MASK/1K/4/1/X

UABC7 MASK/0.1u/4X7R/16V/K/X

UAU1A MASK/LM358DR/SO8/X

UABC8 MASK/0.1u/4X7R/16V/K/X

UAU1B MASK/LM358DR/SO8/X

（開機短路保護）

UAQ1 MASK/2N7002/SOT23/25pF/5/X

（關機短路保護）

UAQ2 MASK/2N7002/SOT23/25pF/5/X

ALL MASK

Title	FP,F_USB,USB PWR,FDD,BZ
Size / Custom	Document Number GA-Z97P-D3
Rev	1.01
Date:	Tuesday, June 24, 2014
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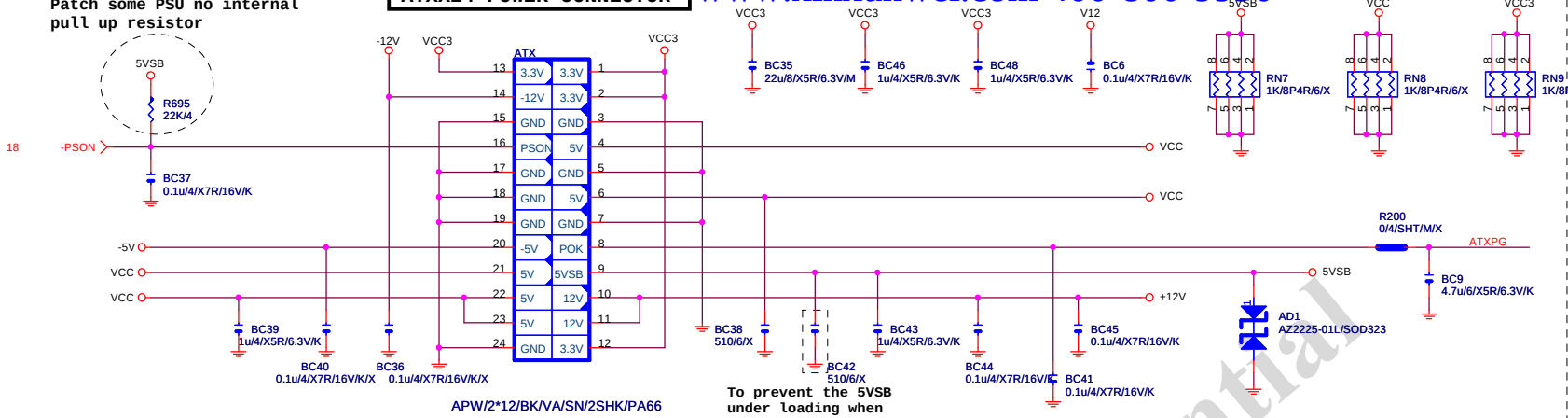
Gigabyte Technology

ATXX24 POWER CONNECTOR

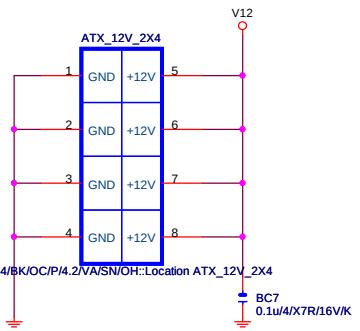
Patch some PSU no internal pull up resistor



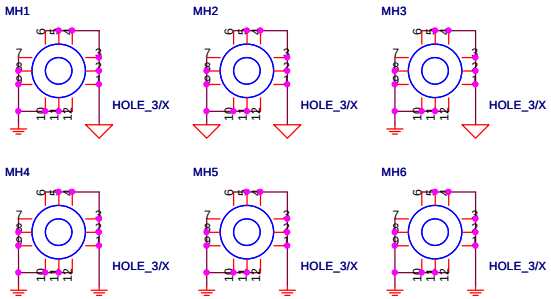
APW/2*12/BK/VA/SN/2SHK/PA66

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



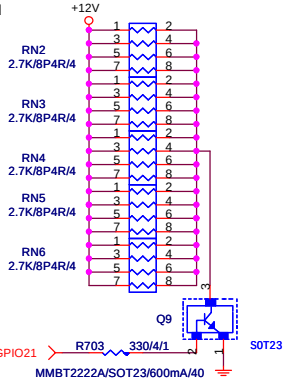
HOLE_4-RH-1

K1-ICT

4MMH

【技術通報R&D技術通報153】

To fix 12V light load abnromal issue



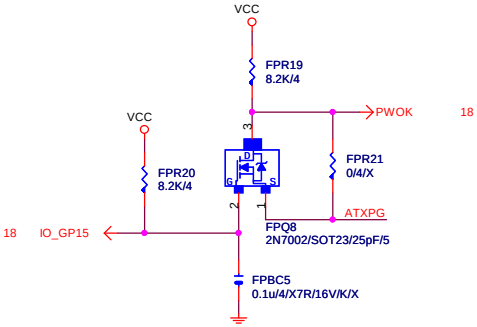
CLK GEN

CPU Frequency Selection

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

PWOK PATCH

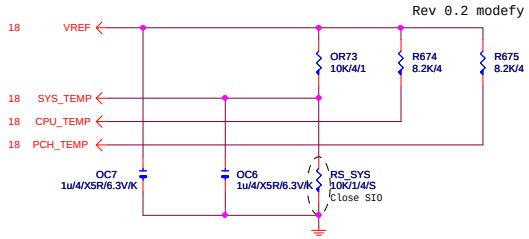
【技術通報R&D技術通報154】



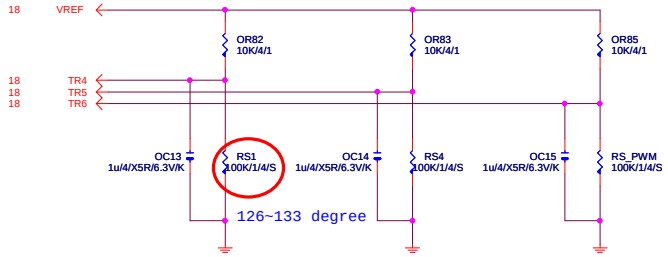
Gigabyte Technology		
Title: ATX POWER CONNECTOR		
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 29 of 33	

TEMP H/W MONITOR

Rev 0.2 modefy



-PROCHOT:有mos heartsink不用prochot function

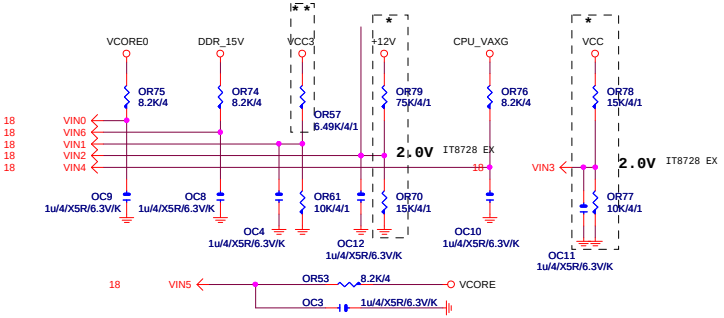


RS1、RS2、RS3 CLOSE CPU VR MOSFET

VOLTAGE-- H/W MONITOR

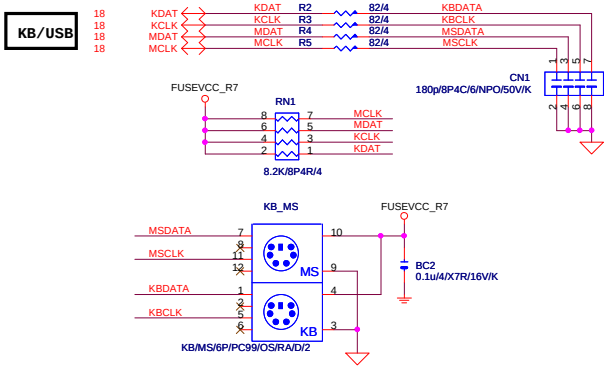
* IT8728 BX
** IT8728 CX

VIN2 must +12V input
VIN3 must VCC input

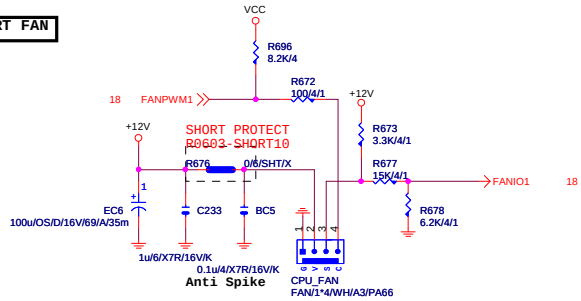


The division voltage of VIN2 & VIN3 must be around 2.9V

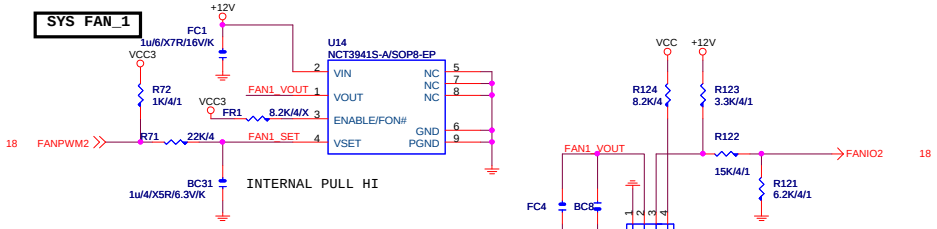
KB/USB

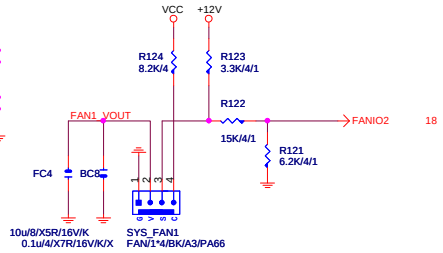


CPU SMART FAN

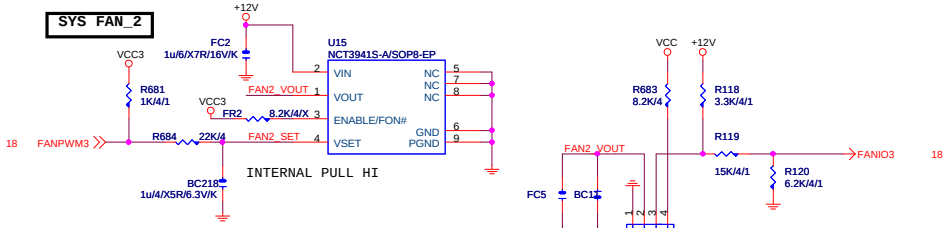


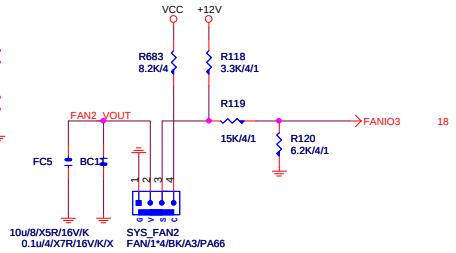
SYS FAN_1





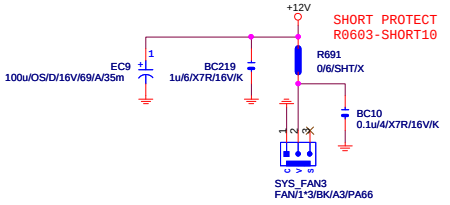
SYS FAN_2

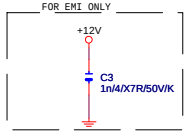


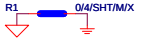


SYS FAN_3

Linear SYS_FAN







Gigabyte Technology		
Title: HWM,KB/MS, FAN CTRL		
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
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LAN:INTEL I217

VDD33

LR12 1K/4/1

LR18 2.49K/4/1

FOR DSM MODE

(DEEP SLUMBER MODE)

Dual Color LED

D4 D3 Green

D4 D3 Orange

VDD33

LR16 0/6/SHT/M/X

ENSWREG

ENABLE SW

Single Color LED

D2 D1 Yellow

LU1

GND

MDIP0
MDIN0
AVDD10
MDIP1
MDIN1
AVDD10(NC)
MDIP2(NC)
MDIN2(NC)
AVDD10(NC)
MDIP3(NC)
MDIN3(NC)
AVDD33(NC)

REGOUT
VDDREG
VDDREG
ENSWREG
EEDI
LED3/EEDO
EECS
DVDD10
LANWAKEB
DVDD33
ISOLATEB
PERSTB

RTL8111F-VL-CG/QFN48

100歐姆:[20/4/8/4/20]

80歐姆:[15/5/5/5/15]

SRCCLK 50歐姆:[18/4/10/4/18]

離IC近越好

LX1 25M/16p/30ppm/49US/20/D

LC3 20p/4/NPO/50V/J

LC4 20p/4/NPO/50V/J

LBC2 100p/4/NPO/50V/J

LR15 1/6

LBC23 LBC24 22u/8/5R/6.3V/M

0.1u/4/X7R/16V/K

LR13 8.2K/4

LR6 8.2K/4

LR4 1K/4/1

LR5 15K/4/1

LR2 LR7 2.2K/4/X

P35-152-19W9

U4 U3 U2 U1
U8 U7 U6 U5
L1 L3 L5 L7 L9
L2 L4 L6 L8 L10
D1 D2 D3 D4

YELLOW ORANGE GREEN

3VDUAL

LBC29 22u/8/X5R/6.3V/M

LBC7 LBC17 LBC15 LBC4 LBC22 LBC14 0.1u/4/X7R/16V/K

(CLOSE LU1)

DVDD10

LBC11 LBC10 LBC13 LBC5 LBC19 LBC18 LBC9 0.1u/4/X7R/16V/K

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

CLOSE LL2

LL1 4.7uH/1210/1250mA/0.1/S

REGOUT

DVDD10

LBC20 22u/8/X5R/6.3V/M

LBC21 0.1u/4/X7R/16V/K

LFB1 0/6/SHT/M/X EVDD10

LBC3 1u/4/X5R/6.3V/K

LBC1 0.1u/4/X7R/16V/K

(PIN21)

USB30_LAN CONNECTOR

LBESD1

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

LBESD2

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

LBESD3

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

100歐姆:[20/4/8/4/20]

USB_LAN

UP

DOWN

USB+LAN/1G/GO,Y/OS/RA/D/12C/ES/[11NR6-702009-96R]

LR10 150/6/1

FUSEVCC_R1

LBC30 0.1u/4/X7R/16V/K

90歐姆:[12/5/7/5/12]

ESD2

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

AMC099加強版

UBF7 SPR-P200T/6V/8/S

5VDUAL

FUSEVCC_R1

-USBOC_R

SOT23

UBD1 BAT54A/SOT23/200mA

FUSEVCC_R7

UBR7 8.2K/4

UBR9 15K/4/1

N_-USBOC_R

LR1 0/4/SHT/M/X

LAN

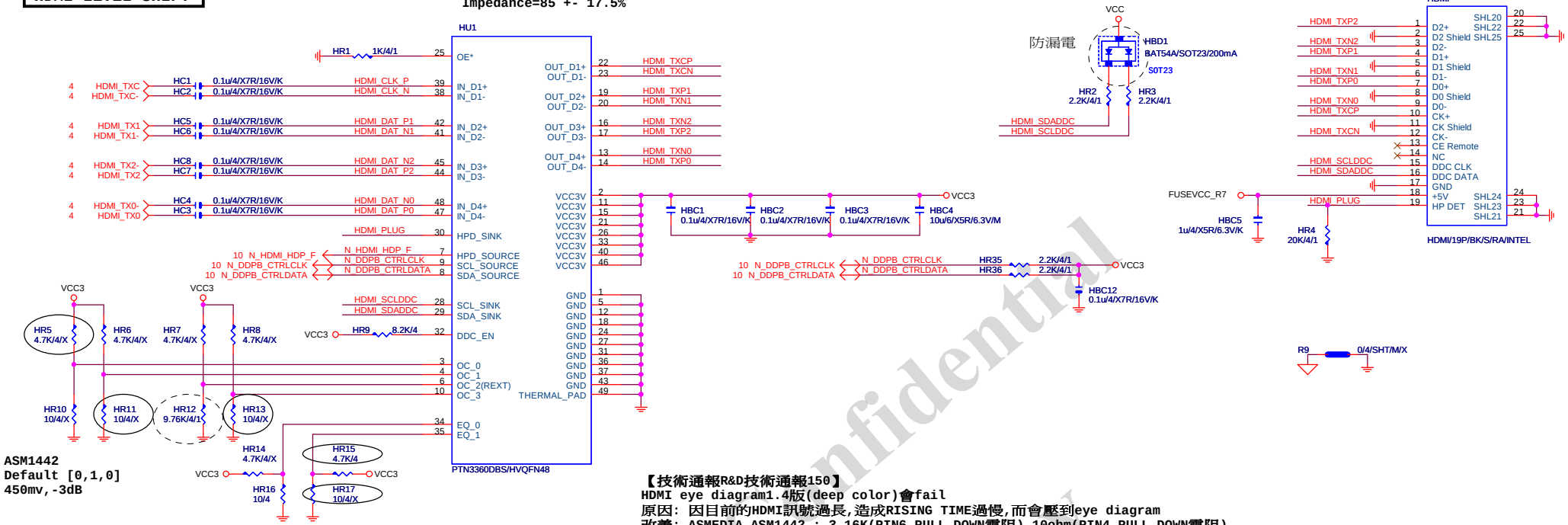
RBR20 0/4/SHT/M/X

USB_LAN <--> R_USB30_1

Gigabyte Technology		
Title: REALTEK 8111F-VL		
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 31 of 33	

HDMI LEVEL SHIFT

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



ASM1442
Default [0,1,0]
450mv,-3dB

ASM1442 Default [0,0] 3dB
[0,1]6dB

【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)

GIGABYTE™

Title: HDMI		
Size: Custom	Document Number: GA-Z97P-D3	Rev: 1.01
Date: Tuesday, June 24, 2014	Sheet 32 of 33	

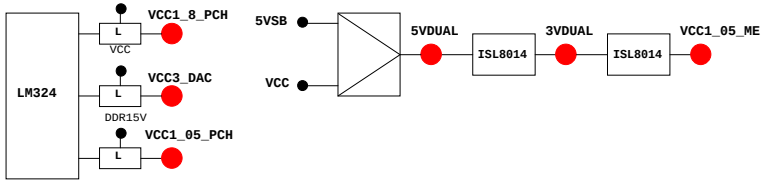
PCH GPIO LIST TABLE

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

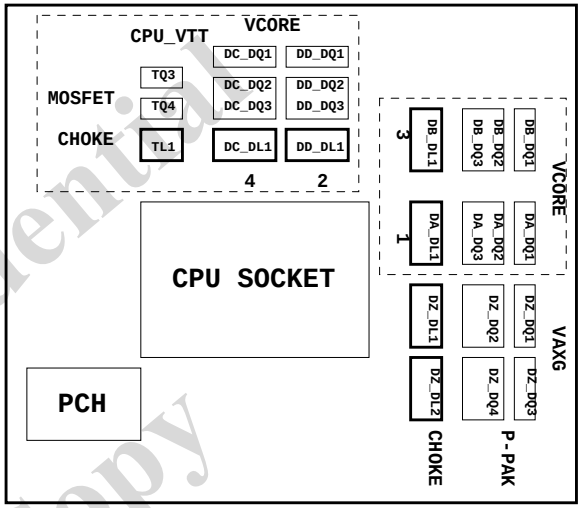
Super I/O ITE8720 GPIO Table

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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