Model Name: GA-H81M-S2PV *Revision 1.03*

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,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS X1 SLOT
16	PCI SLOT 1,2
17	ITE 8620 LPC IO
18	COM,LPT,KB_MS
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	R_USB30,FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95812_1

SHEET	TITLE
28	VCORE ISL95812_2
29	RT8120_DDR POWER
31	DVI
32	IT8892E

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Title: Cover Sheet		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
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Model Name: GA-H81M-S2PV

Revision 1.03

Component value change history

2013/11/27

Data	Change Item	Reason
2013/06/24	Update Rev to 1.0	PBOM: 9MH81MS2V-00-10A
2013/06/28	Update Rev to 1.01	PBOM: 9MH81MS2V-00-10B
	ADD RSMRST DELAY	
	ADD 5VSB Protection	
2013/07/03	Remove Super I/O OVP/UVP Function	PBOM: 9MH81MS2V-00-10C
2013/07/11	導入5VSB OVP Protection	PBOM: 9MH81MS2V-00-10D
	DEL R704: 8.2K/4	
	ADD R706: 8.2K/4	
	R705: 715/4/1 -> 825/4/1	
	AUDIO AZ2225-01L CD1移除	
2013/08/19	REMOVE WR57 FIX IT8620 TEMP ISSUE	FPBOM: 9MH81MS2V-00-10E
2013/09/13	Update to R1.02	
	Follow Crystal Trace Rule	
	SYS_FAN, DDR 0ohm 0402 -> 0603	
	Update Fuse 1206 Footprint "POLYSWITCH-1206-1"	
	Update PPAK Footprint "Q_TDSON8-GDS-T"	
2013/10/22	NX1: 25M/20p -> 12p	FPBOM: 9MH81MS2V-00-10F
	NC7, NX8: 27p -> 10p	
2013/11/04	NC7, NX8: 10p -> 15p	FPBOM: 9MH81MS2V-00-10H
2013/11/19	R1.03	FPBOM: 9MH81MS2V-00-10G (R1.03)
	FIX Crystal 2G phone issue	
2013/11/27	MR17 0ohm -> 0603 FUSE(10FP5-06100B-00R)	FPBOM: 9MH81MS2V-00-10I (R1.03)

Circuit or PCB layout change

DATE	Change Item	Reason

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Title: BOM & PCB MODIFY HISTORY

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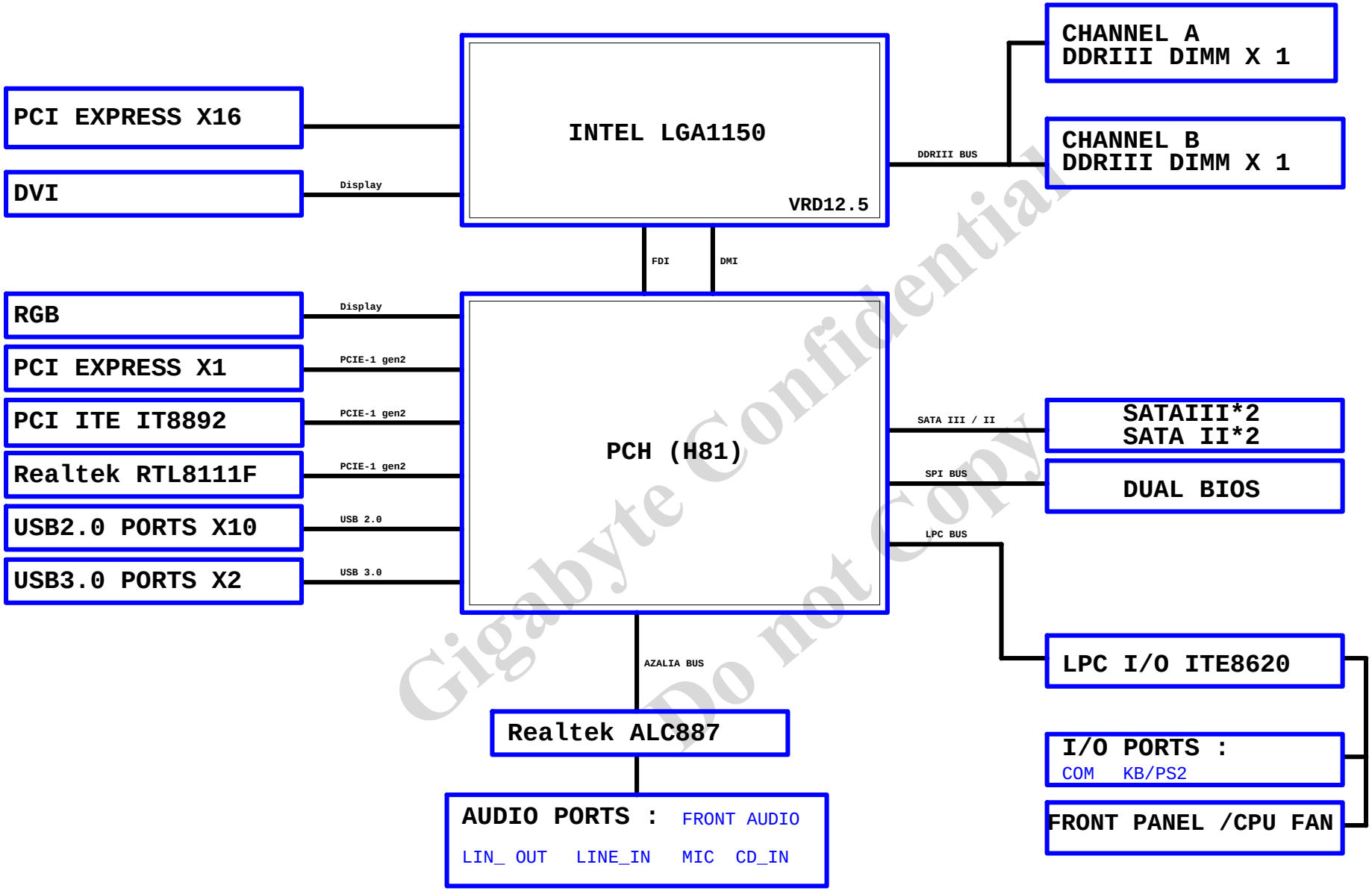
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H81M-S2PV	Rev: 1.03
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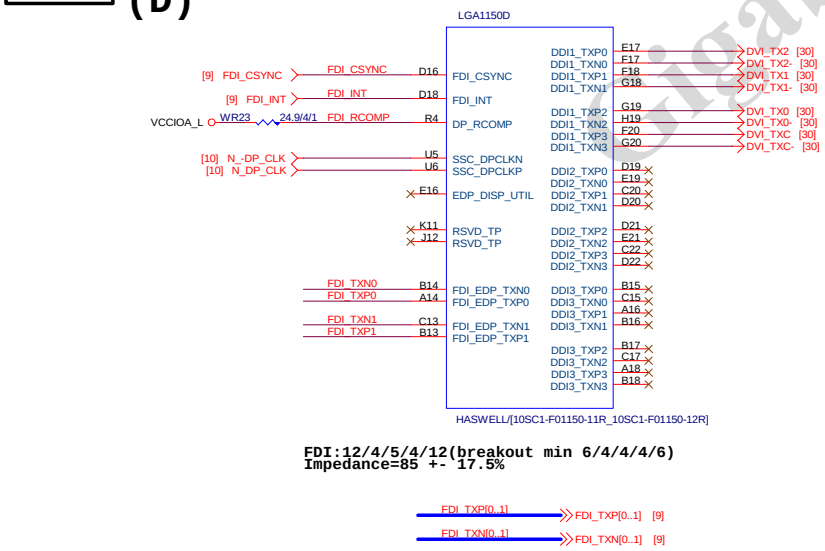
LGA1150 (E)

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

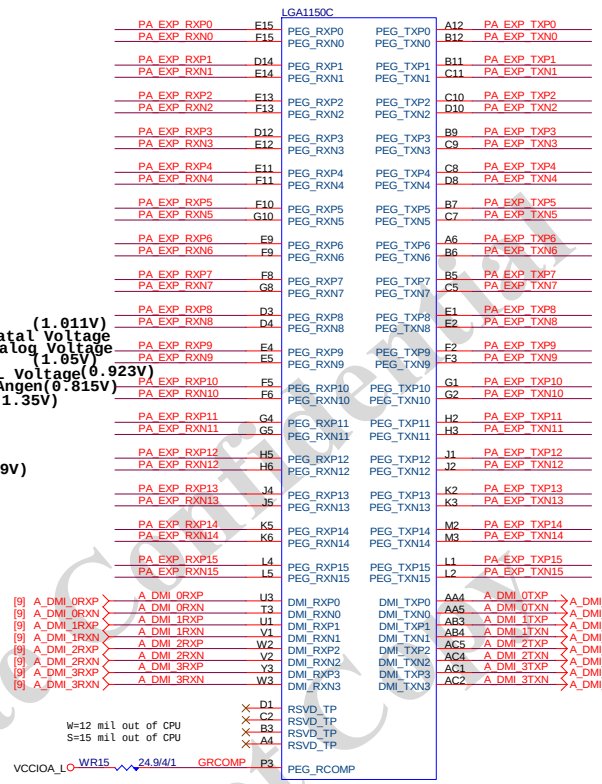
LGA1150 (D)



FDI:12/4/5/4/12(breakout min 6/4/4/4/6)
Impedance=85 +- 17.5%

LGA1155 (C)

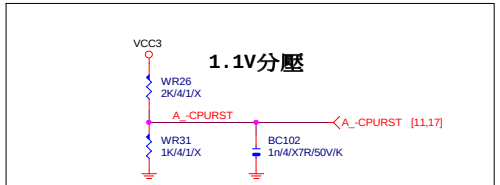
PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



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

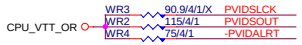
PA_EXP_TXP[0..15] [14]
PA_EXP_TXN[0..15] [14]
PA_EXP_RXP[0..15] [14]
PA_EXP_RXN[0..15] [14]

-CPURST

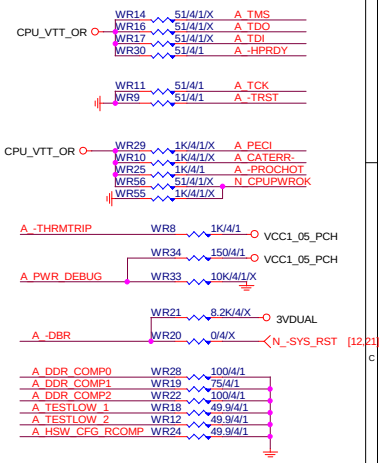


For IT8620 Ctrl

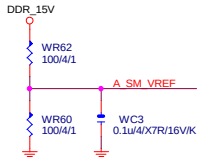
CPU SVID



CPU PU/PD



SM REF



Title	CPU LGA1150-A
Size	Custom
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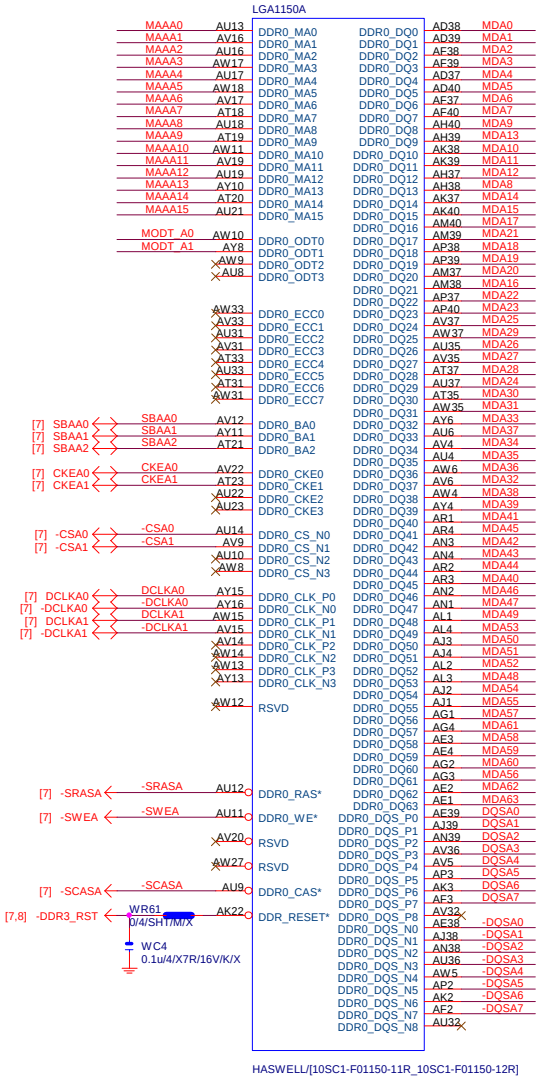
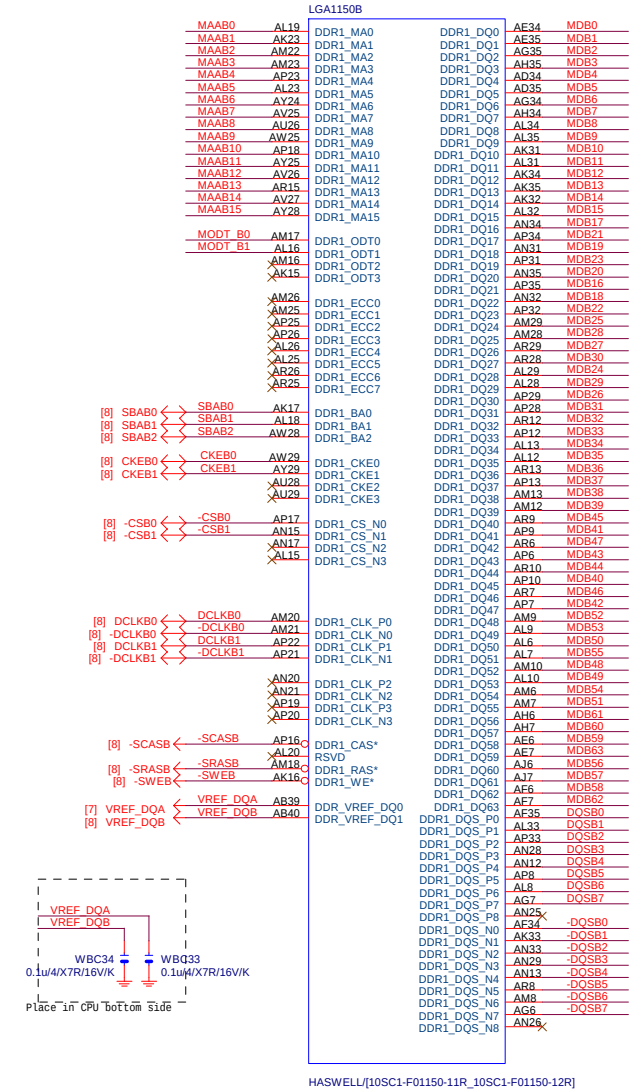
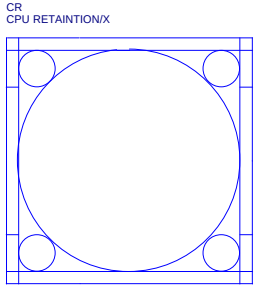
LGA1150 (A)



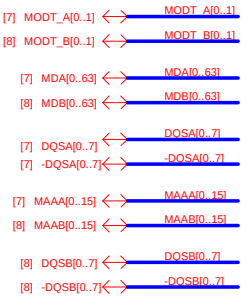
LGA1150 (B)



LGA1150 (CR)



DDR BUS



Gigabyte Technology	
Title	CPU LGA1150-B
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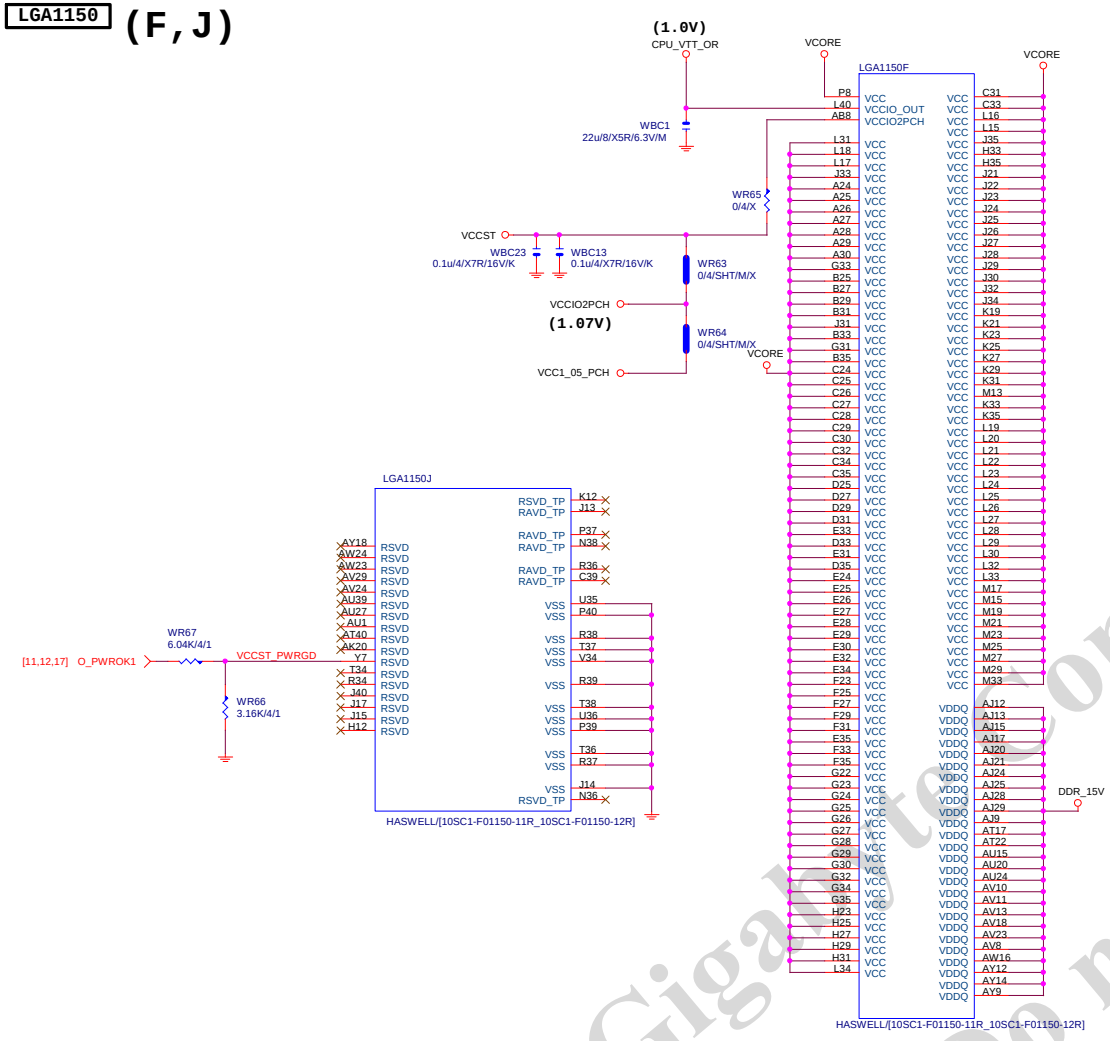
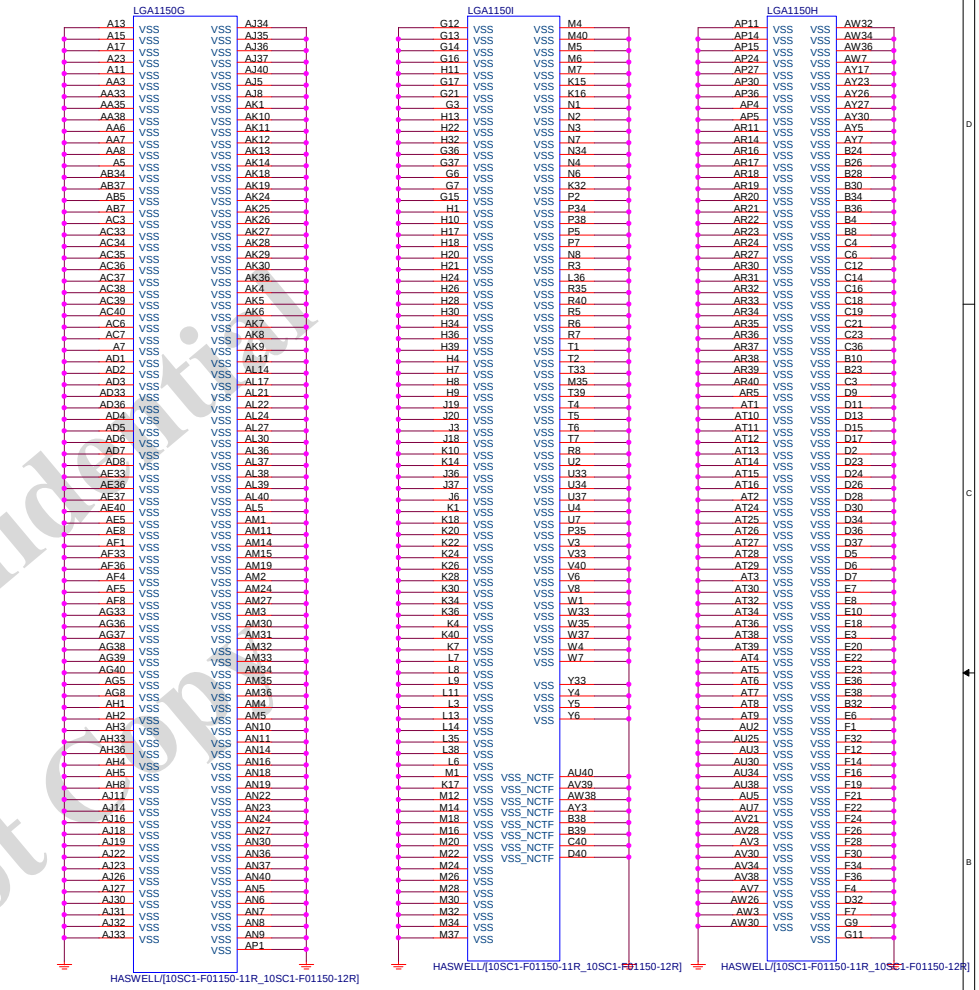
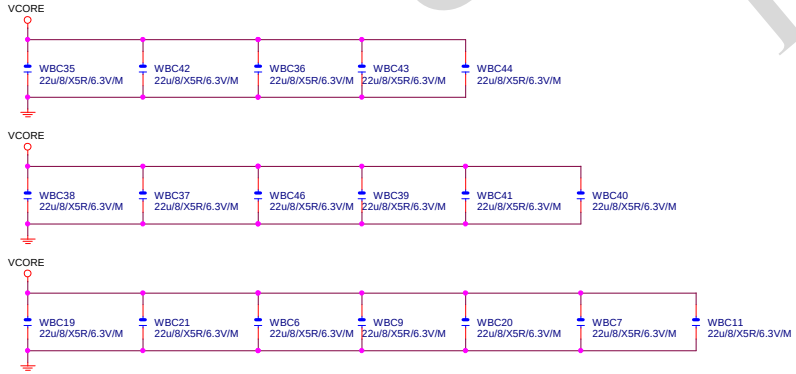
LGA1150 (F,J)



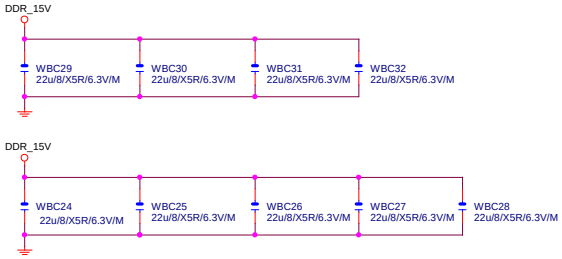
LGA1155 (G,H,I)



VCore CAP (X18)



DDR CAP (X9)



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

DDR3_1

DDRVTT

DDR_15V

N_SMBDATA
N_SMBCLK

MC10 100p/4/NPO/50V/J/X

MC11 100p/4/NPO/50V/J/X

【技術通報R&D技術通報169】

0603 1A FUSE

MR17 P100/6V/6/S

VCC3

VDDSPD

MC4 0.1u/4/X7R/16V/K

MC5 VREF_DDRA

MC1 VREF_DQDDRA

0.1u/4/X7R/16V/K

[8,12,14,15,16,19] N_SMBCLK
[8,12,14,15,16,19] N_SMBDATA

[5] SBAA2
[5] SBAA1
[5] SBAA0

[5] CKEA1
[5] CKEA0

[5] -CSA1
[5] -CSA0

[5] -DCLKA1
[5] DCLKA1

[5] -DCLKA0
[5] DCLKA0

[5] MAAA[0..15]

[5,8] -DDR3_RST
[5] -SCASA
[5] -SRASA
[5] -SWEA

-DDR3_RST

MC6 100p/4/NPO/50V/J

DDR3/240/BK/VA/D

BLACK CONNECTOR

MDQ[0..63] [5]

MODT_A[0..1] [5]

-DQSA[0..7] [5]

DQSA[0..7] [5]

DDR3 VREF

DDR_15V

MR15 1K/4/1

MR14 1K/4/1

VREF_DDRA

DDR_15V

MR4 1K/4/1

MR5 1K/4/1

VREF_DQDDRA

MR1 10/4

VREF_DQA [5]

DDR15V Decouple

DDR_15V

MEC1 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

MEC2 560u/FP/D/6.3V/69/A/11m/[11CO2-695600-09R]

DDR_15V

MBC1 0.1u/4/X7R/16V/K
MBC2 0.1u/4/X7R/16V/K
MBC3 0.1u/4/X7R/16V/K
MBC24 0.1u/4/X7R/16V/K
MBC12 0.1u/4/X7R/16V/K
MBC14 0.1u/4/X7R/16V/K

DDR_15V

MBC15 1u/4/X5R/6.3V/K
MBC17 1u/4/X5R/6.3V/K
MBC27 1u/4/X5R/6.3V/K
MBC29 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
MBC9 1u/4/X5R/6.3V/K

DDRVTT Decouple

DDRVTT

MBC40 10u/6/X5R/6.3V/M

DDRVTT

MBC18 1u/4/X5R/6.3V/K
MBC10 0.1u/4/Y5V/16V/Z

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Title: DDRIII CHANNEL_A

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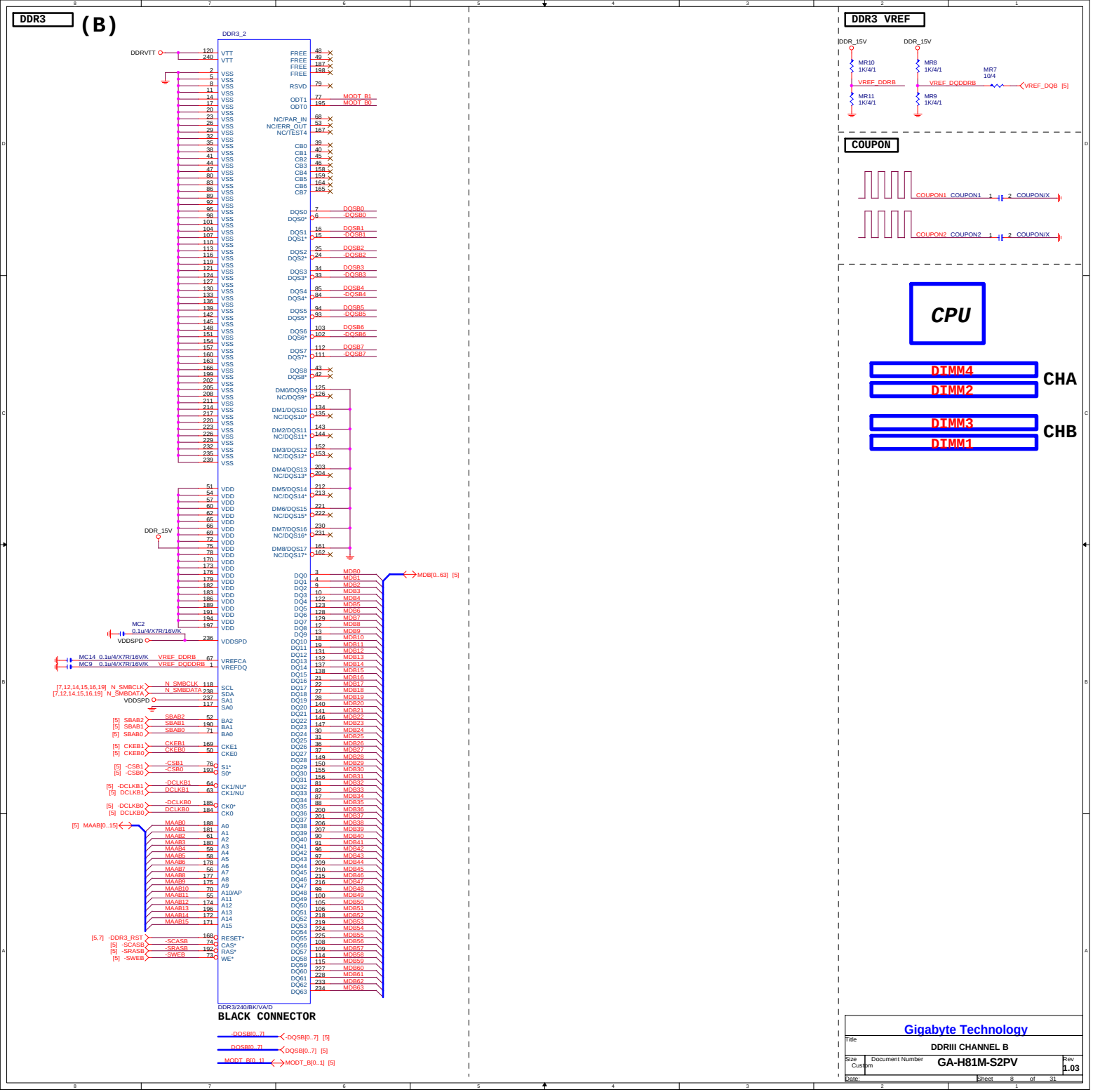
DDR3 (B)
DDR3_2
DDRVTT
DDR_15V
MC2 0.1u/4/X7R/16V/K
VDDSPD
MC14 0.1u/4/X7R/16V/K VREF_DDRB
MC9 0.1u/4/X7R/16V/K VREF_DDDRB
[7,12,14,15,16,19] N_SMBCLK
[7,12,14,15,16,19] N_SMBDATA
[5] SBAB2
[5] SBAB1
[5] SBAB0
[5] CKEB1
[5] CKEB0
[5] -CSB1
[5] -CSB0
[5] -DCLKB1
[5] DCLKB1
[5] -DCLKB0
[5] DCLKB0
[5] MAAB[0..15]
[5,7] -DDR3_RST
[5] -SCASB
[5] -SRASB
[5] -SWEB
MDB[0..63] [5]
DDR3/240/BK/VA/D
BLACK CONNECTOR
-DQSB[0..7]
DQSB[0..7]
MODT_B[0..1]
-DQSB[0..7] [5]
DQSB[0..7] [5]
MODT_B[0..1] [5]
DDR3 VREF
DDR_15V
MR10 1K/4/1
MR11 1K/4/1
MR8 1K/4/1
MR9 1K/4/1
MR7 10/4
VREF_DDRB
VREF_DDDRB
VREF_DQB [5]
COUPON
COUPON1 COUPON1
COUPON2 COUPON2
COUPON/X
CPU
DIMM4
DIMM2
DIMM3
DIMM1
CHA
CHB
Gigabyte Technology
Title
DDRIII CHANNEL B
Size Custom
Document Number GA-H81M-S2PV
Rev 1.03
Date:
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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 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

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)

[4] A_DMI_0TXN A_DMI_0TXN L24
[4] A_DMI_0TXP A_DMI_0TXP K24
[4] A_DMI_0RXN A_DMI_0RXN C20
[4] A_DMI_0RXP A_DMI_0RXP B20
[4] A_DMI_1TXN A_DMI_1TXN G24
[4] A_DMI_1TXP A_DMI_1TXP H24
[4] A_DMI_1RXN A_DMI_1RXN D21
[4] A_DMI_1RXP A_DMI_1RXP B21
[4] A_DMI_2TXN A_DMI_2TXN F26
[4] A_DMI_2TXP A_DMI_2TXP G26
[4] A_DMI_2RXN A_DMI_2RXN B22
[4] A_DMI_2RXP A_DMI_2RXP C22
[4] A_DMI_3TXN A_DMI_3TXN K26
[4] A_DMI_3TXP A_DMI_3TXP L26
[4] A_DMI_3RXN A_DMI_3RXN A24
[4] A_DMI_3RXP A_DMI_3RXP B24

W=4 mil out of PCH
S=15 mil out of PCH

VCC1_5_PCH — NR50 7.5K/4/1 DMI_COMP B19
PCIE_COMP C13
NR40 7.5K/4/1

DMI_RCOMP
PCIE_RCOMP

CK_-SRCCLK_PCH G22
CK_SRCCLK_PCH F22
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 (USB)

AV10 N_-USBP0 — N_-USBP0 [21]
AU10 N_+USBP0 — N_+USBP0 [21]
AV11 N_-USBP1 — N_-USBP1 [21]
AW11 N_+USBP1 — N_+USBP1 [21]
AN14 N_-USBP2 — N_-USBP2 [24]
AP14 N_+USBP2 — N_+USBP2 [24]
AJ16 N_-USBP3 — N_-USBP3 [24]
AK16 N_+USBP3 — N_+USBP3 [24]
AU15
AV15
AU12
AT12
AV14
AW14
AU17
AT17
H81: Port 6/7/12/13 N/A

AW16 N_-USBP8 — N_-USBP8 [21]
AV16 N_+USBP8 — N_+USBP8 [21]
AN16 N_-USBP9 — N_-USBP9 [21]
AP16 N_+USBP9 — N_+USBP9 [21]
AJ18 N_-USBP10 — N_-USBP10 [21]
AK18 N_+USBP10 — N_+USBP10 [21]
AP18 N_-USBP11 — N_-USBP11 [21]
AN18 N_+USBP11 — N_+USBP11 [21]
AW18
AV18
AP20
AN20
H81: Port 6/7/12/13 N/A

PCIE Only

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 (PCIE)

L14 K14 B12 B11 F14 G14 D11 C11

8111F: [24] LA_ML_IN F11, [24] LA_ML_IP H11, [24] LA_ML_ON B9, [24] LA_ML_OP A9
8892: [31] G_PCIEBIN J11, [31] G_PCIEBIP L11, [31] G_PCIEBON B8, [31] G_PCIEBOP C8
PCIEx1: [15] PI_PCIEX1_IN G9, [15] PI_PCIEX1_IP F9, [15] PI_PCIEX1_ON B7, [15] PI_PCIEX1_OP A7

E7 H7 E1 D2 K6 K8 G3 G5 J2 J3 H2 H1

N/A

OC0B_GP59 OC1B_GP40 OC2B_GP41 OC3B_GP42 OC4B_GP43 OC5B_GP9 OC6B_GP10 OC7B_GP14 USBRBIASB USBRBIAS CLKIN_DOT96N CLKIN_DOT96P

AE40 N_-USBOC_F [21]
AF37
AD39
AD40
AE39 N_-USBOC_R [21]
AC41
AF40
AG40 N_GPIO14

W=4 mil out of PCH
S=15 mil out of PCH

AV20 N_USBRBIAS NR47 22.6/4/1
AU20

AP11 CK_-DOTCLK
AM11 CK_DOTCLK

NR130 8.2K/4
N_GPIO14 — 3VDUAL

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

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCH (F)

PCHF

USB3 / FDILINK

[21] PCH_USB3_RXN0 F20 USB3_RXN_0 — FDI_RXN_0 N1 FDI_TXN0
[21] PCH_USB3_RXP0 G20 USB3_RXP_0 — FDI_RXP_0 N2 FDI_TXP0
[21] PCH_USB3_TXN0 B18 USB3_TXN_0 — FDI_TXN_0 P2 FDI_TXN1
[21] PCH_USB3_TXP0 C18 USB3_TXP_0 — FDI_TXP_1 P3 FDI_TXP1

[21] PCH_USB3_RXN1 G18 USB3_RXN_1
[21] PCH_USB3_RXP1 H18 USB3_RXP_1
[21] PCH_USB3_TXN1 B15 USB3_TXN_1
[21] PCH_USB3_TXP1 B16 USB3_TXP_1

FDI_CSYNC L2 FDI_CSYNC — FDI_CSYNC [4]
FDI_INT L3 FDI_INT — FDI_INT [4]
FDI_RCOMP K2 NR29 7.5K/4/1 — VCC1_5_PCH

N/A

K20 USB3_RXN_4
L20 USB3_RXP_4
D15 USB3_TXN_4
C15 USB3_TXP_4
L18 USB3_RXN_5
K18 USB3_RXP_5
B14 USB3_TXN_5
A14 USB3_TXP_5

VCC3 — NR62 8.2K/4 — NR63 8.2K/4 — AK28 AT34

TACH6_GP70
TACH7_GP71

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

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

PCH CLK PD

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

NR225 short to GND in non graphic SKU

PCH (J)

PCHJ

AT1 AT41 AU1 AV1 AV2 AV40 AV41 AW2 AW40 B40 B41 C41 D1 D41 — VSS_NCTF

TP22 TP23 TP21 TP20 TP14 TP15 TP12 — U11 U10 AJ14 AK14 K34 K33 AH24
TP10 TP11 TP9 — L16 K16 AM34
TP3 TP4 TP1 TP2 — R12 N12 L22 K22
TP5 TP6 TP7 TP8 — R4 K5 P5 L5
VSS — AC31
VSS VSS — AF3 AV21

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSIN

1 2

GRAY HS

PCH_HS
PCH_HS/[12SP2-030005-43R_12SP2-030005-41R_12SP2-030005-42R]

USB TABLE

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

USB OC#	Configure
OC0#	R_USB30
OC1#	USB_LAN
OC2#	N/A
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	N/A
OC7#	Not Use

Gigabyte Technology

Title: PCH FDI,DMI,USB ,PCIE,NVRAM

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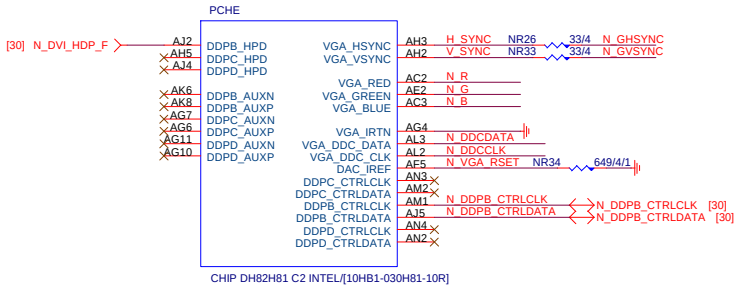
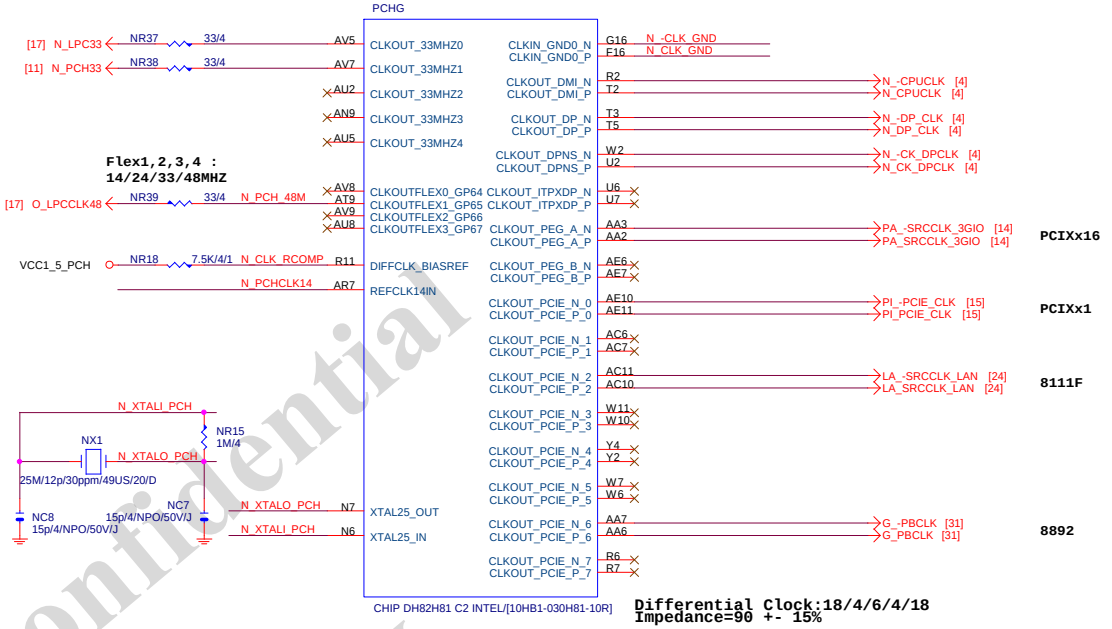
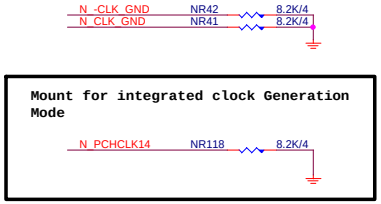
PCH (E)



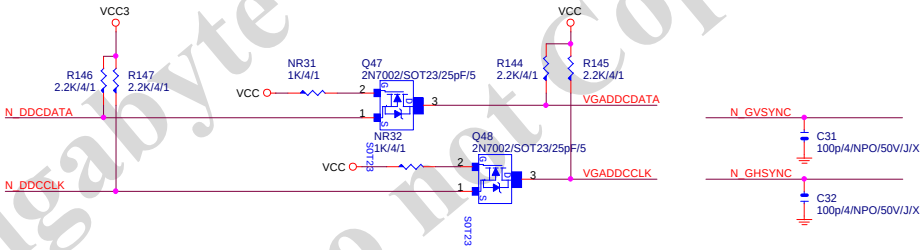
PCH (G)



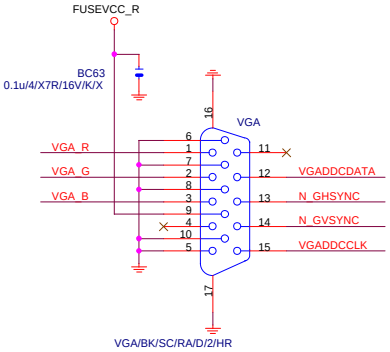
PCH CLK PD



VGA DDC

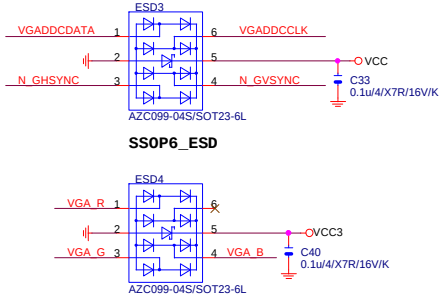


VGA CONNECTOR

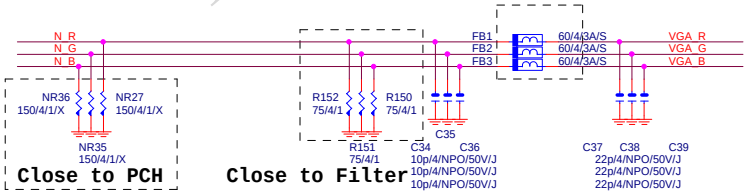


BLACK CONNECTOR

VGA ESD



VGA DDC



Gigabyte Technology		
Title: PCH DISPLAY ,CLK BUFFER		
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SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

PCH (C)

PCHC

NR177 0/4/SHT/M/X
[6,12,17] O_PWROK1
N_ME_PWROK
NC26 100p/4/NPO/50V/J/X

CL_CLK U36
CL_DATA U35
CL_RSTB U34
APWROK AA32

PWM0 AL31
PWM1 AM31
PWM2 AP31
PWM3 AV30

[21] N_GPIO1
N_GPIO17 AP28
N_GPIO1 AT31
N_GPIO6 AM28
N_GPIO7 AV34
N_GPIO68 AT30
N_GPIO69 AV35
TACH0_GP17
TACH1_GP1
TACH2_GP6
TACH3_GP7
TACH4_GP68
TACH5_GP69

[17] N_SSTCTL
SSTCTL AJ31

N_GPIO22 L38
N_GPIO38 H41
N_GPIO39 R31
N_GPIO48 L40
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
SATA_RXP_2 B31
SATA_TXN_2 B35
SATA_TXP_2 D35
SATA_RXN_3 B32
SATA_RXP_3 C32
SATA_TXN_3 G33
SATA_TXP_3 F33

N/A

SATA_RXN_4_PCIE_PERN_1 A26 N_SATA4RXN
SATA_RXP_4_PCIE_PERP_1 B26 N_SATA4RXP
SATA_TXN_4_PCIE_PETN_1 L28 N_SATA4TXN
SATA_TXP_4_PCIE_PETP_1 K28 N_SATA4TXP
SATA_RXN_5_PCIE_PERN_2 C27 N_SATA5RXN
SATA_RXP_5_PCIE_PERP_2 B27 N_SATA5RXP
SATA_TXN_5_PCIE_PETN_2 G28 N_SATA5TXN
SATA_TXP_5_PCIE_PETP_2 F28 N_SATA5TXP
CLKIN_SATA_N H35 CK_-SRCCLK_SATA
CLKIN_SATA_P H36 CK_SRCCLK_SATA

SATALEDB J39 N_-SATALED [21]
SATA_RCOMP D33 SATA3COMP
NR68 7.5K/4/1 VCC1_5_PCH

SATA0GP_GP21 M37 N_GPIO21 N_GPIO21 [26]
SATA1GP_GP19 J40 N_GPIO19
SATA2GP_GP36 H40 N_GPIO36
SATA3GP_GP37 N41 N_GPIO37
SATA4GP_GP16 M39 N_GPIO16
SATA5GP_GP49 N40 N_GPIO49

EDP_BKLTCTL AP2
EDP_BKLTEN AT2
EDP_VDDEN AP1

RSVD N30 N_A20GATE N_A20GATE [17]
RCINB K36 N_-KBRST N_-KBRST [17]
SERIRQ G39 N_SERIRQ N_SERIRQ [17]
THRMTRIPB C40 A_-THRMTRIP
PECI G40 SB_PECI NR85 0/4/X A_PECI A_-THRMTRIP [4,17] A_PECI [4,17]
PM_SYNCH F40 A_PMSYNC [4]
PLTRST_PROCB F41 A_-CPURST A_-CPURST [4,17]

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

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

PCHA
PMEB
CLKIN_33MHZLOOPBACK
TP16 A2
TP17 A3
TP18 B2
TP19 B1
TD_IREF
PIRQAB
PIRQBB
PIRQCB
PIRQDB
GPIO2
GPIO3
GPIO4
GPIO5

N_-PIRQA AU29
N_-PIRQB AU27
N_-PIRQC AW28
N_-PIRQD AV27
N_-PIRQE AR30
N_-PIRQF AV29
N_-PIRQG AV28
N_-PIRQH AT27

PLTRSTB AA37 N_-PFMRST [17]
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

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

PCH CLK PD

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 VCC3
N_-PIRQC 1 2
N_-PIRQH 3 4
N_-PIRQD 5 6
N_-PIRQB 7 8

NRN3 8.2K/8P4R/4
N_-PIRQE 1 2
N_-PIRQF 3 4
N_-PIRQA 5 6
N_-PIRQG 7 8

NRN7 8.2K/8P4R/4 VCC3
N_GPIO6 1 2
N_GPIO17 3 4
N_GPIO52 5 6
N_GPIO50 7 8

N_GPIO55 NR160 1K/4/1/X
N_GPIO51 NR55 1K/4/1/X
N_GPIO53 NR53 1K/4/1/X

VCC3
N_GPIO48 1 2
N_GPIO35 3 4
N_GPIO16 5 6
7 8
NRN11 8.2K/8P4R/4

N_SERIRQ 1 2
N_GPIO38 3 4
N_GPIO19 5 6
N_GPIO22 7 8
NRN12 8.2K/8P4R/4

PCIE/MSATA MUX SELECT
NR167 1K/4/1/X N_GPIO22
MFG MODE
NR80 1K/4/1/X N_GPIO49 1 2
[17] N_-PCI_STOP N_-PCI_STOP 3 4
PCH CONFIG N_A20GATE 5 6
NR157 1K/4/1/X N_GPIO39 7 8
NRN13 8.2K/8P4R/4

GFX SELECT
DMI RX TERMINATION
N_-KBRST NR161 1K/4/1
NR84 1K/4/1/X N_GPIO36 NR148 8.2K/4/X

SV DETECT
NR66 1K/4/1/X N_GPIO69 NR65 8.2K/4/X
N_GPIO55 NR244 8.2K/4
N_GPIO21 NR250 1K/4/1

VCC3
NRN4 8.2K/8P4R/4
1 2 N_GPIO68
3 4 N_GPIO1
5 6 N_GPIO54
7 8 N_GPIO7

NR61 8.2K/4/X N_GPIO17
NR113 8.2K/4/X N_GPIO19

TLS Setting
NR249 8.2K/4/X VCC3
NR146 1K/4/1/X N_GPIO37 NR110 8.2K/4/X 3VDUAL

GPIO37 PU VCC3 ENABLE SBA
For H87&B85

SATA CONNECTOR

N_SATA0TXP 0.01u/4/X7R/25V/K NC44 N_SATA0TXPC
N_SATA0TXN 0.01u/4/X7R/25V/K NC43 N_SATA0TXNC
N_SATA0RXN 0.01u/4/X7R/25V/K NC38 N_SATA0RXNC
N_SATA0RXP 0.01u/4/X7R/25V/K NC37 N_SATA0RXPC
1 GND 2 T+ 3 T- 4 GND 5 R- 6 R+ 7 GND

SATA3_0
SATA2/7/WH/H/OP/VA/D/1/B/PA66
WHITE CONNECTOR

N_SATA1TXP 0.01u/4/X7R/25V/K NC42 N_SATA1TXPC
N_SATA1TXN 0.01u/4/X7R/25V/K NC41 N_SATA1TXNC
N_SATA1RXN 0.01u/4/X7R/25V/K NC40 N_SATA1RXNC
N_SATA1RXP 0.01u/4/X7R/25V/K NC39 N_SATA1RXPC
1 GND 2 T+ 3 T- 4 GND 5 R- 6 R+ 7 GND

SATA3_1
SATA2/7/WH/H/OP/VA/D/1/B/PA66
WHITE CONNECTOR

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

N_SATA4TXP NC45 0.01u/4/X7R/25V/K N_SATA4TXPC
N_SATA4TXN NC46 0.01u/4/X7R/25V/K N_SATA4TXNC
N_SATA4RXN NC47 0.01u/4/X7R/25V/K N_SATA4RXNC
N_SATA4RXP NC48 0.01u/4/X7R/25V/K N_SATA4RXPC
1 GND 2 T+ 3 T- 4 GND 5 R- 6 R+ 7 GND

SATA2_2
SATA2/7/BK/H/OP/VA/D/1/B
BLACK CONNECTOR

N_SATA5TXP NC57 0.01u/4/X7R/25V/K N_SATA5TXPC
N_SATA5TXN NC56 0.01u/4/X7R/25V/K N_SATA5TXNC
N_SATA5RXN NC55 0.01u/4/X7R/25V/K N_SATA5RXNC
N_SATA5RXP NC54 0.01u/4/X7R/25V/K N_SATA5RXPC
1 GND 2 T+ 3 T- 4 GND 5 R- 6 R+ 7 GND

SATA2_3
SATA2/7/BK/H/OP/VA/D/1/B
BLACK CONNECTOR

GPIO38 Ctrl

VCC3
N_GPIO38 NR114 8.2K/4/X
NQ13 MMBT2222A/SOT23/600mA/40
S0T23
[12] N_GPIO60 NR184 8.2K/4

Gigabyte Technology
Title: PCH HOST , SATA, PCI
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PCH (D)

[17] N_LAD[0..3] ← N_LAD[0..3]

PCHD

VCC3 NR54 8.2K/4/X N_GPIO23 AK26
[17] N_LAD0 N_LAD0 AN24
[17] N_LAD1 N_LAD1 AP26
[17] N_LAD2 N_LAD2 AJ24
[17] N_LAD3 N_LAD3 AN26
[17] N_-LDRQ0 N_-LDRQ0 AK22
[17] N_-LFRAME N_-LFRAME AP24

[22] C_ACZ_BITCLK NR45 33/4 AV23
[22] C_-ACZ_RST NR43 33/4 AU24
AT26
AV22
[22] C_ACZ_SDIN2 AT22
AW23
[22] C_ACZ_SDOUT NR44 33/4 A_SO AU22
[22] C_ACZ_SYNC NR46 33/4 A_SYC AV24

[20] N_ICH_SPI_MOSI P40
[20] N_ICH_SPI_MISO R36
[20] N_-ICH_SPI_CS R38
[20] N_ICH_SPI_CLK U39
R35
R40
[20] SPI_DQ2 U40
[20] SPI_DQ3 U37

N_Y1 AN40
N_Y2 AN39
N_-RTCRST AN38
N_-SRTCRST AR39
N_-INTRUDER AR41
[6,11,17] O_PWROK1 AT40
[17,25] O_-RSMRST AM40
N_INTVRMEN AV36
N_PCH_DPWROK AV38
N_DSWVRMEN AM41

[17] N_-LPCPME AG31
[7,8,14,15,16,19] N_SMBCLK AG36
[7,8,14,15,16,19] N_SMBDATA AG32
[11] N_GPIO60 AG35
N_SML0CLK AE32
N_SML0DAT AE35
[19] N_-PCH_HOT AJ39
N_SML1CLK AK36
N_SML1DAT AK33

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 G38 N_GPIO0
CLKRUNB_GP32 N32 N_GPIO32
DOCKENB_GP33 AV26 N_GPIO33
STPPCIB_GP34 N34 N_-PCI_STOP → N_-PCI_STOP [11]
GP8 AC40 N_-IGC_EN
LAN_PHY_PWR_CTRL_GP12 AL40
HDA_DOCK_RSTB_GP13 AN22 -D_GPIO_HRST
GP15 AC32 N_TEMP_ALART → N_TEMP_ALART- [17]
GP24 AE34 A_-SKTOCC → A_-SKTOCC [4]
GP28 V41 N_GPIO28
SLP_WLANB_GP29 AL39 N_GPIO29
PCIECLKRQ0B_GP73 W34 N_GPIO73
PCIECLKRQ1B_GP18 P39 N_GPIO18
PCIECLKRQ2B_GP20_SMIB P37 N_GPIO20
PCIECLKRQ3B_GP25 AA39 N_GPIO25
PCIECLKRQ4B_GP26 W35 N_GPIO26
PCIECLKRQ5B_GP44 AA36 N_GPIO44
PCIECLKRQ6B_GP45 W32 N_GPIO45
PCIECLKRQ7B_GP46 AA40 N_GPIO46
GP57 AC36 N_GPIO57
SYS_PWROK W31 → N_PCH_VRMPWRGD [17]
RIB AE36 → N_-RI [18]
WAKEB AK34 → N_-PCIE_WAKE [14,15,24,31]
SLP_AB AN37
SLP_LANB AU36 N_-SLP_LAN
SLP_S0B AC35
SLP_S3B AK40 → N_-SLP_S3 [17]
SLP_S4B AT35 → N_-S4_S5 [17]
SLP_S5B_GP63 AA35
SUS_STATB_GP61 AD37 N_-SUSTAT
SUSCLK_GP62 W36 N_SUSCLK
GP72 AJ40 N_GPIO72
SUSACKB AJ37
SUSWARNB_SUSPWRDNACK_GP30 AG41 N_-S_WARN
DRAMPWRGD AE38 N_DRAM_PWROK
GP27 AU34 N_GPIO27
ACPRESENT_GP31_MGPIO2 AM36 N_GPIO31
SLP_SUSB AK38 N_-DEPSLP → N_-DEPSLP [25]
PWRBTNB AK41 O_PWRBTSW → O_PWRBTSW [17]
SYS_RESETB N36 N_-SYS_RST → N_-SYS_RST [4,21]
SPKR R32 N_SPKR → N_SPKR [21]
PROCPWRGD D40 N_CPUPWROK → N_CPUPWROK [4,17]
W37 N_PCH_RST
TP13 Y40 N_PCH_TCK
JTAG_TCK W39 N_PCH_TDI
JTAG_TDI Y38 N_PCH_TDO
JTAG_TDO W40 N_PCH_TMS
JTAG_TMS

CHIP DH82H81 C2 INTEL/[10HB1-030H81-10R]

DDR_15V
NR131 680/4/1
N_DRAM_PWROK → N_DRAM_PWROK [4]
NR132 1.47K/4/1

O_PWROK1
NC51 0.01u/4/X7R/25V/K/X
Reserve for EMI test

ACZ_SDOUT

[17] DS_ME
N_GPIO57 NR64 8.2K/4
DS_ME NR178 8.2K/4
NR140 8.2K/4 C_ACZ_SDOUT
NQ14 PMBT2907A/SOT23/-600mA/50 S0T23
3VDUAL_PCH
SPI OVERRIDE PROTECTION

PCH_DPWROK

3VDUAL_PCH
NR69 8.2K/4
N_PCH_DPWROK → N_PCH_DPWROK [17,25]
NC17 1n/4/X7R/50V/K
for IT8620 Ctrl

VCC3
NR345 1K/4/1
N_PCH_VRMPWRGD → N_PCH_VRMPWRGD [17]
NR346 100K/4/1
DC17 0.1u/4/X7R/16V/K

PCH PU/PD

3VDUAL
NR139 8.2K/4/X N_GPIO46
NR155 8.2K/4/X N_GPIO45
NR103 8.2K/4/X N_GPIO44
N_GPIO57
NRN9 8.2K/8P4R/4

A_-SKTOCC
N_TEMP_ALART-
N_-RI
NRN10 8.2K/8P4R/4

GP8:Low to enable PCH clock chip
NR106 1K/4/1 N_-IGC_EN NR105 8.2K/4/X
NR153 1K/4/1/X N_SUSCLK NR154 8.2K/4/X
SUSCLK:Low to OD PLL VR
N_-SUSTAT NR133 8.2K/4/X
-D_GPIO_HRST NR51 1K/4/1
N_GPIO28 NR144 1K/4/1
GP28:Lo disable VRM ,Hi enable VRM
N_GPIO29 NR96 1K/4/1

3VDUAL_PCH
N_-S_WARN NR129 8.2K/4
N_GPIO27 NR60 8.2K/4
N_GPIO31 NR72 8.2K/4
N_-SLP_LAN NR73 8.2K/4/X
N_GPIO72 NR100 8.2K/4
N_-PCIE_WAKE NR76 1K/4/1
N_GPIO29 NR95 1K/4/1/X

VCC3
NR145 8.2K/4/X N_GPIO20 NR109 8.2K/4
N_GPIO0 NR115 8.2K/4
N_-SYS_RST NR164 8.2K/4
N_GPIO32 NR162 8.2K/4/X
NR48 8.2K/4/X N_GPIO33 NR49 8.2K/4

3VDUAL
N_PCH_RST NR172 20K/4/1
N_PCH_TDI NR170 200/4/1
N_PCH_TDO NR141 200/4/1
N_PCH_TMS NR169 200/4/1
N_PCH_TCK NR87 200/4/1/X

N_PCH_RST NR143 1K/4/1/X
N_PCH_TDI NR171 100/4/1
N_PCH_TDO NR168 100/4/1
N_PCH_TMS NR142 100/4/1
N_PCH_TCK NR108 51/4/1
N_GPIO18 NR79 8.2K/4
N_GPIO73 NR134 8.2K/4
N_GPIO26 NR107 8.2K/4
N_GPIO25 NR137 8.2K/4
N_-SYS_RST NC58 1n/4/X7R/50V/K
N_DRAM_PWROK NC59 1n/4/X7R/50V/K

3VDUAL
NRN6 8.2K/8P4R/4
N_-LPCPME
N_GPIO60
N_-PCH_HOT
NR117 1K/4/1 N_SML1CLK
NR120 1K/4/1 N_SML1DAT
NR122 499/4/1 N_SML0CLK
NR123 499/4/1 N_SML0DAT
NR121 1K/4/1 N_SMBCLK
NR97 1K/4/1 N_SMBDATA

HSW_STRAP13

3VDUAL_PCH
NR182 8.2K/4/X → A_HSW_STRAP13 [4]
NR183 8.2K/4
NQ11 MMBT2222A/SOT23/600mA/40 S0T23
NQ12 MMBT2222A/SOT23/600mA/40 S0T23
NR135 8.2K/4
N_-IGC_EN
NR104 0/4/SHT/M/X

32.768KHZ

NX2-SHT SHW/D0.64*5.08*6.74
N_Y1
N_Y2 NR75 10M/4
NX2
32.768K/12.5p/20ppm/TF38/35K/D
NC16 18P/4/NPO/50V/J
NC18 18P/4/NPO/50V/J

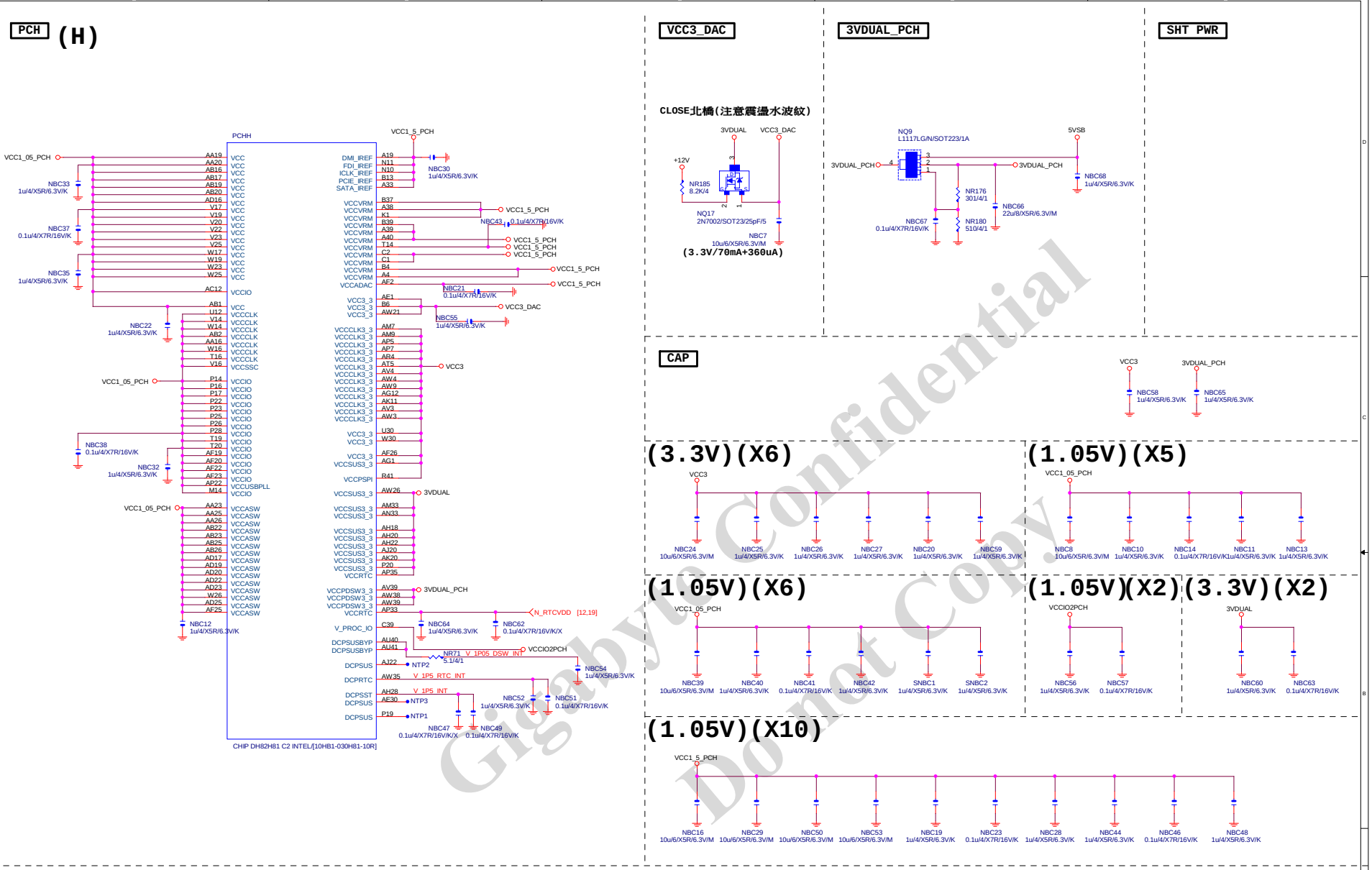
CLR_CMOS

BATTERY CR2032
NR340 0/6/SHT/M/X
BAT BAT-SK/BK/P/S/D/SN
N_VBATT
NRB 1K/4/1
3VDUAL_PCH
ND1 BAS40-05/0.2A/SOT23
NR90 390K/4 N_DSWVRMEN
N_RTCVDD → N_RTCVDD [13,19]
NR67 390K/4 N_INTVRMEN
NR78 20K/4/1 N_-RTCRST
NC15 1u/4/X5R/6.3V/K
NC20 1u/4/X5R/6.3V/K
RB_TP
N_VBAT → N_VBAT [17]
CLR_CMOS N_-RTCRST
PH/1*2/BK/2.54/VA/D

BATTERY-DUAL-4
RB 必須放在BAT外

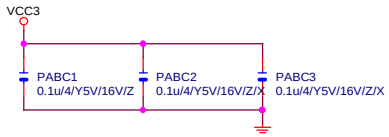
N_-INTRUDER NR74 1M/4 → N_RTCVDD [13,19]
N_-SRTCRST NR77 20K/4/1 → N_RTCVDD [13,19]
NC19 1u/4/X5R/6.3V/K

Gigabyte Technology		
Title: PCH GPIO , CTRL , AUDIO		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 12 of 31	

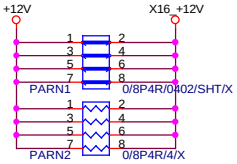


Gigabyte Technology			
Title: PCH PWR ,GND			
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03	
Date: Thursday, November 28, 2013	Sheet 13 of 31		

PCIEX16 CAP



PCIEX16 PROTECT SHT



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

PA_EXP_RXP[0..15] >> PA_EXP_RXP[0..15] [4]

PA_EXP_RXN[0..15] >> PA_EXP_RXN[0..15] [4]

PA_EXP_TXP[0..15] >> PA_EXP_TXP[0..15] [4]

PA_EXP_TXN[0..15] >> PA_EXP_TXN[0..15] [4]

PCIEX16 SLOT

PCIESLOT-164DN-P

3GIO_*16

PCIEX16

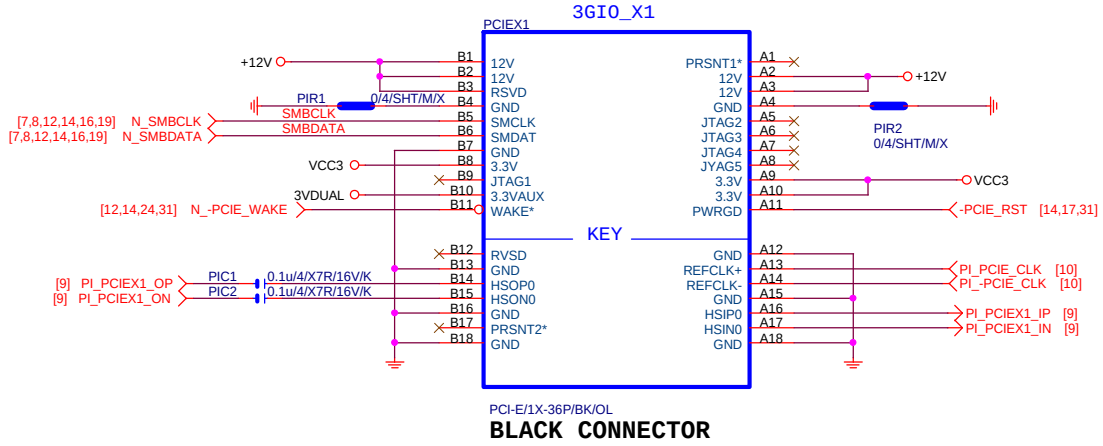
		X16_+12V			X16_+12V
	B1	12V	PRSNT1*	A1	PAR1 0/4/SHT/M/X
	B2	12V	12V	A2	
	B3	RSVD	12V	A3	
PAR3 0/4/SHT/M/X	B4	GND	GND	A4	PAR2 0/4/SHT/M/X
[7,8,12,15,16,19] N_SMBCLK	B5	SMBCLK	JTAG2	A5	
[7,8,12,15,16,19] N_SMBDATA	B6	SMBDATA	JTAG3	A6	
	B7	GND	JTAG4	A7	
3VDUAL VCC3	B8	3.3V	JTAG5	A8	VCC3
	B9	JTAG1	3.3V	A9	
	B10	3.3VAUX	3.3V	A10	
[12,15,24,31] N_-PCIE_WAKE	B11	WAKE*	PWRGD	A11	-PCIE_RST -PCIE_RST [15,17,31]
		KEY			-PCIE_RST
	B12	RSVD	GND	A12	PAC1 22p/4/NPO/50V/J/X
	B13	GND	REFCLK+	A13	PA_SRCCLK_3GIO [10]
PA_EXP_TXP0_C	B14	HSOP0	REFCLK-	A14	PA_-SRCCLK_3GIO [10]
PA_EXP_TXN0_C	B15	HSON0	GND	A15	
	B16	GND	HSIP0	A16	PA_EXP_RXP0
	B17	PRSNT2*	HSIN0	A17	PA_EXP_RXN0
	B18	GND	GND	A18	
PA_EXP_TXP1_C	B19	HSOP1	RSVD	A19	
PA_EXP_TXN1_C	B20	HSON1	GND	A20	
	B21	GND	HSIP1	A21	PA_EXP_RXP1
	B22	GND	HSIN1	A22	PA_EXP_RXN1
PA_EXP_TXP2_C	B23	HSOP2	GND	A23	
PA_EXP_TXN2_C	B24	HSON2	GND	A24	
	B25	GND	HSIP2	A25	PA_EXP_RXP2
	B26	GND	HSIN2	A26	PA_EXP_RXN2
PA_EXP_TXP3_C	B27	HSOP3	GND	A27	
PA_EXP_TXN3_C	B28	HSON3	GND	A28	
	B29	GND	HSIP3	A29	PA_EXP_RXP3
	B30	RSVD	HSIN3	A30	PA_EXP_RXN3
	B31	PRSNT2*	GND	A31	
	B32	GND	RSVD	A32	
PA_EXP_TXP4_C	B33	HSOP4	RSVD	A33	
PA_EXP_TXN4_C	B34	HSON4	GND	A34	
	B35	GND	HSIP4	A35	PA_EXP_RXP4
	B36	GND	HSIN4	A36	PA_EXP_RXN4
PA_EXP_TXP5_C	B37	HSOP5	GND	A37	
PA_EXP_TXN5_C	B38	HSON5	GND	A38	
	B39	GND	HSIP5	A39	PA_EXP_RXP5
	B40	GND	HSIN5	A40	PA_EXP_RXN5
PA_EXP_TXP6_C	B41	HSOP6	GND	A41	
PA_EXP_TXN6_C	B42	HSON6	GND	A42	
	B43	GND	HSIP6	A43	PA_EXP_RXP6
	B44	GND	HSIN6	A44	PA_EXP_RXN6
PA_EXP_TXP7_C	B45	HSOP7	GND	A45	
PA_EXP_TXN7_C	B46	HSON7	GND	A46	
	B47	GND	HSIP7	A47	PA_EXP_RXP7
	B48	PRSNT2*	HSIN7	A48	PA_EXP_RXN7
	B49	GND	GND	A49	
PA_EXP_TXP8_C	B50	HSOP8	RSVD	A50	
PA_EXP_TXN8_C	B51	HSON8	GND	A51	
	B52	GND	HSIP8	A52	PA_EXP_RXP8
	B53	GND	HSIN8	A53	PA_EXP_RXN8
PA_EXP_TXP9_C	B54	HSOP9	GND	A54	
PA_EXP_TXN9_C	B55	HSON9	GND	A55	
	B56	GND	HSIP9	A56	PA_EXP_RXP9
	B57	GND	HSIN9	A57	PA_EXP_RXN9
PA_EXP_TXP10_C	B58	HSOP10	GND	A58	
PA_EXP_TXN10_C	B59	HSON10	GND	A59	
	B60	GND	HSIP10	A60	PA_EXP_RXP10
	B61	GND	HSIN10	A61	PA_EXP_RXN10
PA_EXP_TXP11_C	B62	HSOP11	GND	A62	
PA_EXP_TXN11_C	B63	HSON11	GND	A63	
	B64	GND	HSIP11	A64	PA_EXP_RXP11
	B65	GND	HSIN11	A65	PA_EXP_RXN11
PA_EXP_TXP12_C	B66	HSOP12	GND	A66	
PA_EXP_TXN12_C	B67	HSON12	GND	A67	
	B68	GND	HSIP12	A68	PA_EXP_RXP12
	B69	GND	HSIN12	A69	PA_EXP_RXN12
PA_EXP_TXP13_C	B70	HSOP13	GND	A70	
PA_EXP_TXN13_C	B71	HSON13	GND	A71	
	B72	GND	HSIP13	A72	PA_EXP_RXP13
	B73	GND	HSIN13	A73	PA_EXP_RXN13
PA_EXP_TXP14_C	B74	HSOP14	GND	A74	
PA_EXP_TXN14_C	B75	HSON14	GND	A75	
	B76	GND	HSIP14	A76	PA_EXP_RXP14
	B77	GND	HSIN14	A77	PA_EXP_RXN14
PA_EXP_TXP15_C	B78	HSOP15	GND	A78	
PA_EXP_TXN15_C	B79	HSON15	GND	A79	
	B80	GND	HSIP15	A80	PA_EXP_RXP15
	B81	PRSNT2*	HSIN15	A81	PA_EXP_RXN15
	B82	RSVD	GND	A82	

PCI-E/16X-164P/BK/LONG DOUBLE

BLACK CONNECTOR

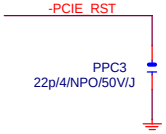
Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 14 of 31	

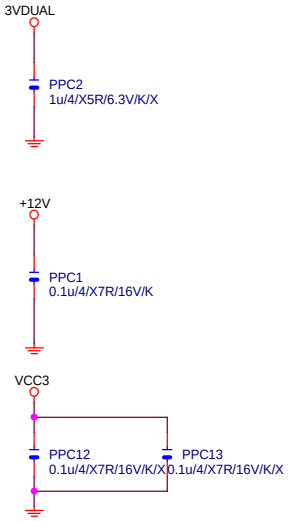
PCIEX1 SLOT



PCI-E/1X-36P/BK/OL

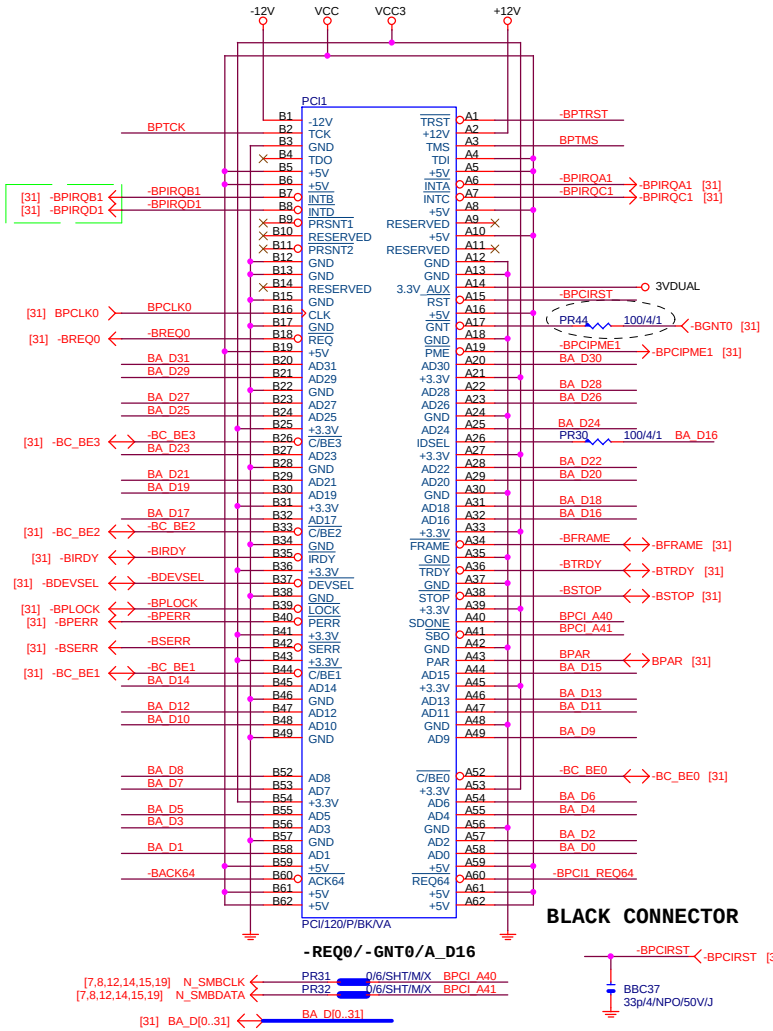
BLACK CONNECTOR



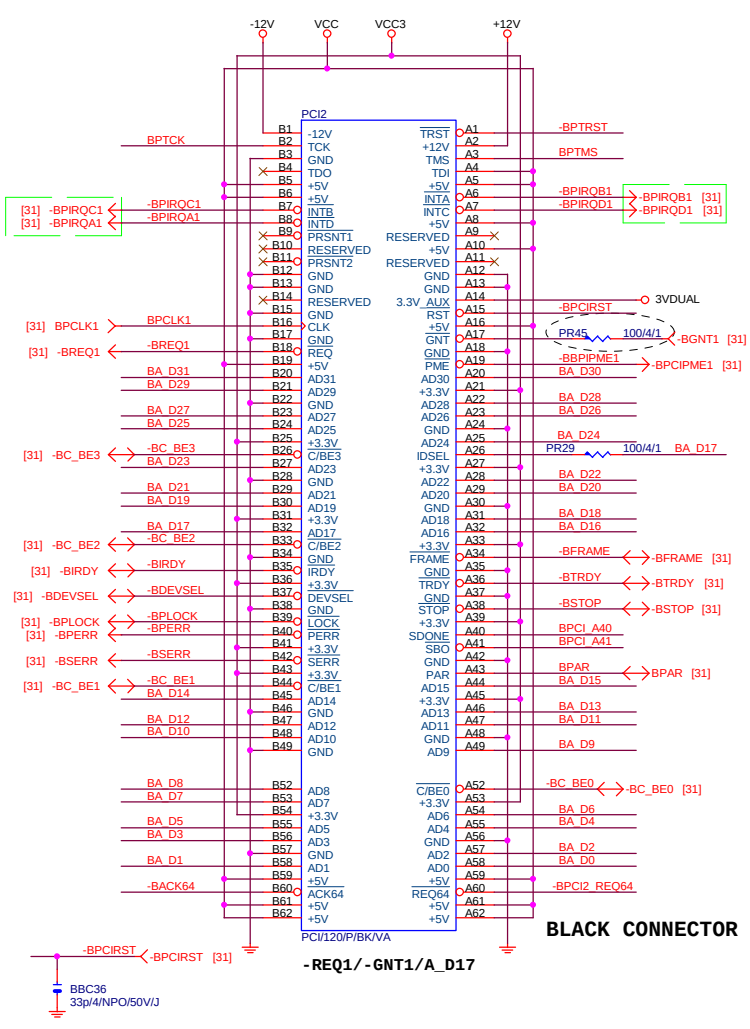


Gigabyte Technology		
Title: PCI EXPRESS X 1 PORT		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 15 of 31	

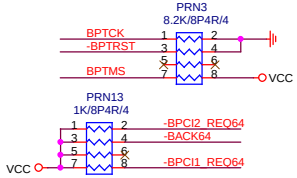
PCI SLOT 1



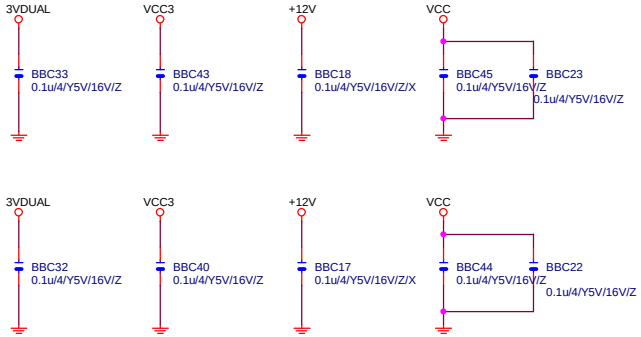
PCI SLOT 2



PCI PU



PCI CAP



Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
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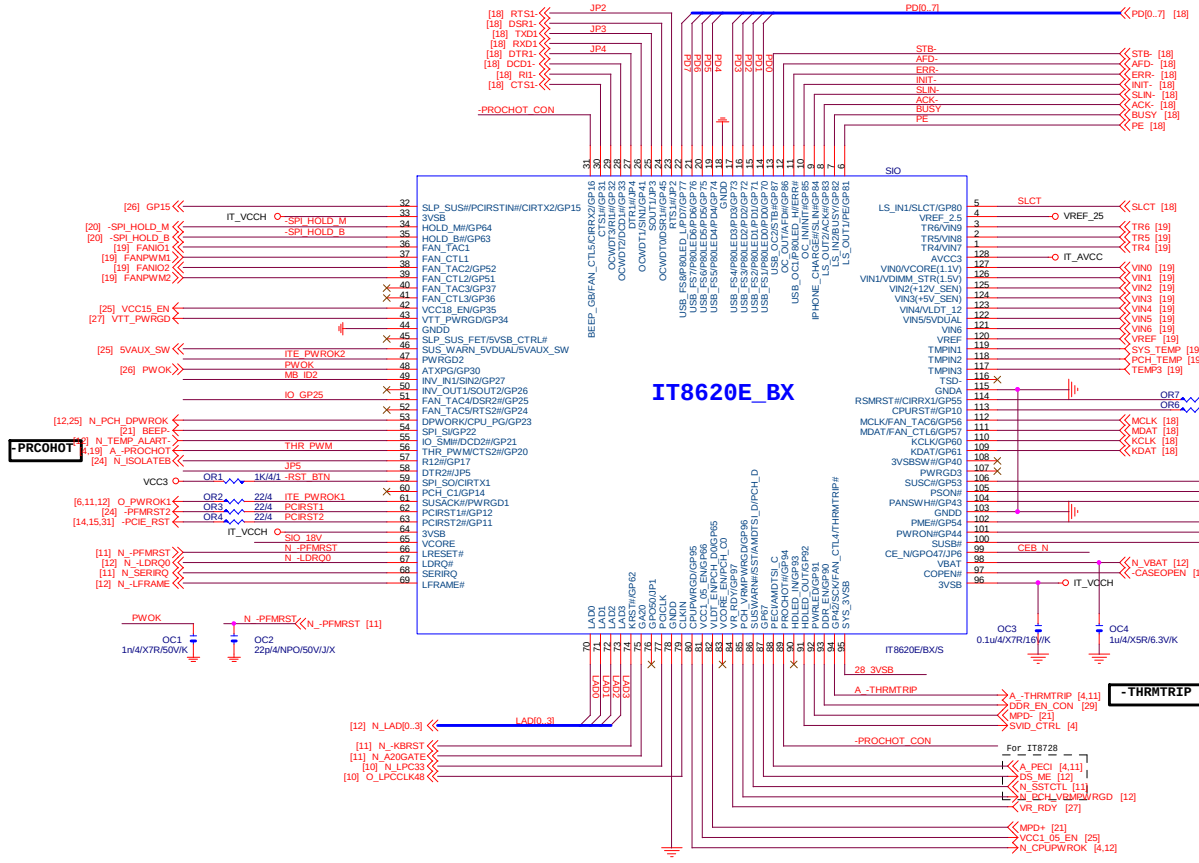
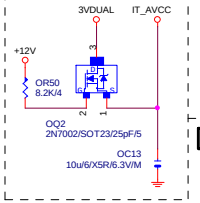
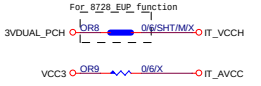
SIO IT8620



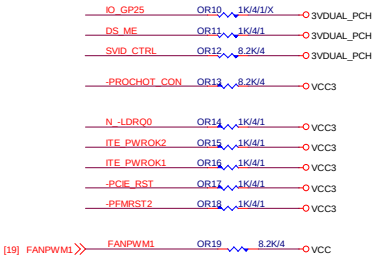
FIX ATX 插拔漏電



PWR SHT

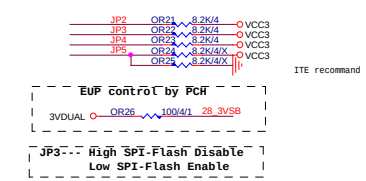


SIO PU

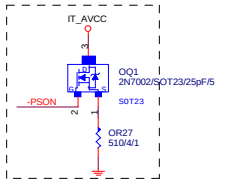


SIO STRAP

H61M-S2 1.1 JP6 stuff pull down



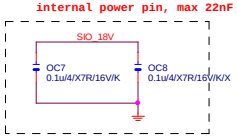
Power leakage



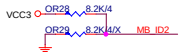
For IT8721 Power leakage

DUAL BIOS OPT STRAP

SIO_18V

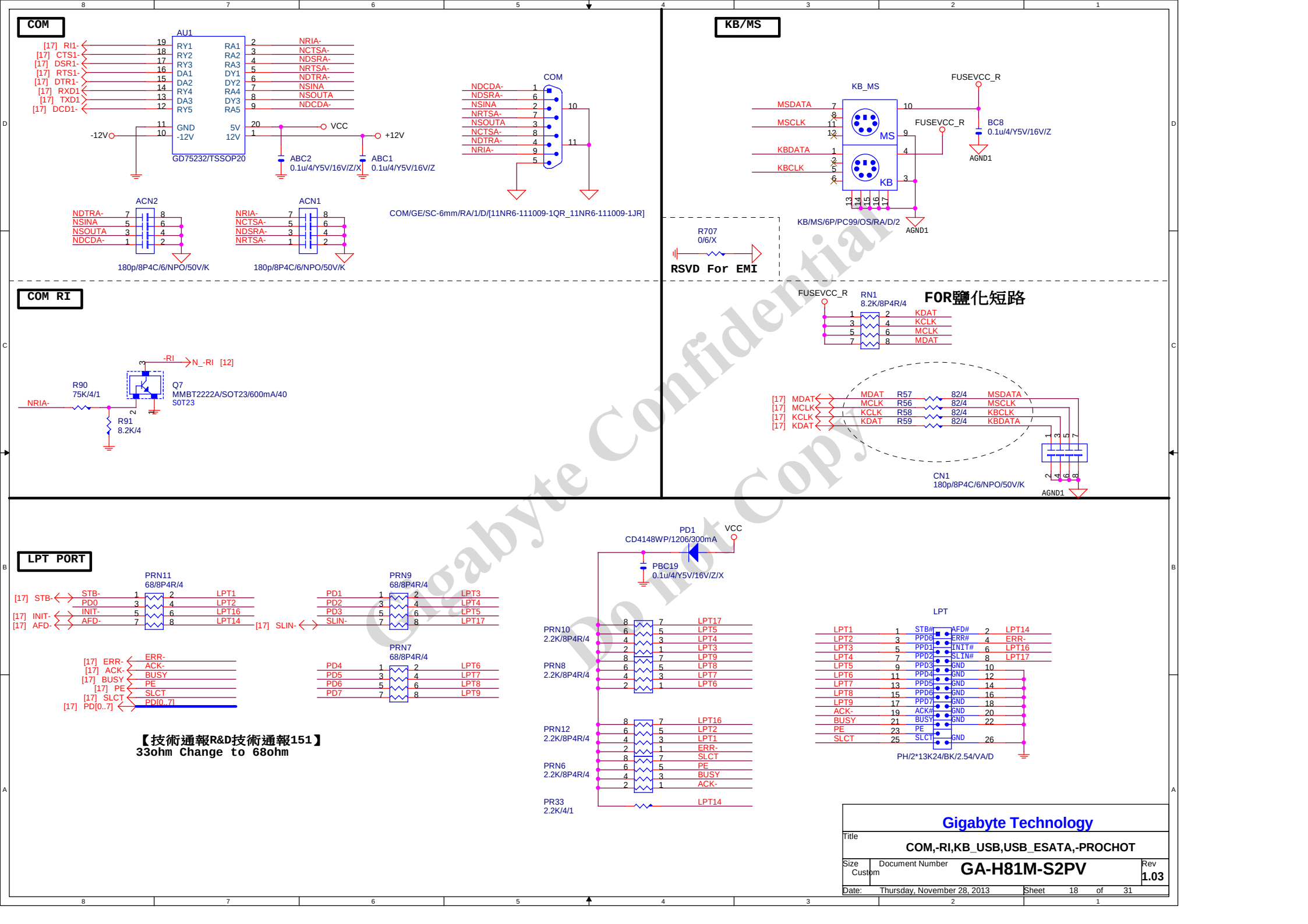


MB ID

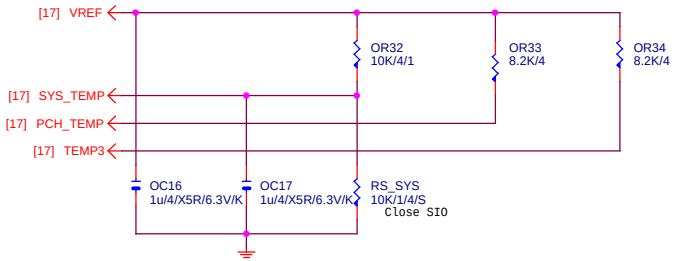


SIO CAP

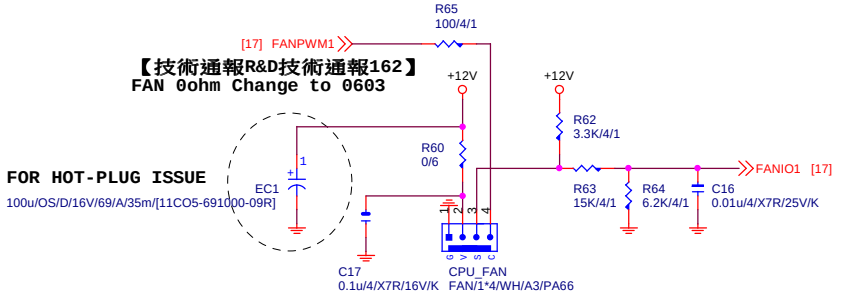
Gigabyte Technology		
Title: PCH GPIO , CTRL , AUDIO		
Size: C	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 17 of 31	



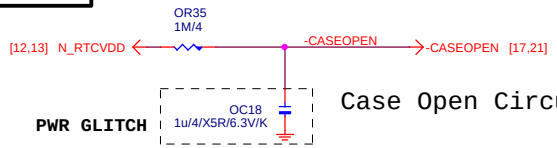
TEMP H/W MONITOR



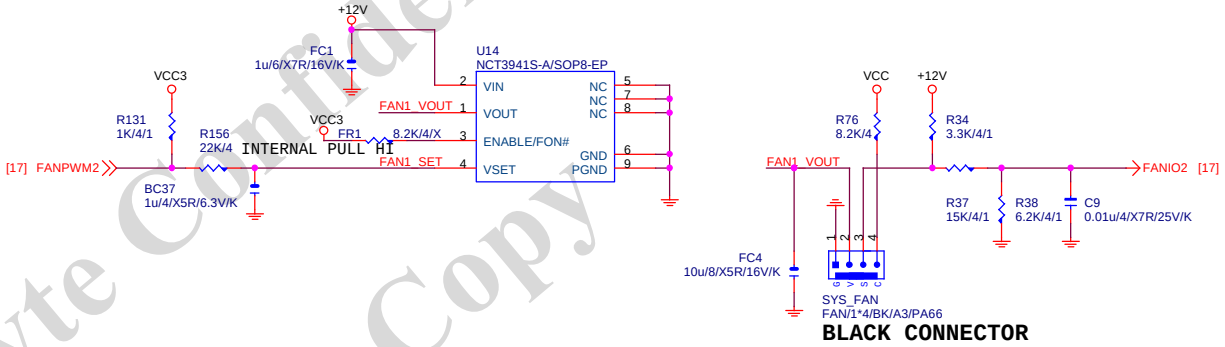
CPU SMART FAN



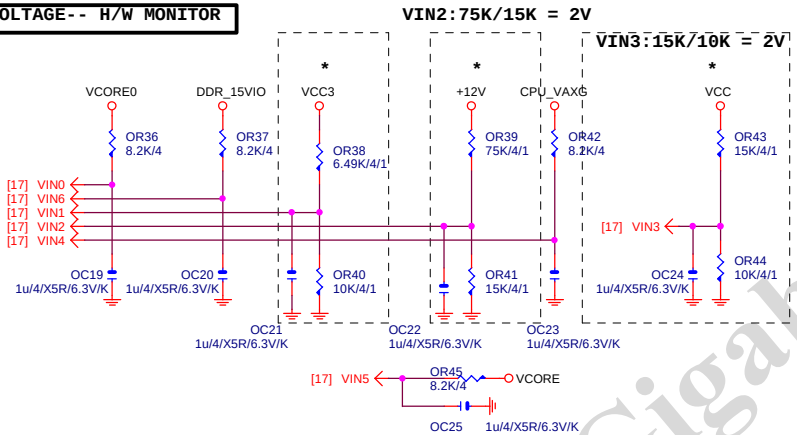
CASE OPEN



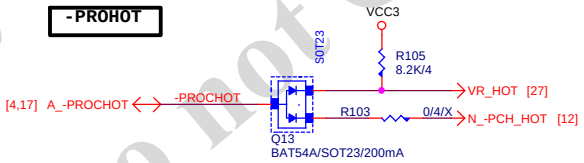
SYS SMART FAN

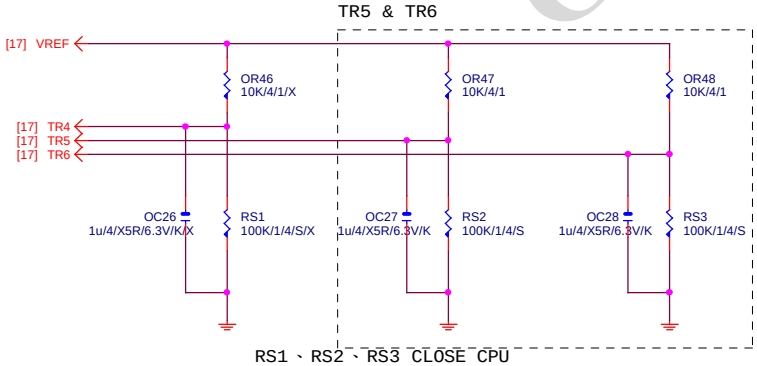


VOLTAGE-- H/W MONITOR

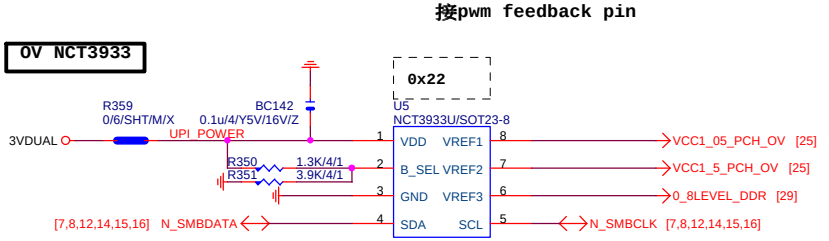


-PROHOT





OV NCT3933



Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
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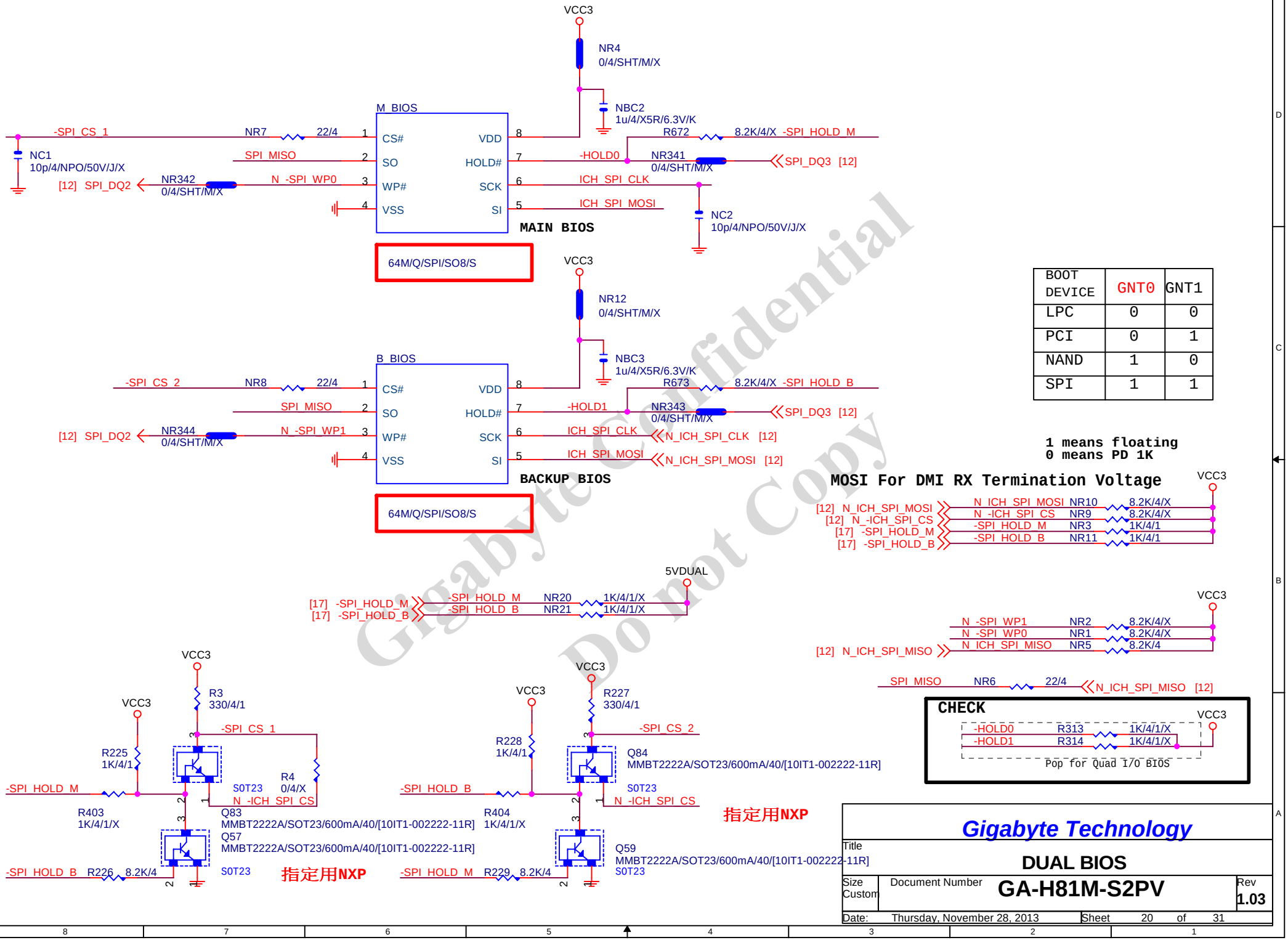

BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

Gigabyte Technology

Title: DUAL BIOS

Size: Custom | Document Number: GA-H81M-S2PV | Rev: 1.03

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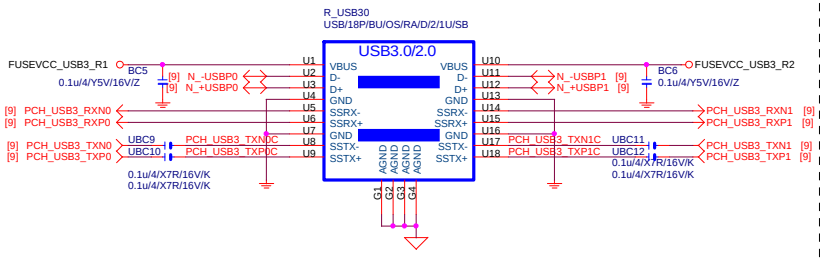
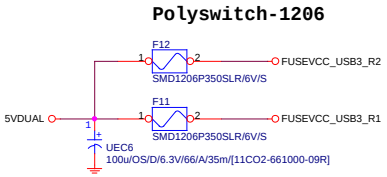
USB30_20

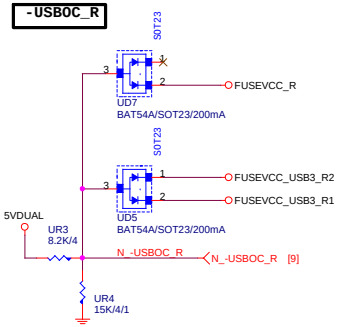


USB30_20 PWR

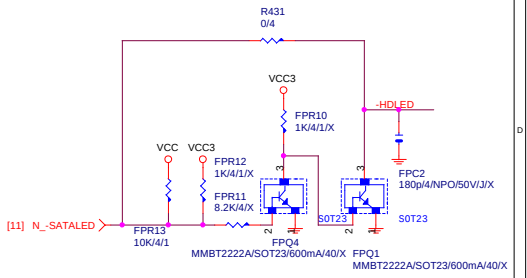


USB3.0 1Port - 1Fuse (3.5A)

-USBOC_R

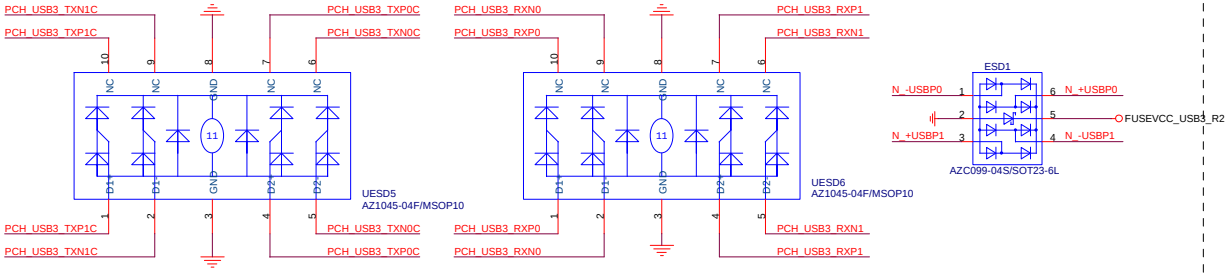


SATA LED

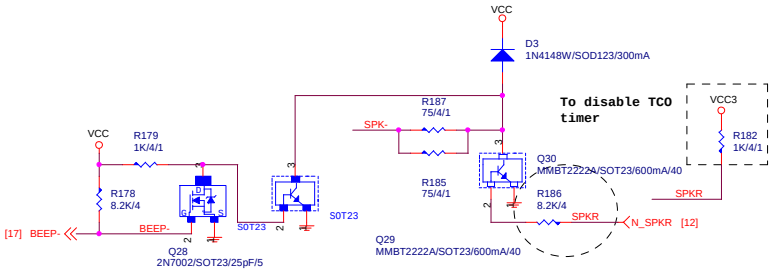


USB30_20 ESD PROCTECT

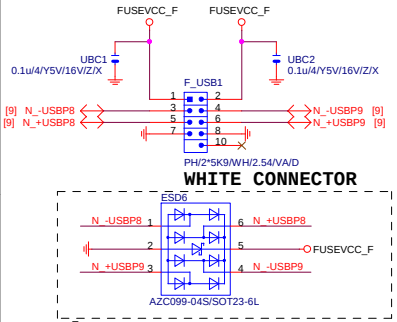
USB3.0 ESD



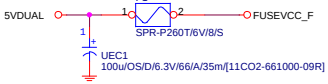
SPKR



FRONT USB1

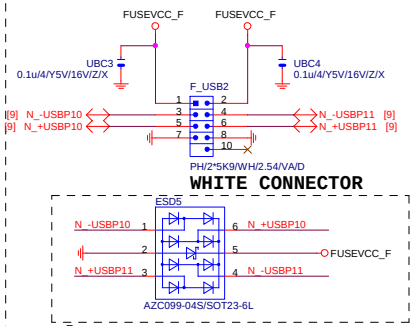


FUSE-0805

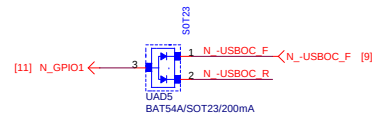


F_USB1, F_USB2 4-Port 2.6A

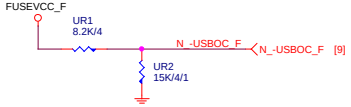
FRONT USB2



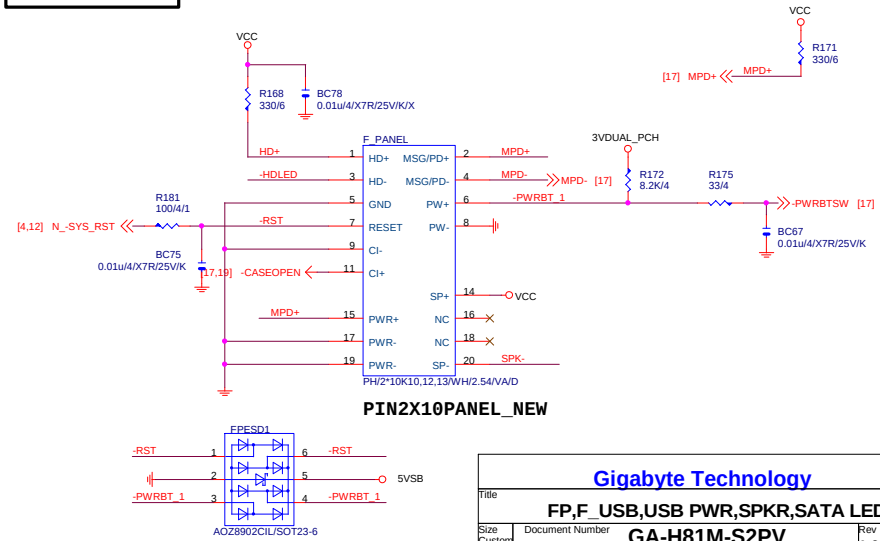
USB POWER PROTECT



-USBOC_F



INTEL FRONT PANEL



PIN2X10PANEL_NEW

Title	Gigabyte Technology		
	FP,F_USB,USB PWR,SPKR,SATA LED		
Size: Custom	Document Number: GA-H81M-S2PV		Rev: 1.03
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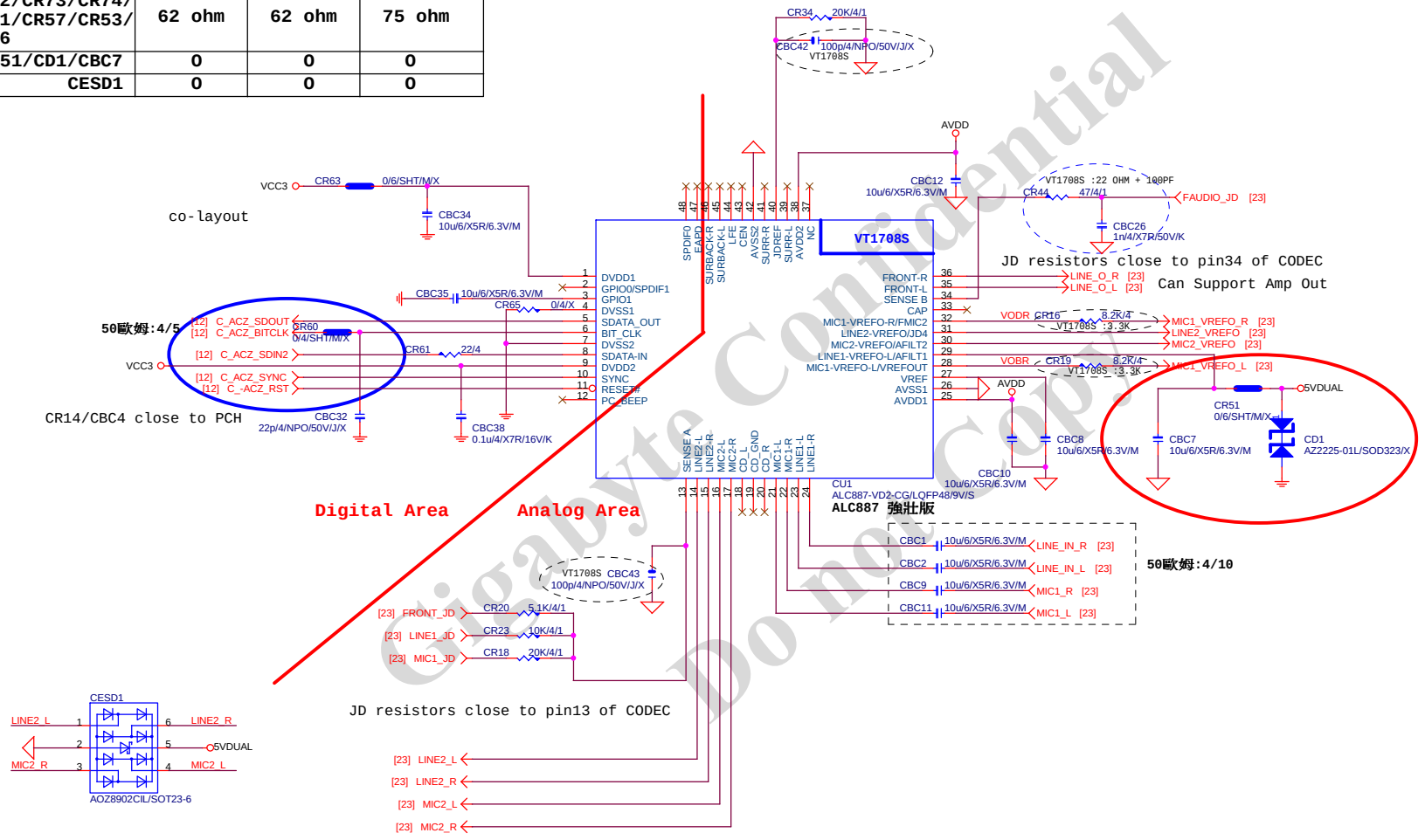
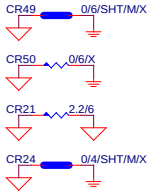
AZALIA CODEC *ALC892/ALC887-VD2/VT1708-CE Colay*

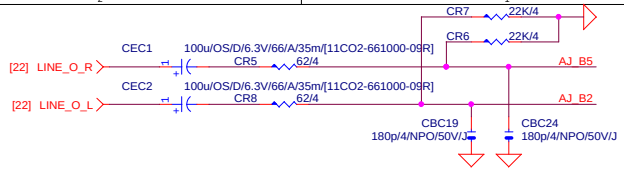
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	0	0	0



Gigabyte Technology			
Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021			
Size: Custom	Document Number: GA-H81M-S2PV		Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 22 of 31		

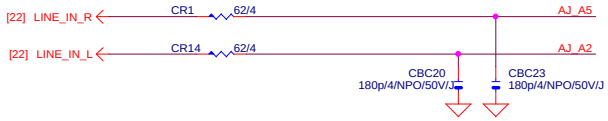


LINE-OUT



Only reserved for ALC888

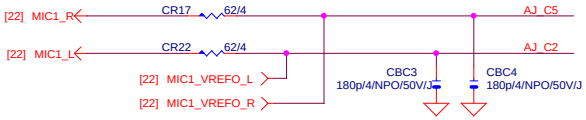
LINE-IN



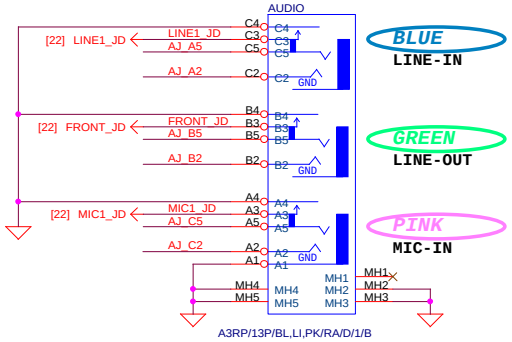
Verify MIC function in LINE-in

For 889A/888

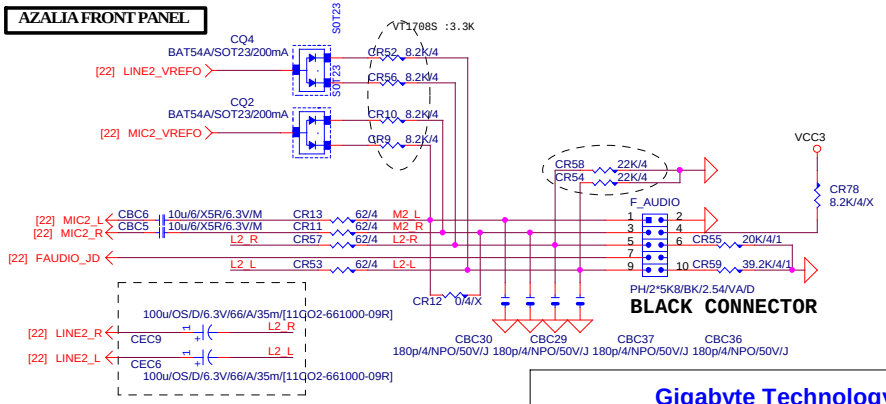
MIC-IN



SPDIF_OUT

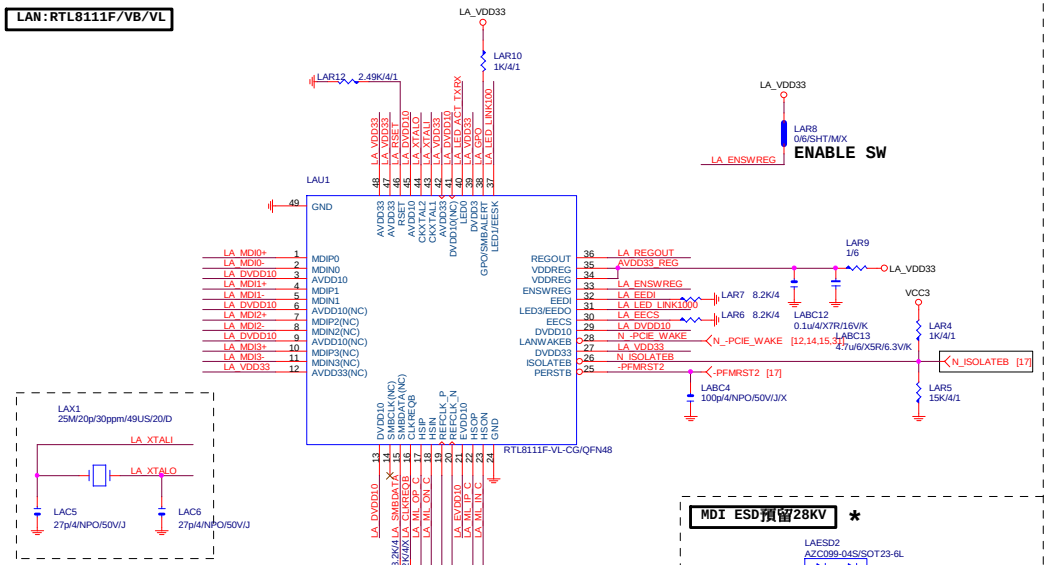


AZALIA FRONT PANEL



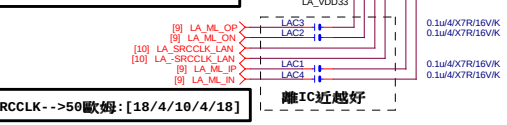
Gigabyte Technology		
Title: AUDIO JACK		
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 23 of 31	

LAN:RTL8111F/VB/VL

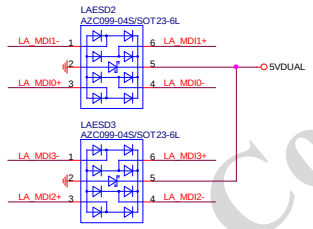


LA_ ML-->80歐姆:[15/5/5/5/15]

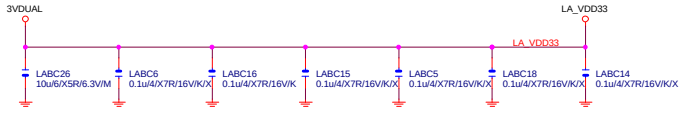
SRCCLK-->50歐姆:[18/4/10/4/18]



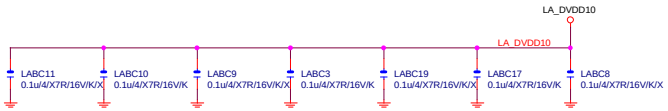
MDI ESD預留28KV *



LAN POWER

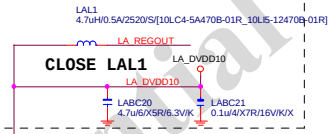


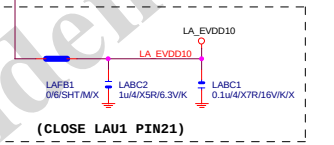
(CLOSE LAU1 PIN:12,27,39,42,47,48)



(CLOSE LAU1 PIN3,6,9,13,29,41,45)

(CLOSE LAU1 PIN36)





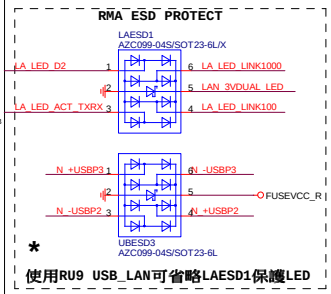
(CLOSE LAU1 PIN21)

Power domain chart

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

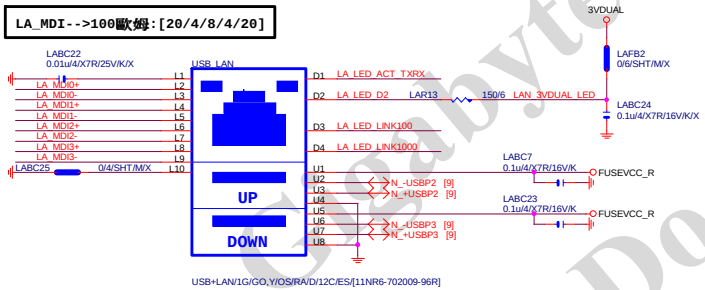
USB_LAN CONNECTOR

RMA ESD PROTECT



* 使用RU9 USB_LAN可省略LAESD1保護LED

LA_MDI-->100歐姆:[20/4/8/4/20]



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

USB POWER

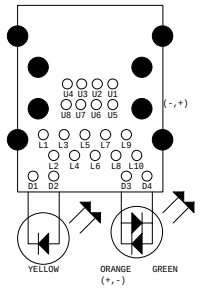
FUSE-0805

Close to connector
USB_LAN 2-Port 2.0A

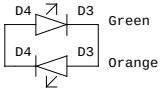
EMI SHORT PAD

PS:視EMI需求

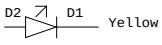
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]



Dual Color LED



Single Color LED



BOM NOTICE *

料號	規格	廠商
11NR6-702009-96R	1G LAN (12core)	UDE(RU9 ESD+)

[LED獨立走線,可省略外加AZC099料件LAESD1]

1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

Gigabyte Technology			
Title: Realtek RTL8111G			
Size: Custom	Document Number: GA-H81M-S2PV		Rev: 1.03
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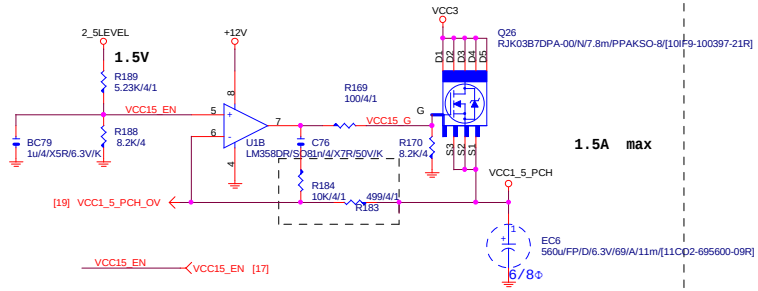
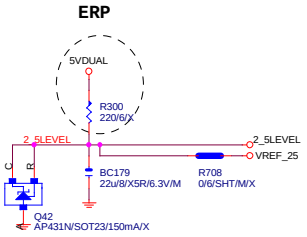
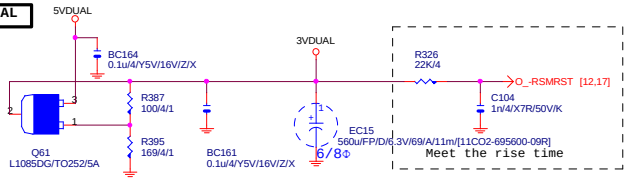
VCC1_5_PCH



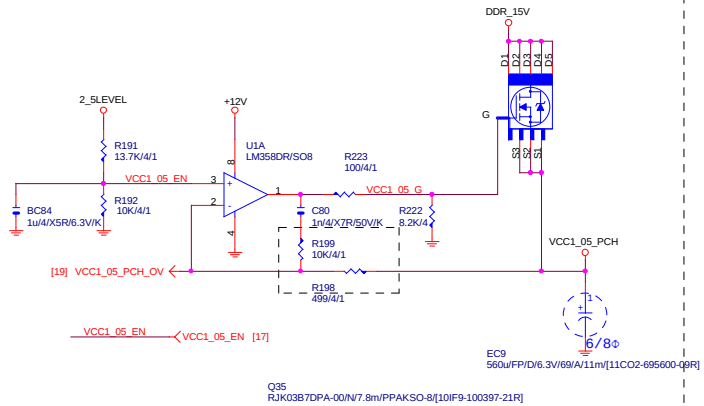
2_5LEVEL

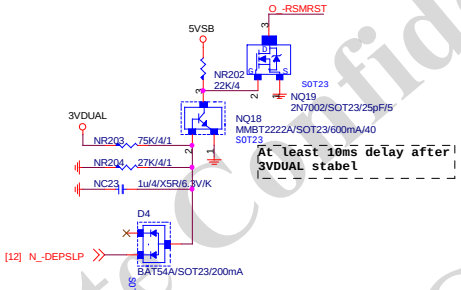


3VDUAL

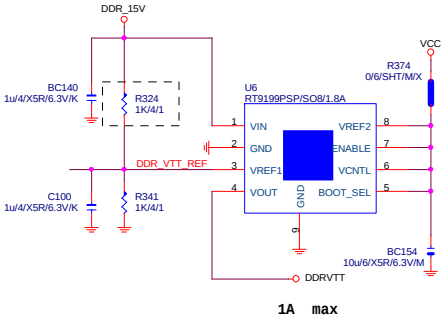


VCC1_05_PCH

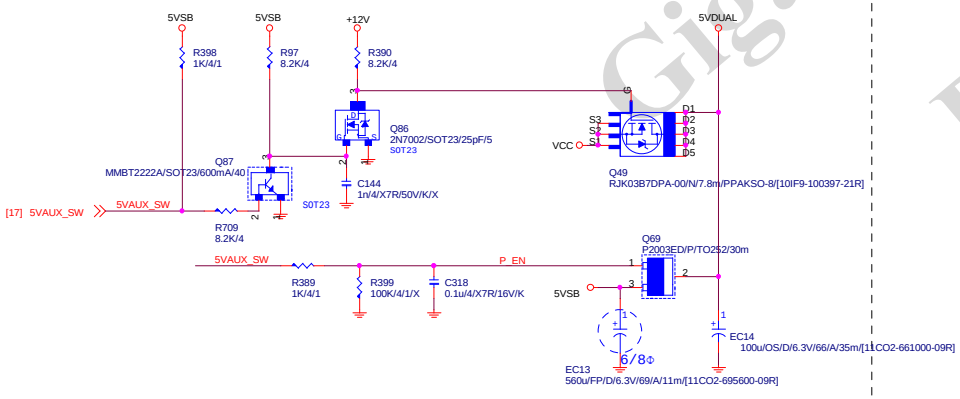




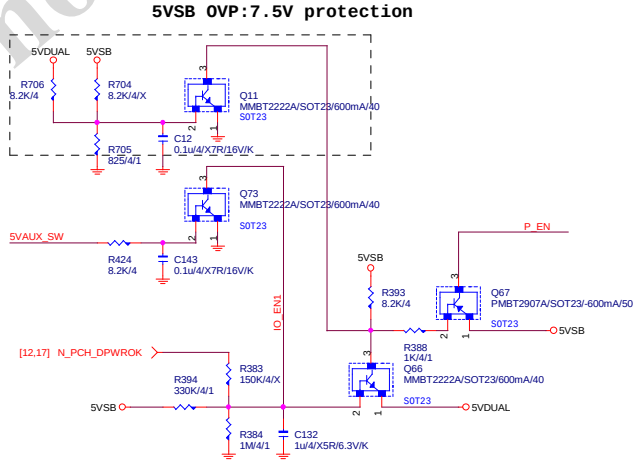
DDRVTT



5VDUAL



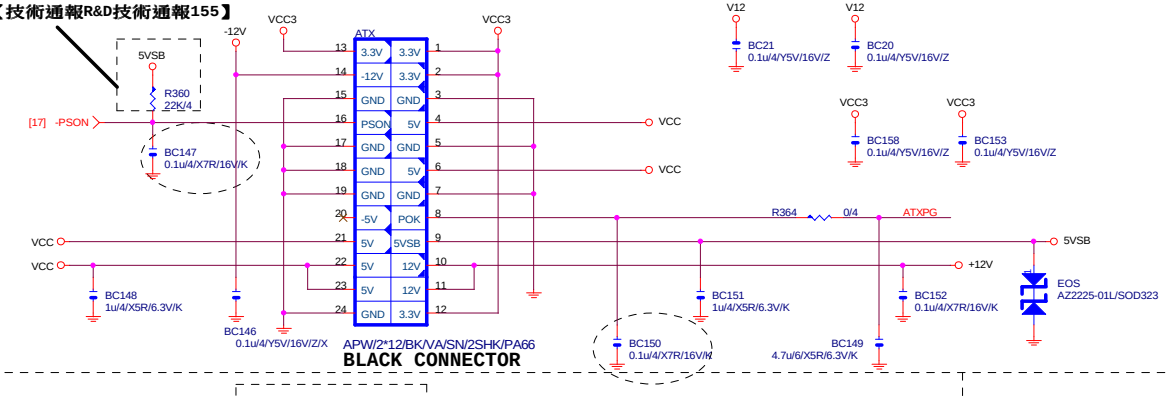
5VDUAL SHORT PROTECT



Title	Gigabyte Technology	
	DISCRETE POWER	
Size: Custom	Document Number: GA-H81M-S2PV	Rev: 1.03
Date: Thursday, November 28, 2013	Sheet 25 of 31	

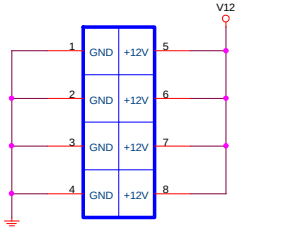
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



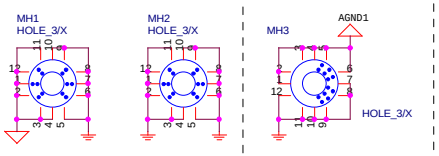
BLACK CONNECTOR

ATXX4 POWER CONNECTOR



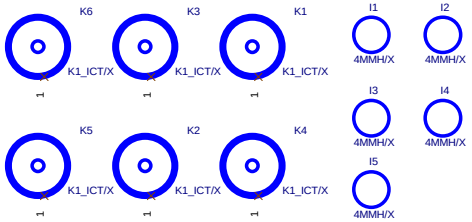
ATX_12V_2X4
APW/2*4/BK/OC/P/4.2/VA/SN/OH::Location ATX_12V_2X4

BLACK CONNECTOR



HOLE_4-RH-1

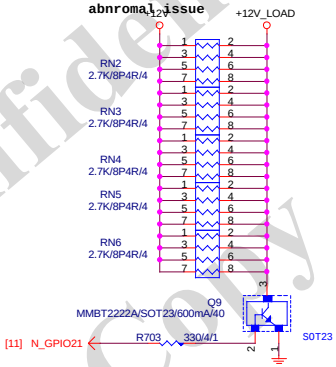
HOLE_4-RH-5MM-1



To prevent the 5VSB under loading when boot

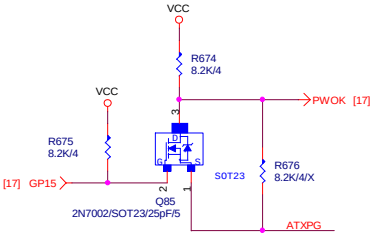
【技術通報R&D技術通報153】

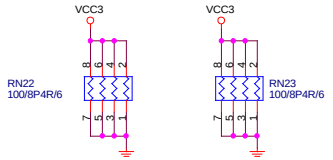
To fix 12V light load abnormal issue



PWOK PATCH

【技術通報R&D技術通報154】





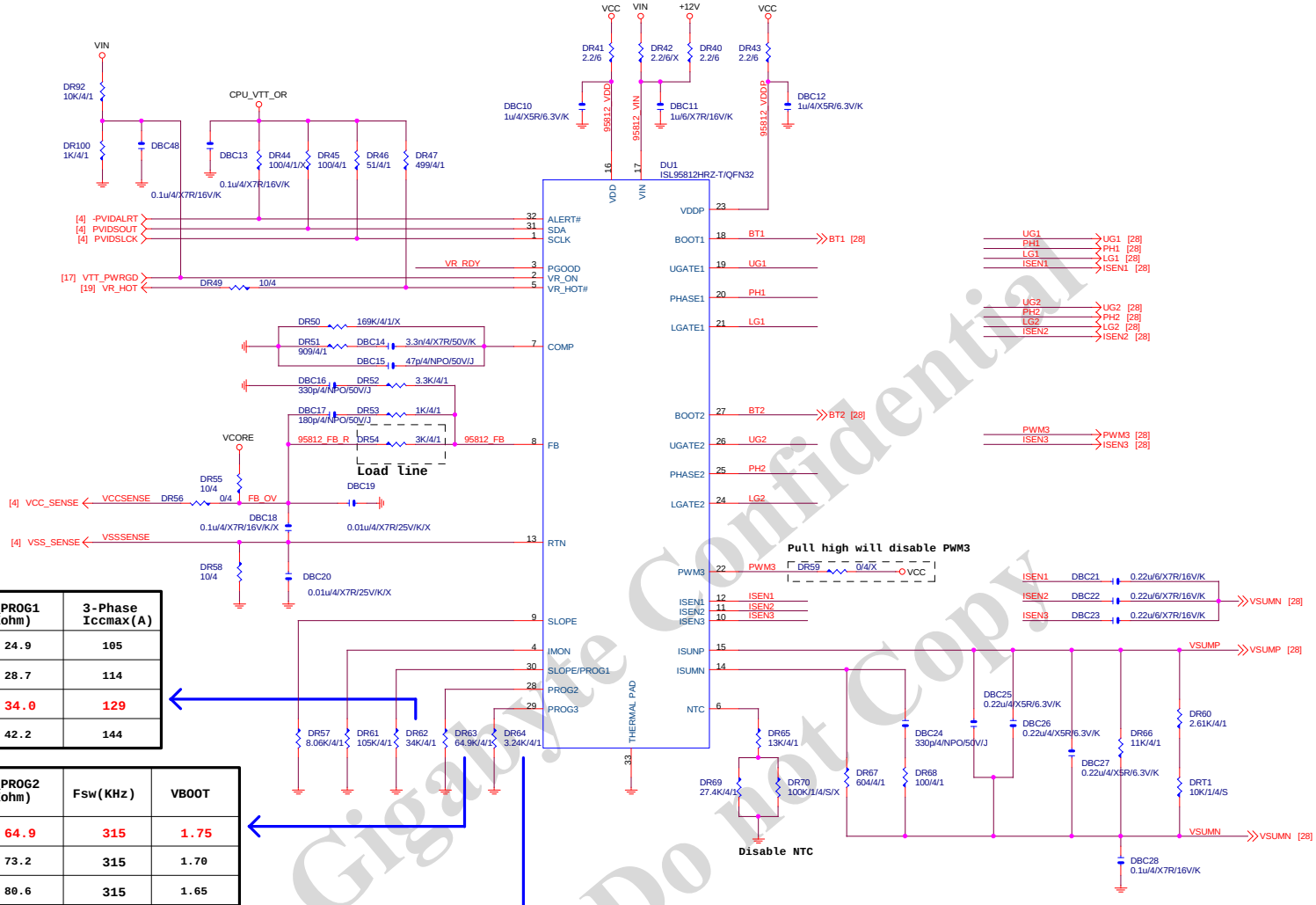
FIX PWR MINMUN LOAD

Gigabyte Technology

Title: ATX CONNECTOR

Size: Custom | Document Number: GA-H81M-S2PV | Rev: 1.03

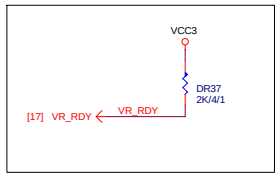
Date: Thursday, November 28, 2013 | Sheet 26 of 31



R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

R_PROG2 (Kohm)	Fsw(KHz)	VBOOT
64.9	315	1.75
73.2	315	1.70
80.6	315	1.65
90.9	315	0

R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45



Gigabyte Technology		
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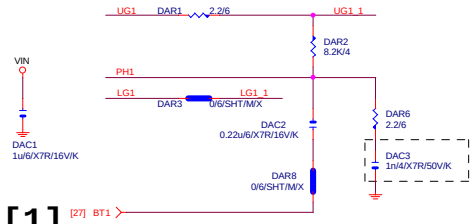
PHASE 1



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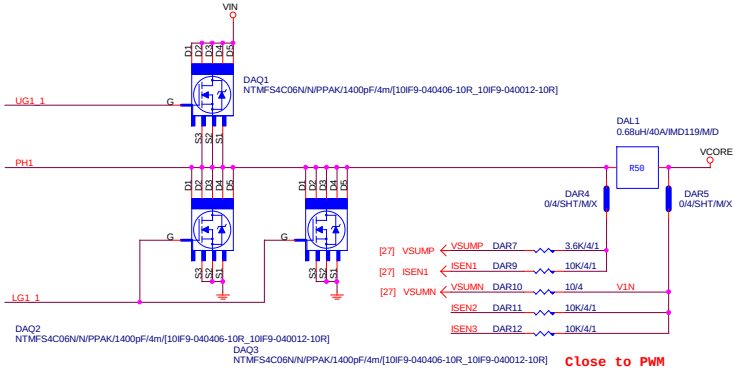
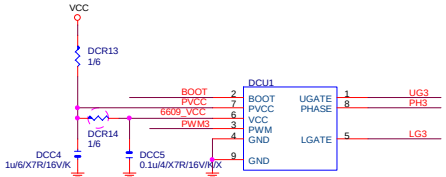
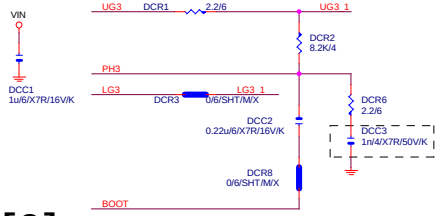


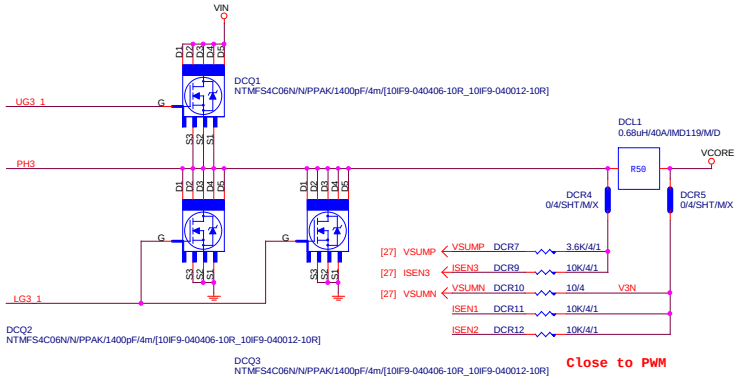
Close to PWM

PHASE 3



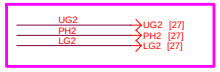


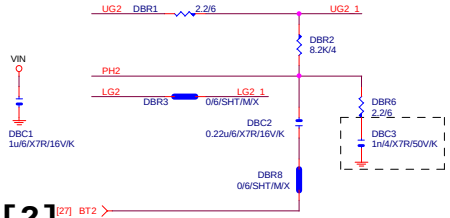
[3]



Close to PWM

PHASE 2





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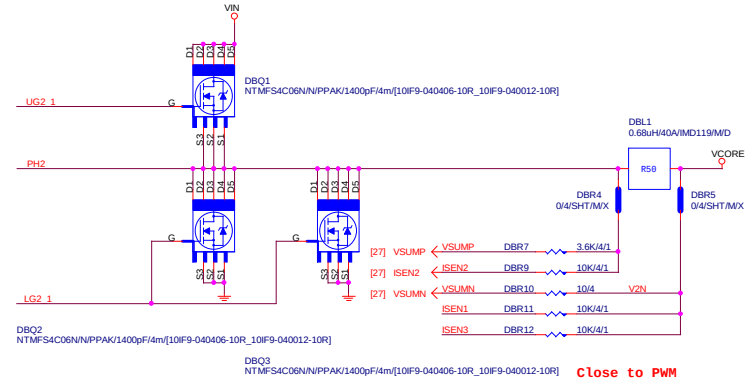
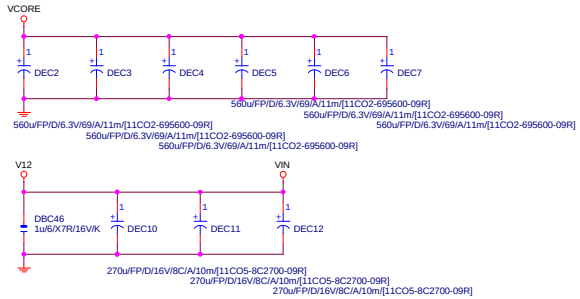


Close to PWM



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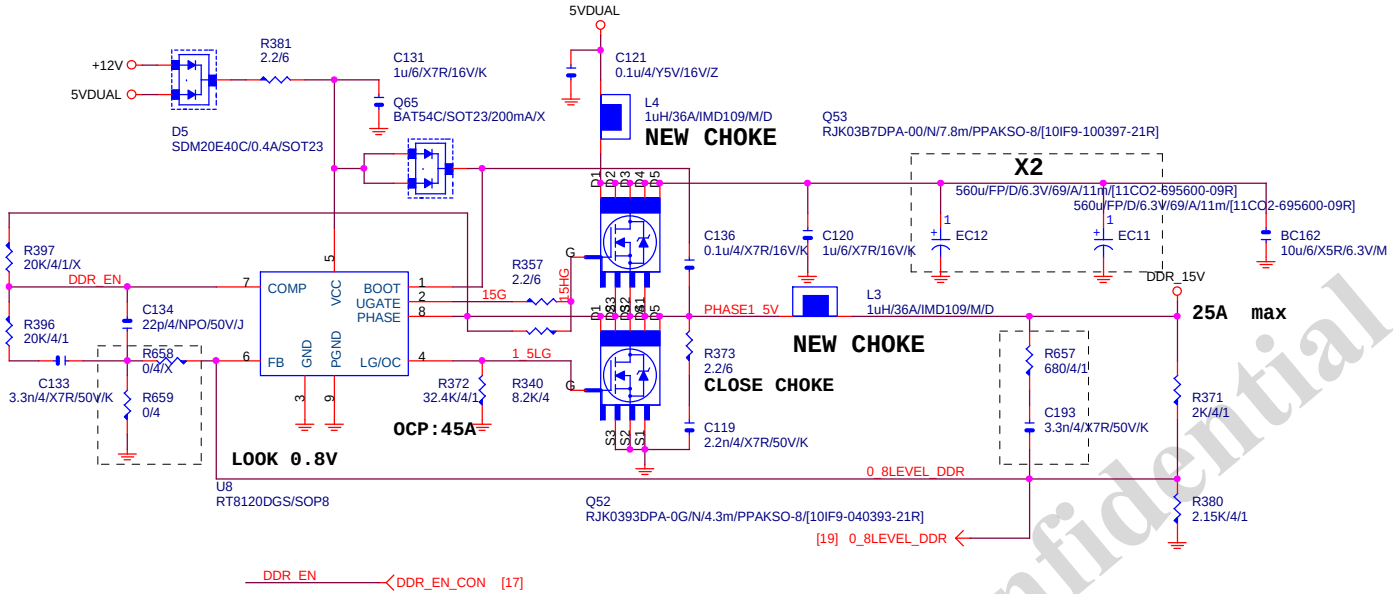
DDR15V



From DDR_15V source
10 mils trace to SIO

DDR_15V — MR20 — DDR_15VIO 0/4/SHT/M/X

PWR SEQ

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

Rocset=(Iocp*Lgate,rdson)/Iocset

Rocset=(45A*6.7mOhm)/10uA = 30K

Iocset=10uA

Gigabyte Technology			
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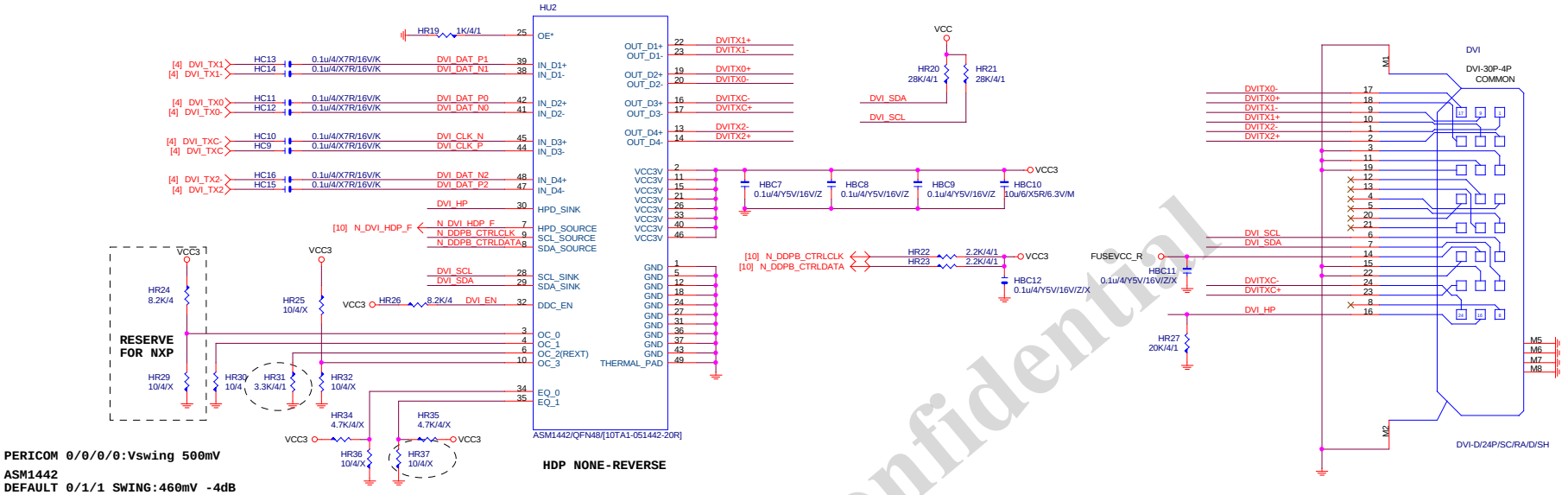
DVI LEVEL SHIFT



PERICOM 0/0/0/0:Vswing 500mV

ASM1442
DEFAULT 0/1/1 SWING:460mV -4dB

PI3DV411 0 0:3dB
ASM1442 1 1:3dB

HDP NONE-REVERSE

Gigabyte Technology			
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PCIE TO PCI

PCI:5/4/5 Impedance=50 +- 15%

BA_D[0..31] ↔ BA_D[0..31] [16]

-BC_BE0 [16] → -BC_BE0 [16]
-BC_BE1 [16] → -BC_BE1 [16]
-BC_BE2 [16] → -BC_BE2 [16]
-BC_BE3 [16] → -BC_BE3 [16]

-BPERR [16] → -BPERR [16]
-BSERR [16] → -BSERR [16]

BPAR [16] → BPAR [16]
-BPLOCK [16] → -BPLOCK [16]
-BDEVSEL [16] → -BDEVSEL [16]
-BSTOP [16] → -BSTOP [16]
-BTRDY [16] → -BTRDY [16]
-BIRDY [16] → -BIRDY [16]
-BFRAME [16] → -BFRAME [16]

-PCIE_RST [14,15,17] → -PCIE_RST [14,15,17]

-BPCIRST [16] → -BPCIRST [16]

-BREQ0 [16] → -BREQ0 [16]
-BREQ1 [16] → -BREQ1 [16]
-BGNT0 [16] → -BGNT0 [16]
-BGNT1 [16] → -BGNT1 [16]

-BPCIPME1 [16] → -BPCIPME1 [16]

Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

IT8892: PR24 -> 47ohm
IT8893: PR24 -> 22ohm

[16] BPCLK0 — PR24 47/4/1 — CLKOUT0

IT8892: PR46 -> X
IT8893: PR46 -> 0

PR46 22/4/X

[16] BPCLK1 — PR19 47/4/1 — CLKOUT1

IT8892: PR19 -> 0
IT8893: PR19 -> X

RREF PR13 12K/4/1
TEST_EN PR21 10K/4/1
EXT_ARB PR22 10K/4/1
RST_SEL PR7 10K/4/1

VCC3 — PR14 1K/4/1/X — M66EN — PR42 1K/4/1

High: Enable PCI CLK 66MHz
Low: Disable PCI CLK 66MHz

VCC3 — PR35 8.2K/4/X — PCICLK_SEL — PR37 10K/4/1

High: PCICLK INTPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip

IT8892 — **PCI slot**

PRN14 0/8P4R/0402/SHT/X
-BPIRQA 1 2 -BPIRQA1 [16]
-BPIRQD 3 4 -BPIRQD1 [16]
-BPIRQC 5 6 -BPIRQC1 [16]
-BPIRQB 7 8 -BPIRQB1 [16]

VCCP PR26 0/4/SHT/M/X 3VDUAL

PCI slot — **chipset side**

-BPCIPME1 PR27 0/4/SHT/M/X N_-PCIE_WAKE [12,14,15,24]

3VDUAL — PR2 0/4/SHT/M/X
PCIEWAKE PR34 10K/4/1
-BPCIPME PR43 10K/4/1

PRN1 2.2K/8P4R/4 (VCC)
-BFRAME 1 2
-BIRDY 3 4
-BTRDY 5 6
-BSTOP 7 8

PRN2 2.2K/8P4R/4
-BPLOCK 1 2
-BPIRQB 3 4
-BSERR 5 6
-BPERR 7 8

PRN15 2.2K/8P4R/4
-BPIRQA 1 2
-BDEVSEL 3 4
-BPIRQD 5 6
-BPIRQC 7 8

PRN4 2.2K/8P4R/4
-BGNT3 1 2
-BREQ3 3 4
-BGNT1 5 6
-BREQ1 7 8

PRN5 2.2K/8P4R/4
-BGNT2 1 2
-BREQ2 3 4
-BGNT0 5 6
-BREQ0 7 8

BPAR PR41 2.2K/4/1/X

LDO_18V — PFB1 0/6/SHT/M/X — 1.8VA
PFB2 0/6/SHT/M/X — 1.8VD
LDOAUX_18V — PFB3 0/6/SHT/M/X — 1.8V_AUX
PFB4 0/6/SHT/M/X — 1.8V_AUXA

VCC3

PU1 — IT8892E/BX LQFP128

1 PCIEWAKE
2 -BPCIPME
3 VCCP
4 LDOAUX_18V
5 1.8V_AUX
6 [10] G_-PBCLK
7 [10] G_PBCLK
8 1.8VA
9 1.8VA
10 RREF
11 [9] G_PCIEBOP
12 [9] G_PCIEBON
13 1.8V_AUXA
14 [9] G_PCIEBIN
15 [9] G_PCIEBIP
16 1.8VD
17 BA_D0
18 BA_D1

PBC61 0.1u/4/X7R/16V/K G_PCIEBOP_C
PBC62 0.1u/4/X7R/16V/K G_PCIEBON_C
PBC43 0.1u/4/X7R/16V/K G_PCIEBIN_C
PBC44 0.1u/4/X7R/16V/K G_PCIEBIP_C

19 WAKE#
20 PME#
21 GNDP_AUX
22 VCCP_AUX
23 LDOAUX_18V
24 VSS_AUX
25 VCCK_AUX
26 NC
27 CLKN
28 CLKP
29 VCC18A
30 VCC18A
31 GNDA
32 GNDA
33 GNDA
34 RREF
35 DIP
36 DIN
37 VCC18A_AUX
38 DON
39 DOP
40 VSS
41 VCCK
42 SEG_EN1/GP3
43 SEG_EN2/GP4
44 EECS#
45 EECLK
46 EEWRDATA
47 EERDDATA
48 AD0
49 AD1
50 SEG_G

128 PCICLK_SEL
127 1.8VD
126 GND
125 M66EN
124 -PCIE_RST
123 -BPIROD
122 -BPCIRST
121 -BGNT2
120 1.8VD
119 -BREQ2
118 -BGNT0
117 -BGNT3
116 -BREQ3
115 CLKOUT0
114 -BGNT1
113 -BREQ1
112 BA_D31
111 BA_D30
110 BA_D29
109 BA_D28
108 VSS
107 GNDP
106 VCCP
105 TP2
104 GNT0#
103 REQ0#
102 NC
101 TP1
100 PCICLK0
99 GNT1#
98 REQ1#
97 AD31
96 AD30
95 AD29
94 AD28
93 VSS

51 AD2
52 AD3
53 VCCP
54 GNDP
55 AD4
56 AD5
57 AD6
58 AD7
59 VCCK
60 VSS
61 AD8
62 AD9
63 AD10
64 CBE0#
65 VCCP
66 GNDP
67 CBE1#
68 AD11
69 AD12
70 AD13
71 AD14
72 AD15
73 PERR#
74 SERR#
75 VCCP
76 GNDP
77 LDO_18V
78 VSS
79 LOCK#
80 INTB#
81 INTC#

IT8892E/FX/S

82 BA_D2
83 BA_D3
84 BA_D4
85 BA_D5
86 BA_D6
87 BA_D7
88 1.8VD
89 BA_D8
90 BA_D9
91 BA_D10
92 -BC_BE0
93 -BC_BE1
94 VCC3
95 BA_D11
96 BA_D12
97 BA_D13
98 BA_D14
99 BA_D15
100 -BPERR
101 -BSERR
102 VCC3
103 LDO_18V
104 BPAR
105 -BPLOCK
106 -BPIRQB
107 -BPIRQC

VCC3 — PBC60 10u/6/X5R/6.3V/M — PBC21 1u/4/X5R/6.3V/K — PBC22 0.1u/4/X7R/16V/K — PBC33 1u/4/X5R/6.3V/K — PBC34 0.1u/4/X7R/16V/K — PBC35 0.1u/4/X7R/16V/K

3VDUAL — PBC29 0.1u/4/X7R/16V/K/X
1.8V_AUX — PBC30 0.1u/4/X7R/16V/K
1.8V_AUXA — PBC31 0.1u/4/X7R/16V/K

1.8VD — PBC23 10u/6/X5R/6.3V/M — PBC24 1u/4/X5R/6.3V/K — PBC25 0.1u/4/X7R/16V/K

1.8VD — PBC59 1u/4/X5R/6.3V/K — PBC38 0.1u/4/X7R/16V/K — PBC39 0.01u/4/X7R/25V/K

PCB layout note: Close to chip

1.8VA — PBC26 10u/6/X5R/6.3V/M — PBC27 1u/4/X5R/6.3V/K — PBC28 0.1u/4/X7R/16V/K

Close to chip

LDOAUX_18V — PBC32 10u/6/X5R/6.3V/M — PBC40 1u/4/X5R/6.3V/K — PBC41 0.01u/4/X7R/25V/K

LDO_18V — PBC58 10u/6/X5R/6.3V/M — PBC42 1u/4/X5R/6.3V/K — PBC45 0.01u/4/X7R/25V/K

PCB layout note: Close to chip

Gigabyte Technology

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