Model Name: GA-B85M-D3H

Revision 1.2

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 1,2
08	DDR III CHANNEL B 1,2
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*4 SLOT
16	PCI SLOT1,2
17	ITE 8728 LPC IO
18	COM,KB_MS_USB,USB30_20
19	HWM,FAN CTRL,OV,-PROCHOT
20	DUAL BIOS
21	FP,FUSB,SPK,SATALED
22	Realtek ALC892-GR
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX , CLOCK GEN, TPM
27	VCORE ISL95820_1

SHEET	TITLE
28	VCORE ISL95820_2
29	RT8120_DDR POWER
30	LPT, M3 POWER
31	DVI, HDMI
32	IT8892E

Gigabyte Technology

Title: Cover Sheet

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Model Name: GA-B85M-D3H

Component value change history

Revision 1.2
P-Code U12090-0

Date	BOM and PCB version		Modify Items
2012.11.05	New E-BOM release.	PCB:0.1	
2013.01.25	New E-BOM release.	PCB:0.2	pciex4超頻時掉device issue(CLK USE p.10) / for disable ME(p.17)/ H/W monitor / PWM change to 1up2down (8 series 線路注意事項)
2013.03.26	10A D-BOM release.	PCB:1.0	(8 series 線路注意事項64/62/60/59/58/53/48)
2013.04.08	10B P-BOM release.	PCB:1.0	轉P-BOM(修改DVI level shift NXP change to ASMEDIA & ASMEDIA搭配用阻值)
2013.04.17	10C F-BOM release.	PCB:1.0	修改INTEL PCI LAN CARD(PCI1),並輸出為HDMI&D-SUB ,PCI LAN CARD會斷線&D-SUB畫面抖動ISSUE(add NQ17 , remove NR13),remove CS
2013.05.13	10D P-BOM release.	PCB:1.0	修改MOS Heatsink用料 MOS HS/[12SP2-S08824-41R_12SP2-S08824-42R_12SP2-S08824-43R]
2013.05.30	10E P-BOM release.	PCB:1.0	修改PCIEx4 cap (0.22u --> 0.1u) 同步此10E版本,會是產C2 chipset,同步驗證
2013.07.01	11A P-BOM release.	PCB:1.1	CHANGE TO C2 CHIPSET / add 5vdual short protect sch(上件)
2013.07.09	11B F-BOM release.	PCB:1.1	5vdual short protect sch(5VDUAL 上件 / R705 change to 825/4/1) & remove Audio "CD1"
2013.07.15	11B ECN release.	PCB:1.1	MOS_HS 增加墊片, 防止板彎(新增替料12SP2-S08824-71R/72R/73R)
2013.09.12	11C ECN release.	PCB:1.11	修改CRYSTAL ISSUE(LAYOUT CHECK)
			修改MOS FOOTPRINT TO "Q_TDSON8-GDS-T" 修改FUSE 1206 FOOTPRINT TO "Polyswitch-1206-1" 修改CPU FAN R60 0/4 -->0/6
2013.10.31	11E F-BOM release.	PCB:1.11	修改crystal 用料(25M/12P) & NC7/NC8 change to 10PF
2014.01.24	11E ECN release.	PCB:1.11	新增10IF9-040012-10R SIRA12DP VISHAY 2nd source (VCORE)
2014.05.27	11F ECN release.	PCB:1.11	Q49,Q26,Q53,Q35,Q52,Q60 Change to 10IF9-584081-00R ON
2014.06.18	11G P-BOM release.	PCB:1.12	a.SATA remove MLCC,修改方式為short pad + Mask
2014.10.14	11H P-BOM release.	PCB:1.12	CEC1/CEC2/CEC10/CEC11/CEC12/CEC13/CEC14/CEC15/CEC9/CEC6 change to "100uF/D/10V/6*5/[11CE2-651000-05R] "(金色電容)
2015.01.08	12A P-BOM release.	PCB:1.2	Modify from Rev1.12 to Rev1.2

Circuit or PCB layout change

Date	PCB Version	Modify Items
2012.11.05	0.1 Gerber out.	
2013.01.25	0.2 Gerber out.	Change F_panel footprint / H/W monitor / DS_ME / ACZ_SDOUT / PCIEx4 CLK MODIFY Z87M-D3H
2013.03.21	1.0 Gerber out.	Change F_Panel footprint / H/W monitor / DS_ME / ACZ_SDOUT / PCIEx4 CLK MODIFY Z87M-D3H
2013.06.27	1.1 Gerber out.	僅修改版本(Rev1.0-->Rev1.1) & HDMI FOOTPRINT (HDMI-3)
2013.09.13	1.11 Gerber out.	修改CRYSTAL ISSUE
2014.06.19	1.12 Gerber out.	SATA remove MLCC,修改方式為short pad + Mask
2015.01.08	1.2 Gerber out.	僅修改版本(Rev1.12-->Rev1.2)

Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-B85M-D3H | Rev: 1.2

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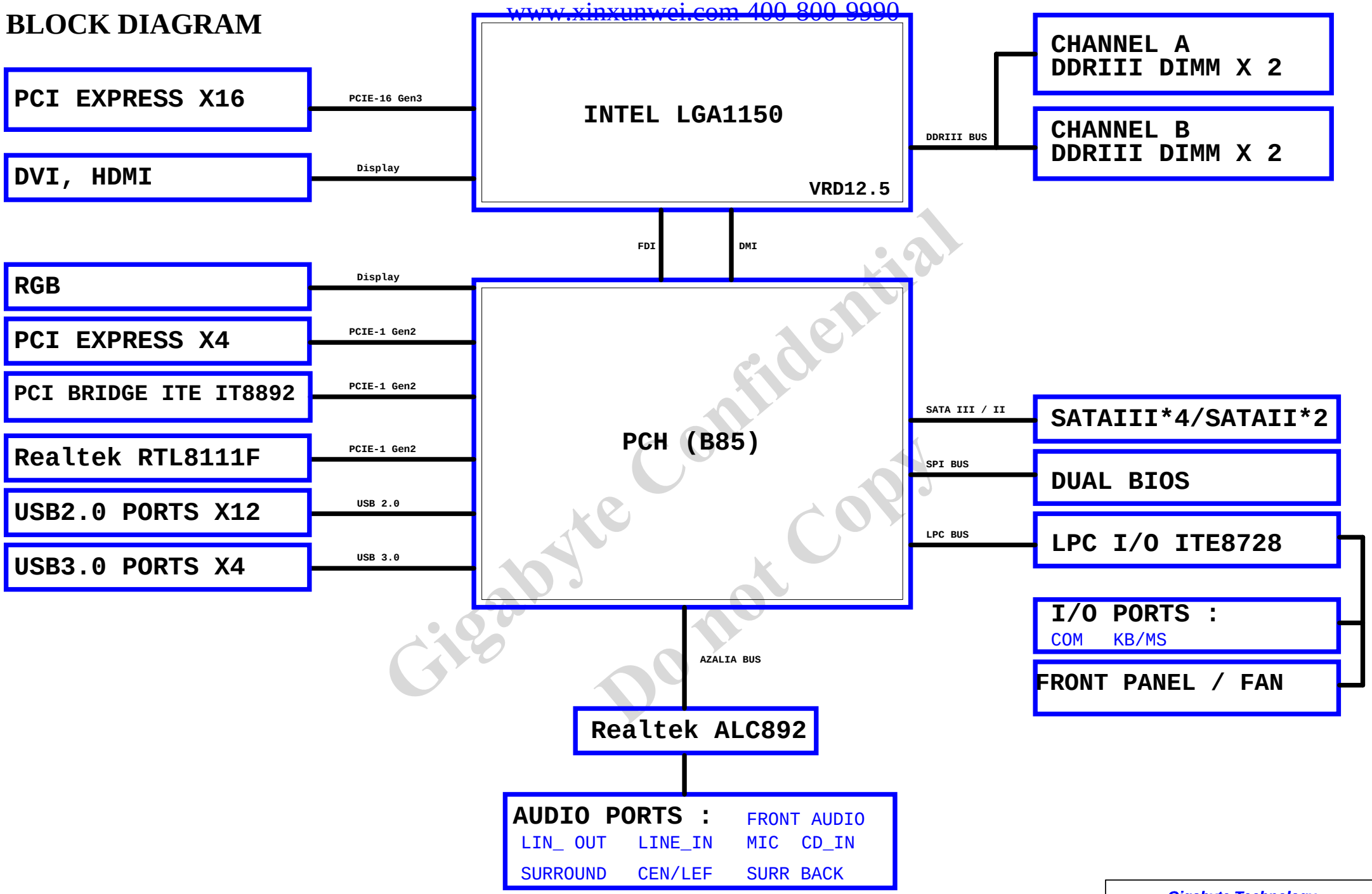
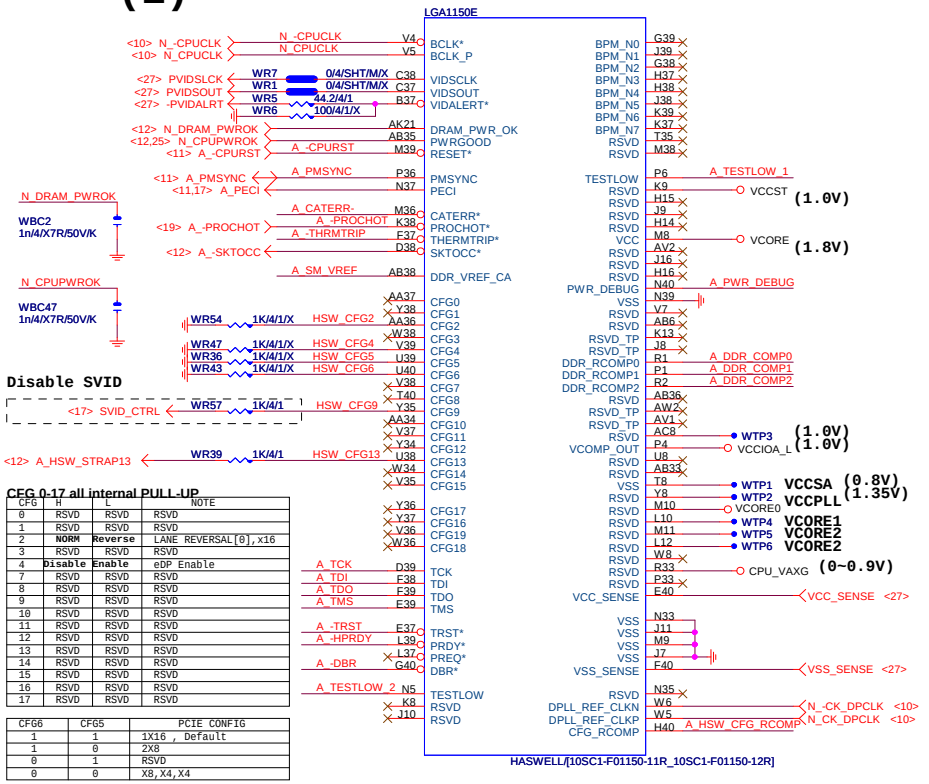
BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GA-B85M-D3H	Rev: 1.2
Date: Thursday, January 08, 2015	Sheet 3 of 32	

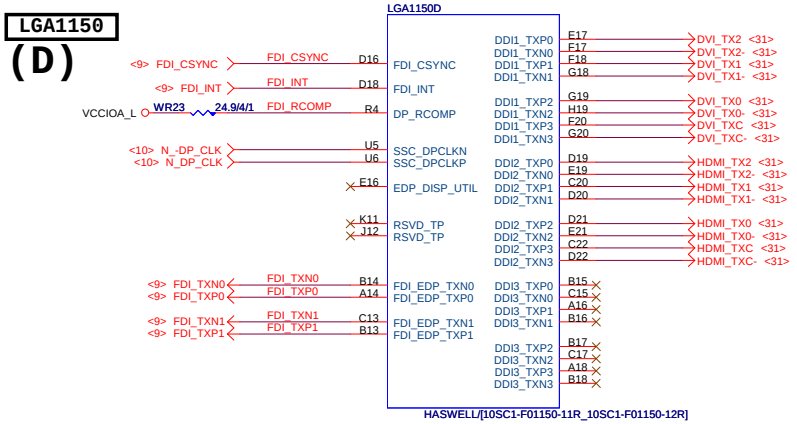
LGA1150 (E)



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

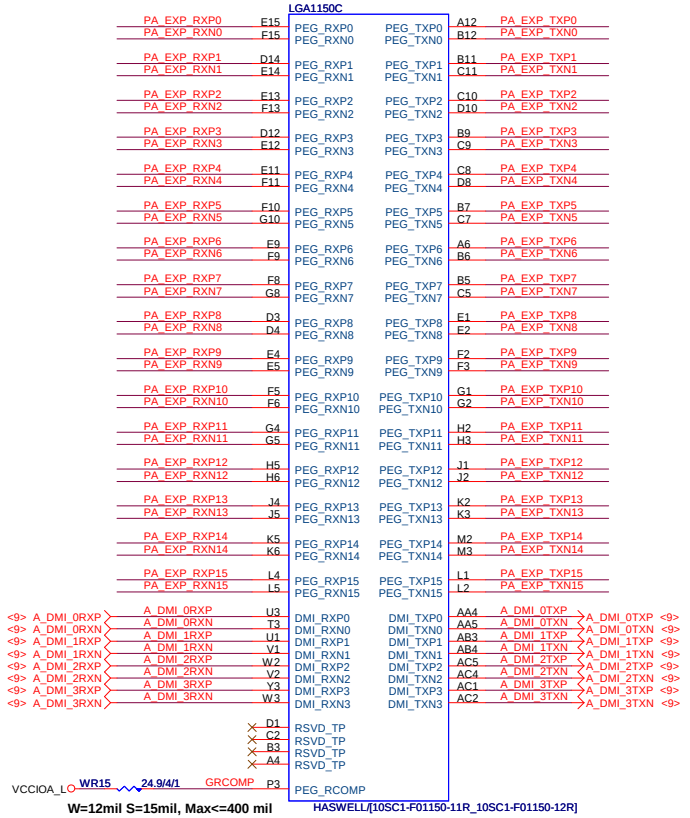
LGA1150 (D)



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

LGA1150 (C)

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

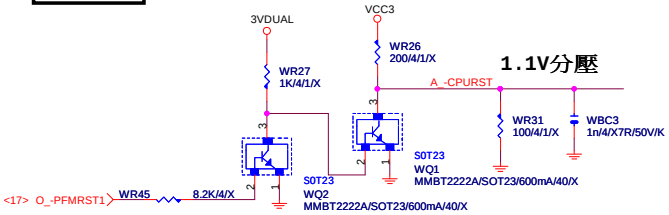


W=12mil S=15mil, Max<=400 mil

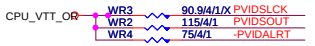
DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%. TX:3 VIAs, RX:1VIA

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

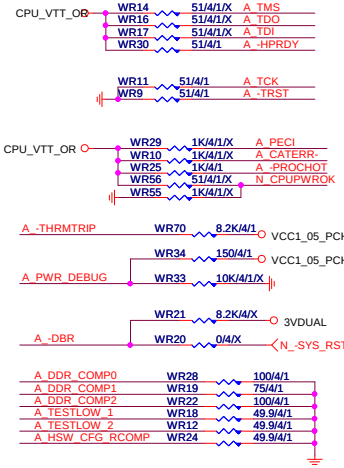
-CPURST



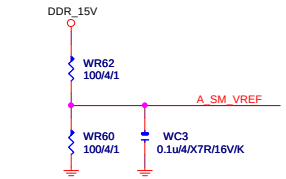
CPU SVID



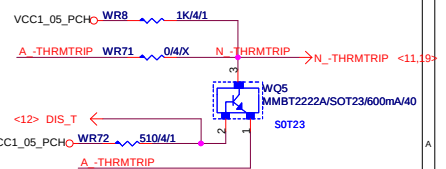
CPU PU/PD



SM REF



THRMTRIP DISABLE



Gigabyte Technology

Title	CPU LGA1150-A		
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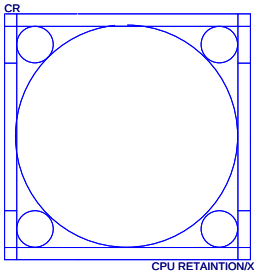
LGA1150 (A)

LGA1150 (B)

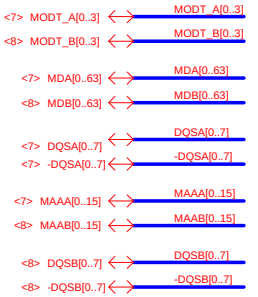
LGA1150 (CR)



LGA1150_P

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

DDR BUS



Gigabyte Technology			
Title: CPU LGA1150-B			
Size: Custom	Document Number: GA-B85M-D3H		Rev: 1.2
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LGA1150 (F,J)

(1.0V)

CPU_VTT_OR

WBC1 22u/8/X5R/6.3V/M

WR65 0/4/X

VCCST

WBC23 0.1u/4/X7R/16V/K

WBC13 0.1u/4/X7R/16V/K

WR63 0/4/SHT/M/X

VCCIO2PCH

(1.07V)

WR64 0/4/SHT/M/X

VCC1_05_PCH

VCORE

LGA1150F

P8 L40 AB8 L31 L18 L17 J33 A24 A25 A26 A27 A28 A29 A30 G33 B25 B27 B29 B31 J31 B33 G31 B35 C24 C25 C26 C27 C28 C29 C30 C32 C34 C35 D25 D27 D29 D31 E33 D33 E31 D35 E24 E25 E26 E27 E28 E29 E30 E32 E34 F23 F25 F27 F29 F31 E35 F33 F35 G22 G23 G24 G25 G26 G27 G28 G29 G30 G32 G34 G35 H23 H25 H27 H29 H31 L34

VCC VCCIO_OUT VCCIO2PCH

C31 C33 L16 L15 J35 H33 H35 J21 J22 J23 J24 J25 J26 J27 J28 J29 J30 J32 J34 K19 K21 K23 K25 K27 K29 K31 M13 K33 K35 L19 L20 L21 L22 L23 L24 L25 L26 L27 L28 L29 L30 L32 L33 M17 M15 M19 M21 M23 M25 M27 M29 M33

VDDQ AJ12 AJ13 AJ15 AJ17 AJ20 AJ21 AJ24 AJ25 AJ28 AJ29 AJ39 AT17 AT22 AU15 AU20 AU24 AV10 AV11 AV18 AV23 AV8 AW16 AY12 AY14 AY9

DDR_15V

LGA1150J

RSVD_TP K12 RAVD_TP J13

RAVD_TP P37 RAVD_TP N38

RAVD_TP R36 RAVD_TP C39

VSS U35 VSS P40

VSS R38 VSS T37 VSS V34

VSS R39

VSS T38 VSS U36 VSS P39

VSS T36 VSS R37

VSS J14 RSVD_TP N36

AY18 AW24 AW23 AV29 AV24 AU39 AU27 AU1 AT40 AK20 Y7 T34 R34 J40 J17 J15 H12

RSVD

<11,12,17,26> O_PWROK1

WR67 6.04K/4/1

VCCST_PWRGD

For 2014 CPU, VCCST_PWRGD=1.05V

WR66 3.16K/4/1

O_PWROK1

WBC4 100p/4/NPO/50V/J FOR EMI

HASWELL/[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150 (G,H,I)

LGA1150G

A13 A15 A17 A23 A11 AA3 AA33 AA35 AA38 AA6 AA7 AA8 A5 AB34 AB37 AB5 AC3 AC33 AC34 AC35 AC36 AC37 AC38 AC39 AC40 AC6 AC7 A7 AD1 AD2 AD3 AD33 AD36 AD4 AD5 AD6 AD7 AD8 AE33 AE36 AE37 AE40 AE5 AE8 AF1 AF33 AF36 AF4 AF5 AF8 AG33 AG36 AG37 AG38 AG39 AG40 AG5 AG8 AH1 AH2 AH3 AH33 AH36 AH4 AH5 AH8 AJ11 AJ14 AJ16 AJ18 AJ19 AJ22 AJ23 AJ26 AJ27 AJ30 AJ31 AJ32 AJ33

VSS

AJ34 AJ35 AJ36 AJ37 AJ40 AJ5 AJ8 AK1 AK10 AK11 AK12 AK13 AK14 AK18 AK19 AK24 AK25 AK26 AK27 AK28 AK29 AK30 AK36 AK4 AK5 AK6 AK7 AK8 AK9 AL11 AL14 AL17 AL21 AL22 AL24 AL27 AL30 AL36 AL37 AL38 AL39 AL40 AL5 AM1 AM11 AM14 AM15 AM19 AM2 AM24 AM27 AM3 AM30 AM31 AM32 AM33 AM34 AM35 AM36 AM4 AM5 AN10 AN11 AN14 AN16 AN18 AN19 AN22 AN23 AN24 AN27 AN30 AN36 AN37 AN40 AN5 AN6 AN7 AN8 AN9 AP1

HASWELL/[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150I

G12 G13 G14 G16 H11 G17 G21 G3 H13 H22 H32 G36 G37 G6 G7 G15 H1 H10 H17 H18 H20 H21 H24 H26 H28 H30 H34 H36 H39 H4 H7 H8 H9 J19 J20 J3 J18 K10 K14 J36 J37 J6 K1 K18 K20 K22 K24 K26 K28 K30 K34 K36 K4 K40 K7 L7 L8 L9 L11 L3 L13 L14 L35 L38 L6 M1 K17 M12 M14 M18 M16 M20 M22 M24 M26 M28 M30 M32 M34 M37

VSS

M4 M40 M5 M6 M7 K15 K16 N1 N2 N3 N7 N34 N4 N6 K32 P2 P34 P38 P5 P7 N8 R3 L36 R35 R40 R5 R6 R7 T1 T2 T33 M35 T39 T4 T5 T6 T7 R8 U2 U33 U34 U37 U4 U7 P35 V3 V33 V40 V6 V8 W1 W33 W35 W37 W4 W7 Y33 Y4 Y5 Y6 AU40 AV39 AW38 AY3 B38 B39 C40 D40

VSS_NCTF

HASWELL/[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150H

AP11 AP14 AP15 AP24 AP27 AP30 AP36 AP4 AP5 AR11 AR14 AR16 AR17 AR18 AR19 AR20 AR21 AR22 AR23 AR24 AR27 AR30 AR31 AR32 AR33 AR34 AR35 AR36 AR37 AR38 AR39 AR40 AR5 AT1 AT10 AT11 AT12 AT13 AT14 AT15 AT16 AT2 AT24 AT25 AT26 AT27 AT28 AT29 AT3 AT30 AT32 AT34 AT36 AT38 AT39 AT4 AT5 AT6 AT7 AT8 AT9 AU2 AU25 AU3 AU30 AU34 AU38 AU5 AU7 AV21 AV28 AV3 AV30 AV34 AV38 AV7 AW26 AW3 AW30

VSS

AW32 AW34 AW36 AW7 AY17 AY23 AY26 AY27 AY30 AY5 AY7 B24 B26 B28 B30 B34 B36 B4 B8 C4 C6 C12 C14 C16 C18 C19 C21 C23 C36 B10 B23 C3 D9 D11 D13 D15 D17 D2 D23 D24 D26 D28 D30 D34 D36 D37 D5 D6 D7 E7 E8 E10 E18 E3 E20 E22 E23 E36 E38 B32 E6 F1 F32 F12 F14 F16 F19 F21 F22 F24 F26 F28 F30 F34 F36 F4 D32 F7 G9 G11

HASWELL/[10SC1-F01150-11R_10SC1-F01150-12R]

VCore CAP (X18)

VCORE

WBC35 22u/8/X5R/6.3V/M WBC42 22u/8/X5R/6.3V/M WBC36 22u/8/X5R/6.3V/M WBC43 22u/8/X5R/6.3V/M WBC44 22u/8/X5R/6.3V/M WBC38 22u/8/X5R/6.3V/M WBC37 22u/8/X5R/6.3V/M WBC46 22u/8/X5R/6.3V/M WBC40 22u/8/X5R/6.3V/M

VCORE

WBC19 22u/8/X5R/6.3V/M WBC21 22u/8/X5R/6.3V/M WBC6 22u/8/X5R/6.3V/M WBC9 22u/8/X5R/6.3V/M WBC20 22u/8/X5R/6.3V/M WBC7 22u/8/X5R/6.3V/M WBC11 22u/8/X5R/6.3V/M WBC39 22u/8/X5R/6.3V/M WBC41 22u/8/X5R/6.3V/M

DDR CAP (X9)

DDR_15V

WBC29 22u/8/X5R/6.3V/M WBC30 22u/8/X5R/6.3V/M WBC31 22u/8/X5R/6.3V/M WBC32 22u/8/X5R/6.3V/M

DDR_15V

WBC24 22u/8/X5R/6.3V/M WBC25 22u/8/X5R/6.3V/M WBC26 22u/8/X5R/6.3V/M WBC27 22u/8/X5R/6.3V/M WBC28 22u/8/X5R/6.3V/M

Gigabyte Technology			
Title: CPU LGA1150-C			
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DDR3

(A)

DDR3_4

DDRVTT

MODT_A[0..3] <5>

-DQSA[0..7] <5>

DQSA[0..7] <5>

VCC3 MR17 0/6 VDDSPD

DDR_15V

SMBDATA

SMBCLK

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

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

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

VDDSPD

MC5 0.1u/4/X7R/16V/K

MC1 0.1u/4/X7R/16V/K

VREF_DDRA

VREF_DQDDRA

<8,12,14,15,16,19,26,27> N_SMBCLK

<8,12,14,15,16,19,26,27> 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]

-DDR3_RST

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

<5,8> -DDR3_RST

<5> -SCASA

<5> -SRASA

<5> -SWEA

DDR3/240/8K/VA/D

MDA[0..63] <5>

DDR3_2

DDR3/240/GR/VA/D

DDR3 VREF

DDR_15V

MR15 1K/4/1

MR14 1K/4/1

MR4 1K/4/1

MR5 1K/4/1

MR1 10/4

VREF_DDRA

VREF_DQDDRA

VREF_DQA <5>

DDR15V Decouple

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

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

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

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

MBC18 1u/4/X5R/6.3V/K

MBC10 0.1u/4/Y5V/16V/Z

Gigabyte Technology

Title: DDRIII CHANNEL A

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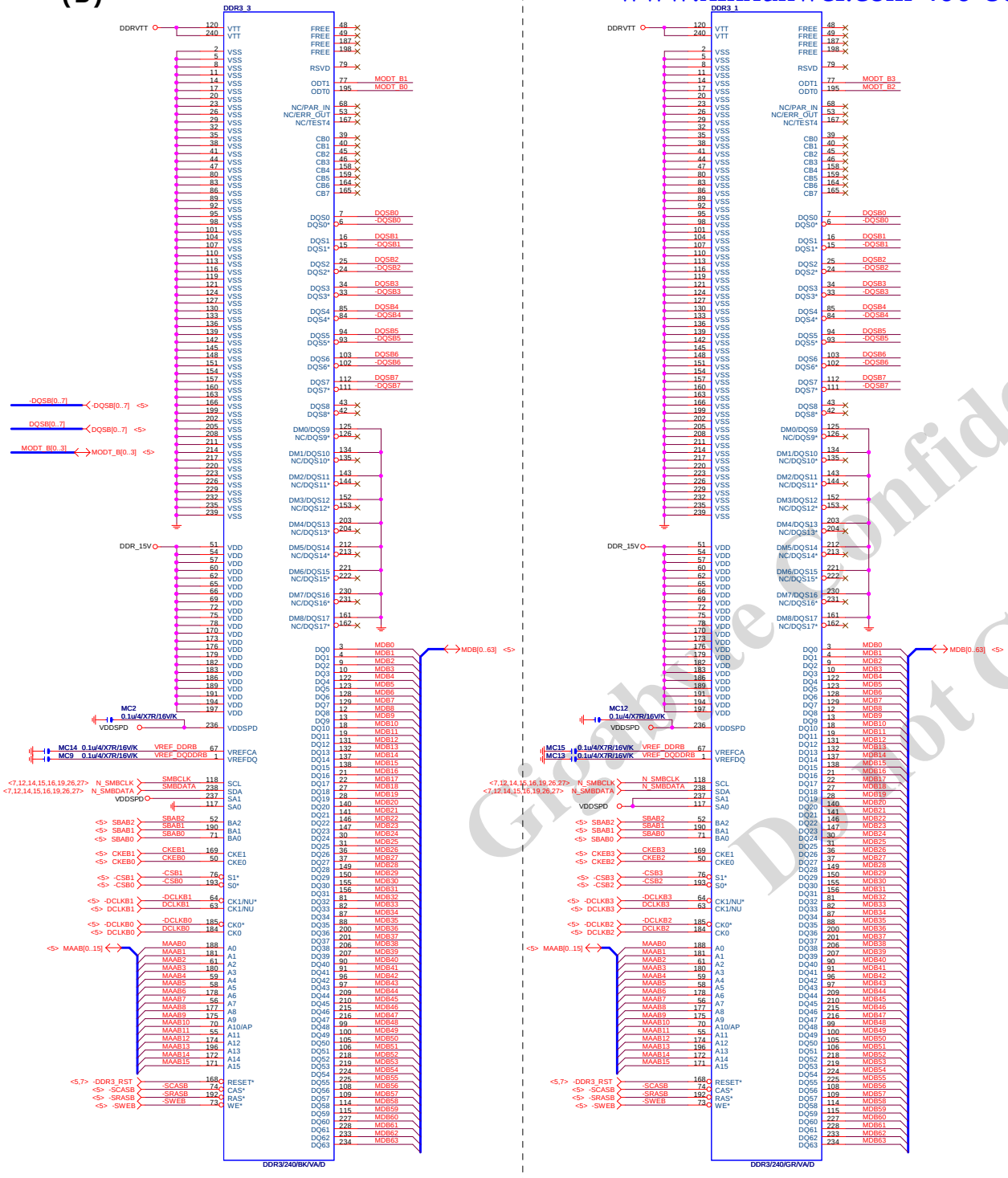
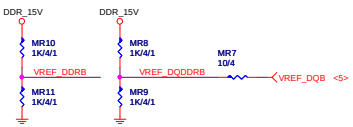
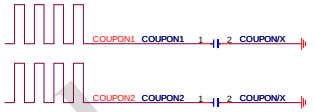
(B)



DDR3 VREF



COUPON



CPU

DIMM4
DIMM2
CHA

DIMM3
DIMM1
CHB

Gigabyte Technology	
Title	DDRIII CHANNEL B
Size: Custom	Document Number: GA-B85M-D3H
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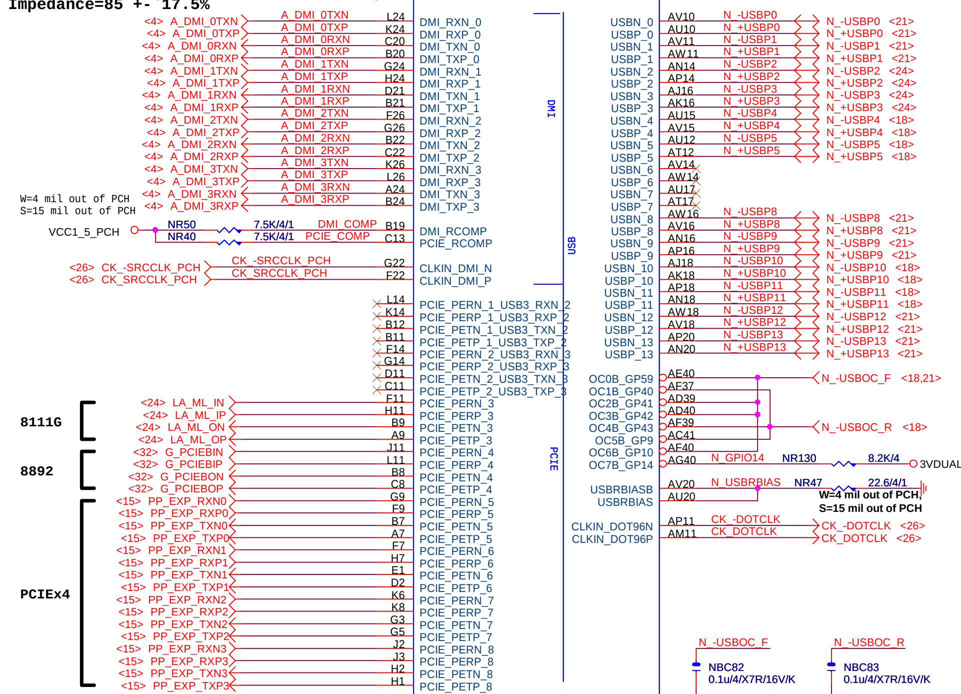
PCH (B)

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

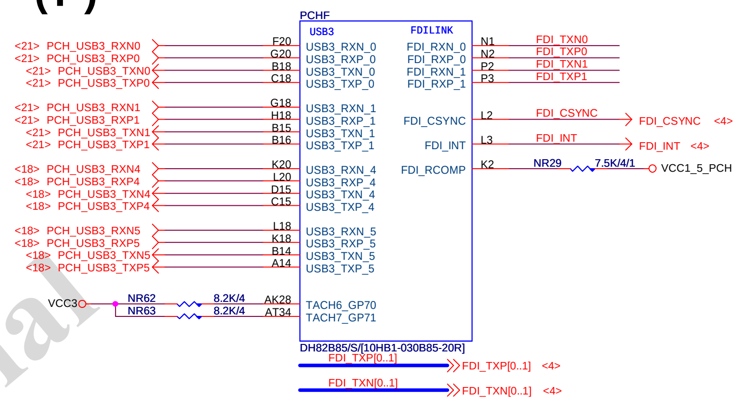
USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%

B85: Port 6/7 N/A
H81: Port 6/7/12/13 N/A



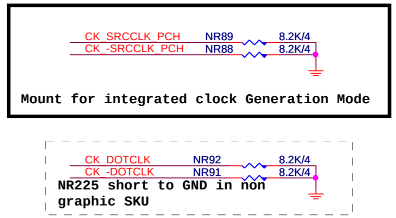
放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%
PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCH (F)

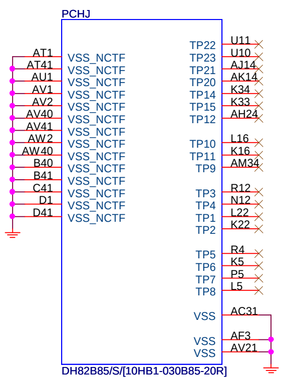


USB3.0:20/5/7/5/20 (breakout min 8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

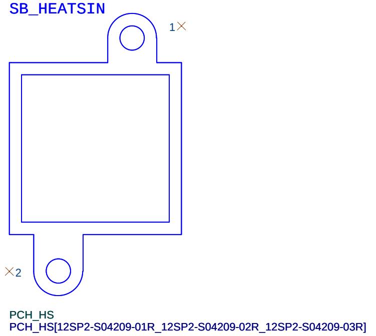
PCH CLK PD



PCH (J)



PCH H/S



USB TABLE

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

USB OC# Configure	
OC0#	F_USB30
OC1#	F_USB1
OC2#	F_USB2
OC3#	F_USB3
OC4#	USB_LAN
OC5#	R_USB30
OC6#	KB_MS_USB
OC7#	Not Use

Gigabyte Technology		
Title: PCH FDI,DMI,USB ,PCIE,NVRAM		
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PCH (E)

PCHE

<31> N_DVI_HDP_F
<31> N_HDMI_HDP_F
AJ2 DDPB_HPD
AH5 DDPC_HPD
AJ4 DDPD_HPD
AK6 DDPB_AUXN
AK8 DDPB_AUXP
AG7 DDPC_AUXN
AG6 DDPC_AUXP
AG11 DDPD_AUXN
AG10 DDPD_AUXP

VGA_HSYNC AH3 H_SYNC NR26 33/4 N_GHSYNC
VGA_VSYNC AH2 V_SYNC NR33 33/4 N_GVSYNC
VGA_RED AC2 N_R
VGA_GREEN AE2 N_G
VGA_BLUE AC3 N_B
VGA_IRTN AG4
VGA_DDC_DATA AL3 N_DDCDATA
VGA_DDC_CLK AL2 N_DDCCLK
DAC_IREF AF5 N_VGA_RSET NR34 649/4/1
DDPC_CTRLCLK AN3 N_DDPC_CTRLCLK N_DDPC_CTRLCLK <31>
DDPC_CTRLDATA AM2 N_DDPC_CTRLDATA N_DDPC_CTRLDATA <31>
DDPB_CTRLCLK AM1 N_DDPB_CTRLCLK N_DDPB_CTRLCLK <31>
DDPB_CTRLDATA AJ5 N_DDPB_CTRLDATA N_DDPB_CTRLDATA <31>
DDPD_CTRLCLK AN4
DDPD_CTRLDATA AN2

DH82B85/S/[10HB1-030B85-20R]

PCH (G)

PCHG

<17> N_LPC33 NR37 33/4 PCH33M0 AV5 CLKOUT_33MHZ0
<11> N_PCH33 NR38 33/4 PCH33M1 AV7 CLKOUT_33MHZ1
<26> T_TPMCLK NR28 33/4 PCH33M2 AU2 CLKOUT_33MHZ2
AN9 CLKOUT_33MHZ3
AU5 CLKOUT_33MHZ4

Flex1,2,3,4 :
14/24/33/48MHZ

<17> O_LPCCLK48 NR39 33/4 N_PCH_48M AV8 CLKOUTFLEX0_GP64
AT9 CLKOUTFLEX1_GP65
AV9 CLKOUTFLEX2_GP66
AU8 CLKOUTFLEX3_GP67

VCC1_5_PCH NR18 7.5K/4/1 N_CLK_RCOMP R11 DIFFCLK_BIASREF
<26> N_PCHCLK14 N_PCHCLK14 AR7 REFCLK14IN

N_XTALI_PCH NR15 1M/4
NX1
N_XTALO_PCH
25M/12p/30ppm/49US/20/D
NC8 10p/4/NPO/50V/J
NC7 10p/4/NPO/50V/J

N_XTALO_PCH N7 XTAL25_OUT
N_XTALI_PCH N6 XTAL25_IN

G16 CLKIN_GND0_N N_-CLK_GND
F16 CLKIN_GND0_P N_CLK_GND
R2 CLKOUT_DMI_N N_-CPUCLK <4>
T2 CLKOUT_DMI_P N_CPUCLK <4>
T3 CLKOUT_DP_N N_-DP_CLK <4>
T5 CLKOUT_DP_P N_DP_CLK <4>
W2 CLKOUT_DPNS_N N_-CK_DPCLK <4>
U2 CLKOUT_DPNS_P N_CK_DPCLK <4>
U6 CLKOUT_ITPXDP_N
U7 CLKOUT_ITPXDP_P
AA3 CLKOUT_PEG_A_N PA_-SRCCLK_3GIO <14>
AA2 CLKOUT_PEG_A_P PA_SRCCLK_3GIO <14>
AE6 CLKOUT_PEG_B_N
AE7 CLKOUT_PEG_B_P
AE10 CLKOUT_PCIE_N_0
AE11 CLKOUT_PCIE_P_0
AC6 CLKOUT_PCIE_N_1
AC7 CLKOUT_PCIE_P_1
AC11 CLKOUT_PCIE_N_2 LA_-SRCCLK_LAN <24>
AC10 CLKOUT_PCIE_P_2 LA_SRCCLK_LAN <24>
W11 CLKOUT_PCIE_N_3
W10 CLKOUT_PCIE_P_3
Y4 CLKOUT_PCIE_N_4
Y2 CLKOUT_PCIE_P_4
W7 CLKOUT_PCIE_N_5 PP_-PCIE_CLK <15>
W6 CLKOUT_PCIE_P_5 PP_PCIE_CLK <15>
AA7 CLKOUT_PCIE_N_6 G_-PBCLK <32>
AA6 CLKOUT_PCIE_P_6 G_PBCLK <32>
R6 CLKOUT_PCIE_N_7
R7 CLKOUT_PCIE_P_7

PCIXx16
8111F
PCIXx4
8892

DH82B85/S/[10HB1-030B85-20R]

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

PCH CLK PD

N_-CLK_GND NR42 8.2K/4
N_CLK_GND NR41 8.2K/4

Mount for integrated clock Generation Mode
N_PCHCLK14 NR118 8.2K/4

VGA DDC

VCC3
R146 2.2K/4/1
R147 2.2K/4/1
N_DDCDATA
N_DDCCLK
VCC NR35 1K/4/1 Q47 2N7002/SOT23/25pF/5
VCC NR36 1K/4/1 Q48 2N7002/SOT23/25pF/5
SOT23
VCC
R144 2.2K/4/1
R145 2.2K/4/1
VGADDCDATA
VGADDCCLK

VGA CONNECTOR

VGA
VGA_R
VGA_G
VGA_B
FUSEVCC_R2
BC63 0.1u/4/X7R/16V/K/X
VGADDCDATA
VGADDCCLK
N_GHSYNC
N_GVSYNC
VGA/BK/SC/RA/D/2/HR

VGA ESD

ESD3
VGADDCDATA
N_GHSYNC
VGADDCCLK
N_GVSYNC
VCC
C33 0.1u/4/X7R/16V/K
AZC099-04S/SOT23-6L

SS0P6_ESD

ESD4
VGA_R
VGA_G
VGA_B
VCC3
C40 0.1u/4/X7R/16V/K
AZC099-04S/SOT23-6L

VGA DDC

N_R
N_G
N_B
FB1 60/4/3A/S VGA_R
FB2 60/4/3A/S VGA_G
FB3 60/4/3A/S VGA_B
R152 75/4/1
R151 75/4/1
R150 75/4/1
C34 10p/4/NPO/50V/J
C35 10p/4/NPO/50V/J
C36 10p/4/NPO/50V/J
C37 C38 C39
22p/4/NPO/50V/J
Close to Filter

N_GVSYNC
N_GHSYNC
C31 100p/4/NPO/50V/J/X
C32 100p/4/NPO/50V/J/X

Gigabyte Technology

Title	PCH DISPLAY ,CLK BUFFER	
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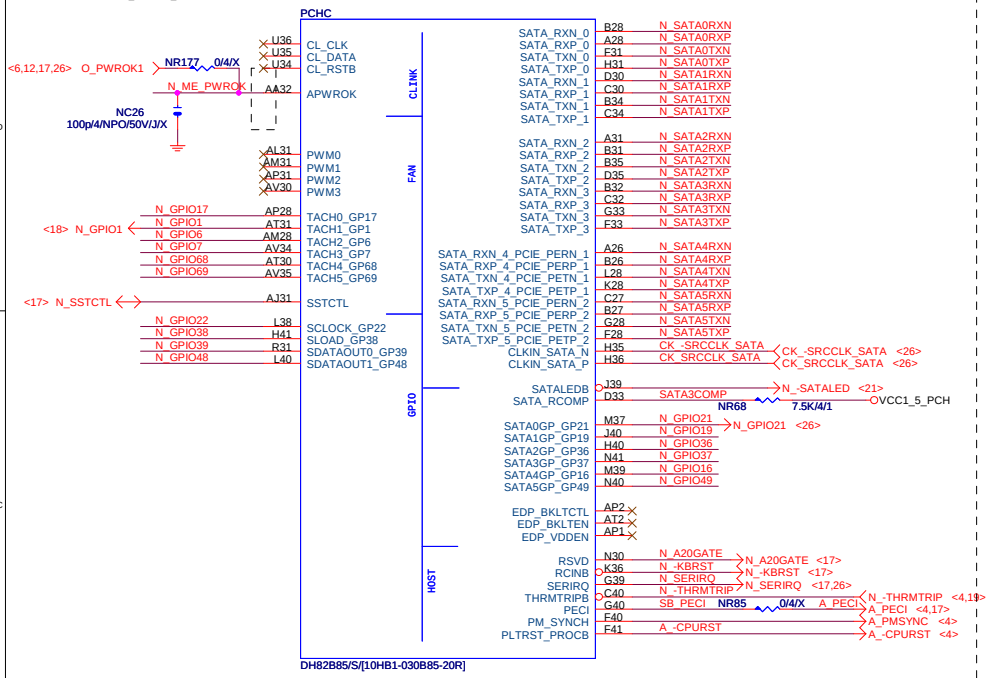
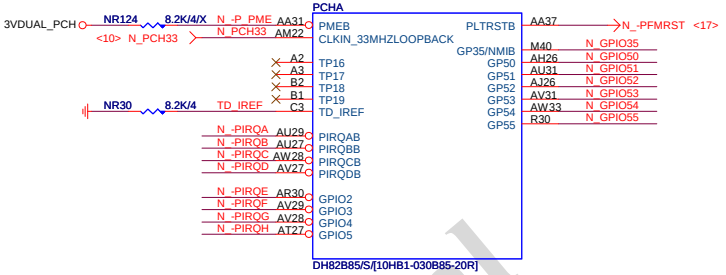
PCH (C)

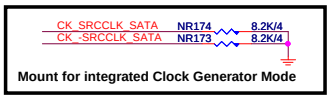
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



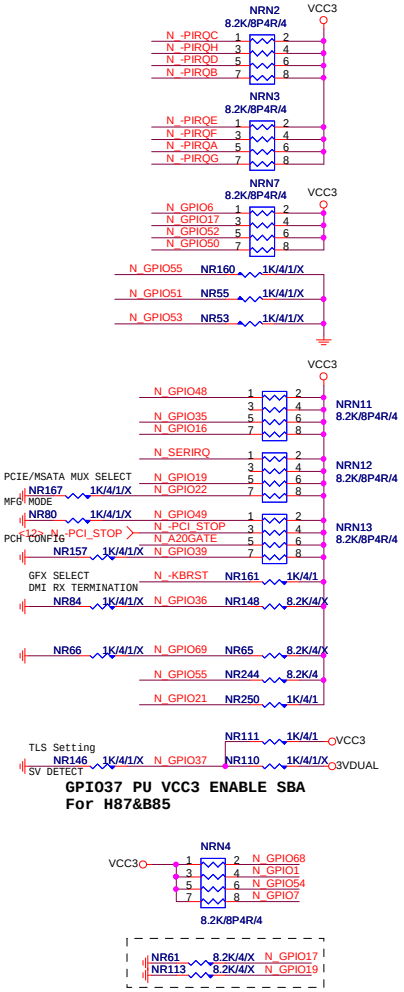
PCH (A)



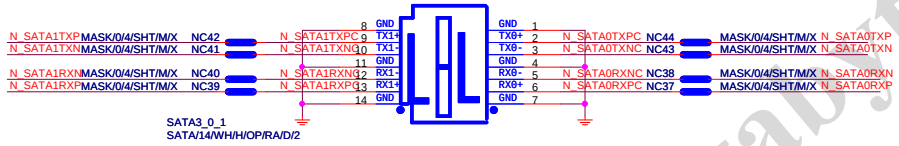
PCH CLK PD



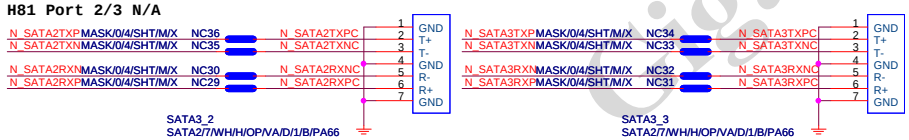
PCH PU/PD



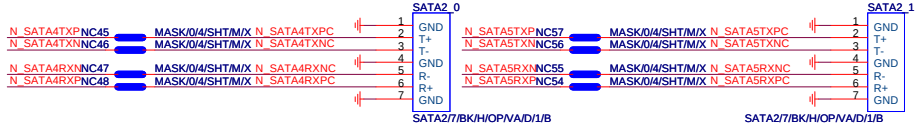
SATA CONNECTOR



H81 Port 2/3 N/A

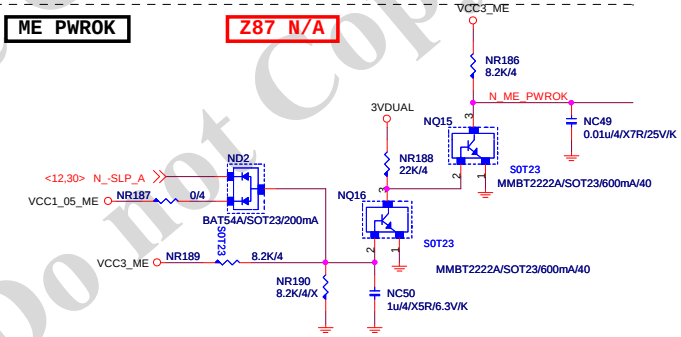


** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0

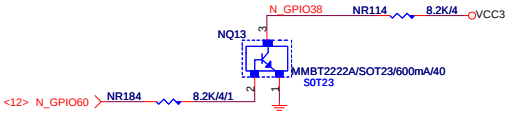


ME PWROK

Z87 N/A



GPIO38 Ctrl



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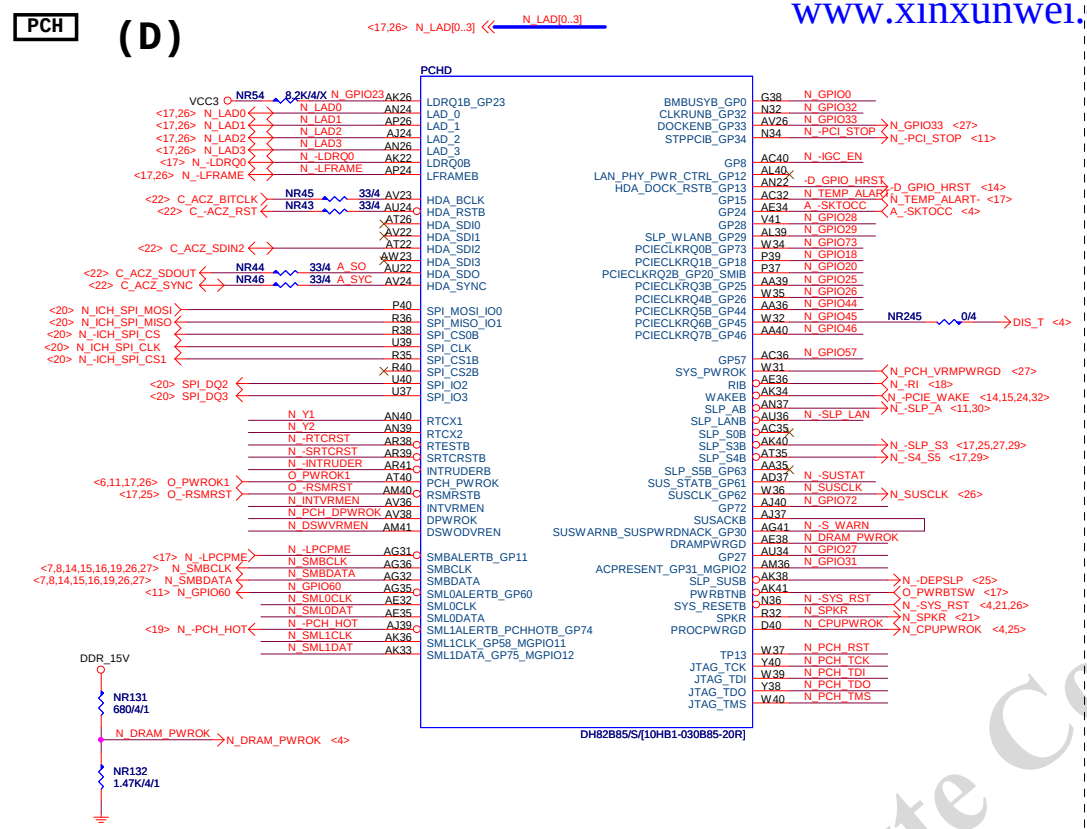
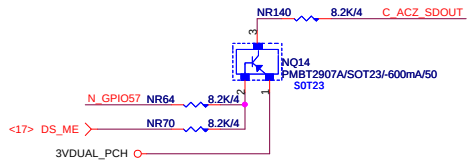
PCH (D)



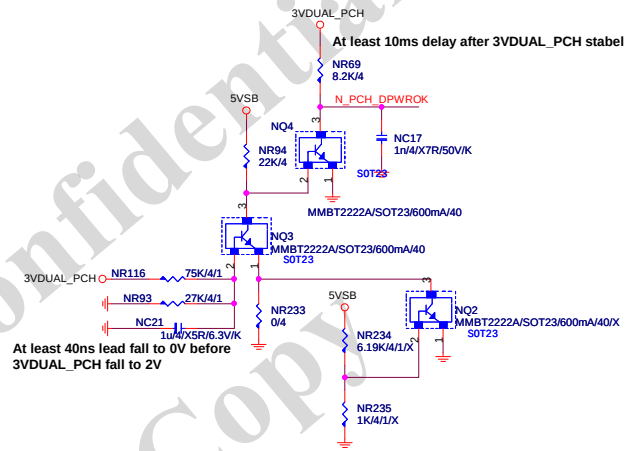
ACZ_SDOUT

C_ACZ_SDOUT : HI --> ME Enable
Lo --> ME Disable
HI:disable ME and override SOI Flash Access Permissions

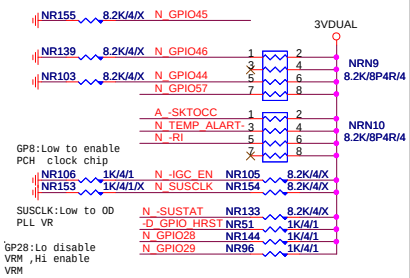


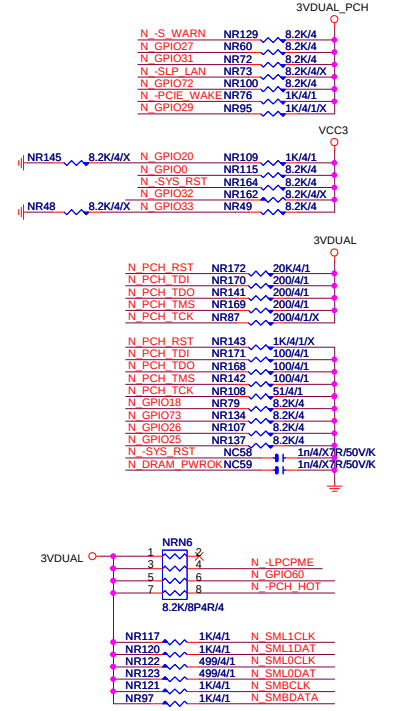
SPI OVERRIDE PROTECTION

PCH_DPWROK

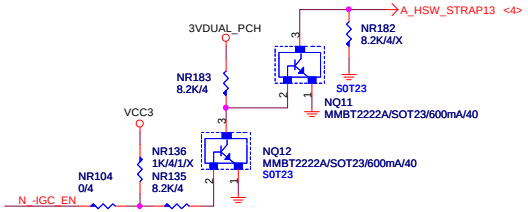


PCH PU/PD

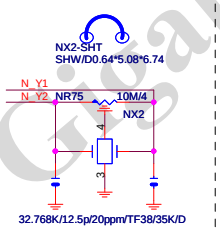




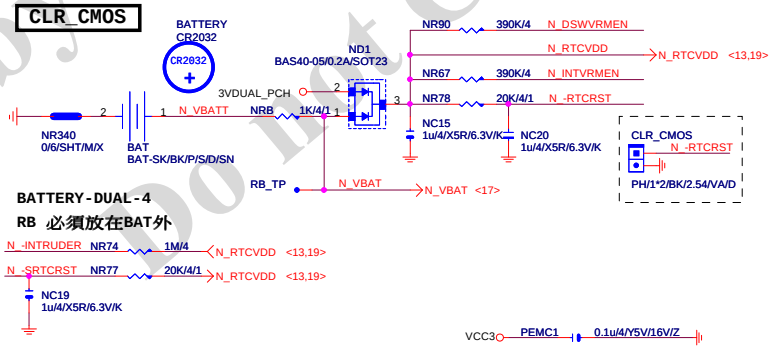
HSW_STRAP13



32.768KHZ



CLR_CMOS



Gigabyte Technology		
Title	PCH GPIO , CTRL , AUDIO	
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PCH (H)

PCHH

DH82B85/S/[10HB1-030B85-20R]

VCC1_5_PCH

VCC1_05_PCH

NBC33 1u/4/X5R/6.3V/K

NBC37 0.1u/4/X7R/16V/K

NBC35 1u/4/X5R/6.3V/K

NBC22 1u/4/X5R/6.3V/K

NBC38 0.1u/4/X7R/16V/K

NBC32 1u/4/X5R/6.3V/K

VCC1_05_ME

NBC12 1u/4/X5R/6.3V/K

NBC30 1u/4/X5R/6.3V/K

NBC43 0.1u/4/X7R/16V/K

NBC21 0.1u/4/X7R/16V/K

VCC3_DAC

NBC55 1u/4/X5R/6.3V/K

VCC3

VCC3_ME

3VDUAL

3VDUAL_PCH

N_RTCVDD <12,19>

NBC64 1u/4/X5R/6.3V/K

NBC62 0.1u/4/X7R/16V/K/X

V_PROC_IO

VCCIO2PCH

NR71 V_1P05_DSW_INT 5.1/4/1/1[10RC4-00510B-26R]

NTP2

NBC54 1u/4/X5R/6.3V/K

V_1P05_RTC_INT

V_1P5_INT

NTP3

NBC52 1u/4/X5R/6.3V/K

NBC51 0.1u/4/X7R/16V/K

NTP1

NBC47 0.1u/4/X7R/16V/K/X

NBC49 0.1u/4/X7R/16V/K

VCC3_DAC

CLOSE北橋(注意震盪水波紋)

3VDUAL

+12V

NQ17

NR185 8.2K/4

2N7002/SOT23/25pF/5

VCC3_DAC

NBC7 10u/6/X5R/6.3V/M

(3.3V/70mA+360uA)

VCC3_DAC NR13 0/6/X VCC3

3VDUAL_PCH

NQ9

3VDUAL_PCH

L1117LG/N/SOT223/1A

5VSB

NR176 301/4/1

NBC66 22u/8/X5R/6.3V/M

NBC68 1u/4/X5R/6.3V/K

NBC67 0.1u/4/X7R/16V/K

NR180 510/4/1

SHT PWR

NRN5 0/8P4R/4/X

VCC3_ME

VCC3

NRN1 0/8P4R/4/X

VCC1_05_ME

VCC1_05_PCH

CAP

VCC3_ME

3VDUAL_PCH

NBC58 1u/4/X5R/6.3V/K

NBC65 1u/4/X5R/6.3V/K

(3.3V)(X6)

VCC3

NBC24 10u/6/X5R/6.3V/M

NBC25 1u/4/X5R/6.3V/K

NBC26 1u/4/X5R/6.3V/K

NBC27 1u/4/X5R/6.3V/K

NBC20 1u/4/X5R/6.3V/K

NBC59 1u/4/X5R/6.3V/K

(1.05V)(X5)

VCC1_05_ME

NBC8 10u/6/X5R/6.3V/M

NBC10 1u/4/X5R/6.3V/K

NBC14 0.1u/4/X7R/16V/K

NBC11 1u/4/X5R/6.3V/K

NBC13 1u/4/X5R/6.3V/K

(1.05V)(X6)

VCC1_05_PCH

NBC39 10u/6/X5R/6.3V/M

NBC40 1u/4/X5R/6.3V/K

NBC41 0.1u/4/X7R/16V/K

NBC42 1u/4/X5R/6.3V/K

SNBC1 1u/4/X5R/6.3V/K

SNBC2 1u/4/X5R/6.3V/K

(1.05V)(X2)

VCCIO2PCH

NBC56 1u/4/X5R/6.3V/K

NBC57 0.1u/4/X7R/16V/K

(3.3V)(X2)

3VDUAL

NBC60 1u/4/X5R/6.3V/K

NBC63 0.1u/4/X7R/16V/K

(1.05V)(X10)

VCC1_5_PCH

NBC16 10u/6/X5R/6.3V/M

NBC29 10u/6/X5R/6.3V/M

NBC50 10u/6/X5R/6.3V/M

NBC53 10u/6/X5R/6.3V/M

NBC19 1u/4/X5R/6.3V/K

NBC23 0.1u/4/X7R/16V/K

NBC28 1u/4/X5R/6.3V/K

NBC44 1u/4/X5R/6.3V/K

NBC46 0.1u/4/X7R/16V/K

NBC48 1u/4/X5R/6.3V/K

PCH (I)

PCHI

DH82B85/S/[10HB1-030B85-20R]

Gigabyte Technology	
Title	PCH PWR ,GND
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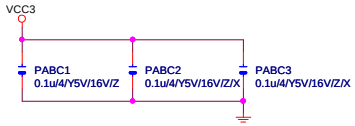
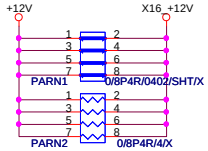
PCIEX16 CAP



PCIEX16 PROTECT SHT



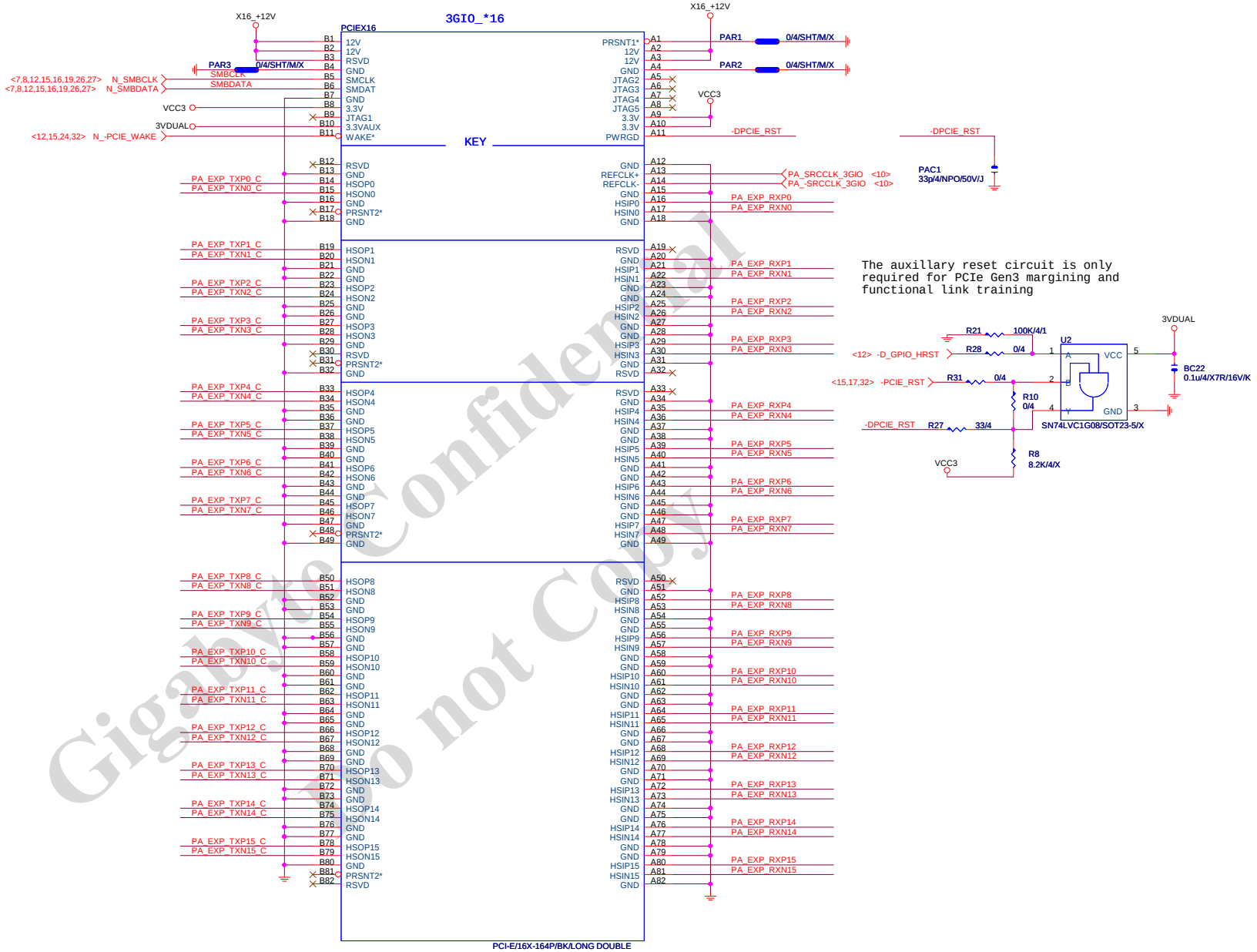
PCIEX16 AC CAP

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

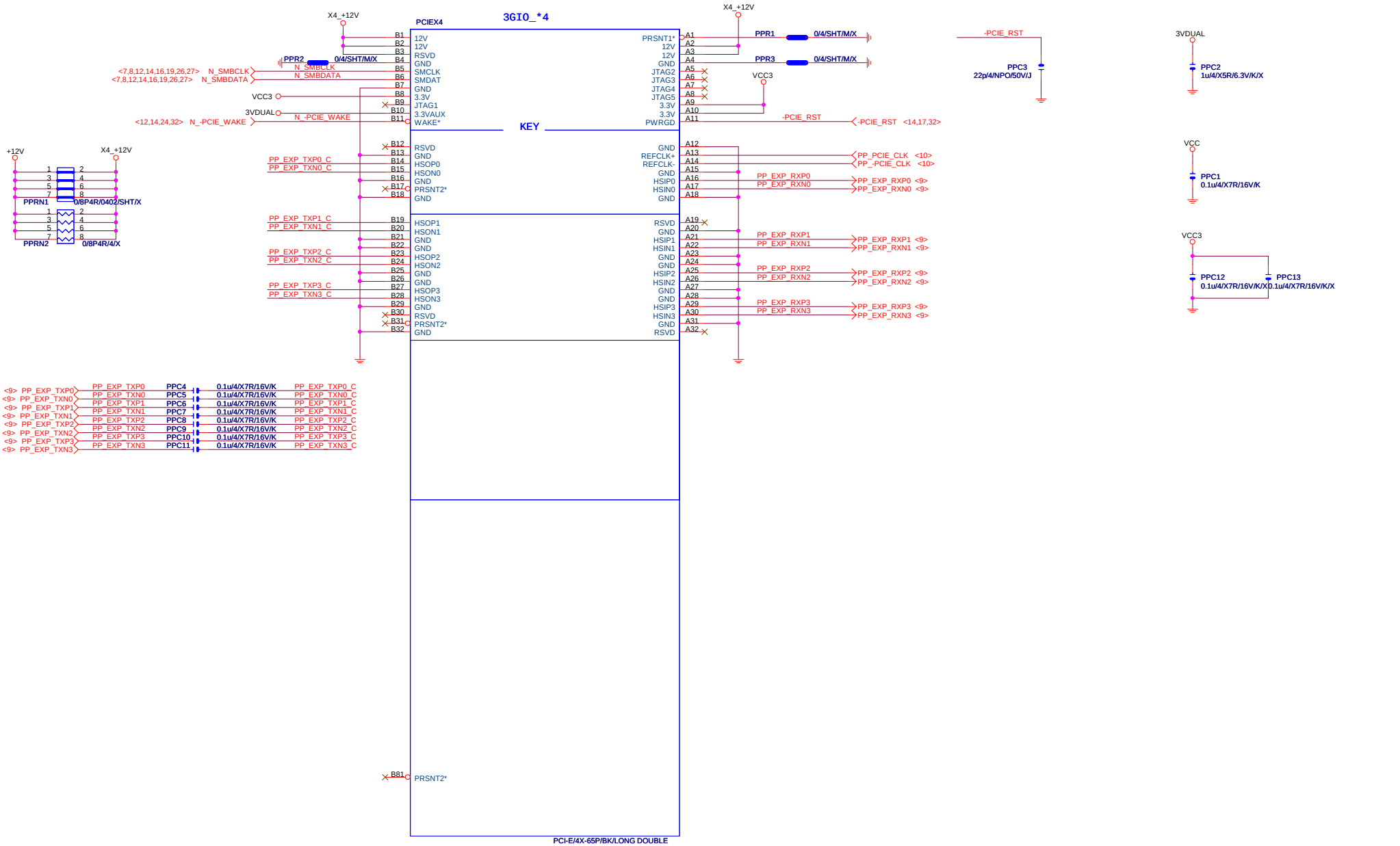
PCIESLOT-164DN-P



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

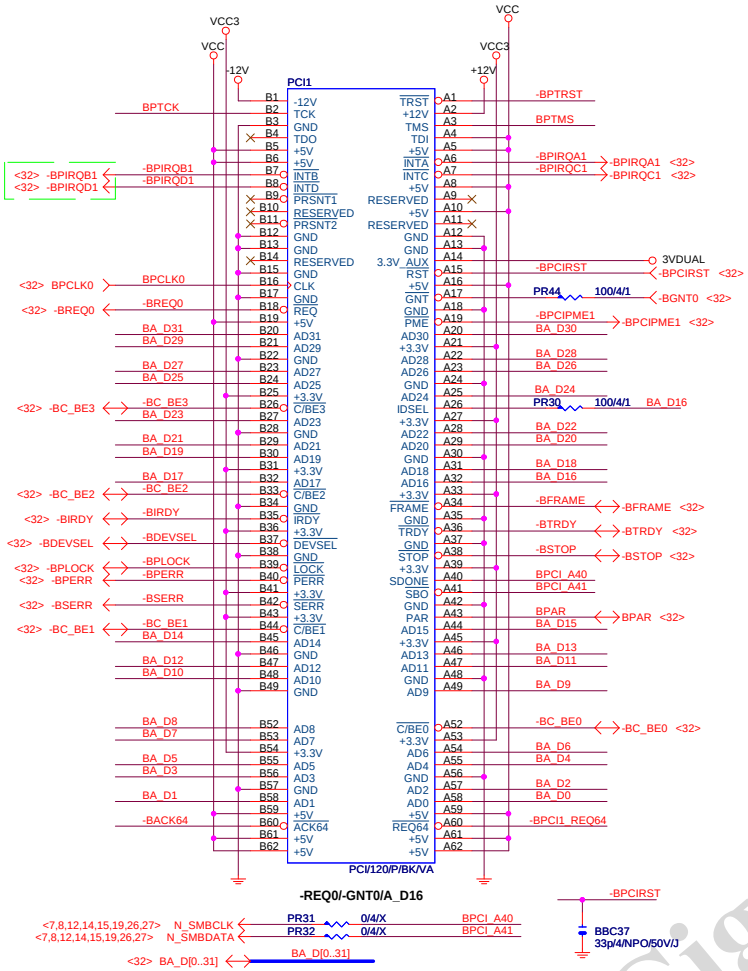
Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-B85M-D3H	Rev: 1.2
Date: Thursday, January 08, 2015	Sheet 14 of 32	

PCIEX4 SLOT

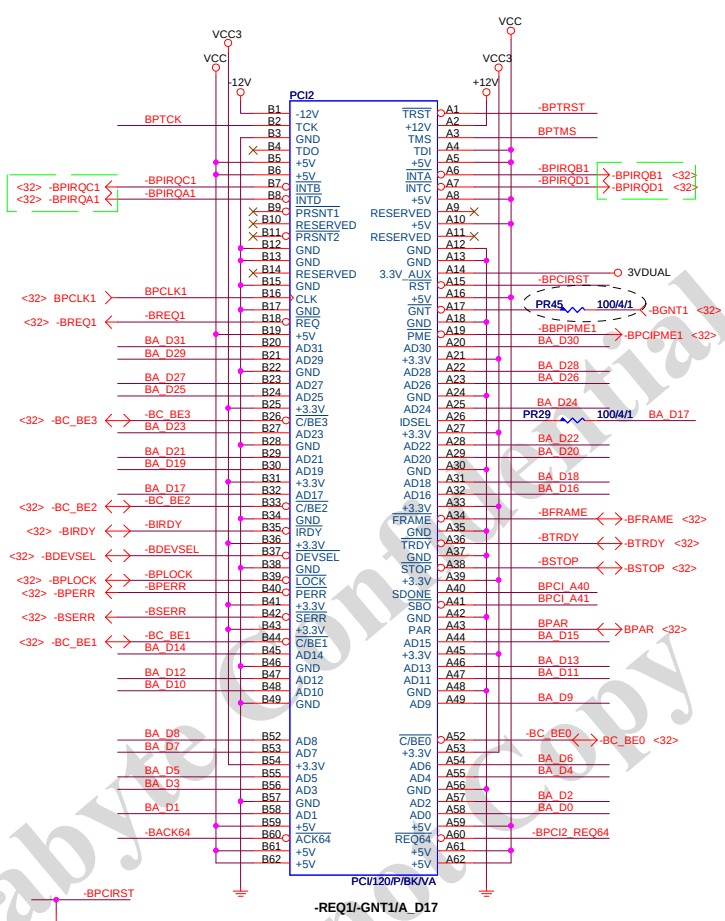


Gigabyte Technology		
Title	PCI EXPRESS X 1 PORT	
Size: Custom	Document Number: GA-B85M-D3H	Rev: 1.2
Date: Thursday, January 08, 2015	Sheet 15 of 32	

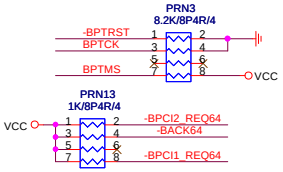
PCI SLOT 1



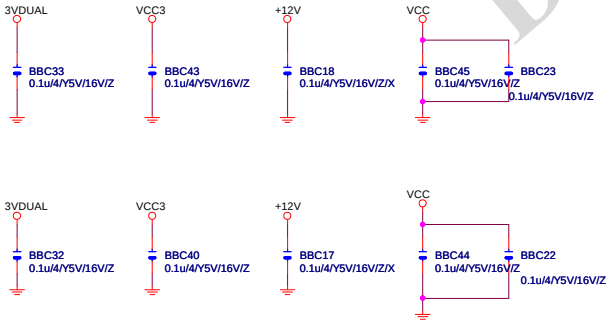
PCI SLOT 2



PCI PU



PCI CAP



Gigabyte Technology			
Title: PCI SLOT 1&2			
Size: Custom	Document Number: GA-B85M-D3H		Rev: 1.2
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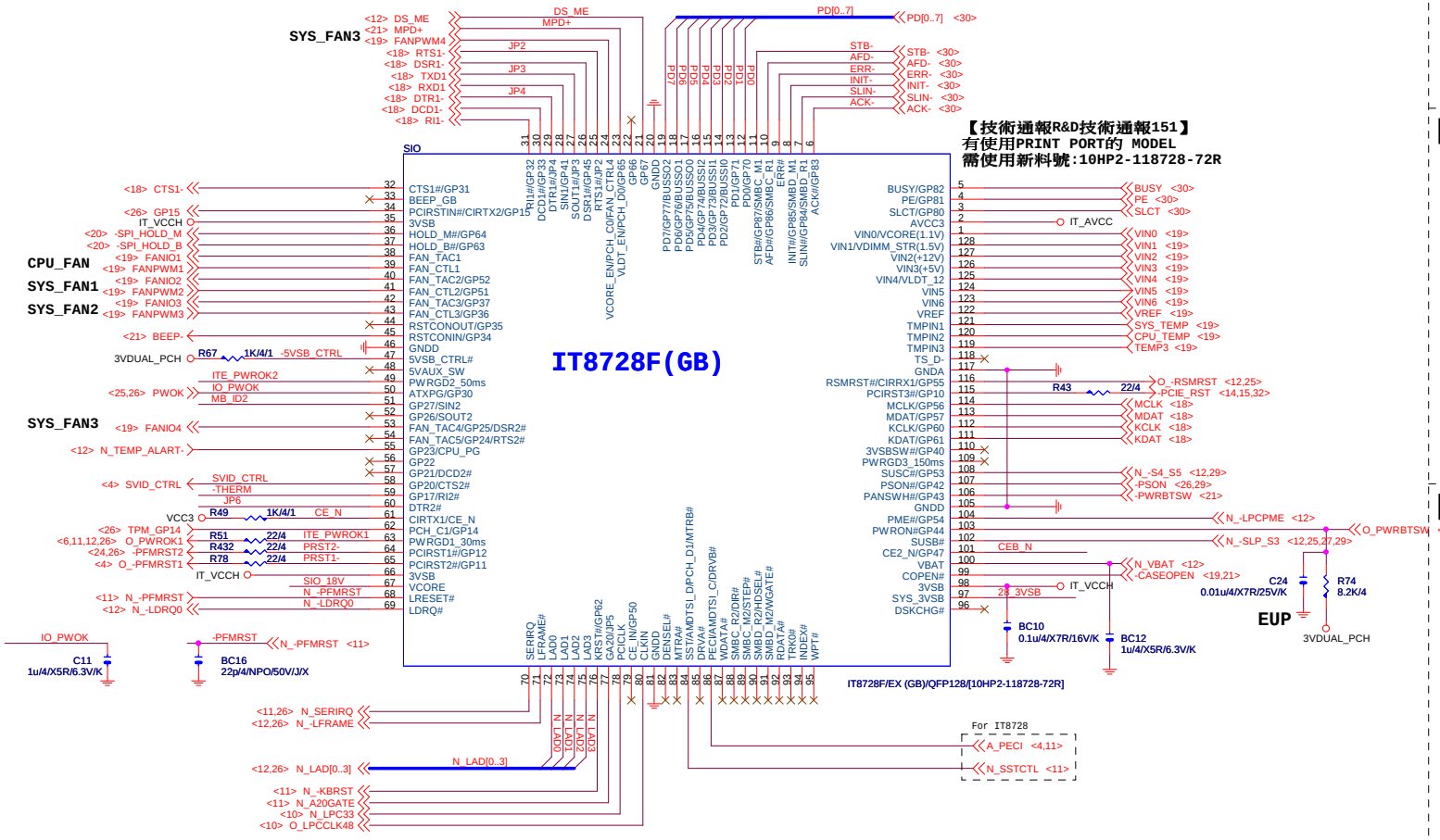
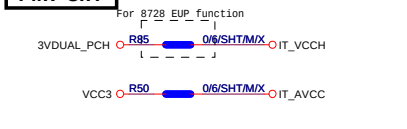
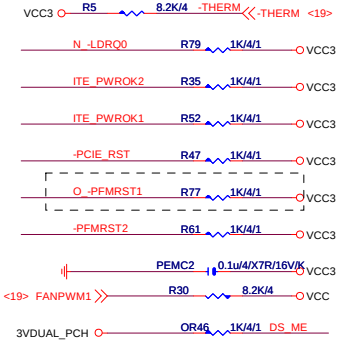
SIO IT8728F



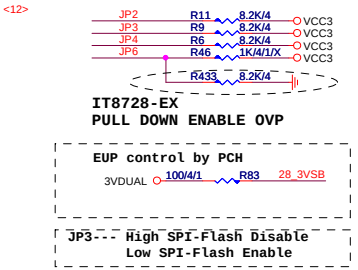
PWR SHT



SIO PU



SIO STRAP

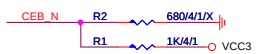


MB ID

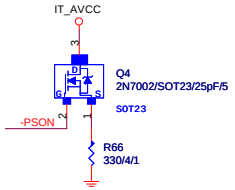
IT8728F NOTE

	IT8728
PIN121	VCORE_EN/PCH_C0
PIN120	VLDT_EN/PCH_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTSI_D/MTRB#/PCH_D1
PIN55	PECI/AMDTSI_C/DRVB#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2(VCC5)
PIN96	VIN1(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VIN0/VCORE(1.1V)/NC

DUAL BIOS OPT STRAP



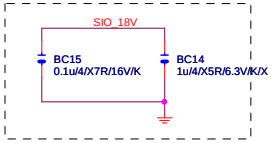
Power leakage



For IT8721 Power leakage

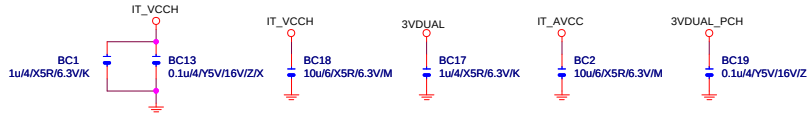
SIO_18V

internal power pin, max 22nF cap



FOR LOW TEMP POWER ON INTO TEST MODE ISSUE

SIO CAP



Gigabyte Technology	
Title	ITE 8728 LPC IO
Size: Custom	Document Number: GA-B85M-D3H
Rev	1.2
Date: Thursday, January 08, 2015	Sheet 17 of 32

COM

AU1 GD75232/TSSOP20

<17> RI1- 19 RY1 RA1 2 NRIA-
<17> CTS1- 18 RY2 RA2 3 NCTSA-
<17> DSR1- 17 RY3 RA3 4 NDSRA-
<17> RTS1- 16 DA1 DY1 5 NRTSA-
<17> DTR1- 15 DA2 DY2 6 NDTRA-
<17> RXD1 14 RY4 RA4 7 NSINA
<17> TXD1 13 DA3 DY3 8 NSOUTA
<17> DCD1- 12 RY5 RA5 9 NDCDA-
-12V 11 GND 5V 20 VCC
10 -12V 12V 1 +12V

ABC2 0.1u/4/Y5V/16V/Z/X
ABC1 0.1u/4/Y5V/16V/Z

ACN2 180p/8P4C/6/NPO/50V/K
NDTRA- 7 8
NSINA 5 6
NSOUTA 3 4
NDCDA- 1 2

ACN1 180p/8P4C/6/NPO/50V/K
NRIA- 7 8
NCTSA- 5 6
NDSRA- 3 4
NRTSA- 1 2

COM PH/2*5K10/WH/2.54/VA/D
NDCDA- 1 2 NSINA
NSOUTA 3 4 NDTRA-
5 6 NDSRA-
NRTSA- 7 8 NCTSA-
NRIA- 9 10

PIN2X5-CUT10-COM

COM RI

-RI
N_-RI <12>
Q7 MMBT2222A/SOT23/600mA/40 S0T23
NRIA- R90 75K/4/1
R91 8.2K/4

KB/MS

FUSEVCC_R2 FUSEVCC_R3
UBC7 0.1u/4/Y5V/16V/Z/X
UBC8 0.1u/4/Y5V/16V/Z/X
KB_MS_USB
<9> N_-USBP10 U5 U1 N_-USBP11 <9>
<9> N_+USBP10 U6 U2 N_+USBP11 <9>
U7 U3
AGND1 U8 U4 AGND1
USB
KBDATA 1
MSDATA 2
KBCLK 5
MSCLK 6
KB
4 FUSEVCC_R2
3 AGND1
G1 G2 G3 G4
KB/USB/A/PC99(DUAL)/GF/2/RA/D
AGND1

FUSEVCC_R2 RN1 8.2K/8P4R/4
1 2 MCLK
3 4 MDAT
5 6 KDAT
7 8 KCLK

FOR鹽化短路

<17> KCLK KCLK R58 82/4 KBCLK
<17> KDAT KDAT R59 82/4 KBDATA
<17> MDAT MDAT R57 82/4 MSDATA
<17> MCLK MCLK R56 82/4 MSCLK
1 3 5 7
CN1 180p/8P4C/6/NPO/50V/K
2 4 6 8
AGND1

USB2.0 ESD

ESD2 AZC099-04S/SOT23-6L
N_-USBP10 1 6 N_+USBP10
2 5 FUSEVCC_R2
N_+USBP11 3 4 N_-USBP11

GNDR2 0/4/SHT/M/X
AGND1

USB2.0 PWR

FUSE-0805

5VDUAL F3 1 2 SPR-P200T/6V/8/S FUSEVCC_R2
F4 1 2 SPR-P200T/6V/8/S FUSEVCC_R3

Close to connector

USB30_20

R_USB30 USB3.0/2.0 USB/18P/BU/OS/RA/D/2/1U/SB

FUSEVCC_USB3_R3 BC5 0.1u/4/Y5V/16V/Z/X
<9> N_-USBP4 U1 VBUS VBUS U10
<9> N_+USBP4 U2 D- D- U11 N_-USBP5 <9>
U3 D+ D+ U12 N_+USBP5 <9>
U4 GND GND U13
<9> PCH_USB3_RXN4 U5 SSRX- SSRX- U14 PCH_USB3_RXN5 <9>
<9> PCH_USB3_RXP4 U6 SSRX+ SSRX+ U15 PCH_USB3_RXP5 <9>
U7 GND GND U16
<9> PCH_USB3_TXN4 UBC9 PCH_USB3_TXN4C U8 SSTX- SSTX- U17 PCH_USB3_TXN5C UBC11 PCH_USB3_TXN5 <9>
<9> PCH_USB3_TXP4 UBC10 PCH_USB3_TXP4C U9 SSTX+ SSTX+ U18 PCH_USB3_TXP5C UBC12 PCH_USB3_TXP5 <9>
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K
AGND AGND AGND AGND
G1 G2 G3 G4
BC6 0.1u/4/Y5V/16V/Z/X FUSEVCC_USB3_R4
0.1u/4/X7R/16V/K
0.1u/4/X7R/16V/K

USB30_20 PWR

Polyswitch-1206

F12 1 2 SMD1206P350SLR/6V/S FUSEVCC_USB3_R4
5VDUAL F11 1 2 SMD1206P350SLR/6V/S FUSEVCC_USB3_R3
1
UEC6 100u/OS/D/6.3V/66/A/35m/[11CO2-661000-09R]

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

-USBOC_R

UD7 S0T23 FUSEVCC_R3 FUSEVCC_R2
BAT54/SOT23/200mA
UD6 FUSEVCC_USB_R6 FUSEVCC_USB_R5
BAT54/SOT23/200mA
UD5 FUSEVCC_USB3_R4 FUSEVCC_USB3_R3
BAT54A/SOT23/200mA

UR3 8.2K/4
5VDUAL N_-USBOC_R N_-USBOC_R <9>
UR4 15K/4/1

USB30_20 ESD PROCTECT

USB3.0 ESD

PCH_USB3_TXN5C PCH_USB3_TXP4C
PCH_USB3_TXP5C PCH_USB3_TXN4C
UESD5 AZ1045-04F/MSOP10
PCH_USB3_TXP5C PCH_USB3_TXN4C
PCH_USB3_TXN5C PCH_USB3_TXP4C
PCH_USB3_RXN4 PCH_USB3_RXP5
PCH_USB3_RXP4 PCH_USB3_RXN5
UESD6 AZ1045-04F/MSOP10
PCH_USB3_RXP4 PCH_USB3_RXN5
PCH_USB3_RXN4 PCH_USB3_RXP5

USB2.0 ESD

ESD1 AZC099-04S/SOT23-6L
N_-USBP4 1 6 N_+USBP4
2 5 FUSEVCC_USB3_R3
N_+USBP5 3 4 N_-USBP5

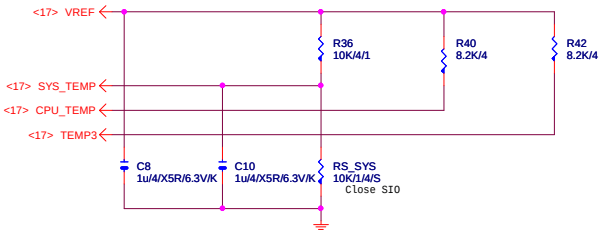
USB POWER PROTECT

UAD5 S0T23 BAT54A/SOT23/200mA
<11> N_GPIO1 3 1 N_-USBOC_F N_-USBOC_F <9,21>
2 N_-USBOC_R

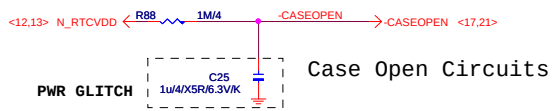
Gigabyte Technology

Title: COM,-RI,KB_USB,USB_ESATA,-PROCHOT
Size: Custom | Document Number: GA-B85M-D3H | Rev: 1.2
Date: Thursday, January 08, 2015 | Sheet 18 of 32

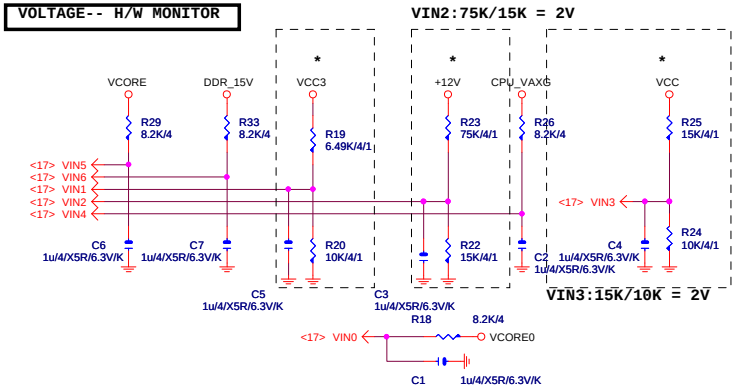
TEMP H/W MONITOR



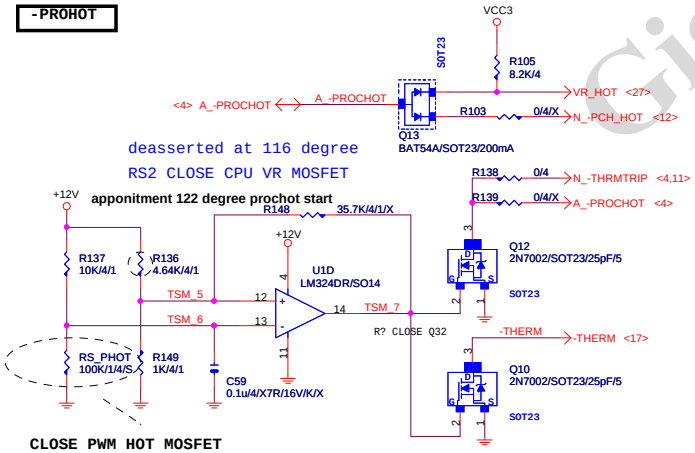
CASE OPEN



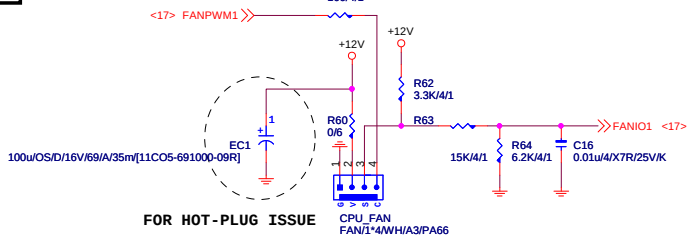
VOLTAGE-- H/W MONITOR



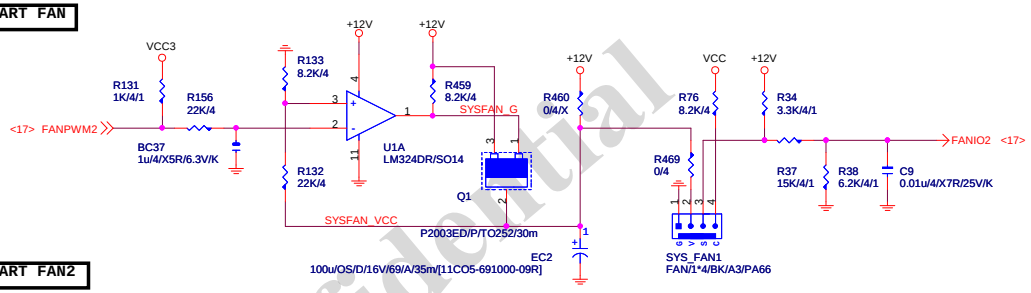
-PROHOT



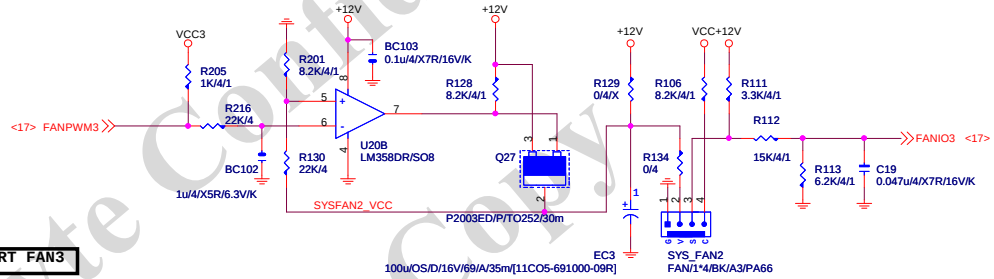
CPU SMART FAN



SYS SMART FAN



SYS SMART FAN2



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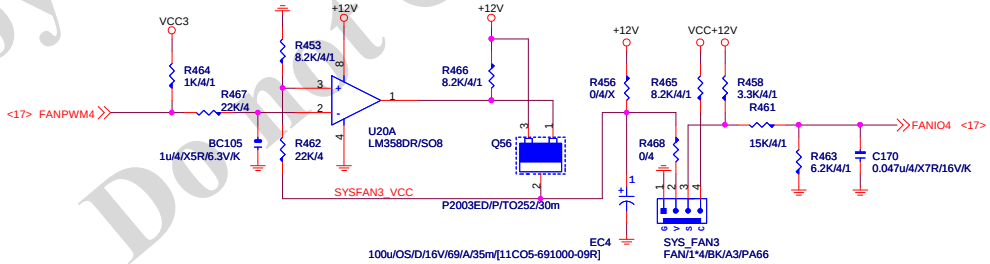
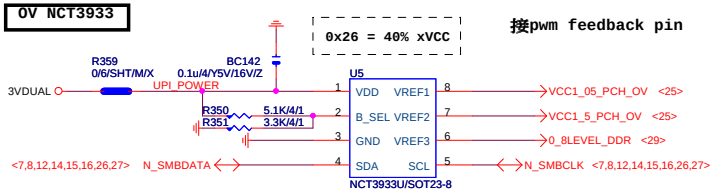
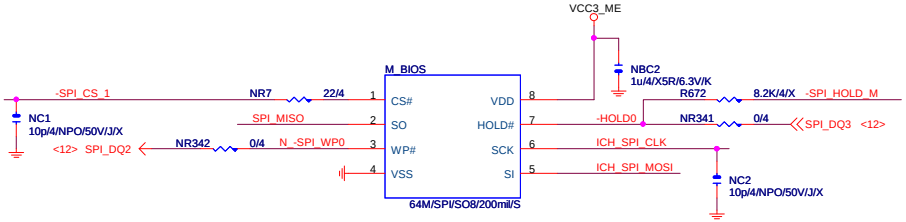
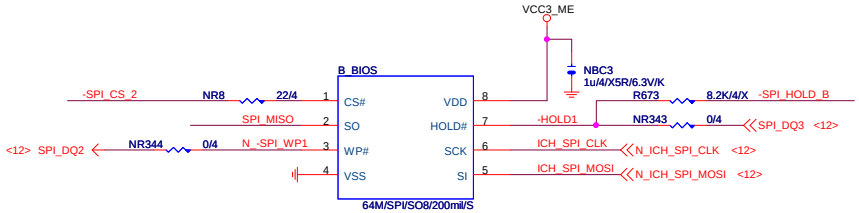


OV NCT3933



Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-B85M-D3H	Rev: 1.2
Date: Thursday, January 08, 2015	Sheet 19 of 32	

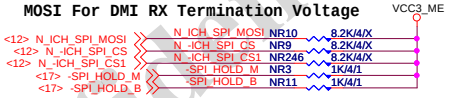


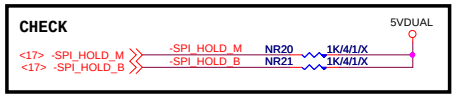


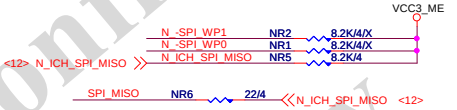
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

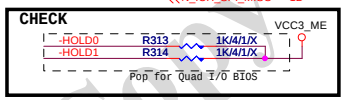
1 means floating
0 means PD 1K

MOSI For DMI RX Termination Voltage

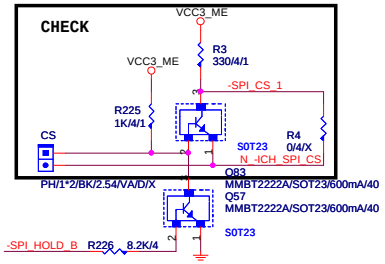


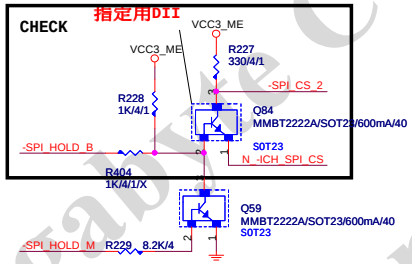






Dual BIOS CS connect circuit update





Gigabyte Technology			
Title: DUAL BIOS			
Size: Custom	Document Number: GA-B85M-D3H		Rev: 1.2
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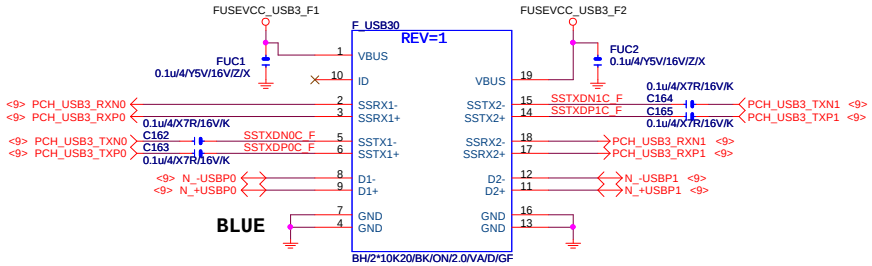
F_USB30

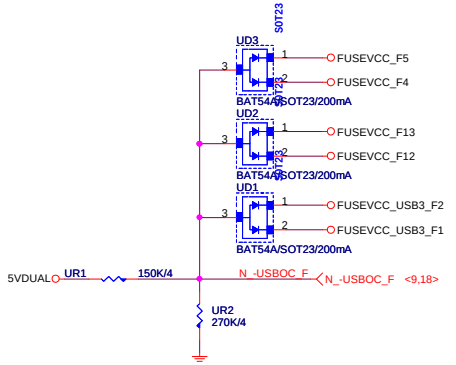


F_USB30 PWR

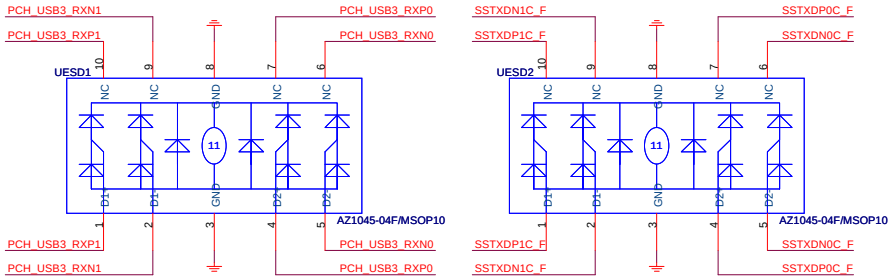
Polyswitch-1206

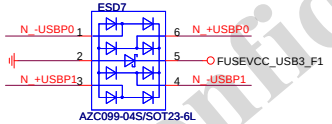
USB3.0 1Port - 1Fuse (3.5A)

-USBOC_F



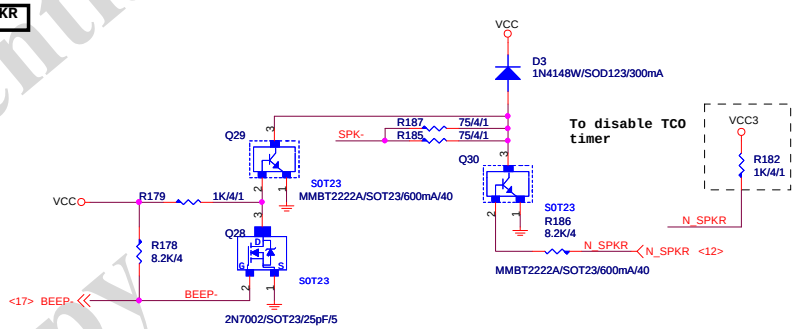
F_USB30 ESD PROTECT



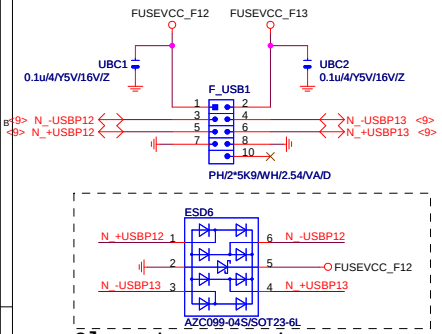


Close to connector

SPKR

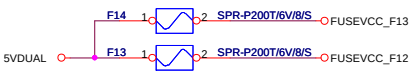


FRONT USB1

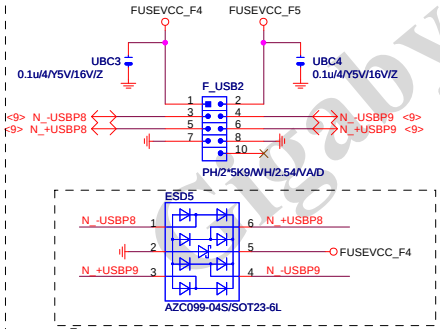


Close to connector

FUSE-0805

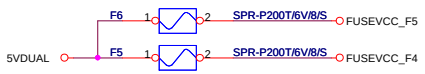


FRONT USB2

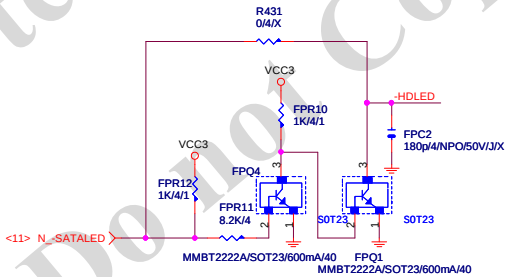


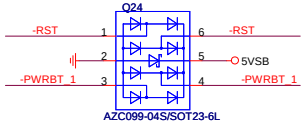
Close to connector

FUSE-0805

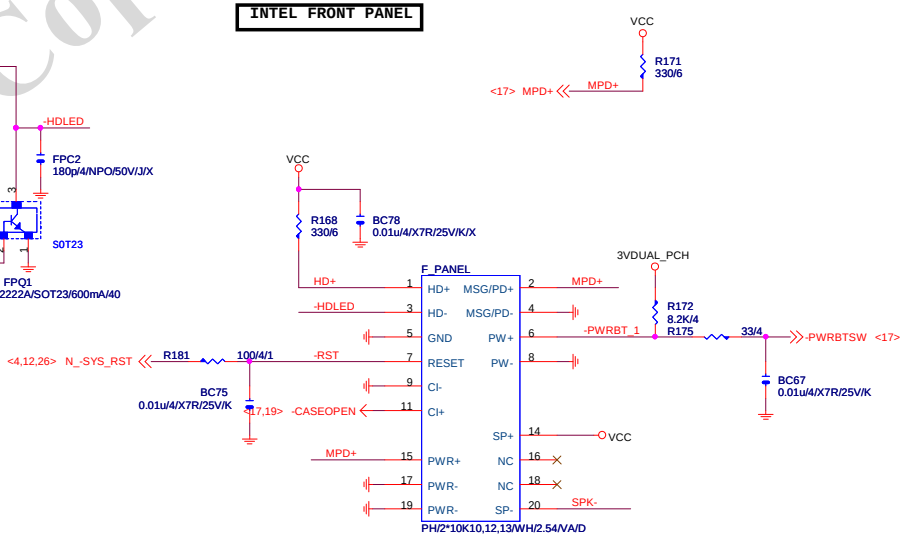


SATA LED





INTEL FRONT PANEL



Gigabyte Technology			
Title: FP,F_USB,USB PWR,SPKR,SATA LED			
Size: Custom	Document Number: GA-B85M-D3H		Rev: 1.2
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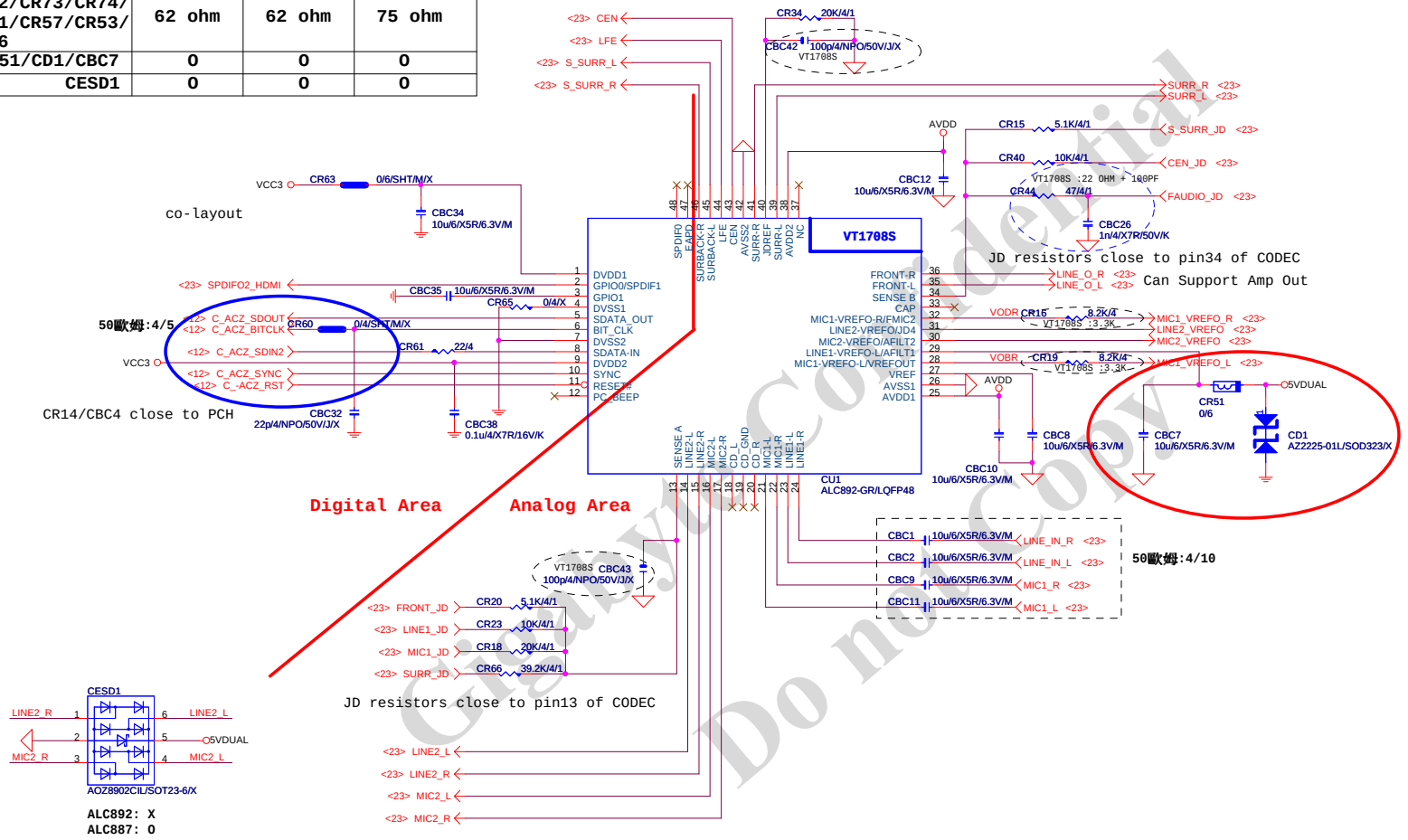
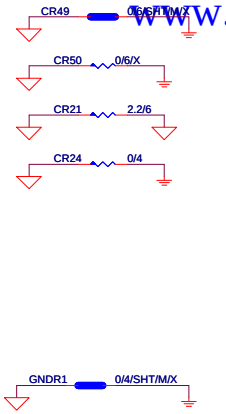
AZALIA CODEC **ALC892/ALC887-VD2/VT1708-CE Colay**

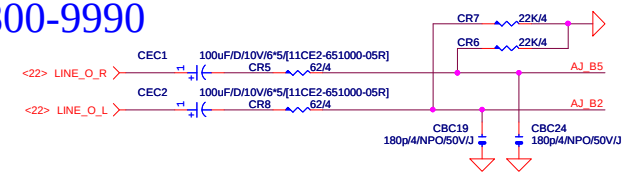
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	0	0	0
CESD1	0	0	0



Gigabyte Technology			
Title: HD AUDIO ALC887B-VD2/VT1708S/VT2021			
Size: Custom	Document Number: GA-B85M-D3H		Rev: 1.2
Date: Thursday, January 08, 2015		Sheet 22 of 32	

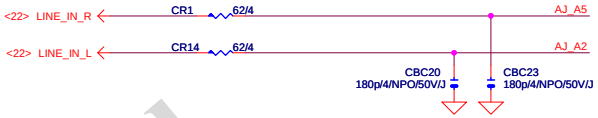


LINE-OUT



Only reserved for ALC888

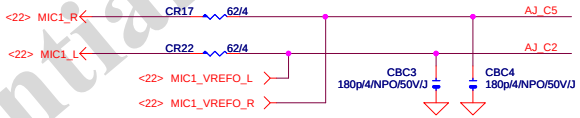
LINE-IN



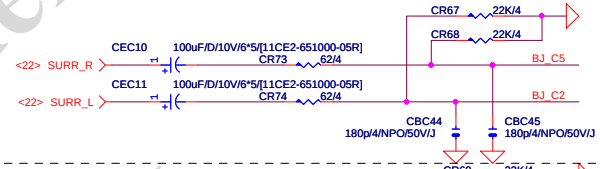
Verify MIC function in LINE-in

For 889A/888

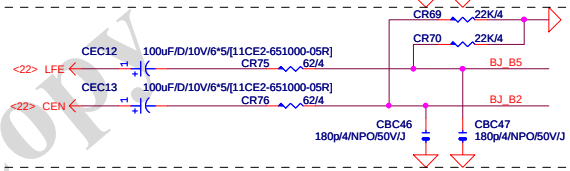
MIC-IN



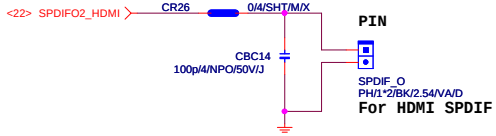
SURROUND



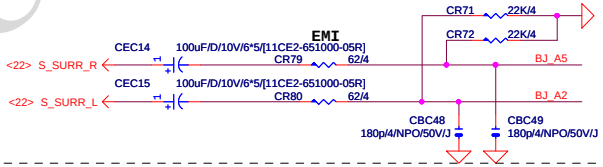
CEN/LFE



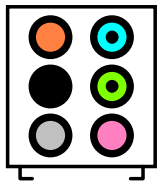
SPDIF_OUT



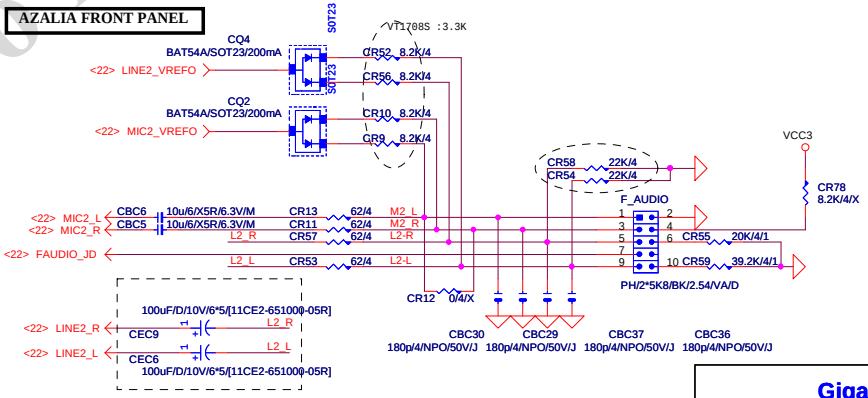
SURR BACK



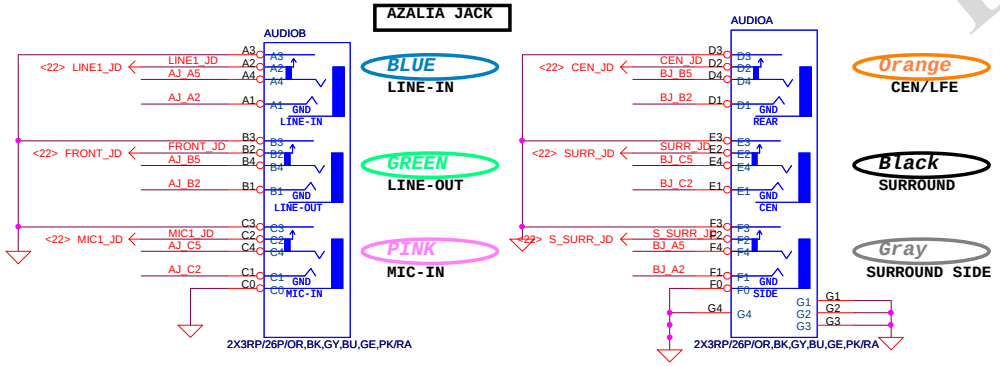
AZALIA JACK



AZALIA FRONT PANEL



AZALIA JACK



Gigabyte Technology

Title: AUDIO JACK

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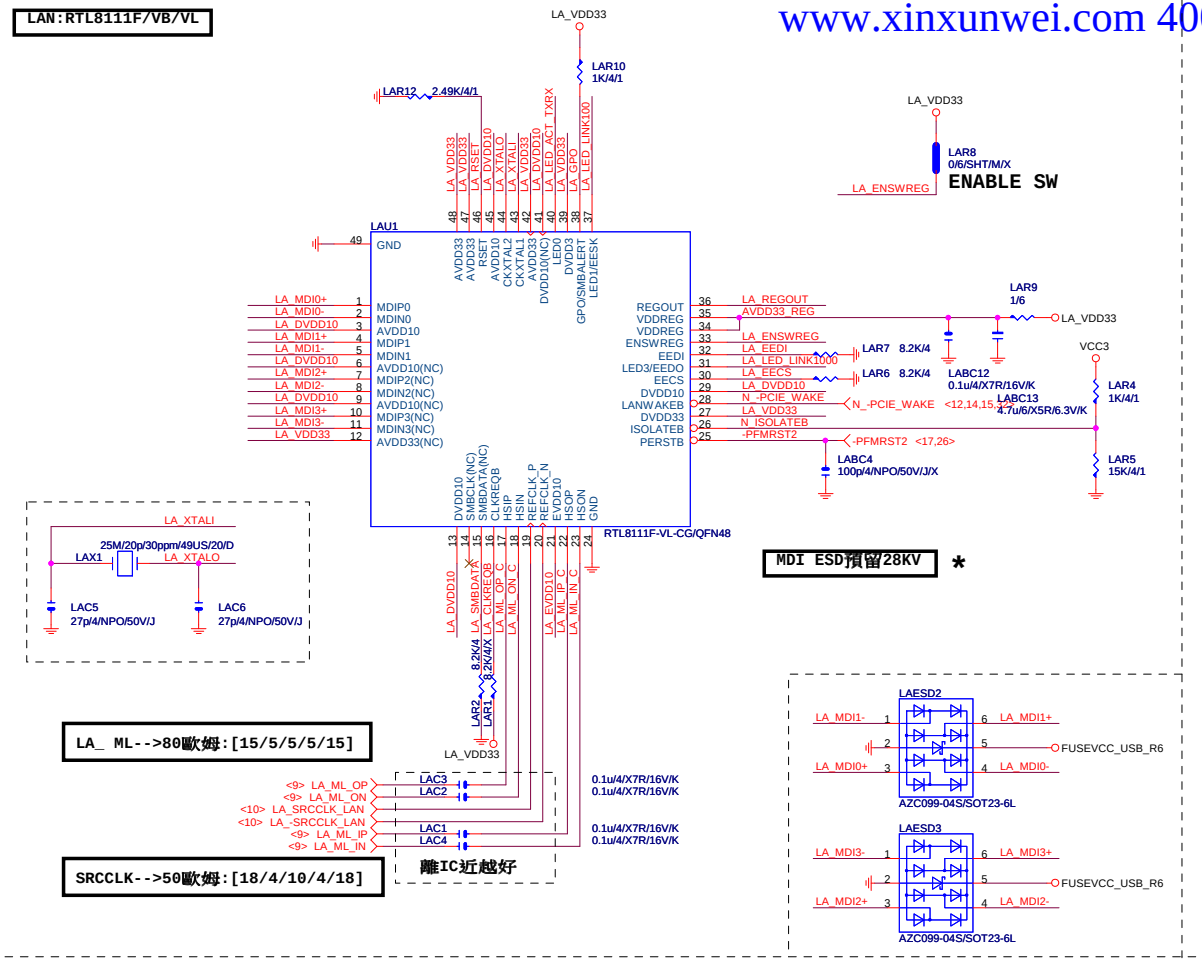
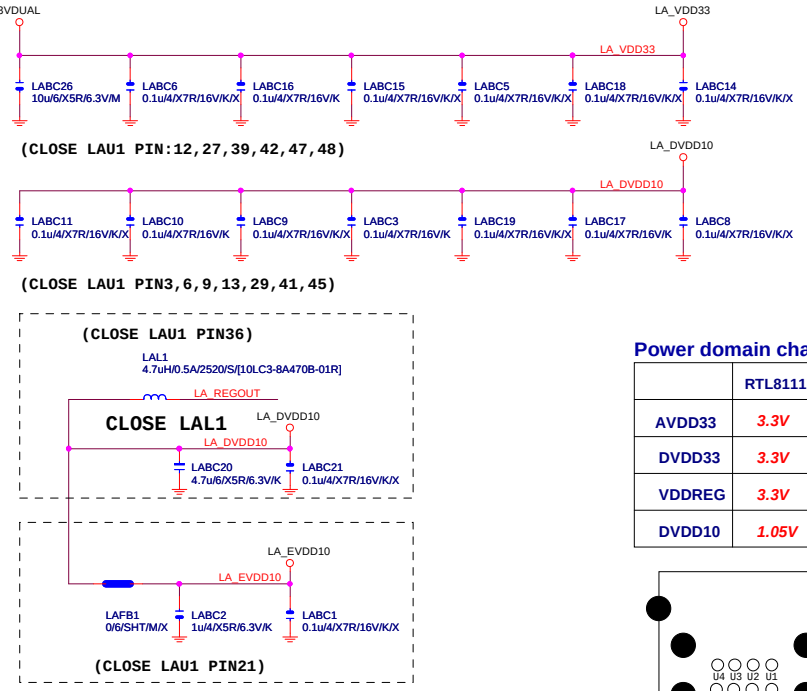
LAN:RTL8111F/VB/VL

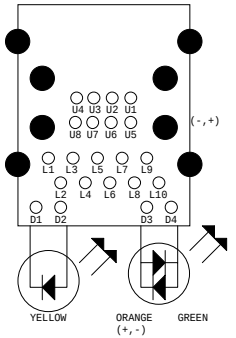


LAN POWER

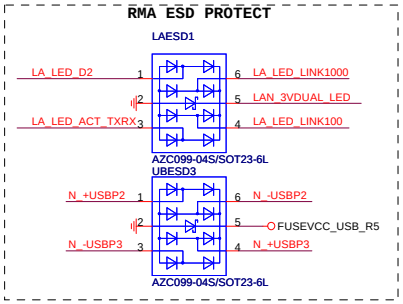


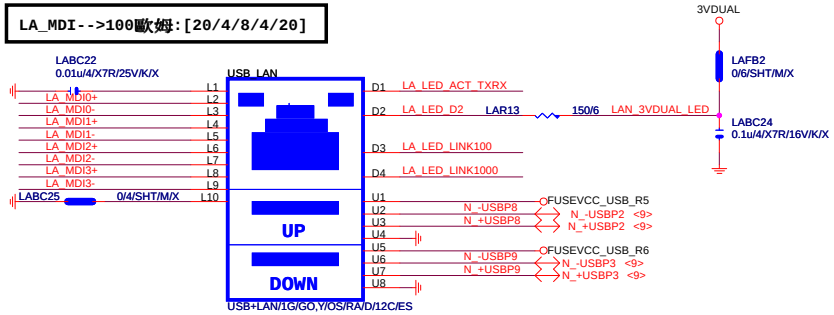
Power domain chart

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

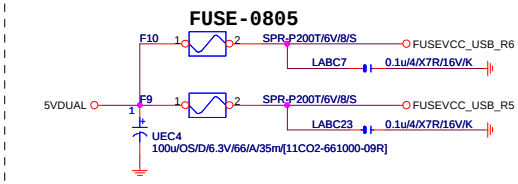


USB_LAN CONNECTOR



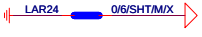


USB X3 POWER



EMI SHORT PAD

PS:視EMI需求



料號	規格	廠商
11NR6-702009-0ER 1G	LAN (12core)	UDE
11NR6-702009-91R 1G	LAN(8 core)	FOXCONN
11NR6-702009-92R 1G	LAN(8 core)	UDE
11NR6-702009-11R 1G	LAN(12core/RED)	UDE
11NR6-702009-12R 1G	LAN(8 core/RED)	FOXCONN

注意:LAN LED PROTECT:(CO-LAYOUT)
1.ESD(6PIN):AOZ8902CIL/SOT23-6(DEFAULT)
2.SURGE(5PIN):AZ2025-04S/SOT23-5L

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

USB_LAN BOM區分:

1.(紅色/12CORE/三倍):USB+LAN/1G/GO,Y/OS/RA/D/1/RED
2.(黑色/12CORE):USB+LAN/1G/GO,Y/OS/RA/D/1
3.(黑色/8CORE):USB+LAN/1G/GO,Y/OS/RA/D/8C

Gigabyte Technology

Title: Realtek RTL8111G

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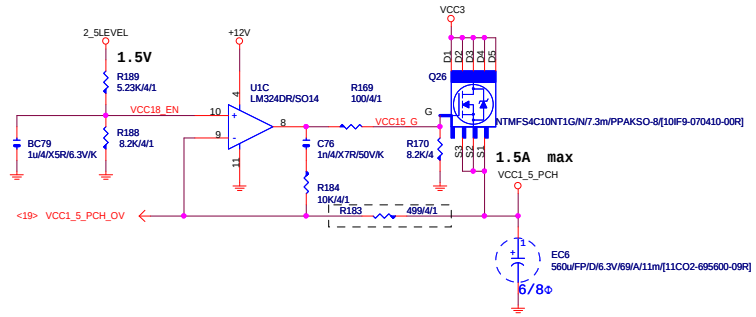
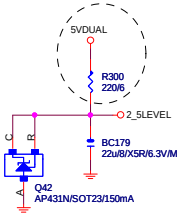
VCC1_8_PCH

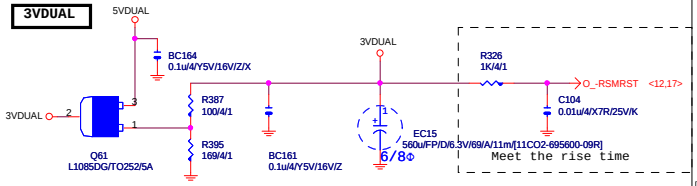


2_5LEVEL

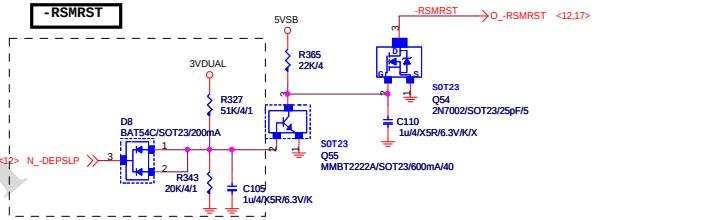
ERP



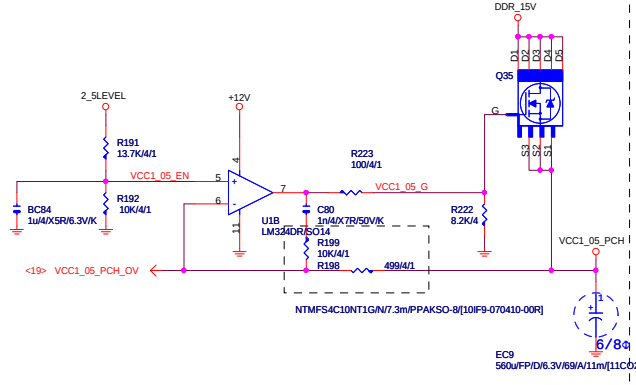
3VDUAL



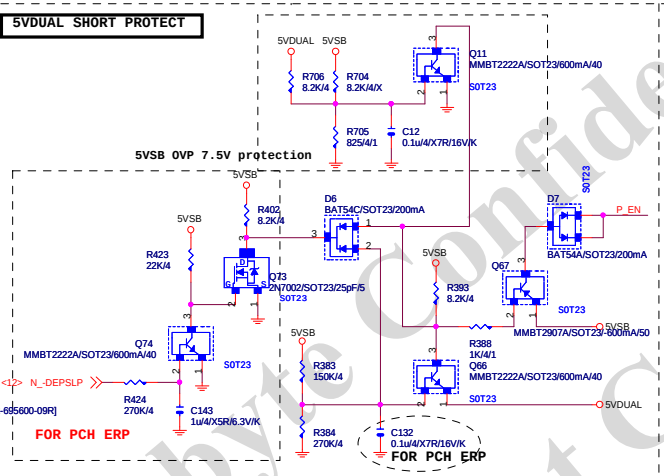
-RSMRST



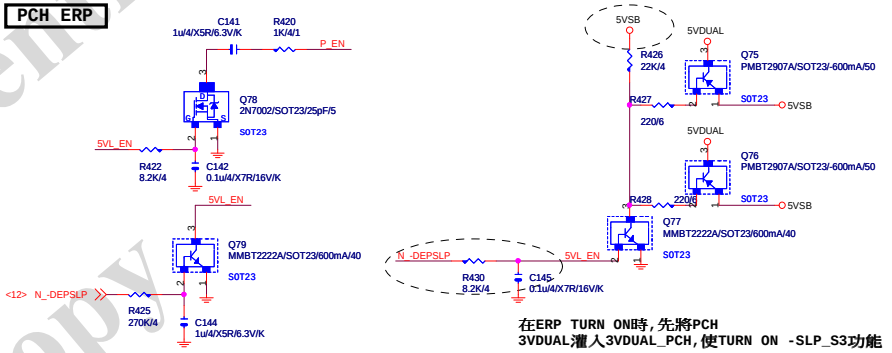
VCC1_05_PCH



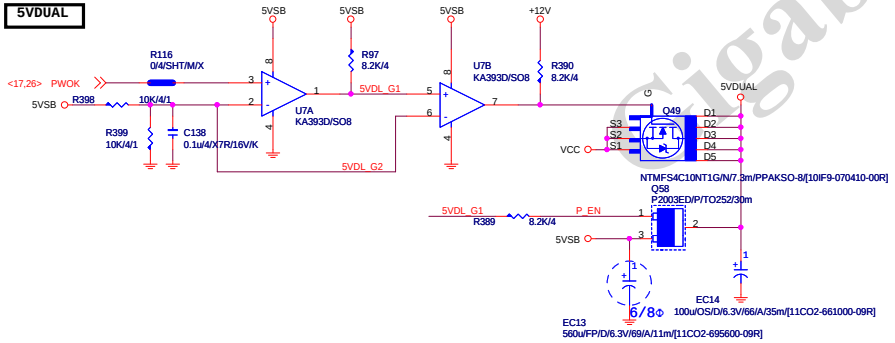
5VDUAL SHORT PROTECT



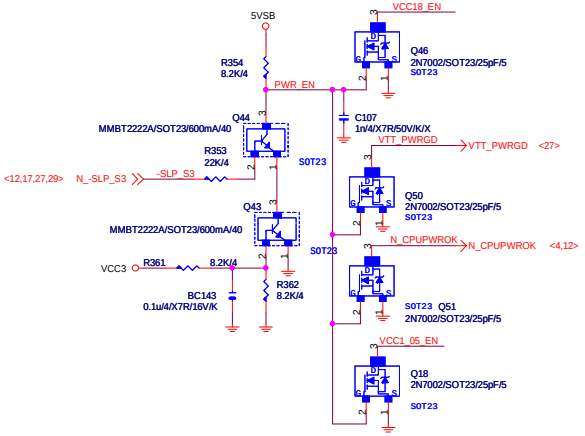
PCH ERP



5VDUAL



PWR SEQ



Gigabyte Technology		
Title: DISCRETE POWER		
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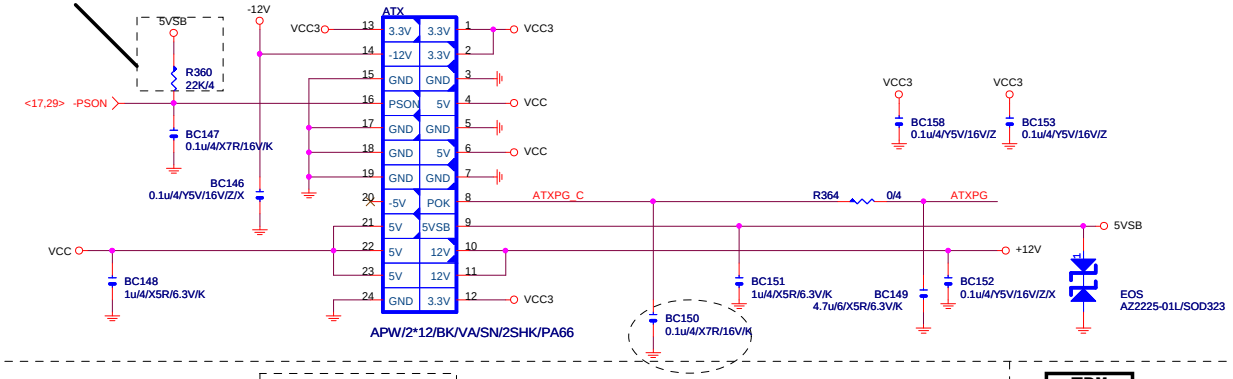
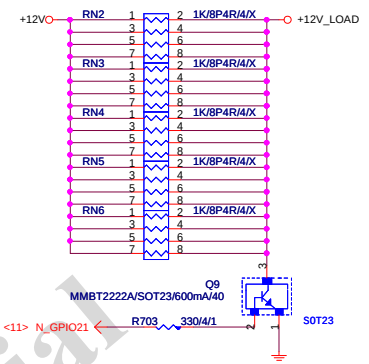
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】

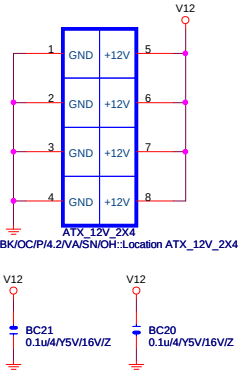


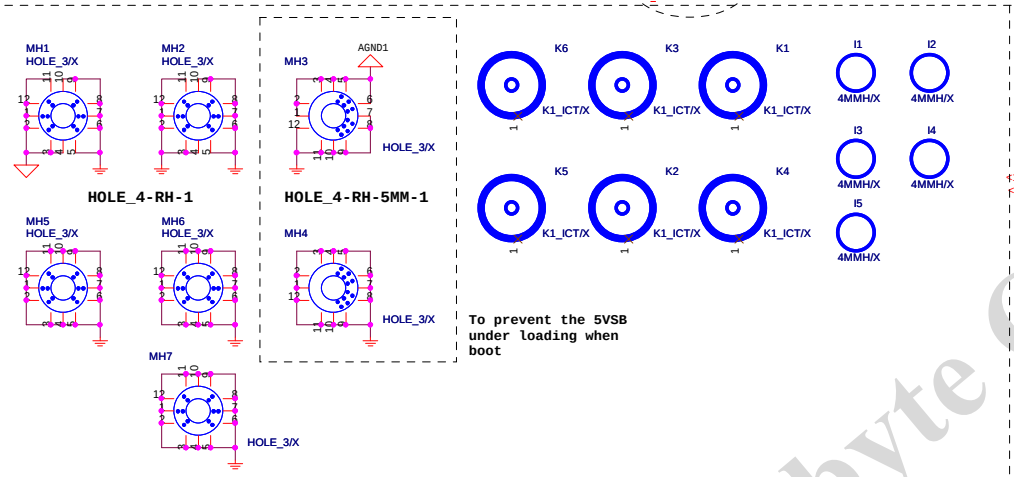
【技術通報R&D技術通報153】

To fix 12V light load abnromal issue

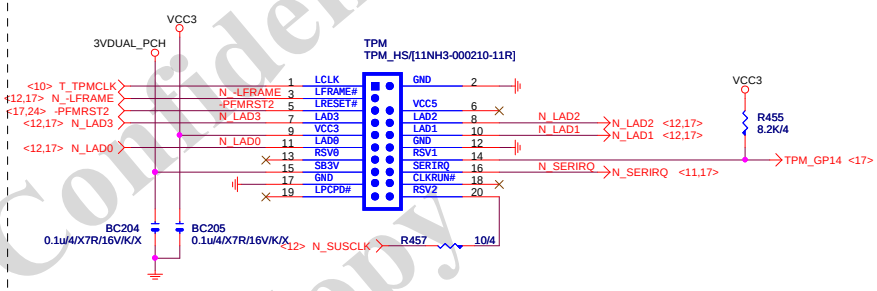


ATXX4 POWER CONNECTOR





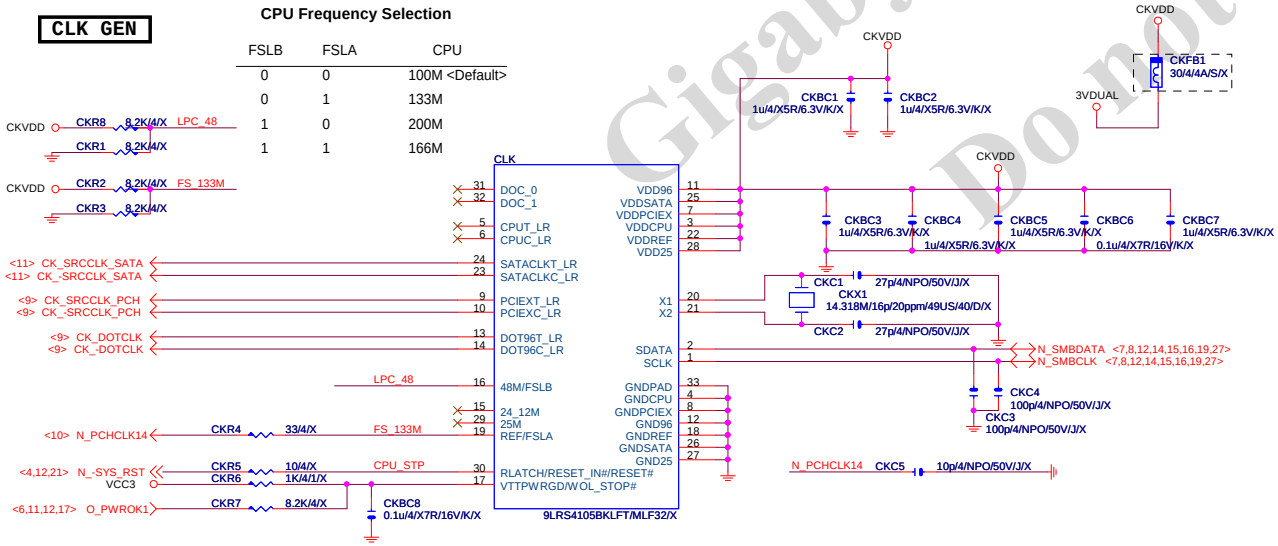
TPM



CLK GEN

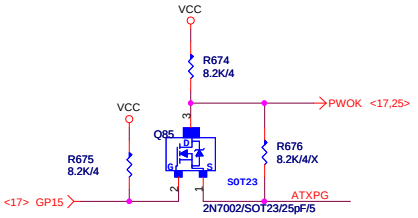
CPU Frequency Selection

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 CONNECTOR		
Size: Custom	Document Number: GA-B85M-D3H	Rev: 1.2
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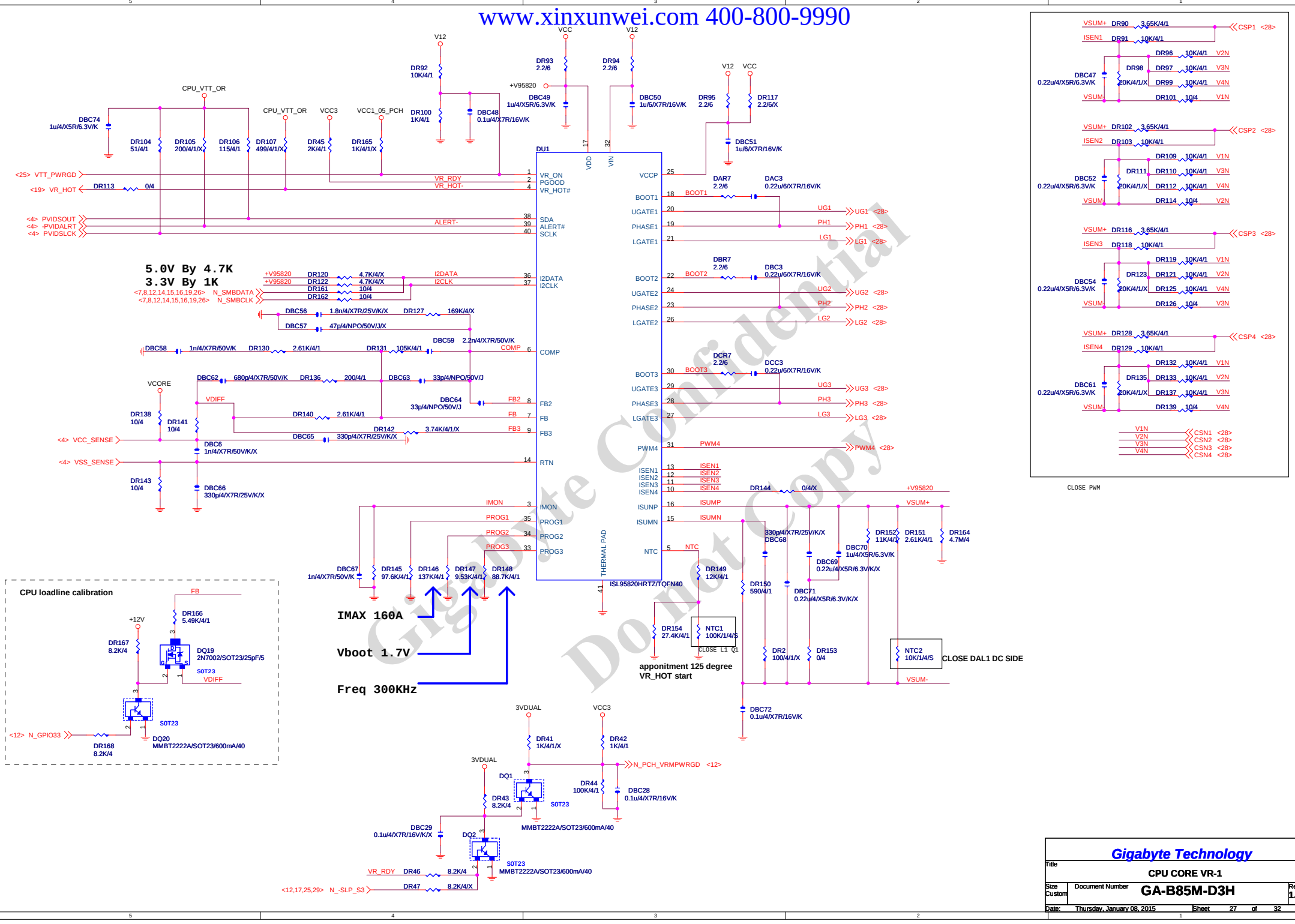

Title	CPU CORE VR-1
Size	Custom
Document Number	GA-B85M-D3H
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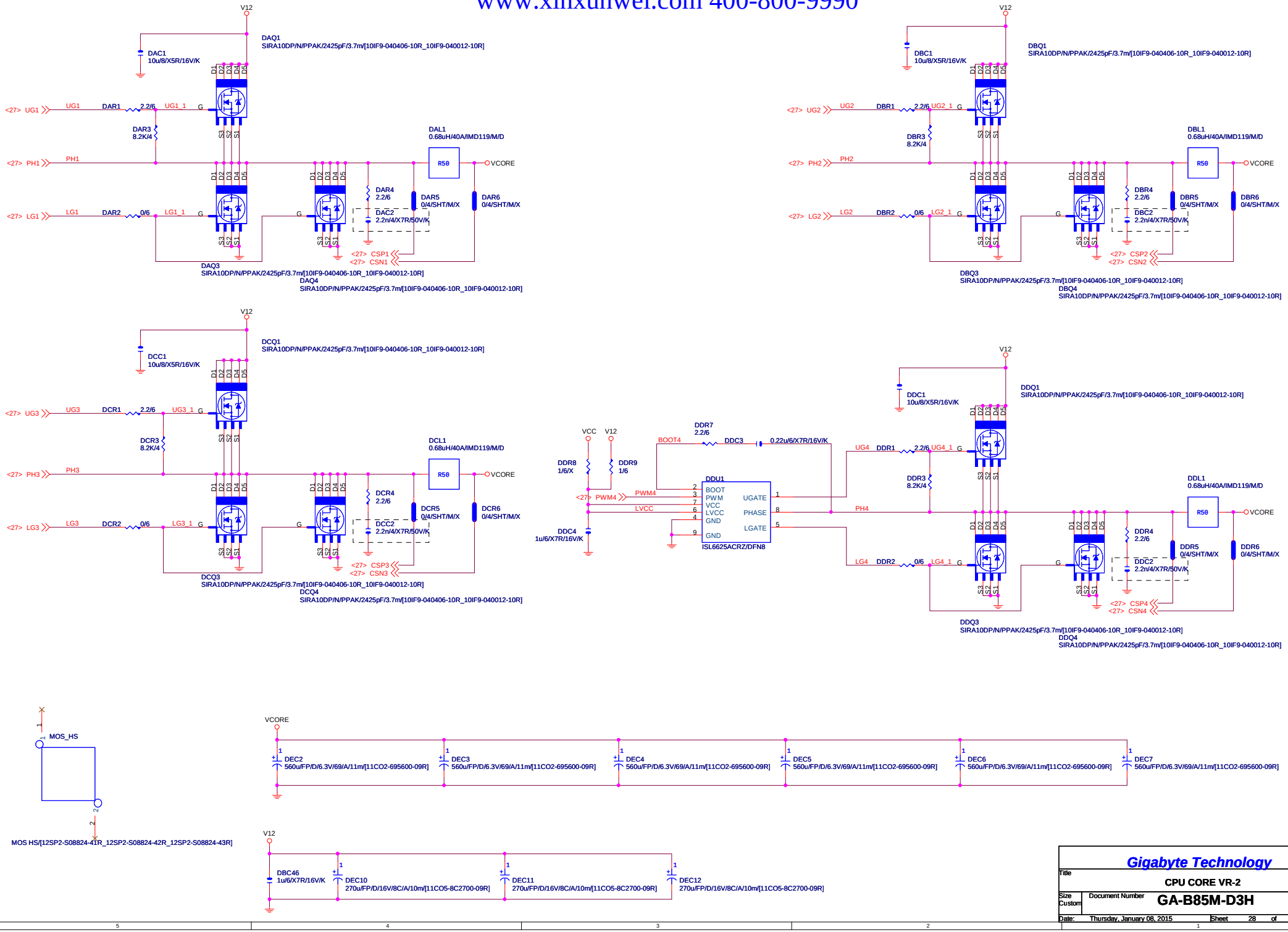
Gigabyte Technology



Gigabyte Technology		
Title	CPU CORE VR-2	
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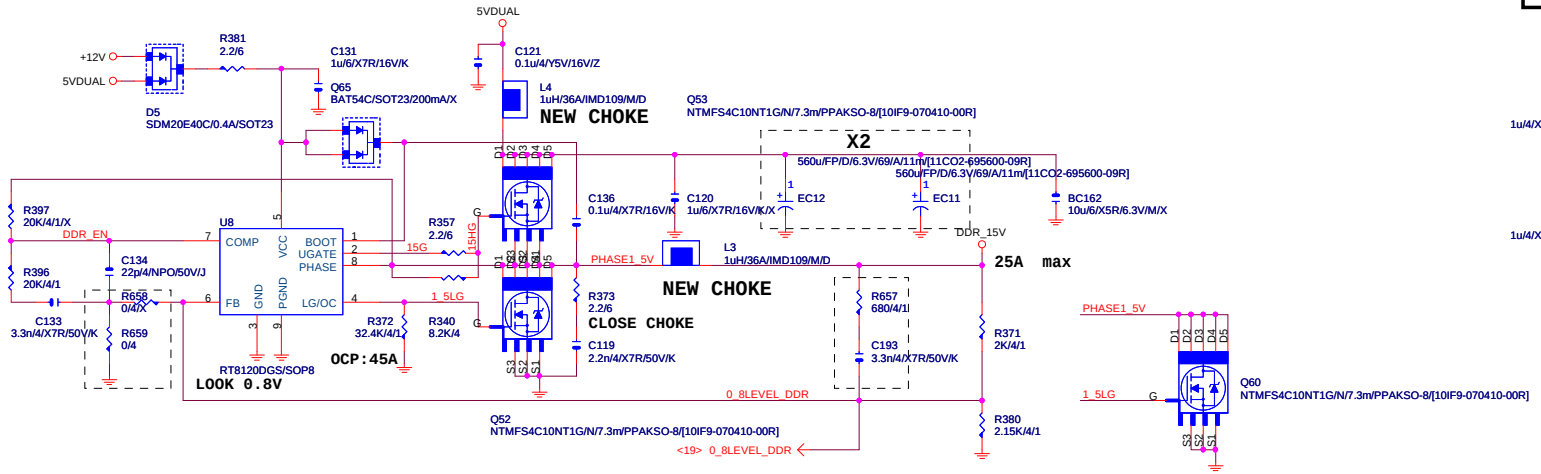
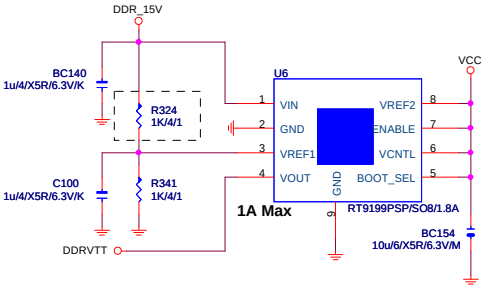
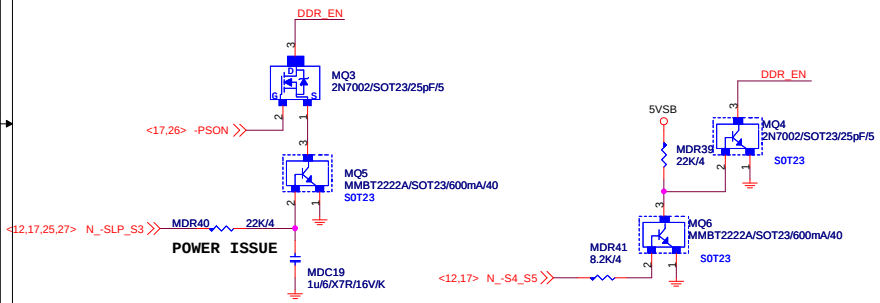
DDR15V



DDRVTT



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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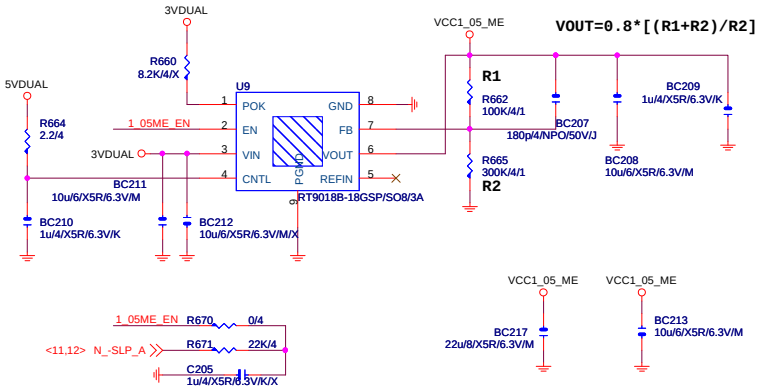
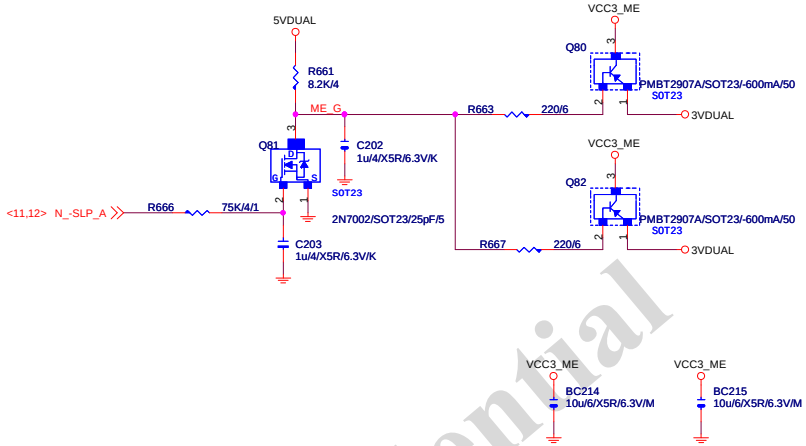
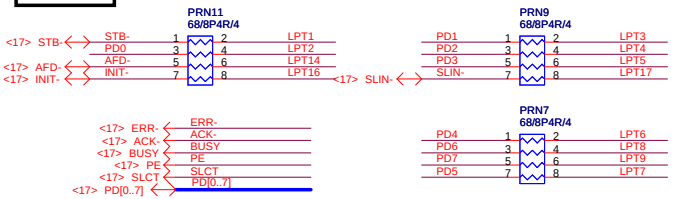
VCC1_05_ME



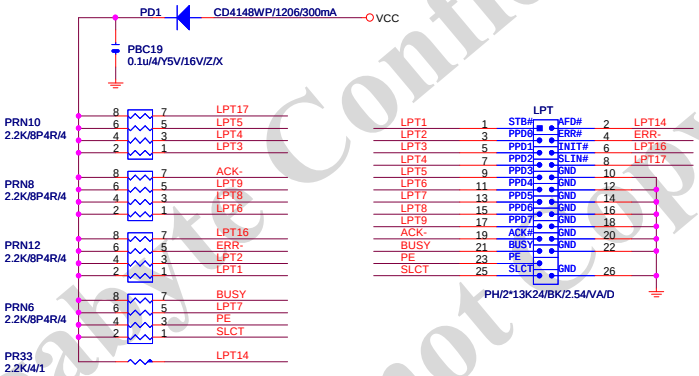
VCC3_ME



LPT PORT



【技術通報R&D技術通報151】
33ohm Change to 68ohm



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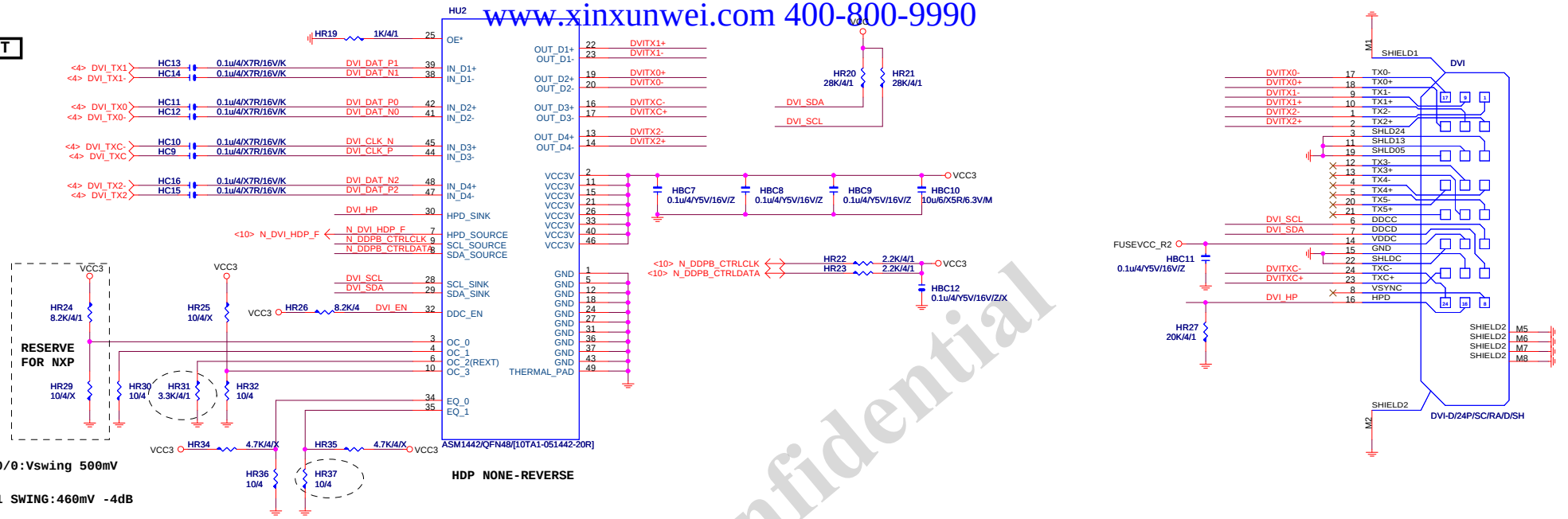
DVI LEVEL SHIFT

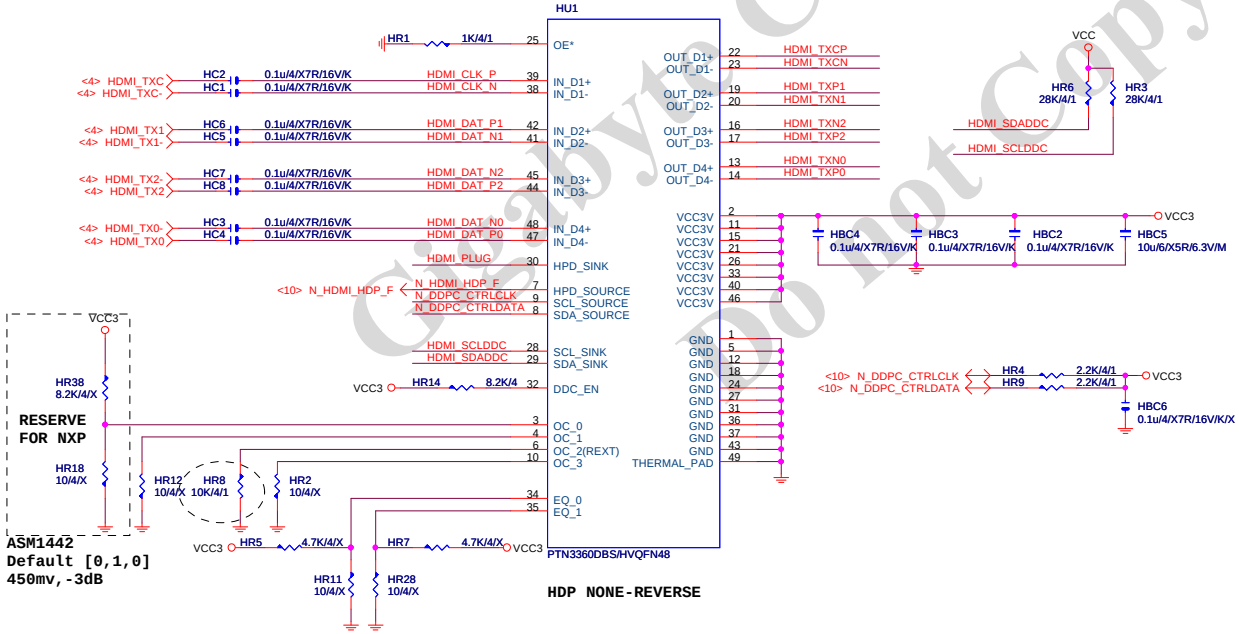


PERICOM 0/0/0/0:Vswing 500mV
ASM1442
DEFAULT 0/1/1 SWING:460mV -4dB

HDP NONE-REVERSE

PI3DV411 0 0:12dB
ASM1442 1 1:3dB

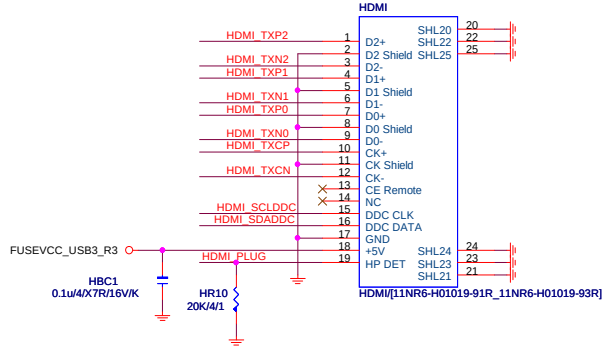
HDMI LEVEL SHIFT



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

HDP NONE-REVERSE

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)

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PCIE TO PCI

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

Co-Lay IT8893 (IT8893 CLKOUT1 N/A)

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

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

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

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

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

IT8892E/BX LQFP128

IT8892E/FX/S

IT8892

PCI slot

PCI slot

chipset side

PCB layout note: Close to chip

PCB layout note: Close to chip

Close to chip

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