Model Name: GA-H81M-HD3

Revision 2.0

SHEET	TITLE
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS X16 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	CODEC ALC892
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
30	DVI
31	ITE IT8892E
32	USB3 VL805
33	HDMI/DP
34	F_USB30

Gigabyte Technology

Title: Cover Sheet

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

Date: Thursday, November 27, 2014 | Sheet 1 of 33

Model Name: GA-H81M-HD3

Revision 2.0

Component value change history

2013/04/22

Data	Change Item	Reason
2013.05.26	8 Series 78 , 79	
2013.06.13	Add HBC11 0.1uF	
2013.06.14	移除 OL_1 ，上ORN1	
2013.06.21	上EC1	
2013.06.25	Add R715	
	移除 R383 不上，R384改1M	
	R389 改1K	
2013.07.01	移除 OR25	
2013.07.10	移除 CD1	
	Add R706 R705 C10 Q10	
Rev 1.03		
2013.08.19	改 x16 魚叉腳	
2013.08.19	DR54 Load Line	
2013.08.19	WR57 改不上件	
2013.11.20	RN22、RN23 改不上件	
2014.05.12_1.05		
	OR47,OC27,RS2 上件, Fix vishay mos 溫度過高	
	OR28不上件,OR29上件 ,MB_ID 變更	
2014.09.19_1.1		
	WBC34 ,WBC33不上件	
	MC1,4,5,6 MBC9,24,29,37,47 不上件	
	MC2,9,14 不上件	
	NR62,NR63 不上件	
	C33,C40,C34,C35,C36,C37,C38,C39,BC63 不上件	
	PABC1,PIC4,PIC3,PJC3 不上件	
	BC3,BC2,OC18,19,20,21,22,23,24,25 不上件	
	UBC1,UBC2上件	
	CEC1,2,10,11,12,13,14,15,6,9 改金色電容	
	CBC48,49,46,47,44,45,3,4,20,23,19,24,30,29,37,36不上件	
	R371 改3.24K , R380 改4.64K	
2014.09.30_1.1	OR10 不上件	

Circuit or PCB layout change

DATE	Change Item	Reason
2013.06.13	移除 SYS_FAN2	
Rev 1.0		
2013.06.20	Add USB 保護線路	
2013.06.25	移除 FAN_+12V_L，改成 +12V	
2013.07.01	增加POWER CORE不過電線路	
2013.07.01	增加POWER CORE不過電線路	
2013.07.08	修改DVI Connect 端 layout differential	
Rev 1.03		
2013.08.19	via VL805 X'TAL Reference GND	
Rev 1.04		
2013.09.12	NX1 trace避開VL805 CLock, 所有XTAL改4mil寬	
	VL805 Clock原接第7組，現改接第5組。	
	FAN Power & DDRVDD防燒電阻改0603.	
	1206 Poloswitch 改為POLYSWITCH-1206-1	
	P-PAK改包裝為Q_TDSON8-GDS-T for NXP	
2013.11.14_1.05	Fix FUSEVEE_USB3_R2內層短路問題	
	NX1的走線方式修改	
2014.07.03_1.06		
	SATA MLCC 改 Short-Pad	
2014.09.11_1.07		
	修改X'TAL 出線走背板	
2014.09.19_1.1		
	A-THRMTRIP 與 N_-THRMTRIP 串一個電阻WR68	
	HDMI 與 DVI Port B Port C 對換	
	Page 4 加排阻WRN14 Page 8 MR7 移除	
	Page 7 MR1, MR17 移除 Page 9 NRN16	
	Page 10 加 NC60 NRN17	
	Page 11 NR146,NR249,NR110,NR124,NR160NR55,NR53,NR167 移除	
	,NR80,NR157,NR84,NR66,NR148,NR65,NR11,NR61移除	
	加 NRN18,NRN28,NRN20,21,22,23,24,25	
	移除 ACZ_SDOUT、HSW_STRAP13 線路	
	移除 NBC33,NBC37,NBC35,NBC43,NBC38,NBC32,NBC12,NBC43	

移除NBC24,NBC25,NBC59,NBC8,NBC10,NBC14,NBC11,NBC13,NBC39,NBC40,NBC41,NBC42,SNBC1,SNBC2

移除NBC16,NBC29,NBC50,NBC53,NBC48

Gigabyte Technology

Title: BOM & PCB MODIFY HISTORY

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

Date: Thursday, November 27, 2014 | Sheet 2 of 33

Model Name: GA-H81M-HD3

Revision 2.0

Component value change history

2013/04/22

Data	Change Item	Reason
2014.11.11_2.0		
	1.1 修改文字面 ==> 2.0	

Circuit or PCB layout change

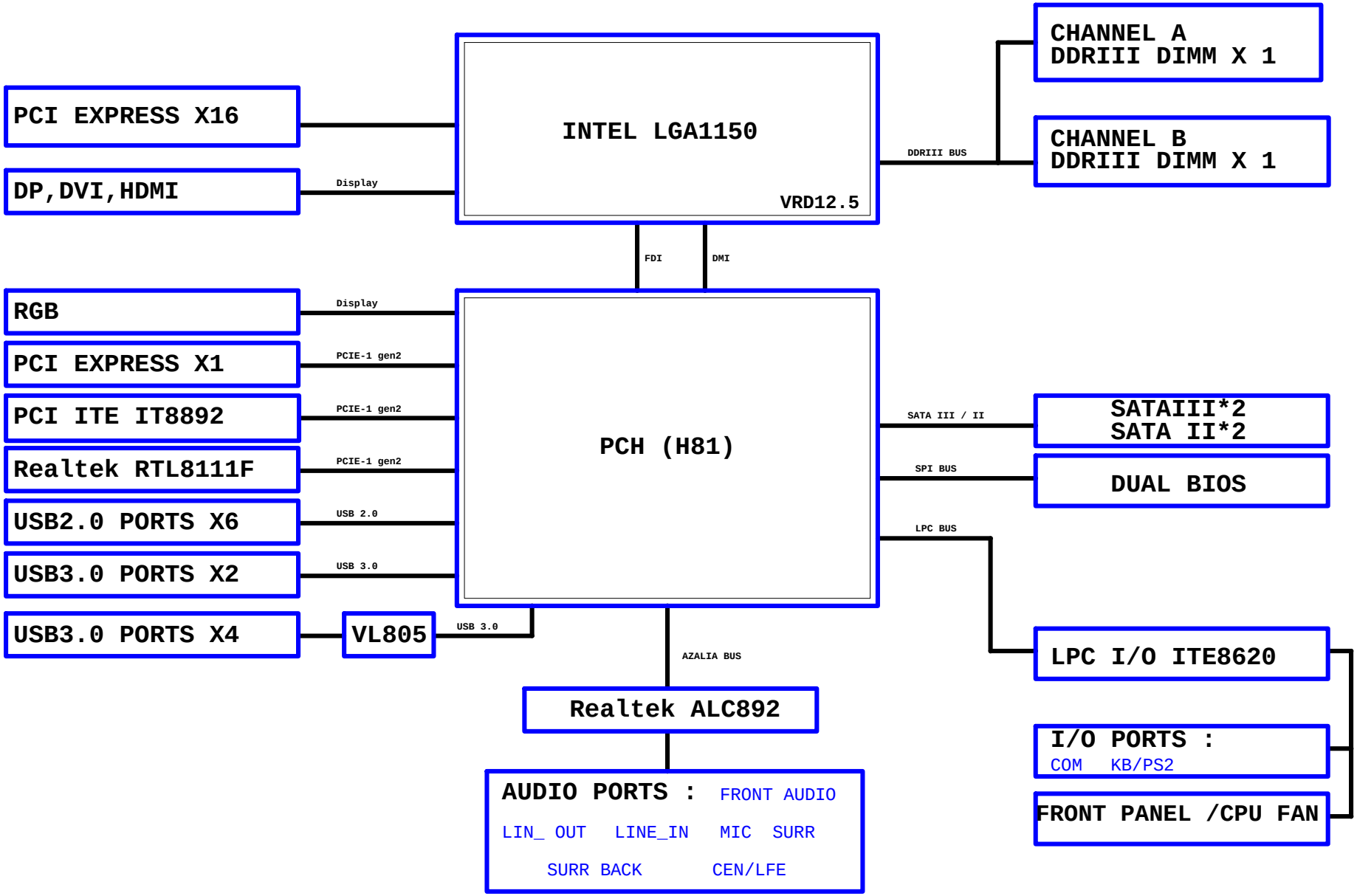
DATE	Change Item	Reason
2014.09.19_1.1		
	Page 17 加排阻ORN1,ORN2,OR2	
	Page 18 KB/MS 82ohm 改 0603	
	Page 19 NCT 3933 全刪	
	Page 19 -PROHOT 全刪	
	Page 20 NR7,NR8,NR6 改Short-Pad	
	Page 21 移除FPR12,FPR11,FPR10,FPQ1,FPQ4,FPC2,UAD5	
	Page 21 ESD6,ESD5 改接3VDUAL	
	Page 22 CESD1 移除	
	Page 22 CESD1 移除	
	LAN 改 8111G	
	Page 24 LAESD1移除	
	Page 24 UCF2移除 UCF1改2.6A	
	Page25 5VDUAL SHORT PROTECT 刪除	
	Page26 R674,R675,Q85移除 R676改Short	
	Page29 EC11移除	
	Page29 DDR FB 串17.4K接到 IO_GP25	
	Page29 DDR FB 串13.3K 接到 IO_GP24	
	Page29 DDR FB 串16.9K 接到 IO_GP26	
	PRN14 改 100ohm	
	DVI 移除 Level Shift	
	Page 33 移除 F12 , F13 改2.6A	

移除NBC24,NBC25,NBC59,NBC8,NBC10,NBC14,NBC11,NBC13,NBC39,NBC40,NBC41,NBC42,SNBC1,SNBC2

移除NBC16,NBC29,NBC50,NBC53,NBC48

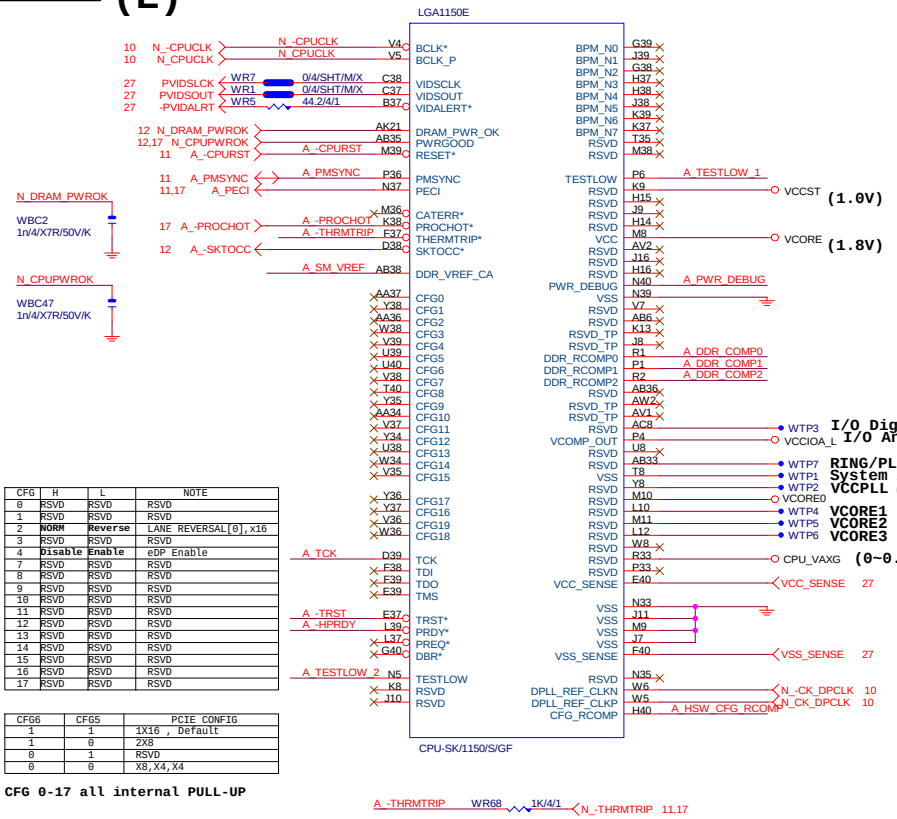
Gigabyte Technology		
Title: BOM & PCB MODIFY HISTORY		
Size: C	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 2 of 33	

BLOCK DIAGRAM



Gigabyte Technology		
Title: BLOCK DIAGRAM		
Size: C	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 3 of 33	

LGA1150 (E)

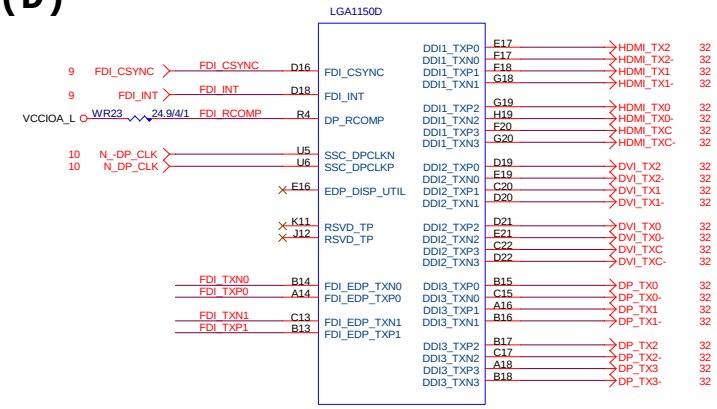


CFG	H	L	NOTE
0	RSVD	RSVD	RSVD
1	RSVD	RSVD	RSVD
2	**NORM**	**Reverse**	LANE REVERSAL[0],x16
3	RSVD	RSVD	RSVD
4	**Disable**	**Enable**	eDP Enable
7	RSVD	RSVD	RSVD
8	RSVD	RSVD	RSVD
9	RSVD	RSVD	RSVD
10	RSVD	RSVD	RSVD
11	RSVD	RSVD	RSVD
12	RSVD	RSVD	RSVD
13	RSVD	RSVD	RSVD
14	RSVD	RSVD	RSVD
15	RSVD	RSVD	RSVD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

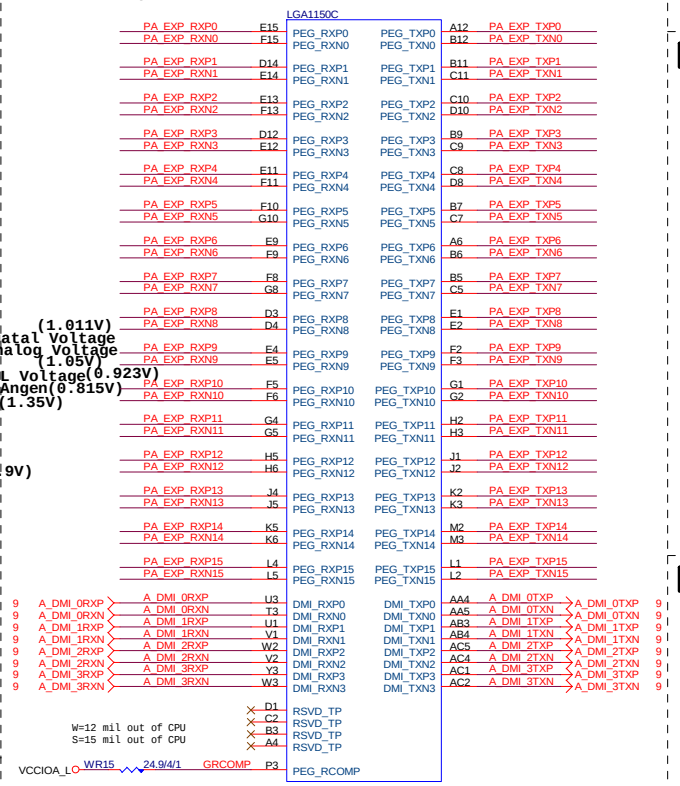


FDI:12/4/5/4/12(breakout min 6/4/4/4/6)
Impedance=85 +- 17.5%

FDI_TXP[0..1] FDI_TXP[0..1] 9
FDI_TXN[0..1] FDI_TXN[0..1] 9

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%

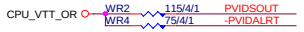
PA_EXP_TXP[0..15] PA_EXP_TXP[0..15] 14
PA_EXP_TXN[0..15] PA_EXP_TXN[0..15] 14
PA_EXP_RXP[0..15] PA_EXP_RXP[0..15] 14
PA_EXP_RXN[0..15] PA_EXP_RXN[0..15] 14

-CPURST

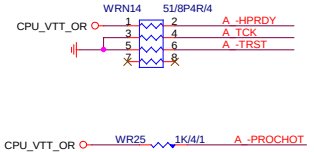
1.1V分壓

For IT8620 Ctrl

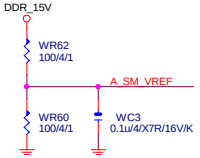
CPU SVID



CPU PU/PD



SM REF

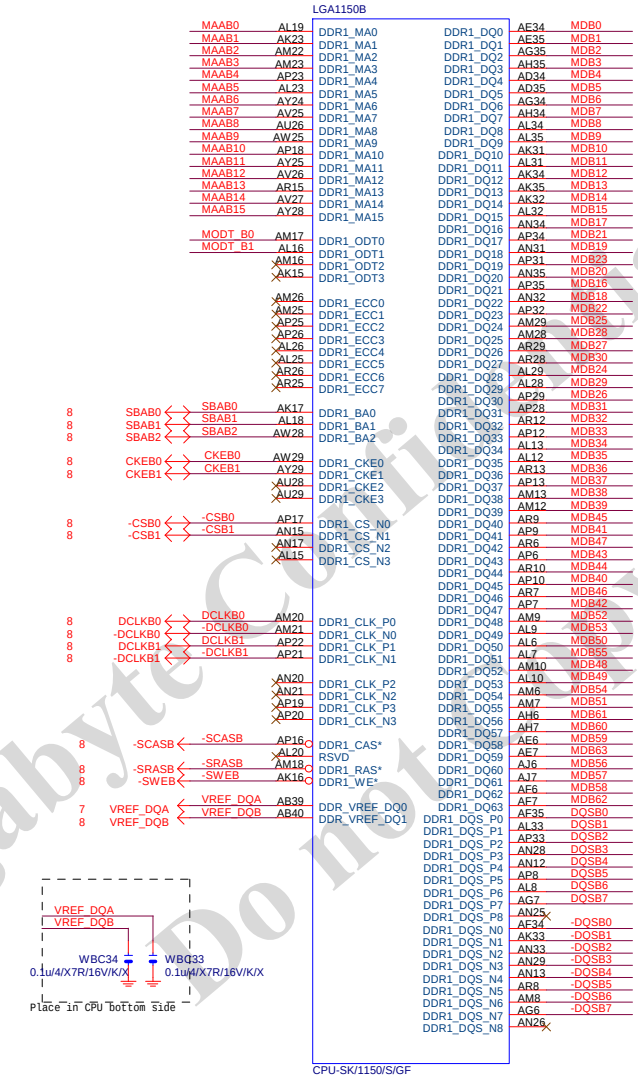


Title	CPU LGA1150-A
Size	Custom
Document Number	GA-H81M-HD3
Rev	2.0
Date:	Thursday, November 27, 2014
Sheet	4 of 33

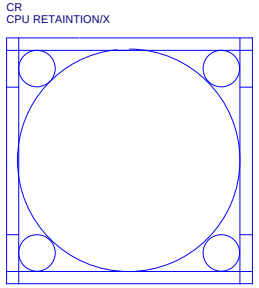
Gigabyte Technology

LGA1150 (A)

LGA1150 (B)



LGA1150 (CR)



LGA1150

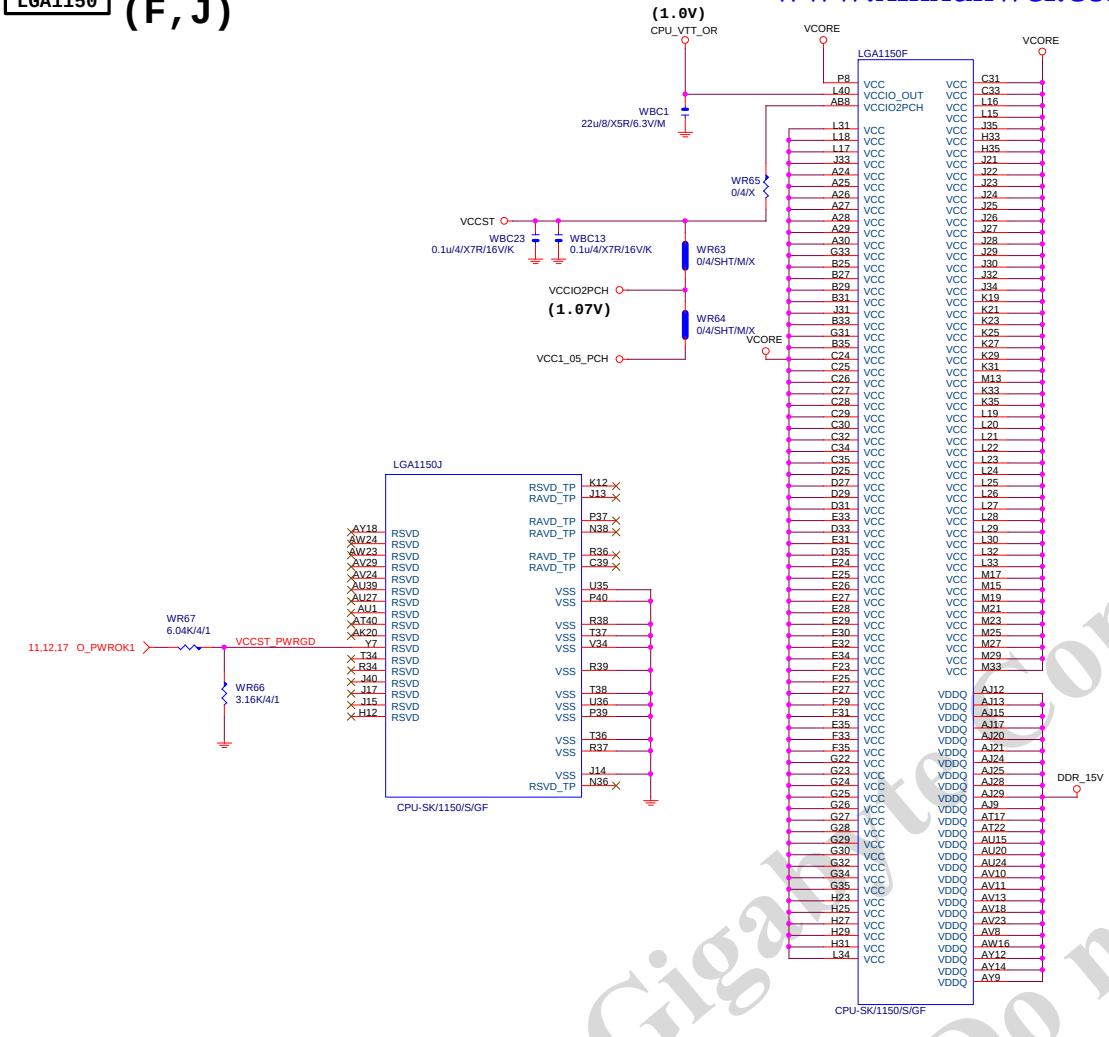
ILM_BP/1156/CSP/ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

DDR BUS

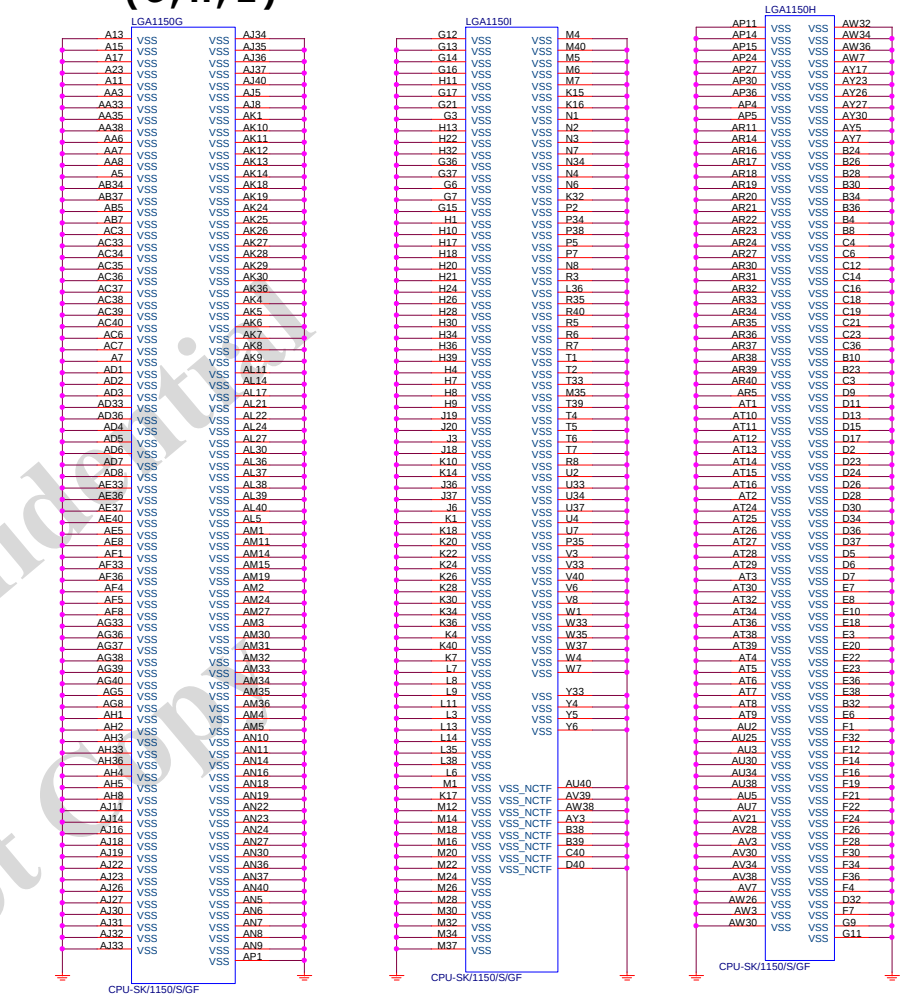
7 MODT_A[0..1]
8 MODT_B[0..1]
7 MDA[0..63]
8 MDB[0..63]
7 DQSA[0..7]
7 -DQSA[0..7]
7 MAAA[0..15]
8 MAAB[0..15]
8 DQSB[0..7]
8 -DQSB[0..7]

Gigabyte Technology			
Title: CPU LGA1150-B			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 5 of 33		

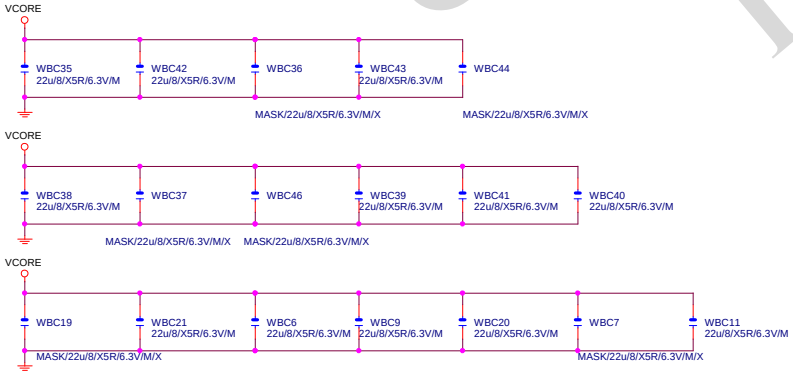
LGA1150 (F,J)



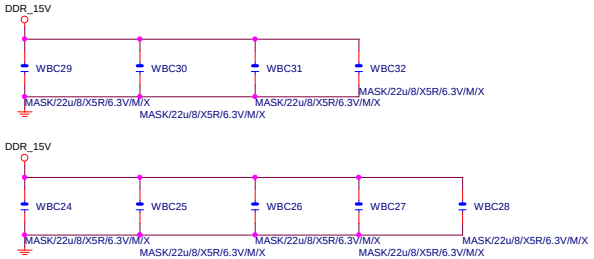
LGA1155 (G,H,I)



VCore CAP (X18)



DDR CAP (X9)



Gigabyte Technology		
Title: CPU LGA1150-C		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 6 of 33	

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

Co-Layout

VCC3
MF1 SPR-P200T/6V/8/S
VDDSPD

MC4 0.1u/4/X7R/16V/K/X
MC5 VREF_DDRA
MC1 VREF_DQDDRA
0.1u/4/X7R/16V/K/X

8,12,14,15,16 N_SMBCLK
8,12,14,15,16 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/X

DDR3/240/BK/VA/D

BLACK CONNECTOR

MDQT_A[0..1] MDQT_A[0..1] 5
-DQSA[0..7] -DQSA[0..7] 5
DQSA[0..7] DQSA[0..7] 5

MDA[0..63] 5

DDR3 VREF

DDR_15V

MR15 1K/4/1
MR14 1K/4/1
VREF_DDRA

MR4 1K/4/1
MR5 1K/4/1
VREF_DQDDRA
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/X
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/X
MBC35 1u/4/X5R/6.3V/K
MBC36 1u/4/X5R/6.3V/K
MBC37 1u/4/X5R/6.3V/K/X
MBC47 1u/4/X5R/6.3V/K/X
MBC9 1u/4/X5R/6.3V/K/X

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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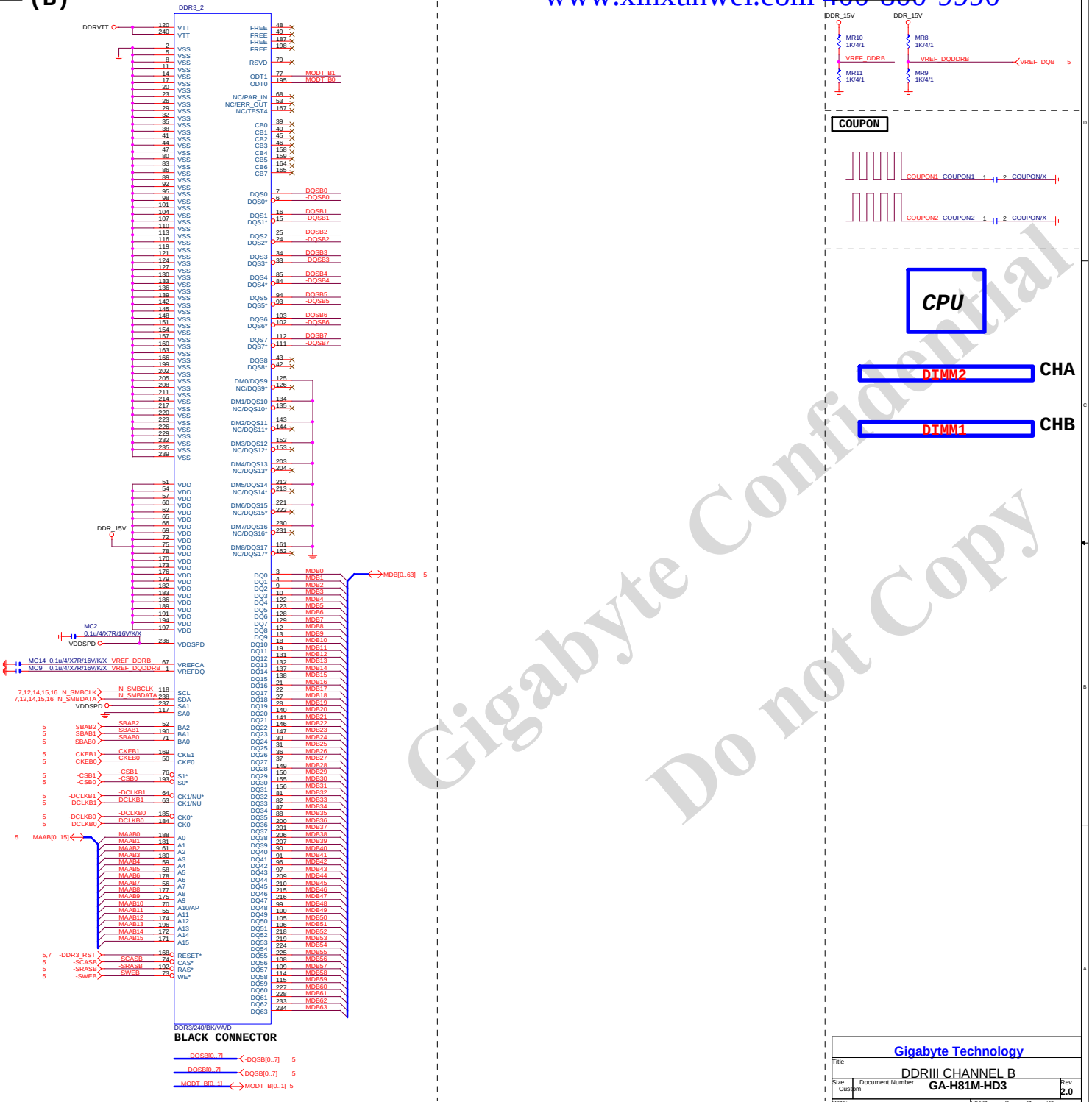
Title: DDRIII CHANNEL A

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

Date: | Sheet 7 of 33

DDR3 (B)



DDR3 VREF

COUPON

Gigabyte Technology			
Title: DDRIII CHANNEL B			
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0	
Date:	Sheet 8 of 33		

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

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

10 CK_-SRCCLK_PCH — CK_-SRCCLK_PCH G22
10 CK_SRCCLK_PCH — CK_SRCCLK_PCH F22

DMI_RCOMP
PCIE_RCOMP
CLKIN_DMI_N
CLKIN_DMI_P

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

AV10 N_-USBP0 — N_-USBP0 33
AU10 N_+USBP0 — N_+USBP0 33
AV11 N_-USBP1 — N_-USBP1 33
AW11 N_+USBP1 — N_+USBP1 33
AN14 N_-USBP2 — N_-USBP2 18
AP14 N_+USBP2 — N_+USBP2 18
AJ16 N_-USBP3 — N_-USBP3 18
AK16 N_+USBP3 — N_+USBP3 18

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 L14
PCIE_PERP_1_USB3_RXP_2 K14
PCIE_PETN_1_USB3_TXN_2 B12
PCIE_PETP_1_USB3_TXP_2 B11
PCIE_PERN_2_USB3_RXN_3 F14
PCIE_PERP_2_USB3_RXP_3 G14
PCIE_PETN_2_USB3_TXN_3 D11
PCIE_PETP_2_USB3_TXP_3 C11

8111F
24 LA_ML_IN F11
24 LA_ML_IP H11
24 LA_ML_ON B9
24 LA_ML_OP A9

8892
30 G_PCIEBIN J11
30 G_PCIEBIP L11
30 G_PCIEBON B8
30 G_PCIEBOP C8

PCIEx1
15 PI_PCIEX1_IN G9
15 PI_PCIEX1_IP F9
15 PI_PCIEX1_ON B7
15 PI_PCIEX1_OP A7

VL805
31 USB3_IN1 F7
31 USB3_IP1 H7
31 USB3_ON1 E1
31 USB3_OP1 D2

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

K6 K8 G3 G5 J2 J3 H2 H1 — N/A

OC0B_GP59 AE40 — N_-USBOC_F 21,33
OC1B_GP40 AF37
OC2B_GP41 AD39
OC3B_GP42 AD40
OC4B_GP43 AE39 — N_-USBOC_R 18
OC5B_GP9 AC41
OC6B_GP10 AF40
OC7B_GP14 AG40 — N_GPIO14 — 12

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

USBRBIASB
USBRBIAS
AV20 N_USBRBIAS — NR47 22.6/4/1
AU20

CLKIN_DOT96N AP11 CK_-DOTCLK
CLKIN_DOT96P AM11 CK_DOTCLK

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

H81/S/[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

33 PCH_USB3_RXN0 — F20 USB3_RXN_0
33 PCH_USB3_RXP0 — G20 USB3_RXP_0
33 PCH_USB3_TXN0 — B18 USB3_TXN_0
33 PCH_USB3_TXP0 — C18 USB3_TXP_0

33 PCH_USB3_RXN1 — G18 USB3_RXN_1
33 PCH_USB3_RXP1 — H18 USB3_RXP_1
33 PCH_USB3_TXN1 — B15 USB3_TXN_1
33 PCH_USB3_TXP1 — B16 USB3_TXP_1

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/X — NR63 8.2K/4/X — AK28, AT34

TACH6_GP70
TACH7_GP71

FDILINK

FDI_RXN_0 N1 FDI_TXN0
FDI_RXP_0 N2 FDI_TXP0
FDI_TXN_0 P2 FDI_TXN1
FDI_RXP_1 P3 FDI_TXP1

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

H81/S/[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

Mount for integrated clock Generation Mode

10 N_PCHCLK14 — N_PCHCLK14
CK_DOTCLK
CK_-DOTCLK

NRN16 8.2K/8P4R/4

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 — AF3
VSS — AV21

H81/S/[10HB1-030H81-10R]

PCH H/S

LOW COST ICH7 HEATSINK

SB_HEATSIN

1 2

GRAY HS

PCH_HS
PCH_HS/[12SP2-S04208-61R_12SP2-S04208-62R_12SP2-S04208-63R]

USB TABLE

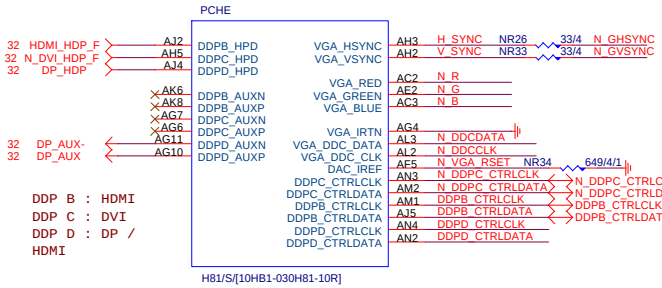
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

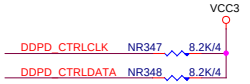
USB OC#	Configure
OC0#	R_USB30
OC1#	USB30_LAN
OC2#	N/A
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	N/A
OC7#	Not Use

Gigabyte Technology

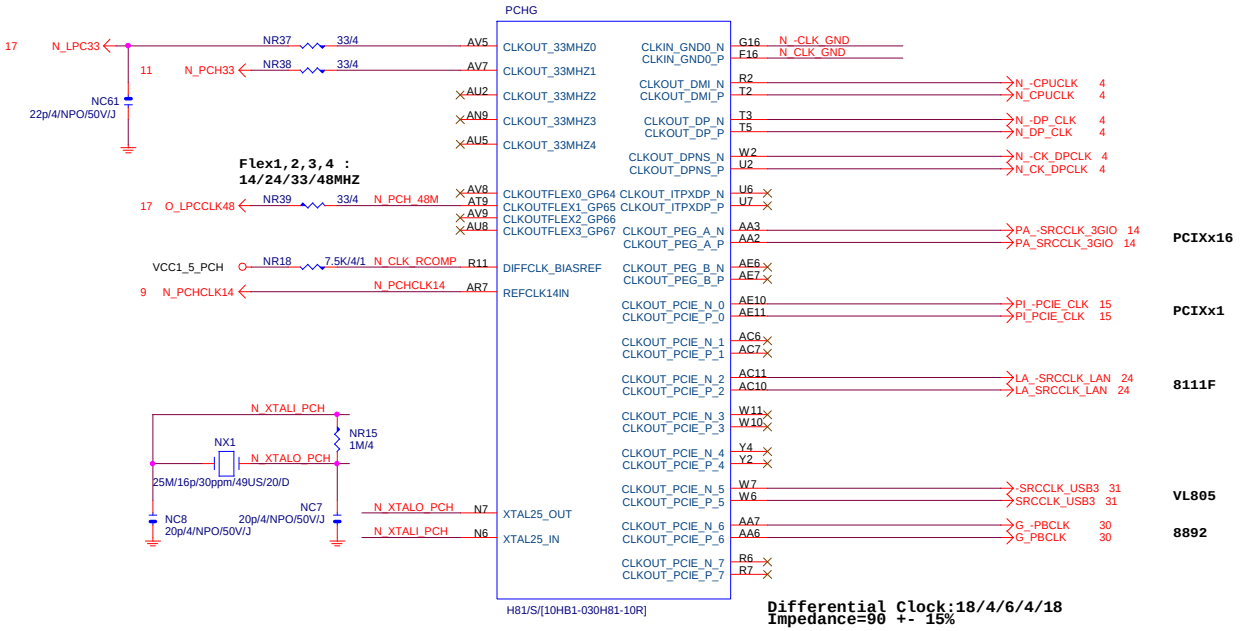
Title: PCH FDI,DMI,USB ,PCIE,NVRAM
Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0
Date: Thursday, November 27, 2014 | Sheet 9 of 33

PCH (E)



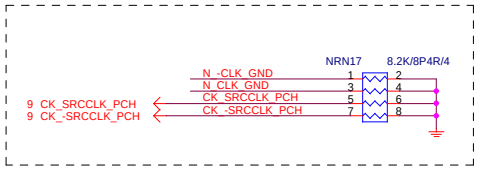


PCH (G)

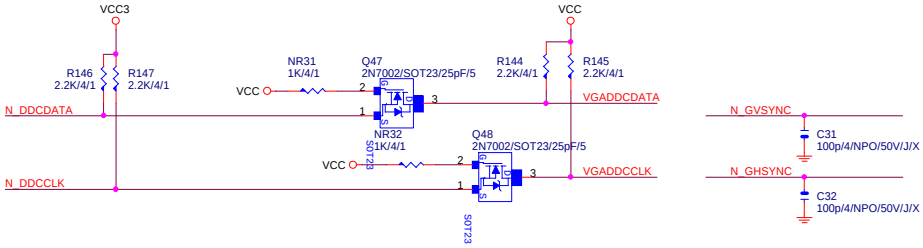


Differential Clock:18/4/6/4/18
Impedance=90 +- 15%

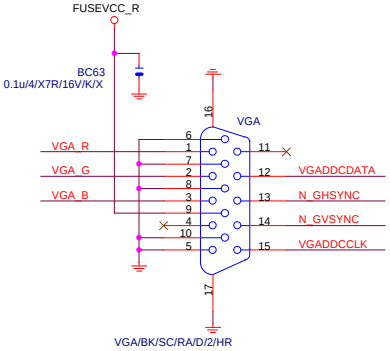
PCH CLK PD



VGA DDC

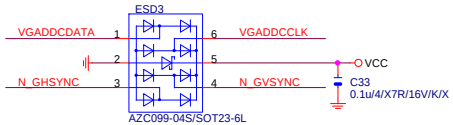


VGA CONNECTOR

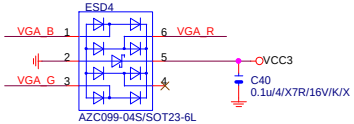


BLACK CONNECTOR

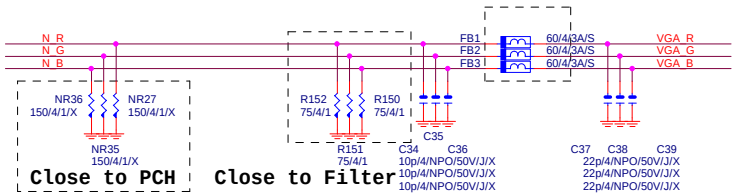
VGA ESD



SSOP6_ESD



VGA DDC

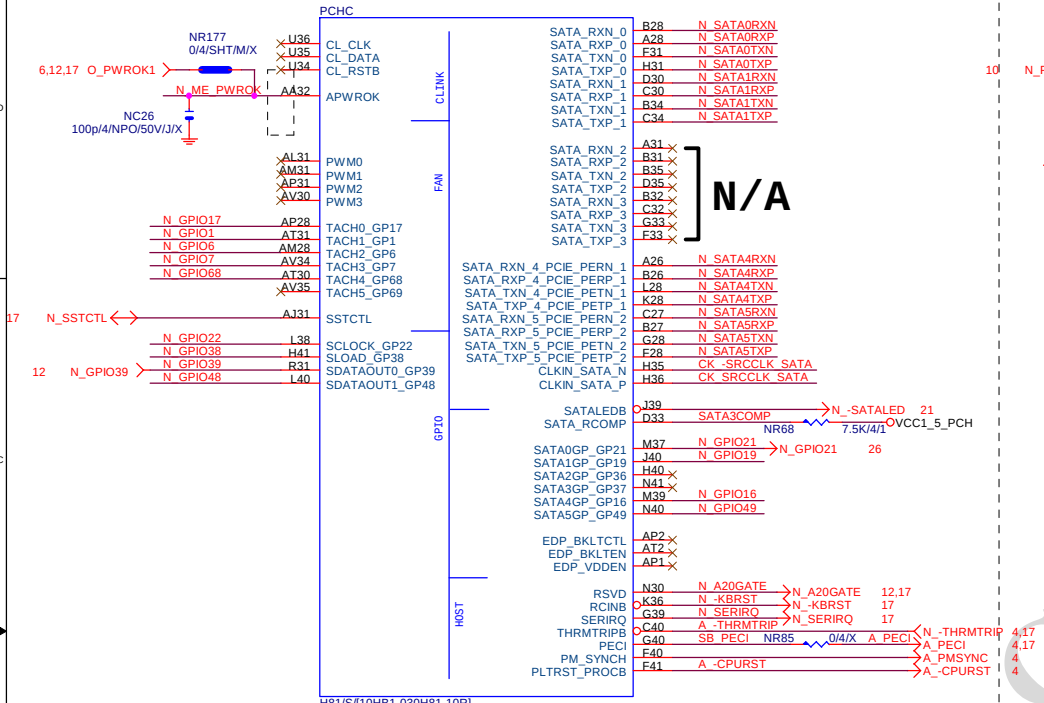


Gigabyte Technology

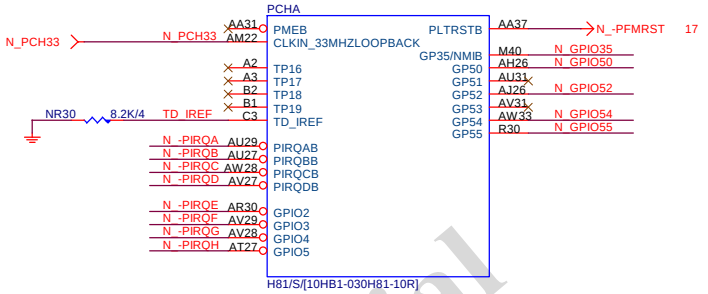
Title	PCH DISPLAY ,CLK BUFFER	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 10 of 33	

PCH (C)

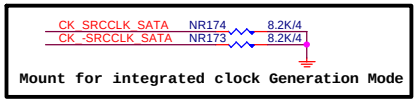
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



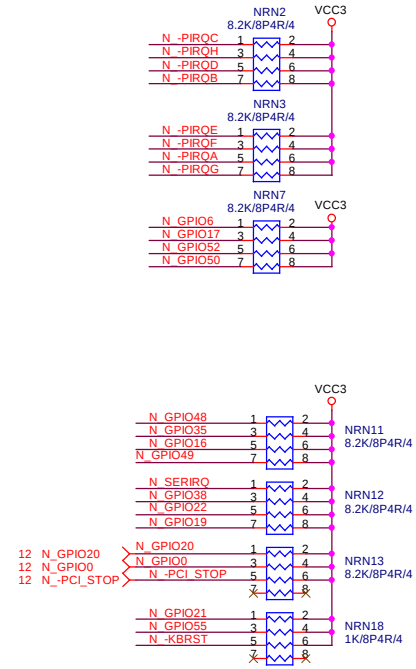
PCH (A)



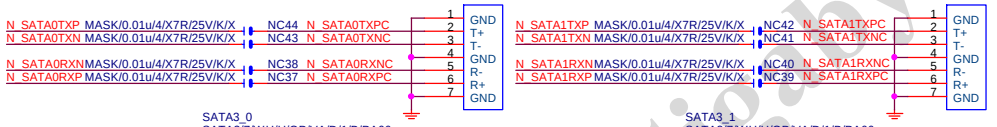
PCH CLK PD



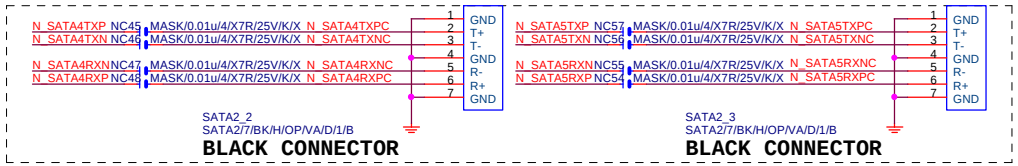
PCH PU/PD



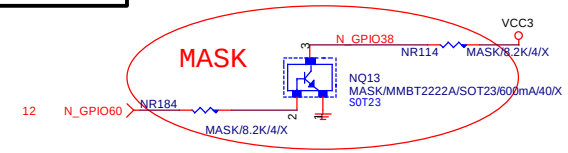
SATA CONNECTOR



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



GPIO38 Ctrl



Gigabyte Technology

Title: PCH HOST , SATA, PCI

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

Date: Thursday, November 27, 2014 | Sheet 11 of 33

PCH (D)

PCHD

H81S/[10HB1-030H81-10R]

ACZ_SDOUT

PCH_DPWROK

PCH PU/PD

HSW_STRAP13

32.768KHZ

CLR_CMOS

BATTERY-DUAL-4

RB 必须放在BAT外

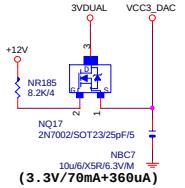
Title	PCH GPIO , CTRL , AUDIO
Size	Custom
Document Number	GA-H81M-HD3
Rev	2.0
Date:	Thursday, November 27, 2014
Sheet	12 of 33

Gigabyte Technology

PCH (H)

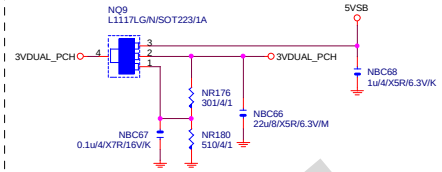
VCC3_DAC

CLOSE北橋(注意震盪水波紋)



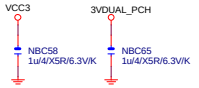
(3.3V/70mA+360uA)

3VDUAL_PCH

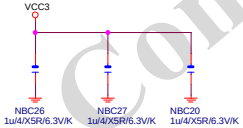


SHT PWR

CAP



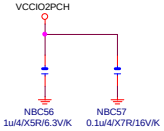
(3.3V)(X6)



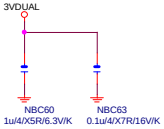
(1.05V)(X5)

(1.05V)(X6)

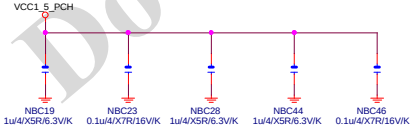
(1.05V)(X2)

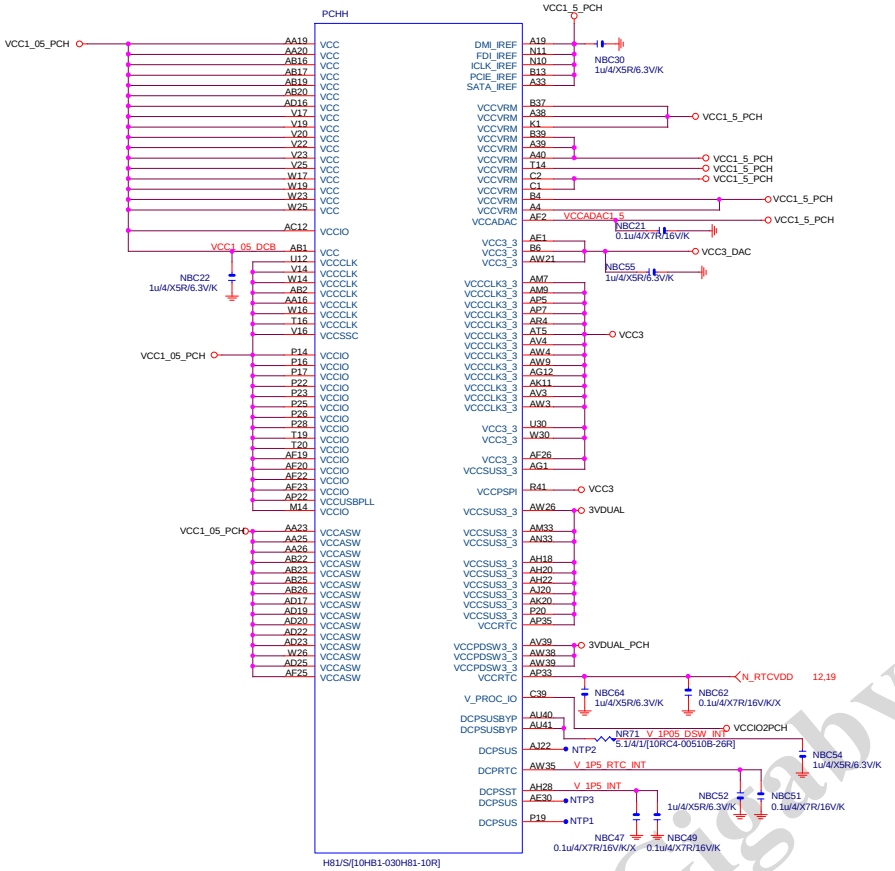


(3.3V)(X2)

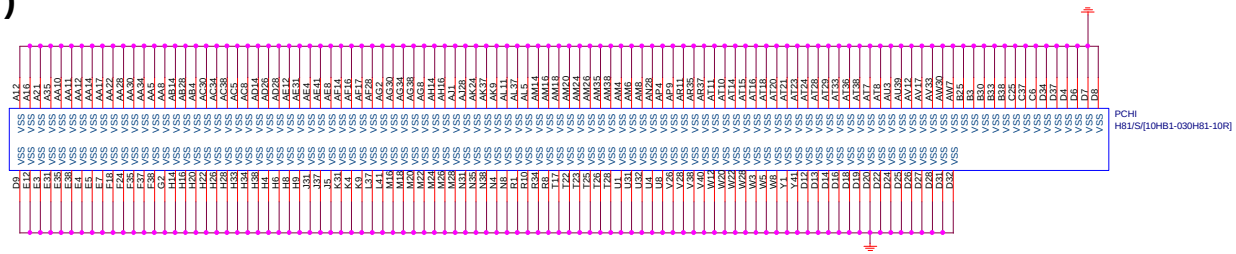


(1.05V)(X10)



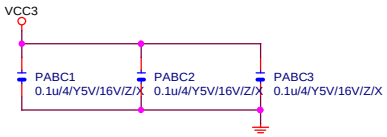


PCH (I)

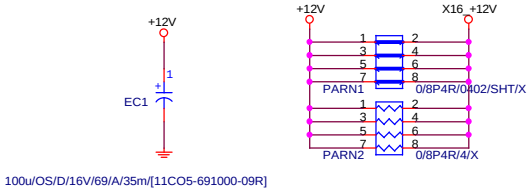


Gigabyte Technology		
Title: PCH PWR ,GND		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 13 of 33	

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

	B1	12V	PRSNT1*	A1	
	B2	12V	12V	A2	
PAR3 0/4/SHT/M/X	B3	RSVD	12V	A3	
7,8,12,15,16 N_SMBCLK	B4	GND	GND	A4	PAR1 0/4/SHT/M/X
7,8,12,15,16 N_SMBDATA	B5	SMCLK	JTAG2	A5	
	B6	SMDAT	JTAG3	A6	
3VDUAL	B7	GND	JTAG4	A7	PAR2 0/4/SHT/M/X
VCC3	B8	3.3V	JTAG5	A8	
	B9	JTAG1	3.3V	A9	VCC3
	B10	3.3VAUX	3.3V	A10	
12,15,24,30,31 N_-PCIE_WAKE	B11	WAKE*	PWRGD	A11	-PCIE_RST >> -PCIE_RST 15,17,30 >> -PCIE_RST
		KEY			
	B12	RSVD	GND	A12	
	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	

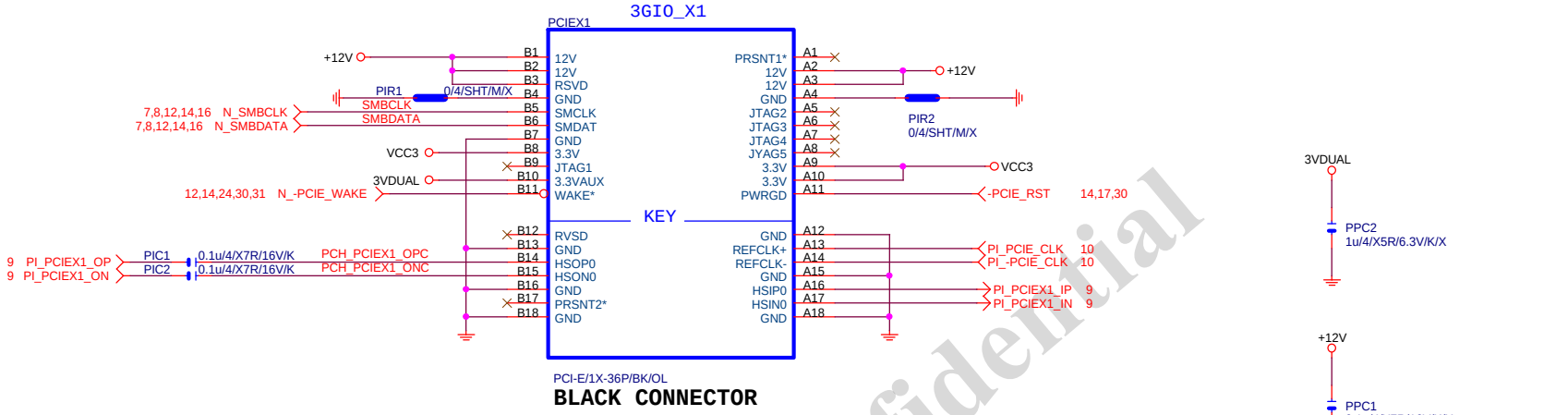
PCI-E/16X-164P/BK/LONG DOUBLE

BLACK CONNECTOR

PAC1 22p/4/NPO/50V/J/X

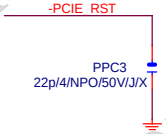
Gigabyte Technology		
Title: PCI EXPRESS * 16		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 14 of 33	

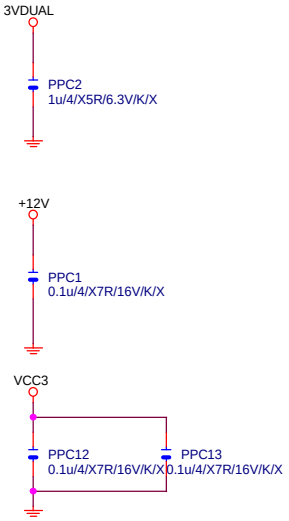
PCIEX1 SLOT



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

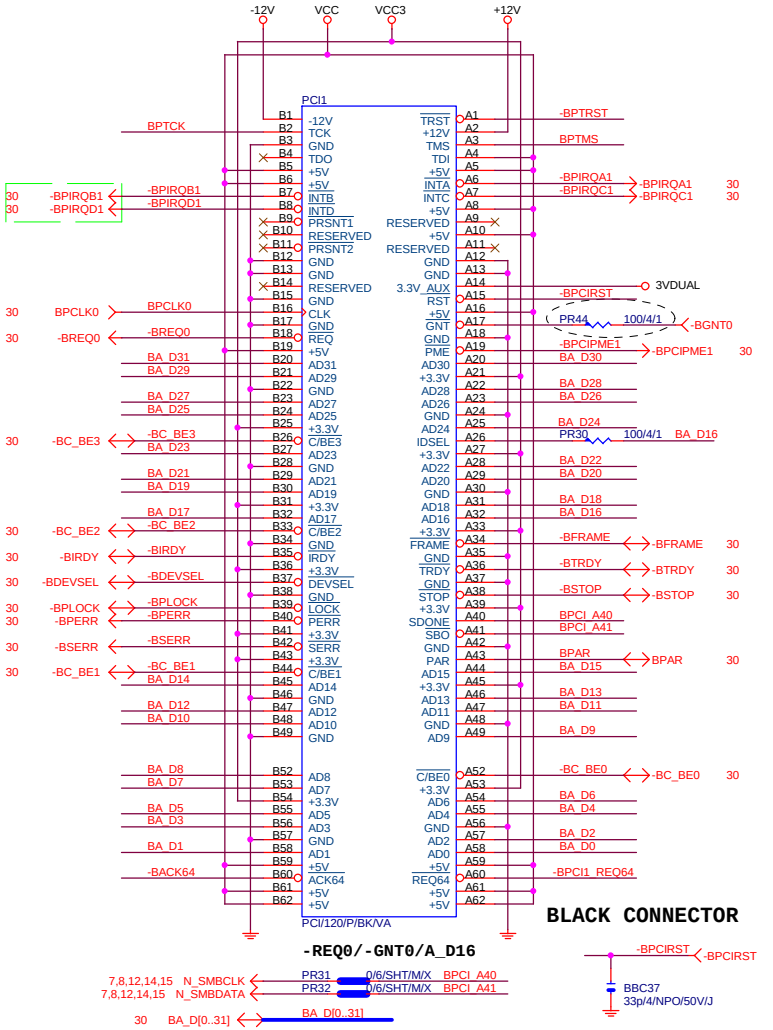
BLACK CONNECTOR



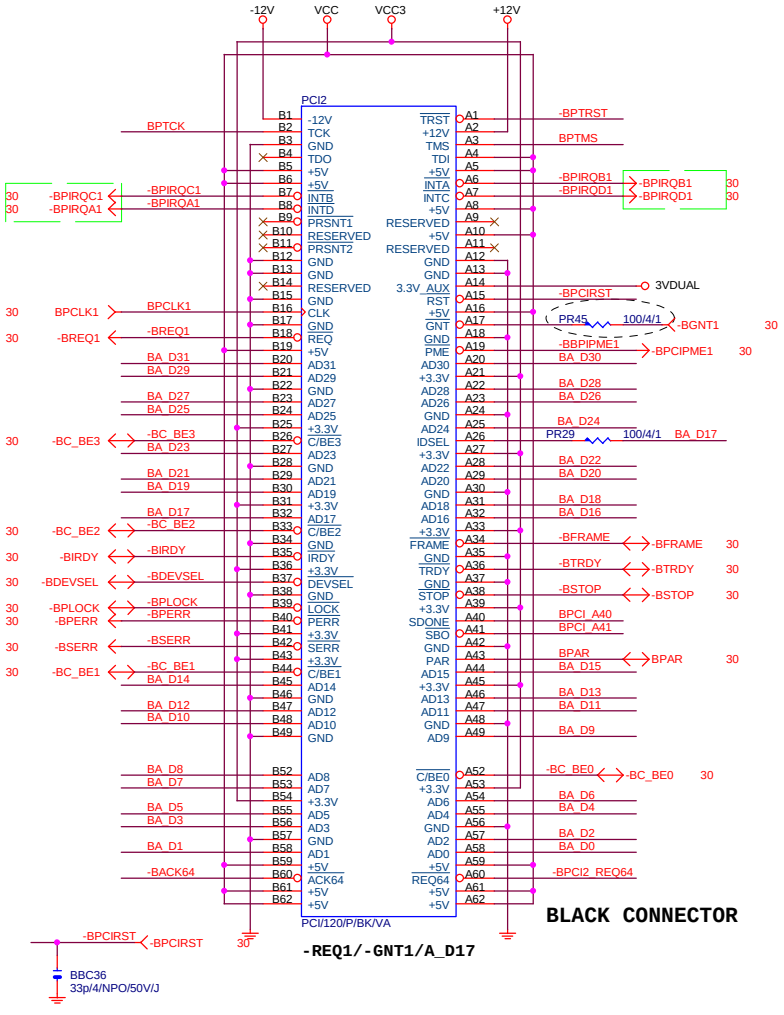


Gigabyte Technology		
Title: PCI EXPRESS X 1 PORT		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 15 of 33	

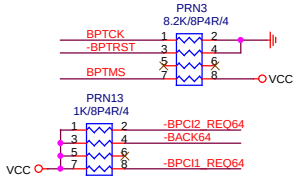
PCI SLOT 1



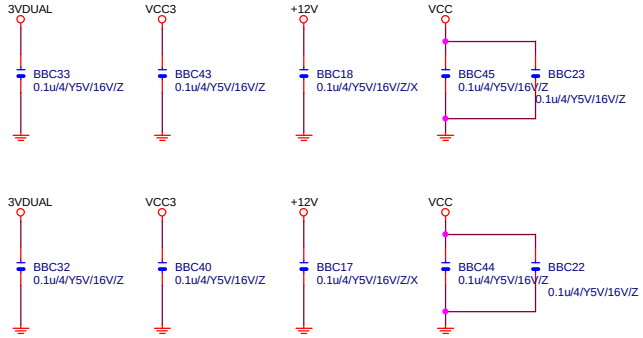
PCI SLOT 2



PCI PU



PCI CAP



Gigabyte Technology		
Title: PCI SLOT 1&2		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 16 of 33	

SIO IT8620

IT8620E_BX

IT8620E/BX/S

PWR SHT

For 8728 EUP function
OR28
3VDUAL_PCH — IT_VCCH
0/4/SHT/M/X

SIO PU

新增

-PCIRSTIN — OR2 8.2K/4 — VCC3
IO_GP25 — OR10 1K/4/X — 3VDUAL_PCH
-PROCHOT_CON — OR13 8.2K/4 — VCC3
N_-LDRQ0 — OR14 1K/4/1 — VCC3
ITE_PWROK1 — OR16 1K/4/1 — VCC3
-PCIE_RST — OR17 1K/4/1 — VCC3
-PFMRST2 — OR18 1K/4/1 — VCC3
19 FANPWM1 — FANPWM1 — OR19 8.2K/4 — VCC

SIO STRAP

H61M-S2 1.1 JP6 stuff
pull down ORN2 1K/8P4R/4

JP4 — VCC3
JP3 — VCC3
JP2 — VCC3
JP5 — OR24 8.2K/4/X — OR25 8.2K/4/X — VCC3

ITE recommand

EUP control by PCH
3VDUAL — OR26 100/4/1 28_3VSB

JP3-- High SPI-Flash Disable
Low SPI-Flash Enable

Power leakage

IT_AVCC
OQ1 2N7002/SOT23/25pF/5
OR9 0/6/X
SOT23
+12V — OR27 8.2K/4/1 — VCC3

For IT8721 Power leakage

DUAL BIOS OPT STRAP

-CASEOPEN — OC6 1u/4/X5R/6.3V/K

CEB_N — OR30 680/4/1/X — OR31 1K/4/1 — VCC3

SIO_18V

internal power pin, max 22nF cap

SIO_18V — OC7 0.1u/4/X7R/16V/K — OC8 0.1u/4/X7R/16V/K/X

MB ID

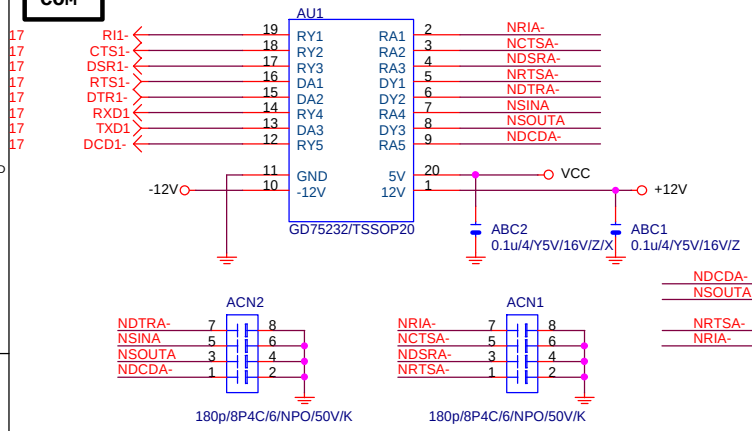
VCC3 — OR28 8.2K/4 — OR29 8.2K/4/X — MB_ID2

SIO CAP

IT_VCCH — OC9 1u/4/X5R/6.3V/K/X — OC10 0.1u/4/Y5V/16V/Z/X
IT_VCCH — OC11 10u/6/X5R/6.3V/M
3VDUAL — OC12 1u/4/X5R/6.3V/K/X
IT_AVCC — OC13 10u/6/X5R/6.3V/M
3VDUAL_PCH — OC14 0.1u/4/Y5V/16V/Z/X
VREF_25 — OC15 0.1u/4/X7R/16V/K

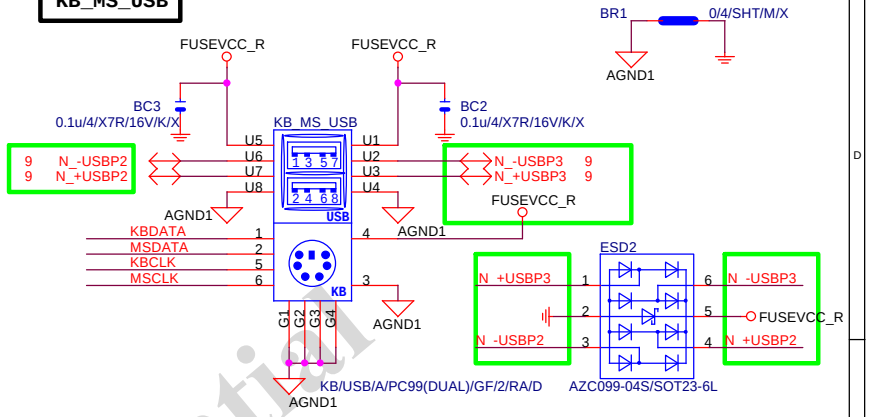
Gigabyte Technology	
Title	SIO IT8620
Size C	Document Number GA-H81M-HD3 Rev 2.0
Date: Thursday, November 27, 2014	Sheet 17 of 33

COM

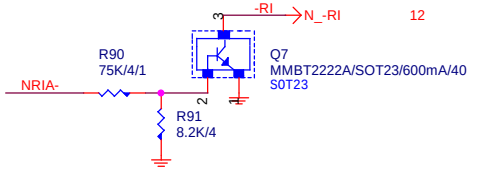


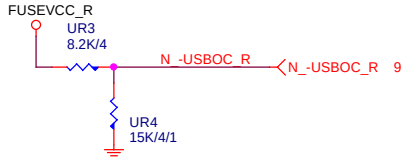
11NH3-000205-Y1R/Y2R

KB_MS_USB



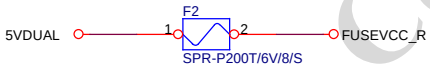
COM RI



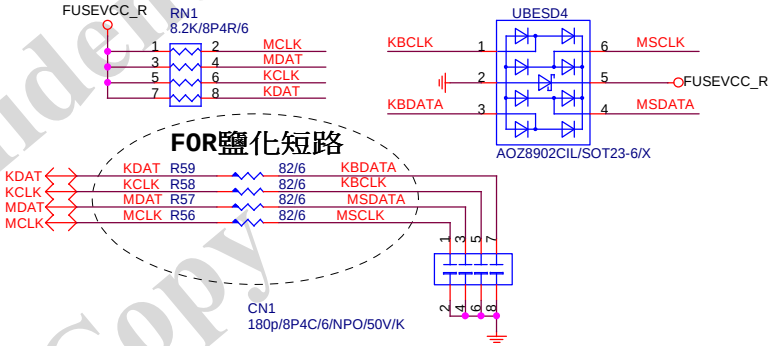


USB POWER

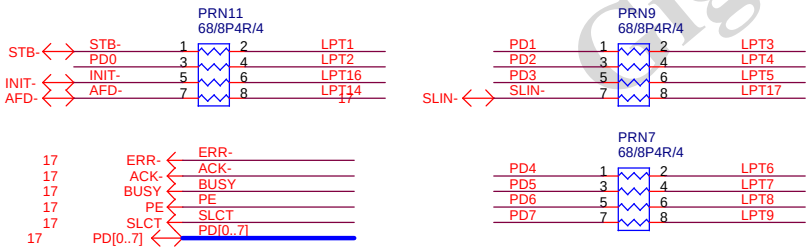
FUSE-0805



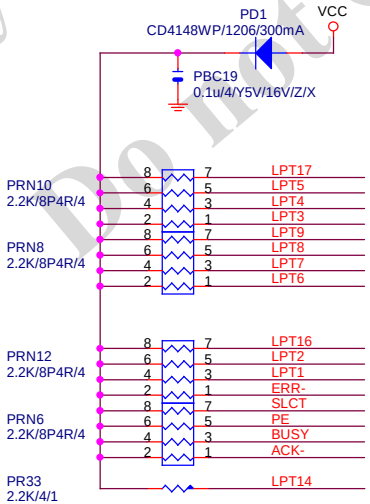
Close to connector

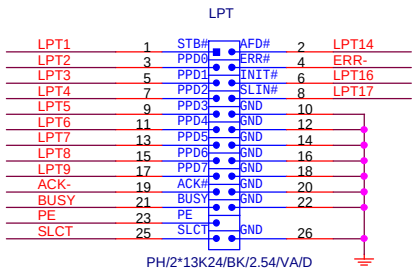


LPT PORT



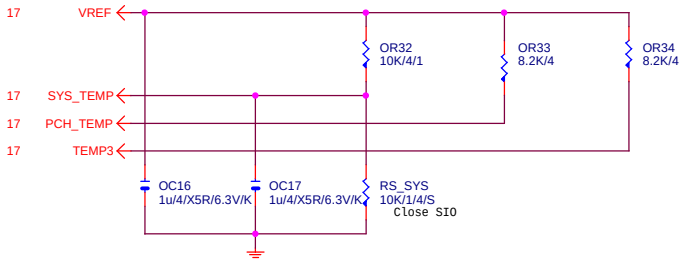
【技術通報R&D技術通報151】
33ohm Change to 68ohm



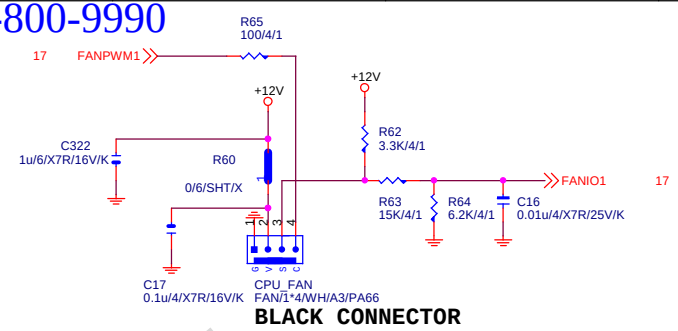


Gigabyte Technology			
Title: COM,-RI,KB_USB,USB_ESATA,-PROCHOT			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014		Sheet 18 of 33	

TEMP H/W MONITOR

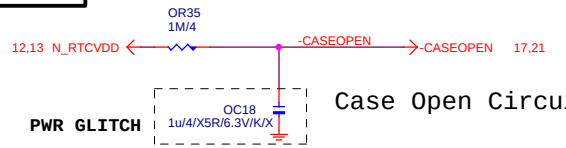


CPU SMART FAN



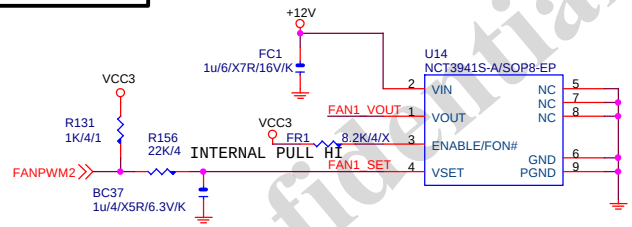
BLACK CONNECTOR

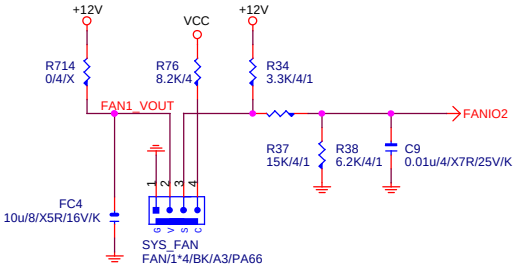
CASE OPEN



Case Open Circuits

SYS SMART FAN



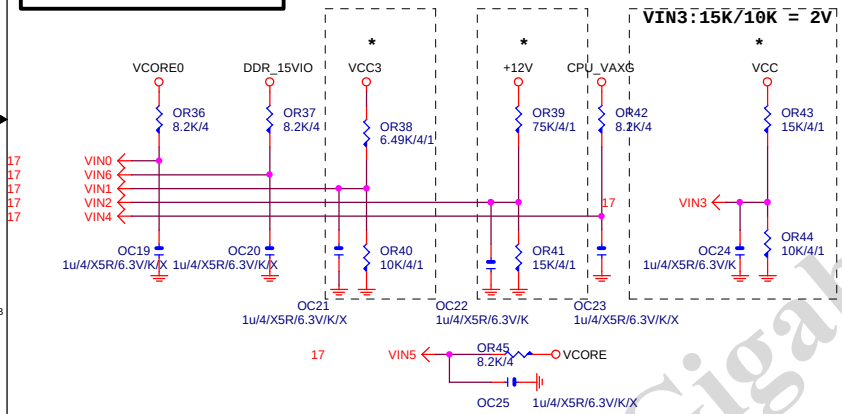


BLACK CONNECTOR

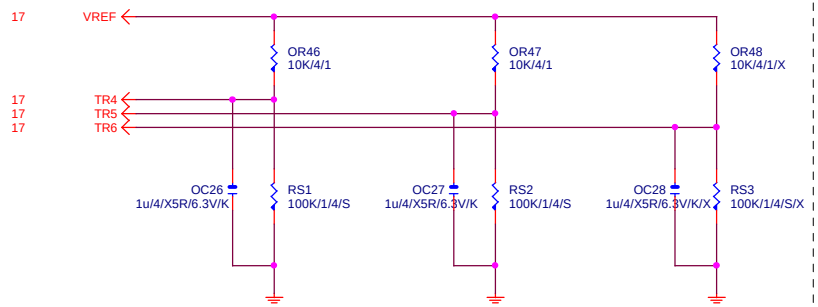
VOLTAGE-- H/W MONITOR

VIN2:75K/15K = 2V

VIN3:15K/10K = 2V



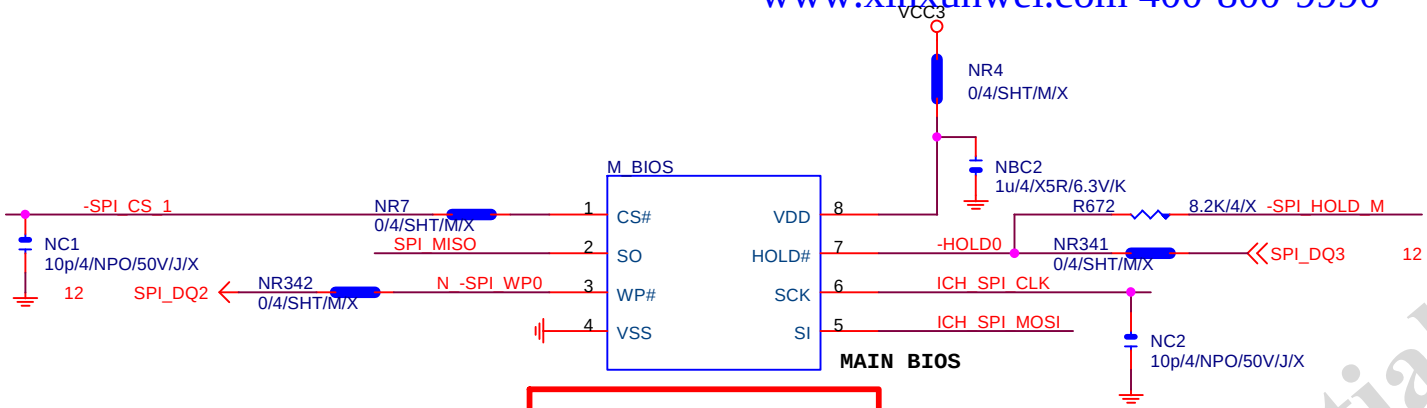
-PROHOT

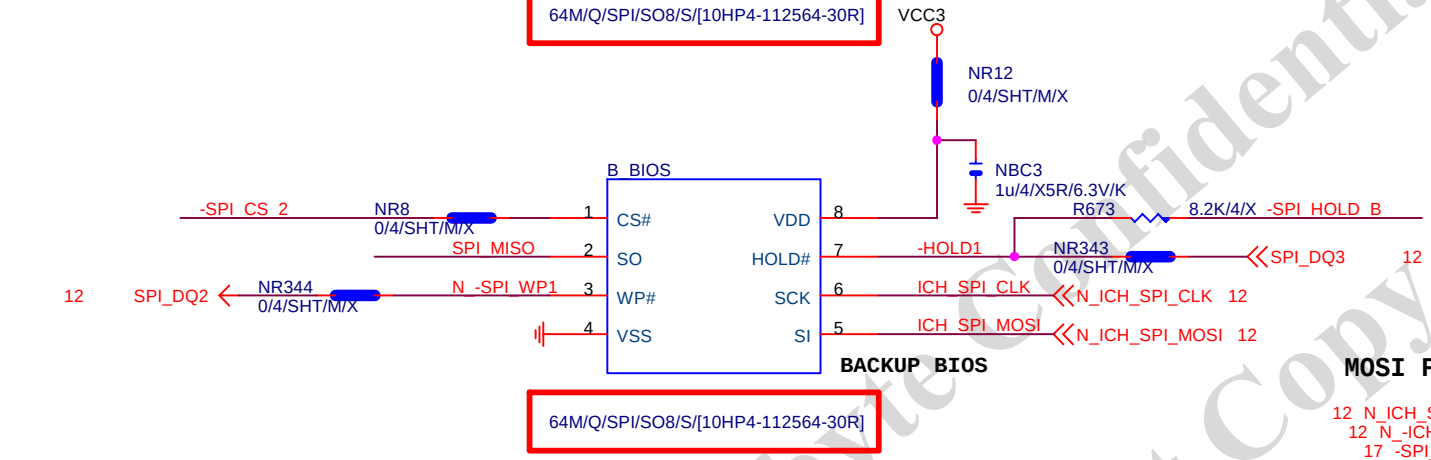


RS1、RS2、RS3 CLOSE CPU VR MOSFET

OV NCT3933

Gigabyte Technology		
Title: HWM,FAN CTRL,OV		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 19 of 33	

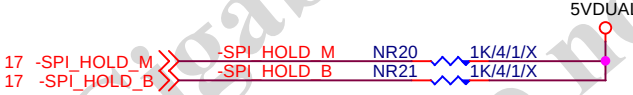


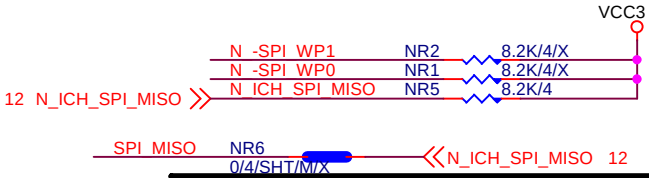


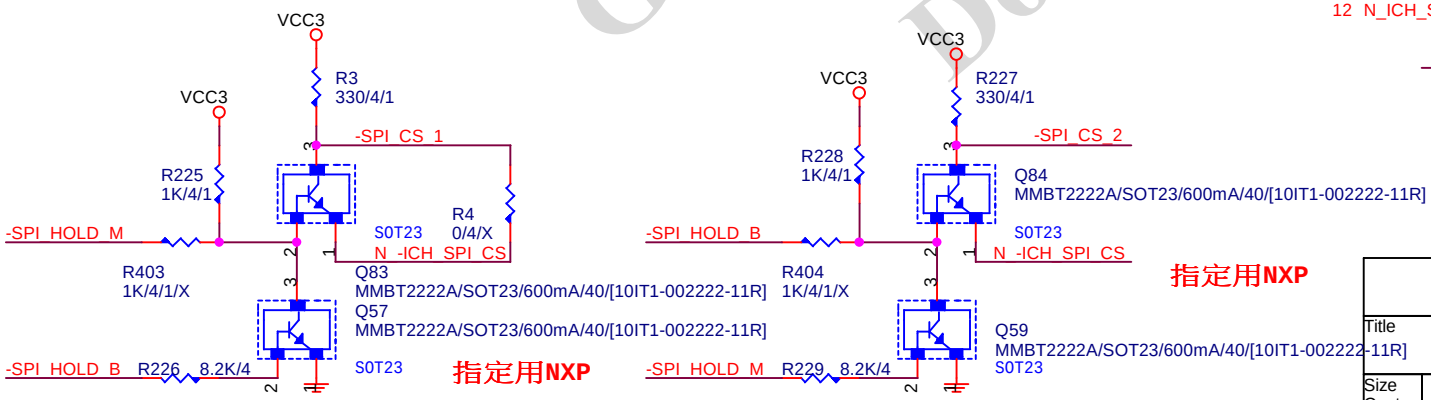
BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

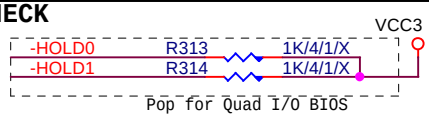
MOSI For DMI RX Termination Voltage







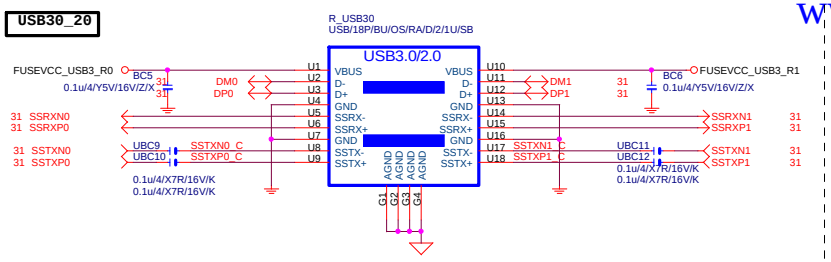
CHECK



Gigabyte Technology

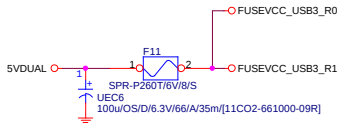
Title	DUAL BIOS		
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 20 of 33		

USB30_20



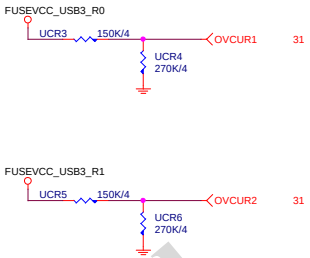
USB30_20 PWR

Polyswitch-1206



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

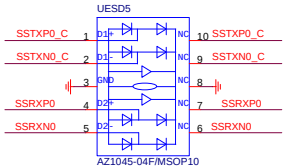
USBOC_R



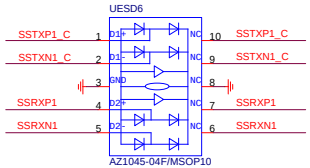
SATA LED

USB30_20 ESD PROCTECT

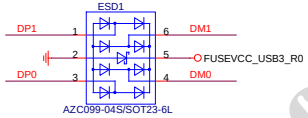
USB3.0 ESD



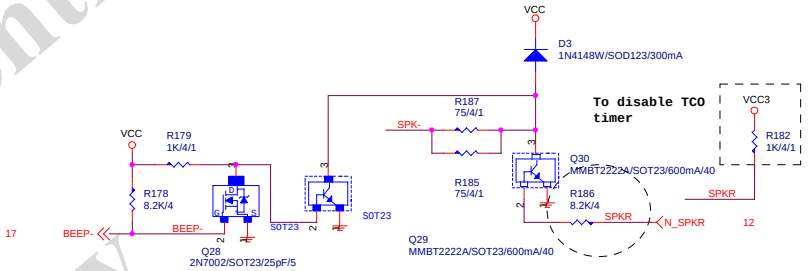
Close to connector



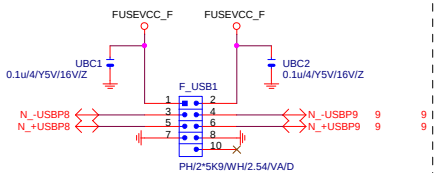
Close to connector



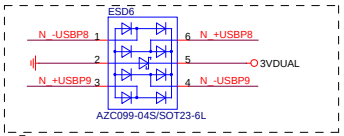
SPKR



FRONT USB1

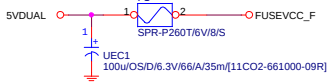


WHITE CONNECTOR



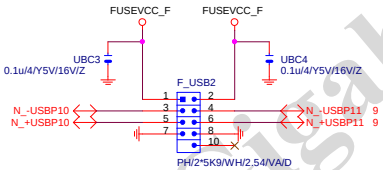
Close to connector

FUSE-0805

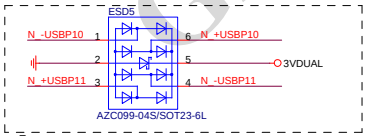


F_USB1, F_USB2 4-Port 2.6A

FRONT USB2



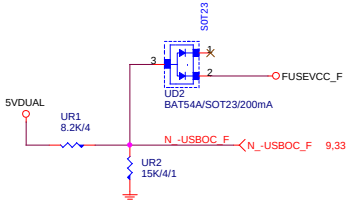
WHITE CONNECTOR



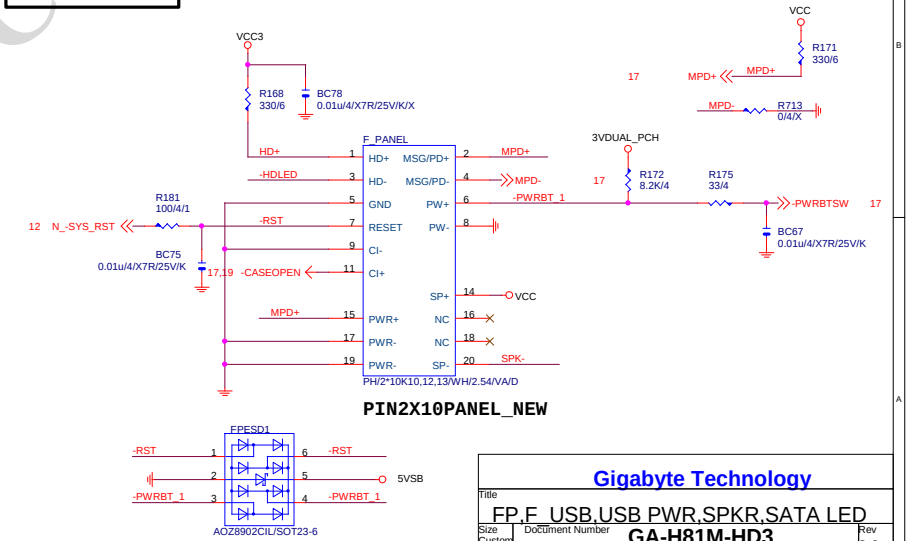
Close to connector

USB POWER PROTECT

-USBOC_F



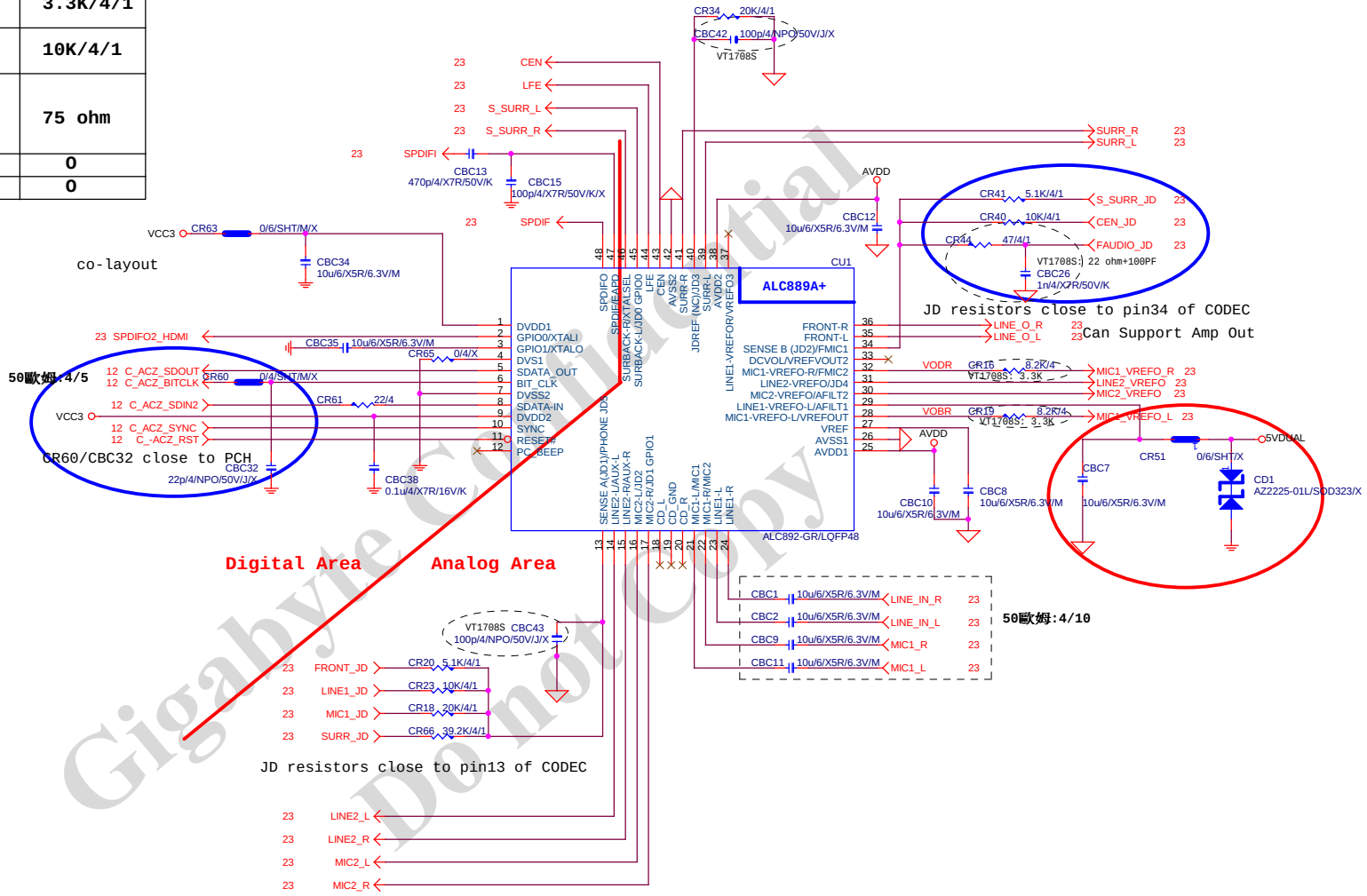
INTEL FRONT PANEL



Gigabyte Technology			
Title: FP,F_USB,USB PWR,SPKR,SATA LED			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 21 of 33		

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

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



GIGABYTE™

Title	HD AUDIO ALC892	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 22 of 33	

CR49 0/6/SHT/M/X → Close F_AUDIO
CR50 0/6/SHT/M/X → Close Codec
CR21 2.2/6 → Audio jack <--> USB_LAN
CR24 0/6/X → Under Audio jack
CR81 0/4/X → Close MH2

DP_HDMI_SPDIFC
FUSEVCC_USB3_R3
22 SPDIF
S1 S2 S3 G1 G2 G3 G4
DP+HDMI+SPDIF/20P+19P+3P/BK/RA :: Location DP_HDMI_SPDIF

22 SPDIFO2_HDMI CR26 0/4/SHT/M/X
CBC14 100p/4/NPO/50V/J
PIN
SPDIF_O
PH/1*2/BK/2.54/VA/D
For HDMI SPDIF

SPDIF_IN
22 SPDIFI
5VDUAL CR77 0/4/SHT/M/X
PH/1*3/BK/2.54/VA/D

AZALIA JACK
BTX AZALIA CONNECTOR
11NR6-403007-21R

AUDIOB
22 LINE1_JD LINE1_JD AJ_A5 AJ_A2
22 FRONT_JD FRONT_JD AJ_B5 AJ_B2
22 MIC1_JD MIC1_JD AJ_C5 AJ_C2
LINE-IN GND LINE-OUT GND MIC-IN GND
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

BLUE LINE-IN
GREEN LINE-OUT
PINK MIC-IN

AUDIOA
22 CEN_JD CEN_JD BJ_B5 BJ_B2
22 SURR_JD SURR_JD BJ_C5 BJ_C2
22 S_SURR_JD S_SURR_JD BJ_A5 BJ_A2
REAR GND CEN GND F0_SIDE GND
2X3RP/26P/OR,BK,GY,BU,GE,PK/RA

Orange CEN/LFE
Black SURROUND
Gray SURROUND SIDE

LINE-OUT

22 LINE_O_R CEC1 100uF/D/10V/6*5/[11CE2-651000-05R] CR5 62/4
22 LINE_O_L CEC2 100uF/D/10V/6*5/[11CE2-651000-05R] CR8 62/4
CR7 22K/4 CR6 22K/4 AJ_B5 AJ_B2
CBC19 180p/4/NPO/50V/J/X CBC24 180p/4/NPO/50V/J/X

LINE-IN

22 LINE_IN_R CR1 62/4 AJ_A5
22 LINE_IN_L CR14 62/4 AJ_A2
CBC20 180p/4/NPO/50V/J/X CBC23 180p/4/NPO/50V/J/X

MIC-IN

22 MIC1_R CR17 62/4 AJ_C5
22 MIC1_L CR22 62/4 AJ_C2
22 MIC1_VREFO_L
22 MIC1_VREFO_R
CBC3 180p/4/NPO/50V/J/X CBC4 180p/4/NPO/50V/J/X

SURROUND

22 SURR_R CEC10 100uF/D/10V/6*5/[11CE2-651000-05R] CR73 62/4
22 SURR_L CEC11 100uF/D/10V/6*5/[11CE2-651000-05R] CR74 62/4
CR67 22K/4 CR68 22K/4 BJ_C5 BJ_C2
CBC44 180p/4/NPO/50V/J/X CBC45 180p/4/NPO/50V/J/X

CEN/LFE

22 LFE CEC12 100uF/D/10V/6*5/[11CE2-651000-05R] CR75 62/4
22 CEN CEC13 100uF/D/10V/6*5/[11CE2-651000-05R] CR76 62/4
CR69 22K/4 CR70 22K/4 BJ_B5 BJ_B2
CBC46 180p/4/NPO/50V/J/X CBC47 180p/4/NPO/50V/J/X

SURR BACK

22 S_SURR_R CEC14 100uF/D/10V/6*5/[11CE2-651000-05R] CR79 62/4
22 S_SURR_L CEC15 100uF/D/10V/6*5/[11CE2-651000-05R] CR80 62/4
CR71 22K/4 CR72 22K/4 BJ_A5 BJ_A2
CBC48 180p/4/NPO/50V/J/X CBC49 180p/4/NPO/50V/J/X

AZALIA FRONT PANEL

CQ4 BAT54A/SOT23/200mA SOT23
22 LINE2_VREFO
CQ2 BAT54A/SOT23/200mA SOT23
22 MIC2_VREFO
VT1708S :3.3K
8.2K/8P4R/4
CRN1

EMI
22 MIC2_L CBC6 10u/6/X5R/6.3V/M CR13 62/4 M2_L
22 MIC2_R CBC5 10u/6/X5R/6.3V/M CR11 62/4 M2_R
22 FAUDIO_JD L2_R CR57 62/4 L2-R
L2_L CR53 62/4 L2-L
CR12 0/4/X

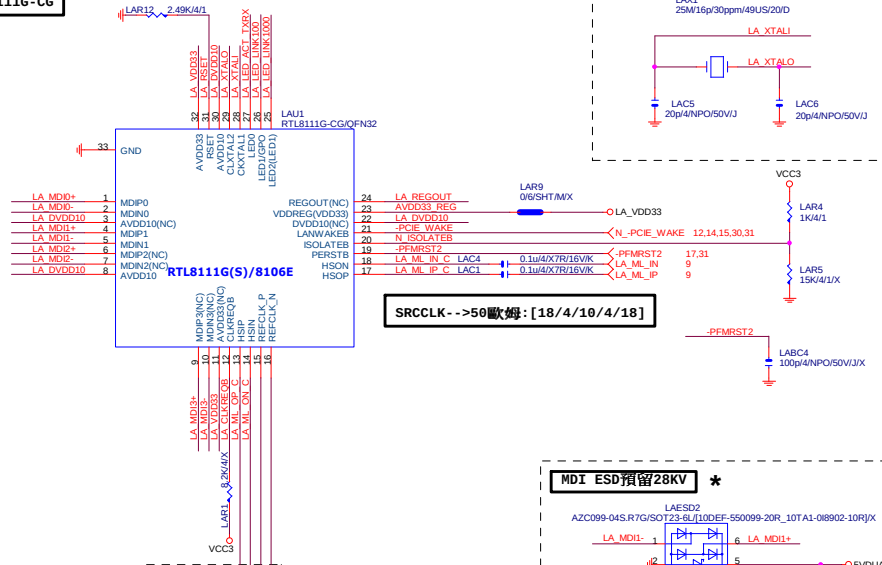
22 LINE2_R CEC9 100uF/D/10V/6*5/[11CE2-651000-05R] L2_R
22 LINE2_L CEC6 100uF/D/10V/6*5/[11CE2-651000-05R] L2_L

CR58 22K/4 CR54 22K/4
F_AUDIO
VCC3
CR78 8.2K/4/X
CR55 20K/4/1
CR59 39.2K/4/1
PH/2*5K8/GED/2.54/VA/D/[11NH2-000205-K1R]
CBC30 CBC29 CBC37 CBC36 180p/4/NPO/50V/J/X

GIGABYTE™

Title	AUDIO JACK	
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 23 of 33	

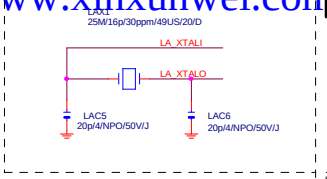
LAN RTL8111G-CG

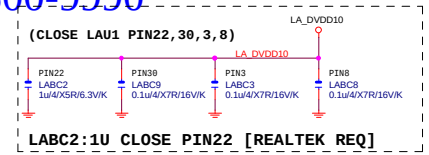


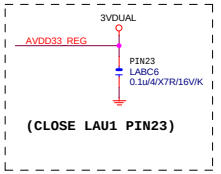
SRCCLK-->50歐姆:[18/4/10/4/18]

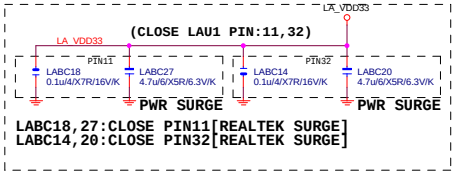
LA_ ML-->80歐姆:[15/5/5/5/15]

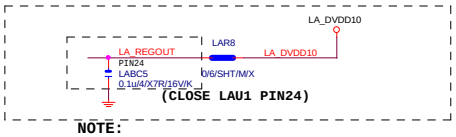
LAN POWER





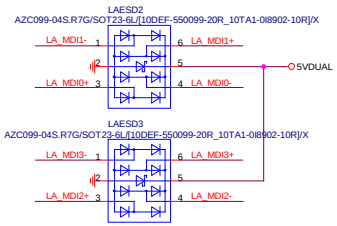






NOTE:
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

MDI ESD預留28KV *



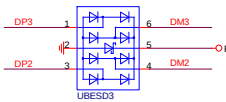
BOM NOTICE *

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

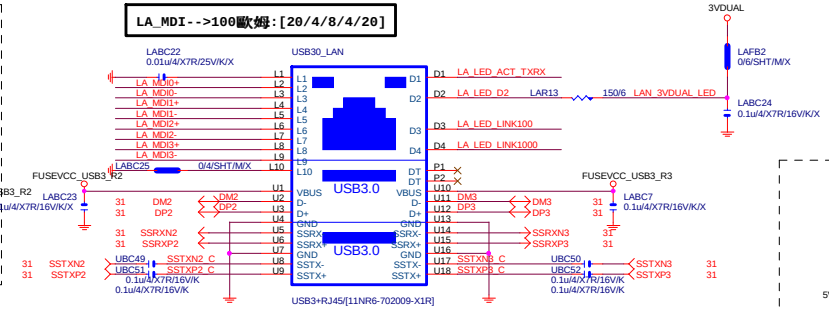
USB_LAN CONNECTOR

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]



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

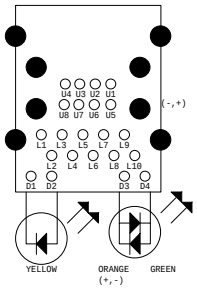
BOM NOTICE *

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]		

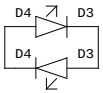
1. 9KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
2. 28KV ESD BOM:
USB_LAN (RU9):11NR6-702009-96R
LAESD2,LAESD3:上件AZC398-04S

EMI SHORT PAD

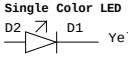
PS:視EMI需求



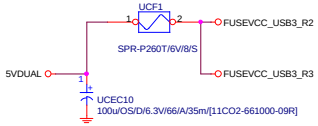
Dual Color LED



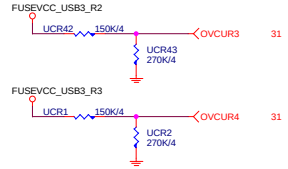
Single Color LED

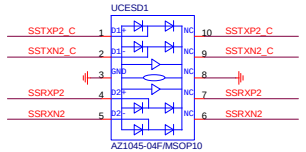


Polyswitch-1206

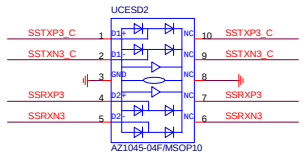


USB3.0 1Port - 1Fuse (3.5A)





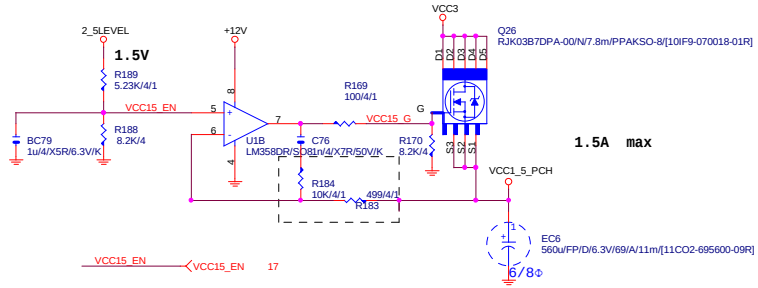
Close to connector



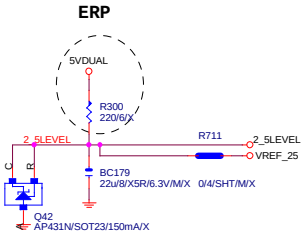
Close to connector

Gigabyte Technology		
Title: Realtek RTL8111G		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 24 of 33	

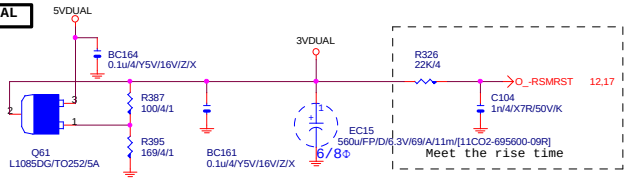
VCC1_5_PCH



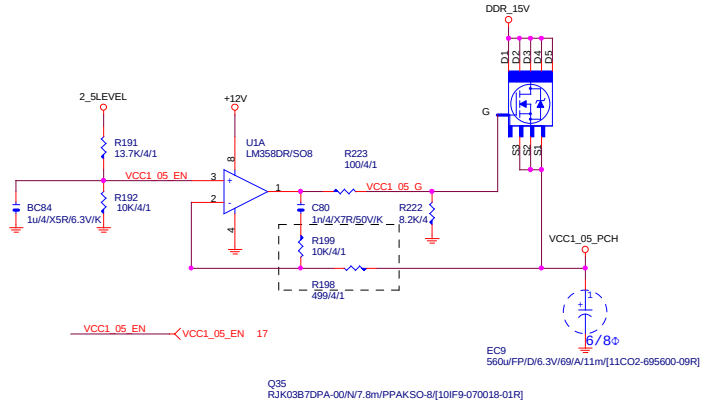
2_5LEVEL



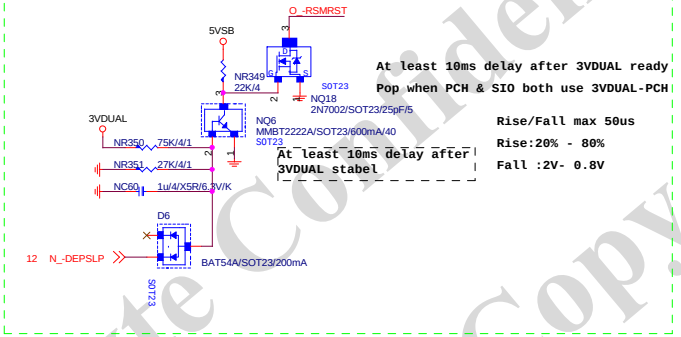
3VDUAL



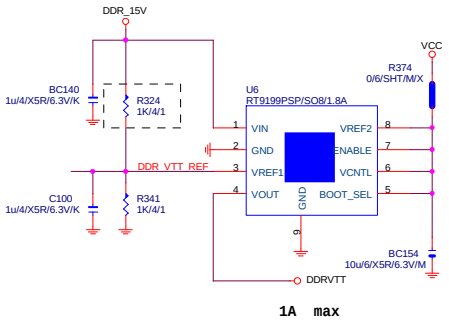
VCC1_05_PCH



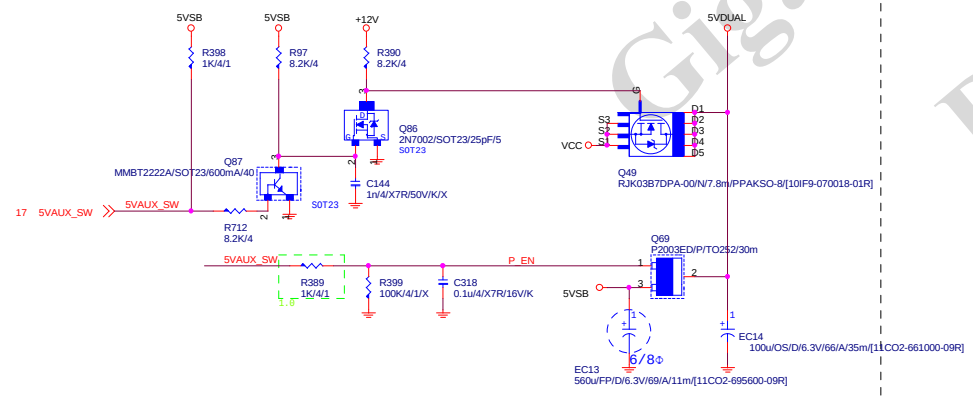
1.0



DDRVTT



5VDUAL



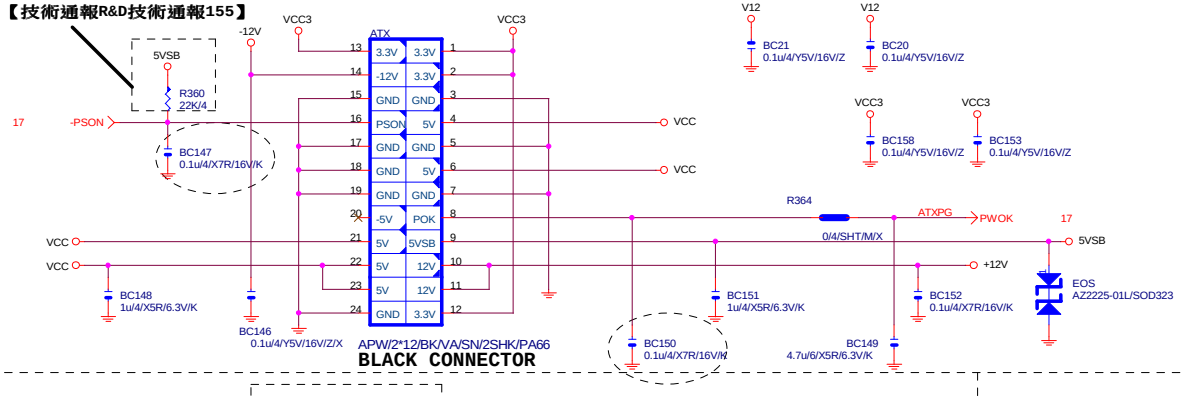
5VDUAL SHORT PROTECT

5VSB OVP:7.5V protection

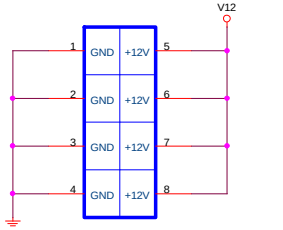
Gigabyte Technology		
Title: DISCRETE POWER		
Size: Custom	Document Number: GA-H81M-HD3	Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 25 of 33	

ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】

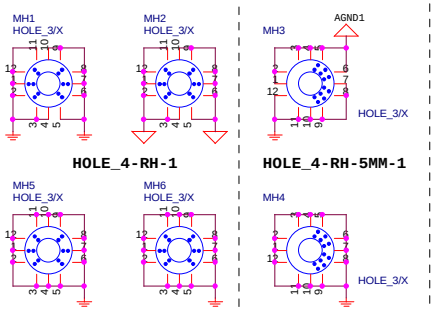


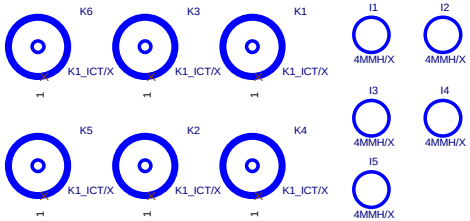
ATXX4 POWER CONNECTOR



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

BLACK CONNECTOR

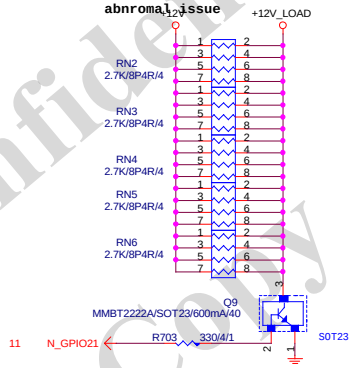




To prevent the 5VSB under loading when boot

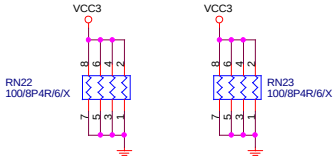
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



PWOK PATCH

【技術通報R&D技術通報154】



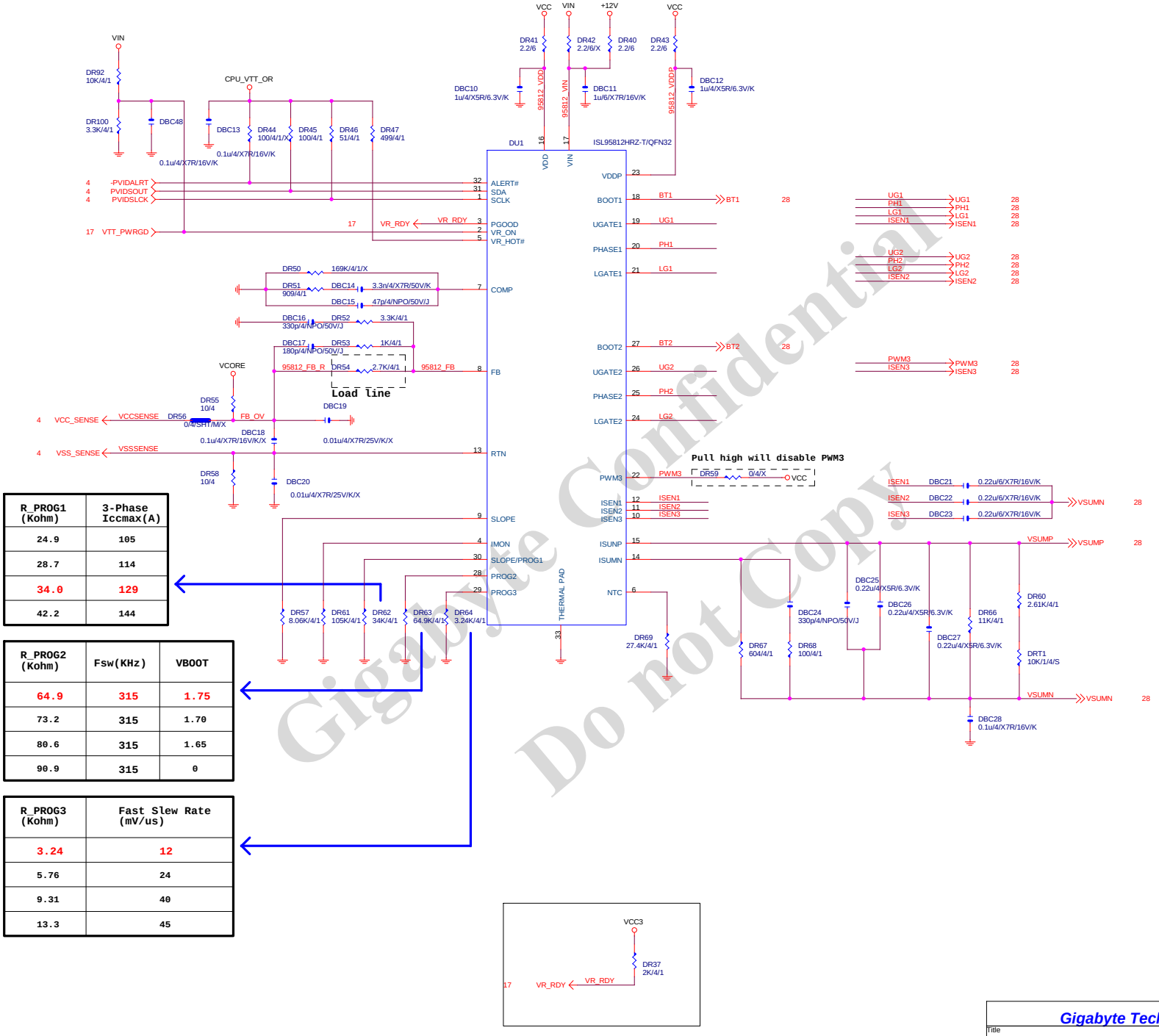
FIX PWR MINMUN LOAD

Gigabyte Technology

Title: ATX CONNECTOR

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

Date: Thursday, November 27, 2014 | Sheet 26 of 33



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

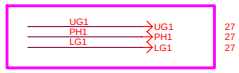
Gigabyte Technology

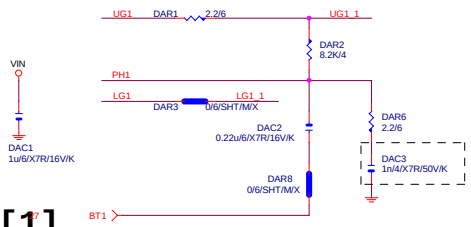
Title: CPU CORE VR-1

Size: Custom | Document Number: GA-H81M-HD3 | Rev: 2.0

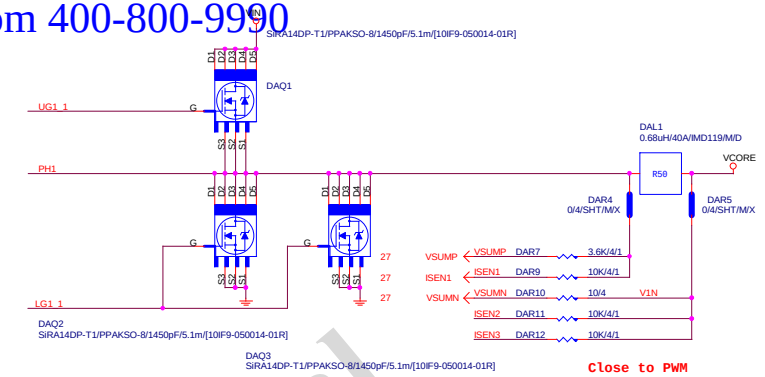
Date: Thursday, November 27, 2014 | Sheet 27 of 33

PHASE 1



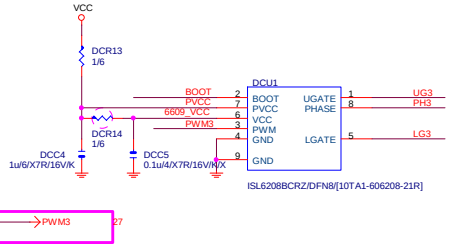


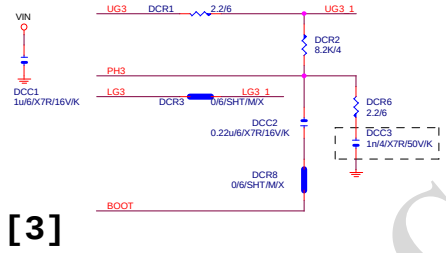
[1]



Close to PWM

PHASE 3





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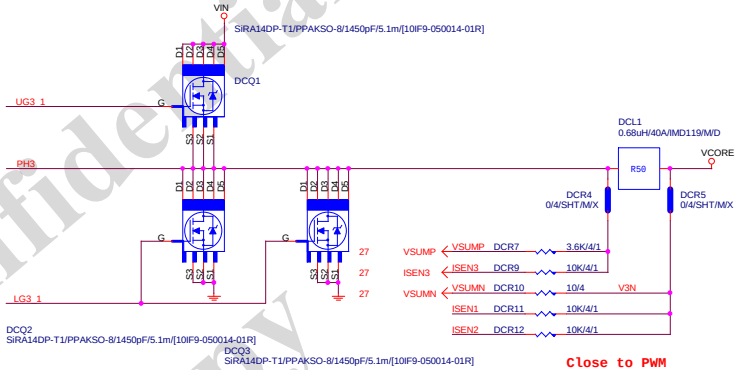
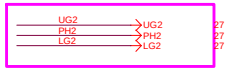
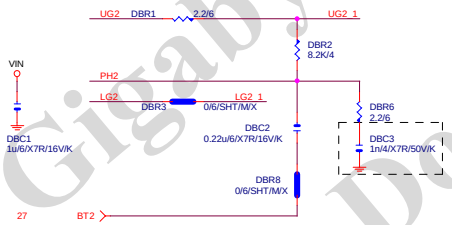


Close to PWM

PHASE 2





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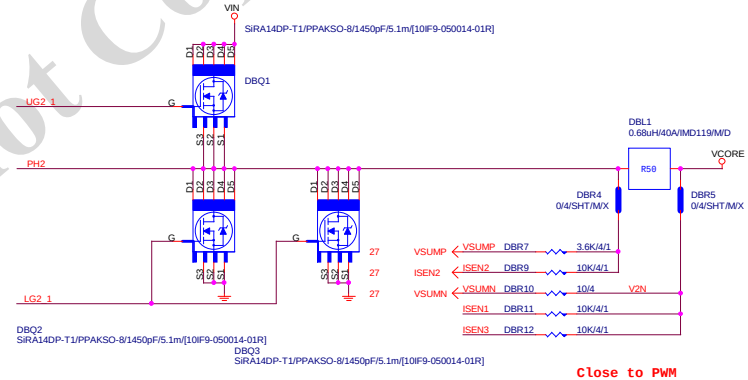
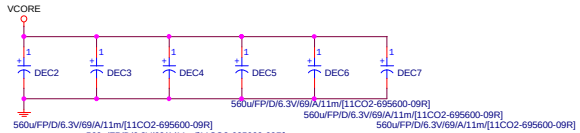
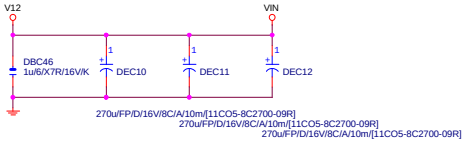


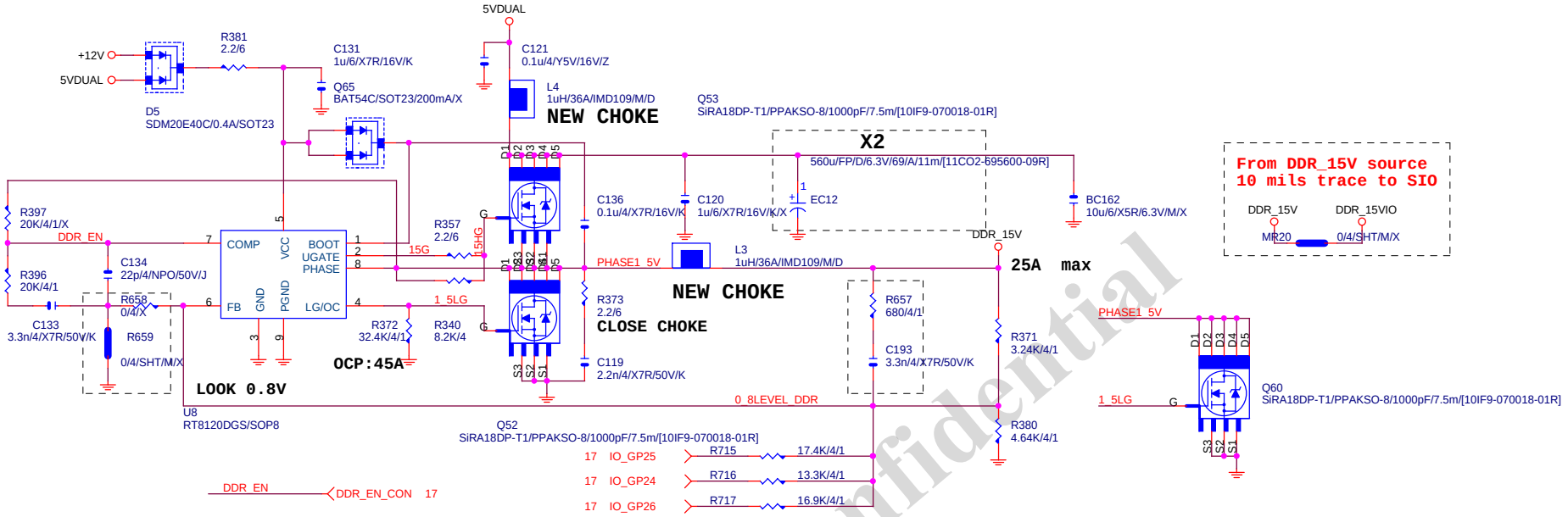
Close to PWM





Gigabyte Technology			
Title: CPU CORE VR-2			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 28 of 33		

DDR15V



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			
Title: RT8120_DDR POWER			
Size: Custom	Document Number: GA-H81M-HD3		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 29 of 33		

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

IT8892

PCI slot

PCI slot

chipset side

IT8892E/BX LQFP128

IT8892E/FX/S

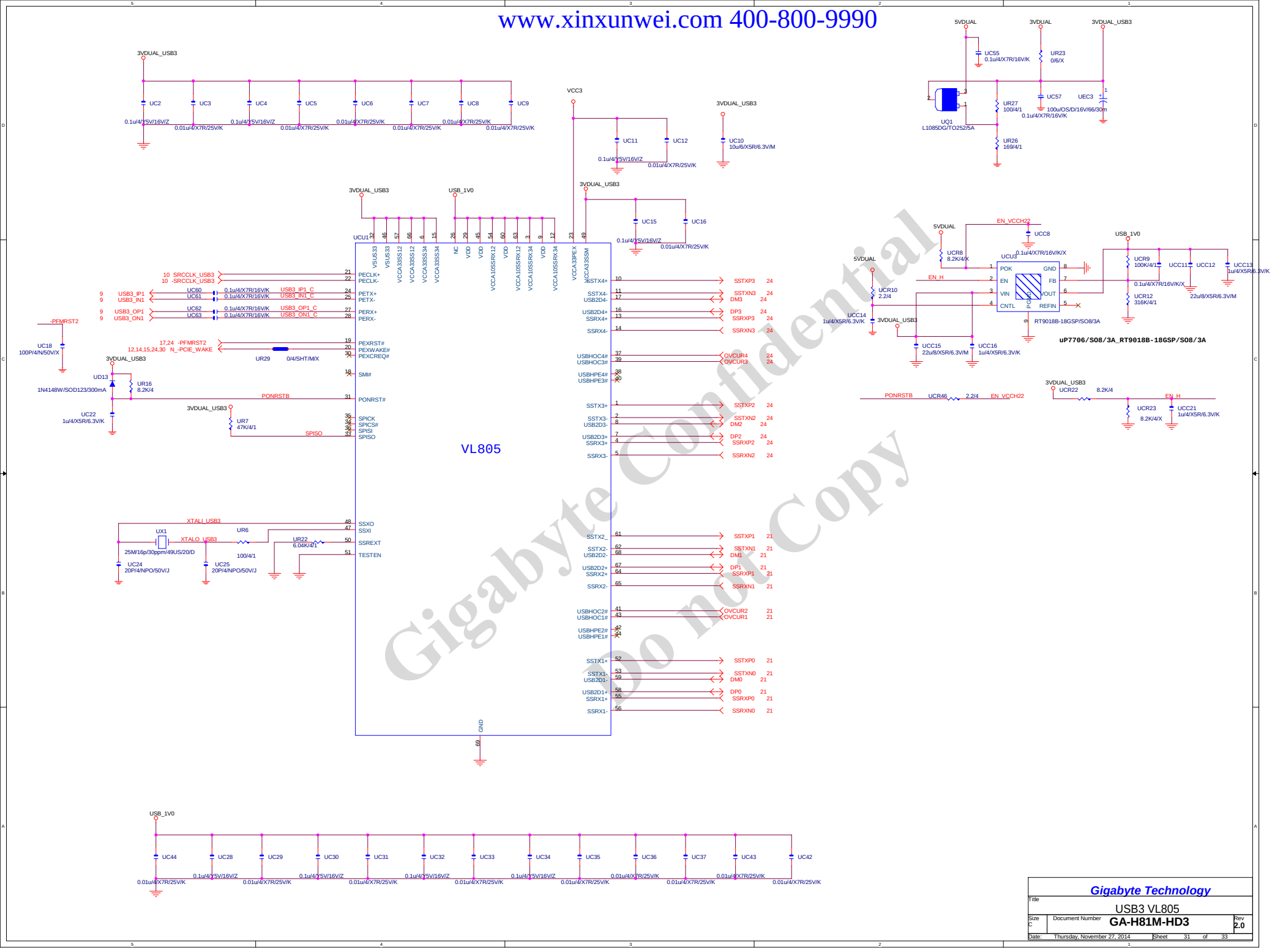
PCB layout note:
Close to chip

PCB layout note:
Close to chip

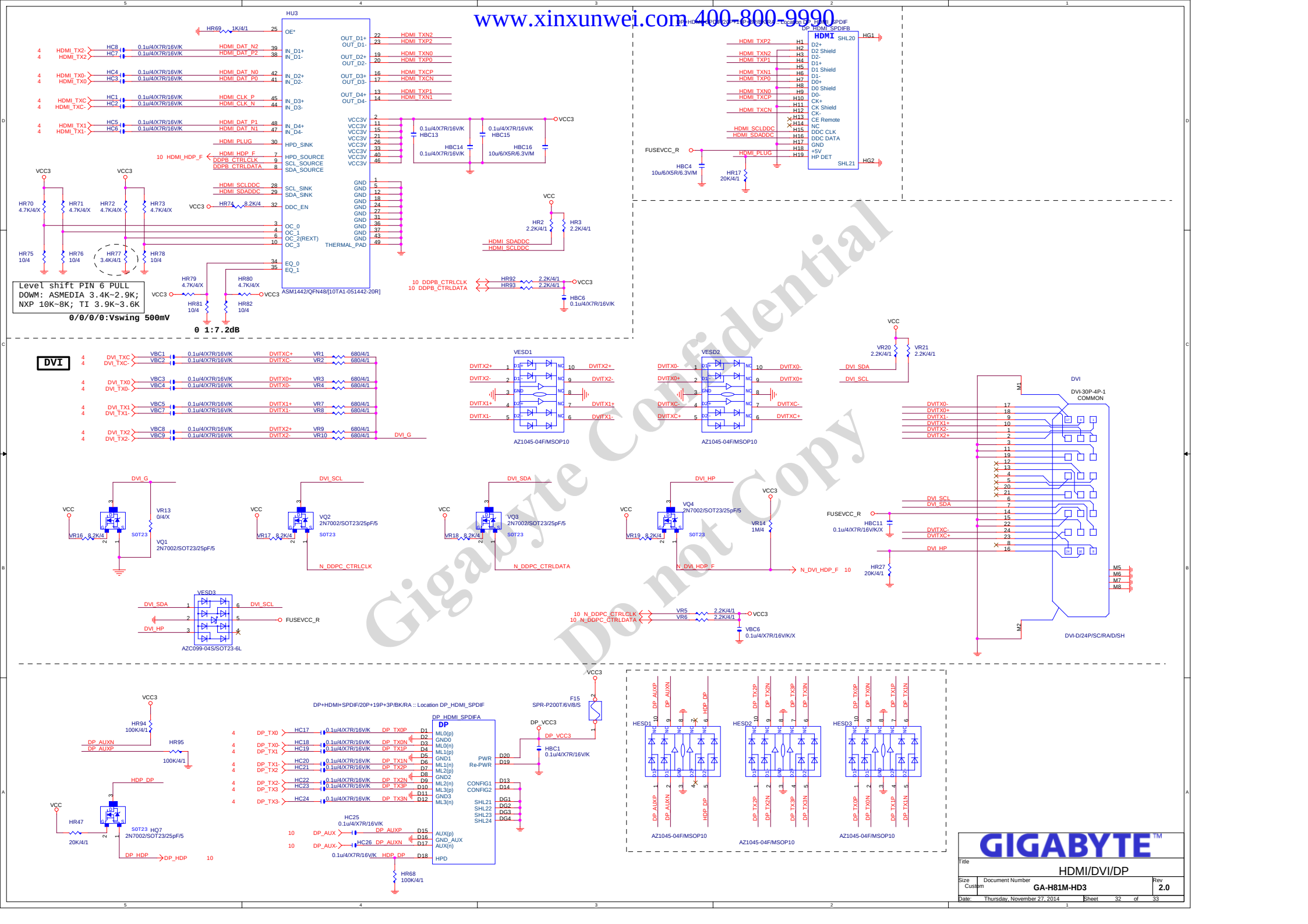
Close to chip

Title	ITE IT8892E
Size	Custom
Document Number	GA-H81M-HD3
Rev	2.0
Date:	Thursday, November 27, 2014
Sheet	30 of 33

Gigabyte Technology

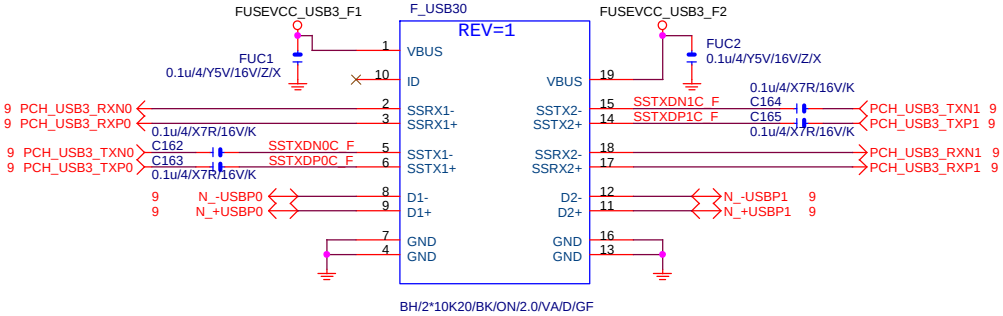


Gigabyte Technology	
Title	USB3 VL805
Size C	Document Number GA-H81M-HD3 Rev 2.0
Date: Thursday, November 27, 2014	Sheet 31 of 33



Title	HDMI/DVI/DP
Size	Custom
Document Number	GA-H81M-HD3
Rev	2.0
Date:	Thursday, November 27, 2014
Sheet	32 of 33

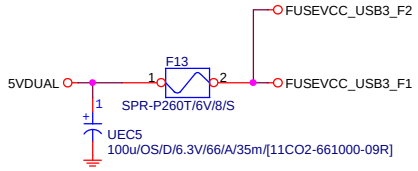
F_USB30



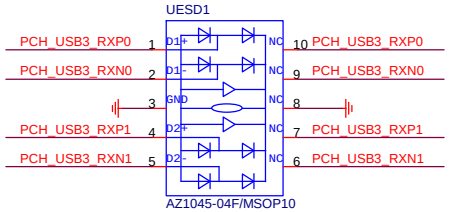
BLACK CONNECTOR

F_USB30 PWR

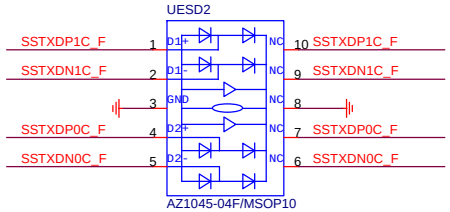
Polyswitch-1206



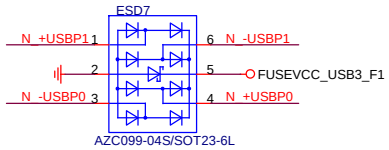
USB3.0 1Port - 1Fuse (3.5A)



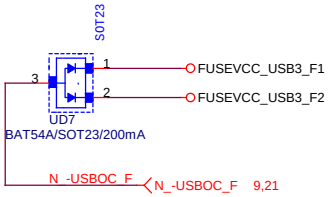
Close to connector



Close to connector



Close to connector



Gigabyte Technology			
Title: F_USB30			
Size: B	Document Number: **GA-H81M-HD3**		Rev: 2.0
Date: Thursday, November 27, 2014	Sheet 33 of 33		